

WATER SYSTEM STANDARD DRAWING INDEX

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WATER SYSTEM STANDARD DRAWING

WATER SYSTEM STANDARD DRAWING INDEX

NO.	REVISIONS	DATE	BY	APPROVED
1	MISC DRAWINGS REMOVED OR RENAMED	01/29/2019	HSO	
2				
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DRAWING NO.

400

DATE: 9/12/2017

SCALE: NTS

NOTES:

1. CONSTRUCTION OF IMPROVEMENTS SHALL BE IN ACCORDANCE WITH OAK LODGE WATER SERVICES (OLWS a.k.a. DISTRICT) DEVELOPER EXTENSION AGREEMENT (as applicable), DISTRICT STANDARD DETAILS AND THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, MOST CURRENT EDITION, AS ISSUED BY THE OR. STATE DEPT. OF TRANSPORTATION.
2. A PRE-CONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO CONSTRUCTION AND 48 HOURS ADVANCE NOTIFICATION OF THE LOCAL MUNICIPALITY, OLWS AND ALL AFFECTED UTILITY COMPANIES PRIOR TO THE ACTUAL START OF WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE PROVISIONS OF THE ROAD OPENING PERMIT AS ISSUED BY CLACKAMAS COUNTY.
4. LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY, LOCATE AND PROTECT ALL UTILITIES WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING OR REPAIRING ANY UTILITIES DAMAGED DURING CONSTRUCTION. SHOW THESE UTILITIES ON THE AS-BUILTS. IF A UTILITY IS DAMAGED, CONTRACTOR SHALL NOTIFY THE AFFECTED UTILITY COMPANY IMMEDIATELY.
5. ALL MAINS, SERVICES, VALVES, FITTINGS, AND OTHER APPURTENANCES MUST BE INSPECTED BY A DISTRICT REPRESENTATIVE BEFORE BURIAL.
6. WATER MAIN TRENCH SECTION AND ALL EXCAVATED AREAS SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE STANDARD DETAILS, WITH SECTION 01140.40 OF THE STANDARD SPECIFICATIONS, AND WITH CLACKAMAS COUNTY ROAD OPENING PERMIT. COMPACTION TESTING SHALL BE REQUIRED DURING BACKFILLING OPERATIONS WITHIN ALL ROADWAYS AND AT THE DISCRETION OF THE DISTRICT. IF TRENCH BACKFILL DOES NOT MEET COMPACTION REQUIREMENTS, CONTRACTOR SHALL EXCAVATE, RECOMPACT AND RETEST MATERIAL AT CONTRACTOR'S EXPENSE.
7. RESTORATION OF DAMAGED ROAD SURFACING SHALL BE IN ACCORDANCE WITH CLACKAMAS COUNTY'S REQUIREMENTS. ALL OTHER AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR AS DIRECTED BY THE DISTRICT. THIS INCLUDES SHOULDERS, LANDSCAPING, WALLS, FENCES, DRIVEWAYS, AND OTHER IMPROVEMENTS.
8. THE WATER MAIN SHALL BE INSTALLED WITH A MINIMUM OF 36" OF COVER. INSTALLATION OF MAIN WITH GREATER THAN 48" OF COVER SHALL BE ACCEPTABLE ONLY UNDER THE DIRECTION OF THE DISTRICT.
9. ALL VALVES AND FITTINGS MUST BE MECHANICALLY RESTRAINED BY MEGALUG OR ROMAGRIP JOINT RESTRAINING GLANDS. ALL BELL AND SPIGOT JOINTS MUST BE RESTRAINED BY FIELD LOK GASKETS OR APPROVED EQUAL.
10. A SANITARY GAP MUST BE PROVIDED BETWEEN THE EXISTING AND NEW WATER SYSTEMS. CONNECTION TO THE EXISTING WATER SYSTEM SHALL BE PERFORMED BY THE CONTRACTOR ONLY AFTER COMPLETING OF AN ACCEPTABLE HYDROSTATIC PRESSURE TEST AND THE PIPELINE IS DISINFECTED AND RECEIPT OF APPROVAL OF WATER QUALITY TEST RESULTS FROM THE TESTING LAB.
11. CONTRACTOR SHALL PERFORM PRESSURE TEST AT 180psl OR 1.5 TIMES THE NORMAL WORKING PRESSURE, WHICHEVER IS HIGHER, INCLUDING ON HYDRANTS AND SERVICE LINES. MAINLINE SHALL BE TESTED IN SECTIONS OF NO MORE THAN 1,500 FEET. PRESSURE SHALL BE MAINTAINED FOR 1 HOUR MINIMUM. ANY LEAKAGE IS UNACCEPTABLE.
12. A PIPE PLUG SHALL BE USED ON EACH JOINT DURING INSTALLATION TO PROTECT AGAINST FLOODING OF THE PIPE.
13. NO OTHER UTILITIES SHALL BE INSTALLED WITHIN 36" HORIZONTALLY OF ANY ACTIVE WATER LINE UNLESS OTHERWISE PRE-APPROVED BY THE DISTRICT.
14. CONTRACTOR SHALL POTHOLE A SUFFICIENT DISTANCE AHEAD TO VERIFY DEPTH OF ALL EXISTING WATER MAINS AND CROSSING UTILITIES PRIOR TO CONSTRUCTION AND CONNECTIONS AND TO ANTICIPATE ANY NECESSARY CHANGES IN FITTINGS OR ALIGNMENT.
15. A PROPOSED CONSTRUCTION DRAWING MUST BE SUBMITTED TO THE DISTRICT BEFORE WATER SERVICE WILL BE PROVIDED.
16. DEFLECTION AT PIPE AND FITTING JOINTS WILL BE ALLOWED UP TO 3.0" (11" OVER 18') OR AS RECOMMENDED BY MANUFACTURER, WHICHEVER IS LESS.
17. CONTRACTOR SHALL ONLY DISPOSE OF WASTE MATERIAL AT SITES APPROVED BY CLACKAMAS COUNTY. STOCKPILE MATERIALS ONLY ON DISTRICT APPROVED SITES.
18. **HATCH NOTE:** ALL VAULT HATCHES 2'x2' OR LARGER SHALL BE HINGED, SPRING ASSIST OPENING, INCLUDE RECESSED PADLOCK HASP, DRAINABLE FRAME (C OR U CHANNEL WITH PIPE CONNECTION), H2O RATED MINIMUM, ALUMINUM OR GALVANIZED STEEL. IF HATCH WILL BE LOCATED IN A TRAVELED AREA (ROAD OR DRIVEWAY), SUBMIT MANUFACTURER'S STATEMENT THAT HATCH IS RATED FOR CONTINUOUS AND DELIBERATE H2O TRAFFIC SERVICE. HATCHES SHALL BE CAST INTO VAULT LID OR RISER.
19. ALL PIPE 3" AND LARGER SHALL BE DUCTILE IRON (DI) MINIMUM CLASS 52 (12" AND SMALLER), EXCEPT WHERE TRENCH BACKFILL AND LOADING DICTATE A STRONGER CLASS PIPE OR IN AREAS WHERE PRESSURE EXCEEDS 150 PSI. ALL HYDRANT RUNS AND PIPING INSTALLED WITH MEGA-LUG TYPE JOINT RESTRAINTS SHALL BE DUCTILE IRON PIPE CLASS 52, NO EXCEPTIONS. PIPING INSTALLED WITHIN VAULTS OR OTHER EXPOSED AREAS SHALL BE DUCTILE IRON CLASS 53.
20. CASINGS SHALL BE NEW STEEL, HDPE OR PVC; MATERIAL AND WALL THICKNESS AT THE DISCRETION OF THE DISTRICT. PIPE THROUGH CASINGS SHALL BE SUPPORTED WITH RUNNERS SPACED NO FARTHER THAN 8 FEET APART. RUNNERS SHALL BE MANUFACTURED PRODUCTS (PSI, CALPICO, OR APPROVED EQUAL), NO BLOCKS AND STRAPS. CASING ENDS SHALL BE CAPPED WITH MANUFACTURED CASING END SEALS. HDPE IS PREFERRED. IF STEEL CASING IS SELECTED, IT SHALL BE CATHODICALLY PROTECTED.
21. WATER MAINS AND SERVICES MUST BE INSTALLED A MINIMUM CLEAR DISTANCE OF 5 FEET HORIZONTALLY FROM SANITARY SEWERS.
22. CONTRACTORS WORKING WITHIN THE RIGHT OF WAY OR ON EXISTING DISTRICT INFRASTRUCTURE SHALL BE LICENSED, BONDED AND HAVE EXPERIENCE INSTALLING PUBLIC DOMESTIC WATER SYSTEMS AND BE PREPARED TO PRESENT EXAMPLES OF 5 SUCH PROJECTS UPON REQUEST BY THE DISTRICT.

WATER SYSTEM CONSTRUCTION NOTES

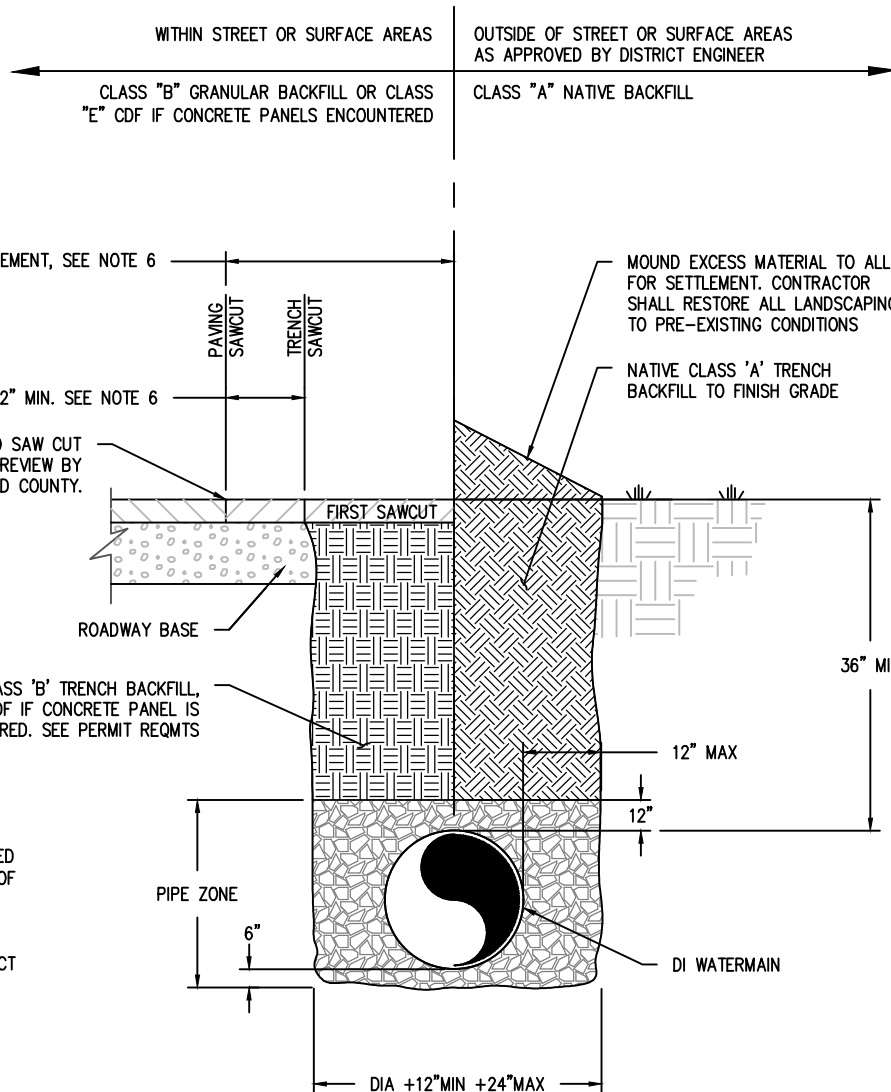
NO.	REVISIONS	DATE	BY	APPROVED
1	MISC NOTES	02/18/2020	HSO	
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4				DISTRICT ENGINEER

DRAWING NO.

401

DATE: 9/12/2017

SCALE: NTS



NOTES:

1. PIPE ZONE MATERIAL SHALL BE 3/4"-0" CRUSHED ROCK GRANULAR BACKFILL COMPACTED TO 95% OF AASHTO T-99.
2. CLASS "A" NATIVE BACKFILL MAY ONLY BE USED OUTSIDE OF PAVED AREAS AND REQUIRES DISTRICT APPROVAL. BACKFILL SHALL BE COMPACTED TO 90% OF AASHTO T-99 IN LIFTS NOT EXCEEDING 18" (LOOSE MEASURE).
3. CLASS "B" 3/4"-0" CRUSHED ROCK GRANULAR BACKFILL SHALL BE USED WITHIN PAVED AREAS. BACKFILL SHALL BE COMPACTED TO 95% OF AASHTO T-99.
4. BACKFILL SHALL BE PLACED AND COMPACTED IN A MAXIMUM OF 24-INCH LIFTS. COMPACTION TESTING REQUIRED PER COUNTY SPECIFICATIONS.
5. COMPLETE SURFACE AND PAVEMENT RESTORATION IN ACCORDANCE WITH THE PROVISIONS OF THE ROAD OPENING PERMIT FROM CLACKAMAS COUNTY.
6. SAWCUT WIDTH AND AC PAVEMENT REPLACEMENT SHALL BE PER APPLICABLE JURISDICTIONAL REQUIREMENTS. SAWCUT CLEAN EDGE FOR AC PAVEMENT REPLACEMENT. SAND SEAL JOINT.
7. PROVIDE CLASS "E" CDF BACKFILL FOR ALL TRENCH CROSSINGS LOCATED IN VEHICLE TRAVEL LANES OF ARTERIAL & COLLECTOR STREETS, OR WHERE CONCRETE PANELS ARE ENCOUNTERED. IF THESE SPECIFICATIONS CONFLICT WITH THE SPECIFICATIONS OF ANOTHER APPLICABLE JURISDICTION, THE MORE STRINGENT SPECIFICATION SHALL GOVERN.

TYPICAL PIPE TRENCH DETAIL

DRAWING NO.

402

NO.	REVISIONS	DATE	BY	APPROVED
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DATE: 02/18/2020
 SCALE: NTS

RESTRAINED JOINT PIPE IS APPROPRIATE TO USE IN MANY SITUATIONS. HOWEVER, THE DISTRICT WILL BE THE SOLE DETERMINER IF THE APPLICATION IS APPROPRIATE ON A GIVEN JOB. TYPICAL APPLICATIONS INCLUDE:

1. DEAD END MAINS THAT MAY BE EXTENDED.
2. SOILS NOT SUPPORTIVE OF THRUST BLOCKING.
3. INSUFFICIENT BEARING SOIL BEHIND FITTINGS.
4. VERTICAL BENDS (not covered here. must be designed by engineer for each job)

THE FOLLOWING PRODUCTS ARE PRE-APPROVED FOR USE IN RESTRAINED JOINT APPLICATIONS. ALL RESTRAINED JOINT PIPE SHALL BE DUCTILE IRON, UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT.

1. GRIFFIN: SNAP-LOK or BOLT-LOK
2. US PIPE: TR-FLEX or FIELD-LOK GASKET
3. PACIFIC STATES: THRUST-LOCK
4. EBAA IRON: MEGALUG
5. ROMAC: ROMA-GRIP

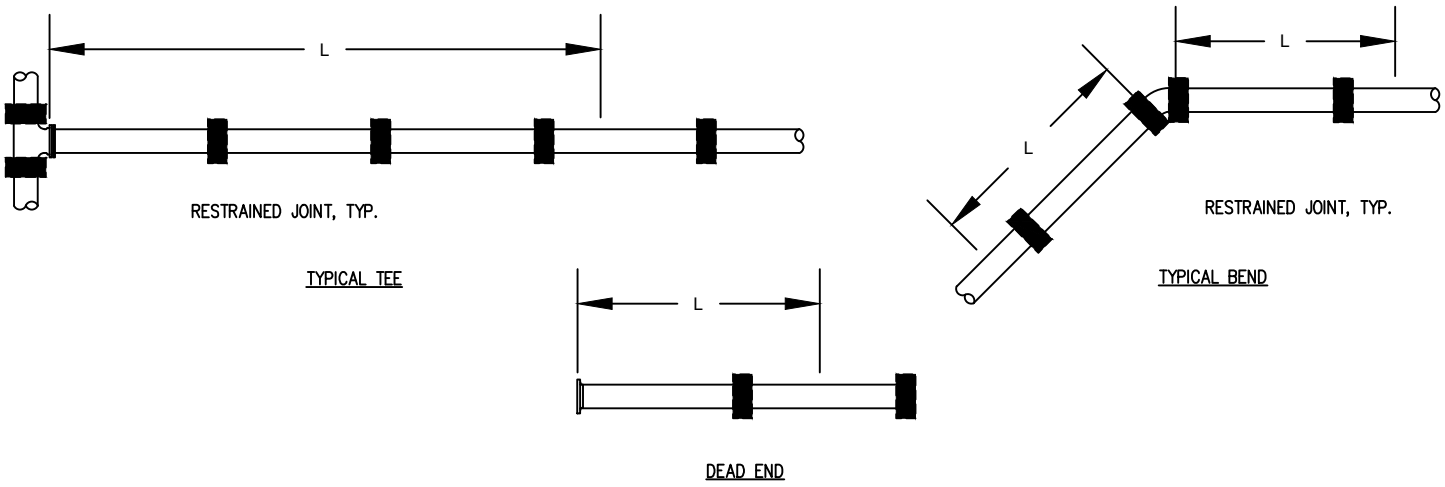
THE FOLLOWING TABLE HAS BEEN DEVELOPED USING THE DUCTILE IRON PIPE RESEARCH ASSOCIATION RESTRAINED JOINT CALCULATOR. THE FOLLOWING CONDITIONS MUST BE MET FOR THESE RESULTS TO BE VALID. IF ANY OF THESE CONDITIONS CANNOT BE MET, PROJECT SPECIFIC CALCULATIONS MUST BE PROVIDED:

- A) THIS TABLE ONLY FOR BARE DUCTILE IRON PIPE. ANY OTHER TYPES OF PIPE WILL REQUIRE RE-EVALUATION.
- B) PIPE LAYING CONDITION TYPE 4 or 5. SELECT GRANULAR BEDDING MATERIAL BELOW PIPE. PIPE ZONE MATERIAL EXTENDING TO TOP OF PIPE MECHANICALLY COMPACTED. PIPE RESTING DIRECTLY ON NATIVE TRENCH BOTTOM IS NOT ACCEPTABLE.
- C) BEDDING SAND IS WELL GRADED WITH FINES. IF GRAVELLY SAND IS USED, LENGTHS MUST BE MULTIPLIED BY 1.3
- D) DEPTH OF COVER IS 3 FEET MINIMUM.
- E) 300psi TEST PRESSURE MAXIMUM. FOR HIGHER TEST PRESSURE, TABLE LENGTHS MUST BE MULTIPLIED BY THE PROPORTIONAL DIFFERENCE. EXAMPLE: FOR 350psi, $350/300=1.17$ THEREFORE, LENGTHS MUST BE MULTIPLIED BY 1.17

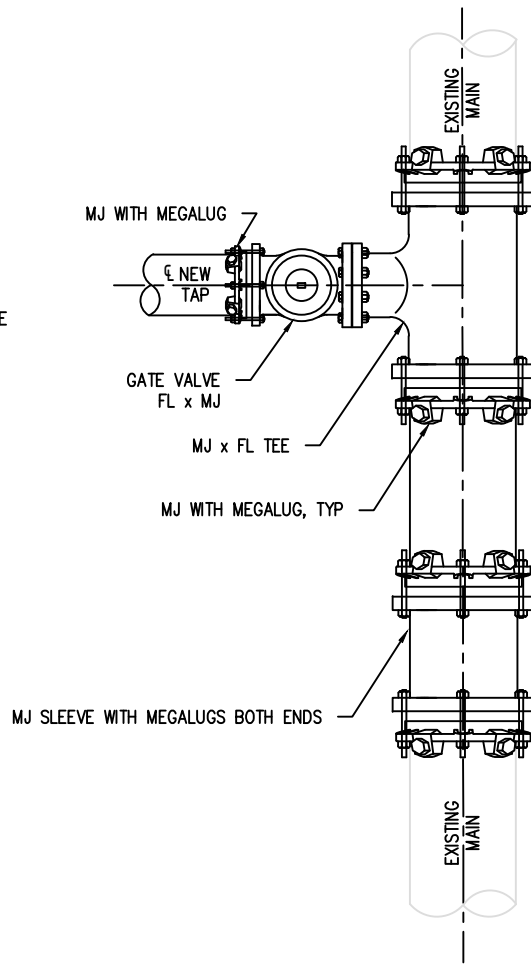
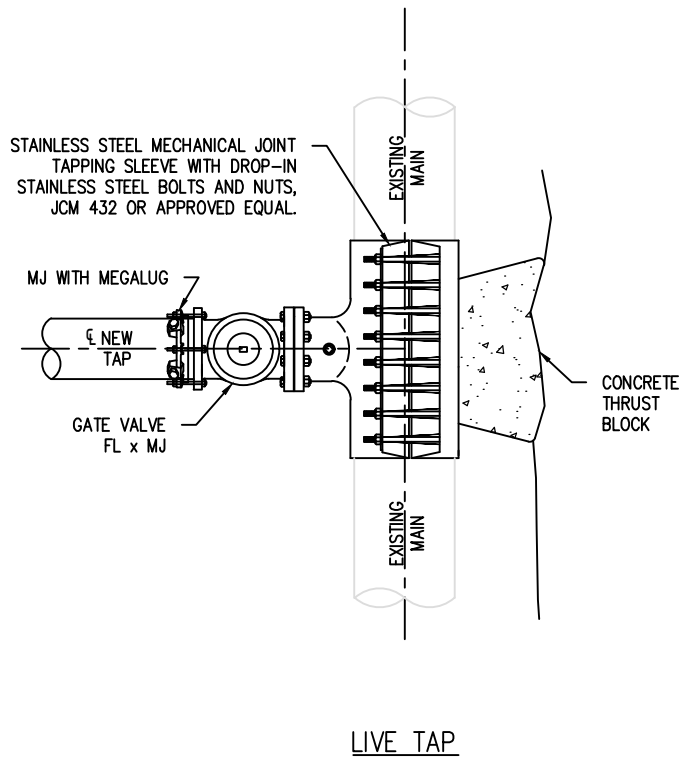
THE LENGTH "L" GIVEN BELOW INDICATES THE DISTANCE THAT PIPE MUST BE RESTRAINED PAST THE FITTING JOINT. ALL JOINTS WITHIN THIS DISTANCE MUST BE RESTRAINED, INCLUDING THE FITTING.

PIPE DIAMETER	RESTRAINED LENGTH, "L"						
	11¼' BEND	22½' BEND	45' BEND	90' BEND	TEE w/SAME SIZE BRANCH*	DEAD END	REDUCER **
4"	3'	5'	11'	25'	26'	50'	30'
6"	4'	7'	14'	36'	48'	72'	37'
8"	5'	10'	19'	46'	70'	94'	67'
10"	6'	11'	24'	56'	90'	114'	70'
12"	7'	13'	28'	66'	110'	134'	71'
16"	10'	17'	35'	85'	151'	175'	104'
18"	11'	19'	40'	95'	170'	196'	106'

* assumes all three legs restrained, and a minimum 5' stick of pipe in each run leg.
 ** assumes reducer down 2 sizes. (example 12"x8"). Larger reductions shall be treated as a tee.



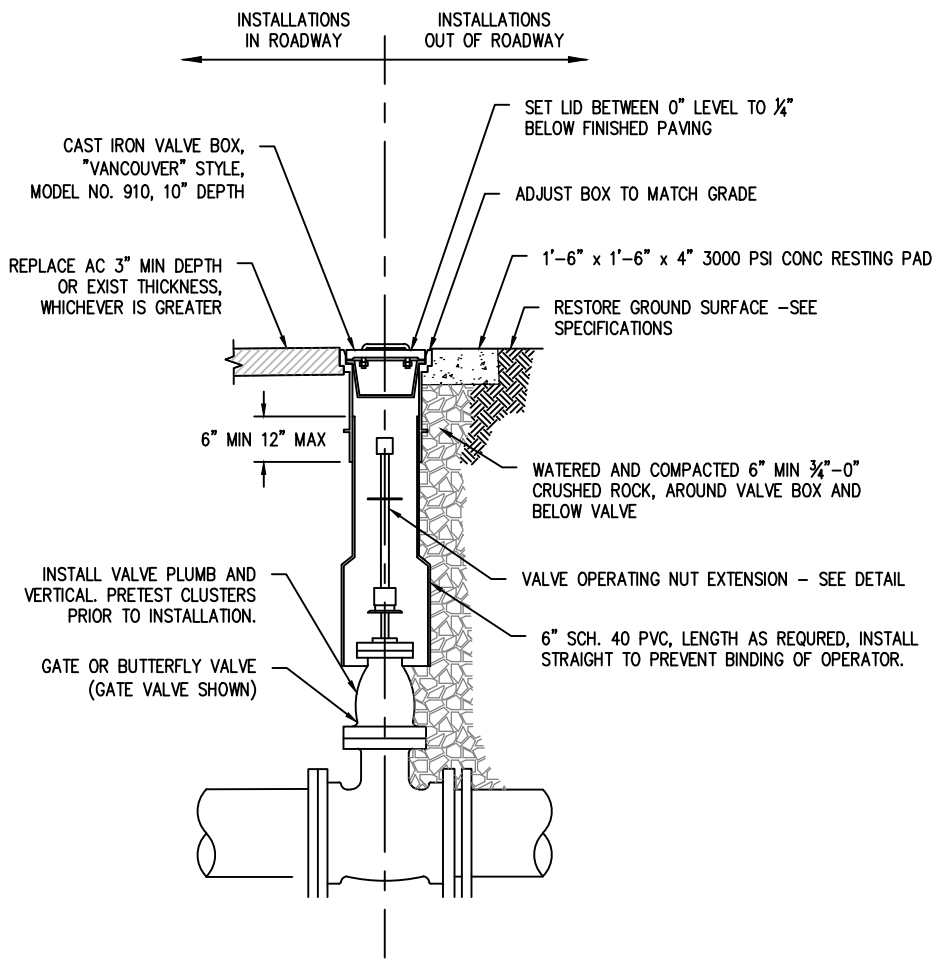
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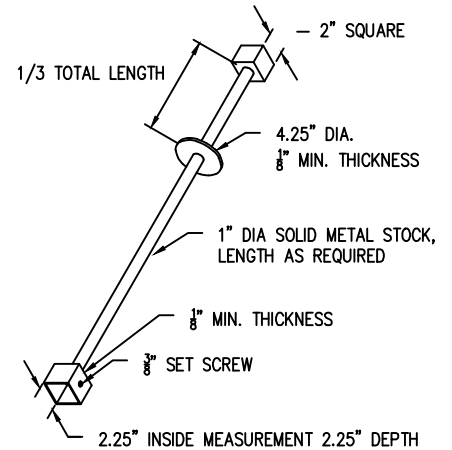
NOTES:

1. TAPPING SLEEVE SHALL BE STAINLESS STEEL MECHANICAL SLEEVE.
2. CONNECTIONS TO EXISTING MAIN SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF THE DISTRICT AND WILL NOT BE ALLOWED ON FRIDAYS, HOLIDAYS OR WEEKENDS. VALVES SHALL BE OPERATED BY DISTRICT ONLY.
3. 11 MIL PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCK IS POURED
4. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.
5. TEST TAPPING SLEEVE PRIOR TO CUTTING EXISTING MAIN.

NO.	REVISIONS	DATE	BY	APPROVED
1	BACKFILL REMOVED, SLEEVE MATERIAL TO SST	1/2/2020	HSO	
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ISOLATION VALVE DETAIL



OPERATING NUT EXTENSION

ISOLATION VALVE NOTES:

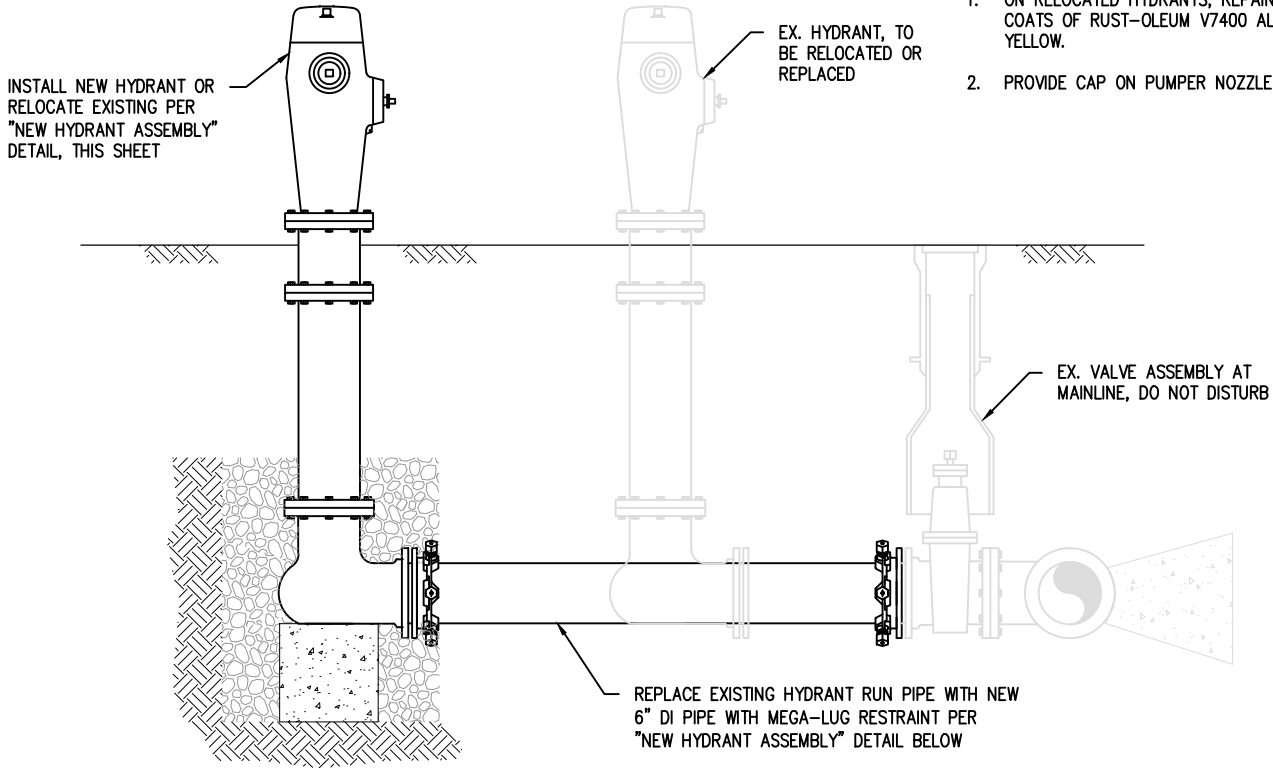
1. VALVES SHALL BE INSTALLED AT NO MORE THAN 500 FT SPACING WHEN 10" OR LARGER. VALVES SHALL BE INSTALLED AT NO MORE THAN 800 FT SPACING WHEN LESS THAN 10".
2. ISOLATION VALVES 2" AND LARGER ARE TO BE NRS RESILIENT SEAT GATE VALVES MEETING AWWA C509 OR C515. VALVES 14" AND LARGER SHALL BE BUTTERFLY VALVES MEETING AWWA C504.
3. BACKFILL AROUND VALVE BOXES SHALL BE COMPACTED USING A JUMPING JACK.
4. OLYMPIC FOUNDRY MODEL NUMBERS SHOWN. OWNER APPROVED EQUALS WILL BE ALLOWED.
5. ALL VALVES SHALL BE SUPPLIED WITH VALVE BOX AND LID. LID SHALL HAVE RECESSED HANDLE.
6. ALL VALVES THAT WILL BE PART OF A CUT-IN CONNECTION OR HOT TAP ON AN EXISTING MAIN SHALL BE PRE-PRESSURE TESTED ON BOTH SIDES OF THE SEAT PRIOR TO INSTALLATION.

OPERATING NUT EXTENSION NOTES:

1. EXTENSIONS ARE REQUIRED WHEN THE VALVE NUT IS 5 FEET OR DEEPER BELOW FINISHED GRADE. EXTENSIONS ARE TO BE A MINIMUM OF ONE (1) FOOT LONG, ONLY ONE EXTENSION PER VALVE. ALL EXTENSIONS ARE TO MADE OF STEEL SIZED AS NOTED, AND PAINTED WITH TWO COATS OF CARBON ELASTIC (ATCO NO. 2221) AS SPECIFIED BY PRESERVATIVE PAINT CO. OR APPROVED EQUAL.
2. FOR EXTENSIONS LONGER THAN 4 FEET AND/OR VALVES LARGER THAN 12" DIAMETER, BAR SHALL BE 1 1/4" DIAMETER.

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1	SPACING AND DEPTH REQ'D	02/18/2020	HSC	
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HYDRANT RELOCATION



INSTALL NEW HYDRANT OR RELOCATE EXISTING PER "NEW HYDRANT ASSEMBLY" DETAIL, THIS SHEET

EX. HYDRANT, TO BE RELOCATED OR REPLACED

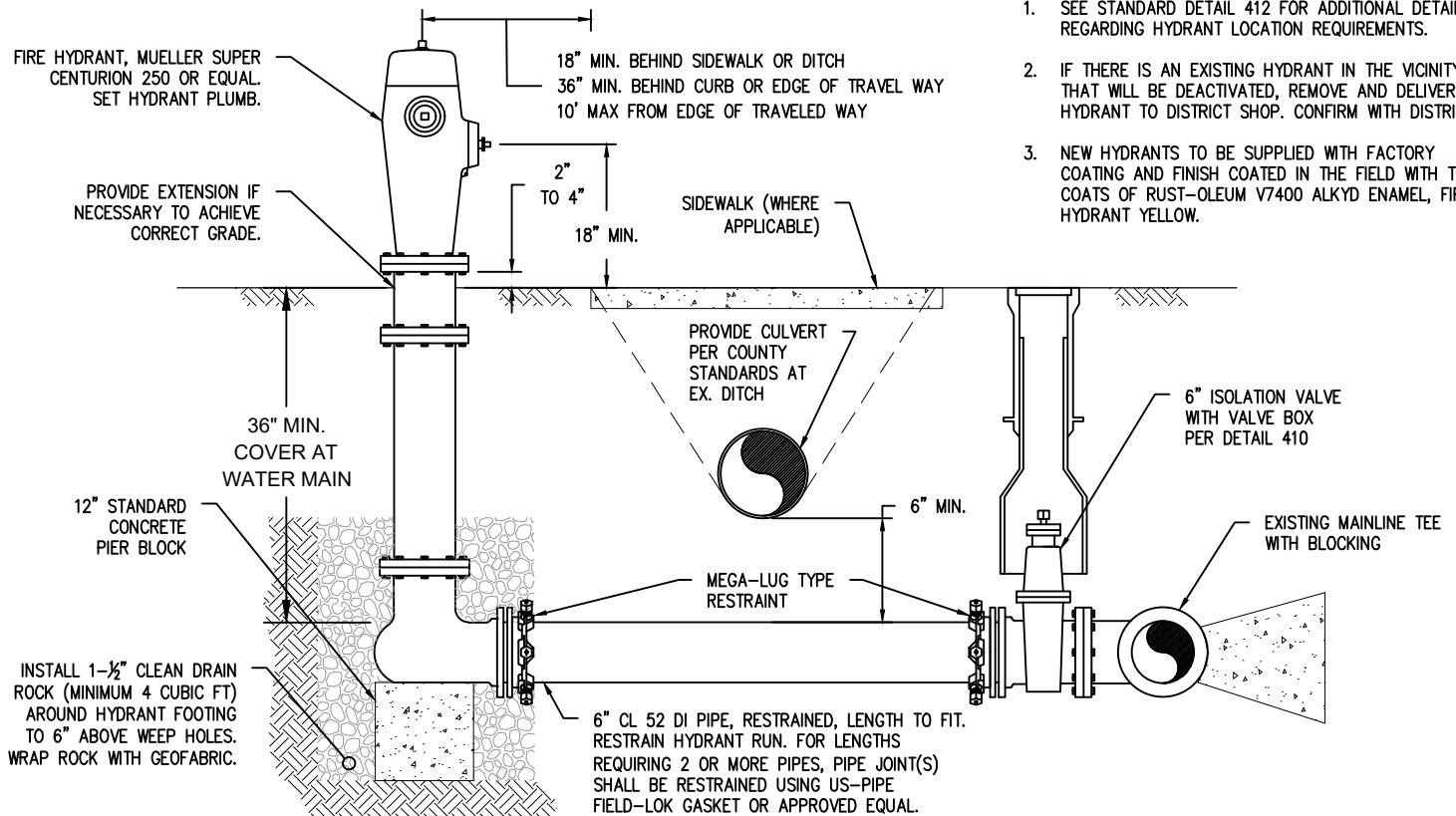
EX. VALVE ASSEMBLY AT MAINLINE, DO NOT DISTURB

REPLACE EXISTING HYDRANT RUN PIPE WITH NEW 6" DI PIPE WITH MEGA-LUG RESTRAINT PER "NEW HYDRANT ASSEMBLY" DETAIL BELOW

RELOCATED HYDRANT NOTES:

1. ON RELOCATED HYDRANTS, REPAINT HYDRANTS WITH TWO COATS OF RUST-OLEUM V7400 ALKYD ENAMEL, FIRE HYDRANT YELLOW.
2. PROVIDE CAP ON PUMPER NOZZLE PER DISTRICT STANDARDS.

NEW HYDRANT ASSEMBLY



FIRE HYDRANT, MUELLER SUPER CENTURION 250 OR EQUAL. SET HYDRANT PLUMB.

PROVIDE EXTENSION IF NECESSARY TO ACHIEVE CORRECT GRADE.

36" MIN. COVER AT WATER MAIN

12" STANDARD CONCRETE PIER BLOCK

INSTALL 1-1/2" CLEAN DRAIN ROCK (MINIMUM 4 CUBIC FT) AROUND HYDRANT FOOTING TO 6" ABOVE WEEP HOLES. WRAP ROCK WITH GEOFABRIC.

18" MIN. BEHIND SIDEWALK OR DITCH
36" MIN. BEHIND CURB OR EDGE OF TRAVEL WAY
10' MAX FROM EDGE OF TRAVELED WAY

2" TO 4"
18" MIN.

SIDEWALK (WHERE APPLICABLE)

PROVIDE CULVERT PER COUNTY STANDARDS AT EX. DITCH

MEGA-LUG TYPE RESTRAINT

6" CL 52 DI PIPE, RESTRAINED, LENGTH TO FIT. RESTRAIN HYDRANT RUN. FOR LENGTHS REQUIRING 2 OR MORE PIPES, PIPE JOINT(S) SHALL BE RESTRAINED USING US-PIPE FIELD-LOK GASKET OR APPROVED EQUAL.

6" ISOLATION VALVE WITH VALVE BOX PER DETAIL 410

EXISTING MAINLINE TEE WITH BLOCKING

NEW HYDRANT NOTES:

1. SEE STANDARD DETAIL 412 FOR ADDITIONAL DETAILS REGARDING HYDRANT LOCATION REQUIREMENTS.
2. IF THERE IS AN EXISTING HYDRANT IN THE VICINITY THAT WILL BE DEACTIVATED, REMOVE AND DELIVER HYDRANT TO DISTRICT SHOP. CONFIRM WITH DISTRICT.
3. NEW HYDRANTS TO BE SUPPLIED WITH FACTORY COATING AND FINISH COATED IN THE FIELD WITH TWO COATS OF RUST-OLEUM V7400 ALKYD ENAMEL, FIRE HYDRANT YELLOW.



FIRE HYDRANT ASSEMBLY

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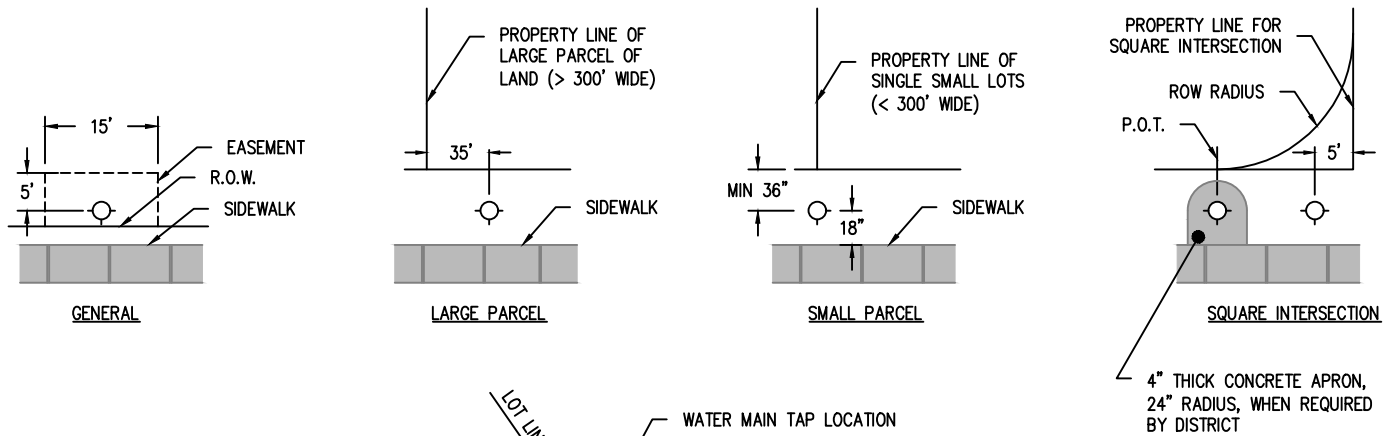
411

NO.	REVISIONS	DATE	BY	APPROVED
1	MINOR DRAIN ROCK AND BLOCK CHANGES	1/2/2020	HSD	
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4				DISTRICT ENGINEER

DATE: 9/12/2017

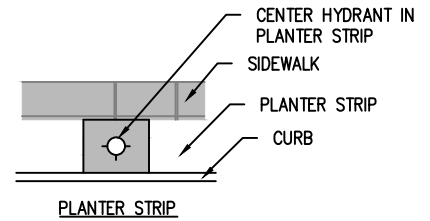
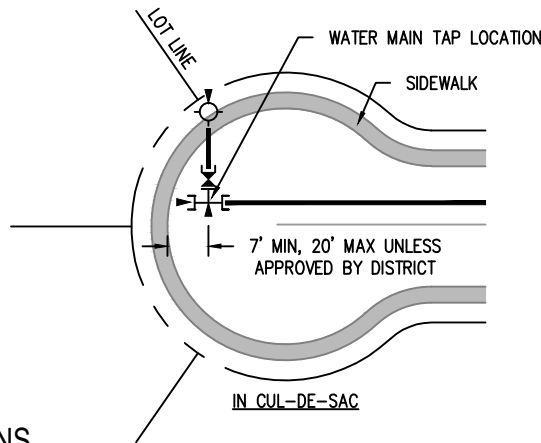
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WATER SYSTEM STANDARD DRAWING

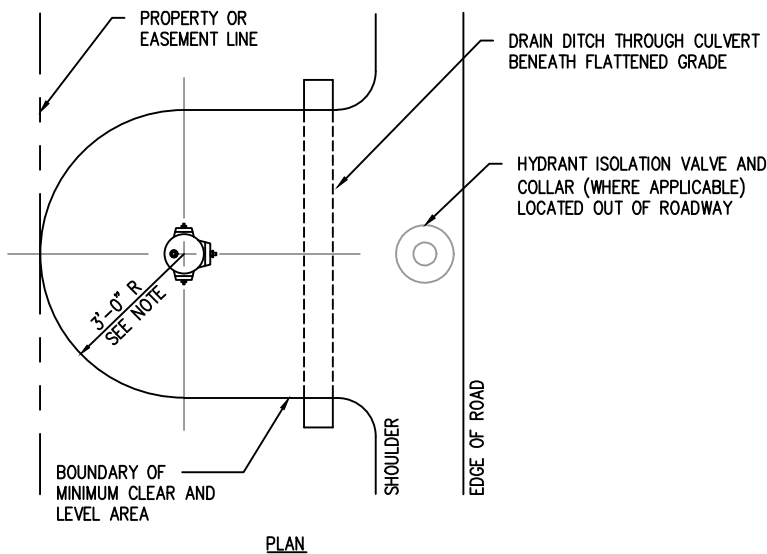


HYDRANT LOCATIONS NOTES:

1. COORDINATE HYDRANT LOCATION WITH DISTRICT.
2. HYDRANTS SHALL BE INSTALLED AT THE END OF ALL 8" DIAMETER AND LARGER DEAD END MAINS.
3. IF HYDRANT CANNOT BE LOCATED WITHIN ROW WITH 3' CLEAR, AN EASEMENT MUST BE PROVIDED.

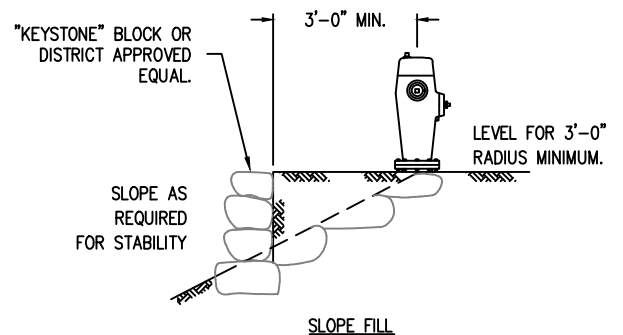
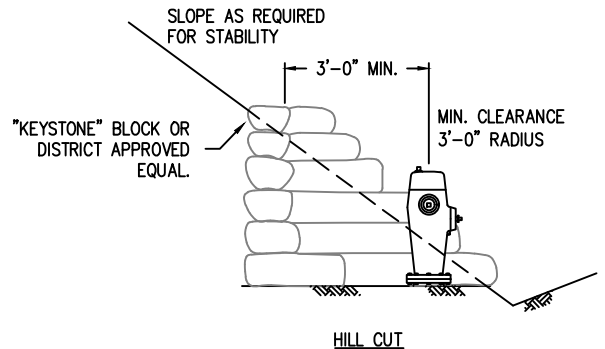


TYPICAL HYDRANT LOCATIONS



NOTES:

1. SURFACE TO 4" THICK CONCRETE PAD, FREE FROM OBSTRUCTIONS, LEVEL, AND UNIFORMLY GRADED AROUND HYDRANT, MIN OF 3 FEET IN ALL DIRECTIONS.
2. ROCKERY OR KEYSTONE TYPE RETAINING WALL TO BE PROVIDED WHERE NECESSARY IN CUT AND FILL AREAS.

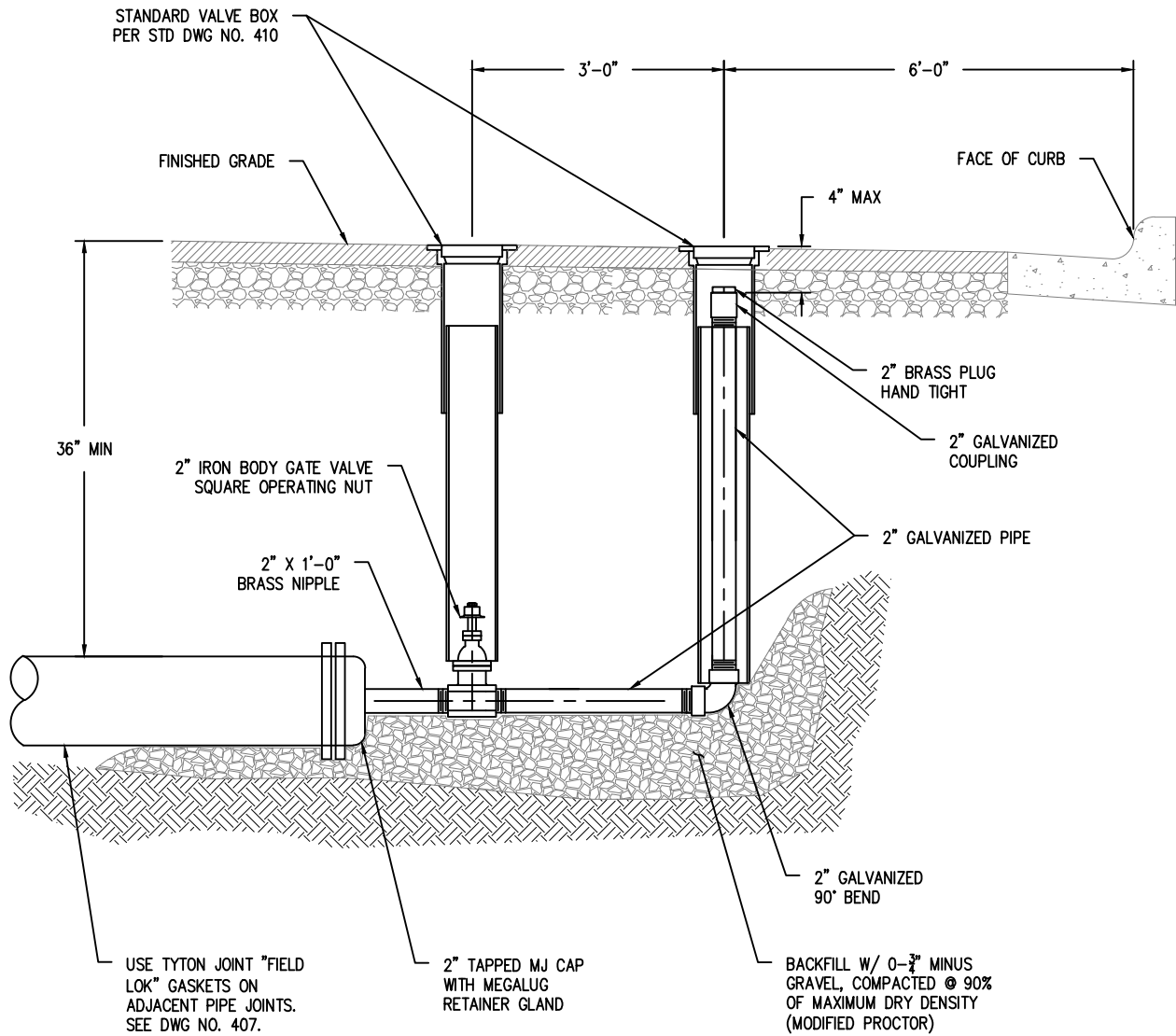


CLEARANCE AND GRADING REQUIREMENTS FOR HYDRANTS

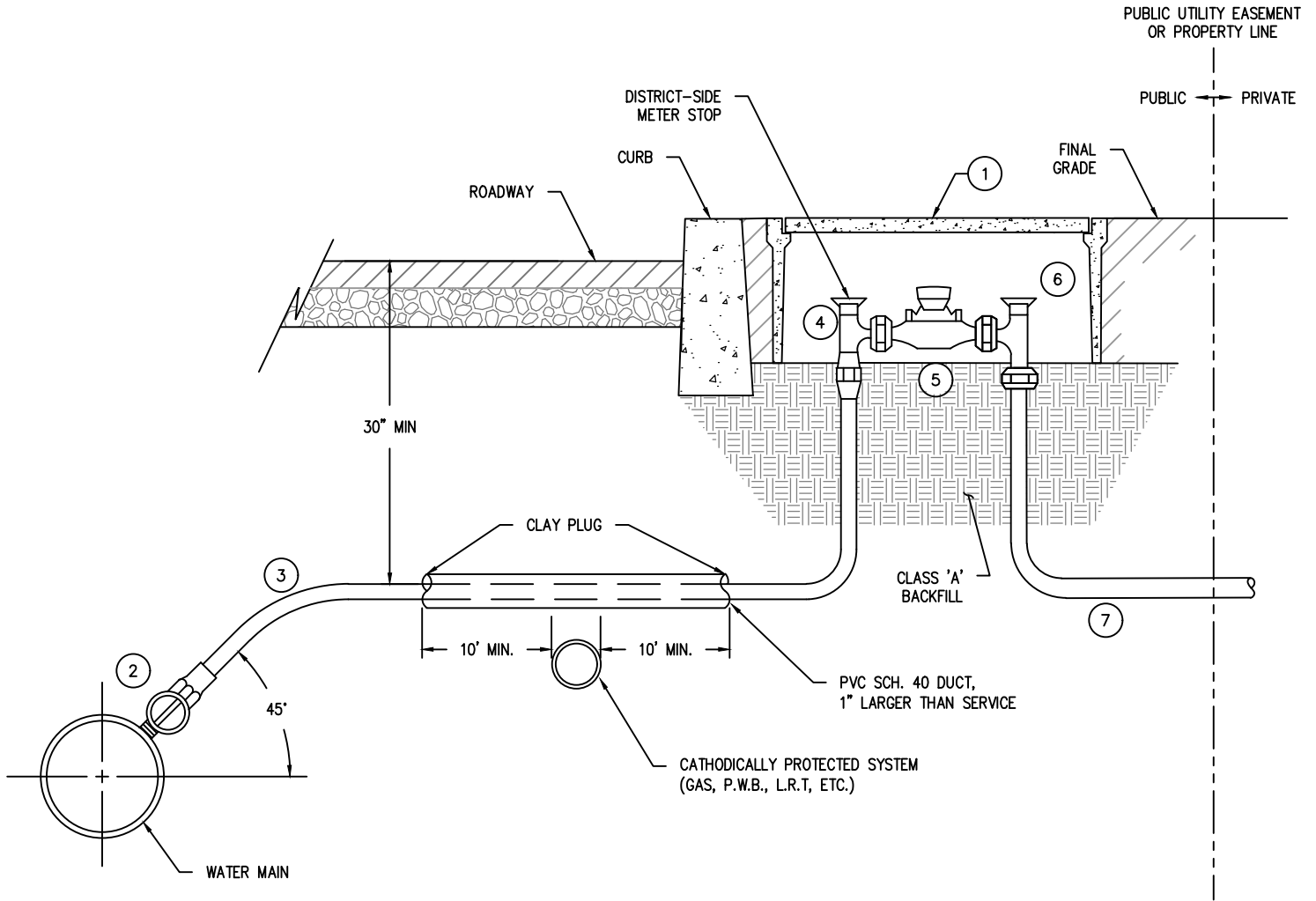
OAK LODGE
WATER SERVICES
WATER SYSTEM STANDARD DRAWING

FIRE HYDRANT LOCATIONS				
NO.	REVISIONS	DATE	BY	APPROVED
1	REARRANGED AND ADDED HEADINGS	02/18/2020	HSO	
2				
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4				DISTRICT ENGINEER

DRAWING NO.
412
 DATE: 07/07/2017
 SCALE: NTS



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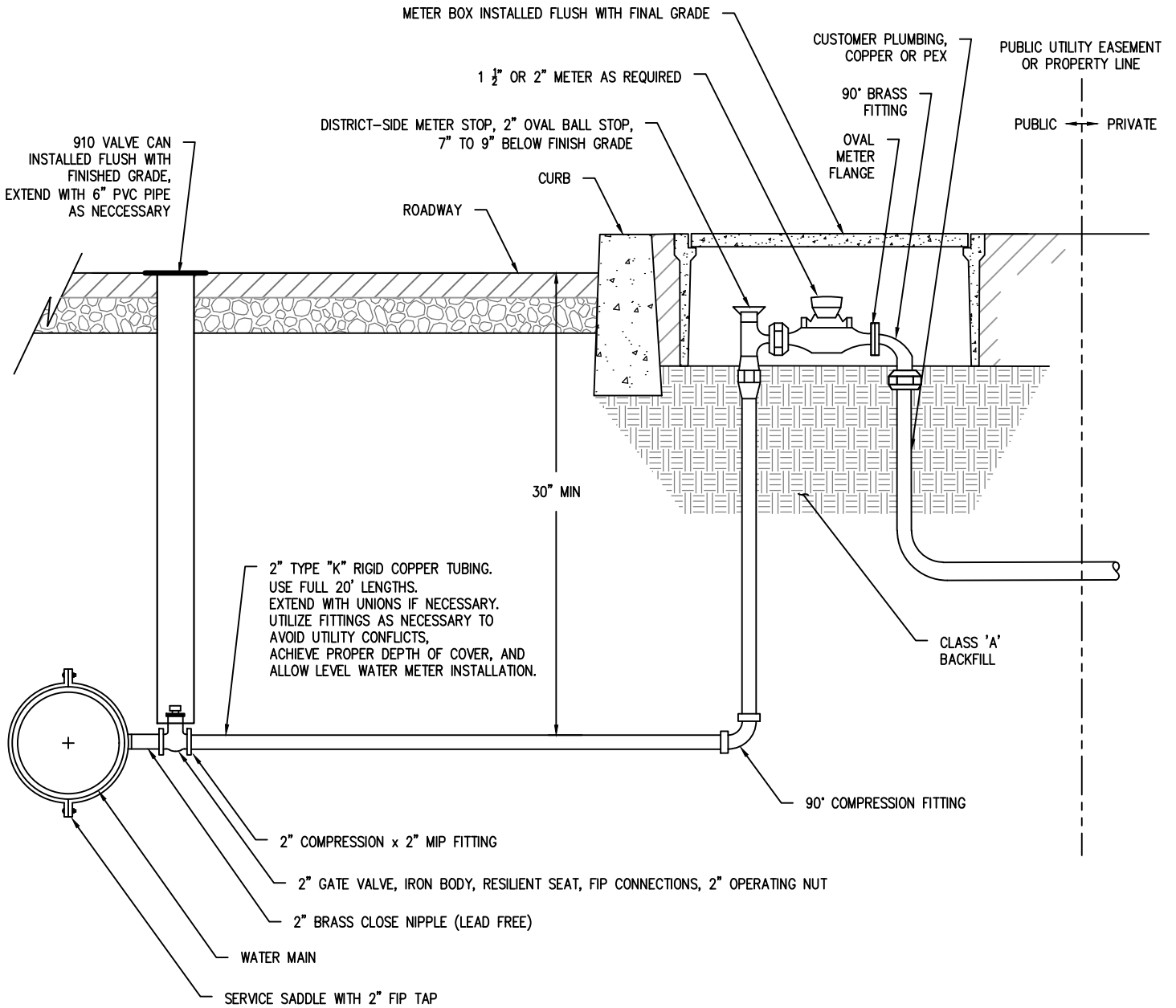
NOTES:

1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE PRE-APPROVED BY THE DISTRICT.
2. ALL PIPE AND STRUCTURE ZONES SHALL BE BACKFILLED USING 3/4" MINUS CRUSHED AGGREGATE AND COMPACTED TO 95% MAX. DENS. AS DETERMINED BY AASHTO T-180. COPPER SERVICE SHALL BE BEDDED AND COVERED WITH BACKFILL 6" ALL AROUND SERVICE. IN ROADS, BACKFILL SHALL BE EXTENDED TO TOP OF EXCAVATION.
3. WHEN AN ACTIVE CATHODIC PROTECTED SYSTEM IS ENCOUNTERED, SCH. 40 PVC SHALL BE INSTALLED AS SHOWN ABOVE WITH CLAY PLUG.
4. THE COMPLETE WATER SERVICE MUST BE INSPECTED BY DISTRICT PRIOR TO BACKFILL OR BE RE-EXCAVATED WITHOUT COST TO THE DISTRICT.
5. FOR LOCATION OF DISTRICT-SIDE METER STOP RELATIVE TO PROPERTY LINE, EASEMENT LINE, CURB, OR SIDEWALK, SEE DRAWING 423.

KEYNOTES:

1. DISTRICT STANDARD METER BOX WITH TOP OF LID AT FINAL GRADE.
2. CORPORATION STOP VALVE. FULL-PORT BALL TYPE UNIT TAPPED DIRECTLY INTO WATER MAIN WITH MALE IRON PIPE THREADS. OPERATING NUT INSTALLED IN 3 O'CLOCK OR 9 O'CLOCK POSITION.
3. 3/4" OR 1" SOFT TEMPER, TYPE 'K' COPPER TUBING COMPLYING WITH ASTM B-88. ENTIRE SERVICE SHALL BE SINGLE PIECE OF NEW PIPE FROM CORP STOP TO DISTRICT-SIDE METER STOP. COPPER-TO-COPPER UNIONS ARE ONLY ACCEPTABLE WHEN WATER SERVICE IS LONGER THAN 60 FEET AND ONLY WITH PRIOR APPROVAL OF DISTRICT ENGINEER.
4. DISTRICT-SIDE METER STOP INSTALLED 7" TO 9" BELOW FINISH GRADE. FULL-PORT BALL TYPE ANGLED METER STOP WITH LOCKING WINGS.
5. WATER METER, TO BE SUPPLIED AND INSTALLED BY DISTRICT.
6. CUSTOMER-SIDE METER STOP SAME AS DISTRICT-SIDE, EXCEPT BOTH BALL-TYPE AND KEY-TYPE ARE ACCEPTABLE AND LOCKING WINGS ARE NOT REQUIRED.
7. CUSTOMER-SIDE PLUMBING WITHIN THE METER BOX SHALL BE PEX OR COPPER. PVC IS NOT ACCEPTABLE.

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1	SPECS	02/18/2020	HSC	
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1 1/2" AND 2" WATER SERVICE ASSEMBLY

NO.	REVISIONS	DATE	BY	APPROVED
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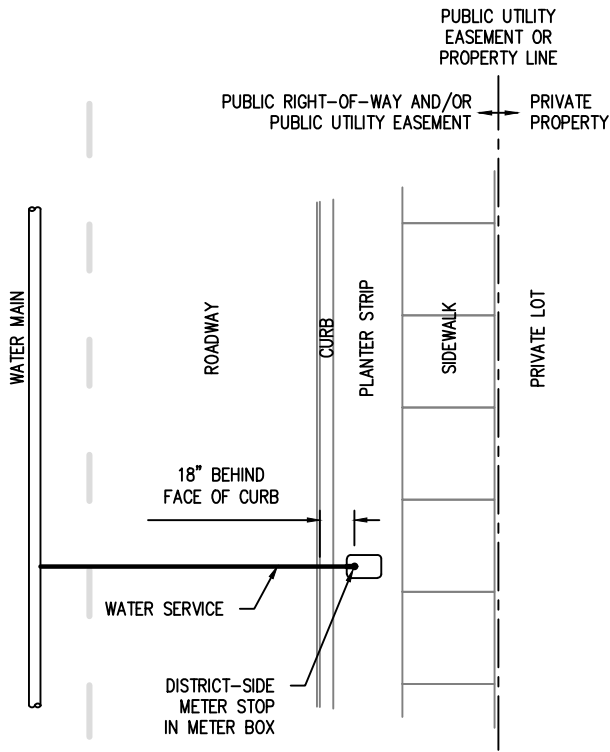
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421

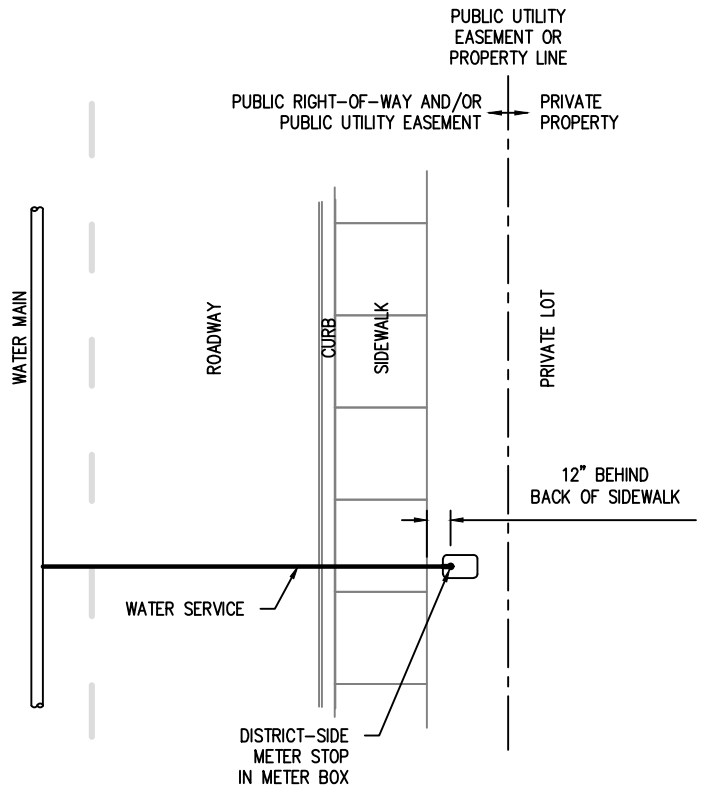
DATE: 02/18/2020

SCALE: NTS

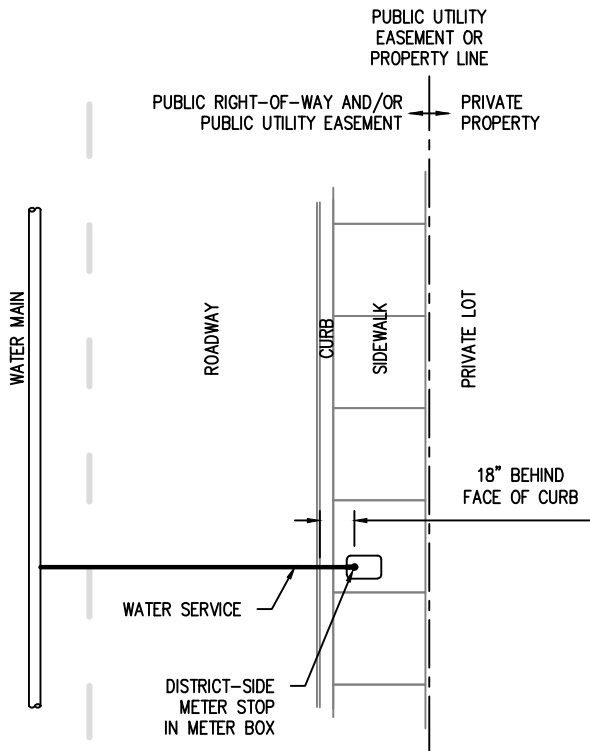
1st PREFERENCE – METER BOX LOCATED IN PLANTER STRIP



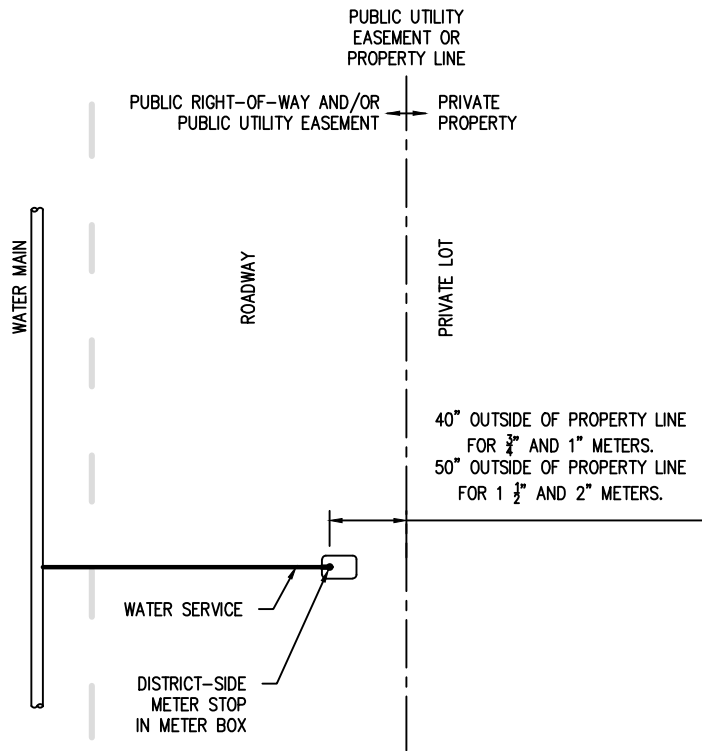
2nd PREFERENCE – METER BOX LOCATED BEHIND SIDEWALK



3rd PREFERENCE – METER BOX LOCATED IN SIDEWALK



4th PREFERENCE – NEITHER CURB NOR SIDEWALK PRESENT



NO.	REVISIONS	DATE	BY	APPROVED
1	EVERYTHING	02/18/2020	HSC	
2				
3				
4				DISTRICT ENGINEER