

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1.	2022 CALIFORNIA ADMINISTRATIVE CODE	6.	2022 CALIFORNIA FIRE CODE
2.	2022 CALIFORNIA BUILDING CODE	7.	ANY LOCAL BUILDING CODE AMENDMENTS
3.	2022 CALIFORNIA ELECTRIC CODE	8.	CITY/COUNTY ORDINANCES
4.	2022 CALIFORNIA MECHANICAL CODE	9.	ANSI / TIA-222 STRUCTURAL CODE
5.	2022 CALIFORNIA PLUMBING CODE	10.	NFPA 780 - LIGHTING PROTECTION CODE

HANDICAP REQUIREMENTS:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, AND IS EXEMPTED FROM ACCESSIBILITY REQUIREMENTS IN ACCORDANCE WITH 2016 CALIFORNIA BUILDING CODE SECTION 11B-203.5.

THIS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS NEW.

GENERAL NOTES

THIS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS NEW.

IF CONTRACTOR ENCOUNTERS CONDITIONS IN FIELD, EITHER UNFORESEEN OR IN SOME MANNER IN CONFLICT WITH THESE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE REGISTERED DESIGN PROFESSIONAL OF SUCH CONDITIONS IN WRITING AND SHALL ACKNOWLEDGE ANY WORK DONE OUTSIDE OF JURISDICTIONAL PERMITTED PLANS IS DONE AT CONTRACTORS OWN RISK.

FOR "SPECIAL INSPECTIONS" SPECIFIC TO THIS PROJECT PURSUANT TO CBC SECTION 1704.3, SEE SHEET T-4, "STATEMENT OF SPECIAL INSPECTIONS"

SUBCONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

FULL SIZE = 24"x36". ANY OTHER SIZE PRINT IS NOT ORIGINAL SCALE.

ALL INDICATED DIMENSIONS SHALL TAKE PRECEDENT OVER SCALED DIMENSIONS.



SITE INFORMATION			
PROPERTY OWNER:	TERRANCE JONES	TOWER OWNER:	APC TOWERS
PHONE:	(760) 275-4980	ADDRESS:	8601 SIX FORKS RD, SUITE 250 RALEIGH, NC 27615
COUNTY:	SAN BERNARDINO	TOWER CO SITE ID:	CA-1374
ZONING JURISDICTION:	CITY OF NEEDLES	TOWER APP NUMBER:	--
ZONING DISTRICT:	C-3 COMMERCIAL	LATITUDE (NAD 83):	34° 51' 57.74" N
PARCEL NUMBER:	066016207	LONGITUDE (NAD 83):	114° 38' 07.81" W
OCCUPANCY GROUP:	U		
CONSTRUCTION TYPE:	II-B		
POWER COMPANY:	NEEDLES ELECTRIC DEPARTMENT		
TELEPHONE COMPANY:	FRONTIER		
LEASE AREA:	2500 SQFT		

PROJECT TEAM		
<u>PROJECT MANAGER:</u> APC TOWERS 8601 SIX FORKS ROAD, SUITE 250 RALEIGH, NC 27615 CONTACT: ABIGAIL JOHNSON PHONE: (919) 346-8799 EMAIL: ajohnson@apctowers.com	<u>SITE ACQUISITION:</u> EUKON GROUP 65 POST, SUITE 1000 IRVINE, CA 92618 CONTACT: JEREMY SIEGEL PHONE: (714) 366-8047 EMAIL: jeremy.siegel@eukongroup.com	<u>A&E CONTACT:</u> EUKON GROUP 65 POST, SUITE 1000 IRVINE, CA 92618 CONTACT: RICH BRUNET PHONE: (949) 899-5597 EMAIL: rich.brunet@eukongroup.com
<u>RF ENGINEER:</u> -	<u>CONSTRUCTION:</u> EUKON GROUP 65 POST, SUITE 1000 IRVINE, CA 92618 CONTACT: JERRY AMBROSE PHONE: (805) 637-7407 EMAIL: jambrose@wireless01.com	<u>CONSTRUCTION:</u> -

The APC Towers logo, featuring the letters "APC" in a bold, blue, sans-serif font, followed by the word "Towers" in a dark blue, serif font. A stylized, dark blue, curved line or swoosh is positioned above the "APC" letters, starting from the left and curving over the "A" and "P".

SITE ADDRESS: NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

<h2 style="margin: 0;">APPROVALS</h2>	
<p style="text-align: center;">THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS & AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT & MAY IMPOSE CHANGES OR MODIFICATIONS.</p>	
<p style="text-align: center;">APPROVED BY:</p>	<p style="text-align: center;">DATE:</p>
APC OPERATIONS: _____	
SAQ MANAGER: _____	
PROJECT MANAGER: _____	
ZONING VENDOR: _____	
LEASING VENDOR: _____	
ZONING MANAGER: _____	
PROPERTY OWNER: _____	

PROJECT DESCRIPTION

APC PROPOSES TO INSTALL A WIRELESS COMMUNICATIONS FACILITY. THE SCOPE WILL CONSIST OF THE FOLLOWING:

- (1) NEW 185'-0" HIGH MONOPOLE
- (1) NEW METERING H-FRAME
- (1) NEW UTILITY COMPANY TRANSFORMER
- (2) UTILITY TRENCHES



IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF THE LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

CONSTRUCTION DRAWINGS

PROJECT INFORMATION

CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

T-1

VICINITY MAP

Needles Hwy

National Ave

SITE

Needles Auto Wrecking & Towing

N

An aerial photograph showing a road labeled 'National Old Trails Rd' running diagonally. A black star icon marks a location, with a black arrow pointing to it from a white box labeled 'SITE'. The surrounding area is dry and hilly with sparse vegetation. In the bottom right corner, there is a label 'N Wrecki' with a black arrow pointing towards the bottom right.



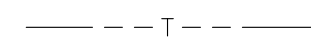


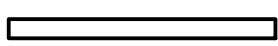
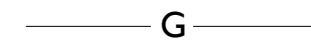






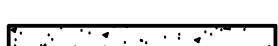















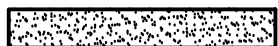








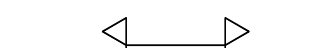



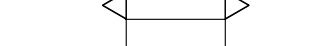






























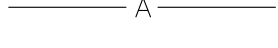


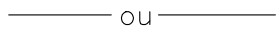

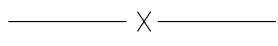

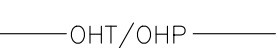
DRIVING DIRECTIONS

DIRECTIONS FROM HARRY REID INTERNATIONAL AIRPORT AT 5757 WAYNE NEWTON BLVD, LAS VEGAS, NV 89119

<ol style="list-style-type: none"> 1. HEAD SOUTH ON PARADISE RD 2. FOLLOW SIGNS FOR I-215 SOUTH 3. MERGE ONTO I-215 SOUTH 4. FOLLOW SIGNS FOR I-11 SOUTH 5. MERGE ONTO I-11 SOUTH 6. FOLLOW SIGNS FOR US-95 SOUTH 7. MERGE ONTO US-95 SOUTH 8. CONTINUE ON US-95 SOUTH 9. FOLLOW SIGNS FOR I-40 EAST 10. MERGE ONTO I-40 EAST 11. TAKE EXIT 139 TOWARD RIVER RD CUT OFF 	<ol style="list-style-type: none"> 12. TURN RIGHT ONTO NATIONAL OLD TRANSIT RD 13. ARRIVE AT NATIONAL OLD TRANSIT RD ON THE RIGHT
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[illegible]

EUKON VERIZON 90CD MONOPOLE TEMPLATE V2.11-18-22

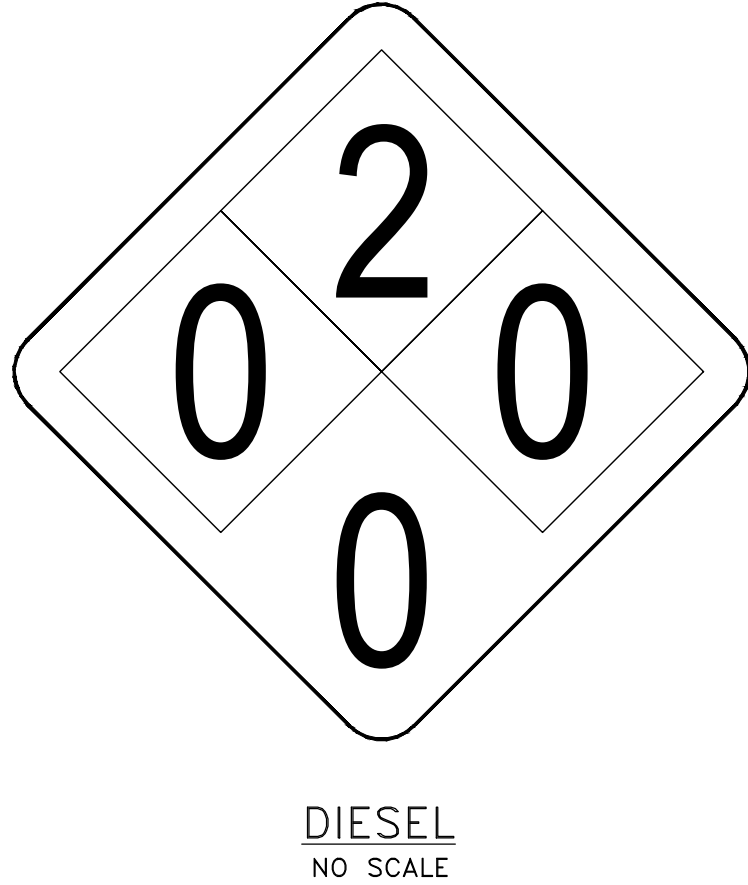
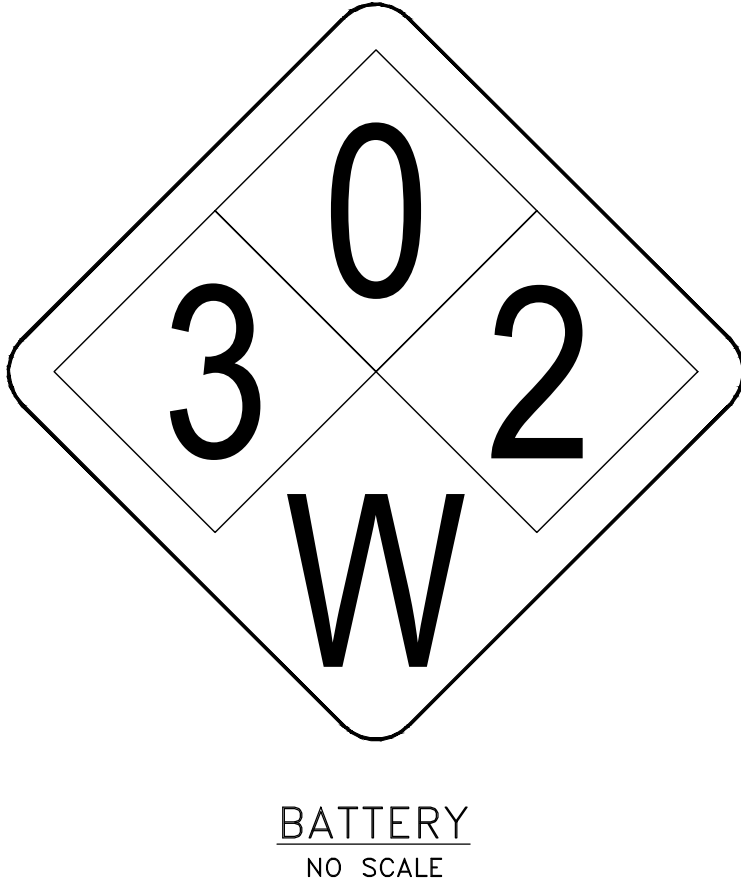
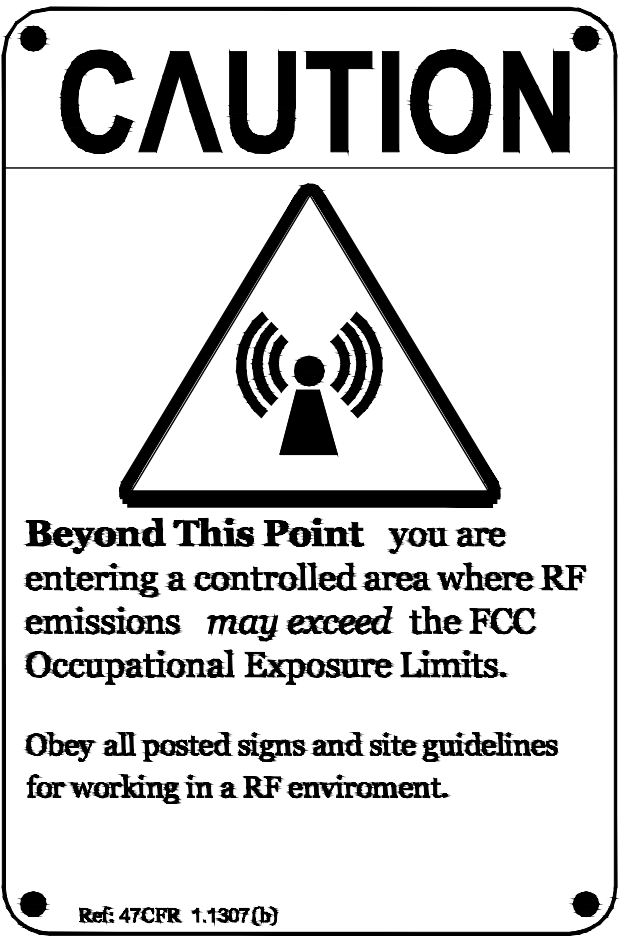
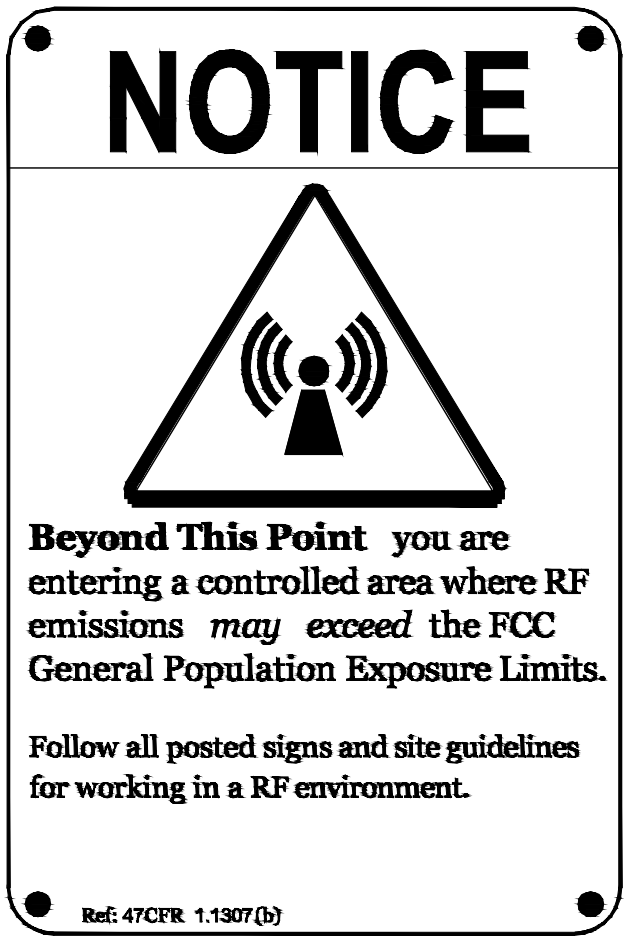
	NEW ANTENNA		GROUT OR PLASTER		UNDERGROUND TELCO RUN		5/8" X 10'-0" .CU. GND ROD IN TEST WELL 30" MIN. BELOW GRADE.
	EXISTING ANTENNA		(E) BRICK		GROUNDING CONDUCTOR		CHEMICAL GROUND ROD (XIT GROUND ROD)
	GROUND ROD		(E) MASONRY		GROUNDING CONDUCTOR		CADWELD CONNECTION
	GROUND BUS BAR		CONCRETE		GROUNDING CONDUCTOR		MECHANICAL CONNECTION
	MECHANICAL GRND. CONN.		EARTH		CONDUIT UNDERGROUND		HALO GROUND CONNECTION
	CADWELD		GRAVEL		FUSE, SIZE AND TYPE AS INDICATED.		CIRCUIT BREAKER
	GROUND ACCESS WELL		PLYWOOD		SAFETY SWITCH, 2P-240V-60A W/60A FUSES, NEMA 3R ENCLOSURE, SQ D CATALOG NO. H222NRB		UTILITY METER BASE
	ELECTRIC BOX		WOOD CONT.		MANUAL TRANSFER SWITCH, 2P-240V-200A, NO FUSE, NEMA 3R ENCLOSURE		TRANSFORMER
	TELEPHONE BOX		WOOD BLOCKING		LIGHTING FIXTURE, FLUORESCENT, 10.94" x 4'-0", 2/40W, SURFACE MOUNTING TYPE, HUBBELL LIGHTING CATALOG #WSW232T		STEPDOWN TRANSFORMER
	LIGHT POLE		STEEL		LIGHTING FIXTURE, FLUORESCENT, 10.94" x 8'-0", 2/95W, SURFACE MOUNTING TYPE, HUBBELL LIGHTING CATALOG #TWSM232T		RECEPTACLE, 2P-3W-125V-15A, DUPLEX, GROUND TYPE, HUBBEL CATALOG #5362
	FND. MONUMENT		CENTERLINE		LIGHTING FIXTURE, HIGH PRESSURE SODIUM, 1/70W, WALL MOUNTING TYPE, HUBBELL LIGHTING CATALOG #NRG-307 OR 1/50W, HUBBELL LIGHTING CATALOG #NRG-121		TOGGLE SWITCH, 1P-125V-15A, HUBBELL CATALOG #HBL 1201CN
	SPOT ELEVATION		MATCH LINE		EXIT SIGN, THERMOPLASTIC LED, SINGLE FACE, UNIVERSAL MOUNTING, W/BATTERY PACK, HUBBELL LIGHTING CATALOG #PRB		TOGGLE SWITCH, 1P-120V-15A, "WP"
	SET POINT		WORK POINT		COMBINATION, EXIT SIGN & EMERGENCY LIGHTING, HUBBELL LIGHTING CATALOG #PRC		IONIZATION SMOKE DETECTOR W/ALARM HORN & AUXILIARY CONTACT, 120 VAC, GENTEX PART NO. 7100F
	REVISION		GROUND CONDUCTOR		EMERGENCY LIGHTING, 2/50W, HUBBELL LIGHTING CATALOG #HE6-50-2-R91		POLE
	GRID REFERENCE		COAXIAL CABLE		LIGHTING FIXTURE, INCANDESCENT, 1/100W, WALL MOUNTING TYPE, HUBBELL LIGHTING CATALOG #BRH-100-06-1		(N) POLE MOUNTED XFMR
	DETAIL REFERENCE		OVERHEAD SERVICE CONDUCTORS		LIGHTING FIXTURE, HALOGEN, QUARTZ, 1/300W, HUBBELL LIGHTING CATALOG #QL-505		(E) POLE MOUNTED XFMR
	CHAIN LINK FENCING		CHAIN LINK FENCING		LIGHTING FIXTURE, HALOGEN, QUARTZ, 1/300W, HUBBELL LIGHTING CATALOG #QL-505		(N) PAD MOUNTED XFMR
	ELEVATION REFERENCE		OVERHEAD TELEPHONE/OVERHEAD POWER		LIGHTING FIXTURE, 1/175W. METAL HALIDE, HUBBELL CAT #MIC-0175H-336		(E) PAD MOUNTED XFMR
	SECTION REFERENCE		OVERHEAD TELEPHONE LINE		5/8" X 10'-0" .CU. GND ROD 30" MIN. BELOW GRADE.		
	OVERHEAD POWER LINE		OVERHEAD POWER LINE				
	UNDERGROUND POWER RUN		UNDERGROUND POWER RUN				
	UNDERGROUND POWER/TELCO RUN		UNDERGROUND POWER/TELCO RUN				

LEGEND

1

A AMPERE	EMT. ELECTRICAL METALLIC TUBING	MTD. MOUNTED	T.O.F. TOP OF FOUNDATION
A.B. ANCHOR BOLT	E.N. EDGE NAIL	MTG. MOUNTING	T.O.P. TOP OF PLATE (PARAPET)
ABV. ABOVE	ENCL. ENCLOSURE	MTL. METAL	T.O.S. TOP OF STEEL
AC ALTERNATE CURRENT/AIR CONDITIONER	ENG. ENGINEER	MTS. MANUAL TRANSFER SWITCH	T.O.W. TOP OF WALL
ACCA ANTENNA CABLE COVER ASSEMBLY	EO. EQUAL	N NEUTRAL	TYP. TYPICAL
ADD'L ADDITIONAL	EXST.(E) EXISTING	(N) NEW	U.G. UNDER GROUND
A.F.F. ABOVE FINISHED FLOOR	EXP. EXPANSION	NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOC.	U.L. UNDERWRITERS LABORATORY INC.
A.F.G. ABOVE FINISHED GRADE	EXT. EXTERIOR	NO.(#) NUMBER	UMTS UNIVERSAL MOBIL TECH. SYS. (3G MOBILE TECH.)
AIC AMPERE INTERRUPTING CAPACITY	FAB. FABRICATION(OR)	N.T.S. NOT TO SCALE	UN.O. UNLESS NOTED OTHERWISE
ALUM. ALUMINUM	FAC. FACTOR	OBIF OPTICAL BASEBAND INTERFACE	V VOLT
ALT. ALTERNATE	F/A FIRE ALARM	OH OVERHEAD	VAC VOLT ALTERNATING CURRENT
ANT. ANTENNA	F.F. FINISH FLOOR	O.C. ON CENTER	V.I.F. VERIFY IN FIELD
APPROX. APPROXIMATE(LY)	F.G. FINISH GRADE	OPNG. OPENING	W WATT OR WIRE
ARCH. ARCHITECT(URAL)	FIN. FINISH(ED)	P POLE	WD WIDE(WIDTH)
AT. AMPERE TRIP	FLR. FLOOR	P/C PRECAST CONCRETE	W/ WITH
AWG. AMERICAN WIRE GAUGE	FLUOR. FLUORESCENT	PCS PERSONAL COMMUNICATION SERVICES	W/O WITHOUT
BATT. BATTERY	FDN. FOUNDATION	PH PHASE	WD. WOOD
BD. BOARD	F.O.C. FACE OF CONCRETE	PLY. PLYWOOD	W.P. WEATHERPROOF
BLDG. BUILDING	F.O.M. FACE OF MASONRY	PNLBD PANELBOARD	WT. WEIGHT
BLK. BLOCK	F.O.S. FACE OF STUD	PPC POWER PROTECTION CABINET	XFMR TRANSFER
BLKG. BLOCKING	F.O.W. FACE OF WALL	PRC PRIMARY RADIO CABINET	XFMR TRANSFORMER
BM. BEAM	FRP FIBER REINFORCE POLYMER/GALV.	PRI PRIMARY	XLPE CROSS-LINK POLYETHYLENE
B.N. BOUNDARY NAILING	F.S. FINISH SURFACE	P.S.F. POUNDS PER SQUARE FOOT	E CENTERLINE
BR. BRANCH	FT.(') FOOT (FEET)	P.S.I. POUNDS PER SQUARE INCH	PLATE, PROPERTY LINE
BRKR. BREAKER	FTG. FOOTING	P.T. PRESSURE TREATED	
BTCW. BARE TINNED COPPER WIRE	FU FUSE	PWR. POWER (CABINET)	
BTS. BASE TRANSMISSION SYSTEM	G GROUND	QTY. QUANTITY	
B.O.F. BOTTOM OF FOOTING	GR GROWTH (CABINET)	RAD.(R) RADIUS	
B/U BACK-UP CABINET	GA. GAUGE	RBS RADIO BASE STATION	
C CONDUIT	GEN. GENERATOR	(BASE STATION 3G NETWORKS)	
CAB. CABINET	GI. GALVANIZE(D)	RCPT. RECEPTACLE	
CANT. CANTILEVER(ED)	G.F.C. I. GROUND FAULT CIRCUIT INTERRUPTER	REF. REFERENCE	
CB. CIRCUIT BREAKER	GLB. (GLU-LAM) GLUE LAMINATED BEAM	REINF. REINFORCEMENT(ING)	
CDMA CODE-DIVISION MULTIPLE ACCESS (2G & 3G)	GND GROUND	REQ'D. REQUIRED	
CDUK CONSOLIDATION DISTRIBUTION UNIT KIT	GPS GLOBAL POSITIONING SYSTEM	RGS RIGID GALVANIZED STEEL	
C.I.P. CAST IN PLACE	GRND. GROUND	RST REMOTE RADIO UNIT	
CKT. CIRCUIT	GSM GLOBAL SYSTEM MOBILE (2G+ MOBILE TECH.)	(RADIO TRANSCEIVER)	
CLG. CEILING	HDBC HARD DRAWN COPPER WIRE	RECEIVER AIR INTERFACE TRAY	
CLR. CLEAR	HDR. HEADER	SAFE SAFETY	
CMU CONCRETE MASONRY UNIT (JAMB BLOCKS)	HGR. HANGER	SCH. SCHEDULE	
COL. COLUMN	HPS HIGH PRESSURE SODIUM	SDBC SOFT DRAWN BARE COPPER	
CONC. CONCRETE	HEIGHT HEIGHT	SECONDARY	
CONN. CONNECTION(OR)	ICGB. ISOLATED COPPER GROUND BUS	SHT. SHEET	
CONST. CONSTRUCTION	ILC. INTEGRATED LEAD CENTER	SIM. SIMILAR	
CONT. CONTINUOUS	IN.(") INCH(ES)	S.N. SOLID NEUTRAL	
d PENNY (NAILS)	INT. INTERIOR	SPEC. SPECIFICATION(S)	
DBL. DOUBLE	LB.(#) POUND(S)	SQ. SQUARE	
DC DIRECT CURRENT	L.B. LAG BOLTS	STAINLESS STEEL	
DEM. DEMAND	L.F. LINEAR FEET (FOOT)	STD. STANDARD	
DEPT. DEPARTMENT	LG. LENGTH	STL. STEEL	
D.F. DOUGLAS FIR	L LONG(ITUDINAL)	STRUCT. STRUCTURAL	
DIA. DIAMETER	LPS LOW PRESSURE SODIUM	SURF. SURFACE	
DIAG. DIAGONAL	LTE LONG TERM EVOLUTION (4G MOBILE TECH.)	SW. SWITCH	
DIM. DIMENSION	L.F. LINEAR FEET (FOOT)	TEL. TELEPHONE	
DWG. DRAWING(S)	L. LONG(ITUDINAL)	TEMP. TEMPORARY	
DWL. DOWEL(S)	LPS LOW PRESSURE SODIUM	THK.(NESS) THICK(NESS)	
EA. EACH	LTE LONG TERM EVOLUTION (4G MOBILE TECH.)	TOWER MOUNTED AMPLIFIER	
EGR. EMERGENCY GENERATOR RECEPTACLE	L.F. LINEAR FEET (FOOT)	(DC SUPPLY VOLTAGE)	
EL. ELEVATION	LG. LENGTH	TOE NAIL	
ELEC. ELECTRICAL	L. LONG(ITUDINAL)	TOP OF ANTENNA	
ELEV. ELEVATOR	LPS LOW PRESSURE SODIUM	TOP OF CURB	
	LTE LONG TERM EVOLUTION (4G MOBILE TECH.)		
	L.F. LINEAR FEET (FOOT)		
	LG. LENGTH		
	L. LONG(ITUDINAL)		
	LPS LOW PRESSURE SODIUM		
	LTE LONG TERM EVOLUTION (4G MOBILE TECH.)		
	L.F. LINEAR FEET (FOOT)		
	LG. LENGTH		
	L. LONG(ITUDINAL)		
	LPS LOW PRESSURE SODIUM		
	LTE LONG TERM EVOLUTION (4G MOBILE TECH.)		
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	L. LONG(ITUDINAL)		
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	L. LONG(ITUDINAL)		
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	L. LONG(ITUDINAL)		
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	L.F. LINEAR FE		

EUKON VERIZON 90CD MONOPOLE TEMPLATE_V2_11-18-22



ALERTING SIGNS
NO SCALE



ALERTING SIGN
NO SCALE

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INFO SIGN
NO SCALE

GENERAL SIGNAGE GUIDELINES								
Structure Type	INFO SIGN #1	INFO SIGN #2	INFO SIGN #3	INFO SIGN #4	INFO SIGN #5	Striping	NOTICE SIGN	CAUTION SIGN
Towers								
MONOPINE/Monopine/Monopalm	entrance gates, shelter doors OR on the outdoor cabinets	climbing side of the Tower	on backside of Antennas	on the side of Antennas	On the shelter door or on one outdoor equipment cabinet			At the height of the first climbing step, min. 9ft above ground
SCE Towers/Towers with high voltage	entrance gates, shelter doors OR on the outdoor cabinets	climbing side of the Tower	on backside of Antennas	on the side of Antennas	On the shelter door or on one outdoor equipment cabinet			At the height of the first climbing step, min. 9ft above ground
Light Poles/Flag Poles	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no	on backside of Antennas	on the side of Antennas	On the shelter door or on one outdoor equipment cabinet			
Utility Wood Poles (JPA)	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no	on backside of Antennas	on the side of Antennas	On the shelter door or on one outdoor equipment cabinet		If GP max value of MPE at antenna level is: 0–99%: Notice sign; over 99%: Caution sign at no less than 3ft below antenna and 9ft above ground	
Microcells mounted on non–JPA poles	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no	on backside of Antennas	on the side of Antennas	On the shelter door or on one outdoor equipment cabinet			Notice or Caution sign at no less than 9ft above ground; only if the exposure exceeds 90% of the General Public Exposure at 6ft above ground or at
Roof Tops								
At all access points to the roof	X							
On Antennas	X		X	X				
Concealed Antennas	X	X						
antennas mounted facing outside the building	X	X						
antennas on support structure	X	X						
Roofview Graph:								
Radiation area is within 3ft from antenna	X	adjacent to each antenna					either Notice or Caution sign (based on Roofview results) at antennas/barrier	
Radiation area is beyond 3ft from antenna	X	adjacent to each antenna				diagonal, yellow striping as to Roofview graph		
Church Steeples	Access to steeple	adjacent to antennas if antennas are concealed	On backside of Antennas	On the side of Antennas	On the shelter door or on one outdoor equipment cabinet			Caution sign at the antennas
Water Stations	Access to ladder	adjacent to antennas if antennas are concealed	On backside of Antennas	On the side of Antennas	On the shelter door or on one outdoor equipment cabinet			Caution sign beside info sign #1, min. 9ft above ground
Notes for Rooftop sites:								
1. Either NOTICE or CAUTION signs need to be posted at each sector as close as possible to: the outer edge of the striped off area of the outer antennas of the sector.								
2. If Roofview shows: only blue = Notice Sign, blue and yellow = Caution Sign, only yellow = Caution sign to be installed.								
3. Should the Required striping area interfere with any structures or equipment (A/C, vents, roof hatch, doors, other antennas, dishes, etc.).								
please notify T–MOBILEto modify the striping area, prior to starting the work								

SIGNAGE GUIDELINES CHART
NO SCALE



8601 SIX FORKS ROAD, SUITE 250
RALEIGH, NC 27615
WWW.APCTOWERS.COM



65 POST, SUITE 1000
IRVINE, CA 92618
TEL: (949) 553-8566
www.eukongroup.com

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TO ALTER THIS DOCUMENT.

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PG	GD	RB

CONSTRUCTION DRAWINGS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/21/24	90% CONSTRUCTION DRAWINGS
A	11/11/24	REVISED TOWER HEIGHT

PROJECT INFORMATION

CA-1374

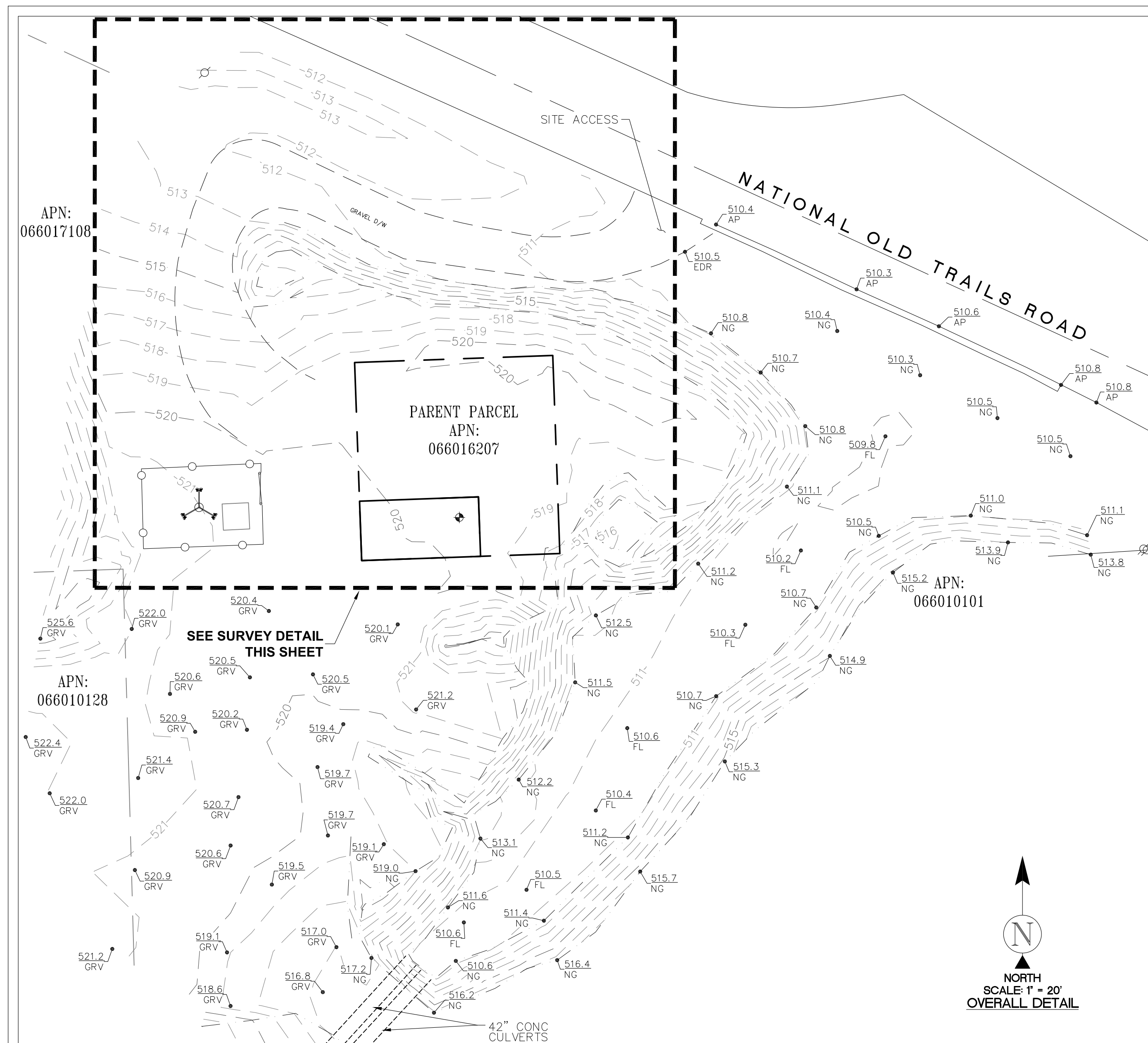
NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

GENERAL SIGNAGE

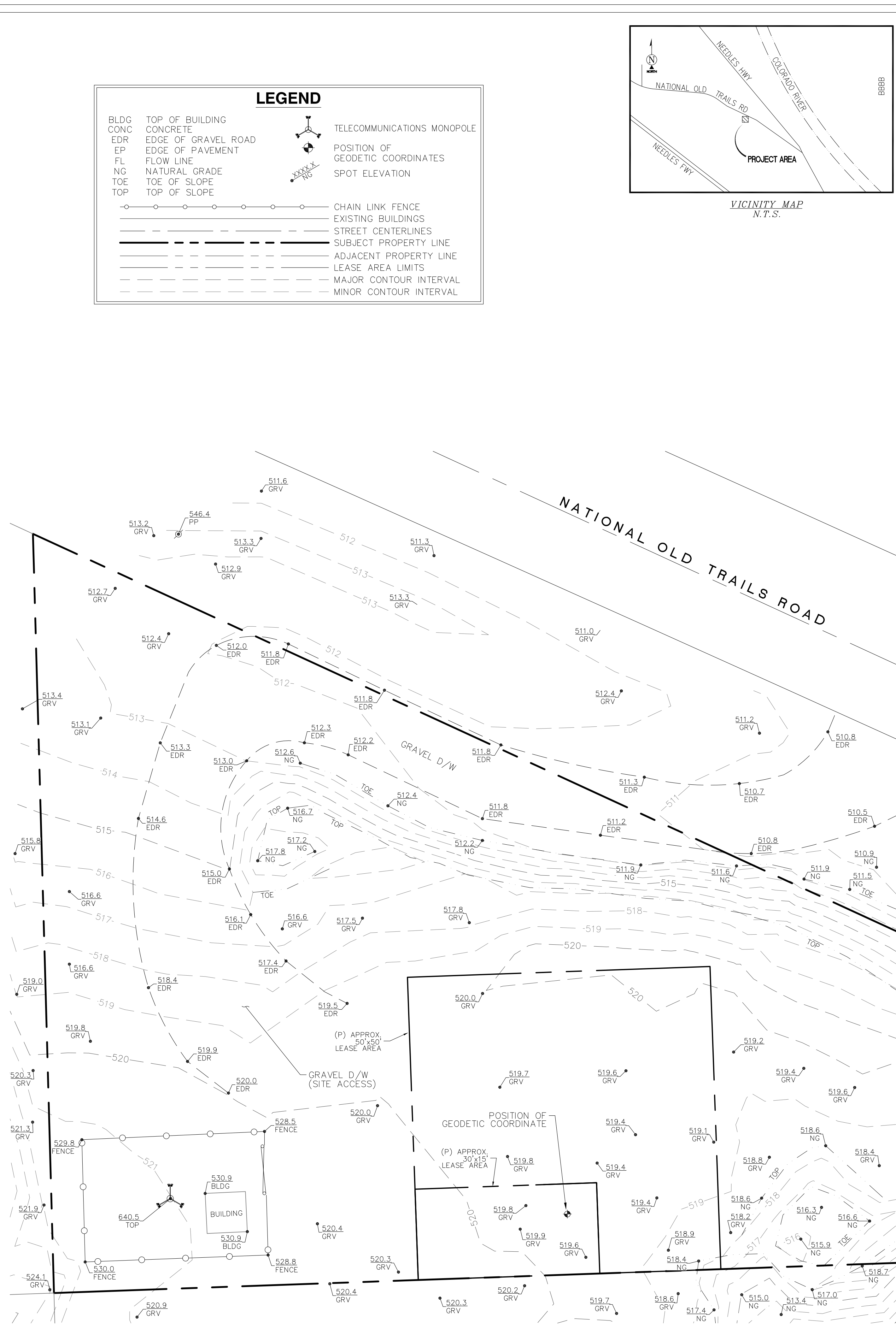
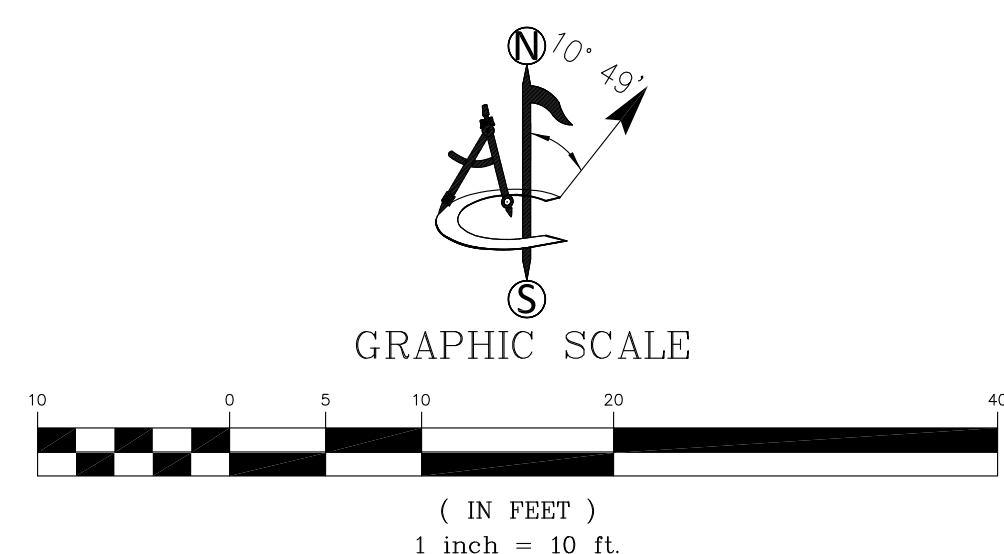
SHEET NUMBER


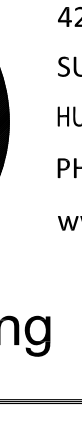

T-3



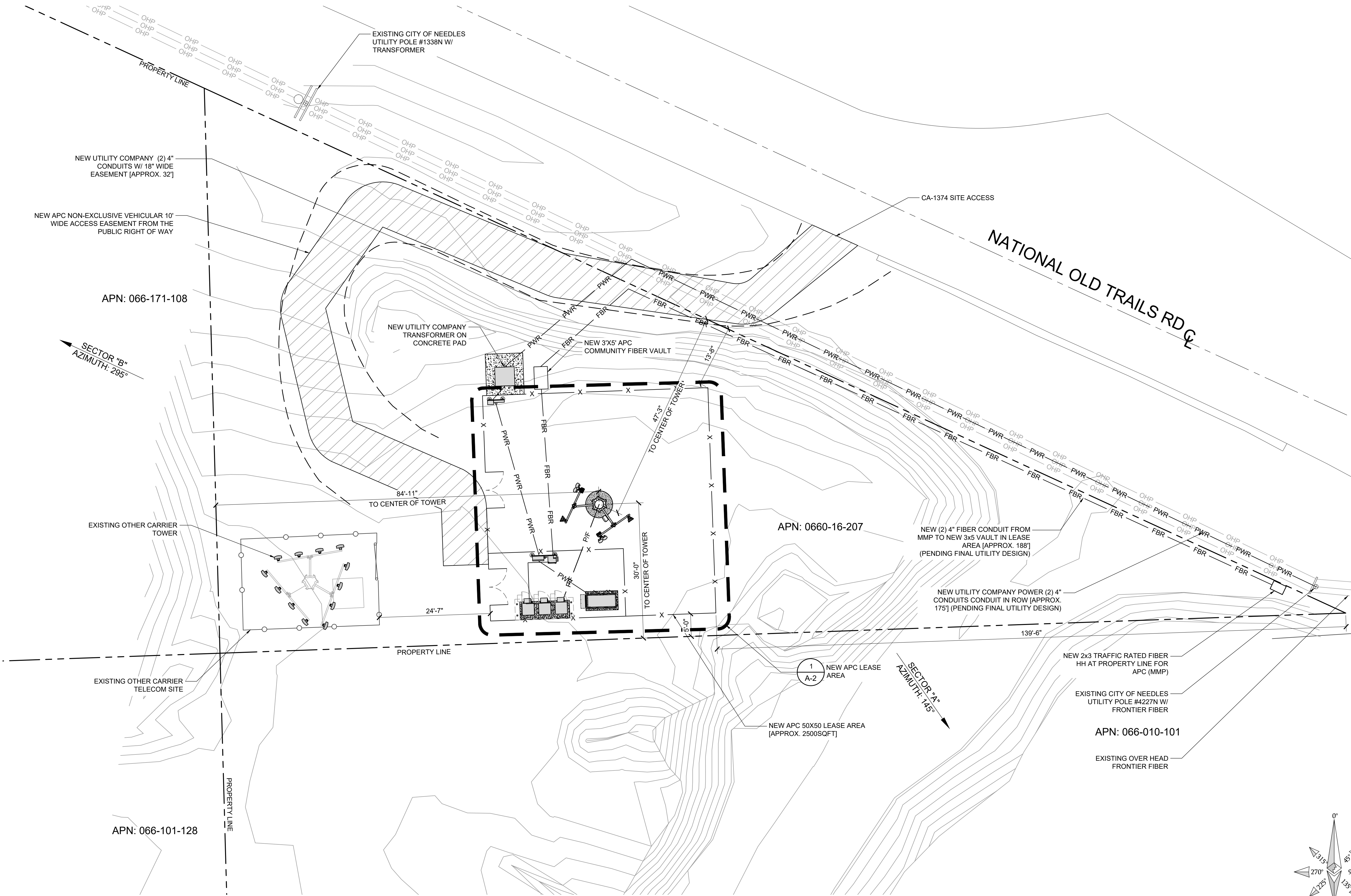
SURVEY DATE
07/11/2023

SURVEYOR'S NOTES



 <p>APC Towers</p> <p>8601 SIX FORKS ROAD, SUITE 250 RALEIGH, NC 27615 PHONE: (919) 926-9838 WWW.APCTOWERS.COM</p>			
PROJECT INFORMATION:			
CL-1374 NATIONAL OLD TRAILS ROAD NEEDLES, CA 92363 SAN BERNARDINO COUNTY			
ORIGINAL ISSUE DATE:			
07/16/2023			
REV.:DATE:		DESCRIPTION:	
SURVEY PREPARED BY:			
 ambit consulting		428 MAIN STREET SUITE 206 HUNTINGTON BEACH, CA 92648 PH. (480) 659-4072 www.ambitconsulting.us	
CONSULTANT:			
DRAWN BY:		CHK.:	
RR		NS	
		APV.:	
XX			
LICENSER:			
 <p>PATRICK B. DONOHOE P.L.S. NO. 9332</p>			
SHEET TITLE:			
SITE SURVEY			
SHEET NUMBER:			
LS-1			

- NOTES:
1. IF DIMENSIONS SHOWN ON PLAN DO NOT SCALE CORRECTLY, CHECK FOR REDUCTION OR ENLARGEMENT FROM ORIGINAL PLANS.
 2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 3. UTILITY DESIGNS AND ROUTES ARE PRELIMINARY PENDING FINAL DESIGN BY UTILITY PROVIDER.
 4. THIS SITE PLAN IS NOT INTENDED TO BE A LAND SURVEY.



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CONSTRUCTION DRAWINGS

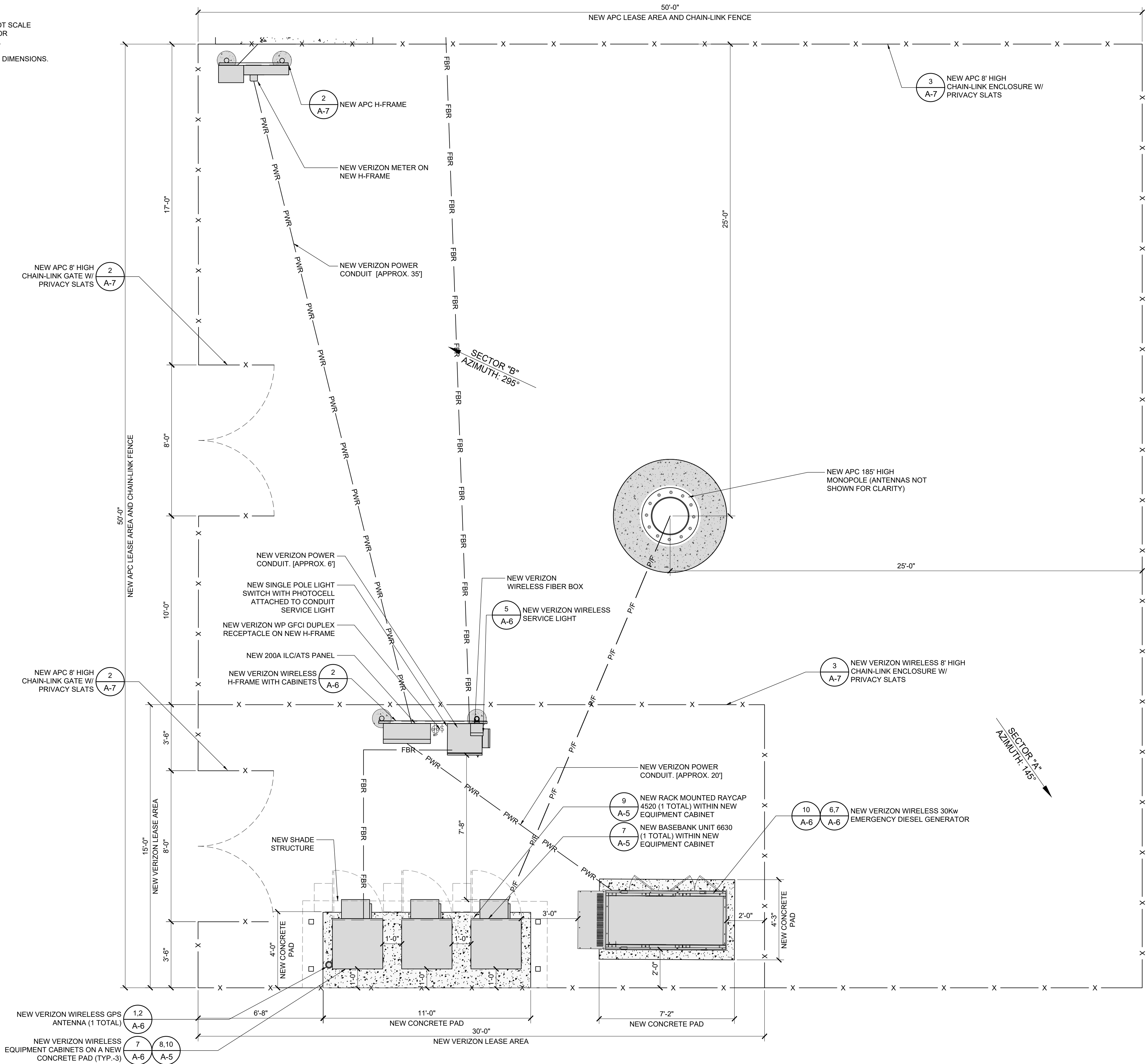
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REV	DATE	DESCRIPTION
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PROJECT INFORMATION	
CA-1374	
NATIONAL OLD TRAILS ROAD NEEDLES, CA 92363	

SHEET TITLE
SITE PLAN

SHEET NUMBER
A-1

- NOTES:
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PG	GD	RB

CONSTRUCTION DRAWINGS

SUBMITTALS		
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PROJECT INFORMATION

CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

EQUIPMENT PLAN

SHEET NUMBER

A-2

EUKON VERIZON 90CD MONOPOLE TEMPLATE_V2_11-18-22

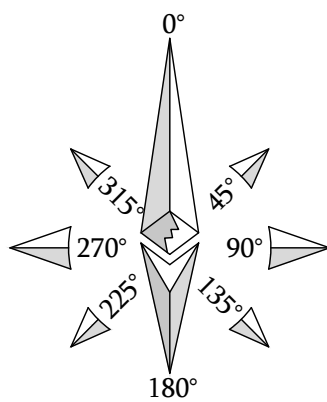
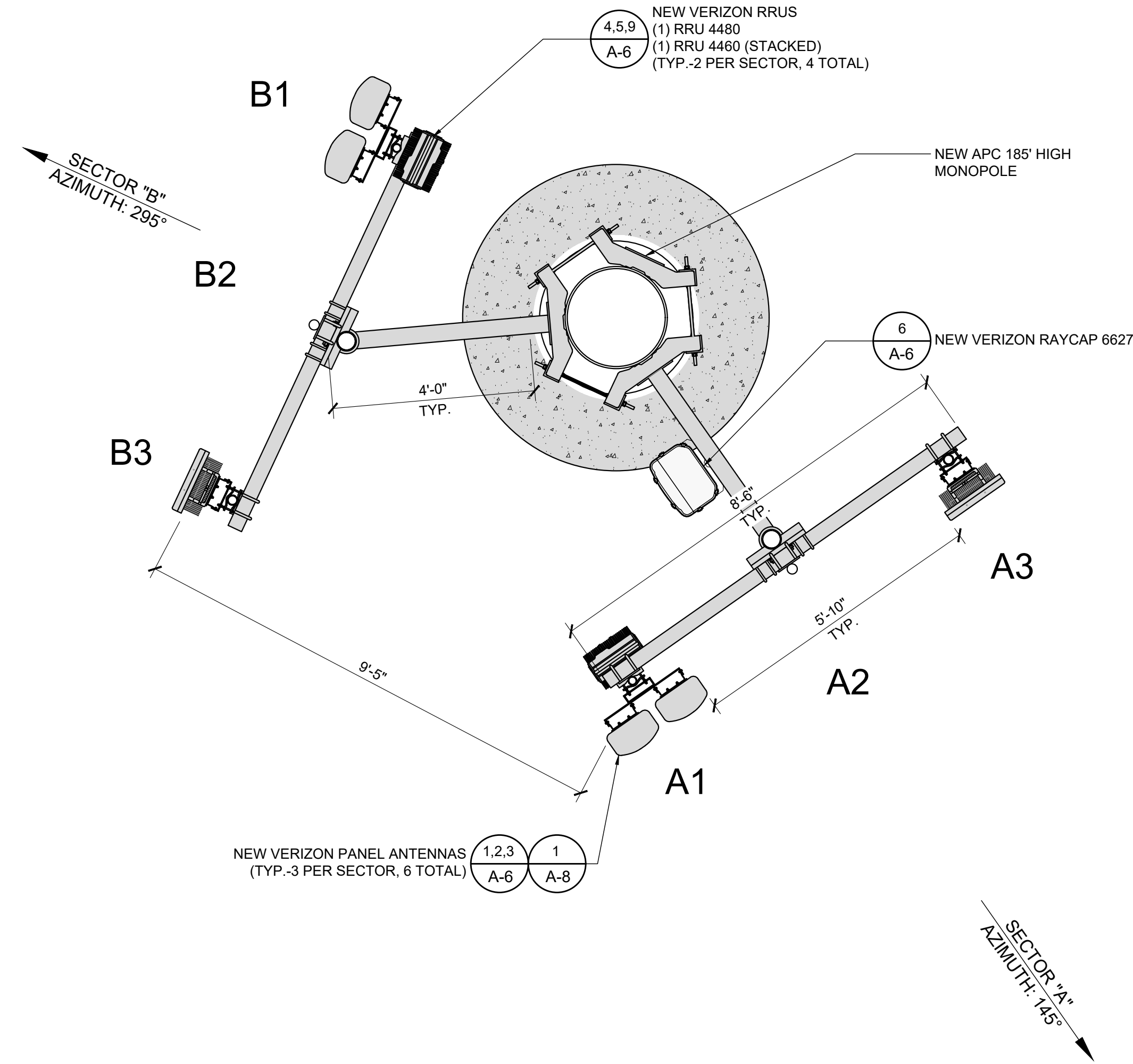
		ANTENNA SCHEDULE (VERIFY WITH CURRENT RFDS)					
	SECTOR	TECHNOLOGY	ANTENNA MODEL	ANTENNA SIZE	ANTENNA AZIMUTH	RAD CENTER	TRANSMISSION CABLE LENGTH
ALPHA SECTOR	A1	700/850/PCS/AWS	NHH-65C-R2B NHH-65C-R2B	8'-0" 8'-0"	145° 145°	180'-0" 180'-0"	-
	A2	-	SPARE	-	-	-	-
	A3	L6	AIR6419_B77D	2'-7"	145°	182'-6"	
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
BETA SECTOR	B1	700/850/PCS/AWS	NHH-65C-R2B NHH-65C-R2B	8'-0" 8'-0"	295° 295°	180'-0" 180'-0"	-
	B2	-	SPARE	-	-	-	-
	B3	L6	AIR6419_B77D	2'-7"	295°	182'-6"	-
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-

- NOTES TO CONTRACTOR:
- CONTRACTOR IS TO REFER TO VERIZON'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
 - CABLE LENGTHS WERE DETERMINED BASED ON A VISUAL INSPECTION DURING SITE WALK. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
 - CONTRACTOR TO USE ROSENBERGER FIBER LINE HANGER COMPONENTS (OR ENGINEER APPROVED EQUAL).
 - CONTRACTOR TO USE CABLES SPECIFIED (OR ENGINEER APPROVED EQUAL).

- NOTES:
- IF DIMENSIONS SHOWN ON PLAN DO NOT SCALE CORRECTLY, CHECK FOR REDUCTION OR ENLARGEMENT FROM ORIGINAL PLANS.
 - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 - ANTENNA AND MW APCSPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.

		REMOTE RADIO UNIT SCHEDULE				
	SECTOR	RRU TYPE	RRU LOCATION (DISTANCE FROM ANTENNA)	MINIMUM CLEARANCES		
				ABOVE	BELOW	SIDES
ALPHA SECTOR	A1	(1) ERICSSON RRU 4480 B71 / B85	±15'	16"	8"	0"
	A1	(1) ERICSSON RRU 4460 B25 / B66	±15'	16"	8"	0"
	A2					
	A3					
	A4					
	A5					
BETA SECTOR	B1	(1) ERICSSON RRU 4480 B71 / B85	±15'	16"	8"	0"
	B1	(1) ERICSSON RRU 4460 B25 / B66	±15'	16"	8"	0"
	B2					
	B3					
	B4					
	B5					

		SURGE SUPPRESSION SYSTEM SCHEDULE			
SYSTEM	MFR.	PART NUMBER	QTY	LOCATION	
	RAYCAP	RVZDC-6627-PF-48	1	MOUNTED ON NEW MONOPOLE	
	RAYCAP	RVZDC-4520-RM-48	1	MOUNTED WITHIN NEW EQUIPMENT CABINET	



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REV	DATE	DESCRIPTION
A	08/21/24	90% CONSTRUCTION DRAWINGS
A	11/11/24	REVISED TOWER HEIGHT

PROJECT INFORMATION

CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

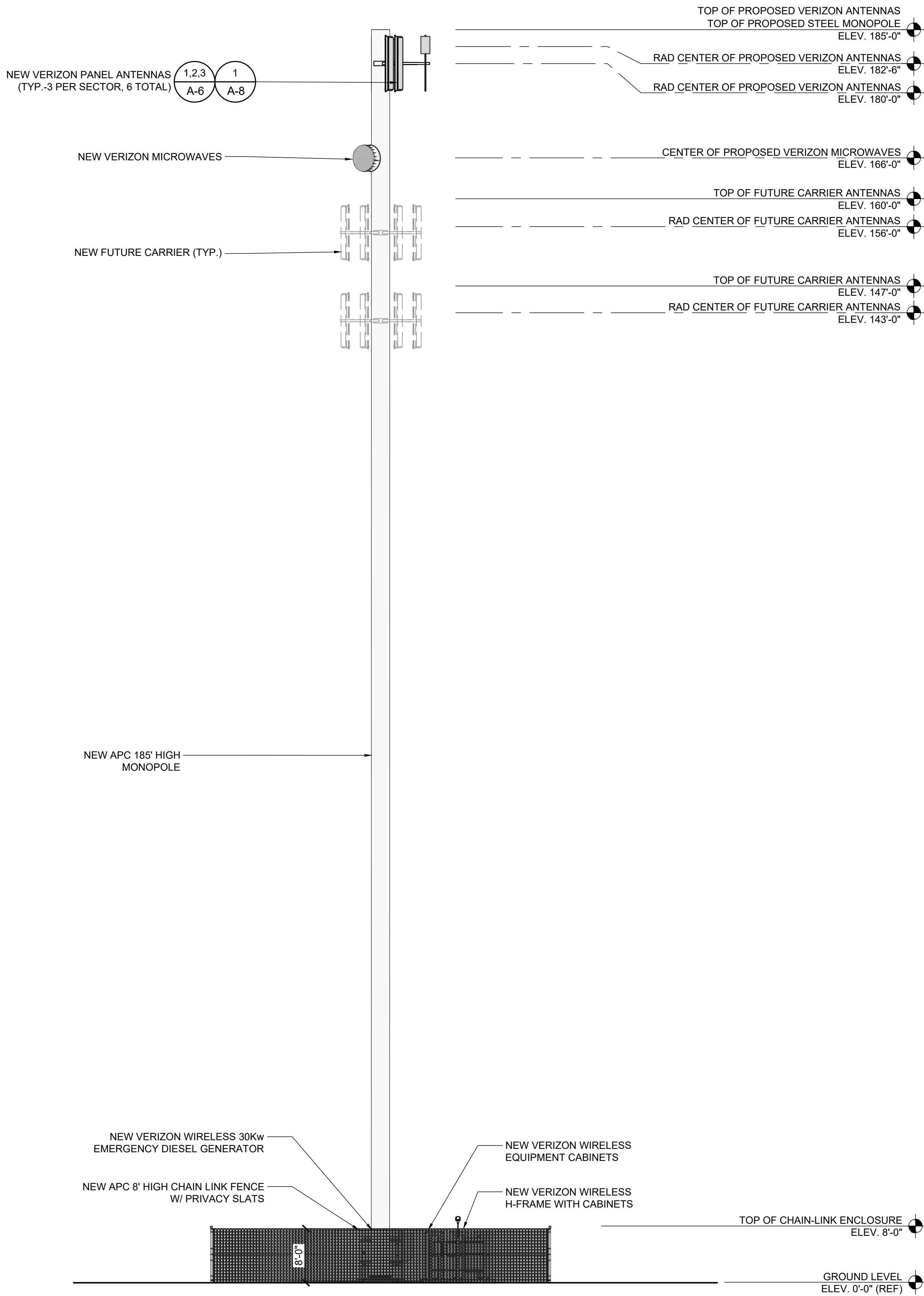
SHEET TITLE

ANTENNA PLAN AND SCHEDULE

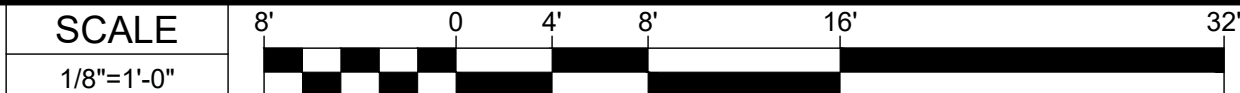
SHEET NUMBER

A-3

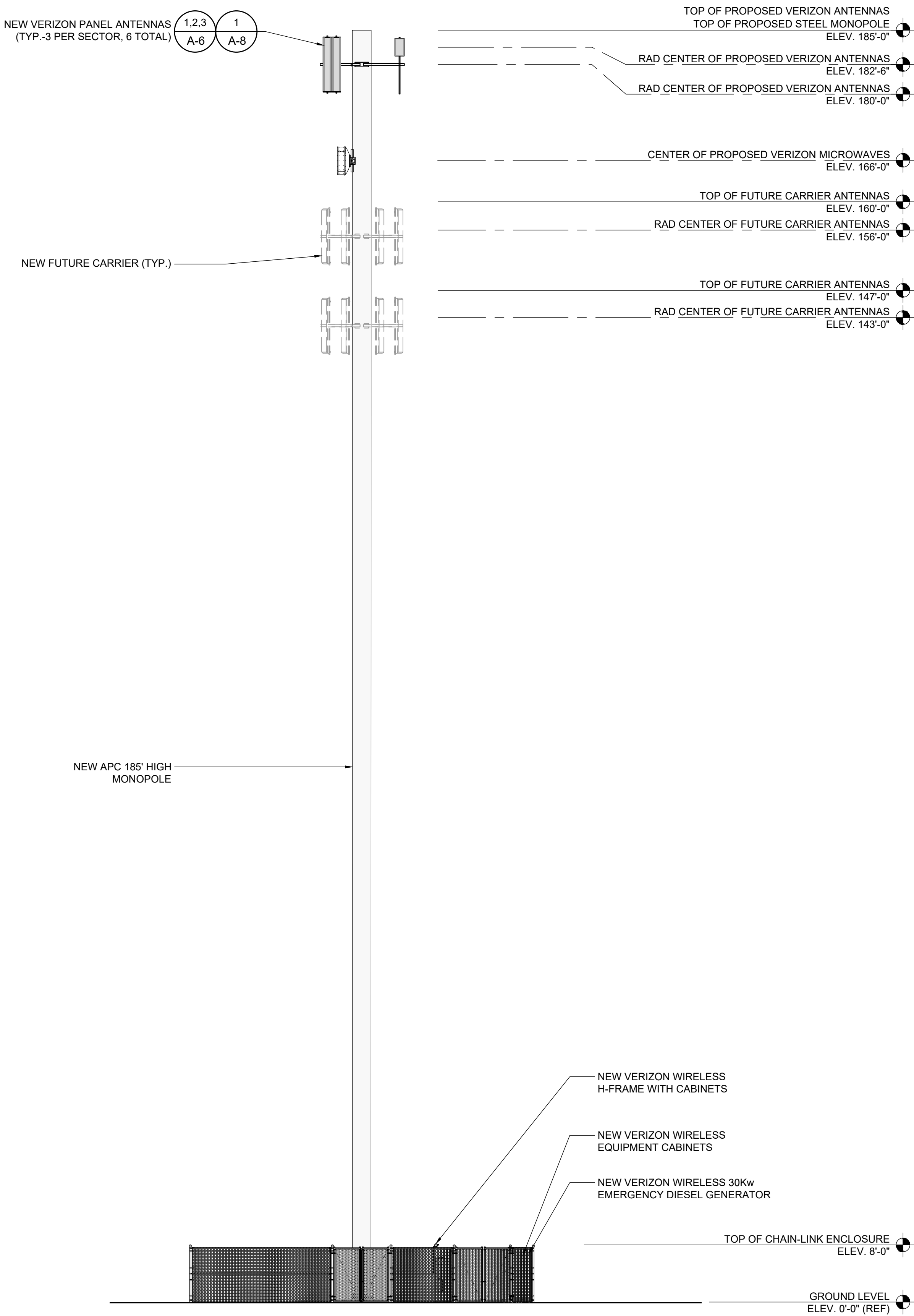
- NOTES:
- IF DIMENSIONS SHOWN ON PLAN DO NOT SCALE CORRECTLY, CHECK FOR REDUCTION OR ENLARGEMENT FROM ORIGINAL PLANS.
 - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.



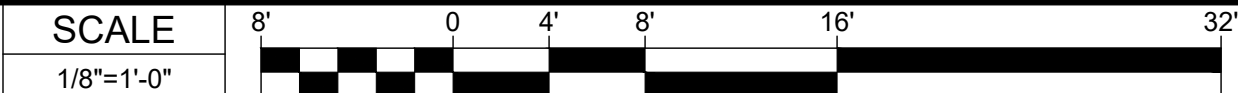
NEW NORTH ELEVATION



2



NEW WEST ELEVATION



1



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PG	GD	RB

CONSTRUCTION DRAWINGS

SUBMITTALS		
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CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

ELEVATIONS

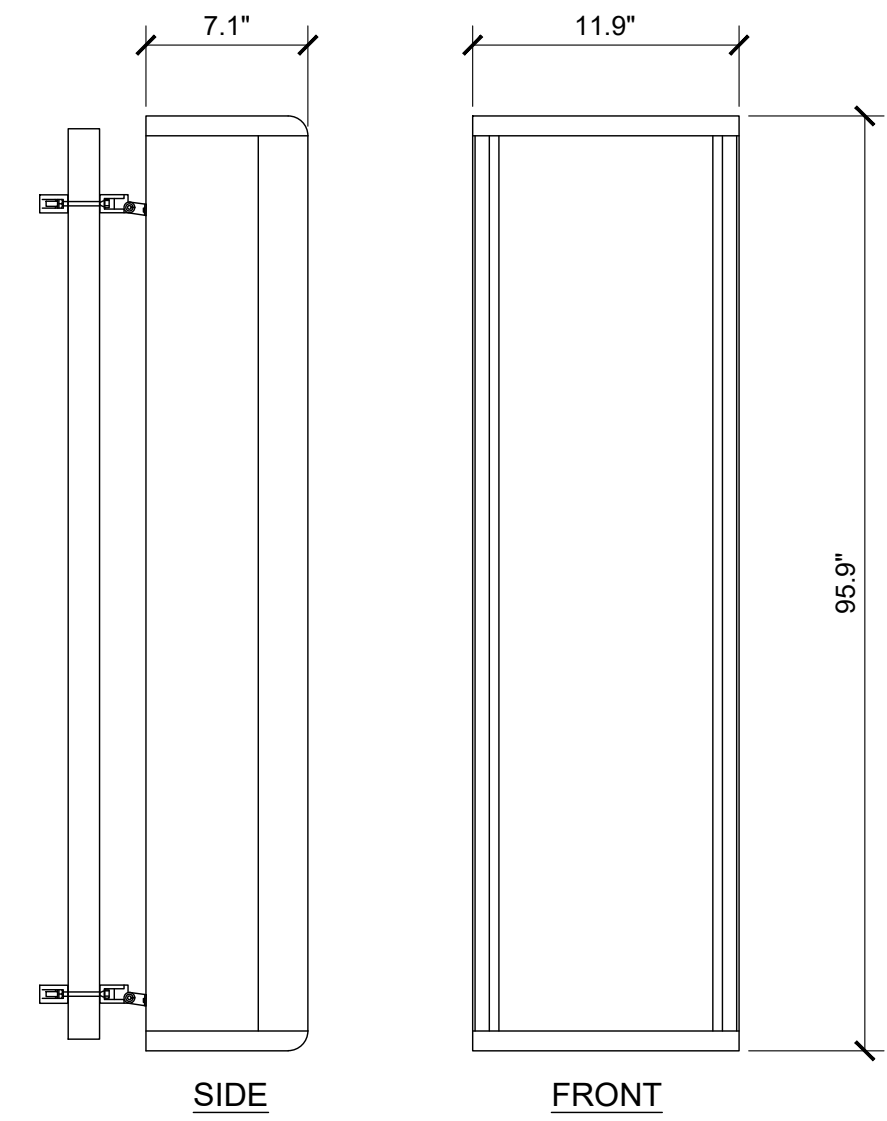
SHEET NUMBER

A-4

EUKON VERIZON 90CD MONOPOLE TEMPLATE_V2_11-18-22

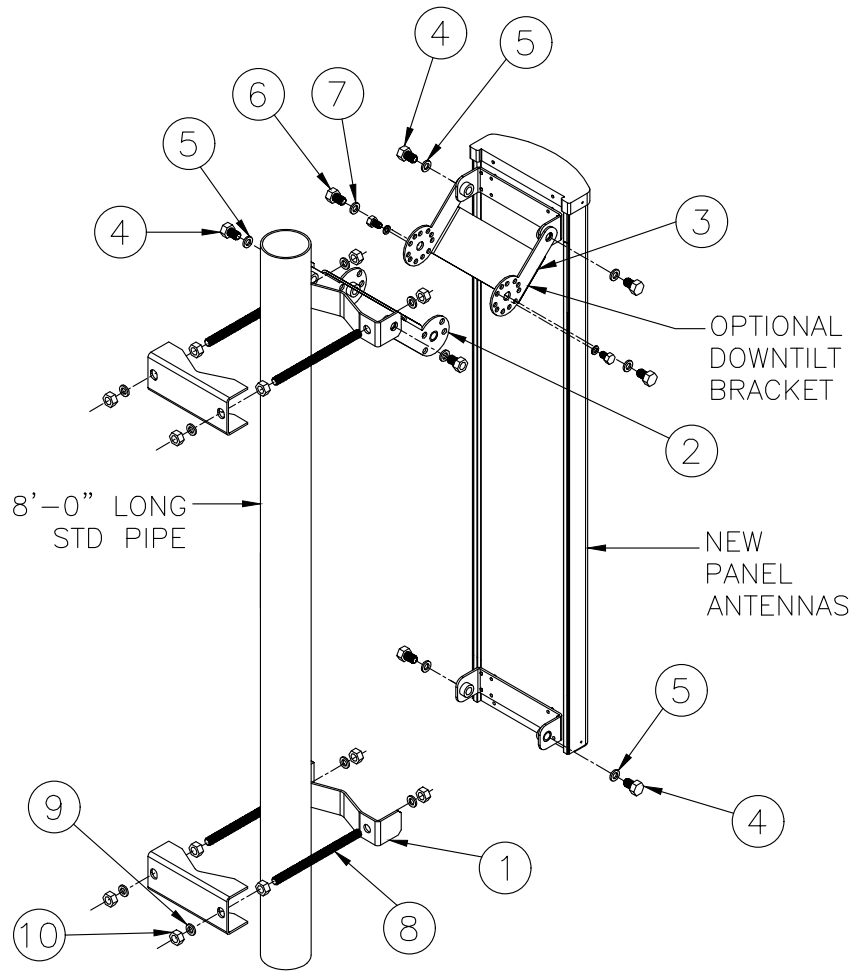
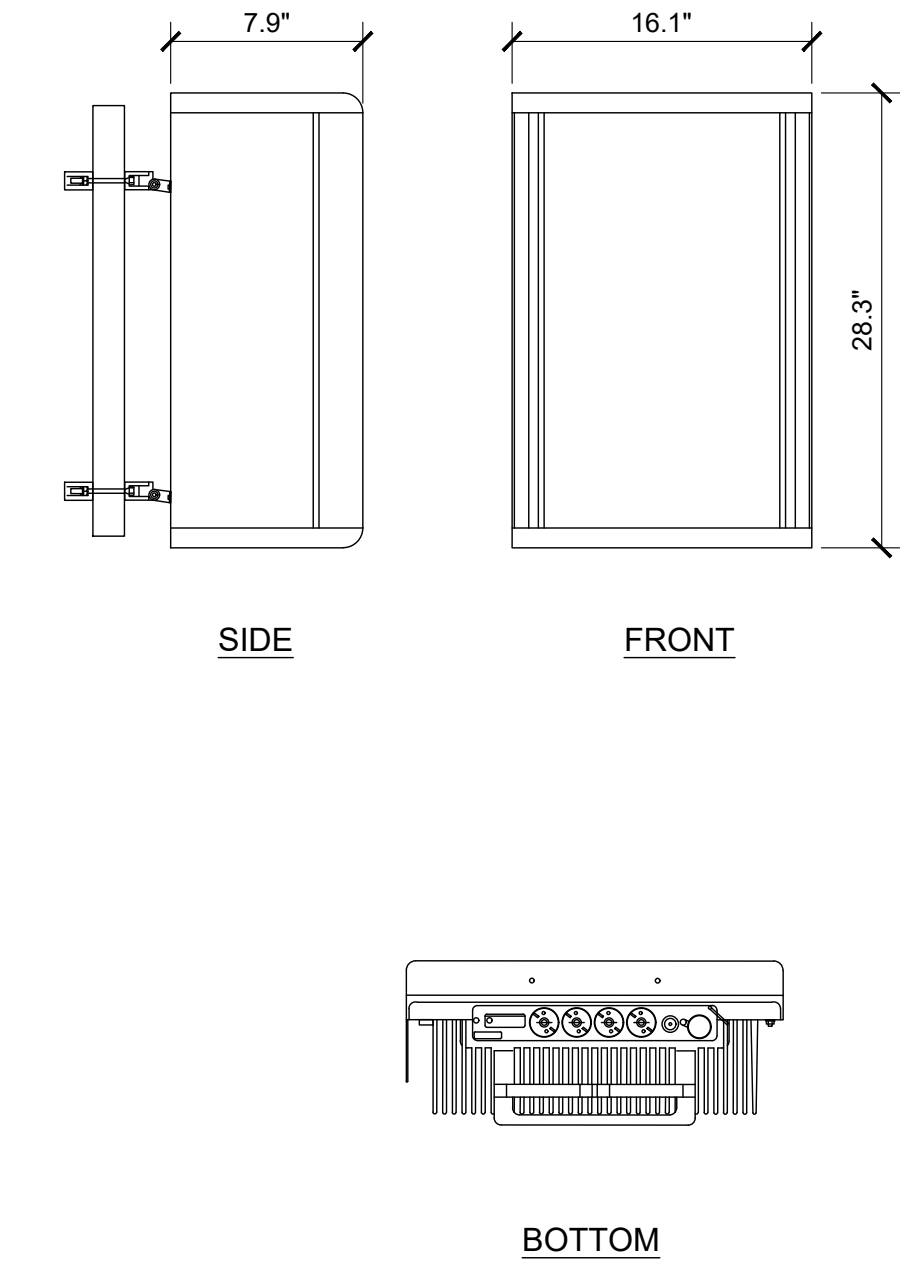
COMMSCOPE - NHH-65C-R2B

DIMENSIONS (LxWxD):	95.9 x 11.9 x 7.1 INCHES (2438 x 301 x 180 mm)
NET WEIGHT (WITHOUT MOUNTING):	51.6 lbs (23.4 kg)
WIND LOADING, FRONTAL:	88.3 lbf @ 150 km/h
WIND LOADING, LATERAL:	74.2 lbf @ 150 km/h
WIND LOADING, MAXIMUN:	170.2 lbf @ 150 km/h
WIND SPEED, MAXIMUN:	241 km/h (150 mph)



ERICSSON - AIR6419 B77D

DIMENSIONS (LxWxD):	28.3 x 16.1 x 7.9 in
NET WEIGHT (WITHOUT MOUNTING):	66.1 lbs

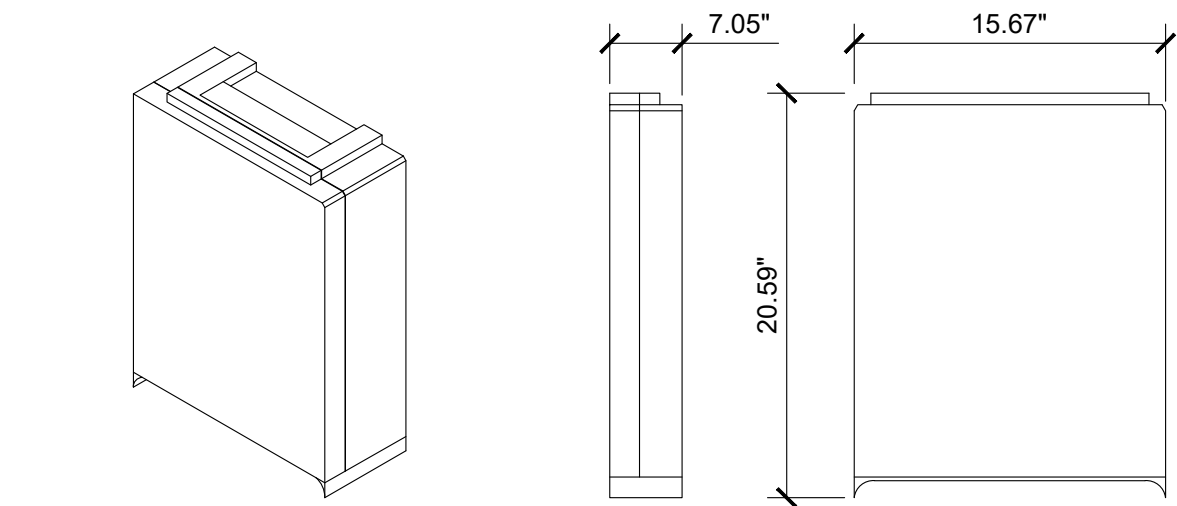


- NOTES:
1. INSERT SCISSOR BRACKETS BETWEEN THE UPPER ANTENNA MOUNTING BRACKET AND THE UPPER POLE ADAPTER BRACKET. SECURE USING 1/2 INCH HARDWARE PROVIDED.
 2. TO SET THE DEGREE OF DOWNTILT, ALIGN THE DESIRED HOLES ON THE SCISSOR BRACKETS AND SECURE USINT 5/16 INCH HARDWARE PROVIDED.
 3. THE NUMBER OF CONNECTORS WILL VARY BASED ON ANTENNA TYPE.

ITEM	QTY	DESCRIPTION
①	1	ADAPTER, POLE, LOWER
②	1	BRACKET, DOWNTILT, POLE
③	1	BRACKET, DOWNTILT, ANTENNA
④	6	1/2 x 1 HEX HEAD BOLT
⑤	6	1/2 SPLIT WASHER
⑥	2	5/16 x 1 HEX HEAD BOLT
⑦	2	5/16 SPLIT WASHER
⑧	4	1/2" THREADED ROD
⑨	8	1/2" SPLIT WASHER
⑩	12	1/2" NUT

ERICSSON RRUS-4490 B5/B12

DIMENSIONS (LxWxD):	20.55in x 15.63in x 7in
WEIGHT W/ MOUNTING:	90 lbs

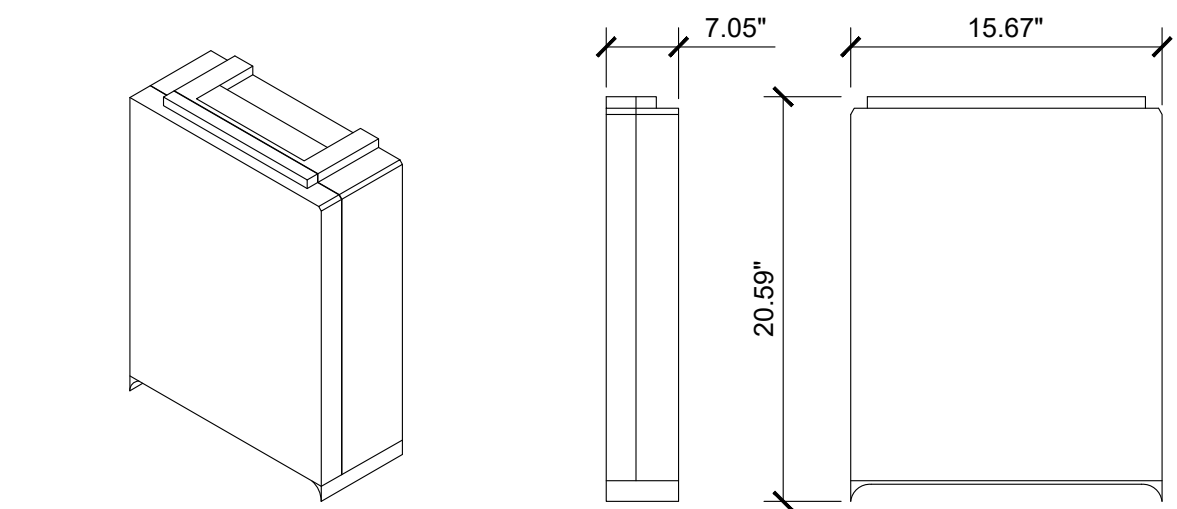


RRU DETAIL

SCALE	4
NONE	

ERICSSON RRUS-4890 B25/B66

DIMENSIONS (LxWxD):	20.59in x 15.67in x 7.05in
WEIGHT W/ MOUNTING:	92.3 lbs



ANTENNA DETAIL

SCALE	1
NONE	

ANTENNA DETAIL

SCALE	2
NONE	

ANTENNA MOUNTING DETAIL

SCALE	3
NONE	

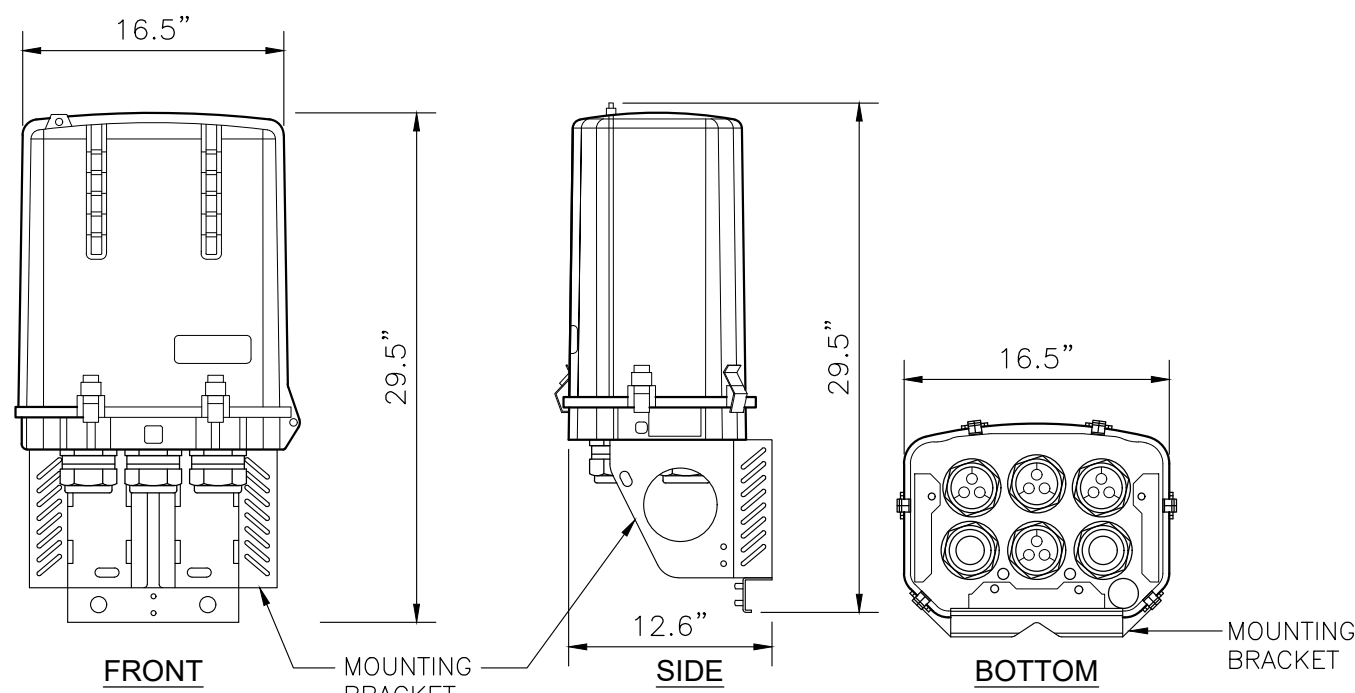
RAYCAP -- RVZDC-6627-PF-48

ELECTRICAL

NOMINAL OPERATING VOLTAGE:	48 VDC
NOMINAL DISCHARGE CURRENT:	20 kA 8/20 μs
MAXIMUM SURGE CURRENT:	60 kA 8/20 μs
MAXIMUM IMPULSE (LIGHTNING) CURRENT PER IEC 61643-1:	5 kA 10/350 μs
MAXIMUM CONTINUOUS OPERATING VOLTAGE [Uc]	75 VDC
VOLTAGE PROTECTION RATING (VPR) PER UL 1449 3RD EDITION:	400V
PROTECTION CLASS AS PER IEC 61643-1:	CLASS I
SPD ALARM:	CROSS POLARITY, SHORT CIRCUIT, OR POWER OUTAGE
INTRUSION SENSOR:	MICROSWITCH
MOISTURE SENSOR:	INFRARED MOISTURE DETECTOR
STRIKESOR MODULE TYPE:	30-V1-2CHV STRIKESORB MODULES INSTALLED TO PROTECT 12 REMOTE RADIO HEADS

MECHANICAL

OPERATING TEMPERATURE:	-40° C TO +80° C
UV RESISTANT:	YES
DIMENSIONS:	12.6" X 16.5" X 29.5"
WEIGHT:	SYSTEM: 32 lbs

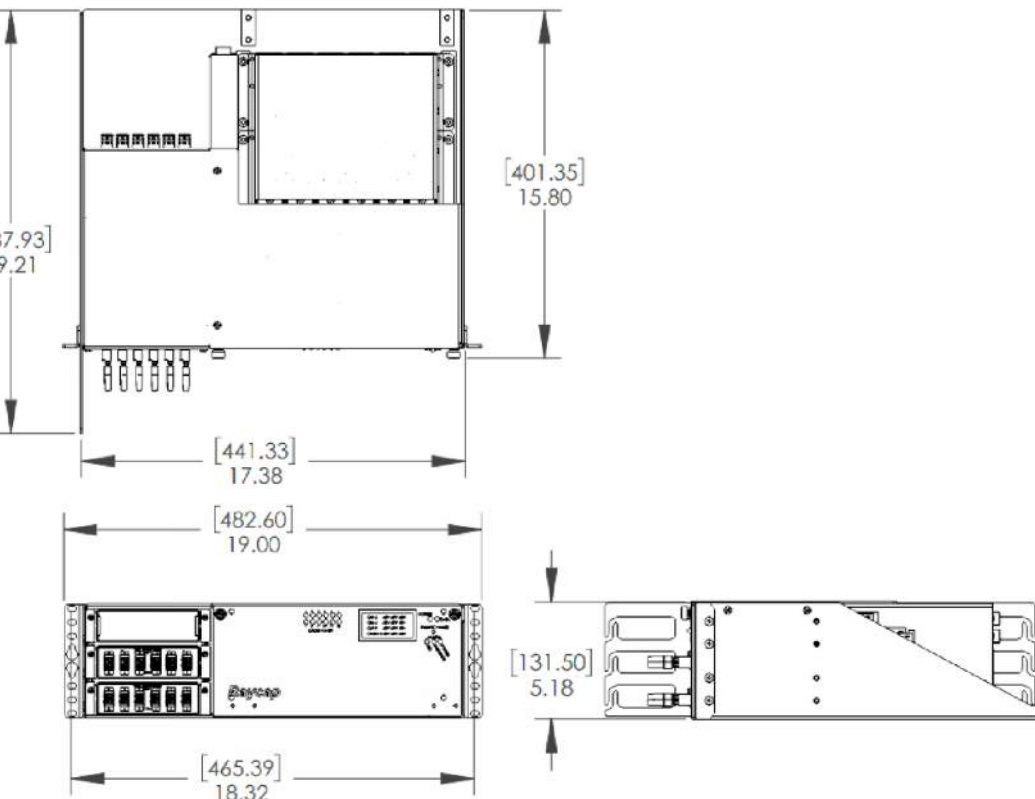


RAYCAP DETAIL

SCALE	6
NONE	

RAYCAP RVZDC-4520-RM-48

DIMENSIONS, WxDxH:	(18.32"x19.21"x5.18")
NOMINAL OPERATING VOLTAGE:	48 VDC
NOMINAL DISCHARGE CURRENT:	20 kA 8/20μs
MAXIMUM DISCHARGE CURRENT:	60 kA 8/20μs
MAXIMUM CONTINUOUS OPERATING VOLTAGE:	75 VDC
VOLTAGE PROTECTION RATING:	400 V
TOTAL WEIGHT:	22.10 lbs

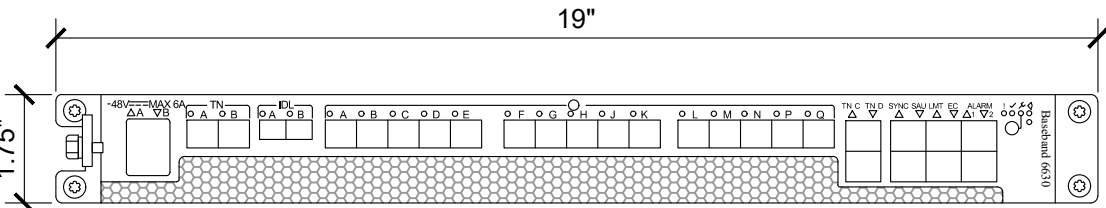


RAYCAP DETAIL

SCALE	9
NONE	

ERICSSON BASEBAND - 6630

DIMENSIONS (HxWxD):	1.75"x19"x13.78"
WEIGHT:	14.33 lbs
TEMPERATURE:	0 TO +55°C
RELATIVE HUMIDITY:	5-95%
ABSOLUTE HUMIDITY:	1-29 g/m ₃



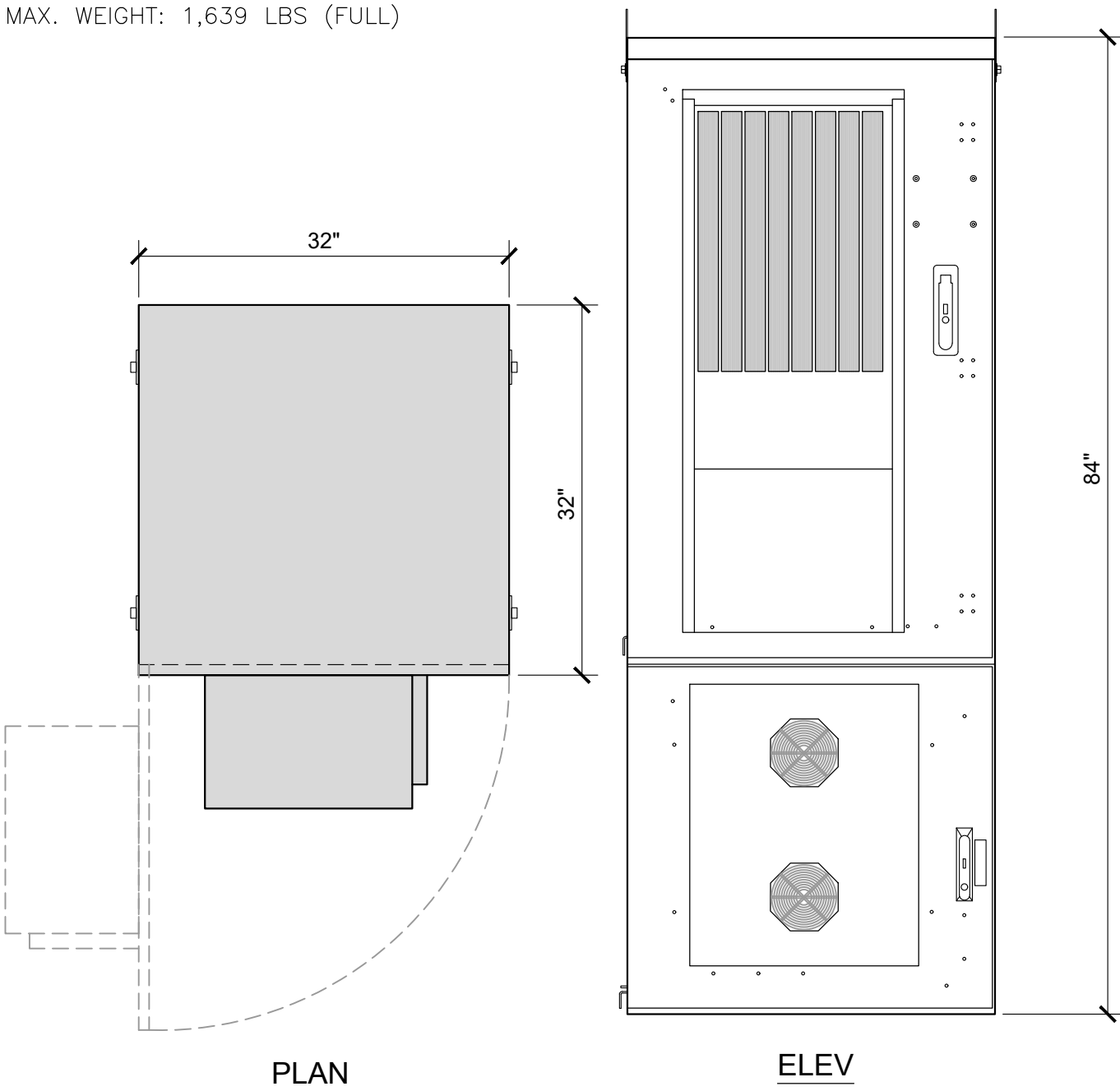
BASEBAND DETAIL

SCALE	7
NONE	

CHARLES CUBE-SS4B228LX1 RF/BATTERY CABINET

CABINET DIMENSIONS

HEIGHT: 84"
WIDTH: 32"
DEPTH: 32"
MIN. WEIGHT: 600 LBS (EMPTY)
MAX. WEIGHT: 1,639 LBS (FULL)

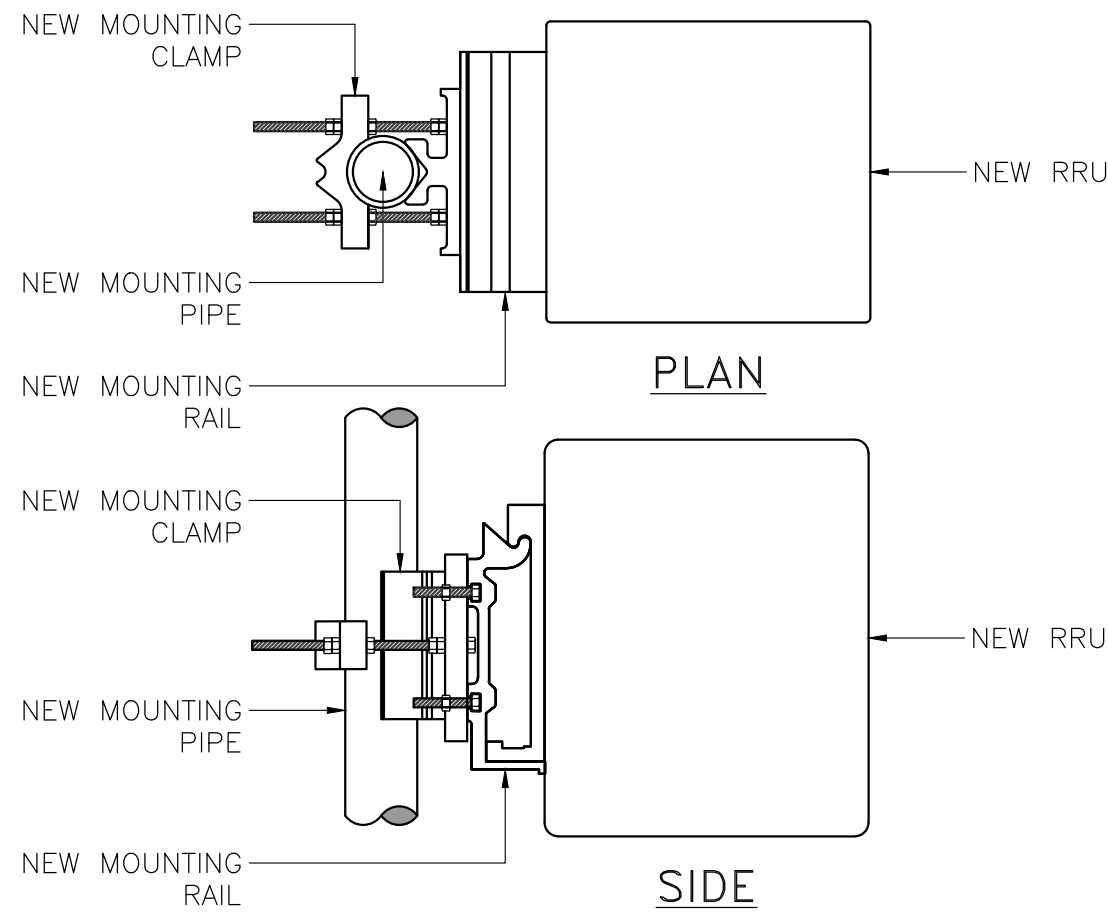


EQUIPMENT CABINET DETAIL

SCALE	8
NONE	

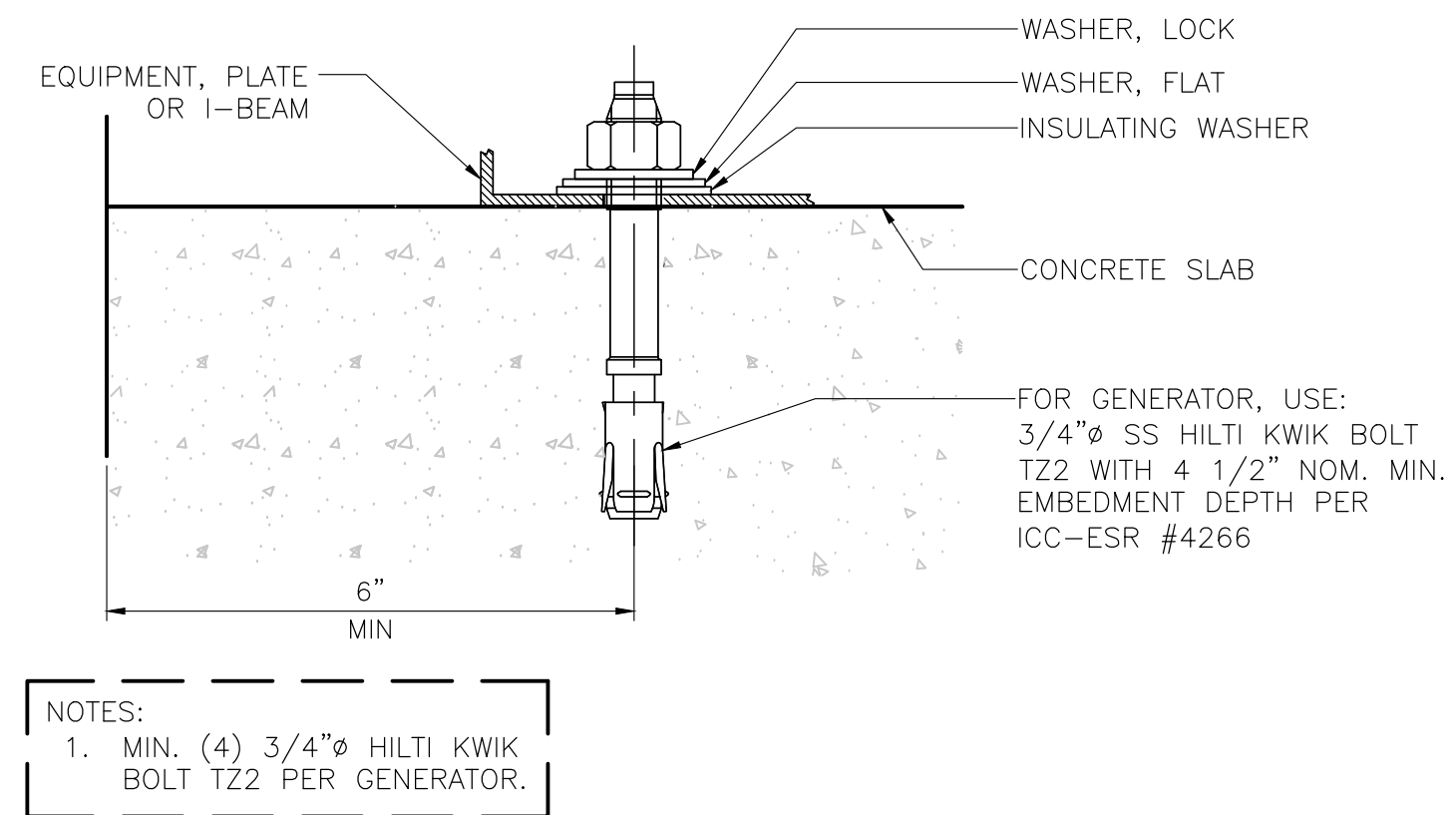
RRU DETAIL

SCALE	5
NONE	



RRU MOUNTING DETAIL

SCALE	9
NONE	



ANCHORAGE DETAIL

SCALE	10
NONE	



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CONSTRUCTION DRAWINGS

SUBMITTALS		
REV	DATE	DESCRIPTION
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A	11/11/24	REVISED TOWER HEIGHT

PROJECT INFORMATION

CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

A-5

ANTENNA ELECTRICAL SPECIFICATIONS

FREQUENCY BAND, MHz:	1575.42 +/-10
ANTENNA GAIN, dBic:	4.5
IMPEDANCE, ohms, nominal:	50
VSWR:	<1.5:1
POLARIZATION:	RIGHT HAND CIRCULAR
CONNECTOR:	N TYPE FEMALE
CONNECTOR POSITION:	BOTTOM
NUMBER OF CONNECTORS:	1

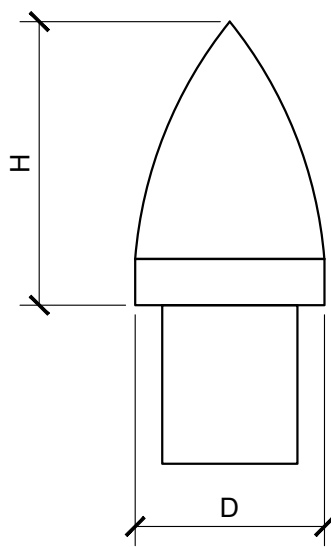
MECHANICAL SPECIFICATIONS

DIMENSIONS H x D, in (mm): 5.0 (126) x 3.2 (81)
WEIGHT, lb (kg): 0.6 (0.3)
RADOME COLOR WHITE

MOUNTING HARDWARE:

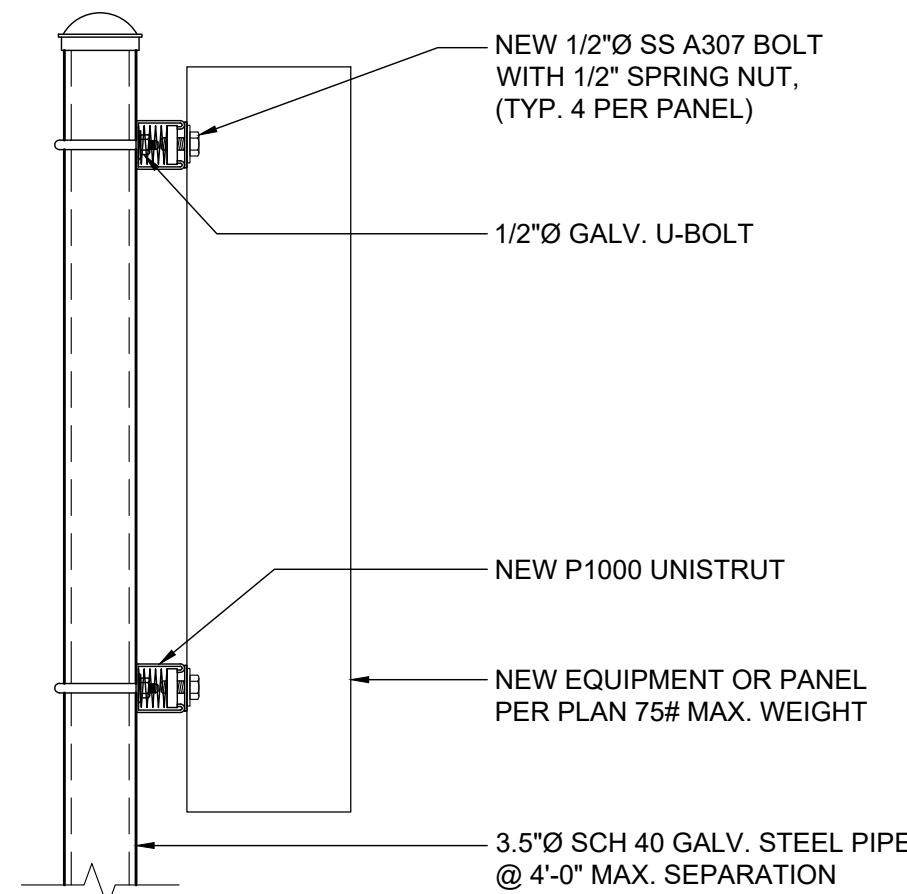
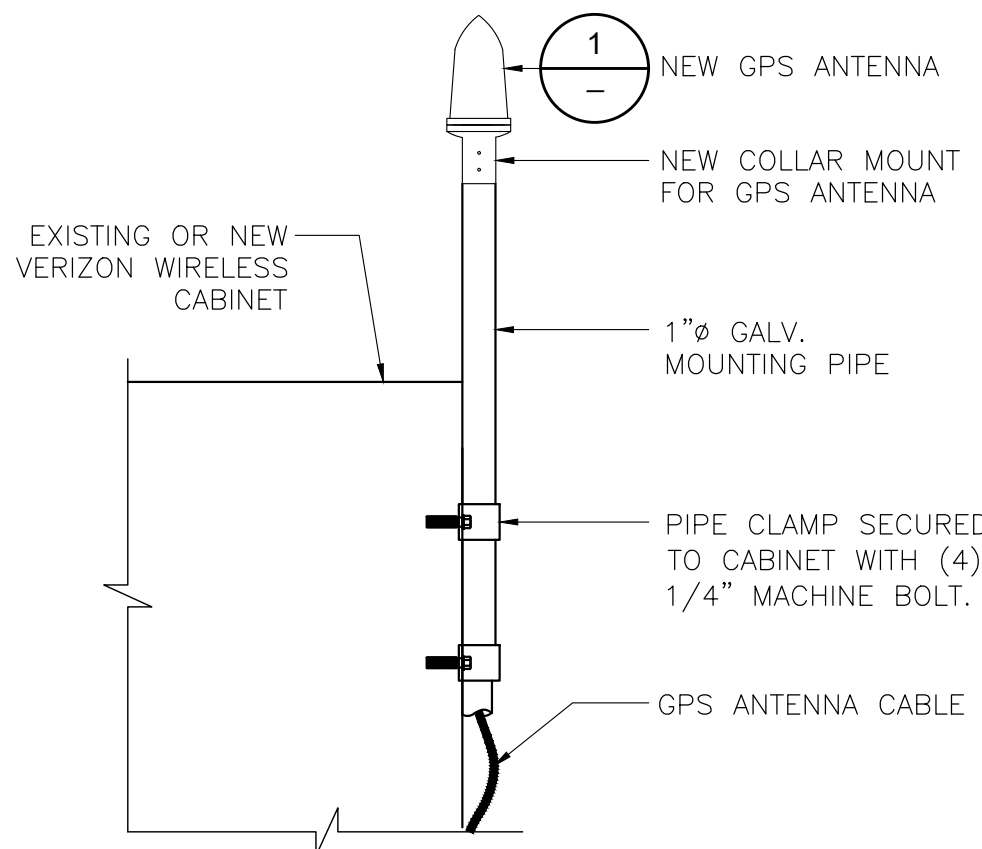
MODEL GPS-QBW-26N DOES NOT
INCLUDE MOUNTING HARDWARE.

MODEL GPS-1BW-26NMS INCLUDES
STANDARD MOUNTING HARDWARE.
NMS VERSION INCLUDES COLLAR AND
PIPE CLAMP. PIPE DIAMETER OUTER,
in (mm): 1.0 (25) to 1.45 (37)



NOTES:

1. LOCATION OF ANTENNA MUST HAVE CLEAR VIEW OF SOUTHERN SKY AND CANNOT HAVE ANY BLOCKAGES EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.
2. ALL GPS ANTENNA LOCATIONS MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. VERIFY WITH HANDHELD GPS BEFORE FINAL LOCATION OF GPS ANTENNA.



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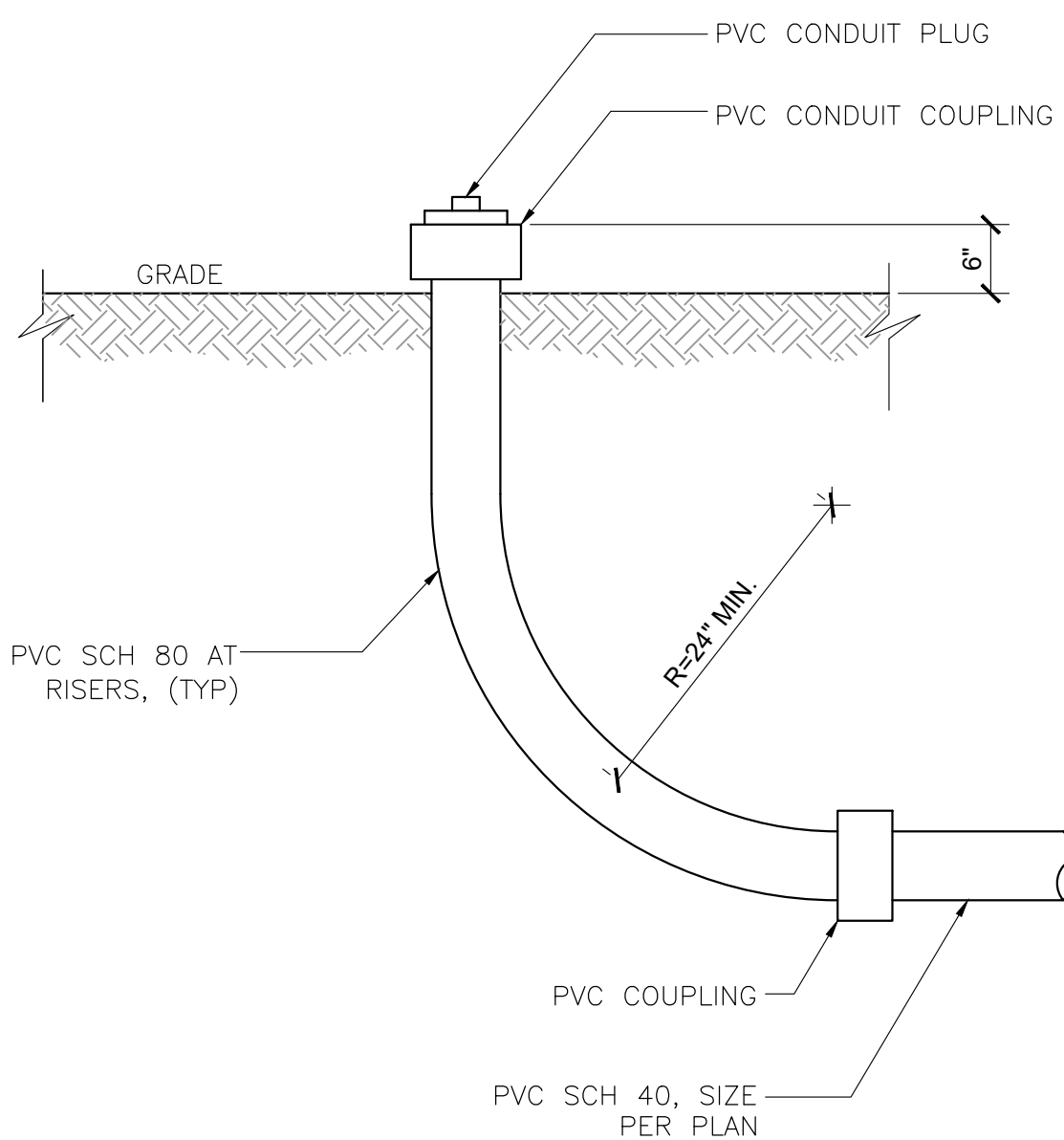
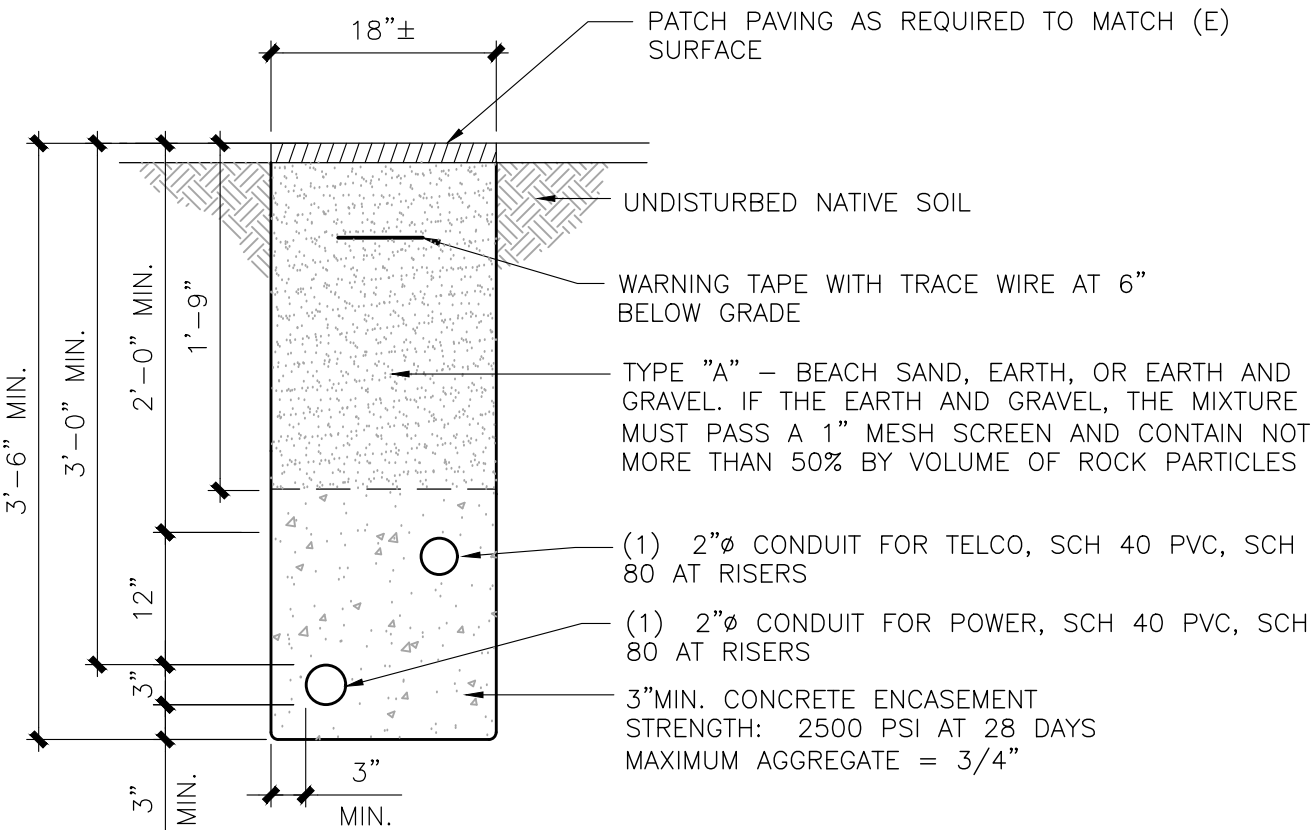


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SCALE	1
NONE	

SCALE	2
NONE	

SCALE	3
NONE	



CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION PER CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

CONCRETE CAST AGAINST EARTH.....	3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:	
#6 AND LARGER	2 IN.
#5 AND SMALLER & WWF	1 1/2 IN.
CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:	
SLAB AND WALL	3/4 IN.
BEAMS AND COLUMNS.....	1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL, UNLESS NOTED OTHERWISE.
7. GRAVEL SHALL BE NATURAL OR CRUSHED STONE WITH 100% PASSING 1 INCH SIEVE.
8. DIMENSIONS SHOWN ARE EXACT MINIMUM PAD SIZES REQUIRED FOR EQUIPMENT LAYOUTS — CONTRACTOR MAY ROUND UP TO THE NEAREST FOOT (OR HALF FOOT) IF LEASE AREA AND SPACE PERMIT.

SCALE	4
NONE	

SCALE	5
NONE	

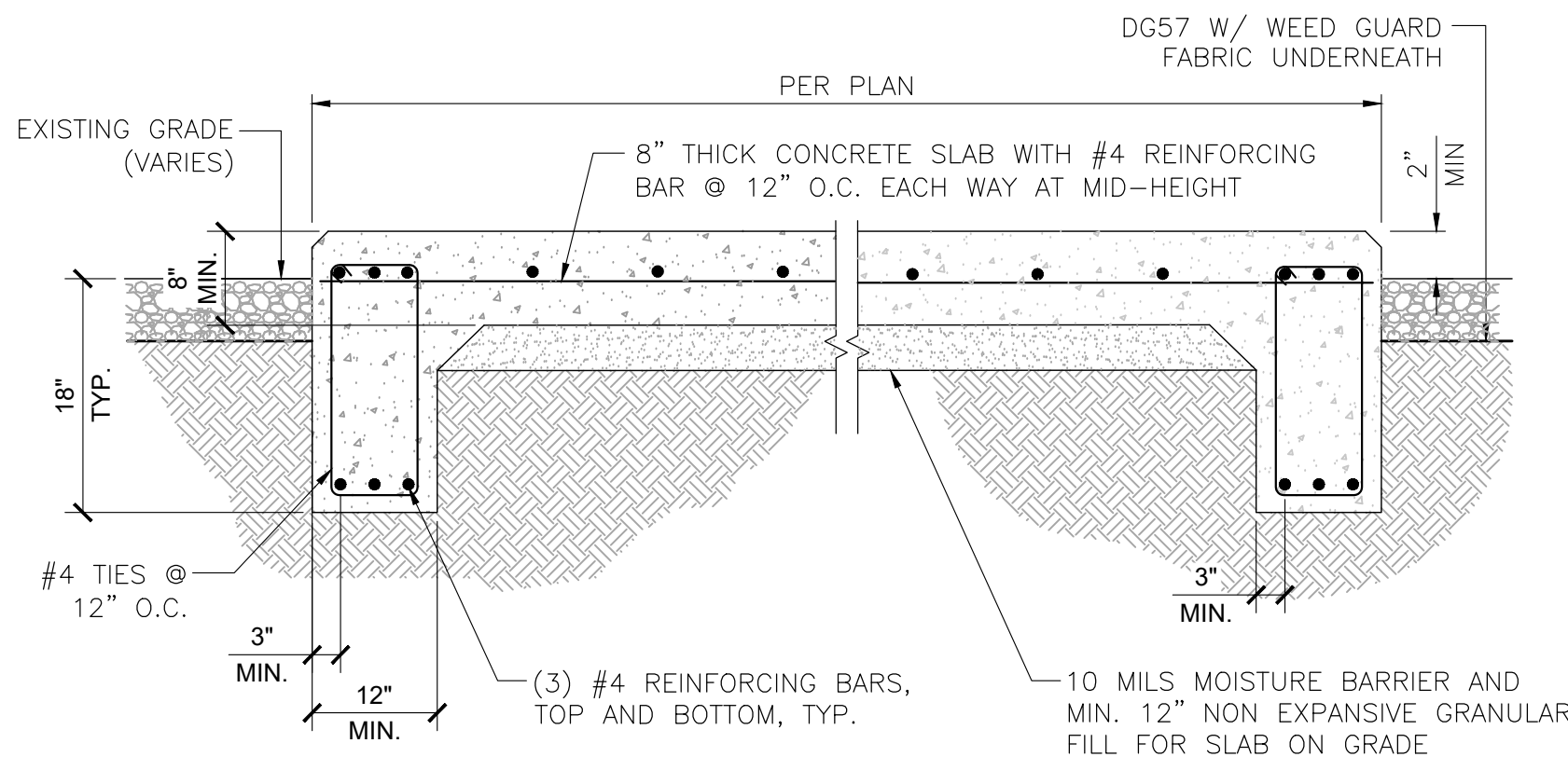
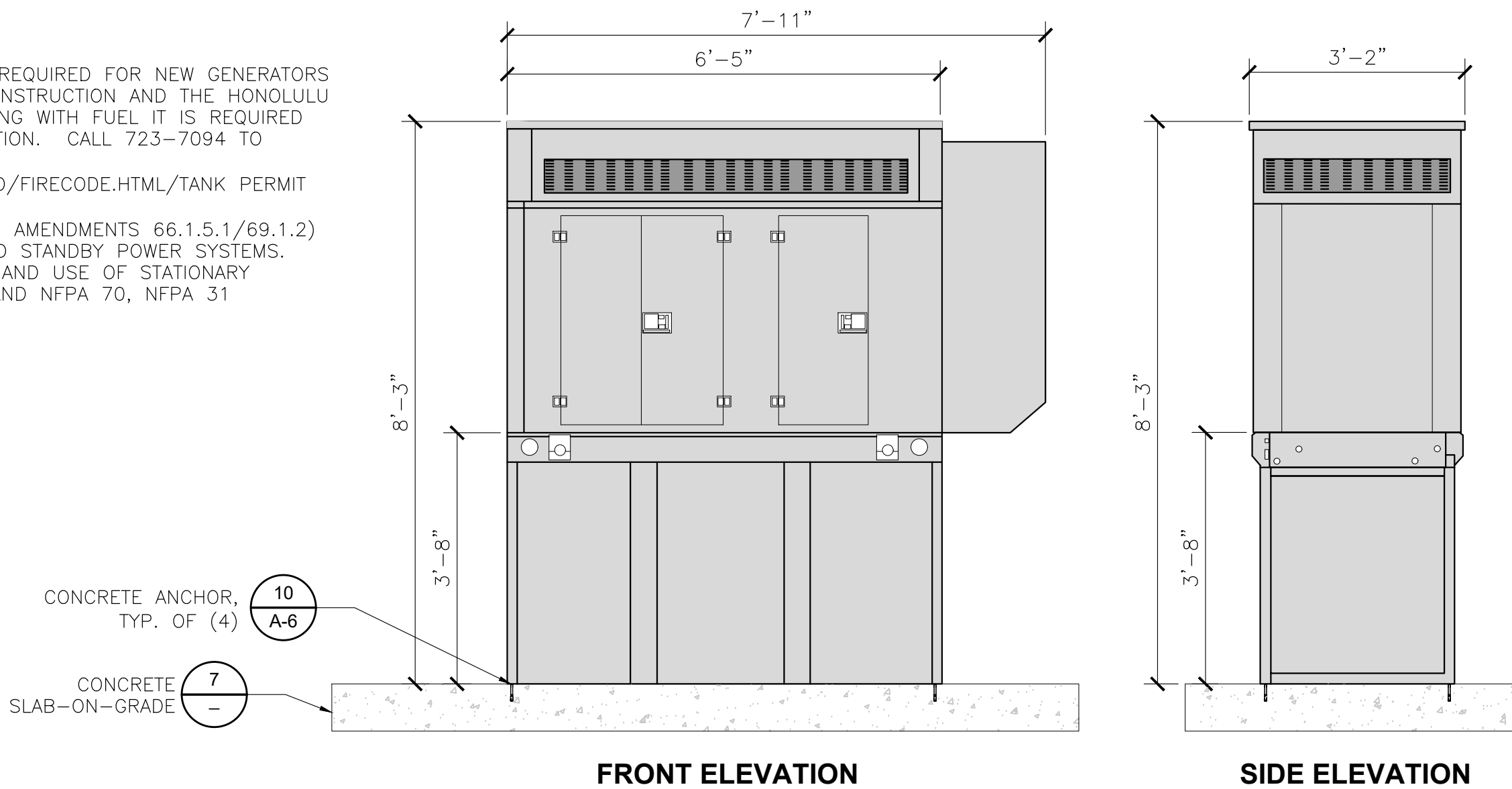
CABINET DIMENSIONS

HEIGHT: 99"
WIDTH: 94.8"
DEPTH: 38"
WEIGHT (EMPTY): 3,439 LBS
WEIGHT (FULL): 4,916 LBS
CAPACITY: 211 GAL
MAKE/MODEL #: GENERAL
 ACOUST
RUN TIME: 77 HRS

NOTES:

GENERATOR TANK INSTALLATION PERMIT NOTES:

1. A SEPARATE TANK INSTALLATION PERMIT IS REQUIRED FOR NEW GENERATORS AND TANKS TO BE SUBMITTED THROUGH CONSTRUCTION AND THE HONOLULU FIRE DEPARTMENT AND PAID. BEFORE FILLING WITH FUEL IT IS REQUIRED TO BE INSPECTED BY THE HFD PLANS SECTION, CALL 723-7094 TO ARRANGE INSPECTION.
2. REFERENCE [HTTP://WWW.HONOLULU.GOV/HFD/FIRECODE.HTML/TANK](http://WWW.HONOLULU.GOV/HFD/FIRECODE.HTML/TANK) PERMIT AND FORM
3. GENERAL PERMIT REQUIREMENTS (HONOLULU AMENDMENTS 66.1.51/69.1.2)
4. REFER ALSO TO: NFPA 110 EMERGENCY AND STANDBY POWER SYSTEMS. NFPA STANDARDS FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES AND NFPA 70, NFPA 31 INSTALLATION OF OIL-BURNING EQUIPMENT.



ELEVATION VIEW

NOTE:
CONTRACTOR SHALL MEET ALL
REQUIREMENTS SPECIFIED IN THE
GEOTECHNICAL REPORT PREPARED
BY SHINSATO ENGINEERING.

SCALE	6
NONE	

SCALE	7
NONE	

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CONSTRUCTION DRAWINGS

[illegible]

PROJECT INFORMATION

CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

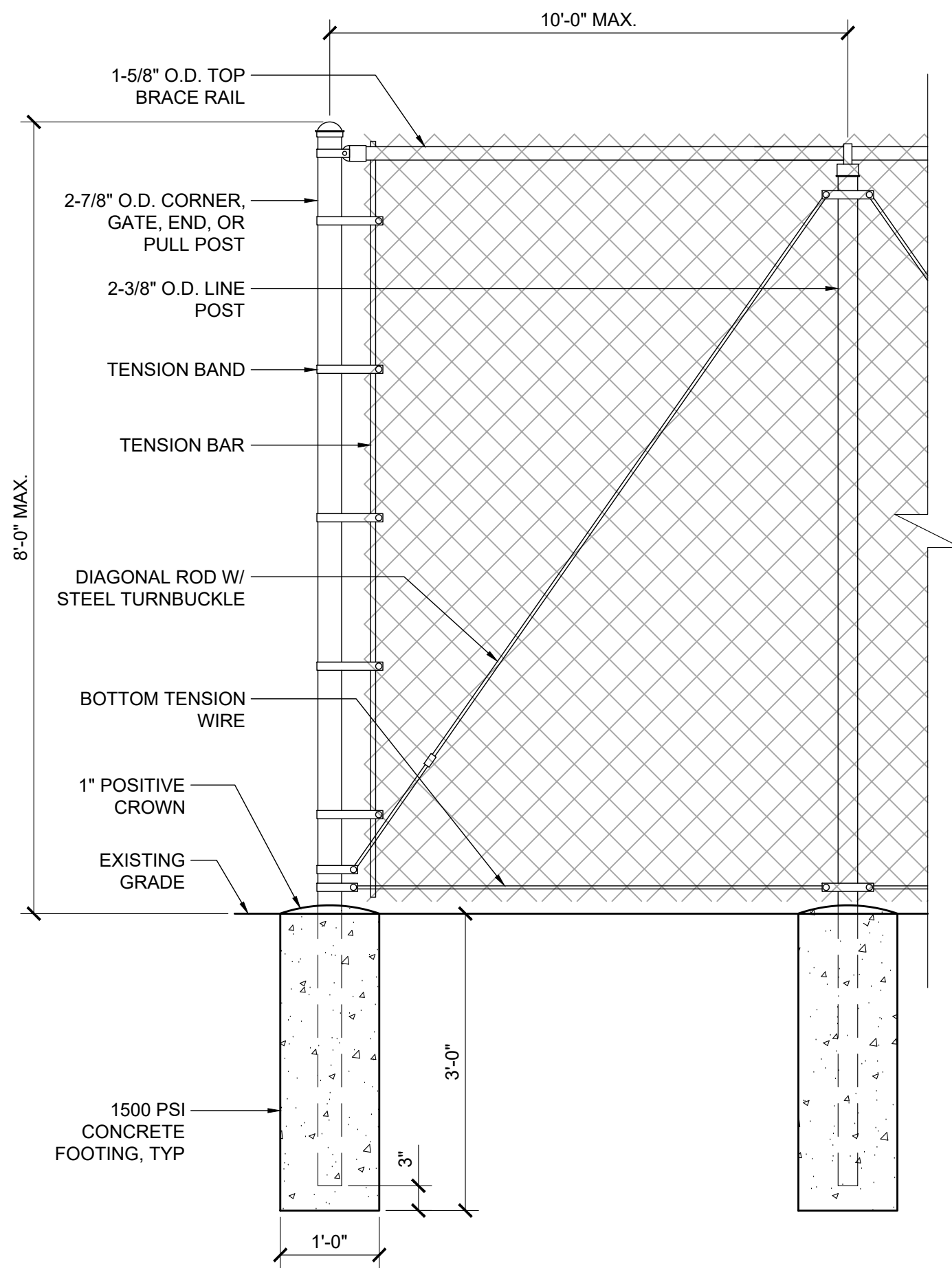
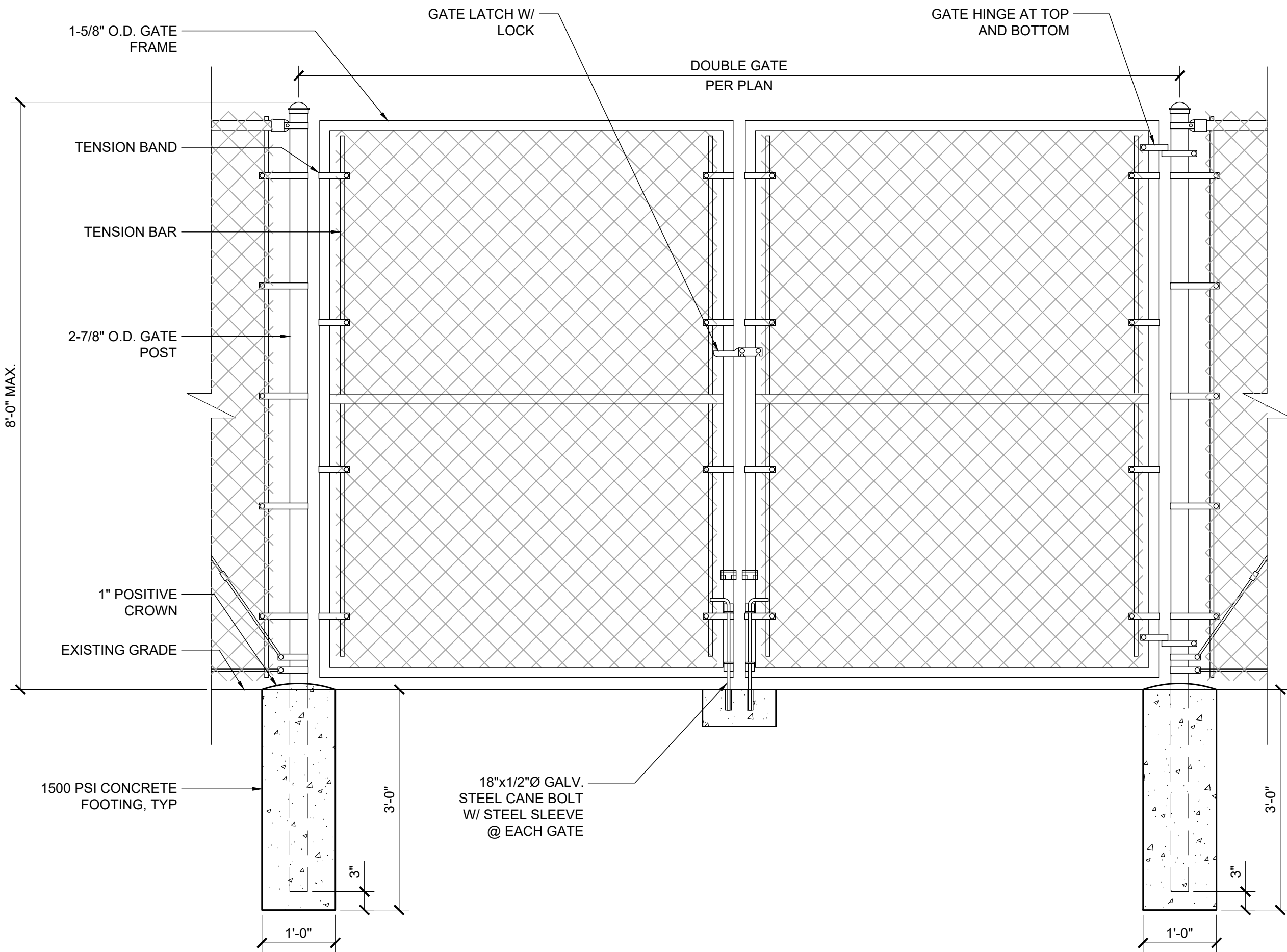
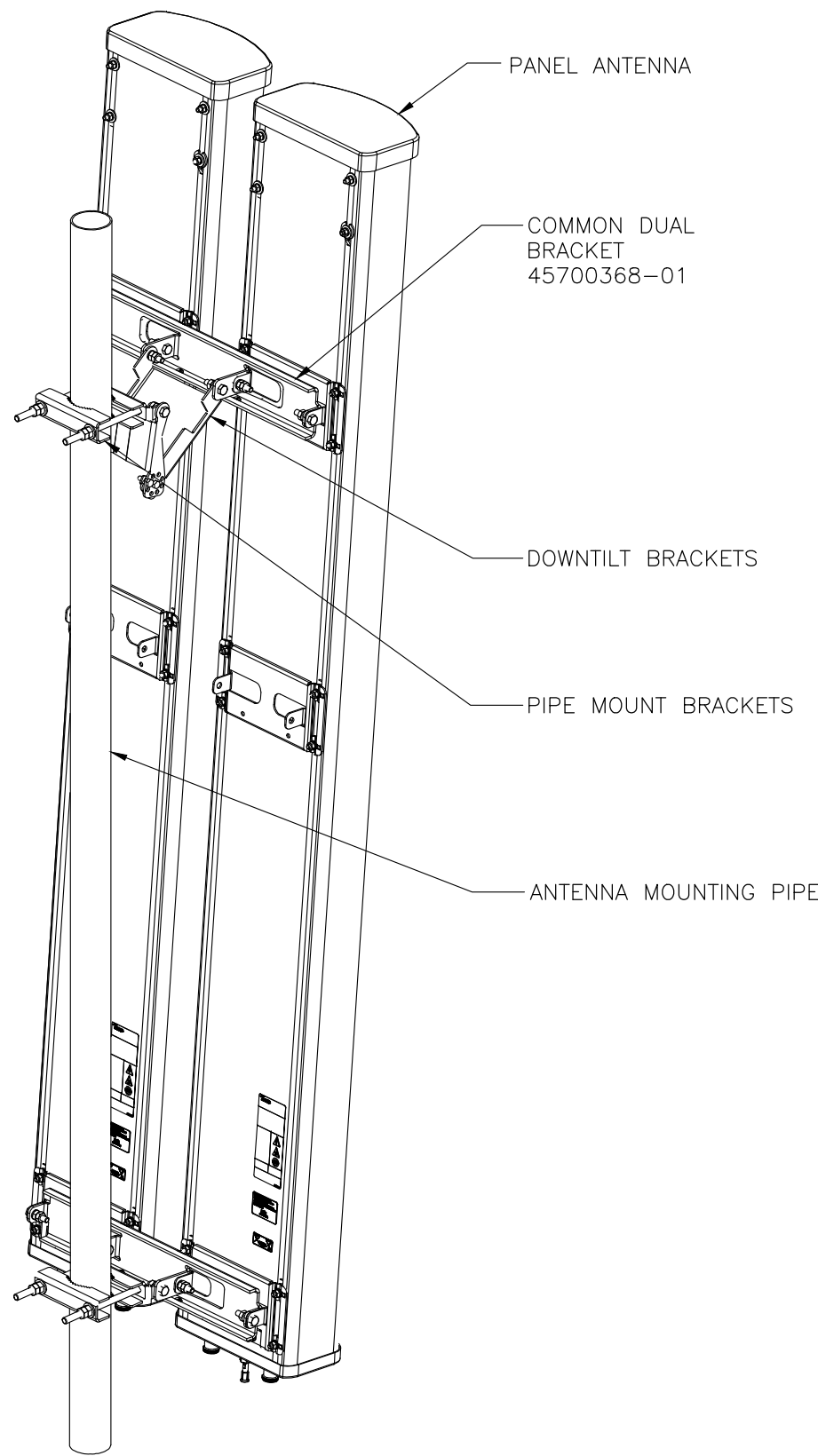
CONSTRUCTION
DETAILS

SHEET NUMBER

A-6

JMA - DUAL MOUNT BRACKET - P/N 91900314

Dimensions
Diameter(Max.): 4.5 in
Diameter(Min.): 1.3 in
Net Weight: 25.9 lb



DUAL ANTENNA DETAIL

SCALE
NONE

1

CHAIN-LINK GATE DETAIL

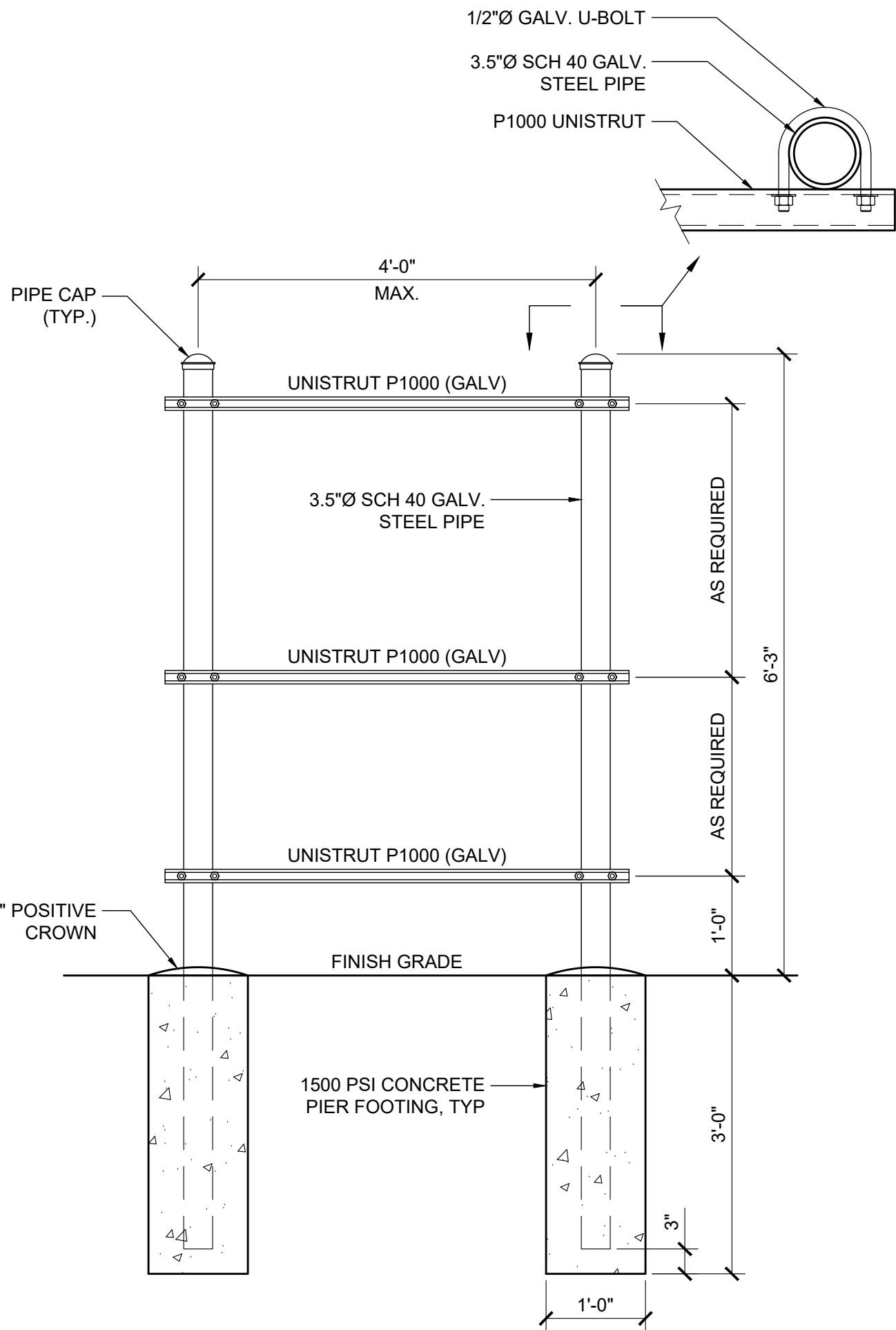
SCALE
NONE

2

CHAIN-LINK FENCE DETAIL

SCALE
NONE

3

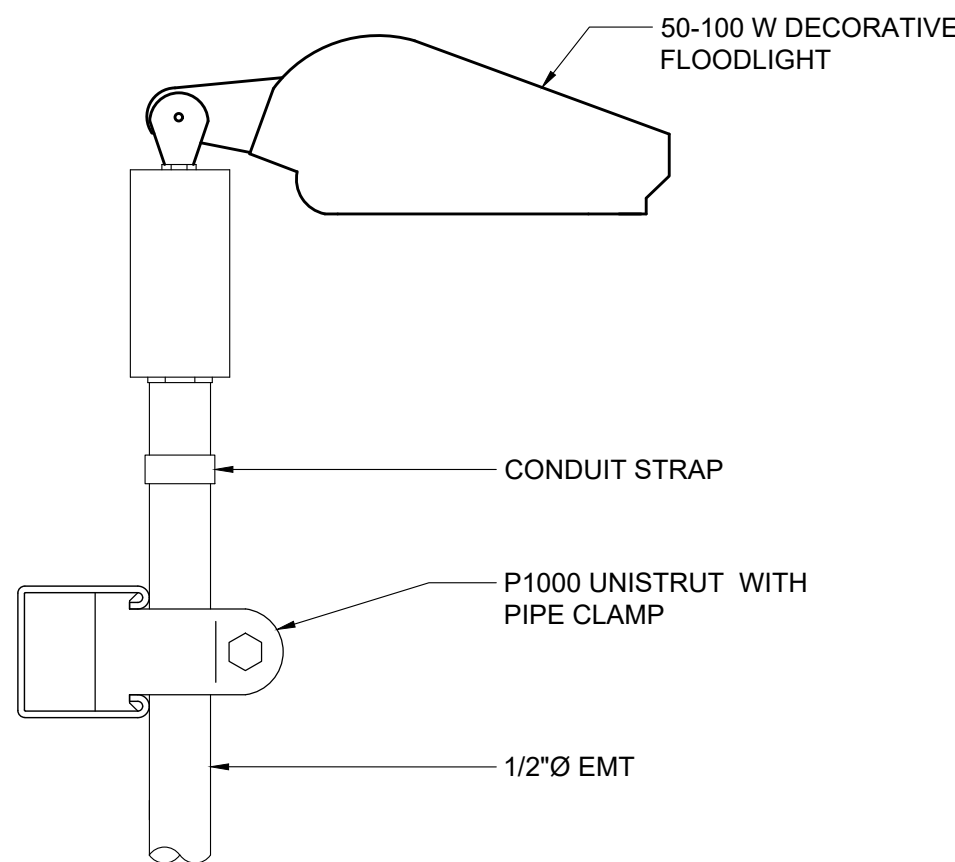


UTILITY H-FRAME

SCALE
NONE

4

SERVICE LIGHT DETAIL



SCALE
NONE

5

NOT USED

SCALE
NONE

8

NOT USED

SCALE
NONE

10



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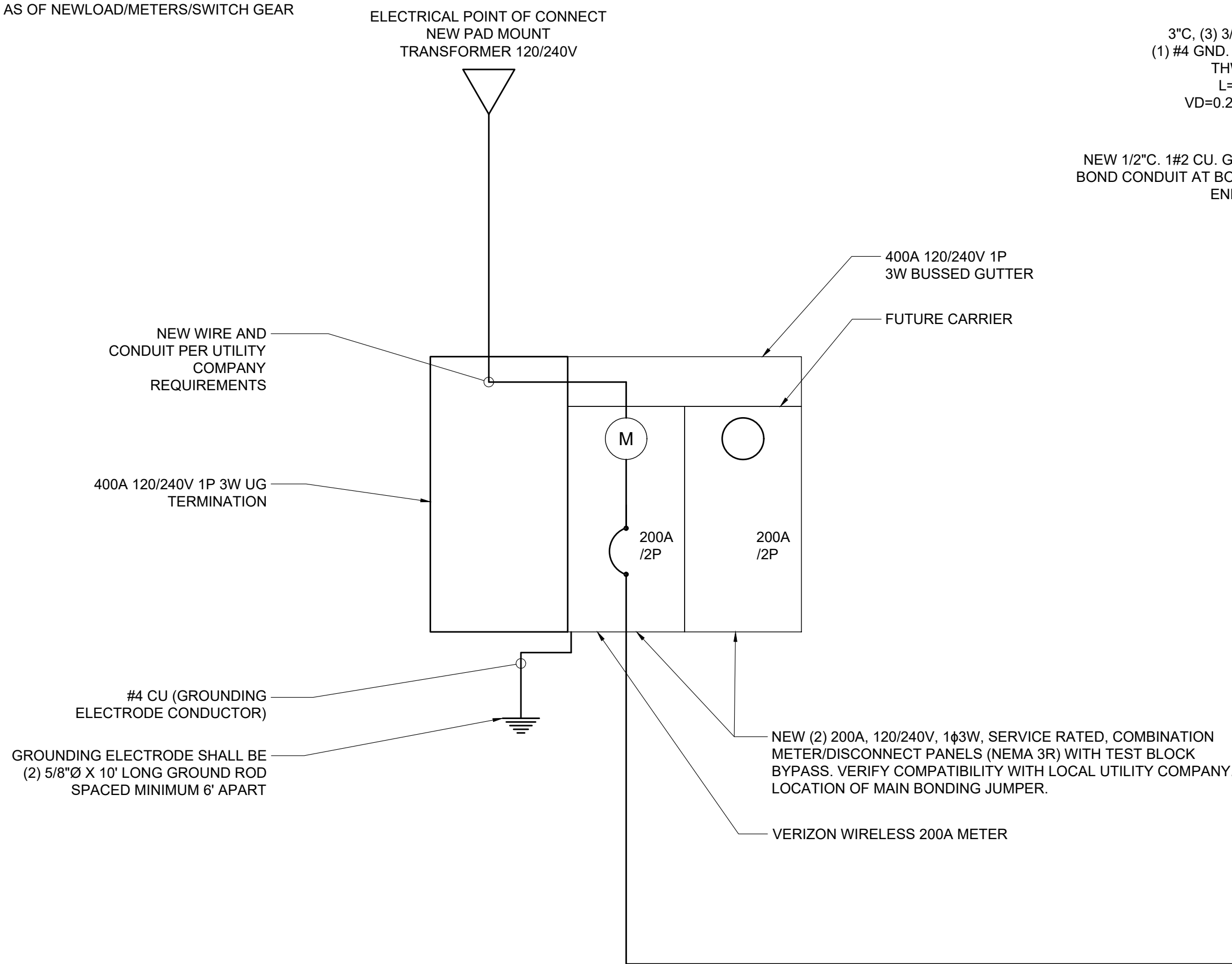
SHEET TITLE

CONSTRUCTION
DETAILS

SHEET NUMBER

A-7

- NOTES:
- FOR WIRING FROM LOAD CENTER TO EQUIPMENT REFER TO DRAWINGS PROVIDED BY MANUFACTURER.
 - FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO DRAWINGS PROVIDED BY MANUFACTURER.
 - AIC RATING FOR NEW METER AND/OR PANEL BOARDS MUST MATCH OR EXCEED THE RATINGS AS DETERMINED BELOW:
- AIC RATING AS REQUIRED BY THE SERVICE PROVIDER.
 - AIC RATINGS AS OF NEWLOAD/METERS/SWITCH GEAR EQUIPMENT.



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PG	GD	RB

ELECTRICAL SINGLE DIAGRAM

SCALE
NONE

2

PANEL PPC																															
MOUNTING		SURFACE		DOUBLE LUG		NO		VOLTS		120 240		MAIN		200A/2P																	
								PHASE		1		BUS		200A																	
								WIRE		3		A.I.C.		65K SERIES W/ MAIN																	
WIRE SIZE	LOCATION	A	B	L C O N V	K I T	M I S C	B K R	C I R C	A/B	C I R C	B K R	M I S C	R E C P	K I T	C O N V	L C	A	B	LOCATION	WIRE SIZE											
10	SURGE SUPPRESSOR	----					1	30/2	1	A	2	40/2	1				2880		RECTIFIER	8											
10	-----		-----				1	-	3	B	4	-	1					2880	-----	8											
12	GFI RECEPTACLE	360				1	15/1	5	A	6	40/2	1					2880		RECTIFIER	8											
12	GFI RECEPTACLE		360			1	15/1	7	B	8	-	1						2880	-----	8											
12	EXTERIOR LIGHT	500		1			20/1	9	A	10	40/2	1					2880		RECTIFIER	8											
	SPACE							11	B	12	-	1						2880	-----	8											
	SPACE							13	A	14	40/2	1					2880		RECTIFIER	8											
	SPACE							15	B	16	-	1						2880	-----	8											
	SPACE							17	A	18	40/2	1					2880		RECTIFIER	8											
	SPACE							19	B	20	-	1						2880	-----	8											
	SPACE							21	A	22	40/2	1					2880		RECTIFIER	8											
	SPACE							23	B	24	-	1						2880	-----	8											
		A= 18140										B= 17640																			
		W/LCL A= 18265										W/LCL B= 17640																			
TOTAL VA=		35780					W/LCL= 35905					W/LCL AMPS= 150					TOTAL LCL= 500					X .25 = 125									
HIGH PHASE VA=		18140					W/LCL= 18265					HIGH PH AMPS= 152					HIGH PHASE LCL= 500					X .25 = 125									
TOTAL KVA=		35.78										W/LCL: 35.91																			

FUTURE CARRIER(S) PANEL SCHEDULE

SCALE
NONE

3

PANEL PPC																										
MOUNTING		SURFACE		DOUBLE LUG		NO		VOLTS		120 240		MAIN		200A/2P												
								PHASE		1		BUS		200A												
								WIRE		3		A.I.C.		65K SERIES W/ MAIN												
WIRE SIZE	LOCATION	A	B	L C L	C O N V	K I T	R E C P	M I S C	B K R	C I R C	A/B	C I R C	B K R	M I S C	R E C P	K I T	C O N V	L C L	A	B	LOCATION	WIRE SIZE				
10	SURGE SUPPRESSOR	----						1	30/2	1	A	2	60/2	1					4320			DELTA ECA CABINET	1			
10	-----		-----					1	-	3	B	4	-	1							4320	-----	1			
12	GFI RECEPTACLE	360					1	15/1	5	A	6	60/2	1						4320			DELTA ECA CABINET	1			
12	GFI RECEPTACLE		360			1		15/1	7	B	8	-	1								4320	-----	1			
12	EXTERIOR LIGHT	500		1				20/1	9	A	10	60/2	1						4320			DELTA ECB CABINET	1			
14	CHARGER (GEN)		500				1	20/1	11	B	12	-	1								4320	-----	1			
10	FIBER BOX	750					1	20/2	13	A	14											SPACE				
10	-----		750				1	-	15	B	16											SPACE				
	SPACE							-	17	A	18											SPACE				
	SPACE							-	19	B	20											SPACE				
	SPACE							-	21	A	22											SPACE				
	SPACE							-	23	B	24											SPACE				
		A= 14570										B= 14570														
		W/LCL A= 14695										W/LCL B= 14570														
TOTAL VA=		29140					W/LCL= 29265					W/LCL AMPS= 122					TOTAL LCL= 500					X .25 = 125				
HIGH PHASE VA=		14570					W/LCL= 14695					HIGH PH AMPS= 122					HIGH PHASE LCL= 500					X .25 = 125				
TOTAL KVA=		29.14					W/LCL= 29.27																			

VERIZON PANEL SCHEDULE

SCALE
NONE

1

CONSTRUCTION DRAWINGS

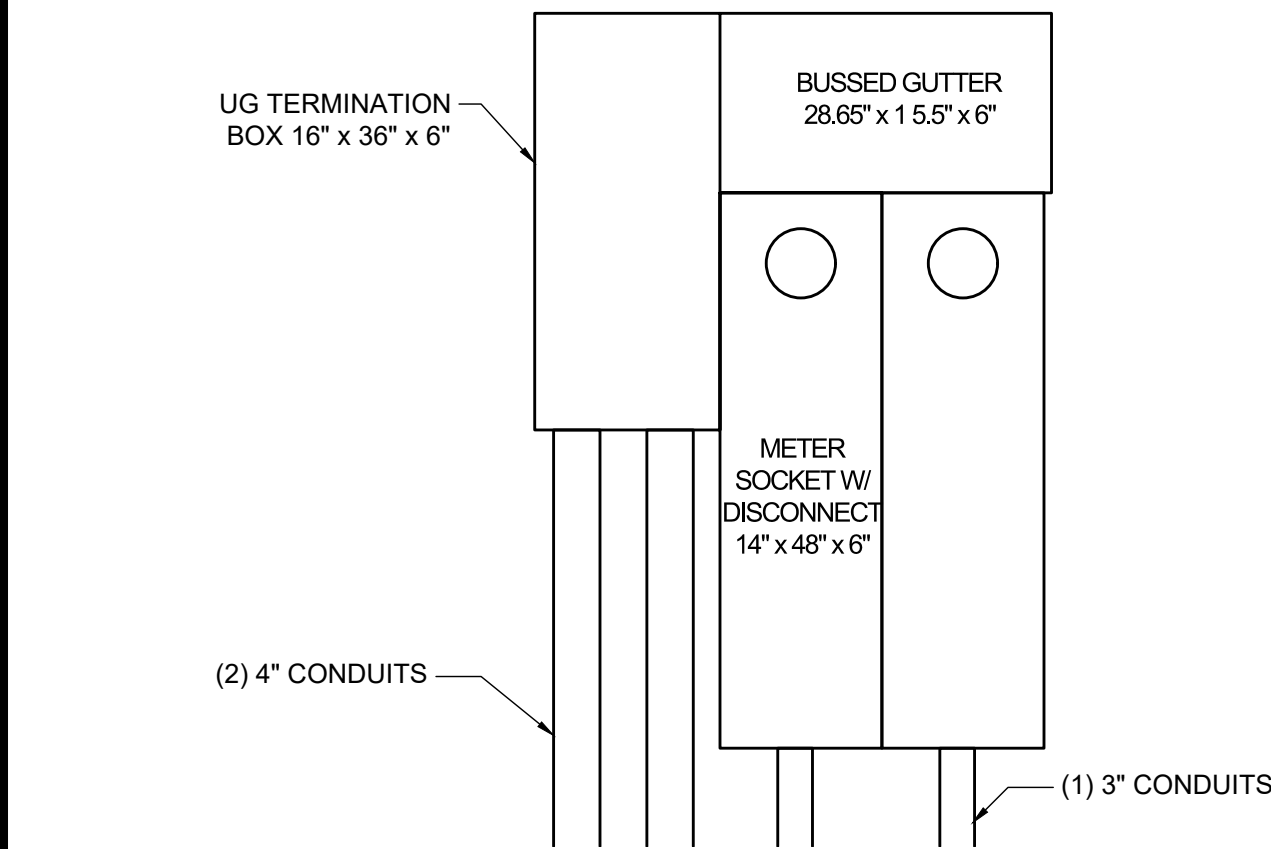
SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/21/24	90% CONSTRUCTION DRAWINGS
A	11/11/24	REVISED TOWER HEIGHT

PROJECT INFORMATION	
CA-1374	
NATIONAL OLD TRAILS ROAD NEEDLES, CA 92363	

SHEET TITLE	
SINGLE-LINE DIAGRAM/AC PANEL SCHEDULE	

SHEET NUMBER	
E-1	

- NOTES:
1. IF DIMENSIONS SHOWN ON PLAN DO NOT SCALE CORRECTLY, CHECK FOR REDUCTION OR ENLARGEMENT FROM ORIGINAL PLANS.
 2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 3. UTILITY DESIGNS AND ROUTES ARE PRELIMINARY PENDING FINAL DESIGN BY UTILITY PROVIDER.
 4. THIS SITE PLAN IS NOT INTENDED TO BE A LAND SURVEY.



METER SERVICE ELEVATION

SCALE	2
NONE	



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TO ALTER THIS DOCUMENT.

DRAWN BY:	UTILITIES CHECKED BY:	A&E CHECKED BY:
PG	GD	RB

CONSTRUCTION DRAWINGS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/21/24	90% CONSTRUCTION DRAWINGS
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PROJECT INFORMATION

CA-1374

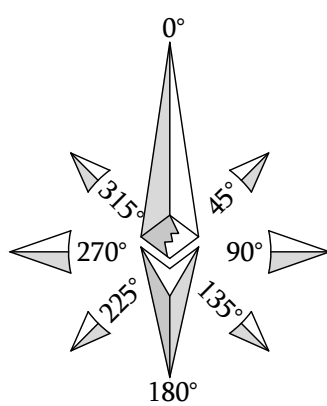
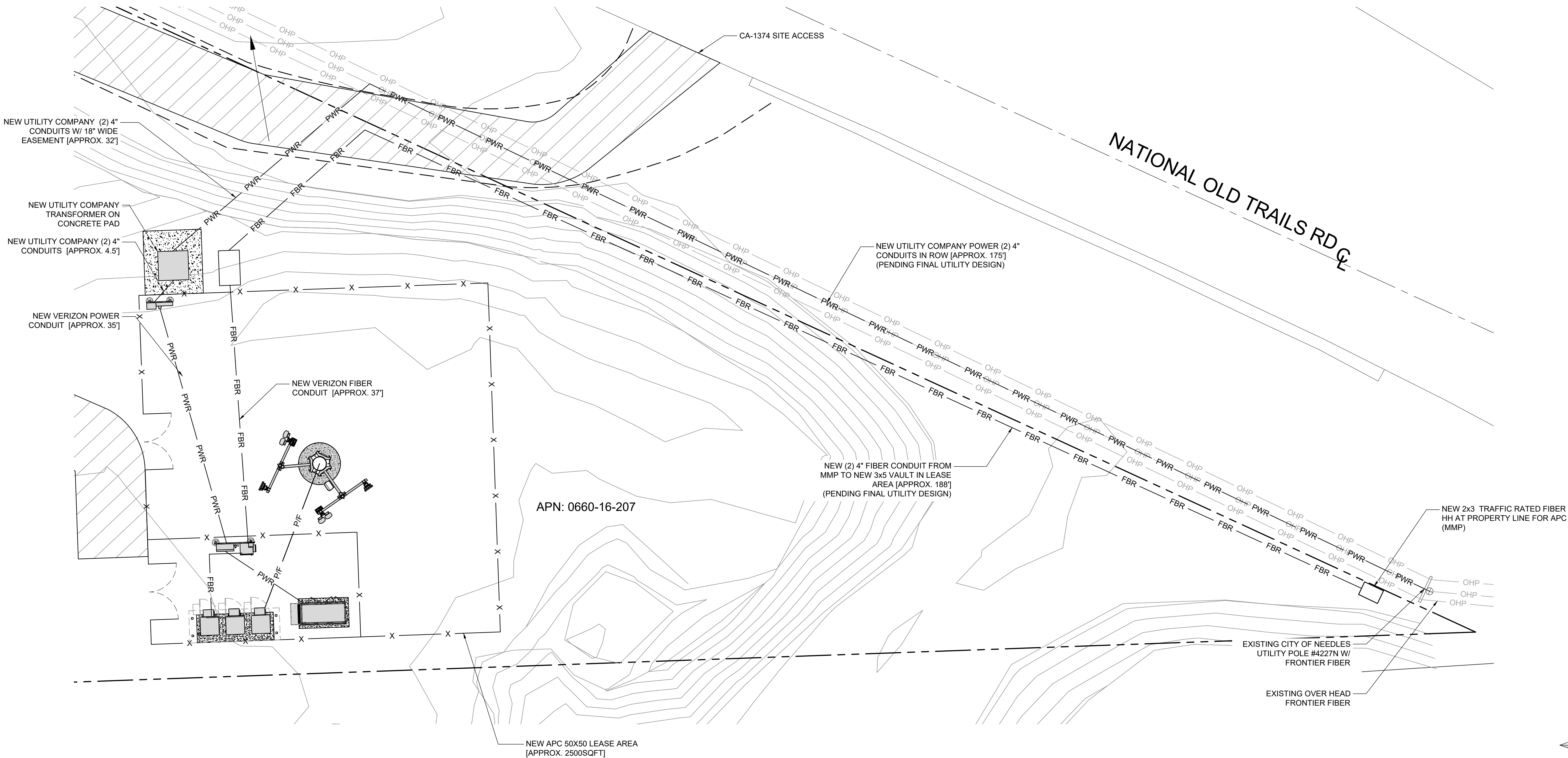
NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

ELECTRICAL
SITE PLAN

SHEET NUMBER

E-2



SCALE	8' 0 4' 8' 16' 32'
1/8"=1'-0"	

1

EUKON VERIZON 90CD MONOPOLE TEMPLATE V2 11-18-22

NOT USED

2

ELECTRICAL GENERAL NOTES

1

GENERAL REQUIREMENTS

- A. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE NATIONAL ELECTRIC CODE AND ALL STATE AND LOCAL CODES. NOTHING IN THESE PLANS OR SPECIFICATIONS SHALL BE CONSTRUED AS TO PERMIT WORK NOT CONFORMING TO THE MOST STRINGENT OF THESE CODES. SHOULD CHANGES BE NECESSARY IN THE DRAWINGS OR SPECIFICATIONS TO MAKE THE WORK COMPLY WITH THESE REQUIREMENTS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND CEASE WORK ON PARTS OF THE CONTRACT WHICH ARE AFFECTED.

B. THE CONTRACTOR SHALL MAKE A SITE VISIT PRIOR TO BIDDING AND CONSTRUCTION TO VERIFY ALL EXISTING CONDITIONS, AND SHALL NOTIFY THE ARCHITECT IMMEDIATELY UPON DISCOVERY OF ANY DISCREPANCIES. THE CONTRACTOR ASSUMES ALL LIABILITY FOR FAILURE TO COMPLY WITH THIS PROVISION.

C. THE EXTENT OF THE WORK IS INDICATED BY THE DRAWINGS, SCHEDULES, AND SPECIFICATIONS AND IS SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT. THE WORK SHALL CONSIST OF FURNISHING ALL LABOR, EQUIPMENT, MATERIALS AND SUPPLIES NECESSARY FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM. THE WORK SHALL ALSO INCLUDE THE COMPLETION OF ALL ELECTRICAL WORK NOT MENTIONED OR SHOWN WHICH ARE NECESSARY FOR SUCCESSFUL OPERATION OF ALL SYSTEMS.

D. THE CONTRACTOR SHALL PREPARE A BID FOR A COMPLETE AND OPERATIONAL SYSTEM, WHICH INCLUDES THE COST FOR MATERIAL AND LABOR.

E. WORKMANSHIP AND NEAT APPEARANCE SHALL BE AS IMPORTANT AS THE OPERATION. DEFECTIVE OR DAMAGED MATERIALS SHALL BE REPLACED OR REPAIRED PRIOR TO FINAL ACCEPTANCE IN A MANNER ACCEPTABLE TO OWNER AND ENGINEER.

F. COMPLETE THE ENTIRE INSTALLATION AS SOON AS THE PROGRESS OF THE WORK WILL PERMIT. ARRANGE ANY OUTAGE OF SERVICE WITH THE OWNER AND BUILDING MANAGER IN ADVANCE. MINIMIZE DOWNTIME ON THE BUILDING ELECTRICAL SYSTEM.

G. THE ENTIRE ELECTRICAL SYSTEM INSTALLED UNDER THIS CONTRACT SHALL BE DELIVERED IN PROPER WORKING ORDER. REPLACE, WITHOUT ADDITIONAL COST TO THE OWNER, ANY DEFECTIVE MATERIAL AND EQUIPMENT WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.

H. ANY ERROR, OMISSION OR DESIGN DISCREPANCY ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION OR CORRECTION BEFORE CONSTRUCTION.

I. "PROVIDE": INDICATES THAT ALL ITEMS ARE TO BE FURNISHED, INSTALLED AND CONNECTED IN PLACE.

J. CONTRACTOR SHALL SECURE ALL NECESSARY BUILDING PERMITS AND PAY ALL REQUIRED FEES.

EQUIPMENT LOCATION

- A. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE DESIRED LOCATIONS OR ARRANGEMENTS OF CONDUIT RUNS, OUTLETS, EQUIPMENT, ETC., AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. PROPER JUDGMENT MUST BE EXERCISED IN EXECUTING THE WORK SO AS TO SECURE THE BEST POSSIBLE INSTALLATION IN THE AVAILABLE SPACE AND TO OVERCOME LOCAL DIFFICULTIES DUE TO SPACE LIMITATIONS OR INTERFERENCE OF STRUCTURE CONDITIONS ENCOUNTERED.

B. IN THE EVENT CHANGES IN THE INDICATED LOCATIONS OR ARRANGEMENTS ARE NECESSARY, DUE TO FIELD CONDITIONS IN THE BUILDING, CONSTRUCTION OR REARRANGEMENT OF FURNISHINGS OR EQUIPMENT, SUCH CHANGES SHALL BE MADE WITHOUT COST, PROVIDING THE CHANGE IS ORDERED BEFORE THE CONDUIT RUNS, ETC., AND WORK DIRECTLY CONNECTED TO THE SAME IS INSTALLED AND NO EXTRA MATERIALS ARE REQUIRED.

C. LIGHTING FIXTURES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. COORDINATE THE FIXTURE LOCATION WITH MECHANICAL EQUIPMENT TO AVOID INTERFERENCE.

D. COORDINATE THE WORK OF THIS SECTION WITH THAT OF ALL OTHER C. TRADES. WHERE CONFLICTS OCCUR, CONSULT WITH THE RESPECTIVE CONTRACTOR AND COME TO AGREEMENT AS TO CHANGES NECESSARY. OBTAIN WRITTEN ACCEPTANCE FROM ENGINEER FOR THE NEW CHANGES BEFORE PROCEEDING.

SHOP DRAWINGS

- A. SUBMIT SIX (6) COPIES OF SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL WITHIN 35 DAYS OF AWARD OF CONTRACT. SHOP DRAWINGS SHALL BE SUBMITTED IN A COMPLETE BOUND MANUAL INCLUDING LIGHT FIXTURES, SERVICE METERING, TRANSFER SWITCH, PANELBOARD, AND DISCONNECT SWITCHES. THE CONTRACTOR SHALL VERIFY DIMENSIONS OF EQUIPMENT TO INSURE THAT THEY FIT IN THE DESIGNATED AREA AND COMPLY WITH REQUIREMENTS OF ALL APPLICABLE CODES FOR REQUIRED WORKING CLEARANCES ABOUT ELECTRICAL EQUIPMENT PRIOR TO SUBMITTING SHOP DRAWINGS FOR APPROVAL. DEPARTURE FROM THE ABOVE WILL RESULT IN RE-SUBMITTAL AND DELAYS.

SUBSTITUTIONS

- A. NO SUBSTITUTIONS ARE ALLOWED.

TESTS

- A. BEFORE FINAL ACCEPTANCE OF WORK, THE CONTRACTOR SHALL INSURE THAT ALL EQUIPMENT, SYSTEMS, FIXTURES, ETC., ARE WORKING SATISFACTORILY AND TO THE INTENT OF THE DRAWINGS.

PERMITS

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING OUT AND PAYING FOR ALL THE REQUIRED PERMITS, INSPECTION AND EXAMINATION WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

GROUNDING

- A. THE CONTRACTOR SHALL PROVIDE A COMPLETE, AND APPROVED GROUNDING SYSTEM INCLUDING ELECTRODES. ELECTRODE CONDUCTOR, BONDING CONDUCTORS, AND EQUIPMENT CONDUCTORS AS REQUIRED BY ARTICLE 250 OF NATIONAL ELECTRICAL CODE.

B. CONDUITS CONNECTED TO EQUIPMENT AND DEVICES SHALL BE METALLICALLY JOINED TOGETHER TO PROVIDE EFFECTIVE ELECTRICAL CONTINUITY.

- C. FEEDERS AND BRANCH CIRCUIT WIRING INSTALLED IN A NONMETALLIC B. CONDUIT SHALL INCLUDE A CODE SIZED GROUNDING CONDUCTOR HAVING GREEN INSULATION. THE GROUND CONDUCTOR SHALL BE PROPERLY CONNECTED AT BOTH ENDS TO MAINTAIN ELECTRICAL CONTINUITY.

D. REFER TO GROUND BUS DETAILS. PROVIDE NEW GROUND SYSTEM COMPLETE WITH CONDUCTORS, GROUND ROD AND DESCRIBED TERMINATIONS.

E. ALL GROUNDING CONDUCTORS SHALL BE SOLIDINNED COPPER AND ANNEALED #2 UNLESS NOTED OTHERWISE.

F. ALL NON-DIRECT BURIED TELEPHONE EQUIPMENT GROUND CONDUCTORS SHALL BE #2 STRANDED, THHN (GREEN) INSULATION.

G. ALL GROUND CONNECTIONS SHALL BE MADE WITH "HYGROUND" COMPRESSION SYSTEM BURNDY CONNECTORS EXCEPT WHERE NOTED OTHERWISE.

H. PAINT AT ALL GROUND CONNECTIONS SHALL BE REMOVED.

I. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE OWNER FOR FUTURE INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE. SUBMIT TEST REPORTS AND FURNISH TO SMART SMR ONE COMPLETE SET OF PRINTS SHOWING "INSTALLED WORK".

UTILITY SERVICE

- A. TELEPHONE AND ELECTRICAL METERING FACILITIES SHALL CONFORM TO THE REQUIREMENTS OF THE SERVING UTILITY COMPANIES. CONTRACTOR SHALL VERIFY SERVICE LOCATIONS AND REQUIREMENTS. SERVICE INFORMATION WILL BE FURNISHED BY THE SERVING UTILITIES.

B. CONFORM TO ALL REQUIREMENTS OF THE SERVING UTILITY COMPANIES.

PRODUCTS

- A. ALL MATERIALS SHALL BE NEW, CONFORMING WITH THE NEC, ANSI, NEMA, AND THEY SHALL BE U.L. LISTED AND LABELED.

B. CONDUIT

1. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR, RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP ROCESS NO. 3.

2. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.

3. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE. SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL HAVE FULL SIZE GROUND WIRE.

4. CONDUIT RUNS MAY BE SURFACE MOUNTED IN CEILING OR WALLS UNLESS INDICATED OTHERWISE. CONDUIT INDICATED SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH ARCHITECT PRIOR TO INSTALLING.

5. ALL UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 (UNLESS NOTED OTHERWISE) AT A MINIMUM DEPTH OF 24" BELOW GRADE.

6. ALL CONDUIT ONLY (C.O.) SHALL HAVE PULL ROPE.

7. CONDUITS RUN ON ROOFS SHALL BE INSTALLED ON 4 X 4 REDWOOD SLEEPERS, 6'-0" ON CENTER, SET IN NON-HARDENING MASTIC.

- A. ALL WIRE AND CABLE SHALL BE COPPER, 600 VOLT, #12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED. TYPE THHN INSULATION USED UNLESS CONDUCTORS INSTALLED IN CONDUIT EXPOSED TO WEATHER, IN WHICH CASE TYPE THWN INSULATION SHALL BE USED.

D. PROVIDE GALVANIZED COATED STEEL BOXES AND ACCESSORIES SIZED PER CODE TO ACCOMMODATE ALL DEVICES AND WIRING.

E. DUPLEX RECEPTACLES SHALL BE SPECIFICATION GRADE WITH WHITE FINISH (UNLESS NOTED BY ENGINEER), 20 AMP, 125 VOLT, THREE WIRE GROUNDING TYPE, NEMA 5-20R. MOUNT RECEPTACLE AT +12" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED ON DRAWINGS OR IN DETAILS. WEATHERPROOF RECEPTACLES SHALL BE GROUND FAULT INTERRUPTER TYPE WITH SIERRA #WPD-8 LIFT COVERPLATES.

F. TOGGLE SWITCHES SHALL BE 20 AMP, 120 VOLT AC, SPECIFICATION GRADE WHITE (UNLESS NOTED OTHERWISE) FINISH. MOUNT SWITCHES AT +48" ABOVE FINISHED FLOOR.

G. PANELBOARDS SHALL BE DEAD FRONT SAFETY TYPE WITH ANTI-BURN SOLDERLESS COMPRESSION APPROVED FOR COPPER CONDUCTORS, COPPER BUS BARS, FULL SIZED NEUTRAL BUS, GROUND BUS AND EQUIPPED WITH QUICK-BREAK QUICK-BREAK BOLT-IN TYPE THERMAL MAGNETIC CIRCUIT BREAKERS. MOUNT TOP OF THE PANELBOARDS AT 6'-3" ABOVE FINISHED FLOOR. PROVIDE TYPEWRITTEN CIRCUIT DIRECTORY.

H. ALL CIRCUIT BREAKERS, MAGNETIC STARTERS AND OTHER ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED.

I. GROUND RODS SHALL BE COPPER CLAD STEEL, 5/8" ROUND AND 10' LONG. COPPERWELD OR APPROVED EQUAL.

INSTALLATION

- PROVIDE SUPPORTING DEVICES FOR ALL ELECTRICAL EQUIPMENT, FIXTURES, BOXES, PANEL, ETC., SUPPORT LUMINARIES FROM UNDERSIDE OF STRUCTURAL CEILING. EQUIPMENT SHALL BE BRACED TO WITHSTAND HORIZONTAL FORCES IN ACCORDANCE WITH STATE AND LOCAL CODE REQUIREMENTS. PROVIDE PRIOR ALIGNMENT AND LEVELING OF ALL DEVICES AND FIXTURES.

- CUTTING, PATCHING, CHASES, OPENINGS: PROVIDE LAYOUT IN ADVANCE TO ELIMINATE UNNECESSARY CUTTING OR DRILLING OF WALLS, FLOORS CEILINGS, AND ROOFS. ANY DAMAGE TO BUILDING STRUCTURE OR EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR. OBTAIN PERMISSION FROM THE ENGINEER BEFORE CORING.

C. IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND/OR REINFORCING STEEL WILL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES.

D. LOCATION OF TENDONS AND/OR REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE, MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X-RAY OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING AND/OR STEEL TENDONS.

E. PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH THE REQUIREMENTS OF THE C.B.C.

PROJECT CLOSEOUT

- A. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.

B. PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS AND CIRCUITS.

C. ALL BROCHURES, OPERATING MANUALS, CATALOG, SHOP DRAWINGS, ETC., SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.

GROUNDING NOTES

1. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION REQUIREMENTS AND CONSTRUCTION ACCORDING TO SITE CONDITIONS.

2. ALL GROUNDING CONDUCTORS: #2 AWG SOLID BARE TINNED COPPER WIRE UNLESS OTHERWISE NOTED.

3. GROUND BAR LOCATED IN BASE OF EQUIPMENT WILL BE PROVIDED, FURNISHED AND INSTALLED BY THE VENDOR.

4. ALL BELOW GRADE CONNECTIONS: EXOTHERMIC WELD TYPE, ABOVE GRADE CONNECTIONS: EXOTHERMIC WELD TYPE.

5. GROUND RING SHALL BE LOCATED A MINIMUM OF 24" BELOW GRADE OR 6" MINIMUM BELOW THE FROST LINE.

6. INSTALL GROUND CONDUCTORS AND GROUND ROD MINIMUM OF 1'-0" FROM EQUIPMENT CONCRETE SLAB, SPREAD FOOTING, OR FENCE.

7. EXOTHERMIC WELD GROUND CONNECTION TO FENCE POST: TREAT WITH A COLD GALVANIZED SPRAY.

8. GROUND BARS:

8.1. EQUIPMENT GROUND BUS BAR (EGB) LOCATED AT BOTTOM OF ANTENNA POLE/MAST FOR MAKING GROUNDING JUMPER CONNECTIONS TO COAX FEEDER CABLES SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. JUMPERS (FURNISHED BY OWNERS) SHALL BE INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR.

8.2. MAIN GROUND BUS BAR (MGB) LOCATED NEAR THE BASE OF THE RADIO EQUIPMENT CABINET(S) SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

9. ALL GROUNDING INSTALLATIONS AND CONNECTIONS SHALL BE MADE BY ELECTRICAL CONTRACTOR.

10. OBSERVE N.E.C. AND LOCAL UTILITY REQUIREMENTS FOR ELECTRICAL SERVICE GROUNDING.

11. GROUNDING ATTACHMENT TO TOWER SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS OR AT GROUNDING POINTS PROVIDED (2 MINIMUM).

12. IF EQUIPMENT IS IN A C.L. FENCE ENCLOSURE, GROUND ONLY CORNER POSTS AND SUPPORT POSTS OF GATE. IF CHAIN LINK LID IS USED, THEN GROUND LID ALSO.

13. GROUNDING @ PPC CABINET SHALL BE VERTICALLY INSTALLED.

14. ALL GROUNDING FOR ANTENNAS SHALL BE CONNECTED SO THAT IT WILL BY-PASS MAIN BUSS BAR.

15. ALL EMT RUNS SHALL BE GROUNDED AND HAVE A BUSHING. NO PVC ABOVE GROUND.

16. USE SEPARATE HOLES FOR GROUNDING @ BUSS BAR. NO "DOUBLING-UP" OF LUGS.

17. POWER AND TELCO CABS. SHALL BE GROUNDED (BONDED) TOGETHER.18. NO "L AND B" ALLOWED ON GROUNDING.

18. PROVIDE STAINLESS STEEL CLAM AND BRASS TAGS ON COAX @ ANTENNAS AND DOGHOUSE.



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DRAWN BY:	UTILITIES CHECKED BY:	A&E CHECKED BY:
PG	GD	RB

CONSTRUCTION
DRAWINGS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/21/24	90% CONSTRUCTION DRAWINGS
A	11/11/24	REVISED TOWER HEIGHT

PROJECT INFORMATION

CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

ELECTRICAL
NOTES

SHEET NUMBER

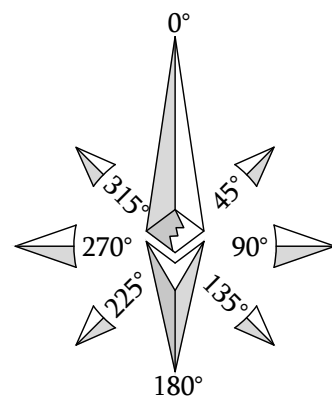
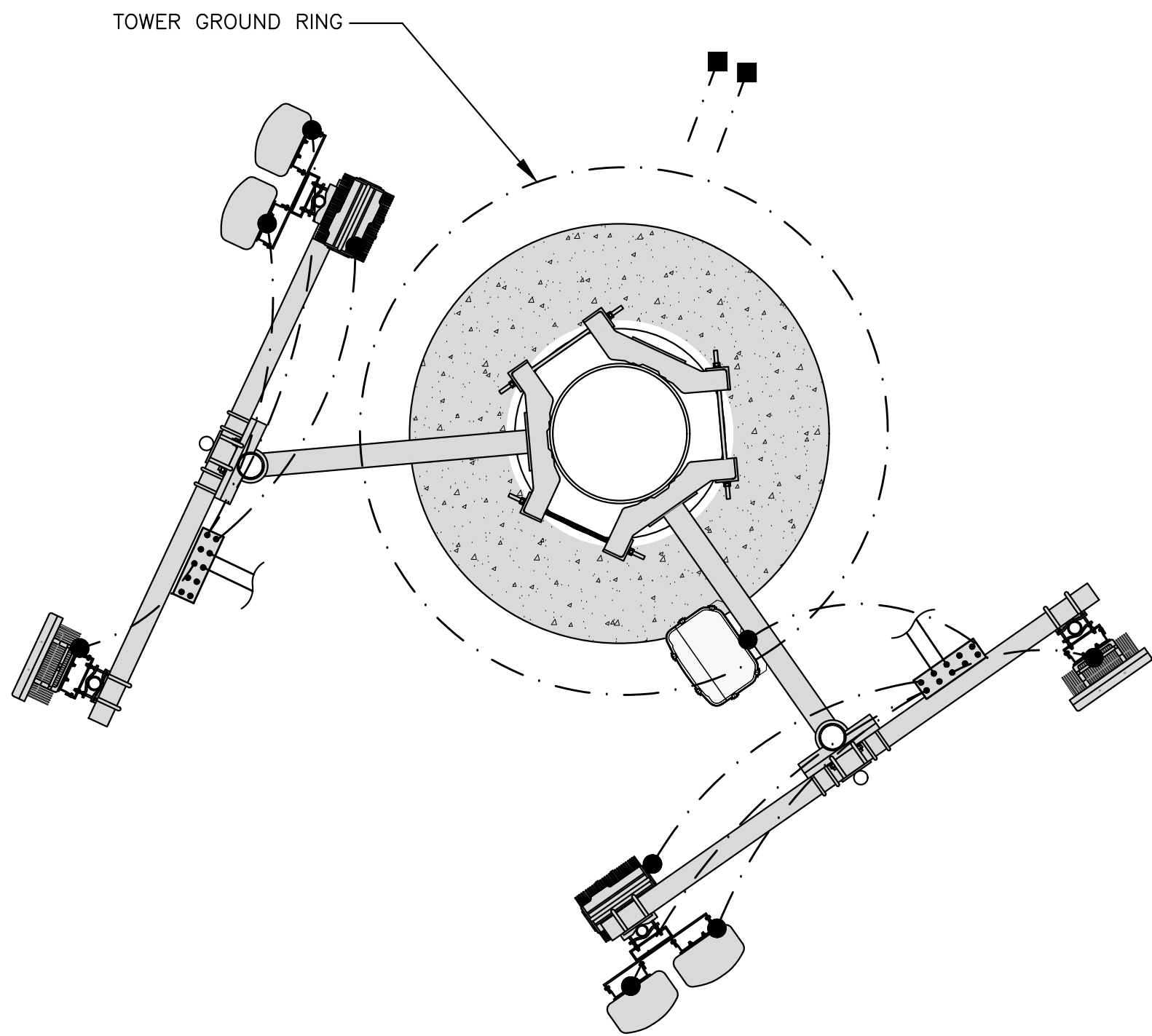
E-3

EUKON VERIZON 90CD MONOPOLE TEMPLATE_V2_11-18-22

EXOTHERMIC	■
COMPRESSION TYPE CONNECTIONS	●
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	⊗
GROUND ROD	⏏
GROUND ROD WITH INSPECTION SLEEVE	⏏
TEST GROUND ROD WITH INSPECTION SLEEVE	⏏
EXOTHERMIC WITH INSPECTION SLEEVE	■
GROUNDING CONDUCTOR	---
GROUNDING BAR	⬢⬢⬢⬢

THIS PLAN IS A SCHEMATIC ONLY AND DOES NOT SHOW ALL THE GROUNDING PROVIDED BY THE SHELTER MANUFACTURER. CONTRACTOR SHALL NOTIFY VERIZON IF ANY GROUNDING TO BE PROVIDED IS INCOMPLETE OR MISSING.

NOTE:
CONTRACTOR TO IMPLEMENT ALL GROUNDING REQUIREMENTS AS SPECIFIED BY CARRIER CONSTRUCTION AND INSTALLATION GUIDELINES.



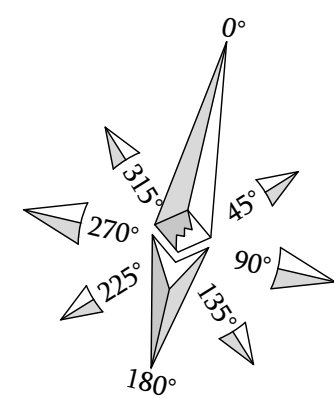
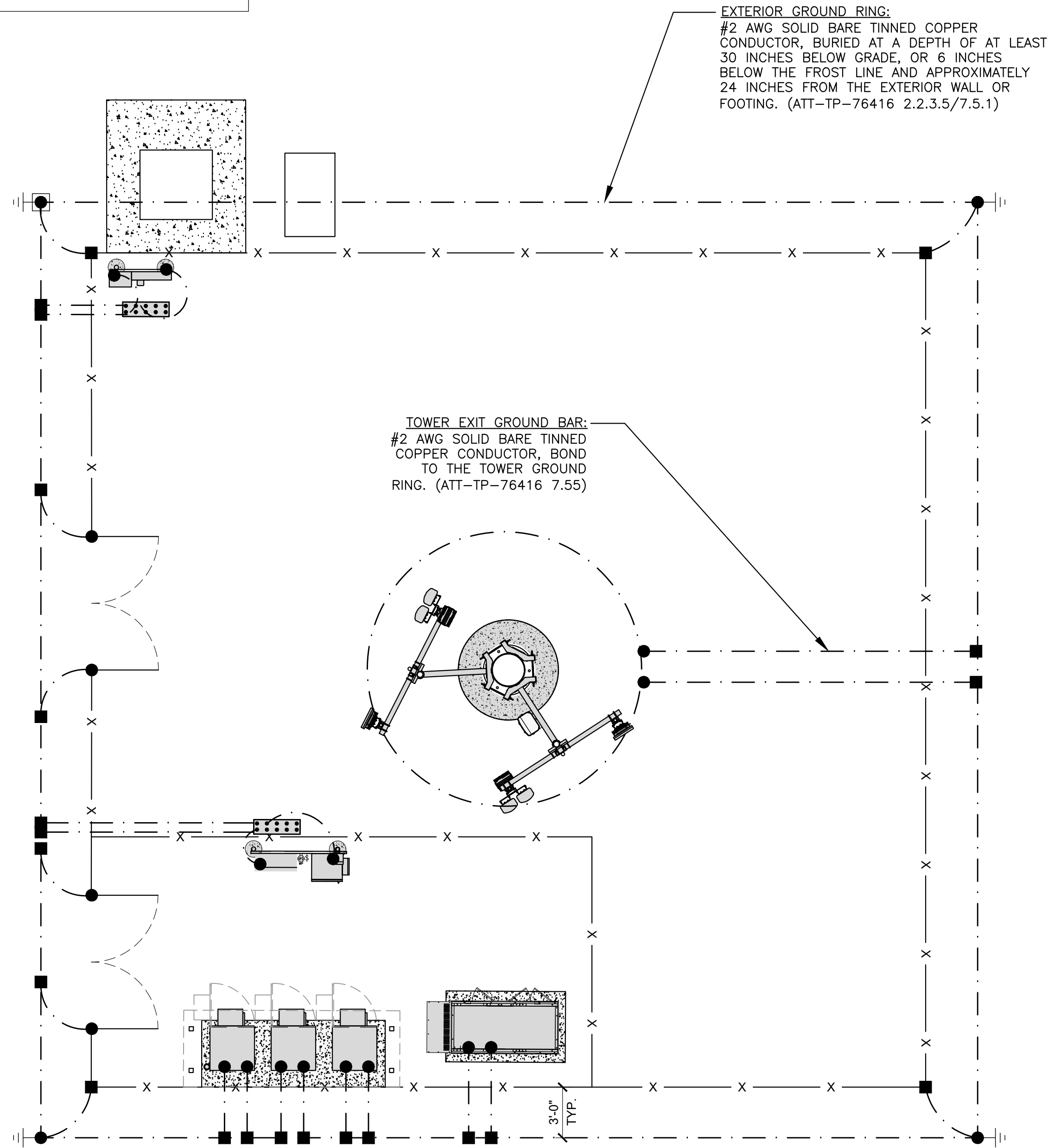
ANTENNA AND RRUS GROUNDING PLAN

2

EXOTHERMIC	■
COMPRESSION TYPE CONNECTIONS	●
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	⊗
GROUND ROD	⏏
GROUND ROD WITH INSPECTION SLEEVE	⏏
TEST GROUND ROD WITH INSPECTION SLEEVE	⏏
EXOTHERMIC WITH INSPECTION SLEEVE	■
GROUNDING CONDUCTOR	---
GROUNDING BAR	⬢⬢⬢⬢

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EQUIPMENT GROUNDING PLAN

1



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DRAWN BY:	UTILITIES CHECKED BY:	A&E CHECKED BY:
PG	GD	RB

CONSTRUCTION DRAWINGS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/21/24	90% CONSTRUCTION DRAWINGS
A	11/11/24	REVISED TOWER HEIGHT

PROJECT INFORMATION

CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

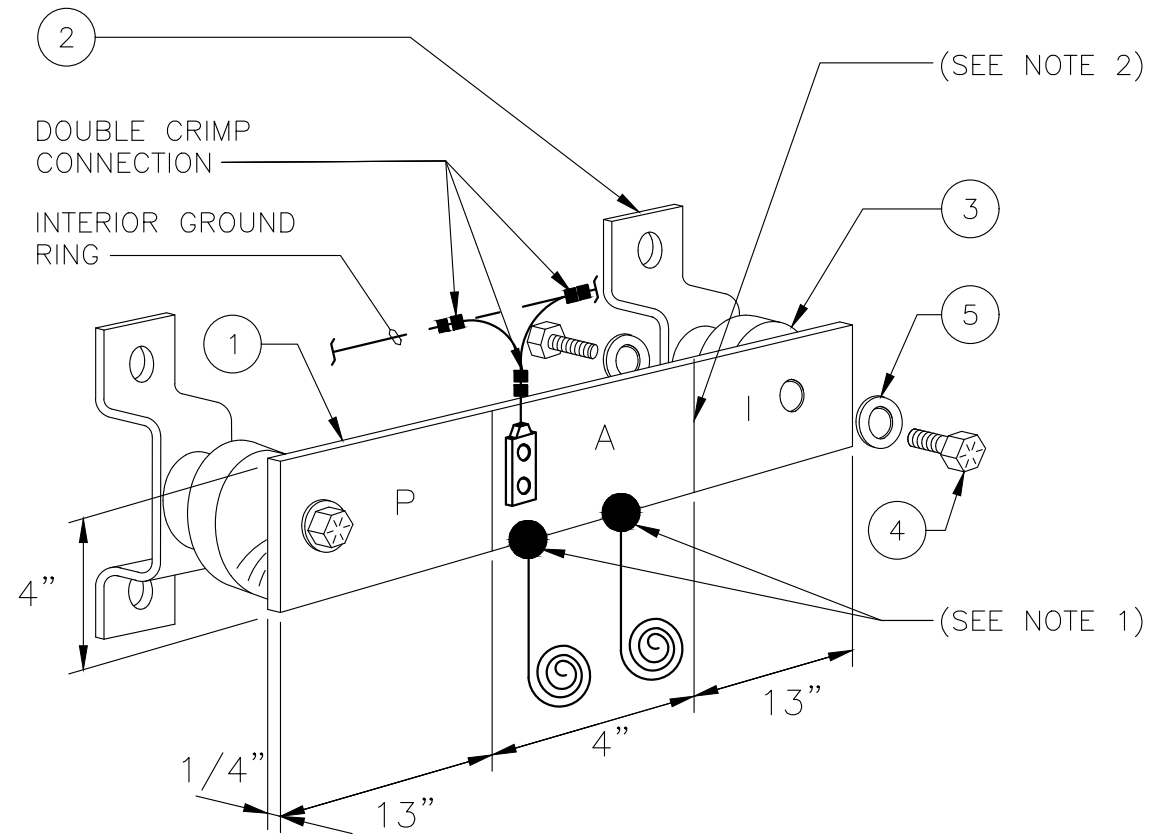
GROUNDING PLAN

SHEET NUMBER

E-4

EUKON VERIZON 90CD MONOPOLE TEMPLATE V2 11-18-22

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO	REQUIRED	PART NUMBER	DESCRIPTION
①	1	1/4"x4"x30"	SOLID GROUND BAR
②	2	A-6056	WALL MOUNTING BRACKET
③	2	3061-4	INSULATORS
④	4	3012-1	5/8"-11x1" H.H.C.S.
⑤	4	3015-8	5/8" LOCKWASHER



EACH GROUNDING CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" – SURGE PROTECTORS

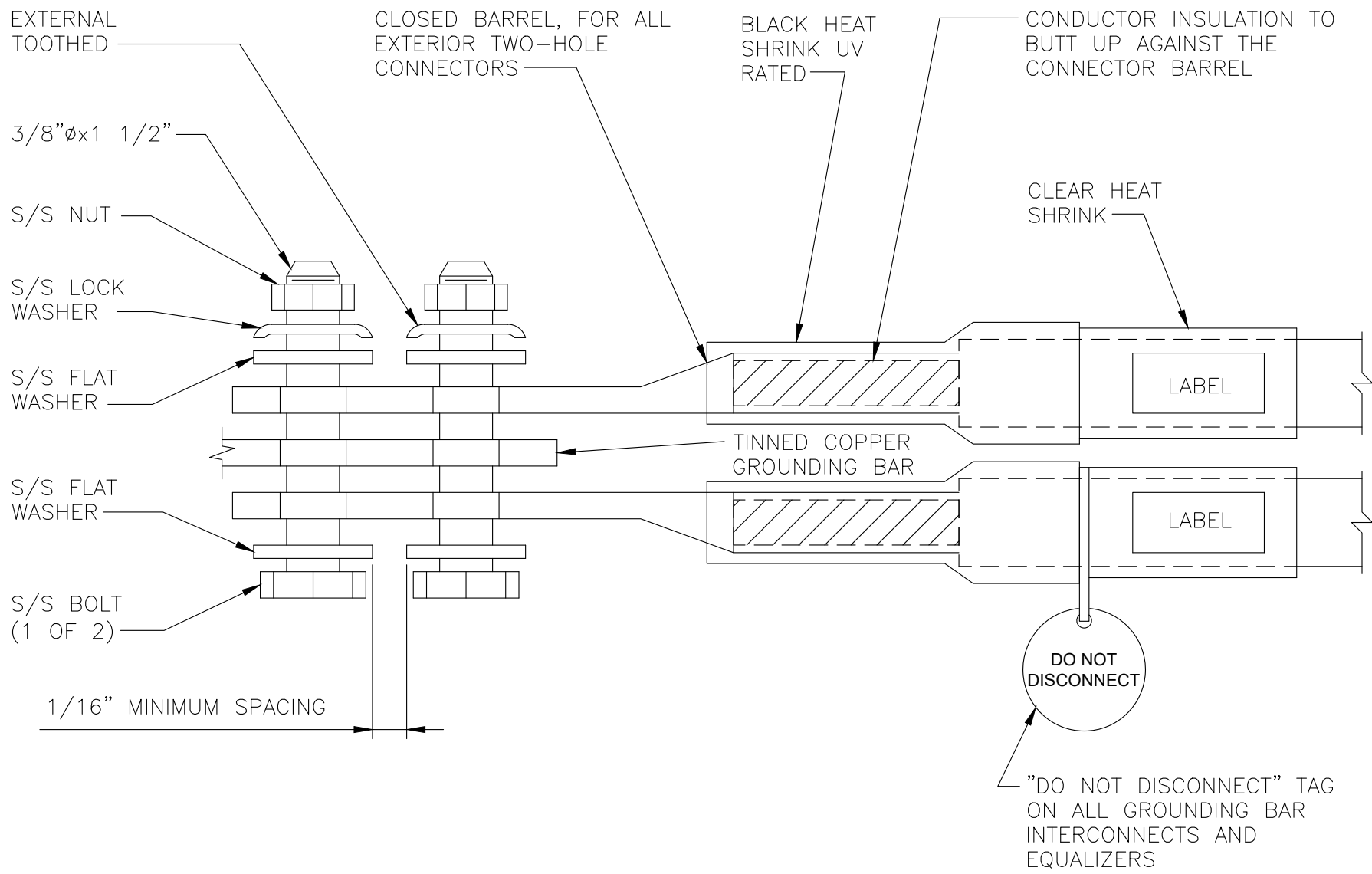
(EC) CELL REFERENCE GROUND BAR (IF COLLOCATED)
(EC) GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
(EC) TELCO GROUND BAR (#2 AWG)
(EC) COMMERCIAL POWER COMMON NEUTRAL/GROUNDING BOND (3/0)
(EC) FIBER GROUND BAR (#2 AWG)
(EC) POWER ROOM REFERENCE GROUND BAR (#2 AWG)
(VERIZON) RECTIFIER FRAMES

SECTION "A" – SURGE ABSORBERS

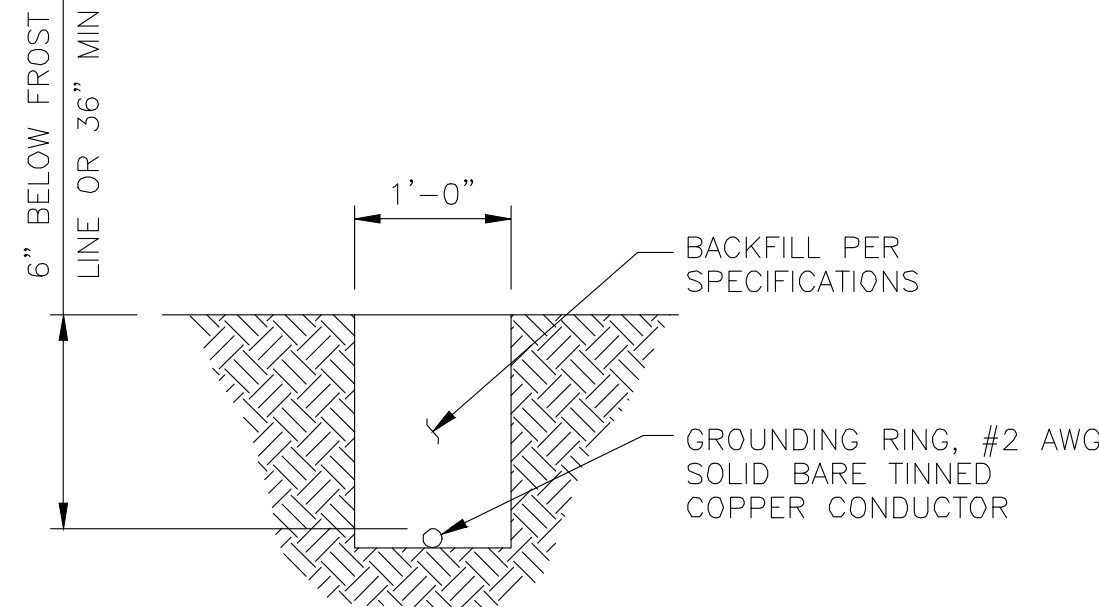
(EC) INTERIOR GROUND RING (#2 AWG)
(EC) EXTERNAL EARTH GROUNDING FIELD (BURIED GROUND RING) (#2 AWG)
(EC) METALLIC COLD WATER PIPE (IF AVAILABLE) (1/0 AWG)
(EC) BUILDING STEEL (IF AVAILABLE) (1/0 AWG)

SECTION "I" – ISOLATED GROUNDING ZONE

(VERIZON) ALL ISOLATED GROUNDING REFERENCE
(VERIZON) GROUND WINDOW BAR



- EXOTHERMIC WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- ALL GROUND BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.
- ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS. COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUNDING CONDUCTOR DOWN TO GROUNDING BUS.
- NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUNDING TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
- SUPPLIED AND INSTALLED BY CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BARS AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
- ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



(MGB) REFERENCE GROUNDING BAR

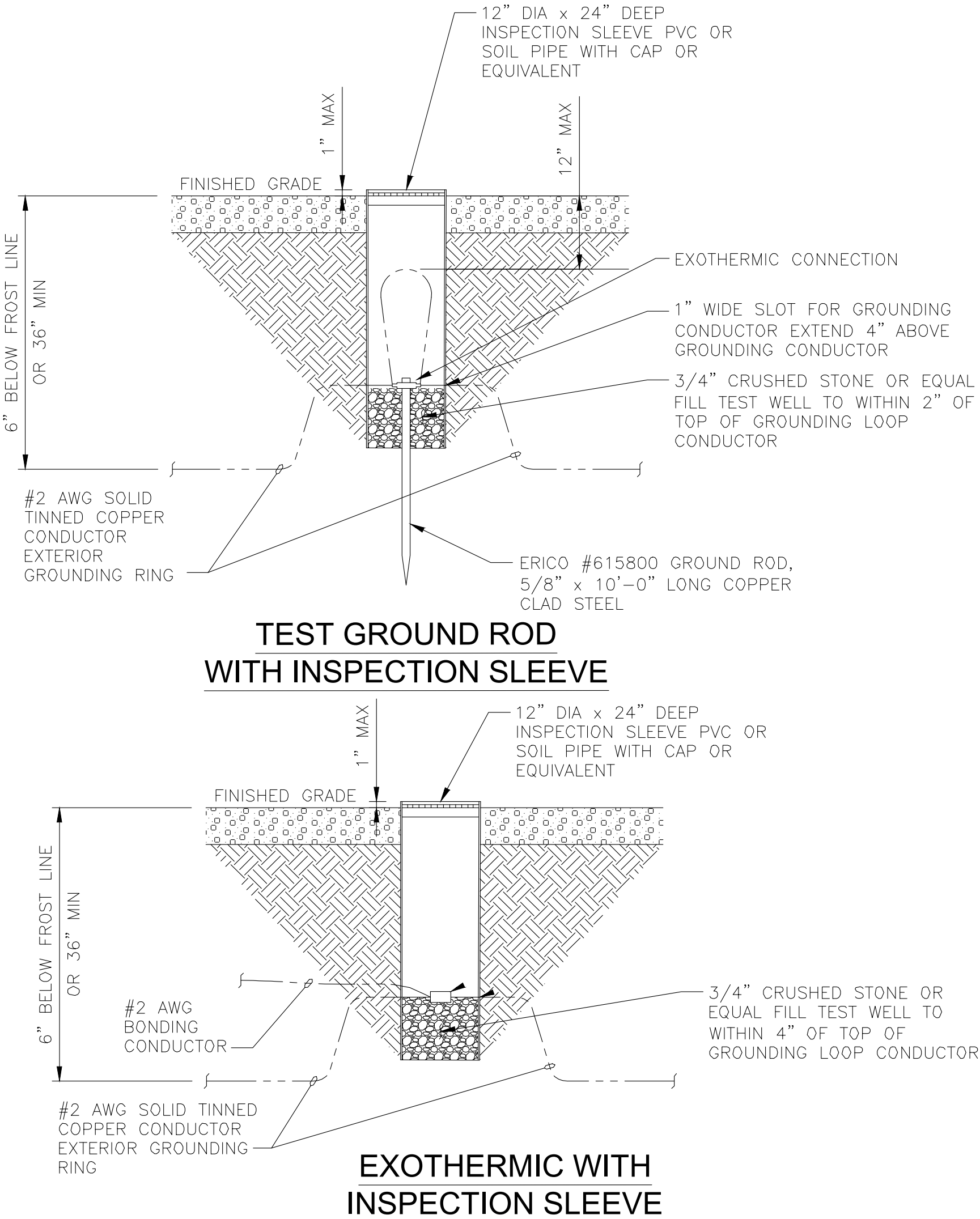
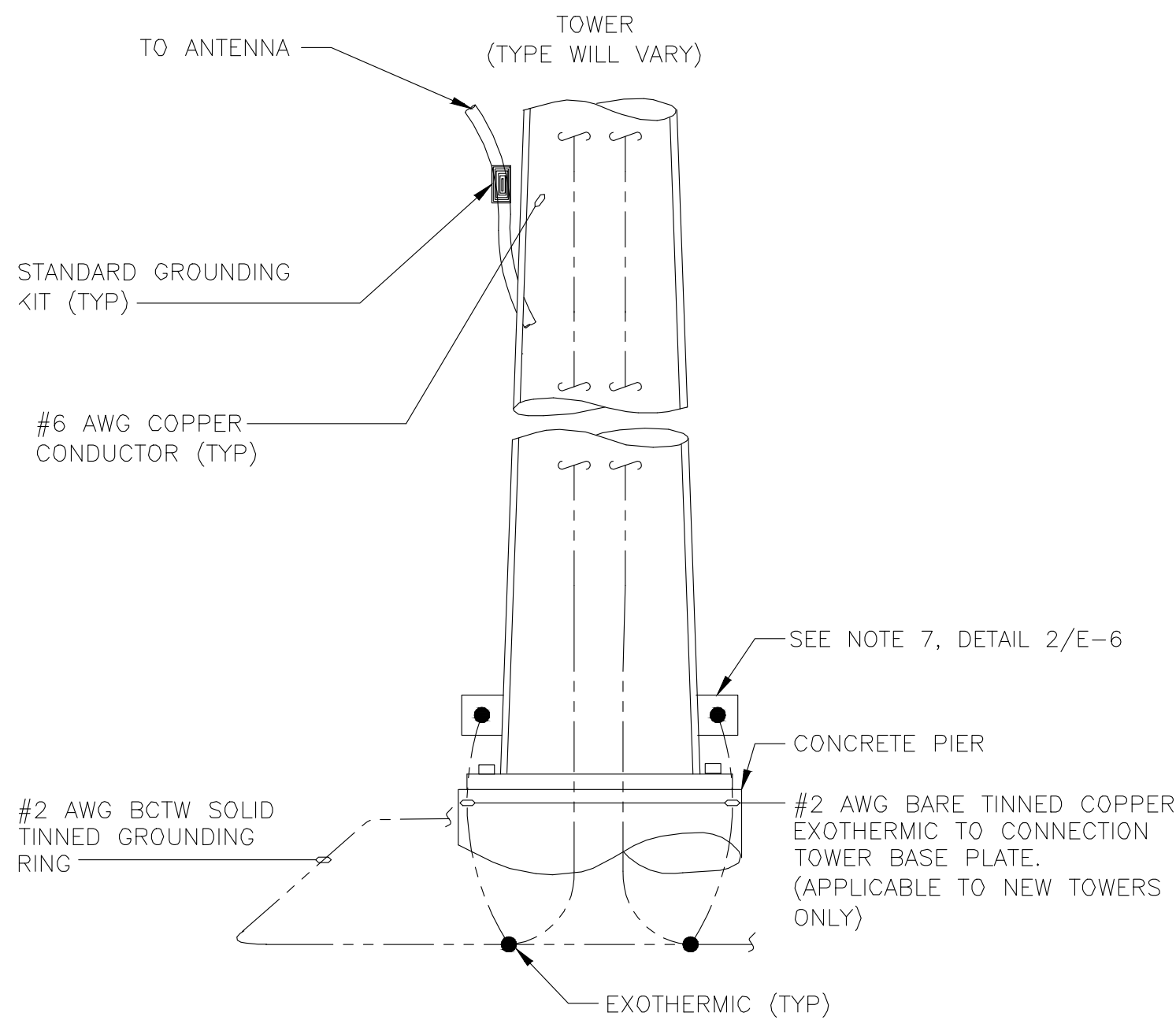
6

EXTERIOR TWO HOLE LUG DETAIL

4

GROUND RING TRENCH / NOTES

2

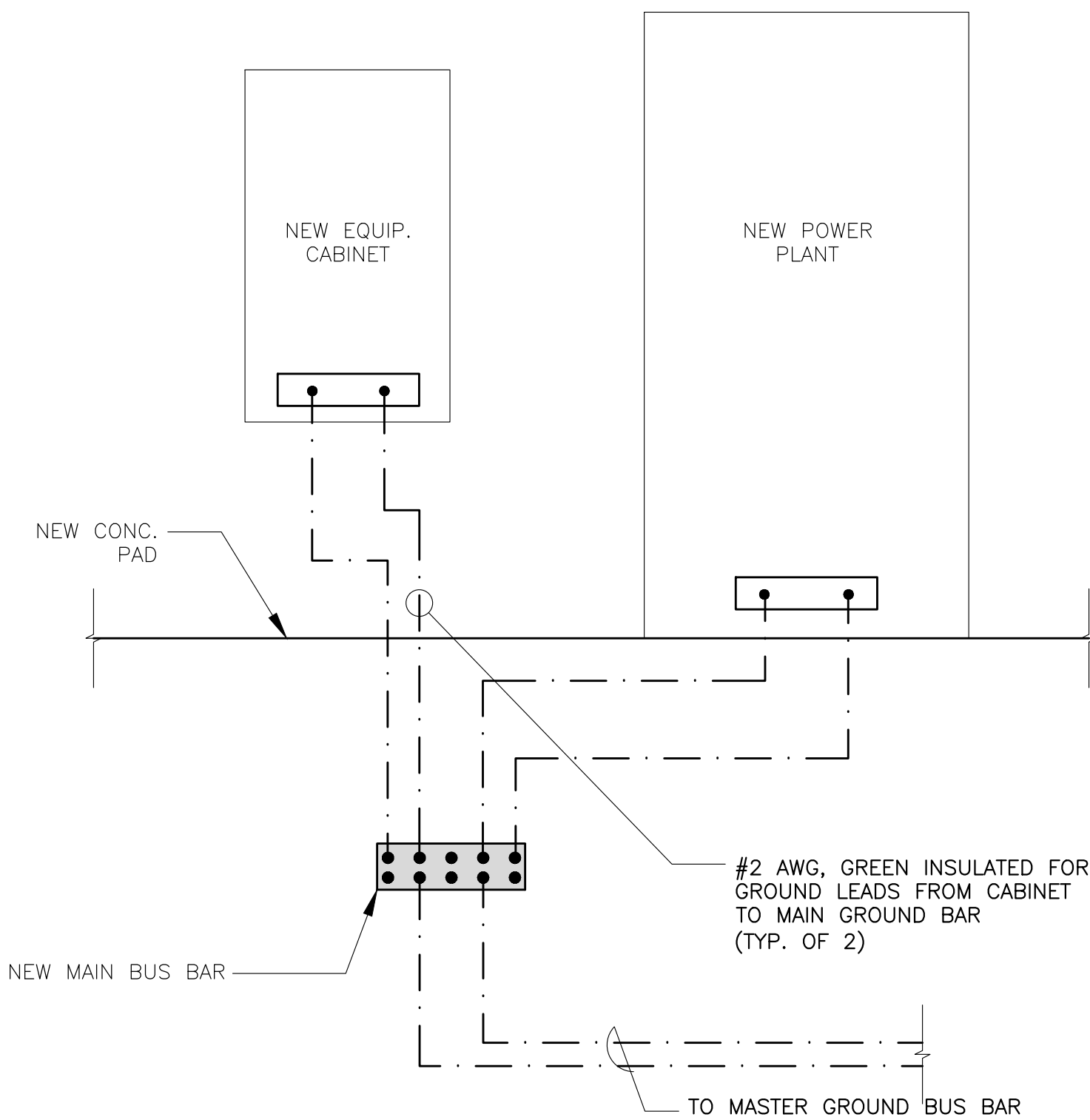


NOTES:

- THIS IS A DIAGRAMMATIC REPRESENTATION ONLY. SEE GROUNDING PLAN FOR SITE-SPECIFIC GROUNDING LAYOUT AND COMPONENTS.
- SEE GROUND NOTES FOR ADDITIONAL INFORMATION
- USE #2/0 AWG, BCW FOR GROUND LEADS FROM BUS BARS TO GROUND RING.
- USE #2 AWG.BCW FOR BURIED GROUND LOOP AND GROUND LEADS.
- THE NUMBER AND SIZE OF GROUND BARS USED MAY PER SITE CONDITIONS.

LEGEND:

- – EXOTHERMIC CONNECTION
- – MECHANICAL TYPE CONNECTION



TOWER AND ANTENNA CABLE GROUNDING

5

GROUND ROD / INSPECTION SLEEVE

3

RACK GROUNDING

1

APC Towers

8601 SIX FORKS ROAD, SUITE 250
RALEIGH, NC 27615
WWW.APCTOWERS.COM

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NOT FOR
CONSTRUCTION

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF THE LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY:	UTILITIES CHECKED BY:	A&E CHECKED BY:
PG	GD	RB

CONSTRUCTION DRAWINGS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/21/24	90% CONSTRUCTION DRAWINGS
A	11/11/24	REVISED TOWER HEIGHT

PROJECT INFORMATION

CA-1374

NATIONAL OLD TRAILS ROAD
NEEDLES, CA 92363

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

E-5

