

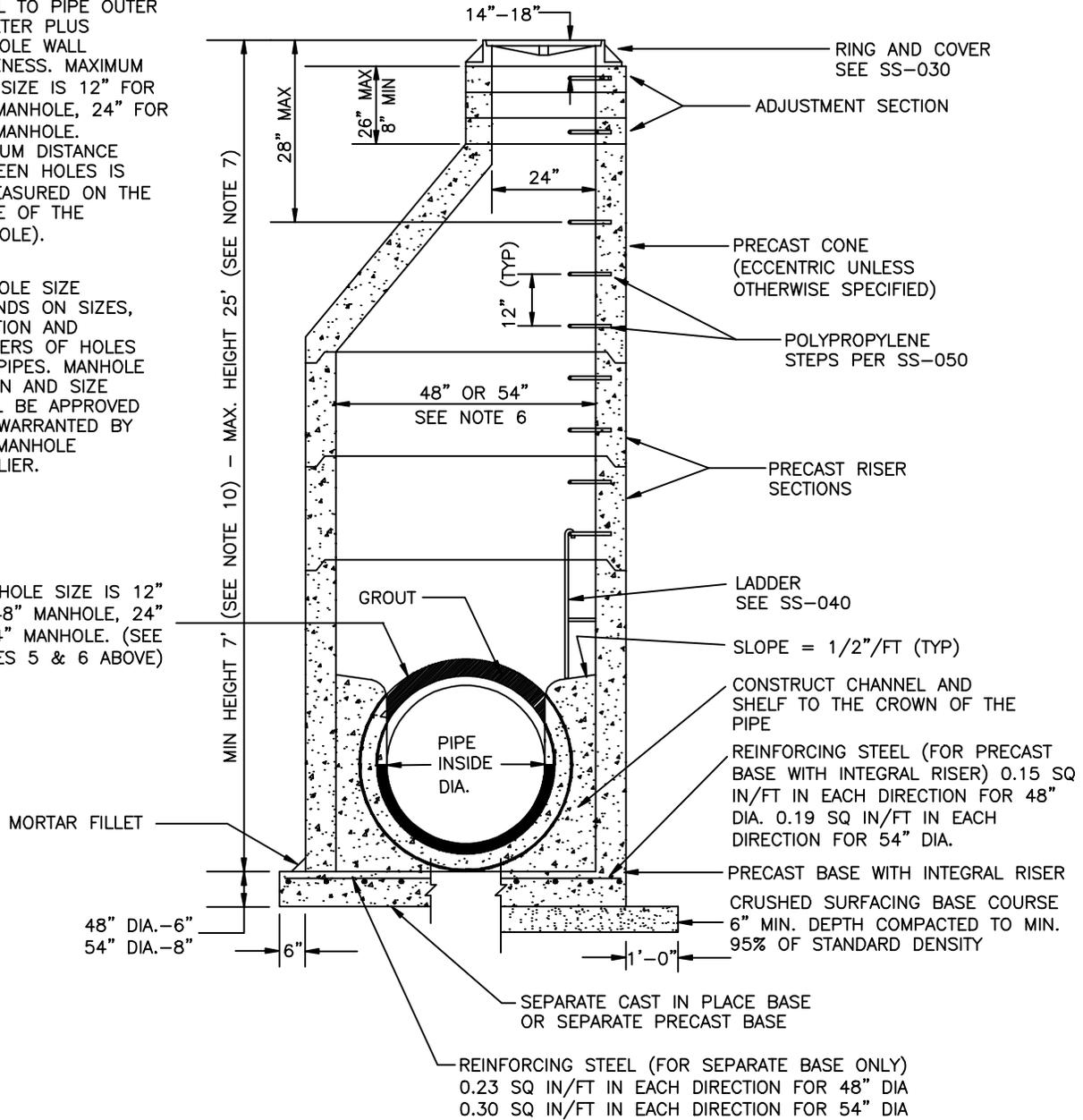
NOTES:

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN STANDARD SPECIFICATIONS.
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS.
4. ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
5. CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 12" FOR 48" MANHOLE, 24" FOR 54" MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 8"(MEASURED ON THE INSIDE OF THE MANHOLE).
6. MANHOLE SIZE DEPENDS ON SIZES, LOCATION AND NUMBERS OF HOLES FOR PIPES. MANHOLE DESIGN AND SIZE SHALL BE APPROVED AND WARRANTED BY THE MANHOLE SUPPLIER.
7. FOR DEPTHS OVER 25' MANHOLE BASE SLAB DESIGN SHALL BE DESIGNED BY A STRUCTURAL ENGINEER.
8. ALL INTERIOR AND EXTERIOR JOINTS TO BE GROUTED (SEE GROUT SPECIFICATIONS). GROUT TO BE 1/2" THICK MINIMUM AND 3" EACH SIDE OF JOINT MINIMUM. THEY MUST BE INSPECTED PRIOR TO BACKFILL.
9. CORE DRILLING ONLY, HAMMERING KNOCKOUTS WILL NOT BE ALLOWED. KOR-N-SEAL FACTORY INSTALLED BOOTS ARE ALLOWED.
10. MANHOLES 5'-7' DEEP MUST BE FLAT TOPS.

5. CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 12" FOR 48" MANHOLE, 24" FOR 54" MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 8"(MEASURED ON THE INSIDE OF THE MANHOLE).

6. MANHOLE SIZE DEPENDS ON SIZES, LOCATION AND NUMBERS OF HOLES FOR PIPES. MANHOLE DESIGN AND SIZE SHALL BE APPROVED AND WARRANTED BY THE MANHOLE SUPPLIER.

MAX. HOLE SIZE IS 12" FOR 48" MANHOLE, 24" FOR 54" MANHOLE. (SEE NOTES 5 & 6 ABOVE)



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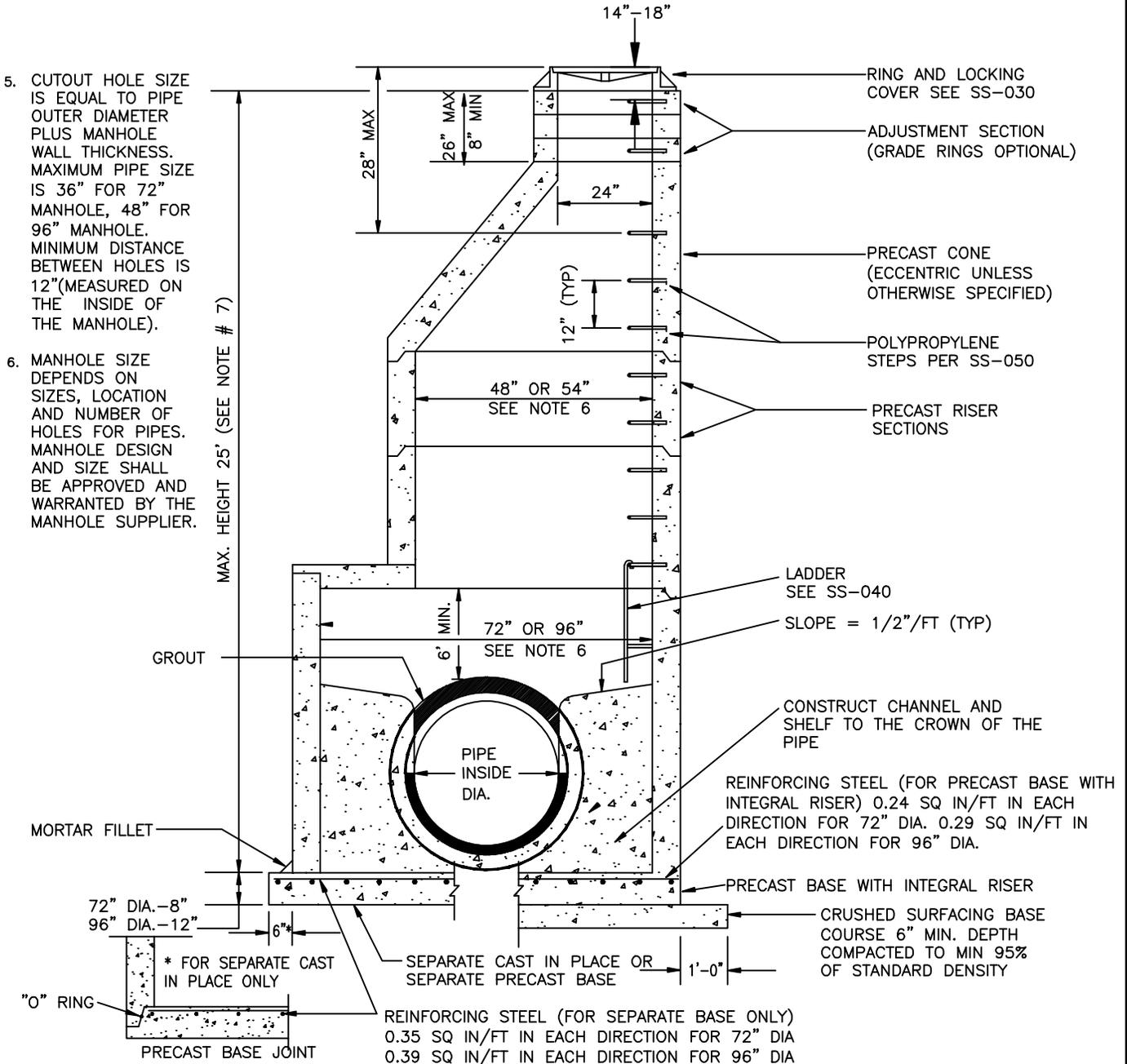
DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

MANHOLE TYPE I

STANDARD DETAIL NUMBER
SS-010

NOTES:

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN STANDARD SPECIFICATIONS.
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS
4. ALL BASE REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
5. CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 36" FOR 72" MANHOLE, 48" FOR 96" MANHOLE. MINIMUM DISTANCE BETWEEN HOLES IS 12"(MEASURED ON THE INSIDE OF THE MANHOLE).
6. MANHOLE SIZE DEPENDS ON SIZES, LOCATION AND NUMBER OF HOLES FOR PIPES. MANHOLE DESIGN AND SIZE SHALL BE APPROVED AND WARRANTED BY THE MANHOLE SUPPLIER.
7. FOR HEIGHTS OVER 25' MANHOLE BASE SLAB DESIGN SHALL BE DESIGNED BY A STRUCTURAL ENGINEER.
8. ALL INTERIOR AND EXTERIOR JOINTS TO BE GROUTED. GROUT TO BE 1/2" THICK MINIMUM AND 3" EACH SIDE OF JOINT MINIMUM. THEY MUST BE INSPECTED PRIOR TO BACKFILL.
9. CORE DRILLING ONLY, HAMMERING KNOCKOUTS WILL NOT BE ALLOWED. KOR-N-SEAL FACTORY INSTALLED BOOTS ARE ALLOWED.



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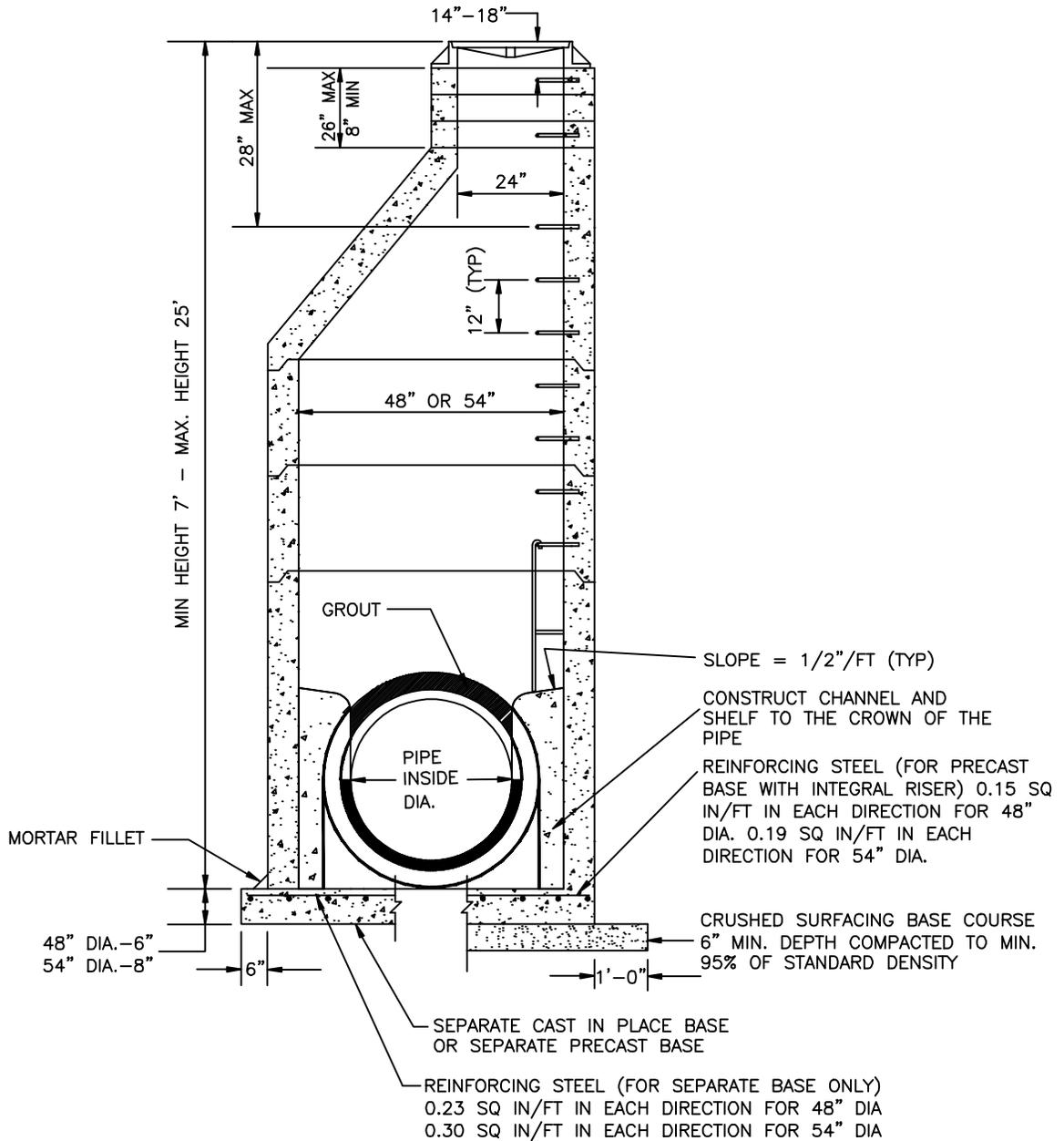
DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

MANHOLE TYPE II

STANDARD DETAIL NUMBER
SS-015

NOTES:

1. SADDLE MANHOLE MAY ONLY BE USED WHEN PLACING A NEW MANHOLE OVER AN EXISTING SEWER LINE. SIZE, LOCATION, AND ANGLE MUST BE AS REQUIRED BY PLANS.
2. OPENINGS IN PRECAST UNITS ARE TO BE 4" MINIMUM TO 8" MAXIMUM LARGER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE.
3. CONSTRUCT BENCH AND INVERT TO ALLOW SMOOTH TRANSITION OF FLOW FROM NEW SEWER TO EXISTING SEWER.
4. ALL NOTES ON SS-010 AND SS-015 ALSO APPLY TO THIS DETAIL.

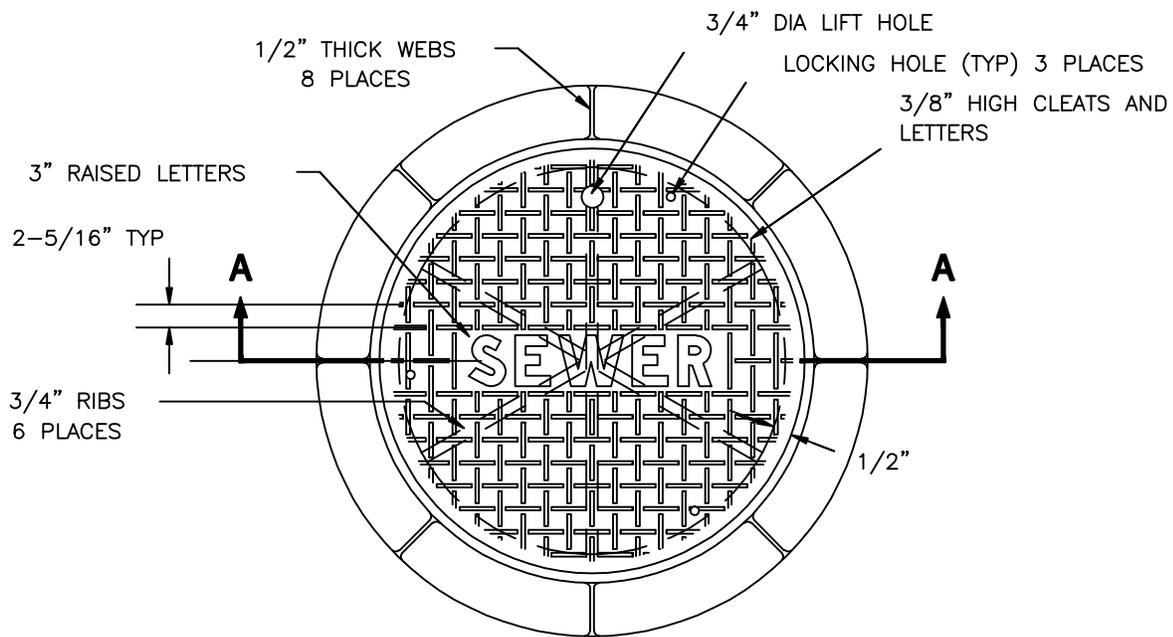


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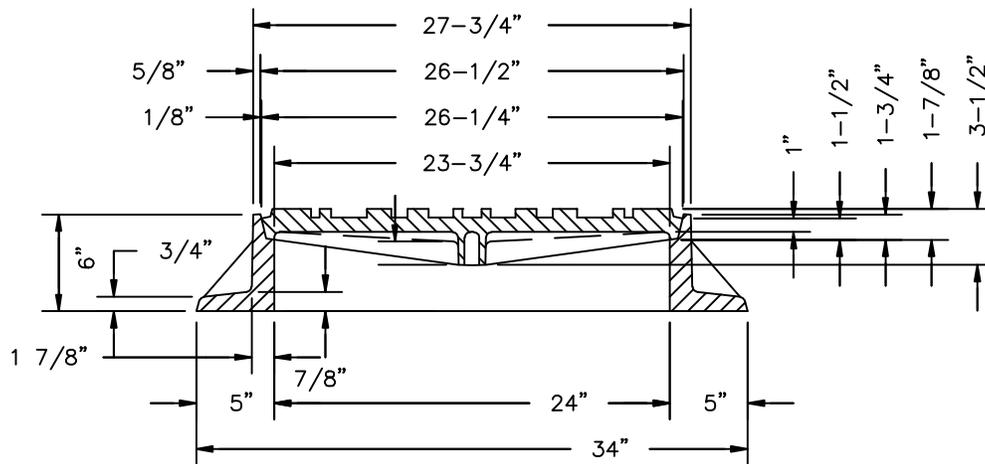
DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

SADDLE MANHOLE

STANDARD DETAIL NUMBER
SS-020



PLAN



SECTION A-A

NOTES:

1. MANHOLE RINGS SHALL BE GRAY IRON CONFORMING TO THE REQUIREMENTS OF AASHTO M 105, GRADE 30B.
2. MANHOLE COVER TO BE DUCTILE IRON CONFORMING TO ASTM A536, GR 80-55-06 OLYMPIC FOUNDRY PART NO. MH30 OR APPROVED EQUAL.
3. LOCKING COVER TO BE USED IN ALL LOCATIONS. THE LID SHALL BE LOCKED DOWN WITH 3-5/8" S.S SOCKET HEAD CAP SCREWS.
4. RING AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY.
5. ALL CASTINGS TO HAVE A BITUMINOUS COATING.



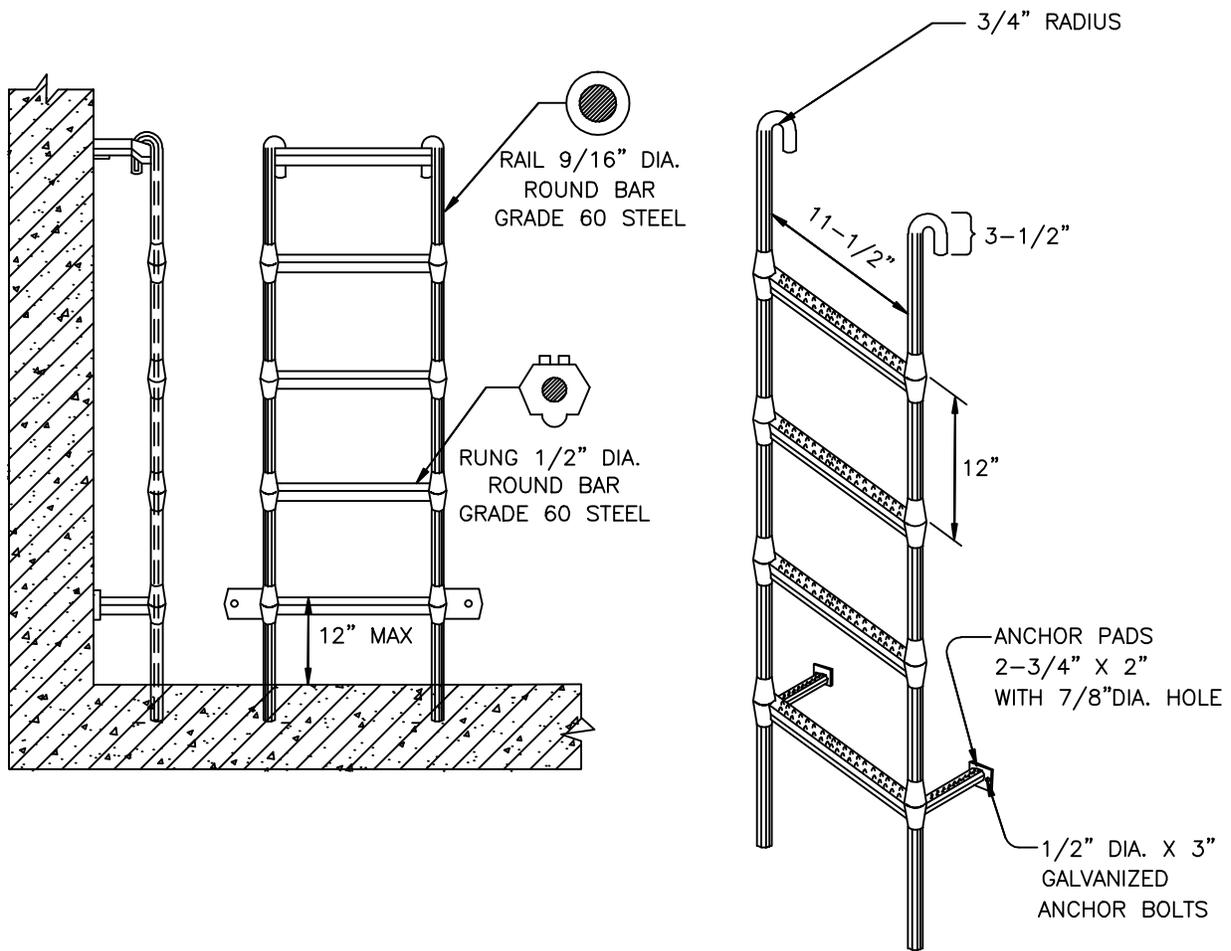
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REF STAD SPEC	

DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

MANHOLE COVER

STANDARD DETAIL
NUMBER

SS-030



NOTES:

1. STEPS SHALL BE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC CONFORMING TO:
 - (A) ASTM C 478 AND AASHTO M-199, MINIMUM HORIZONTAL LOAD SHALL BE 1500 LBS.
 - (B) ASTM A615 GRADE 60 (REINFORCING STEEL BAR).
 - (C) POLYPROPYLENE CONFORMS TO D-4101.
2. MANHOLE STEPS SHALL HAVE MOLDED SAFETY HAND GRIP. RED REFLECTORS ARE REQUIRED.
3. ALL FABRICATION DIMENSIONS INDICATED ARE MINIMUM.
4. THE ENTIRE POLYPROPYLENE PLASTIC MATERIAL SURROUNDING THE REINFORCING STEEL BAR SHALL BE CAST MONOLITHICALLY. MINIMUM COVER SHALL BE 3/16-INCH.
5. STEPS SHALL BE SPACED AT 12 INCHES.
6. LADDER SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED MANUFACTURERS RECOMMENDED PROCEDURES.

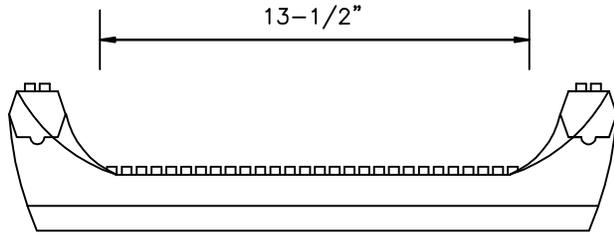


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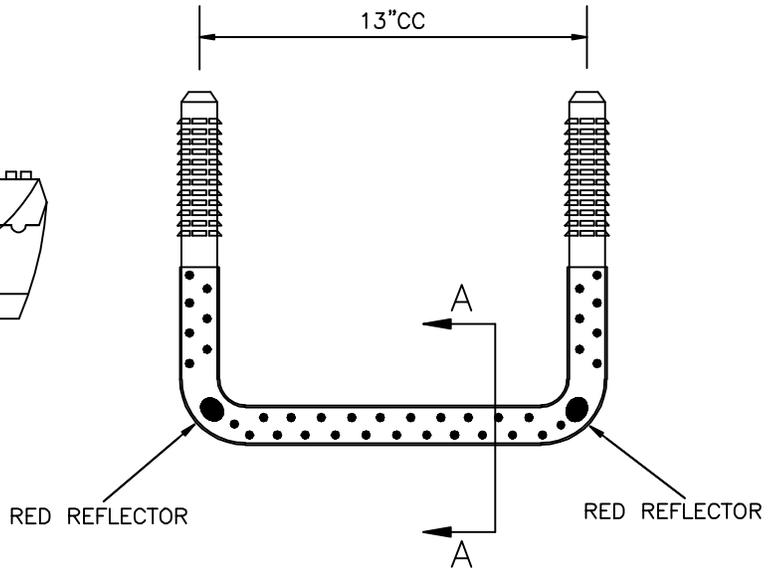
DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

MANHOLE LADDER

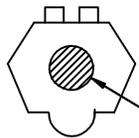
STANDARD DETAIL NUMBER
SS-040



ELEVATION



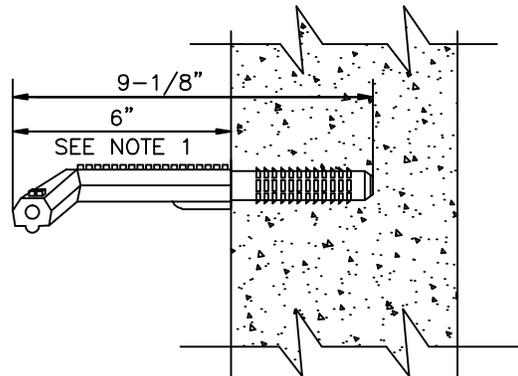
PLAN



1/2" GRADE 60 STEEL
REINFORCING BAR (ASTM A-615)

POLYPROYLENE ASTM D4101
STEP MEETS ASTM C-478

SECTION A-A



SIDE ELEVATION

NOTE:

1. STEPS LOCATED IN RISER SECTIONS SHALL BE 6".



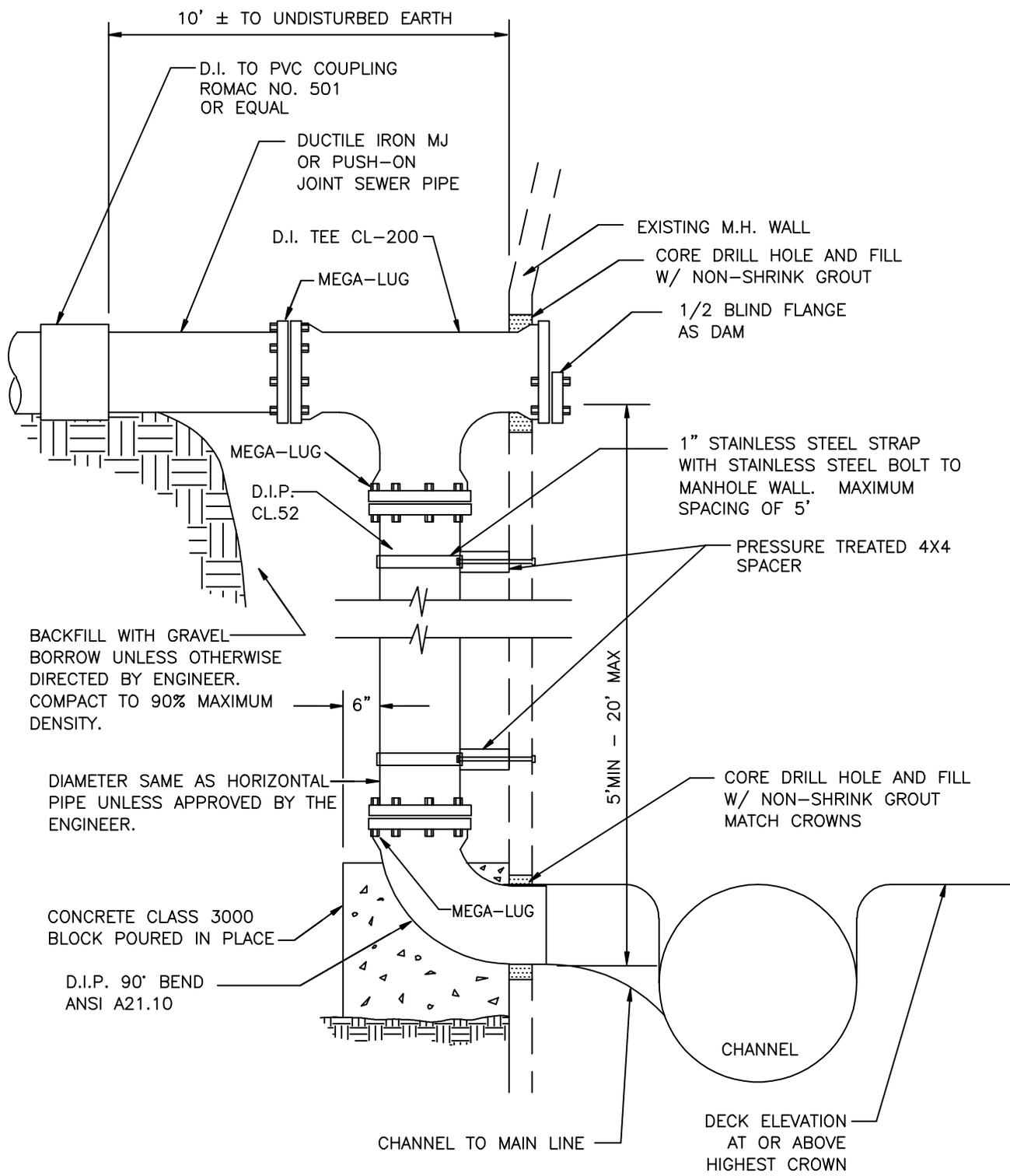
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DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

MANHOLE LADDER STEP

STANDARD DETAIL
NUMBER

SS-050



BACKFILL WITH GRAVEL
BORROW UNLESS OTHERWISE
DIRECTED BY ENGINEER.
COMPACT TO 90% MAXIMUM
DENSITY.

DIAMETER SAME AS HORIZONTAL
PIPE UNLESS APPROVED BY THE
ENGINEER.

CONCRETE CLASS 3000
BLOCK POURED IN PLACE

D.I.P. 90° BEND
ANSI A21.10

1" STAINLESS STEEL STRAP
WITH STAINLESS STEEL BOLT TO
MANHOLE WALL. MAXIMUM
SPACING OF 5'

PRESSURE TREATED 4X4
SPACER

CORE DRILL HOLE AND FILL
W/ NON-SHRINK GROUT
MATCH CROWNS

DECK ELEVATION
AT OR ABOVE
HIGHEST CROWN



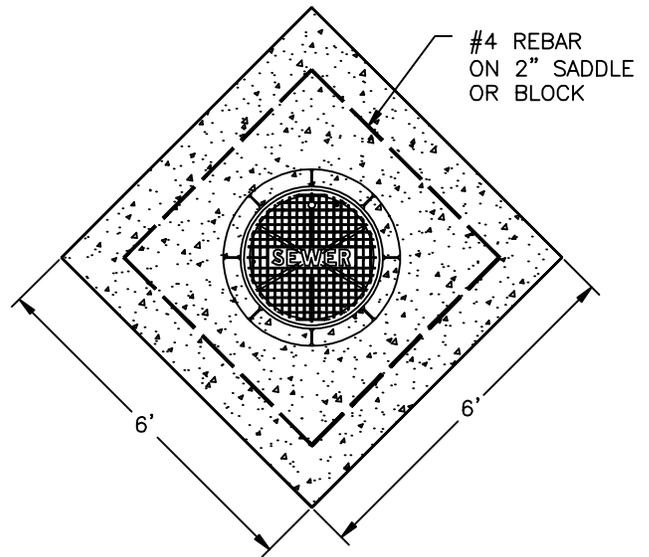
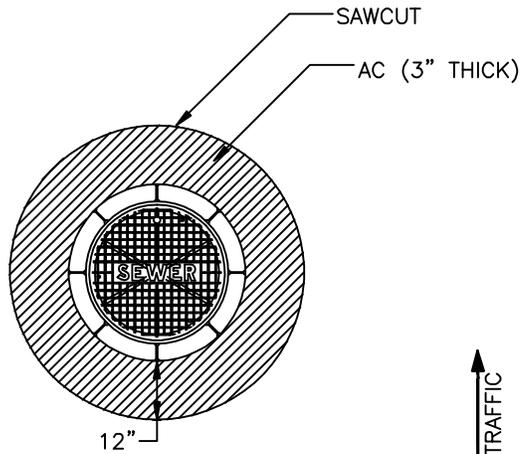
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DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

MANHOLE DROP CONNECTION

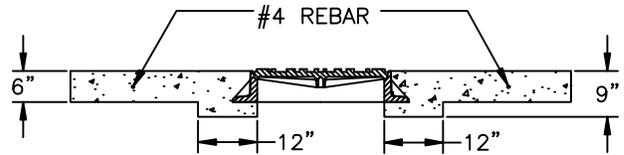
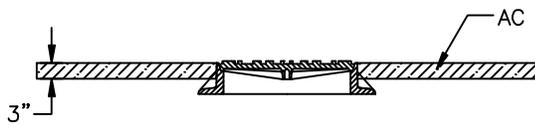
STANDARD DETAIL
NUMBER

SS-060



PAVED TRAFFIC AREAS

OUTSIDE PAVED TRAFFIC AREAS



NOTES:

1. CONCRETE SHALL CONFORM TO CURRENT STANDARDS AND SHALL BE 5.5 SACK MIX. (MINIMUM 3000-PSI 28-DAY STRENGTH)
2. WHERE DEPTH OF NECK EXCEEDS 26 INCHES, ADJUST MANHOLE TO GRADE BY INSERTING A NEW MANHOLE BARREL SECTION BETWEEN THE CONE AND EXISTING BARREL.
3. ADJUSTMENT RINGS/BLOCK, TOP OF CONE SECTION, AND BOTTOM OF IRON RING, SHALL BE WET STACKED IN 3/4" GROUT, PLASTER SMOOTH INSIDE AND OUT.
4. STEPS OR RUNGS SHALL BE ADDED AS NEEDED PER SS-040 AND SS-050.
5. PRECAST ADJUSTMENT RINGS SHALL BE CAST WITH GROOVE TO ALLOW FIELD INSTALLATION OF SAFETY STEP.
6. CONCRETE PERIMETER SEAL SHALL EXTEND TO 12 INCH MINIMUM OR 2 INCHES BELOW THE BOTTOM OF THE ADJUSTMENT RINGS OR BLOCKS.
7. SAWCUT ONLY. NO OVERCUTTING LIMITS OF PATCH.
8. IN NON-TRAFFIC AREAS (LANDSCAPED) THE CONCRETE PAD IS 4" THICK WITHOUT REINFORCEMENT.

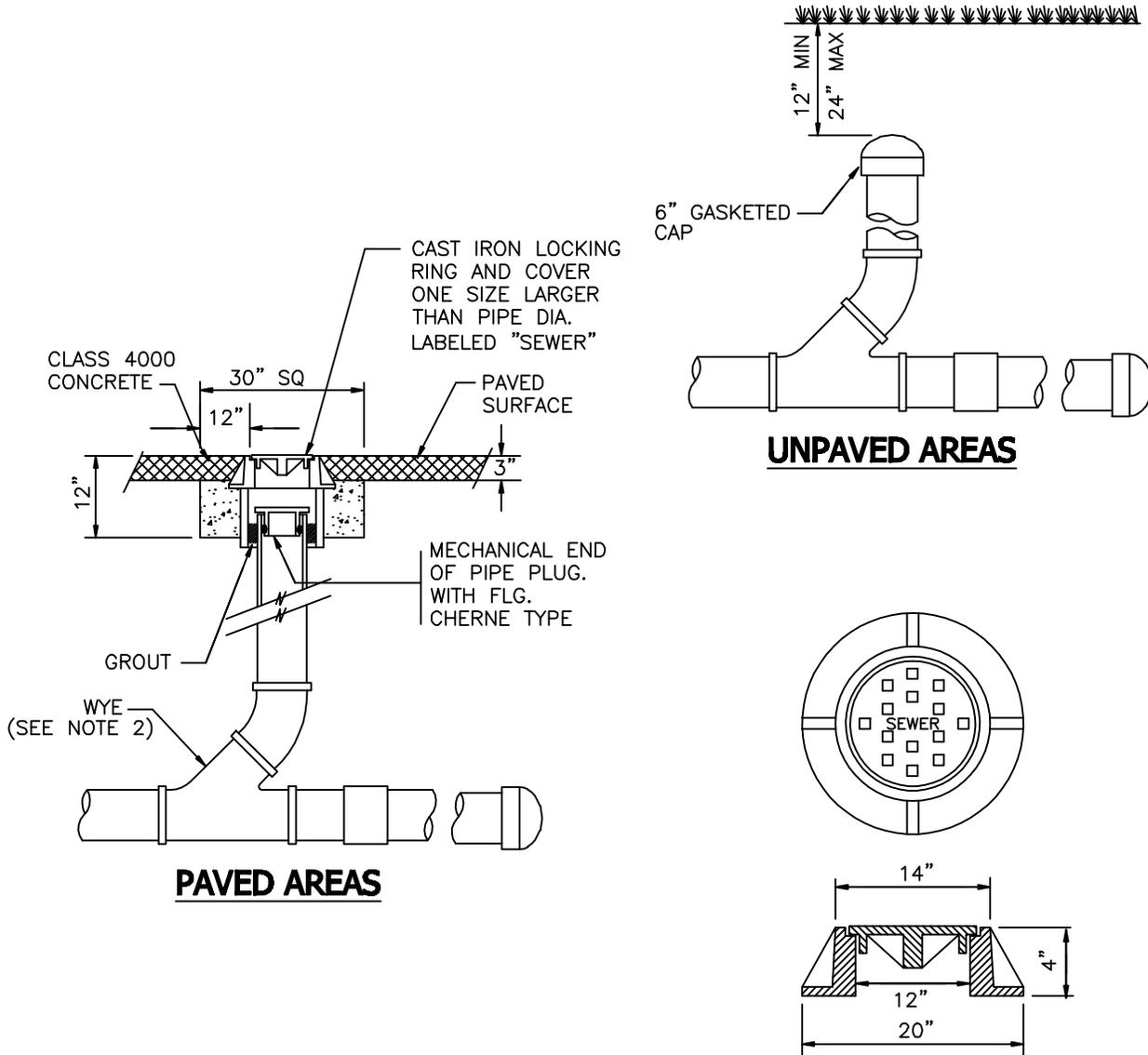


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REF STAD SPEC	

DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

MANHOLE PAD AND ADJUSTMENT

STANDARD DETAIL NUMBER
SS-070



12" CAST IRON LOCKING RING AND COVER

OLYMPIC M1025 OR APPROVED EQUAL

NOTES:

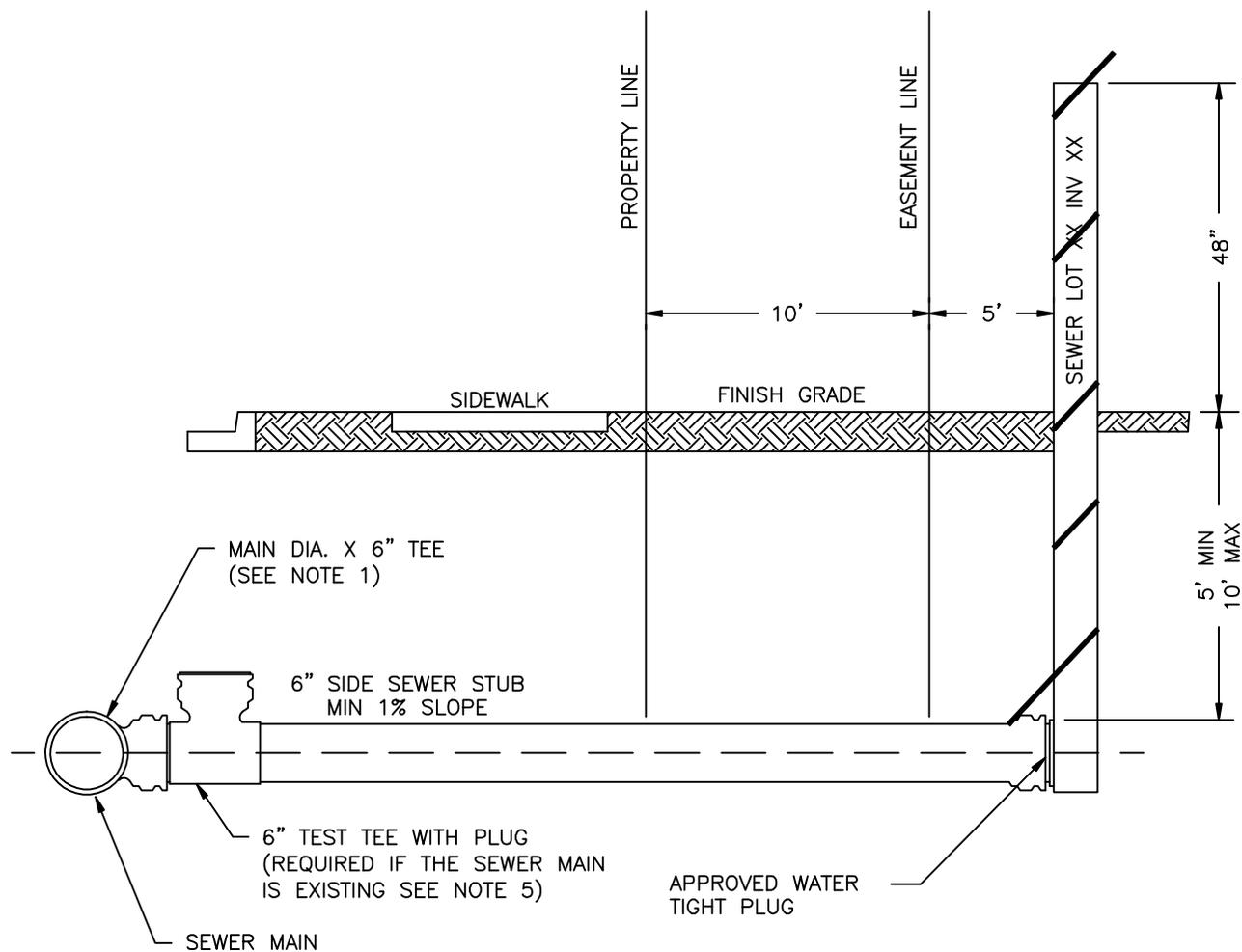
1. CLEAN-OUT PIPE AND FITTINGS SHALL BE THE SAME MATERIAL AS THE SEWER MAIN.
2. A SANITARY TEE, SWEEP, OR STRAIGHT TEE IS NOT ACCEPTABLE.
3. SEWER STUB WILL BE EXTENDED 10' BEYOND PROPERTY LINE AND 5' BEYOND UTILITY EASEMENTS TO PREVENT DAMAGE TO CLEAN-OUT AND MINIMIZE CONFLICTS WITH OTHER UTILITIES WHEN SERVICE TO BUILDING IS ACCOMPLISHED.



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DATE	07/31/2008
REF STAD SPEC	

DEPARTMENT OF PUBLIC WORKS STANDARD DETAIL
SEWER CLEANOUT

STANDARD DETAIL NUMBER
SS-080



NOTES:

1. AT THE CONNECTION TO THE SEWER MAIN A MAIN DIA. X 6" TEE IS REQUIRED FOR NEW SEWER MAINS AND A ROMAC TAPPING TEE OR CORE DRILLED INSERT-A-TEE REQUIRED FOR AN EXISTING SEWER MAIN.
2. 2x4 PRESSURE TREATED MARKER POST SHALL BE PAINTED WHITE WITH BLACK LETTERS "SEWER LOT # INVERT DEPTH".
3. 12 GAUGE WIRE SHALL BE CONNECTED TO PIPE AT INVERT AND WRAPPED AROUND MARKER POST.
4. DETECTOR TAPE REQUIRED FROM SEWER MAIN TO MARKER POST.
5. TEST TEE SHALL BE INSTALLED AT THE SEWER MAIN WHEN A SIDE SEWER IS CONNECTED TO AN EXISTING SEWER MAIN.

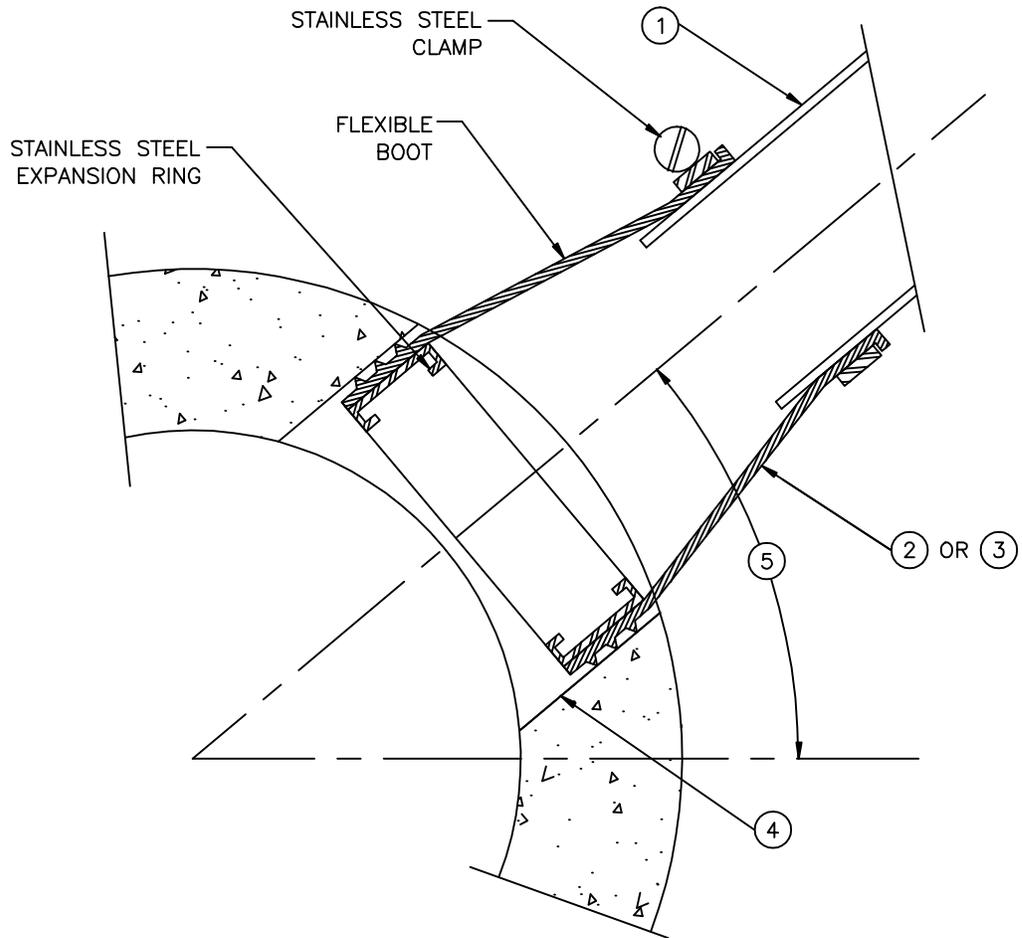


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DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

SIDE SEWER STUB

STANDARD DETAIL NUMBER
SS-090



NOTES:

- ① PVC SIDE SEWER. FOR REMAINDER OF PVC SERVICE SEE SS-090.
- ② ROMAC STYLE CB TAPPING SADDLE OR APPROVED EQUAL ON ALL PIPE.
- ③ CORE-DRILLING WITH INSERT-A-TEE MAY ALSO BE USED ON ALL PIPE.
- ④ CORE DRILL EXISTING MAINLINE PIPE PER MFG'S SPECIFICATIONS.
- ⑤ 35' MIN, 45' MAX.

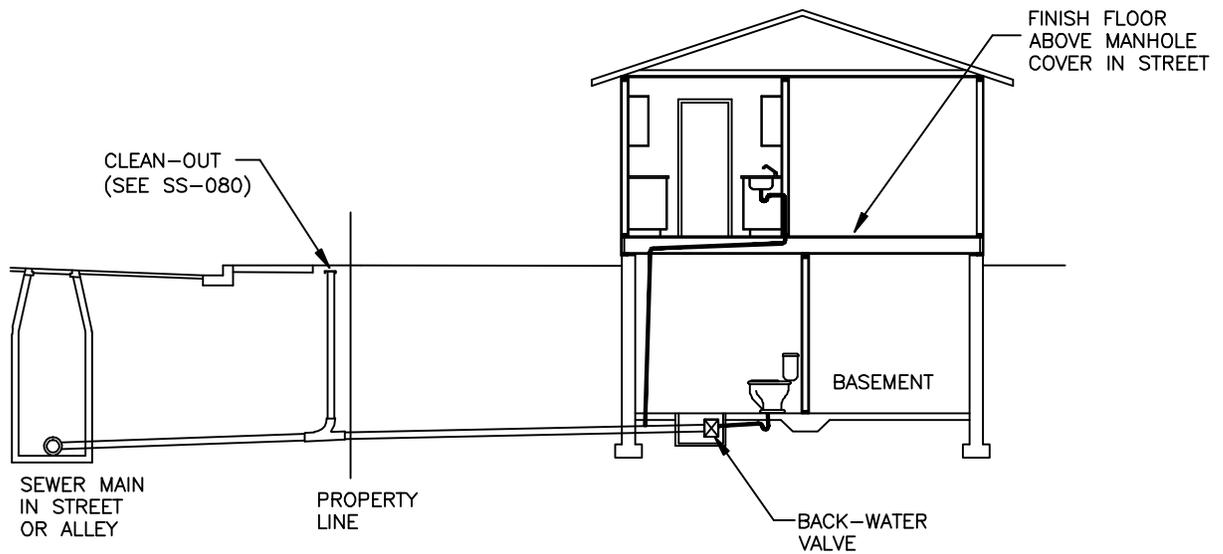


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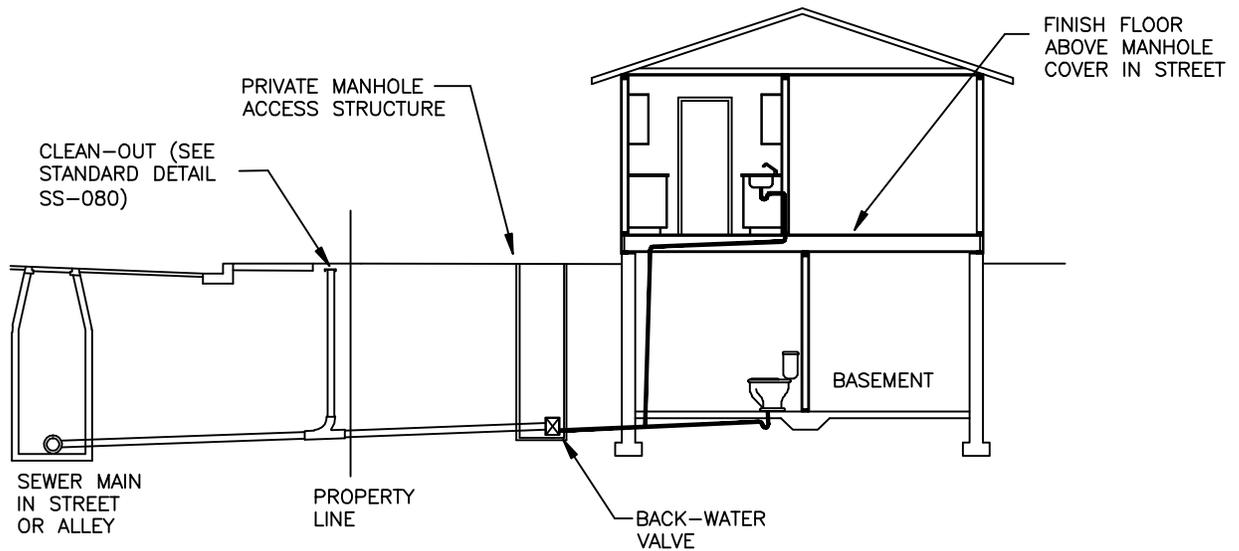
DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

NEW SERVICE ON EXISTING MAIN

STANDARD DETAIL
NUMBER
SS-100



NEW DEEP SIDE-SEWER



RETROFIT EXISTING DEEP SIDE-SEWER

NOTES:

1. ANY PLUMBING WITHIN THE BUILDING MUST COMPLY WITH THE CURRENT CITY OF ARLINGTON ADOPTED PLUMBING CODE.
2. THE SIDE-SEWER OUTSIDE THE BUILDING MUST COMPLY WITH THE CITY OF ARLINGTON PUBLIC WORKS CONSTRUCTION STANDARDS.
3. ALL BACKWATER VALVES MUST BE ACCESSIBLE FOR INSPECTION AND MAINTENANCE BY THE OWNER.



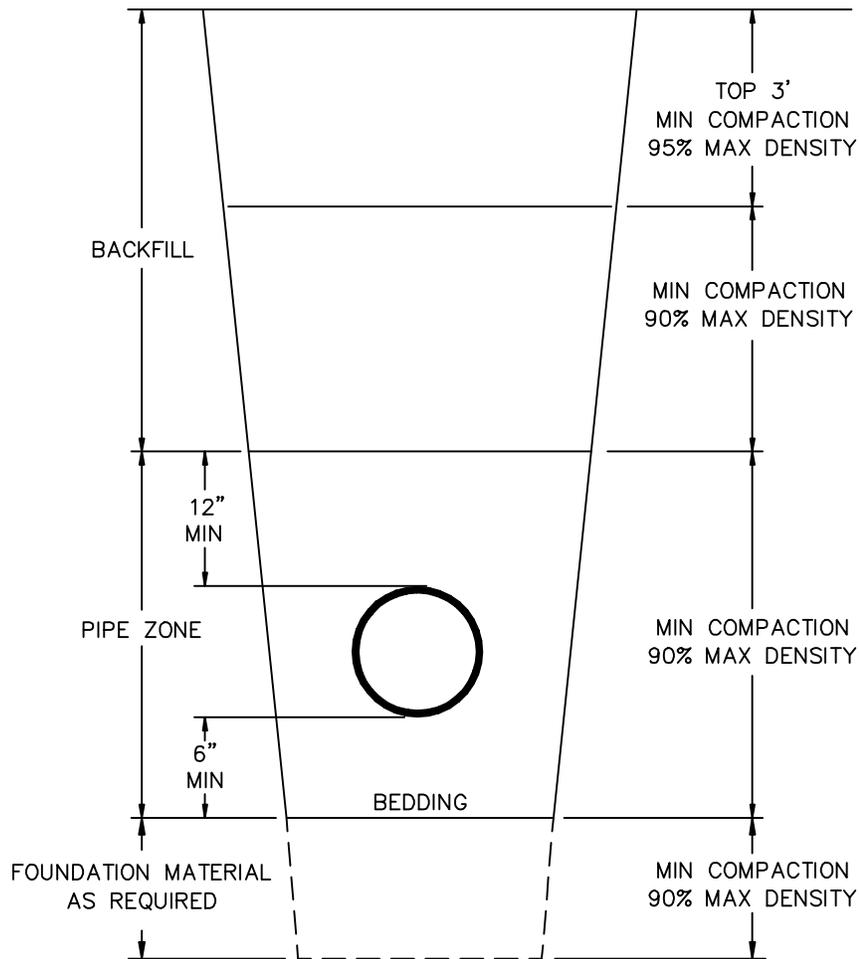
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DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

BACK WATER VALVE

STANDARD DETAIL NUMBER

SS-110



SECTION

NOTES:

1. ALL BACKFILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 12 INCHES BEFORE COMPACTION UNLESS AUTHORIZED BY THE CITY ENGINEER DUE TO THE CHARACTER OF THE MATERIAL AND THE COMPACTING EQUIPMENT.
2. MECHANICAL COMPACTION OF BACK FILL MATERIAL SHALL NOT BEGIN UNTIL THE DEPTH OF COMPACTED BACKFILL MATERIAL IS 2 FEET ABOVE THE TOP OF PIPE.
3. EACH LIFT SHALL BE MECHANICALLY COMPACTED TO THE REQUIRED DENSITY PRIOR TO PLACING SUCCEEDING LIFTS OF BACKFILL MATERIAL.
4. COMPACTION TESTS SHALL BE AS REQUIRED BY THE CITY ENGINEER, BUT IN NO CASE LESS THAN 2 TESTS EVERY 200 FEET OF TRENCH (ONE AT SUBGRADE AND ONE AT 50% OF TRENCH DEPTH).
5. IN-PLACE DENSITY AND MOISTURE CONTENT WILL BE DETERMINED USING NUCLEAR METHOD, ASTM 2922-71.
6. LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT WILL BE DETERMINED USING THE MODIFIED PROCTOR METHOD IN ACCORDANCE WITH ASTM D-1557.
7. BEDDING MATERIAL SHALL BE $\frac{3}{8}$ " MINUS.



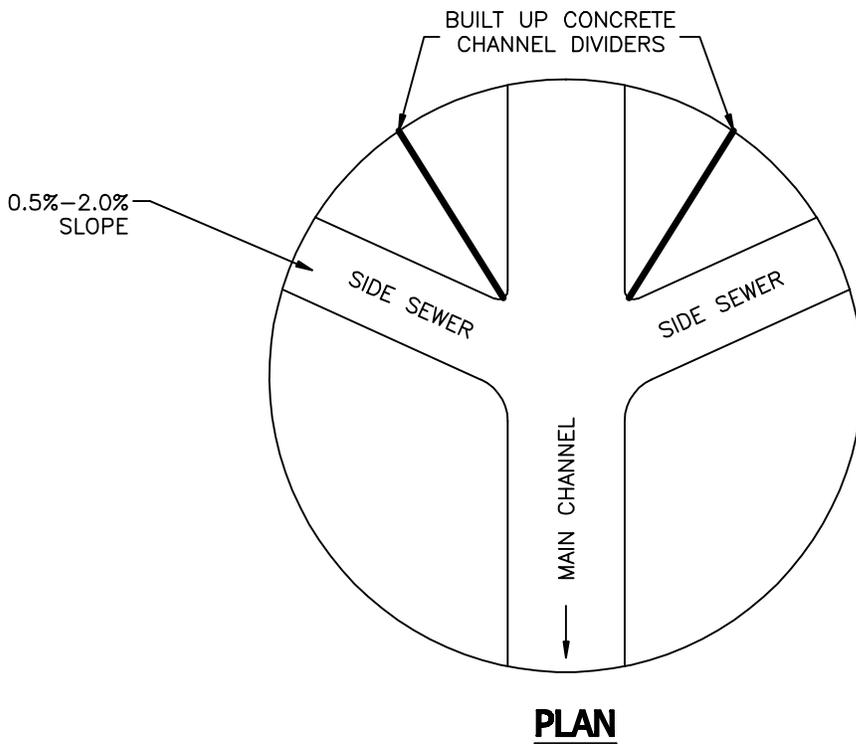
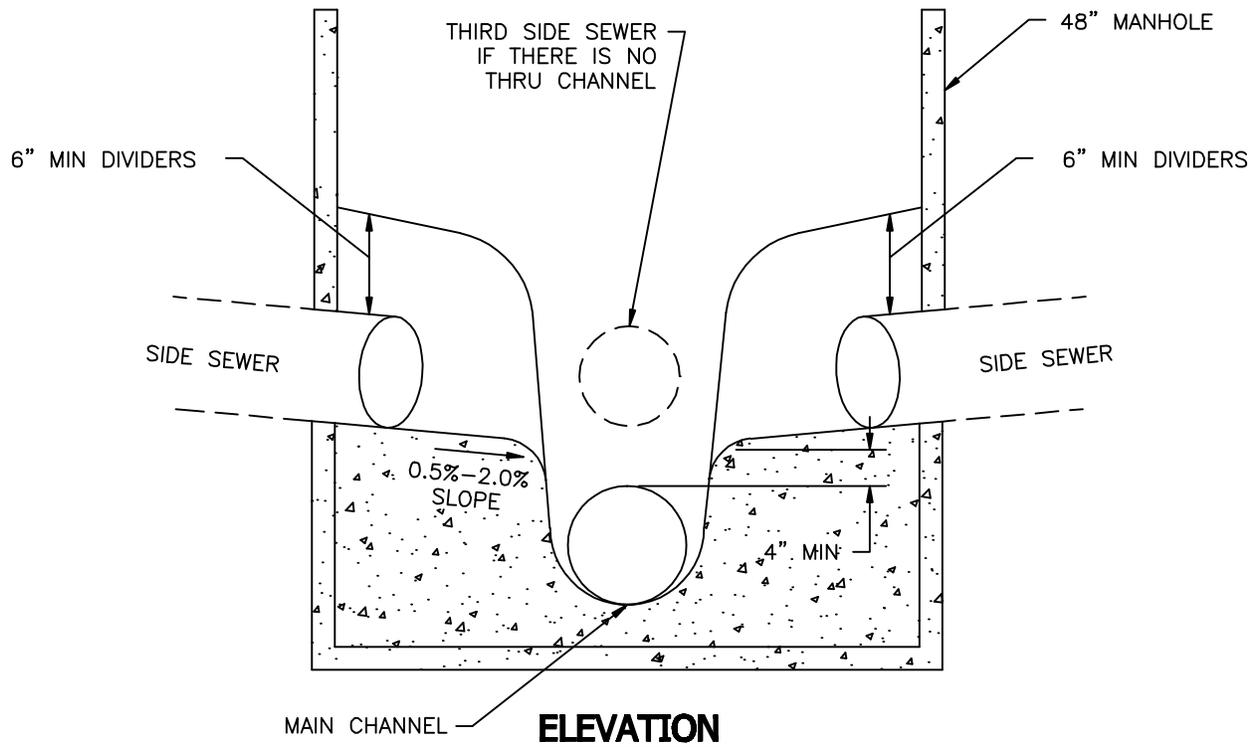
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**DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL**

TRENCH SECTION

STANDARD DETAIL
NUMBER

SS-120



48" TYPE I OR II SEWER MANHOLE



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DEPARTMENT OF PUBLIC WORKS
STANDARD DETAIL

MONITORING MANHOLE

STANDARD DETAIL
NUMBER

SS-130