

LOW PRESSURE SEWER LINE CONSTRUCTION SPECIFICATIONS

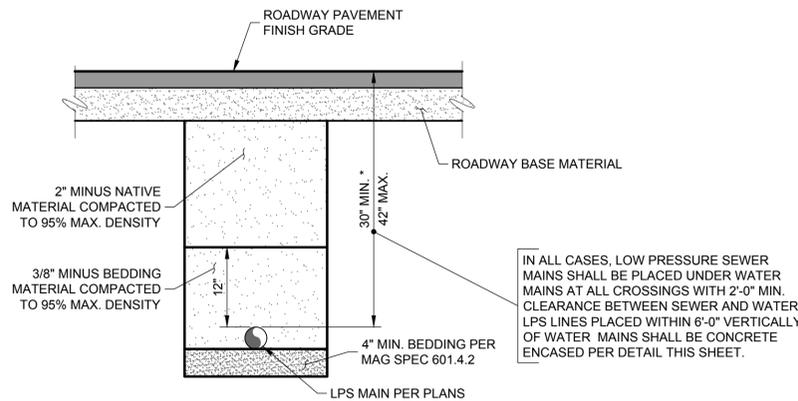
- ALL IMPROVEMENTS SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, MARICOPA ASSOCIATION OF GOVERNMENTS AND THE UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, MARICOPA ASSOCIATION OF GOVERNMENTS, LATEST EDITION; THE ARIZONA ADMINISTRATIVE CODE, TITLE 18, CHAPTER 9, ARTICLE 3, PART E. "TYPE 4 GENERAL PERMITS" (R18-9-E301); AND THE REQUIREMENTS OF GREEN VALLEY WATER (GVW).
- ALL FACILITIES, MATERIALS, AND WORKMANSHIP ARE SUBJECT TO THE INSPECTION, APPROVAL AND ACCEPTANCE OF THE DISTRICT MANAGER OF GREEN VALLEY WATER IN ORDER TO ASSURE THE INTEGRITY OF THE GREEN VALLEY WATER COLLECTION SYSTEM. ANY WORK AND MATERIALS NOT IN CONFORMANCE WITH THE SPECIFICATIONS AND DETAILS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE. ALL WORK WILL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF TWO (2) YEARS FROM ISSUANCE OF FINAL ACCEPTANCE.
- ANY DEVIATION FROM THE PLANS, SPECIFICATIONS OR STANDARD DETAILS MUST BE APPROVED IN WRITING BY THE ENGINEER AND THE DISTRICT MANAGER OF GREEN VALLEY WATER, PRIOR TO INSTALLATION AND ACCEPTANCE.
- WHEN WATER LINES AND LOW PRESSURE SEWER MAINS ARE LAID PARALLEL TO EACH OTHER, THE PIPE SHALL BE LAID IN ACCORDANCE WITH AAC R18-5-502.C.
- WHEN A LOW PRESSURE SEWER MAIN CROSSES UNDER A WATER LINE THAT IS WITHIN 6-FEET OF THE LOW PRESSURE SEWER MAIN, THE LOW PRESSURE SEWER MAIN SHALL BE ENCASED IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODE R18-5-502 AND WATER AND LOW PRESSURE SEWER CROSSING DETAIL THIS SHEET. LOW PRESSURE SEWER MAIN SHALL NOT BE CONSTRUCTED ABOVE WATER LINES.
- ALL LOW PRESSURE SEWER TRENCH EXCAVATION, BACKFILLING, AND COMPACTION SHALL BE IN ACCORDANCE WITH MAG SPEC., SECTION 601. BACKFILL TYPE SHALL CONFORM TO TABLE 601-2 OF THE MAG SPEC AND AS APPROVED BY THE ENGINEER AND THE DISTRICT MANAGER OF GREEN VALLEY WATER, SEE TYPICAL LOW PRESSURE SEWER TRENCH DETAIL, THIS SHEET. BACKFILL COMPACTION TESTING WILL BE THE RESPONSIBILITY OF CONTRACTOR.
- ALL PAVEMENT REPLACEMENT SHALL BE IN ACCORDANCE WITH MAG SPEC., SECTION 336. REPLACEMENT TYPE SHALL CONFORM TO MAG STANDARD DETAIL 200 AND THE TOWN OF PAYSON STREET PAVEMENT & SURFACE REPLACEMENT DETAILS.
- ALL LOW PRESSURE SEWER LINE TESTING SHALL BE IN CONFORMANCE WITH GREEN VALLEY WATER SPECIFICATIONS. 100% OF ALL LOW PRESSURE SEWER LINES WILL BE TESTED USING HYDROSTATIC TESTING IN ACCORDANCE WITH AAC R18-9-E301.D.4.f, AT A PRESSURE 50 POUND PER SQUARE INCH OR MORE ABOVE DESIGN WORKING PRESSURE. GREEN VALLEY WATER SHALL WITNESS AND APPROVE ALL LOW PRESSURE SEWER LINE TESTING FOR LEAKAGE. ANY DEFICIENCIES MUST BE CORRECTED PRIOR TO USE OF THE SYSTEM AND FINAL ACCEPTANCE.
- ALL LOW PRESSURE SEWER LINE CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE MAG SPEC. SECTION 615. ALL SERVICE CONNECTIONS SHALL BE 1-1/2" PIPE UNLESS OTHERWISE SPECIFIED. ALL SERVICE CONNECTIONS SHALL BE CONSTRUCTED PER TYPICAL LOW PRESSURE SERVICE CONNECTION DETAIL THIS SHEET.
- ALL LOW PRESSURE SEWER LINE SHALL BE POLYVINYL CHLORIDE (PVC), HIGH DENSITY POLYETHYLENE (HDPE), OR DUCTILE IRON PIPE (D.I.), ACCORDING TO THE FOLLOWING SCHEDULE:

DIAMETER	MATERIAL	SPECIFICATION
1.5" - 3"	HDPE	OUTSIDE DIAMETER CONTROLLED, DR-11, 200 PSI MIN. PRESSURE RATED, MEETING ASTM D3035
> 3"	PVC	SINGLE GASKET, INTEGRAL BELL, 200 PSI PRESSURE RATED, SDR-21, NATIONAL SANITATION FOUNDATION APPROVED, MEETING ASTM D2241
	D.I.	PRESSURE CLASS 200 MIN., EPOXY LINED, AND BITUMINOUS COATED PER AWWA C104, MEETING ANSI/AWWA C150/A21.50

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL LOCATIONS OF EXISTING UNDERGROUND UTILITIES WHICH MAY CONFLICT WITH THE SEWER CONSTRUCTION.
- ALL APPURTENANCES LOCATED ON PRIVATE PROPERTY REQUIRED TO BE REMOVED FOR CONSTRUCTION SHALL BE REPLACED TO THEIR PRIOR CONDITION.
- THE CONTRACTOR SHALL OBTAIN PERMITS AS REQUIRED, WITH THE EXCEPTION OF PERMITS NECESSARY FOR BLASTING.
- THE CONSTRUCTION PROJECT OWNER/CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY CONSTRUCTION STAKING TO CONSTRUCT THIS PROJECT AND THE ACCURACY THEREOF. THE ENGINEER WILL PROVIDE SURVEY CONTROL POINTS AS MAY BE NECESSARY FOR CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS (TWO WORKING DAYS) IN ADVANCE OF STAKING. THE CONTRACTOR SHALL NOTIFY GREEN VALLEY WATER THAT CONSTRUCTION IS COMMENCING AT A MINIMUM OF TWO WORKING DAYS PRIOR TO CONSTRUCTION START.
- ONE SET FULL SIZE SET OF "RECORD DRAWINGS" IN A .PDF FILE FORMAT, MIN. 400 DPI, FOR THE LOW PRESSURE SEWER IMPROVEMENTS SHALL BE SUBMITTED TO GREEN VALLEY WATER BEFORE THEIR FINAL ACCEPTANCE.
- ALL LOW PRESSURE SEWER LINES SHALL BE IDENTIFIED DURING BACKFILLING BY INSTALLING GREEN 12 GAUGE TRACER WIRE ON TOP OF PIPE. REFERENCE TRACE WIRE REQUIREMENT DETAIL, THIS SHEET.
- ALL LOW PRESSURE SEWER LINES SHALL HAVE MINIMUM COVER OF 3.0 FEET OVER THE TOP OF THE PIPE. REFERENCE TYPICAL LOW PRESSURE SEWER TRENCH DETAIL THIS SHEET.
- TRAFFIC CONTROL WILL BE ESTABLISHED FOR ALL CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY, IN CONFORMANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD), AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL LOW PRESSURE SEWER SERVICE CONNECTIONS SHALL BE PER DETAIL THIS SHEET.
- THRUST BLOCKING PER MAG STANDARD DETAIL 380 SHALL BE PLACED AT CHANGES IN DIRECTION OF THE LOW PRESSURE SEWER LINE. "MEG-A-LUGS" APPLIED IN ACCORDANCE WITH MAG STANDARD DETAILS 303-1 AND 303-2 MAY BE USED IN LIEU OF CONCRETE THRUST BLOCKING.
- ALL VALVES GREATER THAN OR EQUAL TO 3 INCH SHALL BE PRATT 'BALLCENTRIC' SERIES 601S STAINLESS STEEL, STAINLESS SEAT, BUNA-NITRILE, MECHANICAL JOINT END PLUG VALVES WITH BURIED SERVICE WORM GEAR ACTUATORS WITH 2" NUT. ALL VALVES LESS THAN 3 INCHES SHALL BE PRATT 'BALLCENTRIC' SERIES 603AS STAINLESS STEEL, STAINLESS SEAT, BUNA-NITRILE, THREADED NPT CONNECTIONS WITH BURIED SERVICE WORM GEAR ACTUATORS WITH 2" NUT.
- VALVE BOXES SHALL BE SLIDING, ADJUSTABLE, CAST IRON, MIN. 30,000 PSI EXTENSION TYPE ROADWAY BOXES WHEN NOT LOCATED IN PAVEMENT. VALVE BOXES LOCATED OUT OF PAVEMENT SHALL PROTRUDE 2" ABOVE FINISHED GRADE, PER DETAIL THIS SHEET. ALL VALVE BOXES TO BE LOCATED IN PAVEMENT SHALL BE MAG STD. DTL. 391-1, TYPE "C". ALL VALVE BOX COVERS SHALL BE CLEARLY MARKED "SEWER".
- ALL LOW PRESSURE SEWER LINES WILL BE FLUSHED BY CONTRACTOR PRIOR TO ACCEPTANCE, PER GREEN VALLEY WATER DIRECTION.
- IN-LINE FLUSHING CONNECTIONS SHALL BE INSTALLED TO ACHIEVE A MAX. 500' BETWEEN FLUSHING CONNECTIONS.
- THE ALLOWABLE BENDING RADIUS OF 4" PVC PIPE BASED ON SDR-21, 200 PSI PRESSURE RATED PIPE IN 20-FOOT LENGTHS IS 75 FEET:

PIPE DIAMETER (IN.)	MIN. RADIUS (FT.)*
4	100
6	144
8	189
10	231

* FOR SMALLER RADII, BENDS MUST BE USED



* LPS SHALL HAVE A MINIMUM COVER OF 36" AND A MAXIMUM COVER OF 42" EXCEPT IN THE VICINITY OF AIR RELEASE VALVES AND WATER MAIN CROSSINGS.

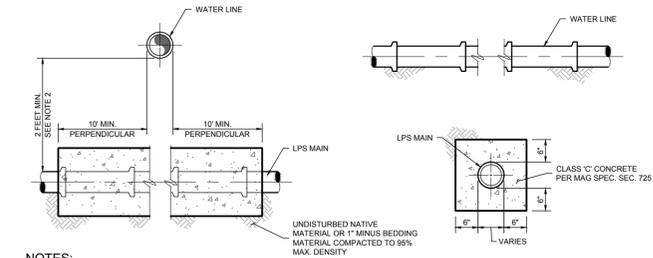
** INSTALLATION OF OTHER UTILITIES IN A COMMON TRENCH WITH AN LPS MAIN SHALL BE LIMITED TO GAS ONLY AND SHALL BE APPROVED BY THE DISTRICT MANAGER OF GREEN VALLEY WATER PRIOR TO INSTALLATION.

TYPICAL LOW PRESSURE SEWER TRENCH DETAIL

N.T.S.

GENERAL NOTES

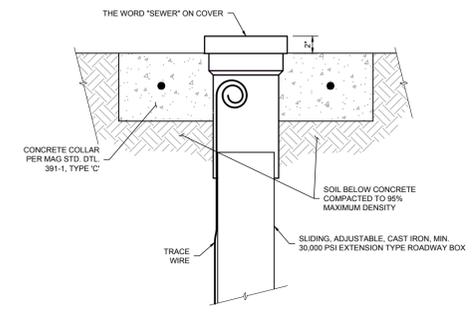
- REFER TO MAG SPEC SECTION 101 FOR ABBREVIATIONS AND DEFINITIONS.
- SEE BID DOCUMENTS AND SUPPLEMENTARY GENERAL CONDITIONS FOR REQUIREMENTS FOR BLASTING AND OTHER SPECIAL CONDITIONS.
- EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN PLACED ON THE PLANS FROM FIELD SURVEYS, EXISTING MAPS, AND OTHER CURRENT PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THE PROJECT.
- TWO WORKING DAYS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CONTACT 'ARIZONA 811' - TELEPHONE: 811 OR 1-800-782-5348.



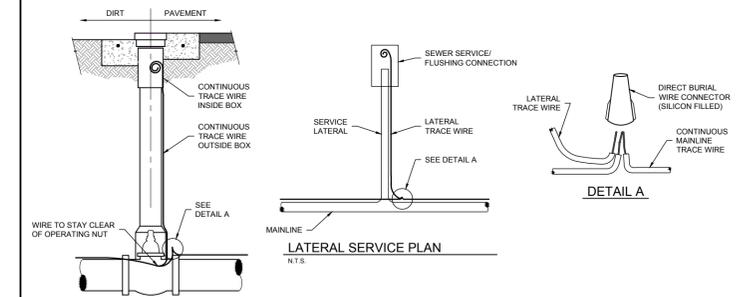
NOTES:

- THE ENCASEMENT SHALL EXTEND ALONG THE LPS LINE AT LEAST 10' ON EACH SIDE OF THE WATER LINE. PER AAC R18-5-502.C.3.
- EXTRA PROTECTION IS REQUIRED WHEN THE DISTANCE FROM THE BOTTOM OF THE WATER TO THE TOP OF THE LPS IS 6 FEET OR LESS. MECHANICAL JOINT OR RESTRAINED JOINT DUCTILE IRON PIPE MAY BE USED AS AN ALTERNATIVE. WHEN THE LPS MAIN IS A 1.5" HOUSE CONNECTION, NO PROTECTION IS REQUIRED IF THE DISTANCE IS MORE THAN 12".

DETAIL NO. 404 MOD.	STANDARD DETAIL ENGLISH	WATER AND LOW PRESSURE SEWER CROSSING - MODIFIED	REVISED	DETAIL NO. 404 MOD.
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VALVE BOX INSTALLATION DETAILS FOR NON-TRAFFIC AREA



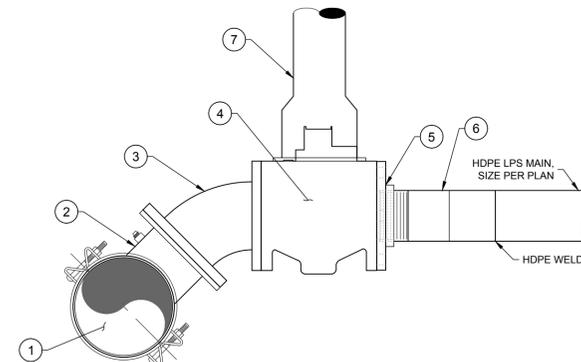
MAINLINE VALVES AND VALVE BOX DETAIL

N.T.S.

NOTES:

- TRACE WIRES SHALL BE 12 GAUGE, HAHNTHWN DUAL RATED ELECTRICAL WIRE, GREEN IN COLOR.
- SPLICES AND TRACE CONNECTION POINTS SHALL BE IN A LATERAL SERVICE BOX, A FLUSHING CONNECTION BOX, OR A VALVE BOX, AND SHALL HAVE AT LEAST 12 INCHES OF FREE COILED WIRE (PIGTAIL).
- SPLICES SHALL BE MADE WITH DIRECT BURIAL TYPE WIRE NUTS OF THE SILICON FILLED TYPE.
- ALL MAINLINE TRACE WIRES SHALL BE CONTINUOUS WITHOUT SPLICES, AND ALL LATERAL TRACE WIRES SHALL BE CONNECTED TO THE MAINLINE TRACE WIRE.
- TRACE CONNECTION POINTS SHALL NOT EXCEED 500-FOOT INTERVAL. VALVE BOX TRACE CONNECTION POINTS SHALL BE ADDED AS NEEDED TO MAINTAIN THIS INTERVAL.
- TRACE CONNECTION WIRE ENDS SHALL BE TAPED TO COVER EXPOSED BARE WIRE.
- AT TEMPORARY SEWER STUBS, AMPLE WIRE SHALL BE COILED AND PROTECTED IN A SURFACE JUNCTION BOX TO EXTEND TO THE ULTIMATE END OR TO A SPLICE POINT.
- TRACE WIRES SHALL BE TAPED TO TOP OF PIPES AT A 10-FOOT INTERVAL. CONTRACTOR SHALL OBTAIN GREEN VALLEY WATER INSPECTION PRIOR TO COVERING THE TRACE WIRE.
- CONTRACTOR SHALL REPAIR ALL FAILURES IN TRACE WIRE CONTINUITY BEFORE SEWER INSTALLATION WILL BE ACCEPTED BY THE GREEN VALLEY WATER.

TRACE WIRE REQUIREMENTS



- GRAVITY SEWER MAIN (SIZED PER PLAN).
- 'FORD' FTSC-xxx-x STYLE TAPPING SLEEVE FOR PVC GRAVITY SEWER MAINS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO GVW FOR OTHER GRAVITY SEWER MAIN MATERIALS.
- DIP ELBOW - 45°, EPOXY LINED, BITUMINOUS COATED - SIZED TO MATCH LPS MAIN.
- 3" OR GREATER PRATT 'BALLCENTRIC' SERIES 601S STAINLESS STEEL, STAINLESS SEAT, BUNA-NITRILE, MECHANICAL JOINT END PLUG VALVES WITH BURIED SERVICE WORM GEAR ACTUATORS WITH 2" NUT. (WRENCH OPERATED)
- LOW-PRESSURE 316 STAINLESS STEEL THREADED PIPE FLANGE, CAST
- IPS SDR11 BUTT FUSION X MALE 316 STAINLESS STEEL THREADED TRANSITION MPT
- VALVE BOX & COVER PER VALVE BOX INSTALLATION DETAILS THIS SHEET.

TYPICAL LOW PRESSURE SEWER CONNECTION TO GRAVITY MAIN

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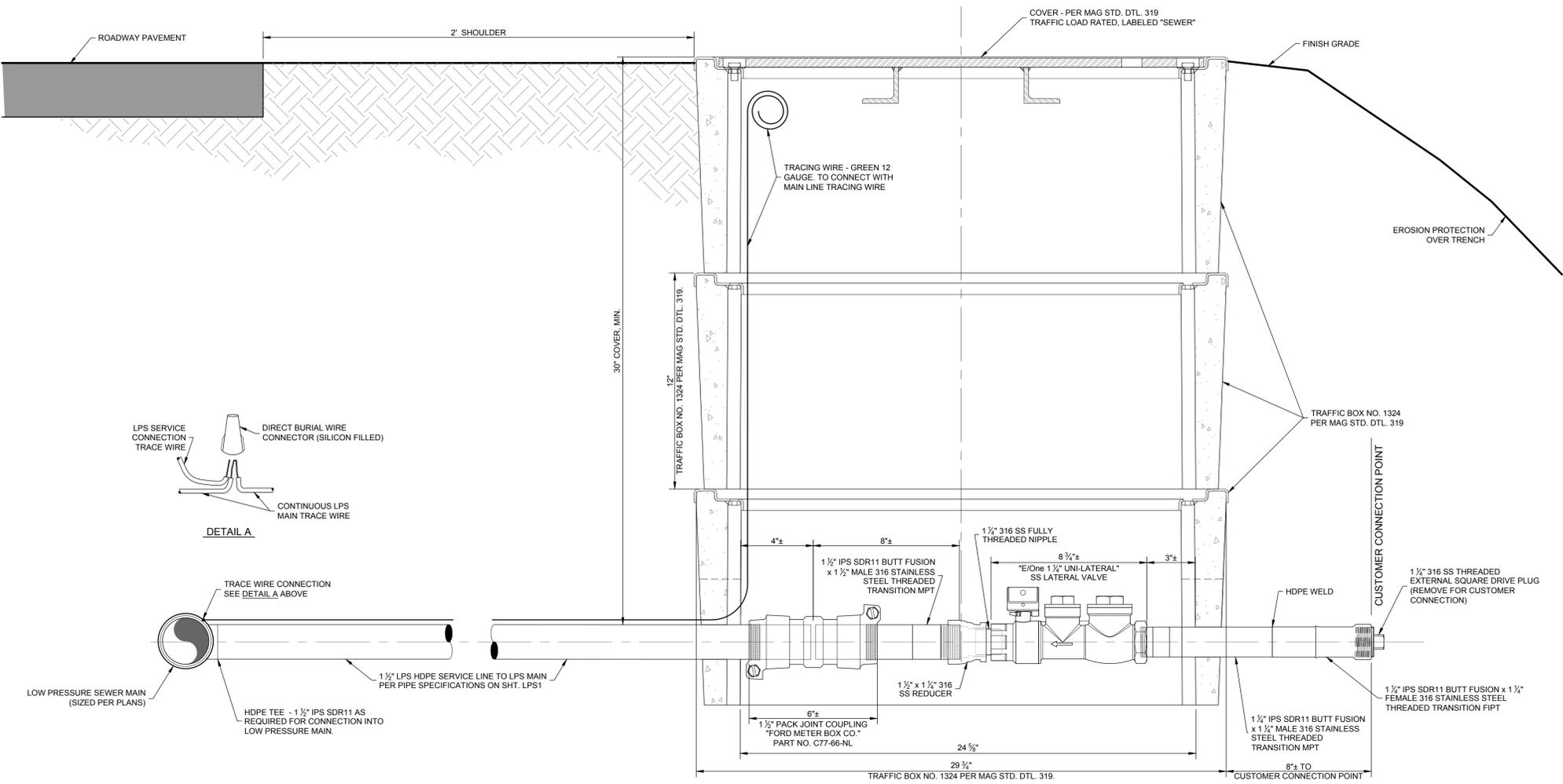


Low Pressure Sewer Standard Details and Specifications

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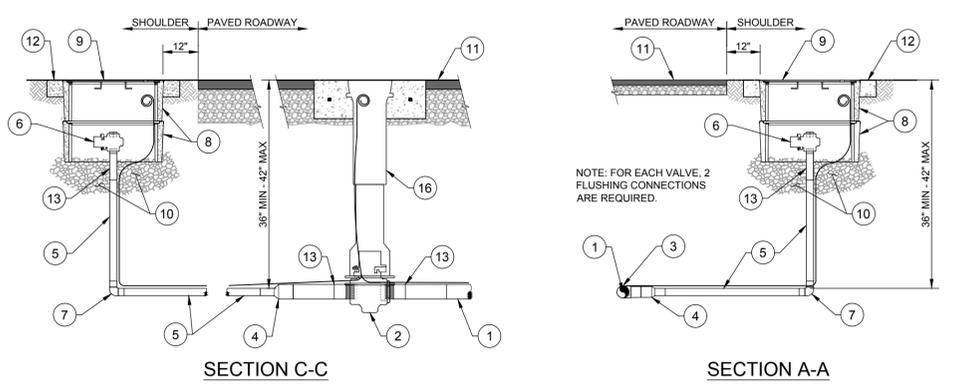
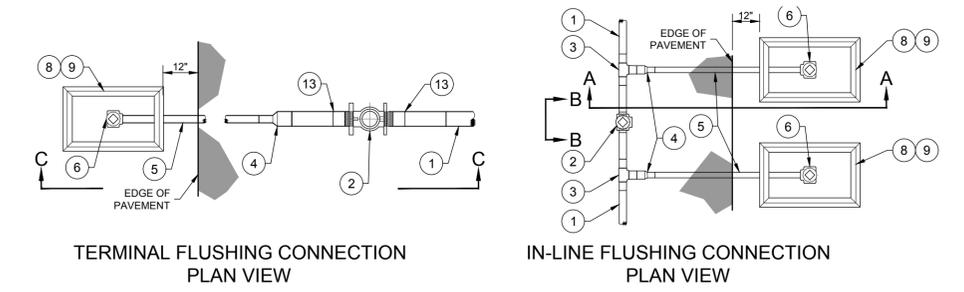


REVISED: FEBRUARY 25, 2025



TYPICAL LOW PRESSURE SERVICE CONNECTION

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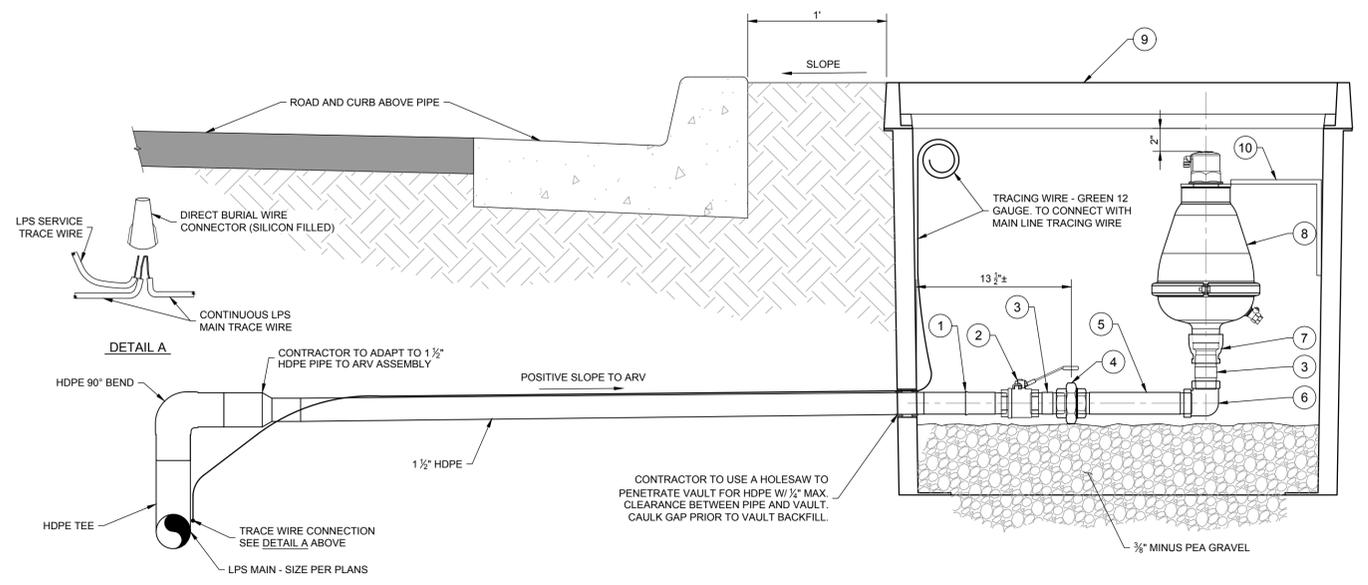


ELEVATION B-B - ≤ 2" LPS MAIN

ELEVATION B-B - > 2" LPS MAIN

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|---|---|
| <ol style="list-style-type: none"> 1. LOW PRESSURE SEWER (LPS) MAIN, SIZE PER PLAN 2. HENRY PRATT "BALLCENTRIC" PLUG VALVE-FULLY PORTED PER LPS SPECIFICATIONS, SIZE PER PLAN 3. HDPE TEE - SIZE OF LPS MAIN. 4. REDUCER - 2" x SIZE OF LPS MAIN. (IF NEEDED) 5. 2" DIA. HDPE PIPE 6. 2" HENRY PRATT "BALLCENTRIC" PLUG VALVE-FULLY PORTED PER LPS SPECIFICATIONS - WRENCH OPERATED. 7. 2" HDPE ELBOW - 90° 8. TRAFFIC BOX NO. 1324 - PER MAG STD. DTL. 319 | <ol style="list-style-type: none"> 9. COVER - PER MAG STD. DTL. 319, LABELED "SEWER" 10. PEA GRAVEL BEDDING-FOR BOX SUPPORT AND SURFACE WATER LEACHING. 11. FINISHED GRADE 12. 6" THICK x 6" WIDE CLASS "B" CONC. RING PER M.A.G. STD. SPEC. SECT. 725 REQUIRED IF INSTALLED IN AN AREA W/O CURB 13. IPS SDR11 BUTT FUSION X MALE 316 STAINLESS STEEL THREADED TRANSITION MPT 14. 3" IPS SDR11 BUTT FUSION X 3" MALE 304 STAINLESS STEEL THREADED TRANSITION MPT 15. LOW-PRESSURE 316 STAINLESS STEEL THREADED PIPE FLANGE, CAST 16. VALVE BOX-PER DTL ON LPS SHEET NO. 1, COVER LABELED "SEWER". |
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FLUSHING CONNECTIONS



TYPICAL AUTOMATIC SEWAGE AIR RELEASE VALVE - OFF-ROAD INSTALLATION

1. 1-1/2" IPS SDR11 Butt Fusion x 1-1/2" Male 316 Stainless Steel Threaded Transition MPT
2. Standard-Port 316 Stainless Steel Body On/Off Valve with Lockable Lever Handle, 1-1/2 NPT Female.
3. Standard-Wall 316/316L Stainless Steel Pipe Nipple, Threaded on Both Ends, 1-1/2 NPT, 3" Long
4. 316 Stainless Steel Threaded Pipe Fitting, Low-Pressure, Union Connector, 1-1/2 NPT Female
5. Standard-Wall 316/316L Stainless Steel Pipe Nipple, Threaded on Both Ends, 1-1/2 NPT, 10" Long
6. 316 Stainless Steel Threaded Pipe Fitting, Low-Pressure, 90 Degree Elbow Connector, 1-1/2 NPT Female
7. 316 Stainless Steel Threaded Pipe Fitting, Low-Pressure, Straight Reducer, 2 x 1-1/2 NPT Female
8. S-025 Automatic Air Release Valve for Wastewater - Short Version as manufactured by A.R.I. Flow Control Accessories
9. 36" x 36" x 36" FRP Vault Assembly, 20K Load Rating, with 2-Piece Cover, Model A6001441 as manufactured by Armormat Products Company, or Approved Equal.
10. Support Bracket supplied by Green Valley Water and installed by Contractor with stainless steel hardware.



**Low Pressure Sewer
Standard Details and
Specifications
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