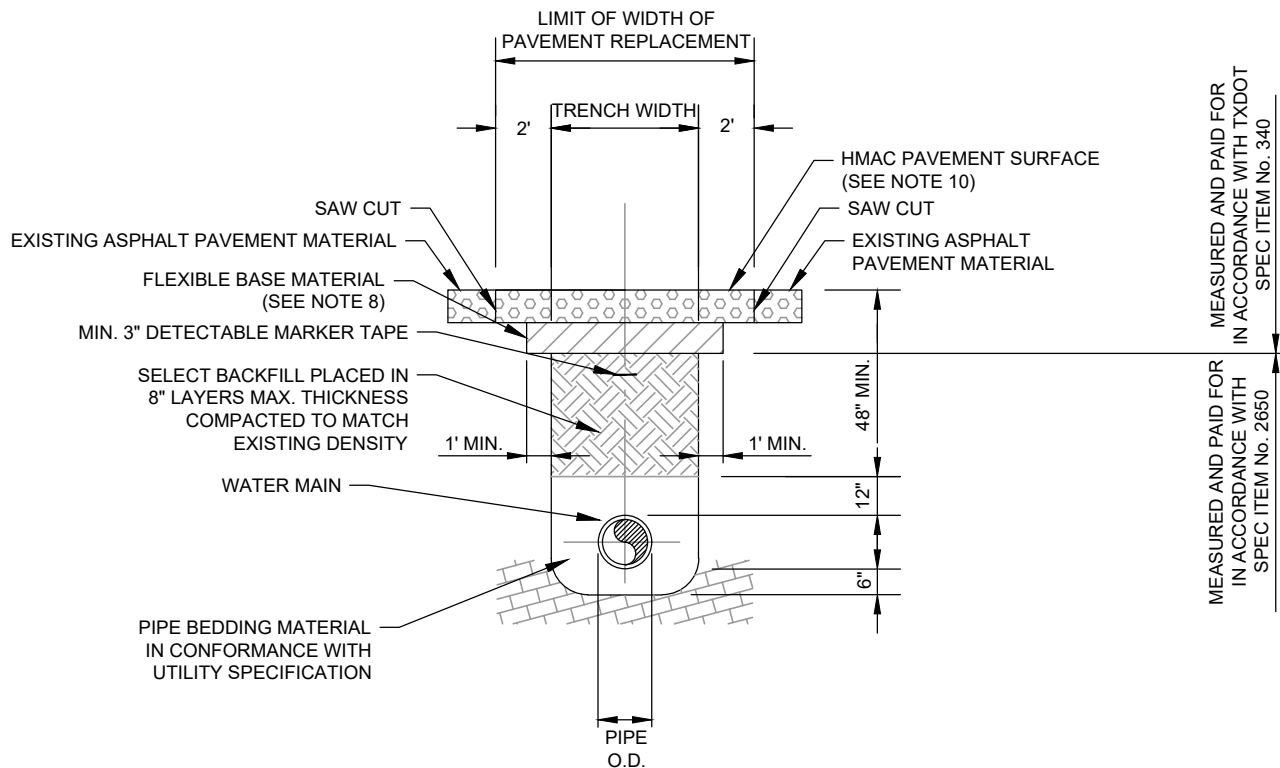




WATER DETAILS

Asphalt Pavement and Driveway (Trench Repair) Detail
Casing Detail
Combination Air Valve Detail
Concrete Encasement Detail
Fire Hydrant Assembly Detail - New Braunfels
Fire Hydrant Assembly Detail - San Marcos
Fire Hydrant Detail
Flush Valve Detail 4 Inch or Smaller Detail
Flush Valve Detail 6 Inch or Larger Detail
Marker Details
Rock Berm Details
Service Connection Details
Silt Fence Details
Tank Transmitter Enclosure Detail
Temporary Flush Valve 8 Inch or Smaller Detail
Temporary Flush Valve 12 Inch or Larger Detail
Thrust Block Anchoring Details
Typical Gravel Chip Seal Driveway Repair Detail
Typical Iron Valve Box Details
Typical Trench Backfill Detail
Typical Trench Backfill Double Pipe Water Line Detail



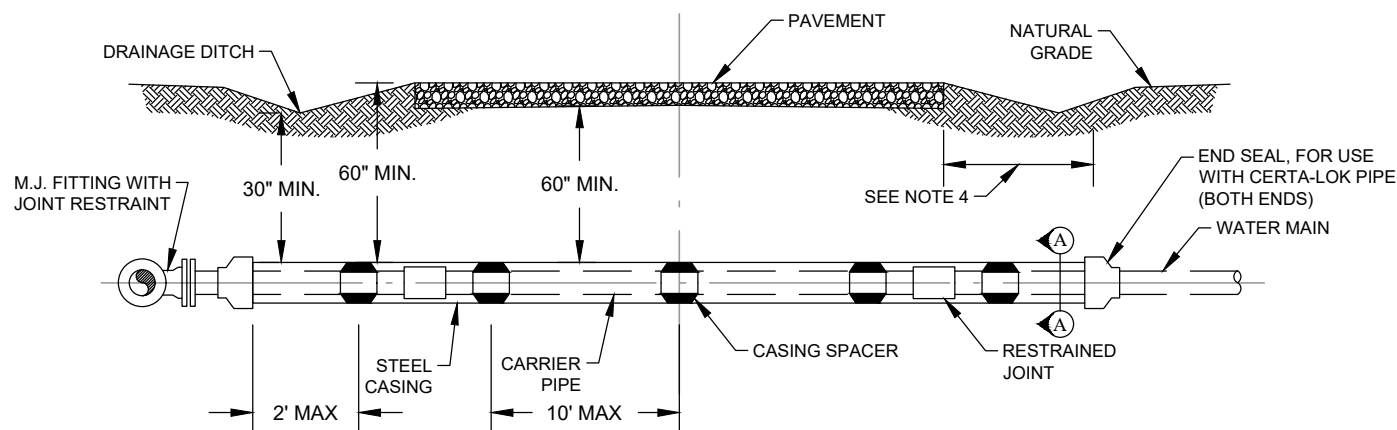
TRENCH AND BACKFILL NOTES:

1. ADEQUATE BARRICADES & WARNING SIGNS SHALL BE ERECTED BEFORE ANY WORK IS STARTED IN PUBLIC RIGHT-OF-WAY.
2. THE ROADWAY SHALL BE CUT ONLY WHERE REQUIRED.
3. NO MORE THAN HALF OF THE WIDTH OF THE ROAD SHALL BE CUT & OPENED AT ONE TIME.
4. REFER TO SPECIFICATIONS FOR ANY SPECIAL REQUIREMENTS OR CONDITIONS
5. BACKFILL SHALL BE COMPLETED IMMEDIATELY AFTER PIPELINE LAYING WITHIN PUBLIC RIGHT-OF-WAYS OR CROSSING PUBLIC RIGHT-OF-WAYS & PRIVATE DRIVEWAYS.
6. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE A MINIMUM OF 12" WIDER THAN UNDISTURBED SIDE OF THE TRENCH ASYMMETRICAL ABOVE THE CENTER LINE OF THE EXCAVATION.
7. ANY CONCRETE PAVING SHALL BE SAW CUT 6" WIDER THAN UNDISTURBED SIDES OF THE EXCAVATION.
8. LOCAL STREETS SHALL BE 10" AND MAJOR/MINOR STREETS SHALL BE 12" THICK. BASE MATERIAL SHALL BE PLACED 2' WIDER THAN TRENCH WIDTH ON BOTH SIDES. FLEXIBLE BASE SHALL BE TXDOT ITEM 247 TYPE A, GRADE 1.
9. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH A BASE. THICKNESS OF 10" OR A THICKNESS MATCHING EXISTING, WHICHEVER IS GREATER, AT NO ADDITIONAL COST TO THE OWNER.
10. REPLACEMENT AC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
 - A. MIN. 2" HMAC SHALL BE TXDOT ITEM 340, TYPE D FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS AND DRIVEWAYS.
 - B. MIN. 3" HMAC SHALL BE TXDOT ITEM 340, TYPE D FOR TRENCH REPAIR IN COLLECTION/ARTERIAL STREETS.

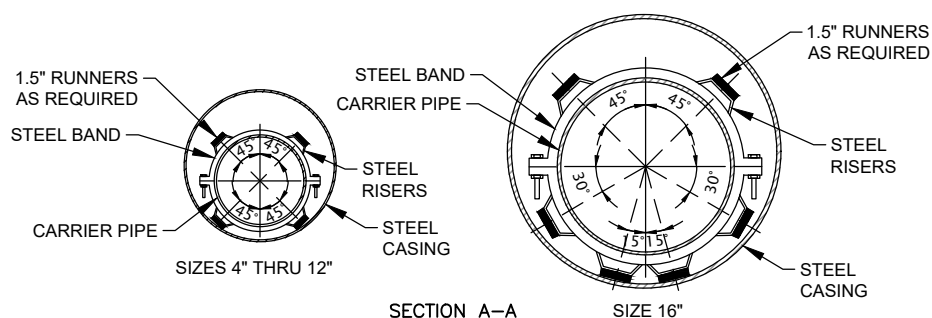
TRENCH SAFETY NOTES

1. TRENCH SAFETY SYSTEM, SHORING OR SIDE SLOPE TO BE IN ACCORDANCE WITH OSHA STANDARDS.
2. TRENCH SAFETY SYSTEM PLAN TO BE PROVIDED BY CONTRACTOR PRIOR TO CONSTRUCTION.

NOT TO SCALE



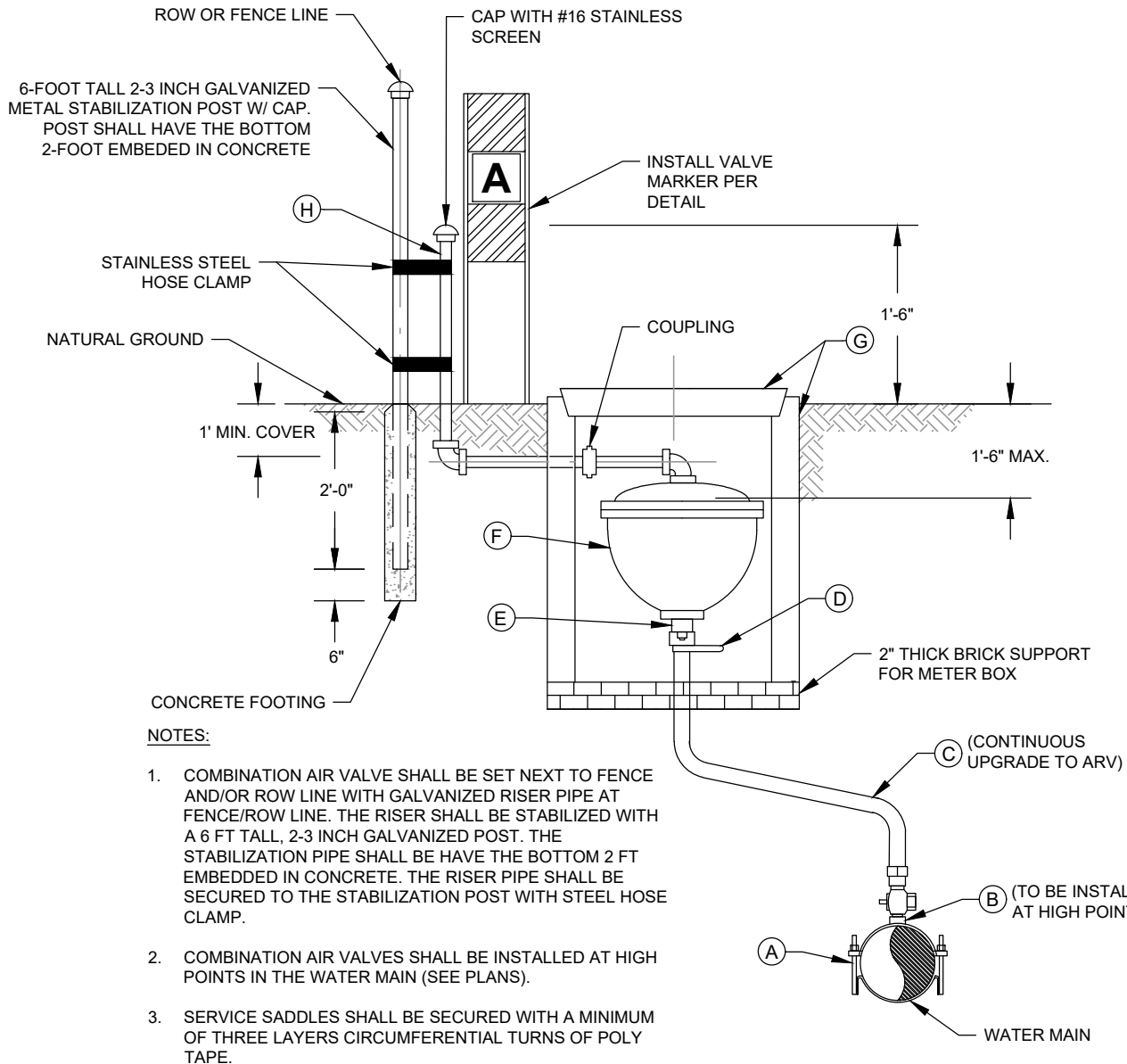
NOT TO SCALE



CARRIER PIPE			STEEL CASING					CASING SPACERS	
NOMINAL SIZE (IN)	PIPE OUTSIDE DIAMETER (IN)	RESTRAINT OUTSIDE DIA. (IN)	MIN. NOMINAL SIZE (IN)	OUTSIDE DIAMETER (IN)	INSIDE DIAMETER (IN)	WALL THICKNESS (IN)	WEIGHT CLASS	BAND WIDTH	No. OF RUNNERS PER TIE
4	4.80	9.25	10	10.750	10.250	0.25	STANDARD	8"	2 TOP, 2 BOTTOM
6	6.90	11.25	12	12.750	12.000	0.375	STANDARD	8"	2 TOP, 2 BOTTOM
8	9.05	14.75	16	16.000	15.250	0.375	STANDARD	8"	2 TOP, 2 BOTTOM
12	13.20	16.90	20	20.000	19.250	0.375	STANDARD	8"	2 TOP, 2 BOTTOM
16	17.40	25.51	30	30.000	29.250	0.375	STANDARD	8"	2 TOP, 4 BOTTOM

NOTES:

- CARRIER PIPE SIZES ARE BASED ON CERTA-LOK C900/RJIB FOR 4" TO 12" PIPE DIAMETER AND CERTA-LOK C905/RJ FOR 14" TO 24" PIPE DIAMETER.
- STEEL CASING SHALL BE STANDARD WEIGHT OR HEAVIER PIPE CONFORMING TO ASTM A-36, ASTM A-568, ASTM A-135, ASTM A-139 OR OTHER ACCEPTABLE STANDARD SPECIFICATION. PIPE SHALL BE COATED AND LINED IN ACCORDANCE WITH AWWA C-210 OR APPROVED EQUAL. PIPE JOINTS SHALL BE WELDED IN ACCORDANCE WITH AWWA C-206. STEEL CASING SHALL BE NEW OR USED IN GOOD CONDITION ACCEPTABLE TO CRYSTAL CLEAR SPECIAL UTILITY DISTRICT AND TO THE ROADWAY AUTHORITY.
- SUBSEQUENT CASING SPACERS ARE REQUIRED FOR 4" TO 14" PIPE SIZES TO BE AT 10 FEET APART AND FOR 16" TO 30" PIPE SIZES TO BE AT 8 FEET APART WITHIN THE CASING WITH AT LEAST 3 SPACERS PER JOINT ON PIPE. ONE CASING SPACER SHALL BE REPLACED WITHIN 2 FEET OF ENDS OF CASING FOR ALL PIPE SIZES.
- CASING PIPE SHALL EXTEND A MINIMUM OF 10 FT. PAST EDGE OF PAVEMENT ALONG TXDOT ROADWAYS AND A MINIMUM OF 5 FT. PAST EDGE OF PAVEMENT ALONG ALL OTHER ROADWAYS UNLESS OTHERWISE DIRECTED BY ENGINEER OR REGULATORY AUTHORITY.
- CASING SPACERS SHALL BE MADE FROM T-304 STEEL OF A MINIMUM 14 GAUGE THICKNESS.
- CASING SPACERS SHALL HAVE A SYNTHETIC RUBBER OR PVC LINER TO INSULATE THE PIPELINE FROM THE SPACER.
- CASING SPACERS SHALL HAVE A 1.5" WIDE GLASS REINFORCED PLASTIC OR UHMW POLYMER RUNNERS TO INSULATE THE SPACER FROM THE CASING

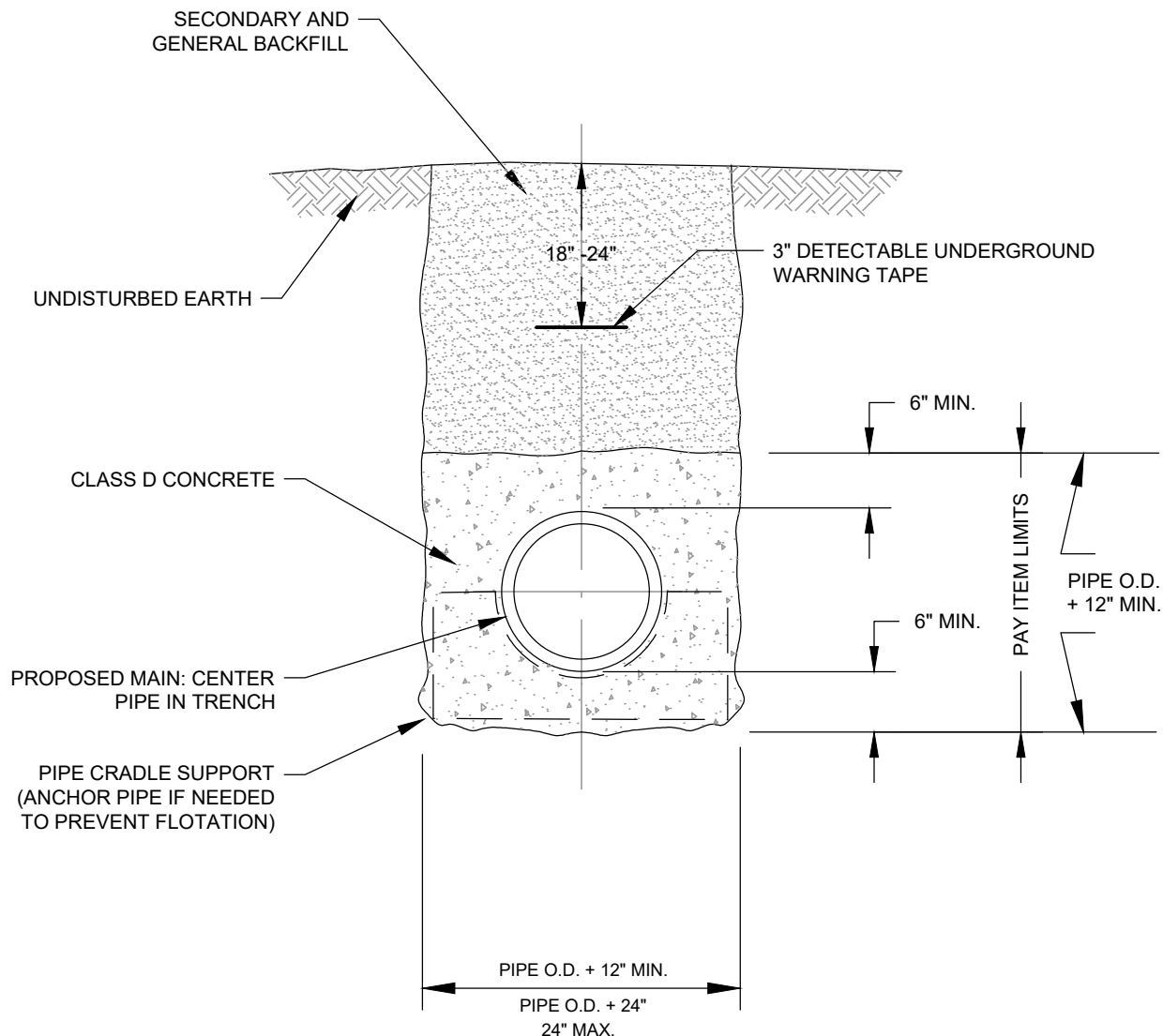


TAP MATERIAL LIST		MATERIAL LIST SIZES	
LABEL	ITEM	1-INCH TAP	2-INCH TAP
A	APPROVED TAPPING SADDLE	1"	2"
B	CORPORATION STOP	1"	2"
C	CTS SDR9 HDPE TUBING	1"	2"
D	BRASS BALL VALVE WITH LEVER	1"	2"
E	BRASS NIPPLE THREADED	1"	2"
F	COMBINATION AIR VALVE	PER AEL*	
G	METER BOX AND LID	DFW2830FD OR DFW2836FD**	
H	GALVANIZED IRON PIPE AND FITTINGS	1"	2"

* AEL = APPROVED EQUIPMENT LIST

** METER BOX TO BE INSTALLED AS NECESSARY TO COVER FULL DEPTH OF COMBINATION AIR RELEASE VALVE.

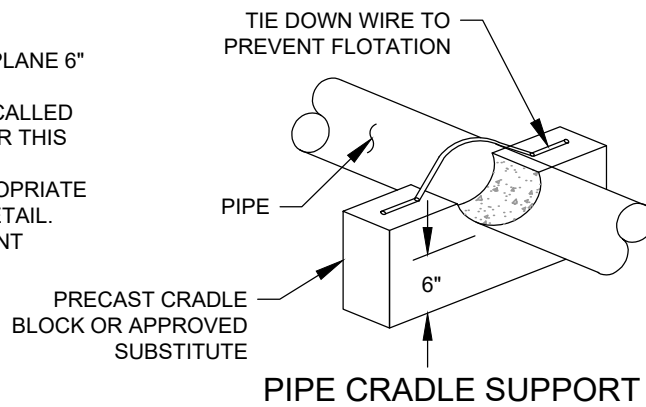
NOT TO SCALE



CONCRETE ENCASEMENT

NOTES:

1. ALL CONCRETE ENCASEMENT SHALL BE POURED AT A PLANE 6" ABOVE THE PIPE BETWEEN EXCAVATED TRENCH WALL.
2. CONCRETE ENCASEMENT WILL BE USED ONLY WHERE CALLED OUT IN THE PLANS AND LIMITS OF PAYMENT WILL BE PER THIS DETAIL.
3. BACKFILL AND RESTORATION WORK WILL BE PER APPROPRIATE TRENCH DETAIL WITH EMBEDMENT FOLLOWING THIS DETAIL.
4. SUPPORTS ARE SUBSIDIARY TO CONCRETE ENCASEMENT



PIPE CRADLE SUPPORT

NOT TO SCALE



CONCRETE ENCASEMENT DETAIL



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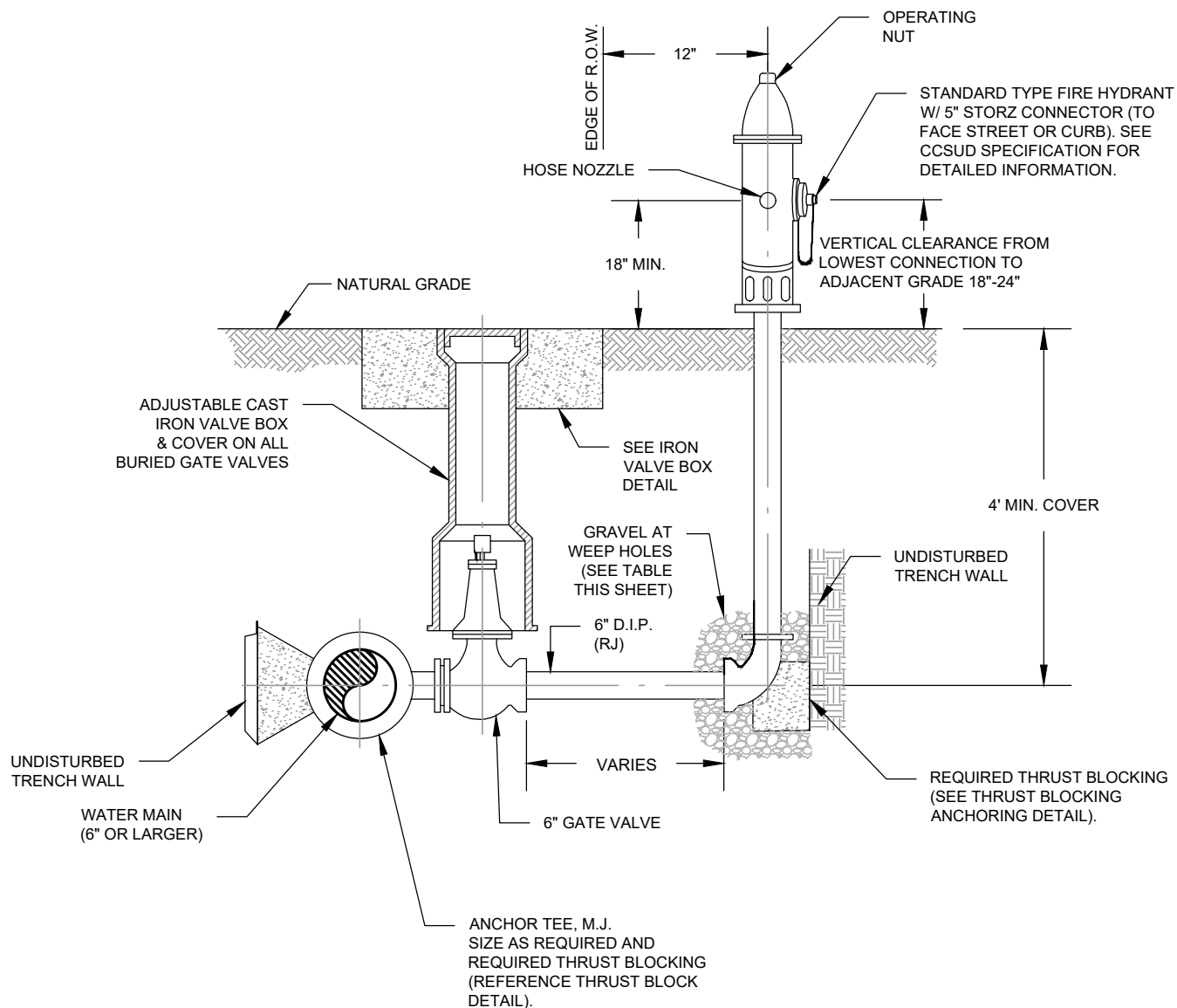
REVISION

MAY 2016

FEB 2022

SHEET

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GRAVEL AT WEEPHOLE	
LENGTH OF HYDRANT RISER	CU. FT. OF GRAVEL REQUIRED
3'	2.5
4'	3
5'	3.5
6'	4
>6'	TBD BY CCSUD

NOTE:

1. THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
2. ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
3. POLYWRAP SHALL BE SECURED WITH A MINIMUM OF THREE CIRCUMFERENTIAL TURNS OF POLY TAPE.
4. 12"x12"x4" THICK CONCRETE BLOCKS SHALL BE INSTALLED DIRECTLY UNDER ALL VALVES, FITTINGS, ETC.

NOT TO SCALE

PROPERTY OF



FIRE HYDRANT ASSEMBLY DETAIL
(NEW BRAUNFELS)



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TEXAS REGISTERED ENGINEERING FIRM 01-1284

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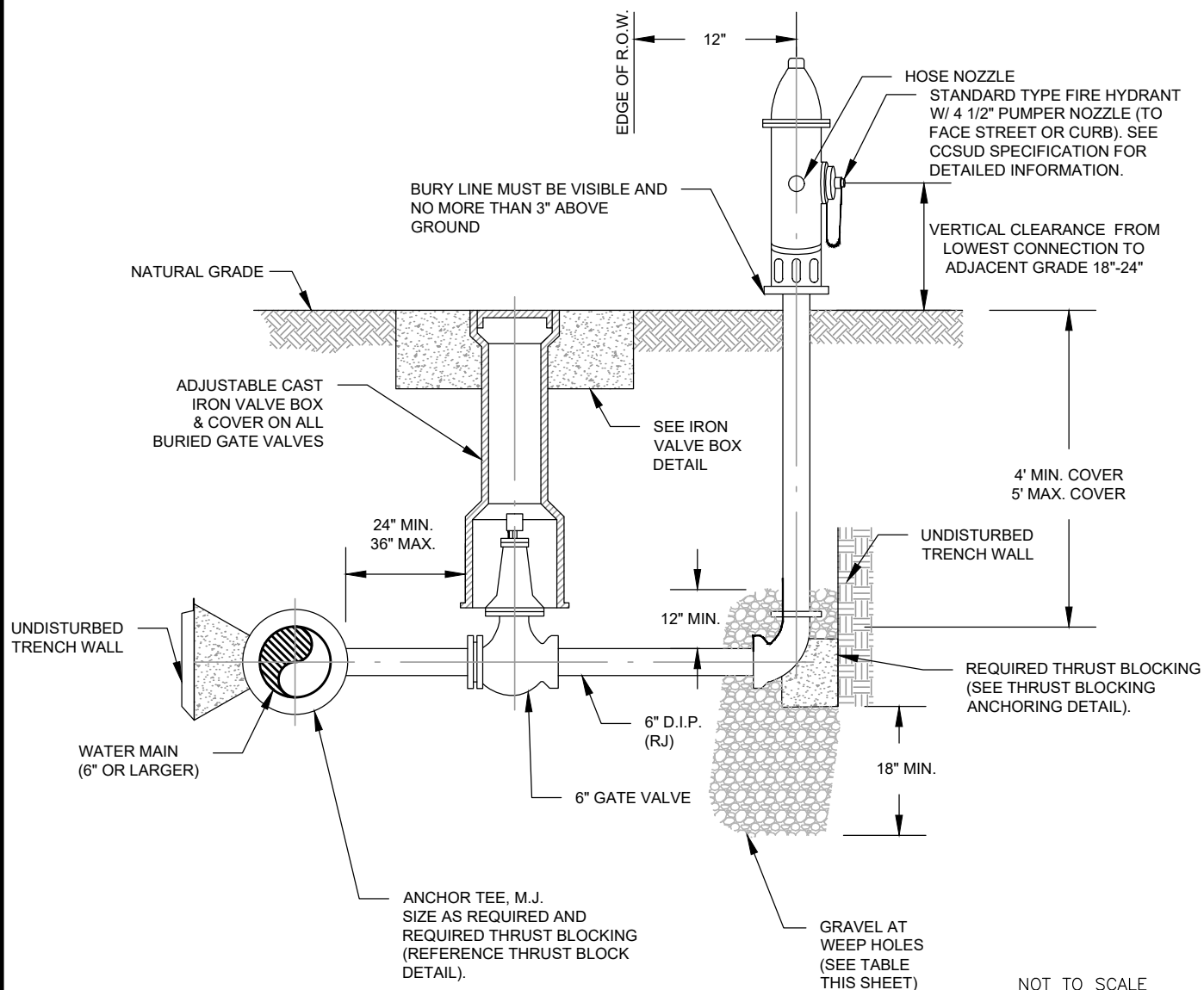
JUNE 2015

REVISION

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SHEET

1 OF 1



NOTE:

1. THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
2. ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
3. ALL FITTINGS AND FITTING JOINTS MUST BE WRAPPED W/ THREE LAYERS OF 8-MIL POLYETHYLENE IN ACCORDANCE WITH AWWA C105-10, OR LATEST REVISION THERE OF.
4. POLYWRAP SHALL BE SECURED WITH A MINIMUM OF THREE CIRCUMFERENTIAL TURNS OF POLY TAPE.
5. THE FIRE HYDRANT SHALL BE PLACED A MINIMUM OF FIVE FEET FROM ALL OBSTRUCTIONS.
6. A BLUE REFLECTIVE PAVEMENT MARKER MUST BE PLACED WITH EVERY FIRE HYDRANT ADJACENT TO A ROADWAY 6" -10" OFF CENTER LINE OF ROAD ON FIRE HYDRANT SIDE.

GRAVEL AT WEEPHOLE	
LENGTH OF HYDRANT RISER	CU. FT. OF GRAVEL REQUIRED
3'	2.5
4'	3
5'	3.5
6'	4
>6'	TBD BY CCSUD

PROPERTY OF



FIRE HYDRANT ASSEMBLY DETAIL
(SAN MARCOS)



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TEXAS REGISTERED ENGINEERING FIRM F-1394

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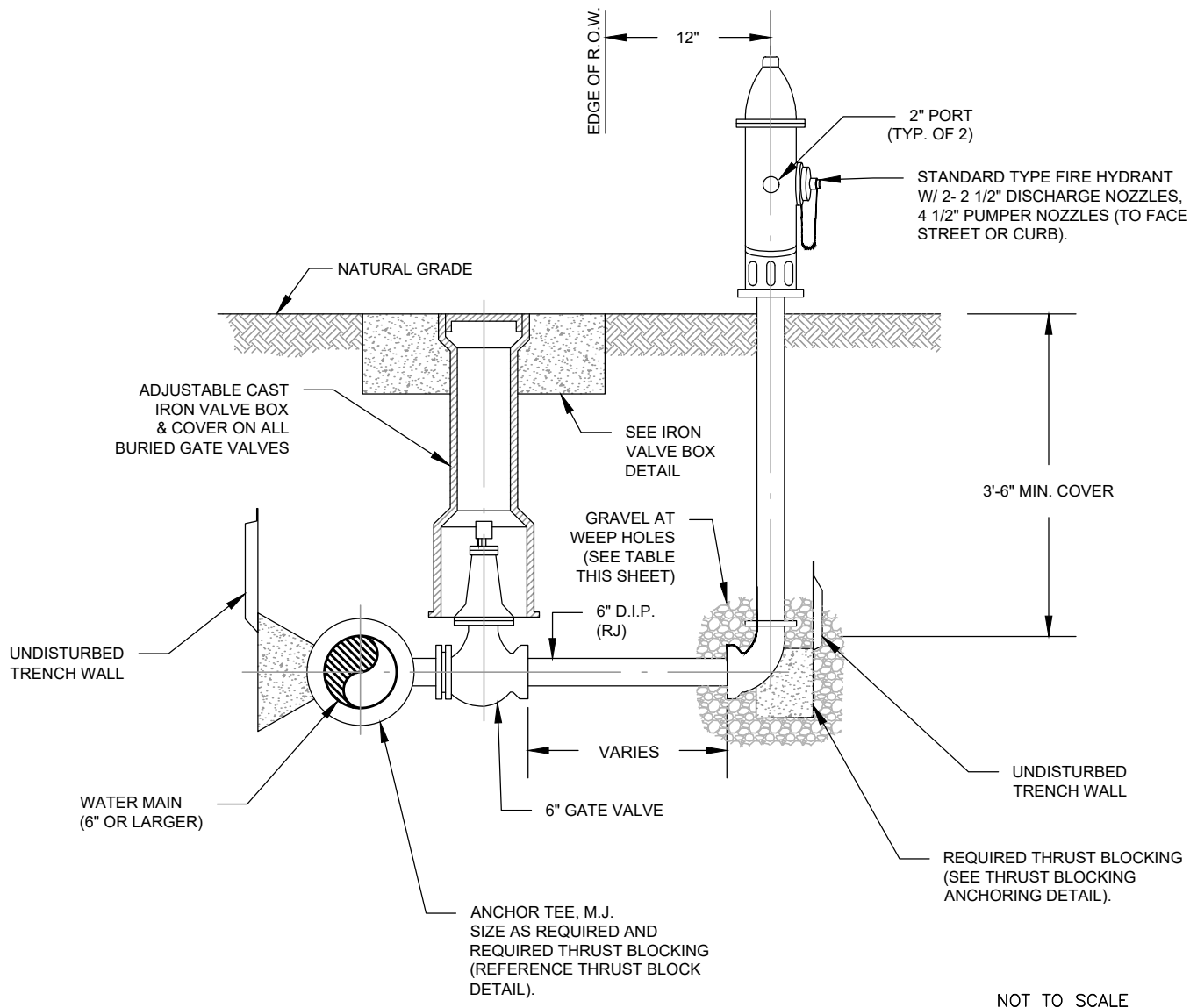
REVISION

JUNE 2015

JULY 2021

SHEET

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NOTE:

1. THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
2. ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
3. ALL FITTINGS AND FITTING JOINTS MUST BE WRAPPED W/ THREE LAYERS OF 8-MIL POLYETHYLENE IN ACCORDANCE WITH AWWA C105-10, OR LATEST REVISION THERE OF.
4. 12"x12"x4" THICK CONCRETE BLOCKS SHALL BE INSTALLED DIRECTLY UNDER ALL VALVES, FITTINGS, ETC.

GRAVEL AT WEEPHOLE	
LENGTH OF HYDRANT RISER	CU. FT. OF GRAVEL REQUIRED
3'	2.5
4'	3
5'	3.5
6'	4
>6'	TBD BY CCSUD

PROPERTY OF



FIRE HYDRANT DETAIL



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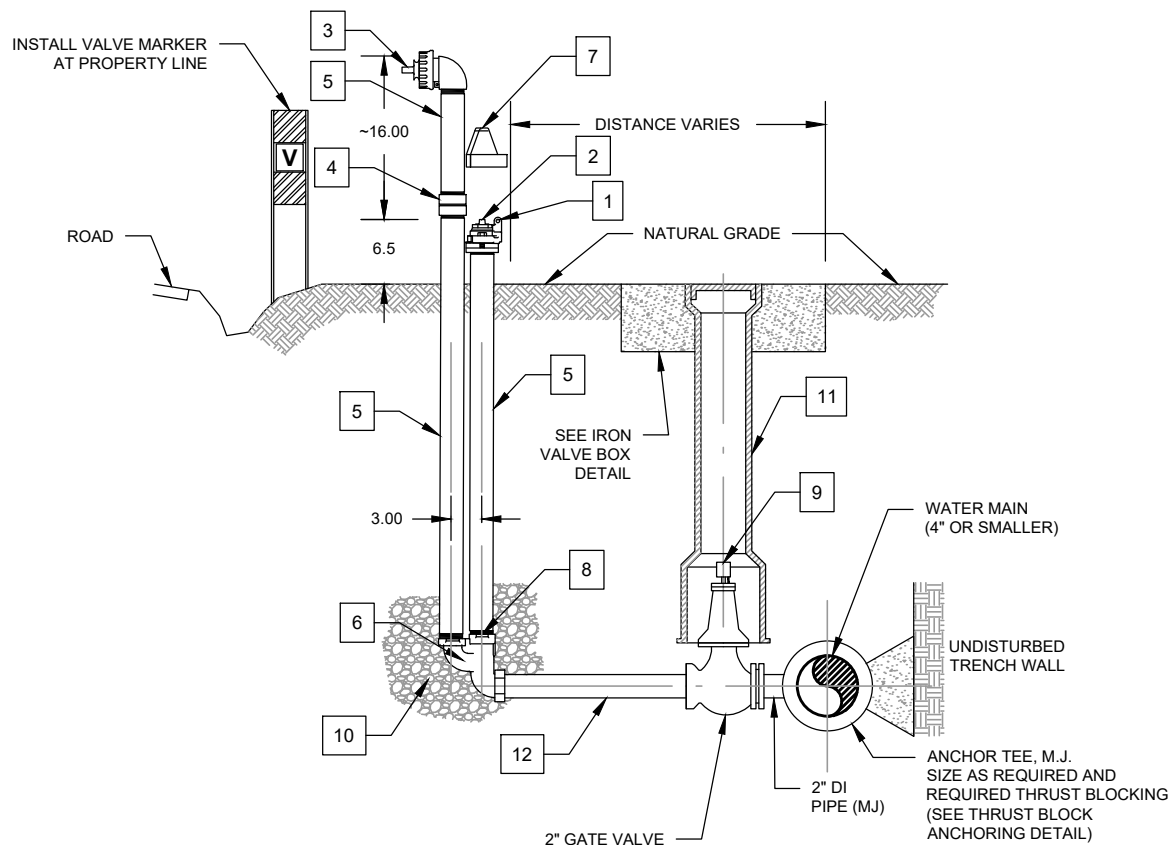
REVISION

JUNE 2015

JULY 2021

SHEET

1 OF 1



NOTE:

- BURIED PIPING, FITTINGS, AND FITTING JOINTS SHALL BE WRAPPED IN POLYWRAP.
- THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
- ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
- POLYWRAP SHALL BE SECURED WITH A MINIMUM OF THREE CIRCUMFERENTIAL TURNS OF POLY TAPE.
- 12"x12"x4" THICK CONCRETE BLOCKS SHALL BE INSTALLED DIRECTLY UNDER ALL VALVES, FITTINGS, ETC.

ITEM	ITEM/DESCRIPTION	NOTES
1	TOP CAP	
2	SLOTTED OPERATING NUT	
3	2-1/2" NST OUTLET	SHOWN WITH CAP
4	2" COUPLING	
5	2" STEEL PIPE	
6	INLET VALVE BODY	
7	LOCKING COVER	
8	DRAIN HOLE	
9	HYDRANT SHUT-OFF VALVE	
10	CRUSHED ROCK	
11	VALVE BOX	
12	2" BRASS PIPE (LEAD FREE)	ASTM B43

NOT TO SCALE

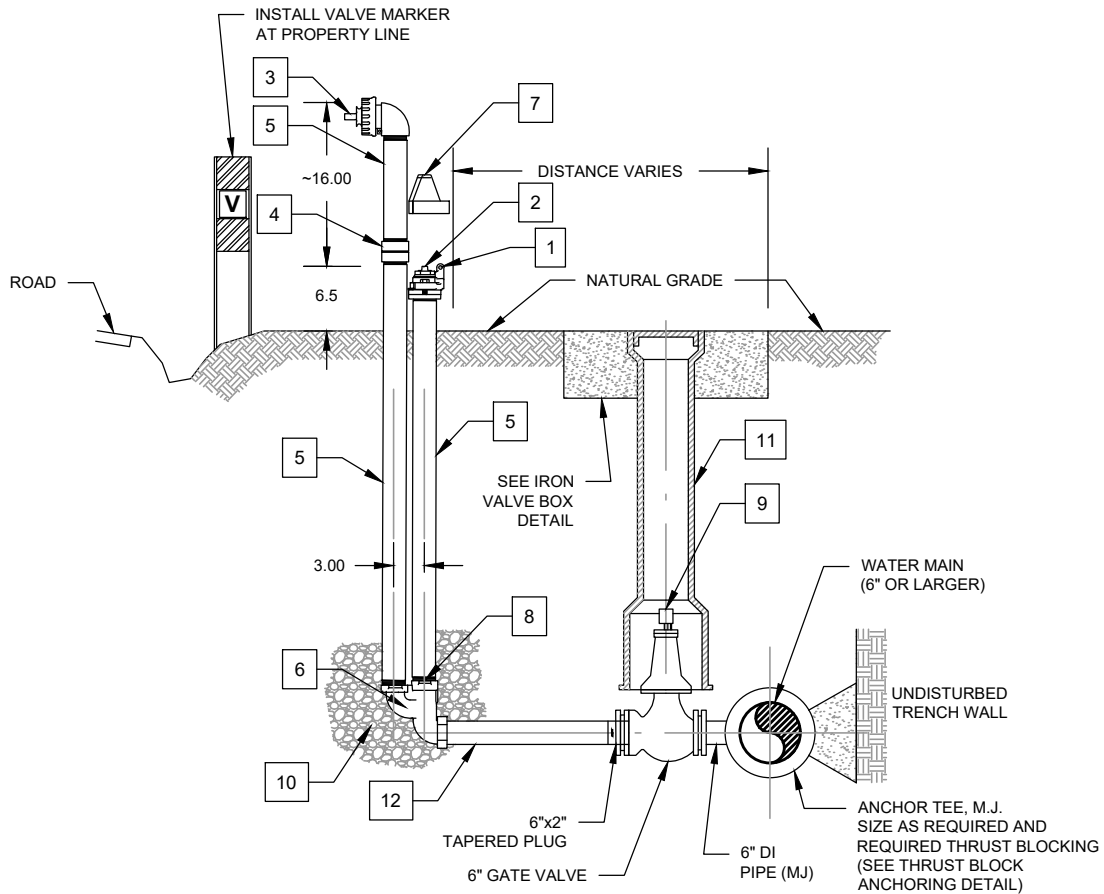


FLUSH VALVE DETAIL
4 INCH OR SMALLER



APPROVED	REVISION
JUNE 2015	DECEMBER 2020

SHEET
1 OF 1



NOTE:

- BURIED PIPING, FITTINGS, AND FITTING JOINTS SHALL BE WRAPPED IN POLYWRAP.
- THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
- ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
- POLYWRAP SHALL BE SECURED WITH A MINIMUM OF THREE CIRCUMFERENTIAL TURNS OF POLY TAPE.
- 12"x12"x4" THICK CONCRETE BLOCKS SHALL BE INSTALLED DIRECTLY UNDER ALL VALVES, FITTINGS, ETC.

ITEM	ITEM/DESCRIPTION	NOTES
1	TOP CAP	
2	SLOTTED OPERATING NUT	
3	2-1/2" NST OUTLET	SHOWN WITH CAP
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7	LOCKING COVER	
8	DRAIN HOLE	
9	HYDRANT SHUT-OFF VALVE	
10	CRUSHED ROCK	
11	VALVE BOX	
12	2" BRASS PIPE (LEAD FREE)	ASTM B43

NOT TO SCALE

PROPERTY OF



FLUSH VALVE DETAIL
6 INCH OR LARGER



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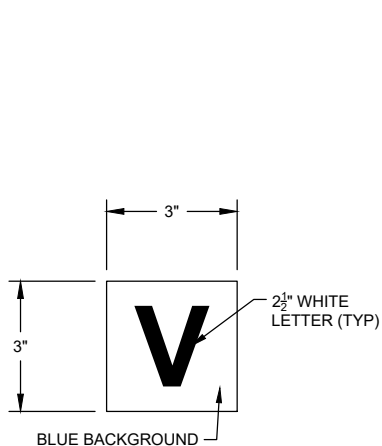
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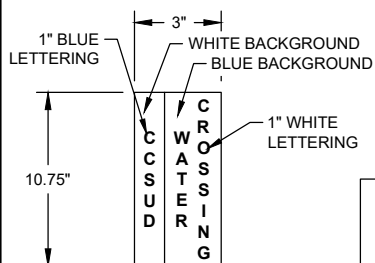
DECAL DETAIL



METER



VALVES

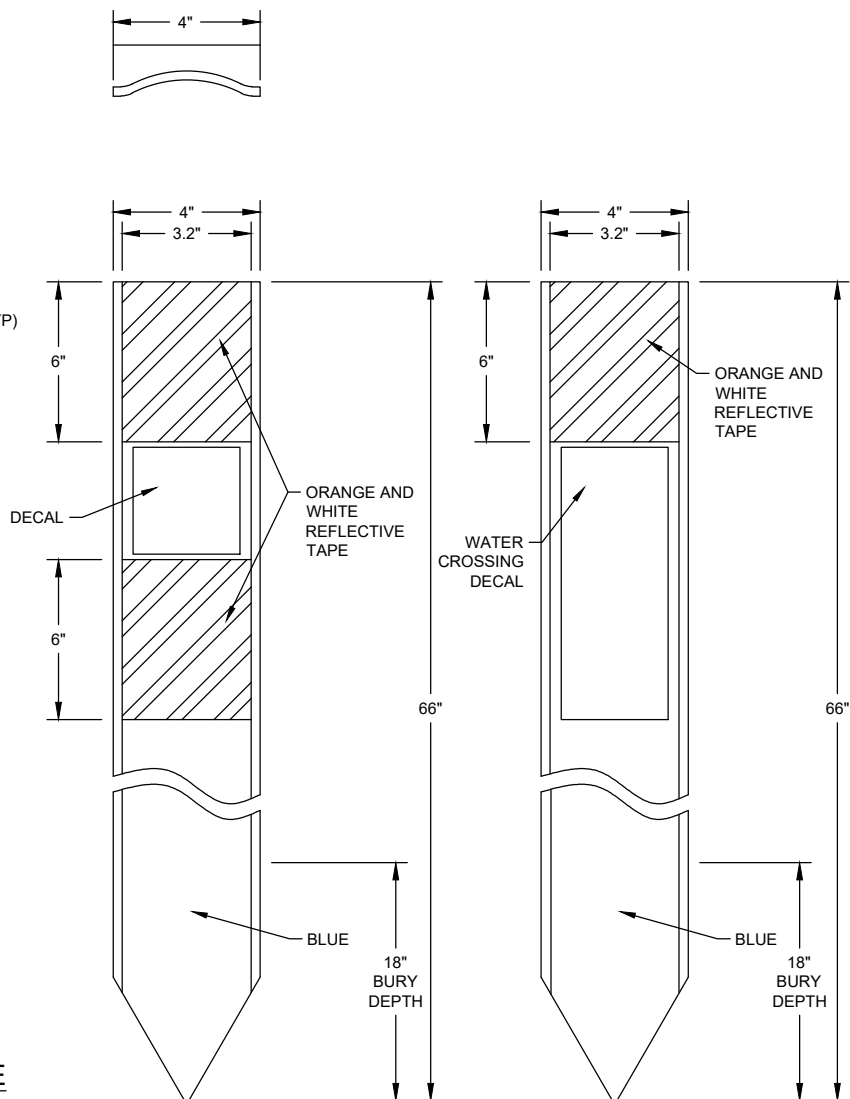


WATER
CROSSING



AIR RELEASE
VALVE

DECALS



MARKER DETAIL

NOTES:

1. MARKERS SHALL BE 66" COMPOSITE POSTS SIMILAR TO RHINO FIBERCURVE COMPOSITE MARKER POST.
2. MARKERS SHALL BE PLACED AT ALL GATE VALVES, FLUSHING VALVES, & AIR RELEASE VALVES PER ITEM DETAIL.
3. MARKERS SHALL BE PLACED AT WATER METERS AS SPECIFIED ON PLANS
4. PIPELINE MARKERS SHALL BE PLACED ON R.O.W./FENCE LINE AT ALL ROAD CROSSINGS.

NOT TO SCALE

PROPERTY OF



MARKER DETAILS



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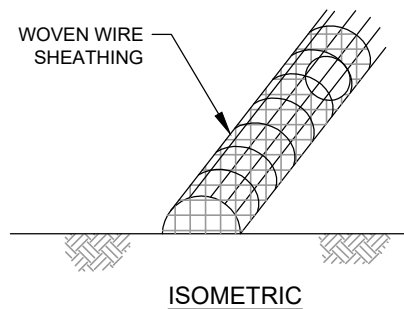
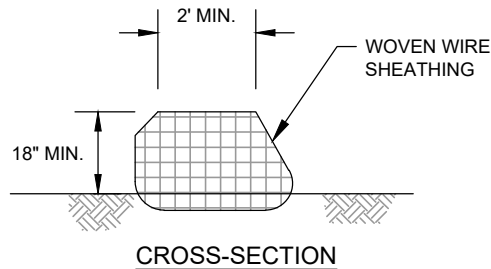
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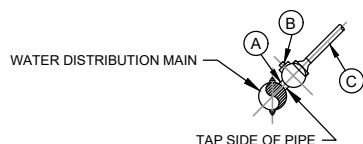
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GENERAL NOTES

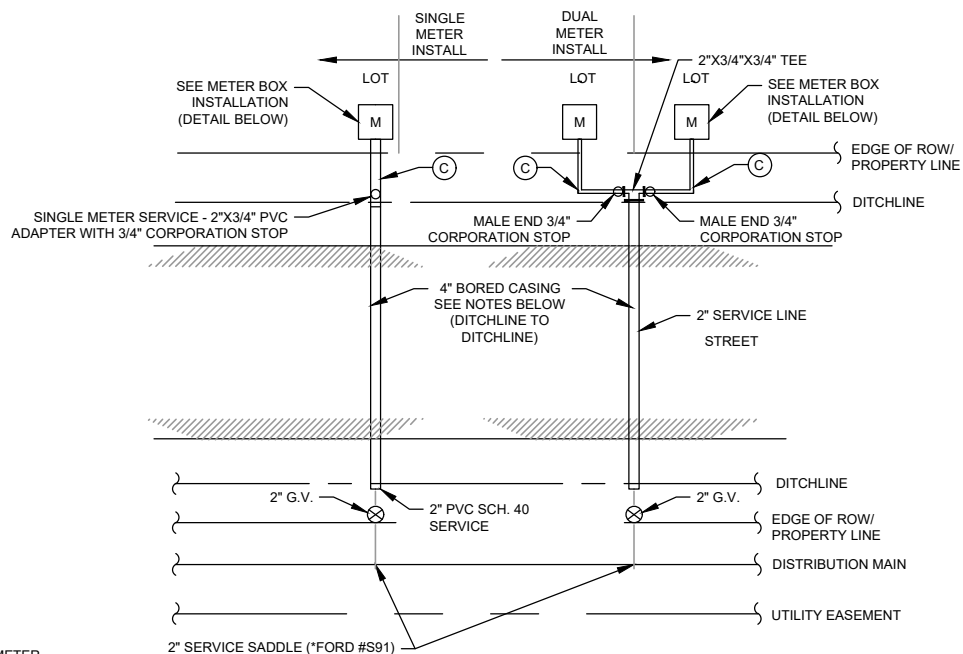
1. USE ONLY OPEN GRADED ROCK 4-8 INCH DIAMETER FOR STREAM FLOW CONDITIONS. USE OPEN GRADED ROCK 3-5 INCH DIAMETER FOR OTHER CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENING AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN WIRE SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN APPROVED SITE AND IN A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE SERVICE ROCK BERMS. SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 6 INCHES.
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

NOT TO SCALE



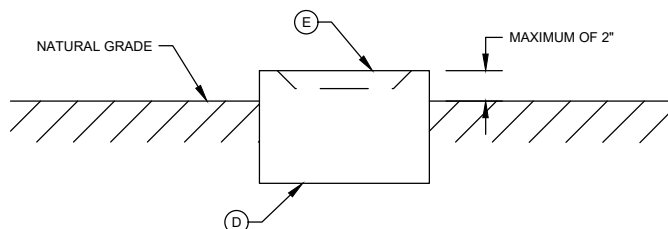
- NOTES:
1. FOR SHORT SERVICE CONNECTIONS, THE METER SHALL BE LOCATED 3' AWAY FROM THE DISTRIBUTION MAIN INSIDE PRIVATE PROPERTY BETWEEN THE WATER MAIN AND THE HOUSE OR BUILDING THAT IS BEING SERVED BY THAT METER.

SHORT SERVICE DETAIL



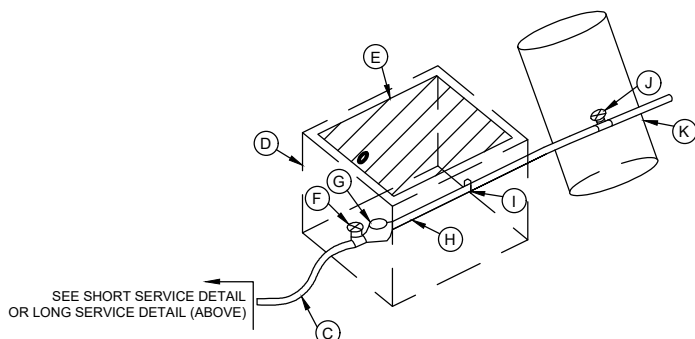
- NOTES:
1. STEEL CASING MUST BE USED FOR TXDOT ROADWAYS.
 2. HDPE CASING MAY BE USED FOR COUNTY OR RESIDENTIAL ROADWAYS IF APPROVED BY OWNER/ENGINEER.

LONG SERVICE DETAIL



- NOTES:
1. METER BOX SHALL BE SET INTO GROUND TO SIT SLIGHTLY ABOVE NATURAL GRADE (NO MORE THAN 2").
 2. USE NATIVE TOP SOIL TO BACKFILL TO EDGE OF METER BOX LID. BACKFILL TO NATURAL GRADE.

METER BOX PROFILE



- MATERIAL LIST
- 3/4" SERVICE SADDLE FORD #S91
 - 3/4" CORP. STOP (I.P. x COMP) FORD #F-100-3G-NL
 - 3/4" POLYETHYLENE AWWA, C901-200 PSI
 - PLASTIC METER BOX, MODEL NO. DFW1300.12.1C OR DFW1600X.12.1C
 - METER BOX LID, MODEL NO. DFW1200.1C.LID OR DFW1500.1C.LID
 - 3/4" BALL VALVE (METER CONV. x COMP.) FORD #BA43-332W-G-NL
 - 5/8"x3/4" WATER METER (BY CCSUD)
 - 3/4" DUAL CHECK VALVE (METER x I.P.) FORD #HHC31-323 (BY OWNER)
 - SERVICE LINE (BY OWNER)
 - CUSTOMER SHUT OFF VALVE (BY OWNER) FORD #644-333-NL
 - 7-INCH ROUND VALVE BOX WITH REMOVABLE LID (BY OWNER)

*MATERIALS SHALL BE PER THE APPROVED EQUIPMENT LIST (AEL) OR APPROVED EQUIVALENT.

METER BOX INSTALLATION DETAIL

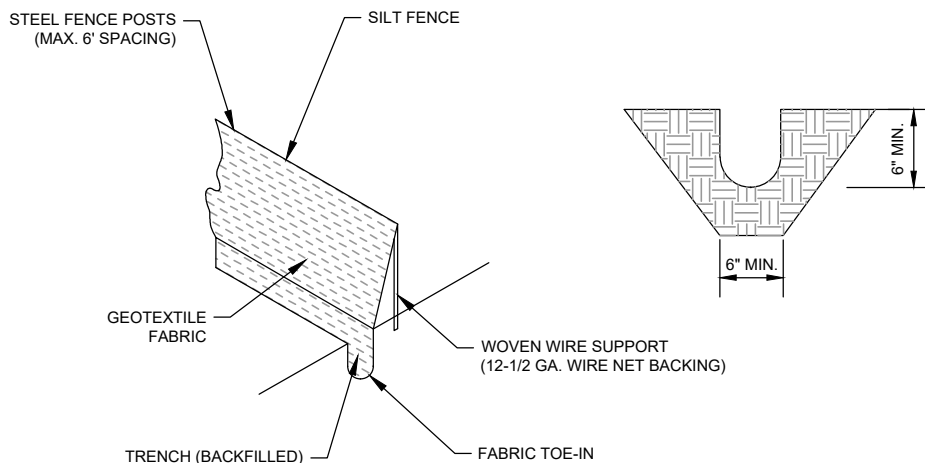
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GENERAL NOTES

1. THE INSTALLER SHALL FOLLOW THE REQUIREMENTS FOR TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROLS, INSPECTION AND MAINTENANCE PROCEDURES LISTED IN THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM STORMWATER POLLUTION PREVENTION PLAN.
2. THE INSTALLER AND ALL SUBCONTRACTORS SHALL COMPLETE THE POLLUTION PLAN CERTIFICATION.
3. A COPY OF THE POLLUTION PREVENTION PLAN SHALL BE KEPT AT THE CONSTRUCTION SITE FROM THE TIME CONSTRUCTION BEGINS UNTIL THE SITE IS FINALLY STABILIZED.
4. INSPECTION AND MAINTENANCE FORMS SHALL BE COMPLETED AS REQUIRED IN THE POLLUTION PLAN.
5. THE STORM WATER POLLUTION PREVENTION PLAN AND ALL OTHER RECORDS REQUIRED BY THE PERMIT SHALL BE RETAINED FOR THREE YEARS AFTER COMPLETION OF FINAL SITE STABILIZATION.
6. THE POLLUTION PREVENTION PLAN AND ASSOCIATED RECORDS MUST BE MADE AVAILABLE UPON REQUEST TO THE EPA'S DIRECTOR, OR ANY STATE OR LOCAL AGENCY WHO IS APPROVING EROSION AND SEDIMENTATION CONTROL PLANS AND TO THE OWNER AND ENGINEER.

GENERAL NOTES

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE IMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPACE OR MECHANICAL TRENCHER SO THAT THE DOWN SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G. PAVEMENT). WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS NOT TO CONTRIBUTE TO ADDITIONAL SILTATION.



SILT FENCE DETAIL
N.T.S.

NOT TO SCALE

PROPERTY OF



SILT FENCE DETAILS



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TEXAS REGISTERED ENGINEERING FIRM #10349

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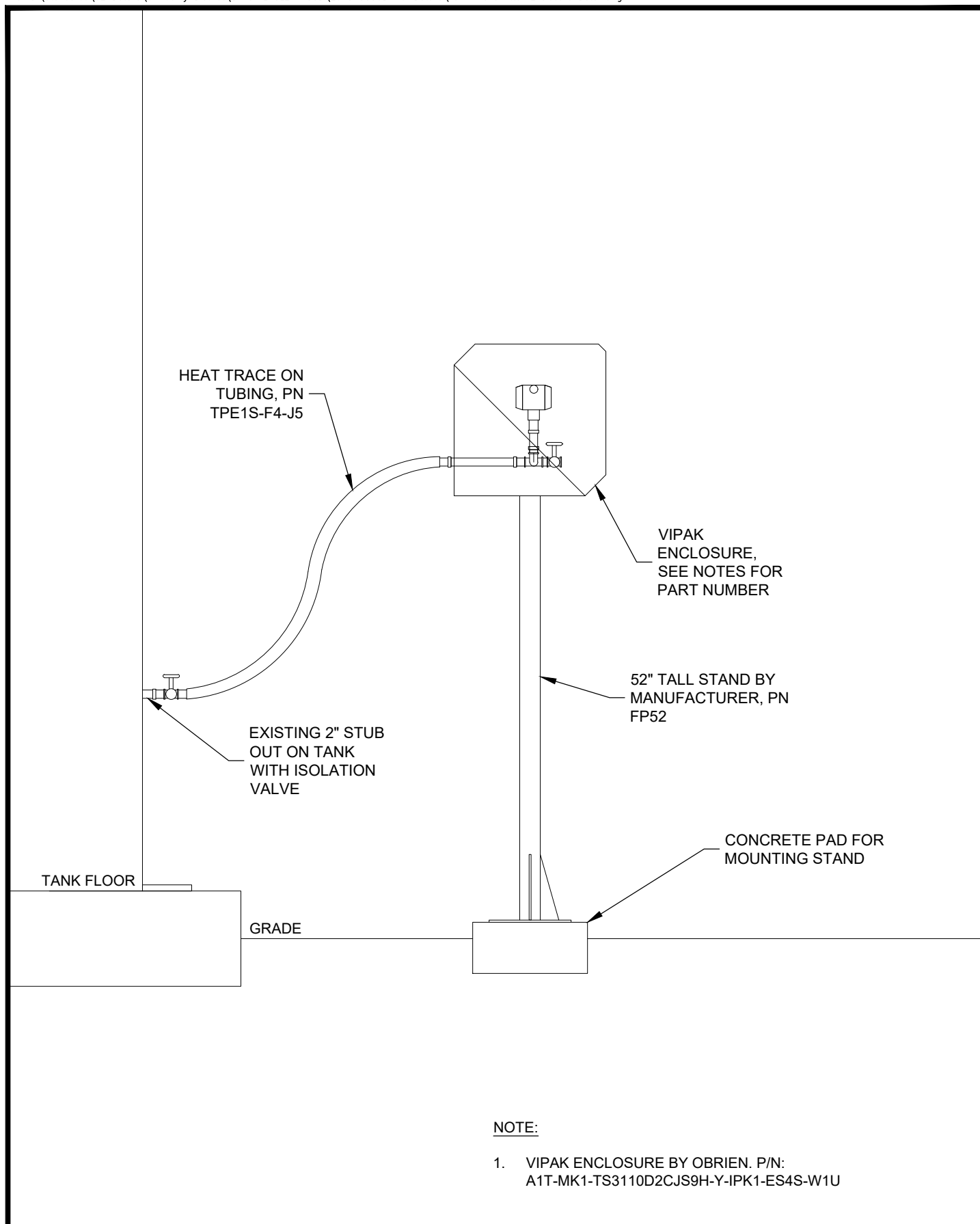
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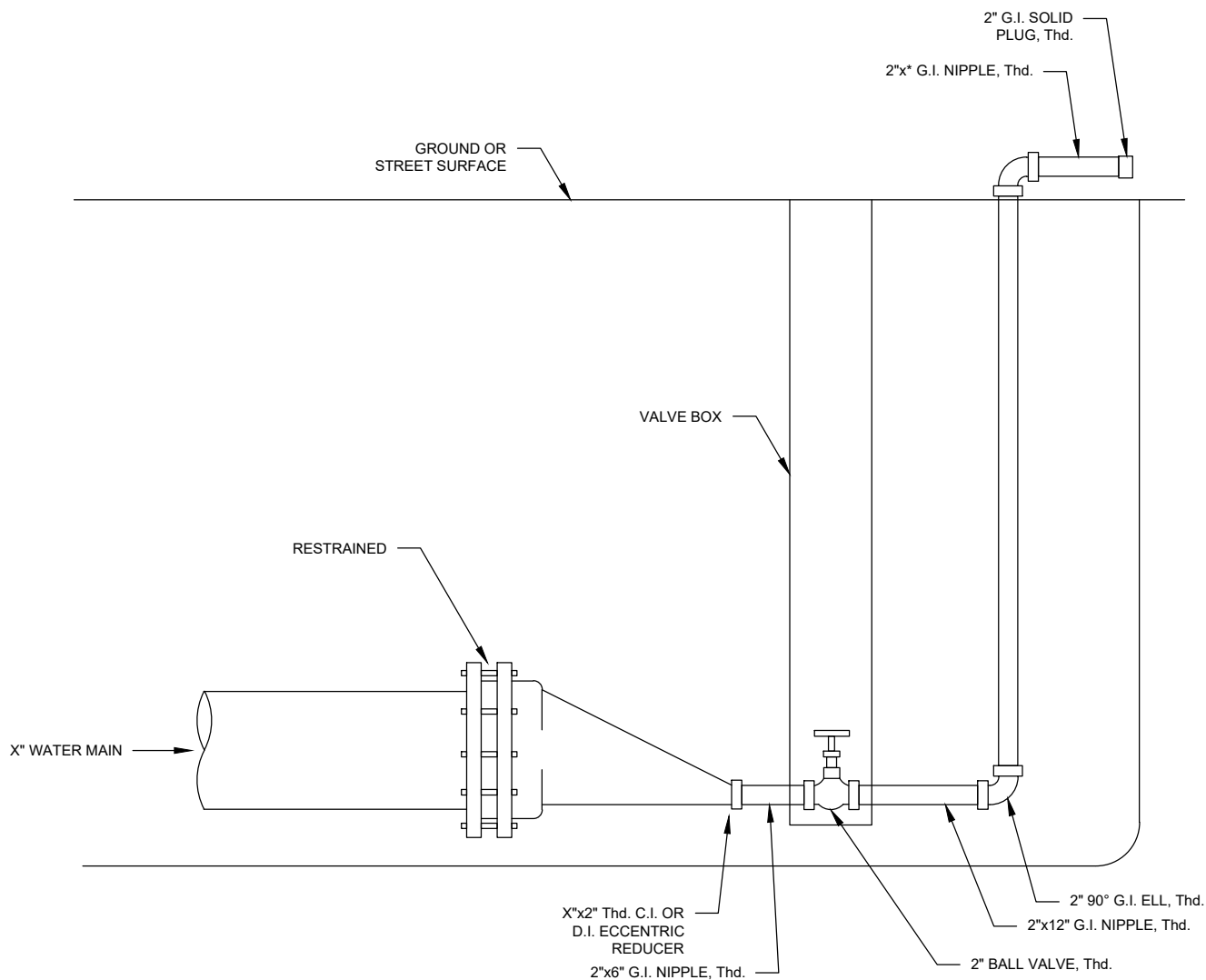
JUNE 2015

JUNE 2015

SHEET

OF 1





NOTE:

1. BURIED PIPING, FITTINGS, AND FITTING JOINTS SHALL BE WRAPPED IN POLYWRAP.
2. THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
3. ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
4. POLYWRAP SHALL BE SECURED WITH A MINIMUM OF THREE CIRCUMFERENTIAL TURNS OF A POLY TAPE.

NOT TO SCALE

PROPERTY OF



TEMPORARY FLUSH VALVE
8 INCH OR SMALLER



M&S ENGINEERING
 CIVIL | ELECTRICAL | STRUCTURAL | MEP
TEXAS REGISTERED ENGINEERS #18614-#18615

APPROVED

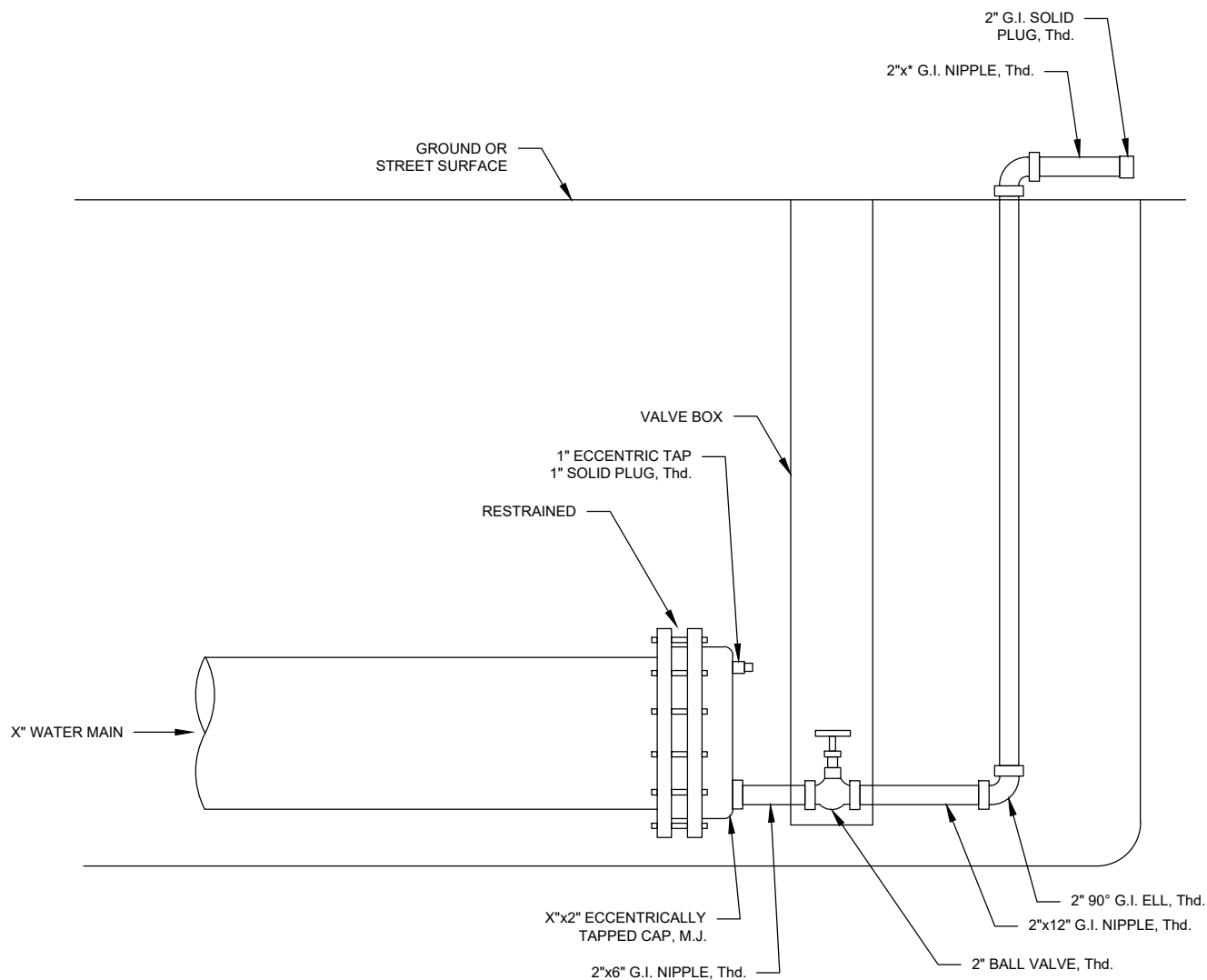
REVISION

OCTOBER 2020

DECEMBER 2020

SHEET

1 OF 1



NOTE:

1. BURIED PIPING, FITTINGS, AND FITTINGS JOINTS SHALL BE WRAPPED IN POLYWRAP.
2. THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
3. ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
4. POLYWRAP SHALL BE SECURED WITH A MINIMUM OF THREE CIRCUMFERENTIAL TURNS OF POLY TAPE.

NOT TO SCALE

PROPERTY OF



TEMPORARY FLUSH VALVE
12 INCH OR LARGER



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TEXAS REGISTERED ENGINEERS #18617-18618

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REVISION

OCTOBER 2020

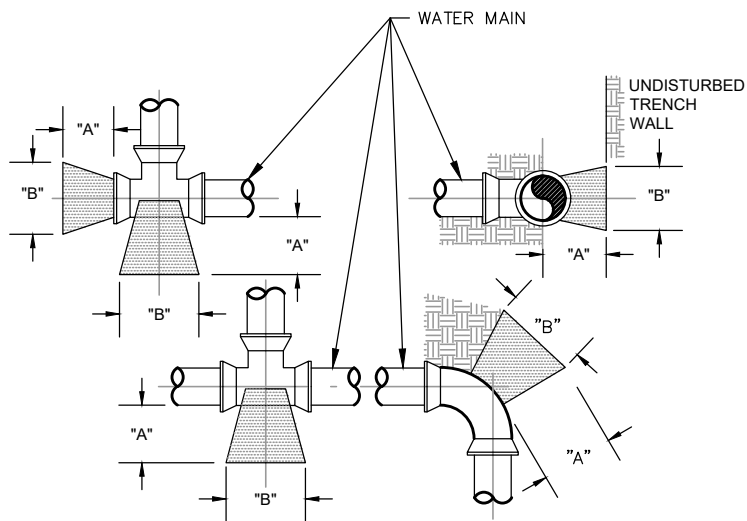
DECEMBER 2020

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PIPE SIZE	DIMENSION "B" (SQUARE)					VALVES
	PLUGS & TEES	90° BENDS	45° BENDS	22 1/2° BENDS		
4" & 6"	1'-3"	1'-6"	1'-0"	9"		1'-3"
8"	1'-9"	2'-0"	1'-6"	1'-0"		1'-6"
10"	2'-10"	2'-0"	1'-9"	1'-3"		2'-0"
12"	2'-6"	3'-0"	2'-3"	1'-6"		2'-3"
16"	3'-3"	4'-0"	2'-9"	2'-0"		2'-9"
20"	3'-9"	4'-6"	3'-3"	2'-3"		3'-3"

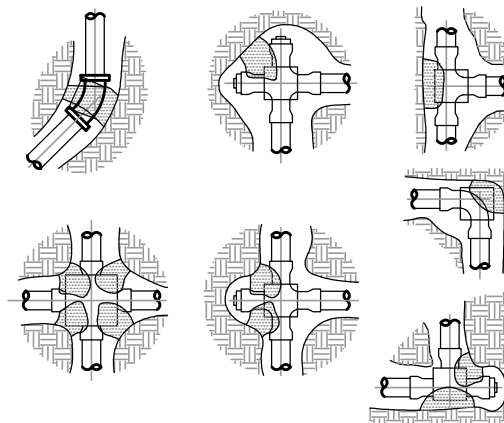
DIMENSION "A" SHALL BE A MINIMUM OF 1'-0" BUT IS TO BE INCREASED WHERE NECESSARY TO PROVIDE BEARING AGAINST UNDISTURBED TRENCH WALL.



THRUST BLOCK DIMENSIONING

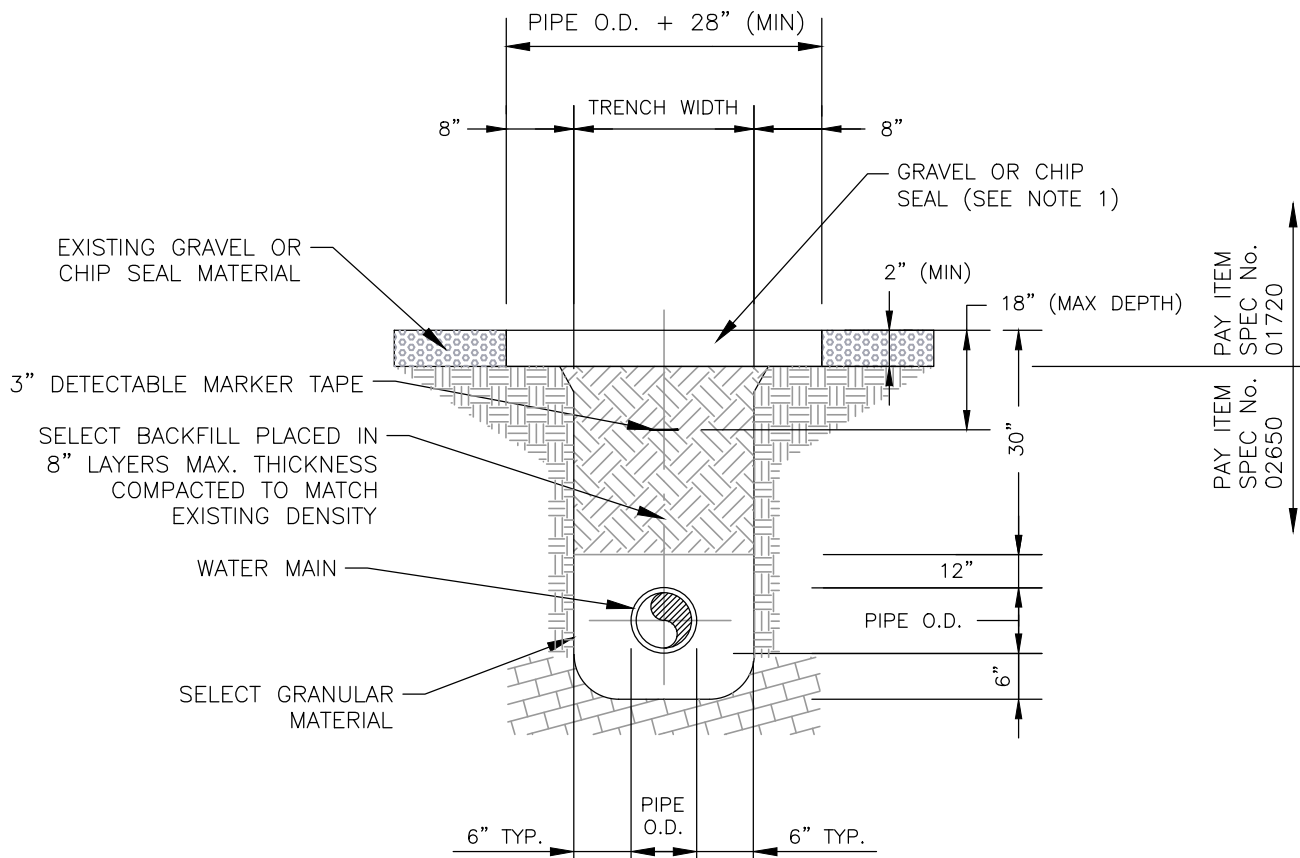
NOTES:

1. THE EARTHBEARING SURFACE SHALL BE THE UNDISTURBED TRENCH WALL.
2. ALL PIPE JOINTS SHALL BE KEPT FREE FROM CONCRETE.
3. ALL THRUST BLOCKS SHALL CONTAIN A MINIMUM OF 1 1/2 CUBIC YARDS OF CONCRETE.
4. CONCRETE SHALL BE 2000 P.S.I. AT 28 DAYS MINIMUM.
5. ALL FITTINGS AND FITTING JOINTS MUST BE WRAPPED W/ POLYWRAP. POLYWRAP SHALL BE SECURED WITH A MINIMUM OF THREE CIRCUMFERENTIAL TURNS OF POLY TAPE.
6. 12"x12"x4" THICK CONCRETE BLOCKS SHALL BE INSTALLED DIRECTLY UNDER ALL VALVES, FITTINGS, ETC.



THRUST BLOCK ANCHORING DETAIL

NOT TO SCALE



NOTES

1. GRAVEL OR CHIP SEAL (MATCH EXISTING PAVEMENT TYPE) SHALL BE A MINIMUM OF 2" THICK.
2. ROAD BASE AND SURFACE MATERIALS IN THE TRENCH CUT SHALL BE REPLACED IN KIND, OF EQUAL THICKNESS

TRENCHING NOTES

1. ADEQUATE BARRICADES & WARNING SIGNS SHALL BE ERECTED BEFORE ANY WORK IS STARTED IN PUBLIC RIGHT-OF-WAY.
2. THE DRIVEWAY SHALL BE CUT ONLY WHERE REQUIRED BY THE ENGINEER.
3. DRIVEWAY SHALL REMAIN ACCESSIBLE AT ALL TIMES.
4. REFER TO SPECIFICATIONS FOR ANY SPECIAL REQUIREMENTS OR CONDITIONS
5. BACKFILL SHALL BE COMPLETED IMMEDIATELY AFTER PIPELINE LAYING WITHIN PRIVATE DRIVEWAYS.

TRENCH SAFETY NOTES

1. TRENCH SAFETY SYSTEM, SHORING OR SIDE SLOPE TO BE IN ACCORDANCE WITH OSHA STANDARDS.
2. TRENCH SAFETY SYSTEM PLAN TO BE PROVIDED BY CONTRACTOR PRIOR TO CONSTRUCTION.
3. ALL EXCAVATION GREATER THAN 5' DEEP SHALL MEET TRENCH SAFETY NOTE.

NOT TO SCALE

PROPERTY OF



TYPICAL GRAVEL/CHIP SEAL
DRIVEWAY REPAIR DETAIL



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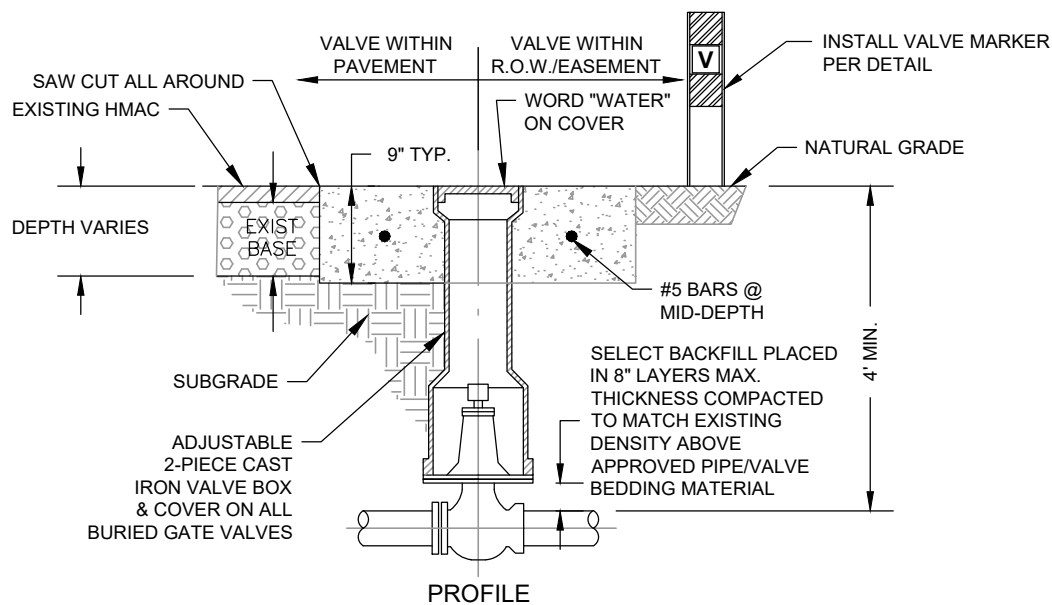
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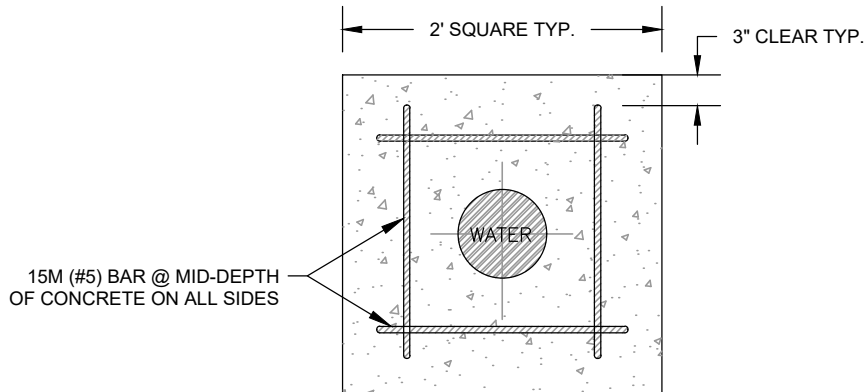
JULY 2019

SHEET

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PROFILE



PLAN

NOTES:

1. VALVE BOXES SHALL BE FITTED WITH PLASTIC VALVE ID TAGS (BLUE EMEDCO 3-1/2" X 2-3/4") INDICATING OWNER (CCSUD) VALVE SIZE, YEAR OF INSTALLATION AND # OF TURNS TO OPEN.
2. SUBGRADE SHALL BE COMPACTED AS PER SPECIFICATIONS
3. VALVE CASTINGS SHALL BE ADJUSTED TO GRADE AFTER FINAL LIFT OF OVERLAY IS IN PLACE.
4. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE BASE OF THE VALVE.
5. REMOVE EXISTING RISER PIPE DOWN 18" AND REPLACE TO THE NEW ELEVATION USING NEW PIPE AND A COLLAR CASTING.
6. WHEN CAST IRON CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 20" DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL TO THE UNDERSIDE OF THE CONCRETE. PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
7. REINFORCING STEEL SHALL MEET SPECIFICATIONS.
8. VALVE BOXES MUST BE INSTALLED IN A STRAIGHT, VERTICAL POSITION.
9. VALVE MARKERS SHALL BE INSTALLED BEHIND EACH VALVE BOX WHEN VALVE IS LOCATED WITHIN EASEMENT OR R.O.W.

NOT TO SCALE

PROPERTY OF



TYPICAL IRON VALVE BOX
DETAILS



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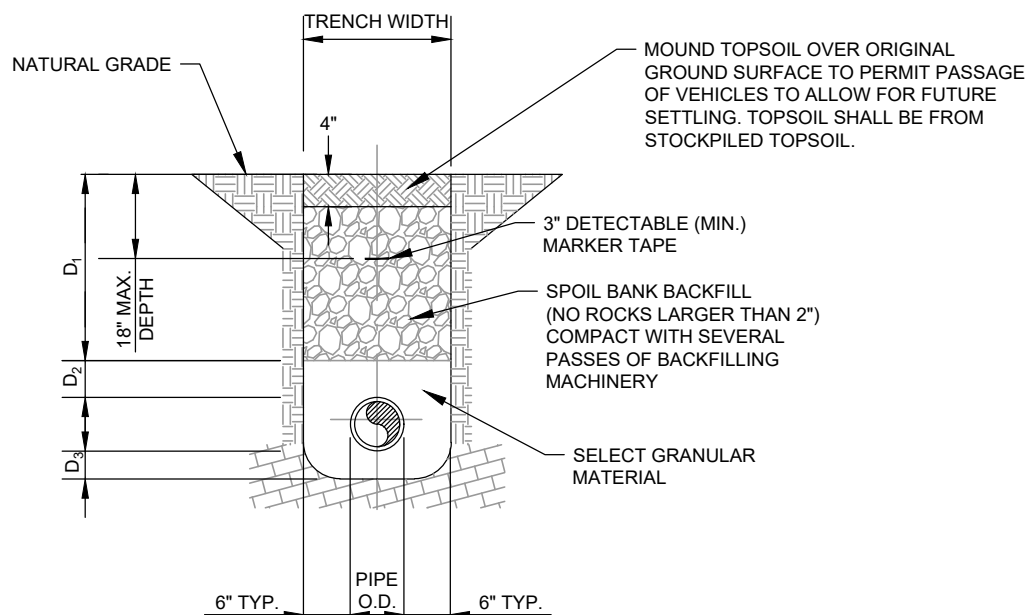
REVISION

JUNE 2015

AUGUST 2018

SHEET

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	D ₁	D ₂	D ₃
4" OR SMALLER	36"	6"	4"
6"-8"	30"	12"	6"
12" OR LARGER	42"	12"	6"

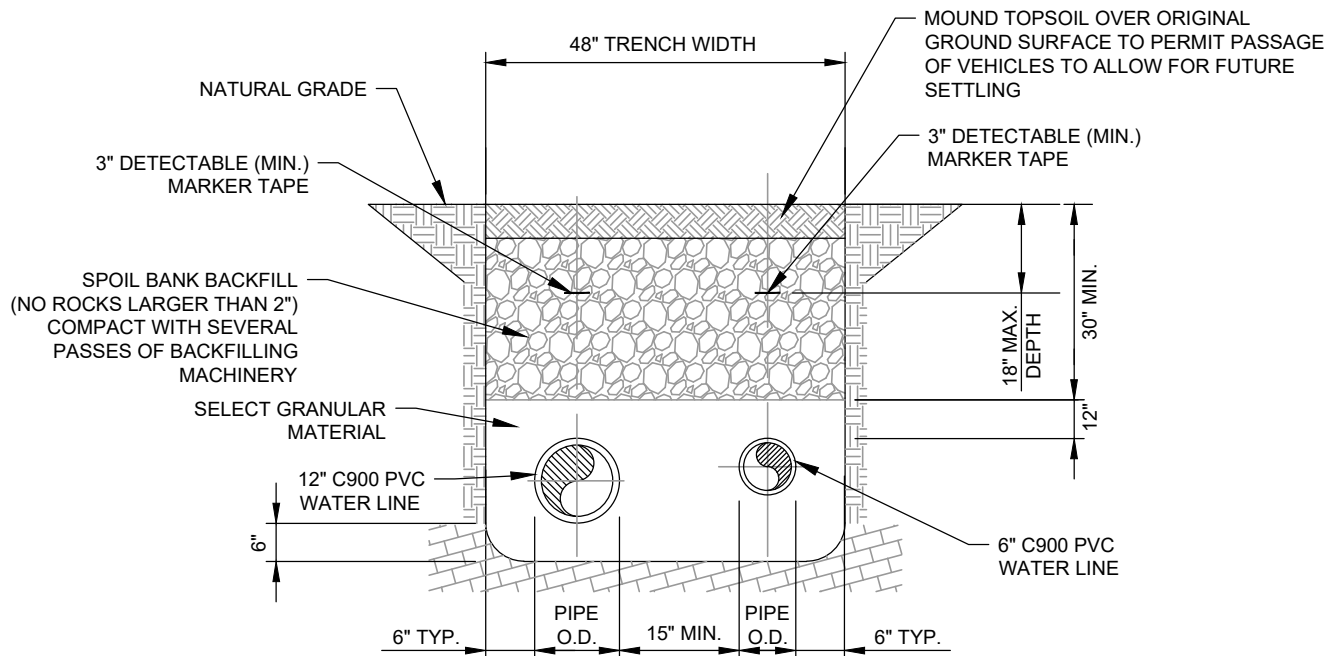
TRENCHING NOTES

1. ADEQUATE BARRICADES & WARNING SIGNS SHALL BE ERECTED BEFORE ANY WORK IS STARTED IN PUBLIC RIGHT-OF-WAY.
2. REFER TO SPECIFICATIONS FOR ANY SPECIAL REQUIREMENTS OR CONDITIONS.
3. BACKFILL SHALL BE COMPLETED IMMEDIATELY AFTER PIPELINE LAYING WITHIN PUBLIC RIGHT-OF-WAYS OR CROSSING PUBLIC RIGHT-OF-WAYS & PRIVATE DRIVEWAYS.

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