

WOODLAND SEWER STANDARDS SHEET INDEX

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SEWER STANDARDS – SHEET INDEX

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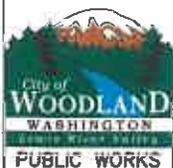
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CONSTRUCTION SPECIFICATIONS FOR SANITARY SEWER

ALL MATERIALS AND INSTALLATION OF SANITARY SEWERS SHALL BE IN CONFORMANCE WITH THE MOST CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, HEREINAFTER REFERRED TO AS THE "STANDARD SPECIFICATIONS", PREPARED BY THE WASHINGTON STATE CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA) AND THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, EXCEPT AS NOTED HEREIN OR ON THE STANDARD PLANS. WHEREVER THE STANDARD SPECIFICATIONS REFER TO THE OWNER AS EITHER THE "STATE" OR "SECRETARY" OR WHEN REFERENCE IS MADE TO THE DEPARTMENT OF TRANSPORTATION IT SHALL BE UNDERSTOOD THAT THE STANDARD SPECIFICATIONS SHOULD READ THE "CITY".

ALL SANITARY SEWER CONSTRUCTION IS SUBJECT TO INSPECTION AND APPROVAL BY THE CITY OF WOODLAND PUBLIC WORKS DEPARTMENT. THE CONTRACTOR SHALL NOTIFY THE CITY AT (360) 225-7999 AT LEAST 48-HOURS PRIOR TO THE START OF CONSTRUCTION. A PRE-CONSTRUCTION CONFERENCE MAY BE REQUIRED.

THE CONTRACTOR IS REQUIRED TO NOTIFY ALL UTILITIES 48 HOURS PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR MUST CONTACT THE UNDERGROUND UTILITY NOTIFICATION CENTER "CALL BEFORE YOU DIG" AT (800) 424-5555 OR "811".

FINAL ACCEPTANCE OF SANITARY SEWERS ARE SUBJECT TO SECTIONS 1-05.11, 1-05.12, 7-17.3(2)E, 7-17.3(2)F, 7-17.3(2)G AND 7-17.3(2)H OF THE APWA STANDARD SPECIFICATIONS. TELEVISION INSPECTION SHALL INCLUDE VIDEO OF ALL MANHOLES IN ADDITION TO THE PIPE. THE CONTRACTOR SHALL WARRANTY ALL WORK DONE UNDER CITY CONTRACT FOR A PERIOD OF TWO (2) YEARS AS PER OF THE CITY OF WOODLAND GENERAL PROVISIONS FOR MUNICIPAL CONSTRUCTION.

LOCAL VARIATIONS IN SLOPE (I.E. "BELLIES") MUST BE NO MORE THAN 1/2" MAXIMUM. VARIATIONS IN EXCESS OF THESE TOLERANCES MUST BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE CITY.

ALL PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING:

- A. POLYVINYL CHLORIDE (PVC) SEWER PIPE 15" DIAMETER OR LESS SHALL CONFORM TO ASTM D3034, SDR 35. IT SHALL HAVE A MINIMUM PIPE STIFFNESS OF 46 PSI. PVC PIPE 18" DIAMETER SHALL CONFORM TO ASTM F 679. ALL PVC PIPE SHALL HAVE AN INTEGRAL BELL GASKETED JOINT WITH ELASTOMERIC GASKET AND SHALL BE FURNISHED IN 12-1/2 FOOT LAYING LENGTHS.
- B. DUCTILE IRON (DI) PIPE SHALL CONFORM TO ANSI A21.51 OR AWWA C151, WITH PUSH-ON JOINTS, CLASS 52, UNLESS OTHERWISE NOTED.

INSTALLATION OF PIPE AND MANHOLES SHALL CONFORM TO THE FOLLOWING:

- A. PIPE SHALL BE INSTALLED IN CONFORMANCE WITH PIPE DETAIL S-02 AND TRENCHING DETAIL S-03.
- B. MANHOLES SHALL CONFORM WITH STANDARD DETAILS S-07 THROUGH S-14.

MANHOLES, CLEANOUTS, SERVICE LATERAL CONNECTIONS, TRENCH EXCAVATION, PIPE BEDDING AND STREET RESTORATION, AND APPURTENANCES SHALL CONFORM TO THE DETAILS SHOWN ON THE STANDARD PLANS. ALL OTHER CONSTRUCTION SHALL CONFORM TO THE STANDARD DETAILS CONTAINED IN THE STANDARD PLANS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION.

THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF ALL PERMITS ISSUED OR EASEMENTS GRANTED TO THE CITY IN CONJUNCTION WITH THE CONSTRUCTION OF SANITARY SEWERS. THE CONTRACTOR SHALL OBTAIN A RIGHT-OF-WAY PERMIT FOR WORK WITHIN THE PUBLIC RIGHT-OF-WAY.

THE CONTRACTOR SHALL SUBMIT AN APPROVED TRAFFIC CONTROL PLAN. APPROVAL SHALL BE OBTAINED PRIOR TO BEGINNING CONSTRUCTION.

GENERAL NOTES FOR SANITARY SEWER

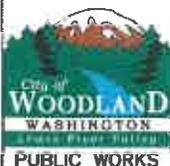
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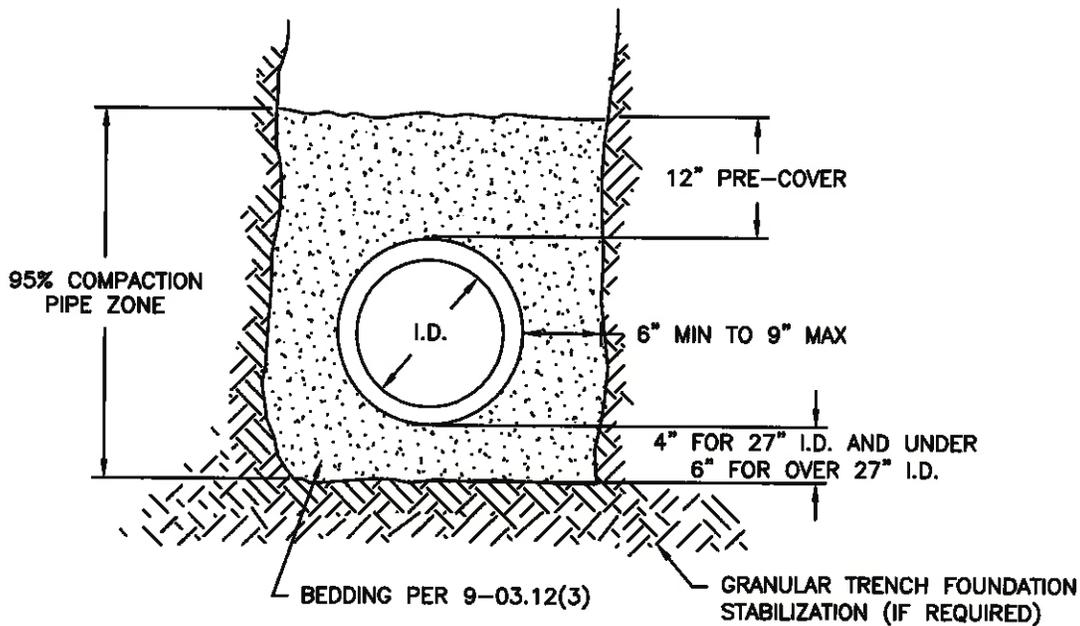
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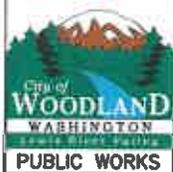


NOTES:

1. WHERE DIRECTED BY THE ENGINEER GRANULAR TRENCH FOUNDATION STABILIZATION SHALL BE PLACED PRIOR TO PLACEMENT OF THE BEDDING. SIZE AND DEPTH ARE DEPENDENT ON SOIL CONDITIONS.
2. BEDDING AND BACKFILL MATERIALS IN THE PIPE ZONE SHALL BE COMPACTED AS SPECIFIED PRIOR TO BACKFILLING THE REMAINDER OF THE TRENCH.
3. FOR ROCK AND OTHER INCOMPRESSIBLE MATERIALS, THE TRENCH SHALL BE OVER-EXCAVATED A MINIMUM OF 6" AND REFILLED WITH GRANULAR MATERIALS AS DIRECTED BY THE ENGINEER.
4. BACKFILL AND COMPACTION ABOVE THE PIPE ZONE SHALL BE AS SHOWN IN TRENCHING DETAIL S-03.
5. PVC PIPE INSTALLATION SHALL CONFORM TO UNIBELL PLASTIC PIPE ASSOCIATION STANDARD SPEC. UNI-B-5 (LATEST EDITION) EXCEPT AS NOTED.
6. FINAL INSTALLATION TO BE TESTED PER SECTION 7-17.3(2)G OF THE STANDARD SPECIFICATIONS.
7. ALTERNATIVE PRE-COVER MATERIALS ARE ALLOWABLE FROM PIPE CENTERLINE TO ONE FOOT ABOVE THE TOP OF PIPE, ALTERNATE PRE-COVER MATERIALS MUST BE PRE-APPROVED BY THE INSPECTOR AND MAY BE SAND, CRUSHER SCREENINGS, GRAVEL, OR OTHER CLEAN GRANULAR MATERIAL CONTAINING NO ROCK LARGER THAN 1-1/4" IN LENGTH.

APPROVAL FOR ALTERNATE MATERIALS WILL BE GRANTED UPON CONFIRMATION BY TEST OF ITS COMPLIANCE WITH THESE REQUIREMENTS. SUBMIT 50 LB SAMPLE FOR TESTING TO THE CITY INSPECTOR AND OBTAIN MATERIAL PRIOR TO STARTING PIPE INSTALLATION WORK. THE TEST REQUIRES A MINIMUM OF FIVE BUSINESS DAYS TO COMPLETE.

8. TRENCH WIDTH SHALL NOT EXCEED ONE AND ONE-HALF THE INSIDE DIAMETER OF THE PIPE PLUS 18" AT THE TOP OF THE PIPE ZONE. ANY SUBSIDENCE OF SURROUNDING PAVEMENT DUE TO TRENCHING SHALL BE EXCAVATED BEYOND ORIGINAL PAVEMENT OR TRENCH LIMITS AND REPAIRED TO SATISFACTION OF THE CITY OF WOODLAND.
9. NATIVE MATERIAL MAY BE USED, OUTSIDE OF THE ROAD PRISM FOR DUCTILE IRON IN LIEU OF IMPORTED MATERIAL FOR BEDDING SPECIFIED, PROVIDED THAT THE NATIVE MATERIAL CONFORMS TO SECTION 9-03.15 OF THE STANDARD SPECIFICATIONS, AND AS APPROVED BY THE CITY OF WOODLAND. THE CONTRACTOR SHALL SUBMIT A SAMPLE OF THE NATIVE MATERIAL TO THE CITY OF WOODLAND AT LEAST 72-HOURS PRIOR TO USE. THE CITY MAY APPROVE, REJECT, OR REQUIRE LABORATORY TESTING OF THE MATERIAL.

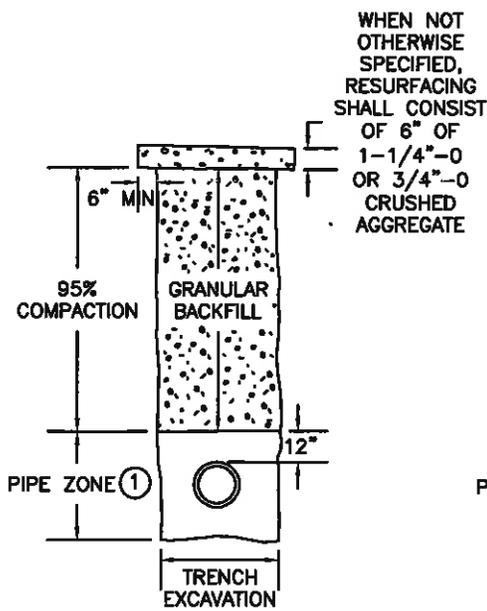


PIPE BEDDING

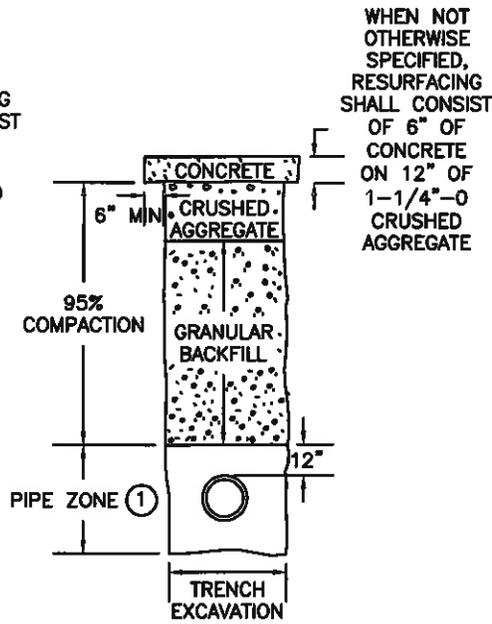
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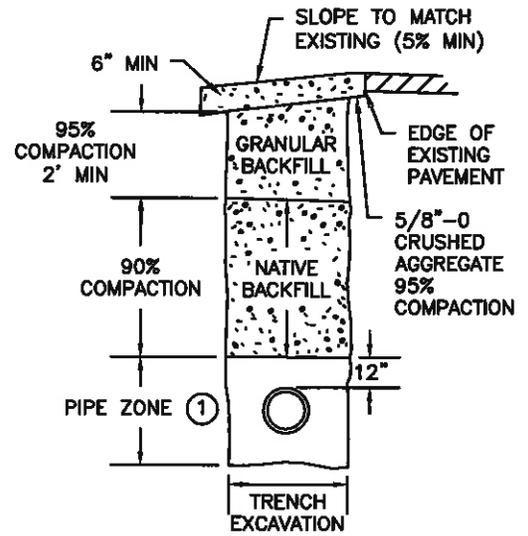
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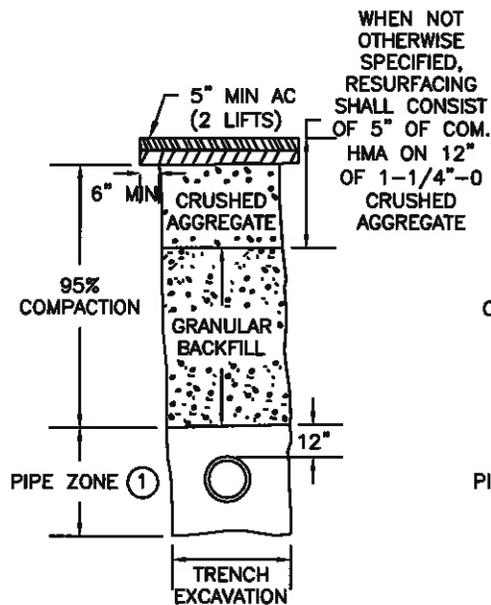
TRAVELED UNIMPROVED STREET



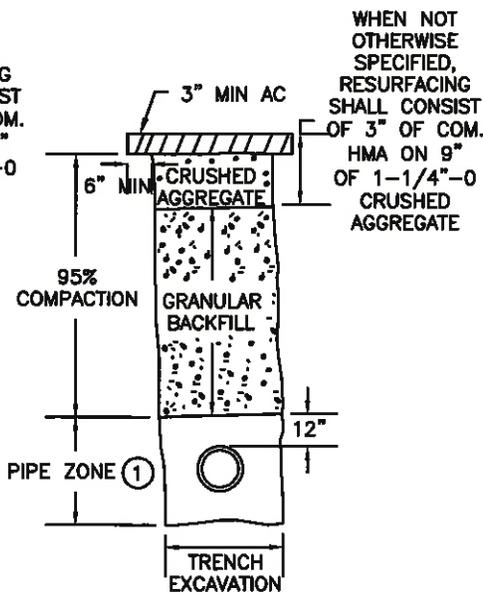
HARD SURFACE (CONCRETE)



ROADWAY SHOULDER



MAIN OR SECONDARY ARTERIAL OIL, GRAVEL, OR ASPHALT CONCRETE SURFACE



COLLECTOR OR LOCAL STREET OIL, GRAVEL, OR ASPHALT CONCRETE SURFACE

TRENCH SECTION

NOTES:

1. FOR PIPE ZONE BEDDING, BACKFILL AND COMPACTION REQUIREMENTS, SEE PIPE BEDDING DETAIL S-02.
2. COMPACTION PERCENTAGES REFER TO RELATIVE DRY DENSITY AS DETERMINED BY STANDARD PROCTOR (ASTM D 698)
3. CONTRACTOR MAY USE UP TO 2-1/2" OF 5/8"-0 OR 3/4"-0 CRUSHED AGGREGATE IN LIEU OF 1-1/4"-0 BASE ROCK UNDER SURFACING FOR LEVELING COURSE.
4. ALL EXISTING PAVED SURFACES SHALL BE SAW CUT A MINIMUM OF 6" OUTSIDE OF EDGE OF TRENCH TO PROVIDE A NEAT STRAIGHT EDGE.
5. THE EDGES OF ALL EXISTING ASPHALT SURFACES SHALL BE CLEANED AND A TACK COAT SHALL BE APPLIED PER STD. SECTION 5-04.3(5). ALL JOINTS SHALL BE SEALED WITH TACK AND SANDED.
6. ALL BACKFILL SHALL BE MECHANICALLY COMPACTED IN LIFTS WHICH DO NOT EXCEED RATED CAPABILITY OF EQUIPMENT USED, BUT IN NO CASE EXCEED 12" LOOSE.
7. GRANULAR BACKFILL SHALL MEET REQUIREMENTS OF SECTION 9-03.10 UNLESS OTHERWISE SPECIFIED.

TRENCH: RESTORE, BACKFILL, BEDDING, SURFACING

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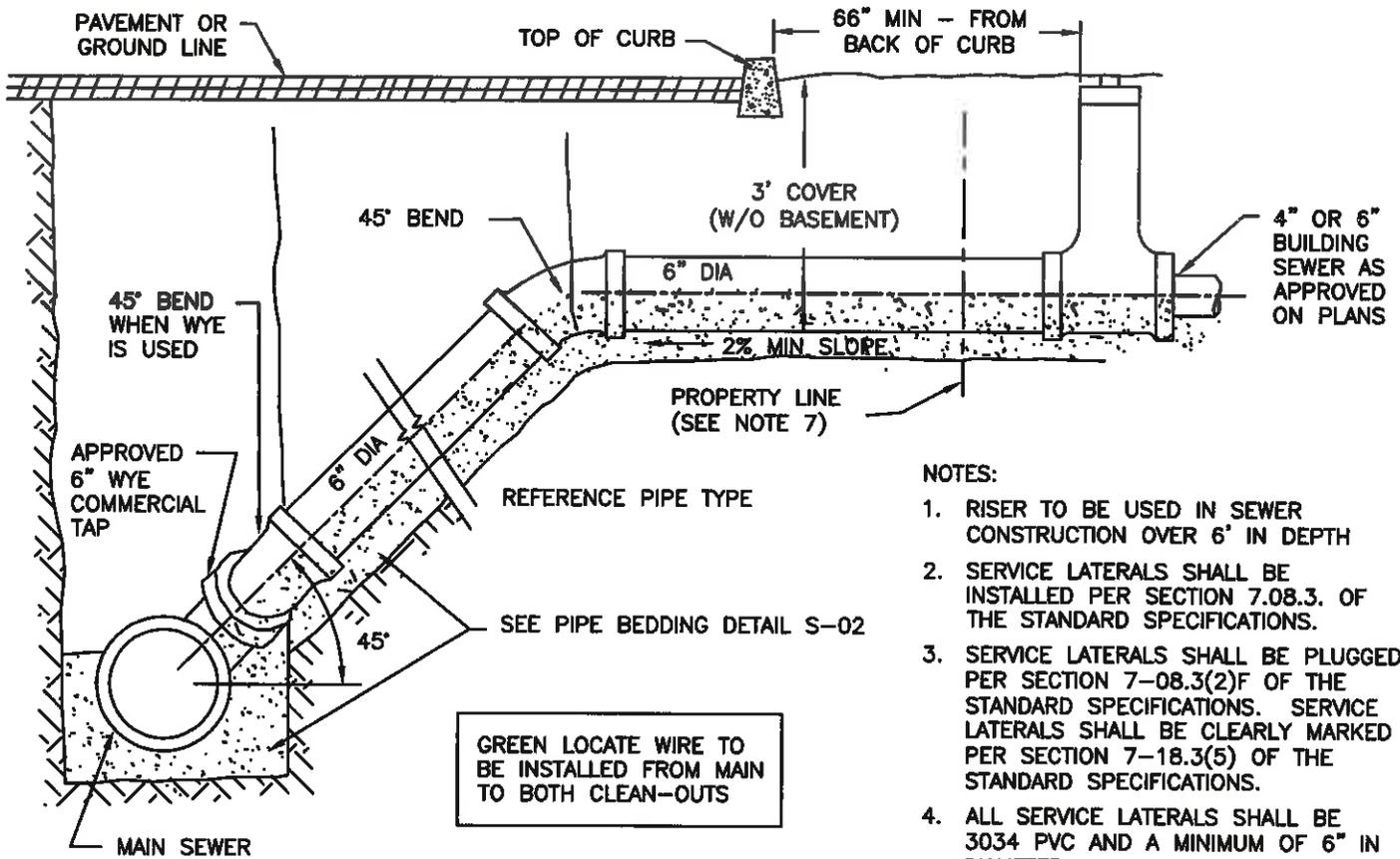
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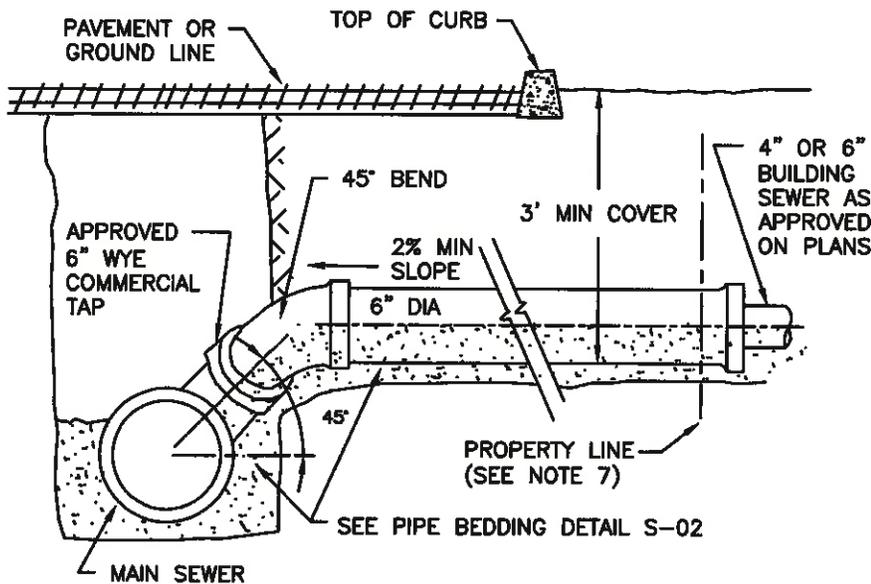


Scott Stepp 3/14/14
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S-03



DEEP (>6') LATERAL



TYPICAL LATERAL

NOTES:

1. RISER TO BE USED IN SEWER CONSTRUCTION OVER 6' IN DEPTH
2. SERVICE LATERALS SHALL BE INSTALLED PER SECTION 7.08.3. OF THE STANDARD SPECIFICATIONS.
3. SERVICE LATERALS SHALL BE PLUGGED PER SECTION 7-08.3(2)F OF THE STANDARD SPECIFICATIONS. SERVICE LATERALS SHALL BE CLEARLY MARKED PER SECTION 7-18.3(5) OF THE STANDARD SPECIFICATIONS.
4. ALL SERVICE LATERALS SHALL BE 3034 PVC AND A MINIMUM OF 6" IN DIAMETER.
5. APPROVED COMMERCIAL TAPS:
 - SEALTIGHT TYPE "C" OR "D" SEWER SADDLE
 - FOWLER QUIK-WAY SEWER TAP
 - FOWLER "T & L" SEWER TEE
 - FOWLER "INSERTA TEE"
 - "TAP TITE" SEWER TEE
6. TRANSITIONS BETWEEN DISSIMILAR PIPE MATERIALS OR SIZES SHALL BE MADE WITH APPROVED ADAPTORS (FERNCO, CAULDER, OR APPROVED EQUAL).
7. IN NEW SUBDIVISIONS AND OTHER CONSTRUCTION INVOLVING NEW ROADS, INSTALL LATERALS TO 6' BEHIND PROPERTY LINE FOR SEWERS IN STREET RIGHT-OF-WAY. INSTALL TWO WAY CLEANOUT BEHIND SIDEWALK.
8. FOLLOWING TAPPING OF MAINS FOR LATERALS, CONTRACTOR SHALL TV THE MAIN TO VERIFY THAT THE TAP WAS PROPERLY MADE AND IS NOT PROTRUDING INTO THE PIPE. A VIDEO TAPE OR DVD/CD OF THE TAP SHALL BE SUBMITTED TO THE CITY FOR APPROVAL OF THE TAP.

SERVICE LATERAL CONNECTIONS

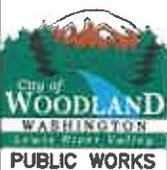
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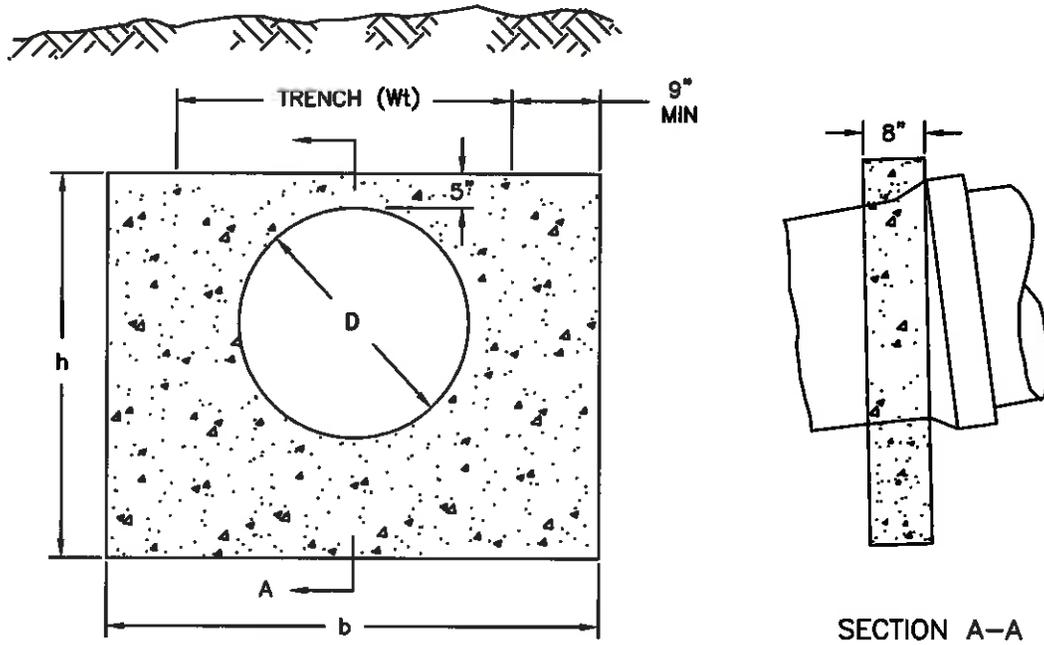
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NOTES:

1. ALL CONCRETE TO BE 3000 PSI, 2" TO 4" SLUMP.
2. WALLS WILL BE PLACED WHERE GRADE IS 20% OR OVER OR AS DIRECTED BY THE CITY.
3. ANCHOR WALLS TO BE EQUALLY SPACED WITH MAXIMUM DISTANCE BETWEEN WALLS TO BE AS SHOWN IN TABLE "A".
4. PLACE WALL IMMEDIATELY BELOW BELL OF PIPE WHERE POSSIBLE.
5. CONCRETE SHALL BE POURED AGAINST FORMS OR STABLE UNDISTURBED SOIL.

TABLE A	
SLOPE %	MAXIMUM ALLOWABLE SPACING (MEASURED ON SLOPE)
OVER 20 TO 35	36'
OVER 35 TO 50	24'
OVER 50 TO 100	16'

TABLE B				
PIPE SIZE (D)	TRENCH WIDTH MAX (Wt)	h	b	VOLUME OF CONCRETE (APPROX)
6" - 8" - 10"	2.5'	3'	4'	.29 CY
12" - 15"	2.5'	4'	4'	.37 CY
18" - 21" - 24"	3.5'	4'	5'	.42 CY
30" - 36"	4.5'	5'	6'	.62 CY



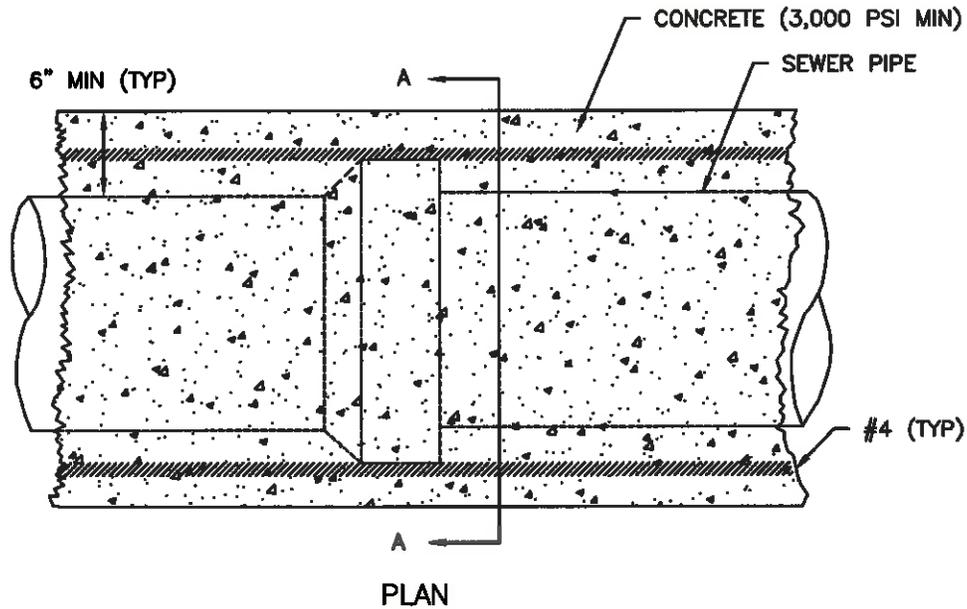
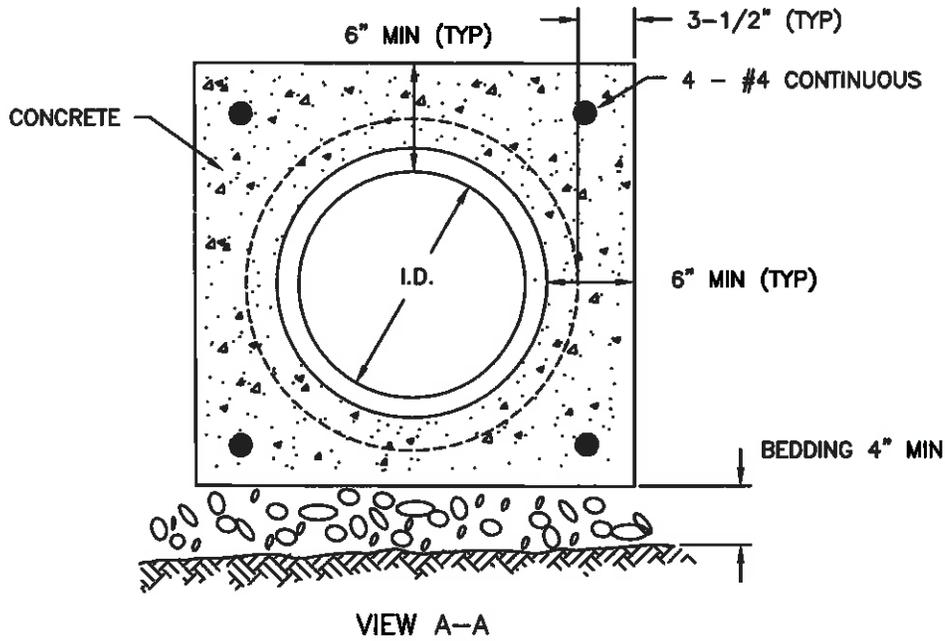
ANCHOR WALLS

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NOTES:

PIPE SECTIONS MAY BE ENCASED IN CONCRETE WHEN:

1. SEPARATION BETWEEN WATER AND SEWER LINE AT CROSSING IS LESS THAN 18".
2. PIPE WILL BE LAID IN AN AREA WITH POTENTIAL FOR SETTLING SUCH AS IN A RAIL CORRIDOR, CRITICAL AREAS SUCH AS WETLANDS, A ROADWAY OR BELOW A STREAM, OR OTHER AREAS AS REQUIRED BY THE CITY.

CONCRETE ENCASED SEWER PIPE

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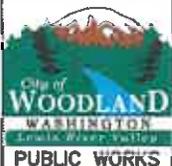
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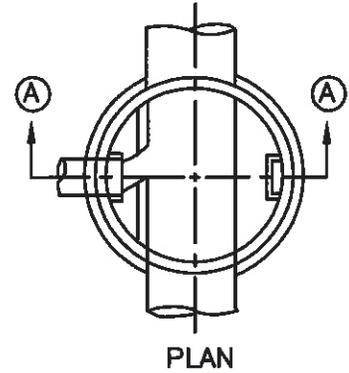
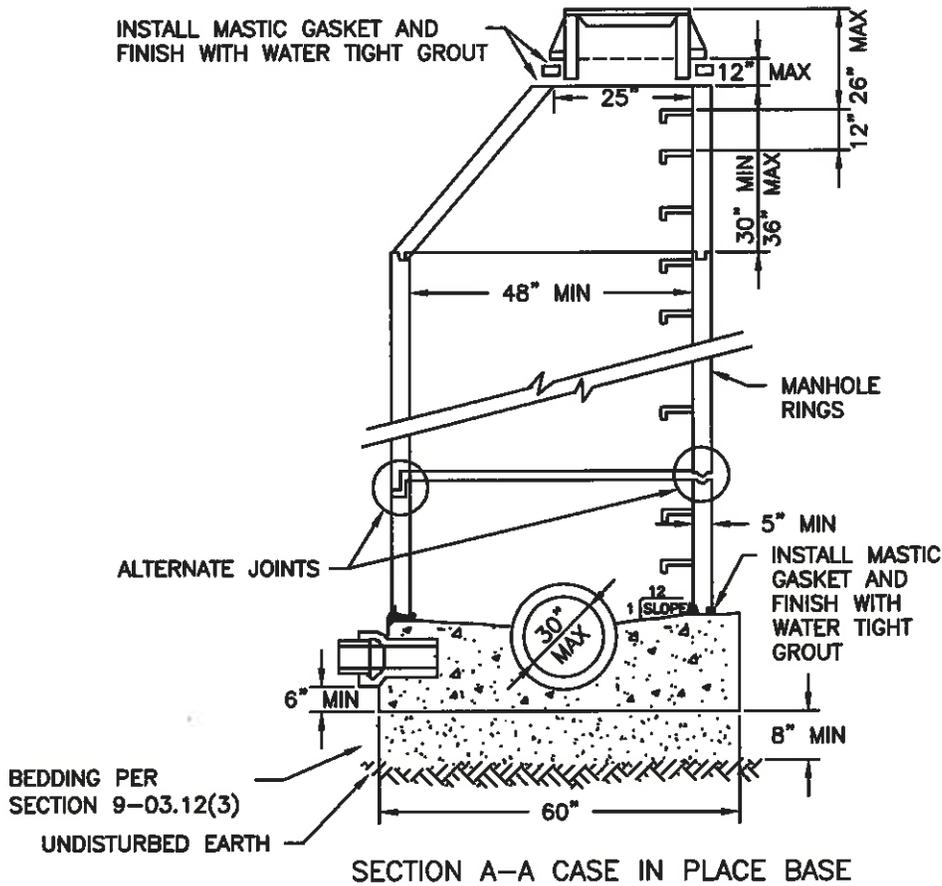
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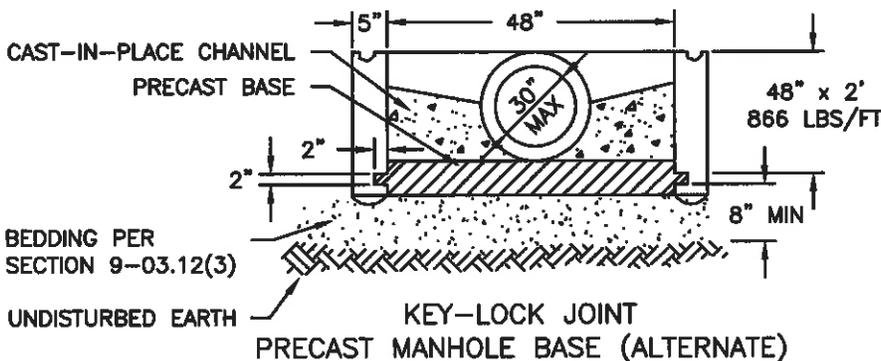
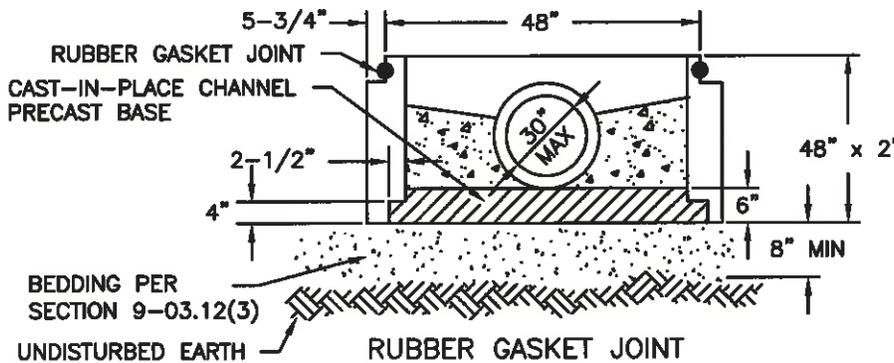


INSTALL MASTIC GASKET AND FINISH WITH WATER TIGHT GROUT



NOTES:

1. ALL PRECAST MANHOLES RINGS AND CONES SHALL CONFORM TO ASTM C-478 WITH CAST IN STEPS, SEE MANHOLE STEP DETAIL S-09.
2. IN OVER EXCAVATED AREAS, PROVIDE SUPPORT FOR THE PIPE AS FOLLOWS: PLACE 3/4" MINUS CRUSHED ROCK OVER UNDISTURBED GROUND IN 6" LAYERS AND COMPACT USING HAND TAMPER.
3. BASE CONCRETE SHALL BE 3,000 PSI, 2-4" SLUMP. FLOW LINES AND INSIDE SURFACES SHALL BE TROWELED SMOOTH & UNIFORM AT TIME OF POUR. MANHOLE BASE MAY BE MONOLITHICALLY CAST TO 8" ABOVE BARREL OF MAIN SEWER. CHANNELS SHALL CONFORM ACCURATELY TO SEWER GRADE. INSTALL BENCHES TO ELEVATION OF SPRINGLINE OF PIPE.
4. CAST-IN-PLACE, MONOLITHIC MANHOLE MAY BE SUBSTITUTED WITH SPECIFIC APPROVAL OF THE ENGINEER. SEE MANHOLE CONNECTION DETAIL S-10.
5. JOINTS SHALL BE CONSTRUCTED SO AS TO BE WATERTIGHT. SEE TOP SLAB FOR PRECAST MANHOLE DETAIL S-11 AND MANHOLE JOINTS DETAIL S-14.
6. SEAL ALL MANHOLE JOINTS AND FRAME WITH INFI-SHIELD "SEAL WRAP" EXTERIOR SEAL SYSTEM OR APPROVED EQUIVALENT.
7. MANHOLES UNDER 6' IN DEPTH FROM RIM TO SHELF SHALL HAVE A TOP SLAB IN LIEU OF CONE. SEE TOP SLAB FOR PRECAST MANHOLE DETAIL S-11.
8. VACUUM TESTING OF MANHOLES WILL BE REQUIRED.
9. LOCKING COVERS ARE REQUIRED IN EASEMENTS OR AT THE DISCRETION OF THE PUBLIC WORKS DIRECTOR.



PRECAST MANHOLE

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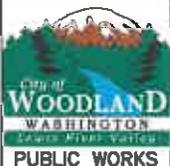
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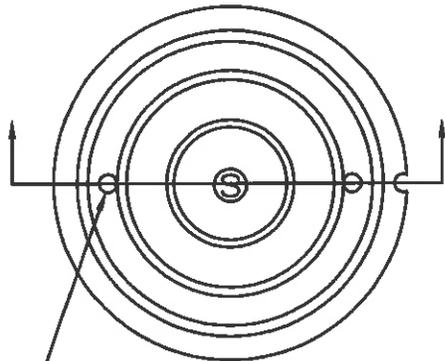
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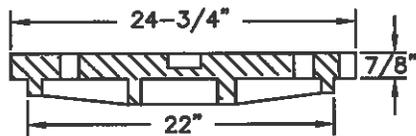
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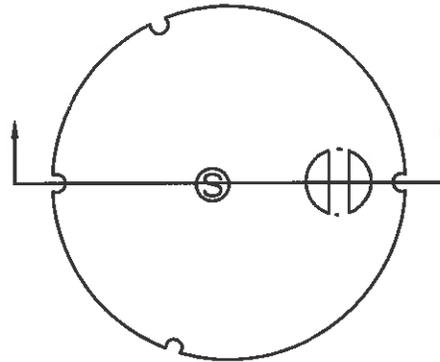
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2-HOLE COVER, SANITARY SEWER
(16 HOLE STORM SEWER ONLY)



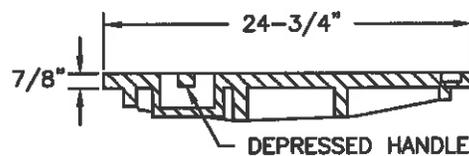
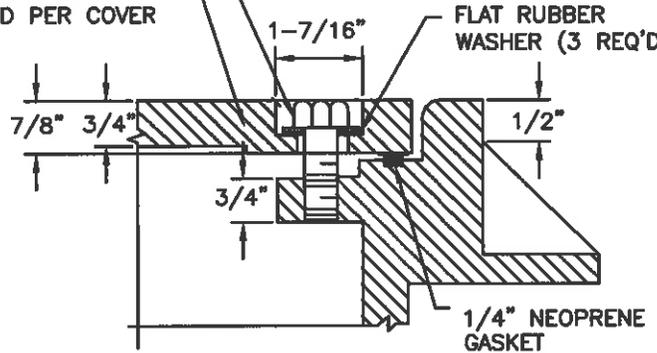
STANDARD



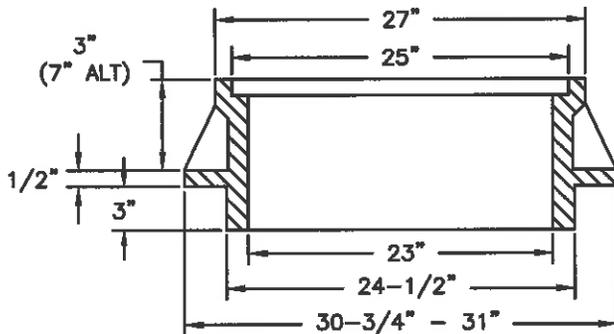
1-1/4" OD S
STEEL WASHER
3/32" THICK, 3
REQ'D PER COVER

1/2" - 13 NC X 1-1/8"
HEX HD S STEEL CAP
SCREW, 3 REQ'D PER
COVER 120° APART

FLAT RUBBER
WASHER (3 REQ'D)



LOCKING WATERTIGHT



STANDARD & LOCKING FRAME

NOTES:

- COVER & FRAME TO BE MACHINED TO A TRUE BEARING ALL ROUND.
- MATERIAL SHALL BE OF GRAY CAST IRON, ASTM A-48, CLASS 30.

MANHOLE FRAMES AND COVERS

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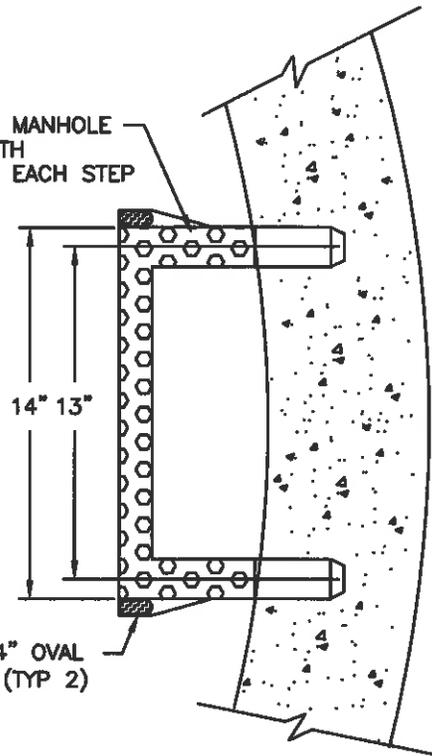


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POLYPROPYLENE MANHOLE
SAFETY STEP WITH
REFLECTORS ON EACH STEP

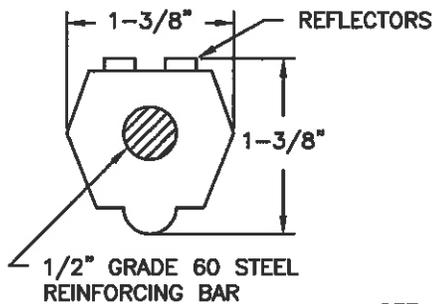
NOTES:

1. ALL STEPS MUST MEET ASTM C-478 AND AASHTO M-199 SPECS, POLYPROPYLENE ASTM D-4104, THE 1/2" GRADE 60 DEFORMED REINFORCING BAR ASTM A-615.
2. INSTALLATION METHOD MUST RESIST 1,500 LB HORIZONTAL PULL FORCE AND 500 LB VERTICAL LOAD.
3. LOCATE STEPS OVER BENCH WHENEVER POSSIBLE (NOT OVER THE MAIN).

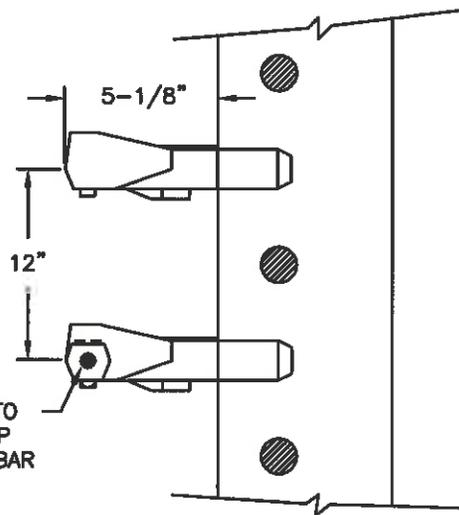


3/4" X 1/4" OVAL
REFLECTOR (TYP 2)

PLAN



1/2" GRADE 60 STEEL
REINFORCING BAR



SEE DETAIL TO
LEFT FOR STEP
REINFORCING BAR

ELEVATION

MANHOLE STEPS

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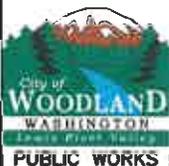
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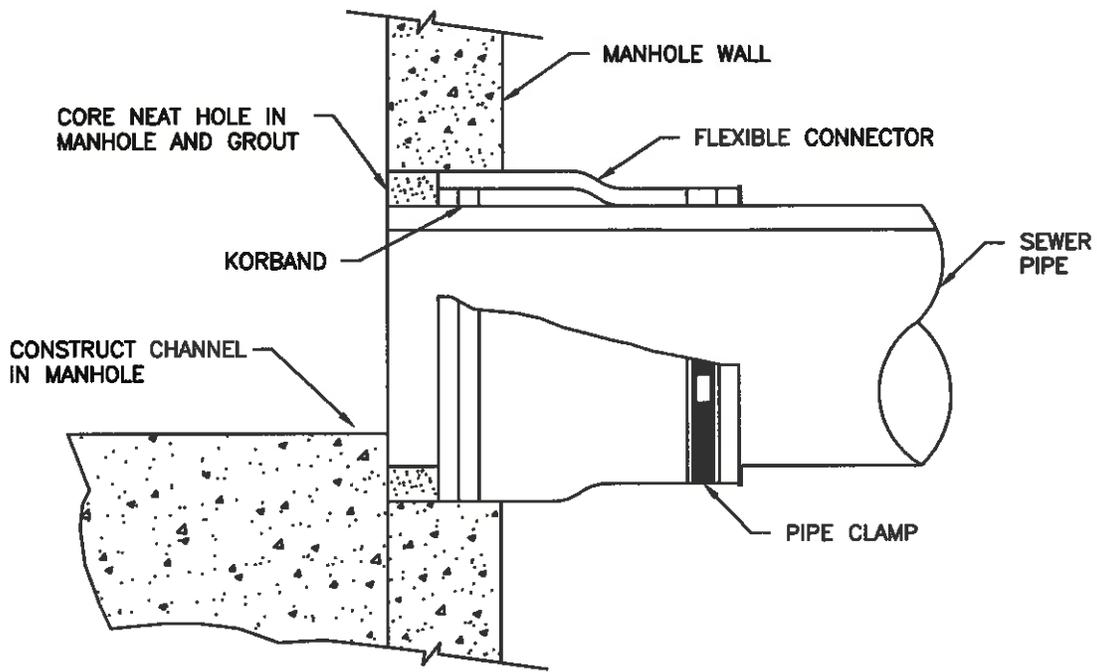
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NOTES:

1. CONNECTIONS TO MANHOLE SHALL BE MADE WITH AN APPROVED EXPANSION TYPE RUBBER BOOT; KOR-N-SEAL OR SEALTITE, (NO FLEX JOINT REQUIRED), FOR ALL PIPES UP TO 18". LARGER PIPES WILL BE HANDLED ON A CASE-BY-CASE BASIS.
2. CORE NEAT HOLE IN MANHOLE AND INSTALL BOOT AS REQUIRED PER MANUFACTURER'S SPECIFICATIONS.
3. STUB-OUTS INSTALLED FOR FUTURE EXTENSIONS ARE TO BE PLUGGED AT BOTH ENDS.

MANHOLE CONNECTION

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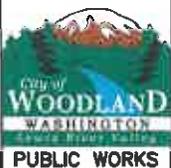
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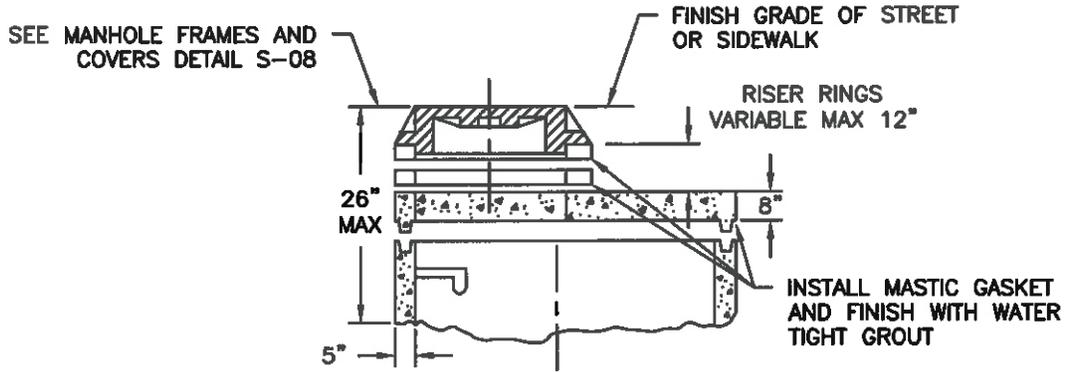
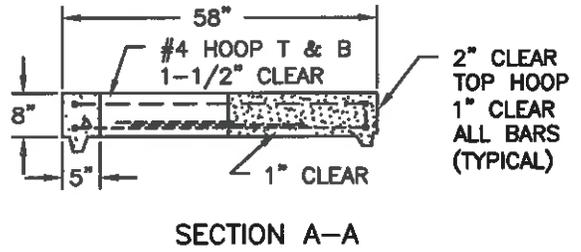
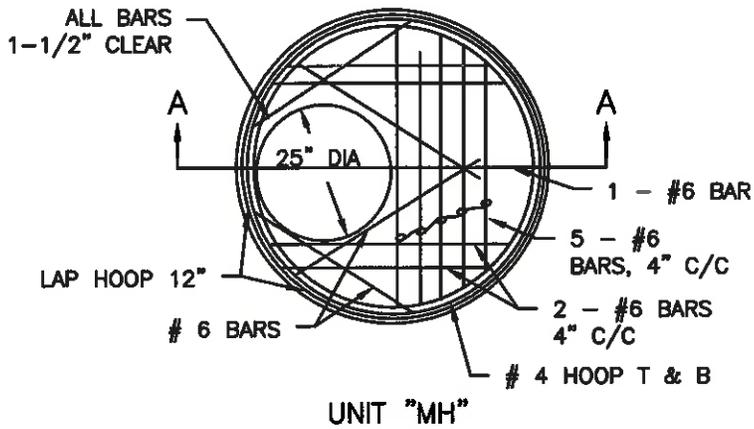
DATE

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S-10





FLAT SLAB ALTERNATE

NOTES:

1. CONSTRUCTION SHALL CONFORM TO PRECAST MANHOLE DETAIL S-07 IF NOT OTHERWISE SHOWN.
2. ALL PRECAST SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478. ALL POURED IN PLACE CONCRETE SHALL HAVE A 28-DAY STRENGTH OF 3000 PSI AND 2" TO 4" SLUMP.
3. ALL REINFORCING SHALL BE GRADE 40 STEEL.
4. MANHOLES UNDER 6' IN DEPTH FROM RIM TO SHELF SHALL HAVE UNIT "MH" TOP SLAB IN LIEU OF CONE AS SHOWN ON PRECAST MANHOLE DETAIL S-07.
5. REFER TO PRECAST MANHOLE DETAIL S-07 AND MANHOLE JOINTS DETAIL S-14.

TOP SLAB FOR PRECAST MANHOLE

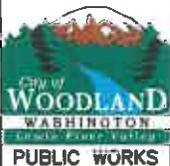
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REVISIONS

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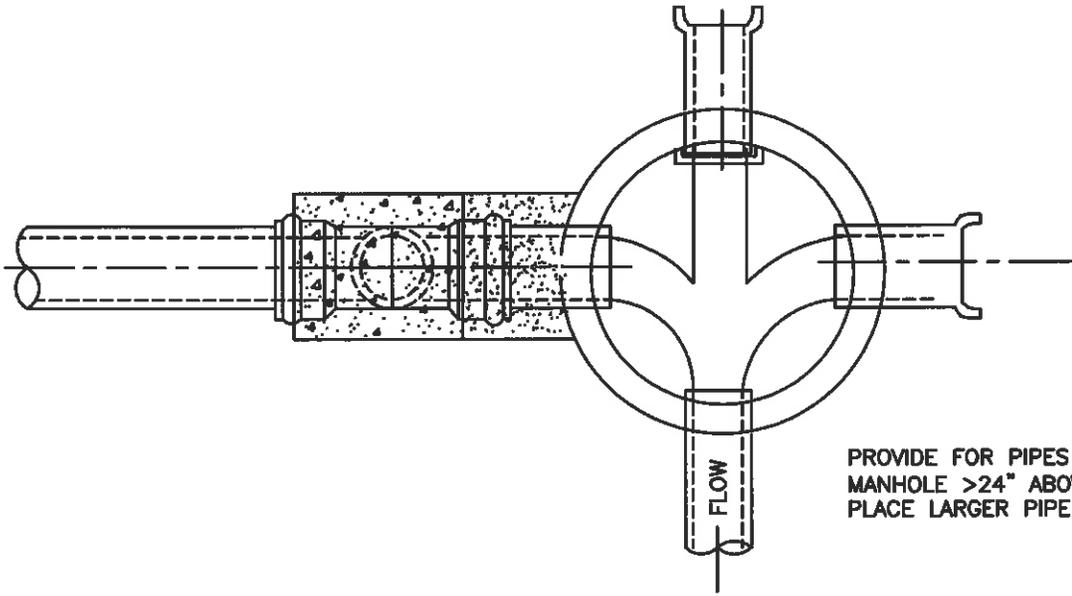
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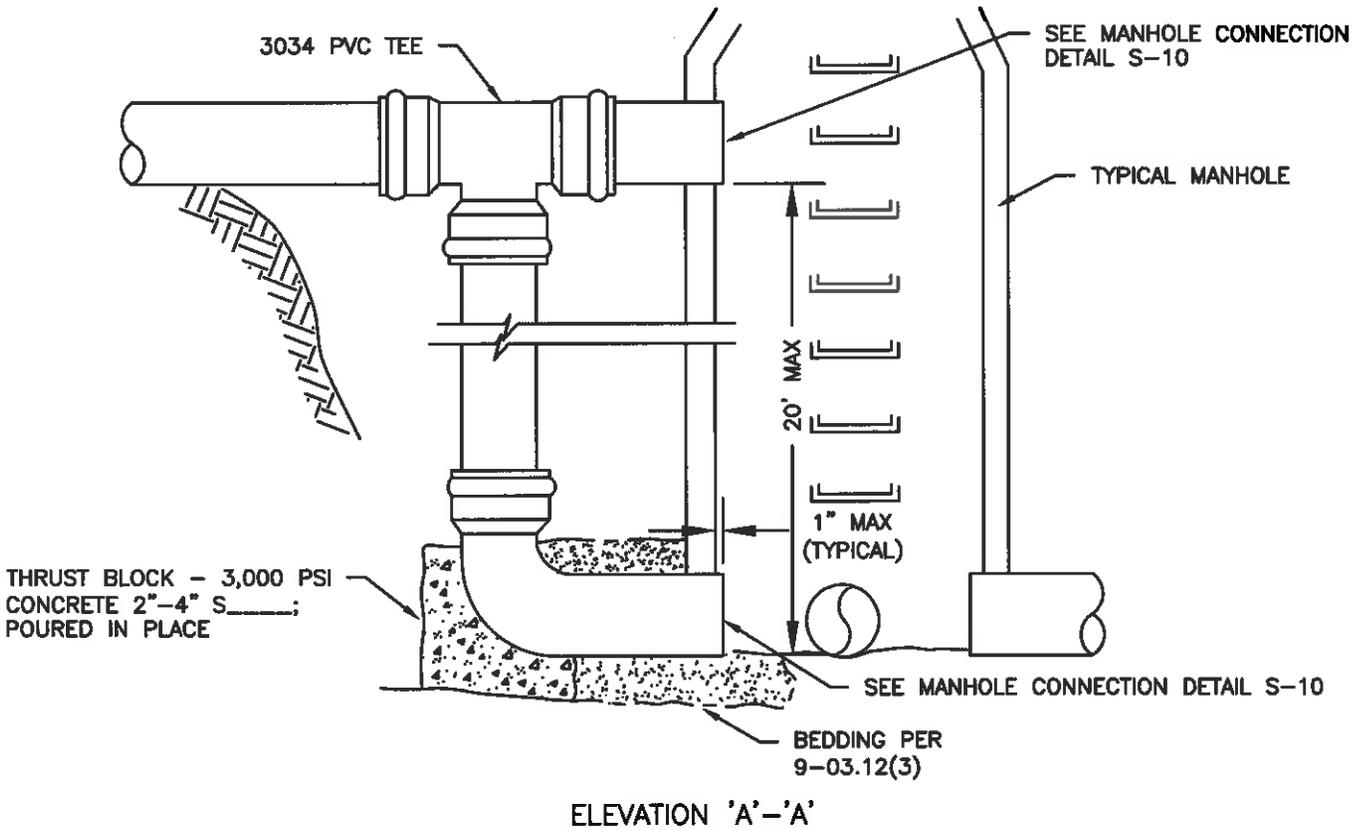
Scott Stepp 3/4/14
PUBLIC WORKS DIRECTOR DATE

S-11



PLAN

PROVIDE FOR PIPES <12" WHEN ENTERING
MANHOLE >24" ABOVE THE INVERT -
PLACE LARGER PIPE AT MANHOLE INVERT



OUTSIDE DROP CONNECTION

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REVISIONS

DATE

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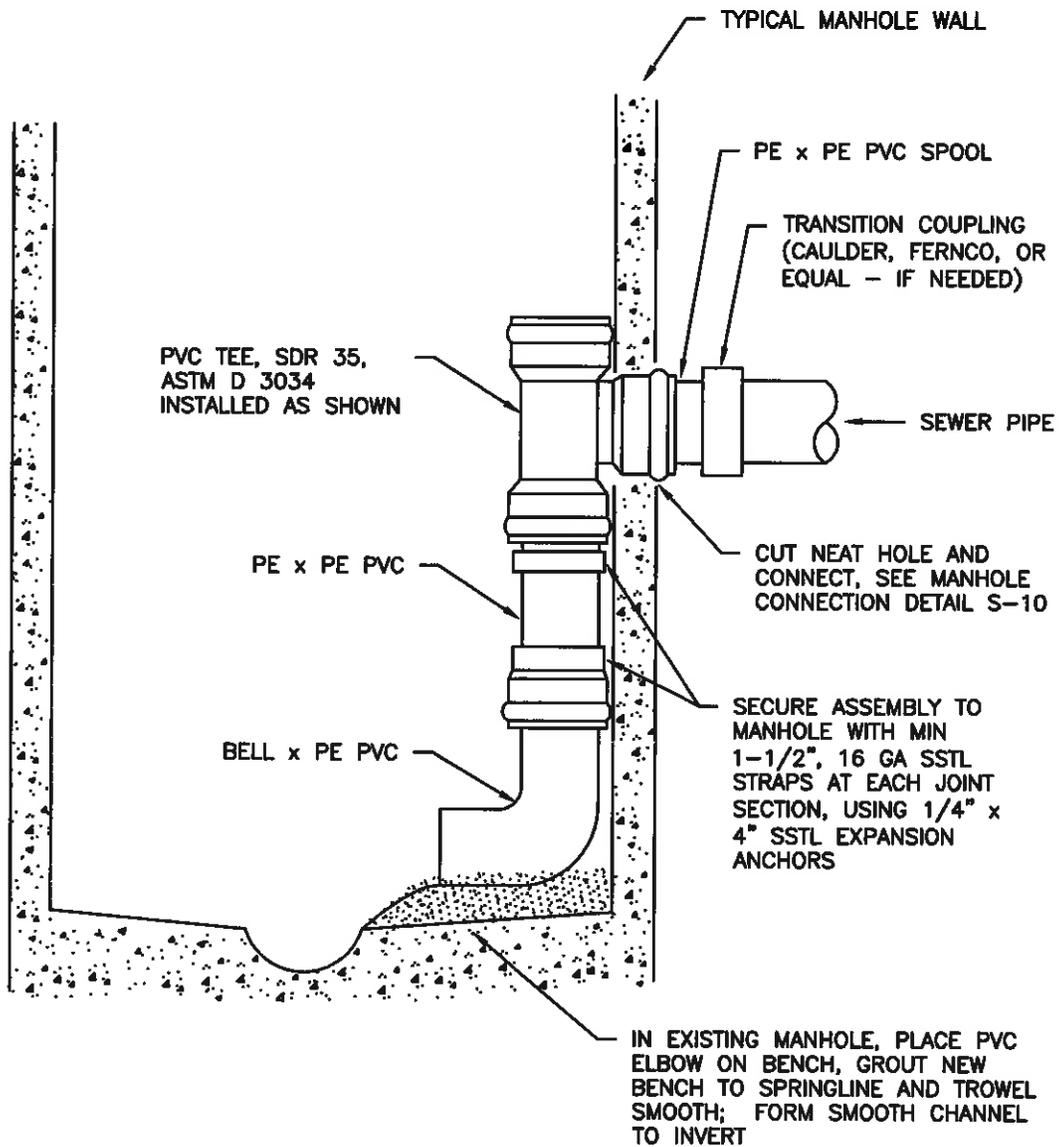
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NOTES:

- INSIDE DROP ASSEMBLY MAY BE USED ONLY WHEN SPECIFICALLY APPROVED BY CITY OF WOODLAND. MAXIMUM ONE ASSEMBLY PER 48" MANHOLE.

INSIDE DROP CONNECTION

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Bart Stipp 3/4/14
PUBLIC WORKS DIRECTOR DATE

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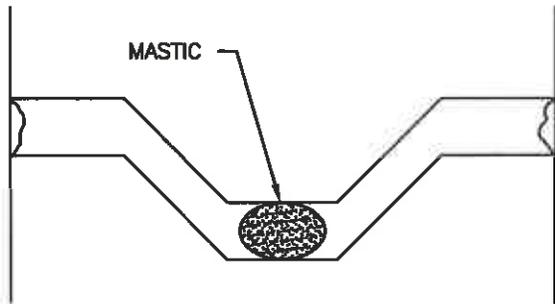
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DESIGNED

S-13

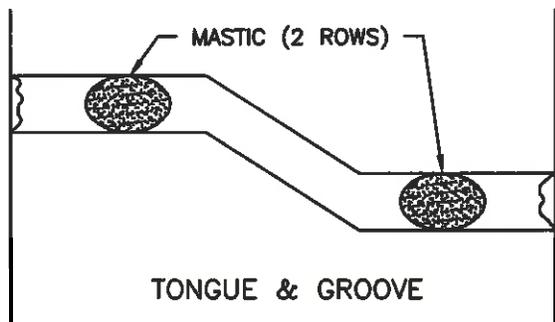




MASTIC

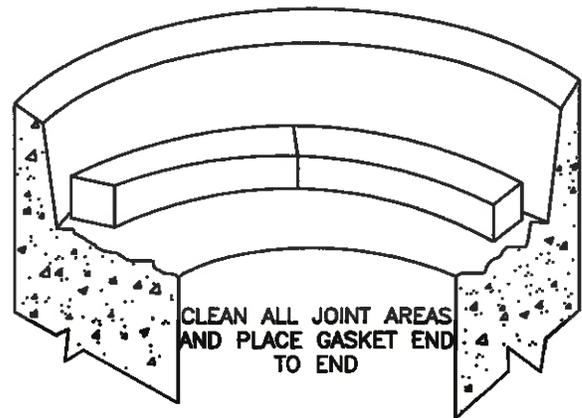
KEYLOCK

FINISH SURFACE OF JOINT WITH WATER TIGHT GROUT (TYPICAL ALL JOINTS), STRIKE EVEN WITH WALL



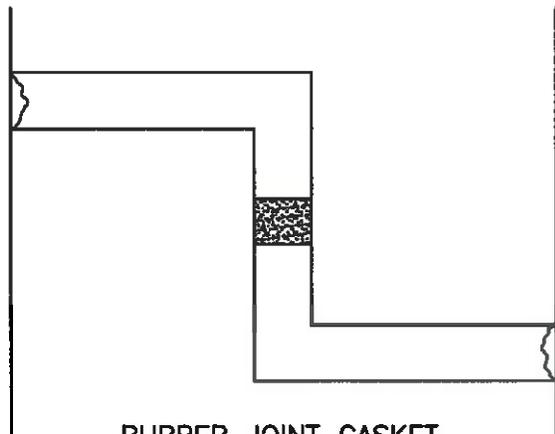
MASTIC (2 ROWS)

TONGUE & GROOVE



CLEAN ALL JOINT AREAS AND PLACE GASKET END TO END

CORRECT MASTIC PLACEMENT

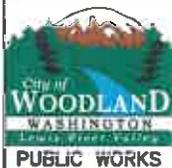


RUBBER JOINT GASKET

MANHOLE JOINTS

NOTES:

1. SEAL THE MANHOLE JOINTS AND THE MANHOLE FRAME WITH INFI-SHIELD "SEAL WRAP" EXTERNAL SEAL SYSTEM.
2. GROUT FOR SEALING JOINTS SHALL BE FIVE STAR, SIKA 212, EUCO N-5, OR APPROVED NON-SHRINK GROUT. STANDARD GROUT WILL NOT BE ACCEPTED.

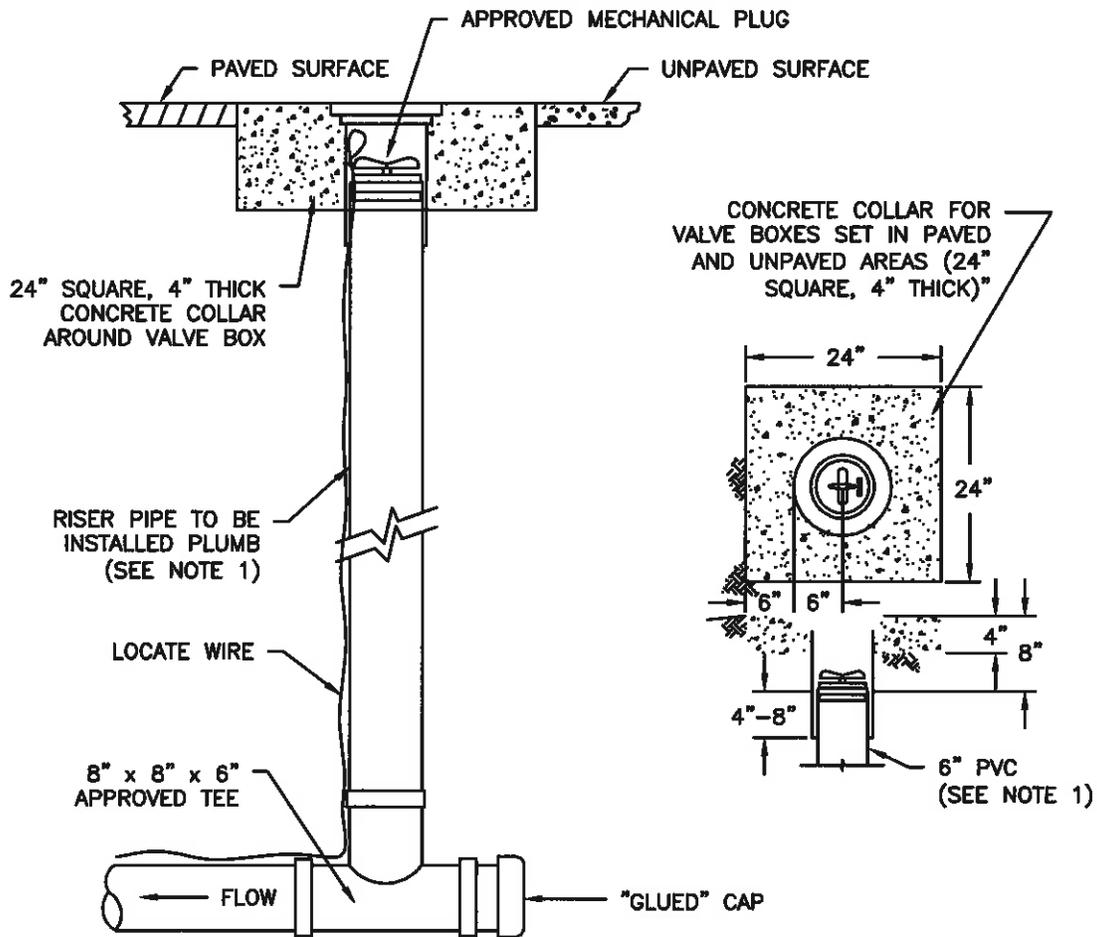


MANHOLE JOINTS

APPROVED

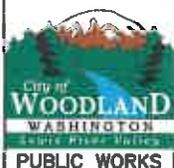
Bart Slipp 3/4/19
PUBLIC WORKS DIRECTOR DATE

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NOTES:

1. RISER PIPE SHALL BE 6" ASTM D 3034 SDR 35 PVC PIPE.
2. VALVE BOX SHALL BE "RICH 910" CAST IRON, SEE SEWER CLEANOUT DETAIL S-16 OR APPROVED EQUAL.
3. THERE SHALL BE 1/2" CLEARANCE UNDER THE PIN CAST INTO THE LID.
4. CONCRETE COLLAR SHALL BE A MINIMUM STRENGTH OF 3,000 PSI.
5. PIPE BEDDING SHALL CONFORM TO PIPE BEDDING DETAIL S-02.
6. INSTALL AT EVERY SANITARY SEWER MAIN TERMINATION OUTSIDE THE RIGHT-OF-WAY.



SANITARY STUB MARKER

APPROVED

Bart Stipp 3/4/14
PUBLIC WORKS DIRECTOR DATE

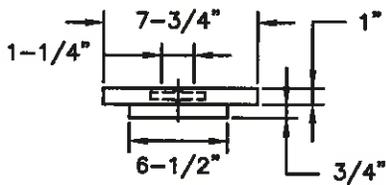
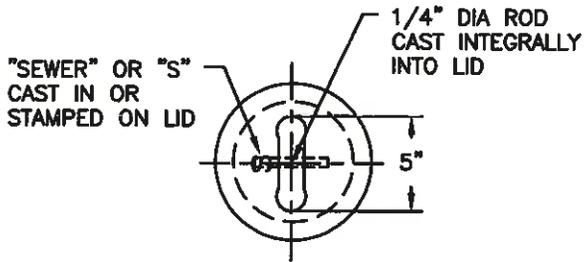
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DATE

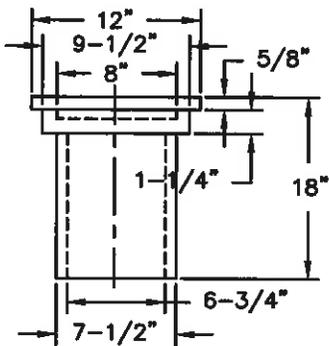
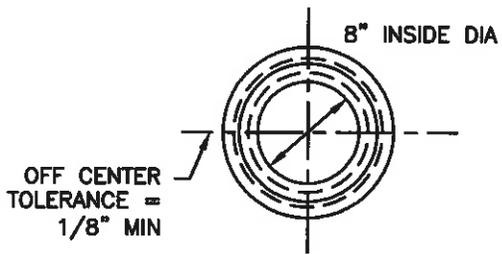
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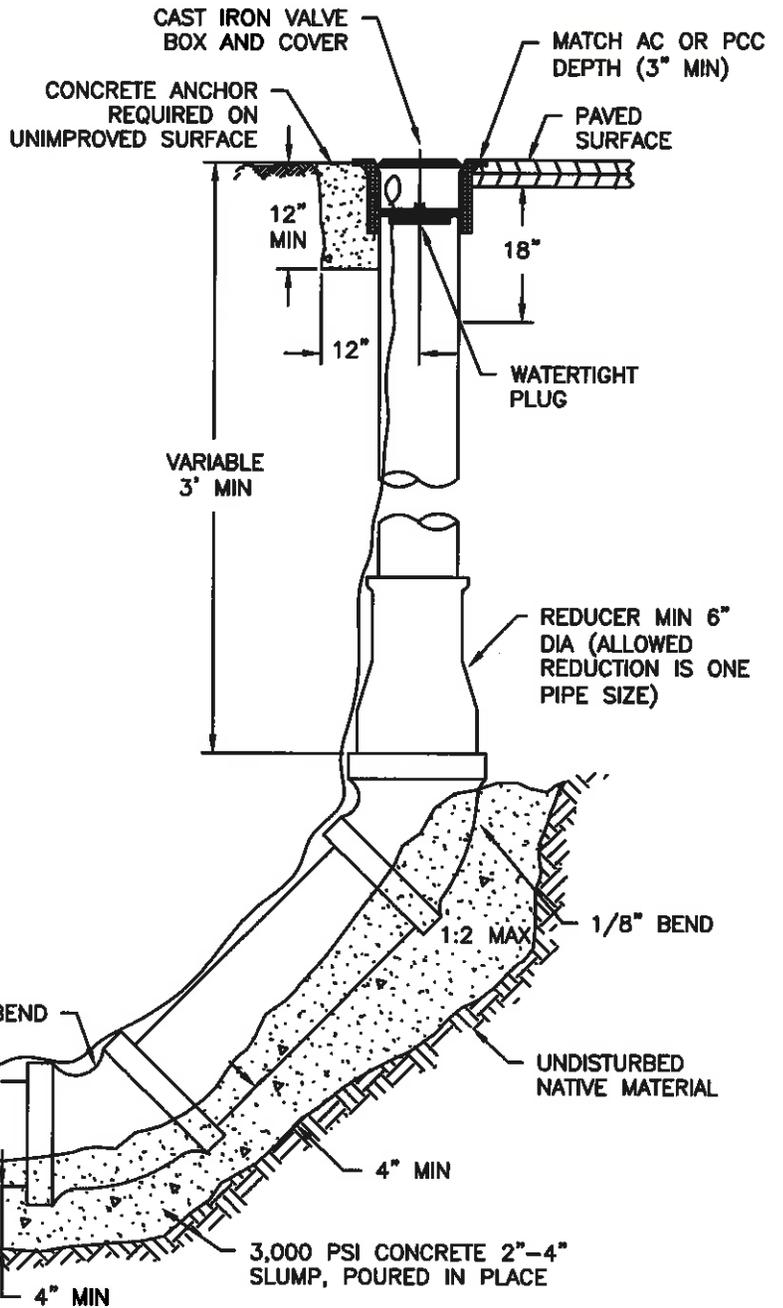
S-15



COVER



CAST IRON VALVE BOX
RICH NO. 910



SEWER CLEANOUT

SEWER CLEANOUT

APPROVED

Bart Stepp 3/4/14
PUBLIC WORKS DIRECTOR DATE

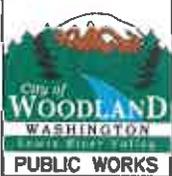
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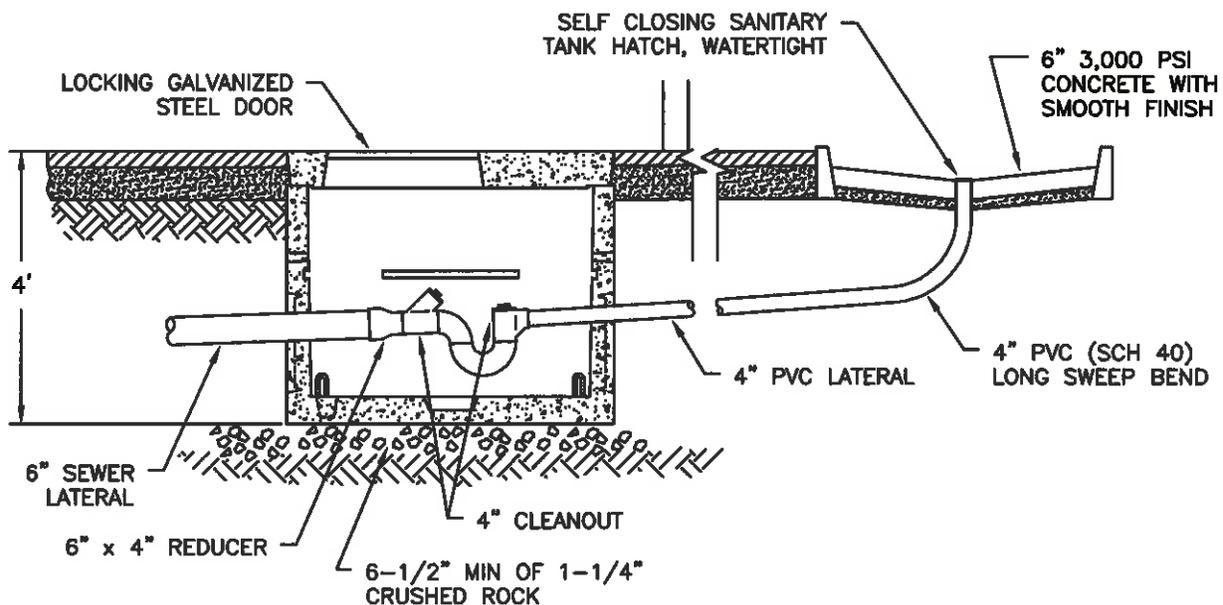
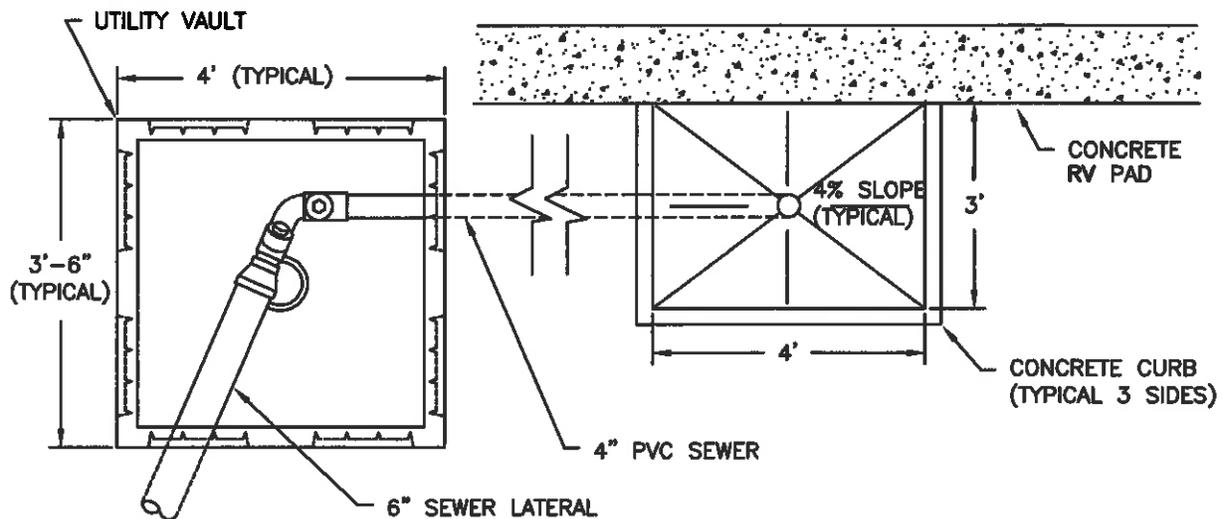
DATE

DRAWN

DESIGNED

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NOTES:

1. APPROVED VAULT SHALL BE UTILITY VAULT CO. 444-LA WITH COVER NO. 44-38C, OR PIPE ENTERPRISES, INC. 444-13 WITH COVER NO 440-13.



RV SEWER DISPOSAL STATION – COMMERCIAL

APPROVED

Barb Stepp 3/4/14

PUBLIC WORKS DIRECTOR DATE

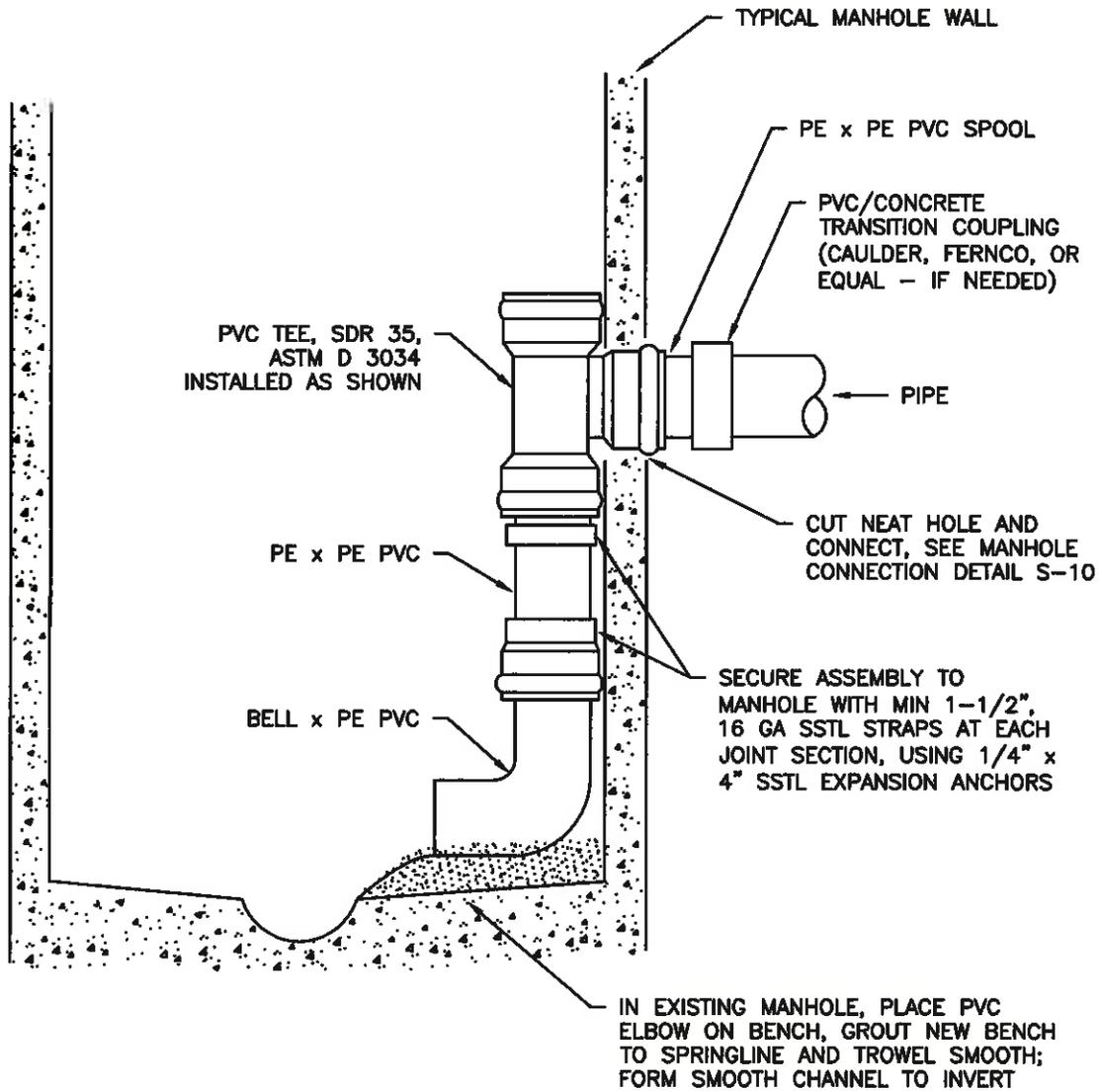
REVISIONS

DATE

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DESIGNED

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NOTES:

1. INSIDE DROP ASSEMBLY MAY BE USED ONLY WHEN SPECIFICALLY APPROVED BY CITY OF WOODLAND. MAXIMUM ONE ASSEMBLY PER 48" MANHOLE.

PRESSURE MAIN CONNECTION

APPROVED

Bart Stipp 3/4/14
PUBLIC WORKS DIRECTOR DATE

REVISIONS

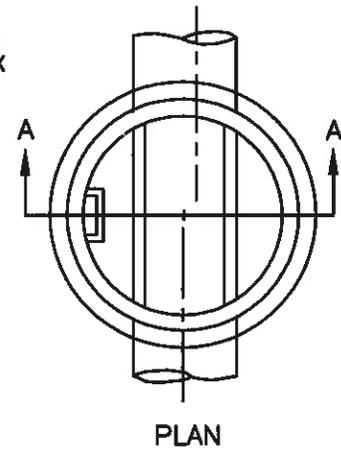
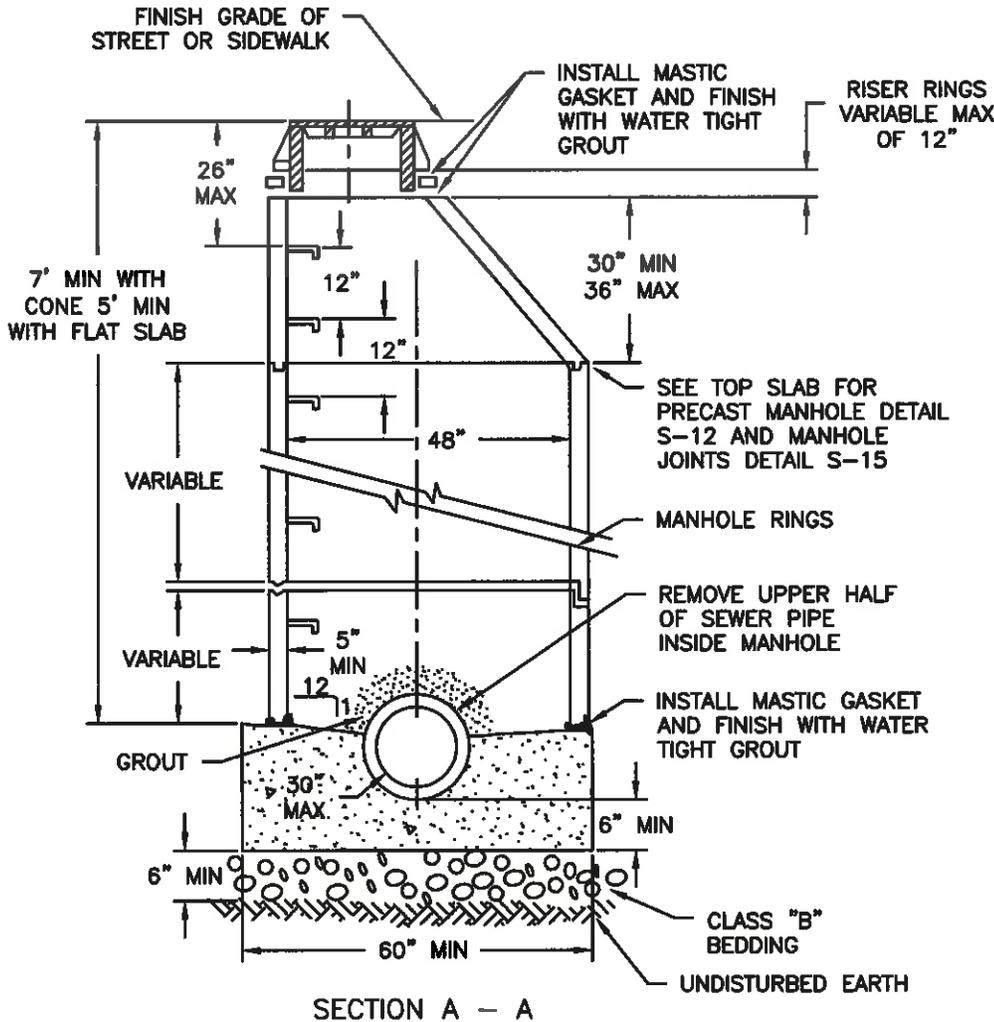
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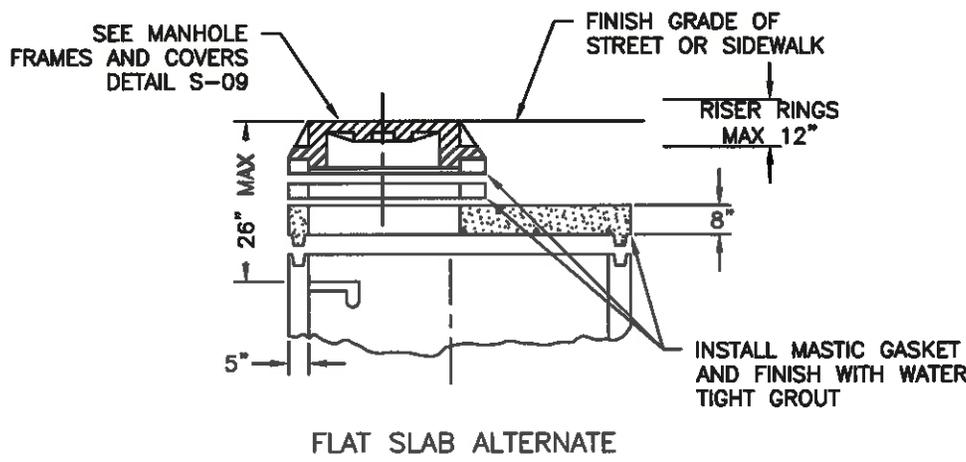
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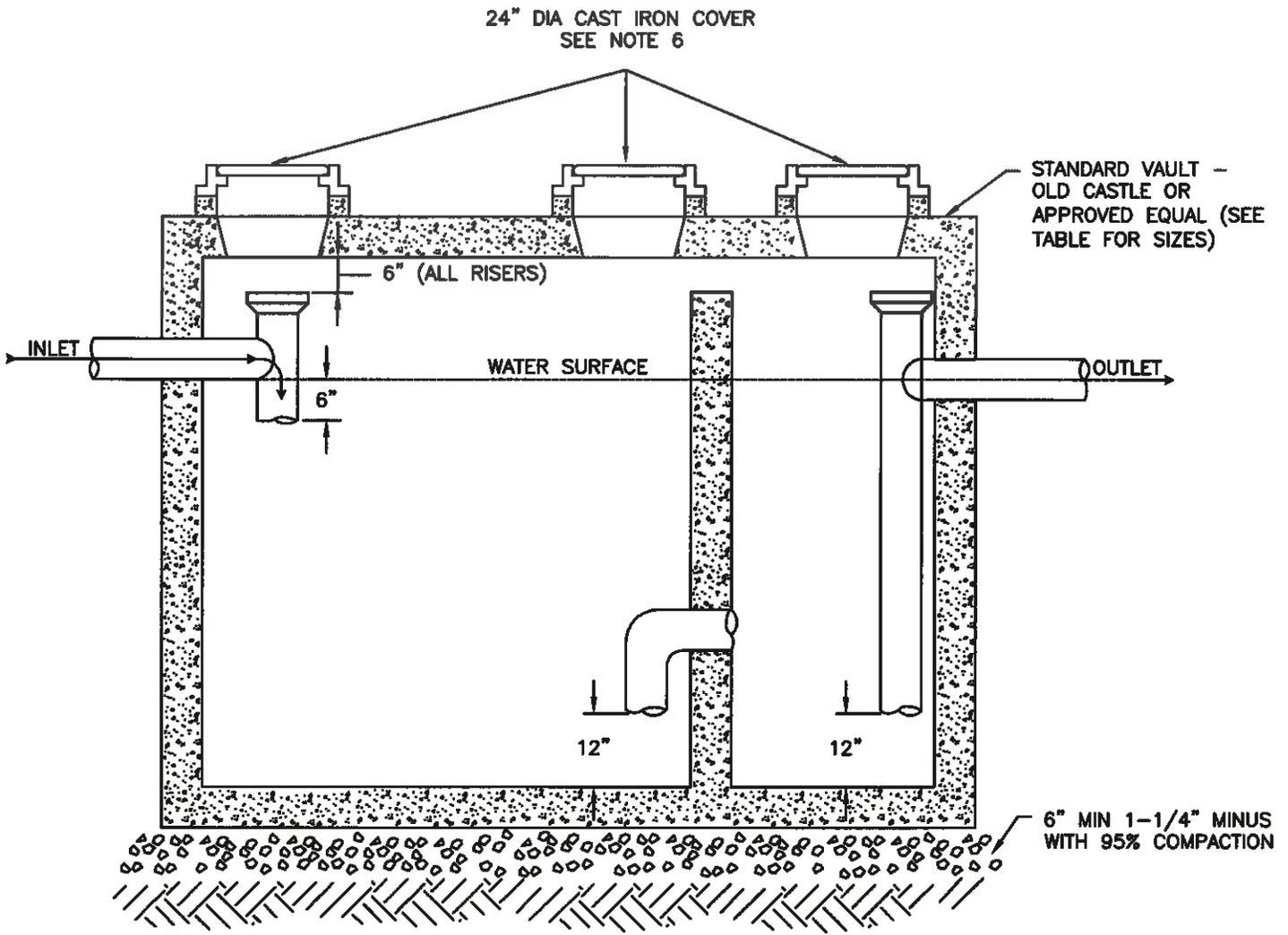
- NOTES:
1. CONSTRUCTION SHALL CONFORM TO PRECAST MANHOLE DETAIL S-07.
 2. ALL PRECAST SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478. ALL POURED IN PLACE CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3,000 PSI AND 2" TO 4' SLUMP.
 3. THE MANHOLE BASE MAY BE POURED MONOLITHIC TO 8" ABOVE THE BARREL OF THE MAIN SEWER.
 4. FLAT SLAB MANHOLE COVER NOT FOR USE IN TRAFFIC AREAS.
 5. FOR CONNECTIONS, THIS HOLE DIAMETER SHALL BE EQUAL TO THE OUTSIDE PIPE DIAMETER PLUS THE MANHOLE WALL THICKNESS.
 6. CHANNELS SHALL CONFORM ACCURATELY TO SEWER GRADE. INSTALL BENCHES TO ELEVATION OF SPRINGLINE OF PIPE.



SAMPLING MANHOLE

APPROVED
Bart Stepp 3/4/14
 PUBLIC WORKS DIRECTOR DATE

REVISIONS	DATE	DRAWN	DESIGNED



NOTES:

1. POSITION RISERS BELOW AND OFF-CENTER OF MANHOLES TO ALLOW ACCESS AND ENTRY.
2. NO CONCRETE PLUGS BELOW CAST IRON MANHOLE COVERS.
3. PLACE INTERCEPTOR IN LOCATION WHICH ALLOWS FOR PUMP TRUCK/MAINTENANCE ACCESS.
4. FILL WITH CLEAN WATER PRIOR TO START-UP AND AFTER PUMPOUTS.
5. GRAY WATER ONLY. DOMESTIC (SANITARY) WATER SHALL BE CONVEYED BY SEPARATE LINE.
6. FOR CAPACITIES EQUAL TO OR GREATER THAN 1,500 GALLONS, A CENTER MANHOLE IS REQUIRED AND THE COVER SHALL BE A STANDARD 24" COVER OR LARGER APPROVED EQUIVALENT.
7. UNIT SHALL BE RATED OF H2O AASHTO LOADING (CERTIFIED).
8. SUBMIT VAULT SPECS WITH SITE/CIVIL PLANS FOR FINAL APPROVAL.

STANDARD VAULT SIZES	
576-GA	UP TO 1,000 GALLONS
5106-2-GA	1,001-2,000 GALLONS
612-2-GA	2,001-5,000 GALLONS
816-GA	OVER 5,000 GALLONS



GREASE INTERCEPTOR

APPROVED

Bart Stupp 3/4/14
PUBLIC WORKS DIRECTOR DATE

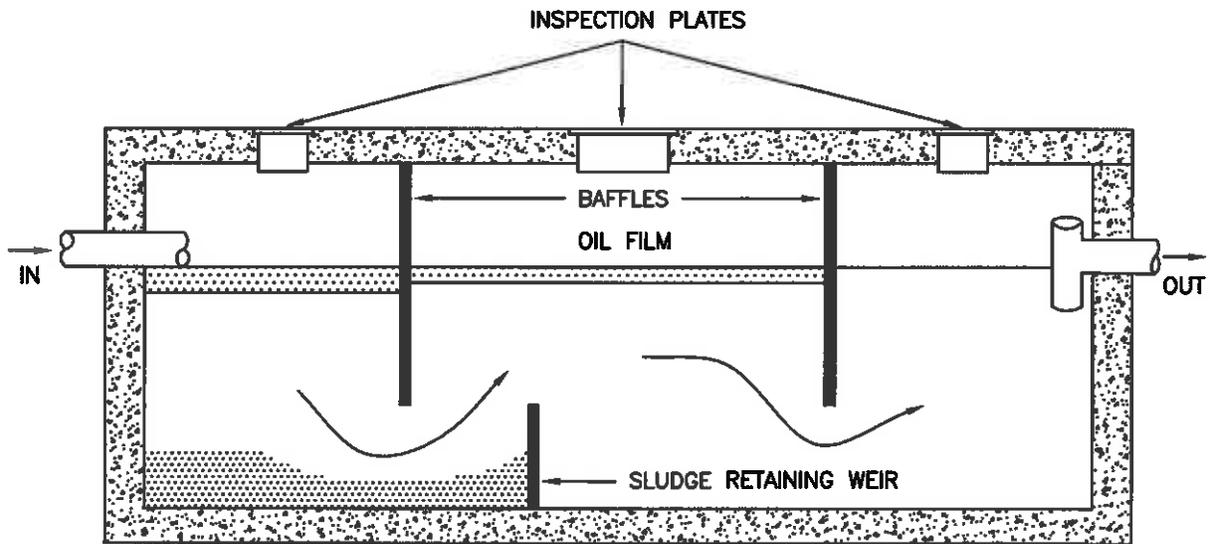
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RECOMMENDED MANAGEMENT PRACTICES:

1. SIZE SEPARATOR FOR A 45-MINUTE RETENTION TIME A PEAK FLOW, OR EQUIVALENT RETENTION IF USING COALESCING PLATES.
2. BEFORE INSTALLATION, SUBMIT ALL PLANS TO THE CITY OF WOODLAND PUBLIC WORKS DEPARTMENT FOR REVIEW. INDICATE ALL SOURCES OF WATER TO SEPARATE AND PROVIDE ESTIMATES OF EXPECTED AVERAGE AND MAXIMUM FLOW RATES.
3. INSPECT SEPARATOR EVERY 6-MONTHS. USE A LONG STICK TO CHECK SLUDGE BUILDUP IN FIRST CHAMBER. HAVE SEPARATOR CLEANED IF SLUDGE BUILDUP IS OVER 8" OR IF THERE ARE MORE THAN 2" OF OIL FLOATING ON THE SURFACE IN ANY CHAMBER.
4. FOR COALESCING PATE SEPARATOR, CLEAN THE PLATES BEFORE THEY BECOME COATED WITH SILT OR SOLIDS.
5. DO NOT ALLOW THE FOLLOWING TO ENTER THE SEPARATOR AS THEY WILL EMULSIFY THE OIL: ANTIFREEZE, DEGREASERS, DETERGENTS, ALCOHOL, AND SOLVENTS. ALSO, AVOID OVERLOADING THE SYSTEM WITH CONCENTRATED OILS OR HEAVY METAL-BEARING WASTEWATER.
6. TO REDUCE MAINTENANCE, REMOVE FLOATING OIL WITH ABSORBENT PADS OR VACUUM OUT OIL FILM. IF NECESSARY, INSTALL A CATCH BASIN BEFORE THE SEPARATOR TO REDUCE SLUDGE LOAD.

OIL/WATER SEPARATOR

APPROVED

Bart Stepp 3/4/14
PUBLIC WORKS DIRECTOR DATE

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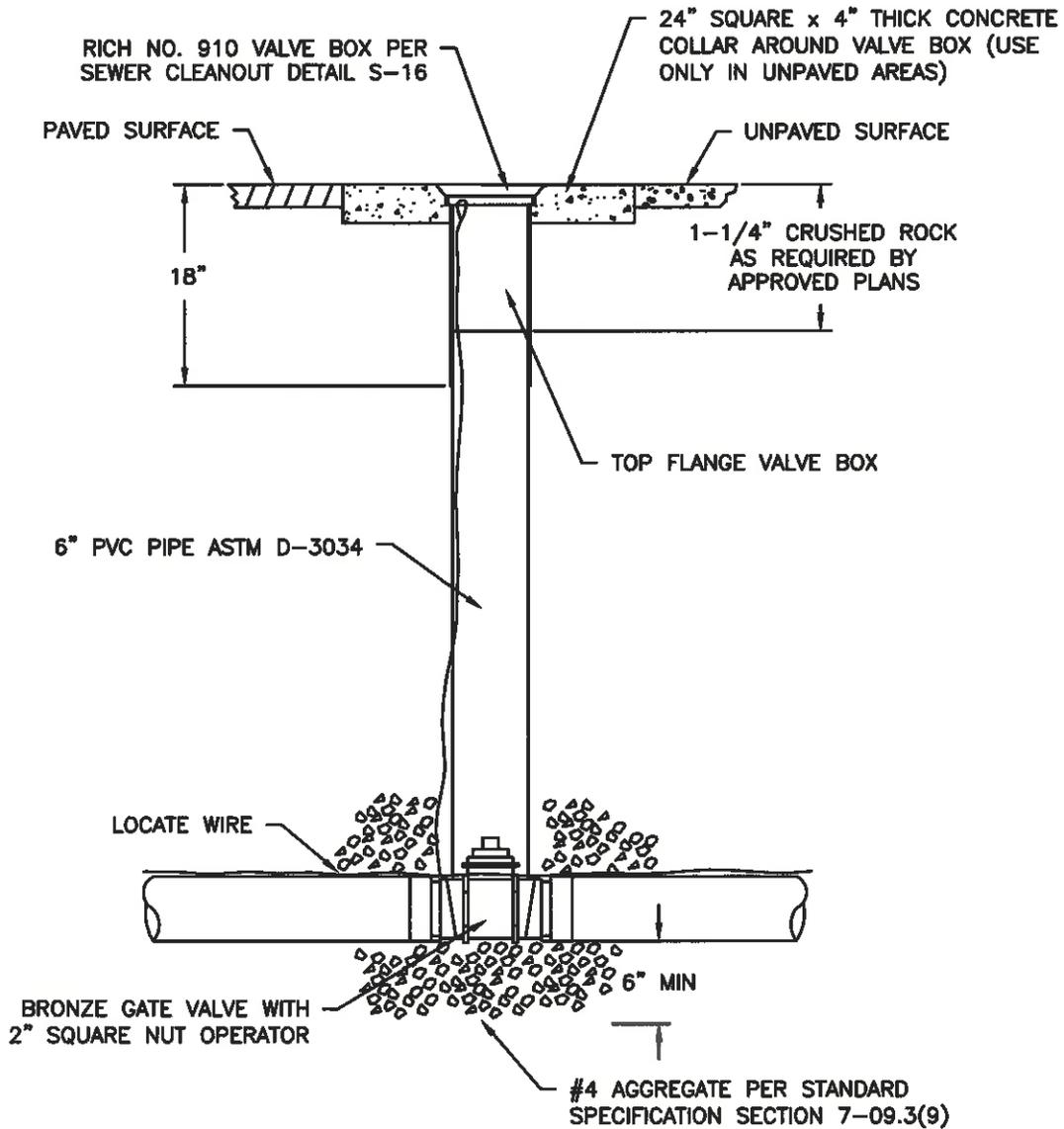
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BURIED GATE VALVE

APPROVED

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PUBLIC WORKS DIRECTOR

DATE

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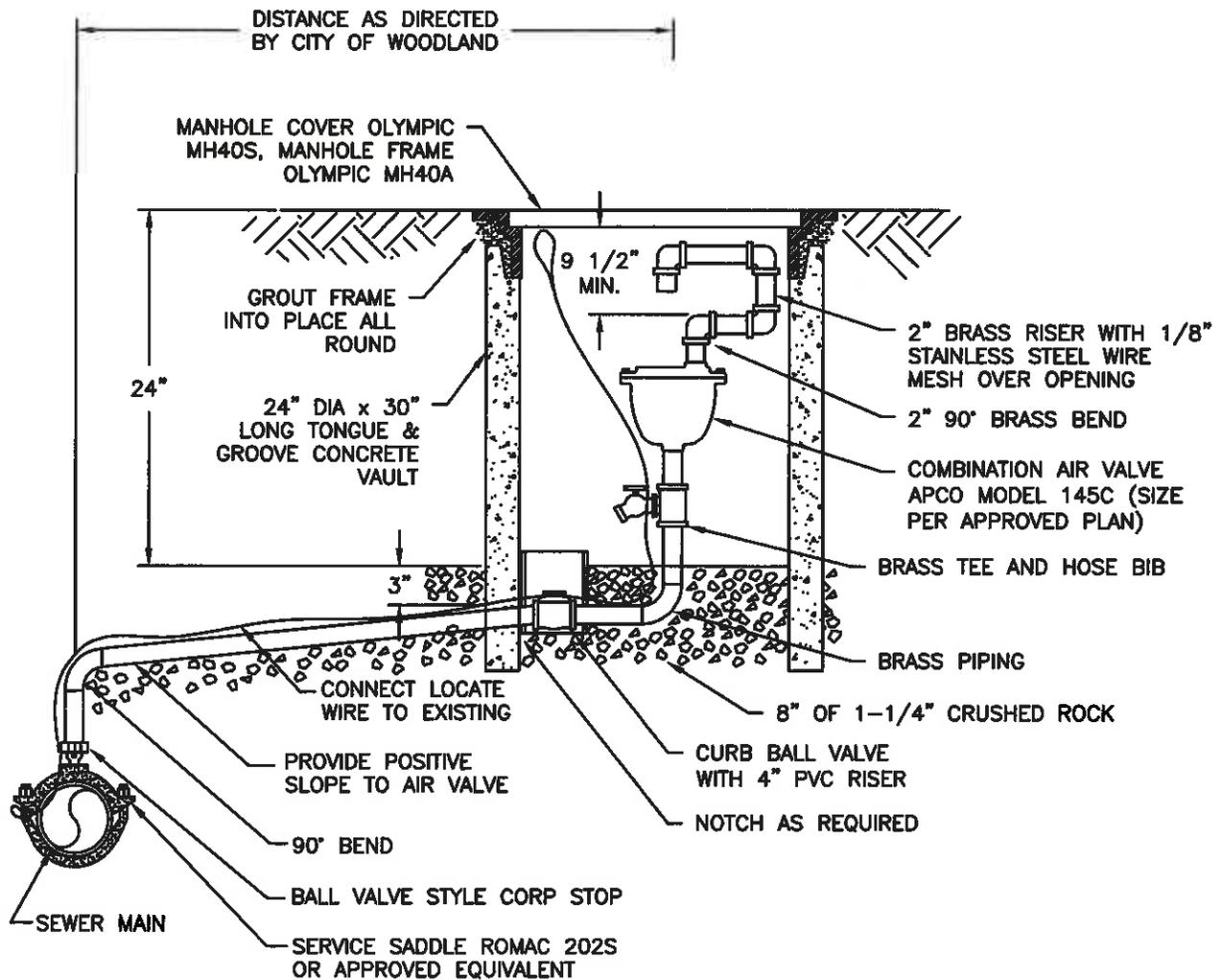
DATE

DRAWN

DESIGNED

S-22





NOTES:

1. VALVE ASSEMBLY SHALL BE SET AT THE HIGH POINT OF THE LINE.
2. A MINIMUM OF ONE 4" ADJUSTMENT RING MUST BE PROVIDED IN TRAFFIC AREA SETTINGS. SADDLE TAP, PIPING & VALVE TO MATCH COMBINATION AIR VALVE INLET SIZE (SEE PLAN). ADJUSTMENT RINGS AND MANHOLE RING TO BE GROUTED, WATER TIGHT.
3. TERMINATE EXHAUST INSIDE VAULT WITH 90° BEND (DOWN) AND WIRE MESH IF VAULT IS DRAINED TO DAYLIGHT.
4. LOCATE WIRE SHALL INCLUDE A LOOP THAT CAN BE REACHED FROM OPEN COVER.

COMBINATION RELEASE AIR VALVE

APPROVED

REVISIONS

DATE

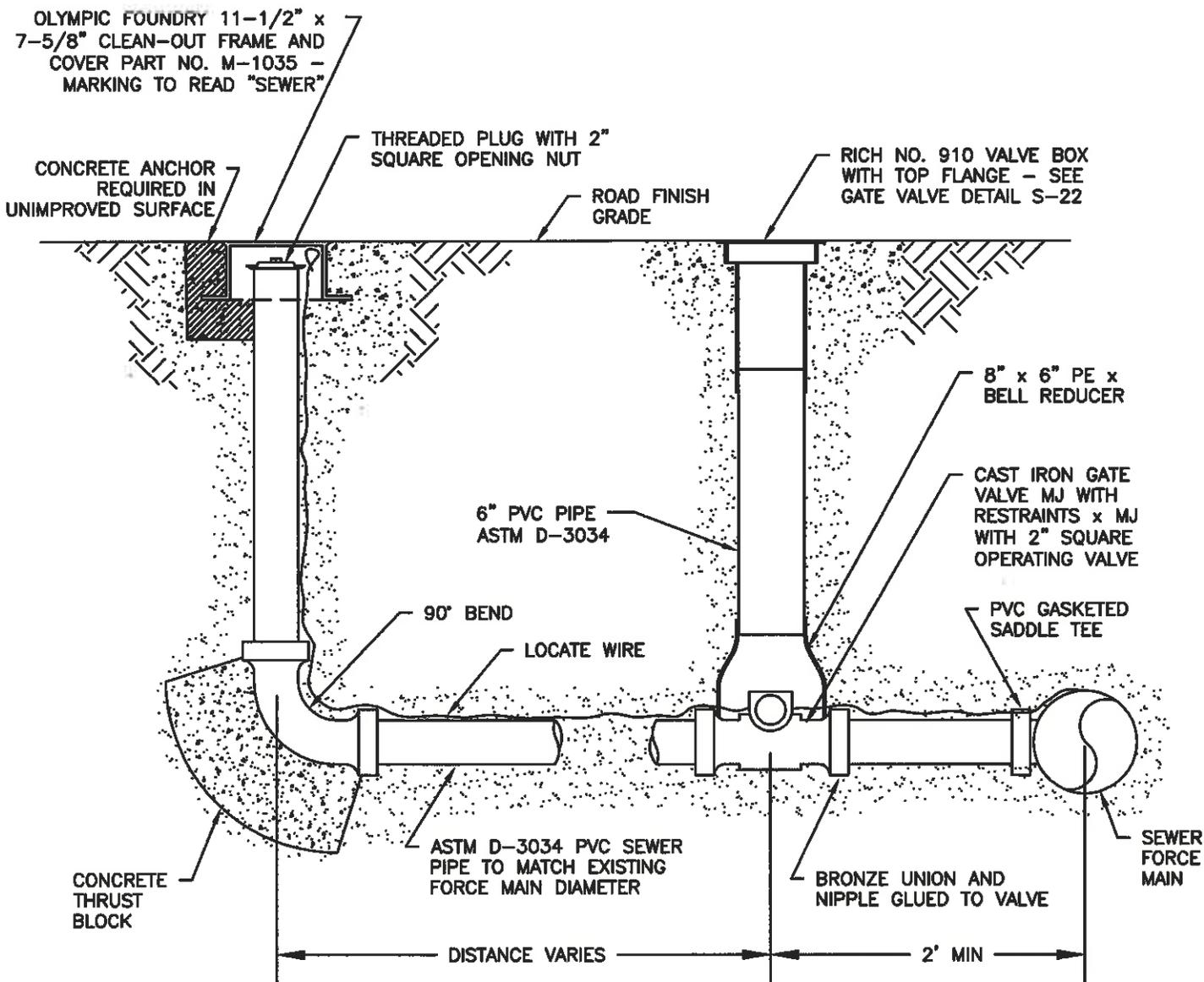
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Bart Stipp 3/4/14
PUBLIC WORKS DIRECTOR DATE

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NOTES:

1. CONCRETE SHALL BE 3,000 PSI.
2. BEDDING AND BACKFILL TO CONFORM WITH CLASS OF BEDDING AND TYPE OF BACKFILL SPECIFIED FOR SEWER LINE EXTENSION.
3. PROPOSED EQUIVALENTS MUST BE SUBMITTED TO THE CITY OF WOODLAND FOR APPROVAL.

TYPICAL PRESSURE CLEANOUT

APPROVED

Bart Stupp 3/4/14
PUBLIC WORKS DIRECTOR DATE

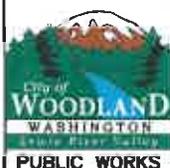
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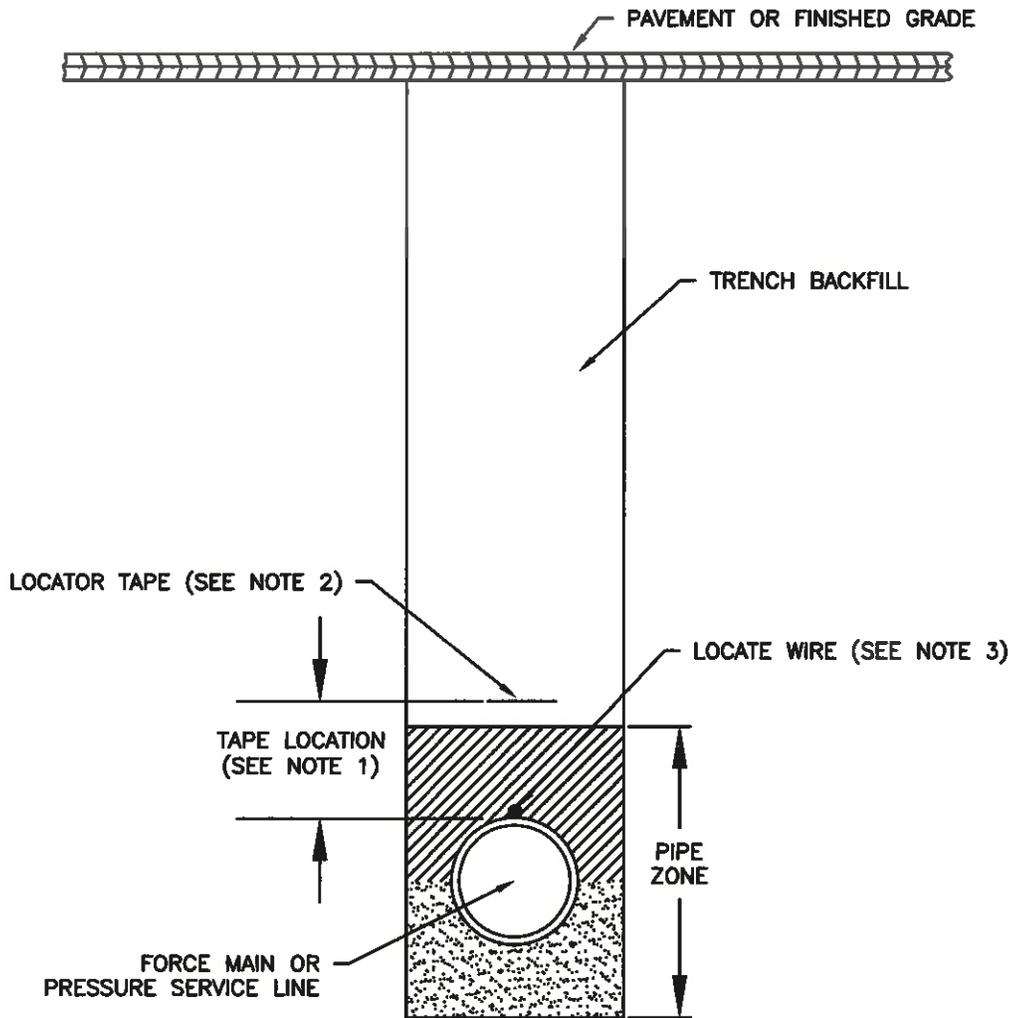
DATE

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NOTES:

1. INSTALL LOCATOR TAPE OVER ALL SEWER MAINS, TO BE LOCATED 18" ABOVE A FORCE MAIN AND 12" ABOVE A PRESSURE SERVICE LINE.
2. THE LOCATOR TAPE SHOULD BE CONTINUOUS, GREEN, 3" WIDE, 6 MIL THICK; MARKED WITH 3" HIGH BLACK LETTERS EVERY 3' READING "BURIED PRESSURE SEWER".
3. A CONTINUOUS TONING WIRE SHALL BE ATTACHED TO THE TOP OF THE PRESSURE SERVICE LINE. THE TONING WIRE SHALL BE COATED #10 AWG SOLID COPPER WIRE. THE TONING WIRE SHALL END IN THE VALVE BOX WITH A MINIMUM OF 1' COIL OF WIRE. THE TONING WIRE SHALL BE TESTED FOR CONTINUITY PRIOR TO ACCEPTANCE. ALL SPLICES WILL BE SOLDERED A MINIMUM OF 2" IN LENGTH AND ENCASED WITH 3M SCOTCH #220 VINYL MASTIC PADS (3-1/2" x 4-1/2") OR 3M SCOTCH 33 ELECTRICAL TAPE AND COATED WITH SCOTCHKOTE ELECTRICAL COATING #1485 (REPEAT PROCESS AFTER FIRST COATING DRIES), OR APPROVED EQUAL.

LOCATE WIRE & TAPE – STANDARD LOCATIONS

APPROVED

REVISIONS

DATE

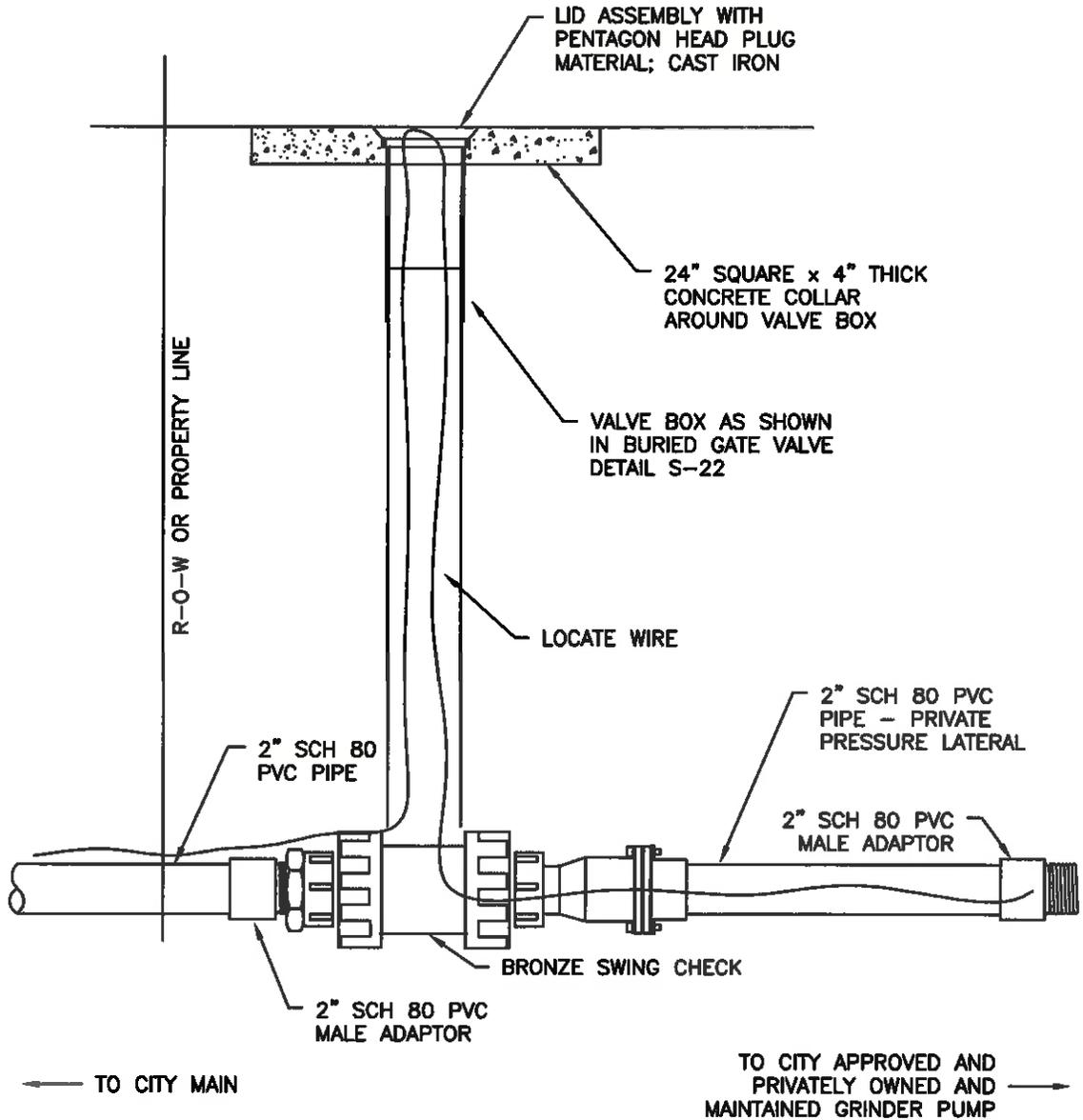
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- NOTES:
1. PVC LATERAL ASSEMBLY SHALL BE 2" MIN SCH 80 PVC (PRESSURE RATING 150 PSI).
 2. CHECK VALVE SHALL BE IN THE RIGHT-OF-WAY AND BEHIND SIDEWALK.
 3. PRIVATE OWNER RESPONSIBLE FOR MAINTENANCE OF PIPING SYSTEM ALL THE WAY TO THE MAIN.



TYPICAL PRESSURE LATERAL

APPROVED
Burt Stepp 3/4/14
 PUBLIC WORKS DIRECTOR DATE

REVISIONS	DATE	DRAWN	DESIGNED