WHITE PETERSON

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December 7, 2023

To: Planning and Zoning Commissioners
City of Ketchum
Delivered via meeting packet

From: Matthew Johnson, City Attorney

Re: Administrative Appeal Process – 121 Badger Lane

Background:

This is an administrative appeal to the P&Z Commission of a determination by the Planning Director on a Floodplain Development Permit. The appeal was filed by nearby property owners Nicholas and Stephanie Osborne, represented by Gary Slette of Robertson & Slette. Applicant 121 Badger Lane, LLC, has responded to the appeal and is represented by Franklin Lee and Danielle Strollo of Givens Pursley.

The matter generally concerns the floodplain development permit review process, in particular staff interpretations and application of permit criteria. The details of these issues are presented in the memoranda presented by the parties.

Procedural Status:

This is an administrative appeal of decisions or determinations of the Planning Director, as is provided for in Ketchum Municipal Code §17.144.010. This matter was scheduled by the City Attorney, along with approving deadlines for submission of memorandum, by agreement of the parties involved and approval of the Commission. All three memoranda – (1) Appeal by Appellant, (2) Response by Applicant/Respondent, (3) Reply by Appellant - have been timely submitted and are provided for the Commission's review.

From a process perspective, the Commission can focus its review primarily on those memoranda and their arguments. The Council is reviewing these arguments and addressing interpretation questions in a quasi-judicial role. The remainder of any accompanying documents are the Record, which may include application documents, minutes, staff reports, etc., and are available primarily as resources or for purposes of reference within arguments to evaluate the factual background.

This is an administrative appeal hearing. Oral arguments will be presented by the attorneys for the involved parties. The presenting parties and supporting staff will be available for questions. This is not a public hearing and there is no public comment as part of the process. Comments or input to Commissioners outside the appeal hearing are discouraged, and if any is received should be disclosed by that Commissioner at the start of the hearing.

During the hearing, the Commission, at its discretion, is welcome to ask questions of staff

or the parties as may be helpful to deliberation. It is encouraged to handle most questions for a party during their portion of the hearing. The order of presentation will be Appellant, Applicant/Respondent, Director if desired, and then an Appellant rebuttal if desired. Any further presentation or answers to questions will be at the discretion of the Commission.

Standard of Review:

Since the Commission does not hear administrative appeals frequently, a common question when they do arise is as to the applicable standard of review. Standard of review is a legal term guiding the discretion (or not) of the review and decision with respect to use of the Record and in particular in whether or not to consider new additional information.

In this situation, it is important for the Commission to understand the standard of review as defined in KMC §17.144.010(C):

Authority of Commission. Upon hearing the appeal, the Commission shall consider the record, the order, requirement, decision or determination of the administrator and the notice of appeal, together with oral presentation and written legal arguments by the appellant and the administrator. The Commission shall not consider any new facts or evidence at this point. The Commission may affirm, reverse or modify, in whole or in part, the order, requirement, decision or determination of the administrator.

While arguments, per the memoranda of the parties, are considered, there should not be new factual information considered or weighed that was not part of the Record below.

Decision Options:

As indicated in the last sentences of KMC §17.144.010(C) – see above – upon review and deliberation, the Commission may decide from the following on the underlying Director decision: affirm, reverse, modify in whole or in part, and/or remand the application back to the Director with direction.

Per KMC §17.144.010(D), the Commission must issue a written decision within 30 days of this hearing. Typically, the Commission will indicate a decision, or at least direction, for legal counsel to prepare a full draft written decision for final approval and decision at a future meeting within that 30-day time period.

I will be present for the hearing and available to assist in the proceedings as is helpful.

City of Ketchum

ATTACHMENT A:

Building Permit Application

4/25/2023 2:30:00 PM

121 BADGER LANE

BUILDING PERMIT SUBMITTAL

PROJECT DESCRIPTION

SINGLE FAMILY RESIDENCE:
MAIN HOUSE DWELLING WITH IN-GROUND SPA; ACCESSORY DWELLING UNIT WITH IN-GROUND POOL AND SPA.

SCOPE OF WORK INCLUDES:
NEW CONSTRUCTION OF FOUNDATION, STRUCTURAL, CIVIL, LANDSCAPING, AND HARDSCAPING.

PROJECT ADDRESS

121 BADGER LANE
KETCHUM, ID 83340

LEGAL DESCRIPTION

PARCEL 4, ROCKING RANCH SUB #2 (LOCATED WITHIN SECTION 13, T.4 N., R.17 E., B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO)

PROJECT DATA

PARCEL #: RPK05130000040
PARCEL AREA: 1.09 ACRES PER SURVEY (47,480 SF)
ZONING DISTRICT: LR- LIMITED RESIDENTIAL DISTRICT
FLOODPLAIN OVERLAY DISTRICT: YES
AVALANCHE OVERLAY DISTRICT: NO
MOUNTAIN BOUNDARY: NO

OCCUPANCY: R-3 - SINGLE FAMILY DWELLING
CONSTRUCTION TYPE: TYPE V
ZONING HEIGHT LIMIT: 35'
IFC HEIGHT LIMIT: 30' (SEE SHEET G-011)
STORIES: 2
SETBACKS: 15' FRONT, 20' REAR, GREATER OF 1' FOR EVERY 2' OF BUILDING HEIGHT OF 10' SIDE

PARKING: 2 REQ'D PER DWELLING UNIT
AUTOMATIC SPRINKLER SYSTEM REQ'D: YES ; NFPA 13D

MAX BUILDING COVERAGE (LR ZONE): 35%
PROPOSED BUILDING COVERAGE: 21% (SEE SHEET G-010) 1

PROPOSED DEVELOPMENT

PROPOSED GROSS FLOOR AREA

MAIN HOUSE- LEVEL 01	= 5,450 SF
MAIN HOUSE- LEVEL 02	= 3,900 SF
TOTAL	= 9,350 SF
ADU- LEVEL 01	= 1,411 SF
ADU- LEVEL 02	= 945 SF
TOTAL	= 2,356 SF

PROPOSED UNCONDITIONED FLOOR AREA

MAIN HOUSE- GARAGE	= 1,105 SF
MAIN HOUSE- MECH	= 508 SF
ADU- GARAGE	= 530 SF
ADU- MECH	= 292 SF

PROPOSED CONDITIONED FLOOR AREA

MAIN HOUSE- CONDITIONED	= 7,737 SF
ADU - NET LIVABLE (PER CoK)	= 1,193 SF *SEE SHEET G-012*
ADU - CONDITIONED	= 1,534 SF

PROPOSED COVERED PORCH / PATIO:

MAIN HOUSE FRONT DECK	= 907 SF
ADU LEVEL 02 BALCONY	= 142 SF

PROPOSED UNCOVERED PORCH / PATIO:

MAIN HOUSE REAR DECK	= 1,388 SF
ADU POOL DECK	= 658 SF
ADU LEVEL 02 ROOF DECK	= 240 SF

ACCESSORY DWELLING UNIT - NET LIVABLE AREA

(SEE SHEET G-012 FOR AREA CALCULATION FOR ADU- NET LIVABLE SF)

PROPOSED NET LIVABLE FLOOR AREA- ADU

ADU- LEVEL 01	= 621 SF
ADU- LEVEL 02	= 572 SF
TOTAL	= 1,193 SF
ADU- GARAGE	= 495 SF

APPLICABLE CODES:

ALL CONSTRUCTION SHALL COMPLY WITH:

2018 INTERNATIONAL BUILDING CODE*
2018 INTERNATIONAL RESIDENTIAL CODE*
2018 INTERNATIONAL FIRE CODE WITH LOCAL AMENDMENTS*
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTERNATIONAL SWIMMING POOL AND SPA CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2018 INTERNATIONAL PROPERTY MAINTENANCE CODE

*AS AMENDED BY THE IDAHO BUILDING CODE BOARD AND INCLUDING NOTED APPENDICES.

NATIONAL GREEN BUILDING STANDARD [SILVER CERTIFICATION]
TITLE 15 KETCHUM MUNICIPAL CODE
APPENDIX M OF THE IBC AS AMENDED BY THE CITY OF KETCHUM

ALL APPLICABLE COUNTY ORDINANCES
CONTRACTOR SHALL KEEP A COPY OF THE ABOVE CODE SECTIONS ON THE JOB SITE AT ALL TIMES.

JURISDICTIONAL AGENCY SHALL BE THE KETCHUM BUILDING DEPARTMENT.

NOTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DRAWINGS, CALCULATIONS, GOVERNMENTAL AGENCY APPROVALS AND FEES TO COMPLETE THIS WORK. CONTRACTOR/SUBCONTRACTORS SHALL SUBMIT MECHANICAL, ELECTRICAL, COMMUNICATIONS AND PLUMBING DRAWINGS TO RO ROCKETT DESIGN FOR PREVIEW OF DEVICE TYPES, LOCATIONS AND QUANTITIES, HVAC ZONING/THERMOSTAT LOCATIONS, ETC. PRIOR TO SUBMITTING FOR PERMIT AND CONSTRUCTION.

VICINITY MAP

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

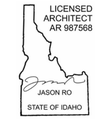
CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:



NO	DATE	ISSUE
1	05.02.23	PERMIT REVIEW- REV 1
0	02.28.23	BUILDING PERMIT SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
COVER SHEET

DRAWING NUMBER:
G-000

NOT FOR CONSTRUCTION

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ISSUED ●
REVISED/ REISSUED ◒

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BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
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1031 W. MANCHESTER BLVD, UNIT 6
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TWIN FALLS, ID 83301
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GEOTECHNICAL ENGINEER:
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EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
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BOZEMAN, MT 59715
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270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
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121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
SHEET INDEX

DRAWING NUMBER:
G-001

POWER & COMMUNICATION

SEE SYMBOLS KEY FOR ADDITIONAL INFORMATION

- WALL-MOUNTED DUPLEX RECEPTACLE
- FLOOR-MOUNTED DUPLEX RECEPTACLE
- WALL-MOUNTED DOUBLE-DUPLEX RECEPTACLE
- FLOOR-MOUNTED DOUBLE-DUPLEX RECEPTACLE
- WALL-MOUNTED SIMPLEX RECEPTACLE
- WALL-MOUNTED SPECIAL RECEPTACLE
- WALL-MOUNTED RECESSED CLOCK-HANGER RECEPTACLE
- WALL-MOUNTED POWER CONNECTION TO WORKSTATION
- FLOOR-MOUNTED POWER CONNECTION TO WORKSTATION
- WALL-MOUNTED ELECTRICAL JUNCTION BOX
- FLOOR-MOUNTED ELECTRICAL JUNCTION BOX
- PULLBOX
- TRANSFORMER
- DISCONNECT SWITCH
- POWER PANEL
- WALL-MOUNTED COMMUNICATION RECEPTACLE
- FLOOR-MOUNTED COMMUNICATION RECEPTACLE
- WALL-MOUNTED COMMUNICATION CONNECTION TO WORKSTATION
- FLOOR-MOUNTED COMMUNICATION CONNECTION TO WORKSTATION
- INTERCOM
- CABLE TV RECEPTACLE
- WALL MOUNT DEVICE
- CEILING MOUNT DEVICE
- COMMUNICATION PANEL

- ELEVATOR CALL PANEL
- ELEVATOR DIRECTION LANTERN
- HEIGHT OF OBJECT
- HEIGHT ABOVE FINISHED FLOOR TO BOTTOM OBJECT
- COMMUNICATION LINE
- ELECTRICAL CONDUIT
- POWER/COMMUNICATION LINE, VIF SERVICE TYPE
- 2'x4' FLUORESCENT FIXTURE
- 1'x4' FLUORESCENT FIXTURE
- CEILING HEIGHT CHANGE
- CEILING, SOFFIT OR BEAM HEIGHT ABOVE SURVEY DATUM

REFLECTED CEILING SYMBOL KEY

- SMOKE DETECTOR
- CARBON MONOXIDE DETECTOR
- EXIT SIGN (SHADED PORTION DENOTES ILLUMINATED SIDE, ARROW DENOTES DIRECTION INDICATOR)
- EMERGENCY LIGHT
- MOTORIZED SHADE POCKET
- CEILING-MOUNTED SECURITY CAMERA
- WALL-MOUNTED SECURITY CAMERA
- SPRINKLER HEAD
- FAN SWITCH
- KEY PAD
- THERMOSTAT

- ROUND DIFFUSER
- 3-WAY DIFFUSER
- 4-WAY DIFFUSER
- REGISTER
- SPEAKER VOLUME SWITCH
- SPEAKER
- LIGHT SWITCH
- MANUAL ON / VACANCY SENSOR
- DIMMER SWITCH
- 3-WAY SWITCH
- 4-WAY SWITCH
- LIGHT SCENE CONTROL
- SURFACE-MOUNTED LIGHT FIXTURE
- RECESSED DOWNLIGHT
- RECESSED WALL WASHER
- LIGHT FIXTURE WITH PULLCHAIN
- PENDANT LIGHT FIXTURE
- SCONCE
- MISSING SCONCE, J-BOX ONLY
- CEILING FAN
- 2'x2' FLUORESCENT FIXTURE (SM WHEN SHOWN DENOTES SURFACE MOUNTED)

HVAC SYMBOL KEY

- RISER AND TAKEOFF
- SUPPLY DUCT TURNS DOWN TO EQUIPMENT OR THRU FLOOR
- SUPPLY DUCT TURNS UP TO EQUIPMENT OR THRU CEILING
- SUPPLY DUCT HEIGHT CHANGE (LOW SIDE / HIGH SIDE)
- RETURN/EXHAUST DUCT HEIGHT CHANGE
- RETURN/EXH. DUCT THRU FLOOR AND CEILING (RISER)
- RISER AND TAKEOFF
- RETURN/EXHAUST DUCT TURNS DOWN TO EQUIPMENT OR THRU FLOOR
- RETURN/EXHAUST DUCT TURNS UP TO EQUIPMENT OR THRU CEILING
- HEIGHT OF OBJECT / HEIGHT ABOVE SURVEY DATUM TO BOTTOM OF OBJECT
- CONDENSATE LINE
- CHILLED WATER RETURN LINE
- CHILLED WATER SUPPLY LINE
- CONDENSER WATER RETURN LINE
- CONDENSER WATER SUPPLY LINE
- EQUIPMENT DRAIN LINE
- FILTRATION RETURN LINE
- FILTRATION SUCTION LINE
- HIGH PRESSURE STEAM LINE
- HVAC PIPE, VIF SERVICE TYPE
- LOW PRESSURE STEAM LINE
- REFRIGERANT VENT LINE
- SECONDARY HOT WATER RETURN LINE
- SECONDARY HOT WATER SUPPLY LINE

- EXTERIOR ELEVATION REFERENCE
- SECTION REFERENCE
- DETAIL REFERENCE
- GRIDLINE NUMBER
- GRIDLINE
- GRIDLINE DIMENSION
- ELEVATION MARKER
- DIMENSION TO FINISH FACE OF WALL, UNO

- PROPERTY LINE
- CENTERLINE
- 1HR NON COMBUSTIBLE WALL
- 1HR NON COMBUSTIBLE WALL @ PROP. LINE
- 2HR NON COMBUSTIBLE WALL
- NEW CONSTRUCTION
- EXISTING WALL TO REMAIN- COVER AND PROTECT FROM DAMAGE DURING CONSTRUCTION
- **DEMO PLAN** EXISTING ELEMENTS TO BE DEMOLISHED
- **FLOOR PLAN** ELEMENTS ABOVE OR BELOW CUTTING PLANE

- ROOM NAME / ROOM NUMBER
- 150 SF ROOM AREA
- WALL TYPE
- EXISTING WINDOW REFERENCE
- NEW WINDOW REFERENCE
- REPLACEMENT WINDOW REFERENCE

- EXISTING DOOR REFERENCE
- NEW DOOR REFERENCE
- REPLACEMENT DOOR REFERENCE
- STORY POLE REFERENCE
- REVISION CLOUD
- REVISION NUMBER

- SPOT ELEVATION
- MILLWORK
- PLUMBING FIXTURE
- APPLIANCE
- SEE ##/A-### VIEW REFERENCE

SYMBOLS

&	AND	CONST	CONSTRUCTION	FL	FLOW LINE	KIT	KITCHEN	OT	OUTLET	S	SOUTH
<	ANGLE OR LESS THAN	CONT	CONTINUOUS	FLASH	FLASHING	KO	KNOCK OUT	OVFL	OVERFLOW	S&P	SHELF AND POLE
@	AT	CONTR	CONTRACTOR	FLR / FLRG	FLOOR / FLOORING	L	LENGTH	OVHD	OVERHEAD	SA	SUPPLY AIR
AB	ANCHOR BOLT	COORD	COORDINATE	FLUOR	FLUORESCENT	LACQ	LACQUER	P	PAINT	SAF	SELF ADHERED FLASHING
ABV	ABOVE	CORR	CORRIDOR	FND	FOUNDATION	LAM	LAMINATE	PA	PLANTING AREA	SC	SOLID CORE
AC	AIR CONDITIONING	CORRG	CORRUGATED	FO	FACE OF	LAV	LAVATORY	PAV	PAVING	SCD	SEE CIVIL DRAWINGS
ACC	ACCESSIBLE	CPT	CARPET	FOC	FACE OF CONCRETE	LBS / #	POUNDS	PBD	PARTICLE BOARD	SCHED	SCHEDULE
ACCES	ACCESSORIES	CS	COUNTERSUNK	FOF	FACE OF FINISH	LF	LINEAL FEET	PC	PRECAST	SCUP	SCUPPER
ACOUST	ACOUSTICAL	CSWK	CASEWORK	FOM	FACE OF MASONRY	LH	LEFT HAND	PDF	POWER DRIVEN FASTENER	SD	SMOKE DETECTOR / STORM DRAIN
ACP	ACOUSTICAL PANEL CEILING	CT	CERAMIC TILE	FOS	FACE OF STRUCTURE	LIN	LINEN	PED	PEDESTRIAN	SDNG	SIDING
ACT	ACOUSTIC CEILING TILE	CTR	CENTER	FOW	FACE OF WALL	LL	LIVE LOAD	PERF	PERFORATED	SECT	SECTION
AD	AREA DRAIN	CW	COLD WATER	FP	FIRE PROTECTION	LLH	LONG LEG HORIZONTAL	PERIM	PERIMETER	SED	SEE ELECTRICAL DRAWINGS
ADJ	ADJACENT	D	DEEP, DEPTH, DRYER	FPG	FIREPROOFING	LLV	LONG LEG VERTICAL	PERP	PERPENDICULAR	SEP	SEPARATE
AFF	ABOVE FINISHED FLOOR	DBL	DOUBLE	FPRF	FIRE PROOF	LO	LINE OF	PI.	PLATE	SEW	SEWER
AFG	ABOVE FINISHED GRADE	DEG	DEGREE	FR	FIRE RAT(ED)(ING)	LOBA	LINE OF BUILDING ABOVE	PJ	POUR JOINT	SF	SQUARE FEET / FOOT
AGGR	AGGREGATE	DEMO	DEMOLISH OR DEMOLITION	FRC	FIBER REINFORCED CONCRETE	LP	LOW POINT	PL	PROPERTY LINE / PLATE	SFL	SUB FLOOR
ALT	ALTERNATE	DEMO	DEMOLITION	FRMG	FRAMING	LT	LIGHT	PLAM	PLASTIC LAMINATE	SGL	SINGLE
ALUM	ALUMINUM	DEPT	DEPARTMENT	FRT	FIRE RETARDANT TREATED	LTWT	LIGHT WEIGHT	PLAS	PLASTER	SH	SPRINKLER HEAD
ANNUNC	ANNUNCIATOR	DF	DRINKING FOUNTAIN	FS	FINISH SIDEWALK	LVR	LOUVER	PLBG	PLUMBING	SHR	SHOWER
ANOD	ANODIZED	DIA	DIAMETER	FT	FEET/FOOT	MACH	MACHINE	PLF	POUNDS PER LINEAR FOOT	SHRNG	SHORING
AP	ACCESS PANEL	DIAG	DIAGONAL	FTNG	FOOTING	MAN	MANUAL	PLYWD	PLYWOOD	SHT	SHEET
APPL	APPLIANCE	DIFF	DIFFUSER	FURN	FURNITURE	MAS	MASONRY	PNL	PANEL	SIM	SIMILAR
APPROX	APPROXIMATE	DIM	DIMENSION	FURR	FURRING	MAT'L	MATERIAL	PNT	PAINT OR PAINTED	SL	SLOPE
ARCH	ARCHITECTURAL	DIMS	DIMENSIONS	FWC	FABRIC WALL COVERING	MAX	MAXIMUM	POL	POLISHED	SLCD	SEE LIGHTING CONSULTANT DRAWINGS
ASPH	ASPHALT	DISP	DISPENSER	FWP	FABRIC WRAPPED PANEL	MB	MACHINE BOLT	PP	POWER POLE	SLD	SEE LANDSCAPE DRAWINGS
ATTN	ATTENTION	DIV	DIVISION	GA	GAUGE	MC	MEDICINE CABINET	PR	PAIR	SM	SHEET METAL
AUTO	AUTOMATIC	DMPF	DAMP PROOFING	GALV	GALVANIZED	MDF	MEDIUM DENSITY FIBERBOARD	PREFAB	PREFABRICATED	SM	SURFACE MOUNTED
AV	AUDIOVISUAL	DN	DOWN	GB	GRAB BAR	MDO	MEDIUM DENSITY OVERLAY	PREFIN	PREFINISHED	SMD	SEE MECHANICAL DRAWINGS
SSD	SEE STRUCTURAL DRAWINGS	DO	DOOR OPENING	GC	GENERAL CONTRACT(OR)	MECH	MECHANICAL	PRM	PRIMER	SOG	SLAB ON GRADE
BD	BOARD	DR	DOOR	GEN	GENERAL	MED	MEDIUM	PROJ	PROJECT	SP	STANDPIPE
BIT	BITUMINOUS	DRN	DRAIN	GFRC	GLASS FIBER REINFORCED CONCRETE	MEMBR	MEMBRANE	PRVD	PROVIDED	SPD	SEE PLUMBING DRAWINGS
BL	BUILDING LINE	DS	DOWN SPOUT	GL	GLASS	MEZZ	MEZZANINE	PSF	POUNDS PER SQUARE FOOT	SPEC	SPECIFIED OR SPECIFICATION
BLDG	BUILDING	DTL/DET	DETAIL	GLAZ	GLAZING	MF	MOMENT FRAME	PT	POINT / PRESSURE TREATED	SPK	SPRINKLER OR SPEAKER
BLK	BLOCK	DW	DISHWASHER	GLB	GLUE LAMINATED BEAM	MFD	MANUFACTURED	PTD	PAINTED	SPKR	SPEAKER
BLKG	BLOCKING	DWG	DRAWING	GRAN	GRANULAR	MFR	MANUFACTURER	PTN	PARTITION	SQ	SQUARE
BM	BEAM	DWR	DRAWER	GRD	GROUND	MH	MAN HOLE	PVC	POLYVINYL CHLORIDE	SS	STAINLESS STEEL
BO	BOTTOM OF	E	EAST	GRFG	GLASS FIBER REINFORCED GYPSUM	MIN	MINIMUM	PWDR CTD	POWDER COATED	SSK	SERVICE SINK
BOS	BOTTOM OF STRUCTURE	EA	EACH	GSM	GALVANIZED SHEET METAL	MIR	MIRROR	QT	QUARRY TILE	SSMH	SANITARY SEWER MANHOLE
BOT	BOTTOM	EB	EXPANSION BOLT	GV	GAS VALVE	MISC	MISCELLANEOUS	QTY	QUANTITY	STA	STATION
BRG	BEARING	EF	EACH FACE	GWB	GYPSUM WALL BOARD	MIX	MIXTURE	R	RADIUS / RISER	STC	SOUND TRANSMISSION COEFFICIENT
BRK	BRICK	EG	EXISTING GRADE	GYP	GYPSUM	MLWK	MILLWORK	RA	RETURN AIR	STD	STANDARD / STAINED
BRKT	BRACKET	EJ	EXPANSION JOINT	H	HIGH/HEIGHT	MO	MASONRY OPENING	RAD	RADIUS	STL	STEEL
BS	BOTH SIDES	EL	ELEVATION	HB	HOSE BIB	MOIST	MOISTURE	RAH	ROOF ACCESS HATCH	STOR	STORAGE
BSMNT	BASEMENT	ELEC	ELECTRIC(AL)	HC	HANDICAPPED	MOT	MOTOR(IZED)	RB	RESILIENT BASE	STRFR	STOREFRONT
BTU	BRITISH THERMAL UNIT	ELEV	ELEVATOR	HDF	HIGH DENSITY FIBERBOARD	MR	MOISTURE RESISTANT	RBR	RUBBER	STRG	STRINGER
BTW	BETWEEN	EMBED	EMBEDD(ED)(ING)	HDG	HOT DIPPED GALVANIZED	MS	MOTORIZED SKYLIGHT	RCP	REFLECTED CEILING PLAN	STRUCT	STRUCTURE OR STRUCTURAL
BYND / BYD	BEYOND	EMER	EMERGENCY	HDPE	HIGH DENSITY POLYETHYTLENE	MSB	MOTORIZED SKYLIGHT BLIND	RD	ROOF DRAIN	SUBCAT	SUBCATEGORY
C	CHANNEL	ENAM	ENAMEL	HDR	HEADER	MSS	MOTORIZED SOLAR SHADE	REC	RECESSED	SUSP	SUSPENDED
C/C	CENTER TO CENTER	ENCL	ENCLOSURE	HDWD	HARDWOOD	MTD	MOUNTED	RECIRC	RECIRCULATING	SYM	SYMMETRICAL
CAB	CABINET	ENG	ENGINEER	HDWR	HARDWARE	MTG	MOUNTING	RECPT	RECEPTACLE	SYS	SYSTEM
CAT	CATEGORY	EP	ELECTRICAL PANEL	HGT	HEIGHT	MTL	METAL	RECS	RECOMMENDATIONS	T	TREAD
CB	CATCH BASIN	EPDM	ETHYLENE PROPYLENE DIENE M-CLASS	HM	HOLLOW METAL	MULL	MULLION	REF	REFERENCE	T&B	TOP AND BOTTOM
CB	CEMENT BOARD	EQ	EQUAL, EQUAL SPACE	HNDRL	HANDRAIL	(N)	NEW	REFR	REFRIGERATOR	T&G	TONGUE AND GROOVE
CBC	CALIFORNIA BUILDING CODE	EQUIP	EQUIPMENT	HO	HOLD OPEN	N	NORTH	REG	REGISTER	TB	TOWEL BAR
CBU	CEMENTITIOUS BACKER UNIT	EXH	EXHAUST	HORIZ	HORIZONTAL	NA	NOT APPLICABLE	REINF	REINFORCEMENT / REINFORCED / REINFORCING	TBD	TO BE DETERMINED
CCTV	CLOSED CIRCUIT TELEVISION	EXIST / (E)	EXISTING	HP	HIGH POINT	NAT	NATURAL			TC	TOP OF CURB
CEM	CEMENT	EXP	EXPANSION, EXPOSED	HR	HOUR	NC	NOISE CRITERIA	REL	RELOCATE	TD	TRENCH DRAIN
CER	CERAMIC	EXT	EXTERIOR	HRC	HOSE REEL CABINET	NIC	NOT IN CONTRACT	REM	REMOVABLE	TEL	TELEPHONE/TELECOM
CG	CORNER GUARD	FA	FIRE ALARM	HTG	HEATING	NO / #	NUMBER	REQ	REQUIRE / REQUIRED	TELE	TELEPHONE
CH	CHILLER	FAB	FABRICAT(E)(ION)	HVAC	HEATING VENTILATION AND AIR CONDITIONING	NOM	NOMINAL	REQ'D	REQUIRED	TEMP	TEMPORARY / TEMPERATURE
CI	CAST IRON	FB	FACE BRICK, FROM BELOW	HW	HOT WATER	NON COMB	NON COMBUSTIBLE	RESD'L	RESIDENTIAL	THK	THICKNESS
CIP	CAST-IN-PLACE	FC	FINISHED CEILING	ID	INSIDE DIAMETER	NTS	NOT TO SCALE	RESIL	RESILIENT	THRU	THROUGH
CJ	CONTROL JOINT	FD	FLOOR DRAIN, FIRE DEPARTMENT	IF	INSIDE FACE	O/	OVER	REV	REVISION/REVISED	TKBD	TACK BOARD
CL	CENTERLINE	FDC	FIRE DEPARTMENT CONNECTION	IN	INCH / INCHES	OA	OUTSIDE AIR	RF	ROOF	TLT	TOILET
CLG / CLNG	CEILING	FDN	FOUNDATION	INCAND	INCANDESCENT	OBS	OBSCURE	RFNG	ROOFING	TMPD	TEMPERED
CLKG	CAULKING	FE	FIRE EXTINGUISHER	INCL	INCLUD(ED)(ING)	OC	ON CENTER	RH	RIGHT HAND	TO	TOP OF
CLO	CLOSET	FEC	FIRE EXTINGUISHER CABINET	INFILTR	INFILTRATION	OD	OUTSIDE DIAMETER / OVERFLOW DRAIN	RJ	ROOF JOIST	TOB	TOP OF BEAM
CLR	CLEAR	FF	FINISH FLOOR	INFO	INFORMATION	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED	RM	ROOM	TOC	TOP OF CONCRETE
CMU	CONCRETE MASONRY UNIT	FF&E	FURNITURE, FIXTURES AND EQUIPMENT	INSTAL	INSTALL(ATION)	OFF	OFFICE	RMV	REMOVE	TOD	TOP OF DECK
CNTR	COUNTER	FFB	FLUSH FLOOR BOX	INSTRUC	INSTRUCTION	OFOI	OWNER FURNISHED, OWNER INSTALLED	RND	ROUND	TOF	TOP OF FINISH / FENCE
CO	CLEANOUT	FFEL	FINISH FLOOR ELEVATION	INSUL	INSULAT(ED)(ION)	OH	OPPOSITE HAND	RO	ROUGH OPENING	TOJ	TOP OF JOIST
COL	COLUMN	FH	FLAT HEAD	INT	INTERIOR	OPNG	OPENING	ROW	RIGHT OF WAY	TOP	TOP OF PARAPET / PAVING
COMP	COMPOSITION	FHC	FIRE HOSE CABINET	INTERM	INTERMEDIATE	OPP	OPPOSITE	RP	ROOF PLAN	TOR	TOP OF ROOF
CONC	CONCRETE	FIN	FINISH	INV	INVERT	ORD	OVERFLOW ROOF DRAIN	RTD	RATED	TOS	TOP OF STRUCTURE / TOP OF STEEL
COND	CONDITION	FIX	FIXED	JAN	JANITOR	ORIG	ORIGINAL	RTG	RATING	TOW	TOP OF WALL
CONN	CONNECTION	FIXT	FIXTURE	JC	JANITOR'S CLOSET	OS	OVERFLOW SCUPPER	RWL	RAIN WATER LEADER	TS	TUBULAR STEEL
				JST	JOIST	OSA	OUTSIDE				

TV	TELEVISION
TX	TOILET EXHAUST
TYP	TYPICAL
U/S	UNDERSIDE
UBC	UNIFORM BUILDING CODE / APPLICABLE LOCAL BLDG CODE
UC	UNDER CABINET
UL	UNDERWRITER'S LABORATORY
UNDERLAY	UNDERLAYMENT
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
URNL	URINAL
UTIL	UTILITY
VAC	VENTILATION AND AIR CONDITIONING
VAR	VARIES
VB	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VENT	VENTILATION
VERT	VERTICAL
VEST	VESTIBULE
VG	VERTICAL GRAIN
VGDF	VERTICAL GRAIN DOUGLAS FIR
VIF	VERIFY IN FIELD
VOL	VOLUME
VP	VISION PANEL
VR	VAPOR RETARDER
VT	VINYL TILE
VWC	VINYL WALL COVERING
W	WIDE / WEST / WASHER
W/	WITH
W/D	WASHER AND DRYER
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WGL	WIRE GLASS
WH	WATER HEATER / WEEP HOLE
WIN	WINDOW
WM	WIRE MESH
WP	WATERPROOF(ING)
WPM	WATERPROOF MEMBRANE
WS	WEATHER-STRIPPING
WSCT	WAINSCOT
WT	WEIGHT
WV	WOOD VENEER / WATER VALVE
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH

ABBREVIATIONS

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:

ABBREVIATIONS & SYMBOLS

DRAWING NUMBER:

G-002

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A. GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENT OF THE APPLICABLE CODES, LAWS & REQUIREMENTS APPLICABLE TO THE LOCATION OF THE PROJECT.

2. THE CONTRACTOR (AND THEIR SUB-CONTRACTORS) SHALL STUDY AND COMPARE THE CONTRACT DOCUMENTS AND SHALL AT ONCE REPORT TO THE OWNER/DESIGNER IN WRITING ALL ERRORS, INCONSISTENCIES OR OMISSIONS DISCOVERED AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING THE WORK. IF THE CONTRACTOR KNOWINGLY PROCEEDS WITH ANY OF THE WORK SO AFFECTED WITHOUT WRITTEN INSTRUCTION OF THE OWNER/DESIGNER, THE CONTRACTOR SHALL MAKE GOOD AT HIS OWN COST ANY RESULTING ERROR, DAMAGE, OR DEFECTS OR TIME DELAYS CAUSED. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK WITHOUT CONTRACT DOCUMENTS OR, WHERE REQUIRED, APPROVED SHOP DRAWINGS, PRODUCT DATA OR SAMPLES FOR SUCH PORTION OF WORK.

3.NO WORK TO COMMENCE ON SITE UNTIL PLAN HAS BEEN APPROVED AND PERMIT ISSUED BY THE DEPARTMENT OF BUILDINGS.

4. ALL STRUCTURAL WORK SHALL BE COORDINATED W/ DESIGN DRAWINGS AND SHALL CONFORM TO THE PROJECT SPECIFICATIONS AND APPLICABLE BUILDING CODES.

5. ALL MECHANICAL AND ELECTRICAL WORK SHALL BE DESIGN BUILD, FILED BY THE CONTRACTOR. RELATED FILINGS SHALL ALSO BE COORDINATED AND EXECUTED BY THE CONTRACTOR. ANY DISCREPANCIES BETWEEN THE ENGINEERED SYSTEMS AND THE DESIGN DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER IMMEDIATELY, PRIOR TO ANY CONSTRUCTION OR PURCHASING OF MATERIAL.

6. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING, BRACING, SHEETING AND MAKE SAFE ALL FLOORS, ROOFS, WALLS AND ADJACENT PROPERTY AS PROJECT CONDITIONS REQUIRE. SHORING AND SHEETING SHALL BE DESIGNED BY A STATE OF CALIFORNIA LICENSED PROFESSIONAL ENGINEER HIRED BY THE CONTRACTOR, WHO SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR THE OWNER'S REVIEW.

7. DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION GIVEN IN STRUCTURAL DRAWINGS ARE BASED ON INFORMATION CONTAINED IN VARIOUS ORIGINAL DESIGN AND CONSTRUCTION DOCUMENTS PROVIDED BY THE OWNER, AND LIMITED FIELD OBSERVATIONS AND MEASUREMENTS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION PERTAINING TO EXISTING CONDITIONS BY ACTUAL MEASUREMENT AND OBSERVATION AT THE SITE. ALL DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE SHOWN IN THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE DESIGNER OF RECORD FOR HIS EVALUATION BEFORE THE AFFECTED CONSTRUCTION IS PUT IN PLACE.

8. PRODUCTS: TRADE NAMES OR MANUFACTURERS NOTED WITHIN DRAWINGS AND/OR SPECIFICATIONS ARE TO ESTABLISH A STANDARD OF QUALITY: CONTRACTOR MAY SUBMIT OTHER MANUFACTURERS PRODUCTS EQUAL TO THOSE SPECIFIED FOR APPROVAL.

9. THE CONTRACTOR SHALL MAKE NO DEVIATION FROM THE DRAWINGS WITHOUT WRITTEN APPROVAL OF THE DESIGNER.

10. THE CONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR AFTER COMPLETION AND FINAL ACCEPTANCE BY THE OWNER.

11. THE CONTRACTOR SHALL INSPECT EXISTING CONDITIONS AT JOB SITE BEFORE SUBMITTING BID. CONTRACTOR WILL BE RESPONSIBLE FOR ALL CONDITIONS ON SITE WHETHER INDICATED ON DRAWINGS OR NOT. SUBMISSION OF A PROPOSAL SHALL SIGNIFY THE CONTRACTOR'S ACCEPTANCE OF THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS.

12.CONTRACTOR MUST CONDUCT A PRE-DEMOLITION MEETING AND SITE WALKTHROUGH WITH THE OWNER AND ARCHITECT BEFORE THE COMMENCEMENT OF ANY DEMOLITION OR REMOVAL OF MATERIALS.

13. THE WORK TO BE PERFORMED CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, TOOLS, TRANSPORTATION, SUPPLIES, FEES, MATERIALS, AND SERVICES IN ACCORDANCE WITH THESE NOTES AND DRAWINGS; AND INCLUDES PERFORMING ALL OPERATIONS NECESSARY TO CONSTRUCT AND INSTALL COMPLETE, IN SATISFACTORY CONDITION, THE VARIOUS MATERIALS AND EQUIPMENT AT THE LOCATIONS SHOWN.

14. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO INSURE THE SAFETY OF THE BUILDING, ITS OCCUPANTS, AND THE GENERAL PUBLIC.

15. PROVIDE ALL WORK INDICATED OR IMPLIED BY THE DRAWINGS.

16. SUBMIT SHOP DRAWINGS TO DESIGNER FOR REVIEW. DO NOT COMMENCE WORK UNTIL REVIEW OF SHOP DRAWINGS HAS BEEN COMPLETED AND THE DRAWINGS APPROVED. ALLOW TEN (10) BUSINESS DAYS MIN FOR REVIEW.

17. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR HIS WORK UNTIL TURNED OVER TO THE OWNER.

18. THE GENERAL CONSTRUCTION NOTES AND/OR DRAWINGS ARE SUPPLIED TO ILLUSTRATE THE DESIGN AND THE GENERAL TYPE OF CONSTRUCTION DESIRED AND ARE INTENDED TO IMPLY THE FINEST QUALITY OF CONSTRUCTION, MATERIAL AND WORKMANSHIP THROUGHOUT.

19. THE CONTRACTOR SHALL MAKE ALL REQUIRED ARRANGEMENTS FOR DELIVERY OF MATERIALS.

20. BUILDING CONDITIONS, INCLUDING SIZE OF SERVICE ELEVATORS, DOORWAYS, STAIRS, CORRIDORS, WINDOW OPENINGS, ETC., SHALL BE CHECKED FOR ITEMS BEING DELIVERED.

21.THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE PREMISES EACH EVENING PRIOR TO LEAVING THE JOB SITE. THE SITE SHALL REMAIN LOCKED AND SECURED AT ALL TIMES WHEN THE GENERAL CONTRACTOR IS NOT ON SITE AND KEYS FOR THE SITE SHALL BE HELD BY THE GENERAL CONTRACTOR. NO UNSUPERVISED SUBCONTRACTORS SHALL HAVE KEYS OR ACCESS TO THE SITE WITHOUT THE OWNER'S PRIOR CONSENT.

22. PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR SHALL FURNISH A SCHEDULE SHOWING THE CHRONOLOGICAL PHASES OF THE WORK. THIS SCHEDULE SHALL INDICATE ALL ORDERING LEAD TIMES, LENGTH FOR EACH PHASE, ITS START AND COMPLETION AND A PROJECTED COMPLETION DATE FOR THE PROJECT.

23. ANY COST CAUSED BY DEFECTIVE OR ILL-TIMED WORK, AS A RESULT OF, BUT NOT LIMITED TO, INFERIOR WORKMANSHIP OR MATERIALS, IMPROPER SCHEDULING OR DELINQUENT ORDERING SHALL BE BORNE BY THE CONTRACTOR.

24. ALL RUBBISH AND WASTE MATERIALS CAUSED BY THE INSTALLATION OF THE WORK SHALL BE REMOVED FROM THE PREMISES PROMPTLY.

25. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL RULES, REGULATIONS, CODES AND ALL AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL COMPLY WITH ALL APPROPRIATE MUNICIPAL AND REGULATORY AGENCIES, CODES AND REQUIREMENTS. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND APPROVALS.

26. THE CONTRACTOR SHALL EXAMINE ALL AREAS OF CONSTRUCTION AFTER COMPLETION OF WORK AND PROVIDE NECESSARY TOUCH UP PAINTING OR WALL COVERING FOR PROTECTION.

27. THE CONTRACTOR SHALL INSPECT ALL EXISTING FINISHED SURFACES INCLUDING CORNER BEADS, STOPS, ETC. FOR CHIPS, CRACKS, HOLES, DAMAGED SURFACES AND ANY OTHER DEFECTS CAUSING AN APPEARANCE DIFFERENT FROM A NEW FIRST-CLASS FINISHED INSTALLATION. ALL DEFECTS SHALL BE REPAIRED, OR IF BEYOND REPAIR, THEN INSTALLED AND FINISHED TO THE SATISFACTION OF THE DESIGNER JUST PRIOR TO BEING TURNED OVER TO THE OWNER.

28. THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL LIGHT FIXTURES AND LENSES, A/C DIFFUSERS AND REGISTERS, FLOORS AND BASES, DOORS, ETC. CONTRACTOR SHALL ALSO PROVIDE A FULL POST-CONSTRUCTION CLEAN PRIOR TO FINAL PROJECT ACCEPTANCE.

29. THIS PROJECT IS A CAPITAL IMPROVEMENT AND NO SALES TAX SHALL BE PAID FOR THE PURCHASE OF EQUIPMENT AND MATERIALS BY OWNER.

30. THE CONTRACTOR SHALL PROTECT ALL INSTALLED WORK AND EXISTING, EXTERIOR GLASS AGAINST ANY DAMAGE UNTIL PROJECT IS COMPLETED AND ACCEPTED BY THE OWNER.

31. REMOVE ALL EXISTING APPLIANCES AND PLUMBING FIXTURES FROM THE SITE, UNO.

32. PREPARE THE KITCHEN SURFACES FOR NEW EQUIPMENT AND CABINETS AND PROVIDE UTILITIES AS REQUIRED TO CONNECT ALL NEW APPLIANCES.

33. CONTRACTOR SHALL CONSULT WITH REPRESENTATIVES OF APPLICABLE UTILITIES, INCLUDING GAS, WATER, POWER, TELEPHONE AND CABLE TV AND DETERMINE EXACT LOCATIONS AND AVAILABILITY OF UTILITIES AND DETERMINE CONDITION OF EXISTING SERVICE PRIOR TO COMMENCING WORK OR CONNECTING UTILITIES.

34. CONTRACTOR SHALL PROVIDE TEMPORARY TOILET FACILITIES AT THE JOB SITE AS NECESSARY AND REQUIRED BY CODE.

35. CONTRACTOR SHALL PROTECT FLOOR SURFACES FROM DAMAGE WITH RAMBOARD AND EQUIP MOBILE EQUIPMENT WITH PNEUMATIC TIRES.

36. PRIOR TO ISSUANCE OF A BUILDING PERMIT THE CONTRACTOR SHALL HAVE THE FOLLOWING: 1) CERTIFICATE OF WORKER'S COMPENSATION INSURANCE MADE OUT TO THE CONTRACTOR'S STATE LICENSE BOARD 2) COPY OF BUSINESS TAX REGISTRATION CERTIFICATE OR A NEWLY PAID RECEIPT FOR ONE FOR APPLICABLE JURISDICTION. 3) NOTARIZED LETTER OF AUTHORIZATION FOR AGENTS 4) COPY OF CONTRACTOR'S STATE LICENSE OR POCKET ID.

B. DEMOLITION:

1. AS REQUIRED TO INSTALL NEW SCOPE OF WORK.

2. ALL DEBRIS TO BE PROMPTLY REMOVED FROM SITE.

3. ANY DAMAGE DONE TO FLOORS, WALLS, ETC. DUE TO REMOVAL OF EXISTING PARTITIONS, PLUMBING FIXTURES, OR ANYTHING REMOVED IN ORDER TO COMPLETE THE SCOPE OF WORK AS INDICATED ON DRAWINGS SHOULD BE PATCHED TO MATCH EXISTING AND MEET DESIGNER'S AND OWNER'S APPROVAL.

4. SEAL ALL VENTS AND OPENINGS AS REQUIRED DURING DEMOLITION TO PREVENT DUST DAMAGE ACROSS ROOMS.

5. CONTRACTOR TO REMOVE ALL FURNITURE, APPLIANCES, ETC., IN ORDER TO ALLOW FOR NEW CONSTRUCTION AS SHOWN.

6. CONTRACTOR TO PROVIDE ALL SCAFFOLDING AND BRIDGING AS REQUIRED TO COMPLETE SCOPE OF WORK.

7. FOR ALL NEW STONE AND WOOD FLOORING, CONTRACTOR IS TO REMOVE ANY EXISTING SUBSTRATE AS REQUIRED TO KEEP FLOORS LEVEL AND TRUE.

8. WHEN DEMOLITION IS REQUIRED ON SITE: 1) ALL DEBRIS SHALL BE WET AT THE TIME OF HANDLING TO PREVENT DUST, 2) NO STRUCTURAL MEMBER OF ANY KIND SHALL BE DEMOLISHED UNTIL THE STORY ABOVE IS COMPLETELY REMOVED, 3) FREE FALL DUMPING OVER EXTERIOR WALL WILL NOT BE ALLOWED 4) DEMOLITION PERMIT SHALL BE OBTAINED BY A LICENSED WRECKING CONTRACTOR (CLASS C-21) OR A LICENSED GENERAL CONTRACTOR (CLASS B-1). 5) CONTRACTOR SHALL USE NEGATIVE PRESSURE MACHINES AND HEPA FILTERS THROUGHOUT DEMOLITION TO REDUCE AIRBORNE DUST.

C. PRODUCT NOTES:

1. ALL PRODUCTS SPECIFIED SHALL BE PROVIDED IN LOCATIONS INDICATED AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

2. PROVIDE BLOCKING WITHIN ALL WALLS TO SECURE SHELVING WHERE REQUIRED.

3. GENERAL CONTRACTOR (GC) TO ENSURE THAT ALL APPLIANCES, TO INCLUDE CONDENSER AND AIR HANDLING UNITS, ARE OPERATIONAL BEFORE HANDING OVER TO OWNER, ENSURE THAT ALL POWER, WATER AND VENTILATION PROVIDE AS NECESSARY.

4. GC TO PROVIDE OWNER WITH PROJECT MANUALS AT CLOSE OF JOB INCLUDING ALL OWNER'S MANUALS AND WARRANTIES FOR ALL EQUIPMENT AND APPLIANCES INSTALLED WITHIN THE SCOPE OF WORK.

D. POWER AND TELEPHONE NOTES:

1. PROVIDE ALL ELECTRICAL WORK AS INDICATED ON OR IMPLIED BY THE CONTRACT DOCUMENTS.

2. PROVIDE ALL ELECTRICAL POWER AS REQUIRED BY TELEPHONE COMPANY. PROVIDE TELEPHONE AND DATA WIRING IN LOCATIONS INDICATED AND ALL NECESSARY CONDUIT. VOICE WIRING TO BE CAT3, DATA WIRING TO BE CAT6. PATCH PANEL TO BE PROVIDED IN LOCATION INDICATED. TERMINATIONS TO BE PROVIDED BY GC AT LOCATIONS INDICATED. TELEPHONE EQUIPMENT TO BE PROVIDED BY OTHERS.

3. ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES.

4. ALL WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE REQUIREMENT OF ALL AUTHORITIES HAVING JURISDICTION.

5. ALL ELECTRICAL, SPEAKER, AND TELEPHONE WIRING SHALL BE CONCEALED IN DRYWALL AND/OR CEILING. INSTALL SPEAKER WIRE IN LOCATIONS INDICATED. TERMINATIONS AND SPEAKER INSTALLATION ARE BY OTHERS.

6. ALL ELECTRICAL, SPEAKER AND LIGHTING WORK IN CONJUNCTION WITH CABINET WORK SHALL BE COORDINATED WITH THE MILLWORK CONTRACTOR.

7. REFER TO ELEVATIONS FOR DIMENSIONED LOCATIONS OF SWITCHES, PLATES, AND OTHER EQUIPMENT.

8. ALL 125-V RECEPTACLES IN GARAGE (INCLUDING ANY CEILING OUTLETS) SHALL HAVE GFCI PROTECTION.

9. ALL 125-V RECEPTACLES SERVING COUNTER TOP SURFACES IN THE KITCHEN SHALL HAVE GFCI PROTECTION.

10. ALL 120-V BRANCH CIRCUITS SUPPLYING OUTLETS IN CLOSETS, HALLWAYS, BEDROOMS AND OTHER HABITABLE ROOMS (EXCEPT KITCHEN) SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER (AFCI).

11. RECEPTACLE OUTLETS IN HABITABLE ROOMS SHALL BE SPACED 12' O.C. MAXIMUM AND SHALL BE LOCATED WITHIN 6' OF WALL ENDS, DOOR OPENINGS, AND AT EVERY 2' OR WIDER WALL.

12. RECEPTACLE OUTLETS AT KITCHEN COUNTER-TOPS SHALL BE SPACED AT 4' O.C. MAXIMUM AND WITHIN 2' OF ENDS/BREAKS OF COUNTERS.

13. PROVIDE AT LEAST ONE OUTDOOR RECEPTACLE OUTLET WITH WEATHER PROOF COVER AND GFCI AT FRONT AND REAR OF DWELLING UNIT AND AT DECK/BALCONY (EXCEPTION: DECK/BALCONY WITH USABLE AREA LESS THAN 20 SQ.FT.

14. ALL RECEPTACLE OUTLETS SHALL BE LISTED TAMPER-RESISTANT RECEPTACLE.

15. BATHROOM RECEPTACLES SHALL BE SERVED BY A DEDICATED 20 AMP CIRCUIT.

16. PROVIDE A WALL SWITCHED-CONTROLLED LIGHTING OUTLET ON THE EXTERIOR SIDE OF OUTDOOR ENTRANCES OR EXITS WITH GRADE LEVEL ACCESS.

E. CEILING & LIGHTING NOTES:

1. CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS OF EXISTING LIGHTING AT JOB SITE. CONTRACTOR TO NOTIFY DESIGNER OF ANY DISCREPANCIES IN FIELD.

2. PROVIDE LIGHTING FIXTURES INCLUDING RELATED ELECTRICAL WORK AND LAMPING OF TYPES AND INSTALL AS PER MANUFACTURER'S WRITTEN INSTRUCTIONS IN LOCATIONS AS INDICATED ON THE DRAWINGS.

3. SUBMIT CUTS OF ALL LIGHTING FIXTURES FOR DESIGNER'S REVIEW AND APPROVAL PRIOR TO INSTALLATION.

4. ALL FIXTURES SHALL BE REMOTE SWITCHED UNLESS OTHERWISE NOTED.

5. ALL CEILING WORK SHALL BE SQUARE AND LEVEL.

6. PROVIDE CUTOUTS IN CEILING AS REQUIRED FOR NEW CONDUITS.

7. ALL WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION AND WITH CEILING MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.

8. ALL ACCESS PANELS TO BE RECESSED ACCESS DOORS FOR DRYWALL SURFACES.
9. REFER TO DESIGNER OR REFLECTED CEILING PLANS FOR LOCATIONS OF SPEAKERS. WHERE DIMENSIONED NOT NOTED, GC TO COORDINATE PLACEMENT WITH DESIGNER.

10. COORDINATE CEILING FRAMEWORK ALL TRADES.

11. ALL REVEALS IN CEILINGS TO BE FRY REGLET EXTRUDED ALUMINUM AS NOTED IN CEILING DETAILS.

12. REFER TO DESIGN ELEVATIONS FOR DIMENSIONED LOCATIONS OF SWITCHES. WHERE DIMENSIONED LOCATIONS ARE NOT NOTED, GC TO COORDINATE PLACEMENT WITH DESIGNER.

F. MILLWORK:

1. CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS AT JOB SITE. CONTRACTOR TO NOTIFY DESIGNER OF ANY DISCREPANCIES IN FIELD.

2. CONTRACTOR SHALL CHECK JOB PROGRESS AND COORDINATE WITH OTHER TRADES INVOLVED.

3. PERFORM ALL FABRICATION FROM FIELD MEASUREMENT WITH PROVISION FOR SCRIBING AS REQUIRED TO MEET BUILT-IN CONDITIONS.

4. ALL MILLWORK TO INCLUDE INSTALLATION SHALL BE AWI 'PREMIUM GRADE.'

5. ALL WOOD SHALL BE FIRE-RATED IN ACCORDANCE WITH LOCAL FIRE RATING REGULATIONS.

6. GROUNDS, FURRING, STRAPPING AND BLOCKING SHALL BE FREE FROM KNOTS WHICH WOULD AFFECT THE STRENGTH OR RENDER NAILING DIFFICULT.

7. ALL MATERIALS FOR WOODWORK SHALL BE THOROUGHLY KILN-DRIED.

8. ALL FINISHED WORK SHALL AS FAR AS PRACTICABLE, BE ASSEMBLED AND FINISHED IN THE SHOP AND DELIVERED TO THE BUILDING READY TO ERECT IN PLACE.

9. ALL WORK SHALL BE FABRICATED, ASSEMBLED, FINISHED AND ERECTED IN ACCORDANCE WITH AWI 'PREMIUM GRADE' STANDARDS. SURFACES AND ARISES SHALL BE TRUE, STRAIGHT, AND FREE FROM ALL MACHINE AND TOOL MARKINGS, BRUISES, INDENTATIONS, CHIPS OR ABRASIONS.

10. WHERE MEMBERS ARE MITERED OR BUTTED, THEY SHALL BE JOINED AND IN A MANNER TO INSURE AGAINST THE JOINT OPENING.

11. PROVIDE ALL CABINET DOOR AND SHELVING WORK HARDWARE AS REQUIRED FOR A COMPLETE INSTALLATION. REFER TO HARDWARE SCHEDULE.

12. AFTER TOTAL COMPLETION OF ERECTION, ALL NAIL HOLES, SCRATCHES AND OPEN JOINTS SHALL BE FILED AND TOUCHED UP SO AS TO BE INVISIBLE.

13. ALL WHITE LACQUER MDO AND WOOD VENEER PLYWOOD TO RECEIVE SOLID EDGE BANDING TO CONCEAL LAMINATIONS. EDGE BANDING TO BE VENEER THICK UNLESS OTHERWISE NOTED.

14. FLITCHES TO BE MAXIMUM PRACTICABLE WIDTHS AND FULL HEIGHT IN SEQUENTIAL BOOK MATCH PATTERN. GRAIN DIRECTION ON WALL PANELS AND CABINET FACES TO BE VERTICAL UNLESS OTHERWISE NOTED. ARCHITECT TO REVIEW SELECTION PRIOR TO PURHCASE.

15. FABRICATE UNITS IN LARGEST PRACTICABLE SECTIONS. ASSEMBLE IN THE SHOP FOR TRIAL FIT. DISASSEMBLE FOR SHIPMENT AND REASSEMBLE WITH CONCEALED FASTENERS.

16. MAINTAIN RELATIVE HUMIDITY AND TEMPERATURE DURING FABRICATION, STORAGE AND FINISHING OPERATIONS MATCHING THAT OF THE AREAS OF INSTALLATION.

17. FACTORY FINISH ALL ITEMS WHERE POSSIBLE. DEFER FINAL TOUCH-UP, CLEANING AND POLISHING UNTIL AFTER DELIVERY AND INSTALLATION.

18. PANELING - PROVIDE CONCEALED WOOD BLOCKING AND FRAMING, ANCHORS, CLIPS, SPLINES, SUPPORTING AND ATTACHING DEVICES. PROVIDE CUT-OUTS TO RECEIVE ATTACHMENTS, MECHANICAL AND ELECTRICAL WORK AS REQUIRED.

19. MAKE ALL JOINTS HAIRLINE TIGHT, FITTED ACCURATELY AND JOINTED WITH HARDWOOD SPLINES OR DOWELS, GLUED TOGETHER OR BY OTHER METHOD APPROVED BY DESIGNER. USE SCREWS, NOT NAILS, FOR FASTENING TO GYPSUM BOARD.

20. ALL DRAWERS SHALL BE MAXIMUM DEPTH OF THE HOUSE CABINET W/ FULL EXTENSION, SOFT CLOSING SLIDES, 100 LBS MIN CAPACITY, UNO.

21. ALL CABINET DOORS SHALL HAVE SOFT CLOSING CONCEALED ERO HINGES, UNO. WHEN THE DOOR OPEN ADJACENT TO A PERPENDICULAR WALL CONTRACTOR SHALL PROVIDE LIMITER CLIPS TO PREVENT CLASHING DOOR W/ WALL, PROVIDE HINGE AT MAX 16" O.C.

22. ALL DRAWERS & CABINET DOOR PANELS SHALL BE FITTED W/ (4) FOUR 1/8" THK CLEAR SELF-ADHESIVE BUMPERS AS EACH CORNER.

23. ALL REVEAL JOINTS BETWEEN CABINET & DRAWER PANELS SHALL ALIGN + BE LEVEL + PLUMB.

G. GYPSUM BOARD WORK:

1. GYPSUM BOARD PARTITIONS SHALL TYPICALLY CONSIST OF 2X6 WOOD STUDS AT 16" O.C. WITHOUT EXCEPTION, STUDS SHALL BE FIRMLY ANCHORED TO THE FLOOR AND CEILING PLATES. THE FLOOR AND CEILING PLATES SHALL IN TURN BE ANCHORED TO THE FLOOR AND CEILING STRUCTURES WITH TWO CONTINUOUS BEADS OF ACOUSTIC/FIRE SEALANT BETWEEN SUBSTRUCTURE & RUNNER.

2. ALL GYPSUM BOARD WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL AUTHORITIES HAVING JURISDICTION AND WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. ALL NEW GYPSUM SURFACES TO BE LEVEL 5 DRYWALL FINISH AND BOARDS TO HAVE TAPERED EDGES.

3. PROVIDE ALL REQUIRED FASTENERS, ANCHORS, ADHESIVES, COMPOUNDS, ETC. AS INDICATED PER GYPSUM BOARD MANUFACTURE'S STANDARDS AND AS REQUIRED FOR A COMPLETE INSTALLATION.

4. ALL EXPOSED EDGES AND/OR CORNERS OF GYPSUM BOARD SHALL RECEIVE A HOT-DIPPED GALVANIZED METAL CORNER BEAD AND ALL EDGES OF A GYPSUM BOARD ABUTTING OTHER MATERIAL SHALL RECEIVE A HOT-DIPPED GALVANIZED METAL CASING BEAD, TAPED AND SPACKLED SMOOTH.

5. PROVIDE NEW SPECIAL WATER RESISTANT TYPE GYPSUM BOARD IN ALL WET LOCATIONS SUCH AS BATHROOMS. PROVIDE CEMENT BOARD SUCH AS DUROCK AT ALL SHOWER AND BATH AREAS OVER MEMBRANE WATER PROOFING.

6. WALLS SHOWN ALIGNED WITH EXISTING BUILDING CONSTRUCTION SHALL BE FLUSH AND SMOOTH WITH EXISTING BUILDING CONSTRUCTION UNLESS OTHERWISE INDICATED.

7. ALL PARTITIONS SHALL BE FURNISHED WITH BASES AS INDICATED IN THE CONTRACT DOCUMENTS.

8. ALL NEW PARTITIONS SHALL BE TAPED, SPACKLED AND SANDED.

9. WHERE SPECIFIED, PLYWOOD UNDERLAYMENT TO HAVE STAGGERED JOINTS, GWB OVERLAY ALSO STAGGERED SO THAT PLYWOOD JOINTS DO NOT TELEGRAPH THROUGH TO SURFACE OF GWB.

10. AT EXISTING PARTITIONS, CONTRACTOR TO PROBE WALL TO LOCATE STUDS AND COORDINATE WITH NEW CONSTRUCTION.

11. PROVIDE A FULL SKIM COAT OF COMPOUND AT ALL EXISTING AND NEW GWB SURFACES THAT ARE NOT SMOOTH AND TRUE.

12. ALL DRYWALL SURFACES ABUTTING FINISH CASEWORK SHALL RECEIVE SKIM COATING AS REQUIRED TO MAKE SURFACE LEVEL AND PLUMB.

H. SHOP DRAWINGS & SAMPLES:

1. SUBMIT SHOP DRAWINGS FOR DESIGNERS APPROVAL FOR THE FOLLOWING ITEMS:
CABINETRY/MILLWORK, ALL DOOR & WINDOW ASSEMBLIES, ALL METAL WORK & STRUCTURAL STEEL, TILE LAYOUT DETAILS WITH STARTING POINTS AND JOINT LAYOUT, CUSTOM CONCRETE, MECHANICAL DUCTWORK, ELECTRICAL WORK, GLAZED ASSEMBLIES.

2. CONTRACTOR SHALL SUBMIT THREE SAMPLES OF ALL FINISH MATERIALS, INCLUDING BUT NOT LIMITED TO, TILE, GLASS, STONE, WOOD VENEER FOR DESIGNER/OWNER REVIEW. SAMPLES MAY BE REVIEWED ON SITE. SEE PROJECT MANUAL.

I. HVAC:

1. CONTRACTOR TO TEST ANY FANS, EXHAUSTS, MECHANICAL EQUIPMENT PRIOR TO HANDOVER OF PROJECT TO OWNER.

2. NEW DWELLING UNIT SHALL HAVE A MECHANICAL VENTILATION SYSTEM.

J. PAINTING:

1. ALL AREAS RECEIVING PAINT, AS INDICATED IN FINISH SCHEDULE, SHALL BE PAINTED IN ACCORDANCE WITH PAINT MANUFACTURE'S WRITTEN INSTRUCTIONS.
2. WALLS SCHEDULED TO BE PAINTED SHALL INCLUDE SURFACES FROM FLOOR TO CEILING INCLUDING PILASTERS, FASCIAS, DOORS, BUCKS, REVEALS, AND ALL SURFACES NOT INCLUDING FLOOR AND CEILINGS.

3. PAINT GYPSUM CEILINGS AND WALLS AS PER FINISH SCHEDULE.

4. PAINT COLORS AND TEXTURES SHALL BE SELECTED AND SPECIFIED IN FINISH SCHEDULE, AND CONTRACTOR SHALL SUBMIT THREE 18"X18" SAMPLES OF EACH SELECTED COLOR AND TEXTURE FOR DESIGNERS REVIEW.

5. ALL WALLS AND CEILINGS SHALL BE PROPERLY PREPARED, SPACKLED, SANDED, ETC., TO PROVIDE A PERFECTLY SMOOTH SURFACE TO RECEIVE PAINT, SKIM COAT, ETC. AS REQUIRED.

6. ALL PAINT SHALL BE WATER BASED PAINT, PROVIDE ONE (1) PRIMER COAT AND TWO (2) FINISH COATS OF PAINT AS SPECIFIED IN FINISH SCHEDULE.

7. ALL ROOMS TO BE BENJAMIN MOORE AURA, DUNN EDWARDS SUPREMA OR APPROVED EQUAL. COLORS & FINISH TBD BY DESIGNER.

K. PLUMBING NOTES:

1. PROVIDE ALL PLUMBING ROUGHING AS INDICATED OR IMPLIED BY CONTRACT DOCUMENTS.
2. ALL FIXTURES AND ACCESSORIES TO BE PROVIDED AND INSTALLED BY CONTRACTOR AS PER MANUFACTURER'S GUIDELINES. IF CONTRACTOR FINDS THAT COMPONENTS OR ITEMS ARE MISSING WHICH ARE REQUIRED FOR THE COMPLETE INSTALLATION AS IMPLIED IN THE CONTRACT DOCUMENTS THE GC SHALL NOTIFY THE DESIGNER IMMEDIATELY FOR COORDINATION.

3. PLUMBING WORK SHALL BE COORDINATED WITH ALL OTHER TRADES.

4. INSTALL FIXTURES, LINES OR PIECES OF THE APPROVED ALL VALVES AS INDICATED ON THE DRAWINGS OR AS MAY BE REQUIRED FOR THE PROPER CONTROL OF THE VARIOUS APPARATUS AND PIPELINES SO THAT ANY OF THE FIXTURE, LINES OR PIECES OF APPARATUS MAY BE CUT OFF FOR REPAIR WITHOUT INTERFERING OR INTERRUPTING SERVICE TO THE REST OF THE PROJECT. ALL VALVES SHALL BE DESIGNED FOR REPACKING WHEN WIDE OPEN UNDER PRESSURE.

5. BEFORE BEING COVERED UP OR BUILT IN, ALL PIPING SHALL BE TESTED AS REQUESTED BY THE AUTHORITIES HAVING JURISDICTION AND WITNESS BY THE OWNER, DESIGNER AND OR BUILDING ENGINEER.

6. DIVERSION OF PLUMBING SHALL NOT INTERRUPT DRAINAGE SERVICE IN ANY WAY.

7. REMOVE ANY DORMANT PIPES DISCOVERED.

8. CONTRACTOR TO ENSURE THAT ANY EXISTING PIPES ARE IN GOOD CONDITION OR REMEDY OR REPLACE EXISTING PIPES.

9. IDENTIFY ALL ITEMS REQUIRING SERVICE ACCESS AND PROVIDE APPROVED TYPE ACCESS DOORS. SUCH LOCATIONS TO BE COORDINATED AND APPROVED BY DESIGNER. ACCESS DOOR TO BE RECESSED FOR DRYWALL SURFACES.

10. IF REQUIRED A NEW WATER METER SHALL BE INSTALLED TO MEET CAPACITY OF THE NEW DOMESTIC AND SPRINKLER CAPACITY DEMANDS.

11. WATER METERS SHALL BE PLACED NEAR THE PROPERTY LINE AND OUT OF THE DRIVEWAY APPROACH WHENEVER POSSIBLE.

12. THE WATER METER BOX MUST BE PURCHASED FORM THE CITY AND MUST HAVE A TRAFFIC RATED LID IF THE BOX IS LOCATED IN THE DRIVEWAY.

L. WOOD FLOORING:

1. GENERAL STANDARDS TO COMPLY WITH RECOMMENDATIONS OF NATIONAL FLOORING MANUFACTURER'S ASSOCIATION (NOFMA).

2. FLOORING TO BE INSTALLED AS SPECIFIED IN FINISH SCHEDULE AND AS PER MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.

3. PROTECT FLOORING FROM EXCESSIVE MOISTURE IN SHIPMENT, STORAGE AND HANDLING. DELIVER IN UNOPENED CARTONS OR BUNDLES AND STORE IN A DRY PLACE WITH ADEQUATE AIR CIRCULATION. DO NOT DELIVER MATERIAL TO BUILDING UNTIL WET WORK SUCH AS CONCRETE HAVE BEEN COMPLETED AND CURED TO A CONDITION OF EQUILIBRIUM.

4. PROVIDE MOCK-UP OF WOOD 4'X4' SQUARE ON SITE (TO BE REPLACED WITH FINAL FLOORING) FOR DESIGNER AND OWNER REVIEW AND APPROVE.

5. WHERE THE SUBFLOOR IS NOT LEVEL, THE CONTRACTOR SHALL TAKE MEASURES TO LEVEL THE SUBSTRATE WITHOUT AFFECTING THE INSTALLATION OF FLOOR.

6. GRAIN/BOARD DIRECTION SHALL BE INDICATED ON FLOOR PLAN.

7. CONTRACTOR SHALL PROVIDE MANUFACTURER RECOMMENDED VAPOR BARRIER OVER SUBFLOOR THROUGHOUT PROJECT AND PROVIDE 1/4" FLOOR UNDERLAYMENT

8. CONTRAC

O. GLASS NOTES:

1. ALL GLASS SHALL BE SIZED CRITICAL BASED ON FIELD DIMENSIONS

2. ALL GLASS IN CONSTRUCTION, SHALL BE WATER WHITE GLASS AND TEMEPRED WHERE REQUIRED BY CODE

P. TEMPORARY MEASURES:

1. GC SHALL MAINTAIN A COMPUTER & INTERNET CONNECTION TO RECEIVE SKETCHES & TRANSMISSIONS ON SITE DURING CONSTRUCTION. GC SHALL ALSO PROVIDE THE DESIGNER WITH A TELEPHONE NUMBER FOR THE JOB SITE WHETHER WIRED OR MOBILE.

2. GC TO PROVIDE A FIRE EXTINGUISHER AND FIRST AID KIT ON SITE DURING CONSTRUCTION.

3. GC SHALL PROVIDE A NEST WEBCAM OR APPROVED EQUIVALENT FOR REMOTE VIEWING OF SITE FROM TWO LOCATIONS. OWNER SHALL INSTALL & PAY COST OF INTERNET BANDWITH TO SUPPORT CONTINUOUS CAMERA FEED.

Q. DEPARTMENT NOTES:

1. GC TO REFER TO APPLICABLE FIRE CODE NOTES RELEVANT TO NEW CONSTRUCTION OF SINGLE FAMILY RESIDENCE.

2. PROJECT CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE STANDARDS OF THE MOST CURRENT BUILDING AND MUNICIPAL CODES AS ADOPTED BY GOVERNING JURISDICTIONS OF THE PROJECT LOCATION AT TIME OF INITIAL FILING.

3. A SET OF PLANS MUST REMAIN ON THE JOB SITE AT ALL TIMES. APPOINTMENTS FOR INSPECTIONS, IF REQUIRED, SHOULD BE MADE AT LEAST TWO DAYS IN ADVANCE OF THE REQUIRED INSPECTION.

4. A 2A10BC FIRE EXTINGUISHER IS RECOMMENDED FOR HOUSEHOLD USE.

5. IF APPLICABLE, APPROVED ADDRESS NUMBERS SHALL BE ATTACHED TO BUILDING PER HOA GUIDELINES.

6. STRUCTURES UNDER CONSTRUCTION, ALTERATION, OR DEMOLITION SHALL BE PROVIDED WITH NOT LESS THAN ONE 2A10BC FIRE EXTINGUISHER AS FOLLOWS: 1) ON ALL FLOORS WHERE COMBUSTIBLE MATERIALS HAVE ACCUMULATED 2) IN EVERY STORAGE AND CONSTRUCTION SHED 3) WHERE SPECIAL HAZARDS EXIST INCLUDING BUT NOT LIMITED TO THE STORAGE AND USE OF COMBUSTIBLE AND FLAMMABLE LIQUIDS.

7. PROVIDE FIRE HYDRANT FOR THE PROPERTY AS REQ'D PER NLTFD REQUIREMENTS AND IFC Table C102.1 (IFC Appendix C).

8. ALL BUILDINGS EQUIPED WITH AN AUTOMATIC FIRE SPRINKLER SYSTEM SHALL HAVE A MONITORED FIRE ALARM PER (IFC 903.4) PLANS AND INSTALLATION OF 13R FIRE SPRINKLER AND MONITORED FIRE ALARM SYSTEM UNDER SEPARATE PERMIT PER RESOLUTION 16-1.

R. LANDSCAPE & LANDSCAPE IRRIGATION:

1. ALL LANDSCAPE IRRIGATION BACKFLOW DEVICES MUST MEET CURRENT JURISDICTION'S REQUIREMENTS FOR PROPER INSTALLATION.

S. FIRE PROTECTION

1. (IFC 907.2.10): INTERCONNECTED SMOKE ALARMS SHALL BE INSTALLED INSIDE ALL BEDROOMS, ON THE CEILING OR WALL OUTSIDE OF EACH BEDROOM AND IN EVERY STORY IN THE DWELLING UNIT INCLUDING BASEMENTS BUT NOT CRAWL SPACES, UNINHABITED ATTICS AND GARAGES.

2. CARBON MONOXIDE ALARMS SHALL BE INSTALLED IMMEDIATELY OUTSIDE OF ALL BEDROOMS AND IN THE IMMEDIATE VICINITY OF BEDROOMS IN DWELLING UNITS WITHIN WHICH FUEL FIRED APPLIANCES ARE INSTALLED, AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES.

3. CARBON MONOXIDE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING, SHALL BE EQUIPPED WITH A BATTERY BACKUP AND INTERCONNECTED

4.CUT SHEETS OF ALL DEVICES SHALL BE SUBMITTED TO ARCHITECT PRIOR TO PURCHASE AND INSTALLATION

5. FIRE SUPPRESSION SHALL BE PROVIDED IN NEW DWELLING UNIT, ATTACHED GARAGE AND ANY CRAWL SPACES IF APPLICABLE. THE AUTOMATIC RESIDENTIAL SPRINKLER SYSTEM WILL COMPLY WITH NFPA 13R, MONITORED BY AN APPROVED FIRE ALARM SYSTEM IN ACCORDANCE WITH NFPA 72, AND PER REQ'S OF AUTHORITY HAVING JURISDICTION.

T. COUNTY RIGHT-OF-WAY

1. AN EXCAVATION AND ENCROACHMENT PERMIT IS REQUIRED PRIOR TO ANY IMPROVEMENTS N THE COUNTY RIGHT-OF-WAY, PERMIT MUST BE OBTAIN BY COUNTY APPROVED CONTRACTOR.

2. A REVOCABLE OCCUPANCY PERMIT MUST BE OBTAINED SHALL THE BEAR BOX LOCATION BE WITHIN 12' OF EDGE OF PAVEMENT.

BADGER RESIDENCE

OWNER:
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P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
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STRUCTURAL ENGINEER:
LFA
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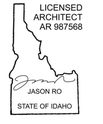
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:



NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
GENERAL NOTES

DRAWING NUMBER:
G-004

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.3 [FI18][1]	Manufacturer manuals for mechanical and water heating systems have been provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6.1 [FI25][1]	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits per Table R403.6.1.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2 [FI26][1]	Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.1 [FI28][1]	Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermos-syphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls shall automatically turn off the pump when water is in circulation loop is at set-point temperature and no demand for hot water exists.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.2 [FI29][1]	Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.2 [FI30][1]	Demand recirculation water systems have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to <= 104°F.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.4 [FI31][1]	Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units < 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units < 2 psi for individual units connected to three or more showers.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1 [FI6][1]	90% or more of permanent fixtures have high efficacy lamps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1.1 [FI23][1]	Fuel gas lighting systems have no continuous pilot light.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
401.3 [FI7][1]	Compliance certificate posted.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1 [IN13][1]	All installed insulation is labeled or the installed R-values provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.6 [IN1][1]	Floor insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2, 402.2.8 [IN2][1]	Floor insulation installed per manufacturer's instructions and in substantial contact with the underside of the subfloor, or floor framing cavity insulation is in contact with the top side of sheathing, or continuous insulation is installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.5, 402.2.6 [IN3][1]	Wall insulation R-value. If this is a mass wall with at least ½ of the wall insulation on the wall exterior, the exterior insulation requirement applies (FR10).	R-____ ☐ Wood ☐ Mass ☐ Steel	R-____ ☐ Wood ☐ Mass ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2 [IN4][1]	Wall insulation is installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Framing / Rough-in Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.5.3 [FR18][1]	Hot water pipes are insulated to ≥R-3.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.6 [FR19][1]	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.2 [FI22][1]	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.4 [FI3][1]	Attic access hatch and door insulation ≥R-value of the adjacent assembly.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.2 [FI17][1]	Blower door test @ 50 Pa. <=5 ach in Climate Zones 1-2, and <=3 ach in Climate Zones 3-8.	ACH 50 =____	ACH 50 =____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.3 [FI27][1]	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Post-construction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	____ cfm/100 ft²-____	____ cfm/100 ft²-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.4 [FI4][1]	Duct tightness test result of <=4 cfm/100 ft2 across the system or <=3 cfm/100 ft2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing Inspection.	____ cfm/100 ft²-____	____ cfm/100 ft²-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2.1 [FI24][1]	Air handler leakage designated by manufacturer at <=2% of design air flow.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.1 [FI9][1]	Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.2 [FI10][1]	Heat pump thermostat installed on heat pumps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1 [FI11][1]	Circulating service hot water systems have automatic or accessible manual controls.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Framing / Rough-in Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.3.3, 402.5 [FR2][1]	Glazing U-factor (area-weighted average).	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.3 [FR4][1]	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.3.3, 402.3.6, 402.5 [FR3][1]	Skylight U-factor.	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.4.1.1 [FR23][1]	Air barrier and thermal barrier installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.3 [FR20][1]	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.5 [FR16][1]	IC-rated recessed lighting fixtures sealed at housing/interior finish and labeled to indicate ≤2.0 cfm leakage at 75 Pa.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.1 [FR12][1]	Supply and return ducts in attics insulated >= R-8 where duct is >= 3 inches in diameter and >= R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated >= R-6 for diameter >= 3 inches and R-4.2 for < 3 inches in diameter.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2 [FR13][1]	Ducts, air handlers and filter boxes are sealed with joints/seams compliant with International Mechanical Code or International Residential Code, as applicable.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.5 [FR15][1]	Building cavities are not used as ducts or plenums.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4 [FR17][1]	HVAC piping conveying fluids above 105 °F or chilled fluids below 55 °F are insulated to ≥R-3.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4.1 [FR24][1]	Protection of insulation on HVAC piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Foundation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.2 [FO1][1]	Slab edge insulation R-value.	R-____ ☐ Unheated ☐ Heated	R-____ ☐ Unheated ☐ Heated	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.1.2 [FO3][1]	Slab edge insulation depth/length.	____ ft	____ ft	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2.1 [FO11][1]	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.9 [FO12][1]	Snow- and ice-melting system controls installed.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [PR1][1]	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [PA3][1]	Construction drawings and documentation demonstrate energy code compliance for mechanical ventilation systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
302.1, 403.7 [PR2][1]	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr-____ Cooling: Btu/hr-____	Heating: Btu/hr-____ Cooling: Btu/hr-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [FI1][1]	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [FA3][1]	Construction drawings and documentation demonstrate energy code compliance for mechanical ventilation systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
302.1, 403.7 [FA2][1]	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr-____ Cooling: Btu/hr-____	Heating: Btu/hr-____ Cooling: Btu/hr-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2018 IECC requirements in REScheck Version : REScheck-Web and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Name - Title _____ Signature _____ Date _____

Generated by RES*check-Web* Software

Compliance Certificate

Project 121 Badger Lane Main House

Energy Code:	**2018 IECC**
Location:	**Ketchum, Idaho**
Construction Type:	**Single-family**
Project Type:	**New Construction**
Conditioned Floor Area:	**7,870 ft2**
Glazing Area	**39%**
Climate Zone:	**6 (8280 HDD)**
Permit Date:	
Permit Number:	

Construction Site:
121 Badger Lane
Ketchum, ID 83340

Owner/Agent:
Matt Scoggins
Presidio Vista Properties
214-557-5533
matt@presidiovistaproperties.com

Designer/Contractor:

Compliance: Passes using UA trade-off

Compliance: **0.3% Better Than Code** Maximum UA: **1417** Your UA: **1413**

The % Better or Worse Than Code Index reflects how close to compliance the house is based on code trade-off rules. It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Slab-on-grade tradeoffs are no longer considered in the UA or performance compliance path in REScheck. Each slab-on-grade assembly in the specified climate zone must meet the minimum energy code insulation R-value and depth requirements.

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
Flat Ceilings: Flat Ceiling or Scissor Truss	183	49.0	0.0	0.026	0.026	5	5
Vaulted Ceilings: Cathedral Ceiling	5,314	54.0	0.0	0.020	0.026	105	137
Skylight: Metal Frame	57			0.550	0.550	31	31
Exterior Walls: Wood Frame, 16" o.c.	7,588	27.0	0.0	0.051	0.045	220	194
Sliding Glass Doors: Glass Door (over 50% glazing)	854			0.300	0.300	256	256
Windows: Metal Frame	2,424			0.300	0.300	727	727
Walls Adjacent to Garage: Wood Frame, 16" o.c.	799	23.0	0.0	0.055	0.045	44	36
Floor Overhangs: All-Wood Joist/Truss	24	38.0	0.0	0.026	0.033	1	1
Floor over Garage: All-Wood Joist/Truss	912	38.0	0.0	0.026	0.033	24	30
Slab On-Grade: Slab-On-Grade (Heated) Insulation depth: 4.0'	394		15.0	0.440	0.645	0	0

RES*check* Software Version : REScheck-Web

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the REScheck software

Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [PR1][1]	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [PA3][1]	Construction drawings and documentation demonstrate energy code compliance for mechanical ventilation systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
302.1, 403.7 [PR2][1]	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr-____ Cooling: Btu/hr-____	Heating: Btu/hr-____ Cooling: Btu/hr-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

2018 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	**27.00**
Below-Grade Wall	**0.00**
Floor	**38.00**
Ceiling / Roof	**54.00**
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	**0.30**	
Door	**0.30**	
Skylight	**0.55**	

Heating & Cooling Equipment	Efficiency
Heating System:_____	_____
Cooling System:_____	_____
Water Heater:_____	_____

Name:_____ **Date:**_____

Comments

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER

#2201

N

DRAWING TITLE:

ENERGY COMPLIANCE- MAIN HOUSE

DRAWING NUMBER:

G-005

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.3 [IN13][1]	Manufacturer manuals for mechanical and water heating systems have been provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1 [IN13][1]	All installed insulation is labeled or the installed R-values provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.6 [IN1][1]	Floor insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2, 402.2.8 [IN2][1]	Floor insulation installed per manufacturer's instructions and in substantial contact with the underside of the subfloor, or floor framing cavity insulation is in contact with the top side of sheathing, or continuous insulation is installed on the underside of floor framing and extends from the bottom to the top of all perimeter floor framing members.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.5, 402.2.6 [IN3][1]	Wall insulation R-value. If this is a mass wall with at least ½ of the wall insulation on the wall exterior, the exterior insulation requirement applies (FR10).	R-____ ☐ Wood ☐ Mass ☐ Steel	R-____ ☐ Wood ☐ Mass ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2 [IN4][1]	Wall insulation is installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Framing / Rough-in Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.4.1 [FR24][1]	Protection of insulation on HVAC piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.3 [FR18][1]	Hot water pipes are insulated to ≥R-3.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.6 [FR19][1]	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.8.1 [FI25][1]	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits per Table R403.6.1.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.2 [FI26][1]	Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.1 [FI28][1]	Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermos-syphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls stop the circulation pump when water is in circulation loop is at set-point temperature and no demand for hot water exists.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1.2 [FI29][1]	Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.2 [FI30][1]	Demand recirculation water systems have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to <= 104ºF.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.4 [FI31][1]	Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units < 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units < 2 psi for individual units connected to three or more showers.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1 [FI6][1]	90% or more of permanent fixtures have high efficacy lamps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
404.1.1 [FI23][1]	Fuel gas lighting systems have no continuous pilot light.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
401.3 [FI7][1]	Compliance certificate posted.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.2.2, 402.2.6 [FI1][1]	Ceiling insulation R-value.	R-____ ☐ Wood ☐ Steel	R-____ ☐ Wood ☐ Steel	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.1.1, 303.2 [FI2][1]	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft².			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.3 [FI22][1]	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.2.4 [FI3][1]	Attic access hatch and door insulation ≥R-value of the adjacent assembly.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.1.2 [FI17][1]	Blower door test @ 50 Pa. <=5 ach in Climate Zones 1-2, and <=3 ach in Climate Zones 3-8.	ACH 50 =____	ACH 50 =____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.3 [FI27][1]	Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Post-construction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.4 [FI4][1]	Duct tightness test result of <=4 cfm/100 ft2 across the system or <=3 cfm/100 ft2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing Inspection.	____ cfm/100 ft²	____ cfm/100 ft²	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2.1 [FI24][1]	Air handler leakage designated by manufacturer at <=2% of design air flow.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.1 [FI9][1]	Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.1.2 [FI10][1]	Heat pump thermostat installed on heat pumps.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.5.1 [FI11][1]	Circulating service hot water systems have automatic or accessible manual controls.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Framing / Rough-in Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.2.1, 402.3.6, 402.5 [FR3][1]	Door U-factor.	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.1.1, 402.2.1, 402.3.3, 402.5 [FR2][1]	Glazing U-factor (area-weighted average).	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.1.3 [FR4][1]	U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.1.1, 402.2.1, 402.3.6, 402.5 [FR5][1]	Skylight U-factor.	U-____	U-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.4.1.1 [FR23][1]	Air barrier and thermal barrier installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.3 [FR20][1]	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
402.4.5 [FR16][1]	IC-rated recessed lighting fixtures sealed at housing/interior finish and labeled to indicate ≤2.0 cfm leakage at 75 Pa.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.1 [FR12][1]	Supply and return ducts in attics insulated >= R-8 where duct is >= 3 inches in diameter and >= R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated >= R-6 for diameter >= 3 inches and R-4.2 for < 3 inches in diameter.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.2 [FR13][1]	Ducts, air handlers and filter boxes are sealed with joints/seams compliant with International Mechanical Code or International Residential Code, as applicable.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.3.5 [FR15][1]	Building cavities are not used as ducts or plenums.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.4 [FR17][1]	HVAC piping conveying fluids above 105 ºF or chilled fluids below 55 ºF are insulated to ≥R-3.	R-____	R-____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Foundation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.2 [FO1][1]	Slab edge insulation R-value.	R-____ ☐ Unheated ☐ Heated	R-____ ☐ Unheated ☐ Heated	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
402.1.2 [FO3][1]	Slab edge insulation depth/length.	____ ft	____ ft	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
303.2.1 [FO11][1]	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
403.9 [FO12][1]	Snow- and ice-melting system controls installed.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [PR1][1]	Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
103.1, 103.2, 403.7 [PR3][1]	Construction drawings and documentation demonstrate energy code compliance for HVAC and water heating systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
302.1, 403.7 [PR2][1]	Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.	Heating: Btu/hr____ Cooling: Btu/hr____	Heating: Btu/hr____ Cooling: Btu/hr____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2018 IECC requirements in REScheck Version : REScheck-Web and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Name - Title | Signature | Date

Generated by RES*check*-*Web* Software

Compliance Certificate

Project 121 Badger Lane ADU

Energy Code:	**2018 IECC**
Location:	**Ketchum, Idaho**
Construction Type:	**Single-family**
Project Type:	**New Construction**
Conditioned Floor Area:	**1,523 ft2**
Glazing Area	**26%**
Climate Zone:	**6 (8280 HDD)**
Permit Date:	
Permit Number:	

Construction Site:
121 Badger Ln
ADU
Ketchum, ID 83340

Owner/Agent:
Matt Scoggins
Presidio Vista Properties
2145575533
matt@presidiovistaproperties.com

Designer/Contractor:

Compliance: Passes using UA trade-off

Compliance: **0.0% Better Than Code** Maximum UA: **404** Your UA: **404**

The % Better or Worse Than Code Index reflects how close to compliance the house is based on code trade-off rules. It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Slab-on-grade tradeoffs are no longer considered in the UA or performance compliance path in REScheck. Each slab-on-grade assembly in the specified climate zone must meet the minimum energy code insulation R-value and depth requirements.

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
Flat Ceilings: Flat Ceiling or Scissor Truss	111	49.0	0.0	0.026	0.026	3	3
Vaulted Ceilings: Cathedral Ceiling	984	54.0	0.0	0.020	0.026	20	25
Skylight: Metal Frame	9			0.550	0.550	5	5
Exterior Walls: Wood Frame, 16" o.c.	2,528	27.0	0.0	0.051	0.045	85	75
Entry Door: Solid Door (under 50% glazing)	33			0.350	0.300	12	10
Mech Door: Solid Door (under 50% glazing)	24			0.350	0.300	8	7
Sliding Glass Doors: Glass Door (over 50% glazing)	385			0.300	0.300	116	116
Windows: Metal Frame	423			0.270	0.300	114	127
Walls Adjacent to Garage: Wood Frame, 16" o.c.	582	23.0	0.0	0.055	0.045	31	25
Door to Garage: Solid Door (under 50% glazing)	24			0.350	0.300	8	7
Floor over Garage: All-Wood Joist/Truss	18	38.0	0.0	0.026	0.033	0	1
Floor Overhangs: All-Wood Joist/Truss	89	38.0	0.0	0.026	0.033	2	3
Slab On-Grade: Slab-On-Grade (Heated) Insulation depth: 4.0'	148		15.0	0.440	0.645	0	0

RES*check* Software Version : REScheck-Web

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the REScheck software

Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

2018 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Above-Grade Wall	**27.00**
Below-Grade Wall	**0.00**
Floor	**15.00**
Ceiling / Roof	**54.00**
Ductwork (unconditioned spaces):	

Glass & Door Rating	U-Factor	SHGC
Window	**0.27**	
Door	**0.30**	
Skylight	**0.55**	

Heating & Cooling Equipment	Efficiency
Heating System:_____	_____
Cooling System:_____	_____
Water Heater:_____	_____

Name:_____ **Date:**_____

Comments

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER

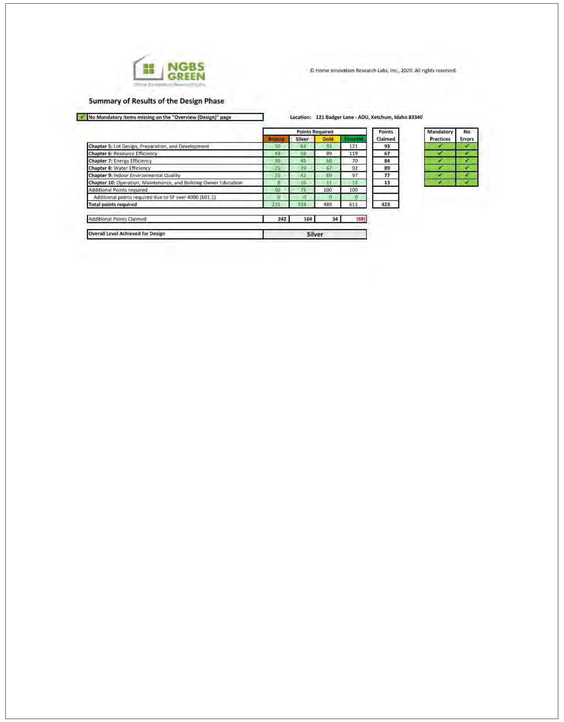
#2201

DRAWING TITLE:

ENERGY COMPLIANCE- ADU

DRAWING NUMBER:

G-006



NGBS GREEN
Home Innovation's Research Labs

Summary of Results of the Design Phase

☑ No Mandatory Items missing on the "Overview (Design)" page

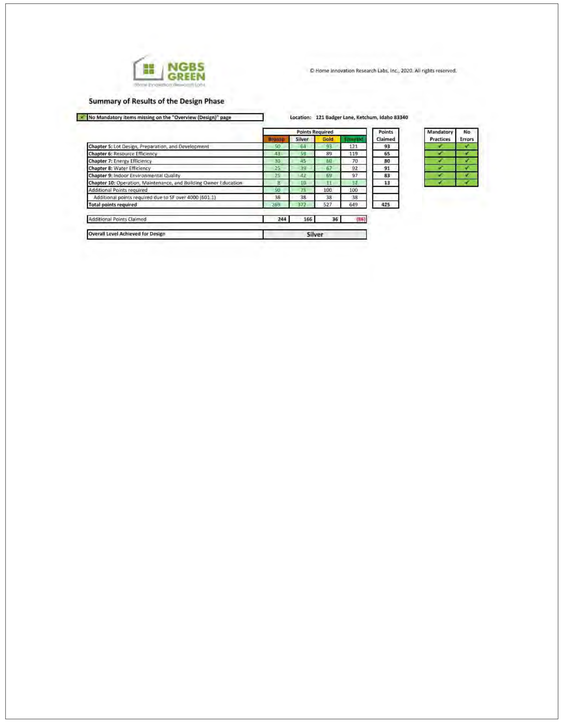
Location: 121 Badger Lane - ADU, Ketchum, Idaho 83340

	Points Required				Points Claimed	Mandatory Practices	No Errors
	Bronze	Silver	Gold	Emerald			
Chapter 5: Lot Design, Preparation, and Development	50	64	93	121	93	✓	✓
Chapter 6: Resource Efficiency	43	58	89	119	67	✓	✓
Chapter 7: Energy Efficiency	35	45	66	70	84	✓	✓
Chapter 8: Water Efficiency	25	39	62	92	89	✓	✓
Chapter 9: Indoor Environmental Quality	35	42	69	97	77	✓	✓
Chapter 10: Operation, Maintenance, and Building Owner Education	8	10	11	12	13	✓	✓
Additional Points required	50	75	100	100			
Additional points required due to SF over 4000 (601.1)	8	9	9	8			
Total points required	239	344	499	611	423		

Additional Points Claimed	242	164	34	(98)
Overall Level Achieved for Design	Silver			

*REFER TO DOCUMENT SUBMITTAL FOR COMPLETE WORKBOOK SPREADSHEET

2 | SCALE: NA | **NGBS SUMMARY - ADU**



NGBS GREEN
Home Innovation's Research Labs

Summary of Results of the Design Phase

☑ No Mandatory Items missing on the "Overview (Design)" page

Location: 121 Badger Lane, Ketchum, Idaho 83340

	Points Required				Points Claimed	Mandatory Practices	No Errors
	Bronze	Silver	Gold	Emerald			
Chapter 5: Lot Design, Preparation, and Development	50	64	93	121	93	✓	✓
Chapter 6: Resource Efficiency	43	58	89	119	65	✓	✓
Chapter 7: Energy Efficiency	35	45	66	70	80	✓	✓
Chapter 8: Water Efficiency	25	39	62	92	91	✓	✓
Chapter 9: Indoor Environmental Quality	35	42	69	97	83	✓	✓
Chapter 10: Operation, Maintenance, and Building Owner Education	8	10	11	12	13	✓	✓
Additional Points required	50	75	100	100			
Additional points required due to SF over 4000 (601.1)	38	38	38	38			
Total points required	289	372	527	649	425		

Additional Points Claimed	244	160	36	(98)
Overall Level Achieved for Design	Silver			

*REFER TO DOCUMENT SUBMITTAL FOR COMPLETE WORKBOOK SPREADSHEET

1 | SCALE: NA | **NGBS SUMMARY - MAIN HOUSE**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
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HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

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TEL: 208.726.9512

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MEP ENGINEER:

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1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:

NATIONAL GREEN BUILDING STANDARDS CERTIFICATION

DRAWING NUMBER:

G-008

4/20/2023 3:

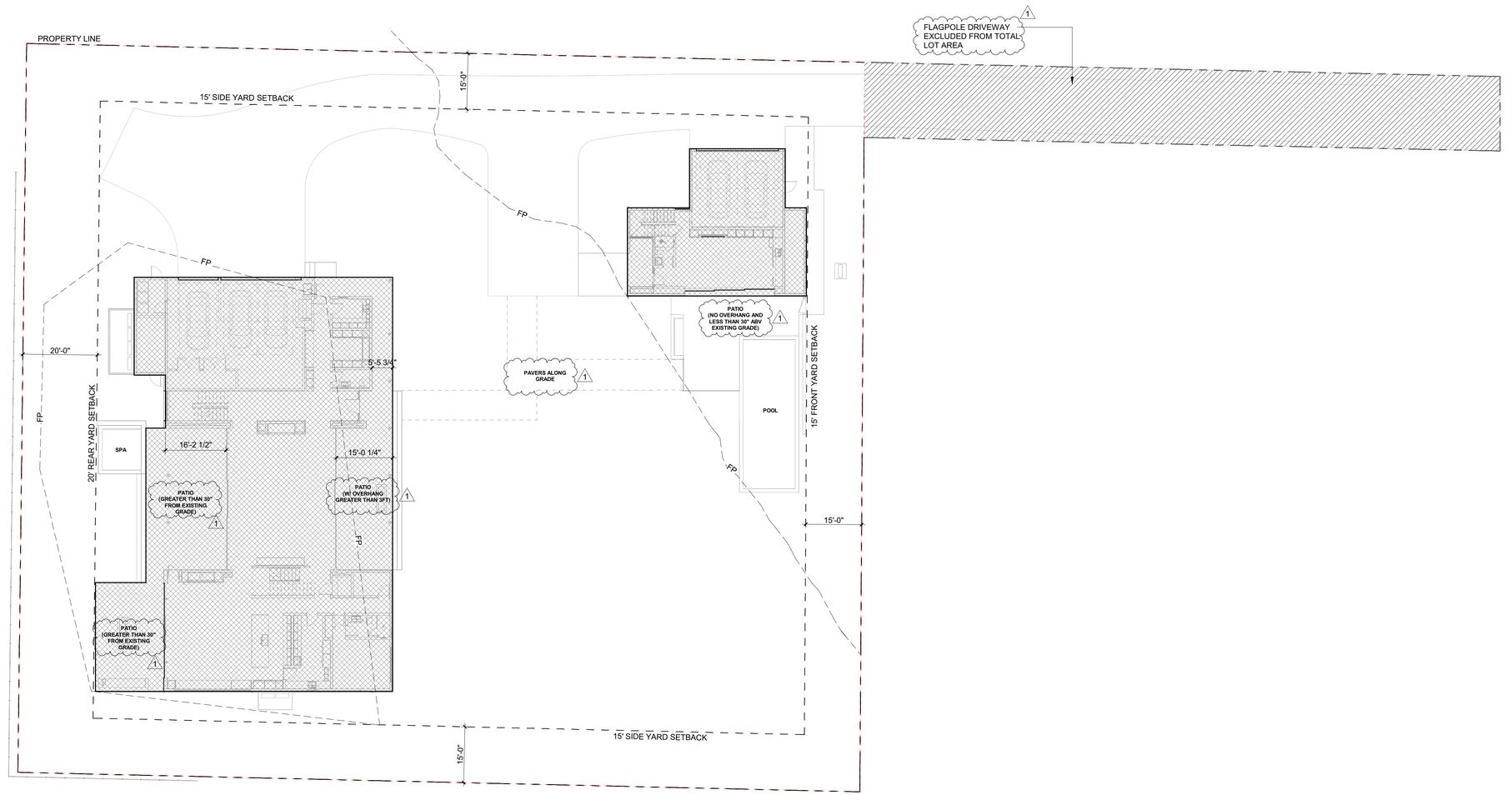
AREA OF BUILDING, PATIOS WITH OVERHANGS GREATER THAN 3 FT AND PATIOS ABOVE 30" FROM EXISTING GRADE AT ANY POINT

17.08.020 TERMS DEFINED

BUILDING COVERAGE: THE TOTAL SQUARE FOOTAGE OF THE BUILDING FOUNDATION AND ALL HORIZONTAL PROJECTIONS WHICH CONSTITUTE A "BUILDING" AS DEFINED IN THIS SECTION, BUT NOT INCLUDING ROOF OVERHANGS THAT ARE THREE FEET OR LESS OR UNCOVERED DECKS LESS THAN 30 INCHES ABOVE GRADE. GARAGES AND GUEST HOMES SHALL BE INCLUDED IN BUILDING COVERAGE. THE LOT AREA USED TO DETERMINE BUILDING COVERAGE SHALL BE THAT AREA LANDWARD SIDE OF THE MEAN HIGH WATER MARK ON THE BIG WOOD RIVER, TRAIL CREEK AND WARM SPRINGS CREEK.

TOTAL LOT AREA (EXCLUDING FLAGPOLE DRIVEWAY)
= 44,138 SF

TOTAL BUILDING COVERAGE (%) = (9,309 SF / 44,138 SF) X 100 = (21%)
MAX BUILDING COVERAGE FOR LR DISTRICT = 35%



1 | 1/16" = 1'-0" | **BUILDING COVERAGE**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
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317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
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270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:
LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
1	05.02.23	PERMIT REVIEW- REV 1
0	02.28.23	BUILDING PERMIT SUBMITTAL

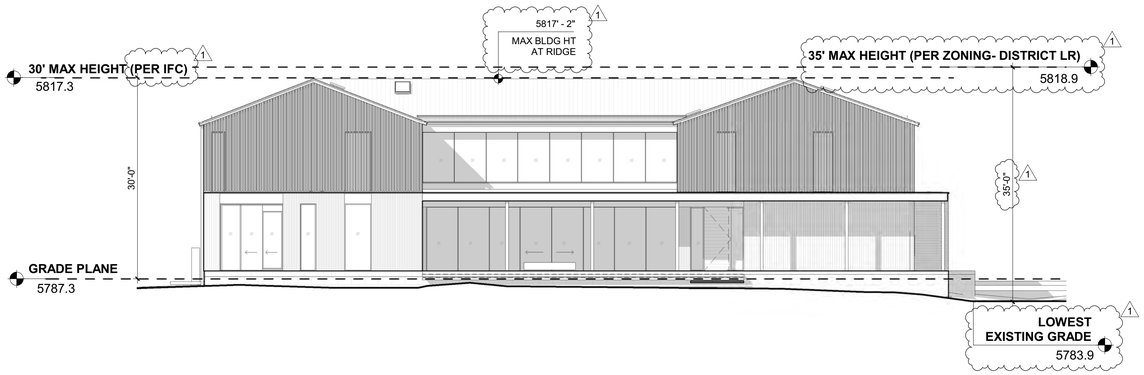
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

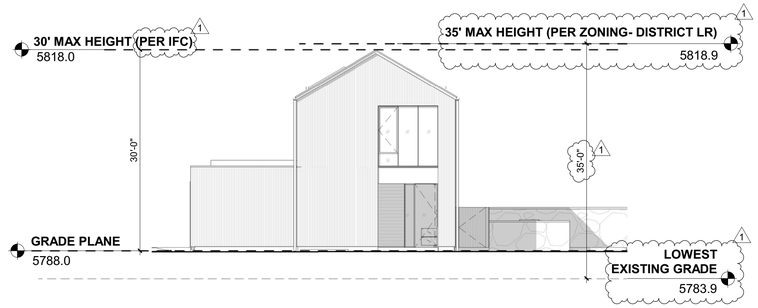
DRAWING TITLE:
LOT COVERAGE

DRAWING NUMBER:
G-010

4/20/2023 2:39:39 PM



01M 3/32" = 1'-0" **MAIN HOUSE ELEVATION**



01A 3/32" = 1'-0" **ADU ELEVATION**

INTERNATIONAL FIRE CODE (IFC) 2018 - CHAPTER 2 DEFINTIONS:

GRADE PLANE. A REFERENCE PLANE REPRESENTING THE AVERAGE OF FINISHED GROUND LEVEL ADJOINING THE BUILDING AT EXTERIOR WALLS.
WHERE THE FINISHED GROUND LEVEL SLOPES AWAY FROM THE EXTERIOR WALLS, THE REFERENCE PLANE SHALL BE ESTABLISHED BY THE LOWEST POINT WITHIN THE AREA BETWEEN THE LOT LINE, OR WHERE THE OT LINE IS MORE THAN 6' FROM THE BUILDING, BETWEEN THE BUILDING AND A POINT 6 FEET FROM THE BUILDING.

MAIN HOUSE - GRADE PLANE ELEVATION:

5786.2 + 5786 + 5786.5 + 5785.7 + 5787.5 + 5788.5 + 5788.5 + 5787.5 + 5786.2 + 5785.3 + 5788.5 + 5788.5 + 5788.5 + 5788.5 + 5788.5 + 5787

16

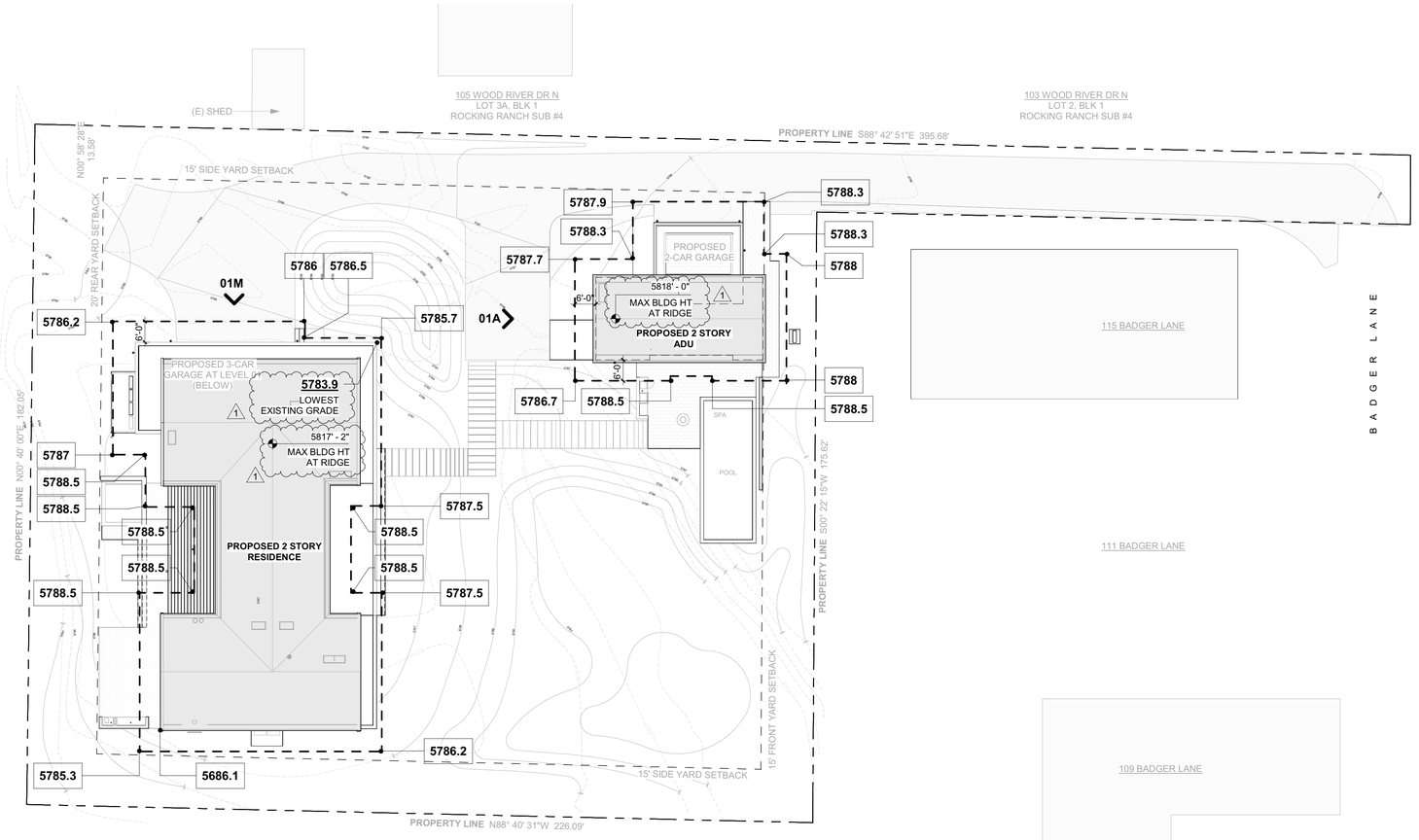
= 5787.3

ADU - GRADE PLANE ELEVATION:

5787.9 + 5788.3 + 5788.3 + 5788 + 5788 + 5788.5 + 5788.5 + 5786.7 + 5787.7 + 5788.3

10

=5788.0



1 1" = 20'-0" **SITE PLAN - HEIGHT DIAGRAM**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
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270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
1	05.02.23	PERMIT REVIEW- REV 1
0	02.28.23	BUILDING PERMIT SUBMITTAL

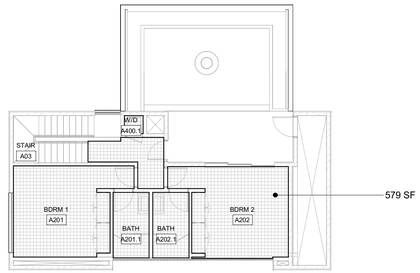
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

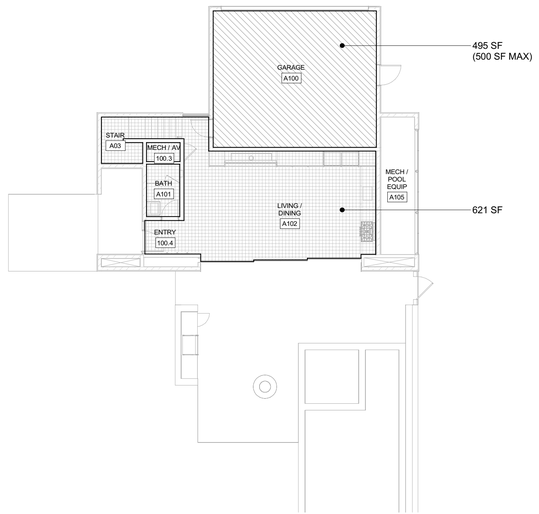
DRAWING TITLE:
HEIGHT DIAGRAM

DRAWING NUMBER:
G-011

2/28/2023 6:



2 | 3/32" = 1'-0" | **ADU - LEVEL 02 - NET LIVABLE AREA**



1 | 3/32" = 1'-0" | **ADU - LEVEL 01 - NET LIVABLE AREA**

ADU- NET LIVABLE AREA	
LEVEL	**AREA**
ADU - LEVEL 01	621 SF
ADU - LEVEL 02	579 SF
TOTAL	**1,200 SF**

**NET LIVABLE AREA (AS CONFIRMED BY CITY OF KETCHUM PLANNING DEPT) IS MEASURED FROM INSIDE FACE OF EXTERIOR WALLS EXCLUDING GARAGE, MECHANICAL ROOMS / SHAFTS, THICKNESS OF INTERIOR WALLS. STAIRS AND DOUBLE HEIGHT SPACES COUNTED ONLY ONCE*

17.124.070 ACCESSORY DWELLING UNITS

B. UNIT SIZE RESTRICTIONS. ACCESSORY DWELLING UNITS MUST CONTAIN A MINIMUM OF 300 SQUARE FEET OF NET LIVABLE SPACE, BUT CANNOT EXCEED 1,200 SQUARE FEET OF NET LIVABLE SPACE.

C. MAXIMUM BUILDING COVERAGE. THE MAXIMUM BUILDING COVERAGE OF AN ACCESSORY DWELLING UNIT, TOGETHER WITH THE PRIMARY DWELLING UNIT, SHALL BE THE COVERAGE REQUIREMENTS OF THE UNDERLYING ZONING DISTRICT SPECIFIED IN SECTION 17.12.030, "DIMENSIONSAL STANDARDS, DISTRICTS MATRIX", OF THIS TITLE. IF THE MAXIMUM BUILDING COVERAGE REQUIREMENT CAUSES SIGNIFICANT RESTRICTIONS TO THE CONSTRUCTION OF AN ACCESSORY DWELLING UNIT, AN INCREASE OF NO GREATER THAN FIVE PERCENT MAY BE GRANTED.

E. STORAGE. DESIGNATED STORAGE SHALL BE PROVIDED FOR ALL ACCESSORY DWELLING UNITS.

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
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KETCHUM, ID 83340
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TEL: 310.552.2191

SEAL:

LICENSED
ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
AREA CALCULATIONS- ADU NET LIVABLE

DRAWING NUMBER:
G-012

2/28/2023 2:39:39 PM

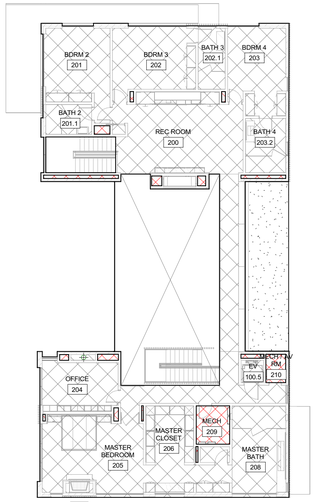
FLOOR AREA - CONDITIONED MH	
NAME	AREA
MH LEVEL 01 - CONDITIONED	4023 SF
MH LEVEL 02 - CONDITIONED	3532 SF
	7555 SF

FLOOR AREA - MECH	
NAME	AREA
MECH	473 SF

FLOOR AREA - GARAGE	
NAME	AREA
GARAGE	1142 SF

FLOOR AREA GROSS 9170 SF
- FLOOR AREA GARAGE 1142 SF
- FLOOR AREA MECH 473 SF

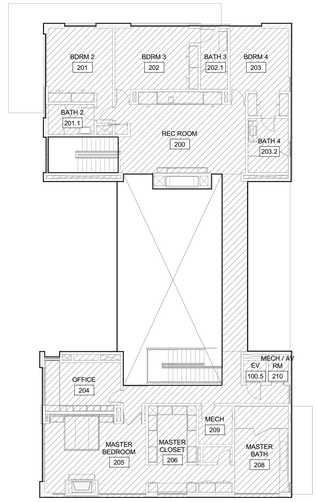
FLOOR AREA CONDITIONED 7555 SF



4 | 1/16" = 1'-0" | **MAIN HOUSE - LEVEL 02 / CONDITIONED**

FLOOR AREA - GROSS	
NAME	AREA
LEVEL 01 - GROSS	5486 SF
LEVEL 02 - GROSS	3683 SF
	9170 SF

FLOOR AREA GROSS EXCLUDES DOUBLE HEIGHT SPACES AND STAIRS AT TOP LEVEL



2 | 1/16" = 1'-0" | **MAIN HOUSE - LEVEL 02 / GROSS AREA**

FLOOR AREA - CONDITIONED MH	
NAME	AREA
MH LEVEL 01 - CONDITIONED	4023 SF
MH LEVEL 02 - CONDITIONED	3532 SF
	7555 SF

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NAME	AREA
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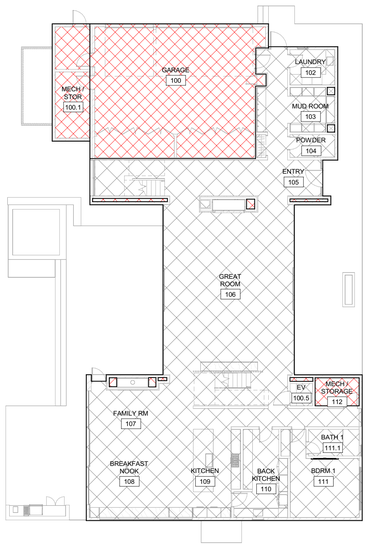
FLOOR AREA CONDITIONED 7555 SF



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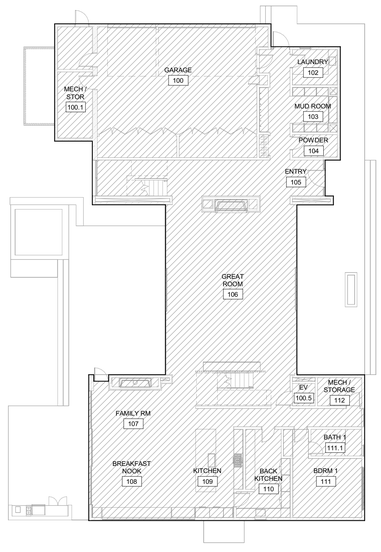
	9170 SF

FLOOR AREA GROSS EXCLUDES DOUBLE HEIGHT SPACES AND STAIRS AT TOP LEVEL



1 | 1/16" = 1'-0" | **MAIN HOUSE - LEVEL 01 / GROSS AREA**

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LICENSED ARCHITECT
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PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
AREA CALCULATIONS- MH GROSS / CONDITIONED

DRAWING NUMBER:
G-012.1

2/28/2023 6:

FLOOR AREA - CONDITIONED ADU

NAME	AREA
ADU LEVEL 01 - CONDITIONED	735 SF
ADU LEVEL 02 - CONDITIONED	716 SF
	1451 SF

FLOOR AREA - MECH

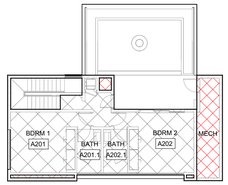
NAME	AREA
MECH	298 SF

FLOOR AREA - GARAGE

NAME	AREA
GARAGE	548 SF

FLOOR AREA GROSS 2297 SF
- FLOOR AREA GARAGE 548 SF
- FLOOR AREA MECH 298 SF

FLOOR AREA CONDITIONED 1451 SF

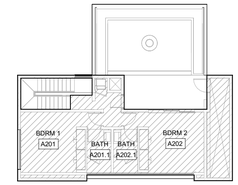


4 | 1/16" = 1'-0" | **ADU- LEVEL 02 / CONDITIONED**

FLOOR AREA - GROSS ADU

NAME	AREA
ADU LEVEL 01 - GROSS	1428 SF
ADU LEVEL 02 - GROSS	869 SF
	2297 SF

FLOOR AREA GROSS EXCLUDES DOUBLE HEIGHT SPACES AND STAIRS AT TOP LEVEL



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FLOOR AREA - CONDITIONED ADU

NAME	AREA
ADU LEVEL 01 - CONDITIONED	735 SF
ADU LEVEL 02 - CONDITIONED	716 SF
	1451 SF

FLOOR AREA - MECH

NAME	AREA
MECH	298 SF

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NAME	AREA
GARAGE	548 SF

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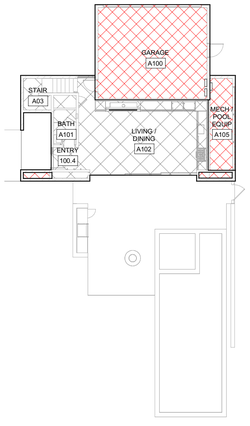
FLOOR AREA CONDITIONED 1451 SF



3 | 1/16" = 1'-0" | **ADU - LEVEL 01 / CONDITIONED**

FLOOR AREA - GROSS ADU

NAME	AREA
ADU LEVEL 01 - GROSS	1428 SF
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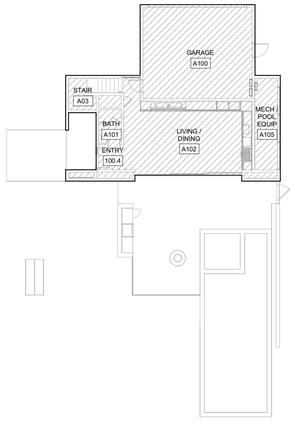

1 | 1/16" = 1'-0" | **ADU - LEVEL 01 / GROSS AREA**

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ARCHITECT
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JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
AREA CALCULATIONS- ADU GROSS / CONDITIONED

DRAWING NUMBER:
G-012.2

2/28/2023 6:

1 MAIN HOUSE | EAST ELEVATION VIEW - FRONT

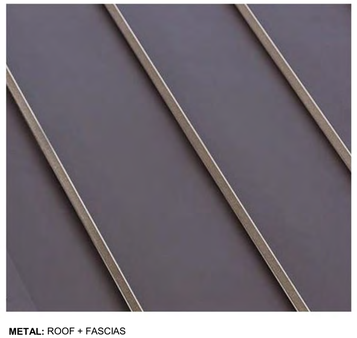
2 MAIN HOUSE | NORTH-EAST VIEW - DRIVEWAY

3 MAIN HOUSE | WEST ELEVATION VIEW - REAR

4 ADU | NORTH-EAST VIEW - DRIVEWAY

5 ADU | NORTH-WEST VIEW - GUEST PARKING & ENTRY

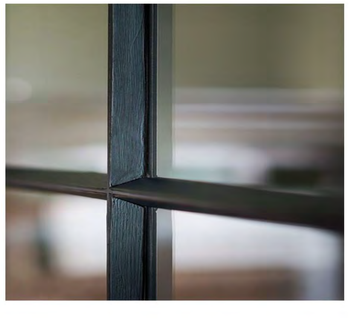
6 ADU | SOUTH ELEVATION VIEW - POOL DECK



METAL: ROOF + FASCIAS

WOOD: RAINSCREEN FACADE / SCREENS

CONCRETE: BASE + STEPS



METAL WINDOWS

STONE: LANDSCAPE WALLS

5 EXTERIOR MATERIALS

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

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SEAL:

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
PERSPECTIVE VIEWS & MATERIALS

DRAWING NUMBER:
G-013

Approved
These plans have been found to be in substantial compliance with the applicable building code. This document are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.
BLD2303-00021
06/26/23

PARCEL 4, ROCKING RANCH SUB #2

A TOPOGRAPHIC MAP SHOWING
LOCATED WITHIN SECTION 13, T.4 N., R.17 E., B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO
PREPARED FOR GEORGINA & CHARLES TRAIN

PROJECT INFORMATION
P:\adslkpnp\6144-03\dwg\Topo\6144-02_topo-working.dwg 6/21/22 9:41:59 PM

105 WOOD RIVER DR N
LOT 3A BLK 1
ROCKING RANCH SUB #4

103 WOOD RIVER DR N
LOT 2, BLK 1
ROCKING RANCH SUB #4

S88° 42' 51"E 395.68'

N88° 47' 14"W 170.74'

MATCHLINE, SEE BELOW

MATCHLINE, SEE ABOVE

103 WOOD RIVER DR N
LOT 2, BLK 1
ROCKING RANCH SUB #4

101 WOOD RIVER DR N
LOT 3, BLK 1, ROCKING RANCH SUB #4

S00° 10' 30"W 19.96'

ACCESS EASEMENT
TO BENEFIT 121 BADGER

CENTERLINE 10' POWERLINE
EASEMENT PER PLAT

115 BADGER LN
PARCEL 5, ROCKING RANCH SUB #2

111 BADGER LN
LOT 1
BADGER LANE ESTATES SUB

109 BADGER LN
LOT 1
BADGER LANE ESTATES SUB

225 BUSS ELLE RD
TL 8251

BLM SE1/4 OF THE NW1/4 OF SECTION 13

BLM E1/2 OF THE SW1/4 OF SECTION 13

C1/4 CORNER
SECTION 13

N00° 58' 28"E 1,330.05'

N00° 40' 00"E 182.05'

SHED

SHED LIES SLIGHTLY OVER PROPERTY LINE

AREA NOT WITHIN FLOODPLAIN

AREA WITHIN FLOODPLAIN

AREA NOT WITHIN FLOODPLAIN
REMOVED PER LOMA 14-10-1180A-160023

FIRM PANEL BASE FLOOD ELEVATION = 5786

INTERPOLATED BFE PER FIS = 5787.0

INTERPOLATED BFE PER FIS = 5786.1

INTERPOLATED BFE PER FIS = 5786.6

INTERPOLATED BFE PER FIS = 5785.6

INTERPOLATED BFE PER FIS = 5785.2

N88° 40' 31"W 226.09'

S00° 22' 15"W 175.62'

GRAPHIC SCALE
0 10 20
Feet

LEGEND

- Property Line
- Adjoiner's Lot Line
- Centerline
- FEMA Floodplain Line
- FDBC = Found Brass Cap
- FD5/8 = Found 5/8" Rebar
- FD1/2 = Found 1/2" Rebar
- CNTRL = Survey Control
- 5' Contour Interval
- 1' Contour Interval
- FNC = Fence Line
- Building / Structure
- EOA = Edge of Asphalt
- EOG = Edge Of Gravel
- CT = Conifer Tree
- DT = Deciduous Tree
- [ ] Record Bearing & Distance, Rocking Ranch No. 2, Instrument Number 340539
- TVBOX = Cable TV Riser
- PHBOX = Telephone Riser
- PMTR = Power Meter
- Sewer Main
- SS = Sewer Service
- Culvert
- WM = Water Main
- Well
- VB = Valve Box
- AP = Angle Point
- CLUST = Cluster
- CMP = Corrugated Metal Pipe
- EOA = Edge of Asphalt
- FL = Flow Line
- GB = Grade Break
- NG = Natural Ground
- TOE = Toe of Slope
- TOP = Top of Slope
- Interpolated BFE per FIS
- BFE per Firm Panel
- Wetlands per delineation performed by Sawtooth Environmental Consulting, LLC, performed May 18, 2022

SURVEY NARRATIVE & NOTES

1. The purpose of this map is to show topographical information as it existed on the date the field survey was performed. Changes may have occurred to site conditions since survey date (08/21/19).
2. Boundary information is based on Found Monumentation and the recorded plat of Rocking Ranch No. 2, Instrument Number 340539, records of Blaine County, Idaho. All found monuments have been accepted. Refer to the Plat Notes, Conditions, Covenants, and Restrictions on Original Plat.
3. Underground utility locations are based on Ketchum Utility Maps. Sub-surface utilities were not Located. Utilities should be located prior to any excavation.
4. Vertical Datum is NAVD 1988. Benchmark is top of Brass Cap located at the northwest corner of the lot.
   Elevation = 5785.79'
5. Letter of Map Amendment (LOMA) boundary is per FEMA Case No. 14-10-1180A, dated 05/15/2014. (Area removed from Floodplain)
6. Portions of Parcel 4, Rocking Ranch No. 2, lie within the 100-year Floodplain based on the FEMA 2010 Flood Study, as shown on FEMA Firm Panel 16013C0442E, with effective date of Nov. 26, 2010.

PROFESSIONAL LAND SURVEYOR
LICENSED
16670
09/05/19
STATE OF IDAHO
MARK E. PHILLIPS

MARK E. PHILLIPS, P.L.S. 16670

NO	DATE	BY	REVISIONS

DESIGNED BY
CT
DRAWN BY
SMF
CHECKED BY

GALENA ENGINEERING, INC.
Civil Engineers & Land Surveyors
317 N. River Street
Hailey, Idaho 83333
(208) 788-1705
(208) 788-4612 fax
email galena@galena-engineering.com

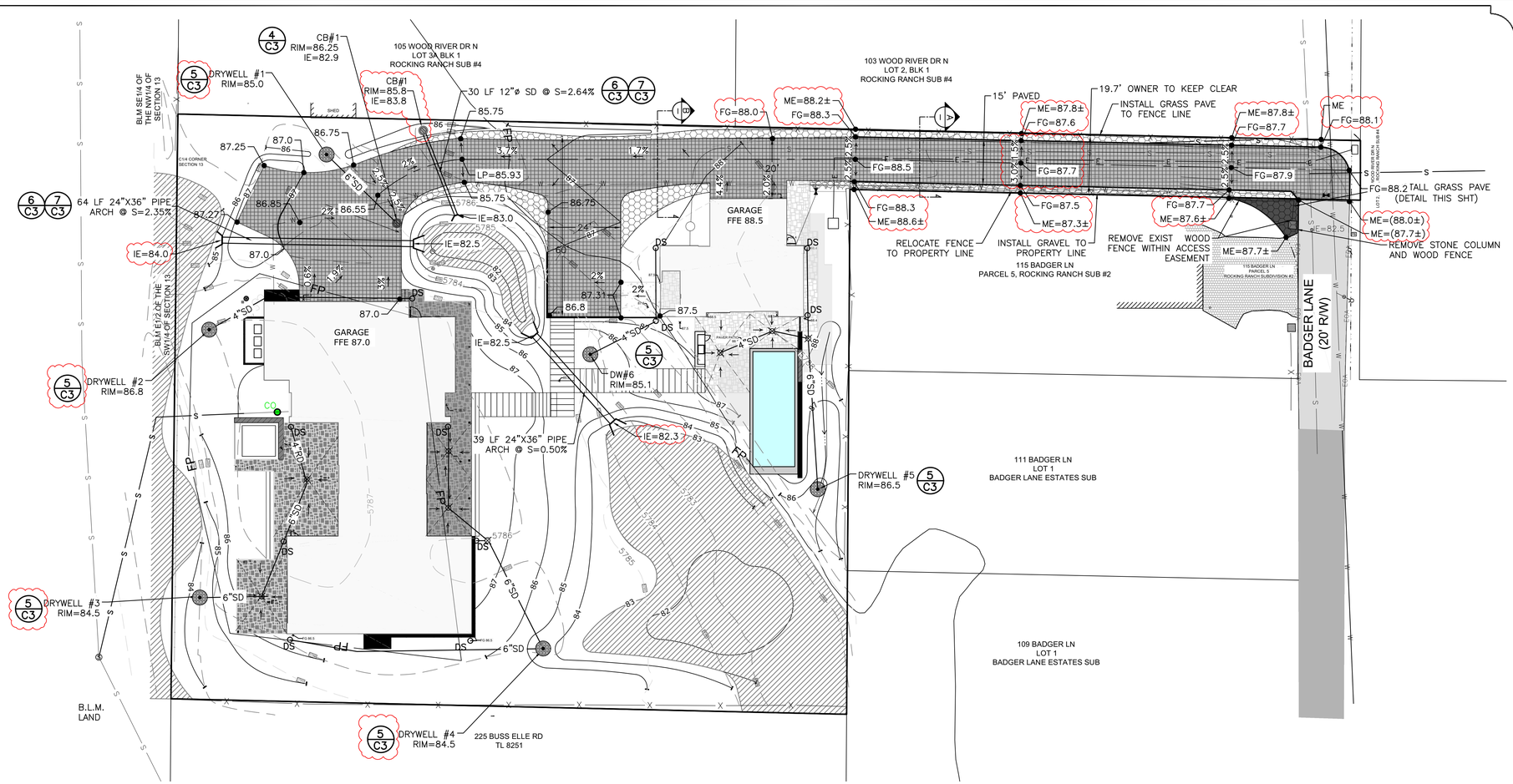
TOPO

GENERAL NOTES

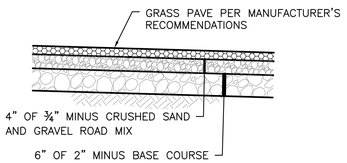
1. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING CONSTRUCTION. ANY CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. CONTRACTOR SHALL NOTIFY DIGLINE (1-800-342-1585) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL DURING THE CONSTRUCTION OF ALL ITEMS HEREON. DUST CONTROL SHALL BE CONTINUOUS DURING CONSTRUCTION, 24 HOURS PER DAY 7 DAYS PER WEEK.
4. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM THE HOUSE.
5. STORM DRAINS SHALL HAVE A MINIMUM SLOPE OF 2%. ROOF DRAINS SHALL HAVE MINIMUM SLOPE OF 1%.
6. CULVERTS SHALL BE FITTED WITH BEVELED END TREATMENTS.
7. ALL WORK WITHIN THE CITY RIGHT OF WAY SHALL CONFORM TO CITY OF KETCHUM STANDARDS.

LEGEND

PROPERTY LINE	
ADJOINING PROPERTY LINE	
CENTERLINE	
FENCE	X
FLOODPLAIN (FEMA 2010)	FP
EASEMENT	
SEWER	S
SEWER MANHOLE (MH)	
WATER	W
WATER GATE VALVE	
WATER METER (WM)	
GAS	G
POWER	E
OVERHEAD POWER	OHP
TELEPHONE	T
CABLE TV LINE	TV
ELEVATION CONTOUR	5775
PROPOSED ELEV CONTOUR	59
SAWCUT LINE	
FLOW LINE	
ROOF DRAIN	RD
STORM DRAIN PIPE	SD
DOWN SPOUT	DS
CATCH BASIN	
AREA DRAIN	
DRYWELL	
LANDSCAPE DRYWELL	
ASPHALT PAVEMENT	
ASPHALT WITH SNOWMELT	
GRAVEL	
GRASS PAVE	
FG	FINISHED GRADE
EG	EXISTING GROUND

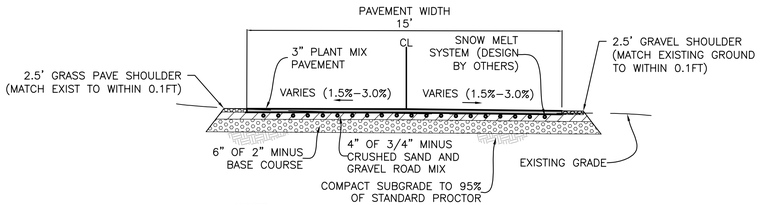


PLAN
SCALE IN FEET
0' 20' 40' 60'



NOTE: GRASS PAVE SHALL BE RATED FOR FIRE TRUCK LOADING (75,000 LBS).

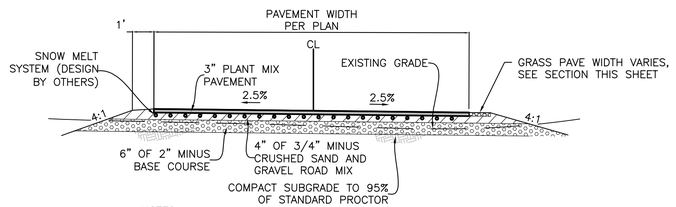
TYPICAL GRASS PAVE SECTION
NOT TO SCALE



NOTES:

1. COMPACT DRIVEWAY SUBGRADE AND ALL STRUCTURAL FILL MATERIAL TO AT LEAST 95% OF THE MAXIMUM DENSITY OF EACH MATERIAL ACCORDING TO STANDARD PROCTOR ASTM D-698.

15-FOOT ASPHALT DRIVEWAY WITH SNOW MELT (A)
SECTION
NOT TO SCALE



NOTES:

1. COMPACT DRIVEWAY SUBGRADE AND ALL STRUCTURAL FILL MATERIAL TO AT LEAST 95% OF THE MAXIMUM DENSITY OF EACH MATERIAL ACCORDING TO STANDARD PROCTOR ASTM D-698.

TYPICAL ASPHALT DRIVEWAY WITH SNOW MELT (B)
SECTION
NOT TO SCALE

PROFESSIONAL ENGINEER — LICENSED — PHOEBE JOHANNESSEN — 17661 — STATE OF IDAHO
5/2/23

REVISIONS

No.	DESCRIPTION	DATE	BY
1	CITY COMMENTS	5/1/2023	PLJ

PREPARED BY:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 100 BELL DRIVE
KETCHUM, IDAHO 83340
(208) 726-9512
FAX 726-9514
WEB: WWW.BMA5B.COM
MAIL: WWW.BMA5B.COM

GRADING & DRAINAGE PLAN

ROCKING RANCH #2 PARCEL 4
T4N, R17E, SEC 13, B.M., BLAINE COUNTY, IDAHO

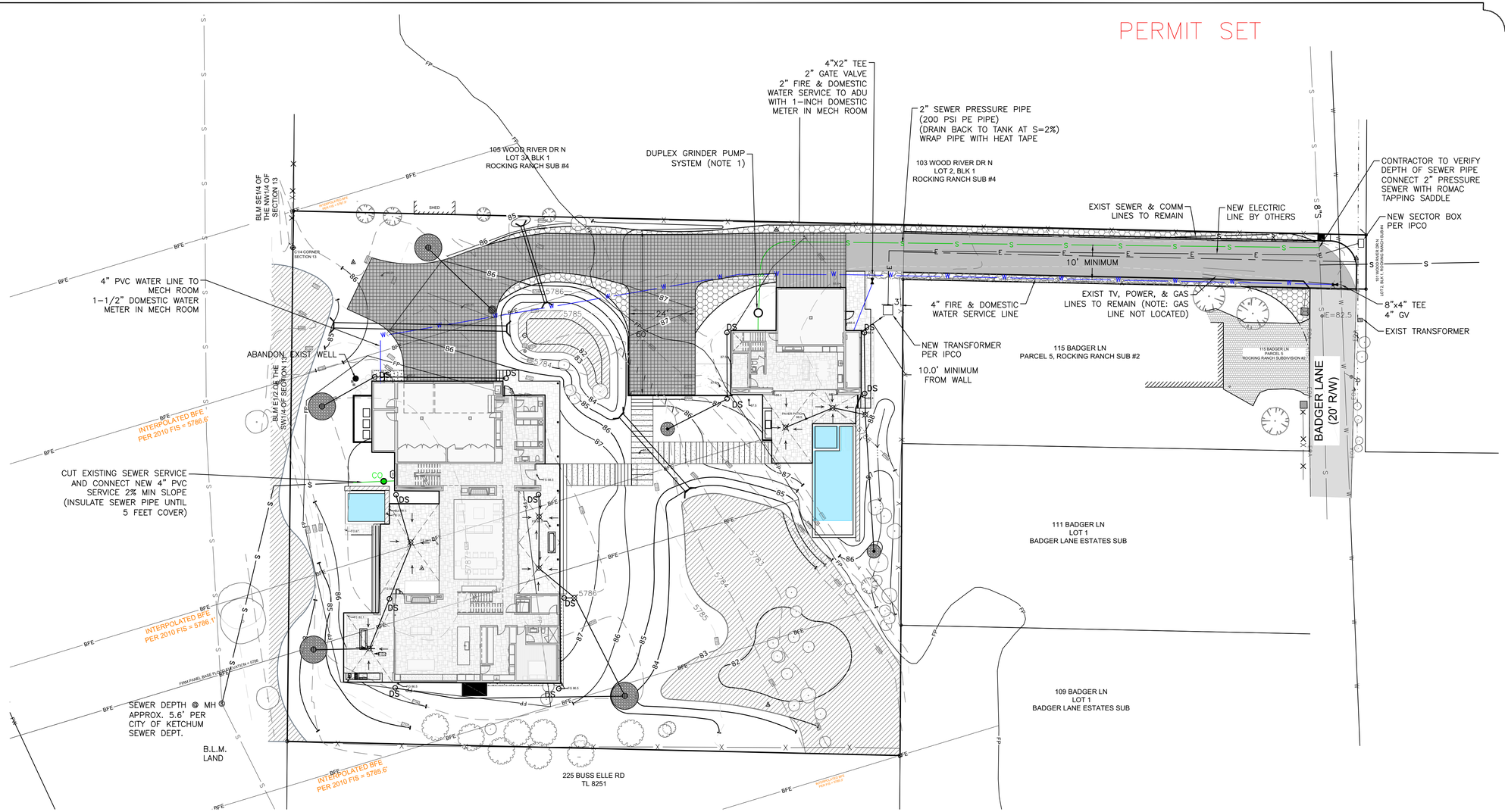
PREPED FOR: PRESIDO VISTA PROPERTIES

DRAWN BY: PLJ
DESIGNED BY: PLJ
CHECKED BY:
DATE: 2/28/2023
PROJECT NO.: 22185

DRAWING NO.

C-1

PERMIT SET



PLAN
SCALE IN FEET
0' 20' 40' 60'

DOSING NOTES:

DOSING VOLUME = 132 GAL

THE 2" PRESSURE LINE CONTAINS APPROX. 42 GALLONS OF EFFLUENT THAT SHALL DRAIN BACK TO THE PUMP TANK BETWEEN CYCLES.

36" DIA. PUMP TANK CAPACITY IS 4.4 GAL/INCH

EACH PUMP CYCLE = 90 GAL + 42 GAL = 132 GAL

MINIMUM PUMP REQUIREMENT IS 30 GPM WITH A TOTAL DYNAMIC HEAD OF 17 FEET.

SEWER PUMP SYSTEM CONSTRUCTION NOTES:

1. DUPLEX GRINDER PUMP SYSTEM SHALL CONTAIN TWO 1 HP GRINDER PUMPS. PRESSURE PIPE OUTLET SHALL BE 10' DEEP TO ALLOW PIPE TO DRAIN BACK TO TANK BETWEEN CYCLES. CONTRACTOR TO VERIFY OUTLET DEPTH REQUIRED TO DRAIN PIPE BACK FROM MAIN.
2. ALL TANKS, CHAMBERS AND/OR PIPING SHALL BE SEALED AND WATER TIGHT.
3. TANK SHALL BE DESIGNED TO RESIST BUOYANCY FORCES. ASSUME MAXIMUM WATER TABLE IS AT GROUND SURFACE.
4. DOSING CHAMBER PUMPS SHALL BE PER PUMP CURVE DETAIL OR EQUIVALENT UPON APPROVAL OF ENGINEER.
5. PUMPS AND ELECTRICAL EQUIPMENT SHALL CONFORM TO THE IDAHO STATE ELECTRICAL CODE.
6. PUMP MUST BE INSTALLED SUCH THAT IT IS SUBMERGED AT ALL TIMES.
7. ELECTRICAL CONNECTIONS SHALL BE MADE OUTSIDE OF THE CHAMBER IN A WATER PROOF BOX (CROUSE-HINDS TYPE EAB OR EQUIVALENT).
8. WIRES MUST BE INSTALLED IN A SOLID WATER TIGHT CONDUIT.
9. PUMPS AND ALARM SYSTEM SHALL BE ON ISOLATED CIRCUITS.
10. AN AUDIBLE ALARM SHALL BE INSTALLED WITHIN THE LIVING SPACE OF THE HOUSE TO INDICATE WHEN THE LEVEL OF EFFLUENT IN THE PUMP CHAMBER IS ABOVE THE PUMP ON LEVEL.
11. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES BEFORE COMMENCING CONSTRUCTION. ANY CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

PROFESSIONAL ENGINEER
LICENSED
17661
STATE OF IDAHO
PHOEBE JOHANNESSEN
3/8/2023

REVISIONS

No.	DESCRIPTION	DATE	BY
1			

BENCHMARK ASSOCIATES
PREPARED BY:
BENCHMARK ASSOCIATES, P.A.
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UTILITY PLAN

ROCKING RANCH #2 PARCEL 4
T4N, R17E, SEC 13, B.M., BLAINE COUNTY, IDAHO

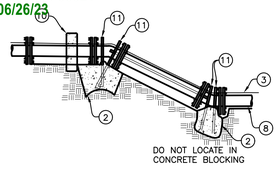
PREPED FOR: PRESIDO VISTA PROPERTIES

DRAWN BY: PLJ
DESIGNED BY: PLJ
CHECKED BY:
DATE: 2/28/2023
PROJECT NO.: 22185

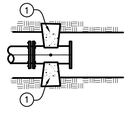
DRAWING NO.

C-2

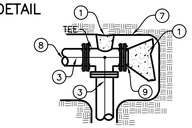
PERMIT SET



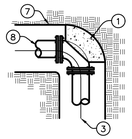
VERTICAL BEND DETAIL



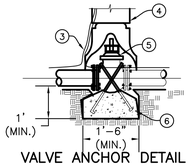
REDUCER DETAIL



TEE AND PLUG DETAIL



TYP. BEND DETAIL



VALVE ANCHOR DETAIL

TABLE 1
THRUST AREA FOR HORIZONTAL BENDS***

SOIL BEARING PRESSURE = 2000 PSF WORKING PRESSURE RATING = 150 PSI SAFETY FACTOR = 1.5				
MINIMUM SQUARE FEET OF THRUST AREA ONTO UNDISTURBED EARTH*				
PIPE SIZE	TEE, PLUG OR VALVE	90°**	45°	22 1/2°, 11.25° BENDS OR REDUCER
3"	0.8	1.1	0.6	0.3
4"	1.4	2.0	1.1	0.6
6"	3.2	4.5	2.4	1.2
8"	5.7	8.0	4.3	2.2
10"	8.8	12.5	6.8	3.4
12"	12.7	18.0	9.7	5.0
14"	17.3	24.5	13.3	6.8
16"	22.6	32.0	17.3	8.8
18"	28.6	40.5	21.9	11.2

* MUST BE INCREASED BASED ON DIFFERENT CONDITIONS (HIGHER WORKING PRESSURE OR LOWER SOIL BEARING STRENGTH).
** OR TEE ACTING AS A 90° BEND
*** THRUST BLOCK DEPTH TO BE A MINIMUM OF 12" FOR PIPE SIZES 3"–8" AND 18" FOR PIPE SIZES 10"–18" OR THE SQUARE ROOT OF THE REQUIRED BEARING AREA, WHICHEVER IS GREATER.

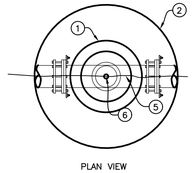
LEGEND

1. FOR HORIZONTAL PIPE BENDS, BEARING THRUST BLOCKS MUST PROVIDE 2500 P.S.I. CONCRETE POURED AGAINST UNDISTURBED EARTH PER TABLE 1.
2. FOR VERTICAL PIPE BENDS, GRAVITY THRUST BLOCKS MUST PROVIDE A VOLUME OF CONCRETE POURED AGAINST UNDISTURBED EARTH WHICH IS SIZED FOR EXPECTED FORCES WITH A MINIMUM 1.5 FACTOR OF SAFETY.
3. NO. 12 COPPER FINDER WIRE, SEE **SD–514** FOR SPLICING.
4. C.I. VALVE BOX WITH COVER.
5. C.I. GATE VALVE (M.J.).
6. PRECAST BLOCK FOR CUT IN TEE AND VALVE OR CAST IN PLACE WITH 2 ½" ø MIN. REBAR.
7. TRENCH SIDE.
8. PIPE.
9. PLUG.
10. HAMMERHEAD THRUST BLOCKING.
11. ANCHOR BARS (½"ø MIN.)

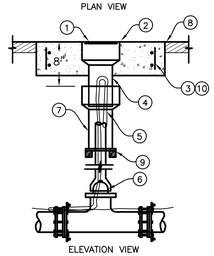
NOTES:

A. ANCHOR ALL VALVES CONNECTED TO P.V.C. PIPE AS SHOWN.
B. COVER BOLTS AND FLANGES WITH PLASTIC TO PROTECT FROM CONCRETE ADHERENCE DURING CONSTRUCTION OF THRUST BLOCKS.
C. SEE CHART FOR MIN. THRUST BLOCK BEARING AREAS.
D. ALL CONCRETE TO BE 2500 P.S.I. STRENGTH POURED AGAINST UNDISTURBED EARTH.
E. PROVIDE 6 MIL POLYPROPYLENE BETWEEN FITTINGS AND CONCRETE.
F. NOTIFY ENGINEER FOR ANY CONDITION OR PIPE SIZE NOT INDICATED.
G. ALL BLOCKS TO BE CENTERED AROUND PIPE SPRING LINE.

1 / C2 SD–403 THRUST BLOCK DETAIL
NOT TO SCALE



PLAN VIEW



ELEVATION VIEW

VALVE BOX AND LID

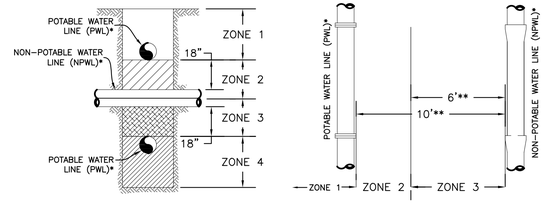
LEGEND

1. 5 1/4" LOCKING LID IF REQUIRED (TYLER NO. 6855).
2. 24"ø X 6" CONCRETE COLLAR.
3. (2) #4 REBAR HOOPS WITH #4 VERTICALS.
4. PACK VOID WITH RUBBER SILICONE.
5. NO. 12 AWG. COPPER WIRE FINDER.
6. VALVE.
7. CAST IRON VALVE RISER.
8. FINISHED GRADE.
9. REDWOOD BLOCKS.
10. FIBRILLATED POLYPROPYLENE FIBER (ADDED PER MANUFACTURER'S RECOMMENDATIONS) MAY BE USED IN LIEU OF #4 REBAR IN CONCRETE COLLARS

NOTES:

A. ALL PRODUCTS AS INDICATED OR APPROVED SUBSTITUTION.
B. IF AUTHORIZED BY THE ENGINEER, A HEAVY (10 GAGE) STEEL VALVE BOX AND CAP MAY BE USED IN LIEU OF CAST IRON BOX AND LID.

2 / C2 VALVE BOX AND LID DETAIL
NOT TO SCALE



* THE TERM "LINE" APPLIES TO BOTH MAIN LINES AND SERVICE LINES. FOR SPECIAL CIRCUMSTANCES REGARDING EXISTING POTABLE OR NON–POTABLE SERVICE LINES, REFER TO ADAPA 58.01.08.542.07c AND 58.01.16.430.02.o.iii, RESPECTIVELY.
** DISTANCES ARE HORIZONTAL.
*** JOINT PLACEMENT APPLIES ONLY TO FACILITY BEING CONSTRUCTED: POTABLE WATER, NON–POTABLE WATER, OR BOTH.

VERTICAL SEPARATION REQUIREMENTS

ZONE 1: A) PWL AND NPWL MUST BE SEPARATED BY AT LEAST 18 INCHES AND B) ONE FULL, UNCUT LENGTH OF PWL OR*** NPWL PIPE MUST BE CENTERED ON THE CROSSING SO THAT THE JOINTS ARE AS FAR AS POSSIBLE FROM THE CROSSING.

ZONE 2: A) ONE FULL, UNCUT LENGTH OF PWL OR*** NPWL PIPE MUST BE CENTERED ON THE CROSSING WITH A SINGLE 20–FOOT SEGMENT SO THAT THE JOINTS ARE AS FAR AS POSSIBLE FROM THE CROSSING.

AND EITHER B) NPWL MAIN MUST BE CONSTRUCTED TO WATER MAIN STANDARDS WITH A SINGLE 20–FOOT SEGMENT FOR A HORIZONTAL DISTANCE OF 10 FEET ON BOTH SIDES OF THE CROSSING.

OR C) EITHER THE NPWL OR PWL MUST BE ENCASED WITH A POTABLE WATER CLASS SLEEVE FOR A HORIZONTAL DISTANCE OF 10 FEET ON BOTH SIDES OF THE CROSSING.

ZONE 3: SAME REQUIREMENTS AS ZONE 2 EXCEPT THE NPWL MUST ALSO BE SUPPORTED ABOVE THE CROSSING TO PREVENT SETTLING.

ZONE 4: SAME REQUIREMENTS AS ZONE 1 (ITEM 1A ONLY) EXCEPT THE NPWL MUST ALSO BE SUPPORTED ABOVE THE CROSSING TO PREVENT SETTLING.

HORIZONTAL SEPARATION REQUIREMENTS

ZONE 1: A) IF CONSTRUCTING BOTH PWL AND NPWL, PIPELINES MUST BE IN SEPARATE TRENCHES.

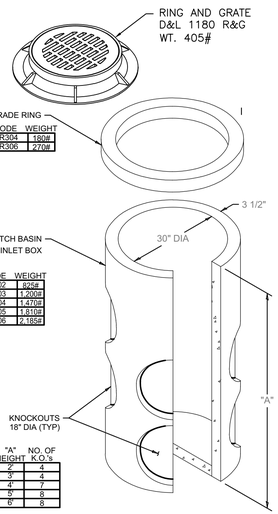
ZONE 2: A) PWL AND NPWL MUST BE SEPARATED BY AT LEAST 6 FEET AT OUTSIDE WALLS.

AND B) BOTTOM OF PWL MUST BE ABOVE TOP OF NPWL.
AND EITHER C) NPWL CONSTRUCTED TO WATER MAIN STANDARDS.
OR D) SITE SPECIFIC REQUIREMENTS APPROVED BY DEQ.

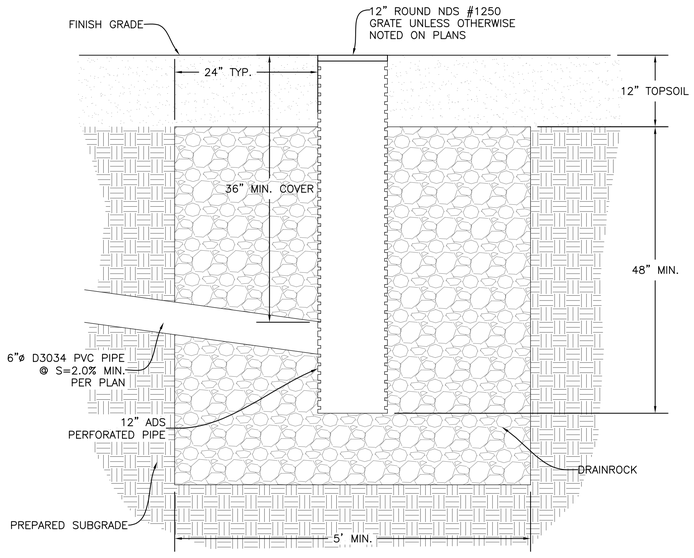
ZONE 3: NOT ALLOWED WITHOUT DEQ WAIVER.

NOTE: SANITARY SEWER FORCE MAINS MUST HAVE MIN. 10' HORIZONTAL SEPARATION AND 18" VERTICAL SEPARATION. ZONE 2 AND ZONE 3 PLACEMENTS ARE NOT ALLOWED WITHOUT A WAIVER GRATED BY DEQ.

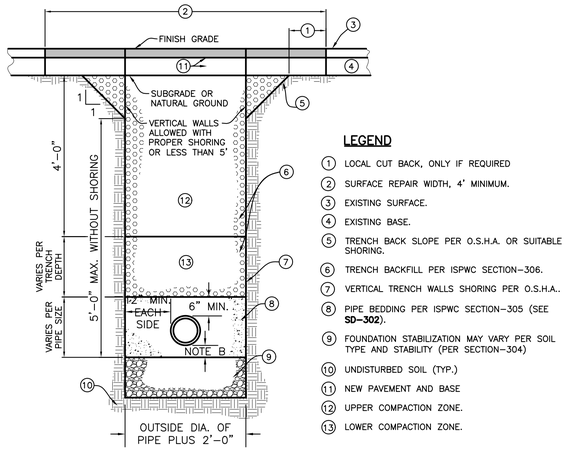
3 / C2 POTABLE AND NON–POTABLE WATER LINE (NPWL) SEPARATION
NOT TO SCALE



4 / C1 30" CATCH BASIN (TYP.)
NOT TO SCALE



5 / C1 LANDSCAPE DRYWELL
NOT TO SCALE



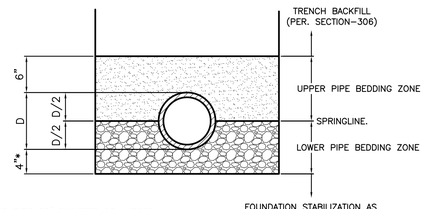
LEGEND

1. LOCAL CUT BACK, ONLY IF REQUIRED
2. SURFACE REPAIR WIDTH, 4' MINIMUM.
3. EXISTING SURFACE.
4. EXISTING BASE.
5. TRENCH BACK SLOPE PER O.S.H.A. OR SUITABLE SHORING.
6. TRENCH BACKFILL PER ISPWC SECTION–306.
7. VERTICAL TRENCH WALLS SHORING PER O.S.H.A..
8. PIPE BEDDING PER ISPWC SECTION–305 (SEE **SD–302**).
9. FOUNDATION STABILIZATION MAY VARY PER SOIL TYPE AND STABILITY (PER SECTION–304)
10. UNDISTURBED SOIL (TYP.)
11. NEW PAVEMENT AND BASE
12. UPPER COMPACTION ZONE.
13. LOWER COMPACTION ZONE.

NOTES

A. TRENCH EXCAVATION PER ISPWC SECTION–301.
B. PIPE BEDDING PER ISPWC SECTION–305.
C. BACKFILL AND COMPACTION PER ISPWC SECTION–306.
D. SURFACE REPAIR AND BASE PER ISPWC SECTION–307. SEE **SD–303**.

6 / C1 TYPICAL TRENCH
SCALE: NONE



BEDDING SYSTEM	BEDDING MATERIALS	
	LOWER BEDDING ZONE	UPPER BEDDING ZONE
CLASS A–1	TYPE I	TYPE I

NOTES

A. REFER TO ISPWC SECTION–305 FOR MATERIAL AND COMPACTION REQUIREMENTS.

7 / C1 TYPICAL PIPE BEDDING SECTION
NOT TO SCALE

PROFESSIONAL ENGINEER
PHOEBE JOHANNESSEN
17661
LICENSED
STATE OF IDAHO
3/8/2023

PREPARED BY:
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REVISIONS

No.	DESCRIPTION	DATE	BY
1			

DETAILS

ROCKING RANCH #2 PARCEL 4
T4N, R17E, SEC 13, B.M., BLAINE COUNTY, IDAHO

PREPED FOR: PRESIDO VISTA PROPERTIES

DRAWN BY: PLJ
DESIGNED BY: PLJ
CHECKED BY:
DATE: 2/28/2023
PROJECT NO.: 22185

DRAWING NO.

C-3

SHEET LEGEND

SYMBOL	DESCRIPTION
	Property Line
FP	Floodplain
MHW	Setbacks / Easements
	Wetlands
	Floodplain
	Disturbed Area

N

0 40 60 FT

SCALE: 1" = 20'-0"

BYLA
LANDSCAPE ARCHITECTS
323 Lewis . | Ketchum, ID
(208) 726 5907 • (208) 720 0215
www.byla.us

ISSUE:
7 2/17/2023 UPDATED FP DEV. PERMIT
REVISIONS:

LANDSCAPE PLAN

BADGER LANE

121 BADGER LANE KETCHUM, ID 83340

FILENAME: BADGER LANE_ 2023_SHIFT.vwx
PROJECT MANAGER: XX
DRAWN BY: XX

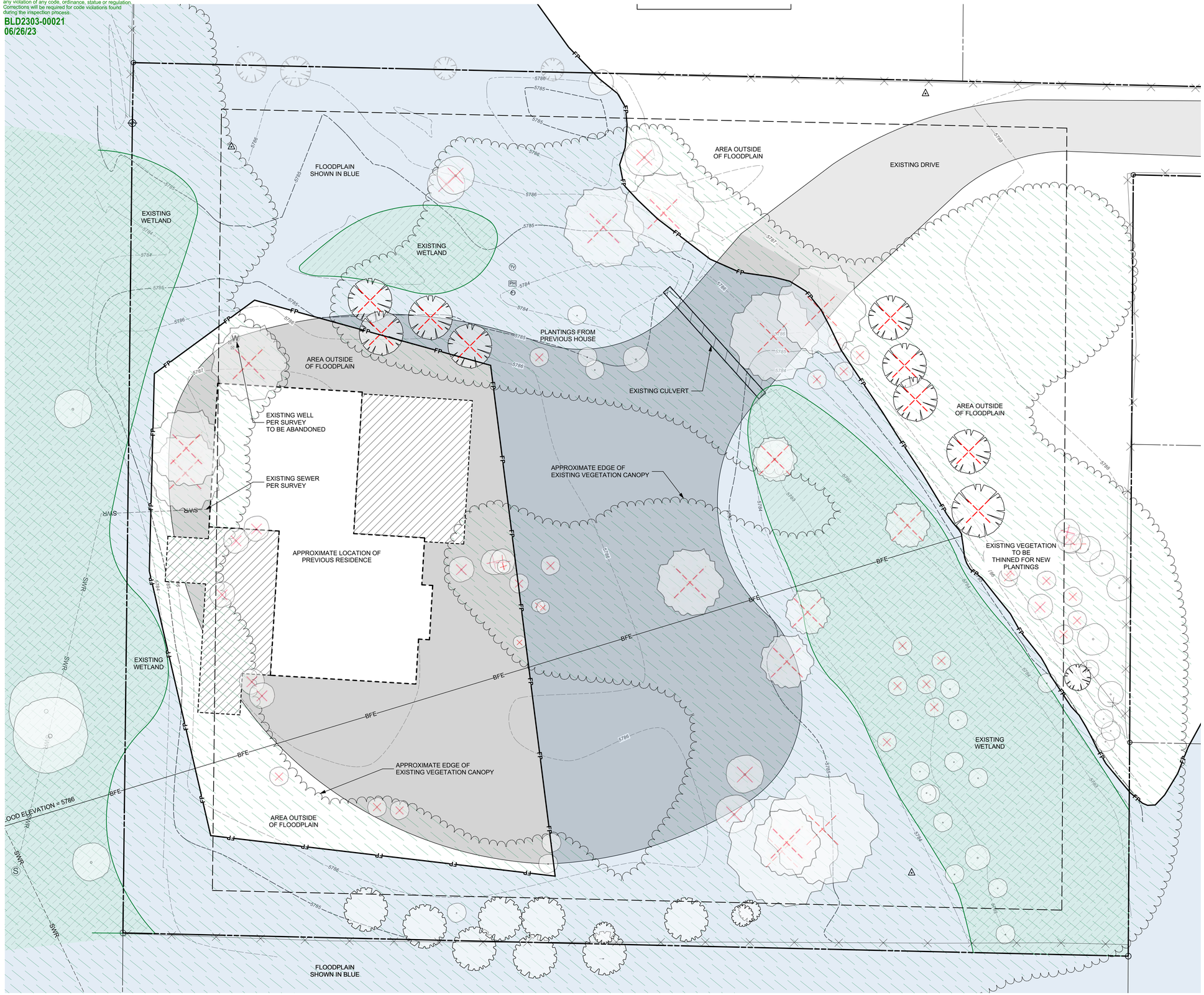
ISSUE DATE: 2/17/2023

PLOT DATE: 2/23/23 12:06:14 PM

SITE OVERVIEW

SHEET NO.

L1.0



SHEET LEGEND

SYMBOL	DESCRIPTION
	Property Line
	Floodplain
(XXXX) (XXXX)	Existing Contours
	Disturbed
	Existing Tree Canopy
	Existing Wetlands
	Existing Fence
	Survey Point
	Existing Tree To Be Removed

EXISTING TREES OVER 2" CALIPER

SYMBOL	DESCRIPTION
	Aspen
	Cottonwood
	Spruce
	Fir

N

0 10 20 FT

SCALE: 1" = 10'

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ISSUE:
7 2/17/2023 UPDATED FP DEV. PERMIT
REVISIONS:

LANDSCAPE PLAN
BADGER LANE
121 BADGER LANE KETCHUM, ID 83340

FILENAME:	BADGER LANE_ 2023_SHIFT.vwx
PROJECT MANAGER:	XX
DRAWN BY:	XX
ISSUE DATE:	2/17/2023
PLOT DATE:	2/23/23 12:06:15 PM

EXISTING CONDITIONS & DEMO PLAN

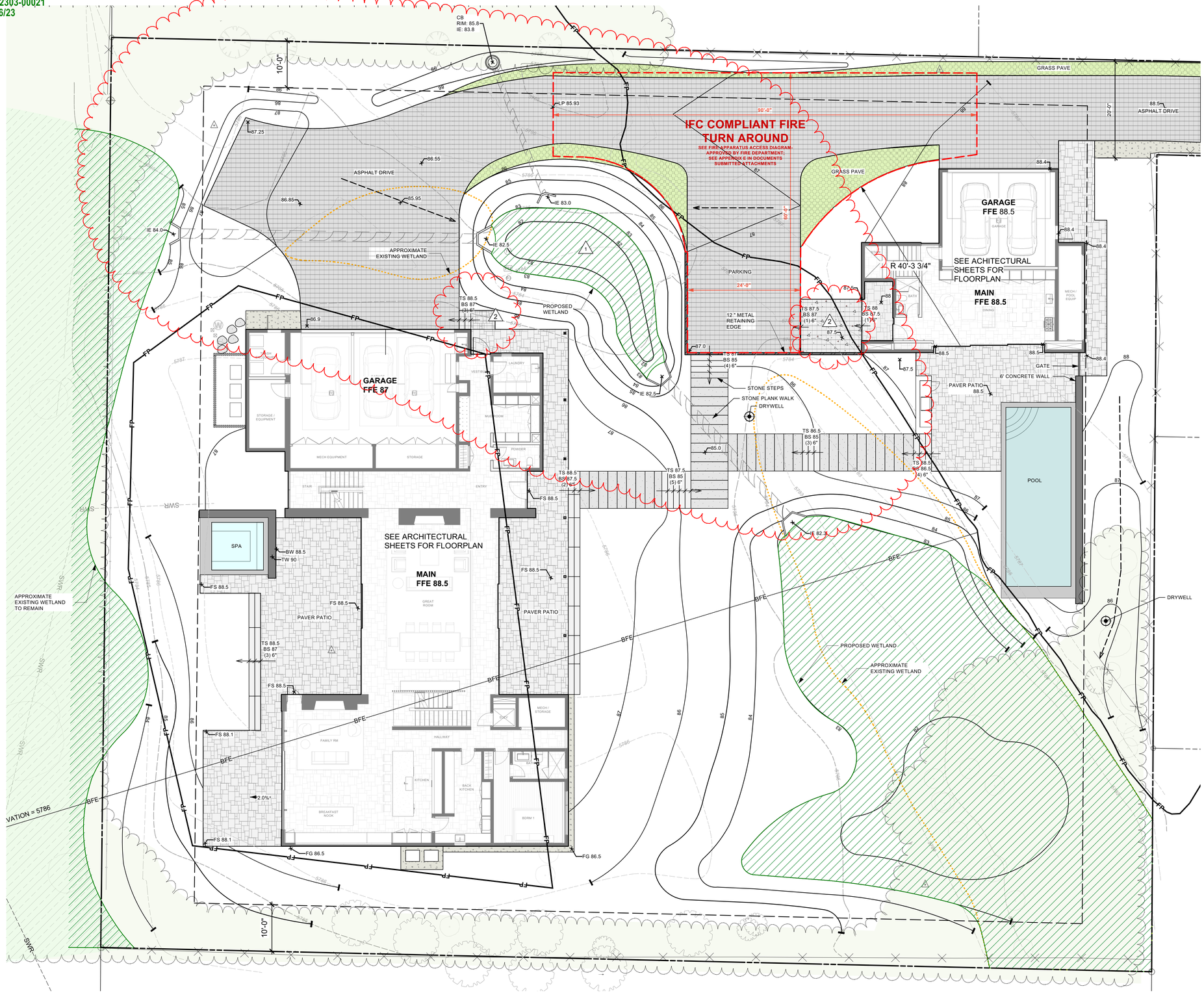
SHEET NO.

L1.1

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



SHEET LEGEND

SYMBOL	DESCRIPTION
	Property Line
	Floodplain
	Setbacks / Easements
(XXXX) (XXXX)	Existing Contours
XXXX XXXX	Proposed Contours
	Existing Fence
	Existing Vegetation
	Survey Point
	Grass Pave
	Surface Material - Metal
	Surface Material - Gravel
	Surface Material - Asphalt
	Surface Material - Stone
	Surface Material - Stone Paver
	Landscape - Native
	Landscape - Lawn
	Proposed Wetland
	Snowmelted Surface

GRADING + DRAINAGE LEGEND

Symbol	Definition
	CMP Culvert
-2.0%-	% Pitch
	Drainage Direction
	Flush Grade Condition
	Catchbasin
FFE	Finish Floor Elevation
+10.50	Spot Elevation
FG	Finish Grade
FS	Finished Surface
TS	Top of Step
BS	Bottom of Step
TW	Top of Wall
BW	Bottom of Wall
TM	Top of Metal

REVISIONS

1	GRADING UPDATED IN THIS AREA
2	PLAN UPDATED TO SHOW SNOW MELT IN WALK WAYS

N

0 10 20 FT

SCALE: 1" = 10'

BYLA
LANDSCAPE ARCHITECTS
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ISSUE: 8 5/4/2023 FP DEV PERMIT REVISIONS
REVISIONS:

LANDSCAPE PLAN

BADGER LANE
121 BADGER LANE KETCHUM, ID 83340

FILENAME: BADGER LANE_ FP Dev Permit.vwx
PROJECT MANAGER: CG
DRAWN BY: LH
ISSUE DATE: 5/4/2023
PLOT DATE: 5/4/23 10:47:06 AM

SITE & GRADING PLAN

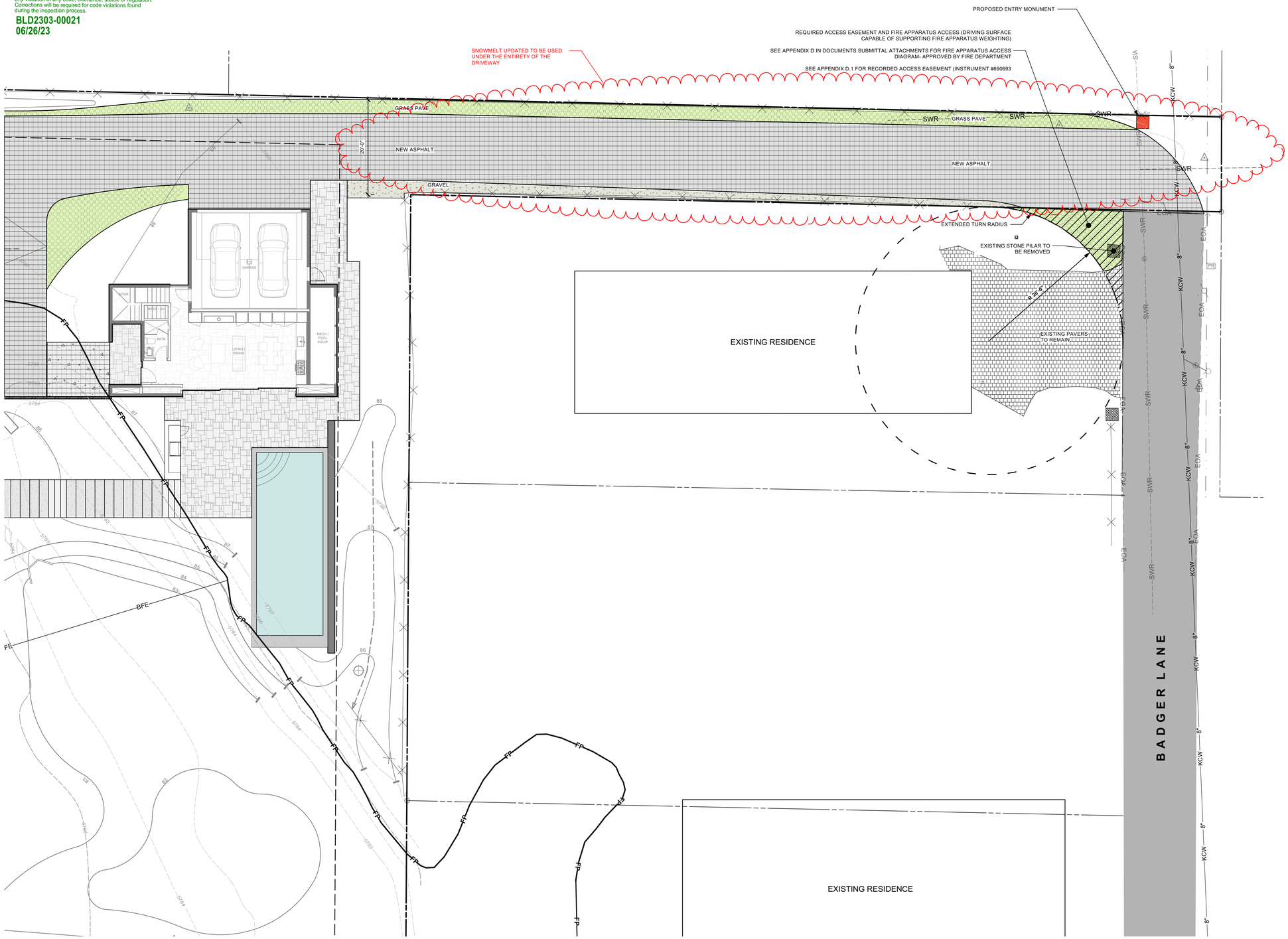
SHEET NO.

L2.0

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



SHEET LEGEND

SYMBOL	DESCRIPTION
	Property Line
	Floodplain
	Setbacks / Easements
(XXXX) (XXXX)	Existing Contours
XXXX XXXX	Proposed Contours
	Existing Fence
	Existing Vegetation
	Survey Point
	Grass Pave
	Surface Material - Metal
	Surface Material - Gravel
	Surface Material - Asphalt
	Surface Material - Stone
	Surface Material - Stone Paver
	Landscape - Native
	Landscape - Lawn
	Proposed Wetland
	Snowmelted Surface

N

0 10 20 FT

SCALE: 1" = 10'

BYLA
LANDSCAPE ARCHITECTS
323 Lewis . | Ketchum, ID
(208) 726 5907 • (208) 720 0215
www.byla.us

ISSUE: 8 5/4/2023 FP DEV PERMIT REVISIONS
REVISIONS:

LANDSCAPE PLAN

BADGER LANE

121 BADGER LANE KETCHUM, ID 83340

FILENAME:	BADGER LANE_ FP Dev Permit.vwx
PROJECT MANAGER:	CG
DRAWN BY:	LH
ISSUE DATE:	5/4/2023
PLOT DATE:	5/4/23 10:47:07 AM

FRONT DRIVE EASEMENT

SHEET NO.

L2.1

Approved

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BLD2303-00021
06/26/23

SHEET LEGEND

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	Setbacks / Easements
(XXXX) (XXXX)	Existing Contours
XXXX XXXX	Proposed Contours
	Existing Fence
	Survey Point
	Existing Vegetation
	Proposed Wetland
	Grass Pave
	Surface Material - Metal
	Surface Material - Gravel
	Surface Material - Asphalt
	Surface Material - Stone
	Surface Material - Stone Paver
	Landscape - Native
	Landscape - Lawn
	Landscape - Trees

IRRIGATION SCHEDULE

AREA DESCRIPTION	IRRIGATION TYPE
Trees + Shrubs	Buried Drip Irrigation
Perennial Beds	N/A
Lawn	Overhead Irrigation
Native Re-Veg	Temporary Overhead

IRRIGATION NOTES:
ALL TREES TO HAVE DRIP IRRIGATION AND ALL OTHER PLANTINGS TO BE IRRIGATED

PLANT SCHEDULE

UPDATED PLANTING SCHEDULE

TREES

ABBRV	QTY.	SIZE	BOTANICAL NAME	COMMON NAME
AC	24	8' B&B	*Abies concolor*	White Fir
AL	19	8'-12' B&B	*Abies lasiocarpa*	Subalpine Fir
PT	51	2"-4" CAL.	*Populus tremuloides*	Quaking Aspen

SHRUBS

ABBRV	QTY.	SIZE	BOTANICAL NAME	COMMON NAME
AA	8	5 GAL.	*Amelanchier alnifolia*	Serviceberry
CSI	115	10 gal	*Cornus sericea 'Isanti'*	Isanti Red-Osier Dogwood
RA	13	5 GAL.	*Ribes alpinum*	Alpine Currant
SB	29	6' BB	*Salix bebbiana*	Bebb Willow

NATIVE GRASSES

ABBRV	AREA	SIZE	BOTANICAL NAME	COMMON NAME
BC	7038.4 SF		*Bromus carinatus*	Mountian Brome

Lawn

ABBRV	AREA	SIZE	BOTANICAL NAME	COMMON NAME
FL	5173.5 SF		*Festuca longifolia*	Hard Fescue

LIGHTING LEGEND

SYMBOL	QTY	DESCRIPTION
	15	Lighting - Path Light
	7	Lighting - Wall Light

LIGHTING NOTES:
ALL LIGHTING SHOWN FOR DESIGN INTENT.
ALL LIGHTING WILL BE COMPLIANT TO CITY OF KETCHUM DARK SKY LIGHTING ORDINANCES.

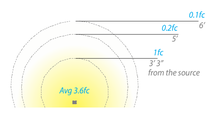
PATH LIGHT

QUAD LED PATH LIGHT
6091

WAC LANDSCAPE LIGHTING

SPECIFICATIONS

Input: 9-15VAC (Transformer is required)
Power: 3.0W / 4.5VA
Brightness: Up to 100 lm
CRI: 90
Rated Life: 60,000 hours



WALL LIGHT

Model: WL-LED100
LEDme® Step Light

WAC LIGHTING
Responsible Lighting®

PRODUCT DESCRIPTION

Horizontal rectangle LEDme® Step Light. Designed for safety and style on stairways, patios, decks, balcony areas, walkways and building perimeters.

Features an architectural design. Energy efficient for long-lasting indoor and outdoor lighting solutions. Creates an attractive, romantic impression at night.

SPECIFICATIONS

Construction: Die-cast aluminum or 316 marine grade cast stainless steel
Power: Direct wiring, no remote driver needed. Input voltage: 120V or 277VAC 50/60Hz
Light Source: 2700K or 3000K CCT Samsung HV-AC High Power LED, CRI: 90 Optional color lenses. Total power consumption of 3.5W
Mounting: Fits into 2" x 4" J-Box with minimum inside dimensions of 3"L x 2"W x 2"H Includes bracket for J-Box mount.
Dimming: Dim to 10% with electronic low voltage (ELV) dimmer Approved dimmers: Lutron Nova-T NTELV-300 & NTELV-600, Lutron Vierti VTELV-600, Lutron Diva DVELV-300P, Lutron Skylark SELV-300P, Lutron Maestro MAELV-600
Standards: IP66, UL & cUL Listed for wet locations, Title 24 JA8-2016 Compliant.

N
0 10 20 FT
SCALE: 1" = 10'

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ISSUE
8 5/4/2023 FP DEV PERMIT REVISIONS
REVISIONS:

LANDSCAPE PLAN

BADGER LANE
121 BADGER LANE KETCHUM, ID 83340

FILENAME: BADGER LANE_ FP Dev Permit.vwx
PROJECT MANAGER: CG
DRAWN BY: LH
ISSUE DATE: 5/4/2023
PLOT DATE: 5/4/23 5:21:16 PM

LANDSCAPE PLAN

SHEET NO.

L3.0

2/28/2023 3:09:39 PM

LEGAL DESCRIPTION:
PARCEL 4, ROCKING RANCH SUB #2 (LOCATED WITHIN SECTION 13, T.4 N., R.17 E., B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO)

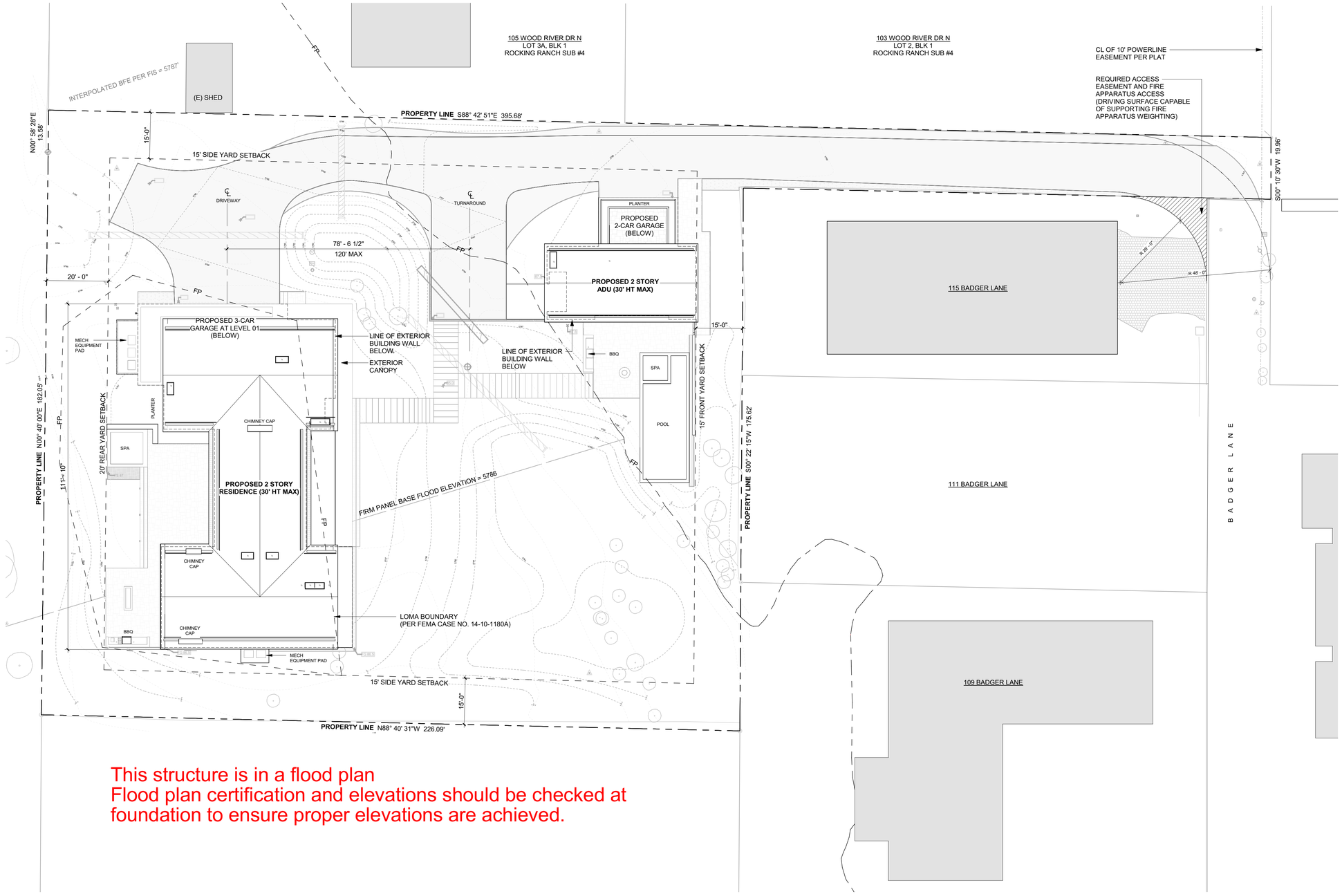
ZONING DISTRICT: LR

FLOODPLAIN ZONE: AE

PROPERTY SIZE: 1.09 ACRES PER SURVEY (47,480 SF)

SITE PLAN NOTES:

1. ELEVATION: **100'-0"** = **5788'-6"**
2. SEE LANDSCAPE DRAWINGS FOR (E) AND (N) TREE LOCATIONS
3. SEE LANDSCAPE DRAWINGS FOR DRIVEWAY LAYOUT, PROFILE & SITE DRAINAGE INFORMATION
4. SEE ROOF PLAN FOR MORE ROOF INFORMATION
5. SEE G-010 & G-011 FOR SITE COVERAGE AND HEIGHT CALCULATIONS
6. SEE CONSTRUCTION ACTIVITY PLAN FOR ALL STAGING INFORMATION.



This structure is in a flood plan
Flood plan certification and elevations should be checked at foundation to ensure proper elevations are achieved.

1 | 1/16" = 1'-0" | **SITE PLAN**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:
LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

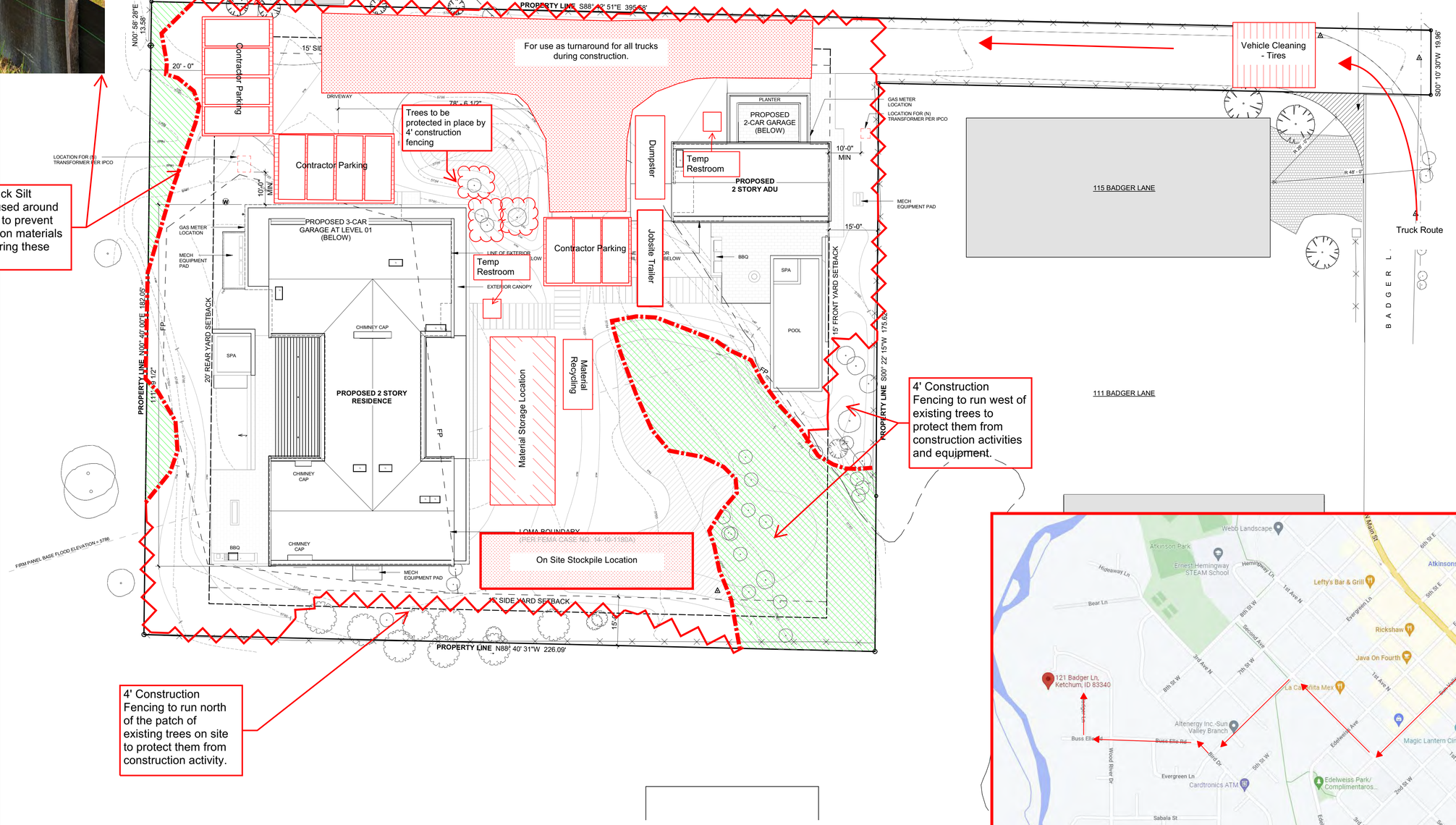
DRAWING TITLE:
SITE PLAN

DRAWING NUMBER:
A-100.1

4/20/2023 3:

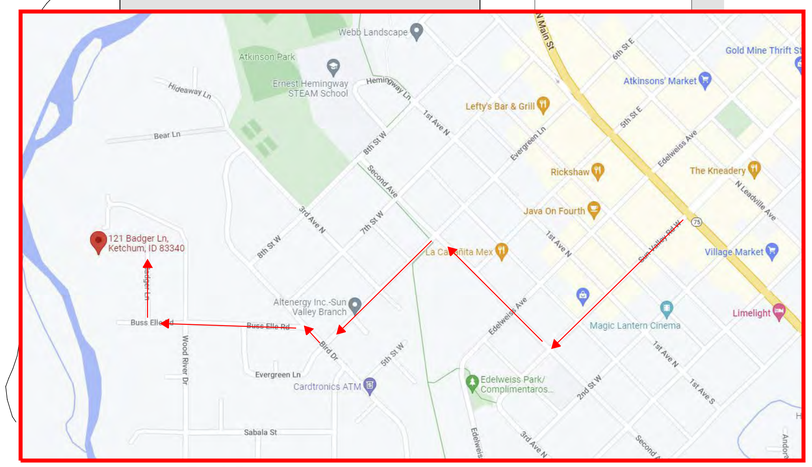
4' Tall Green Temp Construction Fence

3' Tall Black Silt Fencing used around Wetlands to prevent construction materials from entering these areas.



4' Construction Fencing to run north of the patch of existing trees on site to protect them from construction activity.

4' Construction Fencing to run west of existing trees to protect them from construction activities and equipment.



Truck Route

General Notes:

1. All neighbors with properties adjacent to the project shall be provided notice of the project, schedule and the general contractor's contact information in advance of construction.

2. Trucks to be cleaned prior to leaving the site through mud removal to maintain clean city streets.

3. Dust mitigation to be used by sprinkling the site during excavation when necessary.

4. Vehicle parking is expected to be on the project site. "No parking" sign to be placed at the end of Badger Lane to ensure no parking occurs near the fire hydrant.

5. Storage of temporary construction materials and tools will be on private property only and not in the right of way.

6. Right of way will only be used to get access to the project site. No loading or unloading is expected to take place.

7. See "Truck Route" picture demonstrating route to the job site from Main St.

8. Site conditions to be cleaned and vegetated in accordance with the Landscape Plan once construction is completed.

9. The general contractor is responsible for all subcontractors and will be held responsible for all aspects of the construction activity permit.

10. Speed limits for construction vehicles shall be limited to 15 miles per hour within one block of a construction site, unless otherwise determined by the Ketchum Police Department.

11. The job site shall be kept in a clean and orderly condition. Trash shall be picked up on the site and surrounding areas on a daily basis, and materials shall be stored in neat, tidy piles.

12. Manholes may not be obstructed at any time. In addition, minimum three feet clear shall be maintained on back and sides of fire hydrants, and minimum 15 feet clear shall be maintained on the front, street side of fire hydrants.

13. Contractor is responsible for snow removal. Snow will be stored on site outside of the right of way. If unable to store on site, it will be hauled away from the project.

14. Mature trees will be protected and fenced at the drip line throughout construction.

15. Wetlands to remain undisturbed during construction. Silt fencing to be placed along wetland borders to ensure material and equipment will not enter into wetland areas.

16. No contractor parking will be permitted on Badger Lane and Buss Elle Rd.

Cut and Fill Calculations:

Cut = 274 cy
Fill = 258 cy

Difference = 16 cy

Excess material is to be stored on site in the stockpile location until completion of construction.

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
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EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
1	05.02.23	PERMIT REVIEW- REV 1
0	02.28.23	BUILDING PERMIT SUBMITTAL

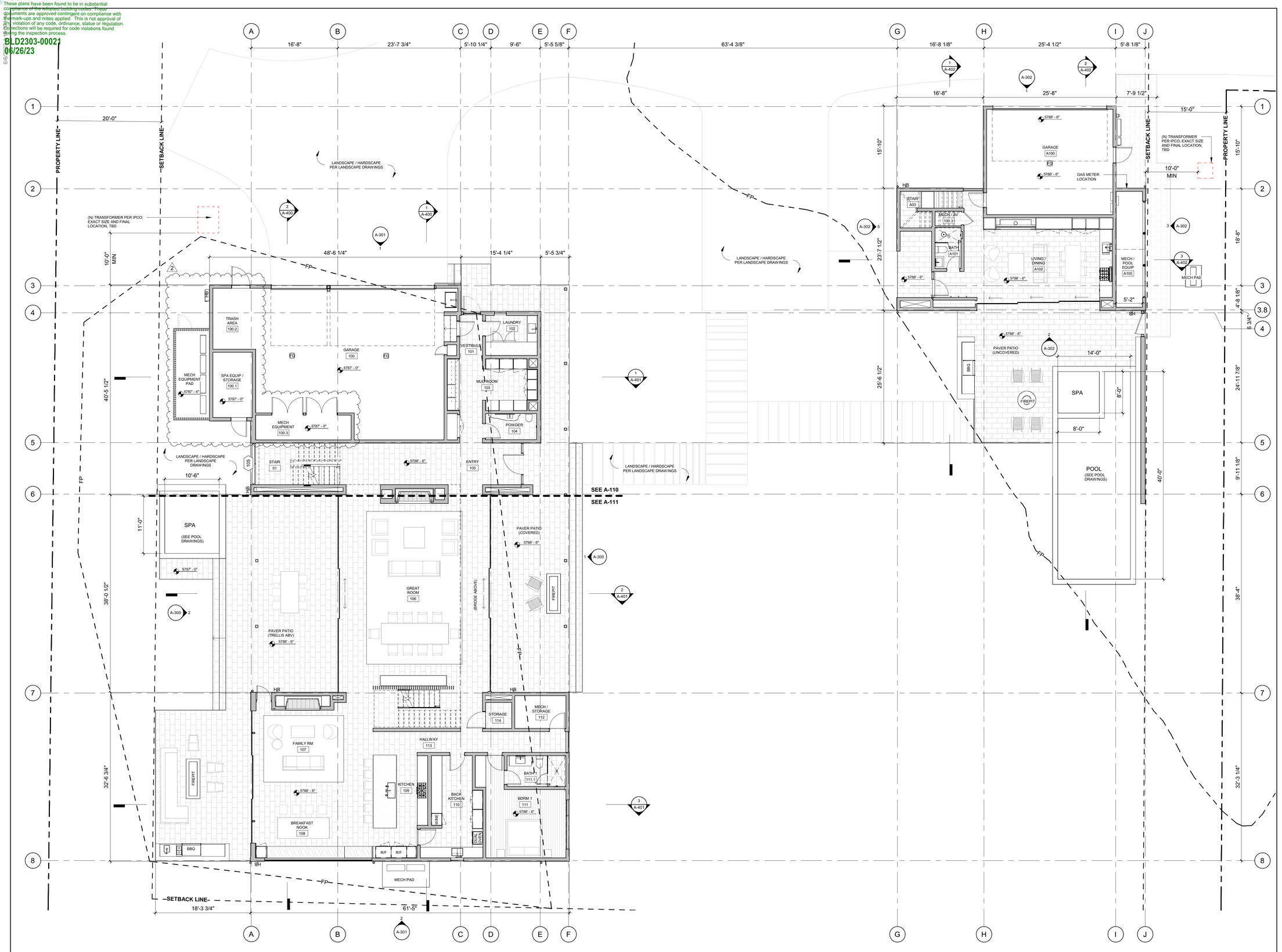
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
SITE PLAN

DRAWING NUMBER:
A-100.1

1 | 1/16" = 1'-0" | **SITE PLAN**



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SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
2	06.06.23	PERMIT REVIEW- REV 2
	02.28.23	BUILDING PERMIT SUBMITTAL

PROJECT:

BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

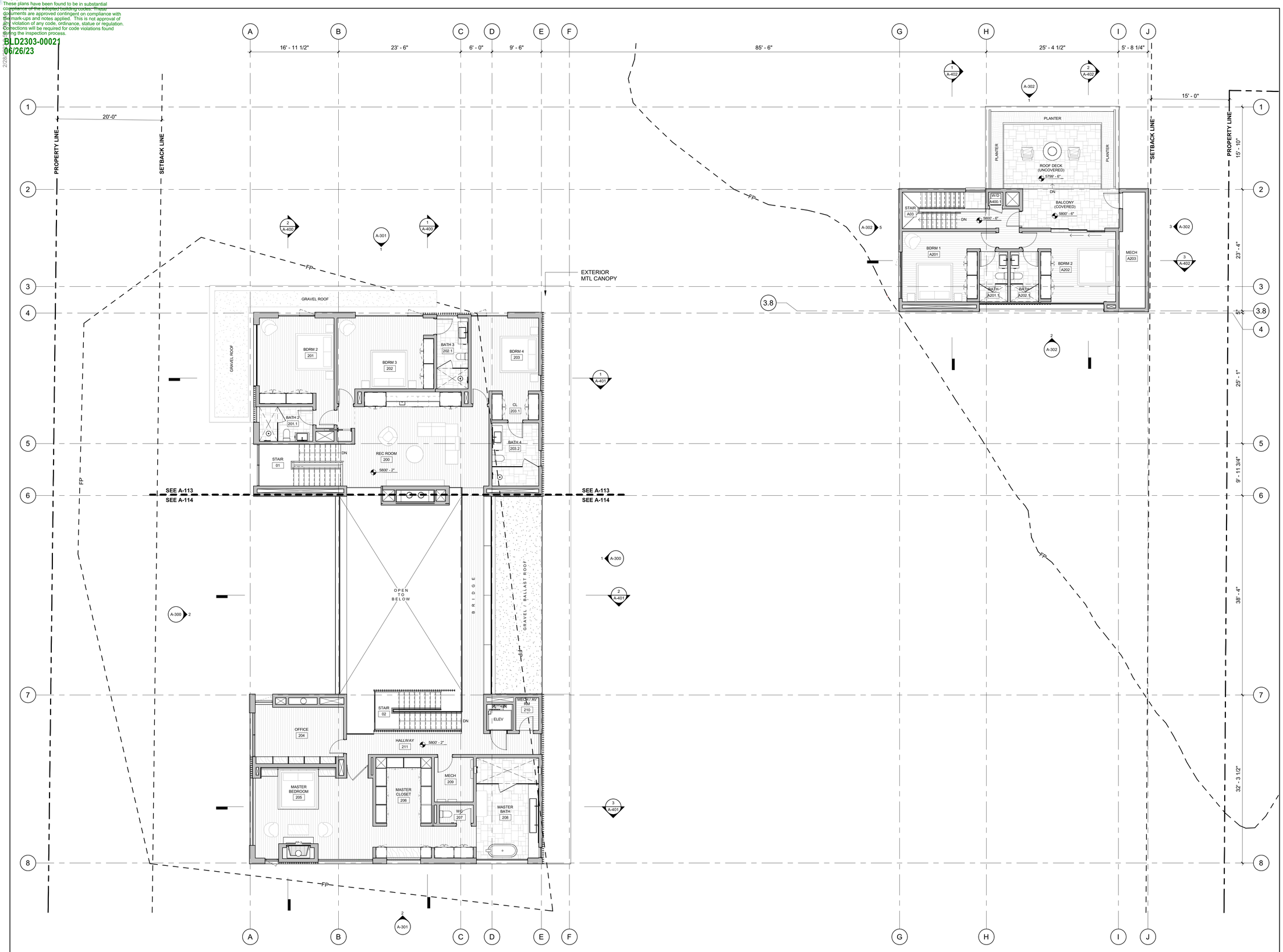
DRAWING TITLE:
REFERENCE PLAN / LEVEL 01

DRAWING NUMBER:
A-101

NOT FOR CONSTRUCTION

1 | 1/8" = 1'-0" | **REFERENCE PLAN / LEVEL 01**

2/28/2023 2:36:39 PM



1 | 1/8" = 1'-0" | **REFERENCE PLAN / LEVEL 02**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
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317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
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KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
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LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
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EL SEGUNDO, CA 90245
TEL: 213.239 9700

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270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

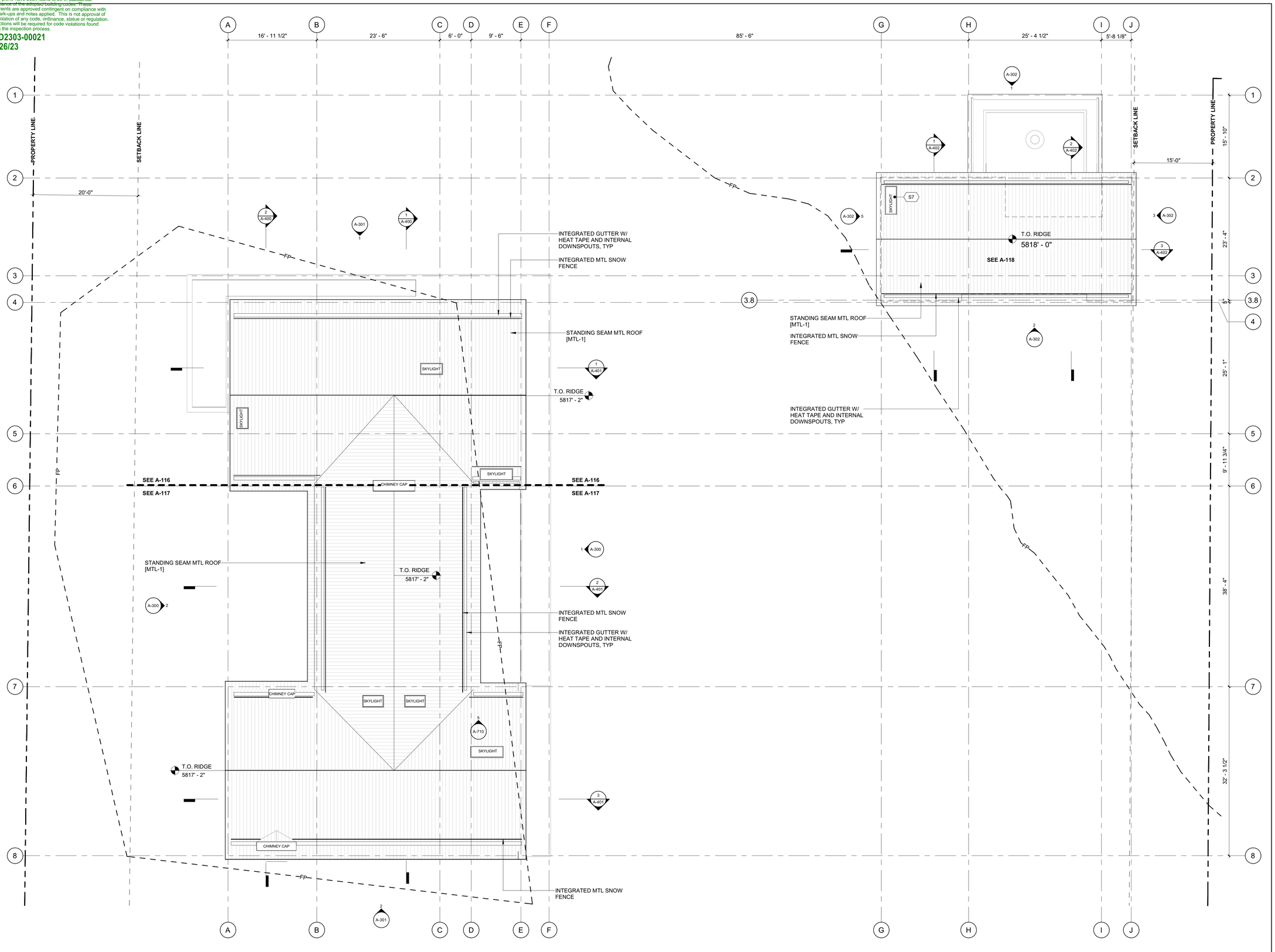
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
REFERENCE PLAN / LEVEL 02

DRAWING NUMBER:
A-102

2/28/2023 6:



1 | 1/8" = 1'-0" | **REFERENCE PLAN / ROOF**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

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HYDROLOGY / WATER ENGINEERING:

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TWIN FALLS, ID 83301
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STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
REFERENCE PLAN / ROOF

DRAWING NUMBER:
A-103

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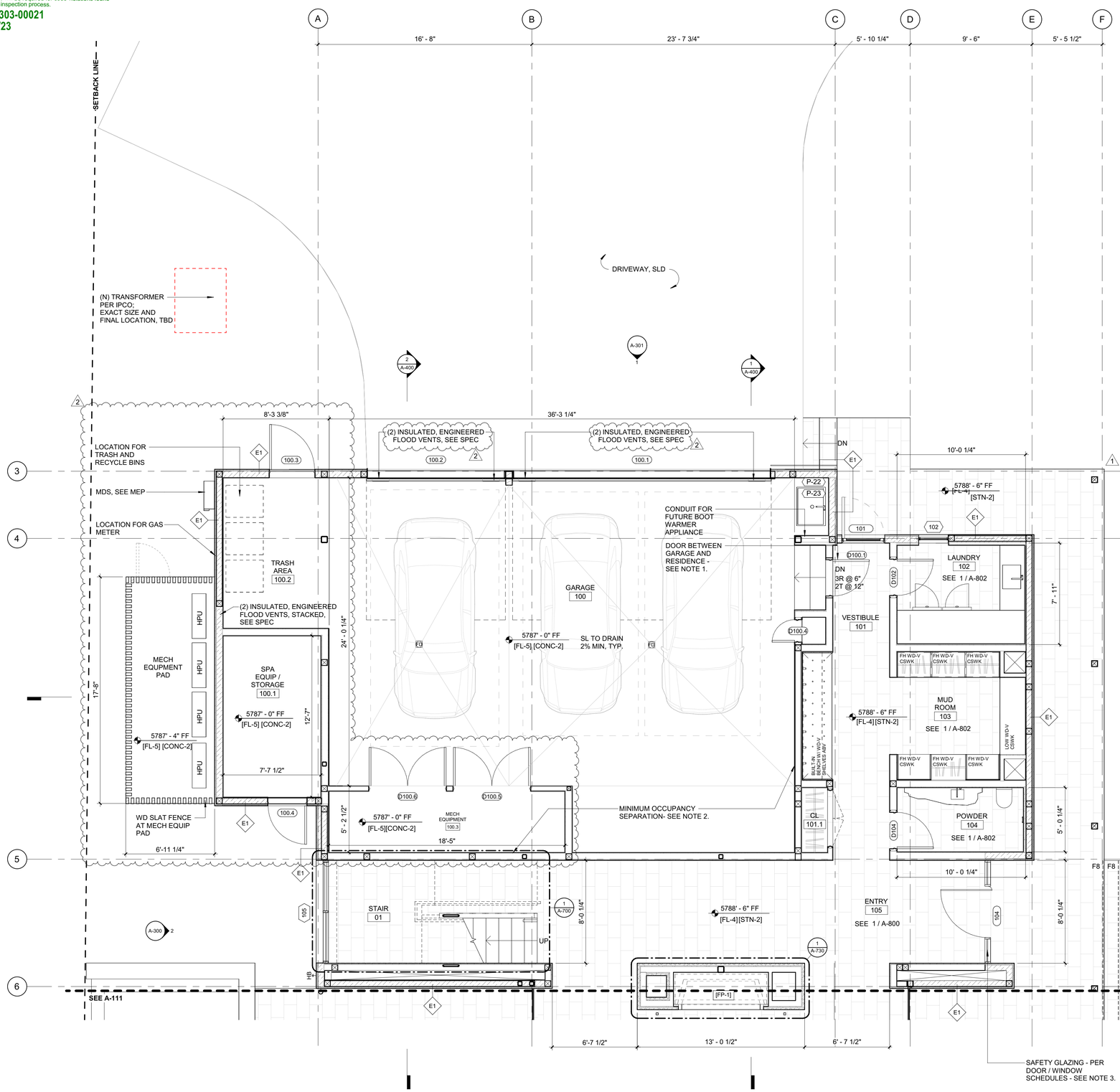

GENERAL NOTES:

1. DOOR BETWEEN GARAGE AND RESIDENCE TO BE A SOLID WD DOOR (NOT LESS THAN 1 3/8" THK) , SOLID OR HONEYCOMB CORE STL DOOR (NOT LESS THAN 1 3/8" THK), OR 20 MIN FIRE RATED W/ SELF CLOSER, SELF LATCHING DEVICE. **IRC R302.5.1**

2. MINIMUM OCCUPANCY SEPARATION BETWEEN GARAGE AND RESIDENCE SHALL BE AS FOLLOWS: 1/2" GYPSUM WALLBOARD SHALL BE INSTALLED ON THE GARAGE SIDE OF THE WALLS SEPARATING THE GARAGE FROM THE RESIDENCE AND 5/8" TYPE-X GYPSUM WALLBOARD AT THE UNDERSIDE OF THE HABITABLE ROOM ABOVE THE GARAGE. **IRC R302.6**

3. PROVIDE SAFETY GLAZING AT HAZARDOUS LOCATIONS; GLAZING TO BE TEMPERED. **IRC R308.4**

4. GUARDRAILS SHALL NOT BE LESS THAN 42 INCHES IN HEIGHT AS MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE OR THE LINE CONNECTING THE LEADING EDGES OF THE TREADS. **IBC 1015.3**
HANDRAIL HEIGHT, MEASURED ABOVE STAIR TREAD NOSINGS, OR FINISH SURFACE OF RAMP SLOPE, SHALL BE UNIFORM, NOT LESS THAN 34 INCHES AND NOT MORE THAN 38 INCHES. **IBC 1014.2**
GLASS USED IN A HANDRAIL OR A GUARD SHALL BE LAMINATED GLASS CONSTRUCTED OF FULLY TEMPERED OR HEAT-STRENGHTENED GLASS AND SHALL COMPLY WITH CATEGORY II OF CPSC 16 CFR PART 1201 OR CLASS A OF ANSI Z97.1. GLAZING IN RAILING IN-FILL PANELS SHALL BE OF AN APPROVED SAFETY GLAZING MATERIAL THAT CONFORMS TO THE PROVISIONS OF SECTION 2406.1.1. FOR ALL GLAZING TYPES, THE MINIMUM NOMINAL THICKNESS SHALL BE 1/4 INCH. **IBC 2407.1 AND 1607.8**

5. PROVIDE EMERGENCY ESCAPE AND RESCUE OPENINGS WITH MINIMUM OPENING AREA AND MINIMUM SILL HEIGHT PER **IRC R310.2** REFER TO WINDOW SCHEUDLE AND ELEVATIONS ON SHEET G-106

6. ALL PLUMBING FIXTURES TO HAVE MAXIMUM FIXTURE AND FITTING FLOW RATES FOR REDUCED WATER CONSUMPTION PER TABLE 702.1 **(APPENDIX M, KETCHUM AMENDMENT TO IBC**)

7. ALL D/W, ICE MAKER, CLOTHES WASHER SHALL BE ENERGY STAR RATED; MAX FLOW RATES FOR REDUCED WATER CONSUMPTION PER TABLE (**APPENDIX M, KETCHUM AMENDMENT TO IBC**)

8. PERMANENTLY FIXED-IN-PLACE OUTDOOR DECORATIVE APPLIANCES SHALL BE TESTED IN ACCORDANCE WITH ANSI Z21.97 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTERER'S INSTRUCTIONS. **2012 IRC G24454.1**
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9. AUTOMATED MOTORIZED NON-PERMEABLE POOL COVER FOR ENTIRE POOL / SPA SURFACE TO BE PROVIDED. DEDICATED METER (TO MEASURE AMOUNT OF WATER SUPPLIED TO POOL / SPA) TO BE PROVIDED IF POOL / SPA IS CONNECTED TO WATER SUPPLY.

1 1/4" = 1'-0" **FLOOR PLAN / LEVEL 01 / NORTH**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
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KETCHUM, ID 83340
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HYDROLOGY / WATER ENGINEERING:
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GEOTECHNICAL ENGINEER:
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LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
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TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
2	06.06.23	PERMIT REVIEW- REV 2
1	05.02.23	PERMIT REVIEW- REV 1
	02.28.23	BUILDING PERMIT SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

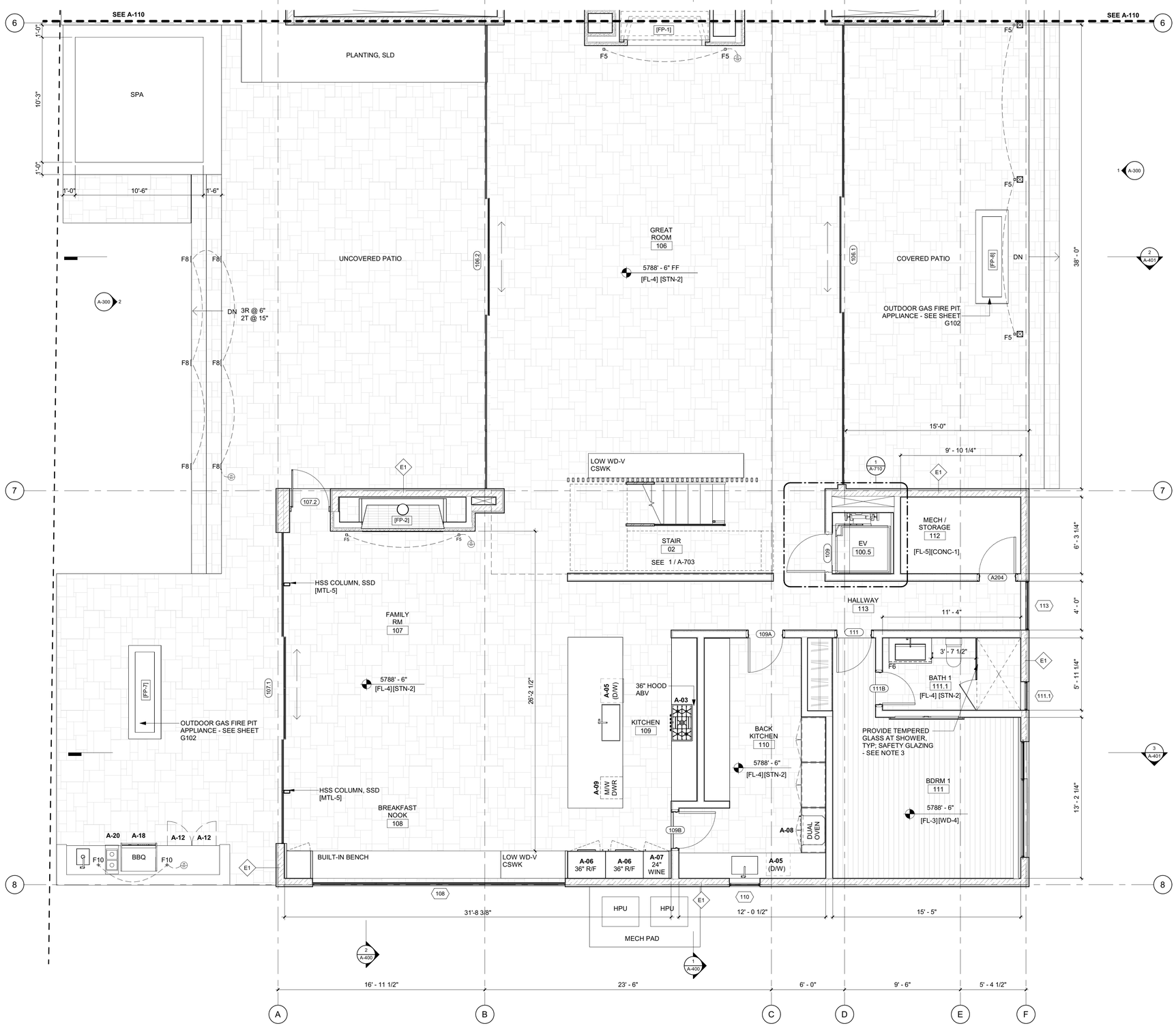
PROJECT NUMBER
#2201

DRAWING TITLE:
FLOOR PLAN / LEVEL 01 / NORTH

DRAWING NUMBER:
A-110

NOT FOR CONSTRUCTION

2/28/2023 3:



1 | 1/4" = 1'-0" | **FLOOR PLAN / LEVEL 01 / SOUTH**

GENERAL NOTES:

1. DOOR BETWEEN GARAGE AND RESIDENCE TO BE A SOLID WD DOOR (NOT LESS THAN 1 3/8" THK) , SOLID OR HONEYCOMB CORE STL DOOR (NOT LESS THAN 1 3/8" THK), OR 20 MIN FIRE RATED W/ SELF CLOSER, SELF LATCHING DEVICE. **IRC R302.5.1**

2. MINIMUM OCCUPANCY SEPARATION BETWEEN GARAGE AND RESIDENCE SHALL BE AS FOLLOWS: 1/2" GYPSUM WALLBOARD SHALL BE INSTALLED ON THE GARAGE SIDE OF THE WALLS SEPARATING THE GARAGE FROM THE RESIDENCE AND 5/8" TYPE-X GYPSUM WALLBOARD AT THE UNDERSIDE OF THE HABITABLE ROOM ABOVE THE GARAGE. **IRC R302.6**

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4. GUARDRAILS SHALL NOT BE LESS THAN 42 INCHES IN HEIGHT AS MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE OR THE LINE CONNECTING THE LEADING EDGES OF THE TREADS. **IBC 1015.3**
HANDRAIL HEIGHT, MEASURED ABOVE STAIR TREAD NOSINGS, OR FINISH SURFACE OF RAMP SLOPE, SHALL BE UNIFORM, NOT LESS THAN 34 INCHES AND NOT MORE THAN 38 INCHES. **IBC 1014.2**
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SEAL:

LICENSED ARCHITECT
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NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

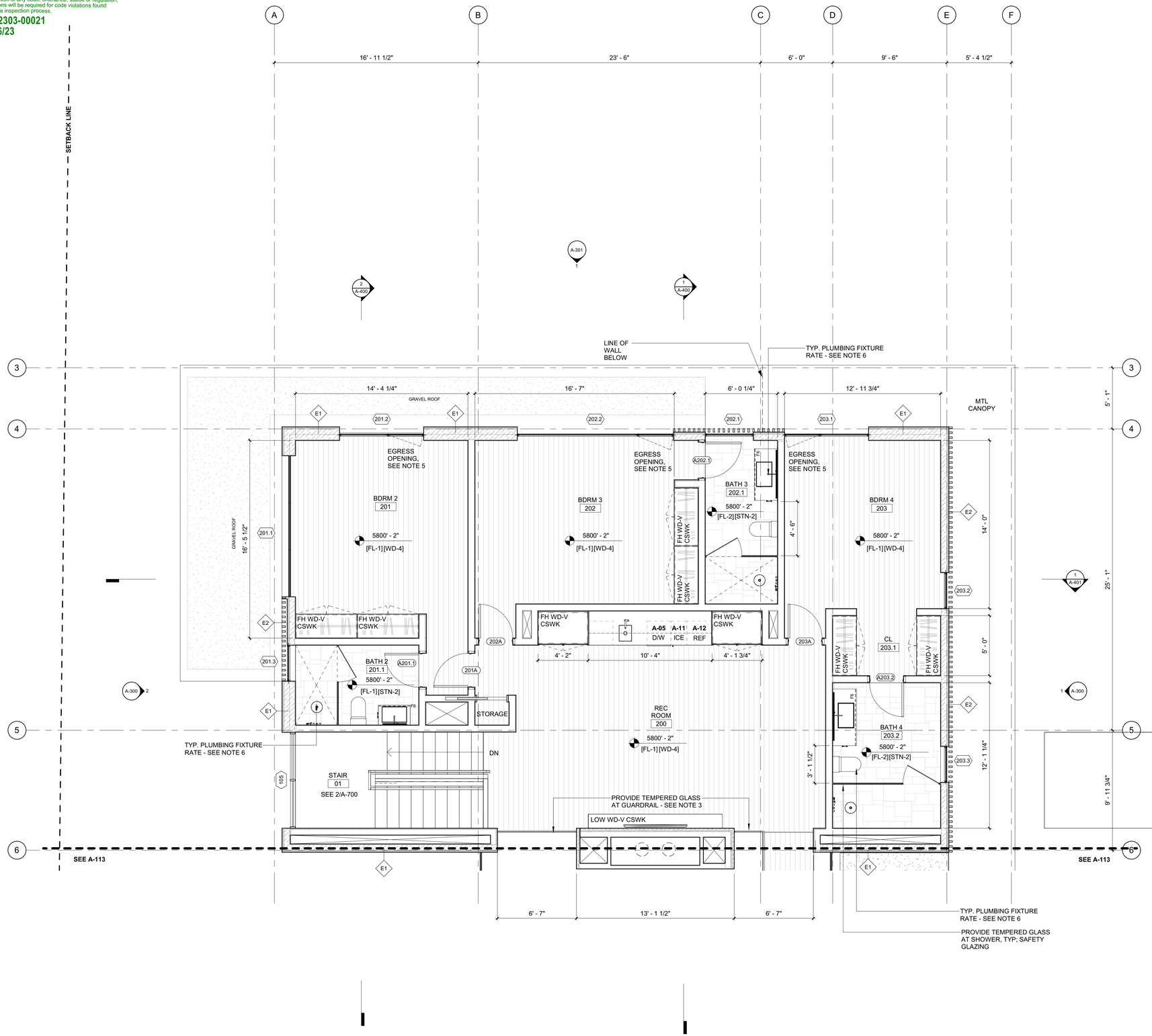
PROJECT NUMBER
#2201

N

DRAWING TITLE:
FLOOR PLAN / LEVEL 01 / SOUTH

DRAWING NUMBER:
A-111

2/28/2023 6:



1 | 1/4" = 1'-0" | **FLOOR PLAN / LEVEL 02 / NORTH**

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KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
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SEAL:

LICENSED ARCHITECT
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NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

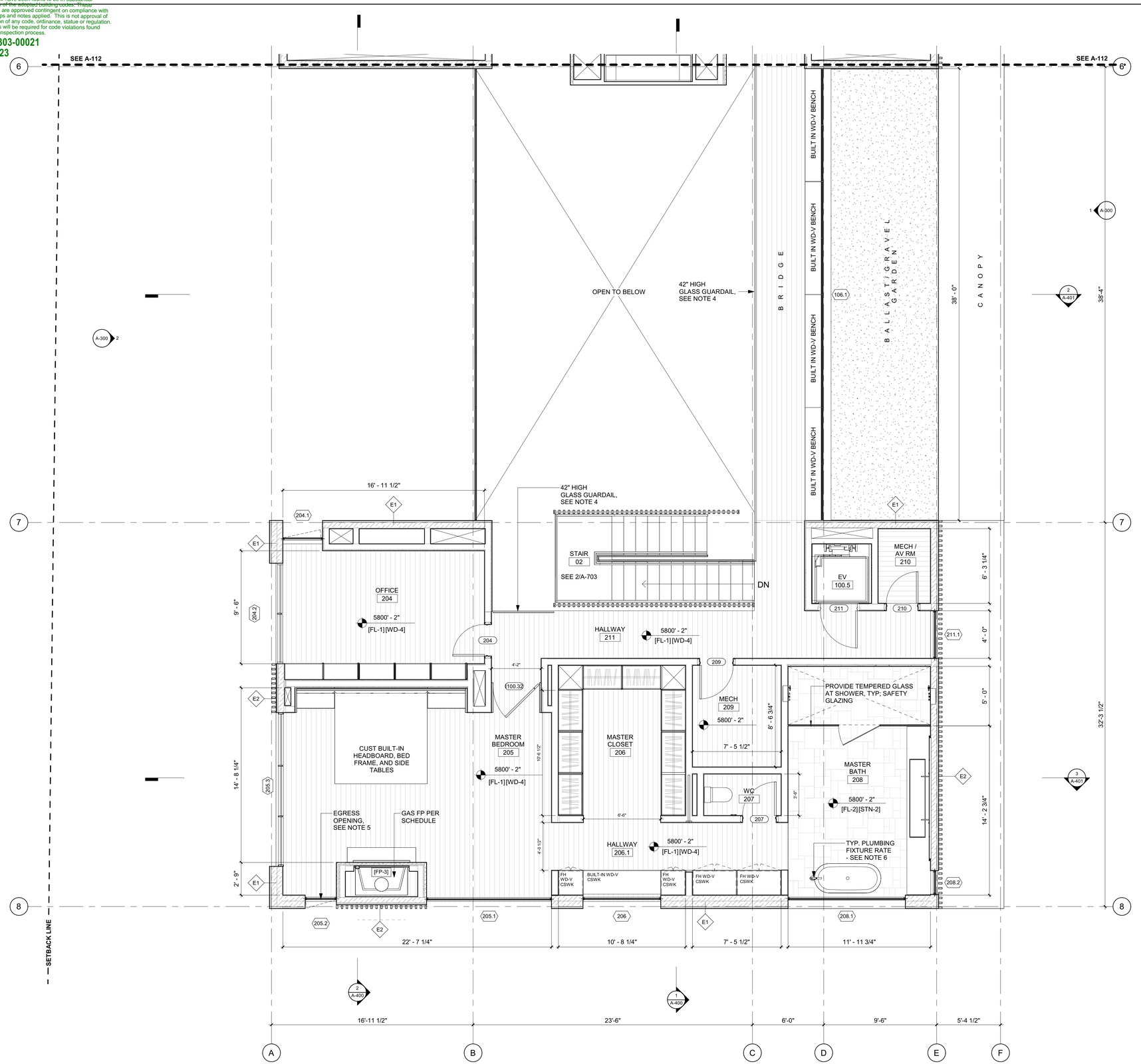
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
FLOOR PLAN / LEVEL 02 / NORTH

DRAWING NUMBER:
A-112



1 | 1/4" = 1'-0" | **FLOOR PLAN / LEVEL 02 / SOUTH**

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PROJECT:
BADGER RESIDENCE
121 BADGER LANE
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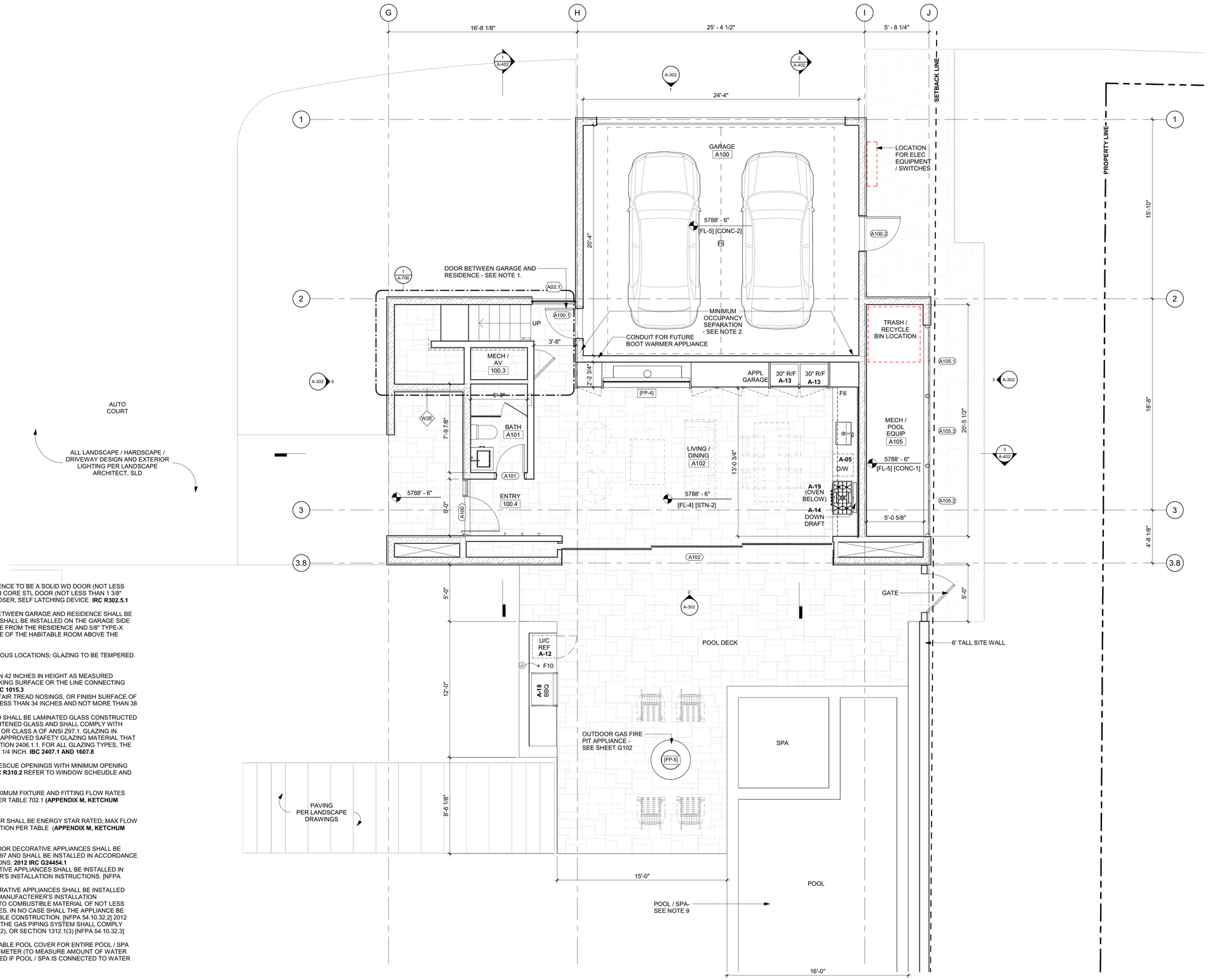
PROJECT NUMBER
#2201

DRAWING TITLE:
FLOOR PLAN / LEVEL 02 / SOUTH

DRAWING NUMBER:
A-113

2/28/2023 6:



GENERAL NOTES:

1. DOOR BETWEEN GARAGE AND RESIDENCE TO BE A SOLID WD DOOR (NOT LESS THAN 1 3/8" THK) , SOLID OR HONEYCOMB CORE STL DOOR (NOT LESS THAN 1 3/8" THK), OR 20 MIN FIRE RATED W/ SELF CLOSER, SELF LATCHING DEVICE. **IRC R302.5.1**

2. MINIMUM OCCUPANCY SEPARATION BETWEEN GARAGE AND RESIDENCE SHALL BE AS FOLLOWS: 1/2" GYPSUM WALLBOARD SHALL BE INSTALLED ON THE GARAGE SIDE OF THE WALLS SEPARATING THE GARAGE FROM THE RESIDENCE AND 5/8" TYPE-X GYPSUM WALLBOARD AT THE UNDERSIDE OF THE HABITABLE ROOM ABOVE THE GARAGE. **IRC R302.6**

3. PROVIDE SAFETY GLAZING AT HAZARDOUS LOCATIONS; GLAZING TO BE TEMPERED. **IRC R308.4**

4. GUARDRAILS SHALL NOT BE LESS THAN 42 INCHES IN HEIGHT AS MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE OR THE LINE CONNECTING THE LEADING EDGES OF THE TREADS. **IBC 1015.3**
HANDRAIL HEIGHT, MEASURED ABOVE STAIR TREAD NOSINGS, OR FINISH SURFACE OF RAMP SLOPE, SHALL BE UNIFORM, NOT LESS THAN 34 INCHES AND NOT MORE THAN 38 INCHES. **IBC 1014.2**
GLASS USED IN A HANDRAIL OR A GUARD SHALL BE LAMINATED GLASS CONSTRUCTED OF FULLY TEMPERED OR HEAT-STRENGHTENED GLASS AND SHALL COMPLY WITH CATEGORY II OF CPSC 16 CFR PART 1201 OR CLASS A OF ANSI Z97.1. GLAZING IN RAILING IN-FILL PANELS SHALL BE OF AN APPROVED SAFETY GLAZING MATERIAL THAT CONFORMS TO THE PROVISIONS OF SECTION 2406.1.1. FOR ALL GLAZING TYPES, THE MINIMUM NOMINAL THICKNESS SHALL BE 1/4 INCH. **IBC 2407.1 AND 1607.8**

5. PROVIDE EMERGENCY ESCAPE AND RESCUE OPENINGS WITH MINIMUM OPENING AREA AND MINIMUM SILL HEIGHT PER **IRC R310.2** REFER TO WINDOW SCHEUDLE AND ELEVATIONS ON SHEET G-106

6. ALL PLUMBING FIXTURES TO HAVE MAXIMUM FIXTURE AND FITTING FLOW RATES FOR REDUCED WATER CONSUMPTION PER TABLE 702.1 **(APPENDIX M, KETCHUM AMENDMENT TO IBC)**

7. ALL D/W, ICE MAKER, CLOTHES WASHER SHALL BE ENERGY STAR RATED; MAX FLOW RATES FOR REDUCED WATER CONSUMPTION PER TABLE **(APPENDIX M, KETCHUM AMENDMENT TO IBC)**

8. PERMANENTLY FIXED-IN-PLACE OUTDOOR DECORATIVE APPLIANCES SHALL BE TESTED IN ACCORDANCE WITH ANSI Z21.97 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTERER'S INSTRUCTIONS. **2012 IRC G24454.1**
LISTED OUTDOOR OPEN FLAME DECORATIVE APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. [NFPA 54.10.32.1].
UNLISTED OUTDOOR OPEN FLAME DECORATIVE APPLIANCES SHALL BE INSTALLED OUTDOORS IN ACCORDANCE WITH THE MANUFACTERER'S INSTALLATION INSTRUCTIONS AND WITH CLEARANCES TO COMBUSTIBLE MATERIAL OF NOT LESS THAN 36 INCHES (914 MM) FROM THE SIDES. IN NO CASE SHALL THE APPLIANCE BE LOCATED UNDER OVERHEAD COMBUSTIBLE CONSTRUCTION. [NFPA 54.10.32.2] 2012 UMC 932.1, 932.1.2. THE CONNECTION TO THE GAS PIPING SYSTEM SHALL COMPLY WITH SECTION 1312.1(1), SECTION 1312.1(2), OR SECTION 1312.1(3) [NFPA 54.10.32.3]

9. AUTOMATED MOTORIZED NON-PERMEABLE POOL COVER FOR ENTIRE POOL / SPA SURFACE TO BE PROVIDED. DEDICATED METER (TO MEASURE AMOUNT OF WATER SUPPLIED TO POOL / SPA) TO BE PROVIDED IF POOL / SPA IS CONNECTED TO WATER SUPPLY.

1 | 1/4" = 1'-0" | **ADU / FLOOR PLAN / LEVEL 01**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

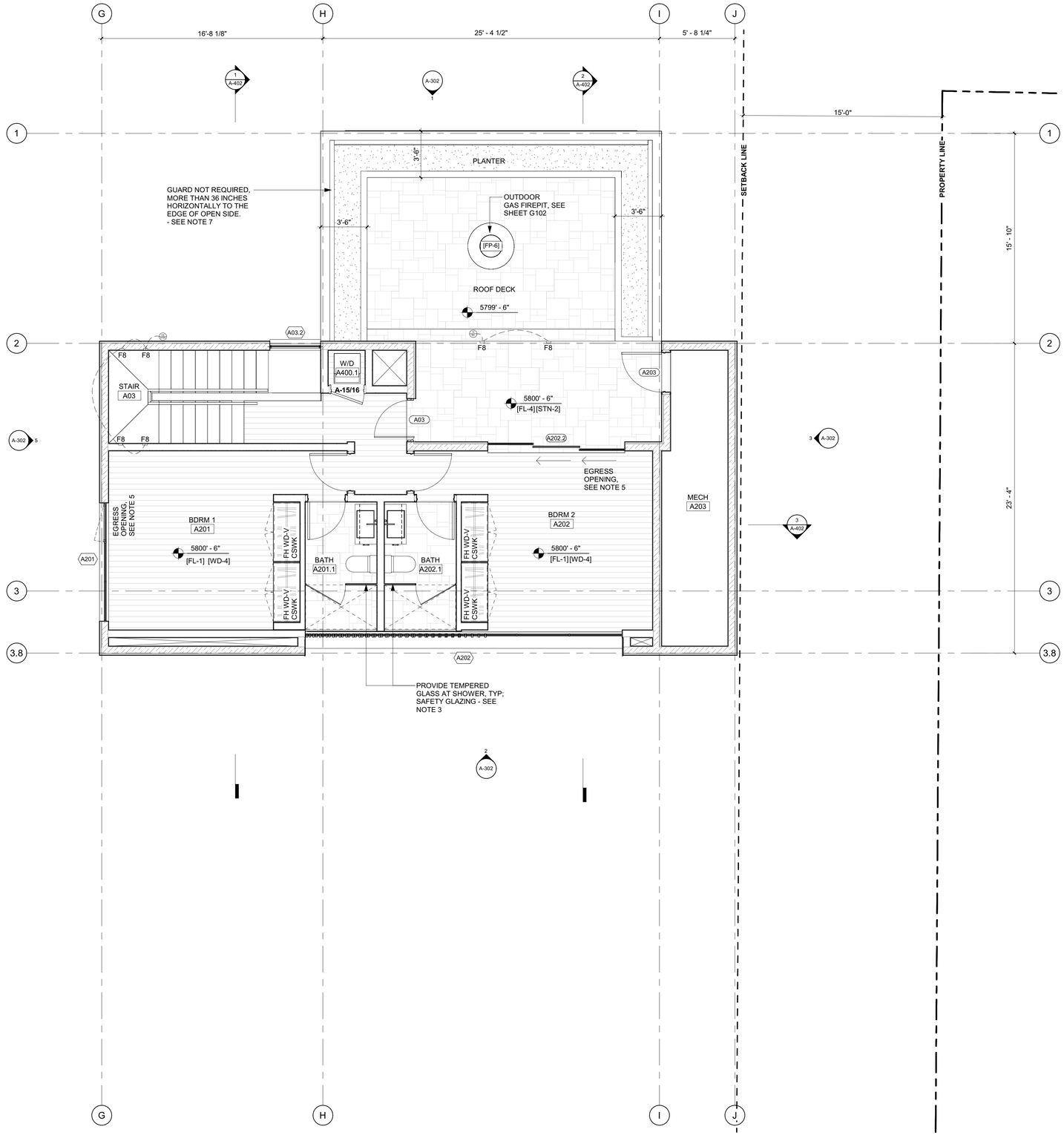
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
FLOOR PLAN / LEVEL 01 / ADU

DRAWING NUMBER:
A-114

2/28/2023 6:



GENERAL NOTES:

1. DOOR BETWEEN GARAGE AND RESIDENCE TO BE A SOLID WD DOOR (NOT LESS THAN 1 3/8" THK) , SOLID OR HONEYCOMB CORE STL DOOR (NOT LESS THAN 1 3/8" THK), OR 20 MIN FIRE RATED W/ SELF CLOSER, SELF LATCHING DEVICE. **IRC R302.5.1**

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2 | 1/4" = 1'-0" | **ADU / FLOOR PLAN / LEVEL 02**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

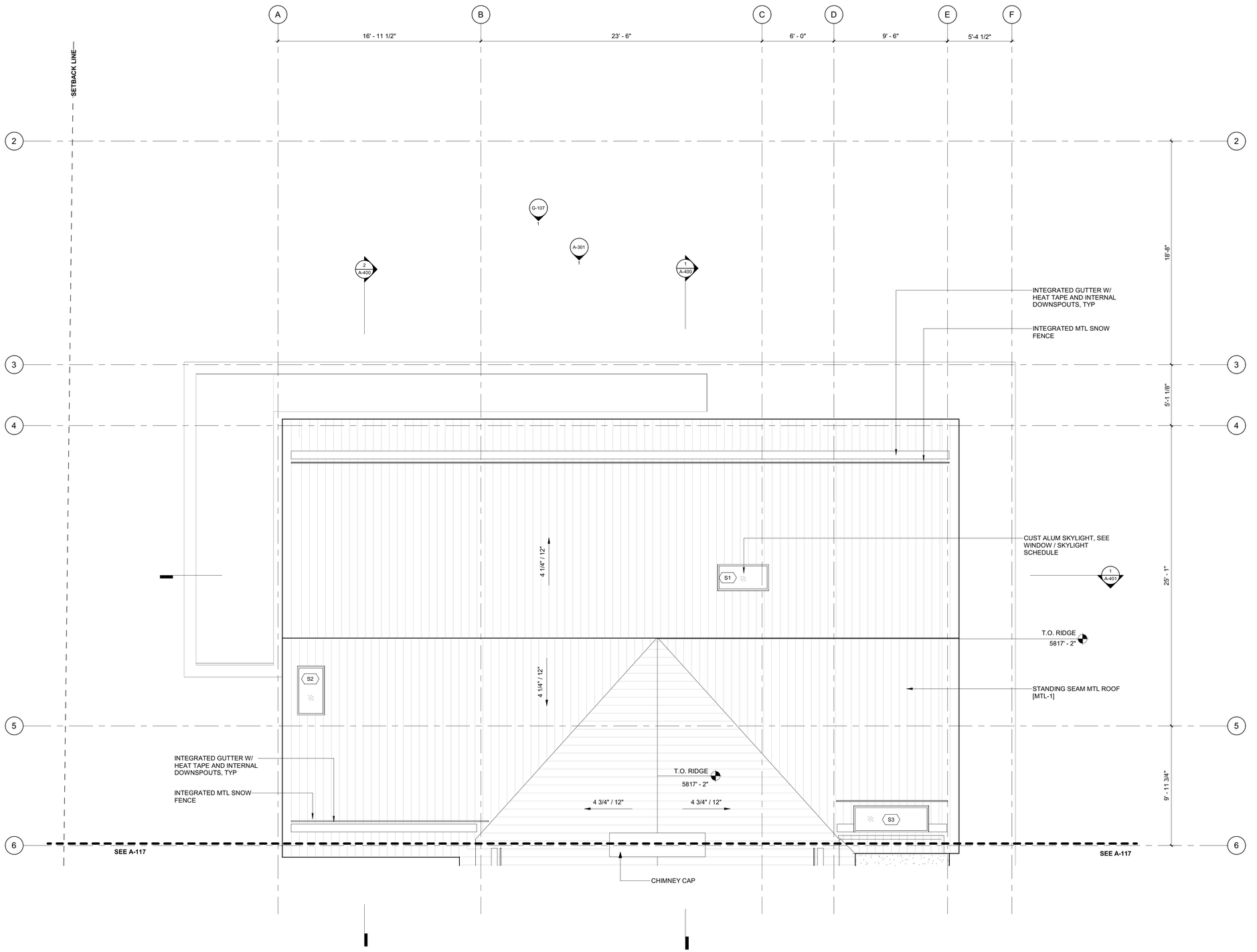
NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
FLOOR PLAN / LEVEL 02 / ADU

DRAWING NUMBER:
A-115



1 | 1/4" = 1'-0" | **PLAN / ROOF - NORTH**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

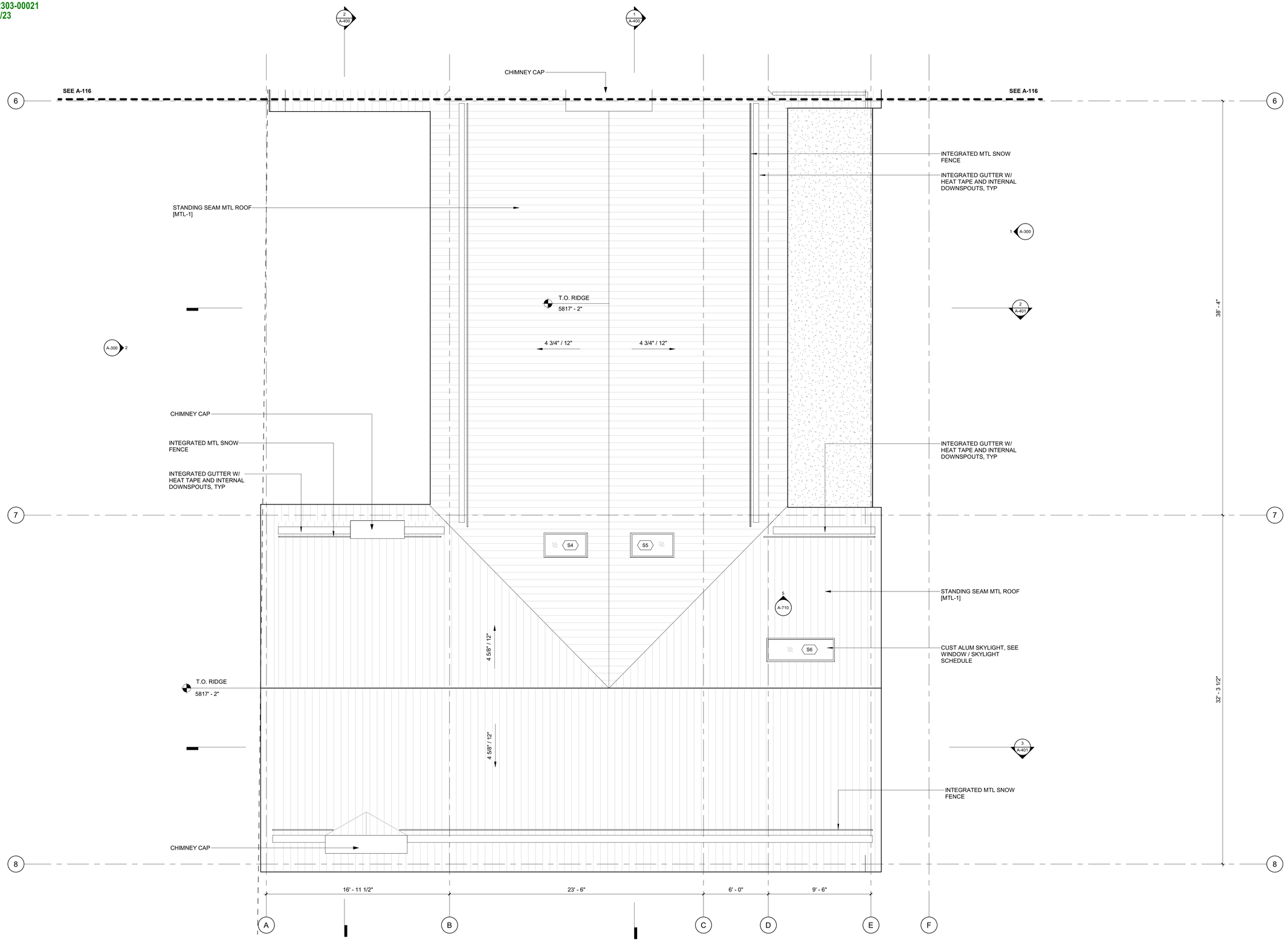
DRAWING TITLE:

ROOF PLAN / NORTH

DRAWING NUMBER:

A-116

2/28/2023 6:



1 | 1/4" = 1'-0" | **PLAN / ROOF - SOUTH**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

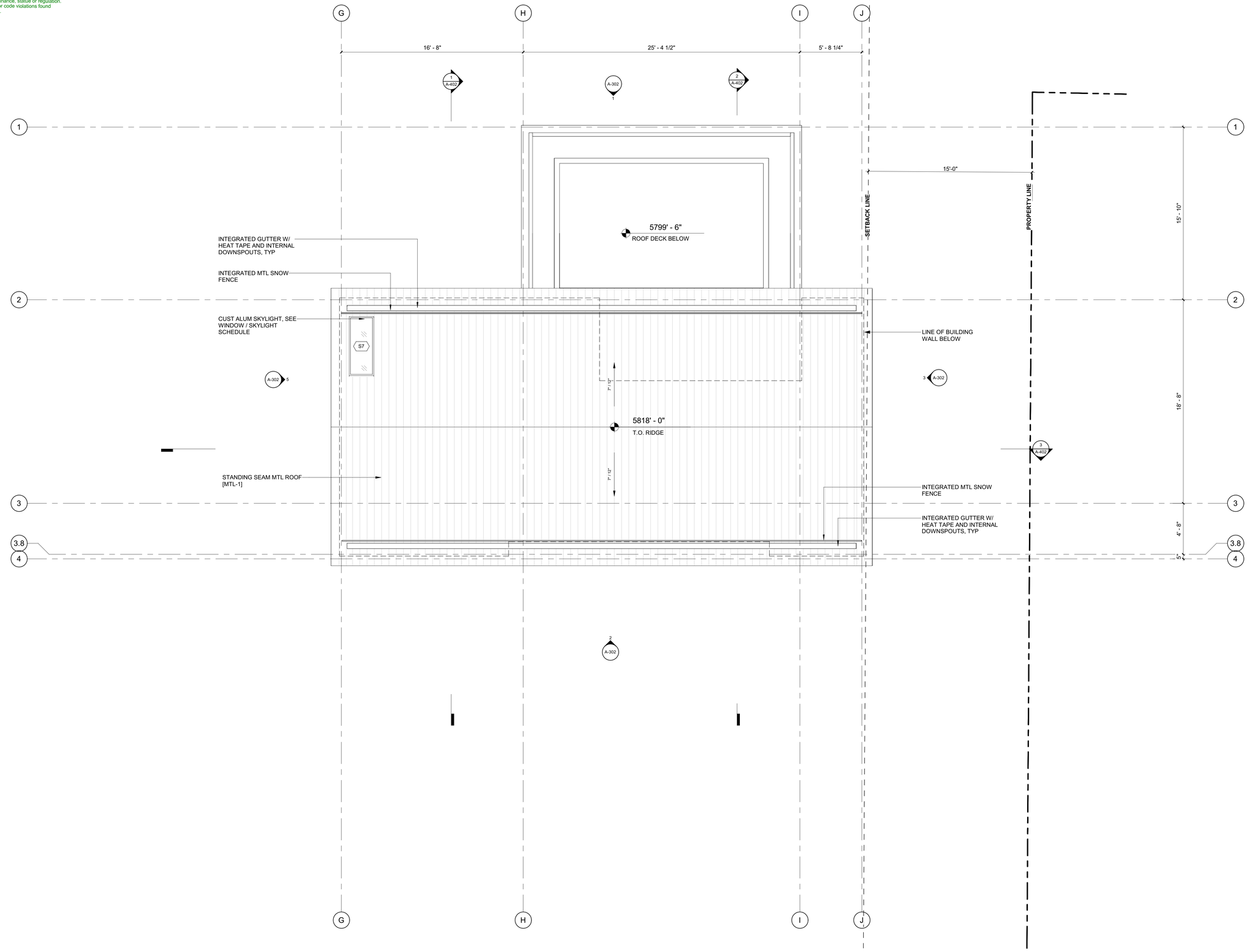
PROJECT NUMBER
#2201

N

DRAWING TITLE:
ROOF PLAN / SOUTH

DRAWING NUMBER:
A-117

2/28/2023 2:39:46 PM



1 | 1/4" = 1'-0" | **PLAN / ROOF - ADU**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

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KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

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KETCHUM, ID 83340
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LANDSCAPE ARCHITECT:

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TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:

ROOF PLAN / ADU

DRAWING NUMBER:

A-118

2/28/2023 6:

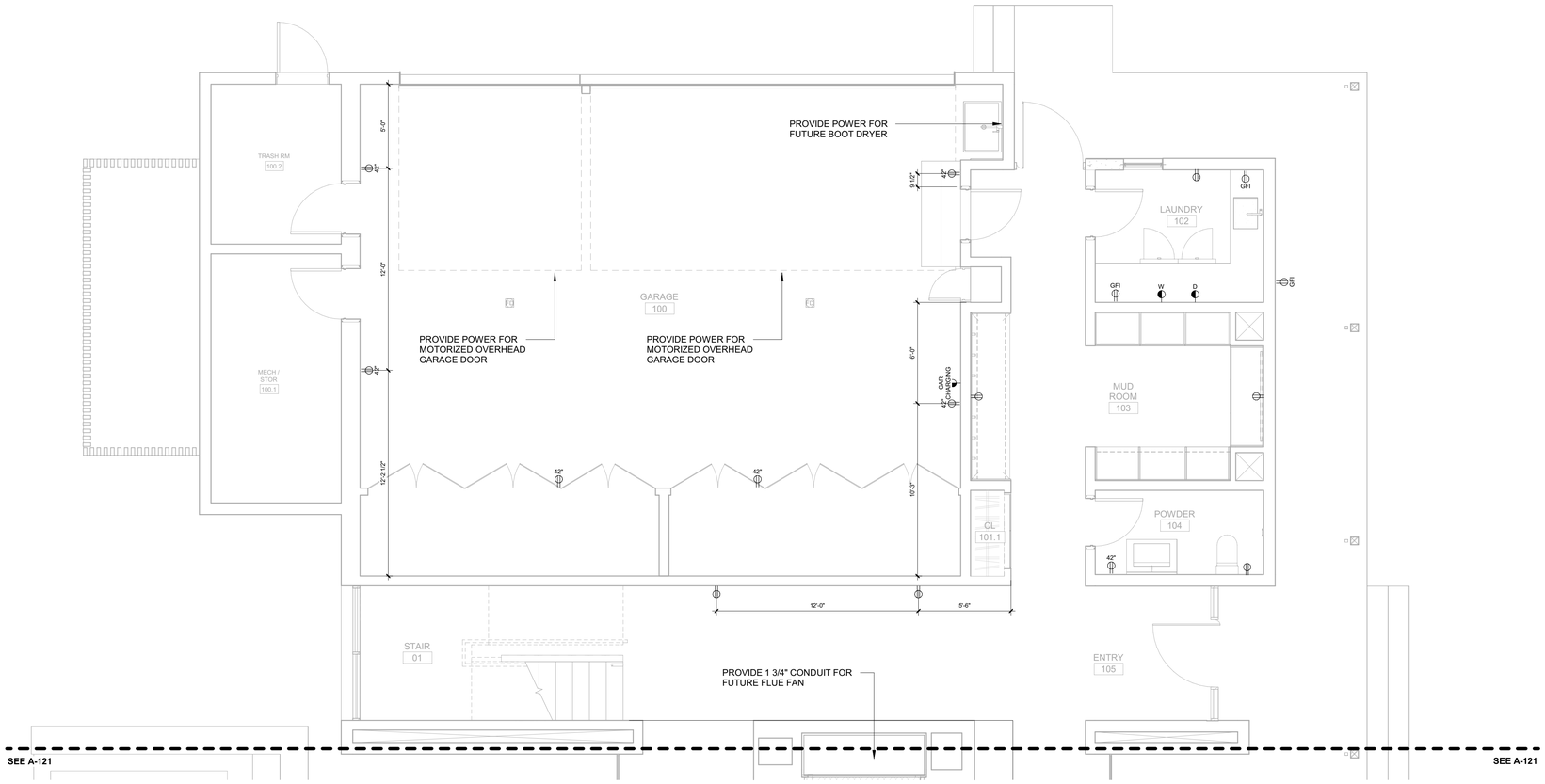
POWER / DATA NOTES:

1. COORDINATE BATH EXHAUST CONTROLS WITH LIGHTING DESIGNER. INTEGRATE WITH LIGHTING CONTROLS AS REQUIRED BY THE OWNER. POWER BATH EXHAUST THROUGH PANEL LIGHTING.

2. COORDINATE LOCATION OF A/V AND TELEVISION CONNECTIONS WITH A/V CONSULTANT PRIOR TO ROUGH-IN. CONNECT TO LOCAL RECEPTACLE CIRCUIT IF NOT BEING CONNECTED THROUGH THE A/V PANEL.

3. WIRELESS DOCKING STATION ON CORRESPONDING HORIZONTAL SURFACE.

4. PROVIDE OUTLETS LOCATED IN BATHROOM MEDICINE CABINET. COORDINATE LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. THESE OUTLETS ARE IN ADDITION ABOVE COUNTER OUTLETS THAT ARE REQUIRED BY CODE.



BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

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HAILEY, ID 83333
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ENVIRONMENTAL CONSULTANT:

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HYDROLOGY / WATER ENGINEERING:

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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
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TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
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TEL: : 208.726.5907

CIVIL ENGINEER:

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TEL: 213.239 9700

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TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

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270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
POWER + DATA PLAN / LEVEL 01 / NORTH

DRAWING NUMBER:
A-120

1 | 1/4" = 1'-0" | **POWER + DATA PLAN / LEVEL 01 / NORTH**

2/28/2023 6:39:39 PM

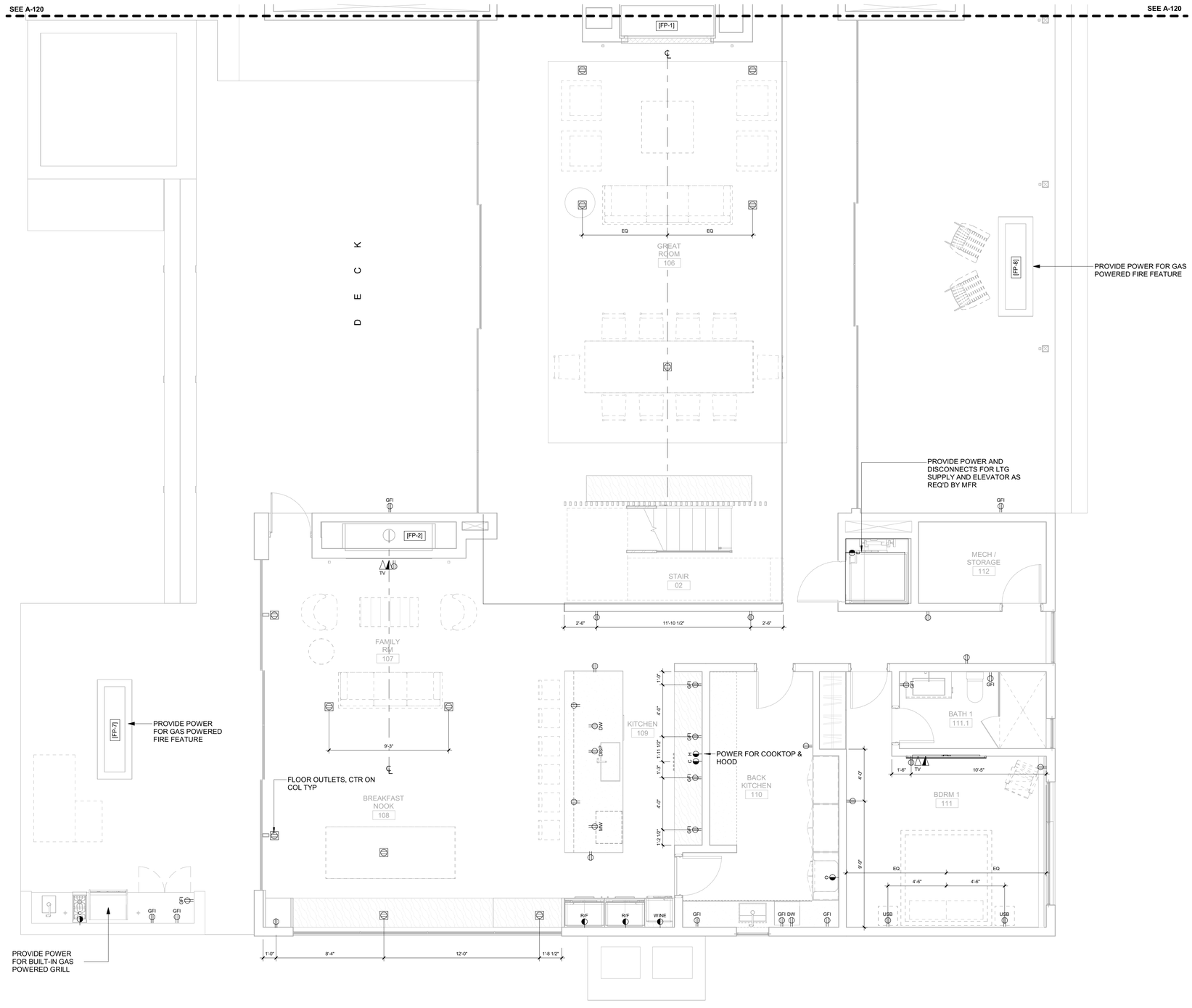
POWER / DATA NOTES:

1. COORDINATE BATH EXHAUST CONTROLS WITH LIGHTING DESIGNER. INTEGRATE WITH LIGHTING CONTROLS AS REQUIRED BY THE OWNER. POWER BATH EXHAUST THROUGH PANEL LIGHTING.

2. COORDINATE LOCATION OF A/V AND TELEVISION CONNECTIONS WITH A/V CONSULTANT PRIOR TO ROUGH-IN. CONNECT TO LOCAL RECEPTACLE CIRCUIT IF NOT BEING CONNECTED THROUGH THE A/V PANEL.

3. WIRELESS DOCKING STATION ON CORRESPONDING HORIZONTAL SURFACE.

4. PROVIDE OUTLETS LOCATED IN BATHROOM MEDICINE CABINET. COORDINATE LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. THESE OUTLETS ARE IN ADDITION ABOVE COUNTER OUTLETS THAT ARE REQUIRED BY CODE.



1 | 1/4" = 1'-0" | **POWER + DATA PLAN / LEVEL 01 / SOUTH**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
POWER + DATA PLAN / LEVEL 01 / SOUTH

DRAWING NUMBER:
A-121

2/28/2023 10:49:46 AM

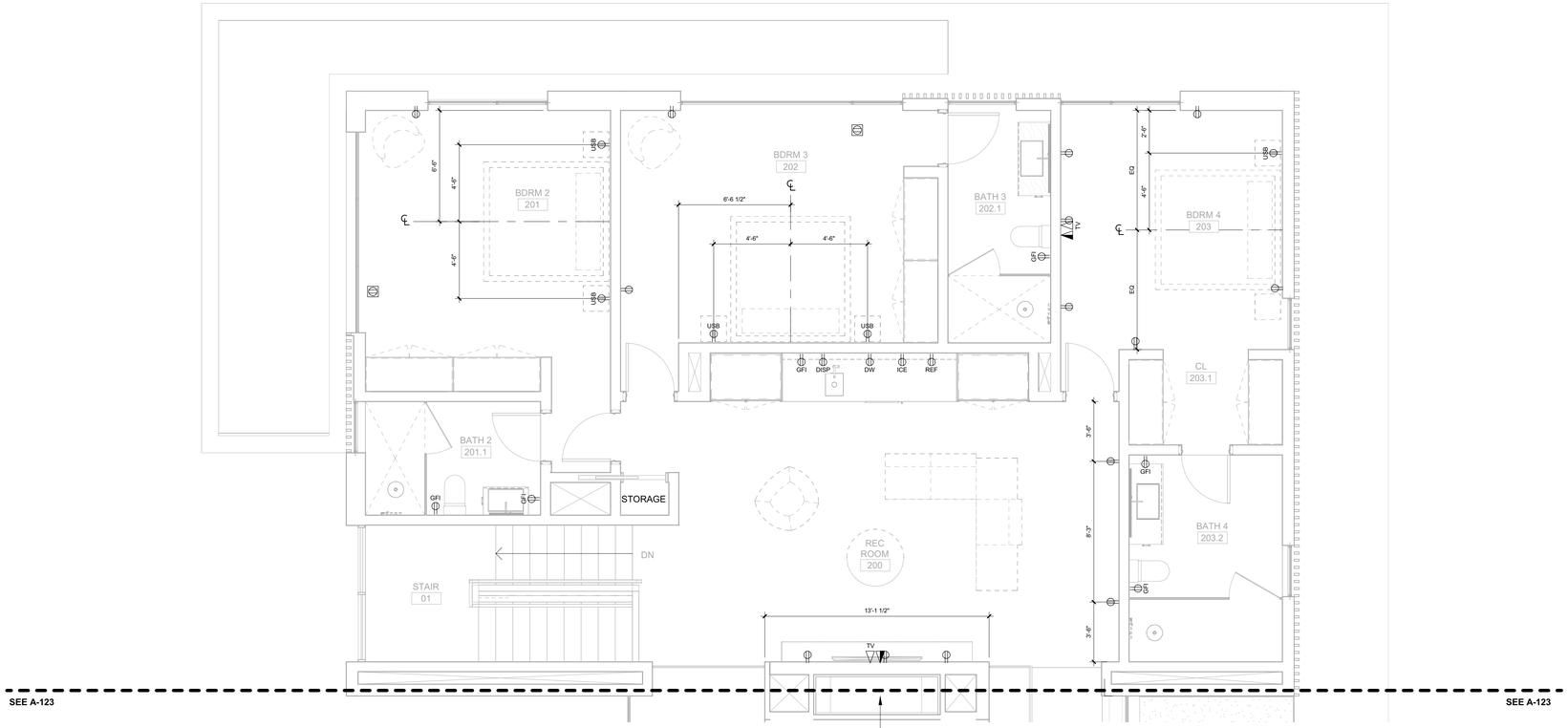
POWER / DATA NOTES:

1. COORDINATE BATH EXHAUST CONTROLS WITH LIGHTING DESIGNER. INTEGRATE WITH LIGHTING CONTROLS AS REQUIRED BY THE OWNER. POWER BATH EXHAUST THROUGH PANEL LIGHTING.

2. COORDINATE LOCATION OF A/V AND TELEVISION CONNECTIONS WITH A/V CONSULTANT PRIOR TO ROUGH-IN. CONNECT TO LOCAL RECEPTACLE CIRCUIT IF NOT BEING CONNECTED THROUGH THE A/V PANEL.

3. WIRELESS DOCKING STATION ON CORRESPONDING HORIZONTAL SURFACE.

4. PROVIDE OUTLETS LOCATED IN BATHROOM MEDICINE CABINET. COORDINATE LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. THESE OUTLETS ARE IN ADDITION ABOVE COUNTER OUTLETS THAT ARE REQUIRED BY CODE.



1 | 1/4" = 1'-0" | **POWER + DATA PLAN / LEVEL 02 / NORTH**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED
ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:

POWER + DATA PLAN / LEVEL 02 / NORTH

DRAWING NUMBER:

A-122

2/28/2023 2:39:46 PM

POWER / DATA NOTES:

1. COORDINATE BATH EXHAUST CONTROLS WITH LIGHTING DESIGNER. INTEGRATE WITH LIGHTING CONTROLS AS REQUIRED BY THE OWNER. POWER BATH EXHAUST THROUGH PANEL LIGHTING.

2. COORDINATE LOCATION OF A/V AND TELEVISION CONNECTIONS WITH A/V CONSULTANT PRIOR TO ROUGH-IN. CONNECT TO LOCAL RECEPTACLE CIRCUIT IF NOT BEING CONNECTED THROUGH THE A/V PANEL.

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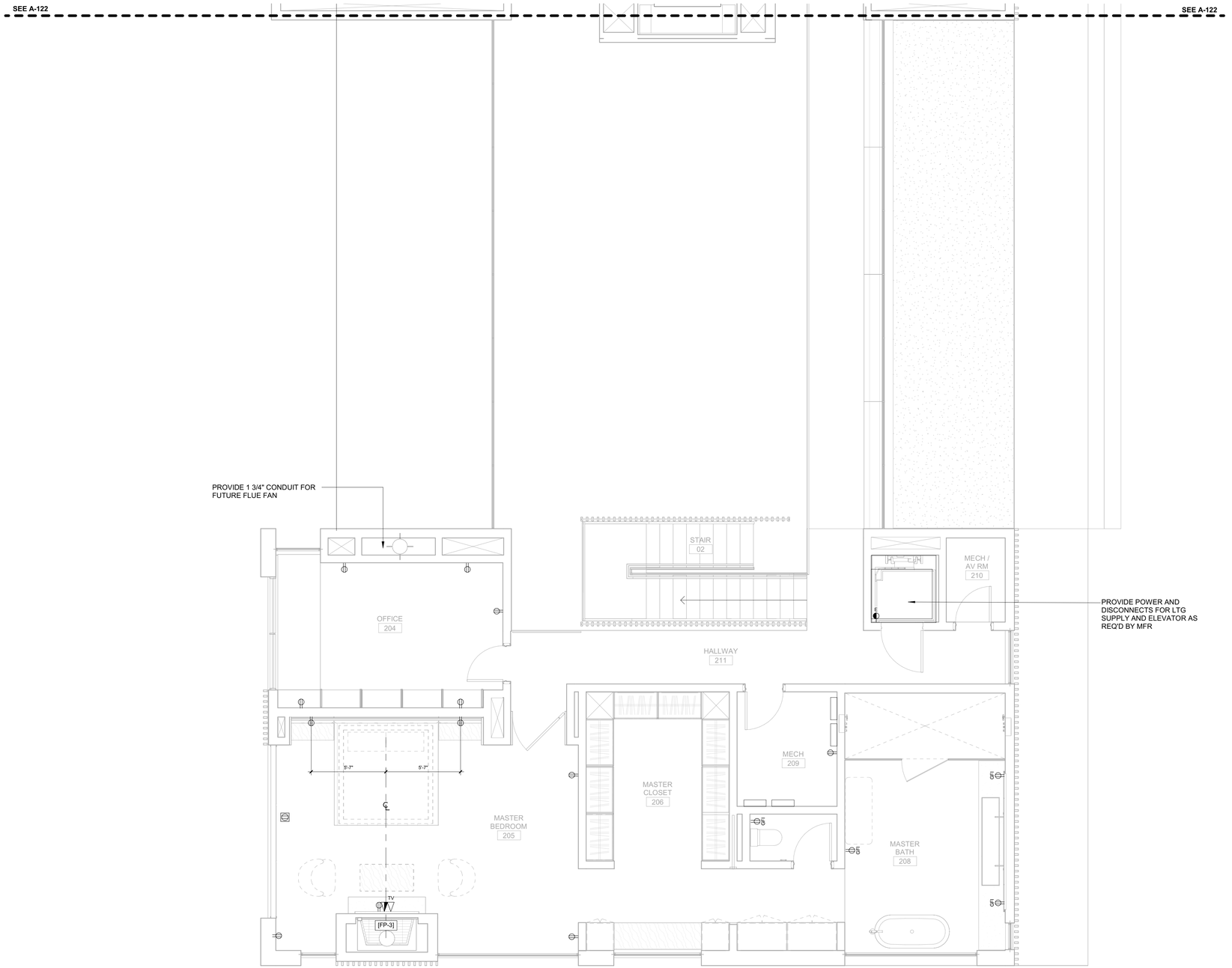

1 | 1/4" = 1'-0" | **POWER + DATA PLAN / LEVEL 02 / SOUTH**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

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MEP ENGINEER:

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LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

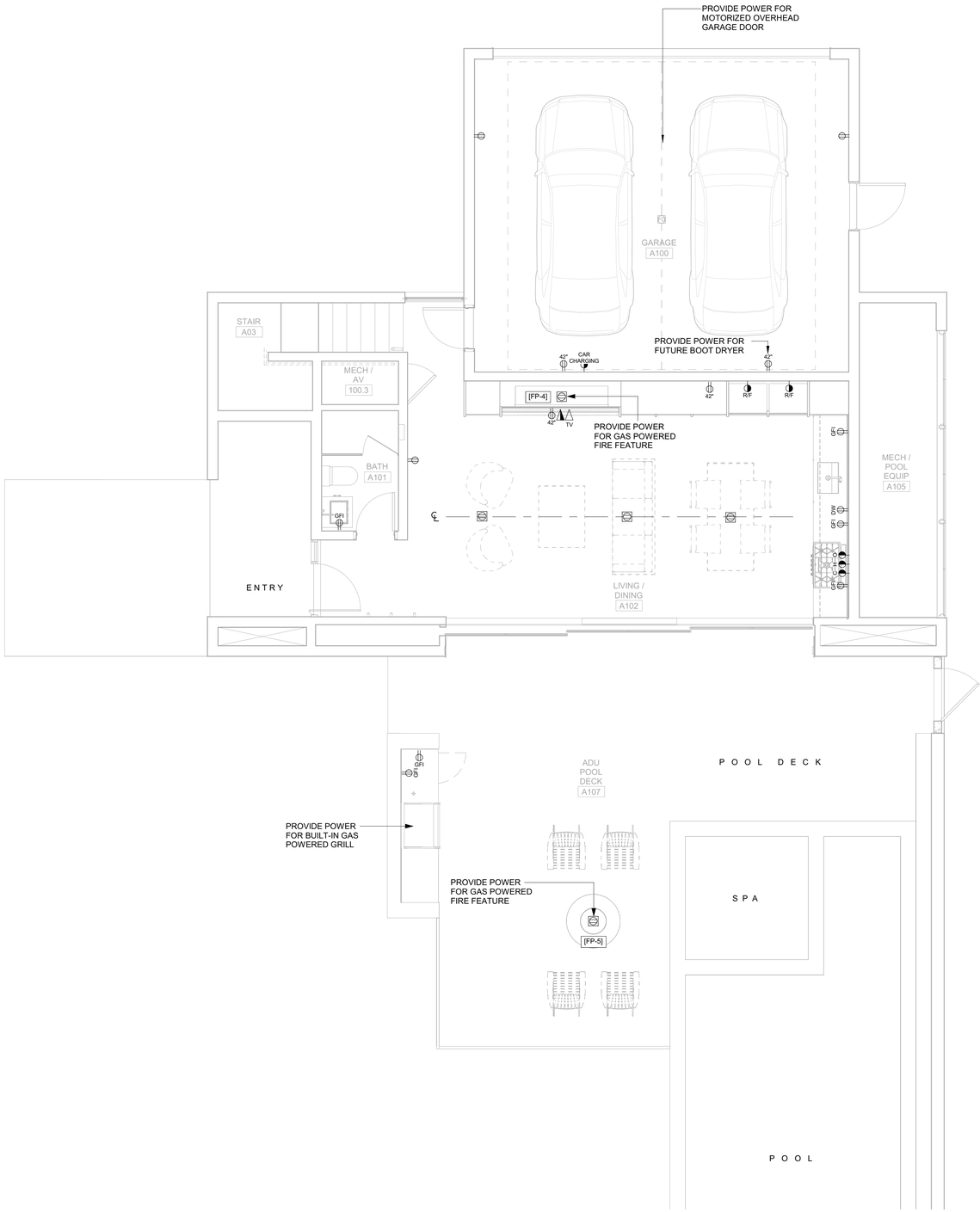
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
POWER + DATA PLAN / LEVEL 02 / SOUTH

DRAWING NUMBER:
A-123

2/28/2023 6:



POWER / DATA NOTES:

1. COORDINATE BATH EXHAUST CONTROLS WITH LIGHTING DESIGNER. INTEGRATE WITH LIGHTING CONTROLS AS REQUIRED BY THE OWNER. POWER BATH EXHAUST THROUGH PANEL LIGHTING.

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1 | 1/4" = 1'-0" | **ADU / POWER + DATA PLAN / LEVEL 01**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
POWER + DATA PLAN / LEVEL 01 / ADU

DRAWING NUMBER:
A-124

2/28/2023 10:43:46 AM

POWER / DATA NOTES:

1. COORDINATE BATH EXHAUST CONTROLS WITH LIGHTING DESIGNER. INTEGRATE WITH LIGHTING CONTROLS AS REQUIRED BY THE OWNER. POWER BATH EXHAUST THROUGH PANEL LIGHTING.

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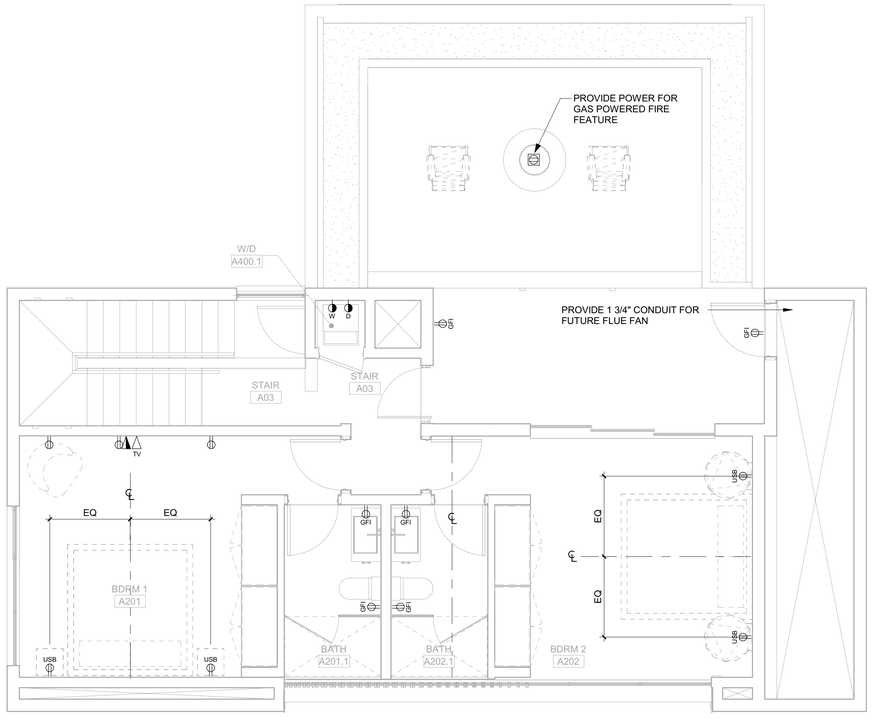

1 | 1/4" = 1'-0" | **ADU / POWER + DATA PLAN / LEVEL 02**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO DATE ISSUE

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
POWER + DATA PLAN / LEVEL 02 / ADU

DRAWING NUMBER:
A-125

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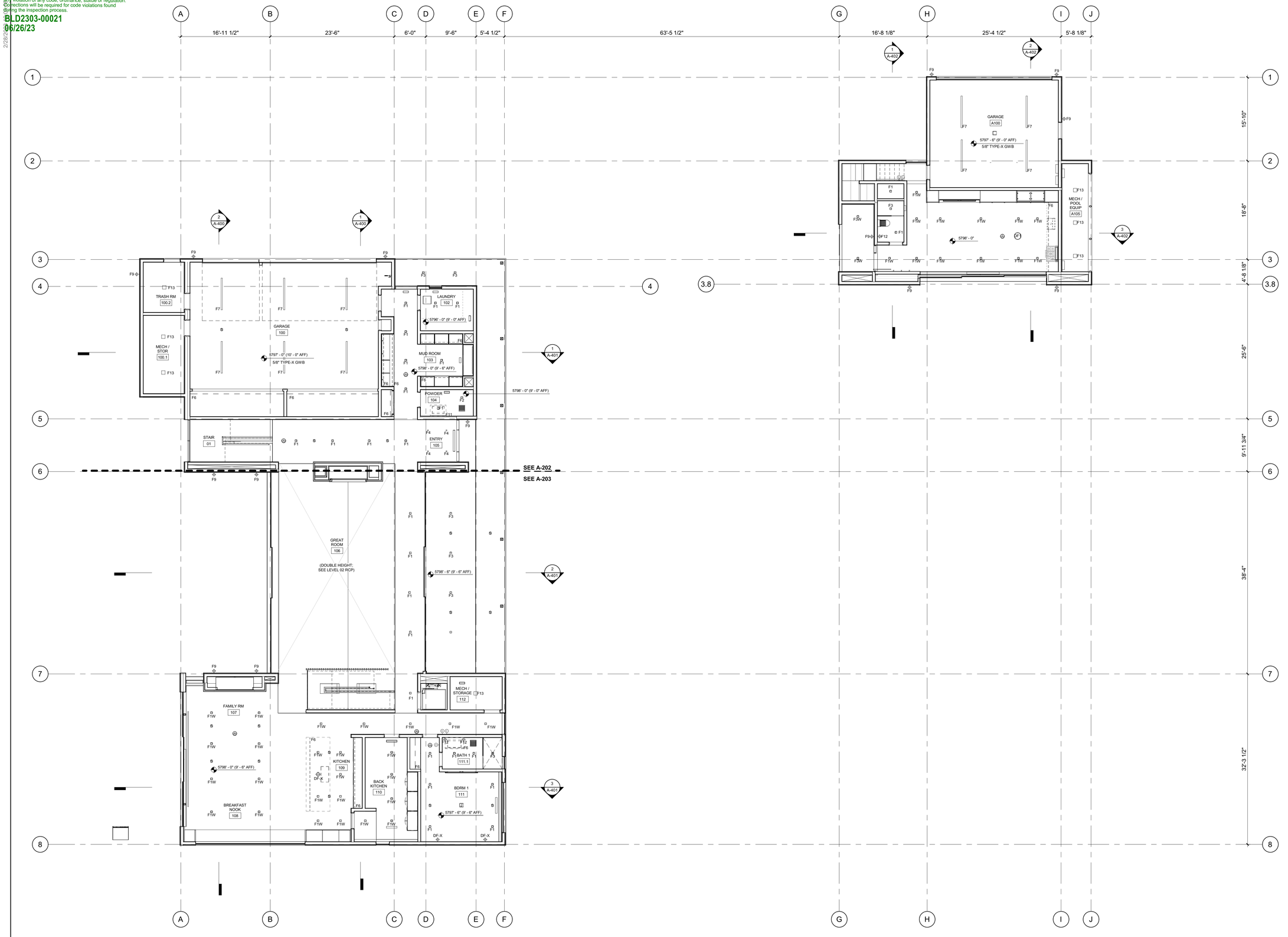

1 1/8" = 1'-0" **REFERENCE RCP / LEVEL 01**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

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P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
REFERENCE RCP / LEVEL 01

DRAWING NUMBER:
A-200

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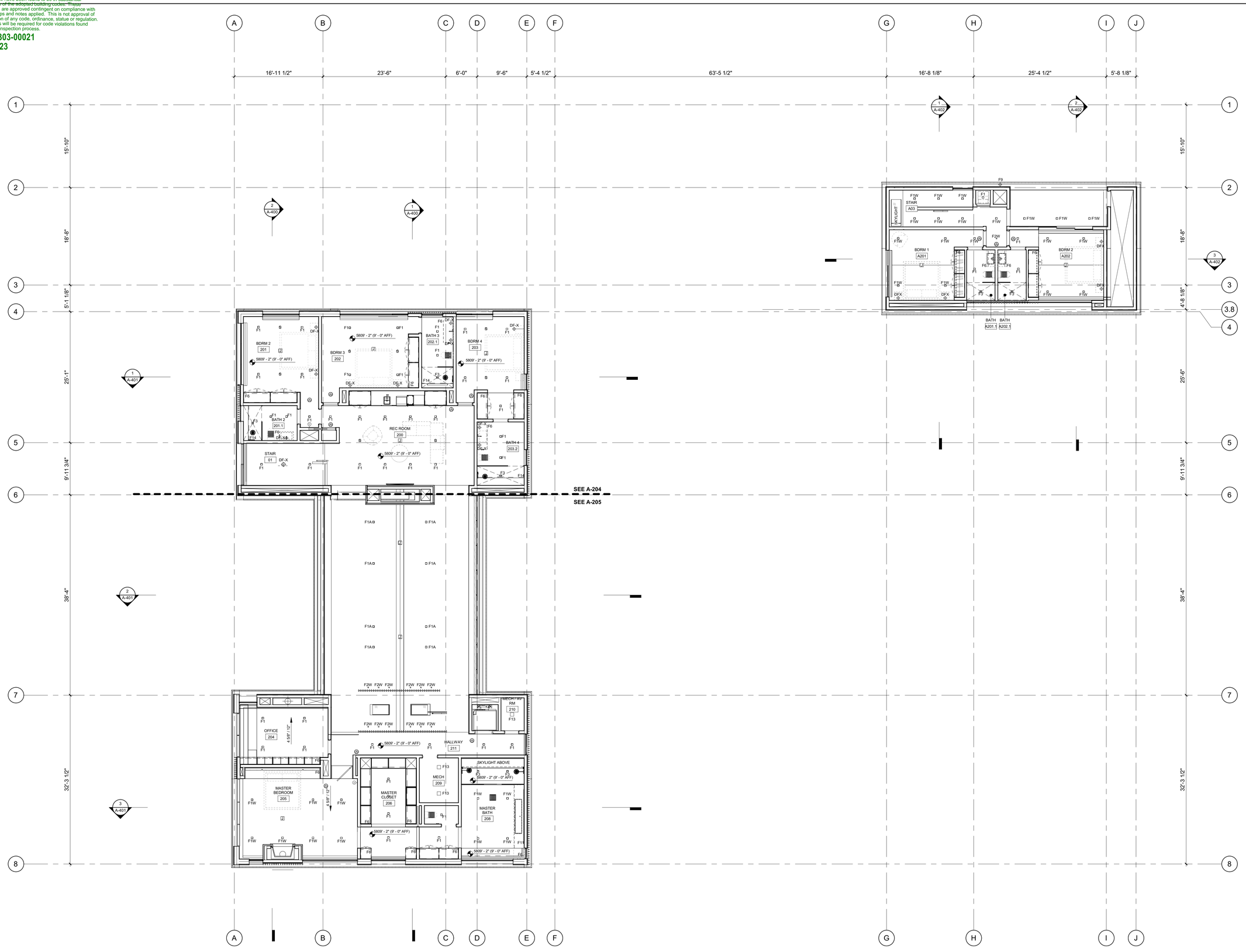

1 1/0" = 1'-0" ~~REFERENCE RCP / LEVEL 02~~

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

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ENVIRONMENTAL CONSULTANT:

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P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
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KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

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P.O. BOX 733 - 100 BELL DRIVE
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MEP ENGINEER:

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TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

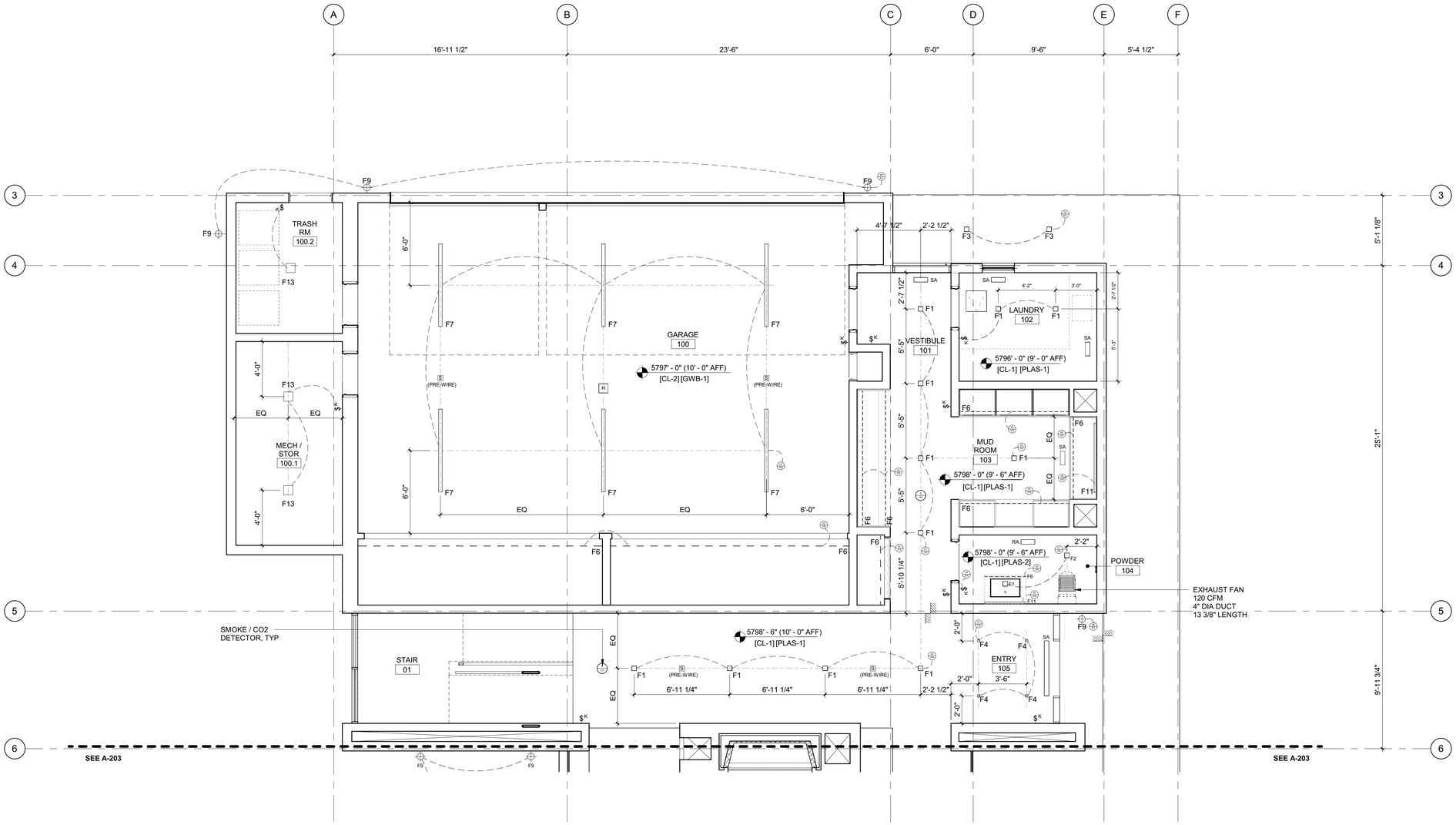
DRAWING TITLE:
REFERENCE RCP / LEVEL 02

DRAWING NUMBER:
A-201

2/28/2023 10:45:06 AM

RCP NOTES:

1. SEE FLOOR PLANS FOR LIGHTING FIXTURES AT FLOORS OR LOW WALLS
2. PROVIDE SMOKE AND CO2 DETECTORS AS REQ'D BY CODE
3. FIRE SPRINKLER SYSTEM / ALARM UNDER SEPARATE PERMIT, COORDINATE LOCATION OF ALL SPRINKLER HEADS AND ALARM WITH ARCHITECT. SPRINKLER HEADS TO BE FLUSH CONCEALED, MATCH CLG COLOR.
4. COORDINATE ALL LAYOUT CONFLICTS WITH ARCHITECT.
5. COORDINATE MECHANICAL GRILLES WITH ARCHITECT; MUD-IN TYP IN GYP, CUSTOM BUILT-IN GRILLES TYP IN WOOD CEILINGS.
6. DECORATIVE LIGHT FIXTURES SHOWN FOR LOCATION ONLY, COORDINATE WITH OWNER AND ARCHITECT.
7. COORDINATE POCKET SHADE LOCATIONS WITH ARCHITECT AND OWNER.
8. ELECTRICAL SYSTEM TO BE DESIGN-BUILD COORDINATE WITH ARCHITECT.
9. SEE PROJECT MANUAL FOR LIGHT FIXTURE SPECS.
10. BATHROOM EXHAUST FANS SHALL BE TIED INTO LIGHTING CONTROL SYSTEM FOR TIMED SHUT-OFF. ALL BATHROOM FANS SHALL BE FITTED WITH CUSTOM GRILLES PAINTED TO MATCH CEILING.



1 | 1/4" = 1'-0" | **RCP / LEVEL 01 / NORTH**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
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TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

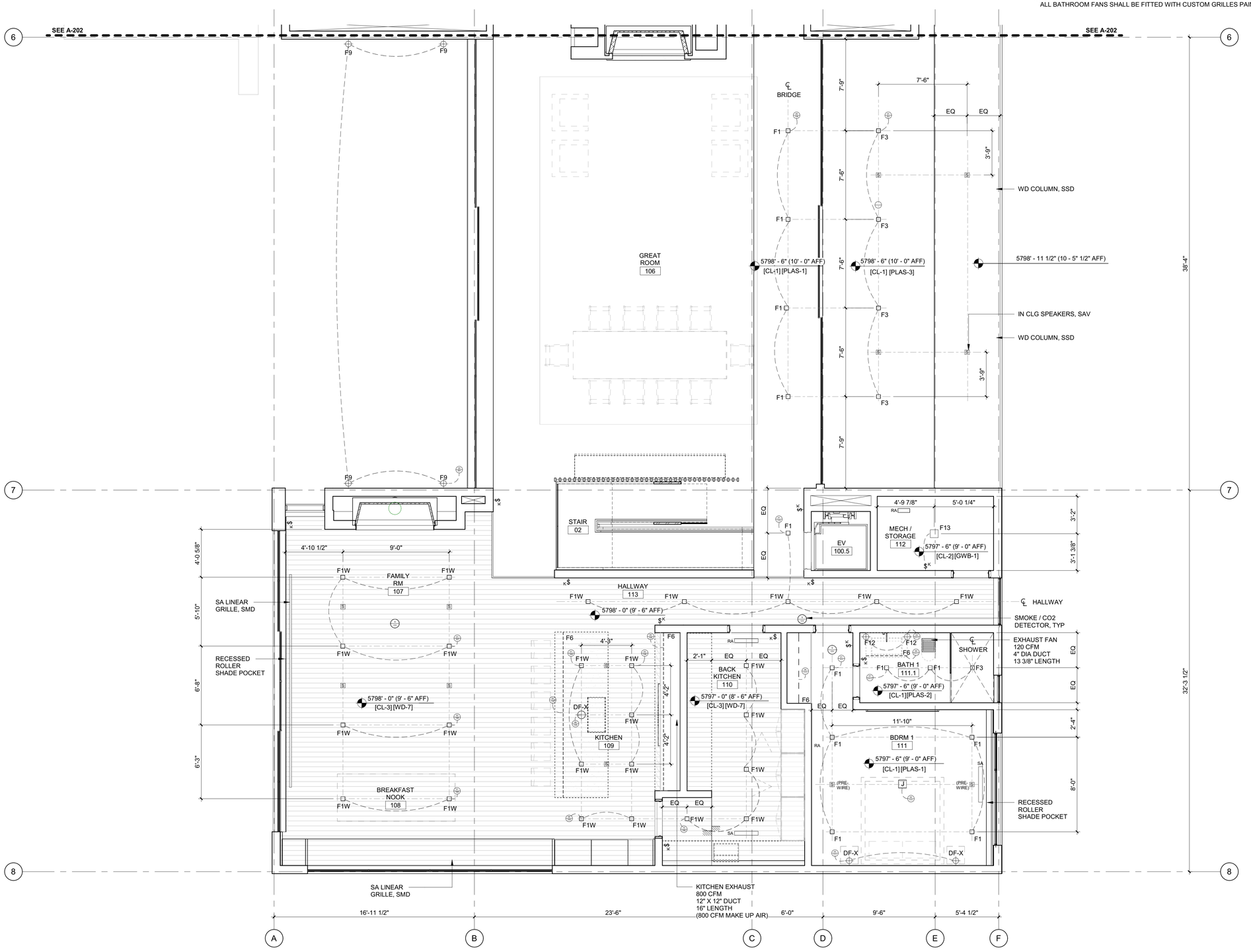
DRAWING TITLE:
RCP / LEVEL 01 / NORTH

DRAWING NUMBER:
A-202

2/28/2023 10:46:16 AM

RCP NOTES:

1. SEE FLOOR PLANS FOR LIGHTING FIXTURES AT FLOORS OR LOW WALLS
2. PROVIDE SMOKE AND CO2 DETECTORS AS REQ'D BY CODE
3. FIRE SPRINKLER SYSTEM / ALARM UNDER SEPARATE PERMIT. COORDINATE LOCATION OF ALL SPRINKLER HEADS AND ALARM WITH ARCHITECT. SPRINKLER HEADS TO BE FLUSH CONCEALED, MATCH CLG COLOR.
4. COORDINATE ALL LAYOUT CONFLICTS WITH ARCHITECT.
5. COORDINATE MECHANICAL GRILLES WITH ARCHITECT; MUD-IN TYP IN GYP, CUSTOM BUILT-IN GRILLES TYP IN WOOD CEILINGS.
6. DECORATIVE LIGHT FIXTURES SHOWN FOR LOCATION ONLY, COORDINATE WITH OWNER AND ARCHITECT.
7. COORDINATE POCKET SHADE LOCATIONS WITH ARCHITECT AND OWNER.
8. ELECTRICAL SYSTEM TO BE DESIGN-BUILD COORDINATE WITH ARCHITECT.
9. SEE PROJECT MANUAL FOR LIGHT FIXTURE SPECS.
10. BATHROOM EXHAUST FANS SHALL BE TIED INTO LIGHTING CONTROL SYSTEM FOR TIMED SHUT-OFF. ALL BATHROOM FANS SHALL BE FITTED WITH CUSTOM GRILLES PAINTED TO MATCH CEILING.



1 | 1/4" = 1'-0" | **RCP / LEVEL 01 / SOUTH**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
RCP / LEVEL 01 / SOUTH

DRAWING NUMBER:
A-203

2/28/2023 10:49:46 AM

RCP NOTES:

1. SEE FLOOR PLANS FOR LIGHTING FIXTURES AT FLOORS OR LOW WALLS
2. PROVIDE SMOKE AND CO2 DETECTORS AS REQ'D BY CODE
3. FIRE SPRINKLER SYSTEM / ALARM UNDER SEPARATE PERMIT, COORDINATE LOCATION OF ALL SPRINKLER HEADS AND ALARM WITH ARCHITECT. SPRINKLER HEADS TO BE FLUSH CONCEALED, MATCH CLG COLOR.
4. COORDINATE ALL LAYOUT CONFLICTS WITH ARCHITECT.
5. COORDINATE MECHANICAL GRILLES WITH ARCHITECT, MUD-IN TYP IN GYP, CUSTOM BUILT-IN GRILLES TYP IN WOOD CEILINGS.
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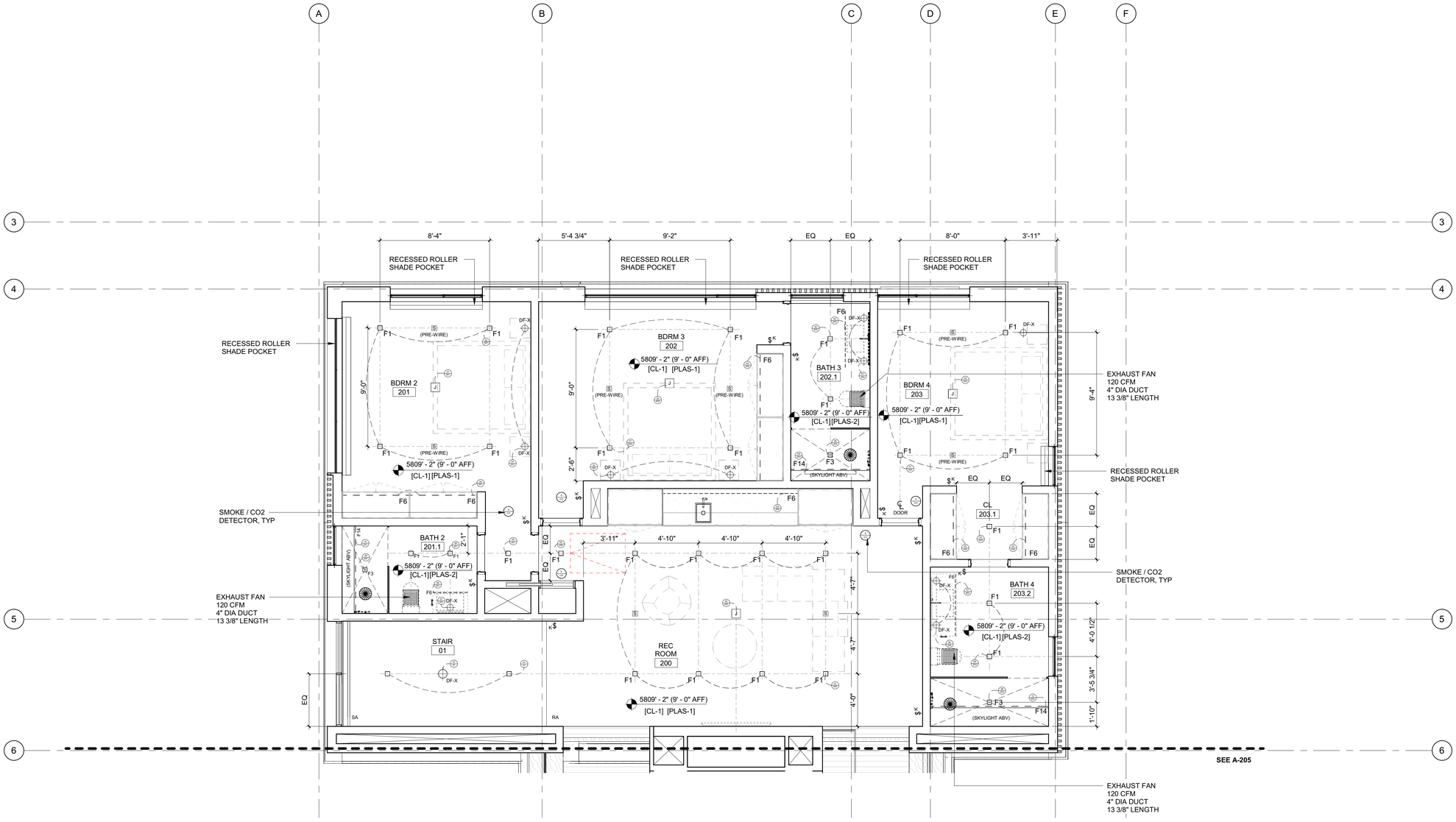
7. COORDINATE POCKET SHADE LOCATIONS WITH ARCHITECT AND OWNER.
8. ELECTRICAL SYSTEM TO BE DESIGN-BUILD COORDINATE WITH ARCHITECT.
9. SEE PROJECT MANUAL FOR LIGHT FIXTURE SPECS.
10. BATHROOM EXHAUST FANS SHALL BE TIED INTO LIGHTING CONTROL SYSTEM FOR TIMED SHUT-OFF. ALL BATHROOM FANS SHALL BE FITTED WITH CUSTOM GRILLES PAINTED TO MATCH CEILING.



BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:
LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
RCP / LEVEL 02 / NORTH

DRAWING NUMBER:
A-204

1 | 1/4" = 1'-0" | **RCP / LEVEL 02 / NORTH**

2/28/2023 10:45:16 AM

RCP NOTES:

1. SEE FLOOR PLANS FOR LIGHTING FIXTURES AT FLOORS OR LOW WALLS
2. PROVIDE SMOKE AND CO2 DETECTORS AS REQ'D BY CODE
3. FIRE SPRINKLER SYSTEM / ALARM UNDER SEPARATE PERMIT, COORDINATE LOCATION OF ALL SPRINKLER HEADS AND ALARM WITH ARCHITECT. SPRINKLER HEADS TO BE FLUSH CONCEALED, MATCH CLG COLOR.
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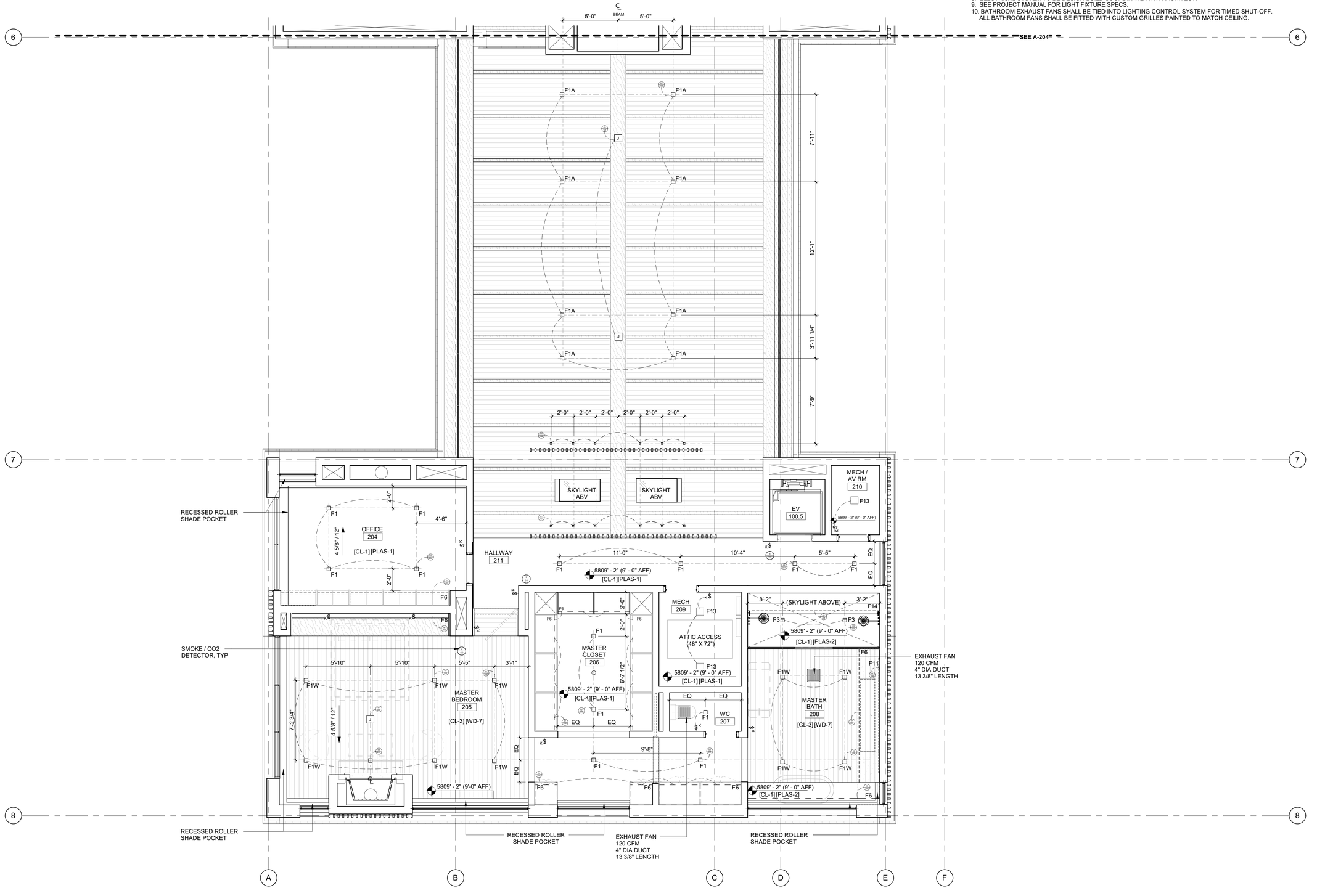


1 | 1/4" = 1'-0" | **RCP / LEVEL 02 / SOUTH**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

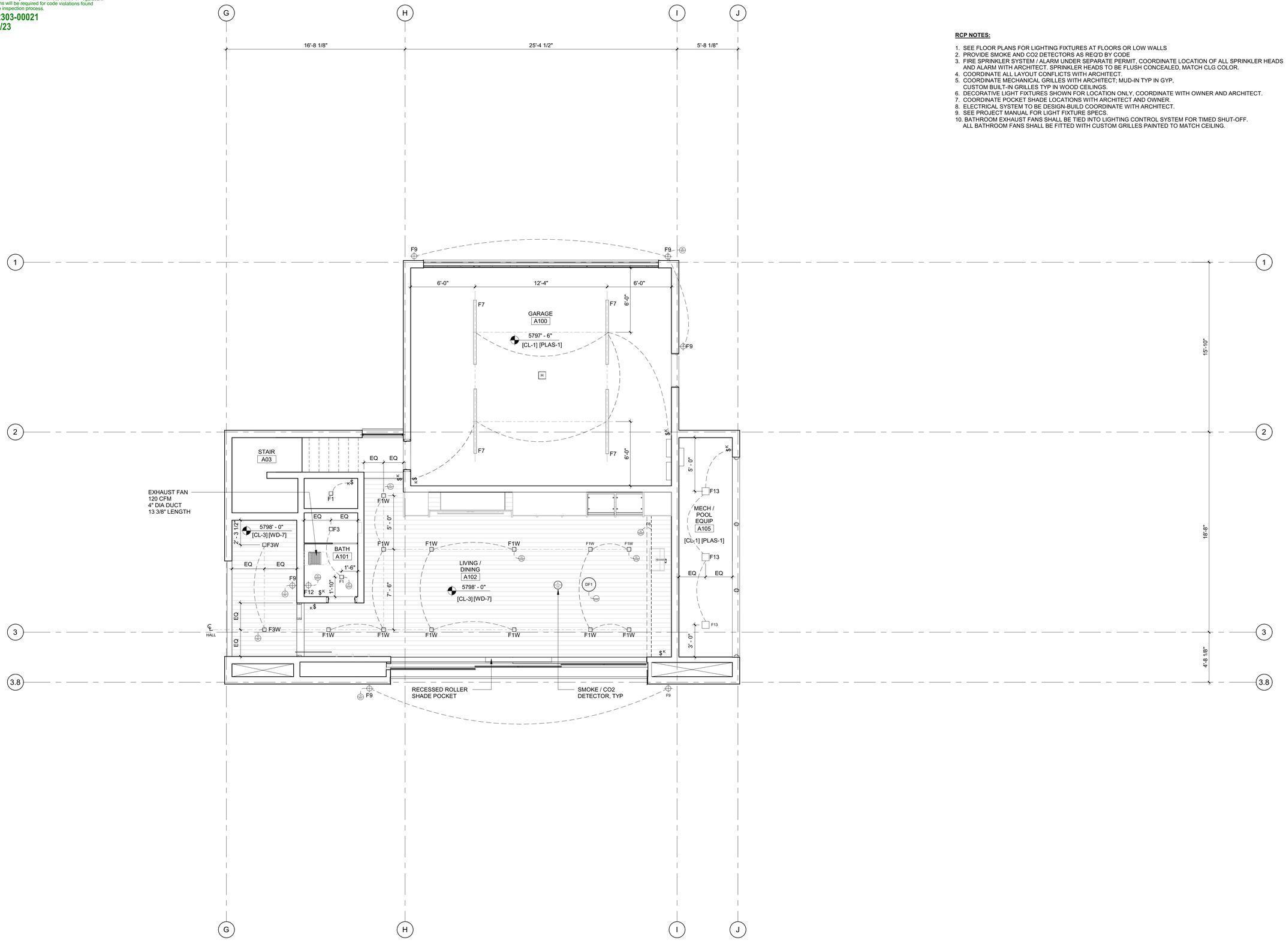
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
RCP / LEVEL 02 / SOUTH

DRAWING NUMBER:
A-205

2/28/2023 10:16:39 AM



RCP NOTES:

1. SEE FLOOR PLANS FOR LIGHTING FIXTURES AT FLOORS OR LOW WALLS
2. PROVIDE SMOKE AND CO2 DETECTORS AS REQ'D BY CODE
3. FIRE SPRINKLER SYSTEM / ALARM UNDER SEPARATE PERMIT, COORDINATE LOCATION OF ALL SPRINKLER HEADS AND ALARM WITH ARCHITECT. SPRINKLER HEADS TO BE FLUSH CONCEALED, MATCH CLG COLOR.
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1 | 1/4" = 1'-0" | **RCP / LEVEL 01 / ADU**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

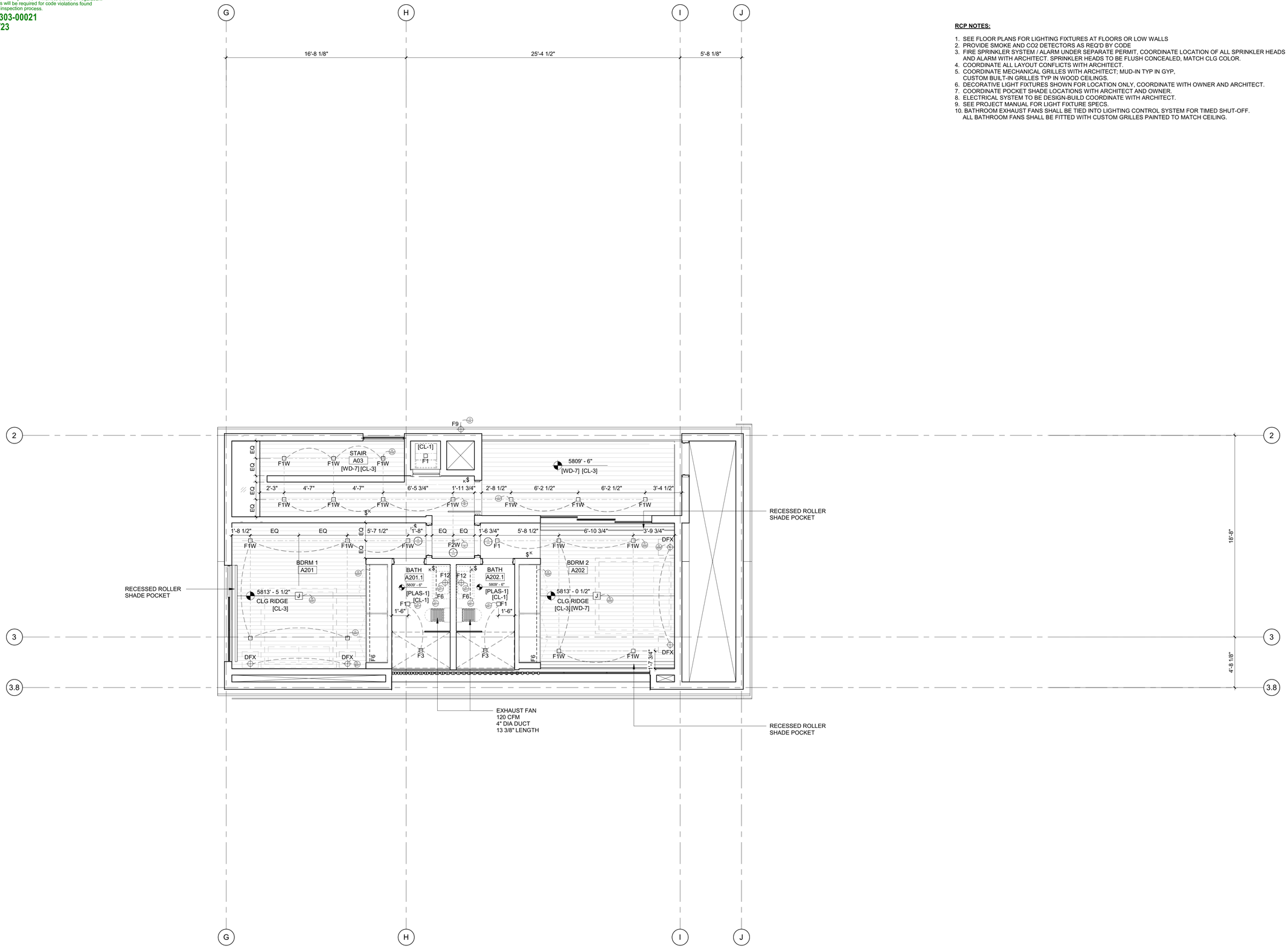
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
RCP / LEVEL 01 / ADU

DRAWING NUMBER:
A-206



RCP NOTES:

1. SEE FLOOR PLANS FOR LIGHTING FIXTURES AT FLOORS OR LOW WALLS
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BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

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P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
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TEL: : 208.726.5907

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BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
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319 MAIN STREET
EL SEGUNDO, CA 90245
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1001 W OAK BUILDING B SUITE 107
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TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

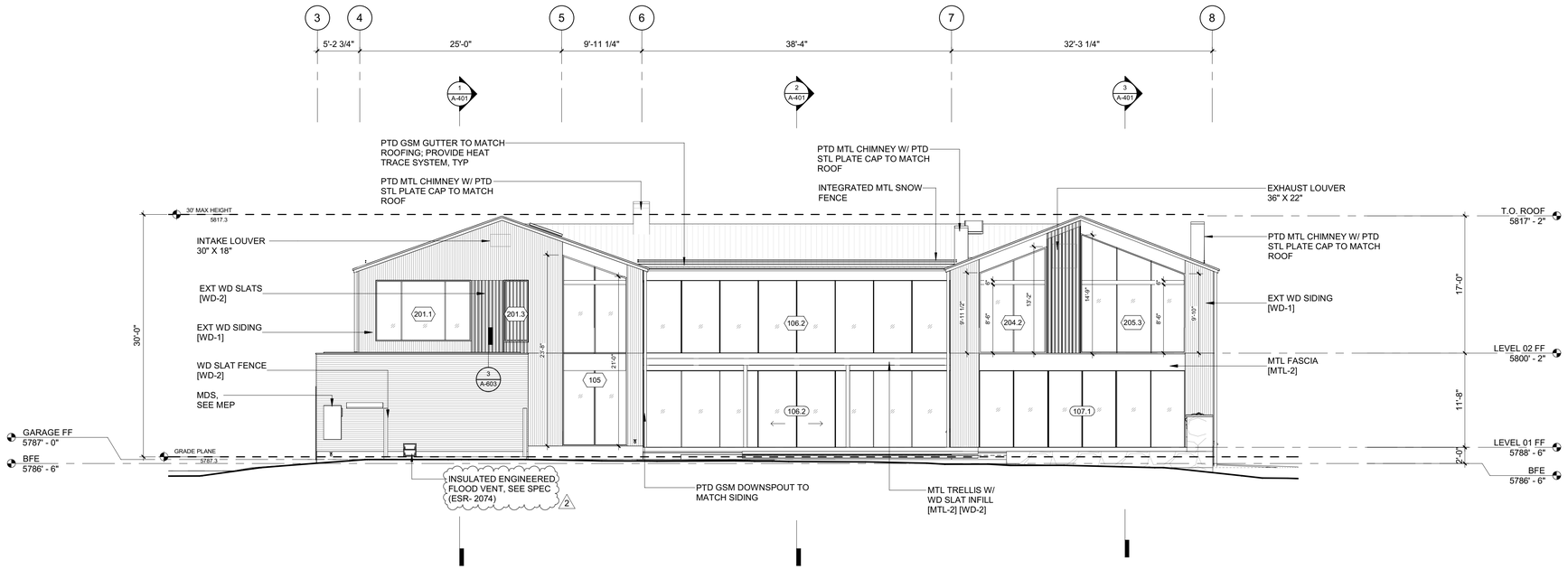
PROJECT NUMBER
#2201

N

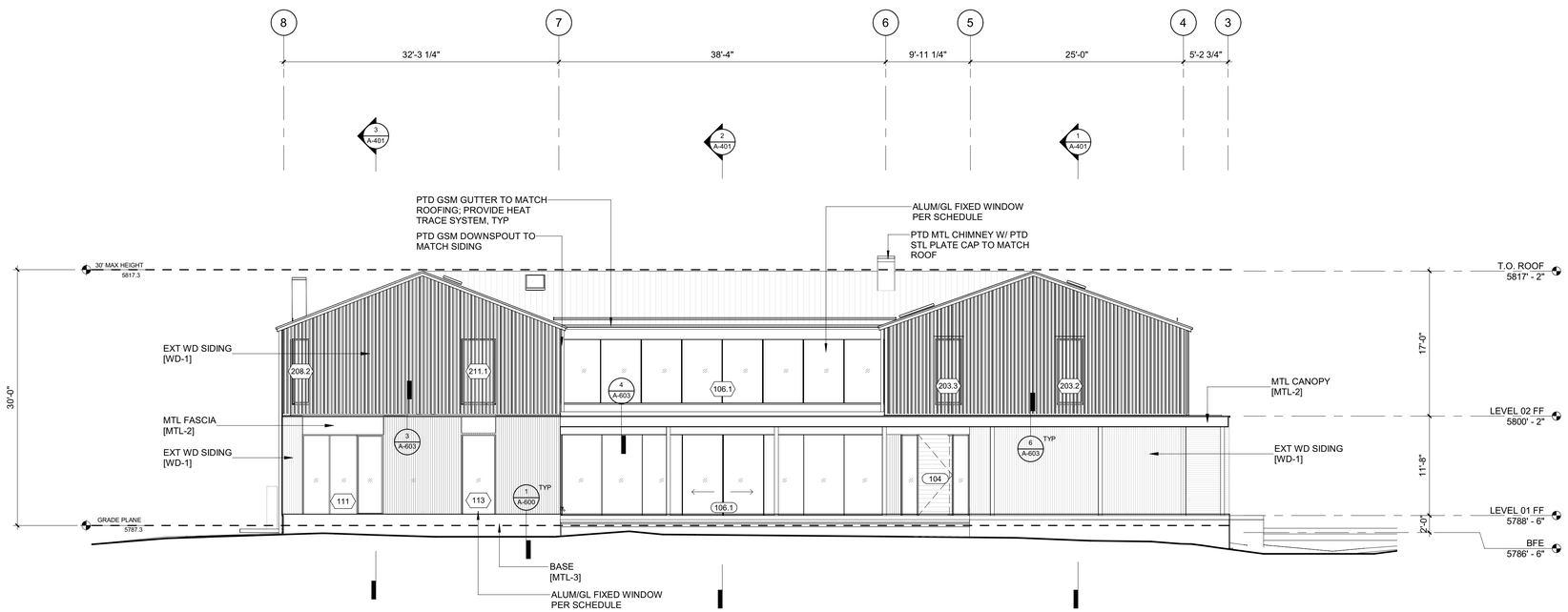
DRAWING TITLE:
RCP / LEVEL 02 / ADU

DRAWING NUMBER:
A-207

1 | 1/4" = 1'-0" | **RCP / LEVEL 02 / ADU**



2 | 1/8" = 1'-0" | **ELEVATION / WEST**



1 | 1/8" = 1'-0" | **ELEVATION / EAST**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
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LANDSCAPE ARCHITECT:
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SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
2	06.06.23	PERMIT REVIEW- REV 2
	02.28.23	BUILDING PERMIT SUBMITTAL

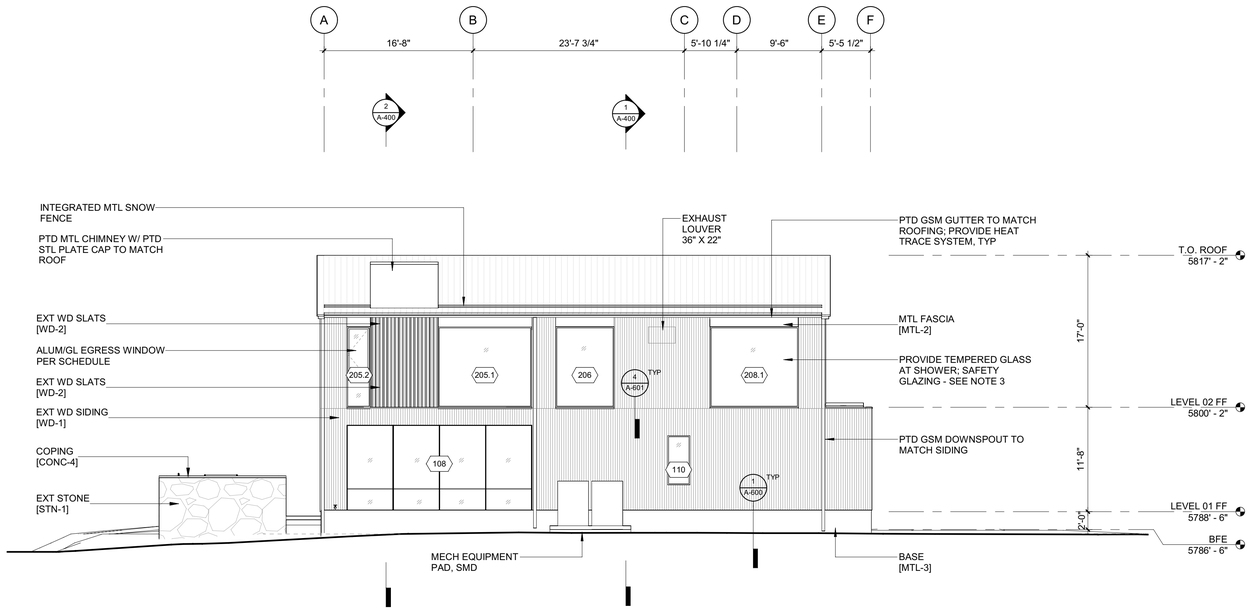
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

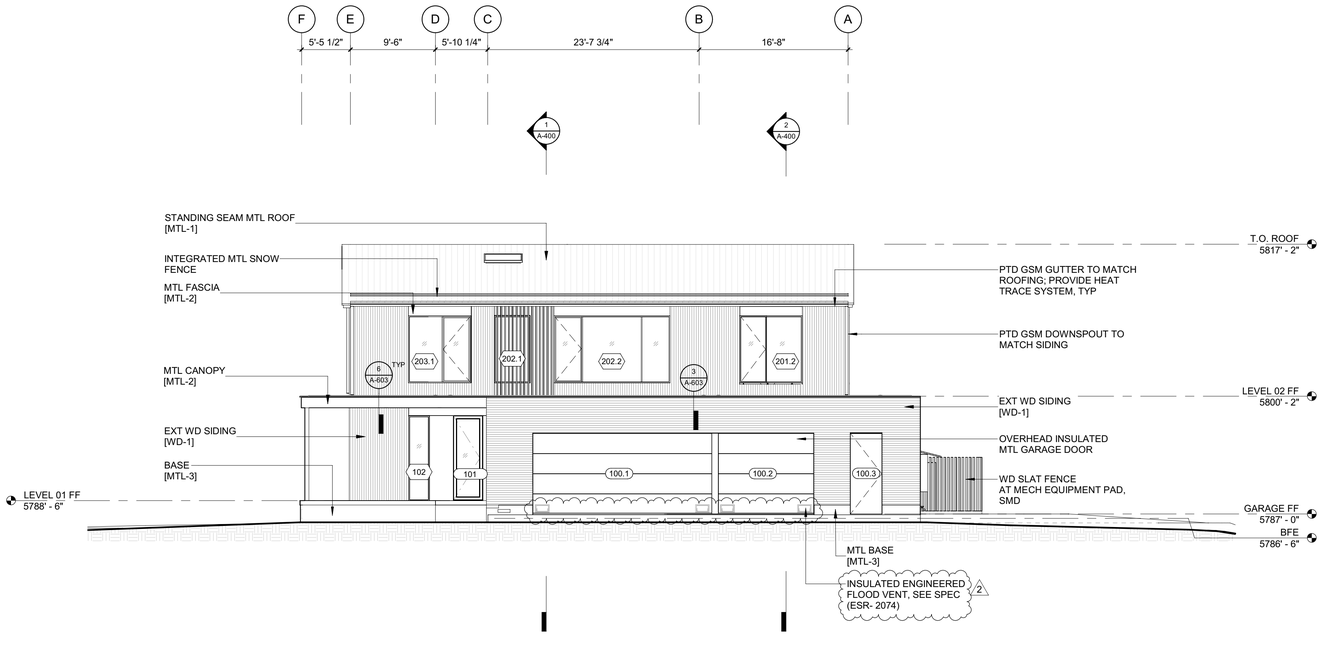
DRAWING TITLE:
EXTERIOR ELEVATIONS

DRAWING NUMBER:
A-300

NOT FOR CONSTRUCTION



2 | 1/8" = 1'-0" | **ELEVATION / SOUTH**



1 | 1/8" = 1'-0" | **ELEVATION / NORTH**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
2	06.06.23	PERMIT REVIEW- REV 2
	02.28.23	BUILDING PERMIT SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

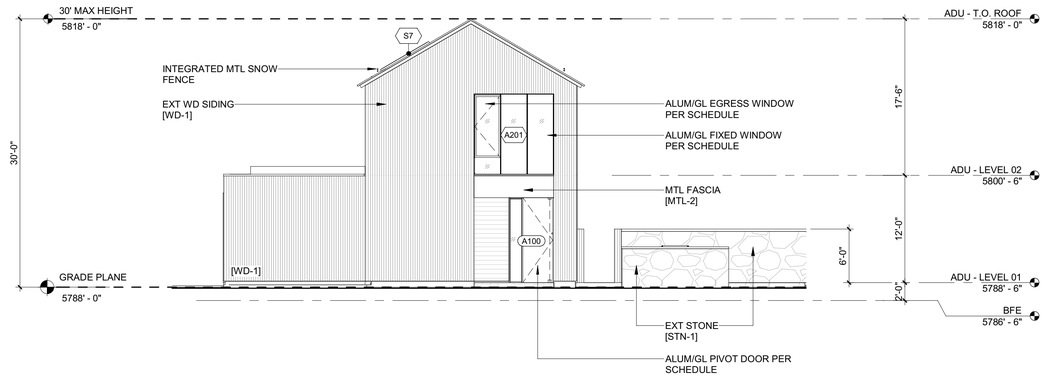
PROJECT NUMBER
#2201

DRAWING TITLE:
EXTERIOR ELEVATIONS

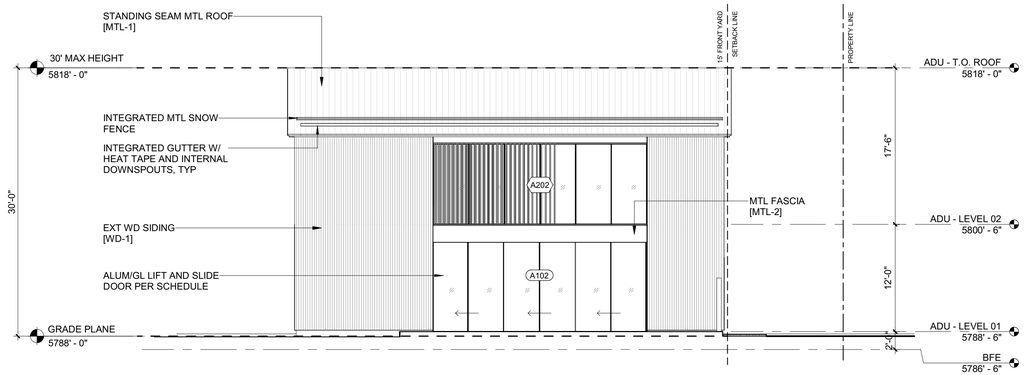
DRAWING NUMBER:
A-301

NOT FOR CONSTRUCTION

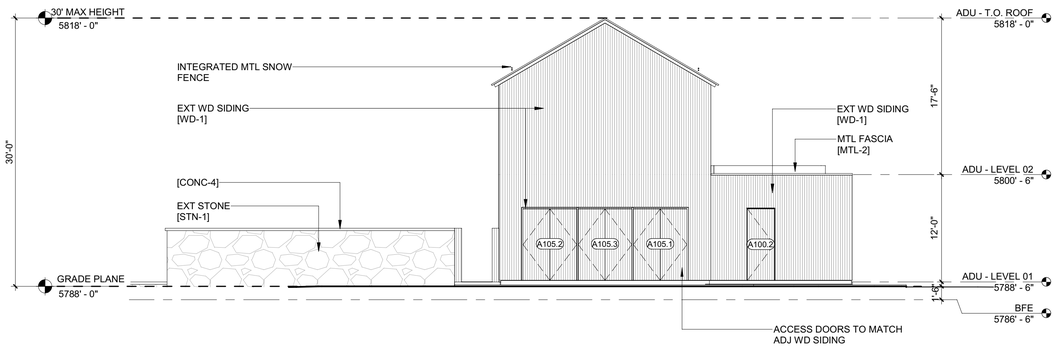
2/28/2023



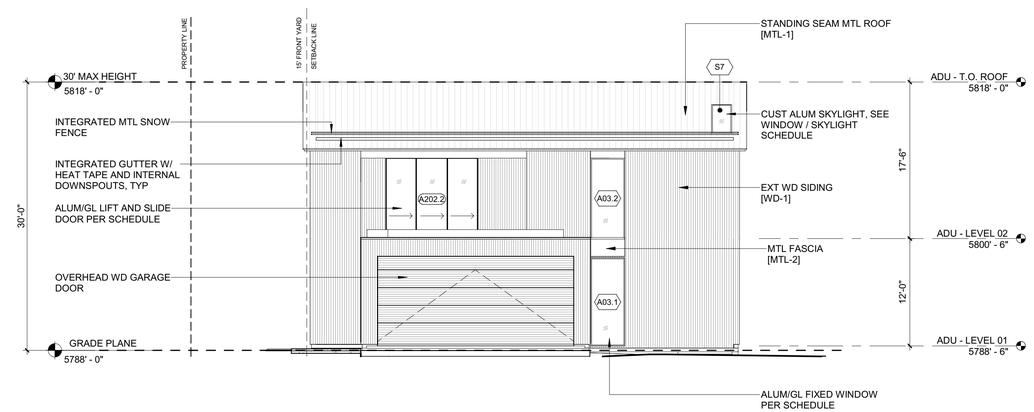
5 | 1/8" = 1'-0" | **ADU - ELEVATION / WEST**



2 | 1/8" = 1'-0" | **ADU - ELEVATION / SOUTH**



3 | 1/8" = 1'-0" | **ADU - ELEVATION / EAST**



1 | 1/8" = 1'-0" | **ADU - ELEVATION / NORTH**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

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HYDROLOGY / WATER ENGINEERING:

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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
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GEOTECHNICAL ENGINEER:

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KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

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323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

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P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

NO	DATE	ISSUE

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER

#2201

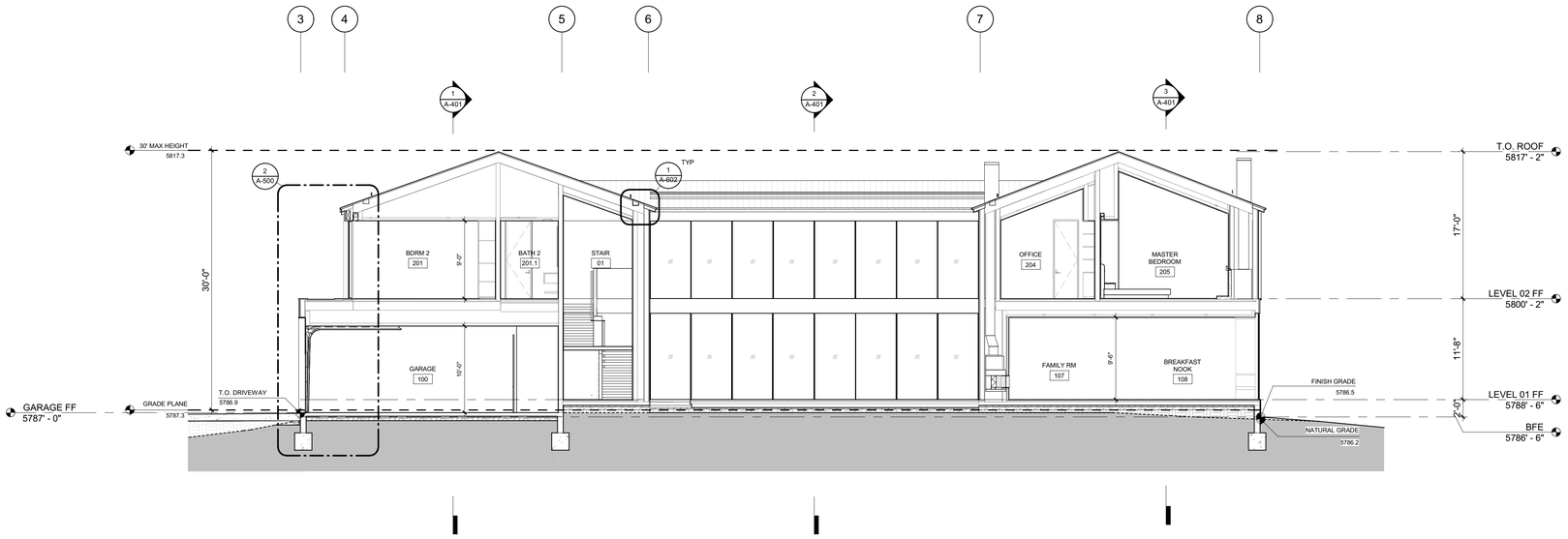
DRAWING TITLE:

EXTERIOR ELEVATIONS / ADU

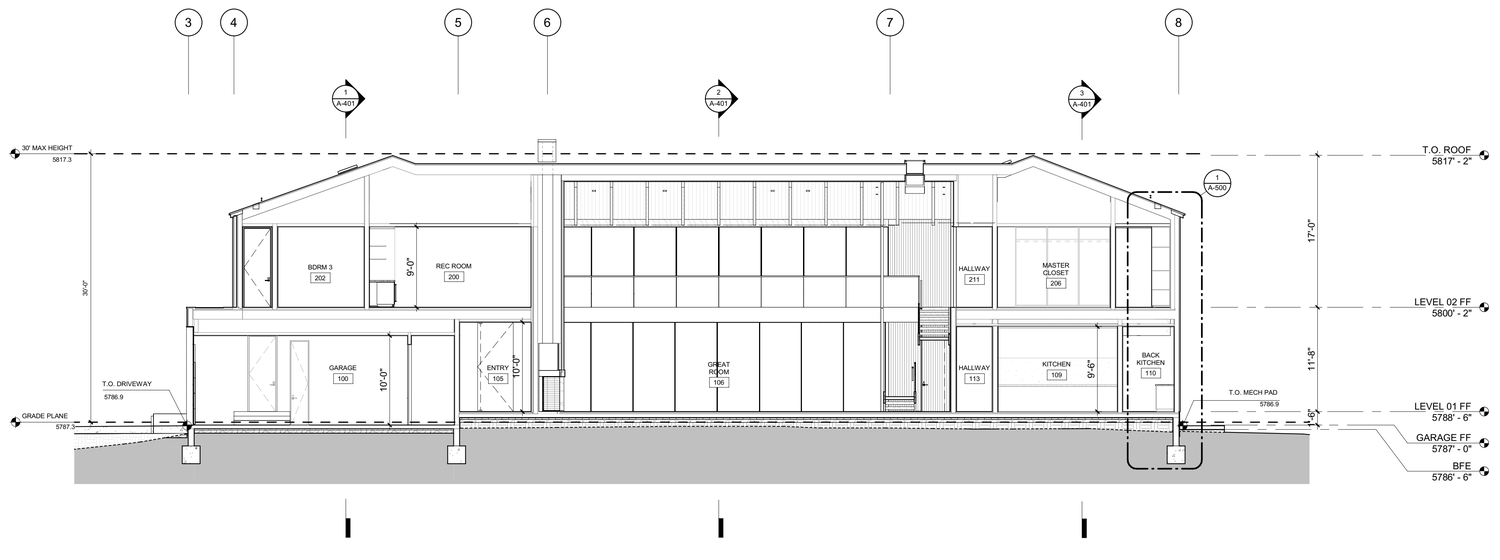
DRAWING NUMBER:

A-302

2/28/2023 10:46:15 AM



2 | 1/8" = 1'-0" | **BUILDING SECTION N-S 2**



1 | 1/8" = 1'-0" | **BUILDING SECTION N-S 1**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
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INGLEWOOD, CA 90301
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SURVEYOR:
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HAILEY, ID 83333
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ENVIRONMENTAL CONSULTANT:
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TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

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TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
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LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

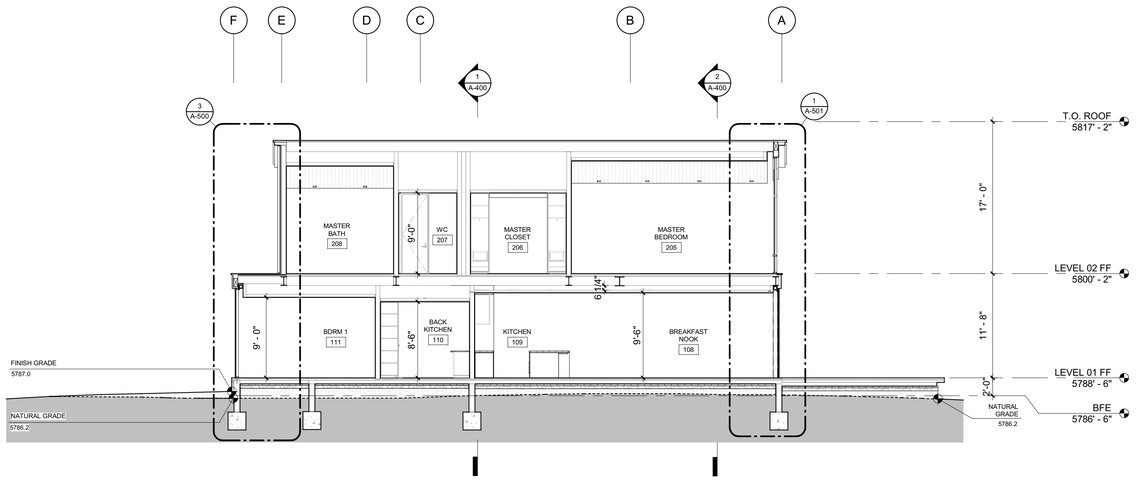
PROJECT NUMBER
#2201

N

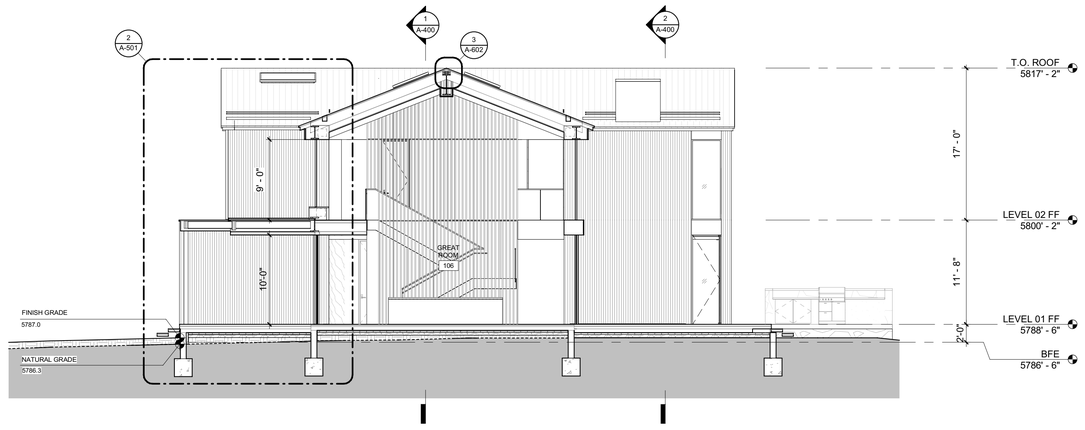
DRAWING TITLE:
BUILDING SECTIONS

DRAWING NUMBER:
A-400

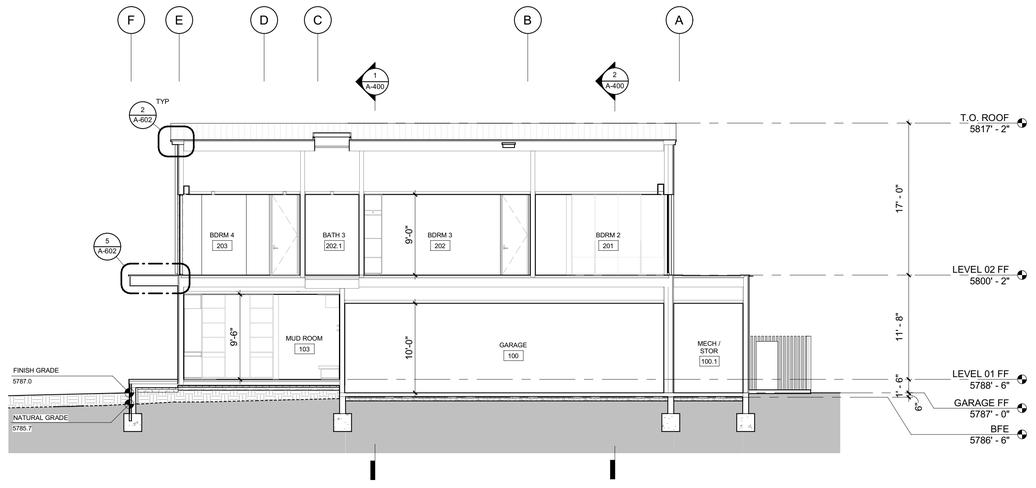
2/28/2023



3 | 1/8" = 1'-0" | **BUILDING SECTION E-W 3**



2 | 1/8" = 1'-0" | **BUILDING SECTION E-W 2**



1 | 1/8" = 1'-0" | **BUILDING SECTION E-W 4**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
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TEL: 208.727.9748

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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

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TEL: 208.720.6432

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LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO DATE ISSUE

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

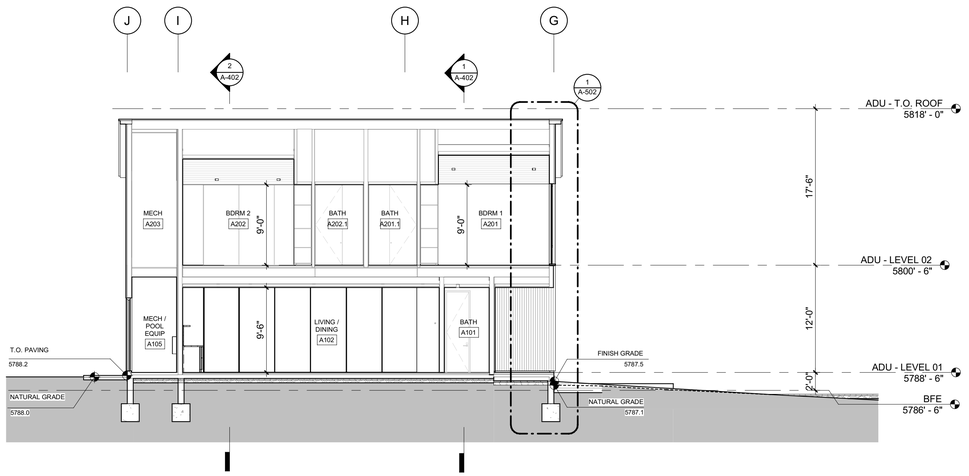
PROJECT NUMBER
#2201

N

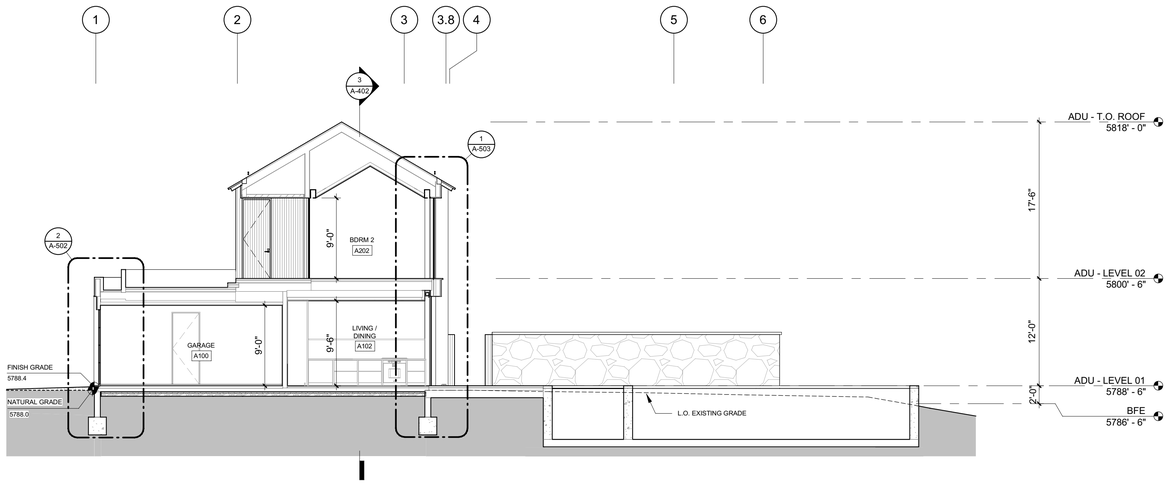
DRAWING TITLE:
BUILDING SECTIONS

DRAWING NUMBER:
A-401

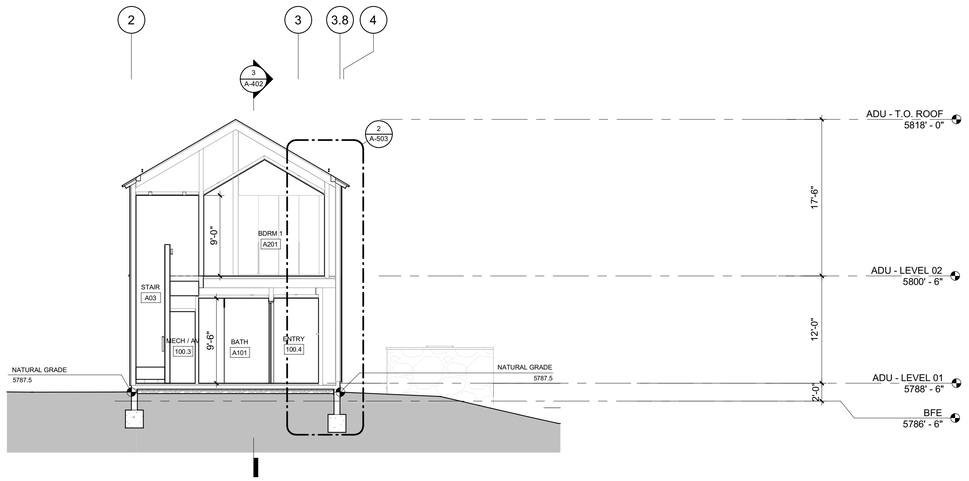
2/28/2023 10:45:16 AM



3 | 1/8" = 1'-0" | **ADU BUILDING SECTION E-W**



2 | 1/8" = 1'-0" | **ADU BUILDING SECTION N-S 2**



1 | 1/8" = 1'-0" | **ADU BUILDING SECTION N-S 1**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
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LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

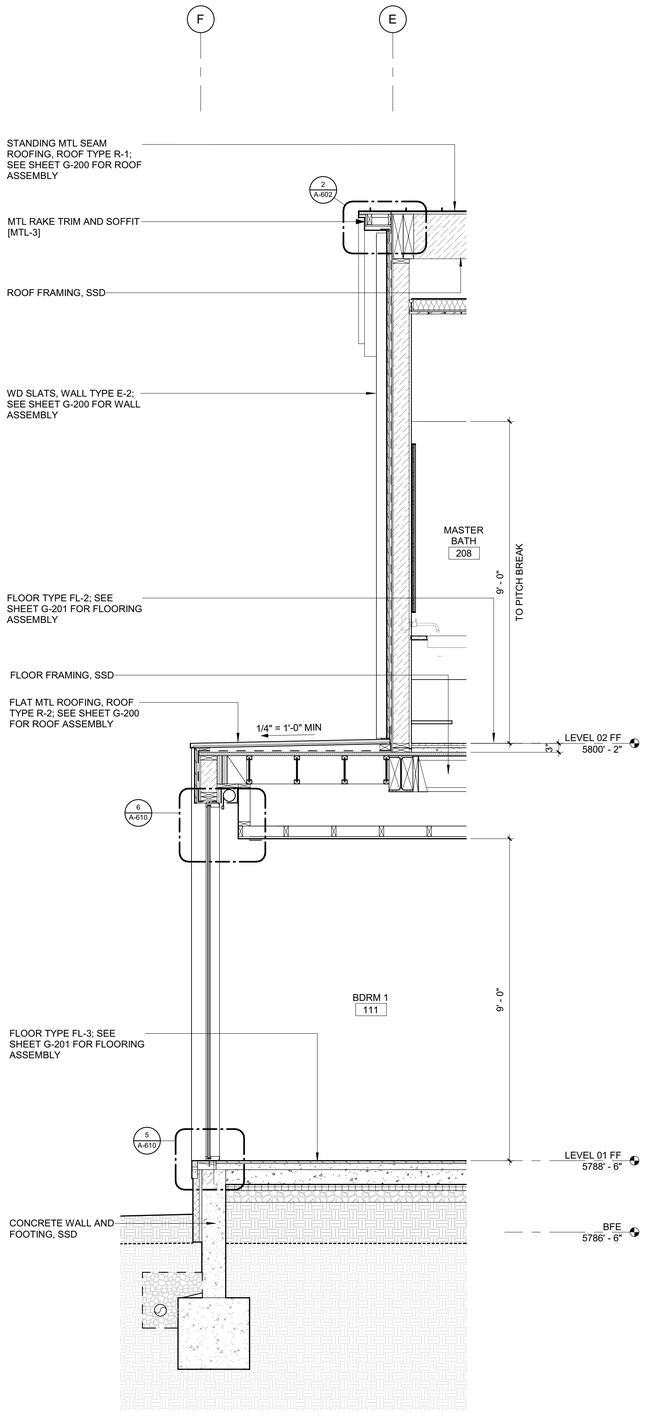
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

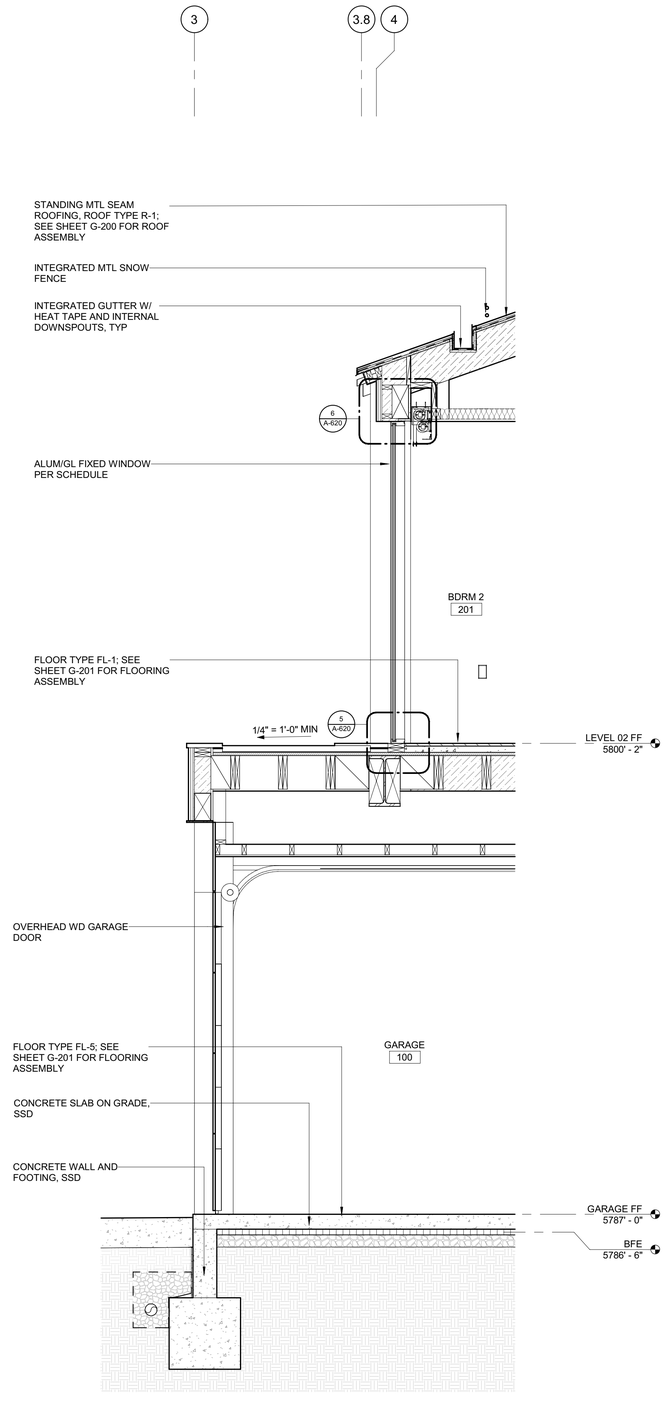
N

DRAWING TITLE:
BUILDING SECTIONS / ADU

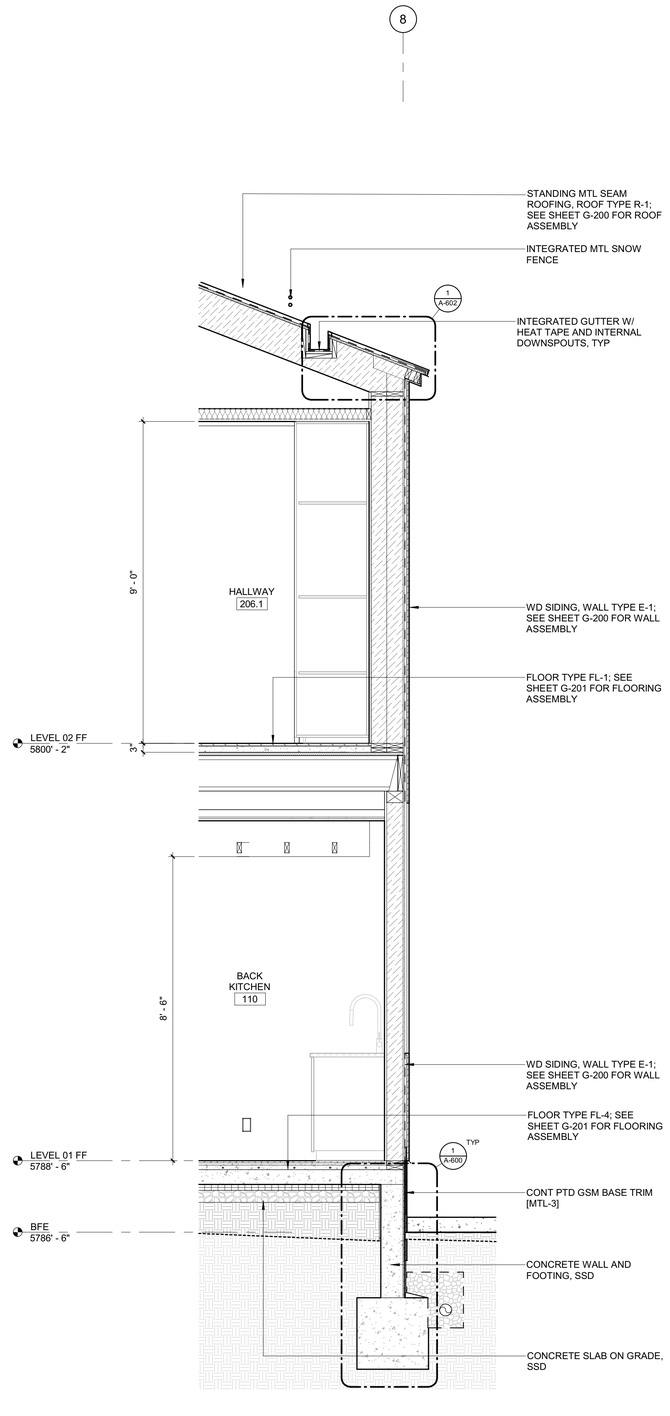
DRAWING NUMBER:
A-402



3 | 1/2" = 1'-0" | **WALL SECTION @ MH EAST**



2 | 1/2" = 1'-0" | **WALL SECTION @ MH NORTH**



1 | 1/2" = 1'-0" | **WALL SECTION @ MH SOUTH**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
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P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
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TEL: 208.720.6432

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KETCHUM, ID 83340
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CIVIL ENGINEER:
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KETCHUM, IDAHO 83340
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TEL: 213.239 9700

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TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

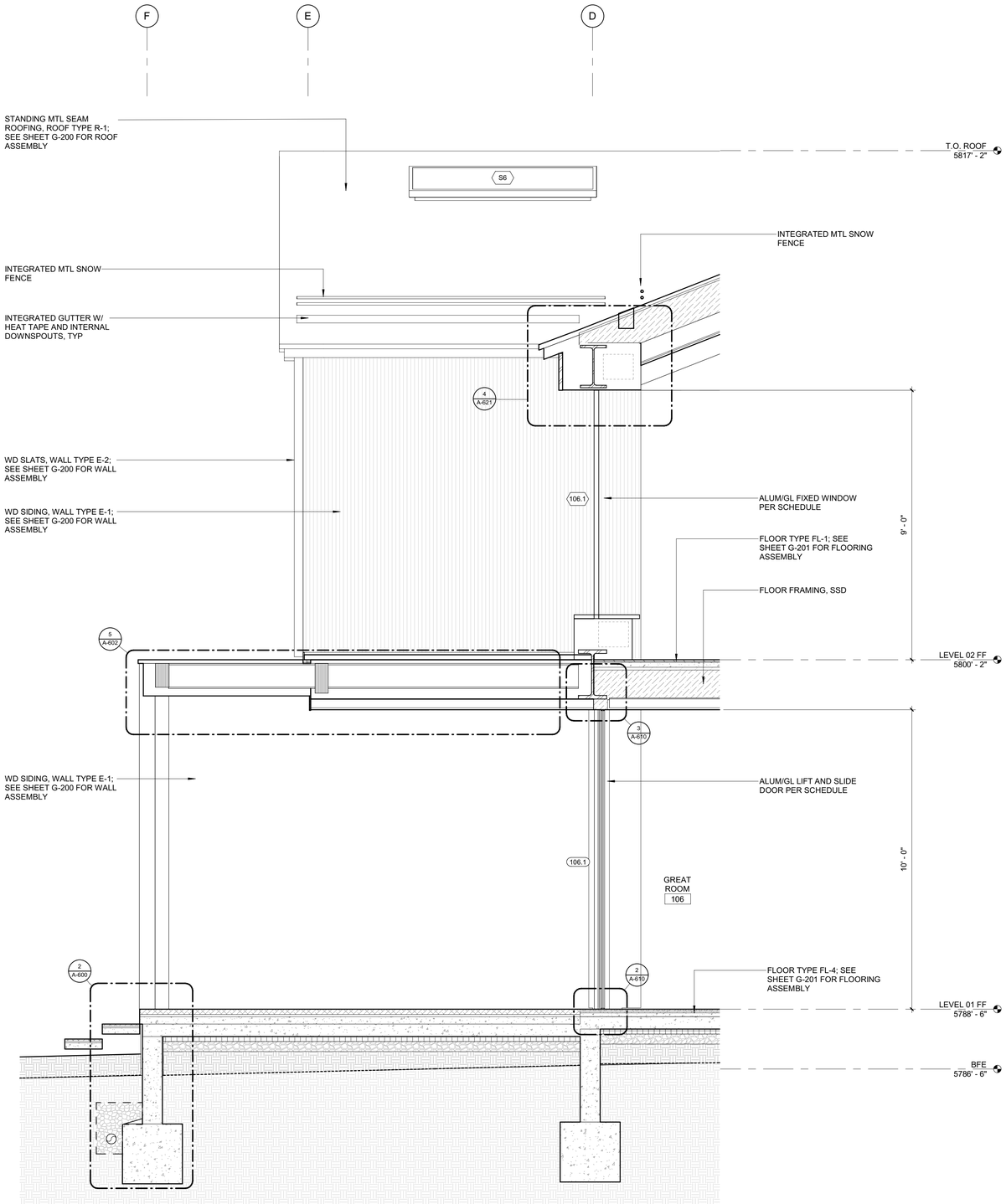
NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

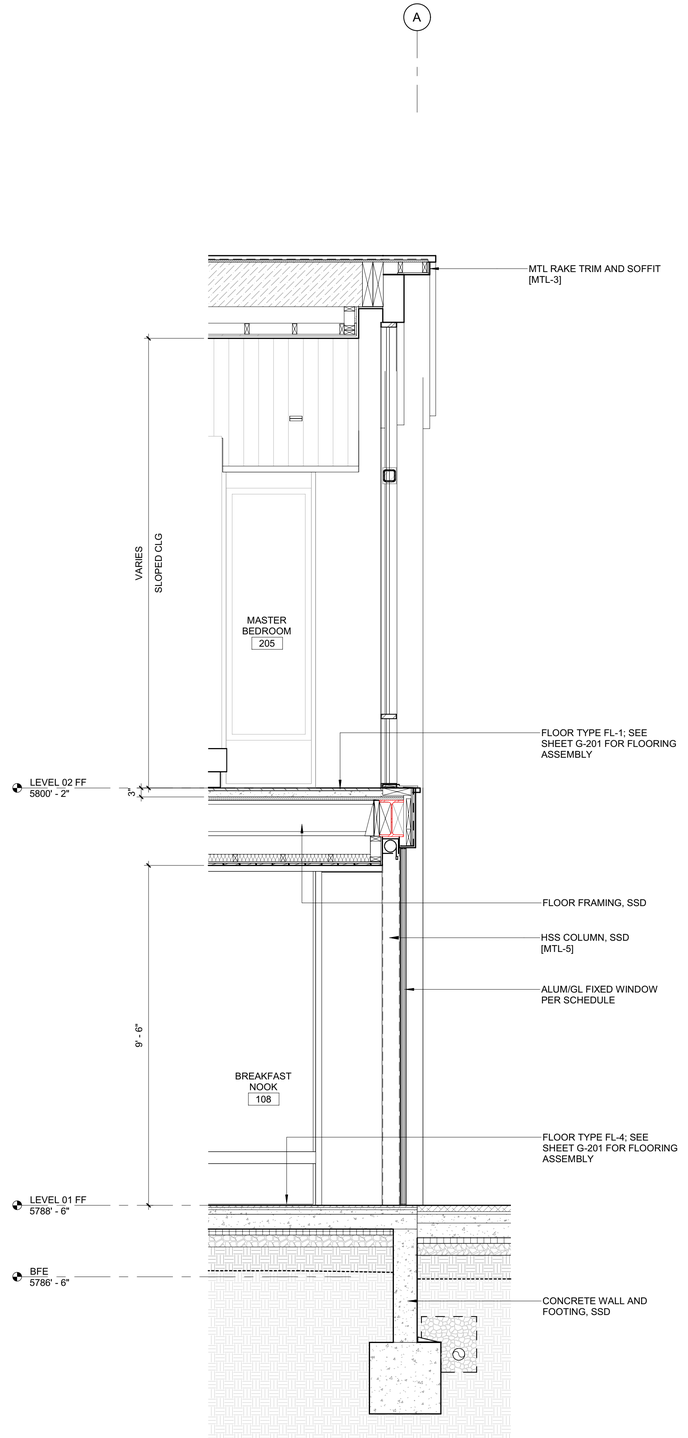
PROJECT NUMBER
#2201

DRAWING TITLE:
WALL SECTIONS

DRAWING NUMBER:
A-500



2 | 1/2" = 1'-0" | **WALL SECTION E-W 2**



1 | 1/2" = 1'-0" | **WALL SECTION @ MH WEST**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
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TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

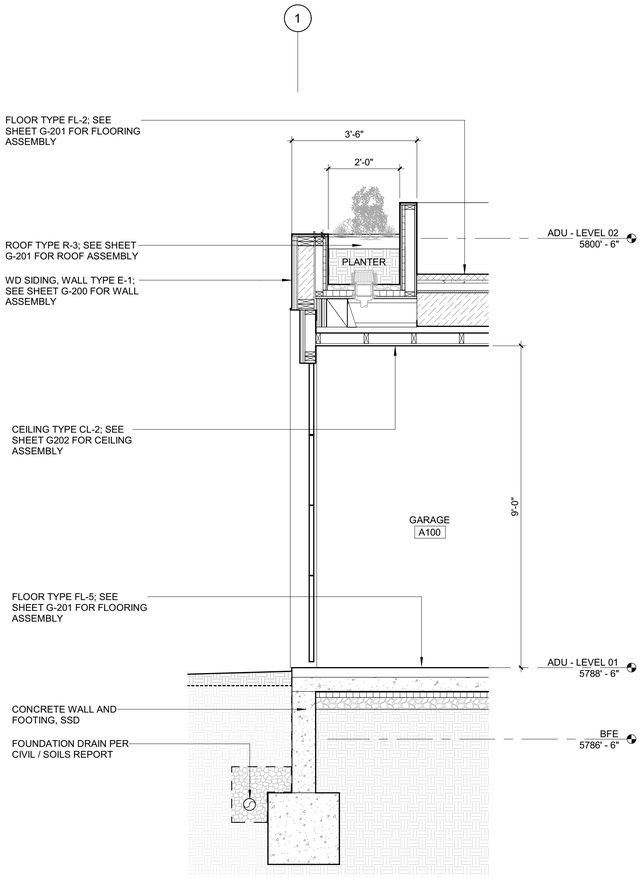
NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

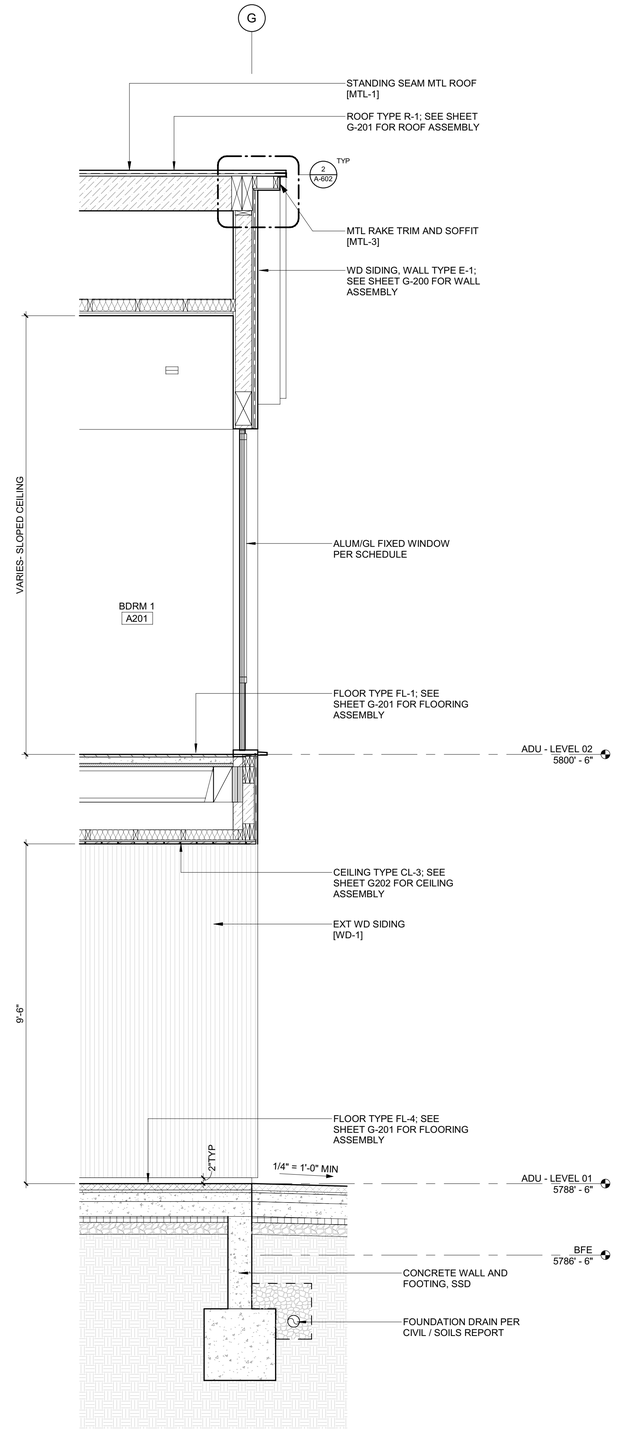
PROJECT NUMBER
#2201

DRAWING TITLE:
WALL SECTIONS

DRAWING NUMBER:
A-501



2 1/2" = 1'-0" **WALL SECTION @ ADU NORTH**



1 1/2" = 1'-0" **WALL SECTION @ ADU WEST**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
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P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:
LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

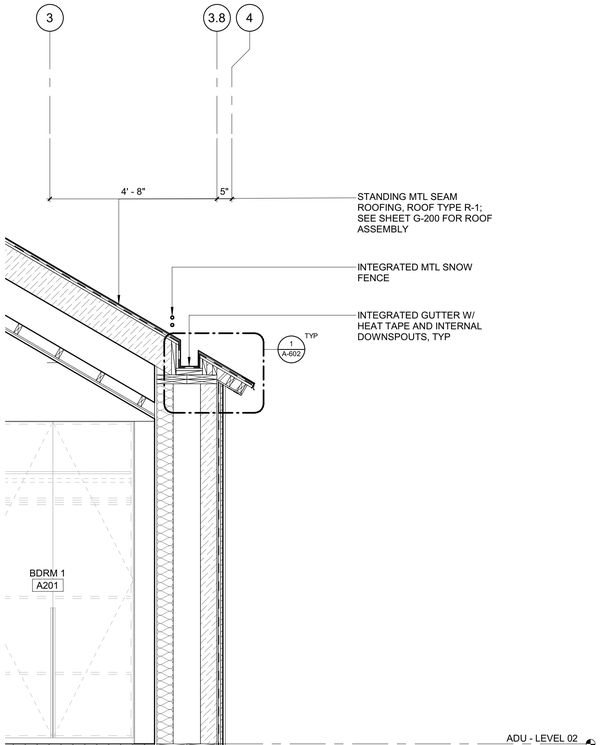
NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

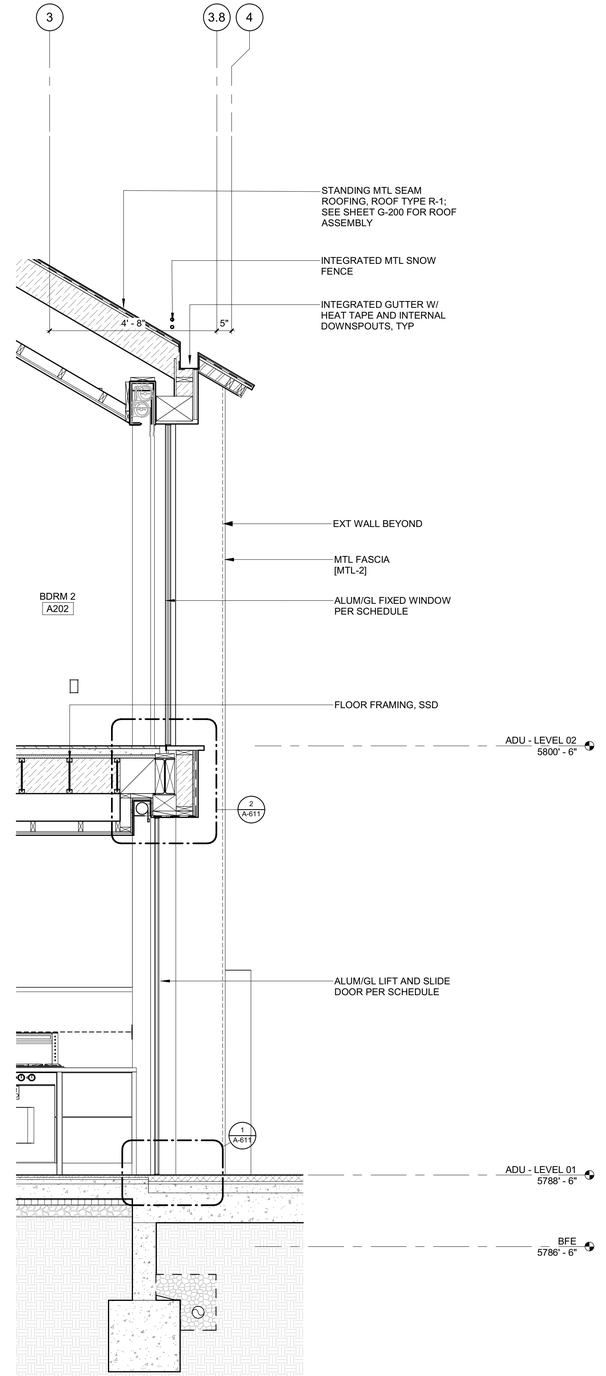
PROJECT NUMBER
#2201

DRAWING TITLE:
WALL SECTIONS / ADU

DRAWING NUMBER:
A-502



2 1/2" = 1'-0" **WALL SECTION @ ADU SOUTH 2**



1 1/2" = 1'-0" **WALL SECTION @ ADU SOUTH 1**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

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KETCHUM, ID 83340
TEL: 208.720.6432

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323 LEWIS STREET, SUITE N
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P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

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LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

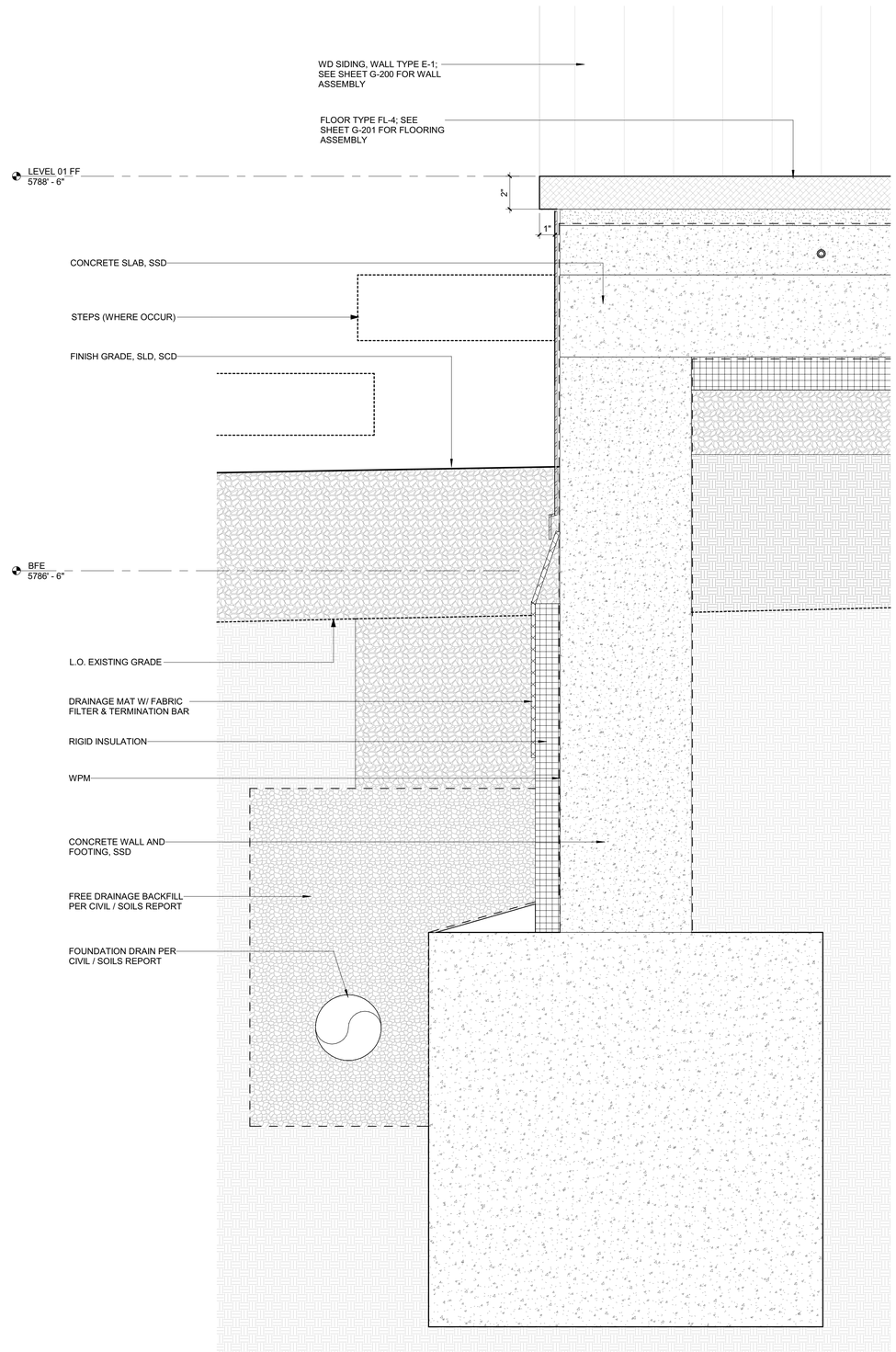
DRAWING TITLE:
WALL SECTIONS / ADU

DRAWING NUMBER:
A-503

2/28/2023 10:49:46 AM

F

PATIO

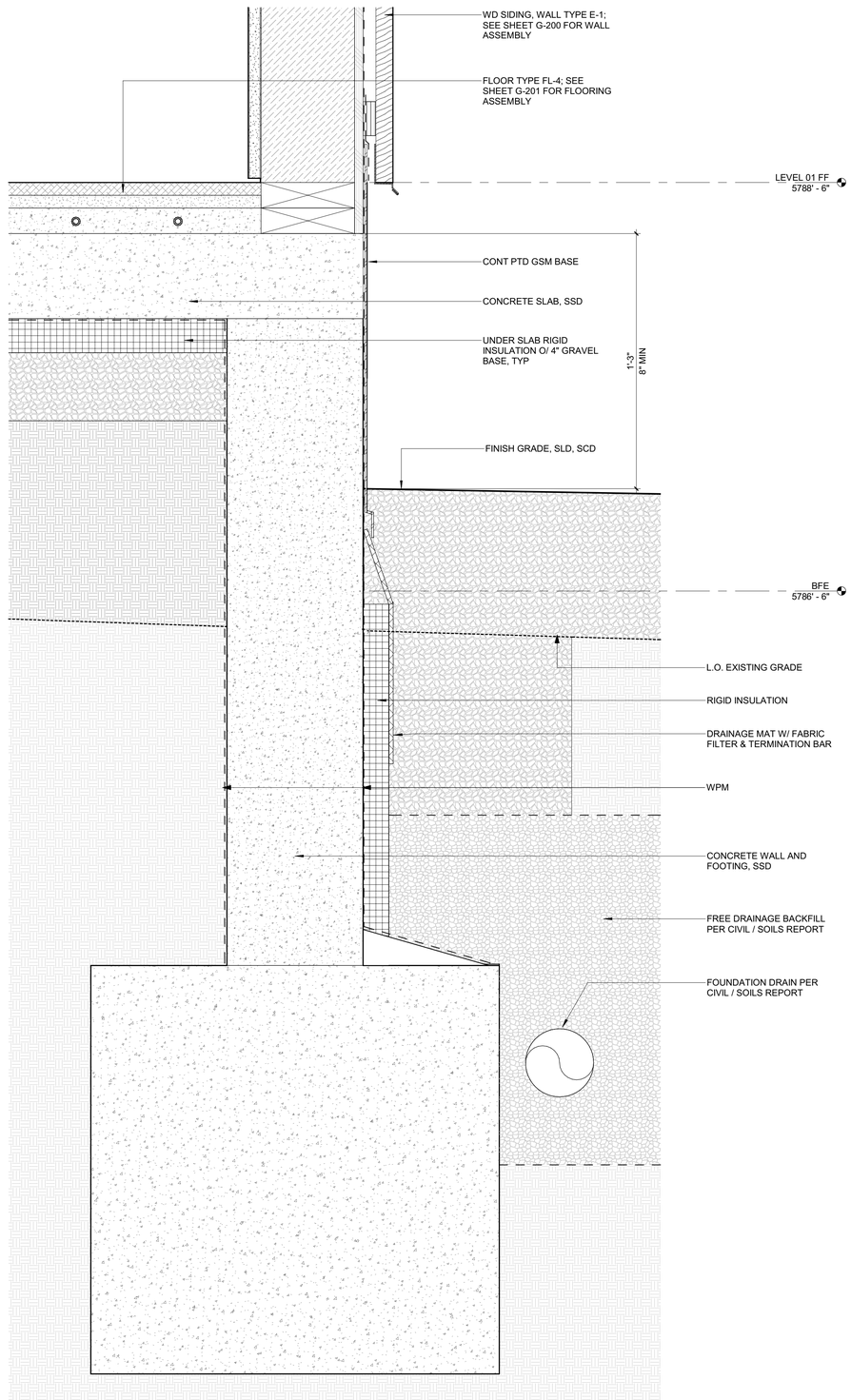


2 | 3" = 1'-0" | **DETAIL / TYP BASE 2**

INTERIOR

8

EXTERIOR



1 | 3" = 1'-0" | **DETAIL / TYP BASE**

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OWNER:
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P.O. BOX 14001-174
KETCHUM, ID 83340

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MEP ENGINEER:
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LIGHTING DESIGN CONSULTANT:
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270 CORAL CIRCLE
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TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

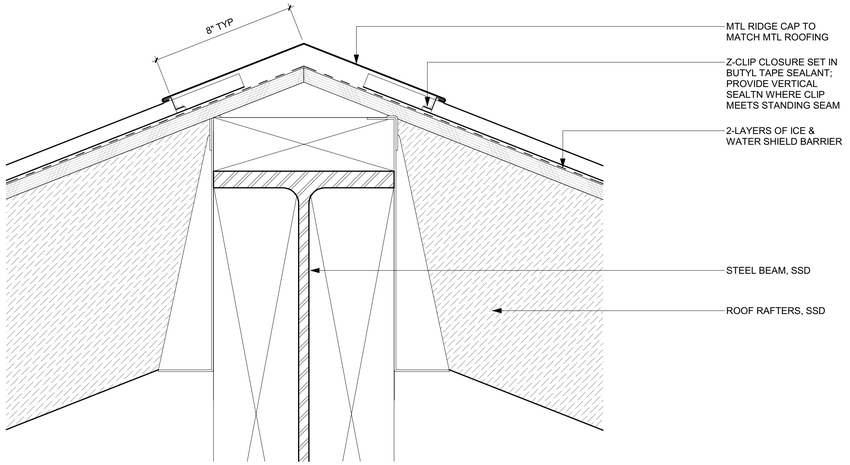
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

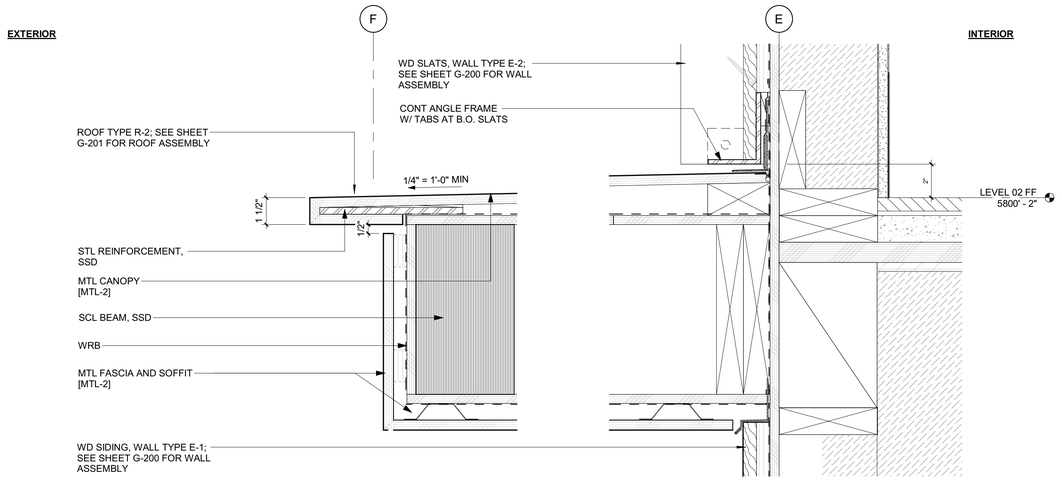
N

DRAWING TITLE:
DETAILS / EXTERIOR

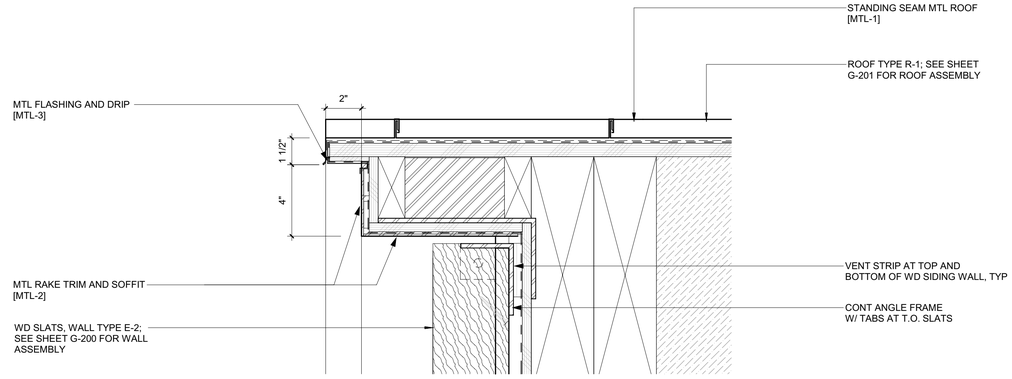
DRAWING NUMBER:
A-600



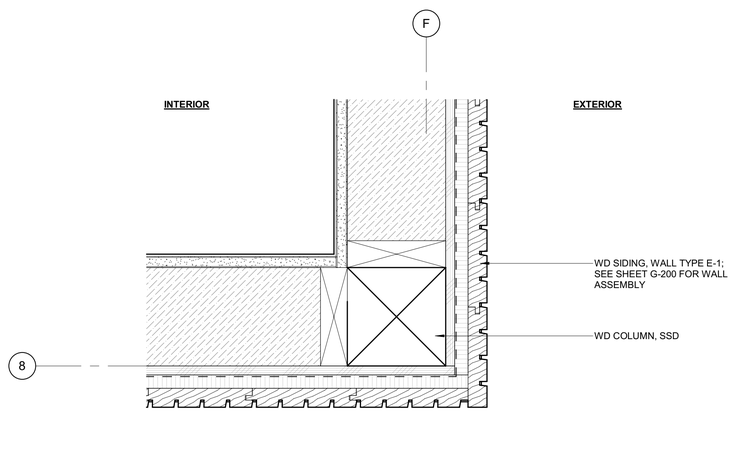
3 | 3" = 1'-0" | **DETAIL / TYP ROOF RIDGE**



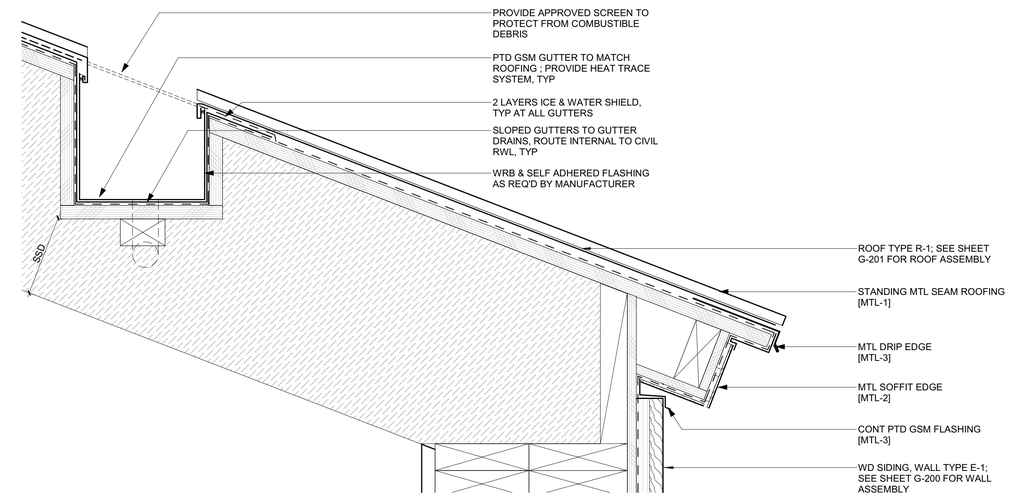
5 | 3" = 1'-0" | **DETAIL / CANOPY OVERHANG**



2 | 3" = 1'-0" | **DETAIL / TYP RAKE END**



4 | 3" = 1'-0" | **PLAN DETAIL / EXT CORNER TRIM @ WD SIDING**



1 | 3" = 1'-0" | **DETAIL / TYP EAVE END + GUTTER**

BADGER RESIDENCE

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121 BADGER LANE LLC
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KETCHUM, ID 83340

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RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
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TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
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2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
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GEOTECHNICAL ENGINEER:
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LANDSCAPE ARCHITECT:
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KETCHUM, ID 83340
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STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
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1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

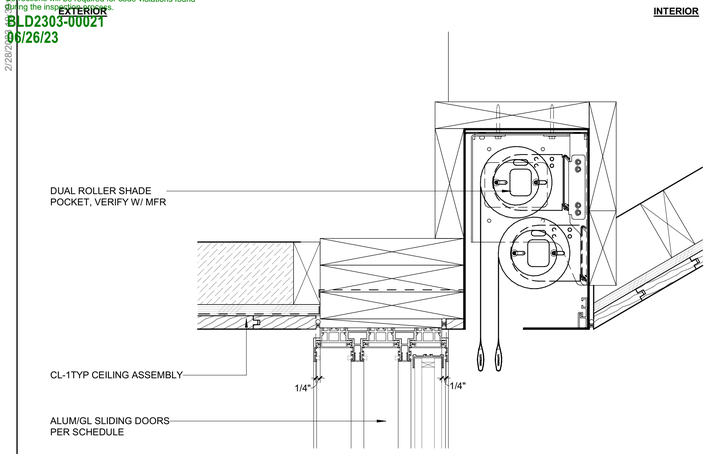
PROJECT NUMBER
#2201

N

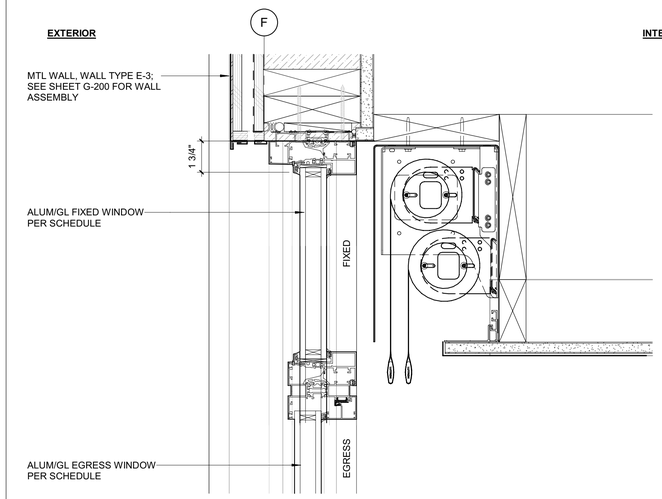
DRAWING TITLE:
DETAILS / EXTERIOR

DRAWING NUMBER:
A-602

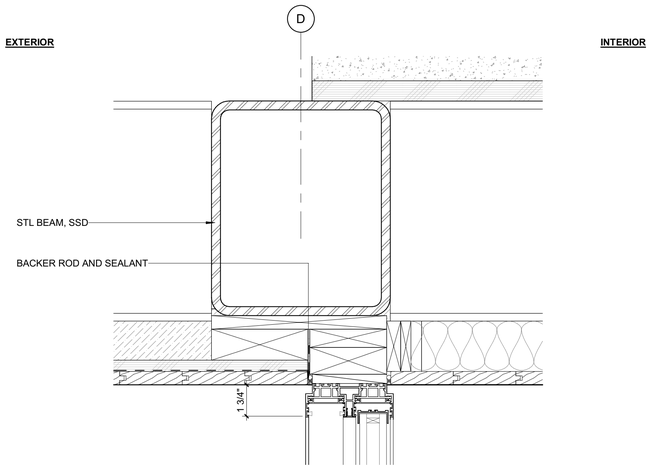
2/28/2023 10:49:06 AM



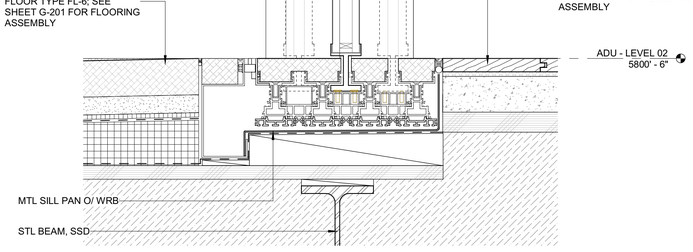
9 | 3" = 1'-0" | **DETAIL / HEAD @ ADU ROOF DECK SLIDER**



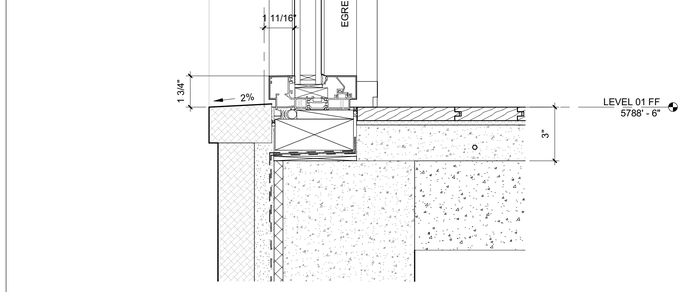
6 | 3" = 1'-0" | **DETAIL / HEAD @ BDRM 1 EGRESS**



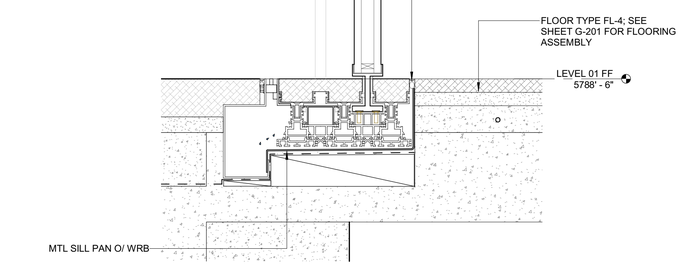
3 | 3" = 1'-0" | **DETAIL / HEAD @ GREAT RM SLIDER**



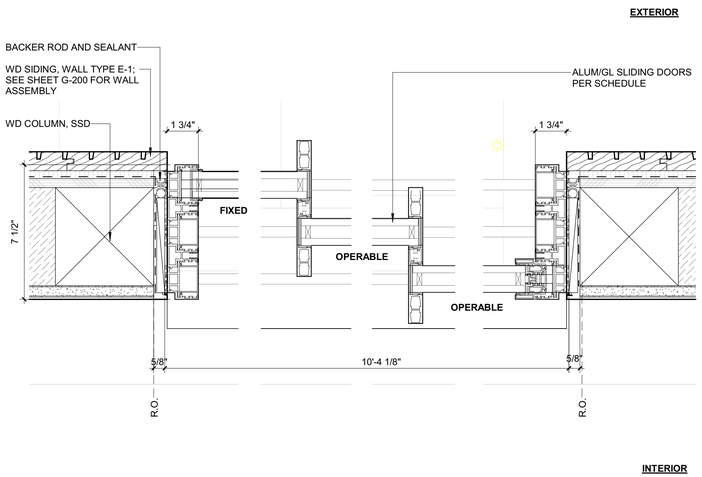
8 | 3" = 1'-0" | **DETAIL / SILL @ ADU ROOF DECK SLIDER**



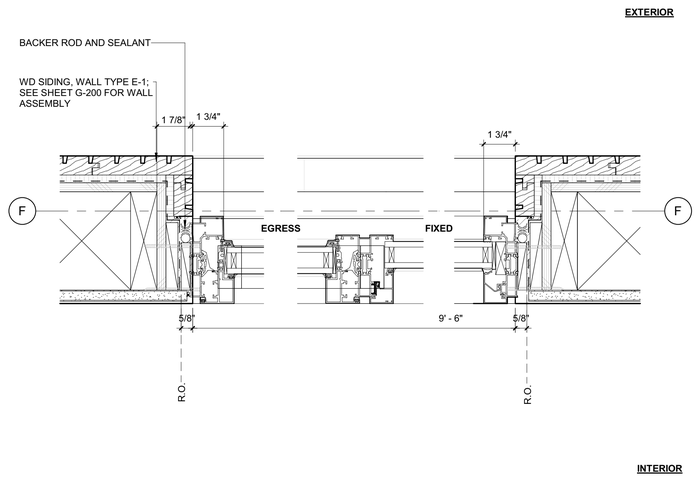
5 | 3" = 1'-0" | **DETAIL / SILL @ BDRM 1 EGRESS**



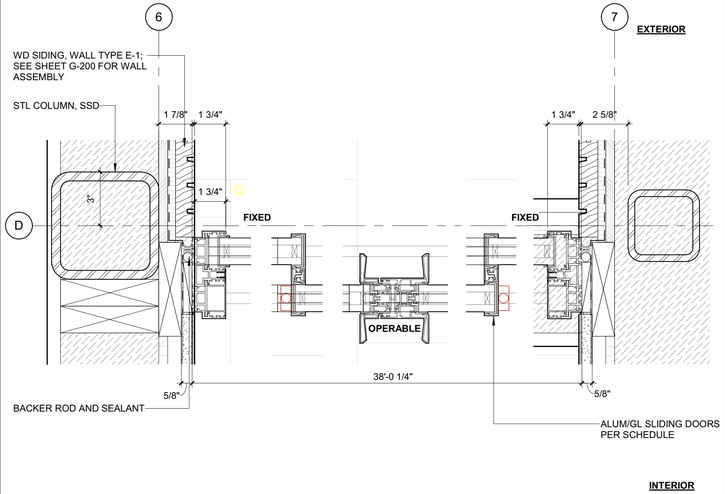
2 | 3" = 1'-0" | **DETAIL / SILL @ GREAT RM SLIDER**



7 | 3" = 1'-0" | **DETAIL / JAMB @ ADU ROOF DECK SLIDER**



4 | 3" = 1'-0" | **DETAIL / JAMB @ BDRM 1 EGRESS**



1 | 3" = 1'-0" | **DETAIL / JAMB @ GREAT RM SLIDER**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
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EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

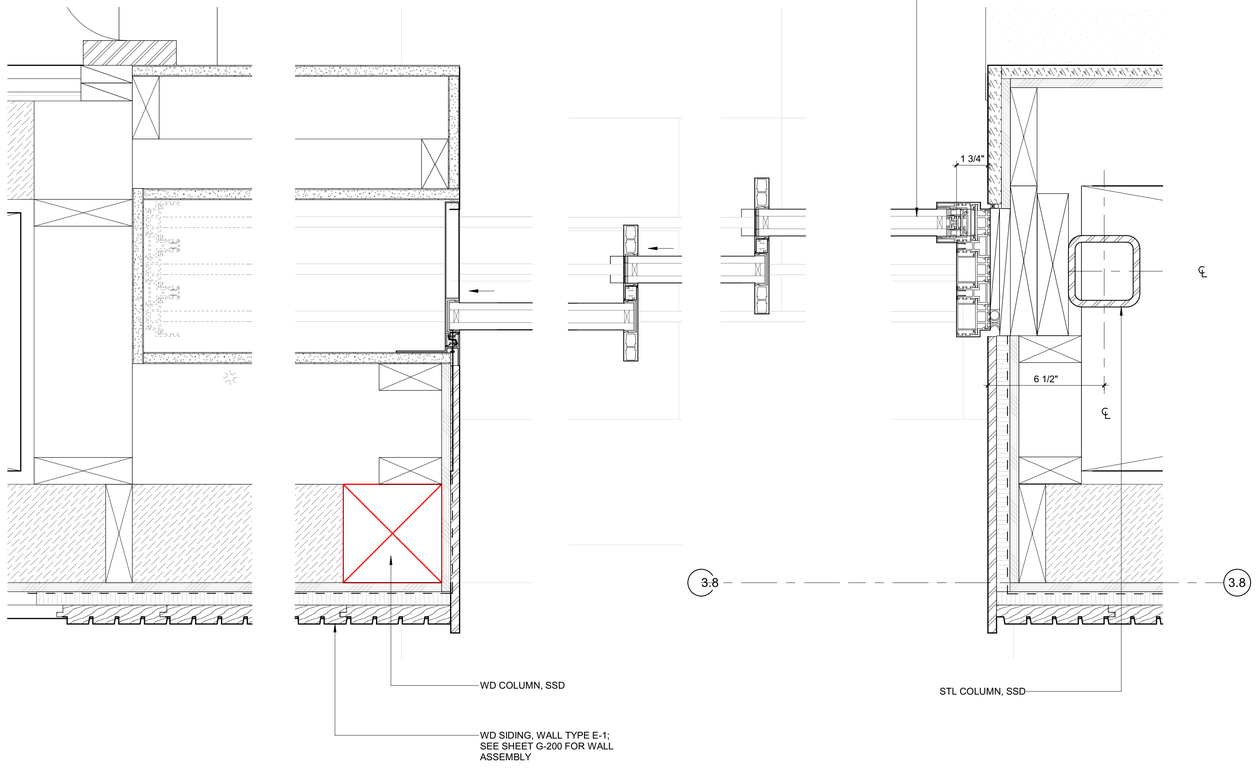
NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

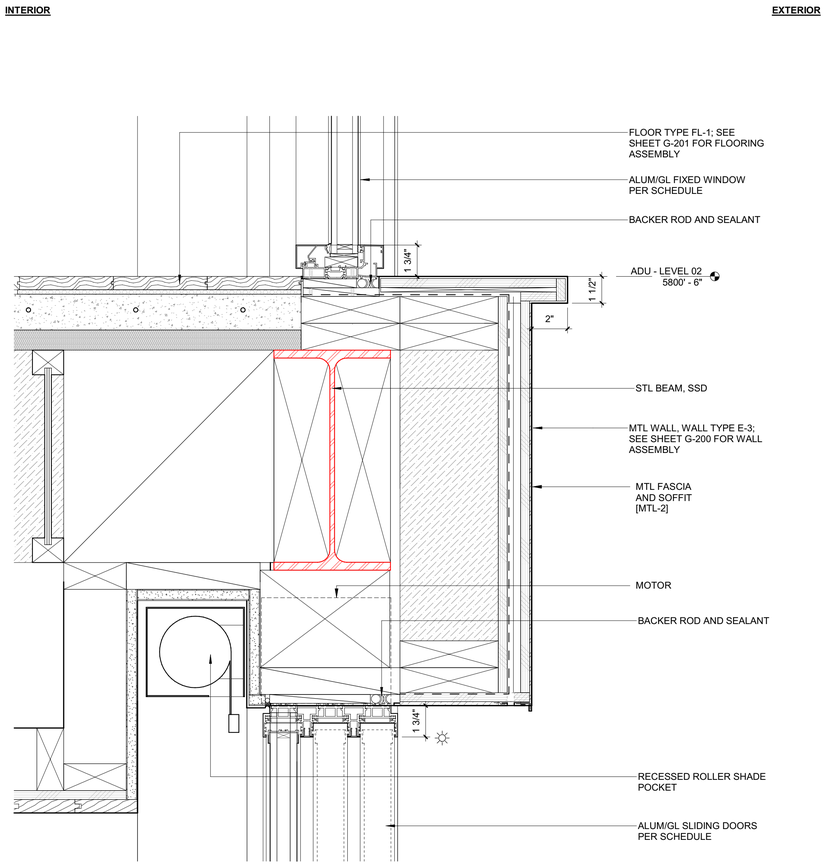
PROJECT NUMBER
#2201

DRAWING TITLE:
EXTERIOR DOOR DETAILS

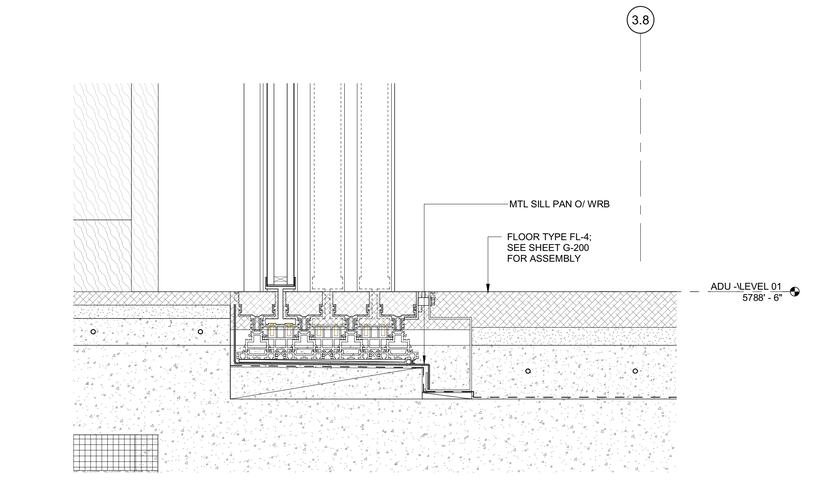
DRAWING NUMBER:
A-610



3 | 3" = 1'-0" | **DETAIL / JAMB @ ADU SLIDERS / STACKING / DOOR A102**



2 | 3" = 1'-0" | **DETAIL / HEAD @ ADU SLIDERS / STACKING**



1 | 3" = 1'-0" | **DETAIL / SILL @ ADU SLIDERS / STACKING**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
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KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

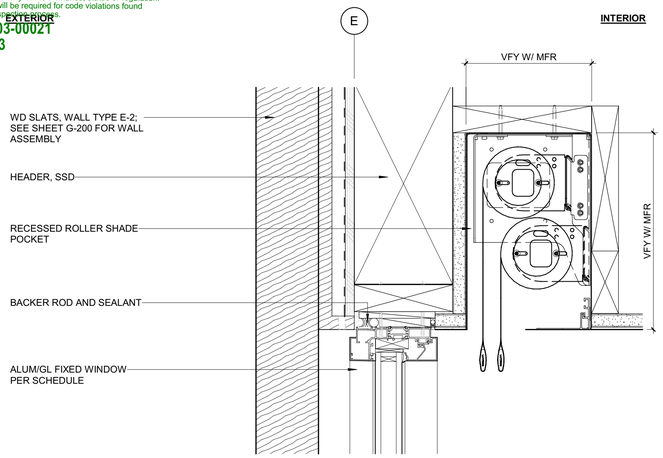
NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

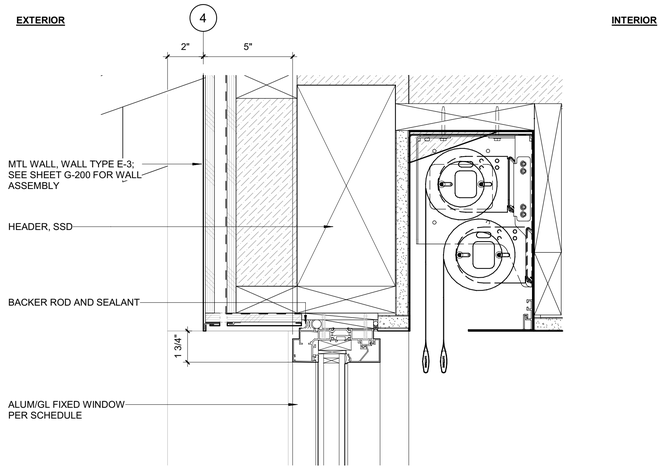
PROJECT NUMBER
#2201

DRAWING TITLE:
EXTERIOR DOOR DETAILS

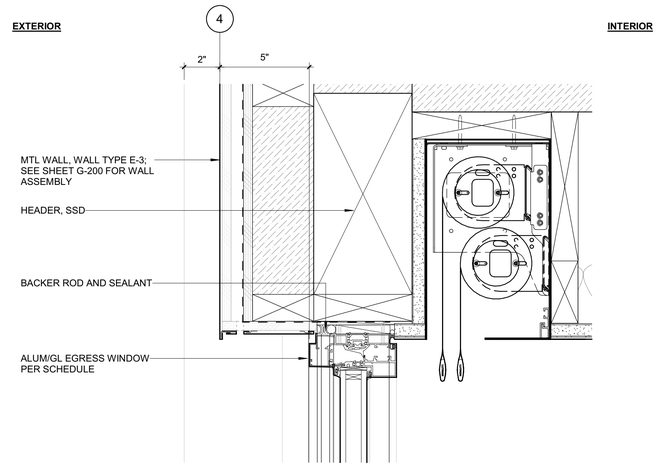
DRAWING NUMBER:
A-611



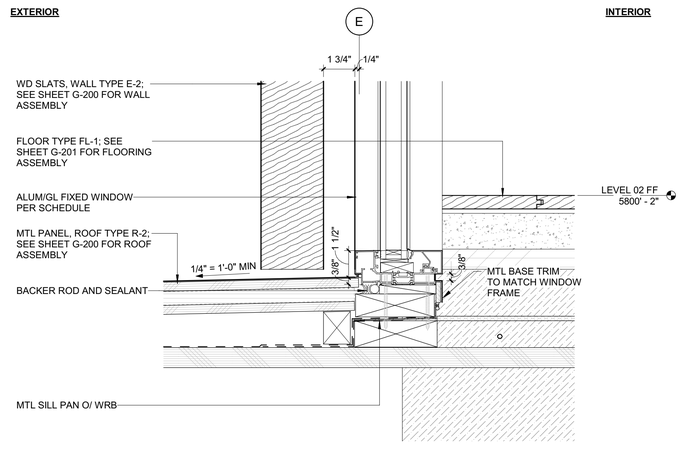
9 | 3" = 1'-0" | **DETAIL / HEAD @ TYP FH FIXED - WD SLATS**



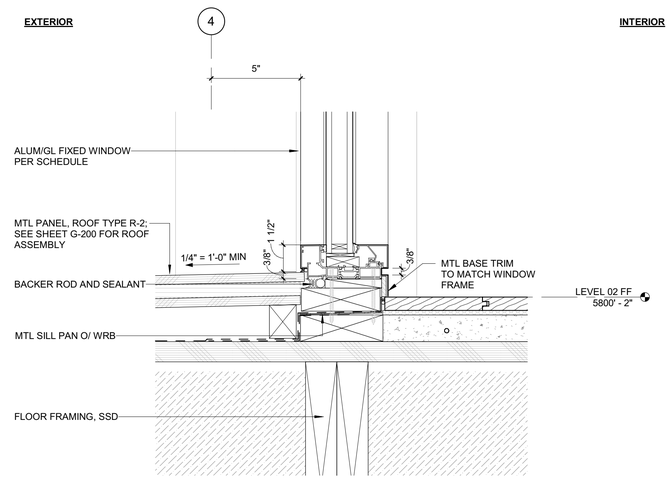
6 | 3" = 1'-0" | **DETAIL / HEAD @ TYP FH FIXED**



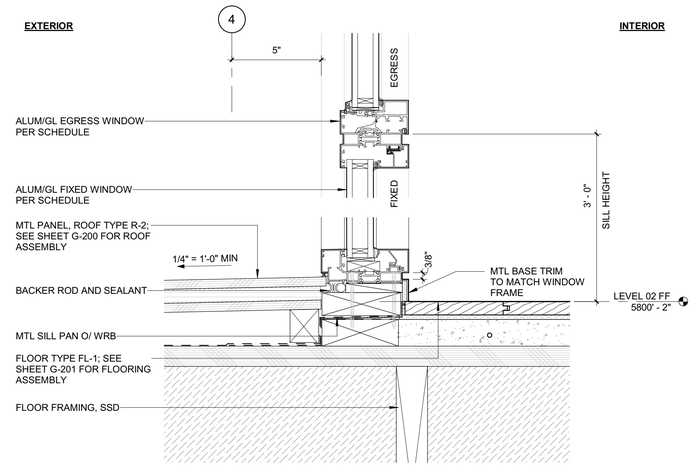
3 | 3" = 1'-0" | **DETAIL / HEAD @ TYP EGRESS**



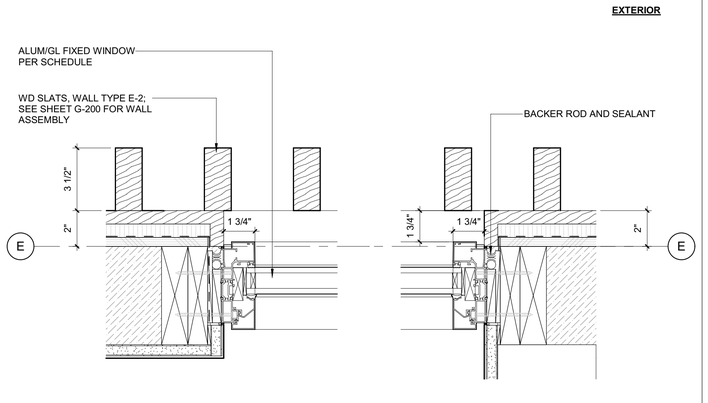
8 | 3" = 1'-0" | **DETAIL / SILL @ TYP FH FIXED - WD SLATS**



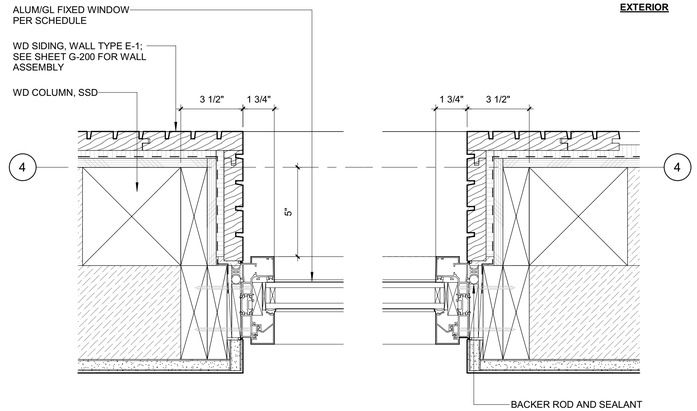
5 | 3" = 1'-0" | **DETAIL / SILL @ TYP FH FIXED**



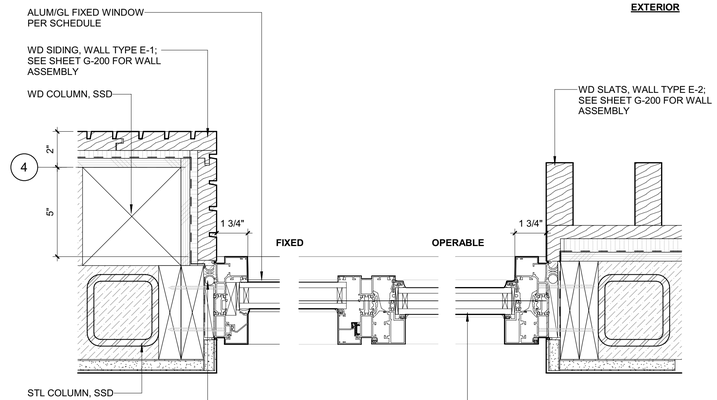
2 | 3" = 1'-0" | **DETAIL / SILL @ TYP EGRESS**



7 | 3" = 1'-0" | **DETAIL / JAMB @ TYP FH FIXED - WD SLATS**



4 | 3" = 1'-0" | **DETAIL / JAMB @ TYP FH FIXED**



1 | 3" = 1'-0" | **DETAIL / JAMB @ TYP EGRESS**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

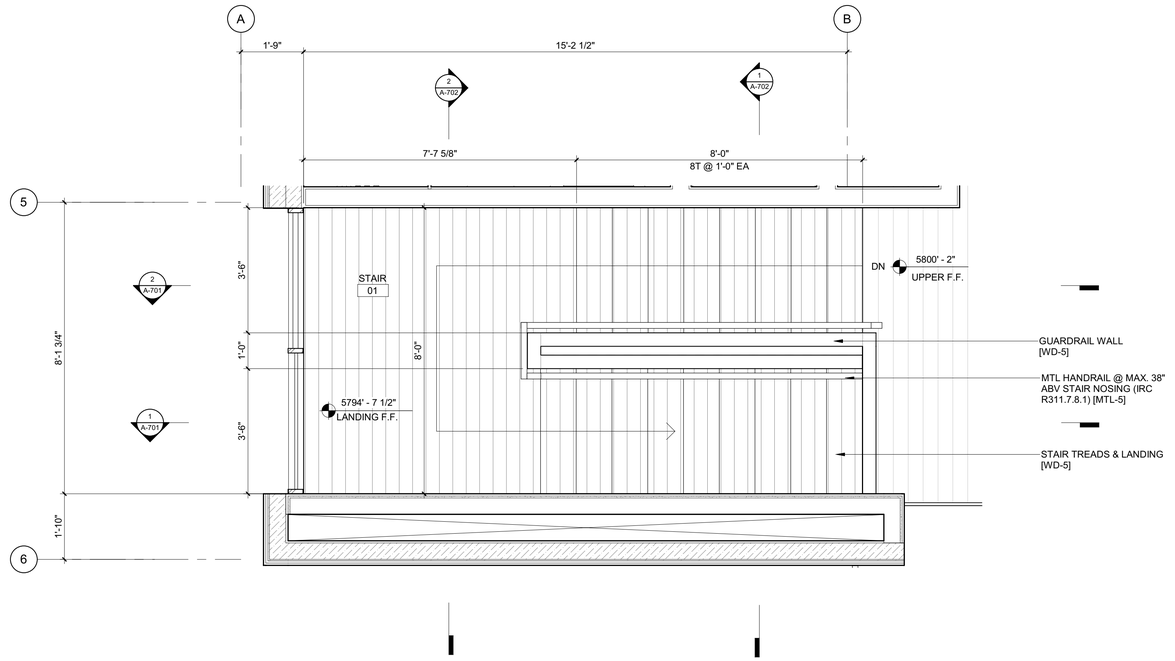
DRAWING TITLE:

EXTERIOR WINDOW DETAILS

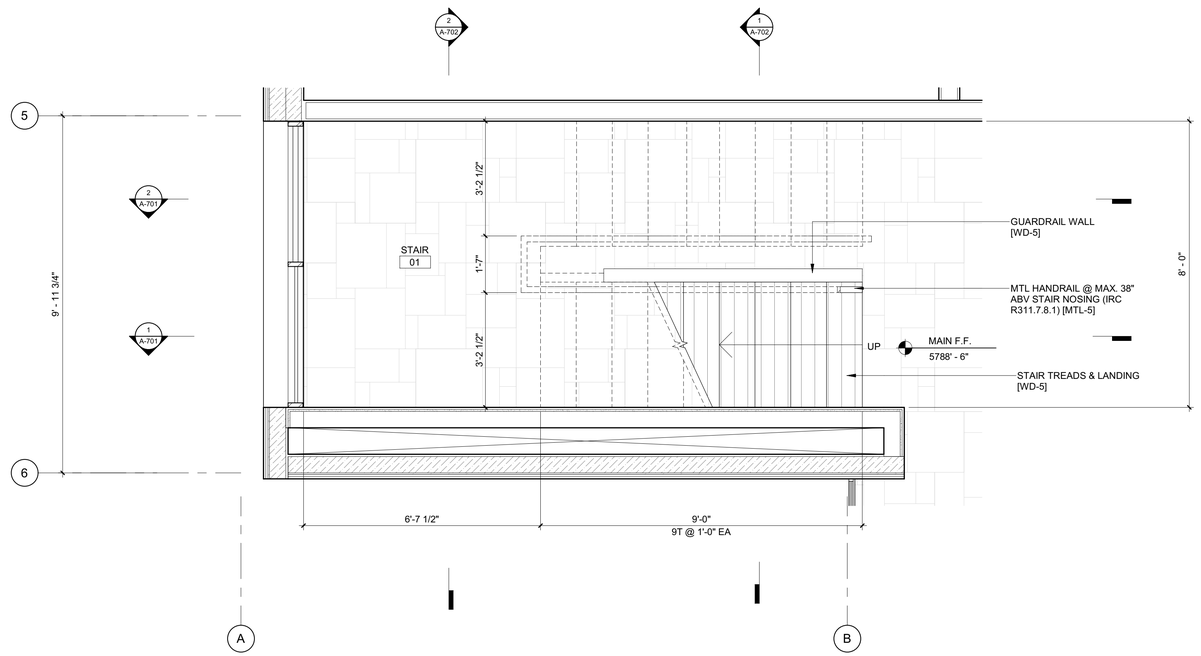
DRAWING NUMBER:

A-620

2/28/2023 10:49:46 AM



2 | 1/2" = 1'-0" | **ENLARGED PLAN / STAIR 1 / LEVEL 02**



1 | 1/2" = 1'-0" | **ENLARGED PLAN / STAIR 1 / LEVEL 01**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

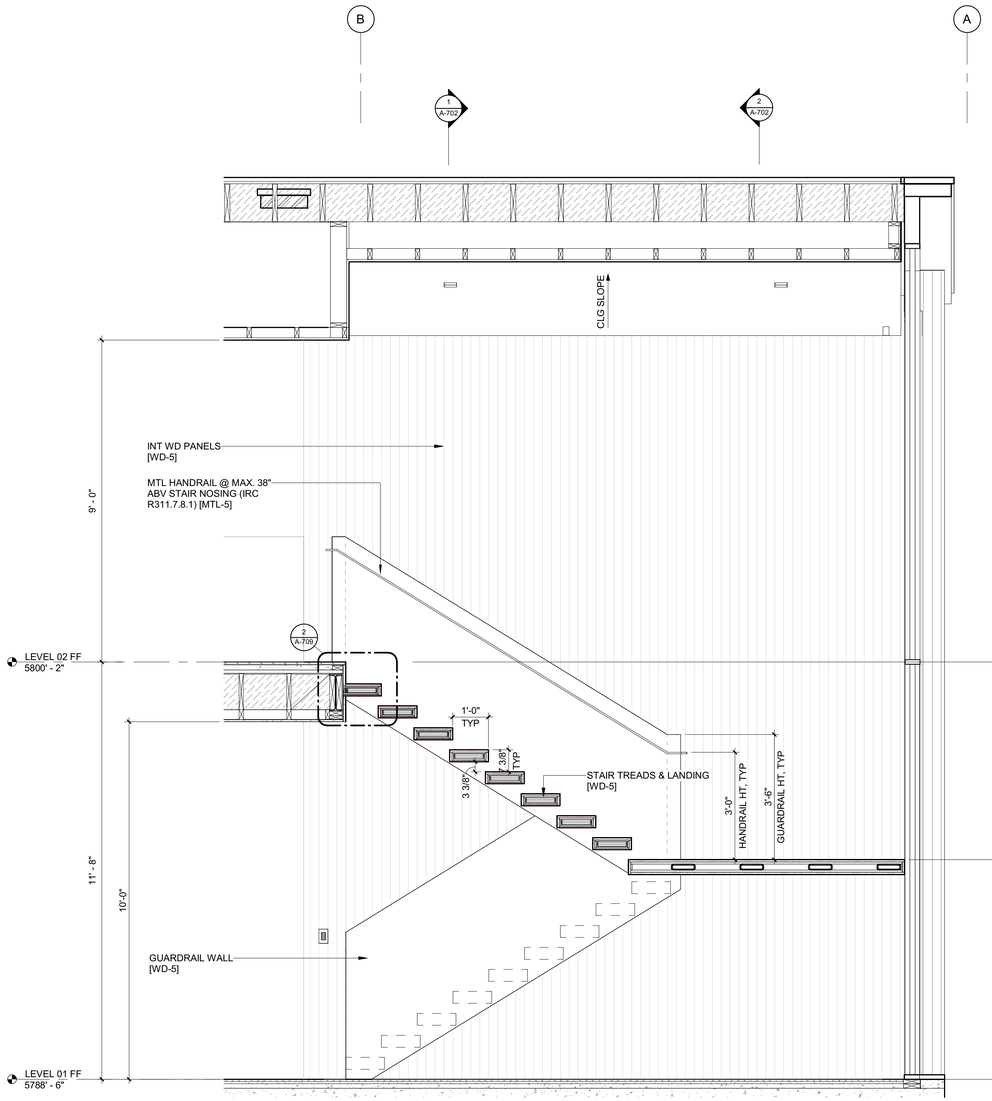
NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

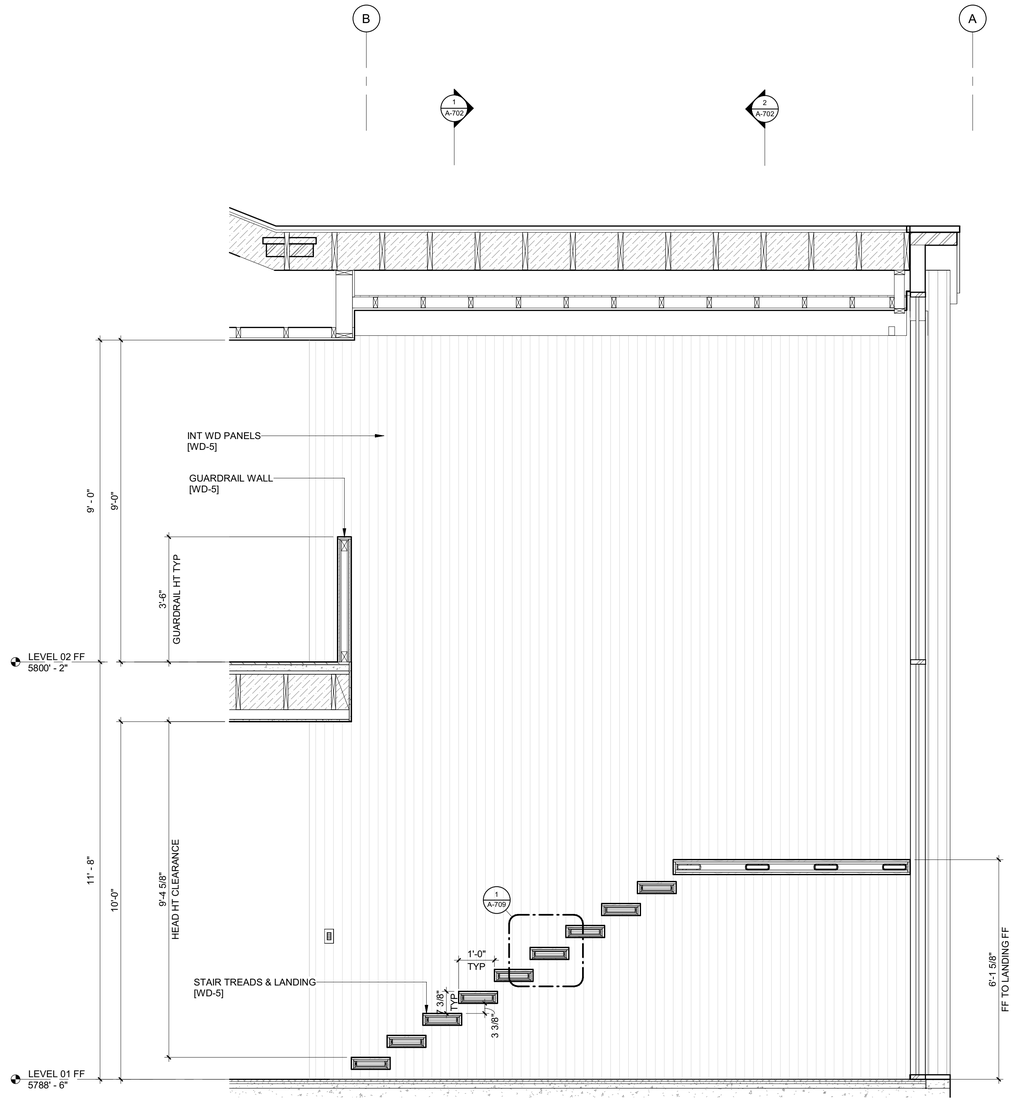
PROJECT NUMBER
#2201

DRAWING TITLE:
ENLARGED PLANS / STAIR 1

DRAWING NUMBER:
A-700



2 1/2" = 1'-0" **STAIR 1 / SECTION 2**



1 1/2" = 1'-0" **STAIR 1 / SECTION 1**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

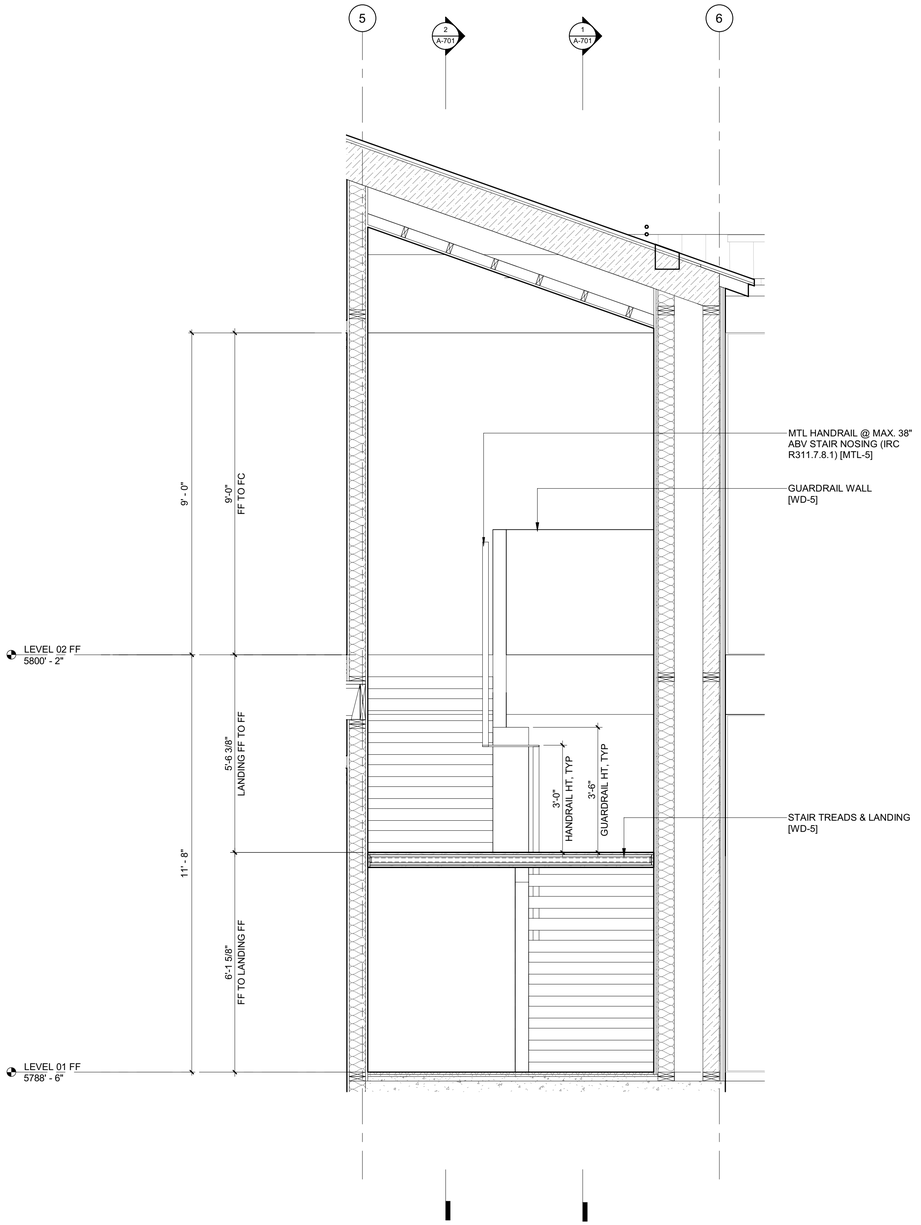
N

DRAWING TITLE:

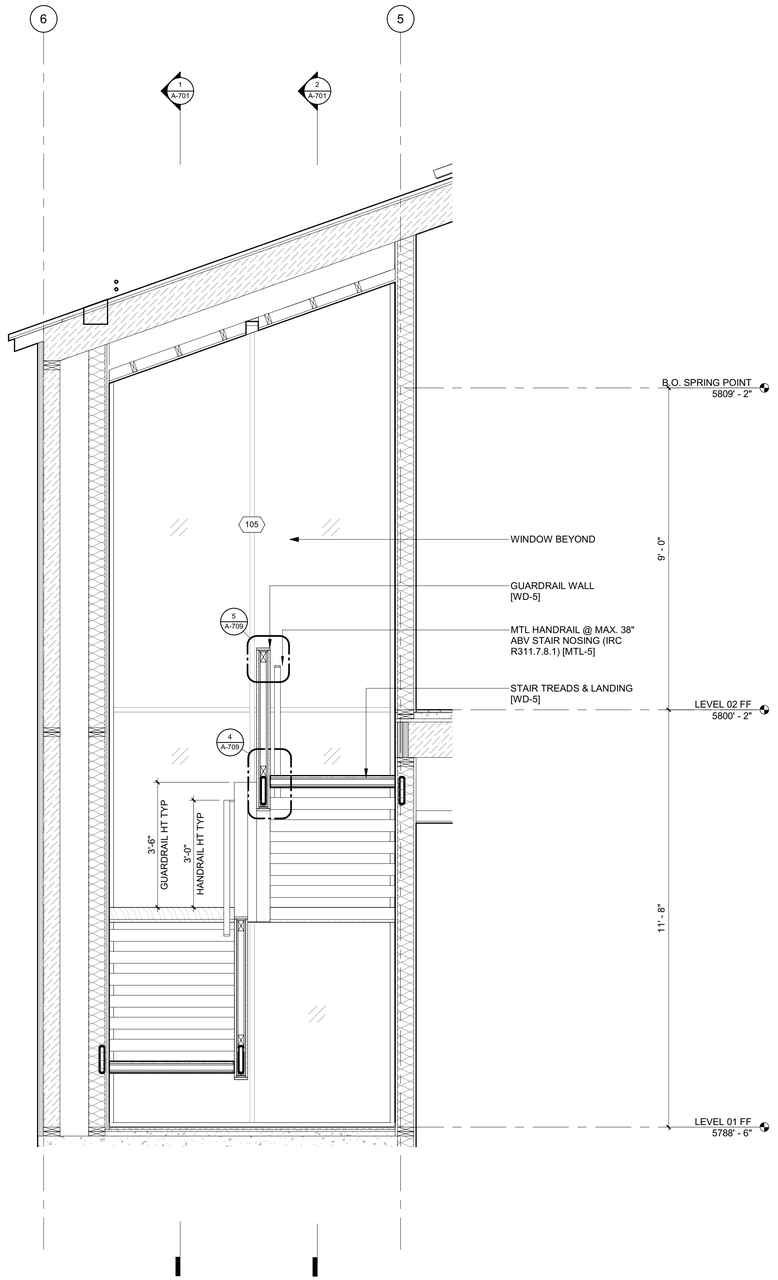
ENLARGED SECTIONS / STAIR 1

DRAWING NUMBER:

A-701



2 | 1/2" = 1'-0" | **STAIR 1 / SECTION 4**



1 | 1/2" = 1'-0" | **STAIR 1 / SECTION 3**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
ENLARGED SECTIONS / STAIR 1

DRAWING NUMBER:
A-702

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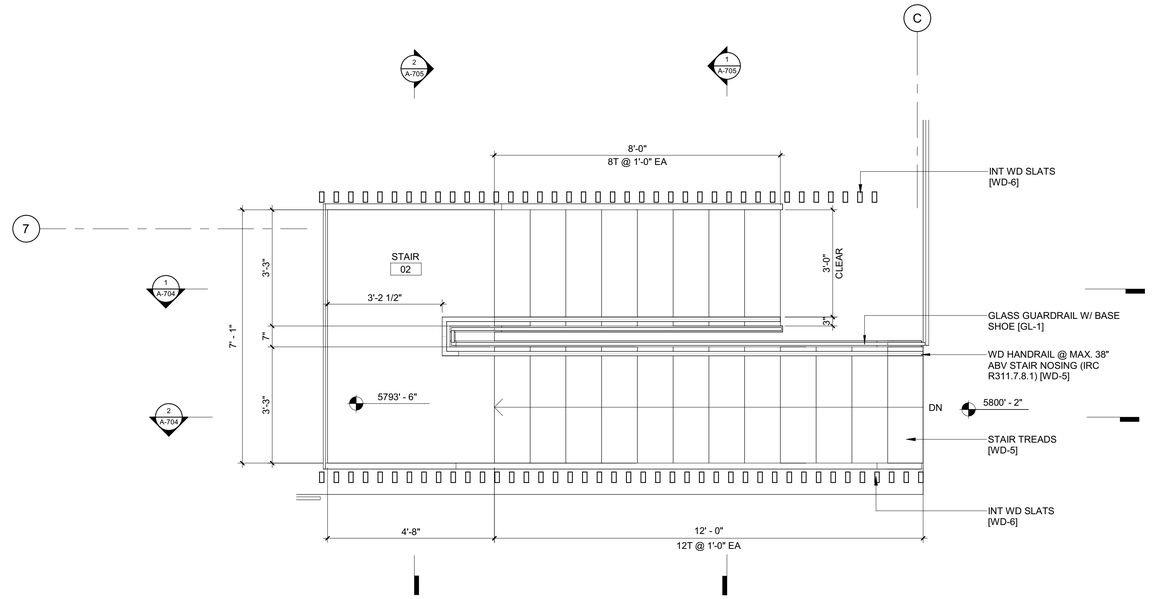
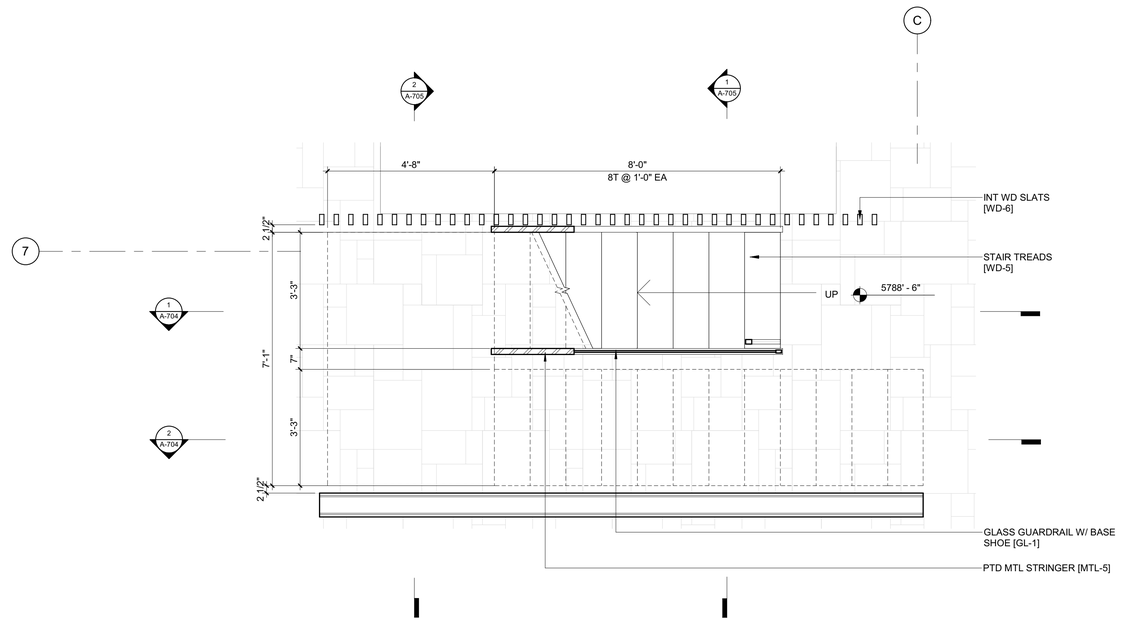


2 | 1/2" = 1'-0" | **ENLARGED PLAN / STAIR 2 / LEVEL 02**



1 | 1/2" = 1'-0" | **ENLARGED PLAN / STAIR 2 / LEVEL 01**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

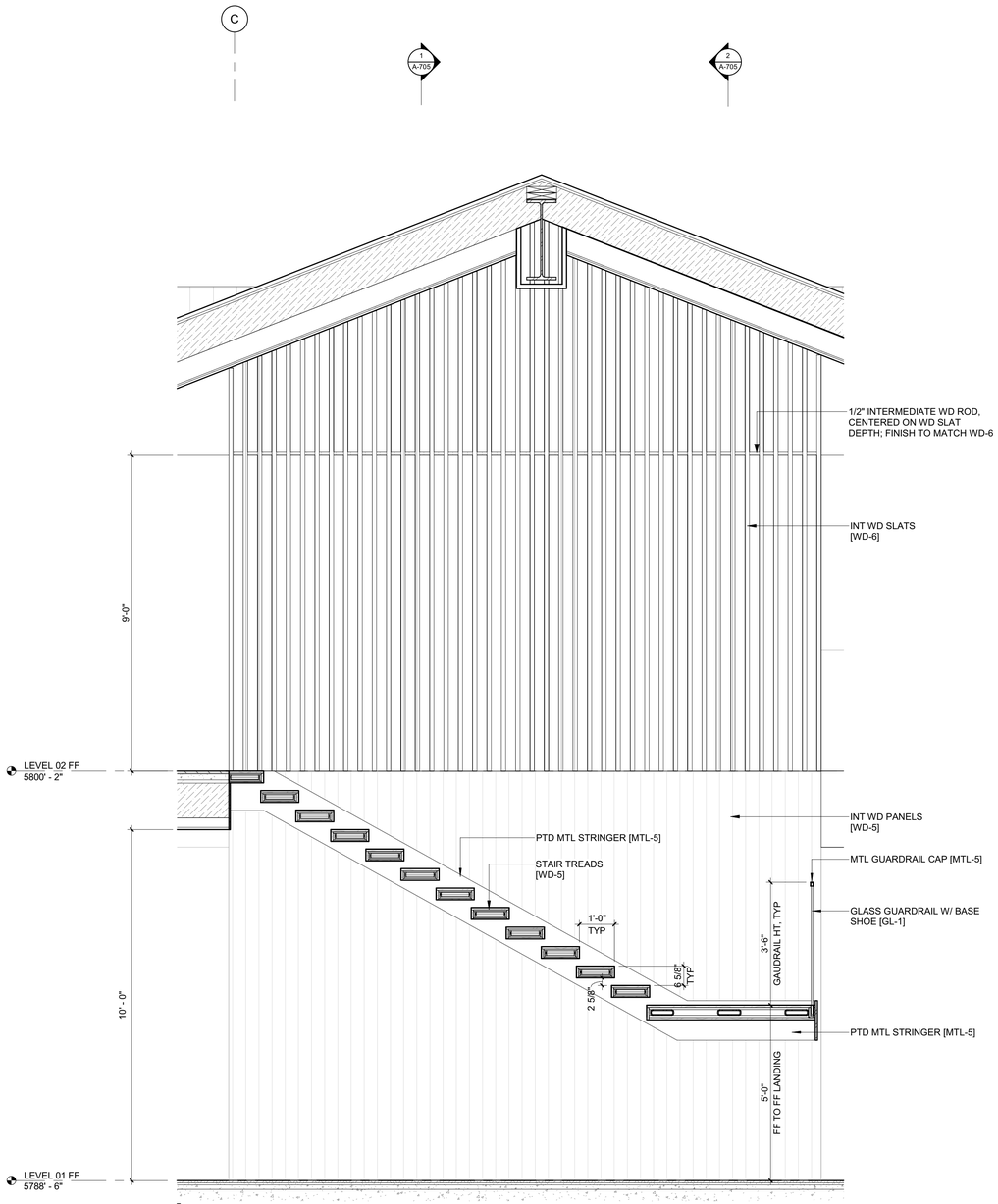
N

DRAWING TITLE:

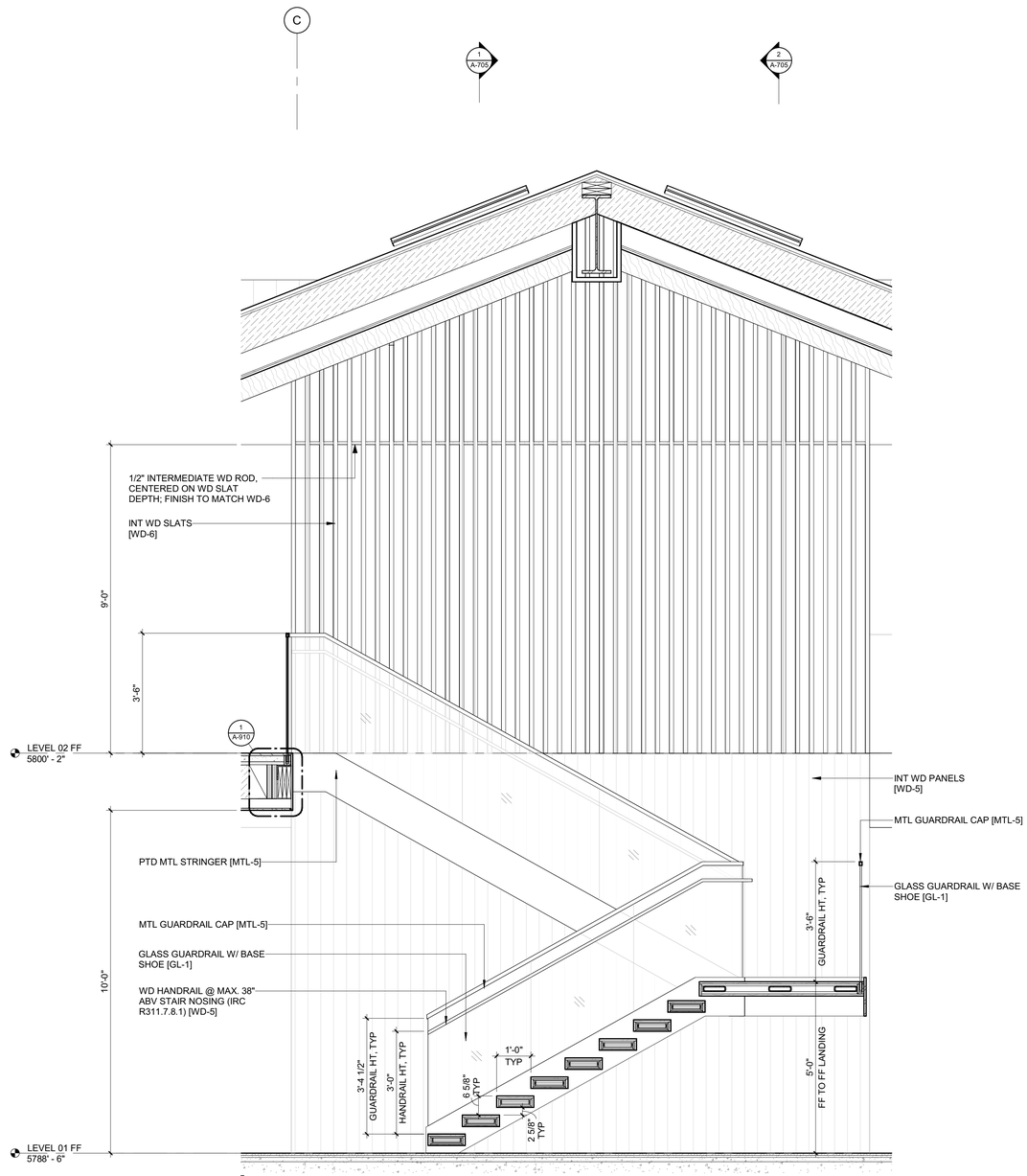
ENLARGED PLANS / STAIR 2

DRAWING NUMBER:

A-703



2 1/2" = 1'-0" **STAIR 2 / SECTION 2**



1 1/2" = 1'-0" **STAIR 2 / SECTION 1**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

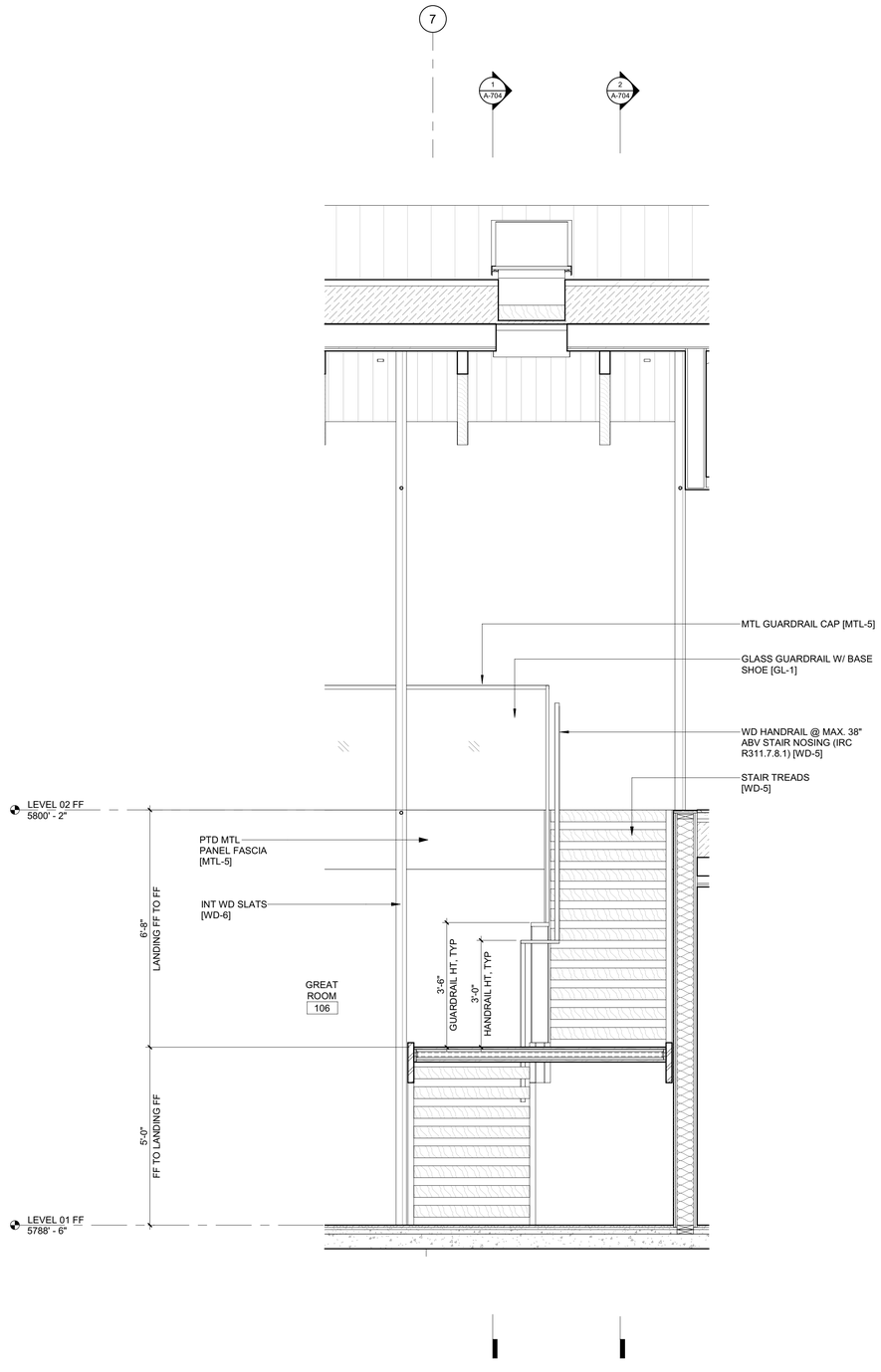
NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

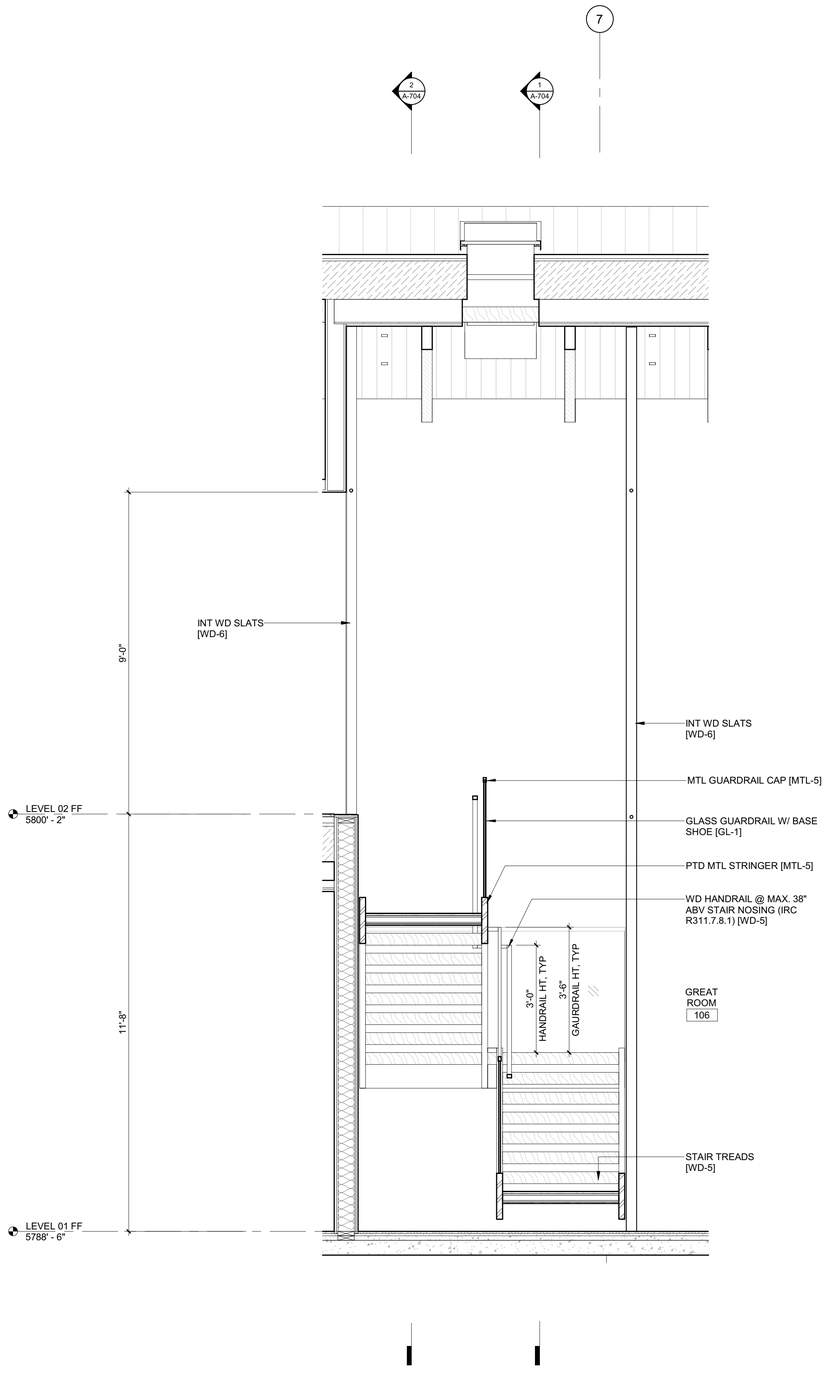
PROJECT NUMBER
#2201

DRAWING TITLE:
ENLARGED SECTIONS / STAIR 2

DRAWING NUMBER:
A-704



2 1/2" = 1'-0" **STAIR 2 / SECTION 5**



1 1/2" = 1'-0" **STAIR 2 / SECTION 4**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
ENLARGED SECTIONS / STAIR 2

DRAWING NUMBER:
A-705

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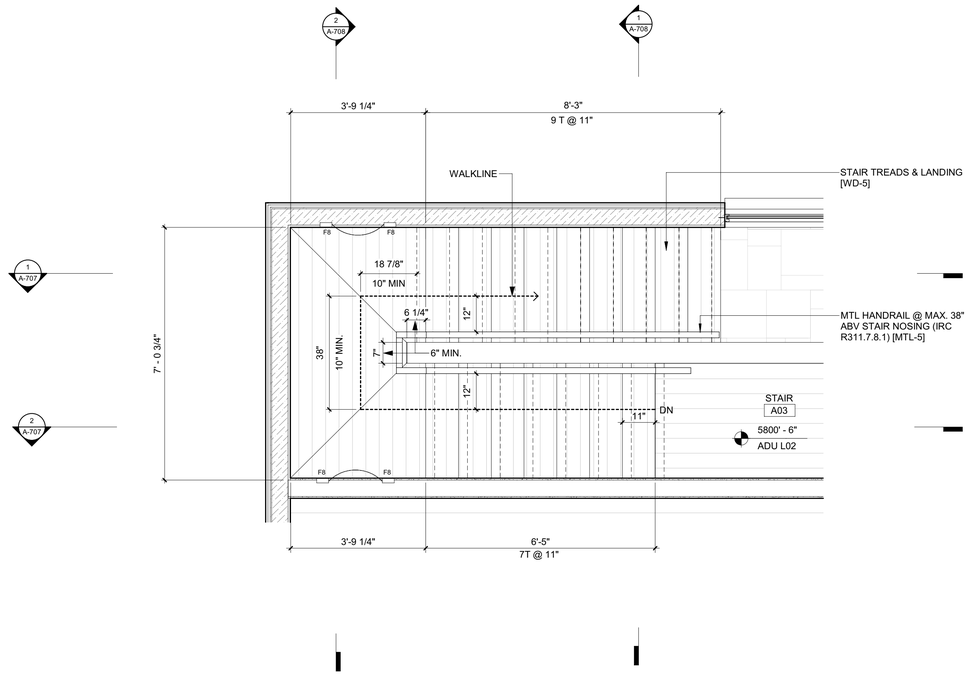
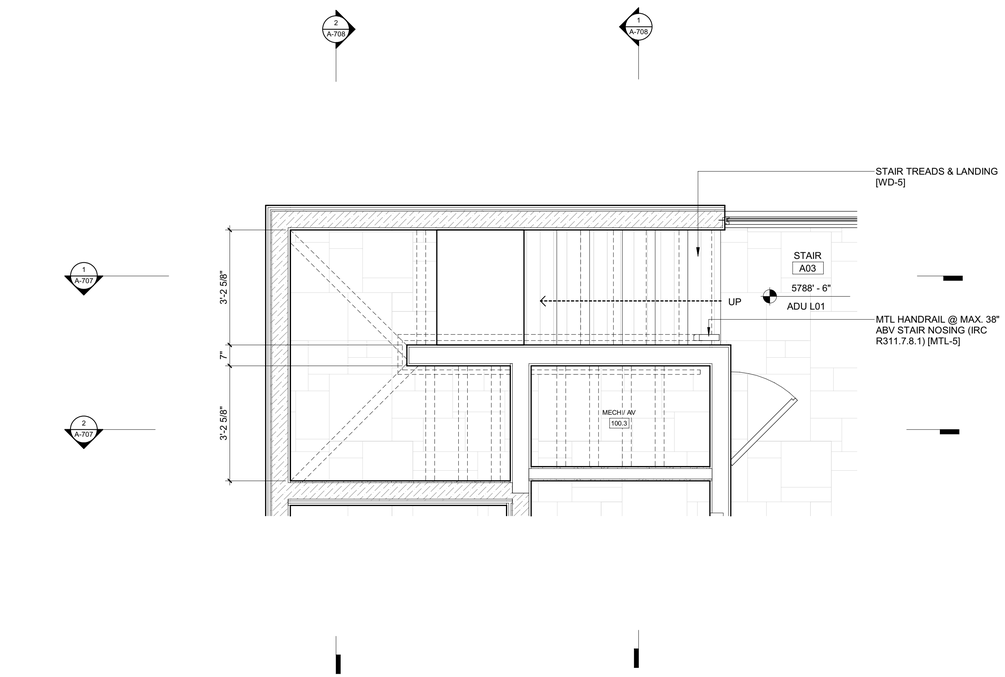


2 | 1/2" = 1'-0" | **ENLARGED PLAN / STAIR 3 / ADU LEVEL 02**



1 | 1/2" = 1'-0" | **ENLARGED PLAN / STAIR 3 / ADU LEVEL 01**

STAIR NOTES:

1. THE WALKLINE ACROSS WINDER TREADS AND LANDINGS SHALL BE CONCENTRIC TO THE TURN AND PARALLEL TO THE DIRECTION OF TRAVEL ENTERING AND EXITING THE TURN. THE WALKLINE SHALL BE LOCATED 12 INCHES FROM THE INSIDE OF THE TURN. THE 12-INCH DIMENSION SHALL BE MEASURED FROM THE WIDEST POINT OF THE CLEAR STAIR WIDTH AT THE WALKING SURFACE. WHERE WINDERS ARE ADJACENT WITHIN A FLIGHT, THE POINT OF THE WIDEST CLEAR STAIR WIDTH OF THE ADJACENT WINDERS SHALL BE USED. **R311.7.3**

2. WINDER TREADS SHALL HAVE A TREAD DEPTH OF NOT LESS THAN 10 INCHES MEASURED BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTIONS OF ADJACENT TREADS AT THE INTERSECTIONS WITH WALKLINE. WINDER TREADS SHALL HAVE A TREAD DEPTH OF NOT LESS THAN 6 INCHES AT ANY POINT WITHIN THE CLEAR WIDTH OF THE STAIR. WITHIN ANY FLIGHT OF STAIRS, THE LARGEST WINDER TREAD DEPTH AT THE WALKLINE SHALL NOT EXCEED THE SMALLEST WINDER TREAD BY MORE THAN 3/8 INCH. CONSISTENTLY SHAPED WINDERS AT THE WALKLINE SHALL BE ALLOWED WITHIN THE SAME FLIGHT OF STAIRS AS RECTANGULAR TREADS AND SHALL NOT BE REQUIRED TO BE WITHIN 3/8 INCH OF THE RECTANGULAR TREAD DEPTH. **R311.7.5.2.1**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
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KETCHUM, ID 83340

PROJECT ARCHITECT:
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SURVEYOR:
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TEL: 208.720.6432

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MEP ENGINEER:
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KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

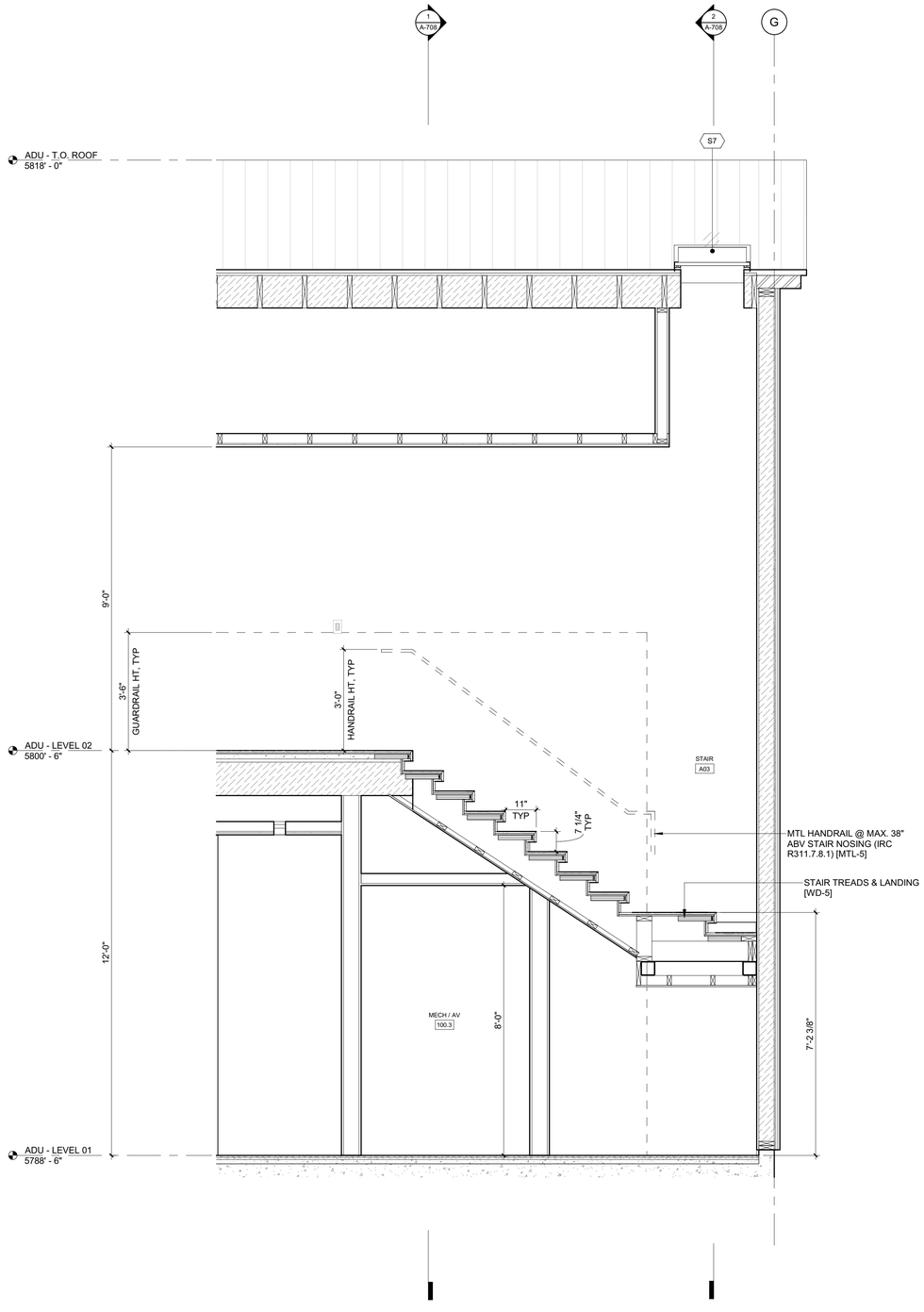
NO	DATE	ISSUE

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

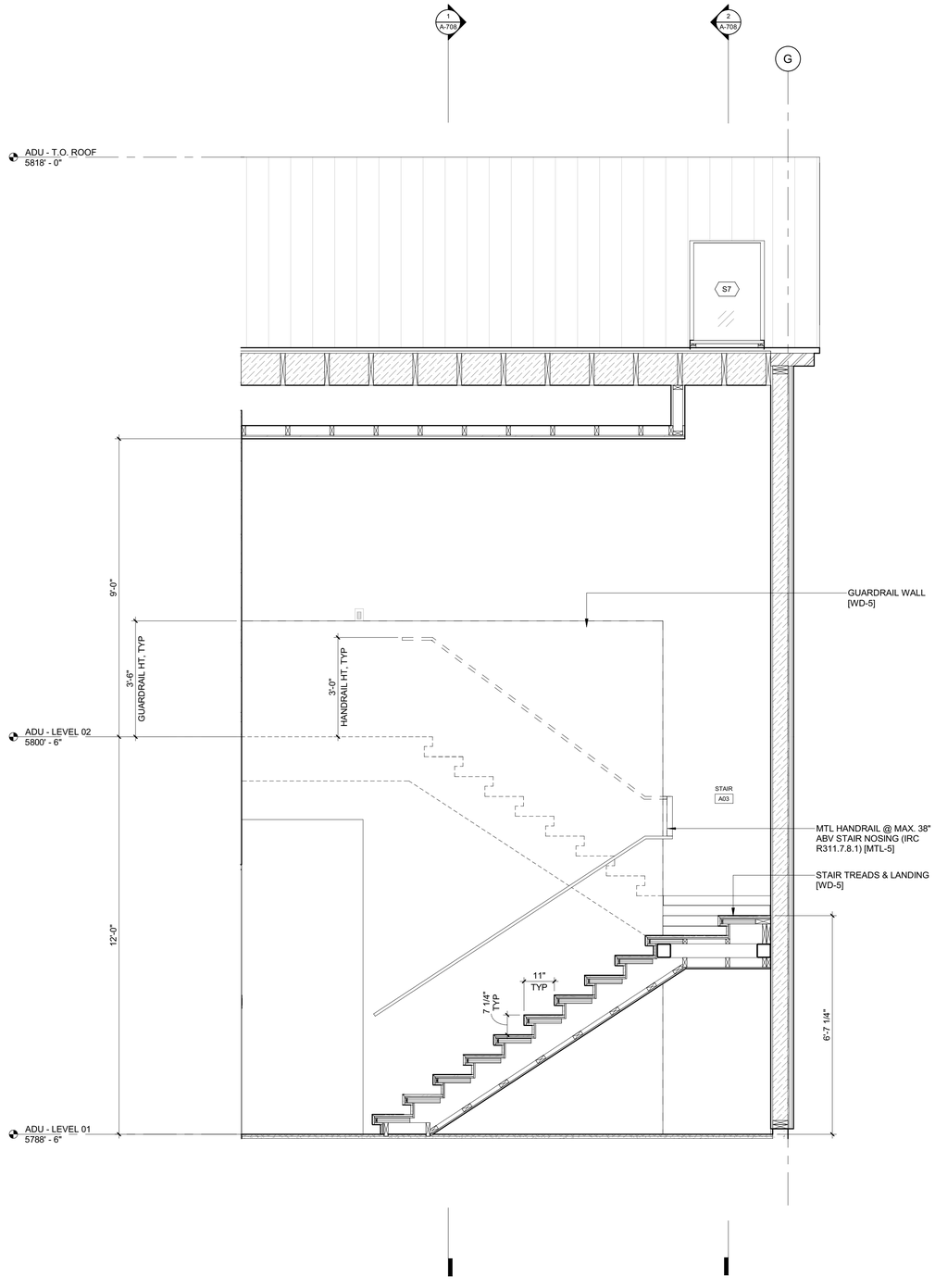
PROJECT NUMBER
#2201

DRAWING TITLE:
ENLARGED PLANS / STAIR 3

DRAWING NUMBER:
A-706



2 | 1/2" = 1'-0" | **STAIR 3 / SECTION 2**



1 | 1/2" = 1'-0" | **STAIR 3 / SECTION 1**

BADGER RESIDENCE

OWNER:

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MEP ENGINEER:

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270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:

BADGER RESIDENCE

121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER

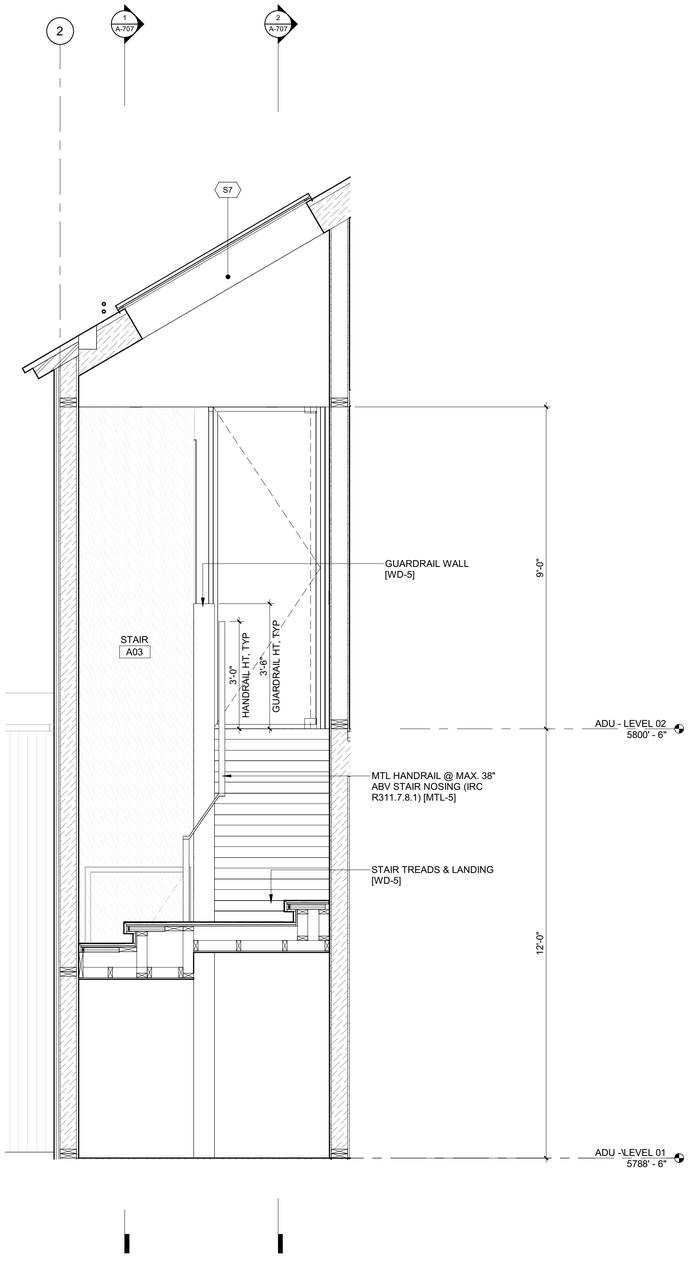
#2201

DRAWING TITLE:

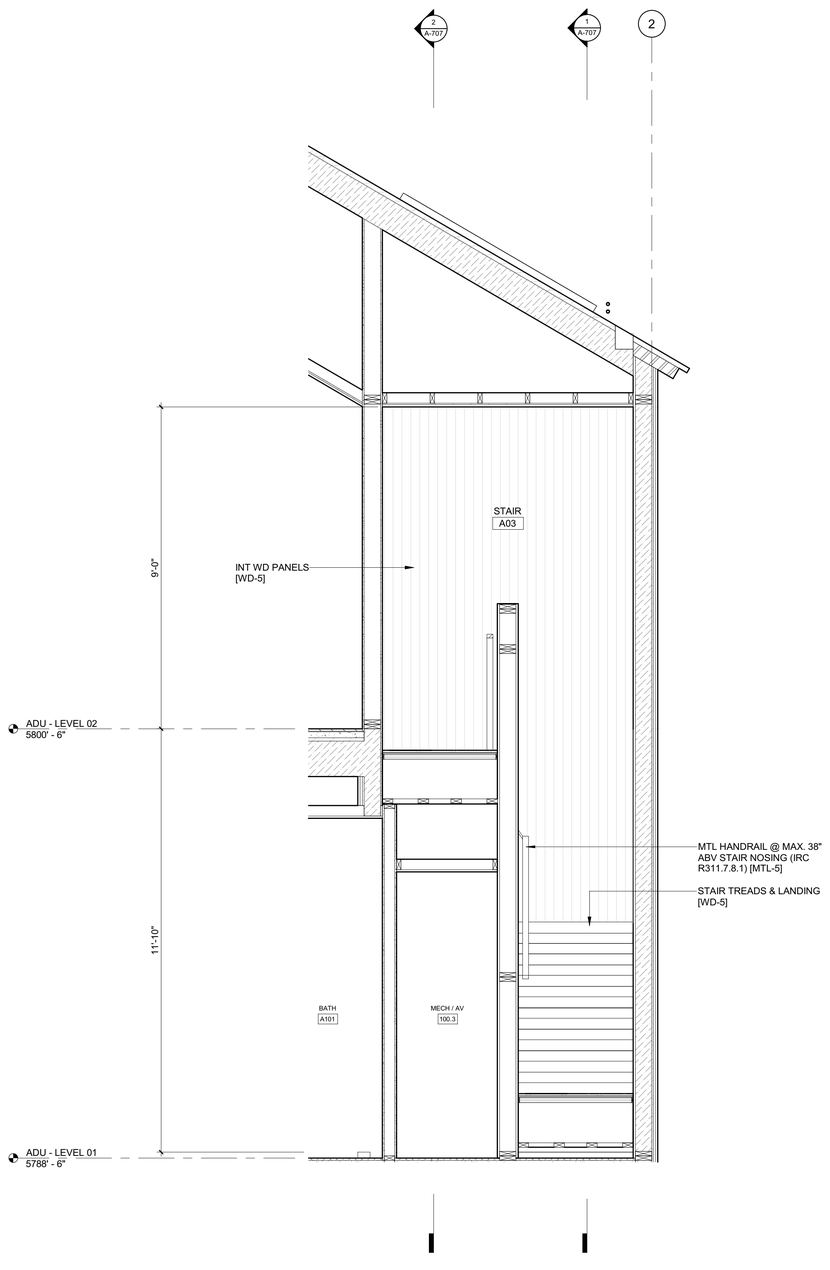
ENLARGED SECTIONS / STAIR 3

DRAWING NUMBER:

A-707



2 | 1/2" = 1'-0" | **STAIR 3 / SECTION 5**



1 | 1/2" = 1'-0" | **STAIR 3 / SECTION 3**

BADGER RESIDENCE

OWNER:
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P.O. BOX 14001-174
KETCHUM, ID 83340

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SEAL:

LICENSED
ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

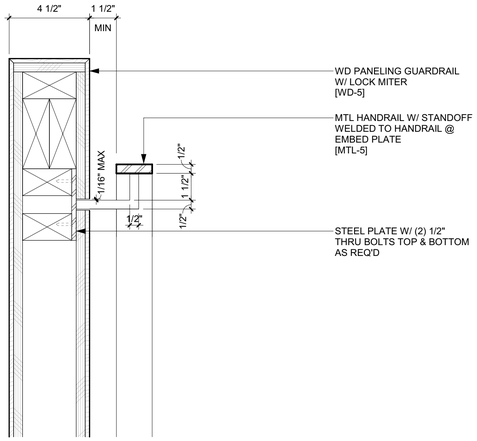
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

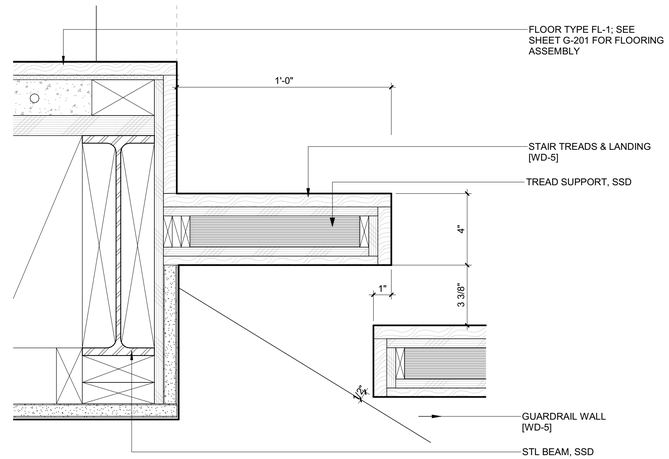
N

DRAWING TITLE:
ENLARGED SECTIONS / STAIR 3

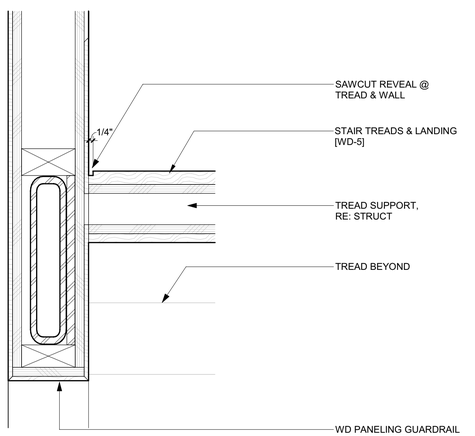
DRAWING NUMBER:
A-708



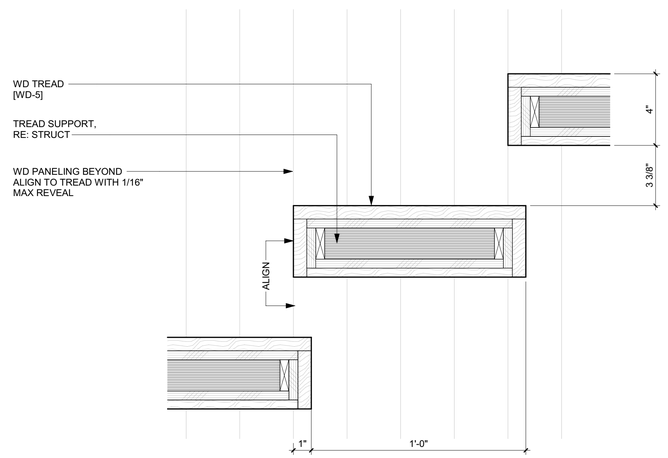
5 | 3" = 1'-0" | **DETAIL / STAIR 1 HANDRAIL @ GUARDRAIL WALL**



2 | 3" = 1'-0" | **DETAIL / STAIR 1 @ FLR LANDING**



4 | 3" = 1'-0" | **DETAIL / STAIR 1 TREAD @ GUARDRAIL WALL**



1 | 3" = 1'-0" | **DETAIL / TYP STAIR 1 TREAD**

BADGER RESIDENCE

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GEOTECHNICAL ENGINEER:

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TEL: 208.720.6432

LANDSCAPE ARCHITECT:

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TEL: 213.239 9700

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TEL: 310.552.2191

SEAL:

LICENSED
ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

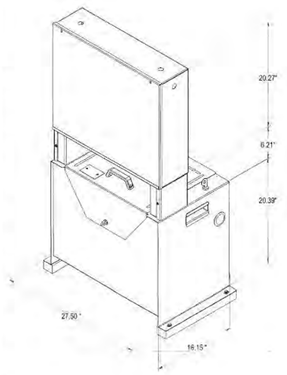
PROJECT NUMBER
#2201

DRAWING TITLE:
STAIR DETAILS

DRAWING NUMBER:
A-709

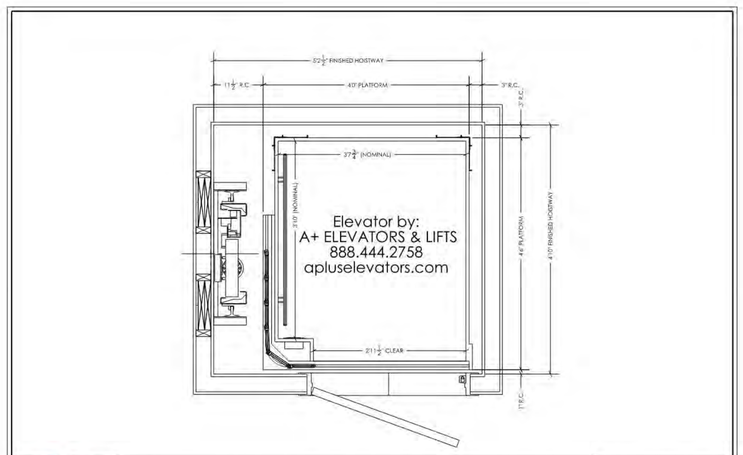
Controller tank specifications

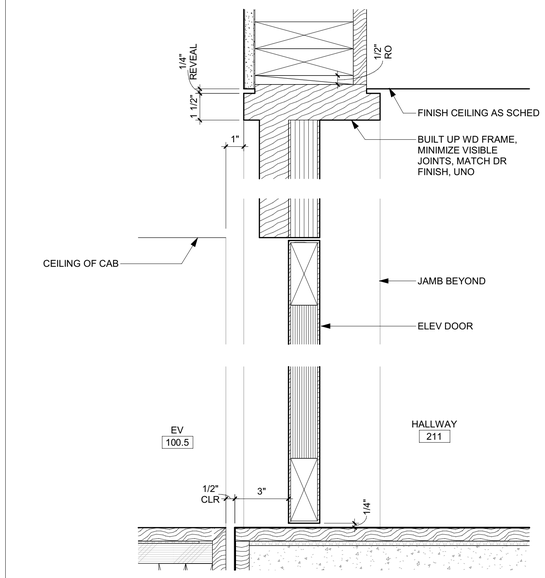
Controller tank specifications	
Dimensions	Height: 47" (1194 mm) Width: 28" (711 mm) Depth: 17" (432 mm)
Minimum required clearance	39.37" (1000 mm)
Valve and manual lowering handle location	Inside tank
Rupture valve test	T-fitting factory installed
Tank to controller wiring	Quick connect valve and motor wiring
Controller layout	Relay board
Keyed lock to tank	Yes
Machine room required	No (with local jurisdiction approval)
Tank capacity (gal/ltr)	15-16.5 gal/57-63 ltr
Maximum dry weight (lb/kg)	147 lb/55 kg
Maximum filled weight (lb/kg)	312 lb/117 kg
Operating environment	50°F - 120°F /10°C - 49°C
Operating volume	57 dBA



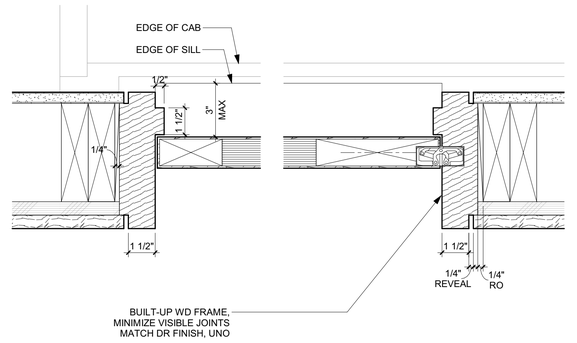
Controller tank features

- Hydraulic hose connection port on both sides of the tank
- Built-in handles on both sides of the tank
- Isolation mounting of pump motor valve assembly minimizes operating issues

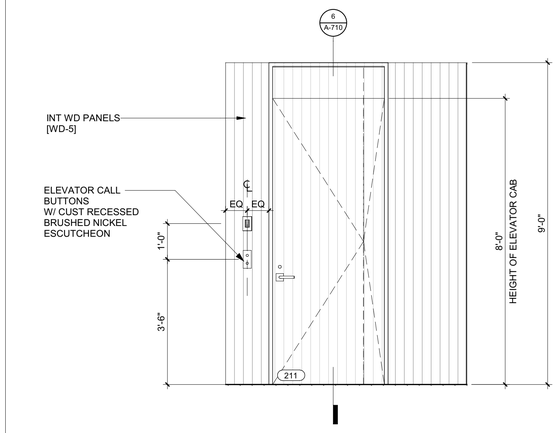




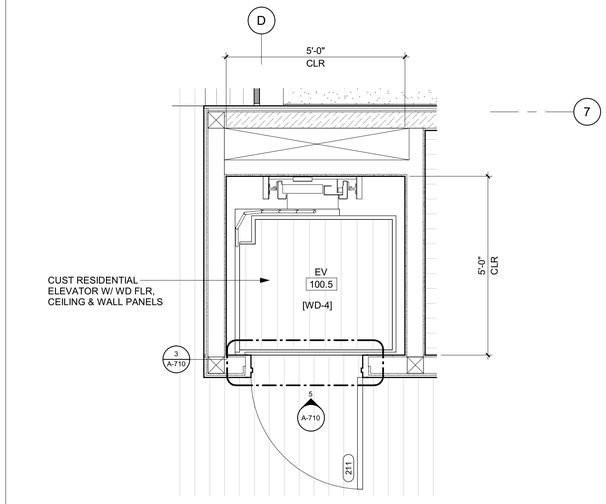
6 | 3" = 1'-0" | **DETAIL / HEAD & SILL / ELEVATOR DR 211**



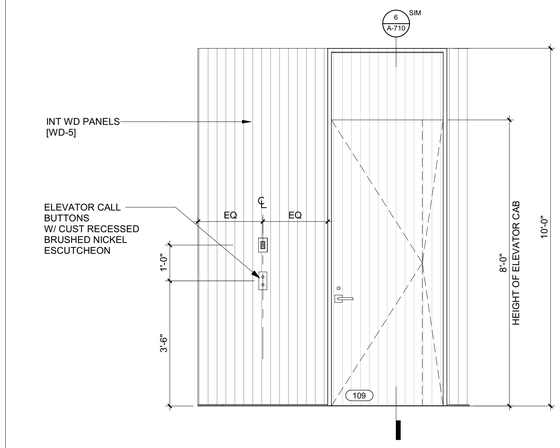
3 | 3" = 1'-0" | **DETAIL / JAMB / ELEVATOR DOOR 211**



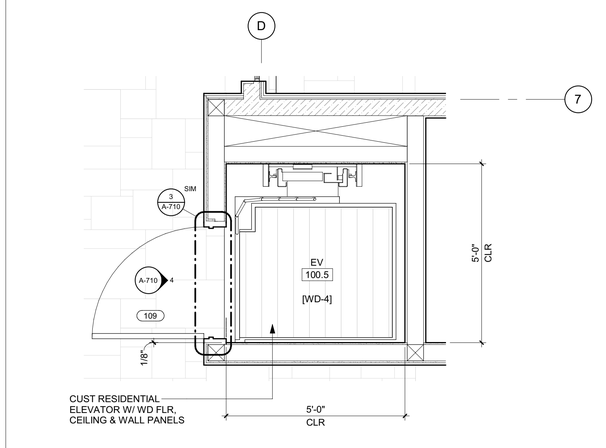
5 | 1/2" = 1'-0" | **ELEVATION / LEVEL 02 / ELEVATOR**



2 | 1/2" = 1'-0" | **PLAN / LEVEL 02 / ELEVATOR**



4 | 1/2" = 1'-0" | **ELEVATION / LEVEL 01 / ELEVATOR**



1 | 1/2" = 1'-0" | **PLAN / LEVEL 01 / ELEVATOR**

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EL SEGUNDO, CA 90245
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SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
ELEVATOR PLANS, ELEVS & DETAILS

DRAWING NUMBER:
A-710

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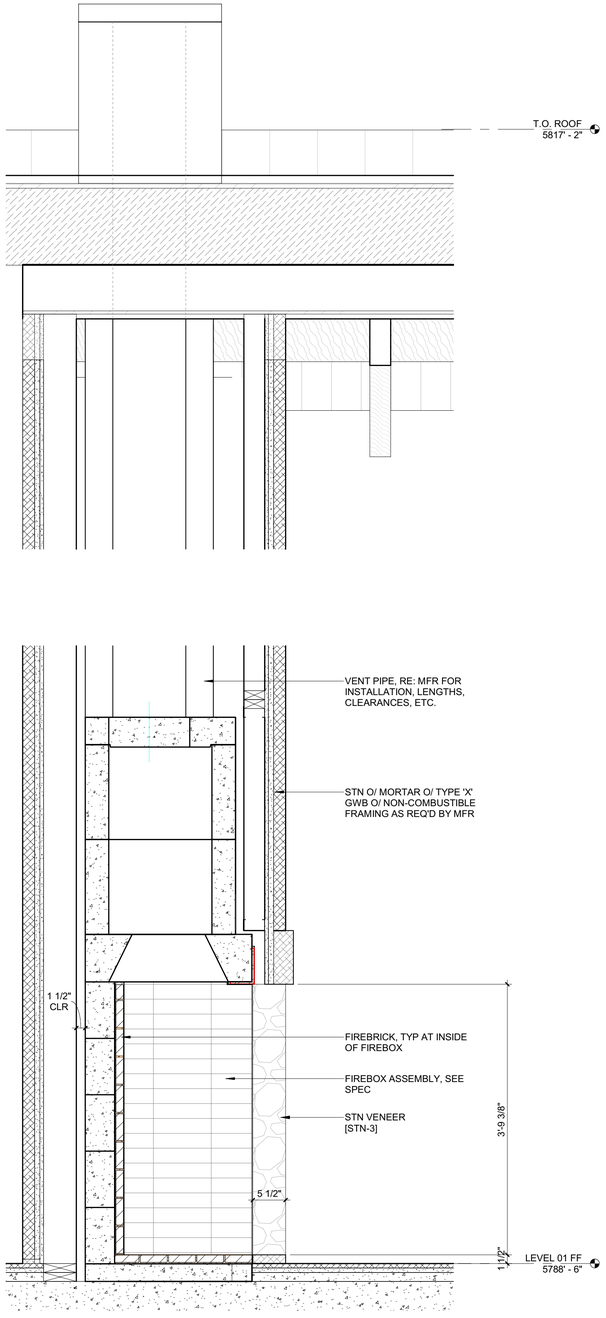
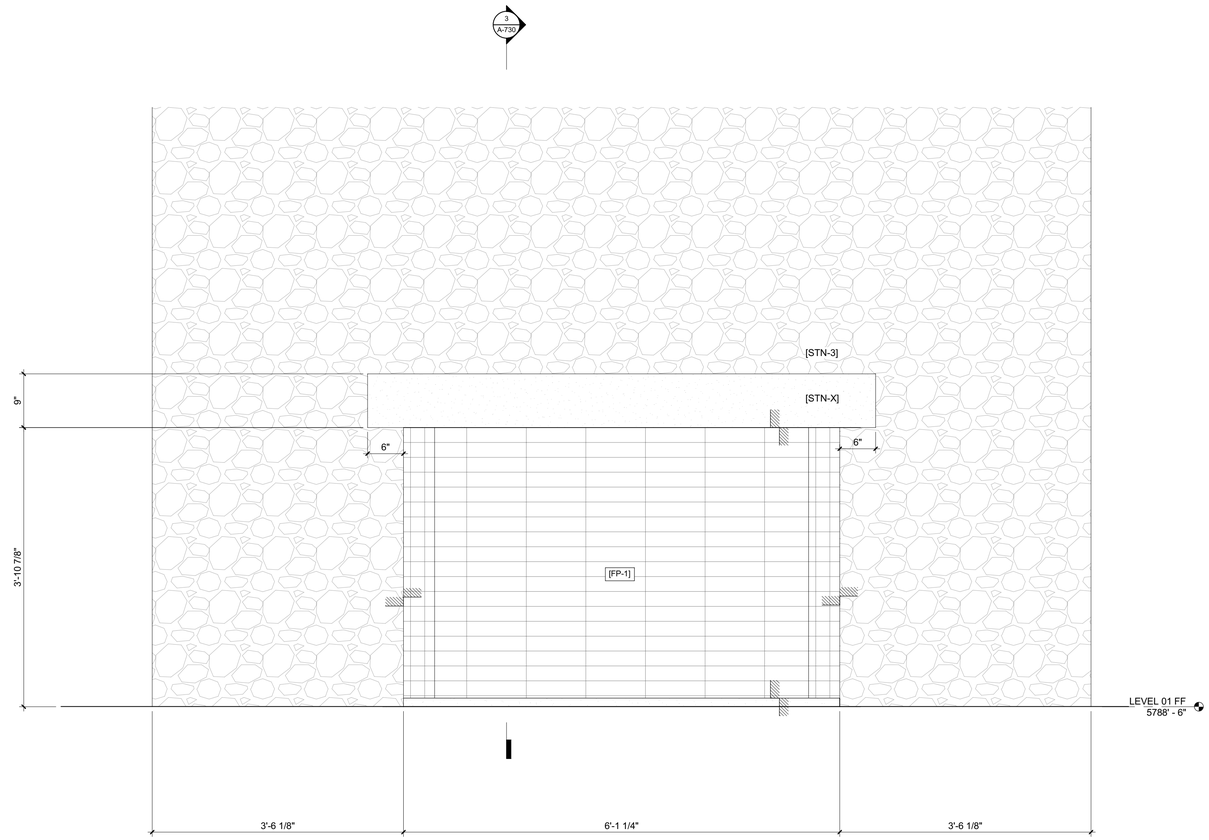
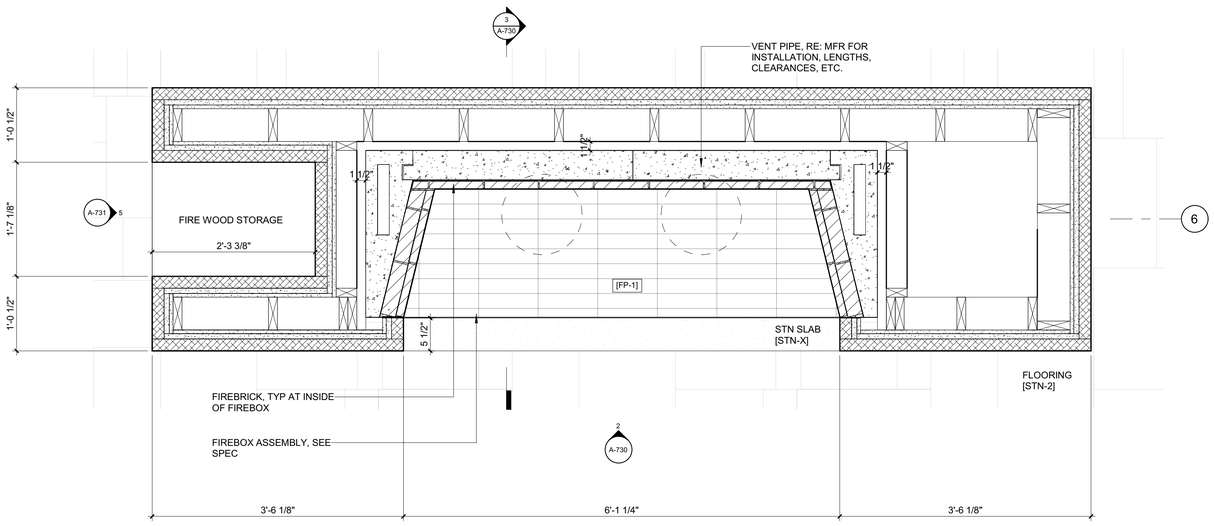


3 1" = 1'-0" **SECTION / FIREPLACE 1**



2 1" = 1'-0" **GREAT ROOM FP**



1 1" = 1'-0" **ENLARGED PLAN / FIREPLACE 1 - GREAT RM**

BADGER RESIDENCE

OWNER:
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JASON RO
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NO	DATE	ISSUE

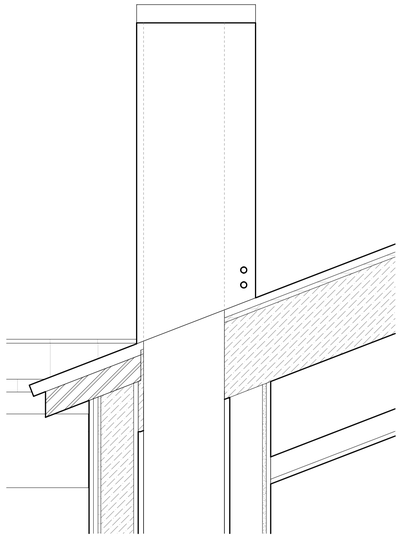
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

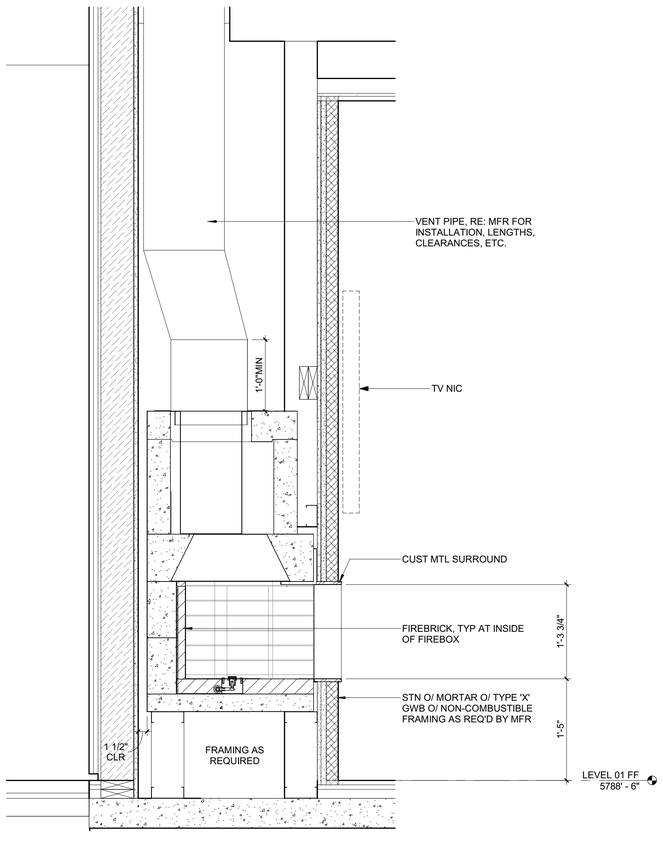
PROJECT NUMBER
#2201

N

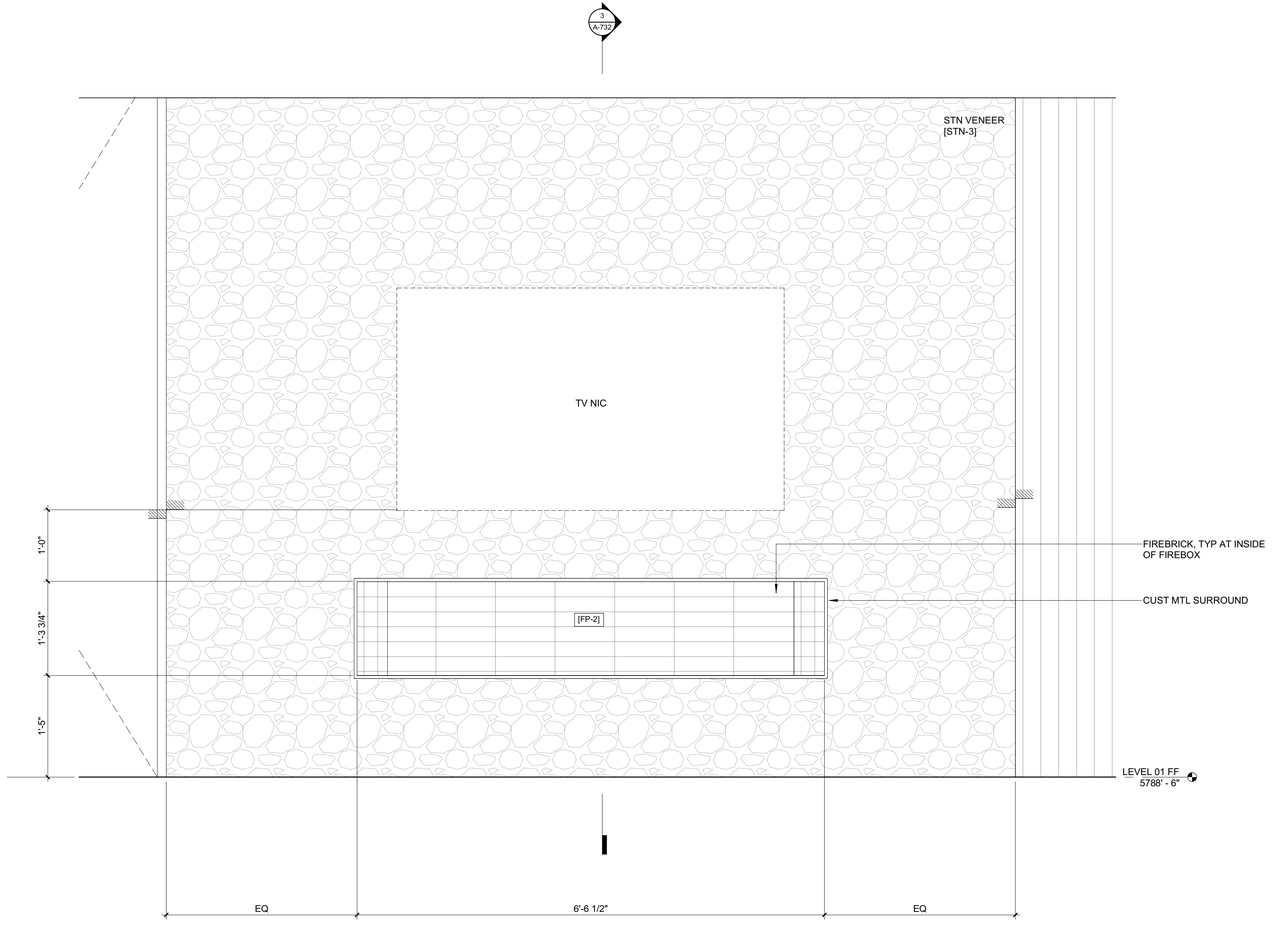
DRAWING TITLE:
FIREPLACE 1 / PLANS, SECTIONS, DETAILS

DRAWING NUMBER:
A-730

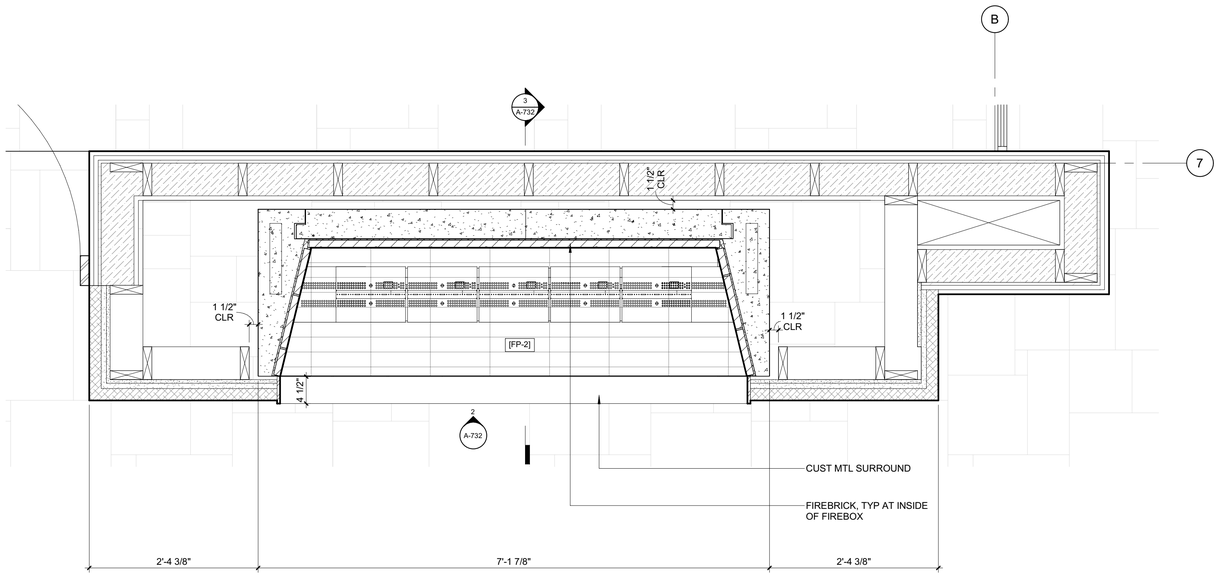




3 1" = 1'-0" **DETAIL / FAMILY RM / FIREPLACE**



2 1" = 1'-0" **FAMILY ROOM**



1 1" = 1'-0" **ENLARGED PLAN / FIREPLACE 2 - FAMILY ROOM**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

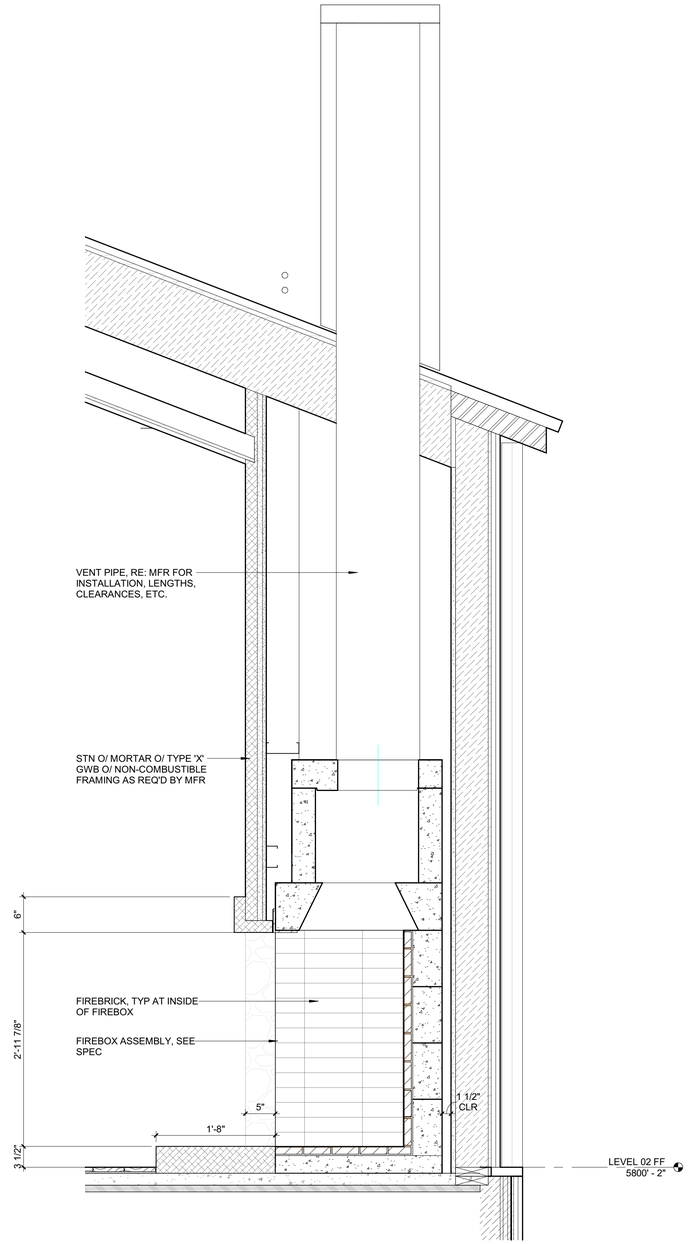
NO	DATE	ISSUE

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

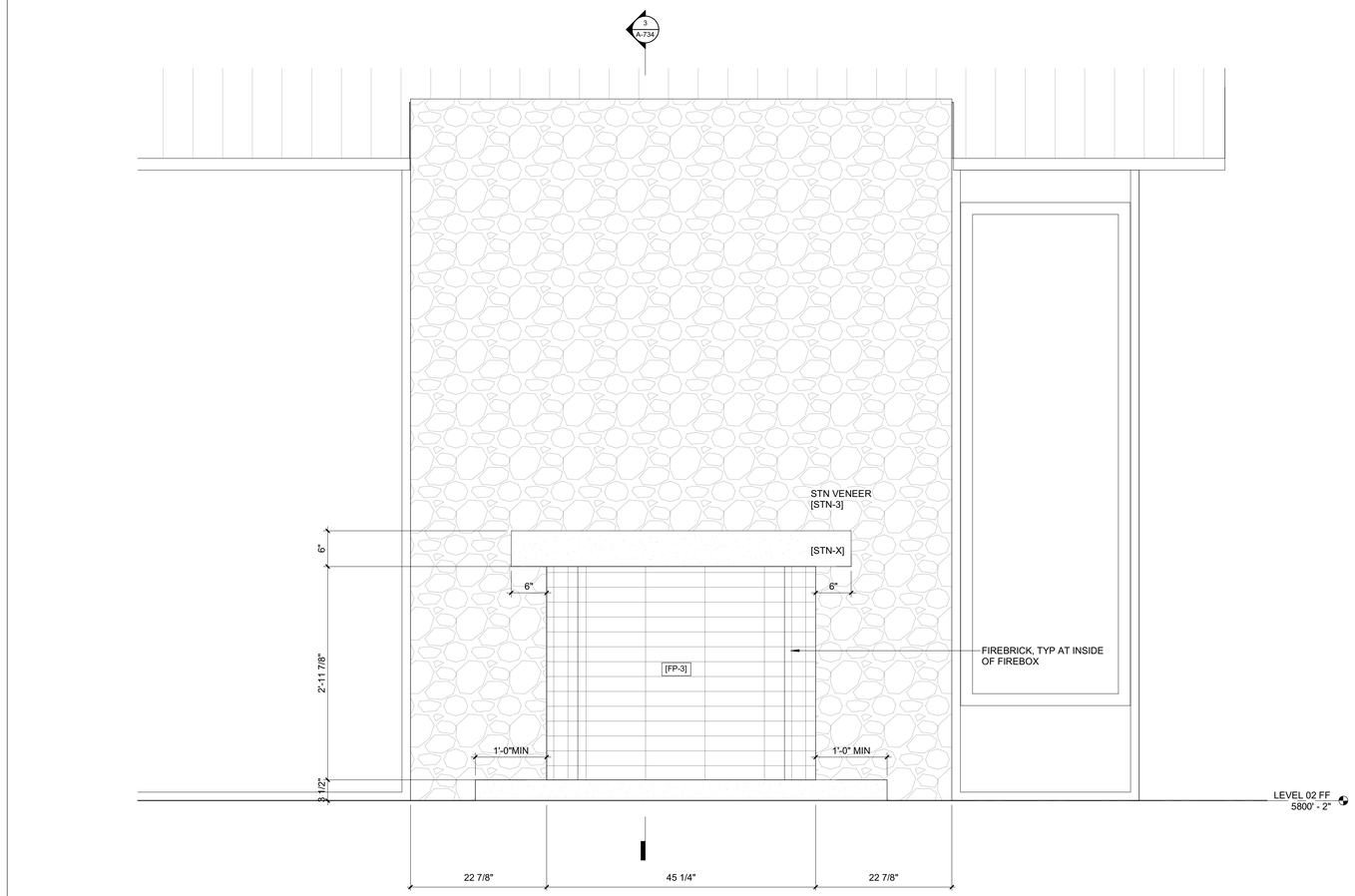
PROJECT NUMBER
#2201

DRAWING TITLE:
FIREPLACE 2 / PLANS, SECTIONS, DETAILS

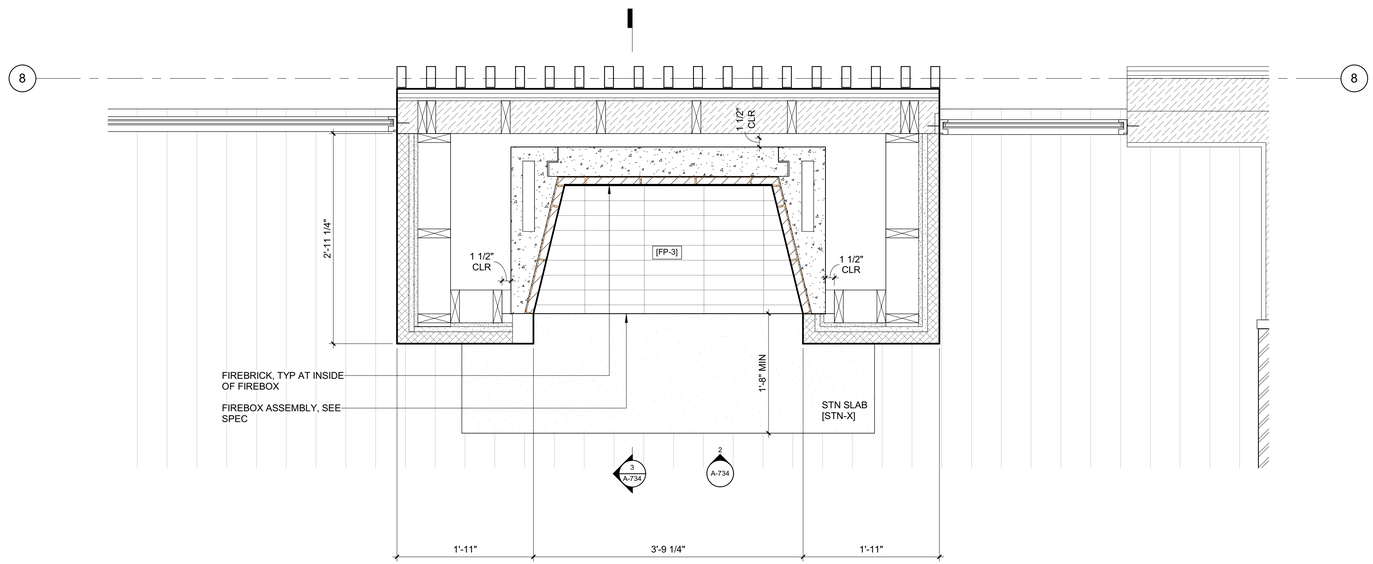
DRAWING NUMBER:
A-732



3 | 1" = 1'-0" | **DETAIL / M BED / FIREPLACE**



2 | 1" = 1'-0" | **MBED FP**



1 | 1" = 1'-0" | **ENLARGED PLAN / FIREPLACE 3 - MASTER BEDROOM**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE

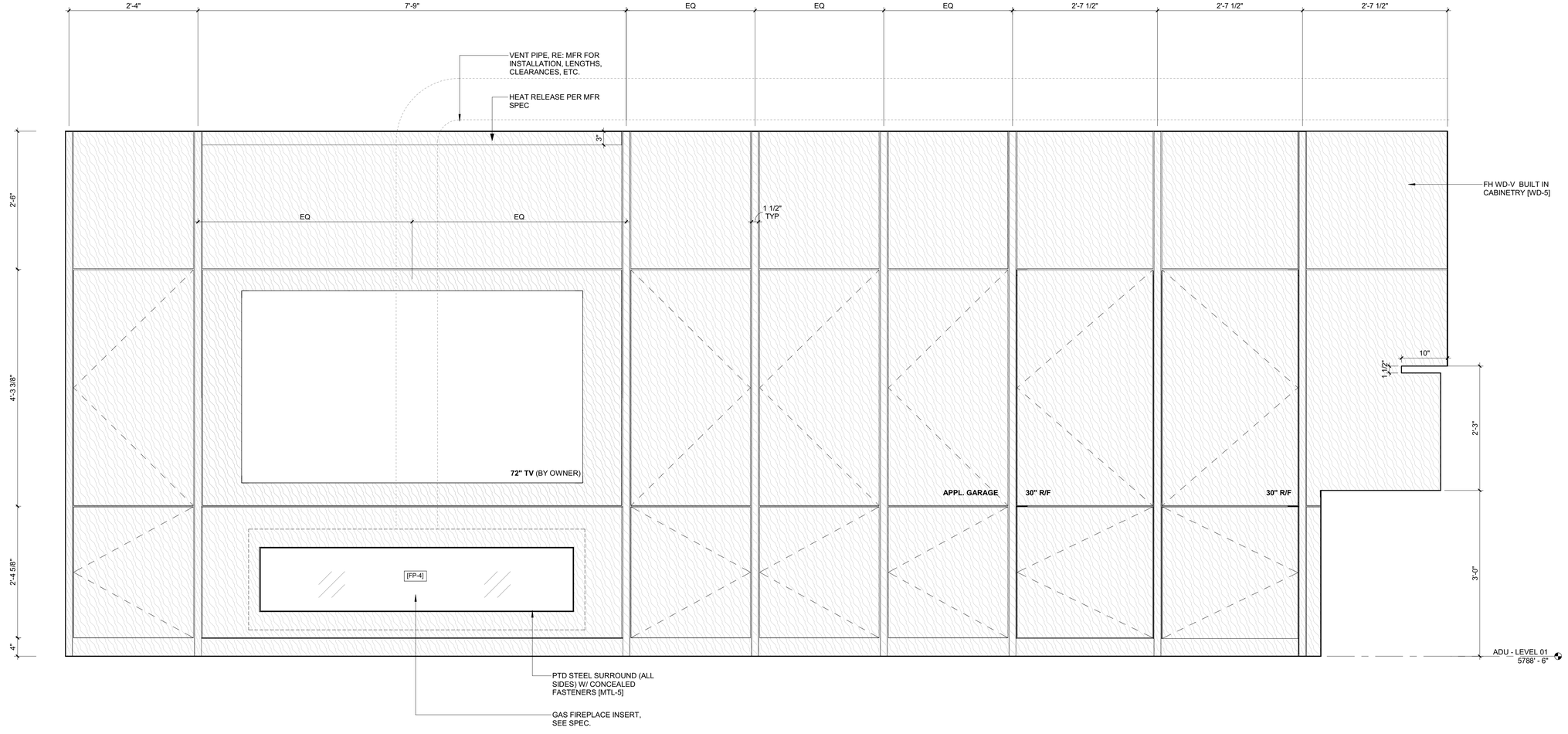
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

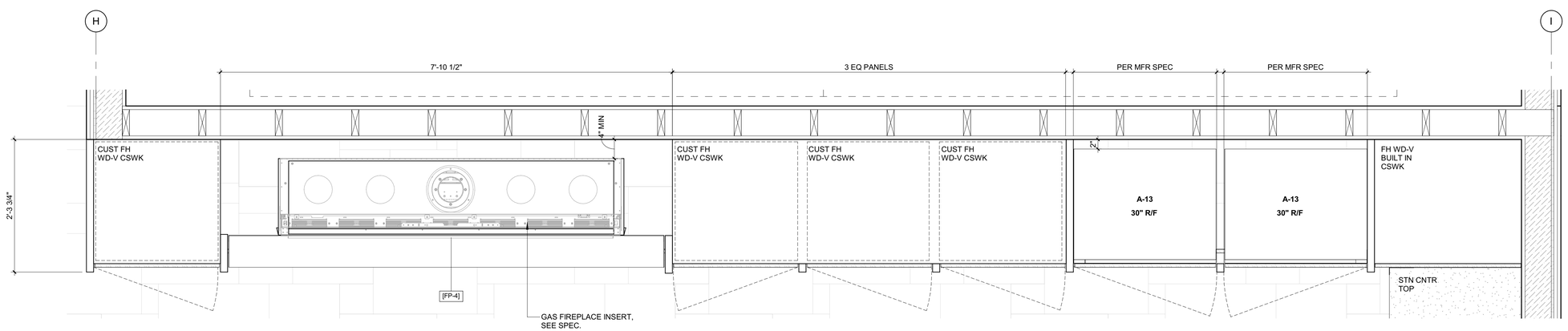
N

DRAWING TITLE:
FIREPLACE 3 / PLANS, SECTIONS, DETAILS

DRAWING NUMBER:
A-734



2 | 1" = 1'-0" | **ELEVATION / ADU / FIREPLACE 4 - ADU**



1 | 1" = 1'-0" | **ENLARGED PLAN / FIREPLACE 4 - ADU**

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:

SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:

BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:

BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:

CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:

KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

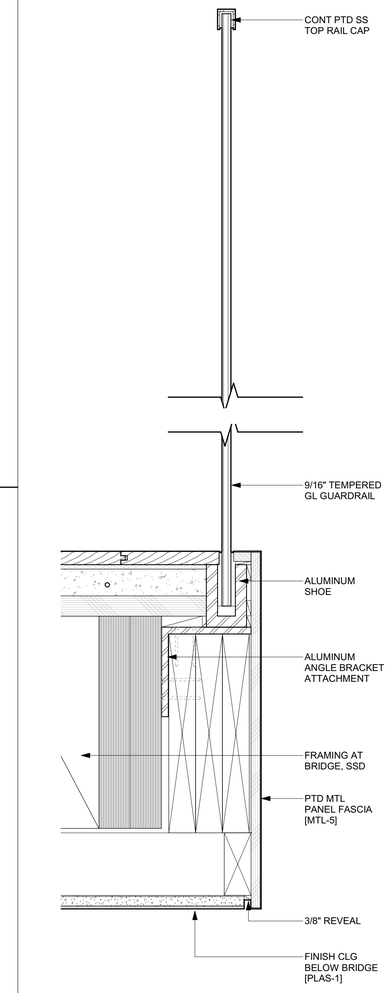
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
FIREPLACE 4 / PLANS, SECTIONS, DETAILS

DRAWING NUMBER:
A-736



1 | 3" = 1'-0" | **DETAIL / TYP INT GUARDRAIL**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
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TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
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323 LEWIS STREET, SUITE N
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P.O. BOX 733 - 100 BELL DRIVE
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TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:

LICENSED
ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
DETAILS / INTERIOR

DRAWING NUMBER:
A-910

STRUCTURAL OBSERVATION

PERIODIC STRUCTURAL OBSERVATION SHALL BE PROVIDED BY SEOR PER THE STRUCTURAL OBSERVATION FORM BELOW.

2. DEPUTY INSPECTOR MUST PERFORM INSPECTION BEFORE STRUCTURAL ENGINEER PERFORMS OBSERVATION. DEPUTY INSPECTOR'S REPORT MUST BE AVAILABLE AT THE TIME OF OBSERVATION. IF DEPUTY INSPECTION IS NOT COMPLETED, STRUCTURAL OBSERVATION REPORT WILL LIST MISSING INSPECTION AS DEFICIENCY.

3. CONTRACTOR SHALL KEEP LATEST ISSUED DRAWINGS, RFI'S RESPONSES, AND SKETCHES ON SITE, AND SHALL MAKE SUCH DOCUMENTS AVAILABLE TO THE STRUCTURAL OBSERVER AND DEPUTY INSPECTOR.

4. CONTRACTOR SHALL NOTIFY ENGINEER 3 BUSINESS DAYS BEFORE REQUIRED OBSERVATIONS. DELINQUENT NOTIFICATION MAY REQUIRE DEMOLITION OF COVERING MATERIAL TO FACILITATE OBSERVATION.

6. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION AT THE CONSTRUCTION SITE OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETE STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS.

7. STRUCTURAL OBSERVATIONS PERFORMED BY STRUCTURAL OBSERVER DURING CONSTRUCTION ARE NOT THE CONTINUOUS OR PERIODIC SPECIAL INSPECTION SERVICES PERFORMED BY A LICENSED DEPUTY INSPECTOR, NOR THE INSPECTION BY THE CITY INSPECTOR, AND DO NOT WAIVE THE RESPONSIBILITY FOR THE SPECIAL INSPECTIONS OR CITY INSPECTIONS.

8. STRUCTURAL OBSERVATIONS DO NOT CONSTITUTE QUALITY CONTROL, DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE, AND SHALL NOT BE CONSIDERED AS SUPERVISION OF CONSTRUCTION.

9. THE OWNER SHALL EMPLOY A STATE OF CALIFORNIA REGISTERED CIVIL OR STRUCTURAL ENGINEER OR LICENSED ARCHITECT - THE STRUCTURAL OBSERVER - TO PERFORM THE STRUCTURAL OBSERVATIONS. THE DEPARTMENT OF BUILDING AND SAFETY OF AUTHORITY OF JURISDICTION REQUIRES THE USE OF THE ENGINEER OR HIS/HER DESIGNEE RESPONSIBLE FOR THE STRUCTURAL DESIGN WHO ARE INDEPENDENT OF THE CONTRACTOR

10. THE OWNER OR OWNER'S REPRESENTATIVE SHALL COORDINATE AND CALL FOR A MEETING BETWEEN THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, STRUCTURAL OBSERVER, CONTRACTOR, AFFECTED SUBCONTRACTORS AND DEPUTY INSPECTORS. THE PURPOSE OF THE MEETING SHALL BE TO IDENTIFY THE MAJOR STRUCTURAL ELEMENTS AND CONNECTIONS THAT AFFECT THE VERTICAL AND LATERAL LOAD SYSTEMS OF THE STRUCTURE AND TO REVIEW SCHEDULING OF THE REQUIRED OBSERVATIONS.

11. THE STRUCTURAL OBSERVER SHALL PERFORM SITE VISITS AT THOSE STEPS IN THE PROGRESS OF THE WORK THAT ALLOW FOR CORRECTION OF DEFICIENCIES WITHOUT SUBSTANTIAL EFFORT OR UNCOVERING OF THE WORK INVOLVED. AT A MINIMUM, THE LISTED SIGNIFICANT CONSTRUCTION STAGES ON THE FOLLOWING STRUCTURAL OBSERVATION/SIGNIFICANT CONSTRUCTION STAGES TABLE REQUIRE A SITE VISIT AND AN OBSERVATION REPORT FROM THE STRUCTURAL OBSERVER.

12. A FINAL OBSERVATION REPORT AND THAT OF THE REGISTERED DEPUTY INSPECTOR MUST BE SUBMITTED WHICH SHOWS THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND STRUCTURAL SYSTEM GENERALLY CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. THE DEPARTMENT OF BUILDING AND SAFETY (LADBS) WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THAT OF THE REGISTERED DEPUTY INSPECTOR (WHEN PROVIDED) AND THE CORRECTION OF SPECIFIC DEFICIENCIES NOTED DURING NORMAL BUILDING INSPECTION.

STRUCTURAL OBSERVATION TABLE

LA DBS DEPARTMENT OF BUILDING AND SAFETY

Los Angeles Regional Uniform Code Program
Committee I-3: Structural Observation

LARUCP Los Angeles Regional Uniform Code Program

STRUCTURAL OBSERVATION PROGRAM
AND DESIGNATION OF THE
STRUCTURAL OBSERVER

PROJECT ADDRESS: _____ PERMIT APPL. NO.: _____

Description of Work: _____

Owner: _____ Architect: _____ Engineer: _____

STRUCTURAL OBSERVATION
(Only checked items are required)

Firm or Individual to be responsible for the Structural Observation:
Name: Labib Funk & Associates. Phone: (213) 239.9700 Calif. Registration: S4549

FOUNDATION		WALL		FRAME		DIAPHRAGM / SLAB / S.O.G.	
Footings, Stem Walls, Piers	☒	Concrete	☒	Steel Moment Frame	☒	Concrete	☒
Mat Foundation	☒	Masonry	☒	Steel Braced Frame	☒	Steel Deck	☒
Caissons, Piles, Grade Beams	☒	Wood	☒	Concrete Moment Frame	☒	Wood	☒
Step'g / Retain'g Found. - Hillside Special Anchors	☒	Hardy Frames Strong Walls	☒	Masonry Frame	☒		☒
Others	☒	Others	☒	Others	☒	Others	☒

DECLARATION BY OWNER

I, the Owner of the project, declare that the above listed firm or individual is hired by me to be the Structural Observer

_____
Signature Date

DECLARATION BY ARCHITECT OR ENGINEER OF RECORD (REQUIRED IF THE STRUCTURAL OBSERVER IS DIFFERENT FROM THE ARCHITECT OR ENGINEER OF RECORD)

I, the Architect or Engineer of record for the project, declare that the above listed firm or individual is designated by me to be responsible for the Structural Observation

_____
Signature License No. Date

STATEMENT OF SPECIAL INSPECTION

1. CONTINUOUS AND PERIODIC SPECIAL INSPECTION IS REQUIRED FOR THE WORK AS DESCRIBED IN CBC 2019 CHAPTER 17. SEE INSPECTION SCHEDULE BELOW. ONLY CHECKED ITEMS ARE REQUIRED.

2. APPROVAL BY THE INSPECTOR DOES NOT MEAN APPROVAL OF FAILURE TO COMPLY WITH THE PLANS OR SPECIFICATIONS. ANY DETAIL THAT FAILS TO BE CLEAR OR IS AMBIGUOUS MUST BE REFERRED TO THE STRUCTURAL ENGINEER FOR INTERPRETATION OR CLARIFICATION.

3. FOR VERIFICATION AND INSPECTION OF SOILS SEE SOILS REPORT.

4. CONTINUOUS SPECIAL INSPECTION PER AWS D1.1 IS REQUIRED FOR ALL STRUCTURAL STEEL WELDING, EXCEPT FOR SINGLE PASS FILLET WELDS NOT EXCEEDING 5/16" IN SIZE. WELDING INSPECTORS SHALL BE REGISTERED AND/OR CERTIFIED BY THE JURISDICTION HAVING AUTHORITY AND SHALL AT A MINIMUM BE AWS Q.C.-1 CERTIFIED. IN ADDITION, WELDING INSPECTORS SHALL BE A CITY OF LOS ANGELES REGISTERED DEPUTY STRUCTURAL STEEL INSPECTOR FOR WORK PERFORMED WITHIN THE CITY OF LOS ANGELES.

5. STRUCTURAL WOOD. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR WOOD SHEAR WALLS, SHEAR PANELS, AND DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS OF THE SEISMIC FORCE RESISTING SYSTEM, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS, AND HOLDOWNS. EXCEPTION: SPECIAL INSPECTION IS NOT REQUIRED FOR WOOD SHEAR WALLS, SHEAR PANELS AND DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING AND OTHER FASTENING TO OTHER COMPONENTS OF THE SEISMIC-FORCE-RESISTING SYSTEM, WHERE THE FASTENER SPACING OF THE SHEATHING IS MORE THAN 4 INCHES ON CENTER (O.C.). INSPECTIONS SHALL BE PERFORMED BEFORE COVERING.

6. CONTRACTORS RESPONSIBLE FOR CONSTRUCTION OF A WIND OR SEISMIC FORCE RESISTING SYSTEM/COMPONENT LISTED IN THIS STATEMENT OF SPECIAL INSPECTION SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE LADBS INSPECTORS AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON SUCH A SYSTEM OR COMPONENT PER SEC 1704.4.

7. WHERE FABRICATION OF MEMBERS AND ASSEMBLIES IS PERFORMED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTION OF THE FABRICATED ITEMS SHALL BE REQUIRED BY THIS SECTION, UNLESS THE FABRICATOR IS REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL BE RESPONSIBLE OF VERIFYING APPROVAL OF FABRICATOR.

INSPECTION SCHEDULE

TYPE OF WORK	CODE REFERENCE	REMARKS	
CONCRETE WORK	CBC TABLE 1705.3		☐ ×
SHOTCRETE WORK	CBC TABLE 1705.3		☐
REINFORCING STEEL	CBC TBL 1705.2.2 1705.3		☐
POST INSTALLED ANCHORS	CBC TABLE 1705.3	SEE ALSO ICC APPROVAL	☐
STRUCTURAL STEEL	CBC 1705.2		☐
STRUCTURAL STEEL WELDING	CBC 1705.2		☐
HIGH STRENGTH BOLTING	CBC 1705.2		☐
MASONRY WORK	CBC 1705.4		☐
HIGH LOAD DIAPHRAGMS	CBC 1705.5.1		☐
STRUCTURAL WOOD	CBC 1705.10.1 & 1705.11.2	SEE NOTE ABOVE	☐
COLD FORMED STEEL	CBC 1705.10.2 & 1705.11.3		☐
DRIVEN DEEP FOUND. ELEMENT	CBC TABLE 1705.7		☐
CAST IN PLACE DEEP FOUND.	CBC TABLE 1705.8		☐
SOIL CONDITION	CBC TABLE 1705.6	SEE SOILS REPORT FOR COMPLIANCE	☐

FOUNDATIONS

1. CONTRACTOR SHALL CONTACT ENGINEER IF EXCAVATIONS REVEAL UNFAVORABLE CONDITIONS. THE SERVICES OF A SOILS ENGINEER AND/OR GEOLOGIST MAY BE REQUIRED.

2. ALL FOOTINGS SHALL BE FOUNDED A MIN OF 24" BELOW THE LOWEST ADJACENT GRADE AND A MINIMUM OF 12" INTO NATIVE SOIL WHICHEVER GOVERNS UNLESS NOTED OTHERWISE.

3. 1500 PSF ALLOWABLE SOIL BEARING PRESSURE WAS USED IN THE DESIGN.

4. EXCAVATION SHALL BE PROPERLY BACKFILLED. ALL FILL SHALL BE COMPACTED TO A MINIMUM OF 90% RELATIVE COMPACTION OF THE MAXIMUM DENISTY AS DETERMINED BY THE LATEST VERSION ON ASTM D1557. FILL TYPES WITH 15% FINER THAN 0.005MM SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY.

5. REMOVE ABANDONED FOOTINGS, UTILITIES, ETC. WHICH INTERFERE WITH NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED.

6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, UNDERPINNING AND PROTECTION OF EXISTING CONSTRUCTION.

7. LOCATE AND PROTECT EXISTING UTILITIES TO REMAIN DURING AND/OR AFTER CONSTRUCTION.

8. REMOVE LOOSE SOIL AND STANDING WATER FROM FOUNDATION EXCAVATIONS PRIOR TO PLACING CONCRETE.

9. NOTIFY THE OWNER'S REPRESENTATIVE IF ANY BURIED STRUCTURES NOT INDICATED, SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC., ARE FOUND.

CODE

1. BUILDING SHALL COMPLY WITH THE XXXX XXXXX BUILDING CODE.

2. VERTICAL LIVE LOADS:
   A. ROOF XX PSF
   B. FLOORS XX PSF
   C. EGRESS 100 PSF

3. LATERAL LOADS:
   A. WIND:
   ASCE 7-16, § 30.4, H ≤ 60 FT
   BASIC WIND SPEED: 110 MPH
   WIND IMPORTANCE FACTOR, Iw: 1.0
   EXPOSURE TYPE: B
   C&C WALL LOAD: P = ### x (GCp + 0.18) (PSF) (POSITIVE)
   P = ### x (GCp - 0.18) (PSF) (NEGATIVE/SUCTION)
   WHERE GCp IS TO BE DETERMINED BASED ON FIG. 30.3-1 OF ASCE 7-16 AND EFFECTIVE WIND LOAD OF MEMBER BEING DESIGNED
   WIND LOAD "P" ABOVE IS AT STRENGTH LEVEL PER ASCE 7-16
   MIN MAGNITUDE OF "P" SHALL BE 16 PSF (POSITIVE OR NEGATIVE)
   MAGNITUDE OF "P" DOES NOT NEED TO BE TAKEN GREATER THAN ### PSF FOR POSITIVE PRESSURE AND ### PSF FOR NEGATIVE PRESSURE.

   B. SEISMIC:

   EXPECTED INTERSTORY DRIFT FOR EACH STORY IS AS OUTLINED BELOW. ALL NON-STRUCTURAL ELEMENTS OF THE BUILDING INCLUDING BUT NOT LIMITED TO FINISHES, GLAZING, MEP, ETC. SHALL TAKE INTO ACCOUNT THIS PARAMETER.

   - INELASTIC INTERSTORY DRIFT RATIO = 0.02
   - ELASTIC INTERSTORY DRIFT RATIO = CONTACT SEOR

   SITE CLASS: #
   SEISMIC DESIGN CATEGORY: #
   RISK CATEGORY: #
   SEISMIC IMPORTANCE FACTOR, Ie: #
   SS = ###
   S1 = ###
   FA = ##
   FV = ##
   SDS = ###
   SD1 = ####
   R = ## (####)
   ρ = ###
   CS = ####
   EQUIVALENT STATIC FORCE METHOD USED FOR DESIGN.
   V = CS x W

ABBREVIATIONS

ACRONYMS OF ABBREVIATION MAY INTERCHANGEABLY USED WITH OR WITHOUT SEPARATION DOTS (E.G. BOTH AB OR A.B. MEAN "ANCHOR BOLTS")

AB	ANCHOR BOLTS
AR	ANCHOR REINFORCEMENT
ARCH	ARCHITECT OR ARCHITECTURAL
ATR	ALL THREADED ROD
AXO	AXONOMETRIC VIEW
BB	BASE BUILDING
BN	BOUNDARY NAILING
BLLN	BALLOON
BLK'G	BLOCKING
BM	BEAM
BS	BOUNDARY SCREWS
CA	COLUMN ABOVE
CIP	CAST IN PLACE
C&C	COMPONENT AND CLADDING
CF	COLD FORMED
CFS	COLD FORMED STEEL
CJ	CEILING JOIST
CLN	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CPE	CONTINUOUS PANEL EDGES
Da	ANCHOR DIAMETER
Dagg AGGREGATE	NOMINAL MAX SIZE OF COURSE
Db OR db	REBAR DIAMETER
DFL	DOUGLAS FIR-LARCH
DJ	DECK JOISTS
DO	DO OVER
DWG'S	DRAWINGS
E	EXISTING
(E)	EXISTING
EN	EDGE NAILING
EA	EACH
EOR	ENGINEER OF RECORD
ES	EDGE SCREWS
FF&E	FURNITURE FIXTURE AND EQUIPMENT
FJ	FLOOR JOISTS
FN	FIELD NAILING
FRM'G	FRAMING
FTG	FOOTING
FR	FLEXURAL REINFORCEMENT
FRT	FIRE RETARDANT TREATED
FS	FIELD SCREWS
GC	GENERAL CONTRACTOR
GL	GRID LINE
GLB	GLULAM BEAM
Ld	TENSION DEVELOPMENT LENGTH
Ldc	COMPRESSION DEVELOPMENT LENGTH
Ldh	DEVELOPMENT LENGTH OF STD HOOK
Ldt	DEVELOPMENT LENGTH OF HEADED BARS
Lsc	COMPRESSION LAP SPLICE
Lst	TENSION LAP SPLICE
LB	LOAD BEARING
LG	LIGHT GAUGE
LS	LAP SPLICE
LVL	LAMINATED VENEER LUMBER
LW	LIGHT WEIGHT
MAX	MAXIMUM
MB	MACHINE BOLTS
M&M	MEANS AND METHODS
MIN	MINIMUM
N	NEW
(N)	NEW
NLB	NON LOAD BEARING
NSI	NON STRUCTURAL INFRASTRUCTURE
OC	ON CENTER
OBZ	ORDINARY BOUNDARY ZONE
PA	POST ABOVE
PB	POST BELOW
PT	PRESERVATIVE TREATED
P.L.	PLATE/PROPERTY LINE
PLYWD	PLYWOOD
PSL	PARALLAM
RBS	REDUCED BEAM SECTION
REINF	REINFORCEMENT
REQ'D	REQUIRED
RJ	ROOF JOISTS
RR	ROOF RAFTERS
SAD	SEE ARCHITECTURAL DRAWINGS
SBZ	SPECIAL BOUNDARY ZONE
SCL	STRUCTURAL COMPOSITE LUMBER (SAME AS ENGINEERED LUMBER)
SEOR	STRUCTURAL ENGINEER OF RECORD (SAME AS E.O.R.)
SOG	SLAB ON GRADE
SCHED	SCHEDULE
SHT'G	SHEATHING
SIM	SIMILAR
SMD	STEEL METAL DECK
SMS	SHEET METAL SCREWS
SN	SIDE NAILER
SS	SELECT STRUCTURAL
STD	STANDARD
STG	STAGGERED
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TN	TOP NAILER
T&SR REINFORCEMENT	TEMPERATURE & SHRINKAGE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
USP	UNDER SEPARATE PERMIT
VIF	VERIFY IN FIELD
WD	WOOD
WNS	WELDED NELSON STUDS
WTS	WELDED THREADED STUDS
WSP	WOOD STRUCTURAL PANEL
@ CENTER	FOLLOWED BY NUMBER IS THE SPACING ON
ARE IMPLIED	IN NO OTHER UNITS ARE SPECIFIED INCHES

GENERAL

1. ALL NEW CONSTRUCTION SHALL COMPLY WITH THE CONTRACT DOCUMENTS AND THE CALIFORNIA BUILDING CODE / LOS ANGELES BUILDING CODE.

2. REFERENCE TO CODES, RULES, REGULATIONS, STANDARDS, MANUFACTURER'S INSTRUCTIONS OR REQUIREMENTS OF REGULATORY AGENCIES ARE TO THE LATEST PRINTED EDITION OF EACH IN EFFECT AT THE DATE OF SUBMISSION OF BID UNLESS THE DOCUMENT DATE IS SHOWN.

3. TYPICAL DETAILS AND GENERAL NOTES APPLY TO ALL PARTS OF THE WORK EXCEPT WHERE SPECIFICALLY DETAILED OR UNLESS NOTED OTHERWISE (U.N.O.)

4. THE STRUCTURAL DRAWINGS ILLUSTRATE THE NEW STRUCTURAL MEMBERS. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR NON-STRUCTURAL ITEMS WHICH REQUIRE SPECIAL PROVISIONS DURING THE CONSTRUCTION OF THE STRUCTURAL MEMBERS.

5. REFER TO ARCHITECTURAL DRAWINGS FOR FLOOR DEPRESSIONS, EDGE OF SLAB, OPENINGS, SLOPES, DRAINS, CURBS, PADS, EMBEDDED ITEMS, NON-BEARING PARTITIONS, ETC. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR SLEEVES, OPENINGS, AND HANGERS FOR PIPES, DUCTS AND EQUIPMENT.

6. DRAWING DIMENSIONS ARE TO FACE OF STRUCTURE, JOINT CENTERLINE OR COLUMN GRID CENTERLINE UNLESS NOTED OTHERWISE. DO NOT SCALE THE DRAWINGS.

7. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL VERIFY ALL DIMENSIONS AND CONDITIONS WHICH IMPACT THE WORK, FIELD VERIFY SIZES, ELEVATIONS, HOLE LOCATIONS, ETC. PRIOR TO FABRICATION. THE LANGUAGE "BY OTHERS" USED IN THIS STRUCTURAL DRAWING SET INDICATES ELEMENTS OR PARTS OF WORK NOT WITHIN SEOR SCOPE AND SHOWN OR REFERENCED FOR EASE OF COORDINATION ONLY. SUCH LANGUAGE SHALL NOT IMPLY THAT SUCH ELEMENTS OR PARTS OF WORK ARE EXCLUDED FROM THE CONTRACTOR'S SCOPE OF WORK.

8. CONTRACTOR SHALL CAREFULLY REVIEW THE DRAWINGS TO IDENTIFY THE SCOPE OF WORK REQUIRED, VISIT THE SITE TO RELATE THE SCOPE OF WORK TO EXISTING CONDITIONS AND DETERMINE THE EXTENT TO WHICH THOSE CONDITIONS AND PHYSICAL SURROUNDINGS WILL IMPACT THE WORK.

9. EXISTING CONDITIONS AS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY. CONTRACTOR IS REQUIRED TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPORT CONDITIONS THAT CONFLICT WITH THE CONTRACT DOCUMENTS TO THE OWNER'S REPRESENTATIVE. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE OWNER'S REPRESENTATIVE.

10. THE CONTRACTOR SHALL RESOLVE ANY CONFLICTS ON THE DRAWINGS OR IN THE SPECIFICATIONS WITH THE OWNER'S REPRESENTATIVE BEFORE PROCEEDING WITH THE WORK.

11. ANY DEVIATION, MODIFICATION & SUBSTITUTION FROM THE APPROVED SET OF STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW/APPROVAL PRIOR TO ITS USE OR INCLUSION ON THE SHOP DRAWINGS & PRIOR TO PROCEEDING WITH THE WORK.

12. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY CONCRETE FORMWORK SHORING/RE-SHORING, EXCAVATION SHORING, DEMOLITION SHORING, BRACES, GUYS, HOIST BEAMS, ETC., REQUIRED TO SUPPORT ANY AND ALL LOADS THE BUILDING STRUCTURE AND COMPONENTS, EARTHWORK, OTHER STRUCTURES, AND UTILITIES ARE SUBJECTED TO DURING CONSTRUCTION. CONCRETE FORMWORK/CONCRETE RE-SHORING, DEMOLITION, AND EXCAVATION SHORING SYSTEMS MUST BE DESIGNED AND STAMPED BY A CIVIL OR STRUCTURAL ENGINEER LICENSED BY THE LOCAL JURISDICTION AND RETAINED BY THE CONTRACTOR. VISITS TO THE SITE BY SEOR DOES NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.

13. THE CONTRACTOR SHALL PROVIDE MEANS, METHOD, TECHNIQUES, SEQUENCE AND PROCEDURE OF CONSTRUCTION AS REQUIRED. SITE VISITS PERFORMED BY SEOR DO NOT INCLUDE INSPECTIONS OF MEANS AND METHODS OF CONSTRUCTION PERFORMED BY THE CONTRACTOR.

14. THE CONTRACTOR SHALL PROTECT ALL WORK, MATERIALS AND EQUIPMENT FROM DAMAGE AND SHALL PROVIDE PROPER STORAGE FACILITIES FOR MATERIALS AND EQUIPMENT DURING CONSTRUCTION.

15. A COPY OF ANY REQUIRED LOS ANGELES RESEARCH REPORT AND/OR CONDITIONS OF LISTING SHALL BE MADE AVAILABLE AT THE JOB SITE.

16. ATTACHMENT OF NON-STRUCTURAL COMPONENTS SPECIFIED BY OTHERS TO STRUCTURAL ELEMENTS SHALL BE SPECIFIED BY THE NON-STRUCTURAL COMPONENT DESIGNER/SPECIFIER/INSTALLER. DESIGNER OF NON-STRUCTURAL ELEMENTS SHALL AT A MINIMUM SPECIFY THE CONNECTION TO THE STRUCTURE INCLUDING BUT NOT LIMITED TO: ANY TYPE OF CONNECTING HARDWARE, WIRE, HANGERS, FASTENERS, CLIPS, UNISTRUT MEMBERS. ATTACHMENT AND BRACING OF NON STRUCTURAL COMPONENTS SHALL MEET THE APPLICABLE BUILDING CODES. NON STRUCTURAL ELEMENTS SHALL INCLUDE, BUT NOT LIMITED TO: MEP AND HVAC EQUIPMENT & THEIR SUPPORTING PADS, INDUSTRIAL KITCHEN EQUIPMENT, PLATFORMS, FRAMES, ETC.; DUCTWORK, PIPES, CONDUITS, ARTWORK, GRILLES, GRATING, METAL SCREENS, ELEVATOR RAILS, STONE FINISH TILES, STONE CAPS, BRICK VENEER.

17. SPECIFICATIONS RELATED TO WATERPROOFING, INCLUDING BUT NOT LIMITED TO MEMBRANES, WATERSTOPS, SEALANTS, FLASHING, VAPOR BARRIER, ARE AS SPECIFIED BY ARCHITECT/WATER PROOFING CONSULTANT, AND ARE EXCLUDED FROM SEOR SCOPE.

18. GENERAL CONTRACTORS AND SUBCONTRACTORS SHALL REVIEW AND PROVIDE APPROVAL STAMP FOR ALL STRUCTURAL SHOP DRAWINGS AND SUBMITTALS PRIOR TO SUBMITTING TO SEOR

19. ALLOW 10 BUSINESS DAYS FOR PROCESSING SHOP DRAWINGS AND SUBMITTALS AFTER RECEIPT. ALLOW 5 BUSINESS DAYS FOR RESPONDING TO REQUESTS FOR INFORMATION (RFI'S). PROVIDE 3 BUSINESS DAYS NOTICE FOR STRUCTURAL OBSERVATIONS.

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

LFA Labib Funk + Associates Structural | Shoring | Civil | EBM

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

N

DRAWING TITLE:
GENERAL NOTES

DRAWING NUMBER:
S-001

MECHANICAL AND ADHESIVE ANCHORS

1. ADHESIVE ANCHORS AND DOWELS INSTALLED INTO CONCRETE:
   A. "SET-XP" BY SIMPSON STRONG TIE (COLA RR#25744, ESR#2508)
   B. "HIT-HY 200" BY HILTI, INC. (COLA RR#25964, ESR#3187)
   C. "HIT-RE 500 V3" BY HILTI, INC. (COLA RR#26028, ESR#3814)
   D. "PURE110+" BY DEWALT (COLA RR#26035, ESR#3296)

2. ADHESIVE ANCHORS AND DOWELS INSTALLED INTO GROUT-FILLED MASONRY UNITS:
   A. "SET-XP" BY SIMPSON STRONG TIE (COLA RR#25965, IAPMO ER#265)
   B. "AC100+GOLD" BY DEWALT (COLA RR#26049, ESR#3200)

3. ADHESIVE ANCHORS AND DOWELS INSTALLED INTO UNREINFORCED BRICK MASONRY (URM):
   A. "EPOXY-TIE ET-HP" BY SIMPSON STRONG TIE, IN CITY OF LOS ANGELES ONLY (COLA RR#25120)
   B. "EPOXY-TIE SET" BY SIMPSON STRONG TIE, NOT IN CITY OF LOS ANGELES (ESR#1772)
   C. "AC100+GOLD" BY DEWALT (ESR#4105)

4. MECHANICAL ANCHORS INSTALLED INTO CONCRETE:
   A. "STRONG BOLT2" BY SIMPSON STRONG-TIE (COLA RR#25891, ESR#3037)
   B. "KWIK BOLT 3" BY HILTI, INC. NOT IN CITY OF LOS ANGELES (ESR#2302)
   C. "KWIK BOLT TZ" BY HILTI, INC. (COLA RR#25701, ESR#1917)
   D. "POWER-STUD+SD2" BY DEWALT (COLA RR#26035, ESR#2502)

5. MECHANICAL ANCHORS INSTALLED INTO GROUT-FILLED MASONRY UNITS:
   A. "STRONG BOLT 2" BY SIMPSON STRONG-TIE (COLA RR#25936, IAPMO#240)
   B. "POWER-STUD+SD1" BY DEWALT (COLA RR#25864, ESR#2966)

6. ADHESIVE ANCHORS: ASTM A36 THREADED RODS WITH ASTM A 563 GRADE A NUTS AND ANSI B18.22.1 TYPE A WASHERS, UNLESS OTHERWISE NOTED. ANCHORS DESIGNATED AS ASTM A193 GRADE B7 THREADED RODS TO USE ASTM A 563 GRADE DH HEAVY HEX NUTS AND ASTM F 436 WASHERS.

7. ADHESIVE DOWELS: ASTM A615 GRADE 60 REINFORCING STEEL.

8. ALL ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ICC-ES REPORT AND COLA REPORT AND MANUFACTURERS RECOMMENDATIONS.

9.

10. UNLESS OTHERWISE NOTED, PROVIDE MINIMUM EMBEDMENT OF ANCHORS PER ICC-ES REPORT, COLA REPORTS & MANUFACTURERS RECOMMENDATIONS.

11. CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL OR ADHESIVE ANCHORS. AT CONTRACTOR OPTION, OVERSIZED HOLES AND WELDED PLATE WASHERS CAN BE USED IN LIEU OF STANDARD DIAMETER HOLES. SIZE & WELD

12. PRIOR TO ALL DRILLING OR CORING, THE CONTRACTOR SHALL (1) VERIFY THE EXISTING CONCRETE OR MASONRY THICKNESS TO PREVENT DAMAGE TO THE OPPOSITE FACE OF CONCRETE AND MAINTAIN 1-1/2" CLEAR COVER U.N.O., AND (2) IDENTIFY EXISTING REINFORCING LOCATIONS BY PACHOMETER, PROBING, CHIPPING, ETC. TO AVOID DAMAGE EXISTING REINFORCING.

13. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.

14. ANCHORS SHALL BE PROOF-TESTED BY OWNER'S TESTING AND INSPECTION AGENCY. TEST 20% OF ALL ANCHORS.

15. TEST ANCHORS NO SOONER THAN 24 HOURS AFTER INSTALLATION.

16. APPLY TEST LOAD BY ANY METHOD THAT WILL EFFECTIVELY MEASURE THE TENSION ON THE ANCHOR SUCH AS DIRECT PULL WITH A HYDRAULIC JACK, TORQUE WRENCH, OR CALIBRATED SPRING-LOADING DEVICES, ETC.

17. ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE OR GROUT HAVING A MINIMUM AGE OF 21 DAYS AT THE TIME OF ANCHOR INSTALLATION.

18. ALLOW FOR CURING TIME PER MANUFACTURER RECOMMENDATIONS PRIOR TO POURING FRESH CONCRETE AGAINST DRILL AND EPOXY ELEMENTS.

19. FOR EXTERIOR AND FOR EXPOSED APPLICATIONS PROVIDE HOT DIP GALVANIZED OR STAINLESS STEEL ANCHORS.

STRUCTURAL SCOPE - BID

1. THE FRAMING AND OTHER STRUCTURAL ELEMENTS SPECIFIED IN THESE PLANS REPRESENT STRUCTURAL FRAMING OF THE MAIN STRUCTURE.

2. AN APPROPRIATE ALLOWANCE SHALL BE PLANNED FOR AND PROVIDED TO ALLOW FOR ADDITIONAL MISCELLANEOUS FRAMING/BLOCKING, NOT PART OF THE MAIN STRUCTURE, AS REQUIRED FOR SUPPORT OF NON STRUCTURAL ELEMENTS SUCH AS, BUT NOT LIMITED TO, SUSPENDED CEILINGS, SOFFITS, COVES, ARCHITECTURAL FURRING AND BLOCKING, MECHANICAL DUCT WORK AND EQUIPMENT, ELECTRICAL FIXTURES & ROUTING, PLUMBING CHASES, SPRINKLERS, AND OTHER RELATED NONSTRUCTURAL ELEMENTS. CONSULT AND COORDINATE WITH ARCHITECTURAL DRAWINGS AND MECHANICAL, ELECTRICAL, & PLUMBING DRAWINGS (OR MEP DESIGN-BUILD CONTRACTOR OR SUBCONTRACTORS) FOR SPECIFIC GUIDANCE IN THIS REGARD.

3. FRAMING LAYOUT AND OTHER STRUCTURAL ELEMENTS TO BE COORDINATED WITH AND ALIGNED TO / PROVIDE FOR APPROPRIATE ALIGNMENT WITH NON STRUCTURAL ELEMENTS PER PREVIOUS PARAGRAPH. CONSULT AND COORDINATE WITH ARCHITECTURAL DRAWINGS AND MECHANICAL, ELECTRICAL, & PLUMBING DRAWINGS (OR MEP DESIGN-BUILD CONTRACTOR OR SUBCONTRACTORS) FOR SPECIFIC GUIDANCE IN THIS REGARD.

4. THESE DRAWINGS ARE NOT MEANT AS A BID SET UNLESS SPECIFICALLY INDICATED IN THE SUBMITTAL ISSUANCE NAME AS "BID SET". PLEASE CONFIRM WITH SEOR PRIOR TO USING THESE DRAWINGS AS A BID SET.

5. STRUCTURAL ITEMS THAT ARE TO BE CONTRACTOR DESIGNED AND BUILT ARE PER THE DEFERRED SUBMITTAL LIST ON STRUCTURAL AND/OR ARCHITECTURAL DRAWINGS.

6. THE FOLLOWING ITEMS ARE EXAMPLES OF ITEMS THAT ARE NOT INCLUDED IN THE DRAWINGS AND SHALL BE ESTIMATED AND PROVIDED BY THE CONTRACTOR BASED ON OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS:

   A. MEP ANCHORAGE
   B. FIRE SPRINKLERS
   C. ELEVATORS MISC. STEEL
   D. FACADE ATTACHMENT
   E. LANDSCAPE ELEMENTS
   F. MONUMENTS AND ARTWORK
   G. SIGNAGE
   H. POOL SHELL AND EQUIPMENT ANCHORAGE
   I. CABLE SYSTEMS
   J. MISC. METAL SHOWN IN CONSULTANTS' DRAWINGS OR REQUIRED FOR ATTACHMENTS OF THEIR COMPONENTS.
   K. GUARD RAIL INFILLS
   L. GLAZING AND ATTACHMENT
   M. STOREFRONT OR CURTAIN WALL
   N. ALL ALUMINUM
   O. INTERIOR AND DECORATIVE ELEMENT ATTACHMENTS
   P. FFE BACKING OR ATTACHMENTS.
   Q. AWNINGS

SHOTCRETE

1. SHOTCRETE MAY BE USED IN LIEU OF POURED-IN-PLACE CONCRETE IN LOCATIONS WHERE ALL OF THE FOLLOWING CONDITIONS ARE MET:
   A. SHOTCRETE CONSTRUCTION COMPLIES WITH ALL REQUIREMENTS OF THE 2019 CALIFORNIA BUILDING CODE (2020 LOS ANGELES BUILDING CODE FOR PROJECTS WITHIN LOS ANGELES JURISDICTION)
   B. NON-CONTACT LAP SPLICES ARE PROVIDED
   C. REINFORCEMENT SIZE AND SPACING AS SHOWN ON THE DRAWINGS COMPLIES WITH ACI/CBC REQUIREMENTS FOR SHOTCRETE
   D. REBAR SIZE IS LIMITED TO:
      - #5 IN CITY OF LA. GC MAY APPLY FOR CODE MODIFICATION TO OBTAIN PERMIT TO USE LARGER DIAMETERS
      - #8 IN ALL OTHER CASES
   E. REPRESENTATIVE MOCK UP PANELS ARE SHOT, DISASSEMBLED AND APPROVED FOR STRUCTURAL QUALITY PRIOR TO CONCRETE PLACEMENT ON THE BUILDING
   F. REPRESENTATIVE PANELS ARE SHOT AND APPROVED FOR ARCHITECTURAL FINISH QUALITY COMPARABLE TO POURED-IN-PLACE CONCRETE PRIOR TO CONCRETE PLACEMENT
   G. MEETS ALL REQUIREMENTS OUTLINED IN THE SPECIFICATIONS.

2. MIX DESIGN AND PLACEMENT OF SHOTCRETE TO BE OF SAME OR HIGHER QUALITY AND STRENGTH AS CONVENTIONALLY FORMED AND PLACED REINFORCED CONCRETE. ALL MATERIALS SHALL MEET REQUIREMENTS OF ASTM C 1436.

3. ALL THE REQUIREMENTS OF CALIFORNIA BUILDING CODE SECTION 1913 & 1924 FOR WET MIX SHOTCRETE (SEE BELOW) AND ACI 506R-05 SHALL BE FOLLOWED FOR SHOTCRETE WORK, INCLUDING BUT NOT LIMITED TO PLACEMENT OF REINFORCING STEEL, TEST PANEL REQUIREMENTS AND CORES.

4. REINFORCING STEEL SHALL BE SECURELY TIED IN PLACE IN A MANNER THAT PREVENTS MOVEMENT DURING THE WET MIX SHOTCRETE APPLICATION.

5. THE HEIGHT OF A LAYER SHALL BE LIMITED TO NOT MORE THAN THREE FEET AND A SUCCEEDING LAYER SHALL NOT BE PLACED IN LESS THAN THREE HOURS. NO SLOUGHING OR SAGGING SHALL BE PERMITTED.

6. SLUMP SHALL BE 2" (+ OR - 1/2") AND SHALL BE MEASURED AT THE POINT OF DISCHARGE FROM THE MIXER (EXCEPT THE BUILDING INSPECTOR MAY REQUIRE SLUMP TESTS AT THE DISCHARGE POINT WHERE WATER MAY HAVE BEEN ADDED).

7. A CAPABLE NOZZLEMAN'S HELPER WITH AN AIR BLOW PIPE SHALL BE PROVIDED TO ASSIST THE NOZZLEMAN IN KEEPING ALL REBOUND BUILD-UP OUT OF THE WORK ADDITIONAL WORKERS MAY BE REQUIRED TO TAKE THE REBOUND FROM THE WORK IF THE REBOUND CANNOT BE REMOVED BY THE AIR BLOW PIPE.

8. THE CONTRACTOR SHALL AGREE TO PROVIDE A DESIGNATED LIAISON BETWEEN HIS CREW, THE TESTING AGENCY AND THE BUILDING INSPECTOR. ONE DEPUTY SHALL BE ASSIGNED TO EACH NOZZLE.

9. SPECIAL PLACEMENT METHODS SHALL BE USED BEHIND STEEL EMBEDDED PLATES, KEYWAYS, ETC. FOR PROPER CONSOLIDATION AND ELIMINATION OF ANY VOIDS OR AIR POCKETS. NO KEYWAYS OR EMBEDMENTS SHALL BE PLACED IN THE FRONT FACE THAT WILL INTERFERE WITH THE STREAM FROM THE NOZZLE.

10. A COPY OF THE LOS ANGELES INFORMATION BULLETIN/PUBLIC BUILDING CODE AND/OR CONDITIONS OF LISTING SHALL BE MADE AVAILABLE AT THE JOB SITE. DOCUMENT NO. P/BC 2014-051.

11. STRENGTH TEST PANELS SHALL BE MADE IN ACCORDANCE WITH LABC SECTION 1924.10, ITEM 2. PREPARE AND TEST SPECIMENS IN COMPLIANCE WITH ASTM C 39 AND ASTM C 42. LOCATION OF SAMPLES WILL BE DESIGNATED BY THE ARCHITECT. SIZE SHALL BE 4 IN. IN DIAMETER. SEE SPECIFICATIONS FOR ADDITIONAL TESTING REQUIREMENTS AND PROCEDURES.

12. A 4'x4' MOCK-UP PANEL SHALL BE SHOT, CURED, CORED, AND TESTED PRIOR TO COMMENCEMENT OF THE PROJECT. THE MOCK-UP PANEL SHALL BE REPRESENTATIVE OF THE PROJECT AND SIMULATE JOB CONDITIONS AS CLOSELY AS POSSIBLE. THE PANEL THICKNESS AND REINFORCING SHALL REPRODUCE THE THICKEST AND MOST CONGESTED AREA IN THE STRUCTURAL DESIGN. IT SHALL BE SHOT AT THE SAME ANGLE, USING THE SAME NOZZLEMAN AND WITH THE SAME CONCRETE MIX DESIGN THAT WILL BE USED ON THE PROJECT.

13. SHOTCRETE REQUIRES CONTINUOUS INSPECTION BY A REGISTERED DEPUTY INSPECTOR. CONTINUOUS INSPECTIONS SHALL BE PROVIDED FOR THE PLACEMENT OF ALL REINFORCING, THE PLACEMENT OF SHOTCRETE, AND THE ASSEMBLY, SHOOTING, TESTING, AND DISASSEMBLY OF TEST PANELS.

14. THE SHOTCRETE SUBCONTRACTOR SHALL PRESENT, UPON THE REQUEST OF A DEPARTMENT OF BUILDING AND SAFETY INSPECTOR, A "STATEMENT OF QUALIFICATIONS" SIGNED BY AN OFFICER OF THE SUBCONTRACTOR CORPORATIONS. BOTH THE SPECIFICATION AND STATEMENT SHALL INCLUDE, BUT NOT NECESSARILY BE LIMITED TO, THE FOLLOWING:
   A. THE DURATION AND TYPE OF STRUCTURAL SHOTCRETE EXPERIENCE (NOT INCLUDING SWIMMING POOLS) OF THE NOZZLEMAN, THE SUBCONTRACTING COMPANY, THE SUPERINTENDENT, AND HELPER.

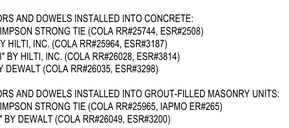
   B. THE SUBCONTRACTOR'S LISTED EXPERIENCE SHALL REFERENCE SPECIFIC PROJECTS APPROVED IN THE CITY OF LOS ANGELES.

DEFERRED SUBMITTAL

1. THE FOLLOWING ITEMS SHALL BE CONSIDERED AS DEFERRED SUBMITTAL. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ENGINEERED SHOP DRAWINGS FROM THE SPECIALTY SUBCONTRACTOR PREPARED UNDER THE DIRECT SUPERVISION OF A CALIFORNIA LICENSED ENGINEER. THESE SHOP DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT, ENGINEER, AND BUILDING DEPARTMENT OF AUTHORITY OF JURISDICTION FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. THESE ITEMS SHALL INCLUDE:

   A. STEEL STAIRS
   B. GRATING NOT SPEC'D ON PLAN
   C. POOLS AND SPAS
   D. EXTERIOR BUILDING MAINTENANCE SYSTEMS
   E. CURTAINWALL OR STOREFRONT SYSTEMS
   F. LIGHT GAGE METALS
   G. ROOF EQUIPMENT ANCHORAGE
   H. GLAZING INCLUDING GLASS GUARDRAILS
   I. CABLE RAIL SYSTEMS
   J. TRUSSES
   K. ELEVATORS
   L. AWNINGS
   M. MICROPILES
   N. TIEDOWNS
   O. TENDONS IN POST TENSIONED DESIGN. PROVIDE SHOP DRAWINGS OF TENDON LAYOUT AND CALCULATIONS

REINFORCEMENT



1. ALL REINFORCING BARS SHALL CONFORM TO ASTM A-615, GRADE 60, UNLESS NOTED OTHERWISE ON THE DRAWINGS AND BELOW:

   A. SPIRALS SHALL BE COLD DRAWN BARS CONFORMING TO ASTM A-82.
   B. FOR SLABS AND FOUNDATIONS A HIGHER GRADE THAN GRADE 60 MAY BE PROVIDED AT CONTRACTOR'S OPTION AND AT NO ADDITIONAL COST TO THE CLIENT, PROVIDED THAT REBAR SIZE AND SPACING SHALL NOT BE ALTERED. IF ALTERATION TO REBAR SIZE AND SPACING IS SOUGHT, THESE MUST BE APPROVED IN WRITING BY SEOR. ENGINEERING AND PERMITTING FEES SHALL BE PAID BY CONTRACTOR WITHOUT ADDITIONAL COST TO THE CLIENT.
   C. MOMENT FRAME LONGITUDINAL REBAR, COLUMN LONGITUDINAL REBAR, SHEAR WALL VERTICAL REBAR, AND COUPLING BEAM LONGITUDINAL REBAR SHALL BE ASTM A-706, GRADE 60. ASTM A-615, GRADE 60 REINFORCEMENT SHALL BE PERMITTED IN THESE STRUCTURAL ELEMENTS PROVIDED THE FOLLOWING CONDITIONS ARE MET:

      a. THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS DOES NOT EXCEED THE SPECIFIED YIELD STRENGTH BY MORE THAN 18,000 PSI.
      b. THE MINIMUM ELONGATION IN 8 INCHES SHALL BE AS FOLLOWS:
         - NO.3 THROUGH NO.6 = 14 PERCENT
         - NO.7 THROUGH NO.11 = 12 PERCENT
         - NO.14 THROUGH NO.18 = 10 PERCENT

   D. SMOOTH DOWELS IN SLAB ON GRADE: ASTM A36, 36 KSI

2. WELDING OF REINFORCEMENT (INCLUDING TACK WELDING) SHALL NOT BE DONE UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS. WHERE SHOWN ON THE DRAWINGS, THE FOLLOWING SHALL APPLY:

   A. WELDED REBAR SHALL COMPLY WITH ASTM A-706 [Fy=60 KSI]
   B. WELDING SHALL CONFORM TO AWS D1.4
   C. WELDING OF REINFORCING STEEL SHALL BE PERFORMED BY WELDERS CERTIFIED BY THE CITY OF LA
   D. USE E90XX ELECTRODES

3. WELDED WIRE FABRIC SHALL BE MADE OF COLD DRAWN WIRE AND SHALL CONFORM TO ASTM A-185 [Fy=65 KSI]. MINIMUM LAP AT SPLICES OF 12 INCHES. PROVIDE MESH IN FLAT SHEETS ONLY. ROLLED MESH IS NOT ACCEPTABLE. OFFSET END-LAPS IN ADJACENT SHEETS TO PREVENT CONTINUOUS LAPS.

4. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER. SEE ACI FOR TOLERANCES:

   A. CONCRETE PILES 2 1/2"
   B. CONCRETE POURED AGAINST EARTH (OTHER THAN PILES) 3"
   C. CONCRETE NOT FORMED IN CONTACT WITH EARTH 3"
   D. FORMED CONCRETE IN CONTACT WITH EARTH 2"
   E. CONCRETE EXPOSED TO WEATHER (#6 AND LARGER) 2"
   F. CONCRETE EXPOSED TO WEATHER (#5 AND SMALLER) 1-1/2"
   G. SLABS (INCLUDING SLAB SUPPORTING EARTH), WALLS, AND JOISTS NOT EXPOSED TO WEATHER (#11 AND SMALLER) 1"
   H. OTHER CONCRETE NOT EXPOSED TO WEATHER 1-1/2"

5. #5 AND LARGER REINFORCING BARS SHALL NOT BE SPLICED EXCEPT AS LOCATED AND DETAILED ON THE DRAWINGS. #4 AND SMALLER BARS WITH LENGTHS NOT SHOWN SHALL BE CONTINUOUS. PROVIDE CLASS 'B' SPLICE UNLESS NOTED OTHERWISE. ALL BARS IN MASONRY SHALL BE CONTINUOUS, LAPPING 48 BAR DIAMETERS, 2'-0" MINIMUM. HORIZONTAL WALL SPLICES SHALL BE STAGGERED. VERTICAL BARS SHALL NOT BE SPLICED EXCEPT AT HORIZONTAL SUPPORTS, SUCH AS FLOOR OR ROOF, UNLESS DETAILED OTHERWISE. ALL BARS ENDING AT THE FACE OF A WALL, COLUMN, OR BEAM SHALL EXTEND TO WITHIN 2" OF THE FAR FACE AND HAVE A 90 DEGREE HOOK, UNLESS OTHERWISE SHOWN.

6. BARS SHALL BE FIRMLY SUPPORTED AND ACCURATELY PLACED AS REQUIRED BY THE ACI STANDARDS, USING TIE AND SUPPORT BARS IN ADDITION TO REINFORCEMENT SHOWN WHERE NECESSARY FOR FIRM AND ACCURATE PLACING. PROVIDE DOWELS TO MATCH ALL REINFORCEMENT AT POUR JOINTS, UNLESS SHOWN OR NOTED OTHERWISE. ALL DOWELS AND BOLTS SHALL BE ACCURATELY SET IN PLACE BEFORE PLACING CONCRETE. NO WELDING OF REINFORCEMENT (INCLUDING TACK WELDING) SHALL BE DONE UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. ALL SLAB AND BEAM REINFORCEMENT SHALL BE CHAIRED UP.

7. IN WALL REINFORCING, CURTAINS CONTAINING VERTICAL AND HORIZONTAL BARS OF THE SAME SIZE, VERTICAL BARS SHALL BE PLACED CLOSEST TO THE WALL SURFACE. IN CURTAINS WHICH VERTICAL AND HORIZONTAL BARS ARE OF DIFFERENT SIZES OR SPACING, THE LAYER WITH THE MOST STEEL SHALL BE PLACED CLOSEST TO THE NEAR SURFACE, UNLESS NOTED OTHERWISE ON PLAN.

8. ALL BARS INTERRUPTED BY STRUCTURAL STEEL SHALL EXTEND TO WITHIN 1" OF STRUCTURAL STEEL FLANGE OR WEB AND HAVE A 90 DEGREE HOOK, UNLESS OTHERWISE SHOWN.

9. DRAWINGS SHOW TYPICAL REINFORCING CONDITIONS. CONTRACTOR SHALL PREPARE DETAILED PLACEMENT DRAWINGS OF ALL CONDITIONS SHOWING QUANTITY, SPACING, SIZES, CLEARANCES, LAPS, INTERSECTIONS, AND COVERAGE REQUIRED BY THE STRUCTURAL DETAILS, APPLICABLE CODE, AND TRADE STANDARDS. CONTRACTOR SHALL NOTIFY REINFORCING INSPECTOR OF ANY ADJUSTMENTS FROM TYPICAL CONDITIONS WHICH ARE PROPOSED IN PLACEMENT DRAWINGS TO FACILITATE FIELD PLACEMENT OF REINFORCING STEEL AND CONCRETE.

10. ALL PRINCIPAL REBAR SHALL TERMINATE WITH A STANDARD HOOK MINIMUM UNLESS SPECIFICALLY DETAILED OTHERWISE. REBAR BENDS SHALL BE MADE COLD. REBAR SHALL NOT BE BENT AFTER ANY PORTION OF THE BAR IS ENCASED IN CONCRETE.

11. ALL LAP SPLICES ARE CLASS 'B' LAP SPLICES UNLESS NOTED OTHERWISE.

12. MECHANICAL COUPLER SHALL BE BAR-LOCK COUPLER SYSTEM (ICC ESR-2495, LARR #25342) FOR GRADE 60 CONFORMING TO ASTM A615 OR ASTM A706 OR LENTON MECHANICAL COUPLERS (ICC ESR-0129 LARR #24507) FOR GRADE 60, 75 CONFORMING TO ASTM A615 OR APPROVED EQUAL.

13. ALL WALL FOOTING REINFORCEMENT SHALL BEND AROUND ALL CORNERS AND EXTEND 36 BAR DIAMETERS OR 18 INCHES WHICHEVER IS LARGER. UNLESS NOTED OTHERWISE.

14. ALL SLABS ON GRADE LESS THAN 6" IN THICKNESS SHALL BE REINFORCED WITH #4 REBARS AT 16 INCHES ON CENTERS EACH WAY, UNLESS NOTED OTHERWISE. PROVIDE ONE (1) LAYER OF 6X6/W2.9XW2.9 WELDED WIRE FABRIC CONTINUOUS FOR EVERY 3" ARCHITECTURAL CONCRETE FILLS ABOVE THE STRUCTURAL SLAB.

15. ALL MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT PADS LESS THAN 4" THICK SHALL BE REINFORCED WITH AT LEAST ONE (1) LAYER OF 6X6/W2.9XW2.9 WELDED WIRE FABRIC AND HAVE HOOKED DOWELS (#3 AT 12' ON CENTERS) INTO THE STRUCTURAL SLAB. UNLESS NOTED OTHERWISE. FOR PADS GREATER THAN 4 INCHES THICK, USE REINFORCING AS SHOWN IN THE TYPICAL DETAILS.

16. ADDITIONAL REINFORCEMENT SHALL BE PROVIDED AROUND ALL SLAB AND WALL OPENINGS INCLUDING DIAGONAL BARS WITHOUT EXCEPTION.

17. ALL STRUCTURAL CONCRETE ELEMENTS REQUIRE REINFORCEMENT SINCE NO PLAIN CONCRETE ELEMENTS ARE USED. ALL CONCRETE SLABS SHALL HAVE A MINIMUM REINFORCEMENT PERCENTAGE OF 0.18 EACH WAY CONTINUOUS.

18. REINFORCING STEEL SHOP DRAWINGS SHALL INCLUDE SLAB OPENINGS, DEPRESSIONS, SLOPES, CURBS, DRAINS, AND SLAB EDGE LOCATIONS FROM ALL MEP TRADES. GENERAL CONTRACTOR IS RESPONSIBLE TO COORDINATE AND INDICATE ALL SLAB OPENINGS ON PLAN AND SUBMIT TO THE STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF REINFORCING SHOP DRAWINGS.

19. CONTRACTOR SHALL FURNISH MISCELLANEOUS REBAR IN ADDITION TO THE REBAR SPECIFIED ON THE STRUCTURAL DRAWINGS, WHICH SHALL BE INSTALLED AT EOR'S DISCRETION DURING CONSTRUCTION. THE AMOUNT OF ADDITIONAL REBAR SHALL BE 5 TONS OR 2% OF THE REBAR WEIGHT SPECIFIED PER STRUCTURAL DRAWINGS, WHICHEVER IS GREATER.

CONCRETE

1. CONCRETE IS REINFORCED AND CAST-IN-PLACE UNLESS OTHERWISE NOTED. WHERE REINFORCING IS NOT SPECIFICALLY SHOWN OR WHERE DETAILS ARE NOT GIVEN, PROVIDE REINFORCING SIMILAR TO THAT SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.

2. ALL PHASES OF WORK PERTAINING TO THE CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", AND THE LATEST EDITION OF ACI 117 "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"

3. CONCRETE MIXES SHALL MEET FOLLOWING SPECIFICATIONS:

CONCRETE MIX SPECIFICATIONS

LOCATION	WEIGHT	f'c @ 28 DAYS (PSI)	W/C	SLUMP (IN)	LARGEST Dagg (IN)	ALLOWABLE FLYASH	MAX SHRNK @ 28 DAYS
ALL LOCATIONS UNO	NORMAL	4,000	0.50	4	1	15%	0.045%
####	####	####	####	#	#	#	#

(*) ELEVATED SLAB SHALL ALSO DEVELOP 5,500 PSI AT 60 DAYS

4. NO MORE THAN ONE GRADE OF CONCRETE SHALL BE ON THE JOB SITE AT ANY ONE TIME.

5. ALL STRUCTURAL CONCRETE MIXES SHALL BE DESIGNED BY AN APPROVED LABORATORY AND SHALL BE STAMPED AND SIGNED BY A CIVIL ENGINEER LICENSED IN CALIFORNIA.

6. CONCRETE MIX PROPORTIONING SHALL MEET STATISTICAL STRENGTH REQUIREMENTS OF ACI 301 AND ACI 214R. MIX DESIGNS SHOWING COMPLIANCE WITH STRENGTH REQUIREMENTS TO BE SUBMITTED TO SEOR FOR REVIEW.

7. CONCRETE STRENGTH TEST REPORTS SHALL BE IN COMPLIANCE WITH ACI 318 AND SHALL BE SUBMITTED TO SEOR

8. CONCRETE MATERIALS AND MIXTURES

   A. MIXES SHALL BE PREPARED WITH TYPE II/V PORTLAND CEMENT CONFORMING TO ASTM C150.

   B. FLY ASH CONFORMING WITH ASTM C618 MAY REPLACE PORTLAND CEMENT CONTENT BY WEIGHT. UNLESS OTHERWISE NOTED ON THE CONCRETE MIX SPECIFICATIONS, REPLACEMENT MAY BE UP TO 15% FOR ELEVATED SLAB OR 25% FOR OTHER CASES. WHERE CONCRETE IS VISUALLY EXPOSED VERIFY WITH THE PROJECT ARCHITECT THE USE OF FLY ASH.

   C. NORMAL WEIGHT CONCRETE AGGREGATES SHALL CONFORM TO ASTM C33. LIGHT WEIGHT CONCRETE AGGREGATES SHALL CONFORM TO ASTM C330. UNLESS OTHERWISE NOTED ON THE CONCRETE MIX SPECIFICATIONS, COARSE AGGREGATE GRADATION SHALL INCLUDE LARGEST AGGREGATE OF 1", EXCEPT THAT A LARGEST SIZE OF 3/8" IS ALLOWED FOR FOUNDATION, COLUMNS, AND WALLS.

   D. WATER USED IN MIXING CONCRETE SHALL CONFORM WITH ASTM C1602.

   E. ADMIXTURES, IF USED, SHALL COMPLY WITH ASTM STANDARDS NOTED ON LATEST EDITION OF ACI 318.

   F. ADDITIVES SPECIFIED BY OTHER CONSULTANT, SUCH AS, BUT NOT LIMITED TO, WATER PROOFING ADDITIVES, PIGMENTS, ETC, SHALL NOT IMPAIR THE EXPECTED STRUCTURAL PERFORMANCE OF THE CONCRETE. SPECIFICATIONS SHALL BE SUBMITTED TO SEOR FOR REVIEW AND APPROVAL

9. THOROUGHLY CLEAN AND ROUGHEN ALL HARDENED CONCRETE AND MASONRY SURFACES TO RECEIVE NEW CONCRETE. INTERFACE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" WITH EXPOSED AGGREGATE UNLESS NOTED OTHERWISE.

10. DEFECTIVE CONCRETE (VOIDS, ROCK POCKETS, HONEYCOMBS, CRACKING, ETC.) SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

11. KEY AND DOWEL POUR JOINTS AS SHOWN ON THE PLANS. ANY DEVIATION FROM POUR JOINTS SHOWN ON THE PLANS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE.

12. WHERE ELEMENTS SUCH AS, BUT NOT LIMITED TO, CONDUITS, PIPES, AND DUCTWORK, ARE TO BE PLACED WITHIN OR THRU CONCRETE MEMBERS, DIRECT CONTACT OF SUCH MEMBERS WITH CONCRETE SHALL BE PREVENTED AS REQUIRED BY DESIGNER/SPECIFIER/SUPPLIER/INSTALLER OF SUCH ELEMENTS, AND AS NEEDED TO COMPLY WITH PLUMBING CODE AND/OR TO AVOID DAMAGE OF SUCH ELEMENTS. TYPICAL MEANS TO AVOID DIRECT CONTACT WITH CONCRETE SUCH AS SLEEVES, LAYERS OF COMPRESSIBLE MATERIALS, AIR GAPS, ETC. SHALL BE SPECIFIED BY, OR OBTAINED BY GC FROM, DESIGNER/SPECIFIER/SUPPLIER/INSTALLER OF SUCH ELEMENTS. REBAR DISPLACED BY SUCH ELEMENTS SHALL BE ARRANGED AS CLOSE AS PRACTICALLY POSSIBLE AROUND THE EMBEDDED ELEMENTS AND SHALL NOT BE INTERRUPTED.

13. NON-SHRINK CEMENT GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 7000 PSI. USE "QUIKRETE" (LARR #25451) OR "RAPID SET" (LARR #24654).

14. WHEN WATER OVER 3" IN DEPTH IS PRESENT IN THE DRILLED PILE HOLES:
   A. A CONCRETE MIX WITH A STRENGTH OF 1,000 PSI GREATER THAN THE SPECIFICATIONS LISTED ABOVE WITH A MINIMUM OF 5,000 PSI AND MAX W/C = 0.42 WILL BE USED.
   B. AN ADMIXTURE THAT REDUCES THE PROBLEM OF SEGREGATION OF PASTE/AGGREGATES AND DILUTION OF PASTE SHALL BE INCLUDED.

15. TO MINIMIZE CONCRETE SHRINKAGE CRACKING IN CONCRETE SLABS, THE MAXIMUM SIZE OF CONCRETE POURS FOR SLABS ON GRADE, FORMED SLABS, AND SLABS ON METAL DECK, IS 200 FEET IN ANY DIRECTION. THE RATIO OF THE PLAN LENGTH (LONGER DIRECTION) TO WIDTH (SHORTER DIRECTION) DIMENSIONS SHALL NOT EXCEED 2 TO 1.

16. FORM WORK SHALL BE REMOVED IN A MANNER THAT MAINTAINS THE STRENGTH AND STABILITY OF THE STRUCTURE AT ALL TIMES.

17. FORM WORK OF ELEVATED NON P.T. SLABS SHALL NOT BE REMOVED BEFORE ALL CONDITIONS BELOW ARE MET:
   A. THE SPECIFIED COMPRESSIVE STRENGTH IS REACHED
   B. FORM WORK IS LEFT IN PLACE AT

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TIMBER GENERAL

1. IDENTIFICATION.
ALL TIMBER ON SITE SHALL BE IDENTIFIED BY THE GRADE MARK OF A GRADING OR INSPECTION BUREAU OR AGENCY RECOGNIZED AS COMPETENT, TO ALLOW FOR VERIFICATION OF COMPLIANCE WITH SPECIFICATIONS AND DRAWINGS BY STRUCTURAL OBSERVERS AND INSPECTORS. INSTALLATION SHALL NOT NOT CONCEAL STAMPS AT TIME OF OBSERVATION/INSPECTION. STRUCTURAL LUMBER GRADE STAMP SHALL COMPLY WITH WITH "STANDARD GRADING RULE NUMBER 17" OF THE WEST COAST LUMBER INSPECTION BUREAU. WOOD STRUCTURAL PANELS SHALL BEAR APA STAMP. STRUCTURAL COMPOSITE LUMBER SHALL BEAR IDENTIFICATION PER MANUFACTURER.

2. MOISTURE CONTENT.
ALL STRUCTURAL MEMBERS SHALL NOT EXCEED THE MAXIMUM MOISTURE CONTENT (MMC) REQUIREMENTS AS LISTED BELOW PRIOR TO INSTALLATION OF NON-STRUCTURAL ELEMENTS INCLUDING BUT NOT LIMITED TO WEATHER BARRIER, DRYWALL AND FACADE.

   A. 16% FOR SAWN LUMBER JOISTS AND PLATES.
   B. 19% FOR ALL OTHER SAWN LUMBER FRAMING MEMBERS

   CONTRACTOR TO CONDUCT MOISTURE TESTING, IN THE PRESENCE OF A DEPUTY INSPECTOR, USING MOISTURE METER HAVING A ONE INCH NEEDLE INTO LUMBER AT NINE LOCATIONS (THREE JOISTS, THREE TOP PLATES & THREE SILL PLATES) AT EACH FLOOR. LOCATIONS TO BE REVIEWED AND APPROVED BY S.E.O.R. MOISTURE TO BE MEASURED WITHIN SEVEN DAYS PRIOR TO INSTALLATION OF DRY WALL OR DENS BOARD TO DEMONSTRATE MOISTURE CONTENT IS AT OR BELOW REQUIRED PERCENTAGE.

   ANY LUMBER, IF BROUGHT TO THE SITE WITH MOISTURE CONTENT GREATER THE FINAL REQUIRED MMC, IS REQUIRED TO BE DRIED ON SITE BEFORE OR DURING FRAMING AND REMAIN DRY, AND IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO ACHIEVE THE REQUIRED FINAL MMC. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL STRUCTURAL AND NON-STRUCTURAL DAMAGE FROM SHRINKAGE FROM LUMBER RECEIVING FINISHES WITHOUT PASSING THE SPECIFIED MOISTURE TEST. IT IS CONTRACTOR'S RESPONSIBILITY TO INCLUDE THIS MOISTURE TESTING AS PART OF THE CONSTRUCTION SCHEDULE TO ALLOW VARIOUS WEATHER CONDITIONS.

3. INTEGRITY.
DO NOT CUT, BORE, COUNTERSINK OR NOTCH WOOD MEMBERS EXCEPT WHERE SHOWN IN THE DETAILS.

4. ALL STRUCTURAL SAWN LUMBER, UNLESS NOTED BELOW OR ON THE PLANS, SHALL BE VISUALLY GRADED DOUGLAS FIR LARCH NO. 1.
   A. ALL 2x "DIMENSION LUMBER" MEMBERS SHALL BE DFL NO. 2
   B. ALL 4x "DIMENSION LUMBER" UP TO 4x8 SHALL BE DFL NO. 2
   C. ALL 4x10 OR DEEPER "DIMENSION LUMBER" MEMBERS SHALL BE DFL NO.1
   D. ALL 6x6 "POST AND TIMBER" MEMBERS SHALL BE DFL NO. 1
   E. ALL 6x8 "POST AND TIMBERS" MEMBERS SHALL BE DFL NO. 1
   F. ALL 6x10 OR DEEPER "BEAM AND STRINGERS" SHALL BE DFL NO. 1

5. WOOD STRUCTURAL PANELS SHALL COMPLY WITH U.S. PRODUCT STANDARDS FOR ITS TYPE IN PS 1-09 OR PS 2-10 AND BE CLASSIFIED AS EXPOSURE 1. AS A MINIMUM ALL WOOD STRUCTURAL PANELS SHALL BE APA RATED SHEATHING UNLESS NOTED OTHERWISE ON PLANS AND DETAILS. PANEL CONSTRUCTION FOR ALL WOOD STRUCTURAL PANELS SHALL BE 4 PLY PLYWOOD, EXCEPT THAT OSB IS PERMITTED FOR WALL SHEATHING AT NON FIRE TREATED PANELS. MINIMUM GRADE VENEER FOR PLYWOOD SHALL BE "CD". ALL WOOD STRUCTURAL PANELS SHALL BE BLOCKED AT UNSUPPORTED EDGES. WALL PANELS SHALL BE 15/32 INCH, SPAN RATING 32/16 U.N.O.

6. ALL LUMBER IN DIRECT CONTACT WITH CONCRETE OR MASONRY, INCLUDING BUT NOT LIMITED TO FOUNDATION SILLS, SHALL BE NATURALLY DURABLE OR PRESERVATIVE-TREATED DOUGLAS FIR, EXCEPT THAT MEMBERS THAT ARE PART OF FIRE TREATED ASSEMBLIES SHALL BE FIRE TREATED.

7. CONNECTION TO STEEL ELEMENTS - NAILERS.
U.N.O. ON PLANS AND DETAILS, WHERE WOOD MEMBERS ARE TO BE CONNECTED TO STEEL ELEMENTS, OR WHERE WOOD NAILERS CONNECTED TO STEEL MEMBERS ARE NEEDED FOR PROPER INSTALLATION OF FINISH MATERIALS, AS A MINIMUM PROVIDE WOOD NAILERS AS SPECIFIED BELOW WITH 5/8"Ø WELDED THREADED STUDS @ 24" O.C:
   A. WOOD NAILERS NEEDED ONLY FOR INSTALLATION OF FINISH MATERIAL: 2X WOOD NAILERS. COUNTERSINKING OF THREADED STUDS BOLT IS ACCEPTABLE IF NEEDED FOR FLUSH INSTALLATION OF FINISH MATERIAL.
   B. WOOD NAILERS NEEDED TO SUPPORT OTHER WOOD ELEMENTS: 2X WOOD NAILERS OR 3X WOOD NAILERS WITH OR WITHOUT COUNTERSINKING OF THREADED STUDS BOLT RESPECTIVELY.

8. FASTENERS.
FASTENERS INCLUDE BUT ARE NOT LIMITED TO NAILS, WOOD SCREWS, LAG SCREWS, BOLTS, WELDED THREADED STUDS, THREADED RODS, ANCHOR BOLTS, ANCHOR RODS, NUTS, AND WASHERS.

9. NAILS:
   A. ALL NAILS SHALL BE COMMON WIRE NAILS IN ACCORDANCE WITH THE LATEST EDITION OF THE "NATION DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" (NDS)
   B. NAILING TO BE IN ACCORDANCE WITH CBC 2019 NAILING SCHEDULE UNLESS NOTED OTHERWISE.
   C. THE MINIMUM PENETRATION OF NAILS SHALL BE 10 TIMES THE NAIL SHANK DIAMETER OR 1 1/2", WHICHEVER IS GREATER. PENETRATION IS MEASURED INTO THE PIECE RECEIVING THE NAIL POINT.
   D. BORED HOLES SHALL BE PERMITTED FOR ALL NAILS TO HELP PREVENT WOOD FROM SPLITTING. BORE HOLES SHALL BE MANDATORY FOR 20d NAILS OR LARGER. WHEN UTILIZED, BORED HOLES SHALL HAVE DIAMETER NOT EXCEEDING 75% OF NAIL DIAMETER.
   E. EDGE DISTANCES, END DISTANCES, AND FASTENER SPACING SHALL BE SUFFICIENT TO PREVENT SPLITTING OF THE WOOD. BORED HOLES MAY BE UTILIZED TO HELP PREVENT WOOD FROM SPLITTING.

10. WOOD SCREWS:
   A. WOOD SCREWS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "NATION DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" (NDS).
   B. THE MINIMUM PENETRATION OF WOOD SCREWS SHALL BE 10 TIMES THE SCREW DIAMETER OR 1 1/2", WHICHEVER IS GREATER. PENETRATION IS MEASURED INTO THE PIECE RECEIVING THE NAIL POINT.
   C. LEAD HOLES SHALL BE ABOUT 7/8 THE DIAMETER OF THE SCREW.
   D. WOOD SCREWS SHALL BE TURNED, NOT DRIVEN, INTO LEAD HOLES. SOAP OR OTHER LUBRICANTS SHALL BE PERMITTED AS NEEDED TO FACILITATE THE INSERTION AND PREVENT DAMAGE OF THE WOOD SCREW.
   E. EDGE DISTANCES, END DISTANCES, AND FASTENER SPACING SHALL BE SUFFICIENT TO PREVENT SPLITTING OF THE WOOD.

11. LAG SCREWS
   A. LAG SCREWS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "NATION DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" (NDS).
   B. PROVIDE LEAD HOLE 40% TO 70% OF THREADED SHANK DIAMETER AND FULL DIAMETER FOR SMOOTH SHANK PORTION.
   C. LAG SCREWS SHALL BE TURNED, NOT DRIVEN, INTO PRE DRILLED LEAD HOLES. SOAP OR OTHER LUBRICANTS SHALL BE PERMITTED AS NEEDED TO FACILITATE THE INSERTION AND PREVENT DAMAGE OF THE WOOD SCREW.

12. ALL BOLTS AND ANCHOR BOLTS IN WOOD SHALL BE A-307 STANDARD BOLTS. HOLES SHALL NOT BE MORE THAN 1/16" LARGER THAN THE BOLT DIAMETER. A STANDARD CUT WASHER (NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION - APPENDIX TABLE L6), OR METAL PLATE OR METAL STRAP OF EQUAL OR GREATER DIMENSIONS AND THICKNESS SHALL BE PROVIDED BETWEEN THE WOOD AND THE NUT.

13. PRE MANUFACTURED CONNECTORS:
   A. ALL PRE MANUFACTURED FRAMING HARDWARE AND CONNECTORS SHALL BE PER SIMPSON STRONG-TIE UNLESS NOTED OTHERWISE.
   B. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND ICC REQUIREMENTS, INCLUDING ALL FASTENERS REQUIRED BY MANUFACTURER.
   C. FRAMING CLIPS TO COMPLY WITH (IAPMO ER 0112 2606, L.A. RR 25814). STRAPS TO COMPLY WITH (ICC-ESR 2105, L.A. RR 25713).
   D. CORROSION PROTECTION COATING SHALL BE:
      - G90 FOR INTERIOR AND DRY APPLICATIONS
      - Z-MAX OR HOT DIP GALVANIZED, AS AVAILABLE FOR A GIVEN PIECE OF HARDWARE, FOR EXTERIOR APPLICATIONS.

14. CORROSION PROTECTION OF FASTENERS AND CONNECTORS
   A. FASTENERS AND CONNECTORS EXPOSED TO EXTERIOR ENVIRONMENT SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL.
   B. FASTENERS IN CONTACT WITH PRESERVATIVE OR FIRE RETARDANT TREATED LUMBER SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL, EXCEPT THAT PLAIN CARBON STEEL FASTENERS IN SBX/DOT AND ZINC BORATE PRESERVATIVE-TREATED WOOD IN AN INTERIOR, DRY ENVIRONMENT SHALL BE PERMITTED.

15. NARROW STEEL SHEAR PANELS SHALL BE INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS AND CONFORM TO THE FOLLOWING: HARDY FRAMES (HFX): LARR#25759 SIMPSON STRONG WALLS (SSW): LARR#25625

16. GLUE BETWEEN WOOD STRUCTURAL PANELS AND WOOD FRAMING MEMBERS SHALL BE APPLIED TO REDUCE SQUEAKINESS OF FLOOR IN OCCUPIED SPACES. GLUE SHALL CONFORM TO APA PERFORMANCE SPECIFICATION AFG-01 OR ASTM D3498. INSTALL AS DIRECTED PER APA FORM NO. Q300P.

17. FIRE RATED ASSEMBLIES.
WOOD AND COMPONENTS IN EXTERIOR WALLS LABELED AS FIRE RATED BY THE ARCHITECT SHALL BEAR A FIRE-RETARDANT-TREATED STAMP INDICATION BY MEANS SATISFACTORY TO LOCAL AUTHORITIES. THE FOLLOWING FIRE RETARDANTS SHALL BE USED:

   A. FOR PLYWOOD & LUMBER: PYRO-GUARD FIRE RETARDANT (ICC ESR-1791, UL ER7002-01, LARR 25150). EQUIVALENT SUBSTITUTE MAY BE USED ONLY IF PRODUCT IS APPROVED BY THE S.E.O.R.

STRUCTURAL STEEL WELDING

1. ALL WELDING SHALL BE IN STRICT CONFORMANCE WITH THE LATEST EDITION OF AWS D1.1 AND THE 2019 CALIFORNIA BUILDING CODE.

2. ALL WELDS WITHIN MEMBERS DESIGNATED AS PART OF THE LATERAL FORCE RESISTING SYSTEM SHALL CONFORM TO THE DETAILING, MATERIALS, WORKMANSHIP, TESTING AND INSPECTION REQUIREMENTS PER AWS D1.8.

3. ALL WELDING ELECTRODES (FILLER METAL) SHALL BE E7XXX (70 KSI), U.N.O., AND SHALL BE LOW HYDROGEN TYPES. FOR WELDING OF REBAR SEE "REINFORCEMENT" SECTION. FIELD WELDING OF FULL AND PARTIAL PENETRATION WELDS OF THE STEEL MOMENT FRAME CONNECTIONS BETWEEN MOMENT FRAME BEAMS AND MOMENT FRAME COLUMNS SHALL BE BY SHIELDED METAL ARC PROCESS USING LOW HYDROGEN ELECTRODES

4. ALL WELDS SHALL HAVE A FILLER METAL WITH CHARPY V-NOTCH TOUGHNESS OF 20 FT/LBS AVERAGE AT -20 DEGREES FAHRENHEIT AND 40 FT/LBS @ 70 DEGREES FAHRENHEIT. PROVIDE MANUFACTURER'S CERTIFICATION.

5. LENGTHS OF WELDS ARE EFFECTIVE LENGTHS AS SPECIFIED IN THE APPLICABLE CODE. WHERE LENGTH OF WELD IS NOT SHOWN IT SHALL BE FULL LENGTH OF JOINT. ALL BUTT WELDS SHALL BE FULL PENETRATION, UNLESS NOTED OTHERWISE.

6. CONTRACTOR SHALL PROVIDE FIELD WELDING AS REQUIRED FOR CONSTRUCTION. WHERE FIELD WELDING IS NOTED, THE DESIGNATION IS GIVEN AS A SUGGESTED CONSTRUCTION PROCEDURE ONLY.

7. ALL SHOP WELDS SHALL BE PERFORMED BY A LOS ANGELES CITY LICENSED FABRICATOR.

8. ALL WELDERS SHALL BE QUALIFIED FOR THE WORK THEY WILL BE DOING & SHALL HAVE CURRENT CERTIFICATIONS BY AWS & THE CITY OF LOS ANGELES.

9. FACES OF FILLET WELDS EXPOSED TO VIEW SHALL HAVE AS-WELDED SURFACES THAT ARE REASONABLY SMOOTH AND UNIFORM. NO FINISHING OR GRINDING SHALL BE REQUIRED, EXCEPT WHERE CLEARANCES OR FIT OF OTHER ITEMS MAY SO NECESSITATE.

10. ALL PARTIAL AND FULL PENETRATION WELDS WHICH ARE EXPOSED TO VIEW SHALL BE GROUND SMOOTH AND FLUSH WITH FINISH SURFACE OF STEEL. HOLES SHALL BE FILLED WITH WELD METAL OR BODY SOLDER AND SMOOTHED BY GRINDING OR FILING.

11. CLEAN GROOVE PREPARATION THERMAL CUTS BY GRINDING.

12. WELDS SHALL BE TERMINATED AT THE END OF A JOINT IN A MANNER THAT WILL ENSURE SOUND WELDS. WHENEVER NECESSARY THIS SHALL BE DONE BY USE OF EXTENSION BARS AND RUN OFF TABS.

13. ALL WELDED JOINTS SHALL BE PRE-QUALIFIED PER THE LATEST EDITION OF AWS D1.1. NON PRE- QUALIFIED WELDED JOINTS SHALL BE QUALIFIED BY TEST & PROCEDURE QUALIFICATION TEST RECORD INCLUDED PER THE LATEST EDITION OF AWS D1.1.

14. THE CONTRACTOR SHALL SUBMIT ALL WELDING PROCEDURE SPECIFICATIONS (WPS) TO BE USED ON THE PROJECT PER THE LATEST EDITION OF AWS D1.1. THE WPS SHALL INCLUDE ALL MANUFACTURER'S DATA SHEETS FOR ALL WELDING MATERIALS TO BE USED. THE DATA SHEETS SHALL DESCRIBE THE PRODUCTS, LIMITATIONS OF USE, RECOMMENDED WELDING PARAMETERS, AND STORAGE AND EXPOSURE REQUIREMENTS.

15. ELECTRODES SHALL BE RECEIVED AND STORED IN THE ORIGINAL, UNDAMAGED MANUFACTURER PACKAGING, UNTIL READY FOR USE. WHEN WELDING IS TO BE SUSPENDED FOR MORE THAN 8 HOURS, ELECTRODES SHALL BE REMOVED FROM THE MACHINES AND STORED IN AN ELECTRODE WIRE OVEN MAINTAINED AT A TEMPERATURE BETWEEN 250 DEGREES AND 550 DEGREES OR AS RECOMMENDED BY THE MANUFACTURER. ELECTRODES NOT CONSUMED WITHIN 24 HOURS OF ACCUMULATED EXPOSURE OUTSIDE CLOSED OR HEATED STORAGE SHALL NOT BE USED.

16. ALL BOTTOM FLANGE BACKING BARS SHALL BE REMOVED. FOLLOWING REMOVAL OF BACKING, THE ROOT PASS SHALL BE BACKGOUGED TO SOUND WELD METAL AND BACKWELDED UNTIL FLUSH OR WITH SLIGHT REINFORCEMENT. THE SURFACE SHALL BE GROUND SMOOTH TO A SURFACE ROUGHNESS NOT TO EXCEED 500 MICROINCHES.

ADDITIONAL STRUCTURAL STEEL WELDING NOTES AT MOMENT FRAME CONNECTIONS

1. THE FOLLOWING PROVISIONS APPLY TO ALL WELDING AT BEAM-COLUMN MOMENT FRAME CONNECTIONS:

   A. MINIMUM INITIAL PREHEAT TO BE 226 DEGREES F MEASURED +- 3 INCHES FROM THE WELD JOINT. FOR JUMBO SECTIONS, MINIMUM PREHEAT TO BE 350 DEGREES F. MAXIMUM INTERPASS TEMPERATURE 600 DEGREES F SHALL BE MONITORED ON COLUMN FLANGE. MAINTAIN PREHEAT TEMPERATURE WHEN WELDING IS INTERRUPTED.

   B. EACH FLANGE OF A MOMENT FRAME BEAM TO COLUMN CONNECTION SHALL BE WELDED IN ONE CONTINUOUS PROCESS WITHOUT COOLING BELOW THE PRE-HEAT TEMPERATURE.

   C. USE STRINGER PASSES ONLY, NO WEAVING. LAY PASSES IN HORIZONTAL LAYERS. EACH PASS SHALL BE THOROUGHLY DESLAGGED AND CLEANED BY WIRE BRUSHING.

   D. PEEN EACH PASS, EXCEPT FIRST AND LAST, IMMEDIATELY AFTER DESLAGGING AND CLEAN USING A POWER SLAGGING GUN WITH A BLUNT TOOL. KEEP GUN AT RIGHT ANGLES TO WELD AND MAKE 4-5 PASSES THE LENGTH OF THE WELD WITH NO NICKS, CUTS OR DEEP INDENTATIONS BEING EVIDENT.

   E. BOTH BEAM FLANGES SHOULD BE WELDED PRIOR TO ANY SUPPLEMENTAL WELDING TO THE SHEAR TAB. WELD RUN OFF TABS SHALL BE REMOVED AND GROUND FLUSH TO THE BEAM FLANGE WITH MINIMAL DISTURBANCE.

   F. RUN OFF TABS USED AT BEAM FLANGE CONNECTION SHALL BE REMOVED AND THE ENDS OF THE WELDS SHALL BE MADE SMOOTH & FLUSH WITH THE EDGE OF ABUTTING PARTS PER 3.12.3 OF AWS D1.1-96. NO WELD DAMS ARE ALLOWED.

   G. AFTER FULL PENETRATION WELDING, THE BOTTOM BACKING BAR IS TO BE REMOVED. THE WELD ROOT T&B SHALL BE INSPECTED AND TESTED FOR IMPERFECTIONS, WHICH IF FOUND, ARE TO BE REMOVED BY BACKGOUGING TO SOUND MATERIAL & CLEANED BY GRINDING IF BACKGOUGED BY AIR ARC. THE BACKGOUGED AREA IS TO BE WELDED. A FILLET WELD SHALL BE APPLIED TO REINFORCE THE JOINT. THE SIZE OF THE REINFORCING FILLET WELD SHALL BE EQUAL TO 1/4 THE PLATE THICKNESS, BUT NOT LESS THAN 5/16", NOR MORE THAN 3/8" PER NOTE J OF FIGURE 2.4 OF AWS D1.1-96.

2. THE FOLLOWING PROVISIONS APPLY TO WELDING BEAM-COLUMN MOMENT FRAME BOTTOM FLANGE CONNECTIONS:

   A. THE ROOT PASS SHALL BEGIN IN THE CENTER OF THE JOINT, IN THE AREA OF THE WELD ACCESS HOLE. REACHING PAST THE BEAM WEB THROUGH THE COPE HOLE WHEN NEAR END OF WELDING. AFTER THE ARC IS INITIATED, TRAVEL SHALL PROGRESS TOWARD THE EDGE OF BEAM BOTH FLANGES, AND THE WELD SHALL BE TERMINATED ON THE WELD RUN OFF TAB.

   B. THE HALF LENGTH ROOT PASS SHALL BE THOROUGHLY CLEANED.

   C. THE START OF THE WELD IN THE WELD ACCESS HOLE AREA SHALL BE VISUALLY INSPECTED TO ENSURE FUSION, SOUNDNESS, FREE FROM SLAG INCLUSIONS AND EXCESSIVE POROSITY. THE RESULTING BEAD PROFILE SHALL BE SUITABLE FOR OBTAINING GOOD FUSION BY THE SUBSEQUENT PASS TO BE INITIATED ON THE OPPOSITE SIDE OF THE BEAM WEB. IF THE PROFILE IS NOT CONDUCIVE TO GOOD FUSION, THE START OF THE FIRST ROOT PASS SHALL BE GROUND, GOUGED, CHIPPED, OR OTHERWISE PREPARED TO ENSURE ADEQUATE FUSION.

   D. THE SECOND HALF OF THE WELD JOINT SHALL HAVE THE ROOT PASS APPLIED BEFORE ANY OTHER WELD PASSES ARE PERFORMED. THE ARC SHALL BE INITIATED IN THE AREA OF THE START OF THE FIRST ROOT PASS, AND TRAVEL SHALL PROGRESS TO THE END OF THE JOINT, TERMINATING ON THE WELD TAB.

   E. EACH WELD LAYER SHALL BE COMPLETED ON BOTH SIDES OF THE JOINT BEFORE A NEW LAYER IS DEPOSITED.

STRUCTURAL STEEL

1. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, AND THE LATEST EDITION OF AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS. WHERE THE STRUCTURAL STEEL IS EXPOSED, FABRICATION AND ERECTION SHALL ALSO BE IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE FOR ARCHITECTURALLY EXPOSED STRUCTURAL STEEL.

2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATION:

a.	ALL WIDE FLANGE SHAPES	A992, GRADE 50
b.	STEEL ANGLES	A36
c.	ALL PLATES WHERE GRADE 50 IS SPECIFIED PROVIDE	A36 A572
d.	HSS (RECTANGULAR AND SQUARE)	A500, GRADE C
e.	HSS (ROUND)	A500, GRADE B
f.	PIPE	A53, GRADE B
g.	CHANNELS (C AND MC SECTIONS)	A36
h.	ALL OTHER STRUCTURAL SECTIONS	A572, GRADE 50

3. ALL STEEL SHALL BE PROVIDED BY A CITY OF LOS ANGELES LICENSED FABRICATOR.

4. WHEN FABRICATING BEAMS PLACE NATURAL CAMBER UP.

5. ALL FLANGE STIFFENER PLATES SHALL BE ORIENTED SO THAT ROLLING DIRECTION OF PLATE IS PARALLEL WITH DIRECTION OF PRINCIPAL STRESS.

6. SPLICE MEMBERS ONLY WHERE INDICATED.

7. MECHANICAL FASTENING AND THREADED PARTS

   A. BOLTS AND THREADED PARTS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATION:

a.	HIGH STRENGTH BOLTS	F3125, GR A325X
b.	HEADED AND HOOKED ANCHOR RODS U.N.O.	F1554, GR36
c.	ALL THREADED RODS U.N.O.	F1554, GR36
d.	TIE RODS	F1554, GR36
e.	ANCHORS AT NON-MOMENT FRAME COLUMN BASE P.L.	F1554, GR36
f.	ANCHORS AT MOMENT FRAME COLUMN BASE P.L.	F1554, GR105
g.	NUTS FOR BOLTS AND MACHINE BOLTS	A563
h.	HARDENED WASHERS	F436
i.	UNHARDENED WASHERS	F844
j.	PLAIN WASHERS	ANSI B18.22.1
k.	BEVELED WASHERS	ANSI B18.23.1

   B. HIGH STRENGTH BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "AISC SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS" BY RCSC. HIGH STRENGTH BOLTS SHALL BE BEARING TYPE WITH THREADS EXCLUDED FROM THE FROM THE SHEAR PLANES (I.E. A325-X).

   C. ALL JOINTS U.NO. SHALL BE BE SNUG-TIGHTENED JOINTS.
   JOINTS AT ALL LFRS ELEMENTS SHALL BE PRE-TENSIONED W/ CLASS A FAYING SURFACE.

   D. ALL BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO 3/4"Ø BOLTS.

   E. ALL HOLES SHALL BE STANDARD DIAMETER.

   F. PROVIDE BEVELED WASHERS ON ALL CONNECTIONS WHERE SLOPE SURFACE EXCEEDS 1:20.

   G. WELDING OF FASTENERS OR THREADED PARTS SHALL BE ALLOWED ONLY WHERE SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS. IN SUCH INSTANCES, WELDABLE FASTENERS OR THREADED PARTS SHALL BE PROVIDED, AND SHALL CONFORM TO SUPPLEMENTARY REQUIREMENT S1 WHENEVER SUCH REQUIREMENT IS AVAILABLE FOR A GIVEN ASTM FASTENER SPECIFICATION. FOR WELDING OF REBAR SEE "REINFORCEMENT" SECTION

8. AFTER FABRICATION, ALL STEEL SHALL BE CLEANED FREE OF RUST, LOOSE MILL SCALE AND OIL.

9. PROVIDE FILLS AT SPLICES OF PARTS HAVING MORE THAN 1/8" DIFFERENCE IN THICKNESS.

10. HEADED ANCHOR STUDS AND THREADED STUDS SHALL BE NELSON GRANULAR FLUX-FILLED, AND SHALL BE MADE FROM COLD FINISHED LOW CARBON STEEL, CONFORMING TO A-108, GRADES 1015 - 1020 WITH A MINIMUM TENSILE STRENGTH OF 60,000 PSI. (COLA RR 2729). STUD WELDING INSPECTION AND TESTING SHALL CONFORM TO AWS D1.1.

11. DEFORMED BAR ANCHOR STUDS SHALL BE NELSON D2L GRANULAR FLUX-FILLED REBAR STUDS OR APPROVED EQUAL, AND SHALL BE MADE OF LOW CARBON COLD ROLLED STEEL WITH A MINIMUM TENSILE STRENGTH OF 80,000 PSI. STUD WELDING INSPECTION AND TESTING SHALL CONFORM TO AWS D1.1.

12. HOT DIP GALVANIZE IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STRUCTURAL STEEL AND FASTENERS THAT ARE PERMANENTLY EXPOSED TO THE WEATHER. REPAIR GALVANIZING AFTER WELDING IN ACCORDANCE WITH ASTM A780.

13. THE FULL DESIGN AND LOAD CARRYING CAPACITY OF THE STEELWORK SHALL NOT BE IMPAIRED DUE TO FABRICATION, SHIPMENT, OR ERECTION PROCEDURES, THROUGHOUT THE COMPLETE PROCESS. THE STABILITY OF ALL INDIVIDUAL MEMBERS AND ASSEMBLIES SHALL BE MAINTAINED.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES WITH RELATION TO TEMPERATURE DIFFERENTIALS AND WELD SHRINKAGE.

15. ALL ADDITIONAL STEEL REQUIRED FOR ERECTION PURPOSES SHALL BE PROVIDED AT NO ADDITIONAL COST AND SHALL BE REMOVED UNLESS APPROVED BY THE OWNER'S REPRESENTATIVE IN WRITING.

BADGER RESIDENCE

OWNER:
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P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
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SURVEYOR & CIVIL ENGINEER:
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HAILEY, ID 83333
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EL SEGUNDO, CA 90245
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LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO P-21490 DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

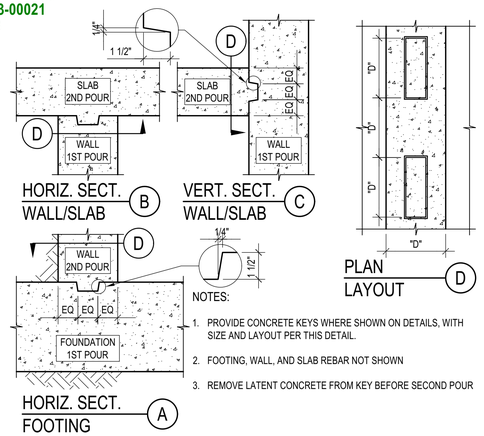
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
GENERAL NOTES

DRAWING NUMBER:
S-003

11/29/2022 8:13:



KEY IN CONCRETE 7

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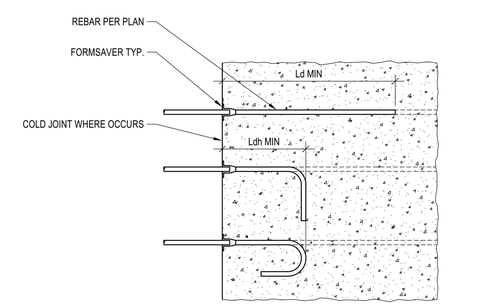

FORMSAVER 4

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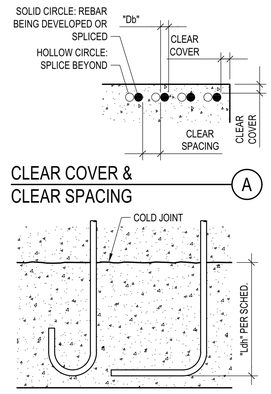

"Db" (IN)	f'c NORMAL WEIGHT (PSI)		DEVELOPMENT OF LONGITUDINAL GR60 REBAR (IN) SEE MODIFICATION FACTORS AND DIFFERENT GRADES PER NOTE 2																LAP SPLICE OF LONGITUDINAL GR60 REBAR (IN) SEE MODIFICATION FACTORS AND DIFFERENT GRADES PER NOTE 2															
			TENSION DEVEL. LENGTH "Ld"						DEVEL. LENGTH "Ldh" STD HOOK						DEVEL. LENGTH "Ldt" HEADED BARS						COMPRESSION DEVEL. LENGTH "Ldc"						TENSION LAP SPLICE "Lst"										COMPRESSION LAP SPLICE "Lsc"					
																							CLASS A				CLASS B (2)				REDUCED CLASS B (2)					
																																	REBAR GRADE KSI				
			3,000	3,500	4,000	4,500	5,000	5,500	3,000	3,500	4,000	4,500	5,000	5,500	3,000	3,500	4,000	4,500	5,000	5,500	3,000	3,500	4,000	4,500	5,000	5,500	3,000	3,500	4,000	4,500	5,000	5,500	3,000	3,500	4,000	4,500	5,000	5,500
0.375	REBAR	#3	17	16	15	14	13	12	6	6	6	6	6	6	7	7	6	6	6	6	8	8	8	8	8	8	22	20	19	18	17	16	-	-	-	-	-	-
0.500		#4	22	21	19	18	17	17	8	8	7	7	6	6	9	9	8	8	7	7	9	8	8	8	8	8	29	27	25	24	23	22	21	-	-	-	-	-
0.625		#5	28	26	24	23	22	21	20	10	9	9	8	8	8	7	11	11	10	9	9	9	8	11	10	9	9	8	8	8	36	33	31	30	28	27	26	-	-	-
0.750		#6	33	31	29	27	26	25	24	12	11	10	10	9	9	9	14	13	12	11	11	10	10	13	12	11	11	10	10	10	43	40	37	35	34	32	31	33	31	29
0.875		#7	48	45	42	40	38	36	34	14	13	12	11	11	10	10	16	15	14	13	12	12	11	15	14	13	12	12	12	12	63	58	54	51	49	47	45	49	45	42
1.000		#8	55	51	48	45	43	41	39	16	15	14	13	12	12	11	18	17	16	15	14	13	13	17	16	15	14	14	14	14	72	66	62	59	56	53	51	57	53	50
1.128		#9	62	58	54	51	48	46	44	18	17	15	15	14	13	13	20	19	18	17	16	15	14	19	18	17	16	15	15	15	81	75	70	66	63	60	57	66	61	57
1.270		#10	70	65	61	57	54	52	50	20	19	17	16	16	15	14	23	21	20	19	18	17	16	21	20	19	18	17	17	17	91	84	79	74	71	67	64	74	68	64
1.410		#11	78	72	67	64	60	58	55	22	21	19	18	17	16	16	25	23	22	21	20	19	18	24	22	21	19	19	19	19	101	93	87	82	78	75	71	84	76	71
1.693		#14	93	86	81	76	72	69	66	26	25	23	22	21	20	19	NOT ALLOWED							28	26	25	23	23	23	23	LAP SPLICE NOT ALLOWED SEE NOTES									
2.257		#18	124	115	108	101	96	92	88	35	33	30	29	27	26	25								38	35	33	31	30	30	30										

CLASS "A" LAP SPLICE LENGTHS SHALL BE USED ALL U.N.O. ALL LAP SPLICES SHALL BE CLASS "B"

NOTES:

1. REBAR SHALL BE ALWAYS DEVELOPED ACROSS COLD JOINTS. SPLICES SHALL OCCUR ONLY WHERE SHOWN ON DETAILS. UNLESS OTHERWISE NOTED ELSEWHERE IN THE DRAWING SET, THE FOLLOWING SHALL APPLY:
   A. MIN DEVELOPMENT LENGTH ACROSS A COLD JOINT OF STRAIGHT REBAR SHALL BE "Ld"
   B. MIN DEVELOPMENT LENGTH ACROSS A COLD JOINT OF HOOKED REBAR SHALL BE "Ldh"
   C. LAP SPLICE SHALL BE CLASS B TENSION LAP SPLICE "Lst"
2. ALL THE DEVELOPMENT LENGTHS AND LAP SPLICES SHALL BE MODIFIED AS FOLLOWS:
   A. CASTING POSITION: IF MORE THAN 12 IN OF FRESH CONCRETE IS PLACED BELOW HORIZONTAL TOP REBAR, SCHEDULED VALUES OF "Ld" AND "Lst" SHALL BE MULTIPLIED BY 1.3.
   B. LIGHT WEIGHT CONCRETE: IF LIGHT WEIGHT CONCRETE IS USED, ALL THE DEVELOPMENT LENGTHS AND TENSION LAP SPLICE SCHEDULED VALUES SHALL BE MULTIPLIED BY 1.33. HEADED BARS ARE NOT ALLOWED IN LIGHT WEIGHT CONCRETE. COMPRESSION LAP SPLICE "Lsc" DO NOT NEED TO BE INCREASED
   C. GRADE OF STEEL: EXCEPT "Lsc", SCHEDULED LENGTHS APPLY TO REBAR WITH GRADE 60 KSI. WHERE REBAR WITH HIGHER STRENGTH IS SPECIFIED OR APPROVED AS A SUBSTITUTION, THE SPLICES PER TABLE ABOVE SHALL BE INCREASED PROPORTIONALLY TO THE HIGHER STRENGTH. FOR EXAMPLE, FOR GRADE 80, THE LENGTHS SHALL BE MULTIPLIED BY 80/60 = 1.33. HEADED BARS WITH GRADE GREATER THAN 60 KSI SHALL NOT BE PERMITTED UNLESS OTHERWISE SHOWN ON RESEARCH REPORT OF SELECTED HEADED BAR.
   D. EPOXY COATING: SCHEDULED LENGTHS APPLY TO UNCOATED OR ZINC COATED (GALVANIZED) REBAR. IF EPOXY COATING IS SPECIFIED, SCHEDULED VALUED SHALL BE MULTIPLIED BY 1.2 FOR "Ldh", "Ldt" AND BY 1.5 FOR "Ld", "Lst". Ldc AND Lsc DO NOT NEED TO BE INCREASED.
   E. CONFINEMENT: SCHEDULED VALUES OF "Ld" AND "Lst" SHALL BE MULTIPLIED BY 1.5 FOR:
      - MEMBERS WITH TIES (SUCH AS COLUMNS, PILES, BEAMS, ETC.) WITH LONGITUDINAL REBAR WITH "CLEAR COVER" LESS THAN "Db" OR WITH "CLEAR SPACING" LESS THAN "Db"
      - MEMBERS WITHOUT TIES (SUCH AS WALLS, SLAB, FOOTINGS, ETC.) WITH LONGITUDINAL REBAR WITH "CLEAR SPACING" LESS THAN 2 x "Db"

      SCHEDULED VALUES OF "Lsc" SHALL BE MULTIPLIED BY 1.33 WHEN OCCURRING AT WALLS
3. HEADED DEFORMED BARS SHALL BE PERMITTED IF ALL FOLLOWING CONDITIONS ARE MET (SEE INSET DETAIL):
   - PROVIDE HRC555 HEADED DEFORMED BAR (RESEARCH REPORT ER 177) OR APPROVED EQUIVALENT
   - SIDE COVER IS AT LEAST 2xDb
   - REBAR SPACING IS AT LEAST 4xDb
4. WHERE REBAR OF DIFFERENT SIZE ARE LAP SPLICED, FOLLOWING SHALL APPLY:
   A. LAP SPLICE SHALL BE THE GREATER OF Ld OF LARGER BAR AND Lst OF SMALLER BAR (TENSION)
   B. LAP SPLICE SHALL BE THE GREATER OF Ldc OF LARGER BAR AND Lsc OF SMALLER BAR (COMPRESSION).
   C. TENSION SHALL BE ASSUMED UNLESS NOTED OTHERWISE ELSEWHERE IN THIS SET.
5. FOR LAP OF BUNDLED REBAR CONTACT E.O.R.
6. LAP SPLICE FOR #14 AND #18 ARE NOT ALLOWED. PROVIDE MECHANICAL OR WELDED SPLICES DEVELOPING 1.25Fy FOR THESE SPLICES. SUBMIT SELECTED SPLICE SYSTEM TO E.O.R. FOR APPROVAL.
7. REDUCED CLASS B LAP SPLICE SHALL APPLY AT COLUMNS AND SHEAR WALL BOUNDARY MEMBERS WHERE SPECIFICALLY IDENTIFIED ON DRAWINGS

DEVELOPMENT AND SPLICE OF REBAR IN CONCRETE 1

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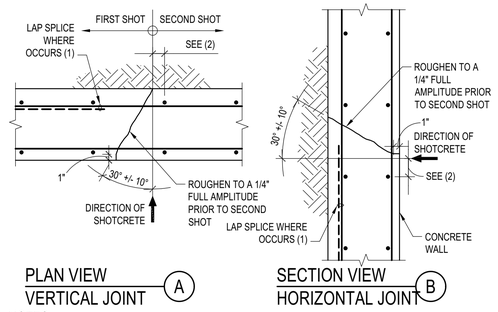

NOTES:

1. FOR CURB LOCATION, "T" AND "H" DIMENSIONS S.A.D. FOR SIZE LIMITATION AND REINFORCEMENT SEE SCHEDULE.
2. AT CONTRACTOR DISCRETION, CURB MAY BE POURED MONOLITHICALLY WITH SLAB. WHEN POURED SUBSEQUENTLY, OR AT (E) SLAB, ROUGHEN SLAB SURFACE PRIOR TO POUR CURB.
3. EXPANSIVE OR HYDROPHILIC WATERSTOPS AT CURBS ARE NOT ALLOWED

CURB SIZE AND REINF. SCHEDULE			
"H"	"T"	VERT.	HOR.
H≤6"	4"≤T≤8"	#3 @ 18" O.C.	NA
6"<H≤8"	6"≤T≤8"	#3 @ 18" O.C.	NA
8"<H≤18"	6"≤T≤8"	#4 @ 18" O.C.	#4 @ 12" O.C.

CONCRETE CURB DETAIL 8

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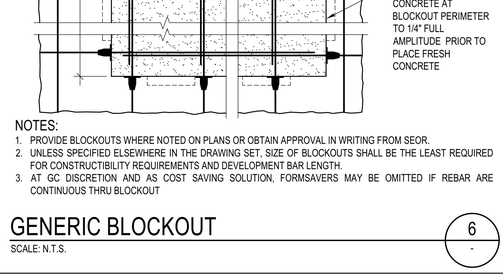

MIN BAR SPACING IN SHOTCRETE 5

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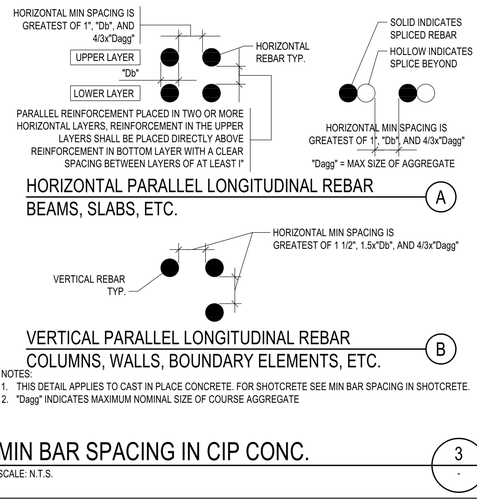

NOTES:

1. THIS DETAIL APPLIES TO CAST IN PLACE CONCRETE. FOR SHOTCRETE SEE MIN BAR SPACING IN SHOTCRETE.
2. "Dagg" INDICATES MAXIMUM NOMINAL SIZE OF COURSE AGGREGATE

MIN BAR SPACING IN CIP CONC. 3

SCALE: N.T.S.

NOTES:

1. CONSTRUCTION JOINTS SHALL NOT BE PLACED ACROSS LAPPING REBAR
2. REBAR PARALLEL TO JOINT SHALL BE A MIN OF 2" AWAY FROM JOINT
3. INCLUDE VERTICAL CONSTRUCTION JOINT LOCATIONS AS PART OF SHOP DRAWINGS

SHOTCRETE WALL - CONSTRUCTION JOINT 9

SCALE: N.T.S.

NOTES:

1. PROVIDE BLOCKOUTS WHERE NOTED ON PLANS OR OBTAIN APPROVAL IN WRITING FROM SEOR.
2. UNLESS SPECIFIED ELSEWHERE IN THE DRAWING SET, SIZE OF BLOCKOUTS SHALL BE THE LEAST REQUIRED FOR CONSTRUCTIBILITY REQUIREMENTS AND DEVELOPMENT BAR LENGTH.
3. AT GC DISCRETION AND AS COST SAVING SOLUTION, FORMSAVERS MAY BE OMITTED IF REBAR ARE CONTINUOUS THRU BLOCKOUT

GENERIC BLOCKOUT 6

SCALE: N.T.S.

TYPE OF STANDARD HOOK	STANDARD HOOK GEOMETRY FOR LONGITUDINAL REBAR				STANDARD HOOK GEOMETRY FOR STIRRUPS, TIES, AND HOOKS			
	BAR SIZE	MIN. INSIDE BEND DIAMETER	STRAIGHT EXTENSION ℓext	TYPE OF STANDARD HOOK	BAR SIZE	MIN. INSIDE BEND DIAMETER	STRAIGHT EXTENSION ℓext	TYPE OF STANDARD HOOK
90° HOOK	#3 THRU #8	6ds	12ds	90°, DIA, ℓext, ℓdh	#3 THRU #5	4ds	GREATER OF 6ds AND 3"	90°, DIA, ℓext
	#9 THRU #11	8ds			#6 THRU #8	6ds		
	#14 AND #18	10ds						
135° HOOK	NA				#3 THRU #5	4ds	GREATER OF 6ds AND 3"	135°, DIA, ℓext
					#6 THRU #8	6ds		
180° HOOK	#3 THRU #8	6ds	GREATER OF 4ds AND 2 1/2"	180°, DIA, ℓext, ℓdh	#3 THRU #5	4ds	GREATER OF 6ds AND 2 1/2"	180°, DIA, ℓext
	#9 THRU #11	8ds			#6 THRU #8	6ds		
	#14 AND #18	10ds						

STANDARD HOOKS 2

SCALE: N.T.S.

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LFA Job #22791

LFA Labib Funk + Associates
Structural | Shoring | Civil | EBM

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

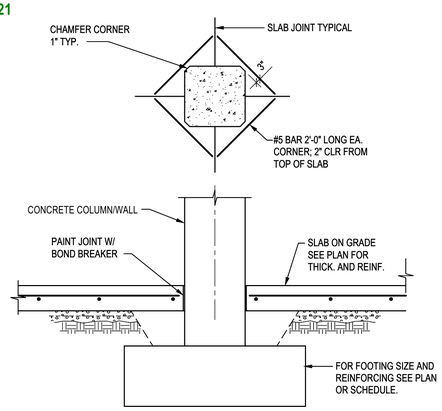
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - CONCRETE

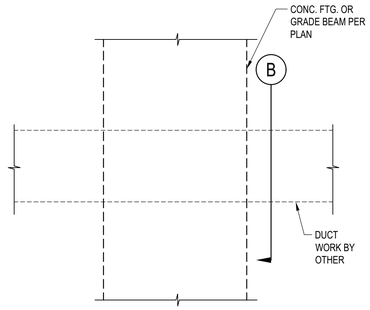
DRAWING NUMBER:
S-011



S.O.G. @ CONCRETE COLUMN

SCALE: N.T.S.

8 -

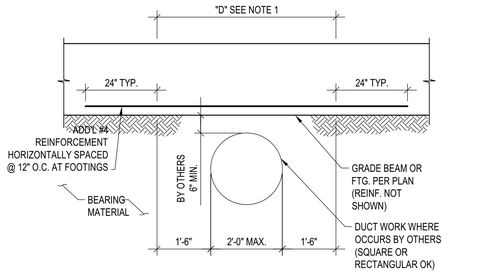


PARTIAL PLAN A

TYP. DUCT BELOW FOOTING OR GRADE BEAM

SCALE: N.T.S.

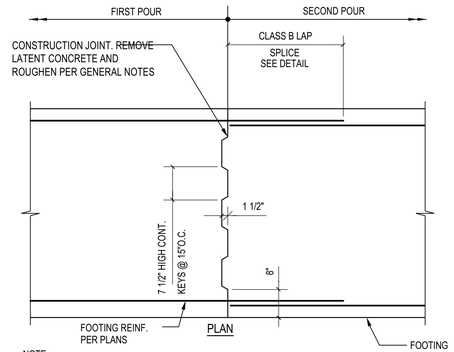
4 -



NOTES:

1. NO POSTS OR CONCENTRATE LOADS WITHIN "D" AS NOTED ABOVE.
2. CONTRACTOR TO PROTECT DUCTWORK FROM FOOTING SETTLEMENT.

SECTION B

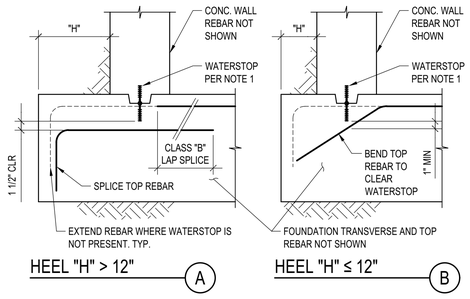


NOTE :
WELDED SPLICES REQUIRED FOR #14 AND LARGER BARS. WHERE CONTINUOUS FOOTING IS UNDER A WALL, LOCATE CONSTRUCTION JOINT AT 1/4 OF THE CLEAR OPENING WIDTH ABOVE FROM FACE OF OPENING, OR IN MIDDLE 1/3 OF THE DISTANCE BETWEEN COLUMNS.

CONT. FTG. CONSTRUCTION JOINT

SCALE: N.T.S.

1 -



HEEL "H" > 12" A

HEEL "H" ≤ 12" B

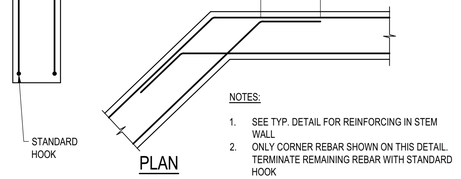
NOTES:

1. WATERSTOPS ARE SPECIFIED BY ARCHITECT, WATERPROOFING CONSULTANT, CONTRACTOR, ECT. WATERSTOPS DO NOT FALL WITHIN LFA SCOPE.
2. WHERE WATERSTOPS ARE SPECIFIED, G.C. SHALL COORDINATE REBAR CONFIGURATION WITH WATERSTOPS AS SHOWN ON THIS DETAIL.
3. OBTAIN APPROVAL OF E.O.R. FOR OTHER REBAR/WATERSTOPS CONFIGURATIONS

REBAR DETAIL AT WATERSTOP

SCALE: N.T.S.

9 -



PLAN

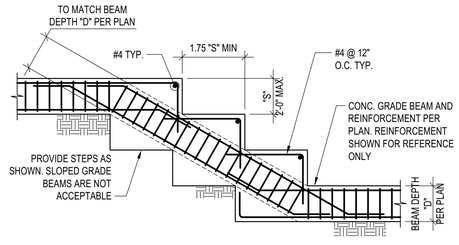
NOTES:

1. SEE TYP. DETAIL FOR REINFORCING IN STEM WALL
2. ONLY CORNER REBAR SHOWN ON THIS DETAIL. TERMINATE REMAINING REBAR WITH STANDARD HOOK

FOOTING AND GRADE BEAM REINFORCEMENT @ CORNERS

SCALE: N.T.S.

6 -



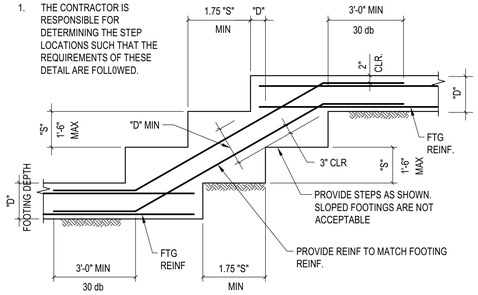
STEPPED GRADE BEAM DETAIL

SCALE: N.T.S.

5 -

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE STEP LOCATIONS SUCH THAT THE REQUIREMENTS OF THESE DETAIL ARE FOLLOWED.

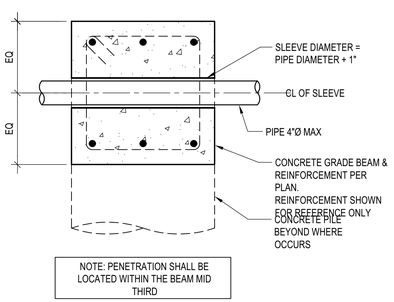


LEGEND:
db = BAR DIAMETER.

TYP. STEPPED FOOTING DETAIL

SCALE: N.T.S.

2 -

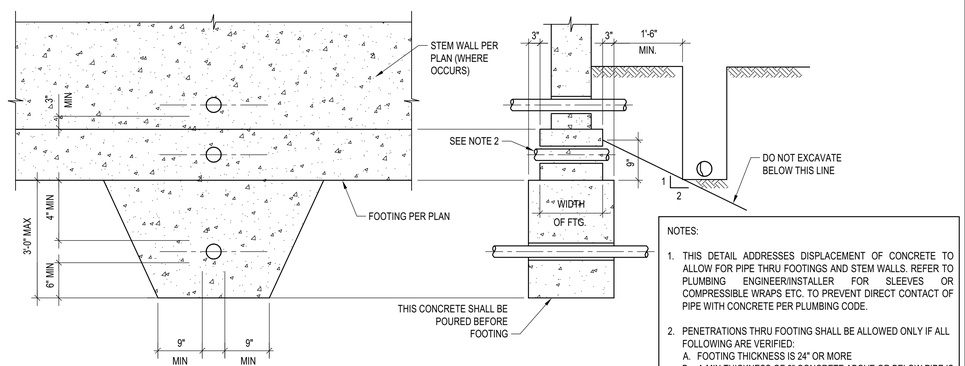


NOTE: PENETRATION SHALL BE LOCATED WITHIN THE BEAM MID THIRD

TYP. PIPE THRU GRADE BEAM

SCALE: N.T.S.

7 -



ELEVATION

SECTION

NOTES:

1. THIS DETAIL ADDRESSES DISPLACEMENT OF CONCRETE TO ALLOW FOR PIPE THRU FOOTINGS AND STEM WALLS. REFER TO PLUMBING ENGINEER/INSTALLER FOR SLEEVES OR COMPRESSIBLE WRAPS ETC. TO PREVENT DIRECT CONTACT OF PIPE WITH CONCRETE PER PLUMBING CODE.
2. PENETRATIONS THRU FOOTING SHALL BE ALLOWED ONLY IF ALL FOLLOWING ARE VERIFIED:
   A. FOOTING THICKNESS IS 24" OR MORE
   B. A MIN THICKNESS OF 8" CONCRETE ABOVE OR BELOW PIPE IS MAINTAINED
   C. POSTS, COLUMNS, AND HOLDOWNS, DO NOT LAND WITHIN 24" ON EITHER SIDE OF PENETRATION
   D. REBAR ARE NOT DISPLACED

TYP. PIPE THRU FOUNDATION DETAIL

SCALE: N.T.S.

3 -

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LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

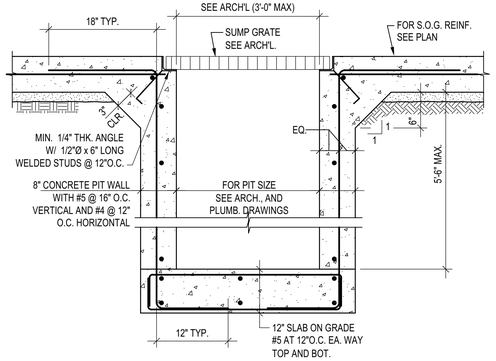
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - CONCRETE

DRAWING NUMBER:
S-012

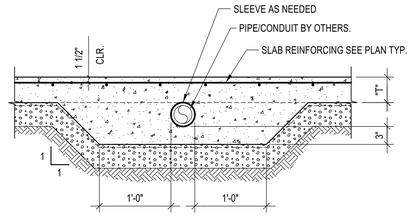
11/29/2022 8:13:



TYP. SUMP PUMP PIT

SCALE: N.T.S.

8



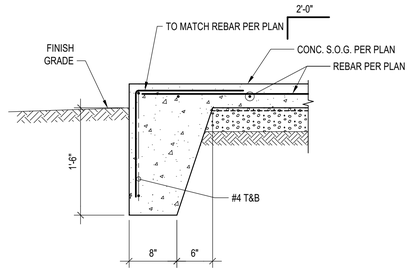
NOTES:

1. SEE PLAN FOR CONCRETE SLAB ON GRADE THICKNESS, "T".

TYP. PIPE THRU SLAB ON GRADE

SCALE: N.T.S.

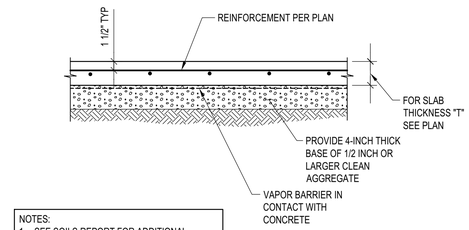
5



SLAB ON GRADE EDGE DETAIL

SCALE: N.T.S.

3



NOTES:
1. SEE SOILS REPORT FOR ADDITIONAL SUBGRADE PREPARATION REQUIREMENTS
2. VAPOR BARRIERS SPECS NOT PER LFA

TYPICAL SLAB ON GRADE

SCALE: N.T.S.

1

DETAIL A

DETAIL B

TRENCH DRAIN DETAIL

SCALE: N.T.S.

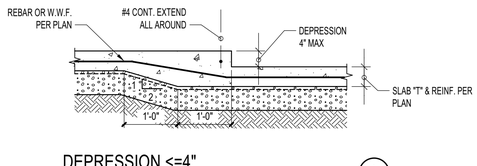
9

NOTES:
FOR TREADS AND RISERS, DIMENSIONS AND DETAILS, NOT SHOWN REFER TO ARCHITECTURAL DRAWINGS.

STAIR ON GRADE DETAIL

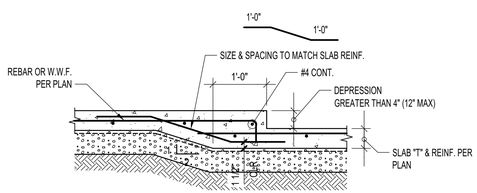
SCALE: N.T.S.

6



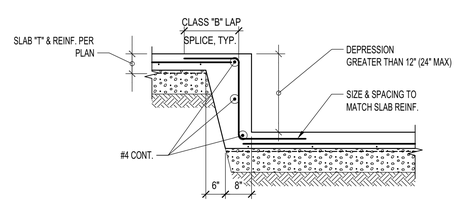
DEPRESSION <=4"

A



DEPRESSION >4" & <=12"

B



DEPRESSION >12" & <=24"

C

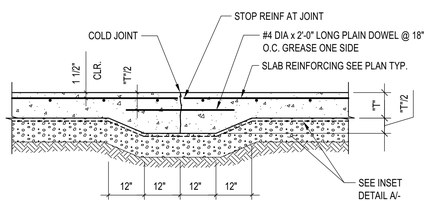
SLAB ON GRADE DEPRESSION

SCALE: N.T.S.

4

CONTROL JOINT
(WHERE CONTINOUS POUR IS USED)

A



TYPICAL CONSTRUCTION JOINT

B

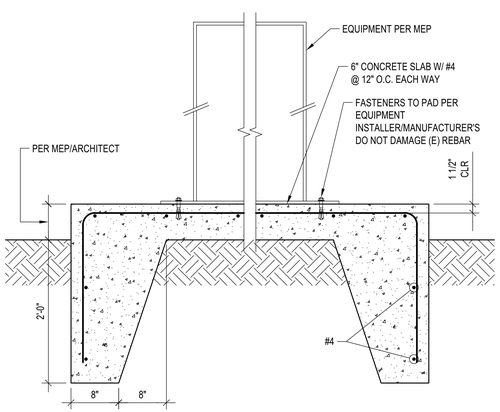
NOTES:

1. CONTROL JOINTS TO BE LOCATED AT COLUMN CENTER LINES AND AT 20'-0" O.C. MAX. AND EVERY 400 SQUARE FEET.
2. IF SAW-CUT CONTROL JOINT TO BE USED, SAW-CUT WITHIN 24 HOURS OF POUR.
3. SEE PLAN FOR "T".

JOINTS AT SLAB ON GRADE

SCALE: N.T.S.

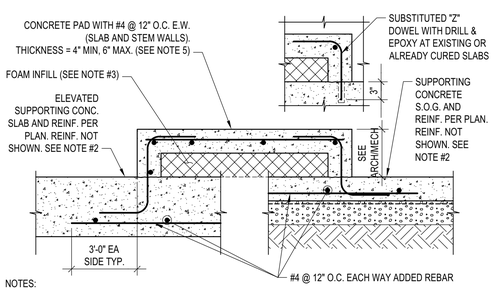
3



EQUIPMENT CONC. PAD ON GRADE

SCALE: N.T.S.

10



NOTES:

1. THIS DETAIL ADDRESSES THE CONSTRUCTION OF CONCRETE MECHANICAL AND HOUSEKEEPING PAD.
2. SUPPORTING SLAB:
   - SLAB ON GRADE: THIS DETAIL CAN BE UTILIZED AT ALL LOCATIONS
   - ELEVATED SLAB: THIS DETAIL CAN BE UTILIZED ONLY WHERE EXPRESSLY INDICATED ON THE STRUCTURAL FLOOR PLANS. IF NOT SHOWN, OBTAIN S.E.O.R. APPROVAL PRIOR TO ERECTION
3. AT CONTRACTOR'S DISCRETION, FOAM CAN BE SUBSTITUTED WITH CONCRETE IF THE SUPPORTING SLAB IS ON GRADE. THIS SUBSTITUTION IS NOT ALLOWED FOR ELEVATED SUPPORTING SLAB.
4. CONCRETE PAD CONFIGURATION, ANCHOR BOLT SIZE, PROJECTION AND LOCATION SHALL CONFORM TO EQUIPMENT MANUFACTURER'S REQUIREMENTS.
5. THICKEN PAD AS REQUIRED FOR HOLD-DOWN ANCHOR EMBEDMENT.

MECH. PAD FOR LIGHT EQUIPMENT

SCALE: N.T.S.

7

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NO	DATE	ISSUE
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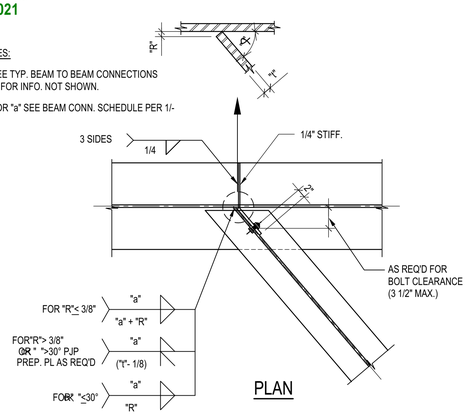
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - CONCRETE

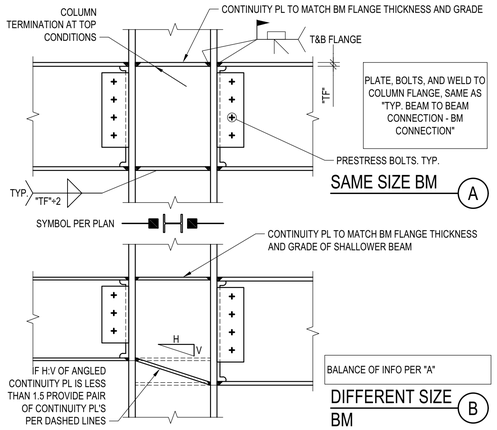
DRAWING NUMBER:
S-013



SKEWED BEAM TO BEAM CONN.

SCALE: N.T.S.

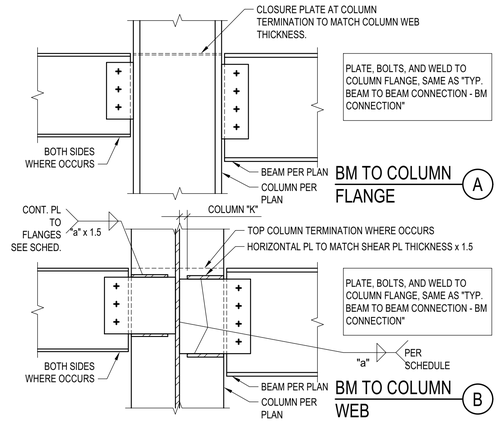
8 / -



BM TO CLN FLANGE RIGID CONN.

SCALE: N.T.S.

5 / -



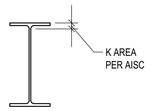
TYP. BEAM TO WF COLUMN

SCALE: N.T.S.

3 / -

NOTES:

1. BEAM PREP AND WELDED JOINT TO COMPLY WITH PRE-QUALIFIED AWS AND AISC DETAILING REQUIREMENTS
2. FIELD WELD CONNECTION PLATES WHERE (N) MEMBERS CONNECT TO (E) MEMBERS.
3. AT W6 BEAMS PROVIDE 1 7/8" SPACING BETWEEN BOLTS
4. ALL HOLES SHALL BE STANDARD HOLES
5. OBTAIN APPROVAL FROM PROJECT ARCHITECT FOR ADDED ERECTION PLATES AND BOLTS AT ARCHITECTURALLY EXPOSED STRUCTURAL STEEL

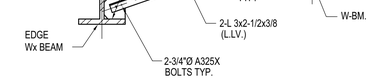


BEAM/ GIRDER	CONNECTION BOLT - A325X			
	NO. OF BOLTS	SIZE OF BOLTS	PLATE THICK. "t"	WELD SIZE "a", "b"
W6	2 (3)	5/8"Ø	3/8"	5/16"
W8, W10	2	7/8"Ø	3/8"	5/16"
W12, W14	3	7/8"Ø	3/8"	3/8"
W16, W18	4	7/8"Ø	1/2"	3/8"
W21	5	7/8"Ø	1/2"	3/8"
W24	6	7/8"Ø	1/2"	3/8"
W27	7	7/8"Ø	1/2"	3/8"
W30	8	7/8"Ø	5/8"	3/8"
W33	9	7/8"Ø	5/8"	3/8"
W36	10	7/8"Ø	5/8"	3/8"

BEAM CONNECTION SCHEDULE

SCALE: N.T.S.

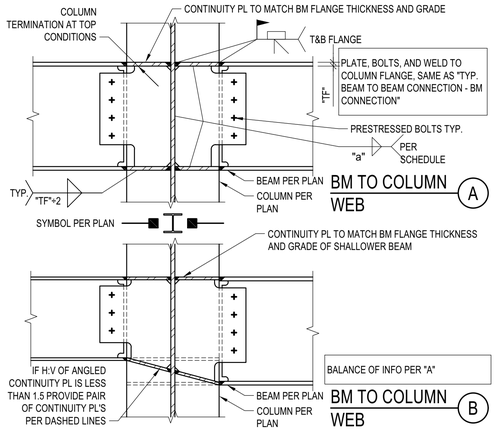
1 / -



TYPICAL BEAM BOTTOM FLANGE BRACE DETAIL

SCALE: NTS

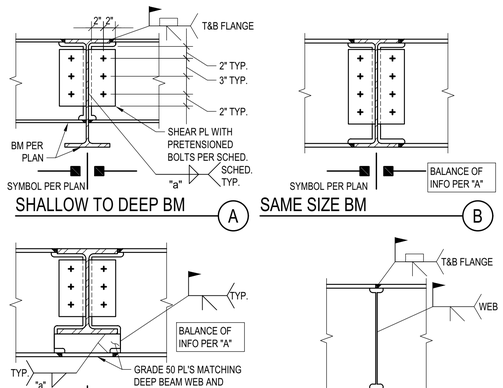
9 / -



BM TO CLN WEB RIGID CONN.

SCALE: N.T.S.

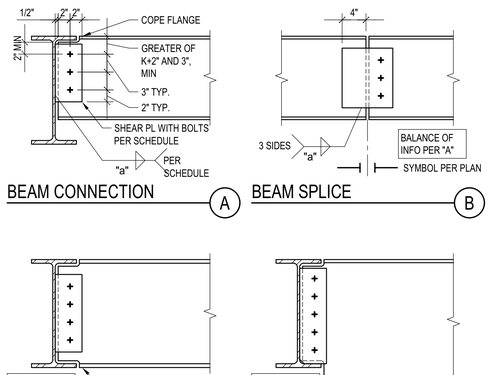
6 / -



BEAM TO BEAM RIGID CONNECTION

SCALE: N.T.S.

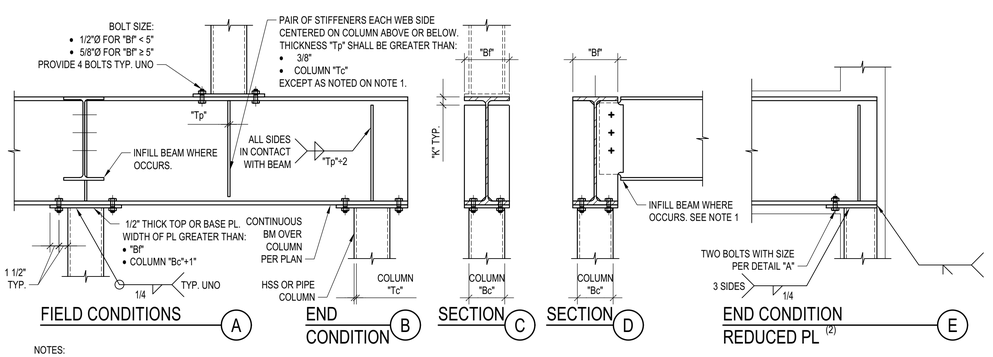
4 / -



TYP. BEAM TO BEAM CONNECTION

SCALE: N.T.S.

2 / -



NOTES:

1. WHERE INFILL BEAM OCCURS PROVIDE PAIR OF FULL DEPTH STIFFENERS AS SHOWN ON DETAIL "D". SEE BEAM TO BEAM CONNECTIONS. PROVIDE LARGER PL THICKNESS AND WELDS WHERE REQUIRED BY OTHER DETAILS.
2. PROVIDE REDUCED PLATE AS NEEDED TO PREVENT BASE OR TOP PLATE EXTENDS OUT OF SHEATHING WHERE END COLUMN OCCURS WITHIN A LIGHT FRAME WOOD OR COLD FRAMED WALL.

HSS AND PIPE COLUMN TO WF BEAM CONNECTIONS

SCALE: N.T.S.

7 / -

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PROJECT ARCHITECT:
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1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

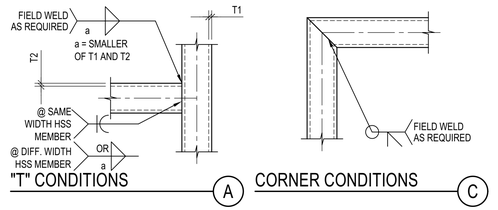
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - STEEL

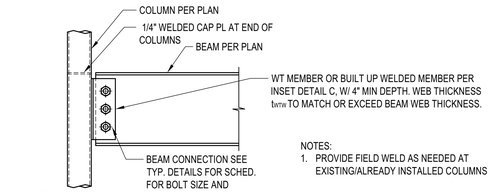
DRAWING NUMBER:
S-021



HSS MEMBERS CONNECTION

SCALE: N.T.S.

4



TYP. BEAM TO HSS-TS COLUMN

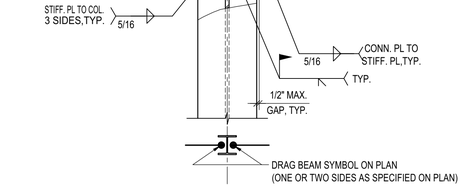
SCALE: N.T.S.

1

DRAG BEAM CONNECTION SCHEDULE					
BEAM SIZE	NUMBER OF 1"Ø A490-SC BOLTS		CONNECTION PLATE		
	ROW 1	ROW 2	PLATE THICKNESS "t"	PLATE HEIGHT "h"	WELD "a"
W12x	2	2	5/8"	9"	5/16"
W14x	3	2	5/8"	11"	5/16"
W16	4	2	5/8"	13"	3/8"
W18x	4	4	3/4"	13"	3/8"
W21x	5	4	3/4"	16"	3/8"
W24x55 W24x62	6	4	3/4"	19"	3/8"
W24x68 W24x76	6	4	1 1/4"	19"	3/8"
W24x84	6	6	1 1/2"	19"	3/8"
W24x94	6	6	1 5/8"	19"	1/2"
W27x	7	5	1 5/8"	22"	1/2"

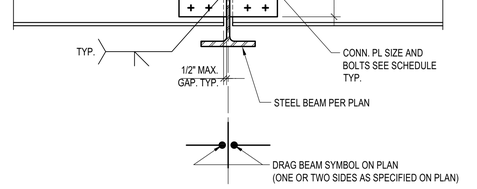
DRAG BEAM CONNECTION SCHEDULE

E



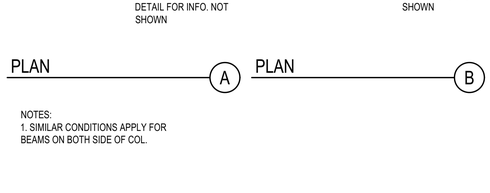
DRAG BEAM TO COL. WEB CONN.

C



DRAG BEAM TO BEAM CONNECTION

A



PLAN A PLAN B

NOTES:
1. SIMILAR CONDITIONS APPLY FOR BEAMS ON BOTH SIDE OF COL.

SKEWED BEAM TO COLUMN CONN.

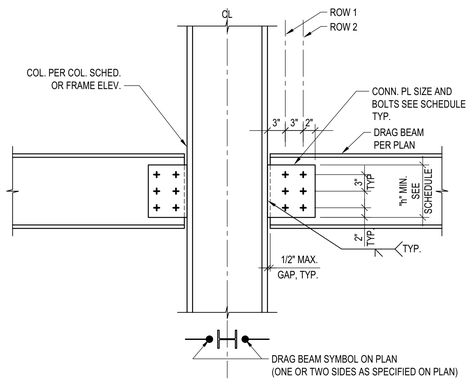
SCALE: N.T.S.

2

NOTES:
1. ALL FILLET WELD SIZES SHOWN ARE MINIMUM WELD SIZE. WHERE WELD SIZE SHOWN ARE SMALLER THAN AWS MINIMUM WELD SIZE, AWS MINIMUM WELD SIZE SHALL BE USED.
2. ALL CONN PL. SHALL BE A572, GRADE 50
3. FIELD WELD CONNECTION PLATES WHERE (N) MEMBERS CONNECT TO (E) MEMBERS.
4. USE STD. HOLES @ STEEL BEAM & SHEAR PL, TYP.

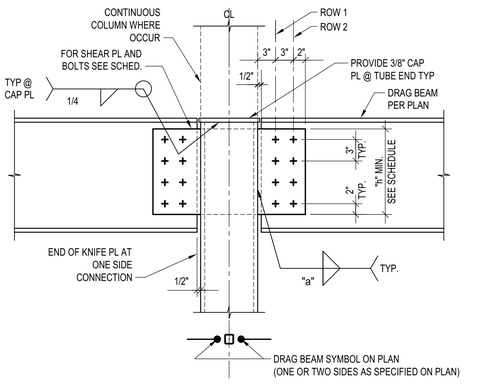
DRAG BEAM CONNECTION NOTES

F



DRAG BEAM TO COL. FLANGE CONN.

D



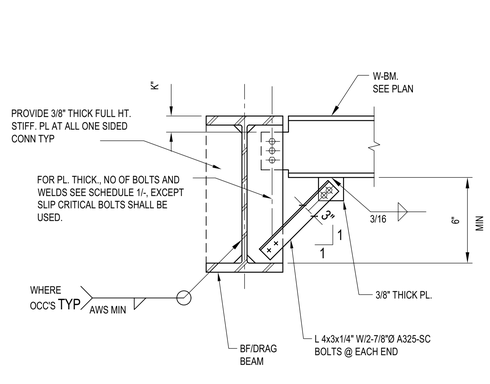
DRAG BEAM TO TS COLUMN

B

TYPICAL DRAG BEAM CONNECTIONS

SCALE: N.T.S.

5



BEAM TO BRACED BEAM CONN.

SCALE: N.T.S.

3

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
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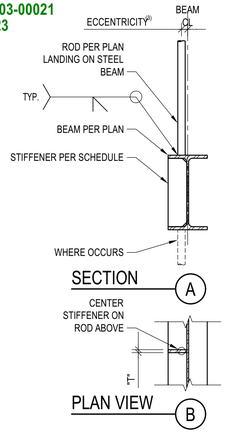
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - STEEL

DRAWING NUMBER:
S-022



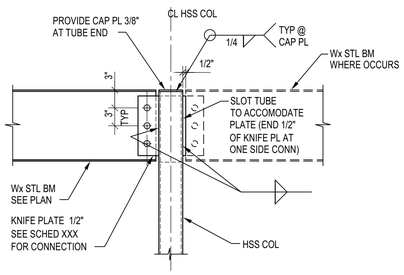
STIFFENER SCHEDULE[2]	
ROD DIA	"T"
UP TO 1"	1/4"
UP TO 1 1/4"	3/8"
UP TO 1 1/2"	1/2"
UP TO 2"	3/4"

NOTES

1. THIS DETAIL ADDRESSES CONNECTION OF ROD TO TOP OF STEEL BEAM. BEAM AND ROD ARE SPECIFIED ELSEWHERE IN THE SET. APPLICATIONS INCLUDE BUT ARE NOT LIMITED TO HOLDOWN ROD, TIE DOWN ROD, ETC.
2. DETAIL APPLIES TO ALL STRUCTURAL STEEL SHAPES. STIFFENERS ARE REQUIRED ONLY AT WIDE FLANGE AND CHANNEL SHAPES
3. MINIMIZE ECCENTRICITY AS PRACTICALLY POSSIBLE. IF ECCENTRICITY EXCEEDS 2" CONTACT E.O.R. FOR APPROVAL

ROD CONNECTED TO STEEL BEAM
SCALE: N.T.S.

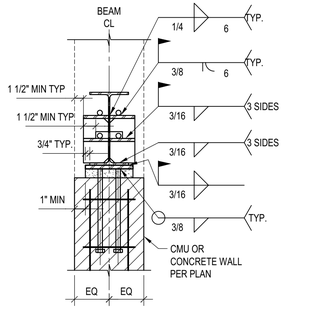
7 -



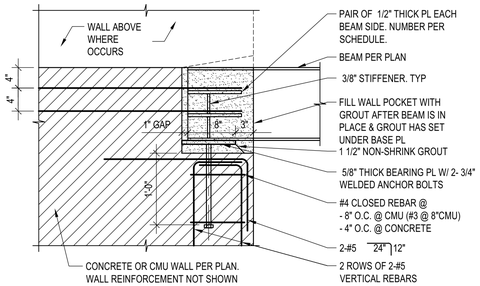
Wx BM TO HSS COLUMN CONNECTION DETAIL AT ROOF
SCALE: NTS

8 -

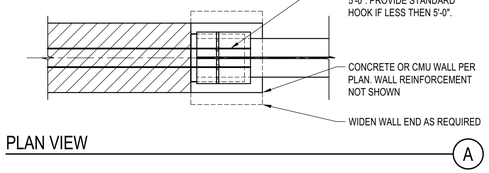
SCHEDULE	
BEAM	PAIR OF HORIZ. PL'S
W6, W8	1
W12, W14, W16	2
W18, W21	3



SCHEDULE D — FRONT VIEW C



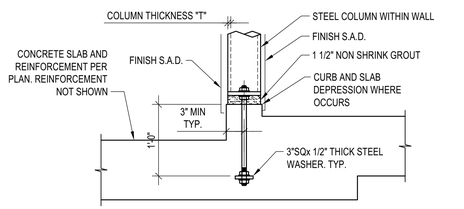
SIDE VIEW B



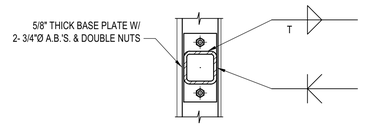
PLAN VIEW A

STEEL BEAM PARALLEL TO CONC. OR CMU WALL CONNECTION
SCALE: N.T.S.

6 -



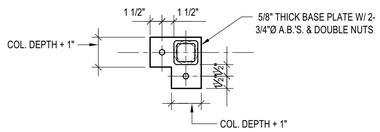
SECTION B



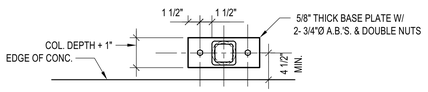
PLAN VIEW A

B. PL ON PODIUM SLAB CURB
SCALE: N.T.S.

4 -



PLAN AT CORNER WALL CONDITIONS D



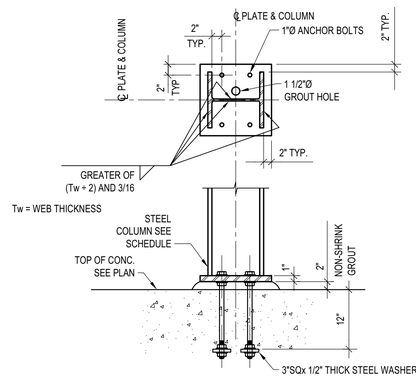
PLAN AT EXTERIOR WALL CONDITIONS C

NOTES:

1. AT EDGE CONDITIONS, A MIN 4" CONCRETE COVER ALL AROUND THE BASE PLATE SHALL BE PROVIDED

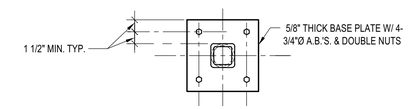
ISOLATED HSS-PIPE COL. BASE PL
SCALE: N.T.S.

2 -

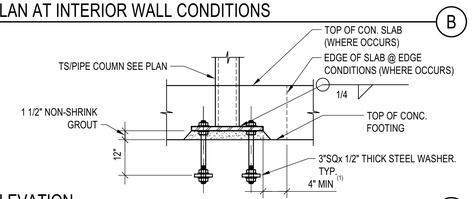


TYP. Wx BASE PLATE DETAIL
SCALE: N.T.S.

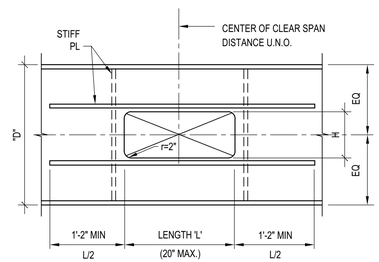
1 -



PLAN AT INTERIOR WALL CONDITIONS B

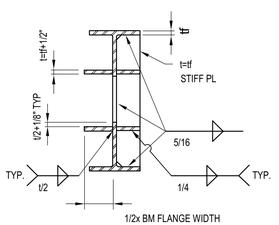


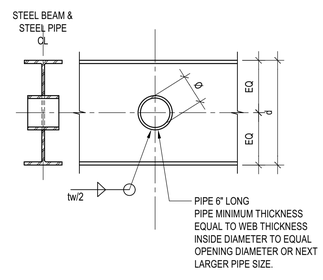
ELEVATION A



NOTE:
MAX "H" = D/2 OR 10" WHICHEVER IS SMALLER

RECTANGULAR OPENING A



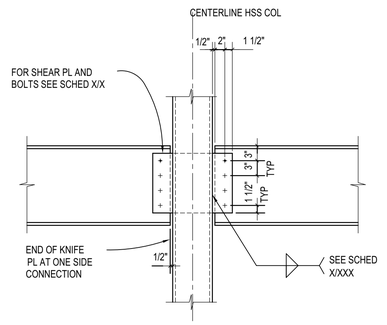


NOTE: Ø < 6" OR d/3 WHICHEVER IS SMALLER

CIRCULAR OPENING B

OPENING IN STEEL BEAM
SCALE: N.T.S.

5 -



Wx BEAM TO HSS COL. CONN. DETAIL
SCALE: NTS

3 -

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
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SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

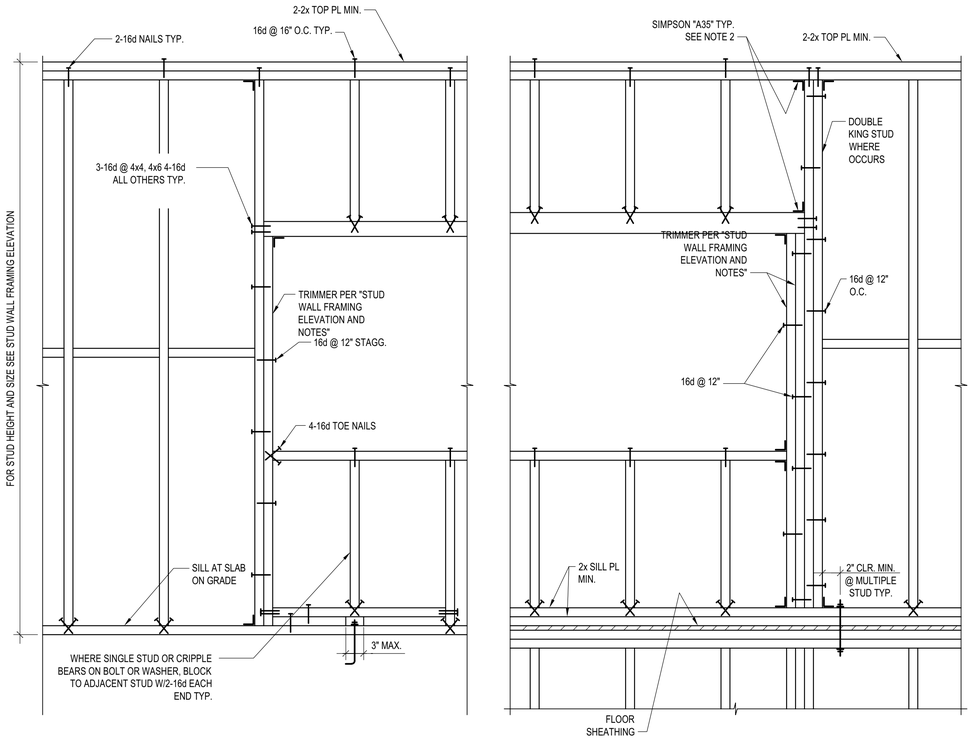
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - STEEL

DRAWING NUMBER:
S-023



8'-0" MAX. OPENING

NOTES:

1. SEE "STUD WALL FRAMING ELEVATION AND NOTES" FOR MINIMUM HEADER SIZES, AND MINIMUM NUMBER AND SIZE OF TRIMMERS AND KING STUDS.
2. A35 CLIPS CAN BE OMITTED AT INTERIOR WALLS

TYP. STUD WALL OPENING FRAMING

SCALE: N.T.S.

2

TYP. TRIMMER & KING STUDS SCHEDULE AT BEARING HEADERS U.N.O.

OPENING WIDTH	INTERIOR	EXTERIOR
<= 6'-0"	(1)-TRIMMER (1")-KING STUD	(1)-TRIMMER (1)-KING STUD
> 6'-0"	-	(2)-TRIMMER (2)-KING STUD

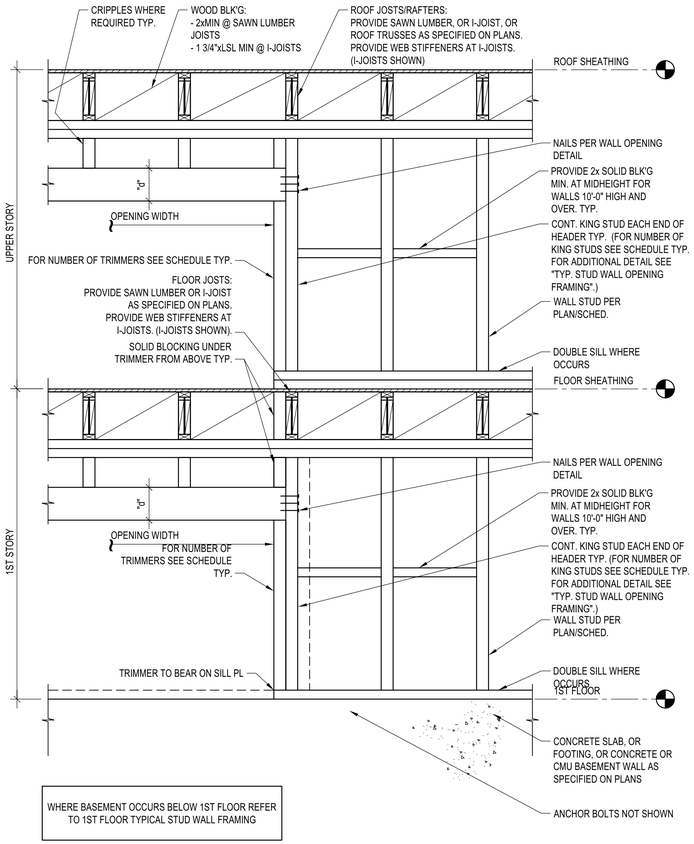
* FOR ALL INTERIOR HEADERS SUPPORTING ROOF + 3 LEVELS OR MORE, ADD ONE ADDITIONAL KING STUD TO THE SCHEDULE ABOVE.

TYP. MINIMUM NON-BEARING HEADER SCHEDULE U.N.O.

WIDTH OF OPENING	EXTERIOR	INTERIOR (4x WALL)	INTERIOR (6x WALL)
4'-0"	6x6	4x4/(2)-2x4	6x6
6'-0"	6x6	4x4/(2)-2x4	6x6
8'-0"	6x6	4x6/(2)-2x6	6x6

TYP. MINIMUM BEARING HEADER SCHEDULE U.N.O.

WIDTH OF OPENING	EXTERIOR			INTERIOR - 4x WALL			INTERIOR - 6x WALL		
	ROOF	FLOOR	PUBLIC AREA	ROOF	FLOOR	PUBLIC AREA	ROOF	FLOOR	PUBLIC AREA
4'-0"	6x6	6x6	6x8	4x6/(2)-2x6	4x8/(2)-2x8	4x10/(2)-2x12	6x6	6x8	6x10
6'-0"	6x6	6x8	6x10	4x8/(2)-2x8	4x10/(2)-2x12	4x12	6x8	6x10	6x12
8'-0"	6x8	6x10	6x12	-	-	-	-	-	-



WHERE BASEMENT OCCURS BELOW 1ST FLOOR REFER TO 1ST FLOOR TYPICAL STUD WALL FRAMING

STUD WALL PLATFORM FRAMING ELEVATION

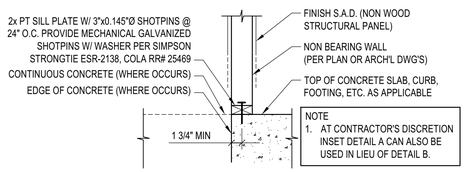
SCALE: N.T.S.

1

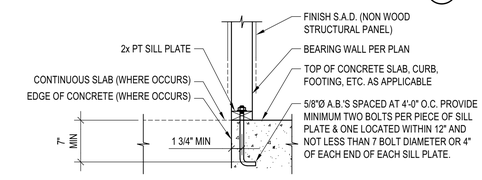
NOTES:

1. SEE PLANS FOR SPECIAL FRAMING REQUIREMENTS. PLATFORM FRAMING SHALL BE PROVIDED UNLESS BALLOON FRAMING IS EXPLICITLY CALLED OUT ON THE PLANS
2. HEADER SIZES SHOWN IN SCHEDULES ABOVE ARE MINIMUM HEADER SIZES, SEE PLANS FOR WHERE LARGER HEADER SIZES ARE REQUIRED.
3. STUD HEIGHT LIMITATIONS:
   2x4 AT 16" O.C. NOT TO EXCEED 9 FEET.
   3x4 AT 16" O.C. NOT TO EXCEED 10 1/2 FEET.

   IF CALLED OUT STUD SIZES AT ANY GIVEN FLOOR LEVEL EXCEED THESE LIMITATIONS, CONTACT STRUCTURAL ENGINEER FOR CLARIFICATION.
4. TRIMMERS TO BE SAME SIZE AS STUDS AS GIVEN FLOOR LEVEL UNLESS NOTED OTHERWISE. SEE PLANS FOR POSTS WHERE REQUIRED INSTEAD OF TRIMMERS.
5. NAIL TRIMMERS TOGETHER W/16d NAILS AT 12" O.C. STAGGERED EACH FACE.
6. SEE PLANS FOR SHEAR WALL FRAMING REQUIREMENTS.
7. FOR ACTUAL WALL WIDTH, SEE ARCHITECTURAL DRAWINGS.
8. ALIGN ROOF & FLOOR FRAMING WITH STUDS AS SHOWN.
9. PROVIDE (1)-TRIMMER AND (1)-KING STUD @ NON-LOAD BEARING HEADERS.



NON BEARING WALL (1) B

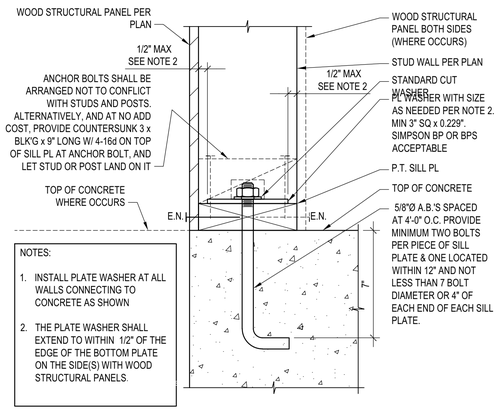


BEARING WALL A

BASE DETAIL @ NON SHEAT'D WALL

SCALE: N.T.S.

4



BASE DETAIL @ SHEATHED WALL OTHER THAN SHEAR WALLS

SCALE: N.T.S.

3

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
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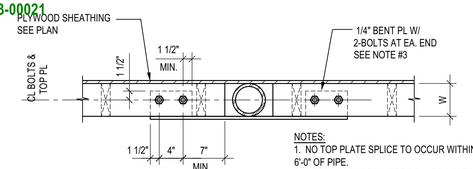
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

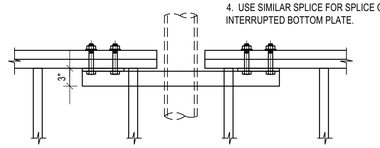
DRAWING TITLE:
TYPICAL DETAILS - STEEL

DRAWING NUMBER:
S-031



PLAN

NOTES:
1. NO TOP PLATE SPLICE TO OCCUR WITHIN 6'-0" OF PIPE.
2. DETAIL APPLIES WHERE DRILLED HOLE EXCEEDS 2/3 W OR TOP PLATE IS INTERRUPTED.
3. AT 2x4 TOP PLATE USE 3/4"Ø BOLTS. AT 2x6 TOP PLATE USE 1"Ø BOLTS.
4. USE SIMILAR SPLICE FOR SPLICE OF INTERRUPTED BOTTOM PLATE.

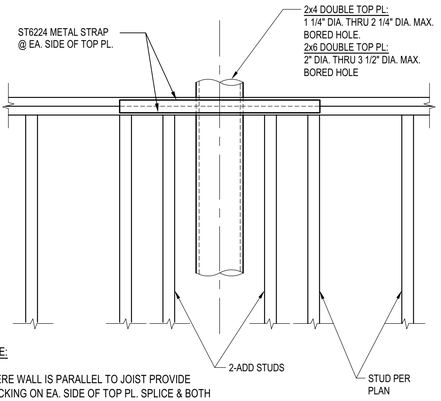


ELEVATION

TYP. INTERRUPTED TOP/BOTT. PLATE SPLICE

SCALE: N.T.S.

8 -



NOTE:

WHERE WALL IS PARALLEL TO JOIST PROVIDE BLOCKING ON EA. SIDE OF TOP PL. SPLICE & BOTH SIDE OF WALL

SHEAR WALL WITH PIPE DETAIL

SCALE: N.T.S.

6 -

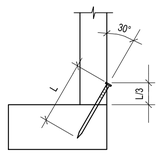
NAILING SCHEDULE (1)	
CONNECTION	NAILING
POST TO PIER PAD, TOE NAIL	3-16d or 4-8d
GIRDER TO POST, TOE NAIL	3-16d or 4-8d
JOIST TO SILL OR GIRDER, TOE NAIL	3-8d
BRIDGING TO JOIST, TOE NAIL EACH END	2-8d
JOIST TO BLOCKING, END NAIL	16d T&B OF EACH JOIST
RIM JOIST TO JOISTS, END NAIL	16d T&B OF EACH JOIST
RIM JOIST TO SILL, TOE NAIL	16d @ 16" O.C.
FLOOR JOIST LAP @ BEARING, FACE NAIL	2-16d
SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL	16d @ 16" O.C.
TOP PLATE TO STUD, END NAIL	2-16d
STUD TO SOLE PLATE	2-16d END NAIL, OR 4-8d TOE NAIL
DOUBLED STUDS, FACE NAIL	16d @ 24" O.C.
DOUBLE TOP PLATES, FACE NAIL	8-16d
DOUBLE TOP PLATES, LAP SPLICE	16d @ 16" O.C.
TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	2-16d
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOENAIL	3-8d
RIM JOIST TO TOP PLATE, TOENAIL	8d @ 16" O.C.
CONTINUOUS HEADER, TWO PIECES	16d @ 16" O.C. ALONG EACH EDGE
CEILING JOIST TO PLATE, TOE NAIL	3-8d
CONTINUOUS HEADER TO STUD, TOE NAIL	4-8d
CEILING JOISTS, LAP OVER PARTITIONS, FACE NAIL	3-16d
CEILING JOIST TO PARALLEL RAFTER, FACE NAIL	3-16d
RAFTER TO RIDGE	3-8d
RAFTER TIES, 2" LUMBER, FACE NAIL	3-16d
RAFTER TIES, 1" LUMBER, FACE NAIL	5-8d
RAFTER TO PLATE, TOE NAIL	3-8d
1"X4" MIN. BRACE TO EACH STUD AND PLATE, FACE NAIL	2-8d
BUILT-UP CORNER STUDS	16d @ 24" O.C.

NOTES:

1. ALTERNATIVELY, PROVIDE NAILING PER "FASTENING SCHEDULE" PER LATEST EDITIONOF CALIFORNIA BUILDING CODE

SCHEDULE

B



TOE NAIL INSTALLATION

A

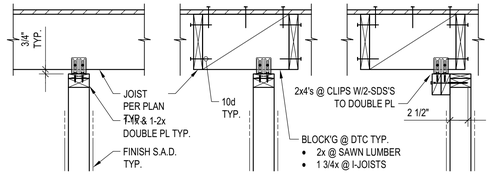
NAILING SCHEDULE

SCALE: N.T.S.

4 -

INDICATES SIMPSON DTC CLIP (IAPMO ER 124, COLA RR25489) WITH SPACING PER SCHEDULE.
CONNECT WITH 4-#8 WOOD SCREWS AT THE BASE AND 2-#8 WOOD SCREWS AT THE SLOTS. INSTALL PER MANUFACTURER'S SPECS

DTC CLIP MAX SPACING		
MAX WALL HEIGHT	SINGLE LAYER OF GYPBOARD EA FACE	MAX DOUBLE LAYER OF GYPBOARD EA FACE OR SINGLE LAYER EA FACE AND TILES
UP TO 12'-0"	DTC @ 48" O.C.	DTC @ 32" O.C.
UP TO 16'-0"	DTC @ 32" O.C.	DTC @ 24" O.C.



PERPENDICULAR TO JOIST — A

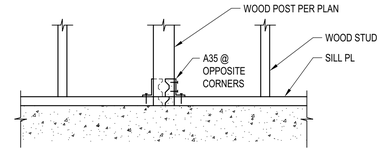
PARALLEL TO JOIST — B

NOTES:
1. DETAIL APPLIES TO BOTH I-JOIST CONSTRUCTION AND SAWN LUMBER. SAWN LUMBER SHOWN.
2. FOR WALL ASSEMBLIES OTHER THAN WHAT SHOWN ON THE SCHEDULE INCLUDING STONE VENEER CONTACT STRUCTURAL ENGINEER TO CONFIRM CLIP SPACING.

TOP CONN. NON BEARING WALL

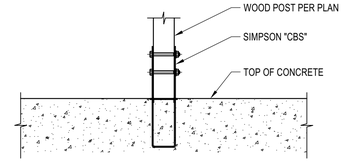
SCALE: N.T.S.

1 -



WITHIN A WALL

B



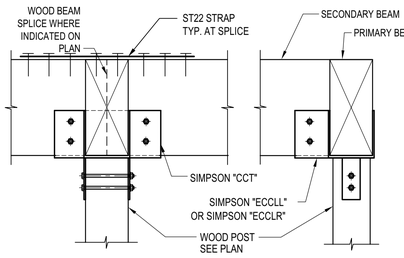
ISOLATED POST

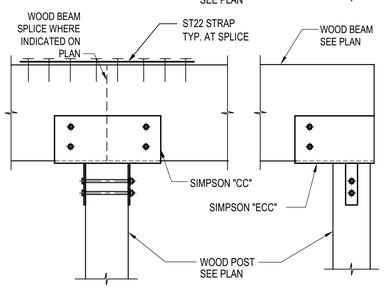
A

TYP. POST BASE

SCALE: N.T.S.

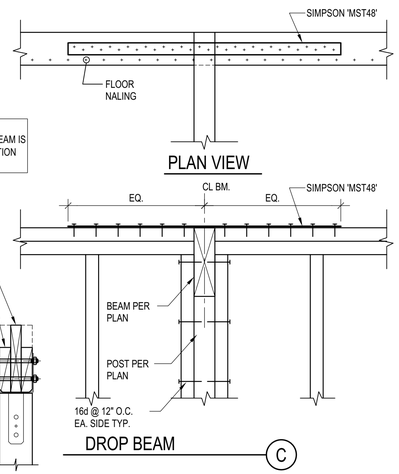
2 -

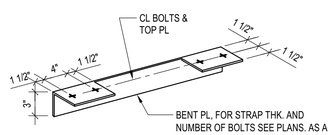


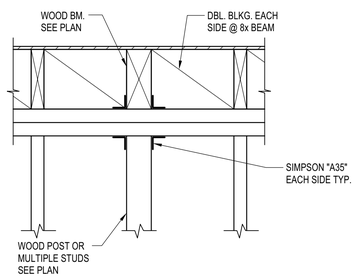


ISOLATED POST

A

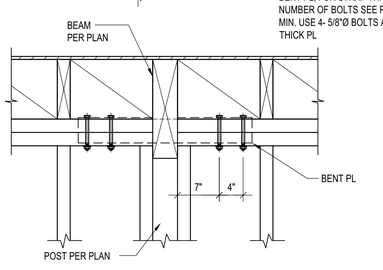






POST WITHIN WALL

B



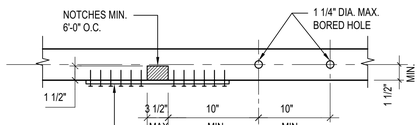
DROP BEAM

D

TYP. BEAM TO POST CONN. DETAIL

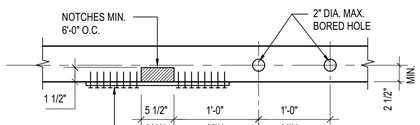
SCALE: N.T.S.

7 -



2x4 DBL. TOP PLATE

2x4 OR 3x4 SILL PLATE SIM



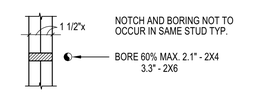
2x6 DBL. TOP PLATE

2x6 OR 3x6 SILL PLATE SIM

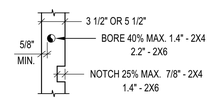
PLATE NOTCHING & BORING

SCALE: N.T.S.

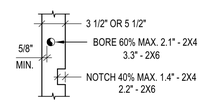
5 -



DOUBLE STUDS-BEARING OR NOT



BEARING STUDS



NON-BEARING STUDS

TYP. STUD NOTCHING

SCALE: N.T.S.

3 -

BADGER RESIDENCE

OWNER:

121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:

RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:

GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:

BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:

BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:

LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

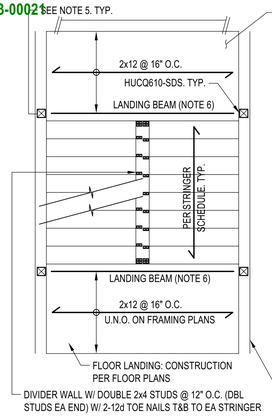
PROJECT:

BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD

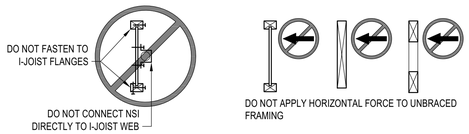
DRAWING NUMBER:
S-032



NOTES:

1. THIS DETAIL ADDRESSES CONSTRUCTION OF WOOD STAIR WITHIN SHAFT UP TO 5 STORY
2. LOCATION OF STAIR IS SHOWN ON FLOOR PLANS.
3. STRINGER CONSTRUCTION SHALL BE PER "TYPICAL STRINGER CONSTRUCTION" AND "TYPICAL STRINGER DETAIL"
4. INTERMEDIATE LANDING SHALL BE SHEATHED WITH WOOD STRUCTURAL PANEL, 3/4" CD APA RATED PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48/24, NAILED WITH 10d COMMONS SPACED AT 6" O.C. ALONG ALL BOUNDARIES (B.N.) AND CONTINUOUS ADJOINING PANEL EDGES, AND 6" O.C. ALONG OTHER PANEL EDGES (E.N.) AND 12" O.C. ALONG INTERMEDIATE SUPPORTS (FIELD) (F.N.), PANEL EDGES UNBLOCKED, GLUE WOOD STRUCTURAL PANELS TO JOISTS . SEE "TYPICAL SHEATHING ASSEMBLY" PER TYPICAL DETAILS SHEETS.
5. POST SUPPORTING LANDING BEAM TO BE MIN 6x6, OR (4)2x6, OR 6x4 + 2x6
6. UNLESS OTHERWISE NOTED ON FLOOR PLANS, LANDING BEAM SHALL BE 6x10 OR 2-3x12.

TWO FLIGHT WOOD STAIR
SCALE: N.T.S.
9 / -



NOTES:

1. THIS DETAIL ADDRESSES CONNECTION OF NON STRUCTURAL INFRASTRUCTURES "NSI" TO WOOD FRAMING.
2. NSI INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLERS, LIGHTING, MEP, FF&E, ETC.
3. CONNECTION OF NSI TO FRAMING SHALL BE DESIGNED AND SPECIFIED BY NSI SUPPLIER. CONNECTION SHALL INCLUDE FASTENERS TO FRAMING AND ADDITIONAL FRAMING MEMBERS, SUCH AS WEB STIFFENERS, WEB FILLERS, BRACING, AND BLOCKING
4. CONNECTION OF NSI SHALL COMPLY WITH LIMITATIONS SET FORTH PER THIS DETAIL AND SHALL NOT IMPAIR OR DAMAGE FRAMING. IN ADDITION, IF NSI IS CONNECTED TO ENGINEERED OR PREFABRICATED ELEMENTS (SUCH AS I-JOISTS, OPEN WEB TRUSSES, ETC.), NSI SUPPLIER SHALL COORDINATE CONNECTION DETAILS DIRECTLY WITH FRAMING MANUFACTURER'S SPECIFICATIONS AND FABRICATOR, AS APPLICABLE
5. SUBMIT DETAILS/SHOP DRAWINGS TO SEOR FOR REVIEW OF STRUCTURAL IMPACT ON BUILDING STRUCTURE

NON-STRUCT. ELEMENTS TO FRM'G
SCALE: N.T.S.
6 / -

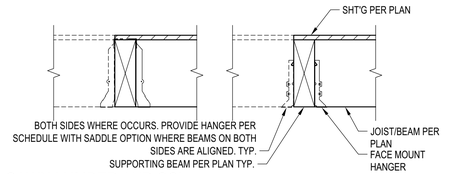
HANGER SCHEDULE - MANUFACTURER: SIMPSON STRONGTIE			
TOP MOUNT HANGER (SEE NOTE 1)		FACE MOUNT HANGER (SEE NOTE 1)	
JOIST/BEAM SIZE	HANGER TYPE	JOIST/BEAM SIZE	HANGER TYPE
ALL SAWN LUMBER U.N.O.	SIMPSON HUTF ESR-2553 COLA RR25803	ALL SAWN LUMBER U.N.O.	SIMPSON HU ESR-2549 COLA RR25807
2x6 THRU 2x16	SIMPSON LB ESR-2553 COLA RR25800	2x6 THRU 2x10	SIMPSON LUS ESR-2549 COLA RR25807
2-2x6 THRU 2-2x14	SIMPSON HUSTF ESR-2553 COLA RR25800	2-2x6 THRU 2-2x10	SIMPSON LUS ESR-2549 COLA RR25807
4x6 THRU 4x14	SIMPSON HUSTF ESR-2553 COLA RR25800	4x6 THRU 4x16	SIMPSON HUS ESR-2552 COLA RR25801
ALL I-JOIST U.N.O.	SIMPSON MIT ESR-2615 LA SUPPLEM.	ALL I-JOIST U.N.O.	SIMPSON MIU ESR-2552 COLA RR25801
SINGLE I-JOIST TO WOOD BEAM 9 1/4 THRU 16 DEEP	SIMPSON ITS ESR-2615 COLA RR25803	SINGLE I-JOIST TO WOOD BEAM 9 1/4 THRU 16 DEEP	SIMPSON IUS ESR-2552 COLA RR25801
ALL PSL/LVL/LSL BEAMS U.N.O.	SIMPSON HGLTV ESR-2615 COLA RR25803	ALL PSL/LVL/LSL BEAMS U.N.O.	SIMPSON HGU ESR-2552 COLA RR25801
		3 1/2" AND 5 1/4" PSL/LVL/LSL UP TO 11 7/8" DEEP	SIMPSON MGU ESR-2552 COLA RR25801
ALL GLULAM BEAMS U.N.O.	SIMPSON EG ESR-2615 COLA RR25803	ALL GLULAM BEAMS U.N.O.	SIMPSON HHGU ESR-2552 COLA RR25801

NOTES:

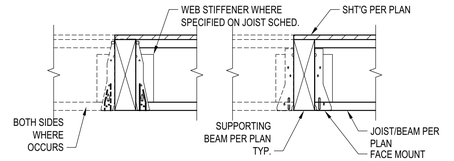
1. HANGERS SHALL BE USED TO SUPPORT BEAM OR JOISTS FROM A SUPPORTING BEAM.
2. TOP OR FACE MOUNT HANGERS SHALL BE SELECTED AT CONTRACTOR'S DISCRETION BASED ON MORE ECONOMICAL CHOICE
3. HANGERS SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS, SUCH AS BUT NOT LIMITED TO MIN THICKNESS FOR FASTENER EMBEDMENT, MIN EDGE DISTANCE, MIN SIZE OF HEADERS, ETC.
4. PROVIDE SKEWED, SLOPED HANGERS AS REQ'D
5. PROVIDE OFFSET OR CONCEALED FLANGE HANGERS AT EDGE CONDITIONS AS NEEDED

HANGER SCHEDULE AND NOTES
A

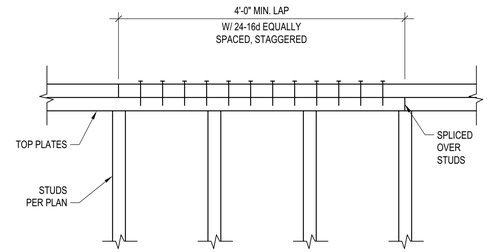
JOIST AND BEAM HANGER SCHEDULE
SCALE: N.T.S.
1 / -



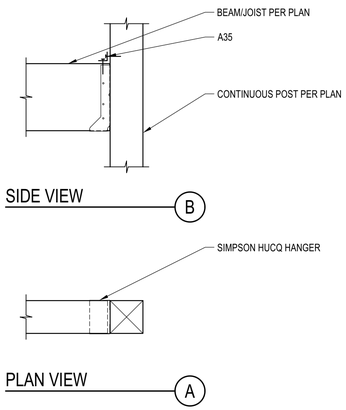
SAWN LUMBER AND SCL
C



I-JOIST CONSTRUCTION
B



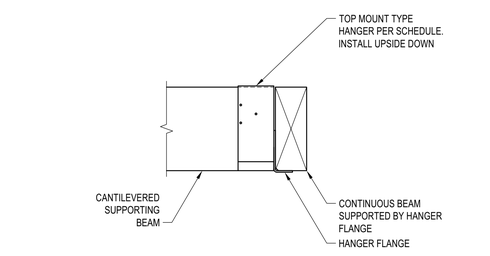
TYP. TOP PLATES SPLICE DETAIL
SCALE: N.T.S.
10 / -



SIDE VIEW
B

PLAN VIEW
A

BM TO POST FACE MOUNT CONN.
SCALE: N.T.S.
7 / -



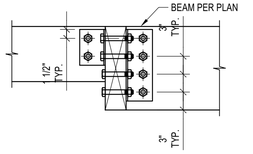
NOTES:

1. PROVIDE INVERTED HANGER WHERE INDICATED ON FRAMING PLANS
2. INSTALL HANGER UPSIDE DOWN. ALL OTHER REQUIREMENTS PER MANUFACTURER'S SPECIFICATIONS SHALL BE MET

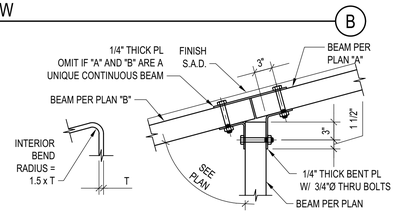
INVERTED HANGER
SCALE: N.T.S.
4 / -

NOTES:

1. PROVIDE THIS DETAIL WHERE SPECIFICALLY CALLED ON PLANS OR WHERE PREFABRICATED HANGERS PER "HANGER SCHEDULE" ARE NOT AVAILABLE
2. FIT AS MANY BOLTS AS BEAM SIZE ALLOWS
3. 1/4" THICK STEEL ANGLES IN LIEU OF BENT PL IS ALLOWED IF ANGLE IS 90 DEGREE

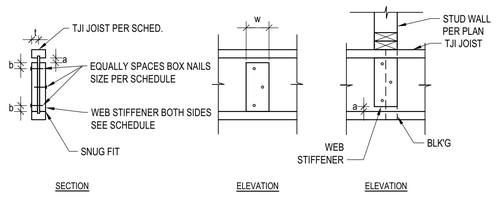


SIDE VIEW
B



TOP VIEW
A

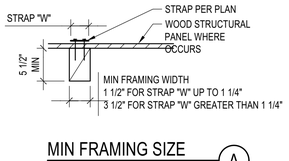
CUSTOM WD BEAM "T" CONNECTION
SCALE: N.T.S.
2 / -



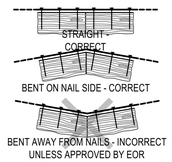
TJI JOIST SERIES	STIFFENER	"a"	"b"	NAILS	w	t
TJI 110	PS1 OR PS2 SHEATHING, FACE GRAIN VERTICAL	1/8" MIN 2 3/4" MAX	1" MAX	3-8d	2 5/16" MIN	5/8" MIN
TJI 210	PS1 OR PS2 SHEATHING, FACE GRAIN VERTICAL	1/8" MIN 2 3/4" MAX	1" MAX	3-8d	2 5/16" MIN	23/32" MIN
TJI 230/TJI 360	PS1 OR PS2 SHEATHING, FACE GRAIN VERTICAL	1/8" MIN 2 3/4" MAX	1" MAX	3-8d	2 5/16" MIN	7/8" MIN
TJI 560	2x4 CONSTRUCTION GRADE OR BETTER	1/8" MIN 2 3/4" MAX	1 1/2" MAX	3-16d	3 1/2" MIN	1 1/2" MIN

ESR#1153

I-JOIST STIFFENER
SCALE: N.T.S.
11 / -



MIN FRAMING SIZE
A

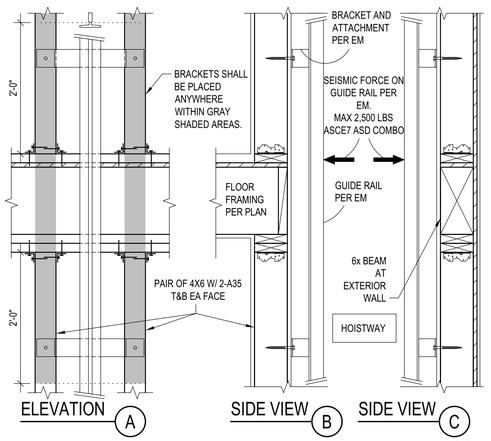


STRAP CONFIGURATION
B

NOTES:

1. THIS DETAIL ADDRESSES INSTALLATION OF STRAPS AND APPLIES TO BOTH SAWN AND STRUCTURAL COMPOSITE LUMBER
2. STRAPS SIZE AND LENGTH ARE AS SPECIFIED ON FLOOR PLANS OR ELSEWHERE IN THIS DRAWING SET.
3. STRAPS ARE PER SIMPSON STRONGTIE (MANUFACTURER). ESR2105, COLARR#25713, COLARR#25910
4. STRAPS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. INSTALL ALL FASTENERS SPECIFIED BY MANUFACTURER. WHEN MULTIPLE OPTIONAL FASTENERS ARE SPECIFIED BY MANUFACTURER, PROVIDE LARGEST FASTENER, OR PROVIDE "END LENGTH" CONSISTENT WITH FASTENER UTILIZED
5. COILED STRAPS SHALL DEVELOP AS A MINIMUM "END LENGTH" AS SPECIFIED BY MANUFACTURER. LONGER STRAPS SHALL BE SPECIFIED WHEN SPECIFIED ON FLOOR PLANS OR ELSEWHERE IN THIS DRAWING SET.
6. FASTENERS SHALL ALWAYS BE DRIVEN INTO SOLID LUMBER WITH MIN SIZES PER INSET DETAIL "A". PROVIDE ADDITIONAL FRAMING OR BLOCKING AS NEEDED IF NOT SPECIFIED ON PLANS. FASTENERS THRU WOOD STRUCTURAL PANELS ONLY SHALL NOT BE PERMITTED.

STRAP INSTALLATION
SCALE: N.T.S.
8 / -

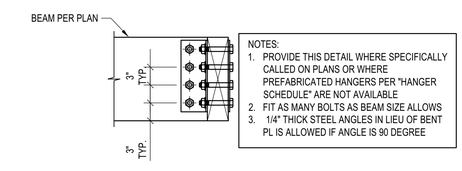


ELEVATION
A

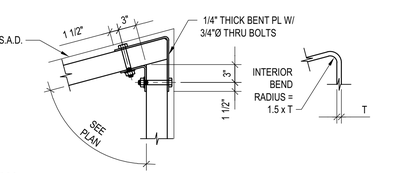
SIDE VIEW
B

SIDE VIEW
C

ELEVATOR VERTICAL SUPPORT
SCALE: N.T.S.
5 / -



SIDE VIEW
B



TOP VIEW
A

CUSTOM WD BEAM "L" CONNECTION
SCALE: N.T.S.
3 / -

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:
PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

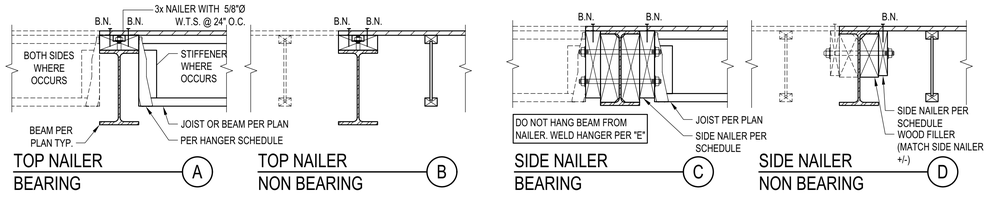
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

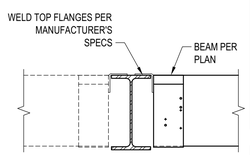
DRAWING TITLE:
TYPICAL DETAILS - WOOD

DRAWING NUMBER:
S-033



NOTES:

1. DETAILS APPLIES TO BOTH I-JOIST AND SAWN LUMBER. I-JOIST SHOWN.
2. PROVIDE TOP OR SIDE NAILER AS SPECIFIED ON THE PLANS OR CUSTOM DETAILS. IF NOT SPECIFIED, PROVIDE SIDE NAILER.
3. BLK'G, UNBLK'D, HI LOAD DIAPHRAGM ARE SPECIFIED ON PLANS
4. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT



MAX JOIST SPAN	SIDE NAILER - BEARING											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	12	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	12	3x	2	3/4	8
30'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8
36'-0"	3x	2	5/8	16	3x	2	3/4	8	3x	3	3/4	8

SIDE NAILER - NOT BEARING					
DIAPHRAGM TYPE	SIDE NAILER				
BLK'D/UNBLK'D[3]	2x	1	5/8	24	DEPTH TO MATCH STEEL BEAM DEPTH, BUT NEEDS NOT EXCEED 8" NOMINAL
HIGH LOAD[3]	3x	1	3/4	12	

ASSEMBLIES:

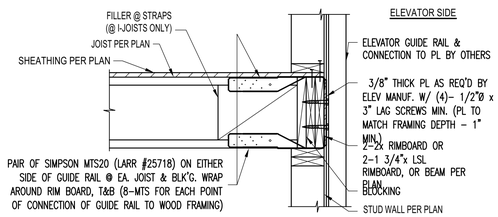
I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

III. ALL CASES NOT COVERED IN I. OR II.

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- SIDE NAILER
- ROWS OF FASTENERS
- FASTENER DIAMETER
- FASTENER SPACING

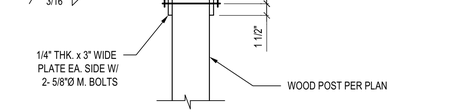
STEEL BEAM IN WOOD FRAMING
SCALE: N.T.S.

5



ELEVATOR GUIDE RAIL SUPPORT DETAIL
SCALE: N.T.S.

1



STL BEAM TO ISOLATED WOOD POST CONNECTION
SCALE: N.T.S.

8

MAX JOIST SPAN	BEARING LEDGER SCHEDULE											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	16	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	16	3x	3	3/4	16
30'-0"	3x	1	5/8	12	3x	3	3/4	16	3x	2	3/4	8
36'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8

ASSEMBLIES:

I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

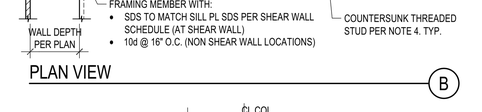
III. ALL CASES NOT COVERED IN I. OR II.

NOTES
1. THIS DETAIL ADDRESSES LEDGER AND ITS CONNECTION TO CONCRETE OR CMU.
2. FRAMING AND OUT OF PLANE ANCHORAGE ARE REFERENCED ELSEWHERE IN THE SET
3. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- LEDGER
- FASTENER
- DIAMETER
- FASTENER SPACING

LEDGER TO CONCRETE/CMU WALL
SCALE: N.T.S.

6

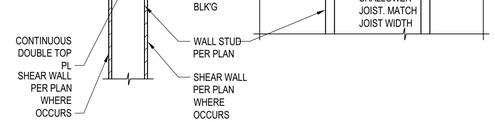


NOTES:

1. STEEL COLUMN SECTIONS: WIDE FLANGE AND HSS COLUMN SECTIONS ARE SHOWN. SIMILAR REQUIREMENTS FOR WOOD NAILERS SHALL APPLY FOR OTHER TYPES OF STEEL SECTIONS.
2. LOCATION OF WOOD NAILERS: PROVIDE WOOD NAILERS AT ALL LOCATIONS WHERE STEEL COLUMN OCCURS WITHIN SHEAR WALLS. FOR LOCATIONS OTHER THAN SHEAR WALLS PROVIDE WOOD NAILERS AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIALS.
3. WOOD NAILERS SIZE AND CONNECTION: WOOD NAILERS SHALL BE CONNECTED WITH 5/8"Ø WELDED THREADED ANCHORS TO THE STEEL SECTIONS. SPACING AND NOMINAL THICKNESS OF WOOD NAILERS SHALL BE:
   A. PER SHEAR WALL SCHEDULE WHERE WOOD NAILERS ARE CONNECTED TO A SHEAR WALL STRUCTURAL PANEL
   B. 2x MIN WOOD NAILER WITH THREADED ANCHORS @ 24" O.C. WHERE WOOD NAILERS DO NOT OCCUR WITHIN A SHEAR WALL
4. COUNTERSINKING OF WELDED THREADED STUD NUT IN WOOD NAILERS SHALL BE PERMITTED AS FOLLOWS:
   A. AT NAILERS CONNECTED TO SHEAR WALL STRUCTURAL PANELS COUNTERSINK ONLY IF NAILER IS 3x OR LARGER
   B. AT NAILERS NEEDED ONLY FOR INSTALLATION OF FINISH MATERIAL COUNTERSINKING SHALL BE ALLOWED AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIAL

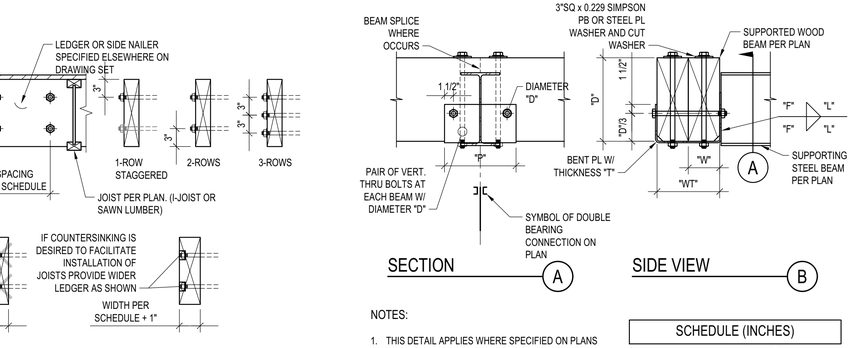
STEEL COLUMN IN STUD WALL
SCALE: N.T.S.

4



JOIST WITH DIFFERENT DEPTH
SCALE: N.T.S.

2



NOTES:

1. THIS DETAIL ADDRESSES LAYOUT OF ANCHOR BOLTS AND WELDED THREADED STUDS IN LEDGER AND SIDE NAILERS RESPECTIVELY. SIZE AND SPACING OF A.B. AND W.T.S. ARE PER SCHEDULES.
2. COORDINATE JOISTS LOCATION WITH FASTENER NUT. DO NOT COUNTERSINK LEDGER/SIDE NAILER. ALTERNATIVELY, PROVIDE 1" WIDER LEDGER/SIDE NAILER THAT WHAT SPECIFIED ON SCHEDULE AND PROVIDE COUNTERSUNK HOLES.
3. LEDGER DEPTH SHALL BE GREATER THAN JOIST DEPTH AND DEPTH NEEDED TO INSTALL FASTENERS.

LEDGER/NAILER ANCHOR LAYOUT
SCALE: N.T.S.

9

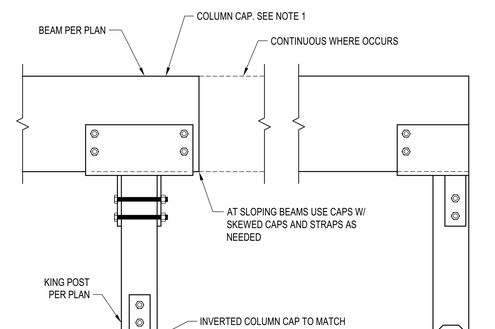
NOTES:

1. THIS DETAIL APPLIES WHERE SPECIFIED ON PLANS
2. THE DETAIL APPLIES TO SINGLE OR COMPOSITE BEAMS. WHERE SINGLE BEAMS ARE SPECIFIED, "WT" AND "W" COINCIDE.

SCHEDULE (INCHES)							
WT	T	F	L	P	W	D
WT≤7	1/4	3/16	5	12	W≤3 1/2	1/2
7<WT≤14	3/8	1/4	7	14	3 1/2<W≤5 1/2	5/8
WT>14	1/2	3/8	9	16	W>5 1/2	3/4

DOUBLE BEARING CONNECTION
SCALE: N.T.S.

7



TYP. KING POST DETAIL
SCALE: N.T.S.

3

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
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323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

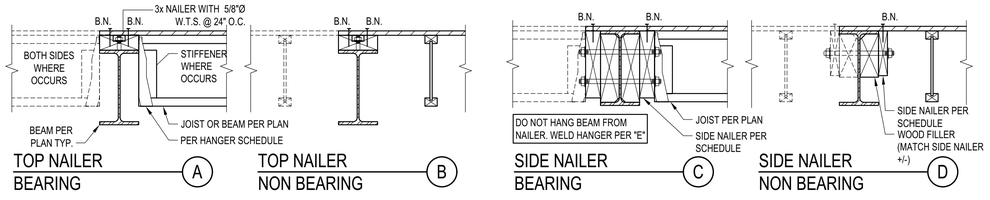
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

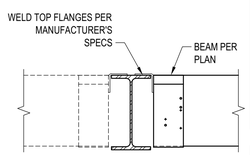
DRAWING TITLE:
TYPICAL DETAILS - WOOD

DRAWING NUMBER:
S-034



NOTES:

1. DETAILS APPLIES TO BOTH I-JOIST AND SAWN LUMBER. I-JOIST SHOWN.
2. PROVIDE TOP OR SIDE NAILER AS SPECIFIED ON THE PLANS OR CUSTOM DETAILS. IF NOT SPECIFIED, PROVIDE SIDE NAILER.
3. BLK'G, UNBLK'D, HI LOAD DIAPHRAGM ARE SPECIFIED ON PLANS
4. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT



MAX JOIST SPAN	SIDE NAILER - BEARING											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	12	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	12	3x	2	3/4	8
30'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8
36'-0"	3x	2	5/8	16	3x	2	3/4	8	3x	3	3/4	8

SIDE NAILER - NOT BEARING					
DIAPHRAGM TYPE	SIDE NAILER				
BLK'D/UNBLK'D[3]	2x	1	5/8	24	DEPTH TO MATCH STEEL BEAM DEPTH, BUT NEEDS NOT EXCEED 8" NOMINAL
HIGH LOAD[3]	3x	1	3/4	12	

ASSEMBLIES:

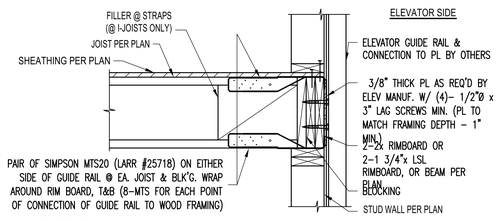
I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

III. ALL CASES NOT COVERED IN I. OR II.

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- SIDE NAILER
- ROWS OF FASTENERS
- FASTENER DIAMETER
- FASTENER SPACING

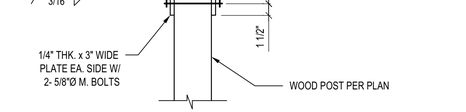
STEEL BEAM IN WOOD FRAMING
SCALE: N.T.S.

5



ELEVATOR GUIDE RAIL SUPPORT DETAIL
SCALE: N.T.S.

1



STL BEAM TO ISOLATED WOOD POST CONNECTION
SCALE: N.T.S.

8

MAX JOIST SPAN	BEARING LEDGER SCHEDULE											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	16	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	16	3x	3	3/4	16
30'-0"	3x	1	5/8	12	3x	3	3/4	16	3x	2	3/4	8
36'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8

NOTES

1. THIS DETAIL ADDRESSES LEDGER AND ITS CONNECTION TO CONCRETE OR CMU.
2. FRAMING AND OUT OF PLANE ANCHORAGE ARE REFERENCED ELSEWHERE IN THE SET
3. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT

ASSEMBLIES:

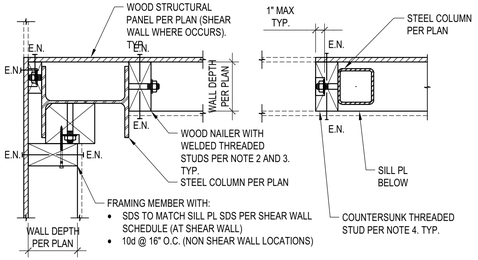
I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

III. ALL CASES NOT COVERED IN I. OR II.

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- LEDGER
- FASTENER
- DIAMETER
- FASTENER SPACING

LEDGER TO CONCRETE/CMU WALL
SCALE: N.T.S.

6



NOTES:

1. STEEL COLUMN SECTIONS: WIDE FLANGE AND HSS COLUMN SECTIONS ARE SHOWN. SIMILAR REQUIREMENTS FOR WOOD NAILERS SHALL APPLY FOR OTHER TYPES OF STEEL SECTIONS.
2. LOCATION OF WOOD NAILERS: PROVIDE WOOD NAILERS AT ALL LOCATIONS WHERE STEEL COLUMN OCCURS WITHIN SHEAR WALLS. FOR LOCATIONS OTHER THAN SHEAR WALLS PROVIDE WOOD NAILERS AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIALS.
3. WOOD NAILERS SIZE AND CONNECTION: WOOD NAILERS SHALL BE CONNECTED WITH 5/8"Ø WELDED THREADED ANCHORS TO THE STEEL SECTIONS. SPACING AND NOMINAL THICKNESS OF WOOD NAILERS SHALL BE:
   A. PER SHEAR WALL SCHEDULE WHERE WOOD NAILERS ARE CONNECTED TO A SHEAR WALL STRUCTURAL PANEL
   B. 2x MIN WOOD NAILER WITH THREADED ANCHORS @ 24" O.C. WHERE WOOD NAILERS DO NOT OCCUR WITHIN A SHEAR WALL
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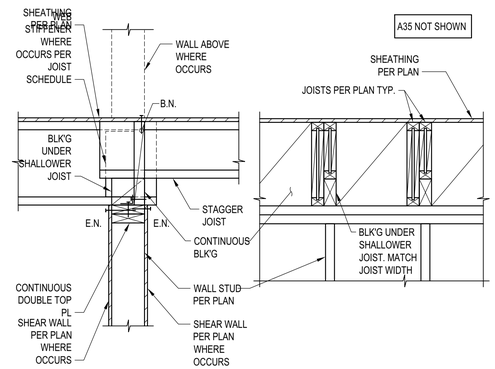
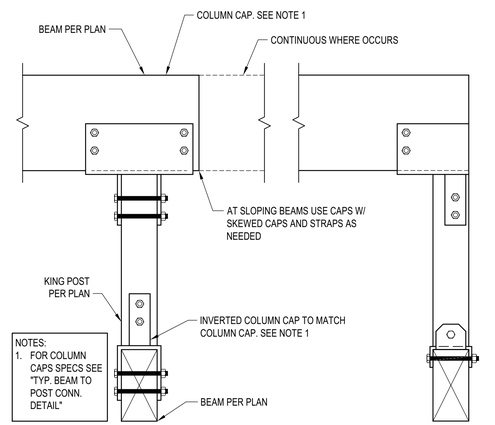
STEEL COLUMN IN STUD WALL
SCALE: N.T.S.

4



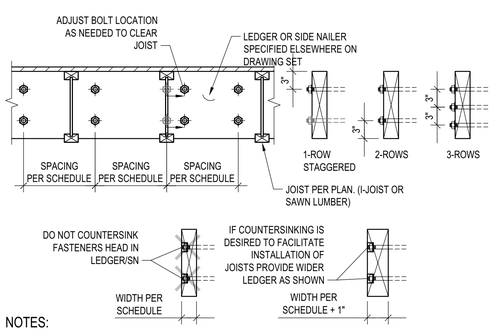
JOIST WITH DIFFERENT DEPTH
SCALE: N.T.S.

2



TYP. KING POST DETAIL
SCALE: N.T.S.

3



NOTES:

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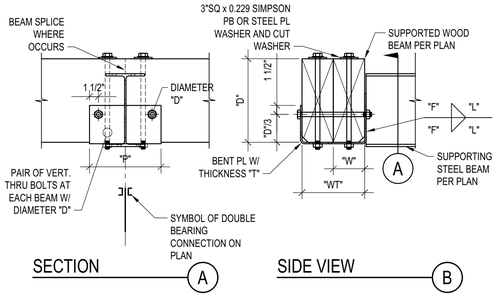
2. COORDINATE JOISTS LOCATION WITH FASTENER NUT. DO NOT COUNTERSINK LEDGER/SIDE NAILER. ALTERNATIVELY, PROVIDE 1" WIDER LEDGER/SIDE NAILER THAT WHAT SPECIFIED ON SCHEDULE AND PROVIDE COUNTERSUNK HOLES.
3. LEDGER DEPTH SHALL BE GREATER THAN JOIST DEPTH AND DEPTH NEEDED TO INSTALL FASTENERS.

LEDGER/NAILER ANCHOR LAYOUT
SCALE: N.T.S.

9



NOTES:

1. THIS DETAIL APPLIES WHERE SPECIFIED ON PLANS
2. THE DETAIL APPLIES TO SINGLE OR COMPOSITE BEAMS. WHERE SINGLE BEAMS ARE SPECIFIED, "WT" AND "W" COINCIDE.

SCHEDULE (INCHES)							
WT	T	F	L	P	W	D
WT≤7	1/4	3/16	5	12	W≤3 1/2	1/2
7<WT≤14	3/8	1/4	7	14	3 1/2<W≤5 1/2	5/8
WT>14	1/2	3/8	9	16	W>5 1/2	3/4

DOUBLE BEARING CONNECTION
SCALE: N.T.S.

7

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

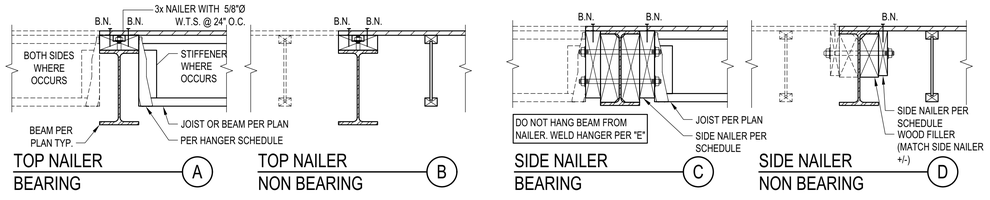
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

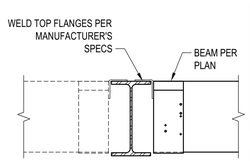
DRAWING TITLE:
TYPICAL DETAILS - WOOD

DRAWING NUMBER:
S-035



NOTES:

1. DETAILS APPLIES TO BOTH I-JOIST AND SAWN LUMBER. I-JOIST SHOWN.
2. PROVIDE TOP OR SIDE NAILER AS SPECIFIED ON THE PLANS OR CUSTOM DETAILS. IF NOT SPECIFIED, PROVIDE SIDE NAILER.
3. BLK'G, UNBLK'D, HI LOAD DIAPHRAGM ARE SPECIFIED ON PLANS
4. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT



MAX JOIST SPAN	SIDE NAILER - BEARING											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	12	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	12	3x	2	3/4	8
30'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8
36'-0"	3x	2	5/8	16	3x	2	3/4	8	3x	3	3/4	8

SIDE NAILER - NOT BEARING					
DIAPHRAGM TYPE	SIDE NAILER				
BLK'D/UNBLK'D[3]	2x	1	5/8	24	DEPTH TO MATCH STEEL BEAM DEPTH, BUT NEEDS NOT EXCEED 8" NOMINAL
HIGH LOAD[3]	3x	1	3/4	12	

ASSEMBLIES:

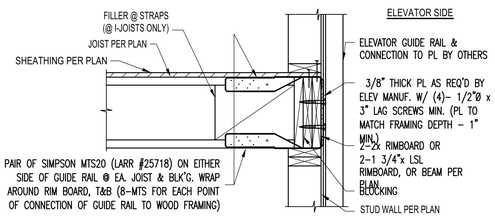
I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

III. ALL CASES NOT COVERED IN I. OR II.

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- SIDE NAILER
- ROWS OF FASTENERS
- FASTENER DIAMETER
- FASTENER SPACING

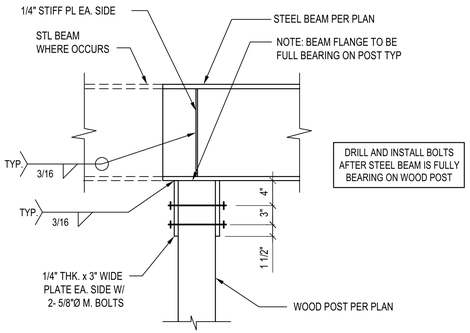
STEEL BEAM IN WOOD FRAMING
SCALE: N.T.S.

5



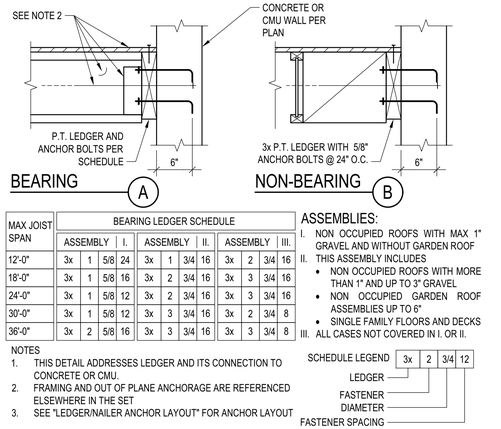
ELEVATOR GUIDE RAIL SUPPORT DETAIL
SCALE: N.T.S.

1



STL BEAM TO ISOLATED WOOD POST CONNECTION
SCALE: N.T.S.

8



MAX JOIST SPAN	BEARING LEDGER SCHEDULE											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	16	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	16	3x	3	3/4	16
30'-0"	3x	1	5/8	12	3x	3	3/4	16	3x	2	3/4	8
36'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8

ASSEMBLIES:

I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

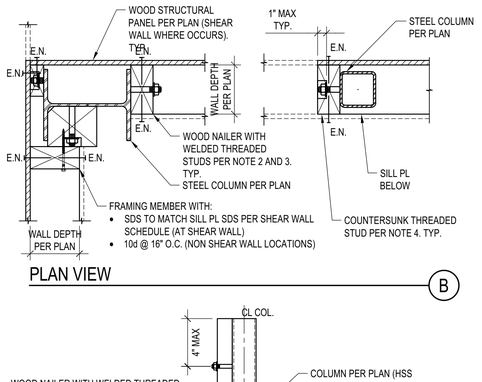
III. ALL CASES NOT COVERED IN I. OR II.

NOTES
1. THIS DETAIL ADDRESSES LEDGER AND ITS CONNECTION TO CONCRETE OR CMU.
2. FRAMING AND OUT OF PLANE ANCHORAGE ARE REFERENCED ELSEWHERE IN THE SET
3. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- LEDGER
- FASTENER
- DIAMETER
- FASTENER SPACING

LEDGER TO CONCRETE/CMU WALL
SCALE: N.T.S.

6

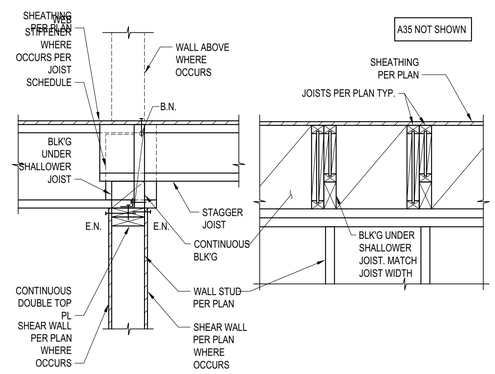


NOTES:

1. STEEL COLUMN SECTIONS: WIDE FLANGE AND HSS COLUMN SECTIONS ARE SHOWN. SIMILAR REQUIREMENTS FOR WOOD NAILERS SHALL APPLY FOR OTHER TYPES OF STEEL SECTIONS.
2. LOCATION OF WOOD NAILERS: PROVIDE WOOD NAILERS AT ALL LOCATIONS WHERE STEEL COLUMN OCCURS WITHIN SHEAR WALLS. FOR LOCATIONS OTHER THAN SHEAR WALLS PROVIDE WOOD NAILERS AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIALS.
3. WOOD NAILERS SIZE AND CONNECTION: WOOD NAILERS SHALL BE CONNECTED WITH 5/8"Ø WELDED THREADED ANCHORS TO THE STEEL SECTIONS. SPACING AND NOMINAL THICKNESS OF WOOD NAILERS SHALL BE:
   A. PER SHEAR WALL SCHEDULE WHERE WOOD NAILERS ARE CONNECTED TO A SHEAR WALL STRUCTURAL PANEL
   B. 2x MIN WOOD NAILER WITH THREADED ANCHORS @ 24" O.C. WHERE WOOD NAILERS DO NOT OCCUR WITHIN A SHEAR WALL
4. COUNTERSINKING OF WELDED THREADED STUD NUT IN WOOD NAILERS SHALL BE PERMITTED AS FOLLOWS:
   A. AT NAILERS CONNECTED TO SHEAR WALL STRUCTURAL PANELS COUNTERSINK ONLY IF NAILER IS 3x OR LARGER
   B. AT NAILERS NEEDED ONLY FOR INSTALLATION OF FINISH MATERIAL COUNTERSINKING SHALL BE ALLOWED AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIAL

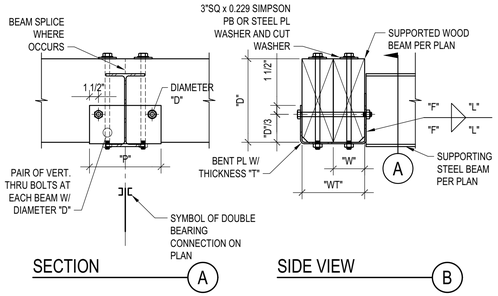
STEEL COLUMN IN STUD WALL
SCALE: N.T.S.

4



JOIST WITH DIFFERENT DEPTH
SCALE: N.T.S.

2



NOTES:

1. THIS DETAIL ADDRESSES LAYOUT OF ANCHOR BOLTS AND WELDED THREADED STUDS IN LEDGER AND SIDE NAILERS RESPECTIVELY. SIZE AND SPACING OF A.B. AND W.T.S. ARE PER SCHEDULES.
2. COORDINATE JOISTS LOCATION WITH FASTENER NUT. DO NOT COUNTERSINK LEDGER/SIDE NAILER. ALTERNATIVELY, PROVIDE 1" WIDER LEDGER/SIDE NAILER THAT WHAT SPECIFIED ON SCHEDULE AND PROVIDE COUNTERSUNK HOLES.
3. LEDGER DEPTH SHALL BE GREATER THAN JOIST DEPTH AND DEPTH NEEDED TO INSTALL FASTENERS.

LEDGER/NAILER ANCHOR LAYOUT
SCALE: N.T.S.

9

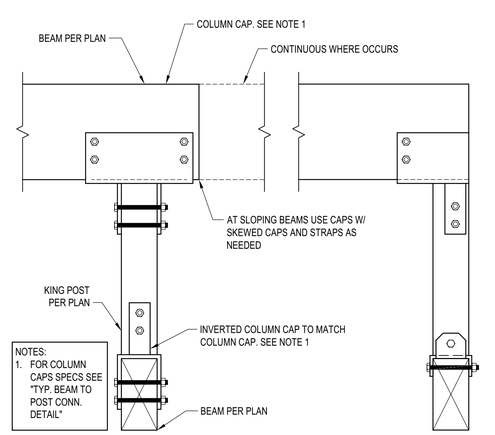
NOTES:

1. THIS DETAIL APPLIES WHERE SPECIFIED ON PLANS
2. THE DETAIL APPLIES TO SINGLE OR COMPOSITE BEAMS. WHERE SINGLE BEAMS ARE SPECIFIED, "WT" AND "W" COINCIDE.

SCHEDULE (INCHES)							
WT	T	F	L	P	W	D
WT≤7	1/4	3/16	5	12	W≤3 1/2	1/2
7<WT≤14	3/8	1/4	7	14	3 1/2<W≤5 1/2	5/8
WT>14	1/2	3/8	9	16	W>5 1/2	3/4

DOUBLE BEARING CONNECTION
SCALE: N.T.S.

7



TYP. KING POST DETAIL
SCALE: N.T.S.

3

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
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SURVEYOR & CIVIL ENGINEER:
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STRUCTURAL ENGINEER:
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319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

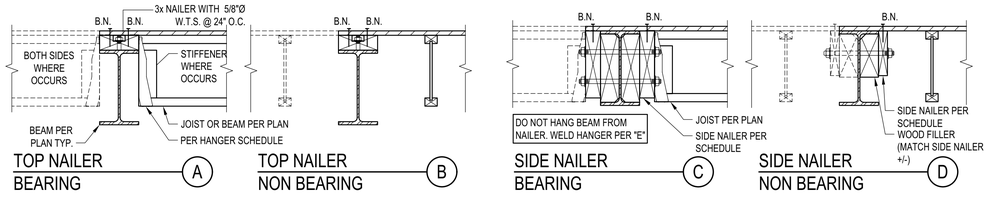
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD

DRAWING NUMBER:
S-036



NOTES:

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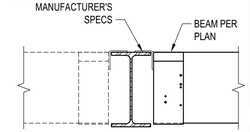
3. BLK'G, UNBLK'D, HI LOAD DIAPHRAGM ARE SPECIFIED ON PLANS
4. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT



MAX JOIST SPAN	SIDE NAILER - BEARING											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	12	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	12	3x	2	3/4	8
30'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8
36'-0"	3x	2	5/8	16	3x	2	3/4	8	3x	3	3/4	8

SIDE NAILER - NOT BEARING					
DIAPHRAGM TYPE	SIDE NAILER				
BLK'D/UNBLK'D[3]	2x	1	5/8	24	DEPTH TO MATCH STEEL BEAM DEPTH, BUT NEEDS NOT EXCEED 8" NOMINAL
HIGH LOAD[3]	3x	1	3/4	12	

ASSEMBLIES:

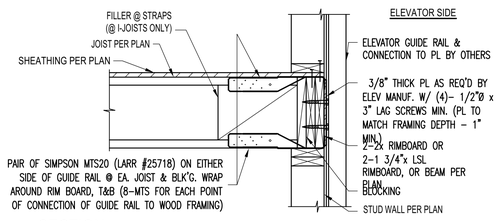
I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

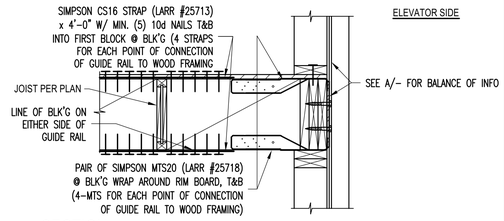
III. ALL CASES NOT COVERED IN I. OR II.

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- SIDE NAILER
- ROWS OF FASTENERS
- FASTENER DIAMETER
- FASTENER SPACING

STEEL BEAM IN WOOD FRAMING
SCALE: N.T.S.

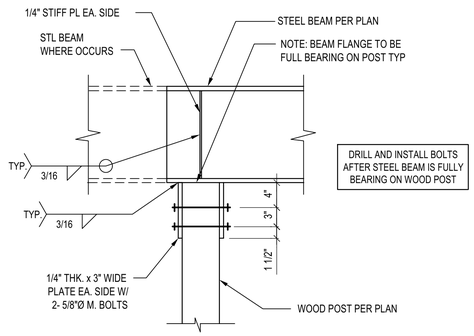
5





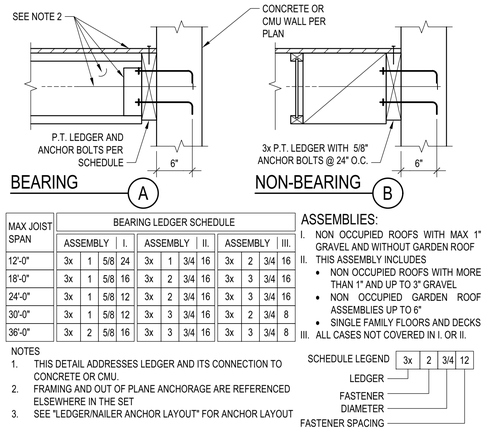
ELEVATOR GUIDE RAIL SUPPORT DETAIL
SCALE: N.T.S.

1



STL BEAM TO ISOLATED WOOD POST CONNECTION
SCALE: N.T.S.

8



MAX JOIST SPAN	BEARING LEDGER SCHEDULE											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	16	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
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ASSEMBLIES:

I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

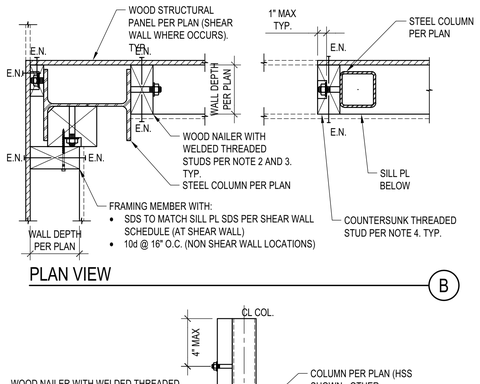
III. ALL CASES NOT COVERED IN I. OR II.

NOTES
1. THIS DETAIL ADDRESSES LEDGER AND ITS CONNECTION TO CONCRETE OR CMU.
2. FRAMING AND OUT OF PLANE ANCHORAGE ARE REFERENCED ELSEWHERE IN THE SET
3. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- LEDGER
- FASTENER
- DIAMETER
- FASTENER SPACING

LEDGER TO CONCRETE/CMU WALL
SCALE: N.T.S.

6



NOTES:

1. STEEL COLUMN SECTIONS: WIDE FLANGE AND HSS COLUMN SECTIONS ARE SHOWN. SIMILAR REQUIREMENTS FOR WOOD NAILERS SHALL APPLY FOR OTHER TYPES OF STEEL SECTIONS.
2. LOCATION OF WOOD NAILERS: PROVIDE WOOD NAILERS AT ALL LOCATIONS WHERE STEEL COLUMN OCCURS WITHIN SHEAR WALLS. FOR LOCATIONS OTHER THAN SHEAR WALLS PROVIDE WOOD NAILERS AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIALS.
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   B. 2x MIN WOOD NAILER WITH THREADED ANCHORS @ 24" O.C. WHERE WOOD NAILERS DO NOT OCCUR WITHIN A SHEAR WALL
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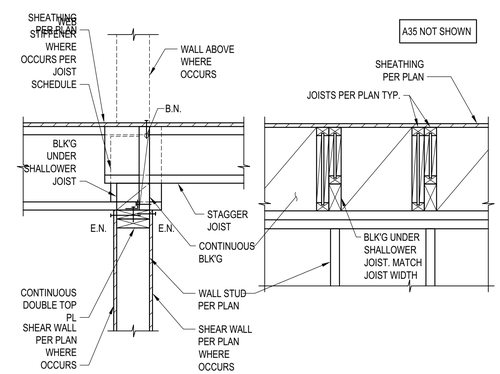
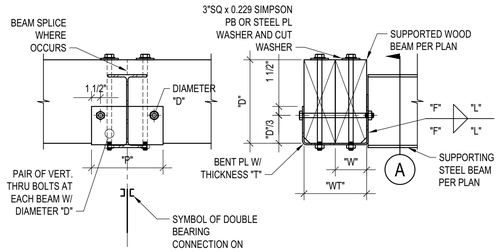
STEEL COLUMN IN STUD WALL
SCALE: N.T.S.

4



JOIST WITH DIFFERENT DEPTH
SCALE: N.T.S.

2



NOTES:

1. THIS DETAIL APPLIES WHERE SPECIFIED ON PLANS
2. THE DETAIL APPLIES TO SINGLE OR COMPOSITE BEAMS. WHERE SINGLE BEAMS ARE SPECIFIED, "WT" AND "W" COINCIDE.

SCHEDULE (INCHES)							
WT	T	F	L	P	W	D
WT≤7	1/4	3/16	5	12	W≤3 1/2	1/2
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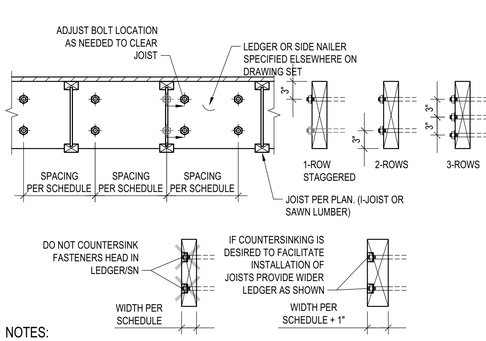
WT>14	1/2	3/8	9	16	W>5 1/2	3/4

DOUBLE BEARING CONNECTION
SCALE: N.T.S.

7

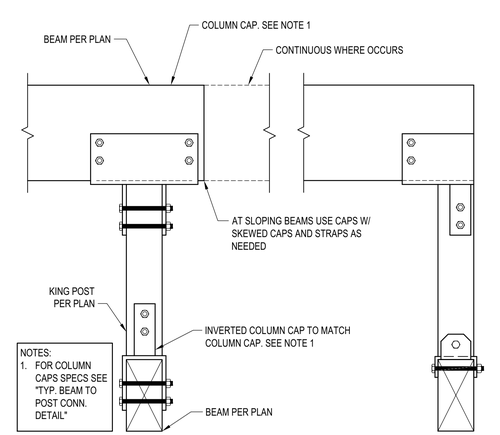


NOTES:

1. THIS DETAIL ADDRESSES LAYOUT OF ANCHOR BOLTS AND WELDED THREADED STUDS IN LEDGER AND SIDE NAILERS RESPECTIVELY. SIZE AND SPACING OF A.B. AND W.T.S. ARE PER SCHEDULES.
2. COORDINATE JOISTS LOCATION WITH FASTENER NUT. DO NOT COUNTERSINK LEDGER/SIDE NAILER. ALTERNATIVELY, PROVIDE 1" WIDER LEDGER/SIDE NAILER THAT WHAT SPECIFIED ON SCHEDULE AND PROVIDE COUNTERSUNK HOLES.
3. LEDGER DEPTH SHALL BE GREATER THAN JOIST DEPTH AND DEPTH NEEDED TO INSTALL FASTENERS.

LEDGER/NAILER ANCHOR LAYOUT
SCALE: N.T.S.

9



TYP. KING POST DETAIL
SCALE: N.T.S.

3

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
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P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

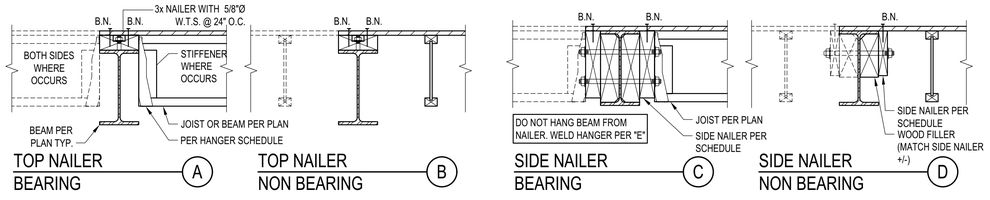
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

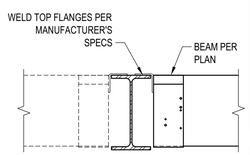
DRAWING TITLE:
TYPICAL DETAILS - WOOD

DRAWING NUMBER:
S-037



NOTES:

1. DETAILS APPLIES TO BOTH I-JOIST AND SAWN LUMBER. I-JOIST SHOWN.
2. PROVIDE TOP OR SIDE NAILER AS SPECIFIED ON THE PLANS OR CUSTOM DETAILS. IF NOT SPECIFIED, PROVIDE SIDE NAILER.
3. BLK'G, UNBLK'D, HI LOAD DIAPHRAGM ARE SPECIFIED ON PLANS
4. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT



MAX JOIST SPAN	SIDE NAILER - BEARING											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	12	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	12	3x	2	3/4	8
30'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8
36'-0"	3x	2	5/8	16	3x	2	3/4	8	3x	3	3/4	8

SIDE NAILER - NOT BEARING					
DIAPHRAGM TYPE	SIDE NAILER				
BLK'D/UNBLK'D[3]	2x	1	5/8	24	DEPTH TO MATCH STEEL BEAM DEPTH, BUT NEEDS NOT EXCEED 8" NOMINAL
HIGH LOAD[3]	3x	1	3/4	12	

ASSEMBLIES:

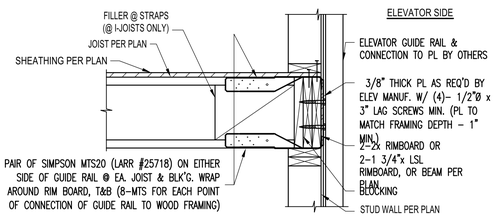
I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

III. ALL CASES NOT COVERED IN I. OR II.

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- SIDE NAILER
- ROWS OF FASTENERS
- FASTENER DIAMETER
- FASTENER SPACING

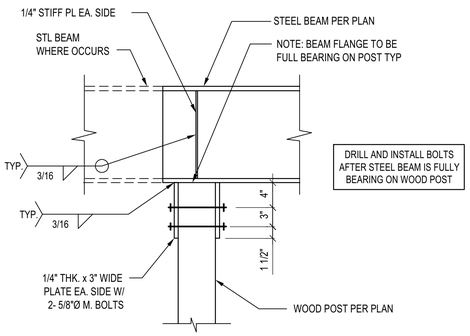
STEEL BEAM IN WOOD FRAMING
SCALE: N.T.S.

5



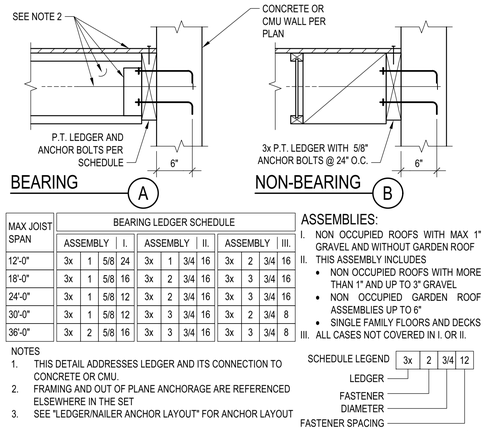
ELEVATOR GUIDE RAIL SUPPORT DETAIL
SCALE: N.T.S.

1



STL BEAM TO ISOLATED WOOD POST CONNECTION
SCALE: N.T.S.

8



MAX JOIST SPAN	BEARING LEDGER SCHEDULE											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	16	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	16	3x	3	3/4	16
30'-0"	3x	1	5/8	12	3x	3	3/4	16	3x	2	3/4	8
36'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8

ASSEMBLIES:

I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

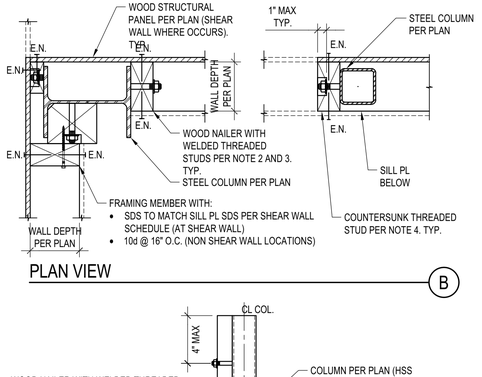
III. ALL CASES NOT COVERED IN I. OR II.

NOTES
1. THIS DETAIL ADDRESSES LEDGER AND ITS CONNECTION TO CONCRETE OR CMU.
2. FRAMING AND OUT OF PLANE ANCHORAGE ARE REFERENCED ELSEWHERE IN THE SET
3. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- LEDGER
- FASTENER
- DIAMETER
- FASTENER SPACING

LEDGER TO CONCRETE/CMU WALL
SCALE: N.T.S.

6

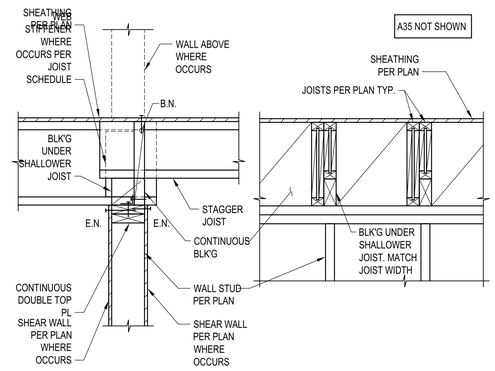


NOTES:

1. STEEL COLUMN SECTIONS: WIDE FLANGE AND HSS COLUMN SECTIONS ARE SHOWN. SIMILAR REQUIREMENTS FOR WOOD NAILERS SHALL APPLY FOR OTHER TYPES OF STEEL SECTIONS.
2. LOCATION OF WOOD NAILERS: PROVIDE WOOD NAILERS AT ALL LOCATIONS WHERE STEEL COLUMN OCCURS WITHIN SHEAR WALLS. FOR LOCATIONS OTHER THAN SHEAR WALLS PROVIDE WOOD NAILERS AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIALS.
3. WOOD NAILERS SIZE AND CONNECTION: WOOD NAILERS SHALL BE CONNECTED WITH 5/8"Ø WELDED THREADED ANCHORS TO THE STEEL SECTIONS. SPACING AND NOMINAL THICKNESS OF WOOD NAILERS SHALL BE:
   A. PER SHEAR WALL SCHEDULE WHERE WOOD NAILERS ARE CONNECTED TO A SHEAR WALL STRUCTURAL PANEL
   B. 2x MIN WOOD NAILER WITH THREADED ANCHORS @ 24" O.C. WHERE WOOD NAILERS DO NOT OCCUR WITHIN A SHEAR WALL
4. COUNTERSINKING OF WELDED THREADED STUD NUT IN WOOD NAILERS SHALL BE PERMITTED AS FOLLOWS:
   A. AT NAILERS CONNECTED TO SHEAR WALL STRUCTURAL PANELS COUNTERSINK ONLY IF NAILER IS 3x OR LARGER
   B. AT NAILERS NEEDED ONLY FOR INSTALLATION OF FINISH MATERIAL COUNTERSINKING SHALL BE ALLOWED AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIAL

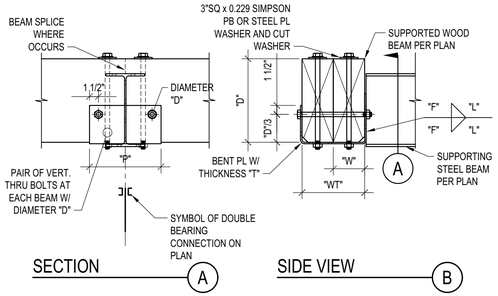
STEEL COLUMN IN STUD WALL
SCALE: N.T.S.

4



JOIST WITH DIFFERENT DEPTH
SCALE: N.T.S.

2



NOTES:

1. THIS DETAIL ADDRESSES LAYOUT OF ANCHOR BOLTS AND WELDED THREADED STUDS IN LEDGER AND SIDE NAILERS RESPECTIVELY. SIZE AND SPACING OF A.B. AND W.T.S. ARE PER SCHEDULES.
2. COORDINATE JOISTS LOCATION WITH FASTENER NUT. DO NOT COUNTERSINK LEDGER/SIDE NAILER. ALTERNATIVELY, PROVIDE 1" WIDER LEDGER/SIDE NAILER THAT WHAT SPECIFIED ON SCHEDULE AND PROVIDE COUNTERSUNK HOLES.
3. LEDGER DEPTH SHALL BE GREATER THAN JOIST DEPTH AND DEPTH NEEDED TO INSTALL FASTENERS.

LEDGER/NAILER ANCHOR LAYOUT
SCALE: N.T.S.

9

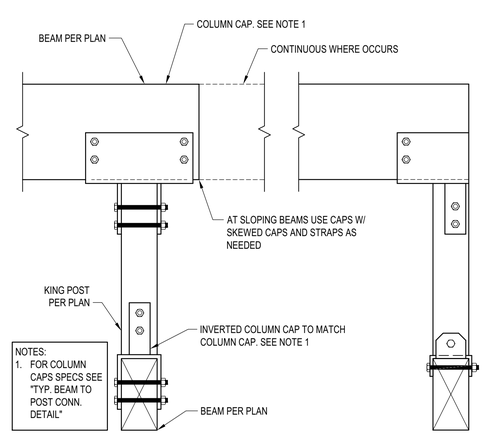
NOTES:

1. THIS DETAIL APPLIES WHERE SPECIFIED ON PLANS
2. THE DETAIL APPLIES TO SINGLE OR COMPOSITE BEAMS. WHERE SINGLE BEAMS ARE SPECIFIED, "WT" AND "W" COINCIDE.

SCHEDULE (INCHES)							
WT	T	F	L	P	W	D
WT≤7	1/4	3/16	5	12	W≤3 1/2	1/2
7<WT≤14	3/8	1/4	7	14	3 1/2<W≤5 1/2	5/8
WT>14	1/2	3/8	9	16	W>5 1/2	3/4

DOUBLE BEARING CONNECTION
SCALE: N.T.S.

7



TYP. KING POST DETAIL
SCALE: N.T.S.

3

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
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LANDSCAPE ARCHITECT:
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KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
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319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

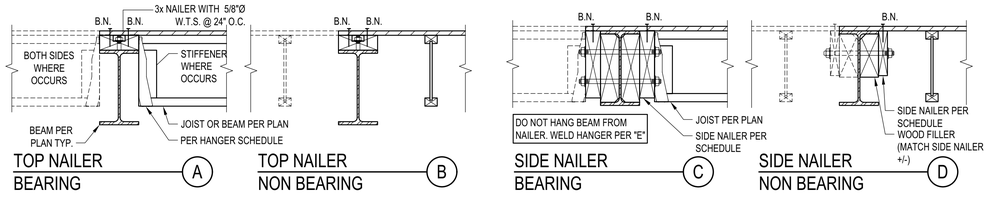
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD

DRAWING NUMBER:
S-038



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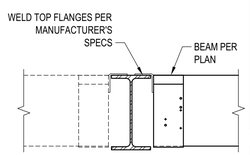

MAX JOIST SPAN	SIDE NAILER - BEARING											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	12	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
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30'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8
36'-0"	3x	2	5/8	16	3x	2	3/4	8	3x	3	3/4	8

SIDE NAILER - NOT BEARING					
DIAPHRAGM TYPE	SIDE NAILER				
BLK'D/UNBLK'D[3]	2x	1	5/8	24	DEPTH TO MATCH STEEL BEAM DEPTH, BUT NEEDS NOT EXCEED 8" NOMINAL
HIGH LOAD[3]	3x	1	3/4	12	

ASSEMBLIES:

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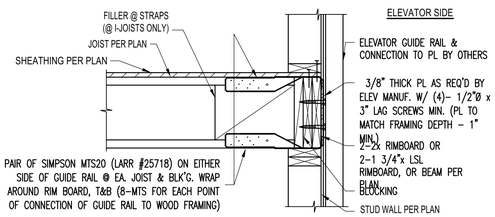
- SINGLE FAMILY FLOORS AND DECKS

III. ALL CASES NOT COVERED IN I. OR II.

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- SIDE NAILER
- ROWS OF FASTENERS
- FASTENER DIAMETER
- FASTENER SPACING

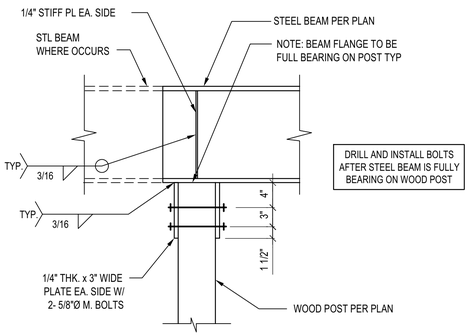
STEEL BEAM IN WOOD FRAMING
SCALE: N.T.S.

5



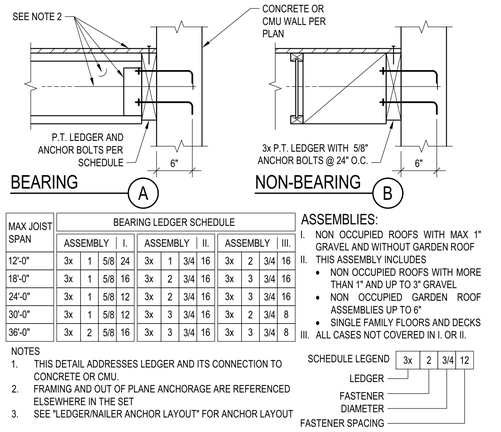
ELEVATOR GUIDE RAIL SUPPORT DETAIL
SCALE: N.T.S.

1



STL BEAM TO ISOLATED WOOD POST CONNECTION
SCALE: N.T.S.

8



MAX JOIST SPAN	BEARING LEDGER SCHEDULE											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	16	3x	2	3/4	16
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ASSEMBLIES:

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III. ALL CASES NOT COVERED IN I. OR II.

NOTES
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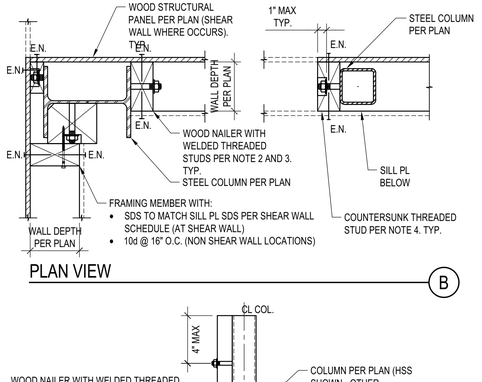
3. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- LEDGER
- FASTENER
- DIAMETER
- FASTENER SPACING

LEDGER TO CONCRETE/CMU WALL
SCALE: N.T.S.

6



NOTES:

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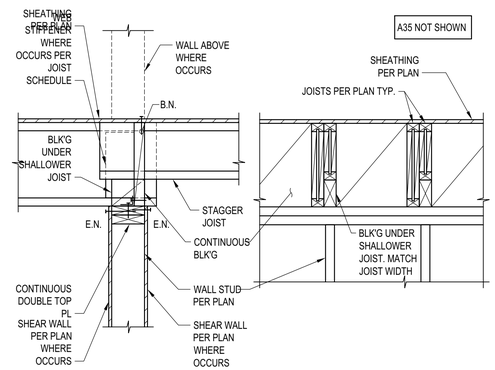
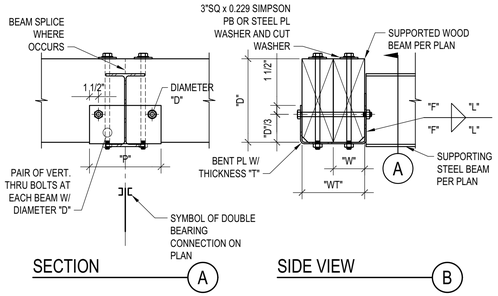
STEEL COLUMN IN STUD WALL
SCALE: N.T.S.

4



JOIST WITH DIFFERENT DEPTH
SCALE: N.T.S.

2



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LEDGER/NAILER ANCHOR LAYOUT
SCALE: N.T.S.

9

NOTES:

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WT≤7	1/4	3/16	5	12	W≤3 1/2	1/2
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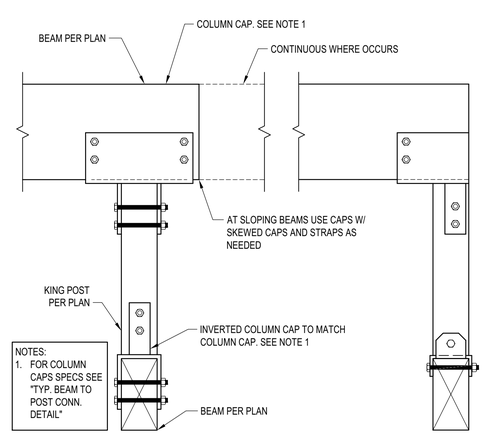
DOUBLE BEARING CONNECTION
SCALE: N.T.S.

7



TYP. KING POST DETAIL
SCALE: N.T.S.

3

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
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EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

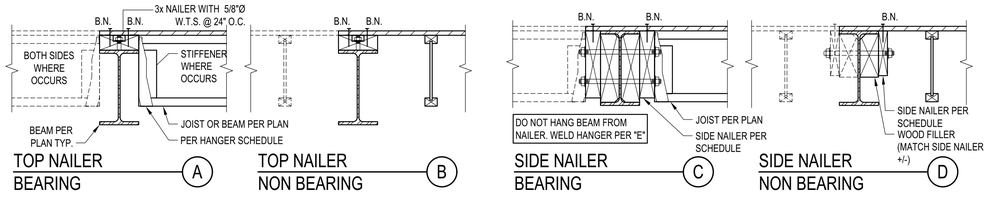
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD

DRAWING NUMBER:
S-039



NOTES:

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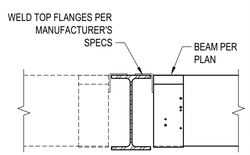
3. BLK'G, UNBLK'D, HI LOAD DIAPHRAGM ARE SPECIFIED ON PLANS
4. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT



MAX JOIST SPAN	SIDE NAILER - BEARING											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	12	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	12	3x	2	3/4	8
30'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8
36'-0"	3x	2	5/8	16	3x	2	3/4	8	3x	3	3/4	8

SIDE NAILER - NOT BEARING					
DIAPHRAGM TYPE	SIDE NAILER				
BLK'D/UNBLK'D[3]	2x	1	5/8	24	DEPTH TO MATCH STEEL BEAM DEPTH, BUT NEEDS NOT EXCEED 8" NOMINAL
HIGH LOAD[3]	3x	1	3/4	12	

ASSEMBLIES:

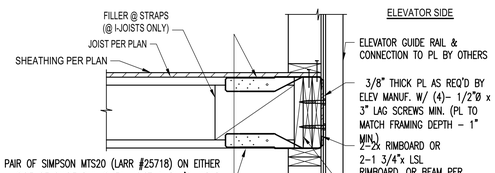
I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

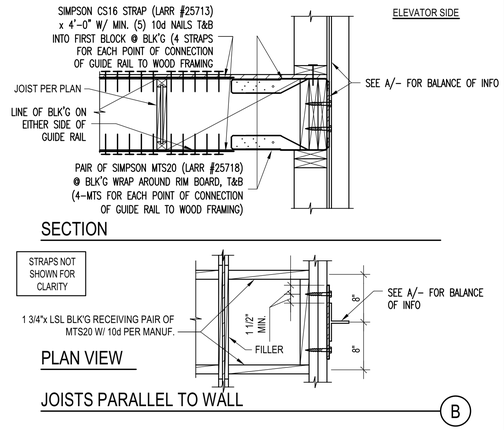
III. ALL CASES NOT COVERED IN I. OR II.

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- SIDE NAILER
- ROWS OF FASTENERS
- FASTENER DIAMETER
- FASTENER SPACING

STEEL BEAM IN WOOD FRAMING
SCALE: N.T.S.

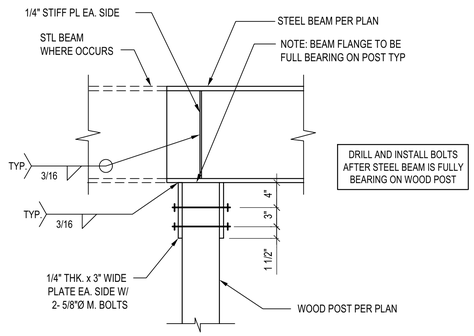
5





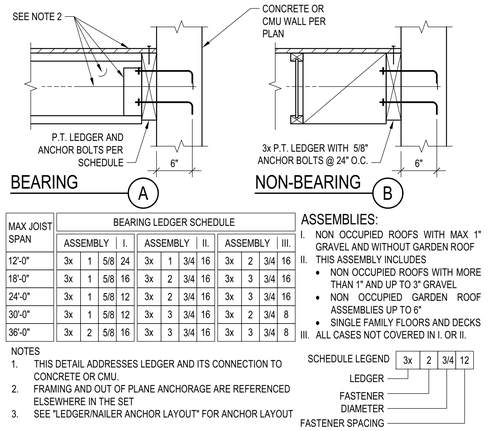
ELEVATOR GUIDE RAIL SUPPORT DETAIL
SCALE: N.T.S.

1



STL BEAM TO ISOLATED WOOD POST CONNECTION
SCALE: N.T.S.

8



MAX JOIST SPAN	BEARING LEDGER SCHEDULE											
	ASSEMBLY I.				ASSEMBLY II.				ASSEMBLY III.			
12'-0"	3x	1	5/8	24	3x	1	3/4	16	3x	2	3/4	16
18'-0"	3x	1	5/8	16	3x	2	3/4	16	3x	3	3/4	16
24'-0"	3x	1	5/8	12	3x	2	3/4	16	3x	3	3/4	16
30'-0"	3x	1	5/8	12	3x	3	3/4	16	3x	2	3/4	8
36'-0"	3x	2	5/8	16	3x	3	3/4	16	3x	3	3/4	8

ASSEMBLIES:

I. NON OCCUPIED ROOFS WITH MAX 1" GRAVEL AND WITHOUT GARDEN ROOF
II. THIS ASSEMBLY INCLUDES
- NON OCCUPIED ROOFS WITH MORE THAN 1" AND UP TO 3" GRAVEL
- NON OCCUPIED GARDEN ROOF ASSEMBLIES UP TO 6"
- SINGLE FAMILY FLOORS AND DECKS

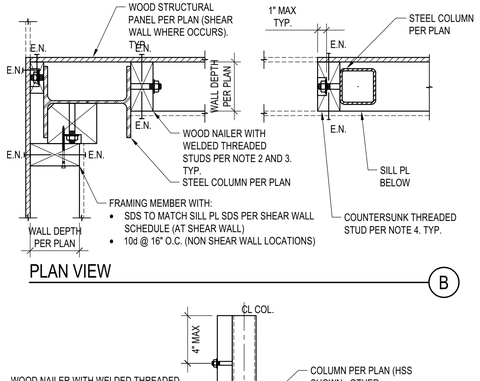
III. ALL CASES NOT COVERED IN I. OR II.

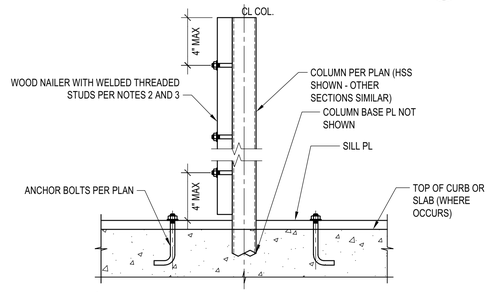
NOTES
1. THIS DETAIL ADDRESSES LEDGER AND ITS CONNECTION TO CONCRETE OR CMU.
2. FRAMING AND OUT OF PLANE ANCHORAGE ARE REFERENCED ELSEWHERE IN THE SET
3. SEE "LEDGER/NAILER ANCHOR LAYOUT" FOR ANCHOR LAYOUT

SCHEDULE LEGEND: 3x | 2 | 3/4 | 12
- LEDGER
- FASTENER
- DIAMETER
- FASTENER SPACING

LEDGER TO CONCRETE/CMU WALL
SCALE: N.T.S.

6



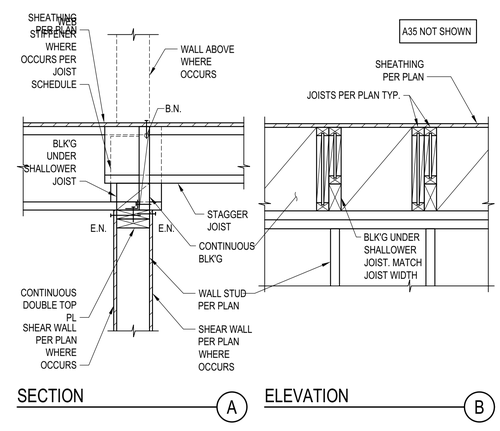


NOTES:

1. STEEL COLUMN SECTIONS: WIDE FLANGE AND HSS COLUMN SECTIONS ARE SHOWN. SIMILAR REQUIREMENTS FOR WOOD NAILERS SHALL APPLY FOR OTHER TYPES OF STEEL SECTIONS.
2. LOCATION OF WOOD NAILERS: PROVIDE WOOD NAILERS AT ALL LOCATIONS WHERE STEEL COLUMN OCCURS WITHIN SHEAR WALLS. FOR LOCATIONS OTHER THAN SHEAR WALLS PROVIDE WOOD NAILERS AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIALS.
3. WOOD NAILERS SIZE AND CONNECTION: WOOD NAILERS SHALL BE CONNECTED WITH 5/8"Ø WELDED THREADED ANCHORS TO THE STEEL SECTIONS. SPACING AND NOMINAL THICKNESS OF WOOD NAILERS SHALL BE:
   A. PER SHEAR WALL SCHEDULE WHERE WOOD NAILERS ARE CONNECTED TO A SHEAR WALL STRUCTURAL PANEL
   B. 2x MIN WOOD NAILER WITH THREADED ANCHORS @ 24" O.C. WHERE WOOD NAILERS DO NOT OCCUR WITHIN A SHEAR WALL
4. COUNTERSINKING OF WELDED THREADED STUD NUT IN WOOD NAILERS SHALL BE PERMITTED AS FOLLOWS:
   A. AT NAILERS CONNECTED TO SHEAR WALL STRUCTURAL PANELS COUNTERSINK ONLY IF NAILER IS 3x OR LARGER
   B. AT NAILERS NEEDED ONLY FOR INSTALLATION OF FINISH MATERIAL COUNTERSINKING SHALL BE ALLOWED AS NEEDED FOR PROPER INSTALLATION OF FINISH MATERIAL

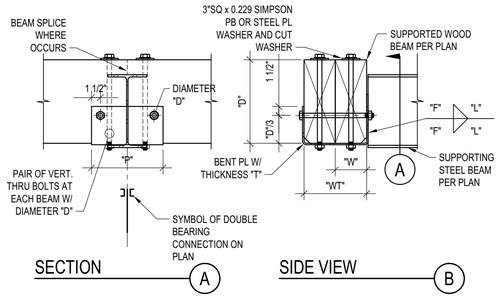
STEEL COLUMN IN STUD WALL
SCALE: N.T.S.

4



JOIST WITH DIFFERENT DEPTH
SCALE: N.T.S.

2



NOTES:

1. THIS DETAIL ADDRESSES LAYOUT OF ANCHOR BOLTS AND WELDED THREADED STUDS IN LEDGER AND SIDE NAILERS RESPECTIVELY. SIZE AND SPACING OF A.B. AND W.T.S. ARE PER SCHEDULES.
2. COORDINATE JOISTS LOCATION WITH FASTENER NUT. DO NOT COUNTERSINK LEDGER/SIDE NAILER. ALTERNATIVELY, PROVIDE 1" WIDER LEDGER/SIDE NAILER THAT WHAT SPECIFIED ON SCHEDULE AND PROVIDE COUNTERSUNK HOLES.
3. LEDGER DEPTH SHALL BE GREATER THAN JOIST DEPTH AND DEPTH NEEDED TO INSTALL FASTENERS.

LEDGER/NAILER ANCHOR LAYOUT
SCALE: N.T.S.

9

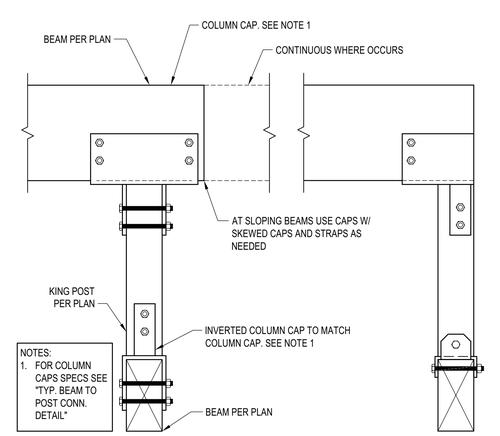
NOTES:

1. THIS DETAIL APPLIES WHERE SPECIFIED ON PLANS
2. THE DETAIL APPLIES TO SINGLE OR COMPOSITE BEAMS. WHERE SINGLE BEAMS ARE SPECIFIED, "WT" AND "W" COINCIDE.

SCHEDULE (INCHES)							
WT	T	F	L	P	W	D
WT≤7	1/4	3/16	5	12	W≤3 1/2	1/2
7<WT≤14	3/8	1/4	7	14	3 1/2<W≤5 1/2	5/8
WT>14	1/2	3/8	9	16	W>5 1/2	3/4

DOUBLE BEARING CONNECTION
SCALE: N.T.S.

7



TYP. KING POST DETAIL
SCALE: N.T.S.

3

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SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD

DRAWING NUMBER:
S-040

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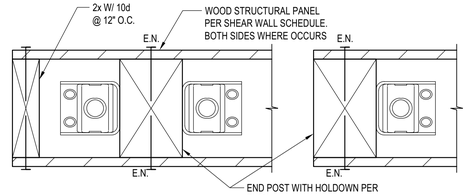
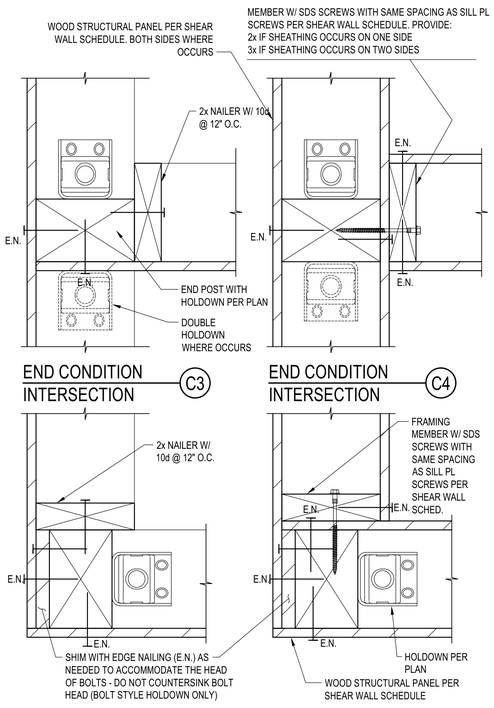


END CONDITION DOUBLE HOLDOWN C5

END CONDITION SINGLE HOLDOWN C6

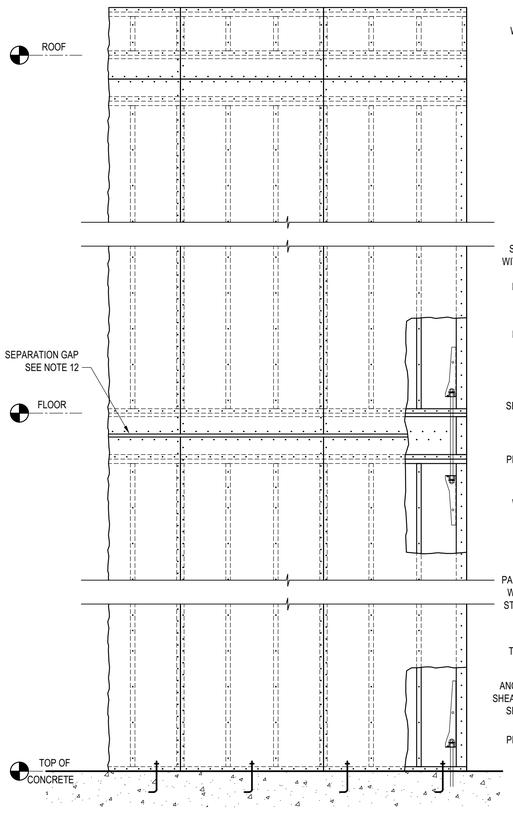


END CONDITION INTERSECTION C3

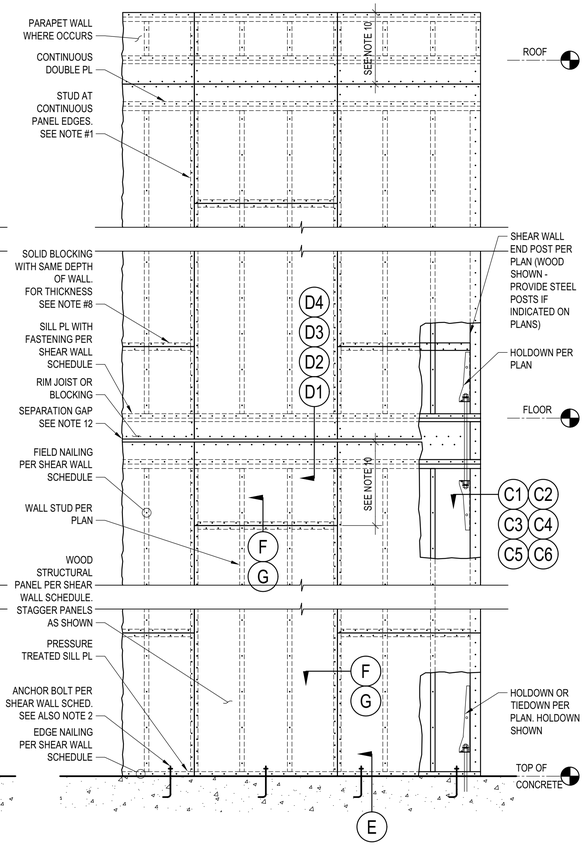
END CONDITION INTERSECTION C4

END CONDITION CORNER C1

END CONDITION CORNER C2



ALTERNATIVE WOOD STRUCTURAL PANEL TILING (7) A3

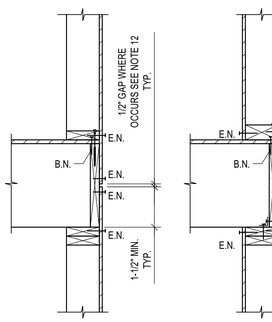


TYPICAL SHEAR WALL ELEVATION A2

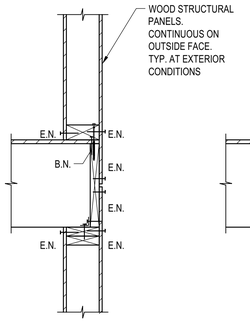
SHEAR WALL SCHEDULE NOTES:

1. INSTALL PANELS, FASTENERS, AND CLIPS, PER INSET DETAIL B "SHEAR WALL SCHEDULE".
2. FOR ALL WALLS, PROVIDE MINIMUM TWO ANCHOR BOLTS PER PIECE OF SILL PLATE & ONE LOCATED WITHIN 12" AND NOT LESS THAN 7 BOLT DIAMETER OR 4 3/8" OF EACH END OF EACH SILL PLATE.
3. FOR SILL PL ATTACHMENT TO WOOD FRAMED FLOORS, WOOD SCREWS SHALL BE SIMPSON SDS25600 FOR SILL PL CONNECTED TO WOOD RIM JOIST OR BLOCKING. PROVIDE SDS25412 FOR SILL PLATE CONNECTED TO TOP NAILER AT STEEL BEAMS. ALTERNATIVELY, 16d NAILS CAN BE USED WHERE ALLOWED BY THE SHEAR WALL SCHEDULE PROVIDED THE FLOOR/ROOF SHEATHING THICKNESS IS ≤ 3/4".
4. AT (E) FOUNDATION, SILL ANCHORS MAY BE UFP W/ 2- 1/2"Ø TITEN HD SCREW ANCHORS W/ 5" MIN. EMBED AND W/ 5- 1/4"Ø X 3" LONG SDS SCREWS TO SILL PL. SPACING SHALL BE AS SAME AS ANCHOR BOLT SPACING PER SHEAR WALL SCHED. (LARR #25726, ICC ESR-2616 FOR UFP; LARR #25741, ICC ESR-2713 FOR TITEN HD).
5. FOR SPECIFICATIONS OF HOLD-DOWNS AT THE END OF THE SHEAR WALL SEE PLANS AND "HOLDOWN TYPICAL DETAILS AND SCHEDULE".
6. OSB OR PLYWOOD WOOD STRUCTURAL PANELS MAY BE USED FOR THE SHEAR WALL CONSTRUCTION, EXCEPT THAT OSB SHALL NOT BE PERMITTED IN SHEAR WALL CONSTRUCTION LABELED AS FIRE RETARDANT TREATED BY THE ARCHITECT. FOR FIRE RETARDANT TREATED SHEAR WALLS THE UNIT SHEAR CAPACITY IS REDUCED TO 90% OF THE ALLOWABLE VALUE PER THE CODE REPORTS FOR THE SPECIFIED FIRE TREATMENT PRODUCT. SEE TIMBER GENERAL NOTES FOR ADDITIONAL INFORMATION.
7. WOOD STRUCTURAL PANELS MAY BE TILED PER EITHER ELEVATION A2 OR ELEVATION A3. CONTRACTOR SHALL SELECT MORE ECONOMICAL TILING.
8. FOR SHEAR WALL WITH SHEAR CAPACITY PER SCHEDULE EXCEEDING 350 #/FT FRAMING MEMBERS AT ADJOINING PANEL EDGES INCLUDING WALL STUDS AND BLOCKING SHALL BE 3" MINIMUM, UNLESS THICKER MEMBERS ARE SPECIFIED ON PLANS. PROVIDE STAGGERED NAILING AT ALL PANEL EDGES.
9. WHERE WOOD STRUCTURAL PANELS ARE APPLIED ON BOTH FACES OF WALL STUDS ADJACENT PANEL EDGES SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS PER INSET DETAIL G, AND SILL PLATE SHALL BE A 3x MEMBER PER INSET DETAILS E.
10. MIN DIMENSION OF WOOD STRUCTURAL PANELS SHALL BE 2'-0"
11. NAILS SHALL BE PLACED NOT LESS THAN 3/8 INCH FROM PANEL EDGES AT 2x MEMBERS (1/2 INCH AT 3x MEMBERS) & 3/8 INCH FROM THE EDGE OF THE CONNECTING MEMBERS. ALL SHEAR WALL NAILING SHALL UTILIZE COMMON NAILS OR GALVANIZED BOX.
12. PROVIDE 1/2" SEPARATION GAP BETWEEN WOOD STRUCTURAL PANELS AT FLOOR LEVELS. SEPARATION GAPS MAY BE OMITTED AND WOOD STRUCTURAL PANELS CAN RUN CONTINUOUSLY ACROSS FLOORS FOR BUILDINGS WITH NO MORE THAN TWO STORIES OF WOOD FRAMING.

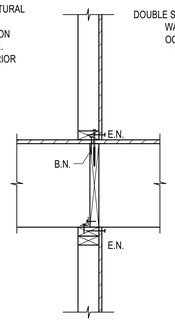
NOTES A1



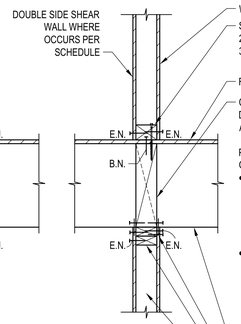
EXTERIOR SINGLE D1



EXTERIOR DOUBLE D2



INTERIOR SINGLE D3



INTERIOR DOUBLE D4

- WOOD STRUCTURAL PANELS AT SHEAR WALLS. TYP.
- SILL PL WITH FASTENERS PER SHEAR WALL SCHEDULE
  2x IF SHEATHING OCCURS ON ONE SIDE
  3x IF SHEATHING OCCURS ON BOTH SIDES
- FLOOR/ROOF SHEATHING PER PLAN
- CONTINUOUS RIM JOIST OR BLOCKING, AS APPLICABLE DEPENDING ON JOIST DIRECTION, W/ SHEAR CLIPS - A35 AND/OR LTP4 - PER SHEAR WALL SCHEDULE. TYP.

  PROVIDE THE FOLLOWING UNLESS NOTED OTHERWISE ON PLAN:
  - SAWN LUMBER CONSTRUCTION:
    2x MIN. IF SHEATHING OCCURS ON ONE SIDE
    3x IF SHEATHING OCCURS ON BOTH SIDES AND DOUBLE PL IS 6 IN NOMINAL WIDTH OR LARGER
    4x IF SHEATHING OCCURS ON BOTH SIDES AND DOUBLE PL IS 4 IN NOMINAL WIDTH
  - ENGINEERED LUMBER CONSTRUCTION:
    1 3/4"x LVL MIN. IF SHEATHING OCCURS ON ONE SIDE
    3 1/2"x LVL MIN. IF SHEATHING OCCURS ON BOTH SIDES
- FLOOR/ROOF FRAMING SPECIFIED ELSEWHERE IN THIS SET. JOISTS OR BLOCKING AS APPLICABLE. TYP.
- WHEN LTP4 SHEAR CLIP ARE USED, SEE INSET DETAIL J
- CONTINUOUS DOUBLE TOP PLATE
- STUD WALL PER PLAN, TYP.
  SINGLE OR DOUBLE STAGGERED AS APPLICABLE

SHEAR WALL SCHEDULE (2019 CBC - 2015 AF&PA SDPWS - TABLE 4.3A)

MARK	WOOD STRUCTURAL PANELS (PLYWOOD OR OSB U.N.O. ON THE PLANS) (6)	NUMBER OF SIDES	NAILING		SHEAR CLIPS (A35 OR LTP4)		SILL PL ATTACHMENT U.N.O.		WELDED THREADED STUDS AT WOOD NAILERS. SEE INSET DETAIL "H"	ALLOWABLE SHEAR (PLF)	ALLOWABLE SHEAR AT FIRE TREATED WALLS (PLF)
			EDGE (E.N.)	FIELD (F.N.)	ALL LOCATIONS U.N.O.	INSET DETAIL "D1" AND "D2" EXTERIOR CONDITIONS ONLY	FRAMED FLOOR (3)	CONCRETE (4)			
1	15/32" APA RATED SHEATHING (SPAN RATING 32/16)	1	8d @ 6" O.C.	8d @ 12" O.C.	1 @ 16" O.C.	NO CLIPS	SDS @ 16" O.C. OR 16d @ 8" O.C.	5/8"Ø A.B. @ 48" O.C.	5/8"Ø @ 24" O.C.	260	234
2	15/32" APA RATED SHEATHING (SPAN RATING 32/16)	1	8d @ 4" O.C.	8d @ 12" O.C.	1 @ 16" O.C.	NO CLIPS	SDS @ 12" O.C. OR 16d @ 6" O.C.	5/8"Ø A.B. @ 48" O.C.	5/8"Ø @ 24" O.C.	350	342
3	15/32" APA RATED STRUCT-I SHEATHING (SPAN RATING 32/16)	1	10d @ 4" O.C.	10d @ 12" O.C.	1 @ 12" O.C.	NO CLIPS	SDS @ 8" O.C. OR 16d @ 4" O.C.	5/8"Ø A.B. @ 32" O.C.	5/8"Ø @ 24" O.C.	510	459
4	15/32" APA RATED STRUCT-I SHEATHING (SPAN RATING 32/16)	1	10d @ 3" O.C.	10d @ 12" O.C.	1 @ 8" O.C.	NO CLIPS	SDS @ 6" O.C. OR 16d @ 3" O.C.	5/8"Ø A.B. @ 24" O.C.	5/8"Ø @ 24" O.C.	665	599
5	15/32" APA RATED STRUCT-I SHEATHING (SPAN RATING 32/16)	1	10d @ 2" O.C.	10d @ 12" O.C.	1 @ 8" O.C.	NO CLIPS	SDS @ 4" O.C. OR 16d @ 2 1/2" O.C.	5/8"Ø A.B. @ 20" O.C.	5/8"Ø @ 24" O.C.	870	783
6	15/32" APA RATED STRUCT-I SHEATHING (SPAN RATING 32/16)	2	10d @ 3" O.C.	10d @ 12" O.C.	2 @ 8" O.C.	1 @ 8" O.C.	SDS @ 3" O.C.	5/8"Ø A.B. @ 16" O.C.	5/8"Ø @ 16" O.C.	1,330	1,197
7	15/32" APA RATED STRUCT-I SHEATHING (SPAN RATING 32/16)	2	10d @ 2" O.C.	10d @ 12" O.C.	2 @ 8" O.C.	1 @ 8" O.C.	2 ROWS SDS @ 4" O.C.	5/8"Ø A.B. @ 12" O.C.	5/8"Ø @ 12" O.C.	1,740	1,566

TYPICAL SHEAR WALL SCHEDULE B

BADGER RESIDENCE

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GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
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TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
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319 MAIN STREET
EL SEGUNDO, CA 90245
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LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

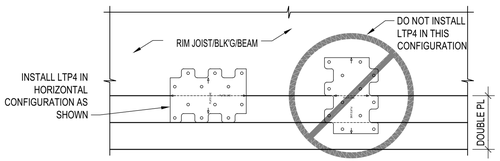
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

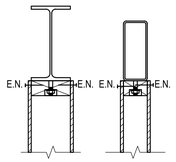
PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD SHEAR WALLS

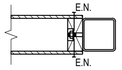
DRAWING NUMBER:
S-041



LTP 4 INSTALL. - ELEVATION VIEW J

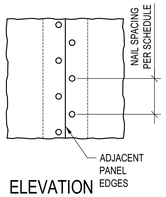


EXAMPLE OF NAILERS AT BEAMS



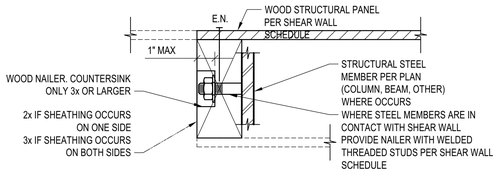
EXAMPLE OF NAILERS AT COLUMN

NOTES:
1. EXAMPLES ARE SHOWN FOR WIDE FLANGE AND HSS SECTIONS. SIMILAR DETAILS APPLY TO OTHER SECTIONS

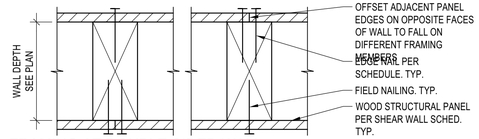


ELEVATION PLAN

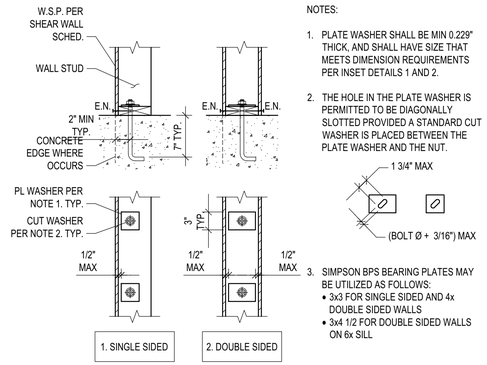
FRAMING AT ADJACENT PANEL EDGES F



NAILERS @ STEEL MEMBERS AND SHEAR WALLS H



FRAMING AT DOUBLE SIDED WALL G



NOTES:
1. PLATE WASHER SHALL BE MIN 0.229" THICK, AND SHALL HAVE SIZE THAT MEETS DIMENSION REQUIREMENTS PER INSET DETAILS 1 AND 2.
2. THE HOLE IN THE PLATE WASHER IS PERMITTED TO BE DIAGONALLY SLOTTED PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND THE NUT.
3. SIMPSON BPS BEARING PLATES MAY BE UTILIZED AS FOLLOWS:
   - 3x3 FOR SINGLE SIDED AND 4x DOUBLE SIDED WALLS
   - 3x4 1/2 FOR DOUBLE SIDED WALLS ON 6x SILL

SILL PLATE CONNECTION TO CONCRETE E

SHEAR WALL ELEVATION SCHEDULE AND DETAILS

SCALE: N.T.S.

1
-

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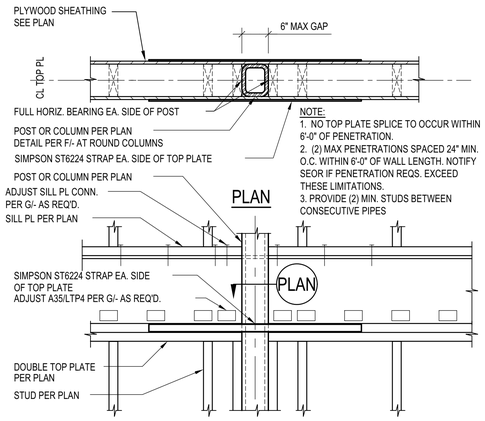
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD SHEAR WALLS

DRAWING NUMBER:
S-042

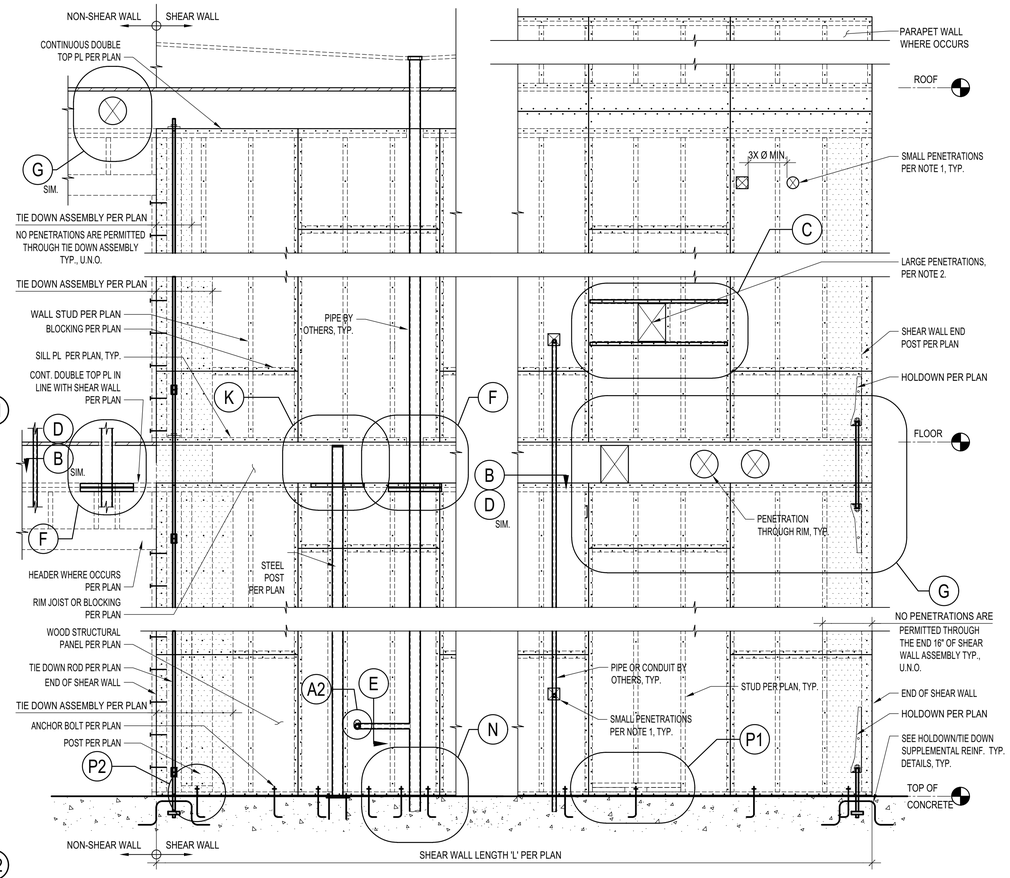


TYP. INTERRUPTED DBL. TOP PL - POST/COLUMN (K)

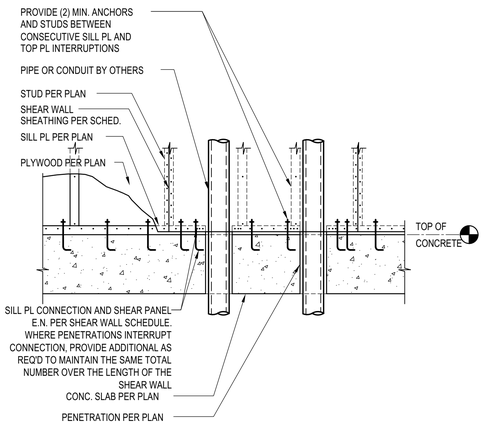
PENETRATIONS THROUGH SHEAR WALL NOTES:

1. 4 1/2" Ø AND 4 1/2" SQ. MAX PENETRATION SIZE THROUGH SHEAR WALL PANELS ARE PERMITTED PROVIDED:
   a. 3X Ø (OR 3X SQ. DIMENSION) MINIMUM CLEAR SPACING BETWEEN PENETRATIONS
   b. NO OPENINGS TO OCCUR WITHIN TIE-DOWN POST AREA AT WALL ENDS UNLESS SPECIFICALLY CALLED OUT ON PLAN OR APPROVED BY THE SEOR
   c. NO OVER CUTS IN WOOD MEMBERS AND SHEATHING ARE PERMITTED
2. FOR PENETRATIONS LARGER THAN THOSE SPECIFIED IN 1) ABOVE:
   a. REROUTE PIPE OR DUCT, ETC. AROUND SHEAR WALLS
   b. SEE PLANS FOR LOCATIONS OF APPROVED PENETRATIONS
   c. OR NOTIFY THE SEOR AND AOR OF SPECIFIC PROPOSED PENETRATIONS FOR REVIEW
3. THE MAX ACCUMULATED LENGTH OF PENETRATIONS AT ANY GIVEN ELEVATION SHALL NOT EXCEED 10% OF THE WALL LENGTH 'L', TYP. U.N.O.
4. THIS DETAIL APPLIES TO ALL SHEARWALLS AND WALLS IN LINE WITH SHEARWALLS, TYP. U.N.O.
5. INSTALL ALL STRAPS AND HARDWARE PER MANUFACTURER SPECIFICATIONS.

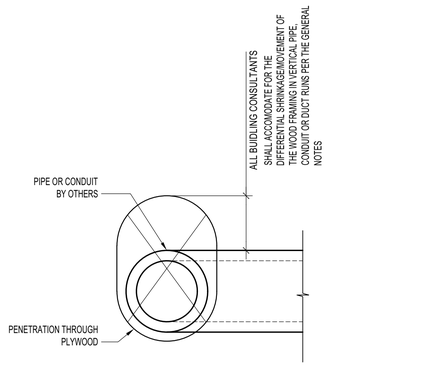
NOTES: PENETRATIONS THROUGH TYP. SHEAR WALLS (A1)



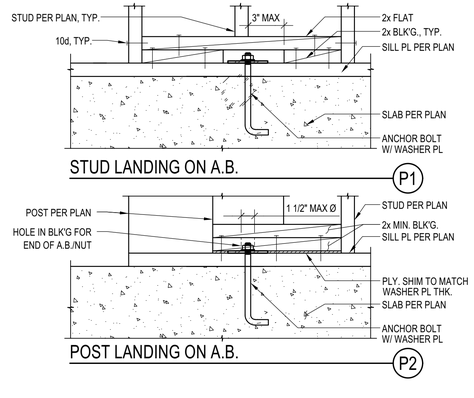
ELEVATION: PENETRATIONS THROUGH A TYPICAL SHEAR WALL (A)



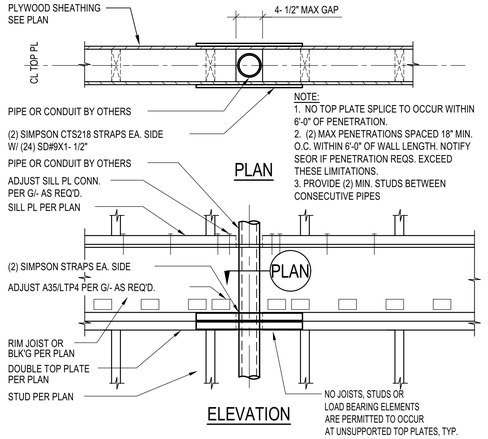
ELEVATION: TYP. INTERRUPTED SILL PL AT CONCRETE (N)



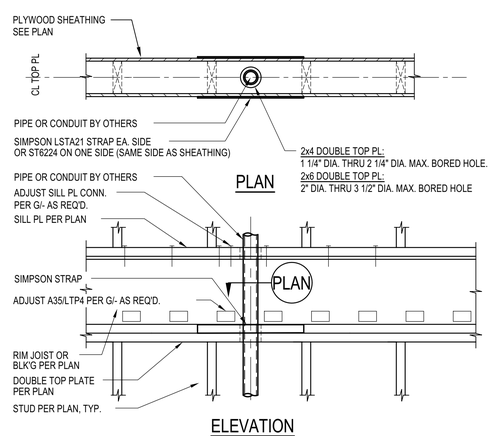
ELEVATION: BUILDING SHRINKAGE/MOVEMENT AT PIPES (A2)



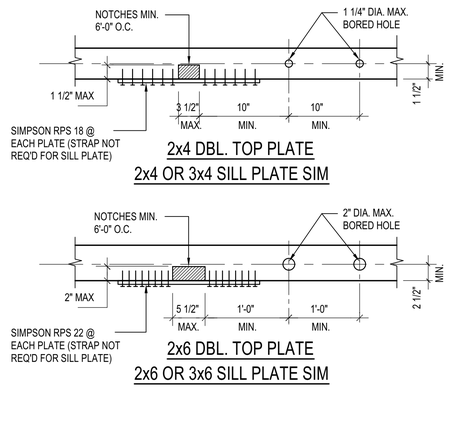
ELEVATION: POST OR STUD LANDING ON A.B. (P)



TYP. INTERRUPTED DBL. TOP PL & SILL PL BY PIPE (F)



TYP. SMALL PIPE OR CONDUIT THROUGH DBL. TOP PL (D)



PLAN: TYP. DOUBLE TOP PL NOTCHING & BORING (B)

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PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

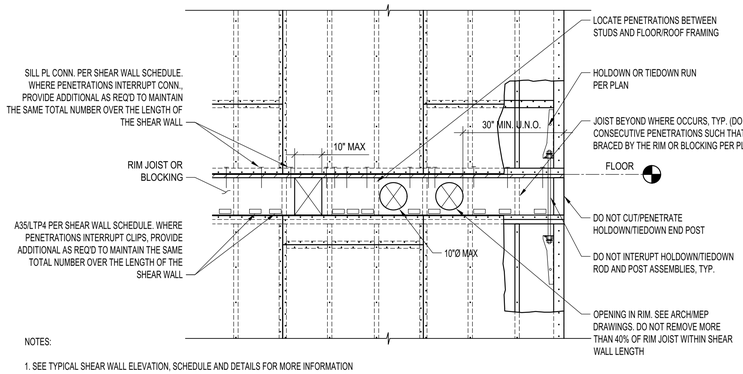
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD SHEAR WALLS

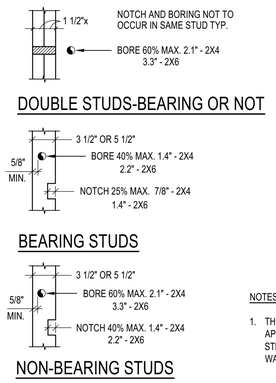
DRAWING NUMBER:
S-043



NOTES:

1. SEE TYPICAL SHEAR WALL ELEVATION, SCHEDULE AND DETAILS FOR MORE INFORMATION

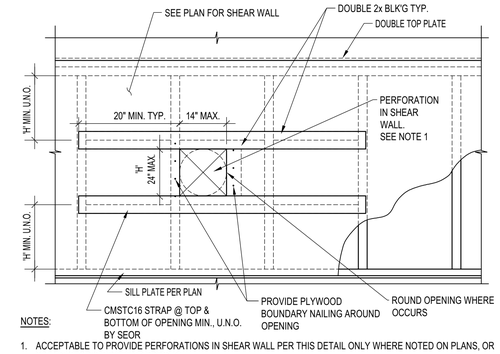
ELEVATION: TYPICAL PENETRATIONS IN RIM JOIST/BLOCKING — G



NOTES:

1. THIS DETAIL IS APPLICABLE TO ALL STRUCTURAL WALLS

SECTION: TYP. STUD NOTCHING — E



NOTES:

1. ACCEPTABLE TO PROVIDE PERFORATIONS IN SHEAR WALL PER THIS DETAIL ONLY WHERE NOTED ON PLANS, OR OBTAIN SEOR'S WRITTEN APPROVAL.
2. AT SHEARWALLS W/ PLYWOOD ON BOTH SIDES PROVIDE STRAPS EA. SIDE OF WALL

ELEVATION: LARGE OPENINGS IN SHEAR WALLS — C

PENETRATIONS AND ASSEMBLY INTERRUPTIONS AT A TYPICAL SHEAR WALL

SCALE: N.T.S.

1 / -

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PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

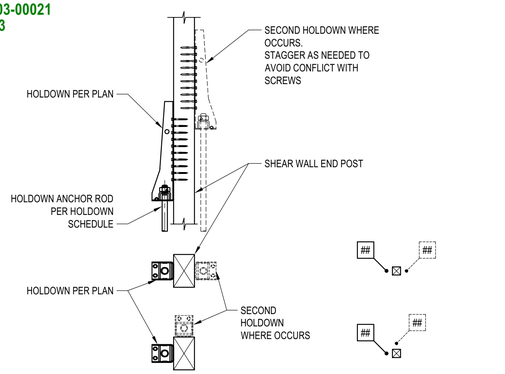
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - WOOD SHEAR WALLS

DRAWING NUMBER:
S-044

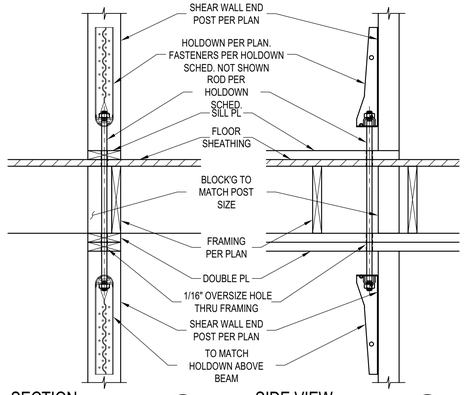


CONSTRUCTION A — PLAN SYMBOL B

HOLDOWN WITH SCREWS

SCALE: N.T.S.

5 -



SECTION B — SIDE VIEW A

HOLDOWN AT WOOD FLOOR

SCALE: N.T.S.

4 -

MARK (PER PLAN)	GRADE 36 ROD DIAM. "Da"	PL WASHER T (IN)	PL WASHER SIDE (IN)	HOLDOWN (1)	FASTENER	MIN POST SIZE (2)	CAPACITY	CAPACITY WITH 25% REDUCTION PER CITY OF LA
2	5/8"	3/8	1 1/2	HDU2	6-SDS25212	4x4	3,075 LBS	2,306 LBS
4	5/8"	3/8	1 1/2	HDU4	10-SDS25212	4x4	4,565 LBS	3,424 LBS
5	5/8"	3/8	1 1/2	HDU5	14-SDS25212	4x6	5,670 LBS	4,253 LBS
8	7/8"	3/8	2	HDU8	20-SDS25212	4x6 OR 6x6	7,870 LBS	5,903 LBS
11	1"	3/8	2	HDU11	30-SDS25212	4x6 OR 6x6	9,535 LBS	7,151 LBS
14	1"	3/8	2	HDU14	36-SDS25212	6x6	14,445 LBS	10,834 LBS
12	1 1/8"	3/8	2 1/2	HD12	4-1"Ø BOLTS	6x6	15,510 LBS	11,633 LBS
19	1 1/4"	3/8	3	HD19	5-1"Ø BOLTS	4x8 OR 6x8	19,360 LBS	14,520 LBS
2-14	2-1"	3/8	2	DOUBLE HDU14	2 x 36-SDS25212	6x6	28,780 LBS	21,585 LBS

HOLDOWN SCHEDULE A

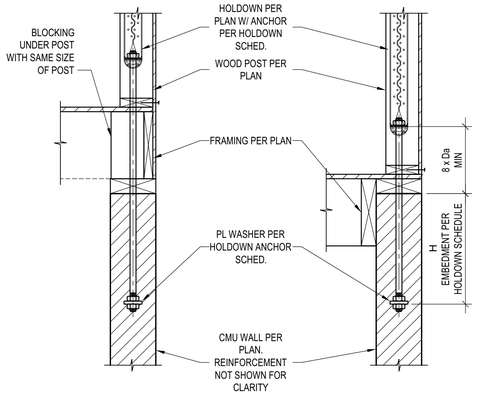
NOTES:

1. HDU SCREW-STYLE HOLDOWNS ARE PER ICC ESR 2330. BOLT-STYLE HOLD DOWNS PER IAPMO ESR 0143
2. POST SIZE SHOWN ON THE SCHEDULE ARE MINIMUM SIZES. IF LARGER SIZES ARE SPECIFIED ON THE PLANS THE SIZES SHOWN ON PLANS SHALL BE USED
3. ROD SHALL BE A36 ALL THREADED RODS
4. UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED IN HOLDOWN DETAILS, INSTALL HOLDOWNS 1/2 INCH MINIMUM ABOVE THE PLATE TO ALLOW FOR TIGHTENING OF ANCHOR BOLT. THE HOLD DOWN SHALL BE INSTALLED TIGHT TO THE POST WITHOUT FILLERS OR DAPPING. DO NOT BEND HOLD DOWN ANCHORS.
5. NUT AT HOLDOWN THREADED ROD SHOULD BE FINGER-TIGHT PLUS 1/2 TURN WITH A HAND WRENCH. DO NOT OVER-TORQUE THE NUT. DO NOT USE IMPACT WRENCHES.
6. HOLDOWN HARDWARE MUST BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION/OBSERVATION
7. HOLDOWNS MUST BE INSPECTED/OBSERVED BEFORE COVERING WITH SHEATHING.

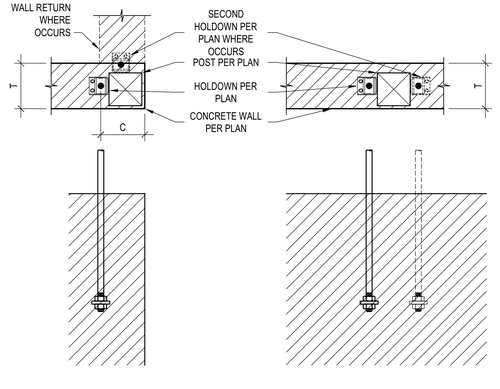
HOLDOWN SCHEDULE AND NOTES

SCALE: N.T.S.

1 -



POST SITTING ON FRAMING E — POST SITTING ON CMU WALL D



CORNER C — FIELD/EDGE B

MARK (PER PLAN)	GRADE 36 ROD DIAM. "Da"	PL WASHER T (IN)	PL WASHER SIDE (IN)	HOLDOWN ANCHOR IN CMU WALL OR STEM:	8" CMU WALL INSTALL	8" CMU WALL H MIN	8" CMU WALL C MIN	12" CMU WALL H MIN	12" CMU WALL C MIN
2	5/8"	3/8	1 1/2		EDGE/FIELD	18"	NA	18"	NA
					CORNER	18"	7"	18"	7"
4	5/8"	3/8	1 1/2		EDGE/FIELD	18"	NA	18"	NA
					CORNER	18"	7"	18"	7"
5	5/8"	3/8	1 1/2		EDGE/FIELD	18"	NA	18"	NA
					CORNER	18"	7"	18"	7"
8	7/8"	3/8	2		EDGE/FIELD	18"	NA	18"	NA
					CORNER	21"	7"	18"	7"
11	1"	3/8	2		EDGE/FIELD	21"	NA	18"	NA
					CORNER	33"	7"	21"	7"
14	1"	3/8	2		EDGE/FIELD	22"	NA	18"	NA
					CORNER	36"	7"	21"	7"
12	1 1/8"	3/8	2 1/2		EDGE/FIELD	27"	NA	24"	NA
					CORNER	48"	7"	30"	7"
19	1 1/4"	3/8	3		EDGE/FIELD	42"	NA	27"	NA
					CORNER	69"	12"	42"	12"
2-14	2-1"	3/8	2						

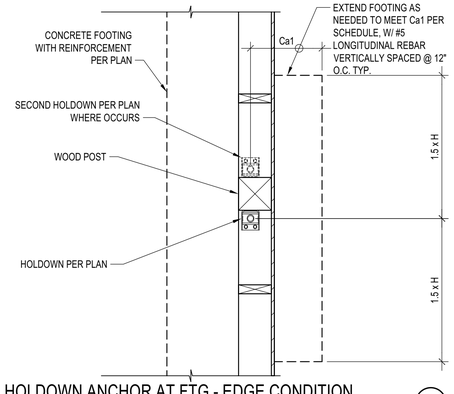
SCHEDULE A

HOLDOWN ANCHOR IN CMU WALL OR STEM

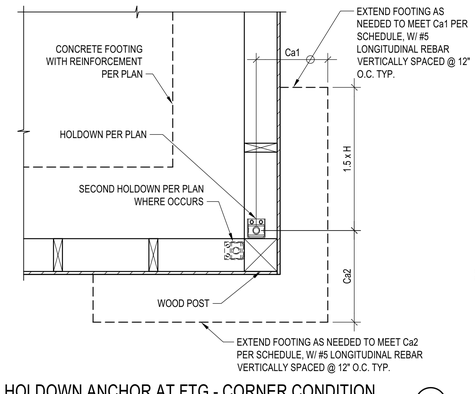
HOLDOWN ANCHOR IN CMU WALL OR STEM WALL

SCALE: N.T.S.

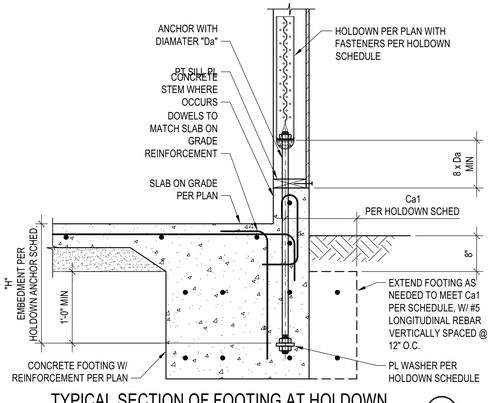
2 -



HOLDOWN ANCHOR AT FTG - EDGE CONDITION D



HOLDOWN ANCHOR AT FTG - CORNER CONDITION C



TYPICAL SECTION OF FOOTING AT HOLDOWN B

MARK (PER PLAN)	GRADE 36 ROD DIAM. "Da"	PL WASHER T (IN)	PL WASHER SIDE (IN)	HOLDOWN ANCHOR IN CONCRETE FOOTING: INSTALL	H MIN	Ca1 MIN	Ca2 MIN	ANCHOR REINF. "AR"
2	5/8"	3/8	1 1/2	EDGE/FIELD	12"	4"	NA	NR
				CORNER	12"	4"	4"	NR
4	5/8"	3/8	1 1/2	EDGE/FIELD	12"	4"	NA	NR
				CORNER	12"	4"	4"	NR
5	5/8"	3/8	1 1/2	EDGE/FIELD	12"	4"	NA	NR
				CORNER	12"	4"	4"	NR
8	7/8"	3/8	2	EDGE/FIELD	16"	4"	NA	NR
				CORNER	20"	4"	8"	NR
11	1"	3/8	2	EDGE/FIELD	18"	4"	NA	NR
				CORNER	24"	4"	7"	NR
14	1"	3/8	2	EDGE/FIELD	18"	4"	NA	NR
				CORNER	24"	4"	7"	NR
12	1 1/8"	3/8	2 1/2	EDGE/FIELD	20"	4"	NA	NR
				CORNER	24"	12"	12"	NR
19	1 1/4"	3/8	3	EDGE/FIELD	24"	4"	NA	NR
				CORNER	24"	15"	15"	NR
2-14	2-1"	3/8	2	EDGE/FIELD	24"	12"	NA	NR
				CORNER	24"	20"	20"	NR

SCHEDULE A

HOLDOWN ANCHOR IN CONCRETE FOOTING

HOLDOWN ANCHOR IN CONCRETE FOOTING

SCALE: N.T.S.

3 -

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TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO DAVID L. FUNK P-21490

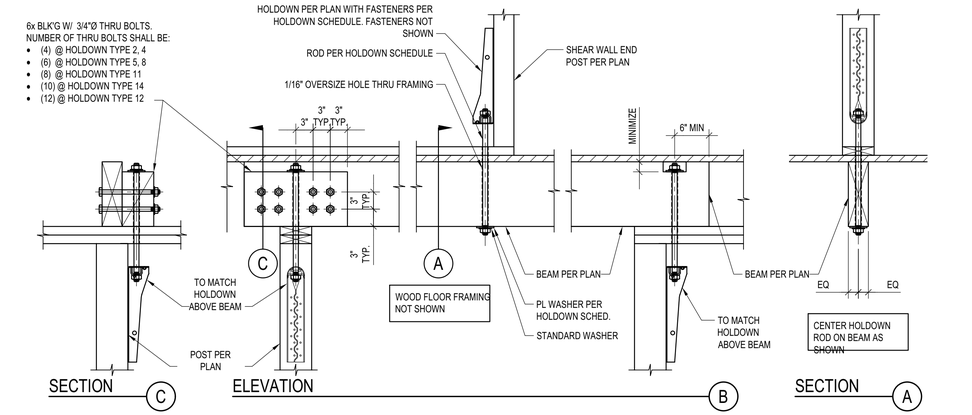
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - HOLDOWNS

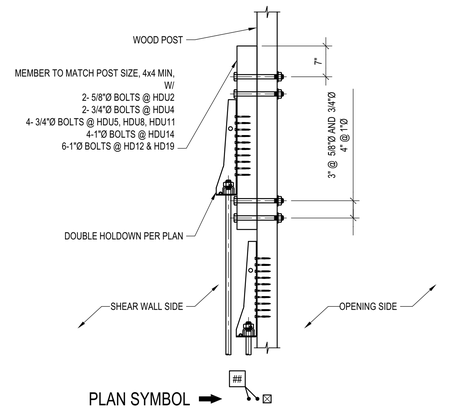
DRAWING NUMBER:
S-051



HOLDOWN LANDING ON WOOD BEAM

SCALE: N.T.S.

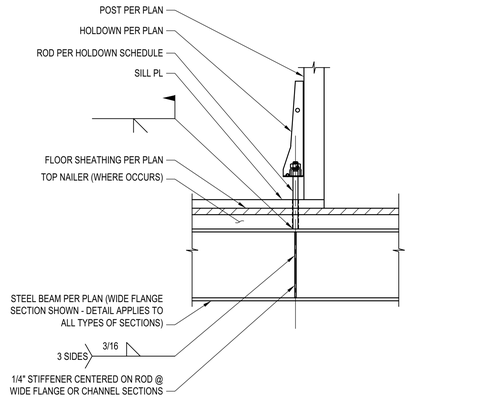
1 -



DOUBLE HOLDOWN AT WALL END

SCALE: N.T.S.

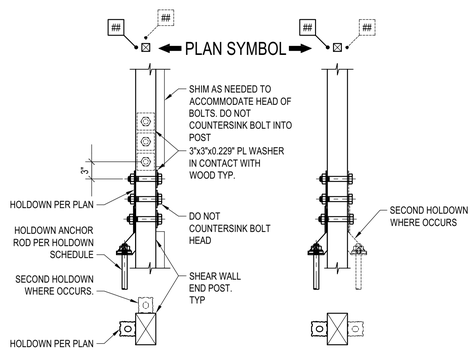
4 -



HOLDOWN ON STEEL BEAM

SCALE: N.T.S.

2 -



HOLDOWN WITH BOLTS

SCALE: N.T.S.

3 -

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

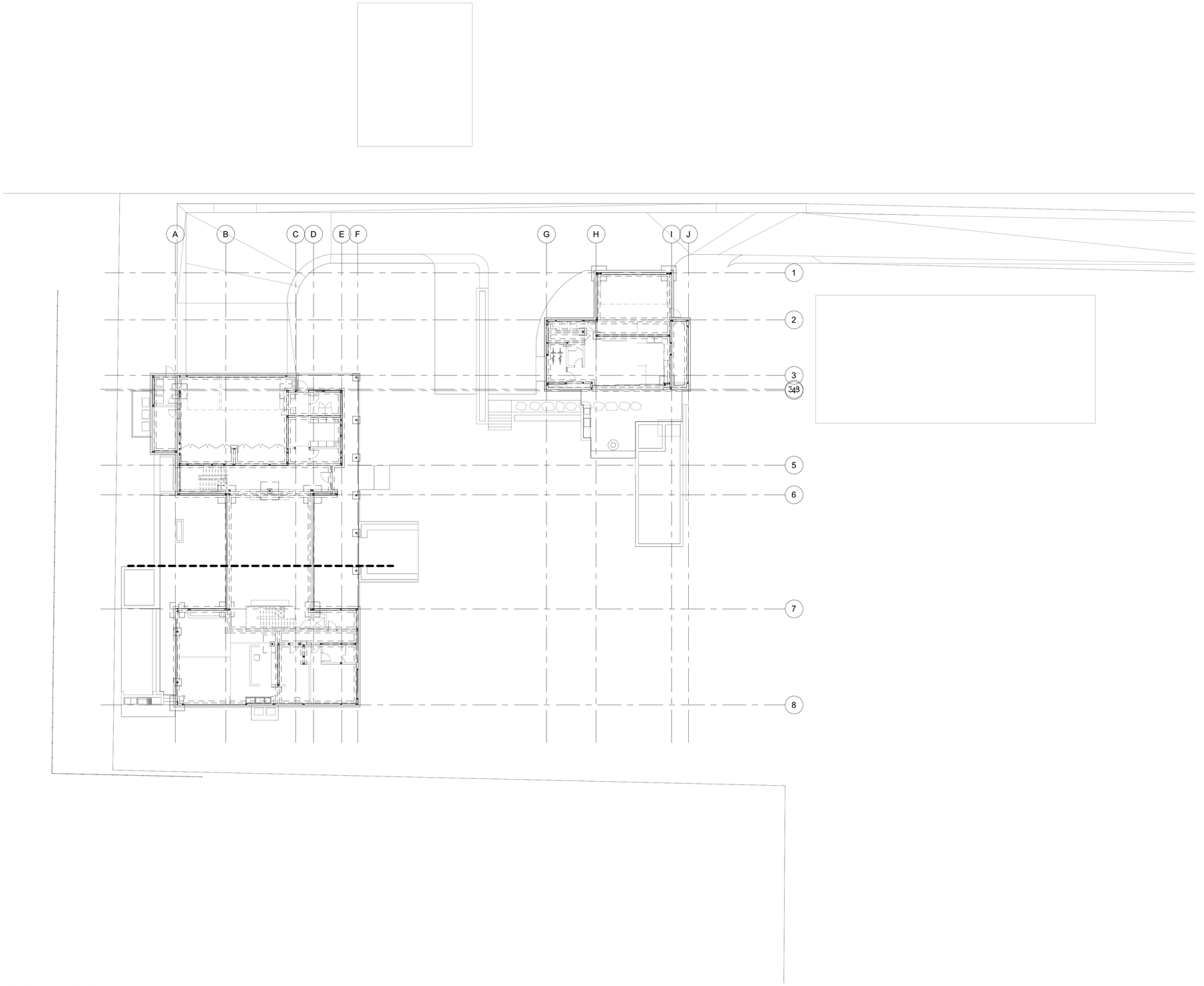
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
TYPICAL DETAILS - HOLDOWNS

DRAWING NUMBER:
S-052

2/24/2023 4:08:07 PM



1 OVERALL SITE PLAN
S-100 1/16" = 1'-0"

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO P-21490 DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

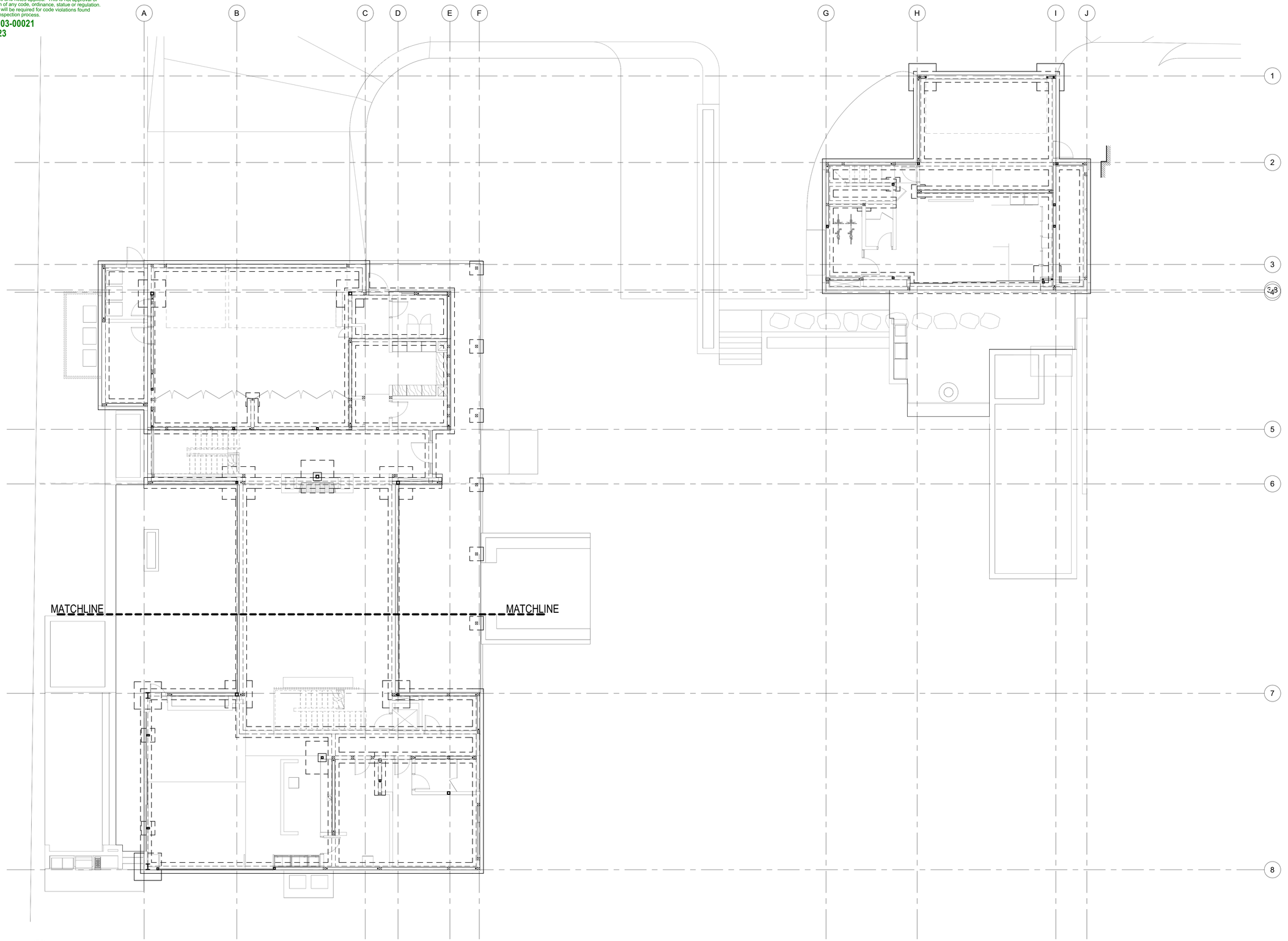
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
OVERALL SITE PLAN

DRAWING NUMBER:
S-100

2/24/2023 2:39:05 PM



1 S-101 OVERALL FOUNDATION/LEVEL 01 PLAN
1/8" = 1'-0"

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
OVERALL FOUNDATION/LEVEL 01 PLAN

DRAWING NUMBER:
S-101

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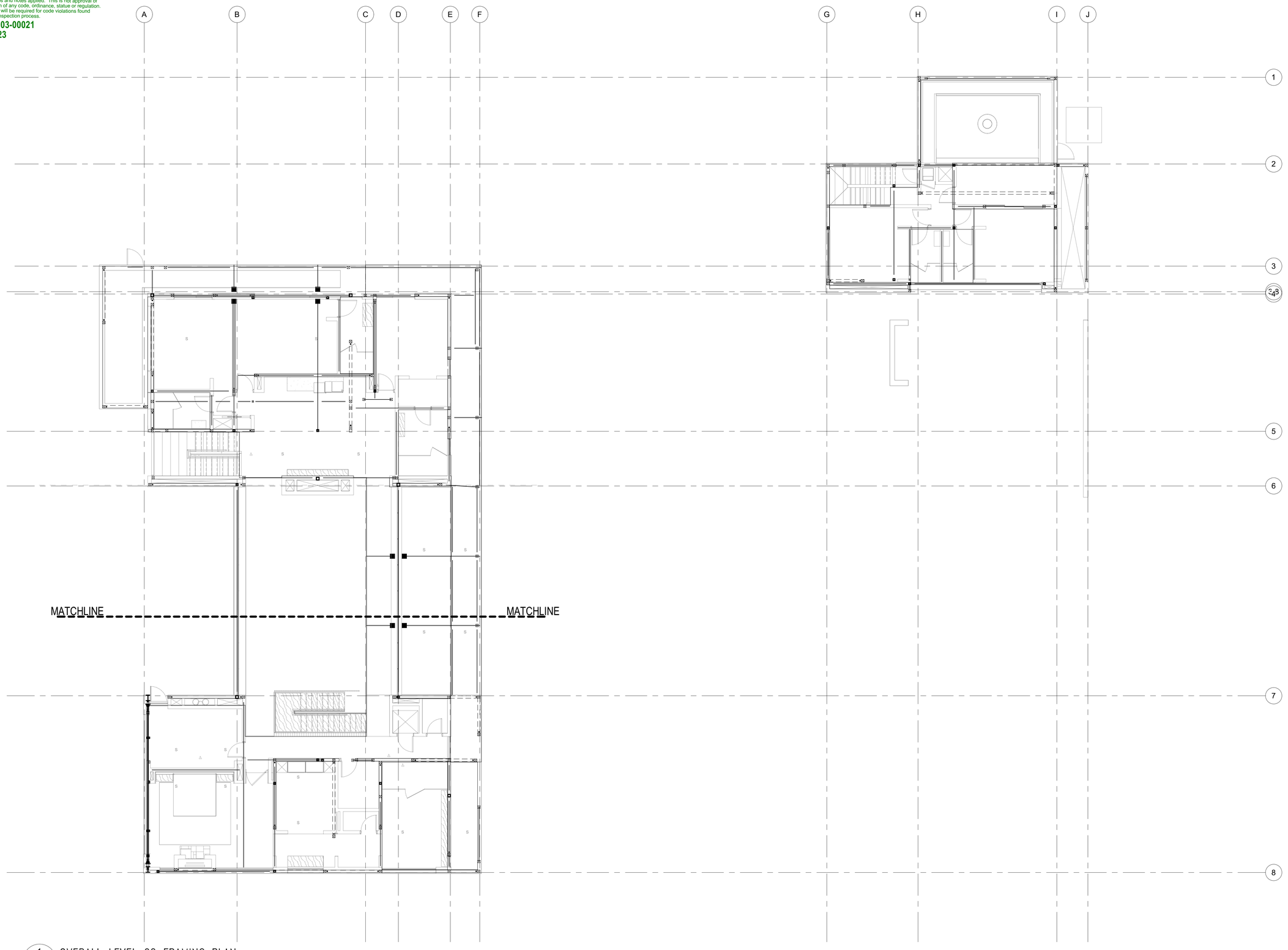

1 OVERALL LEVEL 02 FRAMING PLAN
S-102 1/8" = 1'-0"

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
OVERALL LEVEL 02 FRAMING PLAN

DRAWING NUMBER:
S-102

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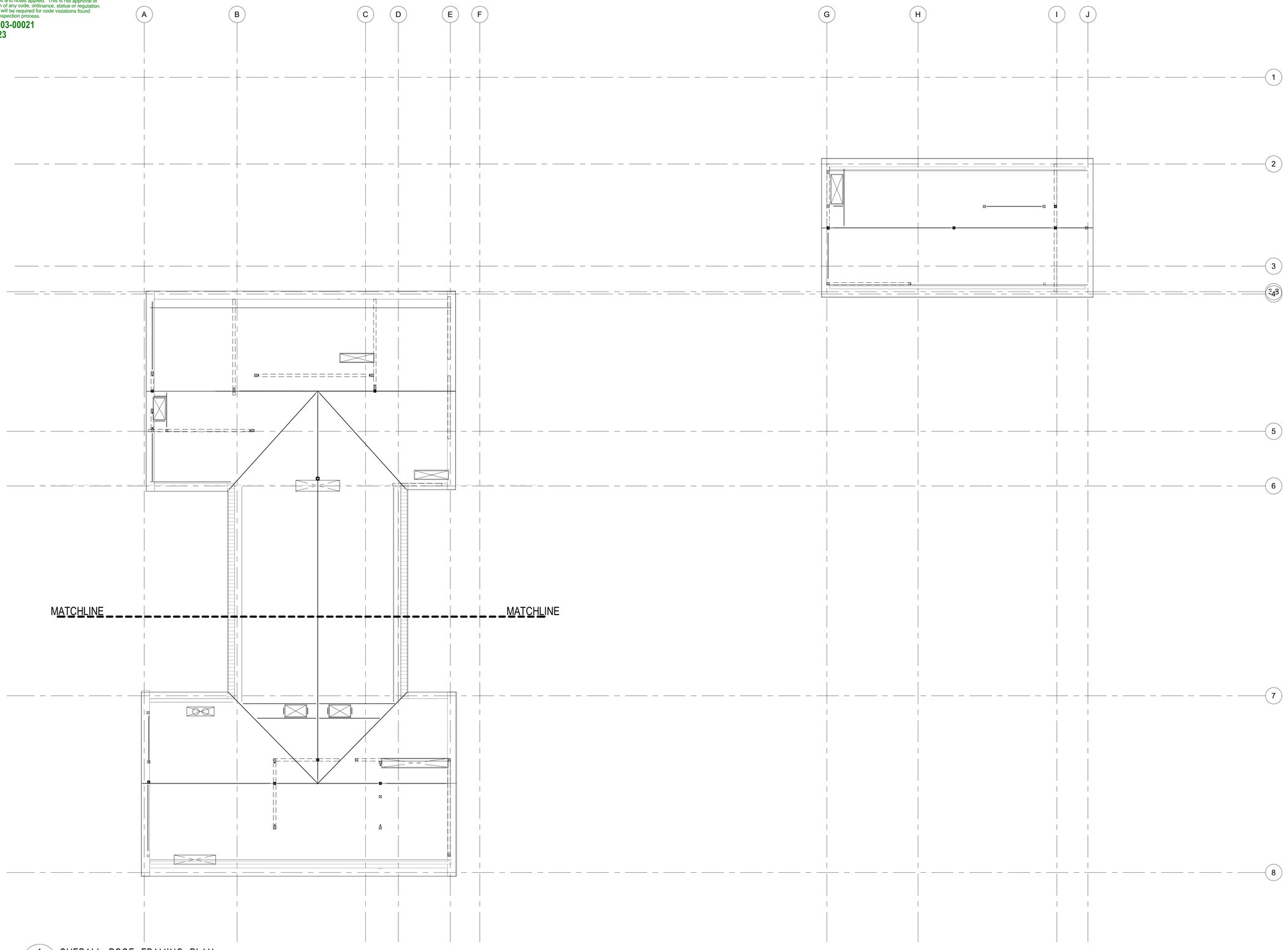

1 S-103 OVERALL ROOF FRAMING PLAN
1/8" = 1'-0"

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:
PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
OVERALL ROOF FRAMING PLAN

DRAWING NUMBER:
S-103

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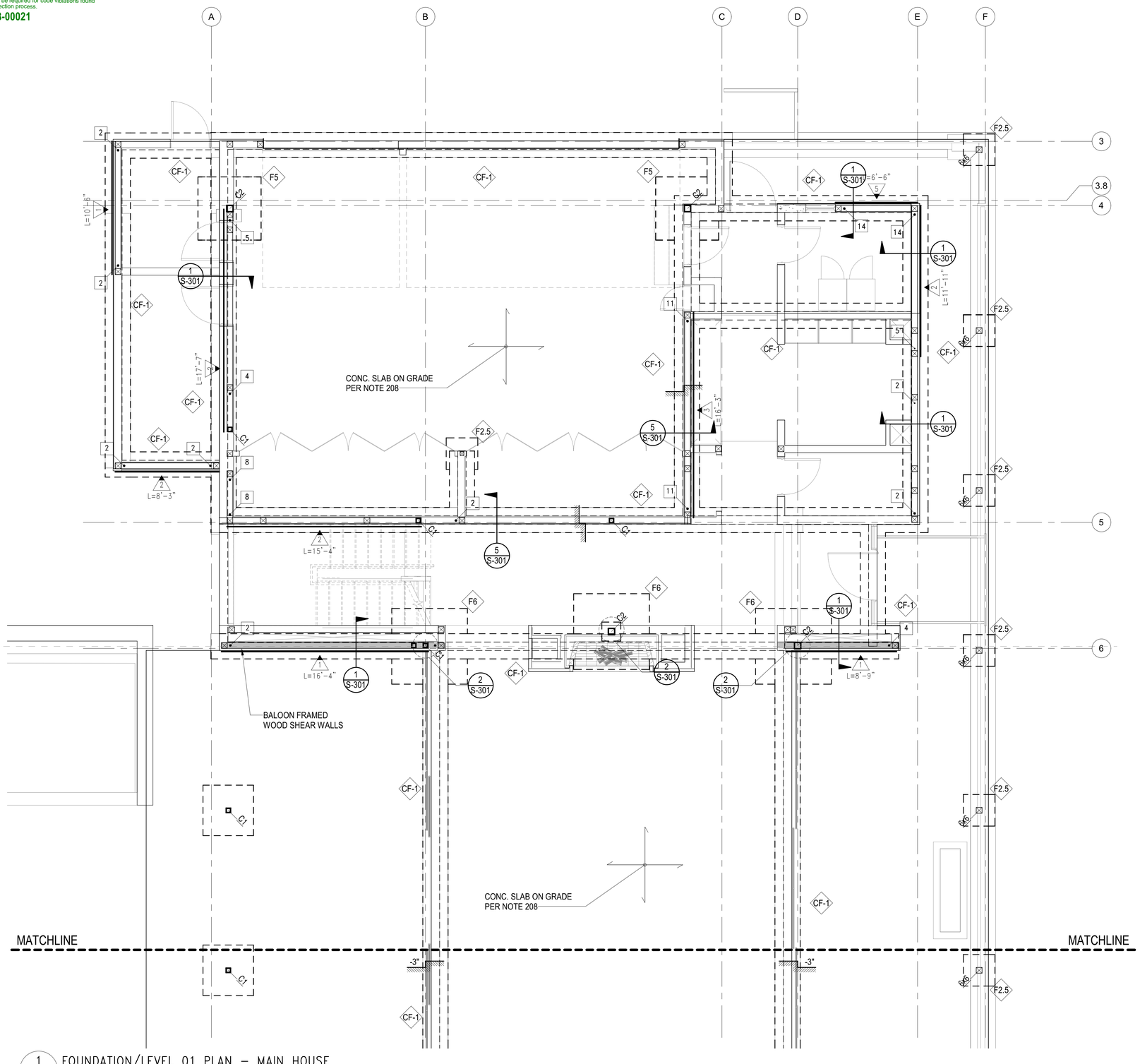

1 FOUNDATION/LEVEL 01 PLAN – MAIN HOUSE
S-111A 1/4" = 1'-0"

PLAN NOTES - SHEETS AND GENERAL:

101. GENERAL NOTES AND TYPICAL DETAILS SHEETS: SEE S0.01 THRU S0.62 SHEETS. GENERAL NOTES & TYPICAL DETAILS APPLY TO ALL PARTS OF THE WORK EXCEPT WHERE SPECIFICALLY DETAILED OR U.N.O. ON THE FLOOR PLANS AND PLAN NOTES.

102. VERIFY ALL DIMENSIONS, ELEVATIONS, SLAB EDGES, SLAB DEPRESSIONS, SLAB OPENINGS, CURBS, FOOTING, PENETRATIONS, WALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL & CIVIL DRAWINGS.

103. FOR ALL DIMENSIONS & ROOF SLOPES S.A.D.

104. NON-BEARING WALLS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOR NON-BEARING WALL LOCATIONS S.A.D.

PLAN NOTES - FOUNDATION:

201. ALL GRADING & FOUNDATION WORK MUST BE OBSERVED AND APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF STEEL REINFORCEMENT AND POURING CONCRETE.

202. RECOMMENDED MATERIAL IS NATIVE SOIL BELOW THE FROST LINE.

203. IF FOR LIMITS AND EXTENT OF OVER EXCAVATION SEE CIVIL DRAWINGS.

204. U.N.O. TOP OF CONC. FOOTING ELEVATION SHALL BE 32" BELOW THE LOWEST GRADE. FOR TOP OF SLAB ELEVATION SEE ARCH'L DRAWINGS.

205. ALL HOLDOWN HARDWARE IS TO BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION. HOLDOWNS SHALL BE RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING PLATE WASHERS ARE REQUIRED FOR ALL HOLDOWNS.

206. FOR SLAB ON GRADE SUB-GRADE PREPARATION SEE SOILS REPORT.

207. FOR VAPOR BARRIER AT INTERIOR SPACES S.A.D. SPECIFICATIONS/DRAWINGS.

208. CONCRETE SLAB ON GRADE: 5" THICK, REINFORCED WITH #5 BARS AT 16" O.C. EACH WAY.

209. THE BUILDING HAS BEEN DESIGNED TO BE ANCHORED INTO THE BEARING MATERIAL PER THE DESIGN REQUIREMENTS OF ASCE 24-14.

210. THE ONLY STRUCTURAL MATERIAL OCCURING BELOW THE B.F.E. IS REINFORCED CONCRETE. WHICH IS WITHIN THE ACCEPTABLE MATERIALS LIST FOR FLOORS AND WALLS IN TABLE 2 OF THE FEMA TECHNICAL BULLETIN.

SYMBOLS - FOUNDATION

- INDICATES CHANGE IN FLOOR ELEVATION
- INDICATES CONCRETE WALL
- INDICATES CONCRETE WALL BELOW
- INDICATES CONCRETE FOOTING
- S – – – S INDICATES STEPPED FOOTING PER 18/S1.01
- GB-# INDICATES CONCRETE GRADE BEAM PER SCHEDULE THIS SHEET
- F# INDICATES CONCRETE FOOTING PER SCHEDULE THIS SHEET
- C# INDICATES CONCRETE COLUMN PER SCHEDULE ###
- GB-# INDICATES CONCRETE GRADE BEAM PER SCHEDULE THIS SHEET
- INDICATES WOOD WALLS W/ 6x6 STUDS @ 16" OC MIN

FOOTING SCHEDULE	
MARK	SIZE AND REINFORCEMENT
CF1	2'-0" WIDE x 12" THICK W/ CONCRETE FOOTING W/ 2-#5 T&B
F2.5	2'-6" SQUARE x 18" THICK W/ 4-#5 T&B EACH WAY
F5	5'-0" SQUARE x 18" THICK W/ 6-#5 T&B EACH WAY
F6	6'-0" SQUARE x 18" THICK W/ 6-#6 T&B EACH WAY

COLUMN SCHEDULE		
MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
C2	HSS6x6x1/2	-

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:
PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO DAVID L. FUNK P-21490

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
FOUNDATION/LEVEL 01 PLAN - MAIN HOUSE

DRAWING NUMBER:
S-111A

NOT FOR CONSTRUCTION

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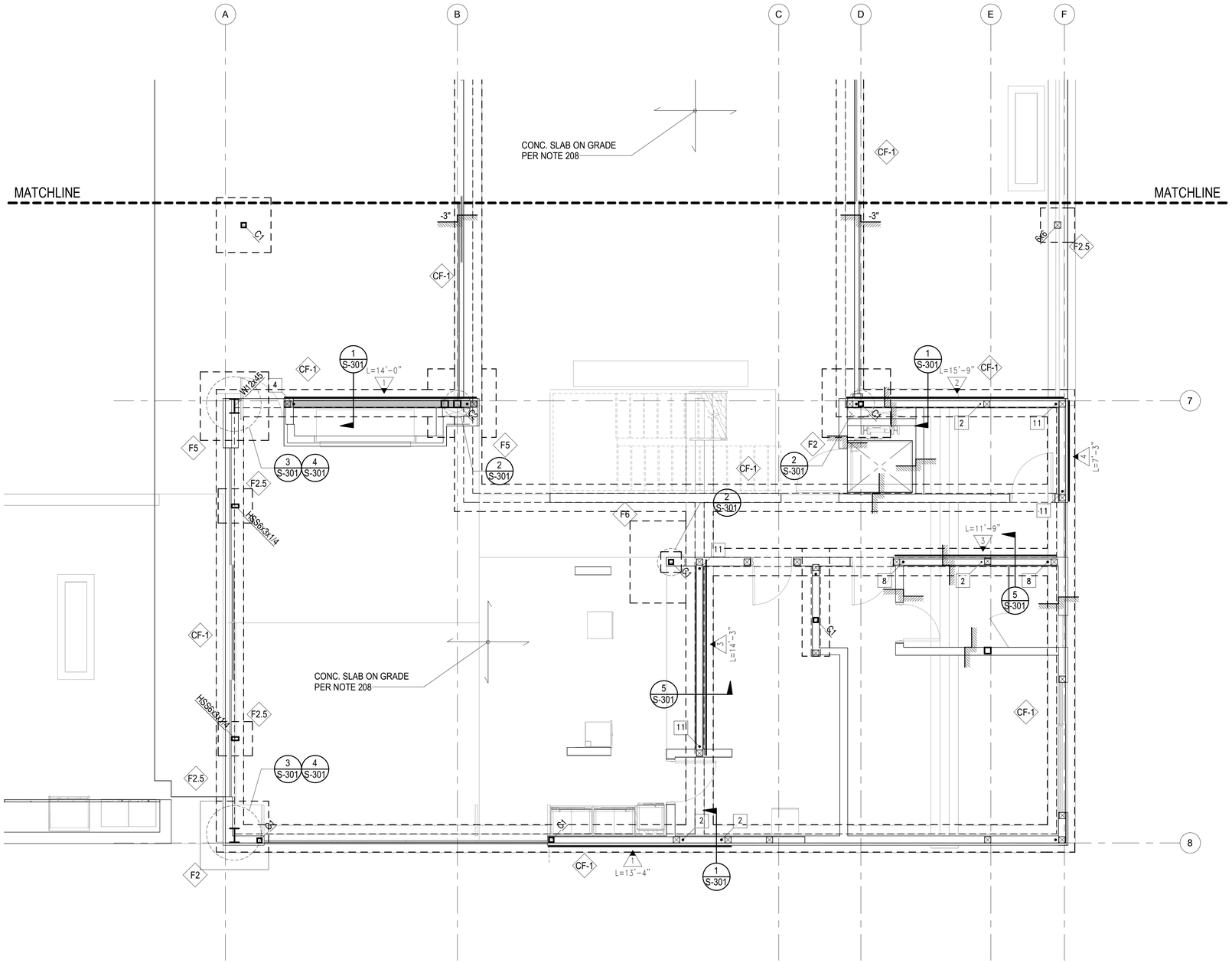


1 FOUNDATION/LEVEL 01 PLAN – MAIN HOUSE
S-111B 1/4" = 1'-0"

PLAN NOTES - SHEETS AND GENERAL:

101. GENERAL NOTES AND TYPICAL DETAILS SHEETS: SEE S0.01 THRU S0.62 SHEETS. GENERAL NOTES & TYPICAL DETAILS APPLY TO ALL PARTS OF THE WORK EXCEPT WHERE SPECIFICALLY DETAILED OR U.N.O. ON THE FLOOR PLANS AND PLAN NOTES.

102. VERIFY ALL DIMENSIONS, ELEVATIONS, SLAB EDGES, SLAB DEPRESSIONS, SLAB OPENINGS, CURBS, FOOTING, PENETRATIONS, WALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL & CIVIL DRAWINGS.

103. FOR ALL DIMENSIONS & ROOF SLOPES S.A.D.

104. NON-BEARING WALLS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOR NON-BEARING WALL LOCATIONS S.A.D.

PLAN NOTES - FOUNDATION:

201. ALL GRADING & FOUNDATION WORK MUST BE OBSERVED AND APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF STEEL REINFORCEMENT AND POURING CONCRETE.

202. RECOMMENDED MATERIAL IS NATIVE SOIL BELOW THE FROST LINE.

203. IF FOR LIMITS AND EXTENT OF OVER EXCAVATION SEE CIVIL DRAWINGS.

204. U.N.O. TOP OF CONC. FOOTING ELEVATION SHALL BE 32" BELOW THE LOWEST GRADE. FOR TOP OF SLAB ELEVATION SEE ARCH'L DRAWINGS.

205. ALL HOLDOWN HARDWARE IS TO BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION. HOLDOWNS SHALL BE RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING PLATE WASHERS ARE REQUIRED FOR ALL HOLDOWNS.

206. FOR SLAB ON GRADE SUB-GRADE PREPARATION SEE SOILS REPORT.

207. FOR VAPOR BARRIER AT INTERIOR SPACES S.A.D. SPECIFICATIONS/DRAWINGS.

208. CONCRETE SLAB ON GRADE: 5" THICK, REINFORCED WITH #5 BARS AT 16" O.C. EACH WAY.

209. THE BUILDING HAS BEEN DESIGNED TO BE ANCHORED INTO THE BEARING MATERIAL PER THE DESIGN REQUIREMENTS OF ASCE 24-14.

210. THE ONLY STRUCTURAL MATERIAL OCCURING BELOW THE B.F.E. IS REINFORCED CONCRETE. WHICH IS WITHIN THE ACCEPTABLE MATERIALS LIST FOR FLOORS AND WALLS IN TABLE 2 OF THE FEMA TECHNICAL BULLETIN.

SYMBOLS - FOUNDATION

- INDICATES CHANGE IN FLOOR ELEVATION
- INDICATES CONCRETE WALL
- INDICATES CONCRETE WALL BELOW
- INDICATES CONCRETE FOOTING
- S – – – S INDICATES STEPPED FOOTING PER 18/S1.01
- GB-# INDICATES CONCRETE GRADE BEAM PER SCHEDULE THIS SHEET
- F# INDICATES CONCRETE FOOTING PER SCHEDULE THIS SHEET
- C# INDICATES CONCRETE COLUMN PER SCHEDULE ###
- GB-# INDICATES CONCRETE GRADE BEAM PER SCHEDULE THIS SHEET
- INDICATES WOOD WALLS W/ 6x6 STUDS @ 16" OC MIN

FOOTING SCHEDULE	
MARK	SIZE AND REINFORCEMENT
CF1	2'-0" WIDE x 12" THICK W/ CONCRETE FOOTING W/ 2-#5 T&B
F2.5	2'-6" SQUARE x 18" THICK W/ 4-#5 T&B EACH WAY
F5	5'-0" SQUARE x 18" THICK W/ 6-#5 T&B EACH WAY
F6	6'-0" SQUARE x 18" THICK W/ 6-#6 T&B EACH WAY

COLUMN SCHEDULE		
MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
C2	HSS6x6x1/2	-

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

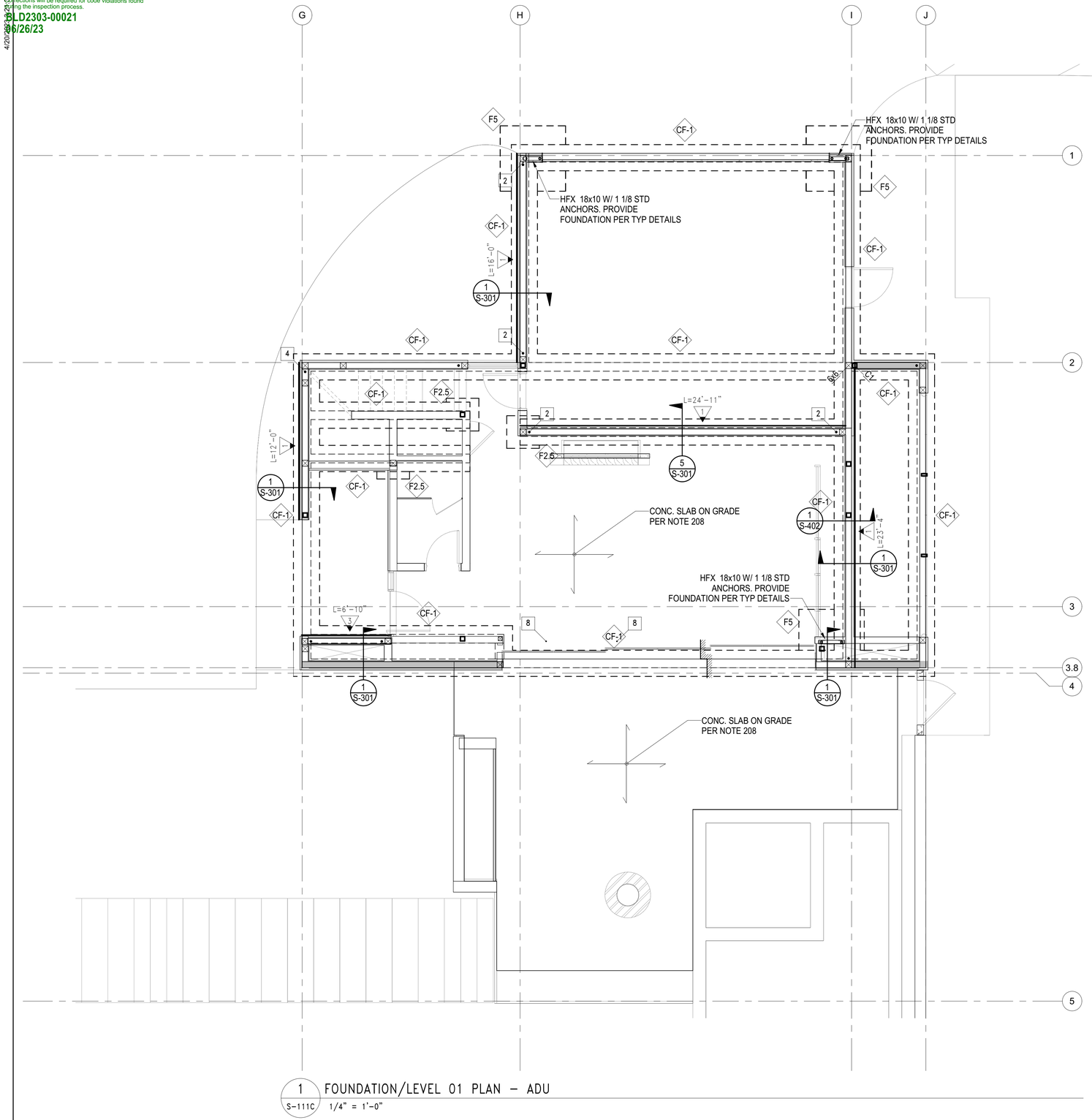
PROJECT NUMBER
#2201

DRAWING TITLE:
FOUNDATION/LEVEL 01 PLAN - MAIN HOUSE

DRAWING NUMBER:
S-111B

NOT FOR CONSTRUCTION

4/20/2023 3:44:



1 FOUNDATION/LEVEL 01 PLAN – ADU
S-111C 1/4" = 1'-0"

PLAN NOTES - SHEETS AND GENERAL:

101. GENERAL NOTES AND TYPICAL DETAILS SHEETS: SEE S0.01 THRU S0.62 SHEETS. GENERAL NOTES & TYPICAL DETAILS APPLY TO ALL PARTS OF THE WORK EXCEPT WHERE SPECIFICALLY DETAILED OR U.N.O. ON THE FLOOR PLANS AND PLAN NOTES.

102. VERIFY ALL DIMENSIONS, ELEVATIONS, SLAB EDGES, SLAB DEPRESSIONS, SLAB OPENINGS, CURBS, FOOTING, PENETRATIONS, WALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL & CIVIL DRAWINGS.

103. FOR ALL DIMENSIONS & ROOF SLOPES S.A.D.

104. NON-BEARING WALLS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOR NON-BEARING WALL LOCATIONS S.A.D.

PLAN NOTES - FOUNDATION:

201. ALL GRADING & FOUNDATION WORK MUST BE OBSERVED AND APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF STEEL REINFORCEMENT AND POURING CONCRETE.

202. RECOMMENDED MATERIAL IS NATIVE SOIL BELOW THE FROST LINE.

203. IF FOR LIMITS AND EXTENT OF OVER EXCAVATION SEE CIVIL DRAWINGS.

204. U.N.O. TOP OF CONC. FOOTING ELEVATION SHALL BE 32" BELOW THE LOWEST GRADE. FOR TOP OF SLAB ELEVATION SEE ARCH'L DRAWINGS.

205. ALL HOLDOWN HARDWARE IS TO BE SECURED IN PLACE PRIOR TO FOUNDATION INSPECTION. HOLDOWNS SHALL BE RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING PLATE WASHERS ARE REQUIRED FOR ALL HOLDOWNS.

206. FOR SLAB ON GRADE SUB-GRADE PREPARATION SEE SOILS REPORT.

207. FOR VAPOR BARRIER AT INTERIOR SPACES S.A.D. SPECIFICATIONS/DRAWINGS.

208. CONCRETE SLAB ON GRADE: 5" THICK, REINFORCED WITH #5 BARS AT 16" O.C. EACH WAY.

209. THE BUILDING HAS BEEN DESIGNED TO BE ANCHORED INTO THE BEARING MATERIAL PER THE DESIGN REQUIREMENTS OF ASCE 24-14.

210. THE ONLY STRUCTURAL MATERIAL OCCURING BELOW THE B.F.E. IS REINFORCED CONCRETE. WHICH IS WITHIN THE ACCEPTABLE MATERIALS LIST FOR FLOORS AND WALLS IN TABLE 2 OF THE FEMA TECHNICAL BULLETIN.

SYMBOLS - FOUNDATION

- INDICATES CHANGE IN FLOOR ELEVATION
- INDICATES CONCRETE WALL
- INDICATES CONCRETE WALL BELOW
- INDICATES CONCRETE FOOTING
- S—S INDICATES STEPPED FOOTING PER 18/S1.01
- GB-# INDICATES CONCRETE GRADE BEAM PER SCHEDULE THIS SHEET
- F# INDICATES CONCRETE FOOTING PER SCHEDULE THIS SHEET
- C# INDICATES CONCRETE COLUMN PER SCHEDULE ###
- GB-# INDICATES CONCRETE GRADE BEAM PER SCHEDULE THIS SHEET
- INDICATES WOOD WALLS W/ 6x6 STUDS @ 16" OC MIN

FOOTING SCHEDULE

MARK	SIZE AND REINFORCEMENT
CF1	2'-0" WIDE x 12" THICK W/ CONCRETE FOOTING W/ 2-#5 T&B
F2.5	2'-6" SQUARE x 18" THICK W/ 4-#5 T&B EACH WAY
F5	5'-0" SQUARE x 18" THICK W/ 6-#5 T&B EACH WAY
F6	6'-0" SQUARE x 18" THICK W/ 6-#6 T&B EACH WAY

COLUMN SCHEDULE

MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
C2	HSS6x6x1/2	-

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
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GEOTECHNICAL ENGINEER:
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KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
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TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

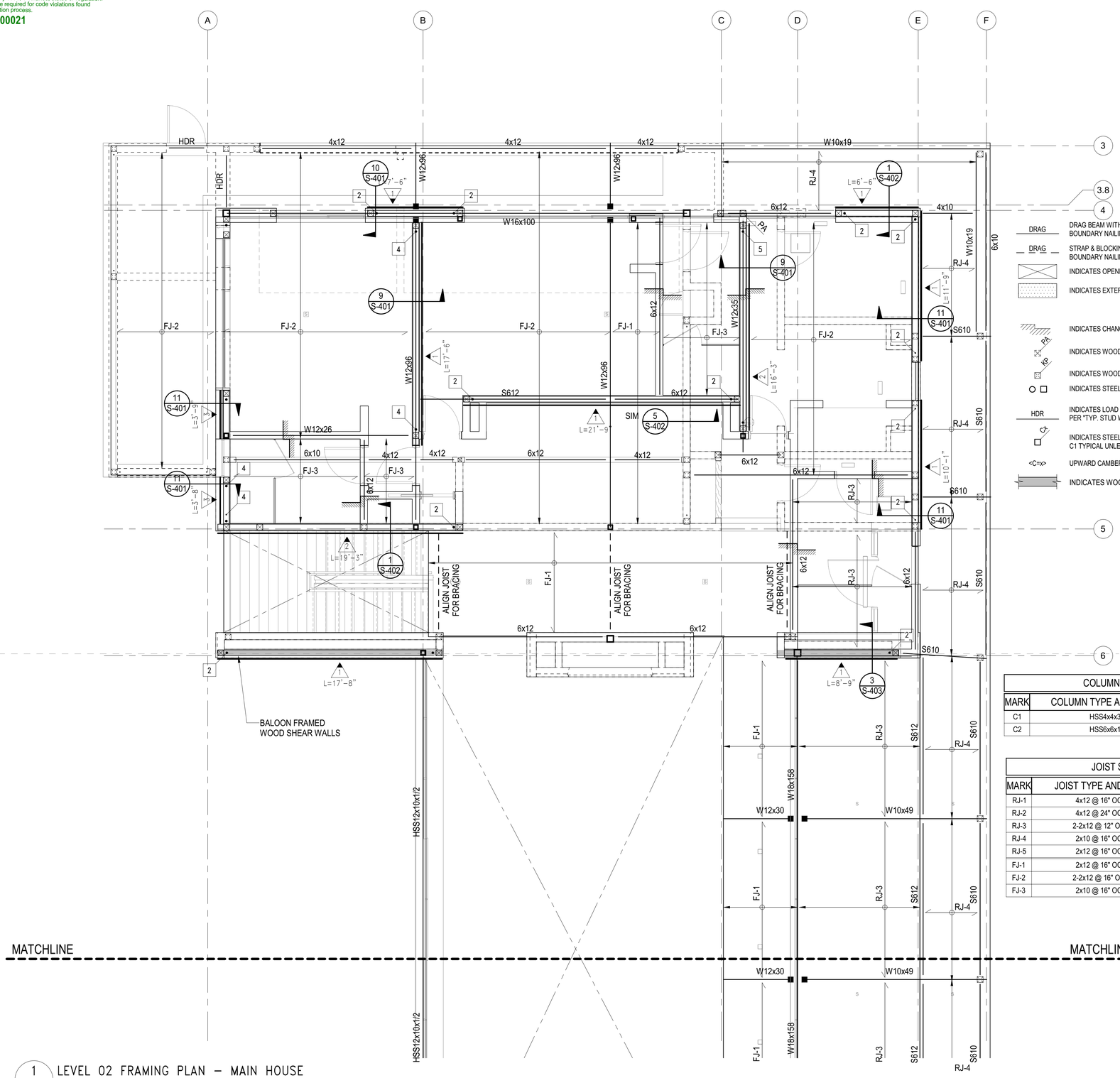
PROJECT NUMBER
#2201

DRAWING TITLE:
FOUNDATION/LEVEL 01 PLAN - ADU

DRAWING NUMBER:
S-111C

NOT FOR CONSTRUCTION

2/24/2023 3:47:31 PM



1 LEVEL 02 FRAMING PLAN – MAIN HOUSE
S-112A 1/4" = 1'-0"

DRAG — DRAG BEAM WITH BOUNDARY NAILING.
DRAG — STRAP & BLOCKING WITH BOUNDARY NAILING.
FOR CONSTRUCTION OF DRAG BEAMS AND DRAG STRAP SEE "DRAGS & CONN. TO SHEAR WALLS" TYPICAL DETAIL
INDICATES OPENING IN DIAPHRAGM/SLAB
INDICATES EXTERIOR DECKS.
INDICATES CHANGE IN FLOOR ELEVATION
PA — INDICATES WOOD POST ABOVE
RP — INDICATES WOOD POST ABOVE
INDICATES STEEL COLUMN
HDR — INDICATES LOAD BEARING HEADER PER "TYP. STUD WALL FRAMING ELEVATION"
C1 — INDICATES STEEL COLUMN PER SCHEDULE ON THIS SHEET C1 TYPICAL UNLESS NOTED OTHERWISE
<C=x> — UPWARD CAMBER IN BEAM (INCHES)
INDICATES WOOD WALLS W/ 6x6 STUDS @ 16" OC MIN

COLUMN SCHEDULE

MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
C2	HSS6x6x1/2	-

JOIST SCHEDULE

MARK	JOIST TYPE AND SPACING	NOTES
RJ-1	4x12 @ 16" OC	-
RJ-2	4x12 @ 24" OC	-
RJ-3	2-2x12 @ 12" OC	-
RJ-4	2x10 @ 16" OC	-
RJ-5	2x12 @ 16" OC	-
FJ-1	2x12 @ 16" OC	-
FJ-2	2-2x12 @ 16" OC	-
FJ-3	2x10 @ 16" OC	-

PLAN NOTES - SHEETS AND GENERAL:

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102. VERIFY ALL DIMENSIONS, ELEVATIONS, SLAB EDGES, SLAB DEPRESSIONS, SLAB OPENINGS, CURBS, FOOTING, PENETRATIONS, WALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL & CIVIL DRAWINGS.

103. FOR ALL DIMENSIONS & ROOF SLOPES S.A.D.

104. NON-BEARING WALLS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOR NON-BEARING WALL LOCATIONS S.A.D.

PLAN NOTES - WOOD FRAMING:

321. FLOOR AND DECK SHEATHING: WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G 48 O.C. GLUE WOOS STRUCTURAL PANELS TO JOISTS AND BLK'G NAILING SCHEDULE.

302. ROOF SHEATHING CONSTRUCTION AT SLOPED AND PITCHED ROOFS: WOOD STRUCTURAL PANEL, 3/4" CD APA RATED PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48/24. NAILING PER NAILING SCHEDULE.

303. FLOOR SHEATHING CONSTRUCTION: NON-STRUCTURAL LIGHT WEIGHT CONCRETE (115 PCF MAX), THICKNESS S.A.D., 1 1/2" MAX, OVER WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G. NAILING PER NAILING SCHEDULE.

PLAN NOTES - FRAMING:

301. PROVIDE WALL SHEATHING AT ALL EXTERIOR WALLS OTHER THAN SHEAR WALLS AS FOLLOWS: WOOD STRUCTURAL PANEL, 15/32" CD APA RATED PLYWOOD OR OSB SHEATHING, EXPOSURE 1, SPAN RATING 32/16, NAILED WITH 8d COMMONS SPACED AT 6" O.C. ALONG ALL PANEL EDGES (E.N.) AND 12" O.C. ALONG INTERMEDIATE SUPPORTS (FIELD) (F.N.)

302. HOLD DOWNS/TIE-DOWNS SHALL BE RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.

303. PROVIDE DOUBLE JOISTS BENEATH ALL PARALLEL WALLS. PROVIDE SOLID BLOCK BENEATH ALL WALLS PERPENDICULAR TO JOISTS. SEE "FRAMING AT NON BEARING WALLS" PER TYPICAL DETAILS SHEETS.

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325. FLOOR SHEATHING CONSTRUCTION: NON-STRUCTURAL LIGHT WEIGHT CONCRETE (110 PCF MAX), THICKNESS S.A.D, 1 1/2" MAX, OVER WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G. NAILING PER NAILING SCHEDULE.

SYMBOLS - WOOD FRAMING

INDICATES WOOD WALLS
UNLESS OTHERWISE SPECIFIED ON THE FRAMING PLAN OR WALL STUD SCHEDULE PROVIDE:
- EXTERIOR WALLS: S.A.D. OR 2x6 @ 16" O.C., WHICHEVER IS GREATER
- INTERIOR WALLS: S.A.D. OR 2x4 @ 16" O.C., WHICHEVER IS GREATER

4x4 PA — INDICATES WOOD POST.
UNLESS OTHERWISE SPECIFIED ON THE FRAMING PLAN THE POST SIZE SHALL BE THE GREATER OF THE FOLLOWING:
- MIN. SIZE PER POST SCHEDULE WHERE PRESENT
- 4x DEPTH OF WALL
- SIZE INDICATED IN "HOLDOWN SCHEDULE" (FOR POSTS AT ENDS OF SHEAR WALLS ONLY)

POST ABOVE - WHERE OCCURS, POST STARTS AT THIS LEVEL AND IT IS DISCONTINUOUS BELOW

/ #'-#" — INDICATES WOOD SHEATHED SHEAR WALL:
TYPE PER SHEAR WALL SCHEDULE UNDER TYP. DETAILS
MINIMUM LENGTH

— INDICATES HOLDOWN TYPE PER TYPICAL DETAILS SHEETS S1.37 & S1.38.

INDICATES EXTENT OF WOOD JOIST
INDICATES DIRECTION OF WOOD JOIST

2- #x## — WOOD MEMBER CALLOUT
SIZE: #x## SAWN LUMBER - S### SCL (SEE SCHED.)
NUMBER OF MEMBERS IN A BUILTUP ASSEMBLY (OMITTED IF = 1). SEE "BUILTUP BEAM/SISTERED JOIST" AND "BUCKETS OF BUILTUP BEAMS" PER TYPICAL DETAILS

S### — STRUCTURAL COMPOSITE LUMBER (SCL) CALLOUT:
ENGINEERED LUMBER LVL OR PSL PER GENERAL NOTES
SECOND AND THIRD DIGIT: NOMINAL MEMBER DEPTH

04 = 3½"	06 = 5½"	08 = 7¼"	10* = 9½"
12* = 11⅞"	14 = 14"	16 = 16"	18 = 18"
20 = 20"	22 = 22"	24 = 24"	-

*11.25" & *9.25" WHEN USED WITH SAWN LUMBER

FIRST DIGIT: NOMINAL MEMBER WIDTH

2 = 1¾"	4 = 3½"	6 = 5¼"	7 = 7"

PREFIX "S" INDICATES SCL MEMBER

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
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LFA Job #22791

SEAL:
PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
LEVEL 02 FRAMING PLAN - MAIN HOUSE

DRAWING NUMBER:
S-112A

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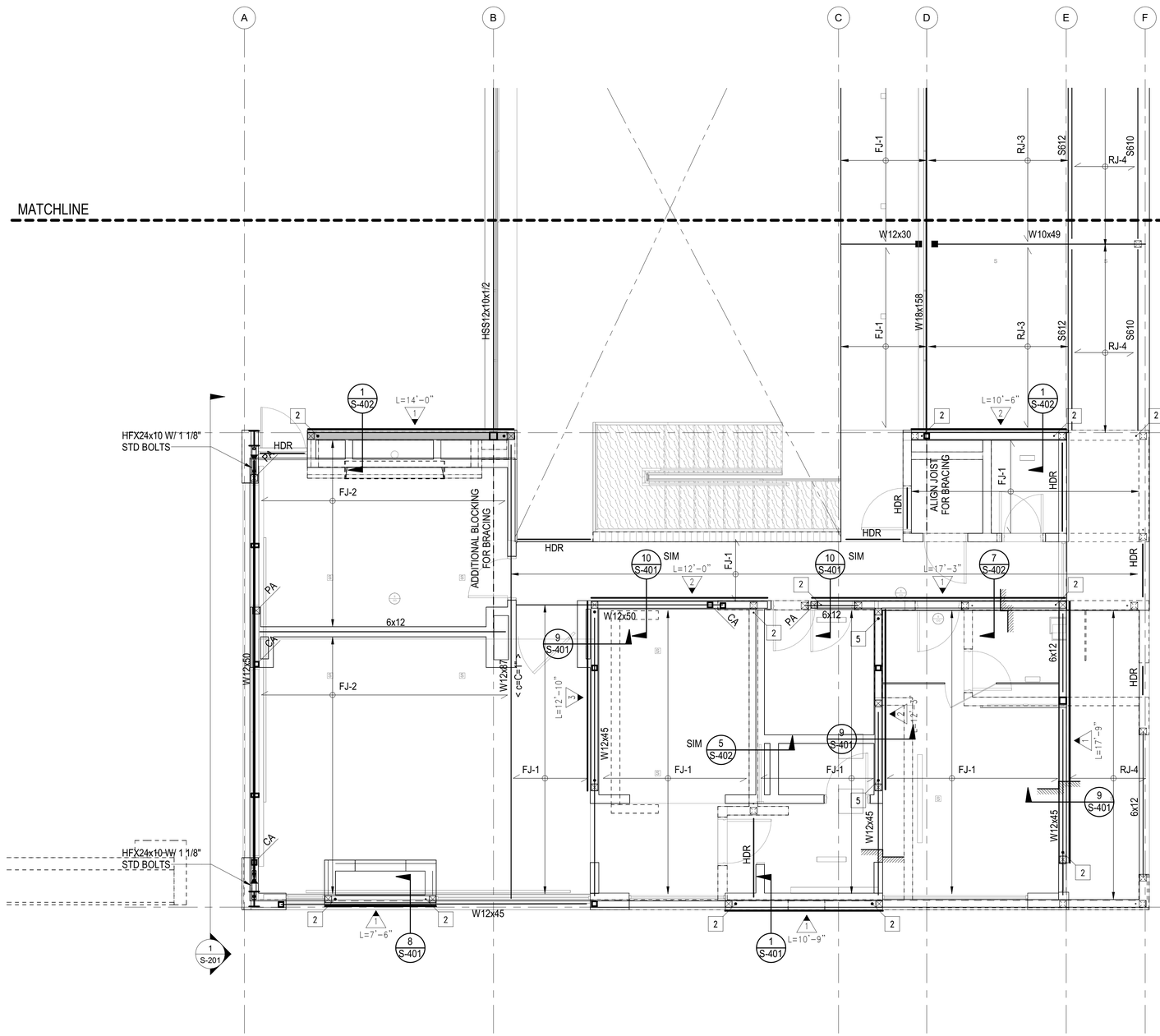

1 S-112B LEVEL 02 FRAMING PLAN – MAIN HOUSE
1/4" = 1'-0"

DRAG — DRAG BEAM WITH BOUNDARY NAILING.
DRAG — STRAP & BLOCKING WITH BOUNDARY NAILING.
FOR CONSTRUCTION OF DRAG BEAMS AND DRAG STRAP SEE "DRAGS & CONN. TO SHEAR WALLS" TYPICAL DETAIL
INDICATES OPENING IN DIAPHRAGM/SLAB
INDICATES EXTERIOR DECKS.
MATCHLINE
PA — INDICATES CHANGE IN FLOOR ELEVATION
PA — INDICATES WOOD POST ABOVE
KP — INDICATES WOOD POST ABOVE
INDICATES STEEL COLUMN
HDR — INDICATES LOAD BEARING HEADER PER "TYP. STUD WALL FRAMING ELEVATION"
C1 — INDICATES STEEL COLUMN PER SCHEDULE ON THIS SHEET C1 TYPICAL UNLESS NOTED OTHERWISE
<C=x> — UPWARD CAMBER IN BEAM (INCHES)
INDICATES WOOD WALLS W/ 6x6 STUDS @ 16" OC MIN

7

COLUMN SCHEDULE		
MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
C2	HSS6x6x1/2	-

JOIST SCHEDULE		
MARK	JOIST TYPE AND SPACING	NOTES
RJ-1	4x12 @ 16" OC	-
RJ-2	4x12 @ 24" OC	-
RJ-3	2-2x12 @ 12" OC	-
RJ-4	2x10 @ 16" OC	-
RJ-5	2x12 @ 16" OC	-
FJ-1	2x12 @ 16" OC	-
FJ-2	2-2x12 @ 16" OC	-
FJ-3	2x10 @ 16" OC	-

8

PLAN NOTES - SHEETS AND GENERAL:

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INDICATES EXTENT OF WOOD JOIST
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SEAL:
PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

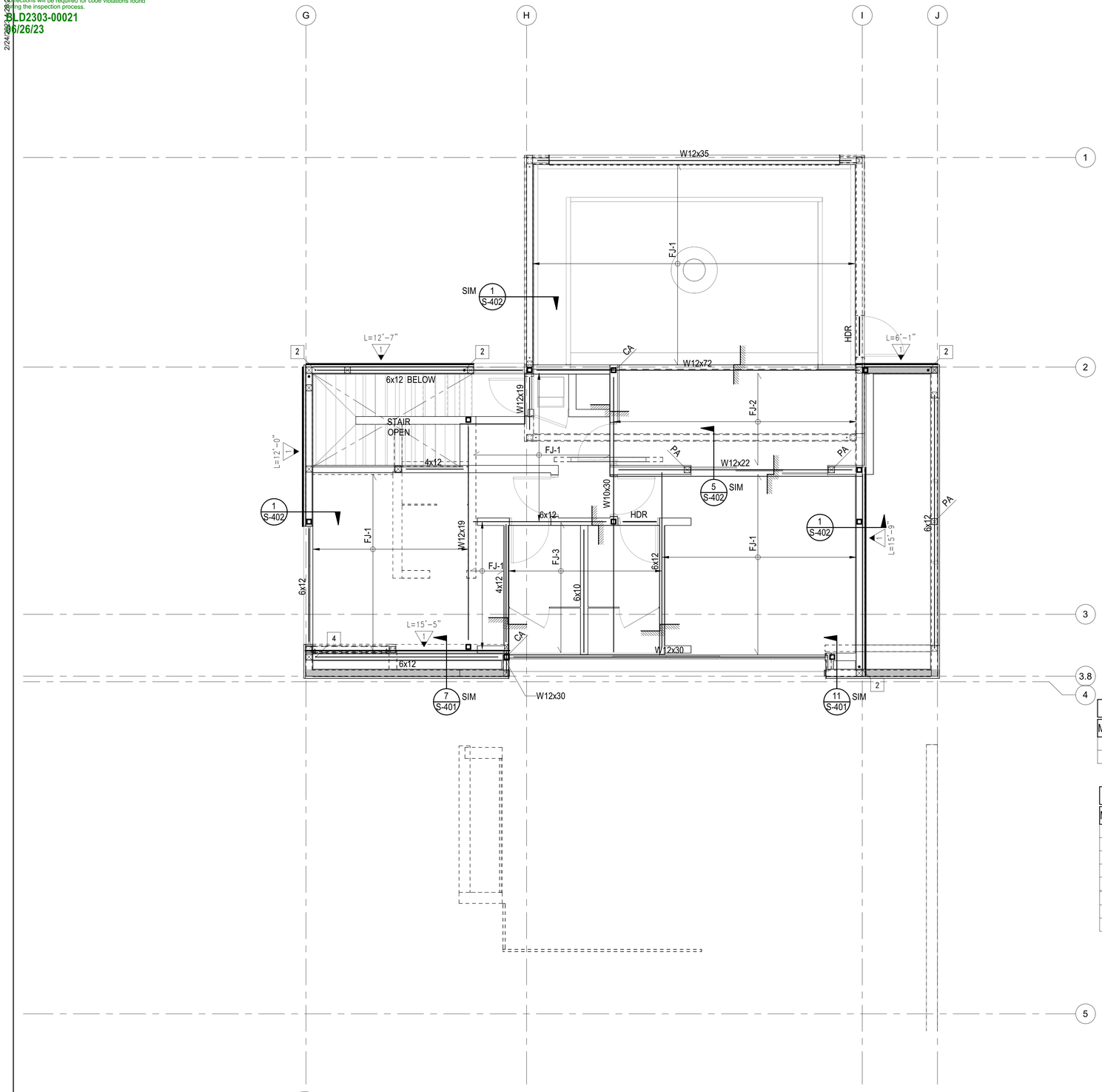
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
LEVEL 02 FRAMING PLAN - MAIN HOUSE

DRAWING NUMBER:
S-112B

2/24/2023 2:39:54 PM



1 LEVEL 02 FRAMING PLAN – ADU
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INDICATES EXTERIOR DECKS.

INDICATES CHANGE IN FLOOR ELEVATION

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INDICATES STEEL COLUMN

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COLUMN SCHEDULE		
MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
C2	HSS6x6x1/2	-

JOIST SCHEDULE		
MARK	JOIST TYPE AND SPACING	NOTES
RJ-1	4x12 @ 16" OC	-
RJ-2	4x12 @ 24" OC	-
RJ-3	2-2x12 @ 12" OC	-
RJ-4	2x10 @ 16" OC	-
RJ-5	2x12 @ 16" OC	-
FJ-1	2x12 @ 16" OC	-
FJ-2	2-2x12 @ 16" OC	-
FJ-3	2x10 @ 16" OC	-

SYMBOLS - WOOD FRAMING

INDICATES WOOD WALLS
UNLESS OTHERWISE SPECIFIED ON THE FRAMING PLAN OR WALL STUD SCHEDULE PROVIDE:
- EXTERIOR WALLS: S.A.D. OR 2x6 @ 16" O.C., WHICHEVER IS GREATER
- INTERIOR WALLS: S.A.D. OR 2x4 @ 16" O.C., WHICHEVER IS GREATER

XXX PA — INDICATES WOOD POST.
UNLESS OTHERWISE SPECIFIED ON THE FRAMING PLAN THE POST SIZE SHALL BE THE GREATER OF THE FOLLOWING:
- MIN. SIZE PER POST SCHEDULE WHERE PRESENT
- 4x DEPTH OF WALL
- SIZE INDICATED IN "HOLDOWN SCHEDULE" (FOR POSTS AT ENDS OF SHEAR WALLS ONLY)

POST ABOVE - WHERE OCCURS. POST STARTS AT THIS LEVEL AND IT IS DISCONTINUOUS BELOW

/ #'-#" — INDICATES WOOD SHEATHED SHEAR WALL:
TYPE PER SHEAR WALL SCHEDULE UNDER TYP. DETAILS
MINIMUM LENGTH

— INDICATES HOLDOWN TYPE PER TYPICAL DETAILS SHEETS S1.37 & S1.38.

INDICATES EXTENT OF WOOD JOIST

INDICATES DIRECTION OF WOOD JOIST

2- #x## — WOOD MEMBER CALLOUT
SIZE: #x## SAWN LUMBER - S### SCL (SEE SCHED.)
NUMBER OF MEMBERS IN A BUILTUP ASSEMBLY (OMITTED IF = 1). SEE "BUILTUP BEAM/SISTERED JOIST" AND "BUCKETS OF BUILTUP BEAMS" PER TYPICAL DETAILS

S### — STRUCTURAL COMPOSITE LUMBER (SCL) CALLOUT: ENGINEERED LUMBER LVL OR PSL PER GENERAL NOTES
SECOND AND THIRD DIGIT: NOMINAL MEMBER DEPTH

04 = 3½"	06 = 5½"	08 = 7¼"	10* = 9½"
12" = 11⅞"	14 = 14"	16 = 16"	18 = 18"
20 = 20"	22 = 22"	24 = 24"	-

*11.25" & *9.25" WHEN USED WITH SAWN LUMBER

FIRST DIGIT: NOMINAL MEMBER WIDTH

2 = 1¼"	4 = 3½"	6 = 5¼"	7 = 7"

PREFIX "S" INDICATES SCL MEMBER

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
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LANDSCAPE ARCHITECT:
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STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:
PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO DAVID L. FUNK P-21490

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

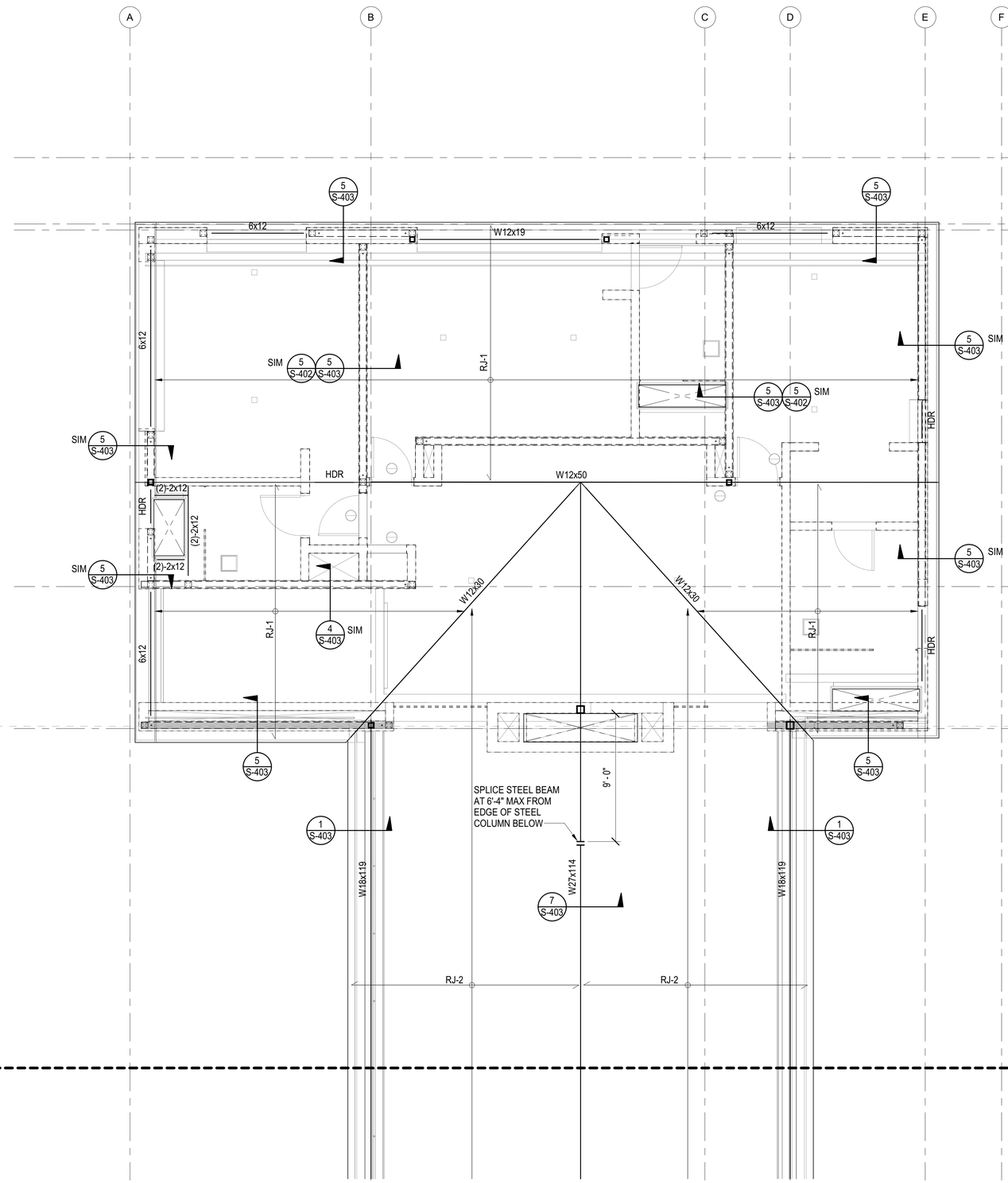
PROJECT NUMBER
#2201

N

DRAWING TITLE:
LEVEL 02 FRAMING PLAN - ADU

DRAWING NUMBER:
S-112C

2/24/2023 4:39:05 PM



1 S-113A ROOF FRAMING PLAN – MAIN HOUSE
1/4" = 1'-0"

DRAG — DRAG BEAM WITH BOUNDARY NAILING.
DRAG — STRAP & BLOCKING WITH BOUNDARY NAILING.
FOR CONSTRUCTION OF DRAG BEAMS AND DRAG STRAP SEE "DRAGS & CONN. TO SHEAR WALLS" TYPICAL DETAIL
INDICATES OPENING IN DIAPHRAGM/SLAB
INDICATES EXTERIOR DECKS.
INDICATES CHANGE IN FLOOR ELEVATION
PA — INDICATES WOOD POST ABOVE
RP — INDICATES WOOD POST ABOVE
INDICATES STEEL COLUMN
HDR — INDICATES LOAD BEARING HEADER PER "TYP. STUD WALL FRAMING ELEVATION"
C1 — INDICATES STEEL COLUMN PER SCHEDULE ON THIS SHEET C1 TYPICAL UNLESS NOTED OTHERWISE
<C=x> — UPWARD CAMBER IN BEAM (INCHES)
INDICATES WOOD WALLS W/ 6x6 STUDS @ 16" OC MIN

COLUMN SCHEDULE		
MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
C2	HSS6x6x1/2	-

JOIST SCHEDULE		
MARK	JOIST TYPE AND SPACING	NOTES
RJ-1	4x12 @ 16" OC	-
RJ-2	4x12 @ 24" OC	-
RJ-3	2-2x12 @ 12" OC	-
RJ-4	2x10 @ 16" OC	-
RJ-5	2x12 @ 16" OC	-
FJ-1	2x12 @ 16" OC	-
FJ-2	2-2x12 @ 16" OC	-
FJ-3	2x10 @ 16" OC	-

PLAN NOTES - SHEETS AND GENERAL:

101. GENERAL NOTES AND TYPICAL DETAILS SHEETS: SEE S0.01 THRU S0.62 SHEETS. GENERAL NOTES & TYPICAL DETAILS APPLY TO ALL PARTS OF THE WORK EXCEPT WHERE SPECIFICALLY DETAILED OR U.N.O. ON THE FLOOR PLANS AND PLAN NOTES.

102. VERIFY ALL DIMENSIONS, ELEVATIONS, SLAB EDGES, SLAB DEPRESSIONS, SLAB OPENINGS, CURBS, FOOTING, PENETRATIONS, WALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL & CIVIL DRAWINGS.

103. FOR ALL DIMENSIONS & ROOF SLOPES S.A.D.

104. NON-BEARING WALLS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOR NON-BEARING WALL LOCATIONS S.A.D.

PLAN NOTES - WOOD FRAMING:

321. FLOOR AND DECK SHEATHING: WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G 48 O.C. GLUE WOOS STRUCTURAL PANELS TO JOISTS AND BLK'G NAILING SCHEDULE.

302. ROOF SHEATHING CONSTRUCTION AT SLOPED AND PITCHED ROOFS: WOOD STRUCTURAL PANEL, 3/4" CD APA RATED PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48/24. NAILING PER NAILING SCHEDULE.

303. FLOOR SHEATHING CONSTRUCTION: NON-STRUCTURAL LIGHT WEIGHT CONCRETE (115 PCF MAX), THICKNESS S.A.D., 1 1/2" MAX, OVER WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G. NAILING PER NAILING SCHEDULE.

PLAN NOTES - FRAMING:

301. PROVIDE WALL SHEATHING AT ALL EXTERIOR WALLS OTHER THAN SHEAR WALLS AS FOLLOWS: WOOD STRUCTURAL PANEL, 15/32" CD APA RATED PLYWOOD OR OSB SHEATHING, EXPOSURE 1, SPAN RATING 32/16, NAILED WITH 8d COMMONS SPACED AT 6" O.C. ALONG ALL PANEL EDGES (E.N.) AND 12" O.C. ALONG INTERMEDIATE SUPPORTS (FIELD) (F.N.)

302. HOLD DOWNS/TIE-DOWNS SHALL BE RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.

303. PROVIDE DOUBLE JOISTS BENEATH ALL PARALLEL WALLS. PROVIDE SOLID BLOCK BENEATH ALL WALLS PERPENDICULAR TO JOISTS. SEE "FRAMING AT NON BEARING WALLS" PER TYPICAL DETAILS SHEETS.

321. FLOOR AND DECK SHEATHING: WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G. NAILING PER NAILING SCHEDULE.

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325. FLOOR SHEATHING CONSTRUCTION: NON-STRUCTURAL LIGHT WEIGHT CONCRETE (110 PCF MAX), THICKNESS S.A.D, 1 1/2" MAX, OVER WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G. NAILING PER NAILING SCHEDULE.

SYMBOLS - WOOD FRAMING

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- EXTERIOR WALLS: S.A.D. OR 2x6 @ 16" O.C., WHICHEVER IS GREATER
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POST ABOVE - WHERE OCCURS. POST STARTS AT THIS LEVEL AND IT IS DISCONTINUOUS BELOW

INDICATES WOOD SHEATHED SHEAR WALL:
TYPE PER SHEAR WALL SCHEDULE UNDER TYP. DETAILS
MINIMUM LENGTH

INDICATES HOLDOWN TYPE PER TYPICAL DETAILS SHEETS S1.37 & S1.38.

INDICATES EXTENT OF WOOD JOIST
INDICATES DIRECTION OF WOOD JOIST

2- #x## — WOOD MEMBER CALLOUT
SIZE: #x## SAWN LUMBER - S### SCL (SEE SCHED.)
NUMBER OF MEMBERS IN A BUILTUP ASSEMBLY (OMITTED IF = 1). SEE "BUILTUP BEAM/SISTERED JOIST" AND "BUCKETS OF BUILTUP BEAMS" PER TYPICAL DETAILS

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ENGINEERED LUMBER LVL OR PSL PER GENERAL NOTES
SECOND AND THIRD DIGIT: NOMINAL MEMBER DEPTH

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20 = 20"	22 = 22"	24 = 24"	-

*11.25" & ¹9.25" WHEN USED WITH SAWN LUMBER

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PREFIX "S" INDICATES SCL MEMBER

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SEAL:
PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
ROOF FRAMING PLAN - MAIN HOUSE

DRAWING NUMBER:
S-113A

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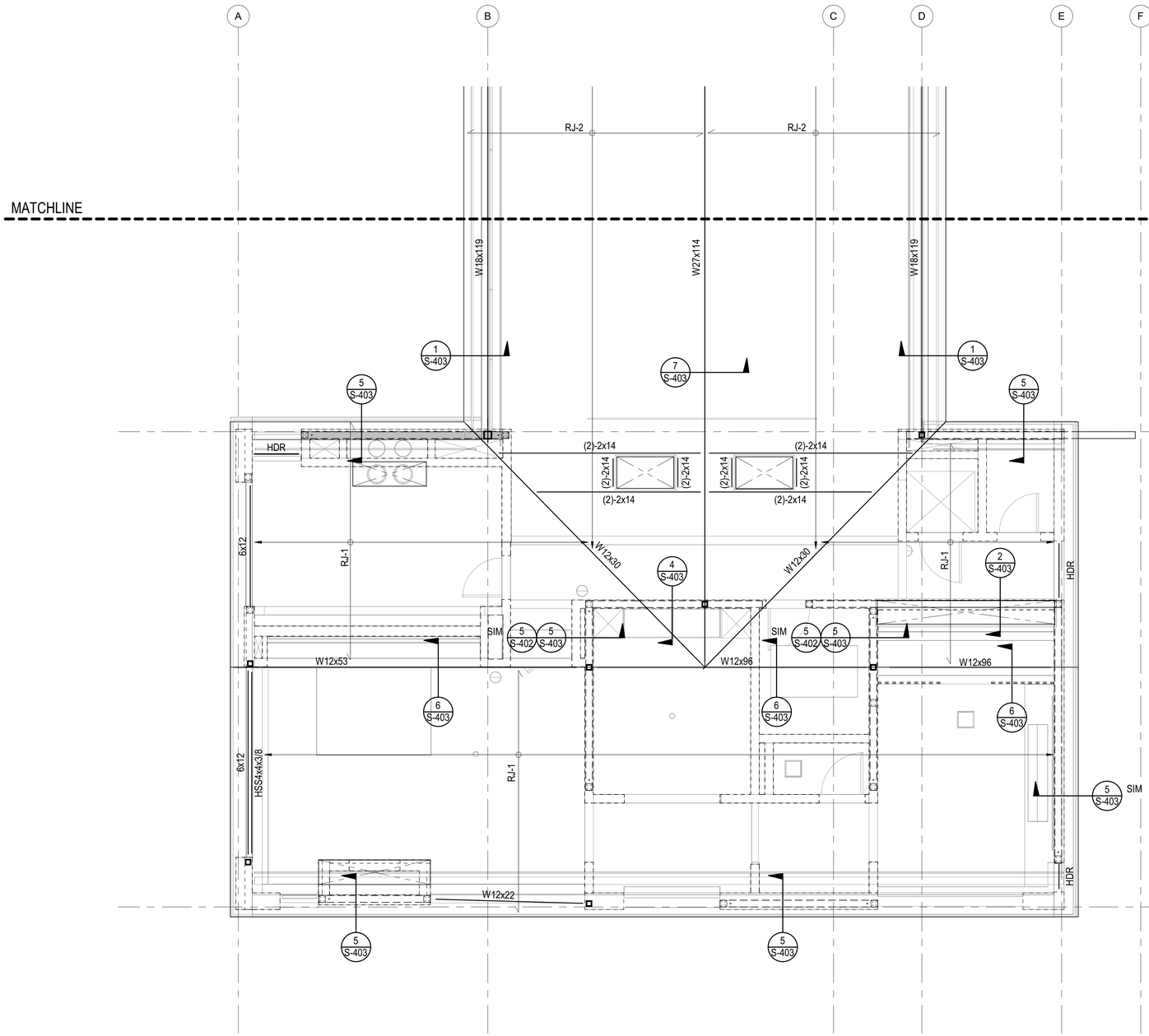

1 S-113B ROOF FRAMING PLAN – MAIN HOUSE
1/4" = 1'-0"

DRAG — DRAG BEAM WITH BOUNDARY NAILING.
DRAG — STRAP & BLOCKING WITH BOUNDARY NAILING.
FOR CONSTRUCTION OF DRAG BEAMS AND DRAG STRAP SEE "DRAGS & CONN. TO SHEAR WALLS" TYPICAL DETAIL
INDICATES OPENING IN DIAPHRAGM/SLAB
INDICATES EXTERIOR DECKS.
MATCHLINE
PA — INDICATES CHANGE IN FLOOR ELEVATION
INDICATES WOOD POST ABOVE
INDICATES WOOD POST ABOVE
INDICATES STEEL COLUMN
HDR — INDICATES LOAD BEARING HEADER PER "TYP. STUD WALL FRAMING ELEVATION"
C1 — INDICATES STEEL COLUMN PER SCHEDULE ON THIS SHEET C1 TYPICAL UNLESS NOTED OTHERWISE
<C=x> — UPWARD CAMBER IN BEAM (INCHES)
INDICATES WOOD WALLS W/ 6x6 STUDS @ 16" OC MIN

7

COLUMN SCHEDULE		
MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
C2	HSS6x6x1/2	-

JOIST SCHEDULE		
MARK	JOIST TYPE AND SPACING	NOTES
RJ-1	4x12 @ 16" OC	-
RJ-2	4x12 @ 24" OC	-
RJ-3	2-2x12 @ 12" OC	-
RJ-4	2x10 @ 16" OC	-
RJ-5	2x12 @ 16" OC	-
FJ-1	2x12 @ 16" OC	-
FJ-2	2-2x12 @ 16" OC	-
FJ-3	2x10 @ 16" OC	-

8

PLAN NOTES - SHEETS AND GENERAL:

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102. VERIFY ALL DIMENSIONS, ELEVATIONS, SLAB EDGES, SLAB DEPRESSIONS, SLAB OPENINGS, CURBS, FOOTING, PENETRATIONS, WALL OPENINGS WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL & CIVIL DRAWINGS.

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PLAN NOTES - FRAMING:

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32 FLOOR AND DECK SHEATHING: WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G. NAILING PER NAILING SCHEDULE.

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— INDICATES HOLDOWN TYPE PER TYPICAL DETAILS SHEETS S1.37 & S1.38.

INDICATES EXTENT OF WOOD JOIST
INDICATES DIRECTION OF WOOD JOIST

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SIZE: #x## SAWN LUMBER - S### SCL (SEE SCHED.)
NUMBER OF MEMBERS IN A BUILTUP ASSEMBLY (OMITTED IF = 1). SEE "BUILTUP BEAM/SISTERED JOIST" AND "BUCKETS OF BUILTUP BEAMS" PER TYPICAL DETAILS

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*11.25" & *9.25" WHEN USED WITH SAWN LUMBER

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SEAL:
PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

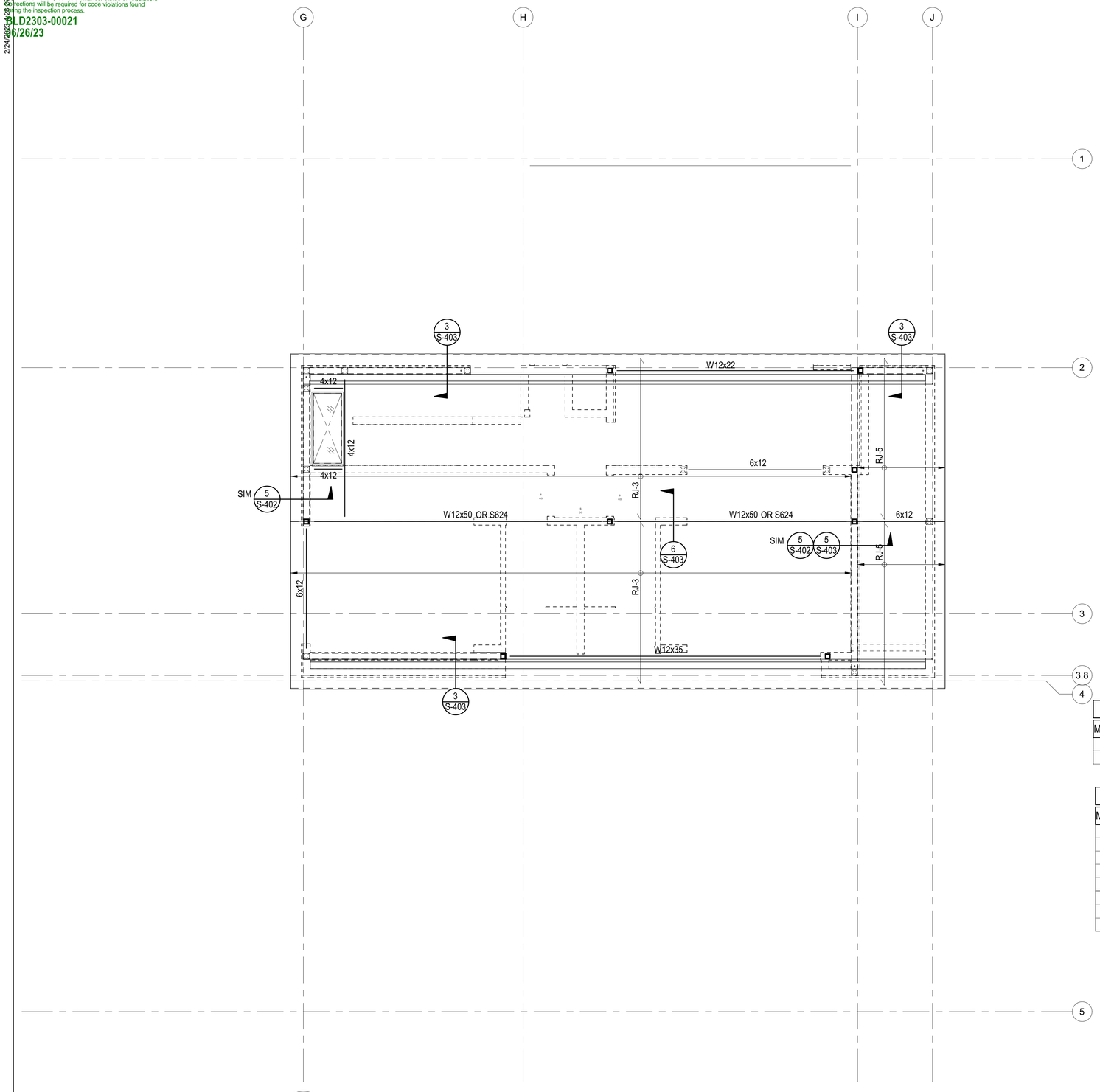
PROJECT NUMBER
#2201

N

DRAWING TITLE:
ROOF FRAMING PLAN - MAIN HOUSE

DRAWING NUMBER:
S-113B

2/24/2023 2:39:27 PM



1 ROOF FRAMING PLAN – ADU
S-113C 1/4" = 1'-0"

DRAG — DRAG BEAM WITH BOUNDARY NAILING.
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INDICATES WOOD WALLS W/ 6x6 STUDS @ 16" OC MIN

COLUMN SCHEDULE		
MARK	COLUMN TYPE AND SHAPE	NOTES
C1	HSS4x4x3/8	-
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JOIST SCHEDULE		
MARK	JOIST TYPE AND SPACING	NOTES
RJ-1	4x12 @ 16" OC	-
RJ-2	4x12 @ 24" OC	-
RJ-3	2-2x12 @ 12" OC	-
RJ-4	2x10 @ 16" OC	-
RJ-5	2x12 @ 16" OC	-
FJ-1	2x12 @ 16" OC	-
FJ-2	2-2x12 @ 16" OC	-
FJ-3	2x10 @ 16" OC	-

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301. PROVIDE WALL SHEATHING AT ALL EXTERIOR WALLS OTHER THAN SHEAR WALLS AS FOLLOWS: WOOD STRUCTURAL PANEL, 15/32" CD APA RATED PLYWOOD OR OSB SHEATHING, EXPOSURE 1, SPAN RATING 32/16, NAILED WITH 8d COMMONS SPACED AT 6" O.C. ALONG ALL PANEL EDGES (E.N.) AND 12" O.C. ALONG INTERMEDIATE SUPPORTS (FIELD) (F.N.)

302. HOLD DOWNS/TIE-DOWNS SHALL BE RE-TIGHTENED JUST PRIOR TO COVERING THE WALL FRAMING.

303. PROVIDE DOUBLE JOISTS BENEATH ALL PARALLEL WALLS. PROVIDE SOLID BLOCK BENEATH ALL WALLS PERPENDICULAR TO JOISTS. SEE "FRAMING AT NON BEARING WALLS" PER TYPICAL DETAILS SHEETS.

32[illegible] FLOOR AND DECK SHEATHING: WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G. NAILING PER NAILING SCHEDULE.

323. ROOF SHEATHING CONSTRUCTION AT SLOPED AND PITCHED ROOFS: WOOD STRUCTURAL PANEL, 3/4" CD APA RATED PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48/24. NAILING PER NAILING SCHEDULE.

325. FLOOR SHEATHING CONSTRUCTION: NON-STRUCTURAL LIGHT WEIGHT CONCRETE (110 PCF MAX), THICKNESS S.A.D, 1 1/2" MAX, OVER WOOD STRUCTURAL PANEL, 1 1/8" CD APA RATED STRUCT I PLYWOOD SHEATHING, EXPOSURE 1, SPAN RATING 48 O.C. GLUE WOOD STRUCTURAL PANELS TO JOISTS AND BLK'G. NAILING PER NAILING SCHEDULE.

SYMBOLS - WOOD FRAMING

INDICATES WOOD WALLS
UNLESS OTHERWISE SPECIFIED ON THE FRAMING PLAN OR WALL STUD SCHEDULE PROVIDE:
- EXTERIOR WALLS: S.A.D. OR 2x6 @ 16" O.C., WHICHEVER IS GREATER
- INTERIOR WALLS: S.A.D. OR 2x4 @ 16" O.C., WHICHEVER IS GREATER

INDICATES WOOD POST.
UNLESS OTHERWISE SPECIFIED ON THE FRAMING PLAN THE POST SIZE SHALL BE THE GREATER OF THE FOLLOWING:
- MIN. SIZE PER POST SCHEDULE WHERE PRESENT
- 4x DEPTH OF WALL
- SIZE INDICATED IN "HOLDOWN SCHEDULE" (FOR POSTS AT ENDS OF SHEAR WALLS ONLY)

4x4 PA — POST ABOVE - WHERE OCCURS. POST STARTS AT THIS LEVEL AND IT IS DISCONTINUOUS BELOW

INDICATES WOOD SHEATHED SHEAR WALL:
TYPE PER SHEAR WALL SCHEDULE UNDER TYP. DETAILS
MINIMUM LENGTH
/ #'-# / ## — INDICATES HOLDOWN TYPE PER TYPICAL DETAILS SHEETS S1.37 & S1.38.

INDICATES EXTENT OF WOOD JOIST
INDICATES DIRECTION OF WOOD JOIST

2- #x## — WOOD MEMBER CALLOUT
SIZE: #x## SAWN LUMBER - S### SCL (SEE SCHED.)
NUMBER OF MEMBERS IN A BUILTUP ASSEMBLY (OMITTED IF = 1). SEE "BUILTUP BEAM/SISTERED JOIST" AND "BUILTUP BEAMS" PER TYPICAL DETAILS

S### — STRUCTURAL COMPOSITE LUMBER (SCL) CALLOUT:
ENGINEERED LUMBER LVL OR PSL PER GENERAL NOTES
SECOND AND THIRD DIGIT: NOMINAL MEMBER DEPTH

04 = 3½"	06 = 5½"	08 = 7¼"	10 = 9½"
12" = 11⅞"	14 = 14"	16 = 16"	18 = 18"
20 = 20"	22 = 22"	24 = 24"	-

*11.25" & *9.25" WHEN USED WITH SAWN LUMBER

FIRST DIGIT: NOMINAL MEMBER WIDTH

2 = 1¾"	4 = 3½"	6 = 5¼"	7 = 7"

PREFIX "S" INDICATES SCL MEMBER

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR & CIVIL ENGINEER:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
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KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
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323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
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STRUCTURAL ENGINEER:
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319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700
LFA Job #22791

SEAL:
PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

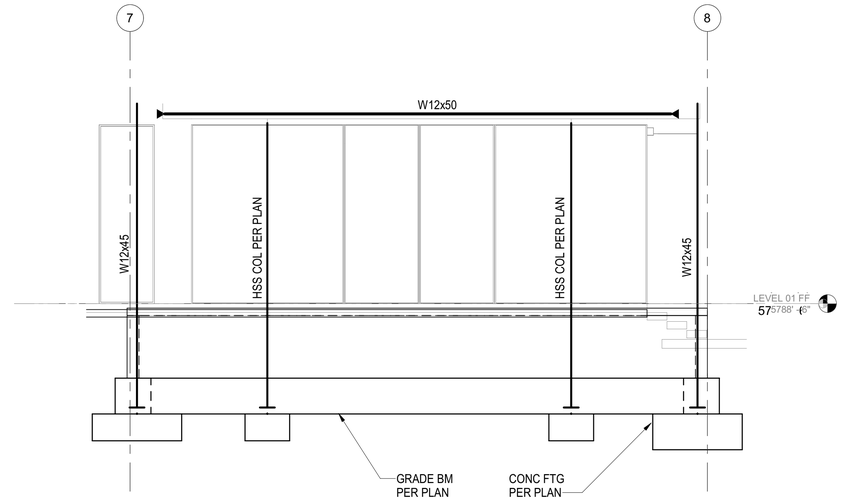
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
ROOF FRAMING PLAN - ADU

DRAWING NUMBER:
S-113C



1 S-201 ELEVATION @ GRIDLINE A
1/4" = 1'-0"

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

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SEAL:

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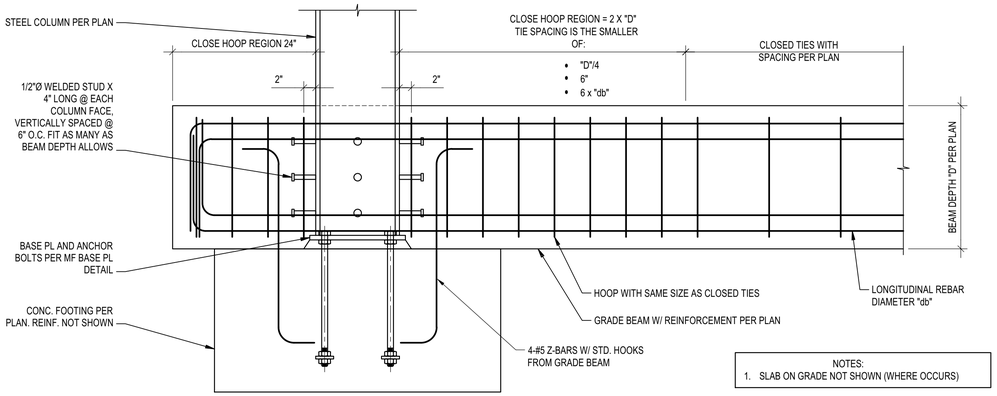
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
ELEVATIONS

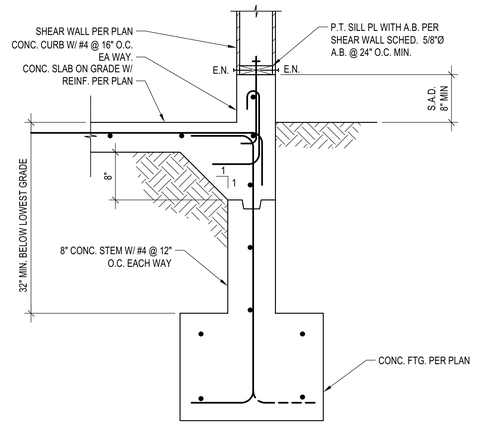
DRAWING NUMBER:
S-201



MOMENT FRAME COLUMN TO GRADE BEAM CONNECTION

SCALE: N.T.S.

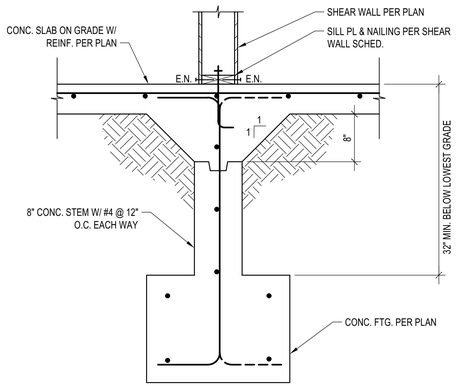
4 -



EXT. FTG. FOUNDED IN COMP. FILL

SCALE: N.T.S.

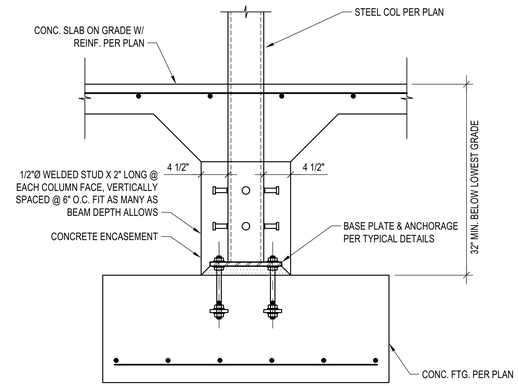
1 -



INT. FTG. FOUNDED IN COMP. FILL

SCALE: N.T.S.

5 -



ISOLATED STL COLUMN FTG

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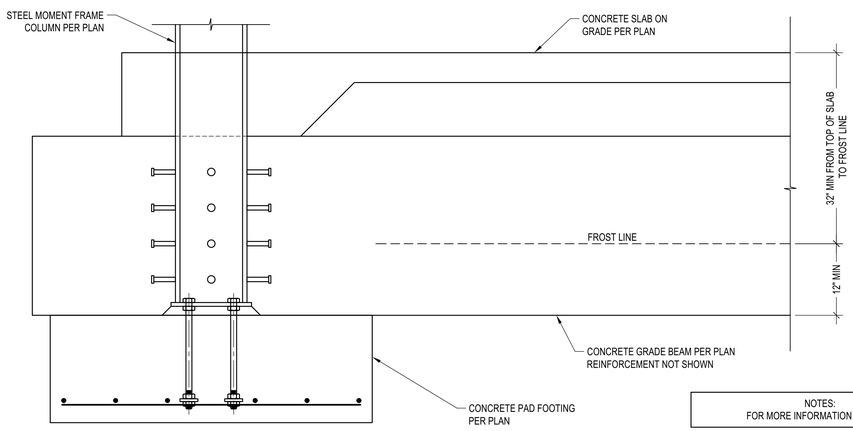
2 -



MOMENT FRAME COLUMN TO GRADE BEAM CONNECTION

SCALE: N.T.S.

3 -

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
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LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

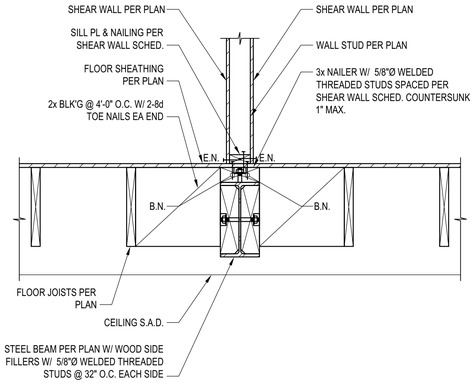
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
CONCRETE SECTIONS AND DETAILS

DRAWING NUMBER:
S-301

11/29/2022 8:13:



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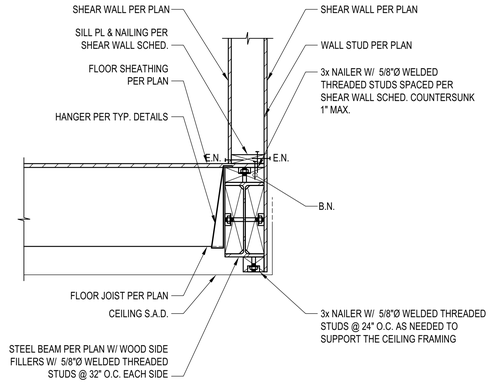

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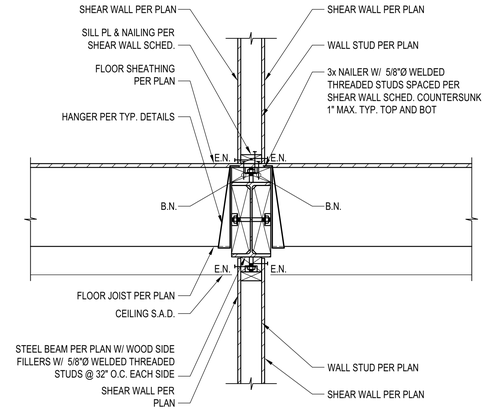

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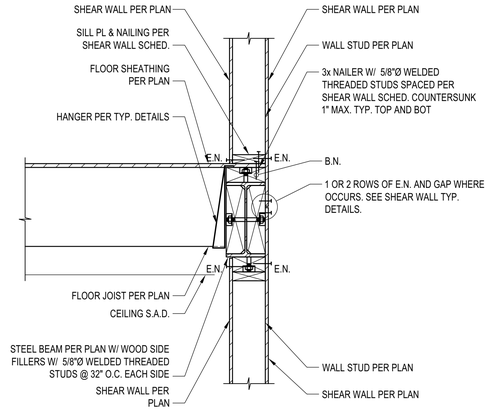

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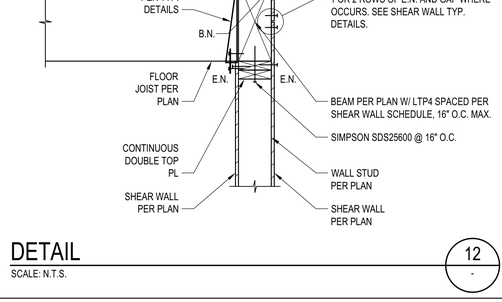

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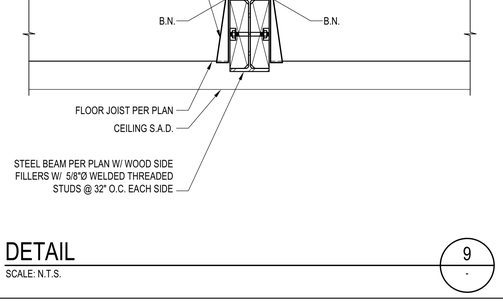

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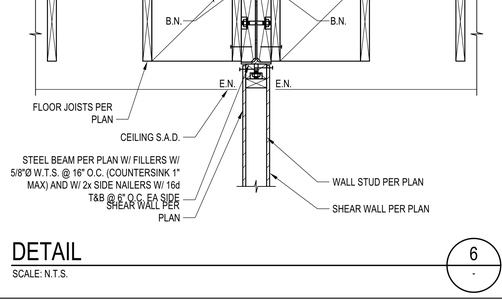

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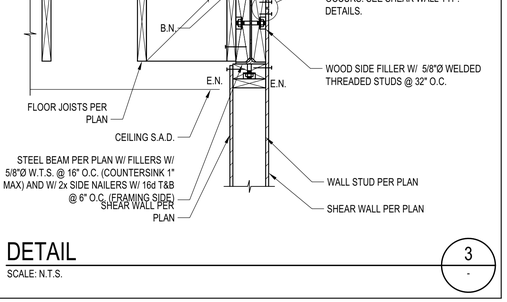

DETAIL 3
SCALE: N.T.S.

DETAIL 12
SCALE: N.T.S.

DETAIL 9
SCALE: N.T.S.

DETAIL 6
SCALE: N.T.S.

DETAIL 3
SCALE: N.T.S.

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
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STRUCTURAL ENGINEER:
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TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO P-21490 DAVID L. FUNK

NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

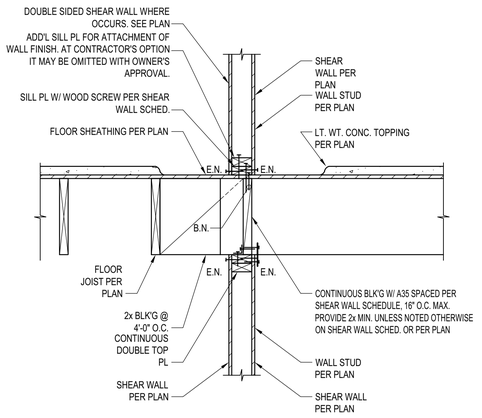
PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
WOOD SECTIONS AND DETAILS

DRAWING NUMBER:
S-401

11/29/2022 8:43:13 AM



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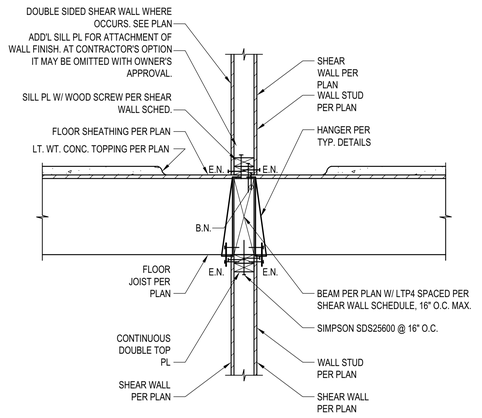

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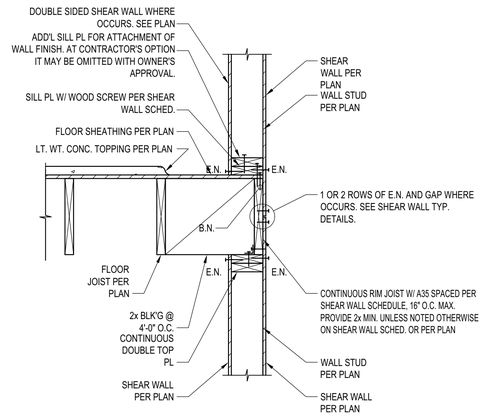

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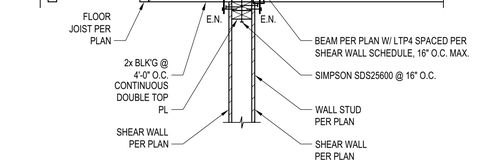
SCALE: N.T.S.



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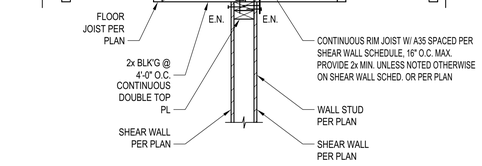

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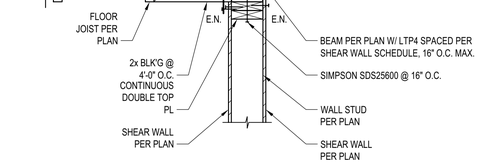

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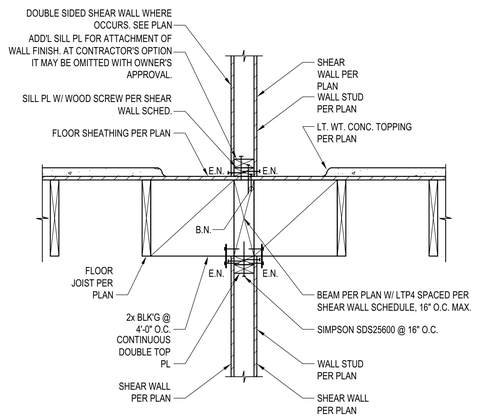

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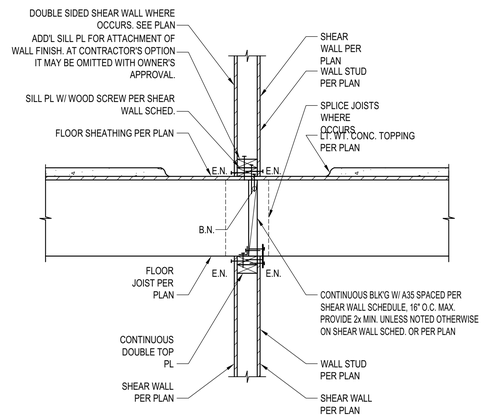

DETAIL 3
SCALE: N.T.S.

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
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GEOTECHNICAL ENGINEER:
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TEL: 208.720.6432

LANDSCAPE ARCHITECT:
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TEL: : 208.726.5907

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
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TEL: 213.239 9700
LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

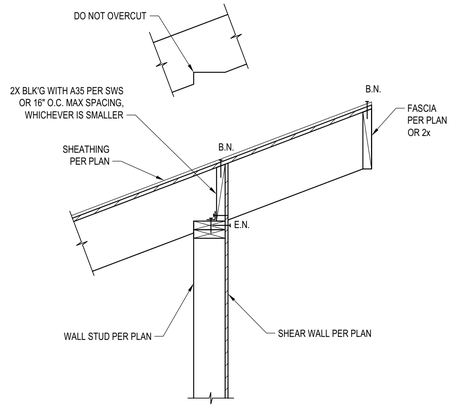
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
WOOD SECTIONS AND DETAILS

DRAWING NUMBER:
S-402



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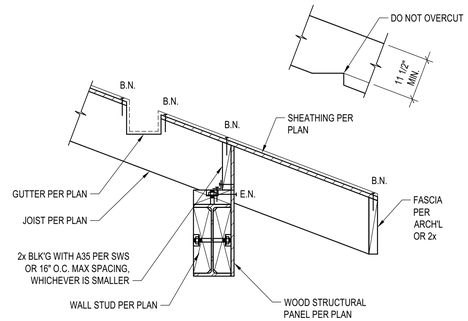

DETAIL 1
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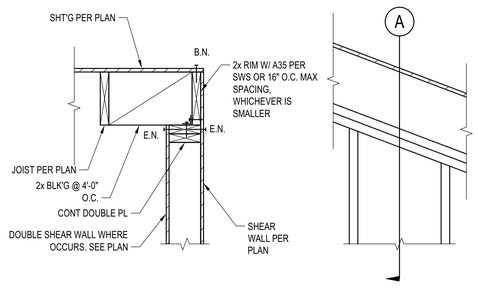
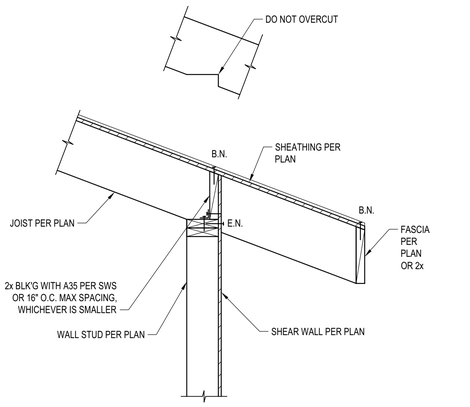


INSET DETAIL A

DETAIL 5
SCALE: N.T.S.



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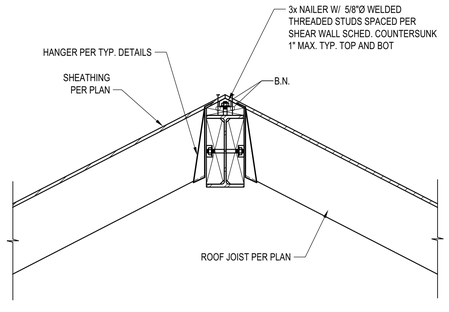

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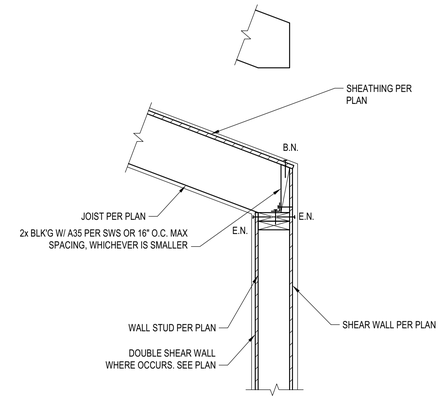

DETAIL 3
SCALE: N.T.S.

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
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LFA Job #22791

SEAL:

PROFESSIONAL ENGINEER LICENSED P-21490 STATE OF IDAHO DAVID L. FUNK

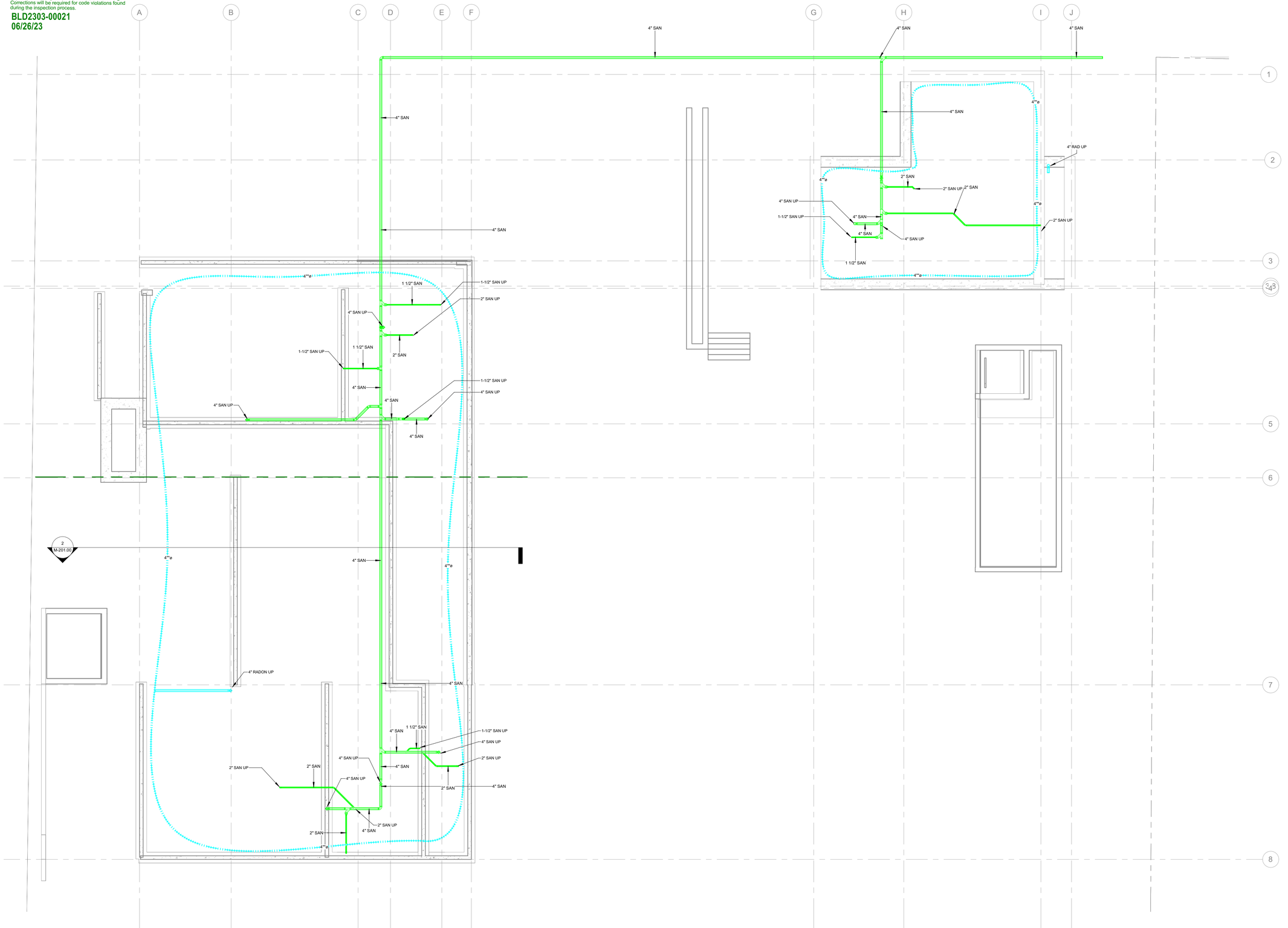
NO	DATE	ISSUE
	02/24/23	PC SUBMITTAL

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
WOOD SECTIONS AND DETAILS

DRAWING NUMBER:
S-403



1 PLUMBING - SUBSLAB
1/8" = 1'-0"

CES Engineering Services MT, LLC
1001 W Oak, Building B, Suite 107
Bozeman MT 59715
406.272.0352
www.ceseng.com

2022661

ISSUANCES

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		

REVISIONS

NO.	DATE	DESCRIPTION

121 BADGER LANE

KETCHUM IDAHO

PLUMBING - SUBSLAB

DATE:	12/15/2022
PROJECT NO:	2022661
DRAWN:	
CHECKED:	
ISSUED FOR:	PERMIT
REVISIONS:	

SEAL:

SHEET NO.

P-100.00

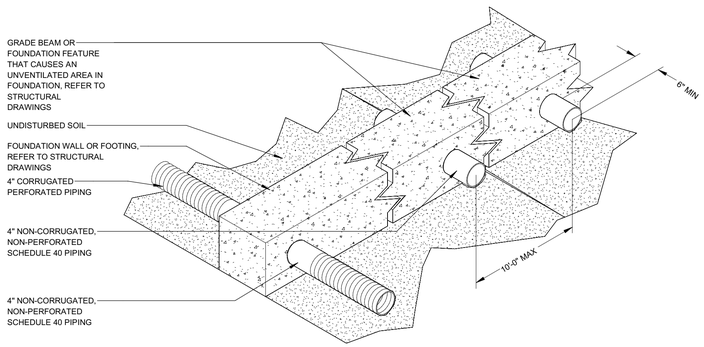
RADON FAN SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	LOCATION	SERVING	MAX AIRFLOW	MAX ESP	FAN SPEED	PHASE	VOLTAGE	AMPS	WEIGHT	REMARKS
RF-1	FANTECH	RN4EC-4	INLINE	SEE PLANS	RADON RISER	555 CFM	4.4" WC	4084 RPM	1	120 V	2.1 A	7.8 LBS	1,2
RF-2	FANTECH	RN4EC-4	INLINE	SEE PLANS	RADON RISER	555 CFM	4.4" WC	4084 RPM	1	120 V	2.1 A	7.8 LBS	1,2

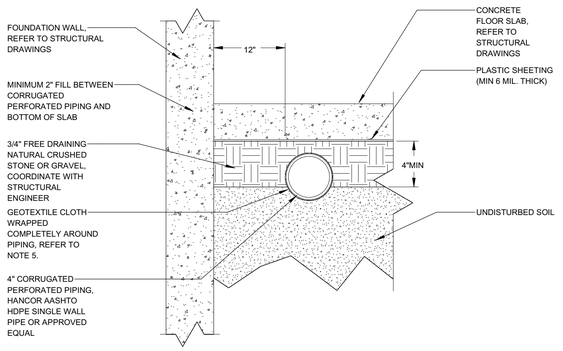
REMARKS:
1. INSTALL FAN IN VERTICAL RUN OF PIPE.
2. INSTALL FAN NO MORE THAN 10 FT FROM RADON EXHAUST PIPE TERMINATION TO BUILDING EXTERIOR.

RADON NOTES

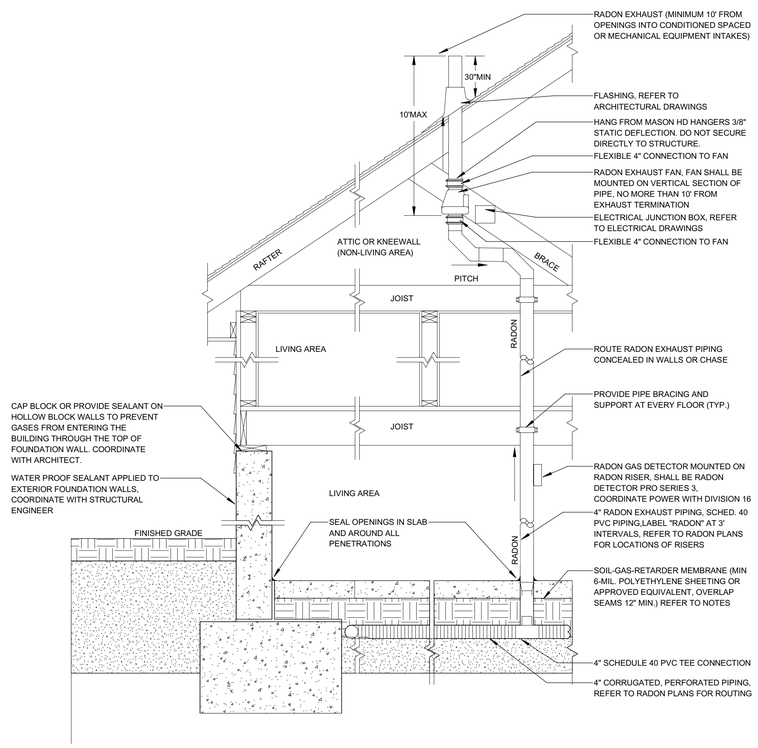
1. UNDER SLAB RADON PIPING SHALL BE INSTALLED WITH A PITCH UPTOWARDS THE RISER OF 1/16" PER LINEAR FOOT.
2. THROUGH SLAB RADON RISER SHALL BE 4" SCHEDULE 40 PVC.
3. ALL OPENINGS, GAPS, AND JOINTS IN FLOOR SLAB AND WALL ASSEMBLIES IN CONTACT WITH SOIL OR GAPS AROUND PIPES, TOILETS, BATHTUBS, DRAINS OR ANY OTHER SLAB PENETRATION IN THE FLOOR OR WALL ASSEMBLIES SHALL BE AIR-TIGHT SEAL. SEAL LARGE OPENINGS WITH NON-SHRINK MORTAR, GROUTS, OR EXPANDING FOAM AND SMALL GAPS WITH ELASTOMETRIC JOINT SEALANT, AS DEFINED IN ASTM C920-87. COORDINATE SEALANT SPECIFICATIONS WITH STRUCTURAL ENGINEER.
4. ALL UNDER SLAB CORRUGATED PERFORATED PIPING SHALL BE WRAPPED IN A GEOTEXTILE CLOTH TO REDUCE CLOGGING. CLOTH SHALL BE PROPEX GEOTEX OR APPROVED EQUAL.
5. 2" FILL SHALL BE PROVIDED BETWEEN THE TOP OF THE CORRUGATED PERFORATED PIPE AND THE BOTTOM OF THE FLOOR SLAB.
6. ALL SUB-SLAB PIPING, FOUNDATION AND FOOTING PENETRATIONS, AND RADON RISER LOCATIONS SHALL BE COORDINATED WITH THE STRUCTURAL ENGINEER.
7. ALL CONCRETE SLABS THAT COME IN CONTACT WITH THE GROUND SHALL BE LAID OVER A GAS PERMEABLE MATERIAL MADE UP OF A MINIMUM 4" THICK UNIFORM LAYER OF CLEAN AGGREGATE, 3/4" IN DIAMETER.
8. RADON EXHAUST PIPING SHALL BE INSTALLED SO THAT ANY RAINWATER OR CONDENSATION DRAINS DOWNWARD INTO THE GROUND BENEATH THE SLAB OR SOIL-GAS-RETARDER MEMBRANE.
9. ALL POSITIVELY PRESSURED PORTIONS OF THE RADON EXHAUST PIPING AND FAN SHALL BE LOCATED OUTSIDE THE HABITABLE SPACE OF THE BUILDING.
10. AN ALARM SIGNAL SHALL BE SENT TO THE SECURITY SYSTEM IF THERE IS A LOSS OF PRESSURE OF AIR FLOW IN THE RADON EXHAUST PIPE.
11. PROVIDE RADON GAS DETECTORS IN BASEMENT, AND ALL FLOORS WITH LIVABLE SPACE. COORDINATE FINAL LOCATION WITH ARCHITECT.
12. 45° BENDS SHALL BE USED TO CHANGE IN RADON EXHAUST PIPING DIRECTION.
13. SEAL ALL BUILDING CHASES FROM FLOOR TO FLOOR TO REDUCE THE RADON FLOWING INTO THE BUILDING DUE TO "STACK EFFECT" STANDARD AIR TIGHTNESS METHODS ARE ACCEPTABLE.



3 FOUNDATION AND GRADE BEAM CROSSING DETAIL
N.T.S.



2 RADON PIPE TRENCH DETAIL
N.T.S.



1 TYPICAL RADON RISER EXHAUST DETAIL
N.T.S.

CES Engineering Services MT, LLC
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Bozeman MT 59715
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2022661

ISSUANCES

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		

REVISIONS

NO.	DATE	DESCRIPTION

121 BADGER LANE

KETCHUM IDAHO

RADON DETAILS

DATE:	12/15/2022
PROJECT NO:	2022661
DRAWN:	Author
CHECKED:	Checker
ISSUED FOR:	PERMIT
REVISIONS:	

SEAL:

SHEET NO.

P-303.00

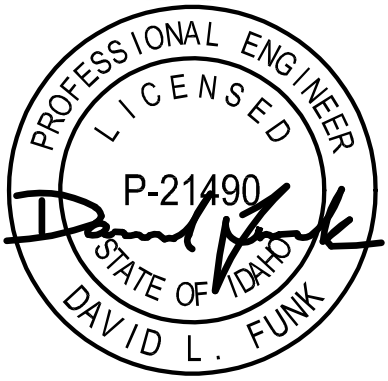
121 Badger Lane
Ketchum, ID

Labib Funk + Associates
Structural | Civil Engineers

Burnett + Young
Shoring Engineers

STRUCTURAL CALCULATIONS

121 BADGER LN
Ketchum
ID, 83340



LFA Job No. 22791

Friday, February 24, 2023

Disclaimer:

These structural calculations are solely intended for the building official and for a plan check review finalized to issue a building permit for the subject project. Only information shown on 100% construction documents shall be used for construction. Use, distribution, copying, scanning, and taking action based on these calculations without LFA written approval is prohibited.
LFA shall not assume any responsibility for use of these calculations by any other parties or entity other than the building Official, and for any other use than their intended purpose.
Contact LFA to obtain information such as, but not limited to, construction drawings, design loads, occupancy, strength and stiffness of elements, maximum deflection of elements, etc

319 Main Street
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John Labib + Associates
Structural Engineers

INDEX

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John Labib + Associates
Structural Engineers

1.0 - DESIGN CRITERIA

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www.labibse.com

DESIGN CRITERIA

ASCE/SEI 7-10

JOB NAME: 121 Badger Lane - Main House JLA JOB#: 22791

And ADU

R-1: STANDING SEAM ROOF

DEAD LOAD	GRAVITY	SEISMIC		NOTES
Standing Seam Metal Roof	3.0	3.0	psf	
Waterproofing	1.0	1.0	psf	(Vapor Barrier)
3/4" Sheathing	2.4	2.4	psf	
Gypboard ceiling	2.8	2.8	psf	(Single layer of 5/8" thick gypsum board)
Insulation	1.0	1.0	psf	
Snow Load	0.0	35.0	psf	35% of Snow Load (100 psf*.35)
Misc.	2.8	2.8	psf	
SUB-TOTAL	13.0	48.0	psf	
Framing	4.0	4.0	psf	
TOTAL DEAD LOAD	17.0	52.0	psf	
LIVE LOAD				
Residential Live	20.0	psf		Reducible

FL-1: PLYWOOD OVER WOOD LVL JOISTS W/ WOOD FLOOR

DEAD LOAD	GRAVITY	SEISMIC		NOTES
Wood Flooring	3.0	3.0	psf	3/4" Wood Flooring
Concrete Topping	18.8	18.8	psf	1 1/2" Concrete Topping
Waterproofing	1.0	1.0	psf	(Vapor Barrier)
1 1/8" Flat Plywood	3.4	3.4	psf	(Structural Diaphragm)
Gypboard ceiling	3.1	3.1	psf	(Single layer of 5/8" thick gypsum board)
Misc.	2.7	2.7	psf	
SUB-TOTAL	32.0	32.0	psf	
Framing	4.0	4.0	psf	
TOTAL DEAD LOAD	36.0	36.0	psf	
LIVE LOAD				
Residential Live	40.0	psf		Reducible

DESIGN CRITERIA

ASCE/SEI 7-10

JOB NAME: 121 Badger Lane - Main House And ADU JLA JOB#: 22791

FL-2: PLYWOOD OVER WOOD LVL JOISTS W/ STONE TILE

DEAD LOAD	GRAVITY	SEISMIC		NOTES
Stone Paving	9.4	9.4	psf	3/4" Stone Max.
Mortar Bed	9.4	9.4	psf	3/4" Mortar Bed
Concrete Topping	18.8	18.8	psf	
Waterproofing	1.0	1.0	psf	(Vapor Barrier)
1 1/8" Flat Plywood	3.4	3.4	psf	(Structural Diaphragm)
Batt Insulation	1.0	1.0	psf	
Misc.	2.1	2.1	psf	
SUB-TOTAL	45.0	45.0	psf	
Framing	4.0	4.0	psf	
TOTAL DEAD LOAD	49.0	49.0	psf	

LIVE LOAD			
Residential Balcony Live Load	40.0	psf	Reducible

DESIGN CRITERIA				ASCE/SEI 7-10
JOB NAME:	121 Badger Lane - Main House		JLA JOB#:	22791

And ADU

[E-1]: EXTERIOR WOOD WOOD RAINSCREEN

DEAD LOAD	GRAVITY	SEISMIC		NOTES
Wood Siding	2.8	2.8	psf	3/4" Wood Siding
1/2" Wood Structural Panel	1.6	1.6	psf	
Batt Insulation	1.0	1.0	psf	
Framing	3.0	3.0	psf	Added Load for Rainscreen
Interior Gyp	2.8	2.8	psf	5/8" Gypboard
Miscellaneous	1.8	1.8	psf	
TOTAL DEAD LOAD	**13.0**	**13.0**	psf	(Weight per area of wall)
TOTAL DEAD LOAD TO ROOF		3.5	psf	(Weight per area of Roof)
TOTAL DEAD LOAD TO FLOOR		6.7	psf	(Weight per area of Floor)

INTERIOR WALL

DEAD LOAD	GRAVITY	SEISMIC		NOTES
Batt Insulation	1.0	1.0	psf	
1/2" Structural Panel	1.6	1.6	psf	
Framing	1.5	1.5	psf	Added Load for Rainscreen
Interior Gyp	5.5	5.5	psf	5/8" Gypboard - Double Sided
Miscellaneous	1.4	1.4	psf	
TOTAL DEAD LOAD	**11.0**	**11.0**	psf	(Weight per area of wall)
TOTAL DEAD LOAD TO ROOF		6.2	psf	(Weight per area of Roof)
TOTAL DEAD LOAD TO FLOOR		10.2	psf	(Weight per area of Floor)

2.0 - GRAVITY DESIGN

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John Labib + Associates
Structural Engineers

2.1 - MAIN HOUSE GRAVITY KEYPLAN

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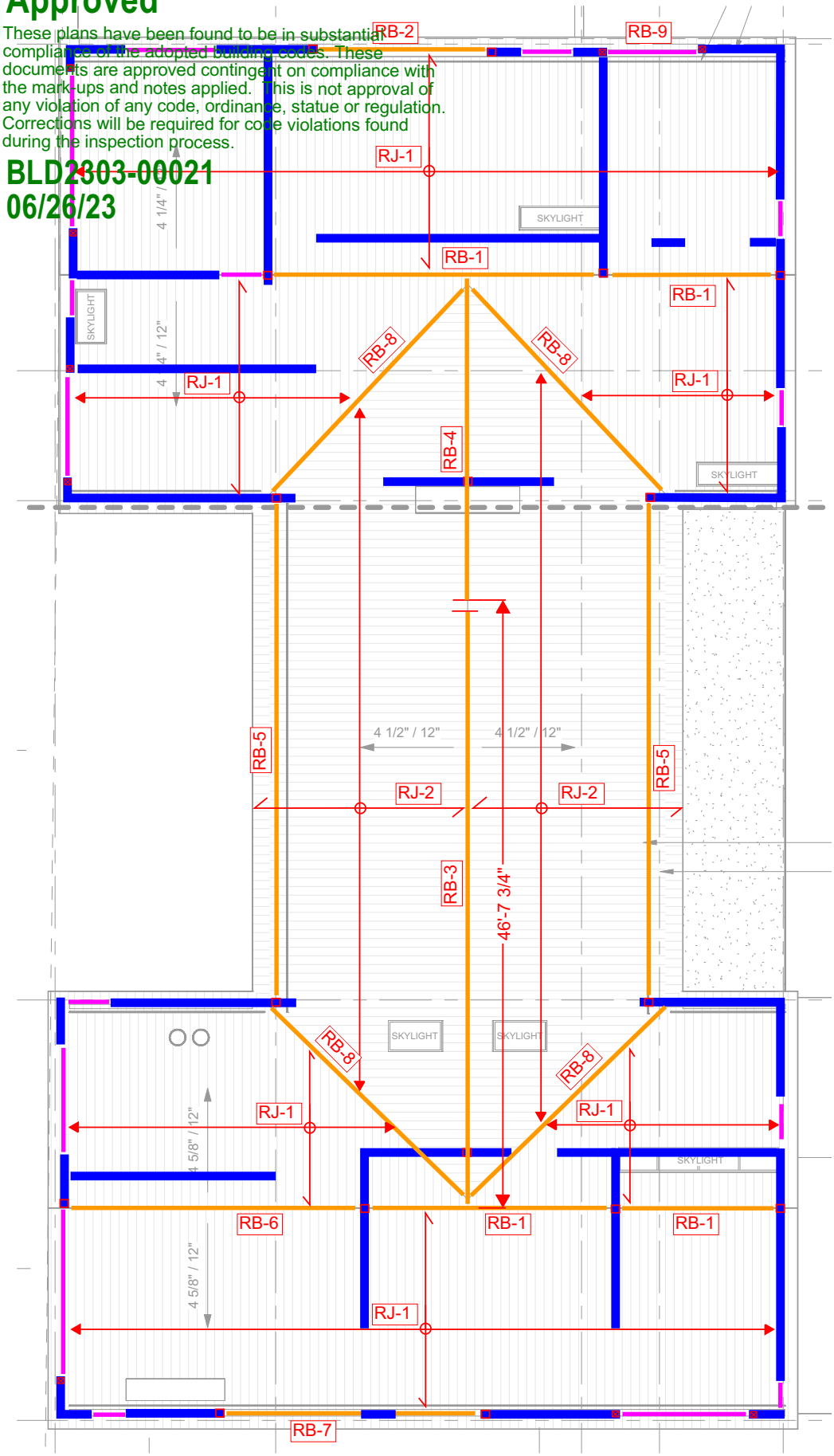
Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



ROOF FRAMING KEYPLAN

Approved

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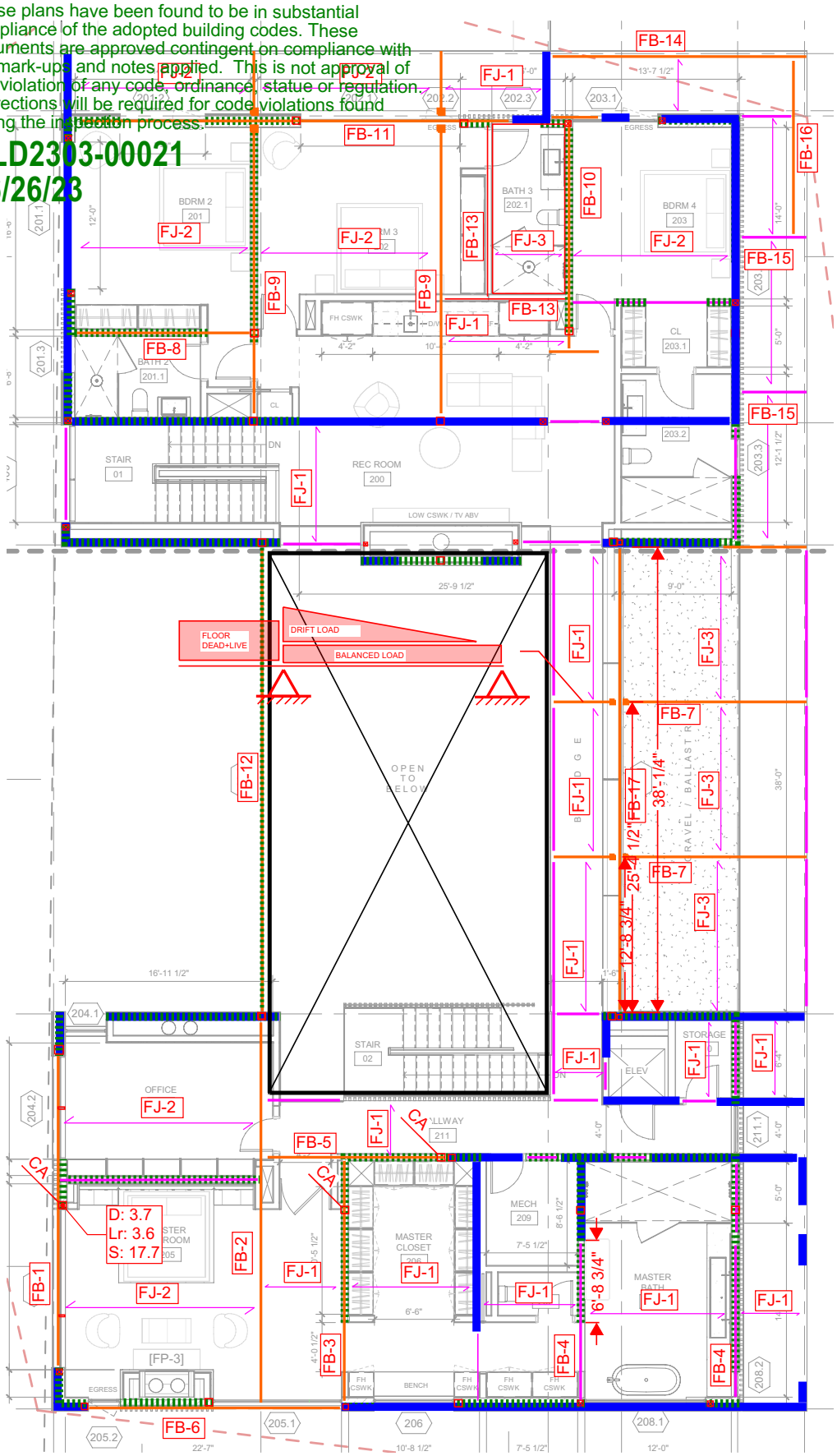
BLD2303-00021
06/26/23



1ST FLOOR FRAMING KEYPLAN

John Labib + Associates
Structural Engineers

2.2 - MAIN HOUSE
JOIST DESIGN

319 Main Street
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t:213/239 9600
info@labibse.com
www.labibse.com

Project: 2108 BROADFORD COURT
Job No: 2274
By: GH
Date: 6/27/22
Page: 1

Labib Funk + Associates
Structural | Civil Engineers

Burnett + Young
Shoring Engineers

DETERMINING SNOW LOADS

ASCE 7-16 - SLOPED ROOF SNOW LOADS

$C_t = 1.0$ (WARM ROOF)

$C_s = 1.0$ (BASED ON FIGURE 7.4-1, 7-2a)

$P_s = C_s P_f$

$P_f = .7 C_e C_t I_s P_g$

$C_e = 1.0$ (PARTIALLY ENCLOSED)

$C_t = 1.0$ (See ABOVE)

$I_s = 1.0$ (ASCE 7-16 TBL 1.5-2)

$P_g = 120$ psf (DUE TO KETCHUM, ID ORDINANCE)

$P_f = (.7)(1.0)(1.0)(1.0)(120 \text{ psf})$

$= 84$ psf

SNOW LOAD W/ SNOW STOPS ON ROOF

$= 100$ psf → GOVERNS

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: RJ-1

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

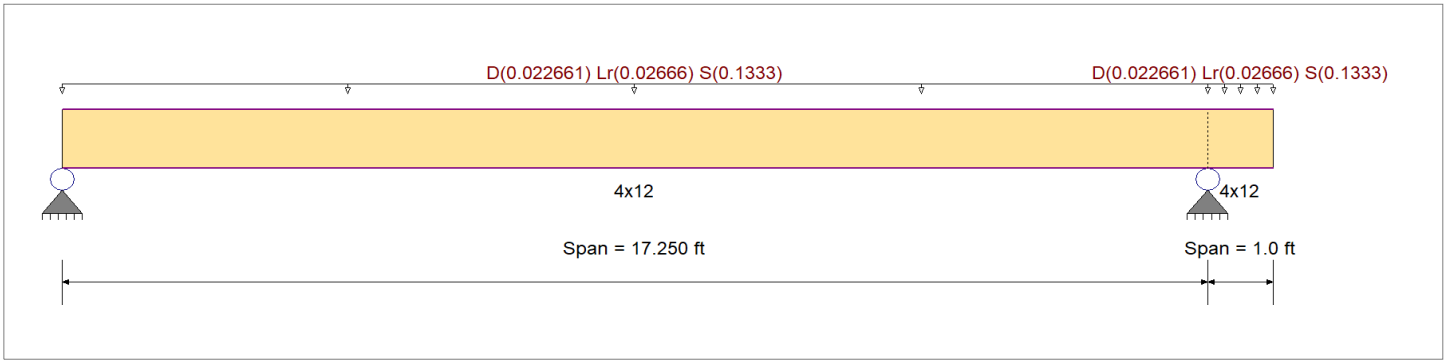
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Load for Span Number 1
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 1.333 ft, (Roof Gravity + Snow Lo
Load for Span Number 2
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 1.333 ft, (Roof Load + Snow Load

UPLIFT AT CANTILEVER END
OKAY, DESIGN IS GOOD

DESIGN SUMMARY

Design N.G.

Maximum Bending Stress Ratio	=	0.754 : 1	Maximum Shear Stress Ratio	=	0.236 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	987.81 psi	fv: Actual	=	48.79 psi
Fb: Allowable	=	1,309.28 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	8.577 ft	Location of maximum on span	=	16.383 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.400 in	Ratio =	517 >=360
Max Upward Transient Deflection	-0.073 in	Ratio =	328 <360
Max Downward Total Deflection	0.494 in	Ratio =	419 >=180
Max Upward Total Deflection	-0.090 in	Ratio =	266 >=180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
+D+H					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 17.250 ft	1	0.183	0.057	0.90	1.100	1.00	1.15	1.00	1.00	1.00	1.15	187.33	1024.65	0.24	9.25	162.00
Length = 1.0 ft	2	0.002	0.057	0.90	1.100	1.00	1.15	1.00	1.00	1.00	0.02	2.54	1024.65	0.00	9.25	162.00
+D+L+H					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 17.250 ft	1	0.165	0.051	1.00	1.100	1.00	1.15	1.00	1.00	1.00	1.15	187.33	1138.50	0.24	9.25	180.00
Length = 1.0 ft	2	0.002	0.051	1.00	1.100	1.00	1.15	1.00	1.00	1.00	0.02	2.54	1138.50	0.00	9.25	180.00
+D+Lr+H					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 17.250 ft	1	0.244	0.076	1.25	1.100	1.00	1.15	1.00	1.00	1.00	2.14	347.43	1423.13	0.45	17.16	225.00
Length = 1.0 ft	2	0.003	0.076	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.03	4.70	1423.13	0.00	17.16	225.00
+D+S+H					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: RJ-1 (CHECK FOR UNBALANCED SNOW LOAD) -- GOVERNS

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

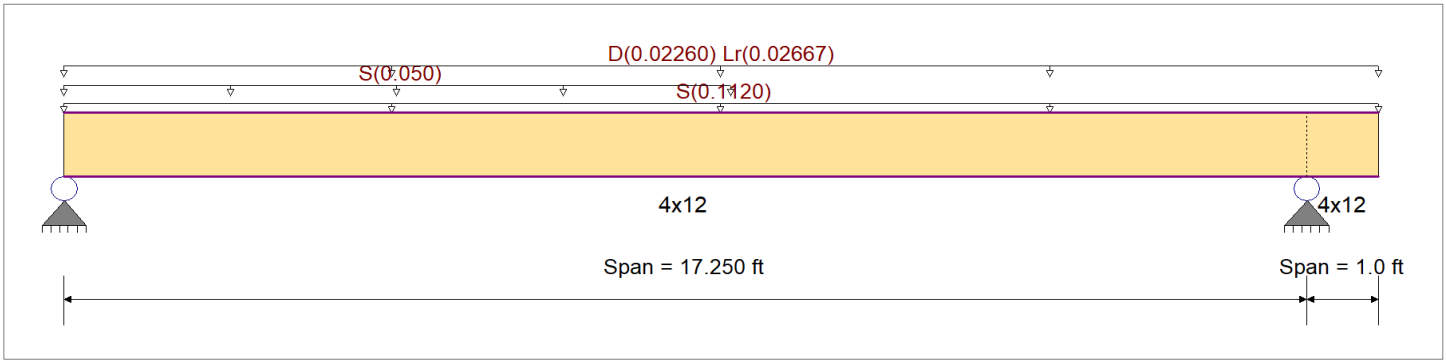
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : S = 0.0840 ksf, Tributary Width = 1.333 ft
Partial Length Uniform Load : S = 0.050 k/ft, Extent = 0.0 -->> 9.250 ft
Partial Length Uniform Load : D = 0.02260, Lr = 0.02667 k/ft, Extent = 0.0 -->> 18.250 ft

UPLIFT AT CANTILEVER END
OKAY, DESIGN IS GOOD

DESIGN SUMMARY

Design N.G.

Maximum Bending Stress Ratio	=	0.791 : 1	Maximum Shear Stress Ratio	=	0.258 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	1,035.56 psi	fv: Actual	=	53.38 psi
Fb: Allowable	=	1,309.28 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	8.095 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.421 in	Ratio =	492 >=360
Max Upward Transient Deflection	-0.075 in	Ratio =	318 <360
Max Downward Total Deflection	0.514 in	Ratio =	402 >=180
Max Upward Total Deflection	-0.092 in	Ratio =	260 >=180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
D Only													0.00	0.00	0.00	0.00
Length = 17.250 ft	1	0.182	0.057	0.90	1.100	1.00	1.15	1.00	1.00	1.00	1.15	186.96	1024.65	0.24	9.24	162.00
Length = 1.0 ft	2	0.002	0.057	0.90	1.100	1.00	1.15	1.00	1.00	1.00	0.02	2.53	1024.65	0.00	9.24	162.00
+D+Lr					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 17.250 ft	1	0.244	0.076	1.25	1.100	1.00	1.15	1.00	1.00	1.00	2.14	347.12	1423.13	0.45	17.15	225.00
Length = 1.0 ft	2	0.003	0.076	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.03	4.70	1423.13	0.00	17.15	225.00
+D+S					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 17.250 ft	1	0.791	0.258	1.15	1.100	1.00	1.15	1.00	1.00	1.00	6.37	1,035.56	1309.28	1.40	53.38	207.00
Length = 1.0 ft	2	0.009	0.258	1.15	1.100	1.00	1.15	1.00	1.00	1.00	0.07	11.63	1309.28	0.01	53.38	207.00
+D+0.750Lr					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Approved

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Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam BLD2303-00021

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

06/26/23

DESCRIPTION: RJ-2

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

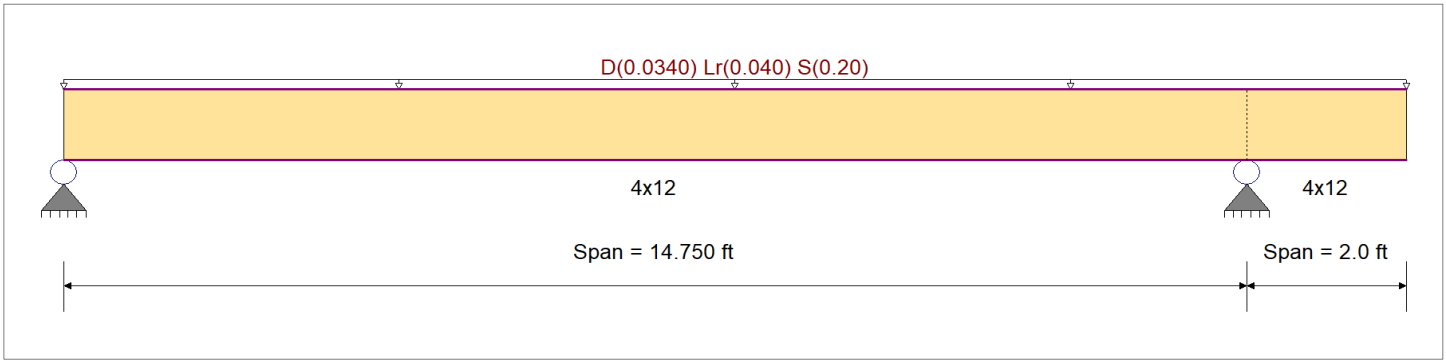
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 2.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.789 : 1	Maximum Shear Stress Ratio	=	0.295 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	1,033.02 psi	fv: Actual	=	61.02 psi
Fb: Allowable	=	1,309.28 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	7.251 ft	Location of maximum on span	=	13.844 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.309 in	Ratio =	572	>=240
Max Upward Transient Deflection	-0.128 in	Ratio =	374	>=240
Max Downward Total Deflection	0.375 in	Ratio =	472	>=240
Max Upward Total Deflection	-0.155 in	Ratio =	308	>=240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
D Only													0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.177	0.066	0.90	1.100	1.00	1.15	1.00	1.00	1.00	1.11	181.16	1024.65	0.28	10.70	162.00
Length = 2.0 ft	2	0.013	0.066	0.90	1.100	1.00	1.15	1.00	1.00	1.00	0.09	13.83	1024.65	0.05	10.70	162.00
+D+Lr					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.247	0.092	1.25	1.100	1.00	1.15	1.00	1.00	1.00	2.16	351.53	1423.13	0.55	20.76	225.00
Length = 2.0 ft	2	0.019	0.092	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.17	26.83	1423.13	0.09	20.76	225.00
+D+S					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.789	0.295	1.15	1.100	1.00	1.15	1.00	1.00	1.00	6.36	1,033.02	1309.28	1.60	61.02	207.00
Length = 2.0 ft	2	0.060	0.295	1.15	1.100	1.00	1.15	1.00	1.00	1.00	0.49	78.84	1309.28	0.26	61.02	207.00
+D+0.750Lr					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.217	0.081	1.25	1.100	1.00	1.15	1.00	1.00	1.00	1.90	308.94	1423.13	0.48	18.25	225.00
Length = 2.0 ft	2	0.017	0.081	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.15	23.58	1423.13	0.08	18.25	225.00

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: RJ-2 (CHECK FOR UNBALANCED SNOW LOAD)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

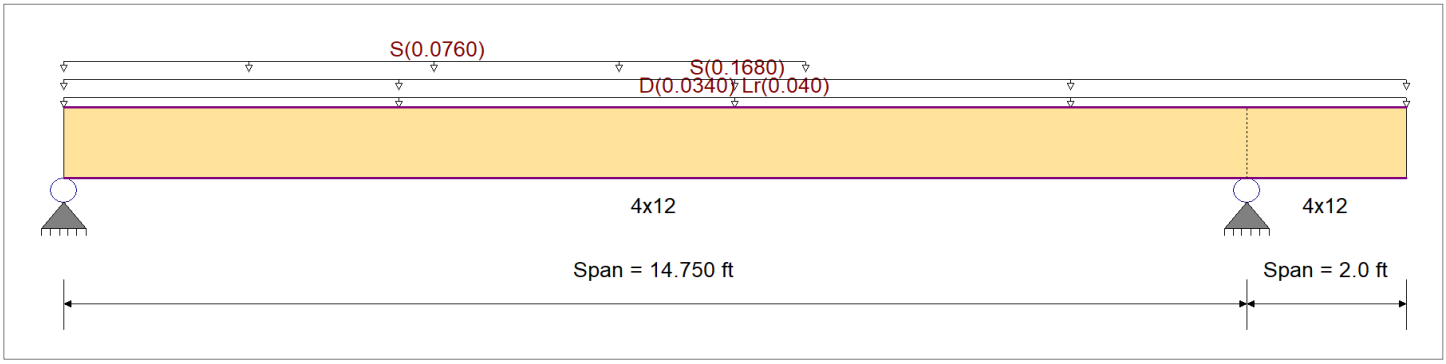
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0170, Lr = 0.020 ksf, Tributary Width = 2.0 ft
Partial Length Uniform Load : S = 0.1680 k/ft, Extent = 0.0 -->> 16.750 ft
Partial Length Uniform Load : S = 0.0760 k/ft, Extent = 0.0 -->> 9.250 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.872 : 1	Maximum Shear Stress Ratio	=	0.322 : 1
Section used for this span		4x12	Section used for this span		4x12
fb: Actual	=	1,142.15 psi	fv: Actual	=	66.55 psi
Fb: Allowable	=	1,309.28 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	7.004 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.346 in	Ratio =	512 >=240
Max Upward Transient Deflection	-0.141 in	Ratio =	340 >=240
Max Downward Total Deflection	0.411 in	Ratio =	430 >=240
Max Upward Total Deflection	-0.168 in	Ratio =	284 >=240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
D Only													0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.177	0.066	0.90	1.100	1.00	1.15	1.00	1.00	1.00	1.11	181.16	1024.65	0.28	10.70	162.00
Length = 2.0 ft	2	0.013	0.066	0.90	1.100	1.00	1.15	1.00	1.00	1.00	0.09	13.83	1024.65	0.05	10.70	162.00
+D+Lr					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.247	0.092	1.25	1.100	1.00	1.15	1.00	1.00	1.00	2.16	351.53	1423.13	0.55	20.76	225.00
Length = 2.0 ft	2	0.019	0.092	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.17	26.83	1423.13	0.09	20.76	225.00
+D+S					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.750 ft	1	0.872	0.322	1.15	1.100	1.00	1.15	1.00	1.00	1.00	7.03	1,142.15	1309.28	1.75	66.55	207.00
Length = 2.0 ft	2	0.052	0.322	1.15	1.100	1.00	1.15	1.00	1.00	1.00	0.42	68.44	1309.28	0.23	66.55	207.00
+D+0.750Lr					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: RJ-3 (2-2x12's @ 12" o.c.) (W/ DRIFT LOAD)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

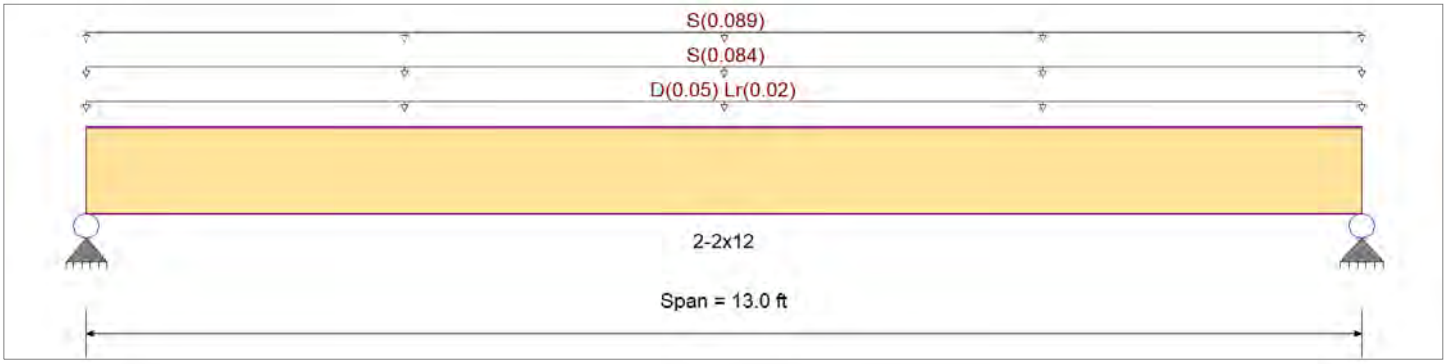
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.050, Lr = 0.020 ksf, Tributary Width = 1.0 ft, (Roof Load)
Uniform Load : S = 0.0840 ksf, Tributary Width = 1.0 ft, (Balanced Snow)
Uniform Load : S = 0.0890 ksf, Tributary Width = 1.0 ft, (Drift Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.775 : 1	Maximum Shear Stress Ratio	=	0.277 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb: Actual	=	922.62 psi	fv: Actual	=	57.31 psi
Fb: Allowable	=	1,190.25 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	6.500 ft	Location of maximum on span	=	12.099 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.196 in	Ratio =	794 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.261 in	Ratio =	596 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.246	0.088	0.90	1.000	1.00	1.15	1.00	1.00	1.00	1.21	229.60	931.50	0.32	14.26	162.00
+D+Lr					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.239	0.086	1.25	1.000	1.00	1.15	1.00	1.00	1.00	1.63	309.72	1293.75	0.43	19.24	225.00
+D+S					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.775	0.277	1.15	1.000	1.00	1.15	1.00	1.00	1.00	4.87	922.62	1190.25	1.29	57.31	207.00
+D+0.750Lr					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.224	0.080	1.25	1.000	1.00	1.15	1.00	1.00	1.00	1.53	289.69	1293.75	0.40	17.99	225.00
+D+0.750S					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.0 ft	1	0.630	0.225	1.15	1.000	1.00	1.15	1.00	1.00	1.00	3.95	749.37	1190.25	1.05	46.55	207.00
+0.60D					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: RJ-4 (2x10's @ 16" o.c.) (W/ DRIFT LOAD)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

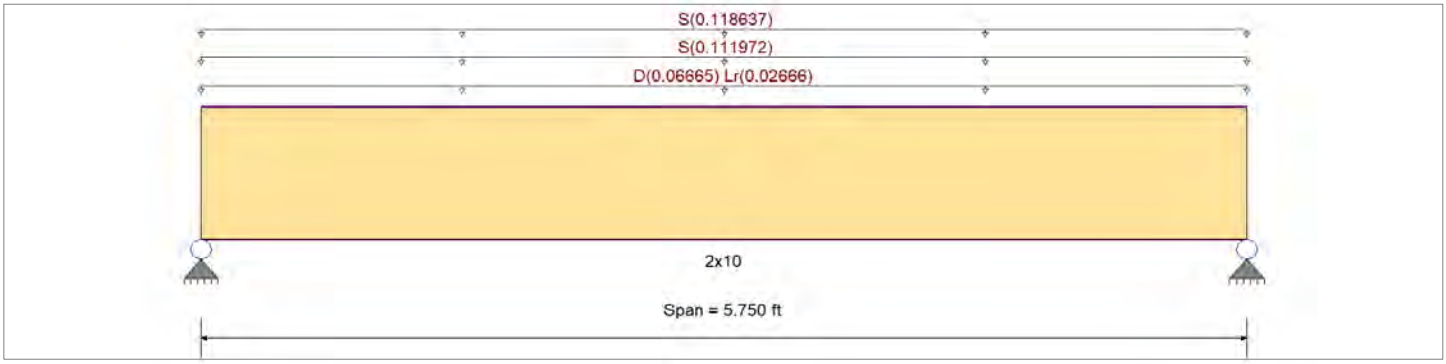
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.050, Lr = 0.020 ksf, Tributary Width = 1.333 ft, (Roof Load)
Uniform Load : S = 0.0840 ksf, Tributary Width = 1.333 ft, (Balanced Snow)
Uniform Load : S = 0.0890 ksf, Tributary Width = 1.333 ft, (Drift Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.532 : 1	Maximum Shear Stress Ratio	=	0.332 : 1
Section used for this span		2x10	Section used for this span		2x10
fb: Actual	=	696.16 psi	fv: Actual	=	68.80 psi
Fb: Allowable	=	1,309.28 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	2.875 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.036 in	Ratio =	1914 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.047 in	Ratio =	1470 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 5.750 ft	1	0.158	0.099	0.90	1.100	1.00	1.15	1.00	1.00	1.00	0.29	161.50	1024.65	0.15	15.96	162.00
+D+Lr					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.750 ft	1	0.157	0.098	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.40	223.31	1423.13	0.20	22.07	225.00
+D+S					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.750 ft	1	0.532	0.332	1.15	1.100	1.00	1.15	1.00	1.00	1.00	1.24	696.16	1309.28	0.64	68.80	207.00
+D+0.750Lr					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.750 ft	1	0.146	0.091	1.25	1.100	1.00	1.15	1.00	1.00	1.00	0.37	207.86	1423.13	0.19	20.54	225.00
+D+0.750S					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.750 ft	1	0.430	0.269	1.15	1.100	1.00	1.15	1.00	1.00	1.00	1.00	562.50	1309.28	0.51	55.59	207.00
+0.60D					1.100	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Project Title:
Engineer:
Project ID:
Project Descr:

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

Wood Beam

DESCRIPTION: FJ-1 (2x12 @ 16" OC / MAX SPAN=14'-3")

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

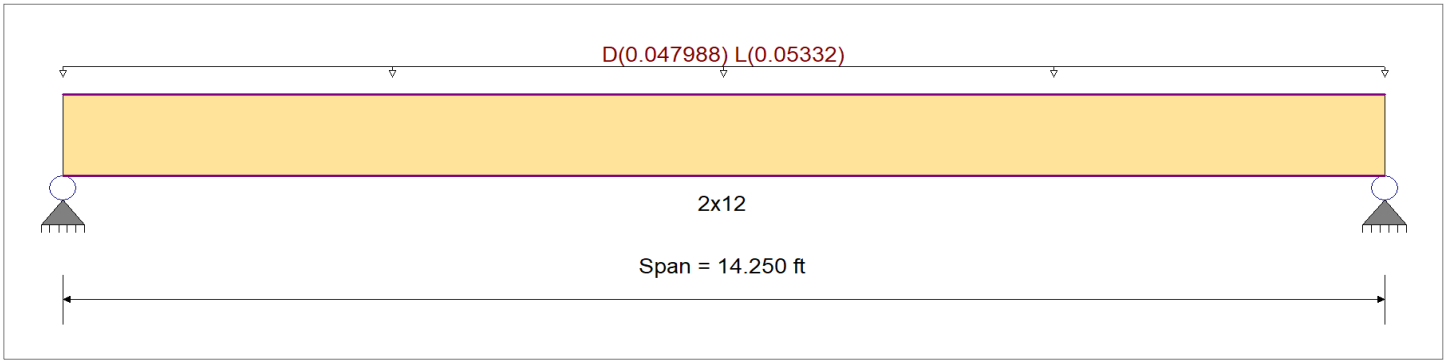
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 1.333 ft, (FLOOR LOAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.976 : 1	Maximum Shear Stress Ratio	=	0.321 : 1
Section used for this span		2x12	Section used for this span		2x12
fb: Actual	=	1,010.47 psi	fv: Actual	=	57.74 psi
Fb: Allowable	=	1,035.00 psi	Fv: Allowable	=	180.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	7.125 ft	Location of maximum on span	=	13.314 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.175 in	Ratio =	978	>=360
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360
Max Downward Total Deflection	0.344 in	Ratio =	497	>=180
Max Upward Total Deflection	0.000 in	Ratio =	0	<180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 14.250 ft	1	0.534	0.175	0.90	1.000	1.00	1.15	1.00	1.00	1.00	1.31	497.17	931.50	0.32	28.41	162.00
+D+L					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.250 ft	1	0.976	0.321	1.00	1.000	1.00	1.15	1.00	1.00	1.00	2.66	1,010.47	1035.00	0.65	57.74	180.00
+D+0.750L					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.250 ft	1	0.682	0.224	1.25	1.000	1.00	1.15	1.00	1.00	1.00	2.33	882.14	1293.75	0.57	50.41	225.00
+0.60D					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.250 ft	1	0.180	0.059	1.60	1.000	1.00	1.15	1.00	1.00	1.00	0.79	298.30	1656.00	0.19	17.05	288.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.3440	7.177		0.0000	0.000

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: FJ-2 (2-2x12's @ 16" o.c.)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

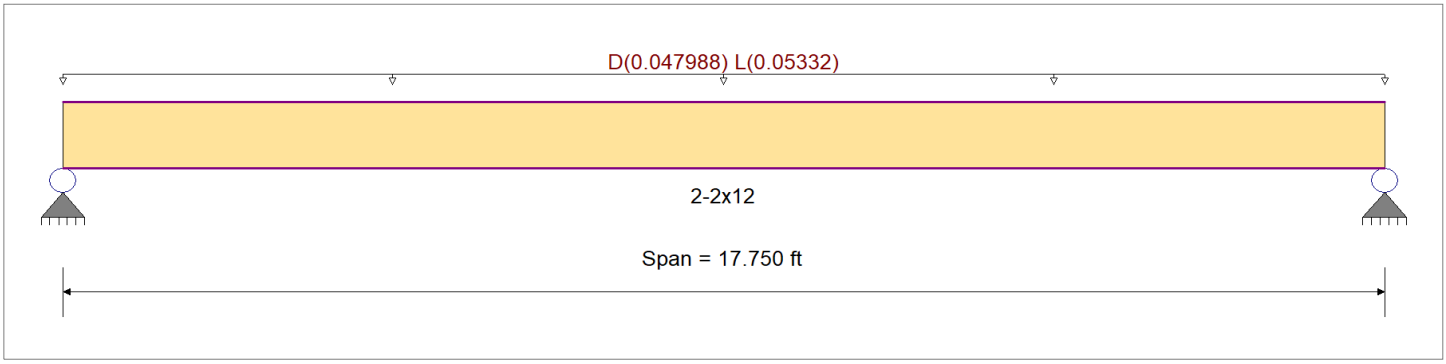
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 1.333 ft, (FLOOR LOAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.784 : 1	Maximum Shear Stress Ratio	=	0.214 : 1
Section used for this span		2-2x12	Section used for this span		2-2x12
fb: Actual	=	811.21 psi	fv: Actual	=	38.47 psi
Fb: Allowable	=	1,035.00 psi	Fv: Allowable	=	180.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	8.875 ft	Location of maximum on span	=	16.843 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.210 in	Ratio =	1012	>=480
Max Upward Transient Deflection	0.000 in	Ratio =	0	<480
Max Downward Total Deflection	0.428 in	Ratio =	497	>=240
Max Upward Total Deflection	0.000 in	Ratio =	0	<240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 17.750 ft	1	0.443	0.121	0.90	1.000	1.00	1.15	1.00	1.00	1.00	2.18	413.01	931.50	0.44	19.58	162.00
+D+L					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 17.750 ft	1	0.784	0.214	1.00	1.000	1.00	1.15	1.00	1.00	1.00	4.28	811.21	1035.00	0.87	38.47	180.00
+D+0.750L					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 17.750 ft	1	0.550	0.150	1.25	1.000	1.00	1.15	1.00	1.00	1.00	3.75	711.66	1293.75	0.76	33.75	225.00
+0.60D					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 17.750 ft	1	0.150	0.041	1.60	1.000	1.00	1.15	1.00	1.00	1.00	1.31	247.81	1656.00	0.26	11.75	288.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.4285	8.940		0.0000	0.000

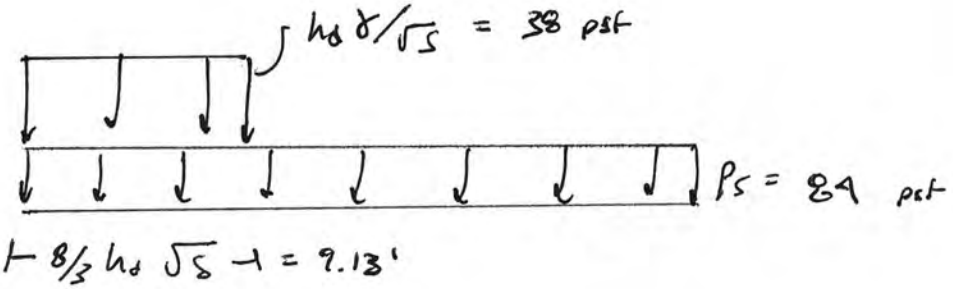
Job No:
By:
Date:
Page:

Labib Funk + Associates
Structural | Civil Engineers

Burnett + Young
Shoring Engineers

JOIST DESIGN FOR UNBALANCED SNOW LOAD

CH 7 ASCE 7-16



P_s = 84 psf

h_d = 2.1'

γ = .13(170) + 14 = 29.6

s = 2.66'

Project:
No.:
Date:
Page:

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Structural | Civil Engineers

Burnett + Young
Shoring Engineers

CHECK BEAM FOR DRIFT LOADING

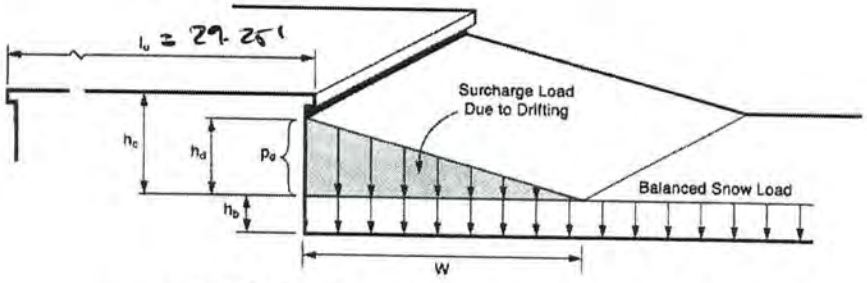


FIGURE 7.7-2 Configuration of Snowdrifts on Lower Roofs

$h_c = 11.25'$

$h_b = 84 \text{ psf} / .13(120) + 14 = 1.68$

$\frac{h_c}{h_b} = 11.25' / 1.68 = 6.7$

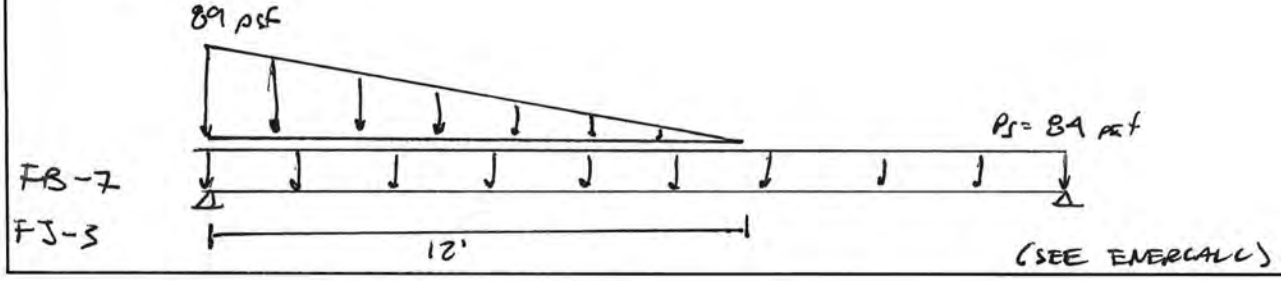
$h_d = .43 \sqrt[3]{29.25} \sqrt[4]{120+10} - 1.5$

$= 3.0'$

$W = 4h_d = 12'$

$P_s = 84 \text{ psf}$

$P_d = h_d \gamma = 3(.13(120)+14) = 89 \text{ psf}$



John Labib + Associates
Structural Engineers

2.3 - MAIN HOUSE BEAM DESIGN

319 Main Street
El Segundo, California 90245
t:213/239 9600
info@labibse.com
www.labibse.com

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

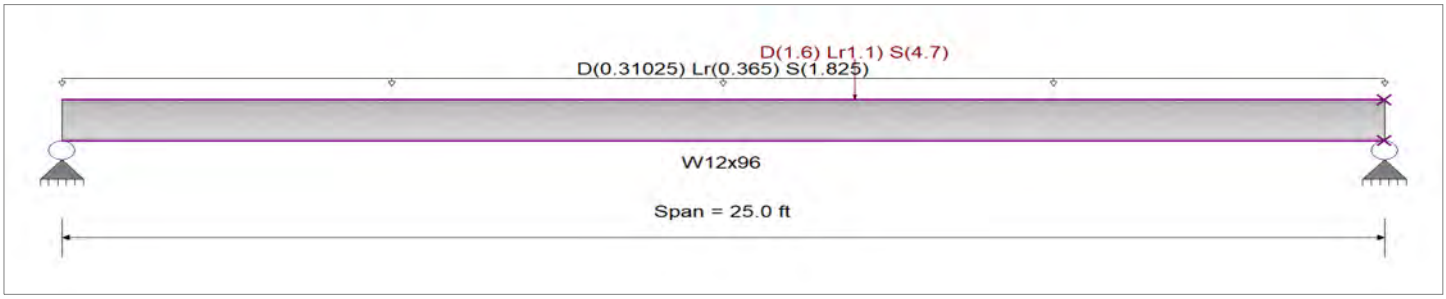
DESCRIPTION: RB-1 (W12x96)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 18.250 ft, (Roof Gravity + Snow Load)

Point Load : D = 1.60, Lr = 1.10, S = 4.70 k @ 15.0 ft, (RB-4)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.572 : 1	Maximum Shear Stress Ratio =	0.230 : 1
Section used for this span	W12x96	Section used for this span	W12x96
Mu : Applied	315.501 k-ft	Vu : Applied	48.258 k
Mn * Phi : Allowable	551.250 k-ft	Vn * Phi : Allowable	209.550 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	13.643 ft	Location of maximum on span	25.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.769 in	Ratio =	389 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.955 in	Ratio =	314 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 25.00 ft	1	0.102	0.040	56.34		56.34	612.50	551.25	1.00	1.00	8.45	209.55	209.55
+1.20D+0.50Lr													
Dsgn. L = 25.00 ft	1	0.119	0.047	65.42		65.42	612.50	551.25	1.00	1.00	9.86	209.55	209.55
+1.20D+0.50S													
Dsgn. L = 25.00 ft	1	0.239	0.096	131.77		131.77	612.50	551.25	1.00	1.00	20.06	209.55	209.55
+1.20D+1.60Lr													
Dsgn. L = 25.00 ft	1	0.187	0.074	103.12		103.12	612.50	551.25	1.00	1.00	15.60	209.55	209.55
+1.20D+1.60S													
Dsgn. L = 25.00 ft	1	0.572	0.230	315.50		315.50	612.50	551.25	1.00	1.00	48.26	209.55	209.55
+0.90D													
Dsgn. L = 25.00 ft	1	0.066	0.026	36.22		36.22	612.50	551.25	1.00	1.00	5.43	209.55	209.55
+1.20D+0.20S													
Dsgn. L = 25.00 ft	1	0.148	0.059	81.67		81.67	612.50	551.25	1.00	1.00	12.37	209.55	209.55

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.9547	12.643		0.0000	0.000

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

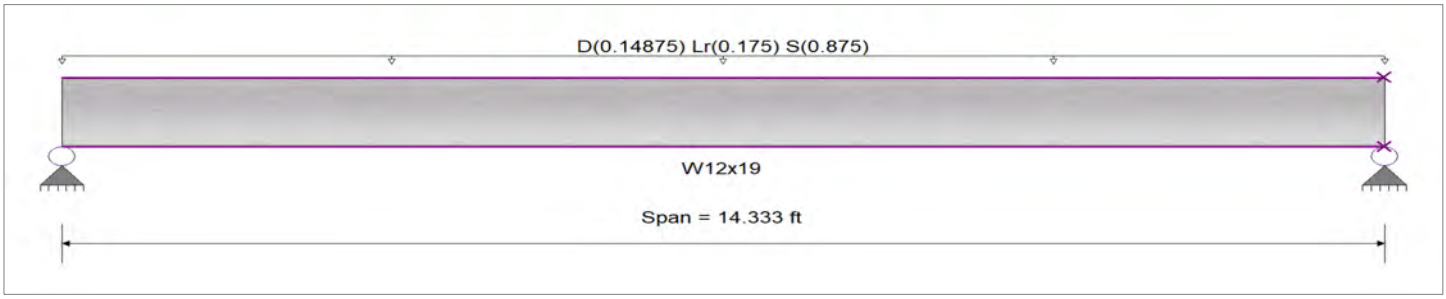
DESCRIPTION: RB-2 (W12x19)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 8.750 ft, (Roof Load + Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.444 : 1	Maximum Shear Stress Ratio =	0.133 : 1
Section used for this span	W12x19	Section used for this span	W12x19
Mu : Applied	41.120 k-ft	Vu : Applied	11.476 k
Mn * Phi : Allowable	92.625 k-ft	Vn * Phi : Allowable	86.010 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	7.167 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.221 in	Ratio =	776 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.264 in	Ratio =	652 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 14.33 ft	1	0.065	0.020	6.03		6.03	102.92	92.63	1.00	1.00	1.68	86.01	86.01
+1.20D+0.50Lr													
Dsgn. L = 14.33 ft	1	0.080	0.024	7.42		7.42	102.92	92.63	1.00	1.00	2.07	86.01	86.01
+1.20D+0.50S													
Dsgn. L = 14.33 ft	1	0.177	0.053	16.40		16.40	102.92	92.63	1.00	1.00	4.58	86.01	86.01
+1.20D+1.60Lr													
Dsgn. L = 14.33 ft	1	0.133	0.040	12.36		12.36	102.92	92.63	1.00	1.00	3.45	86.01	86.01
+1.20D+1.60S													
Dsgn. L = 14.33 ft	1	0.444	0.133	41.12		41.12	102.92	92.63	1.00	1.00	11.48	86.01	86.01
+0.90D													
Dsgn. L = 14.33 ft	1	0.042	0.013	3.88		3.88	102.92	92.63	1.00	1.00	1.08	86.01	86.01
+1.20D+0.20S													
Dsgn. L = 14.33 ft	1	0.104	0.031	9.66		9.66	102.92	92.63	1.00	1.00	2.70	86.01	86.01

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.2638	7.207		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	7.473	7.473
Overall MINimum	0.721	0.721

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

06/26/23

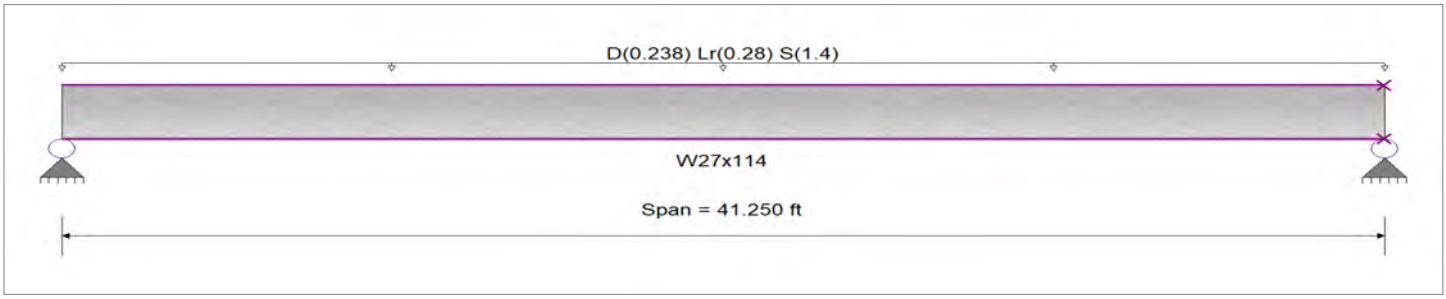
DESCRIPTION: RB-3 (W27x114)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 14.0 ft, (Roof Load + Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.440 : 1	Maximum Shear Stress Ratio =	0.118 : 1
Section used for this span	W27x114	Section used for this span	W27x114
Mu : Applied	566.280 k-ft	Vu : Applied	54.912 k
Mn * Phi : Allowable	1,286.250 k-ft	Vn * Phi : Allowable	466.830 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	20.625 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.774 in	Ratio =	639 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.969 in	Ratio =	511 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 41.25 ft	1	0.081	0.022	104.82		104.82	1,429.17	1,286.25	1.00	1.00	10.16	466.83	466.83
+1.20D+0.50Lr													
Dsgn. L = 41.25 ft	1	0.093	0.025	119.62		119.62	1,429.17	1,286.25	1.00	1.00	11.60	466.83	466.83
+1.20D+0.50S													
Dsgn. L = 41.25 ft	1	0.186	0.050	238.73		238.73	1,429.17	1,286.25	1.00	1.00	23.15	466.83	466.83
+1.20D+1.60Lr													
Dsgn. L = 41.25 ft	1	0.144	0.038	185.13		185.13	1,429.17	1,286.25	1.00	1.00	17.95	466.83	466.83
+1.20D+1.60S													
Dsgn. L = 41.25 ft	1	0.440	0.118	566.28		566.28	1,429.17	1,286.25	1.00	1.00	54.91	466.83	466.83
+0.90D													
Dsgn. L = 41.25 ft	1	0.052	0.014	67.38		67.38	1,429.17	1,286.25	1.00	1.00	6.53	466.83	466.83
+1.20D+0.20S													
Dsgn. L = 41.25 ft	1	0.116	0.031	149.40		149.40	1,429.17	1,286.25	1.00	1.00	14.49	466.83	466.83

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.9690	20.743		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	36.135	36.135
Overall MINimum	4.356	4.356

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 06/26/23 JOHN LABIB & ASSOCIATES

DESCRIPTION: RB-5 (W18x119)

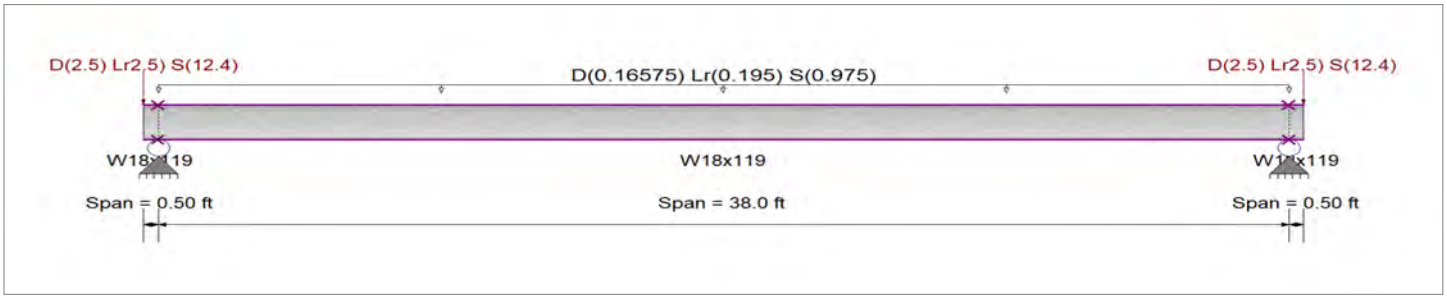
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load(s) for Span Number 1
Point Load : D = 2.50, Lr = 2.50, S = 12.40 k @ 0.0 ft, (RB-8)

Load for Span Number 2
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 9.750 ft, (Trib Roof + Snow Load)

Load(s) for Span Number 3
Point Load : D = 2.50, Lr = 2.50, S = 12.40 k @ 0.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.338 : 1	Maximum Shear Stress Ratio =	0.097 : 1
Section used for this span	W18x119	Section used for this span	W18x119
Mu : Applied	331.819 k-ft	Vu : Applied	36.132 k
Mn * Phi : Allowable	982.500 k-ft	Vn * Phi : Allowable	373.350 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	19.000 ft	Location of maximum on span	38.000 ft
Span # where maximum occurs	Span # 2	Span # where maximum occurs	Span # 2

Maximum Deflection

Max Downward Transient Deflection	0.697 in	Ratio =	654 >=360.
Max Upward Transient Deflection	-0.029 in	Ratio =	417 >=360.
Max Downward Total Deflection	0.903 in	Ratio =	505 >=240.
Max Upward Total Deflection	-0.037 in	Ratio =	322 >=240.

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 0.50 ft	1	0.002	0.020		-1.77	1.77	1,091.67	982.50	1.00	1.00	7.57	373.35	373.35
Dsgn. L = 38.00 ft	2	0.071	0.020	70.19	-1.77	70.19	1,091.67	982.50	1.00	1.00	7.57	373.35	373.35
Dsgn. L = 0.50 ft	3	0.002	0.010		-1.77	1.77	1,091.67	982.50	1.00	1.00	3.58	373.35	373.35
+1.20D+0.50Lr													
Dsgn. L = 0.50 ft	1	0.002	0.022		-2.14	2.14	1,091.67	982.50	1.00	1.00	8.34	373.35	373.35
Dsgn. L = 38.00 ft	2	0.079	0.022	77.13	-2.14	77.13	1,091.67	982.50	1.00	1.00	8.34	373.35	373.35
Dsgn. L = 0.50 ft	3	0.002	0.012		-2.14	2.14	1,091.67	982.50	1.00	1.00	4.32	373.35	373.35
+1.20D+0.50S													
Dsgn. L = 0.50 ft	1	0.005	0.042		-4.62	4.62	1,091.67	982.50	1.00	1.00	15.75	373.35	373.35
Dsgn. L = 38.00 ft	2	0.148	0.042	145.05	-4.62	145.05	1,091.67	982.50	1.00	1.00	15.75	373.35	373.35
Dsgn. L = 0.50 ft	3	0.005	0.025		-4.62	4.62	1,091.67	982.50	1.00	1.00	9.27	373.35	373.35
+1.20D+1.60Lr													
Dsgn. L = 0.50 ft	1	0.004	0.033		-3.52	3.52	1,091.67	982.50	1.00	1.00	12.42	373.35	373.35
Dsgn. L = 38.00 ft	2	0.117	0.033	114.47	-3.52	114.47	1,091.67	982.50	1.00	1.00	12.42	373.35	373.35

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 06/26/23 JOHN LABIB & ASSOCIATES

DESCRIPTION: RB-4 (W27x114)

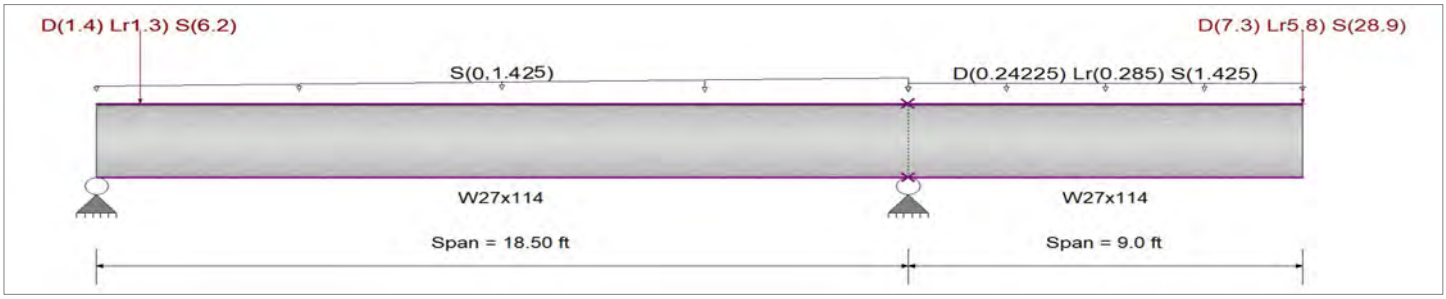
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 0.0->14.250 ft, (ROOF JOISTS)

Point Load : D = 1.40, Lr = 1.30, S = 6.20 k @ 1.0 ft, (RB-8)

Point Load : D = 1.40, Lr = 1.30, S = 6.20 k @ 1.0 ft, (RB-8)

Load for Span Number 2
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 14.250 ft, (ROOF JOISTS)

Point Load : D = 7.30, Lr = 5.80, S = 28.90 k @ 9.0 ft, (RB-3)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.470 : 1	Maximum Shear Stress Ratio =	0.170 : 1
Section used for this span	W27x114	Section used for this span	W27x114
Mu : Applied	604.654 k-ft	Vu : Applied	79.368 k
Mn * Phi : Allowable	1,286.250 k-ft	Vn * Phi : Allowable	466.830 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	18.500 ft	Location of maximum on span	18.500 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.346 in	Ratio =	625 >=360.
Max Upward Transient Deflection	-0.083 in	Ratio =	2,667 >=360.
Max Downward Total Deflection	0.431 in	Ratio =	501 >=240.
Max Upward Total Deflection	-0.103 in	Ratio =	2153 >=240.

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 18.50 ft	1	0.087	0.032	0.08	-112.18	112.18	1,429.17	1,286.25	1.00	1.00	14.71	466.83	466.83
Dsgn. L = 9.00 ft	2	0.087	0.032		-112.18	112.18	1,429.17	1,286.25	1.00	1.00	14.71	466.83	466.83
+1.20D+0.50Lr													
Dsgn. L = 18.50 ft	1	0.100	0.036	0.03	-128.03	128.03	1,429.17	1,286.25	1.00	1.00	16.79	466.83	466.83
Dsgn. L = 9.00 ft	2	0.100	0.036		-128.02	128.02	1,429.17	1,286.25	1.00	1.00	16.79	466.83	466.83
+1.20D+0.50S													
Dsgn. L = 18.50 ft	1	0.198	0.072		-255.06	255.06	1,429.17	1,286.25	1.00	1.00	33.47	466.83	466.83
Dsgn. L = 9.00 ft	2	0.198	0.072		-255.06	255.06	1,429.17	1,286.25	1.00	1.00	33.47	466.83	466.83
+1.20D+1.60Lr													

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

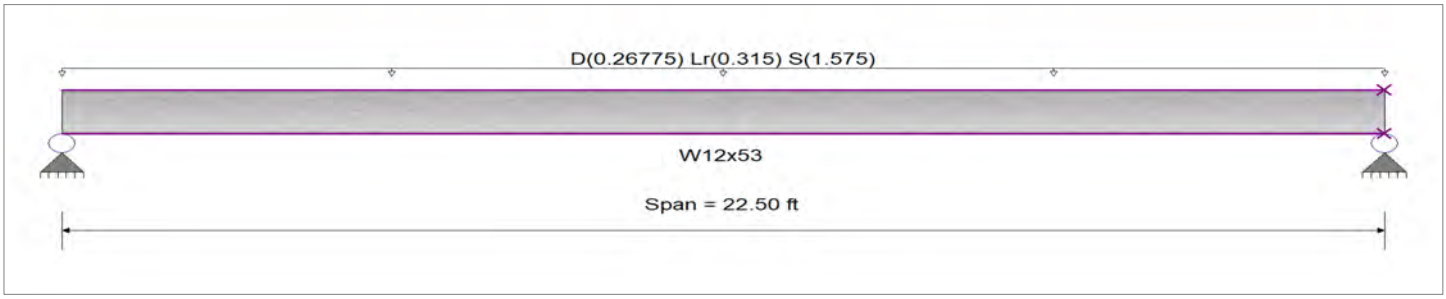
DESCRIPTION: RB-6 (W12x53)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 15.750 ft, (Roof Gravity + Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.629 : 1	Maximum Shear Stress Ratio =	0.261 : 1
Section used for this span	W12x53	Section used for this span	W12x53
Mu : Applied	183.826 k-ft	Vu : Applied	32.680 k
Mn * Phi : Allowable	292.125 k-ft	Vn * Phi : Allowable	125.235 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	11.250 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.740 in	Ratio =	364 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.891 in	Ratio =	303 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 22.50 ft	1	0.097	0.040	28.42		28.42	324.58	292.13	1.00	1.00	5.05	125.24	125.24
+1.20D+0.50Lr													
Dsgn. L = 22.50 ft	1	0.117	0.049	34.32		34.32	324.58	292.13	1.00	1.00	6.10	125.24	125.24
+1.20D+0.50S													
Dsgn. L = 22.50 ft	1	0.254	0.105	74.19		74.19	324.58	292.13	1.00	1.00	13.19	125.24	125.24
+1.20D+1.60Lr													
Dsgn. L = 22.50 ft	1	0.193	0.080	56.25		56.25	324.58	292.13	1.00	1.00	10.00	125.24	125.24
+1.20D+1.60S													
Dsgn. L = 22.50 ft	1	0.629	0.261	183.83		183.83	324.58	292.13	1.00	1.00	32.68	125.24	125.24
+0.90D													
Dsgn. L = 22.50 ft	1	0.063	0.026	18.27		18.27	324.58	292.13	1.00	1.00	3.25	125.24	125.24
+1.20D+0.20S													
Dsgn. L = 22.50 ft	1	0.152	0.063	44.29		44.29	324.58	292.13	1.00	1.00	7.87	125.24	125.24

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.8910	11.314		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	21.327	21.327
Overall MINimum	2.165	2.165

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

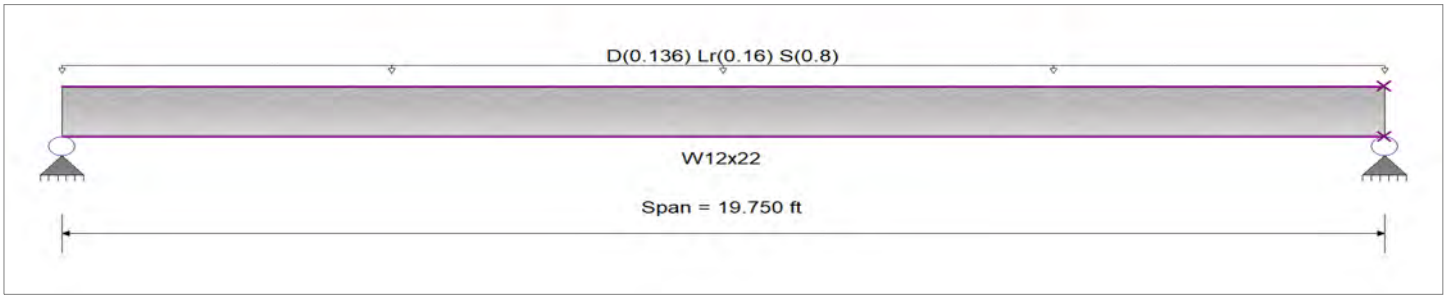
DESCRIPTION: RB-7 (W12x22)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 8.0 ft, (Roof Gravity + Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.652 : 1	Maximum Shear Stress Ratio =	0.151 : 1
Section used for this span	W12x22	Section used for this span	W12x22
Mu : Applied	71.654 k-ft	Vu : Applied	14.512 k
Mn * Phi : Allowable	109.875 k-ft	Vn * Phi : Allowable	95.940 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	9.875 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.608 in	Ratio =	389	>=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0
Max Downward Total Deflection	0.728 in	Ratio =	325	>=240.
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 19.75 ft	1	0.098	0.023	10.79		10.79	122.08	109.88	1.00	1.00	2.18	95.94	95.94
+1.20D+0.50Lr													
Dsgn. L = 19.75 ft	1	0.120	0.028	13.15		13.15	122.08	109.88	1.00	1.00	2.66	95.94	95.94
+1.20D+0.50S													
Dsgn. L = 19.75 ft	1	0.262	0.061	28.75		28.75	122.08	109.88	1.00	1.00	5.82	95.94	95.94
+1.20D+1.60Lr													
Dsgn. L = 19.75 ft	1	0.198	0.046	21.73		21.73	122.08	109.88	1.00	1.00	4.40	95.94	95.94
+1.20D+1.60S													
Dsgn. L = 19.75 ft	1	0.652	0.151	71.65		71.65	122.08	109.88	1.00	1.00	14.51	95.94	95.94
+0.90D													
Dsgn. L = 19.75 ft	1	0.063	0.015	6.93		6.93	122.08	109.88	1.00	1.00	1.40	95.94	95.94
+1.20D+0.20S													
Dsgn. L = 19.75 ft	1	0.155	0.036	17.05		17.05	122.08	109.88	1.00	1.00	3.45	95.94	95.94

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.7282	9.931		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	9.460	9.460
Overall MINimum	0.936	0.936

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

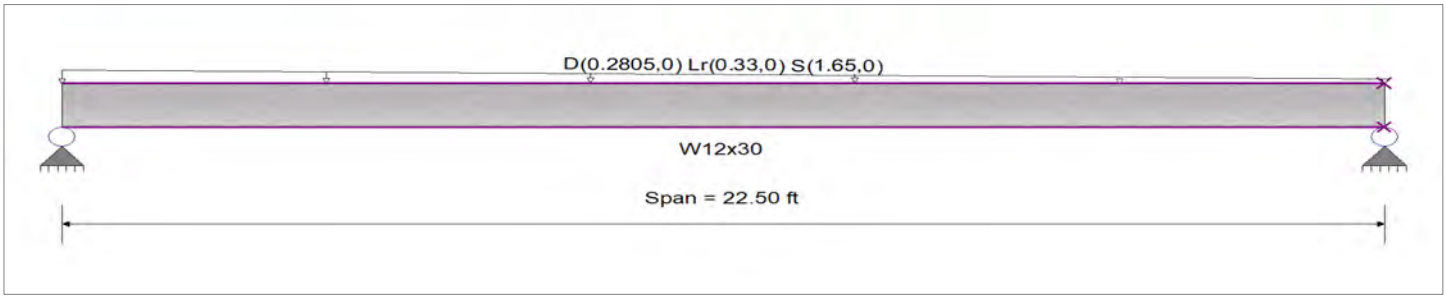
DESCRIPTION: RB-8 (W12x30)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Varying Uniform Load : D= 0.0170->0.0170, Lr= 0.020->0.020, S= 0.10->0.10 ksf, Extent = 0.0 -->> 22.50 ft, Trib Width = 16.50->0.0 ft, (RJ-1/RJ-2 FRAMING)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.612 : 1	Maximum Shear Stress Ratio =	0.237 : 1
Section used for this span	W12x30	Section used for this span	W12x30
Mu : Applied	98.892 k-ft	Vu : Applied	22.730 k
Mn * Phi : Allowable	161.625 k-ft	Vn * Phi : Allowable	95.940 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	9.514 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.693 in	Ratio =	389 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.837 in	Ratio =	323 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 22.50 ft	1	0.095	0.036	15.36		15.36	179.58	161.63	1.00	1.00	3.42	95.94	95.94
+1.20D+0.50Lr													
Dsgn. L = 22.50 ft	1	0.115	0.043	18.52		18.52	179.58	161.63	1.00	1.00	4.17	95.94	95.94
+1.20D+0.50S													
Dsgn. L = 22.50 ft	1	0.247	0.095	39.95		39.95	179.58	161.63	1.00	1.00	9.12	95.94	95.94
+1.20D+1.60Lr													
Dsgn. L = 22.50 ft	1	0.188	0.072	30.31		30.31	179.58	161.63	1.00	1.00	6.89	95.94	95.94
+1.20D+1.60S													
Dsgn. L = 22.50 ft	1	0.612	0.237	98.89		98.89	179.58	161.63	1.00	1.00	22.73	95.94	95.94
+0.90D													
Dsgn. L = 22.50 ft	1	0.061	0.023	9.87		9.87	179.58	161.63	1.00	1.00	2.20	95.94	95.94
+1.20D+0.20S													
Dsgn. L = 22.50 ft	1	0.148	0.056	23.88		23.88	179.58	161.63	1.00	1.00	5.40	95.94	95.94

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.8370	10.864		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	14.816	7.577

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: RB-9 (6x12 No. 1)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

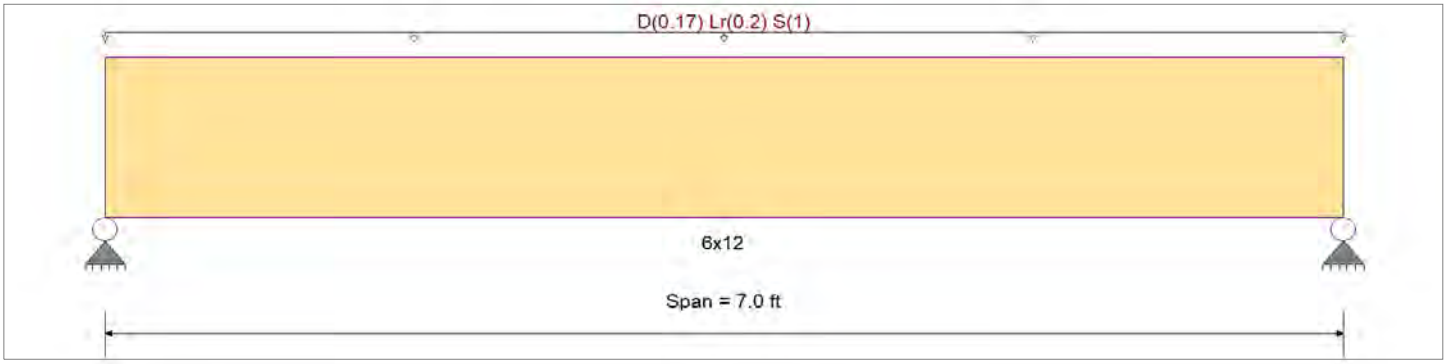
Wood Species : Douglas Fir - Larch (North)
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1,300.0 psi
Fb -	1,300.0 psi
Fc - Prll	925.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	675.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	30.590 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 10.0 ft, (ROOF LOAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.480 : 1	Maximum Shear Stress Ratio	=	0.367 : 1
Section used for this span		6x12	Section used for this span		6x12
fb: Actual	=	717.51 psi	fv: Actual	=	71.70 psi
Fb: Allowable	=	1,495.00 psi	Fv: Allowable	=	195.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	3.500 ft	Location of maximum on span	=	6.055 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.049 in	Ratio =	1724 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.058 in	Ratio =	1456 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
D Only													0.00	0.00	0.00	0.00
Length = 7.0 ft	1	0.095	0.073	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.12	111.22	1170.00	0.47	11.11	153.00
+D+Lr					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 7.0 ft	1	0.143	0.109	1.25	1.000	1.00	1.00	1.00	1.00	1.00	2.35	232.47	1625.00	0.98	23.23	212.50
+D+S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 7.0 ft	1	0.480	0.367	1.15	1.000	1.00	1.00	1.00	1.00	1.00	7.25	717.51	1495.00	3.02	71.70	195.50
+D+0.750Lr					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 7.0 ft	1	0.124	0.095	1.25	1.000	1.00	1.00	1.00	1.00	1.00	2.04	202.16	1625.00	0.85	20.20	212.50
+D+0.750S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 7.0 ft	1	0.379	0.289	1.15	1.000	1.00	1.00	1.00	1.00	1.00	5.72	565.93	1495.00	2.38	56.55	195.50
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 7.0 ft	1	0.032	0.025	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.67	66.73	2080.00	0.28	6.67	272.00

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: OOP Wind Check (GL A -7+8)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

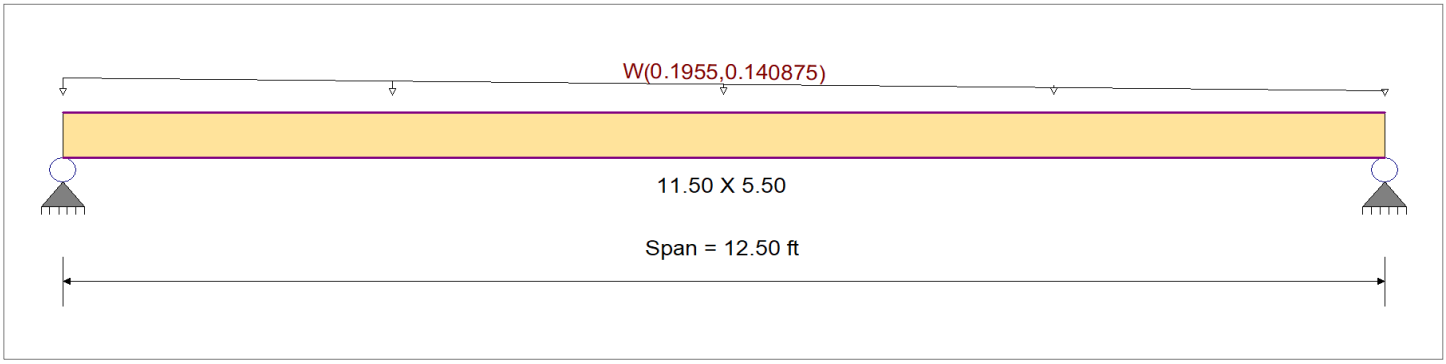
Wood Species : Douglas Fir - Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1,350.0 psi
Fb -	1,350.0 psi
Fc - Prll	925.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	675.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Load for Span Number 1
Uniform Load : W = 0.0230 ksf, Extent = 0.0 -->> 12.50 ft, Tributary Width = 8.50->6.125 ft, (OOP WIND)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.189 : 1	Maximum Shear Stress Ratio	=	0.053 : 1
Section used for this span		11.50 X 5.50	Section used for this span		11.50 X 5.50
fb: Actual	=	408.23 psi	fv: Actual	=	14.50 psi
Fb: Allowable	=	2,160.00 psi	Fv: Allowable	=	272.00 psi
Load Combination		+0.60W	Load Combination		+0.60W
Location of maximum on span	=	6.068 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.364 in	Ratio =	411 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.219 in	Ratio =	686 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
													0.00	0.00	0.00	0.00
Length = 12.50 ft	1			0.90	1.000	1.00	1.00	1.00	1.00	1.00			1215.00	0.00	0.00	153.00
+0.60W					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 12.50 ft	1	0.189	0.053	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.97	408.23	2160.00	0.61	14.50	272.00
+0.450W					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 12.50 ft	1	0.142	0.040	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.48	306.17	2160.00	0.46	10.88	272.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.3643	6.250		0.0000	0.000

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 06/26/23 JOHN LABIB & ASSOCIATES

DESCRIPTION: OOP WIND CHECK (TRANSOM BEAM LINE A 7.5-8)

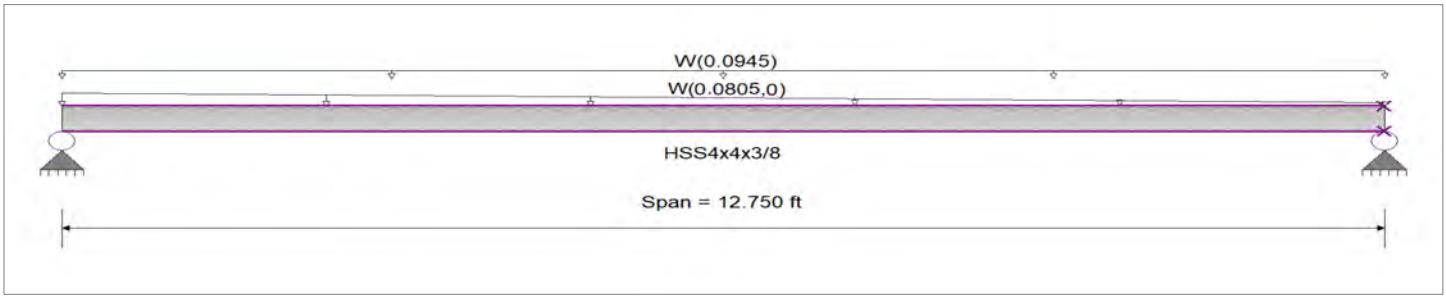
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Varying Uniform Load : W= 0.0230->0.0 ksf, Extent = 0.0 -->> 12.750 ft, Trib Width = 3.50->0.0 ft, (OOP WIND (ABV TRIB))

Uniform Load : W = 0.0180 ksf, Tributary Width = 5.250 ft, (OOP WIND (ABV TRIB))

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.132 : 1	Maximum Shear Stress Ratio =	0.019 : 1
Section used for this span	HSS4x4x3/8	Section used for this span	HSS4x4x3/8
Mu : Applied	3.165 k-ft	Vu : Applied	1.077 k
Mn * Phi : Allowable	23.963 k-ft	Vn * Phi : Allowable	55.652 k
Load Combination	+1.20D+W	Load Combination	+1.20D+W
Location of maximum on span	6.084 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.269 in	Ratio =	567 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.196 in	Ratio =	780 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 12.75 ft	1	0.021	0.003	0.49		0.49	26.63	23.96	1.00	1.00	0.15	61.84	55.65
+1.20D													
Dsgn. L = 12.75 ft	1	0.018	0.002	0.42		0.42	26.63	23.96	1.00	1.00	0.13	61.84	55.65
+1.20D+0.50W													
Dsgn. L = 12.75 ft	1	0.075	0.011	1.79		1.79	26.63	23.96	1.00	1.00	0.60	61.84	55.65
+1.20D+W													
Dsgn. L = 12.75 ft	1	0.132	0.019	3.17		3.17	26.63	23.96	1.00	1.00	1.08	61.84	55.65
+0.90D+W													
Dsgn. L = 12.75 ft	1	0.128	0.019	3.06		3.06	26.63	23.96	1.00	1.00	1.04	61.84	55.65
+0.90D													
Dsgn. L = 12.75 ft	1	0.013	0.002	0.32		0.32	26.63	23.96	1.00	1.00	0.10	61.84	55.65

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.2695	6.302		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.945	0.774

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

06/26/23

DESCRIPTION: FB-1 (W12x30)

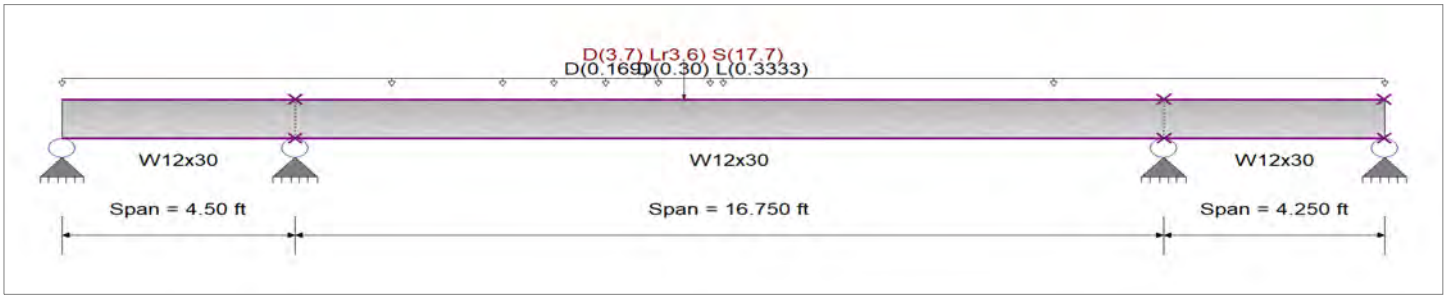
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Loads on all spans...
Uniform Load on ALL spans : D = 0.0360, L = 0.040 ksf, Tributary Width = 8.333 ft

Load(s) for Span Number 2
Point Load : D = 3.70, Lr = 3.60, S = 17.70 k @ 7.50 ft, (RB-6)

Uniform Load : D = 0.0130 ksf, Extent = 4.0 -->> 8.0 ft, Tributary Width = 13.0 ft, (WALL ABV)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.551 : 1	Maximum Shear Stress Ratio =	0.263 : 1
Section used for this span	W12x30	Section used for this span	W12x30
Mu : Applied	89.004 k-ft	Vu : Applied	25.228 k
Mn * Phi : Allowable	161.625 k-ft	Vn * Phi : Allowable	95.940 k
Load Combination	+1.20D+L+1.60S	Load Combination	+1.20D+L+1.60S
Location of maximum on span	7.482 ft	Location of maximum on span	4.500 ft
Span # where maximum occurs	Span # 2	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.154 in	Ratio =	1,301 >=480.
Max Upward Transient Deflection	-0.011 in	Ratio =	4,925 >=480.
Max Downward Total Deflection	0.218 in	Ratio =	923 >=240.
Max Upward Total Deflection	-0.015 in	Ratio =	3500 >=240.

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 4.50 ft	1	0.129	0.078		-20.91	20.91	179.58	161.63	1.00	1.00	7.44	95.94	95.94
Dsgn. L = 16.75 ft	2	0.129	0.078	20.42	-20.91	20.91	179.58	161.63	1.00	1.00	7.44	95.94	95.94
Dsgn. L = 4.25 ft	3	0.118	0.057		-19.13	19.13	179.58	161.63	1.00	1.00	5.48	95.94	95.94
+1.20D+0.50Lr+1.60L													
Dsgn. L = 4.50 ft	1	0.198	0.124		-32.06	32.06	179.58	161.63	1.00	1.00	11.86	95.94	95.94
Dsgn. L = 16.75 ft	2	0.198	0.124	29.43	-32.06	32.06	179.58	161.63	1.00	1.00	11.86	95.94	95.94
Dsgn. L = 4.25 ft	3	0.187	0.095		-30.22	30.22	179.58	161.63	1.00	1.00	9.09	95.94	95.94
+1.20D+1.60L+0.50S													
Dsgn. L = 4.50 ft	1	0.281	0.165		-45.37	45.37	179.58	161.63	1.00	1.00	15.86	95.94	95.94
Dsgn. L = 16.75 ft	2	0.285	0.165	46.03	-45.37	46.03	179.58	161.63	1.00	1.00	15.86	95.94	95.94
Dsgn. L = 4.25 ft	3	0.258	0.123		-41.77	41.77	179.58	161.63	1.00	1.00	11.80	95.94	95.94
+1.20D+1.60Lr+L													
Dsgn. L = 4.50 ft	1	0.220	0.130		-35.51	35.51	179.58	161.63	1.00	1.00	12.43	95.94	95.94
Dsgn. L = 16.75 ft	2	0.222	0.130	35.87	-35.53	35.87	179.58	161.63	1.00	1.00	12.43	95.94	95.94
Dsgn. L = 4.25 ft	3	0.202	0.096		-32.63	32.63	179.58	161.63	1.00	1.00	9.23	95.94	95.94

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

06/26/23

File: 121 Badger Lane - Gravity.ec6

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

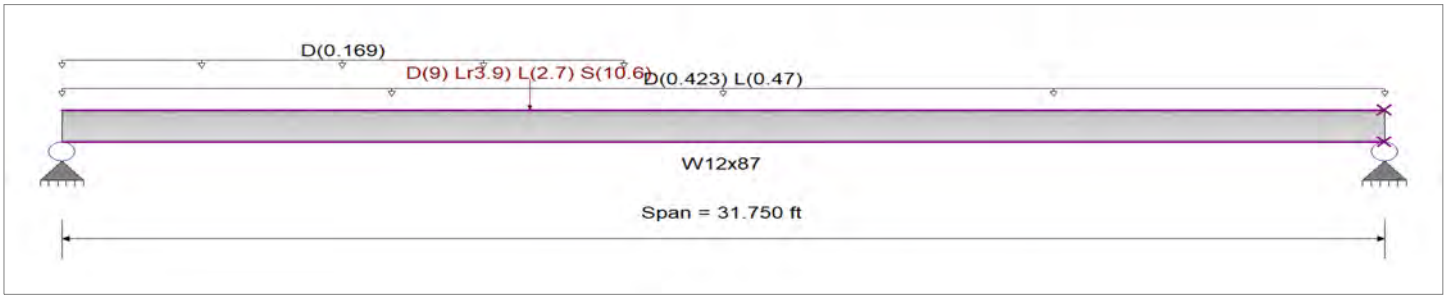
DESCRIPTION: FB-2 (W12x87 W/ CAMBER = 1")

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 11.750 ft, (FLOOR LOAD)

Point Load : D = 9.0, Lr = 3.90, L = 2.70, S = 10.60 k @ 11.250 ft, (FB-5)

Uniform Load : D = 0.0130 ksf, Extent = 0.0 -->> 13.50 ft, Tributary Width = 13.0 ft, (WALL ABV)

CAMBER = 1"
MAX DEFLECTION = 1.9"-1" = .9", DEFLECTION IS OK

DESIGN SUMMARY

Design N.G.

Maximum Bending Stress Ratio =	0.722 : 1	Maximum Shear Stress Ratio =	0.202 : 1
Section used for this span	W12x87	Section used for this span	W12x87
Mu : Applied	357.407 k-ft	Vu : Applied	39.0 k
Mn * Phi : Allowable	495.000 k-ft	Vn * Phi : Allowable	193.125 k
Load Combination	+1.20D+L+1.60S	Load Combination	+1.20D+L+1.60S
Location of maximum on span	11.249 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.632 in	Ratio =	602 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	1.903 in	Ratio =	200 <240.0
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 31.75 ft	1	0.378	0.114	187.16		187.16	550.00	495.00	1.00	1.00	21.99	193.13	193.13
+1.20D+0.50Lr+1.60L													
Dsgn. L = 31.75 ft	1	0.591	0.180	292.70		292.70	550.00	495.00	1.00	1.00	34.83	193.13	193.13
+1.20D+1.60L+0.50S													
Dsgn. L = 31.75 ft	1	0.640	0.192	317.00		317.00	550.00	495.00	1.00	1.00	36.99	193.13	193.13
+1.20D+1.60Lr+L													
Dsgn. L = 31.75 ft	1	0.565	0.166	279.55		279.55	550.00	495.00	1.00	1.00	32.08	193.13	193.13
+1.20D+1.60Lr													
Dsgn. L = 31.75 ft	1	0.416	0.118	205.75		205.75	550.00	495.00	1.00	1.00	22.87	193.13	193.13
+1.20D+L+1.60S													
Dsgn. L = 31.75 ft	1	0.722	0.202	357.41		357.41	550.00	495.00	1.00	1.00	39.00	193.13	193.13
+1.20D+1.60S													
Dsgn. L = 31.75 ft	1	0.573	0.154	283.60		283.60	550.00	495.00	1.00	1.00	29.80	193.13	193.13
+1.20D+0.50Lr+L													
Dsgn. L = 31.75 ft	1	0.502	0.152	248.39		248.39	550.00	495.00	1.00	1.00	29.31	193.13	193.13
+1.20D+L+0.50S													
Dsgn. L = 31.75 ft	1	0.551	0.163	272.72		272.72	550.00	495.00	1.00	1.00	31.47	193.13	193.13

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

06/26/23

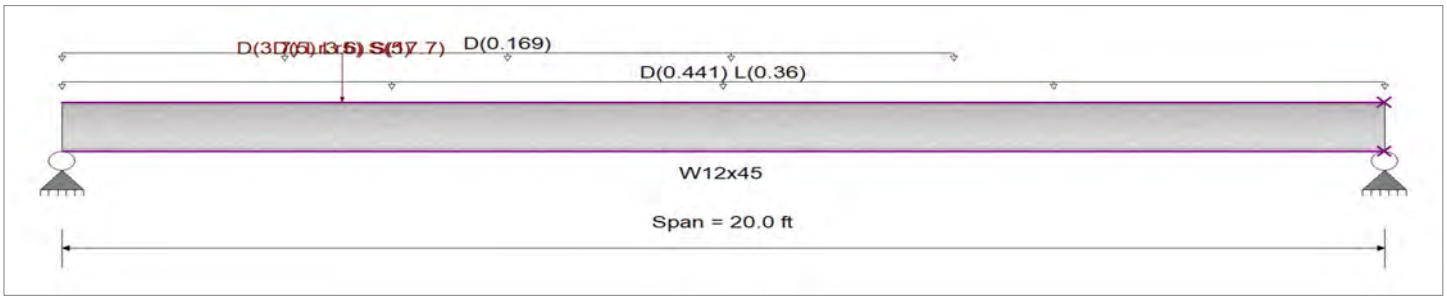
DESCRIPTION: FB-3 (W12x45)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0490, L = 0.040 ksf, Tributary Width = 9.0 ft, (FLOOR LOAD)

Point Load : D = 3.70, Lr = 3.60, S = 17.70 k @ 4.250 ft, (RB-6)

Point Load : D = 5.0, Lr = 5.0, S = 5.0 k @ 4.250 ft, (RB-1)

Uniform Load : D = 0.0130 ksf, Extent = 0.0 -->> 13.50 ft, Tributary Width = 13.0 ft, (WALL ABV)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.805 : 1	Maximum Shear Stress Ratio =	0.395 : 1
Section used for this span	W12x45	Section used for this span	W12x45
Mu : Applied	193.817 k-ft	Vu : Applied	48.069 k
Mn * Phi : Allowable	240.750 k-ft	Vn * Phi : Allowable	121.605 k
Load Combination	+1.20D+L+1.60S	Load Combination	+1.20D+L+1.60S
Location of maximum on span	4.286 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.397 in	Ratio =	603 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.768 in	Ratio =	313 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 20.00 ft	1	0.306	0.152	73.63		73.63	267.50	240.75	1.00	1.00	18.51	121.61	121.61
+1.20D+0.50Lr+1.60L													
Dsgn. L = 20.00 ft	1	0.421	0.206	101.39		101.39	267.50	240.75	1.00	1.00	25.01	121.61	121.61
+1.20D+1.60L+0.50S													
Dsgn. L = 20.00 ft	1	0.502	0.251	120.88		120.88	267.50	240.75	1.00	1.00	30.57	121.61	121.61
+1.20D+1.60Lr+L													
Dsgn. L = 20.00 ft	1	0.495	0.249	119.10		119.10	267.50	240.75	1.00	1.00	30.30	121.61	121.61
+1.20D+1.60Lr													
Dsgn. L = 20.00 ft	1	0.442	0.220	106.36		106.36	267.50	240.75	1.00	1.00	26.70	121.61	121.61
+1.20D+L+1.60S													
Dsgn. L = 20.00 ft	1	0.805	0.395	193.82		193.82	267.50	240.75	1.00	1.00	48.07	121.61	121.61
+1.20D+1.60S													
Dsgn. L = 20.00 ft	1	0.755	0.366	181.69		181.69	267.50	240.75	1.00	1.00	44.47	121.61	121.61
+1.20D+0.50Lr+L													

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: FB-4

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

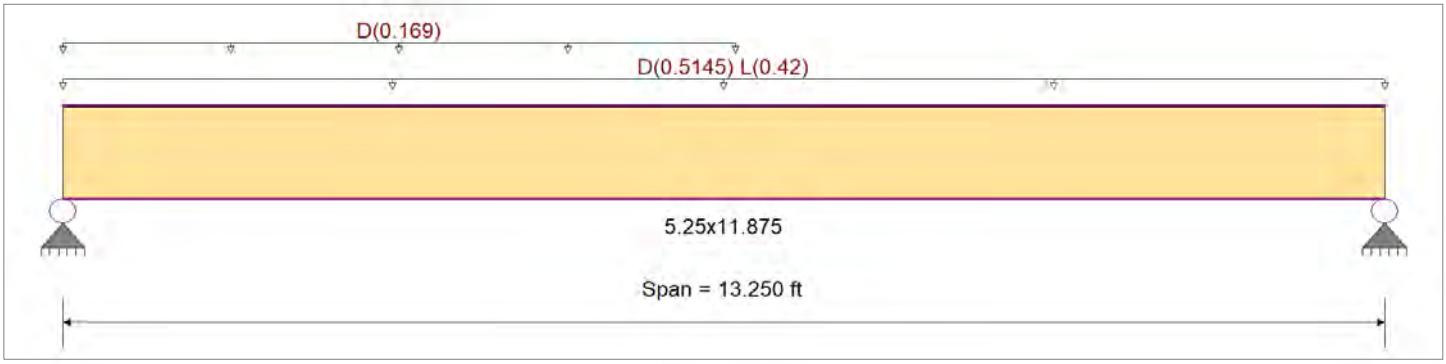
Wood Species : Roseburg
Wood Grade : RigidLam LVL 2.0E

Fb +	3,100.0 psi
Fb -	3,100.0 psi
Fc - Prll	3,000.0 psi
Fc - Perp	750.0 psi
Fv	290.0 psi
Ft	2,100.0 psi

E : Modulus of Elasticity

Ebend- xx	2,000.0 ksi
Eminbend - xx	1,056.96 ksi
Density	41.830 pcf

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.0490, L = 0.040 ksf, Tributary Width = 10.50 ft, (FLOOR LOAD)
Uniform Load : D = 0.0130 ksf, Extent = 0.0 -->> 6.750 ft, Tributary Width = 13.0 ft, (WALL ABV)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.717 : 1	Maximum Shear Stress Ratio	=	0.504 : 1
Section used for this span		5.25x11.875	Section used for this span		5.25x11.875
fb: Actual	=	2,223.35 psi	fv: Actual	=	146.20 psi
Fb: Allowable	=	3,100.00 psi	Fv: Allowable	=	290.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	6.383 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.200 in	Ratio =	795 >=480
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.495 in	Ratio =	321 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.250 ft	1	0.476	0.341	0.90							13.66	1,328.85	2790.00	3.70	89.03	261.00
+D+L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.250 ft	1	0.717	0.504	1.00							22.86	2,223.35	3100.00	6.08	146.20	290.00
+D+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.250 ft	1	0.516	0.364	1.25							20.56	1,999.55	3875.00	5.48	131.91	362.50
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 13.250 ft	1	0.161	0.115	1.60							8.20	797.31	4960.00	2.22	53.42	464.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.4950	6.625		0.0000	0.000

Approved

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

File: 121 Badger Lane - Gravity.ec6

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: FB-3 (W12x50) (ADD SEISMIC LOAD)

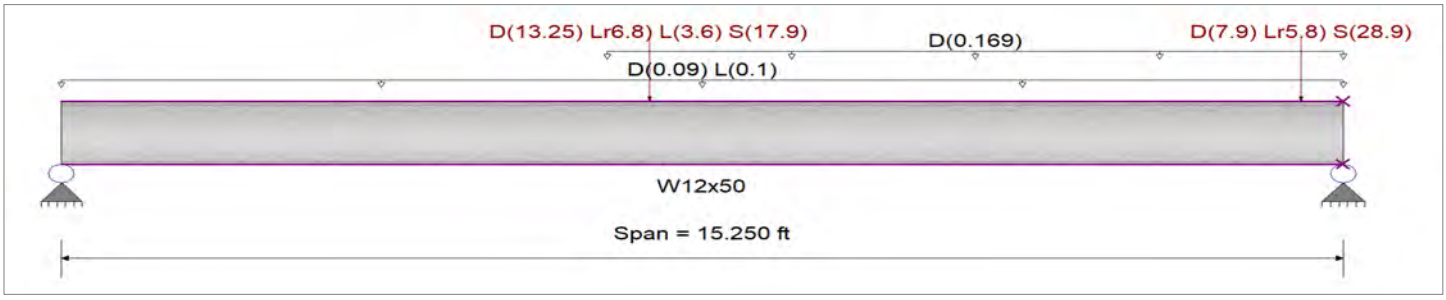
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 2.50 ft, (FLOOR LOAD)

Point Load : D = 13.250, Lr = 6.80, L = 3.60, S = 17.90 k @ 7.0 ft, (FB-3)

Uniform Load : D = 0.0130 ksf, Extent = 6.50 -->> 15.250 ft, Tributary Width = 13.0 ft, (WALL ABV)

Point Load : D = 7.90, Lr = 5.80, S = 28.90 k @ 14.750 ft, (CA)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.764 : 1	Maximum Shear Stress Ratio =	0.586 : 1
Section used for this span	W12x50	Section used for this span	W12x50
Mu : Applied	206.070 k-ft	Vu : Applied	79.299 k
Mn * Phi : Allowable	269.625 k-ft	Vn * Phi : Allowable	135.420 k
Load Combination	+1.20D+L+1.60S	Load Combination	+1.20D+L+1.60S
Location of maximum on span	7.015 ft	Location of maximum on span	15.250 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.233 in	Ratio =	786 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.416 in	Ratio =	440 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 15.21 ft	1	0.306	0.164	82.46		82.46	299.58	269.63	1.00	1.00	22.16	135.42	135.42
Dsgn. L = 0.04 ft	1	0.004	0.164	0.97		0.97	299.58	269.63	1.00	1.00	22.18	135.42	135.42
+1.20D+0.50Lr+1.60L													
Dsgn. L = 15.21 ft	1	0.410	0.201	110.59		110.59	299.58	269.63	1.00	1.00	27.22	135.42	135.42
Dsgn. L = 0.04 ft	1	0.004	0.201	1.19		1.19	299.58	269.63	1.00	1.00	27.24	135.42	135.42
+1.20D+1.60L+0.50S													
Dsgn. L = 15.21 ft	1	0.498	0.302	134.23		134.23	299.58	269.63	1.00	1.00	40.94	135.42	135.42
Dsgn. L = 0.04 ft	1	0.007	0.302	1.78		1.78	299.58	269.63	1.00	1.00	40.96	135.42	135.42
+1.20D+1.60Lr+L													
Dsgn. L = 15.21 ft	1	0.484	0.261	130.44		130.44	299.58	269.63	1.00	1.00	35.38	135.42	135.42
Dsgn. L = 0.04 ft	1	0.006	0.261	1.54		1.54	299.58	269.63	1.00	1.00	35.40	135.42	135.42
+1.20D+1.60Lr													
Dsgn. L = 15.21 ft	1	0.423	0.243	113.94		113.94	299.58	269.63	1.00	1.00	32.97	135.42	135.42
Dsgn. L = 0.04 ft	1	0.005	0.244	1.44		1.44	299.58	269.63	1.00	1.00	32.98	135.42	135.42

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

BLD2303-00021
06/26/23

File: 121 Badger Lane - Gravity.ec6

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

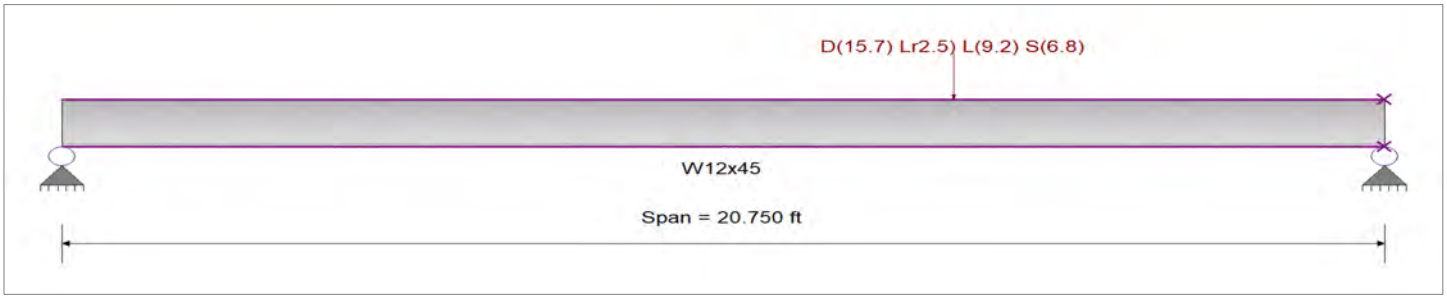
DESCRIPTION: FB-6 (W12x45)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load(s) for Span Number 1
Point Load : D = 15.70, Lr = 2.50, L = 9.20, S = 6.80 k @ 14.0 ft, (FB-2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.746 : 1	Maximum Shear Stress Ratio =	0.221 : 1
Section used for this span	W12x45	Section used for this span	W12x45
Mu : Applied	179.695 k-ft	Vu : Applied	26.820 k
Mn * Phi : Allowable	240.750 k-ft	Vn * Phi : Allowable	121.605 k
Load Combination	+1.20D+L+1.60S	Load Combination	+1.20D+L+1.60S
Location of maximum on span	13.991 ft	Location of maximum on span	20.750 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.249 in	Ratio =	998 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.769 in	Ratio =	324 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 20.75 ft	1	0.428	0.127	103.02		103.02	267.50	240.75	1.00	1.00	15.48	121.61	121.61
+1.20D+0.50Lr+1.60L													
Dsgn. L = 20.75 ft	1	0.669	0.198	160.99		160.99	267.50	240.75	1.00	1.00	24.05	121.61	121.61
+1.20D+1.60L+0.50S													
Dsgn. L = 20.75 ft	1	0.709	0.210	170.77		170.77	267.50	240.75	1.00	1.00	25.50	121.61	121.61
+1.20D+1.60Lr+L													
Dsgn. L = 20.75 ft	1	0.616	0.182	148.38		148.38	267.50	240.75	1.00	1.00	22.18	121.61	121.61
+1.20D+1.60Lr													
Dsgn. L = 20.75 ft	1	0.442	0.131	106.51		106.51	267.50	240.75	1.00	1.00	15.97	121.61	121.61
+1.20D+L+1.60S													
Dsgn. L = 20.75 ft	1	0.746	0.221	179.69		179.69	267.50	240.75	1.00	1.00	26.82	121.61	121.61
+1.20D+1.60S													
Dsgn. L = 20.75 ft	1	0.572	0.170	137.82		137.82	267.50	240.75	1.00	1.00	20.61	121.61	121.61
+1.20D+0.50Lr+L													
Dsgn. L = 20.75 ft	1	0.564	0.167	135.86		135.86	267.50	240.75	1.00	1.00	20.32	121.61	121.61
+1.20D+L+0.50S													
Dsgn. L = 20.75 ft	1	0.605	0.179	145.65		145.65	267.50	240.75	1.00	1.00	21.77	121.61	121.61
+0.90D													
Dsgn. L = 20.75 ft	1	0.275	0.082	66.23		66.23	267.50	240.75	1.00	1.00	9.95	121.61	121.61
+1.20D+L+0.20S													
Dsgn. L = 20.75 ft	1	0.566	0.168	136.37		136.37	267.50	240.75	1.00	1.00	20.40	121.61	121.61

Approved

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Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: FB-7 (W12x30)

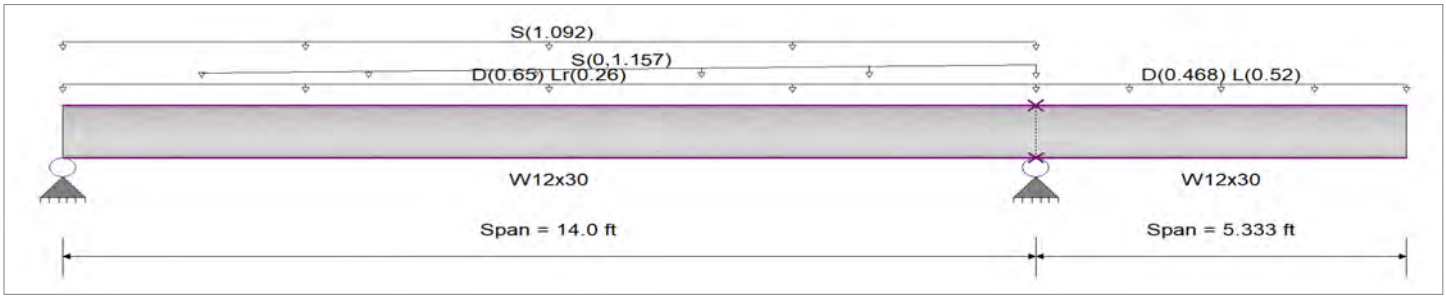
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.050, Lr = 0.020 ksf, Tributary Width = 13.0 ft, (FB-2)

Varying Uniform Load : S= 0.0->0.0890 ksf, Extent = 2.0 -->> 14.0 ft, Trib Width = 13.0 ft, (Snow Drift Load)

Uniform Load : S = 0.0840 ksf, Tributary Width = 13.0 ft, (Balanced Snow Load)

Load for Span Number 2
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 13.0 ft, (FB-2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.480 : 1	Maximum Shear Stress Ratio =	0.282 : 1
Section used for this span	W12x30	Section used for this span	W12x30
Mu : Applied	77.610 k-ft	Vu : Applied	27.011 k
Mn * Phi : Allowable	161.625 k-ft	Vn * Phi : Allowable	95.940 k
Load Combination	+1.20D+L+1.60S+1.60H, LL Comb Run (L*)	Load Combination	+1.20D+L+1.60S+1.60H, LL Comb Run (*L)
Location of maximum on span	7.168 ft	Location of maximum on span	14.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.199 in	Ratio =	845 >=480.
Max Upward Transient Deflection	-0.248 in	Ratio =	517 >=480.
Max Downward Total Deflection	0.263 in	Ratio =	640 >=240.
Max Upward Total Deflection	-0.295 in	Ratio =	434 >=240.

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D+1.60H													
Dsgn. L = 14.00 ft	1	0.115	0.077	18.63	-9.91	18.63	179.58	161.63	1.00	1.00	7.37	95.94	95.94
Dsgn. L = 5.33 ft	2	0.061	0.039		-9.91	9.91	179.58	161.63	1.00	1.00	3.72	95.94	95.94
+1.20D+0.50Lr+1.60L+1.60H, LL Comb													
Dsgn. L = 14.00 ft	1	0.126	0.079	11.12	-20.33	20.33	179.58	161.63	1.00	1.00	7.62	95.94	95.94
Dsgn. L = 5.33 ft	2	0.126	0.079		-20.33	20.33	179.58	161.63	1.00	1.00	7.62	95.94	95.94
+1.20D+0.50Lr+1.60L+1.60H, LL Comb													
Dsgn. L = 14.00 ft	1	0.118	0.075	19.12	-8.50	19.12	179.58	161.63	1.00	1.00	7.23	95.94	95.94
Dsgn. L = 5.33 ft	2	0.053	0.033		-8.50	8.50	179.58	161.63	1.00	1.00	3.19	95.94	95.94
+1.20D+0.50Lr+1.60L+1.60H, LL Comb													
Dsgn. L = 14.00 ft	1	0.126	0.084	14.13	-20.33	20.33	179.58	161.63	1.00	1.00	8.07	95.94	95.94
Dsgn. L = 5.33 ft	2	0.126	0.079		-20.33	20.33	179.58	161.63	1.00	1.00	7.62	95.94	95.94
+1.20D+1.60L+0.50S+1.60H, LL Comb F													

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

File: 121 Badger Lane - Gravity.ec6

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: FB-8 (W12x26)

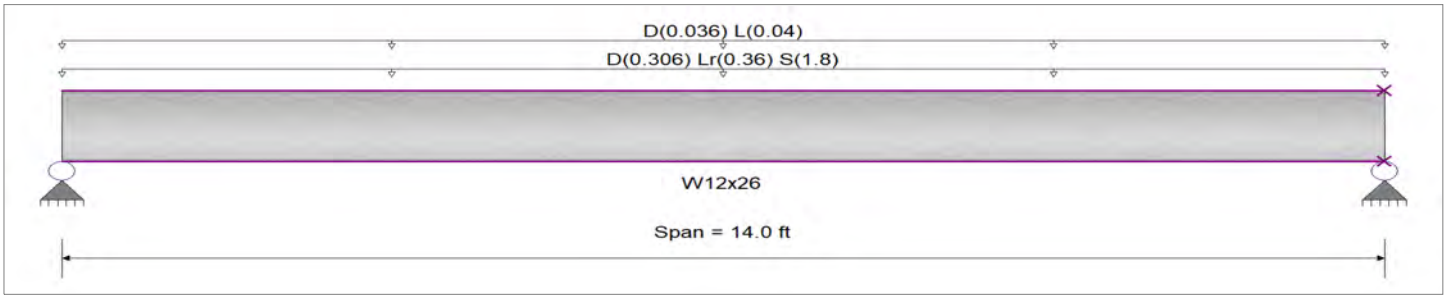
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 18.0 ft, (wall abv (ADD SEISMIC))

Uniform Load : D = 0.0360, L = 0.040 k/ft, Tributary Width = 1.0 ft, (FLOOR LOAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.590 : 1	Maximum Shear Stress Ratio =	0.280 : 1
Section used for this span	W12x26	Section used for this span	W12x26
Mu : Applied	82.359 k-ft	Vu : Applied	23.531 k
Mn * Phi : Allowable	139.500 k-ft	Vn * Phi : Allowable	84.180 k
Load Combination	+1.20D+L+1.60S+1.60H	Load Combination	+1.20D+L+1.60S+1.60H
Location of maximum on span	7.000 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.264 in	Ratio =	635 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.318 in	Ratio =	528 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D+1.60H													
Dsgn. L = 14.00 ft	1	0.090	0.043	12.62		12.62	155.00	139.50	1.00	1.00	3.61	84.18	84.18
+1.20D+0.50Lr+1.60L+1.60H													
Dsgn. L = 14.00 ft	1	0.120	0.057	16.80		16.80	155.00	139.50	1.00	1.00	4.80	84.18	84.18
+1.20D+1.60L+0.50S+1.60H													
Dsgn. L = 14.00 ft	1	0.247	0.117	34.44		34.44	155.00	139.50	1.00	1.00	9.84	84.18	84.18
+1.20D+1.60Lr+L+1.60H													
Dsgn. L = 14.00 ft	1	0.186	0.088	25.91		25.91	155.00	139.50	1.00	1.00	7.40	84.18	84.18
+1.20D+1.60Lr+0.50W+1.60H													
Dsgn. L = 14.00 ft	1	0.179	0.085	24.93		24.93	155.00	139.50	1.00	1.00	7.12	84.18	84.18
+1.20D+L+1.60S+1.60H													
Dsgn. L = 14.00 ft	1	0.590	0.280	82.36		82.36	155.00	139.50	1.00	1.00	23.53	84.18	84.18
+1.20D+1.60S+0.50W+1.60H													
Dsgn. L = 14.00 ft	1	0.583	0.276	81.38		81.38	155.00	139.50	1.00	1.00	23.25	84.18	84.18
+1.20D+0.50Lr+L+W+1.60H													
Dsgn. L = 14.00 ft	1	0.116	0.055	16.21		16.21	155.00	139.50	1.00	1.00	4.63	84.18	84.18
+1.20D+L+0.50S+W+1.60H													
Dsgn. L = 14.00 ft	1	0.243	0.115	33.85		33.85	155.00	139.50	1.00	1.00	9.67	84.18	84.18
+0.90D+W+1.60H													
Dsgn. L = 14.00 ft	1	0.058	0.028	8.11	40	8.11	155.00	139.50	1.00	1.00	2.32	84.18	84.18
+1.20D+L+0.20S+E+1.60H													

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

06/26/23

DESCRIPTION: FB-9 (W12x96)

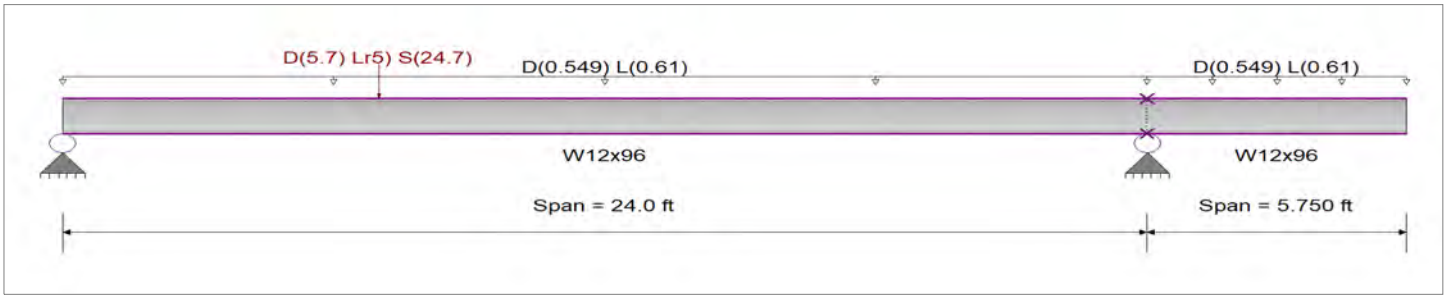
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 15.250 ft, (FB-2)

Point Load : D = 5.70, Lr = 5.0, S = 24.70 k @ 7.0 ft, (CA)

Load for Span Number 2
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 15.250 ft, (FB-2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.560 : 1	Maximum Shear Stress Ratio =	0.233 : 1
Section used for this span	W12x96	Section used for this span	W12x96
Mu : Applied	308.427 k-ft	Vu : Applied	48.913 k
Mn * Phi : Allowable	551.250 k-ft	Vn * Phi : Allowable	209.550 k
Load Combination	+1.20D+L+1.60S+1.60H, LL Comb Run (L*)	Load Combination	+1.20D+L+1.60S+1.60H, LL Comb Run (L*)
Location of maximum on span	7.008 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.403 in	Ratio =	714 >=480.
Max Upward Transient Deflection	-0.260 in	Ratio =	530 >=480.
Max Downward Total Deflection	0.709 in	Ratio =	406 >=240.
Max Upward Total Deflection	-0.475 in	Ratio =	290 >=240.

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D+1.60H													
Dsgn. L = 24.00 ft	1	0.164	0.076	90.30	-14.93	90.30	612.50	551.25	1.00	1.00	15.87	209.55	209.55
Dsgn. L = 5.75 ft	2	0.027	0.025		-14.93	14.93	612.50	551.25	1.00	1.00	5.19	209.55	209.55
+1.20D+0.50Lr+1.60L+1.60H, LL Comb													
Dsgn. L = 24.00 ft	1	0.130	0.062	71.82	-28.93	71.82	612.50	551.25	1.00	1.00	12.93	209.55	209.55
Dsgn. L = 5.75 ft	2	0.052	0.048		-28.93	28.93	612.50	551.25	1.00	1.00	10.06	209.55	209.55
+1.20D+0.50Lr+1.60L+1.60H, LL Comb													
Dsgn. L = 24.00 ft	1	0.282	0.129	155.32	-12.80	155.32	612.50	551.25	1.00	1.00	27.08	209.55	209.55
Dsgn. L = 5.75 ft	2	0.023	0.021		-12.80	12.80	612.50	551.25	1.00	1.00	4.45	209.55	209.55
+1.20D+0.50Lr+1.60L+1.60H, LL Comb													
Dsgn. L = 24.00 ft	1	0.270	0.126	148.64	-28.93	148.64	612.50	551.25	1.00	1.00	26.41	209.55	209.55
Dsgn. L = 5.75 ft	2	0.052	0.048		-28.93	28.93	612.50	551.25	1.00	1.00	10.06	209.55	209.55
+1.20D+1.60L+0.50S+1.60H, LL Comb F													
Dsgn. L = 24.00 ft	1	0.241	0.103	132.74	-28.93	132.74	612.50	551.25	1.00	1.00	21.68	209.55	209.55
Dsgn. L = 5.75 ft	2	0.052	0.048		-28.93	28.93	612.50	551.25	1.00	1.00	10.06	209.55	209.55
+1.20D+1.60L+0.50S+1.60H, LL Comb F													

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 06/26/23 JOHN LABIB & ASSOCIATES

DESCRIPTION: FB-10 (W12x35)

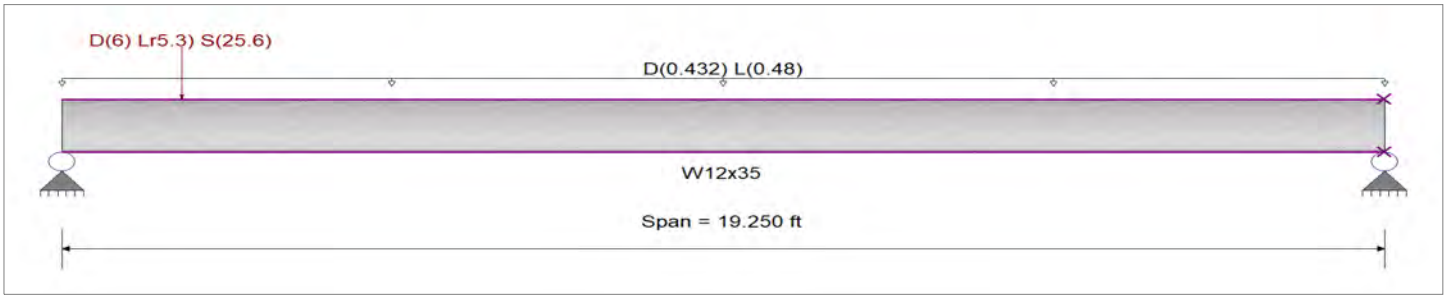
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Load Resistance Factor Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 12.0 ft, (FLOOR LOAD)

Point Load : D = 6.0, Lr = 5.30, S = 25.60 k @ 1.750 ft, (RB-1)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.518** : 1	Maximum Shear Stress Ratio =	**0.478** : 1
Section used for this span	**W12x35**	Section used for this span	**W12x35**
Mu : Applied	99.543 k-ft	Vu : Applied	53.796 k
Mn * Phi : Allowable	192.000 k-ft	Vn * Phi : Allowable	112.50 k
Load Combination	+1.20D+L+1.60S	Load Combination	+1.20D+L+1.60S
Location of maximum on span	5.390 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.221 in	Ratio =	1,043 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.525 in	Ratio =	440 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 19.25 ft	1	0.198	0.124	38.08		38.08	213.33	192.00	1.00	1.00	13.93	112.50	112.50
+1.20D+0.50Lr+1.60L													
Dsgn. L = 19.25 ft	1	0.367	0.193	70.45		70.45	213.33	192.00	1.00	1.00	21.74	112.50	112.50
+1.20D+1.60L+0.50S													
Dsgn. L = 19.25 ft	1	0.418	0.275	80.28		80.28	213.33	192.00	1.00	1.00	30.97	112.50	112.50
+1.20D+1.60Lr+L													
Dsgn. L = 19.25 ft	1	0.328	0.216	62.89		62.89	213.33	192.00	1.00	1.00	24.27	112.50	112.50
+1.20D+1.60Lr													
Dsgn. L = 19.25 ft	1	0.216	0.175	41.49		41.49	213.33	192.00	1.00	1.00	19.65	112.50	112.50
+1.20D+L+1.60S													
Dsgn. L = 19.25 ft	1	0.518	0.478	99.54		99.54	213.33	192.00	1.00	1.00	53.80	112.50	112.50
+1.20D+1.60S													
Dsgn. L = 19.25 ft	1	0.444	0.437	85.20		85.20	213.33	192.00	1.00	1.00	49.18	112.50	112.50
+1.20D+0.50Lr+L													
Dsgn. L = 19.25 ft	1	0.298	0.169	57.20		57.20	213.33	192.00	1.00	1.00	18.97	112.50	112.50
+1.20D+L+0.50S													
Dsgn. L = 19.25 ft	1	0.350	0.251	67.28		67.28	213.33	192.00	1.00	1.00	28.20	112.50	112.50
+0.90D													
Dsgn. L = 19.25 ft	1	0.128	0.080	24.48	42	24.48	213.33	192.00	1.00	1.00	8.95	112.50	112.50
+1.20D+L+0.20S													

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

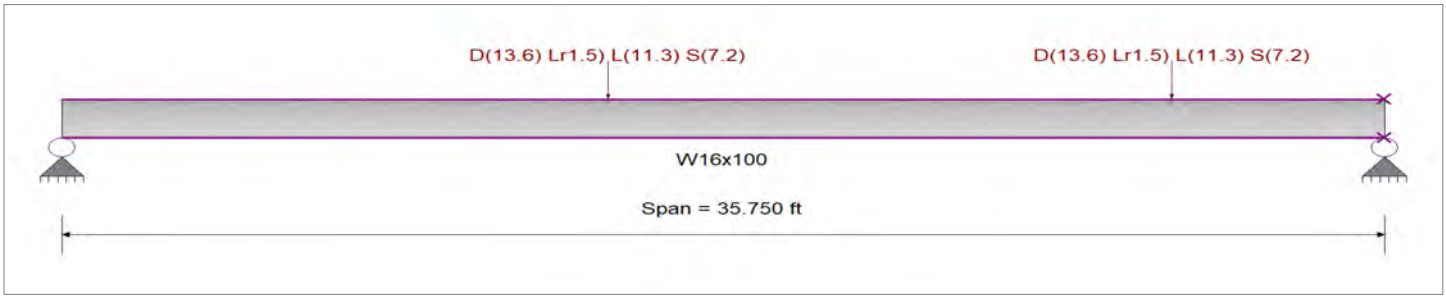
DESCRIPTION: FB-11 (W16x100 W/ C=3/4")

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load(s) for Span Number 1
Point Load : D = 13.60, Lr = 1.50, L = 11.30, S = 7.20 k @ 14.750 ft, (FB-9)

Point Load : D = 13.60, Lr = 1.50, L = 11.30, S = 7.20 k @ 30.0 ft, (FB-9)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.606 : 1	Maximum Shear Stress Ratio =	0.171 : 1
Section used for this span	W16x100	Section used for this span	W16x100
Mu : Applied	449.986 k-ft	Vu : Applied	51.138 k
Mn * Phi : Allowable	742.500 k-ft	Vn * Phi : Allowable	298.350 k
Load Combination	+1.20D+L+1.60S	Load Combination	+1.20D+L+1.60S
Location of maximum on span	14.811 ft	Location of maximum on span	35.750 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.615 in	Ratio =	697 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	1.580 in	Ratio =	272 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 35.75 ft	1	0.312	0.088	231.56		231.56	825.00	742.50	1.00	1.00	26.34	298.35	298.35
+1.20D+0.50Lr+1.60L													
Dsgn. L = 35.75 ft	1	0.547	0.155	406.01		406.01	825.00	742.50	1.00	1.00	46.14	298.35	298.35
+1.20D+1.60L+0.50S													
Dsgn. L = 35.75 ft	1	0.589	0.167	437.42		437.42	825.00	742.50	1.00	1.00	49.71	298.35	298.35
+1.20D+1.60Lr+L													
Dsgn. L = 35.75 ft	1	0.471	0.133	349.47		349.47	825.00	742.50	1.00	1.00	39.72	298.35	298.35
+1.20D+1.60Lr													
Dsgn. L = 35.75 ft	1	0.303	0.086	224.93		224.93	825.00	742.50	1.00	1.00	25.58	298.35	298.35
+1.20D+L+1.60S													
Dsgn. L = 35.75 ft	1	0.606	0.171	449.99		449.99	825.00	742.50	1.00	1.00	51.14	298.35	298.35
+1.20D+1.60S													
Dsgn. L = 35.75 ft	1	0.438	0.124	325.44		325.44	825.00	742.50	1.00	1.00	36.99	298.35	298.35
+1.20D+0.50Lr+L													
Dsgn. L = 35.75 ft	1	0.446	0.126	331.29		331.29	825.00	742.50	1.00	1.00	37.66	298.35	298.35
+1.20D+L+0.50S													
Dsgn. L = 35.75 ft	1	0.488	0.138	362.70		362.70	825.00	742.50	1.00	1.00	41.22	298.35	298.35
+0.90D													
Dsgn. L = 35.75 ft	1	0.200	0.057	148.86		148.86	825.00	742.50	1.00	1.00	16.93	298.35	298.35

Project Title:
Engineer:
Project ID:
Project Descr:

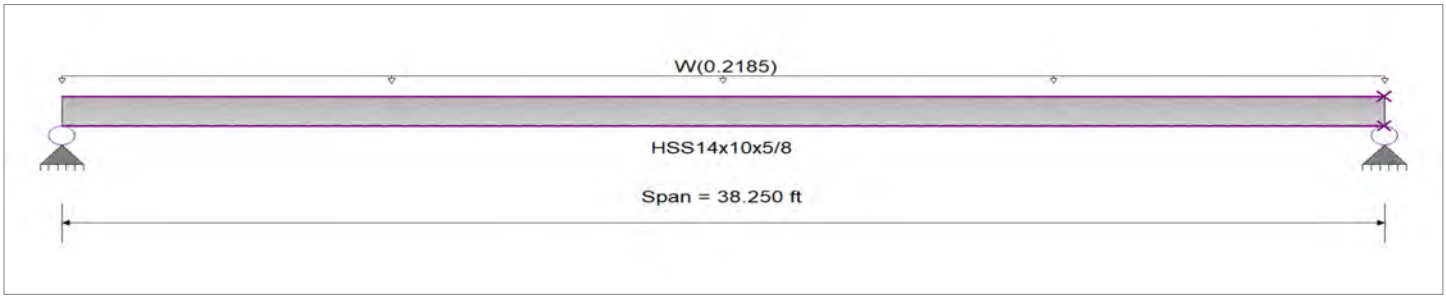
DESCRIPTION: FB-12 (HSS14x10x5/8) - OOP WIND

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Minor Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight NOT internally calculated and added
Uniform Load : W = 0.0230 ksf, Tributary Width = 9.50 ft, (FB-9)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.112 : 1	Maximum Shear Stress Ratio =	0.016 : 1
Section used for this span	HSS14x10x5/8	Section used for this span	HSS14x10x5/8
Mu : Applied	39.960 k-ft	Vu : Applied	4.179 k
Mn * Phi : Allowable	356.625 k-ft	Vn * Phi : Allowable	259.055 k
Load Combination	W Only	Load Combination	W Only
Location of maximum on span	19.125 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.895 in	Ratio =	512 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.537 in	Ratio =	854 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mny	Phi*Mny	Cb	Rm	Summary of Shear Values VuMax	Vny	Phi*Vny
Dsgn. L = 38.25 ft +0.50W	1		0.000				396.25	356.63	1.00	1.00	-0.00	287.84	259.06
Dsgn. L = 38.25 ft W Only	1	0.056	0.008	19.98		19.98	396.25	356.63	1.00	1.00	2.09	287.84	259.06
Dsgn. L = 38.25 ft	1	0.112	0.016	39.96		39.96	396.25	356.63	1.00	1.00	4.18	287.84	259.06

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.8957	19.234		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	4.179	4.179
Overall MINimum	1.880	1.880
+0.60W	2.507	2.507
+0.450W	1.880	1.880
W Only	4.179	4.179

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: FB-13 (3812)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

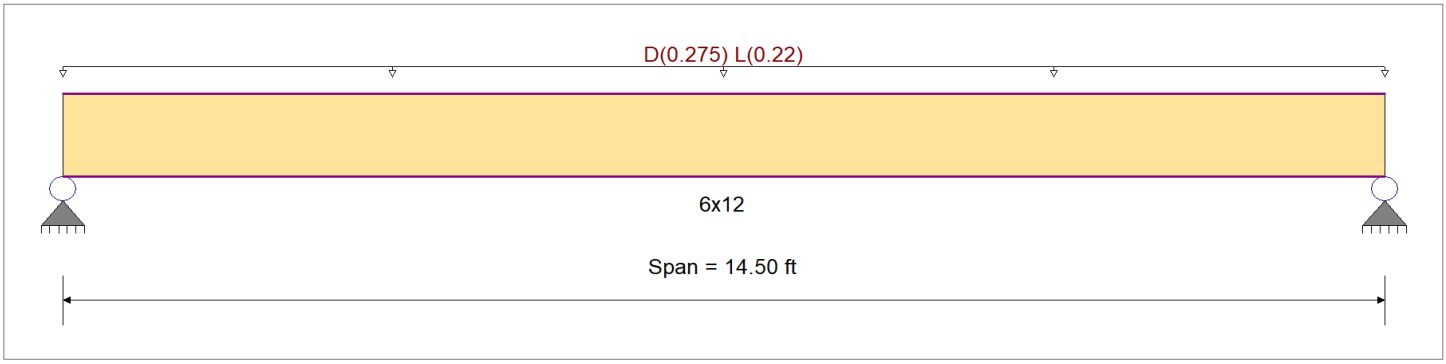
Wood Species : Douglas Fir - Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1350 psi
Fb -	1350 psi
Fc - Prll	925 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	675 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.050, L = 0.040 ksf, Tributary Width = 5.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.954 : 1	Maximum Shear Stress Ratio	=	0.435 : 1
Section used for this span		6x12	Section used for this span		6x12
fb: Actual	=	1,287.73 psi	fv: Actual	=	73.93 psi
Fb: Allowable	=	1,350.00 psi	Fv: Allowable	=	170.00 psi
Load Combination		+D+L	Load Combination		+D+L
Location of maximum on span	=	7.250 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.197 in	Ratio =	881 >=480
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480
Max Downward Total Deflection	0.444 in	Ratio =	391 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
D Only													0.00	0.00	0.00	0.00
Length = 14.50 ft	1	0.589	0.268	0.90	1.000	1.00	1.00	1.00	1.00	1.00	7.23	715.41	1215.00	1.73	41.07	153.00
+D+L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.50 ft	1	0.954	0.435	1.00	1.000	1.00	1.00	1.00	1.00	1.00	13.01	1,287.73	1350.00	3.12	73.93	170.00
+D+0.750L					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.50 ft	1	0.678	0.309	1.25	1.000	1.00	1.00	1.00	1.00	1.00	11.56	1,144.65	1687.50	2.77	65.71	212.50
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 14.50 ft	1	0.199	0.091	1.60	1.000	1.00	1.00	1.00	1.00	1.00	4.34	429.24	2160.00	1.04	24.64	272.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.4440	7.303		0.0000	0.000

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

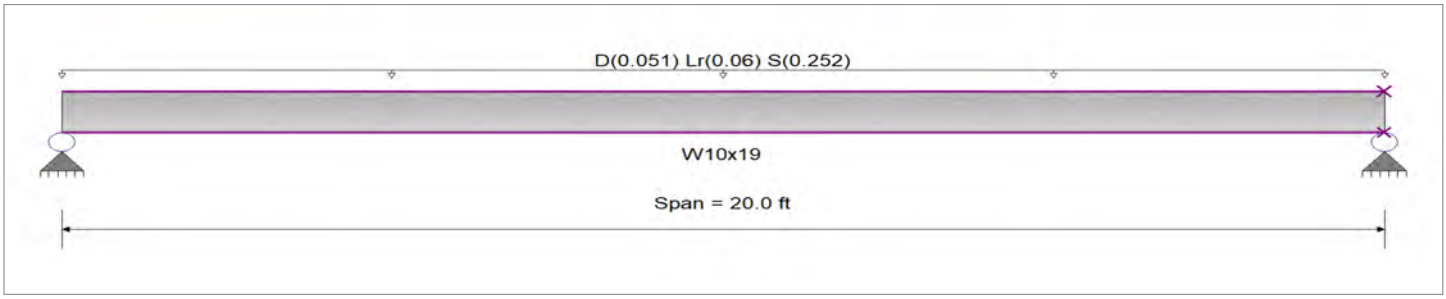
DESCRIPTION: FB-14 (W10x19)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.0840 ksf, Tributary Width = 3.0 ft, (FLOOR LOAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.301 : 1	Maximum Shear Stress Ratio =	0.064 : 1
Section used for this span	W10x19	Section used for this span	W10x19
Mu : Applied	24.360 k-ft	Vu : Applied	4.872 k
Mn * Phi : Allowable	81.000 k-ft	Vn * Phi : Allowable	76.50 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	10.000 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.326 in	Ratio =	735 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.417 in	Ratio =	576 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 20.00 ft	1	0.060	0.013	4.90		4.90	90.00	81.00	1.00	1.00	0.98	76.50	76.50
+1.20D+0.50Lr													
Dsgn. L = 20.00 ft	1	0.070	0.015	5.70		5.70	90.00	81.00	1.00	1.00	1.14	76.50	76.50
+1.20D+0.50S													
Dsgn. L = 20.00 ft	1	0.130	0.027	10.50		10.50	90.00	81.00	1.00	1.00	2.10	76.50	76.50
+1.20D+1.60Lr													
Dsgn. L = 20.00 ft	1	0.111	0.024	9.00		9.00	90.00	81.00	1.00	1.00	1.80	76.50	76.50
+1.20D+1.60S													
Dsgn. L = 20.00 ft	1	0.301	0.064	24.36		24.36	90.00	81.00	1.00	1.00	4.87	76.50	76.50
+0.90D													
Dsgn. L = 20.00 ft	1	0.039	0.008	3.15		3.15	90.00	81.00	1.00	1.00	0.63	76.50	76.50
+1.20D+0.20S													
Dsgn. L = 20.00 ft	1	0.083	0.018	6.72		6.72	90.00	81.00	1.00	1.00	1.34	76.50	76.50

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.4170	10.057		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	3.220	3.220
Overall MINimum	0.420	0.420

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: FB-13 (3810)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

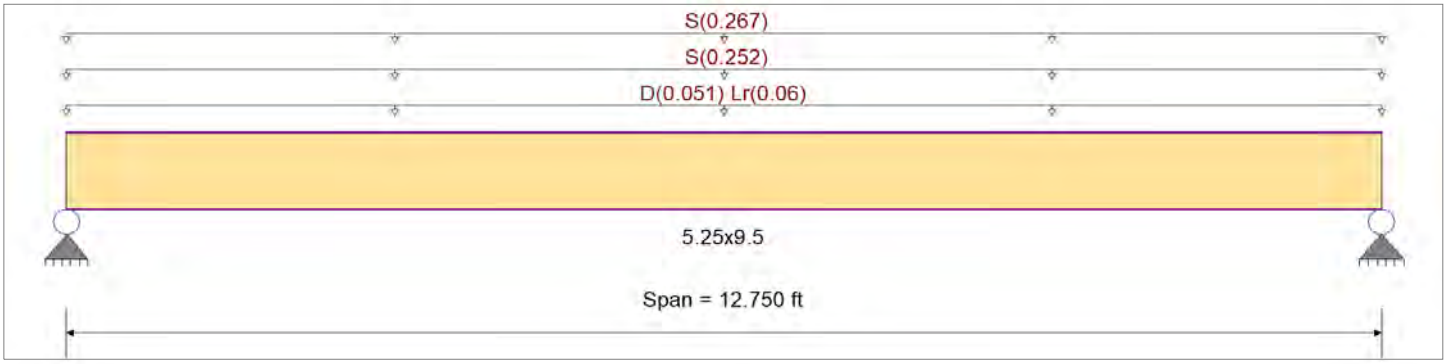
Wood Species : Roseburg
Wood Grade : RigidLam LVL 2.0E

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	3100 psi
Fb -	3100 psi
Fc - Prll	3000 psi
Fc - Perp	750 psi
Fv	290 psi
Ft	2100 psi

E : Modulus of Elasticity

Ebend- xx	2000 ksi
Eminbend - xx	1056.958 ksi
Density	41.83 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Uniform Load : D = 0.0170, Lr = 0.020 ksf, Tributary Width = 3.0 ft, (ROOF LOAD)
Uniform Load : S = 0.0840 ksf, Tributary Width = 3.0 ft, (SNOW LOAD)
Uniform Load : S = 0.0890 ksf, Tributary Width = 3.0 ft, (DRIFT SNOW LOAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.506 : 1	Maximum Shear Stress Ratio	=	0.294 : 1
Section used for this span		5.25x9.5	Section used for this span		5.25x9.5
fb: Actual	=	1,804.81 psi	fv: Actual	=	98.16 psi
Fb: Allowable	=	3,565.00 psi	Fv: Allowable	=	333.50 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	6.375 ft	Location of maximum on span	=	11.959 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.414 in	Ratio =	369 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.466 in	Ratio =	328 >=240
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 12.750 ft	1	0.072	0.042	0.90	1.000	1.00	1.00	1.00	1.00	1.00	1.33	202.22	2790.00	0.37	11.00	261.00
+D+Lr					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 12.750 ft	1	0.100	0.058	1.25	1.000	1.00	1.00	1.00	1.00	1.00	2.55	387.49	3875.00	0.70	21.07	362.50
+D+S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 12.750 ft	1	0.506	0.294	1.15	1.000	1.00	1.00	1.00	1.00	1.00	11.88	1,804.81	3565.00	3.26	98.16	333.50
+D+0.750Lr					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 12.750 ft	1	0.088	0.051	1.25	1.000	1.00	1.00	1.00	1.00	1.00	2.25	341.17	3875.00	0.62	18.56	362.50
+D+0.750S					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 12.750 ft	1	0.394	0.229	1.15	1.000	1.00	1.00	1.00	1.00	1.00	9.24	1,404.16	3565.00	2.54	76.37	333.50
+0.60D					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

06/26/23

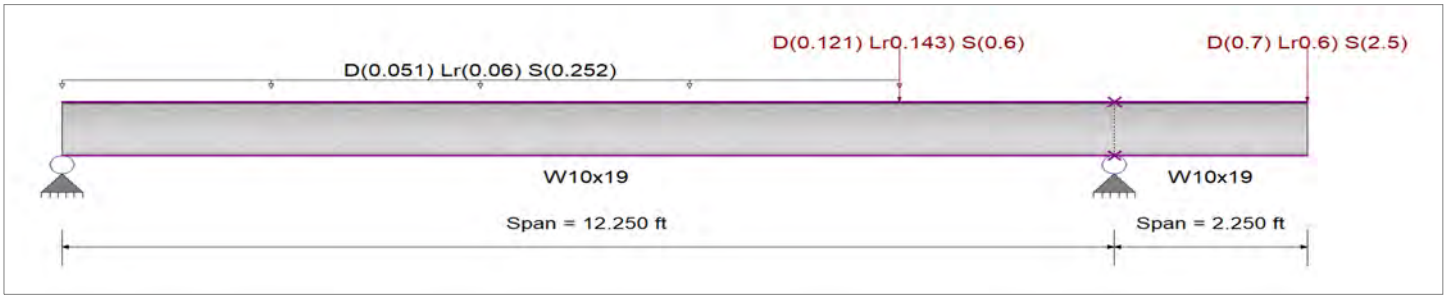
DESCRIPTION: FB-16 (W10x19)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.0840 ksf, Extent = 0.0 -->> 9.750 ft, Tributary Width = 3.0 ft, (FLOOR LOAD)

Point Load : D = 0.1210, Lr = 0.1430, S = 0.60 k @ 9.750 ft, (4x12 @ END)

Load(s) for Span Number 2
Point Load : D = 0.70, Lr = 0.60, S = 2.50 k @ 2.250 ft, (FB-14)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.135 : 1	Maximum Shear Stress Ratio =	0.064 : 1
Section used for this span	W10x19	Section used for this span	W10x19
Mu : Applied	10.948 k-ft	Vu : Applied	4.891 k
Mn * Phi : Allowable	81.000 k-ft	Vn * Phi : Allowable	76.50 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	12.250 ft	Location of maximum on span	12.250 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.008 in	Ratio =	6,370	>=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360.0
Max Downward Total Deflection	0.011 in	Ratio =	4730	>=240.
Max Upward Total Deflection	-0.000 in	Ratio =	356093	>=240.

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 12.25 ft	1	0.028	0.014	0.95	-2.27	2.27	90.00	81.00	1.00	1.00	1.04	76.50	76.50
Dsgn. L = 2.25 ft	2	0.028	0.014		-2.27	2.27	90.00	81.00	1.00	1.00	1.04	76.50	76.50
+1.20D+0.50Lr													
Dsgn. L = 12.25 ft	1	0.032	0.016	1.12	-2.62	2.62	90.00	81.00	1.00	1.00	1.19	76.50	76.50
Dsgn. L = 2.25 ft	2	0.032	0.016		-2.62	2.62	90.00	81.00	1.00	1.00	1.19	76.50	76.50
+1.20D+0.50S													
Dsgn. L = 12.25 ft	1	0.059	0.028	2.11	-4.76	4.76	90.00	81.00	1.00	1.00	2.14	76.50	76.50
Dsgn. L = 2.25 ft	2	0.059	0.028		-4.76	4.76	90.00	81.00	1.00	1.00	2.14	76.50	76.50
+1.20D+1.60Lr													
Dsgn. L = 12.25 ft	1	0.051	0.024	1.79	-4.11	4.11	90.00	81.00	1.00	1.00	1.85	76.50	76.50
Dsgn. L = 2.25 ft	2	0.051	0.024		-4.11	4.11	90.00	81.00	1.00	1.00	1.85	76.50	76.50
+1.20D+1.60S													
Dsgn. L = 12.25 ft	1	0.135	0.064	4.96	-10.95	10.95	90.00	81.00	1.00	1.00	4.89	76.50	76.50
Dsgn. L = 2.25 ft	2	0.135	0.064		-10.95	10.95	90.00	81.00	1.00	1.00	4.89	76.50	76.50
+0.90D													

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

06/26/23

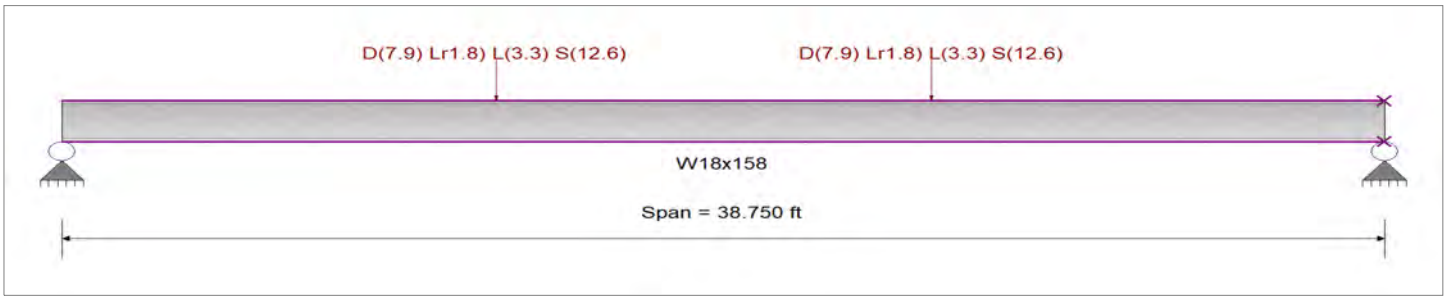
DESCRIPTION: FB-7 (W18x158)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load(s) for Span Number 1
Point Load : D = 7.90, Lr = 1.80, L = 3.30, S = 12.60 k @ 12.750 ft, (FB-7)

Point Load : D = 7.90, Lr = 1.80, L = 3.30, S = 12.60 k @ 25.50 ft, (FB-7)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.348 : 1	Maximum Shear Stress Ratio =	0.077 : 1
Section used for this span	W18x158	Section used for this span	W18x158
Mu : Applied	464.283 k-ft	Vu : Applied	37.039 k
Mn * Phi : Allowable	1,335.000 k-ft	Vn * Phi : Allowable	478.710 k
Load Combination	+1.20D+L+1.60S	Load Combination	+1.20D+L+1.60S
Location of maximum on span	21.589 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.511 in	Ratio =	909 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.922 in	Ratio =	504 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 38.75 ft	1	0.139	0.032	185.34		185.34	1,483.33	1,335.00	1.00	1.00	15.49	478.71	478.71
+1.20D+0.50Lr+1.60L													
Dsgn. L = 38.75 ft	1	0.179	0.041	239.27		239.27	1,483.33	1,335.00	1.00	1.00	19.54	478.71	478.71
+1.20D+1.60L+0.50S													
Dsgn. L = 38.75 ft	1	0.232	0.052	309.56		309.56	1,483.33	1,335.00	1.00	1.00	25.01	478.71	478.71
+1.20D+1.60Lr+L													
Dsgn. L = 38.75 ft	1	0.179	0.041	239.27		239.27	1,483.33	1,335.00	1.00	1.00	19.54	478.71	478.71
+1.20D+1.60Lr													
Dsgn. L = 38.75 ft	1	0.147	0.034	196.33		196.33	1,483.33	1,335.00	1.00	1.00	16.19	478.71	478.71
+1.20D+L+1.60S													
Dsgn. L = 38.75 ft	1	0.348	0.077	464.28		464.28	1,483.33	1,335.00	1.00	1.00	37.04	478.71	478.71
+1.20D+1.60S													
Dsgn. L = 38.75 ft	1	0.316	0.070	421.29		421.29	1,483.33	1,335.00	1.00	1.00	33.70	478.71	478.71
+1.20D+0.50Lr+L													
Dsgn. L = 38.75 ft	1	0.160	0.037	213.51		213.51	1,483.33	1,335.00	1.00	1.00	17.53	478.71	478.71
+1.20D+L+0.50S													
Dsgn. L = 38.75 ft	1	0.213	0.048	283.79		283.79	1,483.33	1,335.00	1.00	1.00	23.00	478.71	478.71
+0.90D													
Dsgn. L = 38.75 ft	1	0.089	0.021	119.15		119.15	1,483.33	1,335.00	1.00	1.00	9.96	478.71	478.71

John Labib + Associates
Structural Engineers

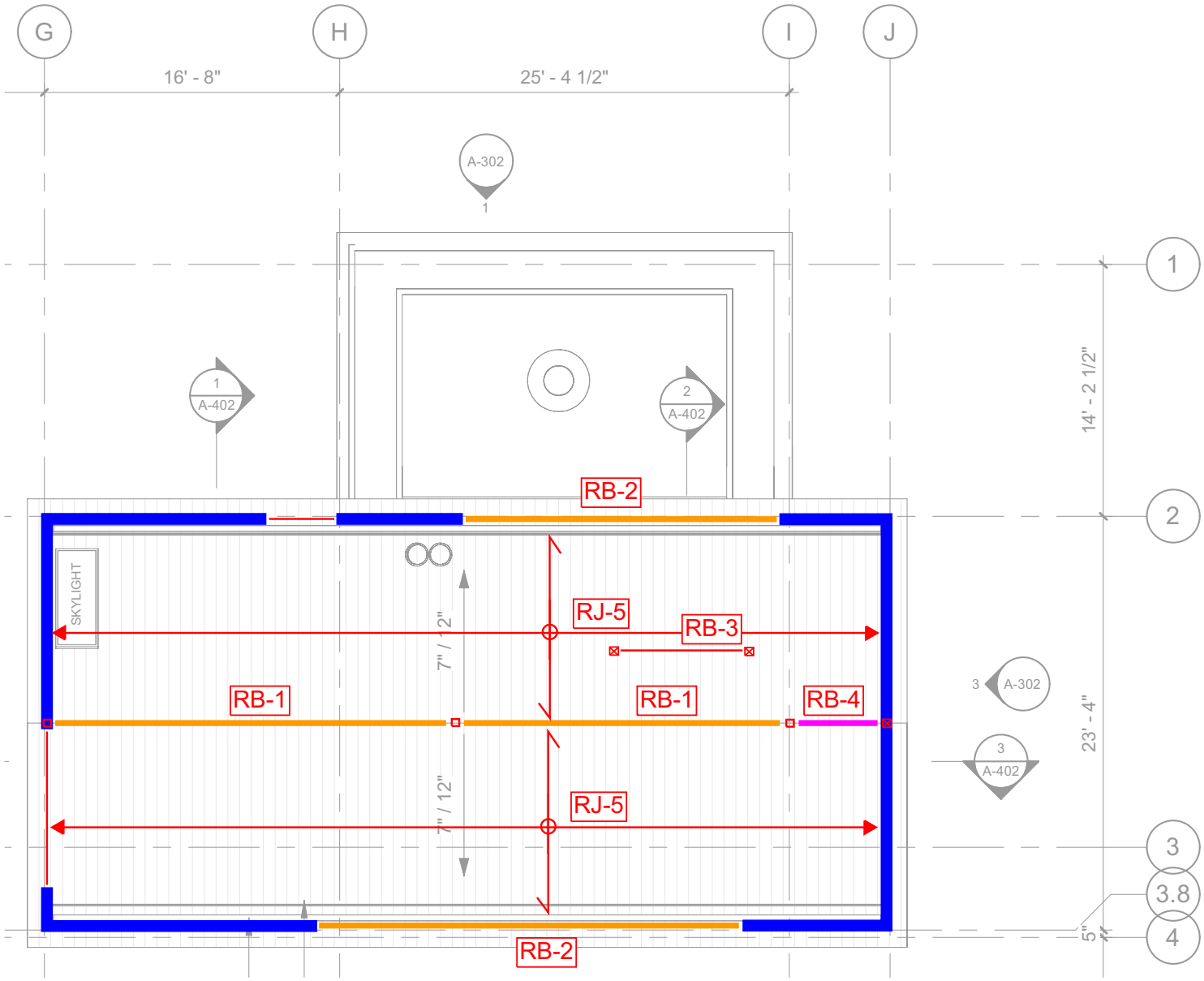
2.4 - ADU GRAVITY KEYPLAN

319 Main Street
El Segundo, California 90245
t:213/239 9600
info@labibse.com
www.labibse.com

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

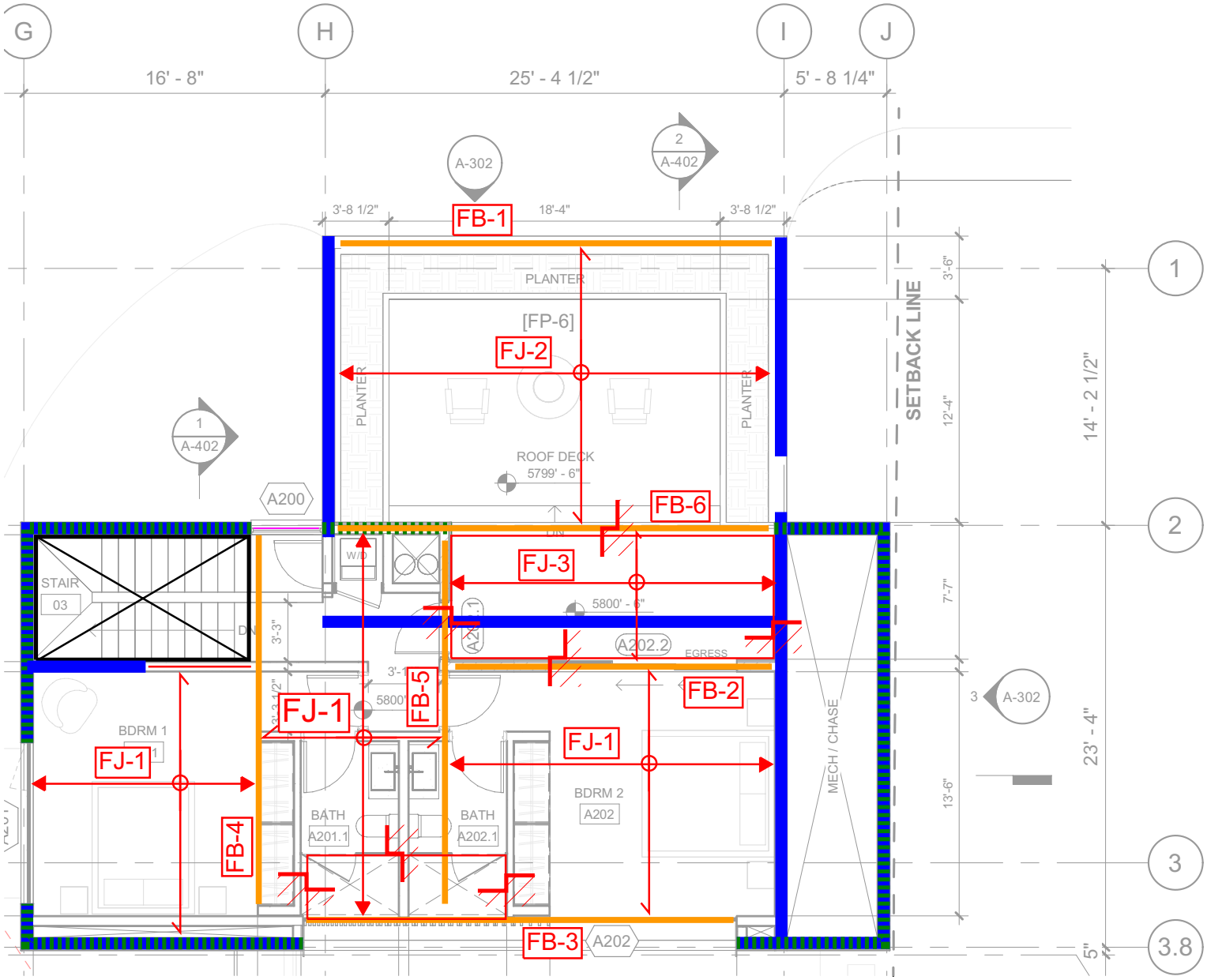


ROOF FRAMING KEYPLAN

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



1ST FLOOR FRAMING KEYPLAN

John Labib + Associates
Structural Engineers

2.5 - ADU JOIST DESIGN

319 Main Street
El Segundo, California 90245
t:213/239 9600
info@labibse.com
www.labibse.com

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: RJ-3

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

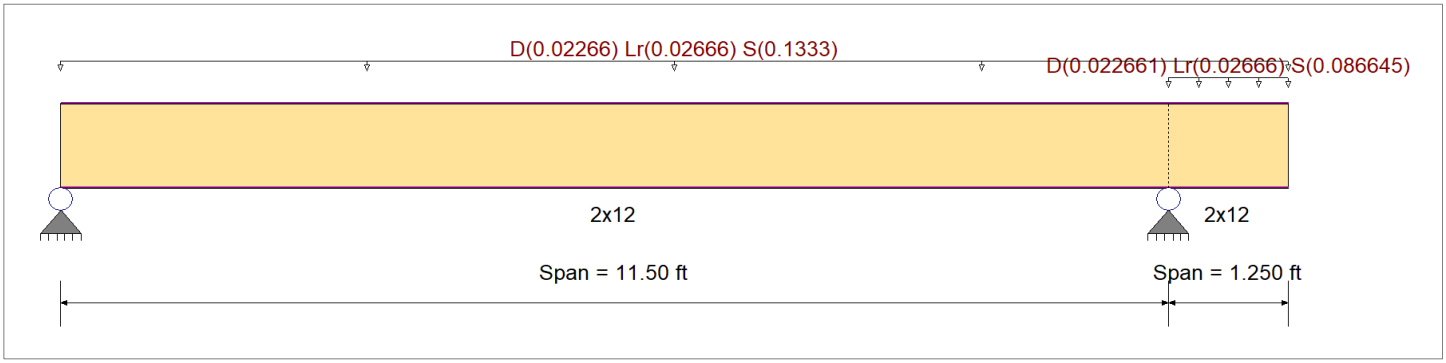
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	900.0 psi
Fb -	900.0 psi
Fc - Prll	1,350.0 psi
Fc - Perp	625.0 psi
Fv	180.0 psi
Ft	575.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf

Repetitive Member Stress Increase



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 1.333 ft
Load for Span Number 2
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.0650 ksf, Tributary Width = 1.333 ft, (Roof Load + Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.808 : 1	Maximum Shear Stress Ratio	=	0.340 : 1
Section used for this span		2x12	Section used for this span		2x12
fb: Actual	=	961.29 psi	fv: Actual	=	70.45 psi
Fb: Allowable	=	1,190.25 psi	Fv: Allowable	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	5.654 ft	Location of maximum on span	=	10.601 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.177 in	Ratio =	778 >=360
Max Upward Transient Deflection	-0.059 in	Ratio =	510 >=360
Max Downward Total Deflection	0.212 in	Ratio =	651 >=180
Max Upward Total Deflection	-0.070 in	Ratio =	426 >=180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only													0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.169	0.072	0.90	1.000	1.00	1.15	1.00	1.00	1.00	0.42	157.83	931.50	0.13	11.64	162.00
Length = 1.250 ft	2	0.016	0.072	0.90	1.000	1.00	1.15	1.00	1.00	1.00	0.04	14.51	931.50	0.02	11.64	162.00
+D+Lr					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.245	0.104	1.25	1.000	1.00	1.15	1.00	1.00	1.00	0.84	317.16	1293.75	0.26	23.46	225.00
Length = 1.250 ft	2	0.023	0.104	1.25	1.000	1.00	1.15	1.00	1.00	1.00	0.08	30.31	1293.75	0.03	23.46	225.00
+D+S					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.808	0.340	1.15	1.000	1.00	1.15	1.00	1.00	1.00	2.53	961.29	1190.25	0.79	70.45	207.00
Length = 1.250 ft	2	0.067	0.340	1.15	1.000	1.00	1.15	1.00	1.00	1.00	0.21	79.68	1190.25	0.08	70.45	207.00

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

File: 121 Badger Lane - Gravity.ec6

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: RJ-3

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+0.750Lr					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.214	0.091	1.25	1.000	1.00	1.15	1.00	1.00	1.00	0.73	277.33	1293.75	0.23	20.51	225.00
Length = 1.250 ft	2	0.020	0.091	1.25	1.000	1.00	1.15	1.00	1.00	1.00	0.07	26.36	1293.75	0.03	20.51	225.00
+D+0.750S					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.639	0.269	1.15	1.000	1.00	1.15	1.00	1.00	1.00	2.01	760.43	1190.25	0.63	55.74	207.00
Length = 1.250 ft	2	0.053	0.269	1.15	1.000	1.00	1.15	1.00	1.00	1.00	0.17	63.39	1190.25	0.07	55.74	207.00
+0.60D					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.057	0.024	1.60	1.000	1.00	1.15	1.00	1.00	1.00	0.25	94.70	1656.00	0.08	6.99	288.00
Length = 1.250 ft	2	0.005	0.024	1.60	1.000	1.00	1.15	1.00	1.00	1.00	0.02	8.71	1656.00	0.01	6.99	288.00
+1.087D					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.104	0.044	1.60	1.000	1.00	1.15	1.00	1.00	1.00	0.45	171.53	1656.00	0.14	12.65	288.00
Length = 1.250 ft	2	0.010	0.044	1.60	1.000	1.00	1.15	1.00	1.00	1.00	0.04	15.77	1656.00	0.02	12.65	288.00
+1.065D+0.750S					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.465	0.196	1.60	1.000	1.00	1.15	1.00	1.00	1.00	2.03	770.70	1656.00	0.64	56.50	288.00
Length = 1.250 ft	2	0.039	0.196	1.60	1.000	1.00	1.15	1.00	1.00	1.00	0.17	64.33	1656.00	0.07	56.50	288.00
+0.5132D					1.000	1.00	1.15	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 11.50 ft	1	0.049	0.021	1.60	1.000	1.00	1.15	1.00	1.00	1.00	0.21	81.00	1656.00	0.07	5.98	288.00
Length = 1.250 ft	2	0.004	0.021	1.60	1.000	1.00	1.15	1.00	1.00	1.00	0.02	7.45	1656.00	0.01	5.98	288.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.2120	5.718		0.0000	0.000
	2	0.0000	5.718	+D+S	-0.0701	1.250

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	0.900	1.272	
Overall MINimum	0.752	1.056	
D Only	0.148	0.216	
+D+Lr	0.298	0.439	
+D+S	0.900	1.272	
+D+0.750Lr	0.260	0.384	
+D+0.750S	0.712	1.008	
+0.60D	0.089	0.130	
Lr Only	0.150	0.224	
S Only	0.752	1.056	

John Labib + Associates
Structural Engineers

2.6 - ADU BEAM DESIGN

319 Main Street
El Segundo, California 90245
t:213/239 9600
info@labibse.com
www.labibse.com

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

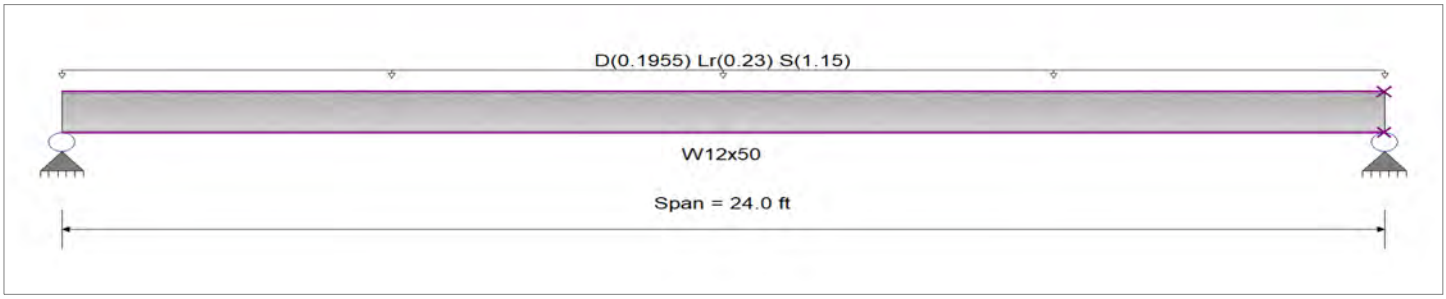
DESCRIPTION: RB-1 (W12x50)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 11.50 ft, (Roof Load + Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.570 : 1	Maximum Shear Stress Ratio =	0.189 : 1
Section used for this span	W12x50	Section used for this span	W12x50
Mu : Applied	153.691 k-ft	Vu : Applied	25.615 k
Mn * Phi : Allowable	269.625 k-ft	Vn * Phi : Allowable	135.420 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	12.000 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.760 in	Ratio =	378 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.923 in	Ratio =	312 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 24.00 ft	1	0.092	0.030	24.75		24.75	299.58	269.63	1.00	1.00	4.12	135.42	135.42
+1.20D+0.50Lr													
Dsgn. L = 24.00 ft	1	0.109	0.036	29.49		29.49	299.58	269.63	1.00	1.00	4.92	135.42	135.42
+1.20D+0.50S													
Dsgn. L = 24.00 ft	1	0.232	0.077	62.61		62.61	299.58	269.63	1.00	1.00	10.44	135.42	135.42
+1.20D+1.60Lr													
Dsgn. L = 24.00 ft	1	0.177	0.059	47.71		47.71	299.58	269.63	1.00	1.00	7.95	135.42	135.42
+1.20D+1.60S													
Dsgn. L = 24.00 ft	1	0.570	0.189	153.69		153.69	299.58	269.63	1.00	1.00	25.62	135.42	135.42
+0.90D													
Dsgn. L = 24.00 ft	1	0.059	0.020	15.91		15.91	299.58	269.63	1.00	1.00	2.65	135.42	135.42
+1.20D+0.20S													
Dsgn. L = 24.00 ft	1	0.140	0.046	37.77		37.77	299.58	269.63	1.00	1.00	6.30	135.42	135.42

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.9229	12.069		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	16.746	16.746
Overall MINimum	1.768	1.768

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

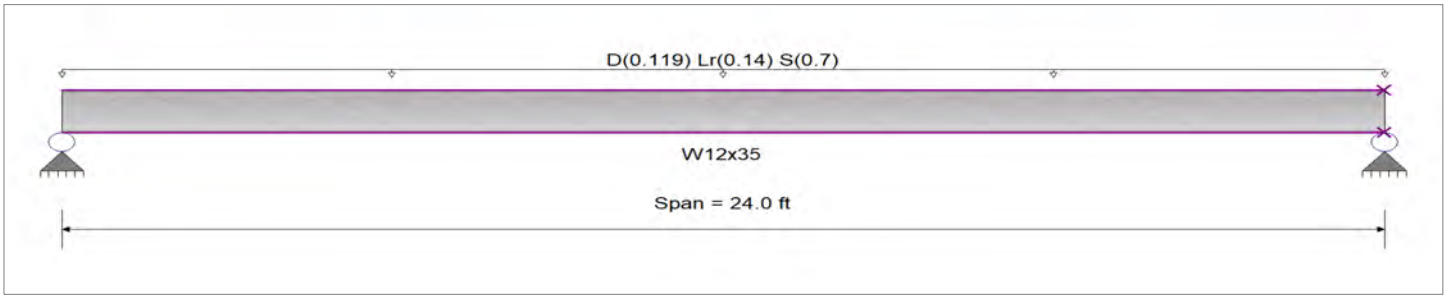
DESCRIPTION: RB-2 (W12x35)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 7.0 ft, (Roof Load + Snow Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.489 : 1	Maximum Shear Stress Ratio =	0.139 : 1
Section used for this span	W12x35	Section used for this span	W12x35
Mu : Applied	93.946 k-ft	Vu : Applied	15.658 k
Mn * Phi : Allowable	192.000 k-ft	Vn * Phi : Allowable	112.50 k
Load Combination	+1.20D+1.60S	Load Combination	+1.20D+1.60S
Location of maximum on span	12.000 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.634 in	Ratio =	453 >=360.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360.0
Max Downward Total Deflection	0.775 in	Ratio =	372 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 24.00 ft	1	0.081	0.023	15.52		15.52	213.33	192.00	1.00	1.00	2.59	112.50	112.50
+1.20D+0.50Lr													
Dsgn. L = 24.00 ft	1	0.096	0.027	18.35		18.35	213.33	192.00	1.00	1.00	3.06	112.50	112.50
+1.20D+0.50S													
Dsgn. L = 24.00 ft	1	0.201	0.057	38.51		38.51	213.33	192.00	1.00	1.00	6.42	112.50	112.50
+1.20D+1.60Lr													
Dsgn. L = 24.00 ft	1	0.153	0.044	29.43		29.43	213.33	192.00	1.00	1.00	4.91	112.50	112.50
+1.20D+1.60S													
Dsgn. L = 24.00 ft	1	0.489	0.139	93.95		93.95	213.33	192.00	1.00	1.00	15.66	112.50	112.50
+0.90D													
Dsgn. L = 24.00 ft	1	0.052	0.015	9.98		9.98	213.33	192.00	1.00	1.00	1.66	112.50	112.50
+1.20D+0.20S													
Dsgn. L = 24.00 ft	1	0.122	0.035	23.39		23.39	213.33	192.00	1.00	1.00	3.90	112.50	112.50

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.7749	12.069		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	10.248	10.248
Overall MINimum	1.109	1.109

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: RB-3 (6x12 OOPWIND) GLAZING SUPPORT

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

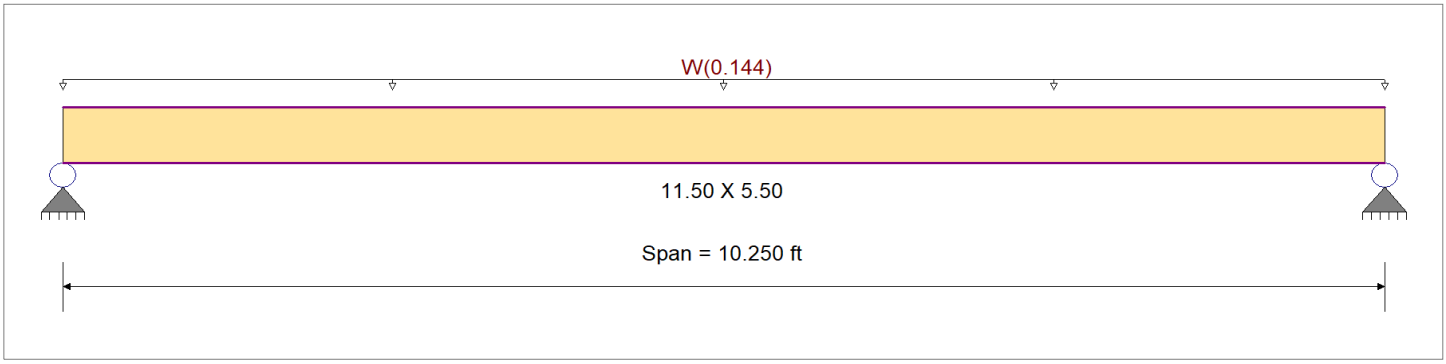
Wood Species : Douglas Fir - Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1,350.0 psi
Fb -	1,350.0 psi
Fc - Prll	925.0 psi
Fc - Perp	625.0 psi
Fv	170.0 psi
Ft	675.0 psi

E : Modulus of Elasticity

Ebend- xx	1,600.0 ksi
Eminbend - xx	580.0 ksi
Density	31.210 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : W = 0.0240 ksf, Tributary Width = 6.0 ft, (OOP WIND)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.109 : 1	Maximum Shear Stress Ratio	=	0.035 : 1
Section used for this span		11.50 X 5.50	Section used for this span		11.50 X 5.50
fb: Actual	=	234.84 psi	fv: Actual	=	9.58 psi
Fb: Allowable	=	2,160.00 psi	Fv: Allowable	=	272.00 psi
Load Combination		+0.60W	Load Combination		+0.60W
Location of maximum on span	=	5.125 ft	Location of maximum on span	=	0.000 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.141 in	Ratio =	872 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.085 in	Ratio =	1453 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	Moment Values fb	Moment Values F'b	Shear Values V	Shear Values fv	Shear Values F'v
													0.00	0.00	0.00	0.00
Length = 10.250 ft	1			0.90	1.000	1.00	1.00	1.00	1.00	1.00			1215.00	0.00	0.00	153.00
+0.60W					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.250 ft	1	0.109	0.035	1.60	1.000	1.00	1.00	1.00	1.00	1.00	1.13	234.84	2160.00	0.40	9.58	272.00
+0.450W					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 10.250 ft	1	0.082	0.026	1.60	1.000	1.00	1.00	1.00	1.00	1.00	0.85	176.13	2160.00	0.30	7.19	272.00

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.1410	5.162		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	0.738	0.738

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: RB-4 (6x12)

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method : Allowable Stress Design
Load Combination : ASCE 7-16

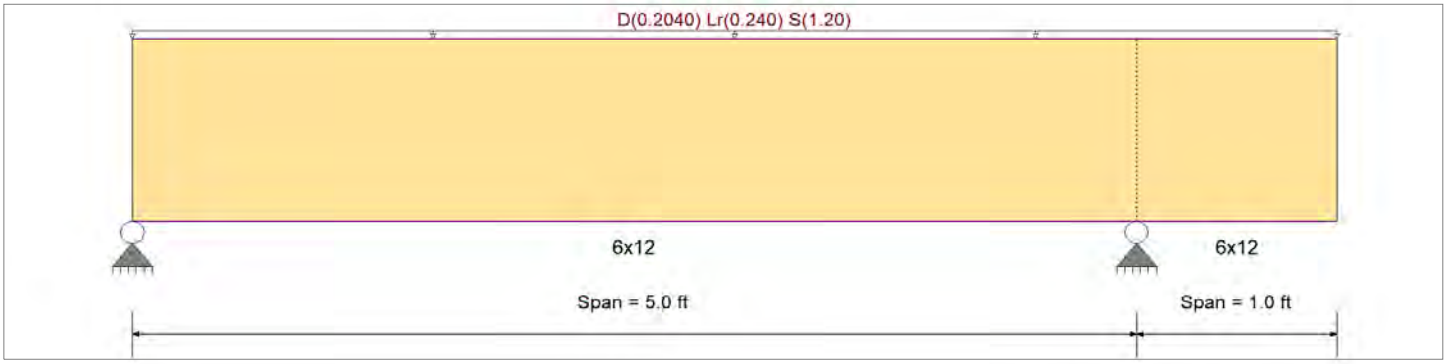
Wood Species : Douglas Fir - Larch
Wood Grade : No.1

Beam Bracing : Beam is Fully Braced against lateral-torsional buckling

Fb +	1350 psi
Fb -	1350 psi
Fc - Prll	925 psi
Fc - Perp	625 psi
Fv	170 psi
Ft	675 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Loads on all spans...
Uniform Load on ALL spans : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Tributary Width = 12.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.260 : 1	Maximum Shear Stress Ratio	=	0.284 : 1
Section used for this span		6x12	Section used for this span		6x12
fb: Actual	=	404.16 psi	fv: Actual	=	55.48 psi
Fb: Allowable	=	1,552.50 psi	Fv: Allowable	=	195.50 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	2.402 ft	Location of maximum on span	=	4.050 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.014 in	Ratio =	4345	>=360
Max Upward Transient Deflection	-0.008 in	Ratio =	3036	>=360
Max Downward Total Deflection	0.016 in	Ratio =	3678	>=180
Max Upward Total Deflection	-0.009 in	Ratio =	2570	>=180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	C_d	$C_{F/V}$	C_i	C_r	C_m	C_t	C_L	Moment Values M	fb	F'b	Shear Values V	fv	F'v
+D+H													0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.051	0.056	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.63	62.06	1215.00	0.36	8.52	153.00
Length = 1.0 ft	2	0.009	0.056	0.90	1.000	1.00	1.00	1.00	1.00	1.00	0.11	10.78	1215.00	0.01	8.52	153.00
+D+L+H, LL Comb Run (*L)					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.046	0.050	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.63	62.06	1350.00	0.36	8.52	170.00
Length = 1.0 ft	2	0.008	0.050	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.11	10.78	1350.00	0.01	8.52	170.00
+D+L+H, LL Comb Run (L*)					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.046	0.050	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.63	62.06	1350.00	0.36	8.52	170.00
Length = 1.0 ft	2	0.008	0.050	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.11	10.78	1350.00	0.01	8.52	170.00
+D+L+H, LL Comb Run (LL)					1.000	1.00	1.00	1.00	1.00	1.00			0.00	0.00	0.00	0.00
Length = 5.0 ft	1	0.046	0.050	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.63	62.06	1350.00	0.36	8.52	170.00
Length = 1.0 ft	2	0.008	0.050	1.00	1.000	1.00	1.00	1.00	1.00	1.00	0.11	10.78	1350.00	0.01	8.52	170.00

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

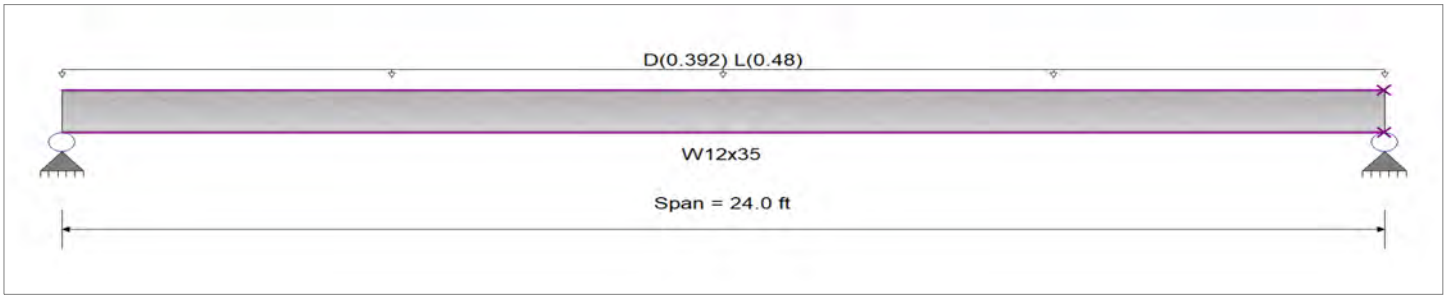
DESCRIPTION: FB-1 (W12x35)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0490, L = 0.060 ksf, Tributary Width = 8.0 ft, (FLOOR LOAD)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.480 : 1	Maximum Shear Stress Ratio =	0.137 : 1
Section used for this span	W12x35	Section used for this span	W12x35
Mu : Applied	92.189 k-ft	Vu : Applied	15.365 k
Mn * Phi : Allowable	192.000 k-ft	Vn * Phi : Allowable	112.50 k
Load Combination	+1.20D+1.60L	Load Combination	+1.20D+1.60L
Location of maximum on span	12.000 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.435 in	Ratio =	661 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.823 in	Ratio =	350 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 24.00 ft	1	0.224	0.064	43.04		43.04	213.33	192.00	1.00	1.00	7.17	112.50	112.50
+1.20D+1.60L													
Dsgn. L = 24.00 ft	1	0.480	0.137	92.19		92.19	213.33	192.00	1.00	1.00	15.36	112.50	112.50
+1.20D+L													
Dsgn. L = 24.00 ft	1	0.372	0.106	71.45		71.45	213.33	192.00	1.00	1.00	11.91	112.50	112.50
+1.20D													
Dsgn. L = 24.00 ft	1	0.192	0.055	36.89		36.89	213.33	192.00	1.00	1.00	6.15	112.50	112.50
+0.90D													
Dsgn. L = 24.00 ft	1	0.144	0.041	27.67		27.67	213.33	192.00	1.00	1.00	4.61	112.50	112.50

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.8229	12.069		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	10.884	10.884
Overall MINimum	3.074	3.074
D Only	5.124	5.124
+D+L	10.884	10.884
+D+0.750L	9.444	9.444
+0.60D	3.074	3.074

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

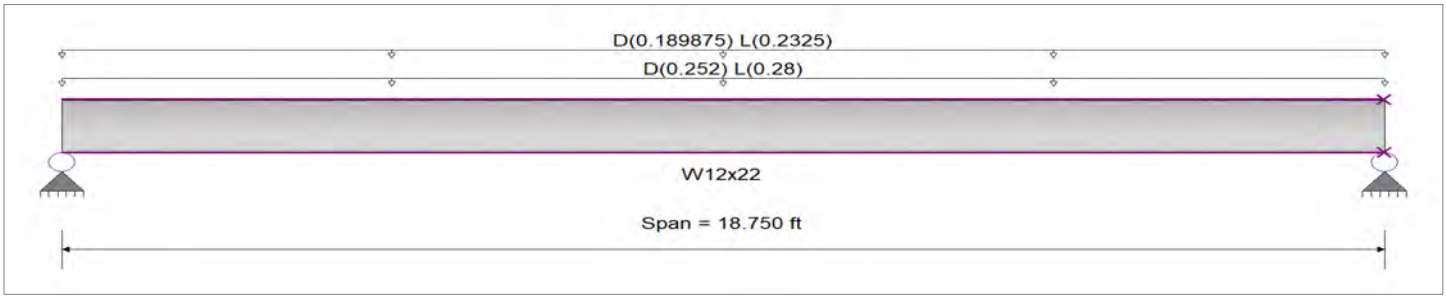
DESCRIPTION: FB-2 (W12x22)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0360, L = 0.040 ksf, Tributary Width = 7.0 ft, (FLOOR LOAD (TYP FLOOR))

Uniform Load : D = 0.0490, L = 0.060 ksf, Tributary Width = 3.875 ft, (FLOOR LOAD (STONE FLOOR))

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.551 : 1	Maximum Shear Stress Ratio =	0.135 : 1
Section used for this span	W12x22	Section used for this span	W12x22
Mu : Applied	60.497 k-ft	Vu : Applied	12.906 k
Mn * Phi : Allowable	109.875 k-ft	Vn * Phi : Allowable	95.940 k
Load Combination	+1.20D+1.60L	Load Combination	+1.20D+1.60L
Location of maximum on span	9.375 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.316 in	Ratio =	710 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.603 in	Ratio =	373 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 18.75 ft	1	0.260	0.063	28.54		28.54	122.08	109.88	1.00	1.00	6.09	95.94	95.94
+1.20D+1.60L													
Dsgn. L = 18.75 ft	1	0.551	0.135	60.50		60.50	122.08	109.88	1.00	1.00	12.91	95.94	95.94
+1.20D+L													
Dsgn. L = 18.75 ft	1	0.428	0.104	46.98		46.98	122.08	109.88	1.00	1.00	10.02	95.94	95.94
+1.20D													
Dsgn. L = 18.75 ft	1	0.223	0.054	24.46		24.46	122.08	109.88	1.00	1.00	5.22	95.94	95.94
+0.90D													
Dsgn. L = 18.75 ft	1	0.167	0.041	18.35		18.35	122.08	109.88	1.00	1.00	3.91	95.94	95.94

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.6029	9.429		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	9.154	9.154
Overall MINimum	2.609	2.609
D Only	4.349	4.349

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

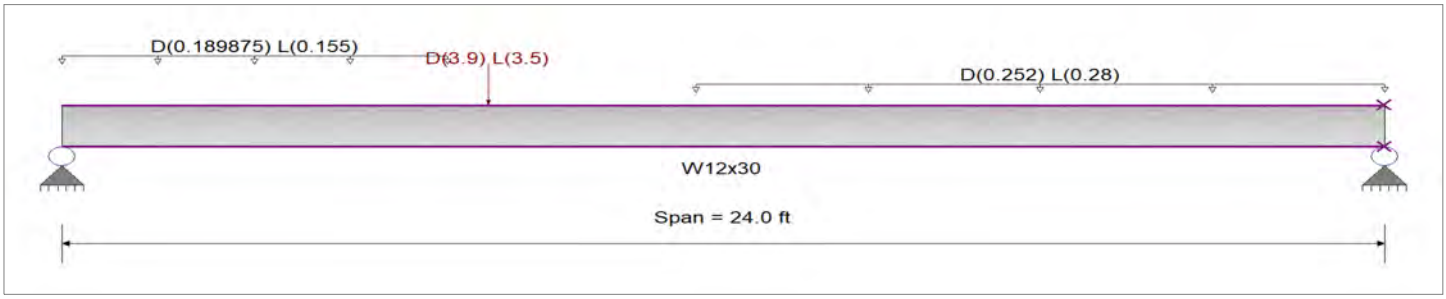
DESCRIPTION: FB-5 (W12x30)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0360, L = 0.040 ksf, Extent = 11.50 -->> 24.0 ft, Tributary Width = 7.0 ft, (FLOOR LOAD (TYP FLOOR))

Uniform Load : D = 0.0490, L = 0.040 ksf, Extent = 0.0 -->> 7.0 ft, Tributary Width = 3.875 ft, (FLOOR LOAD (STONE FLOOR))

Point Load : D = 3.90, L = 3.50 k @ 7.750 ft, (FB-5)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.514 : 1	Maximum Shear Stress Ratio =	0.132 : 1
Section used for this span	W12x30	Section used for this span	W12x30
Mu : Applied	83.022 k-ft	Vu : Applied	12.680 k
Mn * Phi : Allowable	161.625 k-ft	Vn * Phi : Allowable	95.940 k
Load Combination	+1.20D+1.60L	Load Combination	+1.20D+1.60L
Location of maximum on span	7.749 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.406 in	Ratio =	708 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.861 in	Ratio =	334 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 24.00 ft	1	0.276	0.072	44.60		44.60	179.58	161.63	1.00	1.00	6.94	95.94	95.94
+1.20D+1.60L													
Dsgn. L = 24.00 ft	1	0.514	0.132	83.02		83.02	179.58	161.63	1.00	1.00	12.68	95.94	95.94
+1.20D+L													
Dsgn. L = 24.00 ft	1	0.410	0.106	66.22		66.22	179.58	161.63	1.00	1.00	10.16	95.94	95.94
+1.20D													
Dsgn. L = 24.00 ft	1	0.237	0.062	38.23		38.23	179.58	161.63	1.00	1.00	5.95	95.94	95.94
+0.90D													
Dsgn. L = 24.00 ft	1	0.177	0.046	28.67		28.67	179.58	161.63	1.00	1.00	4.46	95.94	95.94

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.8612	11.657		0.0000	0.000

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

BLD2303-00021
06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

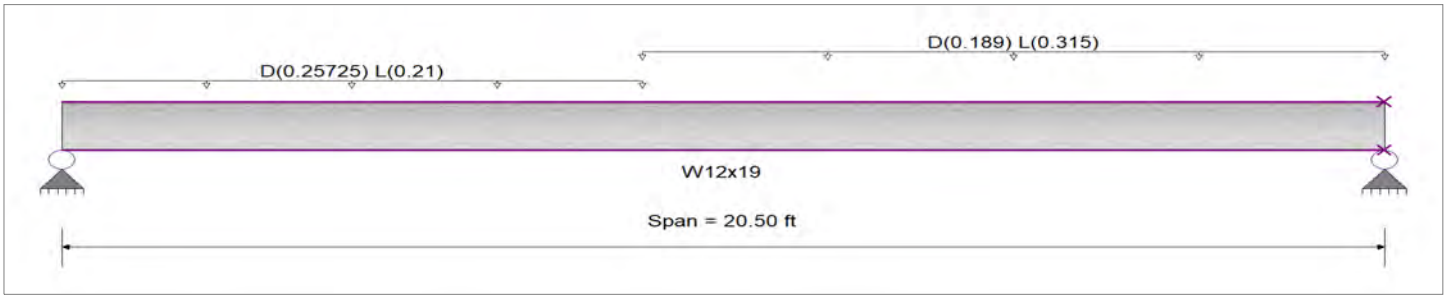
DESCRIPTION: FB-4 (W12x19)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0490, L = 0.040 ksf, Extent = 0.0 -->> 9.0 ft, Tributary Width = 5.250 ft, (FLOOR LOAD (STONE FLOORING))

Uniform Load : D = 0.0360, L = 0.060 ksf, Extent = 9.0 -->> 20.50 ft, Tributary Width = 5.250 ft, (FLOOR LOAD TYP FLOOR)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.409 : 1	Maximum Shear Stress Ratio =	0.088 : 1
Section used for this span	W12x19	Section used for this span	W12x19
Mu : Applied	37.863 k-ft	Vu : Applied	7.554 k
Mn * Phi : Allowable	92.625 k-ft	Vn * Phi : Allowable	86.010 k
Load Combination	+1.20D+1.60L	Load Combination	+1.20D+1.60L
Location of maximum on span	10.484 ft	Location of maximum on span	20.500 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.289 in	Ratio =	851 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.538 in	Ratio =	457 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 20.50 ft	1	0.187	0.043	17.29		17.29	102.92	92.63	1.00	1.00	3.66	86.01	86.01
+1.20D+1.60L													
Dsgn. L = 20.50 ft	1	0.409	0.088	37.86		37.86	102.92	92.63	1.00	1.00	7.55	86.01	86.01
+1.20D+L													
Dsgn. L = 20.50 ft	1	0.315	0.067	29.19		29.19	102.92	92.63	1.00	1.00	5.74	86.01	86.01
+1.20D													
Dsgn. L = 20.50 ft	1	0.160	0.036	14.82		14.82	102.92	92.63	1.00	1.00	3.13	86.01	86.01
+0.90D													
Dsgn. L = 20.50 ft	1	0.120	0.027	11.12		11.12	102.92	92.63	1.00	1.00	2.35	86.01	86.01

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.5381	10.309		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	5.103	5.288
Overall MINimum	1.567	1.360

Project Title:
Engineer:
Project ID:
Project Descr:

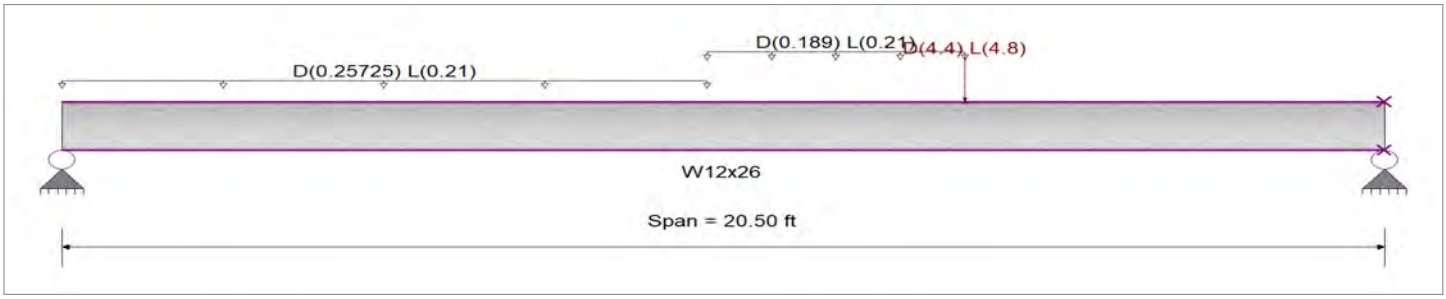
DESCRIPTION: FB-3 (W12x26)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0490, L = 0.040 ksf, Extent = 0.0 -->> 10.0 ft, Tributary Width = 5.250 ft, (FLOOR LOAD (STONE FLOORING))

Uniform Load : D = 0.0360, L = 0.040 ksf, Extent = 10.0 -->> 14.0 ft, Tributary Width = 5.250 ft, (FLOOR LOAD TYP FLOOR)

Point Load : D = 4.40, L = 4.80 k @ 14.0 ft, (FB-2)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.557 : 1	Maximum Shear Stress Ratio =	0.143 : 1
Section used for this span	W12x26	Section used for this span	W12x26
Mu : Applied	77.734 k-ft	Vu : Applied	12.061 k
Mn * Phi : Allowable	139.500 k-ft	Vn * Phi : Allowable	84.180 k
Load Combination	+1.20D+1.60L	Load Combination	+1.20D+1.60L
Location of maximum on span	13.999 ft	Location of maximum on span	20.500 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.319 in	Ratio =	771 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.649 in	Ratio =	379 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 20.50 ft	1	0.278	0.072	38.74		38.74	155.00	139.50	1.00	1.00	6.08	84.18	84.18
+1.20D+1.60L													
Dsgn. L = 20.50 ft	1	0.557	0.143	77.73		77.73	155.00	139.50	1.00	1.00	12.06	84.18	84.18
+1.20D+L													
Dsgn. L = 20.50 ft	1	0.438	0.113	61.04		61.04	155.00	139.50	1.00	1.00	9.49	84.18	84.18
+1.20D													
Dsgn. L = 20.50 ft	1	0.238	0.062	33.20		33.20	155.00	139.50	1.00	1.00	5.21	84.18	84.18
+0.90D													
Dsgn. L = 20.50 ft	1	0.179	0.046	24.90		24.90	155.00	139.50	1.00	1.00	3.91	84.18	84.18

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.6488	10.719		0.0000	0.000

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam BLD2303-00021 06/26/23

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

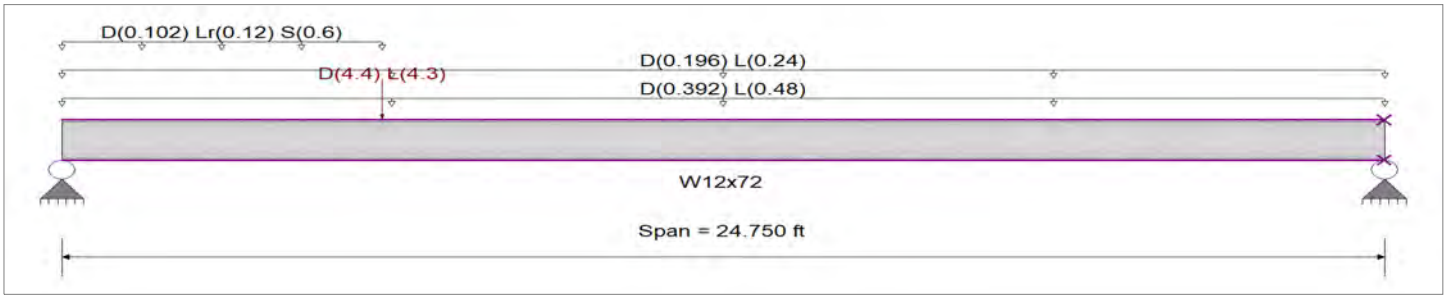
DESCRIPTION: FB-6 (W12x72)

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combination Set : ASCE 7-16

Material Properties

Analysis Method :	Load Resistance Factor Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0490, L = 0.060 ksf, Tributary Width = 8.0 ft, (FLOOR LOAD (STONE FLOORING))

Uniform Load : D = 0.0490, L = 0.060 ksf, Tributary Width = 4.0 ft, (FLOOR LOAD TYP FLOOR)

Point Load : D = 4.40, L = 4.30 k @ 6.0 ft, (FB-5)

Uniform Load : D = 0.0170, Lr = 0.020, S = 0.10 ksf, Extent = 0.0 -->> 6.0 ft, Tributary Width = 6.0 ft, (WALL SUPPORTING ROOF ABV)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.474 : 1	Maximum Shear Stress Ratio =	0.224 : 1
Section used for this span	W12x72	Section used for this span	W12x72
Mu : Applied	191.859 k-ft	Vu : Applied	35.496 k
Mn * Phi : Allowable	405.000 k-ft	Vn * Phi : Allowable	158.670 k
Load Combination	+1.20D+1.60L+0.50S	Load Combination	+1.20D+1.60L+0.50S
Location of maximum on span	10.678 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.444 in	Ratio =	668 >=480.
Max Upward Transient Deflection	0.000 in	Ratio =	0 <480.0
Max Downward Total Deflection	0.868 in	Ratio =	342 >=240.
Max Upward Total Deflection	0.000 in	Ratio =	0 <240.0

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	Summary of Shear Values VuMax	Vnx	Phi*Vnx
+1.40D													
Dsgn. L = 24.75 ft	1	0.227	0.106	91.90		91.90	450.00	405.00	1.00	1.00	16.85	158.67	158.67
+1.20D+0.50Lr+1.60L													
Dsgn. L = 24.75 ft	1	0.468	0.216	189.41		189.41	450.00	405.00	1.00	1.00	34.23	158.67	158.67
+1.20D+1.60L+0.50S													
Dsgn. L = 24.75 ft	1	0.474	0.224	191.86		191.86	450.00	405.00	1.00	1.00	35.50	158.67	158.67
+1.20D+1.60Lr+L													
Dsgn. L = 24.75 ft	1	0.369	0.174	149.50		149.50	450.00	405.00	1.00	1.00	27.63	158.67	158.67
+1.20D+1.60Lr													
Dsgn. L = 24.75 ft	1	0.199	0.097	80.75		80.75	450.00	405.00	1.00	1.00	15.46	158.67	158.67
+1.20D+L+1.60S													
Dsgn. L = 24.75 ft	1	0.389	0.200	157.45		157.45	450.00	405.00	1.00	1.00	31.68	158.67	158.67
+1.20D+1.60S													
Dsgn. L = 24.75 ft	1	0.220	0.123	88.92		88.92	450.00	405.00	1.00	1.00	19.51	158.67	158.67
+1.20D+0.50Lr+L													

John Labib + Associates
Structural Engineers

2.7 - COLUMN DESIGN

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Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: C2 (SUPPORTING GL B-7) - WORST CASE

Code References

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Steel Section Name :	**HSS6x6x1/2**	Overall Column Height	22.330 ft
Analysis Method :	Load Resistance Factor	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	A-992HighStrengthLowAlloyFy=50ksi	Brace condition for deflection (buckling) along columns :	
Fy : Steel Yield	50.0 ksi	X-X (width) axis :	
E : Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for buckling ABOUT Y-Y Axis = 22.330 ft, K = 1.0	
		Y-Y (depth) axis :	
		Lu for buckling ABOUT X-X Axis : 11.5 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 786.91 lbs * Dead Load Factor
AXIAL LOADS . . .
RB-5: Axial Load at 22.330 ft, D = 8.0, LR = 6.20, S = 31.0 k
FB-17: Axial Load at 11.50 ft, D = 11.0, LR = 1.80, L = 3.30, S = 12.80 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.6373** : 1

Load Combination	+1.20D+L+1.60S
Location of max.above base	0.0 ft
At maximum location values are . . .	
Pu	97.124 k
0.9 * Pn	152.394 k
Mu-x	0.0 k-ft
0.9 * Mn-x :	74.250 k-ft
Mu-y	0.0 k-ft
0.9 * Mn-y :	74.250 k-ft

PASS Maximum Shear Stress Ratio = **0.0** : 1

Load Combination	0.0
Location of max.above base	0.0 ft
At maximum location values are . . .	
Vu : Applied	0.0 k
Vn * Phi : Allowable	0.0 k

Maximum Load Reactions . .

Top along X-X	0.0 k
Bottom along X-X	0.0 k
Top along Y-Y	0.0 k
Bottom along Y-Y	0.0 k

Maximum Load Deflections . . .

Along Y-Y 0.0 in at 0.0 ft above base
for load combination :

Along X-X 0.0 in at 0.0 ft above base
for load combination :

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios: Stress Ratio	Status	Location
+1.40D	0.182	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+0.50Lr+1.60L	0.217	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+1.60L+0.50S	0.334	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+1.60Lr+L	0.261	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+1.60Lr	0.240	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+L+1.60S	0.637	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+1.60S	0.616	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+0.50Lr+L	0.204	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+L+0.50S	0.321	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+0.90D	0.117	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft
+1.20D+L+0.20S	0.235	PASS	0.00 ft	1.00	1.00	120.16	61.88	0.000	PASS	0.00 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction @ Base	X-X Axis Reaction @ Base	@ Top	k	Y-Y Axis Reaction @ Base	@ Top	Mx - End Moments @ Base	@ Top	k-ft	My - End Moments @ Base	@ Top
D Only	19.787										
+D+L	23.087										
+D+Lr	27.787										

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: C2 (SUPPORTING GL B-7) - WORST CASE

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction @ Base	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	k	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Mx - End Moments @ Base	Mx - End Moments @ Top	k-ft	My - End Moments @ Base	My - End Moments @ Top
+D+S	63.587										
+D+0.750Lr+0.750L	28.262										
+D+0.750L+0.750S	55.112										
+0.60D	11.872										
Lr Only	8.000										
L Only	3.300										
S Only	43.800										

Extreme Reactions

Item	Extreme Value	Axial Reaction @ Base	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	k	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Mx - End Moments @ Base	Mx - End Moments @ Top	k-ft	My - End Moments @ Base	My - End Moments @ Top
Axial @ Base	Maximum	63.587										
"	Minimum	3.300										
Reaction, X-X Axis Base	Maximum	19.787										
"	Minimum	19.787										
Reaction, Y-Y Axis Base	Maximum	19.787										
"	Minimum	19.787										
Reaction, X-X Axis Top	Maximum	19.787										
"	Minimum	19.787										
Reaction, Y-Y Axis Top	Maximum	19.787										
"	Minimum	19.787										
Moment, X-X Axis Base	Maximum	19.787										
"	Minimum	19.787										
Moment, Y-Y Axis Base	Maximum	19.787										
"	Minimum	19.787										
Moment, X-X Axis Top	Maximum	19.787										
"	Minimum	19.787										
Moment, Y-Y Axis Top	Maximum	19.787										
"	Minimum	19.787										

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
D Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+L	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+Lr	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+S	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750Lr+0.750L	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750L+0.750S	0.0000	in	0.000	ft	0.000	in	0.000	ft
+0.60D	0.0000	in	0.000	ft	0.000	in	0.000	ft
Lr Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
L Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
S Only	0.0000	in	0.000	ft	0.000	in	0.000	ft

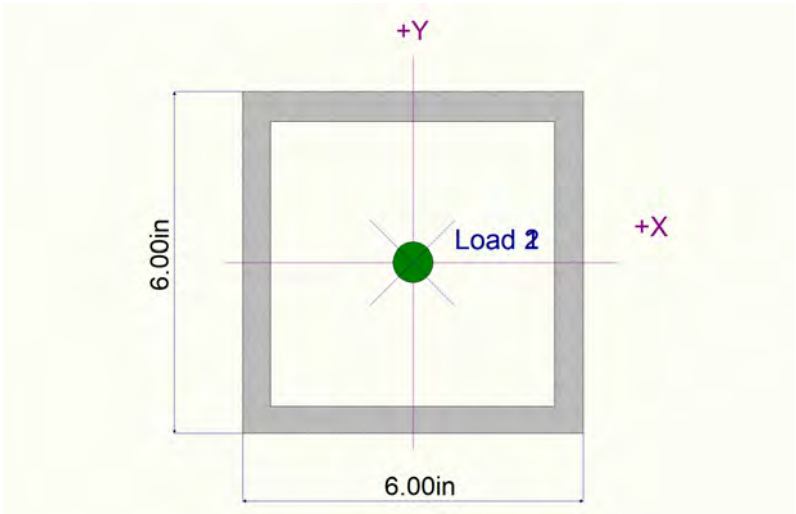
Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: C2 (SUPPORTING GL B-7) - WORST CASE

Steel Section Properties : HSS6x6x1/2

Depth	=	6.000	in	I xx	=	48.30	in^4	J	=	81.100 in^4
Design Thick	=	0.465	in	S xx	=	16.10	in^3			
Width	=	6.000	in	R xx	=	2.230	in			
Wall Thick	=	0.500	in	Zx	=	19.800	in^3			
Area	=	9.740	in^2	I yy	=	48.300	in^4	C	=	28.100 in^3
Weight	=	35.240	plf	S yy	=	16.100	in^3			
				R yy	=	2.230	in			
Ycg	=	0.000	in							

Sketches



Project Title:
Engineer:
Project ID:
Project Descr:

Steel Column

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: CT - WORST CASE

Code References

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Steel Section Name :	**HSS4x4x3/8**	Overall Column Height	22.330 ft
Analysis Method :	Load Resistance Factor	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	A-992HighStrengthLowAlloyFy=50ksi	Brace condition for deflection (buckling) along columns :	
Fy : Steel Yield	50.0 ksi	X-X (width) axis :	
E : Elastic Bending Modulus	29,000.0 ksi	Lu for buckling ABOUT Y-Y Axis: 11.5 ft, K = 1.0	
		Y-Y (depth) axis :	
		Lu for buckling ABOUT X-X Axis : 11.5 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 385.639 lbs * Dead Load Factor
AXIAL LOADS . . .
RB-1: Axial Load at 22.330 ft, D = 6.0, LR = 6.0, S = 25.60 k
FB-9: Axial Load at 11.50 ft, D = 11.40, LR = 3.60, L = 7.30, S = 17.50 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.8643** : 1

Load Combination	+1.20D+L+1.60S
Location of max.above base	0.0 ft
At maximum location values are . . .	
Pu	97.603 k
0.9 * Pn	112.925 k
Mu-x	0.0 k-ft
0.9 * Mn-x :	23.963 k-ft
Mu-y	0.0 k-ft
0.9 * Mn-y :	23.963 k-ft

PASS Maximum Shear Stress Ratio = **0.0** : 1

Load Combination	0.0
Location of max.above base	0.0 ft
At maximum location values are . . .	
Vu : Applied	0.0 k
Vn * Phi : Allowable	0.0 k

Maximum Load Reactions . .

Top along X-X	0.0 k
Bottom along X-X	0.0 k
Top along Y-Y	0.0 k
Bottom along Y-Y	0.0 k

Maximum Load Deflections . . .

Along Y-Y 0.0 in at 0.0 ft above base
for load combination :

Along X-X 0.0 in at 0.0 ft above base
for load combination :

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios: Stress Ratio	Status	Location
+1.40D	0.221	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+0.50Lr+1.60L	0.335	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+1.60L+0.50S	0.483	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+1.60Lr+L	0.390	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+1.60Lr	0.325	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+L+1.60S	0.864	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+1.60S	0.800	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+0.50Lr+L	0.296	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+L+0.50S	0.444	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+0.90D	0.142	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft
+1.20D+L+0.20S	0.330	PASS	0.00 ft	0.00	1.00	93.88	93.88	0.000	PASS	0.00 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction @ Base	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	k	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Mx - End Moments @ Base	Mx - End Moments @ Top	k-ft	My - End Moments @ Base	My - End Moments @ Top
D Only	17.786										
+D+L	25.086										
+D+Lr	27.386										

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: CT - WORST CASE

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction @ Base	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	k	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Mx - End Moments @ Base	Mx - End Moments @ Top	k-ft	My - End Moments @ Base	My - End Moments @ Top
+D+S	60.886										
+D+0.750Lr+0.750L	30.461										
+D+0.750L+0.750S	55.586										
+0.60D	10.671										
Lr Only	9.600										
L Only	7.300										
S Only	43.100										

Extreme Reactions

Item	Extreme Value	Axial Reaction @ Base	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	k	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Mx - End Moments @ Base	Mx - End Moments @ Top	k-ft	My - End Moments @ Base	My - End Moments @ Top
Axial @ Base	Maximum	60.886										
"	Minimum	7.300										
Reaction, X-X Axis Base	Maximum	17.786										
"	Minimum	17.786										
Reaction, Y-Y Axis Base	Maximum	17.786										
"	Minimum	17.786										
Reaction, X-X Axis Top	Maximum	17.786										
"	Minimum	17.786										
Reaction, Y-Y Axis Top	Maximum	17.786										
"	Minimum	17.786										
Moment, X-X Axis Base	Maximum	17.786										
"	Minimum	17.786										
Moment, Y-Y Axis Base	Maximum	17.786										
"	Minimum	17.786										
Moment, X-X Axis Top	Maximum	17.786										
"	Minimum	17.786										
Moment, Y-Y Axis Top	Maximum	17.786										
"	Minimum	17.786										

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
D Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+L	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+Lr	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+S	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750Lr+0.750L	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750L+0.750S	0.0000	in	0.000	ft	0.000	in	0.000	ft
+0.60D	0.0000	in	0.000	ft	0.000	in	0.000	ft
Lr Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
L Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
S Only	0.0000	in	0.000	ft	0.000	in	0.000	ft

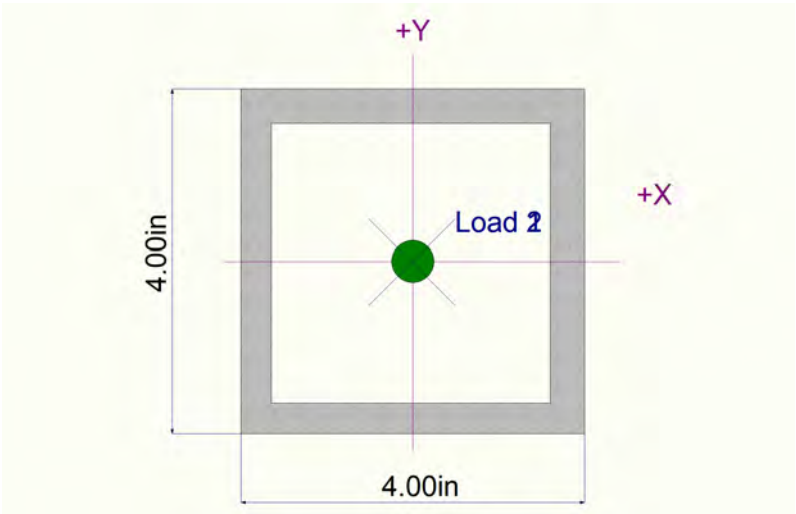
Project Title:
Engineer:
Project ID:
Project Descr:

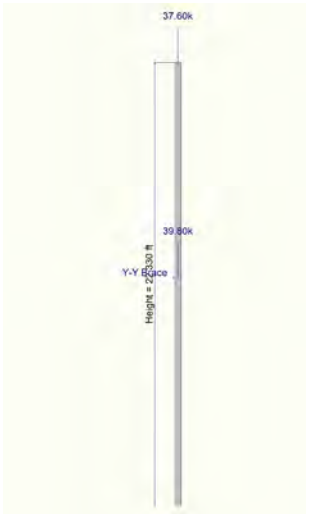
DESCRIPTION: CT - WORST CASE

Steel Section Properties : HSS4x4x3/8

Depth	=	4.000	in	I xx	=	10.30	in^4	J	=	17.500 in^4
Design Thick	=	0.349	in	S xx	=	5.13	in^3			
Width	=	4.000	in	R xx	=	1.470	in			
Wall Thick	=	0.375	in	Zx	=	6.390	in^3			
Area	=	4.780	in^2	I yy	=	10.300	in^4	C	=	9.140 in^3
Weight	=	17.270	plf	S yy	=	5.130	in^3			
				R yy	=	1.470	in			
Ycg	=	0.000	in							

Sketches





3.0 - LATERAL DESIGN

319 Main Street
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3.1 - SEISMIC DESIGN SUMMARY

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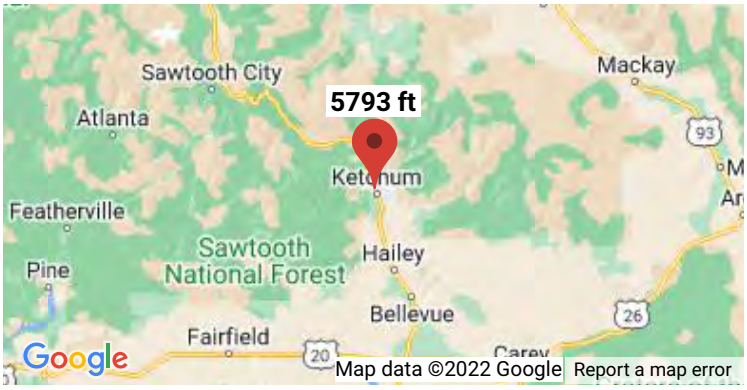
⚠ This is a beta release of the new ATC Hazards by Location website. Please contact us with feedback.

ℹ The ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

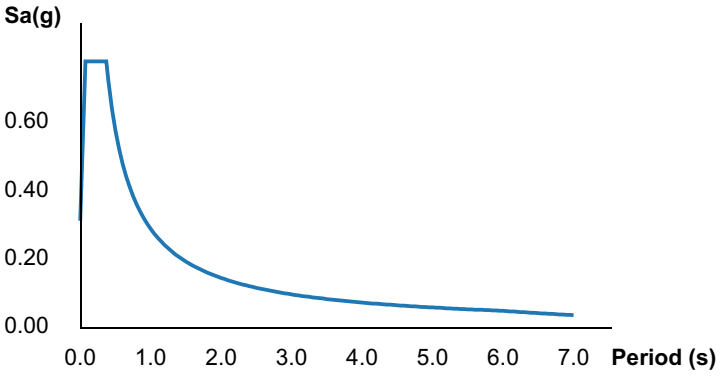
ATC Hazards by Location

Search Information

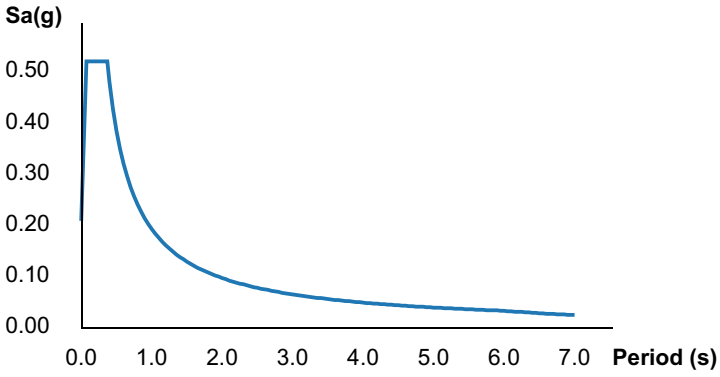
Address:	121 Badger Ln, Ketchum, ID 83340, USA
Coordinates:	43.68005289999999, -114.3758121
Elevation:	5793 ft
Timestamp:	2022-11-22T18:59:32.449Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	C



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	0.623	MCE_R ground motion (period=0.2s)
S_1	0.192	MCE_R ground motion (period=1.0s)
S_{MS}	0.779	Site-modified spectral acceleration value
S_{M1}	0.288	Site-modified spectral acceleration value
S_{DS}	0.52	Numeric seismic design value at 0.2s SA
S_{D1}	0.192	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	D	Seismic design category

F_V	1.5	Site amplification factor at 1.0s
CR_S	0.893	Coefficient of risk (0.2s)
CR_1	0.908	Coefficient of risk (1.0s)
PGA	0.277	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.332	Site modified peak ground acceleration
T_L	6	Long-period transition period (s)
SsRT	0.623	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.698	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.192	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.212	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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3.2 - MAIN HOUSE ELFP

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EQUIVALENT LATERAL FORCE PROCEDURE - BASE SHEAR- VERTICAL DISTRIBUTION - DIAPHRAGM FORCES

2018 IBC
ASCE/SEI 7-16

The values per this spreadhseet do not require Site Specifics Ground Motion Procedures — OK

INPUT SEISMIC PARAMETERS

Direction of Seismic Excitation =	Both Directions		Site Class =	C Dense soil & soft rock	ASCE 11.4.3
Areas of Building where system is utilized =	Whole Building		Mean Height h_n =	29.00 ft	
			S_S =	0.623 g	
Structure per ASCE12.8.1.3? (1) =	No	ASCE 12.8.1.3	S_1 =	0.192 g	
Type of System =	Wood Shearwalls		Tabulated F_a =	1.0	ASCE Table 11.4-1
			Tabulated F_v =	1.5	ASCE Table 11.4-2
R =	6.5	ASCE table 12.2-1	T_{model} (2) =	0.00 sec	Actual T from comp. model
Risk Category =	I or II	ASCE table 1.5-1	Structure Type:	All other structural systems	ASCE Table 12.8-2

1. The structure does not have irregularities; Structure does not exceed 5 stories; Structure period does not exceed 0.5s; rho =1.0,; Structure is not on site class E or F; Structure assigned to Risk Cat I or II

2. If not available input 0

CODE VALUES

SEISMIC PARAMETERS			BASE SHEAR		
I_e =	1	ASCE Table 1.5-2	Seismic response coefficient:		
F_a (used for Cs) =	1.0	ASCE 11.4.4	$C_s = S_{DS}/(R/I)$ =	0.064	Eq. 12.8-2
$S_{DS} = 2/3 \times F_a S_S$ =	0.415 g	ASCE Eq. 11.4-3			
S_{DS} used for C_s =	0.415 g	ASCE 12.8.1.3	C_s needs not exceed following:		
$S_{D1} = 2/3 \times F_v S_1$ =	0.192 g	ASCE Eq. 11.4-4	$C_s = S_{D1}/[(R/I)T]$ =	0.118	Eq. 12.8-3
S_{DS}	0.33g~0 C	ASCE Table 11.6-1			
S_{D1}	0.133g~ C	ASCE Table 11.6-2	C_s shall not be taken less than:		
C_t =	0.02	ASCE Table 12.8-2	C_s =	0.018	Eq. 12.8-5
x =	0.75	ASCE Table 12.8-2			
$T_a = C_t (h_n)^x$ =	0.25 sec	ASCE Eq. 12.8-7	For structures located where $S_1 \geq 0.6g$, Cs shall not be taken less than:		
C_u =	1.6	Table 12.8-1	$C_s = 0.5S_1/(R/I)$ =	N/A	Eq. 12.8-6
$C_u T_a$ =	0.40 sec				
T (used for base shear) =	0.25 sec	T used for base shear calc.	Cs =	0.064	Seismic Resp. Coefficient
Seismic design category =	C	ASCE 11.6	W =	606 Kips	Seismic Weight
T_s =	0.46 sec		**V = Cs × W** =	39 Kips	Base Shear

For T < 0.5sec, k = 1.00

		VERTICAL DISTRIBUTION OF SEISMIC FORCES												ASCE 12.8.3		DIAPHRAGM DESIGN FORCES						ASCE 12.10.1.1
			Seismic Weight																			
2 STORIES	Level x	Floor Area A	Ass'y (3)	Ext Walls (4)	Add Seism. W (5)	w_x/ Area	w_x	$\sum w_i$	h_x	$w_x h_x^k$	$w_x h_x^k / \sum w_i h_i^k$	Story Force Fx	Story Shear Vx	**F_x/ Area**	**V_x/ Area**	w_{px}/ Area	w_{px}	$\sum F_i w_{px} \div \sum w_i$	F_{px} Min	F_{px} Max	F_{px}	**F_{px}/ Area**
		(sf)	(psf)	(psf)	(kips)	(psf)	(Kips)	(Kips)	(ft)	(kips-ft)	C_{vx}	(Kips)	(kips)	(psf)	(psf)	(psf)	(kips)	(kips)	(kips)	(kips)	(kips)	(psf)
	R	5,213	61.6	0.0	0.0	61.6	321	321	25.50	8,193	0.71	27	27	**5.3**	**5.3**	61.6	321	27.5	26.7	53.4	27.5	**5.3**
	2	5,351	53.2	0.0	0.0	53.2	285	606	11.75	3,347	0.29	11	39	**2.1**	**7.2**	53.2	285	18.2	23.7	47.3	23.7	**4.4**
	1	∑					606			11,540	1.00	39					606					

Notes:
3. Assembly includes the weight of costruction materials from top of finish floor above framing to underside of ceiling below framing, plus contribution of 50% of interior partitions above and 50% of interior partitions below the floor under consideration, respectively.
4.Weight of exterior wall per area of floor. 50% of exteiror walls above and 50% of exterior walls below the floor under consideration, respectively
5. Added seismic weight is any other weight not comprised in Assembly or Exterior walls, such as planters, equipment, ect.

3.3 - ADU ELFP

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EQUIVALENT LATERAL FORCE PROCEDURE - BASE SHEAR- VERTICAL DISTRIBUTION - DIAPHRAGM FORCES

2018 IBC
ASCE/SEI 7-16

The values per this spreadhseet do not require Site Specifics Ground Motion Procedures — OK

INPUT SEISMIC PARAMETERS

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			S_S =	0.623 g	
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			Tabulated F_v =	1.5	ASCE Table 11.4-2
R =	6.5	ASCE table 12.2-1	T_{model} (2) =	0.00 sec	Actual T from comp. model
Risk Category =	I or II	ASCE table 1.5-1	Structure Type:	All other structural systems	ASCE Table 12.8-2

1. The structure does not have irregularities; Structure does not exceed 5 stories; Structure period does not exceed 0.5s; rho =1.0,; Structure is not on site class E or F; Structure assigned to Risk Cat I or II

2. If not available input 0

CODE VALUES

SEISMIC PARAMETERS			BASE SHEAR		
I_e =	1	ASCE Table 1.5-2	Seismic response coefficient:		
F_a (used for Cs) =	1.0	ASCE 11.4.4	$C_s = S_{DS}/(R/I)$ =	0.064	Eq. 12.8-2
$S_{DS} = 2/3 \times F_a S_S$ =	0.415 g	ASCE Eq. 11.4-3			
S_{DS} used for C_s =	0.415 g	ASCE 12.8.1.3	C_s needs not exceed following:		
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S_{DS}	0.33g~0 C	ASCE Table 11.6-1			
S_{D1}	0.133g~ C	ASCE Table 11.6-2	C_s shall not be taken less than:		
C_t =	0.02	ASCE Table 12.8-2	C_s =	0.018	Eq. 12.8-5
x =	0.75	ASCE Table 12.8-2			
$T_a = C_t (h_n)^x$ =	0.25 sec	ASCE Eq. 12.8-7	For structures located where $S_1 \geq 0.6g$, Cs shall not be taken less than:		
C_u =	1.6	Table 12.8-1	$C_s = 0.5S_1/(R/I)$ =	N/A	Eq. 12.8-6
$C_u T_a$ =	0.40 sec				
T (used for base shear) =	0.25 sec	T used for base shear calc.	Cs =	0.064	Seismic Resp. Coefficient
Seismic design category =	C	ASCE 11.6	W =	606 Kips	Seismic Weight
T_s =	0.46 sec		**V = Cs × W** =	39 Kips	Base Shear

For T < 0.5sec, k = 1.00

		VERTICAL DISTRIBUTION OF SEISMIC FORCES												ASCE 12.8.3		DIAPHRAGM DESIGN FORCES						ASCE 12.10.1.1
			Seismic Weight																			
2 STORIES	Level x	Floor Area A	Ass'y (3)	Ext Walls (4)	Add Seism. W (5)	w_x/ Area	w_x	$\sum w_i$	h_x	$w_x h_x^k$	$w_x h_x^k / \sum w_i h_i^k$	Story Force Fx	Story Shear Vx	**F_x/ Area**	**V_x/ Area**	w_{px}/ Area	w_{px}	$\sum F_i w_{px} \div \sum w_i$	F_{px} Min	F_{px} Max	F_{px}	**F_{px}/ Area**
		(sf)	(psf)	(psf)	(kips)	(psf)	(Kips)	(Kips)	(ft)	(kips-ft)	C_{vx}	(Kips)	(kips)	(psf)	(psf)	(psf)	(kips)	(kips)	(kips)	(kips)	(kips)	(psf)
	R	5,213	61.6	0.0	0.0	61.6	321	321	25.50	8,193	0.71	27	27	**5.3**	**5.3**	61.6	321	27.5	26.7	53.4	27.5	**5.3**
	2	5,351	53.2	0.0	0.0	53.2	285	606	11.75	3,347	0.29	11	39	**2.1**	**7.2**	53.2	285	18.2	23.7	47.3	23.7	**4.4**
	1	∑					606			11,540	1.00	39					606					

Notes:
3. Assembly includes the weight of costruction materials from top of finish floor above framing to underside of ceiling below framing, plus contribution of 50% of interior partitions above and 50% of interior partitions below the floor under consideration, respectively.
4.Weight of exterior wall per area of floor. 50% of exteiror walls above and 50% of exterior walls below the floor under consideration, respectively
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Structural Engineers

3.4 - MAIN HOUSE LATERAL KEYPLAN

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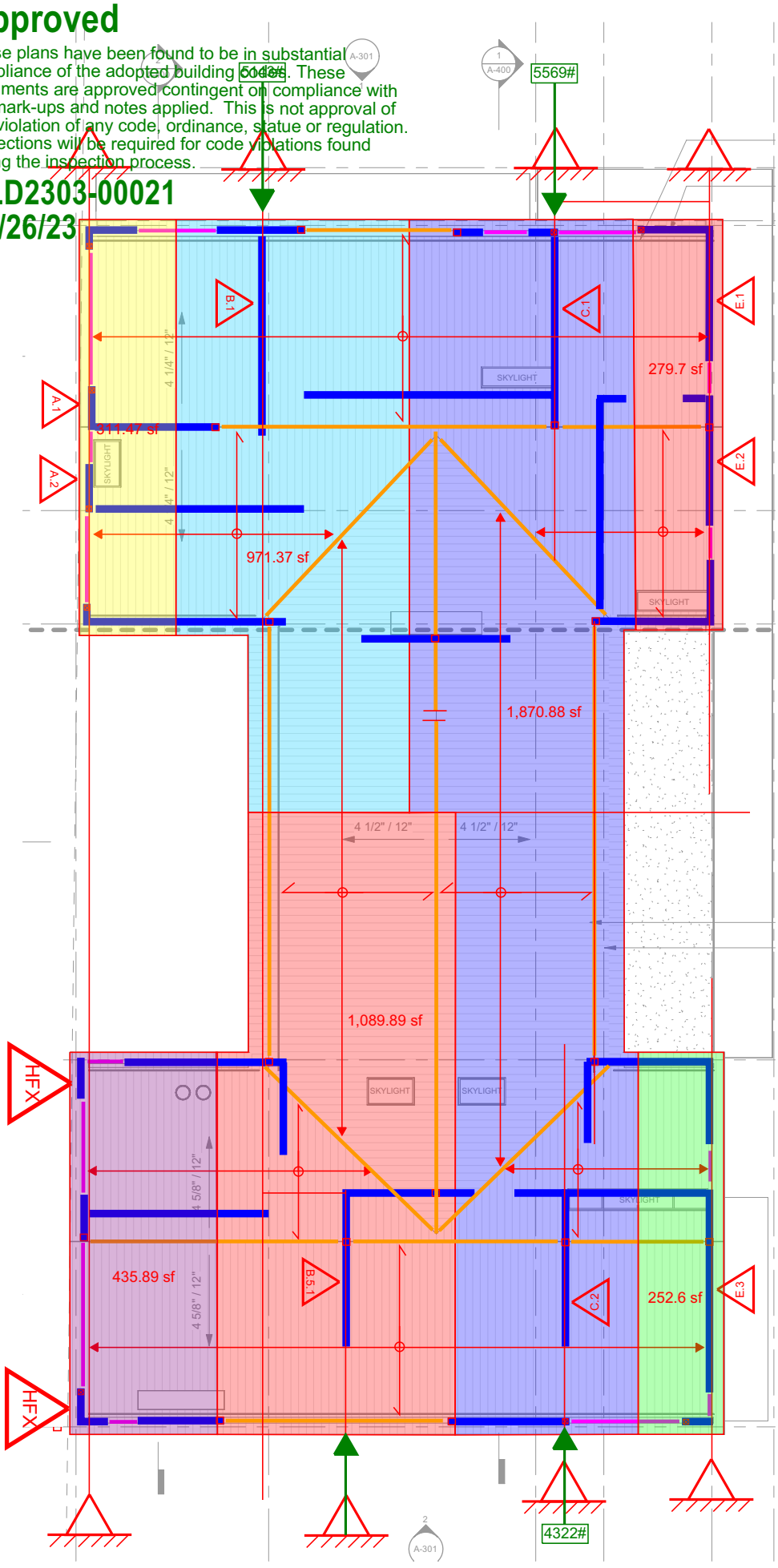
www.labibse.com

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



ROOF LATERAL N-S DIRECTION

Approved

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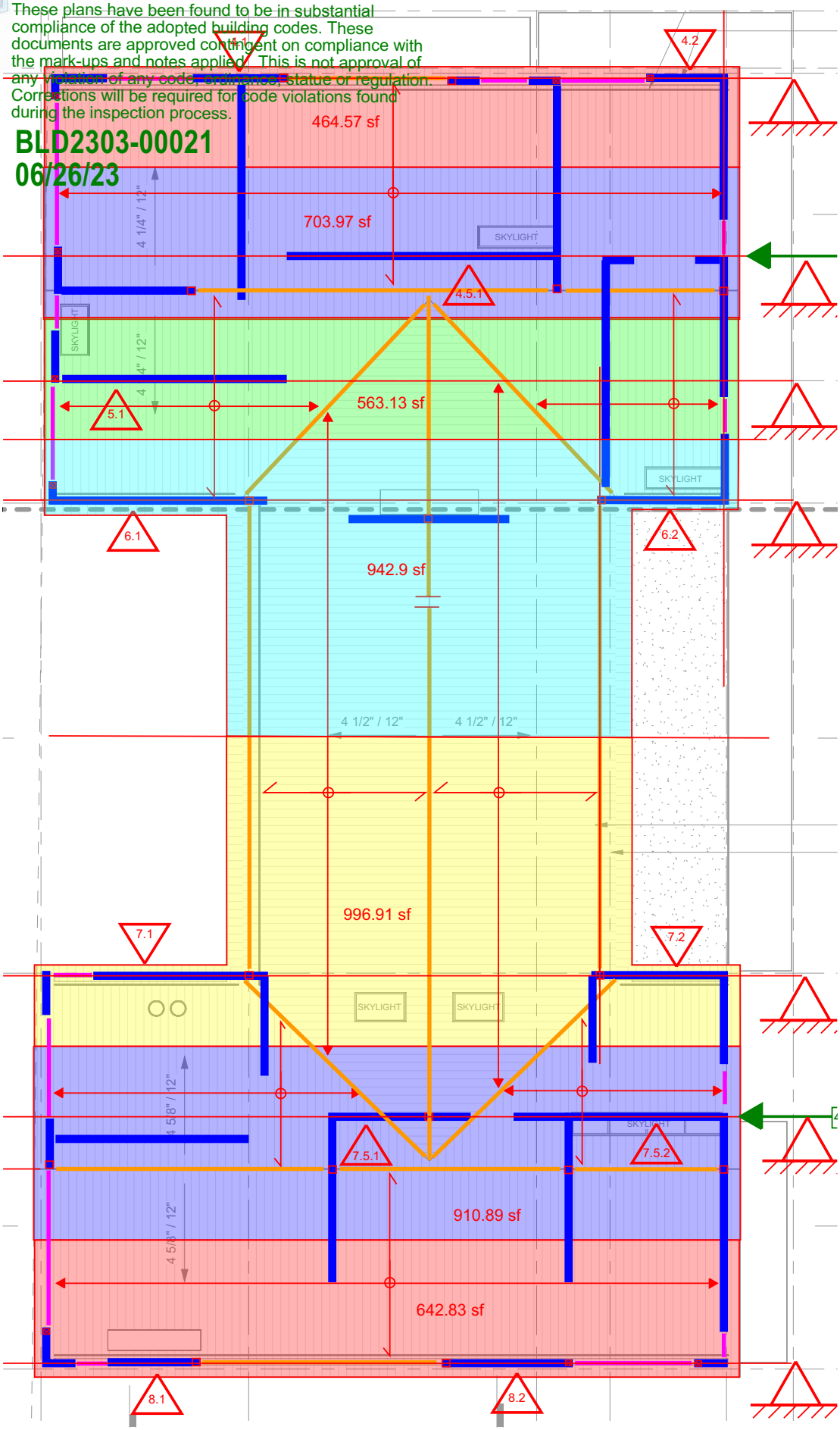
06/26/23



ROOF LATERAL E-W DIRECTION

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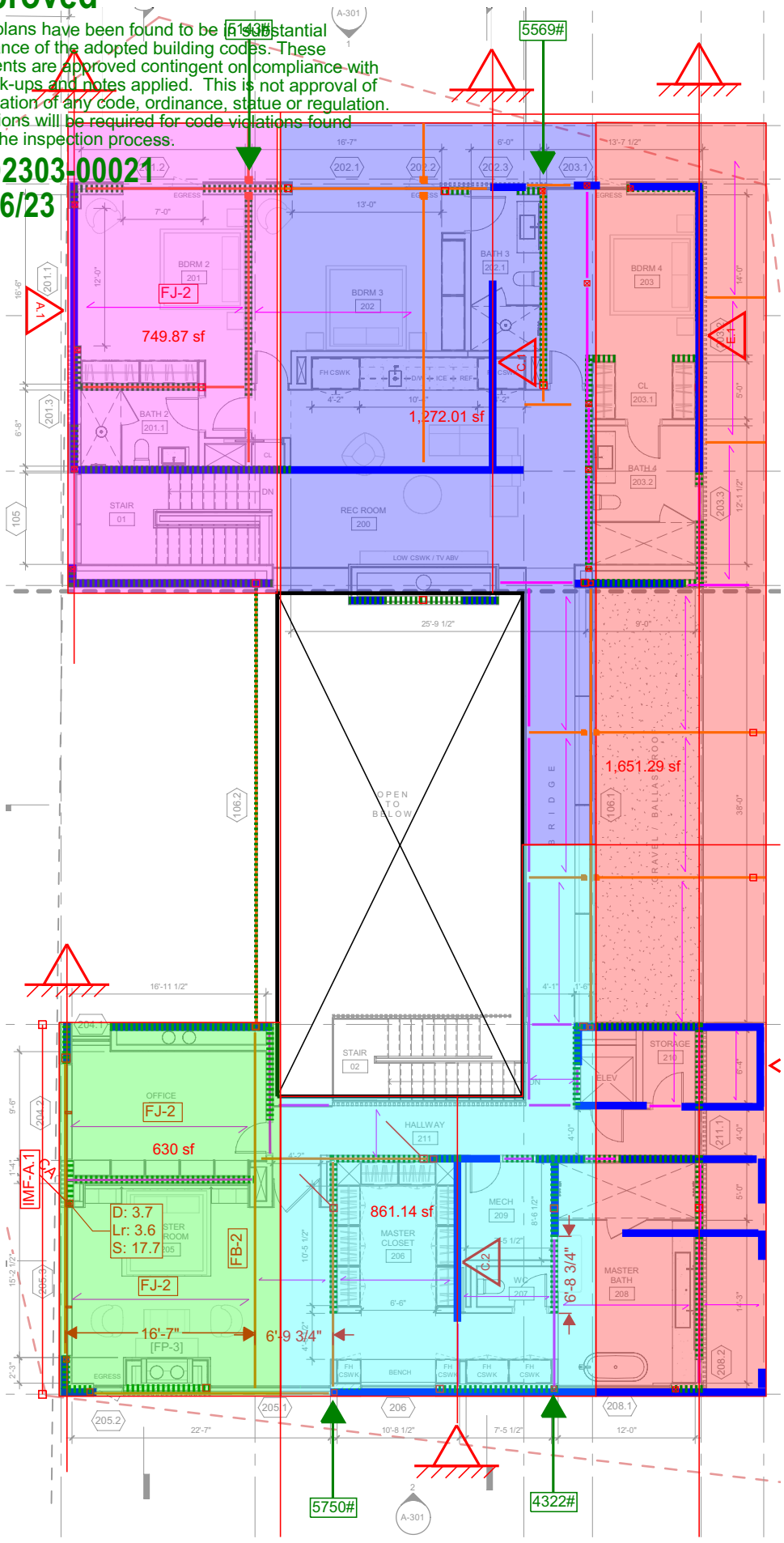

FLOOR LATERAL N-S DIRECTION

Approved

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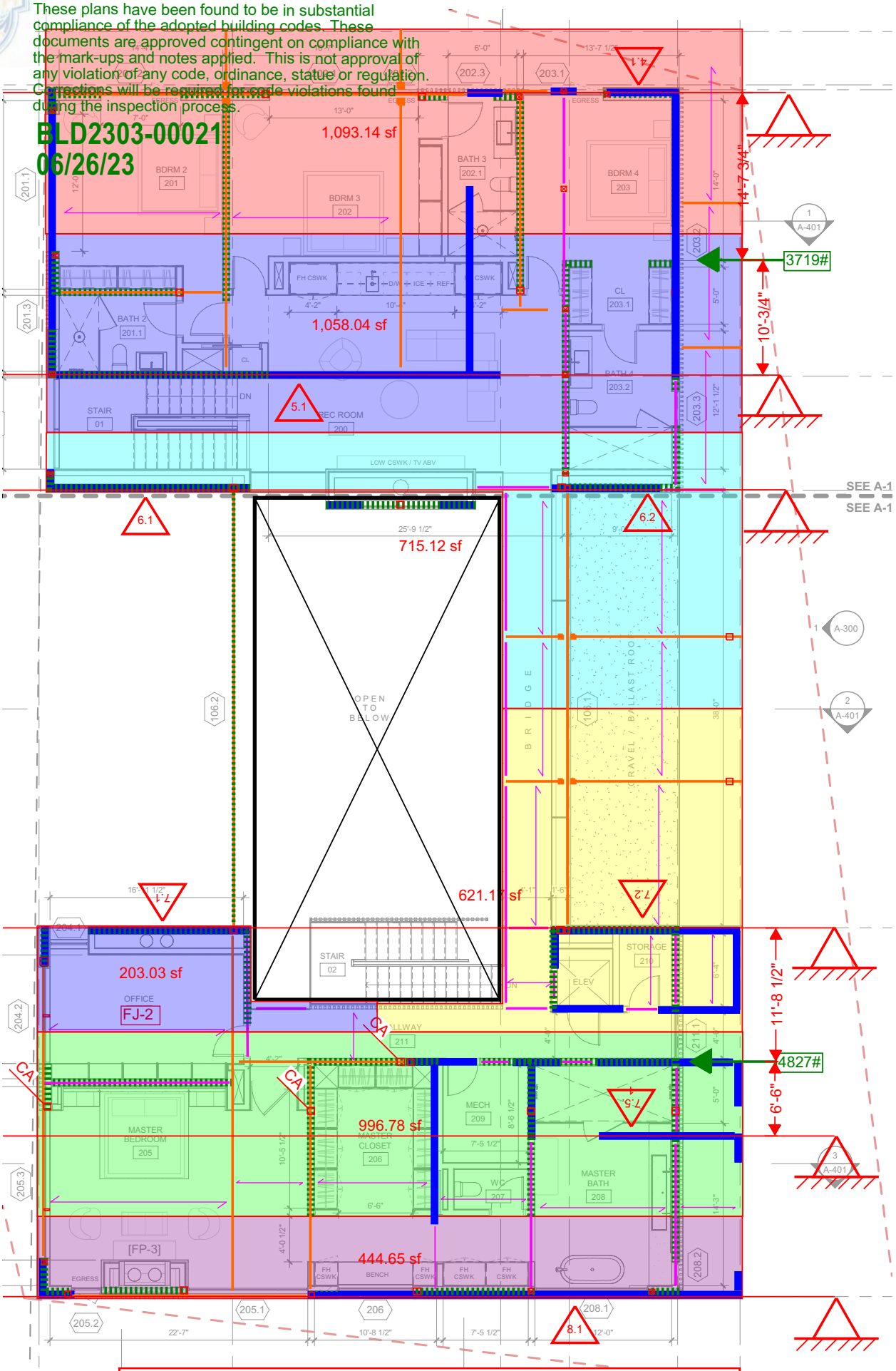
BLD2303-00021
06/26/23



FLOOR LATERAL E-W DIRECTION

John Labib + Associates
Structural Engineers

3.5 - ADU LATERAL KEYPLAN

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Approved

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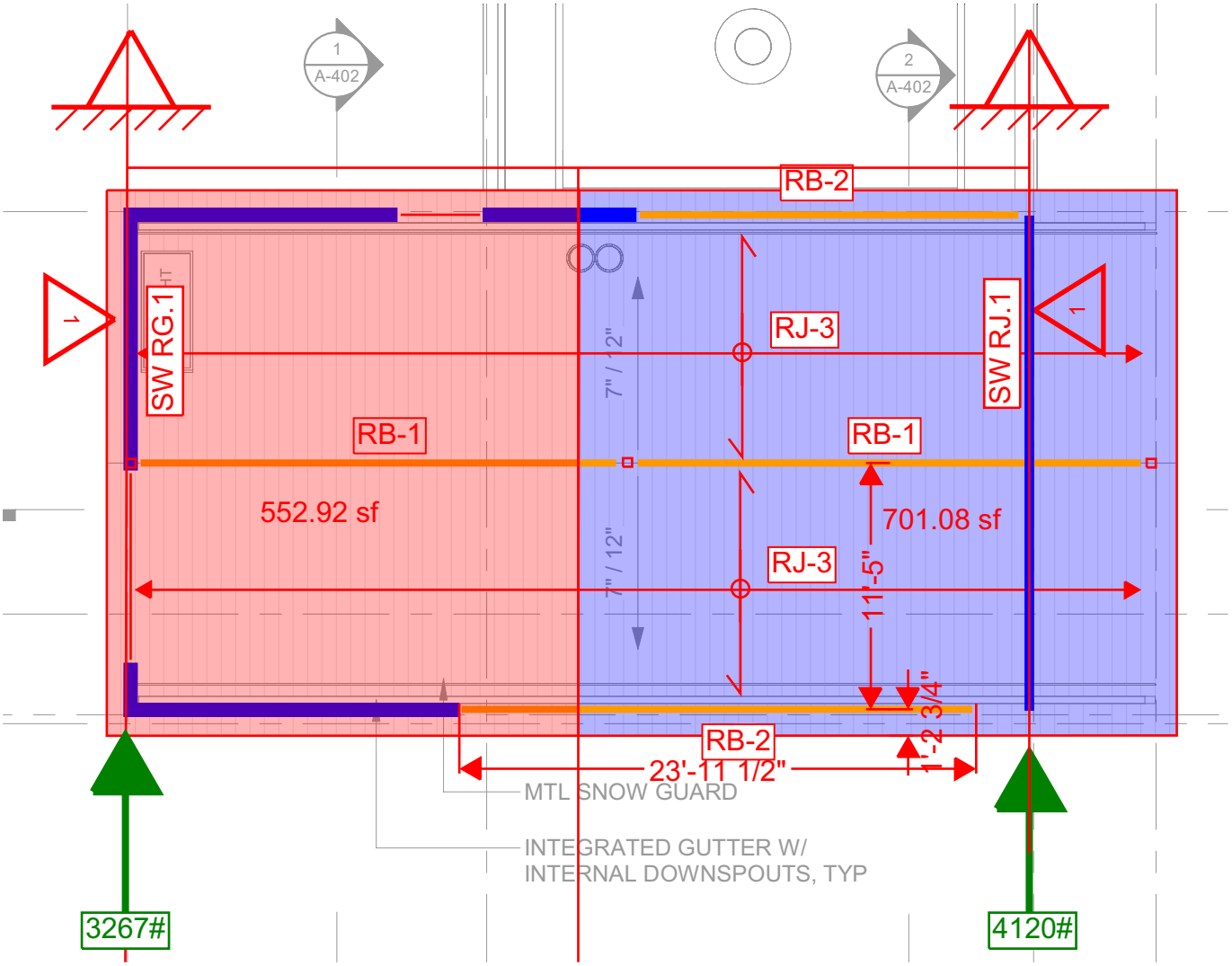
BLD2303-00021
06/26/23



ROOF LATERAL N-S DIRECTION

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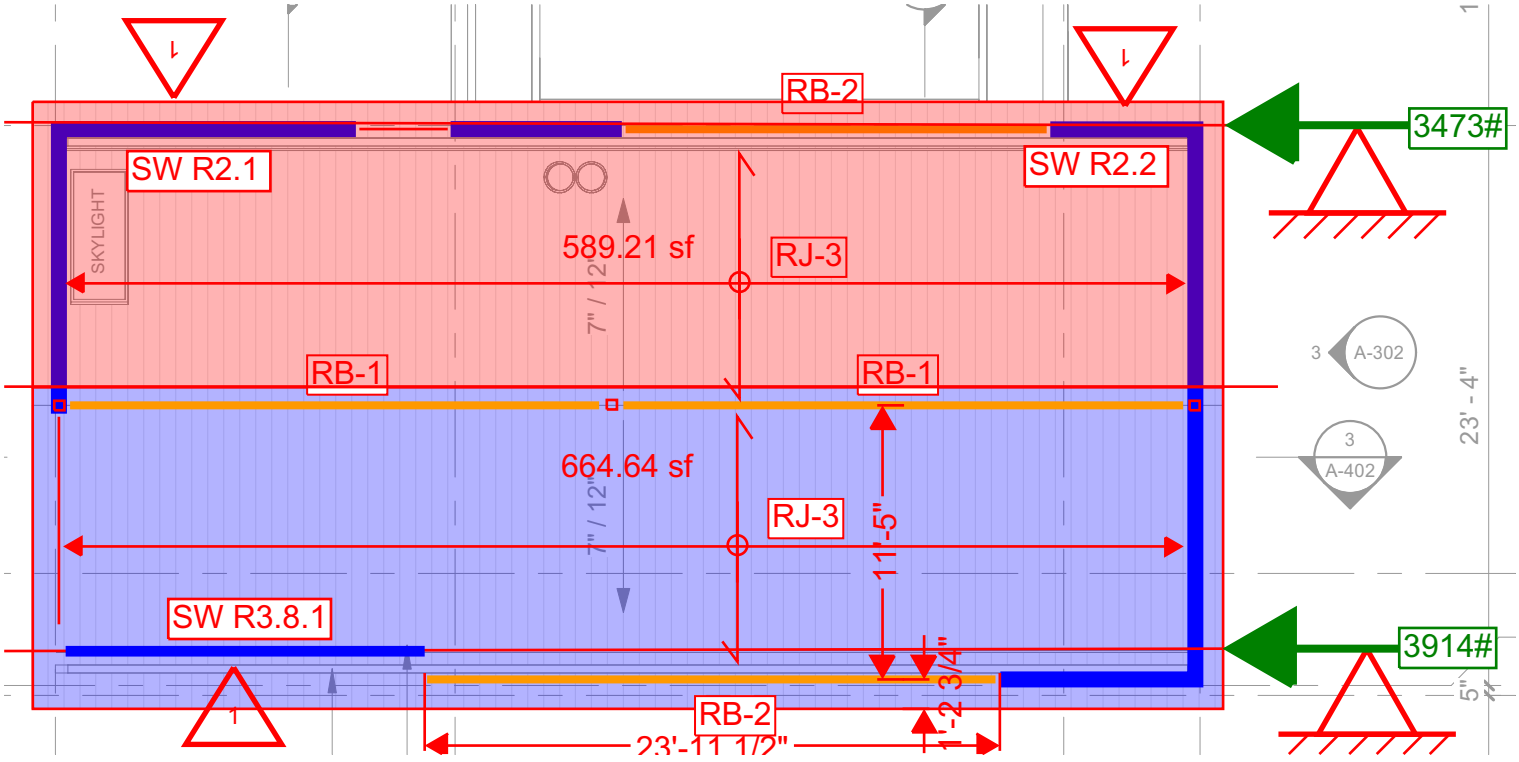
BLD2303-00021
06/26/23



ROOF LATERAL E-W DIRECTION

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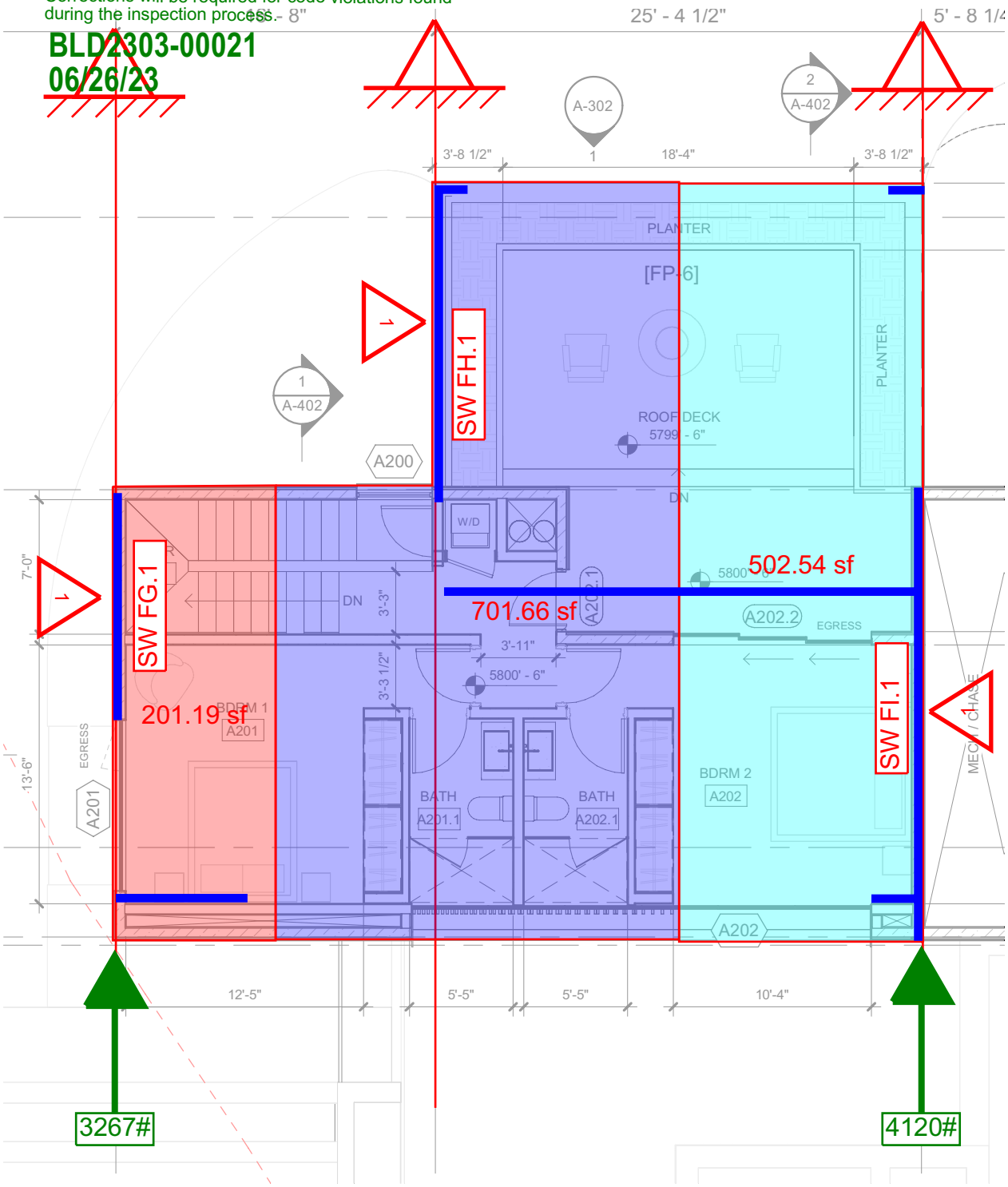
06/26/23



FLOOR LATERAL N-S DIRECTION

Approved

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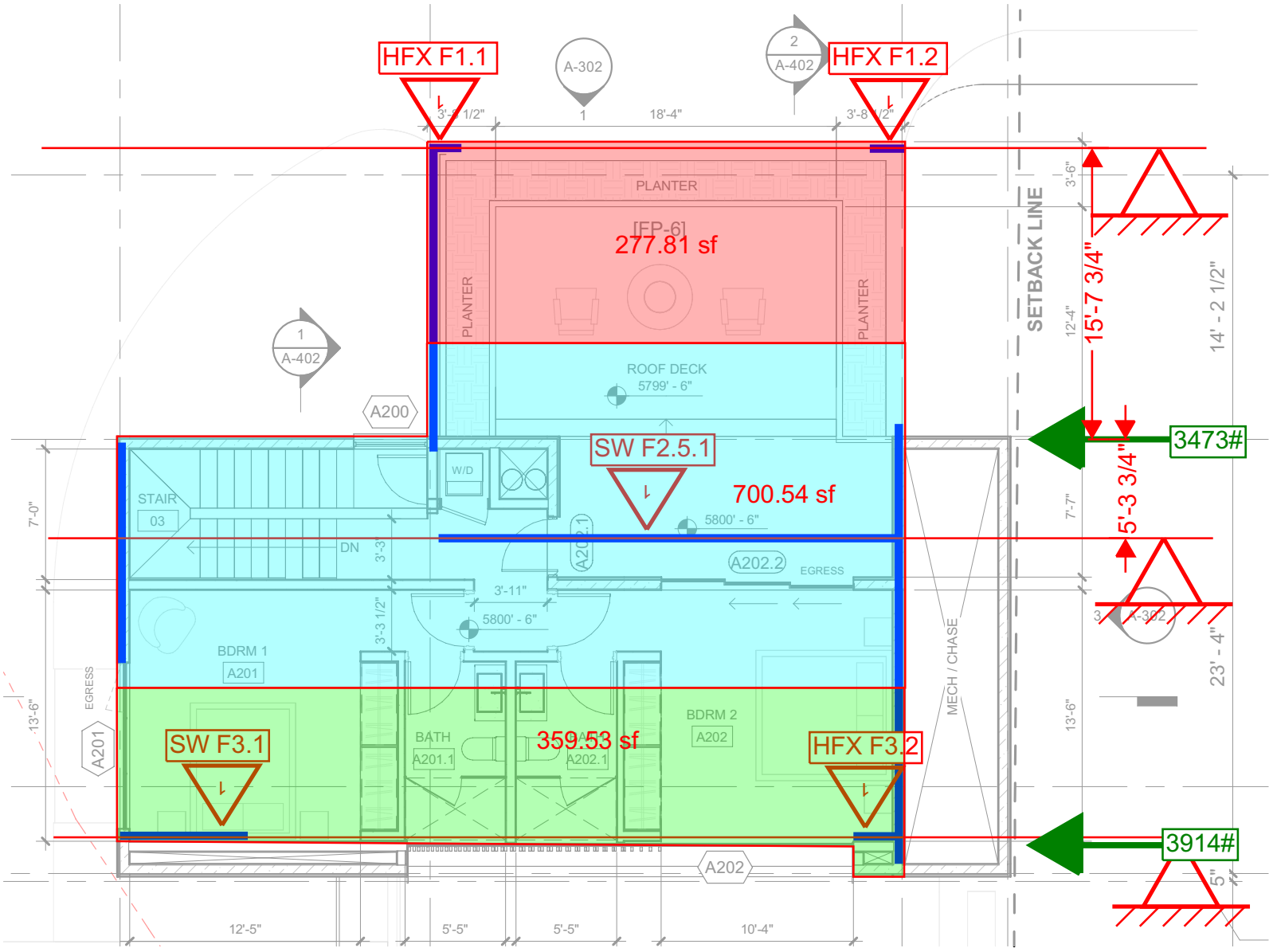
06/26/23



FLOOR LATERAL E-W DIRECTION

John Labib + Associates
Structural Engineers

3.6 - MAIN HOUSE WOOD SHEARWALL DESIGN

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LATERAL FORCE RESISTING SYSTEM LOAD DISTRIBUTION

ASCE/SEI 7-10

JOB NAME: 121 Badger Lane - Main House | JLA JOB#: 22791

Diaphragm Level	Fx/Area (psf)
Roof Level	5.27
Floor Level	2.10

Wood Shearwalls:	Concrete Shearwalls:	Steel IMF:
ρ = 1	ρ = 1	ρ = 1
Ω = 2.5	Ω = 2.5	Ω = 3
R = 6.5	R = 5	R = 4.5

See Lateral Key Plans for Wall Locations

Member Type & ID	Roof Level Trib. Area (ft^2)	2nd Floor Trib. Area (ft^2)	Wall Force, V (#)	V Above (#)	Wall Length[1], B (ft)	Wall Force, v (plf)	Design Force[2], V (kips)
N/S DIRECTION							
2nd Floor Walls below Roof Framing							
SW -RA.1	158		831		**3.50**	237	0.8
SW -RA.2	158		831		**3.5**	237	0.8
HFX -2 PANELS	440		2321		32.3	72	2.3
SW -RB.1	975		5143		17.5	294	5.1
SW -RB.5.1	1090		5750		13.5	426	5.7
SW -RC.1	1056		5569		16.75	332	5.6
SW -RC.2	819		4322		13.0	332	4.3
SW -RE.1	154		812		11.8	69	0.8
SW -RE.2	131		691		10.0	69	0.7
SW -RE.3	255		1345		17.75	76	1.3
1st Floor Walls below Floor Framing							
SW -FA.1		750	1574	4656	17.0	366	6.2
IMF -A.1		630	1323	4139	32.3	245	10.3
SW -FC.1		1275	2677	6325	16.00	563	9.0
SW -FC.2		865	1816	6546	14.0	597	8.4
SW -FE.1		1023	2149	2322	11.8	380	4.5
SW -FF.2		632	1326	3627	7.25	683	5.0

Member Type & ID	Roof Level Trib. Area (ft^2)	2nd Floor Trib. Area (ft^2)	Wall Force, V (#)	V Above (#)	Wall Length[1], B (ft)	Wall Force, v (plf)	Design Force[2], V (kips)
EAST ELEVATION							
2nd Floor Walls below Roof Framing							
SW -R4.1	249		1314		7.5	175	1.3
SW -R4.2	216		1139		6.5	175	1.1
SW -R4.5.1	705		3719		21.50	173	3.7
SW -R5.1	565		2980		18.50	161	3.0
SW -R6.1	608		3205		15.75	203	3.2
SW R-6.2	338		1780		8.8	203	1.8
SW R-7.1	533		2813		12.0	234	2.8
SW -R7.2	467		2462		10.5	234	2.5
SW -R7.5.1	364		1922		11.25	171	1.9
SW -R7.5.2	551		2904		17.00	171	2.9
SW -R8.1	269		1418		7.5	189	1.4
SW -R8.2	376		1985		10.5	189	2.0
1st Floor Walls below Floor Framing							
SW -F4.1		1095	2299	3971	6.5	965	6.3
SW -F5.1		1060	2225	5181	15.3	486	7.4
SW -F6.1		472	991	3205	17.0	247	4.2
SW -F6.2		243	510	1780	8.8	262	2.3
SW -F7.1		205	430	2813	12.0	270	3.2
SW -F7.2		625	1312	4181	16.0	343	5.5
SW -F7.5.1		1000	2099	3108	12.0	434	5.2
SW -F8.1		445	934	3402	38.00	114	4.3

1 - Bolded cells indicate an aspect ratio Greater than 2:1, but Less than 3.5:1. Reduction in capacity has been calculated accordingly (2b/h). See individual wall calculation.

2 - Bolded cells indicate where the R value of the system above (OMF) dictates the applicable response modification factor (where R_{above} is less than R_{below}). Values have been scaled (R_{below}/R_{above}) to comply with ASCE7 §12.2.3.1 (2).

Wood Shear Wall -RA.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	3		
Shear Wall Height	h	=	16.5	ft	
Shear Wall Length	b	=	3.50	ft	
Design Shear Force	V	=	0.8	k	strength level, rho = 1.0
	v	=	237	plf	strength level, rho = 1.0
	v	=	166	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	29	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU4		
Anchor Elongation (at str. capacity)	Δ_a	=	0.154	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.80		

Results

(bend) (shear) (anchor)

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.124 + 0.135 + 0.581$$

(15%) (16%) (69%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.841} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0042		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.85		
Total Inelastic Displacement		=	3.364	in	

Wood Shear Wall -RA.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	3		
Shear Wall Height	h	=	16.5	ft	
Shear Wall Length	b	=	3.50	ft	
Design Shear Force	V	=	0.8	k	strength level, rho = 1.0
	v	=	237	plf	strength level, rho = 1.0
	v	=	166	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	29	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU4		
Anchor Elongation (at str. capacity)	Δ_a	=	0.154	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.80		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

δ_{sw} = 0.124 + 0.135 + 0.581

(15%) (16%) (69%) (contribution to total deflection)

δ_{sw} = **0.841** in

Deflection Limit

Elastic Drift	Δ_e	=	0.0042	
Deflection Amplification Factor	C_d	=	4	per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020	per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050	
Drift DCR		=	0.85	
Total Inelastic Displacement		=	3.364	in

Wood Shear Wall -RB.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	14.25	ft	
Shear Wall Length	b	=	17.50	ft	
Design Shear Force	V	=	5.14	k	strength level, rho = 1.0
	v	=	294	plf	strength level, rho = 1.0
	v	=	206	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU4		
Anchor Elongation (at str. capacity)	Δ_a	=	0.154	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.86		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.020 + 0.322 + 0.107$$

(4%) (72%) (24%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.449} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0026		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.53		
Total Inelastic Displacement		=	1.798	in	

Wood Shear Wall -RB.5.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	3		
Shear Wall Height	h	=	15.25	ft	
Shear Wall Length	b	=	12.75	ft	
Design Shear Force	V	=	5.75	k	strength level, rho = 1.0
	v	=	451	plf	strength level, rho = 1.0
	v	=	316	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1700	ksi	for DF-L #1
Cross Sectional Area of end posts	A	=	30.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	29	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU8		
Anchor Elongation (at str. capacity)	Δ_a	=	0.161	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.81		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.020 + 0.237 + 0.157$$

(5%) (57%) (38%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.413} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0023	
Deflection Amplification Factor	C_d	=	4	per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020	per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050	
Drift DCR		=	0.45	
Total Inelastic Displacement		=	1.653	in

Wood Shear Wall -RC.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	2		
Shear Wall Height	h	=	15.25	ft	
Shear Wall Length	b	=	16.75	ft	
Design Shear Force	V	=	5.57	k	strength level, rho = 1.0
	v	=	332	plf	strength level, rho = 1.0
	v	=	233	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	19.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	19	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU5		
Anchor Elongation (at str. capacity)	Δ_a	=	0.158	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.83		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.018 + 0.267 + 0.120$$

(5%) (66%) (30%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.405} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0022		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.44		
Total Inelastic Displacement		=	1.621	in	

Wood Shear Wall -RC.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	2		
Shear Wall Height	h	=	15.25	ft	
Shear Wall Length	b	=	12.25	ft	
Design Shear Force	V	=	4.32	k	strength level, rho = 1.0
	v	=	353	plf	strength level, rho = 1.0
	v	=	247	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	19.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	19	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU5		
Anchor Elongation (at str. capacity)	Δ_a	=	0.158	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.89		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.027 + 0.283 + 0.174$$

(5%) (59%) (36%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.484} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0026		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.53		
Total Inelastic Displacement		=	1.936	in	

Wood Shear Wall -RE.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	14.5	ft	
Shear Wall Length	b	=	11.75	ft	
Design Shear Force	V	=	0.81	k	strength level, rho = 1.0
	v	=	69	plf	strength level, rho = 1.0
	v	=	48	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.30		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.007 + 0.077 + 0.044$$

(6%) (60%) (34%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.129}\ \text{in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0007		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.15		
Total Inelastic Displacement		=	0.515	in	

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	16.5	ft	
Shear Wall Length	b	=	10.00	ft	
Design Shear Force	V	=	0.69	k	strength level, rho = 1.0
	v	=	69	plf	strength level, rho = 1.0
	v	=	48	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.35		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.013 + 0.088 + 0.067$$

(8%) (52%) (40%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.168} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0008		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.17		
Total Inelastic Displacement		=	0.671	in	

Wood Shear Wall -RE.3

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	16.5	ft	
Shear Wall Length	b	=	17.75	ft	
Design Shear Force	V	=	1.35	k	strength level, rho = 1.0
	v	=	76	plf	strength level, rho = 1.0
	v	=	53	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.38		

Results

(bend) (shear) (anchor)

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.008 + 0.096 + 0.042$$

(5%) (66%) (29%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.146} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0007		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.15		
Total Inelastic Displacement		=	0.583	in	

Wood Shear Wall -FA.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	2		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	17.00	ft	
Design Shear Force	V	=	6.23	k	strength level, rho = 1.0
	v	=	366	plf	strength level, rho = 1.0
	v	=	257	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	19.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	19	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU5		
Anchor Elongation (at str. capacity)	Δ_a	=	0.158	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.71		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.009 + 0.227 + 0.077$$

(3%) (72%) (25%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.313} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0022		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.44		
Total Inelastic Displacement		=	1.253	in	

Wood Shear Wall -FC.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	3		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	16.00	ft	
Design Shear Force	V	=	9.00	k	strength level, rho = 1.0
	v	=	563	plf	strength level, rho = 1.0
	v	=	394	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1700	ksi	for DF-L #1
Cross Sectional Area of end posts	A	=	30.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	29	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU11		
Anchor Elongation (at str. capacity)	Δ_a	=	0.182	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.65		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

δ_{sw} = 0.009 + 0.228 + 0.086

(3%) (71%) (27%) (contribution to total deflection)

δ_{sw} = **0.323** in

Deflection Limit

Elastic Drift	Δ_e	=	0.0023		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.46		
Total Inelastic Displacement		=	1.293	in	

Wood Shear Wall -FC.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	3		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	14.00	ft	
Design Shear Force	V	=	8.36	k	strength level, rho = 1.0
	v	=	597	plf	strength level, rho = 1.0
	v	=	418	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1700	ksi	for DF-L #1
Cross Sectional Area of end posts	A	=	30.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	29	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU11		
Anchor Elongation (at str. capacity)	Δ_a	=	0.182	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.69		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.011 + 0.242 + 0.105$$

(3%) (68%) (29%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.358} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0025		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.51		
Total Inelastic Displacement		=	1.431	in	

Wood Shear Wall -FE.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	2		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	11.75	ft	
Design Shear Force	V	=	4.47	k	strength level, rho = 1.0
	v	=	380	plf	strength level, rho = 1.0
	v	=	266	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	19.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	19	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU5		
Anchor Elongation (at str. capacity)	Δ_a	=	0.158	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.74		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.014 + 0.235 + 0.116$$

(4%) (64%) (32%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.365} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0026		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.52		
Total Inelastic Displacement		=	1.461	in	

Wood Shear Wall -FF.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	4		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	7.25	ft	
Design Shear Force	V	=	4.95	k	strength level, rho = 1.0
	v	=	683	plf	strength level, rho = 1.0
	v	=	478	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1700	ksi	for DF-L #1
Cross Sectional Area of end posts	A	=	30.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	36	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU11		
Anchor Elongation (at str. capacity)	Δ_a	=	0.182	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.79		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.024 + 0.223 + 0.232$$

(5%) (47%) (48%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.478} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0034		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.68		
Total Inelastic Displacement		=	1.914	in	

Wood Shear Wall -R4.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	9.75	ft	
Shear Wall Length	b	=	7.50	ft	
Design Shear Force	V	=	1.31	k	strength level, rho = 1.0
	v	=	175	plf	strength level, rho = 1.0
	v	=	123	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.52		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.009 + 0.131 + 0.080$$

(4%) (60%) (36%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.220} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0019		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.38		
Total Inelastic Displacement		=	0.879	in	

Wood Shear Wall -R4.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	9.75	ft	
Shear Wall Length	b	=	6.50	ft	
Design Shear Force	V	=	1.14	k	strength level, rho = 1.0
	v	=	175	plf	strength level, rho = 1.0
	v	=	123	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.52		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.010 + 0.131 + 0.092$$

(4%) (56%) (39%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.233} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0020		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.40		
Total Inelastic Displacement		=	0.934	in	

Wood Shear Wall -R4.5.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	9.75	ft	
Shear Wall Length	b	=	21.50	ft	
Design Shear Force	V	=	3.72	k	strength level, rho = 1.0
	v	=	173	plf	strength level, rho = 1.0
	v	=	121	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.51		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.003 + 0.130 + 0.027$$

(2%) (81%) (17%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.160} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0014		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.27		
Total Inelastic Displacement		=	0.641	in	

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	14.75	ft	
Shear Wall Length	b	=	18.50	ft	
Design Shear Force	V	=	2.98	k	strength level, rho = 1.0
	v	=	161	plf	strength level, rho = 1.0
	v	=	113	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.72		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.011 + 0.183 + 0.068$$

(4%) (70%) (26%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.262} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0015		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.30		
Total Inelastic Displacement		=	1.048	in	

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	13.25	ft	
Shear Wall Length	b	=	15.75	ft	
Design Shear Force	V	=	3.20	k	strength level, rho = 1.0
	v	=	203	plf	strength level, rho = 1.0
	v	=	142	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.82		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.012 + 0.207 + 0.081$$

(4%) (69%) (27%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.301} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0019		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.38		
Total Inelastic Displacement		=	1.204	in	

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Project: 121 Badger Lane Main House
Job: 2279.1
By: GH
Date: 12/22/2022

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	10.25	ft	
Shear Wall Length	b	=	8.75	ft	
Design Shear Force	V	=	1.78	k	strength level, rho = 1.0
	v	=	203	plf	strength level, rho = 1.0
	v	=	142	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.63		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.010 + 0.160 + 0.088$$

(4%) (62%) (34%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.258}\ \text{in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0021		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.42		
Total Inelastic Displacement		=	1.033	in	

Wood Shear Wall R-7.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	10.25	ft	
Shear Wall Length	b	=	12.00	ft	
Design Shear Force	V	=	2.81	k	strength level, rho = 1.0
	v	=	234	plf	L
	v	=	164	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.73		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.009 + 0.185 + 0.074$$

(3%) (69%) (28%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.267} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0022		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.43		
Total Inelastic Displacement		=	1.068	in	

Wood Shear Wall -R7.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	10.5	ft	
Shear Wall Length	b	=	10.50	ft	
Design Shear Force	V	=	2.46	k	strength level, rho = 1.0
	v	=	234	plf	strength level, rho = 1.0
	v	=	164	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.75		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.011 + 0.189 + 0.088$$

(4%) (66%) (31%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.288} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0023		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.46		
Total Inelastic Displacement		=	1.152	in	

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Wood Shear Wall -R7.5.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	10.5	ft	
Shear Wall Length	b	=	11.25	ft	
Design Shear Force	V	=	1.92	k	strength level, rho = 1.0
	v	=	171	plf	strength level, rho = 1.0
	v	=	120	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.54		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

δ_{sw} = 0.007 + 0.138 + 0.060

(3%) (67%) (29%) (contribution to total deflection)

δ_{sw} = **0.205** in

Deflection Limit

Elastic Drift	Δ_e	=	0.0016		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.33		
Total Inelastic Displacement		=	0.821	in	

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Jt: 121 Badger Lane Main House
Dr: 2279.1
By: GH
Date:

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	14.25	ft	
Shear Wall Length	b	=	17.00	ft	
Design Shear Force	V	=	2.90	k	strength level, rho = 1.0
	v	=	171	plf	strength level, rho = 1.0
	v	=	120	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.74		

Results

(bend) (shear) (anchor)

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.012 + 0.187 + 0.073$$

(4%) (69%) (27%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.272} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0016		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.32		
Total Inelastic Displacement		=	1.089	in	

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Jt: 121 Badger Lane Main House
Dr: 2279.1
By: GH
Date:

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	14.25	ft	
Shear Wall Length	b	=	7.50	ft	
Design Shear Force	V	=	1.42	k	strength level, rho = 1.0
	v	=	189	plf	strength level, rho = 1.0
	v	=	132	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.82		

Results

(bend) (shear) (anchor)

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.030 + 0.207 + 0.183$$

(7%) (49%) (44%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.420}\ \text{in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0025		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.49		
Total Inelastic Displacement		=	1.681	in	

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Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	9.75	ft	
Shear Wall Length	b	=	10.50	ft	
Design Shear Force	V	=	1.98	k	strength level, rho = 1.0
	v	=	189	plf	strength level, rho = 1.0
	v	=	132	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.56		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.007 + 0.142 + 0.061$$

(3%) (68%) (29%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.210} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0018		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.36		
Total Inelastic Displacement		=	0.839	in	

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Structural Engineers

Jt: 121 Badger Lane Main House
Of: 2279.1
By: GH
Date: 12/22/2022

Wood Shear Wall -F4.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	5		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	6.50	ft	
Design Shear Force	V	=	6.27	k	strength level, rho = 1.0
	v	=	965	plf	strength level, rho = 1.0
	v	=	675	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1700	ksi	for DF-L #1
Cross Sectional Area of end posts	A	=	30.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	51	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU14		
Anchor Elongation (at str. capacity)	Δ_a	=	0.239	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.74		

Results

(bend) (shear) (anchor)

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

δ_{sw} = 0.037 + 0.222 + 0.318

(6%) (38%) (55%) (contribution to total deflection)

δ_{sw} = **0.577** in

Deflection Limit

Elastic Drift	Δ_e	=	0.0041		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.82		
Total Inelastic Displacement		=	2.309	in	

Wood Shear Wall -F5.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	3		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	15.25	ft	
Design Shear Force	V	=	7.41	k	strength level, rho = 1.0
	v	=	486	plf	strength level, rho = 1.0
	v	=	340	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1700	ksi	for DF-L #1
Cross Sectional Area of end posts	A	=	30.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	29	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU8		
Anchor Elongation (at str. capacity)	Δ_a	=	0.161	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.67		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.008 + 0.197 + 0.084$$

(3%) (68%) (29%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.289}\ \text{in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0020		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.41		
Total Inelastic Displacement		=	1.154	in	

Wood Shear Wall -F6.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	17.00	ft	
Design Shear Force	V	=	4.20	k	strength level, rho = 1.0
	v	=	247	plf	strength level, rho = 1.0
	v	=	173	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.88		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.010 + 0.223 + 0.072$$

(3%) (73%) (24%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.304} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0022		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.43		
Total Inelastic Displacement		=	1.218	in	

Wood Shear Wall -F6.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	8.75	ft	
Design Shear Force	V	=	2.29	k	strength level, rho = 1.0
	v	=	262	plf	strength level, rho = 1.0
	v	=	183	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU4		
Anchor Elongation (at str. capacity)	Δ_a	=	0.154	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.63		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.020 + 0.237 + 0.130$$

(5%) (61%) (34%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.386} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0027		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.55		
Total Inelastic Displacement		=	1.546	in	

Wood Shear Wall -F7.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	12.00	ft	
Design Shear Force	V	=	3.24	k	strength level, rho = 1.0
	v	=	270	plf	strength level, rho = 1.0
	v	=	189	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU4		
Anchor Elongation (at str. capacity)	Δ_a	=	0.154	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.65		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.015 + 0.244 + 0.098$$

(4%) (68%) (27%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.357} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0025		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.51		
Total Inelastic Displacement		=	1.429	in	

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Structural Engineers

Jt: 121 Badger Lane - Main House
Of: 2279.1
By: GH
Date: 12/22/2022

Wood Shear Wall -F7.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	2		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	16.00	ft	
Design Shear Force	V	=	5.49	k	strength level, rho = 1.0
	v	=	343	plf	strength level, rho = 1.0
	v	=	240	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	19.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	19	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU5		
Anchor Elongation (at str. capacity)	Δ_a	=	0.158	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.66		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.009 + 0.212 + 0.077$$

(3%) (71%) (26%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.298} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0021		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.42		
Total Inelastic Displacement		=	1.194	in	

Wood Shear Wall -F7.5.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	3		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	12.00	ft	
Design Shear Force	V	=	5.21	k	strength level, rho = 1.0
	v	=	434	plf	strength level, rho = 1.0
	v	=	304	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1700	ksi	for DF-L #1
Cross Sectional Area of end posts	A	=	30.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	29	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU8		
Anchor Elongation (at str. capacity)	Δ_a	=	0.161	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.60		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.009 + 0.176 + 0.095$$

(3%) (63%) (34%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.280} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0020		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.40		
Total Inelastic Displacement		=	1.120	in	

Wood Shear Wall -F8.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	38.00	ft	
Design Shear Force	V	=	4.34	k	strength level, rho = 1.0
	v	=	114	plf	strength level, rho = 1.0
	v	=	80	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.41		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.002 + 0.103 + 0.015$$

(2%) (86%) (12%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.120} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0009		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.17		
Total Inelastic Displacement		=	0.480	in	

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Structural Engineers

3.7 - ADU WOOD SHEARWALL DESIGN

319 Main Street
El Segundo, California 90245
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LATERAL FORCE RESISTING SYSTEM LOAD DISTRIBUTION

ASCE/SEI 7-10

JOB NAME: 121 Badger Lane - ADU | JLA JOB#: 22791

Diaphragm Level	Fx/Area (psf)
Roof Level	5.89
Floor Level	2.47

Wood Shearwalls:	Concrete Shearwalls:	Steel IMF:
ρ = 1	ρ = 1	ρ = 1
Ω = 2.5	Ω = 2.5	Ω = 3
R = 6.5	R = 5	R = 4.5

See Lateral Key Plans for Wall Locations

Member Type & ID	Roof Level Trib. Area (ft^2)	2nd Floor Trib. Area (ft^2)	Wall Force, V (#)	V Above (#)	Wall Length[1], B (ft)	Wall Force, v (plf)	Design Force[2], V (kips)
N/S DIRECTION							
2nd Floor Walls below Roof Framing							
SW -RG.1	555		3267		12.00	272	3.3
SW -RJ.1	700		4120		23.5	175	4.1
1st Floor Walls below Floor Framing							
SW -FG.1		205	506	3267	12.0	314	3.8
SW -FH.1		705	1741		15.5	112	2.3
SW -FI.1		505	1247	4120	23.50	228	5.4

Member Type & ID	Roof Level Trib. Area (ft^2)	2nd Floor Trib. Area (ft^2)	Wall Force, V (#)	V Above (#)	Wall Length[1], B (ft)	Wall Force, v (plf)	Design Force[2], V (kips)
E/W DIRECTION							
2nd Floor Walls below Roof Framing							
SW -R2.1	393		2315		12.5	185	2.3
SW -R2.2	197		1158		**6.3**	185	1.2
SW -R3.8.1	665		3914		15.50	253	3.9
1st Floor Walls below Floor Framing							
HFX -F1.1		140	346	439	**1.5**	523	0.8
HFX -F1.2		140	346	439	**1.5**	523	0.8
SW -F2.5.1		700	1729	2594	24.3	178	4.3
SW -F3.1		296	732	3223	7.0	565	4.0
HFX -F3.2		64	157	691	**1.5**	565	0.8

1 - Bolded cells indicate an aspect ratio Greater than 2:1, but Less than 3.5:1. Reduction in capacity has been calculated accordingly (2b/h). See individual wall calculation.

2 - Bolded cells indicate where the R value of the system above (OMF) dictates the applicable response modification factor (where R_{above} is less than R_{below}). Values have been scaled (R_{below}/R_{above}) to comply with ASCE7 §12.2.3.1 (2).

Wood Shear Wall -RG.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	13.5	ft	
Shear Wall Length	b	=	12.00	ft	
Design Shear Force	V	=	3.3	k	strength level, rho = 1.0
	v	=	272	plf	strength level, rho = 1.0
	v	=	191	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU4		
Anchor Elongation (at str. capacity)	Δ_a	=	0.154	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.75		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.023 + 0.283 + 0.130$$

(5%) (65%) (30%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.436} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0027		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.54		
Total Inelastic Displacement		=	1.743	in	

John Labib + Associates
Structural Engineers

Jt: 121 Badger Lane
Jb: 2279.1
By: GH
Date: 12/22/2022

Wood Shear Wall -RJ.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	13.5	ft	
Shear Wall Length	b	=	23.50	ft	
Design Shear Force	V	=	4.1	k	strength level, rho = 1.0
	v	=	175	plf	strength level, rho = 1.0
	v	=	123	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.72		

Results

(bend) (shear) (anchor)

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.007 + 0.182 + 0.049$$

(3%) (76%) (20%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.238} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0015		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.29		
Total Inelastic Displacement		=	0.953	in	

Wood Shear Wall -FG.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	12.00	ft	
Design Shear Force	V	=	3.77	k	strength level, rho = 1.0
	v	=	314	plf	strength level, rho = 1.0
	v	=	220	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU4		
Anchor Elongation (at str. capacity)	Δ_a	=	0.154	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.76		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.017 + 0.284 + 0.114$$

(4%) (68%) (27%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.415}\ \text{in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0029		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.59		
Total Inelastic Displacement		=	1.662	in	

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Structural Engineers

Jt: 121 Badger Lane
Jb: 2279.1
By: GH
Date: 12/22/2022

Wood Shear Wall -FH.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	15.50	ft	
Design Shear Force	V	=	2.26	k	strength level, rho = 1.0
	v	=	146	plf	strength level, rho = 1.0
	v	=	102	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.52		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.006 + 0.132 + 0.047$$

(3%) (71%) (25%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.185} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0013		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.26		
Total Inelastic Displacement		=	0.739	in	

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Structural Engineers

Jt: 121 Badger Lane
Jb: 2279.1
By: GH
Date: 12/22/2022

Wood Shear Wall -Fl.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	23.50	ft	
Design Shear Force	V	=	5.37	k	strength level, rho = 1.0
	v	=	228	plf	strength level, rho = 1.0
	v	=	160	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.81		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.006 + 0.206 + 0.048$$

(2%) (79%) (18%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.261} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0019		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.37		
Total Inelastic Displacement		=	1.044	in	

Wood Shear Wall -R2.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	9.75	ft	
Shear Wall Length	b	=	12.50	ft	
Design Shear Force	V	=	2.32	k	strength level, rho = 1.0
	v	=	185	plf	strength level, rho = 1.0
	v	=	130	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.55		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.006 + 0.139 + 0.050$$

(3%) (71%) (26%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.195} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0017		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.33		
Total Inelastic Displacement		=	0.780	in	

Wood Shear Wall -R2.2

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	9.75	ft	
Shear Wall Length	b	=	6.25	ft	
Design Shear Force	V	=	1.16	k	strength level, rho = 1.0
	v	=	185	plf	strength level, rho = 1.0
	v	=	130	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.55		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.011 + 0.139 + 0.101$$

(4%) (55%) (40%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.251} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0021		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.43		
Total Inelastic Displacement		=	1.004	in	

John Labib + Associates
Structural Engineers

Jt: 121 Badger Lane
Of: 2279.1
By: GH
Date: 12/22/2022

Wood Shear Wall -R3.8.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	14.75	ft	
Shear Wall Length	b	=	15.50	ft	
Design Shear Force	V	=	3.91	k	strength level, rho = 1.0
	v	=	253	plf	strength level, rho = 1.0
	v	=	177	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU4		
Anchor Elongation (at str. capacity)	Δ_a	=	0.154	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.76		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.021 + 0.287 + 0.112$$

(5%) (68%) (27%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.419} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0024		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.47		
Total Inelastic Displacement		=	1.678	in	

Wood Shear Wall -F2.5.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	1		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	24.25	ft	
Design Shear Force	V	=	4.32	k	strength level, rho = 1.0
	v	=	178	plf	strength level, rho = 1.0
	v	=	125	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1600	ksi	for DF-L #2
Cross Sectional Area of end posts	A	=	12.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	13	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU2		
Anchor Elongation (at str. capacity)	Δ_a	=	0.118	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.64		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.005 + 0.161 + 0.036$$

(2%) (80%) (18%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.202} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0014		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.29		
Total Inelastic Displacement		=	0.809	in	

Wood Shear Wall -F3.1

Wood Shear Wall Deflection

per 2008 SDPWS eq. C4.3.2-2

Inputs

Shear Wall Type (per Typ. Details)		=	3		
Shear Wall Height	h	=	11.75	ft	
Shear Wall Length	b	=	7.00	ft	
Design Shear Force	V	=	3.96	k	strength level, rho = 1.0
	v	=	565	plf	strength level, rho = 1.0
	v	=	396	plf	ASD level, rho = 1.0
Modulus of Elasticity of end posts	E	=	1700	ksi	for DF-L #1
Cross Sectional Area of end posts	A	=	30.25	in2	min post size per HD schedule
Apparent Shear Wall stiffness	G_a	=	29	k/in	for OSB per wall type (SDPWS table 4.3A)
Holdown Type		=	HDU8		
Anchor Elongation (at str. capacity)	Δ_a	=	0.161	in	per Simpson ESR-2330 or ER-143
Tension DCR		=	0.79		

Results

(bend) *(shear)* *(anchor)*

$$\delta_{sw} = \frac{8vh3}{EAb} + \frac{vh}{G_a} + \frac{h}{b}\Delta_a$$

SDPWS eqn. C4.3.2-2

$$\delta_{sw} = 0.020 + 0.229 + 0.212$$

(4%) (50%) (46%) (contribution to total deflection)

$$\delta_{sw} = \boxed{0.462} \text{ in}$$

Deflection Limit

Elastic Drift	Δ_e	=	0.0033		
Deflection Amplification Factor	C_d	=	4		per ASCE 7 table 12.2-1
Allowable Drift Ratio	Δ_a	=	0.020		per ASCE 7 table 12.12-1
Allowable Elastic Drift	Δ_{ae}	=	0.0050		
Drift DCR		=	0.65		
Total Inelastic Displacement		=	1.846	in	

John Labib + Associates
Structural Engineers

3.8 - IMF DESIGN

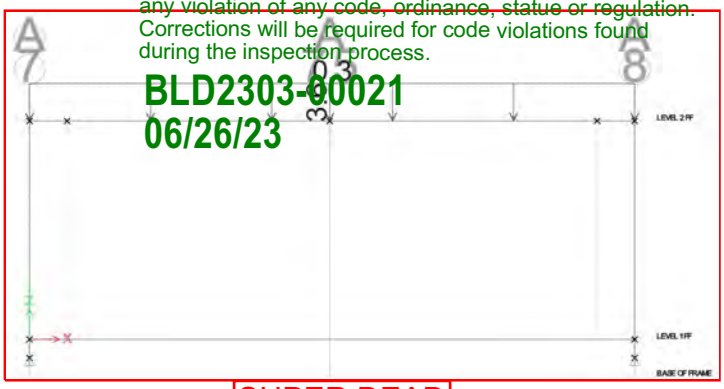
319 Main Street
El Segundo, California 90245
t:213/239 9600
info@labibse.com
www.labibse.com

Approved

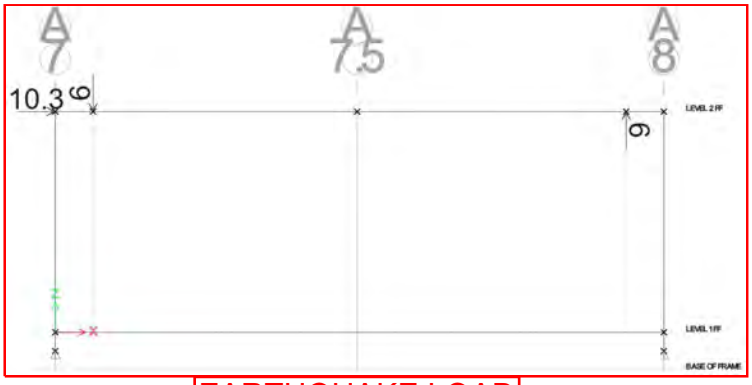
These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

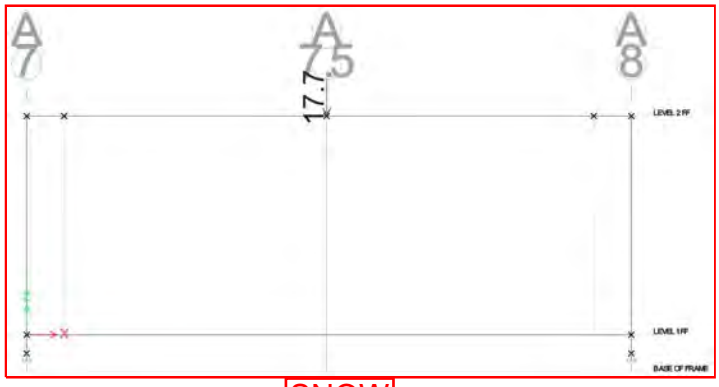
IN FRAME



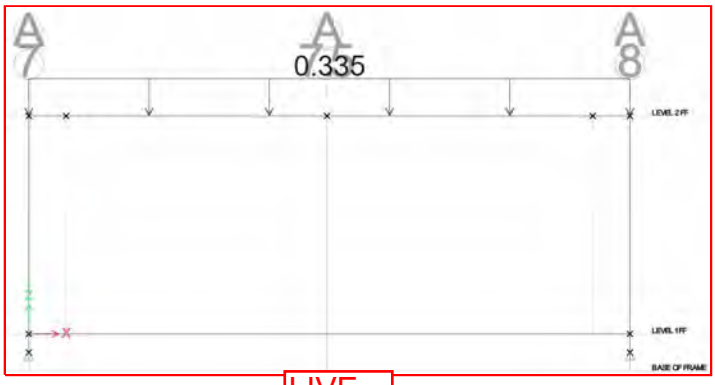
SUPER DEAD



EARTHQUAKE LOAD

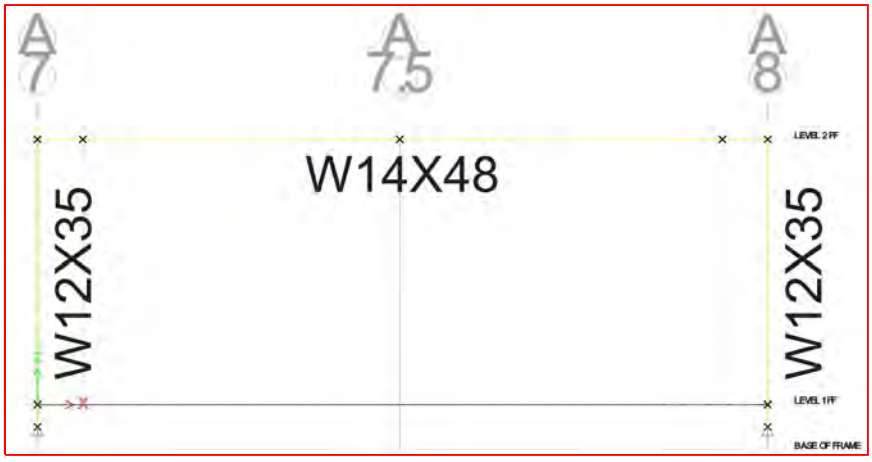


SNOW



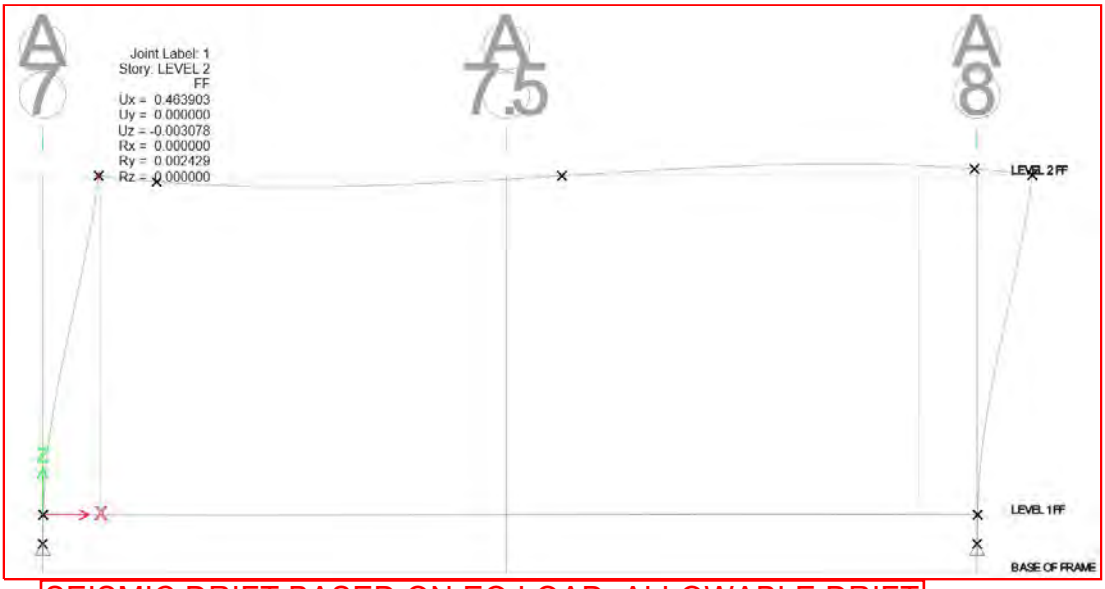
LIVE

DESIGN SECTIONS



DESIGN OUTPUT

DEMAND/CAPACITY RATIO BASED ON WORST CASE LOAD COMBO ASCE 7-16 2.3.6-6



SEISMIC DRIFT BASED ON EQ LOAD. ALLOWABLE DRIFT = .61" > .046", THEREFORE FRAME IS OKAY IN DRIFT.

John Labib + Associates
Structural Engineers

4.0 - FOUNDATION SYSTEMS

319 Main Street
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4.1 - FOUNDATION KEYPLAN

319 Main Street
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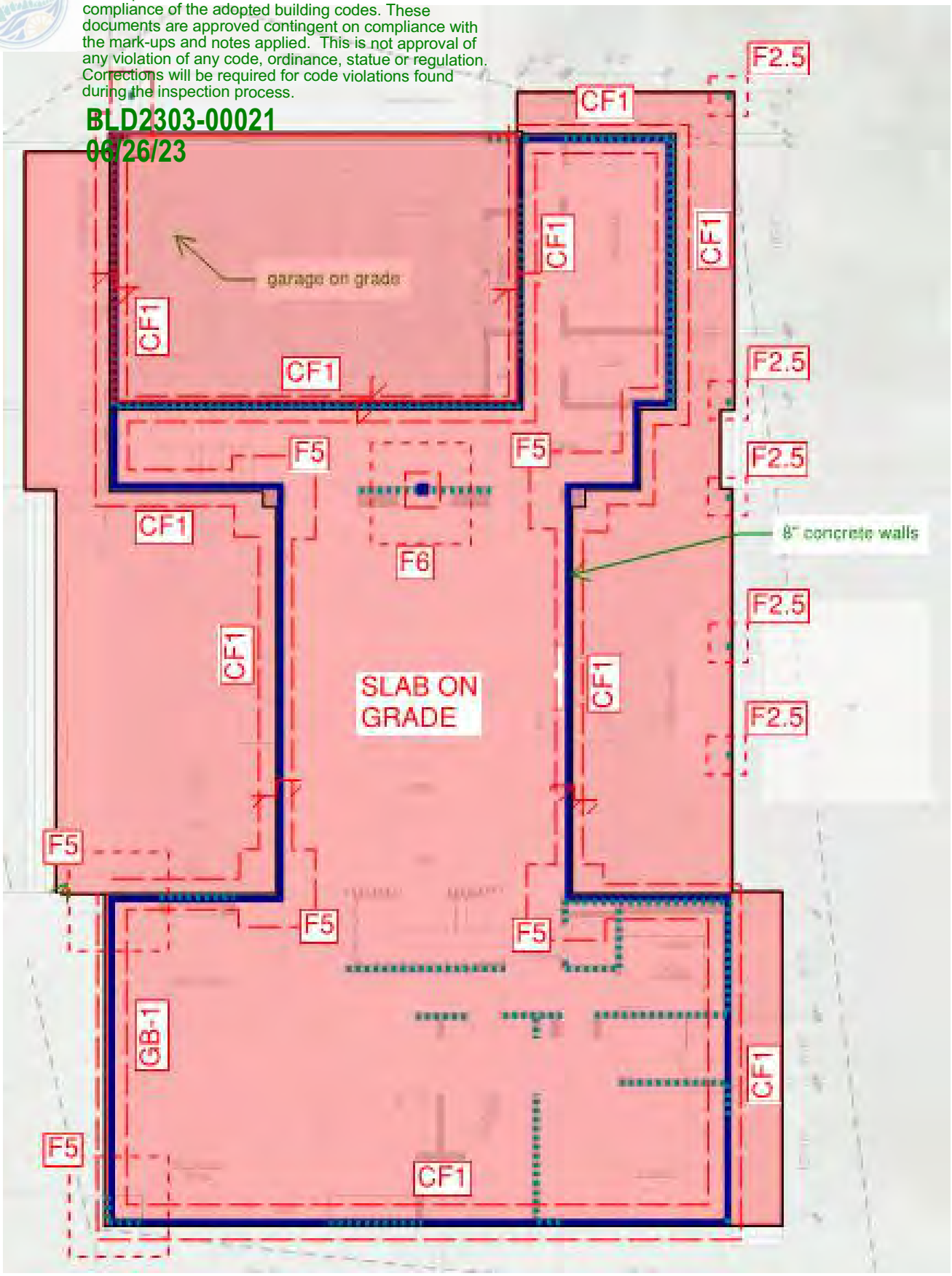
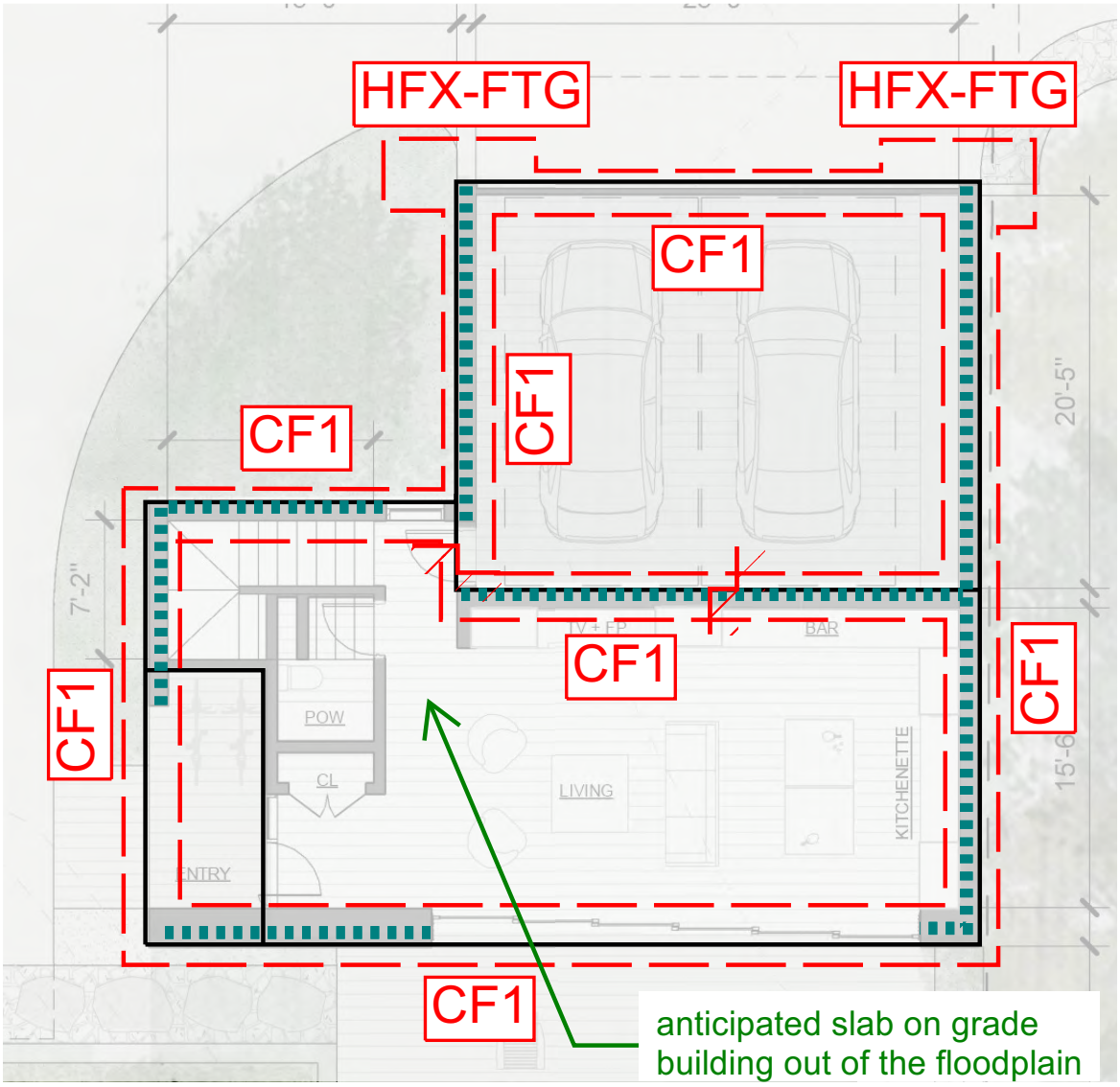


MAIN HOUSE FOUNDATION KEYPLAN

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



ADU FOUNDATION KEYPLAN

John Labib + Associates
Structural Engineers

4.2 - PAD FOOTING + TYPICAL FOOTING DESIGN

319 Main Street
El Segundo, California 90245
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info@labibse.com
www.labibse.com

Project:
To:
Date:
Page:

Labib Funk + Associates
Structural | Civil Engineers

Burnett + Young
Shoring Engineers

MAXIMUM LOAD TO FOUNDATION

WORST CASE ROOF JOIST BEARING ON WALL

- RJ-1 @ 16" OC.

D: .3^k × 16"/12" = .4 klf

L_r: .26^k × 16/12 = .35 klf

S: 1.3^k × 16/12 = 1.74 klf

WORST CASE FLOOR JOIST BEARING ON WALL

- FJ-2 @16" o.c.

D: .5^k × 16"/12" = .67 klf

L: .47^k × 16/12 = .63 klf

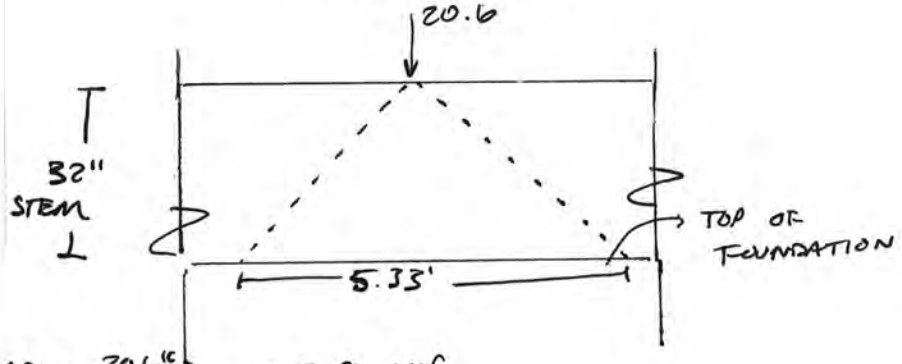
TOTAL LOAD TO CHECK = 1.07D .35L_r .63L 1.74S

WORST CASE LATERAL LOAD

HDU 14 @ GRIDLINE A

HDU 14 = 14,390# CAPACITY (ASD)

= 14,370/.7 = 20.6^k



∴ EQ LOAD = 20.6^k/5.33 = 3.9 klf

Project Title:
Engineer:
Project ID:
Project Descr:

Wall Footing

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: CF-1 - TYP CONT FOOTING (WORST CASE WALL)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	4.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
AutoCalc Footing Weight as DL	:	Yes

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.50

Increases based on footing Depth

Reference Depth below Surface	=	2.666 ft
Allow. Pressure Increase per foot of depth	=	ksf
when base footing is below	=	ft

Increases based on footing Width

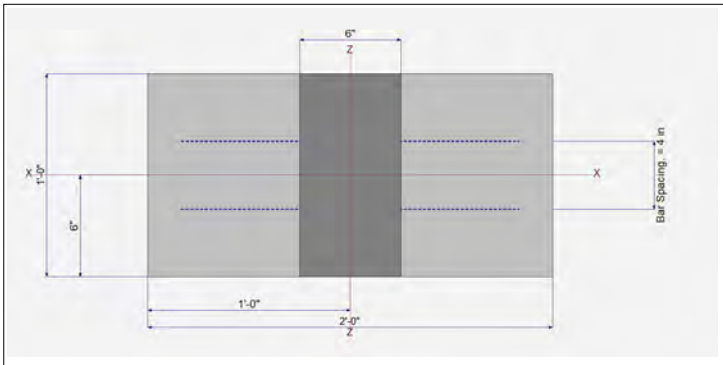
Allow. Pressure Increase per foot of width	=	ksf
when footing is wider than	=	ft

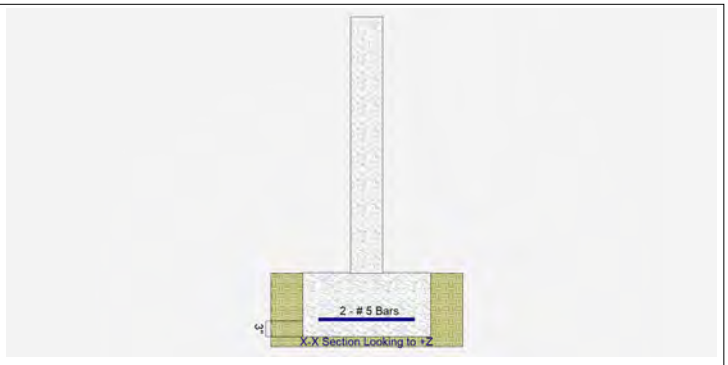
Adjusted Allowable Bearing Pressure = 3.0 ksf

Dimensions

Footing Width	=	2.0 ft	Footing Thickness	=	12.0 in	Bars along X-X Axis	
Wall Thickness	=	6.0 in	Rebar Centerline to Edge of Concrete...			# of Bars in 12" Width	= 2
Wall center offset from center of footing	=	0 in	at Bottom of footing	=	3.0 in	Reinforcing Bar Size	= # 5

Reinforcing





Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	1.070	0.350	0.630	1.740				k
OB : Overburden	=								ksf
V-x	=								k
M-zz	=								k-ft

Vx applied = in above top of footing

Project Title:
Engineer:
Project ID:
Project Descr:

Wall Footing

DESCRIPTION: CF-1 - TYP CONT FOOTING (WORST CASE WALL)

DESIGN SUMMARY

Design OK

	Factor of Safety	Item	Applied	Capacity	Governing Load Combination
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift

	Utilization Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5229	Soil Bearing	1.569 ksf	3.0 ksf	+D+0.750L+0.750S
PASS	0.02977	Z Flexure (+X)	0.7096 k-ft	23.838 k-ft	+1.20D+L+1.60S
PASS	0.01540	Z Flexure (-X)	0.3670 k-ft	23.838 k-ft	+1.20D+L+0.20S
PASS	n/a	1-way Shear (+X)	0.0 psi	94.868 psi	n/a
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Actual Soil Bearing Stress -X	Actual Soil Bearing Stress +X	Actual / Allowable Ratio
, D Only	3.0 ksf	0.0 in	0.680 ksf	0.680 ksf	0.227
, +D+L	3.0 ksf	0.0 in	0.9950 ksf	0.9950 ksf	0.332
, +D+Lr	3.0 ksf	0.0 in	0.8550 ksf	0.8550 ksf	0.285
, +D+S	3.0 ksf	0.0 in	1.550 ksf	1.550 ksf	0.517
, +D+0.750Lr+0.750L	3.0 ksf	0.0 in	1.048 ksf	1.048 ksf	0.349
, +D+0.750L+0.750S	3.0 ksf	0.0 in	1.569 ksf	1.569 ksf	0.523
, +0.60D	3.0 ksf	0.0 in	0.4080 ksf	0.4080 ksf	0.136

Overturning Stability

Units : k-ft

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Sliding SafetyRatio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
, +1.40D	0.2677	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.40D	0.2677	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+0.50Lr+1.60L	0.3959	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+0.50Lr+1.60L	0.3959	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+1.60L+0.50S	0.4936	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+1.60L+0.50S	0.4936	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+1.60Lr+L	0.3968	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+1.60Lr+L	0.3968	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+1.60Lr	0.3082	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+1.60Lr	0.3082	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+L+1.60S	0.7096	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+L+1.60S	0.7096	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+1.60S	0.621	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+1.60S	0.621	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+0.50Lr+L	0.3427	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+0.50Lr+L	0.3427	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+L+0.50S	0.4404	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+L+0.50S	0.4404	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +0.90D	0.1721	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +0.90D	0.1721	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+L+0.20S	0.367	-X	Bottom	0.2592	Min Temp %	0.62	23.838	OK
, +1.20D+L+0.20S	0.367	+X	Bottom	0.2592	Min Temp %	0.62	23.838	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

DESCRIPTION: CF-2 (EQ CHECK)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	4.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	150.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0	ksf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.50	

Increases based on footing Depth

Footing base depth below soil surface	=	4.167	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

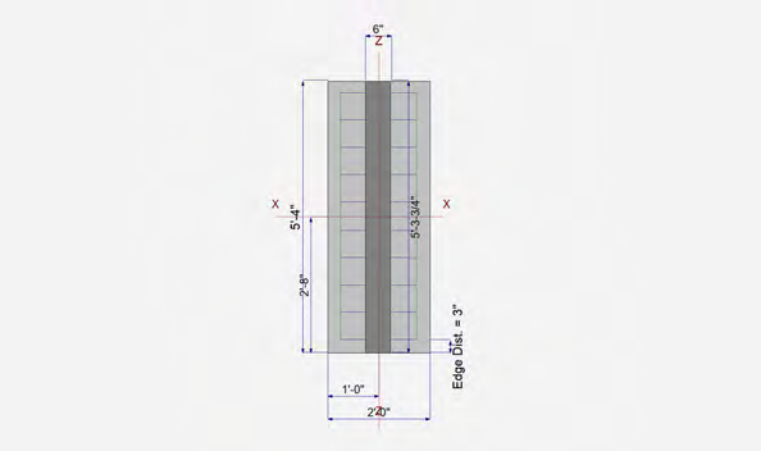
Width parallel to X-X Axis	=	2.0 ft
Length parallel to Z-Z Axis	=	5.333 ft
Footing Thickness	=	18.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	6 in
pz : parallel to Z-Z Axis	=	63.750 in
Height	=	32 in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0 in



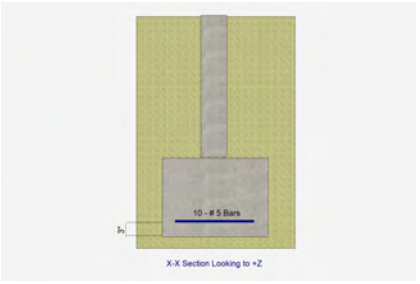
Reinforcing

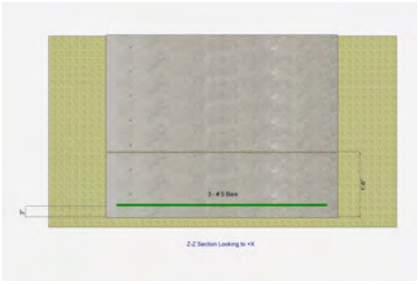
Bars parallel to X-X Axis			
Number of Bars	=		10
Reinforcing Bar Size	=	#	5
Bars parallel to Z-Z Axis			
Number of Bars	=		3
Reinforcing Bar Size	=	#	5

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation: Bars along X-X Axis

# Bars required within zone	54.5 %
# Bars required on each side of zone	45.5 %





Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	5.70	1.860	3.350	9.20		20.60		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: CF-2 (EQ CHECK)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.8853	Soil Bearing	2.656 ksf	3.0 ksf	+D+0.750L+0.750S+0.5250E about Z-Z a
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.02257	Z Flexure (+X)	0.8603 k-ft/ft	38.119 k-ft/ft	+1.20D+L+0.20S+E
PASS	0.02257	Z Flexure (-X)	0.8603 k-ft/ft	38.119 k-ft/ft	+1.20D+L+0.20S+E
PASS	0.0	X Flexure (+Z)	0.0 k-ft/ft	0.0 k-ft/ft	No Moment
PASS	0.0	X Flexure (-Z)	0.0 k-ft/ft	0.0 k-ft/ft	No Moment
PASS	n/a	1-way Shear (+X)	0.0 psi	94.868 psi	n/a
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a
PASS	n/a	1-way Shear (+Z)	0.0 psi	94.868 psi	n/a
PASS	n/a	1-way Shear (-Z)	0.0 psi	94.868 psi	n/a
PASS	n/a	2-way Punching	19.483 psi	94.868 psi	+1.40D

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	3.0	n/a	0.0	0.7594	0.7594	n/a	n/a	0.253
X-X, +D+L	3.0	n/a	0.0	1.073	1.073	n/a	n/a	0.358
X-X, +D+Lr	3.0	n/a	0.0	0.9338	0.9338	n/a	n/a	0.311
X-X, +D+S	3.0	n/a	0.0	1.622	1.622	n/a	n/a	0.541
X-X, +D+0.750Lr+0.750L	3.0	n/a	0.0	1.126	1.126	n/a	n/a	0.375
X-X, +D+0.750L+0.750S	3.0	n/a	0.0	1.642	1.642	n/a	n/a	0.547
X-X, +0.60D	3.0	n/a	0.0	0.4556	0.4556	n/a	n/a	0.152
X-X, +D+0.70E	3.0	n/a	0.0	2.111	2.111	n/a	n/a	0.704
X-X, +D+0.750L+0.750S+0.5250E	3.0	n/a	0.0	2.656	2.656	n/a	n/a	0.885
X-X, +0.60D+0.70E	3.0	n/a	0.0	1.808	1.808	n/a	n/a	0.603
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	0.7594	0.7594	0.253
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	1.073	1.073	0.358
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	0.9338	0.9338	0.311
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	1.622	1.622	0.541
Z-Z, +D+0.750Lr+0.750L	3.0	0.0	n/a	n/a	n/a	1.126	1.126	0.375
Z-Z, +D+0.750L+0.750S	3.0	0.0	n/a	n/a	n/a	1.642	1.642	0.547
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.4556	0.4556	0.152
Z-Z, +D+0.70E	3.0	0.0	n/a	n/a	n/a	2.111	2.111	0.704
Z-Z, +D+0.750L+0.750S+0.5250E	3.0	0.0	n/a	n/a	n/a	2.656	2.656	0.885
Z-Z, +0.60D+0.70E	3.0	0.0	n/a	n/a	n/a	1.808	1.808	0.603

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.0	+Z	Top	0.3888	Min Temp %	0.4650	30.672	OK
X-X, +1.40D	0.0	-Z	Top	0.3888	Min Temp %	0.4650	30.672	OK
X-X, +1.20D+0.50Lr+1.60L	0.0	+Z	Top	0.3888	Min Temp %	0.4650	30.672	OK
X-X, +1.20D+0.50Lr+1.60L	0.0	-Z	Top	0.3888	Min Temp %	0.4650	30.672	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

DESCRIPTION: F2.5 (TYP PAD FOOTING)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	4.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0	ksf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Increases based on footing Depth

Footing base depth below soil surface	=	4.167	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

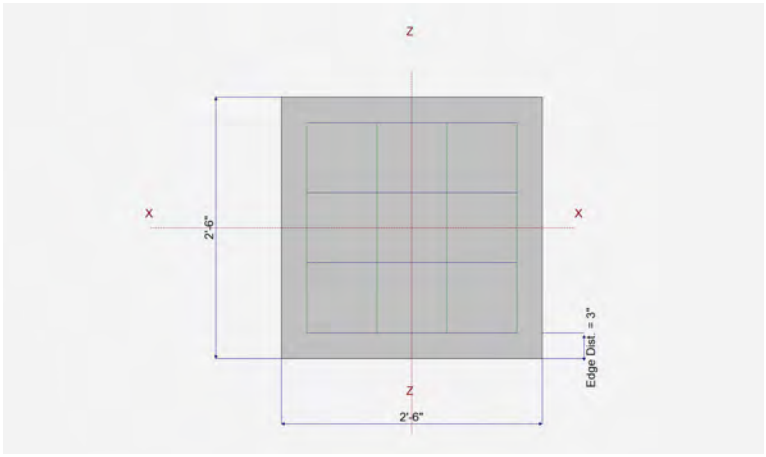
Width parallel to X-X Axis	=	2.50	ft
Length parallel to Z-Z Axis	=	2.50	ft
Footing Thickness	=	18.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0	in

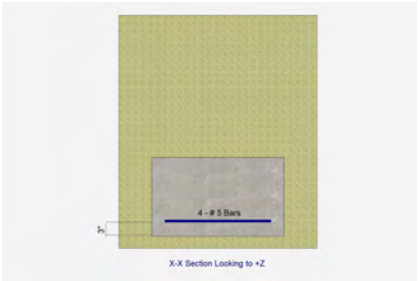


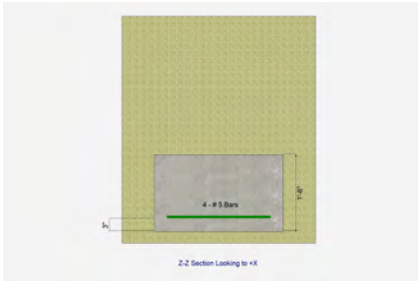
Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		4.0
Reinforcing Bar Size	=	#	5
Bars parallel to Z-Z Axis			
Number of Bars	=		4.0
Reinforcing Bar Size	=	#	5

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	
	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a





Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	4.30	1.80		9.70				k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: F2.5 (TYP PAD FOOTING)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9170	Soil Bearing	2.751 ksf	3.0 ksf	+D+S about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.07913	Z Flexure (+X)	2.585 k-ft/ft	32.666 k-ft/ft	+1.20D+1.60S
PASS	0.07913	Z Flexure (-X)	2.585 k-ft/ft	32.666 k-ft/ft	+1.20D+1.60S
PASS	0.07913	X Flexure (+Z)	2.585 k-ft/ft	32.666 k-ft/ft	+1.20D+1.60S
PASS	0.07913	X Flexure (-Z)	2.585 k-ft/ft	32.666 k-ft/ft	+1.20D+1.60S
PASS	n/a	1-way Shear (+X)	0.0 psi	94.868 psi	n/a
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a
PASS	n/a	1-way Shear (+Z)	0.0 psi	94.868 psi	n/a
PASS	n/a	1-way Shear (-Z)	0.0 psi	94.868 psi	n/a
PASS	n/a	2-way Punching	17.233 psi	94.868 psi	+1.20D+1.60S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	3.0	n/a	0.0	1.199	1.199	n/a	n/a	0.400
X-X, +D+Lr	3.0	n/a	0.0	1.487	1.487	n/a	n/a	0.496
X-X, +D+S	3.0	n/a	0.0	2.751	2.751	n/a	n/a	0.917
X-X, +D+0.750Lr	3.0	n/a	0.0	1.415	1.415	n/a	n/a	0.472
X-X, +D+0.750S	3.0	n/a	0.0	2.363	2.363	n/a	n/a	0.788
X-X, +0.60D	3.0	n/a	0.0	0.7193	0.7193	n/a	n/a	0.240
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.199	1.199	0.400
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	1.487	1.487	0.496
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	2.751	2.751	0.917
Z-Z, +D+0.750Lr	3.0	0.0	n/a	n/a	n/a	1.415	1.415	0.472
Z-Z, +D+0.750S	3.0	0.0	n/a	n/a	n/a	2.363	2.363	0.788
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.7193	0.7193	0.240

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.7525	+Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.40D	0.7525	-Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.20D+0.50Lr	0.7575	+Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.20D+0.50Lr	0.7575	-Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.20D+0.50S	1.251	+Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.20D+0.50S	1.251	-Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.20D+1.60Lr	1.005	+Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.20D+1.60Lr	1.005	-Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.20D+1.60S	2.585	+Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +1.20D+1.60S	2.585	-Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +0.90D	0.4838	+Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK
X-X, +0.90D	0.4838	-Z	Bottom	0.3888	Min Temp %	0.4960	32.666	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

DESCRIPTION: F6 - PAD FTG UNDER RB-4 (GL B.5)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	4.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3	ksf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Increases based on footing Depth

Footing base depth below soil surface	=	4.666	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

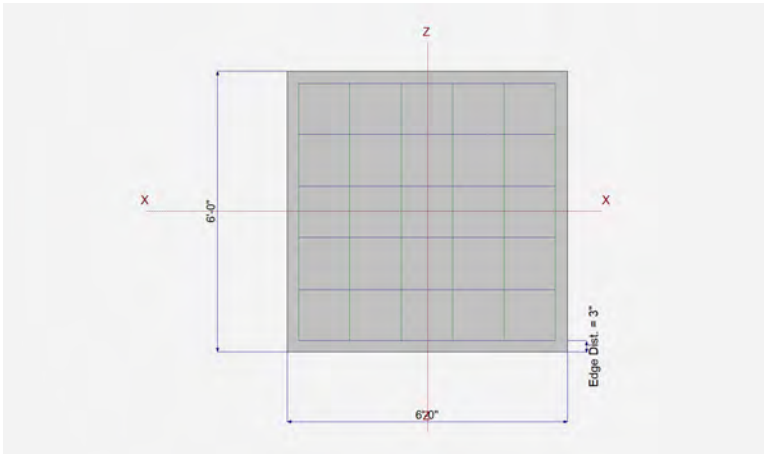
Width parallel to X-X Axis	=	6 ft
Length parallel to Z-Z Axis	=	6 ft
Footing Thickness	=	18.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0 in

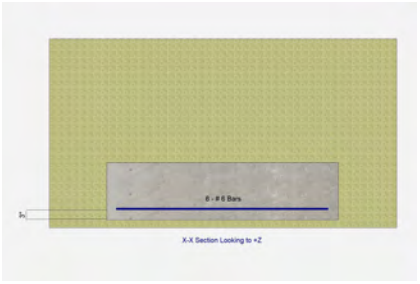


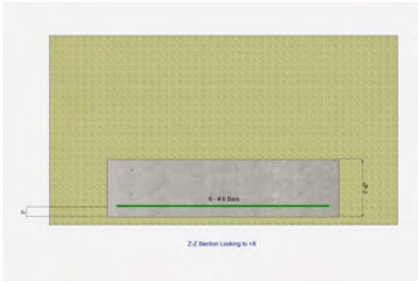
Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		6
Reinforcing Bar Size	=	#	6
Bars parallel to Z-Z Axis			
Number of Bars	=		6
Reinforcing Bar Size	=	#	6

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	
	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a





Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	17.60	13.70		68.40				k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: F6 - PAD FTG UNDER RB-4 (GL B.5)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9850	Soil Bearing	2.955 ksf	3.0 ksf	+D+S about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.5616	Z Flexure (+X)	16.320 k-ft/ft	29.059 k-ft/ft	+1.20D+1.60S
PASS	0.5616	Z Flexure (-X)	16.320 k-ft/ft	29.059 k-ft/ft	+1.20D+1.60S
PASS	0.5616	X Flexure (+Z)	16.320 k-ft/ft	29.059 k-ft/ft	+1.20D+1.60S
PASS	0.5616	X Flexure (-Z)	16.320 k-ft/ft	29.059 k-ft/ft	+1.20D+1.60S
PASS	0.3695	1-way Shear (+X)	35.058 psi	94.868 psi	+1.20D+1.60S
PASS	0.3695	1-way Shear (-X)	35.058 psi	94.868 psi	+1.20D+1.60S
PASS	0.3695	1-way Shear (+Z)	35.058 psi	94.868 psi	+1.20D+1.60S
PASS	0.3695	1-way Shear (-Z)	35.058 psi	94.868 psi	+1.20D+1.60S
PASS	0.7340	2-way Punching	139.264 psi	189.737 psi	+1.20D+1.60S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	3.0	n/a	0.0	1.055	1.055	n/a	n/a	0.352
X-X, +D+Lr	3.0	n/a	0.0	1.435	1.435	n/a	n/a	0.478
X-X, +D+S	3.0	n/a	0.0	2.955	2.955	n/a	n/a	0.985
X-X, +D+0.750Lr	3.0	n/a	0.0	1.340	1.340	n/a	n/a	0.447
X-X, +D+0.750S	3.0	n/a	0.0	2.480	2.480	n/a	n/a	0.827
X-X, +0.60D	3.0	n/a	0.0	0.6328	0.6328	n/a	n/a	0.211
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.055	1.055	0.352
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	1.435	1.435	0.478
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	2.955	2.955	0.985
Z-Z, +D+0.750Lr	3.0	0.0	n/a	n/a	n/a	1.340	1.340	0.447
Z-Z, +D+0.750S	3.0	0.0	n/a	n/a	n/a	2.480	2.480	0.827
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.6328	0.6328	0.211

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	3.080	+Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.40D	3.080	-Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.20D+0.50Lr	3.496	+Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.20D+0.50Lr	3.496	-Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.20D+0.50S	6.915	+Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.20D+0.50S	6.915	-Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.20D+1.60Lr	5.380	+Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.20D+1.60Lr	5.380	-Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.20D+1.60S	16.320	+Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +1.20D+1.60S	16.320	-Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +0.90D	1.980	+Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK
X-X, +0.90D	1.980	-Z	Bottom	0.3888	Min Temp %	0.440	29.059	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

DESCRIPTION: F5 (GL B-7 PAD FOOTING) - 5'-0" SQ x 18" THICK W/ 6-#6 T&B

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	4.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	150.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0	ksf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.50	

Increases based on footing Depth

Footing base depth below soil surface	=	4.666	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

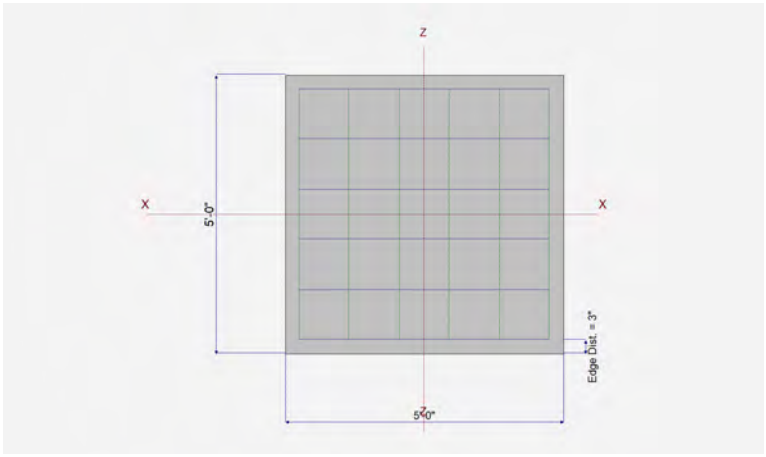
Width parallel to X-X Axis	=	5.0	ft
Length parallel to Z-Z Axis	=	5.0	ft
Footing Thickness	=	18.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0	in

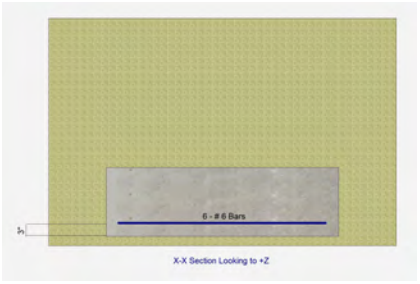


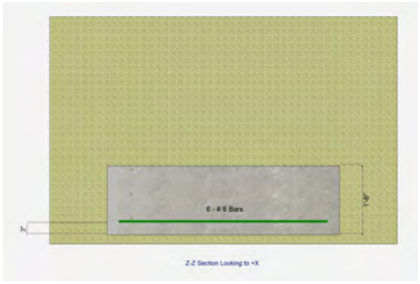
Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6
Bars parallel to Z-Z Axis			
Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a





Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	8.0	6.20		31.0				k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: F5 (GL B-7 PAD FOOTING) - 5'-0" SQ x 18" THICK W/ 6-#6 T&B

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7110	Soil Bearing	2.133 ksf	3.0 ksf	+D+S about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.2131	Z Flexure (+X)	7.40 k-ft/ft	34.718 k-ft/ft	+1.20D+1.60S
PASS	0.2131	Z Flexure (-X)	7.40 k-ft/ft	34.718 k-ft/ft	+1.20D+1.60S
PASS	0.2131	X Flexure (+Z)	7.40 k-ft/ft	34.718 k-ft/ft	+1.20D+1.60S
PASS	0.2131	X Flexure (-Z)	7.40 k-ft/ft	34.718 k-ft/ft	+1.20D+1.60S
PASS	0.1733	1-way Shear (+X)	16.444 psi	94.868 psi	+1.20D+1.60S
PASS	0.1733	1-way Shear (-X)	16.444 psi	94.868 psi	+1.20D+1.60S
PASS	0.1733	1-way Shear (+Z)	16.444 psi	94.868 psi	+1.20D+1.60S
PASS	0.1733	1-way Shear (-Z)	16.444 psi	94.868 psi	+1.20D+1.60S
PASS	0.3250	2-way Punching	61.667 psi	189.737 psi	+1.20D+1.60S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	3.0	n/a	0.0	0.8933	0.8933	n/a	n/a	0.298
X-X, +D+Lr	3.0	n/a	0.0	1.141	1.141	n/a	n/a	0.380
X-X, +D+S	3.0	n/a	0.0	2.133	2.133	n/a	n/a	0.711
X-X, +D+0.750Lr	3.0	n/a	0.0	1.079	1.079	n/a	n/a	0.360
X-X, +D+0.750S	3.0	n/a	0.0	1.823	1.823	n/a	n/a	0.608
X-X, +0.60D	3.0	n/a	0.0	0.5360	0.5360	n/a	n/a	0.179
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	0.8933	0.8933	0.298
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	1.141	1.141	0.380
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	2.133	2.133	0.711
Z-Z, +D+0.750Lr	3.0	0.0	n/a	n/a	n/a	1.079	1.079	0.360
Z-Z, +D+0.750S	3.0	0.0	n/a	n/a	n/a	1.823	1.823	0.608
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.5360	0.5360	0.179

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.40	+Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.40D	1.40	-Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.20D+0.50Lr	1.588	+Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.20D+0.50Lr	1.588	-Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.20D+0.50S	3.138	+Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.20D+0.50S	3.138	-Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.20D+1.60Lr	2.440	+Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.20D+1.60Lr	2.440	-Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.20D+1.60S	7.40	+Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +1.20D+1.60S	7.40	-Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +0.90D	0.90	+Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK
X-X, +0.90D	0.90	-Z	Bottom	0.3888	Min Temp %	0.5280	34.718	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: IMF - PAD FOOTING (3'-9" SQ x 24" THICK W/ 4-#5 EA WAY T&B)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	4.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	3.0	ksf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	250.0	pcf
Soil/Concrete Friction Coeff.	=	0.30	

Increases based on footing Depth

Footing base depth below soil surface	=	4.666	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

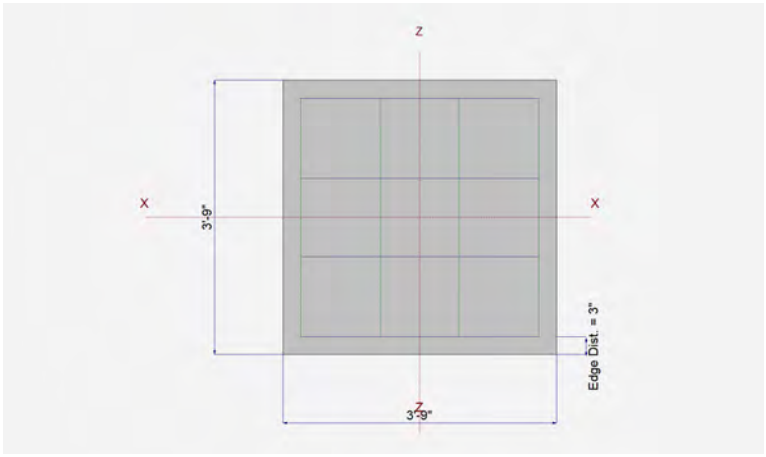
Width parallel to X-X Axis	=	3.75	ft
Length parallel to Z-Z Axis	=	3.75	ft
Footing Thickness	=	12	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0	in

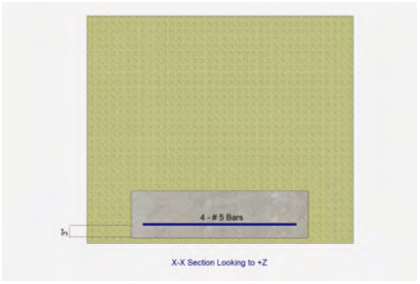


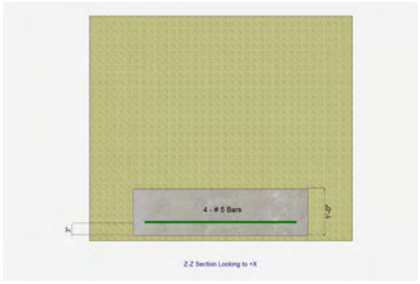
Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		4.0
Reinforcing Bar Size	=	#	5
Bars parallel to Z-Z Axis			
Number of Bars	=		4
Reinforcing Bar Size	=	#	5

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	
	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a





Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	23.0	1.80	5.40	9.0		0.90		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: IMF - PAD FOOTING (3'-9" SQ x 24" THICK W/ 4-#5 EA WAY T&B)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9950	Soil Bearing	2.985 ksf	3.0 ksf	+D+0.750L+0.750S+0.5250E about Z-Z a
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.4547	Z Flexure (+X)	5.925 k-ft/ft	13.030 k-ft/ft	+1.20D+L+1.60S
PASS	0.4547	Z Flexure (-X)	5.925 k-ft/ft	13.030 k-ft/ft	+1.20D+L+1.60S
PASS	0.4547	X Flexure (+Z)	5.925 k-ft/ft	13.030 k-ft/ft	+1.20D+L+1.60S
PASS	0.4547	X Flexure (-Z)	5.925 k-ft/ft	13.030 k-ft/ft	+1.20D+L+1.60S
PASS	0.3701	1-way Shear (+X)	35.111 psi	94.868 psi	+1.20D+L+1.60S
PASS	0.3701	1-way Shear (-X)	35.111 psi	94.868 psi	+1.20D+L+1.60S
PASS	0.3701	1-way Shear (+Z)	35.111 psi	94.868 psi	+1.20D+L+1.60S
PASS	0.3701	1-way Shear (-Z)	35.111 psi	94.868 psi	+1.20D+L+1.60S
PASS	0.7402	2-way Punching	140.444 psi	189.737 psi	+1.20D+L+1.60S

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	3.0	n/a	0.0	2.184	2.184	n/a	n/a	0.728
X-X, +D+L	3.0	n/a	0.0	2.568	2.568	n/a	n/a	0.856
X-X, +D+Lr	3.0	n/a	0.0	2.312	2.312	n/a	n/a	0.771
X-X, +D+S	3.0	n/a	0.0	2.824	2.824	n/a	n/a	0.941
X-X, +D+0.750Lr+0.750L	3.0	n/a	0.0	2.568	2.568	n/a	n/a	0.856
X-X, +D+0.750L+0.750S	3.0	n/a	0.0	2.952	2.952	n/a	n/a	0.984
X-X, +0.60D	3.0	n/a	0.0	1.310	1.310	n/a	n/a	0.437
X-X, +D+0.70E	3.0	n/a	0.0	2.229	2.229	n/a	n/a	0.743
X-X, +D+0.750L+0.750S+0.5250E	3.0	n/a	0.0	2.985	2.985	n/a	n/a	0.995
X-X, +0.60D+0.70E	3.0	n/a	0.0	1.355	1.355	n/a	n/a	0.452
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	2.184	2.184	0.728
Z-Z, +D+L	3.0	0.0	n/a	n/a	n/a	2.568	2.568	0.856
Z-Z, +D+Lr	3.0	0.0	n/a	n/a	n/a	2.312	2.312	0.771
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	2.824	2.824	0.941
Z-Z, +D+0.750Lr+0.750L	3.0	0.0	n/a	n/a	n/a	2.568	2.568	0.856
Z-Z, +D+0.750L+0.750S	3.0	0.0	n/a	n/a	n/a	2.952	2.952	0.984
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	1.310	1.310	0.437
Z-Z, +D+0.70E	3.0	0.0	n/a	n/a	n/a	2.229	2.229	0.743
Z-Z, +D+0.750L+0.750S+0.5250E	3.0	0.0	n/a	n/a	n/a	2.985	2.985	0.995
Z-Z, +0.60D+0.70E	3.0	0.0	n/a	n/a	n/a	1.355	1.355	0.452

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

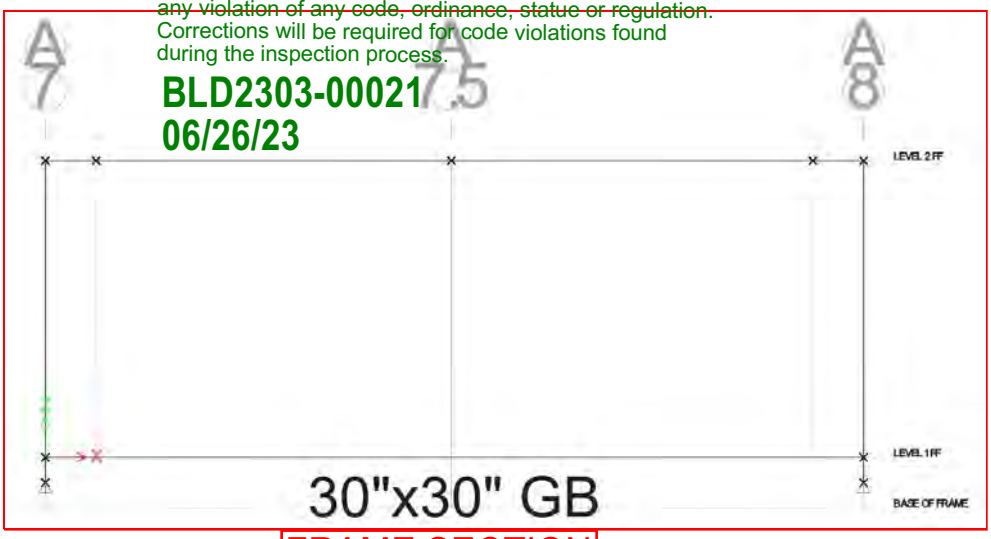
Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	4.025	+Z	Bottom	0.2592	Min Temp %	0.3307	13.030	OK
X-X, +1.40D	4.025	-Z	Bottom	0.2592	Min Temp %	0.3307	13.030	OK
X-X, +1.20D+0.50Lr+1.60L	4.643	+Z	Bottom	0.2592	Min Temp %	0.3307	13.030	OK
X-X, +1.20D+0.50Lr+1.60L	4.643	-Z	Bottom	0.2592	Min Temp %	0.3307	13.030	OK

4.3 - GRADE BEAM DESIGN

319 Main Street
El Segundo, California 90245
t:213/239 9600
info@labibse.com
www.labibse.com

SEAM DESIGN - ETABS PRINTOUT



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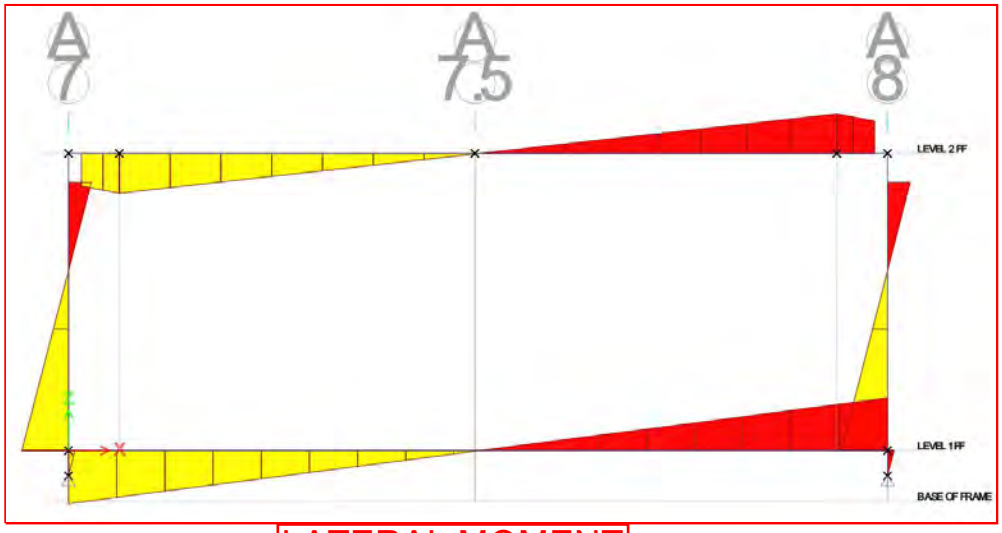
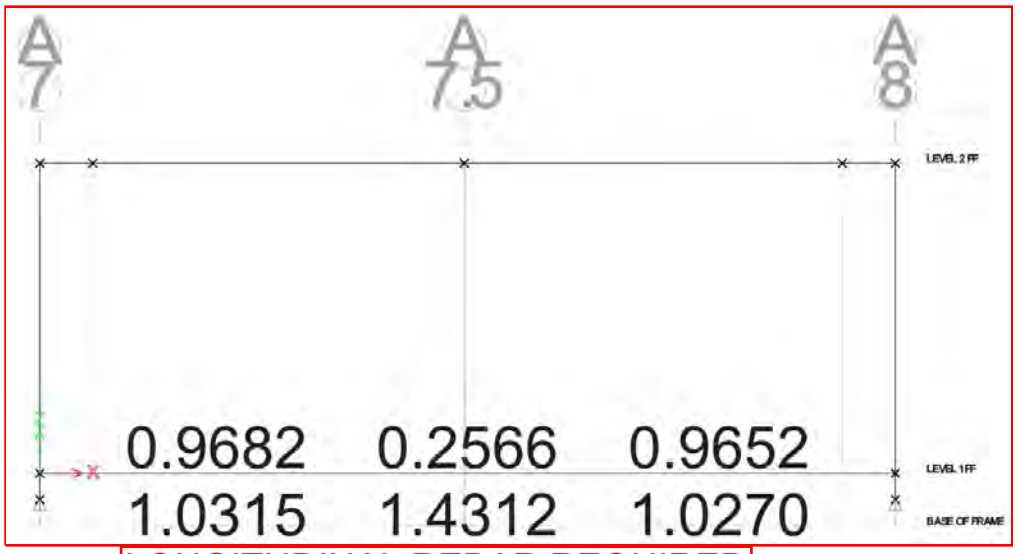


LATERAL MOMENT



LONGITUDINAL REBAR REQUIRED

THEREFORE, 30"x30" GRADE BEAM W/ 4 #6 T&B W/ #4 TIES @ 12" OC WORKS

5.0 - MISCELLANEOUS CALCS

319 Main Street
El Segundo, California 90245
t:213/239 9600
info@labibse.com
www.labibse.com

John Labib + Associates
Structural Engineers

5.1 - OOP STUD WALL CALC

319 Main Street
El Segundo, California 90245
t:213/239 9600
info@labibse.com
www.labibse.com

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Lic. # : KW-06014838 JOHN LABIB & ASSOCIATES

DESCRIPTION: STUD WALL - (OOP WIND CALC)

Code References

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Analysis Method :	Allowable Stress Design		
End Fixities	Top & Bottom Pinned		
Overall Column Height	22.5 ft		
(Used for non-slender calculations)			
Wood Species	Douglas Fir - Larch		
Wood Grade	No.2		
Fb +	750.0 psi	Fv	170.0 psi
Fb -	750.0 psi	Ft	475.0 psi
Fc - Prll	700.0 psi	Density	31.210 pcf
Fc - Perp	625.0 psi		

E : Modulus of Elasticity . . .	x-x Bending	y-y Bending	Axial
Basic	1,300.0	1,300.0	1,300.0 ksi
Minimum	470.0	470.0	

Wood Section Name	**6x6**		
Wood Grading/Manuf.	Graded Lumber		
Wood Member Type	Sawn		
Exact Width	**5.50** in	Allow Stress Modification Factors	
Exact Depth	**5.50** in	Cf or Cv for Bending	1.0
Area	30.250 in^2	Cf or Cv for Compression	1.0
Ix	76.255 in^4	Cf or Cv for Tension	1.0
Iy	76.255 in^4	Cm : Wet Use Factor	1.0
		Ct : Temperature Factor	1.0
		Cfu : Flat Use Factor	1.0
		Kf : Built-up columns	1.0 *NDS 15.3.2*
		Use Cr : Repetitive ?	No

Brace condition for deflection (buckling) along columns :
X-X (width) axis : Unbraced Length for buckling ABOUT Y-Y Axis = 22.5 ft, K = 1.
Y-Y (depth) axis : Unbraced Length for buckling ABOUT X-X Axis = 22.5 ft, K = 1.

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 147.516 lbs * Dead Load Factor
AXIAL LOADS . . .
ROOF LOAD: Axial Load at 22.50 ft, D = 0.160, Lr = 0.180, S = 0.90 k
BENDING LOADS . . .
OOP WIND: Lat. Uniform Load creating Mx-x, W = 0.0310 k/ft

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.4575 : 1**

Load Combination	+D+0.60W
Governing NDS Forumla	1Comp + Mxx, NDS Eq. 3.9-3
Location of max.above base	11.175 ft
At maximum location values are . . .	
Applied Axial	0.3075 k
Applied Mx	1.177 k-ft
Applied My	0.0 k-ft
Fc : Allowable	155.312 psi

PASS Maximum Shear Stress Ratio = **0.03815 : 1**

Load Combination	+D+0.60W
Location of max.above base	22.50 ft
Applied Design Shear	10.376 psi
Allowable Shear	272.0 psi

Maximum SERVICE Lateral Load Reactions . .

Top along Y-Y	0.3488 k	Bottom along Y-Y	0.3488 k
Top along X-X	0.0 k	Bottom along X-X	0.0 k

Maximum SERVICE Load Lateral Deflections . . .

Along Y-Y 1.823 in at 11.326 ft above base
for load combination : W Only
Along X-X 0.0 in at 0.0 ft above base
for load combination : n/a

Other Factors used to calculate allowable stresses . . .

	Bending	Compression	Tension

Load Combination Results

Load Combination	C_D	C_P	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Maximum Shear Ratios: Stress Ratio	Status	Location
D Only	0.900	0.239	0.06740	PASS	0.0 ft	0.0	PASS	22.50 ft
+D+Lr	1.250	0.176	0.1048	PASS	0.0 ft	0.0	PASS	22.50 ft
+D+S	1.150	0.190	0.2607	PASS	0.0 ft	0.0	PASS	22.50 ft
+D+0.750Lr	1.250	0.176	0.09514	PASS	0.0 ft	0.0	PASS	22.50 ft
+D+0.750S	1.150	0.190	0.2121	PASS	0.0 ft	0.0	PASS	22.50 ft
+D+0.60W	1.600	0.139	0.4575	PASS	11.175 ft	0.03815	PASS	22.50 ft
+D-0.60W	1.600	0.139	0.4575	PASS	11.175 ft	0.03815	PASS	22.50 ft
+D+0.750Lr+0.450W	1.600	0.139	0.3592	PASS	11.326 ft	0.02861	PASS	22.50 ft
+D+0.750Lr-0.450W	1.600	0.139	0.3592	PASS	11.326 ft	0.02861	PASS	22.50 ft

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: STUD WALL - (OOP WIND CALC)

Load Combination Results

Load Combination	C_D	C_P	Maximum Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Maximum Shear Ratios: Stress Ratio	Status	Location
+D+0.750S+0.450W	1.600	0.139	0.4430	PASS	11.326 ft	0.02861	PASS	22.50 ft
+D+0.750S-0.450W	1.600	0.139	0.4430	PASS	11.326 ft	0.02861	PASS	22.50 ft
+0.60D+0.60W	1.600	0.139	0.4428	PASS	11.175 ft	0.03815	PASS	22.50 ft
+0.60D-0.60W	1.600	0.139	0.4428	PASS	11.175 ft	0.03815	PASS	22.50 ft
+0.60D	1.600	0.139	0.03927	PASS	0.0 ft	0.0	PASS	22.50 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	k	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Axial Reaction @ Base	k-ft	My - End Moments @ Base	My - End Moments @ Top	Mx - End Moments @ Base	Mx - End Moments @ Top
D Only						0.308					
+D+Lr						0.488					
+D+S						1.208					
+D+0.750Lr						0.443					
+D+0.750S						0.983					
+D+0.60W				0.209	0.209	0.308					
+D-0.60W				-0.209	-0.209	0.308					
+D+0.750Lr+0.450W				0.157	0.157	0.443					
+D+0.750Lr-0.450W				-0.157	-0.157	0.443					
+D+0.750S+0.450W				0.157	0.157	0.983					
+D+0.750S-0.450W				-0.157	-0.157	0.983					
+0.60D+0.60W				0.209	0.209	0.185					
+0.60D-0.60W				-0.209	-0.209	0.185					
+0.60D						0.185					
Lr Only						0.180					
S Only						0.900					
W Only				0.349	0.349						
-W				-0.349	-0.349						

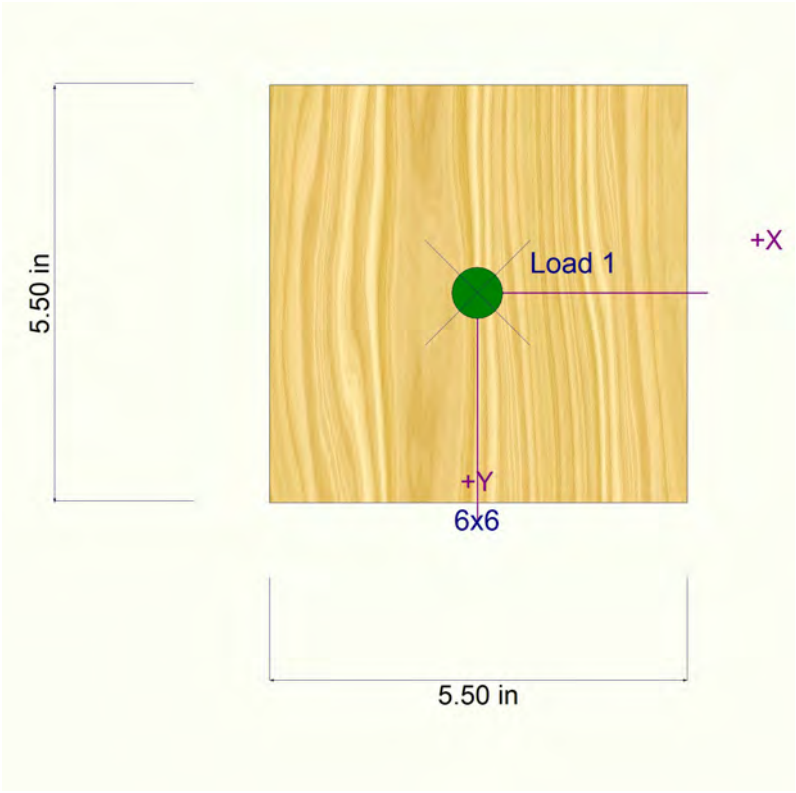
Maximum Deflections for Load Combinations

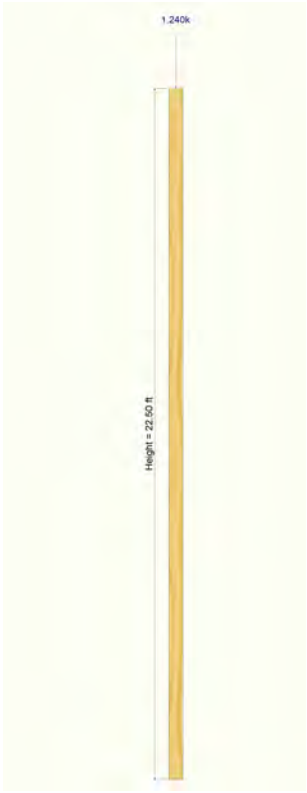
Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
D Only	0.0000	in	0.000	ft	0.0000	in	0.000	ft
+D+Lr	0.0000	in	0.000	ft	0.0000	in	0.000	ft
+D+S	0.0000	in	0.000	ft	0.0000	in	0.000	ft
+D+0.750Lr	0.0000	in	0.000	ft	0.0000	in	0.000	ft
+D+0.750S	0.0000	in	0.000	ft	0.0000	in	0.000	ft
+D+0.60W	0.0000	in	0.000	ft	1.0936	in	11.326	ft
+D-0.60W	0.0000	in	0.000	ft	-1.0936	in	11.326	ft
+D+0.750Lr+0.450W	0.0000	in	0.000	ft	0.8202	in	11.326	ft
+D+0.750Lr-0.450W	0.0000	in	0.000	ft	-0.8202	in	11.326	ft
+D+0.750S+0.450W	0.0000	in	0.000	ft	0.8202	in	11.326	ft
+D+0.750S-0.450W	0.0000	in	0.000	ft	-0.8202	in	11.326	ft
+0.60D+0.60W	0.0000	in	0.000	ft	1.0936	in	11.326	ft
+0.60D-0.60W	0.0000	in	0.000	ft	-1.0936	in	11.326	ft
+0.60D	0.0000	in	0.000	ft	0.0000	in	0.000	ft
Lr Only	0.0000	in	0.000	ft	0.0000	in	0.000	ft
S Only	0.0000	in	0.000	ft	0.0000	in	0.000	ft
W Only	0.0000	in	0.000	ft	1.8227	in	11.326	ft
-W	0.0000	in	0.000	ft	-1.8227	in	11.326	ft

Project Title:
Engineer:
Project ID:
Project Descr:

DESCRIPTION: STUD WALL - (OOP WIND CALC)

Sketches





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Matt Scoggins
C/o Presidio Vista Properties
PO Box 14001-174
Ketchum, ID 83340
Cell 214-557-5533
matt@presidiovistaproperties.com

June 28, 2022

RE: GEOTECHNICAL REPORT
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
RPK05130000040
Ketchum, Idaho

Dear Matt,

I have completed the authorized geotechnical investigation and report for the proposed Badger Lane Residence and ADU on Parcel 4, Rocking Ranch Subdivision No. 2 located at 121 Badger Lane in Ketchum, Idaho. The work was authorized by the signed proposal dated May 14, 2022.

This report summarizes the results of my field and laboratory testing and presents my geotechnical engineering opinions and recommendations. **It is my opinion that the site is suitable for the proposed residence supported by continuous and spread footings and slab-on-grade foundations constructed on an approved native subgrade or a structural fill foundation building pad constructed on an approved native subgrade.** I am providing the recommendations in this report for the preparation of the subgrade, structural fill building pad, foundation design, foundation drainage system, surface grading and drainage and general radon venting concepts.

I recommend that this office be retained to provide observations for the construction of the structural fill foundation building pad, slab-on-grade construction, foundation drainage system, structural backfill to support exterior hardscapes and any other recommendations presented in this report that are incorporated into the project design. This work will be performed on a time and material basis and is not included in this scope of services. A copy of this geotechnical report should be incorporated into the project construction documents.

I appreciate this opportunity of working with you on this project. Please call me if you have any questions or comments.

Sincerely,
Steve Butler, P.E.

GEOTECHNICAL REPORT

Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho

Butler Associates, Inc.
P.O. Box 1034
Ketchum, Idaho 83340
June 28, 2022

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INTRODUCTION

This report represents the results of the soil and foundation engineering evaluation for the proposed Badger Lane residence, ADU and pool on Parcel 4, Rocking Ranch Subdivision No. 2 located at 121 Badger Lane in Ketchum, Idaho. The *Vicinity Map* shows the general location of the proposed project site.

The purpose of this evaluation was to assess the surface and subsurface soil and water conditions to prepare geotechnical engineering opinions and recommendations for the construction of the proposed 121 Badger Lane residence, ADU and pool. Before the subsurface investigation I reviewed the geotechnical reports for several projects located south and east of the site and geologic data pertinent to the site and general area. I performed a subsurface investigation by excavating six test pits at the site using a track mounted excavator. The soils encountered in the test pits were visually identified and logged by a geotechnical engineer according to the Unified Soil Classification System and used to prepare this final report.

PROPOSED PROJECT

I understand that the proposed project will consist of a two story, concrete, steel and wood frame single family residence and detached ADU supported by continuous and spread footings and will incorporate a crawlspace. The garage will be supported by slab-on-grade construction and accessed from a new driveway commencing at Badger Lane. The pool will be supported by a matt slab foundation. The project will be served with water and sewer by the Ketchum Utility Department.

The primary views from the site are the Wood River Valley and Boulder Mountains to the north, Pioneer Mountains to the east, and Bald Mountain to the south and west.

According to the Blaine County Parcel Information Map the property is generally “rectangular shaped” and totals approximately 1.093 acres in size. Lots 2 & 3A, Block 1, Rocking Ranch Subdivision No. 4 borders the site to the north, Badger Lane, Parcel 5, Rocking Ranch Subdivision No. 2 and Lots 1 & 2, Badger Lane Estates Subdivision to the east, Tax Lots 7199, 8251 & 8252 to the south and BLM to the west.

FIELD EXPLORATION

Six test pits were excavated and observed at the site on June 24 using a track-mounted excavator. The test pits were excavated up to 6.9 feet below existing grade. The *Test Pit Site Plan Photo 1* shows the existing site conditions and test pit locations.

The soils in each test pit were evaluated and the soil profiles logged in the field by a geotechnical engineer in accordance with the Unified Soil Classification System (*USCS*). The *Test Pit Site Plan Photos* and *Test Pit Logs* are presented on pages 10-12 and 13-18, respectively. The *USCS* chart on page 19 should be used to interpret the terms on the test pit logs in this report.

At the conclusion of the subsurface evaluation, the test pits were loosely backfilled to match the existing ground surface. Any of the test pits located beneath areas proposed for foundations, terraces, walkways or driveways will need to excavated and backfilled with structural fill in accordance with the *Site Preparation* section of this report.

SUBSURFACE CONDITIONS

The general soil profiles encountered in the test pits revealed up to 3.9 feet of native silty fine sand and gravel with little to heavy roots (topsoil and possibly fill?) overlying native, brown, sand, gravel, cobble and boulders up to 6.9 feet below existing grade. The test pits were terminated after reaching several feet below typical crawlspace footing elevations and due to consistency of the soil between the test pits. Groundwater was encountered in test pits #1-5 from 3.2 feet to 5.2 feet below existing grade. Following the completion of the subsurface investigation the test pits were loosely backfilled and graded close to existing grades.

The geology of this area is mapped on the "Geologic Map of the Hailey Quadrangle" as Qt Terrace Gravel along the Big Wood River described as alluvial sand, gravel, silt and clay soils deposited by the Big Wood River. A neighbor indicated that fill was placed on the lot but did not give a time frame.

OPINIONS AND RECOMMENDATIONS

General

It is the opinion of this office that the site is suitable from a geotechnical standpoint for the proposed development of the single family residence, ADU and pool supported by an approved native sand and gravel subgrade underlying the surficial fine grain native topsoil and/or a free-draining structural fill foundation building pad constructed or an approved native subgrade. The finish floor elevation should be based on the 100 year flood elevation.

All structural fill to be placed for the foundation building pad, exterior terraces, walkways and driveways should be approved on-site or imported sand and gravel soils. The surficial native silty fine sand and gravel topsoil is moisture sensitive, full of organics and would be difficult to use as structural fill and should be stockpiled to use as non-structural landscaping fill or exported.

All structural fill should be placed as outlined in the *Structural Fill* section of this report. The recommendations contained in this report reflect my understanding of the existing surface and below grade conditions and reflect a straight-line interpolation and extrapolation of the subsurface conditions between and beyond test pit locations. However, the soil conditions may vary at the proposed site. The various soil conditions will not be known until the foundation excavation is complete and may cause changes to construction plans and/or costs.

Subgrade Preparation & Structural Fill Foundation Building Pad

Following are site preparation recommendations to be completed prior to approving the subgrade for footings and the construction of the structural fill foundation building pad to support the foundation:

1. All test pits should be accurately located in the field prior to commencing with the excavation. Any test pit that is located beneath a proposed footing, slab-on-grade, terrace or walkway adjacent to the structure should be excavated and backfilled with structural fill in accordance with this report. This procedure should help reduce local settlement. The test pit locations are shown on the *Test Pit Site Plan Photo 1*.

2. The building footprints, exterior terraces, walkways and limits of disturbance should be stripped of disturbed soils, silty fine sand and gravel topsoil sand and organics to expose the underlying undisturbed free-draining sand and gravel soils. The excavated fine grain soils should be stockpiled to use as non-structural fill or exported.

3. The excavation to bottom of the footings should be completed to expose undisturbed sand and gravel soils. If silty fine sand and gravel topsoil, uncontrolled fill or organics are exposed in any part of the foundation subgrade I recommend removing the material and backfilling with on-site or imported sand and gravel soils. The native sand and gravel subgrade soils are not moisture sensitive and should not be compromised from precipitation or construction traffic. Any native sand and gravel soils removed from the foundation excavation should be stockpiled to use as structural fill for the driveway, walkways and terraces.

4. The groundwater encountered in the test pits appeared to be below the 100 year flood elevation so the site should not need to be dewatered during foundation excavation. Contact this office if a dewatering plan is being considered.

5. The exposed subgrade should be scarified at least 6" below bottom of footing, watered and compacted with a multiple passes of a 5-ton smooth drum vibratory roller to at least 95% of the maximum dry density of the material according to ASTM D- 698 and observed by this office. Any unsuitable soils or soft areas should be excavated to expose a competent subgrade and backfilled with structural fill as outlined in the *Structural Fill* is section.

6. After this office has observed the compacted subgrade to be free of unsuitable soils it will be approved for footings. See the *Crawlspace Foundation Wall Drainage Profile*.

Structural Fill

Structural fill for the foundation building pad, walkways, exterior terraces and the driveway shall meet the following recommendations:

1. Structural fill should consist of approved washed fractured or rounded gravel, crushed sand and gravel (roadmix), on-site native sand and gravel soils or imported pitrun sand and gravel classified as GW, GM, GP, SW, SM, or SP as described in the Unified Soil Classification System chart presented after the test pit logs.

2. If fine grain soils are used as non-structural fill against the foundation walls imported 1"-2" dia. washed gravel should be installed from bottom of footing to the top of footing and covered with a layer of 4.0 oz., non-woven filter fabric to assist in subsurface runoff in reaching a drywell as shown on the *Crawlspace Foundation Wall Drainage Profile.*

3. Granular structural fill should have no more than 10% passing the No. 200 sieve and a cobble size of no larger than 8 inches.

4. Structural fill should be placed in uniform, maximum 10-inch deep, loose lifts and compacted to a minimum of 95% of the maximum dry density of the soil, as determined by ASTM D 698 (Standard

Proctor). This assumes that heavy compaction equipment such as smooth-drum, vibratory rollers with a minimum drum weight of 5 tons is used. The depth of each lift could be adjusted in the field based on the material and size of compaction equipment.

5. The maximum loose lift thickness should be reduced to 6 inches where smaller and/or lighter compaction equipment is used (i.e. WACKER jumping jack). A vibrating plate tamper can be used to compact 10" lifts of washed rock but should not be used to compact native sand and gravel.

6. ¾" minus crushed sand and gravel roadmix should be placed in 6" loose lifts, watered and compacting with a jumping jack tamper, vibrating plate tamper or smooth drum roller.

7. The general contractor should contact this office several days before the foundation excavation commences to minimize any delays in excavation, placement of structural fill, approval of imported structural fill, construction observations and reports to the building inspector by a stamped by an engineer.

Foundations

The approved native sand and gravel subgrade or imported sand and gravel structural fill foundation building pad will support continuous footings, spread footings and slab-on-grade construction based on the following parameters:

1. The allowable bearing pressure of the approved sand and gravel soils is 3,000 pounds per square foot (psf).

2. Exterior footings should be at least 32 inches below finish grade to minimize the potential for frost heave.

3. Total and differential settlement is estimated to be less than one inch and ¾ ", respectively, for the approved sand and gravel foundation subgrade or structural fill building pad.

4. The recommended friction factor is 0.5 for the sand and gravel subgrade.

5. The floor joists and sub-floor should be in-place prior to backfilling against the foundation walls unless directed otherwise by the structural engineer.

6. All footings should be constructed so that a line drawn from the edge of footings at a slope of 0.5' horizontal to 1.0 foot vertical so the undisturbed subgrade soil is not intercepted by non-structural fill or an open slope.

7. Crawlspace foundations can be waterproofed with several coats of asphalt emulsion or a waterproofing membrane i.e. bituthane membrane. If a membrane is installed it should be protected with a synthetic drainage matt or a cheaper protection board if imported washed gravel is used as backfill.

8. All footings should be constructed so that a line drawn from the edge of footings at a slope of 0.5

foot horizontal to 1.0 foot vertical to the undisturbed subgrade soil is not intercepted by non-structural fill or an open slope. See *Structural Fill/Foundation Subgrade Concepts Profile* for details.

See the *Crawlspace Foundation Wall Drainage Profile*.

Soil Classification for Septic Design

The project will be served by the Ketchum Utility Department so no test pits were excavated for a private septic system.

Groundwater Impacting the Site

Since the building envelope is located within the Flood Hazard Area groundwater could impact the site during the spring snowpack runoff and groundwater could rise to meet the 100 year Base Flood Elevation (BFE) elevation in the permeable native sand and gravel soils. Based on the Blaine County GIS Map the BFE near the proposed structures building envelope appears 5787 feet which is close to existing grade near the well head. Although a fluctuating groundwater table should not compromise an approved foundation subgrade groundwater could impact the crawlspace during the spring runoff. A slab-on-grade foundation system could be considered if water in the crawlspace is not desirable. Please have your surveyor confirm the BFE in order to set the bottom of footing and floor system elevation at a level to qualify for FEMA flood insurance and meet all City and County regulations.

Surface Grading and Drainage

I have not reviewed the completed grading and drainage plan at the time this report was completed. The drainage plan should incorporate the following grading and drainage concepts based on the soils encountered in the test pits.

1. I recommend that the finish surface be sloped at a minimum of 2% to direct runoff away from the foundations, walkways, terraces and driveways.

2. All roof down spouts, foundation drains, landscape catch basins and surface runoff should be directed to the drywells terminated at least 10 feet from and 3 feet below the lowest footing.

3. Roof down spouts should **not** be allowed to drain adjacent to foundation. A 4" solid pipe should be installed in top of the footing and sloped at a min. of 1% with stub-outs for connecting the downspouts. The pipe should be terminated in the drywells located at least 10 feet from the foundation. See the *Crawlspace Foundation Wall Drainage Profile* for concepts.

4. The native sand and gravel soils underlying the surficial silty fine sand and gravel soils has an infiltration rate of approximately 2.0"/minute. This office can recommend the size and number of drywells. See the *Landscape Drywell Profile*.

5. All drain lines terminated in drywells should be sloped at a min. 2% and covered with at least 24" of soil to minimize freezing.

Driveway, Terraces and Walkways

I recommend the following section for asphalt driveways, terraces and walkways of either pavers or exterior concrete slabs to minimize frost action and settlement. The driveway section is designed to allow for an exposed gravel driving surface during construction before the final asphalt driving surface is installed:

1. The hardscape areas should be cut to at least 12" below finish grade and/or to remove all roots, organics, uncontrolled fill, disturbed native soils and brown topsoil. The underlying undisturbed native soils should be watered and compacted with a 5-ton smooth drum roller and proof rolled with a 5-ton smooth drum roller to locate any soft areas. Any soft areas should be excavated to a competent subgrade and replaced with compacted structural fill as outlined in the *Site Preparation* section.

2. All parking areas, terraces and walkways should be constructed so that a line drawn from the edge of walkways or driveways at a slope of 0.5 foot horizontal to 1.0 foot vertical to the undisturbed subgrade soil is not intercepted by non-structural fill or an open slope. See the *Structural Fill-Foundation Subgrade Concepts Profile*.

3. 6 inches of on-site or imported pitrun sand and gravel or 2" minus crushed sand and gravel roadmix sub-base watered and compacted with multiple passes of a smooth drum roller to at least 95% of the maximum dry density of the soil as determined by ASTM Test D-698 (Standard Proctor). The native sand and gravel soils could be used for the sub-base layer but should be reviewed by this office.

4. 4 inches of ¾" minus, crushed sand and gravel roadmix compacted to at least 95% of the maximum dry density of the soil as determined by ASTM Test D-698 (Standard Proctor).

5. The driveway is typically constructed at the commencement of the project to include the roadmix to provide a driving surface that can be plowed during construction. Prior to placing pavers or asphalt the surface should be cleared of mud and debris and several inches of roadmix should be added to create the finish grading.

6. Pavers, asphalt or concrete.

7. Surface driveway runoff should not be allowed to drain onto Badger Lane or pool on the driveway or parking areas especially in front of the north facing garage doors. I recommend that a drywell with a cast iron ring and grate be installed in several locations within the driveways. Having drywells located in the driveway will allow it them to be kept clear of snow and ice when the driveway is plowed. Drywells located along the edge of the driveway can be buried under plowed snow and become ineffective. See the *Storm Water Drywell Profile* for details.

A minimum of 4 inches of ¾", well graded, crushed sand and gravel (road mix) base course should be placed between the pit-run sub-base and the finish walking surface. This will provide a leveling course and distribute point loads. If the sub-base for the driveway, terraces, and walkways are completed before the finish surface is constructed any structural fill should be compacted if the surfaces are exposed over a winter since the material will experience frost heave and reach a loose state.

Seismicity

The general subsurface soil conditions are consistent with Design Code Reference ASCE 7-16 for Site Class C-Very Dense Soil and Soft Rock. The latitude and longitude of the project site are 43.68°N and 114.38° W, respectively.

Seismic Design Category (SDC): D
Risk Category: II
Ss = 0.623 g
S1= 0.192 g
Sms = 0.779 g
Sm1 = 0.288 g

Radon Venting

Blaine County has a history of radon gas collecting in crawlspaces and under slab-on-grades. Radon gas is a byproduct of the natural breakdown of uranium that accumulates in improperly sealed basements and crawl spaces. These radon levels can exceed safety standards as set by the EPA. According to the State Radon Contact the most accurate testing results are gathered in the structure after construction.

This office is not qualified to complete a radon venting system design so the following venting concepts are guidelines. The radon system should be designed or reviewed by a radon venting contractor to ensure the proper spacing of the perforated pipes and vertical vent pipes.
Typical radon system designs consist of the following:

1. Install a 4-inch dia. perforated pipes on the footing subgrade within the crawlspace or slab-on-grade foundation.

2. I recommend installing sleeves through interior footings to allow the perforated radon pipe to remain below top of footing.

3. Place imported washed gravel to top of footing to protect radon piping and create level crawlspace surface. A typical footing depth of 8” would provide 4” of gravel over the 4” perforated pipes.

4. Install vapor barrier over top of gravel and seal to top of footing. A white vapor barrier i.e. Dura Skrim enhances lighting in the crawlspace.

5. Connect radon piping to vertical vent pipes. The horizontal length of radon piping per vent pipe and number and location of vent pipes should be determined by radon system contractor.

6. Power should be provided adjacent to the vertical vent pipe in case a low-voltage fan is required to vacate radon.

It is important to create an airtight seal between all concrete slabs and adjacent walls. Consulting an experienced contractor or radon-venting specialist can ensure the required system is installed during construction compared to potentially expensive remedial measures. See *Radon System Concepts Plan* for

general design concepts.

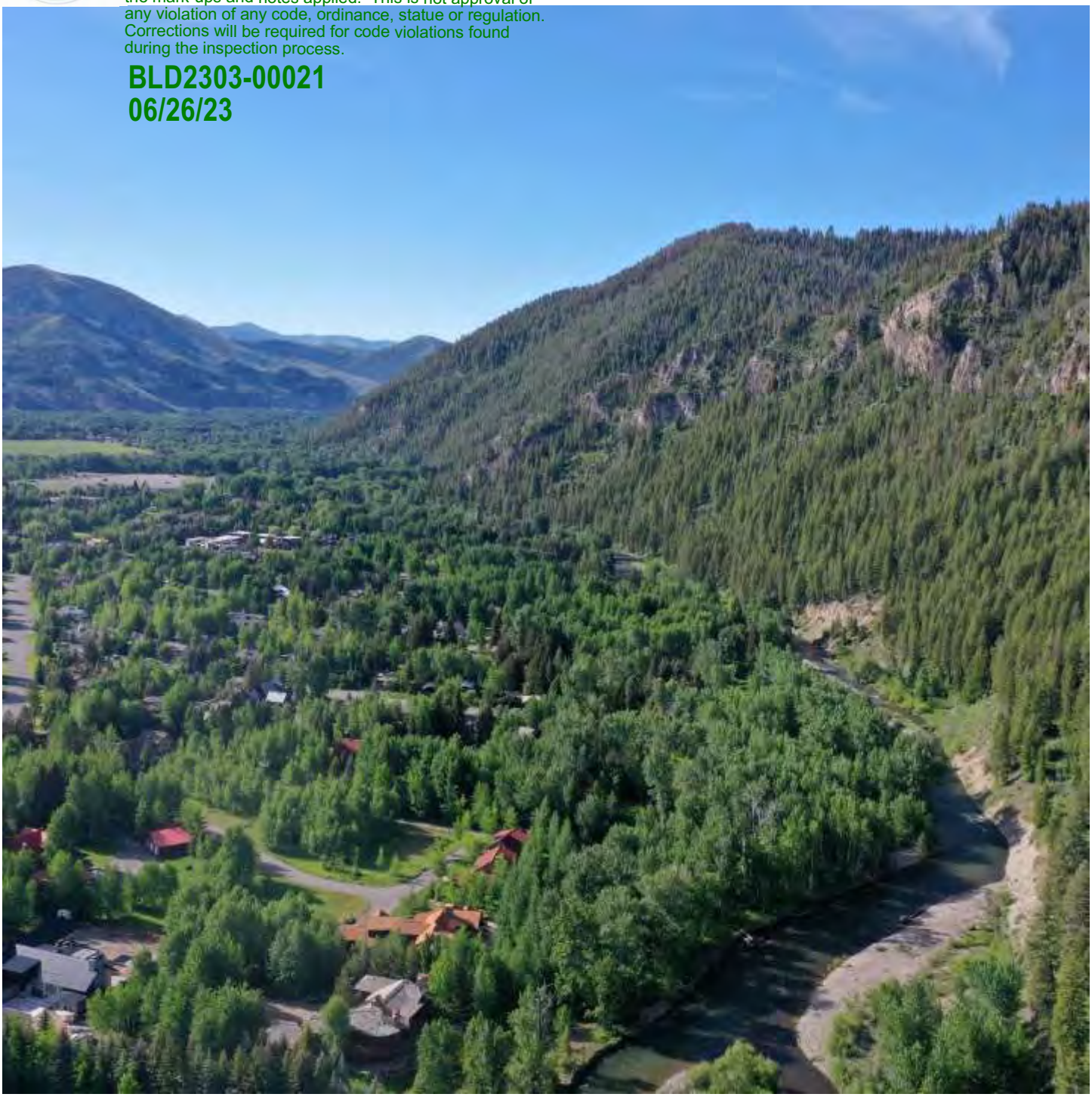
CONSTRUCTION OBSERVATION AND MONITORING

This report provides opinions and recommendations that are generally accepted geotechnical engineering principle and practices. I recommend that this office provide construction monitoring and observation services to ensure that the recommendations outlined in this report are followed and that the foundation drainage system and grading and drainage details are constructed properly. If this office is not retained to perform the recommended services, I cannot be responsible for soil engineering construction errors or omissions. The costs for the recommended services are not included with this report and would be incurred on a time and expense basis.

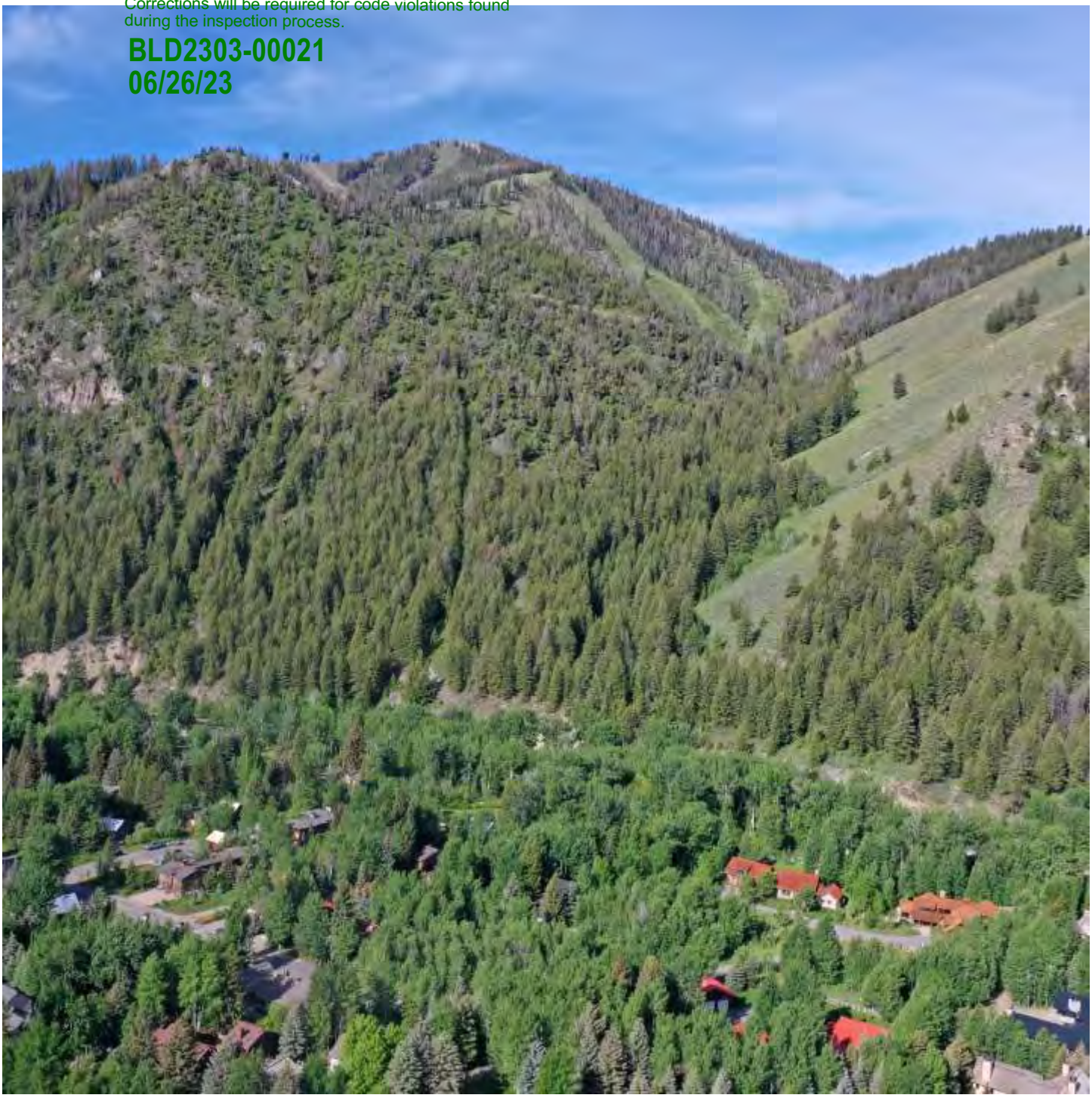
VICINITY MAP

Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho
43.68ºN 114.38ºW

TEST PIT SITE PLAN PHOTO 1
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho
Image captured on June 24, 2022



TEST PIT SITE PLAN PHOTO 2
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho
Image captured on June 24, 2022



TEST PIT SITE PLAN PHOTO 3
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho
Image captured on June 24, 2022

EXPLORATORY TEST PIT #1
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho

DEPTH (Feet)	USCS SOIL CLASS	SOIL DESCRIPTION
0.0'-0.8'	SM	Silty fine SAND & GRAVEL, little Roots (NATIVE) Brown, loose, damp.
0.8'-4.8'	GW	SAND, GRAVEL, COBBLE & BOULDER (NATIVE) Brown, compact-dense, damp-saturated.

Test Pit completed on June 24, 2022.
See *Test Pit Site Plan Photo 1* for test pit location.
The test pit surface elevation is approximately 5783 feet based on the Blaine County Land Use Information Map.
Groundwater encountered at 3.2 feet below existing grade.
Test pit terminated at 4.8 feet below existing grade after reaching several feet below typical crawlspace footings and due to the consistency of the soil type between the test pits.
No soil sample retrieved.
Minor sloughing of test pit walls in native sand and gravel soil.
Excavation equipment: DEERE track-mounted excavator.

EXPLORATORY TEST PIT #2
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho

DEPTH (Feet)	USCS SOIL CLASS	SOIL DESCRIPTION
0.0'-1.0'	SM	Silty fine SAND & GRAVEL, little Roots (NATIVE) Brown, loose, damp.
1.0'-6.4'	GW	SAND, GRAVEL, COBBLE & BOULDER (NATIVE) Brown, compact-dense, damp-saturated.

Test Pit completed on June 24, 2022.
See *Test Pit Site Plan Photo 1* for test pit location.
The test pit surface elevation is approximately 5784 feet based on the Blaine County Land Use Information Map.
Groundwater encountered at 4.8 feet below existing grade.
Test pit terminated at 6.4 feet below existing grade after reaching several feet below typical crawlspace footings and due to the consistency of the soil type between the test pits.
No soil sample retrieved.
Minor sloughing of test pit walls in native sand and gravel soil.
Excavation equipment: DEERE track-mounted excavator.

EXPLORATORY TEST PIT #3
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho

DEPTH (Feet)	USCS SOIL CLASS	SOIL DESCRIPTION
0.0'-3.9'	SM	Silty fine SAND & GRAVEL, heavy Roots (UNCONTROLLED FILL?) Brown, loose, damp.
3.9'-6.9'	GW	SAND, GRAVEL, COBBLE & BOULDER (NATIVE) Brown, compact-dense, damp-saturated.

Test Pit completed on June 24, 2022.
See *Test Pit Site Plan Photo 1* for test pit location.
The test pit surface elevation is approximately 5786 feet based on the Blaine County Land Use Information Map.
Groundwater encountered at 5.2 feet below existing grade.
Test pit terminated at 6.9 feet below existing grade after reaching several feet below typical crawlspace footings and due to the consistency of the soil type between the test pits.
No soil sample retrieved.
Minor sloughing of test pit walls in native sand and gravel soil.
Excavation equipment: DEERE track-mounted excavator.

EXPLORATORY TEST PIT #4
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho

DEPTH (Feet)	USCS SOIL CLASS	SOIL DESCRIPTION
0.0'-2.0'	SM	Silty fine SAND & GRAVEL, little Roots (NATIVE) Brown, loose, damp.
2.0'-4.8'	GW	SAND, GRAVEL, COBBLE & BOULDER (NATIVE) Brown, compact-dense, damp-saturated.

Test Pit completed on June 24, 2022.
See *Test Pit Site Plan Photo 1* for test pit location.
The test pit surface elevation is approximately 5786 feet based on the Blaine County Land Use Information Map.
Groundwater encountered at 3.5 feet below existing grade.
Test pit terminated at 4.8 feet below existing grade after reaching several feet below typical crawlspace footings and due to the consistency of the soil type between the test pits.
No soil sample retrieved.
Minor sloughing of test pit walls in native sand and gravel soil.
Excavation equipment: DEERE track-mounted excavator.

EXPLORATORY TEST PIT #5
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho

DEPTH (Feet)	USCS SOIL CLASS	SOIL DESCRIPTION
0.0'-1.6'	SM	Silty fine SAND & GRAVEL, little Roots (NATIVE) Brown, loose, damp.
1.6'-6.2'	GW	SAND, GRAVEL, COBBLE & BOULDER (NATIVE) Brown, compact-dense, damp-saturated.

Test Pit completed on June 24, 2022.
See *Test Pit Site Plan Photo 1* for test pit location.
The test pit surface elevation is approximately 5786 feet based on the Blaine County Land Use Information Map.
Groundwater encountered at 4.0 feet below existing grade.
Test pit terminated at 6.2 feet below existing grade after reaching several feet below typical crawlspace footings and due to the consistency of the soil type between the test pits.
No soil sample retrieved.
Minor sloughing of test pit walls in native sand and gravel soil.
Excavation equipment: DEERE track-mounted excavator.

EXPLORATORY TEST PIT #6
Proposed Badger Lane Residence
Parcel 4, Rocking Ranch Subdivision No. 2
121 Badger Lane
Ketchum, Idaho

DEPTH (Feet)	USCS SOIL CLASS	SOIL DESCRIPTION
0.0'-1.1'	SM	Silty fine SAND & GRAVEL, little Roots (NATIVE) Brown, loose, damp.
1.1'-5.4'	GW	SAND, GRAVEL, COBBLE & BOULDER (NATIVE) Brown, compact-dense, damp.

Test Pit completed on June 24, 2022.
See *Test Pit Site Plan Photo 1* for test pit location.
The test pit surface elevation is approximately 5788 feet based on the Blaine County Land Use Information Map.
No groundwater encountered.
Test pit terminated at 5.4 feet below existing grade after reaching several feet below typical crawlspace footings and due to the consistency of the soil type between the test pits.
No soil sample retrieved.
Minor sloughing of test pit walls in native sand and gravel soil.
Excavation equipment: DEERE track-mounted excavator.

SOIL CLASSIFICATION / LEGEND

RELATIVE DENSITY OR CONSISTENCY
UTILIZING STANDARD PENETRATION TEST VALUES

COHESIONLESS SOILS (a)			COHESIVE SOILS (b)		
Density (c)	N, blows/ft (c)	Relative Density (1%)	Consistency	N, blows/ft (c)	Undrained (d) Shear Strength(psf)
Very Loose	0 to 4	0 - 15	Very Soft	0 to 2	<250
Loose	4 to 10	15 - 35	Soft	2 to 4	250-500
Compost	10 to 30	35 - 65	Firm	4 to 8	500-1000
Dense	30 to 50	65 - 85	Stiff	8 to 15	1000-2000
Very Dense	over 50	>85	Very Stiff	15 to 30	2000-4000
			Hard	over 30	>4000

(a) Soils consisting of gravel, sand, and silt, either separately or in combination, possessing no characteristics of plasticity and exhibiting drained behavior.
(b) Soils possessing the characteristics of plasticity and exhibiting undrained behavior.
(c) Refer to text of ASTM D 1586-84 for a definition of N; in normally consolidated cohesionless soils Relative Density terms are based on N. values corrected for overburden pressures.
(d) Undrained shear strength = ½ unconfined compression strength.

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOL	TYPICAL NAMES
COURSE GRAINED SOILS More than 50% retained on No. 200 Sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 Sieve	CLEAN GRAVELS	GW	Well-Graded gravel
			GP	Poorly-graded gravels
		GRAVELS WITH FINES	GM	Gravel and Silt Mixtures
			GC	Gravel and Clay Mixtures
	SANDS 50% or more of coarse fraction passes No. 4 Sieve	CLEAN SANDS	SW	Well-graded Sands
			SP	Poorly-graded Sands
		SANDS WITH FINES More than 12% fines	SM	Sand and Silt Mixtures
			SC	Sand and Clay Mixtures
FINE GRAINED SOILS 50% or more passes the No. 200 Sieve	SILTS & CLAYS Liquid limit less than 50	INORGANIC	CL	Low-plasticity Clays
			ML	Non-plastic and Low-plasticity Silts
		ORGANIC	OL	Organic Silt and Clay of Low plasticity
	SILTS & CLAYS Liquid limit less than 50	INORGANIC	CH	High Plasticity Clays
			MH	High Plasticity Silts
		ORGANIC	OH	High-plasticity-Organic Clays High-plasticity-Organic Silts
HIGHLY ORGANIC SOILS			PT	Peat, Muck and Other Highly Organic Soils

COMPONENT DEFINITIONS BY GRADATION

COMPONENT	SIZE RANGE
Boulders	Above 12 inches
Cobbles	3 inches to 12 inches
Gravel	3 inches to No. 4 (4.76mm)
Coarse gravel	3 inches to 3/4 inch
Fine gravel	3/4 inch to No. 4 (4.76mm)
Sand	No. 4 (4.76mm) to No. 200 (0.074mm)
Course sand	No. 4 (4.76mm) to No. 10 (2.0mm)
Medium sand	No. 10 (2.0mm) to No. 40 (0.42mm)
Fine sand	No. 40 (0.42) to No. 200 (0.074mm)
Silt & Clay	Smaller than No. 200 (0.074mm)

SILT & CLAY DESCRIPTIONS

DESCRIPTIONS	TYPICAL UNIFIED DESIGNATION
Silt	ML (non-plastic)
Clayey Silt	CL-ML (low plasticity)
Silty Clay	CL
Clay	CH
Plastic Silt	MH
Organic Soils	OL, OH, Pt

LABORATORY TESTS

TEST	DESIGNATION
Moisture	(1)
Density	D
Grain Size	G
Hydrometer	H
Atterberg Limits	(1)
Consolidation	C
Unconfined	U
UU Triax	UU
CU Triax	CU
CD Triax	CD
Permeability	P

(1) Moisture & Atterberg Limits

SAMPLES

SS SPT Samples
HD Heavy Duty Split Spoons
SH Shelby Tube
P Pitcher Sampler
B Bulk
C Cord

Unless otherwise noted, drive samples advance with 140 lb. Hammer with 30 inch drop.

COMPONENT PROPORTIONS

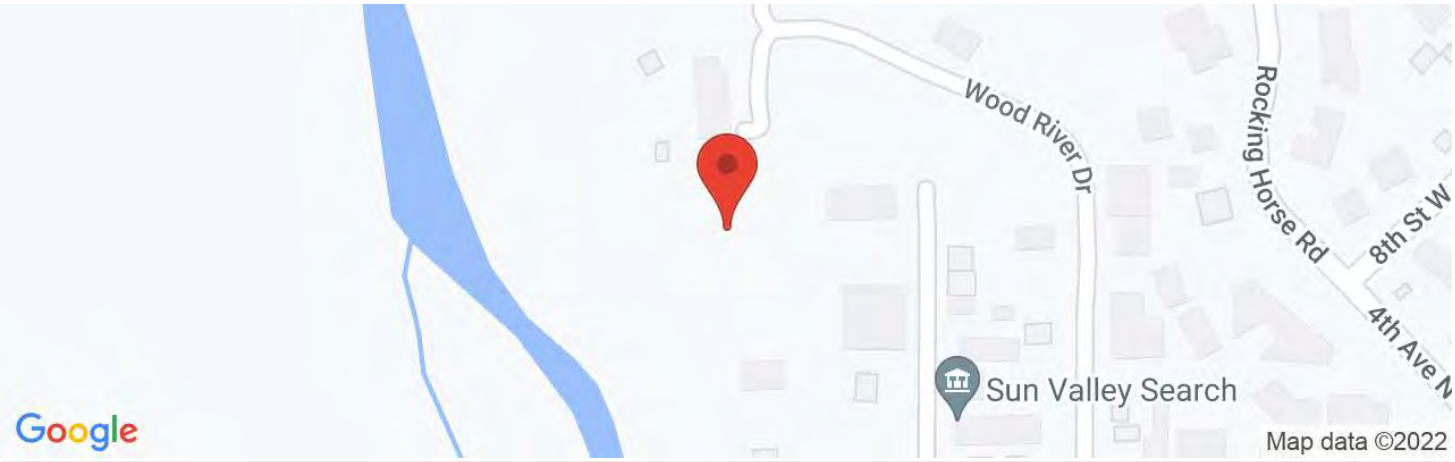
DESCRIPTIONS	RANGE OF PROPORTION
Trace	0-5%
Little	5-12%
Some or Adjective (a)	12-30%
And	30-50%

(a) Use Gravelly, Sandy or Silty as appropriate.

OSHPD

Proposed Badger Lane Residence

Latitude, Longitude: 43.680070696355536, -114.3757934820794



Date	6/27/2022, 11:56:40 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	C - Very Dense Soil and Soft Rock

Type	Value	Description
S_S	0.623	MCE_R ground motion. (for 0.2 second period)
S_1	0.192	MCE_R ground motion. (for 1.0s period)
S_{MS}	0.779	Site-modified spectral acceleration value
S_{M1}	0.288	Site-modified spectral acceleration value
S_{DS}	0.52	Numeric seismic design value at 0.2 second SA
S_{D1}	0.192	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	D	Seismic design category
F_a	1.251	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.277	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.332	Site modified peak ground acceleration
T_L	6	Long-period transition period in seconds
SsRT	0.623	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	0.698	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.192	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.212	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.893	Mapped value of the risk coefficient at short periods
C_{R1}	0.908	Mapped value of the risk coefficient at a period of 1 s

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

Proposed Badger Lane Residence

6/27/2022, 11:55:54 AM

1:1,575

0 0.01 0.03 0.05 mi

0 0.02 0.04 0.08 km

2ft Contours 2017

2ft Contours

20ft Contours

Parcels

10ft Contours

Roads

Blaine County GIS

Approved

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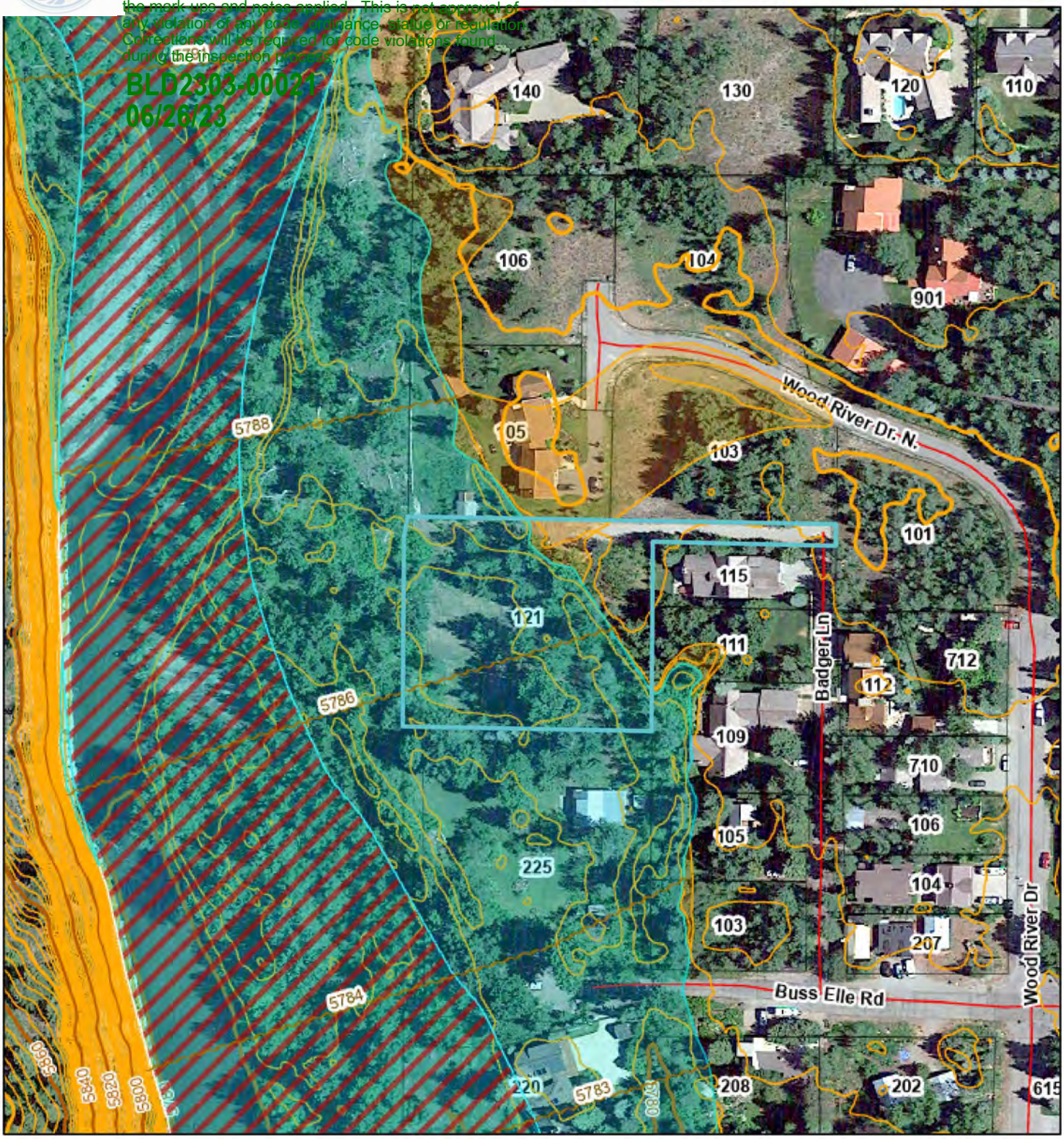
BLD2303-00021
06/26/23

Proposed Badger Lane Residence



6/27/2022, 8:51:25 PM

1:1,575

0 0.01 0.03 0.05 mi
0 0.02 0.04 0.08 km

Base Flood Elevations

Flood Hazard Areas

Special Flood Hazard Area (Floodplain, 1%)

Floodway

500 Year Floodplain (0.2%)

X, Area of Minimal Flood Hazard

2ft Contours 2017

20ft Contours

10ft Contours

2ft Contours

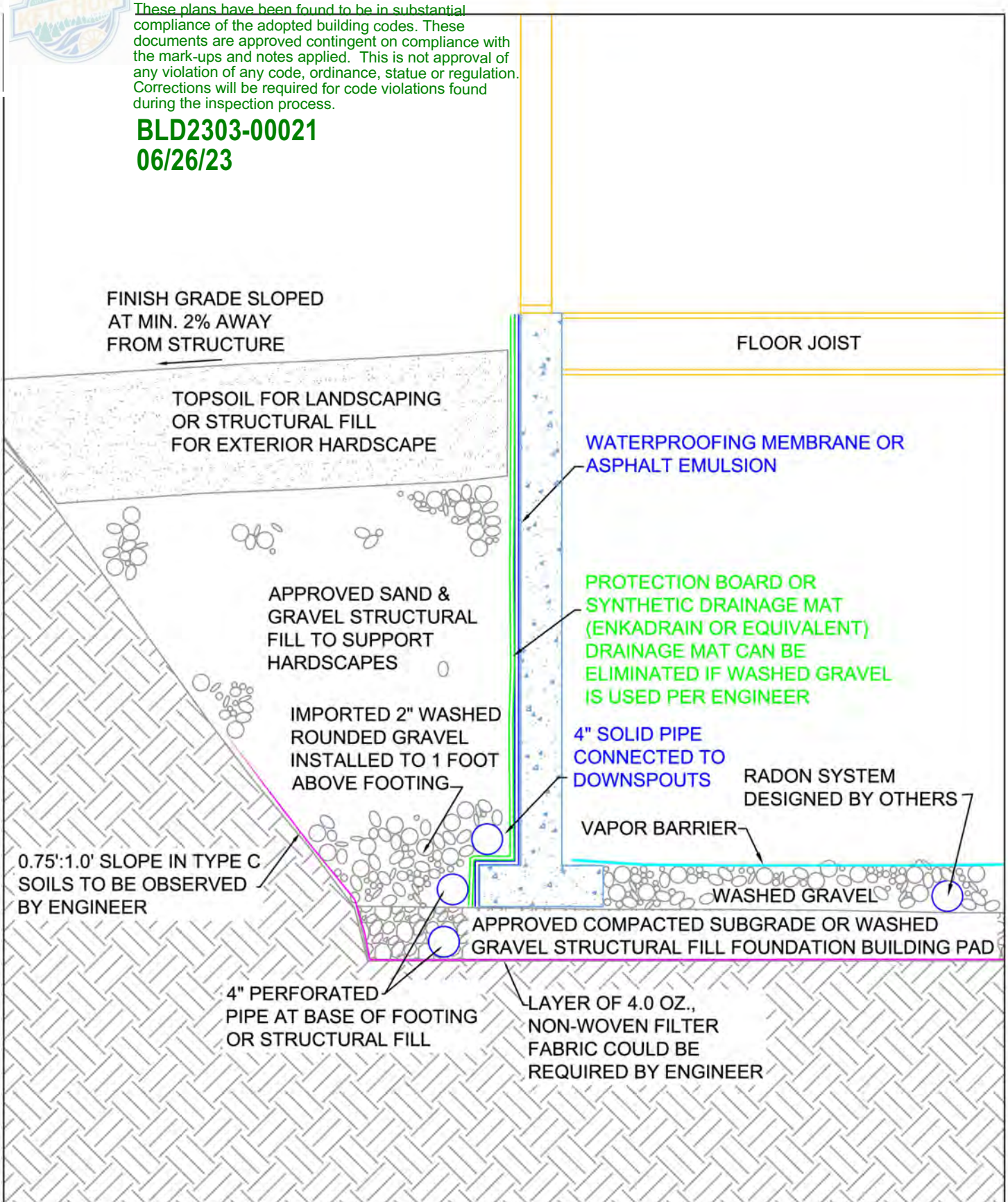
Parcels

Roads

Blaine County GIS

Blaine County GIS

Blaine County GIS |



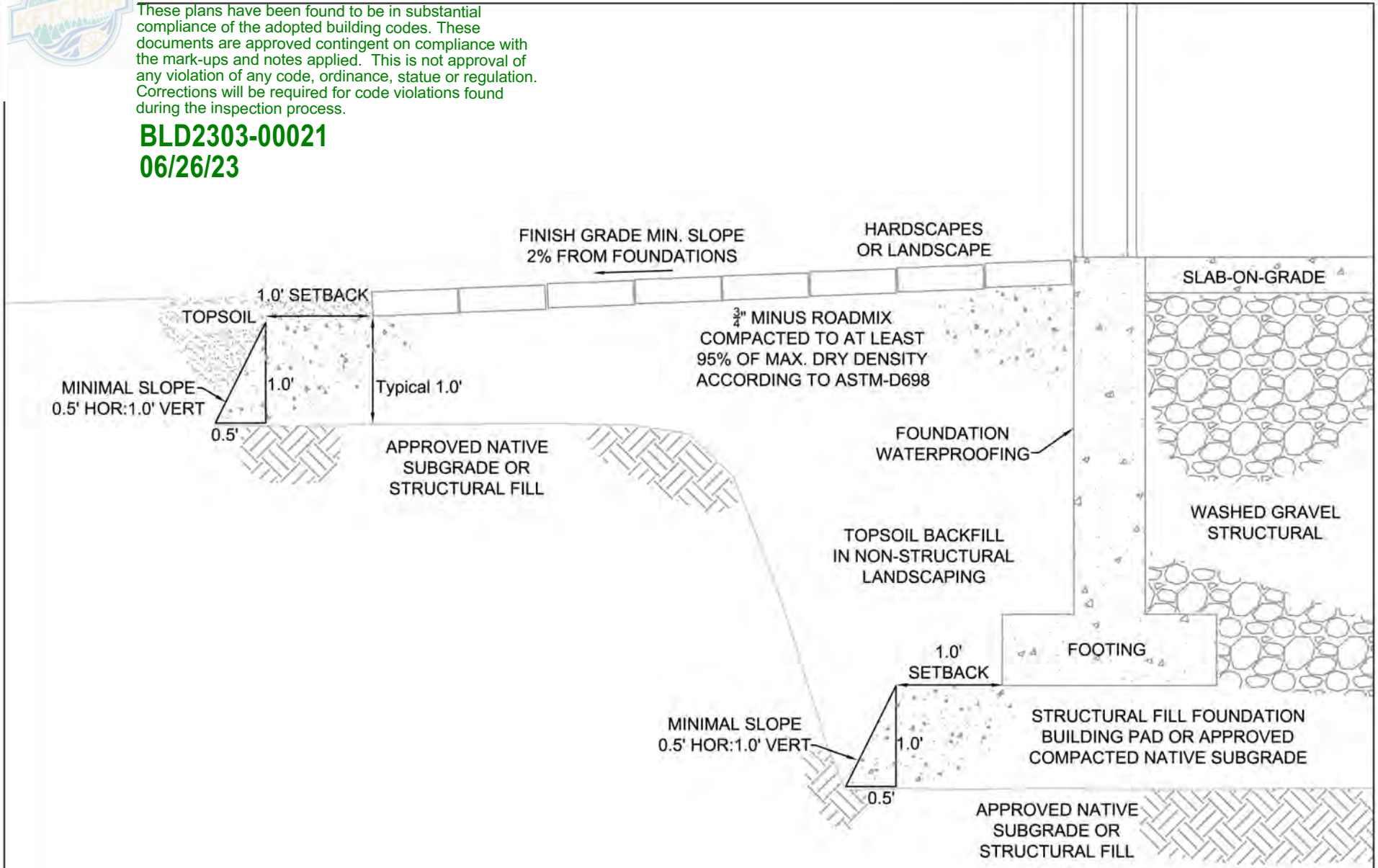
CRAWLSPACE FOUNDATION WALL DRAINAGE PROFILE

Proposed Badger Lane Residence
121 Badger Lane
Ketchum, Idaho

Butler Associates, Inc.
P.O.B. 1034
Ketchum, ID 83340
208.720.6432
svgeotech@gmail.com

6-27-22

Not To Scale

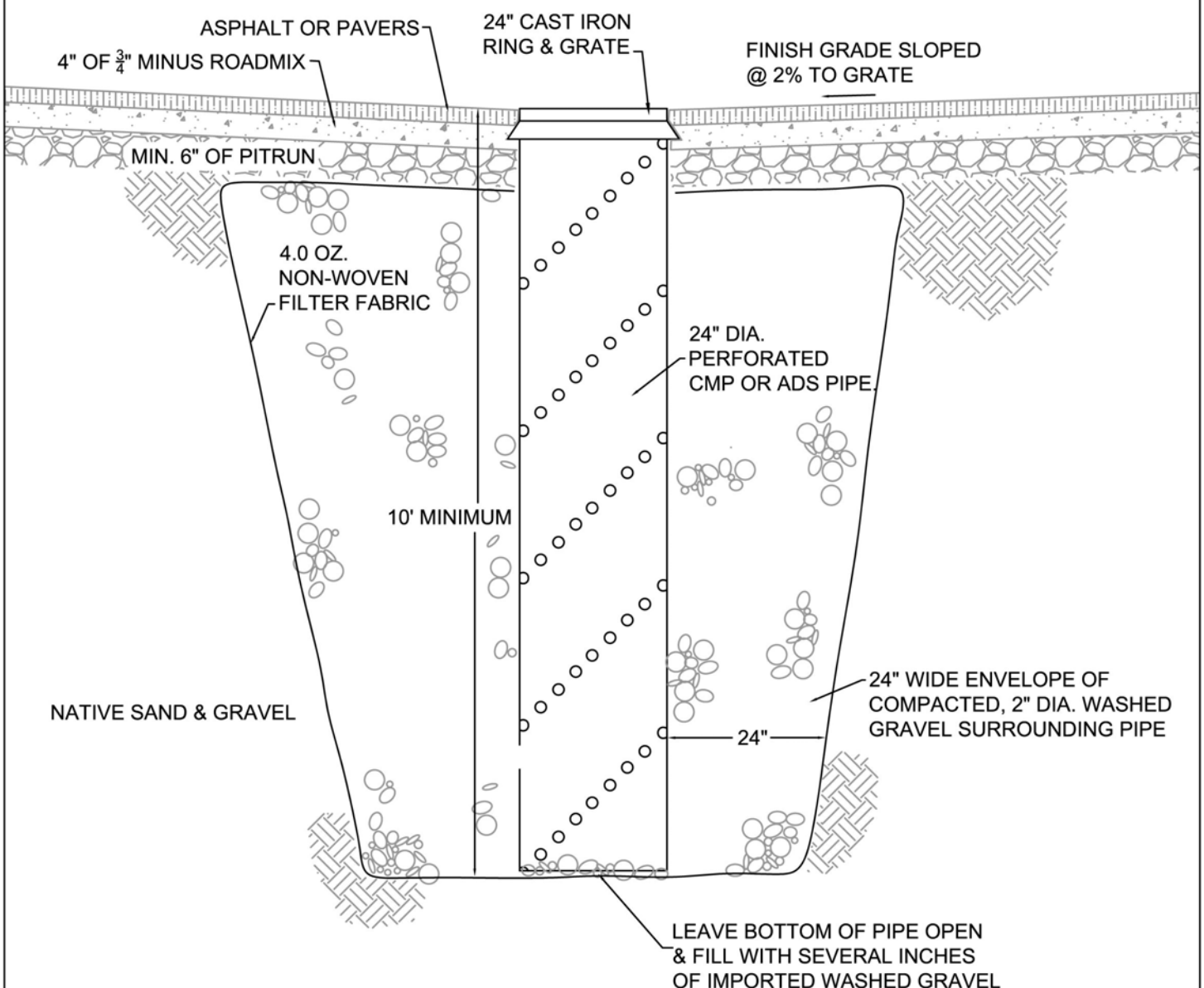


STRUCTURAL FILL /FOUNDATION SUBGRADE CONCEPTS PROFILE

Proposed Badger Lane Residence
121 Badger Lane
Ketchum, Idaho

Butler Associates, Inc.
P.O.B. 1034
Ketchum, ID 83340
208.720.6432
svgeotech@gmail.com

6-27-22
Not To Scale



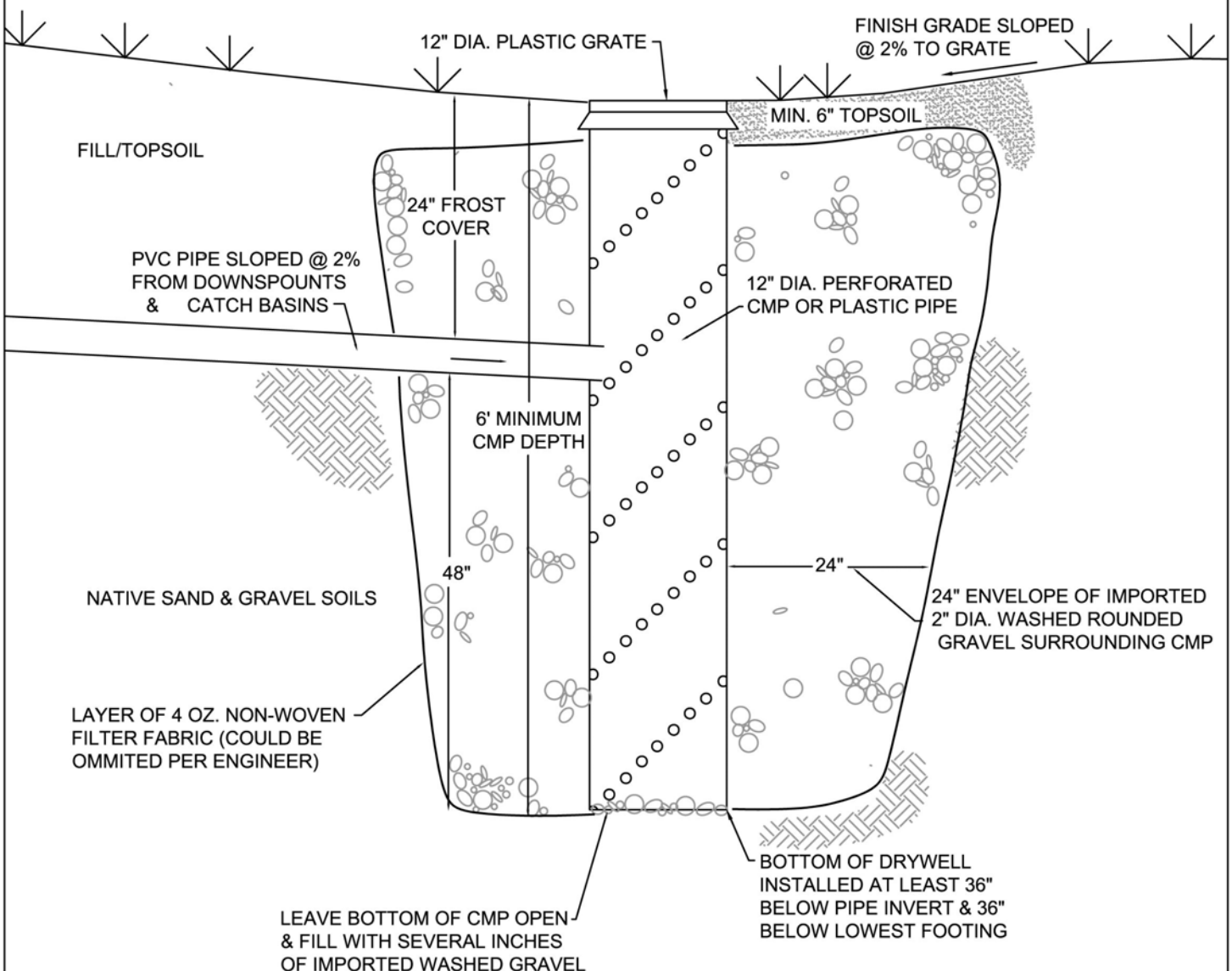
STORMWATER DRYWELL PROFILE

Proposed Badger Lane Residence
121 Badger Lane
Ketchum, Idaho

Butler Associates, Inc.
P.O.B. 1034
Ketchum, ID 83340
208.720.6432
svgeotech@gmail.com

6-27-22

Not To Scale



LANDSCAPE DRYWELL PROFILE

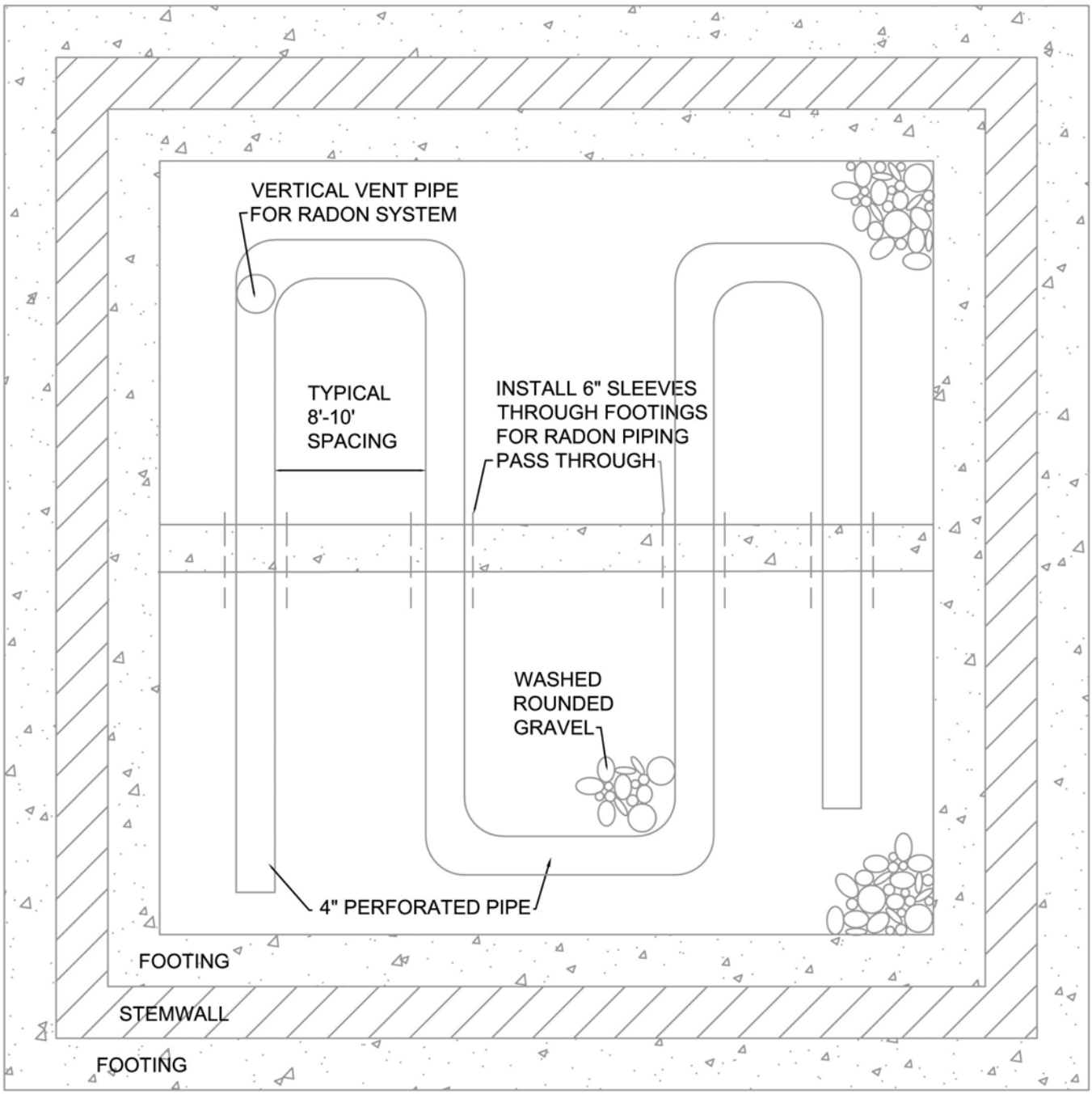
Proposed Badger Lane Residence
121 Badger Lane
Ketchum, Idaho

Butler Associates, Inc.
P.O.B. 1034
Ketchum, ID 83340
208.720.6432
svgeotech@gmail.com

6-27-22

Not To Scale

*TYPICALLY WASHED GRAVEL PLACED OVER PERFORATED PIPE ON TOP OF FOOTING AND COVERED WITH VAPOR BARRIER THAT IS SEALED TO TOP OF FOOTING



**RADON SYSTEM DESIGNED BY OTHERS

RADON SYSTEM CONCEPTS PLAN

Proposed Badger Lane Residence
121 Badger Lane
Ketchum, Idaho

Butler Associates, Inc.
P.O.B. 1034
Ketchum, ID 83340
208.720.6432
svgeotech@gmail.com

6-27-22

Not To Scale

Galena-Benchmark Engineering
ENGINEERING, PLANNING, SURVEYING & MAPPING
PO Box 733. 100 Bell Drive
Ketchum, Idaho 83340
208-726-9512

TECHNICAL MEMORANDUM

DATE: April 28, 2023

TO: Robyn Mattison
City Engineer
City of Ketchum
CC: Morgan Landers, Planning & Building Director

FROM: Phoebe Johannessen, P.E.
Galena-Benchmark Engineering

RE: Rocking Ranch #2, Lot 4 Drainage Design

Robyn,
This memo provides documentation of the proposed drainage system for Rocking Ranch #2, Lot 4, (121 Badger Lane). This is a 1.1 acre lot that was previously developed with a house. This new project will replace the previous house and add an ADU. This lot contains existing wetlands that drain through the property from the northwest corner to the southeast corner and on to neighboring properties.

Due to the existing drainage patterns on this lot, it is not practicable to meet the City of Ketchum drainage code 17.124.170.A requiring that all stormwater to be retained on site. In lieu of this, the developed project will maintain the existing flow patterns across the site and not increase the amount of runoff draining to the wetland complex. The stormwater runoff from the two dwelling structures and a portion of the driveway will be directed to on-site drywells and will therefore not introduce any new adverse effects downstream of the project.

Existing Conditions
The existing 1.1-acre lot was previously developed with a house, shed and driveway. Benchmark Associates conducted a survey of this lot in 2014. This survey was used to measure the amount of impervious surface and vegetated areas that were previously draining to the wetlands in the interior of the lot. The wetlands themselves are not included in the calculations.

Existing Stormwater Runoff (25-year runoff event)

Land Use	**Area (ac)**	**Runoff Rate (cfs)**
Impervious surface area	0.15 ac	0.05 cfs
Native Vegetation/Landscaping	0.49 ac	0.03 cfs
Total	**0.64 ac**	**0.09 cfs**

Developed Conditions
Under developed conditions, approximately 0.36 acre of impervious surfaces consisting of the house, ADU, patios, and a portion of the driveway would drain to the central wetlands if not collected. The 25-

runoff is tabulated below. The estimated runoff from the developed condition is 0.15 cfs. This is an increase of 0.06 cfs over existing conditions. This increase will be mitigated using 6 on-site drywells as described below.

Developed 25-year Runoff (25-year runoff event)

Land Use	Area (ac)	Runoff Rate (cfs)
Impervious surface area	0.36	0.13 cfs
Native Vegetation/Landscaping	0.31	0.02 cfs
Total	**0.64**	**0.15 cfs**

Stormwater Mitigation Plan

The soils on-site are sand and gravel and with a recommended infiltration rate of 2" per minute by the Geotechnical Engineer (Butler Associates, Inc. 2022). High groundwater tables were encountered throughout the site ranging from 3 to 5 feet below the ground surface at the time of the geotechnical exploration.

The drywells were each designed using an effective storage depth down to the estimated level of the groundwater based on the water levels observed in the test pits at the time of excavation.

Drywell #1 will receive runoff from approximately 0.04 acres of the driveway. Drywells #2, 3, and 4 receive runoff from the roof drains and patios around the house and some of the landscaped area around the house. Drywells #5 and 6 receive runoff from the ADU roof drains and the adjacent patios.

Drywell Infiltration

Drywell	25-year Design Runoff (cfs)	Drywell Capacity (cfs)
#1	0.02	0.12
#2	0.02	0.12
#3	0.02	0.08
#4	0.02	0.08
#5	0.01	0.11
#6	0.01	0.08
TOTAL	**0.10**	**0.59**

The previous development had a runoff rate of 0.09 cfs
Proposed development runoff rate: 0.15 cfs
Unmitigated increase in runoff: 0.06 cfs
Drywell infiltration: 0.10 cfs
Mitigated developed runoff = 0.15 cfs - 0.10 cfs = 0.05 cfs

Thus, the six proposed drywells will reduce the developed runoff rate to the wetlands to 0.05 cfs, which is a reduction from the previous development runoff rate of 0.09 cfs.

Please contact me if you have any questions.

Sincerely,

Phoebe Johannessen

Phoebe Johannessen, P.E.
Galena-Benchmark Engineering

Approved

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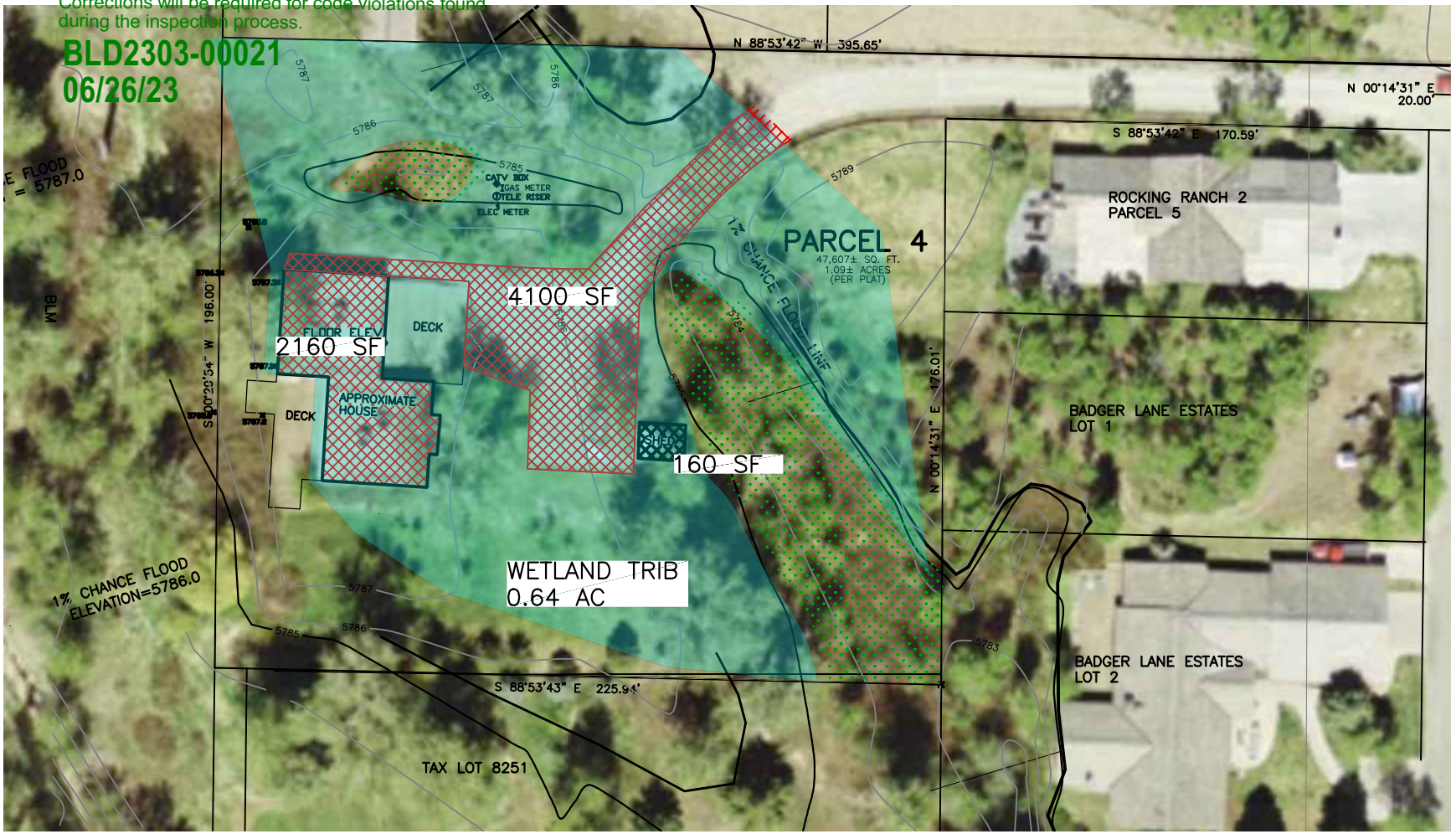
BLD2303-00021
06/26/23



PREVIOUS DEVELOPED AREA (2014)
TRIBUTARY TO INTERIOR WETLANDS

0 50 100 Feet

LEGEND

WETLAND TRIBUTARY AREA

NEW IMPERVIOUS AREA

WETLANDS

Approved

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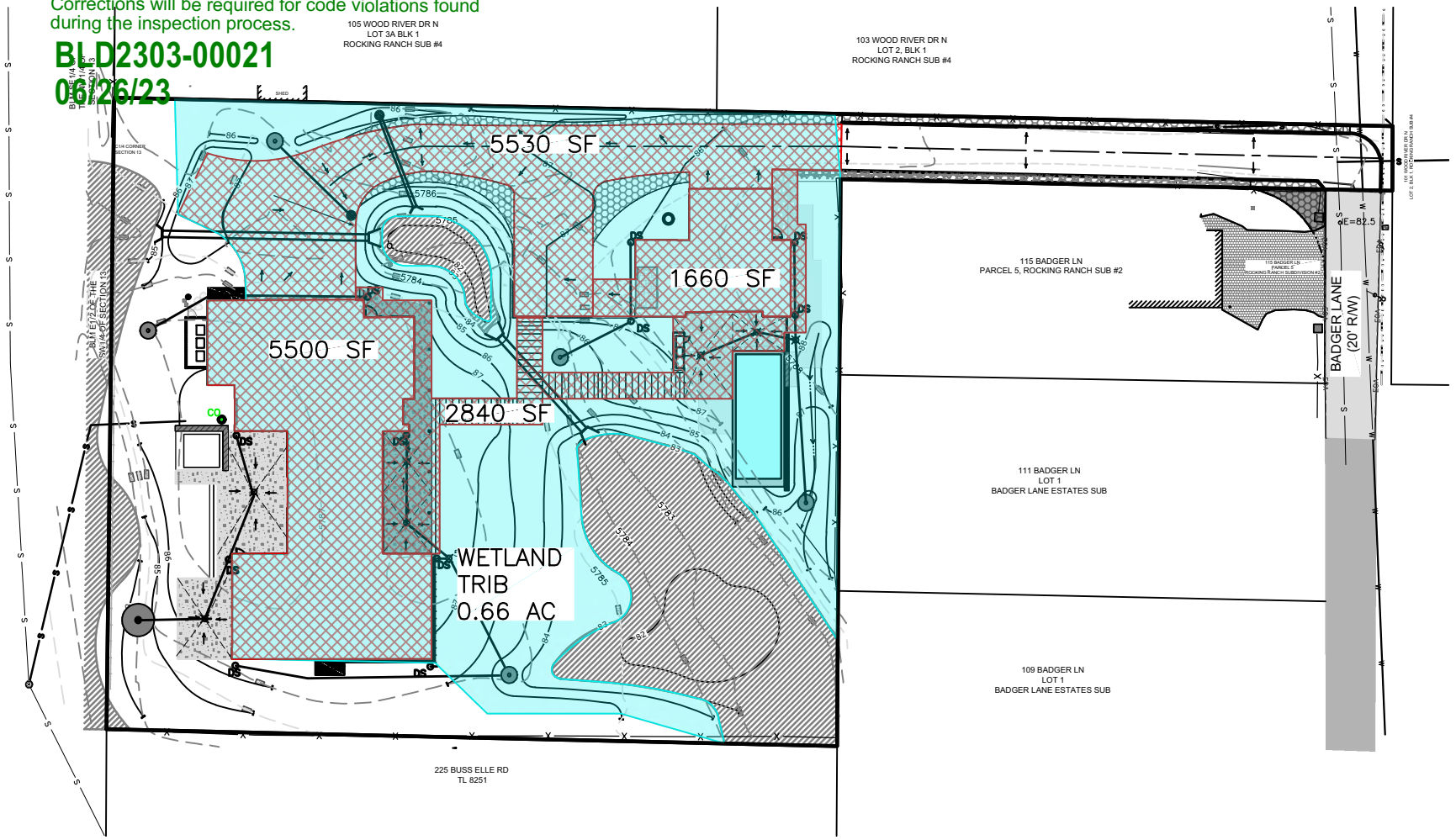
BLD2303-00021
06/26/23



DEVELOPED AREA
TRIBUTARY TO INTERIOR
WETLANDS

0 50 100 Feet

LEGEND

WETLAND TRIBUTARY AREA

NEW IMPERVIOUS AREA

WETLANDS

SITE: 121 Badger Lane
BY: P. Johannessen
DATE: 4/21/2023

SUBJECT: Change in runoff to on-site wetlands for 25-year storm between previous development and proposed development.

Storm Intensity:	0.4 in/hr	Runoff Coefficients		
		C:	0.2	Unimproved/landscape area
		C:	0.75	Gravel
		C:	0.9	Impervious surface (asphalt, walkways, roof)

PREVIOUS DEVELOPMENT (BASED ON 2014 SURVEY AND 2005 ARIAL PHOTO)

	Area (SF)	Area (AC)	Runoff (cfs)
Total basin draining to wetlands (not including wetlands)	27,900	0.64	
Impervious surface			
House & Shed	2320	0.05	0.02
Gravel Driveway	4100	0.09	0.03
Native vegetation/landscape (remaining area)	21,480	0.49	0.04
Total runoff draining to wetlands			**0.09**

*Decks were assumed to be pervious - draining to ground below - and were modeled as native/landscape.

DEVELOPED CONDITION

	Area (SF)	Area (AC)	Runoff (cfs)
Total basin draining to wetlands (not including wetlands)	28,860	0.66	
Impervious surface			
House, ADU & Walkways	10,000	0.23	0.08
Paved Driveway	5530	0.13	0.05
Native vegetation/landscape (remaining area)	13,330	0.31	0.02
Total runoff draining to wetlands			**0.15**

Increase in runoff to on-site wetlands = 0.15 - 0.09 cfs = 0.06 cfs

	Infiltration rate (cfs)
Drywell #1	0.02
Drywell #2	0.02
Drywell #3	0.02
Drywell #4	0.02
Landscape DW#1	0.01
Landscape DW#2	0.01
TOTAL =	**0.1**

Overall reduction to on-site wetlands = -0.04 cfs

On System Sizing Worksheet

The proposed drywell receives runoff from a portion of the driveway. The below calculation shows required drywell dimensions to infiltrate the 25- year storm.

Onsite Native Soil Infiltration

Infiltration Rate:	120	in/hr	Assumed T_c:	10	min
Factor of Safety:	2		Intensity (25-yr, 10-min):	0.4	in/hr
Design Infiltration Rate:	60.0	**in/hr**			

Site Infiltration Sizing

Impervious Area:	0.04	ac
Runoff Coefficient (Imp.):	0.9	
25-Year Design Runoff:	0.02	cfs

Drywell Structure Dimensions

Drywell Manhole Diameter:	12	in	
Drain Rock Thickness:	24	in	
Drain Rock Void Ratio:	0.4		
Drywell Rim Elevation:	85.00		
Max Storage Elevation:	84.00		Near Test Pit #3
Depth to Bottom of Drywell:	5.0	ft	Water table 5 ft below ground surface.
Bottom Elevation:	80.0		

Drywell Stage-Storage-Discharge

Drywell Stage	Water Surface Depth	Elevation	Storage in MH	Storage in Drain Rock	Total Storage	Bottom Wetted Area	Side Wetted Area	Total Wetted Area	Drywell Infiltration Flow Rate
(ft)	(ft)		(cf)	(cf)	(cf)	(sf)	(sf)	(sf)	(cfs)
0.00	5.00	80.00	0.0	0.0	0.0	19.6	0.0	19.6	0.027
0.40	4.60	80.40	0.3	3.0	3.3	19.6	6.3	25.9	0.036
0.80	4.20	80.80	0.6	6.0	6.7	19.6	12.6	32.2	0.045
1.20	3.80	81.20	0.9	9.0	10.0	19.6	18.8	38.5	0.053
1.60	3.40	81.60	1.3	12.1	13.3	19.6	25.1	44.8	0.062
2.00	3.00	82.00	1.6	15.1	16.7	19.6	31.4	51.1	0.071
2.40	2.60	82.40	1.9	18.1	20.0	19.6	37.7	57.3	0.080
2.80	2.20	82.80	2.2	21.1	23.3	19.6	44.0	63.6	0.088
3.20	1.80	83.20	2.5	24.1	26.6	19.6	50.3	69.9	0.097
3.60	1.40	83.60	2.8	27.1	30.0	19.6	56.5	76.2	0.106
4.00	**1.00**	**84.00**	**3.1**	**30.2**	**33.3**	**19.6**	62.8	**82.5**	**0.115**

Drywell #1 Design

121 Badger Lane

BY: PLJ DATE: 02/24/23

Drywell System Sizing Worksheet

The proposed drywell will collect runoff from a portion . The below calculation shows required drywell dimensions to infiltrate the 25-year storm.

Onsite Native Soil Infiltration

Infiltration Rate:	120	in/hr
Factor of Safety:	2	
Design Infiltration Rate:	60.0	**in/hr**

Assumed T_c:	10	min
Intensity (25-yr, 10-min):	0.4	in/hr

Site Infiltration Sizing

Impervious Area:	0.06	ac
Runoff Coefficient (Imp.):	0.9	
25-Year Design Runoff:	0.02	cfs

Drywell Structure Dimensions

Drywell Manhole Diameter:	12	in
Drain Rock Thickness:	24	in
Drain Rock Void Ratio:	0.4	
Drywell Rim Elevation:	86.80	
Max Storage Elevation:	85.80	
Depth to Bottom of Drywell:	5.0	ft
Bottom Elevation:	81.8	

Near Test Pit #3
Water table 5 ft below ground surface.

Drywell Stage-Storage-Discharge

Drywell Stage	Water Surface Depth	Elevation	Storage in MH	Storage in Drain Rock	Total Storage	Bottom Wetted Area	Side Wetted Area	Total Wetted Area	Drywell Infiltration Flow Rate
(ft)	(ft)		(cf)	(cf)	(cf)	(sf)	(sf)	(sf)	(cfs)
0.00	5.00	81.80	0.0	0.0	0.0	19.6	0.0	19.6	0.027
0.40	4.60	82.20	0.3	3.0	3.3	19.6	6.3	25.9	0.036
0.80	4.20	82.60	0.6	6.0	6.7	19.6	12.6	32.2	0.045
1.20	3.80	83.00	0.9	9.0	10.0	19.6	18.8	38.5	0.053
1.60	3.40	83.40	1.3	12.1	13.3	19.6	25.1	44.8	0.062
2.00	3.00	83.80	1.6	15.1	16.7	19.6	31.4	51.1	0.071
2.40	2.60	84.20	1.9	18.1	20.0	19.6	37.7	57.3	0.080
2.80	2.20	84.60	2.2	21.1	23.3	19.6	44.0	63.6	0.088
3.20	1.80	85.00	2.5	24.1	26.6	19.6	50.3	69.9	0.097
3.60	1.40	85.40	2.8	27.1	30.0	19.6	56.5	76.2	0.106
4.00	**1.00**	**85.80**	**3.1**	**30.2**	**33.3**	**19.6**	62.8	**82.5**	**0.115**

Drywell #2 Design

121 Badger Lane

BY: PLJ DATE: 04/24/23

Drywell System Sizing Worksheet

The proposed drywell will collect runoff from a portion . The below calculation shows required drywell dimensions to infiltrate the 25-year storm.

Onsite Native Soil Infiltration

Infiltration Rate:	120	in/hr	Assumed T_c:	10	min
Factor of Safety:	2		Intensity (25-yr, 10-min):	0.4	in/hr
Design Infiltration Rate:	60.0	**in/hr**			

Site Infiltration Sizing

Impervious Area:	0.06	ac
Runoff Coefficient (Imp.):	0.9	
25-Year Design Runoff:	0.02	cfs

Drywell Structure Dimensions

Drywell Manhole Diameter:	12	in
Drain Rock Thickness:	24	in
Drain Rock Void Ratio:	0.4	
Drywell Rim Elevation:	84.50	
Max Storage Elevation:	83.50	
Depth to Bottom of Drywell:	3.5	ft
Bottom Elevation:	81.0	

Near Test Pit #4
Water table 3.5 ft below ground surface.

Drywell Stage-Storage-Discharge

Drywell Stage	Water Surface Depth	Elevation	Storage in MH	Storage in Drain Rock	Total Storage	Bottom Wetted Area	Side Wetted Area	Total Wetted Area	Drywell Infiltration Flow Rate
(ft)	(ft)		(cf)	(cf)	(cf)	(sf)	(sf)	(sf)	(cfs)
0.00	3.50	81.00	0.0	0.0	0.0	19.6	0.0	19.6	0.027
0.25	3.25	81.25	0.2	1.9	2.1	19.6	3.9	23.6	0.033
0.50	3.00	81.50	0.4	3.8	4.2	19.6	7.9	27.5	0.038
0.75	2.75	81.75	0.6	5.7	6.2	19.6	11.8	31.4	0.044
1.00	2.50	82.00	0.8	7.5	8.3	19.6	15.7	35.3	0.049
1.25	2.25	82.25	1.0	9.4	10.4	19.6	19.6	39.3	0.055
1.50	2.00	82.50	1.2	11.3	12.5	19.6	23.6	43.2	0.060
1.75	1.75	82.75	1.4	13.2	14.6	19.6	27.5	47.1	0.065
2.00	1.50	83.00	1.6	15.1	16.7	19.6	31.4	51.1	0.071
2.25	1.25	83.25	1.8	17.0	18.7	19.6	35.3	55.0	0.076
2.50	**1.00**	**83.50**	**2.0**	**18.8**	**20.8**	**19.6**	39.3	**58.9**	**0.082**

Drywell #3 Design

121 Badger Lane

BY: PLJ DATE: 04/24/23

Drywell System Sizing Worksheet

The proposed drywell will collect runoff from a portion . The below calculation shows required drywell dimensions to infiltrate the 25-year storm.

Onsite Native Soil Infiltration

Infiltration Rate:	120	in/hr
Factor of Safety:	2	
Design Infiltration Rate:	60.0	**in/hr**

Assumed T_c:	10	min
Intensity (25-yr, 10-min):	0.4	in/hr

Site Infiltration Sizing

Impervious Area:	0.06	ac
Runoff Coefficient (Imp.):	0.9	
25-Year Design Runoff:	0.02	cfs

Drywell Structure Dimensions

Drywell Manhole Diameter:	12	in
Drain Rock Thickness:	24	in
Drain Rock Void Ratio:	0.4	
Drywell Rim Elevation:	84.50	
Max Storage Elevation:	83.50	
Depth to Bottom of Drywell:	3.5	ft
Bottom Elevation:	81.0	

Near Test Pit #4
Water table 3.5 ft below ground surface.

Drywell Stage-Storage-Discharge

Drywell Stage	Water Surface Depth	Elevation	Storage in MH	Storage in Drain Rock	Total Storage	Bottom Wetted Area	Side Wetted Area	Total Wetted Area	Drywell Infiltration Flow Rate
(ft)	(ft)		(cf)	(cf)	(cf)	(sf)	(sf)	(sf)	(cfs)
0.00	3.50	81.00	0.0	0.0	0.0	19.6	0.0	19.6	0.027
0.25	3.25	81.25	0.2	1.9	2.1	19.6	3.9	23.6	0.033
0.50	3.00	81.50	0.4	3.8	4.2	19.6	7.9	27.5	0.038
0.75	2.75	81.75	0.6	5.7	6.2	19.6	11.8	31.4	0.044
1.00	2.50	82.00	0.8	7.5	8.3	19.6	15.7	35.3	0.049
1.25	2.25	82.25	1.0	9.4	10.4	19.6	19.6	39.3	0.055
1.50	2.00	82.50	1.2	11.3	12.5	19.6	23.6	43.2	0.060
1.75	1.75	82.75	1.4	13.2	14.6	19.6	27.5	47.1	0.065
2.00	1.50	83.00	1.6	15.1	16.7	19.6	31.4	51.1	0.071
2.25	1.25	83.25	1.8	17.0	18.7	19.6	35.3	55.0	0.076
2.50	**1.00**	**83.50**	**2.0**	**18.8**	**20.8**	**19.6**	39.3	**58.9**	**0.082**

Drywell #4 Design

121 Badger Lane

BY: PLJ DATE: 04/24/23

On System Sizing Worksheet

The proposed drywell will collect runoff from half of the ADU and attached paitios. The below calculation shows required drywell dimensions to infiltrate the 25- year storm.

Onsite Native Soil Infiltration

Infiltration Rate:	120	in/hr	Assumed T_c:	10	min
Factor of Safety:	2		Intensity (25-yr, 10-min):	0.4	in/hr
Design Infiltration Rate:	60.0	**in/hr**			

Site Infiltration Sizing

Impervious Area:	0.03	ac
Runoff Coefficient (Imp.):	0.9	
25-Year Design Runoff:	0.01	cfs

Drywell Structure Dimensions

Drywell Manhole Diameter:	12	in	
Drain Rock Thickness:	24	in	
Drain Rock Void Ratio:	0.4		Between TP#6 and TP#2
Drywell Rim Elevation:	86.50		Groundwater approx 4.8 feet.
Max Storage Elevation:	85.50		
Depth to Bottom of Drywell:	4.8	ft	
Bottom Elevation:	81.7		

Drywell Stage-Storage-Discharge

Drywell Stage	Water Surface Depth	Elevation	Storage in MH	Storage in Drain Rock	Total Storage	Bottom Wetted Area	Side Wetted Area	Total Wetted Area	Drywell Infiltration Flow Rate
(ft)	(ft)		(cf)	(cf)	(cf)	(sf)	(sf)	(sf)	(cfs)
0.00	4.80	81.70	0.0	0.0	0.0	19.6	0.0	19.6	0.027
0.38	4.42	82.08	0.3	2.9	3.2	19.6	6.0	25.6	0.036
0.76	4.04	82.46	0.6	5.7	6.3	19.6	11.9	31.6	0.044
1.14	3.66	82.84	0.9	8.6	9.5	19.6	17.9	37.5	0.052
1.52	3.28	83.22	1.2	11.5	12.7	19.6	23.9	43.5	0.060
1.90	2.90	83.60	1.5	14.3	15.8	19.6	29.8	49.5	0.069
2.28	2.52	83.98	1.8	17.2	19.0	19.6	35.8	55.4	0.077
2.66	2.14	84.36	2.1	20.1	22.1	19.6	41.8	61.4	0.085
3.04	1.76	84.74	2.4	22.9	25.3	19.6	47.8	67.4	0.094
3.42	1.38	85.12	2.7	25.8	28.5	19.6	53.7	73.4	0.102
3.80	**1.00**	**85.50**	**3.0**	**28.7**	**31.6**	**19.6**	59.7	**79.3**	**0.110**

Landscape Drywell #1 Design

121 Badger Lane

BY: PLJ DATE: 04/24/23

on System Sizing Worksheet

The proposed drywell will collect runoff from half of the ADU and attached paitios. The below calculation shows required drywell dimensions to infiltrate the 25- year storm.

Onsite Native Soil Infiltration

Infiltration Rate:	120	in/hr	Assumed T_c:	10	min
Factor of Safety:	2		Intensity (25-yr, 10-min):	0.4	in/hr
Design Infiltration Rate:	60.0	**in/hr**			

Site Infiltration Sizing

Impervious Area:	0.03	ac
Runoff Coefficient (Imp.):	0.9	
25-Year Design Runoff:	0.01	cfs

Drywell Structure Dimensions

Drywell Manhole Diameter:	12	in	
Drain Rock Thickness:	24	in	
Drain Rock Void Ratio:	0.4		Near TP#1
Drywell Rim Elevation:	85.10		Groundwater approx 3.2 feet.
Max Storage Elevation:	84.10		
Depth to Bottom of Drywell:	3.2	ft	
Bottom Elevation:	81.9		

Drywell Stage-Storage-Discharge

Drywell Stage	Water Surface Depth	Elevation	Storage in MH	Storage in Drain Rock	Total Storage	Bottom Wetted Area	Side Wetted Area	Total Wetted Area	Drywell Infiltration Flow Rate
(ft)	(ft)		(cf)	(cf)	(cf)	(sf)	(sf)	(sf)	(cfs)
0.00	3.20	81.90	0.0	0.0	0.0	19.6	0.0	19.6	0.027
0.22	2.98	82.12	0.2	1.7	1.8	19.6	3.5	23.1	0.032
0.44	2.76	82.34	0.3	3.3	3.7	19.6	6.9	26.5	0.037
0.66	2.54	82.56	0.5	5.0	5.5	19.6	10.4	30.0	0.042
0.88	2.32	82.78	0.7	6.6	7.3	19.6	13.8	33.5	0.046
1.10	2.10	83.00	0.9	8.3	9.2	19.6	17.3	36.9	0.051
1.32	1.88	83.22	1.0	10.0	11.0	19.6	20.7	40.4	0.056
1.54	1.66	83.44	1.2	11.6	12.8	19.6	24.2	43.8	0.061
1.76	1.44	83.66	1.4	13.3	14.7	19.6	27.6	47.3	0.066
1.98	1.22	83.88	1.6	14.9	16.5	19.6	31.1	50.7	0.070
2.20	**1.00**	**84.10**	**1.7**	**16.6**	**18.3**	**19.6**	34.6	**54.2**	**0.075**

Landscape Drywell #2 Design

121 Badger Lane

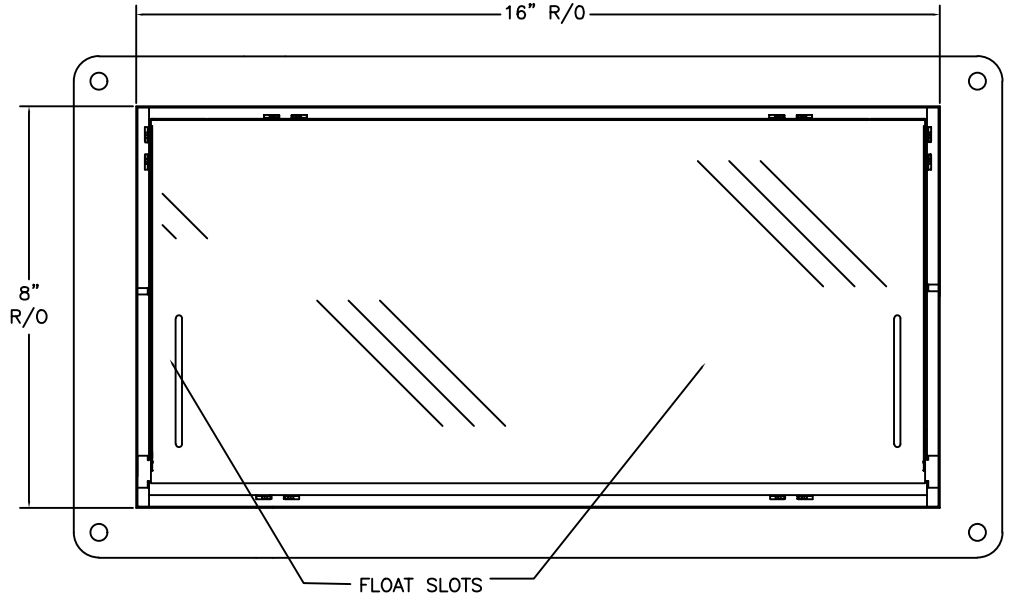
BY: PLJ DATE: 04/24/23

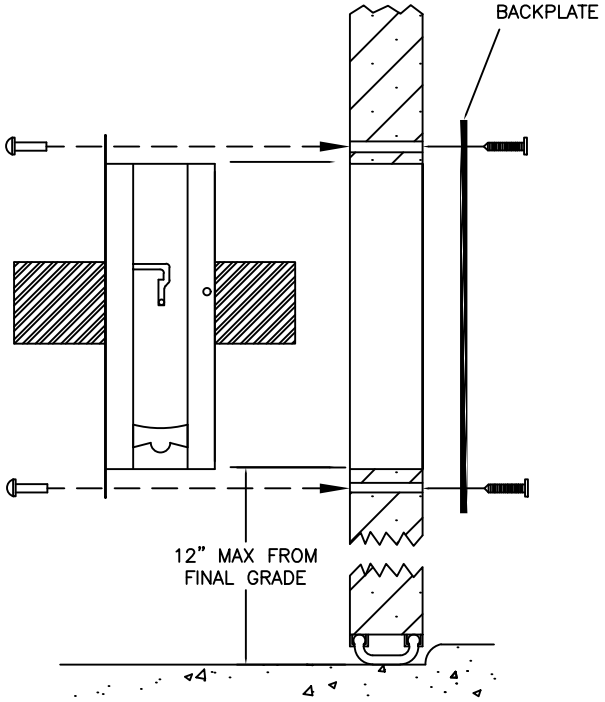
Approved

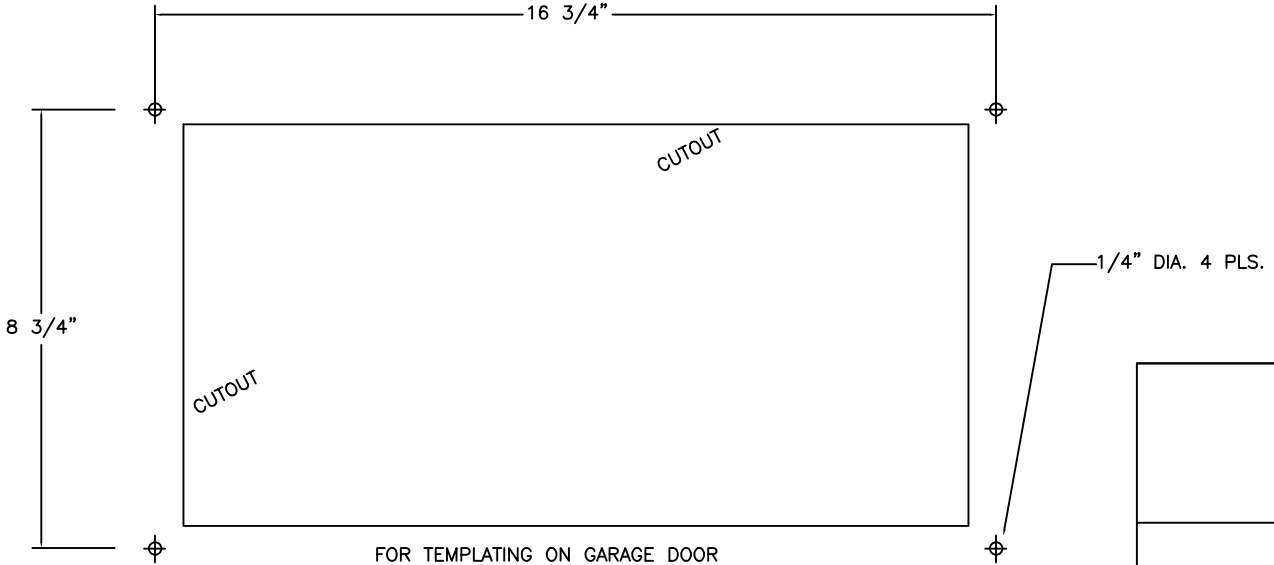
These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

DETAIL DIAGRAM
MODEL 1540–524
16" GARAGE DOOR INSULATED







FOR TEMPLATING ON GARAGE DOOR
BACKPLATE MAY BE USED

SMART VENT®
877–441–8368
WWW.SMARTVENT.COM

SMART VENT FOUNDATION FLOOD VENTS
430 ANDBRO DR., UNIT 1
PITMAN NJ 08071

16" GARAGE DOOR INSULATED
MODEL 1540–524

SIZE	DWG NO.	REV
A	1540–524	A

DATE. 6–21–16 | SHEET 1 OF 2

Smart Vent
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INSTALLATION INSTRUCTIONS
& DETAILS
MODEL 1540-524
16" GARAGE DOOR INSULATED
REV. 6-21-16

INSTALLATION INSTRUCTIONS
(SEE DIAGRAM ON BACK PAGE 1 OF 2)

1. FOR EACH VENT CUT A CLEAN, SQUARE, AND LEVEL 16 " X 8 " OPENING IN THE DOOR PANEL. ENSURE THAT THE BOTTOM OF THE OPENING IS NO MORE THAN 12" ABOVE THE FINAL GRADE (DRIVEWAY). THE INSIDE BACKPLATE CAN ALSO BE USED AS A TEMPLATE.
2. REMOVE THE VENT DOOR FROM VENT FRAME. (TURN UPSIDE DOWN, ROTATE BOTTOM OF DOOR OUTWARD AND SLIDE OUT OF FRAME SLOTS)
3. POSITION THE VENT FRAME BY HAND IN THE OPENING SO THAT IT IS SQUARE AND LEVEL. TRANSFER THE 4 MOUNTING HOLES. REMOVE THE VENT FROM THE OPENING AND DRILL (4) 1/4" HOLES THROUGH THE ENTIRE DOOR..
   ENSURE THAT THESE HOLES ARE SQUARE SO THE VENT FRAME AND BACKPLATE LINE UP.
4. CLEAN ANY AND ALL LOOSE OR SHARP METAL BURRS FROM THE DOOR PANEL. THE FRONT VENT FRAME MUST SIT FLUSH TO THE DOOR PANEL.
5. INSERT THE VENT FRAME INTO OH DOOR PANEL WITH SERIAL NUMBER LABEL ON THE BOTTOM. INSTALL BACKPLATE OVER INSIDE OF DOOR FRAME. CHECK ALIGNMENT OF PRE-DRILLED HOLES IN VENT FRAME,
   DOOR AND BACKPLATE. MAKE SURE FRAME SITS LEVEL AND FRONT FLANGE IS FLUSH WITH THE FRONT OF OH DOOR PANEL. APPLY HURRIBOND GRIP & SEAL OR EQUIVALENT ADHESIVE BEHIND VENT FRONT FRAME FLANGE TO SEAL VENT FRAME TO FACE OF DOOR PANEL. SEE DIAGRAM.
6. SECURE WITH 4 STAINLESS STEEL SEX NUTS AND BOLTS THROUGH DOOR TO BACKPLATE WITH FEMALE SECTION ON OUTSIDE.
   IF OVERHEAD DOOR THICKNESS IS TOO THIN, USE THE SELF LOCKING NUTS AND WASHERS IN LIEU OF THE SEX NUTS AND BOLTS.
7. INSERT THE DOOR BACK INTO THE VENT FRAME. CHECK THAT THE VENT DOOR IS LATCHED ON BOTH SIDES. TO OPEN THE VENT INSERT TWO CREDIT CARDS INTO THE FRONT FLOAT SLOTS AS SHOWN IN THE DIAGRAM.
8. VENT DOOR SHOULD NOT OPEN WHEN OH DOOR OPENS. VENT DOOR ONLY OPENS WHEN IN CONTACT WITH FLOOD WATER AND OH DOOR IS FULLY CLOSED.

DETAIL SPECIFICATIONS:
MATERIAL: STAINLESS STEEL
OPERATION FLOOD: AUTOMATIC NON-POWERED ACTIVATION AND OPERATION
INSTALLATION:
SECURED W/ 4 STAINLESS STEEL BINDING BARRELS
USE 2 1/2" BOLD AND LOCKING NUT WHERE
BINDING BARREL NUT (SNB'S) CAN NOT BE USED.
HYDROSTATIC RELIEF: 200 Sq Ft per Vent
REQUIREMENTS FLOOD: MINIMUM OF 2 VENTS PER ENCLOSED AREA MOUNTED ON AT LEAST TWO DIFFERENT WALLS

COLORS: WHITE (STANDARD)
STAINLESS STEEL, WHEAT, GRAY AND BLACK (AVAILABLE)

MEETS THE REQUIREMENTS FOR ENGINEERED OPENINGS AS SET FORTH BY:
FEMA, NFIP, ICC, & ASCE
SUPPORTIVE DOCUMENTS, TB 1-08, 44CFR 60.3(C)(5), ASCE 24-14
ICC EVALUATION # ESR-2074

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021

06/26/23

DETAIL DIAGRAM
MODEL 1540–521
FLOOD VENT INSULATED

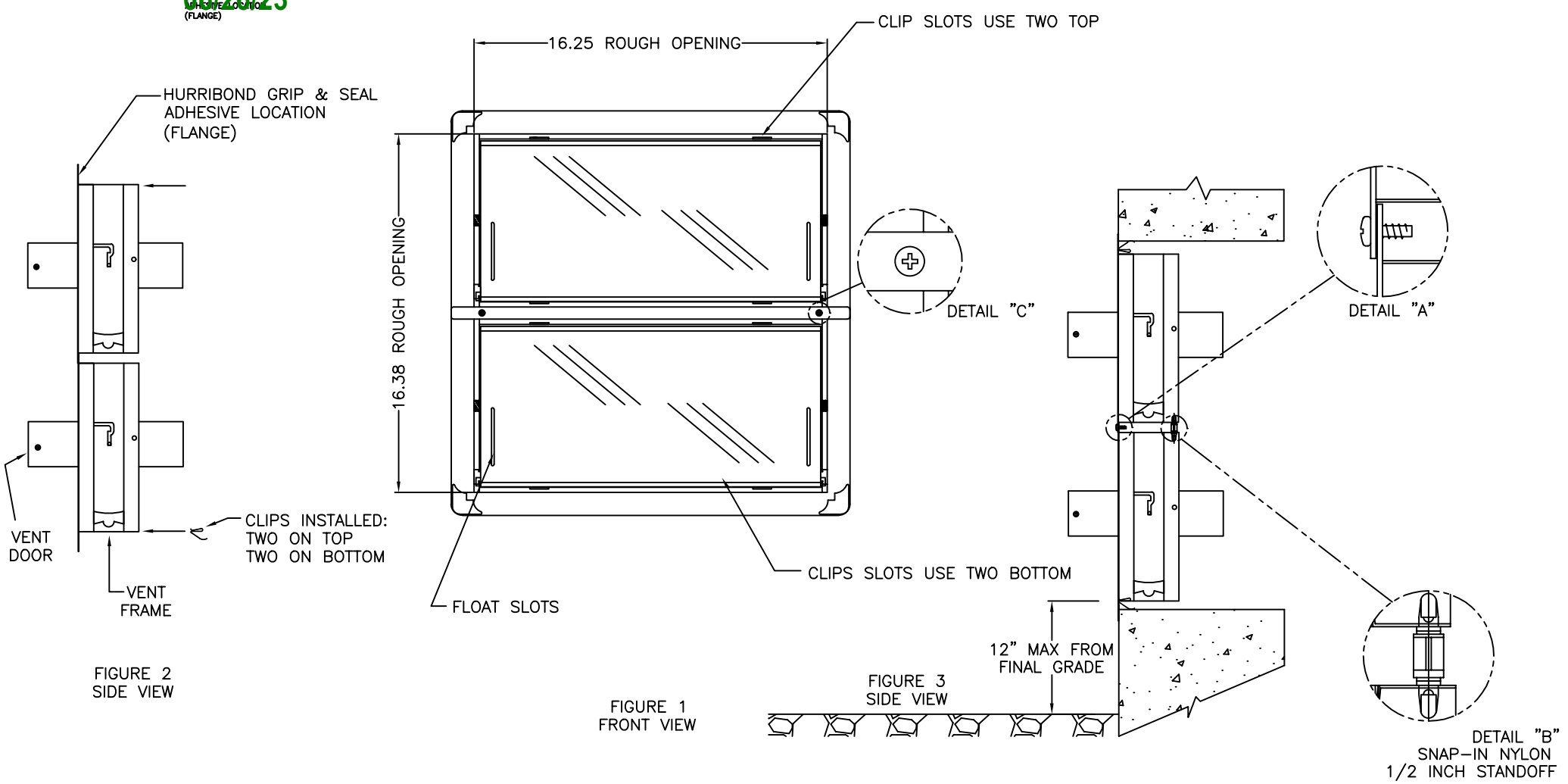

FIGURE 2
SIDE VIEW

FIGURE 1
FRONT VIEW

FIGURE 3
SIDE VIEW

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SMART VENT FOUNDATION FLOOD VENTS
430 ANDBRO DR., UNIT 1
PITMAN NJ 08071

FLOOD VENT
INSULATED
MODEL 1540–521

SIZE	DWG NO.	REV
A	1540–521	A

DATE. 6–21–16 | SHEET 1 OF 2

877- 441- 8368
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INSTALLATION INSTRUCTIONS
& DETAILS
MODEL 1540-521
FLOOD VENT INSULATED

REV. 6-21-16

INSTALLATION INSTRUCTIONS

1. PREPARE A CLEAN 16-1/4" WIDE X 16-3/8" HIGH ROUGH OPENING FOR EACH SET OF STACKING VENTS (1 BLOCK WIDE X 2 BLOCKS HIGH) WITH THE BOTTOM OF THE HOLE NO MORE THAN 12" ABOVE FINISHED GRADE.
2. REMOVE DOORS FROM FRAMES. (TURN UPSIDE DOWN, ROTATE BOTTOM OF DOOR OUTWARD AND SLIDE OUT OF SLOTS).
3. ASSEMBLE TWO FRAMES TOGETHER USING TWO NYLON SPACERS SNAPPED INTO HOLES IN REAR OF FRAMES AS SHOWN IN DETAIL "B". PLACE TOP FRAME (ONE WITH SHORT BOTTOM FLANGE) OVER AND IN FRONT OF BOTTOM FRAME (ONE WITH SHORT TOP FLANGE) AND FASTEN FRONT OF FRAMES TOGETHER WITH TWO SELF TAPPING SCREWS AS SHOWN IN DETAILS "A" AND "C". DO NOT OVER TIGHTEN SCREWS.
4. INSERT INSTALLATION CLIPS INTO THE TWO SLOTS ON THE TOP OF THE FRAME ASSEMBLY AND INTO THE TWO SLOTS ON THE BOTTOM OF THE FRAME ASSEMBLY.
5. HURRIBOND GRIP & SEAL OR EQUIVALENT ADHESIVE IS APPLIED TO BACK OF FLANGES FOR A BETTER SEAL TO WALL FACE. PLACE FRAME ASSEMBLY INTO WALL OPENING BY COMPRESSING THE BOTTOM TWO CLIPS AND SLIPPING THE FRAME INTO THE OPENING. ENSURE THE BOTTOM CLIPS ARE IN THE OPENING BEFORE ALLOW THEM TO DECOMPRESS. NEXT COMPRESS THE TOP SPRINGS AND PUSH THE VENT FRAME INTO THE OPENING COMPLETELY. PRESS FLANGES TIGHT TO WALL FACE.
6. MAKE SURE BOTH FRAMES ARE FLUSH TO WALL FACE, SECURE, SQUARE, LEVEL AND ALL SLOTS ARE CLEAR OF DEBRIS, MORTAR AND CAULK.
7. HOLD DOORS FROM THE BOTTOM, PARALLEL TO GROUND WITH BACK FACING GROUND AND RE-INSTALL INTO FRAMES BY INSERTING TOP FIRST AND LETTING METAL PINS FIND SLOTS.PUSH ALL THE WAY BACK AND ALLOW DOOR TO DROP AND ROTATE DOWN ON BOTH SIDES LATCHED CLOSED.
8. INSERT THE SECURITY CLIPS INTO THE SLOTS THE DOOR PINS SLID INTO.
9. TO OPEN THE DOOR, INSERT TWO CREDIT CARDS INTO THE FLOAT SLOTS. THIS WILL UNLATCH THE DOOR FOR REMOVAL AND CLEANING.

DETAILED SPECIFICATIONS:

MATERIAL: STAINLESS STEEL
OPERATION FLOOD: AUTOMATIC NON-POWERED ACTIVATION AND OPERATION
VENT REMAINS CLOSED AND LOCKED UNTIL ACTIVATED

INSTALLATION:
SECURED W/ 4 STAINLESS STEEL INSTALLATION CLIPS SUPPLIED AND AN ADHESIVE
HYDROSTATIC RELIEF: 200 SQ. FT PER VENT (400 SQ. FT. PER THIS 2 UP ASSEMBLY)

REQUIREMENTS FLOOD: MINIMUM OF 2 VENTS PER ENCLOSED AREA MOUNTED ON AT LEAST TWO DIFFERENT WALLS
COLORS: STAINLESS (STANDARD)
EXTERIOR POWDER COATED WHITE, WHEAT, GRAY, AND BLACK (AVAILABLE)

MEETS THE REQUIREMENTS FOR ENGINEERED OPENINGS AS SET FORTH BY:
FEMA, NFIP, ICC, & ASCE
SUPPORTIVE DOCUMENTS, TB 1-08, 44CFR 60.3(C)(5), ASCE 24-14
ICC EVALUATION # ESR-2074

ICC EVALUATION SERVICE

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ICC-ES Evaluation Report

ICC-ES | (800) 423-6587 | (562) 699-0543 | www.icc-es.org

ESR-2074

Reissued 02/2023

This report is subject to renewal 02/2025.

DIVISION: 08 00 00—OPENINGS

SECTION: 08 95 43—VENTS/FOUNDATION FLOOD VENTS

REPORT HOLDER:

SMART VENT PRODUCTS, INC.

EVALUATION SUBJECT:

SMART VENT® AUTOMATIC FOUNDATION FLOOD VENTS: MODELS #1540-520; #1540-521; #1540-510; #1540-511; #1540-570; #1540-574; #1540-524; #1540-514 FLOOD VENT SEALING KIT #1540-526

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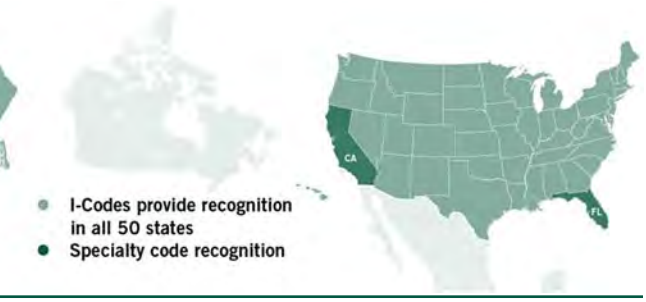

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ICC-ES Evaluation Report

Reissued February 2023

ESR-2074

This report is subject to renewal February 2025.

DIVISION: 08 00 00—OPENINGS
Section: 08 95 43—Vents/Foundation Flood Vents

REPORT HOLDER:

SMART VENT PRODUCTS, INC.

EVALUATION SUBJECT:

SMART VENT® AUTOMATIC FOUNDATION FLOOD VENTS: MODELS #1540-520; #1540-521; #1540-510; #1540-511; #1540-570; #1540-574; #1540-524; #1540-514
FLOOD VENT SEALING KIT #1540-526

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, 2012, 2009 and 2006 *International Building Code®* (IBC)
- 2021, 2018, 2015, 2012, 2009 and 2006 *International Residential Code®* (IRC)
- 2021 and 2018 *International Energy Conservation Code®* (IECC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Physical operation
- Water flow

2.0 USES

The Smart Vent® units are engineered mechanically operated flood vents (FVs) employed to equalize hydrostatic pressure on walls of enclosures subject to rising or falling flood waters. Certain models also allow natural ventilation.

3.0 DESCRIPTION

3.1 General:

When subjected to rising water, the Smart Vent® FVs internal floats are activated, then pivot open to allow flow in either direction to equalize water level and hydrostatic pressure from one side of the foundation to the other. The FV pivoting door is normally held in the closed position by a buoyant release device. When subjected to rising water, the buoyant release device causes the unit to unlatch, allowing the door to rotate out of the way and allow flow. The water level stabilizes, equalizing the lateral forces. Each unit is fabricated from stainless steel. Smart Vent® Automatic Foundation Flood Vents are available in various models and sizes as described in Table 1. The SmartVENT® Stacking Model #1540-511 and FloodVENT® Stacking Model #1540-521 units each contain two vertically arranged openings per unit.

3.2 Engineered Opening:

The FVs comply with the design principle noted in Section 2.7.2.2 and Section 2.7.3 of ASCE/SEI 24-14 [Section 2.6.2.2 of ASCE/SEI 24-05 (2012, 2009, 2006 IBC and IRC)] for a maximum rate of rise and fall of 5.0 feet per hour (0.423 mm/s). In order to comply with the engineered opening requirement of ASCE/SEI 24, Smart Vent FVs must be installed in accordance with Section 4.0.

3.3 Ventilation:

The SmartVENT® Model #1540-510 and SmartVENT® Overhead Door Model #1540-514 both have screen covers with $^1/_4$-inch-by-$^1/_4$-inch (6.35 by 6.35 mm) openings, yielding 51 square inches (32 903 mm^2) of net free area to supply natural ventilation. The SmartVENT® Stacking Model #1540-511 consists of two Model #1540-510 units in one assembly, and provides 102 square inches (65 806 mm^2) of net free area to supply natural ventilation. Other FVs described in this report do not offer natural ventilation.

3.4 Flood Vent Sealing Kit:

The Flood Vent Sealing Kit Model #1540-526 is used with SmartVENT® Model #1540-520. It is a Homasote 440 Sound Barrier® (ESR-1374) insert with 21 – 2-inch-by-2-inch (51 mm x 51 mm) squares cut in it. See Figure 4.

4.0 DESIGN AND INSTALLATION

4.1 SmartVENT® and FloodVENT®:

SmartVENT® and FloodVENT® are designed to be installed into walls or overhead doors of existing or new construction from the exterior side. Installation of the vents must be in accordance with the manufacturer's instructions, the applicable code and this report. Installation clips allow mounting in masonry and concrete walls of any thickness. In order to comply with the engineered opening design principle noted in Section 2.7.2.2 and 2.7.3 of ASCE/SEI 24-14 [Section 2.6.2.2 of ASCE/SEI 24-05 (2012, 2009, 2006 IBC and IRC)], the Smart Vent® FVs must be installed as follows:

- With a minimum of one FV for every 200 square feet (18.6 m^2) of enclosed area, except that the SmartVENT® Stacking Model #1540-511 and FloodVENT® Stacking Model #1540-521 must be installed with a minimum of one FV for every 400 square feet (37.2 m^2) of enclosed area.
- Below the base flood elevation.
- With the bottom of the FV located a maximum of 12 inches (305.4 mm) above the higher of the final grade or floor and finished exterior grade immediately under each opening.

4.2 Flood Vent Sealing Kit

The Flood Vent Sealing Kit Model 1540-526 is used in conjunction with FloodVENT® Model #1540-520. When installed and tested in accordance with ASTM E283, the FV and Flood Vent Sealing Kit assembly have an air leakage rate of less than 0.2 cubic feet per minute per lineal foot (18.56 l/min per lineal meter) at a pressure differential of 1 pound per square foot (50 Pa) based on 12.58 lineal feet (3.8 lineal meters) contained by the Flood Vent Sealing Kit.

5.0 CONDITIONS OF USE

The Smart Vent® FVs described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The Smart Vent® FVs must be installed in accordance with this report, the applicable code and the manufacturer's installation instructions. In the event of a conflict, the instructions in this report govern.

5.2 The Smart Vent® FVs must not be used in the place of "breakaway walls" in coastal high hazard areas, but are permitted for use in conjunction with breakaway walls in other areas.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Mechanically Operated Flood Vents (AC364), dated August 2015 (editorially revised February 2021).

6.2 Test report on air infiltration in accordance with ASTM E283.

7.0 IDENTIFICATION

7.1 The Smart VENT® models and the Flood Vent Sealing Kit described in this report must be identified by a label bearing the manufacturer's name (Smartvent Products, Inc.), the model number, and the evaluation report number (ESR-2074).

7.2 The report holder's contact information is the following:

SMART VENT PRODUCTS, INC.
19 MANTUA ROAD
MOUNT ROYAL, NEW JERSEY 08061
(877) 441-8368
www.smartvent.com
info@smartvent.com

TABLE 1—MODEL SIZES

MODEL NAME	MODEL NUMBER	MODEL SIZE (in.)	COVERAGE (sq. ft.)
FloodVENT®	1540-520	15 3/4" X 7 3/4"	200
SmartVENT®	1540-510	15 3/4" X 7 3/4"	200
FloodVENT® Overhead Door	1540-524	15 3/4" X 7 3/4"	200
SmartVENT® Overhead Door	1540-514	15 3/4" X 7 3/4"	200
Wood Wall FloodVENT®	1540-570	14" X 8 3/4"	200
Wood Wall FloodVENT® Overhead Door	1540-574	14" X 8 3/4"	200
SmartVENT® Stacker	1540-511	16" X 16"	400
FloodVent® Stacker	1540-521	16" X 16"	400

For **SI:** 1 inch = 25.4 mm; 1 square foot = m^2

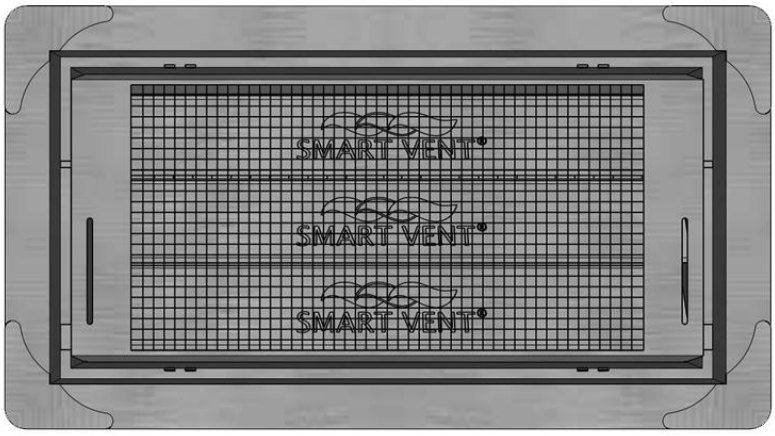

FIGURE 1—SMART VENT: MODEL 1540-510

FIGURE 2—SMART VENT MODEL 1540-520

FIGURE 3—SMART VENT: SHOWN WITH FLOOD DOOR PIVOTED OPEN

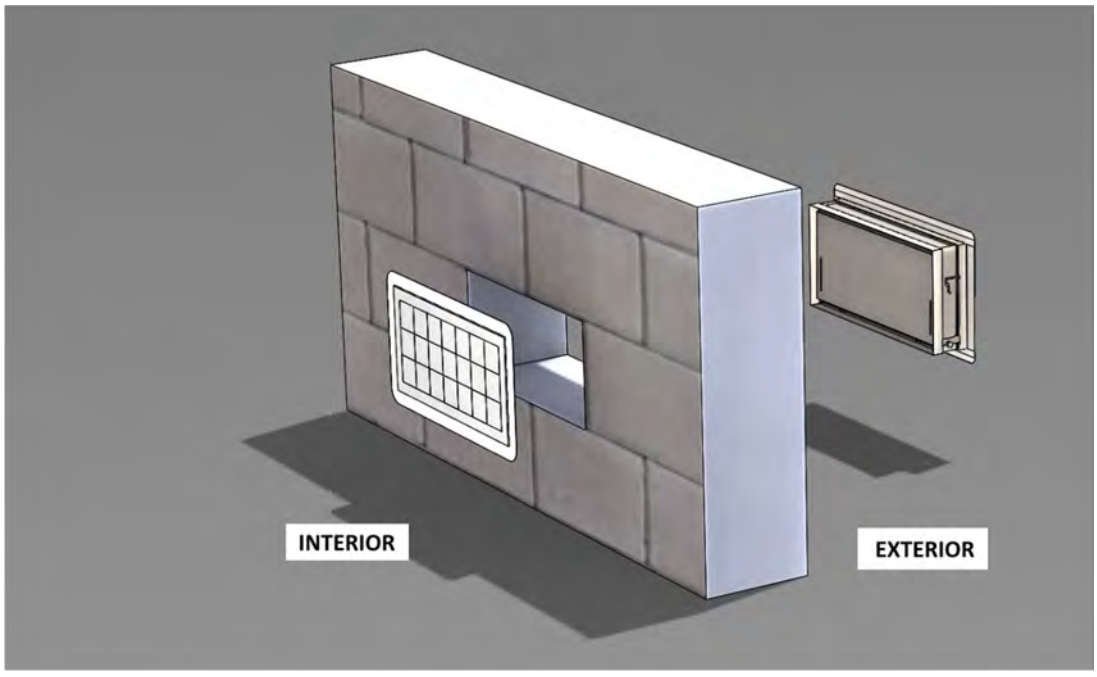

FIGURE 4—FLOOD VENT SEALING KIT

DIVISION: 08 00 00—OPENINGS
Section: 08 95 43—Vents/Foundation Flood Vents

REPORT HOLDER:

SMART VENT PRODUCTS, INC.

EVALUATION SUBJECT:

SMART VENT® AUTOMATIC FOUNDATION FLOOD VENTS: MODELS #1540-520; #1540-521; #1540-510; #1540-511; #1540-570; #1540-574; #1540-524; #1540-514
FLOOD VENT SEALING KIT #1540-526

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Smart Vent® Automatic Foundation Flood Vents, described in ICC-ES evaluation report ESR-2074, have also been evaluated for compliance with codes noted below.

Applicable code editions:

- 2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2019 *California Residential Code* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Smart Vent® Automatic Foundation Flood Vents, described in Sections 2.0 through 7.0 of the evaluation report ESR-2074, comply with 2019 CBC Chapter 12, provided the design and installation are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 12 and 16 , as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The Smart Vent® Automatic Foundation Flood Vents, described in Sections 2.0 through 7.0 of the evaluation report ESR-2074, comply with the 2019 CRC, provided the design and installation are in accordance with the 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued February 2023.

DIVISION: 08 00 00—OPENINGS
Section: 08 95 43—Vents/Foundation Flood Vents

REPORT HOLDER:

SMART VENT PRODUCTS, INC.

EVALUATION SUBJECT:

SMART VENT® AUTOMATIC FOUNDATION FLOOD VENTS: MODELS #1540-520; #1540-521; #1540-510; #1540-511; #1540-570; #1540-574; #1540-524; #1540-514
FLOOD VENT SEALING KIT #1540-526

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Smart Vent® Automatic Foundation Flood Vents, described in ICC-ES evaluation report ESR-2074, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 *Florida Building Code—Building*
- 2020 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The Smart Vent® Automatic Foundation Flood Vents**,** described in Sections 2.0 through 7.0 of the evaluation report ESR-2074, comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design requirements are determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential,* as applicable**.** The installation requirements noted in ICC-ES evaluation report ESR-2074 for 2018 *International Building Code®* meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential,* as applicable.

Use of the Smart Vent® Automatic Foundation Flood Vents has also been found to be in compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential*.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued February 2023.

City of Ketchum

ATTACHMENT B:

Floodplain Development Permit Application

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

City of Ketchum
Planning & Building

BLD2303-00021
06/26/23

OFFICIAL USE ONLY
File Number:
Date Received:
By:
Fee Paid:
Approved Date:
Denied Date:
By:

Floodplain Development Permit and Riparian Alteration Application

NOTE: This permit is required for all properties containing 100 year floodplain area and Riparian Setbacks

PROPERTY OWNER INFORMATION			
Property Owner Name(s):	121 BADGER LANE LLC		
Property Owner's Mailing Address:	P.O. BOX 14001-174 KETCHUM, ID 83340		
Phone:			
Email:			
PROJECT INFORMATION			
Project Name:	BADGER RESIDENCE		
Project Representative's Name (main point of contact for project):	FRAZIER CAVNESS		
Project Representative's Phone:	720.339.6798		
Project Representative's Mailing Address:	P.O. BOX 14001-174 KETCHUM, ID 83340		
Project Representative's Email:	frazier@presidiovistaproperties.com		
Architect's name, phone number, e-mail:	RO ROCKETT DESIGN | JASON RO | 213.784.0014 | jro@rorockettdesign.com		
Landscape Architect's name, phone number, e-mail:	BYLA | BEN YOUNG | 208.720.0215 | ben@byla.us		
Environmental consultant's name, phone number, e-mail:	SAWTOOTH | TRENT STUMPH | 208.727.9748 | trent@sawtoothenvironmental.com		
Engineer's name, phone number, e-mail:	BROCKWAY ENGINEERING | CHUCK BROCKWAY | 208-736-8543 | charles.g.brockway@brockwayeng.com>		
Project Address:	121 BADGER LANE KETCHUM, ID 83340		
Legal Description of parcel:	PARCEL 4, ROCKING RANCH SUB #2 (LOCATED WITHIN SECTION 13, T.4 N., R.17 E., B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO)		
Lot Size:	1.09 ACRES (PER SURVEY)		
Zoning District:	LR		
Overlay Zones – indicate all that apply:	☒ Floodplain ☐ Floodway ☐ Riparian Zone ☐ Avalanche ☐ Mountain		
Brief description of project scope:	NEW SINGLE FAMILY DWELLING: MAIN RESIDENCE + ADU W/ IN-GROUND POOL (ADU STRUCTURE OUTSIDE OF FLOODPLAIN)		
Value of Project: $	400,000		
TYPE OF PROJECT – indicate all that apply:			
☐ New Building in Floodplain	☐ Building Addition in Floodplain	☐ Streambank Stabilization / Stream Alteration	☐ Other. Please describe:
☐ Riparian Alteration	☒ Floodplain Development		
PROPOSED SETBACKS – if project is a new building or an addition to an existing building			
Front: 15	Side: 15	Side: 15	Rear: 20
ADDITIONAL INFORMATION			
Will fill or excavation be required in floodplain, floodway or riparian zone?	Yes ☒	No ☐	
If Yes, Amount in Cubic Yards:	Fill: 258 CY	Excavation: 274 CY	
Will Existing Trees or Vegetation be Removed?	Yes ☒	No ☐	
Will new trees or vegetation be planted?	Yes ☒	No ☐	

Applicant agrees in the event of a dispute concerning the interpretation or enforcement of the Floodplain Management Overlay Application, in which the City of Ketchum is the prevailing party, to pay reasonable attorney fees, including attorney fees on appeal, and expenses of the City of Ketchum. I, the undersigned, certify that all information submitted with and upon this application form is true and accurate to the best of my knowledge and belief.

2/27/2023

Signature of Owner/Representative — Date

FLOODPLAIN MANAGEMENT OVERLAY EVALUATION STANDARDS

REFER TO ATTACHMENT FOLLOWING APPLICATION FOR NARRATIVE

Please provide a narrative to address each of the criteria below.

Criteria for Evaluation of Applications: The criteria of floodplain development permit applications and riparian alteration permits shall be as follows:

1. The proposal preserves or restores the inherent natural characteristics of the river, floodplain, and Riparian Zone, including riparian vegetation and wildlife habitat. Development does not alter river channel unless all stream alteration criteria for evaluation are also met.

2. No temporary construction activities, encroachment, or other disturbance into the twenty-five foot (25') Riparian Zone, including encroachment of below grade structures, shall be permitted, except for approved stream stabilization work and restoration work associated with a riparian zone that is degraded.

3. No permanent development shall occur within the twenty-five foot (25') Riparian Zone, except for approved stream stabilization work and restoration work associated with permit issued under this title, or exceptions as described below:

   a. Access to a property where no other primary access is available.

   b. Emergency access required by the Fire Department.

   c. A single defined pathways or staircases for the purpose of providing access to the river channel and in order to mitigate multiple undefined social paths.

   d. Development by the City of Ketchum

4. New or replacement planting and vegetation in the Riparian Zone shall include plantings that are low growing and have dense root systems for the purpose of stabilizing stream banks and repairing damage previously done to riparian vegetation. Examples of such plantings most commonly include red osier dogwood, common chokecherry, serviceberry, elderberry, river birch, skunk bush sumac, Beb's willow, Drummond's willow, little wild rose, gooseberry, and honeysuckle. However, in rare instances the distance from the top-of-bank to the mean high-water mark is significant and the native vegetation appropriate for the Riparian Zone are low growing, drought resistant grasses and shrubs. Replacement planting and vegetation shall be appropriate for the specific site conditions. Proposal does not include vegetation within the twenty-five foot (25') Riparian Zone that is degraded, not natural, or which does not promote bank stability.

5. Landscaping and driveway plans to accommodate the function of the floodplain allow for sheet flooding. Surface drainage is controlled and shall not adversely impact adjacent properties including driveways drained away from paved roadways. Culvert(s) under driveways may be required. Landscaping berms shall be designed to not dam or otherwise obstruct floodwaters or divert same onto roads or other public pathways.

6. Floodwater carrying capacity is not diminished by the proposal.

. . . pacts of the development on aquatic life, recreation, or water quality upstream, downstream or across the stream are not negative.

8. Building setback in excess of the minimum required along waterways is encouraged. An additional ten-foot (10') building setback beyond the required twenty-five foot (25') Riparian Zone is encouraged to provide for yards, decks and patios outside the twenty five foot (25') Riparian Zone.

9. The top of the lowest floor of a building located in, or partially within, the SFHA shall be at or above the Flood Protection Elevation (FPE). A building is considered to be partially within the SFHA if any portion of the building or appendage of the building, such as footings, attached decks, posts for upper story decks, are located within the SFHA. See section 17.88.060, figures 1 and 2 of this chapter to reference construction details. See Chapter 17.08 of this title for definition of "lowest floor."

   a. In the SFHA where Base Flood Elevations (BFEs) have been determined, the FPE shall be twenty-four inches (24") above the BFE for the subject property; twenty-four inches (24") or two (2) feet is the required freeboard in Ketchum city limits.

   b. In the SFHA where no BFE has been established, the FPE shall be at least two (2) feet above the highest adjacent grade.

10. The backfill used around the foundation in the SFHA floodplain shall provide a reasonable transition to existing grade but shall not be used to fill the parcel to any greater extent.

    a. Compensatory storage shall be required for any fill placed within the floodplain.

    b. A CLOMR-F shall be obtained prior to placement of any additional fill in the floodplain.

11. All new buildings located partially or wholly within the SFHA shall be constructed on foundations that are designed by a licensed professional engineer.

12. Driveways shall comply with City of Ketchum street standards; access for emergency vehicles has been adequately provided for by limiting flood depths in all roadways to one foot (1-ft) or less during the 1% annual chance event.

13. Landscaping or revegetation shall conceal cuts and fills required for driveways and other elements of the development.

N/A 14. (Stream alteration.) The proposal is shown to be a permanent solution and creates a stable situation.

N/A 15. (Stream alteration.) No increase to the one percent (1%) annual chance flood elevation at any location in the community, based on hydrologic and hydraulic analysis performed in accordance with standard engineering practice and has been certified and submitted with supporting calculations and a No Rise Certificate, by a registered Idaho engineer.

N/A 16. (Stream alteration.) The project has demonstrated No Adverse Impact or has demonstrated all impacts will be mitigated.

N/A 17. (Stream alteration.) The recreational use of the stream including access along any and all public pedestrian/fisher's easements and the aesthetic beauty shall not be obstructed or interfered with by the proposed work.

N/A 18. (Stream alteration.) Fish habitat shall be maintained or improved as a result of the work proposed.

N/A 19. (Stream alteration.) The proposed work shall not be in conflict with the local public interest, including, but not limited to, property values, fish and wildlife habitat, aquatic life, recreation and access to public lands and waters, aesthetic beauty of the stream and water quality.

N/A 20. (Stream alteration.) The work proposed is for the protection of the public health, safety and/or welfare such as public schools, sewage treatment plant, water and sewer distribution lines and bridges providing particularly limited or sole access to areas of habitation.

21. (Wetlands) Where development is proposed that impacts any wetland the first priority shall be to move development from the wetland area. Mitigation strategies shall be proposed at time of application that replace the impacted wetland area with an equal amount and quality of new wetland area or riparian habitat improvement.

APPLICATION CHECKLIST

Please utilize and submit the checklist on the following pages to ensure a complete application.

Floodplain management overlay application certification of completeness is based on submittal of all applicable items on this checklist.

Use for:

- Floodplain Development Permit (includes stream Alteration / streambank stabilization)
- Riparian Alteration

Project name: 121 BADGER LANE RESIDENCE

Reviewed by: _____

DOCUMENTS

- ☒ One (1) digital copy of all application materials
- ☒ Application form
- ☒ Evaluation criteria narrative
- ☒ Description of proposed development
- ☒ Specifications for building construction and materials, flood proofing, filling, grading, dredging, channel improvement/changes and utilities
- ☒ Elevation and/or flood proofing certification prepared by a professional engineer for existing and proposed residential and nonresidential structures located partially or wholly in the regulatory floodplain. Said floodproofing methods shall meet the criteria in subsection 17.88.060.B of the Ketchum Municipal Code.
- N/A ☐ Copy of letter of map amendment based on fill (LOMA-F) application for any proposed fill in the floodplain. LOMA-F approval shall be obtained from FEMA prior to issuance of a floodplain development permit.

  PROJECT IS NOT PROPOSING TO REMOVE ANY FILL FROM THE FLOODPLAIN; SEE APPENDIX A FOR THE FEMA APPROVED LOMA CURRENTLY FOR PROPERTY

SITE SURVEY OF EXISTING CONDITIONS (prepared and stamped by a licensed engineer or surveyor) – REQUIRED FOR NEW BUILDINGS OR ADDITIONS TO BUILDINGS IN THE FLOODPLAIN AND ANY WORK WITHIN THE FLOODWAY

- ☒ Exterior boundary lines of the property together with dimensions
- ☒ Topographic survey of the real property at a minimum of one (1) foot contour intervals, significant hillsides may be a minimum of ten (10) foot contour intervals
- ☒ Location of any existing dwelling units, other structures, fill, storage of materials, drainage facilities and all improved areas (pavement) with dimensions thereof showing the setback of each structure from the nearest property line
- ☒ Location of existing channels and ditches and other significant natural features, boundaries of floodway and floodplain, including Base Flood Elevation (BFE) and other site specific information from the studies referred to in Ketchum Municipal Code, subsection 17.88.040.A.3
- ☒ Location and elevations of adjacent streets, water supply and sewer lines, including private wells and/or septic systems

- [x] Elevation of the lowest floor (including basement) of all structures existing and proposed partially or wholly located in the one percent (1%) annual chance floodplain, including elevation to which any structure has been or will be floodproofed
- [x] Identification of the riparian zone and the "mean high water mark," as defined in Ketchum Municipal Code
- N/A [ ] Location of previous stream alterations upstream, downstream and along both banks from subject lot
- [x] Location of drainage ways, intermittent and year-round, including potential overflow channels or channel movement
- [x] Location and dimensions of easements, private and public, within and adjacent to the proposed project together with the purpose thereof
- [x] Location of all existing trees to be preserved and significant trees to be removed
- [x] Indication of any zoning district overlay which affects the property (floodplain, mountain overlay or avalanche)
- [x] Location of existing structures on adjacent properties

SITE PLAN – REQUIRED FOR ALL PROJECTS.

- [x] Vicinity map
- [x] Proposed excavation or land fill including resulting slope grades for the building pad(s), driveways and any other element of the proposed development where excavation or fill will take place
- [x] Drainage plan including offsite improvements such as borrow ditches and culverts and including a plan for on- and off-site improvements to provide for unobstructed conveyance of floodwaters
- [x] Location of on-site parking spaces and access thereto, including the dimensions of the spaces and the width and length of access and curb cuts
- [x] Location and dimensions of snow storage areas
- [x] Location of dumpster and/or garbage and recycling can storage areas, including the dimensions and proposed fencing or other screening
- [x] Location and type of any electrical power transformers, switches and/or sectors
- [x] Location and type of all heating, ventilation, air conditioning and other mechanical units
- [x] Drip line of all buildings
- [x] Percentage of the lot coverage by proposed building and parking areas together with the total square footage of the parcel of property
- [x] Location of all proposed structures (buildings) and all improved areas (pavement, sidewalk) with dimensions thereof showing the setback of each structure from the nearest property line
- [x] Designation of the zoning district in which the project is located
- N/A [ ] Location of any zoning district boundary line within the proposed project or the immediate vicinity thereof
- N/A [ ] For any building in the floodplain with an area below the lowest floor that is below the base flood elevation and has a ceiling height of five feet (5') or greater, the building owner shall sign a non-conversion agreement, that shall run with the property, promising not to improve, finish or otherwise convert the area below the lowest floor to living area and granting the city the right to inspect the enclosed area at its discretion. Such agreement shall be recorded at Blaine County's recorder's office

ARCHITECTURAL PLANS – REQUIRED FOR NEW BUILDINGS OR ADDITIONS TO EXISTING BUILDINGS

- [x] Floor plans of all floors at not less than one-eighth (1/8) scale
- [x] All exterior elevations
- [x] Roof plan including direction of snow sliding and snow clips if applicable. Location and type of all mechanical equipment and rooftop appurtenances
- [x] Cross-section(s) of the property and proposed building adequately establishing the natural grade, finished grade, slope of land, slope of proposed accesses and grades to all public rights-of-way

- [x] Location and type (cut sheets) of all exterior lighting
- [x] Model or computer simulation renderings, if required at pre-application design review meeting

LANDSCAPE PLAN – REQUIRED FOR ANY PROJECT PROPOSING TO ALTER VEGETATION IN THE RIPARIAN ZONE OR SPECIAL FLOOD HAZARD AREA

- [x] All existing vegetation over 2 inches in caliper, including size and species
- [x] Proposed landscaping of the project including types, quantities and sizes of trees, shrubs, ground cover and other vegetation
- [x] Proposed landscaping or other improvements within any public rights-of-way
- [x] Location, type (materials and colors) and height of walls or fences
- [x] Location of parking areas
- [x] Location of vehicular and pedestrian circulation patterns, easements and proposed improvements with regard thereto
- [x] Irrigation system for landscaping
- [x] Drainage plan including off-site improvements

STREAM ALTERATIONS / STREAMBANK STABILIZATION

N/A

- [ ] Copies of the Joint Application for Permits submitted to the U.S. army corps of engineers (USACE) and Idaho department of water resources (IDWR). Please note, USACE and IDWR approvals shall be obtained prior to issuance of a stream alteration permit.
- [ ] Copy of the USACE permit approval.
- [ ] Copy of the IDWR permit approval.
- [ ] Cross section of proposed work
- [ ] Length of stream to be worked, type of work to be done, type of equipment to be used and starting and completion dates of work
- [ ] A valley cross section showing stream channel, floodway limits, elevations of adjacent land areas, Special Flood Hazard Area boundary, floodway boundary, existing Mean High Water mark, proposed Mean High Water mark, Riparian Zone regulated by the City of Ketchum, proposed excavation, proposed fill. A profile showing the slope of the bottom of the channel or flow line of the stream may be required upon review of all other material submitted.
- [ ] For any work proposed to occur in the regulatory floodway: A no net rise certificate, including supporting calculations, prepared and stamped by an Idaho registered professional hydraulic engineer
- [ ] For any work proposed to occur in the floodway: HEC-RAS model

NO ADVERSE IMPACT STATEMENT – WHERE APPLICABLE

- [x] No Adverse Impact Statement
    - See definition of "No Adverse Impact" in section 17.08.020 of Ketchum Municipal Code.

121 Badger Lane Floodplain Development Permit Application

121 Badger Lane LLC
Brockway Engineering, PLLC
GEP, P.E. – February 27, 2023
Revised May 4, 2023

The following narrative discusses the City of Ketchum's criteria for Evaluation of Floodplain Development Applications. The proposed residential development at 121 Badger Lane is within an approved subdivision lot. The proposed buildings are located within the setback boundaries of the LR zoning district. There is a region (in the southwest portion of the lot) that was removed from the floodplain by a Letter of Map Amendment (LOMA) dated May 15, 2014, which can be referred to Appendix A.

The building sites for the Main House and the Accessory Dwelling Unit are chosen to strike an optimal balance between respecting the public's experience on adjacent BLM land and minimizing the structures' encroachment into the floodplain. The pristine nature of BLM land should be preserved, and the proposed Main House location provides sufficient distance from the adjacent BLM land that renders the structure as inconspicuous as possible. Simultaneously, the proposed structure's location minimizes encroachment into the floodplain, and the structure's impact to the flow of floodwaters is mitigated through thoughtful grading, landscaping, and architectural design. The proposed Accessory Dwelling Unit's location is located completely outside of the 100-year floodplain, to not disturb the flow of floodwaters at all.

The proposed Floodplain Development Application for 121 Badger Lane only applies to ground below the BFE and within the effective mapped Special Flood Hazard Area (SFHA) or 100-year flood area. (XX Site Plan L1.0) shows the property at 121 Badger Lane along with the area removed by the LOMA and the effective BFEs on the property.

The FEMA mapped floodway, Ordinary High Water Mark, and the 25' riparian setback are all located to the west of 121 Badger Ln in (XX Site Plan L1.0). The Ordinary High Water Mark was delineated using aerial imagery as it is not on the applicant's property.

1. *The proposal preserves or restores the inherent natural characteristics of the river, floodplain, and Riparian Zone, including riparian vegetation and wildlife habitat. Development does not alter river channel unless all stream alteration criteria for evaluation are also met.*

The proposed project preserves the natural characteristics of the floodplain. The project's grading plan results in more material being removed from the floodplain than being filled, this removal will increase flood storage below the BFE, and the landscape plan uses natural plantings as outlined by the Landscape Architect. Locations of structures upstream of the subject property limits flood water conveyance from the north through 121 Badger. To reiterate, the proposed grading plan for the project removes more material from the floodplain than fill placed in the floodplain and allows for an increase in flood storage.

2. *No temporary construction activities, encroachment, or other disturbance into the twenty-five foot (25') Riparian Zone, including encroachment of below grade structures, shall be permitted, except for approved stream stabilization work and restoration work associated with a riparian zone that is degraded.*

The proposed development on the property is at a distance greater than 25-ft from the Ordinary High Water Mark of the Big Wood River. No encroachment in the Riparian Zone will occur.

3. *No permanent development shall occur within the twenty-five foot (25') Riparian Zone, except for approved stream stabilization work and restoration work associated with permit issued under this title, or exceptions as described below:*
    a. *Access to a property where no other primary access is available.*
    b. *Emergency access required by the Fire Department.*
    c. *A single defined pathways or staircases for the purpose of providing access to the river channel and in order to mitigate multiple undefined social paths.*
    d. *Development by the City of Ketchum*

The proposed development on the property is at a distance greater than 25-ft from the Ordinary High Water Mark of the Big Wood River. No encroachment in the Riparian Zone will occur.

4. *New or replacement planting and vegetation in the Riparian Zone shall include plantings that are low growing and have dense root systems for the purpose of stabilizing stream banks and repairing damage previously done to riparian vegetation. Examples of such plantings most commonly include red osier dogwood, common chokecherry, serviceberry, elderberry, river birch, skunk bush sumac, Beb's willow, Drummond's willow, little wild rose, gooseberry, and honeysuckle. However, in rare instances the distance from the top-of-bank to the mean high-water mark is significant and the native vegetation appropriate for the Riparian Zone are low growing, drought resistant grasses and shrubs. Replacement planting and vegetation shall be appropriate for the specific site conditions. Proposal does not include vegetation within the twenty-five foot (25') Riparian Zone that is degraded, not natural, or which does not promote bank stability.*

The proposed development on the property is not within the Riparian Zone. The proposed landscaping plantings include the following species and quantities of plants: Abies concolor (White Fir) [quantity: 24],Abies lasiocarpa(Subalpine Fir) [quantity: 19],Populus tremuloides (Quaking Aspen) [quantity: 51],Amelanchier ainifolia (Serviceberry) [quantity: 8],Cornus Sericea 'Isanti' (Isanti Red-Osier Dogwood) [quantity: 115],Ribes alpinum (Alpine Currant) [quantity: 13],Salix bebbiana (Bebb Willow) [quantity: 29]Bromus carinatus (Mountain Brome) [quantity:7038.4 SF]Festuca longfolia (Hard Fescue) [quantity: 5173.5 SF]

5. *Landscaping and driveway plans to accommodate the function of the floodplain allow for sheet flooding. Surface drainage is controlled and shall not adversely impact adjacent properties including driveways drained away from paved roadways. Culvert(s) under driveways may be required. Landscaping berms shall be designed to not dam or otherwise obstruct floodwaters or divert same onto roads or other public pathways.*

Driveway design elevations were originally on-grade to match existing low elevations. However, in order to comply with no more than 1-ft of sheet flooding for emergency vehicle access, some portions of the driveway are raised slightly to ensure the maximum sheet flooding across the driveway is not violated. In areas where the driveway is elevated from the natural grade, culverts will be placed under the driveway to convey flow. The existing culvert in the middle of the property will be moved and replaced,

to allow conveyance of flood waters through the middle of the property. Site grading will allow for surficial water to travel off the property as has historically occurred.

6. *Floodwater carrying capacity is not diminished by the proposal.*

The proposed development has more excavation proposed (274 yd^3) then fill (258 yd^3). The proposed grading plan continues to allow surficial flows to move through the property, downstream along the floodplain as historical patterns show. There are no landscaping berms oriented at an east/west direction that would potentially diminish flood conveyance. All floodplain dimensions on the property boundaries will remain consistent. Fill placed in the floodplain is fully mitigated with excess excavation, which will result in an increase in flood storage within the property.

7. *Impacts of the development on aquatic life, recreation, or water quality upstream, downstream or across the stream are not negative.*

No adverse impacts on aquatic life, recreation, or water quality upstream, downstream or across the stream are anticipated as a result of the proposed project. The proposed development is not in the river, rather at a distance of 100 ft or greater from the river, on private property in an approved subdivision lot. During construction, appropriate sediment control measures will be implemented to minimize the limits of disturbance associated with construction activities. Sediment control measures will be left in place after construction as needed or until vegetation can be re-established to help minimize erosive impacts.

8. *Building setback in excess of the minimum required along waterways is encouraged. An additional ten-foot (10') building setback beyond the required twenty-five foot (25') Riparian Zone is encouraged to provide for yards, decks and patios outside the twenty five foot (25') Riparian Zone.*

The property boundaries for 121 Badger Lane are greater than 100 ft from the Big Wood River's Ordinary High Water Mark, and therefore this criteria is met.

9. *The top of the lowest floor of a building located in, or partially within, the SFHA shall be at or above the Flood Protection Elevation (FPE). A building is considered to be partially within the SFHA if any portion of the building or appendage of the building, such as footings, attached decks, posts for upper story decks, are located within the SFHA. See section 17.88.060, figures 1 and 2 of this chapter to reference construction details. See Chapter 17.08 of this title for definition of "lowest floor."*
    a. *In the SFHA where Base Flood Elevations (BFEs) have been determined, the FPE shall be twenty-four inches (24") above the BFE for the subject property; twenty-four inches (24") or two (2) feet is the required freeboard in Ketchum city limits.*
    b. *In the SFHA where no BFE has been established, the FPE shall be at least two (2) feet above the highest adjacent grade.*

The Main residence is only partially within the SFHA, but thus has set the finish floor elevation 24" above the BFE. The Accessory Dwelling Unit is not within the SFHA, but still has its finish floor elevation set 24" above the BFE. A small portion of the parking area is within the SFHA, but the parking area is not part of the building or an appendage of the building. The fill associated with the parking area is fully mitigated with compensatory excavation.

10. *The grading used around the foundation in the SFHA floodplain shall provide a reasonable transition to existing grade but shall not be used to fill the parcel to any greater extent.*
    a. *Compensatory storage shall be required for any fill placed within the floodplain.*
    b. *A CLOMR-F shall be obtained prior to placement of any additional fill in the floodplain.*

It is estimated that 258 yd^3 will be placed within the SFHA. However, the grading plan also includes the excavation of 274 yd^3, which qualifies for compensatory mitigation for all fill within the floodplain, including the parking area. All fill and excavation will transition to existing grade within the property boundaries. A CLOMR-F is not required for this project, as more excavation is occurring than fill.

11. *All new buildings located partially or wholly within the SFHA shall be constructed on foundations that are designed by a licensed professional engineer.*

Both buildings to be constructed with concrete slab on grade foundations designed by licensed professional structural engineer.

12. *Driveways shall comply with City of Ketchum street standards; access for emergency vehicles has been adequately provided for by limiting flood depths in all roadways to one foot (1-ft) or less during the 1% annual chance event.*

Refer to **B.1. Element #1: Residential Structure and Driveway** section of Technical Narrative

13. *Landscaping or revegetation shall conceal cuts and fills required for driveways and other elements of the development.*

Landscaping was designed to appear as natural as possible, while enhancing aesthetics and privacy of the property. Fills for raising the driveway will be concealed. The landscaping cuts and fills on the project are south of the driveway, and the landscaping design seeks to conceal land disturbances.

14. *(Stream alteration.) The proposal is shown to be a permanent solution and creates a stable situation.*

Not applicable.

15. *(Stream alteration.) No increase to the one percent (1%) annual chance flood elevation at any location in the community, based on hydrologic and hydraulic analysis performed in accordance with standard engineering practice and has been certified and submitted with supporting calculations and a No Rise Certificate, by a registered Idaho engineer.*

Not applicable.

16. *(Stream alteration.) The project has demonstrated No Adverse Impact or has demonstrated all impacts will be mitigated.*

Not applicable.

17. *(Stream alteration.) The recreational use of the stream including access along any and all public pedestrian, fishing easements and the aesthetic beauty shall not be obstructed or interfered with by the proposed work.*

Not applicable.

18. *(Stream alteration.) Fish habitat shall be maintained or improved as a result of the work proposed.*

Not applicable.

19. *(Stream alteration.) The proposed work shall not be in conflict with the local public interest, including, but not limited to, property values, fish and wildlife habitat, aquatic life, recreation and access to public lands and waters, aesthetic beauty of the stream and water quality.*

Not applicable.

20. *(Stream alteration.) The work proposed is for the protection of the public health, safety and/or welfare such as public schools, sewage treatment plant, water and sewer distribution lines and bridges providing particularly limited or sole access to areas of habitation.*

Not applicable.

21. *(Wetlands) Where development is proposed that impacts any wetland the first priority shall be to move development from the wetland area. Mitigation strategies shall be proposed at time of application that replace the impacted wetland area with an equal amount and quality of new wetland area or riparian habitat improvement.*

Wetland delineation, evaluation, and proposal was conducted by Trent Stumph with Sawtooth Environmental. A 404-Joint Application was filed with the US Army Corps of Engineers regarding any wetland impacts. Please refer to the Joint Application to USACE (Appendix G) and Permit Authorization from USACE (Appendix G.1).

Technical Narrative in Support of Floodplain Development Plan for 121 Badger Lane, Ketchum, Idaho

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Brockway Engineering, PLLC
February 24, 2023
Revised May 4, 2023

A. Existing Conditions and Hydrology

The proposed floodplain development permit is located at 121 Badger Lane, Ketchum, Idaho. Most of the property is within the effective 100-year floodplain defined by FEMA (Figure 1). Based on previous flood events in 2017, 2006, and 1986 (Figure 2A-2C), it appears that the property was not inundated by Big Wood River flood flows. However, this evaluation assumes the flood flow from the Big Wood River will inundate the property based on the effective floodplain delineation and hydraulic model.

There is an elevated high area on the property, and this high elevation area was previously excluded from the floodplain through a LOMA application filed with FEMA and approved on May 15, 2014 (Appendix A). There are low elevation areas on the property, that have been delineated as wetlands. A joint application has been submitted and approved by the US Army Corps of Engineers (See approved Joint Application). No portion of 121 Badger Lane is within the effective regulatory floodway. In addition, the Ordinary High Water Mark (OHWM) has been estimated as well as the 25-ft riparian setback (Figure 1).

A floodplain development permit was filed with the City of Ketchum and reviewed by City Staff and Harmony Design and Engineering (Harmony) dated April 5, 2023. This memo has been revised to incorporate the review comments.

B. Proposed Project

The proposed project as outlined in the Floodplain Development Permit includes the following elements:

1. Construction of a residential structure, primarily on the high elevation area, but including a small area of the effective floodplain to the east of the high elevation area. Construction includes a driveway access through the property. Fill required for the residential construction will be fully mitigated by compensatory mitigation on the property.

2. Driveway construction will require fill of a wetland area. A mitigation wetland will be constructed adjacent to the existing wetland, as outlined in the approved Joint Application

and shown on the grading plan. Enhancement to the wetland in the southern portion of the property will also occur to ensure wetland preservation and compensatory mitigation for fill placed in the floodplain.

3. Installation of three culverts throughout the property to connect flood flow to downgradient areas. Two culverts will be installed under the driveway, one to connect flood flows from the north and another to connect flood flows from the west. Driveway culverts will connect flood flows to wetland area, as shown in the grading plan. The third culvert will connect wetland areas, and replace an existing culvert on the property.

Each of these elements is described below, followed by a hydraulic analysis of the comprehensive project to assess the impact on the flood elevations, and an analysis of cut and fill volumes within the floodplain.

B.1. Element #1: Residential Structure and Driveway

The proposed structure footprint for 121 Badger Lane is shown on the plan set, and greater detail may will be found in the architectural plans for the project. There is no platted building envelope on the property. The majority of the structure is outside of the floodplain based on elevation and the approved LOMA. A portion of the structure does extend into the effective floodplain. Fill will be placed in the floodplain for the structure foundation and driveway access.

The driveway elevations were calculated to ensure that there was less than 1-ft of flood elevations on the driveway for emergency vehicle access. Driveway elevations are shown on the associated plan set. The effective and current model-computed floodplain in this area is minimal both in terms of depth and flow, and this activity amounts to small effects on the floodplain. Culverts will be installed to ensure that flood flows are connected to down gradient areas.

B.2. Element #2: Wetland Fill and Mitigation

A Joint Application has been filed and approved by the US Army Corps of Engineers regarding the fill and mitigation of wetlands associated with the residential construction for 121 Badger. Please review the Joint Application documents for more information regarding the wetland mitigation.

Additional removal of material within the floodplain was necessary for compensatory mitigation associated with fill in the floodplain. The compensatory mitigation removal is integrated into the landscaping plan and shown in the associated plan set.

B.3. Element #3: Culvert Installation

Three culverts will be installed on the property to connect flood flows to down gradient areas. Culvert locations can be seen on the floodplain development permit plat maps. Two culverts will be placed under the driveway at natural lower elevation areas, at their respective locations and

will hydraulically connect the area to the north and west to the mitigation wetland area. Driveway culverts were required to ensure that flood flows on the driveway were less than 1-ft depth and flood flows would not back up on neighboring properties. The culvert from the north will be a 12-inch culvert with a surface inlet of 5785.8 ft (IE of 5783.8 ft), a length of 30-ft, with a slope of 2.6%. The culvert from the west will be a 24"x36" pipe arch with an inlet of 5784.0 ft, a length of 64-ft, and a slope of 2.35%. The third culvert will be placed on the property to connect wetland areas. This culvert also replaces an existing culvert on the property. The culvert will be a 24"x36" pipe arch with an inlet of 5782.5 ft, a length of 39-ft, and a slope of 0.5%.

C. HEC-RAS model analysis

HEC-RAS 6.3 was used to model the project. Topographic data used to develop cross-sections was derived from the 2017 Blaine County LiDAR data, and detailed ground survey and topographic contour map for the project. The sources were in close agreement. The effective FEMA model was used as a starting point and verified that it duplicated the effective model. New cross-sections representing current ground conditions were inserted at four different locations on the property. The original orientation of the cross sections was revised based on comments from Harmony. These sections are shown on the attached Figure 3 and described in Table 1.

New sections were located at the property's southern most point, northern most point, and two cross sections in the middle of the property, to provide a representation of the project. Channel and overbank roughness and other parameters were the same as those in the effective model.

Since the LiDAR data reflects the water surface rather than the channel bottom in the Big Wood River when the flight was made (which was at low water), the channel bottom was approximated using the FEMA effective cross sections and linearly interpolating to the low elevation for each of the cross sections. The model cross-sections illustrating the baseline grades and modified project grades are attached (Appendix B).

Table 1. Cross-sections from upstream to downstream

Section	River Station	Remarks
EG	101583	Retained effective model section
Unpub	100887	Retained effective unpublished model section
Badger-4	100814	New section – northern most property point
Badger-3	100705	New section – middle of property
Badger-2	100590	New section – middle of property
Badger-1	100513	New section – southern most property point
EF	100277	Retained effective model section
Unpub	99492	Retained effective unpublished model section
EE	98972	Retained effective model section
Unpub	98528	Retained effective unpublished model section
ED	98148	Retained effective model section

The current conditions model results are consistent with the effective model. However, the new cross-sections cross-cut the channel in more detail between FEMA Section EF and the unpublished section. In the current conditions model, there is a lower elevation at the unpublished section at river station 100887 (Table 2). The baseline model was deemed to be a suitable current-conditions model from which to evaluate changes due to proposed project grading.

The computed water surface elevations with the project are similar and are zero or negative if rounded to the nearest tenth of a foot, except for Badger Cross Section 2, in the middle of the property. The proposed project does show a slight 0.1-ft rise at the Badger-2 cross section (middle of property). There is no modeled rise in flood elevation at Badger-1 or Badger-4, south and north property points, respectively. Furthermore, no flood inundation was documented with aerial photography in 1986, 2006, and 2017. The simulated flood depth along the Badger-4 cross section from the property corner to the edge of the effective floodplain has an average depth of 0.3-ft, which under FEMA guidelines may qualify as a Zone X (FEMA Guidance for Flood Risk Analysis and Mapping, Shallow Flooding Analyses and Mapping, December 2020).

Table 2 shows a comparison of water surface elevations. The project is outside the regulatory floodway and the FEMA "no-rise" requirement do not apply. However, the city's no adverse impact statement is required. Given that the project shows no increase of flood depth along the Badger-1 or Badger-4 cross sections, it was determined that the no-adverse impact statement was satisfied.

Table 2. Model-computed water surface elevations.

Section	River Sta	Water surface elevation (ft)			
		Effective	Current Conditions Baseline	With Project	Difference
EG	101583	5793.2	5793.4	5793.4	0.0
Unpub	100887	5787.9	5787.4	5787.4	0.0
Badger-4	100814	--	5786.8	5786.6	-0.2
Badger-3	100705	--	5786.4	5786.3	-0.1
Badger-2	100590	--	5785.7	5785.8	0.1
Badger-1	100513	--	5785.0	5785.0	0.0
EF	100277	5783.9	5783.9	5783.9	0.0
Unpub	99492	5778.1	5778.1	5778.1	0.0
EE	98972	5774.3	5774.3	5774.3	0.0
Unpub	98528	5772.4	5772.4	5772.4	0.0
ED	98148	5768.9	5768.9	5768.9	0.0

D. Material Quantities

The grading plan volume of cut and fill for impact to the floodplain were calculated from the current and project cross-sections utilized for the hydraulic modeling. Calculations are shown on

the attached sheets (Appendix C). The areas of Cut/Fill are shown in Figure 4. The City requires compensatory storage all fill placed within the effective floodplain on the property at a 1-for-1 ratio. In order to calculate the volumes of fill and cut, the effective base flood elevations (BFEs) were used and interpolated through the property and the LOMA area was included in this analysis, as requested by Harmony. If cut or fill volumes occurred at elevations higher than the BFEs, then the volume was considered outs of the floodplain by elevation. The cut volume below the calculated BFE is 274 cy. The fill volume below the calculated BFE is 258 cy. Final grading plans and maps for the entire project are provided by Benchmark Associates.

E. HEC-RAS Files

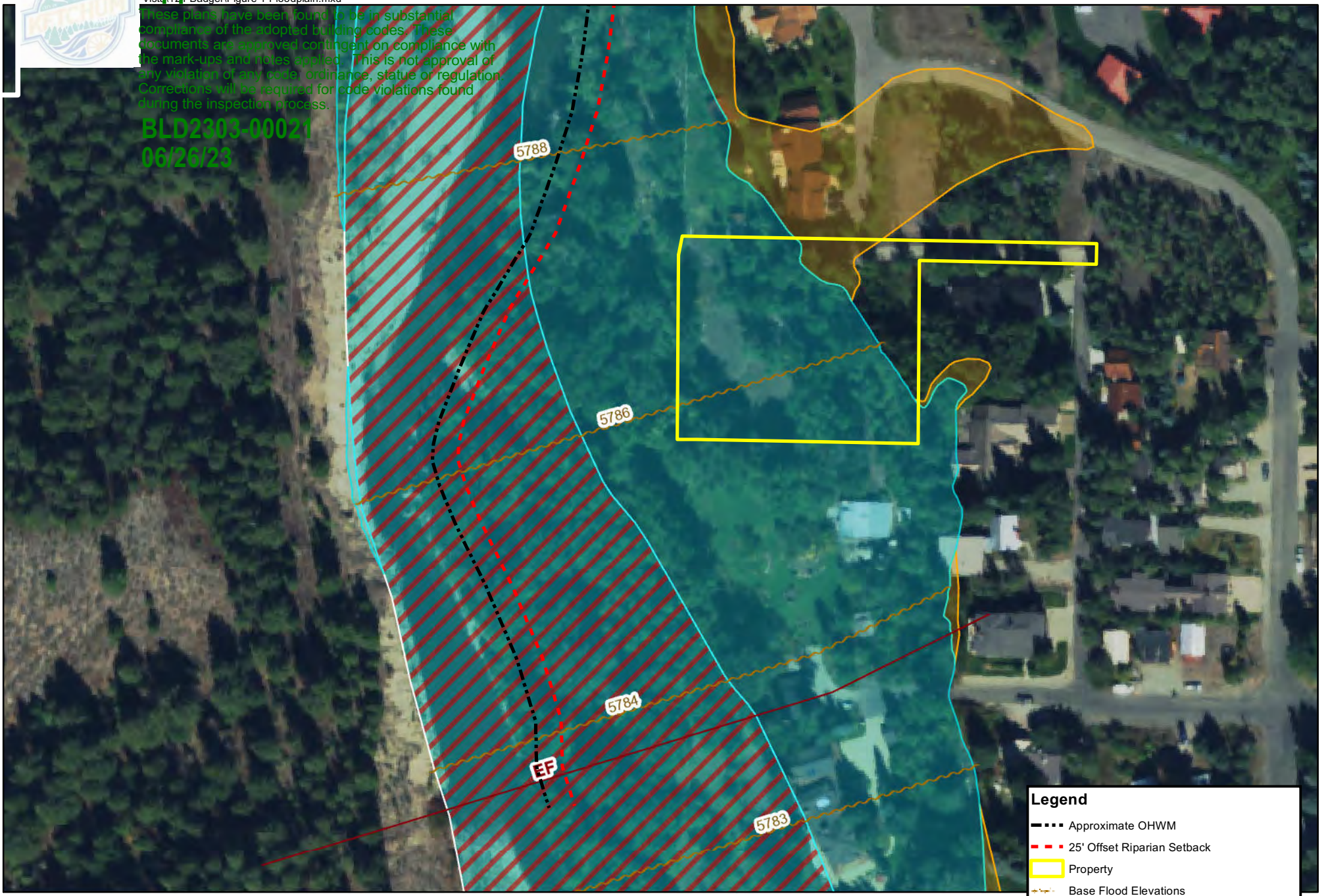
Harmony requested the HEC-RAS files for this project. They are included in the zip file provided to the City.

Approved

Vista\121 Badger\Figure 1-Floodplain.mxd

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



1 inch = 0.02 miles

121 BADGER LANE

FIGURE 1

BROCKWAY ENGINEERING, PLLC.
JJJ - Date: 2/24/2023

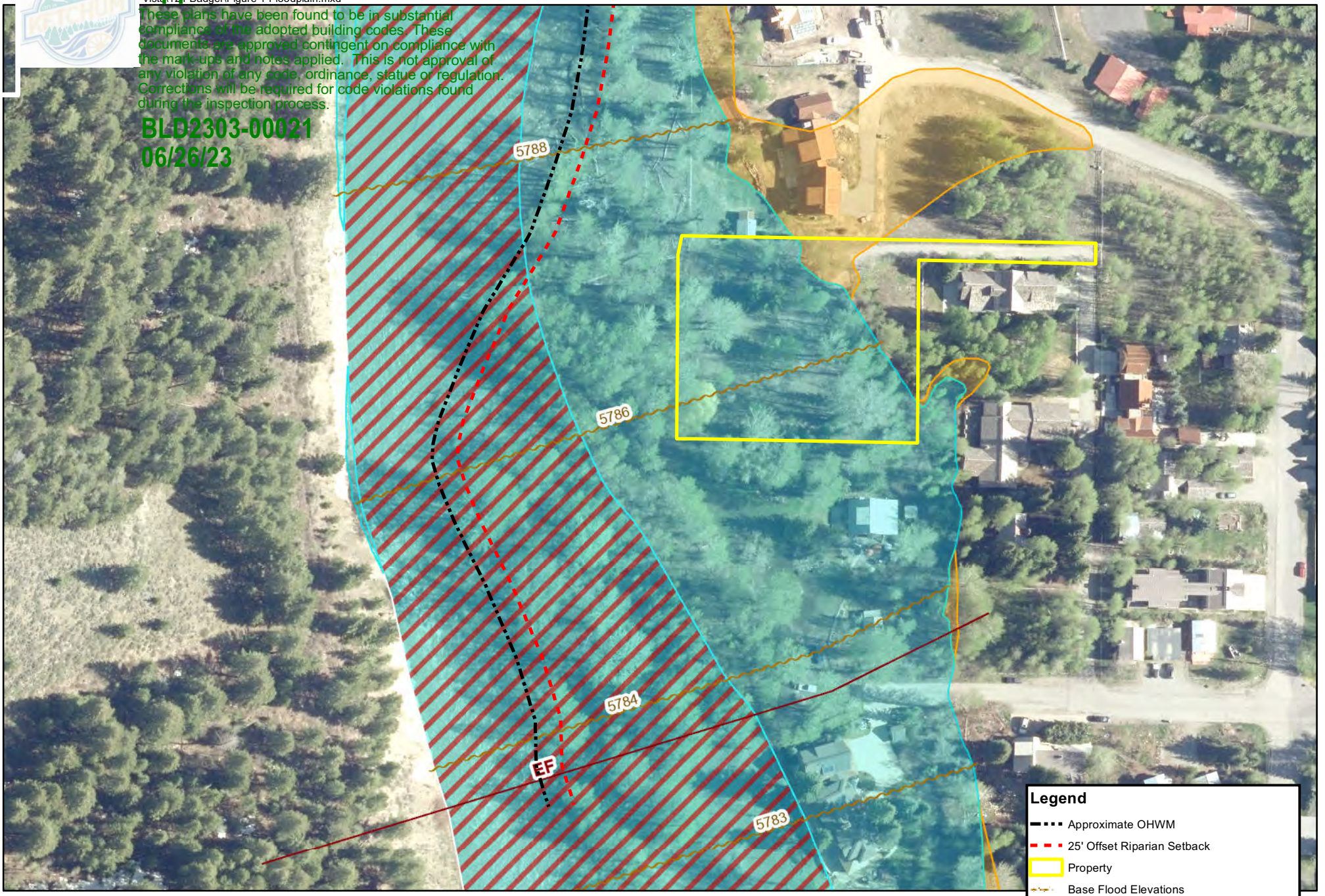
NAIP 2021 IMAGERY

Approved

Vista\121 Badger\Figure 1-Floodplain.mxd

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



1 inch = 0.02 miles

121 BADGER LANE

FIGURE 2A

BROCKWAY ENGINEERING, PLLC.
JJJ - Date: 2/24/2023

BIG WOOD IMAGERY 5-11-2017

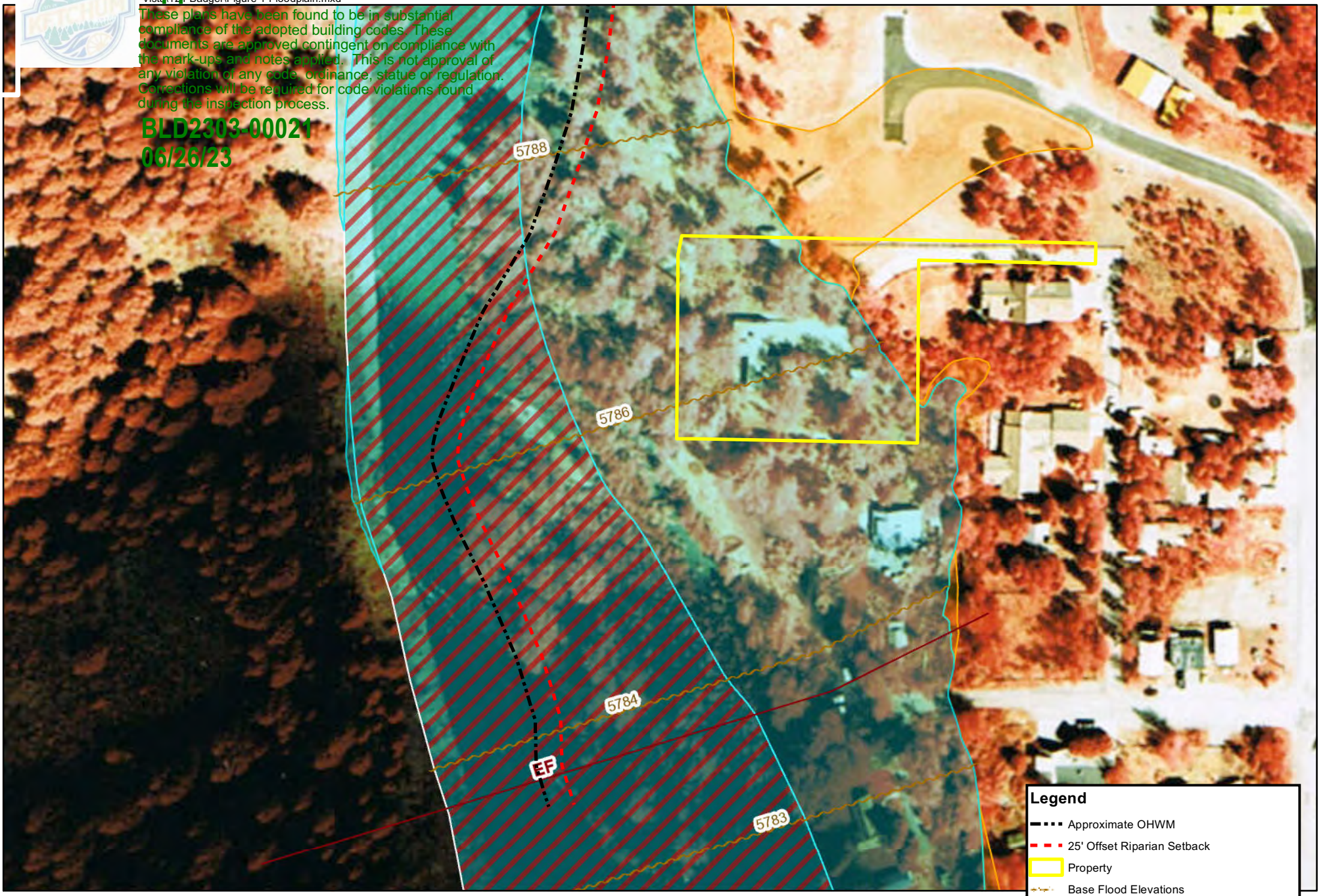
Approved

Vista M2\Badger\Figure 1-Floodplain.mxd

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021

06/26/23



1 inch = 0.02 miles

121 BADGER LANE

FIGURE 2B

BROCKWAY ENGINEERING, PLLC.

JJJ - Date: 2/24/2023

BIG WOOD IMAGERY 5-19-2006

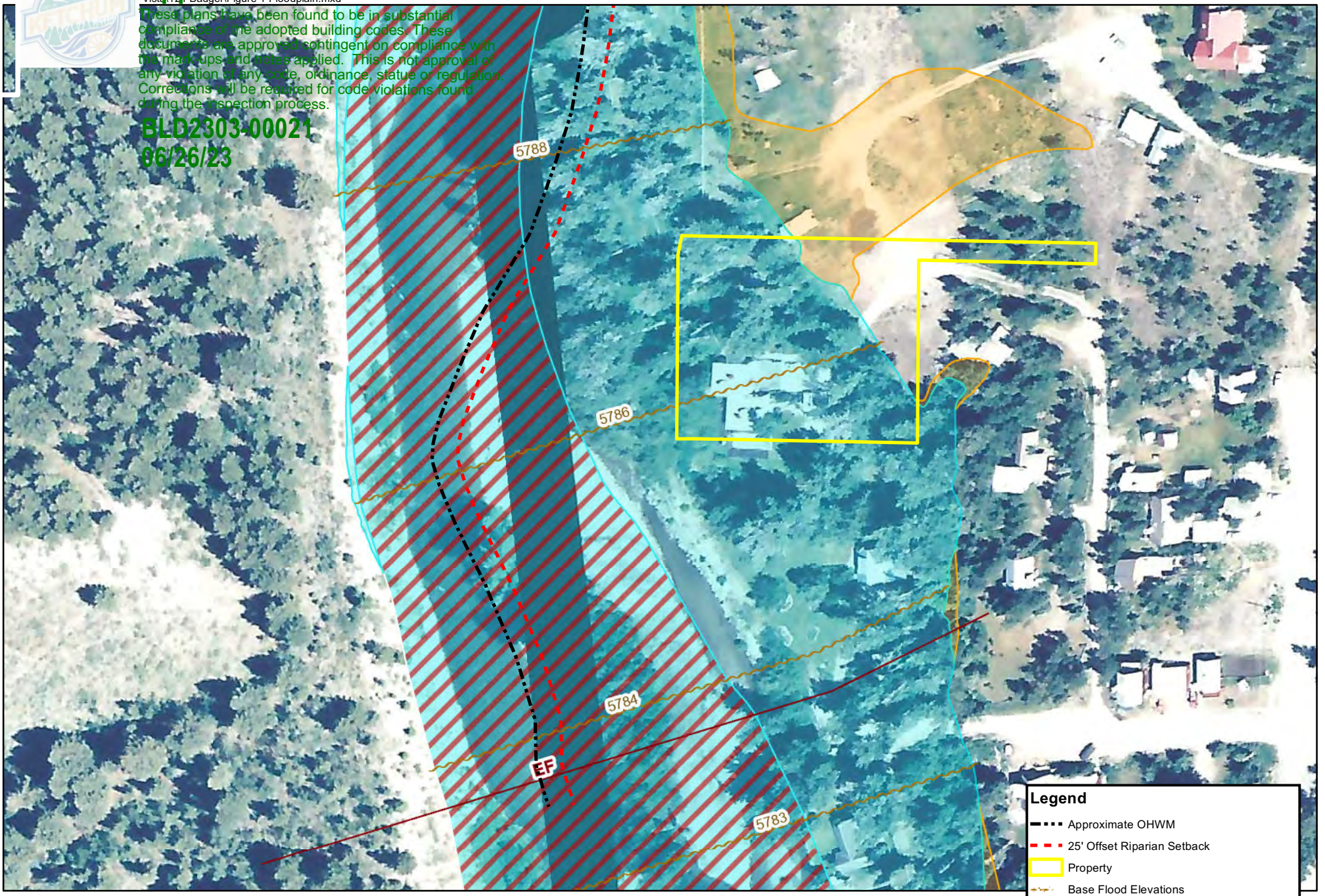
Approved

Vista N2P Badger\Figure 1-Floodplain.mxd

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021

06/26/23



1 inch = 0.02 miles

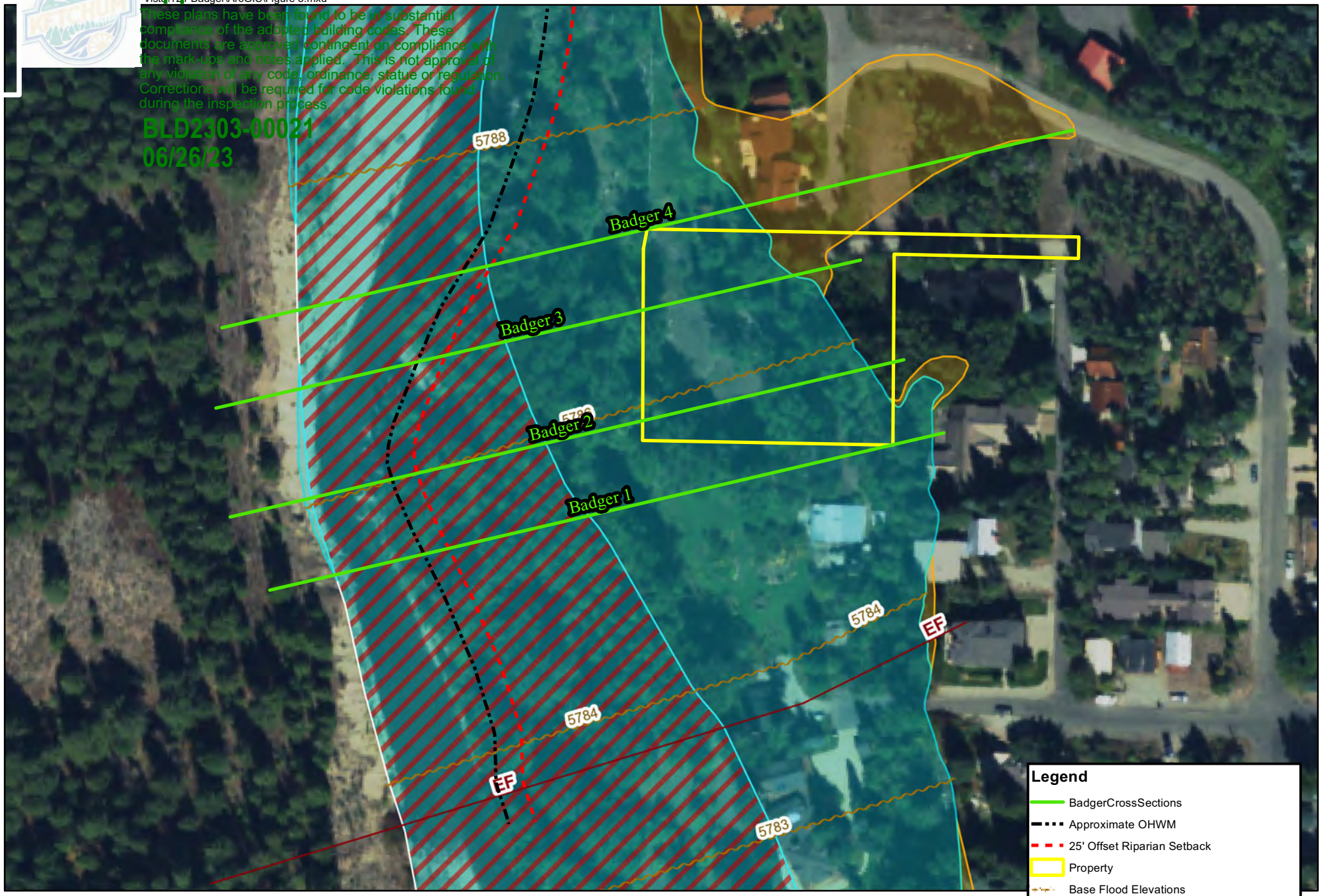
121 BADGER LANE

FIGURE 2C

BROCKWAY ENGINEERING, PLLC.

JJJ - Date: 2/24/2023

BIG WOOD IMAGERY 6-23-1986

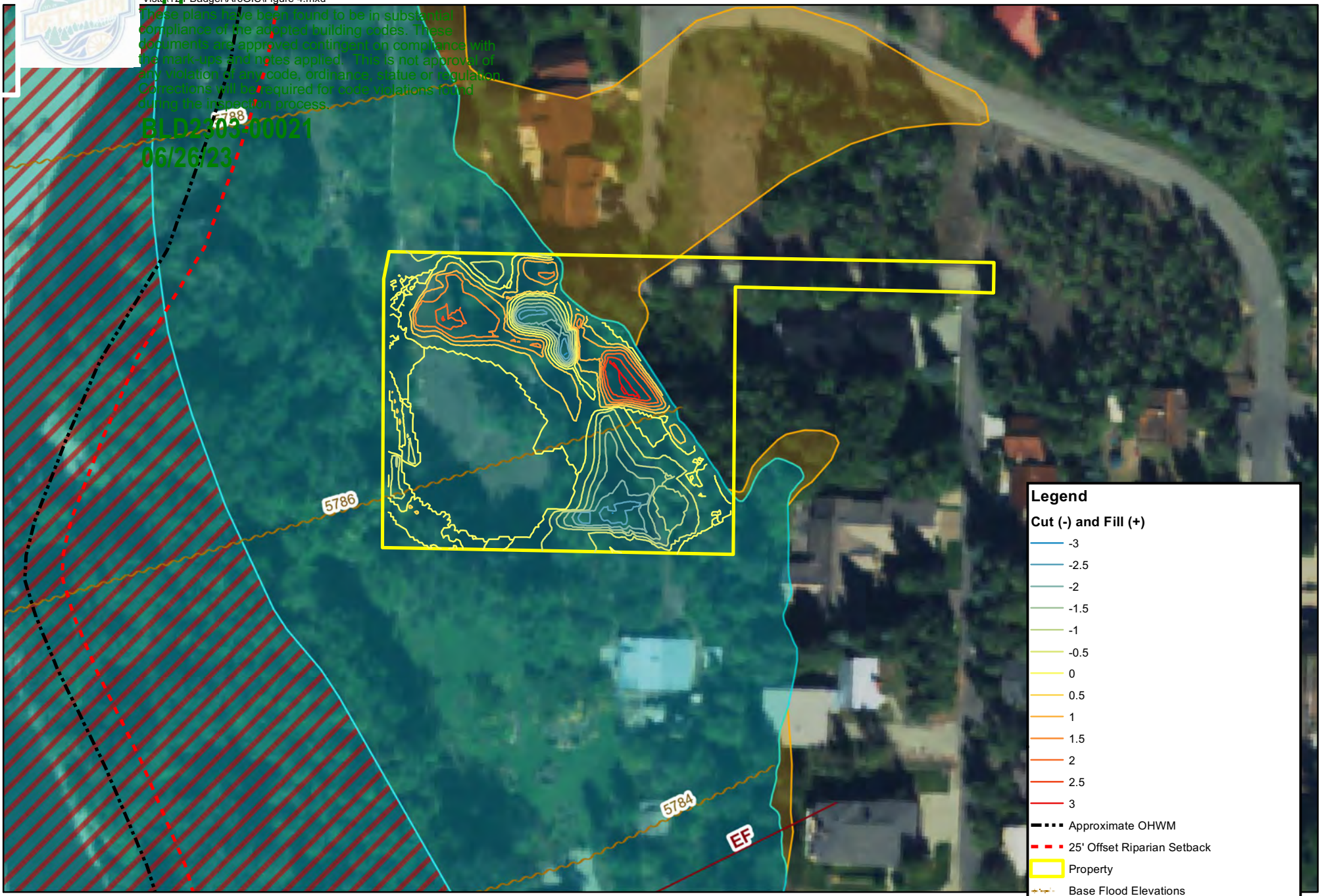


1 inch = 0.02 miles

121 BADGER LANE
FIGURE 3

BROCKWAY ENGINEERING, PLLC.
JJJ - Date: 5/4/2023

NAIP 2021 IMAGERY



1 inch = 0.02 miles

121 BADGER LANE

FIGURE 4

BROCKWAY ENGINEERING, PLLC.

JJJ - Date: 5/4/2023

NAIP 2021 IMAGERY

Appendix A
Approved LOMA 14-10-1180A

Approved
These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

Date: May 15, 2014 | Case No.: 14-10-1180A | LOMA

Federal Emergency Management Agency
Washington, D.C. 20472

BLD2303-0002
06/26/23

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF KETCHUM, BLAINE COUNTY, IDAHO	Parcel 4, Rocking Ranch No. 2, as described in the Deed of Trust, recorded as Instrument No. 522368, in the Office of the County Recorder, Blaine County, Idaho The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 160023	
AFFECTED MAP PANEL	NUMBER: 16013C0442E; 16013C0461E	
	DATE: 11/26/2010; 11/26/2010	
FLOODING SOURCE: BIG WOOD RIVER		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 43.680, -114.376 SOURCE OF LAT & LONG: ARCGIS 10.1 DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
4	--	Rocking Ranch No. 2	121 Badger Lane	Portion of Property	X (shaded)	5786.5 feet	--	5786.5 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
PORTIONS REMAIN IN THE SFHA
STUDY UNDERWAY

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.

Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

COMMENCING at the Northwest corner of Parcel 4, Rocking Ranch No. 2; thence S27°20'44"E, a distance of 59.98 feet to the POINT OF BEGINNING; thence S74°33'47"E, a distance of 55.05 feet; thence S07°12'11"E, a distance of 115.73 feet; thence N83°17'22"W, a distance of 77.98 feet; thence N13°03'58"W, a distance of 61.06 feet; thence N01°28'23"E, a distance of 44.38 feet; thence N53°45'34"E, a distance of 27.94 feet to the POINT OF BEGINNING

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

STUDY UNDERWAY (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

This determination is based on the flood data presently available. However, the Federal Emergency Management Agency is currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. When the new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.

Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration

Appendix B
HEC-RAS Cross Sections and Data

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the construction process.

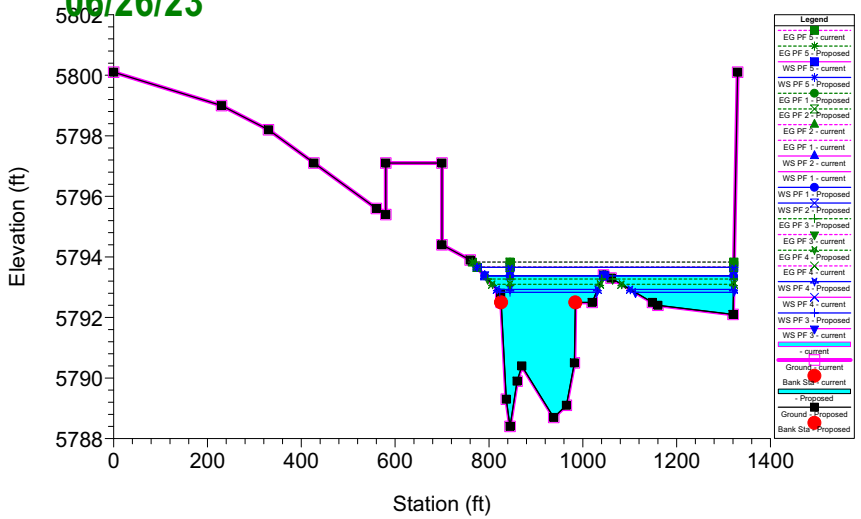
BLD2303-00021

06/26/23

Appendix B

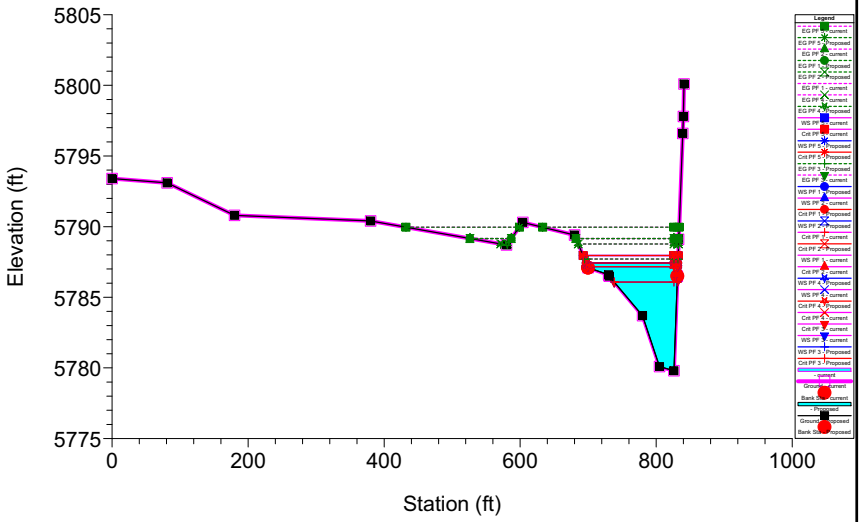
Badger2023_04_20 Plan: 1) Proposed 2) current

FEMA cross section EG, FIS River Station 525180



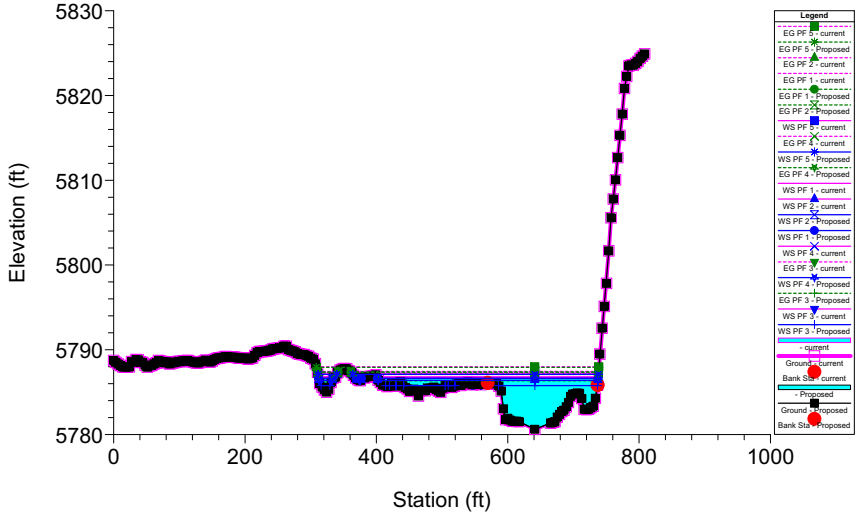
Badger2023_04_20 Plan: 1) Proposed 2) current

DATA FROM FLOOD PLAIN INFORMATION REPORT CORPS OF ENGINEERS JU



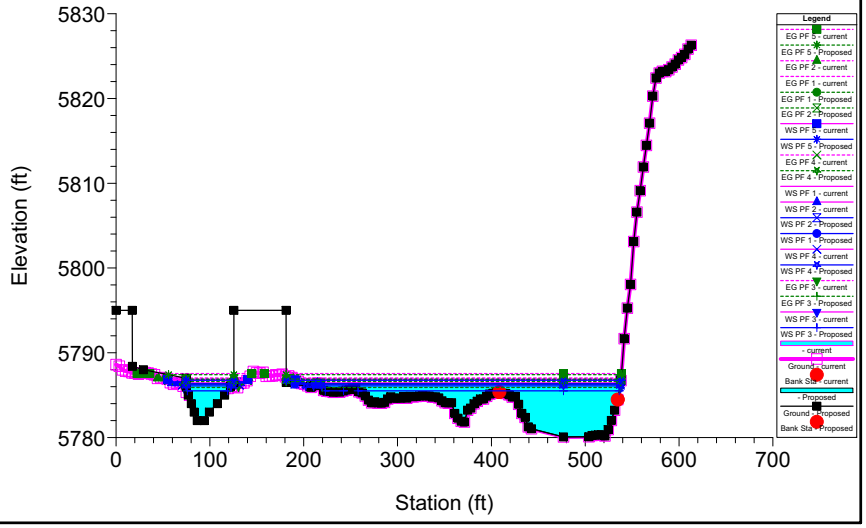
Badger2023_04_20 Plan: 1) Proposed 2) current

121 Badger North Property Line: Badger 4



Badger2023_04_20 Plan: 1) Proposed 2) current

121 Badger Middle Cross Section: Badger 3



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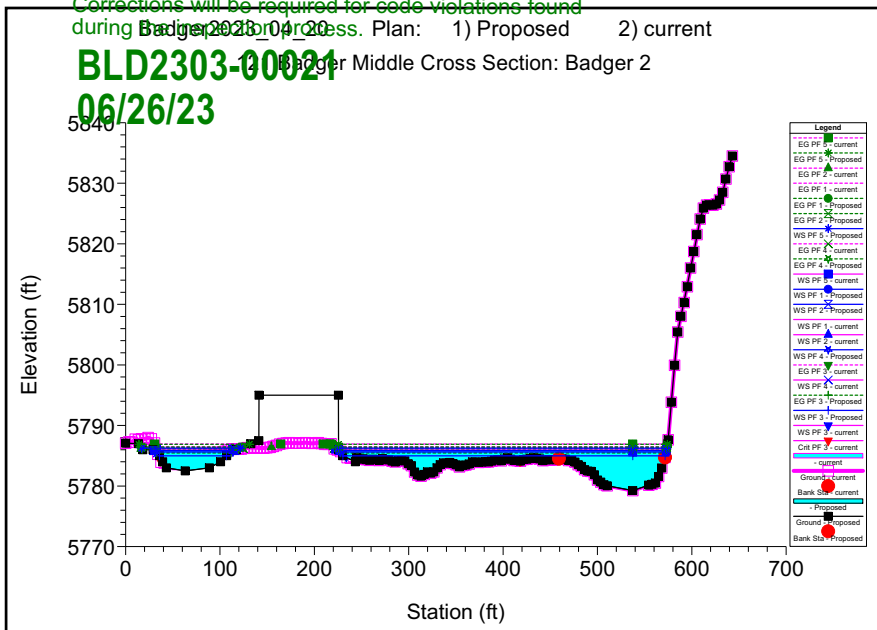
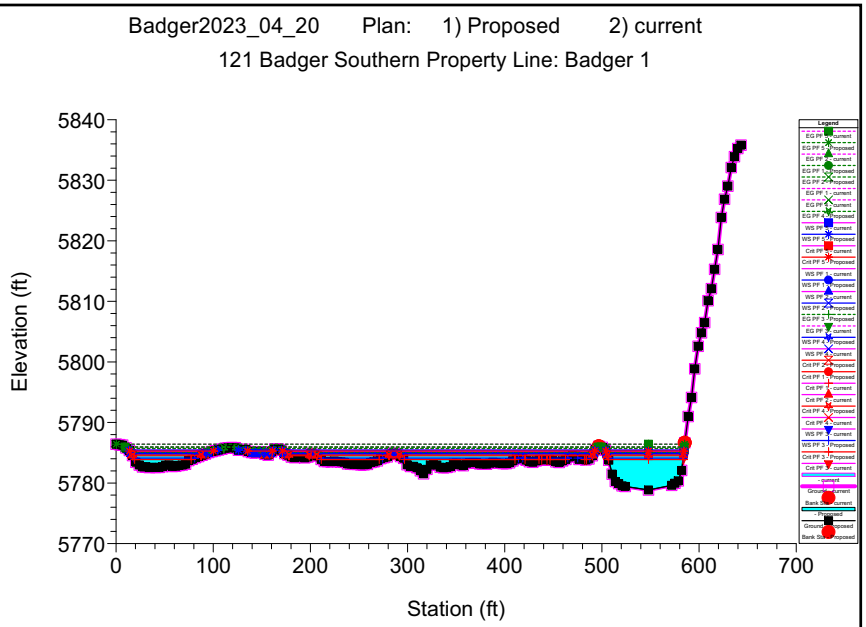
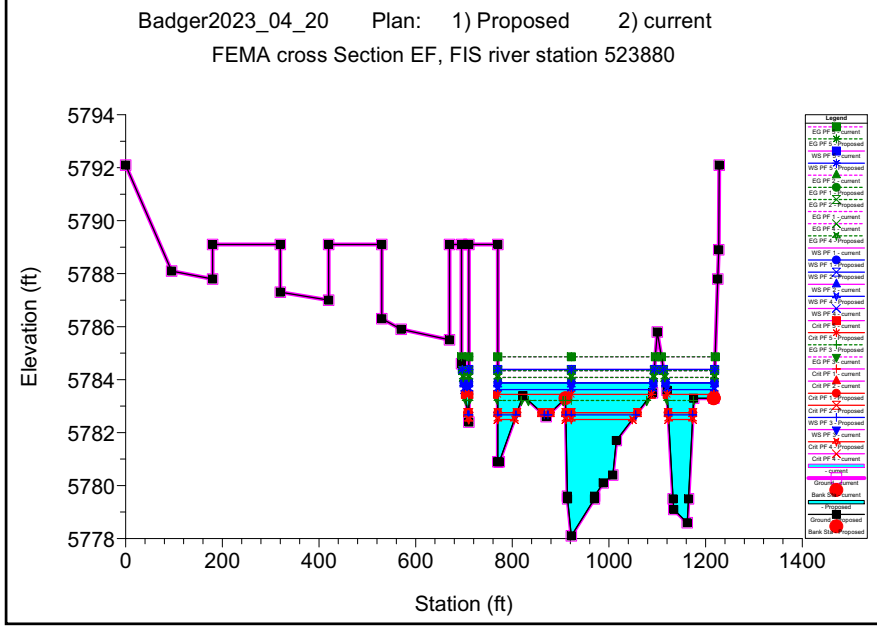
BLD2303-00021

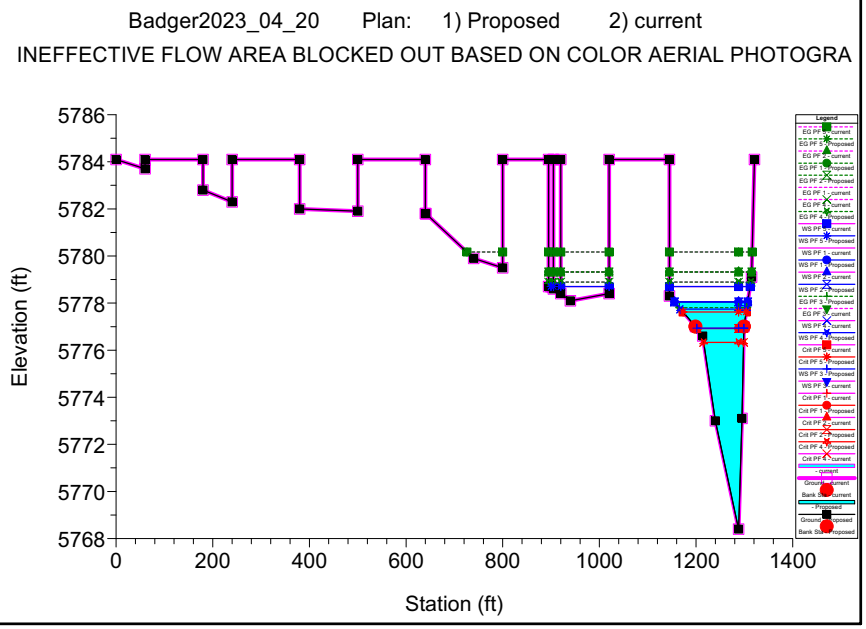
06/26/23

Appendix B









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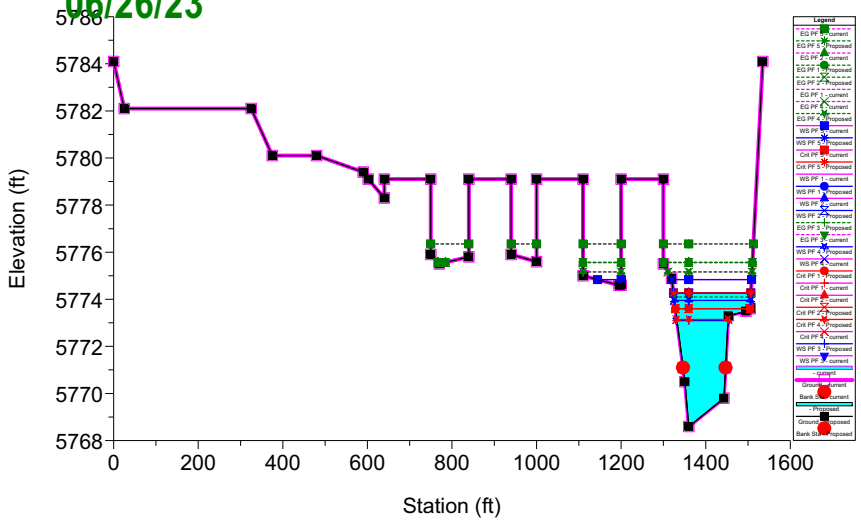
BLD2303-00021

06/26/23

Appendix B

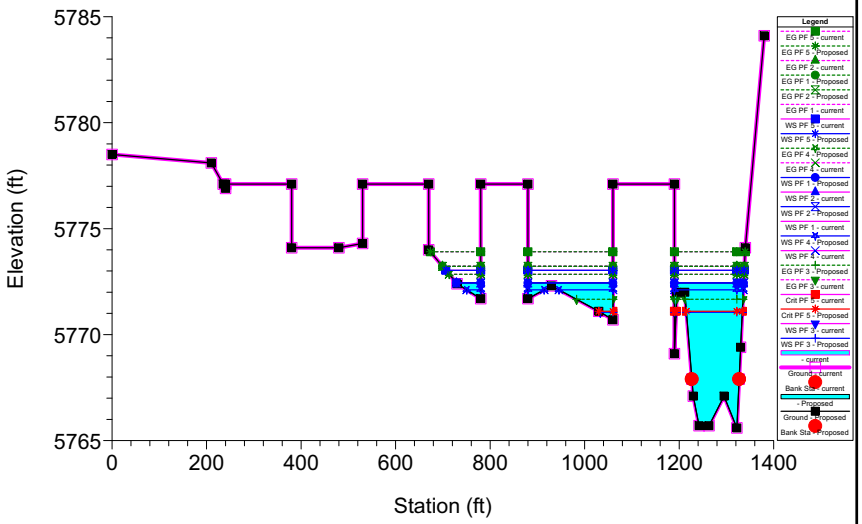
Badger2023_04_20 Plan: 1) Proposed 2) current

FEMA Cross Section EE, FIS River Station 522570



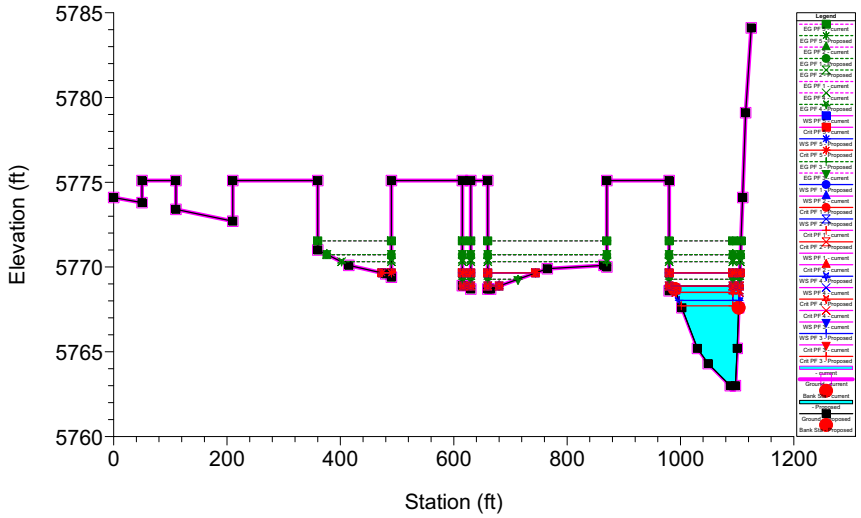
Badger2023_04_20 Plan: 1) Proposed 2) current

INEFFECTIVE FLOW AREA BLOCKED OUT BASED ON COLOR AERIAL PHOTOGRA



Badger2023_04_20 Plan: 1) Proposed 2) current

FEMA Cross Section ED, FIS River Station 521750



Plan: current RIVER-1 Reach-1 RS: 101583 Profile: PF 1

E.G. Elev (ft)	5793.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5793.38	Reach Len. (ft)	520.00	696.00	730.00
Crit W.S. (ft)		Flow Area (sq ft)	10.57	604.81	276.51
E.G. Slope (ft/ft)	0.002362	Area (sq ft)	10.57	604.81	276.51
Q Total (cfs)	2880.00	Flow (cfs)	4.28	2654.96	220.76
Top Width (ft)	526.42	Top Width (ft)	35.10	158.00	333.32
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)	0.41	4.39	0.80
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)	0.30	3.83	0.83
Conv. Total (cfs)	59262.7	Conv. (cfs)	88.1	54632.0	4542.7
Length Wtd. (ft)	696.88	Wetted Per. (ft)	35.15	159.50	333.78
Min Ch El (ft)	5788.40	Shear (lb/sq ft)	0.04	0.56	0.12
Alpha	1.71	Stream Power (lb/ft s)	0.02	2.45	0.10
Frctn Loss (ft)	4.35	Cum Volume (acre-ft)	15.19	85.39	7.62
C & E Loss (ft)	0.15	Cum SA (acres)	15.31	22.55	6.79

Plan: current RIVER-1 Reach-1 RS: 100887 Profile: PF 1

E.G. Elev (ft)	5789.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.73	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5787.43	Reach Len. (ft)	87.50	93.50	111.00
Crit W.S. (ft)	5787.43	Flow Area (sq ft)	0.46	448.96	0.31
E.G. Slope (ft/ft)	0.016230	Area (sq ft)	0.46	448.96	0.31
Q Total (cfs)	4740.00	Flow (cfs)	0.33	4739.36	0.31
Top Width (ft)	134.61	Top Width (ft)	2.84	131.10	0.68
Vel Total (ft/s)	10.54	Avg. Vel. (ft/s)	0.70	10.56	1.00
Max Chl Dpth (ft)	7.63	Hydr. Depth (ft)	0.16	3.42	0.46
Conv. Total (cfs)	37206.5	Conv. (cfs)	2.6	37201.5	2.5
Length Wtd. (ft)	93.32	Wetted Per. (ft)	2.86	134.77	1.15
Min Ch El (ft)	5779.80	Shear (lb/sq ft)	0.16	3.38	0.28
Alpha	1.00	Stream Power (lb/ft s)	0.12	35.63	0.28
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)	15.12	76.97	5.30
C & E Loss (ft)	0.32	Cum SA (acres)	15.09	20.24	4.00

Plan: current RIVER-1 Reach-1 RS: 100814 Profile: PF 1

E.G. Elev (ft)	5787.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5786.78	Reach Len. (ft)	82.00	94.50	72.00
Crit W.S. (ft)		Flow Area (sq ft)	207.51	662.27	0.42
E.G. Slope (ft/ft)	0.005306	Area (sq ft)	207.51	662.27	0.42
Q Total (cfs)	4740.00	Flow (cfs)	286.69	4453.04	0.27
Top Width (ft)	380.10	Top Width (ft)	212.07	167.15	0.88
Vel Total (ft/s)	5.45	Avg. Vel. (ft/s)	1.38	6.72	0.64
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)	0.98	3.96	0.48
Conv. Total (cfs)	65073.5	Conv. (cfs)	3935.9	61133.9	3.7
Length Wtd. (ft)	93.28	Wetted Per. (ft)	212.93	169.07	1.30
Min Ch El (ft)	5780.63	Shear (lb/sq ft)	0.32	1.30	0.11
Alpha	1.44	Stream Power (lb/ft s)	0.45	8.72	0.07
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	14.91	75.78	5.30
C & E Loss (ft)	0.02	Cum SA (acres)	14.87	19.92	3.99

Plan: current RIVER-1 Reach-1 RS: 100705 Profile: PF 1

E.G. Elev (ft)	5787.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5786.41	Reach Len. (ft)	102.00	115.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)	403.32	620.87	2.83
E.G. Slope (ft/ft)	0.003826	Area (sq ft)	403.32	620.87	2.83
Q Total (cfs)	4740.00	Flow (cfs)	632.88	4104.30	2.82
Top Width (ft)	409.17	Top Width (ft)	280.23	126.00	2.94
Vel Total (ft/s)	4.62	Avg. Vel. (ft/s)	1.57	6.61	1.00
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)	1.44	4.93	0.96
Conv. Total (cfs)	76629.9	Conv. (cfs)	10231.5	66352.8	45.6
Length Wtd. (ft)	112.77	Wetted Per. (ft)	281.46	127.24	3.52
Min Ch El (ft)	5780.07	Shear (lb/sq ft)	0.34	1.17	0.19
Alpha	1.79	Stream Power (lb/ft s)	0.54	7.71	0.19
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	14.34	74.39	5.30
C & E Loss (ft)	0.01	Cum SA (acres)	14.41	19.60	3.99

Plan: current RIVER-1 Reach-1 RS: 100590 Profile: PF 1

E.G. Elev (ft)	5786.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5785.71	Reach Len. (ft)	77.00	77.00	77.00
Crit W.S. (ft)		Flow Area (sq ft)	491.14	487.22	0.58
E.G. Slope (ft/ft)	0.006142	Area (sq ft)	491.14	487.22	0.58
Q Total (cfs)	4740.00	Flow (cfs)	992.54	3747.02	0.44
Top Width (ft)	416.82	Top Width (ft)	303.40	112.26	1.16
Vel Total (ft/s)	4.84	Avg. Vel. (ft/s)	2.02	7.69	0.76
Max Chl Dpth (ft)	6.46	Hydr. Depth (ft)	1.62	4.34	0.50
Conv. Total (cfs)	60480.4	Conv. (cfs)	12664.4	47810.3	5.6
Length Wtd. (ft)	77.00	Wetted Per. (ft)	304.70	113.48	1.53
Min Ch El (ft)	5779.25	Shear (lb/sq ft)	0.62	1.65	0.15
Alpha	2.03	Stream Power (lb/ft s)	1.25	12.66	0.11
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	13.29	72.93	5.29
C & E Loss (ft)	0.02	Cum SA (acres)	13.72	19.29	3.99

Plan: current RIVER-1 Reach-1 RS: 100513 Profile: PF 1

E.G. Elev (ft)	5785.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.080	0.040	
W.S. Elev (ft)	5785.03	Reach Len. (ft)	238.00	236.00	224.00
Crit W.S. (ft)	5784.79	Flow Area (sq ft)	599.48	406.65	
E.G. Slope (ft/ft)	0.006642	Area (sq ft)	599.48	406.65	
Q Total (cfs)	4740.00	Flow (cfs)	1183.30	3556.70	
Top Width (ft)	492.08	Top Width (ft)	412.47	79.61	
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)	1.97	8.75	
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)	1.45	5.11	
Conv. Total (cfs)	58161.0	Conv. (cfs)	14519.4	43641.6	
Length Wtd. (ft)	236.31	Wetted Per. (ft)	414.09	82.81	
Min Ch El (ft)	5778.86	Shear (lb/sq ft)	0.60	2.04	
Alpha	2.63	Stream Power (lb/ft s)	1.18	17.81	
Frctn Loss (ft)	1.46	Cum Volume (acre-ft)	12.33	72.14	5.29
C & E Loss (ft)	0.13	Cum SA (acres)	13.09	19.12	3.99

Plan: current RIVER-1 Reach-1 RS: 100277 Profile: PF 1

E.G. Elev (ft)	5784.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5783.88	Reach Len. (ft)	600.00	785.00	800.00
Crit W.S. (ft)	5782.76	Flow Area (sq ft)	180.61	794.65	0.30
E.G. Slope (ft/ft)	0.005789	Area (sq ft)	180.61	794.65	0.30
Q Total (cfs)	4740.00	Flow (cfs)	285.73	4454.10	0.17
Top Width (ft)	432.32	Top Width (ft)	150.09	281.20	1.03
Vel Total (ft/s)	4.86	Avg. Vel. (ft/s)	1.58	5.61	0.57
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)	1.20	2.83	0.29
Conv. Total (cfs)	62295.7	Conv. (cfs)	3755.2	58538.2	2.2
Length Wtd. (ft)	778.98	Wetted Per. (ft)	154.73	284.57	1.18
Min Ch El (ft)	5778.10	Shear (lb/sq ft)	0.42	1.01	0.09
Alpha	1.26	Stream Power (lb/ft s)	0.67	5.66	0.05
Frctn Loss (ft)	4.94	Cum Volume (acre-ft)	10.20	68.88	5.29
C & E Loss (ft)	0.08	Cum SA (acres)	11.55	18.14	3.98

Plan: current RIVER-1 Reach-1 RS: 99492 Profile: PF 1

E.G. Elev (ft)	5779.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.28	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5778.05	Reach Len. (ft)	420.00	520.00	570.00
Crit W.S. (ft)	5776.92	Flow Area (sq ft)	22.74	518.71	4.20
E.G. Slope (ft/ft)	0.006977	Area (sq ft)	22.74	518.71	4.20
Q Total (cfs)	4740.00	Flow (cfs)	22.92	4712.87	4.21
Top Width (ft)	151.46	Top Width (ft)	43.43	100.00	8.03
Vel Total (ft/s)	8.69	Avg. Vel. (ft/s)	1.01	9.09	1.00
Max Chl Dpth (ft)	9.65	Hydr. Depth (ft)	0.52	5.19	0.52
Conv. Total (cfs)	56748.6	Conv. (cfs)	274.4	56423.7	50.5
Length Wtd. (ft)	519.41	Wetted Per. (ft)	43.44	103.52	8.10
Min Ch El (ft)	5768.40	Shear (lb/sq ft)	0.23	2.18	0.23
Alpha	1.09	Stream Power (lb/ft s)	0.23	19.83	0.23
Frctn Loss (ft)	3.76	Cum Volume (acre-ft)	8.80	57.05	5.25
C & E Loss (ft)	0.00	Cum SA (acres)	10.22	14.70	3.90

Plan: current RIVER-1 Reach-1 RS: 98972 Profile: PF 1

E.G. Elev (ft)	5775.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.30	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5774.27	Reach Len. (ft)	444.00	444.00	444.00
Crit W.S. (ft)	5773.60	Flow Area (sq ft)	36.54	491.96	57.19
E.G. Slope (ft/ft)	0.007527	Area (sq ft)	36.54	491.96	57.19
Q Total (cfs)	4740.00	Flow (cfs)	79.47	4571.94	88.59
Top Width (ft)	183.28	Top Width (ft)	23.08	100.00	60.20
Vel Total (ft/s)	8.09	Avg. Vel. (ft/s)	2.18	9.29	1.55
Max Chl Dpth (ft)	5.67	Hydr. Depth (ft)	1.58	4.92	0.95
Conv. Total (cfs)	54634.9	Conv. (cfs)	916.0	52697.8	1021.1
Length Wtd. (ft)	444.00	Wetted Per. (ft)	23.30	100.47	60.69
Min Ch El (ft)	5768.60	Shear (lb/sq ft)	0.74	2.30	0.44
Alpha	1.27	Stream Power (lb/ft s)	1.60	21.38	0.69
Frctn Loss (ft)	2.19	Cum Volume (acre-ft)	8.51	51.02	4.85
C & E Loss (ft)	0.15	Cum SA (acres)	9.90	13.51	3.45

Plan: current RIVER-1 Reach-1 RS: 98528 Profile: PF 1

E.G. Elev (ft)	5772.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5772.44	Reach Len. (ft)	360.00	380.00	390.00
Crit W.S. (ft)		Flow Area (sq ft)	215.22	614.71	21.56
E.G. Slope (ft/ft)	0.003468	Area (sq ft)	215.22	614.71	21.56
Q Total (cfs)	4740.00	Flow (cfs)	212.38	4489.73	37.90
Top Width (ft)	377.89	Top Width (ft)	268.33	100.00	9.56
Vel Total (ft/s)	5.57	Avg. Vel. (ft/s)	0.99	7.30	1.76
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)	0.80	6.15	2.25
Conv. Total (cfs)	80487.8	Conv. (cfs)	3606.3	76238.0	643.5
Length Wtd. (ft)	379.59	Wetted Per. (ft)	276.23	100.77	10.59
Min Ch El (ft)	5765.60	Shear (lb/sq ft)	0.17	1.32	0.44
Alpha	1.63	Stream Power (lb/ft s)	0.17	9.65	0.78
Frctn Loss (ft)	2.38	Cum Volume (acre-ft)	7.23	45.38	4.45
C & E Loss (ft)	0.11	Cum SA (acres)	8.41	12.49	3.10

Plan: current RIVER-1 Reach-1 RS: 98148 Profile: PF 1

E.G. Elev (ft)	5770.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.85	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5768.88	Reach Len. (ft)	600.00	598.00	560.00
Crit W.S. (ft)	5768.88	Flow Area (sq ft)	5.75	433.35	0.92
E.G. Slope (ft/ft)	0.014673	Area (sq ft)	5.75	433.35	0.92
Q Total (cfs)	4740.00	Flow (cfs)	3.61	4735.12	1.26
Top Width (ft)	157.61	Top Width (ft)	43.47	112.70	1.44
Vel Total (ft/s)	10.77	Avg. Vel. (ft/s)	0.63	10.93	1.38
Max Chl Dpth (ft)	5.88	Hydr. Depth (ft)	0.13	3.85	0.64
Conv. Total (cfs)	39130.3	Conv. (cfs)	29.8	39090.0	10.4
Length Wtd. (ft)	597.93	Wetted Per. (ft)	44.12	114.53	1.92
Min Ch El (ft)	5763.00	Shear (lb/sq ft)	0.12	3.47	0.44
Alpha	1.03	Stream Power (lb/ft s)	0.08	37.87	0.60
Frctn Loss (ft)	3.09	Cum Volume (acre-ft)	6.31	40.80	4.35
C & E Loss (ft)	0.47	Cum SA (acres)	7.13	11.56	3.05

Plan: Proposed RIVER-1 Reach-1 RS: 101583 Profile: PF 1

E.G. Elev (ft)	5793.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5793.38	Reach Len. (ft)	520.00	696.00	730.00
Crit W.S. (ft)		Flow Area (sq ft)	10.57	604.81	276.51
E.G. Slope (ft/ft)	0.002362	Area (sq ft)	10.57	604.81	276.51
Q Total (cfs)	2880.00	Flow (cfs)	4.28	2654.96	220.76
Top Width (ft)	526.42	Top Width (ft)	35.10	158.00	333.32
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)	0.41	4.39	0.80
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)	0.30	3.83	0.83
Conv. Total (cfs)	59262.7	Conv. (cfs)	88.1	54632.0	4542.7
Length Wtd. (ft)	696.88	Wetted Per. (ft)	35.15	159.50	333.78
Min Ch El (ft)	5788.40	Shear (lb/sq ft)	0.04	0.56	0.12
Alpha	1.71	Stream Power (lb/ft s)	0.02	2.45	0.10
Frctn Loss (ft)	4.35	Cum Volume (acre-ft)	15.54	85.35	7.62
C & E Loss (ft)	0.15	Cum SA (acres)	15.28	22.55	6.79

Plan: Proposed RIVER-1 Reach-1 RS: 100887 Profile: PF 1

E.G. Elev (ft)	5789.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.73	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5787.43	Reach Len. (ft)	87.50	93.50	111.00
Crit W.S. (ft)	5787.43	Flow Area (sq ft)	0.46	448.96	0.31
E.G. Slope (ft/ft)	0.016230	Area (sq ft)	0.46	448.96	0.31
Q Total (cfs)	4740.00	Flow (cfs)	0.33	4739.36	0.31
Top Width (ft)	134.61	Top Width (ft)	2.84	131.10	0.68
Vel Total (ft/s)	10.54	Avg. Vel. (ft/s)	0.70	10.56	1.00
Max Chl Dpth (ft)	7.63	Hydr. Depth (ft)	0.16	3.42	0.46
Conv. Total (cfs)	37206.5	Conv. (cfs)	2.6	37201.5	2.5
Length Wtd. (ft)	93.35	Wetted Per. (ft)	2.86	134.77	1.15
Min Ch El (ft)	5779.80	Shear (lb/sq ft)	0.16	3.38	0.28
Alpha	1.00	Stream Power (lb/ft s)	0.12	35.63	0.28
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	15.48	76.93	5.30
C & E Loss (ft)	0.30	Cum SA (acres)	15.05	20.24	4.00

Plan: Proposed RIVER-1 Reach-1 RS: 100814 Profile: PF 1

E.G. Elev (ft)	5787.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5786.63	Reach Len. (ft)	82.00	94.50	72.00
Crit W.S. (ft)		Flow Area (sq ft)	178.05	638.11	0.30
E.G. Slope (ft/ft)	0.006119	Area (sq ft)	178.05	638.11	0.30
Q Total (cfs)	4740.00	Flow (cfs)	244.70	4495.12	0.18
Top Width (ft)	366.19	Top Width (ft)	198.29	167.15	0.75
Vel Total (ft/s)	5.81	Avg. Vel. (ft/s)	1.37	7.04	0.61
Max Chl Dpth (ft)	6.00	Hydr. Depth (ft)	0.90	3.82	0.40
Conv. Total (cfs)	60592.9	Conv. (cfs)	3128.0	57462.5	2.4
Length Wtd. (ft)	93.14	Wetted Per. (ft)	199.09	169.07	1.10
Min Ch El (ft)	5780.63	Shear (lb/sq ft)	0.34	1.44	0.10
Alpha	1.40	Stream Power (lb/ft s)	0.47	10.16	0.06
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	15.30	75.76	5.30
C & E Loss (ft)	0.05	Cum SA (acres)	14.85	19.92	3.99

Plan: Proposed RIVER-1 Reach-1 RS: 100705 Profile: PF 1

E.G. Elev (ft)	5786.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5786.32	Reach Len. (ft)	102.00	115.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)	452.37	609.43	2.57
E.G. Slope (ft/ft)	0.003776	Area (sq ft)	452.37	609.43	2.57
Q Total (cfs)	4740.00	Flow (cfs)	784.76	3952.77	2.46
Top Width (ft)	391.73	Top Width (ft)	262.92	126.00	2.80
Vel Total (ft/s)	4.45	Avg. Vel. (ft/s)	1.73	6.49	0.96
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)	1.72	4.84	0.92
Conv. Total (cfs)	77138.3	Conv. (cfs)	12771.2	64327.0	40.1
Length Wtd. (ft)	112.14	Wetted Per. (ft)	265.15	127.24	3.35
Min Ch El (ft)	5780.07	Shear (lb/sq ft)	0.40	1.13	0.18
Alpha	1.79	Stream Power (lb/ft s)	0.70	7.32	0.17
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	14.70	74.41	5.30
C & E Loss (ft)	0.00	Cum SA (acres)	14.42	19.60	3.99

Plan: Proposed RIVER-1 Reach-1 RS: 100590 Profile: PF 1

E.G. Elev (ft)	5786.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5785.85	Reach Len. (ft)	77.00	77.00	77.00
Crit W.S. (ft)		Flow Area (sq ft)	640.93	503.33	0.76
E.G. Slope (ft/ft)	0.004657	Area (sq ft)	640.93	503.33	0.76
Q Total (cfs)	4740.00	Flow (cfs)	1294.96	3444.49	0.55
Top Width (ft)	432.65	Top Width (ft)	319.06	112.26	1.33
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)	2.02	6.84	0.73
Max Chl Dpth (ft)	6.60	Hydr. Depth (ft)	2.01	4.48	0.57
Conv. Total (cfs)	69459.2	Conv. (cfs)	18976.1	50475.0	8.1
Length Wtd. (ft)	77.00	Wetted Per. (ft)	320.53	113.48	1.75
Min Ch El (ft)	5779.25	Shear (lb/sq ft)	0.58	1.29	0.13
Alpha	2.05	Stream Power (lb/ft s)	1.17	8.82	0.09
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	13.42	72.94	5.29
C & E Loss (ft)	0.04	Cum SA (acres)	13.74	19.29	3.99

Plan: Proposed RIVER-1 Reach-1 RS: 100513 Profile: PF 1

E.G. Elev (ft)	5785.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.080	0.040	
W.S. Elev (ft)	5785.03	Reach Len. (ft)	238.00	236.00	224.00
Crit W.S. (ft)	5784.79	Flow Area (sq ft)	599.48	406.65	
E.G. Slope (ft/ft)	0.006642	Area (sq ft)	599.48	406.65	
Q Total (cfs)	4740.00	Flow (cfs)	1183.30	3556.70	
Top Width (ft)	492.08	Top Width (ft)	412.47	79.61	
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)	1.97	8.75	
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)	1.45	5.11	
Conv. Total (cfs)	58161.0	Conv. (cfs)	14519.4	43641.6	
Length Wtd. (ft)	236.31	Wetted Per. (ft)	414.09	82.81	
Min Ch El (ft)	5778.86	Shear (lb/sq ft)	0.60	2.04	
Alpha	2.63	Stream Power (lb/ft s)	1.18	17.81	
Frctn Loss (ft)	1.46	Cum Volume (acre-ft)	12.33	72.14	5.29
C & E Loss (ft)	0.13	Cum SA (acres)	13.09	19.12	3.99

Plan: Proposed RIVER-1 Reach-1 RS: 100277 Profile: PF 1

E.G. Elev (ft)	5784.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5783.88	Reach Len. (ft)	600.00	785.00	800.00
Crit W.S. (ft)	5782.76	Flow Area (sq ft)	180.61	794.65	0.30
E.G. Slope (ft/ft)	0.005789	Area (sq ft)	180.61	794.65	0.30
Q Total (cfs)	4740.00	Flow (cfs)	285.73	4454.10	0.17
Top Width (ft)	432.32	Top Width (ft)	150.09	281.20	1.03
Vel Total (ft/s)	4.86	Avg. Vel. (ft/s)	1.58	5.61	0.57
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)	1.20	2.83	0.29
Conv. Total (cfs)	62295.7	Conv. (cfs)	3755.2	58538.2	2.2
Length Wtd. (ft)	778.98	Wetted Per. (ft)	154.73	284.57	1.18
Min Ch El (ft)	5778.10	Shear (lb/sq ft)	0.42	1.01	0.09
Alpha	1.26	Stream Power (lb/ft s)	0.67	5.66	0.05
Frctn Loss (ft)	4.94	Cum Volume (acre-ft)	10.20	68.88	5.29
C & E Loss (ft)	0.08	Cum SA (acres)	11.55	18.14	3.98

Plan: Proposed RIVER-1 Reach-1 RS: 99492 Profile: PF 1

E.G. Elev (ft)	5779.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.28	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5778.05	Reach Len. (ft)	420.00	520.00	570.00
Crit W.S. (ft)	5776.92	Flow Area (sq ft)	22.74	518.71	4.20
E.G. Slope (ft/ft)	0.006977	Area (sq ft)	22.74	518.71	4.20
Q Total (cfs)	4740.00	Flow (cfs)	22.92	4712.87	4.21
Top Width (ft)	151.46	Top Width (ft)	43.43	100.00	8.03
Vel Total (ft/s)	8.69	Avg. Vel. (ft/s)	1.01	9.09	1.00
Max Chl Dpth (ft)	9.65	Hydr. Depth (ft)	0.52	5.19	0.52
Conv. Total (cfs)	56748.6	Conv. (cfs)	274.4	56423.7	50.5
Length Wtd. (ft)	519.41	Wetted Per. (ft)	43.44	103.52	8.10
Min Ch El (ft)	5768.40	Shear (lb/sq ft)	0.23	2.18	0.23
Alpha	1.09	Stream Power (lb/ft s)	0.23	19.83	0.23
Frctn Loss (ft)	3.76	Cum Volume (acre-ft)	8.80	57.05	5.25
C & E Loss (ft)	0.00	Cum SA (acres)	10.22	14.70	3.90

Plan: Proposed RIVER-1 Reach-1 RS: 98972 Profile: PF 1

E.G. Elev (ft)	5775.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.30	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5774.27	Reach Len. (ft)	444.00	444.00	444.00
Crit W.S. (ft)	5773.60	Flow Area (sq ft)	36.54	491.96	57.19
E.G. Slope (ft/ft)	0.007527	Area (sq ft)	36.54	491.96	57.19
Q Total (cfs)	4740.00	Flow (cfs)	79.47	4571.94	88.59
Top Width (ft)	183.28	Top Width (ft)	23.08	100.00	60.20
Vel Total (ft/s)	8.09	Avg. Vel. (ft/s)	2.18	9.29	1.55
Max Chl Dpth (ft)	5.67	Hydr. Depth (ft)	1.58	4.92	0.95
Conv. Total (cfs)	54634.9	Conv. (cfs)	916.0	52697.8	1021.1
Length Wtd. (ft)	444.00	Wetted Per. (ft)	23.30	100.47	60.69
Min Ch El (ft)	5768.60	Shear (lb/sq ft)	0.74	2.30	0.44
Alpha	1.27	Stream Power (lb/ft s)	1.60	21.38	0.69
Frctn Loss (ft)	2.19	Cum Volume (acre-ft)	8.51	51.02	4.85
C & E Loss (ft)	0.15	Cum SA (acres)	9.90	13.51	3.45

Plan: Proposed RIVER-1 Reach-1 RS: 98528 Profile: PF 1

E.G. Elev (ft)	5772.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5772.44	Reach Len. (ft)	360.00	380.00	390.00
Crit W.S. (ft)		Flow Area (sq ft)	215.22	614.71	21.56
E.G. Slope (ft/ft)	0.003468	Area (sq ft)	215.22	614.71	21.56
Q Total (cfs)	4740.00	Flow (cfs)	212.38	4489.73	37.90
Top Width (ft)	377.89	Top Width (ft)	268.33	100.00	9.56
Vel Total (ft/s)	5.57	Avg. Vel. (ft/s)	0.99	7.30	1.76
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)	0.80	6.15	2.25
Conv. Total (cfs)	80487.8	Conv. (cfs)	3606.3	76238.0	643.5
Length Wtd. (ft)	379.59	Wetted Per. (ft)	276.23	100.77	10.59
Min Ch El (ft)	5765.60	Shear (lb/sq ft)	0.17	1.32	0.44
Alpha	1.63	Stream Power (lb/ft s)	0.17	9.65	0.78
Frctn Loss (ft)	2.38	Cum Volume (acre-ft)	7.23	45.38	4.45
C & E Loss (ft)	0.11	Cum SA (acres)	8.41	12.49	3.10

Plan: Proposed RIVER-1 Reach-1 RS: 98148 Profile: PF 1

E.G. Elev (ft)	5770.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.85	Wt. n-Val.	0.080	0.040	0.080
W.S. Elev (ft)	5768.88	Reach Len. (ft)	600.00	598.00	560.00
Crit W.S. (ft)	5768.88	Flow Area (sq ft)	5.75	433.35	0.92
E.G. Slope (ft/ft)	0.014673	Area (sq ft)	5.75	433.35	0.92
Q Total (cfs)	4740.00	Flow (cfs)	3.61	4735.12	1.26
Top Width (ft)	157.61	Top Width (ft)	43.47	112.70	1.44
Vel Total (ft/s)	10.77	Avg. Vel. (ft/s)	0.63	10.93	1.38
Max Chl Dpth (ft)	5.88	Hydr. Depth (ft)	0.13	3.85	0.64
Conv. Total (cfs)	39130.3	Conv. (cfs)	29.8	39090.0	10.4
Length Wtd. (ft)	597.93	Wetted Per. (ft)	44.12	114.53	1.92
Min Ch El (ft)	5763.00	Shear (lb/sq ft)	0.12	3.47	0.44
Alpha	1.03	Stream Power (lb/ft s)	0.08	37.87	0.60
Frctn Loss (ft)	3.09	Cum Volume (acre-ft)	6.31	40.80	4.35
C & E Loss (ft)	0.47	Cum SA (acres)	7.13	11.56	3.05

Appendix C
Cut and Fill Calculations

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
1	1541438.891	734287.0763	0.00	-0.83
2	1541437.139	734286.1205	0.00	-0.83
3	1541436.921	734284.9448	0.00	-1.48
4	1541436.644	734283.2281	0.00	-1.80
5	1541435.597	734282.6406	0.00	-1.89
6	1541435.373	734281.7628	0.00	-1.89
7	1541435.28	734281.7628	1.55	0.00
8	1541439.31	734283.3598	3.42	0.00
9	1541441.195	734284.3522	3.54	0.00
10	1541441.995	734284.3522	2.07	0.00
11	1541441.997	734286.0611	0.00	0.00
12	1541441.997	734286.0611	0.00	0.00
13	1541441.997	734286.0611	0.00	0.00
14	1541433.747	734286.9611	0.01	0.00
15	1541434.274	734283.3626	2.91	0.00
16	1541434.274	734283.3626	2.91	0.00
17	1541435.467	734281.7628	1.03	0.00
18	1541435.467	734281.7628	1.55	0.00
19	1541439.31	734283.3598	3.42	0.00
20	1541440.783	734280.3938	3.52	0.00
21	1541441.195	734282.4436	3.01	0.00
22	1541441.995	734283.2175	2.00	0.00
23	1541431.742	734288.7435	0.00	-1.31
24	1541431.742	734287.0072	0.12	0.00
25	1541432.105	734285.2668	1.56	0.00
26	1541432.307	734283.5229	2.87	0.00
27	1541432.637	734281.7162	3.14	0.00
28	1541434.467	734281.596	3.17	0.00
29	1541435.898	734280.4534	3.34	0.00
30	1541437.358	734278.9981	3.55	0.00
31	1541439.521	734278.1329	3.71	0.00
32	1541441.219	734279.1734	3.72	0.00
33	1541442.856	734280.7029	2.73	0.00
34	1541444.498	734281.5304	1.63	0.00
35	1541429.597	734288.7904	0.00	-1.08
36	1541429.743	734287.0543	0.22	0.00
37	1541430.103	734285.3135	1.81	0.00
38	1541430.304	734283.5765	2.83	0.00
39	1541430.687	734281.8282	3.10	0.00
40	1541431.846	734279.9558	3.39	0.00
41	1541433.815	734279.8945	3.41	0.00
42	1541435.217	734278.4672	3.63	0.00
43	1541436.305	734276.8759	3.85	0.00
44	1541438.042	734277.1104	3.80	0.00
45	1541439.646	734276.1175	3.91	0.00
46	1541441.401	734277.2338	3.89	0.00
47	1541443.118	734278.5636	2.74	0.00
48	1541444.884	734279.5964	1.57	0.00
49	1541427.596	734288.8373	0.00	-0.83
50	1541427.743	734287.1012	0.32	0.00
51	1541428.103	734285.3604	2.08	0.00
52	1541428.303	734283.6236	2.80	0.00
53	1541428.685	734281.8845	3.06	0.00
54	1541429.843	734280.1483	3.34	0.00
55	1541431.031	734278.2952	3.63	0.00
56	1541433.083	734277.8948	3.71	0.00
57	1541434.448	734276.3705	3.93	0.00
58	1541435.933	734274.8186	4.15	0.00
59	1541437.778	734275.2693	4.07	0.00
60	1541439.432	734274.1456	4.18	0.00
61	1541441.321	734275.2118	4.03	0.00
62	1541443.151	734276.5415	2.91	0.00
63	1541444.912	734277.5959	1.70	0.00
64	1541425.596	734288.8842	0.00	-0.60
65	1541425.744	734287.1481	0.42	0.00
66	1541426.103	734285.4073	2.37	0.00
67	1541426.303	734283.6706	2.75	0.00
68	1541426.683	734281.9326	3.02	0.00
69	1541427.81	734280.1982	3.30	0.00
70	1541429.198	734278.6051	3.56	0.00
71	1541429.403	734276.7436	3.84	0.00
72	1541431.4	734276.6107	3.88	0.00
73	1541432.67	734275.546	4.06	0.00
74	1541434.127	734274.2633	4.07	0.00
75	1541435.685	734272.8398	3.92	0.00
76	1541437.512	734273.3345	4.17	0.00
77	1541439.068	734272.2087	3.52	0.00
78	1541441.137	734273.0703	3.42	0.00
79	1541443.027	734274.5666	3.01	0.00
80	1541444.894	734275.5956	2.02	0.00
81	1541423.596	734288.9312	0.00	-0.36
82	1541423.745	734287.1949	0.49	0.00
83	1541424.103	734285.454	2.53	0.00
84	1541424.303	734283.7166	2.71	0.00
85	1541424.685	734281.9745	2.97	0.00
86	1541425.835	734280.2146	3.26	0.00
87	1541427.428	734278.4285	3.56	0.00
88	1541427.331	734276.6858	3.76	0.00
89	1541428.874	734274.6726	3.54	0.00
90	1541430.795	734274.919	3.83	0.00
91	1541432.305	734273.5289	3.75	0.00
92	1541433.872	734272.286	3.55	0.00
93	1541435.421	734270.8596	3.28	0.00
94	1541437.204	734271.3621	3.58	0.00
95	1541438.747	734270.2092	2.81	0.00
96	1541440.414	734271.169	2.86	0.00
97	1541442.138	734270.8772	2.20	0.00
98	1541442.932	734272.7638	2.79	0.00
99	1541444.795	734273.6036	1.92	0.00
100	1541421.596	734288.9781	0.00	-0.13
101	1541421.746	734287.2418	0.50	0.00
102	1541422.103	734285.5009	2.38	0.00
103	1541422.303	734283.7635	2.65	0.00
104	1541422.687	734282.0216	2.92	0.00
105	1541423.839	734280.2625	3.21	0.00
106	1541425.453	734278.489	3.51	0.00
107	1541425.279	734276.7691	3.42	0.00
108	1541426.758	734275.0225	3.31	0.00
109	1541427.421	734273.3475	3.04	0.00
110	1541428.774	734272.2634	2.90	0.00
111	1541430.48	734272.9691	3.39	0.00
112	1541432.05	734271.5619	3.08	0.00
113	1541433.659	734270.3011	2.91	0.00
114	1541435.278	734268.8761	2.66	0.00
115	1541436.983	734269.3684	2.86	0.00
116	1541438.64	734268.2302	2.06	0.00
117	1541440.385	734269.3379	2.12	0.00
118	1541441.988	734268.7168	1.67	0.00
119	1541443.732	734269.7531	1.36	0.00
120	1541444.197	734271.6943	1.97	0.00
121	1541419.595	734289.025	0.00	-0.13
122	1541419.746	734287.2887	0.45	0.00
123	1541420.102	734285.5477	1.57	0.00
124	1541420.303	734283.8102	2.01	0.00
125	1541420.687	734282.0683	2.25	0.00
126	1541421.841	734280.3092	2.76	0.00
127	1541423.454	734278.5401	3.26	0.00
128	1541423.278	734276.8125	2.98	0.00
129	1541424.758	734275.0463	2.98	0.00
130	1541425.603	734273.2582	2.74	0.00
131	1541426.905	734271.5611	2.40	0.00
132	1541428.521	734270.1692	2.10	0.00
133	1541430.274	734270.8929	2.60	0.00
134	1541431.91	734269.5706	2.43	0.00
135	1541433.586	734268.3098	2.27	0.00
136	1541435.34	734266.9002	2.12	0.00
137	1541436.982	734267.3473	2.07	0.00
138	1541438.733	734266.2396	1.64	0.00
139	1541440.34	734267.3605	1.66	0.00
140	1541442.063	734266.7058	1.43	0.00
141	1541443.534	734267.7815	0.89	0.00
142	1541417.595	734289.0719	0.00	-0.12
143	1541417.747	734287.3356	0.31	0.00
144	1541418.102	734285.5946	0.89	0.00
145	1541418.303	734283.8571	1.41	0.00
146	1541418.688	734282.115	1.59	0.00
147	1541419.843	734280.3557	2.00	0.00
148	1541421.456	734278.5863	2.60	0.00
149	1541421.28	734276.859	2.40	0.00
150	1541422.762	734275.0895	2.57	0.00
151	1541423.681	734273.3086	2.41	0.00
152	1541424.903	734271.2721	2.04	0.00
153	1541426.679	734269.6126	1.76	0.00
154	1541428.477	734268.1991	1.73	0.00
155	1541430.19	734268.8968	1.92	0.00
156	1541431.901	734267.579	1.79	0.00
157	1541433.666	734266.3435	1.71	0.00
158	1541435.355	734265.1007	1.64	0.00
159	1541437.102	734265.1521	1.63	0.00
160	1541439.1	734264.3143	1.61	0.00
161	1541440.582	734265.3954	1.62	0.00
162	1541442.444	734264.7972	1.03	0.00
163	1541443.922	734265.8187	0.48	0.00
164	1541415.595	734289.1188	0.00	-0.13
165	1541415.748	734287.3825	0.00	0.00
166	1541416.102	734285.6415	0.21	0.00
167	1541416.303	734283.9039	0.73	0.00
168	1541416.688	734282.1618	0.97	0.00
169	1541417.845	734280.4023	1.34	0.00
170	1541419.458	734278.6328	1.89	0.00
171	1541419.28	734276.9059	1.73	0.00
172	1541420.761	734275.1404	2.04	0.00
173	1541421.668	734273.3911	2.03	0.00
174	1541422.732	734271.6612	1.86	0.00
175	1541423.333	734269.985	1.79	0.00
176	1541424.754	734268.8037	1.76	0.00
177	1541426.778	734267.5812	1.73	0.00
178	1541428.599	734266.1972	1.70	0.00
179	1541430.244	734266.9058	1.70	0.00
180	1541432.071	734265.5849	1.67	0.00
181	1541433.97	734264.3719	1.64	0.00
182	1541435.906	734263.1101	0.97	0.00
183	1541437.747	734263.0781	1.34	0.00
184	1541439.788	734262.4454	1.06	0.00
185	1541441.125	734263.4693	1.59	0.00
186	1541442.868	734263.0092	1.01	0.00
187	1541444.309	734263.8558	0.21	0.00
188	1541413.595	734289.1658	0.00	-0.14
189	1541413.748	734287.4294	0.00	0.00
190	1541414.102	734285.6884	0.00	0.00
191	1541414.303	734283.9508	0.05	0.00
192	1541414.689	734282.2086	0.32	0.00
193	1541415.847	734280.449	0.73	0.00
194	1541417.46	734278.6795	1.20	0.00
195	1541417.282	734276.9523	1.03	0.00
196	1541418.764	734275.1861	1.41	0.00
197	1541419.67	734273.4341	1.54	0.00
198	1541420.712	734271.6819	1.76	0.00
199	1541421.454	734269.9359	1.80	0.00
200	1541422.488	734268.2228	1.76	0.00
201	1541423.671	734266.7442	1.73	0.00
202	1541425.334	734266.8179	1.73	0.00
203	1541426.974	734265.5386	1.69	0.00
204	1541428.869	734264.2115	1.66	0.00
205	1541430.453	734264.9334	1.67	0.00
206	1541432.407	734263.6061	1.35	0.00
207	1541434.188	734262.5899	0.00	-0.09
208	1541434.978	734260.9464	0.00	-1.37
209	1541436.716	734261.1327	0.00	-1.10
210	1541438.483	734261.2159	0.00	-0.75
211	1541440.406	734260.7476	0.00	-0.52
212	1541441.985	734261.4121	0.63	0.00
213	1541443.972	734261.5919	0.72	0.00
214	1541445.503	734262.3042	0.03	0.00
215	1541411.595	734289.2127	0.00	-0.15
216	1541411.749	734287.4763	0.00	-0.02
217	1541412.101	734285.7353	0.00	-0.31
218	1541412.303	734283.9977	0.00	-0.26
219	1541412.689	734282.2554	0.00	-0.20
220	1541413.849	734280.4957	0.00	-0.11
221	1541415.461	734278.7261	0.56	0.00
222	1541415.283	734276.9988	0.53	0.00
223	1541416.767	734275.2325	1.12	0.00
224	1541417.674	734273.4805	1.40	0.00
225	1541418.711	734271.7267	1.68	0.00
226	1541419.48	734269.98	1.81	0.00
227	1541420.58	734268.2055	1.77	0.00
228	1541421.775	734266.1919	1.73	0.00
229	1541423.395	734264.9552	1.70	0.00
230	1541425.223	734264.8294	1.69	0.00
231	1541427.228	734263.6053	1.47	0.00
232	1541429.265	734262.2549	0.00	-0.55
233	1541430.85	734262.9865	0.26	0.00
234	1541432.867	734261.4533	0.00	-1.16
235	1541433.771	734259.4439	0.00	-2.30
236	1541435.813	734259.1178	0.00	-2.36
237	1541437.581	734259.2972	0.00	-1.98
238	1541439.439	734259.4712	0.00	-1.47
239	1541441.612	734259.0678	0.00	-0.99
240	1541443.33	734259.7181	0.00	-0.16
241	1541445.241	734260.0925	0.62	0.00
242	1541446.865	734260.8391	0.39	0.00
243	1541409.594	734289.2596	0.00	-0.17
244	1541409.75	734287.5232	0.00	-0.03
245	1541410.101	734285.7822	0.00	-0.53
246	1541410.303	734284.0446	0.00	-0.66
247	1541410.689	734282.3022	0.00	-0.61
248	1541411.85	734280.5425	0.00	-0.45
249	1541413.463	734278.7727	0.00	-0.33
250	1541413.284	734277.0454	0.00	-0.42
251	1541414.769	734275.2789	0.34	0.00
252	1541415.677	734273.5269	0.70	0.00
253	1541416.712	734271.7732	1.12	0.00
254	1541417.479	734270.0294	1.43	0.00
255	1541418.588	734268.304	1.78	0.00
256	1541420.012	734266.6946	1.75	0.00
257	1541420.005	734264.8201	1.54	0.00
258	1541421.998	734264.0872	1.66	0.00
259	1541423.907	734263.1634	0.87	0.00
260	1541425.709	734262.7087	0.00	-0.21
261	1541427.715	734261.6241	0.00	-1.14
262	1541429.733	734260.1032	0.00	-1.98
263	1541431.072	734261.218	0.00	-1.34
264	1541431.919	734259.5495	0.00	-2.25
265	1541432.724	734257.4997	0.00	-3.37
266	1541434.659	734257.6743	0.00	-3.24
267	1541436.788	734257.1419	0.00	-3.29
268	1541438.59	734257.6013	0.00	-2.62
269	1541440.288	734257.8703	0.00	-1.99
270	1541441.575	734256.6066	0.00	-2.10
271	1541443.047	734257.4848	0.00	-1.20
272	1541444.672	734258.2097	0.00	-0.33
273	1541446.617	734258.659	0.53	0.00
274	1541448.275	734259.4211	0.82	0.00
275	1541407.594	734289.3065	0.00	-0.19
276	1541407.75	734287.5701	0.00	-0.04
277	1541408.1	734285.8292	0.00	-0.62
278	1541408.302	734284.0915	0.00	-0.92
279	1541408.689	734282.3491	0.00	-1.00
280	1541409.852	734280.5892	0.00	-0.81
281	1541411.464	734278.8194	0.00	-0.63
282	1541411.285	734277.092	0.00	-0.82
283	1541412.772	734275.3254	0.00	-0.24
284	1541413.68	734273.5731	0.00	0.00
285	1541414.714	734271.8186	0.33	0.00
286	1541415.482	734270.07	0.64	0.00
287	1541416.617	734268.314	1.09	0.00
288	1541418.296	734266.5522	1.76	0.00
289	1541418.041	734264.7765	1.73	0.00
290	1541418.977	734262.6441	1.44	0.00
291	1541420.669	734262.9826	1.39	0.00
292	1541422.396	734262.0659	0.00	-0.56
293	1541424.305	734261.2176	0.00	-1.43
294	1541426.17	734260.7799	0.00	-1.68
295	1541427.961	734259.622	0.00	-2.24
296	1541428.973	734257.8849	0.00	-3.12
297	1541430.702	734258.1501	0.00	-3.00
298	1541431.306	734256.3731	0.00	-3.96
299	1541432.354	734254.938	0.00	-4.76
300	1541433.856	734255.6646	0.00	-4.37
301	1541435.426	734255.995	0.00	-4.09
302	1541436.618	734254.6612	0.00	-4.63
303	1541438.137	734255.4273	0.00	-3.85
304	1541439.816	734255.9986	0.00	-3.00
305	1541441.125	734254.5158	0.00	-3.13
306	1541442.894	734255.1303	0.00	-2.17
307	1541444.418	734256.0121	0.00	-1.24
308	1541446.07	734256.7834	0.00	-0.34
309	1541448.044	734257.266	0.50	0.00
310	1541449.727	734258.0441	1.16	0.00
311	1541405.594	734289.3534	0.00	-0.20
312	1541405.751	734287.617	0.00	-0.05
313	1541406.1	734285.8761	0.00	-0.55
314	1541406.302	734284.1384	0.00	-1.06
315	1541406.689	734282.396	0.00	-1.31
316	1541407.853	734280.636	0.00	-1.21
317	1541409.465	734278.8662	0.00	-1.01
318	1541409.286	734277.1387	0.00	-1.12
319	1541410.774	734275.372	0.00	-0.68
320	1541411.683	734273.6195	0.00	-0.20
321	1541412.716	734271.8649	0.00	0.00
322	1541413.485	734270.116	0.00	0.00
323	1541414.623	734268.3583	0.31	0.00
324	1541416.338	734266.5871	0.99	0.00
325	1541416.025	734264.8998	0.19	0.00
326	1541417.259	734263.2621	1.70	0.00
327	1541417.149	734261.4172	1.16	0.00
328	1541419.24	734260.4974	0.00	-0.79
329	1541420.815	734261.1437	0.00	-0.90
330	1541422.815	734260.1473	0.00	-1.87
331	1541424.818	734259.2726	0.00	-2.42
332	1541426.48	734258.9341	0.00	-2.52
333	1541427.321	734257.3482	0.00	-3.25
334	1541428.141	734255.5662	0.00	-4.24
335	1541429.773	734256.0505	0.00	-4.10
336	1541430.738	734254.2692	0.00	-5.06
337	1541431.811	734252.613	0.00	-6.05
338	1541433.42	734253.2631	0.00	-5.69
339	1541434.983	734253.956	0.00	-5.24
340	1541436.202	734252.397	0.00	-5.88
341	1541437.835	734253.0986	0.00	-5.06
342	1541439.412	734253.8587	0.00	-4.13
343	1541440.767	734252.3959	0.00	-4.15
344	1541442.503	734253.0755	0.00	-3.07
345	1541444.299	734253.7182	0.00	-2.01
346	1541445.848	734254.6132	0.00	-1.07
347	1541447.511	734255.4038	0.00	-0.21
348	1541449.501	734255.9056	0.67	0.00
349	1541451.178	734256.6671	1.41	0.00
350	1541403.594	734289.4003	0.00	-0.21
351	1541403.751	734287.6639	0.00	-0.06
352	1541404.1	734285.923	0.00	-0.48
353	1541404.302	734284.1853	0.00	-1.24
354	1541404.689	734282.4429	0.00	-1.51
355	1541405.855	734280.6829	0.00	-1.59
356	1541407.467	734278.9129	0.00	-1.38

Node	X-Coordinate	Y-Coordinate	Fill	Cut
357	1541407.287	734277.1855	0.00	-1.44
358	1541406.683	734272.6807	0.00	-1.00
359	1541405.623	734268.0051	0.00	-0.56
360	1541404.219	734263.3585	0.00	-0.13
361	1541402.625	734258.8051	0.00	0.00
362	1541402.234	734254.2127	0.52	0.00
363	1541414.168	734251.1766	0.00	-0.07
364	1541416.109	734251.3796	2.11	0.00
365	1541417.816	734251.6751	0.00	-0.85
366	1541419.524	734251.9707	0.00	-1.77
367	1541421.231	734252.2662	0.00	-2.69
368	1541421.426	734250.2041	0.00	-2.13
369	1541421.621	734248.1421	0.00	-1.58
370	1541421.816	734246.0800	0.00	-1.02
371	1541422.011	734244.0180	0.00	-0.46
372	1541425.444	734257.1169	0.00	-3.39
373	1541425.847	734255.4867	0.00	-4.35
374	1541426.251	734253.8565	0.00	-5.31
375	1541426.654	734252.2263	0.00	-6.27
376	1541430.104	734252.0849	0.00	-6.34
377	1541430.554	734250.454	0.00	-6.88
378	1541431.005	734250.992	0.00	-6.98
379	1541431.456	734251.6572	0.00	-6.55
380	1541435.88	734250.1342	0.00	-6.76
381	1541437.5	734250.8835	0.00	-6.17
382	1541439.157	734251.608	0.00	-5.18
383	1541440.552	734250.1813	0.00	-5.09
384	1541442.182	734250.9894	0.00	-4.00
385	1541443.94	734251.6918	0.00	-2.88
386	1541445.758	734252.3561	0.00	-1.76
387	1541447.319	734253.2629	0.00	-0.77
388	1541448.996	734254.067	0.10	0.00
389	1541451.012	734254.5953	0.97	0.00
390	1541452.713	734255.3912	1.56	0.00
391	1541401.594	734289.4473	0.00	-0.22
392	1541401.752	734287.7108	0.00	-0.08
393	1541402.099	734285.9699	0.00	-0.40
394	1541402.301	734284.2322	0.00	-1.27
395	1541402.69	734282.4898	0.00	-1.65
396	1541403.856	734280.7297	0.00	-1.87
397	1541405.468	734278.9598	0.00	-1.73
398	1541405.288	734277.2323	0.00	-1.81
399	1541406.779	734275.4653	0.00	-1.56
400	1541407.688	734273.7126	0.00	-1.08
401	1541408.72	734271.9578	0.00	-0.56
402	1541409.488	734270.2087	0.00	-0.11
403	1541410.627	734268.4508	0.00	0.00
404	1541412.34	734266.68	0.00	0.00
405	1541412.056	734264.9562	0.51	0.00
406	1541413.567	734263.1927	1.72	0.00
407	1541413.187	734261.4849	2.22	0.00
408	1541414.44	734259.6617	0.68	0.00
409	1541414.919	734257.6518	0.00	-0.31
410	1541416.624	734257.0802	0.00	-1.51
411	1541418.132	734257.9611	0.00	-1.88
412	1541420.035	734256.5565	0.00	-3.13
413	1541421.807	734257.0885	0.00	-3.36
414	1541423.76	734256.5122	0.00	-3.75
415	1541424.707	734254.912	0.00	-4.56
416	1541425.564	734253.1329	0.00	-5.67
417	1541426.537	734251.3864	0.00	-6.81
418	1541428.359	734251.6691	0.00	-6.60
419	1541429.451	734249.9823	0.00	-6.73
420	1541430.63	734248.3927	0.00	-6.32
421	1541432.461	734248.8777	0.00	-6.45
422	1541434.223	734249.4386	0.00	-6.55
423	1541435.551	734247.9487	0.00	-6.04
424	1541437.23	734248.6659	0.00	-6.21
425	1541438.872	734249.4354	0.00	-6.17
426	1541440.3	734248.0426	0.00	-5.93
427	1541442.001	734248.8076	0.00	-4.85
428	1541443.647	734249.633	0.00	-3.73
429	1541445.423	734250.3561	0.00	-2.56
430	1541447.262	734251.0418	0.00	-1.42
431	1541448.837	734251.9629	0.00	-0.36
432	1541450.536	734252.7897	0.50	0.00
433	1541452.593	734253.3674	1.44	0.00
434	1541454.34	734254.2264	1.54	0.00
435	1541399.593	734289.4942	0.00	-0.23
436	1541399.753	734287.7577	0.00	-0.09
437	1541400.099	734286.0168	0.00	-0.33
438	1541400.301	734284.2791	0.00	-1.19
439	1541400.69	734282.5367	0.00	-1.82
440	1541401.858	734280.7766	0.00	-2.04
441	1541403.469	734279.0066	0.00	-2.04
442	1541403.289	734277.2791	0.00	-2.01
443	1541404.781	734275.512	0.00	-1.96
444	1541405.691	734273.7593	0.00	-1.52
445	1541406.722	734272.0044	0.00	-1.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
446	1541407.49	734270.2552	0.00	-0.55
447	1541408.628	734268.4972	0.00	-0.01
448	1541410.343	734266.7263	0.00	0.00
449	1541410.06	734265.0021	0.52	0.00
450	1541411.572	734263.239	1.55	0.00
451	1541411.193	734261.5223	2.40	0.00
452	1541412.569	734259.7886	2.63	0.00
453	1541413.436	734258.0492	0.47	0.00
454	1541413.757	734256.147	0.00	-0.25
455	1541415.321	734255.6505	0.00	-1.28
456	1541417.232	734255.1437	0.00	-2.64
457	1541418.452	734256.2153	0.00	-2.82
458	1541419.324	734254.5334	0.00	-4.14
459	1541421.039	734254.7944	0.00	-4.48
460	1541422.739	734255.0728	0.00	-4.50
461	1541423.591	734253.2552	0.00	-5.59
462	1541424.517	734251.4822	0.00	-6.78
463	1541425.528	734249.7685	0.00	-6.74
464	1541427.626	734249.679	0.00	-6.71
465	1541428.806	734247.8064	0.00	-6.24
466	1541430.255	734246.1892	0.00	-5.79
467	1541431.921	734246.8622	0.00	-5.91
468	1541433.764	734247.3631	0.00	-5.95
469	1541435.129	734245.906	0.00	-5.41
470	1541436.941	734246.516	0.00	-5.49
471	1541438.639	734247.2543	0.00	-5.68
472	1541440.098	734245.8924	0.00	-5.20
473	1541441.775	734246.6979	0.00	-5.47
474	1541443.493	734247.4808	0.00	-4.48
475	1541445.154	734248.3234	0.00	-3.33
476	1541446.95	734249.0685	0.00	-2.11
477	1541448.811	734249.7784	0.00	-0.93
478	1541450.401	734250.7184	0.10	0.00
479	1541452.124	734251.5746	1.00	0.00
480	1541454.208	734252.192	2.19	0.00
481	1541455.967	734253.0617	1.31	0.00
482	1541397.593	734289.5411	0.00	-0.25
483	1541397.753	734287.8046	0.00	-0.10
484	1541398.098	734286.0638	0.00	-0.25
485	1541398.301	734284.326	0.00	-1.12
486	1541398.69	734282.5836	0.00	-1.95
487	1541399.859	734280.8234	0.00	-2.09
488	1541401.47	734279.0534	0.00	-2.05
489	1541401.29	734277.3259	0.00	-2.02
490	1541402.783	734275.5588	0.00	-1.99
491	1541403.693	734273.806	0.00	-1.95
492	1541404.724	734272.051	0.00	-1.44
493	1541405.491	734270.3018	0.00	-0.98
494	1541406.63	734268.5437	0.00	-0.45
495	1541408.345	734266.7725	0.04	0.00
496	1541408.065	734265.0482	0.72	0.00
497	1541409.579	734263.2841	1.61	0.00
498	1541409.199	734261.5659	2.19	0.00
499	1541410.58	734259.8161	2.84	0.00
500	1541411.622	734258.1321	1.37	0.00
501	1541412.495	734256.7162	0.50	0.00
502	1541412.524	734255.4083	0.26	0.00
503	1541413.912	734254.2184	0.00	-0.69
504	1541415.923	734253.781	0.00	-2.27
505	1541417.976	734253.3162	0.00	-4.33
506	1541420.066	734252.4789	0.00	-5.66
507	1541421.819	734252.9562	0.00	-5.66
508	1541422.737	734251.193	0.00	-6.80
509	1541423.721	734249.4608	0.00	-6.76
510	1541424.789	734247.7796	0.00	-6.35
511	1541426.63	734248.1347	0.00	-6.38
512	1541427.521	734246.535	0.00	-5.98
513	1541428.801	734245.2871	0.00	-5.62
514	1541430.082	734243.7775	0.00	-5.20
515	1541431.583	734244.6657	0.00	-5.29
516	1541433.257	734245.379	0.00	-5.38
517	1541434.651	734243.9491	0.00	-5.20
518	1541436.548	734244.501	0.00	-5.20
519	1541438.382	734245.1343	0.00	-5.20
520	1541439.866	734243.7982	0.00	-5.20
521	1541441.597	734244.5751	0.00	-5.20
522	1541443.29	734245.3977	0.00	-5.20
523	1541445.025	734246.1985	0.00	-3.93
524	1541446.701	734247.0591	0.00	-2.74
525	1541448.514	734247.8264	0.00	-1.50
526	1541450.394	734248.5585	0.00	-0.21
527	1541451.999	734249.5159	0.75	0.00
528	1541453.734	734250.3915	1.58	0.00
529	1541455.824	734251.0138	2.38	0.00
530	1541457.594	734251.897	1.23	0.00
531	1541395.593	734289.588	0.00	-0.33
532	1541395.754	734287.8515	0.00	-0.11
533	1541396.098	734286.1107	0.00	-0.18
534	1541396.3	734284.373	0.00	-1.04

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
535	1541396.69	734282.6305	0.00	-1.91
536	1541397.861	734280.8703	0.00	-2.10
537	1541399.471	734279.1003	0.00	-2.06
538	1541399.291	734277.3728	0.00	-2.03
539	1541400.785	734275.6056	0.00	-2.00
540	1541401.696	734273.8528	0.00	-1.96
541	1541402.725	734272.0978	0.00	-1.88
542	1541403.493	734270.3485	0.00	-1.43
543	1541404.631	734268.5902	0.00	-0.89
544	1541406.347	734266.8189	0.00	-0.22
545	1541406.07	734265.0945	0.19	0.00
546	1541407.584	734263.33	0.68	0.00
547	1541407.206	734261.6101	1.08	0.00
548	1541408.593	734259.8498	1.36	0.00
549	1541409.689	734258.0984	2.11	0.00
550	1541410.936	734256.3715	1.21	0.00
551	1541411.894	734254.398	0.62	0.00
552	1541412.705	734252.7005	0.04	0.00
553	1541414.663	734252.3219	0.00	-1.65
554	1541416.664	734251.9467	0.00	-4.22
555	1541418.499	734251.5882	0.00	-5.74
556	1541419.498	734250.0707	0.00	-6.54
557	1541421.129	734250.6034	0.00	-6.73
558	1541422.108	734248.8384	0.00	-6.81
559	1541423.165	734247.1422	0.00	-6.38
560	1541424.288	734245.4968	0.00	-5.95
561	1541425.91	734246.1405	0.00	-5.95
562	1541427.146	734244.542	0.00	-5.56
563	1541428.438	734243.0474	0.00	-5.20
564	1541429.779	734241.5732	0.00	-4.79
565	1541431.438	734242.3191	0.00	-5.20
566	1541432.962	734243.2134	0.00	-5.20
567	1541434.386	734241.8142	0.00	-5.20
568	1541436.093	734242.567	0.00	-5.20
569	1541438.012	734243.1429	0.00	-5.20
570	1541439.515	734241.8275	0.00	-5.20
571	1541441.387	734242.5037	0.00	-5.20
572	1541443.132	734243.2987	0.00	-5.20
573	1541444.839	734244.1379	0.00	-4.94
574	1541446.589	734244.955	0.00	-3.30
575	1541448.277	734245.8314	0.00	-1.93
576	1541450.102	734246.6148	0.00	-0.56
577	1541451.992	734247.3582	0.65	0.00
578	1541453.6	734248.3216	1.48	0.00
579	1541455.331	734249.1937	2.14	0.00
580	1541457.398	734249.7928	2.37	0.00
581	1541459.137	734250.6291	1.55	0.00
582	1541393.593	734289.6349	0.00	-0.48
583	1541393.754	734287.8984	0.00	-0.12
584	1541394.097	734286.1576	0.00	-0.11
585	1541394.3	734284.4199	0.00	-0.97
586	1541394.69	734282.6774	0.00	-1.84
587	1541395.862	734280.9172	0.00	-2.11
588	1541397.472	734279.1472	0.00	-2.07
589	1541397.292	734277.4197	0.00	-2.05
590	1541398.787	734275.6524	0.00	-2.01
591	1541399.698	734273.8996	0.00	-1.97
592	1541400.727	734272.1445	0.00	-1.80
593	1541401.494	734270.3952	0.00	-1.24
594	1541402.633	734268.6369	0.00	-0.73
595	1541404.349	734266.8654	0.00	-0.28
596	1541404.074	734265.1408	0.35	0.00
597	1541405.59	734263.3759	0.74	0.00
598	1541405.211	734261.6565	1.28	0.00
599	1541406.595	734259.8968	1.60	0.00
600	1541407.69	734258.1499	1.85	0.00
601	1541408.928	734256.4443	1.99	0.00
602	1541410.302	734255.1501	1.54	0.00
603	1541410.375	734254.1122	1.53	0.00
604	1541410.91	734252.8298	1.29	0.00
605	1541411.41	734251.1279	0.65	0.00
606	1541413.414	734250.8544	0.00	-1.10
607	1541415.453	734250.4833	0.00	-3.97
608	1541417.509	734250.1097	0.00	-5.92
609	1541418.452	734248.3576	0.00	-6.52
610	1541420.434	734248.327	0.00	-6.91
611	1541421.467	734246.6227	0.00	-6.45
612	1541422.578	734244.9652	0.00	-6.00
613	1541423.759	734243.3566	0.00	-5.56
614	1541425.493	734243.9017	0.00	-5.53
615	1541426.76	734242.3578	0.00	-5.09
616	1541428.086	734240.8768	0.00	-3.98
617	1541429.462	734239.4338	0.00	-2.91
618	1541431.173	734240.1479	0.00	-3.74
619	1541432.849	734240.9094	0.00	-4.60
620	1541434.303	734239.5438	0.00	-3.64
621	1541435.853	734240.4591	0.00	-4.75
622	1541437.576	734241.2288	0.00	-5.20
623	1541439.094	734239.9301	0.00	-5.20

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
624	1541441.051	734240.5501	0.00	-5.20
625	1541442.938	734241.2454	0.00	-5.20
626	1541444.695	734242.0563	0.00	-5.20
627	1541446.412	734242.9086	0.00	-4.35
628	1541448.172	734243.737	0.00	-2.67
629	1541449.866	734244.6219	0.00	-1.01
630	1541451.693	734245.4095	0.55	0.00
631	1541453.582	734246.1492	1.52	0.00
632	1541455.184	734247.1047	2.12	0.00
633	1541456.897	734247.9575	3.45	0.00
634	1541458.936	734248.5205	2.73	0.00
635	1541460.621	734249.2866	1.96	0.00
636	1541391.592	734289.6819	0.00	-0.64
637	1541391.755	734287.9453	0.00	-0.22
638	1541392.097	734286.2045	0.00	-0.03
639	1541392.3	734284.4668	0.00	-0.90
640	1541392.69	734282.7243	0.00	-1.77
641	1541393.863	734280.9641	0.00	-2.12
642	1541395.473	734279.1941	0.00	-2.09
643	1541395.292	734277.4666	0.00	-2.06
644	1541396.789	734275.6993	0.00	-1.97
645	1541397.701	734273.9464	0.00	-1.63
646	1541398.729	734272.1914	0.00	-1.48
647	1541399.496	734270.442	0.00	-1.05
648	1541400.634	734268.6837	0.00	-0.55
649	1541402.351	734266.9121	0.00	-0.10
650	1541402.079	734265.1874	0.59	0.00
651	1541403.596	734263.4223	1.01	0.00
652	1541403.216	734261.7026	1.67	0.00
653	1541404.6	734259.9414	1.86	0.00
654	1541405.698	734258.1856	2.15	0.00
655	1541406.985	734256.4218	2.30	0.00
656	1541408.541	734254.7007	2.36	0.00
657	1541409.376	734253.0994	2.34	0.00
658	1541409.304	734251.3457	2.42	0.00
659	1541410.186	734249.5325	1.75	0.00
660	1541412.212	734249.3168	0.00	-0.18
661	1541414.242	734249.0378	0.00	-2.37
662	1541416.328	734248.6799	0.00	-5.36
663	1541417.284	734246.9285	0.00	-5.70
664	1541419.448	734246.628	0.00	-6.71
665	1541420.521	734244.9432	0.00	-6.22
666	1541421.663	734243.3049	0.00	-5.69
667	1541422.871	734241.7138	0.00	-4.10
668	1541425.005	734241.7971	0.00	-4.39
669	1541426.309	734240.2863	0.00	-3.25
670	1541427.667	734238.8225	0.00	-2.16
671	1541429.071	734237.4034	0.00	-1.11
672	1541430.884	734238.0355	0.00	-1.89
673	1541432.611	734238.7668	0.00	-2.73
674	1541434.087	734237.4269	0.00	-1.80
675	1541435.794	734238.2185	0.00	-2.90
676	1541437.356	734239.1443	0.00	-4.16
677	1541438.891	734237.8651	0.00	-3.86
678	1541440.641	734238.6658	0.00	-5.20
679	1541442.613	734239.304	0.00	-5.20
680	1541444.511	734240.0139	0.00	-5.20
681	1541446.275	734240.8357	0.00	-5.20
682	1541447.998	734241.6949	0.00	-3.57
683	1541449.762	734242.5267	0.00	-1.89
684	1541451.455	734243.4118	0.18	0.00
685	1541453.278	734244.195	1.62	0.00
686	1541455.162	734244.9271	2.54	0.00
687	1541456.76	734245.8748	3.27	0.00
688	1541458.466	734246.7203	3.79	0.00
689	1541460.567	734247.2934	2.92	0.00
690	1541462.286	734248.1782	1.75	0.00
691	1541389.592	734289.7288	0.00	-0.80
692	1541389.756	734287.9922	0.00	-0.38
693	1541390.097	734286.2515	0.00	0.00
694	1541390.3	734284.5138	0.00	-0.82
695	1541390.69	734282.7713	0.00	-1.69
696	1541391.865	734281.011	0.00	-2.13
697	1541393.474	734279.241	0.00	-2.10
698	1541393.293	734277.5136	0.00	-1.73
699	1541394.791	734275.7462	0.00	-1.48
700	1541395.703	734273.9933	0.00	-1.15
701	1541396.73	734272.2383	0.00	-0.92
702	1541397.497	734270.4889	0.00	-0.73
703	1541398.635	734268.7305	0.00	-0.35
704	1541400.353	734266.9588	0.11	0.00
705	1541400.083	734265.234	0.90	0.00
706	1541401.601	734263.4688	1.32	0.00
707	1541401.221	734261.7492	2.04	0.00
708	1541402.603	734259.9879	2.27	0.00
709	1541403.701	734258.2324	2.51	0.00
710	1541404.993	734256.4709	2.62	0.00
711	1541406.507	734254.707	2.66	0.00
712	1541407.741	734252.9507	2.70	0.00

Appendix C

Appendix C

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
713	1541407.164	734251.2456	2.98	0.00
714	1541469.028	734247.9157	2.50	0.00
715	1541469.028	734247.9157	2.50	0.00
716	1541469.149	734247.2438	2.50	0.00
717	1541425.975	734247.3381	2.00	0.00
718	1541415.147	734247.2438	1.00	0.00
719	1541424.224	734247.2438	0.00	0.00
720	1541415.262	734241.221	0.00	-0.47
721	1541415.262	734241.8311	0.00	0.00
722	1541419.262	734241.9311	0.00	-0.02
723	1541424.138	734241.9311	0.00	0.00
724	1541424.138	734240.1709	0.00	-1.88
725	1541426.832	734239.7208	0.00	-1.68
726	1541426.832	734237.2208	0.00	-0.68
727	1541434.224	734237.2208	0.00	0.00
728	1541430.516	734236.026	0.00	-0.11
729	1541432.946	734236.4772	0.00	-0.90
730	1541438.262	734236.4772	0.00	0.00
731	1541438.262	734236.4772	0.00	-1.15
732	1541437.317	734236.9293	0.00	-2.46
733	1541437.317	734235.6708	0.00	-2.36
734	1541437.317	734236.6154	0.00	-3.88
735	1541437.42	734237.428	0.00	-5.20
736	1541444.191	734238.079	0.00	-5.20
737	1541446.095	734238.7975	0.00	-5.20
738	1541447.862	734239.6244	0.00	-4.34
739	1541449.586	734240.4851	0.00	-2.66
740	1541451.35	734241.3159	0.00	-0.98
741	1541453.042	734242.1994	1.33	0.00
742	1541454.866	734242.9831	2.65	0.00
743	1541456.756	734243.7216	3.89	0.00
744	1541458.361	734244.6769	4.50	0.00
745	1541460.082	734245.5746	3.62	0.00
746	1541462.339	734245.9862	1.64	0.00
747	1541463.98	734247.1164	0.87	0.00
748	1541387.592	734289.7757	0.00	-0.87
749	1541387.756	734288.0391	0.00	-0.43
750	1541388.096	734286.2984	0.00	-0.01
751	1541388.299	734284.5607	0.00	-0.75
752	1541388.69	734282.8182	0.00	-1.62
753	1541389.866	734281.0579	0.00	-1.77
754	1541391.475	734279.288	0.00	-1.83
755	1541391.294	734277.5605	0.00	-1.24
756	1541392.794	734275.7931	0.00	-1.01
757	1541393.706	734274.0402	0.00	-0.63
758	1541394.732	734272.2852	0.00	-0.36
759	1541395.499	734270.5358	0.00	-0.17
760	1541396.637	734268.7774	0.00	-0.05
761	1541398.355	734267.0056	0.44	0.00
762	1541398.087	734265.2808	1.33	0.00
763	1541399.607	734263.5154	1.71	0.00
764	1541399.226	734261.7958	2.51	0.00
765	1541400.606	734260.0344	2.61	0.00
766	1541401.703	734258.2787	2.73	0.00
767	1541402.995	734256.517	2.83	0.00
768	1541404.5	734254.7506	2.89	0.00
769	1541405.79	734252.9867	2.96	0.00
770	1541405.148	734251.2702	3.24	0.00
771	1541406.114	734249.5329	3.32	0.00
772	1541406.979	734247.8655	3.42	0.00
773	1541407.858	734246.2514	3.29	0.00
774	1541409.905	734246.1631	1.91	0.00
775	1541411.942	734245.9555	0.29	0.00
776	1541414.009	734245.748	0.00	-1.55
777	1541415.013	734244.0174	0.00	-2.46
778	1541417.171	734243.804	0.00	-4.29
779	1541418.284	734242.142	0.00	-3.46
780	1541419.459	734240.5237	0.00	-2.28
781	1541420.694	734238.9496	0.00	-1.29
782	1541423.062	734238.7923	0.00	-1.55
783	1541424.393	734237.3005	0.00	-0.44
784	1541425.772	734235.8515	0.63	0.00
785	1541427.197	734234.4398	1.67	0.00
786	1541429.704	734234.4417	1.35	0.00
787	1541431.995	734234.6815	0.86	0.00
788	1541433.505	734233.3842	1.71	0.00
789	1541435.367	734234.0727	0.56	0.00
790	1541437.133	734234.8522	0.00	-0.87
791	1541438.691	734233.6078	0.00	-1.00
792	1541440.432	734234.436	0.00	-2.62
793	1541442.024	734235.3868	0.00	-4.21
794	1541443.791	734236.2073	0.00	-5.20
795	1541445.778	734236.8657	0.00	-5.20
796	1541447.685	734237.5886	0.00	-5.00
797	1541449.453	734238.4185	0.00	-3.29
798	1541451.179	734239.2808	0.00	-1.64
799	1541452.947	734240.1146	1.26	0.00
800	1541454.644	734241.0044	2.95	0.00
801	1541456.478	734241.8037	3.83	0.00
802	1541458.382	734242.5646	4.66	0.00
803	1541459.99	734243.5353	3.21	0.00
804	1541461.478	734244.4052	1.76	0.00
805	1541463.135	734243.6885	1.13	0.00
806	1541464.282	734244.9932	1.07	0.00
807	1541465.73	734246.1457	0.00	0.00
808	1541385.592	734289.8226	0.00	-0.90
809	1541385.757	734288.086	0.00	-0.47
810	1541386.096	734286.3453	0.00	-0.03
811	1541386.299	734284.6076	0.00	-0.67
812	1541386.69	734282.8652	0.00	-1.41
813	1541387.868	734281.1049	0.00	-1.18
814	1541389.477	734279.3349	0.00	-1.24
815	1541389.295	734277.6075	0.00	-0.71
816	1541390.796	734275.8401	0.00	-0.54
817	1541391.708	734274.0872	0.00	-0.14
818	1541392.734	734272.3322	0.22	0.00
819	1541393.5	734270.5828	0.61	0.00
820	1541394.638	734268.8243	0.76	0.00
821	1541396.357	734267.0525	0.95	0.00
822	1541396.092	734265.3276	1.97	0.00
823	1541397.613	734263.5621	2.29	0.00
824	1541397.231	734261.8425	2.74	0.00
825	1541398.609	734260.0811	2.82	0.00
826	1541399.705	734258.3254	2.94	0.00
827	1541400.996	734256.5637	3.03	0.00
828	1541402.498	734254.7964	3.11	0.00
829	1541403.798	734253.0325	3.20	0.00
830	1541403.146	734251.3149	3.49	0.00
831	1541404.118	734249.5607	3.57	0.00
832	1541404.925	734247.8296	3.69	0.00
833	1541405.615	734246.2045	3.81	0.00
834	1541406.617	734244.768	3.49	0.00
835	1541408.804	734244.5545	2.86	0.00
836	1541410.834	734244.3865	1.09	0.00
837	1541412.907	734244.2042	0.00	-0.20
838	1541413.936	734242.4898	0.00	-0.57
839	1541416.083	734242.3273	0.00	-2.18
840	1541417.215	734240.6781	0.00	-1.52
841	1541418.407	734239.072	0.00	-0.64
842	1541419.654	734237.5082	0.16	0.00
843	1541421.982	734237.4196	0.00	-0.22
844	1541423.32	734235.933	0.87	0.00
845	1541424.704	734234.4887	1.74	0.00
846	1541426.125	734233.0865	2.34	0.00
847	1541428.702	734233.0498	2.28	0.00
848	1541431.158	734233.0795	2.20	0.00
849	1541432.678	734231.8118	2.68	0.00
850	1541435.044	734232.1114	1.93	0.00
851	1541436.916	734232.8126	0.63	0.00
852	1541438.481	734231.5792	0.14	0.00
853	1541440.264	734232.3826	0.00	-1.51
854	1541442.012	734233.2179	0.00	-3.20
855	1541443.61	734234.1723	0.00	-4.80
856	1541445.381	734234.9974	0.00	-5.20
857	1541447.372	734235.6614	0.00	-5.49
858	1541449.283	734236.3902	0.00	-4.52
859	1541451.055	734237.227	0.00	-4.12
860	1541452.788	734238.0979	0.00	-3.10
861	1541454.568	734238.945	0.00	-1.44
862	1541456.277	734239.8535	2.26	0.00
863	1541458.132	734240.6829	4.13	0.00
864	1541460.068	734241.4815	1.83	0.00
865	1541461.716	734242.4746	1.11	0.00
866	1541463.462	734241.5324	1.09	0.00
867	1541464.873	734242.7348	1.10	0.00
868	1541466.065	734244.0447	0.36	0.00
869	1541467.502	734245.2193	0.02	0.00
870	1541383.592	734289.8695	0.00	-0.93
871	1541383.758	734288.1329	0.00	-0.50
872	1541384.096	734286.3923	0.00	-0.06
873	1541384.299	734284.6546	0.00	-0.60
874	1541384.691	734282.9122	0.00	-0.83
875	1541385.869	734281.1518	0.00	-0.59
876	1541387.478	734279.3819	0.00	-0.65
877	1541387.296	734277.6545	0.00	-0.16
878	1541388.798	734275.8871	0.00	-0.04
879	1541389.711	734274.1342	0.32	0.00
880	1541390.735	734272.3792	0.69	0.00
881	1541391.501	734270.6298	1.20	0.00
882	1541392.639	734268.8713	1.54	0.00
883	1541394.359	734267.0994	1.71	0.00
884	1541394.096	734265.3745	2.60	0.00
885	1541395.618	734263.6089	2.68	0.00
886	1541395.236	734261.8894	2.96	0.00
887	1541396.612	734260.1279	3.04	0.00
888	1541397.706	734258.3721	3.15	0.00
889	1541398.996	734256.6104	3.24	0.00
890	1541400.497	734254.8429	3.32	0.00
891	1541401.799	734253.0791	3.42	0.00
892	1541401.146	734251.3611	3.72	0.00
893	1541402.121	734249.6056	3.84	0.00
894	1541402.931	734247.8561	3.96	0.00
895	1541403.503	734246.1235	4.11	0.00
896	1541404.37	734244.5153	4.09	0.00
897	1541405.504	734243.1873	3.65	0.00
898	1541407.606	734243.143	3.05	0.00
899	1541409.754	734242.7967	1.94	0.00
900	1541411.823	734242.6529	0.80	0.00
901	1541412.876	734240.9533	0.77	0.00
902	1541415.028	734240.8146	0.00	-0.32
903	1541416.177	734239.1775	0.33	0.00
904	1541417.383	734237.5858	0.94	0.00
905	1541418.642	734236.0347	1.41	0.00
906	1541420.953	734235.9873	1.16	0.00
907	1541422.3	734234.5079	1.81	0.00
908	1541423.69	734233.0691	2.41	0.00
909	1541425.118	734231.6689	2.98	0.00
910	1541427.59	734231.7465	2.89	0.00
911	1541430.185	734231.4354	2.98	0.00
912	1541431.988	734230.1942	3.47	0.00
913	1541434.326	734230.5419	2.78	0.00
914	1541436.597	734230.8402	1.40	0.00
915	1541438.15	734229.6231	0.36	0.00
916	1541440.058	734230.3615	0.00	-0.92
917	1541441.849	734231.1722	0.00	-2.37
918	1541443.602	734232.0128	0.00	-4.05
919	1541445.205	734232.9696	0.00	-5.58
920	1541446.981	734233.7998	0.00	-6.06
921	1541448.978	734234.4734	0.00	-5.92
922	1541450.898	734235.2149	0.00	-5.04
923	1541452.68	734236.0669	0.00	-3.45
924	1541454.427	734236.9561	0.00	-1.85
925	1541456.224	734237.8276	0.00	-0.20
926	1541457.952	734238.7642	3.54	0.00
927	1541459.83	734239.6321	3.05	0.00
928	1541461.797	734240.4724	2.29	0.00
929	1541463.566	734239.5513	2.05	0.00
930	1541465.248	734240.6414	1.40	0.00
931	1541466.671	734241.8745	0.80	0.00
932	1541467.88	734243.2016	0.35	0.00
933	1541469.332	734244.4097	0.08	0.00
934	1541381.591	734289.9165	0.00	-0.96
935	1541381.758	734288.1798	0.00	-0.53
936	1541382.095	734286.4392	0.00	-0.10
937	1541382.299	734284.7016	0.00	-0.52
938	1541382.691	734282.9591	0.00	-0.25
939	1541383.871	734281.1988	0.00	0.00
940	1541385.479	734279.4289	0.00	-0.04
941	1541385.297	734277.7016	0.53	0.00
942	1541386.8	734275.9341	0.56	0.00
943	1541387.714	734274.1812	0.87	0.00
944	1541388.737	734272.4263	1.13	0.00
945	1541389.503	734270.6769	1.55	0.00
946	1541390.641	734268.9184	2.06	0.00
947	1541392.36	734267.1464	2.45	0.00
948	1541392.101	734265.4215	2.83	0.00
949	1541393.624	734263.6558	2.91	0.00
950	1541393.241	734261.9363	3.19	0.00
951	1541394.615	734260.1749	3.27	0.00
952	1541395.708	734258.419	3.37	0.00
953	1541396.996	734256.6572	3.46	0.00
954	1541398.496	734254.8897	3.53	0.00
955	1541399.799	734253.1258	3.62	0.00
956	1541399.146	734251.4077	3.95	0.00
957	1541400.123	734249.6521	4.08	0.00
958	1541400.935	734247.9013	4.22	0.00
959	1541401.502	734246.1561	4.37	0.00
960	1541402.328	734244.4001	4.49	0.00
961	1541403.156	734242.6684	4.26	0.00
962	1541404.686	734241.6447	3.73	0.00
963	1541406.546	734241.533	3.18	0.00
964	1541408.585	734241.3931	2.60	0.00
965	1541410.771	734241.077	1.70	0.00
966	1541411.846	734239.3894	1.80	0.00
967	1541413.988	734239.2925	1.09	0.00
968	1541415.139	734237.6539	1.67	0.00
969	1541416.351	734236.0873	1.86	0.00
970	1541417.65	734234.5504	2.18	0.00
971	1541419.956	734234.5233	1.89	0.00
972	1541421.31	734233.0525	2.53	0.00
973	1541422.706	734231.6206	3.10	0.00
974	1541424.139	734230.2259	3.71	0.00
975	1541426.583	734230.3069	3.57	0.00
976	1541428.653	734230.4053	3.48	0.00
977	1541430.293	734229.3697	4.17	0.00
978	1541432.086	734228.0625	4.23	0.00
979	1541433.545	734229.1662	3.37	0.00
980	1541435.895	734229.046	1.95	0.00
981	1541437.726	734227.8074	0.28	0.00
982	1541439.768	734228.4214	0.00	-1.07
983	1541441.654	734229.1602	0.00	-2.33
984	1541443.446	734229.9767	0.00	-3.75
985	1541445.204	734230.8229	0.00	-5.79
986	1541446.813	734231.7843	0.00	-6.40
987	1541448.596	734232.6239	0.00	-6.79
988	1541450.607	734233.3152	0.00	-5.46
989	1541452.542	734234.0785	0.00	-3.64
990	1541454.338	734234.9542	0.00	-2.02
991	1541456.102	734235.8698	0.00	-0.48
992	1541457.922	734236.7732	3.35	0.00
993	1541459.669	734237.7433	3.05	0.00
994	1541461.57	734238.654	2.63	0.00
995	1541463.351	734237.7555	2.21	0.00
996	1541465.384	734238.7121	1.75	0.00
997	1541467.087	734239.8631	1.11	0.00
998	1541468.531	734241.1446	0.73	0.00
999	1541469.754	734242.5194	0.44	0.00
1000	1541471.223	734243.8138	0.15	0.00
1001	1541379.591	734289.9634	0.00	-1.00
1002	1541379.759	734288.2267	0.00	-0.56
1003	1541380.095	734286.4862	0.00	-0.13
1004	1541380.298	734284.7485	0.00	-0.16
1005	1541380.691	734283.0061	0.32	0.00
1006	1541381.873	734281.2458	0.59	0.00
1007	1541383.48	734279.4759	0.67	0.00
1008	1541383.298	734277.7486	1.25	0.00
1009	1541384.802	734275.9812	1.25	0.00
1010	1541385.716	734274.2283	1.49	0.00
1011	1541386.739	734272.4734	1.70	0.00
1012	1541387.504	734270.724	2.00	0.00
1013	1541388.642	734268.9655	2.35	0.00
1014	1541390.362	734267.1935	2.69	0.00
1015	1541390.105	734265.4686	3.01	0.00
1016	1541391.629	734263.7028	3.13	0.00
1017	1541391.246	734261.9833	3.42	0.00
1018	1541392.618	734260.2219	3.50	0.00
1019	1541393.71	734258.466	3.61	0.00
1020	1541394.997	734256.7042	3.69	0.00
1021	1541396.495	734254.9365	3.76	0.00
1022	1541397.798	734253.1726	3.86	0.00
1023	1541397.146	734251.4545	4.19	0.00
1024	1541398.125	734249.6989	4.32	0.00
1025	1541398.939	734247.9482	4.46	0.00
1026	1541399.504	734246.2044	4.62	0.00
1027	1541400.327	734244.4549	4.76	0.00
1028	1541401.03	734242.7153	4.85	0.00
1029	1541401.355	734241.0038	4.59	0.00
1030	1541403.242	734240.7265	4.04	0.00
1031	1541405.396	734239.8245	3.33	0.00
1032	1541407.494	734239.8166	2.73	0.00
1033	1541409.608	734239.6895	2.43	0.00
1034	1541410.699	734238.0165	2.56	0.00
1035	1541413.002	734237.7225	2.20	0.00
1036	1541414.201	734235.8874	2.50	0.00
1037	1541415.662	734234.2548	2.65	0.00
1038	1541416.969	734232.7123	3.09	0.00
1039	1541418.969	734233.0495	2.73	0.00
1040	1541420.331	734231.5873	3.30	0.00
1041	1541421.732	734230.1626	3.83	0.00
1042	1541423.169	734228.7741	3.62	0.00
1043	1541425.606	734228.866	3.88	0.00
1044	1541428.021	734228.9693	4.16	0.00
1045	1541429.608	734227.643	3.78	0.00
1046	1541431.123	734226.4132	3.49	0.00
1047	1541433.311	734226.5846	3.65	0.00
1048	1541434.556	734227.6528	2.63	0.00
1049	1541436.342	734226.7197	1.06	0.00
1050	1541437.937	734225.4593	0.00	-0.33
1051	1541439.33	734226.5901	0.00	-1.17
1052	1541441.371	734227.222	0.00	-2.56
1053	1541443.258	734227.974	0.00	-3.97
1054	1541445.056	734228.7973	0.00	-5.65
1055	1541446.823	734229.6569	0.00	-6.55
1056	1541448.441	734230.6266	0.00	-7.08
1057	1541450.237	734231.4824	0.00	-6.02
1058	1541452.265	734232.2003	0.00	-3.96
1059	1541454.219	734232.9933	0.00	-2.12
1060	1541456.033	734233.899	0.00	-0.64
1061	1541457.817	734234.8465	3.15	0.00
1062	1541459.659	734235.787	2.86	0.00
1063	1541461.427	734236.7954	2.55	0.00
1064	1541463.227	734235.9312	2.10	0.00
1065	1541465.175	734236.954	1.72	0.00
1066	1541467.279	734237.9912	1.34	0.00
1067	1541468.98	734239.2037	0.92	0.00
1068	1541470.446	734240.587	0.60	0.00

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
1067	1541471.698	734242.0463	0.29	0.00
1068	1541477.592	734250.0107	0.00	-0.77
1069	1541477.592	734250.0107	0.00	-0.77
1070	1541476.276	734248.2591	0.00	-0.77
1071	1541476.695	734248.8207	0.00	-0.77
1072	1541475.598	734284.2901	1.35	0.00
1073	1541475.598	734284.2901	1.35	0.00
1074	1541475.598	734284.2901	1.35	0.00
1075	1541475.598	734284.2901	1.35	0.00
1076	1541481.598	734272.7957	1.91	0.00
1077	1541481.598	734272.7957	1.91	0.00
1078	1541481.598	734272.7957	1.91	0.00
1079	1541481.598	734272.7957	1.91	0.00
1080	1541382.719	734274.2716	2.20	0.00
1081	1541382.719	734274.2716	2.20	0.00
1082	1541385.506	734220.7712	2.60	0.00
1083	1541385.506	734220.7712	2.60	0.00
1084	1541388.364	734267.2407	2.77	0.00
1085	1541388.364	734267.2407	2.77	0.00
1086	1541388.364	734267.2407	2.77	0.00
1087	1541388.364	734267.2407	2.77	0.00
1088	1541390.622	734260.269	3.74	0.00
1089	1541390.622	734260.269	3.74	0.00
1090	1541390.622	734260.269	3.74	0.00
1091	1541390.622	734260.269	3.74	0.00
1092	1541395.797	734253.2195	4.09	0.00
1093	1541395.146	734251.5014	4.43	0.00
1094	1541396.126	734249.7459	4.56	0.00
1095	1541396.942	734247.995	4.71	0.00
1096	1541397.506	734246.2511	4.88	0.00
1097	1541398.331	734244.5012	5.02	0.00
1098	1541399.017	734242.7556	5.16	0.00
1099	1541399.359	734241.0208	5.02	0.00
1100	1541399.947	734239.2992	4.40	0.00
1101	1541401.93	734239.2616	4.26	0.00
1102	1541403.77	734239.0704	3.71	0.00
1103	1541404.866	734237.616	3.25	0.00
1104	1541406.602	734238.0344	2.80	0.00
1105	1541408.57	734238.1273	2.71	0.00
1106	1541409.678	734236.4681	3.26	0.00
1107	1541411.845	734236.4044	3.00	0.00
1108	1541412.731	734234.8389	3.02	0.00
1109	1541414.034	734233.5587	3.08	0.00
1110	1541415.291	734232.0282	4.08	0.00
1111	1541416.612	734230.5334	3.77	0.00
1112	1541418.31	734231.2251	4.00	0.00
1113	1541419.688	734229.78	3.73	0.00
1114	1541421.102	734228.3709	3.27	0.00
1115	1541422.551	734226.9962	2.82	0.00
1116	1541424.638	734227.4201	3.20	0.00
1117	1541427.106	734227.5364	3.49	0.00
1118	1541428.648	734226.2239	3.16	0.00
1119	1541430.247	734224.7414	2.95	0.00
1120	1541432.651	734225.1257	3.32	0.00
1121	1541434.967	734225.5776	1.77	0.00
1122	1541436.562	734224.371	0.67	0.00
1123	1541438.259	734222.9378	0.00	-0.12
1124	1541439.528	734224.2678	0.00	-1.26
1125	1541440.937	734225.3993	0.00	-2.30
1126	1541443.015	734226.0353	0.00	-4.00
1127	1541444.874	734226.788	0.00	-5.73
1128	1541446.685	734227.6511	0.00	-6.78
1129	1541448.466	734228.5245	0.00	-7.24
1130	1541450.097	734229.5081	0.00	-6.60
1131	1541451.907	734230.3866	0.00	-4.39
1132	1541453.957	734231.1383	0.00	-2.33
1133	1541455.932	734231.9668	0.00	-0.63
1134	1541457.766	734232.9076	2.73	0.00
1135	1541459.57	734233.8921	2.86	0.00
1136	1541461.436	734234.8759	2.48	0.00
1137	1541463.255	734234.0526	2.36	0.00
1138	1541465.071	734235.1658	1.94	0.00
1139	1541467.038	734236.2893	1.53	0.00
1140	1541469.339	734237.2403	1.10	0.00
1141	1541470.9	734238.7182	0.74	0.00
1142	1541472.401	734240.1807	0.41	0.00
1143	1541473.662	734241.7196	0.09	0.00
1144	1541475.183	734243.2438	0.00	0.00
1145	1541375.591	734290.0572	0.00	-0.90
1146	1541375.76	734288.3205	0.00	-0.44
1147	1541376.094	734286.5801	0.00	0.00
1148	1541376.298	734284.8425	0.61	0.00
1149	1541376.692	734283.1001	1.20	0.00
1150	1541377.876	734281.3398	1.65	0.00
1151	1541379.483	734279.57	1.87	0.00
1152	1541379.3	734277.8429	2.50	0.00
1153	1541380.807	734276.0754	2.60	0.00
1154	1541381.722	734274.3226	2.60	0.00
1155	1541382.743	734272.5678	2.60	0.00
1156	1541383.508	734270.8185	3.03	0.00
1157	1541384.645	734269.06	3.09	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
1158	1541386.366	734267.288	2.99	0.00
1159	1541386.114	734265.563	3.29	0.00
1160	1541387.64	734263.7971	3.47	0.00
1161	1541387.256	734262.0777	3.81	0.00
1162	1541388.625	734260.3163	3.98	0.00
1163	1541389.713	734258.5604	4.10	0.00
1164	1541390.997	734256.7984	4.17	0.00
1165	1541392.493	734255.0307	4.24	0.00
1166	1541393.796	734253.2666	4.33	0.00
1167	1541393.147	734251.5485	4.66	0.00
1168	1541394.128	734249.7928	4.80	0.00
1169	1541394.946	734248.0427	4.95	0.00
1170	1541395.508	734246.298	5.13	0.00
1171	1541396.335	734244.5486	5.15	0.00
1172	1541397.019	734242.8017	5.16	0.00
1173	1541397.362	734241.0652	5.13	0.00
1174	1541397.949	734239.3233	4.47	0.00
1175	1541398.733	734237.5975	3.82	0.00
1176	1541400.742	734237.6496	3.80	0.00
1177	1541402.83	734237.5915	3.76	0.00
1178	1541403.867	734235.9622	3.19	0.00
1179	1541405.908	734235.9341	2.77	0.00
1180	1541407.69	734236.3399	2.64	0.00
1181	1541408.818	734234.6916	3.11	0.00
1182	1541410.811	734234.8454	3.42	0.00
1183	1541412.034	734233.2363	3.31	0.00
1184	1541413.308	734231.7097	3.94	0.00
1185	1541414.606	734230.1958	3.42	0.00
1186	1541415.948	734228.7189	2.92	0.00
1187	1541417.977	734229.075	3.29	0.00
1188	1541419.38	734227.6524	2.83	0.00
1189	1541420.816	734226.2639	2.38	0.00
1190	1541422.283	734224.908	1.92	0.00
1191	1541424.03	734225.6543	2.41	0.00
1192	1541426.132	734226.0991	2.85	0.00
1193	1541427.652	734224.8298	2.57	0.00
1194	1541428.873	734223.5286	2.44	0.00
1195	1541430.441	734222.5662	2.49	0.00
1196	1541432.059	734223.4604	2.85	0.00
1197	1541434.274	734223.9215	2.40	0.00
1198	1541435.865	734222.7416	1.48	0.00
1199	1541437.145	734221.5071	0.96	0.00
1200	1541438.769	734220.614	0.33	0.00
1201	1541440.087	734221.7773	0.00	-0.81
1202	1541441.162	734223.1219	0.00	-2.01
1203	1541442.555	734224.263	0.00	-3.38
1204	1541444.741	734224.6692	0.00	-5.57
1205	1541446.505	734225.6688	0.00	-7.18
1206	1541448.341	734226.5423	0.00	-7.44
1207	1541450.138	734227.4357	0.00	-7.06
1208	1541451.783	734228.4379	0.00	-4.65
1209	1541453.612	734229.3442	0.00	-2.62
1210	1541455.685	734230.1356	0.00	-0.83
1211	1541457.683	734231.0056	2.48	0.00
1212	1541459.537	734231.9873	3.23	0.00
1213	1541461.364	734233.0153	2.80	0.00
1214	1541463.198	734232.2268	2.74	0.00
1215	1541465.108	734233.3225	2.29	0.00
1216	1541466.932	734234.4967	1.83	0.00
1217	1541468.66	734235.5678	1.40	0.00
1218	1541470.5	734235.3531	1.22	0.00
1219	1541471.504	734236.8725	0.86	0.00
1220	1541472.879	734238.3585	0.55	0.00
1221	1541474.374	734239.8589	0.21	0.00
1222	1541475.637	734241.4209	0.00	0.00
1223	1541477.164	734242.9588	0.00	0.00
1224	1541373.591	734290.1041	0.00	-0.77
1225	1541373.761	734288.3674	0.00	-0.32
1226	1541374.094	734286.627	0.17	0.00
1227	1541374.298	734284.8895	0.76	0.00
1228	1541374.692	734283.1472	1.34	0.00
1229	1541375.878	734281.3869	1.91	0.00
1230	1541377.484	734279.6171	2.37	0.00
1231	1541377.302	734277.8901	2.60	0.00
1232	1541378.81	734276.1226	2.63	0.00
1233	1541379.725	734274.3699	3.03	0.00
1234	1541380.745	734272.6151	3.38	0.00
1235	1541381.509	734270.8658	3.83	0.00
1236	1541382.647	734269.1074	3.44	0.00
1237	1541384.368	734267.3353	3.23	0.00
1238	1541384.119	734265.6103	3.39	0.00
1239	1541385.646	734263.8444	3.63	0.00
1240	1541385.261	734262.1251	3.96	0.00
1241	1541386.628	734260.3636	4.17	0.00
1242	1541387.715	734258.6077	4.34	0.00
1243	1541388.998	734256.8457	4.42	0.00
1244	1541390.492	734255.078	4.48	0.00
1245	1541391.796	734253.3138	4.58	0.00
1246	1541391.147	734251.5957	4.91	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
1247	1541392.129	734249.8399	5.03	0.00
1248	1541392.949	734248.0896	5.13	0.00
1249	1541393.514	734246.3497	5.14	0.00
1250	1541394.339	734244.595	5.15	0.00
1251	1541395.027	734242.8482	5.16	0.00
1252	1541395.357	734241.1117	5.14	0.00
1253	1541395.949	734239.3672	4.49	0.00
1254	1541396.74	734237.62	4.37	0.00
1255	1541397.716	734235.9027	4.53	0.00
1256	1541399.676	734236.0112	4.54	0.00
1257	1541401.697	734236.1606	3.78	0.00
1258	1541402.71	734234.5815	3.96	0.00
1259	1541404.938	734234.2818	3.88	0.00
1260	1541407.02	734234.2793	3.52	0.00
1261	1541408.188	734232.6567	3.65	0.00
1262	1541410.006	734233.0819	3.75	0.00
1263	1541411.238	734231.5079	3.64	0.00
1264	1541412.516	734229.9822	3.08	0.00
1265	1541413.833	734228.4832	2.56	0.00
1266	1541415.189	734227.019	2.11	0.00
1267	1541417.328	734227.2769	2.49	0.00
1268	1541418.742	734225.8698	2.04	0.00
1269	1541420.188	734224.4951	1.61	0.00
1270	1541421.664	734223.1516	1.13	0.00
1271	1541423.778	734223.583	1.57	0.00
1272	1541425.535	734224.3427	2.12	0.00
1273	1541427.037	734223.0501	2.02	0.00
1274	1541428.603	734221.7705	2.02	0.00
1275	1541430.177	734220.5552	2.14	0.00
1276	1541431.991	734221.3342	2.45	0.00
1277	1541433.659	734222.2275	2.85	0.00
1278	1541435.235	734221.0124	2.29	0.00
1279	1541436.86	734219.8071	1.65	0.00
1280	1541438.498	734218.6708	1.16	0.00
1281	1541440.388	734219.4591	0.00	-0.05
1282	1541441.742	734220.6059	0.00	-1.33
1283	1541442.786	734221.9515	0.00	-2.61
1284	1541443.939	734223.0339	0.00	-4.34
1285	1541445.529	734222.2485	0.00	-5.52
1286	1541446.625	734223.5678	0.00	-7.39
1287	1541448.197	734224.5959	0.00	-7.79
1288	1541450.031	734225.4798	0.00	-7.78
1289	1541451.842	734226.3977	0.00	-5.10
1290	1541453.504	734227.4224	0.00	-2.88
1291	1541455.351	734228.3615	0.00	-1.11
1292	1541457.449	734229.1986	1.84	0.00
1293	1541459.472	734230.1168	3.51	0.00
1294	1541461.348	734231.1463	3.19	0.00
1295	1541463.197	734230.3927	3.12	0.00
1296	1541465.07	734231.5339	2.66	0.00
1297	1541467.013	734232.7014	2.18	0.00
1298	1541468.875	734233.939	1.71	0.00
1299	1541470.825	734233.5137	1.56	0.00
1300	1541472.442	734234.9409	0.98	0.00
1301	1541473.49	734236.4978	0.67	0.00
1302	1541474.848	734238.0205	0.35	0.00
1303	1541476.343	734239.533	0.02	0.00
1304	1541477.601	734241.0723	0.00	0.00
1305	1541479.12	734242.5494	0.00	0.00
1306	1541371.59	734290.1511	0.00	-0.70
1307	1541371.762	734288.4143	0.00	-0.23
1308	1541372.094	734286.674	0.26	0.00
1309	1541372.298	734284.9365	0.79	0.00
1310	1541372.693	734283.1942	1.22	0.00
1311	1541373.88	734281.4339	1.76	0.00
1312	1541375.486	734279.6643	2.36	0.00
1313	1541375.303	734277.9373	2.45	0.00
1314	1541376.812	734276.1699	2.94	0.00
1315	1541377.728	734274.4172	3.83	0.00
1316	1541378.747	734272.6624	4.19	0.00
1317	1541379.511	734270.9133	4.38	0.00
1318	1541380.648	734269.1548	3.94	0.00
1319	1541382.37	734267.3827	3.62	0.00
1320	1541382.123	734265.6577	3.73	0.00
1321	1541383.651	734263.8917	3.72	0.00
1322	1541383.266	734262.1725	4.06	0.00
1323	1541384.631	734260.4111	4.33	0.00
1324	1541385.717	734258.6552	4.55	0.00
1325	1541386.998	734256.8932	4.67	0.00
1326	1541388.491	734255.1253	4.74	0.00
1327	1541389.795	734253.3611	4.82	0.00
1328	1541389.147	734251.643	5.14	0.00
1329	1541390.131	734249.8871	5.13	0.00
1330	1541390.952	734248.1363	5.14	0.00
1331	1541391.514	734246.395	5.15	0.00
1332	1541392.363	734244.6733	5.16	0.00
1333	1541393.05	734242.8786	5.17	0.00
1334	1541393.334	734241.1537	5.14	0.00
1335	1541393.948	734239.4148	4.51	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
1336	1541394.742	734237.6625	4.06	0.00
1337	1541395.736	734235.9142	4.54	0.00
1338	1541396.839	734234.2193	3.85	0.00
1339	1541398.756	734234.3566	3.89	0.00
1340	1541400.676	734234.6011	3.98	0.00
1341	1541401.674	734233.0261	3.18	0.00
1342	1541403.794	734232.9058	3.15	0.00
1343	1541406.076	734232.6407	3.23	0.00
1344	1541407.262	734231.0302	2.72	0.00
1345	1541409.404	734231.0695	3.14	0.00
1346	1541410.663	734229.5172	2.60	0.00
1347	1541411.965	734227.9998	2.08	0.00
1348	1541413.306	734226.5165	1.63	0.00
1349	1541414.683	734225.0669	1.24	0.00
1350	1541416.579	734225.5861	1.72	0.00
1351	1541418.002	734224.1908	1.29	0.00
1352	1541419.456	734222.8261	1.00	0.00
1353	1541420.942	734221.4915	0.97	0.00
1354	1541423.166	734221.8367	0.96	0.00
1355	1541425.289	734222.2813	1.44	0.00
1356	1541426.834	734221.0065	1.59	0.00
1357	1541428.395	734219.752	1.70	0.00
1358	1541429.97	734218.5306	1.85	0.00
1359	1541431.756	734219.3344	2.15	0.00
1360	1541433.568	734220.1156	2.42	0.00
1361	1541435.178	734218.9224	2.47	0.00
1362	1541436.8	734217.7482	2.09	0.00
1363	1541438.439	734216.6128	1.91	0.00
1364	1541440.14	734217.5366	0.89	0.00
1365	1541442.072	734218.3283	0.00	-0.36
1366	1541443.421	734219.462	0.00	-1.95
1367	1541444.474	734220.8338	0.00	-3.57
1368	1541446.155	734219.7974	0.00	-4.42
1369	1541447.2	734221.1772	0.00	-6.35
1370	1541448.337	734222.4908	0.00	-7.79
1371	1541449.899	734223.5553	0.00	-7.79
1372	1541451.749	734224.4676	0.00	-6.02
1373	1541453.579	734225.4152	0.00	-3.36
1374	1541455.258	734226.4671	0.00	-1.30
1375	1541457.126	734227.4442	1.06	0.00
1376	1541459.251	734228.3336	3.48	0.00
1377	1541461.298	734229.3071	3.49	0.00
1378	1541463.159	734228.5828	3.47	0.00
1379	1541465.08	734229.7275	3.02	0.00
1380	1541466.976	734230.9386	2.55	0.00
1381	1541468.945	734232.1767	2.06	0.00
1382	1541470.896	734231.7415	1.91	0.00
1383	1541472.782	734233.115	1.36	0.00
1384	1541474.431	734234.5554	0.77	0.00
1385	1541475.436	734236.116	0.48	0.00
1386	1541476.807	734237.6849	0.16	0.00
1387	1541478.303	734239.1124	0.00	0.00
1388	1541479.543	734240.6116	0.00	0.00
1389	1541481.059	734242.0594	0.00	0.00
1390	1541369.59	734290.198	0.00	-0.74
1391	1541369.762	734288.4613	0.00	-0.36
1392	1541370.094	734286.7209	0.12	0.00
1393	1541370.298	734284.9835	0.52	0.00
1394	1541370.694	734283.2413	0.95	0.00
1395	1541371.882	734281.4811	1.49	0.00
1396	1541373.488	734279.7114	1.97	0.00
1397	1541373.304	734277.9846	2.06	0.00
1398	1541374.815	734276.2172	2.87	0.00
1399	1541375.731	734274.4644	4.70	0.00
1400	1541376.749	734272.7099	4.67	0.00
1401	1541377.513	734270.9607	4.64	0.00
1402	1541378.65	734269.2024	4.43	0.00
1403	1541380.373	734267.4302	4.02	0.00
1404	1541380.128	734265.7053	4.15	0.00
1405	1541381.657	734263.9392	3.88	0.00
1406	1541381.272	734262.2201	4.01	0.00
1407	1541382.634	734260.4586	4.38	0.00
1408	1541383.719	734258.7027	4.73	0.00
1409	1541384.998	734256.9408	4.91	0.00
1410	1541386.49	734255.1729	4.99	0.00
1411	1541387.794	734253.4085	5.07	0.00
1412	1541387.147	734251.6905	5.15	0.00
1413	1541388.132	734249.9345	5.15	0.00
1414	1541388.955	734248.1839	5.15	0.00
1415	1541389.513	734246.4436	5.15	0.00
1416	1541390.332	734244.7213	5.16	0.00
1417	1541391.265	734243.1509	5.17	0.00
1418	1541391.151	734241.3337	5.16	0.00
1419	1541391.948	734239.4805	4.53	0.00
1420	1541392.739	734237.7139	4.13	0.00
1421	1541393.744	734235.9515	4.31	0.00
1422	1541394.876	734234.2079	3.87	0.00
1423	1541395.987	734232.5366	3.02	0.00
1424	1541397.89	734232.7305	3.09	0.00

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
1425	1541399.733	734232.9631	3.16	0.00
1426	1541402.597	734231.3057	3.01	0.00
1427	1541402.597	734231.3057	3.01	0.00
1428	1541405.595	734229.6972	2.86	0.00
1429	1541408.494	734228.0858	2.72	0.00
1430	1541411.456	734226.4768	2.57	0.00
1431	1541411.456	734226.4768	2.57	0.00
1432	1541413.456	734224.6976	2.43	0.00
1433	1541415.456	734223.0185	2.29	0.00
1434	1541417.513	734221.2594	2.15	0.00
1435	1541417.513	734221.2594	2.15	0.00
1436	1541419.513	734219.5003	2.01	0.00
1437	1541420.605	734218.587	0.94	0.00
1438	1541422.605	734218.587	0.94	0.00
1439	1541424.69	734220.5481	0.95	0.00
1440	1541424.69	734220.5481	0.95	0.00
1441	1541427.74	734219.9823	1.21	0.00
1442	1541427.74	734219.9823	1.21	0.00
1443	1541429.749	734219.4165	1.49	0.00
1444	1541431.559	734217.3196	1.89	0.00
1445	1541433.559	734218.1302	2.15	0.00
1446	1541436.422	734216.951	2.24	0.00
1447	1541438.422	734215.7947	2.32	0.00
1448	1541438.237	734214.6673	2.39	0.00
1449	1541440.098	734215.4989	1.77	0.00
1450	1541441.801	734216.4615	0.57	0.00
1451	1541443.874	734217.0228	0.00	-0.68
1452	1541445.097	734218.3938	0.00	-2.65
1453	1541446.822	734217.3986	0.00	-3.27
1454	1541447.874	734218.7756	0.00	-5.21
1455	1541448.916	734220.1569	0.00	-6.92
1456	1541450.064	734221.4765	0.00	-7.67
1457	1541451.632	734222.5669	0.00	-6.71
1458	1541453.5	734223.5116	0.00	-4.37
1459	1541455.348	734224.4935	0.00	-1.50
1460	1541457.047	734225.5772	0.87	0.00
1461	1541458.935	734226.5984	3.45	0.00
1462	1541461.091	734227.5448	3.46	0.00
1463	1541462.993	734226.8369	3.43	0.00
1464	1541465.045	734227.9216	3.40	0.00
1465	1541466.991	734229.1553	2.91	0.00
1466	1541468.908	734230.4307	2.42	0.00
1467	1541470.857	734229.9878	2.27	0.00
1468	1541472.861	734231.3365	1.78	0.00
1469	1541474.755	734232.7196	1.02	0.00
1470	1541476.609	734234.1765	0.57	0.00
1471	1541477.255	734235.951	0.31	0.00
1472	1541478.763	734237.1579	0.01	0.00
1473	1541480.222	734238.4908	0.00	0.00
1474	1541481.38	734239.9257	0.00	0.00
1475	1541482.873	734241.2499	0.00	0.00
1476	1541367.59	734290.2449	0.00	-1.15
1477	1541367.763	734288.5082	0.00	-0.55
1478	1541368.094	734286.7679	0.00	0.00
1479	1541368.299	734285.0305	0.25	0.00
1480	1541368.694	734283.2884	0.68	0.00
1481	1541369.884	734281.5282	1.15	0.00
1482	1541371.489	734279.7587	1.58	0.00
1483	1541371.306	734278.0319	1.68	0.00
1484	1541372.818	734276.2646	2.70	0.00
1485	1541373.734	734274.5119	4.52	0.00
1486	1541374.751	734272.7568	4.68	0.00
1487	1541375.515	734271.0083	4.65	0.00
1488	1541376.652	734269.2496	4.61	0.00
1489	1541378.375	734267.4778	4.43	0.00
1490	1541378.133	734265.7529	4.56	0.00
1491	1541379.663	734263.9868	4.30	0.00
1492	1541379.277	734262.2678	4.43	0.00
1493	1541380.638	734260.5063	4.32	0.00
1494	1541381.721	734258.7505	4.70	0.00
1495	1541382.999	734256.9884	5.09	0.00
1496	1541384.489	734255.2205	5.16	0.00
1497	1541385.793	734253.4561	5.15	0.00
1498	1541385.148	734251.738	5.16	0.00
1499	1541386.134	734249.9817	5.16	0.00
1500	1541386.959	734248.2308	5.16	0.00
1501	1541387.517	734246.4863	5.16	0.00
1502	1541388.352	734244.7341	5.17	0.00
1503	1541389.462	734242.9603	5.18	0.00
1504	1541388.959	734241.2651	5.09	0.00
1505	1541389.954	734239.5264	4.59	0.00
1506	1541390.755	734237.7714	4.21	0.00
1507	1541391.741	734235.9931	4.01	0.00
1508	1541392.87	734234.2301	3.92	0.00
1509	1541394.061	734232.4918	3.03	0.00
1510	1541395.095	734230.775	2.16	0.00
1511	1541396.97	734231.221	2.35	0.00
1512	1541398.8	734231.3994	2.39	0.00
1513	1541399.753	734229.8229	1.53	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
1514	1541401.82	734229.736	1.47	0.00
1515	1541403.927	734229.7467	1.60	0.00
1516	1541405.131	734228.1526	1.13	0.00
1517	1541407.374	734228.102	1.34	0.00
1518	1541408.655	734226.5655	1.07	0.00
1519	1541409.975	734225.0629	0.96	0.00
1520	1541411.329	734223.5947	0.87	0.00
1521	1541412.719	734222.1796	0.78	0.00
1522	1541415.308	734221.8471	0.87	0.00
1523	1541417.001	734220.421	0.86	0.00
1524	1541418.5	734219.0576	0.85	0.00
1525	1541420.012	734217.737	0.84	0.00
1526	1541422.026	734218.2869	0.90	0.00
1527	1541423.977	734218.9004	0.91	0.00
1528	1541425.526	734217.6402	0.89	0.00
1529	1541427.08	734216.3793	1.12	0.00
1530	1541428.643	734215.1728	1.27	0.00
1531	1541430.994	734215.5982	1.63	0.00
1532	1541433.153	734216.1065	1.93	0.00
1533	1541434.761	734214.9486	2.03	0.00
1534	1541436.422	734213.818	2.14	0.00
1535	1541438.081	734212.7031	2.18	0.00
1536	1541439.898	734213.5668	2.36	0.00
1537	1541441.756	734214.4033	1.61	0.00
1538	1541443.228	734215.3005	0.54	0.00
1539	1541444.864	734214.5822	0.35	0.00
1540	1541445.793	734216.0155	0.00	-1.10
1541	1541447.556	734215.01	0.00	-1.12
1542	1541448.566	734216.4183	0.00	-3.18
1543	1541449.62	734217.8015	0.00	-5.23
1544	1541450.664	734219.1892	0.00	-5.78
1545	1541451.817	734220.5192	0.00	-5.90
1546	1541453.396	734221.6349	0.00	-4.81
1547	1541455.282	734222.6163	0.00	-2.09
1548	1541457.15	734223.6371	1.06	0.00
1549	1541458.869	734224.7581	3.42	0.00
1550	1541460.775	734225.8287	3.43	0.00
1551	1541462.638	734225.1577	3.41	0.00
1552	1541465.021	734226.0394	3.41	0.00
1553	1541466.949	734227.3722	3.28	0.00
1554	1541468.924	734228.6587	2.78	0.00
1555	1541470.877	734228.2164	2.63	0.00
1556	1541472.809	734229.554	2.24	0.00
1557	1541474.801	734230.8649	1.62	0.00
1558	1541476.638	734232.1461	0.81	0.00
1559	1541478.539	734233.2237	0.43	0.00
1560	1541478.868	734235.1206	0.15	0.00
1561	1541480.54	734236.3293	0.00	0.00
1562	1541482.164	734237.5629	0.00	0.00
1563	1541483.056	734239.3037	0.00	0.00
1564	1541484.621	734240.2789	0.00	0.00
1565	1541365.59	734290.2918	0.00	-1.64
1566	1541365.764	734288.5551	0.00	-0.84
1567	1541366.094	734286.8149	0.00	-0.19
1568	1541366.299	734285.0776	0.00	0.00
1569	1541366.695	734283.3355	0.39	0.00
1570	1541367.886	734281.5754	0.76	0.00
1571	1541369.491	734279.806	1.20	0.00
1572	1541369.308	734278.0794	1.28	0.00
1573	1541370.821	734276.3121	2.42	0.00
1574	1541371.737	734274.5594	4.13	0.00
1575	1541372.754	734272.8045	4.43	0.00
1576	1541373.515	734271.0531	4.66	0.00
1577	1541374.654	734269.2971	4.62	0.00
1578	1541376.371	734267.5258	4.72	0.00
1579	1541376.14	734265.8043	5.02	0.00
1580	1541377.669	734264.0345	4.73	0.00
1581	1541377.282	734262.3156	4.89	0.00
1582	1541378.641	734260.5542	4.60	0.00
1583	1541379.723	734258.7983	4.53	0.00
1584	1541380.999	734257.0363	4.88	0.00
1585	1541382.489	734255.2683	5.17	0.00
1586	1541383.793	734253.5038	5.17	0.00
1587	1541383.148	734251.786	5.18	0.00
1588	1541384.135	734250.0289	5.18	0.00
1589	1541384.961	734248.2772	5.18	0.00
1590	1541385.52	734246.5348	5.18	0.00
1591	1541386.358	734244.7841	5.18	0.00
1592	1541387.487	734243.0229	5.18	0.00
1593	1541386.923	734241.295	5.06	0.00
1594	1541387.955	734239.5903	4.67	0.00
1595	1541388.772	734237.8023	4.31	0.00
1596	1541389.773	734236.0945	3.93	0.00
1597	1541390.834	734234.2385	3.95	0.00
1598	1541392.065	734232.4272	3.03	0.00
1599	1541392.982	734230.8769	2.24	0.00
1600	1541393.721	734229.3075	1.44	0.00
1601	1541395.4	734228.8851	1.23	0.00
1602	1541396.706	734229.7771	1.64	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
1603	1541397.995	734230.1725	1.80	0.00
1604	1541398.507	734228.5113	1.14	0.00
1605	1541400.791	734228.1982	1.11	0.00
1606	1541402.981	734228.1331	1.12	0.00
1607	1541404.185	734226.5373	0.93	0.00
1608	1541406.379	734226.5959	1.01	0.00
1609	1541407.668	734225.0707	0.89	0.00
1610	1541409	734223.5768	0.80	0.00
1611	1541410.362	734222.1152	0.71	0.00
1612	1541411.727	734220.6844	0.63	0.00
1613	1541413.81	734220.777	0.72	0.00
1614	1541415.298	734219.6744	0.73	0.00
1615	1541416.745	734218.3205	0.71	0.00
1616	1541418.237	734216.9924	0.70	0.00
1617	1541419.756	734215.6904	0.69	0.00
1618	1541421.54	734216.4465	0.83	0.00
1619	1541423.57	734217.0078	0.87	0.00
1620	1541425.157	734215.7407	0.84	0.00
1621	1541426.817	734214.2796	0.91	0.00
1622	1541428.624	734213.0676	1.12	0.00
1623	1541430.255	734214.0134	1.43	0.00
1624	1541432.67	734214.2085	1.74	0.00
1625	1541434.535	734213.0361	1.87	0.00
1626	1541436.2	734211.8895	1.98	0.00
1627	1541437.871	734210.787	2.02	0.00
1628	1541439.763	734211.6213	2.20	0.00
1629	1541441.593	734212.5011	2.36	0.00
1630	1541443.488	734213.346	1.63	0.00
1631	1541445.225	734212.3718	1.73	0.00
1632	1541446.584	734213.5871	0.46	0.00
1633	1541448.351	734212.6193	0.53	0.00
1634	1541449.328	734214.0726	0.00	-0.68
1635	1541450.338	734215.4894	0.00	-2.36
1636	1541451.395	734216.8806	0.00	-3.57
1637	1541452.442	734218.2767	0.00	-3.97
1638	1541453.599	734219.6195	0.00	-3.67
1639	1541455.19	734220.7635	0.00	-2.21
1640	1541457.095	734221.7857	0.95	0.00
1641	1541458.984	734222.8506	3.39	0.00
1642	1541460.723	734224.0132	3.40	0.00
1643	1541462.58	734223.3275	3.38	0.00
1644	1541464.253	734224.3918	3.39	0.00
1645	1541466.076	734224.0974	3.37	0.00
1646	1541467.175	734225.5624	3.39	0.00
1647	1541468.908	734226.8942	3.14	0.00
1648	1541470.86	734226.4629	2.99	0.00
1649	1541472.821	734227.726	2.63	0.00
1650	1541474.7	734228.9761	2.22	0.00
1651	1541476.618	734230.0772	1.16	0.00
1652	1541478.285	734231.1451	0.83	0.00
1653	1541480.118	734232.0357	0.55	0.00
1654	1541480.525	734234.0746	0.08	0.00
1655	1541482.061	734235.1158	0.00	0.00
1656	1541483.717	734236.0329	0.00	0.00
1657	1541484.309	734237.9568	0.00	0.00
1658	1541485.989	734238.8191	0.00	0.00
1659	1541363.589	734290.3387	0.00	-1.72
1660	1541363.765	734288.602	0.00	-1.09
1661	1541364.094	734286.8619	0.00	-0.50
1662	1541364.3	734285.1247	0.00	-0.24
1663	1541364.696	734283.3827	0.01	0.00
1664	1541365.889	734281.6227	0.38	0.00
1665	1541367.494	734279.8533	0.81	0.00
1666	1541367.31	734278.1269	0.88	0.00
1667	1541368.824	734276.3597	2.15	0.00
1668	1541369.741	734274.6071	3.74	0.00
1669	1541370.756	734272.8524	4.03	0.00
1670	1541371.519	734271.1008	4.17	0.00
1671	1541372.655	734269.3195	4.59	0.00
1672	1541374.348	734267.5793	4.65	0.00
1673	1541374.159	734265.8669	4.97	0.00
1674	1541375.675	734264.084	5.20	0.00
1675	1541375.294	734262.3565	5.11	0.00
1676	1541376.644	734260.602	4.80	0.00
1677	1541377.725	734258.8463	4.48	0.00
1678	1541379	734257.0842	4.62	0.00
1679	1541380.488	734255.3165	5.06	0.00
1680	1541381.792	734253.5517	5.18	0.00
1681	1541381.148	734251.8339	5.19	0.00
1682	1541382.138	734250.0775	5.19	0.00
1683	1541382.963	734248.3227	5.19	0.00
1684	1541383.517	734246.5771	5.19	0.00
1685	1541384.36	734244.8362	5.19	0.00
1686	1541385.488	734243.0774	5.19	0.00
1687	1541384.967	734241.3606	5.08	0.00
1688	1541385.836	734239.4914	4.73	0.00
1689	1541386.985	734238.0228	4.44	0.00
1690	1541387.505	734236.2184	4.07	0.00
1691	1541388.891	734234.8394	3.88	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
1692	1541388.865	734233.533	3.64	0.00
1693	1541390.359	734232.4225	3.05	0.00
1694	1541390.731	734230.5546	2.11	0.00
1695	1541392.053	734229.3507	1.49	0.00
1696	1541392.32	734227.5244	1.03	0.00
1697	1541394.139	734227.7344	1.05	0.00
1698	1541395.738	734226.7131	0.91	0.00
1699	1541396.821	734228.177	1.12	0.00
1700	1541397.708	734226.6385	0.90	0.00
1701	1541399.696	734226.796	0.94	0.00
1702	1541402.006	734226.5891	0.92	0.00
1703	1541403.256	734224.796	0.72	0.00
1704	1541405.435	734225.006	0.82	0.00
1705	1541406.76	734223.4967	0.71	0.00
1706	1541408.095	734222.015	0.63	0.00
1707	1541409.454	734220.5627	0.54	0.00
1708	1541410.858	734219.138	0.47	0.00
1709	1541413.165	734219.2633	0.59	0.00
1710	1541414.636	734217.9124	0.58	0.00
1711	1541416.112	734216.5681	0.57	0.00
1712	1541417.614	734215.2508	0.56	0.00
1713	1541419.138	734213.9579	0.55	0.00
1714	1541421.296	734214.4126	0.69	0.00
1715	1541423.086	734215.18	0.83	0.00
1716	1541424.644	734213.9596	0.82	0.00
1717	1541425.951	734212.6624	0.79	0.00
1718	1541427.498	734211.775	0.88	0.00
1719	1541429.081	734210.572	1.03	0.00
1720	1541430.23	734211.8424	1.27	0.00
1721	1541431.584	734212.7601	1.48	0.00
1722	1541433.163	734211.9126	1.65	0.00
1723	1541434.783	734210.7741	1.75	0.00
1724	1541436.44	734209.6657	1.81	0.00
1725	1541438.121	734208.5913	1.84	0.00
1726	1541439.559	734209.7228	2.02	0.00
1727	1541441.471	734210.5732	2.20	0.00
1728	1541443.31	734211.4743	2.37	0.00
1729	1541445.042	734210.4801	2.38	0.00
1730	1541447.007	734211.4097	1.80	0.00
1731	1541448.922	734210.3	1.74	0.00
1732	1541450.126	734211.7353	0.64	0.00
1733	1541451.122	734213.1903	0.00	-0.03
1734	1541452.138	734214.6144	0.00	-1.04
1735	1541453.198	734216.0159	0.00	-1.60
1736	1541454.248	734217.4227	0.00	-1.74
1737	1541455.411	734218.7805	0.00	-1.02
1738	1541457.014	734219.956	0.99	0.00
1739	1541458.937	734221.0231	3.36	0.00
1740	1541460.839	734222.1304	3.36	0.00
1741	1541462.734	734221.4849	3.34	0.00
1742	1541464.508	734222.7147	3.36	0.00
1743	1541466.434	734222.195	3.34	0.00
1744	1541468.016	734223.5556	3.35	0.00
1745	1541469.11	734225.0395	3.37	0.00
1746	1541470.942	734224.7919	3.32	0.00
1747	1541472.769	734225.84	2.90	0.00
1748	1541474.623	734226.9204	2.88	0.00
1749	1541476.317	734227.9589	2.26	0.00
1750	1541478.293	734228.7535	1.65	0.00
1751	1541479.688	734230.0465	0.81	0.00
1752	1541481.373	734230.4615	0.78	0.00
1753	1541482.123	734232.5792	0.27	0.00
1754	1541483.426	734233.9332	0.00	0.00
1755	1541485.019	734234.4696	0.00	0.00
1756	1541485.653	734236.461	0.00	0.00
1757	1541487.264	734237.2775	0.00	0.00
1758	1541361.589	734290.3857	0.00	-1.97
1759	1541361.766	734288.649	0.00	-1.42
1760	1541362.095	734286.9089	0.00	-0.89
1761	1541362.3	734285.1718	0.00	-0.69
1762	1541362.698	734283.43	0.00	-0.45
1763	1541363.892	734281.67	0.00	-0.02
1764	1541365.496	734279.9008	0.42	0.00
1765	1541365.312	734278.1746	0.48	0.00
1766	1541366.827	734276.4074	1.85	0.00
1767	1541367.745	734274.655	3.35	0.00
1768	1541368.759	734272.9002	3.56	0.00
1769	1541369.523	734271.1486	3.48	0.00
1770	1541370.675	734269.3698	3.65	0.00
1771	1541372.187	734267.5021	4.32	0.00
1772	1541372.375	734265.683	4.77	0.00
1773	1541373.699	734264.1067	5.07	0.00
1774	1541373.296	734262.4059	5.09	0.00
1775	1541374.648	734260.6504	5.00	0.00
1776	1541375.726	734258.8939	4.77	0.00
1777	1541377.001	734257.1324	4.49	0.00
1778	1541378.487	734255.364	4.79	0.00
1779	1541379.792	734253.6008	5.20	0.00
1780	1541379.151	734251.8875	5.20	0.00

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
1781	1541380.138	734250.1262	5.20	0.00
1782	1541381.507	734246.6107	5.20	0.00
1783	1541382.946	734242.9854	5.20	0.00
1784	1541384.391	734239.3601	5.20	0.00
1785	1541385.836	734235.7348	5.20	0.00
1786	1541387.281	734232.1095	5.20	0.00
1787	1541388.726	734228.4842	5.20	0.00
1788	1541390.171	734224.8589	5.20	0.00
1789	1541391.616	734221.2336	5.20	0.00
1790	1541393.061	734217.6083	5.20	0.00
1791	1541394.506	734213.983	5.20	0.00
1792	1541395.951	734210.3577	5.20	0.00
1793	1541397.396	734206.7324	5.20	0.00
1794	1541398.841	734203.1071	5.20	0.00
1795	1541400.286	734199.4818	5.20	0.00
1796	1541401.731	734195.8565	5.20	0.00
1797	1541403.176	734192.2312	5.20	0.00
1798	1541404.621	734188.6059	5.20	0.00
1799	1541406.066	734184.9806	5.20	0.00
1800	1541396.895	734224.8511	0.68	0.00
1801	1541398.264	734225.0441	0.71	0.00
1802	1541397.083	734225.2184	0.75	0.00
1803	1541401.2	734223.6665	0.57	0.00
1804	1541403.171	734222.4292	0.49	0.00
1805	1541404.754	734223.1949	0.63	0.00
1806	1541406.083	734221.6738	0.53	0.00
1807	1541407.436	734220.1999	0.44	0.00
1808	1541408.818	734218.761	0.37	0.00
1809	1541410.229	734217.3513	0.32	0.00
1810	1541412.288	734217.7415	0.45	0.00
1811	1541413.747	734216.3853	0.43	0.00
1812	1541415.228	734215.0484	0.42	0.00
1813	1541416.731	734213.737	0.42	0.00
1814	1541418.255	734212.4494	0.41	0.00
1815	1541420.68	734212.6883	0.54	0.00
1816	1541422.853	734213.1569	0.69	0.00
1817	1541424.4	734211.9088	0.69	0.00
1818	1541426.013	734210.6754	0.69	0.00
1819	1541427.622	734209.5091	0.77	0.00
1820	1541429.239	734208.3332	0.93	0.00
1821	1541430.706	734209.4003	1.18	0.00
1822	1541431.883	734210.6599	1.41	0.00
1823	1541433.522	734209.5476	1.53	0.00
1824	1541435.182	734208.4304	1.60	0.00
1825	1541436.862	734207.3477	1.64	0.00
1826	1541438.561	734206.3002	1.68	0.00
1827	1541439.825	734207.553	1.86	0.00
1828	1541441.267	734208.6961	2.04	0.00
1829	1541443.229	734209.5603	2.21	0.00
1830	1541445.1	734208.391	2.21	0.00
1831	1541446.78	734209.5798	2.40	0.00
1832	1541448.325	734208.5865	2.40	0.00
1833	1541450.032	734208.0368	2.23	0.00
1834	1541450.943	734209.497	1.48	0.00
1835	1541451.954	734210.9223	0.87	0.00
1836	1541452.946	734212.3645	0.54	0.00
1837	1541453.964	734213.7959	0.00	-0.04
1838	1541455.028	734215.2095	0.00	0.00
1839	1541456.082	734216.6293	0.71	0.00
1840	1541457.251	734218.0045	1.77	0.00
1841	1541458.867	734219.2146	2.60	0.00
1842	1541460.808	734220.3297	3.34	0.00
1843	1541462.701	734219.7009	3.13	0.00
1844	1541464.649	734220.8997	3.33	0.00
1845	1541466.582	734220.3615	3.30	0.00
1846	1541468.369	734221.6617	3.32	0.00
1847	1541470.154	734223.045	3.33	0.00
1848	1541472.427	734223.8377	3.33	0.00
1849	1541474.316	734224.7359	3.56	0.00
1850	1541476.194	734225.5002	3.74	0.00
1851	1541477.638	734226.7768	3.04	0.00
1852	1541479.448	734226.8285	2.92	0.00
1853	1541480.516	734228.3956	1.89	0.00
1854	1541482.379	734228.7472	1.71	0.00
1855	1541483.274	734230.7029	0.67	0.00
1856	1541484.541	734232.1922	0.19	0.00
1857	1541486.199	734233.1049	0.00	0.00
1858	1541487.102	734234.8169	0.00	0.00
1859	1541488.518	734235.7192	0.00	0.00
1860	1541359.589	734290.4326	0.00	-2.33
1861	1541359.767	734288.6959	0.00	-1.82
1862	1541360.095	734286.956	0.00	-1.28
1863	1541360.301	734285.219	0.00	-1.00
1864	1541360.699	734283.4773	0.00	-0.70
1865	1541361.895	734281.7175	0.00	-0.36
1866	1541363.498	734279.9484	0.02	0.00
1867	1541363.315	734278.2224	0.08	0.00
1868	1541364.831	734276.4553	1.41	0.00
1869	1541365.748	734274.703	2.95	0.00

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TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
1870	1541366.762	734272.9489	3.13	0.00
1871	1541367.525	734271.2	2.97	0.00
1872	1541368.663	734269.4408	2.94	0.00
1873	1541369.976	734267.6858	3.20	0.00
1874	1541370.574	734265.9524	3.88	0.00
1875	1541371.678	734264.1551	4.73	0.00
1876	1541371.296	734262.4521	4.75	0.00
1877	1541372.651	734260.6986	5.13	0.00
1878	1541373.729	734258.9428	5.06	0.00
1879	1541375	734257.1773	4.81	0.00
1880	1541376.486	734255.413	4.55	0.00
1881	1541377.785	734253.6485	4.98	0.00
1882	1541377.15	734251.9341	5.20	0.00
1883	1541378.16	734250.2048	5.20	0.00
1884	1541378.999	734248.4116	5.20	0.00
1885	1541379.498	734246.6625	5.20	0.00
1886	1541380.292	734244.813	5.20	0.00
1887	1541381.331	734242.922	5.20	0.00
1888	1541381.86	734240.4967	5.02	0.00
1889	1541382.109	734238.3758	4.68	0.00
1890	1541383.656	734236.6449	4.32	0.00
1891	1541383.652	734234.6752	4.00	0.00
1892	1541385.348	734233.4953	3.64	0.00
1893	1541385.345	734231.503	2.66	0.00
1894	1541387.067	734230.7752	2.27	0.00
1895	1541387.051	734228.7874	1.27	0.00
1896	1541388.763	734227.7412	1.06	0.00
1897	1541388.747	734225.7494	0.69	0.00
1898	1541390.458	734224.4722	0.55	0.00
1899	1541392.17	734223.3921	0.42	0.00
1900	1541393.888	734223.9998	0.54	0.00
1901	1541395.809	734222.8431	0.43	0.00
1902	1541397.941	734223.2543	0.49	0.00
1903	1541400.029	734223.4687	0.53	0.00
1904	1541401.311	734221.896	0.37	0.00
1905	1541402.616	734220.4029	0.29	0.00
1906	1541404.456	734220.9202	0.39	0.00
1907	1541405.793	734219.4405	0.32	0.00
1908	1541407.168	734217.9907	0.24	0.00
1909	1541408.572	734216.5697	0.19	0.00
1910	1541410.005	734215.1771	0.16	0.00
1911	1541411.668	734215.9702	0.30	0.00
1912	1541413.133	734214.6163	0.29	0.00
1913	1541414.622	734213.2884	0.28	0.00
1914	1541416.132	734211.9849	0.27	0.00
1915	1541417.662	734210.7045	0.26	0.00
1916	1541419.797	734211.184	0.40	0.00
1917	1541422.232	734211.4392	0.54	0.00
1918	1541423.811	734210.207	0.55	0.00
1919	1541425.402	734208.9939	0.58	0.00
1920	1541427.013	734207.8128	0.65	0.00
1921	1541428.637	734206.6457	0.76	0.00
1922	1541430.877	734207.1805	1.07	0.00
1923	1541432.351	734208.2511	1.31	0.00
1924	1541434.009	734207.1397	1.42	0.00
1925	1541435.688	734206.0271	1.47	0.00
1926	1541437.374	734204.9771	1.51	0.00
1927	1541439.11	734203.9846	1.53	0.00
1928	1541440.29	734205.2923	1.70	0.00
1929	1541441.552	734206.5538	1.87	0.00
1930	1541442.99	734207.7351	2.04	0.00
1931	1541444.491	734206.6732	2.04	0.00
1932	1541446.162	734206.0646	2.08	0.00
1933	1541447.076	734207.4951	2.24	0.00
1934	1541448.926	734206.6077	2.27	0.00
1935	1541450.749	734205.8197	2.30	0.00
1936	1541451.844	734207.2252	1.91	0.00
1937	1541452.799	734208.6862	1.37	0.00
1938	1541453.794	734210.1369	0.71	0.00
1939	1541454.792	734211.5884	0.03	0.00
1940	1541455.814	734213.0331	0.00	-0.06
1941	1541456.883	734214.4618	0.55	0.00
1942	1541457.943	734215.8963	1.25	0.00
1943	1541459.117	734217.2925	2.00	0.00
1944	1541460.744	734218.5385	2.52	0.00
1945	1541462.642	734217.9181	2.34	0.00
1946	1541464.615	734219.1283	2.50	0.00
1947	1541466.516	734218.5229	2.38	0.00
1948	1541468.448	734219.6664	2.54	0.00
1949	1541470.099	734220.8512	3.29	0.00
1950	1541471.9	734221.8829	3.30	0.00
1951	1541473.773	734222.4911	4.06	0.00
1952	1541475.484	734223.1577	4.66	0.00
1953	1541477.258	734223.5552	4.91	0.00
1954	1541478.382	734225.0835	4.05	0.00
1955	1541480.41	734225.0743	3.93	0.00
1956	1541481.523	734226.6876	2.93	0.00
1957	1541483.339	734226.9832	2.82	0.00
1958	1541484.267	734228.9451	1.67	0.00

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TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
1959	1541485.527	734230.2704	0.68	0.00
1960	1541486.889	734231.4166	0.00	0.00
1961	1541488.146	734232.8549	0.00	0.00
1962	1541489.508	734233.987	0.00	0.00
1963	1541357.589	734290.4795	0.00	-2.48
1964	1541357.769	734288.7429	0.00	-1.90
1965	1541358.096	734287.003	0.00	-1.40
1966	1541358.303	734285.2662	0.00	-1.11
1967	1541358.701	734283.5248	0.00	-0.82
1968	1541359.898	734281.7651	0.00	-0.48
1969	1541361.501	734279.9961	0.00	-0.11
1970	1541361.317	734278.2704	0.00	0.00
1971	1541362.835	734276.5034	0.38	0.00
1972	1541363.753	734274.7514	2.55	0.00
1973	1541364.765	734272.9971	2.80	0.00
1974	1541365.528	734271.2485	2.64	0.00
1975	1541366.664	734269.4894	2.50	0.00
1976	1541367.948	734267.7288	2.43	0.00
1977	1541368.601	734265.9815	3.05	0.00
1978	1541369.693	734264.2289	3.87	0.00
1979	1541369.304	734262.5107	4.36	0.00
1980	1541370.654	734260.7449	4.78	0.00
1981	1541371.731	734258.9903	5.12	0.00
1982	1541372.999	734257.2321	5.02	0.00
1983	1541374.48	734255.4369	4.77	0.00
1984	1541375.767	734253.7039	4.75	0.00
1985	1541375.174	734252.0019	4.97	0.00
1986	1541376.116	734250.2427	5.20	0.00
1987	1541377.158	734248.689	5.20	0.00
1988	1541377.327	734246.9314	5.20	0.00
1989	1541378.346	734244.9581	5.20	0.00
1990	1541378.846	734242.9374	5.30	0.00
1991	1541380.172	734241.4655	5.21	0.00
1992	1541380.259	734239.5455	4.92	0.00
1993	1541380.247	734237.5907	4.63	0.00
1994	1541381.927	734236.2524	4.35	0.00
1995	1541381.915	734234.2283	4.03	0.00
1996	1541383.624	734232.6723	3.29	0.00
1997	1541383.604	734230.6714	2.24	0.00
1998	1541385.323	734229.5028	1.63	0.00
1999	1541385.301	734227.503	0.97	0.00
2000	1541387.024	734226.787	0.87	0.00
2001	1541387.002	734224.7895	0.52	0.00
2002	1541388.721	734223.7539	0.39	0.00
2003	1541390.435	734222.4752	0.23	0.00
2004	1541392.155	734221.3953	0.16	0.00
2005	1541393.914	734222.0456	0.30	0.00
2006	1541395.566	734220.7273	0.17	0.00
2007	1541397.351	734221.3758	0.26	0.00
2008	1541399.263	734221.706	0.31	0.00
2009	1541400.526	734220.1447	0.18	0.00
2010	1541401.814	734218.6669	0.10	0.00
2011	1541403.937	734218.9112	0.20	0.00
2012	1541405.302	734217.4504	0.13	0.00
2013	1541406.689	734216.0173	0.07	0.00
2014	1541408.107	734214.6128	0.03	0.00
2015	1541409.552	734213.2355	0.02	0.00
2016	1541411.463	734213.8118	0.15	0.00
2017	1541412.946	734212.4725	0.14	0.00
2018	1541414.45	734211.1579	0.13	0.00
2019	1541415.975	734209.8667	0.12	0.00
2020	1541417.518	734208.5974	0.12	0.00
2021	1541419.209	734209.4456	0.26	0.00
2022	1541421.356	734209.9395	0.40	0.00
2023	1541422.931	734208.7149	0.42	0.00
2024	1541424.521	734207.5101	0.48	0.00
2025	1541426.126	734206.3256	0.54	0.00
2026	1541427.75	734205.1665	0.60	0.00
2027	1541430.293	734205.4929	0.89	0.00
2028	1541432.528	734206.034	1.18	0.00
2029	1541434.217	734204.9278	1.25	0.00
2030	1541436.035	734203.6583	1.30	0.00
2031	1541437.978	734202.6515	1.36	0.00
2032	1541439.733	734201.6531	1.37	0.00
2033	1541440.854	734203.0041	1.54	0.00
2034	1541442.031	734204.3152	1.71	0.00
2035	1541443.282	734205.5727	1.88	0.00
2036	1541445.081	734204.645	1.90	0.00
2037	1541446.869	734203.8011	1.93	0.00
2038	1541447.947	734205.1906	2.10	0.00
2039	1541449.765	734204.3609	2.13	0.00
2040	1541451.594	734203.5736	2.16	0.00
2041	1541452.586	734205.0293	2.25	0.00
2042	1541453.687	734206.4525	1.46	0.00
2043	1541454.658	734207.9284	0.78	0.00
2044	1541455.657	734209.3883	0.09	0.00
2045	1541456.658	734210.8593	0.00	-0.16
2046	1541457.683	734212.3214	0.57	0.00
2047	1541458.759	734213.7679	1.28	0.00

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
5/4/2023

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2048	1541459.828	734215.2237	1.95	0.00
2049	1541461.005	734216.6371	2.17	0.00
2050	1541462.881	734216.0074	2.01	0.00
2051	1541464.554	734217.36	2.21	0.00
2052	1541466.389	734216.5895	2.09	0.00
2053	1541468.207	734217.5933	2.24	0.00
2054	1541470.136	734218.4268	2.36	0.00
2055	1541471.505	734219.83	2.56	0.00
2056	1541473.133	734220.2815	4.15	0.00
2057	1541474.834	734220.805	5.14	0.00
2058	1541476.481	734221.4134	5.81	0.00
2059	1541478.247	734221.7913	5.94	0.00
2060	1541479.364	734223.3597	4.97	0.00
2061	1541481.361	734223.3042	5.03	0.00
2062	1541482.458	734224.9267	4.07	0.00
2063	1541484.263	734225.2111	3.99	0.00
2064	1541485.198	734227.1679	2.73	0.00
2065	1541486.47	734228.4869	1.52	0.00
2066	1541487.822	734229.6659	0.24	0.00
2067	1541489.057	734231.0765	0.00	0.00
2068	1541490.438	734232.2153	0.00	0.00
2069	1541355.589	734290.5264	0.00	-2.55
2070	1541355.77	734288.7898	0.00	-1.97
2071	1541356.097	734287.0502	0.00	-1.51
2072	1541356.304	734285.3136	0.00	-1.23
2073	1541356.704	734283.5724	0.00	-0.93
2074	1541357.902	734281.8129	0.00	-0.59
2075	1541359.505	734280.044	0.00	-0.23
2076	1541359.321	734278.3187	0.00	0.00
2077	1541360.839	734276.5515	0.00	0.00
2078	1541361.757	734274.7998	1.57	0.00
2079	1541362.769	734273.0466	2.44	0.00
2080	1541363.53	734271.297	2.55	0.00
2081	1541364.666	734269.5395	2.42	0.00
2082	1541365.944	734267.7762	2.37	0.00
2083	1541366.611	734266.0314	2.79	0.00
2084	1541367.7	734264.2766	3.40	0.00
2085	1541367.304	734262.5588	3.90	0.00
2086	1541368.666	734260.8011	4.38	0.00
2087	1541369.726	734259.0215	4.73	0.00
2088	1541370.974	734257.2789	5.15	0.00
2089	1541372.507	734255.5252	4.99	0.00
2090	1541373.622	734253.6079	4.75	0.00
2091	1541373.308	734251.7266	4.77	0.00
2092	1541374.146	734250.2736	5.20	0.00
2093	1541375.254	734248.3604	5.20	0.00
2094	1541375.183	734246.4367	5.20	0.00
2095	1541376.649	734245.303	5.20	0.00
2096	1541376.852	734243.4724	5.31	0.00
2097	1541376.842	734241.5522	5.29	0.00
2098	1541378.508	734240.7376	5.15	0.00
2099	1541378.507	734238.7232	4.87	0.00
2100	1541378.486	734236.7265	4.58	0.00
2101	1541380.201	734235.5919	4.34	0.00
2102	1541380.178	734233.5962	3.85	0.00
2103	1541381.89	734232.2245	3.09	0.00
2104	1541381.868	734230.2239	2.03	0.00
2105	1541383.581	734228.6703	1.25	0.00
2106	1541383.558	734226.6692	0.76	0.00
2107	1541385.278	734225.5016	0.59	0.00
2108	1541385.255	734223.5006	0.23	0.00
2109	1541386.979	734222.7909	0.16	0.00
2110	1541388.698	734221.7587	0.08	0.00
2111	1541390.413	734220.4809	0.00	0.00
2112	1541392.128	734219.3962	0.00	0.00
2113	1541393.866	734220.0454	0.08	0.00
2114	1541395.561	734218.6387	0.00	0.00
2115	1541397.022	734219.4791	0.02	0.00
2116	1541398.633	734219.7233	0.06	0.00
2117	1541399.765	734218.036	0.00	0.00
2118	1541401.356	734216.6912	0.00	0.00
2119	1541403.195	734217.185	0.03	0.00
2120	1541404.558	734215.734	0.00	0.00
2121	1541405.961	734214.3079	0.00	0.00
2122	1541407.391	734212.9116	0.00	0.00
2123	1541408.842	734211.5411	0.00	0.00
2124	1541411.02	734211.8844	0.00	0.00
2125	1541412.512	734210.5583	0.00	0.00
2126	1541414.024	734209.2559	0.00	0.00
2127	1541415.555	734207.9758	0.00	0.00
2128	1541417.104	734206.7168	0.00	0.00
2129	1541419.078	734207.3488	0.13	0.00
2130	1541420.773	734208.2071	0.27	0.00
2131	1541422.352	734206.9884	0.32	0.00
2132	1541423.947	734205.7896	0.38	0.00
2133	1541425.556	734204.6107	0.44	0.00
2134	1541427.184	734203.4591	0.50	0.00
2135	1541429.376	734204.0466	0.70	0.00
2136	1541432.008	734204.1802	1.00	0.00

Appendix C

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2137	1541433.933	734203.0845	1.09	0.00
2138	1541437.041	734200.1597	1.21	0.00
2139	1541437.041	734200.1597	1.21	0.00
2140	1541438.275	734199.2861	1.29	0.00
2141	1541441.613	734196.5903	1.42	0.00
2142	1541441.504	734200.2001	1.39	0.00
2143	1541442.63	734199.3824	1.43	0.00
2144	1541445.982	734196.6814	1.57	0.00
2145	1541447.41	734201.6496	1.78	0.00
2146	1541447.41	734201.6496	1.78	0.00
2147	1541450.609	734202.7544	1.99	0.00
2148	1541452.34	734203.3541	2.06	0.00
2150	1541453.419	734202.7032	2.19	0.00
2151	1541454.62	734202.6	2.15	0.00
2152	1541455.53	734205.6841	0.84	0.00
2153	1541456.62	734207.5462	0.16	0.00
2154	1541457.24	734206.6	0.00	-0.25
2155	1541458.1	734206.6	0.00	-0.51
2156	1541459.532	734211.6375	1.29	0.00
2157	1541460.22	734213.1325	1.55	0.00
2158	1541462.29	734214.5565	1.77	0.00
2159	1541463.1	734213.873	1.66	0.00
2160	1541464.671	734215.5997	1.94	0.00
2161	1541466.04	734214.4628	1.78	0.00
2162	1541467.769	734215.3129	1.90	0.00
2163	1541469.468	734216.1616	2.03	0.00
2164	1541471.257	734216.514	2.11	0.00
2165	1541472.301	734218.1439	2.81	0.00
2166	1541474.11	734218.5392	4.26	0.00
2167	1541475.81	734219.054	5.57	0.00
2168	1541477.452	734219.6614	6.97	0.00
2169	1541479.213	734220.0371	6.91	0.00
2170	1541480.32	734221.6	5.97	0.00
2171	1541482.316	734221.5462	6.07	0.00
2172	1541483.397	734223.1607	5.27	0.00
2173	1541485.201	734223.4447	5.08	0.00
2174	1541486.115	734225.3901	3.86	0.00
2175	1541487.379	734226.6987	2.70	0.00
2176	1541488.717	734227.8805	1.03	0.00
2177	1541489.957	734229.282	0.00	0.00
2178	1541491.333	734230.426	0.00	0.00
2179	1541353.588	734290.5733	0.00	-2.42
2180	1541353.772	734288.8368	0.00	-1.98
2181	1541354.098	734287.0974	0.00	-1.63
2182	1541354.306	734285.3611	0.00	-1.34
2183	1541354.706	734283.6202	0.00	-1.05
2184	1541355.906	734281.8609	0.00	-0.71
2185	1541357.508	734280.0922	0.00	-0.34
2186	1541357.324	734278.3671	0.00	-0.08
2187	1541358.843	734276.6003	0.00	0.00
2188	1541359.761	734274.8475	0.00	0.00
2189	1541360.772	734273.095	2.01	0.00
2190	1541361.536	734271.3503	2.29	0.00
2191	1541362.667	734269.5868	2.43	0.00
2192	1541363.95	734267.8263	2.38	0.00
2193	1541364.605	734266.0745	2.63	0.00
2194	1541365.707	734264.3272	3.25	0.00
2195	1541365.292	734262.6323	3.60	0.00
2196	1541366.687	734260.8514	3.99	0.00
2197	1541367.766	734259.1104	4.35	0.00
2198	1541368.833	734257.2387	4.67	0.00
2199	1541370.497	734255.5519	5.21	0.00
2200	1541371.679	734253.9794	5.12	0.00
2201	1541371.674	734252.2496	5.07	0.00
2202	1541371.873	734250.1918	5.01	0.00
2203	1541373.293	734248.7947	5.20	0.00
2204	1541373.432	734247.0484	5.20	0.00
2205	1541373.385	734245.1054	5.32	0.00
2206	1541375.079	734244.4473	5.25	0.00
2207	1541375.088	734242.4714	5.41	0.00
2208	1541375.07	734240.48	5.10	0.00
2209	1541376.784	734239.5366	5.03	0.00
2210	1541376.763	734237.538	4.76	0.00
2211	1541376.74	734235.5401	4.50	0.00
2212	1541378.461	734234.728	4.29	0.00
2213	1541378.445	734232.7369	3.41	0.00
2214	1541380.155	734231.6004	2.77	0.00
2215	1541380.132	734229.6047	1.69	0.00
2216	1541381.845	734228.2238	1.13	0.00
2217	1541381.822	734226.224	0.64	0.00
2218	1541383.535	734224.668	0.33	0.00
2219	1541383.512	734222.6668	0.00	0.00
2220	1541385.231	734221.4995	0.00	0.00
2221	1541386.956	734220.7924	0.00	0.00
2222	1541388.675	734219.7637	0.00	0.00
2223	1541390.389	734218.4859	0.00	0.00
2224	1541392.104	734217.397	0.00	0.00
2225	1541393.84	734218.0447	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2226	1541395.598	734216.6786	0.00	0.00
2227	1541397.523	734217.5897	0.00	0.00
2228	1541398.734	734216.0991	0.00	0.00
2229	1541400.013	734215.7987	0.00	0.00
2230	1541401.032	734214.2524	0.00	0.00
2231	1541402.679	734215.1966	0.00	0.00
2232	1541404.078	734213.7662	0.00	0.00
2233	1541405.504	734212.3485	0.00	0.00
2234	1541406.939	734210.9613	0.00	0.00
2235	1541408.408	734209.6014	0.00	0.00
2236	1541410.32	734210.1964	0.00	0.00
2237	1541411.819	734208.8758	0.00	0.00
2238	1541413.338	734207.5783	0.00	0.00
2239	1541414.875	734206.3026	0.00	0.00
2240	1541416.429	734205.0476	0.00	0.00
2241	1541418.668	734205.4779	0.04	0.00
2242	1541420.653	734206.1202	0.18	0.00
2243	1541422.244	734204.9113	0.24	0.00
2244	1541423.85	734203.7225	0.30	0.00
2245	1541425.471	734202.5549	0.36	0.00
2246	1541427.109	734201.4109	0.41	0.00
2247	1541428.771	734202.295	0.55	0.00
2248	1541430.702	734202.866	0.77	0.00
2249	1541432.332	734202.0527	0.87	0.00
2250	1541433.996	734200.9856	0.93	0.00
2251	1541435.777	734199.9361	1.00	0.00
2252	1541437.629	734198.7504	1.02	0.00
2253	1541439.582	734197.8328	1.04	0.00
2254	1541441.376	734196.9004	1.07	0.00
2255	1541442.29	734198.3674	1.23	0.00
2256	1541443.287	734199.7958	1.41	0.00
2257	1541444.408	734201.1643	1.58	0.00
2258	1541446.214	734200.3065	1.61	0.00
2259	1541448.036	734199.459	1.63	0.00
2260	1541449.229	734200.8256	1.81	0.00
2261	1541451.006	734199.9798	1.83	0.00
2262	1541452.719	734199.2802	1.87	0.00
2263	1541454.233	734200.2941	2.03	0.00
2264	1541455.291	734202.0195	1.59	0.00
2265	1541456.094	734203.6076	1.04	0.00
2266	1541457.478	734204.7605	0.21	0.00
2267	1541458.445	734206.5658	0.00	-0.33
2268	1541459.512	734208.1004	0.52	0.00
2269	1541460.552	734209.6107	0.91	0.00
2270	1541461.315	734211.1522	1.18	0.00
2271	1541462.503	734212.3338	1.44	0.00
2272	1541464.227	734211.4767	1.35	0.00
2273	1541465.445	734212.7624	1.53	0.00
2274	1541467.512	734212.8652	1.55	0.00
2275	1541468.963	734214.0157	1.72	0.00
2276	1541470.528	734214.4186	1.82	0.00
2277	1541472.285	734214.7726	3.17	0.00
2278	1541473.312	734216.4425	4.84	0.00
2279	1541475.1	734216.7975	5.72	0.00
2280	1541476.794	734217.3128	7.14	0.00
2281	1541478.434	734217.9201	7.90	0.00
2282	1541480.202	734218.3282	7.53	0.00
2283	1541481.313	734219.8297	6.79	0.00
2284	1541483.285	734219.7873	6.57	0.00
2285	1541484.362	734221.4073	5.92	0.00
2286	1541486.177	734221.7012	5.82	0.00
2287	1541487.062	734223.6273	4.63	0.00
2288	1541488.307	734224.9277	3.61	0.00
2289	1541489.629	734226.0979	2.02	0.00
2290	1541490.841	734227.4939	0.00	0.00
2291	1541492.208	734228.6268	0.00	0.00
2292	1541351.588	734290.6202	0.00	-2.20
2293	1541351.773	734288.8839	0.00	-1.81
2294	1541352.1	734287.1445	0.00	-1.59
2295	1541352.309	734285.4088	0.00	-1.44
2296	1541352.71	734283.6683	0.00	-1.16
2297	1541353.91	734281.9091	0.00	-0.82
2298	1541355.512	734280.1408	0.00	-0.46
2299	1541355.328	734278.4169	0.00	-0.20
2300	1541356.847	734276.6483	0.00	0.00
2301	1541357.767	734274.897	0.00	0.00
2302	1541358.773	734273.1384	0.00	0.00
2303	1541359.537	734271.3967	1.60	0.00
2304	1541360.673	734269.6708	2.19	0.00
2305	1541361.97	734267.8546	2.41	0.00
2306	1541362.596	734266.1258	2.49	0.00
2307	1541363.697	734264.3342	3.14	0.00
2308	1541363.193	734262.343	3.32	0.00
2309	1541364.786	734260.9675	3.71	0.00
2310	1541365.639	734259.2728	4.04	0.00
2311	1541366.804	734257.7542	4.39	0.00
2312	1541366.726	734256.3128	4.44	0.00
2313	1541368.588	734255.3973	4.82	0.00
2314	1541369.929	734253.5146	5.39	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2315	1541369.996	734251.3462	5.58	0.00
2316	1541369.989	734249.3524	5.75	0.00
2317	1541371.651	734248.0848	5.20	0.00
2318	1541371.665	734246.0776	5.20	0.00
2319	1541371.642	734244.0754	6.27	0.00
2320	1541373.36	734243.1046	5.89	0.00
2321	1541373.342	734241.1087	5.49	0.00
2322	1541373.319	734239.1111	5.19	0.00
2323	1541375.043	734238.4802	4.78	0.00
2324	1541375.02	734236.483	4.54	0.00
2325	1541374.994	734234.4885	4.13	0.00
2326	1541376.716	734233.5425	3.89	0.00
2327	1541376.718	734231.5523	2.73	0.00
2328	1541378.421	734230.7367	2.30	0.00
2329	1541378.4	734228.7351	1.25	0.00
2330	1541380.109	734227.6089	0.95	0.00
2331	1541380.086	734225.6131	0.44	0.00
2332	1541381.799	734224.2241	0.15	0.00
2333	1541381.775	734222.2242	0.00	0.00
2334	1541383.489	734220.6655	0.00	0.00
2335	1541385.208	734219.4983	0.00	0.00
2336	1541386.932	734218.7939	0.00	0.00
2337	1541388.652	734217.7686	0.00	0.00
2338	1541390.365	734216.4905	0.00	0.00
2339	1541392.082	734215.3998	0.00	0.00
2340	1541393.823	734216.056	0.00	0.00
2341	1541395.527	734214.6768	0.00	0.00
2342	1541397.254	734215.3343	0.00	0.00
2343	1541399.123	734213.9169	0.00	0.00
2344	1541400.499	734211.8615	0.00	0.00
2345	1541402.398	734212.958	0.00	0.00
2346	1541403.802	734211.6467	0.00	0.00
2347	1541405.183	734210.2437	0.00	0.00
2348	1541406.65	734208.8807	0.00	0.00
2349	1541408.132	734207.5313	0.00	0.00
2350	1541409.898	734208.2669	0.00	0.00
2351	1541411.407	734206.955	0.00	0.00
2352	1541412.937	734205.6659	0.00	0.00
2353	1541414.484	734204.3983	0.00	0.00
2354	1541416.047	734203.1504	0.00	0.00
2355	1541418	734203.8124	0.00	0.00
2356	1541420.248	734204.2587	0.09	0.00
2357	1541421.843	734203.0592	0.15	0.00
2358	1541423.454	734201.8801	0.20	0.00
2359	1541425.079	734200.7226	0.25	0.00
2360	1541426.721	734199.5884	0.30	0.00
2361	1541428.755	734200.2858	0.46	0.00
2362	1541430.5	734201.1764	0.63	0.00
2363	1541432.159	734200.1642	0.72	0.00
2364	1541433.856	734199.0872	0.78	0.00
2365	1541435.563	734198.0937	0.85	0.00
2366	1541437.035	734197.0157	0.84	0.00
2367	1541438.703	734196.3695	0.88	0.00
2368	1541440.455	734195.4427	0.90	0.00
2369	1541442.24	734194.5457	0.96	0.00
2370	1541443.173	734196.0088	1.09	0.00
2371	1541444.083	734197.485	1.26	0.00
2372	1541445.087	734198.9243	1.43	0.00
2373	1541446.89	734198.1057	1.46	0.00
2374	1541448.719	734197.1763	1.48	0.00
2375	1541449.836	734198.5864	1.66	0.00
2376	1541451.765	734197.8264	1.70	0.00
2377	1541454.134	734197.8075	1.85	0.00
2378	1541455.68	734198.8817	1.83	0.00
2379	1541456.522	734200.4106	1.31	0.00
2380	1541457.549	734202.1711	0.75	0.00
2381	1541458.973	734203.3994	0.00	-0.05
2382	1541459.724	734205.0002	0.00	-0.21
2383	1541460.784	734206.5432	0.27	0.00
2384	1541461.863	734208.1156	0.74	0.00
2385	1541462.914	734209.8923	1.05	0.00
2386	1541465.205	734209.6331	1.07	0.00
2387	1541466.36	734211.1552	1.30	0.00
2388	1541468.516	734210.9327	1.32	0.00
2389	1541469.705	734212.2998	1.54	0.00
2390	1541471.504	734212.679	2.28	0.00
2391	1541473.291	734213.0433	4.69	0.00
2392	1541474.311	734214.7117	4.67	0.00
2393	1541476.102	734215.0665	7.42	0.00
2394	1541477.791	734215.5821	7.59	0.00
2395	1541479.416	734216.1818	7.77	0.00
2396	1541480.942	734216.6325	7.87	0.00
2397	1541482.314	734217.8544	7.29	0.00
2398	1541484.301	734218.0851	6.88	0.00
2399	1541485.369	734219.6822	6.24	0.00
2400	1541487.193	734219.9812	5.85	0.00
2401	1541488.059	734221.893	5.02	0.00
2402	1541489.278	734223.1905	3.96	0.00
2403	1541490.598	734224.3407	2.70	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2404	1541491.773	734225.7247	0.90	0.00
2405	1541493.083	734226.8277	0.00	0.00
2406	1541349.588	734290.6672	0.00	-1.97
2407	1541349.776	734288.9309	0.00	-1.59
2408	1541350.103	734287.1922	0.00	-1.46
2409	1541350.312	734285.4563	0.00	-1.32
2410	1541350.714	734283.717	0.00	-1.19
2411	1541351.916	734281.9578	0.00	-0.94
2412	1541353.517	734280.189	0.00	-0.57
2413	1541353.332	734278.4612	0.00	-0.31
2414	1541354.854	734276.7022	0.00	0.00
2415	1541355.763	734274.9461	0.00	0.00
2416	1541356.781	734273.1895	0.00	0.00
2417	1541357.508	734271.4142	0.00	0.00
2418	1541358.615	734269.7134	1.41	0.00
2419	1541360.125	734268.1348	2.18	0.00
2420	1541360.402	734266.2535	2.44	0.00
2421	1541361.742	734264.4334	2.86	0.00
2422	1541361.288	734262.8114	3.01	0.00
2423	1541361.551	734260.9271	3.33	0.00
2424	1541363.374	734259.7539	3.68	0.00
2425	1541364.914	734257.748	4.14	0.00
2426	1541364.838	734255.8882	4.37	0.00
2427	1541366.564	734254.5568	4.80	0.00
2428	1541368.103	734253.7934	5.13	0.00
2429	1541368.275	734252.0599	5.56	0.00
2430	1541368.245	734250.0905	6.01	0.00
2431	1541368.224	734248.098	6.43	0.00
2432	1541369.942	734247.3367	5.48	0.00
2433	1541369.924	734245.3359	6.40	0.00
2434	1541369.901	734243.3348	6.41	0.00
2435	1541371.62	734242.0741	5.96	0.00
2436	1541371.597	734240.0739	5.38	0.00
2437	1541371.575	734238.0738	4.71	0.00
2438	1541373.296	734237.1117	4.67	0.00
2439	1541373.273	734235.1066	4.07	0.00
2440	1541373.245	734233.0826	2.93	0.00
2441	1541374.955	734232.5089	3.17	0.00
2442	1541375.165	734230.6816	2.07	0.00
2443	1541376.69	734229.5294	1.56	0.00
2444	1541376.646	734227.5466	0.85	0.00
2445	1541378.368	734226.7426	0.67	0.00
2446	1541378.346	734224.7467	0.13	0.00
2447	1541380.063	734223.6172	0.00	0.00
2448	1541380.039	734221.6214	0.00	0.00
2449	1541381.752	734220.2243	0.00	0.00
2450	1541383.465	734218.6642	0.00	0.00
2451	1541385.185	734217.4971	0.00	0.00
2452	1541386.909	734216.7954	0.00	0.00
2453	1541388.628	734215.7735	0.00	0.00
2454	1541390.342	734214.4957	0.00	0.00
2455	1541392.058	734213.4012	0.00	0.00
2456	1541393.794	734214.0582	0.00	0.00
2457	1541395.51	734212.6785	0.00	0.00
2458	1541397.242	734213.3513	0.00	0.00
2459	1541398.748	734211.9909	0.00	0.00
2460	1541398.985	734210.1144	0.00	0.00
2461	1541400.78	734209.4729	0.00	0.00
2462	1541401.977	734211.1418	0.00	0.00
2463	1541403.034	734209.8347	0.00	0.00
2464	1541404.529	734208.5127	0.00	0.00
2465	1541405.993	734207.1781	0.00	0.00
2466	1541407.412	734205.8254	0.00	0.00
2467	1541409.623	734206.2098	0.00	0.00
2468	1541411.143	734204.9134	0.00	0.00
2469	1541412.684	734203.6372	0.00	0.00
2470	1541414.238	734202.3812	0.00	0.00
2471	1541415.809	734201.1445	0.00	0.00
2472	1541417.626	734201.9222	0.00	0.00
2473	1541419.585	734202.5968	0.00	0.00
2474	1541421.185	734201.4009	0.04	0.00
2475	1541422.801	734200.2256	0.09	0.00
2476	1541424.432	734199.0719	0.14	0.00
2477	1541426.079	734197.9418	0.19	0.00
2478	1541428.38	734198.479	0.35	0.00
2479	1541430.434	734199.1922	0.50	0.00
2480	1541432.129	734198.126	0.56	0.00
2481	1541433.839	734197.1033	0.64	0.00
2482	1541435.544	734196.0898	0.69	0.00
2483	1541437.319	734195.1102	0.70	0.00
2484	1541439.089	734194.2084	0.75	0.00
2485	1541440.871	734193.3018	0.83	0.00
2486	1541442.661	734192.3989	0.91	0.00
2487	1541444.046	734193.6339	1.05	0.00
2488	1541444.98	734195.0964	1.16	0.00
2489	1541445.854	734196.6356	1.28	0.00
2490	1541447.58	734196.0323	1.37	0.00
2491	1541449.3	734194.8588	1.45	0.00
2492	1541450.587	734196.4089	1.57	0.00

Appendix C

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2493	1541452.958	734196.1983	1.72	0.00
2494	1541458.182	734197.2755	1.04	0.00
2495	1541458.129	734197.2755	1.04	0.00
2496	1541458.129	734197.2755	1.04	0.00
2497	1541458.858	734201.2701	0.15	0.00
2498	1541462.846	734201.9625	0.00	0.07
2499	1541461.106	734204.1313	0.00	0.00
2500	1541464.106	734208.1113	0.85	0.00
2501	1541467.182	734211.3318	1.86	0.00
2502	1541467.182	734209.4586	1.09	0.00
2503	1541467.182	734209.4586	1.09	0.00
2504	1541470.727	734210.6114	1.41	0.00
2505	1541472.174	734211.3318	1.54	0.00
2506	1541474.32	734211.3318	5.69	0.00
2507	1541472.174	734211.3318	7.17	0.00
2508	1541472.174	734211.3318	7.54	0.00
2509	1541472.174	734211.3318	7.54	0.00
2510	1541472.174	734211.3318	7.54	0.00
2511	1541472.174	734211.3318	7.54	0.00
2512	1541480.472	734214.452	7.73	0.00
2513	1541480.472	734215.2507	7.86	0.00
2514	1541480.472	734216.071	7.42	0.00
2515	1541480.472	734216.3928	6.90	0.00
2516	1541486.416	734217.9812	6.40	0.00
2517	1541488.261	734218.2859	5.86	0.00
2518	1541489.079	734220.1928	5.03	0.00
2519	1541490.328	734221.502	4.03	0.00
2520	1541491.633	734222.6083	2.93	0.00
2521	1541492.801	734224.0242	1.30	0.00
2522	1541494.106	734225.1128	0.00	0.00
2523	1541347.588	734290.7141	0.00	-1.73
2524	1541347.778	734288.9776	0.00	-1.36
2525	1541348.106	734287.2395	0.00	-1.29
2526	1541348.317	734285.5058	0.00	-1.19
2527	1541348.717	734283.764	0.00	-1.07
2528	1541349.922	734282.0082	0.00	-0.98
2529	1541351.518	734280.2393	0.00	-0.69
2530	1541351.337	734278.5196	0.00	-0.43
2531	1541352.847	734276.719	0.00	-0.06
2532	1541353.763	734275.0222	0.00	0.00
2533	1541354.808	734273.2163	0.00	0.00
2534	1541355.529	734271.4452	0.00	0.00
2535	1541356.504	734269.4441	0.00	0.00
2536	1541358.38	734267.8716	2.06	0.00
2537	1541358.346	734265.9902	2.32	0.00
2538	1541359.702	734264.1638	2.68	0.00
2539	1541359.715	734261.937	3.07	0.00
2540	1541359.723	734259.9421	3.43	0.00
2541	1541361.451	734258.8907	3.66	0.00
2542	1541363.129	734257.5942	3.98	0.00
2543	1541363.111	734255.5584	4.32	0.00
2544	1541364.82	734253.8977	4.79	0.00
2545	1541366.505	734252.5912	5.26	0.00
2546	1541366.519	734250.619	5.70	0.00
2547	1541366.495	734248.622	6.12	0.00
2548	1541366.474	734246.6232	6.13	0.00
2549	1541368.199	734246.0948	6.73	0.00
2550	1541368.177	734244.094	6.32	0.00
2551	1541368.154	734242.0927	5.56	0.00
2552	1541369.879	734241.3335	5.58	0.00
2553	1541369.856	734239.3323	4.84	0.00
2554	1541369.833	734237.3308	4.11	0.00
2555	1541371.552	734236.0731	4.02	0.00
2556	1541371.529	734234.073	2.86	0.00
2557	1541371.53	734232.0598	1.72	0.00
2558	1541373.349	734230.8932	1.75	0.00
2559	1541374.916	734228.9187	1.16	0.00
2560	1541374.911	734226.9403	0.58	0.00
2561	1541376.624	734225.5483	0.26	0.00
2562	1541376.601	734223.5494	0.00	0.00
2563	1541378.322	734222.7506	0.00	0.00
2564	1541378.299	734220.7544	0.00	0.00
2565	1541380.016	734219.6255	0.00	0.00
2566	1541381.729	734218.2244	0.00	0.00
2567	1541383.442	734216.6629	0.00	0.00
2568	1541385.161	734215.4959	0.00	0.00
2569	1541386.885	734214.7969	0.00	0.00
2570	1541388.605	734213.7784	0.00	0.00
2571	1541390.319	734212.5005	0.00	0.00
2572	1541392.034	734211.4032	0.00	0.00
2573	1541393.772	734212.0626	0.00	0.00
2574	1541395.482	734210.6769	0.00	0.00
2575	1541397.195	734211.3106	0.00	0.00
2576	1541397.205	734209.3194	0.00	0.00
2577	1541398.941	734208.1483	0.00	0.00
2578	1541400.66	734207.2815	0.00	0.00
2579	1541402.376	734208.0416	0.00	0.00
2580	1541403.902	734206.9998	0.00	0.00
2581	1541405.047	734205.628	0.00	0.00

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
5/4/2023

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2582	1541406.63	734204.1276	0.00	0.00
2583	1541408.914	734204.5213	0.00	0.00
2584	1541410.459	734203.2385	0.00	0.00
2585	1541412.001	734201.9665	0.00	0.00
2586	1541413.559	734200.7171	0.00	0.00
2587	1541415.133	734199.4857	0.00	0.00
2588	1541417.394	734199.9273	0.00	0.00
2589	1541419.22	734200.7135	0.00	0.00
2590	1541420.828	734199.5247	0.00	0.00
2591	1541422.452	734198.3567	0.00	0.00
2592	1541424.091	734197.2106	0.04	0.00
2593	1541425.748	734196.0881	0.08	0.00
2594	1541427.743	734196.8342	0.23	0.00
2595	1541430.057	734197.3976	0.39	0.00
2596	1541431.753	734196.3458	0.43	0.00
2597	1541433.459	734195.3234	0.48	0.00
2598	1541435.198	734194.3325	0.52	0.00
2599	1541436.951	734193.3734	0.57	0.00
2600	1541438.725	734192.4567	0.64	0.00
2601	1541440.507	734191.5518	0.72	0.00
2602	1541442.283	734190.6285	0.80	0.00
2603	1541444.452	734191.4352	0.98	0.00
2604	1541445.981	734192.7142	1.15	0.00
2605	1541446.907	734194.4798	1.28	0.00
2606	1541448.352	734193.1127	1.33	0.00
2607	1541450.702	734193.26	1.50	0.00
2608	1541451.765	734194.7679	1.60	0.00
2609	1541454.136	734194.6098	1.77	0.00
2610	1541456.424	734194.3123	1.52	0.00
2611	1541457.643	734195.6179	1.08	0.00
2612	1541458.76	734197.0884	0.70	0.00
2613	1541459.827	734198.6455	0.32	0.00
2614	1541460.94	734200.1142	0.00	-0.02
2615	1541461.99	734201.699	0.00	-0.30
2616	1541463.057	734203.2692	0.00	-0.12
2617	1541464.118	734204.8403	0.28	0.00
2618	1541465.191	734206.4029	0.62	0.00
2619	1541467.336	734206.2197	0.75	0.00
2620	1541468.42	734207.7588	0.96	0.00
2621	1541470.611	734207.4923	1.28	0.00
2622	1541471.763	734208.9077	2.64	0.00
2623	1541473.57	734209.262	4.76	0.00
2624	1541475.37	734209.6339	6.38	0.00
2625	1541476.372	734211.286	7.13	0.00
2626	1541478.179	734211.6495	7.32	0.00
2627	1541479.885	734212.1652	7.52	0.00
2628	1541481.543	734212.7912	7.72	0.00
2629	1541483.1	734213.5634	7.79	0.00
2630	1541484.635	734214.3609	7.43	0.00
2631	1541486.466	734214.712	6.92	0.00
2632	1541487.497	734216.2969	6.39	0.00
2633	1541489.35	734216.6056	5.89	0.00
2634	1541490.165	734218.4879	5.02	0.00
2635	1541491.081	734219.8954	4.15	0.00
2636	1541492.722	734220.6763	3.14	0.00
2637	1541493.573	734222.3919	1.65	0.00
2638	1541495.211	734223.4453	0.00	0.00
2639	1541345.588	734290.761	0.00	-1.49
2640	1541345.784	734289.0262	0.00	-1.16
2641	1541346.109	734287.2841	0.00	-1.10
2642	1541346.321	734285.5528	0.00	-1.02
2643	1541346.728	734283.8207	0.00	-0.93
2644	1541347.929	734282.0376	0.00	-0.87
2645	1541349.509	734280.2988	0.00	-0.79
2646	1541349.337	734278.6133	0.00	-0.55
2647	1541350.917	734276.7881	0.00	-0.18
2648	1541351.55	734274.8407	0.00	0.00
2649	1541352.956	734273.4132	0.00	0.00
2650	1541353.354	734271.5354	0.00	0.00
2651	1541354.436	734269.7095	0.00	0.00
2652	1541354.705	734267.744	0.09	0.00
2653	1541356.532	734267.1943	0.29	0.00
2654	1541356.359	734265.2038	1.32	0.00
2655	1541357.853	734264.2778	2.62	0.00
2656	1541358.03	734262.5057	2.95	0.00
2657	1541357.983	734260.5238	3.32	0.00
2658	1541357.964	734258.5366	3.68	0.00
2659	1541359.687	734257.9411	3.80	0.00
2660	1541361.401	734256.8784	4.02	0.00
2661	1541361.377	734254.8809	4.38	0.00
2662	1541363.09	734253.5547	4.73	0.00
2663	1541364.796	734251.8954	5.26	0.00
2664	1541364.78	734249.8972	5.67	0.00
2665	1541364.757	734247.899	5.57	0.00
2666	1541364.734	734245.9005	5.46	0.00
2667	1541366.451	734244.623	6.02	0.00
2668	1541366.428	734242.623	5.36	0.00
2669	1541366.405	734240.6228	4.59	0.00
2670	1541368.131	734240.0913	4.78	0.00

121 Badger Cut/Fill Calculations
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TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2671	1541368.108	734238.0898	3.92	0.00
2672	1541368.085	734236.0883	2.68	0.00
2673	1541369.81	734235.3296	2.94	0.00
2674	1541369.79	734233.3259	1.81	0.00
2675	1541369.767	734231.3261	1.14	0.00
2676	1541371.508	734230.0767	1.07	0.00
2677	1541373.192	734228.708	0.94	0.00
2678	1541373.176	734226.6766	0.35	0.00
2679	1541374.887	734224.9472	0.00	0.00
2680	1541374.864	734222.9505	0.00	0.00
2681	1541376.578	734221.5508	0.00	0.00
2682	1541376.555	734219.5522	0.00	0.00
2683	1541378.276	734218.7581	0.00	0.00
2684	1541379.993	734217.6295	0.00	0.00
2685	1541381.705	734216.2245	0.00	0.00
2686	1541383.418	734214.6616	0.00	0.00
2687	1541385.138	734213.4947	0.00	0.00
2688	1541386.862	734212.7983	0.00	0.00
2689	1541388.581	734211.7833	0.00	0.00
2690	1541390.295	734210.5054	0.00	0.00
2691	1541392.011	734209.4049	0.00	0.00
2692	1541393.748	734210.0662	0.00	0.00
2693	1541395.463	734208.6806	0.00	0.00
2694	1541397.178	734207.3216	0.00	0.00
2695	1541398.898	734206.1446	0.00	0.00
2696	1541400.641	734205.2813	0.00	0.00
2697	1541402.54	734205.8969	0.00	0.00
2698	1541404.138	734204.1677	0.00	0.00
2699	1541405.403	734203.038	0.00	0.00
2700	1541406.669	734201.9449	0.00	0.00
2701	1541408.327	734202.7677	0.00	0.00
2702	1541409.872	734201.4836	0.00	0.00
2703	1541411.422	734200.2122	0.00	0.00
2704	1541412.989	734198.9722	0.00	0.00
2705	1541414.565	734197.7464	0.00	0.00
2706	1541416.72	734198.274	0.00	0.00
2707	1541418.994	734198.7294	0.00	0.00
2708	1541420.61	734197.5517	0.00	0.00
2709	1541422.241	734196.3948	0.00	0.00
2710	1541423.892	734195.2581	0.00	0.00
2711	1541425.585	734194.1369	0.00	0.00
2712	1541427.416	734194.9681	0.12	0.00
2713	1541429.423	734195.7584	0.27	0.00
2714	1541431.122	734194.7107	0.31	0.00
2715	1541432.846	734193.6949	0.35	0.00
2716	1541434.584	734192.7101	0.39	0.00
2717	1541436.34	734191.758	0.45	0.00
2718	1541438.113	734190.8318	0.52	0.00
2719	1541439.893	734189.9216	0.59	0.00
2720	1541441.656	734188.9651	0.68	0.00
2721	1541443.993	734189.6028	0.88	0.00
2722	1541446.264	734190.2547	1.07	0.00
2723	1541447.647	734191.5533	1.23	0.00
2724	1541449.745	734191.6616	1.38	0.00
2725	1541451.919	734191.6546	1.54	0.00
2726	1541452.989	734193.1807	1.65	0.00
2727	1541455.249	734192.9359	1.82	0.00
2728	1541457.511	734192.6251	1.47	0.00
2729	1541458.72	734193.9391	1.10	0.00
2730	1541459.836	734195.4045	0.74	0.00
2731	1541460.897	734196.9537	0.37	0.00
2732	1541462.009	734198.4273	0.00	-0.01
2733	1541463.057	734200.0055	0.00	-0.38
2734	1541464.114	734201.5731	0.00	-0.22
2735	1541465.176	734203.1398	0.18	0.00
2736	1541466.246	734204.6942	0.54	0.00
2737	1541468.393	734204.5202	0.74	0.00
2738	1541469.47	734206.0575	0.93	0.00
2739	1541471.671	734205.7987	2.48	0.00
2740	1541472.818	734207.2132	3.81	0.00
2741	1541474.631	734207.5721	5.32	0.00
2742	1541476.438	734207.9474	6.87	0.00
2743	1541477.436	734209.5937	7.12	0.00
2744	1541479.25	734209.9614	7.32	0.00
2745	1541480.965	734210.49	7.52	0.00
2746	1541482.623	734211.1095	7.72	0.00
2747	1541484.179	734211.8853	7.80	0.00
2748	1541485.726	734212.6793	7.46	0.00
2749	1541487.559	734213.0379	6.96	0.00
2750	1541488.589	734214.6227	6.43	0.00
2751	1541490.449	734214.9441	5.95	0.00
2752	1541491.281	734216.8338	5.12	0.00
2753	1541492.286	734218.4794	4.10	0.00
2754	1541494.048	734218.9405	3.11	0.00
2755	1541494.728	734221.0079	1.52	0.00
2756	1541496.317	734221.7778	0.00	0.00
2757	1541343.587	734290.8079	0.00	-1.25
2758	1541343.791	734289.0777	0.00	-0.97
2759	1541344.124	734287.3393	0.00	-0.91

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
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TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
2760	1541344.303	734285.5833	0.00	-0.83
2761	1541344.708	734283.8643	0.00	-0.76
2762	1541345.965	734282.1391	0.00	-0.75
2763	1541347.414	734280.223	0.00	-0.67
2764	1541347.49	734278.2294	0.00	-0.49
2765	1541349.079	734276.9831	0.00	-0.31
2766	1541349.52	734275.2464	0.00	-0.01
2767	1541349.56	734273.4365	0.00	0.00
2768	1541351.319	734272.5997	0.00	0.00
2769	1541351.228	734270.6713	0.00	0.00
2770	1541352.705	734269.744	0.00	0.00
2771	1541352.878	734267.9591	0.15	0.00
2772	1541352.87	734266.0088	0.36	0.00
2773	1541354.629	734265.6863	0.54	0.00
2774	1541354.559	734263.6882	0.90	0.00
2775	1541356.25	734263.1802	2.64	0.00
2776	1541356.263	734261.2031	3.23	0.00
2777	1541356.238	734259.2043	3.58	0.00
2778	1541356.217	734257.2075	3.94	0.00
2779	1541357.94	734256.5411	4.05	0.00
2780	1541359.662	734255.9435	4.16	0.00
2781	1541359.639	734253.9486	4.44	0.00
2782	1541361.355	734252.8857	4.59	0.00
2783	1541363.068	734251.5556	5.14	0.00
2784	1541363.046	734249.5585	5.03	0.00
2785	1541363.024	734247.5615	4.92	0.00
2786	1541363.001	734245.5643	4.81	0.00
2787	1541364.712	734243.902	5.35	0.00
2788	1541364.689	734241.9033	4.68	0.00
2789	1541364.666	734239.9046	3.82	0.00
2790	1541366.382	734238.6226	3.60	0.00
2791	1541366.359	734236.6223	2.33	0.00
2792	1541366.336	734234.6219	1.41	0.00
2793	1541368.063	734234.0866	1.56	0.00
2794	1541368.04	734232.0852	1.10	0.00
2795	1541368.016	734230.0835	0.67	0.00
2796	1541369.743	734229.3268	0.66	0.00
2797	1541371.46	734228.0723	0.57	0.00
2798	1541371.436	734226.0713	0.05	0.00
2799	1541373.152	734224.6721	0.00	0.00
2800	1541373.129	734222.6716	0.00	0.00
2801	1541374.84	734220.9533	0.00	0.00
2802	1541374.817	734218.9558	0.00	0.00
2803	1541376.531	734217.5536	0.00	0.00
2804	1541378.252	734216.7619	0.00	0.00
2805	1541379.969	734215.6336	0.00	0.00
2806	1541381.682	734214.2245	0.00	0.00
2807	1541383.395	734212.6603	0.00	0.00
2808	1541385.114	734211.4935	0.00	0.00
2809	1541386.838	734210.7998	0.00	0.00
2810	1541388.558	734209.7881	0.00	0.00
2811	1541390.272	734208.5103	0.00	0.00
2812	1541391.987	734207.4068	0.00	0.00
2813	1541393.725	734208.0705	0.00	0.00
2814	1541395.439	734206.6832	0.00	0.00
2815	1541397.152	734205.3208	0.00	0.00
2816	1541398.874	734204.1478	0.00	0.00
2817	1541400.594	734203.273	0.00	0.00
2818	1541402.356	734203.845	0.00	0.00
2819	1541404.286	734201.9941	0.00	0.00
2820	1541406.241	734200.2573	0.00	0.00
2821	1541408.245	734200.5455	0.00	0.00
2822	1541409.746	734199.3174	0.00	0.00
2823	1541411.345	734198.0785	0.00	0.00
2824	1541412.907	734196.8449	0.00	0.00
2825	1541414.497	734195.6327	0.00	0.00
2826	1541416.157	734196.5409	0.00	0.00
2827	1541418.323	734197.0817	0.00	0.00
2828	1541419.94	734195.9097	0.00	0.00
2829	1541421.571	734194.7595	0.00	0.00
2830	1541423.216	734193.6335	0.00	0.00
2831	1541424.875	734192.5552	0.00	0.00
2832	1541427.364	734192.8387	0.02	0.00
2833	1541429.092	734193.9092	0.16	0.00
2834	1541430.821	734192.8829	0.20	0.00
2835	1541432.547	734191.8769	0.24	0.00
2836	1541434.292	734191.9014	0.29	0.00
2837	1541436.058	734189.9617	0.33	0.00
2838	1541437.832	734189.0314	0.40	0.00
2839	1541439.609	734188.1342	0.48	0.00
2840	1541441.351	734187.0935	0.56	0.00
2841	1541443.305	734187.8641	0.75	0.00
2842	1541445.495	734188.3407	0.93	0.00
2843	1541447.636	734188.5448	1.10	0.00
2844	1541448.687	734190.0574	1.25	0.00
2845	1541450.89	734190.0547	1.41	0.00
2846	1541453.026	734189.9854	1.57	0.00
2847	1541454.105	734191.5101	1.69	0.00
2848	1541456.335	734191.2543	1.58	0.00

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
2849	1541458.596	734190.9435	1.35	0.00
2850	1541460.525	734192.7245	1.60	0.00
2851	1541462.676	734194.2291	1.90	0.00
2852	1541464.984	734195.4611	2.26	0.00
2853	1541466.13	734196.2181	2.00	0.32
2854	1541466.13	734196.2181	0.15	0.07
2855	1541469.463	734202.8796	0.82	0.00
2856	1541469.463	734202.8796	0.29	0.00
2860	1541472.245	734200.5134	3.23	0.00
2861	1541474.964	734198.2342	4.64	0.00
2862	1541475.706	734205.8913	5.91	0.00
2863	1541477.88	734202.5447	6.93	0.00
2864	1541478.515	734207.9111	7.14	0.00
2866	1541480.825	734205.8126	7.35	0.00
2867	1541482.974	734203.9211	7.54	0.00
2868	1541485.272	734210.2124	7.85	0.00
2869	1541486.2	734211.0073	7.48	0.00
2870	1541488.252	734211.3659	6.99	0.00
2871	1541489.1	734212.9514	6.48	0.00
2872	1541491.547	734213.2738	6.01	0.00
2873	1541492.379	734215.1625	5.27	0.00
2874	1541493.365	734216.8236	4.19	0.00
2875	1541495.159	734217.2452	3.17	0.00
2876	1541495.839	734219.3583	1.51	0.00
2877	1541497.423	734220.1103	0.00	0.00
2878	1541341.587	734290.8548	0.00	-1.01
2879	1541341.823	734289.1518	0.00	-0.77
2880	1541342.169	734287.3962	0.00	-0.72
2881	1541342.381	734285.6399	0.00	-0.65
2882	1541342.639	734283.6403	0.00	-0.56
2883	1541344.053	734282.0099	0.00	-0.58
2884	1541345.488	734280.5927	0.00	-0.58
2885	1541345.803	734278.9408	0.00	-0.45
2886	1541345.963	734277.032	0.00	-0.29
2887	1541347.665	734276.0895	0.00	-0.25
2888	1541347.753	734274.1142	0.00	0.00
2889	1541347.74	734272.1637	0.00	0.00
2890	1541349.471	734271.4408	0.01	0.00
2891	1541349.434	734269.4551	0.00	0.00
2892	1541351.118	734268.66	0.00	0.00
2893	1541351.132	734266.6794	0.02	0.00
2894	1541351.111	734264.6871	0.22	0.00
2895	1541352.834	734264.0121	0.57	0.00
2896	1541352.81	734262.0122	0.87	0.00
2897	1541354.532	734261.6809	1.64	0.00
2898	1541354.515	734259.6871	3.05	0.00
2899	1541354.492	734257.689	4.01	0.00
2900	1541354.47	734255.6912	4.36	0.00
2901	1541356.195	734255.2097	4.31	0.00
2902	1541357.917	734254.5456	4.41	0.00
2903	1541357.895	734252.5502	4.43	0.00
2904	1541359.617	734251.9542	4.41	0.00
2905	1541361.333	734250.8906	4.48	0.00
2906	1541361.31	734248.8956	4.37	0.00
2907	1541361.288	734246.9004	4.31	0.00
2908	1541361.265	734244.9052	4.28	0.00
2909	1541362.978	734243.5671	4.70	0.00
2910	1541362.955	734241.5698	4.22	0.00
2911	1541362.932	734239.5725	3.26	0.00
2912	1541364.643	734237.9058	2.64	0.00
2913	1541364.62	734235.9069	1.51	0.00
2914	1541364.597	734233.908	1.18	0.00
2915	1541366.313	734232.6216	1.02	0.00
2916	1541366.29	734230.6212	0.63	0.00
2917	1541366.266	734228.6207	0.24	0.00
2918	1541367.993	734228.0821	0.22	0.00
2919	1541369.717	734227.324	0.21	0.00
2920	1541369.694	734225.3222	0.00	0.00
2921	1541371.413	734224.0706	0.00	0.00
2922	1541371.389	734222.07	0.00	0.00
2923	1541373.105	734220.672	0.00	0.00
2924	1541373.082	734218.6726	0.00	0.00
2925	1541374.793	734216.9582	0.00	0.00
2926	1541376.508	734215.555	0.00	0.00
2927	1541378.229	734214.7656	0.00	0.00
2928	1541379.946	734213.6377	0.00	0.00
2929	1541381.658	734212.2245	0.00	0.00
2930	1541383.371	734210.6589	0.00	0.00
2931	1541385.091	734209.4923	0.00	0.00
2932	1541386.815	734208.8012	0.00	0.00
2933	1541388.534	734207.793	0.00	0.00
2934	1541390.248	734206.5152	0.00	0.00
2935	1541391.963	734205.4087	0.00	0.00
2936	1541393.701	734206.0747	0.00	0.00
2937	1541395.415	734204.6853	0.00	0.00
2938	1541397.129	734203.3206	0.00	0.00
2939	1541398.847	734202.1473	0.00	0.00
2940	1541400.568	734201.274	0.00	0.00
2941	1541402.322	734201.864	0.00	0.00
2942	1541404.057	734200.168	0.00	0.00
2943	1541405.672	734198.9242	0.00	0.00
2944	1541407.798	734198.3803	0.00	0.00
2945	1541409.646	734197.2718	0.00	0.00
2946	1541411.188	734195.989	0.00	0.00
2947	1541412.78	734194.7737	0.00	0.00
2948	1541414.37	734193.5749	0.00	0.00
2949	1541416.097	734194.4395	0.00	0.00
2950	1541417.764	734195.3547	0.00	0.00
2951	1541419.385	734194.1888	0.00	0.00
2952	1541421.023	734193.0451	0.00	0.00
2953	1541422.676	734191.9243	0.00	0.00
2954	1541424.319	734190.8204	0.00	0.00
2955	1541426.23	734191.4152	0.00	0.00
2956	1541427.918	734190.6355	0.00	0.00
2957	1541429.287	734191.8017	0.06	0.00
2958	1541431.028	734190.7393	0.11	0.00
2959	1541432.754	734189.7548	0.15	0.00
2960	1541434.52	734188.8156	0.20	0.00
2961	1541436.275	734187.9174	0.25	0.00
2962	1541438.042	734186.9661	0.30	0.00
2963	1541439.701	734186.2616	0.39	0.00
2964	1541441.047	734185.023	0.45	0.00
2965	1541442.868	734185.8461	0.63	0.00
2966	1541444.732	734186.5063	0.80	0.00
2967	1541446.756	734186.8044	0.97	0.00
2968	1541448.82	734186.9028	1.14	0.00
2969	1541449.861	734188.4654	1.28	0.00
2970	1541451.995	734188.3902	1.45	0.00
2971	1541454.114	734188.3074	1.61	0.00
2972	1541455.192	734189.8298	1.74	0.00
2973	1541457.421	734189.5724	1.44	0.00
2974	1541459.683	734189.2646	1.17	0.00
2975	1541460.887	734190.5847	1.14	0.00
2976	1541461.999	734192.0483	0.87	0.00
2977	1541463.06	734193.5911	0.50	0.00
2978	1541464.166	734195.0644	0.11	0.00
2979	1541465.211	734196.6365	0.00	-0.26
2980	1541466.264	734198.1977	0.00	-0.24
2981	1541467.319	734199.7582	0.04	0.00
2982	1541468.383	734201.3071	0.51	0.00
2983	1541470.544	734201.1459	1.39	0.00
2984	1541471.612	734202.6811	2.26	0.00
2985	1541473.829	734202.4355	4.13	0.00
2986	1541474.97	734203.8508	5.08	0.00
2987	1541476.791	734204.2165	6.43	0.00
2988	1541478.607	734204.5952	7.08	0.00
2989	1541479.603	734206.2345	7.21	0.00
2990	1541481.427	734206.6068	7.43	0.00
2991	1541483.147	734207.1392	7.63	0.00
2992	1541484.808	734207.7619	7.82	0.00
2993	1541486.366	734208.5411	7.86	0.00
2994	1541487.916	734209.336	7.50	0.00
2995	1541489.752	734209.6935	7.03	0.00
2996	1541490.783	734211.2799	6.53	0.00
2997	1541492.643	734211.6021	6.07	0.00
2998	1541493.477	734213.4906	5.43	0.00
2999	1541494.46	734215.1526	4.29	0.00
3000	1541496.261	734215.5675	3.24	0.00
3001	1541496.939	734217.6923	1.57	0.00
3002	1541498.524	734218.4399	0.00	0.00
3003	1541339.587	734290.9018	0.00	-0.77
3004	1541339.779	734289.1453	0.00	-0.56
3005	1541340.372	734287.6238	0.00	-0.55
3006	1541340.455	734285.9416	0.00	-0.48
3007	1541340.782	734284.1106	0.00	-0.41
3008	1541340.904	734282.1422	0.00	-0.31
3009	1541342.542	734281.1821	0.00	-0.39
3010	1541344.139	734279.7987	0.00	-0.43
3011	1541344.273	734277.8125	0.00	-0.25
3012	1541344.311	734275.8415	0.00	-0.08
3013	1541346.027	734275.0117	0.00	-0.10
3014	1541346.011	734273.0212	0.01	0.00
3015	1541345.993	734271.0273	0.00	0.00
3016	1541347.712	734270.1695	0.00	0.00
3017	1541347.691	734268.1741	0.00	0.00
3018	1541349.407	734267.4505	0.00	0.00
3019	1541349.39	734265.4574	0.01	0.00
3020	1541349.368	734263.4622	0.08	0.00
3021	1541351.088	734262.6896	0.43	0.00
3022	1541351.066	734260.6925	0.77	0.00
3023	1541352.787	734260.0131	1.42	0.00
3024	1541352.766	734258.0159	2.19	0.00
3025	1541352.743	734256.018	3.52	0.00
3026	1541352.72	734254.02	4.48	0.00
3027	1541354.447	734253.6929	4.46	0.00
3028	1541356.172	734253.2119	4.45	0.00
3029	1541356.15	734251.214	4.41	0.00
3030	1541357.872	734250.5548	4.39	0.00
3031	1541359.594	734249.9597	4.38	0.00
3032	1541359.572	734247.9652	4.34	0.00
3033	1541359.549	734245.9706	4.31	0.00
3034	1541359.526	734243.9759	4.27	0.00
3035	1541361.242	734242.9099	4.25	0.00
3036	1541361.219	734240.9145	3.89	0.00
3037	1541361.196	734238.919	2.89	0.00
3038	1541362.909	734237.575	2.26	0.00
3039	1541362.886	734235.5775	1.43	0.00
3040	1541362.863	734233.58	1.03	0.00
3041	1541364.573	734231.909	0.78	0.00
3042	1541364.55	734229.91	0.38	0.00
3043	1541364.526	734227.9109	0.00	0.00
3044	1541366.243	734226.6202	0.00	0.00
3045	1541367.969	734226.0799	0.00	0.00
3046	1541367.946	734224.078	0.00	0.00
3047	1541369.67	734223.3205	0.00	0.00
3048	1541369.647	734221.3188	0.00	0.00
3049	1541371.366	734220.0694	0.00	0.00
3050	1541371.342	734218.0687	0.00	0.00
3051	1541373.058	734216.6733	0.00	0.00
3052	1541374.77	734214.9606	0.00	0.00
3053	1541376.484	734213.5564	0.00	0.00
3054	1541378.205	734212.7693	0.00	0.00
3055	1541379.922	734211.6417	0.00	0.00
3056	1541381.634	734210.2245	0.00	0.00
3057	1541383.347	734208.6576	0.00	0.00
3058	1541385.067	734207.491	0.00	0.00
3059	1541386.791	734206.8027	0.00	0.00
3060	1541388.511	734205.7978	0.00	0.00
3061	1541390.224	734204.5201	0.00	0.00
3062	1541391.94	734203.4105	0.00	0.00
3063	1541393.677	734204.0788	0.00	0.00
3064	1541395.391	734202.6875	0.00	0.00
3065	1541397.104	734201.3202	0.00	0.00
3066	1541398.823	734200.148	0.00	0.00
3067	1541400.543	734199.2744	0.00	0.00
3068	1541402.276	734199.8697	0.00	0.00
3069	1541403.962	734198.262	0.00	0.00
3070	1541405.76	734197.2291	0.00	0.00
3071	1541407.103	734196.1836	0.00	0.00
3072	1541408.364	734196.1795	0.00	0.00
3073	1541409.539	734194.9808	0.00	0.00
3074	1541411.123	734193.8574	0.00	0.00
3075	1541412.696	734192.6806	0.00	0.00
3076	1541414.291	734191.4926	0.00	0.00
3077	1541415.973	734192.3963	0.00	0.00
3078	1541417.712	734193.2657	0.00	0.00
3079	1541419.342	734192.1127	0.00	0.00
3080	1541420.988	734190.9827	0.00	0.00
3081	1541422.641	734189.87	0.00	0.00
3082	1541424.325	734188.787	0.00	0.00
3083	1541426.02	734189.7313	0.00	0.00
3084	1541427.73	734188.7145	0.00	0.00
3085	1541429.636	734189.5942	0.00	0.00
3086	1541431.49	734188.376	0.03	0.00
3087	1541433.441	734187.445	0.08	0.00
3088	1541435.204	734186.4737	0.12	0.00
3089	1541436.885	734185.8208	0.19	0.00
3090	1541438.639	734184.7341	0.24	0.00
3091	1541440.291	734183.3267	0.31	0.00
3092	1541442.458	734183.6626	0.50	0.00
3093	1541444.183	734184.3596	0.67	0.00
3094	1541445.949	734184.9246	0.83	0.00
3095	1541447.897	734185.1663	1.00	0.00
3096	1541449.924	734185.228	1.16	0.00
3097	1541450.963	734186.8023	1.31	0.00
3098	1541453.081	734186.7159	1.48	0.00
3099	1541455.2	734186.6293	1.65	0.00
3100	1541456.279	734188.1486	1.66	0.00
3101	1541458.51	734187.8925	1.31	0.00
3102	1541460.772	734187.5872	1.04	0.00
3103	1541461.974	734188.9107	0.94	0.00
3104	1541463.086	734190.3738	0.91	0.00
3105	1541464.147	734191.9144	0.56	0.00
3106	1541465.253	734193.3882	0.19	0.00
3107	1541466.298	734194.9582	0.00	-0.19
3108	1541467.35	734196.5175	0.00	-0.13
3109	1541468.404	734198.0762	0.00	0.00
3110	1541469.466	734199.6237	0.45	0.00
3111	1541471.631	734199.4667	1.95	0.00
3112	1541472.697	734201.0022	3.09	0.00
3113	1541474.917	734200.7604	4.60	0.00
3114	1541476.057	734202.1771	5.66	0.00
3115	1541477.88	734202.5447	6.93	0.00
3116	1541479.698	734202.9234	7.19	0.00
3117	1541480.696	734204.5607	7.31	0.00
3118	1541482.521	734204.9332	7.52	0.00
3119	1541484.241	734205.4662	7.73	0.00
3120	1541485.902	734206.0892	7.92	0.00
3121	1541487.461	734206.8692	7.97	0.00
3122	1541489.01	734207.6639	7.53	0.00
3123	1541490.847	734208.0199	7.06	0.00
3124	1541491.879	734209.607	6.57	0.00
3125	1541493.738	734209.929	6.12	0.00
3126	1541494.573	734211.8171	5.61	0.00
3127	1541495.557	734213.4793	4.41	0.00
3128	1541497.357	734213.8934	3.31	0.00
3129	1541498.036	734216.0201	1.68	0.00
3130	1541499.619	734216.7653	0.09	0.00
3131	1541337.587	734290.9487	0.00	-0.52
3132	1541337.784	734289.1165	0.00	-0.36
3133	1541338.469	734287.1298	0.00	-0.34
3134	1541339.041	734284.8161	0.00	-0.28
3135	1541339.176	734282.8038	0.00	-0.19
3136	1541339.19	734280.8218	0.00	-0.07
3137	1541340.907	734280.0571	0.00	-0.18
3138	1541342.595	734278.9978	0.00	-0.24
3139	1541342.592	734276.9851	0.00	-0.07
3140	1541342.577	734274.9913	0.00	0.00
3141	1541344.293	734273.8556	0.00	0.00
3142	1541344.273	734271.862	0.01	0.00
3143	1541344.251	734269.8668	0.00	0.00
3144	1541345.97	734269.0304	0.00	0.00
3145	1541345.949	734267.0338	0.00	0.00
3146	1541347.668	734266.1773	0.00	-0.01
3147	1541347.646	734264.1817	0.01	0.00
3148	1541347.624	734262.1854	0.00	0.00
3149	1541349.345	734261.4661	0.28	0.00
3150	1541349.323	734259.4698	0.24	0.00
3151	1541351.043	734258.695	0.80	0.00
3152	1541351.021	734256.6976	1.58	0.00
3153	1541350.998	734254.6999	2.53	0.00
3154	1541350.975	734252.702	3.52	0.00
3155	1541352.698	734252.0218	4.44	0.00
3156	1541354.424	734251.6946	4.43	0.00
3157	1541354.402	734249.6961	4.40	0.00
3158	1541356.127	734249.216	4.38	0.00
3159	1541357.85	734248.5592	4.36	0.00
3160	1541357.827	734246.5636	4.33	0.00
3161	1541357.804	734244.5678	4.29	0.00
3162	1541357.781	734242.5719	4.26	0.00
3163	1541359.503	734241.9811	4.24	0.00
3164	1541359.48	734239.9863	3.52	0.00
3165	1541359.457	734237.9913	2.56	0.00
3166	1541361.173	734236.9235	1.91	0.00
3167	1541361.149	734234.9279	1.29	0.00
3168	1541361.126	734232.9322	0.89	0.00
3169	1541362.839	734231.5823	0.63	0.00
3170	1541362.816	734229.5847	0.23	0.00
3171	1541362.793	734227.5869	0.00	0.00
3172	1541364.503	734225.9117	0.00	0.00
3173	1541366.219	734224.6196	0.00	0.00
3174	1541366.196	734222.619	0.00	0.00
3175	1541367.922	734222.0762	0.00	0.00
3176	1541367.898	734220.0743	0.00	0.00
3177	1541369.623	734219.3171	0.00	0.00
3178	1541369.6	734217.3154	0.00	0.00
3179	1541371.318	734216.068	0.00	0.00
3180	1541373.035	734214.6739	0.00	0.00
3181	1541374.746	734212.963	0.00	0.00
3182	1541376.46	734211.5577	0.00	0.00
3183	1541378.181	734210.7729	0.00	0.00
3184	1541379.898	734209.6457	0.00	0.00
3185	1541381.611	734208.2245	0.00	0.00
3186	1541383.324	734206.6562	0.00	0.00
3187	1541385.043	734205.4898	0.00	0.00
3188	1541386.767	734204.8041	0.00	0.00
3189	1541388.487	734203.8026	0.00	0.00
3190	1541390.201	734202.5249	0.00	0.00
3191	1541391.916	734201.4123	0.00	0.00
3192	1541393.654	734202.0829	0.00	0.00
3193	1541395.367	734200.6896	0.00	0.00
3194	1541397.08	734199.3199	0.00	0.00
3195	1541398.799	734198.1491	0.00	0.00
3196	1541400.519	734197.2762	0.00	0.00
3197	1541402.253	734197.8623	0.00	0.00
3198	1541403.981	734196.2817	0.00	0.00
3199	1541405.669	734195.1271	0.00	0.00
3200	1541407.528	734194.1322	0.00	0.00
3201	1541409.196	734193.0063	0.00	0.00
3202	1541410.819	734191.9386	0.00	0.00
3203	1541412.413	734190.7423	0.00	0.00
3204	1541414.024	734189.5569	0.00	0.00

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
3205	1541415.904	734190.3271	0.00	0.00
3206	1541415.273	734190.1007	0.00	0.00
3207	1541415.023	734189.8	0.00	0.00
3208	1541415.268	734187.4883	0.00	0.00
3209	1541414.219	734186.8209	0.00	0.00
3210	1541413.22	734186.7071	0.00	0.00
3211	1541427.224	734186.7071	0.00	0.00
3212	1541430.91	734186.6907	0.00	0.00
3213	1541433.134	734186.6907	0.00	0.00
3214	1541434.134	734184.9598	0.02	0.00
3215	1541438.268	734184.9598	0.00	0.00
3216	1541438.876	734183.0621	0.16	0.00
3217	1541439.126	734183.0621	0.00	0.00
3218	1541441.613	734181.8662	0.35	0.00
3219	1541439.626	734181.8662	0.53	0.00
3220	1541439.626	734181.8662	0.00	0.00
3221	1541441.613	734181.8662	0.00	0.00
3222	1541441.863	734183.4899	0.86	0.00
3223	1541442.113	734183.4899	0.00	0.00
3224	1541448.99	734183.4899	1.02	0.00
3225	1541450.188	734183.5522	1.18	0.00
3226	1541450.438	734185.1285	1.33	0.00
3227	1541450.688	734185.0409	1.51	0.00
3228	1541456.288	734184.9523	1.56	0.00
3229	1541457.368	734186.4692	1.42	0.00
3230	1541459.6	734186.214	1.13	0.00
3231	1541461.862	734185.9103	0.86	0.00
3232	1541463.062	734187.2373	0.77	0.00
3233	1541464.174	734188.7002	0.79	0.00
3234	1541465.237	734190.2388	0.61	0.00
3235	1541466.342	734191.7135	0.26	0.00
3236	1541467.387	734193.2818	0.00	-0.08
3237	1541468.44	734194.8398	0.00	-0.02
3238	1541469.494	734196.3973	0.26	0.00
3239	1541470.555	734197.9441	1.02	0.00
3240	1541472.722	734197.7898	2.43	0.00
3241	1541473.787	734199.3263	3.50	0.00
3242	1541476.008	734199.0868	4.88	0.00
3243	1541477.147	734200.5052	6.04	0.00
3244	1541478.971	734200.8738	7.05	0.00
3245	1541480.79	734201.2518	7.32	0.00
3246	1541481.789	734202.8873	7.43	0.00
3247	1541483.614	734203.2595	7.64	0.00
3248	1541485.335	734203.7924	7.79	0.00
3249	1541486.996	734204.4156	7.97	0.00
3250	1541488.553	734205.1963	8.02	0.00
3251	1541490.103	734205.9905	7.55	0.00
3252	1541491.94	734206.3451	7.10	0.00
3253	1541492.972	734207.9329	6.61	0.00
3254	1541494.83	734208.2547	6.17	0.00
3255	1541495.668	734210.1424	5.67	0.00
3256	1541496.652	734211.8047	4.56	0.00
3257	1541498.452	734212.2184	3.40	0.00
3258	1541499.131	734214.3462	1.80	0.00
3259	1541500.714	734215.0907	0.19	0.00
3260	1541335.586	734290.9956	0.00	-0.28
3261	1541335.853	734289.4399	0.00	-0.17
3262	1541336.087	734287.4412	0.00	-0.11
3263	1541337.375	734285.7073	0.00	-0.16
3264	1541337.479	734283.8003	0.00	-0.08
3265	1541337.466	734281.8284	0.00	-0.07
3266	1541337.447	734279.8403	0.00	-0.29
3267	1541339.163	734278.8305	0.00	-0.13
3268	1541340.881	734278.056	0.00	-0.04
3269	1541340.861	734276.0614	0.00	-0.01
3270	1541340.839	734274.0661	0.00	0.00
3271	1541342.556	734272.9968	0.00	-0.01
3272	1541342.535	734271.0016	0.00	0.00
3273	1541342.512	734269.0058	0.00	0.00
3274	1541344.229	734267.8705	0.00	0.00
3275	1541344.206	734265.8737	0.00	0.00
3276	1541345.926	734265.0364	0.00	0.00
3277	1541345.903	734263.039	0.00	0.00
3278	1541345.881	734261.0412	0.00	0.00
3279	1541347.601	734260.1888	0.06	0.00
3280	1541347.578	734258.192	0.32	0.00
3281	1541349.3	734257.4733	0.23	0.00
3282	1541349.277	734255.4765	0.54	0.00
3283	1541349.254	734253.4796	1.38	0.00
3284	1541349.231	734251.4825	2.53	0.00
3285	1541350.952	734250.7039	4.19	0.00
3286	1541352.675	734250.0235	4.41	0.00
3287	1541352.651	734248.025	4.38	0.00
3288	1541354.379	734247.6975	4.36	0.00
3289	1541356.104	734247.2179	4.34	0.00
3290	1541356.081	734245.2196	4.31	0.00
3291	1541356.058	734243.2213	4.28	0.00
3292	1541356.034	734241.2229	3.92	0.00
3293	1541357.757	734240.576	3.74	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
3294	1541357.734	734238.5799	2.87	0.00
3295	1541357.711	734236.5838	2.03	0.00
3296	1541359.434	734235.9963	1.62	0.00
3297	1541359.41	734234.0012	1.17	0.00
3298	1541359.387	734232.006	0.76	0.00
3299	1541361.103	734230.9364	0.49	0.00
3300	1541361.079	734228.9406	0.09	0.00
3301	1541361.056	734226.9447	0.00	0.00
3302	1541362.769	734225.5891	0.00	0.00
3303	1541364.479	734223.9126	0.00	0.00
3304	1541364.456	734221.9133	0.00	0.00
3305	1541366.172	734220.6184	0.00	0.00
3306	1541366.149	734218.6177	0.00	0.00
3307	1541367.875	734218.0723	0.00	0.00
3308	1541367.851	734216.0704	0.00	0.00
3309	1541369.576	734215.3137	0.00	0.00
3310	1541371.295	734214.0673	0.00	0.00
3311	1541373.011	734212.6745	0.00	0.00
3312	1541374.723	734210.9654	0.00	0.00
3313	1541376.437	734209.5591	0.00	0.00
3314	1541378.158	734208.7766	0.00	0.00
3315	1541379.875	734207.6497	0.00	0.00
3316	1541381.587	734206.2245	0.00	0.00
3317	1541383.3	734204.6548	0.00	0.00
3318	1541385.019	734203.4885	0.00	0.00
3319	1541386.744	734202.8055	0.00	0.00
3320	1541388.463	734201.8074	0.00	0.00
3321	1541390.177	734200.5298	0.00	0.00
3322	1541391.892	734199.4141	0.00	0.00
3323	1541393.63	734200.087	0.00	0.00
3324	1541395.343	734198.6917	0.00	0.00
3325	1541397.057	734197.3197	0.00	0.00
3326	1541398.775	734196.1501	0.00	0.00
3327	1541400.496	734195.2793	0.00	0.00
3328	1541402.234	734195.8658	0.00	0.00
3329	1541403.941	734194.2835	0.00	0.00
3330	1541405.677	734193.1643	0.00	0.00
3331	1541407.37	734192.0552	0.00	0.00
3332	1541409.064	734191.0326	0.00	0.00
3333	1541410.754	734189.8922	0.00	0.00
3334	1541412.454	734188.6076	0.00	0.00
3335	1541414.132	734187.3496	0.00	0.00
3336	1541415.642	734188.4062	0.00	0.00
3337	1541417.531	734189.1796	0.00	0.00
3338	1541419.174	734188.055	0.00	0.00
3339	1541420.833	734186.9524	0.00	0.00
3340	1541422.511	734185.8711	0.00	0.00
3341	1541424.231	734184.809	0.00	0.00
3342	1541425.912	734185.7634	0.00	0.00
3343	1541427.604	734184.7561	0.00	0.00
3344	1541429.435	734185.6925	0.00	0.00
3345	1541431.208	734184.7036	0.00	0.00
3346	1541432.968	734183.7794	0.00	0.00
3347	1541434.76	734182.8032	0.00	0.00
3348	1541436.698	734181.7774	0.04	0.00
3349	1541438.286	734180.2489	0.08	0.00
3350	1541440.617	734180.2803	0.20	0.00
3351	1541442.822	734180.256	0.38	0.00
3352	1541445.014	734180.331	0.56	0.00
3353	1541446.502	734181.3482	0.73	0.00
3354	1541448.18	734181.5772	0.88	0.00
3355	1541450.079	734181.8159	1.04	0.00
3356	1541452.101	734181.875	1.21	0.00
3357	1541453.136	734183.454	1.36	0.00
3358	1541455.253	734183.3671	1.53	0.00
3359	1541457.376	734183.2762	1.30	0.00
3360	1541458.458	734184.7908	1.22	0.00
3361	1541460.69	734184.5358	0.92	0.00
3362	1541462.952	734184.2332	0.63	0.00
3363	1541464.149	734185.5638	0.58	0.00
3364	1541465.262	734187.0266	0.53	0.00
3365	1541466.327	734188.5635	0.62	0.00
3366	1541467.431	734190.0392	0.32	0.00
3367	1541468.478	734191.6062	0.14	0.00
3368	1541469.531	734193.1631	0.49	0.00
3369	1541470.586	734194.7197	0.89	0.00
3370	1541471.647	734196.2663	1.52	0.00
3371	1541473.814	734196.1137	2.79	0.00
3372	1541474.879	734197.6514	3.82	0.00
3373	1541477.099	734197.4132	5.09	0.00
3374	1541478.238	734198.8336	6.22	0.00
3375	1541480.061	734199.2026	6.91	0.00
3376	1541481.88	734199.5794	7.20	0.00
3377	1541482.882	734201.2133	7.56	0.00
3378	1541484.707	734201.5848	7.77	0.00
3379	1541486.427	734202.1176	7.79	0.00
3380	1541488.087	734202.7408	7.93	0.00
3381	1541489.644	734203.5221	8.04	0.00
3382	1541491.194	734204.3159	7.58	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
3383	1541493.03	734204.6689	7.14	0.00
3384	1541494.063	734206.2574	6.66	0.00
3385	1541495.921	734206.5792	6.22	0.00
3386	1541496.76	734208.4665	5.73	0.00
3387	1541497.746	734210.1291	4.73	0.00
3388	1541499.545	734210.5425	3.50	0.00
3389	1541500.225	734212.672	1.92	0.00
3390	1541501.809	734213.4162	0.30	0.00
3391	1541334.114	734290.4961	0.00	-0.04
3392	1541334.09	734288.4955	0.00	-0.10
3393	1541334.066	734286.4949	0.00	-0.30
3394	1541335.746	734285.31	0.00	-0.05
3395	1541335.755	734283.2921	0.00	-0.25
3396	1541335.733	734281.2951	0.00	-0.45
3397	1541335.71	734279.2986	0.00	-0.67
3398	1541337.423	734277.8454	0.00	-0.57
3399	1541339.141	734276.8351	0.00	-0.08
3400	1541339.118	734274.8388	0.00	0.00
3401	1541339.095	734272.8416	0.00	-0.01
3402	1541340.817	734272.0697	0.00	0.00
3403	1541340.794	734270.0726	0.00	0.00
3404	1541340.771	734268.0748	0.00	0.00
3405	1541342.489	734267.0094	0.00	0.00
3406	1541342.466	734265.0127	0.00	0.00
3407	1541344.183	734263.8765	0.00	0.00
3408	1541344.16	734261.879	0.00	0.00
3409	1541344.137	734259.8811	0.00	0.00
3410	1541345.858	734259.0431	0.01	0.00
3411	1541345.834	734257.0447	0.22	0.00
3412	1541347.555	734256.1949	0.51	0.00
3413	1541347.532	734254.1976	0.65	0.00
3414	1541347.509	734252.2001	1.09	0.00
3415	1541347.485	734250.2025	1.76	0.00
3416	1541349.208	734249.4852	3.19	0.00
3417	1541350.929	734248.7057	4.67	0.00
3418	1541350.905	734246.7074	4.54	0.00
3419	1541352.628	734246.0263	4.34	0.00
3420	1541354.355	734245.6987	4.33	0.00
3421	1541354.332	734243.6999	4.29	0.00
3422	1541354.309	734241.7009	4.01	0.00
3423	1541354.285	734239.7019	3.23	0.00
3424	1541356.011	734239.2243	3.15	0.00
3425	1541355.988	734237.2257	2.36	0.00
3426	1541355.964	734235.227	1.57	0.00
3427	1541357.687	734234.5876	1.36	0.00
3428	1541357.664	734232.5913	0.95	0.00
3429	1541357.641	734230.595	0.53	0.00
3430	1541359.363	734230.0108	0.36	0.00
3431	1541359.34	734228.0155	0.00	0.00
3432	1541359.316	734226.0201	0.00	0.00
3433	1541361.032	734224.9488	0.00	0.00
3434	1541362.745	734223.5913	0.00	0.00
3435	1541362.722	734221.5935	0.00	0.00
3436	1541364.432	734219.9141	0.00	0.00
3437	1541364.409	734217.9148	0.00	0.00
3438	1541366.125	734216.617	0.00	0.00
3439	1541366.101	734214.6162	0.00	0.00
3440	1541367.828	734214.0684	0.00	0.00
3441	1541369.552	734213.3119	0.00	0.00
3442	1541371.271	734212.0666	0.00	0.00
3443	1541372.987	734210.6751	0.00	0.00
3444	1541374.699	734208.9677	0.00	0.00
3445	1541376.413	734207.5604	0.00	0.00
3446	1541378.134	734206.7802	0.00	0.00
3447	1541379.851	734205.6537	0.00	0.00
3448	1541381.563	734204.2245	0.00	0.00
3449	1541383.276	734202.6534	0.00	0.00
3450	1541384.995	734201.4872	0.00	0.00
3451	1541386.72	734200.8069	0.00	0.00
3452	1541388.439	734199.8122	0.00	0.00
3453	1541390.153	734198.5346	0.00	0.00
3454	1541391.868	734197.4159	0.00	0.00
3455	1541393.606	734198.0911	0.00	0.00
3456	1541395.32	734196.6938	0.00	0.00
3457	1541397.033	734195.3194	0.00	0.00
3458	1541398.751	734194.1514	0.00	0.00
3459	1541400.472	734193.2817	0.00	0.00
3460	1541402.208	734193.8684	0.00	0.00
3461	1541403.922	734192.2894	0.00	0.00
3462	1541405.635	734191.1691	0.00	0.00
3463	1541407.349	734190.0425	0.00	0.00
3464	1541409.072	734189.0149	0.00	0.00
3465	1541410.83	734187.8219	0.00	0.00
3466	1541412.643	734186.4569	0.00	0.00
3467	1541414.395	734185.0053	0.00	0.00
3468	1541415.767	734186.2157	0.00	0.00
3469	1541417.279	734187.2651	0.00	0.00
3470	1541418.932	734186.1509	0.00	0.00
3471	1541420.596	734185.0571	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
3472	1541422.276	734183.9892	0.00	0.00
3473	1541423.964	734182.9735	0.00	0.00
3474	1541426.055	734183.564	0.00	0.00
3475	1541427.986	734182.5933	0.00	0.00
3476	1541429.356	734183.784	0.00	0.00
3477	1541431.096	734182.8117	0.00	0.00
3478	1541432.843	734181.8969	0.00	0.00
3479	1541434.567	734180.8848	0.00	0.00
3480	1541436.169	734180.0268	0.00	0.00
3481	1541437.292	734178.6421	0.00	0.00
3482	1541439.566	734178.7329	0.15	0.00
3483	1541441.768	734178.6682	0.22	0.00
3484	1541443.897	734178.6054	0.39	0.00
3485	1541445.798	734178.4905	0.55	0.00
3486	1541447.315	734179.4517	0.71	0.00
3487	1541449.222	734179.9068	0.89	0.00
3488	1541451.159	734180.1424	1.07	0.00
3489	1541453.187	734180.1991	1.23	0.00
3490	1541454.222	734181.7803	1.38	0.00
3491	1541456.34	734181.6937	1.39	0.00
3492	1541458.465	734181.6	1.09	0.00
3493	1541459.548	734183.1126	1.00	0.00
3494	1541461.781	734182.8574	0.68	0.00
3495	1541464.041	734182.5556	0.37	0.00
3496	1541465.236	734183.8897	0.32	0.00
3497	1541466.35	734185.3525	0.33	0.00
3498	1541467.416	734186.8878	0.36	0.00
3499	1541468.52	734188.3646	0.47	0.00
3500	1541469.568	734189.9303	0.55	0.00
3501	1541470.623	734191.4864	0.96	0.00
3502	1541471.678	734193.0423	1.37	0.00
3503	1541472.74	734194.5889	1.88	0.00
3504	1541474.906	734194.4373	3.05	0.00
3505	1541475.97	734195.9765	4.04	0.00
3506	1541478.189	734195.7391	5.24	0.00
3507	1541479.327	734197.1613	6.34	0.00
3508	1541481.15	734197.5305	6.77	0.00
3509	1541482.969	734197.9061	7.06	0.00
3510	1541483.973	734199.5384	7.46	0.00
3511	1541485.797	734199.9091	7.79	0.00
3512	1541487.517	734200.4417	7.79	0.00
3513	1541489.177	734201.0648	7.90	0.00
3514	1541490.733	734201.8467	8.05	0.00
3515	1541492.283	734202.64	7.60	0.00
3516	1541494.119	734202.9916	7.17	0.00
3517	1541495.153	734204.5807	6.70	0.00
3518	1541497.009	734204.9023	6.27	0.00
3519	1541497.85	734206.7892	5.79	0.00
3520	1541498.837	734208.4521	4.92	0.00
3521	1541500.636	734208.865	3.61	0.00
3522	1541501.318	734210.9969	2.03	0.00
3523	1541502.903	734211.7413	0.41	0.00
3524	1541334.042	734284.4943	0.00	-0.51
3525	1541334.017	734282.4937	0.00	-0.68
3526	1541333.993	734280.493	0.00	-0.84
3527	1541333.969	734278.4924	0.00	-1.08
3528	1541335.687	734277.3014	0.00	-0.88
3529	1541337.4	734275.8484	0.00	-0.23
3530	1541337.377	734273.8504	0.00	-0.01
3531	1541337.353	734271.8518	0.00	-0.01
3532	1541339.072	734270.8436	0.00	0.00
3533	1541339.049	734268.8451	0.00	0.00
3534	1541339.025	734266.8462	0.00	0.00
3535	1541340.748	734266.0766	0.00	0.00
3536	1541340.724	734264.078	0.00	0.00
3537	1541342.443	734263.0155	0.00	0.00
3538	1541342.42	734261.018	0.00	0.00
3539	1541342.396	734259.0203	0.00	0.00
3540	1541344.114	734257.8831	0.01	0.00
3541	1541344.09	734255.8848	0.11	0.00
3542	1541345.811	734255.0462	0.40	0.00
3543	1541345.788	734253.0475	0.57	0.00
3544	1541345.764	734251.0486	0.97	0.00
3545	1541345.74	734249.0495	1.01	0.00
3546	1541347.462	734248.2047	1.77	0.00
3547	1541349.184	734247.4878	3.19	0.00
3548	1541349.161	734245.4903	3.04	0.00
3549	1541350.882	734244.709	4.42	0.00
3550	1541352.605	734244.0276	4.31	0.00
3551	1541352.581	734242.0288	4.12	0.00
3552	1541352.558	734240.0298	3.36	0.00
3553	1541352.534	734238.0308	2.39	0.00
3554	1541354.262	734237.7027	2.45	0.00
3555	1541354.238	734235.7035	1.68	0.00
3556	1541354.215	734233.7042	1.24	0.00
3557	1541355.941	734233.2283	1.14	0.00
3558	1541355.917	734231.2294	0.70	0.00
3559	1541355.893	734229.2306	0.26	0.00
3560	1541357.617	734228.5986	0.10	0.00

Appendix C

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
3561	1541357.593	734226.6022	0.00	0.00
3562	1541358.293	734224.0247	0.00	0.00
3563	1541359.259	734221.9937	0.00	0.00
3564	1541360.685	734220.5665	0.00	0.00
3565	1541362.698	734219.8806	0.00	0.00
3566	1541364.973	734219.8175	0.00	0.00
3567	1541366.978	734220.5155	0.00	0.00
3568	1541368.41	734221.9183	0.00	0.00
3570	1541369.078	734223.6155	0.00	0.00
3571	1541369.128	734225.4211	0.00	0.00
3572	1541369.128	734227.3158	0.00	0.00
3573	1541369.128	734229.2105	0.00	0.00
3574	1541372.964	734208.6757	0.00	0.00
3575	1541374.41	734207.2475	0.00	0.00
3576	1541376.389	734205.5617	0.00	0.00
3577	1541378.41	734204.8834	0.00	0.00
3578	1541379.3	734204.6747	0.00	0.00
3579	1541380.19	734204.4661	0.00	0.00
3580	1541383.252	734200.652	0.00	0.00
3581	1541383.186	734199.486	0.00	0.00
3582	1541383.252	734198.8083	0.00	0.00
3583	1541384.2	734197.8171	0.00	0.00
3584	1541390.129	734196.5395	0.00	0.00
3585	1541391.844	734195.4177	0.00	0.00
3586	1541393.582	734196.0952	0.00	0.00
3587	1541395.296	734194.6959	0.00	0.00
3588	1541397.009	734193.3191	0.00	0.00
3589	1541398.727	734192.1525	0.00	0.00
3590	1541400.448	734191.2844	0.00	0.00
3591	1541402.185	734191.8714	0.00	0.00
3592	1541403.895	734190.2924	0.00	0.00
3593	1541405.61	734189.1787	0.00	0.00
3594	1541407.323	734188.0517	0.00	0.00
3595	1541409.039	734187.0422	0.00	0.00
3596	1541410.787	734185.8813	0.00	0.00
3597	1541412.512	734184.6177	0.00	0.00
3598	1541413.771	734183.1663	0.00	0.00
3599	1541414.896	734182.8936	0.00	0.00
3600	1541416.122	734183.9506	0.00	0.00
3601	1541417.445	734185.0829	0.00	0.00
3602	1541419.109	734183.9695	0.00	0.00
3603	1541420.802	734182.8854	0.00	0.00
3604	1541422.508	734181.8241	0.00	0.00
3605	1541424.211	734180.7689	0.00	0.00
3606	1541425.419	734181.8496	0.00	0.00
3607	1541427.057	734181.1609	0.00	0.00
3608	1541428.778	734180.165	0.00	0.00
3609	1541429.739	734181.6023	0.00	0.00
3610	1541431.462	734180.6179	0.00	0.00
3611	1541433.117	734179.9154	0.00	0.00
3612	1541434.775	734178.7174	0.00	0.00
3613	1541436.286	734177.1537	0.00	0.00
3614	1541438.565	734177.1422	0.12	0.00
3615	1541440.731	734177.1019	0.16	0.00
3616	1541442.879	734177.0037	0.24	0.00
3617	1541444.988	734176.9006	0.41	0.00
3618	1541446.986	734177.0715	0.58	0.00
3619	1541448.612	734177.7279	0.75	0.00
3620	1541450.335	734178.2398	0.91	0.00
3621	1541452.25	734178.4681	1.08	0.00
3622	1541454.276	734178.5229	1.25	0.00
3623	1541455.309	734180.1069	1.41	0.00
3624	1541457.426	734180.0203	1.17	0.00
3625	1541459.553	734179.9235	0.87	0.00
3626	1541460.638	734181.434	0.79	0.00
3627	1541462.87	734181.1784	0.46	0.00
3628	1541465.128	734180.8772	0.14	0.00
3629	1541466.322	734182.2149	0.04	0.00
3630	1541467.436	734183.6778	0.03	0.00
3631	1541468.504	734185.2114	0.10	0.00
3632	1541469.608	734186.6893	0.50	0.00
3633	1541470.657	734188.2538	0.88	0.00
3634	1541471.713	734189.8091	1.33	0.00
3635	1541472.77	734191.3645	1.77	0.00
3636	1541473.832	734192.9112	2.24	0.00
3637	1541475.997	734192.7602	3.23	0.00
3638	1541477.061	734194.3009	4.25	0.00
3639	1541479.278	734194.064	5.25	0.00
3640	1541480.415	734195.4881	6.34	0.00
3641	1541482.237	734195.8575	6.45	0.00
3642	1541484.056	734196.2318	6.96	0.00
3643	1541485.062	734197.8624	7.66	0.00
3644	1541486.887	734198.2322	7.79	0.00
3645	1541488.605	734198.7646	7.79	0.00
3646	1541490.265	734199.3878	7.87	0.00
3647	1541491.82	734200.1703	8.03	0.00
3648	1541493.37	734200.9631	7.65	0.00
3649	1541495.207	734201.3132	7.23	0.00
3650	1541496.24	734202.9029	6.75	0.00
3651	1541498.096	734203.2243	6.33	0.00
3652	1541498.939	734205.1106	5.84	0.00
3653	1541499.927	734206.7736	5.13	0.00
3654	1541501.724	734207.1858	3.80	0.00
3655	1541502.407	734209.3196	2.15	0.00
3656	1541503.99	734210.0615	0.52	0.00
3657	1541333.945	734276.4918	0.00	-1.08
3658	1541335.663	734275.3035	0.00	-0.48
3659	1541335.639	734273.3051	0.00	-0.12
3660	1541335.615	734271.3064	0.01	0.00
3661	1541337.329	734269.8527	0.00	0.00
3662	1541337.306	734267.8533	0.00	0.00
3663	1541337.282	734265.8536	0.00	-0.01
3664	1541339.002	734264.8469	0.00	-0.01
3665	1541338.978	734262.8474	0.00	0.00
3666	1541340.701	734262.0791	0.00	0.00
3667	1541340.677	734260.0799	0.00	0.00
3668	1541340.653	734258.0806	0.00	0.00
3669	1541342.373	734257.0224	0.00	0.00
3670	1541342.349	734255.0243	0.00	0.00
3671	1541344.067	734253.8863	0.31	0.00
3672	1541344.043	734251.8876	0.65	0.00
3673	1541344.019	734249.8889	0.69	0.00
3674	1541343.996	734247.89	0.43	0.00
3675	1541345.717	734247.0504	0.86	0.00
3676	1541347.438	734246.2068	1.53	0.00
3677	1541347.415	734244.2088	1.31	0.00
3678	1541349.137	734243.4927	3.02	0.00
3679	1541350.858	734242.7104	4.16	0.00
3680	1541350.835	734240.7118	3.28	0.00
3681	1541350.811	734238.713	2.32	0.00
3682	1541350.788	734236.7142	1.69	0.00
3683	1541352.511	734236.0317	1.68	0.00
3684	1541352.487	734234.0326	1.09	0.00
3685	1541352.464	734232.0333	0.63	0.00
3686	1541354.191	734231.7049	0.81	0.00
3687	1541354.168	734229.7055	0.38	0.00
3688	1541354.144	734227.706	0.00	0.00
3689	1541355.87	734227.2316	0.00	0.00
3690	1541355.846	734225.2326	0.00	0.00
3691	1541355.822	734223.2336	0.00	0.00
3692	1541357.546	734222.6092	0.00	0.00
3693	1541359.269	734222.0293	0.00	0.00
3694	1541359.245	734220.0338	0.00	0.00
3695	1541360.961	734218.9608	0.00	0.00
3696	1541360.938	734216.9648	0.00	0.00
3697	1541362.651	734215.5996	0.00	0.00
3698	1541362.627	734213.6016	0.00	0.00
3699	1541364.337	734211.9168	0.00	0.00
3700	1541366.054	734210.6147	0.00	0.00
3701	1541367.78	734210.0644	0.00	0.00
3702	1541369.505	734209.3083	0.00	0.00
3703	1541371.223	734208.065	0.00	0.00
3704	1541372.94	734206.6762	0.00	0.00
3705	1541374.651	734204.9724	0.00	0.00
3706	1541376.365	734203.563	0.00	0.00
3707	1541378.087	734202.7874	0.00	0.00
3708	1541379.804	734201.6616	0.00	0.00
3709	1541381.516	734200.2244	0.00	0.00
3710	1541383.228	734198.6506	0.00	0.00
3711	1541384.948	734197.4847	0.00	0.00
3712	1541386.672	734196.8097	0.00	0.00
3713	1541388.392	734195.8218	0.00	0.00
3714	1541390.105	734194.5443	0.00	0.00
3715	1541391.82	734193.4195	0.00	0.00
3716	1541393.558	734194.0992	0.00	0.00
3717	1541395.272	734192.698	0.00	0.00
3718	1541396.984	734191.3188	0.00	0.00
3719	1541398.703	734190.1537	0.00	0.00
3720	1541400.423	734189.287	0.00	0.00
3721	1541402.16	734189.8744	0.00	0.00
3722	1541403.871	734188.2955	0.00	0.00
3723	1541405.586	734187.1884	0.00	0.00
3724	1541407.298	734186.0611	0.00	0.00
3725	1541409.009	734185.0531	0.00	0.00
3726	1541410.727	734183.948	0.00	0.00
3727	1541412.402	734182.6014	0.00	0.00
3728	1541414.223	734181.098	0.00	0.00
3729	1541416.109	734181.7651	0.00	0.00
3730	1541417.761	734182.7777	0.00	0.00
3731	1541419.456	734181.6914	0.00	0.00
3732	1541421.165	734180.6206	0.00	0.00
3733	1541422.889	734179.5548	0.00	0.00
3734	1541424.608	734178.5199	0.00	0.00
3735	1541425.968	734179.7511	0.00	0.00
3736	1541427.71	734178.7818	0.00	0.00
3737	1541429.466	734177.7475	0.00	0.00
3738	1541430.528	734179.1635	0.00	0.00
3739	1541432.416	734178.1803	0.00	0.00
3740	1541434.149	734177.0575	0.00	0.00
3741	1541435.258	734175.6016	0.00	0.00
3742	1541437.514	734175.6075	0.10	0.00
3743	1541439.703	734175.5151	0.15	0.00
3744	1541441.834	734175.4378	0.15	0.00
3745	1541443.967	734175.3201	0.26	0.00
3746	1541446.093	734175.2424	0.43	0.00
3747	1541448.057	734175.3993	0.60	0.00
3748	1541449.71	734176.0273	0.77	0.00
3749	1541451.422	734176.5642	0.93	0.00
3750	1541453.336	734176.7939	1.10	0.00
3751	1541455.364	734176.8465	1.27	0.00
3752	1541456.395	734178.4332	1.28	0.00
3753	1541458.512	734178.3463	0.96	0.00
3754	1541460.64	734178.2462	0.65	0.00
3755	1541461.727	734179.7549	0.56	0.00
3756	1541463.958	734179.4986	0.23	0.00
3757	1541466.215	734179.1978	0.00	-0.11
3758	1541467.407	734180.5392	0.00	-0.20
3759	1541468.521	734182.0021	0.00	-0.56
3760	1541469.591	734183.5342	0.00	-0.84
3761	1541470.695	734185.0132	0.00	-0.41
3762	1541471.746	734186.5766	0.41	0.00
3763	1541472.803	734188.1311	1.43	0.00
3764	1541473.861	734189.6859	2.11	0.00
3765	1541474.923	734191.2328	2.57	0.00
3766	1541477.086	734191.0823	3.37	0.00
3767	1541478.15	734192.6245	4.26	0.00
3768	1541480.366	734192.3881	4.85	0.00
3769	1541481.502	734193.814	6.06	0.00
3770	1541483.323	734194.1835	6.29	0.00
3771	1541485.143	734194.5566	6.35	0.00
3772	1541486.15	734196.1854	7.34	0.00
3773	1541487.974	734196.5545	7.79	0.00
3774	1541489.693	734197.0868	7.79	0.00
3775	1541491.352	734197.7099	7.84	0.00
3776	1541492.907	734198.493	8.01	0.00
3777	1541494.456	734199.2854	7.72	0.00
3778	1541496.293	734199.6342	7.30	0.00
3779	1541497.327	734201.2242	6.82	0.00
3780	1541499.182	734201.5456	6.40	0.00
3781	1541500.025	734203.4311	5.91	0.00
3782	1541501.014	734205.0939	5.37	0.00
3783	1541502.811	734205.5057	3.95	0.00
3784	1541503.493	734207.6405	2.27	0.00
3785	1541505.077	734208.3818	0.63	0.00
3786	1541333.921	734274.4912	0.00	-0.68
3787	1541333.897	734272.4906	0.00	-0.27
3788	1541333.873	734270.4899	0.01	0.00
3789	1541335.591	734269.3074	0.00	0.00
3790	1541335.567	734267.3083	0.00	0.00
3791	1541335.543	734265.3091	0.00	0.00
3792	1541337.258	734263.8536	0.00	0.00
3793	1541337.234	734261.8536	0.00	0.00
3794	1541338.954	734260.8477	0.00	0.00
3795	1541338.93	734258.8478	0.00	0.00
3796	1541338.906	734256.8477	0.00	-0.01
3797	1541340.63	734256.0811	0.00	0.00
3798	1541340.606	734254.0814	0.00	0.00
3799	1541342.325	734253.026	0.17	0.00
3800	1541342.301	734251.0276	0.28	0.00
3801	1541342.278	734249.029	0.09	0.00
3802	1541342.254	734247.0304	0.26	0.00
3803	1541343.972	734245.891	0.52	0.00
3804	1541345.693	734245.0511	0.77	0.00
3805	1541345.669	734243.0517	0.75	0.00
3806	1541347.391	734242.2107	1.18	0.00
3807	1541349.114	734241.4949	2.68	0.00
3808	1541349.09	734239.4971	2.16	0.00
3809	1541349.066	734237.4992	1.62	0.00
3810	1541349.043	734235.5012	1.08	0.00
3811	1541350.764	734234.7153	0.96	0.00
3812	1541350.74	734232.7164	0.50	0.00
3813	1541350.717	734230.7174	0.03	0.00
3814	1541352.44	734230.034	0.17	0.00
3815	1541352.416	734228.0347	0.00	-0.30
3816	1541352.392	734226.0353	0.00	-0.40
3817	1541354.12	734225.7065	0.00	-0.02
3818	1541354.096	734223.7069	0.00	-0.06
3819	1541354.073	734221.7073	0.00	-0.10
3820	1541355.799	734221.2345	0.00	0.00
3821	1541357.522	734220.6126	0.00	0.00
3822	1541357.499	734218.616	0.00	0.00
3823	1541359.222	734218.0383	0.00	0.00
3824	1541359.198	734216.0428	0.00	0.00
3825	1541360.914	734214.9687	0.00	0.00
3826	1541360.89	734212.9725	0.00	0.00
3827	1541362.603	734211.6036	0.00	0.00
3828	1541364.314	734209.9174	0.00	0.00
3829	1541366.03	734208.6139	0.00	0.00
3830	1541367.756	734208.0624	0.00	0.00
3831	1541369.481	734207.3065	0.00	0.00
3832	1541371.2	734206.0642	0.00	0.00
3833	1541372.916	734204.6767	0.00	0.00
3834	1541374.628	734202.9747	0.00	0.00
3835	1541376.342	734201.5643	0.00	0.00
3836	1541378.063	734200.791	0.00	0.00
3837	1541379.78	734199.6656	0.00	0.00
3838	1541381.492	734198.2243	0.00	0.00
3839	1541383.204	734196.6492	0.00	0.00
3840	1541384.924	734195.4834	0.00	0.00
3841	1541386.648	734194.8111	0.00	0.00
3842	1541388.368	734193.8266	0.00	0.00
3843	1541390.081	734192.5491	0.00	0.00
3844	1541391.796	734191.4213	0.00	0.00
3845	1541393.534	734192.1033	0.00	0.00
3846	1541395.248	734190.7001	0.00	0.00
3847	1541396.96	734189.3185	0.00	0.00
3848	1541398.678	734188.1549	0.00	0.00
3849	1541400.399	734187.2896	0.00	0.00
3850	1541402.136	734187.8773	0.00	0.00
3851	1541403.847	734186.2988	0.00	0.00
3852	1541405.562	734185.198	0.00	0.00
3853	1541407.274	734184.0697	0.00	0.00
3854	1541408.987	734183.0581	0.00	0.00
3855	1541410.697	734181.939	0.00	0.00
3856	1541412.43	734180.6063	0.00	0.00
3857	1541414.143	734179.065	0.00	0.00
3858	1541415.982	734179.8108	0.00	0.00
3859	1541417.803	734180.6756	0.00	0.00
3860	1541419.489	734179.6249	0.00	0.00
3861	1541421.223	734178.5613	0.00	0.00
3862	1541422.839	734177.3905	0.00	0.00
3863	1541424.505	734176.3427	0.00	0.00
3864	1541426.345	734177.5682	0.00	0.00
3865	1541428.194	734176.5536	0.00	0.00
3866	1541429.91	734175.1358	0.00	0.00
3867	1541431.145	734176.7244	0.00	0.00
3868	1541432.971	734175.8522	0.00	0.00
3869	1541434.159	734174.1348	0.00	0.00
3870	1541436.466	734174.0676	0.07	0.00
3871	1541438.652	734173.9684	0.14	0.00
3872	1541440.802	734173.8546	0.13	0.00
3873	1541442.925	734173.764	0.12	0.00
3874	1541445.06	734173.6521	0.28	0.00
3875	1541447.177	734173.5664	0.45	0.00
3876	1541449.14	734173.7225	0.62	0.00
3877	1541450.801	734174.3438	0.78	0.00
3878	1541452.51	734174.888	0.95	0.00
3879	1541454.422	734175.1189	1.12	0.00
3880	1541456.45	734175.1692	1.22	0.00
3881	1541457.48	734176.7589	1.08	0.00
3882	1541459.596	734176.6715	0.75	0.00
3883	1541461.725	734176.568	0.43	0.00
3884	1541462.814	734178.0748	0.33	0.00
3885	1541465.044	734177.8177	0.00	-0.01
3886	1541467.299	734177.5173	0.00	-0.35
3887	1541468.489	734178.8625	0.00	-0.85
3888	1541469.605	734180.3255	0.00	-1.46
3889	1541470.676	734181.856	0.00	-1.84
3890	1541471.781	734183.3362	0.00	-1.72
3891	1541472.833	734184.8985	0.00	-0.85
3892	1541473.891	734186.4523	0.22	0.00
3893	1541474.95	734188.0065	1.41	0.00
3894	1541476.013	734189.5535	2.68	0.00
3895	1541478.175	734189.4035	2.56	0.00
3896	1541479.238	734190.9472	3.92	0.00
3897	1541481.452	734190.7114	3.64	0.00
3898	1541482.588	734192.1391	5.12	0.00
3899	1541484.408	734192.5088	5.27	0.00
3900	1541486.227	734192.8807	5.41	0.00
3901	1541487.237	734194.5076	6.52	0.00
3902	1541489.061	734194.876	7.07	0.00
3903	1541490.779	734195.4082	7.78	0.00
3904	1541492.437	734196.0314	7.81	0.00
3905	1541493.992	734196.8152	7.99	0.00
3906	1541495.541	734197.6072	7.80	0.00
3907	1541497.379	734197.9547	7.38	0.00
3908	1541498.412	734199.5451	6.90	0.00
3909	1541500.267	734199.8666	6.47	0.00
3910	1541501.111	734201.751	5.98	0.00
3911	1541502.1	734203.4136	5.50	0.00
3912	1541503.897	734203.8252	4.15	0.00
3913	1541504.58	734205.9612	2.39	0.00
3914	1541506.164	734206.7021	0.72	0.00
3915	1541333.849	734268.4893	0.00	0.00
3916	1541333.825	734266.4887	0.00	-0.04

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
3917	1541333.801	734264.4881	0.00	-0.02
3918	1541333.499	734261.3101	0.00	-0.01
3919	1541332.1	734258.1321	0.00	-0.01
3920	1541330.686	734254.9541	0.00	-0.01
3921	1541329.162	734251.8761	0.00	-0.01
3922	1541327.525	734248.7981	0.00	-0.01
3923	1541325.774	734245.7201	0.00	-0.01
3924	1541323.911	734242.6421	0.00	-0.01
3925	1541321.934	734239.5641	0.00	-0.01
3926	1541319.844	734236.4861	0.00	-0.01
3927	1541317.641	734233.4081	0.00	-0.01
3928	1541315.324	734230.3301	0.00	-0.01
3929	1541312.894	734227.2521	0.00	-0.01
3930	1541343.948	734243.8919	0.55	0.00
3931	1541344.947	734240.8139	0.25	0.00
3932	1541345.646	734241.0523	0.14	0.00
3933	1541344.947	734240.8139	0.25	0.00
3934	1541347.296	734234.2174	0.38	0.00
3935	1541347.296	734234.2174	0.38	0.00
3936	1541347.296	734234.2174	0.38	0.00
3937	1541349.218	734233.5032	0.40	0.00
3938	1541349.218	734233.5032	0.40	0.00
3939	1541349.218	734231.5051	0.00	-0.07
3940	1541350.693	734228.7183	0.00	-0.45
3941	1541350.669	734226.7192	0.00	-0.71
3942	1541350.645	734224.72	0.00	-0.56
3943	1541352.369	734224.0359	0.00	-0.40
3944	1541352.345	734222.0364	0.00	-0.25
3945	1541352.321	734220.0369	0.00	-0.06
3946	1541354.049	734219.7077	0.00	0.00
3947	1541355.775	734219.2354	0.00	0.00
3948	1541355.751	734217.2363	0.00	0.00
3949	1541357.475	734216.6193	0.00	0.00
3950	1541357.451	734214.6227	0.00	0.00
3951	1541359.174	734214.0472	0.00	0.00
3952	1541359.151	734212.0516	0.00	0.00
3953	1541360.867	734210.9764	0.00	0.00
3954	1541362.58	734209.6056	0.00	0.00
3955	1541364.29	734207.918	0.00	0.00
3956	1541366.006	734206.6131	0.00	0.00
3957	1541367.732	734206.0603	0.00	0.00
3958	1541369.457	734205.3046	0.00	0.00
3959	1541371.176	734204.0634	0.00	0.00
3960	1541372.892	734202.6773	0.00	0.00
3961	1541374.604	734200.977	0.00	0.00
3962	1541376.318	734199.5656	0.00	0.00
3963	1541378.039	734198.7946	0.00	0.00
3964	1541379.756	734197.6695	0.00	0.00
3965	1541381.468	734196.2243	0.00	0.00
3966	1541383.18	734194.6477	0.00	0.00
3967	1541384.9	734193.4821	0.00	0.00
3968	1541386.624	734192.8125	0.00	0.00
3969	1541388.344	734191.8314	0.00	0.00
3970	1541390.057	734190.554	0.00	0.00
3971	1541391.772	734189.4231	0.00	0.00
3972	1541393.51	734190.1074	0.00	0.00
3973	1541395.223	734188.7022	0.00	0.00
3974	1541396.936	734187.3183	0.00	0.00
3975	1541398.654	734186.1561	0.00	0.00
3976	1541400.375	734185.2923	0.00	0.00
3977	1541402.112	734185.8803	0.00	0.00
3978	1541403.822	734184.3021	0.00	0.00
3979	1541405.538	734183.2077	0.00	0.00
3980	1541407.251	734182.0791	0.00	0.00
3981	1541408.963	734181.0631	0.00	0.00
3982	1541410.684	734179.9319	0.00	0.00
3983	1541412.43	734178.5698	0.00	0.00
3984	1541414.45	734176.87	0.00	0.00
3985	1541415.864	734178.0451	0.00	0.00
3986	1541417.714	734178.6577	0.00	0.00
3987	1541419.4	734177.7035	0.00	0.00
3988	1541421.048	734176.5571	0.00	0.00
3989	1541422.243	734175.0316	0.00	0.00
3990	1541424.044	734174.4863	0.00	0.00
3991	1541425.863	734174.5383	0.00	0.00
3992	1541426.539	734175.855	0.00	0.00
3993	1541427.939	734174.57	0.00	0.00
3994	1541429.169	734172.9317	0.00	0.00
3995	1541431.089	734172.849	0.00	0.00
3996	1541431.904	734174.4427	0.00	0.00
3997	1541433.195	734172.6373	0.00	0.00
3998	1541435.416	734172.5475	0.04	0.00
3999	1541437.597	734172.4294	0.13	0.00
4000	1541439.748	734172.3078	0.12	0.00
4001	1541441.888	734172.1859	0.11	0.00
4002	1541444.012	734172.0891	0.12	0.00
4003	1541446.147	734171.9763	0.29	0.00
4004	1541448.264	734171.8901	0.47	0.00
4005	1541450.226	734172.0447	0.64	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
4006	1541451.889	734172.6647	0.80	0.00
4007	1541453.596	734173.2109	0.97	0.00
4008	1541455.506	734173.4431	1.14	0.00
4009	1541457.535	734173.491	1.00	0.00
4010	1541458.564	734175.0837	0.88	0.00
4011	1541460.679	734174.9956	0.55	0.00
4012	1541462.809	734174.8886	0.21	0.00
4013	1541463.9	734176.3937	0.09	0.00
4014	1541466.129	734176.1356	0.00	-0.25
4015	1541468.381	734175.8353	0.00	-0.97
4016	1541469.57	734177.1843	0.00	-1.51
4017	1541470.687	734178.6476	0.00	-2.11
4018	1541471.76	734180.1767	0.00	-2.43
4019	1541472.864	734181.6582	0.00	-2.38
4020	1541473.918	734183.2195	0.00	-1.96
4021	1541474.978	734184.7725	0.00	-1.00
4022	1541476.038	734186.3262	0.12	0.00
4023	1541477.101	734187.8734	1.30	0.00
4024	1541479.261	734187.7239	1.04	0.00
4025	1541480.324	734189.2691	2.28	0.00
4026	1541482.537	734189.0338	2.00	0.00
4027	1541483.672	734190.4634	3.49	0.00
4028	1541485.491	734190.8333	3.74	0.00
4029	1541487.311	734191.204	3.93	0.00
4030	1541488.322	734192.8292	5.32	0.00
4031	1541490.146	734193.1969	5.72	0.00
4032	1541491.864	734193.729	6.39	0.00
4033	1541493.522	734194.3523	7.31	0.00
4034	1541495.076	734195.1368	7.91	0.00
4035	1541496.625	734195.9285	7.88	0.00
4036	1541498.463	734196.2748	7.45	0.00
4037	1541499.497	734197.8656	6.97	0.00
4038	1541501.351	734198.1873	6.53	0.00
4039	1541502.197	734200.0707	6.04	0.00
4040	1541503.186	734201.7329	5.56	0.00
4041	1541504.983	734202.1443	4.29	0.00
4042	1541505.665	734204.2814	2.51	0.00
4043	1541507.25	734205.0213	0.84	0.00
4044	1541333.777	734262.4875	0.00	0.00
4045	1541333.753	734260.4868	0.00	-0.01
4046	1541335.471	734259.3107	0.00	0.00
4047	1541335.447	734257.3112	0.00	0.00
4048	1541335.423	734255.3115	0.00	0.00
4049	1541337.138	734253.852	0.00	0.00
4050	1541337.114	734251.8515	0.00	0.00
4051	1541338.835	734250.8468	0.00	0.00
4052	1541338.811	734248.8464	0.00	0.00
4053	1541338.787	734246.8458	0.00	0.00
4054	1541338.763	734244.8453	0.00	0.00
4055	1541340.486	734244.0815	0.01	0.00
4056	1541342.206	734243.0329	0.18	0.00
4057	1541342.182	734241.034	0.11	0.00
4058	1541343.9	734239.8934	0.00	-0.03
4059	1541345.622	734239.0527	0.35	0.00
4060	1541345.598	734237.0531	0.37	0.00
4061	1541345.574	734235.0535	0.26	0.00
4062	1541345.55	734233.0538	0.02	0.00
4063	1541347.272	734232.2189	0.00	-0.10
4064	1541347.249	734230.2204	0.00	-0.39
4065	1541347.225	734228.2218	0.00	-0.67
4066	1541348.948	734227.5087	0.00	-0.79
4067	1541348.924	734225.5104	0.00	-0.70
4068	1541348.9	734223.5122	0.00	-0.52
4069	1541350.621	734222.7209	0.00	-0.37
4070	1541350.598	734220.7216	0.00	-0.19
4071	1541350.574	734218.7224	0.00	-0.03
4072	1541352.297	734218.0374	0.00	0.00
4073	1541354.025	734217.708	0.00	0.00
4074	1541354.001	734215.7084	0.00	0.00
4075	1541355.727	734215.2371	0.00	0.00
4076	1541355.703	734213.2379	0.00	0.00
4077	1541357.427	734212.626	0.00	0.00
4078	1541357.403	734210.6293	0.00	0.00
4079	1541359.127	734210.056	0.00	0.00
4080	1541360.843	734208.9802	0.00	0.00
4081	1541362.556	734207.6075	0.00	0.00
4082	1541364.266	734205.9186	0.00	0.00
4083	1541365.982	734204.6122	0.00	0.00
4084	1541367.708	734204.0583	0.00	0.00
4085	1541369.433	734203.3028	0.00	0.00
4086	1541371.152	734202.0626	0.00	0.00
4087	1541372.868	734200.6778	0.00	0.00
4088	154374.58	734198.9793	0.00	0.00
4089	1541376.294	734197.5669	0.00	0.00
4090	1541378.015	734196.7982	0.00	0.00
4091	1541379.732	734195.6734	0.00	0.00
4092	1541381.444	734194.2242	0.00	0.00
4093	1541383.156	734192.6463	0.00	0.00
4094	1541384.876	734191.4808	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
4095	1541386.6	734190.8139	0.00	0.00
4096	1541388.32	734189.8362	0.00	0.00
4097	1541390.033	734188.5588	0.00	0.00
4098	1541391.748	734187.4249	0.00	0.00
4099	1541393.486	734188.1115	0.00	0.00
4100	1541395.199	734186.7044	0.00	0.00
4101	1541396.912	734185.318	0.00	0.00
4102	1541398.63	734184.1573	0.00	0.00
4103	1541400.351	734183.2949	0.00	0.00
4104	1541402.088	734183.8832	0.00	0.00
4105	1541403.798	734182.3053	0.00	0.00
4106	1541405.513	734181.2175	0.00	0.00
4107	1541407.226	734180.0885	0.00	0.00
4108	1541408.939	734179.0711	0.00	0.00
4109	1541410.653	734177.9281	0.00	0.00
4110	1541412.397	73476.632	0.00	0.00
4111	1541413.911	734174.9279	0.00	0.00
4112	1541415.913	734174.9444	0.00	0.00
4113	1541417.135	734176.6458	0.00	0.00
4114	1541419.198	734176.18	0.00	0.00
4115	1541420.103	734174.7154	0.00	0.00
4116	1541421.094	734173.0246	0.00	0.00
4117	1541423.052	734172.9444	0.00	0.00
4118	1541425.113	734172.8608	0.00	0.00
4119	1541427.127	734172.848	0.00	0.00
4120	1541428.487	734171.1013	0.00	0.00
4121	1541430.485	734171.0498	0.00	0.00
4122	1541432.487	734170.9998	0.00	0.00
4123	1541434.538	734170.9369	0.03	0.00
4124	1541436.612	734170.8577	0.11	0.00
4125	1541438.712	734170.7597	0.11	0.00
4126	1541440.835	734170.6374	0.10	0.00
4127	1541442.971	734170.517	0.09	0.00
4128	1541445.098	734170.4133	0.14	0.00
4129	1541447.232	734170.3001	0.31	0.00
4130	1541449.349	734170.2129	0.49	0.00
4131	1541451.312	734170.366	0.66	0.00
4132	1541452.975	734170.9847	0.82	0.00
4133	1541454.68	734171.5327	0.99	0.00
4134	1541456.589	734171.7661	1.10	0.00
4135	1541458.618	734171.8114	0.77	0.00
4136	1541459.646	734173.4073	0.66	0.00
4137	1541461.76	734173.3184	0.32	0.00
4138	1541463.89	734173.2076	0.00	-0.03
4139	1541464.984	734174.7111	0.00	-0.14
4140	1541467.211	734174.4518	0.00	-0.50
4141	1541469.46	734174.1511	0.00	-1.56
4142	1541470.648	734175.5044	0.00	-2.07
4143	1541471.766	734176.9682	0.00	-2.64
4144	1541472.842	734178.4961	0.00	-2.70
4145	1541473.946	734179.979	0.00	-2.69
4146	1541475.002	734181.5393	0.00	-2.65
4147	1541476.063	734183.0917	0.00	-2.15
4148	1541477.124	734184.645	0.00	-1.71
4149	1541478.188	734186.1924	0.00	-0.67
4150	1541480.347	734186.0433	0.00	-1.57
4151	1541481.41	734187.5901	0.00	-0.26
4152	1541483.62	734187.3553	0.00	-0.61
4153	1541484.755	734188.7868	1.07	0.00
4154	1541486.573	734189.1569	1.70	0.00
4155	1541488.393	734189.5264	2.32	0.00
4156	1541489.406	734191.15	3.86	0.00
4157	1541491.23	734191.5169	4.27	0.00
4158	1541492.948	734192.049	4.94	0.00
4159	1541494.606	734192.6725	5.85	0.00
4160	1541496.159	734193.4578	6.97	0.00
4161	1541497.709	734194.2492	7.87	0.00
4162	1541499.547	734194.5943	7.54	0.00
4163	1541500.582	734196.1857	7.04	0.00
4164	1541502.435	734196.5076	6.58	0.00
4165	1541503.282	734198.3902	6.08	0.00
4166	1541504.272	734200.0517	5.59	0.00
4167	1541506.068	734200.4632	4.43	0.00
4168	1541506.75	734202.6009	2.63	0.00
4169	1541508.335	734203.3403	0.94	0.00
4170	1541333.729	734258.4862	0.00	0.00
4171	1541333.705	734256.4856	0.00	0.00
4172	1541333.681	734254.485	0.00	0.00
4173	1541335.399	734253.3119	0.00	0.00
4174	1541335.375	734251.3122	0.00	0.00
4175	1541337.09	734249.8508	0.00	0.00
4176	1541337.066	734247.8502	0.00	0.00
4177	1541337.042	734245.8494	0.00	0.00
4178	1541337.018	734243.8487	0.00	0.00
4179	1541338.739	734242.8446	0.00	0.00
4180	1541340.462	734242.0813	0.00	0.00
4181	1541340.439	734240.081	0.00	-0.01
4182	1541342.158	734239.035	0.01	0.00
4183	1541343.877	734237.8941	0.00	-0.01

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
4184	1541343.853	734235.8947	0.06	0.00
4185	1541343.829	734233.8953	0.00	0.00
4186	1541343.805	734231.8958	0.00	-0.12
4187	1541345.526	734231.054	0.00	-0.26
4188	1541345.503	734229.0542	0.00	-0.53
4189	1541345.479	734227.0544	0.00	-0.82
4190	1541347.201	734226.2232	0.00	-0.84
4191	1541347.177	734224.2246	0.00	-0.68
4192	1541347.153	734222.2259	0.00	-0.56
4193	1541348.876	734221.5138	0.00	-0.36
4194	1541348.852	734219.5155	0.00	-0.23
4195	1541348.828	734217.5171	0.00	-0.11
4196	1541350.55	734216.7231	0.00	0.00
4197	1541352.273	734216.0378	0.00	0.00
4198	1541352.249	734214.0382	0.00	0.00
4199	1541353.977	734213.7086	0.00	0.00
4200	1541353.953	734211.7089	0.00	0.00
4201	1541355.679	734211.2387	0.00	0.00
4202	1541355.656	734209.2395	0.00	0.00
4203	1541357.38	734208.6325	0.00	0.00
4204	1541359.103	734208.0604	0.00	0.00
4205	1541360.819	734206.984	0.00	0.00
4206	1541362.532	734205.6094	0.00	0.00
4207	1541364.242	734203.9191	0.00	0.00
4208	1541365.958	734202.6114	0.00	0.00
4209	1541367.684	734202.0562	0.00	0.00
4210	1541369.409	734201.3009	0.00	0.00
4211	1541371.128	734200.0618	0.00	0.00
4212	1541372.844	734198.6783	0.00	0.00
4213	1541374.556	734196.9816	0.00	0.00
4214	1541376.27	734195.5682	0.00	0.00
4215	1541377.991	734194.8018	0.00	0.00
4216	1541379.708	734193.6774	0.00	0.00
4217	1541381.42	734192.2242	0.00	0.00
4218	1541383.132	734190.6449	0.00	0.00
4219	1541384.851	734189.4795	0.00	0.00
4220	1541386.576	734188.8152	0.00	0.00
4221	1541388.296	734187.841	0.00	0.00
4222	1541390.009	734186.5637	0.00	0.00
4223	1541391.724	734185.4267	0.00	0.00
4224	1541393.462	734186.1156	0.00	0.00
4225	1541395.175	734184.7065	0.00	0.00
4226	1541396.888	734183.3177	0.00	0.00
4227	1541398.606	734182.1585	0.00	0.00
4228	1541400.326	734181.2974	0.00	0.00
4229	1541402.064	734181.8861	0.00	0.00
4230	1541403.774	734180.3087	0.00	0.00
4231	1541405.489	734179.2273	0.00	0.00
4232	1541407.201	734178.0986	0.00	0.00
4233	1541408.909	734177.0804	0.00	0.00
4234	1541410.596	734175.9403	0.00	0.00
4235	1541412.169	734174.837	0.00	0.00
4236	1541412.785	734173.0839	0.00	0.00
4237	1541414.997	734173.1447	0.00	0.00
4238	1541417.031	734173.0954	0.00	0.00
4239	1541418.003	734174.7884	0.00	0.00
4240	1541419.056	734173.0385	0.00	0.00
4241	1541420.45	734171.2765	0.00	0.00
4242	1541422.456	734171.2214	0.00	0.00
4243	1541424.462	734171.178	0.00	0.00
4244	1541426.477	734171.1282	0.00	0.00
4245	1541427.827	734169.3736	0.00	0.00
4246	1541429.818	734169.3279	0.00	0.00
4247	1541431.811	734169.2811	0.00	0.00
4248	1541433.803	734169.2372	0.03	0.00
4249	1541435.797	734169.1892	0.10	0.00
4250	1541437.804	734169.1319	0.09	0.00
4251	1541439.847	734169.0587	0.09	0.00
4252	1541441.936	734168.9587	0.08	0.00
4253	1541444.054	734168.8461	0.07	0.00
4254	1541446.183	734168.7379	0.16	0.00
4255	1541448.317	734168.6226	0.33	0.00
4256	1541450.433	734168.5348	0.51	0.00
4257	1541452.395	734168.6856	0.68	0.00
4258	1541454.058	734169.3033	0.84	0.00
4259	1541455.762	734169.853	1.01	0.00
4260	1541457.669	734170.0876	0.90	0.00
4261	1541459.697	734170.1298	0.55	0.00
4262	1541460.726	734171.7293	0.42	0.00
4263	1541462.838	734171.6393	0.08	0.00
4264	1541464.968	734171.5242	0.00	-0.28
4265	1541466.065	734173.0266	0.00	-0.38
4266	1541468.289	734172.7655	0.00	-1.09
4267	1541470.534	734172.4638	0.00	-2.08
4268	1541471.722	734173.8218	0.00	-2.58
4269	1541472.842	734175.2865	0.00	-3.00
4270	1541473.92	734176.8136	0.00	-2.97
4271	1541475.026	734178.2981	0.00	-2.96
4272	1541476.083	734179.8577	0.00	-2.93

Node	X-Coordinate	Y-Coordinate	Fill	Cut
4273	1541477.146	734181.4096	0.00	-2.90
4274	1541479.274	734184.5107	0.00	-3.07
4275	1541480.213	734185.8561	0.00	-3.07
4276	1541482.993	734189.8393	0.00	-3.07
4277	1541484.702	734186.6704	1.00	-3.58
4278	1541485.236	734187.4291	0.00	-3.58
4279	1541487.554	734187.4291	0.00	-3.07
4280	1541488.148	734187.7185	0.00	-3.07
4282	1541490.149	734189.6697	2.40	0.00
4283	1541491.041	734190.9599	2.93	0.00
4284	1541494.029	734190.3579	3.68	0.00
4285	1541494.637	734189.5967	4.12	0.00
4286	1541149.24	734191.7775	5.53	0.00
4287	1541496.246	734192.6236	5.93	0.00
4288	1541500.628	734192.9124	7.04	0.00
4289	1541501.461	734194.0625	7.12	0.00
4290	1541503.324	734193.7731	7.12	0.00
4291	1541504.063	734194.8744	7.12	0.00
4292	1541505.358	734198.3695	5.62	0.00
4293	1541507.146	734198.7821	4.52	0.00
4294	1541507.852	734200.9195	2.74	0.00
4295	1541508.729	734201.6594	1.04	0.00
4296	1541333.657	734252.4844	0.00	0.00
4297	1541333.633	734250.4837	0.00	0.00
4298	1541335.351	734249.3125	0.00	0.00
4299	1541335.327	734247.3127	0.00	0.00
4300	1541335.303	734245.313	0.00	-0.01
4301	1541335.279	734243.3132	0.00	0.00
4302	1541336.994	734241.8479	0.00	-0.01
4303	1541338.715	734240.844	0.00	0.00
4304	1541338.691	734238.8432	0.00	-0.01
4305	1541340.415	734238.0807	0.00	-0.02
4306	1541342.134	734237.0361	0.00	-0.06
4307	1541342.111	734235.037	0.00	-0.09
4308	1541342.087	734233.0379	0.00	-0.10
4309	1541342.063	734231.0388	0.00	-0.23
4310	1541343.781	734229.8963	0.00	-0.41
4311	1541343.757	734227.8968	0.00	-0.74
4312	1541343.733	734225.8972	0.00	-1.04
4313	1541345.455	734225.0545	0.00	-0.90
4314	1541345.431	734223.0546	0.00	-0.78
4315	1541345.407	734221.0546	0.00	-0.66
4316	1541347.129	734220.2272	0.00	-0.44
4317	1541347.105	734218.2284	0.00	-0.32
4318	1541347.081	734216.2296	0.00	-0.20
4319	1541348.804	734215.5187	0.00	0.00
4320	1541350.526	734214.7238	0.00	0.00
4321	1541350.502	734212.7244	0.00	0.00
4322	1541352.225	734212.0386	0.00	0.00
4323	1541352.201	734210.0389	0.00	0.00
4324	1541353.929	734209.7091	0.00	0.00
4325	1541353.905	734207.7094	0.00	0.00
4326	1541355.632	734207.2402	0.00	0.00
4327	1541357.356	734206.6358	0.00	0.00
4328	1541359.079	734206.0647	0.00	0.00
4329	1541360.795	734204.9878	0.00	0.00
4330	1541362.508	734203.6113	0.00	0.00
4331	1541364.218	734201.9197	0.00	0.00
4332	1541365.934	734200.6105	0.00	0.00
4333	1541367.661	734200.0541	0.00	0.00
4334	1541369.385	734199.2991	0.00	0.00
4335	1541371.104	734198.061	0.00	0.00
4336	1541372.82	734196.6788	0.00	0.00
4337	1541374.532	734194.9838	0.00	0.00
4338	1541376.246	734193.5694	0.00	0.00
4339	1541377.967	734192.8054	0.00	0.00
4340	1541379.684	734191.6813	0.00	0.00
4341	1541381.396	734190.2241	0.00	0.00
4342	1541383.108	734188.6435	0.00	0.00
4343	1541384.827	734187.4782	0.00	0.00
4344	1541386.552	734186.8166	0.00	0.00
4345	1541388.271	734185.8458	0.00	0.00
4346	1541389.985	734184.5685	0.00	0.00
4347	1541391.699	734183.4285	0.00	0.00
4348	1541393.438	734184.1196	0.00	0.00
4349	1541395.151	734182.7086	0.00	0.00
4350	1541396.863	734181.3175	0.00	0.00
4351	1541398.581	734180.1597	0.00	0.00
4352	1541400.302	734179.3005	0.00	0.00
4353	1541402.04	734179.8889	0.00	0.00
4354	1541403.75	734178.3052	0.00	0.00
4355	1541405.463	734177.2349	0.00	0.00
4356	1541407.171	734176.1037	0.00	0.00
4357	1541408.892	734175.0811	0.00	0.00
4358	1541410.66	734173.9001	0.00	0.00
4359	1541410.751	734171.8378	0.00	0.00
4360	1541412.643	734171.282	0.00	0.00
4361	1541414.45	734171.4268	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
4362	1541416.436	734171.3648	0.00	0.00
4363	1541418.441	734171.3179	0.00	0.00
4364	1541419.855	734169.5557	0.00	0.00
4365	1541421.847	734169.5089	0.00	0.00
4366	1541423.841	734169.4628	0.00	0.00
4367	1541425.833	734169.418	0.00	0.00
4368	1541427.079	734167.6646	0.00	0.00
4369	1541429.069	734167.6186	0.00	0.00
4370	1541431.059	734167.573	0.00	0.00
4371	1541433.05	734167.5271	0.03	0.00
4372	1541435.04	734167.4814	0.09	0.00
4373	1541437.03	734167.4351	0.08	0.00
4374	1541439.021	734167.3893	0.07	0.00
4375	1541441.027	734167.3332	0.07	0.00
4376	1541443.068	734167.2589	0.06	0.00
4377	1541445.152	734167.1687	0.05	0.00
4378	1541447.267	734167.0586	0.18	0.00
4379	1541449.398	734166.9448	0.36	0.00
4380	1541451.513	734166.8549	0.53	0.00
4381	1541453.476	734167.0029	0.69	0.00
4382	1541455.138	734167.62	0.86	0.00
4383	1541456.841	734168.1716	1.02	0.00
4384	1541458.745	734168.4065	0.69	0.00
4385	1541460.773	734168.4462	0.34	0.00
4386	1541461.802	734170.0492	0.20	0.00
4387	1541463.911	734169.9573	0.00	-0.16
4388	1541466.039	734169.8371	0.00	-0.52
4389	1541467.141	734171.3391	0.00	-0.67
4390	1541469.361	734171.0752	0.00	-1.61
4391	1541471.599	734170.7709	0.00	-2.55
4392	1541472.789	734172.1347	0.00	-2.99
4393	1541473.912	734173.6013	0.00	-3.29
4394	1541474.995	734175.1282	0.00	-3.26
4395	1541476.101	734176.6149	0.00	-3.24
4396	1541477.161	734178.1742	0.00	-3.21
4397	1541478.226	734179.7259	0.00	-2.84
4398	1541479.29	734181.2788	0.00	-2.36
4399	1541480.357	734182.827	0.00	-1.94
4400	1541482.511	734182.6783	0.00	-1.45
4401	1541483.574	734184.2286	0.00	-1.02
4402	1541485.78	734183.9942	0.00	-0.54
4403	1541486.914	734185.4299	0.00	-0.10
4404	1541488.731	734185.8001	0.00	0.00
4405	1541490.55	734186.1669	0.00	0.00
4406	1541491.569	734187.7878	0.79	0.00
4407	1541493.392	734188.153	1.57	0.00
4408	1541495.108	734188.6847	2.44	0.00
4409	1541496.765	734189.3081	3.30	0.00
4410	1541498.317	734190.0949	4.28	0.00
4411	1541499.867	734190.8858	5.27	0.00
4412	1541501.705	734191.2275	5.81	0.00
4413	1541502.743	734192.822	6.93	0.00
4414	1541504.6	734193.1456	6.67	0.00
4415	1541505.447	734195.0272	6.14	0.00
4416	1541506.446	734196.6828	5.63	0.00
4417	1541508.234	734197.1022	4.54	0.00
4418	1541508.923	734199.2347	2.84	0.00
4419	1541510.505	734199.9784	1.13	0.00
4420	1541333.609	734248.4831	0.00	0.00
4421	1541333.585	734246.4825	0.00	-0.01
4422	1541333.561	734244.4819	0.00	-0.02
4423	1541333.537	734242.4812	0.00	-0.02
4424	1541335.255	734241.3134	0.00	-0.01
4425	1541336.97	734239.8471	0.00	-0.01
4426	1541336.946	734237.8463	0.00	-0.02
4427	1541338.667	734236.8425	0.00	-0.01
4428	1541340.391	734236.0804	0.00	-0.04
4429	1541340.367	734234.08	0.00	-0.04
4430	1541340.343	734232.0796	0.00	-0.04
4431	1541340.319	734230.0791	0.00	-0.31
4432	1541342.039	734229.0397	0.00	-0.61
4433	1541342.015	734227.0405	0.00	-0.91
4434	1541341.991	734225.0413	0.00	-1.20
4435	1541343.709	734223.8975	0.00	-1.01
4436	1541343.685	734221.8979	0.00	-0.89
4437	1541343.661	734219.8982	0.00	-0.77
4438	1541345.383	734219.0547	0.00	-0.55
4439	1541345.359	734217.0547	0.00	-0.42
4440	1541345.335	734215.0547	0.00	-0.31
4441	1541347.057	734214.2309	0.00	-0.08
4442	1541348.78	734213.5203	0.00	0.00
4443	1541348.756	734211.5218	0.00	0.00
4444	1541350.478	734210.7251	0.00	0.00
4445	1541350.454	734208.7257	0.00	0.00
4446	1541352.178	734208.0393	0.00	0.00
4447	1541352.154	734206.0396	0.00	0.00
4448	1541353.882	734205.7096	0.00	0.00
4449	1541355.608	734205.2409	0.00	0.00
4450	1541357.332	734204.639	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
4451	1541359.055	734204.0691	0.00	0.00
4452	1541360.771	734202.9916	0.00	0.00
4453	1541362.484	734201.6132	0.00	0.00
4454	1541364.194	734199.9202	0.00	0.00
4455	1541365.91	734198.6097	0.00	0.00
4456	1541367.637	734198.052	0.00	0.00
4457	1541369.361	734197.2972	0.00	0.00
4458	1541371.08	734196.0601	0.00	0.00
4459	1541372.796	734194.6793	0.00	0.00
4460	1541374.508	734192.9861	0.00	0.00
4461	1541376.222	734191.5707	0.00	0.00
4462	1541377.943	734190.809	0.00	0.00
4463	1541379.66	734189.6853	0.00	0.00
4464	1541381.371	734188.224	0.00	0.00
4465	1541383.084	734186.6421	0.00	0.00
4466	1541384.803	734185.4769	0.00	0.00
4467	1541386.527	734184.818	0.00	0.00
4468	1541388.247	734183.8506	0.00	0.00
4469	1541389.961	734182.5734	0.00	0.00
4470	1541391.675	734181.4304	0.00	0.00
4471	1541393.413	734182.1237	0.00	0.00
4472	1541395.126	734180.7107	0.00	0.00
4473	1541396.839	734179.3171	0.00	0.00
4474	1541398.557	734178.1609	0.00	0.00
4475	1541400.278	734177.3027	0.00	0.00
4476	1541402.016	734177.8952	0.00	0.00
4477	1541403.731	734176.2835	0.00	0.00
4478	1541405.424	734175.2393	0.00	0.00
4479	1541407.149	734174.1094	0.00	0.00
4480	1541408.888	734173.1092	0.00	0.00
4481	1541408.795	734171.2984	0.00	0.00
4482	1541409.855	734169.8138	0.00	0.00
4483	1541411.862	734169.7788	0.00	0.00
4484	1541413.894	734169.6626	0.00	0.00
4485	1541415.869	734169.6473	0.00	0.00
4486	1541417.862	734169.6	0.00	0.00
4487	1541419.118	734167.8464	0.00	0.00
4488	1541421.108	734167.8007	0.00	0.00
4489	1541423.098	734167.7553	0.00	0.00
4490	1541425.089	734167.7096	0.00	0.00
4491	1541426.311	734165.955	0.00	0.00
4492	1541428.3	734165.9094	0.00	0.00
4493	1541430.29	734165.8636	0.00	0.00
4494	1541432.28	734165.8179	0.03	0.00
4495	1541434.27	734165.7721	0.07	0.00
4496	1541436.26	734165.7261	0.06	0.00
4497	1541438.25	734165.6803	0.06	0.00
4498	1541440.239	734165.6344	0.05	0.00
4499	1541442.23	734165.5881	0.05	0.00
4500	1541444.234	734165.5331	0.04	0.00
4501	1541446.275	734165.4634	0.03	0.00
4502	1541448.364	734165.3706	0.20	0.00
4503	1541450.477	734165.2635	0.38	0.00
4504	1541452.59	734165.1733	0.55	0.00
4505	1541454.555	734165.3134	0.72	0.00
4506	1541456.211	734165.9356	0.88	0.00
4507	1541457.913	734166.4858	0.85	0.00
4508	1541459.818	734166.7266	0.51	0.00
4509	1541461.841	734166.7564	0.15	0.00
4510	1541462.872	734168.3651	0.00	-0.03
4511	1541464.977	734168.2706	0.00	-0.41
4512	1541467.101	734168.1439	0.00	-0.81
4513	1541468.209	734169.6466	0.00	-1.18
4514	1541470.422	734169.3783	0.00	-2.08
4515	1541472.649	734169.069	0.00	-2.97
4516	1541473.843	734170.44	0.00	-3.37
4517	1541474.973	734171.9101	0.00	-3.60
4518	1541476.062	734173.4382	0.00	-3.56
4519	1541477.171	734174.9281	0.00	-3.53
4520	1541478.235	734176.4878	0.00	-3.30
4521	1541479.303	734178.0398	0.00	-2.74
4522	1541480.37	734179.593	0.00	-2.29
4523	1541481.437	734181.1419	0.00	-1.88
4524	1541483.589	734180.993	0.00	-1.40
4525	1541484.653	734182.5454	0.00	-0.98
4526	1541486.856	734182.3108	0.00	-0.51
4527	1541487.99	734183.7489	0.00	-0.08
4528	1541489.805	734184.1189	0.00	0.00
4529	1541491.624	734184.484	0.00	0.00
4530	1541492.645	734186.1037	0.00	0.00
4531	1541494.467	734186.4678	0.31	0.00
4532	1541496.182	734186.999	1.19	0.00
4533	1541497.838	734187.6221	2.08	0.00
4534	1541499.389	734188.4092	3.07	0.00
4535	1541500.938	734189.1996	4.07	0.00
4536	1541502.774	734189.5384	4.73	0.00
4537	1541503.815	734191.1349	5.73	0.00
4538	1541505.667	734191.4608	5.83	0.00
4539	1541506.545	734193.3416	6.16	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
4540	1541507.546	734194.9727	5.61	0.00
4541	1541509.305	734195.4336	4.51	0.00
4542	1541510.021	734197.5219	2.92	0.00
4543	1541511.59	734198.2975	1.21	0.00
4544	1541333.513	734240.4806	0.00	-0.01
4545	1541335.231	734239.3136	0.00	-0.01
4546	1541335.207	734237.3138	0.00	-0.01
4547	1541336.922	734235.8454	0.00	-0.02
4548	1541338.643	734234.8417	0.00	0.00
4549	1541338.619	734232.8409	0.00	0.00
4550	1541338.595	734230.8401	0.00	-0.07
4551	1541338.571	734228.8392	0.00	-0.48
4552	1541340.295	734228.0787	0.00	-0.71
4553	1541340.271	734226.0782	0.00	-1.05
4554	1541340.247	734224.0777	0.00	-1.15
4555	1541341.967	734223.0421	0.00	-1.13
4556	1541341.943	734221.0428	0.00	-1.01
4557	1541341.919	734219.0435	0.00	-0.89
4558	1541343.637	734217.8986	0.00	-0.65
4559	1541343.613	734215.8989	0.00	-0.53
4560	1541343.589	734213.8991	0.00	-0.41
4561	1541345.311	734213.0546	0.00	-0.18
4562	1541347.033	734212.2321	0.00	0.00
4563	1541347.009	734210.2332	0.00	0.00
4564	1541348.733	734209.5233	0.00	0.00
4565	1541348.709	734207.5249	0.00	0.00
4566	1541350.43	734206.7263	0.00	0.00
4567	1541350.406	734204.7269	0.00	0.00
4568	1541352.13	734204.0399	0.00	0.00
4569	1541353.858	734203.7098	0.00	0.00
4570	1541355.584	734203.2417	0.00	0.00
4571	1541357.308	734202.6422	0.00	0.00
4572	1541359.031	734202.0734	0.00	0.00
4573	1541360.747	734200.9953	0.00	0.00
4574	1541362.46	734199.6152	0.00	0.00
4575	1541364.17	734197.9148	0.00	0.00
4576	1541365.885	734196.6079	0.00	0.00
4577	1541367.608	734196.0445	0.00	0.00
4578	1541369.337	734195.2953	0.00	0.00
4579	1541371.056	734194.0593	0.00	0.00
4580	1541372.772	734192.6798	0.00	0.00
4581	1541374.484	734190.9884	0.00	0.00
4582	1541376.198	734189.572	0.00	0.00
4583	1541377.919	734188.8126	0.00	0.00
4584	1541379.636	734187.6892	0.00	0.00
4585	1541381.347	734186.224	0.00	0.00
4586	1541383.06	734184.6407	0.00	0.00
4587	1541384.779	734183.4757	0.00	0.00
4588	1541386.503	734182.8194	0.00	0.00
4589	1541388.223	734181.8554	0.00	0.00
4590	1541389.936	734180.5782	0.00	0.00
4591	1541391.651	734179.4322	0.00	0.00
4592	1541393.389	734180.1278	0.00	0.00
4593	1541395.102	734178.713	0.00	0.00
4594	1541396.813	734177.3176	0.00	0.00
4595	1541398.527	734176.164	0.00	0.00
4596	1541400.222	734175.324	0.00	0.00
4597	1541402.007	734175.9158	0.00	0.00
4598	1541403.574	734174.0859	0.00	0.00
4599	1541405.394	734173.2629	0.00	0.00
4600	1541407.101	734172.1191	0.00	0.00
4601	1541407.407	734169.9697	0.00	0.00
4602	1541409.053	734168.127	0.00	0.00
4603	1541411.146	734168.0402	0.00	0.00
4604	1541413.14	734167.9858	0.00	0.00
4605	1541415.139	734167.933	0.00	0.00
4606	1541417.128	734167.8921	0.00	0.00
4607	1541418.351	734166.1371	0.00	0.00
4608	1541420.341	734166.0915	0.00	0.00
4609	1541422.331	734166.046	0.00	0.00
4610	1541424.321	734166.0005	0.00	0.00
4611	1541425.464	734164.2455	0.00	0.00
4612	1541427.46	734164.1997	0.00	0.00
4613	1541429.456	734164.1539	0.00	0.00
4614	1541431.453	734164.108	0.02	0.00
4615	1541433.449	734164.0621	0.06	0.00
4616	1541435.445	734164.0161	0.05	0.00
4617	1541437.442	734163.9701	0.04	0.00
4618	1541439.438	734163.9239	0.04	0.00
4619	1541441.435	734163.8778	0.03	0.00
4620	1541443.431	734163.8317	0.03	0.00
4621	1541445.428	734163.786	0.02	0.00
4622	1541447.441	734163.7312	0.06	0.00
4623	1541449.486	734163.66	0.23	0.00
4624	1541451.567	734163.5744	0.40	0.00
4625	1541453.66	734163.4861	0.56	0.00
4626	1541455.635	734163.5967	0.72	0.00
4627	1541457.253	734164.2499	0.89	0.00
4628	1541458.993	734164.8327	0.65	0.00

Appendix C

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
4629	1541460.879	734165.0322	0.30	0.00
4630	1541483.933	734166.6759	0.00	0.22
4631	1541465.251	734166.2511	0.00	0.00
4632	1541465.267	734166.251	0.00	0.00
4633	1541468.264	734165.8869	0.00	0.07
4634	1541476.666	734167.3531	0.00	0.00
4635	1541475.227	734167.3531	0.00	0.07
4636	1541476.012	734170.2088	0.00	2.93
4637	1541477.231	734172.2138	0.00	3.76
4638	1541478.231	734172.2138	0.00	3.76
4639	1541479.231	734172.2138	0.00	3.76
4640	1541478.231	734172.2138	0.00	3.76
4641	1541479.231	734172.2138	0.00	3.76
4642	1541480.374	734176.3501	0.00	2.64
4643	1541481.463	734176.3501	0.00	2.23
4644	1541482.514	734179.4545	0.00	1.82
4645	1541483.463	734179.4545	0.00	1.35
4646	1541484.463	734179.4545	0.00	0.95
4647	1541485.463	734179.4545	0.00	0.49
4648	1541489.062	734182.0654	0.00	-0.06
4649	1541489.062	734182.4352	0.00	0.00
4650	1541487.062	734182.7987	0.00	0.00
4651	1541487.062	734184.4171	0.00	0.00
4652	1541495.539	734184.7802	0.00	0.00
4653	1541497.253	734185.3107	0.00	0.00
4654	1541498.907	734185.9335	0.89	0.00
4655	1541500.457	734186.7202	1.89	0.00
4656	1541502.004	734187.5105	2.89	0.00
4657	1541503.838	734187.8465	3.58	0.00
4658	1541504.879	734189.4432	4.66	0.00
4659	1541506.716	734189.766	4.75	0.00
4660	1541507.604	734191.6582	5.83	0.00
4661	1541508.829	734193.1834	5.55	0.00
4662	1541510.46	734194.0378	4.28	0.00
4663	1541511.326	734195.7761	2.82	0.00
4664	1541512.675	734196.6165	1.27	0.00
4665	1541333.489	734238.48	0.00	-0.01
4666	1541333.465	734236.4794	0.00	0.00
4667	1541335.183	734235.3139	0.00	0.00
4668	1541336.898	734233.8445	0.00	0.00
4669	1541336.874	734231.8436	0.01	0.00
4670	1541336.85	734229.8427	0.00	-0.16
4671	1541336.826	734227.8418	0.00	-0.32
4672	1541338.547	734226.8384	0.00	-0.70
4673	1541338.523	734224.8375	0.00	-0.87
4674	1541338.499	734222.8366	0.00	-1.03
4675	1541340.223	734222.0771	0.00	-1.23
4676	1541340.199	734220.0766	0.00	-1.12
4677	1541340.175	734218.076	0.00	-1.01
4678	1541341.895	734217.0442	0.00	-0.77
4679	1541341.871	734215.0449	0.00	-0.65
4680	1541341.847	734213.0456	0.00	-0.53
4681	1541343.565	734211.8994	0.00	-0.29
4682	1541345.287	734211.0546	0.00	-0.06
4683	1541345.263	734209.0545	0.00	0.00
4684	1541346.986	734208.2344	0.00	0.00
4685	1541346.962	734206.2355	0.00	0.00
4686	1541348.685	734205.5264	0.00	0.00
4687	1541348.661	734203.5279	0.00	0.00
4688	1541350.382	734202.7275	0.00	0.00
4689	1541352.106	734202.0403	0.00	0.00
4690	1541353.834	734201.71	0.00	0.00
4691	1541355.56	734201.2424	0.00	0.00
4692	1541357.284	734200.6454	0.00	0.00
4693	1541359.007	734200.0778	0.00	0.00
4694	1541360.723	734198.9998	0.00	0.00
4695	1541362.437	734197.6194	0.00	0.00
4696	1541364.152	734195.8919	0.00	0.00
4697	1541365.845	734194.6038	0.00	0.00
4698	1541367.583	734194.0452	0.00	0.00
4699	1541369.313	734193.2934	0.00	0.00
4700	1541371.032	734192.0585	0.00	0.00
4701	1541372.748	734190.6803	0.00	0.00
4702	1541374.46	734188.9907	0.00	0.00
4703	1541376.173	734187.5733	0.00	0.00
4704	1541377.895	734186.8162	0.00	0.00
4705	1541379.612	734185.6932	0.00	0.00
4706	1541381.323	734184.224	0.00	0.00
4707	1541383.035	734182.6393	0.00	0.00
4708	1541384.754	734181.4744	0.00	0.00
4709	1541386.479	734180.8209	0.00	0.00
4710	1541388.199	734179.8603	0.00	0.00
4711	1541389.912	734178.5831	0.00	0.00
4712	1541391.626	734177.434	0.00	0.00
4713	1541393.365	734178.1319	0.00	0.00
4714	1541395.077	734176.715	0.00	0.00
4715	1541396.789	734175.3167	0.00	0.00
4716	1541398.505	734174.1637	0.00	0.00
4717	1541400.197	734173.2922	0.00	0.00
4718	1541401.756	734174.1434	0.00	0.00
4719	1541401.969	734172.3238	0.00	0.00
4720	1541403.68	734171.9105	0.00	0.00
4721	1541405.426	734171.2412	0.00	0.00
4722	1541405.389	734169.3139	0.00	0.00
4723	1541407.072	734168.0644	0.00	0.00
4724	1541408.441	734166.3614	0.00	0.00
4725	1541410.393	734166.3308	0.00	0.00
4726	1541412.381	734166.274	0.00	0.00
4727	1541414.37	734166.2283	0.00	0.00
4728	1541416.361	734166.1817	0.00	0.00
4729	1541417.478	734164.4279	0.00	0.00
4730	1541419.475	734164.3824	0.00	0.00
4731	1541421.471	734164.3368	0.00	0.00
4732	1541423.467	734164.2912	0.00	0.00
4733	1541424.66	734162.534	0.00	0.00
4734	1541426.656	734162.4882	0.00	0.00
4735	1541428.653	734162.4424	0.00	0.00
4736	1541430.65	734162.3965	0.02	0.00
4737	1541432.647	734162.3506	0.04	0.00
4738	1541434.643	734162.3047	0.04	0.00
4739	1541436.64	734162.2586	0.03	0.00
4740	1541438.637	734162.2125	0.02	0.00
4741	1541440.634	734162.1664	0.02	0.00
4742	1541442.63	734162.1202	0.01	0.00
4743	1541444.627	734162.0741	0.00	0.00
4744	1541446.623	734162.0282	0.00	0.00
4745	1541448.621	734161.9819	0.09	0.00
4746	1541450.63	734161.9273	0.24	0.00
4747	1541452.674	734161.8613	0.41	0.00
4748	1541454.751	734161.7896	0.57	0.00
4749	1541456.899	734161.8035	0.74	0.00
4750	1541458.387	734162.8768	0.77	0.00
4751	1541460.067	734163.1062	0.44	0.00
4752	1541461.929	734163.3314	0.09	0.00
4753	1541463.936	734163.3524	0.00	-0.28
4754	1541464.979	734164.9762	0.00	-0.47
4755	1541467.066	734164.8707	0.00	-0.89
4756	1541469.17	734164.7242	0.00	-1.68
4757	1541470.299	734166.2334	0.00	-2.09
4758	1541472.483	734165.9476	0.00	-2.90
4759	1541474.671	734165.6189	0.00	-3.65
4760	1541475.882	734167.0091	0.00	-4.09
4761	1541477.034	734168.4918	0.00	-4.30
4762	1541478.147	734170.0289	0.00	-4.22
4763	1541479.273	734171.531	0.00	-3.68
4764	1541480.355	734173.097	0.00	-3.12
4765	1541481.435	734174.654	0.00	-2.56
4766	1541482.511	734176.2108	0.00	-2.16
4767	1541483.586	734177.7635	0.00	-1.77
4768	1541485.729	734177.612	0.00	-1.31
4769	1541486.797	734179.1709	0.00	-0.91
4770	1541488.991	734178.9335	0.00	-0.48
4771	1541490.128	734180.3784	0.00	-0.06
4772	1541491.94	734180.7477	0.00	0.00
4773	1541493.758	734181.1098	0.00	0.00
4774	1541494.788	734182.7269	0.00	0.00
4775	1541496.606	734183.0903	0.00	0.00
4776	1541498.32	734183.6207	0.00	0.00
4777	1541499.974	734184.2424	0.00	0.00
4778	1541501.525	734185.0281	0.72	0.00
4779	1541503.068	734185.8219	1.72	0.00
4780	1541504.901	734186.1544	2.41	0.00
4781	1541505.941	734187.7494	3.62	0.00
4782	1541507.779	734188.0622	3.75	0.00
4783	1541508.62	734189.955	4.77	0.00
4784	1541509.864	734191.2857	5.39	0.00
4785	1541511.225	734192.3515	4.48	0.00
4786	1541512.401	734193.8226	2.96	0.00
4787	1541513.738	734194.9215	1.33	0.00
4788	1541333.441	734234.4788	0.00	0.00
4789	1541335.159	734233.3141	0.01	0.00
4790	1541335.135	734231.3142	0.01	0.00
4791	1541335.111	734229.3144	0.00	0.00
4792	1541335.087	734227.3145	0.00	-0.08
4793	1541336.802	734225.8408	0.00	-0.49
4794	1541336.778	734223.8399	0.00	-0.66
4795	1541336.754	734221.8389	0.00	-0.83
4796	1541338.475	734220.8357	0.00	-1.16
4797	1541338.451	734218.8347	0.00	-1.16
4798	1541338.425	734216.8319	0.00	-0.97
4799	1541340.145	734216.0712	0.00	-0.89
4800	1541340.121	734214.0736	0.00	-0.77
4801	1541340.098	734212.0771	0.00	-0.57
4802	1541341.823	734211.0463	0.00	-0.41
4803	1541343.541	734209.8996	0.00	-0.17
4804	1541343.517	734207.8999	0.00	-0.05
4805	1541345.239	734207.0545	0.00	0.00
4806	1541345.215	734205.0544	0.00	0.00
4807	1541346.938	734204.2367	0.00	0.00
4808	1541346.914	734202.2378	0.00	0.00
4809	1541348.637	734201.5294	0.00	0.00
4810	1541350.358	734200.7281	0.00	0.00
4811	1541352.082	734200.0406	0.00	0.00
4812	1541353.81	734199.7101	0.00	0.00
4813	1541355.536	734199.2431	0.00	0.00
4814	1541357.26	734198.6485	0.00	0.00
4815	1541358.983	734198.0821	0.00	0.00
4816	1541360.699	734197.0018	0.00	0.00
4817	1541362.429	734195.6413	0.00	0.00
4818	1541363.997	734193.7121	0.00	0.00
4819	1541365.821	734192.6139	0.00	0.00
4820	1541367.558	734192.0468	0.00	0.00
4821	1541369.289	734191.2916	0.00	0.00
4822	1541371.008	734190.0576	0.00	0.00
4823	1541372.724	734188.6807	0.00	0.00
4824	1541374.436	734186.9925	0.00	0.00
4825	1541376.149	734185.5683	0.00	0.00
4826	1541377.867	734184.8231	0.00	0.00
4827	1541379.585	734183.6987	0.00	0.00
4828	1541381.307	734182.2262	0.00	0.00
4829	1541383.011	734180.6379	0.00	0.00
4830	1541384.73	734179.4731	0.00	0.00
4831	1541386.454	734178.8223	0.00	0.00
4832	1541388.174	734177.8651	0.00	0.00
4833	1541389.887	734176.5879	0.00	0.00
4834	1541391.602	734175.4358	0.00	0.00
4835	1541393.34	734176.136	0.00	0.00
4836	1541395.053	734174.7171	0.00	0.00
4837	1541396.765	734173.3165	0.00	0.00
4838	1541398.479	734172.161	0.00	0.00
4839	1541400.206	734171.3103	0.00	0.00
4840	1541401.923	734170.3439	0.00	0.00
4841	1541403.643	734169.8885	0.00	0.00
4842	1541403.604	734167.9047	0.00	0.00
4843	1541405.267	734167.2514	0.00	0.00
4844	1541406.673	734166.2928	0.00	0.00
4845	1541407.495	734164.6222	0.00	0.00
4846	1541409.493	734164.609	0.00	0.00
4847	1541411.488	734164.5652	0.00	0.00
4848	1541413.486	734164.5189	0.00	0.00
4849	1541415.482	734164.4736	0.00	0.00
4850	1541416.673	734162.7165	0.00	0.00
4851	1541418.669	734162.6709	0.00	0.00
4852	1541420.666	734162.6253	0.00	0.00
4853	1541422.663	734162.5797	0.00	0.00
4854	1541423.805	734160.8232	0.00	0.00
4855	1541425.803	734160.7774	0.00	0.00
4856	1541427.8	734160.7316	0.00	0.00
4857	1541429.797	734160.6858	0.01	0.00
4858	1541431.794	734160.6399	0.03	0.00
4859	1541433.791	734160.5939	0.02	0.00
4860	1541435.788	734160.5479	0.02	0.00
4861	1541437.785	734160.5019	0.01	0.00
4862	1541439.782	734160.4558	0.00	0.00
4863	1541441.779	734160.4096	0.00	0.00
4864	1541443.777	734160.3634	0.00	0.00
4865	1541445.774	734160.3171	0.00	0.00
4866	1541447.771	734160.2709	0.00	0.00
4867	1541449.767	734160.2246	0.10	0.00
4868	1541451.765	734160.1788	0.25	0.00
4869	1541453.779	734160.1246	0.41	0.00
4870	1541455.818	734160.081	0.59	0.00
4871	1541457.929	734159.8647	0.76	0.00
4872	1541459.145	734161.1895	0.63	0.00
4873	1541461.065	734161.3899	0.26	0.00
4874	1541462.948	734161.6179	0.00	-0.10
4875	1541464.947	734161.6303	0.00	-0.48
4876	1541466.003	734163.2638	0.00	-0.67
4877	1541468.074	734163.1492	0.00	-1.28
4878	1541470.162	734162.9895	0.00	-2.04
4879	1541471.304	734164.5037	0.00	-2.46
4880	1541473.466	734164.2053	0.00	-3.23
4881	1541475.629	734163.864	0.00	-3.97
4882	1541476.849	734165.2639	0.00	-4.48
4883	1541478.016	734166.7544	0.00	-4.74
4884	1541479.146	734168.2986	0.00	-4.28
4885	1541480.287	734169.8101	0.00	-3.63
4886	1541481.383	734171.3832	0.00	-3.04
4887	1541482.477	734172.9465	0.00	-2.51
4888	1541483.564	734174.5086	0.00	-2.11
4889	1541484.647	734176.0659	0.00	-1.72
4890	1541486.78	734175.9102	0.00	-1.29
4891	1541487.856	734177.4753	0.00	-0.88
4892	1541490.039	734177.2331	0.00	-0.48
4893	1541491.184	734178.6848	0.00	-0.06
4894	1541492.993	734179.0527	0.00	0.00
4895	1541494.808	734179.413	0.00	0.00
4896	1541495.854	734181.0284	0.00	0.00
4897	1541497.664	734181.3976	0.00	0.00
4898	1541499.38	734181.9253	0.00	0.00
4899	1541501.04	734182.5512	0.00	0.00
4900	1541502.599	734183.3087	0.00	0.00
4901	1541504.109	734184.1375	0.54	0.00
4902	1541505.997	734184.4985	1.28	0.00
4903	1541507.014	734186.0642	2.63	0.00
4904	1541508.854	734186.3714	2.74	0.00
4905	1541509.685	734188.2361	3.73	0.00
4906	1541510.62	734189.6515	4.39	0.00
4907	1541512.261	734190.4386	4.29	0.00
4908	1541513.395	734192.0897	3.01	0.00
4909	1541514.773	734193.2095	1.39	0.00
4910	1541333.417	734232.4781	0.00	0.00
4911	1541333.393	734230.4775	0.00	0.00
4912	1541333.369	734228.4769	0.00	0.00
4913	1541333.345	734226.4763	0.00	0.00
4914	1541335.063	734225.3146	0.00	-0.25
4915	1541335.039	734223.3148	0.00	-0.42
4916	1541335.015	734221.3149	0.00	-0.58
4917	1541336.73	734219.838	0.00	-1.00
4918	1541336.706	734217.8307	0.00	-0.94
4919	1541336.688	734215.8056	0.00	-0.75
4920	1541338.385	734214.8251	0.00	-0.77
4921	1541338.36	734212.8362	0.00	-0.55
4922	1541338.356	734210.8306	0.00	-0.34
4923	1541340.079	734210.0743	0.00	-0.37
4924	1541341.799	734209.0469	0.00	-0.29
4925	1541341.775	734207.0476	0.00	-0.27
4926	1541343.493	734205.9001	0.00	-0.01
4927	1541343.469	734203.9003	0.00	-0.07
4928	1541345.191	734203.0543	0.00	0.00
4929	1541345.167	734201.0542	0.00	0.00
4930	1541346.89	734200.239	0.00	0.00
4931	1541348.613	734199.5308	0.00	0.00
4932	1541350.334	734198.7287	0.00	0.00
4933	1541352.058	734198.0409	0.00	0.00
4934	1541353.786	734197.7103	0.00	0.00
4935	1541355.512	734197.2438	0.00	0.00
4936	1541357.235	734196.652	0.00	0.00
4937	1541358.954	734196.0883	0.00	0.00
4938	1541360.646	734195.0291	0.00	0.00
4939	1541362.177	734193.8462	0.00	0.00
4940	1541362.39	734192.045	0.00	0.00
4941	1541364.097	734191.5131	0.00	0.00
4942	1541365.816	734190.6056	0.00	0.00
4943	1541367.54	734190.0441	0.00	0.00
4944	1541369.265	734189.2897	0.00	0.00
4945	1541370.984	734188.0569	0.00	0.00
4946	1541372.7	734186.6813	0.00	0.00
4947	1541374.412	734184.9947	0.00	0.00
4948	1541376.121	734183.5446	0.00	0.00
4949	1541377.826	734182.845	0.00	0.00
4950	1541379.587	734181.7065	0.00	0.00
4951	1541381.28	734180.2223	0.00	0.00
4952	1541382.986	734178.6365	0.00	0.00
4953	1541384.705	734177.4719	0.00	0.00
4954	1541386.43	734176.8237	0.00	0.00
4955	1541388.15	734175.8699	0.00	0.00
4956	1541389.863	734174.5928	0.00	0.00
4957	1541391.577	734173.4376	0.00	0.00
4958	1541393.315	734174.1401	0.00	0.00
4959	1541395.028	734172.7193	0.00	0.00
4960	1541396.74	734171.3159	0.00	0.00
4961	1541398.459	734170.1653	0.00	0.00
4962	1541400.179	734169.3129	0.00	0.00
4963	1541401.894	734168.3285	0.00	0.00
4964	1541401.973	734166.1904	0.00	0.00
4965	1541403.829	734166.083	0.00	0.00
4966	1541405.411	734164.8661	0.00	0.00
4967	1541406.682	734162.959	0.00	0.00
4968	1541408.689	734162.8945	0.00	0.00
4969	1541410.683	734162.8529	0.00	0.00
4970	1541412.679	734162.8075	0.00	0.00
4971	1541414.676	734162.762	0.00	0.00
4972	1541415.817	734161.0057	0.00	0.00
4973	1541417.814	734160.9601	0.00	0.00
4974	1541419.811	734160.9145	0.00	0.00
4975	1541421.808	734160.8689	0.00	0.00
4976	1541422.741	734159.1158	0.00	0.00
4977	1541424.74	734159.0701	0.00	0.00
4978	1541426.739	734159.0243	0.00	0.00
4979	1541428.737	734158.9784	0.00	0.00
4980	1541430.736	734158.9325	0.02	0.00
4981	1541432.734	734158.8865	0.01	0.00
4982	1541434.733	734158.8405	0.00	0.00
4983	1541436.731	734158.7944	0.00	0.00
4984	1541438.73	734158.7483	0.00	0.00

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the markups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-0021

06/26/23

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
4985	1541440.728	734158.7021	0.00	0.00
4986	1541441.126	734158.6097	0.00	0.00
4987	1541441.524	734158.5173	0.00	0.00
4988	1541441.922	734158.4249	0.00	0.00
4989	1541442.321	734158.3324	0.00	0.00
4990	1541454.719	734158.3288	0.44	0.00
4991	1541455.117	734158.2364	0.00	0.00
4992	1541455.515	734158.1100	0.71	0.00
4993	1541455.913	734158.0176	0.45	0.00
4994	1541462.071	734159.675	0.00	-0.67
4995	1541462.469	734159.5826	0.00	-0.66
4998	1541465.931	734159.8895	0.00	-0.67
4999	1541466.329	734159.7971	0.00	-0.88
5000	1541469.051	734161.4098	0.00	-1.64
5001	1541472.2	734161.4174	0.00	-2.40
5002	1541472.598	734161.325	0.00	-2.82
5003	1541476.376	734161.6326	0.00	-3.56
5004	1541476.556	734162.0924	0.00	-4.33
5005	1541477.05	734163.4993	0.00	-4.87
5006	1541477.448	734164.9954	0.00	-4.95
5007	1541477.2	734166.5457	0.00	-4.30
5008	1541481.26	734168.0669	0.00	-3.62
5009	1541482.376	734169.6487	0.00	-2.99
5010	1541483.488	734171.2209	0.00	-2.47
5011	1541484.592	734172.7914	0.00	-2.08
5012	1541485.688	734174.3565	0.00	-1.70
5013	1541487.804	734174.1924	0.00	-1.28
5014	1541488.894	734175.7674	0.00	-0.90
5015	1541491.058	734175.5154	0.00	-0.50
5016	1541492.217	734176.9776	0.00	-0.09
5017	1541494.025	734177.346	0.00	0.00
5018	1541495.85	734177.6996	0.00	0.00
5019	1541496.911	734179.2947	0.00	0.00
5020	1541498.679	734179.6973	0.00	0.00
5021	1541500.438	734180.2583	0.00	0.00
5022	1541502.111	734180.8259	0.00	0.00
5023	1541503.817	734181.5463	0.00	0.00
5024	1541505.246	734182.7668	0.00	0.00
5025	1541507.079	734182.779	0.11	0.00
5026	1541508.098	734184.3734	1.66	0.00
5027	1541509.949	734184.7078	1.74	0.00
5028	1541510.79	734186.575	2.67	0.00
5029	1541511.792	734188.2113	3.50	0.00
5030	1541513.514	734188.6547	3.16	0.00
5031	1541514.434	734190.4146	2.98	0.00
5032	1541515.809	734191.4975	1.44	0.00
5033	1541333.321	734224.4757	0.00	-0.03
5034	1541333.297	734222.475	0.00	-0.20
5035	1541333.273	734220.4744	0.00	-0.37
5036	1541334.992	734219.3149	0.00	-0.75
5037	1541334.967	734217.3184	0.00	-0.64
5038	1541334.96	734215.3405	0.00	-0.54
5039	1541336.534	734213.6057	0.00	-0.51
5040	1541336.634	734211.424	0.00	-0.29
5041	1541336.604	734209.3924	0.00	-0.11
5042	1541338.331	734208.8298	0.00	-0.17
5043	1541340.055	734208.0732	0.00	-0.23
5044	1541340.031	734206.0724	0.00	-0.15
5045	1541341.751	734205.0482	0.00	-0.20
5046	1541341.727	734203.0489	0.00	-0.18
5047	1541343.445	734201.9006	0.00	-0.05
5048	1541343.421	734199.9008	0.00	-0.12
5049	1541345.143	734199.0541	0.00	0.00
5050	1541346.866	734198.2401	0.00	0.00
5051	1541348.589	734197.5323	0.00	0.00
5052	1541350.31	734196.7292	0.00	0.00
5053	1541352.034	734196.0412	0.00	0.00
5054	1541353.762	734195.7105	0.00	0.00
5055	1541355.488	734195.2444	0.00	0.00
5056	1541357.211	734194.6545	0.00	0.00
5057	1541358.932	734194.0906	0.00	0.00
5058	1541360.619	734192.9984	0.00	0.00
5059	1541360.63	734191.0135	0.00	0.00
5060	1541362.347	734190.0693	0.00	0.00
5061	1541364.069	734189.482	0.00	0.00
5062	1541365.791	734188.605	0.00	0.00
5063	1541367.516	734188.0417	0.00	0.00
5064	1541369.241	734187.2878	0.00	0.00
5065	1541370.96	734186.0556	0.00	0.00
5066	1541372.679	734184.6791	0.00	0.00
5067	1541374.41	734182.978	0.00	0.00
5068	1541376.221	734181.3363	0.00	0.00
5069	1541378.036	734181.0181	0.00	0.00
5070	1541379.558	734179.6861	0.00	0.00
5071	1541381.257	734178.2169	0.00	0.00
5072	1541382.962	734176.6352	0.00	0.00
5073	1541384.681	734175.4707	0.00	0.00

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
5/4/2023

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
5074	1541386.405	734174.8252	0.00	0.00
5075	1541388.125	734173.8748	0.00	0.00
5076	1541389.838	734172.5977	0.00	0.00
5077	1541391.552	734171.4395	0.00	0.00
5078	1541393.291	734172.1442	0.00	0.00
5079	1541395.004	734170.7212	0.00	0.00
5080	1541396.716	734169.3154	0.00	0.00
5081	1541398.436	734168.1656	0.00	0.00
5082	1541400.173	734167.306	0.00	0.00
5083	1541400.138	734165.3296	0.00	0.00
5084	1541401.684	734164.0374	0.00	0.00
5085	1541403.419	734164.4941	0.00	0.00
5086	1541404.763	734162.9714	0.00	0.00
5087	1541405.835	734161.2287	0.00	0.00
5088	1541407.828	734161.1889	0.00	0.00
5089	1541409.826	734161.1412	0.00	0.00
5090	1541411.823	734161.0966	0.00	0.00
5091	1541413.82	734161.0511	0.00	0.00
5092	1541414.747	734159.2983	0.00	0.00
5093	1541416.746	734159.2528	0.00	0.00
5094	1541418.744	734159.2072	0.00	0.00
5095	1541420.743	734159.1615	0.00	0.00
5096	1541421.476	734157.4123	0.00	0.00
5097	1541423.476	734157.3665	0.00	0.00
5098	1541425.475	734157.3207	0.00	0.00
5099	1541427.475	734157.2748	0.00	0.00
5100	1541429.475	734157.2289	0.00	0.00
5101	1541431.475	734157.1829	0.00	0.00
5102	1541433.475	734157.1369	0.00	0.00
5103	1541435.475	734157.0908	0.00	0.00
5104	1541437.475	734157.0447	0.00	0.00
5105	1541439.475	734156.9985	0.00	0.00
5106	1541441.475	734156.9523	0.00	0.00
5107	1541443.475	734156.906	0.00	0.00
5108	1541445.475	734156.8597	0.00	0.00
5109	1541447.475	734156.8134	0.00	0.00
5110	1541449.475	734156.767	0.00	0.00
5111	1541451.475	734156.7204	0.10	0.00
5112	1541453.475	734156.6742	0.27	0.00
5113	1541455.474	734156.6263	0.44	0.00
5114	1541457.477	734156.5788	0.61	0.00
5115	1541459.496	734156.4367	0.56	0.00
5116	1541460.979	734157.8507	0.29	0.00
5117	1541462.952	734158.0162	0.00	-0.09
5118	1541464.907	734158.1435	0.00	-0.48
5119	1541466.883	734158.1322	0.00	-0.86
5120	1541467.96	734159.7875	0.00	-1.24
5121	1541469.997	734159.6537	0.00	-1.99
5122	1541472.053	734159.4691	0.00	-2.76
5123	1541473.217	734160.989	0.00	-3.15
5124	1541475.339	734160.6688	0.00	-3.86
5125	1541477.468	734160.3127	0.00	-4.68
5126	1541478.69	734161.7228	0.00	-5.20
5127	1541479.871	734163.2204	0.00	-4.84
5128	1541481.026	734164.7729	0.00	-4.26
5129	1541482.193	734166.3012	0.00	-3.61
5130	1541483.325	734167.8902	0.00	-2.96
5131	1541484.457	734169.4714	0.00	-2.44
5132	1541485.58	734171.0519	0.00	-2.06
5133	1541486.695	734172.6277	0.00	-1.68
5134	1541488.786	734172.4506	0.00	-1.29
5135	1541489.896	734174.0388	0.00	-0.90
5136	1541492.029	734173.7714	0.00	-0.55
5137	1541493.209	734175.2473	0.00	-0.15
5138	1541495.002	734175.6129	0.00	0.00
5139	1541496.812	734175.9649	0.00	0.00
5140	1541498.123	734177.4433	0.00	0.00
5141	1541499.777	734178.2775	0.00	0.00
5142	1541501.459	734178.5081	0.00	0.00
5143	1541503.274	734179.0081	0.00	0.00
5144	1541504.915	734179.8096	0.00	0.00
5145	1541506.016	734181.0981	0.00	0.00
5146	1541508.051	734181.046	0.00	0.00
5147	1541509.165	734182.6455	0.54	0.00
5148	1541510.965	734183.021	0.77	0.00
5149	1541511.912	734184.9061	1.68	0.00
5150	1541512.891	734186.5169	2.47	0.00
5151	1541514.629	734186.9592	2.08	0.00
5152	1541515.261	734188.7885	2.45	0.00
5153	1541516.844	734189.7855	1.46	0.00
5154	1541333.249	734218.4738	0.00	-0.44
5155	1541333.225	734216.4732	0.00	-0.32
5156	1541333.201	734214.4726	0.00	-0.20
5157	1541334.709	734213.5289	0.00	-0.38
5158	1541334.923	734211.7411	0.00	-0.21
5159	1541334.878	734209.761	0.00	-0.05
5160	1541334.853	734207.764	0.00	-0.01
5161	1541336.58	734207.3864	0.00	-0.06
5162	1541338.307	734206.829	0.00	-0.10

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
5/4/2023

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
5163	1541338.283	734204.828	0.00	-0.09
5164	1541340.007	734204.0718	0.00	-0.14
5165	1541339.983	734202.0711	0.00	-0.07
5166	1541341.703	734201.0495	0.00	-0.10
5167	1541341.679	734199.0501	0.00	-0.04
5168	1541343.397	734197.901	0.00	-0.06
5169	1541345.119	734197.054	0.00	0.00
5170	1541346.842	734196.2412	0.00	0.00
5171	1541348.565	734195.5338	0.00	0.00
5172	1541350.286	734194.7298	0.00	0.00
5173	1541352.01	734194.0415	0.00	0.00
5174	1541353.738	734193.7106	0.00	0.00
5175	1541355.464	734193.2451	0.00	0.00
5176	1541357.188	734192.6582	0.00	0.00
5177	1541358.907	734192.0916	0.00	0.00
5178	1541358.888	734190.099	0.00	0.00
5179	1541360.603	734189.0179	0.00	0.00
5180	1541362.322	734188.0741	0.00	0.00
5181	1541364.045	734187.4768	0.00	0.00
5182	1541365.766	734186.6044	0.00	0.00
5183	1541367.492	734186.0396	0.00	0.00
5184	1541369.217	734185.286	0.00	0.00
5185	1541370.936	734184.0551	0.00	0.00
5186	1541372.655	734182.681	0.00	0.00
5187	1541374.389	734180.9959	0.00	0.00
5188	1541376.064	734179.1715	0.00	0.00
5189	1541377.787	734179.2583	0.00	0.00
5190	1541379.513	734177.7101	0.00	0.00
5191	1541381.225	734176.2234	0.00	0.00
5192	1541382.937	734174.6338	0.00	0.00
5193	1541384.656	734173.4695	0.00	0.00
5194	1541386.381	734172.8266	0.00	0.00
5195	1541388.101	734171.8796	0.00	0.00
5196	1541389.814	734170.6026	0.00	0.00
5197	1541391.528	734169.4413	0.00	0.00
5198	1541393.266	734170.1483	0.00	0.00
5199	1541394.979	734168.7235	0.00	0.00
5200	1541396.691	734167.316	0.00	0.00
5201	1541398.409	734166.169	0.00	0.00
5202	1541398.397	734164.1736	0.00	0.00
5203	1541400.129	734163.2324	0.00	0.00
5204	1541401.775	734161.6218	0.00	0.00
5205	1541403.004	734162.8575	0.00	0.00
5206	1541403.839	734161.2299	0.00	0.00
5207	1541404.757	734159.5185	0.00	0.00
5208	1541406.754	734159.4798	0.00	0.00
5209	1541408.752	734159.4348	0.00	0.00
5210	1541410.751	734159.3891	0.00	0.00
5211	1541412.749	734159.3438	0.00	0.00
5212	1541413.476	734157.5948	0.00	0.00
5213	1541415.476	734157.5493	0.00	0.00
5214	1541417.476	734157.5037	0.00	0.00
5215	1541419.476	734157.458	0.00	0.00
5216	1541420.572	734155.703	0.00	0.00
5217	1541422.57	734155.6573	0.00	0.00
5218	1541424.567	734155.6116	0.00	0.00
5219	1541426.565	734155.5658	0.00	0.00
5220	1541428.563	734155.5199	0.00	0.00
5221	1541430.56	734155.474	0.00	0.00
5222	1541432.558	734155.4281	0.00	0.00
5223	1541434.555	734155.3821	0.00	0.00
5224	1541436.553	734155.336	0.00	0.00
5225	1541438.551	734155.2899	0.00	0.00
5226	1541440.548	734155.2438	0.00	0.00
5227	1541442.546	734155.1976	0.00	0.00
5228	1541444.543	734155.1514	0.00	0.00
5229	1541446.541	734155.1051	0.00	0.00
5230	1541448.539	734155.0588	0.00	0.00
5231	1541450.536	734155.0124	0.00	0.00
5232	1541452.534	734154.9659	0.13	0.00
5233	1541454.531	734154.9191	0.31	0.00
5234	1541456.529	734154.8721	0.48	0.00
5235	1541458.523	734154.8162	0.65	0.00
5236	1541460.53	734154.7706	0.34	0.00
5237	1541461.65	734156.3349	0.14	0.00
5238	1541463.777	734156.3588	0.00	-0.27
5239	1541465.806	734156.4028	0.00	-0.66
5240	1541467.813	734156.3663	0.00	-1.19
5241	1541468.898	734158.0265	0.00	-1.59
5242	1541470.924	734157.8868	0.00	-2.35
5243	1541472.975	734157.6956	0.00	-3.10
5244	1541474.139	734159.213	0.00	-3.45
5245	1541476.255	734158.8895	0.00	-4.12
5246	1541478.386	734158.5355	0.00	-4.74
5247	1541479.597	734159.9453	0.00	-4.81
5248	1541480.773	734161.4397	0.00	-4.58
5249	1541481.927	734162.9892	0.00	-4.15
5250	1541483.095	734164.5196	0.00	-3.57
5251	1541484.236	734166.1112	0.00	-2.93

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
5/4/2023

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
5252	1541485.381	734167.698	0.00	-2.42
5253	1541486.521	734169.2867	0.00	-2.04
5254	1541487.657	734170.8731	0.00	-1.68
5255	1541489.717	734170.6813	0.00	-1.32
5256	1541490.848	734172.2824	0.00	-0.92
5257	1541492.945	734171.9983	0.00	-0.60
5258	1541494.144	734173.4865	0.00	-0.23
5259	1541495.919	734173.8461	0.00	0.00
5260	1541497.695	734174.1758	0.00	0.00
5261	1541499.003	734175.4582	0.00	0.00
5262	1541500.412	734176.5545	0.00	0.00
5263	1541502.313	734176.7251	0.00	0.00
5264	1541504.105	734176.9478	0.00	0.00
5265	1541505.495	734178.1031	0.00	0.00
5266	1541506.934	734179.3293	0.00	0.00
5267	1541508.883	734179.249	0.00	0.00
5268	1541510.273	734180.7563	0.00	0.00
5269	1541511.984	734181.563	0.00	-0.01
5270	1541512.963	734183.2449	0.72	0.00
5271	1541514.237	734184.7494	1.33	0.00
5272	1541515.897	734185.6386	1.16	0.00
5273	1541516.5	734187.4334	1.52	0.00
5274	1541518.044	734188.1868	1.22	0.00
5275	1541333.177	734212.4719	0.00	-0.08
5276	1541333.153	734210.4713	0.06	0.00
5277	1541333.129	734208.4707	0.26	0.00
5278	1541333.105	734206.4701	0.51	0.00
5279	1541334.829	734205.7645	0.09	0.00
5280	1541336.556	734205.3843	0.00	-0.04
5281	1541336.532	734203.3831	0.00	-0.02
5282	1541338.259	734202.8271	0.00	-0.05
5283	1541338.235	734200.8261	0.00	-0.03
5284	1541339.959	734200.0705	0.00	-0.06
5285	1541339.935	734198.0698	0.00	-0.02
5286	1541341.655	734197.0508	0.00	-0.04
5287	1541343.373	734195.9012	0.00	-0.03
5288	1541345.095	734195.0539	0.00	0.00
5289	1541346.818	734194.2423	0.00	0.00
5290	1541348.541	734193.5353	0.00	0.00
5291	1541350.262	734192.7304	0.00	0.00
5292	1541351.986	734192.0418	0.00	0.00
5293	1541353.714	734191.7108	0.00	0.00
5294	1541355.44	734191.2459	0.00	0.00
5295	1541357.164	734190.6607	0.00	0.00
5296	1541357.14	734188.6645	0.00	0.00
5297	1541358.863	734188.1034	0.00	0.00
5298	1541360.579	734187.0217	0.00	0.00
5299	1541362.297	734186.0764	0.00	0.00
5300	1541364.021	734185.476	0.00	0.00
5301	1541365.742	734184.6036	0.00	0.00
5302	1541367.468	734184.0375	0.00	0.00
5303	1541369.192	734183.2842	0.00	0.00
5304	1541370.912	734182.0544	0.00	0.00
5305	1541372.63	734180.6842	0.00	0.00
5306	1541374.339	734179.0023	0.00	0.00
5307	1541376.047	734177.1399	0.00	0.00
5308	1541377.779	734177.2793	0.00	0.00
5309	1541379.489	734175.714	0.00	0.00
5310	1541381.201	734174.2237	0.00	0.00
5311	1541382.913	734172.6325	0.00	0.00
5312	1541384.632	734171.4683	0.00	0.00
5313	1541386.356	734170.8281	0.00	0.00
5314	1541388.076	734169.8845	0.00	0.00
5315	1541389.789	734168.6075	0.00	0.00
5316	1541391.503	734167.4432	0.00	0.00
5317	1541393.242	734168.1524	0.00	0.00
5318	1541394.954	734166.7256	0.00	0.00
5319	1541396.667	734165.3146	0.00	0.00
5320	1541396.641	734163.3249	0.00	0.00
5321	1541398.347	734162.1792	0.00	0.00
5322	1541399.899	734161.2653	0.00	0.00
5323	1541400.855	734159.6498	0.00	0.00
5324	1541402.748	734159.5957	0.00	0.00
5325	1541403.473	734157.8244	0.00	0.00
5326	1541405.476	734157.7753	0.00	0.00
5327	1541407.476	734157.731	0.00	0.00
5328	1541409.476	734157.6857	0.00	0.00
5329	1541411.476	734157.6403	0.00	0.00
5330	1541412.582	734155.8853	0.00	0.00
5331	1541414.579	734155.8398	0.00	0.00
5332	1541416.577	734155.7943	0.00	0.00
5333	1541418.575	734155.7487	0.00	0.00
5334	1541419.753	734153.9912	0.00	0.00
5335	1541421.749	734153.9455	0.00	0.00
5336	1541423.745	734153.8998	0.00	0.00
5337	1541425.74	734153.8541	0.00	0.00
5338	1541427.736	734153.8083	0.00	0.00
5339	1541429.731	734153.7624	0.00	0.00
5340	1541431.727	734153.7165	0.00	0.00

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
5341	1541433.723	734153.6706	0.00	0.00
5342	1541437.714	734159.5769	0.00	0.00
5343	1541437.71	734159.5769	0.00	0.00
5344	1541433.705	734153.6707	0.00	0.00
5345	1541433.701	734153.6707	0.00	0.00
5346	1541462.693	734154.4892	0.00	-0.07
5347	1541447.694	734153.3428	0.00	0.00
5348	1541447.694	734153.3428	0.00	0.00
5350	1541451.694	734153.2551	0.02	0.00
5351	1541455.675	734153.2551	0.19	0.00
5352	1541455.675	734155.162	0.36	0.00
5353	1541459.668	734153.1158	0.47	0.00
5354	1541459.467	734153.0673	0.47	0.00
5355	1541459.467	734153.0673	0.00	0.00
5356	1541462.598	734154.6992	0.00	-0.06
5357	1541462.464	734154.4892	0.00	-0.47
5358	1541462.464	734154.4892	0.00	-0.86
5359	1541466.464	734154.4892	0.00	-1.57
5360	1541469.823	734156.2588	0.00	-1.95
5361	1541473.806	734156.1179	0.00	-2.71
5362	1541477.782	734155.9251	0.00	-3.36
5363	1541477.805	734157.4364	0.00	-3.72
5364	1541477.182	734157.1158	0.00	-4.36
5365	1541479.325	734156.77	0.00	-4.62
5366	1541480.523	734158.177	0.00	-4.44
5367	1541481.687	734159.6649	0.00	-4.24
5368	1541482.831	734161.2069	0.00	-3.95
5369	1541483.991	734162.7342	0.00	-3.46
5370	1541485.129	734164.3224	0.00	-2.89
5371	1541486.275	734165.9089	0.00	-2.41
5372	1541487.423	734167.5004	0.00	-2.05
5373	1541488.571	734169.0934	0.00	-1.69
5374	1541490.607	734168.8905	0.00	-1.37
5375	1541491.75	734170.4997	0.00	-0.98
5376	1541493.82	734170.2037	0.00	-0.69
5377	1541495.026	734171.6982	0.00	-0.32
5378	1541496.783	734172.0431	0.00	-0.01
5379	1541498.542	734172.3685	0.00	0.00
5380	1541499.866	734173.6338	0.00	0.00
5381	1541501.267	734174.7771	0.00	0.00
5382	1541503.118	734174.8828	0.00	0.00
5383	1541504.909	734175.0876	0.00	0.00
5384	1541506.28	734176.2852	0.00	0.00
5385	1541507.674	734177.5068	0.00	0.00
5386	1541509.579	734177.3784	0.00	0.00
5387	1541510.935	734178.6794	0.00	0.00
5388	1541512.4	734179.7603	0.00	0.00
5389	1541513.761	734181.3958	0.00	-0.28
5390	1541515.115	734182.7919	0.27	0.00
5391	1541516.576	734183.9799	0.51	0.00
5392	1541517.888	734185.6883	0.57	0.00
5393	1541519.274	734186.6084	0.35	0.00
5394	1541333.081	734204.4695	0.79	0.00
5395	1541334.805	734203.7647	0.36	0.00
5396	1541334.781	734201.7648	0.65	0.00
5397	1541336.508	734201.382	0.06	0.00
5398	1541336.484	734199.381	0.37	0.00
5399	1541338.21	734198.8251	0.00	-0.01
5400	1541338.186	734196.8241	0.04	0.00
5401	1541339.911	734196.0692	0.00	-0.02
5402	1541341.631	734195.0514	0.00	-0.01
5403	1541343.349	734193.9014	0.00	-0.01
5404	1541345.071	734193.0538	0.00	0.00
5405	1541346.794	734192.2434	0.00	0.00
5406	1541348.517	734191.5368	0.00	0.00
5407	1541350.238	734190.731	0.00	0.00
5408	1541351.962	734190.0421	0.00	0.00
5409	1541353.69	734189.711	0.00	0.00
5410	1541355.416	734189.2465	0.00	0.00
5411	1541355.392	734187.2473	0.00	0.00
5412	1541357.116	734186.6678	0.00	0.00
5413	1541358.839	734186.1079	0.00	0.00
5414	1541360.555	734185.0255	0.00	0.00
5415	1541362.273	734184.0784	0.00	0.00
5416	1541363.996	734183.4762	0.00	0.00
5417	1541365.718	734182.6028	0.00	0.00
5418	1541367.444	734182.0354	0.00	0.00
5419	1541369.168	734181.2823	0.00	0.00
5420	1541370.887	734180.0539	0.00	0.00
5421	1541372.603	734178.6839	0.00	0.00
5422	1541374.315	734177.0045	0.00	0.00
5423	1541376.022	734175.1368	0.00	0.00
5424	1541377.754	734175.2869	0.00	0.00
5425	1541379.466	734173.7174	0.00	0.00
5426	1541381.176	734172.2239	0.00	0.00
5427	1541382.888	734170.6312	0.00	0.00
5428	1541384.607	734169.4671	0.00	0.00
5429	1541386.331	734168.8296	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
5430	1541388.051	734167.8894	0.00	0.00
5431	1541389.764	734166.6124	0.00	0.00
5432	1541391.478	734165.4452	0.00	0.00
5433	1541393.216	734166.1568	0.00	0.00
5434	1541394.928	734164.7282	0.00	0.00
5435	1541394.898	734162.7365	0.00	0.00
5436	1541396.584	734161.3688	0.00	0.00
5437	1541398.052	734160.2101	0.00	0.00
5438	1541399.057	734159.4318	0.00	0.00
5439	1541399.454	734157.8728	0.00	0.00
5440	1541401.471	734157.8651	0.00	0.00
5441	1541402.596	734156.1122	0.00	0.00
5442	1541404.592	734156.0669	0.00	0.00
5443	1541406.589	734156.0212	0.00	0.00
5444	1541408.587	734155.976	0.00	0.00
5445	1541410.584	734155.9307	0.00	0.00
5446	1541411.771	734154.1732	0.00	0.00
5447	1541413.767	734154.1278	0.00	0.00
5448	1541415.762	734154.0823	0.00	0.00
5449	1541417.758	734154.0368	0.00	0.00
5450	1541418.715	734152.2847	0.00	0.00
5451	1541420.713	734152.239	0.00	0.00
5452	1541422.711	734152.1933	0.00	0.00
5453	1541424.709	734152.1475	0.00	0.00
5454	1541426.706	734152.1017	0.00	0.00
5455	1541428.704	734152.0558	0.00	0.00
5456	1541430.702	734152.0099	0.00	0.00
5457	1541432.7	734151.9639	0.00	0.00
5458	1541434.698	734151.9179	0.00	0.00
5459	1541436.696	734151.8718	0.00	0.00
5460	1541438.694	734151.8257	0.00	0.00
5461	1541440.692	734151.7796	0.00	0.00
5462	1541442.69	734151.7334	0.00	0.00
5463	1541444.688	734151.6871	0.00	0.00
5464	1541446.686	734151.6408	0.00	0.00
5465	1541448.684	734151.5945	0.00	0.00
5466	1541450.682	734151.5481	0.00	0.00
5467	1541452.68	734151.5017	0.00	0.00
5468	1541454.678	734151.4552	0.17	0.00
5469	1541456.675	734151.4082	0.34	0.00
5470	1541458.673	734151.3618	0.51	0.00
5471	1541460.671	734151.3147	0.17	0.00
5472	1541462.67	734151.2695	0.00	-0.22
5473	1541463.661	734152.9779	0.00	-0.32
5474	1541465.677	734152.9369	0.00	-0.71
5475	1541467.685	734152.8977	0.00	-1.25
5476	1541469.684	734152.8303	0.00	-2.01
5477	1541470.752	734154.4931	0.00	-2.33
5478	1541472.782	734154.3554	0.00	-3.08
5479	1541474.85	734154.1655	0.00	-3.63
5480	1541475.998	734155.6682	0.00	-3.94
5481	1541478.135	734155.3556	0.00	-4.32
5482	1541480.298	734155.0227	0.00	-4.47
5483	1541481.48	734156.4257	0.00	-4.14
5484	1541482.629	734157.9051	0.00	-3.90
5485	1541483.758	734159.4366	0.00	-3.72
5486	1541484.903	734160.9573	0.00	-3.38
5487	1541486.028	734162.5371	0.00	-2.85
5488	1541487.165	734164.1174	0.00	-2.41
5489	1541488.308	734165.7053	0.00	-2.08
5490	1541489.455	734167.2982	0.00	-1.71
5491	1541491.482	734167.0919	0.00	-1.41
5492	1541492.623	734168.7019	0.00	-1.06
5493	1541494.685	734168.4033	0.00	-0.77
5494	1541495.883	734169.8964	0.00	-0.41
5495	1541497.63	734170.2376	0.00	-0.11
5496	1541499.38	734170.5569	0.00	0.00
5497	1541500.691	734171.8126	0.00	0.00
5498	1541502.074	734172.9434	0.00	0.00
5499	1541503.915	734173.0456	0.00	0.00
5500	1541505.696	734173.2447	0.00	0.00
5501	1541507.041	734174.4391	0.00	0.00
5502	1541508.402	734175.6426	0.00	0.00
5503	1541510.297	734175.5124	0.00	0.00
5504	1541511.62	734176.7838	0.00	0.00
5505	1541513.035	734177.8866	0.00	0.00
5506	1541514.319	734179.4976	0.00	-0.54
5507	1541515.725	734180.8819	0.00	-0.16
5508	1541517.216	734182.1469	0.14	0.00
5509	1541518.643	734183.7185	0.24	0.00
5510	1541520.323	734184.9304	0.08	0.00
5511	1541333.057	734202.4688	0.90	0.00
5512	1541333.033	734200.4682	0.49	0.00
5513	1541334.757	734199.7649	1.02	0.00
5514	1541334.733	734197.765	1.34	0.00
5515	1541336.46	734197.38	0.71	0.00
5516	1541336.436	734195.379	1.00	0.00
5517	1541338.162	734194.8231	0.36	0.00
5518	1541339.887	734194.0685	0.00	0.00

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
5/4/2023

Node	X-Coordinate	Y-Coordinate	Fill	Cut
5519	1541341.607	734193.052	0.00	0.00
5520	1541343.325	734191.9016	0.01	0.00
5521	1541345.047	734191.0537	0.00	0.00
5522	1541346.77	734190.2446	0.00	0.00
5523	1541348.493	734189.5383	0.00	0.00
5524	1541350.214	734188.7315	0.00	0.00
5525	1541351.938	734188.0424	0.00	0.00
5526	1541353.665	734187.7112	0.00	0.00
5527	1541353.641	734185.7114	0.00	0.00
5528	1541355.368	734185.248	0.00	0.00
5529	1541357.092	734184.671	0.00	0.00
5530	1541358.815	734184.1122	0.00	0.00
5531	1541360.531	734183.0293	0.00	0.00
5532	1541362.249	734182.0803	0.00	0.00
5533	1541363.972	734181.4766	0.00	0.00
5534	1541365.694	734180.6021	0.00	0.00
5535	1541367.419	734180.0334	0.00	0.00
5536	1541369.144	734179.2806	0.00	0.00
5537	1541370.862	734178.053	0.00	0.00
5538	1541372.579	734176.6843	0.00	0.00
5539	1541374.29	734175.007	0.00	0.00
5540	1541375.998	734173.1372	0.00	0.00
5541	1541377.73	734173.2913	0.00	0.00
5542	1541379.441	734171.7213	0.00	0.00
5543	1541381.152	734170.224	0.00	0.00
5544	1541382.863	734168.6299	0.00	0.00
5545	1541384.582	734167.4659	0.00	0.00
5546	1541386.307	734166.8311	0.00	0.00
5547	1541388.026	734165.8943	0.00	0.00
5548	1541389.739	734164.6175	0.00	0.00
5549	1541391.452	734163.4474	0.00	0.00
5550	1541393.19	734164.1613	0.00	0.00
5551	1541393.162	734162.1686	0.00	0.00
5552	1541394.844	734160.7541	0.00	0.00
5553	1541396.43	734159.5706	0.00	0.00
5554	1541397.206	734157.9846	0.00	0.00
5555	1541398.613	734156.2222	0.00	0.00
5556	1541400.603	734156.1527	0.00	0.00
5557	1541401.794	734154.3983	0.00	0.00
5558	1541403.789	734154.3542	0.00	0.00
5559	1541405.784	734154.3091	0.00	0.00
5560	1541407.78	734154.2638	0.00	0.00
5561	1541409.775	734154.2185	0.00	0.00
5562	1541410.723	734152.4669	0.00	0.00
5563	1541412.721	734152.4214	0.00	0.00
5564	1541414.719	734152.3759	0.00	0.00
5565	1541416.717	734152.3304	0.00	0.00
5566	1541417.836	734150.576	0.00	0.00
5567	1541419.831	734150.5304	0.00	0.00
5568	1541421.826	734150.4847	0.00	0.00
5569	1541423.821	734150.439	0.00	0.00
5570	1541425.815	734150.3933	0.00	0.00
5571	1541427.81	734150.3475	0.00	0.00
5572	1541429.805	734150.3016	0.00	0.00
5573	1541431.8	734150.2557	0.00	0.00
5574	1541433.795	734150.2098	0.00	0.00
5575	1541435.79	734150.1638	0.00	0.00
5576	1541437.785	734150.1178	0.00	0.00
5577	1541439.78	734150.0717	0.00	0.00
5578	1541441.775	734150.0256	0.00	0.00
5579	1541443.77	734149.9794	0.00	0.00
5580	1541445.765	734149.9333	0.00	0.00
5581	1541447.759	734149.887	0.00	0.00
5582	1541449.754	734149.8407	0.00	0.00
5583	1541451.749	734149.7944	0.00	0.00
5584	1541453.744	734149.748	0.00	0.00
5585	1541455.739	734149.7015	0.16	0.00
5586	1541457.734	734149.6551	0.33	0.00
5587	1541459.729	734149.6085	0.24	0.00
5588	1541461.724	734149.5621	0.00	-0.16
5589	1541463.719	734149.5157	0.00	-0.54
5590	1541464.667	734151.2241	0.00	-0.62
5591	1541466.663	734151.1803	0.00	-1.01
5592	1541468.658	734151.1322	0.00	-1.73
5593	1541470.66	734151.0735	0.00	-2.48
5594	1541471.698	734152.7373	0.00	-2.77
5595	1541473.741	734152.6064	0.00	-3.37
5596	1541475.827	734152.4224	0.00	-3.84
5597	1541476.963	734153.9151	0.00	-4.09
5598	1541479.122	734153.6146	0.00	-4.36
5599	1541481.31	734153.2975	0.00	-4.43
5600	1541482.476	734154.6963	0.00	-4.10
5601	1541483.609	734156.1663	0.00	-3.76
5602	1541484.722	734157.6861	0.00	-3.44
5603	1541485.849	734159.1982	0.00	-3.19
5604	1541486.956	734160.7666	0.00	-2.79
5605	1541488.076	734162.3366	0.00	-2.40
5606	1541489.204	734163.9156	0.00	-2.09
5607	1541490.339	734165.5022	0.00	-1.75

Node	X-Coordinate	Y-Coordinate	Fill	Cut
5608	1541492.372	734165.3009	0.00	-1.44
5609	1541493.498	734166.9049	0.00	-1.13
5610	1541495.57	734166.6134	0.00	-0.83
5611	1541496.749	734168.099	0.00	-0.49
5612	1541498.488	734168.4368	0.00	-0.21
5613	1541500.225	734168.764	0.00	0.00
5614	1541501.55	734170.0301	0.00	0.00
5615	1541502.922	734171.1014	0.00	0.00
5616	1541504.74	734171.2104	0.00	0.00
5617	1541506.551	734171.4656	0.00	0.00
5618	1541507.881	734172.5994	0.00	0.00
5619	1541509.177	734173.8007	0.00	0.00
5620	1541511.082	734173.6947	0.00	0.00
5621	1541512.398	734174.9544	0.00	0.00
5622	1541513.757	734175.9972	0.00	0.00
5623	1541514.936	734177.5946	0.05	0.00
5624	1541516.254	734178.9591	0.19	0.00
5625	1541517.672	734180.1989	0.32	0.00
5626	1541519.083	734181.7491	0.23	0.00
5627	1541520.61	734182.9503	0.12	0.00
5628	1541333.009	734198.4676	0.00	0.00
5629	1541332.984	734196.467	0.00	0.00
5630	1541334.709	734195.7652	1.02	0.00
5631	1541334.685	734193.7653	0.18	0.00
5632	1541336.412	734193.378	1.23	0.00
5633	1541338.138	734192.8221	0.59	0.00
5634	1541339.863	734192.0679	0.00	0.00
5635	1541341.583	734191.0527	0.00	0.00
5636	1541343.301	734189.9018	0.00	0.00
5637	1541345.023	734189.0536	0.01	0.00
5638	1541346.746	734188.2457	0.00	0.00
5639	1541348.469	734187.5397	0.00	0.00
5640	1541350.19	734186.7321	0.00	0.00
5641	1541351.913	734186.0427	0.00	0.00
5642	1541351.889	734184.043	0.00	0.00
5643	1541353.617	734183.7116	0.00	0.00
5644	1541355.344	734183.2487	0.00	0.00
5645	1541357.068	734182.6742	0.00	0.00
5646	1541358.791	734182.1166	0.00	0.00
5647	1541360.507	734181.0331	0.00	0.00
5648	1541362.225	734180.0823	0.00	0.00
5649	1541363.948	734179.4772	0.00	0.00
5650	1541365.669	734178.6013	0.00	0.00
5651	1541367.395	734178.0314	0.00	0.00
5652	1541369.119	734177.2788	0.00	0.00
5653	1541370.838	734176.0522	0.00	0.00
5654	1541372.554	734174.6848	0.00	0.00
5655	1541374.266	734173.0094	0.00	0.00
5656	1541375.973	734171.1384	0.00	0.00
5657	1541377.706	734171.2952	0.00	0.00
5658	1541379.416	734169.7253	0.00	0.00
5659	1541381.127	734168.2241	0.00	0.00
5660	1541382.839	734166.6286	0.00	0.00
5661	1541384.557	734165.4648	0.00	0.00
5662	1541386.282	734164.8326	0.00	0.00
5663	1541388.002	734163.8992	0.00	0.00
5664	1541389.714	734162.6222	0.00	0.00
5665	1541391.429	734161.4485	0.00	0.00
5666	1541393.142	734160.1616	0.00	0.00
5667	1541394.931	734158.7499	0.00	0.00
5668	1541394.983	734156.732	0.00	0.00
5669	1541396.81	734156.1048	0.00	0.00
5670	1541397.824	734154.4624	0.00	0.00
5671	1541399.799	734154.4468	0.00	0.00
5672	1541400.734	734152.6934	0.00	0.00
5673	1541402.732	734152.6478	0.00	0.00
5674	1541404.73	734152.6028	0.00	0.00
5675	1541406.728	734152.5576	0.00	0.00
5676	1541408.726	734152.5123	0.00	0.00
5677	1541409.857	734150.7578	0.00	0.00
5678	1541411.851	734150.7124	0.00	0.00
5679	1541413.846	734150.667	0.00	0.00
5680	1541415.841	734150.6215	0.00	0.00
5681	1541416.984	734148.8661	0.00	0.00
5682	1541418.979	734148.8206	0.00	0.00
5683	1541420.974	734148.7749	0.00	0.00
5684	1541422.968	734148.7292	0.00	0.00
5685	1541424.963	734148.6835	0.00	0.00
5686	1541426.958	734148.6377	0.00	0.00
5687	1541428.953	734148.5918	0.00	0.00
5688	1541430.948	734148.546	0.00	0.00
5689	1541432.943	734148.5	0.00	0.00
5690	1541434.938	734148.4541	0.00	0.00
5691	1541436.933	734148.4081	0.00	0.00
5692	1541438.928	734148.362	0.00	0.00
5693	1541440.923	734148.3159	0.00	0.00
5694	1541442.918	734148.2698	0.00	0.00
5695	1541444.913	734148.2236	0.00	0.00
5696	1541446.908	734148.1774	0.00	0.00

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-0021
06/26/23

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
5697	1541448.903	734148.1311	0.00	0.00
5698	1541452.233	734148.0887	0.00	0.00
5699	1541455.563	734148.0462	0.00	0.00
5700	1541458.892	734148.0038	0.00	0.00
5701	1541462.222	734147.9613	0.00	0.00
5702	1541465.552	734147.9189	0.00	0.00
5703	1541468.882	734147.8764	0.00	0.00
5704	1541472.211	734147.834	0.00	0.00
5705	1541475.541	734147.7915	0.00	0.00
5706	1541478.871	734147.7491	0.00	0.00
5707	1541482.201	734147.7066	0.00	0.00
5708	1541469.702	734149.574	0.00	-2.24
5709	1541473.032	734149.5316	0.00	-2.24
5710	1541472.677	734150.9955	0.00	-3.19
5711	1541476.007	734150.953	0.00	-3.62
5712	1541476.84	734150.7003	0.00	-4.01
5713	1541473.51	734150.7427	0.00	-4.17
5714	1541469.181	734150.7852	0.00	-4.41
5715	1541469.181	734150.7852	0.00	-4.41
5716	1541483.514	734152.9915	0.00	-4.09
5717	1541479.184	734154.4523	0.00	-3.76
5718	1541487.922	734155.9601	0.00	-3.43
5719	1541484.592	734157.4628	0.00	-3.09
5720	1541487.926	734159.0184	0.00	-2.74
5721	1541489.025	734160.5761	0.00	-2.41
5722	1541490.133	734162.1432	0.00	-2.10
5723	1541491.248	734163.7193	0.00	-1.76
5724	1541493.302	734163.5299	0.00	-1.48
5725	1541494.404	734165.1233	0.00	-1.16
5726	1541496.501	734164.8467	0.00	-0.89
5727	1541497.655	734166.3219	0.00	-0.56
5728	1541499.407	734166.6629	0.00	-0.29
5729	1541501.157	734166.9652	0.00	-0.03
5730	1541502.133	734168.3621	0.00	0.00
5731	1541503.794	734169.0797	0.00	0.00
5732	1541505.614	734169.4315	0.00	0.00
5733	1541507.211	734169.7524	0.00	0.00
5734	1541508.765	734170.6492	0.00	0.00
5735	1541510.069	734171.9699	0.00	0.00
5736	1541512.021	734171.9261	0.00	0.00
5737	1541513.019	734173.2591	0.00	0.00
5738	1541514.621	734173.9467	0.00	0.00
5739	1541515.672	734175.7464	0.25	0.00
5740	1541516.938	734177.1137	0.69	0.00
5741	1541518.255	734178.2659	0.75	0.00
5742	1541519.503	734179.807	0.57	0.00
5743	1541520.981	734180.9846	0.31	0.00
5744	1541332.96	734194.4664	0.00	0.00
5745	1541332.936	734192.4657	0.00	0.00
5746	1541334.661	734191.7654	0.00	0.00
5747	1541336.388	734191.377	1.46	0.00
5748	1541338.114	734190.8212	0.82	0.00
5749	1541339.839	734190.0673	0.17	0.00
5750	1541341.559	734189.0533	0.00	-0.01
5751	1541343.277	734187.902	0.00	-0.02
5752	1541344.999	734187.0536	0.00	-0.01
5753	1541346.722	734186.2468	0.00	0.00
5754	1541348.445	734185.5412	0.00	0.00
5755	1541350.166	734184.7327	0.00	0.00
5756	1541350.142	734182.7333	0.00	0.00
5757	1541351.865	734182.0434	0.00	0.00
5758	1541353.593	734181.7118	0.00	0.00
5759	1541355.319	734181.2495	0.00	0.00
5760	1541357.044	734180.6775	0.00	0.00
5761	1541358.767	734180.1209	0.00	0.00
5762	1541360.483	734179.0369	0.00	0.00
5763	1541362.201	734178.0842	0.00	0.00
5764	1541363.924	734177.4778	0.00	0.00
5765	1541365.645	734176.6005	0.00	0.00
5766	1541367.371	734176.0294	0.00	0.00
5767	1541369.095	734175.277	0.00	0.00
5768	1541370.814	734174.0515	0.00	0.00
5769	1541372.53	734172.6855	0.00	0.00
5770	1541374.241	734171.0118	0.00	0.00
5771	1541375.949	734169.1398	0.00	0.00
5772	1541377.681	734169.299	0.00	0.00
5773	1541379.392	734167.7294	0.00	0.00
5774	1541381.102	734166.2242	0.00	0.00
5775	1541382.814	734164.6274	0.00	0.00
5776	1541384.532	734163.4636	0.00	0.00
5777	1541386.257	734162.8341	0.00	0.00
5778	1541387.977	734161.904	0.00	0.00
5779	1541389.69	734160.627	0.00	0.00
5780	1541391.406	734159.4488	0.00	0.00
5781	1541393.152	734158.1641	0.00	0.00
5782	1541392.999	734156.2525	0.00	0.00
5783	1541394.236	734154.8482	0.00	0.00
5784	1541395.858	734154.568	0.00	0.00
5785	1541396.715	734152.7782	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
5786	1541398.735	734152.7343	0.00	0.00
5787	1541399.883	734150.9834	0.00	0.00
5788	1541401.878	734150.9387	0.00	0.00
5789	1541403.872	734150.8935	0.00	0.00
5790	1541405.867	734150.8483	0.00	0.00
5791	1541407.862	734150.8031	0.00	0.00
5792	1541409.004	734149.0479	0.00	0.00
5793	1541410.999	734149.0026	0.00	0.00
5794	1541412.994	734148.9572	0.00	0.00
5795	1541414.989	734148.9117	0.00	0.00
5796	1541416.159	734147.1531	0.00	0.00
5797	1541418.158	734147.1075	0.00	0.00
5798	1541420.156	734147.0618	0.00	0.00
5799	1541422.154	734147.016	0.00	0.00
5800	1541424.152	734146.9702	0.00	0.00
5801	1541426.151	734146.9243	0.00	0.00
5802	1541428.149	734146.8784	0.00	0.00
5803	1541430.147	734146.8325	0.00	0.00
5804	1541432.146	734146.7865	0.00	0.00
5805	1541434.144	734146.7404	0.00	0.00
5806	1541436.143	734146.6943	0.00	0.00
5807	1541438.141	734146.6482	0.00	0.00
5808	1541440.139	734146.6021	0.00	0.00
5809	1541442.138	734146.5559	0.00	0.00
5810	1541444.136	734146.5096	0.00	0.00
5811	1541446.134	734146.4634	0.00	0.00
5812	1541448.133	734146.417	0.00	0.00
5813	1541450.131	734146.3707	0.00	0.00
5814	1541452.129	734146.3243	0.00	0.00
5815	1541454.128	734146.2778	0.00	0.00
5816	1541456.126	734146.2314	0.00	0.00
5817	1541458.124	734146.1848	0.16	0.00
5818	1541460.123	734146.1383	0.00	-0.11
5819	1541462.121	734146.0917	0.00	-0.50
5820	1541464.119	734146.045	0.00	-0.90
5821	1541466.117	734145.9983	0.00	-1.30
5822	1541466.857	734147.7129	0.00	-1.36
5823	1541468.852	734147.6662	0.00	-2.08
5824	1541470.846	734147.619	0.00	-2.79
5825	1541472.842	734147.5719	0.00	-3.39
5826	1541473.712	734149.2589	0.00	-3.45
5827	1541475.769	734149.1578	0.00	-3.82
5828	1541477.888	734148.9988	0.00	-4.13
5829	1541479	734150.4707	0.00	-4.25
5830	1541481.211	734150.2012	0.00	-4.44
5831	1541483.452	734149.921	0.00	-4.40
5832	1541484.592	734151.3123	0.00	-4.08
5833	1541485.698	734152.7647	0.00	-3.76
5834	1541486.78	734154.2611	0.00	-3.44
5835	1541487.872	734155.7545	0.00	-3.11
5836	1541488.942	734157.2973	0.00	-2.77
5837	1541490.022	734158.842	0.00	-2.44
5838	1541491.108	734160.396	0.00	-2.12
5839	1541492.201	734161.9594	0.00	-1.80
5840	1541494.282	734161.7869	0.00	-1.53
5841	1541495.358	734163.3676	0.00	-1.21
5842	1541497.489	734163.1119	0.00	-0.95
5843	1541498.61	734164.5752	0.00	-0.64
5844	1541500.362	734164.9127	0.00	-0.37
5845	1541502.261	734165.2489	0.00	-0.08
5846	1541503.249	734166.8992	0.00	0.00
5847	1541504.97	734167.1939	0.00	0.00
5848	1541506.653	734167.6986	0.00	0.00
5849	1541508.293	734168.3307	0.00	0.00
5850	1541509.757	734168.8446	0.00	0.00
5851	1541511.056	734170.0219	0.00	0.00
5852	1541512.83	734170.2992	0.00	0.00
5853	1541514.173	734171.5459	0.00	0.00
5854	1541515.882	734172.1799	0.00	0.00
5855	1541516.651	734174.0069	0.52	0.00
5856	1541517.542	734175.424	1.16	0.00
5857	1541519.071	734176.2245	1.20	0.00
5858	1541520.127	734177.9315	1.02	0.00
5859	1541521.369	734179.0219	0.76	0.00
5860	1541332.912	734190.4651	0.00	0.00
5861	1541334.636	734189.7655	0.00	0.00
5862	1541336.364	734189.376	0.96	0.00
5863	1541338.09	734188.8202	1.05	0.00
5864	1541339.814	734188.0666	0.36	0.00
5865	1541341.535	734187.0539	0.00	-0.04
5866	1541343.253	734185.9023	0.00	-0.06
5867	1541344.975	734185.0535	0.00	-0.09
5868	1541346.698	734184.248	0.00	0.00
5869	1541348.421	734183.5428	0.00	0.00
5870	1541348.397	734181.5443	0.00	0.00
5871	1541350.118	734180.734	0.00	0.00
5872	1541351.841	734180.0437	0.00	0.00
5873	1541353.569	734179.7121	0.00	0.00
5874	1541355.295	734179.2502	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
5875	1541357.02	734178.6808	0.00	0.00
5876	1541358.743	734178.1253	0.00	0.00
5877	1541360.459	734177.0408	0.00	0.00
5878	1541362.176	734176.0862	0.00	0.00
5879	1541363.9	734175.4785	0.00	0.00
5880	1541365.621	734174.5998	0.00	0.00
5881	1541367.346	734174.0275	0.00	0.00
5882	1541369.071	734173.2753	0.00	0.00
5883	1541370.789	734172.0509	0.00	0.00
5884	1541372.505	734170.6861	0.00	0.00
5885	1541374.216	734169.0143	0.00	0.00
5886	1541375.924	734167.1413	0.00	0.00
5887	1541377.656	734167.3028	0.00	0.00
5888	1541379.367	734165.7336	0.00	0.00
5889	1541381.077	734164.2244	0.00	0.00
5890	1541382.789	734162.6262	0.00	0.00
5891	1541384.507	734161.4625	0.00	0.00
5892	1541386.232	734160.8357	0.00	0.00
5893	1541387.951	734159.9093	0.00	0.00
5894	1541389.662	734158.6344	0.00	0.00
5895	1541391.368	734157.4604	0.00	0.00
5896	1541391.306	734155.467	0.00	0.00
5897	1541392.793	734154.3152	0.00	0.00
5898	1541394.616	734152.9299	0.00	0.00
5899	1541395.887	734151.0903	0.00	0.00
5900	1541397.888	734151.0284	0.00	0.00
5901	1541399.03	734149.2736	0.00	0.00
5902	1541401.025	734149.2287	0.00	0.00
5903	1541403.02	734149.1836	0.00	0.00
5904	1541405.015	734149.1384	0.00	0.00
5905	1541407.01	734149.0932	0.00	0.00
5906	1541408.166	734147.3352	0.00	0.00
5907	1541410.165	734147.2898	0.00	0.00
5908	1541412.163	734147.2443	0.00	0.00
5909	1541414.161	734147.1987	0.00	0.00
5910	1541415.474	734145.4359	0.00	0.00
5911	1541417.475	734145.3902	0.00	0.00
5912	1541419.476	734145.3444	0.00	0.00
5913	1541421.477	734145.2986	0.00	0.00
5914	1541423.478	734145.2527	0.00	0.00
5915	1541425.479	734145.2068	0.00	0.00
5916	1541427.48	734145.1609	0.00	0.00
5917	1541429.481	734145.1148	0.00	0.00
5918	1541431.482	734145.0688	0.00	0.00
5919	1541433.483	734145.0227	0.00	0.00
5920	1541435.484	734144.9766	0.00	0.00
5921	1541437.485	734144.9304	0.00	0.00
5922	1541439.486	734144.8842	0.00	0.00
5923	1541441.487	734144.8379	0.00	0.00
5924	1541443.488	734144.7917	0.00	0.00
5925	1541445.489	734144.7453	0.00	0.00
5926	1541447.49	734144.699	0.00	0.00
5927	1541449.491	734144.6526	0.00	0.00
5928	1541451.492	734144.6061	0.00	0.00
5929	1541453.493	734144.5596	0.00	0.00
5930	1541455.494	734144.5131	0.00	0.00
5931	1541457.495	734144.4666	0.01	0.00
5932	1541459.496	734144.42	0.00	-0.15
5933	1541461.497	734144.3733	0.00	-0.56
5934	1541463.498	734144.3266	0.00	-0.96
5935	1541465.499	734144.2799	0.00	-1.35
5936	1541467.5	734144.2331	0.00	-1.97
5937	1541468.116	734145.9516	0.00	-1.98
5938	1541470.114	734145.9047	0.00	-2.68
5939	1541472.112	734145.8578	0.00	-3.39
5940	1541474.11	734145.8106	0.00	-3.63
5941	1541474.845	734147.5174	0.00	-3.68
5942	1541476.885	734147.4388	0.00	-3.98
5943	1541478.995	734147.3126	0.00	-4.22
5944	1541480.075	734148.7844	0.00	-4.30
5945	1541482.312	734148.5303	0.00	-4.44
5946	1541484.58	734148.2694	0.00	-4.43
5947	1541485.709	734149.6584	0.00	-4.10
5948	1541486.804	734151.1035	0.00	-3.78
5949	1541487.875	734152.5896	0.00	-3.45
5950	1541488.952	734154.0748	0.00	-3.13
5951	1541490.006	734155.6055	0.00	-2.80
5952	1541491.069	734157.1377	0.00	-2.48
5953	1541492.135	734158.6786	0.00	-2.16
5954	1541493.206	734160.2289	0.00	-1.85
5955	1541495.319	734160.077	0.00	-1.58
5956	1541496.37	734161.6442	0.00	-1.27
5957	1541498.539	734161.4143	0.00	-1.00
5958	1541499.641	734162.8595	0.00	-0.69
5959	1541501.428	734163.2025	0.00	-0.42
5960	1541502.954	734163.5629	0.00	-0.18
5961	1541504.248	734164.8688	0.00	0.00
5962	1541506.021	734165.499	0.00	0.00
5963	1541507.755	734166.0541	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
5964	1541509.406	734166.6637	0.00	0.00
5965	1541510.949	734167.4904	0.00	0.00
5966	1541512.439	734168.2827	0.00	0.00
5967	1541514.075	734169.0058	0.00	0.00
5968	1541515.535	734169.887	0.00	0.00
5969	1541517.139	734170.6035	0.00	0.00
5970	1541517.86	734172.4151	0.92	0.00
5971	1541518.745	734174.0328	1.60	0.00
5972	1541520.454	734174.5066	1.56	0.00
5973	1541520.855	734176.2927	1.34	0.00
5974	1541522.224	734177.2378	1.02	0.00
5975	1541332.888	734188.4645	0.00	0.00
5976	1541334.612	734187.7656	0.00	0.00
5977	1541336.34	734187.375	0.05	0.00
5978	1541338.066	734186.8192	1.28	0.00
5979	1541339.79	734186.066	0.58	0.00
5980	1541341.511	734185.0546	0.00	-0.15
5981	1541343.229	734183.9025	0.00	-0.09
5982	1541344.951	734183.0534	0.00	-0.18
5983	1541346.673	734182.2491	0.00	-0.04
5984	1541346.649	734180.2503	0.00	-0.18
5985	1541348.372	734179.5458	0.00	0.00
5986	1541350.094	734178.7346	0.00	0.00
5987	1541351.817	734178.0441	0.00	0.00
5988	1541353.545	734177.7123	0.00	0.00
5989	1541355.271	734177.251	0.00	0.00
5990	1541356.996	734176.6841	0.00	0.00
5991	1541358.719	734176.1297	0.00	0.00
5992	1541360.435	734175.0447	0.00	0.00
5993	1541362.152	734174.0882	0.00	0.00
5994	1541363.875	734173.4792	0.00	0.00
5995	1541365.596	734172.5991	0.00	0.00
5996	1541367.322	734172.0256	0.00	0.00
5997	1541369.046	734171.2736	0.00	0.00
5998	1541370.765	734170.0502	0.00	0.00
5999	1541372.481	734168.6868	0.00	0.00
6000	1541374.192	734167.0168	0.00	0.00
6001	1541375.899	734165.1428	0.00	0.00
6002	1541377.632	734165.3066	0.00	0.00
6003	1541379.342	734163.7377	0.00	0.00
6004	1541381.052	734162.2245	0.00	0.00
6005	1541382.764	734160.625	0.00	0.00
6006	1541384.482	734159.4615	0.00	0.00
6007	1541386.206	734158.8374	0.00	0.00
6008	1541387.924	734157.9156	0.00	0.00
6009	1541389.632	734156.6488	0.00	0.00
6010	1541389.616	734154.6712	0.00	0.00
6011	1541391.164	734153.2604	0.00	0.00
6012	1541392.824	734152.6668	0.00	0.00
6013	1541393.933	734151.0919	0.00	0.00
6014	1541395.045	734149.3592	0.00	0.00
6015	1541397.035	734149.3209	0.00	0.00
6016	1541398.175	734147.5616	0.00	0.00
6017	1541400.174	734147.5162	0.00	0.00
6018	1541402.172	734147.4711	0.00	0.00
6019	1541404.17	734147.4259	0.00	0.00
6020	1541406.168	734147.3806	0.00	0.00
6021	1541407.47	734145.6182	0.00	0.00
6022	1541409.471	734145.5728	0.00	0.00
6023	1541411.472	734145.5272	0.00	0.00
6024	1541413.473	734145.4816	0.00	0.00
6025	1541414.959	734143.7141	0.00	0.00
6026	1541416.96	734143.6684	0.00	0.00
6027	1541418.961	734143.6226	0.00	0.00
6028	1541420.962	734143.5768	0.00	0.00
6029	1541422.963	734143.5309	0.00	0.00
6030	1541424.964	734143.485	0.00	0.00
6031	1541426.965	734143.439	0.00	0.00
6032	1541428.966	734143.393	0.00	0.00
6033	1541430.968	734143.347	0.00	0.00
6034	1541432.969	734143.3009	0.00	0.00
6035	1541434.97	734143.2547	0.00	0.00
6036	1541436.971	734143.2086	0.00	0.00
6037	1541438.972	734143.1624	0.00	0.00
6038	1541440.973	734143.1161	0.00	0.00
6039	1541442.975	734143.0698	0.00	0.00
6040	1541444.976	734143.0235	0.00	0.00
6041	1541446.977	734142.9772	0.00	0.00
6042	1541448.978	734142.9308	0.00	0.00
6043	1541450.979	734142.8843	0.00	0.00
6044	1541452.98	734142.8379	0.00	0.00
6045	1541454.981	734142.7914	0.00	0.00
6046	1541456.983	734142.7448	0.00	0.00
6047	1541458.984	734142.6983	0.00	-0.26
6048	1541460.985	734142.6516	0.00	-0.66
6049	1541462.986	734142.605	0.00	-1.05
6050	1541464.987	734142.5583	0.00	-1.44
6051	1541466.988	734142.5115	0.00	-2.01
6052	1541468.989	734142.4647	0.00	-2.64

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
6053	1541469.501	734144.1863	0.00	-2.63
6054	1541473.502	734144.0227	0.00	-2.67
6055	1541477.503	734143.8591	0.00	-2.71
6056	1541481.504	734143.6955	0.00	-2.75
6057	1541485.505	734143.5319	0.00	-2.79
6058	1541489.506	734143.3683	0.00	-2.83
6059	1541493.507	734143.2047	0.00	-2.87
6060	1541497.508	734143.0411	0.00	-2.91
6061	1541501.509	734142.8775	0.00	-2.95
6062	1541505.51	734142.7139	0.00	-2.99
6063	1541509.511	734142.5503	0.00	-3.03
6064	1541487.847	734149.6668	0.00	-3.80
6065	1541487.847	734149.6668	0.00	-3.80
6066	1541490.975	734152.4231	0.00	-3.15
6067	1541490.975	734152.4231	0.00	-3.15
6068	1541492.164	734155.4644	0.00	-2.50
6069	1541492.164	734155.4644	0.00	-2.50
6070	1541494.354	734158.5057	0.00	-2.20
6071	1541494.354	734158.5057	0.00	-2.20
6072	1541497.441	734158.957	0.00	-1.89
6073	1541497.441	734158.957	0.00	-1.89
6074	1541498.631	734161.9983	0.00	-1.61
6075	1541498.631	734161.9983	0.00	-1.61
6076	1541504.131	734162.3088	0.00	-0.16
6077	1541505.63	734163.1536	0.00	0.00
6078	1541507.21	734163.8908	0.00	0.00
6079	1541508.934	734164.4358	0.00	0.00
6080	1541510.602	734165.0938	0.00	0.00
6081	1541512.144	734165.8965	0.00	0.00
6082	1541513.689	734166.7194	0.00	0.00
6083	1541515.311	734167.4531	0.00	-0.01
6084	1541516.817	734168.3305	0.00	-0.08
6085	1541518.445	734169.0889	0.03	0.00
6086	1541519.154	734170.8949	1.34	0.00
6087	1541520.003	734172.4989	1.83	0.00
6088	1541521.84	734173.0538	1.72	0.00
6089	1541522.231	734175.0674	1.52	0.00
6090	1541523.78	734175.9872	0.92	0.00
6091	1541332.864	734186.4639	0.00	0.00
6092	1541334.588	734185.7657	0.00	0.00
6093	1541336.316	734185.374	0.00	0.00
6094	1541338.042	734184.8182	1.53	0.00
6095	1541339.766	734184.0654	0.82	0.00
6096	1541341.487	734183.0552	0.05	0.00
6097	1541343.205	734181.9027	0.00	-0.21
6098	1541344.927	734181.0534	0.00	-0.30
6099	1541344.903	734179.0533	0.00	-0.38
6100	1541346.625	734178.2515	0.00	-0.31
6101	1541348.348	734177.5474	0.00	0.00
6102	1541350.07	734176.7353	0.00	0.00
6103	1541351.793	734176.0445	0.00	0.00
6104	1541353.521	734175.7126	0.00	0.00
6105	1541355.247	734175.2518	0.00	0.00
6106	1541356.971	734174.6874	0.00	0.00
6107	1541358.695	734174.1341	0.00	0.00
6108	1541360.41	734173.0486	0.00	0.00
6109	1541362.128	734172.0903	0.00	0.00
6110	1541363.851	734171.4799	0.00	0.00
6111	1541365.572	734170.5984	0.00	0.00
6112	1541367.297	734170.0237	0.00	0.00
6113	1541369.022	734169.2719	0.00	0.00
6114	1541370.74	734168.0496	0.00	0.00
6115	1541372.456	734166.6876	0.00	0.00
6116	1541374.167	734165.0193	0.00	0.00
6117	1541375.874	734163.1443	0.00	0.00
6118	1541377.607	734163.3105	0.00	0.00
6119	1541379.317	734161.7419	0.00	0.00
6120	1541381.027	734160.2247	0.00	0.00
6121	1541382.739	734158.6238	0.00	0.00
6122	1541384.457	734157.4604	0.00	0.00
6123	1541386.181	734156.8386	0.00	0.00
6124	1541387.899	734155.9199	0.00	0.00
6125	1541387.841	734153.9511	0.00	0.00
6126	1541389.42	734152.8899	0.00	0.00
6127	1541389.933	734151.2103	0.00	0.00
6128	1541391.943	734151.2036	0.00	0.00
6129	1541393.046	734149.4083	0.00	0.00
6130	1541394.179	734147.651	0.00	0.00
6131	1541396.178	734147.6056	0.00	0.00
6132	1541397.467	734145.8445	0.00	0.00
6133	1541399.467	734145.7995	0.00	0.00
6134	1541401.468	734145.7543	0.00	0.00
6135	1541403.469	734145.709	0.00	0.00
6136	1541405.47	734145.6637	0.00	0.00
6137	1541406.955	734143.8965	0.00	0.00
6138	1541408.955	734143.851	0.00	0.00
6139	1541410.956	734143.8054	0.00	0.00
6140	1541412.958	734143.7598	0.00	0.00
6141	1541414.528	734141.992	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
6142	1541416.528	734141.9463	0.00	0.00
6143	1541418.528	734141.9006	0.00	0.00
6144	1541420.527	734141.8548	0.00	0.00
6145	1541422.527	734141.8089	0.00	0.00
6146	1541424.527	734141.763	0.00	0.00
6147	1541426.527	734141.7171	0.00	0.00
6148	1541428.527	734141.6711	0.00	0.00
6149	1541430.526	734141.6251	0.00	0.00
6150	1541432.526	734141.579	0.00	0.00
6151	1541434.526	734141.5329	0.00	0.00
6152	1541436.526	734141.4868	0.00	0.00
6153	1541438.526	734141.4406	0.00	0.00
6154	1541440.525	734141.3944	0.00	0.00
6155	1541442.525	734141.3482	0.00	0.00
6156	1541444.525	734141.3019	0.00	0.00
6157	1541446.525	734141.2556	0.00	0.00
6158	1541448.525	734141.2092	0.00	0.00
6159	1541450.525	734141.1629	0.00	0.00
6160	1541452.524	734141.1164	0.00	0.00
6161	1541454.524	734141.07	0.00	0.00
6162	1541456.524	734141.0235	0.00	0.00
6163	1541458.524	734140.977	0.00	-0.22
6164	1541460.523	734140.9304	0.00	-0.76
6165	1541462.523	734140.8838	0.00	-1.16
6166	1541464.523	734140.8372	0.00	-1.55
6167	1541466.523	734140.7905	0.00	-2.08
6168	1541468.522	734140.7437	0.00	-2.69
6169	1541470.522	734140.697	0.00	-3.33
6170	1541470.99	734142.4179	0.00	-3.31
6171	1541472.991	734142.371	0.00	-3.73
6172	1541474.992	734142.324	0.00	-3.90
6173	1541476.993	734142.2768	0.00	-4.14
6174	1541477.503	734143.9981	0.00	-4.13
6175	1541479.505	734143.9509	0.00	-4.28
6176	1541481.531	734143.8871	0.00	-4.46
6177	1541482.358	734145.464	0.00	-4.47
6178	1541484.61	734145.2547	0.00	-4.49
6179	1541486.919	734145.0275	0.00	-4.41
6180	1541488.036	734146.4153	0.00	-4.16
6181	1541489.119	734147.8512	0.00	-3.83
6182	1541490.176	734149.3224	0.00	-3.49
6183	1541491.234	734150.7966	0.00	-3.15
6184	1541492.267	734152.3085	0.00	-2.82
6185	1541493.304	734153.8206	0.00	-2.51
6186	1541494.34	734155.3396	0.00	-2.21
6187	1541495.376	734156.8669	0.00	-1.91
6188	1541497.545	734156.7617	0.00	-1.63
6189	1541498.567	734158.3065	0.00	-1.33
6190	1541500.811	734158.158	0.00	-1.04
6191	1541501.913	734159.5374	0.00	-0.75
6192	1541503.711	734159.9388	0.00	-0.47
6193	1541505.309	734160.7041	0.00	-0.17
6194	1541506.829	734161.5484	0.00	0.00
6195	1541508.421	734162.3019	0.00	0.00
6196	1541510.167	734162.8714	0.00	-0.01
6197	1541511.848	734163.5341	0.00	-0.12
6198	1541513.402	734164.3589	0.00	-0.20
6199	1541514.968	734165.1792	0.00	-0.28
6200	1541516.601	734165.9305	0.00	-0.37
6201	1541518.124	734166.8171	0.00	-0.18
6202	1541519.757	734167.588	0.31	0.00
6203	1541520.482	734169.4072	1.69	0.00
6204	1541521.353	734171.0434	1.91	0.00
6205	1541523.202	734171.6109	1.80	0.00
6206	1541523.645	734173.7193	1.43	0.00
6207	1541525.273	734174.6786	0.78	0.00
6208	1541332.84	734184.4633	0.00	0.00
6209	1541334.564	734183.7658	0.00	0.00
6210	1541336.292	734183.373	0.00	0.00
6211	1541338.018	734182.8173	0.81	0.00
6212	1541339.742	734182.0648	1.03	0.00
6213	1541341.463	734181.0559	0.16	0.00
6214	1541343.181	734179.903	0.00	-0.61
6215	1541343.157	734177.9033	0.00	-0.72
6216	1541344.879	734177.0533	0.00	-0.63
6217	1541346.601	734176.2527	0.00	-0.06
6218	1541348.324	734175.5489	0.00	0.00
6219	1541350.046	734174.736	0.00	0.00
6220	1541351.769	734174.0449	0.00	0.00
6221	1541353.497	734173.7129	0.00	0.00
6222	1541355.223	734173.2527	0.00	0.00
6223	1541356.947	734172.6907	0.00	0.00
6224	1541358.67	734172.1386	0.00	0.00
6225	1541360.386	734171.0525	0.00	0.00
6226	1541362.104	734170.0923	0.00	0.00
6227	1541363.826	734169.4806	0.00	0.00
6228	1541365.547	734168.5978	0.00	0.00
6229	1541367.273	734168.0218	0.00	0.00
6230	1541368.997	734167.2703	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
6231	1541370.715	734166.049	0.00	0.00
6232	1541372.431	734164.6883	0.00	0.00
6233	1541374.142	734163.0219	0.00	0.00
6234	1541375.85	734161.1459	0.00	0.00
6235	1541377.582	734161.3143	0.00	0.00
6236	1541379.292	734159.7461	0.00	0.00
6237	1541381.002	734158.2225	0.00	0.00
6238	1541382.713	734156.6229	0.00	0.00
6239	1541384.43	734155.4599	0.00	0.00
6240	1541386.15	734154.8423	0.00	0.00
6241	1541386.127	734152.8421	0.00	0.00
6242	1541387.88	734151.9728	0.00	0.00
6243	1541387.857	734150.1025	0.00	0.00
6244	1541389.306	734149.337	0.00	0.00
6245	1541391.086	734149.4623	0.00	0.00
6246	1541392.181	734147.6957	0.00	0.00
6247	1541393.465	734145.9347	0.00	0.00
6248	1541395.466	734145.8896	0.00	0.00
6249	1541396.95	734144.1228	0.00	0.00
6250	1541398.951	734144.0777	0.00	0.00
6251	1541400.952	734144.0325	0.00	0.00
6252	1541402.953	734143.9872	0.00	0.00
6253	1541404.954	734143.9419	0.00	0.00
6254	1541406.53	734142.1743	0.00	0.00
6255	1541408.529	734142.1288	0.00	0.00
6256	1541410.529	734142.0833	0.00	0.00
6257	1541412.529	734142.0377	0.00	0.00
6258	1541414.169	734140.2707	0.00	0.00
6259	1541416.165	734140.2251	0.00	0.00
6260	1541418.16	734140.1794	0.00	0.00
6261	1541420.156	734140.1337	0.00	0.00
6262	1541422.152	734140.0879	0.00	0.00
6263	1541424.148	734140.0421	0.00	0.00
6264	1541426.143	734139.9962	0.00	0.00
6265	1541428.139	734139.9503	0.00	0.00
6266	1541430.135	734139.9044	0.00	0.00
6267	1541432.131	734139.8585	0.00	0.00
6268	1541434.126	734139.8124	0.00	0.00
6269	1541436.122	734139.7664	0.00	0.00
6270	1541438.118	734139.7203	0.00	0.00
6271	1541440.114	734139.6742	0.00	0.00
6272	1541442.11	734139.6281	0.00	0.00
6273	1541444.106	734139.5819	0.00	0.00
6274	1541446.101	734139.5357	0.00	0.00
6275	1541448.097	734139.4895	0.00	0.00
6276	1541450.093	734139.4432	0.00	0.00
6277	1541452.089	734139.3969	0.00	0.00
6278	1541454.085	734139.3505	0.00	0.00
6279	1541456.08	734139.3041	0.00	0.00
6280	1541458.076	734139.2577	0.00	-0.20
6281	1541460.072	734139.2113	0.00	-0.74
6282	1541462.068	734139.1648	0.00	-1.28
6283	1541464.063	734139.1183	0.00	-1.67
6284	1541466.059	734139.0717	0.00	-2.17
6285	1541468.055	734139.0251	0.00	-2.75
6286	1541470.05	734138.9784	0.00	-3.36
6287	1541472.046	734138.9317	0.00	-3.85
6288	1541472.521	734140.6501	0.00	-3.77
6289	1541474.521	734140.6032	0.00	-3.95
6290	1541476.521	734140.5563	0.00	-4.13
6291	1541478.52	734140.5093	0.00	-4.32
6292	1541478.994	734142.2298	0.00	-4.24
6293	1541480.994	734142.1825	0.00	-4.42
6294	1541482.996	734142.1352	0.00	-4.62
6295	1541483.628	734143.785	0.00	-4.51
6296	1541485.833	734143.6284	0.00	-4.61
6297	1541488.116	734143.4236	0.00	-4.53
6298	1541489.229	734144.8159	0.00	-4.16
6299	1541490.311	734146.2505	0.00	-3.82
6300	1541491.368	734147.7181	0.00	-3.49
6301	1541492.42	734149.1903	0.00	-3.15
6302	1541493.449	734150.6967	0.00	-2.81
6303	1541494.48	734152.2027	0.00	-2.49
6304	1541495.508	734153.7145	0.00	-2.21
6305	1541496.533	734155.2339	0.00	-1.92
6306	1541498.733	734155.146	0.00	-1.62
6307	1541499.712	734156.6909	0.00	-1.34
6308	1541501.697	734156.6034	0.00	-1.07
6309	1541503.133	734157.697	0.00	-0.76
6310	1541504.912	734158.3682	0.00	-0.45
6311	1541506.532	734159.1301	0.00	-0.22
6312	1541508.065	734159.9804	0.00	-0.14
6313	1541509.669	734160.7417	0.00	-0.23
6314	1541511.428	734161.3218	0.00	-0.37
6315	1541513.117	734161.9926	0.00	-0.48
6316	1541514.678	734162.825	0.00	-0.56
6317	1541516.25	734163.6503	0.00	-0.59
6318	1541517.889	734164.3993	0.00	-0.40
6319	1541519.407	734165.2925	0.00	-0.16

Node	X-Coordinate	Y-Coordinate	Fill	Cut
6320	1541521.033	734166.0547	0.48	0.00
6321	1541521.778	734167.8912	1.93	0.00
6322	1541522.668	734169.5485	1.88	0.00
6323	1541524.487	734170.0864	1.80	0.00
6324	1541524.968	734172.256	1.35	0.00
6325	1541526.515	734173.1104	0.73	0.00
6326	1541332.816	734182.4626	0.00	0.00
6327	1541334.54	734181.7659	0.00	0.00
6328	1541336.268	734181.372	0.00	0.00
6329	1541337.994	734180.8163	0.00	0.00
6330	1541339.718	734180.0641	1.28	0.00
6331	1541341.439	734179.0565	0.38	0.00
6332	1541341.415	734177.0572	0.62	0.00
6333	1541343.133	734175.9035	0.00	-0.52
6334	1541344.855	734175.0533	0.00	-0.85
6335	1541346.577	734174.2539	0.00	-0.58
6336	1541348.3	734173.5505	0.00	0.00
6337	1541350.021	734172.7367	0.00	0.00
6338	1541351.745	734172.0454	0.00	0.00
6339	1541353.472	734171.7133	0.00	0.00
6340	1541355.199	734171.2536	0.00	0.00
6341	1541356.923	734170.6941	0.00	0.00
6342	1541358.646	734170.1431	0.00	0.00
6343	1541360.362	734169.0565	0.00	0.00
6344	1541362.079	734168.0945	0.00	0.00
6345	1541363.802	734167.4814	0.00	0.00
6346	1541365.523	734166.5972	0.00	0.00
6347	1541367.248	734166.02	0.00	0.00
6348	1541368.972	734165.2687	0.00	0.00
6349	1541370.691	734164.0485	0.00	0.00
6350	1541372.407	734162.6892	0.00	0.00
6351	1541374.118	734161.0245	0.00	0.00
6352	1541375.825	734159.1476	0.00	0.00
6353	1541377.557	734159.3182	0.00	0.00
6354	1541379.267	734157.7504	0.00	0.00
6355	1541380.977	734156.225	0.00	0.00
6356	1541382.688	734154.6211	0.00	0.00
6357	1541384.406	734153.4533	0.00	0.00
6358	1541384.375	734151.4344	0.00	0.00
6359	1541386.08	734150.866	0.00	0.00
6360	1541386.403	734149.1115	0.00	0.00
6361	1541388.087	734147.8937	0.00	0.00
6362	1541390.188	734147.7077	0.00	0.00
6363	1541391.466	734145.9755	0.00	0.00
6364	1541392.949	734144.2123	0.00	0.00
6365	1541394.949	734144.1679	0.00	0.00
6366	1541396.532	734142.4006	0.00	0.00
6367	1541398.532	734142.3555	0.00	0.00
6368	1541400.531	734142.3103	0.00	0.00
6369	1541402.531	734142.2651	0.00	0.00
6370	1541404.53	734142.2197	0.00	0.00
6371	1541406.186	734140.4526	0.00	0.00
6372	1541408.182	734140.4072	0.00	0.00
6373	1541410.178	734140.3618	0.00	0.00
6374	1541412.173	734140.3163	0.00	0.00
6375	1541413.575	734138.5536	0.00	0.00
6376	1541415.571	734138.5079	0.00	0.00
6377	1541417.567	734138.4622	0.00	0.00
6378	1541419.563	734138.4165	0.00	0.00
6379	1541421.559	734138.3707	0.00	0.00
6380	1541423.556	734138.3249	0.00	0.00
6381	1541425.552	734138.279	0.00	0.00
6382	1541427.548	734138.2331	0.00	0.00
6383	1541429.544	734138.1872	0.00	0.00
6384	1541431.54	734138.1412	0.00	0.00
6385	1541433.536	734138.0952	0.00	0.00
6386	1541435.532	734138.0492	0.00	0.00
6387	1541437.529	734138.0031	0.00	0.00
6388	1541439.525	734137.957	0.00	0.00
6389	1541441.521	734137.9108	0.00	0.00
6390	1541443.517	734137.8647	0.00	0.00
6391	1541445.513	734137.8185	0.00	0.00
6392	1541447.509	734137.7722	0.00	0.00
6393	1541449.505	734137.7259	0.00	0.00
6394	1541451.502	734137.6796	0.00	0.00
6395	1541453.498	734137.6333	0.00	0.00
6396	1541455.494	734137.5869	0.00	0.00
6397	1541457.49	734137.5405	0.00	-0.16
6398	1541459.486	734137.4941	0.00	-0.69
6399	1541461.482	734137.4476	0.00	-1.22
6400	1541463.478	734137.4011	0.00	-1.75
6401	1541465.474	734137.3546	0.00	-2.25
6402	1541467.47	734137.308	0.00	-2.81
6403	1541469.466	734137.2614	0.00	-3.40
6404	1541471.462	734137.2147	0.00	-3.94
6405	1541473.458	734137.168	0.00	-4.12
6406	1541474.041	734138.885	0.00	-4.03
6407	1541476.037	734138.8382	0.00	-4.23
6408	1541478.032	734138.7914	0.00	-4.42

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the markups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-0021

06/26/23

Appendix C

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
5/4/2023

Node	X-Coordinate	Y-Coordinate	Fill	Cut
6409	1541480.028	734138.7444	0.00	-4.63
6410	1541481.519	734140.1611	0.00	-4.74
6411	1541482.519	734140.857	0.00	-4.74
6412	1541482.657	734142.3592	0.00	-4.86
6413	1541482.828	734142.2068	0.00	-4.87
6414	1541482.141	734141.0838	0.00	-4.88
6415	1541482.858	734144.6381	0.00	-4.87
6416	1541490.572	734146.1743	0.00	-3.58
6417	1541492.572	734146.1743	0.00	-3.58
6418	1541494.653	734146.519	0.00	-2.76
6419	1541494.653	734146.519	0.00	-2.76
6422	1541496.706	734152.1118	0.00	-2.18
6423	1541497.706	734152.1118	0.00	-1.90
6424	1541499.947	734153.5507	0.00	-1.62
6425	1541500.947	734153.5507	0.00	-1.32
6426	1541502.22	734153.5507	0.00	-1.16
6427	1541503.22	734153.5507	0.00	-0.95
6428	1541506.167	734156.8164	0.00	-0.76
6429	1541507.167	734157.5773	0.00	-0.55
6430	1541509.219	734158.4235	0.00	-0.50
6431	1541510.219	734159.1897	0.00	-0.59
6432	1541512.687	734159.7713	0.00	-0.72
6433	1541514.375	734160.4423	0.00	-0.84
6434	1541515.936	734161.2755	0.00	-0.79
6435	1541517.505	734162.0988	0.00	-0.62
6436	1541519.154	734162.8147	0.00	-0.38
6437	1541520.625	734163.7333	0.00	-0.15
6438	1541522.282	734164.5264	0.53	0.00
6439	1541523.039	734166.343	1.73	0.00
6440	1541523.934	734168.0028	1.76	0.00
6441	1541525.736	734168.5227	1.75	0.00
6442	1541526.222	734170.6931	1.27	0.00
6443	1541527.758	734171.5423	0.67	0.00
6444	1541332.792	734180.462	0.00	0.00
6445	1541334.516	734179.766	0.00	0.00
6446	1541336.244	734179.371	0.00	0.00
6447	1541337.97	734178.8153	0.00	0.00
6448	1541339.694	734178.0635	1.64	0.00
6449	1541339.67	734176.0629	1.16	0.00
6450	1541341.391	734175.0579	0.79	0.00
6451	1541343.109	734173.9038	0.00	-0.36
6452	1541344.831	734173.0533	0.00	-1.04
6453	1541346.553	734172.2552	0.00	-0.82
6454	1541348.276	734171.5522	0.00	0.00
6455	1541349.997	734170.7374	0.00	0.00
6456	1541351.72	734170.0459	0.00	0.00
6457	1541353.448	734169.7137	0.00	0.00
6458	1541355.174	734169.2545	0.00	0.00
6459	1541356.899	734168.6975	0.00	0.00
6460	1541358.622	734168.1477	0.00	0.00
6461	1541360.337	734167.0605	0.00	0.00
6462	1541362.055	734166.0966	0.00	0.00
6463	1541363.778	734165.4822	0.00	0.00
6464	1541365.498	734164.5966	0.00	0.00
6465	1541367.224	734164.0182	0.00	0.00
6466	1541368.948	734163.2672	0.00	0.00
6467	1541370.666	734162.048	0.00	0.00
6468	1541372.382	734160.69	0.00	0.00
6469	1541374.093	734159.0271	0.00	0.00
6470	1541375.8	734157.1492	0.00	0.00
6471	1541377.532	734157.3222	0.00	0.00
6472	1541379.242	734155.7547	0.00	0.00
6473	1541380.952	734154.2255	0.00	0.00
6474	1541382.663	734152.621	0.00	0.00
6475	1541382.657	734150.6088	0.00	0.00
6476	1541384.487	734149.2875	0.00	0.00
6477	1541386.037	734147.614	0.00	0.00
6478	1541387.472	734146.0715	0.00	0.00
6479	1541389.451	734146.0361	0.00	0.00
6480	1541390.947	734144.2593	0.00	0.00
6481	1541392.533	734142.4907	0.00	0.00
6482	1541394.533	734142.4455	0.00	0.00
6483	1541396.209	734140.6786	0.00	0.00
6484	1541398.204	734140.6336	0.00	0.00
6485	1541400.2	734140.5884	0.00	0.00
6486	1541402.195	734140.5432	0.00	0.00
6487	1541404.191	734140.498	0.00	0.00
6488	1541405.591	734138.7356	0.00	0.00
6489	1541407.587	734138.6902	0.00	0.00
6490	1541409.583	734138.6447	0.00	0.00
6491	1541411.579	734138.5991	0.00	0.00
6492	1541412.845	734136.8395	0.00	0.00
6493	1541414.843	734136.7938	0.00	0.00
6494	1541416.842	734136.7481	0.00	0.00
6495	1541418.84	734136.7023	0.00	0.00
6496	1541420.838	734136.6564	0.00	0.00
6497	1541422.837	734136.6106	0.00	0.00

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TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
6498	1541424.835	734136.5646	0.00	0.00
6499	1541426.833	734136.5187	0.00	0.00
6500	1541428.832	734136.4727	0.00	0.00
6501	1541430.83	734136.4267	0.00	0.00
6502	1541432.829	734136.3806	0.00	0.00
6503	1541434.827	734136.3345	0.00	0.00
6504	1541436.826	734136.2884	0.00	0.00
6505	1541438.824	734136.2422	0.00	0.00
6506	1541440.823	734136.1961	0.00	0.00
6507	1541442.821	734136.1498	0.00	0.00
6508	1541444.82	734136.1036	0.00	0.00
6509	1541446.818	734136.0573	0.00	0.00
6510	1541448.817	734136.011	0.00	0.00
6511	1541450.815	734135.9647	0.00	0.00
6512	1541452.813	734135.9183	0.00	0.00
6513	1541454.812	734135.8719	0.00	0.00
6514	1541456.81	734135.8255	0.00	-0.09
6515	1541458.809	734135.779	0.00	-0.62
6516	1541460.807	734135.7325	0.00	-1.15
6517	1541462.805	734135.686	0.00	-1.68
6518	1541464.804	734135.6394	0.00	-2.29
6519	1541466.802	734135.5928	0.00	-2.86
6520	1541468.8	734135.5462	0.00	-3.42
6521	1541470.799	734135.4995	0.00	-3.99
6522	1541472.797	734135.4528	0.00	-4.22
6523	1541474.795	734135.406	0.00	-4.40
6524	1541475.454	734137.1212	0.00	-4.30
6525	1541477.45	734137.0744	0.00	-4.52
6526	1541479.446	734137.0276	0.00	-4.71
6527	1541481.441	734136.9807	0.00	-4.93
6528	1541482.023	734138.6975	0.00	-4.83
6529	1541484.019	734138.6503	0.00	-5.05
6530	1541486.014	734138.6033	0.00	-5.24
6531	1541486.519	734140.3207	0.00	-5.16
6532	1541488.553	734140.2535	0.00	-4.87
6533	1541490.663	734140.1521	0.00	-4.49
6534	1541491.631	734141.6294	0.00	-4.14
6535	1541492.718	734143.0664	0.00	-4.00
6536	1541493.781	734144.5328	0.00	-3.88
6537	1541494.835	734146.0084	0.00	-3.46
6538	1541495.866	734147.5124	0.00	-3.03
6539	1541496.897	734149.0153	0.00	-2.67
6540	1541497.923	734150.5227	0.00	-2.32
6541	1541498.941	734152.037	0.00	-1.97
6542	1541501.182	734151.9774	0.00	-1.93
6543	1541502.173	734153.5174	0.00	-1.57
6544	1541504.218	734153.7055	0.00	-1.49
6545	1541505.782	734154.4816	0.00	-1.28
6546	1541507.411	734155.292	0.00	-1.07
6547	1541509.019	734156.0103	0.00	-0.88
6548	1541510.558	734156.8598	0.00	-0.86
6549	1541512.167	734157.6241	0.00	-0.95
6550	1541513.92	734158.2004	0.00	-1.08
6551	1541515.6	734158.8658	0.00	-0.98
6552	1541517.16	734159.6991	0.00	-0.84
6553	1541518.735	734160.5249	0.00	-0.60
6554	1541520.562	734161.1547	0.00	-0.40
6555	1541521.872	734162.4784	0.00	-0.14
6556	1541523.503	734162.9003	0.42	0.00
6557	1541524.258	734164.7565	1.44	0.00
6558	1541525.175	734166.4263	1.59	0.00
6559	1541526.968	734166.9504	1.56	0.00
6560	1541527.471	734169.1239	1.20	0.00
6561	1541529.004	734169.9772	0.61	0.00
6562	1541332.768	734178.4614	0.00	0.00
6563	1541334.492	734177.7661	0.00	0.00
6564	1541336.22	734177.3701	0.00	0.00
6565	1541337.946	734176.8144	0.00	0.00
6566	1541337.922	734174.8134	0.00	0.00
6567	1541339.646	734174.0624	0.46	0.00
6568	1541341.367	734173.0586	0.94	0.00
6569	1541343.085	734171.9041	0.00	-0.24
6570	1541344.806	734171.0533	0.00	-1.20
6571	1541346.529	734170.2564	0.00	-1.02
6572	1541348.252	734169.5538	0.00	-0.46
6573	1541349.973	734168.7382	0.00	0.00
6574	1541351.696	734168.0464	0.00	0.00
6575	1541353.424	734167.7141	0.00	0.00
6576	1541355.15	734167.2554	0.00	0.00
6577	1541356.874	734166.701	0.00	0.00
6578	1541358.598	734166.1522	0.00	0.00
6579	1541360.313	734165.0645	0.00	0.00
6580	1541362.03	734164.0988	0.00	0.00
6581	1541363.753	734163.4831	0.00	0.00
6582	1541365.474	734162.5961	0.00	0.00
6583	1541367.199	734162.0165	0.00	0.00
6584	1541368.923	734161.2657	0.00	0.00
6585	1541370.641	734160.0476	0.00	0.00
6586	1541372.357	734158.6909	0.00	0.00

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TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
6587	1541374.068	734157.0298	0.00	0.00
6588	1541375.774	734155.1509	0.00	0.00
6589	1541377.507	734155.3261	0.00	0.00
6590	1541379.217	734153.7586	0.00	0.00
6591	1541380.929	734152.2234	0.00	0.00
6592	1541380.9	734150.2275	0.00	0.00
6593	1541382.624	734148.6543	0.00	0.00
6594	1541384.141	734147.1658	0.00	0.00
6595	1541385.42	734145.8768	0.00	0.00
6596	1541386.98	734144.3464	0.00	0.00
6597	1541388.953	734144.3022	0.00	0.00
6598	1541390.533	734142.5348	0.00	0.00
6599	1541392.218	734140.7683	0.00	0.00
6600	1541394.214	734140.7236	0.00	0.00
6601	1541395.612	734138.9616	0.00	0.00
6602	1541397.608	734138.9166	0.00	0.00
6603	1541399.604	734138.8714	0.00	0.00
6604	1541401.6	734138.8262	0.00	0.00
6605	1541403.596	734138.7809	0.00	0.00
6606	1541404.852	734137.0218	0.00	0.00
6607	1541406.85	734136.9763	0.00	0.00
6608	1541408.848	734136.9307	0.00	0.00
6609	1541410.847	734136.8852	0.00	0.00
6610	1541412.208	734135.123	0.00	0.00
6611	1541414.205	734135.0773	0.00	0.00
6612	1541416.202	734135.0315	0.00	0.00
6613	1541418.2	734134.9858	0.00	0.00
6614	1541420.197	734134.9399	0.00	0.00
6615	1541422.195	734134.8941	0.00	0.00
6616	1541424.192	734134.8482	0.00	0.00
6617	1541426.189	734134.8023	0.00	0.00
6618	1541428.187	734134.7563	0.00	0.00
6619	1541430.184	734134.7103	0.00	0.00
6620	1541432.182	734134.6643	0.00	0.00
6621	1541434.179	734134.6182	0.00	0.00
6622	1541436.177	734134.5721	0.00	0.00
6623	1541438.174	734134.526	0.00	0.00
6624	1541440.172	734134.4798	0.00	0.00
6625	1541442.169	734134.4336	0.00	0.00
6626	1541444.167	734134.3874	0.00	0.00
6627	1541446.164	734134.3412	0.00	0.00
6628	1541448.162	734134.2949	0.00	0.00
6629	1541450.159	734134.2486	0.00	0.00
6630	1541452.157	734134.2023	0.00	0.00
6631	1541454.154	734134.1559	0.00	0.00
6632	1541456.151	734134.1095	0.00	-0.04
6633	1541458.149	734134.0631	0.00	-0.56
6634	1541460.146	734134.0167	0.00	-1.09
6635	1541462.144	734133.9702	0.00	-1.62
6636	1541464.141	734133.9237	0.00	-2.22
6637	1541466.138	734133.8771	0.00	-2.91
6638	1541468.136	734133.8305	0.00	-3.47
6639	1541470.133	734133.7839	0.00	-3.99
6640	1541472.13	734133.7373	0.00	-4.31
6641	1541474.127	734133.6906	0.00	-4.53
6642	1541476.125	734133.6438	0.00	-4.68
6643	1541476.793	734135.3592	0.00	-4.59
6644	1541478.791	734135.3123	0.00	-4.80
6645	1541480.789	734135.2654	0.00	-4.98
6646	1541482.788	734135.2184	0.00	-5.17
6647	1541483.437	734136.9336	0.00	-5.12
6648	1541485.433	734136.8866	0.00	-5.31
6649	1541487.429	734136.8394	0.00	-5.28
6650	1541488.008	734138.5564	0.00	-5.20
6651	1541490.005	734138.5092	0.00	-4.81
6652	1541492.032	734138.4437	0.00	-4.40
6653	1541492.859	734140.0151	0.00	-4.07
6654	1541493.914	734141.4704	0.00	-3.99
6655	1541494.983	734142.9367	0.00	-3.91
6656	1541496.04	734144.4162	0.00	-3.74
6657	1541497.076	734145.9222	0.00	-3.31
6658	1541498.112	734147.4272	0.00	-2.97
6659	1541499.142	734148.9367	0.00	-2.63
6660	1541500.164	734150.4534	0.00	-2.28
6661	1541502.402	734150.3977	0.00	-2.24
6662	1541503.417	734151.9415	0.00	-1.89
6663	1541505.655	734152.0467	0.00	-1.81
6664	1541507.051	734153.2306	0.00	-1.53
6665	1541508.655	734153.6896	0.00	-1.40
6666	1541510.237	734154.4291	0.00	-1.20
6667	1541511.772	734155.2739	0.00	-1.22
6668	1541513.375	734156.0334	0.00	-1.31
6669	1541515.116	734156.6012	0.00	-1.23
6670	1541516.786	734157.2594	0.00	-1.07
6671	1541518.335	734158.0916	0.00	-0.86
6672	1541519.896	734158.916	0.00	-0.67
6673	1541521.731	734159.282	0.00	-0.45
6674	1541522.752	734160.8408	0.00	-0.20
6675	1541524.598	734161.2522	0.12	0.00

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TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
6676	1541525.45	734163.1363	1.18	0.00
6677	1541526.39	734164.8038	1.34	0.00
6678	1541528.147	734165.36	1.31	0.00
6679	1541528.723	734167.5228	1.06	0.00
6680	1541530.262	734168.4211	0.52	0.00
6681	1541332.744	734176.4608	0.00	0.00
6682	1541334.468	734175.7662	0.00	0.00
6683	1541336.196	734175.3691	0.00	0.00
6684	1541336.172	734173.3681	0.00	0.00
6685	1541337.898	734172.8125	0.00	0.00
6686	1541339.622	734172.0618	0.00	0.00
6687	1541341.343	734171.0593	1.10	0.00
6688	1541343.061	734169.9045	0.00	-0.14
6689	1541344.782	734169.0534	0.00	-1.35
6690	1541346.505	734168.2577	0.00	-1.21
6691	1541348.228	734167.5555	0.00	-0.64
6692	1541349.949	734166.739	0.00	0.00
6693	1541351.672	734166.047	0.00	0.00
6694	1541353.4	734165.7145	0.00	0.00
6695	1541355.126	734165.2564	0.00	0.00
6696	1541356.85	734164.7045	0.00	0.00
6697	1541358.573	734164.1568	0.00	0.00
6698	1541360.289	734163.0686	0.00	0.00
6699	1541362.006	734162.1011	0.00	0.00
6700	1541363.728	734161.4841	0.00	0.00
6701	1541365.449	734160.5957	0.00	0.00
6702	1541367.174	734160.0149	0.00	0.00
6703	1541368.898	734159.2642	0.00	0.00
6704	1541370.616	734158.0472	0.00	0.00
6705	1541372.332	734156.6919	0.00	0.00
6706	1541374.043	734155.0326	0.00	0.00
6707	1541375.749	734153.1529	0.00	0.00
6708	1541377.481	734153.3302	0.00	0.00
6709	1541379.191	734151.7635	0.00	0.00
6710	1541379.162	734149.7706	0.00	0.00
6711	1541380.851	734148.251	0.00	0.00
6712	1541382.442	734146.8159	0.00	0.00
6713	1541383.155	734144.8966	0.00	0.00
6714	1541385.122	734144.1884	0.00	0.00
6715	1541386.524	734142.6045	0.00	0.00
6716	1541388.531	734142.5789	0.00	0.00
6717	1541390.224	734140.8135	0.00	0.00
6718	1541391.621	734139.0515	0.00	0.00
6719	1541393.617	734139.0065	0.00	0.00
6720	1541394.862	734137.2481	0.00	0.00
6721	1541396.86	734137.203	0.00	0.00
6722	1541398.858	734137.1578	0.00	0.00
6723	1541400.856	734137.1125	0.00	0.00
6724	1541402.854	734137.0672	0.00	0.00
6725	1541404.219	734135.3052	0.00	0.00
6726	1541406.216	734135.2597	0.00	0.00
6727	1541408.213	734135.2142	0.00	0.00
6728	1541410.211	734135.1686	0.00	0.00
6729	1541411.419	734133.4088	0.00	0.00
6730	1541413.418	734133.3631	0.00	0.00
6731	1541415.417	734133.3173	0.00	0.00
6732	1541417.417	734133.2715	0.00	0.00
6733	1541419.416	734133.2256	0.00	0.00
6734	1541421.415	734133.1797	0.00	0.00
6735	1541423.414	734133.1338	0.00	0.00
6736	1541425.413	734133.0878	0.00	0.00
6737	1541427.412	734133.0418	0.00	0.00
6738	1541429.412	734132.9958	0.00	0.00
6739	1541431.411	734132.9497	0.00	0.00
6740	1541433.41	734132.9036	0.00	0.00
6741	1541435.409	734132.8574	0.00	0.00
6742	1541437.409	734132.8113	0.00	0.00
6743	1541439.408	734132.7651	0.00	0.00
6744	1541441.407	734132.7189	0.00	0.00
6745	1541443.407	734132.6726	0.00	0.00
6746	1541445.406	734132.6264	0.00	0.00
6747	1541447.405	734132.5801	0.00	0.00
6748	1541449.404	734132.5338	0.00	0.00
6749	1541451.404	734132.4874	0.00	0.00
6750	1541453.403	734132.441	0.00	0.00
6751	1541455.402	734132.3946	0.00	0.00
6752	1541457.401	734132.3482	0.00	-0.48
6753	1541459.4	734132.3017	0.00	-1.00
6754	1541461.4	734132.2552	0.00	-1.54
6755	1541463.399	734132.2087	0.00	-2.12
6756	1541465.398	734132.1621	0.00	-2.79
6757	1541467.397	734132.1156	0.00	-3.46
6758	1541469.396	734132.0689	0.00	-4.04
6759	1541471.395	734132.0223	0.00	-4.40
6760	1541473.394	734131.9756	0.00	-4.60
6761	1541475.393	734131.9288	0.00	-4.82
6762	1541477.392	734131.882	0.00	-5.02
6763	1541478.122	734133.597	0.00	-4.85
6764	1541480.119	734133.5502	0.00	-5.04

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
6765	1541482.116	734133.5033	0.00	-5.23
6766	1541481.788	734135.1726	0.00	-3.56
6767	1541481.483	734136.7583	0.00	-1.97
6768	1541481.261	734138.3661	0.00	-0.37
6769	1541481.424	734139.2976	0.00	0.00
6770	1541481.515	734139.8419	0.00	0.00
6771	1541481.436	734140.6881	0.00	0.00
6772	1541481.358	734141.5343	0.00	0.00
6773	1541481.279	734142.3805	0.00	0.00
6774	1541485.696	734139.8698	0.00	-3.99
6775	1541487.232	734139.8698	0.00	-3.81
6776	1541492.232	734142.8148	0.00	-3.66
6777	1541495.515	734144.8183	0.00	-3.26
6778	1541499.217	734145.8311	0.00	-3.26
6779	1541504.967	734146.8439	0.00	-2.93
6780	1541501.381	734148.8651	0.00	-2.59
6781	1541504.967	734148.8651	0.00	-2.55
6782	1541507.254	734150.8779	0.00	-2.20
6783	1541507.096	734150.8779	0.00	-2.00
6784	1541507.967	734151.6297	0.00	-1.85
6785	1541507.809	734152.0772	0.00	-1.72
6786	1541507.652	734152.8225	0.00	-1.53
6787	1541507.494	734153.6641	0.00	-1.57
6788	1541514.55	734154.4181	0.00	-1.47
6789	1541516.281	734154.9784	0.00	-1.30
6790	1541517.943	734155.6306	0.00	-1.17
6791	1541519.483	734156.4605	0.00	-0.94
6792	1541521.03	734157.2611	0.00	-0.70
6793	1541522.881	734157.6178	0.00	-0.53
6794	1541523.88	734159.2213	0.00	-0.26
6795	1541525.716	734159.5912	0.00	-0.04
6796	1541526.526	734161.4897	0.83	0.00
6797	1541527.734	734163.0878	1.00	0.00
6798	1541529.33	734163.9709	0.99	0.00
6799	1541530.11	734165.8616	0.89	0.00
6800	1541531.472	734166.833	0.43	0.00
6801	1541332.72	734174.4601	0.00	0.00
6802	1541334.444	734173.7664	0.00	0.00
6803	1541334.42	734171.7665	0.00	0.00
6804	1541336.148	734171.3672	0.00	0.00
6805	1541337.874	734170.8116	0.00	0.00
6806	1541339.598	734170.0612	0.00	0.00
6807	1541341.319	734169.0601	1.23	0.00
6808	1541343.037	734167.9048	0.00	-0.02
6809	1541344.758	734167.0534	0.00	-1.27
6810	1541346.481	734166.2591	0.00	-1.35
6811	1541348.204	734165.5572	0.00	-0.80
6812	1541349.925	734164.7399	0.00	-0.11
6813	1541351.648	734164.0476	0.00	0.00
6814	1541353.375	734163.715	0.00	0.00
6815	1541355.101	734163.2574	0.00	0.00
6816	1541356.826	734162.708	0.00	0.00
6817	1541358.549	734162.1615	0.00	0.00
6818	1541360.264	734161.0728	0.00	0.00
6819	1541361.981	734160.1034	0.00	0.00
6820	1541363.704	734159.485	0.00	0.00
6821	1541365.424	734158.5953	0.00	0.00
6822	1541367.149	734158.0132	0.00	0.00
6823	1541368.873	734157.2628	0.00	0.00
6824	1541370.591	734156.0468	0.00	0.00
6825	1541372.307	734154.6928	0.00	0.00
6826	1541374.017	734153.0353	0.00	0.00
6827	1541375.724	734151.1543	0.00	0.00
6828	1541377.455	734151.335	0.00	0.00
6829	1541377.432	734149.3373	0.00	0.00
6830	1541379.146	734147.7648	0.00	0.00
6831	1541380.92	734146.2114	0.00	0.00
6832	1541380.888	734144.3405	0.00	0.00
6833	1541382.372	734142.9748	0.00	0.00
6834	1541384.318	734142.572	0.00	0.00
6835	1541386.247	734140.9217	0.00	0.00
6836	1541388.233	734140.8554	0.00	0.00
6837	1541389.626	734139.0953	0.00	0.00
6838	1541390.866	734137.3378	0.00	0.00
6839	1541392.864	734137.2931	0.00	0.00
6840	1541394.234	734135.5315	0.00	0.00
6841	1541396.231	734135.4864	0.00	0.00
6842	1541398.228	734135.4412	0.00	0.00
6843	1541400.225	734135.3959	0.00	0.00
6844	1541402.222	734135.3506	0.00	0.00
6845	1541403.423	734133.5913	0.00	0.00
6846	1541405.422	734133.5457	0.00	0.00
6847	1541407.421	734133.5002	0.00	0.00
6848	1541409.42	734133.4545	0.00	0.00
6849	1541410.645	734131.6933	0.00	0.00
6850	1541412.645	734131.6476	0.00	0.00
6851	1541414.646	734131.6017	0.00	0.00
6852	1541416.646	734131.5559	0.00	0.00
6853	1541418.647	734131.51	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
6854	1541420.647	734131.464	0.00	0.00
6855	1541422.648	734131.4181	0.00	0.00
6856	1541424.648	734131.372	0.00	0.00
6857	1541426.649	734131.326	0.00	0.00
6858	1541428.649	734131.2799	0.00	0.00
6859	1541430.65	734131.2338	0.00	0.00
6860	1541432.65	734131.1877	0.00	0.00
6861	1541434.651	734131.1415	0.00	0.00
6862	1541436.652	734131.0954	0.00	0.00
6863	1541438.652	734131.0492	0.00	0.00
6864	1541440.653	734131.0029	0.00	0.00
6865	1541442.653	734130.9567	0.00	0.00
6866	1541444.654	734130.9104	0.00	0.00
6867	1541446.655	734130.8641	0.00	0.00
6868	1541448.655	734130.8177	0.00	0.00
6869	1541450.656	734130.7713	0.00	0.00
6870	1541452.656	734130.725	0.00	0.00
6871	1541454.657	734130.6785	0.00	0.00
6872	1541456.657	734130.6321	0.00	-0.38
6873	1541458.658	734130.5856	0.00	-0.91
6874	1541460.658	734130.5391	0.00	-1.44
6875	1541462.659	734130.4926	0.00	-2.01
6876	1541464.659	734130.446	0.00	-2.68
6877	1541466.66	734130.3995	0.00	-3.34
6878	1541468.66	734130.3528	0.00	-4.01
6879	1541470.661	734130.3062	0.00	-4.50
6880	1541472.661	734130.2595	0.00	-4.73
6881	1541474.661	734130.2128	0.00	-5.00
6882	1541476.662	734130.166	0.00	-5.10
6883	1541478.662	734130.1192	0.00	-5.32
6884	1541479.391	734131.8352	0.00	-5.09
6885	1541481.39	734131.7883	0.00	-5.28
6886	1541483.389	734131.7414	0.00	-5.46
6887	1541485.387	734131.6944	0.00	-5.63
6888	1541486.11	734133.4094	0.00	-5.52
6889	1541488.107	734133.3623	0.00	-5.36
6890	1541490.104	734133.3151	0.00	-5.19
6891	1541490.779	734135.0298	0.00	-4.95
6892	1541492.777	734134.9827	0.00	-4.52
6893	1541494.774	734134.9357	0.00	-4.31
6894	1541495.44	734136.6357	0.00	-4.16
6895	1541496.293	734138.2288	0.00	-4.09
6896	1541497.342	734139.7137	0.00	-3.99
6897	1541498.409	734141.2008	0.00	-3.87
6898	1541499.457	734142.7117	0.00	-3.73
6899	1541500.505	734144.2227	0.00	-3.56
6900	1541501.548	734145.7392	0.00	-3.23
6901	1541502.582	734147.2647	0.00	-2.89
6902	1541504.79	734147.191	0.00	-2.86
6903	1541505.802	734148.7496	0.00	-2.50
6904	1541508.055	734148.5959	0.00	-2.49
6905	1541509.145	734150.0476	0.00	-2.16
6906	1541510.983	734150.4601	0.00	-2.04
6907	1541512.582	734151.2012	0.00	-1.82
6908	1541514.114	734152.0373	0.00	-1.74
6909	1541515.705	734152.7869	0.00	-1.53
6910	1541517.43	734153.3429	0.00	-1.43
6911	1541519.086	734153.992	0.00	-1.20
6912	1541520.621	734154.8118	0.00	-1.05
6913	1541522.166	734155.6147	0.00	-0.81
6914	1541524.022	734155.9685	0.00	-0.62
6915	1541525.005	734157.5722	0.00	-0.34
6916	1541526.844	734157.9301	0.00	-0.09
6917	1541527.63	734159.7961	0.30	0.00
6918	1541528.49	734161.2546	0.57	0.00
6919	1541530.071	734162.072	0.57	0.00
6920	1541531.155	734163.9025	0.69	0.00
6921	1541532.448	734165.0864	0.40	0.00
6922	1541332.696	734172.4595	0.00	0.00
6923	1541332.672	734170.4589	0.00	0.00
6924	1541334.396	734169.7666	0.00	0.00
6925	1541336.124	734169.3662	0.00	0.00
6926	1541337.85	734168.8107	0.00	0.00
6927	1541339.574	734168.0607	0.00	0.00
6928	1541341.295	734167.0608	0.61	0.00
6929	1541343.013	734165.9052	0.10	0.00
6930	1541344.734	734165.0535	0.00	-1.02
6931	1541346.457	734164.2604	0.00	-1.45
6932	1541348.18	734163.559	0.00	-1.00
6933	1541349.901	734162.7407	0.00	-0.35
6934	1541351.624	734162.0482	0.00	0.00
6935	1541353.351	734161.7156	0.00	0.00
6936	1541355.077	734161.2585	0.00	0.00
6937	1541356.801	734160.7116	0.00	0.00
6938	1541358.524	734160.1662	0.00	0.00
6939	1541360.24	734159.077	0.00	0.00
6940	1541361.957	734158.1057	0.00	0.00
6941	1541363.679	734157.4861	0.00	0.00
6942	1541365.399	734156.595	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
6943	1541367.124	734156.0117	0.00	0.00
6944	1541368.848	734155.2615	0.00	0.00
6945	1541370.566	734154.0465	0.00	0.00
6946	1541372.282	734152.6939	0.00	0.00
6947	1541373.992	734151.0381	0.00	0.00
6948	1541375.699	734149.156	0.00	0.00
6949	1541377.406	734147.3425	0.00	0.00
6950	1541379.12	734145.7703	0.00	0.00
6951	1541379.049	734143.8059	0.00	0.00
6952	1541380.615	734142.4929	0.00	0.00
6953	1541382.486	734141.122	0.00	0.00
6954	1541384.45	734140.7362	0.00	0.00
6955	1541385.653	734139.1558	0.00	0.00
6956	1541387.63	734139.1431	0.00	0.00
6957	1541388.868	734137.3832	0.00	0.00
6958	1541390.24	734135.6215	0.00	0.00
6959	1541392.237	734135.5765	0.00	0.00
6960	1541393.429	734133.8178	0.00	0.00
6961	1541395.428	734133.7727	0.00	0.00
6962	1541397.427	734133.7274	0.00	0.00
6963	1541399.426	734133.6821	0.00	0.00
6964	1541401.424	734133.6367	0.00	0.00
6965	1541402.644	734131.8759	0.00	0.00
6966	1541404.644	734131.8304	0.00	0.00
6967	1541406.644	734131.7848	0.00	0.00
6968	1541408.645	734131.7391	0.00	0.00
6969	1541409.87	734129.9771	0.00	0.00
6970	1541411.872	734129.9313	0.00	0.00
6971	1541413.873	734129.8855	0.00	0.00
6972	1541415.875	734129.8396	0.00	0.00
6973	1541417.876	734129.7936	0.00	0.00
6974	1541419.878	734129.7477	0.00	0.00
6975	1541421.879	734129.7016	0.00	0.00
6976	1541423.881	734129.6556	0.00	0.00
6977	1541425.882	734129.6095	0.00	0.00
6978	1541427.884	734129.5634	0.00	0.00
6979	1541429.886	734129.5173	0.00	0.00
6980	1541431.887	734129.4712	0.00	0.00
6981	1541433.889	734129.425	0.00	0.00
6982	1541435.891	734129.3788	0.00	0.00
6983	1541437.892	734129.3326	0.00	0.00
6984	1541439.894	734129.2863	0.00	0.00
6985	1541441.896	734129.24	0.00	0.00
6986	1541443.897	734129.1937	0.00	0.00
6987	1541445.899	734129.1474	0.00	0.00
6988	1541447.9	734129.101	0.00	0.00
6989	1541449.902	734129.0547	0.00	0.00
6990	1541451.904	734129.0083	0.00	0.00
6991	1541453.905	734128.9619	0.00	0.00
6992	1541455.907	734128.9154	0.00	-0.30
6993	1541457.908	734128.8689	0.00	-0.82
6994	1541459.91	734128.8224	0.00	-1.33
6995	1541461.912	734128.7759	0.00	-1.88
6996	1541463.913	734128.7294	0.00	-2.55
6997	1541465.915	734128.6828	0.00	-3.23
6998	1541467.916	734128.6362	0.00	-3.90
6999	1541469.917	734128.5895	0.00	-4.52
7000	1541471.919	734128.5429	0.00	-4.87
7001	1541473.92	734128.4962	0.00	-5.17
7002	1541475.922	734128.4494	0.00	-5.29
7003	1541477.923	734128.4026	0.00	-5.47
7004	1541479.924	734128.3558	0.00	-5.54
7005	1541480.662	734130.0723	0.00	-5.33
7006	1541482.662	734130.0254	0.00	-5.48
7007	1541484.662	734129.9785	0.00	-5.65
7008	1541486.662	734129.9315	0.00	-5.54
7009	1541487.386	734131.6474	0.00	-5.45
7010	1541489.385	734131.6003	0.00	-5.28
7011	1541491.383	734131.5532	0.00	-4.98
7012	1541492.101	734133.268	0.00	-4.75
7013	1541494.097	734133.2206	0.00	-4.51
7014	1541496.094	734133.1735	0.00	-4.54
7015	1541496.773	734134.8887	0.00	-4.37
7016	1541497.521	734136.5489	0.00	-4.26
7017	1541498.499	734138.0826	0.00	-4.14
7018	1541499.568	734139.5751	0.00	-4.00
7019	1541500.623	734141.0878	0.00	-3.88
7020	1541501.676	734142.6012	0.00	-3.72
7021	1541502.724	734144.1205	0.00	-3.51
7022	1541503.763	734145.6497	0.00	-3.19
7023	1541505.958	734145.5674	0.00	-3.15
7024	1541506.974	734147.1294	0.00	-2.81
7025	1541509.216	734146.9639	0.00	-2.79
7026	1541510.303	734148.4263	0.00	-2.47
7027	1541512.134	734148.8319	0.00	-2.26
7028	1541513.731	734149.5696	0.00	-1.99
7029	1541515.262	734150.4017	0.00	-1.83
7030	1541516.851	734151.1494	0.00	-1.69
7031	1541518.574	734151.7045	0.00	-1.51

Node	X-Coordinate	Y-Coordinate	Fill	Cut
7032	1541520.231	734152.3535	0.00	-1.34
7033	1541521.765	734153.174	0.00	-1.15
7034	1541523.312	734153.9777	0.00	-0.92
7035	1541525.179	734154.3373	0.00	-0.65
7036	1541526.155	734155.9361	0.00	-0.38
7037	1541528.01	734156.3129	0.00	-0.10
7038	1541528.791	734158.1724	0.06	0.00
7039	1541529.724	734159.8407	0.21	0.00
7040	1541531.432	734160.3377	0.18	0.00
7041	1541531.918	734162.2527	0.39	0.00
7042	1541533.424	734163.3398	0.32	0.00
7043	1541332.648	734168.4583	0.00	0.00
7044	1541334.372	734167.7667	0.00	0.00
7045	1541336.1	734167.3653	0.00	0.00
7046	1541337.826	734166.8098	0.00	0.00
7047	1541339.55	734166.0602	0.00	0.00
7048	1541341.271	734165.0616	0.25	0.00
7049	1541342.989	734163.9056	0.19	0.00
7050	1541344.71	734163.0537	0.00	-0.90
7051	1541346.433	734162.2618	0.00	-1.58
7052	1541348.155	734161.5608	0.00	-1.13
7053	1541349.876	734160.7417	0.00	-0.48
7054	1541351.599	734160.0489	0.00	0.00
7055	1541353.327	734159.7162	0.00	0.00
7056	1541355.053	734159.2597	0.00	0.00
7057	1541356.777	734158.7153	0.00	0.00
7058	1541358.5	734158.171	0.00	0.00
7059	1541360.215	734157.0813	0.00	0.00
7060	1541361.932	734156.1082	0.00	0.00
7061	1541363.654	734155.4872	0.00	0.00
7062	1541365.375	734154.5947	0.00	0.00
7063	1541367.099	734154.0102	0.00	0.00
7064	1541368.823	734153.2602	0.00	0.00
7065	1541370.541	734152.0463	0.00	0.00
7066	1541372.256	734150.6951	0.00	0.00
7067	1541373.966	734149.0411	0.00	0.00
7068	1541375.673	734147.16	0.00	0.00
7069	1541377.374	734145.3459	0.00	0.00
7070	1541377.37	734143.3386	0.00	0.00
7071	1541378.893	734141.5822	0.00	0.00
7072	1541380.6	734140.846	0.00	0.00
7073	1541381.675	734139.2588	0.00	0.00
7074	1541383.618	734139.2202	0.00	0.00
7075	1541384.871	734137.4718	0.00	0.00
7076	1541386.873	734137.4235	0.00	0.00
7077	1541388.244	734135.6656	0.00	0.00
7078	1541389.432	734133.9077	0.00	0.00
7079	1541391.431	734133.8629	0.00	0.00
7080	1541392.643	734132.1027	0.00	0.00
7081	1541394.643	734132.0575	0.00	0.00
7082	1541396.643	734132.0123	0.00	0.00
7083	1541398.643	734131.9669	0.00	0.00
7084	1541400.644	734131.9214	0.00	0.00
7085	1541401.865	734130.1599	0.00	0.00
7086	1541403.866	734130.1143	0.00	0.00
7087	1541405.868	734130.0686	0.00	0.00
7088	1541407.869	734130.0229	0.00	0.00
7089	1541409.1	734128.2608	0.00	0.00
7090	1541411.102	734128.215	0.00	0.00
7091	1541413.103	734128.1691	0.00	0.00
7092	1541415.105	734128.1232	0.00	0.00
7093	1541417.107	734128.0772	0.00	0.00
7094	1541419.108	734128.0312	0.00	0.00
7095	1541421.11	734127.9852	0.00	0.00
7096	1541423.112	734127.9392	0.00	0.00
7097	1541425.114	734127.8931	0.00	0.00
7098	1541427.116	734127.847	0.00	0.00
7099	1541429.117	734127.8009	0.00	0.00
7100	1541431.119	734127.7547	0.00	0.00
7101	1541433.121	734127.7085	0.00	0.00
7102	1541435.123	734127.6623	0.00	0.00
7103	1541437.125	734127.6161	0.00	0.00
7104	1541439.127	734127.5698	0.00	0.00
7105	1541441.128	734127.5236	0.00	0.00
7106	1541443.13	734127.4773	0.00	0.00
7107	1541445.132	734127.4309	0.00	0.00
7108	1541447.134	734127.3846	0.00	0.00
7109	1541449.136	734127.3382	0.00	0.00
7110	1541451.138	734127.2919	0.00	0.00
7111	1541453.14	734127.2454	0.00	0.00
7112	1541455.141	734127.199	0.00	-0.21
7113	1541457.143	734127.1526	0.00	-0.72
7114	1541459.145	734127.1061	0.00	-1.23
7115	1541461.147	734127.0596	0.00	-1.75
7116	1541463.148	734127.0131	0.00	-2.43
7117	1541465.15	734126.9665	0.00	-3.11
7118	1541467.152	734126.9199	0.00	-3.79
7119	1541469.154	734126.8733	0.00	-4.44
7120	1541471.155	734126.8267	0.00	-4.93

Appendix C

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
7121	1541473.157	734126.78	0.00	-5.34
7122	1541487.16	734126.6868	0.00	-5.47
7123	1541497.16	734126.6868	0.00	-5.57
7124	1541503.963	734126.6868	0.00	-5.62
7125	1541485.925	734138.2088	0.00	-5.62
7126	1541468.832	734138.2152	0.00	-5.67
7127	1541485.162	734138.2152	0.00	-5.61
7128	1541488.162	734129.8844	0.00	-5.36
7129	1541491.162	734129.7988	0.00	-5.26
7130	1541492.662	734129.7988	0.00	-5.15
7131	1541494.662	734129.7988	0.00	-5.06
7134	1541495.38	734131.4586	0.00	-4.81
7135	1541497.162	734131.4586	0.00	-4.87
7136	1541498.09	734133.1263	0.00	-4.62
7137	1541485.05	734133.1263	0.00	-4.47
7138	1541499.162	734133.1263	0.00	-4.36
7139	1541500.662	734133.1263	0.00	-4.21
7140	1541501.773	734139.4535	0.00	-4.07
7141	1541502.662	734140.9685	0.00	-3.91
7142	1541502.662	734142.4897	0.00	-3.70
7143	1541504.16	734144.0218	0.00	-3.43
7144	1541507.11	734143.9331	0.00	-3.37
7145	1541508.129	734145.499	0.00	-3.08
7146	1541510.362	734145.3281	0.00	-3.01
7147	1541511.45	734146.7938	0.00	-2.68
7148	1541513.277	734147.197	0.00	-2.35
7149	1541514.873	734147.9329	0.00	-2.15
7150	1541516.405	734148.7628	0.00	-1.96
7151	1541517.995	734149.5104	0.00	-1.84
7152	1541519.719	734150.0663	0.00	-1.67
7153	1541521.377	734150.7169	0.00	-1.48
7154	1541522.915	734151.5404	0.00	-1.22
7155	1541524.467	734152.3475	0.00	-0.94
7156	1541526.34	734152.7111	0.00	-0.67
7157	1541527.325	734154.315	0.00	-0.37
7158	1541529.196	734154.703	0.00	-0.11
7159	1541529.974	734156.5607	0.00	0.00
7160	1541530.885	734158.2159	0.06	0.00
7161	1541532.654	734158.7418	0.03	0.00
7162	1541533.163	734160.9105	0.11	0.00
7163	1541534.663	734161.7716	0.00	-0.12
7164	1541332.624	734166.4577	0.00	0.00
7165	1541334.348	734165.7669	0.00	0.00
7166	1541336.076	734165.3643	0.00	0.00
7167	1541337.802	734164.8089	0.00	0.00
7168	1541339.526	734164.0597	0.00	0.00
7169	1541341.246	734163.0624	0.05	0.00
7170	1541342.965	734161.9061	0.00	-0.14
7171	1541344.686	734161.0539	0.00	-0.83
7172	1541346.408	734160.2633	0.00	-1.65
7173	1541348.131	734159.5626	0.00	-1.30
7174	1541349.852	734158.7427	0.00	-0.63
7175	1541351.575	734158.0497	0.00	0.00
7176	1541353.302	734157.7168	0.00	0.00
7177	1541355.028	734157.2609	0.00	0.00
7178	1541356.753	734156.719	0.00	0.00
7179	1541358.475	734156.1759	0.00	0.00
7180	1541360.19	734155.0856	0.00	0.00
7181	1541361.907	734154.1107	0.00	0.00
7182	1541363.629	734153.4883	0.00	0.00
7183	1541365.35	734152.5945	0.00	0.00
7184	1541367.074	734152.0088	0.00	0.00
7185	1541368.798	734151.259	0.00	0.00
7186	1541370.516	734150.0462	0.00	0.00
7187	1541372.231	734148.6963	0.00	0.00
7188	1541373.941	734147.045	0.00	0.00
7189	1541375.647	734145.1626	0.00	0.00
7190	1541375.623	734143.1993	0.00	0.00
7191	1541377.033	734141.2654	0.00	0.00
7192	1541377.808	734139.4586	0.00	0.00
7193	1541379.684	734139.386	0.00	0.00
7194	1541380.87	734137.5644	0.00	0.00
7195	1541382.876	734137.5091	0.00	0.00
7196	1541384.25	734135.7544	0.00	0.00
7197	1541386.246	734135.7109	0.00	0.00
7198	1541387.433	734133.9527	0.00	0.00
7199	1541388.643	734132.1928	0.00	0.00
7200	1541390.643	734132.1478	0.00	0.00
7201	1541391.86	734130.3869	0.00	0.00
7202	1541393.861	734130.3417	0.00	0.00
7203	1541395.862	734130.2963	0.00	0.00
7204	1541397.863	734130.2509	0.00	0.00
7205	1541399.864	734130.2054	0.00	0.00
7206	1541401.094	734128.4437	0.00	0.00
7207	1541403.095	734128.398	0.00	0.00
7208	1541405.097	734128.3523	0.00	0.00
7209	1541407.098	734128.3066	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
7210	1541408.346	734126.5451	0.00	0.00
7211	1541410.346	734126.4993	0.00	0.00
7212	1541412.347	734126.4534	0.00	0.00
7213	1541414.347	734126.4075	0.00	0.00
7214	1541416.347	734126.3616	0.00	0.00
7215	1541418.348	734126.3156	0.00	0.00
7216	1541420.348	734126.2696	0.00	0.00
7217	1541422.349	734126.2236	0.00	0.00
7218	1541424.35	734126.1775	0.00	0.00
7219	1541426.35	734126.1315	0.00	0.00
7220	1541428.351	734126.0853	0.00	0.00
7221	1541430.351	734126.0392	0.00	0.00
7222	1541432.352	734125.9931	0.00	0.00
7223	1541434.353	734125.9469	0.00	0.00
7224	1541436.353	734125.9007	0.00	0.00
7225	1541438.354	734125.8545	0.00	0.00
7226	1541440.354	734125.8082	0.00	0.00
7227	1541442.355	734125.762	0.00	0.00
7228	1541444.356	734125.7157	0.00	0.00
7229	1541446.356	734125.6694	0.00	0.00
7230	1541448.357	734125.6231	0.00	0.00
7231	1541450.358	734125.5767	0.00	0.00
7232	1541452.358	734125.5304	0.00	0.00
7233	1541454.359	734125.484	0.00	-0.14
7234	1541456.359	734125.4376	0.00	-0.63
7235	1541458.36	734125.3911	0.00	-1.14
7236	1541460.36	734125.3447	0.00	-1.65
7237	1541462.361	734125.2982	0.00	-2.31
7238	1541464.361	734125.2517	0.00	-3.00
7239	1541466.362	734125.2052	0.00	-3.68
7240	1541468.362	734125.1587	0.00	-4.35
7241	1541470.363	734125.1121	0.00	-4.91
7242	1541472.363	734125.0655	0.00	-5.48
7243	1541474.364	734125.0189	0.00	-5.72
7244	1541476.364	734124.9722	0.00	-5.98
7245	1541478.364	734124.9255	0.00	-6.12
7246	1541480.364	734124.8788	0.00	-6.22
7247	1541482.365	734124.832	0.00	-6.31
7248	1541483.164	734126.5461	0.00	-5.92
7249	1541485.165	734126.4992	0.00	-5.97
7250	1541487.167	734126.4523	0.00	-6.08
7251	1541489.168	734126.4052	0.00	-6.12
7252	1541489.93	734128.121	0.00	-5.66
7253	1541491.931	734128.0738	0.00	-5.68
7254	1541493.932	734128.0266	0.00	-5.62
7255	1541494.662	734129.7429	0.00	-5.22
7256	1541496.662	734129.6955	0.00	-5.18
7257	1541498.662	734129.6481	0.00	-5.22
7258	1541499.377	734131.3638	0.00	-4.96
7259	1541500.088	734133.0788	0.00	-4.74
7260	1541500.866	734134.7435	0.00	-4.57
7261	1541501.847	734136.2952	0.00	-4.46
7262	1541502.91	734137.8099	0.00	-4.30
7263	1541503.973	734139.3263	0.00	-4.12
7264	1541505.03	734140.8494	0.00	-3.90
7265	1541506.077	734142.3839	0.00	-3.68
7266	1541508.251	734142.2906	0.00	-3.66
7267	1541509.273	734143.8602	0.00	-3.29
7268	1541511.497	734143.6855	0.00	-3.09
7269	1541512.587	734145.1548	0.00	-2.75
7270	1541514.411	734145.5566	0.00	-2.45
7271	1541516.008	734146.2915	0.00	-2.32
7272	1541517.542	734147.1199	0.00	-2.16
7273	1541519.133	734147.8677	0.00	-2.00
7274	1541520.856	734148.4236	0.00	-1.78
7275	1541522.514	734149.0746	0.00	-1.50
7276	1541524.054	734149.9011	0.00	-1.26
7277	1541525.609	734150.7103	0.00	-1.01
7278	1541527.474	734151.0679	0.00	-0.74
7279	1541528.483	734152.6873	0.00	-0.42
7280	1541530.342	734153.0751	0.00	-0.16
7281	1541531.181	734154.9538	0.00	-0.02
7282	1541532.107	734156.6022	0.00	-0.04
7283	1541533.847	734157.1568	0.00	-0.04
7284	1541534.38	734159.3414	0.01	0.00
7285	1541535.913	734160.2094	0.00	-0.16
7286	1541332.6	734164.457	0.00	0.00
7287	1541334.324	734163.767	0.00	0.00
7288	1541336.052	734163.3634	0.00	0.00
7289	1541337.778	734162.808	0.00	0.00
7290	1541339.502	734162.0592	0.00	0.00
7291	1541341.222	734161.0633	0.00	-0.01
7292	1541342.941	734159.9065	0.00	-0.39
7293	1541344.662	734159.0541	0.00	-0.77
7294	1541346.384	734158.2648	0.00	-1.56
7295	1541348.107	734157.5645	0.00	-1.51
7296	1541349.828	734156.7437	0.00	-0.80
7297	1541351.551	734156.0505	0.00	-0.10
7298	1541353.278	734155.7176	0.00	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
7299	1541355.004	734155.2621	0.00	0.00
7300	1541356.728	734154.7228	0.00	0.00
7301	1541358.451	734154.1808	0.00	0.00
7302	1541360.166	734153.09	0.00	0.00
7303	1541361.882	734152.1132	0.00	0.00
7304	1541363.604	734151.4896	0.00	0.00
7305	1541365.324	734150.5944	0.00	0.00
7306	1541367.049	734150.0074	0.00	0.00
7307	1541368.773	734149.2578	0.00	0.00
7308	1541370.49	734148.046	0.00	0.00
7309	1541372.205	734146.6979	0.00	0.00
7310	1541373.912	734145.0483	0.00	0.00
7311	1541373.862	734143.0826	0.00	0.00
7312	1541375.369	734141.4014	0.00	0.00
7313	1541375.715	734139.3973	0.00	0.00
7314	1541376.938	734137.6116	0.00	0.00
7315	1541378.882	734137.6124	0.00	0.00
7316	1541380.257	734135.8444	0.00	0.00
7317	1541382.252	734135.7997	0.00	0.00
7318	1541383.437	734134.042	0.00	0.00
7319	1541385.435	734133.9971	0.00	0.00
7320	1541386.644	734132.2377	0.00	0.00
7321	1541387.858	734130.4771	0.00	0.00
7322	1541389.859	734130.432	0.00	0.00
7323	1541391.088	734128.6708	0.00	0.00
7324	1541393.089	734128.6255	0.00	0.00
7325	1541395.09	734128.5802	0.00	0.00
7326	1541397.091	734128.5347	0.00	0.00
7327	1541399.093	734128.4892	0.00	0.00
7328	1541400.345	734126.7279	0.00	0.00
7329	1541402.345	734126.6823	0.00	0.00
7330	1541404.345	734126.6366	0.00	0.00
7331	1541406.345	734126.5909	0.00	0.00
7332	1541407.554	734124.8312	0.00	0.00
7333	1541409.553	734124.7853	0.00	0.00
7334	1541411.552	734124.7395	0.00	0.00
7335	1541413.551	734124.6936	0.00	0.00
7336	1541415.55	734124.6477	0.00	0.00
7337	1541417.549	734124.6017	0.00	0.00
7338	1541419.548	734124.5558	0.00	0.00
7339	1541421.548	734124.5098	0.00	0.00
7340	1541423.547	734124.4637	0.00	0.00
7341	1541425.546	734124.4177	0.00	0.00
7342	1541427.545	734124.3716	0.00	0.00
7343	1541429.544	734124.3255	0.00	0.00
7344	1541431.543	734124.2794	0.00	0.00
7345	1541433.543	734124.2332	0.00	0.00
7346	1541435.542	734124.1871	0.00	0.00
7347	1541437.541	734124.1409	0.00	0.00
7348	1541439.54	734124.0947	0.00	0.00
7349	1541441.54	734124.0485	0.00	0.00
7350	1541443.539	734124.0022	0.00	0.00
7351	1541445.538	734123.956	0.00	0.00
7352	1541447.537	734123.9097	0.00	0.00
7353	1541449.536	734123.8634	0.00	0.00
7354	1541451.536	734123.8171	0.00	0.00
7355	1541453.535	734123.7707	0.00	-0.12
7356	1541455.534	734123.7244	0.00	-0.64
7357	1541457.533	734123.678	0.00	-1.11
7358	1541459.532	734123.6316	0.00	-1.60
7359	1541461.532	734123.5852	0.00	-2.24
7360	1541463.531	734123.5388	0.00	-2.89
7361	1541465.53	734123.4923	0.00	-3.57
7362	1541467.529	734123.4458	0.00	-4.26
7363	1541469.528	734123.3993	0.00	-4.89
7364	1541471.527	734123.3528	0.00	-5.53
7365	1541473.526	734123.3063	0.00	-5.96
7366	1541475.525	734123.2597	0.00	-6.27
7367	1541477.524	734123.2131	0.00	-6.43
7368	1541479.523	734123.1664	0.00	-6.25
7369	1541481.521	734123.1197	0.00	-6.53
7370	1541483.52	734123.073	0.00	-6.75
7371	1541484.365	734124.7852	0.00	-6.38
7372	1541486.365	734124.7383	0.00	-6.44
7373	1541488.365	734124.6914	0.00	-6.65
7374	1541490.365	734124.6445	0.00	-6.72
7375	1541491.169	734126.3582	0.00	-6.28
7376	1541493.17	734126.3111	0.00	-6.22
7377	1541495.171	734126.2639	0.00	-6.12
7378	1541495.932	734127.9794	0.00	-5.66
7379	1541497.933	734127.932	0.00	-5.61
7380	1541499.934	734127.8845	0.00	-5.65
7381	1541500.661	734129.6005	0.00	-5.33
7382	1541501.375	734131.3163	0.00	-5.05
7383	1541502.104	734133.019	0.00	-4.84
7384	1541502.992	734134.6346	0.00	-4.67
7385	1541504.036	734136.16	0.00	-4.54
7386	1541505.103	734137.6765	0.00	-4.38
7387	1541506.164	734139.2009	0.00	-4.09

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
7388	1541507.215	734140.7378	0.00	-3.84
7389	1541509.381	734140.6405	0.00	-3.46
7390	1541510.406	734142.2141	0.00	-3.28
7391	1541512.622	734142.0353	0.00	-2.87
7392	1541513.715	734143.5089	0.00	-2.69
7393	1541515.535	734143.909	0.00	-2.60
7394	1541517.13	734144.6423	0.00	-2.52
7395	1541518.666	734145.4686	0.00	-2.34
7396	1541520.256	734146.2152	0.00	-2.08
7397	1541521.974	734146.7683	0.00	-1.88
7398	1541523.628	734147.4171	0.00	-1.62
7399	1541525.164	734148.2434	0.00	-1.35
7400	1541526.716	734149.0502	0.00	-1.08
7401	1541528.561	734149.3934	0.00	-0.82
7402	1541529.589	734151.0269	0.00	-0.50
7403	1541531.422	734151.402	0.00	-0.25
7404	1541532.299	734153.3146	0.00	-0.01
7405	1541533.502	734154.8854	0.00	-0.01
7406	1541535.111	734155.851	0.00	-0.03
7407	1541535.629	734157.776	0.00	-0.06
7408	1541537.149	734158.6364	0.00	-0.58
7409	1541332.576	734162.4564	0.00	0.00
7410	1541334.3	734161.7672	0.00	0.00
7411	1541336.028	734161.3625	0.00	0.00
7412	1541337.754	734160.8072	0.00	0.00
7413	1541339.478	734160.0587	0.00	0.00
7414	1541341.198	734159.0641	0.00	0.00
7415	1541342.916	734157.9071	0.00	-0.41
7416	1541344.638	734157.0544	0.00	-0.89
7417	1541346.36	734156.2663	0.00	-1.57
7418	1541348.083	734155.5665	0.00	-1.78
7419	1541349.804	734154.7448	0.00	-1.01
7420	1541351.526	734154.0514	0.00	-0.12
7421	1541353.254	734153.7184	0.00	0.00
7422	1541354.979	734153.2635	0.00	0.00
7423	1541356.703	734152.7266	0.00	0.00
7424	1541358.426	734152.1858	0.00	0.00
7425	1541360.141	734151.0945	0.00	0.00
7426	1541361.857	734150.1159	0.00	0.00
7427	1541363.579	734149.4909	0.00	0.00
7428	1541365.299	734148.5943	0.00	0.00
7429	1541367.024	734148.0061	0.00	0.00
7430	1541368.747	734147.2569	0.00	0.00
7431	1541370.464	734146.0468	0.00	0.00
7432	1541372.174	734144.7024	0.00	0.00
7433	1541372.153	734142.7005	0.00	0.00
7434	1541373.845	734141.0466	0.00	0.00
7435	1541373.809	734139.1227	0.00	0.00
7436	1541375.185	734137.443	0.00	0.00
7437	1541376.309	734135.8637	0.00	0.00
7438	1541378.268	734135.8852	0.00	0.00
7439	1541379.442	734134.1303	0.00	0.00
7440	1541381.438	734134.0862	0.00	0.00
7441	1541382.644	734132.3271	0.00	0.00
7442	1541384.644	734132.2825	0.00	0.00
7443	1541385.857	734130.522	0.00	0.00
7444	1541387.085	734128.7611	0.00	0.00
7445	1541389.086	734128.716	0.00	0.00
7446	1541390.345	734126.9551	0.00	0.00
7447	1541392.345	734126.9098	0.00	0.00
7448	1541394.344	734126.8645	0.00	0.00
7449	1541396.345	734126.819	0.00	0.00
7450	1541398.345	734126.7735	0.00	0.00
7451	1541399.559	734125.0139	0.00	0.00
7452	1541401.558	734124.9683	0.00	0.00
7453	1541403.557	734124.9226	0.00	0.00
7454	1541405.555	734124.8769	0.00	0.00
7455	1541406.514	734123.1243	0.00	0.00
7456	1541408.512	734123.0785	0.00	0.00
7457	1541410.509	734123.0327	0.00	0.00
7458	1541412.507	734122.9868	0.00	0.00
7459	1541414.505	734122.9409	0.00	0.00
7460	1541416.502	734122.895	0.00	0.00
7461	1541418.5	734122.849	0.00	0.00
7462	1541420.498	734122.803	0.00	0.00
7463	1541422.496	734122.757	0.00	0.00
7464	1541424.494	734122.711	0.00	0.00
7465	1541426.491	734122.665	0.00	0.00
7466	1541428.489	734122.6189	0.00	0.00
7467	1541430.487	734122.5728	0.00	0.00
7468	1541432.485	734122.5267	0.00	0.00
7469	1541434.483	734122.4805	0.00	0.00
7470	1541436.481	734122.4344	0.00	0.00
7471	1541438.479	734122.3882	0.00	0.00
7472	1541440.476	734122.3421	0.00	0.00
7473	1541442.474	734122.2959	0.00	0.00
7474	1541444.472	734122.2496	0.00	0.00
7475	1541446.47	734122.2034	0.00	0.00
7476	1541448.468	734122.1572	0.00	0.00

Appendix C

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
7477	1541450.466	734122.1109	0.00	0.00
7478	1541451.162	734122.0167	0.00	0.00
7479	1541451.859	734121.9225	0.00	0.00
7480	1541452.555	734121.8284	0.00	-0.16
7481	1541453.251	734121.7342	0.00	-0.31
7482	1541454.948	734121.6401	0.00	-0.47
7483	1541454.644	734121.5459	0.00	-0.62
7484	1541455.340	734121.4518	0.00	-0.78
7485	1541472.441	734121.6007	0.00	-6.01
7486	1541473.137	734121.5065	0.00	-6.06
7487	1541473.833	734121.4124	0.00	-6.12
7488	1541474.529	734121.3182	0.00	-6.17
7489	1541475.225	734121.2241	0.00	-6.23
7490	1541476.437	734121.5077	0.00	-6.55
7491	1541477.133	734121.4135	0.00	-6.36
7492	1541480.432	734121.4145	0.00	-6.26
7493	1541481.128	734121.3203	0.00	-6.58
7494	1541481.824	734121.2262	0.00	-6.89
7495	1541482.520	734121.1320	0.00	-6.83
7496	1541487.517	734122.9794	0.00	-6.89
7497	1541487.213	734122.9326	0.00	-7.18
7498	1541487.909	734122.8857	0.00	-7.31
7499	1541488.605	734124.5974	0.00	-6.83
7500	1541494.364	734124.5504	0.00	-6.77
7501	1541496.364	734124.5032	0.00	-6.62
7502	1541497.172	734126.2166	0.00	-6.11
7503	1541499.173	734126.1692	0.00	-6.06
7504	1541501.174	734126.1218	0.00	-6.00
7505	1541501.934	734127.837	0.00	-5.73
7506	1541502.661	734129.553	0.00	-5.43
7507	1541503.374	734131.2689	0.00	-5.16
7508	1541504.166	734132.9387	0.00	-4.92
7509	1541505.153	734134.501	0.00	-4.58
7510	1541506.222	734136.0193	0.00	-4.25
7511	1541507.287	734137.5449	0.00	-3.95
7512	1541508.341	734139.0841	0.00	-3.69
7513	1541510.499	734138.983	0.00	-3.25
7514	1541511.528	734140.5604	0.00	-3.06
7515	1541513.734	734140.3773	0.00	-2.62
7516	1541514.829	734141.8547	0.00	-2.60
7517	1541516.644	734142.2522	0.00	-2.60
7518	1541518.238	734142.983	0.00	-2.60
7519	1541519.772	734143.8059	0.00	-2.48
7520	1541521.358	734144.5494	0.00	-2.23
7521	1541523.07	734145.098	0.00	-1.99
7522	1541524.717	734145.7428	0.00	-1.72
7523	1541526.247	734146.566	0.00	-1.45
7524	1541527.789	734147.3668	0.00	-1.18
7525	1541529.62	734147.6981	0.00	-0.95
7526	1541530.645	734149.3324	0.00	-0.61
7527	1541532.446	734149.6827	0.00	-0.40
7528	1541533.328	734151.6018	0.00	0.00
7529	1541534.531	734152.9798	0.01	0.00
7530	1541535.856	734154.1936	0.00	-0.01
7531	1541537.013	734156.0327	0.00	-0.02
7532	1541538.355	734157.0426	0.00	-0.71
7533	1541332.552	734160.4558	0.00	0.00
7534	1541334.276	734159.7673	0.00	0.00
7535	1541336.004	734159.3616	0.00	0.00
7536	1541337.73	734158.8063	0.00	0.00
7537	1541339.454	734158.0583	0.00	0.00
7538	1541341.174	734157.065	0.00	0.00
7539	1541342.892	734155.9076	0.00	-0.35
7540	1541344.613	734155.0547	0.00	-0.90
7541	1541346.336	734154.2679	0.00	-1.72
7542	1541348.059	734153.5685	0.00	-2.12
7543	1541349.779	734152.746	0.00	-1.22
7544	1541351.502	734152.0524	0.00	-0.13
7545	1541353.229	734151.7192	0.00	0.00
7546	1541354.955	734151.2649	0.00	0.00
7547	1541356.679	734150.7306	0.00	0.00
7548	1541358.401	734150.1909	0.00	0.00
7549	1541360.116	734149.0991	0.00	0.00
7550	1541361.832	734148.1186	0.00	0.00
7551	1541363.554	734147.4923	0.00	0.00
7552	1541365.274	734146.5943	0.00	0.00
7553	1541366.998	734146.0049	0.00	0.00
7554	1541368.722	734145.2557	0.00	0.00
7555	1541370.439	734144.0459	0.00	0.00
7556	1541370.412	734142.0467	0.00	0.00
7557	1541372.118	734140.7073	0.00	0.00
7558	1541372.053	734138.7373	0.00	0.00
7559	1541373.585	734137.4496	0.00	0.00
7560	1541374.162	734135.8224	0.00	0.00
7561	1541375.478	734134.2179	0.00	0.00
7562	1541377.452	734134.1661	0.00	0.00
7563	1541378.646	734132.4144	0.00	0.00
7564	1541380.645	734132.3715	0.00	0.00
7565	1541381.856	734130.6115	0.00	0.00
7566	1541383.856	734130.5668	0.00	0.00
7567	1541385.084	734128.806	0.00	0.00
7568	1541386.345	734127.0453	0.00	0.00
7569	1541388.345	734127.0003	0.00	0.00
7570	1541389.566	734125.2411	0.00	0.00
7571	1541391.564	734125.1958	0.00	0.00
7572	1541393.563	734125.1504	0.00	0.00
7573	1541395.562	734125.105	0.00	0.00
7574	1541397.56	734125.0595	0.00	0.00
7575	1541398.524	734123.3071	0.00	0.00
7576	1541400.522	734123.2614	0.00	0.00
7577	1541402.519	734123.2158	0.00	0.00
7578	1541404.517	734123.1701	0.00	0.00
7579	1541405.224	734121.4243	0.00	0.00
7580	1541407.219	734121.3785	0.00	0.00
7581	1541409.215	734121.3327	0.00	0.00
7582	1541411.211	734121.2869	0.00	0.00
7583	1541413.206	734121.241	0.00	0.00
7584	1541415.202	734121.1951	0.00	0.00
7585	1541417.198	734121.1492	0.00	0.00
7586	1541419.194	734121.1033	0.00	0.00
7587	1541421.19	734121.0573	0.00	0.00
7588	1541423.186	734121.0113	0.00	0.00
7589	1541425.182	734120.9653	0.00	0.00
7590	1541427.178	734120.9193	0.00	0.00
7591	1541429.174	734120.8732	0.00	0.00
7592	1541431.17	734120.8272	0.00	0.00
7593	1541433.166	734120.7811	0.00	0.00
7594	1541435.162	734120.735	0.00	0.00
7595	1541437.158	734120.6889	0.00	0.00
7596	1541439.154	734120.6427	0.00	0.00
7597	1541441.15	734120.5966	0.00	0.00
7598	1541443.146	734120.5504	0.00	0.00
7599	1541445.142	734120.5042	0.00	0.00
7600	1541447.138	734120.458	0.00	0.00
7601	1541449.134	734120.4118	0.00	0.00
7602	1541451.13	734120.3656	0.00	-0.07
7603	1541453.126	734120.3194	0.00	-0.56
7604	1541455.122	734120.2731	0.00	-1.04
7605	1541457.118	734120.2269	0.00	-1.55
7606	1541459.113	734120.1806	0.00	-2.11
7607	1541461.109	734120.1343	0.00	-2.71
7608	1541463.105	734120.088	0.00	-3.34
7609	1541465.101	734120.0416	0.00	-3.97
7610	1541467.097	734119.9953	0.00	-4.66
7611	1541469.093	734119.9489	0.00	-5.38
7612	1541471.089	734119.9025	0.00	-6.01
7613	1541473.084	734119.8561	0.00	-6.63
7614	1541475.08	734119.8096	0.00	-6.68
7615	1541477.076	734119.7632	0.00	-6.50
7616	1541479.072	734119.7167	0.00	-6.32
7617	1541481.067	734119.6701	0.00	-6.25
7618	1541483.063	734119.6236	0.00	-6.57
7619	1541485.058	734119.577	0.00	-6.88
7620	1541486.424	734121.2745	0.00	-7.21
7621	1541488.421	734121.2278	0.00	-7.33
7622	1541490.418	734121.181	0.00	-7.53
7623	1541492.415	734121.1341	0.00	-7.58
7624	1541493.513	734122.8387	0.00	-7.38
7625	1541495.511	734122.7917	0.00	-7.04
7626	1541497.51	734122.7446	0.00	-6.71
7627	1541498.364	734124.456	0.00	-6.54
7628	1541500.364	734124.4087	0.00	-6.20
7629	1541502.363	734124.3613	0.00	-5.88
7630	1541503.175	734126.0742	0.00	-5.68
7631	1541503.935	734127.7893	0.00	-5.44
7632	1541504.659	734129.5055	0.00	-5.19
7633	1541505.392	734131.2097	0.00	-4.82
7634	1541506.285	734132.8297	0.00	-4.46
7635	1541507.334	734134.3582	0.00	-4.09
7636	1541508.401	734135.8831	0.00	-3.75
7637	1541509.457	734137.4235	0.00	-3.47
7638	1541511.609	734137.3194	0.00	-3.01
7639	1541512.638	734138.8995	0.00	-2.81
7640	1541514.838	734138.7133	0.00	-2.60
7641	1541515.933	734140.1931	0.00	-2.60
7642	1541517.743	734140.5881	0.00	-2.60
7643	1541519.334	734141.8158	0.00	-2.60
7644	1541520.866	734142.1344	0.00	-2.60
7645	1541522.448	734142.8745	0.00	-2.35
7646	1541524.154	734143.4199	0.00	-2.09
7647	1541525.796	734144.0617	0.00	-1.84
7648	1541527.32	734144.8817	0.00	-1.60
7649	1541528.856	734145.6776	0.00	-1.30
7650	1541530.687	734146.0074	0.00	-1.17
7651	1541531.693	734147.6306	0.00	-0.82
7652	1541533.497	734147.9762	0.00	-0.52
7653	1541534.32	734149.8829	0.00	-0.10
7654	1541535.538	734151.2532	0.00	0.00
7655	1541536.833	734152.4387	0.00	0.00
7656	1541537.903	734154.0651	0.01	0.00
7657	1541539.337	734155.301	0.00	-0.55
7658	1541332.528	734158.4552	0.00	0.00
7659	1541334.252	734157.7675	0.00	0.00
7660	1541335.98	734157.3607	0.00	0.00
7661	1541337.706	734156.8055	0.00	0.00
7662	1541339.43	734156.0579	0.00	0.00
7663	1541341.15	734155.066	0.00	0.00
7664	1541342.868	734153.9082	0.00	-0.29
7665	1541344.589	734153.0551	0.00	-0.97
7666	1541346.312	734152.2696	0.00	-1.87
7667	1541348.034	734151.5706	0.00	-2.45
7668	1541349.755	734150.7473	0.00	-1.39
7669	1541351.477	734150.0534	0.00	0.00
7670	1541353.204	734149.7202	0.00	0.00
7671	1541354.93	734149.2665	0.00	0.00
7672	1541356.654	734148.7346	0.00	0.00
7673	1541358.377	734148.196	0.00	0.00
7674	1541360.091	734147.1038	0.00	0.00
7675	1541361.807	734146.1215	0.00	0.00
7676	1541363.529	734145.4938	0.00	0.00
7677	1541365.249	734144.5944	0.00	0.00
7678	1541366.973	734144.0038	0.00	0.00
7679	1541368.696	734143.2548	0.00	0.00
7680	1541368.669	734141.2548	0.00	0.00
7681	1541370.379	734140.0519	0.00	0.00
7682	1541370.359	734138.0463	0.00	0.00
7683	1541372.121	734136.7404	0.00	0.00
7684	1541371.999	734134.6777	0.00	0.00
7685	1541373.668	734134.0945	0.00	0.00
7686	1541374.668	734132.4721	0.00	0.00
7687	1541376.648	734132.4589	0.00	0.00
7688	1541377.855	734130.7003	0.00	0.00
7689	1541379.855	734130.6557	0.00	0.00
7690	1541381.083	734128.8955	0.00	0.00
7691	1541383.084	734128.8508	0.00	0.00
7692	1541384.345	734127.0903	0.00	0.00
7693	1541385.569	734125.3313	0.00	0.00
7694	1541387.568	734125.2863	0.00	0.00
7695	1541388.538	734123.5342	0.00	0.00
7696	1541390.535	734123.4889	0.00	0.00
7697	1541392.533	734123.4435	0.00	0.00
7698	1541394.53	734123.3981	0.00	0.00
7699	1541396.527	734123.3526	0.00	0.00
7700	1541397.241	734121.6069	0.00	0.00
7701	1541399.237	734121.5614	0.00	0.00
7702	1541401.232	734121.5157	0.00	0.00
7703	1541403.228	734121.47	0.00	0.00
7710	1541416.192	734119.4431	0.00	0.00
7711	1541418.188	734119.3972	0.00	0.00
7712	1541420.183	734119.3512	0.00	0.00
7713	1541422.178	734119.3053	0.00	0.00
7714	1541424.174	734119.2593	0.00	0.00
7715	1541426.169	734119.2132	0.00	0.00
7716	1541428.165	734119.1672	0.00	0.00
7717	1541430.16	734119.1211	0.00	0.00
7718	1541432.155	734119.0751	0.00	0.00
7719	1541434.151	734119.029	0.00	0.00
7720	1541436.146	734118.9829	0.00	0.00
7721	1541438.142	734118.9368	0.00	0.00
7722	1541440.137	734118.8906	0.00	0.00
7723	1541442.133	734118.8445	0.00	0.00
7724	1541444.128	734118.7983	0.00	0.00
7725	1541446.124	734118.7522	0.00	0.00
7726	1541448.119	734118.706	0.00	0.00
7727	1541450.114	734118.6598	0.00	-0.08
7728	1541452.11	734118.6136	0.00	-0.72
7729	1541454.105	734118.5674	0.00	-1.28
7730	1541456.101	734118.5211	0.00	-1.73
7731	1541458.096	734118.4749	0.00	-2.24
7732	1541460.091	734118.4286	0.00	-2.81
7733	1541462.087	734118.3823	0.00	-3.39
7734	1541464.082	734118.336	0.00	-4.01
7735	1541466.077	734118.2897	0.00	-4.69
7736	1541468.073	734118.2434	0.00	-5.41
7737	1541470.068	734118.197	0.00	-6.10
7738	1541472.063	734118.1507	0.00	-6.71
7739	1541474.058	734118.1043	0.00	-6.70
7740	1541476.054	734118.0579	0.00	-6.60
7741	1541478.049	734118.0114	0.00	-6.42
7742	1541480.044	734117.965	0.00	-6.24
7743	1541482.039	734117.9185	0.00	-6.29
7744	1541484.034	734117.872	0.00	-6.61
7745	1541486.029	734117.8254	0.00	-6.92
7746	1541487.054	734119.5304	0.00	-7.20
7747	1541489.049	734119.4837	0.00	-7.51
7748	1541491.044	734119.437	0.00	-7.81
7749	1541493.04	734119.3902	0.00	-7.51
7750	1541494.413	734121.0872	0.00	-7.26
7751	1541496.41	734121.0403	0.00	-6.94
7752	1541498.406	734120.9933	0.00	-6.64
7753	1541499.508	734122.6974	0.00	-6.41
7754	1541501.506	734122.6502	0.00	-6.10
7755	1541503.504	734122.6028	0.00	-5.80
7756	1541504.363	734124.3138	0.00	-5.58
7757	1541505.176	734126.0266	0.00	-5.36
7758	1541505.935	734127.7417	0.00	-5.06
7759	1541506.66	734129.4577	0.00	-4.68
7760	1541507.453	734131.1285	0.00	-4.32
7761	1541508.442	734132.6921	0.00	-3.92
7762	1541509.509	734134.2172	0.00	-3.56
7763	1541510.566	734135.7578	0.00	-3.26
7764	1541512.714	734135.6528	0.00	-2.76
7765	1541513.743	734137.2341	0.00	-2.60
7766	1541515.939	734137.0474	0.00	-2.60
7767	1541517.031	734138.5278	0.00	-2.60
7768	1541518.839	734138.9219	0.00	-2.60
7769	1541520.429	734139.6472	0.00	-2.60
7770	1541521.96	734140.4621	0.00	-2.60
7771	1541523.54	734141.2003	0.00	-2.46
7772	1541525.246	734141.7457	0.00	-2.24
7773	1541526.888	734142.3878	0.00	-2.00
7774	1541528.41	734143.2072	0.00	-1.78
7775	1541529.946	734144.0025	0.00	-1.59
7776	1541531.791	734144.3403	0.00	-1.36
7777	1541532.776	734145.95	0.00	-0.98
7778	1541534.599	734146.3036	0.00	-0.65
7779	1541535.391	734148.1663	0.00	-0.21
7780	1541536.265	734149.6085	0.01	0.00
7781	1541537.821	734150.4673	0.00	0.00
7782	1541538.839	734152.2585	0.01	0.00
7783	1541540.001	734153.4139	0.00	-0.04
7784	1541332.504	734156.4546	0.00	0.00
7785	1541334.228	734155.7676	0.00	0.00
7786	1541335.956	734155.3599	0.00	0.00
7787	1541337.682	734154.8047	0.00	0.00
7788	1541339.406	734154.0575	0.00	0.00
7789	1541341.126	734153.067	0.00	0.00
7790	1541342.844	734151.9089	0.00	-0.23
7791	1541344.565	734151.0555	0.00	-1.00
7792	1541346.287	734150.2713	0.00	-1.95
7793	1541348.01	734149.5728	0.00	-2.71
7794	1541349.73	734148.7487	0.00	-1.50
7795	1541351.453	734148.0546	0.00	0.00
7796	1541353.18	734147.7213	0.00	0.00
7797	1541354.905	734147.2681	0.00	0.00
7798	1541356.629	734146.7387	0.00	0.00
7799	1541358.352	734146.2013	0.00	0.00
7800	1541360.066	734145.1085	0.00	0.00
7801	1541361.782	734144.1244	0.00	0.00
7802	1541363.504	734143.4954	0.00	0.00
7803	1541365.223	734142.5947	0.00	0.00
7804	1541366.947	734142.0028	0.00	0.00
7805	1541366.921	734140.0017	0.00	0.00
7806	1541368.644	734139.2532	0.00	0.00
7807	1541368.617	734137.2528	0.00	0.00
7808	1541370.343	734136.0713	0.00	0.00
7809	1541370.15	734134.282	0.00	0.00
7810	1541370.658	734132.589	0.00	0.00
7811	1541372.673	734132.5884	0.00	0.00
7812	1541373.853	734130.7878	0.00	0.00
7813	1541375.857	734130.7399	0.00	0.00
7814	1541377.082	734128.9837	0.00	0.00
7815	1541379.082	734128.9401	0.00	0.00
7816	1541380.346	734127.1798	0.00	0.00
7817	1541382.346	734127.1351	0.00	0.00
7818	1541383.571	734125.3763	0.00	0.00
7819	1541384.545	734123.6244	0.00	0.00
7820	1541386.541	734123.5793	0.00	0.00
7821	1541387.265	734121.834	0.00	0.00
7822	1541389.26	734121.7887	0.00	0.00
7823	1541391.255	734121.7434	0.00	0.00
7824	1541393.251	734121.698	0.00	0.00
7825	1541395.246	734121.6525	0.00	0.00
7826	1541396.241	734119.901	0.00	0.00
7827	1541398.236	734119.8554	0.00	0.00
7828	1541400.231	734119.8097	0.00	0.00
7829	1541402.226	734119.764	0.00	0.00
7830	1541403.303	734118.0091	0.00	0.00
7831	1541405.299	734117.9633	0.00	0.00
7832	1541407.296	734117.9174	0.00	0.00
7833	1541409.292	734117.8715	0.00	0.00
7834	1541411.288	734117.8256	0.00	0.00
7835	1541413.285	734117.7797	0.00	0.00
7836	1541415.281	734117.7337	0.00	0.00
7837	1541417.277	734117.6877	0.00	0.00
7838	1541419.274	734117.6417	0.00	0.00

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
7839	1541421.27	734117.5957	0.00	0.00
7840	1541415.263	734117.5957	0.00	0.00
7841	1541409.256	734117.5957	0.00	0.00
7842	1541403.253	734117.8001	0.00	0.00
7843	1541447.246	734117.2231	0.00	0.00
7844	1541489.239	734112.1808	0.00	0.00
7845	1541483.236	734112.1808	0.00	0.00
7850	1541442.232	734112.0081	0.00	0.00
7851	1541436.229	734116.9961	0.00	0.00
7852	1541447.225	734116.9961	0.00	0.00
7853	1541441.222	734116.9961	0.00	-0.15
7854	1541451.218	734116.9037	0.00	-0.90
7856	1541453.215	734116.6861	0.00	-1.54
7857	1541459.212	734116.6861	0.00	-1.97
7858	1541459.204	734116.7186	0.00	-2.99
7859	1541467.796	734116.6724	0.00	-3.56
7860	1541467.792	734116.6261	0.00	-4.15
7861	1541467.79	734116.5797	0.00	-4.79
7862	1541467.19	734116.5334	0.00	-5.46
7863	1541469.187	734116.4871	0.00	-6.20
7864	1541471.183	734116.4407	0.00	-6.69
7865	1541473.179	734116.3943	0.00	-6.68
7866	1541475.176	734116.3479	0.00	-6.67
7867	1541477.172	734116.3015	0.00	-6.51
7868	1541479.168	734116.2551	0.00	-6.32
7869	1541481.164	734116.2086	0.00	-6.14
7870	1541483.16	734116.1621	0.00	-6.36
7871	1541485.157	734116.1156	0.00	-6.67
7872	1541487.153	734116.0691	0.00	-6.99
7873	1541488.024	734117.7788	0.00	-7.24
7874	1541490.019	734117.7322	0.00	-7.57
7875	1541492.013	734117.6855	0.00	-7.68
7876	1541494.008	734117.6388	0.00	-7.38
7877	1541495.035	734119.3434	0.00	-7.20
7878	1541497.03	734119.2965	0.00	-6.90
7879	1541499.025	734119.2496	0.00	-6.62
7880	1541500.403	734120.9462	0.00	-6.35
7881	1541502.4	734120.899	0.00	-6.05
7882	1541504.397	734120.8517	0.00	-5.77
7883	1541505.502	734122.5554	0.00	-5.52
7884	1541506.362	734124.2662	0.00	-5.29
7885	1541507.176	734125.9788	0.00	-4.94
7886	1541507.935	734127.6938	0.00	-4.53
7887	1541508.678	734129.3981	0.00	-4.16
7888	1541509.571	734131.0184	0.00	-3.75
7889	1541510.616	734132.5518	0.00	-3.38
7890	1541511.673	734134.0907	0.00	-3.04
7891	1541513.82	734133.9866	0.00	-2.60
7892	1541514.846	734135.568	0.00	-2.60
7893	1541517.043	734135.3837	0.00	-2.60
7894	1541518.132	734136.8638	0.00	-2.60
7895	1541519.94	734137.2591	0.00	-2.60
7896	1541521.531	734137.9837	0.00	-2.60
7897	1541523.064	734138.7964	0.00	-2.60
7898	1541524.645	734139.5352	0.00	-2.60
7899	1541526.356	734140.0839	0.00	-2.46
7900	1541528.003	734140.7293	0.00	-2.28
7901	1541529.528	734141.5515	0.00	-2.07
7902	1541531.07	734142.3505	0.00	-1.81
7903	1541532.933	734142.6998	0.00	-1.52
7904	1541533.908	734144.3022	0.00	-1.09
7905	1541535.754	734144.681	0.00	-0.75
7906	1541536.542	734146.5383	0.00	-0.26
7907	1541537.476	734148.2097	0.02	0.00
7908	1541539.174	734148.7173	0.00	0.00
7909	1541539.652	734150.6479	0.00	0.00
7910	1541541.17	734151.7998	0.02	0.00
7911	1541332.48	734154.4539	0.00	0.00
7912	1541334.204	734153.7678	0.00	0.00
7913	1541335.932	734153.359	0.00	0.00
7914	1541337.658	734152.804	0.00	0.00
7915	1541339.382	734152.0572	0.00	0.00
7916	1541341.102	734151.068	0.00	0.00
7917	1541342.82	734149.9096	0.00	-0.26
7918	1541344.541	734149.056	0.00	-1.16
7919	1541346.263	734148.2732	0.00	-2.08
7920	1541347.986	734147.575	0.00	-2.78
7921	1541349.706	734146.7501	0.00	-1.49
7922	1541351.428	734146.0558	0.00	0.00
7923	1541353.155	734145.7225	0.00	0.00
7924	1541354.88	734145.2698	0.00	0.00
7925	1541356.604	734144.743	0.00	0.00
7926	1541358.327	734144.2067	0.00	0.00
7927	1541360.041	734143.1134	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
7928	1541361.757	734142.1274	0.00	0.00
7929	1541363.478	734141.4971	0.00	0.00
7930	1541365.197	734140.5949	0.00	0.00
7931	1541365.171	734138.5953	0.00	0.00
7932	1541366.895	734138.0007	0.00	0.00
7933	1541366.863	734136.0012	0.00	0.00
7934	1541368.559	734135.2729	0.00	0.00
7935	1541368.594	734133.2867	0.00	0.00
7936	1541368.592	734131.4025	0.00	0.00
7937	1541370.109	734130.7091	0.00	0.00
7938	1541371.887	734130.8385	0.00	0.00
7939	1541373.08	734129.0718	0.00	0.00
7940	1541375.08	734129.0282	0.00	0.00
7941	1541376.348	734127.2687	0.00	0.00
7942	1541378.347	734127.2243	0.00	0.00
7943	1541379.575	734125.4658	0.00	0.00
7944	1541381.573	734125.4212	0.00	0.00
7945	1541382.548	734123.6694	0.00	0.00
7946	1541383.275	734121.9242	0.00	0.00
7947	1541385.27	734121.8791	0.00	0.00
7948	1541386.268	734120.1281	0.00	0.00
7949	1541388.263	734120.0828	0.00	0.00
7950	1541390.257	734120.0375	0.00	0.00
7951	1541392.252	734119.992	0.00	0.00
7952	1541394.247	734119.9465	0.00	0.00
7953	1541395.319	734118.192	0.00	0.00
7954	1541397.315	734118.1463	0.00	0.00
7955	1541399.311	734118.1006	0.00	0.00
7956	1541401.307	734118.0549	0.00	0.00
7957	1541402.204	734116.3028	0.00	0.00
7958	1541404.203	734116.2569	0.00	0.00
7959	1541406.202	734116.211	0.00	0.00
7960	1541408.2	734116.165	0.00	0.00
7961	1541410.199	734116.119	0.00	0.00
7962	1541412.198	734116.073	0.00	0.00
7963	1541414.197	734116.027	0.00	0.00
7964	1541416.196	734115.9809	0.00	0.00
7965	1541418.195	734115.9348	0.00	0.00
7966	1541420.194	734115.8887	0.00	0.00
7967	1541422.193	734115.8426	0.00	0.00
7968	1541424.192	734115.7965	0.00	0.00
7969	1541426.191	734115.7504	0.00	0.00
7970	1541428.19	734115.7042	0.00	0.00
7971	1541430.189	734115.6581	0.00	0.00
7972	1541432.188	734115.6119	0.00	0.00
7973	1541434.187	734115.5657	0.00	0.00
7974	1541436.186	734115.5195	0.00	0.00
7975	1541438.185	734115.4733	0.00	0.00
7976	1541440.184	734115.4271	0.00	0.00
7977	1541442.183	734115.3809	0.00	0.00
7978	1541444.182	734115.3346	0.00	0.00
7979	1541446.181	734115.2884	0.00	0.00
7980	1541448.18	734115.2421	0.00	-0.19
7981	1541450.179	734115.1959	0.00	-0.87
7982	1541452.178	734115.1496	0.00	-1.63
7983	1541454.177	734115.1033	0.00	-2.15
7984	1541456.176	734115.057	0.00	-2.60
7985	1541458.175	734115.0107	0.00	-3.00
7986	1541460.174	734114.9644	0.00	-3.73
7987	1541462.173	734114.918	0.00	-4.11
7988	1541464.172	734114.8717	0.00	-4.73
7989	1541466.171	734114.8253	0.00	-5.46
7990	1541468.17	734114.7789	0.00	-6.18
7991	1541470.169	734114.7326	0.00	-6.67
7992	1541472.168	734114.6862	0.00	-6.66
7993	1541474.167	734114.6397	0.00	-6.66
7994	1541476.165	734114.5933	0.00	-6.60
7995	1541478.164	734114.5468	0.00	-6.41
7996	1541480.163	734114.5004	0.00	-6.23
7997	1541482.161	734114.4539	0.00	-6.08
7998	1541484.16	734114.4074	0.00	-6.40
7999	1541486.159	734114.3608	0.00	-6.72
8000	1541488.157	734114.3142	0.00	-6.94
8001	1541489.149	734116.0225	0.00	-7.34
8002	1541491.144	734115.9759	0.00	-7.39
8003	1541493.14	734115.9292	0.00	-7.53
8004	1541495.136	734115.8825	0.00	-7.25
8005	1541496.003	734117.5921	0.00	-7.10
8006	1541497.997	734117.5453	0.00	-6.81
8007	1541499.992	734117.4984	0.00	-6.53
8008	1541501.02	734119.2026	0.00	-6.32
8009	1541503.015	734119.1555	0.00	-6.05
8010	1541505.01	734119.1084	0.00	-5.78
8011	1541506.393	734120.8043	0.00	-5.50
8012	1541507.5	734122.5078	0.00	-5.23
8013	1541508.361	734124.2185	0.00	-4.85
8014	1541509.177	734125.931	0.00	-4.42
8015	1541509.937	734127.6459	0.00	-4.01
8016	1541510.74	734129.317	0.00	-3.60

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8017	1541511.725	734130.8851	0.00	-3.20
8018	1541512.781	734132.4244	0.00	-2.80
8019	1541514.93	734132.323	0.00	-2.60
8020	1541515.953	734133.9045	0.00	-2.60
8021	1541518.154	734133.7238	0.00	-2.60
8022	1541519.239	734135.2045	0.00	-2.60
8023	1541521.051	734135.6023	0.00	-2.60
8024	1541522.644	734136.3275	0.00	-2.60
8025	1541524.181	734137.1399	0.00	-2.60
8026	1541525.767	734137.8811	0.00	-2.60
8027	1541527.485	734138.4343	0.00	-2.60
8028	1541529.137	734139.084	0.00	-2.57
8029	1541530.668	734139.9108	0.00	-2.34
8030	1541532.218	734140.7159	0.00	-1.98
8031	1541534.093	734141.073	0.00	-1.72
8032	1541535.074	734142.678	0.00	-1.24
8033	1541536.933	734143.0673	0.00	-0.78
8034	1541537.719	734144.9234	0.00	-0.31
8035	1541538.627	734146.5896	0.02	0.00
8036	1541540.395	734147.1204	0.00	-0.01
8037	1541540.895	734149.3271	0.01	0.00
8038	1541542.388	734150.2121	0.03	0.00
8039	1541332.456	734152.4533	0.00	-0.06
8040	1541334.18	734151.768	0.00	-0.02
8041	1541335.908	734151.3582	0.00	0.00
8042	1541337.634	734150.8033	0.00	0.00
8043	1541339.358	734150.0569	0.00	0.00
8044	1541341.078	734149.0691	0.00	0.00
8045	1541342.796	734147.9104	0.00	-0.45
8046	1541344.517	734147.0566	0.00	-1.28
8047	1541346.239	734146.2751	0.00	-2.11
8048	1541347.961	734145.5774	0.00	-2.76
8049	1541349.681	734144.7517	0.00	-1.38
8050	1541351.404	734144.0572	0.00	0.00
8051	1541353.13	734143.7237	0.00	0.00
8052	1541354.856	734143.2716	0.00	0.00
8053	1541356.579	734142.7473	0.00	0.00
8054	1541358.302	734142.2122	0.00	0.00
8055	1541360.016	734141.1184	0.00	0.00
8056	1541361.731	734140.1306	0.00	0.00
8057	1541363.452	734139.4989	0.00	0.00
8058	1541363.426	734137.5009	0.00	0.00
8059	1541365.144	734136.5964	0.00	0.00
8060	1541365.119	734134.5911	0.00	0.00
8061	1541366.839	734134.0012	0.00	0.00
8062	1541366.792	734132.0164	0.00	0.00
8063	1541367.168	734130.3338	0.00	0.00
8064	1541368.963	734129.2437	0.00	0.00
8065	1541371.084	734129.0836	0.00	0.00
8066	1541372.353	734127.3531	0.00	0.00
8067	1541374.349	734127.313	0.00	0.00
8068	1541375.579	734125.5548	0.00	0.00
8069	1541377.577	734125.5104	0.00	0.00
8070	1541378.555	734123.7589	0.00	0.00
8071	1541380.551	734123.7142	0.00	0.00
8072	1541381.28	734121.9691	0.00	0.00
8073	1541382.279	734120.2184	0.00	0.00
8074	1541384.274	734120.1733	0.00	0.00
8075	1541385.34	734118.4195	0.00	0.00
8076	1541387.336	734118.3741	0.00	0.00
8077	1541389.331	734118.3287	0.00	0.00
8078	1541391.327	734118.2832	0.00	0.00
8079	1541393.323	734118.2376	0.00	0.00
8080	1541394.21	734116.4861	0.00	0.00
8081	1541396.209	734116.4403	0.00	0.00
8082	1541398.207	734116.3945	0.00	0.00
8083	1541400.206	734116.3487	0.00	0.00
8084	1541400.633	734114.607	0.00	0.00
8085	1541402.632	734114.5611	0.00	0.00
8086	1541404.631	734114.5151	0.00	0.00
8087	1541406.63	734114.4691	0.00	0.00
8088	1541408.629	734114.4231	0.00	0.00
8089	1541410.629	734114.3771	0.00	0.00
8090	1541412.628	734114.331	0.00	0.00
8091	1541414.628	734114.2849	0.00	0.00
8092	1541416.627	734114.2389	0.00	0.00
8093	1541418.626	734114.1927	0.00	0.00
8094	1541420.626	734114.1466	0.00	0.00
8095	1541422.625	734114.1005	0.00	0.00
8096	1541424.625	734114.0543	0.00	0.00
8097	1541426.624	734114.0082	0.00	0.00
8098	1541428.624	734113.962	0.00	0.00
8099	1541430.623	734113.9158	0.00	0.00
8100	1541432.623	734113.8696	0.00	0.00
8101	1541434.622	734113.8234	0.00	0.00
8102	1541436.622	734113.7772	0.00	0.00
8103	1541438.622	734113.731	0.00	0.00
8104	1541440.621	734113.6848	0.00	0.00
8105	1541442.621	734113.6385	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8106	1541444.62	734113.5923	0.00	0.00
8107	1541446.62	734113.546	0.00	0.00
8108	1541448.619	734113.4997	0.00	-0.55
8109	1541450.619	734113.4535	0.00	-1.28
8110	1541452.619	734113.4072	0.00	-1.92
8111	1541454.618	734113.3609	0.00	-2.47
8112	1541456.618	734113.3146	0.00	-3.02
8113	1541458.617	734113.2683	0.00	-3.53
8114	1541460.617	734113.2219	0.00	-4.09
8115	1541462.616	734113.1756	0.00	-4.09
8116	1541464.616	734113.1293	0.00	-4.51
8117	1541466.615	734113.0829	0.00	-5.35
8118	1541468.614	734113.0365	0.00	-6.20
8119	1541470.614	734112.9902	0.00	-6.65
8120	1541472.613	734112.9438	0.00	-6.64
8121	1541474.612	734112.8974	0.00	-6.63
8122	1541476.612	734112.8509	0.00	-6.55
8123	1541478.611	734112.8045	0.00	-6.37
8124	1541480.61	734112.758	0.00	-6.19
8125	1541482.609	734112.7116	0.00	-6.03
8126	1541484.609	734112.6651	0.00	-6.35
8127	1541486.608	734112.6185	0.00	-6.48
8128	1541488.607	734112.572	0.00	-6.33
8129	1541490.156	734114.2676	0.00	-6.79
8130	1541492.154	734114.221	0.00	-6.98
8131	1541494.152	734114.1743	0.00	-7.00
8132	1541496.151	734114.1276	0.00	-6.84
8133	1541497.132	734115.8357	0.00	-6.97
8134	1541499.127	734115.7889	0.00	-6.69
8135	1541501.123	734115.7421	0.00	-6.42
8136	1541501.986	734117.4514	0.00	-6.26
8137	1541503.98	734117.4044	0.00	-5.99
8138	1541505.974	734117.3573	0.00	-5.72
8139	1541507.004	734119.0611	0.00	-5.51
8140	1541508.39	734120.7569	0.00	-5.22
8141	1541509.498	734122.4601	0.00	-4.77
8142	1541510.36	734124.1705	0.00	-4.34
8143	1541511.176	734125.8831	0.00	-3.93
8144	1541511.956	734127.5864	0.00	-3.49
8145	1541512.857	734129.2114	0.00	-3.04
8146	1541513.891	734130.761	0.00	-2.60
8147	1541516.04	734130.6602	0.00	-2.60
8148	1541517.064	734132.2435	0.00	-2.60
8149	1541519.265	734132.0651	0.00	-2.60
8150	1541520.352	734133.5487	0.00	-2.60
8151	1541522.165	734133.9487	0.00	-2.60
8152	1541523.763	734134.6751	0.00	-2.60
8153	1541525.304	734135.4878	0.00	-2.60
8154	1541526.895	734136.2317	0.00	-2.60
8155	1541528.616	734136.7875	0.00	-2.60
8156	1541530.272	734137.4391	0.00	-2.60
8157	1541531.809	734138.2683	0.00	-2.60
8158	1541533.361	734139.0825	0.00	-2.20
8159	1541535.232	734139.4341	0.00	-1.84
8160	1541536.237	734141.0523	0.00	-1.27
8161	1541538.097	734141.4449	0.00	-0.85
8162	1541538.904	734143.3142	0.00	-0.31
8163	1541539.828	734144.9933	0.00	0.00
8164	1541541.6	734145.5232	0.02	0.00
8165	1541542.097	734147.7432	0.03	0.00
8166	1541543.605	734148.6245	0.02	0.00
8167	1541332.432	734150.4527	0.00	-0.22
8168	1541334.156	734149.7682	0.00	-0.18
8169	1541335.884	734149.3574	0.00	-0.12
8170	1541337.609	734148.8026	0.00	-0.07
8171	1541339.333	734148.0567	0.00	-0.03
8172	1541341.054	734147.0703	0.00	-0.02
8173	1541342.771	734145.9113	0.00	-0.36
8174	1541344.492	734145.0573	0.00	-1.22
8175	1541346.214	734144.2771	0.00	-2.05
8176	1541347.937	734143.5799	0.00	-2.64
8177	1541349.657	734142.7533	0.00	-1.17
8178	1541351.379	734142.0587	0.00	0.00
8179	1541353.105	734141.7252	0.00	0.00
8180	1541354.83	734141.2736	0.00	0.00
8181	1541356.554	734140.7518	0.00	0.00
8182	1541358.276	734140.2178	0.00	0.00
8183	1541359.99	734139.1235	0.00	0.00
8184	1541361.705	734138.1338	0.00	0.00
8185	1541361.68	734136.1371	0.00	0.00
8186	1541363.401	734135.5025	0.00	0.00
8187	1541363.375	734133.5043	0.00	0.00
8188	1541365.087	734132.5728	0.00	0.00
8189	1541365.206	734130.4311	0.00	0.00
8190	1541366.875	734128.921	0.00	0.00
8191	1541368.405	734127.4407	0.00	0.00
8192	1541370.348	734127.4118	0.00	0.00
8193	1541371.583	734125.6438	0.00	0.00
8194	1541373.582	734125.5983	0.00	0.00

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8195	1541374.562	734123.8477	0.00	0.00
8196	1541377.197	734122.0889	0.00	0.00
8197	1541380.346	734120.0889	0.00	0.00
8198	1541383.985	734118.0889	0.00	0.00
8199	1541387.349	734116.0889	0.00	0.00
8200	1541390.245	734114.0889	0.00	0.00
8201	1541394.115	734116.7145	0.00	0.00
8202	1541398.013	734116.6931	0.00	0.00
8203	1541394.211	734116.6931	0.00	0.00
8204	1541389.516	734116.6931	0.00	0.00
8205	1541392.212	734116.5116	0.00	0.00
8206	1541395.908	734116.5116	0.00	0.00
8207	1541398.633	734116.5116	0.00	0.00
8208	1541394.635	734114.7447	0.00	0.00
8209	1541390.941	734114.7447	0.00	0.00
8210	1541398.633	734114.653	0.00	0.00
8211	1541394.961	734112.9861	0.00	0.00
8212	1541390.961	734112.9861	0.00	0.00
8213	1541386.961	734112.9861	0.00	0.00
8214	1541404.958	734112.7755	0.00	0.00
8215	1541408.958	734112.7295	0.00	0.00
8216	1541407.958	734112.6834	0.00	0.00
8217	1541412.958	734112.6373	0.00	0.00
8218	1541412.955	734112.5913	0.00	0.00
8219	1541414.954	734112.5452	0.00	0.00
8220	1541416.953	734112.499	0.00	0.00
8221	1541418.953	734112.4529	0.00	0.00
8222	1541420.952	734112.4068	0.00	0.00
8223	1541422.951	734112.3606	0.00	0.00
8224	1541424.951	734112.3145	0.00	0.00
8225	1541426.95	734112.2683	0.00	0.00
8226	1541428.949	734112.2221	0.00	0.00
8227	1541430.949	734112.1759	0.00	0.00
8228	1541432.948	734112.1297	0.00	0.00
8229	1541434.948	734112.0835	0.00	0.00
8230	1541436.947	734112.0373	0.00	0.00
8231	1541438.946	734111.9911	0.00	0.00
8232	1541440.946	734111.9448	0.00	0.00
8233	1541442.945	734111.8986	0.00	0.00
8234	1541444.945	734111.8523	0.00	0.00
8235	1541446.944	734111.8061	0.00	-0.23
8236	1541448.944	734111.7598	0.00	-0.69
8237	1541450.943	734111.7136	0.00	-1.45
8238	1541452.942	734111.6673	0.00	-1.98
8239	1541454.942	734111.621	0.00	-2.53
8240	1541456.941	734111.5747	0.00	-3.07
8241	1541458.941	734111.5284	0.00	-3.59
8242	1541460.94	734111.4821	0.00	-4.07
8243	1541462.939	734111.4358	0.00	-4.06
8244	1541464.939	734111.3895	0.00	-4.25
8245	1541466.938	734111.3431	0.00	-5.09
8246	1541468.937	734111.2968	0.00	-5.73
8247	1541470.937	734111.2504	0.00	-6.41
8248	1541472.936	734111.204	0.00	-6.61
8249	1541474.935	734111.1577	0.00	-6.60
8250	1541476.934	734111.1113	0.00	-6.51
8251	1541478.933	734111.0648	0.00	-6.33
8252	1541480.932	734111.0184	0.00	-6.15
8253	1541482.931	734110.972	0.00	-5.97
8254	1541484.93	734110.9255	0.00	-6.02
8255	1541486.929	734110.879	0.00	-5.87
8256	1541488.928	734110.8325	0.00	-5.73
8257	1541490.606	734112.5254	0.00	-6.40
8258	1541492.604	734112.4788	0.00	-6.37
8259	1541494.603	734112.4322	0.00	-6.20
8260	1541496.602	734112.3855	0.00	-6.05
8261	1541498.149	734114.0808	0.00	-6.67
8262	1541500.147	734114.034	0.00	-6.52
8263	1541502.145	734113.9871	0.00	-6.35
8264	1541503.118	734115.6952	0.00	-6.18
8265	1541505.114	734115.6481	0.00	-5.93
8266	1541507.109	734115.6011	0.00	-5.69
8267	1541507.969	734117.3101	0.00	-5.49
8268	1541508.999	734119.0137	0.00	-5.25
8269	1541510.386	734120.7092	0.00	-4.78
8270	1541511.496	734122.4123	0.00	-4.31
8271	1541512.359	734124.1226	0.00	-3.87
8272	1541513.178	734125.8351	0.00	-3.43
8273	1541514.016	734127.5089	0.00	-2.99
8274	1541515.001	734129.0944	0.00	-2.60
8275	1541517.146	734128.995	0.00	-2.60
8276	1541518.174	734130.5818	0.00	-2.60
8277	1541520.369	734130.4016	0.00	-2.60
8278	1541521.461	734131.8908	0.00	-2.60
8279	1541523.273	734132.2909	0.00	-2.60
8280	1541524.872	734133.0174	0.00	-2.60
8281	1541526.417	734133.8298	0.00	-2.60
8282	1541528.01	734134.5743	0.00	-2.60
8283	1541529.728	734135.1282	0.00	-2.60

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8284	1541531.384	734135.7756	0.00	-2.60
8285	1541532.929	734136.5838	0.00	-2.60
8286	1541534.445	734137.4291	0.00	-2.45
8287	1541536.347	734137.7951	0.00	-2.00
8288	1541537.363	734139.4007	0.00	-1.41
8289	1541539.194	734139.785	0.00	-0.92
8290	1541540.067	734141.6779	0.00	-0.32
8291	1541541.025	734143.3515	0.00	0.00
8292	1541542.76	734143.919	0.02	0.00
8293	1541543.32	734146.1223	0.05	0.00
8294	1541544.823	734147.0368	0.02	0.00
8295	1541332.408	734148.4521	0.00	-0.37
8296	1541334.132	734147.7684	0.00	-0.33
8297	1541335.86	734147.3566	0.00	-0.27
8298	1541337.585	734146.8019	0.00	-0.22
8299	1541339.309	734146.0565	0.00	-0.19
8300	1541341.03	734145.0715	0.00	-0.10
8301	1541342.747	734143.9123	0.00	-0.24
8302	1541344.468	734143.0581	0.00	-1.10
8303	1541346.19	734142.2792	0.00	-1.95
8304	1541347.912	734141.5825	0.00	-2.33
8305	1541349.632	734140.7552	0.00	-1.04
8306	1541351.354	734140.0603	0.00	0.00
8307	1541353.081	734139.7267	0.00	0.00
8308	1541354.805	734139.2757	0.00	0.00
8309	1541356.529	734138.7564	0.00	0.00
8310	1541358.251	734138.2235	0.00	0.00
8311	1541359.964	734137.1286	0.00	0.00
8312	1541359.939	734135.1341	0.00	0.00
8313	1541361.654	734134.1407	0.00	0.00
8314	1541361.631	734132.1438	0.00	0.00
8315	1541363.369	734131.4993	0.00	0.00
8316	1541363.357	734129.5436	0.00	0.00
8317	1541364.953	734128.1514	0.00	0.00
8318	1541366.603	734127.3165	0.00	0.00
8319	1541367.613	734125.6949	0.00	0.00
8320	1541369.591	734125.6847	0.00	0.00
8321	1541370.57	734123.9357	0.00	0.00
8322	1541372.565	734123.892	0.00	0.00
8323	1541373.302	734122.1474	0.00	0.00
8324	1541375.297	734122.1031	0.00	0.00
8325	1541376.297	734120.3529	0.00	0.00
8326	1541378.291	734120.3082	0.00	0.00
8327	1541379.354	734118.555	0.00	0.00
8328	1541380.223	734116.8047	0.00	0.00
8329	1541382.221	734116.7594	0.00	0.00
8330	1541382.643	734115.0187	0.00	0.00
8331	1541384.642	734114.9732	0.00	0.00
8332	1541386.64	734114.9276	0.00	0.00
8333	1541388.639	734114.8819	0.00	0.00
8334	1541390.638	734114.8362	0.00	0.00
8335	1541390.965	734113.097	0.00	0.00
8336	1541392.964	734113.0511	0.00	0.00
8337	1541394.963	734113.0053	0.00	0.00
8338	1541396.962	734112.9594	0.00	0.00
8339	1541397.1	734111.2245	0.00	0.00
8340	1541399.099	734111.1786	0.00	0.00
8341	1541401.098	734111.1326	0.00	0.00
8342	1541403.096	734111.0865	0.00	0.00
8343	1541405.095	734111.0405	0.00	0.00
8344	1541407.094	734110.9944	0.00	0.00
8345	1541409.093	734110.9484	0.00	0.00
8346	1541411.092	734110.9023	0.00	0.00
8347	1541413.091	734110.8562	0.00	0.00
8348	1541415.09	734110.8101	0.00	0.00
8349	1541417.089	734110.7639	0.00	0.00
8350	1541419.088	734110.7178	0.00	0.00
8351	1541421.087	734110.6716	0.00	0.00
8352	1541423.086	734110.6255	0.00	0.00
8353	1541425.085	734110.5793	0.00	0.00
8354	1541427.084	734110.5331	0.00	0.00
8355	1541429.083	734110.4869	0.00	0.00
8356	1541431.082	734110.4408	0.00	0.00
8357	1541433.082	734110.3946	0.00	0.00
8358	1541435.081	734110.3483	0.00	0.00
8359	1541437.08	734110.3021	0.00	0.00
8360	1541439.079	734110.2559	0.00	0.00
8361	1541441.078	734110.2097	0.00	0.00
8362	1541443.077	734110.1635	0.00	0.00
8363	1541445.076	734110.1172	0.00	-0.01
8364	1541447.076	734110.071	0.00	-0.33
8365	1541449.075	734110.0247	0.00	-0.83
8366	1541451.074	734109.9785	0.00	-1.37
8367	1541453.073	734109.9322	0.00	-1.82
8368	1541455.072	734109.8859	0.00	-2.36
8369	1541457.071	734109.8396	0.00	-2.78
8370	1541458.07	734109.7934	0.00	-3.44
8371	1541461.069	734109.7471	0.00	-3.88
8372	1541463.069	734109.7008	0.00	-4.04

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8373	1541465.068	734109.6545	0.00	-4.03
8374	1541467.067	734109.6081	0.00	-4.68
8375	1541469.066	734109.5618	0.00	-4.94
8376	1541471.065	734109.5155	0.00	-5.01
8377	1541473.064	734109.4691	0.00	-5.14
8378	1541475.062	734109.4228	0.00	-5.22
8379	1541477.061	734109.3764	0.00	-5.21
8380	1541479.06	734109.3301	0.00	-5.13
8381	1541481.059	734109.2837	0.00	-5.05
8382	1541483.058	734109.2373	0.00	-4.96
8383	1541485.057	734109.1908	0.00	-4.87
8384	1541487.055	734109.1444	0.00	-4.78
8385	1541489.054	734109.098	0.00	-4.71
8386	1541490.927	734110.786	0.00	-5.68
8387	1541492.926	734110.7395	0.00	-5.57
8388	1541494.925	734110.6929	0.00	-5.44
8389	1541496.923	734110.6463	0.00	-5.29
8390	1541498.601	734112.3388	0.00	-5.91
8391	1541500.599	734112.292	0.00	-5.81
8392	1541502.598	734112.2452	0.00	-5.74
8393	1541504.143	734113.9402	0.00	-6.13
8394	1541506.14	734113.8932	0.00	-5.91
8395	1541508.138	734113.8461	0.00	-5.68
8396	1541509.104	734115.5539	0.00	-5.47
8397	1541509.962	734117.2628	0.00	-5.25
8398	1541510.993	734118.9662	0.00	-4.85
8399	1541512.382	734120.6615	0.00	-4.33
8400	1541513.493	734122.3643	0.00	-3.89
8401	1541514.358	734124.0747	0.00	-3.44
8402	1541515.195	734125.7772	0.00	-2.98
8403	1541516.119	734127.4158	0.00	-2.60
8404	1541518.237	734127.3189	0.00	-2.60
8405	1541519.272	734128.9128	0.00	-2.60
8406	1541521.455	734128.7267	0.00	-2.60
8407	1541522.554	734130.2231	0.00	-2.60
8408	1541524.361	734130.6204	0.00	-2.60
8409	1541525.958	734131.345	0.00	-2.60
8410	1541527.504	734132.155	0.00	-2.60
8411	1541529.094	734132.8968	0.00	-2.60
8412	1541530.808	734133.4473	0.00	-2.60
8413	1541532.48	734134.0739	0.00	-2.60
8414	1541534.159	734134.8352	0.00	-2.60
8415	1541535.588	734136.0618	0.00	-2.57
8416	1541537.424	734136.0595	0.00	-2.15
8417	1541538.431	734137.6777	0.00	-1.54
8418	1541540.202	734138.0883	0.00	-1.01
8419	1541541.13	734140.0011	0.00	-0.37
8420	1541542.343	734141.5901	0.00	-0.01
8421	1541543.929	734142.5653	0.00	-0.02
8422	1541544.708	734144.458	0.03	0.00
8423	1541546.04	734145.4492	0.02	0.00
8424	1541332.384	734146.4515	0.00	-0.52
8425	1541334.108	734145.7686	0.00	-0.49
8426	1541335.835	734145.3558	0.00	-0.43
8427	1541337.561	734144.8013	0.00	-0.38
8428	1541339.285	734144.0564	0.00	-0.26
8429	1541341.005	734143.0728	0.00	-0.09
8430	1541342.723	734141.9133	0.00	-0.13
8431	1541344.444	734141.059	0.00	-1.07
8432	1541346.165	734140.2814	0.00	-1.85
8433	1541347.888	734139.5852	0.00	-2.11
8434	1541349.607	734138.7571	0.00	-1.00
8435	1541351.329	734138.0621	0.00	-0.08
8436	1541353.055	734137.7284	0.00	0.00
8437	1541354.78	734137.278	0.00	0.00
8438	1541356.503	734136.7612	0.00	0.00
8439	1541358.225	734136.2294	0.00	0.00
8440	1541358.2	734134.2354	0.00	0.00
8441	1541359.913	734133.1392	0.00	0.00
8442	1541359.887	734131.1445	0.00	0.00
8443	1541361.603	734130.1418	0.00	0.00
8444	1541361.549	734128.1442	0.00	0.00
8445	1541363.126	734127.6325	0.00	0.00
8446	1541363.808	734125.981	0.00	0.00
8447	1541365.64	734125.8675	0.00	0.00
8448	1541366.571	734124.026	0.00	0.00
8449	1541368.574	734123.974	0.00	0.00
8450	1541369.314	734122.2346	0.00	0.00
8451	1541371.308	734122.1915	0.00	0.00
8452	1541372.31	734120.4417	0.00	0.00
8453	1541374.303	734120.3974	0.00	0.00
8454	1541375.364	734118.6447	0.00	0.00
8455	1541377.359	734118.5999	0.00	0.00
8456	1541378.226	734116.8499	0.00	0.00
8457	1541378.646	734115.1094	0.00	0.00
8458	1541380.645	734115.0641	0.00	0.00
8459	1541380.973	734113.3253	0.00	0.00
8460	1541382.971	734113.2798	0.00	0.00
8461	1541384.97	734113.2342	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8462	1541386.968	734113.1885	0.00	0.00
8463	1541388.967	734113.1427	0.00	0.00
8464	1541389.106	734111.4081	0.00	0.00
8465	1541391.104	734111.3623	0.00	0.00
8466	1541393.103	734111.3164	0.00	0.00
8467	1541395.101	734111.2705	0.00	0.00
8468	1541395.409	734109.5323	0.00	0.00
8469	1541397.407	734109.4863	0.00	0.00
8470	1541399.404	734109.4403	0.00	0.00
8471	1541401.402	734109.3943	0.00	0.00
8472	1541403.4	734109.3482	0.00	0.00
8473	1541405.398	734109.3022	0.00	0.00
8474	1541407.396	734109.2561	0.00	0.00
8475	1541409.394	734109.21	0.00	0.00
8476	1541411.392	734109.1639	0.00	0.00
8477	1541413.39	734109.1178	0.00	0.00
8478	1541415.388	734109.0717	0.00	0.00
8479	1541417.386	734109.0256	0.00	0.00
8480	1541419.385	734108.9794	0.00	0.00
8481	1541421.383	734108.9333	0.00	0.00
8482	1541423.381	734108.8871	0.00	0.00
8483	1541425.379	734108.841	0.00	0.00
8484	1541427.377	734108.7948	0.00	0.00
8485	1541429.376	734108.7486	0.00	0.00
8486	1541431.374	734108.7025	0.00	0.00
8487	1541433.372	734108.6563	0.00	0.00
8488	1541435.37	734108.6101	0.00	0.00
8489	1541437.368	734108.5639	0.00	0.00
8490	1541439.367	734108.5177	0.00	0.00
8491	1541441.365	734108.4715	0.00	0.00
8492	1541443.363	734108.4253	0.00	0.00
8493	1541445.361	734108.379	0.00	-0.20
8494	1541447.36	734108.3328	0.00	-0.46
8495	1541449.358	734108.2866	0.00	-0.83
8496	1541451.356	734108.2404	0.00	-1.20
8497	1541453.354	734108.1941	0.00	-1.58
8498	1541455.353	734108.1479	0.00	-2.05
8499	1541457.351	734108.1016	0.00	-2.47
8500	1541459.349	734108.0554	0.00	-2.66
8501	1541461.347	734108.0091	0.00	-3.17
8502	1541463.345	734107.9629	0.00	-3.34
8503	1541465.343	734107.9166	0.00	-3.46
8504	1541467.342	734107.8703	0.00	-3.49
8505	1541469.34	734107.824	0.00	-3.52
8506	1541471.338	734107.7777	0.00	-3.56
8507	1541473.336	734107.7314	0.00	-3.62
8508	1541475.334	734107.6851	0.00	-3.70
8509	1541477.332	734107.6388	0.00	-3.68
8510	1541479.33	734107.5925	0.00	-3.61
8511	1541481.328	734107.5461	0.00	-3.52
8512	1541483.326	734107.4998	0.00	-3.44
8513	1541485.324	734107.4534	0.00	-3.35
8514	1541487.321	734107.407	0.00	-3.26
8515	1541489.319	734107.3606	0.00	-3.18
8516	1541491.053	734109.0515	0.00	-4.67
8517	1541493.051	734109.005	0.00	-4.60
8518	1541495.05	734108.9585	0.00	-4.56
8519	1541497.048	734108.9119	0.00	-4.54
8520	1541498.922	734110.5996	0.00	-5.18
8521	1541500.92	734110.5529	0.00	-5.07
8522	1541502.919	734110.5062	0.00	-5.00
8523	1541504.596	734112.1983	0.00	-5.71
8524	1541506.595	734112.1514	0.00	-5.73
8525	1541508.593	734112.1043	0.00	-5.70
8526	1541510.136	734113.7989	0.00	-5.45
8527	1541511.099	734115.5066	0.00	-5.25
8528	1541511.956	734117.2153	0.00	-4.91
8529	1541512.988	734118.9186	0.00	-4.46
8530	1541514.379	734120.6136	0.00	-3.94
8531	1541515.491	734122.3163	0.00	-3.45
8532	1541516.358	734124.0265	0.00	-3.03
8533	1541517.243	734125.7066	0.00	-2.60
8534	1541519.321	734125.6253	0.00	-2.60
8535	1541520.35	734127.2323	0.00	-2.60
8536	1541522.517	734127.0371	0.00	-2.60
8537	1541523.624	734128.5401	0.00	-2.60
8538	1541525.421	734128.9326	0.00	-2.60
8539	1541527.014	734129.6536	0.00	-2.60
8540	1541528.557	734130.4592	0.00	-2.60
8541	1541530.146	734131.1986	0.00	-2.60
8542	1541531.86	734131.7551	0.00	-2.60
8543	1541533.688	734132.2897	0.00	-2.60
8544	1541535.287	734133.1093	0.00	-2.60
8545	1541536.338	734134.393	0.00	-2.60
8546	1541538.354	734134.34	0.00	-2.25
8547	1541539.656	734135.8569	0.00	-1.59
8548	1541541.297	734136.6058	0.00	-0.98
8549	1541542.141	734138.2888	0.00	-0.42
8550	1541543.337	734139.643	0.00	-0.01

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8551	1541544.637	734140.8642	0.00	-0.03
8552	1541547.057	734139.7265	0.00	-0.01
8553	1541550.236	734138.4988	0.00	0.00
8554	1541552.633	734137.0565	0.00	0.00
8555	1541335.224	734141.0741	0.00	-0.58
8556	1541335.224	734141.0741	0.00	-0.58
8560	1541492.696	734139.9145	0.00	-0.08
8561	1541492.696	734139.9145	0.00	-0.08
8562	1541346.141	734138.7638	0.00	-1.48
8563	1541346.141	734138.7638	0.00	-1.48
8564	1541349.582	734136.7592	0.00	-1.05
8565	1541349.582	734136.7592	0.00	-1.05
8566	1541353.03	734135.7303	0.00	0.00
8567	1541354.45	734134.4809	0.00	0.00
8568	1541356.24	734133.0565	0.00	0.00
8569	1541356.24	734133.0565	0.00	0.00
8570	1541358.174	734132.2414	0.00	0.00
8571	1541358.174	734130.2485	0.00	0.00
8572	1541360.27	734129.1548	0.00	0.00
8573	1541361.683	734127.1386	0.00	0.00
8574	1541361.683	734125.9998	0.00	0.00
8575	1541362.707	734124.1629	0.00	0.00
8576	1541364.603	734124.0856	0.00	0.00
8577	1541365.327	734122.3219	0.00	0.00
8578	1541367.32	734122.2795	0.00	0.00
8579	1541368.323	734120.5298	0.00	0.00
8580	1541370.316	734120.4857	0.00	0.00
8581	1541371.375	734118.7337	0.00	0.00
8582	1541373.369	734118.6893	0.00	0.00
8583	1541374.231	734116.9398	0.00	0.00
8584	1541376.228	734116.8949	0.00	0.00
8585	1541376.648	734115.1546	0.00	0.00
8586	1541376.977	734113.4161	0.00	0.00
8587	1541378.975	734113.3707	0.00	0.00
8588	1541379.115	734111.6366	0.00	0.00
8589	1541381.113	734111.591	0.00	0.00
8590	1541383.111	734111.5454	0.00	0.00
8591	1541385.109	734111.4997	0.00	0.00
8592	1541387.108	734111.454	0.00	0.00
8593	1541387.418	734109.7159	0.00	0.00
8594	1541389.416	734109.6701	0.00	0.00
8595	1541391.414	734109.6242	0.00	0.00
8596	1541393.411	734109.5782	0.00	0.00
8597	1541394.442	734107.8229	0.00	0.00
8598	1541396.44	734107.7769	0.00	0.00
8599	1541398.438	734107.7308	0.00	0.00
8600	1541400.436	734107.6848	0.00	0.00
8601	1541402.435	734107.6387	0.00	0.00
8602	1541404.433	734107.5926	0.00	0.00
8603	1541406.431	734107.5465	0.00	0.00
8604	1541408.43	734107.5004	0.00	0.00
8605	1541410.428	734107.4543	0.00	0.00
8606	1541412.427	734107.4081	0.00	0.00
8607	1541414.425	734107.362	0.00	0.00
8608	1541416.423	734107.3159	0.00	0.00
8609	1541418.422	734107.2697	0.00	0.00
8610	1541420.42	734107.2235	0.00	0.00
8611	1541422.419	734107.1774	0.00	0.00
8612	1541424.417	734107.1312	0.00	0.00
8613	1541426.416	734107.085	0.00	0.00
8614	1541428.415	734107.0388	0.00	0.00
8615	1541430.413	734106.9926	0.00	0.00
8616	1541432.412	734106.9464	0.00	0.00
8617	1541434.41	734106.9002	0.00	0.00
8618	1541436.409	734106.854	0.00	0.00
8619	1541438.407	734106.8078	0.00	0.00
8620	1541440.406	734106.7616	0.00	0.00
8621	1541442.405	734106.7154	0.00	-0.05
8622	1541444.403	734106.6692	0.00	-0.31
8623	1541446.402	734106.6229	0.00	-0.57
8624	1541448.4	734106.5767	0.00	-0.83
8625	1541450.399	734106.5305	0.00	-1.09
8626	1541452.398	734106.4842	0.00	-1.35
8627	1541454.396	734106.438	0.00	-1.46
8628	1541456.395	734106.3917	0.00	-1.54
8629	1541458.393	734106.3455	0.00	-1.67
8630	1541460.392	734106.2992	0.00	-1.81
8631	1541462.39	734106.253	0.00	-1.83
8632	1541464.389	734106.2067	0.00	-1.92
8633	1541466.387	734106.1604	0.00	-1.95
8634	1541468.386	734106.1142	0.00	-1.97
8635	1541470.384	734106.0679	0.00	-2.01
8636	1541472.383	734106.0216	0.00	-2.06
8637	1541474.381	734105.9753	0.00	-2.12
8638	1541476.379	734105.929	0.00	-2.17
8639	1541478.378	734105.8827	0.00	-2.11

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8640	1541480.376	734105.8364	0.00	-2.05
8641	1541482.374	734105.7901	0.00	-2.00
8642	1541484.373	734105.7437	0.00	-1.96
8643	1541486.371	734105.6974	0.00	-1.88
8644	1541488.369	734105.651	0.00	-1.84
8645	1541490.367	734105.6047	0.00	-1.93
8646	1541491.317	734107.3142	0.00	-3.11
8647	1541493.315	734107.2678	0.00	-3.06
8648	1541495.312	734107.2213	0.00	-3.03
8649	1541497.31	734107.1749	0.00	-3.03
8650	1541499.046	734108.8653	0.00	-4.44
8651	1541501.045	734108.8187	0.00	-4.34
8652	1541503.043	734108.7721	0.00	-4.26
8653	1541504.917	734110.4594	0.00	-4.97
8654	1541506.915	734110.4125	0.00	-4.98
8655	1541508.913	734110.3656	0.00	-5.07
8656	1541510.591	734112.0572	0.00	-5.48
8657	1541512.133	734113.7516	0.00	-5.23
8658	1541513.094	734115.4591	0.00	-4.89
8659	1541513.95	734117.1678	0.00	-4.52
8660	1541514.982	734118.8708	0.00	-4.09
8661	1541516.375	734120.5654	0.00	-3.57
8662	1541517.487	734122.2681	0.00	-3.09
8663	1541518.369	734123.9708	0.00	-2.65
8664	1541520.402	734123.9049	0.00	-2.60
8665	1541521.407	734125.5368	0.00	-2.60
8666	1541523.559	734125.336	0.00	-2.60
8667	1541524.669	734126.8422	0.00	-2.60
8668	1541526.457	734127.2302	0.00	-2.60
8669	1541528.046	734127.9469	0.00	-2.60
8670	1541529.585	734128.7474	0.00	-2.60
8671	1541531.166	734129.4872	0.00	-2.60
8672	1541532.866	734130.0446	0.00	-2.60
8673	1541534.685	734130.3294	0.00	-2.60
8674	1541536.015	734131.4375	0.00	-2.60
8675	1541537.35	734132.6549	0.00	-2.60
8676	1541539.334	734132.5678	0.00	-2.28
8677	1541540.291	734133.9985	0.00	-1.77
8678	1541541.963	734134.6835	0.00	-1.17
8679	1541543.109	734136.4929	0.00	-0.50
8680	1541544.319	734137.8718	0.00	0.00
8681	1541545.608	734139.1333	0.00	0.00
8682	1541546.721	734140.7246	0.00	-0.02
8683	1541548.025	734141.9779	0.00	-0.01
8684	1541332.336	734142.4502	0.00	-0.83
8685	1541334.06	734141.7691	0.00	-0.75
8686	1541335.787	734141.3545	0.00	-0.58
8687	1541337.513	734140.8003	0.00	-0.42
8688	1541339.237	734140.0564	0.00	-0.25
8689	1541340.957	734139.0757	0.06	0.00
8690	1541342.674	734137.9158	0.03	0.00
8691	1541344.395	734137.0612	0.00	-1.11
8692	1541346.116	734136.2864	0.00	-1.78
8693	1541347.838	734135.5911	0.00	-1.95
8694	1541349.557	734134.7615	0.00	-1.13
8695	1541351.279	734134.0662	0.00	-0.46
8696	1541353.005	734133.7324	0.00	0.00
8697	1541354.729	734133.283	0.00	0.00
8698	1541354.703	734131.2858	0.00	0.00
8699	1541356.426	734130.7765	0.00	0.00
8700	1541356.4	734128.7815	0.00	0.00
8701	1541358.124	734128.2528	0.00	0.00
8702	1541358.085	734126.2682	0.00	0.00
8703	1541359.764	734125.1982	0.00	0.00
8704	1541361.109	734124.1261	0.00	0.00
8705	1541361.466	734122.4189	0.00	0.00
8706	1541363.346	734122.3632	0.00	0.00
8707	1541364.338	734120.6159	0.00	0.00
8708	1541366.33	734120.5732	0.00	0.00
8709	1541367.386	734118.8218	0.00	0.00
8710	1541369.38	734118.7779	0.00	0.00
8711	1541370.236	734117.029	0.00	0.00
8712	1541372.233	734116.9845	0.00	0.00
8713	1541372.653	734115.2446	0.00	0.00
8714	1541374.65	734115.1997	0.00	0.00
8715	1541374.979	734113.4613	0.00	0.00
8716	1541375.12	734111.7275	0.00	0.00
8717	1541377.117	734111.6821	0.00	0.00
8718	1541377.432	734109.9445	0.00	0.00
8719	1541379.429	734109.8989	0.00	0.00
8720	1541381.427	734109.8533	0.00	0.00
8721	1541383.424	734109.8075	0.00	0.00
8722	1541385.421	734109.7618	0.00	0.00
8723	1541386.45	734108.0068	0.00	0.00
8724	1541388.448	734107.9608	0.00	0.00
8725	1541390.446	734107.9149	0.00	0.00
8726	1541392.444	734107.8689	0.00	0.00
8727	1541393.657	734106.1087	0.00	0.00
8728	1541395.657	734106.0626	0.00	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8729	1541397.656	734106.0165	0.00	0.00
8730	1541399.656	734105.9703	0.00	0.00
8731	1541401.655	734105.9242	0.00	0.00
8732	1541403.655	734105.8781	0.00	0.00
8733	1541405.654	734105.8319	0.00	0.00
8734	1541407.654	734105.7858	0.00	0.00
8735	1541409.653	734105.7396	0.00	0.00
8736	1541411.653	734105.6934	0.00	0.00
8737	1541413.653	734105.6472	0.00	0.00
8738	1541415.652	734105.601	0.00	0.00
8739	1541417.652	734105.5548	0.00	0.00
8740	1541419.652	734105.5086	0.00	0.00
8741	1541421.651	734105.4624	0.00	0.00
8742	1541423.651	734105.4162	0.00	0.00
8743	1541425.651	734105.37	0.00	0.00
8744	1541427.651	734105.3238	0.00	0.00
8745	1541429.651	734105.2776	0.00	0.00
8746	1541431.65	734105.2313	0.00	0.00
8747	1541433.65	734105.1851	0.00	0.00
8748	1541435.65	734105.1389	0.00	0.00
8749	1541437.65	734105.0926	0.00	0.00
8750	1541439.649	734105.0464	0.00	0.00
8751	1541441.649	734105.0001	0.00	-0.15
8752	1541443.649	734104.9539	0.00	-0.41
8753	1541445.649	734104.9076	0.00	-0.67
8754	1541447.649	734104.8614	0.00	-0.93
8755	1541449.648	734104.8151	0.00	-1.18
8756	1541451.648	734104.7689	0.00	-1.45
8757	1541453.648	734104.7226	0.00	-1.59
8758	1541455.648	734104.6763	0.00	-1.53
8759	1541457.648	734104.6301	0.00	-1.50
8760	1541459.647	734104.5838	0.00	-1.48
8761	1541461.647	734104.5375	0.00	-1.47
8762	1541463.647	734104.4912	0.00	-1.46
8763	1541465.646	734104.4449	0.00	-1.44
8764	1541467.646	734104.3987	0.00	-1.43
8765	1541469.646	734104.3524	0.00	-1.42
8766	1541471.646	734104.3061	0.00	-1.41
8767	1541473.645	734104.2598	0.00	-1.39
8768	1541475.645	734104.2135	0.00	-1.36
8769	1541477.644	734104.1672	0.00	-1.16
8770	1541479.644	734104.1208	0.00	-0.99
8771	1541481.644	734104.0745	0.00	-0.82
8772	1541483.643	734104.0282	0.00	-0.65
8773	1541485.643	734103.9818	0.00	-0.50
8774	1541487.642	734103.9355	0.00	-0.52
8775	1541489.641	734103.8891	0.00	-0.86
8776	1541491.641	734103.8428	0.00	-1.28
8777	1541492.365	734105.5583	0.00	-2.06
8778	1541494.363	734105.5119	0.00	-1.93
8779	1541496.361	734105.4655	0.00	-1.88
8780	1541498.359	734105.419	0.00	-1.76
8781	1541499.307	734107.1284	0.00	-3.07
8782	1541501.305	734107.0818	0.00	-3.16
8783	1541503.302	734107.0353	0.00	-3.25
8784	1541505.041	734108.7254	0.00	-4.23
8785	1541507.039	734108.6786	0.00	-4.22
8786	1541509.037	734108.6318	0.00	-4.27
8787	1541510.911	734110.3186	0.00	-5.18
8788	1541512.589	734112.01	0.00	-5.27
8789	1541514.13	734113.7042	0.00	-4.85
8790	1541515.088	734115.4116	0.00	-4.48
8791	1541515.943	734117.12	0.00	-4.12
8792	1541516.976	734118.8228	0.00	-3.71
8793	1541518.37	734120.5172	0.00	-3.21
8794	1541519.485	734122.2196	0.00	-2.74
8795	1541521.491	734122.1652	0.00	-2.60
8796	1541522.459	734123.8276	0.00	-2.60
8797	1541524.591	734123.6279	0.00	-2.60
8798	1541525.701	734125.1346	0.00	-2.60
8799	1541527.483	734125.521	0.00	-2.60
8800	1541529.069	734126.234	0.00	-2.60
8801	1541530.605	734127.0295	0.00	-2.60
8802	1541532.173	734127.7672	0.00	-2.60
8803	1541533.84	734128.2915	0.00	-2.60
8804	1541535.438	734128.6249	0.00	-2.60
8805	1541536.998	734129.5482	0.00	-2.60
8806	1541538.308	734130.8817	0.00	-2.60
8807	1541540.33	734130.838	0.00	-2.20
8808	1541541.403	734132.4911	0.00	-1.68
8809	1541543.149	734132.875	0.00	-1.14
8810	1541544.032	734134.7616	0.00	-0.55
8811	1541545.281	734136.1158	0.00	0.00
8812	1541546.562	734137.372	0.00	0.00
8813	1541547.673	734138.9555	0.00	-0.01
8814	1541548.966	734140.2127	0.00	-0.01
8815	1541332.312	734140.4496	0.00	-0.91
8816	1541334.036	734139.7694	0.00	-0.74
8817	1541335.763	734139.3538	0.00	-0.58

Node	X-Coordinate	Y-Coordinate	Fill	Cut
8818	1541337.489	734138.7999	0.00	-0.41
8819	1541339.213	734138.0565	0.00	-0.24
8820	1541340.933	734137.0773	0.24	0.00
8821	1541342.65	734135.9172	0.08	0.00
8822	1541344.37	734135.0625	0.00	-1.12
8823	1541346.092	734134.2891	0.00	-1.85
8824	1541347.813	734133.5944	0.00	-1.96
8825	1541349.532	734132.764	0.00	-1.23
8826	1541351.253	734132.0685	0.00	-0.60
8827	1541352.979	734131.7346	0.00	-0.02
8828	1541352.953	734129.7371	0.00	-0.28
8829	1541354.677	734129.2886	0.00	0.00
8830	1541354.65	734127.2922	0.00	0.00
8831	1541356.371	734126.7885	0.00	0.00
8832	1541356.345	734124.7901	0.00	0.00
8833	1541358.08	734124.2942	0.00	0.00
8834	1541359.651	734122.9186	0.00	0.00
8835	1541360.405	734120.7943	0.00	0.00
8836	1541362.351	734120.6488	0.00	0.00
8837	1541363.396	734118.9071	0.00	0.00
8838	1541365.391	734118.8654	0.00	0.00
8839	1541366.243	734117.1174	0.00	0.00
8840	1541368.239	734117.0733	0.00	0.00
8841	1541368.658	734115.3339	0.00	0.00
8842	1541370.655	734115.2893	0.00	0.00
8843	1541370.984	734113.5514	0.00	0.00
8844	1541372.981	734113.5064	0.00	0.00
8845	1541373.122	734111.7727	0.00	0.00
8846	1541373.439	734110.0355	0.01	0.00
8847	1541375.436	734109.99	0.00	0.00
8848	1541376.462	734108.2357	0.01	0.00
8849	1541378.46	734108.19	0.00	0.00
8850	1541380.457	734108.1443	0.00	0.00
8851	1541382.455	734108.0985	0.00	0.00
8852	1541384.452	734108.0526	0.00	0.00
8853	1541385.66	734106.2928	0.00	0.00
8854	1541387.66	734106.2468	0.00	0.00
8855	1541389.659	734106.2008	0.00	0.00
8856	1541391.658	734106.1547	0.00	0.00
8857	1541392.447	734104.4047	0.00	0.00
8858	1541394.447	734104.3586	0.00	0.00
8859	1541396.446	734104.3125	0.00	0.00
8860	1541398.445	734104.2664	0.00	0.00
8861	1541400.444	734104.2202	0.00	0.00
8862	1541402.443	734104.1741	0.00	0.00
8863	1541404.442	734104.1279	0.00	0.00
8864	1541406.442	734104.0817	0.00	0.00
8865	1541408.441	734104.0355	0.00	0.00
8866	1541410.44	734103.9894	0.00	0.00
8867	1541412.44	734103.9432	0.00	0.00
8868	1541414.439	734103.897	0.00	0.00
8869	1541416.438	734103.8508	0.00	0.00
8870	1541418.438	734103.8046	0.00	0.00
8871	1541420.437	734103.7584	0.00	0.00
8872	1541422.437	734103.7121	0.00	0.00
8873	1541424.436	734103.6659	0.00	0.00
8874	1541426.436	734103.6197	0.00	0.00
8875	1541428.435	734103.5735	0.00	0.00
8876	1541430.434	734103.5273	0.00	0.00
8877	1541432.434	734103.481	0.00	0.00
8878	1541434.433	734103.4348	0.00	0.00
8879	1541436.433	734103.3886	0.00	0.00
8880	1541438.432	734103.3423	0.00	0.00
8881	1541440.432	734103.2961	0.00	-0.18
8882	1541442.431	734103.2499	0.00	-0.44
8883	1541444.431	734103.2036	0.00	-0.70
8884	1541446.43	734103.1574	0.00	-0.96
8885	1541448.43	734103.1111	0.00	-1.22
8886	1541450.429	734103.0649	0.00	-1.48
8887	1541452.429	734103.0186	0.00	-1.73
8888	1541454.428	734102.9724	0.00	-1.66
8889	1541456.427	734102.9261	0.00	-1.63
8890	1541458.427	734102.8799	0.00	-1.61
8891	1541460.426	734102.8336	0.00	-1.59
8892	1541462.426	734102.7874	0.00	-1.58
8893	1541464.425	734102.7411	0.00	-1.57
8894	1541466.425	734102.6948	0.00	-1.56
8895	1541468.424	734102.6486	0.00	-1.54
8896	1541470.423	734102.6023	0.00	-1.53
8897	1541472.423	734102.556	0.00	-1.52
8898	1541474.422	734102.5097	0.00	-1.50
8899	1541476.421	734102.4634	0.00	-1.35
8900	1541478.421	734102.4172	0.00	-1.11
8901	1541480.42	734102.3709	0.00	-0.89
8902	1541482.419	734102.3246	0.00	-0.72
8903	1541484.418	734102.2783	0.00	-0.55
8904	1541486.418	734102.232	0.00	-0.38
8905	1541488.417	734102.1856	0.00	-0.21
8906	1541490.416	734102.1393	0.00	-0.37

Appendix C

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
8907	1541492.415	734102.093	0.00	-0.88
8908	1541495.639	734102.784	0.00	-1.00
8909	1541495.639	734102.784	0.00	-1.00
8910	1541496.957	734102.979	0.00	-1.06
8911	1541496.957	734102.979	0.00	-1.06
8912	1541504.153	734104.226	0.00	-1.61
8913	1541504.153	734104.226	0.00	-1.61
8914	1541507.736	734106.942	0.00	-3.47
8915	1541511.034	734108.568	0.00	-4.35
8916	1541511.034	734108.568	0.00	-4.35
8920	1541514.586	734111.9627	0.00	-4.93
8921	1541514.586	734111.9627	0.00	-4.93
8922	1541517.083	734115.3638	0.00	-4.06
8923	1541517.083	734115.3638	0.00	-4.06
8924	1541518.253	734117.0727	0.00	-3.71
8925	1541518.253	734117.0727	0.00	-3.71
8926	1541522.364	734120.4201	0.00	-2.60
8927	1541522.364	734122.1001	0.00	-2.60
8928	1541521.924	734121.9131	0.00	-2.60
8929	1541522.252	734123.4227	0.00	-2.60
8930	1541528.509	734123.8114	0.00	-2.60
8931	1541530.096	734124.5222	0.00	-2.60
8932	1541531.634	734125.3208	0.00	-2.60
8933	1541533.203	734126.0401	0.00	-2.60
8934	1541534.881	734126.5563	0.00	-2.60
8935	1541536.525	734127.2018	0.00	-2.60
8936	1541537.987	734127.7542	0.00	-2.60
8937	1541539.328	734128.9528	0.00	-2.60
8938	1541541.358	734129.1466	0.00	-2.10
8939	1541542.398	734130.7792	0.00	-1.61
8940	1541544.186	734131.1342	0.00	-1.09
8941	1541545.028	734133.0333	0.00	-0.56
8942	1541546.258	734134.4008	0.00	-0.01
8943	1541547.55	734135.5959	0.00	0.00
8944	1541548.621	734137.1969	0.00	0.00
8945	1541549.908	734138.4476	0.00	-0.01
8946	1541332.288	734138.449	0.00	-0.90
8947	1541334.012	734137.7697	0.00	-0.74
8948	1541335.739	734137.3532	0.00	-0.57
8949	1541337.465	734136.7996	0.00	-0.41
8950	1541339.189	734136.0567	0.00	-0.24
8951	1541340.909	734135.079	0.43	0.00
8952	1541342.626	734133.9188	0.05	0.00
8953	1541344.346	734133.064	0.00	-1.23
8954	1541346.067	734132.292	0.00	-2.11
8955	1541347.788	734131.5978	0.00	-1.93
8956	1541349.507	734130.7667	0.00	-1.35
8957	1541351.228	734130.0711	0.00	-0.78
8958	1541351.202	734128.0739	0.00	-0.87
8959	1541352.927	734127.7398	0.00	-0.27
8960	1541352.901	734125.7426	0.00	-0.25
8961	1541354.624	734125.295	0.00	0.00
8962	1541354.592	734123.2944	0.00	0.00
8963	1541356.281	734122.7993	0.00	0.00
8964	1541357.871	734122.4078	0.00	0.00
8965	1541358.538	734120.8293	0.00	0.00
8966	1541359.392	734119.015	0.00	0.00
8967	1541361.391	734118.9543	0.00	0.00
8968	1541362.249	734117.2053	0.00	0.00
8969	1541364.246	734117.1609	0.00	0.00
8970	1541364.663	734115.4222	0.01	0.00
8971	1541366.66	734115.3782	0.00	0.00
8972	1541366.989	734113.6407	0.13	0.00
8973	1541368.986	734113.5962	0.00	0.00
8974	1541369.128	734111.8629	0.24	0.00
8975	1541371.125	734111.8179	0.00	0.00
8976	1541371.442	734110.0808	0.30	0.00
8977	1541372.468	734108.3269	0.45	0.00
8978	1541374.465	734108.2813	0.26	0.00
8979	1541375.666	734106.5223	0.21	0.00
8980	1541377.665	734106.4765	0.10	0.00
8981	1541379.664	734106.4306	0.01	0.00
8982	1541381.662	734106.3847	0.00	0.00
8983	1541383.661	734106.3388	0.00	0.00
8984	1541384.452	734104.589	0.00	-0.02
8985	1541386.451	734104.543	0.00	0.00
8986	1541388.45	734104.4969	0.00	0.00
8987	1541390.448	734104.4508	0.00	0.00
8988	1541391.511	734102.694	0.00	0.00
8989	1541393.51	734102.6479	0.00	0.00
8990	1541395.508	734102.6018	0.00	0.00
8991	1541397.507	734102.5556	0.00	0.00
8992	1541399.506	734102.5094	0.00	0.00
8993	1541401.505	734102.4633	0.00	0.00
8994	1541403.504	734102.4171	0.00	0.00
8995	1541405.503	734102.3709	0.00	0.00
8996	1541407.501	734102.3247	0.00	0.00
8997	1541409.5	734102.2785	0.00	0.00
8998	1541411.499	734102.2323	0.00	0.00
8999	1541413.498	734102.1862	0.00	0.00
9000	1541415.497	734102.14	0.00	0.00
9001	1541417.496	734102.0937	0.00	0.00
9002	1541419.495	734102.0475	0.00	0.00
9003	1541421.494	734102.0013	0.00	0.00
9004	1541423.493	734101.9551	0.00	0.00
9005	1541425.492	734101.9089	0.00	0.00
9006	1541427.491	734101.8627	0.00	0.00
9007	1541429.49	734101.8165	0.00	0.00
9008	1541431.489	734101.7703	0.00	0.00
9009	1541433.488	734101.724	0.00	0.00
9010	1541435.487	734101.6778	0.00	0.00
9011	1541437.486	734101.6316	0.00	0.00
9012	1541439.485	734101.5854	0.00	-0.25
9013	1541441.484	734101.5391	0.00	-0.51
9014	1541443.483	734101.4929	0.00	-0.77
9015	1541445.482	734101.4467	0.00	-1.03
9016	1541447.481	734101.4004	0.00	-1.29
9017	1541449.481	734101.3542	0.00	-1.55
9018	1541451.48	734101.308	0.00	-1.81
9019	1541453.479	734101.2617	0.00	-1.80
9020	1541455.478	734101.2155	0.00	-1.76
9021	1541457.477	734101.1692	0.00	-1.73
9022	1541459.476	734101.123	0.00	-1.72
9023	1541461.475	734101.0768	0.00	-1.71
9024	1541463.474	734101.0305	0.00	-1.69
9025	1541465.473	734100.9843	0.00	-1.68
9026	1541467.472	734100.938	0.00	-1.67
9027	1541469.471	734100.8918	0.00	-1.65
9028	1541471.47	734100.8455	0.00	-1.64
9029	1541473.468	734100.7993	0.00	-1.63
9030	1541475.467	734100.753	0.00	-1.60
9031	1541477.466	734100.7067	0.00	-1.34
9032	1541479.465	734100.6605	0.00	-1.04
9033	1541481.464	734100.6142	0.00	-0.80
9034	1541483.463	734100.5679	0.00	-0.61
9035	1541485.462	734100.5217	0.00	-0.44
9036	1541487.46	734100.4754	0.00	-0.26
9037	1541489.459	734100.4291	0.00	-0.09
9038	1541491.458	734100.3828	0.00	-0.35
9039	1541493.457	734100.3365	0.00	-0.52
9040	1541494.414	734102.0466	0.00	-0.96
9041	1541496.413	734102.0003	0.00	-0.95
9042	1541498.412	734101.9539	0.00	-1.17
9043	1541500.411	734101.9076	0.00	-1.22
9044	1541501.637	734103.6107	0.00	-1.37
9045	1541503.636	734103.5643	0.00	-1.23
9046	1541505.635	734103.5178	0.00	-1.12
9047	1541506.35	734105.233	0.00	-2.08
9048	1541508.348	734105.1864	0.00	-2.25
9049	1541510.345	734105.1398	0.00	-2.41
9050	1541511.29	734106.8486	0.00	-3.52
9051	1541513.032	734108.5379	0.00	-4.42
9052	1541514.907	734110.2243	0.00	-5.05
9053	1541516.584	734111.9157	0.00	-4.52
9054	1541518.131	734113.609	0.00	-4.02
9055	1541519.079	734115.3145	0.00	-3.65
9056	1541519.934	734117.0179	0.00	-3.30
9057	1541520.964	734118.7264	0.00	-2.91
9058	1541522.956	734118.6772	0.00	-2.60
9059	1541524.373	734120.3643	0.00	-2.60
9060	1541526.482	734120.1919	0.00	-2.60
9061	1541527.764	734121.6857	0.00	-2.60
9062	1541529.52	734122.105	0.00	-2.60
9063	1541531.141	734122.8481	0.00	-2.60
9064	1541532.676	734123.6048	0.00	-2.60
9065	1541534.249	734124.3385	0.00	-2.60
9066	1541535.95	734124.8838	0.00	-2.60
9067	1541537.59	734125.5016	0.00	-2.60
9068	1541539.121	734126.3535	0.00	-2.60
9069	1541540.615	734127.1792	0.00	-2.38
9070	1541542.474	734127.4778	0.00	-1.91
9071	1541543.458	734129.0909	0.00	-1.52
9072	1541545.272	734129.4475	0.00	-1.01
9073	1541546.08	734131.3074	0.00	-0.59
9074	1541546.976	734132.7612	0.00	-0.11
9075	1541548.552	734133.6332	0.00	0.00
9076	1541549.581	734135.4381	0.00	0.00
9077	1541550.855	734136.6851	0.00	0.00
9078	1541332.264	734136.4484	0.00	-0.90
9079	1541333.988	734135.77	0.00	-0.73
9080	1541335.715	734135.3527	0.00	-0.57
9081	1541337.441	734134.7993	0.00	-0.40
9082	1541339.164	734134.0571	0.00	-0.24
9083	1541340.884	734133.0809	0.59	0.00
9084	1541342.601	734131.9205	0.04	0.00
9085	1541344.321	734131.0657	0.00	-1.38
9086	1541346.042	734130.2952	0.00	-2.41
9087	1541347.763	734129.6015	0.00	-2.00
9088	1541349.481	734128.7697	0.00	-1.47
9089	1541349.456	734126.7729	0.00	-1.48
9090	1541351.176	734126.0769	0.00	-0.86
9091	1541351.149	734124.0803	0.00	-0.88
9092	1541352.874	734123.7459	0.00	-0.24
9093	1541352.848	734121.7483	0.00	-0.21
9094	1541354.573	734121.2713	0.00	0.00
9095	1541356.425	734120.8118	0.00	0.00
9096	1541357.266	734119.0956	0.10	0.00
9097	1541358.254	734117.3125	0.42	0.00
9098	1541360.252	734117.2495	0.15	0.00
9099	1541360.67	734115.5097	0.55	0.00
9100	1541362.666	734115.4661	0.26	0.00
9101	1541362.996	734113.7291	0.65	0.00
9102	1541364.992	734113.685	0.38	0.00
9103	1541365.134	734111.9522	0.76	0.00
9104	1541367.131	734111.9076	0.52	0.00
9105	1541367.45	734110.1709	0.72	0.00
9106	1541369.446	734110.1259	0.59	0.00
9107	1541370.471	734108.3723	0.58	0.00
9108	1541371.669	734106.6137	0.48	0.00
9109	1541373.668	734106.5681	0.35	0.00
9110	1541374.459	734104.8188	0.25	0.00
9111	1541376.457	734104.773	0.11	0.00
9112	1541378.456	734104.727	0.01	0.00
9113	1541380.454	734104.6811	0.00	0.00
9114	1541382.453	734104.6351	0.00	-0.05
9115	1541383.517	734102.8785	0.00	-0.02
9116	1541385.515	734102.8324	0.00	-0.01
9117	1541387.514	734102.7863	0.00	-0.01
9118	1541389.512	734102.7402	0.00	0.00
9119	1541390.581	734100.9828	0.00	-0.02
9120	1541392.581	734100.9366	0.00	-0.02
9121	1541394.581	734100.8904	0.00	-0.02
9122	1541396.581	734100.8442	0.00	0.00
9123	1541398.581	734100.798	0.00	0.00
9124	1541400.581	734100.7518	0.00	0.00
9125	1541402.581	734100.7055	0.00	0.00
9126	1541404.581	734100.6593	0.00	0.00
9127	1541406.582	734100.6131	0.00	0.00
9128	1541408.582	734100.5669	0.00	0.00
9129	1541410.582	734100.5206	0.00	0.00
9130	1541412.582	734100.4744	0.00	0.00
9131	1541414.582	734100.4281	0.00	0.00
9132	1541416.583	734100.3819	0.00	0.00
9133	1541418.583	734100.3357	0.03	0.00
9134	1541420.583	734100.2894	0.02	0.00
9135	1541422.583	734100.2432	0.01	0.00
9136	1541424.584	734100.1969	0.00	0.00
9137	1541426.584	734100.1507	0.00	0.00
9138	1541428.584	734100.1044	0.00	-0.02
9139	1541430.585	734100.0582	0.00	-0.06
9140	1541432.585	734100.0119	0.00	-0.11
9141	1541434.585	734099.9657	0.00	-0.16
9142	1541436.585	734099.9194	0.00	-0.22
9143	1541438.586	734099.8731	0.00	-0.32
9144	1541440.586	734099.8269	0.00	-0.59
9145	1541442.586	734099.7806	0.00	-0.85
9146	1541444.587	734099.7344	0.00	-1.11
9147	1541446.587	734099.6881	0.00	-1.37
9148	1541448.587	734099.6418	0.00	-1.63
9149	1541450.588	734099.5956	0.00	-1.89
9150	1541452.588	734099.5493	0.00	-1.93
9151	1541454.588	734099.5031	0.00	-1.89
9152	1541456.588	734099.4568	0.00	-1.86
9153	1541458.589	734099.4105	0.00	-1.84
9154	1541460.589	734099.3643	0.00	-1.83
9155	1541462.589	734099.318	0.00	-1.82
9156	1541464.59	734099.2717	0.00	-1.80
9157	1541466.59	734099.2255	0.00	-1.79
9158	1541468.59	734099.1792	0.00	-1.78
9159	1541470.59	734099.1329	0.00	-1.76
9160	1541472.591	734099.0866	0.00	-1.75
9161	1541474.591	734099.0404	0.00	-1.73
9162	1541476.591	734098.9941	0.00	-1.64
9163	1541478.591	734098.9478	0.00	-1.34
9164	1541480.591	734098.9015	0.00	-1.03
9165	1541482.591	734098.8552	0.00	-0.73
9166	1541484.592	734098.809	0.00	-0.47
9167	1541486.592	734098.7627	0.00	-0.31
9168	1541488.592	734098.7164	0.00	-0.14
9169	1541490.592	734098.6701	0.00	0.00
9170	1541492.592	734098.6238	0.00	-0.32
9171	1541494.592	734098.5775	0.00	-0.56
9172	1541495.455	734100.2902	0.00	-0.76
9173	1541497.454	734100.2439	0.00	-1.00
9174	1541499.452	734100.1976	0.00	-1.02
9175	1541501.451	734100.1513	0.00	-0.89
9176	1541502.41	734101.8612	0.00	-1.09
9177	1541504.408	734101.8148	0.00	-1.01
9178	1541506.407	734101.7683	0.00	-0.90
9179	1541507.634	734103.4712	0.00	-0.99
9180	1541509.632	734103.4247	0.00	-1.14
9181	1541511.631	734103.3781	0.00	-1.37
9182	1541512.342	734105.0931	0.00	-2.56
9183	1541513.287	734106.8017	0.00	-3.55
9184	1541515.029	734108.4908	0.00	-4.43
9185	1541516.904	734110.1767	0.00	-4.64
9186	1541518.579	734111.8687	0.00	-4.12
9187	1541520.152	734113.5653	0.00	-3.62
9188	1541521.08	734115.2504	0.00	-3.23
9189	1541521.924	734116.9697	0.00	-2.88
9190	1541523.912	734116.9214	0.00	-2.60
9191	1541524.95	734118.6291	0.00	-2.60
9192	1541526.96	734118.532	0.00	-2.60
9193	1541528.827	734119.8988	0.00	-2.60
9194	1541530.605	734120.6482	0.00	-2.60
9195	1541532.162	734121.0585	0.00	-2.60
9196	1541533.709	734121.893	0.00	-2.60
9197	1541535.286	734122.6753	0.00	-2.60
9198	1541537.027	734123.2239	0.00	-2.60
9199	1541538.678	734123.8153	0.00	-2.60
9200	1541540.194	734124.6486	0.00	-2.47
9201	1541541.714	734125.5244	0.00	-2.14
9202	1541543.626	734125.8613	0.00	-1.70
9203	1541544.59	734127.4363	0.00	-1.36
9204	1541546.418	734127.8185	0.00	-0.90
9205	1541547.211	734129.6668	0.00	-0.54
9206	1541548.149	734131.3452	0.00	-0.07
9207	1541549.823	734131.8632	0.00	-0.01
9208	1541550.607	734133.77	0.00	0.00
9209	1541551.884	734134.9694	0.00	-0.01
9210	1541332.24	734134.4477	0.00	-0.89
9211	1541333.964	734133.7704	0.00	-0.72
9212	1541335.691	734133.3523	0.00	-0.56
9213	1541337.417	734132.7991	0.00	-0.40
9214	1541339.14	734132.0575	0.00	-0.10
9215	1541340.86	734131.0829	0.71	0.00
9216	1541342.577	734129.9225	0.00	-0.04
9217	1541344.296	734129.0676	0.00	-1.48
9218	1541346.017	734128.2986	0.00	-2.40
9219	1541347.738	734127.6054	0.00	-2.07
9220	1541347.712	734125.6097	0.00	-2.07
9221	1541349.43	734124.7765	0.00	-1.54
9222	1541349.403	734122.7804	0.00	-1.34
9223	1541351.123	734122.084	0.00	-0.74
9224	1541351.101	734120.0873	0.00	-0.59
9225	1541352.86	734119.7485	0.21	0.00
9226	1541354.861	734119.1976	0.41	0.00
9227	1541356.207	734117.4162	0.69	0.00
9228	1541356.683	734115.6093	0.99	0.00
9229	1541358.673	734115.5541	0.82	0.00
9230	1541359.003	734113.8161	0.94	0.00
9231	1541360.999	734113.7728	0.70	0.00
9232	1541361.142	734112.0405	0.80	0.00
9233	1541363.138	734111.9965	0.79	0.00
9234	1541363.459	734110.2604	0.83	0.00
9235	1541365.454	734110.2158	0.80	0.00
9236	1541366.478	734108.4627	0.78	0.00
9237	1541368.474	734108.4176	0.69	0.00
9238	1541369.671	734106.6593	0.61	0.00
9239	1541370.463	734104.9104	0.53	0.00
9240	1541372.461	734104.8647	0.39	0.00
9241	1541373.526	734103.1086	0.28	0.00
9242	1541375.524	734103.0626	0.13	0.00
9243	1541377.522	734103.0166	0.01	0.00
9244	1541379.52	734102.9706	0.00	-0.02
9245	1541381.519	734102.9245	0.00	-0.03
9246	1541382.581	734101.1675	0.00	-0.01
9247	1541384.581	734101.1213	0.00	-0.01
9248	1541386.581	734101.0752	0.00	-0.02
9249	1541388.581	734101.029	0.00	-0.02
9250	1541389.415	734099.2764	0.00	-0.02
9251	1541391.415	734099.2302	0.00	-0.02
9252	1541393.416	734099.1839	0.00	-0.02
9253	1541395.416	734099.1377	0.00	-0.01
9254	1541397.417	734099.0915	0.00	-0.01
9255	1541399.417	734099.0452	0.01	0.00
9256	1541401.418	734098.999	0.00	-0.05
9257	1541403.418	734098.9527	0.00	-0.10
9258	1541405.419	734098.9065	0.00	-0.10
9259	1541407.419	734098.8602	0.00	0.00
9260	1541409.42	734098.814	0.00	0.00
9261	1541411.42	734098.7677	0.02	0.00
9262	1541413.421	734098.7215	0.15	0.00

Node	X-Coordinate	Y-Coordinate	Fill	Cut
9263	1541415.421	734098.6752	0.28	0.00
9264	1541415.423	734098.5827	0.21	0.00
9265	1541415.424	734098.4901	0.14	0.00
9266	1541415.424	734098.3975	0.07	0.00
9267	1541415.425	734098.305	0.02	0.07
9268	1541415.426	734098.2124	0.00	0.14
9269	1541415.427	734098.1198	0.00	0.21
9270	1541415.428	734098.0273	0.00	0.28
9271	1541415.429	734097.9347	0.00	0.35
9272	1541483.472	734098.2589	0.00	0.20
9273	1541497.428	734098.2589	0.00	0.32
9274	1541497.428	734098.166	0.00	0.32
9275	1541497.428	734098.0734	0.00	0.32
9276	1541441.43	734098.0738	0.00	0.78
9277	1541441.431	734097.9813	0.00	1.06
9278	1541445.431	734097.9813	0.00	1.33
9279	1541447.431	734097.9813	0.00	1.61
9280	1541449.432	734097.9813	0.00	1.88
9281	1541451.432	734097.9813	0.00	2.04
9282	1541453.433	734097.7962	0.00	2.00
9283	1541455.433	734097.7499	0.00	1.99
9284	1541457.433	734097.7037	0.00	1.97
9285	1541459.434	734097.6574	0.00	1.96
9286	1541461.436	734097.6111	0.00	1.94
9287	1541463.436	734097.5648	0.00	1.92
9288	1541465.437	734097.5186	0.00	1.88
9289	1541467.438	734097.4723	0.00	1.84
9290	1541469.438	734097.426	0.00	1.82
9291	1541471.439	734097.3798	0.00	1.80
9292	1541473.439	734097.3335	0.00	1.77
9293	1541475.44	734097.2872	0.00	1.73
9294	1541477.44	734097.2409	0.00	1.63
9295	1541479.441	734097.1947	0.00	1.39
9296	1541481.441	734097.1484	0.00	1.08
9297	1541483.442	734097.1021	0.00	0.77
9298	1541485.442	734097.0558	0.00	0.46
9299	1541487.443	734097.0095	0.00	0.19
9300	1541489.443	734096.9632	0.00	0.04
9301	1541491.444	734096.917	0.00	0.05
9302	1541493.444	734096.8707	0.00	0.32
9303	1541495.445	734096.8244	0.00	0.54
9304	1541496.592	734098.5312	0.00	0.79
9305	1541498.592	734098.4849	0.00	0.76
9306	1541500.592	734098.4386	0.00	0.67
9307	1541502.591	734098.3922	0.00	0.60
9308	1541503.449	734100.1049	0.00	0.83
9309	1541505.448	734100.0586	0.00	0.75
9310	1541507.446	734100.0122	0.00	0.63
9311	1541508.405	734101.7219	0.00	0.78
9312	1541510.404	734101.6754	0.00	0.67
9313	1541512.402	734101.6289	0.00	0.55
9314	1541513.629	734103.3315	0.00	1.57
9315	1541514.339	734105.0463	0.00	2.70
9316	1541515.283	734106.7548	0.00	3.56
9317	1541517.026	734108.4437	0.00	4.13
9318	1541518.902	734110.1291	0.00	4.23
9319	1541520.556	734111.836	0.00	3.73
9320	1541522.352	734113.3845	0.00	3.21
9321	1541523.062	734115.1999	0.00	2.85
9322	1541525.059	734115.1708	0.00	2.60
9323	1541525.908	734116.8739	0.00	2.60
9324	1541527.896	734116.8018	0.00	2.60
9325	1541528.978	734118.2663	0.00	2.60
9326	1541531.277	734118.6822	0.00	2.60
9327	1541533.336	734119.4699	0.00	2.60
9328	1541534.979	734120.3027	0.00	2.60
9329	1541536.403	734121.224	0.00	2.60
9330	1541538.049	734121.4628	0.00	2.60
9331	1541539.894	734122.0777	0.00	2.44
9332	1541541.551	734123.1671	0.00	2.23
9333	1541542.936	734124.129	0.00	1.88
9334	1541544.755	734124.1883	0.00	1.56
9335	1541545.765	734125.7747	0.00	1.19
9336	1541547.579	734126.2119	0.00	0.81
9337	1541548.383	734128.0489	0.00	0.49
9338	1541549.284	734129.7081	0.00	0.07
9339	1541551.022	734130.2085	0.00	-0.02
9340	1541551.474	734132.1549	0.00	-0.01
9341	1541552.943	734133.2743	0.00	-0.01
9342	1541332.216	734132.4471	0.00	-0.89
9343	1541333.94	734131.7708	0.00	-0.72
9344	1541335.667	734131.3519	0.00	-0.56
9345	1541337.393	734130.7991	0.00	-0.39
9346	1541339.116	734130.0582	0.04	0.00
9347	1541340.835	734129.0852	0.81	0.00
9348	1541342.552	734127.9247	0.00	-0.14
9349	1541344.271	734127.0699	0.00	-1.47
9350	1541345.992	734126.3023	0.00	-1.97
9351	1541345.966	734124.3063	0.00	-1.65

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
9352	1541347.686	734123.6143	0.00	-1.63
9353	1541347.66	734121.6192	0.00	-1.56
9354	1541349.377	734120.7839	0.00	-1.08
9355	1541349.349	734118.7901	0.00	-0.98
9356	1541351.063	734118.0954	0.00	-0.39
9357	1541352.78	734117.7959	0.55	0.00
9358	1541354.337	734117.2804	0.98	0.00
9359	1541354.714	734115.6327	1.37	0.00
9360	1541355.013	734113.8983	0.63	0.00
9361	1541357.007	734113.8603	1.20	0.00
9362	1541357.151	734112.1275	1.79	0.00
9363	1541359.146	734112.0841	0.73	0.00
9364	1541359.469	734110.3486	0.84	0.00
9365	1541361.463	734110.3047	0.85	0.00
9366	1541362.486	734108.5525	0.89	0.00
9367	1541364.482	734108.5077	0.86	0.00
9368	1541365.676	734106.7501	0.83	0.00
9369	1541367.673	734106.7048	0.73	0.00
9370	1541368.465	734104.9561	0.66	0.00
9371	1541369.53	734103.2003	0.47	0.00
9372	1541371.528	734103.1545	0.42	0.00
9373	1541372.583	734101.3981	0.20	0.00
9374	1541374.583	734101.352	0.12	0.00
9375	1541376.582	734101.3059	0.00	0.00
9376	1541378.582	734101.2598	0.00	-0.05
9377	1541380.582	734101.2136	0.00	-0.02
9378	1541381.414	734099.4612	0.00	-0.01
9379	1541383.414	734099.415	0.00	-0.02
9380	1541385.414	734099.3688	0.00	-0.02
9381	1541387.415	734099.3226	0.00	-0.02
9382	1541388.433	734097.5661	0.00	-0.03
9383	1541390.433	734097.5199	0.00	-0.02
9384	1541392.434	734097.4736	0.00	-0.02
9385	1541394.434	734097.4274	0.00	-0.02
9386	1541396.435	734097.3811	0.00	-0.01
9387	1541398.435	734097.3349	0.00	-0.02
9388	1541400.436	734097.2886	0.00	-0.05
9389	1541402.436	734097.2424	0.00	-0.31
9390	1541404.437	734097.1961	0.00	-0.28
9391	1541406.437	734097.1498	0.00	-0.16
9392	1541408.438	734097.1036	0.00	-0.01
9393	1541410.438	734097.0573	0.21	0.00
9394	1541412.439	734097.0111	0.33	0.00
9395	1541414.44	734096.9648	0.30	0.00
9396	1541416.44	734096.9185	0.24	0.00
9397	1541418.441	734096.8723	0.18	0.00
9398	1541420.441	734096.826	0.12	0.00
9399	1541422.442	734096.7798	0.05	0.00
9400	1541424.443	734096.7335	0.00	-0.01
9401	1541426.443	734096.6872	0.00	-0.07
9402	1541428.444	734096.641	0.00	-0.13
9403	1541430.445	734096.5947	0.00	-0.18
9404	1541432.445	734096.5484	0.00	-0.23
9405	1541434.446	734096.5022	0.00	-0.26
9406	1541436.446	734096.4559	0.00	-0.32
9407	1541438.447	734096.4096	0.00	-0.35
9408	1541440.448	734096.3634	0.00	-0.62
9409	1541442.448	734096.3171	0.00	-0.89
9410	1541444.449	734096.2708	0.00	-1.17
9411	1541446.45	734096.2246	0.00	-1.44
9412	1541448.45	734096.1783	0.00	-1.71
9413	1541450.451	734096.132	0.00	-1.94
9414	1541452.452	734096.0858	0.00	-1.89
9415	1541454.452	734096.0395	0.00	-1.89
9416	1541456.453	734095.9932	0.00	-1.87
9417	1541458.453	734095.947	0.00	-1.87
9418	1541460.454	734095.9007	0.00	-1.87
9419	1541462.455	734095.8544	0.00	-1.87
9420	1541464.455	734095.8082	0.00	-1.87
9421	1541466.456	734095.7619	0.00	-1.87
9422	1541468.457	734095.7156	0.00	-1.83
9423	1541470.457	734095.6694	0.00	-1.78
9424	1541472.458	734095.6231	0.00	-1.75
9425	1541474.458	734095.5768	0.00	-1.73
9426	1541476.459	734095.5305	0.00	-1.62
9427	1541478.459	734095.4843	0.00	-1.50
9428	1541480.46	734095.438	0.00	-1.41
9429	1541482.461	734095.3917	0.00	-1.10
9430	1541484.461	734095.3455	0.00	-0.79
9431	1541486.462	734095.2992	0.00	-0.49
9432	1541488.462	734095.2529	0.00	-0.18
9433	1541490.463	734095.2066	0.00	0.00
9434	1541492.463	734095.1604	0.00	-0.11
9435	1541494.464	734095.1141	0.00	-0.29
9436	1541496.464	734095.0678	0.00	-0.27
9437	1541497.445	734096.7781	0.00	-0.52
9438	1541499.445	734096.7318	0.00	-0.48
9439	1541501.446	734096.6855	0.00	-0.43
9440	1541503.446	734096.6392	0.00	-0.37

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
9441	1541504.591	734098.3459	0.00	-0.55
9442	1541506.591	734098.2996	0.00	-0.43
9443	1541508.591	734098.2532	0.00	-0.36
9444	1541509.444	734099.9658	0.00	-0.55
9445	1541511.442	734099.9194	0.00	-0.43
9446	1541513.44	734099.873	0.00	-0.38
9447	1541514.401	734101.5824	0.00	-0.62
9448	1541515.628	734103.2847	0.00	-1.77
9449	1541516.336	734104.9993	0.00	-2.79
9450	1541517.279	734106.7069	0.00	-3.41
9451	1541519.019	734108.392	0.00	-3.78
9452	1541520.87	734110.0545	0.00	-3.81
9453	1541522.336	734111.5646	0.00	-3.38
9454	1541524.151	734111.7557	0.00	-2.98
9455	1541524.525	734113.4587	0.00	-2.75
9456	1541526.55	734113.4041	0.00	-2.60
9457	1541527.052	734115.1172	0.00	-2.60
9458	1541529.038	734115.0827	0.00	-2.60
9459	1541530.023	734116.8098	0.00	-2.60
9460	1541532.026	734116.5898	0.00	-2.60
9461	1541533.56	734117.4923	0.00	-2.60
9462	1541535.302	734118.2943	0.00	-2.60
9463	1541537.083	734119.2646	0.00	-2.60
9464	1541539.033	734119.763	0.00	-2.43
9465	1541540.719	734120.2114	0.00	-2.25
9466	1541542.104	734121.2503	0.00	-2.08
9467	1541543.809	734122.2622	0.00	-1.79
9468	1541545.75	734122.6807	0.00	-1.49
9469	1541547.091	734124.0047	0.00	-1.19
9470	1541548.785	734124.837	0.00	-0.79
9471	1541549.639	734126.4887	0.00	-0.42
9472	1541550.518	734128.0934	0.00	-0.06
9473	1541552.256	734128.6583	0.00	-0.03
9474	1541552.728	734130.8504	0.00	-0.03
9475	1541554.224	734131.7373	0.00	-0.03
9476	1541332.192	734130.4465	0.00	-0.88
9477	1541333.916	734129.7713	0.00	-0.72
9478	1541335.643	734129.3516	0.00	-0.55
9479	1541337.368	734128.7992	0.00	-0.39
9480	1541339.092	734128.059	0.15	0.00
9481	1541340.811	734127.0877	0.86	0.00
9482	1541342.527	734125.9272	0.00	-0.19
9483	1541344.246	734125.0724	0.00	-1.39
9484	1541344.221	734123.0753	0.00	-1.30
9485	1541345.94	734122.3107	0.00	-1.46
9486	1541345.914	734120.3156	0.00	-1.35
9487	1541347.633	734119.6247	0.00	-1.24
9488	1541347.606	734117.6305	0.00	-0.93
9489	1541349.32	734116.793	0.00	-0.72
9490	1541351.051	734116.1156	0.00	-0.43
9491	1541352.797	734115.7892	1.57	0.00
9492	1541353.028	734113.9657	1.02	0.00
9493	1541353.154	734112.2113	0.19	0.00
9494	1541355.155	734112.1695	0.65	0.00
9495	1541355.479	734110.4353	0.60	0.00
9496	1541357.474	734110.3922	0.63	0.00
9497	1541358.495	734108.6411	0.60	0.00
9498	1541360.491	734108.597	0.78	0.00
9499	1541361.681	734106.8403	0.70	0.00
9500	1541363.678	734106.7953	0.80	0.00
9501	1541364.47	734105.0472	0.65	0.00
9502	1541366.467	734105.0017	0.67	0.00
9503	1541367.533	734103.2462	0.49	0.00
9504	1541368.585	734101.4901	0.36	0.00
9505	1541370.584	734101.4441	0.29	0.00
9506	1541371.414	734099.6921	0.19	0.00
9507	1541373.413	734099.646	0.09	0.00
9508	1541375.413	734099.5998	0.02	0.00
9509	1541377.414	734099.5536	0.01	0.00
9510	1541379.414	734099.5074	0.00	0.00
9511	1541380.431	734097.7511	0.08	0.00
9512	1541382.431	734097.7048	0.03	0.00
9513	1541384.432	734097.6586	0.00	-0.01
9514	1541386.432	734097.6124	0.00	-0.03
9515	1541387.625	734095.8521	0.03	0.00
9516	1541389.625	734095.8059	0.00	-0.02
9517	1541391.624	734095.7596	0.00	-0.02
9518	1541393.624	734095.7134	0.00	-0.02
9519	1541395.623	734095.6672	0.00	-0.02
9520	1541397.623	734095.6209	0.00	-0.01
9521	1541399.622	734095.5747	0.00	-0.06
9522	1541401.622	734095.5285	0.00	-0.29
9523	1541403.621	734095.4822	0.00	-0.31
9524	1541405.62	734095.436	0.00	-0.19
9525	1541407.62	734095.3897	0.00	0.00
9526	1541409.619	734095.3435	0.23	0.00
9527	1541411.619	734095.2973	0.26	0.00
9528	1541413.618	734095.251	0.25	0.00
9529	1541415.618	734095.2048	0.20	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
9530	1541417.617	734095.1586	0.15	0.00
9531	1541419.617	734095.1123	0.09	0.00
9532	1541421.616	734095.0661	0.03	0.00
9533	1541423.616	734095.0198	0.00	-0.03
9534	1541425.615	734094.9736	0.00	-0.08
9535	1541427.615	734094.9274	0.00	-0.14
9536	1541429.615	734094.8811	0.00	-0.19
9537	1541431.614	734094.8349	0.00	-0.24
9538	1541433.614	734094.7886	0.00	-0.26
9539	1541435.613	734094.7424	0.00	-0.32
9540	1541437.613	734094.6962	0.00	-0.37
9541	1541439.612	734094.6499	0.00	-0.48
9542	1541441.612	734094.6037	0.00	-0.75
9543	1541443.611	734094.5574	0.00	-1.02
9544	1541445.611	734094.5112	0.00	-1.29
9545	1541447.61	734094.465	0.00	-1.57
9546	1541449.61	734094.4187	0.00	-1.82
9547	1541451.609	734094.3725	0.00	-1.78
9548	1541453.609	734094.3262	0.00	-1.78
9549	1541455.608	734094.28	0.00	-1.77
9550	1541457.608	734094.2338	0.00	-1.76
9551	1541459.607	734094.1875	0.00	-1.76
9552	1541461.607	734094.1413	0.00	-1.76
9553	1541463.606	734094.095	0.00	-1.76
9554	1541465.606	734094.0488	0.00	-1.76
9555	1541467.605	734094.0025	0.00	-1.76
9556	1541469.605	734093.9563	0.00	-1.76
9557	1541471.604	734093.9101	0.00	-1.76
9558	1541473.604	734093.8638	0.00	-1.72
9559	1541475.603	734093.8176	0.00	-1.63
9560	1541477.603	734093.7713	0.00	-1.51
9561	1541479.602	734093.7251	0.00	-1.39
9562	1541481.602	734093.6789	0.00	-1.27
9563	1541483.601	734093.6326	0.00	-1.11
9564	1541485.601	734093.5864	0.00	-0.80
9565	1541487.6	734093.5401	0.00	-0.49
9566	1541489.6	734093.4939	0.00	-0.14
9567	1541491.599	734093.4476	0.04	0.00
9568	1541493.599	734093.4014	0.00	-0.08
9569	1541495.598	734093.3552	0.00	-0.09
9570	1541497.598	734093.3089	0.00	-0.15
9571	1541498.465	734095.0215	0.00	-0.31
9572	1541500.465	734094.9753	0.00	-0.32
9573	1541502.465	734094.929	0.00	-0.26
9574	1541504.466	734094.8827	0.00	-0.26
9575	1541505.446	734096.5929	0.00	-0.33
9576	1541507.446	734096.5466	0.00	-0.27
9577	1541509.446	734096.5003	0.00	-0.26
9578	1541510.59	734098.2069	0.00	-0.31
9579	1541512.59	734098.1605	0.00	-0.30
9580	1541514.589	734098.1141	0.00	-0.29
9581	1541515.438	734099.8266	0.00	-0.31
9582	1541516.399	734101.5358	0.00	-0.88
9583	1541517.626	734103.238	0.00	-1.93
9584	1541518.333	734104.9525	0.00	-2.61
9585	1541519.276	734106.66	0.00	-3.08
9586	1541521.018	734108.3463	0.00	-3.30
9587	1541522.9	734109.9999	0.00	-3.34
9588	1541524.893	734109.9889	0.00	-2.76
9589	1541526.125	734111.6865	0.00	-2.60
9590	1541528.118	734111.6376	0.00	-2.60
9591	1541528.552	734113.3556	0.00	-2.60
9592	1541530.542	734113.3046	0.00	-2.60
9593	1541531.001	734115.0194	0.00	-2.60
9594	1541532.777	734114.7975	0.00	-2.60
9595	1541533.992	734115.5105	0.00	-2.60
9596	1541535.534	734116.3387	0.00	-2.55
9597	1541537.241	734117.1486	0.00	-2.45
9598	1541538.963	734117.7093	0.00	-2.30
9599	1541540.732	734118.3492	0.00	-2.16
9600	1541542.475	734119.2853	0.00	-1.95
9601	1541544.142	734120.1914	0.00	-1.79
9602	1541545.872	734120.9134	0.00	-1.50
9603	1541547.626	734121.9168	0.00	-1.16
9604	1541549.369	734122.9219	0.00	-0.88
9605	1541550.65	734124.8131	0.00	-0.47
9606	1541551.978	734126.4041	0.00	-0.03
9607	1541553.567	734127.3738	0.00	-0.04
9608	1541553.989	734129.3539	0.00	-0.06
9609	1541555.505	734130.2007	0.00	-0.03
9610	1541332.168	734128.4459	0.00	-0.88
9611	1541333.892	734127.7718	0.00	-0.71
9612	1541335.619	734127.3514	0.00	-0.55
9613	1541337.344	734126.7994	0.00	-0.38
9614	1541339.067	734126.06	0.25	0.00
9615	1541340.786	734125.0905	0.93	0.00
9616	1541342.502	734123.9301	0.00	-0.27
9617	1541342.477	734121.9333	0.00	-0.31
9618	1541344.195	734121.0787	0.00	-1.23

Appendix C

Node	X-Coordinate	Y-Coordinate	Fill	Cut
9619	1541344.169	734119.0825	0.00	-1.06
9620	1541343.669	734116.3269	0.00	-1.02
9621	1541343.538	734116.3269	0.00	-1.02
9622	1541342.679	734115.6269	0.00	-1.02
9623	1541342.679	734114.2269	0.00	-0.96
9624	1541342.513	734114.2269	0.00	-0.96
9625	1541351.117	734111.1799	0.00	-0.16
9626	1541351.5	734111.1799	0.00	-0.16
9627	1541351.5	734111.1217	0.18	0.00
9628	1541351.506	734108.7784	0.32	0.00
9629	1541352.688	734106.6799	0.36	0.00
9630	1541352.688	734106.6799	0.41	0.00
9631	1541352.688	734106.6799	0.45	0.00
9632	1541360.476	734105.1377	0.48	0.00
9633	1541360.476	734105.1377	0.48	0.00
9634	1541363.538	734103.3375	0.50	0.00
9635	1541365.415	734103.3375	0.49	0.00
9636	1541365.415	734103.3375	0.47	0.00
9637	1541365.415	734103.3375	0.44	0.00
9638	1541369.414	734099.7382	0.28	0.00
9639	1541369.414	734097.9822	0.16	0.00
9640	1541376.431	734097.936	0.06	0.00
9641	1541376.431	734097.8898	0.03	0.00
9642	1541376.431	734097.8435	0.02	0.00
9643	1541378.431	734097.7973	0.09	0.00
9644	1541379.628	734096.037	0.21	0.00
9645	1541381.627	734095.9908	0.16	0.00
9646	1541383.627	734095.9446	0.11	0.00
9647	1541385.626	734095.8983	0.07	0.00
9648	1541386.753	734094.1395	0.15	0.00
9649	1541388.753	734094.0932	0.10	0.00
9650	1541390.753	734094.047	0.03	0.00
9651	1541392.753	734094.0007	0.00	-0.02
9652	1541394.754	734093.9545	0.00	-0.07
9653	1541396.754	734093.9082	0.00	-0.01
9654	1541398.754	734093.862	0.00	-0.06
9655	1541400.754	734093.8157	0.00	-0.23
9656	1541402.755	734093.7695	0.00	-0.34
9657	1541404.755	734093.7232	0.00	-0.21
9658	1541406.755	734093.6769	0.01	0.00
9659	1541408.755	734093.6307	0.11	0.00
9660	1541410.755	734093.5844	0.19	0.00
9661	1541412.756	734093.5382	0.16	0.00
9662	1541414.756	734093.4919	0.13	0.00
9663	1541416.756	734093.4457	0.08	0.00
9664	1541418.756	734093.3994	0.03	0.00
9665	1541420.757	734093.3531	0.00	-0.02
9666	1541422.757	734093.3069	0.00	-0.07
9667	1541424.757	734093.2606	0.00	-0.12
9668	1541426.757	734093.2144	0.00	-0.17
9669	1541428.758	734093.1681	0.00	-0.22
9670	1541430.758	734093.1219	0.00	-0.26
9671	1541432.758	734093.0756	0.00	-0.30
9672	1541434.758	734093.0293	0.00	-0.32
9673	1541436.758	734092.9831	0.00	-0.37
9674	1541438.759	734092.9368	0.00	-0.39
9675	1541440.759	734092.8906	0.00	-0.60
9676	1541442.759	734092.8443	0.00	-0.88
9677	1541444.759	734092.7981	0.00	-1.15
9678	1541446.76	734092.7518	0.00	-1.42
9679	1541448.76	734092.7055	0.00	-1.70
9680	1541450.76	734092.6593	0.00	-1.68
9681	1541452.76	734092.613	0.00	-1.68
9682	1541454.761	734092.5668	0.00	-1.67
9683	1541456.761	734092.5205	0.00	-1.66
9684	1541458.761	734092.4743	0.00	-1.66
9685	1541460.761	734092.428	0.00	-1.66
9686	1541462.761	734092.3817	0.00	-1.66
9687	1541464.762	734092.3355	0.00	-1.66
9688	1541466.762	734092.2892	0.00	-1.66
9689	1541468.762	734092.243	0.00	-1.66
9690	1541470.762	734092.1967	0.00	-1.66
9691	1541472.763	734092.1505	0.00	-1.65
9692	1541474.763	734092.1042	0.00	-1.64
9693	1541476.763	734092.0579	0.00	-1.54
9694	1541478.763	734092.0117	0.00	-1.41
9695	1541480.764	734091.9654	0.00	-1.28
9696	1541482.764	734091.9192	0.00	-1.16
9697	1541484.764	734091.8729	0.00	-1.05
9698	1541486.764	734091.8267	0.00	-0.80
9699	1541488.764	734091.7804	0.00	-0.46
9700	1541490.765	734091.7342	0.00	-0.18
9701	1541492.765	734091.6879	0.13	0.00
9702	1541494.765	734091.6416	0.06	0.00
9703	1541496.765	734091.5954	0.01	0.00
9704	1541498.766	734093.5491	0.00	-0.01
9705	1541499.597	734093.2627	0.00	-0.19
9706	1541501.596	734093.2164	0.00	-0.12
9707	1541503.596	734093.1702	0.00	-0.11

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
9708	1541505.595	734093.1239	0.00	-0.08
9709	1541506.466	734094.8364	0.00	-0.19
9710	1541508.466	734094.7901	0.00	-0.17
9711	1541510.467	734094.7439	0.00	-0.15
9712	1541511.446	734096.454	0.00	-0.24
9713	1541513.446	734096.4076	0.00	-0.23
9714	1541515.446	734096.3613	0.00	-0.21
9715	1541516.588	734098.0677	0.00	-0.28
9716	1541517.436	734099.7801	0.00	-0.15
9717	1541518.397	734101.4891	0.00	-1.11
9718	1541519.624	734103.1911	0.00	-1.77
9719	1541520.33	734104.9054	0.00	-2.31
9720	1541521.271	734106.613	0.00	-2.68
9721	1541523.017	734108.2966	0.00	-2.74
9722	1541525.014	734108.254	0.00	-2.18
9723	1541526.888	734109.937	0.00	-2.28
9724	1541528.884	734109.8889	0.00	-2.10
9725	1541530.115	734111.587	0.00	-2.35
9726	1541532.112	734111.5315	0.00	-2.18
9727	1541532.539	734113.2082	0.00	-2.42
9728	1541534.375	734113.3637	0.00	-2.29
9729	1541535.724	734114.2172	0.00	-2.36
9730	1541537.303	734115.1567	0.00	-2.31
9731	1541539.037	734115.6999	0.00	-2.15
9732	1541540.773	734116.3889	0.00	-2.04
9733	1541542.513	734117.3066	0.00	-1.89
9734	1541544.247	734118.1842	0.00	-1.69
9735	1541545.979	734118.9428	0.00	-1.47
9736	1541547.716	734119.9315	0.00	-1.24
9737	1541549.443	734120.7734	0.00	-0.94
9738	1541551.17	734121.3643	0.00	-0.64
9739	1541551.323	734123.1909	0.00	-0.53
9740	1541552.78	734124.4847	0.00	-0.15
9741	1541554.482	734125.589	0.00	-0.03
9742	1541555.239	734127.7461	0.00	-0.12
9743	1541556.786	734128.6641	0.00	-0.02
9744	1541332.144	734126.4453	0.00	-0.87
9745	1541333.868	734125.7723	0.00	-0.71
9746	1541335.595	734125.3514	0.00	-0.54
9747	1541337.32	734124.7999	0.00	-0.36
9748	1541339.043	734124.0613	0.29	0.00
9749	1541340.762	734123.0936	0.92	0.00
9750	1541340.737	734121.097	0.88	0.00
9751	1541342.451	734119.937	0.00	-0.16
9752	1541342.426	734117.9412	0.10	0.00
9753	1541344.142	734117.0869	0.00	-0.66
9754	1541344.115	734115.0916	0.00	-0.21
9755	1541345.833	734114.3381	0.00	-0.35
9756	1541347.558	734113.6482	0.00	-0.18
9757	1541349.308	734112.803	0.00	-0.08
9758	1541349.385	734110.7253	0.11	0.00
9759	1541350.509	734108.8351	0.25	0.00
9760	1541352.511	734108.7715	0.28	0.00
9761	1541353.697	734107.0171	0.28	0.00
9762	1541355.692	734106.9736	0.31	0.00
9763	1541356.484	734105.2274	0.34	0.00
9764	1541358.48	734105.1827	0.41	0.00
9765	1541359.545	734103.4284	0.41	0.00
9766	1541361.542	734103.3831	0.45	0.00
9767	1541362.588	734101.6278	0.44	0.00
9768	1541364.587	734101.582	0.42	0.00
9769	1541365.415	734099.8304	0.35	0.00
9770	1541366.43	734098.0745	0.25	0.00
9771	1541368.43	734098.0284	0.23	0.00
9772	1541369.631	734096.2681	0.13	0.00
9773	1541371.631	734096.2219	0.05	0.00
9774	1541373.63	734096.1757	0.03	0.00
9775	1541375.629	734096.1295	0.10	0.00
9776	1541377.628	734096.0832	0.18	0.00
9777	1541378.752	734094.3245	0.34	0.00
9778	1541380.752	734094.2783	0.30	0.00
9779	1541382.752	734094.232	0.24	0.00
9780	1541384.752	734094.1858	0.19	0.00
9781	1541500.766	734091.5029	0.00	-0.03
9782	1541502.766	734091.4566	0.01	0.00
9783	1541504.766	734091.4104	0.03	0.00
9784	1541506.766	734091.3641	0.03	0.00
9785	1541507.594	734093.0777	0.00	-0.06
9786	1541509.594	734093.0314	0.00	-0.04
9787	1541511.593	734092.9852	0.00	-0.04
9788	1541512.467	734094.6976	0.00	-0.12
9789	1541514.467	734094.6513	0.00	-0.11
9790	1541516.467	734094.605	0.00	-0.11
9791	1541517.446	734096.3149	0.00	-0.19
9792	1541518.588	734098.0213	0.00	-0.11
9793	1541519.434	734099.7336	0.00	-0.34
9794	1541520.394	734101.4424	0.00	-0.90
9795	1541521.621	734103.1442	0.00	-1.54
9796	1541522.326	734104.8584	0.00	-1.89

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
9797	1541523.268	734106.5654	0.00	-2.19
9798	1541525.263	734106.5185	0.00	-1.69
9799	1541527.009	734108.2052	0.00	-1.85
9800	1541529.005	734108.1567	0.00	-1.65
9801	1541530.879	734109.8389	0.00	-1.94
9802	1541532.879	734109.791	0.00	-1.80
9803	1541534.125	734111.5087	0.00	-2.01
9804	1541536.226	734111.7702	0.00	-1.96
9805	1541537.401	734113.2207	0.00	-2.13
9806	1541539.056	734113.6687	0.00	-2.04
9807	1541540.767	734114.3909	0.00	-1.95
9808	1541542.5	734115.3116	0.00	-1.78
9809	1541544.237	734116.1852	0.00	-1.61
9810	1541545.973	734116.9455	0.00	-1.47
9811	1541547.711	734117.925	0.00	-1.20
9812	1541549.448	734118.7605	0.00	-1.01
9813	1541551.185	734119.3836	0.00	-0.71
9814	1541552.927	734120.4766	0.00	-0.40
9815	1541552.967	734122.4668	0.00	-0.28
9816	1541554.658	734123.4949	0.05	0.00
9817	1541556.386	734124.2033	0.08	0.00
9818	1541556.478	734126.2378	0.00	-0.01
9819	1541558.068	734127.1274	0.01	0.00
9820	1541332.12	734124.4446	0.00	-0.87
9821	1541333.844	734123.773	0.00	-0.70
9822	1541335.571	734123.3515	0.00	-0.54
9823	1541337.296	734122.8006	0.00	-0.30
9824	1541339.018	734122.063	0.30	0.00
9825	1541338.993	734120.065	0.29	0.00
9826	1541340.711	734119.101	0.85	0.00
9827	1541340.686	734117.1055	0.77	0.00
9828	1541342.399	734115.9462	0.25	0.00
9829	1541342.372	734113.951	0.33	0.00
9830	1541344.087	734113.0956	0.00	-0.03
9831	1541345.795	734112.3474	0.06	0.00
9832	1541347.546	734111.7501	0.00	0.00
9833	1541347.499	734110.1897	0.10	0.00
9834	1541348.575	734108.8139	0.21	0.00
9835	1541349.714	734107.0969	0.23	0.00
9836	1541351.701	734107.0632	0.27	0.00
9837	1541352.493	734105.3159	0.23	0.00
9838	1541354.488	734105.2716	0.28	0.00
9839	1541355.553	734103.5186	0.28	0.00
9840	1541357.549	734103.4736	0.36	0.00
9841	1541358.592	734101.7192	0.33	0.00
9842	1541360.59	734101.6736	0.37	0.00
9843	1541361.416	734099.9224	0.36	0.00
9844	1541363.415	734099.8764	0.36	0.00
9845	1541364.43	734098.1207	0.27	0.00
9846	1541365.633	734096.3605	0.18	0.00
9847	1541367.632	734096.3143	0.18	0.00
9848	1541368.751	734094.5558	0.10	0.00
9849	1541370.751	734094.5096	0.05	0.00
9850	1541372.751	734094.4633	0.10	0.00
9851	1541374.751	734094.417	0.19	0.00
9852	1541376.752	734094.3708	0.29	0.00
9853	1541508.767	734091.3178	0.04	0.00
9854	1541510.767	734091.2716	0.05	0.00
9855	1541512.767	734091.2253	0.06	0.00
9856	1541513.592	734092.9389	0.00	-0.03
9857	1541515.592	734092.8927	0.00	-0.03
9858	1541517.591	734092.8464	0.00	-0.02
9859	1541518.467	734094.5587	0.00	-0.10
9860	1541519.446	734096.2686	0.00	-0.10
9861	1541520.587	734097.9748	0.00	-0.10
9862	1541521.431	734099.687	0.00	-0.37
9863	1541522.392	734101.3957	0.00	-0.83
9864	1541523.619	734103.0972	0.00	-1.20
9865	1541524.322	734104.8111	0.00	-1.45
9866	1541526.317	734104.7637	0.00	-0.92
9867	1541527.258	734106.4705	0.00	-1.45
9868	1541529.253	734106.4225	0.00	-1.29
9869	1541531.001	734108.1083	0.00	-1.63
9870	1541533.003	734108.0635	0.00	-1.53
9871	1541534.902	734109.7953	0.00	-1.71
9872	1541536.947	734109.8135	0.00	-1.63
9873	1541538.7	734111.5123	0.00	-1.81
9874	1541540.708	734112.3758	0.00	-1.85
9875	1541542.476	734113.3154	0.00	-1.73
9876	1541544.216	734114.1904	0.00	-1.53
9877	1541545.953	734114.9492	0.00	-1.41
9878	1541547.691	734115.9292	0.00	-1.21
9879	1541549.428	734116.7587	0.00	-0.98
9880	1541551.164	734117.388	0.00	-0.72
9881	1541552.907	734118.4767	0.00	-0.48
9882	1541554.648	734119.4773	0.00	-0.17
9883	1541554.673	734121.4764	0.00	-0.08
9884	1541556.406	734122.1943	0.00	-0.07
9885	1541558.151	734123.1711	0.02	0.00

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
9886	1541558.172	734125.1717	0.10	0.00
9887	1541332.096	734122.444	0.00	-0.87
9888	1541333.82	734121.7737	0.00	-0.70
9889	1541335.546	734121.3518	0.00	-0.54
9890	1541337.271	734120.8016	0.00	-0.28
9891	1541337.247	734118.803	0.00	-0.30
9892	1541338.969	734118.0675	0.27	0.00
9893	1541338.944	734116.0706	0.19	0.00
9894	1541340.66	734115.1106	0.72	0.00
9895	1541340.633	734113.1172	0.61	0.00
9896	1541342.343	734111.9605	0.31	0.00
9897	1541344.039	734111.0871	0.28	0.00
9898	1541345.768	734110.4859	0.14	0.00
9899	1541346.489	734108.8062	0.13	0.00
9900	1541347.714	734107.1373	0.21	0.00
9901	1541348.505	734105.3999	0.23	0.00
9902	1541350.5	734105.3578	0.20	0.00
9903	1541351.564	734103.6073	0.20	0.00
9904	1541353.558	734103.5633	0.25	0.00
9905	1541354.597	734101.81	0.24	0.00
9906	1541356.594	734101.7647	0.30	0.00
9907	1541357.418	734100.0142	0.25	0.00
9908	1541359.417	734099.9684	0.30	0.00
9909	1541360.431	734098.213	0.27	0.00
9910	1541362.431	734098.1668	0.29	0.00
9911	1541363.634	734096.4067	0.19	0.00
9912	1541364.75	734094.6483	0.12	0.00
9913	1541366.75	734094.6021	0.13	0.00
9914	1541514.767	734091.1791	0.07	0.00
9915	1541516.768	734091.1328	0.09	0.00
9916	1541518.768	734091.0866	0.07	0.00
9917	1541519.59	734092.8002	0.00	-0.01
9918	1541520.467	734094.5124	0.00	-0.08
9919	1541521.446	734096.2222	0.00	0.00
9920	1541522.585	734097.9283	0.00	-0.12
9921	1541523.428	734099.6404	0.00	-0.36
9922	1541524.389	734101.3488	0.00	-0.61
9923	1541525.616	734103.05	0.00	-0.78
9924	1541527.613	734103.0027	0.00	-0.57
9925	1541528.313	734104.7161	0.00	-0.90
9926	1541530.308	734104.6683	0.00	-1.07
9927	1541531.248	734106.375	0.00	-1.39
9928	1541533.242	734106.3269	0.00	-1.25
9929	1541535.007	734108.0243	0.00	-1.44
9930	1541536.982	734107.9774	0.00	-1.34
9931	1541538.927	734109.4661	0.00	-1.48
9932	1541540.699	734110.4194	0.00	-1.55
9933	1541542.46	734111.3274	0.00	-1.62
9934	1541544.198	734112.1972	0.00	-1.50
9935	1541545.933	734112.9539	0.00	-1.34
9936	1541547.67	734113.9338	0.00	-1.15
9937	1541549.407	734114.7634	0.00	-0.95
9938	1541551.143	734115.3904	0.00	-0.76
9939	1541552.885	734116.4791	0.00	-0.49
9940	1541554.626	734117.4784	0.00	-0.23
9941	1541556.365	734118.1923	0.01	0.00
9942	1541556.387	734120.1906	0.03	0.00
9943	1541558.129	734121.1704	0.01	0.00
9944	1541332.072	734120.4434	0.00	-0.90
9945	1541333.796	734119.7746	0.00	-0.73
9946	1541335.522	734119.3524	0.00	-0.56
9947	1541335.498	734117.3532	0.00	-0.59
9948	1541337.222	734116.8049	0.00	-0.34
9949	1541337.197	734114.8074	0.00	-0.40
9950	1541338.918	734114.0746	0.14	0.00
9951	1541338.893	734112.0787	0.03	0.00
9952	1541340.611	734111.1207	0.48	0.00
9953	1541342.341	734109.9418	0.48	0.00
9954	1541344.272	734109.0162	0.25	0.00
9955	1541345.692	734107.2316	0.26	0.00
9956	1541346.509	734105.4488	0.22	0.00
9957	1541347.577	734103.6948	0.13	0.00
9958	1541349.57	734103.6508	0.15	0.00
9959	1541350.605	734101.8997	0.17	0.00
9960	1541352.601	734101.855	0.22	0.00
9961	1541353.422	734100.1056	0.20	0.00
9962	1541355.42	734100.06	0.26	0.00
9963	1541356.433	734098.3051	0.19	0.00
9964	1541358.432	734098.259	0.23	0.00
9965	1541359.636	734096.4991	0.20	0.00
9966	1541361.635	734096.4529	0.22	0.00
9967	1541362.75	734094.6946	0.14	0.00
9968	1541520.768	734091.0403	0.05	0.00
9969	1541521.589	734092.7539	0.01	0.00
9970	1541522.467	734094.4661	0.01	0.00
9971	1541523.445	734096.1758	0.01	0.00
9972	1541524.584	734097.8818	0.00	-0.03
9973	1541525.425	734099.5937	0.00	-0.19
9974	1541526.386	734101.3018	0.00	-0.35

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

121 Badger Cut/Fill Calculations
Brockway Engineering, PLLC
5/4/2023

TIN Node	X-Coordinate	Y-Coordinate	Fill	Cut
9975	1541528.383	734101.2547	0.00	-0.30
9976	1541529.61	734102.9552	0.00	-0.71
9977	1541531.606	734102.9073	0.00	-0.80
9978	1541532.303	734104.6201	0.00	-1.03
9979	1541534.296	734104.5702	0.00	-0.94
9980	1541535.23	734106.2753	0.00	-1.16
9981	1541537.187	734106.2228	0.00	-1.06
9982	1541538.963	734107.6179	0.00	-1.20
9983	1541540.733	734108.3999	0.00	-1.24
9984	1541542.442	734109.3272	0.00	-1.31
9985	1541544.18	734110.2017	0.00	-1.36
9986	1541545.913	734110.9588	0.00	-1.28
9987	1541547.65	734111.939	0.00	-1.14
9988	1541549.386	734112.7686	0.00	-0.92
9989	1541551.121	734113.3938	0.00	-0.75
9990	1541552.863	734114.4812	0.00	-0.53
9991	1541554.605	734115.4799	0.00	-0.27
9992	1541556.344	734116.1935	0.00	0.00
9993	1541558.086	734117.1691	0.00	0.00
9994	1541558.108	734119.1698	0.01	0.00
9995	1541332.048	734118.4428	0.00	-0.94
		Sum	6978.9 ft3	-7394.8 ft3
		Sum	258 yd3	-274 yd3
			Total	-15 yd3

Appendix C

Appendix D

Fire Access Road Easement

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

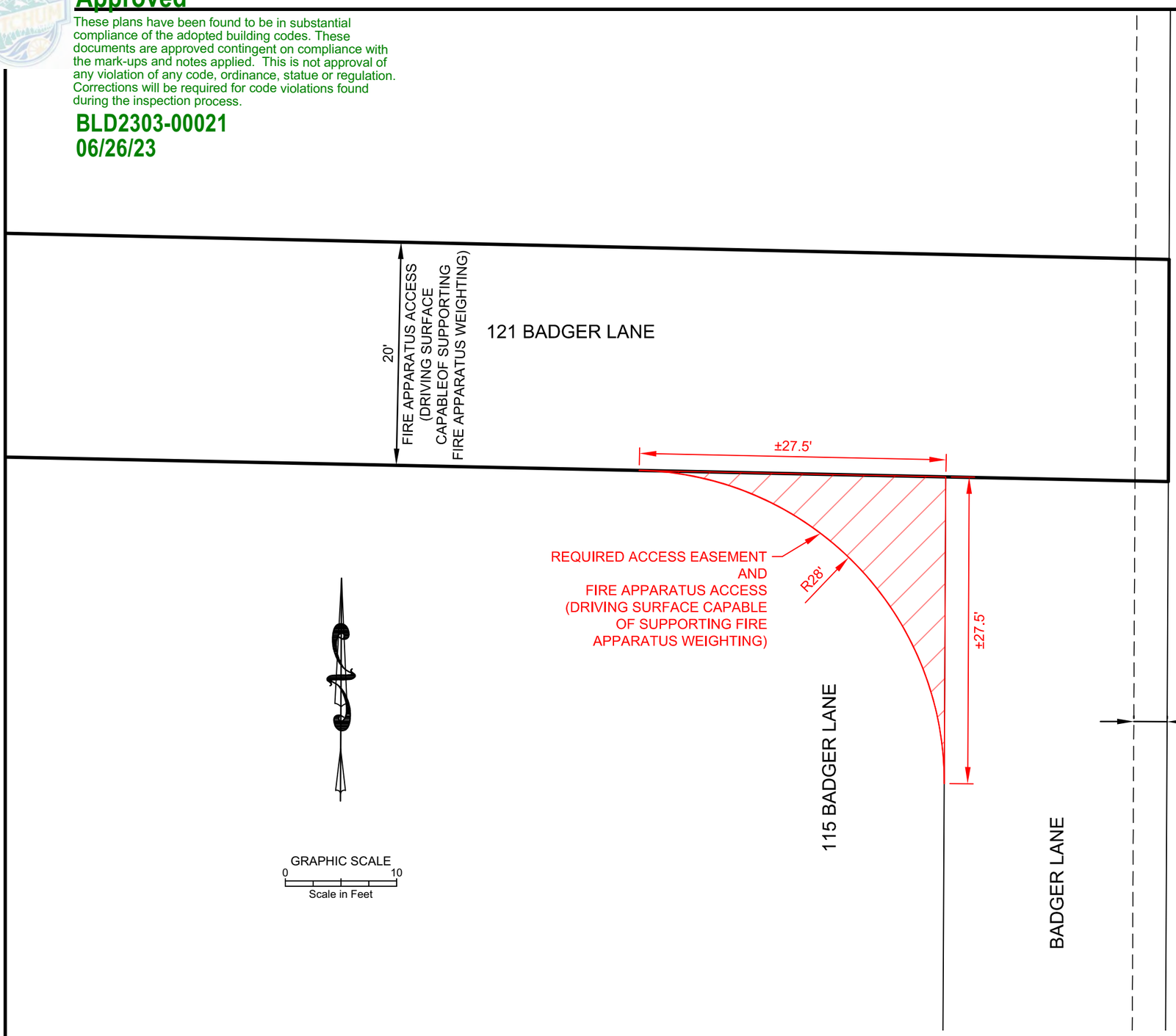
Appendix D

NOTE

Boundary information and topographic information is per a survey conducted by Galena Engineering dated 9/5/19.

LEGEND

- Property Line
- Adjoiner's Lot Line
- Easement, Type and Width Shown
- Required Access Easement



Approved as Submitted

12/01/2021 3:31:56 PM

Seth Martin - Assistant Chief / Fire Marshal

An approved access roadway per 2018 International Fire Code Appendix D shall be installed prior to any combustible construction on the site. The road shall be a minimum of twenty (20) feet in width and capable of supporting an imposed load of at least 75,000 pounds. The road must be an all-weather driving surface maintained free, clear, and unobstructed at all times. Grades shall not exceed 7%. Dead end access roadways exceeding 150 feet in length shall be provided with an approved turnaround. Gates, if installed, are required to be siren activated for emergency vehicle access. Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet, approved aerial fire apparatus access roads shall be provided. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders, in the immediate vicinity of the building or portion thereof.

REVISIONS			
NO.	DATE	BY	DESCRIPTION

GALENA ENGINEERING, INC.
Civil Engineers & Land Surveyors
317 N. River Street
Hailey, Idaho 83333
(208) 788-1705
email: galena@galena-engineering.com

DESIGNED :	SKS
CHECKED:	SMF
DETAILED	SKS

SCALES SHOWN ARE FOR 11" x 17" PRINTS ONLY

PRELIMINARY DRIVEWAY DESIGN
121 BADGER LANE

WITHIN SEC 13, T4N, R17E, CITY OF KETCHUM, BLAINE COUNTY, IDAHO
PREPARED FOR PRESIDIO VISTA PROPERTIES

PROJECT INFORMATION
P:\sdskproj\6144-03\dwg\Construction\6144-03_ENG BASE.dwg 11/23/21 11:36:09 AM

EX-TO

Appendix D.1

Fire Access Road Recorded Easement Agreement

Appendix D.1

Instrument # 690693
HAILEY, BLAINE, IDAHO
01-14-2022 11:50:15 AM No. of Pages: 8
Recorded for: PIONEER TITLE CANYON - CALDWELL
STEPHEN MCDOUGALL GRAHAM Fee: $31.00
Ex-Officio Recorder Deputy: GWB
Electronically Recorded by Simplifile

ACCOMMODATION

EASEMENT AGREEMENT

ACCOMMODATION

This Easement Agreement (this "**Agreement**") is made and delivered by and between J. Colby Williams and Rory C. Higgins as trustees of the J. Colby Williams and Rory C. Higgins 2005 Revocable Trust, a Nevada trust whose address is 205 Stonewood Court, Las Vegas, Nevada 89107 ("**Grantor**"), and 121 Badger Lane, LLC, a Nevada limited liability company whose address is 930 Tahoe Blvd., Suite 802-80, Incline Village, Nevada 89451 ("**Grantee**") Grantor and Grantee are each a "**Party**" and together are the "**Parties**".

BACKGROUND

A. Grantor owns Parcel 5, Rocking Ranch No. 2, according to the official plat thereof recorded as Instrument No. 340539 (the "**RR2 Plat**"), Blaine County, Idaho; also known as 115 Badger Lane, Ketchum, Idaho 83340 ("**115 Badger**").

B. Grantee owns Parcel 4, Rocking Ranch No. 2, according to the RR2 Plat; also known as 121 Badger Lane, Ketchum, Idaho 83340 ("**121 Badger**").

C. 121 Badger is a generally square parcel with a 20-foot-wide extension along the northern boundary of 115 Badger, providing access from 121 Badger to Badger Lane. Attached hereto as **EXHIBIT A** is an excerpt from the RR2 Plat depicting both 115 Badger (Parcel 5) and 121 Badger (Parcel 4). When Grantee was under contract to purchase 121 Badger, Grantee learned that the City of Ketchum and the Ketchum Fire Department ("**City and Fire**") believe that the turning radius from northbound Badger Lane onto the extension of 121 Badger at the northeast corner of 115 Badger (the "**Turn**") would be unsatisfactory.

D. Grantor agreed that if Grantee purchased 121 Badger, Grantor would sell Grantee an access easement through the northeast corner of 115 Badger in order to lengthen the inside radius of the Turn to satisfy City and Fire's concerns.

E. This Agreement embodies the final terms and conditions of Grantee's access easement and, except as expressly stated herein, supersedes and replaces entirely all prior agreements, written or otherwise, recorded or unrecorded, relating to the subject matter hereof.

AGREEMENT

For good and valuable consideration, the receipt and sufficiency of which are hereby confessed and acknowledged, and incorporating the background recitals above, the Parties make the following grants, agreements, and covenants:

1. Grant. Subject to the terms and conditions set forth herein, Grantor hereby sells, conveys, and grants to Grantee a non-exclusive perpetual easement (the "**Easement**") for ingress, egress, and the installation, maintenance, and use of underground utilities, over and across that portion of 115 Badger

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B. Grantee owns Parcel 4, Rocking Ranch No. 2, according to the RR2 Plat; also known as 121 Badger Lane, Ketchum, Idaho 83340 ("**121 Badger**").

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AGREEMENT

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1. Grant. Subject to the terms and conditions set forth herein, Grantor hereby sells, conveys, and grants to Grantee a non-exclusive perpetual easement (the "**Easement**") for ingress, egress, and the installation, maintenance, and use of underground utilities, over and across that portion of 115 Badger

depicted as the "Access Easement" on **EXHIBIT B**, attached to and made a part hereof and legally described in **EXHIBIT C** attached hereto and made a part hereof (the "**Easement Area**").

2. Purpose. The Easement shall provide Grantee with widened access along the Turn and for the installation and maintenance of underground utilities. Grantee may prepare and improve the surface in any manner and with any material reasonably acceptable to the Parties (Grantor's approval not to be unreasonably withheld, except that Grantor cannot withhold approval of improvements required by City and Fire), including drainage improvements, paving, and road base, as may be required to satisfy City and Fire's access concerns and Grantee's driveway improvements.

3. Title. Grantor warrants Grantee's title to the Easement and Easement Area is free and clear of all liens and encumbrances. If Grantor's property is currently encumbered by one or more liens, Grantor agrees to obtain from the holder(s) thereof and record a release of lien or subordination of lien to the Easement and Easement Area within 180 days after the date hereof.

4. Improvement and Maintenance. Grantee is responsible to make all improvements and to keep the Easement Area in good condition at Grantee's sole expense, except to the extent of any damage caused by or through Grantor. Grantee shall obtain and maintain insurance for work performed in the Easement Area, and shall name Grantor as an additional insured in said insurance policy.

5. Landscaping Improvements to 115 Badger. In connection with Grantee's improvements in the Easement Area, Grantee has agreed to assist Grantor in improving Grantor's lands adjacent to the Easement Area. Grantee will assist Grantor in producing a final landscape design satisfactory to Grantor, in Grantor's sole discretion, and implementing those improvements to 115 Badger in substantial conformance with any agreed plans. Grantee will pay for design services and for the improvements (whether by Grantee's or Grantor's designers and contractors) up to a maximum total cost of $100,000, after which Grantor will pay for any additional cost. Upon completion of these improvements to 115 Badger (up to $100,000) to Grantor's satisfaction, and proof that all amounts charged by contractors up to $100,000 have been paid, Grantor will provide an original signed and notarized document affirming Grantee's satisfaction of Grantee's obligations under this Section 5, which affirmation shall be irrevocable. Grantee is not responsible for the continued maintenance of the landscaping improvements to 115 Badger, which shall become the sole responsibility of Grantor.

6. Grantee's Use. Grantee and Grantee's permitees shall be permitted to use the Easement and/or Easement Area to construct and maintain access and underground utilities to and from 121 Badger, or any other adjacent property hereafter acquired by Grantee. The phrase "access" as used in this Agreement shall be broadly interpreted to encompass vehicular (including emergency vehicles), pedestrian, equestrian and other forms of travel for which roads in Ketchum, Blaine County, Idaho, are customarily used. Grantee shall indemnify and hold harmless Grantor for any claims, losses or expenses attributable to physical damage or personal injury caused by Grantee's and/or its permitees' use of the Easement Area.

7. Easement Appurtenant; Binding Effect. The Easement shall be an easement appurtenant to 121 Badger. This Agreement shall be binding upon and shall inure to the benefit of the heirs, assigns, successors, and personal representatives of the Parties.

8. Recording. This Agreement shall be recorded in the real estate records of Blaine County, Idaho.

9. Counterparts. This document may be executed in any number of counterparts, each of which shall be deemed an original, but all of which taken together shall constitute one and the same instrument.

IN WITNESS WHEREOF, Grantor and Grantee have executed this Agreement as of the day and year first above written.

J. Colby Williams and Rory C. Higgins 2005 Revocable Trust

J. ~~Coly~~ Williams, Trustee

Rory C. Higgins, Trustee

121 Badger Lane, LLC

By David Duffield, President of Presidio Vista Properties, Inc., Manager

STATE OF NEVADA)
) ss.
COUNTY OF CLARK)

The foregoing instrument was acknowledged before me this 3rd day of January 2022 by J. Colby Williams and Rory C. Higgins as trustees of the J. Colby Williams and Rory C. Higgins 2005 Revocable Trust.

Witness my hand and official seal
My commission expires: 4/26/2023

Notary Public

JOHN CHONG
Notary Public, State of Nevada
Appointment No. 15-1821-1
My Appt. Expires Apr 26, 2023

STATE OF IDAHO)
) ss.
COUNTY OF BLAINE)

The foregoing instrument was acknowledged before me this 13 day of JANUARY 2022 by David Duffield as President of Presidio Vista Properties, Inc., Manager of 121 Badger Lane, LLC.

Witness my hand and official seal
My commission expires: 04-17-2025

Notary Public

Rocio Colan
Commission Number: 61468
Notary Public
State of Idaho
My Commission Expires: 04/17/2025

Appendix D.1

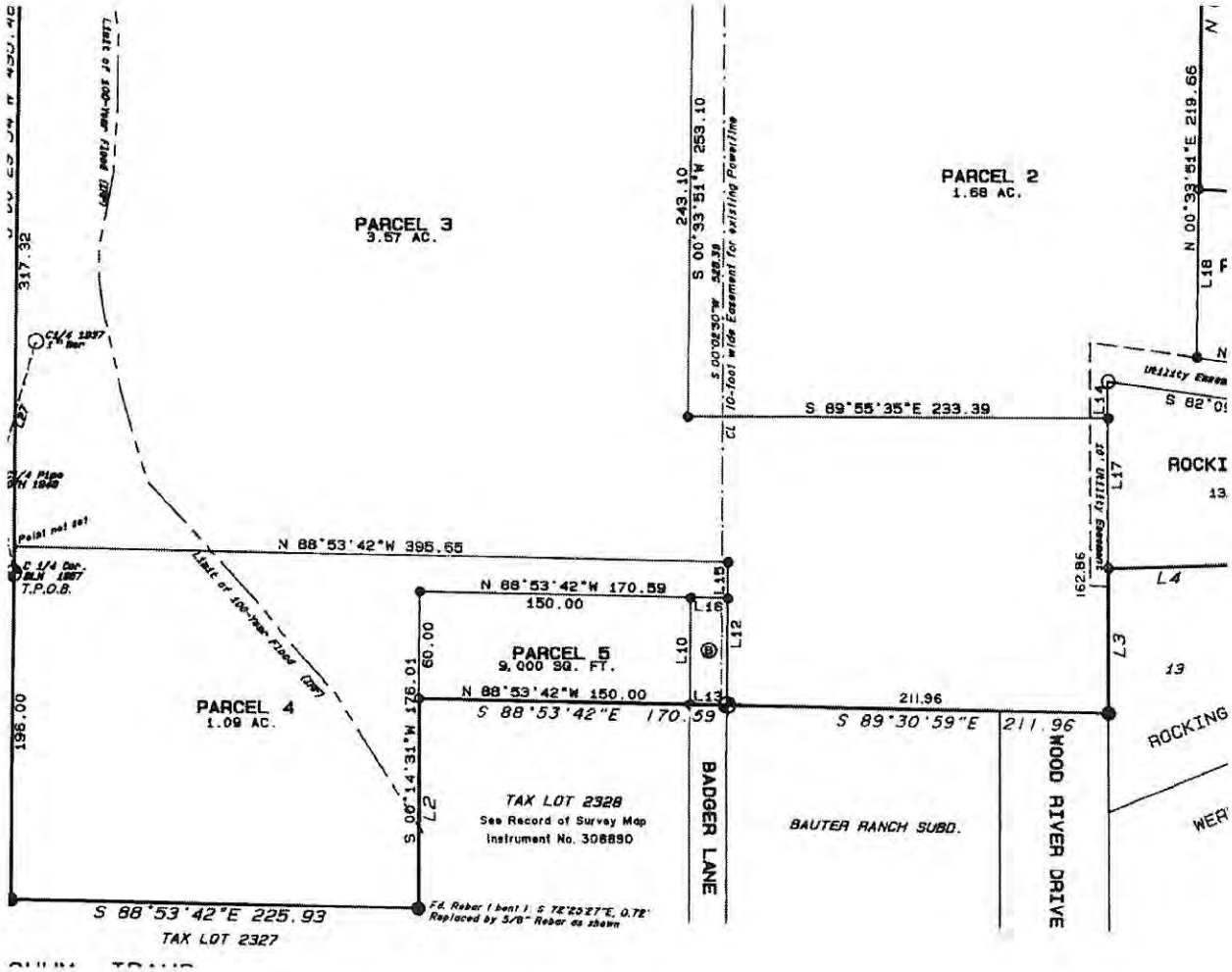
Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

EXHIBIT A

Excerpt from RR2 Plat



Approved

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BLD2303-00021
06/26/23

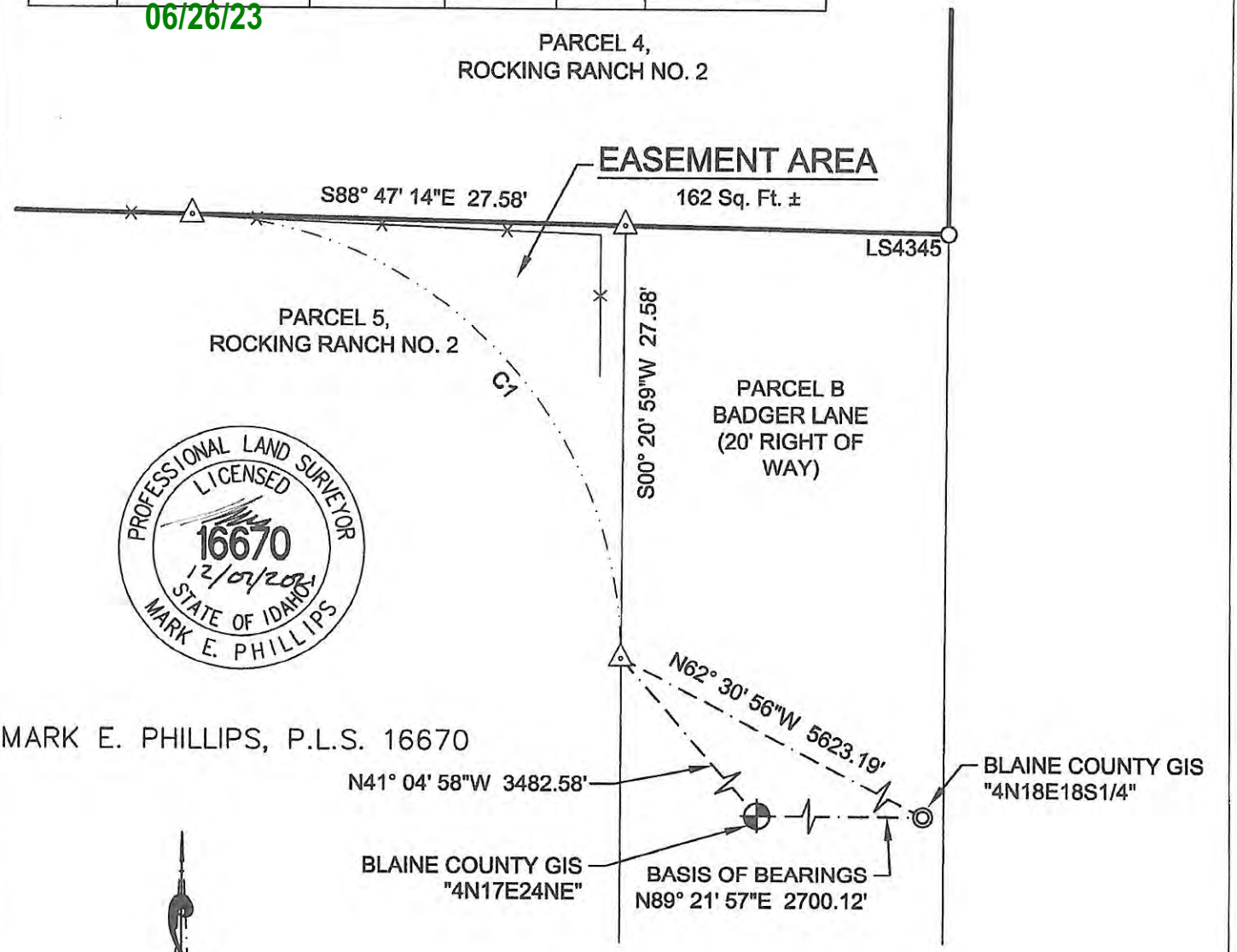
Appendix D.1

EXHIBIT B

Easement Area Depiction

Curve Table

Curve	Length	Radius	Delta	Tangent	Chord	Chord Direction
C1	45.56'	30.00'	87° 01' 08"	27.58'	39.30'	N44° 13' 07"W



PROFESSIONAL LAND SURVEYOR
LICENSED
16670
12/07/2021
STATE OF IDAHO
MARK E. PHILLIPS

MARK E. PHILLIPS, P.L.S. 16670

GRAPHIC SCALE
0 10 20
Scale in Feet

LEGEND

- Property Line
- Adjoiner's Lot Line
- Centerline of Right of Way
- Easement
- GIS Tie Line
- Found Brass Cap on 2.5" Galvanized Pipe
- Found 2.5" Iron Pipe
- Calculated Point, Nothing Set

Galena Engineering Inc.
Civil Engineers & Land Surveyors
317 N. River Street
Hailey, Idaho 83333
(208) 788-1705
(208) 788-4612 fax
email galena@galena-engineering.com

AN EXHIBIT SHOWING AN
ACCESS EASEMENT
WITHIN SECTION 13, T.4 N., R.17E., B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO
PREPARED FOR PRESIDIO VISTA PROPERTIES

PROJECT INFORMATION
P:\sdskproj\6144-03\dwg\Boundary-Plat\6144-03_Legal Description.dwg 12/07/21 4:20:57 PM

SHT 1 OF 1

PHILLIPS ENGINEERING, INC.
CIVIL ENGINEERING & LAND SURVEYING

Legal Description for an Access Easement to Benefit Parcel 4, Rocking Ranch No. 2

Section 13, Township 4 North, Range 17 East
Boise Meridian, City of Ketchum, Blaine County, Idaho

A legal description for a parcel of land situated within Parcel 5, Rocking Ranch No. 2, Section 13, Township 4 North, Range 17 East, Boise Meridian, City of Ketchum, Blaine County, Idaho; more particularly described as follows:

Commencing at a Brass Cap on 2.5" Galvanized Pipe, marking the northeast corner of Section 24, also known as Blaine County GIS control point "4N17E24NE", from which a 2.5" Iron Pipe, marking the south quarter corner of Section 18, also known as Blaine County GIS control point "4N18E18S1/4", lies N89°21'57"E, 2700.12 feet distant; thence proceeding N41°04'58"W, 3482.58 feet, to a point along the easterly boundary of Parcel 5, Rocking Ranch No. 2, and said point being the TRUE POINT OF BEGINNING;

Thence 43.56 feet along a curve to the left, with a radius of 28.00 feet, a delta of 89°08'13", a tangent length of 27.58 feet and a chord length of 39.30 feet, that bears N44°13'07"W, to a point along the northerly boundary of Parcel 5, Rocking Ranch No. 2;

Thence along the northerly boundary of Parcel 5, Rocking Ranch No. 2, S88°47'14"E, 27.58 feet, to a point marking the northeast corner of Parcel 5, Rocking Ranch No. 2;

Thence along the easterly boundary of Parcel 5, Rocking Ranch No. 2, S00°20'59"W, 27.58 feet, to the TRUE POINT OF BEGINNING, containing 162 Sq. Ft., more or less, as determined by computer methods.

317 N. RIVER STREET ▪ HAILEY, IDAHO ▪ TELEPHONE (208) 788-1705 ▪ FAX (208) 788-4612

Appendix E

Fire Apparatus Turnaround Diagram

Appendix E

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with [illegible] not approval of [illegible]e or regulation. [illegible]tions found

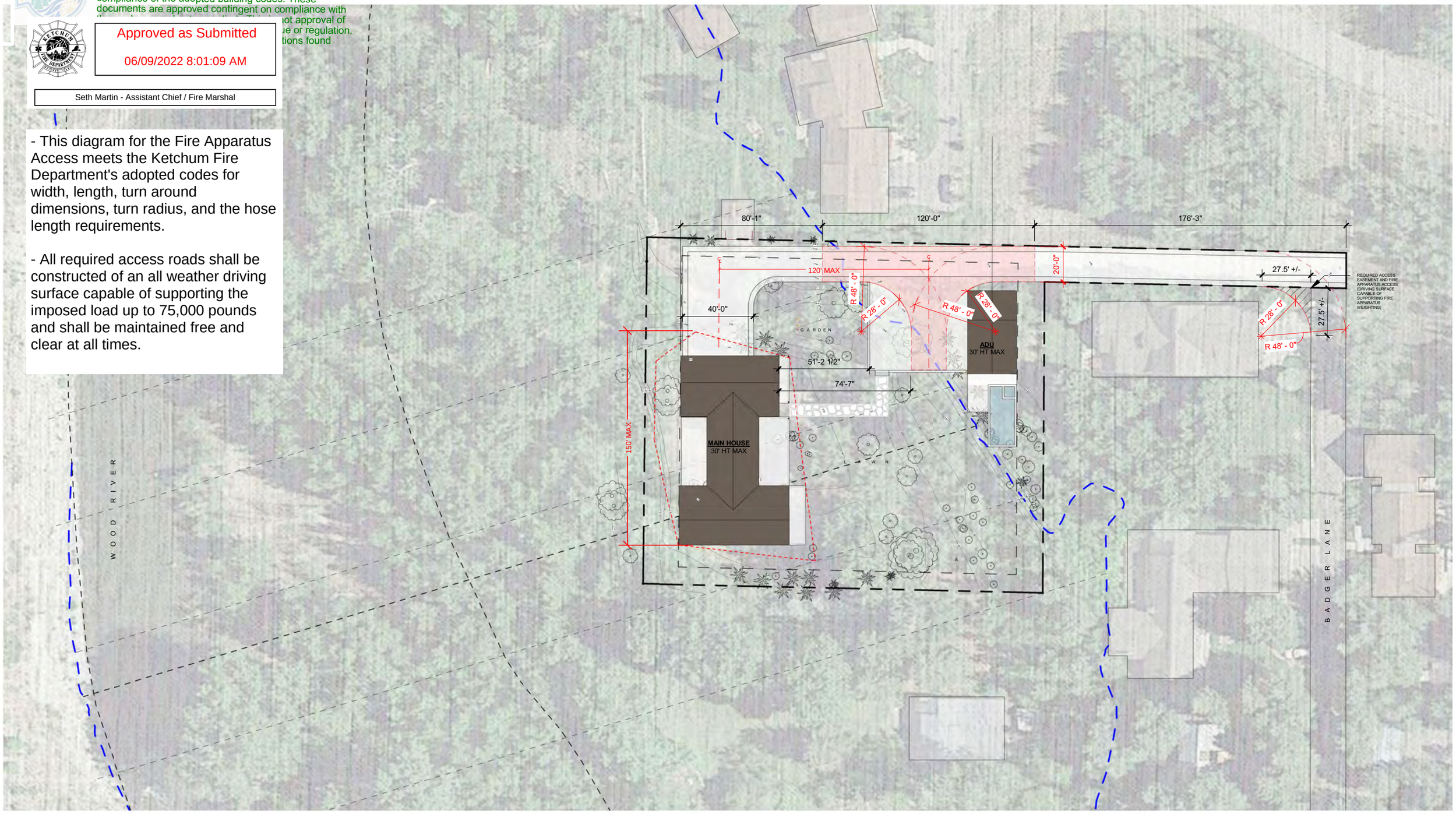
Approved as Submitted

06/09/2022 8:01:09 AM

Seth Martin - Assistant Chief / Fire Marshal

- This diagram for the Fire Apparatus Access meets the Ketchum Fire Department's adopted codes for width, length, turn around dimensions, turn radius, and the hose length requirements.

- All required access roads shall be constructed of an all weather driving surface capable of supporting the imposed load up to 75,000 pounds and shall be maintained free and clear at all times.



RO | ROCKETT DESIGN		1	1" = 50'-0"	**SITE PLAN**	A-1.0
121 BADGER LANE / #2201				06/06/22	

Appendix F

FEMA Elevation Certificate

FEMA

NATIONAL FLOOD INSURANCE PROGRAM

ELEVATION CERTIFICATE

AND

INSTRUCTIONS

2019 EDITION

Appendix F

OMB No. 1660-0008
Expiration Date: November 30, 2022

U.S. DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
National Flood Insurance Program

ELEVATION CERTIFICATE AND INSTRUCTIONS

Paperwork Reduction Act Notice

Public reporting burden for this data collection is estimated to average 3.75 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting this form. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street SW, Washington, DC 20742, Paperwork Reduction Project (1660-0008). **NOTE: Do not send your completed form to this address.**

Privacy Act Statement

Authority: Title 44 CFR § 61.7 and 61.8.

Principal Purpose(s): This information is being collected for the primary purpose of estimating the risk premium rates necessary to provide flood insurance for new or substantially improved structures in designated Special Flood Hazard Areas.

Routine Use(s): The information on this form may be disclosed as generally permitted under 5 U.S.C. § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA-003 – National Flood Insurance Program Files System or Records Notice 73 Fed. Reg. 77747 (December 19, 2008); DHS/FEMA/NFIP/LOMA-1 – National Flood Insurance Program (NFIP) Letter of Map Amendment (LOMA) System of Records Notice 71 Fed. Reg. 7990 (February 15, 2006); and upon written request, written consent, by agreement, or as required by law.

Disclosure: The disclosure of information on this form is voluntary; however, failure to provide the information requested may result in the inability to obtain flood insurance through the National Flood Insurance Program or the applicant may be subject to higher premium rates for flood insurance. Information will only be released as permitted by law.

Purpose of the Elevation Certificate

The Elevation Certificate is an important administrative tool of the National Flood Insurance Program (NFIP). It is to be used to provide elevation information necessary to ensure compliance with community floodplain management ordinances, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment (LOMA) or Letter of Map Revision based on fill (LOMR-F).

The Elevation Certificate is required in order to properly rate Post-FIRM buildings, which are buildings constructed after publication of the Flood Insurance Rate Map (FIRM), located in flood insurance Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, and AR/AO. The Elevation Certificate is not required for Pre-FIRM buildings unless the building is being rated under the optional Post-FIRM flood insurance rules.

As part of the agreement for making flood insurance available in a community, the NFIP requires the community to adopt floodplain management regulations that specify minimum requirements for reducing flood losses. One such requirement is for the community to obtain the elevation of the lowest floor (including basement) of all new and substantially improved buildings, and maintain a record of such information. The Elevation Certificate provides a way for a community to document compliance with the community's floodplain management ordinance.

Use of this certificate does not provide a waiver of the flood insurance purchase requirement. Only a LOMA or LOMR-F from the Federal Emergency Management Agency (FEMA) can amend the FIRM and remove the Federal mandate for a lending institution to require the purchase of flood insurance. However, the lending institution has the option of requiring flood insurance even if a LOMA/LOMR-F has been issued by FEMA. The Elevation Certificate may be used to support a LOMA or LOMR-F request. Lowest floor and lowest adjacent grade elevations certified by a surveyor or engineer will be required if the certificate is used to support a LOMA or LOMR-F request. A LOMA or LOMR-F request must be submitted with either a completed FEMA MT-EZ or MT-1 package, whichever is appropriate.

This certificate is used only to certify building elevations. A separate certificate is required for floodproofing. Under the NFIP, non-residential buildings can be floodproofed up to or above the Base Flood Elevation (BFE). A floodproofed building is a building that has been designed and constructed to be watertight (substantially impermeable to floodwaters) below the BFE. Floodproofing of residential buildings is not permitted under the NFIP unless FEMA has granted the community an exception for residential floodproofed basements. The community must adopt standards for design and construction of floodproofed basements before FEMA will grant a basement exception. For both floodproofed non-residential buildings and residential floodproofed basements in communities that have been granted an exception by FEMA, a floodproofing certificate is required.

Additional guidance can be found in FEMA Publication 467-1, Floodplain Management Bulletin: Elevation Certificate, available on FEMA's website at https://www.fema.gov/media-library/assets/documents/3539?id=1727.

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

Appendix F

ENT OF HOMELAND SECURITY
ncy Management Agency
surance Program

OMB No. 1660-0008
Expiration Date: November 30, 2022

ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1–9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A – PROPERTY INFORMATION

FOR INSURANCE COMPANY USE

A1. Building Owner's Name
121 BADGER LANE LLC

Policy Number:

A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
121 BADGER LANE

Company NAIC Number:

City	State	ZIP Code
KETCHUM	ID	83340

A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)
PARCEL 4, ROCKING RANCH SUB #2 (LOCATED WITHIN SECTION 13, T.4 N., R.17 E., B.M., CITY OF KETCHUM, BLAINE COUNT

A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) RESIDENTIAL

A5. Latitude/Longitude: Lat. 43.68014º Long. -114.37601º Horizontal Datum: ☐ NAD 1927 ☒ NAD 1983

A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.

A7. Building Diagram Number 1B

A8. For a building with a crawlspace or enclosure(s):

a) Square footage of crawlspace or enclosure(s) N/A sq ft

b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade N/A

c) Total net area of flood openings in A8.b N/A sq in

d) Engineered flood openings? ☐ Yes ☒ No

A9. For a building with an attached garage:

a) Square footage of attached garage 1170 sq ft

b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade 6

c) Total net area of flood openings in A9.b 1200 sq in

d) Engineered flood openings? ☒ Yes ☐ No

SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

B1. NFIP Community Name & Community Number	B2. County Name	B3. State
City of Ketchum, 160023	Blaine	ID

B4. Map/Panel Number	B5. Suffix	B6. FIRM Index Date	B7. FIRM Panel Effective/ Revised Date	B8. Flood Zone(s)	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth)
16013C0442E	E	11-26-2010	11-26-2010	AE	5786.5'

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:
☒ FIS Profile ☐ FIRM ☐ Community Determined ☐ Other/Source:

B11. Indicate elevation datum used for BFE in Item B9: ☐ NGVD 1929 ☒ NAVD 1988 ☐ Other/Source:

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? ☐ Yes ☒ No

Designation Date: N/A ☐ CBRS ☐ OPA

CERTIFICATE

Appendix F

OMB No. 1660-0008
Expiration Date: November 30, 2022

IMPORTANT: In these spaces, copy the corresponding information from Section A.

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.			FOR INSURANCE COMPANY USE
121 BADGER LANE			Policy Number:
City	State	ZIP Code	Company NAIC Number
KETCHUM	Idaho	83340	

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: ☒ Construction Drawings* ☐ Building Under Construction* ☐ Finished Construction

*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: Top of Brass Cap (NW corner) Vertical Datum: NAVD 1988 (5785.79') SEE TOPO/ SURVEY Note 4

Indicate elevation datum used for the elevations in items a) through h) below.

☐ NGVD 1929 ☒ NAVD 1988 ☐ Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.

		Check the measurement used.	
a) Top of bottom floor (including basement, crawlspace, or enclosure floor)	5788.5	☒ feet	☐ meters
b) Top of the next higher floor	5800.2	☒ feet	☐ meters
c) Bottom of the lowest horizontal structural member (V Zones only)	N/A	☐ feet	☐ meters
d) Attached garage (top of slab)	5787.0	☒ feet	☐ meters
e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments)	5787.0	☒ feet	☐ meters
f) Lowest adjacent (finished) grade next to building (LAG) AT BFE	5786.5	☒ feet	☐ meters
g) Highest adjacent (finished) grade next to building (HAG)	5788.5	☒ feet	☐ meters
h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support BELOW BFE	5786.2	☒ feet	☐ meters

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. *I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.*

Were latitude and longitude in Section A provided by a licensed land surveyor? ☐ Yes ☒ No ☒ Check here if attachments.

Certifier's Name	License Number	
Phoebe Johannessen	17661	
Title		
Engineering Manager		
Company Name		
Galena Benchmark Engineering		
Address		
100 Bell Drive		
City	State	ZIP Code
Ketchum	Idaho	83340

PROFESSIONAL ENGINEER LICENSED 17661 STATE OF IDAHO PHOEBE JOHANNESSEN — Place Seal Here

Signature	Date	Telephone	Ext.
Phoebe Johannessen	5/1/23	(208) 726-9512	* 116

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location, per C2(e), if applicable)

HEAT PUMP UNITS (LOCATED IN AREA OUTSIDE OF FLOODPLAIN ZONE- PAD ELEVATION 6" ABOVE BFE

Appendix F

OMB No. 1660-0008
Expiration Date: November 30, 2022

CERTIFICATE

These spaces, copy the corresponding information from Section A.

FOR INSURANCE COMPANY USE

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
121 BADGER LANE

Policy Number:

City	State	ZIP Code
KETCHUM	ID	83340

Company NAIC Number

SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B,and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).

a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ ☐ feet ☐ meters ☐ above or ☐ below the LAG.

E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E3. Attached garage (top of slab) is _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E4. Top of platform of machinery and/or equipment servicing the building is _____ ☐ feet ☐ meters ☐ above or ☐ below the HAG.

E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? ☐ Yes ☐ No ☐ Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name

Address	City	State	ZIP Code

Signature	Date	Telephone

Comments

☐ Check here if attachments.

CERTIFICATE

These spaces, copy the corresponding information from Section A.

FOR INSURANCE COMPANY USE

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
121 BADGER LANE

Policy Number:

City	State	ZIP Code
KETCHUM	ID	83340

Company NAIC Number

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

G1. ☐ The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)

G2. ☐ A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

G3. ☐ The following information (Items G4–G10) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate of Compliance/Occupancy Issued

G7. This permit has been issued for: ☐ New Construction ☐ Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: _____ ☐ feet ☐ meters Datum _____

G9. BFE or (in Zone AO) depth of flooding at the building site: _____ ☐ feet ☐ meters Datum _____

G10. Community's design flood elevation: _____ ☐ feet ☐ meters Datum _____

Local Official's Name	Title
Community Name	**Telephone**
Signature	**Date**

Comments (including type of equipment and location, per C2(e), if applicable)

☐ Check here if attachments.

BUILDING PHOTOGRAPHS

Appendix F

OMB No. 1660-0008
Expiration Date: November 30, 2022

CERTIFICATE

See instructions for Item A6.

These spaces, copy the corresponding information from Section A.

FOR INSURANCE COMPANY USE

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
121 BADGER LANE

Policy Number:

City	State	ZIP Code
KETCHUM	ID	83340

Company NAIC Number

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.

Photo One

Photo One

Photo One Caption

Clear Photo One

[redacted]

Photo Two

Photo Two Caption

Clear Photo Two

BUILDING PHOTOGRAPHS
CERTIFICATE

Continuation Page

Appendix F

OMB No. 1660-0008
Expiration Date: November 30, 2022

These spaces, copy the corresponding information from Section A.

FOR INSURANCE COMPANY USE

Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.
121 BADGER LANE

Policy Number:

City	State	ZIP Code	Company NAIC Number
KETCHUM	ID	83340	

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.

Photo Three

Photo Three

Photo Three Caption

Clear Photo Three

Photo Four

Photo Four

Photo Four Caption

Clear Photo Four

OMB No. 1660-0008
Expiration Date: November 30, 2022

Instructions for Completing the Elevation Certificate

The Elevation Certificate is to be completed by a land surveyor, engineer, or architect who is authorized by law to certify elevation information when elevation information is required for Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, or AR/AO. Community officials who are authorized by law or ordinance to provide floodplain management information may also complete this form. For Zones AO and A (without BFE), a community official, a property owner, or an owner's representative may provide information on this certificate, unless the elevations are intended for use in supporting a request for a LOMA or LOMR-F. Certified elevations must be included if the purpose of completing the Elevation Certificate is to obtain a LOMA or LOMR-F.

The property owner, the owner's representative, or local official who is authorized by law to administer the community floodplain ordinance can complete Section A and Section B. The partially completed form can then be given to the land surveyor, engineer, or architect to complete Section C. The land surveyor, engineer, or architect should verify the information provided by the property owner or owner's representative to ensure that this certificate is complete.

In Puerto Rico only, elevations for building information and flood hazard information may be entered in meters.

SECTION A – PROPERTY INFORMATION

Items A1–A4. This section identifies the building, its location, and its owner. Enter the name(s) of the building owner(s), the building's complete street address, and the lot and block numbers. If the building's address is different from the owner's address, enter the address of the building being certified. If the address is a rural route or a Post Office box number, enter the lot and block numbers, the tax parcel number, the legal description, or an abbreviated location description based on distance and direction from a fixed point of reference. For the purposes of this certificate, "building" means both a building and a manufactured (mobile) home.

A map may be attached to this certificate to show the location of the building on the property. A tax map, FIRM, or detailed community map is appropriate. If no map is available, provide a sketch of the property location, and the location of the building on the property. Include appropriate landmarks such as nearby roads, intersections, and bodies of water. For building use, indicate whether the building is residential, non-residential, an addition to an existing residential or non-residential building, an accessory building (e.g., garage), or other type of structure. Use the Comments area of the appropriate section if needed, or attach additional comments.

Item A5. Provide latitude and longitude coordinates for the center of the front of the building. Use either decimal degrees (e.g., 39.5043°, −110.7585°) or degrees, minutes, seconds (e.g., 39° 30' 15.5", −110° 45' 30.7") format. If decimal degrees are used, provide coordinates to at least 5 decimal places or better. When using degrees, minutes, seconds, provide seconds to at least 1 decimal place or better. The latitude and longitude coordinates must be accurate within 66 feet. When the latitude and longitude are provided by a surveyor, check the "Yes" box in Section D and indicate the method used to determine the latitude and longitude in the Comments area of Section D. If the Elevation Certificate is being certified by other than a licensed surveyor, engineer, or architect, this information is not required. Provide the type of datum used to obtain the latitude and longitude. FEMA prefers the use of NAD 1983.

Item A6. If the Elevation Certificate is being used to obtain flood insurance through the NFIP, the certifier must provide at least 2 photographs showing the front and rear of the building taken within 90 days from the date of certification. The photographs must be taken with views confirming the building description and diagram number provided in Section A. To the extent possible, these photographs should show the entire building including foundation. If the building has split-level or multi-level areas, provide at least 2 additional photographs showing side views of the building. In addition, when applicable, provide a photograph of the foundation showing a representative example of the flood openings or vents. All photographs must be in color and measure at least 3" × 3". Digital photographs are acceptable.

Item A7. Select the diagram on pages 7–9 that best represents the building. Then enter the diagram number and use the diagram to identify and determine the appropriate elevations requested in Items C2.a–h. If you are unsure of the correct diagram, select the diagram that most closely resembles the building being certified.

Item A8.a. Provide the square footage of the crawlspace or enclosure(s) below the lowest elevated floor of an elevated building with or without permanent flood openings. Take the measurement from the outside of the crawlspace or enclosure(s). Examples of elevated buildings constructed with crawlspace and enclosure(s) are shown in Diagrams 6–9

9. Diagrams 2A, 2B, 4, and 9 should be used for a building constructed with a crawlspace floor that is below the exterior grade on all sides.

Items A8.b–d. Enter in Item A8.b the number of permanent flood openings in the crawlspace or enclosure(s) that are no higher than 1.0 foot above the higher of the exterior or interior grade or floor immediately below the opening. (A permanent flood opening is a flood vent or other opening that allows the free passage of water automatically in both directions without human intervention.) If the interior grade elevation is used, note this in the Comments area of Section D. Estimate the total net area of all such permanent flood openings in square inches, excluding any bars, louvers, or other covers of the permanent flood openings, and enter the total in Item A8.c. If the net area cannot be reasonably estimated, provide the size of the flood openings without consideration of any covers and indicate in the Comments area the type of cover that exists in the flood openings. Indicate in Item A8.d whether the flood openings are engineered. If applicable, attach a copy of the Individual Engineered Flood Openings Certification or an Evaluation Report issued by the International Code Council Evaluation Service (ICC ES), if you have it. If the crawlspace or enclosure(s) have no permanent flood openings, or if the openings are not within 1.0 foot above adjacent grade, enter "N/A" for not applicable in Items A8.b–c.

Item A9.a. Provide the square footage of the attached garage with or without permanent flood openings. Take the measurement from the outside of the garage.

Items A9.b–d. Enter in Item A9.b the number of permanent flood openings in the attached garage that are no higher than 1.0 foot above the higher of the exterior or interior grade or floor immediately below the opening. (A permanent flood opening is a flood vent or other opening that allows the free passage of water automatically in both directions without human intervention.) If the interior grade elevation is used, note this in the Comments area of Section D. This includes any openings that are in the garage door that are no higher than 1.0 foot above the adjacent grade. Estimate the total net area of all such permanent flood openings in square inches and enter the total in Item A9.c. If the net area cannot be reasonably estimated, provide the size of the flood openings without consideration of any covers and indicate in the Comments area the type of cover that exists in the flood openings. Indicate in Item A9.d whether the flood openings are engineered. If applicable, attach a copy of the Individual Engineered Flood Openings Certification or an Evaluation Report issued by the International Code Council Evaluation Service (ICC ES), if you have it. If the garage has no permanent flood openings, or if the openings are not within 1.0 foot above adjacent grade, enter "N/A" for not applicable in Items A9.b–c.

SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

Complete the Elevation Certificate on the basis of the FIRM in effect at the time of the certification.

The information for Section B is obtained by reviewing the FIRM panel that includes the building's location. Information about the current FIRM is available from the Federal Emergency Management Agency (FEMA) by calling 1-800-358-9616. If a Letter of Map Amendment (LOMA) or Letter of Map Revision (LOMR-F) has been issued by FEMA, please provide the letter date and case number in the Comments area of Section D or Section G, as appropriate.

For a building in an area that has been annexed by one community but is shown on another community's FIRM, enter the community name and 6-digit number of the annexing community in Item B1, the name of the county or new county, if necessary, in Item B2, and the FIRM index date for the annexing community in Item B6. Enter information from the actual FIRM panel that shows the building location, even if it is the FIRM for the previous jurisdiction, in Items B4, B5, B7, B8, and B9.

If the map in effect at the time of the building's construction was other than the current FIRM, and you have the past map information pertaining to the building, provide the information in the Comments area of Section D.

Item B1. NFIP Community Name & Community Number. Enter the complete name of the community in which the building is located and the associated 6-digit community number. For a newly incorporated community, use the name and 6-digit number of the new community. Under the NFIP, a "community" is any State or area or political subdivision thereof, or any Indian tribe or authorized native organization, that has authority to adopt and enforce floodplain management regulations for the areas within its jurisdiction. To determine the current community number, see the NFIP *Community Status Book*, available on FEMA's web site at https://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book, or call 1-800-358-9616.

Item B2. County Name. Enter the name of the county or counties in which the community is located. For an unincorporated area of a county, enter "unincorporated area." For an independent city, enter "independent city."

Item B3. State. Enter the 2-letter state abbreviation (for example, VA, TX, CA).

Items B4–B5. Map/Panel Number and Suffix. Enter the 10-character "Map Number" or "Community Panel Number" shown on the FIRM where the building or manufactured (mobile) home is located. For maps in a county-wide format, the sixth character of the "Map Number" is the letter "C" followed by a 4-digit map number. For maps not in a county-wide format, enter the "Community Panel Number" shown on the FIRM.

Item B6. FIRM Index Date. Enter the effective date or the map revised date shown on the FIRM Index.

Item B7. FIRM Panel Effective/Revised Date. Enter the map effective date or the map revised date shown on the FIRM panel. This will be the latest of all dates shown on the map. The current FIRM panel effective date can be determined by calling 1-800-358-9616.

Item B8. Flood Zone(s). Enter the flood zone, or flood zones, in which the building is located. All flood zones containing the letter "A" or "V" are considered Special Flood Hazard Areas. The flood zones are A, AE, A1–A30, V, VE, V1–V30, AH, AO, AR, AR/A, AR/AE, AR/A1–A30, AR/AH, and AR/AO. Each flood zone is defined in the legend of the FIRM panel on which it appears.

Item B9. Base Flood Elevation(s). Using the appropriate Flood Insurance Study (FIS) Profile, Floodway Data Table, or FIRM panel, locate the property and enter the BFE (or base flood depth) of the building site. If the building is located in more than 1 flood zone in Item B8, list all appropriate BFEs in Item B9. BFEs are shown on a FIRM or FIS Profile for Zones A1–A30, AE, AH, V1–V30, VE, AR, AR/A, AR/AE, AR/A1–A30, AR/AH, and AR/AO; flood depth numbers are shown for Zone AO. Use the AR BFE if the building is located in any of Zones AR/A, AR/AE, AR/A1–A30, AR/AH, or AR/AO. In A or V zones where BFEs are not provided on the FIRM, BFEs may be available from another source. For example, the community may have established BFEs or obtained BFE data from other sources for the building site. For subdivisions and other developments of more than 50 lots or 5 acres, establishment of BFEs is required by the community's floodplain management ordinance. If a BFE is obtained from another source, enter the BFE in Item B9. In an A Zone where BFEs are not available, complete Section E and enter N/A for Section B, Item B9. Enter the BFE to the nearest tenth of a foot (nearest tenth of a meter, in Puerto Rico).

Item B10. Indicate the source of the BFE that you entered in Item B9. If the BFE is from a source other than FIS Profile, FIRM, or community, describe the source of the BFE.

Item B11. Indicate the elevation datum to which the elevations on the applicable FIRM are referenced as shown on the map legend. The vertical datum is shown in the Map Legend and/or the Notes to Users on the FIRM.

Item B12. Indicate whether the building is located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA). (OPAs are portions of coastal barriers that are owned by Federal, State, or local governments or by certain non-profit organizations and used primarily for natural resources protection.) Federal flood insurance is prohibited in designated CBRS areas or OPAs for buildings or manufactured (mobile) homes built or substantially improved after the date of the CBRS or OPA designation. For the first CBRS designations, that date is October 1, 1983. Information about CBRS areas and OPAs may be obtained on the FEMA web site at https://www.fema.gov/national-flood-insurance-program/coastal-barrier-resources-system.

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

Complete Section C if the building is located in any of Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, or AR/AO, or if this certificate is being used to support a request for a LOMA or LOMR-F. If the building is located in Zone AO or Zone A (without BFE), complete Section E instead. To ensure that all required elevations are obtained, it may be necessary to enter the building (for instance, if the building has a basement or sunken living room, split-level construction, or machinery and equipment).

Surveyors may not be able to gain access to some crawlspaces to shoot the elevation of the crawlspace floor. If access to the crawlspace is limited or cannot be gained, follow one of these procedures.

- Use a yardstick or tape measure to measure the height from the floor of the crawlspace to the "next higher floor," and then subtract the crawlspace height from the elevation of the "next higher floor." If there is no access to the

Instructions for Completing the Elevation Certificate (continued)

crawlspace, use the exterior grade next to the structure to measure the height of the crawlspace to the "next higher floor."

- Contact the local floodplain administrator of the community in which the building is located. The community may have documentation of the elevation of the crawlspace floor as part of the permit issued for the building.
- If the property owner has documentation or knows the height of the crawlspace floor to the next higher floor, try to verify this by looking inside the crawlspace through any openings or vents.

In all 3 cases, use the Comments area of Section D to provide the elevation and a brief description of how the elevation was obtained.

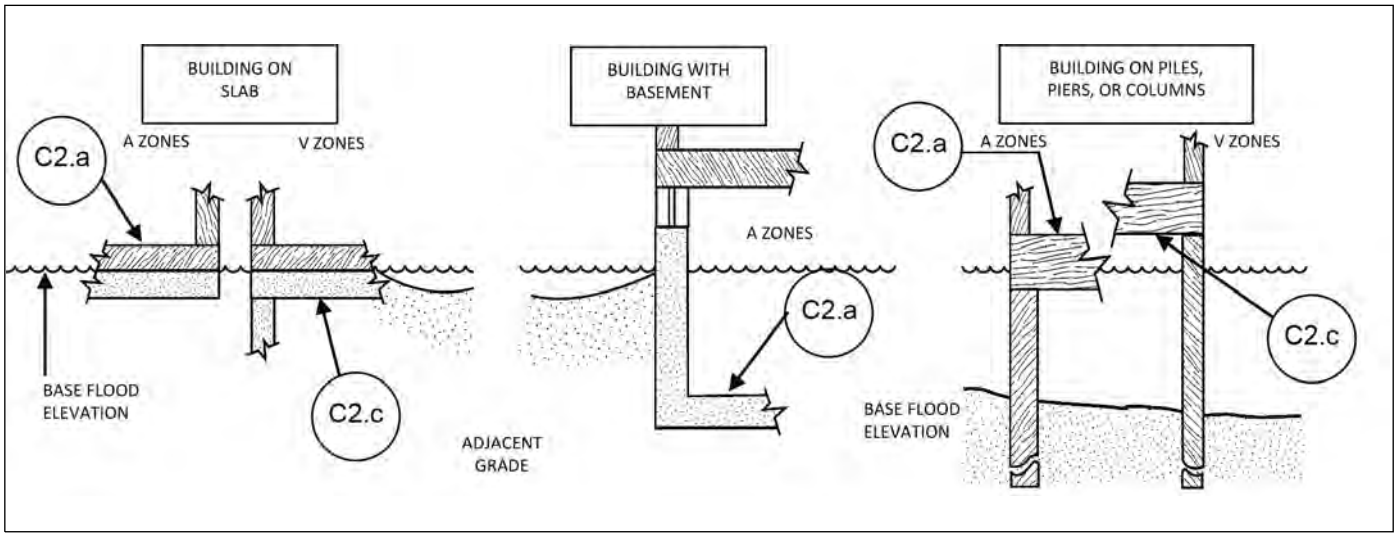
Item C1. Indicate whether the elevations to be entered in this section are based on construction drawings, a building under construction, or finished construction. For either of the first 2 choices, a post-construction Elevation Certificate will be required when construction is complete. If the building is under construction, include only those elevations that can be surveyed in Items C2.a–h. Use the Comments area of Section D to provide elevations obtained from the construction plans or drawings. Select "Finished Construction" only when all machinery and/or equipment such as furnaces, hot water heaters, heat pumps, air conditioners, and elevators and their associated equipment have been installed and the grading around the building is completed.

Item C2. A field survey is required for Items C2.a–h. Most control networks will assign a unique identifier for each benchmark. For example, the National Geodetic Survey uses the Permanent Identifier (PID). For the benchmark utilized, provide the PID or other unique identifier assigned by the maintainer of the benchmark. For GPS survey, indicate the benchmark used for the base station, the Continuously Operating Reference Stations (CORS) sites used for an On-line Positioning User Service (OPUS) solution (also attach the OPUS report), or the name of the Real Time Network used.

Also provide the vertical datum for the benchmark elevation. All elevations for the certificate, including the elevations for Items C2.a–h, must use the same datum on which the BFE is based. Show the conversion from the field survey datum used if it differs from the datum used for the BFE entered in Item B9 and indicate the conversion software used. Show the datum conversion, if applicable, in the Comments area of Section D.

For property experiencing ground subsidence, the most recent reference mark elevations must be used for determining building elevations. However, when subsidence is involved, the BFE should not be adjusted. Enter elevations in Items C2.a–h to the nearest tenth of a foot (nearest tenth of a meter, in Puerto Rico).

Items C2.a–d. Enter the building elevations (excluding the attached garage) indicated by the selected building diagram (Item A7) in Items C2.a–c. If there is an attached garage, enter the elevation for top of attached garage slab in Item C2.d. (Because elevation for top of attached garage slab is self-explanatory, attached garages are not illustrated in the diagrams.) If the building is located in a V zone on the FIRM, complete Item C2.c. If the flood zone cannot be determined, enter elevations for all of Items C2.a–h. For buildings in A zones, elevations a, b, d, and e should be measured at the top of the floor. For buildings in V zones, elevation c must be measured at the bottom of the lowest horizontal structural member of the floor (see drawing below). For buildings elevated on a crawlspace, Diagrams 8 and 9, enter the elevation



f the crawlspace floor in Item C2.a, whether or not the crawlspace has permanent flood openings (flood vents). *If any item does not apply to the building, enter "N/A" for not applicable.*

Item C2.e. Enter the lowest platform elevation of at least 1 of the following machinery and equipment items: elevators and their associated equipment, furnaces, hot water heaters, heat pumps, and air conditioners in an attached garage or enclosure or on an open utility platform that provides utility services for the building. Note that elevations for these specific machinery and equipment items are required in order to rate the building for flood insurance. Local floodplain management officials are required to ensure that all machinery and equipment servicing the building are protected from flooding. Thus, local officials may require that elevation information for all machinery and equipment, including ductwork, be documented on the Elevation Certificate. If the machinery and/or equipment is mounted to a wall, pile, etc., enter the platform elevation of the machinery and/or equipment. Indicate machinery/equipment type and its general location, e.g., on floor inside garage or on platform affixed to exterior wall, in the Comments area of Section D or Section G, as appropriate. *If this item does not apply to the building, enter "N/A" for not applicable.*

Items C2.f–g. Enter the elevation of the ground, sidewalk, or patio slab immediately next to the building. For Zone AO, use the natural grade elevation, if available. This measurement must be to the nearest tenth of a foot (nearest tenth of a meter, in Puerto Rico) if this certificate is being used to support a request for a LOMA or LOMR-F.

Item C2.h. Enter the lowest grade elevation at the deck support or stairs. For Zone AO, use the natural grade elevation, if available. This measurement must be to the nearest tenth of a foot (nearest tenth of a meter, in Puerto Rico) if this certificate is being used to support a request for a LOMA or LOMR-F.

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

Complete as indicated. This section of the Elevation Certificate may be signed by only a land surveyor, engineer, or architect who is authorized by law to certify elevation information. Place your license number, your seal (as allowed by the State licensing board), your signature, and the date in the box in Section D. You are certifying that the information on this certificate represents your best efforts to interpret the data available and that you understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001. Use the Comments area of Section D to provide datum, elevation, openings, or other relevant information not specified elsewhere on the certificate.

SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

Complete Section E if the building is located in Zone AO or Zone A (without BFE). Otherwise, complete Section C instead. Explain in the Section F Comments area if the measurement provided under Items E1–E4 is based on the "natural grade."

Items E1.a and b. Enter in Item E1.a the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico) of the top of the bottom floor (as indicated in the applicable diagram) above or below the highest adjacent grade (HAG). Enter in Item E1.b the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico) of the top of the bottom floor (as indicated in the applicable diagram) above or below the lowest adjacent grade (LAG). For buildings in Zone AO, the community's floodplain management ordinance requires the lowest floor of the building be elevated above the highest adjacent grade at least as high as the depth number on the FIRM. Buildings in Zone A (without BFE) may qualify for a lower insurance rate if an engineered BFE is developed at the site.

Item E2. For Building Diagrams 6–9 with permanent flood openings (see pages 8–9), enter the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico) of the next higher floor or elevated floor (as indicated in the applicable diagram) above or below the highest adjacent grade (HAG).

Item E3. Enter the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico), in relation to the highest adjacent grade next to the building, for the top of attached garage slab. (Because elevation for top of attached garage slab is self-explanatory, attached garages are not illustrated in the diagrams.) *If this item does not apply to the building, enter "N/A" for not applicable.*

Item E4. Enter the height to the nearest tenth of a foot (tenth of a meter in Puerto Rico), in relation to the highest adjacent grade next to the building, of the platform elevation that supports the machinery and/or equipment servicing the building. Indicate machinery/equipment type in the Comments area of Section F. *If this item does not apply to the building, enter "N/A" for not applicable.*

Item C2. If those communities where this base flood depth is not available, the community will need to determine whether the top of the bottom floor is elevated in accordance with the community's floodplain management ordinance.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

Complete as indicated. This section is provided for certification of measurements taken by a property owner or property owner's representative when responding to Sections A, B, and E. The address entered in this section must be the actual mailing address of the property owner or property owner's representative who provided the information on the certificate.

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

Complete as indicated. The community official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Section C may be filled in by the local official as provided in the instructions below for Item G1. If the authorized community official completes Sections C, E, or G, complete the appropriate item(s) and sign this section.

Check **Item G1** if Section C is completed with elevation data from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. Indicate the source of the elevation data and the date obtained in the Comments area of Section G. If you are both a community official and a licensed land surveyor, engineer, or architect authorized by law to certify elevation information, and you performed the actual survey for a building in Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/A1–A30, AR/AE, AR/AH, or AR/AO, you must also complete Section D.

Check **Item G2** if information is entered in Section E by the community for a building in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

Check **Item G3** if the information in Items G4–G10 has been completed for community floodplain management purposes to document the as-built lowest floor elevation of the building. Section C of the Elevation Certificate records the elevation of various building components but does not determine the lowest floor of the building or whether the building, as constructed, complies with the community's floodplain management ordinance. This must be done by the community. Items G4–G10 provide a way to document these determinations.

Item G4. Permit Number. Enter the permit number or other identifier to key the Elevation Certificate to the permit issued for the building.

Item G5. Date Permit Issued. Enter the date the permit was issued for the building.

Item G6. Date Certificate of Compliance/Occupancy Issued. Enter the date that the Certificate of Compliance or Occupancy or similar written official documentation of as-built lowest floor elevation was issued by the community as evidence that all work authorized by the floodplain development permit has been completed in accordance with the community's floodplain management laws or ordinances.

Item G7. New Construction or Substantial Improvement. Check the applicable box. "Substantial Improvement" means any reconstruction, rehabilitation, addition, or other improvement of a building, the cost of which equals or exceeds 50 percent of the market value of the building before the start of construction of the improvement. The term includes buildings that have incurred substantial damage, regardless of the actual repair work performed.

Item G8. As-built lowest floor elevation. Enter the elevation of the lowest floor (including basement) when the construction of the building is completed and a final inspection has been made to confirm that the building is built in accordance with the permit, the approved plans, and the community's floodplain management laws or ordinances. Indicate the elevation datum used.

Item G9. BFE. Using the appropriate FIRM panel, FIS Profile, or other data source, locate the property and enter the BFE (or base flood depth) of the building site. Indicate the elevation datum used.

Item G10. Community's design flood elevation. Enter the elevation (including freeboard above the BFE) to which the community requires the lowest floor to be elevated. Indicate the elevation datum used.

Enter your name, title, and telephone number, and the name of the community. Sign and enter the date in the appropriate blanks.

Building Diagrams

The diagrams illustrate various types of buildings. Compare the features of the building being certified with the features shown in the diagrams and select the diagram most applicable. Enter the diagram number in Item A7, the square footage of crawlspace or enclosure(s) and the area of flood openings in square inches in Items A8.a–c, the square footage of attached garage and the area of flood openings in square inches in Items A9.a–c, and the elevations in Items C2.a–h.

In A zones, the floor elevation is taken at the top finished surface of the floor indicated; in V zones, the floor elevation is taken at the bottom of the lowest horizontal structural member (see drawing in instructions for Section C).

DIAGRAM 1A

All slab-on-grade single- and multiple-floor buildings (other than split-level) and high-rise buildings, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor is at or above ground level (grade) on at least 1 side.*

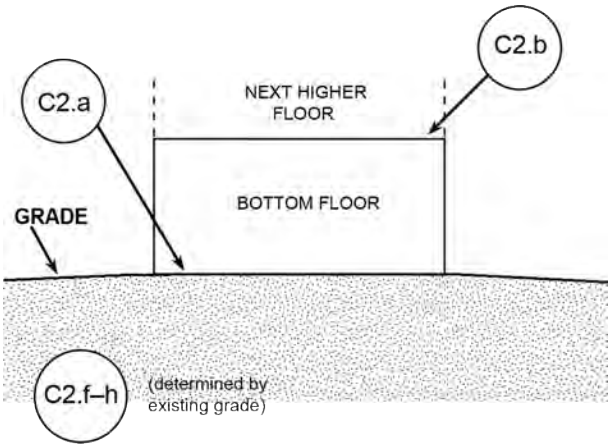


DIAGRAM 1B

All raised-slab-on-grade or slab-on-stem-wall-with-fill single- and multiple-floor buildings (other than split-level), either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor is at or above ground level (grade) on at least 1 side.*

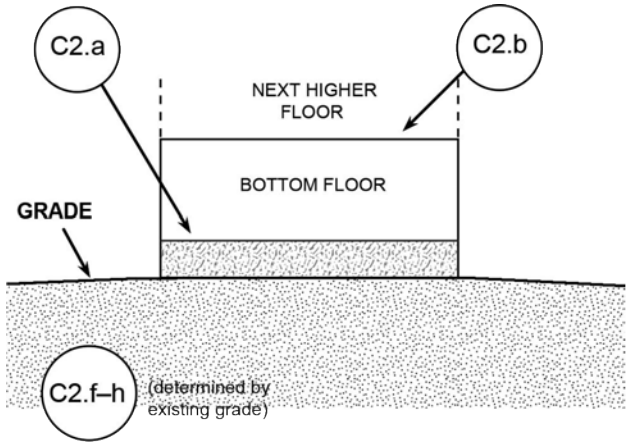


DIAGRAM 2A

All single- and multiple-floor buildings with basement (other than split-level) and high-rise buildings with basement, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (basement or underground garage) is below ground level (grade) on all sides.*

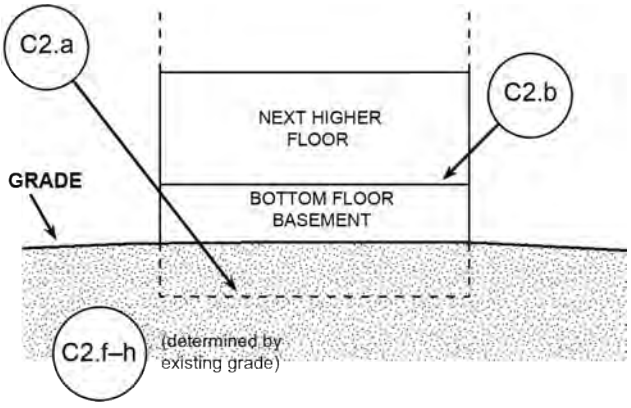
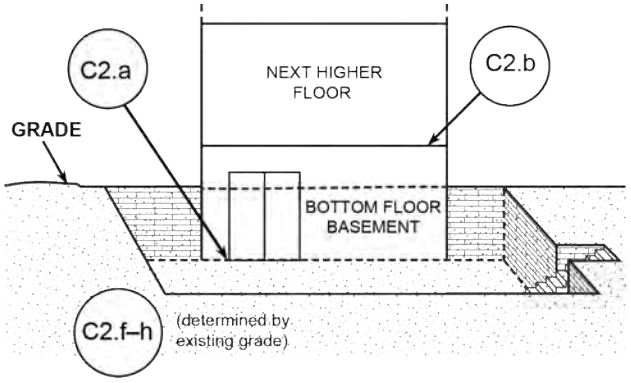


DIAGRAM 2B

All single- and multiple-floor buildings with basement (other than split-level) and high-rise buildings with basement, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (basement or underground garage) is below ground level (grade) on all sides; most of the height of the walls is below ground level on all sides; and the door and area of egress are also below ground level on all sides.*



* A floor that is below ground level (grade) on all sides is considered a basement even if the floor is used for living purposes, or as an office, garage, workshop, etc.

Building Diagrams

DIAGRAM 3

All split-level buildings that are slab-on-grade, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (excluding garage) is at or above ground level (grade) on at least 1 side.*

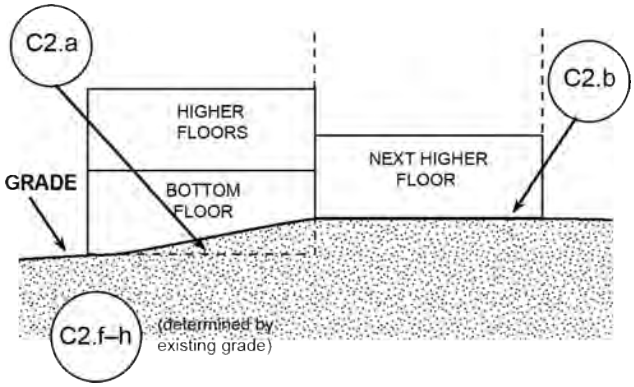


DIAGRAM 4

All split-level buildings (other than slab-on-grade), either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (basement or underground garage) is below ground level (grade) on all sides.*

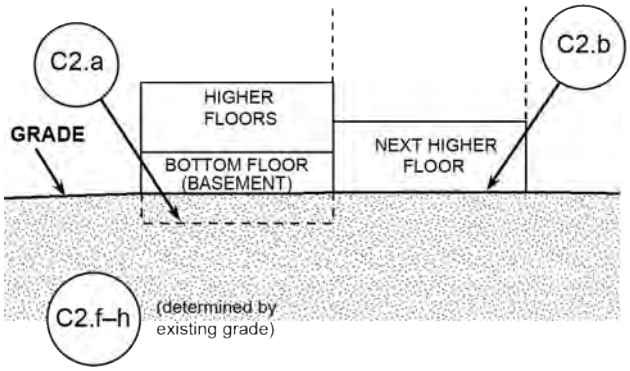


DIAGRAM 5

All buildings elevated on piers, posts, piles, columns, or parallel shear walls. No obstructions below the elevated floor.

Distinguishing Feature – For all zones, the area below the elevated floor is open, with no obstruction to flow of floodwaters (open lattice work and/or insect screening is permissible).

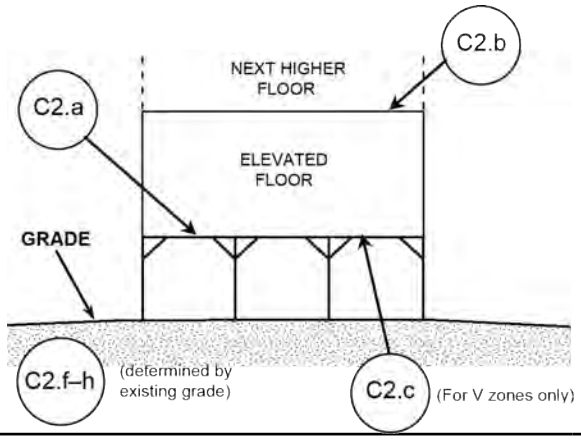
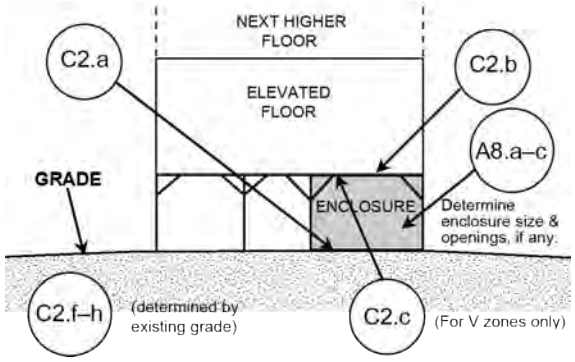


DIAGRAM 6

All buildings elevated on piers, posts, piles, columns, or parallel shear walls with full or partial enclosure below the elevated floor.

Distinguishing Feature – For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings** present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A – Property Information.



* A floor that is below ground level (grade) on all sides is considered a basement even if the floor is used for living purposes, or as an office, garage, workshop, etc.

** An "opening" is a permanent opening that allows for the free passage of water automatically in both directions without human intervention. Under the NFIP, a minimum of 2 openings is required for enclosures or crawlspaces. The openings shall provide a total net area of not less than 1 square inch for every square foot of area enclosed, excluding any bars, louvers, or other covers of the opening. Alternatively, an Individual Engineered Flood Openings Certification or an Evaluation Report issued by the International Code Council Evaluation Service (ICC ES) must be submitted to document that the design of the openings will allow for the automatic equalization of hydrostatic flood forces on exterior walls. A window, a door, or a garage door is not considered an opening; openings may be installed in doors. Openings shall be on at least 2 sides of the enclosed area. If a building has more than 1 enclosed area, each area must have openings to allow floodwater to directly enter. The bottom of the openings must be no higher than 1.0 foot above the higher of the exterior or interior grade or floor immediately below the opening. For more guidance on openings, see NFIP Technical Bulletin 1.

Building Diagrams

DIAGRAM 7

All buildings elevated on full-story foundation walls with a partially or fully enclosed area below the elevated floor. This includes walkout levels, where at least 1 side is at or above grade. The principal use of this building is located in the elevated floors of the building.

Distinguishing Feature – For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings** present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A – Property Information.

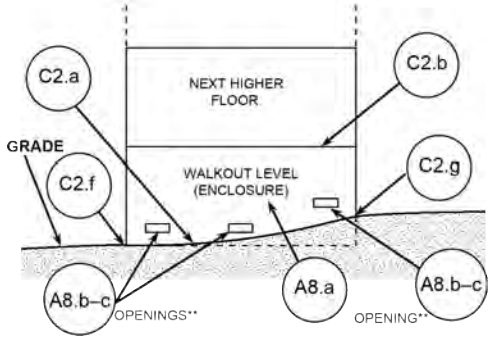


DIAGRAM 8

All buildings elevated on a crawlspace with the floor of the crawlspace at or above grade on at least 1 side, with or without an attached garage.

Distinguishing Feature – For all zones, the area below the first floor is enclosed by solid or partial perimeter walls. In all A zones, the crawlspace is with or without openings** present in the walls of the crawlspace. Indicate information about crawlspace size and openings in Section A – Property Information.

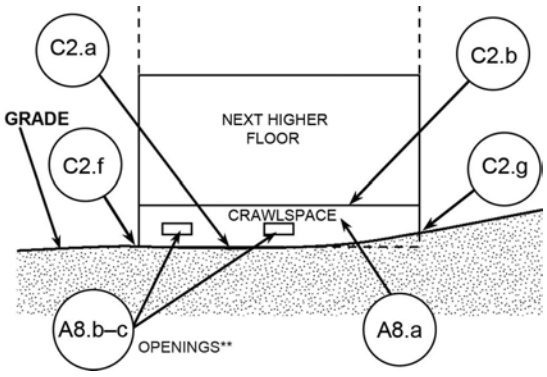
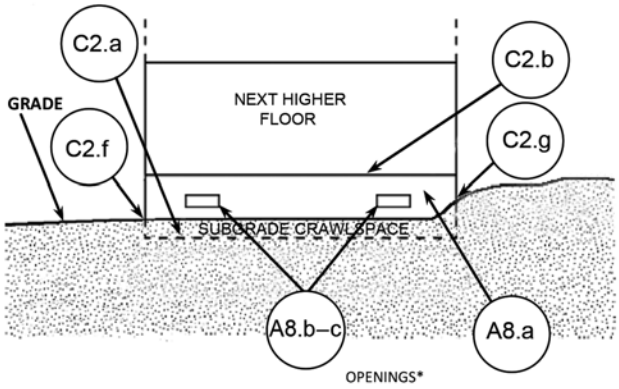


DIAGRAM 9

All buildings (other than split-level) elevated on a sub-grade crawlspace, with or without attached garage.

Distinguishing Feature – The bottom (crawlspace) floor is below ground level (grade) on all sides.* (If the distance from the crawlspace floor to the top of the next higher floor is more than 5 feet, or the crawlspace floor is more than 2 feet below the grade [LAG] on all sides, use Diagram 2A or 2B.)



* A floor that is below ground level (grade) on all sides is considered a basement even if the floor is used for living purposes, or as an office, garage, workshop, etc.

** An "opening" is a permanent opening that allows for the free passage of water automatically in both directions without human intervention. Under the NFIP, a minimum of 2 openings is required for enclosures or crawlspaces. The openings shall provide a total net area of not less than 1 square inch for every square foot of area enclosed, excluding any bars, louvers, or other covers of the opening. Alternatively, an Individual Engineered Flood Openings Certification or an Evaluation Report issued by the International Code Council Evaluation Service (ICC ES) must be submitted to document that the design of the openings will allow for the automatic equalization of hydrostatic flood forces on exterior walls. A window, a door, or a garage door is not considered an opening; openings may be installed in doors. Openings shall be on at least 2 sides of the enclosed area. If a building has more than 1 enclosed area, each area must have openings to allow floodwater to directly enter. The bottom of the openings must be no higher than 1.0 foot above the higher of the exterior or interior grade or floor immediately below the opening. For more guidance on openings, see NFIP Technical Bulletin 1.

Appendix F.2

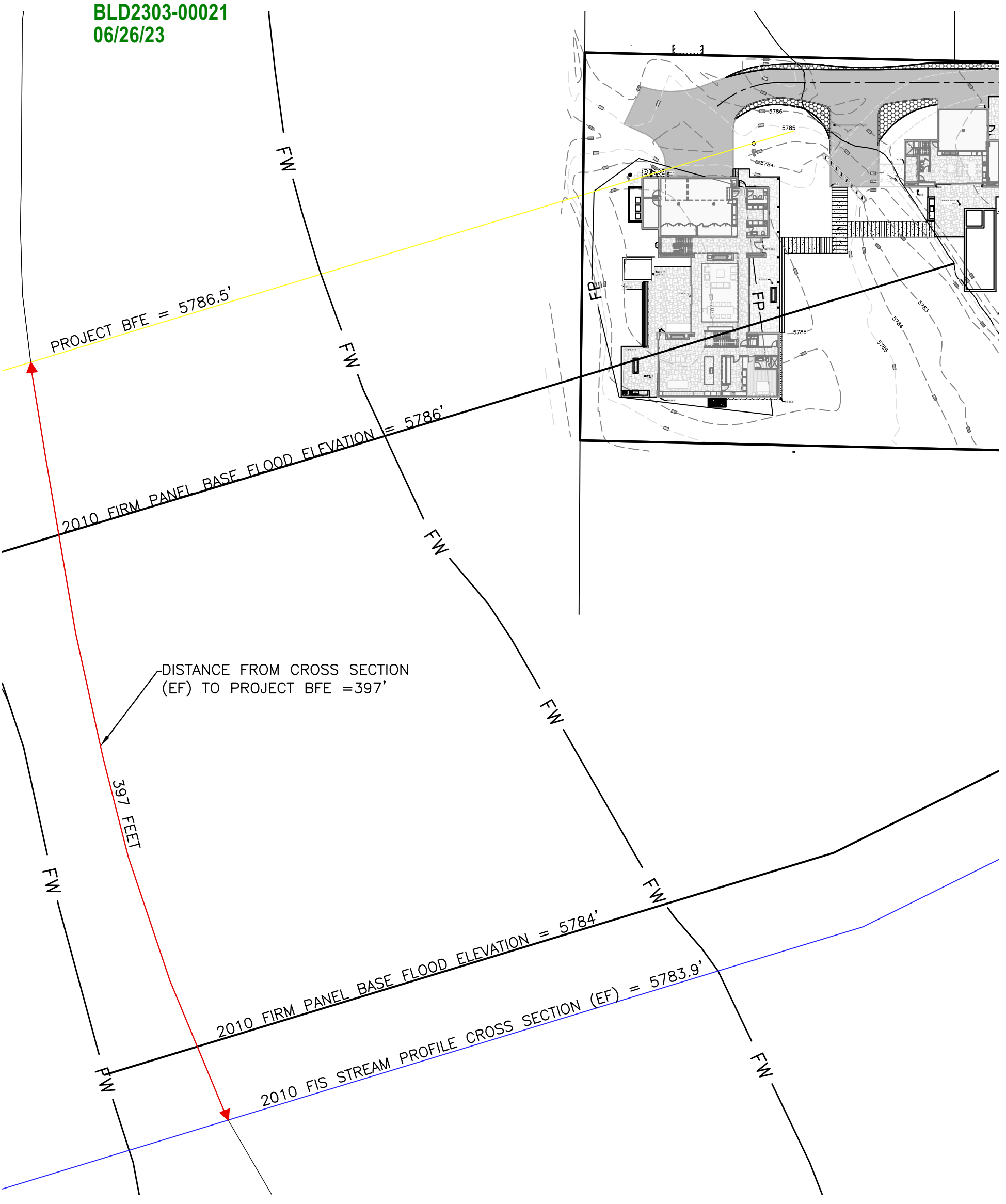
BFE Exhibit + Flood Profiles

Appendix F.2

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23



PLAN

SCALE IN FEET

N

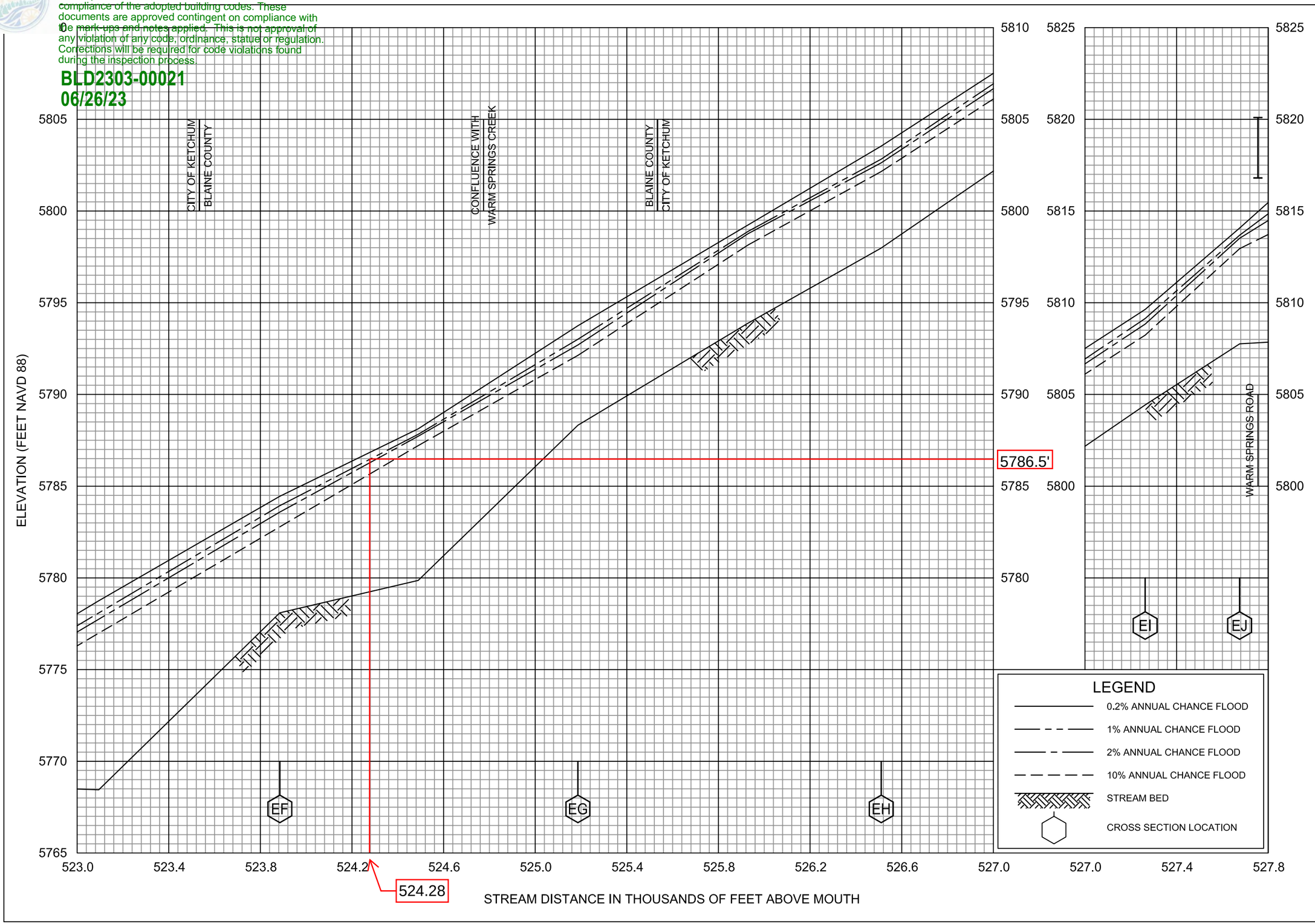
0' 50' 100' 150'

DATE: 4/28/2023
PROJECT NO.: 22185

EXHIBIT
PROJECT BFE

BENCHMARK ASSOCIATES, P.A.

ROCKING RANCH #2 PARCEL 4



FLOOD PROFILES

BIG WOOD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

BLAINE COUNTY, ID

AND INCORPORATED AREAS

033P

Appendix G

Joint Application to USACE

121 Badger Lane, LLC
Rocking Horse Ranch Subdivision No. 2, Parcel 4
121 Badger Lane
City of Ketchum, Blaine County, Idaho

October 2022

Prepared for

121 Badger Lane, LLC
Presidio Vista Properties
P.O. Box 10092
Ketchum, ID 83340

Pre-construction notification is being submitted on behalf of 121 Badger Lane, LLC owners of Parcel 4, Rocking Horse Ranch Subdivision No. 2, located 121 Badger Lane, Section 13, Township 4N., Range 17E., City of Ketchum, Blaine County, Idaho. Applicants request permit approval for residential development within waters of the United States, jurisdictional wetlands. Proposed development plan will require wetland fill applications for planned development applications: access driveway, attendant landscape features and associated landscape grading applications. Proposed development applications will impact, permanently fill approximately 0.029 ac. (1,277 sq. ft.).

Proposed development applicaitons have been designed and will be constructed to avoid and minimize adverse impacts to identified wetland resources to the maximum extent practicable. Mitigation to offset for the proposed wetland impacts [permanent fill] will be implemented in conjunction with the City of Ketchum Floodplain Development regulations and requirements. On-site compensatory mitigation applications will be conducted on a 1 to 1 (minimum) replacement ratio. Due to the proposed wetland mitigation applications, locations of proposed development applications, site drainage characteristics and preserved vegetative buffers, changes to wetland functions, hydrological characteristics and processes are not anticipated. No impacts to surface water resources are proposed.

Project will incorporate all applicable Best Management Practices (BMPs) such as silt fence and straw wattles to protect resource values and ensure compliance with Water Quality Standards and applicable environmental regulations. All disturbed areas will be reclaimed and vegetated, noxious and invasive plant species will be controlled within the parcel on a as needed basis.

Adverse environmental effects of the proposed residential development applications are considered to be minimal.

Appendix G

Approved
These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the markups and notes applied. This is not approval of any violation of any code, ordinance, or statute. Corrections will be required for code violations found during the inspection process.
BLD2303-00021
06/26/23

RESIDENTIAL DEVELOPMENT [NWP-29]

JOINT APPLICATION FOR PERMITS

CORPS OF ENGINEERS - IDAHO DEPARTMENT OF WATER RESOURCES - IDAHO DEPARTMENT OF LANDS

Authorities: The Department of Army Corps of Engineers (Corps), Idaho Department of Water Resources (IDWR), and Idaho Department of Lands (IDL) established a joint process for activities impacting jurisdictional waterways that require review and/or approval of both the Corps and State of Idaho. Department of Army permits are required by Section 10 of the Rivers & Harbors Act of 1899 for any structure(s) or work in or affecting navigable waters of the United States and by Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States, including adjacent wetlands. State permits are required under the State of Idaho, Stream Protection Act (Title 42, Chapter 38, Idaho Code) and Lake Protection Act (Section 58, Chapter 13 et seq., Idaho Code). In addition the information will be used to determine compliance with Section 401 of the Clean Water Act by the appropriate State, Tribal or Federal entity.

Joint Application: Information provided on this application will be used in evaluating the proposed activities. Disclosure of requested information is voluntary. Failure to supply the requested information may delay processing and issuance of the appropriate permit or authorization. **Applicant will need to send a completed application, along with one (1) set of legible, black and white (8½"x11"), reproducible drawings that illustrate the location and character of the proposed project / activities to both the Corps and the State of Idaho.**

See Instruction Guide for assistance with Application. Accurate submission of requested information can prevent delays in reviewing and permitting your application. Drawings including vicinity maps, plan-view and section-view drawings must be submitted on 8-1/2 x 11 papers.

Do not start work until you have received all required permits from both the Corps and the State of Idaho

FOR AGENCY USE ONLY			
USACE NWW-	Date Received:	☐ Incomplete Application Returned	Date Returned:
Idaho Department of Water Resources No.	Date Received:	☐ Fee Received DATE:	Receipt No.:
Idaho Department of Lands No.	Date Received:	☐ Fee Received DATE:	Receipt No.:

INCOMPLETE APPLICATIONS MAY NOT BE PROCESSED

1. **CONTACT INFORMATION - APPLICANT** Required:			2. **CONTACT INFORMATION - AGENT:**		
Name: Matt Scoggins - Presidio Vista Properties			Name: Trent A. Stumph		
Company: 121 Badger Lane, LLC			Company: SAWTOOTH ENVIRONMENTAL CONSULTING, LLC		
Mailing Address: P.O. Box 10092			Mailing Address: P.O. Box 2707, 540 North 1st. Avenue		
City: Ketchum	State: ID	Zip Code: 83340	City: Ketchum	State: ID	Zip Code: 83340
Phone Number *(include area code)*: 214-557-5533	E-mail: matt@presidiovistaproperties.com		Phone Number *(include area code)*: 208-727-9748	E-mail: trent@sawtoothenvironmentalcom	

3. PROJECT NAME or TITLE: 121 Badger Lane - Residential Dev.			4. PROJECT STREET ADDRESS: 121 Badger Lane	
5. PROJECT COUNTY: Blaine	6. PROJECT CITY: Ketchum		7. PROJECT ZIP CODE: 83340	8. NEAREST WATERWAY/WATERBODY: Big Wood River
9. TAX PARCEL ID#: RPK05130000040	10. LATITUDE: 43.680220° N LONGITUDE: -114.375730° W	11a. 1/4: NW 11b. 1/4: SE 11c. SECTION: 13	11d. TOWNSHIP: 4N	11e. RANGE: 17E
12a. ESTIMATED START DATE: May-01, 2023	12b. ESTIMATED END DATE: Oct-31, 2024	13a. IS PROJECT LOCATED WITHIN ESTABLISHED TRIBAL RESERVATION BOUNDARIES? ☒ NO ☐ YES Tribe:		
13b. IS PROJECT LOCATED IN LISTED ESA AREA? ☒ NO ☐ YES		13c. IS PROJECT LOCATED ON/NEAR HISTORICAL SITE? ☒ NO ☐ YES		

14. DIRECTIONS TO PROJECT SITE: Include vicinity map with legible crossroads, street numbers, names, landmarks.

Parcel approximately 0.50 miles from downtown Ketchum, from Main Street and Sun Valley Rd., intersection head southwest on Sun Valley Road, 0.19 mi. Turn right onto Second Ave., 0.16 mi. Turn left onto 6th Street West, 0.16 mi. Right on to N 4th Ave then left onto Buss Elle Road, 0.15 mi. Right onto Badger Lane, 0.08 mi. (end of road), 121 Badger Lane driveway on the left.

15. PURPOSE and NEED: ☐ Commercial ☐ Industrial ☐ Public ☒ Private ☐ Other

Describe the reason or purpose of your project; include a brief description of the overall project. Continue to Block 16 to detail each work activity and overall project.

Residential development on unimproved lot, Rocking Horse Ranch Subd. #2, Parcel 4, [121 Badger Ln.]. Proposed development applications: residential home-site, accessory dwelling unit, access driveway, attendant landscape features and associated grading applications. Proposed project applications will impact approximately 0.029 ac. (1277 sq. ft.) of identified wetland resources. Proposed WL mitigation will create: 0.029 ac. (1278 sq. ft.) wetland resources.

Approved
These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statute or regulation. Corrections will be required for code violations found during the inspection process.
BLD2303-00021
06/26/23

Appendix G

PTION OF EACH ACTIVITY WITHIN OVERALL PROJECT. Specifically indicate portions that take place within waters of the United States, including wetlands: Include construction methods, erosion, sediment and turbidity controls; hydrological changes: general stream/surface water flows, estimated winter/summer flows; borrow as etc.

21 Badger Lane residential development project proposes construction activities to include: construction of driveway access, attendant landscape elements and associated landscape grading applications. Project applications within identified wetlands / area of impact, approximately 0.029 ac (1277 sq. ft.). Project applications involve the import and placement of approximately 151 cu. yds. of fill materials (soil/gravel/stone mix) and associated roadway materials. Standard construction equipment will be used to place and distribute materials (track excavator, loader and dozer).

Wetlands identified within the subject parcel are classified as Palustrine Scrub-Shrub Seasonally Flooded [PSSC] wetland type (USFWS-NWI 1984). Wetland characteristics associated with the identified wetland resources include predominant wetland vegetation (native shrubs and facultative grasses) and hydric soils.

Due to the locations of the proposed development applications, site drainage characteristics, proposed wetland / floodplain mitigation applications and preserved vegetative buffers, changes to the hydrological characteristics and processes (periodic floodplain inundation and associated groundwater dynamics) are not anticipated. No impacts to surface water resources are proposed. Proposed wetland / floodplain mitigation applications will create: 0.029 ac. (1278 sq. ft.) wetland resources.

17. DESCRIBE ALTERNATIVES CONSIDERED to AVOID or MEASURES TAKEN to MINIMIZE and/ or COMPENSATE for IMPACTS to WATERS of the UNITED STATES, INCLUDING WETLANDS: See Instruction Guide for specific details.

Proposed development applications and associated locations are considered to be the best alternative to gain access to the existing designated building envelope, provide for reasonable use of the existing platted parcel, and to achieve project objectives. Project has been designed to avoid and minimize impacts to wetlands to the greatest extent practicable.

18. PROPOSED MITIGATION STATEMENT or PLAN: If you believe a mitigation plan is not needed, provide a statement and your reasoning why a mitigation plan is NOT required. Or, attach a copy of your proposed mitigation plan.

121 Badger Lane residential development project has been designed and will be constructed to avoid and minimize adverse impacts to identified wetland resources to the maximum extent practicable. Mitigation to offset for the proposed wetland impacts [permanent fill] will be implemented in conjunction with the City of Ketchum Floodplain Development regulations and requirements. On-site compensatory mitigation applications will be conducted on a 1 to 1 (minimum) replacement ratio. Due to the proposed wetland mitigation applications, locations of proposed development applications, site drainage characteristics and preserved vegetative buffers, changes to wetland functions, hydrological characteristics and processes are not anticipated. No impacts to surface water resources are proposed. Adverse environmental effects of the proposed residential development applications are considered to be minimal.

19. TYPE and QUANTITY of MATERIAL(S) to be discharged below the ordinary high water mark and/or wetlands:

Dirt or Topsoil:	50	cubic yards
Dredged Material:		cubic yards
Clean Sand:		cubic yards
Clay:		cubic yards
Gravel, Rock, or Stone:	101	cubic yards
Concrete:		cubic yards
Other (describe):		cubic yards
Other (describe:		cubic yards
TOTAL:	151	cubic yards

20. TYPE and QUANTITY of impacts to waters of the United States, including wetlands:

Filling:	0.029 acres	1,277 sq ft.	151 cubic yards
Backfill & Bedding:	acres	sq ft.	cubic yards
Land Clearing:	acres	sq ft.	cubic yards
Dredging:	acres	sq ft.	cubic yards
Flooding:	acres	sq ft.	cubic yards
Excavation:	acres	sq ft.	cubic yards
Draining:	acres	sq ft.	cubic yards
Other:	acres	sq ft.	cubic yards
TOTALS:	0.029 acres	1,277 sq ft.	151 cubic yards

Approved
These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

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2 ACTIVITIES STARTED ON THIS PROJECT? ☒ NO ☐ YES If yes, describe ALL work that has occurred including dates.

22. LIST ALL PREVIOUSLY ISSUED PERMIT AUTHORIZATIONS:

NONE

23. ☐ YES, Alteration(s) are located on Public Trust Lands, Administered by Idaho Department of Lands

24. SIZE AND FLOW CAPACITY OF BRIDGE/CULVERT and DRAINAGE AREA SERVED: Floodplain Square Miles

25. IS PROJECT LOCATED IN A MAPPED FLOODWAY? ☒ NO ☐ YES If yes, contact the floodplain administrator in the local government jsrisdiction in which the project is located. A Floodplain Development permit and a No-rise Certification may be required.

26a WATER QUALITY CERTIFICATION: Pursuant to the Clean Water Act, anyone who wishes to discharge dredge or fill material into the waters of the United States, either on private or public property, must obtain a Section 401 Water Quality Certification (WQC) from the appropriate water quality certifying government entity.
See Instruction Guide for further clarification and all contact information.

The following information is requested by IDEQ and/or EPA concerning the proposed impacts to water quality and anti-degradation:

☐ NO ☒ YES Is applicant willing to assume that the affected waterbody is high quality?
☒ NO ☐ YES Does applicant have water quality data relevant to determining whether the affected waterbody is high quality or not?
☒ NO ☐ YES Is the applicant willing to collect the data needed to determine whether the affected waterbody is high quality or not?

26b. BEST MANAGEMENT PRACTICTES (BMP's): List the Best Management Practices and describe these practices that you will use to minimize impacts on water quality and anti-degradation of water quality. All feasible alternatives should be considered - treatment or otherwise. Select an alternative which will minimize degrading water quality

Proposed project applications will incorporate all applicable Best Management Practices to protect resource values and to ensure compliance with local, state and Federal Water Quality Standards and applicable environmental regulations. The following applications will be implemented throughout the identified project areas during all construction phases of the project and site reclamation ensure successful project results.

1) Project applications will be constructed and completed when conditions are favorable and project locations are suitable for construction applications.
2) Practical construction sequencing and appropriate BMP applications, silt fence and/or straw wattles utilized and placed in appropriate locations within and along delineated limits of disturbance [LOD] to ensure compliance with Federal, state and local regulations.
4) All construction equipment will be free of leaks and in good working order. Storage, fueling and any unexpected repairs of equipment will be completed outside of wetlands and other sensitive habitat areas.
5) An emergency spill kit will be kept on site during construction activities.
6) All disturbed areas outside of the identified development footprint will be reclaimed and vegetated with native grass and shrub species, bare soils will be stabilized with broadcast seed applications and containerized plantings. Reclamation applications will occur as soon as the proposed construction activities are complete.
7) Preserve and maintain native vegetation buffers within sensitive areas not disturbed by proposed development applications.

Through the 401 Certification process, water quality certification will stipulate minimum management practices needed to prevent degradation.

27. LIST EACH IMPACT to stream, river, lake, reservoir, including shoreline: Attach site map with each impact location.

Activity	Name of Water Body	Intermittent Perennial	Description of Impact and Dimensions	Impact Length Linear Feet
NA	Big Wood River	Perennial	NONE	
			TOTAL STREAM IMPACTS (Linear Feet):	

28. LIST EACH WETLAND IMPACT include mechanized clearing, fill excavation, flood, drainage, etc. Attach site map with each impact location.

Activity	Wetland Type: Emergent, Forested, Scrub/Shrub	Distance to Water Body (linear ft)	Description of Impact Purpose: road crossing, compound, culvert, etc.	Impact Length (acres, square ft linear ft
Residential Development	Scrub/Shrub - PSSC	130	Development applications and assoicated landscape grading	1,160
			TOTAL WETLAND IMPACTS (Square Feet):	1,160

Approved

These plans and specifications are approved for compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

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IRT OWNERS NOTIFICATION REQUIRED: Provide contact information of ALL adjacent property owners below.

Name: Bureau of Land Management [BLM] Mailing Address: 400 West Front Street City: Shoshone State: ID Zip Code: 83352 Phone Number (include area code): 208.732.7200 E-mail: BLM_ID_ShoshoneOffice@blm.gov	Name: Frederick M. DuBois Mailing Address: P.O. Box 1541 City: Ketchum State: ID Zip Code: 83340 Phone Number (include area code): 208.726.9250 E-mail:
Name: Nicholas and Stephanie Osborne Mailing Address: 85 Roberta Drive City: Woodside State: CA Zip Code: 94062 Phone Number (include area code): E-mail:	Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:
Name: Colby J Williams Mailing Address: 205 Stonewood Court City: Las Vegas State: NV Zip Code: 89107 Phone Number (include area code): E-mail:	Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:
Name: Thomas B. Campion Mailing Address: P.O. Box 538 City: Ketchum State: ID Zip Code: 83340 Phone Number (include area code): 208.726.1688 E-mail:	Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:

30. SIGNATURES: STATEMENT OF AUTHORIAZATION / CERTIFICATION OF AGENT / ACCESS

Application is hereby made for permit, or permits, to authorize the work described in this application and all supporting documentation. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein; or am acting as the duly authorized agent of the applicant (Block 2). I hereby grant the agencies to which this application is made, the right to access/come upon the above-described location(s) to inspect the proposed and completed work/activities.

Signature of Applicant: _____ *Date:* 10/24/22

Signature of Agent: _____ *Date:* 10/26/22

This application must be signed by the person who desires to undertake the proposed activity AND signed by a duly authorized agent (see Block 1, 2, 30). Further, 18 USC Section 1001 provides that: "*Whoever, in any manner within the jurisdiction of any department of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both*".

Appendix G.1

Permit Authorization from USACE

Appendix G.1

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
BOISE REGULATORY OFFICE
720 EAST PARK BOULEVARD, SUITE 245
BOISE, IDAHO 83712-7757

February 21, 2023

WALLA WALLA DISTRICT
REGULATORY DIVISION

SUBJECT: NWW-2022-00441, Blaine County 121 Badger Lane Residential Development

Matt Scoggins – Presidio Vista Properties
121 Badger Lane, LLC
P.O. Box 10092
Ketchum, Idaho 83340

Dear Mr. Scoggins:

We have determined that your proposed project, Blaine County 121 Badger Lane Residential Development, is authorized in accordance with Department of the Army (DA) **Nationwide Permit (NWP) No. 29: Residential Developments**. This project is located at 121 Badger Lane, within Section 13 of Township 4 North, Range 17 East, near coordinates 43.68022º N latitude and -114.37573º W longitude, in Ketchum, Blaine County, Idaho. Please refer to File Number NWW-2022-00441 in all future correspondence with our office regarding this project.

Project activities include the discharge of fill material within delineated wetlands that are adjacent to the Big Wood River, which may be considered waters of the United States. The purpose of the proposed project is to construct a residential house, accessory dwelling unit, driveway access and other amenities associated with residential development. The work will entail discharging 151 cubic yards of fill material to facilitate the construction of a driveway access road, home-site and accessory dwelling unit, landscape grading applications and landscape elements. Impacts from the proposed work will result in approximately 0.029 acres of permanent loss to scrub-shrub wetlands. Additional work will entail the establishment of 0.029 acres of wetlands on the property as voluntary mitigation. All work shall be done in accordance with the enclosed drawings, titled: *121 Badger Lane, LLC Maps and Site Plans,* dated *October 24, 2022.*

DA permit authorization is necessary because your project may involve the discharge of fill material into waters of the U.S. This authorization is outlined in Section 404 of the Clean Water Act (33 U.S.C. 1344).

You must comply with all general, regional, and special conditions, for this

verification letter to remain valid and to avoid possible enforcement actions. The general and regional permit conditions for *NWP No. 29: Residential Developments* are attached and also available online[1]. In addition, you must also comply with the special conditions listed below.

The following Special Conditions includes:

Special Condition 1: The permittee is responsible for all work done by any contractor. Permittee shall ensure any contractor who performs the work is informed of and follows all the terms and conditions of this authorization. Permittee shall also ensure these terms and conditions are incorporated into engineering plans and contract specifications.

You must also comply with the conditions detailed in the attached Section 401 Water Quality Certification (WQC) issued by the Idaho Department of Environmental Quality (IDEQ) on December 4, 2020. If you have any questions regarding the conditions set forth in the WQC, please contact IDEQ directly at 208-736-2190, Twin Falls Regional Office.

Nationwide Permit General Condition 30 (Compliance Certification) requires that every permittee who has received NWP verification must submit a signed certification regarding the completed work and any required mitigation. This Compliance Certification form is enclosed for your convenience and must be completed and returned to us within 30 days of your project's completion.

This letter of authorization does not convey any property rights, or any exclusive privileges and does not authorize any injury to property or excuse you from compliance with other Federal, State, or local statutes, ordinances, regulations, or requirements which may affect this work.

This verification is valid until **March 14, 2026**, unless the NWP is modified, suspended or revoked. If your project, as permitted under this NWP verification, is modified in any way you must contact our office prior to commencing any work activities. In the event that you have not completed construction of your project by March 14, 2026, please contact us at least 60-days prior to this date. A new application and verification may be required.

We actively use feedback to improve our delivery and provide you with the best possible service. If you would like to provide feedback, please take our online survey[2].

[1] http://www.nww.usace.army.mil/Business-With-Us/Regulatory-Division/Nationwide-Permits/
[2] https://regulatory.ops.usace.army.mil/customer-service-survey/

Appendix G.1

If you have questions or if you would like a paper copy of the survey, please contact the Walla Walla District Regulatory. For more information about the Walla Walla District Regulatory program, you can visit us online[3].

If you have any questions or need additional information about this permit authorization, you can contact me by phone at 208-433-4469, by mail at the address in the letterhead, or email at sarah.v.windham@usace.army.mil. For informational purposes, a copy of this letter has been sent to: the Idaho Department of Environmental Quality, the Idaho Department of Water Resources, Kristine Hilt with Blaine County and Trent Stumph, designated agent with Sawtooth Environmental Consulting, LLC.

Sincerely,

Sarah V. Windham
Project Manager, Regulatory Division

Encls
Transfer of Nationwide Permit Form
Compliance Certification
Drawings titled: *121 Badger Lane, LLC Maps and Site Plans,* dated *October 24, 2022.*
Nationwide Permit 29: Residential Developments general and regional conditions
IDEQ General Water Quality Certification dated December 04, 2020

[3] http://www.nww.usace.army.mil/Business-With-Us/Regulatory-Division/

Appendix G.1

TRANSFER OF NATIONWIDE PERMIT

When the structures or work authorized by this Nationwide Permit, **NWW-2022-00441 Blaine County 121 Badger Lane Residential Development**, are still in existence at the time the property is transferred. The terms and conditions of this Nationwide Permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this Nationwide Permit, the associated liabilities and compliance with the terms and conditions the transferee must sign and date below.

Name of New Owner:

Street Address:

Mailing Address:

City, State, Zip:

Phone Number:

_____ _____

Signature of TRANSFEREE *DATE*

Appendix G.1

COMPLIANCE CERTIFICATION

US Army Corps of Engineers
Walla Walla District

Permit Number: NWW-2022-00441

Name of Permittee: Presidio Vista Properties

Date of Issuance: February 21, 2023

Upon completion of the activity authorized by this permit and any mitigation required by the permit, please sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Walla Walla District
Boise Regulatory Office
720 East Park Blvd., Suite 245
Boise, Idaho 83712-7757

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with all terms and conditions of this permit, the permit is subject to suspension, modification, or revocation and you are subject to an enforcement action by this office.

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of the said permit. The required mitigation was also completed in accordance with the permit conditions.

Signature of PERMITEE *DATE*

Approved
These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.
BLD2303-00021
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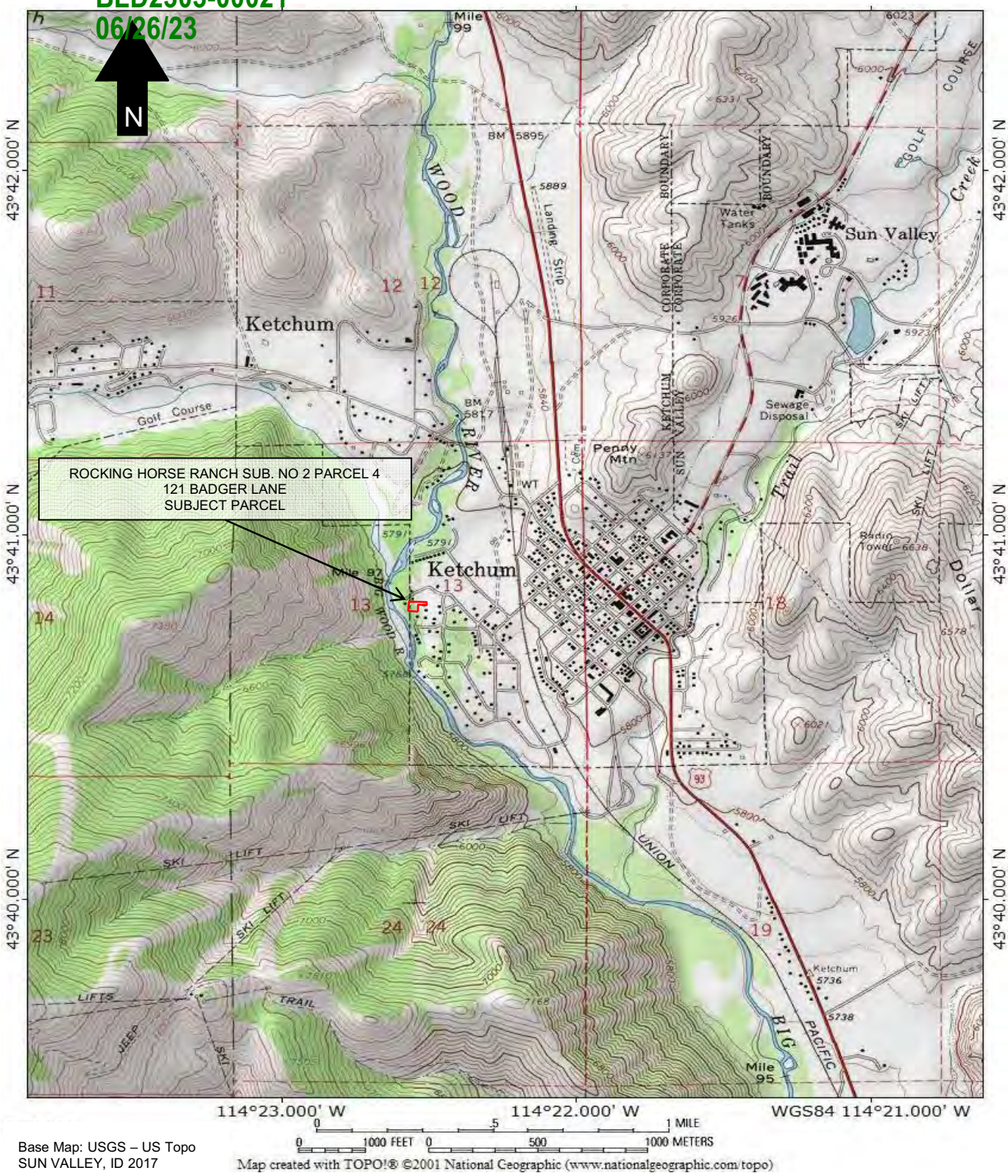
Appendix G.1

121 BADGER LANE, LLC
ROCKING HORSE RANCH SUBDIVISION NO. 2, PARCEL 4 - RESIDENTIAL DEVELOPMENT
JOINT APPLICATION FOR PERMITS - PROJECT LOCATION VICINITY MAP



Base Map: USGS – US Topo
SUN VALLEY, ID 2017

121 BADGER LANE, LLC
Rocking Horse Ranch Subdivision, No. 2, Parcel 4, 121 Badger Lane
Section 13, TWN., 4N. RNG., 17E, City of Ketchum, Blaine County, ID

LOCATION VICINITY MAP

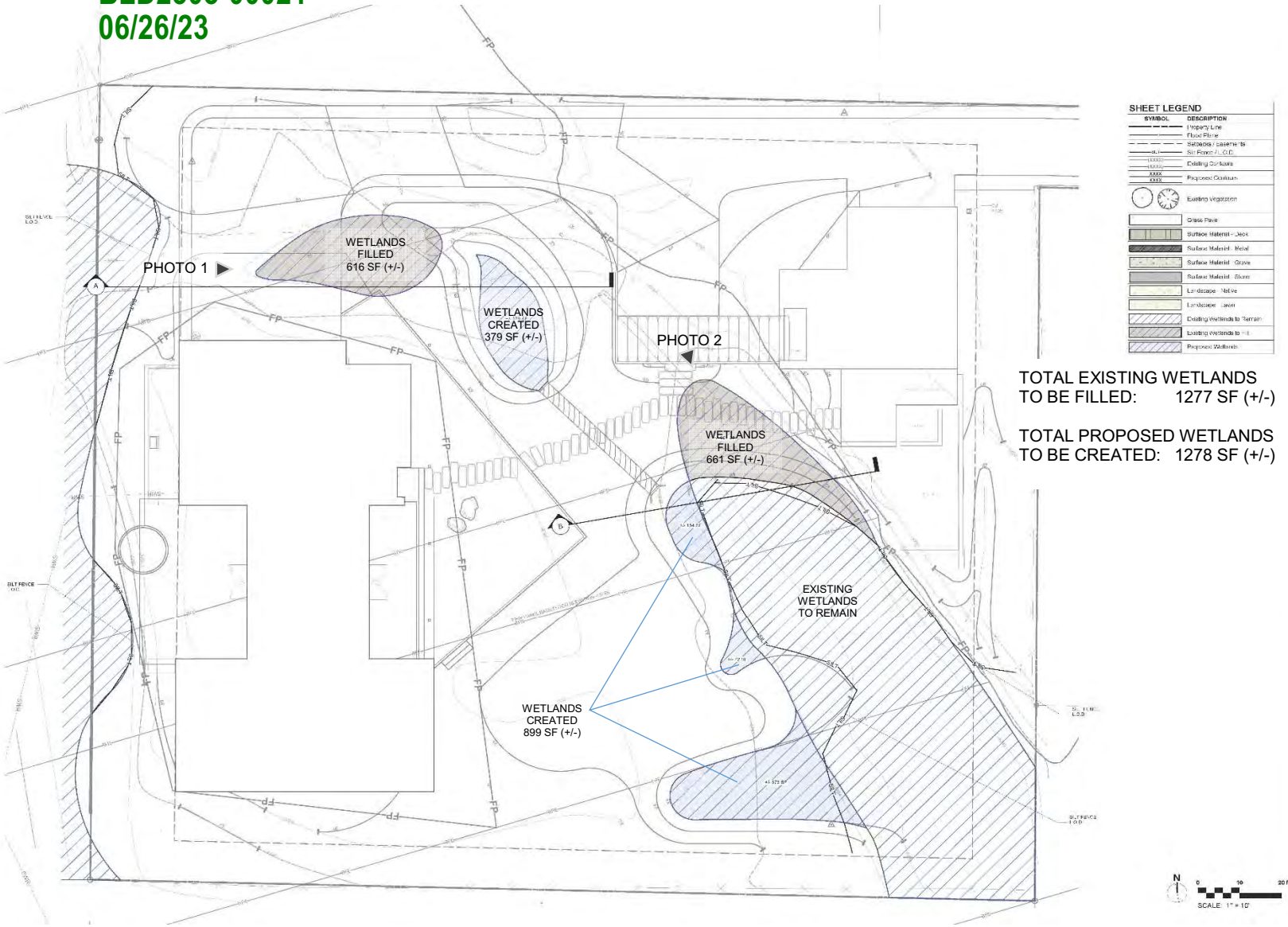
Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

BLD2303-00021
06/26/23

Appendix G.1

121 BADGER LANE, LLC
ROCKING HORSE RANCH SUBDIVISION NO. 2, PARCEL 4 - RESIDENTIAL DEVELOPMENT
JOINT APPLICATION FOR PERMITS - SITE PLAN MAP



SHEET LEGEND

SYMBOL	DESCRIPTION
	Property Line
	Flood Plane
	Setbacks / Easements
	Silt Fence / L.O.D.
	Existing Contours
XXXX XXXX	Proposed Contours
	Existing Vegetation
	Grass Pave
	Surface Material - Deck
	Surface Material - Metal
	Surface Material - Gravel
	Surface Material - Stone
	Landscape - Native
	Landscape - Lawn
	Existing Wetlands to Remain
	Existing Wetlands to Fill
	Proposed Wetlands

TOTAL EXISTING WETLANDS TO BE FILLED: 1277 SF (+/-)

TOTAL PROPOSED WETLANDS TO BE CREATED: 1278 SF (+/-)

N
0 10 20 FT
SCALE: 1" = 10'

BYLA
LANDSCAPE ARCHITECTS

© copyright 2022 BYLA Landscape Architects

DRAFT
NOT FOR CONSTRUCTION

LANDSCAPE PLAN
BADGER LANE
121 BADGER LANE KETCHUM, ID 83340

FILENAME: BADGER LANE_2023.VWX
PROJECT MANAGER: XX
DRAWN BY: XX
ISSUE DATE: 10/11/2022
PLOT DATE: 10/17/22 2:25:20 PM

WETLANDS CALC

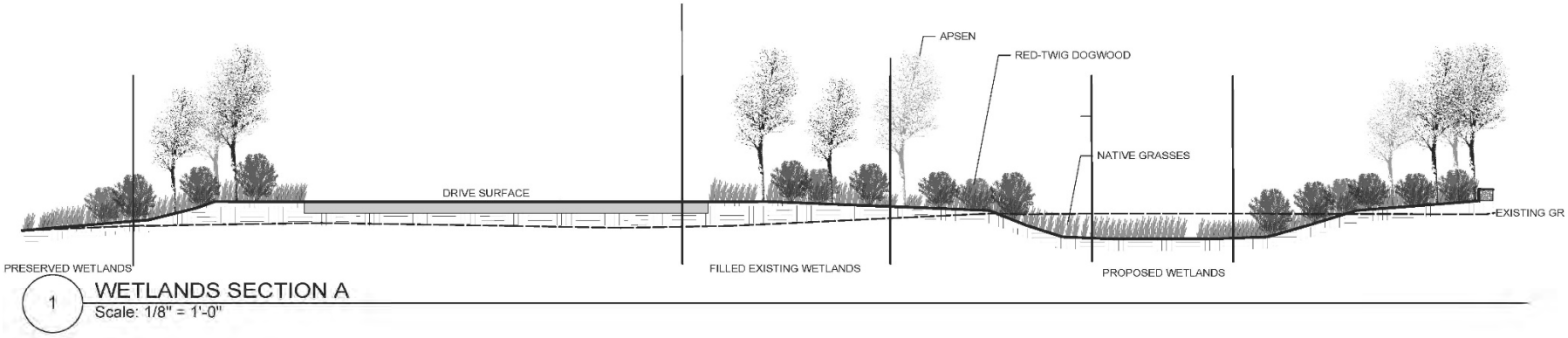
SHEET NO.
L1.2

121 BADGER LANE, LLC
Rocking Horse Ranch Subdivision, No. 2, Parcel 4, 121 Badger Lane
Section 13, TWN., 4N. RNG., 17E, City of Ketchum, Blaine County, ID

SITE PLAN MAP

121 BADGER LANE, LLC
ROCKING HORSE RANCH SUBDIVISION NO. 2, PARCEL 4 - RESIDENTIAL DEVELOPMENT
JOINT APPLICATION FOR PERMITS - WETLAND CROSS SECTION A

WETLANDS SECTION



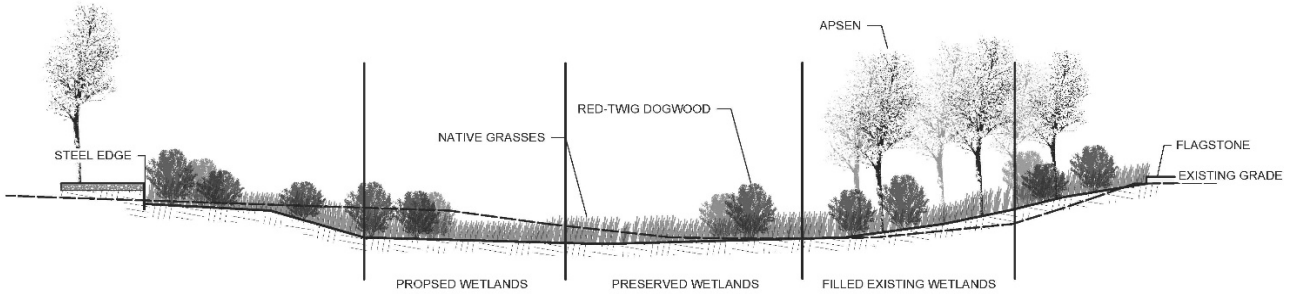
1 WETLANDS SECTION A
Scale: 1/8" = 1'-0"

121 BADGER LANE, LLC
Rocking Horse Ranch Subdivision, No. 2, Parcel 4, 121 Badger Lane
Section 13, TWN., 4N. RNG., 17E, City of Ketchum, Blaine County, ID

WETLAND CROSS-SECTION
121 Badger Lane, LLC - Joint Application for Permits, October 24, 2022.

121 BADGER LANE, LLC
ROCKING HORSE RANCH SUBDIVISION NO. 2, PARCEL 4 - RESIDENTIAL DEVELOPMENT
JOINT APPLICATION FOR PERMITS - WETLAND CROSS SECTION B

WETLANDS SECTION



2 WETLANDS SECTION B
Scale: 1/8" = 1'-0"

121 BADGER LANE, LLC
Rocking Horse Ranch Subdivision, No. 2, Parcel 4, 121 Badger Lane
Section 13, TWN., 4N. RNG., 17E, City of Ketchum, Blaine County, ID

WETLAND CROSS-SECTION
121 Badger Lane, LLC - Joint Application for Permits, October 24, 2022.

121 BADGER LANE, LLC
ROCKING HORSE RANCH SUBDIVISION NO. 2, PARCEL 4 - RESIDENTIAL DEVELOPMENT
JOINT APPLICATION FOR PERMITS - PHOTO EXHIBIT

PHOTO 1 - 121 BADGER LANE. Identified wetland resources and associated site characteristics in vicinity of the proposed driveway alignment within northwest portion of subject parcel [Cross-Section A]. Proposed area of wetland impact. Photo taken from the proposed driveway looking

121 BADGER LANE, LLC
Rocking Horse Ranch Subdivision, No. 2, Parcel 4, 121 Badger Lane
Section 13, TWN., 4N. RNG., 17E, City of Ketchum, Blaine County, ID

121 BADGER LANE, LLC
ROCKING HORSE RANCH SUBDIVISION NO. 2, PARCEL 4 - RESIDENTIAL DEVELOPMENT
JOINT APPLICATION FOR PERMITS - PHOTO EXHIBIT

PHOTO 2 - 121 BADGER LANE. Identified wetland resources and associated site characteristics in vicinity of Sample Point 1 [SP-1] [Cross-Section B]. Proposed area of wetland impact. Photo taken from the existing driveway looking south [SSE] (May 25, 2022).

121 BADGER LANE, LLC
Rocking Horse Ranch Subdivision, No. 2, Parcel 4, 121 Badger Lane
Section 13, TWN., 4N. RNG., 17E, City of Ketchum, Blaine County, ID

121 BADGER LANE, LLC
ROCKING HORSE RANCH SUBDIVISION NO. 2, PARCEL 4 - RESIDENTIAL DEVELOPMENT
JOINT APPLICATION FOR PERMITS - ADJOINING LANDOWNERS

121 BADGER LANE, LLC
Rocking Horse Ranch Subdivision, No. 2, Parcel 4, 121 Badger Lane
Section 13, TWN., 4N. RNG., 17E, City of Ketchum, Blaine County, ID

ADJOINING LANDOWNER MAP

Blaine County GIS
Blaine County GIS |

NATIONWIDE PERMIT 29

Residential Developments:

Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of a single residence, a multiple unit residential development, or a residential subdivision. This NWP authorizes the construction of building foundations and building pads and attendant features that are necessary for the use of the residence or residential development. Attendant features may include but are not limited to roads, parking lots, garages, yards, utility lines, storm water management facilities, septic fields, and recreation facilities such as playgrounds, playing fields, and golf courses (provided the golf course is an integral part of the residential development).

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters.

Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this NWP cannot exceed 1/2-acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) (Authorities: Sections 10 and 404)

WATER QUALITY CERTIFICATION, NWP 29:

Agency responsible for administration of water quality, based on project location is listed below. If DENIED, then an Individual Water Quality Certification or Waiver of Certification is required, prior to the commencement of any work activities and/or issuance of a DA verification, authorization and/or permit.

State of Idaho: **PARTIALLY DENIED**;
Activities Denied Certification:
- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in a loss in excess of ½ acre of jurisdictional wetlands

Coeur d'Alene Tribal Lands: **DENIED**

Shoshone-Bannock Tribal Lands: **DENIED**

U.S. Environmental Protection Agency for all other Tribal Lands: **DENIED**

Appendix G.1

2021 Nationwide Permits
Regional Conditions
Walla Walla District Regulatory Division (State of Idaho)

March 15, 2021

The following Nationwide Permit (NWP) regional conditions are required in the state of Idaho and apply to all 2021 NWPs[1]. Regional conditions are established by individual Corps Districts to ensure projects result in no more than minimal adverse impacts to the aquatic environment and to address local resources concerns. This document also includes regional additions to the NWP General Conditions, notification procedures pertaining to certain NWP's, and regional additions to the definitions.

REGIONAL CONDITIONS

A. Watersheds Requiring Pre-Construction Notification, Specific to Anadromous Fish

This Regional Condition applies to all 2021 NWPs.

- Pre-construction notification (PCN) will be required for the above listed nationwide permits in the geographic area as shown on Figure 1: *Watersheds Requiring Pre-Construction Notification*, dated January 6, 2021.

B. Vegetation Preservation and Replanting

- To avoid impacts to aquatic habitat and to reduce sedimentation and erosion, permittee shall avoid and minimize the removal of vegetation in waters of the U.S. to the maximum extent practicable. Areas subject to temporary vegetation removal in waters of the U.S. during construction shall be replanted with appropriate native[2] species by the end of the first growing season, unless conditioned otherwise. Permittee shall avoid introducing or spreading noxious or invasive plants[3].

- Replanted vegetation that does not survive the first growing season shall be replanted before the end of the next growing season. Re-plantings shall continue to occur until desired vegetation densities are achieved. Re-vegetation densities should be based on reference conditions.

---

[1] For the list of 2017 Nationwide Permits please see: https://www.nww.usace.army.mil/Business-With-Us/Regulatory-Division/Nationwide-Permits/

[2] Idaho Department of Transportation, Native Plants for Idaho Roadside Restoration and Revegetation Programs: https://itd.idaho.gov/wp-content/uploads/2016/06/RP171Roadside_Revegetation.pdf

[3] U.S. Department of Agriculture, Natural Resource Conservation Service Plant Database of introduced, invasive, and noxious plants for Idaho: https://plants.usda.gov/java/noxious?rptType=State&statefips=16.

C. De-watering & Re-watering (as applicable)

- Cofferdams shall be constructed of non-erosive material such as concrete jersey barriers, bulk bags, water bladders, sheet pile, and other similar non-erosive devices. Cofferdams may not be constructed by using mechanized equipment to push streambed material through flowing water.

- Diversion channels constructed to bypass flow around the construction site shall be lined with plastic, large rock, pipe or otherwise protected from erosion prior to releasing flows into or through the diversion channel.

- Water removed from within the coffered area shall be pumped to a sediment basin or otherwise treated to remove suspended sediments prior to its return to the waterway.

- To prevent unwanted passage of state or federally-protected fish, if present, from the coffered area, Water pipe intakes shall be screened with openings measuring < 3/32 inch to prevent entrainment of fish trapped in the coffered area.

- Should fish be present within the coffered areas contact your local Idaho Department of Fish and Game (IDFG) office prior to performing fish removal or salvage. Fish shall be collected by electrofishing, seining or dip net, or otherwise removed and returned to the waterway upstream of the project area. If electrofishing is used, the National Marine Fisheries Service (NMFS) guidelines for electrofishing should be followed[4], unless conditioned otherwise.

- Stream channels that have been dewatered during project construction shall be re-watered slowly to avoid lateral and vertical erosion of the de-watered channel, prevent damage to recently reclaimed work areas and/or damage to permitted work.

- Temporary stockpiles in waters of the United States shall be removed in their entirety so as not to form a berm or levee parallel to the stream that could confine flows or restrict overbank flow to the floodplain.

D. In-Water Structures and Complexes

- PCN notification in accordance with General Condition 32 is required for all non-federal applicants with activities involving gabion baskets placed below the ordinary high water mark.

- Stream meanders, riffle and pool complexes, pool stream structures, rock/log barbs, rock J-hooks, drop structures, sills, engineered log jams or similar structures/features when used shall be site specifically designed by an appropriate professional with experience in hydrology or fluvial geomorphology.

[4] Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act (June 2000) https://archive.fisheries.noaa.gov/wcr/publications/reference_documents/esa_refs/section4d/electro2000.pdf

E. Temporary Sidecasting

- Material from exploratory trenching and installation of utility lines may be temporarily side cast into a de-watered coffered area for up to 30 days but not within flowing waters. Material from exploratory trenching and installation of utility lines in wetlands may be temporarily side cast for up to 30 days.

F. Suitability of Sediments for Open Water Disposal and us as Fill

- Sampling for determination of suitability of sediments for open water disposal or for use as fill, must comply with the Sediment Evaluation Framework for the Pacific Northwest (SEF)[5].

G. Avoidance and Minimization

- In addition to information required under General Condition 32(b), the applicant shall include information about previous discharges of fill material into waters of the United States within the project area. This is only for non-federal applicants where a PCN is required.

- Discharges of dredged or fill material into waters of the U.S., including wetlands, to meet set back requirements are not authorized under NWP.

H. Erosion Control

- Erosion control blanket or fabric used in or adjacent to waters of the U.S. shall be comprised of biodegradable material, to ensure decomposition and reduced risk to fish, wildlife and public safety, unless conditioned otherwise. If the applicant proposes to use materials other than as indicated above they must demonstrate how the use of such materials will not cause harm to fish, wildlife and public safety.

I. Reporting Requirement for Federal Permittees

- Federal Agencies with projects that require compensatory mitigation for loss of waters of the U.S. and who propose to purchase credits from an approved wetland and/or stream mitigation bank must provide proof of purchase within 30 days of when the credits were purchased. Purchase of credits from an approved mitigation bank must be IAW the Mitigation Banking Instrument of Record.

[5] Northwest Regional Sediment Evaluation Team (RSET) 2016. Sediment Evaluation Framework for the Pacific Northwest. Prepared by the RSET Agencies, July 2016, 160 pp plus appendices. http://nwd.usace.army.mil/Missions/Civil-Works/Navigation/RSET/SEF

REGIONAL ADDITIONS TO THE GENERAL CONDITIONS

General Condition 4. Migratory Bird Breeding Areas. Regional Addition: For additional information please contact the US Fish and Wildlife Service at the following field office locations: State Office (Boise) at (208) 387-5243; Northern Idaho Field Office (Spokane) at (509) 891-6839; or the Eastern Idaho Field Office (Chubbuck) at (208) 237-6975. https://www.fws.gov/idaho/promo.cfm?id= 177175802

General Condition 6. Suitable Material. Regional Addition: Erosion control blanket or fabric used in or adjacent to waters of the U.S. shall be comprised of biodegradable material, to ensure decomposition and reduced risk to fish, wildlife and public safety, unless conditioned otherwise. If the applicant proposes to use materials other than as indicated above they must demonstrate how the use of such materials will not cause harm to fish, wildlife and public safety.

General Condition 9. Management of Water Flows. Regional Addition: To obtain information on State of Idaho definition of high water refer to Idaho Department of Water Resources (IDAPA 37.03.07. Rule 62.03.04.a). For culverts or bridges located in a community qualifying for the national flood insurance program, the minimum size culvert shall accommodate the 100-year flood design flow frequency (IDAPA 37.03.07. Rule 62.03.04.c).

General Condition 12. Soil Erosion and Sediment Controls. Regional Addition: For additional information refer to the Idaho Department of Environmental Quality Catalog of Stormwater Best Management Practices for Idaho Cities and Counties, available online at: https://www.deq.idaho.gov/public-information/laws-guidance-and-orders/guidance/.

General Condition 18. Endangered Species. Regional Addition: For additional information on ESA listed species in north Idaho please contact the US Fish and Wildlife Service (USFWS) Northern Idaho Field Office (Spokane) at (509) 893-8009, for all other counties in Idaho contact the USFWS State Office (Boise) at (208) 378-5388.

General Condition 20. Historic Properties. Regional Addition: Property is generally considered “historic” if it is at least 50 years old, and is not limited to buildings. For additional information on the potential for cultural resources in proximity to the project site, contact the Idaho State Historic Preservation Office at (208) 334-3847 located in Boise, Idaho.

NOTIFICATION PROCEDURES BY THE CORPS FOR CERTAIN NATIONWIDE PERMITS

Waivers: For nationwide permits with a waiver provision, District coordination with Idaho Department of Environmental Quality (IDEQ) and Environmental Protection Agency (tribal lands) will be conducted prior to the District Engineer making a waiver determination to ensure the proposed activity is in compliance with Section 401 Water Quality Standards.

Select Waters and Wetlands: The Corps will coordinate with the Idaho Department of Fish and Game (IDFG) for activities in the following waters and wetlands that require notification and are authorized by NWP:

- Waters: Anadromous waters as shown on Figure 1: *Watersheds Requiring Pre-Construction Notification*, dated January 6, 2021; Henry's Fork of the Snake River and its tributaries; South Fork Snake River and its tributaries; Big Lost River and its tributaries upstream of the US 93 crossing; Beaver, Camas, and Medicine Lodge Creeks; Snake River; Blackfoot River above Blackfoot Reservoir; Portneuf River; Bear River; Boise River including South Fork, North Fork and Middle Fork; Payette River including South Fork, North Fork and Middle Fork; Coeur d'Alene River, including the North Fork; St. Joe River; Priest River; Kootenai River; Big Wood River; and Silver Creek and its tributaries.

- Wetlands identified in Idaho Department of Fish and Game, Wetland Conservation Strategy as Class I, Class II and Reference Habitat Sites[6].

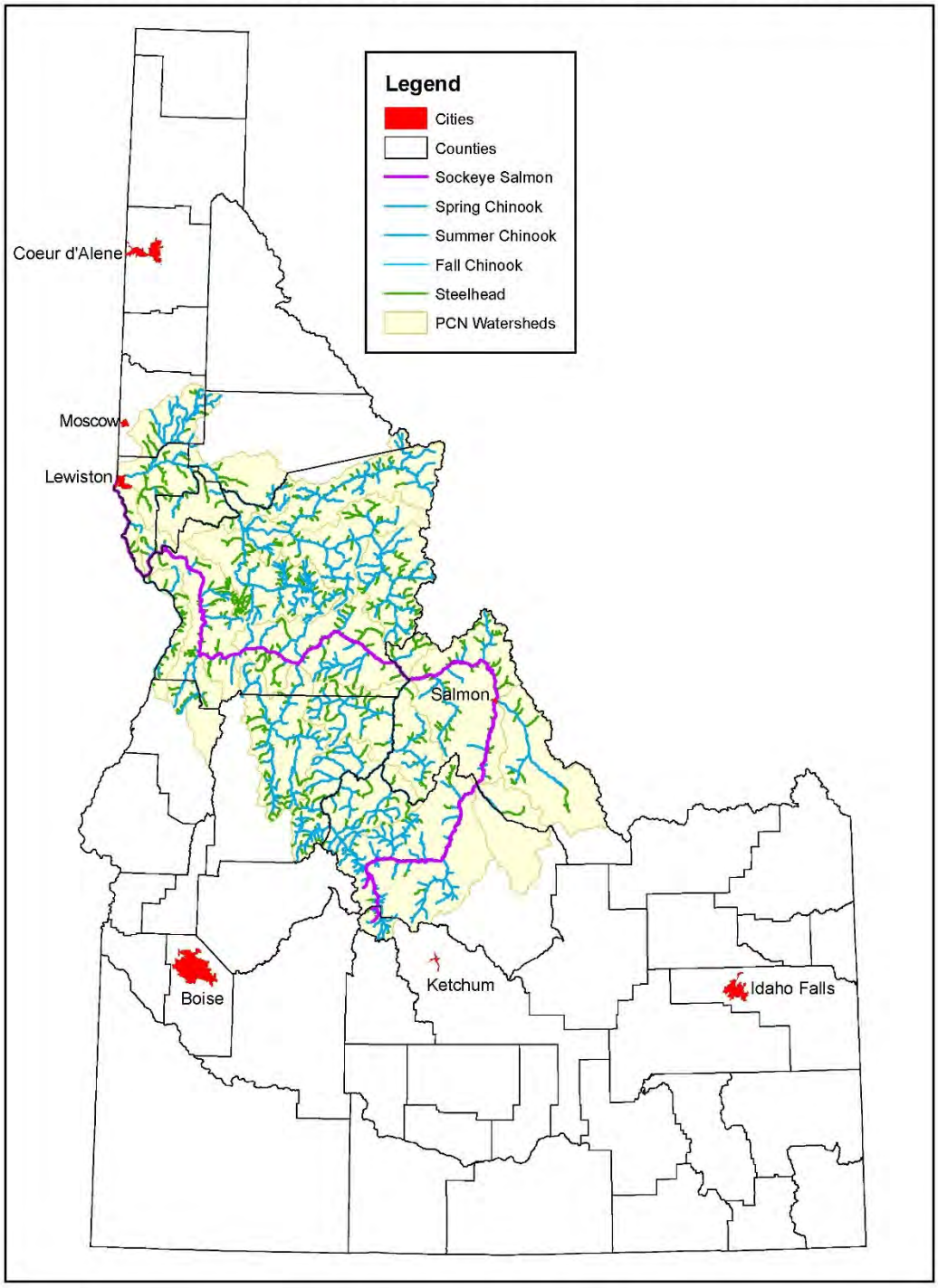
- Wetlands identified in the Idaho Wetland Conservation Prioritization Plan-2012[7].

[6] Idaho Department of Fish and Game (IDFG) Wetland Conservation Strategies have been developed for the Henrys Fork Basin, Northern Idaho, Big Wood River, Southeast Idaho, East-Central Idaho and Spokane River Basin, Middle and Western Snake River and tributaries, and the Upper Snake River–Portneuf Drainage, Weiser River Basin, and West Central Mountain Valleys and adjacent wetlands. Closed basins of Beaver-Camas Creeks, Medicine Lodge Creek, Palouse River and lower Clearwater River sub-basins, Middle Fork and South Fork Clearwater Basins and Camas Prairie in northern Idaho. Refer to the internet site at: http://fishandgame.idaho.gov/content/page/wetlands-publications-idaho-natural-heritage-program#reports

[7] Murphy, C., J. Miller and A. Schmidt. 2012. https://idfg.idaho.gov/species/bibliography/project/wetlands

Figure 1

Watersheds Requiring Pre-Construction Notification



US Army Corps of Engineers

6 January 2021

2021 Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements

No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas

Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas

Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds

No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material

No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes

No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments

If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows
To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains
The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment
Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls
Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills
Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance
Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project
The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers
(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency

with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights

No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be

affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at

http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles

The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties

(a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)).

Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts

Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters

Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment,

additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation

The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of

streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14)

must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. <u>Safety of Impoundment Structures</u>

To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have

been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality

(a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management.

In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions

The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits

The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated

bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications

If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

_____

(Transferee)

_____

_____

(Date)

30. Compliance Certification

Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory

mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States

If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification

(a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining

why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatenedspecies (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii)

NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

Appendix G.1

STATE OF IDAHO
DEPARTMENT OF ENVIRONMENTAL QUALITY

1410 N Hilton Street, Boise, ID 83706
(208) 373-0502

Brad Little, Governor
Jess Byrne, Director

December 4, 2020

Kelly J. Urbanek, Chief
U.S. ACOE Regulatory Division
Walla Walla District
720 East Park Boulevard, Suite 245
Boise, Idaho 83712-7757

Subject: Final §401 Water Quality Certification for 2020 Nationwide Permits in Idaho

Dear Ms. Urbanek:

Enclosed please find the Idaho Department of Environmental Quality (DEQ) final water quality certification for the 2020 Nationwide Permits in Idaho. DEQ offered a 21-day public comment period, beginning on November 2, 2020, and ending on November 23, 2020.

DEQ received a single comment letter. After review of the comments received, minor modifications were made to the final certification in order to provide additional clarity.

If you have any questions or concerns regarding this certification, please contact Jason Pappani at (208) 373-0515 or via email at jason.pappani@deq.idaho.gov.

Sincerely,

Mary Anne Nelson, PhD
Surface and Wastewater Division Administrator

MAN:JP:lf

cc: Jason Pappani, DEQ State Office
DEQ Regional Administrators
James Joyner, ACOE Walla Walla District
Brent King, Idaho Attorney General's Office

Idaho Department of Environmental Quality

Final §401 Water Quality Certification

December 4, 2020

2020 U.S. Army Corps of Engineers §404 Nationwide Permits (NWPs)

Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended; 33 U.S.C. Section 1341(a)(1); and Idaho Code §§ 39-101 et seq. and 39-3601 et seq., the Idaho Department of Environmental Quality (DEQ) has authority to review activities receiving Section 404 dredge and fill permits and issue water quality certification decisions.

Based upon its review of the proposed 2020 Nationwide Permits published in the Federal Register on September 15, 2020, DEQ certifies that if the permittee complies with the terms and conditions imposed by the permits, including the Regional Conditions set forth by the Army Corps of Engineers (ACOE), along with the conditions set forth in this water quality certification, then activities will comply with the applicable water quality requirements of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, the Idaho Water Quality Standards (WQS) (IDAPA 58.01.02), and other appropriate water quality requirements of state law.

This certification does not constitute authorization of the permitted activities by any other state or federal agency or private person or entity. This certification does not excuse the permit holder from the obligation to obtain any other necessary approvals, authorizations, or permits, including without limitation, the approval from the owner of a private water conveyance system, if one is required, to use the system in connection with the permitted activities.

1 Antidegradation Review

The WQS contain an antidegradation policy providing three levels of protection to water bodies in Idaho (IDAPA 58.01.02.051).

- Tier I Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).

- Tier III Protections. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires that activities not cause a lowering of water quality (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ is employing a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier I protection for that use, unless specific circumstances warranting Tier II protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

1.1 Pollutants of Concern

The primary pollutant of concern, for projects permitted under the 2020 NWPs administered by the ACOE, is sediment. In locations where heavy metals are present due to mining activities, or where high concentrations of nutrients may be associated with sediments, additional considerations may be necessary. If the project reduces riparian vegetation, then temperature (thermal loading) may also be of concern.

The procedures outlined in the Sediment Evaluation Framework for the Pacific Northwest[1] may be applied to assess and characterize sediment to determine the suitability of dredged material for unconfined aquatic placement, to determine the suitability of post dredge surfaces, and to predict effects on water quality during dredging (See Section 2.4 for more details).

As part of the Section 401 water quality certification, DEQ is requiring the applicant to comply with various conditions to protect water quality and to meet Idaho WQS, including the criteria applicable to sediment.

1.2 Receiving Water Body Level of Protection

The ACOE NWPs authorize construction activities in waters of the United States. In Idaho, jurisdictional waters of the state can potentially receive discharges either directly or indirectly from activities authorized under the NWPs. DEQ applies a water body by water body approach to determine the level of antidegradation protection a water body will receive. (IDAPA 58.01.02.052.05).

All waters in Idaho that receive discharges from activities authorized under a NWP will receive, at minimum, Tier I antidegradation protection because Idaho's Tier I antidegradation policy applies to all state waters (IDAPA 58.01.02.052.01). Water bodies that fully support their aquatic life or recreational uses are considered *high quality waters* and will receive Tier II antidegradation protection (IDAPA 58.01.02.051.02). Because of the statewide applicability, the antidegradation review will assess whether the NWP permit complies with both Tier I and Tier II antidegradation provisions (IDAPA 58.01.02.052.03).

Although Idaho does not currently have any Tier III designated outstanding resource waters (ORWs), it is possible for a water body to be designated as an ORW during the life of the NWPs.

[1] Northwest Regional Sediment Evaluation Team (RSET). 2018. Sediment Evaluation Framework for the Pacific Northwest. *Prepared by* the RSET Agencies, May 2018, 183 pp plus appendices.

Because of this potential, the antidegradation review also assesses whether the permit complies with the outstanding resource water requirements of Idaho's antidegradation policy (IDAPA 58.01.02.051.03).

To determine the support status of the receiving water body, the most recent EPA-approved Integrated Report, available on Idaho DEQ's website, is to be used: http://www.deq.idaho.gov/water-quality/surface-water/monitoring-assessment/integrated-report/. (IDAPA 58.01.02.052.05).

High quality waters are identified in Categories 1 and 2 of the Integrated Report. If a water body is in either Category 1 or 2, it is a Tier II water body.

Unassessed waters are identified in Category 3 of DEQ's Integrated Report. These waters require a case by case determination to be made by DEQ based on available information at the time of the application for permit coverage (IDAPA 58.01.02.052.05.b). For activities occurring on unassessed waters under this certification, DEQ has determined that complying with the conditions of the NWP, the regional conditions, and this certification will ensure the provisions of IDAPA 58.01.02.052 are met.

Impaired waters are identified in Categories 4 and 5 of the Integrated Report. Category 4(a) contains impaired waters for which a TMDL has been approved by EPA. Category 4(b) contains impaired waters for which controls other than a TMDL have been approved by EPA. Category 5 contains waters which have been identified as "impaired", for which a TMDL is needed. These waters are Tier I waters, for the use which is impaired. With the exception, if the aquatic life uses are impaired for any of these three pollutants—dissolved oxygen, pH, or temperature—and the biological or aquatic habitat parameters show a healthy, balanced biological community, then the water body shall receive Tier II protection, in addition to Tier I protection, for aquatic life uses (IDAPA 58.01.02.052.05.c.i).

DEQ's webpage also has a link to the state's map-based Integrated Report which presents information from the Integrated Report in a searchable, map-based format: http://www.deq.idaho.gov/assistance-resources/maps-data/.
Water bodies can be in multiple categories for different causes. If assistance is needed in using these tools, or if additional information/clarification regarding the support status of the receiving water body is desired, please feel free to contact your nearest DEQ regional office or the State Office (Table 1).

Table 1. Idaho DEQ Regional and State Office Contacts

Regional Office	*Address*	*Phone Number*	*Email*
Boise	1445 N. Orchard Rd., Boise 83706	208-373-0550	kati.carberry@deq.idaho.gov
Coeur d'Alene	2110 Ironwood Parkway, Coeur d'Alene 83814	208-769-1422	chantilly.higbee@deq.idaho.gov
Idaho Falls	900 N. Skyline, Suite B., Idaho Falls 83402	208-528-2650	troy.saffle@deq.idaho.gov
Lewiston	1118 "F" St., Lewiston 83501	208-799-4370	sujata.connell@deq.idaho.gov
Pocatello	444 Hospital Way, #300 Pocatello 83201	208-236-6160	matthew.schenk@deq.idaho.gov
Twin Falls	650 Addison Ave. W., Suite 110, Twin Falls 83301	208-736-2190	balthasar.buhidar@deq.idaho.gov
State Office	1410 N. Hilton Rd., Boise 83706	208-373-0502	jason.pappani@deq.idaho.gov

1.3 Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected (IDAPA 58.01.02.051.01; 052.01 and 04). The numeric and narrative criteria in the WQS are set at levels that ensure protection of existing and designated beneficial uses.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment (IDAPA 58.01.02.055.02). Once a TMDL is completed, discharges of causative pollutants shall be consistent with the allocations in the TMDL (IDAPA 58.01.02.055.05). Prior to the completion of a TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect beneficial uses (IDAPA 58.01.02.055.04).

The general (non-numeric) effluent limitations in the NWPs and associated Regional Conditions for the ACOE Walla Walla District address best management practices (BMPs) aimed at minimizing impacts to the aquatic environment, especially sediment and turbidity impacts including: vegetation protection and restoration, de-watering requirements, erosion and sediment controls, soil stabilization requirements, pollution prevention measures, prohibited discharges, and wildlife considerations. Although the NWPs do not contain specific (numeric) effluent limitations for sediment or turbidity, the conditions identified in the permits and in this water quality certification will ensure compliance with DEQ's water quality standards, including the narrative sediment criteria (IDAPA 58.01.02.200.08) and DEQ's turbidity criteria (IDAPA 58.01.02.250.02.e).

In order to ensure compliance with Idaho WQS, DEQ has included a condition requiring the permittee(s) to comply with Idaho's numeric turbidity criteria, developed to protect aquatic life

uses. The criterion states, "Turbidity shall not exceed background turbidity by more than 50 nephelometric turbidity units (NTU)[2] instantaneously or more than 25 NTU for more than 10 consecutive days" (IDAPA 58.01.02.250.02.e). DEQ is requiring turbidity monitoring when project activities result in a discharge to waters of the United States that causes a visible sediment plume (IDAPA 58.01.02.054.01) (See Section 2.5 for more details).

If an approved TMDL exists for a receiving water body that requires a load reduction for a pollutant of concern, then the project must be consistent with the provisions of that TMDL (IDAPA 58.01.02.055.05).

For authorized activities requiring a pre-construction notification (PCN), the Corps will have the opportunity to evaluate the NWP activities on a case by case basis to ensure that the activity will not cause more than a minimal adverse environmental effect, individually and cumulatively. The Corps has agreed to forward the verification letters to the appropriate DEQ regional office (Table 1) for all authorized activities including the NWP activities that require a PCN. This will better inform DEQ of the authorized activities that are occurring throughout the state and determine if additional conditions will need to be implemented when the ACOE reissues the NWPs.

1.3.1 DEQ's Determination

DEQ concludes that, given the nature of the activities authorized by the 2020 NWPs, such activities will comply with Idaho's Tier I requirements under IDAPA 58.01.02.051.01 and 58.01.02.052.07, provided the permitted activities are carried out in compliance with the limitations and associated requirements of the 2020 NWPs, Regional Conditions, and conditions set forth in this water quality certification.

1.4 Protection of High-Quality Waters (Tier II Protection)

Water bodies that fully support their beneficial uses are recognized as high-quality waters and will be provided Tier II protection in addition to Tier I protection (IDAPA 58.01.02.051.02; 58.01.02.052.05.a). Water quality parameters applicable to existing or designated beneficial uses must be maintained and protected under Tier II, unless a lowering of water quality is deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).

The ACOE does not authorize projects with more than minimal individual and cumulative impacts on the aquatic environment under a NWP (33 U.S.C.A. § 1344(e)). As required by the National Environmental Policy Act (NEPA) the Corps has analyzed the individual and cumulative effects for the NWP activities. DEQ recognizes that short term changes in water quality may occur with respect to sediment as a result of the authorized activities, but has determined that adherence to the terms and conditions imposed by the permits, including the Regional Conditions set forth by the Army Corps of Engineers (ACOE or Corps), along with the conditions set forth in this water quality certification will ensure that there are no long-term adverse changes to water quality or beneficial use support as a result of any activity authorized under this certification (IDAPA 58.01.02.052.03). As a general principle, DEQ believes degradation of water quality should be viewed in terms of permanent or long-term adverse

[2] *NTU is a unit of measure of the concentration of suspended particles in the water (turbidity). It is determined by shining a light through a sample and measuring the incident light scattered at right angles from the sample.*

changes. Short-term, temporary reductions in water quality, if reasonable measures are taken to minimize impacts (such as the certification conditions in Section 2), may occur without triggering a Tier II analysis (IDAPA 58.01.02.052.03; 080.02).

To ensure proposed regulated activities will not cause more than minimal individual and cumulative impacts on the aquatic environment, certain NWPs require project proponents to notify district engineers (in the form of a PCN) of their proposed activities prior to conducting regulated activities. This level of review gives the district engineer the opportunity to evaluate activities on a case by case basis to determine whether additional conditions or mitigation requirements are warranted to ensure that the proposed activity results in no more than the minimal individual and cumulative impacts on the aquatic environment.

DEQ has denied certification for NWP 16, NWP 23, and NWP 53 (see Section 3.1); and for certain activities associated with NWP 3, NWP 12, NWP 13, NWP 14, NWP 21, NWP 29, NWP 39, NWP 40, NWP 42, NWP 43, NWP 44, NWP 50, NWP 51, NWP 52, NWP C, NWP D, and NWP E (see Section 3.2). Projects seeking coverage under these NWPs will need to request individual certification from DEQ. DEQ will consider any additional conditions or denial of certification if necessary to ensure no lowering of water quality occurs for any of these projects proposed on Tier II water.

Additionally, if an authorized project causes a visible sediment plume then turbidity monitoring is required (see Section 2.5 for more details).

1.4.1 DEQ's Determination

DEQ concludes that the activities authorized by the 2020 NWPs and this certification will comply with Idaho's Tier II requirements under IDAPA 58.01.02.051.02 and 58.01.02.052.08 providing permitted activities are carried out in compliance with the limitations and associated requirements of the 2020 NWPs, Regional Conditions, and conditions of this water quality certification.

1.5 Protection of Outstanding Resource Waters (Tier III Protection)

Idaho's antidegradation policy requires that the quality of outstanding resource waters (ORWs) be maintained and protected from the impacts of point and nonpoint source activities (IDAPA 58.01.02.051.03). No water bodies in Idaho have been designated as ORWs to date. Because it is possible waters may become designated during the term of the 2020 NWPs, DEQ has evaluated whether the NWPs comply with the ORW antidegradation provision.

DEQ has denied certification for any activities on any Outstanding Resource Water (ORW) (see Section 3) and is requiring that any activities proposed on an ORW apply for individual certification (see Section 2.3).

1.5.1 DEQ's Determination

DEQ concludes that the activities authorized by the 2020 NWPs and this certification will comply with Idaho's Tier III requirements under IDAPA 58.01.02.051.03 providing permitted activities are carried out in compliance with the limitations and associated requirements of the 2020 NWPs, Regional Conditions, and conditions of this water quality certification.

2 Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

For all activities covered under this certification, the following conditions are necessary to ensure that permitted projects comply with water quality requirements.

2.1 Design, Implementation, and Maintenance of Appropriate Best Management Practices

Best Management Practices (BMPs) must be designed, implemented, and maintained by the permittee to fully protect and maintain the beneficial uses and ambient water quality of waters of the state and to prevent exceedances of WQS (IDAPA 58.01.02.350.01.a).

BMPs must be selected and properly installed. Proper installation and operation of BMPs are required to ensure the provisions of IDAPA 58.01.02.052 are met. In order to ensure that BMPs are operating properly and to demonstrate that degradation has not occurred, the permittee must monitor and evaluate BMP effectiveness daily during project activities to assure that water quality standards are being met.

Approved BMPs for specific activities (mining, forestry, stream channel alteration, etc.) are codified in IDAPA 58.01.02.350. Additionally, DEQ provides a catalog of storm water best management practices, available at: http://www.deq.idaho.gov/media/60184297/stormwater-bmp-catalog.pdf. This catalog presents a variety of BMPs that can be used to control erosion and sediment during and after construction. Other sources of information are also available and may be used for selecting project appropriate BMPs.

This condition is necessary meet the following water quality requirements:

Control of erosion, sediment, and turbidity to maintain beneficial use support and compliance with the following water quality standards:

- General Surface Water Criteria for Sediment (IDAPA 58.01.02.200.08)
- Numeric Turbidity Criteria for Aquatic Life (IDAPA 58.01.02.250.02.e)
- Numeric turbidity criteria for protection of domestic water supply (IDAPA 58.01.02.252.01.b)
- Point source wastewater treatment requirements (IDAPA 58.01.02.401.02)

2.2 TMDL Compliance

If there is an approved or established TMDL, then the permittee must comply with the established loads in the TMDL. Approved TMDLs can be found on DEQ's website (https://www.deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/) or by contacting the appropriate regional office contact (Table 1).

This condition is necessary to meet the following water quality requirements:

Ensure projects are consistent with waste load and load allocations established in approved TMDLs (IDAPA 58.01.02.055.04 and .05).

2.3 Outstanding Resource Waters

If waters become designated as ORWs during the term of the NWPs, a permittee proposing a project on an ORW must contact the appropriate DEQ regional office and apply for individual certification.

This condition is necessary to meet the following water quality requirements:

Ensure there is no lowering of water quality in any ORW as required by the Idaho Antidegradation Policy (IDAPA 58.01.02.051.03).

2.4 Fill Material

Material subject to suspension, including suspended dredge material, shall be free of easily suspended fine material. The fill material to be placed in waters of the United States shall be clean material only. If dredged material is proposed to be used as fill material and there is a possibility the material may be contaminated, then the permittee must apply the procedures in the *Sediment Evaluation Framework for the Pacific Northwest* (RSET, 2018) to assess and characterize sediment to determine the suitability of dredged material for unconfined-aquatic placement; determine the suitability of post dredge surfaces; and to predict effects on water quality during dredging.

This condition is necessary to meet the following water quality requirements:

Prevent suspension of fine sediment and turbidity in order to provide beneficial use support and compliance with the following water quality standards:

- General Surface Water Criteria for Sediment (IDAPA 58.01.02.200.08)
- Numeric Turbidity Criteria for Aquatic Life (IDAPA 58.01.02.250.02.e)
- Numeric turbidity criteria for protection of domestic water supply (IDAPA 58.01.02.252.01.b)
- Point source wastewater treatment requirements (IDAPA 58.01.02.401.02)

Prevent suspension of hazardous, toxic, or deleterious materials or other pollutants that may be associated with fill material in order to ensure beneficial use support and compliance with the following water quality standards:

- General Surface Water Criteria for hazardous materials (IDAPA 58.01.02.200.01), toxic substances (IDAPA 58.01.02.200.02), deleterious materials (IDAPA 58.01.02.200.03), excess nutrients (IDAPA 58.01.02.200.06), or oxygen demanding materials (IDAPA 58.01.02.200.09)
- Numeric toxics criteria for aquatic life and human health (IDAPA 58.01.02.210)

2.5 Turbidity

If no visible sediment plume is present, it is reasonable to assume that there is no potential violation of the water quality criteria for turbidity (IDAPA 58.01.02.250.02.e). Therefore, turbidity monitoring is only required when activities cause a visible sediment plume.

A properly and regularly calibrated turbidimeter is required for measurements analyzed in the field, but grab samples may be collected and taken to a laboratory for analysis. When monitoring is required a sample must be taken at an undisturbed area immediately up-current from in-water disturbance or discharge to establish background turbidity levels. Background turbidity, latitude/longitude, date, and time must be recorded prior to monitoring down-current. Then a sample must be collected immediately down-current from the in-water disturbance or point of discharge and within any visible sediment plume. The turbidity, latitude/longitude, date, and time must be recorded for each sample. The downstream sample must be taken immediately following the upstream sample in order to obtain meaningful and representative results.

Results from the down-current sampling point must be compared to the up-current or background level to determine whether project activities are causing an exceedance of state WQS. If the downstream turbidity is 50 NTUs or more greater than the upstream turbidity, then the project is causing an exceedance of the WQS (IDAPA 58.01.02.250.02.e).
Any exceedance of the turbidity standard must be reported to the appropriate DEQ regional office (Table 1) within 24 hours.

The following steps should be followed to ensure compliance with the turbidity standard:

1. If a visible plume is observed, collect turbidity measurements at 1) an upstream location; and, 2) from within the plume, and compare the results to Idaho's instantaneous numeric turbidity criterion (50 NTU over background).

2. If turbidity in the plume is less than 50 NTU instantaneously over the background turbidity continue monitoring as long as the plume is visible. If turbidity exceeds background turbidity by more than 50 NTU instantaneously then stop all earth disturbing construction activities immediately and proceed to Step 3. If turbidity exceeds background turbidity by more than 25 NTU, or if a visible plume is observed for more than 10 consecutive days, then stop all earth disturbing construction activities and proceed to Step 3.

3. Notify the appropriate DEQ regional office within 24 hours of any turbidity criteria exceedance. Take action to address the cause of the exceedance. That may include inspecting the condition of project BMPs. If the BMPs are functioning to their fullest capability, then the permittee must modify project activities and/or BMPs to correct the exceedance.

4. Earth disturbing activities may continue once turbidity readings return to within 50 NTU over background instantaneously; or, if turbidity has exceeded 25 NTU over background for more than ten consecutive days, once turbidity readings have no longer exceeded 25 NTU over background for at least 24 consecutive hours.

Copies of daily logs for turbidity monitoring must be available to DEQ upon request. The report must describe all exceedances and subsequent actions taken, including the effectiveness of the actions.

This condition is necessary to meet the following water quality requirements:

Ensure that activities do not impair beneficial uses, and ensure and document compliance with the following water quality standards:

- General Surface Water Criteria for Sediment (IDAPA 58.01.02.200.08)
- Numeric Turbidity Criteria for Aquatic Life (IDAPA 58.01.02.250.02.e)
- Numeric turbidity criteria for protection of domestic water supply (IDAPA 58.01.02.252.01.b)

2.6 Mixing Zones

No mixing zones are authorized through this certification. If a mixing zone, or alternatively, a point of compliance, is desired, the permittee must apply for an individual certification and must contact the appropriate DEQ regional office (Table 1) to request authorization for a mixing zone.

This condition is necessary to meet the following water quality requirements:

Ensure any mixing zone is properly authorized in accordance with the Idaho Mixing Zone Policy (IDAPA 58.01.02.060).

2.7 Culverts

To prevent road surface and culvert bedding material from entering a stream, culvert crossings must include best management practices to retain road base and culvert bedding material. For perennial waters, the permittee should consider the Idaho Stream Channel Alterations rules (IDAPA 37.03.07). Another source of BMPs for culvert installation can be found in the Idaho Forest Practices Act (IDAPA 20.20.01). Examples of best management practices include, but are not limited to: parapets, wing walls, inlet and outlet rock armoring, compaction, suitable bedding material, anti-seep barriers such as bentonite clay, or other acceptable roadway retention systems.

This condition is necessary to meet the following water quality requirements:

Control of erosion, sediment, and turbidity to provide beneficial use support and compliance with the following water quality standards:

- General Surface Water Criteria for Sediment (IDAPA 58.01.02.200.08)
- Numeric Turbidity Criteria for Aquatic Life (IDAPA 58.01.02.250.02.e)
- Numeric turbidity criteria for protection of domestic water supply (IDAPA 58.01.02.252.01.b)

2.8 Wood Preservatives

DEQ's *Guidance for the Use of Wood Preservatives and Preserved Wood Products In or Around Aquatic Environments* must be considered when using treated wood materials in the aquatic environment. Within this guidance document DEQ references the *Best Management Practices*

for the Use of Treated Wood in Aquatic and Wetland Environments[3]. This document provides recommendations and guidance for the production and installation of treated wood products destined for use in sensitive environments.

This condition is necessary to meet the following water quality requirements:

Ensure that toxic chemicals are not introduced into waters and to ensure compliance with the following water quality standards:

- General Surface Water Criteria for hazardous materials (IDAPA 58.01.02.200.01), toxic substances (IDAPA 58.01.02.200.02), and deleterious materials (IDAPA 58.01.02.200.03)
- Numeric toxics criteria for aquatic life and human health (IDAPA 58.01.02.210)

2.9 Reporting of Discharges Containing Hazardous Materials or Deleterious Materials

All spills of hazardous material, deleterious material or petroleum products which may impact waters (ground and surface) of the state shall be immediately reported. Call 911 if immediate assistance is required to control, contain or clean up the spill. If no assistance is needed in cleaning up the spill, contact the appropriate DEQ regional office in Table 2 during normal working hours or Idaho State Communications Center after normal working hours. If the spilled volume is above federal reportable quantities, contact the National Response Center.

For immediate assistance: Call 911

National Response Center: (800) 424-8802

Idaho State Communications Center: (800) 632-8000

Table 2. Idaho DEQ regional contacts for reporting discharge or spill of hazardous or deleterious materials.

Regional Office	*Toll Free Phone Number*	*Phone Number*
Boise	888-800-3480	208-373-0550
Coeur d'Alene	877-370-0017	208-769-1422
Idaho Falls	800-232-4635	208-528-2650
Lewiston	877-541-3304	208-799-4370
Pocatello	888-655-6160	208-236-6160
Twin Falls	800-270-1663	208-736-2190

[3] Western Wood Preservers Institute, Wood Preservation Canada, Southern Pressure Treaters' Association, and Southern Forest Products Association. 2011. "Best Management Practices: For the Use of Treated Wood in Aquatic and Wetland Environments" Vancouver, WA: Western Wood Preservers Institute.

This condition is necessary to meet the following water quality requirements:

Ensure compliance with the following water quality standards:

- Hazardous Material Spills (IDAPA 58.01.02.850)
- Petroleum release reporting, investigation, and confirmation (IDAPA 58.01.02.851)
- Petroleum release response and corrective action (IDAPA 58.01.02.852)

2.10 Other Conditions

This certification is conditioned upon the requirement that if there are material modifications of the NWPs or the permitted activities—including without limitation, significant changes from the draft NWPs to final NWPs, or significant changes to the draft Regional Conditions, then DEQ must re-evaluate the certification to determine compliance with Idaho WQS and to provide additional certification pursuant to Section 401.

This condition is necessary to ensure that DEQ can evaluate any material modification to ensure it meets water quality requirements and complies with the Idaho antidegradation policy (IDAPA 58.01.02.051) and its implementation (IDAPA 58.01.02.052), general surface water quality criteria (200), numeric toxics criteria for aquatic life and human health (IDAPA 58.01.02.210), numeric criteria for aquatic life (IDAPA 58.01.02.250), recreation (IDAPA 58.01.02.251), and water supply uses (IDAPA 58.01.02.252).

3 Projects for Which Certification Is Denied

DEQ cannot certify that the following activities will comply with water quality requirements, including State WQS and other appropriate requirements of state law, and is therefore denying certification for the activities listed below.

For activities for which certification has been denied, the applicant will be required to request an individual certification before the activity can be conducted. Individual certification requests will provide DEQ with the opportunity to review project details and determine if additional conditions are necessary to ensure that water quality requirements will be met.

Upon review and evaluation of individual certification requests, DEQ may 1) certify without condition, 2) provide individual certification with conditions necessary to ensure water quality requirements will be met, or 3) deny certification for projects that will not meet water quality requirements.

3.1 NWPs denied

DEQ denies certification for all activities proposed to occur on waters designated as ORWs during the term of the permit. This denial is necessary to ensure compliance with the water quality requirements of Idaho's antidegradation policy (IDAPA 58.01.02.051.03) and implementation procedures (IDAPA 58.01.02.052.09.g).

In addition, the following NWPs are denied certification for all Idaho waters. Projects seeking coverage under these NWPs must request individual certification from DEQ.

NWP 19 – Return Water from Upland Contained Disposal Areas

Basis for denial:

Return water from upland disposal areas has the potential to contribute turbidity, sediment, and other toxic and non-toxic pollutants to receiving waters.

To ensure that discharge from upland contained disposal areas meets water quality requirements, DEQ must evaluate the quality of the return water and evaluate the potential pollutants associated with return water on a case-by-case basis to determine compliance with general surface water quality criteria (IDAPA 58.01.02.200); numeric toxics criteria for aquatic life and human health (IDAPA 58.01.02.210); and use specific criteria for aquatic life (IDAPA 58.01.02.250), recreation (IDAPA 58.01.02.251), and water supply uses (IDAPA 58.01.02.252).

NWP 23 - Approved Categorical Exclusions

Basis for denial:

DEQ is unable to determine that meeting the requirements for categorical exclusion under the National Environmental Policy Act will meet state water quality requirements.

DEQ will evaluate categorically excluded activities on a case-by-case basis to determine compliance with general surface water quality criteria (IDAPA 58.01.02.200); numeric toxics criteria for aquatic life and human health (IDAPA 58.01.02.210); and use specific criteria for aquatic life (IDAPA 58.01.02.250), recreation (IDAPA 58.01.02.251), and water supply uses (IDAPA 58.01.02.252).

NWP 53 – Removal of Low-Head Dams

Basis for denial:

Material released from the removal of low head dams has the potential to contribute turbidity, sediment, and other toxic and non-toxic pollutants to receiving waters.

In order to ensure that release of materials from the removal of low head dams meets water quality requirements, DEQ must evaluate the potential pollutants associated with this release on a case-by-case basis to determine compliance with general surface water quality criteria (IDAPA 58.01.02.200); numeric toxics criteria for aquatic life and human health (IDAPA 58.01.02.210); and use specific criteria for aquatic life (IDAPA 58.01.02.250), recreation (IDAPA 58.01.02.251), and water supply uses (IDAPA 58.01.02.252).

3.2 NWPs partially denied

The following activities have the potential to disturb significant areas and could disturb a significant fraction of entire Assessment Units, causing permanent and significant impairment of designated and existing beneficial uses. The conditions associated with the NWP, regional conditions, and the conditions associated with this certification are not sufficient to provide DEQ with assurance that projects of this magnitude would not result in impairment of existing or

designated beneficial uses in all waters, and potentially increase degradation in high quality (Tier II) waters.

In order to meet the requirements of Idaho's antidegradation implementation procedures (IDAPA 58.01.02.052), ensure that beneficial uses are not impaired, and ensure compliance with general surface water quality criteria for sediment (IDAPA 58.01.02.200.08), DEQ must evaluate these projects on a case-by-case basis and provide individual certification where applicable.

3.2.1 NWPs 3, 13, and 14

The 2020 NWPs 3, 13, and 14 require preconstruction notification (PCN) for certain activities when it is necessary for the district engineer to review activities to ensure only minimal adverse environmental effects.

While the additional district engineer review is intended to ensure that activities will cause only minimal adverse environmental effects, it is not reasonable to expect that the district engineer review will consider the requirements of Idaho's antidegradation implementation procedures (IDAPA 58.01.02.052) when making their determination. Consequently, DEQ cannot certify that activities requiring PCN under these NWPs would not cause degradation of water quality, and therefore cannot certify that these activities would meet Idaho's antidegradation implementation procedures (IDAPA 58.01.02.052).

Therefore, DEQ is denying certification for the following activities that require PCN under the proposed 2020 NWPs:

NWP 3 – Maintenance

Activities Denied Certification

- Activities authorized by paragraph (b) of NWP 3

NWP 13 – Bank Stabilization

Activities Denied Certification:

- activities involving discharge into special aquatic sites;
- activities in excess of 500 linear feet;
- activities that involve discharge of greater than one cubic yard per running foot measured along the length of the treated bank below the plane of the ordinary high water mark

NWP 14 – Linear Transportation Projects

Activities Denied Certification:

- activities resulting in the loss of waters of the United States in excess of 1/10 acre;
- discharge in a special aquatic site, including wetlands

3.2.2 NWPs 12, C, and D

The 2017 NWP 12 included activities proposed to be permitted under the 2020 NWPs C and D.

The 2017 NWP 12 required PCN for activities that, among other thresholds, involved mechanized clearing in forested wetlands, exceeded 500 linear feet, or that resulted in loss of greater than 1/10 acre of waters of the United States. The 2020 NWP proposes removal of these thresholds for PCN, and does not require additional review from the ACOE district engineer to ensure only minimal adverse environmental effects.

Without the requirement for PCN and additional review from the district engineer, DEQ cannot certify that these activities will not result in degradation. Therefore, DEQ is denying certification for the following activities:

NWP 12 – Oil or Natural Gas Pipeline Activities

Activities Denied Certification:

- activities that involve mechanized clearing of a wooded wetland;
- oil or natural gas pipelines in waters of the United States that exceed 500 linear feet or that run adjacent to a water body for greater than 500 linear feet;
- activities where discharge will result in loss of greater than 1/10-acre, as determined by ACOE, of waters of the United States

NWP C – Electric Utility Line and Telecommunications Activities

Activities Denied Certification:

- activities that involve mechanized clearing of a wooded wetland;
- electric utility line and telecommunications activities in waters of the United States that exceed 500 linear feet;
- activities where discharge will result in loss of greater than 1/10-acre, as determined by ACOE, of waters of the United States

NWP D – Utility Line Activities for Water and Other Substances

Activities Denied Certification:

- activities that involve mechanized clearing of a wooded wetland;
- utility line activities in waters of the United States that exceed 500 linear feet;
- activities where discharge will result in loss of greater than 1/10-acre, as determined by ACOE, of waters of the United States

3.2.3 NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, 52, and E

The 2017 NWPs for the following activities had a 300 linear foot limit for losses of stream bed. The 2020 NWP proposes removal of the 300 linear foot limit for losses of stream bed and instead rely solely on the ½ acre limit.

The median bankfull width measured from 48 wadeable streams monitored in 2010 as part of DEQ's Beneficial Use reconnaissance Program (BURP) was 19.7 feet. A loss of ½ acre at this stream width would correspond to 1,105 linear feet of loss, or the equivalent of 0.2 miles of stream. DEQ cannot certify that losses of this magnitude of stream bed, or that losses of stream

bed based solely on the ½ acre limit, would not result in permanent degradation. Therefore, DEQ is denying 2303-0002 for the following activities that exceed the 300 linear foot limit previously imposed by the 2017 NWP:

NWP 21 – Surface Coal Mining Activities

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 29 – Residential Developments

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 39 – Commercial and Institutional Developments

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 40 – Agricultural Activities

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 42 – Recreational Facilities

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 43 – Stormwater Management Facilities

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 44 – Mining Activities

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 50 – Underground Coal Mining Activities

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 51 – Land Based Renewable Energy Generation Facilities

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP 52 – Water-Based Renewable Energy Generation Pilot Projects

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

NWP E – Water Reclamation and Reuse Facilities

Activities Denied Certification:

- activities resulting in loss in excess of 300 linear feet of streambed
- activities resulting in loss in excess of ½ acre of jurisdictional wetlands

4 Right to Appeal Final Certification

The final Section 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5) and the "Rules of Administrative Procedure before the Board of Environmental Quality" (IDAPA 58.01.23), within 35 days of the date of the final certification.

Questions or comments regarding the actions taken in this certification should be directed to Jason Pappani, State Office IDEQ, at (208) 373-0515 or via email at jason.pappani@deq.idaho.gov.

Mary Anne Nelson, PhD
Surface and Wastewater Division
Administrator

Table 2. Updated hyperlinks.

Section	Hyperlink
1.2	*Integrated Report*
1.2	*Final 2022 Integrated Report Interactive Mapper*
2.1	*Catalog of Storm Water Best Management Practices*
2.2	*Approved TMDLs*
2.8	*Guidance for the Use of Wood Preservatives and Preserved Wood Products In or Around Aquatic Environments*
2.8	*Best Management Practices for the Use of Treated Wood in Aquatic and Wetland Environments*

Please direct questions or comments about the actions taken in the 2020 Final § 401 Water Quality Certification to Tambra Phares, State Office DEQ, (208) 373-0187, or email at *tambra.phares@deq.idaho.gov*.

APPROVAL: 01/10/2023

Mary Anne Nelson, PhD
Department of Environmental Quality
Surface and Wastewater Division Administrator

Date

Appendix G.1

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 N. Hilton Street, Boise, ID 83706
(208) 373-0502

Brad Little, Governor
Jess Byrne, Director

MEMORANDUM

TO: James Joyner, Chief, Upper Snake and Idaho Panhandle Branch, U.S. Army Corps of Engineers

FROM: Mary Anne Nelson, Surface and Wastewater Division Administrator of the Department of Environmental Quality

DATE: 01/10/23

SUBJECT: 2020 Final § 401 Water Quality Certification Contact and Hyperlink Updates

The Department of Environmental Quality (DEQ) is submitting an update for agency contacts and hyperlinks to be included as an attachment to the § 401 Water Quality Certification dated December 4, 2020, upon authorization of a federal permit or license.

Table 1. DEQ state and regional office contacts.

Regional Office	Address	Phone Number	Email
Boise	1445 N. Orchard St., Boise, ID 83706	(208) 373-0490	*chase.cusack@deq.idaho.gov*
Coeur d'Alene	2110 Ironwood Parkway, Coeur d'Alene, ID 83814	(208) 666-4605	*chantilly.higbee@deq.idaho.gov*
Idaho Falls	900 N. Skyline, Suite B., Idaho Falls, ID 83402	(208) 528-2679	*alex.bell@deq.idaho.gov*
Lewiston	1118 "F" St., Lewiston, ID 83501	(208) 799-4874	*sujata.connell@deq.idaho.gov*
Pocatello	444 Hospital Way, #300 Pocatello, ID 83201	(208) 239-5007	*matthew.schenk@deq.idaho.gov*
Twin Falls	650 Addison Ave. W., Suite 110, Twin Falls, ID 83301	(208) 737-3877	*sean.woodhead@deq.idaho.gov*
State Office	1410 N. Hilton St., Boise, ID 83706	(208) 373-0570	*tambra.phares@deq.idaho.gov*

Approved
These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the marked-up and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.
BLD2303-00021
06/26/23

REQUESTED BY AND WHEN RETURN TO:	
City Clerk, City of Ketchum PO Box 2315 Ketchum Idaho 83340	

(Space Above Line For Recorder's Use)

Acknowledgement of Floodplain Management Overlay District and Waterways Design Review District Affidavit

Property Owner:	121 Badger Lane LLC
Building Permit Number:	B23-017
Property Address:	121 Badger Lane, Ketchum Idaho, 83340
Legal Description:	ROCKING RANCH SUB #2 PARCEL 4 47,480SF
Parcel Number: RPK	05130000040
Scope of Work:	New residence, ADU, pool/spa, and landscaping

Please initial and fill below:

FC I acknowledge that this development and the parcel of land, or portion thereof, on which the development will be situated are within the Floodplain Management Overlay District.

FC I acknowledge this property is within the Waterways Review District.

FC I have thoroughly read and fully understand Ketchum Municipal Code Title 17, Chapter 17.88 "Floodplain Management Overlay District", to include regulations for the Waterways Design Review District including regulations on activities within 100 feet of the mean high-water mark.

FC I fully understand and agree to comply with Ketchum Municipal Code Title 17, Chapter 17.88.040 C.

FC I, on behalf of myself, my personal representatives and my heirs, successors, and assignees, acknowledge by this written *affidavit* that said property is located within the one percent annual chance floodplain (SFHA) as defined herein, and/or said property is within the Waterways Design Review District and that a violation of the terms of Ketchum Municipal Code 17.88 shall cause the City to seek legal remedies.

FC I acknowledge that the City of Ketchum Planning & Building Department shall have the notarized affidavit recorded in the records of Blaine County for the property.

Property Owner Signature As a representative of the Owner. Date 4/20/2023

STATE OF ID, County of Blaine

On this 20 day of April, 2023, before me, the undersigned, a Notary Public in and for said State, personally appeared Frazier Cavness, known or identified to me to be the person whose name is subscribed to the within instrument.

WITNESS my hand and seal the day and year in this certificate first above written.

Notary Public for Idaho (State) Residing at: Bellevue, Idaho Commission Expires: 07-09-2026

Christina M Stice
Commission Number: 38061
Notary Public
State of Idaho
My Commission Expires: 07/09/2026

City of Ketchum accepts this Affidavit from (insert owner's name).

ATTEST, CITY CLEK

City of Ketchum

ATTACHMENT C:

Administrative Floodplain Development Permit – Findings and Decision

City of Ketchum
Planning & Building

CITY OF KETCHUM
ZONING CODE TITLE 17
ADMINISTRATIVE FLOODPLAIN DEVELOPMENT PERMIT
FINDINGS AND DECISION

PROJECT:	Badger Residence
FILE NUMBER:	P23-014
OWNER:	121 Badger Lane LLC
REPRESENTATIVE:	Frazier Cavness
REQUEST:	Request to construct a new single-family residence on subject property
LOCATION:	121 Badger Ln (ROCKING RANCH SUB #2 PARCEL 4 47,480SF)
ZONING:	Limited Residential (LR)
OVERLAYS:	Floodplain Management Overlay
REVIEWERS:	Adam Crutcher – Associate Planner
NOTICING:	Notice sent to 300-ft adjoiners 3/16/2023

BACKGROUND FACTS

1. The City of Ketchum is a municipal corporation organized under Article XII of the Idaho Constitution and the laws of the State of Idaho, Title 50, Idaho Code. Under Chapter 65, Title 67 of the Idaho Code, the City is required to pass certain ordinances regarding land use, including a zoning ordinance.

2. Pursuant to Zoning Code Title 17, Section 17.88.050(D)1, the administrator shall have the authority to consider and approve, approve with conditions, or deny applications for floodplain development permits and for waterways design review.

3. The scope of work consists of the construction of a new single-family residence. The proposed residence is located partially within the Special Flood Hazard Area (SFHA). The contains wetlands which are proposed to be modified and relocated.

4. The project site contains floodplain.

FINDINGS OF CONFORMANCE WITH FLOODPLAIN DEVELOPMENT REQUIREMENTS

Floodplain Development Permit Requirements
1. EVALUATION STANDARDS: 17.88.050(E)

Compliant			Standards and Staff Comments	
Yes	**No**	**N/A**	**Guideline**	**City Standards and *Staff Comments***
☒	☐	☐	**17.88.050(E)1**	**The proposal preserves or restores the inherent natural characteristics of the river, floodplain, and riparian zone, including riparian vegetation and wildlife habitat. Development does not alter river channel unless all stream alteration criteria for evaluation are also met.**
			Staff Comments	*The proposal preserves the inherent natural characteristics of the floodplain by having more cut than fill. Plantings on the property are native with those in delineated wetlands being appropriate species.*
☐	☐	☒	**17.88.050(E)2**	**No temporary construction activities, encroachment or other disturbance into the 25-foot riparian zone, including encroachment of below grade structures, shall be permitted, with the exception of approved stream stabilization work and restoration work associated with a riparian zone that is degraded.**
			Staff Comments	*The subject property does not contain the 25-foot riparian zone.*
☐	☐	☒	**17.88.050(E)3**	**No permanent development shall occur within the 25-foot riparian zone, with the exception of approved stream stabilization work and restoration work associated with permit issued under this title, or exceptions as described below: a. Access to a property where no other primary access is available; b. Emergency access required by the fire department; c. A single defined pathways or staircases for the purpose of providing access to the river channel and in order to mitigate multiple undefined social paths; d. Development by the City of Ketchum.**
			Staff Comments	*The subject property does not contain the 25-foot riparian zone.*
☒	☐	☒	**17.88.050(E)4**	**New or replacement planting and vegetation in the riparian zone shall include plantings that are low growing and have dense root systems for the purpose of stabilizing stream banks and repairing damage previously done to riparian vegetation. Examples of such plantings most commonly include: red osier dogwood, common chokecherry, serviceberry, elderberry, river birch, skunk bush sumac, Beb's willow, Drummond's willow, little wild rose, gooseberry, and honeysuckle. However, in rare instances the distance from the top-of-bank to the mean high water mark is significant and the native vegetation appropriate for the riparian zone are low growing, drought resistant grasses and shrubs. Replacement planting and vegetation shall be appropriate for the specific site conditions. Proposal does not include vegetation within the 25-foot riparian zone that is degraded, not natural, or which does not promote bank stability.**

Compliant			Standards and Staff Comments	
Yes	**No**	**N/A**	**Guideline**	**City Standards and *Staff Comments***
			Staff Comments	*The subject property does not contain the 25-foot riparian zone. Still the project does contain wetlands and proposes species associated with riparian habitat.*
☐	☐	☒	**17.88.050(E)5**	**Landscaping and driveway plans to accommodate the function of the floodplain allow for sheet flooding. Surface drainage is controlled and shall not adversely impact adjacent properties including driveways drained away from paved roadways. Culvert(s) under driveways may be required. Landscaping berms shall be designed to not dam or otherwise obstruct floodwaters or divert same onto roads or other public pathways.**
			Staff Comments	*Driveway is slightly raised to ensure no more than 1-ft of sheet flooding occurs (emergency vehicle requirement). Culverts underneath driveway will allow conveyance of floodwater. No landscape berms are proposed.*
☒	☐	☐	**17.88.050(E)6**	**Flood water carrying capacity is not diminished by the proposal.**
			Staff Comments	*The proposed development has more excavation (274 cubic yards) than fill (258 cubic yards).*
☒	☐	☐	**17.88.050(E)7**	**Impacts of the development on aquatic life, recreation, or water quality upstream, downstream or across the stream are not adverse.**
			Staff Comments	*The subject property is not adjacent to the Big Wood River The wetland plantings will be beneficial to water quality and aquatic life. No work is proposed within the floodway or stream. No downstream impacts or across stream impacts will be associated with the approved landscape plan (L3.0).*
☐	☐	☒	**17.88.050(E)8**	**Building setback in excess of the minimum required along waterways is encouraged. An additional ten-foot building setback beyond the required 25-foot riparian zone is encouraged to provide for yards, decks and patios outside the 25-foot riparian zone.**
			Staff Comments	*The subject property does not contain the 25-foot riparian zone.*
☒	☐	☐	**17.88.050(E)9**	**The top of the lowest floor of a building located in, or partially within, the SFHA shall be at or above the flood protection elevation (FPE). A building is considered to be partially within the SFHA if any portion of the building or appendage of the building, such as footings, attached decks, posts for upper story decks, are located within the SFHA. See section 17.88.060, figures 1 and 2 of this chapter to reference construction details. See chapter 17.08 of this title for definition of "lowest floor."** **a. In the SFHA where base flood elevations (BFEs) have been determined, the FPE shall be 24 inches above the BFE for the subject property; 24 inches or two feet is the required freeboard in Ketchum City Limits.** **b. In the SFHA where no BFE has been established, the FPE shall be at least two feet above the highest adjacent grade.**
			Staff Comments	*The top of the lowest floor (finished floor) will be elevated 24" above the Base Flood Elevation of 5786.5. As the proposed elevation is*

Compliant			Standards and Staff Comments	
Yes	**No**	**N/A**	**Guideline**	**City Standards and *Staff Comments***
				located within the AE zone the top of the lowest floor is required to be 24" above the BFE.
☒	☐	☐	**17.88.050(E)10**	**The backfill used around the foundation in the SFHA floodplain shall provide a reasonable transition to existing grade but shall not be used to fill the parcel to any greater extent.** **a. Compensatory storage shall be required for any fill placed within the floodplain.** **b. A CLOMR-F shall be obtained prior to placement of any additional fill in the floodplain.**
			Staff Comments	*An estimated 258 cubic yards of fill will be placed within the SFHA. The excavation on the site is proposed to be 2749 cubic yards, resulting in 16 cubic yards of excess excavation. Fill and excavation on the site transitions to existing grade within the property boundaries.*
☒	☐	☐	**17.88.050(E)11**	**All new buildings located partially or wholly within the SFHA shall be constructed on foundations that are designed by a licensed professional engineer.**
			Staff Comments	*Both buildings will be constructed with concrete slab on grade foundations designed by David Funk who is a licensed professional engineer within Idaho.*
☒	☐	☐	**17.88.050(E)12**	**Driveways shall comply with City of Ketchum street standards; access for emergency vehicles has been adequately provided for by limiting flood depths in all roadways to one foot or less during the one percent annual chance event.**
			Staff Comments	*Driveway complies with City of Ketchum street standards. The Fire & Streets Departments have both approved the proposed driveway design.*
☒	☐	☐	**17.88.050(E)13**	**Landscaping or revegetation shall conceal cuts and fills required for driveways and other elements of the development.**
			Staff Comments	*Landscaping is proposed on all areas of the property including driveways and other elements of the development. The landscaping will conceal any cuts and fill which are required.*
☐	☐	☒	**17.88.050(E)14**	**(Stream Alteration) The proposal is shown to be a permanent solution and creates a stable situation.**
			Staff Comments	*N/A - Stream Alteration is not proposed.*
☐	☐	☒	**17.88.050(E)15**	**(Stream alteration.) No increase to the one percent annual chance flood elevation at any location in the community, based on hydrologic and hydraulic analysis performed in accordance with standard engineering practice and has been certified and submitted with supporting calculations and a No Rise Certificate, by a registered Idaho engineer.**
			Staff Comments	*N/A - Stream Alteration is not proposed.*
☐	☐	☒	**17.88.050(E)16**	**(Stream alteration.) The project has demonstrated no adverse impact or has demonstrated all impacts will be mitigated.**
			Staff Comments	*N/A - Stream Alteration is not proposed.*

Compliant			Standards and Staff Comments	
Yes	**No**	**N/A**	**Guideline**	**City Standards and *Staff Comments***
☐	☐	☒	**17.88.050(E)17**	**(Stream alteration.) The recreational use of the stream including access along any and all public pedestrian/fisher's easements and the aesthetic beauty shall not be obstructed or interfered with by the proposed work.**
			Staff Comments	*N/A - Stream Alteration is not proposed.*
☐	☐	☒	**17.88.050(E)18**	**(Stream alteration) Fish habitat is maintained or improved as a result of the work proposed.**
			Staff Comments	*N/A - Stream Alteration is not proposed.*
☐	☐	☒	**17.88.050(E)19**	**(Stream alteration.) The proposed work shall not be in conflict with the local public interest, including, but not limited to, property values, fish and wildlife habitat, aquatic life, recreation and access to public lands and waters, aesthetic beauty of the stream and water quality.**
			Staff Comments	*N/A - Stream Alteration is not proposed.*
☐	☐	☒	**17.88.050(E)20**	**(Stream alteration.) The work proposed is for the protection of the public health, safety and/or welfare such as public schools, sewage treatment plant, water and sewer distribution lines and bridges providing particularly limited or sole access to areas of habitation.**
			Staff Comments	*N/A - Stream Alteration is not proposed.*
☒	☐	☐	**17.88.050(E)21**	**(Wetlands) Where development is proposed that impacts any wetland the first priority shall be to move development from the wetland area. Mitigation strategies shall be proposed at time of application that replace the impacted wetland area with an equal amount and quality of new wetland area or riparian habitat improvement.**
			Staff Comments	*Project site contains wetlands as delineated by Trent Stumph with Sawtooth Environmental. The proposed development will impact , permanently fill approximately 1,277 square feet of wetlands with proposed wetland mitigation creating approximately 1,278 square feet of wetlands. Wetlands include species such as Bebbs Willows, Red-osier Dogwood, and Quaking Aspen.*
☒	☐	☐	**17.88.060.A.1**	**A. General Standards: In all areas of special flood hazard, the following standards are required:** **1. Anchoring:** **a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.** **b. All manufactured homes must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over the top or frame ties to ground anchors (reference the Federal Emergency**

Compliant			Standards and Staff Comments	
Yes	**No**	**N/A**	**Guideline**	**City Standards and *Staff Comments***
				Management Agency's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).
			Staff Comments	*The proposed development is a single-family home that will be constructed on site and attached to a foundation designed by a professional engineer. Sheet S-111A indicates foundation has been designed to meet standards of this section. The new construction will be anchored to prevent flotation, collapse, or lateral movements.*
☒	☐	☐	**17.88.060.A.2**	**2. Construction Materials And Methods:** **a. All structural and nonstructural building materials utilized at or below the base flood elevation must be flood resistant. Flood damage resistant materials must be used for all building elements subject to exposure to floodwaters, including floor joists, insulation, and ductwork. If flood damage resistant materials are not used for building elements, those elements must be elevated above the base flood elevation. This requirement applies regardless of the expected or historical flood duration.** **b. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.** **c. Electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.**
			Staff Comments	*A. Proposed materials below the BFE include reinforced concrete & galvanized steel. Both materials are acceptable per FEMA Technical Bulletin 2.* *B. This project consists of new construction. All floodplain development regulations required by Ketchum Municipal Code will be met.* *C. The mechanical room and all mechanical equipment are to be located above the BFE and outside of the SFHA. No HVAC or electrical panels will be located below the BFE. Any plumbing and electrical leading from mains to the residence will be watertight and located underground.*
☒	☐	☐	**17.88.060.A.3**	***3. Utilities:*** ***a. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;*** ***b. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and*** ***c. On site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.***

Compliant			Standards and Staff Comments	
Yes	**No**	**N/A**	**Guideline**	**City Standards and *Staff Comments***
			Staff Comments	*Water and sewer services into the residence will be located underground and built to required plumbing codes*
☐	☐	☒	**17.88.060.B.1**	***1. All construction in AO zones shall be designed and constructed with drainage paths around structures to guide water away from structures***
			Staff Comments	*Proposed residence is within the AE zone, not the AO.*
☒	☐	☐	**17.88.060.B.2.a**	***2. Residential Construction:*** ***a. New construction and substantial improvement of any residential structure in any A1-30, AE and AH zone shall have the top of the lowest floor, including basement, elevated a minimum of twenty four inches (24") above the base flood elevation.***
			Staff Comments	*The top of the lowest floor (finished floor) will be elevated 24" above the Base Flood Elevation of 5786.5'. As the proposed elevation is located within the AE zone the top of the lowest floor is required to be 24" above the BFE. Sheets A-400, A-401, & A-402 show lowest floor elevated above BFE by 24".*
☐	☐	☒	***17.88.060.B2.b***	**b. New construction and substantial improvement of any residential structure in any AO zone shall have the lowest floor, including basement, elevated to or above the highest adjacent grade at least as high as the FIRM's depth number plus twenty four inches (24").**
			Staff Comments	*N/A. Proposed residence is within the AE zone, not the AO*
☒	☐	☐	***17.88.060.B2.c.***	**c. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria (see figures 1, "Preferred Crawl Space Construction", and 2, "Below Grade Crawl Space Construction", of this section):**
			Staff Comments	*The residence will have one fully enclosed area not raised to the flood protection elevation: the garage. The garage has been designed to include to automatically equalize hydrostatic flood forces on exterior walls through the installation of flood openings (Smart Vents have been specified for this project). The appropriate number of vents to cover the square footage the enclosed area are proposed –6 openings for the garage.*
☒	☐	☐	***17.88.060.B2.c.(1)***	**(1) A minimum of two (2) openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. Openings shall be placed on at least two (2) walls to permit entry and exit of floodwaters.**
			Staff Comments	*Flood openings are placed on at least two walls. Engineered Smart Vents are proposed. One Smart Vent is sized for 200 square feet of floor area. The garage is 1170 sq ft and 6 Smart Vents are proposed. See sheet A-110.*

Compliant			Standards and Staff Comments	
Yes	**No**	**N/A**	**Guideline**	**City Standards and *Staff Comments***
☒	☐	☐	***17.88.060.B2. c.(2)***	**(2) The bottom of each flood vent opening shall be no higher than one foot (1') above the lowest adjacent exterior grade.**
			Staff Comments	*Spec sheets for proposed flood vents indicate this requirement will be met. Bottom of proposed flood vents will be a maximum of one foot (1') above finished grade.*
☒	☐	☐	***17.88.060.B2. c.(3)***	**(3) Engineered flood vents are required.**
			Staff Comments	*Proposed vents are Engineered Smart Vents*
☒	☐	☐	***17.88.060.B2. c.(4)***	**(4) Portions of the building below the base flood elevation shall be constructed with material resistant to flood damage.**
			Staff Comments	*This standard has been met. See 17.88.060.A.2*
☐	☐	☒	***17.88.060.B2. c.(5)***	**(5) The interior grade of a below grade crawl space (see figure 2, "Below Grade Crawl Space Construction", of this section) below the base flood elevation shall not be more than two feet (2') below the lowest adjacent exterior grade.**
			Staff Comments	*N/A. No crawlspace proposed.*
☐	☐	☒	***17.88.060.B2. c.(5)***	**6) The height of a below grade crawl space, measured from the interior grade of the crawl space to the top of the crawl space foundation wall, shall not exceed four feet (4') at any point.**
			Staff Comments	*N/A. No crawlspace proposed.*
☐	☐	☒	***17.88.060.B2. c.(5)***	**(7) A below grade crawl space shall have an adequate drainage system that removes floodwaters from the interior area of the crawl space within a reasonable time after a flood event.**
			Staff Comments	*N/A. No crawlspace proposed.*
			17.88.060.B2. c.(6)	**(8) The velocity of floodwaters at the site should not exceed five feet per second for any crawlspace**
			Staff Comments	*N/A. No crawlspace proposed.*

CONCLUSIONS OF LAW

1. The City of Ketchum is a municipal corporation organized under Article XII of the Idaho Constitution and the laws of the State of Idaho, Title 50, Idaho Code;

2. Under Chapter 65, Title 67, of the Idaho Code the City has passed a zoning ordinance, Title 17;

3. The City of Ketchum Planning Department provided adequate notice of opportunity to comment on this application pursuant to Chapter 17.88.050 D of the zoning ordinance, Title 17;

4. The project **does** meet the standards of approval under Chapter 17.88 of Zoning Code Title 17.

DECISION

THEREFORE, the Administrative Floodplain Development Permit for the proposed project, Badger Residence, is approved on this date, June 16th, 2023, with the following conditions.

Conditions of Approval

1. This approval is subject to the scope of work described in the documents shown in Attachment A.
2. Any modification to approved plans as referenced in this approval shall be subject to a written amendment to this permit approval. If construction or improvements differ from the approved plans, such work may be subject to removal at the applicants expense.
3. Follow up site visits to ensure compliance with the approved Landscaping Plan, L3.0 dated 5/4/2023, are required for the three (3) years following the initial site visit that occurs in conjunction with issuance of the Certificate of Occupancy.
    A. If, upon an annual inspection, 80% or fewer of the plants indicated on Landscape Plan L3.0 dated 5/4/2023 have not survived, the property owner shall re-install new plantings.
4. Floodplain Development Permit approval shall expire one (1) year from the date of signing of approved Findings of Fact per the terms of KMC, Section 17.88.050.G, Terms of Approval, if construction has not commenced. Once a building permit has been issued, the approval shall be valid for the duration of the building permit.
5. No use of restricted use chemicals or soil sterilants will be allowed within one hundred feet (100') of the mean high-water mark on any property within the city limits at any time (KMC 17.88.040.C.3);
6. All applications of herbicides and/or pesticides within one hundred feet (100') of the mean high water mark, but not within twenty five feet (25') of the mean high water mark, must be done by a licensed applicator and applied at the minimum application rates (KMC 17.88.040.C.4);
7. Application times for herbicides and/or pesticides will be limited to two (2) times a year; once in the spring and once in the fall unless otherwise approved by the City Arborist (KMC 17.88.040.C.5);
8. It shall be unlawful to dump, deposit or otherwise cause any trash, landscape debris or other material to be placed in any stream, channel, ditch, pond or basin that regularly or periodically carries or stores water.
9. A building under-construction Elevation Certificate (FEMA FORM 86-0-33) shall be submitted within seven calendar days upon completion of the foundation and lowest floor.
10. A final, as built finished construction Elevation Certificate (FEMA Form 86-0-33) with supporting documentation such as an as-built survey of the project produced by a surveyor or engineer licensed in Idaho demonstrating that the project was constructed in accordance with the approved plans, shall be submitted prior to issuance of Certificate of Occupancy. Deficiencies detected by such documentation shall be corrected by the permit holder immediately and prior to certificate of occupancy issuance. In some instances, another certification may be required to certify corrected as-built construction. Failure to submit the certification or failure to make required corrections shall be cause to withhold the issuance of a certificate of occupancy.

11. The finished construction elevation certificate certifier shall provide at least two photographs showing the front and rear of the building taken within 90 days from the date of certification. The photographs must be taken with views confirming the building description and elevation locations identified on the approved plans. To the extent possible, these photographs should show the entire building including foundation. If the building has split-level or multi-level areas, provide at least two additional photographs showing side views of the building. In addition, when applicable, provide a photograph of the foundation showing a representative example of the flood openings or vents if applicable. All

photographs must be in color and measure at least three inches by three inches. Digital photographs are acceptable.

12. An inspection to verify flood vent placement shall be scheduled within seven calendar days upon completion of first floor framing.
13. The Administrator may conduct site inspections of work in progress. The Administrator may make as many inspections of the work as may be necessary to ensure that the work is being done according to the terms of this permit, approved plans and KMC 17.88. In exercising this power, the Administrator has a right, upon presentation of proper credentials, to enter the property at any reasonable hour for the purposes of inspection or other enforcement action.
14. Upon notification of imminent flood danger from the City of Ketchum, all construction activity and materials within the designated SFHA shall be removed to a location outside of said zone.

Decision: Approved, subject to conditions above.

DATED this
26
~~15~~th day of June 2023

Adam Crutcher
Associate Planner

ATTACHMENTS:

A. Project Plans

Permit Holder's Acknowledgement:

I have read the terms and conditions of this permit approval and agree to follow all the conditions of approval. I understand if construction does not comply with the conditions of approval, the project may be issued a stop work order until any deficiencies are corrected.

Print Name: Frazier Cavness (on behalf of 121 Badger Lane LLC)

Sign

Date: 6/20/2023

City of Ketchum

ATTACHMENT D:

Appeal Application and Appeal Brief

City of Ketchum
Planning & Building

OFFICIAL USE ONLY	
File Number:	P23-014A
Date Received:	7/12/23
By:	HLN
Fee Paid:	$2175
Approved Date:	
Denied Date:	
By:	

Notice of Appeal

Submit completed application and documentation to planningandzoning@ketchumidaho.org Or hand deliver to Ketchum City Hall, 191 5th St. W. Ketchum, ID If you have questions, please contact the Planning and Building Department at (208) 726-7801. To view the Development Standards, visit the City website at: www.ketchumidaho.org and click on Municipal Code. You will be contacted and invoiced once your application package is complete.

Note: The Appellant shall submit an amount to cover the cost of giving notice, as applicable in the Fee Schedule, and provide a transcript within two (2) days after the Planning and Building Department provides the Appellant with an estimate for the expense of the same. In the event the fee is not paid as required, the appeal shall not be considered filed.

OFFICIAL USE ONLY	
Date Appeal Received:	Date Notice Published:
Appeal Fee:	Transcript Fee:
Date Paid:	Date Paid:
Date Appellant Notified of Estimated Transcript Costs and Notice:	Mailing Fee:
Date of Appeal Hearing:	Date Paid:
Action(s) Taken/Findings:	
APPEALLANT	
Name of Appellant: NICHOLAS OSBORNE STEPHANIE OSBORNE	Phone Number: 650-228-9705 650-743-3883
Address: 105 WOOD RIVER DRIVE NORTH KETCHUM, ID 83340	Fax Number or Email: NOSBORNE@MSN.COM
REPRESENTATIVE	
Name of Representative:	Phone Number:
Address:	Fax Number or Email:
APPLICATION	
Application Being Appealed: P23-014 121 RAINER LANE KETCHUM ID	
Explain How You Are an Affected Party: NEIGHBORING PROPERTY OWNERS	
Date of Decision or Date Findings of Fact Were Adopted: 6/26/23	
SUBMITTAL INFORMATION	
This Appeal is Based on The Following Factors (set forth all basis for appeal including the particulars regarding any claimed error or abuse of discretion): PLEASE SEE ATTACHED LETTER	

If you have attached additional pages, please indicate the number of pages attached 2

Signature of Appellant or Representative

Date 7/11/23

Nicholas and Stephanie Osborne
105/103 Wood River Drive North
Ketchum, Idaho 83340

July 11, 2023

City of Ketchum Planning and Zoning Commission
191 5th St W
Ketchum, Idaho 83340
BY EMAIL

City of Ketchum Planning and Zoning Commission,

We are writing to Appeal the approval of the development plan for 121 Badger Lane pursuant to Chapter 17.144 of the Ketchum Idaho Code of Ordinances. We believe the process has failed to adequately address issues with respect to the project and its impact on neighbors. On April 12, 2023, we submitted a letter to the Ketchum and Zoning Commission and Staff raising a number of potential issues. While we have been updated periodically by department staff on the status of the review, nothing was done to address the specific concerns and questions we raised. Alternatives, including moving the driveway out of the floodplain, were not considered and adjustments made since that time, including raising the elevation of the driveway, have worsened the issues. At this time we would note the following:

1. A driveway that runs the entire length of the property and through the floodplain and adjacent to our property creates an entirely unnecessary barrier to the flow of water and affects wetlands and water channels that are shared by our property and 121 Badger Lane, and a historic Ketchum fishing cabin on our property. One area of previously identified wetlands on 121 Badger Lane has in fact been removed from the document that show the location of existing and new wetlands. While the development plan may address water and wetlands issues on the site, it does not appear that conditions on neighboring properties have been adequately considered.
2. We understand that the elevation of the driveway was increased to allow required clearance for emergency vehicles because it is in the floodplain. This change raises the barrier for water draining from our property. No consideration appears to have been given to moving the driveway to a location which is less susceptible to flooding and avoids creating an unnecessary barrier in the floodplain or destruction of existing wetlands.
3. While the engineering of the site may allow modeled amounts of water to be conveyed across the site, the amount of water that the site will absorb will be reduced and the speed of the water conveyed will be slowed to the north of the property and accelerated across the property as a result of the construction footprint and hardscape in the floodplain and the channeling of water through culverts.
4. While we understand the flood issues have been considered and engineering solutions proposed, we question the assumptions made about both the conditions that 121 Badger Lane may experience during high water and the impacts of the proposed solutions on neighboring properties. Multiple studies have recently been published indicating that existing government precipitation and flood data has been rendered inaccurate by changing weather and underestimates the potential for flooding, including in Blaine County. Proposed culverts,

culverts create a finite limit on the amount of water that can pass are subject to blockage from debris, snow/ice and wildlife. Snow plowed from the driveway in the floodplain will have no place to go but to areas that are important for drainage.

5. We believe the existing LOMA was inappropriately issued, as a result of significant fill being added to the property, which multiple neighbors can attest to, rather than as a result of natural conditions.

We were surprised by the brevity of the review and the failure to address the specific concerns raised by neighbors given the location of the development in the floodplain and neighbors' familiarity with conditions around the site. We are now consulting with engineers and lawyers to better assess our concerns and potential remedies. We request that the Planning and Zoning Commission also take the time to undertake a more rigorous review of the proposal and potential alternatives that will allow appropriate development with less impact on neighbors. Please let us know how you plan to proceed and what further information we can provide. Adam Crutcher has our contact information.

Sincerely yours,

Nicholas Osborne and Stephanie Osborne

Robertson & Slette, p.l.l.c.

J. EVAN ROBERTSON
GARY D. SLETTE

Cassie Chapman – Legal Assistant
cchapman@rsidaholaw.com

ATTORNEYS AT LAW
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P.O. BOX 1906
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TELEPHONE (208) 933-0700
FAX (208) 933-0701

GARY D. SLETTE
gslette@rsidaholaw.com

October 6, 2023

VIA EMAIL: *mlanders@ketchumidaho.org*
acrutcher@ketchumidaho.org

City of Ketchum Planning and Zoning Commission
Attn: Morgan Landers & Adam Crutcher
P.O. Box 2315
191 5th St. West
Ketchum, Idaho 83340

RE: OSBORNE APPEAL (121 BADGER LANE)

Dear Morgan and Adam,

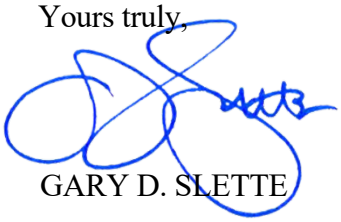
Our law firm represents Nicholas and Stephanie Osborne. Enclosed please find supporting documentation prepared by them and their consultant, Biota Research and Consulting for the hearing on their appeal which was filed with the City on July 11, 2023. Procedurally, this appeal was timely filed in accordance with Adam Crutcher's email dated July 11, 2023, a copy of which attached hereto as Exhibit "A". In response to issues advanced by the applicant's attorney, City Attorney Matthew Johnson confirmed the timeliness of the Osbornes' appellate filing in his email dated August 23, 2023, a copy of which is attached hereto as Exhibit "B". The concurrent approval of the Floodplain Development Permit and the Building Permit dated June 26, 2023, is evidenced by the stamped final approval document attached hereto as Exhibit "C".

Substantively, the appeal is based on the written letters authored by our clients and the Technical Memorandum submitted by Biota dated August 22, 2023. From a practical perspective, my client's written comments succinctly set forth relevant facts and their concerns as to events they have observed over the years regarding flooding on the Big Wood River, and the resultant impact on property in the floodplain in their neighborhood. The Biota Technical Memorandum

identifies several issues that deserve thoughtful consideration by the Commission insofar as this appeal is concerned. The section entitled "SUMMARY AND CONCLUSIONS" on page 6 of the Biota report supports the need to reverse the decision on appeal to allow for the suggested hydrologic modeling and design modifications to prevent a diminution in flood plain carrying capacity. Additionally, Biota does not question the accuracy of the cross-sectional detail and analysis performed and provided by the applicant's engineer; however, the layout and location of the cross-sections in the proposed condition analysis do not appear to capture the development location and grading activities presented in the proposed condition site plan.

My clients and I will be in attendance with a representative from Biota at the appeal hearing scheduled for October 24 beginning at 4:30 p.m. If the Commission has requests for further information, we anticipate the ability to respond at that time.

Yours truly,



GARY D. SLETTE

cc: Clients
Mattew Johnson
Franklin Lee

From: Adam Crutcher <ACrutcher@ketchumidaho.org>
Sent: Tuesday, July 11, 2023 12:39 PM
To: Osborne, Nicholas
Cc: Stephanie Osborne; Nicholas Osborne
Subject: RE: 121 Badger Lane - Appeal to the Ketchum Planning and Zoning Commission
Attachments: appeal_application.pdf

Hi Nick,

Thank you for sending that over. I've attached the appeal application so you can fill that out and send it over to planningandzoning@ketchumidaho.org then we can start to process the appeal application. This application will need to be submitted today for the appeal request to be valid. Our planning technician will then invoice for the application fee and get the ball rolling.

The application that is being appealed is P23-014 and the date of decision or date findings of fact were adopted is June 26, 2023. What you can do for the sections titled "Explain How You Are and Affected Party & This Appeal is Based on The Following Factors" by referencing the narrative which you attached.

Thanks

ADAM CRUTCHER | CITY OF KETCHUM
PLANNING AND BUILDING I ASSOCIATE PLANNER
P.O. Box 2315 | 191 W 5th St | Ketchum, ID 83340
o: 208.806.7008 |
acrutcher@ketchumidaho.org | www.ketchumidaho.org
****Please sign up for the NEW Planning and Building quarterly newsletter. Click HERE and select "Planning and Development"**

From: Osborne, Nicholas <Nicholas.Osborne@psc.com>
Sent: Tuesday, July 11, 2023 11:44 AM
To: Adam Crutcher <ACrutcher@ketchumidaho.org>
Cc: Stephanie Osborne <stephanieosborne6@gmail.com>; Nicholas Osborne <NOsborne@msn.com>
Subject: 121 Badger Lane - Appeal to the Ketchum Planning and Zoning Commission

Adam,

Attached a letter of Appeal to the Ketchum Planning and Zoning Commission with respect to 121 Badger Lane. Will you please forward this to the members of the Commission and others as necessary. Please let us know if there are any questions or follow-up required.

Best,

Nick Osborne

EXHIBIT A

From: Matthew A. Johnson <mjohnson@WHITEPETERSON.com>
Sent: Wednesday, August 23, 2023 4:46 PM
To: Franklin G Lee <FrankLee@givenspursley.com>; Gary Slette <gslette@rsidaholaw.com>
Subject: 121 Badger - dismissal request (informal)

Franklin and Gary –
Treating this informally initially, as I've only had an opportunity to do a somewhat rushed review of the correspondence, but think some clarification may be useful between the attorneys involved.

The City evaluates floodplain development permits concurrently with building permits. While comments and review may be happening separately for each, such that one may seem resolved prior to another, the practice is that they are finally and formally approved at the same time. So, from a process perspective, the Floodplain Development Permit in this matter would have been finally/formally approved on the same date as the Building Permit. This would be considered the final administrative determination date for purposes of calculating administrative appeal deadlines. I believe this is the reason for the document, that it looks like Gary provided, with the Approved stamp dated 6/26/23.

My quick read inclination is this means we do not have a timeliness/automatic dismissal issue, but please advise me if you still feel otherwise.

Matt

Matthew A. Johnson
WHITE PETERSON GIGRAY & NICHOLS, P.A.
Canyon Park at the Idaho Center
5700 E. Franklin Rd., Ste. #200
Nampa, ID 83687-7901
208.466.9272 (tel)
208.466.4405 (fax)
mjohnson@whitepeterson.com

EXHIBIT B

Approved

These plans have been found to be in substantial compliance of the adopted building codes. These documents are approved contingent on compliance with the mark-ups and notes applied. This is not approval of any violation of any code, ordinance, statue or regulation. Corrections will be required for code violations found during the inspection process.

City of Ketchum
Planning & Building

BLD2303-00021

06/26/23

OFFICIAL USE ONLY
File Number:
Date Received:
By:
Fee Paid:
Approved Date:
Denied Date:
By:

Floodplain Development Permit and Riparian Alteration Application

NOTE: This permit is required for all properties containing 100 year floodplain area and Riparian Setbacks

PROPERTY OWNER INFORMATION			
Property Owner Name(s):	121 BADGER LANE LLC		
Property Owner's Mailing Address:	P.O. BOX 14001-174 KETCHUM, ID 83340		
Phone:			
Email:			
PROJECT INFORMATION			
Project Name:	BADGER RESIDENCE		
Project Representative's Name (main point of contact for project):	FRAZIER CAVNESS		
Project Representative's Phone:	720.339.6798		
Project Representative's Mailing Address:	P.O. BOX 14001-174 KETCHUM, ID 83340		
Project Representative's Email:	frazier@presidiovistaproperties.com		
Architect's name, phone number, e-mail:	RO ROCKETT DESIGN | JASON RO | 213.784.0014 | jro@rorockettdesign.com		
Landscape Architect's name, phone number, e-mail:	BYLA | BEN YOUNG | 208.720.0215 | ben@byla.us		
Environmental consultant's name, phone number, e-mail:	SAWTOOTH | TRENT STUMPH | 208.727.9748 | trent@sawtoothenvironmental.com		
Engineer's name, phone number, e-mail:	BROCKWAY ENGINEERING | CHUCK BROCKWAY | 208-736-8543 | charles.g.brockway@brockwayeng.com>		
Project Address:	121 BADGER LANE KETCHUM, ID 83340		
Legal Description of parcel:	PARCEL 4, ROCKING RANCH SUB #2 (LOCATED WITHIN SECTION 13, T.4 N., R.17 E., B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO)		
Lot Size:	1.09 ACRES (PER SURVEY)		
Zoning District:	LR		
Overlay Zones – indicate all that apply:	☒ Floodplain ☐ Floodway ☐ Riparian Zone ☐ Avalanche ☐ Mountain		
Brief description of project scope:	NEW SINGLE FAMILY DWELLING: MAIN RESIDENCE + ADU W/ IN-GROUND POOL (ADU STRUCTURE OUTSIDE OF FLOODPLAIN)		
Value of Project: $	400,000		
TYPE OF PROJECT – indicate all that apply:			
☐ New Building in Floodplain	☐ Building Addition in Floodplain	☐ Streambank Stabilization / Stream Alteration	☐ Other. Please describe:
☐ Riparian Alteration	☒ Floodplain Development		
PROPOSED SETBACKS – if project is a new building or an addition to an existing building			
Front: 15	Side: 15	Side: 15	Rear: 20
ADDITIONAL INFORMATION			
Will fill or excavation be required in floodplain, floodway or riparian zone?	Yes ☒	No ☐	
If Yes, Amount in Cubic Yards:	Fill: 258 CY	Excavation: 274 CY	
Will Existing Trees or Vegetation be Removed?	Yes ☒	No ☐	
Will new trees or vegetation be planted?	Yes ☒	No ☐	

Applicant agrees in the event of a dispute concerning the interpretation or enforcement of the Floodplain Management Overlay Application, in which the City of Ketchum is the prevailing party, to pay reasonable attorney fees, including attorney fees on appeal, and expenses of the City of Ketchum. I, the undersigned, certify that all information submitted with and upon this application form is true and accurate to the best of my knowledge and belief.

2/27/2023

Signature of Owner/Representative — Date

EXHIBIT C

Nicholas and Stephanie Osborne
105 Wood River Drive North
Ketchum, Idaho 83340

October 4, 2023

City of Ketchum Planning and Zoning Commission
191 5th Street West
Ketchum, Idaho 83340

Dear Members of the Ketchum Planning and Zoning Commission:

We appreciate the opportunity to appeal the Flood Plain Development Permit for 121 Badger Lane. We are providing the following documents for your review in support of our appeal:

Exhibit 1. Letter Dated October 4, 2023 from Nicholas and Stephanie Osborne outlining the unique conditions of the location, issues with the proposed development and additional considerations.

Exhibit 2. Technical Memorandum from Biota Research concluding the proposed development does not adhere to the guidelines of the City of Ketchum Floodplain Development Permit and do not align with FEMA NAI policies.

Exhibit 3. Letter dated April 12, 2023 from Nicholas and Stephanie Osborne provided in response to the notification of the planned development and solicitation of comments by the Planning and Zoning Commission Staff.

Exhibit 4. Letter dated July 11, 2023 from Nicholas and Stephanie Osborne provided at the time of our Appeal.

Exhibit 5. Relevant excerpts from the Ketchum City Code addressing flood plain development.

Sincerely,

Nicholas and Stephanie Osborne

EXHIBIT 1

Nicholas and Stephanie Osborne
105 Wood River Drive North
Ketchum, Idaho 83340

October 4, 2023

Dear Members of the Ketchum Planning & Zoning Commission

As appellants of the Flood Plain Development Permit for 121 Badger Lane, and owners of 103 and 105 Wood River Drive North which share the entire northern property line of 121 Badger Lane we write today to provide you with a more complete picture of this area of Ketchum and the unique conditions that give rise to our concerns. They have been brought to the attention of the Planning staff in letters from us on April 12, 2023, in response to the notification of the planned development and solicitation of comments, and on July 11, 2023, at the time of our appeal. Rather repeating the contents of those letters we attach both here for your review.

The Area and Unique Conditions:

The area is highly susceptible to flooding and the risks are likely to increase. 105 Wood River Drive North and 121 Badger Lane are directly below the confluence of Warm Springs Creek and the Big Wood River and have experienced significant flood water issues in the past. High water from Warm Springs Creek flows directly toward the both properties on the East bank of the Big Wood River, which has caused significant erosion of the bank and the river frequently breaches the bank.

A significant portion of 121 Badger Lane sits within the floodplain and, according to the 2020 Big Wood River Atlas, within the Historic Channel Migration Zone of the Big Wood River. The proposed building site is entirely surrounded by and extends into the Flood Plain and wetlands.

A LOMA was issued which excluded a portion of the site from the floodplain. Local residents observed significant fill being deposited by a prior owner in the area covered by the LOMA, and it is believed that this resulted in the LOMA being improperly issued.

A portion of 105 Wood River Drive North sits within the same floodplain as 121 Badger Lane. There are two clear natural channels in the southwest portion of 105 Wood River Drive North which drain directly onto 121 Badger Lane. During runoff in 2017 there was sheeting water in these channels and across the lot and at other times there has been standing water in these channels. Sheeting water runs through 121 Badger Lane and standing water is absorbed in wetlands on 121 Badger Lane immediately south of 105 Wood River Drive North. The water that flows across 121 Badger Lane flow directly into neighborhoods on Buss Elle Drive and Wood River Drive.

A number of recent studies have concluded that the change in weather we are experiencing, irrespective of the causes, have resulted in FEMA Flood Maps that significantly underestimate the Flood Risk. Ketchum's current FEMA flood Map was created in 2010, making it 13 years old, significantly older than the prescribed 5 year revisions cycle and according to the City of Ketchum website is currently being updated.

The Proposed Project:

The proposed development plan for 121 Badger Lane unnecessarily places portions of a large home and significant hardscape in the flood plain, including an elevated driveway directly on our property line and over existing wetlands. This will create a barrier to water naturally flowing across our property and will prevent standing water from being absorbed in the existing wetlands.

There are many alternative locations for the proposed driveway. A driveway for the prior home already exists on 121 Badger Lane, and by turning south before entering the floodplain and entering the floodplain away from neighboring properties, it avoids destroying wetlands and allows more of the potential problems to be dealt with on the site.

Recognizing the risk of flood waters on 121 Badger Lane, Ketchum Staff required the developer to raise the driveway, provide culverts under the driveway (though the culverts do not appear to be specified in the plans) and replace the wetlands in a new location. These changes create multiple issues for neighbors both north and south of 121 Badger Lane. The raised driveway creates an even greater barrier to the flow of water across the property line, the culverts restrict flow above the driveway and accelerate it below the driveway and the destruction of the existing wetlands will eliminate the absorption of water where it naturally accumulates.

In addition, the proposed driveway and culverts provide no space for the removal of snow in ways which would avoid impacting neighbors properties, creating blockages for the proposed culverts or filling the existing wetlands. Culverts are very unreliable, susceptible to blockages from natural debris and wildlife activity. We have experienced flooding on other properties due to blockages in culverts and do not believe they are an acceptable remediation when the impacts of failure will be significantly borne by neighbors rather than the owners of the site.

The proposed development is expected to be sold upon completion. Any assurances from the current owner/developer for proper maintenance of the culverts or other remediations provides little assurance of the long-term compliance.

Additional Considerations and Analysis:

The Ketchum City Code include many sections which address the significant costs flooding creates for our community, the many causes of flooding in Ketchum, the criteria for approval of development in areas susceptible to flooding which will affect the health of the Big Wood River. We have attached and highlighted a number of those we believe are relevant.

As a result of all of these issues, we retained both engineering and legal advisors to help us assess the legitimacy of our concerns. We have been advised and believe the potential issues are real and encourage the City to fully consider the engineering evaluation which we have also attached.

We appreciate the Planning Commission giving our appeal full consideration. We are long time members of the Ketchum community that want the best for our town. Many of the issues we have could have been easily understood and addressed had our neighbor chosen to discuss the plans with us prior to seeking the approval of proposed development. Unfortunately, because they did not choose that path, we now find ourselves participating in a more costly and formal administrative appeal process.

Sincerely,

Nicholas and Stephanie

EXHIBIT 2

TECHNICAL MEMORANDUM FROM

P. O. Box 8578, 140 E. Broadway, Suite 23, Jackson, Wyoming 83002; (307) 733-4216

To: **City of Ketchum, Idaho**

Cc: **Gary Slette, Nicholas and Stephanie Osborne**

Date: **August 22, 2023**

Re: **Big Wood River, 121 Badger Lane, Floodplain Permit Review**

The content of this memorandum outlines the findings of an initial technical review performed by Biota Research and Consulting, Inc. (Biota) of the City of Ketchum, Idaho, Floodplain Development Permit and associated documents for the Badger Residence Project (parcel RPK05130000040) submitted by 121 Badger Lane LLC. For the review, Biota was provided the Floodplain Development Permit application materials and approved plans. The findings in this memorandum were based on documents made available to Biota. Biota reserves the right to provide additional technical review comments on behalf of the Osbornes in the future.

Biota also obtained the Federal Emergency Management Agency (FEMA) Letter of Map Amendment (LOMA) for the subject property, dated May 15, 2014. The intent of the technical review was to identify if potential flooding risks to the Osborne property (RPK0508001003A) have been properly evaluated according to the City of Ketchum ordinance and permit application requirements. The Osborne property is located immediately upstream (north) of the proposed project.

The effective Flood Insurance Rate Map (FIRM) is Panel No. 16013C0442E with effective date of November 26, 2010. The parcel of interest is located in a FEMA mapped floodplain designated Zone AE Special Flood Hazard Area (SFHA). The proposed project lies between published cross sections EG and EF of the detailed study hydraulic model. A new draft effective hydraulic model is currently being developed by FEMA that will be used to replace the effective FIRM with new updated maps. The draft model developed by FEMA has not yet been published to be used as the effective model for Ketchum or other areas within Blaine County, Idaho. However, it is important to note that the draft effective model uses a base flood discharge of 6,363 cubic feet per second (cfs) compared to only 4,740 cfs for the Big Wood River below Warm Springs Creek, which is an increase of 1,623 cfs. The 2014 LOMA removes a portion of the 121 Badger Lane Property from the FEMA floodplain. The area removed by the LOMA is shown on the project design plans. Given the presence of the previous residential structure on the property in the location described by the LOMA, it is likely that this area was raised out of the elevation of the FEMA floodplain by placing fill material.

Floodplain development permits are typically evaluated based on a no-rise certification or a No Adverse Impacts (NAI) statement. The no-rise is a hydraulic modeling analysis that evaluates potential increases

to the Base Flood Elevation (BFE) from project actions. The NAI approach was developed as a "good neighbor" policy to assess how existing floodplain properties are being affected by the land use decision others. The NAI policy requires those who alter flooding conditions to mitigate the impact their actions have on other individuals and adjacent communities. (Larson and Plasencia 2001). The policy states that impacts include increased flood peaks, flood stage, flood velocity, erosion and sedimentation, or decreased water quality or quality of riparian habitat.

1.0 FLOODPLAIN PERMIT TECHNICAL REVIEW

Biota reviewed the approved Floodplain Development Permit and Riparian Alteration Application dated June 26, 2023, including the attached narrative from Brockway Engineering, PLLC (Brockway) dated May 4, 2023. Biota's senior hydraulic engineer and certified floodplain manager, Chad Bailey P.E, CFM reviewed the hydraulic model results. There were several issues identified that, in our opinion, need to be evaluated more thoroughly to determine the potential for adverse impacts related to the proposed project. Those issues are described in detail below.

1) Guideline 17.88.050(E)6 of the floodplain development requirements states that floodplain development projects should not diminish flood water carrying capacity. As shown on the existing conditions topographic survey maps, there are existing drainage paths that cross from the Osborne property to the 121 Badger Lane property in the area of proposed floodplain construction (Figure 1). The drainage flow paths are highlighted with blue arrows on Figure 1. The existing driveway has imported fill material and a culvert placed within the floodplain. It is not clear when this material was placed or if it was a permitted activity. The culvert and fill material do interrupt natural drainage patterns but sheet flooding can occur under existing conditions because the driveway is not elevated above native grades to the west of the culvert.

   The same blue arrows are displayed with the grading and drainage site plan (Sheet L2) in Figure 2. The grading and drainage site plan elevations indicate that the proposed driveway is to be elevated approximately 0.5 to 3.0 feet relative to existing grades in the area of the natural drainages (Figure 3). The driveway orientation is generally perpendicular to the flood flow path. The result would be that the elevated driveway would backwater flood flows upstream onto the Osborne property. The grading and site plans indicate that a 12-inch culvert is proposed to drain the area north of the driveway into a constructed wetland. The floodplain development permit application materials did not demonstrate that a 12-inch culvert would convey the capacity of flood water in this area during a 100-year flood. In addition, the culvert is not an open inlet but a catch basin design that has a greater risk of becoming plugged by debris and sediment, which could render it ineffective during flooding. The natural drainage that crosses existing wetlands is proposed to be drained with a 24- by 36-inch arch pipe culvert. This proposed culvert is oriented perpendicular to the floodplain flow path which will limit functionality. The floodplain development permit application materials did not demonstrate that this culvert would convey the capacity of flood water in this area during a 100-year flood.

   In response to Section 17.88.050(E)6 of the floodplain development permit, Brockway indicated that the proposed development has more excavation (274 cy) than fill (258 cy). Having more excavation than fill does not ensure that the flood carrying capacity is maintained. It clearly depends on where the fill is being placed and if natural drainage patterns persist. As shown in Figure 3, the proposed fill placement blocks the natural drainages that are visible in Figure 1. Based on our review of the application materials, it has not been demonstrated that flood water

carrying capacity is being maintained with the proposed project. In addition, the hydraulic model for the project does not include any cross sections that correctly represent the proposed driveway in the area of the subject drainages (Figure 4) and therefore does not evaluate the potential backwater effect from the placement of fill in the FEMA floodplain. Also, the model results provided in fact show a rise of 0.1 foot as shown on Table 2 of the Brockway Technical Narrative. This rise in proposed BFE suggests that the flood flow capacity is diminished under proposed conditions. It is our recommendation that more detailed hydraulic modeling with properly placed and orientated sections be conducted to evaluate the impact of the proposed project grading, including the driveway, on the BFE on the Osborne property. Sections should be perpendicular to the flood flow and aligned with the driveway fill structure and proposed drainage culvert opening.

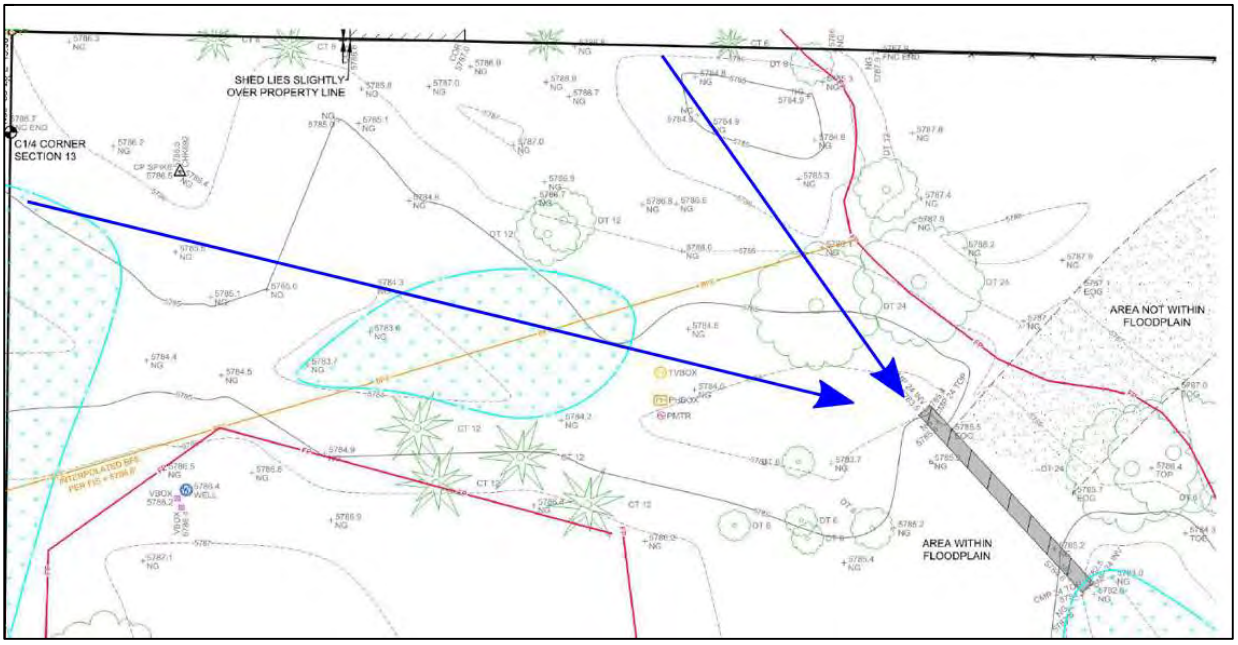


Figure 1. Existing conditions topographic survey map showing drainage patterns (highlighted with blue arrows). Basemap Source: Galena Engineering, Inc.

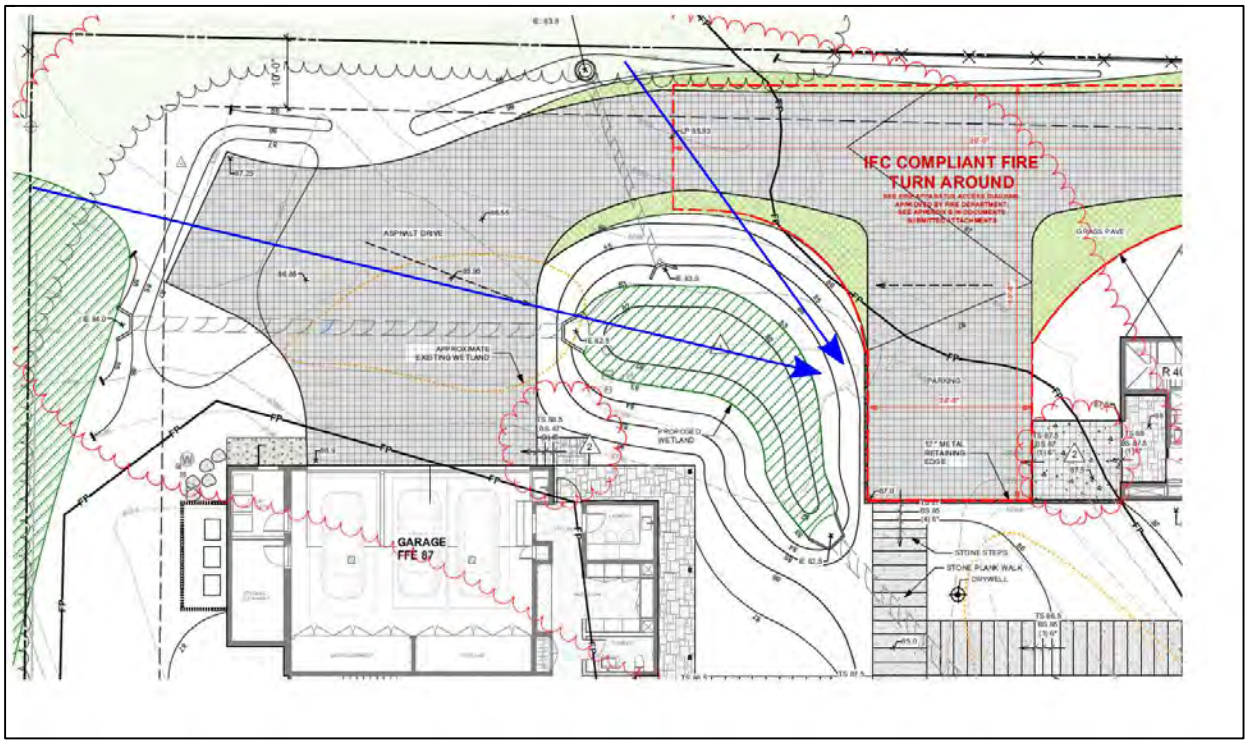


Figure 2. Proposed grading and drainage site plan showing fill to be placed blocking natural drainage patterns (highlighted with blue arrows). Basemap Source: BYLA Landscape Architects.

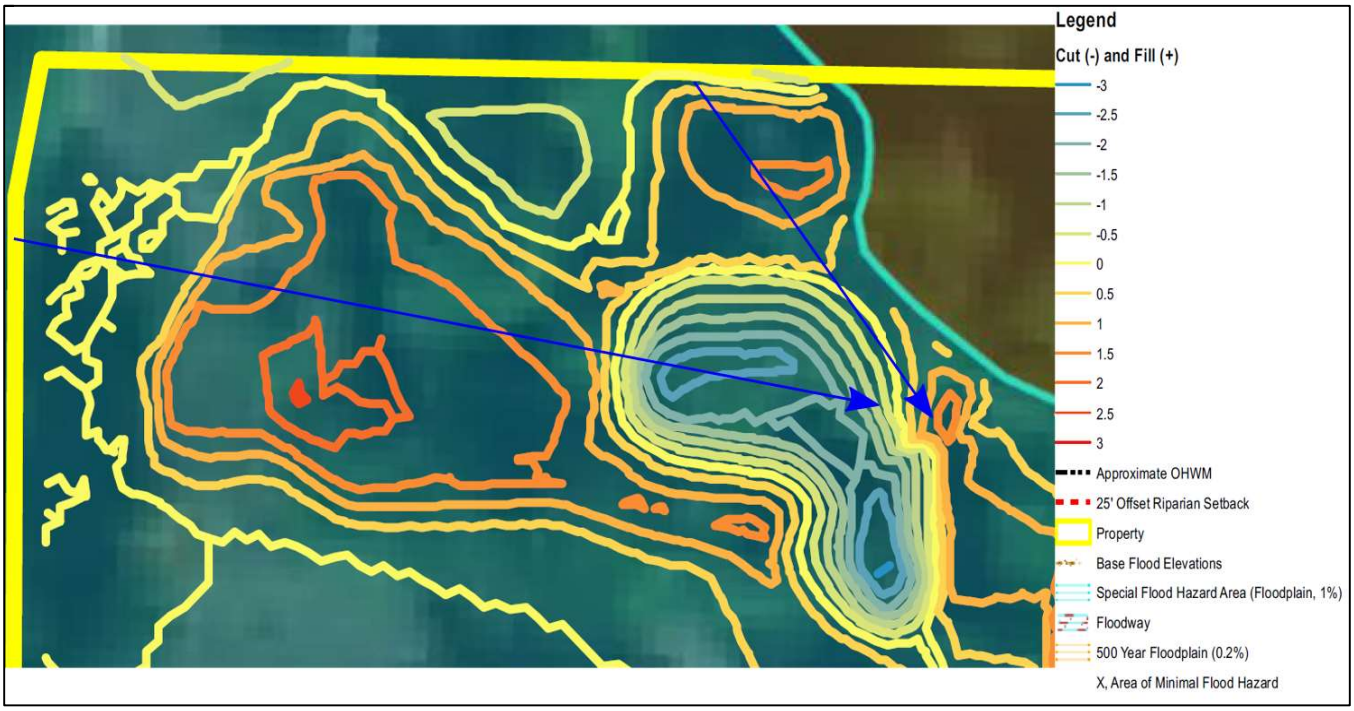


Figure 3. Proposed grading cut and fill quantities showing up to 3 feet of fill to be placed blocking natural drainage patterns (highlighted with blue arrows). Source: Brockway Engineering, PLLC.

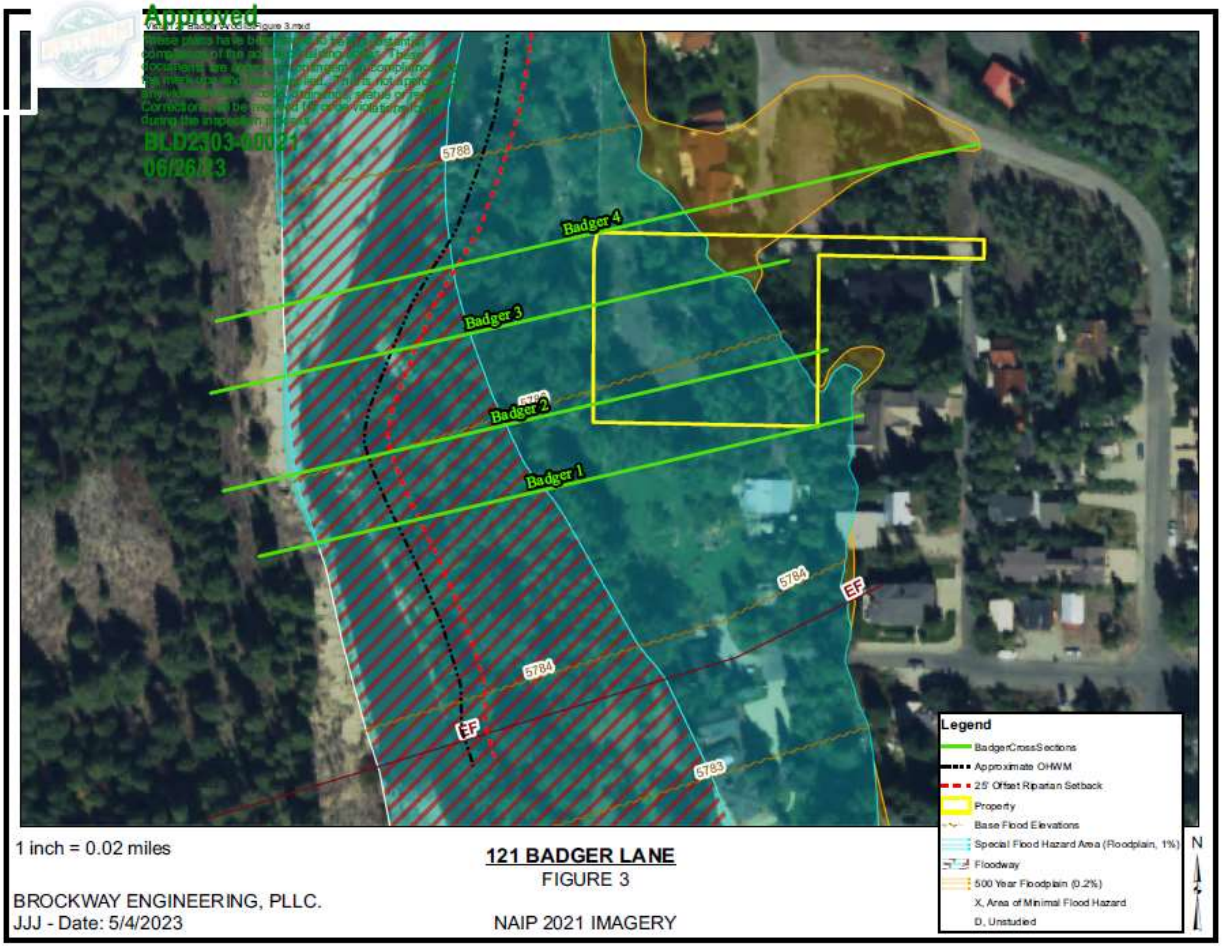


Figure 4. Hydraulic model cross section layout showing model does not capture proposed driveway grading in area of interest. Source: Brockway Engineering, PLLC.

2) Guideline 17.88.050(E)5 of the floodplain development permit requirements states that landscaping and driveway plans should accommodate the function of the floodplain by allowing for sheet flooding. In this context, the term sheet flooding is understood to describe the natural unobstructed flow of unchannelized water across the floodplain. The proposed driveway would disrupt the natural sheet flow of flood waters in the FEMA floodplain because the driveway is elevated from surrounding topography and perpendicular to the flood flow path. The floodplain development permit indicates that originally the driveway was going to be at the existing grade but the elevation was raised as a requirement for emergency vehicles (no more than 1 foot of water depth on the driveway during the 100-year flood). It is our recommendation that alternatives be evaluated for the proposed driveway that do not limit sheet flow on the floodplain. It is our recommendation that the potential change to sheet flow flooding be evaluated with hydraulic modeling. The installation of culverts to manage the drainage in fact channelizes the flow, reducing the floodplain function, and increasing the risk for backwater, increased velocity and increased erosive forces. A two-dimensional (2-D) hydraulic model would be preferred for this analysis.

3) Guideline 17.88.050(E)1b of the floodplain development permit requirements states that a CLOMR-F should be obtained prior to placement of any additional fill in the floodplain. The 2014 LOMA removed portions of the property from the floodplain. Currently, fill in those areas is not

subject to this requirement, and it is not well documented what review or permitting was done for the historic fill placement. The floodplain development permit indicates that there will be an estimated 258 cy of fill on the property in the FEMA floodplain. This fill includes a portion of the proposed residence, which is located in the floodplain, outside the area covered by the 2014 LOMA. The applicant has not completed a CLOMR-F for the fill within the floodplain. It is important to document all fill placed in the floodplain as multiple fill placements can have cumulative effects that adversely impact flooding on adjacent properties. It is our recommendation that the areas of fill on the floodplain be clearly identified on the floodplain development permit and that a CLOMR-F be completed prior to placing any fill material on the FEMA floodplain.

3.0 SUMMARY AND CONCLUSIONS

The technical review of the Badger Residence Project Floodplain Development Permit application materials indicated that proposed site grading and drainage plans do not adhere to the guidelines of the City of Ketchum Floodplain Development Permit and do not align with FEMA NAI policies. The proposed driveway was not demonstrated to maintain flood flow capacity and does not allow for natural sheet flow flooding. The proposed project would place fill in the FEMA floodplain and the potential for adverse impacts has not been thoroughly evaluated. It is our opinion that the current plan has the potential to increase flooding risk on the Osborne property. Hydraulic modeling and design modifications should be completed to demonstrate no adverse impacts on the Osborne property.

REFERENCES CITED

Larson, L., and D. Plasencia. 2001. No Adverse Impact: A New Direction in Floodplain Management Policy.

EXHIBIT 3

Adam Crutcher
City of Ketchum Planning and Building
PO Box 2315
191 W 5th Street
Ketchum, ID
BY E-MAIL

April 12, 2023

Dear Members of the Ketchum Planning & Building Department,

We appreciate the opportunity to comment on the Floodplain Development Application for 121 Badger Lane. We are residents of 105 Wood River Drive North and owners of 103 Wood River Drive North which border 121 Badger Lane to the North. We understand the applicant seeks to build a 9,100+ sq ft house that extends beyond the existing FOMA boundary and an additional 1,200 sq ft ADU. We have only reviewed some of the structural and landscape plans as have been provided to us.

Much of 121 Badger Lane and 105 Wood River Drive North are in the flood zone. Notwithstanding the recent drought, during runoff the Big Wood River regularly exceeds its bank creating sheeting water and channels on both the BLM land and the adjoining properties. River water that flows across our property drains to 121 Badger Lane and from there to downstream properties. In past years this has resulted in flooding of downstream neighborhoods. In addition, together with the BLM land and the Big Wood River, this area is an active zone for wildlife, with large and small mammals, waterfowl and birds relying on the cover and wetlands for habitat.

We considered purchasing 121 Badger Lane from a prior owner but determined that it was not suited for a home given its location in the flood zone, existing wetands and elevations. In fact the previous home on the site was elevated on piers above ground level reflecting the issues posed by flood waters and wetlands. While a LOMA was issued for the site, it remains surrounded by flood zone and wetlands. It currently provides permeable ground and trees and bushes which are important to draining upstream properties and controlling the flow of water to downstream properties.

We are concerned about the proposed construction plans and the proposed landscape plans. Any development will likely have an impact on flow of water above, through and below the site increasing flooding risk in the area. Further expanding the building footprint will likely increase this risk. As well, the landscape plan calls for the addition of extensive hardscape in the floodplain and surrounding existing wetlands, reducing the ability of the site to absorb water, restricting the flow of water across the property and accelerating the flow of water that does cross the property.

When reviewing the proposed plans we would ask you to consider the following at this time:

1. **What would warrant expanding the footprint beyond the LOMA into an existing flood zone?** Ketchum's Code of Ordinances extensively address the risks and costs to the community of development in floodplain, the importance of the Big Wood River and preserving and protecting wildlife. Observed conditions on this site and surrounding areas in the recent past indicate that the risks of extensive development are real and great.

2. **Will the design and scale of the project affect the flow of water for upstream and downstream properties?** We would note that when we rebuilt one of the historic fishing cabins on our property partially within the flood zone we were required to allow for water to pass underneath the cabin, as did the prior home at 121 Badger Lane.
3. **Is the design and amount of hardscape proposed appropriate for the site?** 60% - 70% of the site will be covered by hardscape, including pools, spas, decking, driveways and walkways. In particular, plans include a driveway that runs almost the entire length of the property and surrounds existing wetlands. Even small changes in surface materials and elevation to accommodate a driveway in the flood zone may have a material impact on the flow of water. The proposed drainage for the portion of the driveway not in the flood zone would be on neighbor's properties. Snow storage for a driveway of this length is not addressed but would potentially create further drainage issues. Isn't it more appropriate to have the driveway terminate where existing parking is planned in the ADU, before reaching the flood zone and wetlands and to have significantly less hardscape in the flood zone.
4. **What conditions are required during construction to minimize the impact on neighbors, wetlands and wildlife?** Construction parking and dumpsters are proposed in the flood zone, on top of existing wetlands and directly adjacent to 105 Wood River Drive North. What impact will this have to water flow, wetlands and noise, dust and debris during construction?
5. **What is the potential impact of the proposed development on the extensive wildlife in the area?** Surrounding the wetlands with a driveway will likely affect the wildlife that uses these wetlands. And with the proposed residence directly adjacent to BLM land, what is necessary to protect the habitat for wildlife, given the precedent of downstream neighbors clearing BLM land to enhance their views.

When we built our home at 105 Wood River Drive North, we were careful to keep the building footprint outside of the flood zone, maintaining only historic fishing cabins in the flood zone, to minimize hardscape, to preserve the natural conditions of the property for wildlife and to consult with the previous owners of 121 Badger Lane on our proposed building and landscape plans to minimize its impact on them. The Big Wood River is a precious asset for the people and wildlife of the Wood River Valley which has already been significantly impacted by development along its banks and in its floodplain. We ask the City and its staff to make every effort to protect the River and its adjoining neighborhoods.

We are attaching an additional analysis of the project which raises further questions and issues, provided to us with the request that the providing party not be disclosed at this time. We look forward to further review of the project if it proceeds. Please feel free to contact us if you have any questions regarding our comments.

Sincerely yours,

Nicholas and Stephanie Osborne

FLOODPLAIN

- The plan set did not include any information of the actual Floodplain Analysis. But we have to assume that the engineering consultants have analyzed the cut and fill within the Floodplain, and have provided sufficient documentation/studies that demonstrate there will be no net loss of flood water carrying capacity.
- The proposed design shows 3 culverts that will convey drainage and floodwaters across the property, which roughly follows the existing drainage pattern. And once again, we have to assume that they have been sized correctly to convey floodwaters sufficiently. However, if these culverts become blocked, floodwaters could be forced to backup and affect adjacent properties.

WETLANDS

- The plan set did not include any information of the actual Wetland Analysis. But we have to assume that the consultants have provided a complete study demonstrating no net loss, and adequate restoration.
- The existing wetlands along the west property boundary do not appear to be protected, nor is it clear as to whether that portion of the Wetlands have been included in the overall assessment of no net loss.
- A-100.2 shows portions of the existing wetlands along the west boundary to be within the limit of construction (along with under the dumpster and recycling).
- L3.0 shows lawn over the existing wetlands along the west boundary.
- A sufficient buffer would be appropriate to protect the wetlands from disturbance, grading/fill, manicured lawn (and associated maintenance).
- Given all of the above, it is important to ensure that these wetlands have been adequately analyzed and are part of the overall restoration.

DRIVEWAY

- It is not clear as to how the access driveway will drain, or where it is collected - but it appears it will be draining onto adjacent properties.
- It is also not clear as to how it will be constructed without impacting adjacent properties. The typical section on C-1 shows 4:1 side slopes which would be over the property boundary.

SNOW STORAGE

- I assume that they are proposing to haul snow from the access driveway, but even that will likely impact adjacent properties given the lack of space for equipment to operate effectively.

LANDSCAPING/SCREENING

- There simply is not much room for adequate screening along the north property boundary.
- The proposed plantings along the north boundary, while appreciated for screening, could be potentially problematic in the long term.
- L3.0 shows 7 Subalpine Firs, and 14 Concolor Firs.
- The Subalpine Firs are a naturally narrow-growing conifer which might work in some of the tight spaces as shown.
- However, the Concolor Firs will get much larger and wider – eventually growing well into the adjacent property (as well as into the driveway).
- Consequently, it is likely that over time the proposed trees will go into decline, need to be aggressively pruned, or will be removed due to encroaching into the driveway.

EXHIBIT 4

Nicholas and Stephanie Osborne
105/103 Wood River Drive North
Ketchum, Idaho 83340

July 11, 2023

City of Ketchum Planning and Zoning Commission
191 5th St W
Ketchum, Idaho 83340
BY EMAIL

City of Ketchum Planning and Zoning Commission,

We are writing to Appeal the approval of the development plan for 121 Badger Lane pursuant to Chapter 17.144 of the Ketchum Idaho Code of Ordinances. We believe the process has failed to adequately address issues with respect to the project and its impact on neighbors. On April 12, 2023, we submitted a letter to the Ketchum and Zoning Commission and Staff raising a number of potential issues. While we have been updated periodically by department staff on the status of the review, nothing was done to address the specific concerns and questions we raised. Alternatives, including moving the driveway out of the floodplain, were not considered and adjustments made since that time, including raising the elevation of the driveway, have worsened the issues. At this time we would note the following:

1. A driveway that runs the entire length of the property and through the floodplain and adjacent to our property creates an entirely unnecessary barrier to the flow of water and affects wetlands and water channels that are shared by our property and 121 Badger Lane, and a historic Ketchum fishing cabin on our property. One area of previously identified wetlands on 121 Badger Lane has in fact been removed from the document that show the location of existing and new wetlands. While the development plan may address water and wetlands issues on the site, it does not appear that conditions on neighboring properties have been adequately considered.
2. We understand that the elevation of the driveway was increased to allow required clearance for emergency vehicles because it is in the floodplain. This change raises the barrier for water draining from our property. No consideration appears to have been given to moving the driveway to a location which is less susceptible to flooding and avoids creating an unnecessary barrier in the floodplain or destruction of existing wetlands.
3. While the engineering of the site may allow modeled amounts of water to be conveyed across the site, the amount of water that the site will absorb will be reduced and the speed of the water conveyed will be slowed to the north of the property and accelerated across the property as a result of the construction footprint and hardscape in the floodplain and the channeling of water through culverts.
4. While we understand the flood issues have been considered and engineering solutions proposed, we question the assumptions made about both the conditions that 121 Badger Lane may experience during high water and the impacts of the proposed solutions on neighboring properties. Multiple studies have recently been published indicating that existing government precipitation and flood data has been rendered inaccurate by changing weather and underestimates the potential for flooding, including in Blaine County. Proposed culverts,

culverts create a finite limit on the amount of water that can pass are subject to blockage from debris, snow/ice and wildlife. Snow plowed from the driveway in the floodplain will have no place to go but to areas that are important for drainage.

5. We believe the existing LOMA was inappropriately issued, as a result of significant fill being added to the property, which multiple neighbors can attest to, rather than as a result of natural conditions.

We were surprised by the brevity of the review and the failure to address the specific concerns raised by neighbors given the location of the development in the floodplain and neighbors' familiarity with conditions around the site. We are now consulting with engineers and lawyers to better assess our concerns and potential remedies. We request that the Planning and Zoning Commission also take the time to undertake a more rigorous review of the proposal and potential alternatives that will allow appropriate development with less impact on neighbors. Please let us know how you plan to proceed and what further information we can provide. Adam Crutcher has our contact information.

Sincerely yours,

Nicholas Osborne and Stephanie Osborne

EXHIBIT 5

17.88.010 - Statutory authorization and findings of fact.

Therefore, the Council of the City of Ketchum Idaho does hereby ordain as follows:

1. The flood hazard areas of Ketchum, Idaho, are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

2. These flood losses are caused by the cumulative effects of obstruction in areas of special flood hazard which increase flood heights and velocities and by development that is inadequately floodproofed, elevated, anchored, or otherwise protected from flood damage.

3. The Big Wood River, its tributaries, and their associated floodplains in Ketchum are important to the well-being of our citizens as they provide recreation, fish and wildlife habitat, aesthetic beauty, a source of irrigation water, as well as other economic and lifestyle values.

17.88.020 - Statement of purpose.

It is the purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

H. To ensure that those who occupy the areas of special flood hazard assume the responsibility for their actions.

J. To allow the river and creeks and their adjacent lands to convey floodwaters to minimize property damage;

N. To restrict or prohibit uses which are injurious to health, safety, or property in times of flood, which result in environmental damage, or that cause increased flood heights or velocities; and

17.88.030 - Methods of reducing flood losses.

In order to accomplish its purposes, this chapter includes methods and provisions for:

A. Restricting or prohibiting development which is dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion, flood heights, or velocities;

C. Preserving and restoring natural floodplains, stream channels, and natural protective barriers that carry and store flood waters;

D. Controlling, filling, grading, dredging, and other development which may increase flood damage or erosion; and

E.Preventing or regulating the construction of flood barriers which may unnaturally divert floodwaters, or which may increase flood hazards to any other properties.

17.88.040 - General provisions.

1. Flooding is aggravated by the collection of debris upstream of channel obstructions located in floodplain areas. Such obstructions include, but are not limited to, bridges, fences, houses, and trees. The accumulation of debris can result in significantly higher water surface elevations and flooding beyond limits of the SFHA shown on the FIRMs upstream from the obstructions.

2. Structures located in proximity to waterways, even if the structure's location is outside the boundaries of the SFHA, may be subject to inundation and damages during flood events due to the potential of the channel to change direction abruptly during high flows. In particular, this risk affects lands adjacent to the Big Wood River, which is wide and flat with a relatively shallow channel in many areas.

4. Encroachments (i.e., houses, fill, etc.) on floodplains reduce the flood carrying capacity of the river and its floodplain and increase flood heights, thus increasing flood hazards on land beyond the encroachment. With every new development since the FEMA one percent annual chance boundary was determined, the ability of the floodplain to function as originally assumed changes.

17.88.050 - Administration.

E. *Criteria for evaluation of applications.* The criteria of floodplain development permit applications and riparian alteration permits shall be as follows:

1. The proposal preserves or restores the inherent natural characteristics of the river, floodplain, and riparian zone, including riparian vegetation and wildlife habitat. Development does not alter river channel unless all stream alteration criteria for evaluation are also met.

5. Landscaping and driveway plans to accommodate the function of the floodplain allow for sheet flooding. Surface drainage is controlled and shall not adversely impact adjacent properties including driveways drained away from paved roadways. Culvert(s) under driveways may be required. Landscaping berms shall be designed to not dam or otherwise obstruct floodwaters or divert same onto roads or other public pathways.

6. Floodwater carrying capacity is not diminished by the proposal.

12. Driveways shall comply with City of Ketchum street standards; access for emergency vehicles has been adequately provided for by limiting flood depths in all roadways to one foot or less during the one percent annual chance event.

21. (Wetlands) Where development is proposed that impacts any wetland the first priority shall be to move development from the wetland area. Mitigation strategies shall be proposed at time of application that replace the impacted wetland area with an equal amount and quality of new wetland area or riparian habitat improvement.

I. *Floodplain development variance procedure.*

2. *Considerations.* In passing upon such applications, the Commission shall consider all technical evaluations, and all relevant factors and standards specified in other sections herein and:

a. The danger that materials may be swept onto other lands to the injury of others;

b. The danger to life and property due to flooding or erosion damage;

f. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;

City of Ketchum

ATTACHMENT E:

Applicant Response to Appeal Brief

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November 28, 2023

Via e-mail to: Gary Slette (gslette@rsidaholaw.com)
Matthew A. Johnson (mjohnson@WHITEPETERSON.com)

Ketchum Planning and Zoning Commission
P.O. Box 2315
191 5th St., West
Ketchum, ID 83340

RE: 121 Badger Appeal – Respondent's Brief In Opposition to Appeal

Dear Planning and Zoning Commissioners:

This firm represents 121 Badger Lane, LLC (**"Applicant**"), the Applicant for a Floodplain Development Permit for 121 Badger Lane in Ketchum that was approved by the Ketchum Administrator on June 16, 2023 ("**Decision**"). We provide this responsive briefing to the letter attached to the Notice of Appeal submitted on July 11, 2023 ("**Notice of Appeal**") by Nick and Stephanie Osborne (**"Appellant"**), as well as the appeal brief from Appellant's attorney Gary Slette dated October 6, 2023 ("**Appeal Brief**"), which included a memorandum from Biota Engineering dated August 22, 2023 ("**Biota Memo**") and a letter from the Appellant dated October 4, 2023 ("**October Letter**").

The appeal should be denied for a number of reasons. First, the Notice of Appeal was not timely. Second, both the Notice of Appeal and the Biota Memo attempt to introduce new evidence into the record for consideration, which is not permitted under Ketchum City Code §17.144.010(C). Third, Appellant's Notice of Appeal has not claimed any particular error or abuse of discretion in the Decision as required by the Ketchum City Code. Fourth, the Decision was properly made in accordance with the Administrator's authority, applicable standards in City Code, and evidence in the record, and Appellant has not demonstrated any error with that Decision. For these reasons, the appeal is without merit and should be dismissed.

I. Overview of Application and Decision.

Applicant submitted the application for a Floodplain Development Permit ("**Application**") in order to build a new home at 121 Badger Lane in Ketchum. There previously was a home on the parcel, but it was demolished sometime around 2015. Portions of 121 Badger Lane were excluded from the floodplain with a Letter of Map Amendment ("**LOMA**") approved by the Federal Emergency Management Agency ("**FEMA**") on May 14, 2014, and the majority of the new proposed residence at 121 Badger Lane is outside of the floodplain. Because portions of the proposed residence extend into the floodplain, and because the driveway crosses a portion of the floodplain, a Floodplain Development Permit is required under City Code.

Applicant submitted the Application on February 27, 2023. The Application included hundreds of pages of engineering drawings, flood maps, the LOMA approval from FEMA, the required state and federal permits and certifications from the U.S. Army Corps of Engineers, FEMA, and the Idaho Department of Environmental Quality, together with a detailed narrative—all that was required by the Floodplain Development Permit checklist[1] and City Code for the Administrator to evaluate the Application.[2] The Application was prepared by prominent local consultants including civil engineer Galena Benchmark, hydrology firm Brockway Engineering, and wetlands consultant Sawtooth Environmental Consulting. The Administrator reviewed the Application for compliance with City Code and also submitted the Application materials to the Ketchum Fire Department, the Ketchum city engineer, and a third-party engineer, Harmony Design and Engineering ("**Harmony**"), for their expert review and input. After review, Harmony submitted comments to Applicant on April 5, 2023, and Applicant submitted revisions to the City on May 4, 2023.

In accordance with City Code, the Application was noticed to surrounding property owners.[3] Appellant provided comments in a letter dated April 12, 2023. After consideration of all of the information provided, the Administrator approved the Application in the written Decision dated June 16, 2023, which specifically identified how the Application satisfied each of the applicable City Code criteria for approval.[4&5]

II. The Appeal Should Be Dismissed Because it is Not Timely.

The appeal is not timely based on the requirements of City Code and therefore must be dismissed. Ketchum City Code identifies the process for appeal and plainly requires appeals to be filed within 15 calendar days:

> Time for filing appeals. All appeals permitted or authorized by this title shall be taken and made in the manner and within the time limits as follows: The written notice of appeal shall be filed before 5:00 p.m. of the *fifteenth calendar day after the order, requirement, decision or determination of the administrator has been made* or after findings of fact have been approved by the Commission, whichever

[1] Available online at https://www.ketchumidaho.org/planning-building/page/floodplain-development-permit (accessed November 15, 2023).
[2] City Code § 17.88.050(C).
[3] Code § 17.88.050(D)(1).
[4] Code §§ 17.88.050(E) and 17.88.060(A), and 17.88.060(B).
[5] Decision, pp. 2-8.

> is applicable. The failure to physically file a notice of appeal with the administrator of the City within the time limits prescribed by this section *shall be jurisdictional and shall cause automatic dismissal of such appeal*.[6]

The written Decision is dated June 16, 2023. The deadline for filing an appeal was July 3, 2023.[7] The initial Notice of Appeal was not filed until July 11, 2023, well past the explicit 15-day deadline of July 3 under Ketchum City Code § 17.144.030. Applicant objected to the late appeal and requested the appeal be dismissed in a letter dated August 23, 2023. City Attorney Matthew Johnson responded in an email also dated August 23, 2023: "The City evaluates floodplain development permits concurrently with building permits. While comments and review may be happening separately for each, such that one may seem resolved prior to another, the practice is that they are finally/formally approved at the same time."[8]

This explanation contradicts the plain language in the City Code and ignores the undisputed facts that: the Decision on the Application was made on June 16, 2023; the Applicant signed and dated the required acceptance clause in the Decision on June 20, 2023; and, only after the Appeal was filed, the City changed the date on the Decision by handwritten notation to June 26, 2023. City Code clearly indicates that there is a 15-day timeline "after the order, requirement, decision or determination of the administrator has been made." This starts the clock for those who wish to appeal and provides a date upon which applicants may rely in order to begin expending money and time initiating construction. As Mr. Johnson acknowledges in his correspondence, floodplain development permits and building permits are *separate* applications. It is the Decision for the Floodplain Development Permit, not the building permit, that was appealed. That Decision is dated June 16, 2023. Because the Appeal was plainly submitted after the 15-day deadline, it must be dismissed.

III. Appeal Improperly Introduces New Facts and Evidence.

The Appeal improperly introduces new facts and evidence contrary to City Code requirements. The Commission may not consider new facts or evidence and instead may only consider the existing record, the Decision, and legal arguments by the parties.

> Upon hearing the appeal, the Commission shall consider the record, the order, requirement, decision or determination of the administrator and the notice of appeal, together with oral presentation and written legal arguments by the appellant and the administrator. *The Commission shall not consider any new facts or evidence at this point.*[9]

The Notice of Appeal does not make any legal arguments, and as noted does not specifically claim any error or abuse of discretion as required. Instead Appellant attempts to introduce new evidence, which is not allowed under City Code. Specifically, Appellant claims (1)

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[6] City Code § 17.144.030 (emphasis added).
[7] Note that 15 days after June 16 is July 1. July 1 was a Saturday, and Ketchum City Code requires that the deadline for appeal be extended to the following business day, bringing the deadline to July 3.
[8] Email from Matthew A. Johnson to Franklin G. Lee and Gary Slette, dated Wednesday, August 23, 2023 at 4:46pm.
[9] City Code § 17.144.010(C) (emphasis added).

"the amount of water the site will absorb will be reduced and the speed of the water conveyed will be slowed … as the result of the construction footprint and hardscape in the floodplain and the channeling of water through culverts…", (2) that "existing government precipitation and flood data has been rendered inaccurate by changing weather and underestimates the potential for flooding, including in Blaine County," and (3) that "the existing LOMA was inappropriately issued, as a result of significant fill being added to the property, which multiple neighbors can attest to, rather than a result of natural conditions."[10] The Commission may not accept or consider these new facts or evidence and may only consider legal arguments based on the existing record.

The Appeal Brief and accompanying Biota Memo and October Letter similarly attempt to introduce new facts and evidence. The Appeal Brief admits that the arguments are largely factual: "From a practical perspective, my client's written comments succinctly set forth relevant facts and their concerns as to events they have observed over the years regarding flooding on the Big Wood River, and the resultant impact on property in the floodplain in their neighborhood."[11] The Appeal Brief also says that the Biota Memo "identifies several issues that deserve thoughtful consideration by the Commission insofar as this appeal is concerned."[12] The thoughtful consideration Appellant seeks was undertaken by the Administrator and the Administrator's third-party consultants in reviewing the Application materials. After the fact, the Commission cannot consider new evidence introduced by Appellant.

The Biota Memo makes one primary factual argument: that FEMA is in the process of developing new flood map drafts to update those 2010 FIRM panel maps identified in City Code as pertinent to floodplain development applications. However, these maps are not final, and include erroneous hydrology information, so are not appropriate to use in evaluating the application. Furthermore, City Code dictates which FEMA FIRM maps should be used in evaluating the Application, and the Administrator does not have the authority to substitute his own judgment for the language of City Code. Consequently, this factual argument fails. The Biota Memo's other arguments are merely recommendations that additional facts and information be considered, and so they are addressed in Section IV below.

In addition to repeating prior arguments, the October Letter also attempts to introduce new anecdotal evidence. The Letter states: "A portion of 105 Wood River Drive North sits within the same floodplain as 121 Badger Lane. There are two clear natural channels in the southwest portion of 105 Wood River Drive North which drain directly into 121 Badger Lane. During runoff in 2017 there was sheeting water in these channels. . . ."[13] This is new factual information not introduced in the Appellant's original comment letter, and therefore cannot be considered by the Commission.

IV. The Appeal Must Be Dismissed Because It Does Not Meet Appeal Criteria.

The Appeal does not meet the appeal criteria in City Code and therefore must be dismissed. Ketchum City Code § 17.144.050 requires that the Appellant identify specific error or abuse of discretion in the Notice of Appeal:

[10] Notice of Appeal letter, pp. 1-2.
[11] Appeal Brief, p. 1.
[12] *Id.* at p. 2.
[13] October Letter, Exhibit 1 to Appeal Brief, p. 2.

> The notice of appeal shall be in writing and in such form as shall be available from the office of the administrator, which *shall require to be set forth with specificity all bases for appeal, including the particulars regarding any claimed error or abuse of discretion.*[14]

Here, Appellant has not alleged, with specificity or otherwise, any error or abuse of discretion. They instead suggest that other facts should have been considered, that the Administrator failed to adequately consider the available information, or that other standards should have been used in evaluating the Application. These are insufficient grounds for overturning the Decision under City Code. Absent any particular error or abuse of discretion, the Commission does not have a basis for overturning the Decision. Instead, the Appeal is simply asking the Commission to review the Application as if it were submitted for the first time, ignoring the expertise and authority of the Administrator, Harmony, and the reviewing agencies. The Appeal should be dismissed for failing to fulfill its basic obligation to identify errors the Commission should evaluate in an appeal.

The Notice of Appeal argues in its first two numbered paragraphs that the effects of the proposed development on neighboring properties have not been adequately considered and that the Administrator should have considered alternate locations for the driveway that would make it less susceptible to flooding. These arguments do not indicate any error or abuse of discretion by the Administrator in evaluating the Application and therefore cannot be considered by the Commission.

The Biota Memo similarly complains in its early paragraphs that a different standard should be applied to evaluation of the Application. "Floodplain development permits are typically evaluated based on a no-rise certification or a No Adverse Impacts (NAI) statement. . . . The NAI approach was developed as a 'good neighbor' approach to assess how existing floodplain properties are being affected by the land use decision others [sic]."[15] City Code's criteria for evaluation of floodplain applications do include impact evaluation in numerous places: in 17.88.050(E)(5) which requires "Surface drainage is controlled and shall not adversely impact adjacent properties…"; in 17.88.050(E)(7) which requires that "Impacts . . on aquatic life, recreation, or water quality upstream, downstream, or across the stream are not negative;" and in 17.88.050(E)(21) which requires that any impacted wetland be replaced. City Code also includes an entire "Provisions for flood hazard reduction" section against which any application is assessed. City Code requires that a No Adverse Impacts statement be used in the situation of stream alteration in the floodway, which is not occurring in this Application. Biota's attempt to place new requirements or code interpretations on this Application is not an allegation of error or abuse of discretion and therefore cannot be considered by the Commission.

Next, Biota recommends that "more detailed hydraulic modeling with properly placed and orientated sections be conducted to evaluate the impact of the proposed project grading, including the driveway, on the BFE on the Osborne property." This is not an allegation of error or an abuse of discretion but a suggestion that additional considerations beyond those requirements of City Code be added to the application process. Based on the City's standards for appeals, the

[14] City Code § 17.144.050 (emphasis added).
[15] Biota Memo, p. 2.

Commission is not authorized to consider new facts or new review standards but instead may only evaluate particular allegations of error or abuse of discretion by the Administrator.

Next the Biota Memo recommends that "alternatives be evaluated for the proposed driveway," that "the potential change to sheet flow flooding be evaluated with hydraulic modeling," and that "a two-dimensional (2-D) hydraulic model would be preferred for this analysis."[16] This is not required by City Code, and was not required by the Administrator or the City's contractor of the Applicant, nor does it indicate any error or abuse of discretion.

Finally, the Biota Memo recommends that "areas of fill on the floodplain be clearly identified on the floodplain development permit and that a CLOMR-F be completed prior to placing any fill material on the FEMA floodplain."[17] City Code clearly states that backfill can be placed around the foundation within the floodplain to create a reasonable transition to the existing grade. All proposed fill with the Application is associated with the proposed structure or access to the structure. Further, all fill proposed on the project is fully mitigated with compensatory storage as required by City Code; a CLOMR-F is required only if additional fill is proposed. Biota's suggestion is contrary to City Code and, again, identifies no error or abuse of discretion, and therefore may not be considered by the Commission.

In the event that the Commission desires to hear new evidence at the December 12 hearing, the Applicant is prepared to provide technical rebuttal to all of the points in Biota's memo, as well as evidence that even during last year's unprecedented heavy flooding, the 121 Badger property remained dry.

V. The Decision Meets City Code Requirements.

The Decision lists each of the applicable criteria for approval of a Floodplain Development Permit under City Code and comments how the Application meets the criteria. There is no error in the Decision, and each necessary criteria is addressed and analyzed as required by City Code.

The Decision identifies 21 evaluation standards under City Code § 17.88.050(E) and 15 standards under City Code § 17.88.060. Under § 17.88.050(E)(1), the proposal was found to have preserved the inherent natural characteristics of the floodplain "by having more cut than fill. Plantings on the property are native with those in delineated wetlands being appropriate species."[18] The proposal does not include property in the 25-foot riparian zone, so §§ 17.88.050(E)(2) through (4) are not applicable.[19] The Administrator added that even though criteria 4 was not applicable, "still the project does contain wetlands and proposes species associated with riparian habitat."[20] The Administrator found that § 17.88.050(E)(5) was met because "driveway is slightly raised to ensure no more than 1-ft of sheet flooding occurs (emergency vehicle requirement). Culverts underneath driveway will allow conveyance of floodwater. No landscape berms are proposed."[21] The Administrator concluded Section 17.88.050(E)(6)'s requirement, that "flood water carrying capacity is not diminished by the proposal," is met because "the proposed development has more

[16] Biota Memo, p. 5.
[17] Biota Memo, p. 6.
[18] Decision, p. 2.
[19] *Id.* at pp. 2-3.
[20] *Id.* at p. 3.
[21] Decision, p. 3.

excavation (274 cubic yards) than fill (258 cubic yards)."[22] The Administrator also found that § 17.88.050(E)(7)'s requirement that "impacts of the development on aquatic life, recreation, or water quality upstream, downstream or across the stream are not adverse," is met because "The subject property is not adjacent to the Big Wood River. The wetland plantings will be beneficial to water quality and aquatic life. No work is proposed within the floodway or stream. No downstream impacts or across stream impacts will be associated with the approved landscape plan (L3.0)."[23]

The Administrator concluded Section §17.88.050(E)(8) is not applicable to the Application because the project does not contain the 25-foot riparian zone.[24] Section 17.88.050(E)(9)'s requirement that the project be above Base Flood Elevation is met because "The top of the lowest floor (finished floor) will be elevated 24" above the Base Flood Elevation of 5786.5. As the proposed elevation is located within the AE zone the top of the lowest floor is required to be 24" above the [Base Flood Elevation]."[25] The Application meets § 17.88.050(E)(10) because "An estimated 258 cubic yards of fill will be placed within the SFHA. The excavation on the site is proposed to be 274 cubic yards, resulting in 16 cubic yards of excess excavation. Fill and excavation on the site transitions to existing grade within the property boundaries."[26] The Administrator determined that § 17.88.050(E)(11) is fulfilled by the Application's designation of a licensed engineer to design the new building foundations in the SFHA.[27] Section 17.88.050(E)(12) is met because "Driveway complies with City of Ketchum street standards. The Fire & Streets Departments have both approved the proposed driveway design."[28]

The Administrator determined the Application meets § 17.88.050(E)(13) because "Landscaping is proposed on all areas of the property including driveways and other elements of the development. The landscaping will conceal any cuts and fill which are required."[29] The Administrator determined Criteria in § 17.88.050(E)(14) through 17.88.050(E)(20) are not applicable because no stream alteration is proposed by the Application.[30] The Administrator determined the Application complies with § 17.88.050(E)(21) by adding more wetlands than the Application proposes to remove in order to mitigate the impacts on the wetlands, and by planting native wetland tree species.[31]

The Application also meets the 15 criteria under § 17.88.060 of City Code. The Administrator found that § 17.88.060(A)(1)'s standards are met: "The proposed development is a single-family home that will be constructed on site and attached to a foundation designed by a professional engineer. Sheet S-111A indicates the foundation has been designed to meet standards of this section. The new construction will be anchored to prevent flotation, collapse, or lateral movements."[32] Section 17.88.060(A)(2)'s materials standards are met by the proposed use of flood resistant materials in new construction that meets Ketchum building standards and by the

[22] *Id*.
[23] *Id*.
[24] *Id*.
[25] *Id*. at 4.
[26] *Id*.
[27] *Id*.
[28] *Id*.
[29] *Id*.
[30] *Id*. at 4-5.
[31] *Id*. at 5.
[32] *Id*. at 6.

proposal's placement of utilities outside of flood risk.[33] Section 17.88.060(A)(3) is met because "Water and sewer services into the residence will be located underground and built to required plumbing codes."[34] Section 17.88.060(B)(1) is not applicable because the Application is not in the AO zone.[35] The Administrator found that § 17.88.060(B)(2)(a) is met because "the top of the lowest floor (finished floor) will be elevated 24" above the Base Flood Elevation of 5786.5'. As the proposed elevation is located within the AE zone the top of the lowest floor is required to be 24" above the BFE. Sheets A-400, A-401, & A-402 show lowest floor elevated above BFE by 24"."[36] Section 17.88.060(B)(2)(b) is not applicable because the Application is for the AE, not AO zone.[37] The Administrator found that § 17.88.060(B)(2)(c) is met by the Application's design: "The residence will have one fully enclosed area not raised to the flood protection elevation: the garage. The garage has been designed to [include to] automatically equalize hydrostatic flood forces on exterior walls through the installation of flood openings (Smart Vents have been specified for this project). The appropriate number of vents to cover the square footage [of] the enclosed area are proposed –6 openings for the garage."[38]

Section 17.88.060(B)(2)(c)(1) is met because "Flood openings are placed on at least two walls. Engineered Smart Vents are proposed. One Smart Vent is sized for 200 square feet of floor area. The garage is 1170 sq ft and 6 Smart Vents are proposed. See sheet A-110."[39] The requirement of § 17.88.060(B)(2)(c)(2) is met because "Spec sheets for proposed flood vents indicate this requirement will be met. Bottom of proposed flood vents will be a maximum of one foot (1') above finished grade."[40] Section 17.88.060(B)(2)(c)(3)'s requirement of engineered flood vents is met with Engineered Smart Vents provided by the Application.[41] Section 17.88.060(B)(2)(c)(4)'s requirement is identified as previously having been met by § 17.88.060(A)(2).[42] And finally, §§ 17.88.060(B)(2)(c)(5) through (c)(8) are not applicable since the Application contained no crawlspace.[43]

In all, the Decision meticulously identified and analyzed each required criteria under Ketchum City Code for approval of a Floodplain Development Permit and provided a response for each as to how the Application meets the requirements. No error is alleged, and no error was made. The Decision meets the requirements of City Code.

VI. Conclusion

In closing, the Appeal is untimely, Appellant improperly introduces new evidence, the Notice of Appeal fails to specifically claim error or abuse of discretion, and no error was made in the Decision. For all of the reasons stated above, the Appeal must be dismissed and the Decision upheld. This untimely and frivolous appeal has cost a Ketchum resident thousands of dollars in

[33] *Id.*
[34] *Id.*
[35] *Id.* at 7.
[36] *Id.*
[37] *Id.*
[38] *Id.*
[39] *Id.*
[40] *Id.* at 8.
[41] *Id.*
[42] *Id.*
[43] *Id.*

legal and engineering fees and has resulted in the unnecessary delay of the Project by a year. We look forward to closing the book on this process at the December 12 hearing.

Thank you for your time and consideration.

Sincerely,

Danielle M. Strollo

City of Ketchum

ATTACHMENT F:

Appellant Response Brief

Robertson & Slette, p.l.l.c.

J. EVAN ROBERTSON
GARY D. SLETTE

Cassie Chapman – Paralegal
cchapman@rsidaholaw.com

ATTORNEYS AT LAW

134 Third Avenue East
P.O. BOX 1906
TWIN FALLS, IDAHO 83303-1906
TELEPHONE (208) 933-0700
FAX (208) 933-0701

GARY D. SLETTE
gslette@rsidaholaw.com

December 5, 2023

VIA EMAIL: mlanders@ketchumidaho.org
acrutcher@ketchumidaho.org

City of Ketchum Planning and Zoning Commission
P.O. Box 2315
191 5th St. West
Ketchum, Idaho 83340

RE: 121 BADGER APPEAL / APPELLANTS' REPLY BRIEF

Dear Planning and Zoning Commissioners,

Our law firm represents Nicholas and Stephanie Osborne, the Appellants in this case. On October 6, 2023, I submitted their Brief on Appeal. Consistent with the Scheduling Order provided by your city attorney, I am providing this Reply Brief and will attempt to address each of the issues in the Brief prepared by Mrs. Strollo on behalf of the Applicant.

I. OVERVIEW OF APPLICATION AND DECISION

As correctly stated by the Applicant, notice was sent to surrounding property owners which indicated that a 9170 square foot single family residence would be constructed on the property. However, the Presidio Vista Properties website operated by the Applicant indicates that the home is a 6500 square foot "traditional Idaho fishing lodge". It appears there is an inaccuracy in the legal notice in that regard. More importantly, it appears that material revisions were made to the application on or about May 4, 2023, which included the addition of fill to increase the elevation of the driveway to accommodate emergency equipment in flood conditions. In effect, these changes served to create a levee that would only have increased and exacerbated the risks identified by the Osbornes in their letter in response to the City's original legal Notice. The Osbornes were not consulted or made aware of those material changes prior to approval, and were not afforded any opportunity for further comment regarding such changes.

That fact alone implicates due process and justifies a reversal of the decision to approve the floodplain permit. The proposed site plan now includes the construction of a levee in the form of a driveway that is more than 300 feet in length and which is to be established through the placement of as much as 2-3 feet of fill across the floodplain. The driveway/levee is located parallel and adjacent to the upstream parcel boundary, and is perpendicular to the direction of primary floodplain flows. The "proposed condition" hydraulic modelling does not reflect the influence of the levee feature by not appropriately aligning and locating model sections to capture the alignment and height of the levee. In addition, the assumption that a 24-inch culvert through the levee with an inlet near the property line and neighboring structures will not result in adverse flood conditions on the Osborne parcel is not confirmed by the results of the "proposed condition" hydraulic modelling.

II. THE APPEAL SHOULD BE DISMISSED BECAUSE IT IS NOT TIMELY

Exhibits "A" and "B" attached hereto are emails from Adam Crutcher in which he twice explained to the Osbornes that the time for submitting an appeal of the Floodplain Development Permit was July 11, 2023. Exhibit "C" attached hereto is an email from Matthew Johnson, the Ketchum city attorney, who confirmed the propriety of Mr. Crutcher's emails because both the Floodplain Development Permit and the Building Permit are evaluated and approved concurrently. In other words, you can't have one without the other. According to Mr. Johnson, "this could be considered the final administrative determination date for purposes of calculating administrative appeal deadlines." The courts in Idaho have long been deferential to municipalities and counties in interpreting and applying their own ordinances, and the applicant's arguments in this regard are without merit. It is obvious that the Osbornes clearly relied on the city's interpretation of its own Code when they paid the appeal fee of $2175 and timely submitted their appeal.

III. APPEAL IMPROPERLY INTRODUCES NEW FACTS AND EVIDENCE.

In their April 12 letter, the Osbornes clearly identified the potential flood and drainage issues presented by the project. With regard to the numbered criteria in the Applicant's second paragraph of their Respondent's brief, it does not appear that items (1) and (2) were appropriately considered or addressed by the City. With regard to paragraph (4) of that section, the applicant contends that Biota made only one primary factual argument in its Technical Memorandum, but a thorough review of that Memo discloses a host of factual statements made by Biota. Most striking is Biota's analysis of the Applicant's proposed site plan with the location of the hydraulic model cross sections overlayed. (Exhibit "D" attached hereto. A second page is being added to this exhibit to clearly show the location of the driveway and the culvert.) This exhibit from the Applicant's materials clearly demonstrates that the cross sections do not capture the

proposed conditions associated with the driveway fill which has always been the Osbornes' primary concern. The Osbornes are critical of the floodplain analysis because they contend that it was an error for the City not to require an analysis of the entire floodplain area where fill is proposed to be located. As stated above, the additional fill on the driveway will act as a levee during a flood event, the net effect of which would be to potentially create an impoundment on the Osborne property. The mere fact that the overall amount of fill (258 cubic yards) is less than the amount of excavation (274 cubic yards) seems to be a whimsical criterion for approval of the permit. If some of the 258 cubic yards of fill material was removed from an area outside the floodplain and placed on the driveway in the floodplain, it is apparent that the very purpose of the floodplain regulations would be thwarted. The best analogy to be considered by the City in this instance is a property that is situated in the Mountain Overlay District or the Avalanche Zone. If the technical information that was submitted by an applicant for a permit included only the flat area below a slope, but did not include the slope analysis that actually created the hazard zone, the review would be without sufficient information to process the application. In this case, it is apparent that the lack of hydraulic evaluation of the driveway area where the additional fill is to be deposited presents such a situation.

IV. THE APPEAL MUST BE DISMISSED BECAUSE IT DOES NOT MEET APPEAL CRITERIA.

Fundamentally, the Osbornes have claimed that by not considering all of the conditions and impacts of the Application, there was an error in the approval of the Application. Specificity was certainly raised in their letter of April 12, and as set forth above, error has been identified in the extent of the hydrologic analysis that was conducted by the Applicant. These are not "new facts" as contended by the Applicant, but rather, the Technical Memo prepared by Biota is an analysis of the information that was presented to the City by the Applicant. These are existing facts and conditions that the Osbornes certainly expected would be considered and addressed by the City. Again, the mere fact that the amount of excavation exceeds the amount of fill is akin to an "apples and oranges" argument. If you excavate fill in an area out of the floodplain and move it into an area where an actual floodplain already exists, it would only create an increased impediment to the free passage of floodwaters. The last major flood in 2017 clearly established there was significant flooding on both the Applicant's and the Osbornes' property, an event that is certain to occur in the future. To think that a couple of small culverts in the levee will never become plugged or obstructed, and that floodwaters will freely pass through a pipe forever without backing up, is an unlikely event. The Big Wood River is aptly named because it does carry a significant debris load during flood events such as that which occurred in 2017.

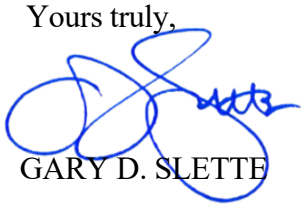
V. THE DECISION MEETS CITY CODE REQUIREMENTS.

The Osbornes have contended from the start that the City was not provided adequate hydraulic information to fully evaluate the conditions that existed, or the impacts that the proposed construction would create. Adding fill to further enhance the height of the driveway to effectively create a levee in the floodplain is clearly inconsistent with the City's floodplain goals and objectives.

VI. CONCLUSION.

Following the express directives of Adam Crutcher and the interpretation provided by Matthew Johnson, it is facially apparent that the Osbornes' Appeal was timely filed. Biota has analyzed the evidence submitted by the Applicant in this case and is therefore not submitting "new" evidence, but rather, is attempting to show the Commission where the shortcomings of the approval analysis occurred. Without being provided the hydraulic modeling cross-sections associated with the additional driveway fill, it is abundantly clear that the Applicant's submission was lacking in order to afford a meaningful opportunity to review. Additionally, the Osbornes and their neighbors should all have been provided a second notice when those material revisions were made to the Application in May. That is clearly a due process issue. Not unlike the Applicant, the Osbornes also feel that they have been required to expend thousands of dollars in legal fees, engineering fees and the payment of a $2175 appeal fee in order to protect their legitimate property interests. Because the Applicant's existing evidence was used by Biota for its review and analysis, it is apparent that no "new" evidence has been submitted, but rather, that analysis shows a lack of necessary hydraulic model cross-sections associated with the extent of the new driveway fill. The decision of the Administrator should be reversed with the directive to the Applicant to provide additional hydraulic model cross-sections in order to analyze the floodplain impacts of the driveway fill area.

Yours truly,



GARY D. SLETTE

cc: Clients
Mattew Johnson
Danielle Strollo

From: Adam Crutcher <ACrutcher@ketchumidaho.org>
Date: July 1, 2023 at 6:34:10 AM PDT
Subject: Re: 121 Badger Lane

Hi Nick,

Here is what I've found for the appeal process. All of our steps for appeal are located in KMC 17.144. The first section, "Appeals of Planning and Zoning Administrator Decisions" is what would apply here. Scrolling down to section 17.144.030 shows you the timing to file an appeal is 15 calendar days after the decision has been made. The building permit was approved on June 26th and so 15 days from that date would be July 11th.

Hope that helps outline the procedure for appeals if you choose to go that route but let me know if you have any questions.

Thanks

From: Nicholas Osborne <NOsborne@msn.com>
Sent: Tuesday, June 27, 2023 7:01 PM
To: Adam Crutcher <ACrutcher@ketchumidaho.org>
Cc: Stephanie Osborne <stephanieosborne6@gmail.com>
Subject: Re: 121 Badger Lane

Thank you Adam, I appreciate it.

Nick

Sent from my iPad

EXHIBIT
A

From: **Adam Crutcher** <ACrutcher@ketchumidaho.org>
Date: Tue, Jul 11, 2023 at 12:39 PM
Subject: RE: 121 Badger Lane - Appeal to the Ketchum Planning and Zoning Commission
To: Osborne, Nicholas <Nicholas.Osborne@psc.com>
CC: Stephanie Osborne <stephanieosborne6@gmail.com>, Nicholas Osborne <NOsborne@msn.com>

Hi Nick,

Thank you for sending that over. I've attached the appeal application so you can fill that out and send it over to planningandzoning@ketchumidaho.org then we can start to process the appeal application. This application will need to be submitted today for the appeal request to be valid. Our planning technician will then invoice for the application fee and get the ball rolling.

The application that is being appealed is P23-014 and the date of decision or date findings of fact were adopted is June 26, 2023. What you can do for the sections titled "Explain How You Are and Affected Party & This Appeal is Based on The Following Factors" by referencing the narrative which you attached.

Thanks

ADAM CRUTCHER | CITY OF KETCHUM

PLANNING AND BUILDING | ASSOCIATE PLANNER

P.O. Box 2315 | 191 W 5th St | Ketchum, ID 83340

o: 208.806.7008 |

acrutcher@ketchumidaho.org | www.ketchumidaho.org

****Please sign up for the NEW Planning and Building quarterly newsletter. Click HERE and select "Planning and Development"**

From: Osborne, Nicholas <Nicholas.Osborne@psc.com>
Sent: Tuesday, July 11, 2023 11:44 AM
To: Adam Crutcher <ACrutcher@ketchumidaho.org>
Cc: Stephanie Osborne <stephanieosborne6@gmail.com>; Nicholas Osborne <NOsborne@msn.com>
Subject: 121 Badger Lane - Appeal to the Ketchum Planning and Zoning Commission

Adam,

Attached a letter of Appeal to the Ketchum Planning and Zoning Commission with respect to 121 Badger Lane. Will you please forward this to the members of the Commission and others as necessary. Please let us know if there are any questions or follow-up required.

Best,

Nick Osborne

EXHIBIT
B

From: Matthew A. Johnson <mjohnson@WHITEPETERSON.com>
Sent: Wednesday, August 23, 2023 4:46 PM
To: Franklin G Lee <FrankLee@givenspursley.com>; Gary Slette <gslette@rsidaholaw.com>
Subject: 121 Badger - dismissal request (informal)

Franklin and Gary –
Treating this informally initially, as I've only had an opportunity to do a somewhat rushed review of the correspondence, but think some clarification may be useful between the attorneys involved.

The City evaluates floodplain development permits concurrently with building permits. While comments and review may be happening separately for each, such that one may seem resolved prior to another, the practice is that they are finally and formally approved at the same time. So, from a process perspective, the Floodplain Development Permit in this matter would have been finally/formally approved on the same date as the Building Permit. This would be considered the final administrative determination date for purposes of calculating administrative appeal deadlines. I believe this is the reason for the document, that it looks like Gary provided, with the Approved stamp dated 6/26/23.

My quick read inclination is this means we do not have a timeliness/automatic dismissal issue, but please advise me if you still feel otherwise.

Matt

Matthew A. Johnson
WHITE PETERSON GIGRAY & NICHOLS, P.A.
Canyon Park at the Idaho Center
5700 E. Franklin Rd., Ste. #200
Nampa, ID 83687-7901
208.466.9272 (tel)
208.466.4405 (fax)
mjohnson@whitepeterson.com

EXHIBIT
C

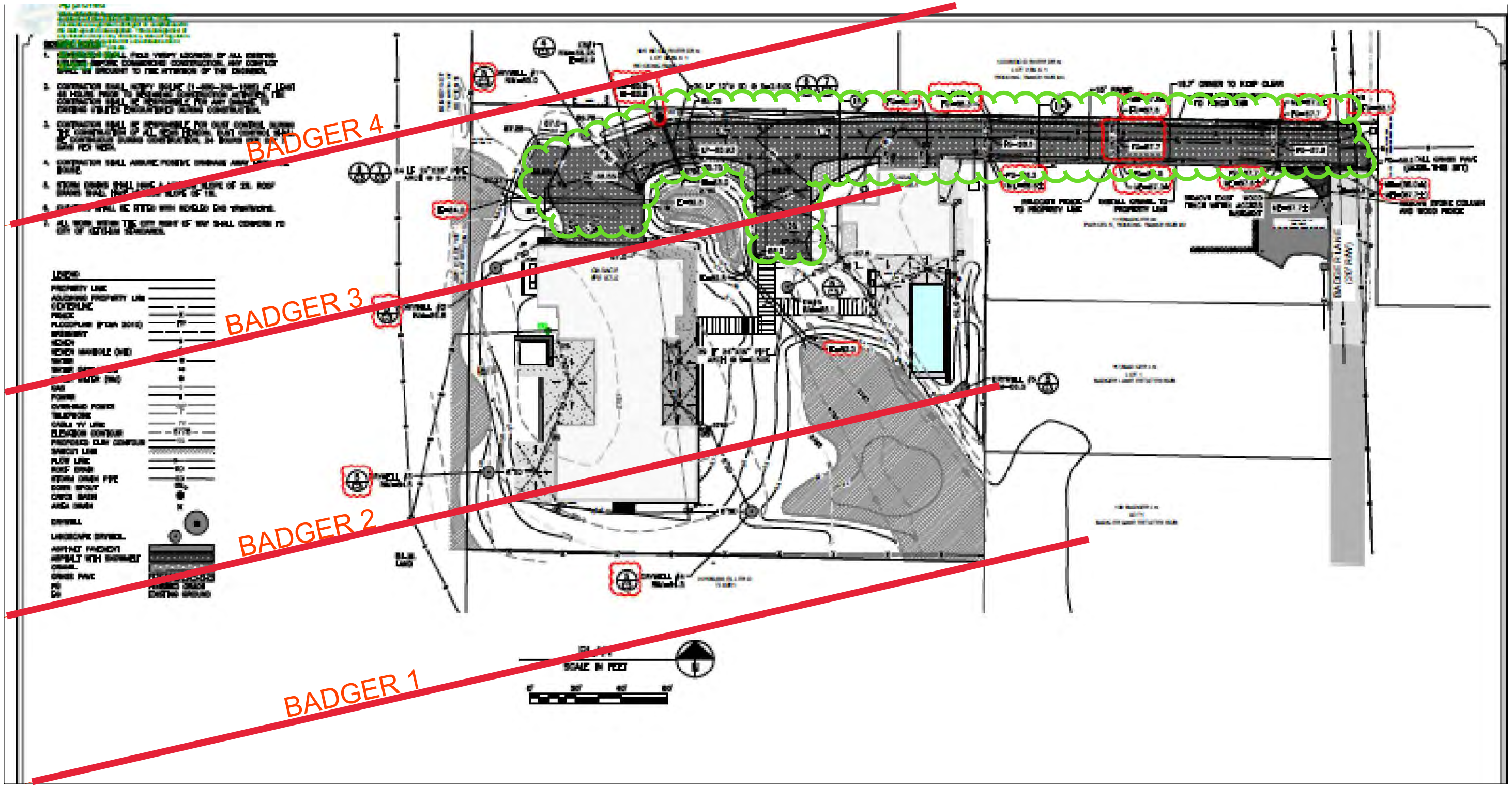


EXHIBIT D

2/28/2023 3:39:39 PM

LEGAL DESCRIPTION:
PARCEL 4, ROCKING RANCH SUB #2 (LOCATED WITHIN SECTION 13, T.4 N., R.17 E., B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO)

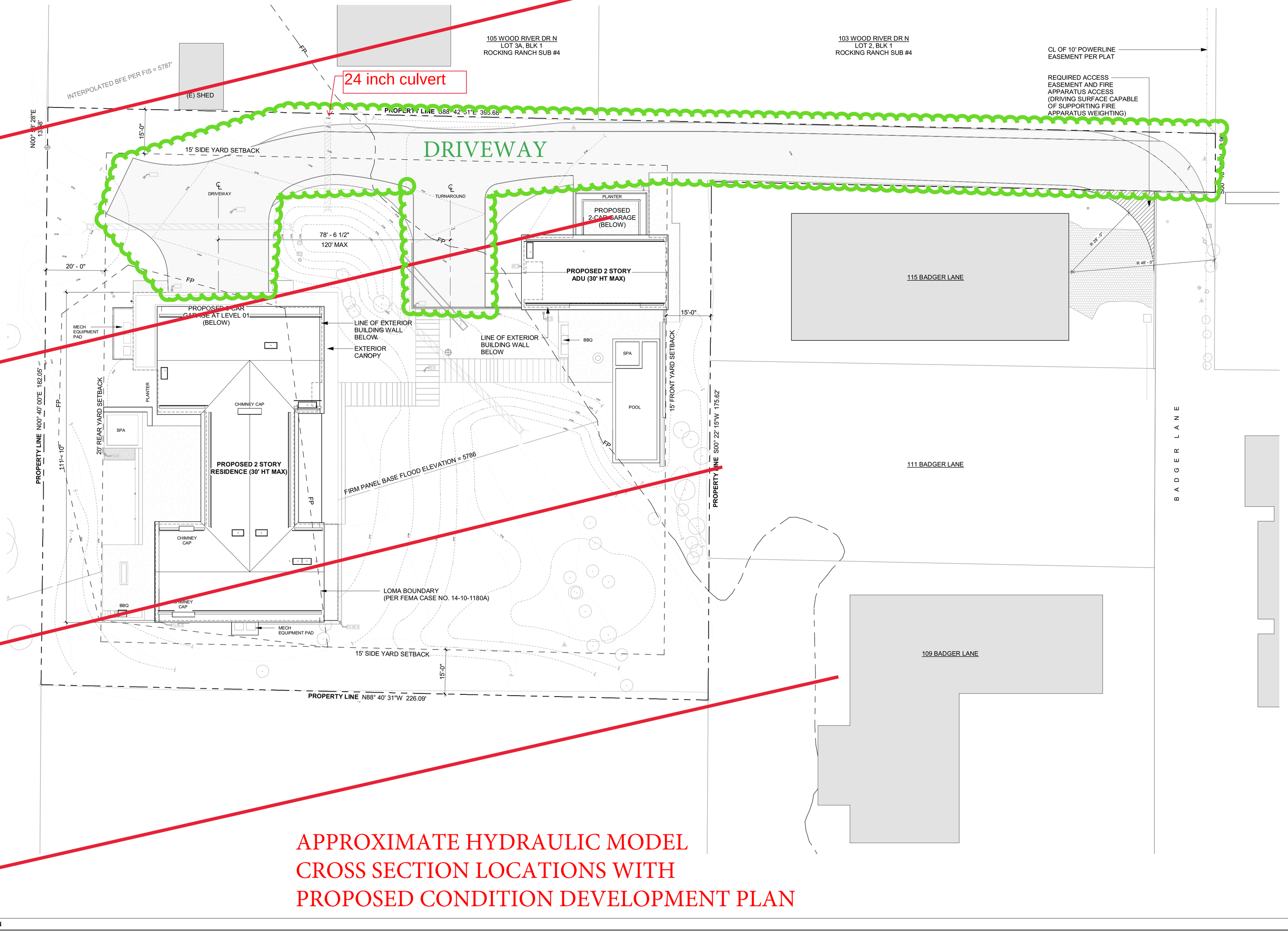
ZONING DISTRICT: LR

FLOODPLAIN ZONE: AE

PROPERTY SIZE: 1.09 ACRES PER SURVEY (47,480 SF)

SITE PLAN NOTES:

1. ELEVATION: **100'-0" = 5788'-6"**
2. SEE LANDSCAPE DRAWINGS FOR (E) AND (N) TREE LOCATIONS
3. SEE LANDSCAPE DRAWINGS FOR DRIVEWAY LAYOUT, PROFILE & SITE DRAINAGE INFORMATION
4. SEE ROOF PLAN FOR MORE ROOF INFORMATION
5. SEE G-010 & G-011 FOR SITE COVERAGE AND HEIGHT CALCULATIONS
6. SEE CONSTRUCTION ACTIVITY PLAN FOR ALL STAGING INFORMATION.



BADGER 4

BADGER 3

BADGER 2

BADGER 1

APPROXIMATE HYDRAULIC MODEL CROSS SECTION LOCATIONS WITH PROPOSED CONDITION DEVELOPMENT PLAN

1 | 1/16" = 1'-0" | **SITE PLAN**

BADGER RESIDENCE

OWNER:
121 BADGER LANE LLC
P.O. BOX 14001-174
KETCHUM, ID 83340

PROJECT ARCHITECT:
RO | ROCKETT DESIGN
1031 W. MANCHESTER BLVD, UNIT 6
INGLEWOOD, CA 90301
TEL: 213.784.0014

SURVEYOR:
GALENA ENGINEERING, INC.
317 NORTH RIVER STREET
HAILEY, ID 83333
TEL: 208.788.1705

ENVIRONMENTAL CONSULTANT:
SAWTOOTH ENVIRONMENTAL CONSULTING
P.O. BOX 2707 / 540 NORTH FIRST AVE
KETCHUM, ID 83340
TEL: 208.727.9748

HYDROLOGY / WATER ENGINEERING:
BROCKWAY ENGINEERING, INC.
2016 WASHINGTON ST NORTH, SUITE 4
TWIN FALLS, ID 83301
TEL: 208.736-8543

GEOTECHNICAL ENGINEER:
BUTLER ASSOCIATES, INC.
P.O. BOX 1034
KETCHUM, ID 83340
TEL: 208.720.6432

LANDSCAPE ARCHITECT:
BYLA
323 LEWIS STREET, SUITE N
KETCHUM, ID 83340
TEL: : 208.726.5907

CIVIL ENGINEER:
BENCHMARK ASSOCIATES, P.A.
P.O. BOX 733 - 100 BELL DRIVE
KETCHUM, IDAHO 83340
TEL: 208.726.9512

STRUCTURAL ENGINEER:
LFA
319 MAIN STREET
EL SEGUNDO, CA 90245
TEL: 213.239 9700

MEP ENGINEER:
CES ENGINEERING SERVICES, LLC
1001 W OAK BUILDING B SUITE 107
BOZEMAN, MT 59715
TEL: 406.272.0352

LIGHTING DESIGN CONSULTANT:
KGM ARCHITECTURAL LIGHTING
270 CORAL CIRCLE
EL SEGUNDO, CA 90245
TEL: 310.552.2191

SEAL:
LICENSED ARCHITECT
AR 987568
JASON RO
STATE OF IDAHO

NO	DATE	ISSUE
0	02.28.23	BUILDING PERMIT

PROJECT:
BADGER RESIDENCE
121 BADGER LANE
KETCHUM, ID 83340

PROJECT NUMBER
#2201

DRAWING TITLE:
SITE PLAN

DRAWING NUMBER:
A-100.1