



City of Ketchum

August 15, 2022

Mayor Bradshaw and City Councilors
City of Ketchum
Ketchum, Idaho

Mayor Bradshaw and City Councilors:

Recommendation To Approve Waterline Access Easement #22787 with Sun Valley Company

Recommendation and Summary

Staff is recommending the Council approve the attached access easement agreement with the Sun Valley Company which will facilitate the replacement and relocation of an aging municipal waterline. The project would be completed as part of the current Sun Valley Road rehabilitation project.

"I move to approve the Access Easement Agreement #22787 with the Sun Valley Company in order to facilitate the replacement and relocation of municipal waterline."

Introduction and History

An aging waterline was identified during the design phase of the Sun Valley Road rehabilitation project. Specifically, the city desires to replace the existing line, which is at the end of its useful life, and relocate the alignment to avoid going under the Idaho Power substation.

Financial Impact

The cost associated with this access easement agreement is \$1 plus the costs for Galena Engineering to complete the survey work and create a legal description.

Attachments

Access Easement Agreement #22787
Visual

EASEMENT AGREEMENT #22787

Sun Valley Company, a Wyoming corporation, ("Grantor"), does hereby convey to the City of Ketchum, Idaho ("Grantee"), its successors and assigns, for the sum of ONE DOLLAR (\$1.00) in hand paid and other good and valuable consideration, receipt of which is hereby acknowledged, a non-exclusive twenty foot (20') wide easement ("Easement") to construct, use, operate, repair, maintain, inspect, replace and or remove an underground water line ("Facilities") said Easement being situated in Blaine County, Idaho and more particularly depicted on the attached Exhibit A.

TO HAVE AND TO HOLD the same unto Grantee, its successors and assigns, with the right of ingress and egress to and from said Easement. Grantor shall have the right to use said premises except for the purposes for which this Easement is granted to Grantee, provided such use does not interfere with the Facilities or any other rights granted to Grantee hereunder. If Grantor requires relocation of the Facilities, Grantee agrees to relocate the Facilities provided Grantor is willing and able to provide a suitable alternate location for such Facilities and will grant or cause to be granted the necessary easement rights at the new location upon the same terms and conditions herein provided.

Grantee, following the maintenance or removal of the Facilities, shall restore the surface of the Easement and any constructed improvements to, as near as practicable, the condition of the surface and the constructed improvements prior to said maintenance or removal.

Grantee shall remain solely and separately responsible and liable for all use of the Easement by Grantee and Grantee's agents and assigns. Grantor shall have no responsibility or liability with respect to Grantee's actions and use of the Easement.

IN WITNESS WHEREOF, the parties execute this Easement on this ____ day of August, 2022.

Grantor
Sun Valley Company

Grantee
City of Ketchum, Idaho

By _____
Its _____

By: Neil Bradshaw
Its: Mayor

Attest: _____
Lisa Enourato, Interim City Clerk

STATE OF _____)
COUNTY OF _____)

On the ____ day of _____, 2022, personally appeared before me _____, who, being duly sworn, did say that he/she is the _____ of the City of Ketchum, Idaho and that the foregoing instrument was signed on behalf of said corporation and said _____ acknowledged to me that said City duly executed the same.

Notary Public

STATE OF _____)
COUNTY OF _____)

On the ____ day of _____, 2022, personally appeared before me _____, who, being duly sworn, did say that he/she is the _____ of Sun Valley Company and that the foregoing

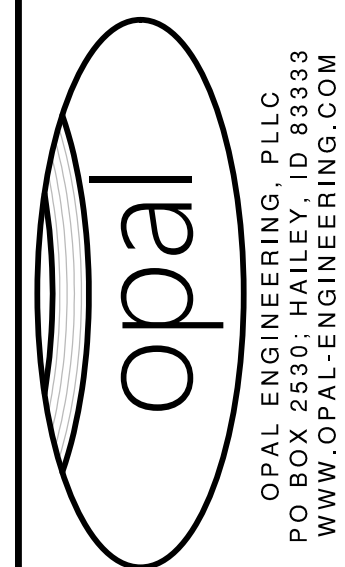
instrument was signed on behalf of said corporation and said _____ acknowledged to me that said corporation duly executed the same.

Notary Public

SUN VALLEY ROAD WATER MAIN RELOCATION

KETCHUM, IDAHO

MAY 2022



OPAL ENGINEERING, PLLC
PO BOX 2630 • HAILEY, ID 83333
WWW.OPAL-ENGINEERING.COM

CONSTRUCTION NOTES

- ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE MOST CURRENT EDITION OF THE "IDAHO REGULATIONS FOR PUBLIC DRINKING WATER SYSTEMS," THE CURRENT EDITION OF THE "IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION" (ISPMC), AND CITY OF KETCHUM STANDARDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND KEEPING A COPY OF THE ISPMC ON SITE DURING CONSTRUCTION.
- THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS IN AN APPROXIMATE WAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES PRIOR TO COMMENCING AND DURING THE CONSTRUCTION. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH RESULT FROM HIS FAILURE TO ACCURATELY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL CALL DIGLINE (1-800-342-1585) TO LOCATE ALL EXISTING UNDERGROUND UTILITIES.
- THE CONTRACTOR SHALL CLEAN UP THE SITE AFTER CONSTRUCTION SO THAT IT IS IN A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, EPA'S NPDES CONSTRUCTION GENERAL PERMIT.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
- ALL CLEARING & GRUBBING SHALL CONFORM TO ISPMC SECTION 201.
- ALL EXCAVATION & EMBANKMENT SHALL CONFORM TO ISPMC SECTION 202. EXCAVATED SUBGRADE SHALL BE COMPACTED AND ALL UNSUITABLE SECTIONS REMOVED AND REPLACED WITH STRUCTURAL FILL AS DETERMINED BY THE ENGINEER. MINIMUM COMPACTION OF PLACED MATERIAL SHALL BE 95% OF MAXIMUM LABORATORY DENSITY AS DETERMINED BY AASHTO T-99 OR ITD T-91.
- ALL 2" MINUS GRAVEL SHALL CONFORM TO ISPMC 802, TYPE II (ITD STANDARD 703.04, 2"). SHALL BE PLACED IN CONFORMANCE WITH ISPMC SECTION 801 AND COMPACTED PER SECTION 202. MINIMUM COMPACTION OF PLACED MATERIAL SHALL BE 90% OF MAXIMUM LABORATORY DENSITY AS DETERMINED BY AASHTO T-99.
- ALL 3/4" MINUS CRUSHED GRAVEL SHALL CONFORM TO ISPMC 802, TYPE I (ITD STANDARD 703.04, 3/4" B), SHALL BE PLACED IN CONFORMANCE WITH ISPMC SECTION 802 AND COMPACTED PER SECTION 202. MINIMUM COMPACTION OF PLACED MATERIAL SHALL BE 95% OF MAXIMUM LABORATORY DENSITY AS DETERMINED BY AASHTO T-99 OR ITD T-91.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL PER THE CURRENT EDITION OF THE US DEPARTMENT OF TRANSPORTATION MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), OR PER THE TRAFFIC CONTROL PLAN ASSOCIATED WITH SUN VALLEY ROAD IMPROVEMENTS.
- ALL TRENCHING SHALL CONFORM TO ISPMC STANDARD DRAWING SD-301. TRENCHES SHALL BE BACKFILLED AND COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.
- TOPOGRAPHIC, SITE, AND BOUNDARY SURVEYS SHOWN HEREON WERE CONDUCTED BY GALENA ENGINEERING. PROPOSED SUN VALLEY ROAD IMPROVEMENTS SHOWN HEREON ARE PER A DESIGN BY JACOBS ENGINEERING RECEIVED 4-28-22.
- PER IDAHO CODE § 55-1613, THE CONTRACTOR SHALL RETAIN AND PROTECT ALL MONUMENTS, ACCESSORIES TO CORNERS, BENCHMARKS AND POINTS SET IN CONTROL SURVEYS, ALL MONUMENTS, ACCESSORIES TO CORNERS, BENCHMARKS AND POINTS SET IN CONTROL SURVEYS THAT ARE LOST OR DISTURBED BY CONSTRUCTION SHALL BE REESTABLISHED AND RE-MONUMENTED, AT THE EXPENSE OF THE AGENCY OR PERSON CAUSING THEIR LOSS OR DISTURBANCE AT THEIR ORIGINAL LOCATION OR BY SETTING OF A WITNESS CORNER OR REFERENCE POINT OR A REPLACEMENT BENCHMARK OR CONTROL POINT, BY OR UNDER THE DIRECTION OF A PROFESSIONAL LAND SURVEYOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING A MATERIALS TESTING COMPANY DURING CONSTRUCTION TO VERIFY ALL COMPACTION AND MATERIAL PLAN AND SPECIFICATION REQUIREMENTS ARE MET. QUALITY CONTROL DOCUMENTATION OF TESTING FOR WORK IN RIGHT-OF-WAY MEETING CITY OF KETCHUM CODE SECTION 12.04.040 (CONCRETE, AGGREGATE BASE COMPACTION, ASPHALT COMPACTION) WILL BE NECESSARY FOR CERTIFICATE OF OCCUPANCY.

WATER MAIN CONSTRUCTION NOTES

- WATER MAIN AND SERVICE CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CITY OF KETCHUM STANDARDS. NO WATER MAIN OR SERVICES SHALL BE BACKFILLED UNTIL THEY HAVE BEEN INSPECTED AND APPROVED BY THE CITY.
- WATER MAINS AND SERVICES SHALL HAVE A MINIMUM COVER OF SIX FEET (6.0'), MEASURED FROM FINISHED GRADE.
- ALL 4" AND LARGER WATER MAINS SHALL BE CONSTRUCTED WITH AWWA C-900, CLASS 235 PVC PIPE. ALL WATER MAINS SHALL BE PRESSURE TESTED IN CONFORMANCE WITH ISPMC SECTION 401.3.6 AND THE CITY OF KETCHUM STANDARDS. TRACER WIRE SHALL BE NO. 12 GAUGE COPPER LOCATING WIRE INSULATED PER ISPMC SECTION 401 AND THE CITY OF KETCHUM SPECIFICATIONS.
- SEE FLUSHING AND DISINFECTION REQUIREMENTS THIS SHEET. ALL BACTERIA TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER AND THE CITY OF KETCHUM WATER AND SEWER DEPARTMENT FOR FINAL APPROVAL AND ACCEPTANCE PRIOR TO ACTIVATION OF THE WATER MAIN AND SERVICES.
- ALL WATER DISTRIBUTION AND WATER SERVICE INSTALLATION MATERIALS AND CHEMICALS USED TO DISINFECT POTABLE WATER COMPONENTS MUST BE COMPLIANT WITH ANSI/NSF STANDARD 60/61. ALL MATERIALS MUST BE COMPLIANT WITH THE LOW LEAD RULE (<0.25%Pb BY WEIGHT).
- ALL TEES, PLUGS, CAPS AND BENDS SHALL BE SECURED AND ANCHORED BY SUITABLE THRUST BLOCKING (MECHANICAL RESTRAINTS ARE NOT ALLOWED). THRUST BLOCKS SHALL CONFORM TO ISPMC SD-403 AND THE CITY OF KETCHUM STANDARDS.
- ALL VALVES SHALL BE GATE VALVES WITH NON-RISING STEM, "O" RING SEALS, AND TWO-INCH OPERATING NUTS MEETING AWWA STANDARDS PER ISPMC SECTION 402. ALL GATE VALVES LOCATED IN PAVEMENT SHALL BE FITTED WITH CAST IRON VALVE BOXES WITH CONCRETE COLLARS PER ISPMC SD-406 AND THE CITY OF KETCHUM SPECIFICATIONS.
- ALL WATER MAIN FITTINGS SHALL BE DUCTILE IRON CONFORMING TO THE REQUIREMENTS OF AWWA C-110 FOR 250 PSI WORKING PRESSURE. JOINTS ON BURIED VALVES SHALL BE MECHANICAL JOINTS UNLESS OTHERWISE NOTED. FLANGED JOINTS SHOULD IN GENERAL BE AVOIDED UNDERGROUND.
- ALL TAPPING SADDLES SHALL BE CONSTRUCTED FROM T-304 STAINLESS STEEL WITH ANSI/AWWA C-207 CLASS 150 FLANGES. ALL WELDS SHALL CONFORM TO ASTM A-380. THE TEST OUTLET SHALL BE 3/4" NPT WITH 3/4" NPT PLUG.
- ALL WATER MAINS SHALL COMPLY WITH IDAPA 58.01.08.542.07.a AND IDAPA 58.01.08.542.07.b WHICH ADDRESS THE REQUIREMENTS FOR SEPARATION DISTANCES BETWEEN POTABLE WATER LINES (INCLUDING MAINS AND SERVICE LINES) WITH NON-POTABLE LINES (SEE ILLUSTRATION OF THESE SEPARATION REQUIREMENTS ON THIS SHEET). IN ADDITION, WATER MAINS SHALL BE CONSTRUCTED WITH AT LEAST 25 FEET HORIZONTAL SEPARATION FROM INFILTRATION TRENCHES AND DRY WELLS.
- ALL WATER SERVICES SHALL BE IN COMPLIANCE WITH ISPMC SECTION 404 AND THE CITY OF KETCHUM STANDARDS. A USC EC APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL BE INSTALLED ON PRIMARY SERVICE CONNECTIONS (INCLUDING FIRE SUPPRESSION SERVICES, IF APPLICABLE) IN ACCORDANCE WITH THE CITY OF KETCHUM WATER DEPARTMENT, FIRE MARSHAL, PLUMBING BUREAU, AND STATE OF IDAHO BACKFLOW PREVENTION REQUIREMENTS. IN AREAS WHERE MULTIPLE WATER SERVICE LINES ARE IN SAME TRENCH SEPARATE LINES BY 6".
- THE CONTRACTOR SHALL KEEP THE EXISTING WATER DISTRIBUTION SYSTEM LIVE, TO THE GREATEST EXTENT POSSIBLE, WHILE INSTALLING THE NEW WATER MAIN AND SERVICES MINIMIZING DISRUPTION TO EXISTING WATER SYSTEM USERS. THE NEW WATER MAIN AND SERVICES SHALL BE INSTALLED, BACKFILLED, PRESSURE TESTED AND DISINFECTED AND FLUSHED PRIOR TO CONNECTING THE NEW MAIN TO THE EXISTING MAIN. THE MAXIMUM ALLOWABLE SERVICE OUTAGE FOR ANY SHUTDOWN IS 4 HOURS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROMPTLY REMOVING AND DISPOSING OF WATER ENTERING THE TRENCH DURING THE TIME THE TRENCH IS BEING PREPARED FOR INSTALLATION OF THE UTILITY, INCLUDING COMPLETION OF BACKFILL OF THE PIPE ZONE, AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL DISPOSE OF THE WATER IN A SUITABLE MANNER WITHOUT CAUSING DAMAGE TO PROPERTY.
- EXTRA FITTINGS MAY BE NECESSARY IN ADDITION TO THOSE SHOWN HEREON TO CONTROL ELEVATION AND AVOID UNDERGROUND CONFLICTS.

SHEET INDEX

SHEET#	DESCRIPTION
C0.1	COVER SHEET
C1.0	WATER RELOCATION PLAN
C2.0	DETAIL SHEET AND FLUSHING AND DISINFECTION NOTES

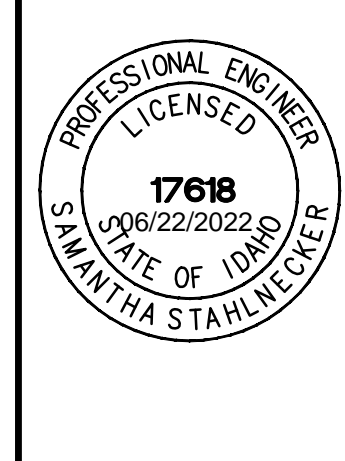


VICINITY MAP
N.T.S.

LEGEND

EXISTING CONDITIONS	PROPOSED CONDITIONS
Right-of-way	Curb and Gutter (by Jacobs, see Construction Note 11)
Approximate Property Line	Edge of Asphalt Repair/Replacement (by Jacobs, see Construction Note 11)
Right of Way Centerline	Truncated Domes (by Jacobs, see Construction Note 11)
Easement	12" Water Main
5/8" Rebar	Water Main Fitting, see plans
1/2" Rebar	12" Gate Valve
Survey Control	Frost Free Hydrant
5' Contour Interval	
1' Contour Interval	
Edge of Water	
Edge of Asphalt	
6" Vertical Curb & Gutter	
Rolled Curb & Gutter	
Fence	
Guard Rail	
Concrete Masonry Unit	
Culvert	
Drywell	
Stormdrain Manhole	
Catch Basin	
Asphalt	
Building / Structure	
Concrete	
Gravel Driveway	
Pavers	
Landscape/Retaining Wall	
Crib Wall	
Dripline of Vegetation	
Conifer Tree	
Deciduous Tree	
Sign	
Flowline	
CTL = Century Link Communication Line	
COX = COX Communication Line	
Fiber Optic Line	
Buried Television Line	
Fiber Optic Box	
Fiber Optic Line Marker	
Gas Line	
Gas Valve	
Gas Line Marker	
Telephone Line	
Telephone Riser	
Communication Vault	
Power Buried	
Power Line Marker	
Power Box	
Power Vault	
Power Pole	
Light	
Guywire	
Cable TV Riser	
Sewer Main	
Sewer Cleanout	
Sewer Manhole	
Sewer Service	
Water Main	
10" Water Main	
Fire Hydrant	
Frost Free Hydrant	
Water Valve	
Water Manhole	
Water Service	
Irrigation Valve Box	

PURPOSE: ISSUE FOR CONSTRUCTION	DATE	DESCRIPTION
	06/16/22	RELOCATE WATER MAIN TO SB SV ROAD- POWER CONFLICT



COVER SHEET

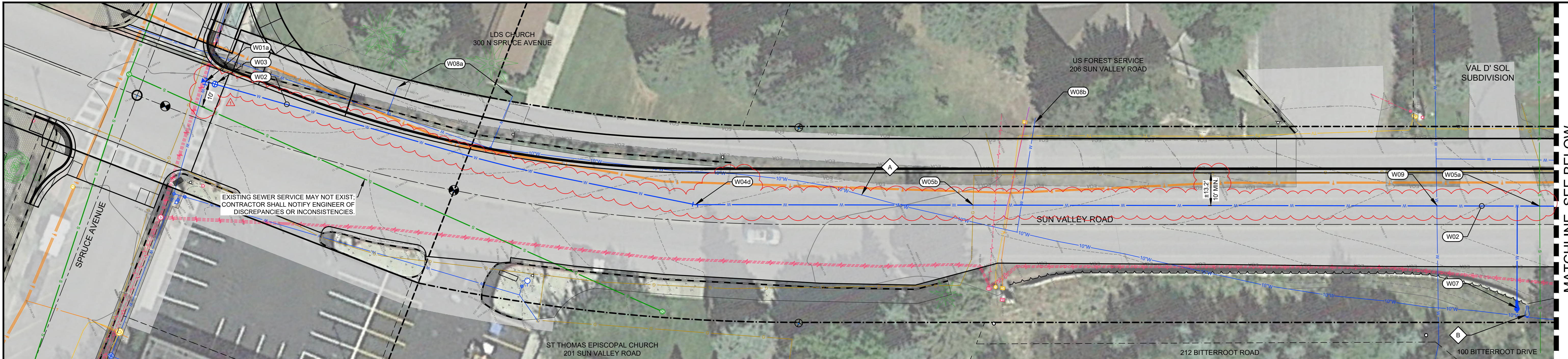
SUN VALLEY ROAD- WATER MAIN RELOCATION

PREPARED FOR CITY OF KETCHUM

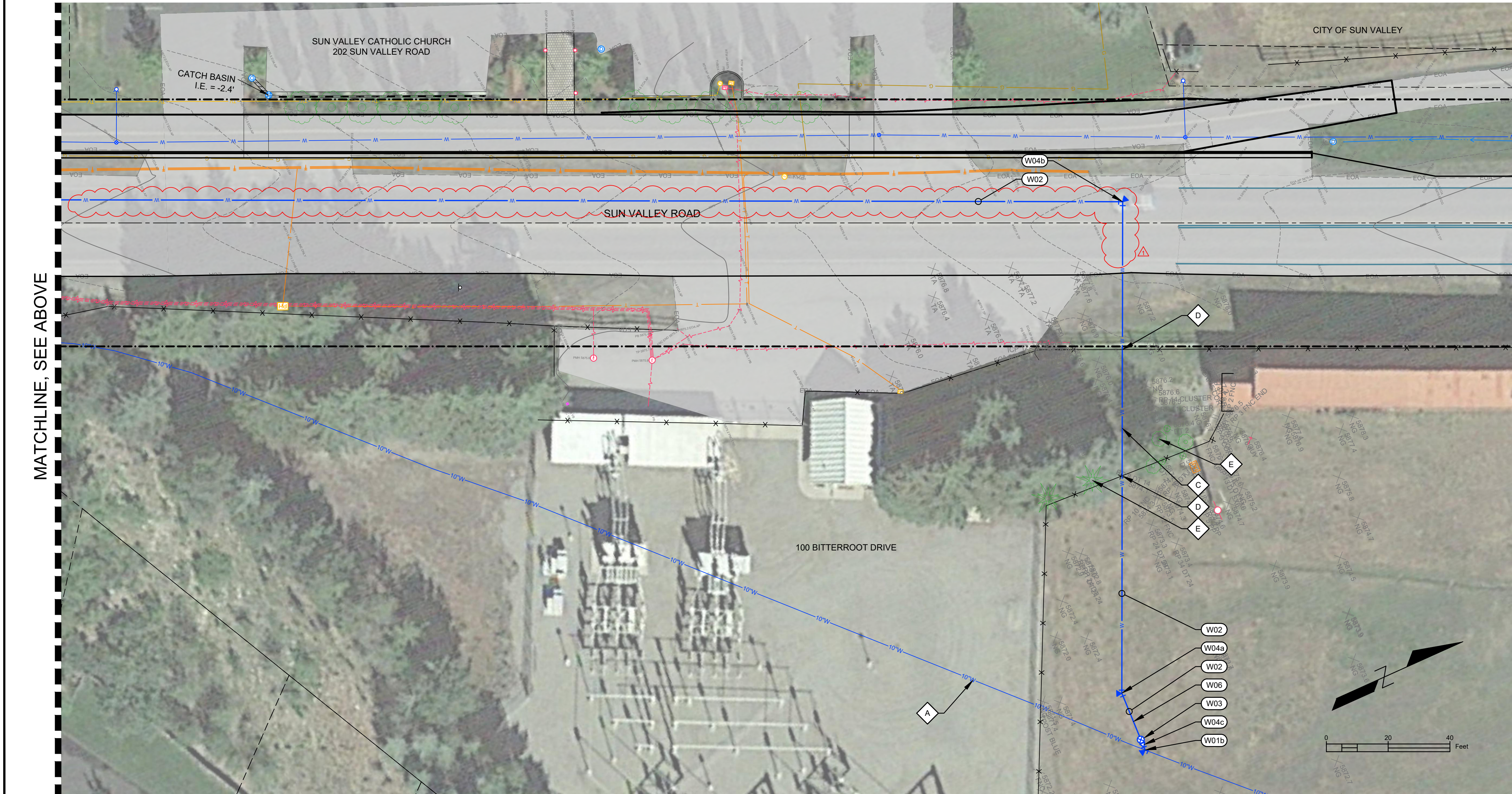
22036
PROJECT NUMBER

C0.1

REUSE OF DRAWINGS: These drawings, or any portion thereof, shall not be used on any Project or extensions of this Project except by agreement in writing with Opal Engineering, PLLC.



MATCHLINE, SEE BELOW



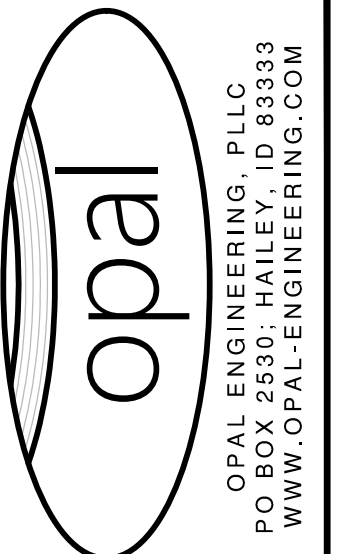
MATCHLINE, SEE ABOVE

GENERAL NOTES:

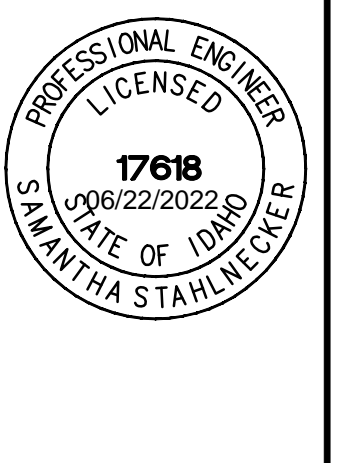
- SEE SHEET C0.1 FOR GENERAL CONSTRUCTION NOTES.
- SEE SHEET C0.1 FOR WATER CONSTRUCTION NOTES.
- SEE SHEET C0.1 FOR LEGEND.
- SEE SHEET C2.0 FOR STANDARD WATER DETAILS.
- EXTRA FITTINGS MAY BE NECESSARY IN ADDITION TO THOSE SHOWN HEREON TO CONTROL ELEVATION AND AVOID UNDERGROUND CONFLICTS.
- WATER MAIN REPLACEMENT CONSTRUCTION SHALL TAKE PLACE PRIOR TO SUN VALLEY ROAD RECONSTRUCTION WORK DESIGNED BY JACOBS ENGINEERING, SEE CONSTRUCTION NOTE 11.

WATER KEY NOTES

- W01 POINT OF WATER CONNECTION. COORDINATE WITH CITY WATER DEPARTMENT.
 - INSTALL D.1. 8" X 8" X 12" TEE (RUN X RUN X BRANCH) WITH THRUST BLOCK, REFER TO DETAIL 1 / C2.0.
 - INSTALL 10"Ø D.I. 45° FITTING WITH THRUST BLOCK, REFER TO DETAIL 1 / C2.0, TO PROVIDE CONNECTION TO EXISTING STEEL PIPE.
- W02 INSTALL 12" PVC WATER MAIN. SEE GENERAL NOTE 6.
- W03 INSTALL 12" GATE VALVE W/ THRUST BLOCK REFER TO DETAIL 1 / C2.0.
- W04 INSTALL 12" D.I. FITTING WITH THRUST BLOCK. (DETAIL 1 / C2.0)
 - 22 1/2" BEND
 - 90° BEND
 - REDUCER (12" TO 10")
 - 11 1/4" BEND
- W05 POTABLE/ NON-POTABLE CROSSING. REFER TO DETAIL 5 / C2.0.
 - EXISTING SUN VALLEY WATER AND SEWER DISTRICT (SWSD) SEWER MAIN DEPTH IS ANTICIPATED TO BE 5'-5"
 - EXISTING GAS MAIN DEPTH IS ANTICIPATED TO BE 40"-48"
- W06 INSTALL 2" SERVICE TAP WITH BALL VALVE FOR FLUSHING AND PRESSURE TESTING. SEE DETAIL 3 / C2.0. ABANDON TAP PER CITY OF KETCHUM WATER DEPARTMENT DIRECTION ONCE TESTING IS COMPLETE AND WATER MAIN IS ACCEPTED.
- W07 INSTALL FROST FREE HYDRANT PER DETAIL 2 / C2.0.
- W08 EXISTING WATER SERVICE TO BE RELOCATED BY OTHERS. EXISTING 10" WATER SERVICE TO REMAIN IN SERVICE UNTIL SERVICE RELOCATION COMPLETE.
 - WATER SERVICE PROVIDED WITH EXISTING SPRUCE AVENUE SERVICE
 - WATER SERVICE PROVIDED BY SWSD.
- W09 POTABLE/ POTABLE CROSSING. EXISTING NORTH-SOUTH WATER MAIN IS PART OF SUN VALLEY WATER AND SEWER DISTRICT (SWSD) WATER SYSTEM. SWSD AND KETCHUM WATER MAIN LINES DO NOT CONNECT.
- A ABANDON EXISTING 10"Ø WATER MAIN. SHUT EXISTING GATE VALVE AND BURY. COORDINATE WITH CITY WATER DEPARTMENT.
- B REMOVE EXISTING FROST FREE HYDRANT.
- C REPAIR EXISTING IRRIGATION AND LANDSCAPING TO MATCH EXISTING CONDITIONS.
- D REPAIR EXISTING FENCE AS NECESSARY TO MATCH EXISTING CONDITIONS.
- E RETAIN AND PROTECT EXISTING TREE. CONTRACTOR TO NOTIFY ENGINEER IF TREE REMOVAL IS REQUIRED.



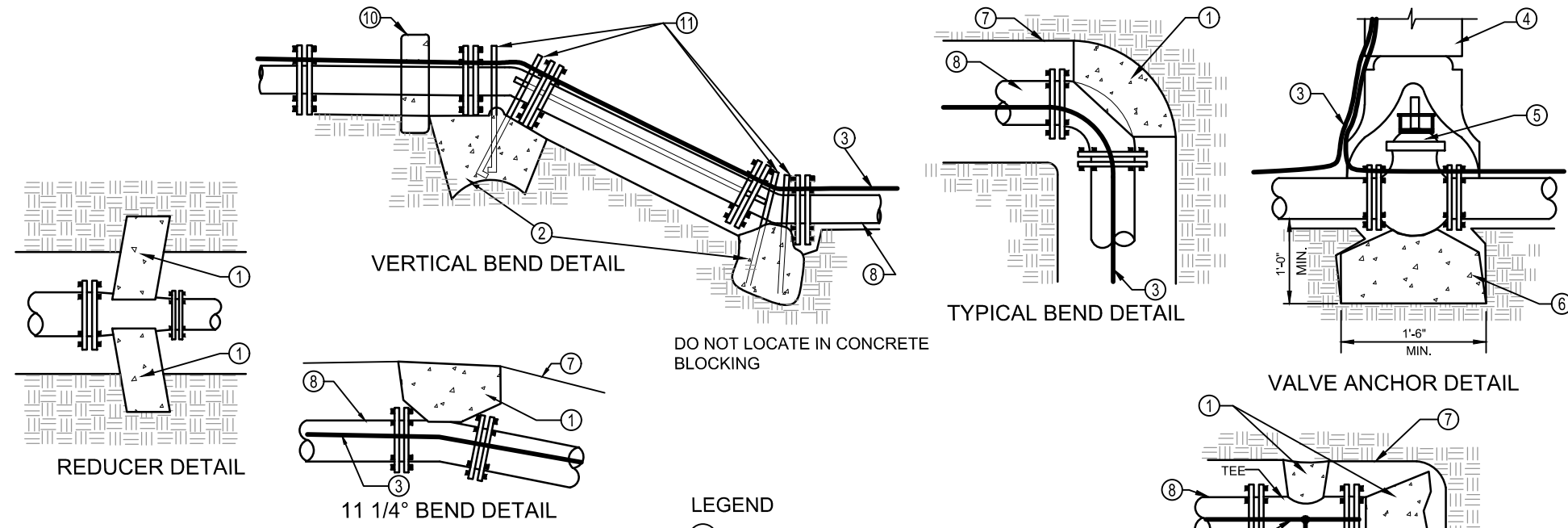
PURPOSE: ISSUE FOR CONSTRUCTION	DATE	DESCRIPTION
REVISION NO. 1	08/16/22	RELOCATE WATER MAIN TO SB SV ROAD- POWER CONFLICT



WATER RELOCATION PLAN
SUN VALLEY ROAD- WATER MAIN RELOCATION
PREPARED FOR CITY OF KETCHUM

22036
PROJECT NUMBER
C1.0

REUSE OF DRAWINGS: These drawings, or any portion thereof, shall not be used on any project or extensions of this project except by agreement in writing with Opal Engineering, PLLC.



**TABLE 1
THRUST AREA FOR HORIZONTAL BENDS*****

PIPE SIZE	TEE, PLUG OF VALVE	90° BEND**	45° BEND**	22.5° 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

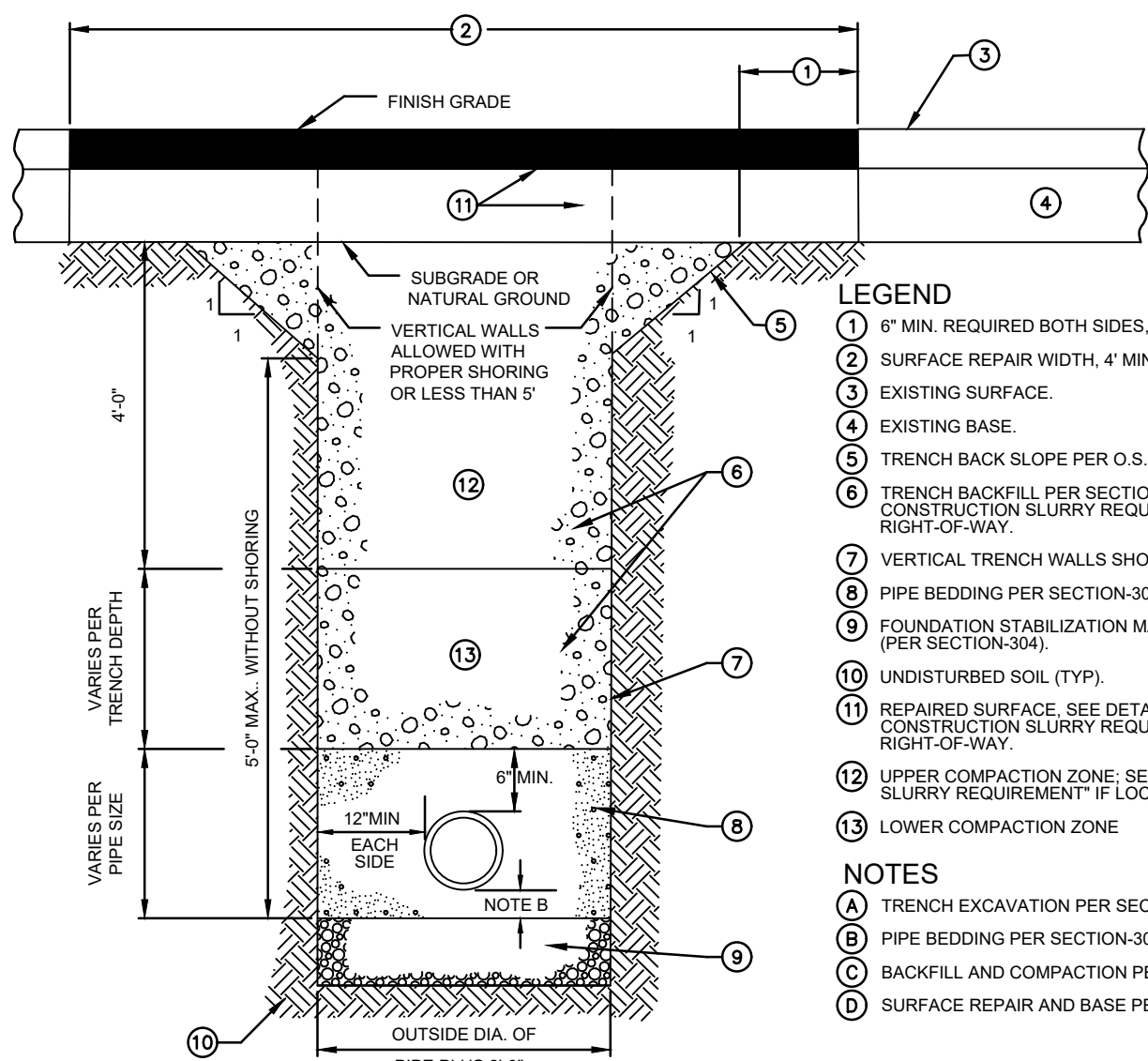
LEGEND

- 1) FOR HORIZONTAL PIPE BENDS, BEARING THRUST BLOCKS MUST PROVIDE 2500 PSI 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 2-1/2" MIN REBAR.
- 7) TRENCH SIDE.
- 8) PIPE.
- 9) PLUG.
- 10) HAMMERHEAD THRUST BLOCKING.
- 11) ANCHOR BARS (1/2" MIN)

** 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.

1 C2.0 THRUST BLOCK AND ANCHOR DETAILS (ISPCW SD-403)

N.T.S.



LEGEND

- 1) 6" MIN. REQUIRED BOTH SIDES. SAWCUT 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 SECTION-306, OR SEE "KETCHUM PUBLIC CONSTRUCTION SLURRY REQUIREMENT" IF LOCATED WITHIN PUBLIC RIGHT-OF-WAY.
 - 7) VERTICAL TRENCH WALLS SHORING PER O.S.H.A.
 - 8) PIPE BEDDING PER SECTION-305 (SEE SD-302).
 - 9) FOUNDATION STABILIZATION MAY VARY PER SOIL TYPE AND STABILITY (PER SECTION-304).
 - 10) UNDISTURBED SOIL (TYP).
 - 11) REPAIRED SURFACE. SEE DETAILS 1 AND 2. SEE "KETCHUM PUBLIC CONSTRUCTION SLURRY REQUIREMENT" IF LOCATED WITHIN PUBLIC RIGHT-OF-WAY.
 - 12) UPPER COMPACTION ZONE. SEE "KETCHUM PUBLIC CONSTRUCTION SLURRY REQUIREMENT" IF LOCATED WITHIN PUBLIC RIGHT-OF-WAY.
 - 13) LOWER COMPACTION ZONE.
- NOTES**
- 1) TRENCH EXCAVATION PER SECTION-301.
 - 2) PIPE BEDDING PER SECTION-305.
 - 3) BACKFILL AND COMPACTION PER SECTION-306.
 - 4) SURFACE REPAIR AND BASE PER DETAIL 3/C20

KETCHUM PUBLIC CONSTRUCTION SLURRY REQUIREMENT
 IN AREAS WHERE IT IS NECESSARY TO CUT THE ASPHALT PAVEMENT AND DIG A TRENCH FOR BURIAL OF CONDUIT CABLE OR OTHER CITY UTILITY, THE TRENCH SHALL BE BACKFILLED WITH A LEAN CONCRETE MIX TO THE BOTTOM OF FINISH SURFACE MATERIAL, WITH THE FOLLOWING PROPORTIONS OF MATERIALS:

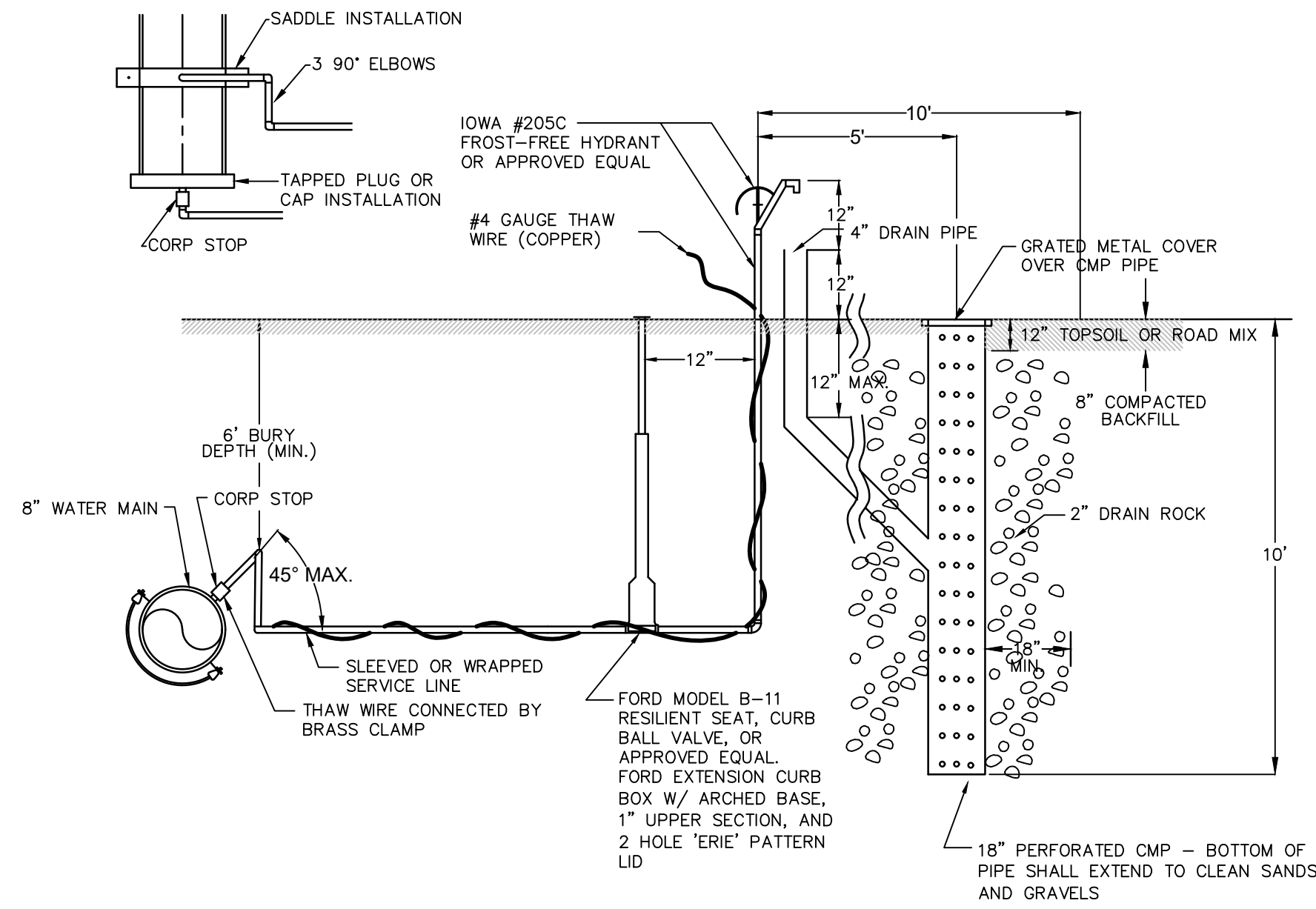
COARSE AGGREGATE (#6 MINUS)	: 2,800 LBS
SAND	: 800 LBS
PORTLAND CEMENT	: 94 LBS
WATER	: 11 GAL (MAX.)

WATER CONTENT IS MAXIMUM AND MAY BE REDUCING DOWNWARD. CARES SHALL BE TAKEN TO ASSURE THAT EXCESS WATER IS NOT PRESENT IN THE MIXING DRUM PRIOR TO CHARGING THE MIXER WITH MATERIALS. THOROUGH MIXING WILL BE REQUIRED PRIOR TO DISCHARGE.

NO COMPACTION, VIBRATION OR FINISHING IS REQUIRED. THE LEAN CONCRETE MIX SHALL BE STROFF AT OR BELOW THE ELEVATION OF THE PLANTMX SURFACING WITH A SQUARE-NOSE SHOVEL OR SIMILAR HAND TOOL. THE BACKFILL MIX SHALL BE ALLOWED TO SET FOR A MINIMUM OF 2 HOURS BEFORE THE PERMANENT PLANTMX SURFACING IS PLACED TO COMPLETE THE TRENCH REPAIR. TEMPORARY PLACEMENT OF ASPHALT TO MIX SURFACING MAY BE NECESSARY TO ACCOMMODATE TRAFFIC WITHIN THE FIRST 2 HOURS OF BACKFILL PLACEMENT PRIOR TO COMPLETING THE PERMANENT REPAIR.

4 C2.0 TYPICAL TRENCH SECTION

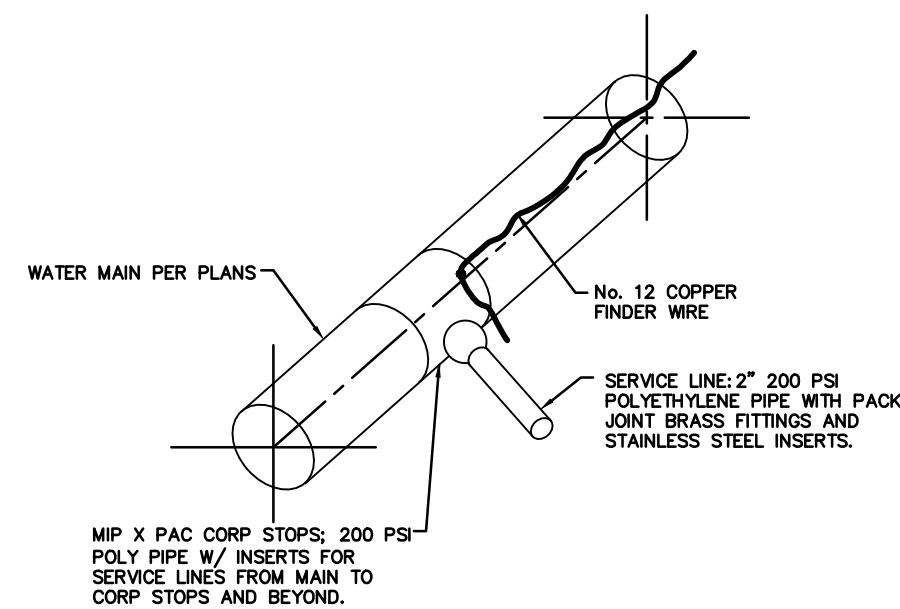
N.T.S.



2 C2.0

FROST FREE HYDRANT WITH DRAIN PIT

N.T.S.



3 C2.0 FLUSHING SERVICE CONNECTION

N.T.S.

FLUSHING AND DISINFECTION

- A. FLUSHING PRIOR TO DISINFECTION
 1. BEFORE CHLORINATION, FLUSH THE MAINS THOROUGHLY AFTER THE PRESSURE AND LEAKAGE TEST ARE COMPLETE.
 2. USE A MINIMUM FLUSHING VELOCITY IN THE MAIN OF 2.5 FEET/SECOND.
 3. IF NO HYDRANT IS INSTALLED AT THE END OF THE MAIN, PROVIDE A TAP OF THE SIZE SUFFICIENT TO PRODUCE A VELOCITY IN THE MAIN OF AT LEAST 2.5 FEET/SECOND.
 4. TABLE 1 SHOWS THE RATES OF FLOW REQUIRED TO PRODUCE A VELOCITY OF 2.5 FEET/SECOND IN VARIOUS SIZE PIPES.
 5. EXERCISE EXTREME CARE AND CONDUCT A THOROUGH INSPECTION DURING THE WATER MAIN LAYING TO PREVENT AND DETECT SMALL STONES, PIECES OF CONCRETE, PARTICLES OF MATERIAL, OR OTHER FOREIGN MATERIAL THAT MAY HAVE ENTERED THE MAINS.
 6. CLEAN LARGE MATERIAL BY FLUSHING AND INSPECTING ALL HYDRANTS ON THE LINES TO ENSURE THAT THE ENTIRE VALVE OPERATING MECHANISM OF EACH HYDRANT IS IN GOOD CONDITION.
- B. DISINFECTION OF WATER PIPES
 1. GENERAL
 - a. COMPLY WITH ANSIAWWA C 651: DISINFECTING WATER MAINS, THESE SPECIFICATIONS, AND ENGINEER'S DIRECTION.
 - b. KEEP THE INTERIOR OF ALL PIPE, FITTINGS AND APPURTENANCES FREE FROM DIRT, HEAVY AND FOREIGN PARTICLES.
 - c. DISINFECT ALL WATER PIPES AND APPURTENANCES PRIOR TO PLACING IN SERVICE.
 2. FORM OF CHLORINE USED TO BE PRE-APPROVED BY THE ENGINEER.
 - a. LIQUID CHLORINE
 - 1) FORM: LIQUID CONTAINING 100% AVAILABLE CHLORINE UNDER PRESSURE IN STEEL CONTAINERS.
 - 2) STANDARD: ANSIAWWA B 301.
 - 3) EXECUTION: USED ONLY BY TRAINED PERSONNEL WITH APPROPRIATE GAS-FLOW CHLORINATORS AND EJECTORS.
 - 4) AUTHORIZATION: ONLY WITH WRITTEN AUTHORIZATION OF THE ENGINEER.
 - b. SODIUM HYPOCHLORITE
 - 1) FORM: LIQUID CONTAINING APPROXIMATELY 5% TO 15% AVAILABLE CHLORINE.
 - 2) STANDARD: ANSIAWWA B 300.
 - c. CALCIUM HYPOCHLORITE
 - 1) FORM: GRANULAR OR IN 5G TABLETS CONTAINING APPROXIMATELY 65% AVAILABLE CHLORINE BY WEIGHT.
 - 2) STANDARD: ANSIAWWA B 300.
 3. METHODS OF CHLORINATION USED TO BE PRE-APPROVED BY THE ENGINEER.
 - a. TABLET OR GRANULE METHOD
 - 1) SOLUTION STRENGTH: 25 MG/L MINIMUM.
 - 2) USE: ONLY IF THE PIPES AND APPURTENANCES ARE KEPT CLEAN AND DRY DURING CONSTRUCTION. DO NOT USE SOLVENT WELDED PLASTIC OR SCREWED JOINT STEEL PIPE.
 - 3) PLACEMENT WHEN USING GRANULES: DURING CONSTRUCTION, PLACE CALCIUM HYPOCHLORITE GRANULES AT THE UPSTREAM END OF EACH BRANCH MAIN, AND AT 500-FOOT INTERVALS.
 - 4) GRANULAR QUANTITY: REFER TO TABLE 2
 - 5) PLACEMENT WHEN USING TABLETS: DURING CONSTRUCTION, PLACE 5G CALCIUM HYPOCHLORITE TABLETS IN EACH SECTION OF PIPE AND ALSO PLACE ONE TABLET IN EACH HYDRANT, HYDRANT BRANCH AND OTHER APPURTENANCES. ATTACH TABLETS TO THE INSIDE OF THE PIPE USING AN ADHESIVE SUCH AS PERMATEX NO. 2 OR APPROVED SUBSTITUTION. ASSURE NO ADHESIVE IS ON THE TABLET EXCEPT ON THE BROAD SIDE ATTACHED TO THE SURFACE OF THE PIPE. ATTACH ALL THE TABLETS AT THE INSIDE TIP OF THE TRENCH, WITH APPROXIMATELY EQUAL NUMBERS OF TABLETS AT EACH END OF A GIVEN PIPE LENGTH. IF THE PIPE SECTION IS PLACED IN THE TRENCH, MARK THEIR POSITION ON THE SECTION SO IT CAN BE READILY DETERMINED THAT THE PIPE IS INSTALLED WITH THE TABLETS AT THE TOP.
 - 6) TABLET QUANTITY: REFER TO TABLE 3
 - (1) ADJUST FOR PIPE LENGTH OTHER THAN 18 FEET.
 - (2) BASED ON 3.25G AVAILABLE CHLORINE PER TABLET.
 - 7) FILLING PROCEDURE: WHEN GRANULE OR TABLET INSTALLATION HAS BEEN COMPLETED, FILL THE MAIN WITH CLEAN WATER AT A VELOCITY NOT EXCEEDING 1 FPS. TAKE PRECAUTIONS TO ASSURE THAT AIR POCKETS ARE ELIMINATED. LEAVE THIS WATER IN THE PIPE FOR AT LEAST 24 HOURS. IF THE WATER TEMPERATURE IS LESS THAN 41° F, LEAVE THE WATER IN THE PIPE FOR AT LEAST 48 HOURS. POSITION VALVE SO THAT THE CHLORINE SOLUTION IN THE MAIN BEING TREATED WILL NOT FLOW INTO WATER MAINS IN ACTIVE SERVICE.
 - b. CONTINUOUS FEED METHOD.
 - 1) SOLUTION STRENGTH: DOSE AT 25 MG/L FOR 4 HOURS.
 - 2) RESIDUAL: 10 MG/L AT 24 HOURS.
 - 3) DOSING METHODS:
 - a) LIQUID CHLORINE: SOLUTION FEED VACUUM-OPERATED CHLORINATOR IN COMBINATION WITH A BOOSTER PUMP.
 - b) DIRECT FEED: NOT ALLOWED.
 - c) HYPOCHLORITE SOLUTION: CHEMICAL FEED PUMP DESIGNED FOR FEEDING CHLORINE SOLUTIONS.
 - d) CALCIUM HYPOCHLORITE GRANULES: REFER TO PREVIOUS SECTION.
 - 4) FILLING PROCEDURE: USE APPROVED SOURCE TO FLOW CLEAN WATER AT A CONSTANT, MEASURED RATE INTO THE NEWLY LAID WATER MAIN. FILL AT A POINT NOT MORE THAN 10 FEET DOWNSTREAM FROM THE BEGINNING OF THE NEW MAIN. MEASURE CONCENTRATION AT REGULAR INTERVALS TO ENSURE 100 MG/L DOSE. APPLY THE CHLORINE CONTINUOUSLY AND FOR THE TIME REQUIRED TO DEVELOP A SOLID COLUMN OR "SLUG" OF CHLORINATED WATER THAT WILL AS IT MOVES THROUGH THE MAIN, EXPOSE ALL INTERIOR SURFACES TO A 100 MG/L FOR AT LEAST 3 HOURS. MEASURE THE CHLORINE RESIDUAL IN THE SLUG AS IT MOVES THROUGH THE MAIN. IF AT ANY TIME IT DROPS BELOW 50 MG/L, STOP FLOW AND RELOCATE CHLORINATION EQUIPMENT AT THE HEAD OF THE SLUG, AND AS FLOW IS RESUMED, ADD CHLORINE TO RESTORE THE FREE CHLORINE IN THE SLUG TO NOT LESS THAN 100 MG/L. AS THE CHLORINATED WATER FLOWS PAST FITTINGS AND VALVES, OPERATE VALVES AND HYDRANTS TO DISINFECT APPURTENANCES AND PIPE BRANCHES.
 - c. SLUG METHOD.
 - 1) SOLUTION STRENGTH: 100 MG/L
 - 2) DOSING METHODS: PER ENGINEER'S DIRECTION
 - 3) FILLING PROCEDURE: USE APPROVED SOURCE TO FLOW CLEAN WATER AT A CONSTANT, MEASURED RATE INTO THE NEWLY LAID WATER MAIN. FILL AT A POINT NOT MORE THAN 10 FEET DOWNSTREAM FROM THE BEGINNING OF THE NEW MAIN. MEASURE CONCENTRATION AT REGULAR INTERVALS TO ENSURE 100 MG/L DOSE. APPLY THE CHLORINE CONTINUOUSLY AND FOR THE TIME REQUIRED TO DEVELOP A SOLID COLUMN OR "SLUG" OF CHLORINATED WATER THAT WILL AS IT MOVES THROUGH THE MAIN, EXPOSE ALL INTERIOR SURFACES TO A 100 MG/L FOR AT LEAST 3 HOURS. MEASURE THE CHLORINE RESIDUAL IN THE SLUG AS IT MOVES THROUGH THE MAIN. IF AT ANY TIME IT DROPS BELOW 50 MG/L, STOP FLOW AND RELOCATE CHLORINATION EQUIPMENT AT THE HEAD OF THE SLUG, AND AS FLOW IS RESUMED, ADD CHLORINE TO RESTORE THE FREE CHLORINE IN THE SLUG TO NOT LESS THAN 100 MG/L. AS THE CHLORINATED WATER FLOWS PAST FITTINGS AND VALVES, OPERATE VALVES AND HYDRANTS TO DISINFECT APPURTENANCES AND PIPE BRANCHES.
- C. FINAL FLUSHING.
 1. AFTER THE RETENTION PERIOD, FLUSH THE CHLORINATED WATER FROM THE MAIN UNTIL CHLORINE MEASUREMENTS SHOW THAT THE CONCENTRATION IN THE WATER LEAVING THE MAIN IS NO HIGHER THAN THAT IN THE SYSTEM, OR IS ACCEPTABLE FOR DOMESTIC USE.
 2. DISPOSAL OF FLUSHING WATER TO BE DONE IN A MANNER SO THAT IT DOES NOT:
 - a. REACH SURFACE WATERS OR WATERS OF THE STATE
 - b. DAMAGE SURROUNDING PROPERTIES
 - c. TAKE PLACE DURING PERIODS WHEN THE AMBIENT TEMPERATURE IS ABOVE 85° WITHOUT PRIOR APPROVAL OF THE ENGINEER
 3. IF WATER CAN NOT BE RETAINED ON SITE AND IF IT IS NOT ALLOWED TO ENTER THE SANITARY SEWER COLLECTION SYSTEM, WATER SHALL BE DECHLORINATED TO HAVE A MAXIMUM AVAILABLE CHLORINE CONCENTRATION OF 0.13 MG/L AND THE APPROPRIATE PRIVATE, FEDERAL, AND STATE DISCHARGE AND DISPOSAL APPROVALS SHALL BE ACQUIRED PRIOR TO COMMENCEMENT OF FLUSHING ACTIVITIES. SHOULD THERE BE A POTENTIAL FOR THE GROUNDWATER RULE TO BE VIOLATED AS A RESULT OF A CHLORINATED DISCHARGE THE ENGINEER SHALL COORDINATE DISPOSAL WITH REGIONAL DEQ STAFF PRIOR TO FLUSHING.
- D. BACTERIOLOGICAL TESTS.
 1. AFTER FINAL FLUSHING AND BEFORE THE WATER MAIN IS PLACED IN SERVICE, TEST SAMPLES COLLECTED FROM THE MAIN(S) FOR COLIFORM BACTERIA.
 2. TAKE 2 SAMPLES FROM EACH LOCATION AT LEAST 24 HOURS APART.
 3. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, COLLECT SAMPLES FROM EACH 1,200 FEET ON THE NEW MAIN AND ONE FROM EACH BRANCH.
- E. REDISINFECTION.
 1. IF THE INITIAL DISINFECTION FAILS TO PRODUCE APPROVED BACTERIOLOGICAL SAMPLES, REFRESH AND RESAMPLE THE MAIN.
 2. IF CHECK SAMPLES SHOW BACTERIAL CONTAMINATION, RE-CHLORINATE THE MAIN UNTIL APPROVED RESULTS ARE OBTAINED.
- F. SWABBING.
 1. IF CONNECTIONS ARE NOT DISINFECTED ALONG WITH THE NEWLY INSTALLED MAIN, SWAB OR SPRAY THE INTERIOR OF ALL PIPES AND FITTINGS USED IN MAKING THE CONNECTIONS WITH A 1% HYPOCHLORITE SOLUTION BEFORE INSTALLATION.

**TABLE 1
REQUIRED FLOW AND OPENINGS TO FLUSH PIPES
40 PSI RESIDUAL PRESSURE IN WATER MAIN (1)**

Pipe Diameter (inch)	Flow Required to Produce 2.5 fps (approx) Velocity in Main (Gpm)	Size of Tap (inch)		Hydrant Outlets	
		(1)	(2)	Number	Size in (inch)
4	100	1	1	1	2-1/2
6	220	1	1	1	2-1/2
8	400	2	1	1	2-1/2
10	600	3	2	1	2-1/2
12	900	2	2	2	2-1/2
16	1500	4	2	2	2-1/2

1) With a 40 psi pressure in the main with the hydrant flowing to atmosphere, a 2-1/2 inch hydrant outlet will discharge approximately 1,000 gpm and a 4-1/2 inch hydrant will discharge approximately 2500 gpm.
 2) Number of laps on pipe based on discharge through 5 feet of galvanized iron (GI) pipe with one 90° elbow.

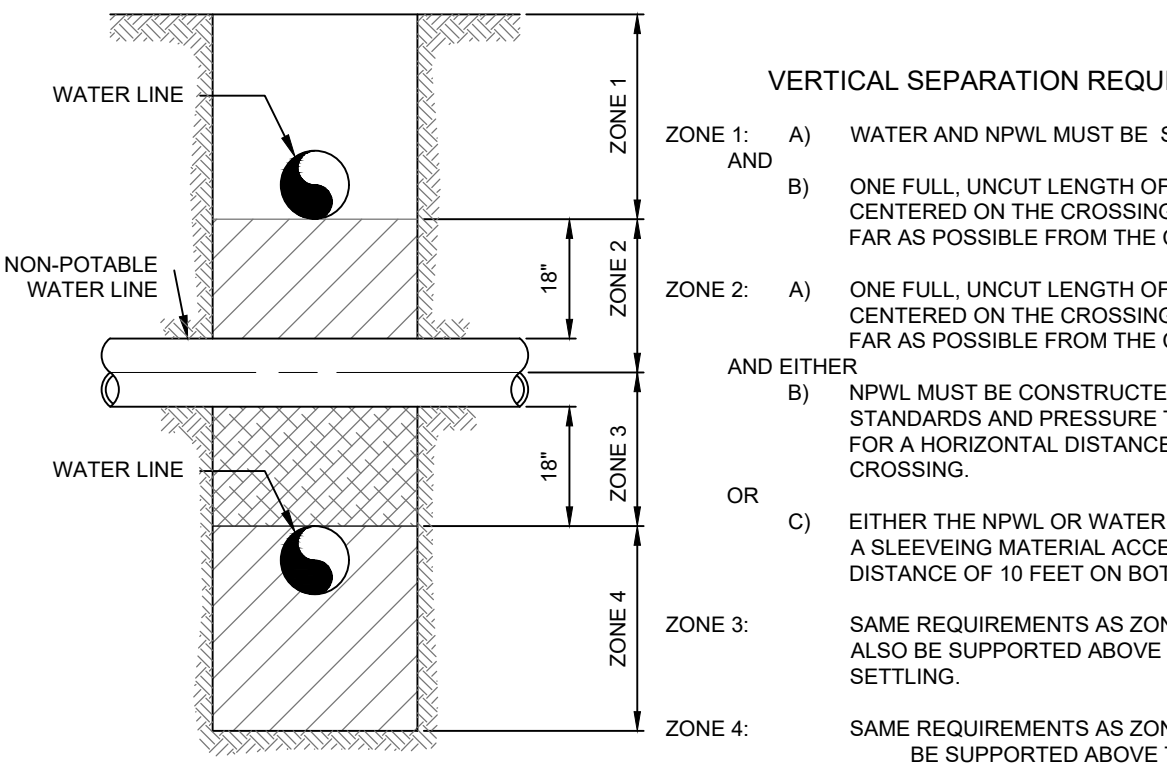
**TABLE 2
OUNCES OF GRANULES**

Pipe Diameter (inches)	Amount (ounces)
4	1.7
6	3.8
8	6.7
10	10.5
12	15.1
16	26.8
18	34.0
20	41.9
24	60.4

**TABLE 3
NUMBER OF TABLETS (1)**

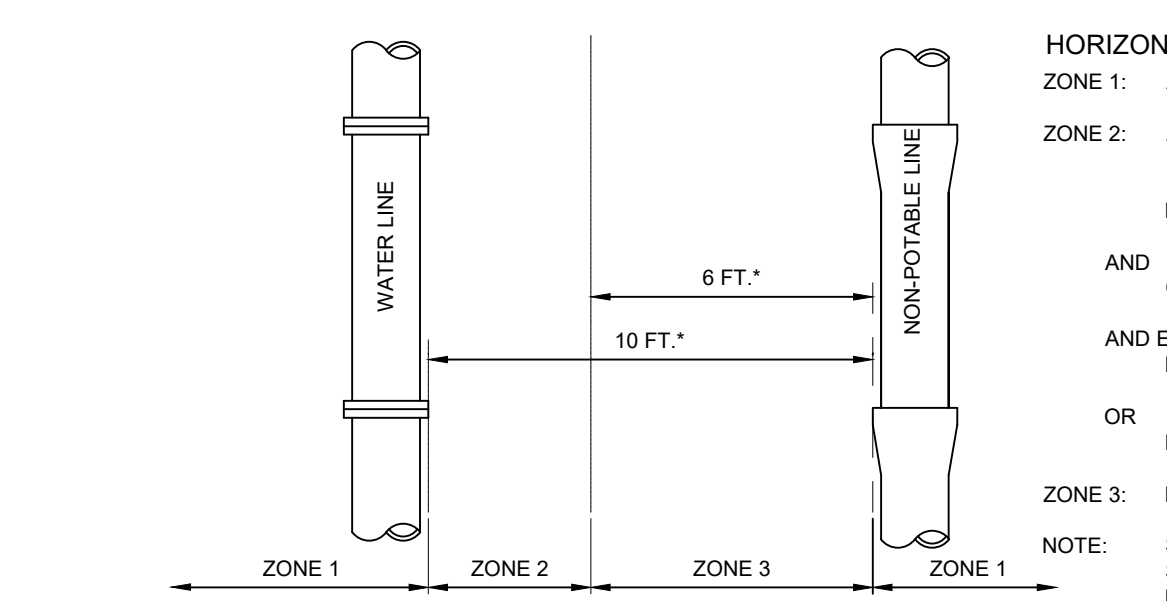
Pipe Diameter (inches)	Number of 5g Tablets (2)
4	1
6	1
8	2
10	3
12	4
16	7
18	9
20	9
24	13

THE TERM "LINE" APPLIES TO BOTH MAIN LINES AND SERVICE LINES



VERTICAL SEPARATION REQUIREMENTS

- ZONE 1:** A) WATER AND NPWL MUST BE SEPARATED BY AT LEAST 18" AND B) ONE FULL UNCUT LENGTH OF BOTH PWL AND 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 BOTH PWL AND NPWL PIPE MUST BE CENTERED ON THE CROSSING SO THAT THE JOINTS ARE AS FAR AS POSSIBLE FROM THE CROSSING.
- AND EITHER B) NPWL MUST BE CONSTRUCTED TO WATER MAIN STANDARDS AND PRESSURE TESTED FOR WATER TIGHTNESS FOR A HORIZONTAL DISTANCE OF 10 FEET ON BOTH SIDES OF CROSSING.
- OR C) EITHER THE NPWL OR WATER LINE OR BOTH MUST BE ENCASED WITH A SLEEVEING MATERIAL ACCEPTABLE TO DEQ 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 EXCEPT THE THE NPWL MUST ALSO BE SUPPORTED ABOVE THE CROSSING TO PREVENT SETTLING.

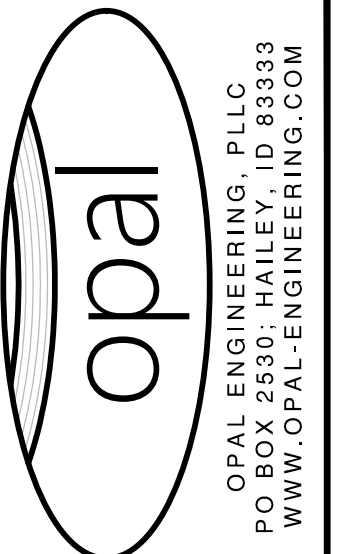


HORIZONTAL SEPARATION REQUIREMENTS

- ZONE 1:** A) NO SPECIAL REQUIREMENTS.
- ZONE 2:** A) NO SPECIAL REQUIREMENTS FOR POTABLE OR NON-POTABLE SERVICES B) WATER AND NPWL SEPARATED BY AT LEAST 6 FEET AT OUTSIDE WALLS. C) WATER AT LEAST 18 INCHES HIGHER IN ELEVATION THAN THE NPWL. AND EITHER D) NPWL CONSTRUCTED TO POTABLE WATER MAIN STANDARDS AND PRESSURE TESTED FOR WATER TIGHTNESS. OR E) 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 GRANTED BY DEQ.

5 C2.0 POTABLE/ NON-POTABLE WATER LINE SEPARATION

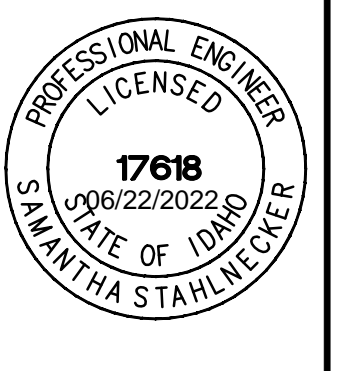
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PURPOSE: ISSUE FOR CONSTRUCTION

REVISION NO.	DATE	DESCRIPTION
08/16/22		RELOCATE WATER MAIN TO SB SV ROAD- POWER CONFLICT



DETAIL SHEET AND FLUSHING AND DISINFECTION NOTES
SUN VALLEY ROAD- WATER MAIN RELOCATION
 PREPARED FOR CITY OF KETCHUM

22036 PROJECT NUMBER

C2.0