CITY OF McFARLAND ENGINEERING STANDARDS

JULY 2022

PUBLIC WORKS DEPARTMENT

ENGINEERING DIVISION

401 W. Kern Ave.
McFarland, CA 93250
(661) 792-3629

CITY OF McFARLAND
SEWER STANDARDS

JULY 2022

APPROVED BY THE ENGINEER:

Approved on: July 15, 2022

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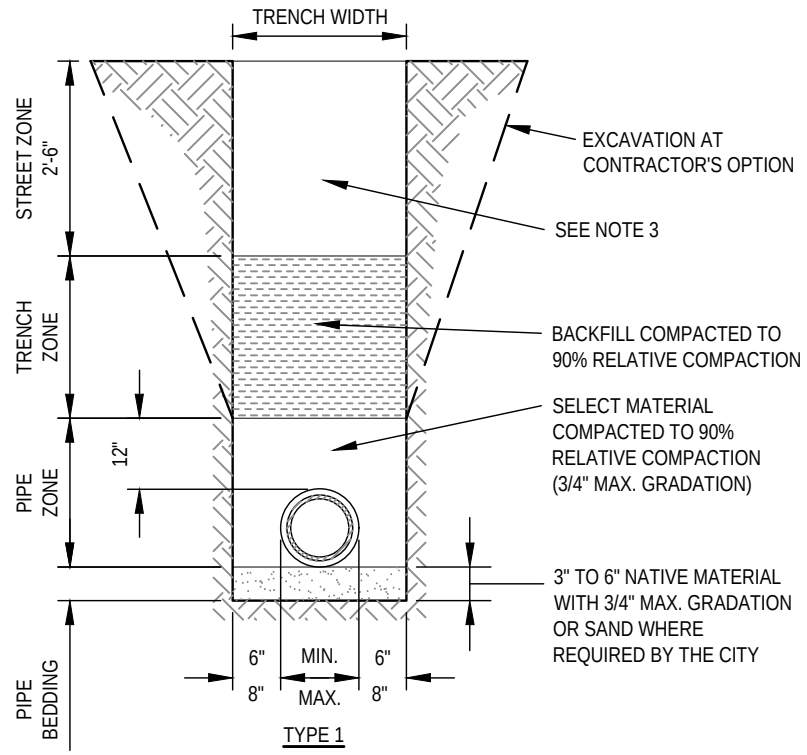
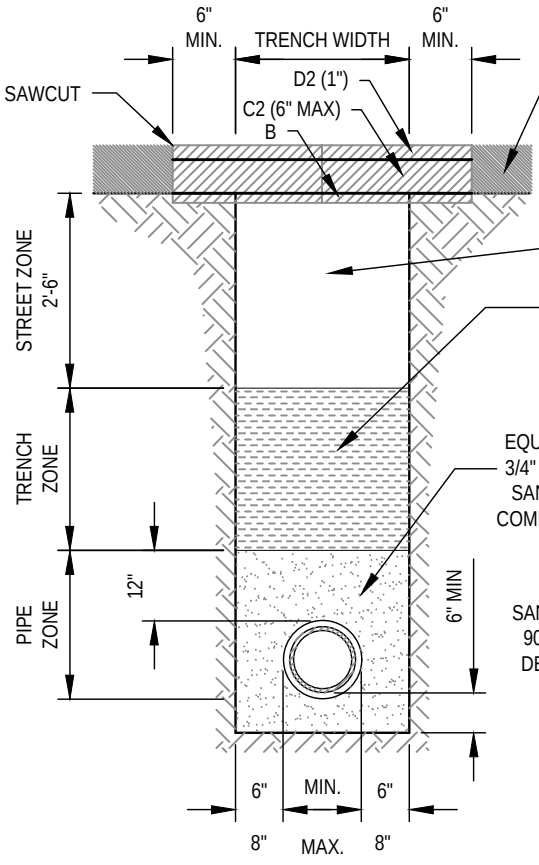
SEWER STANDARD DETAILS



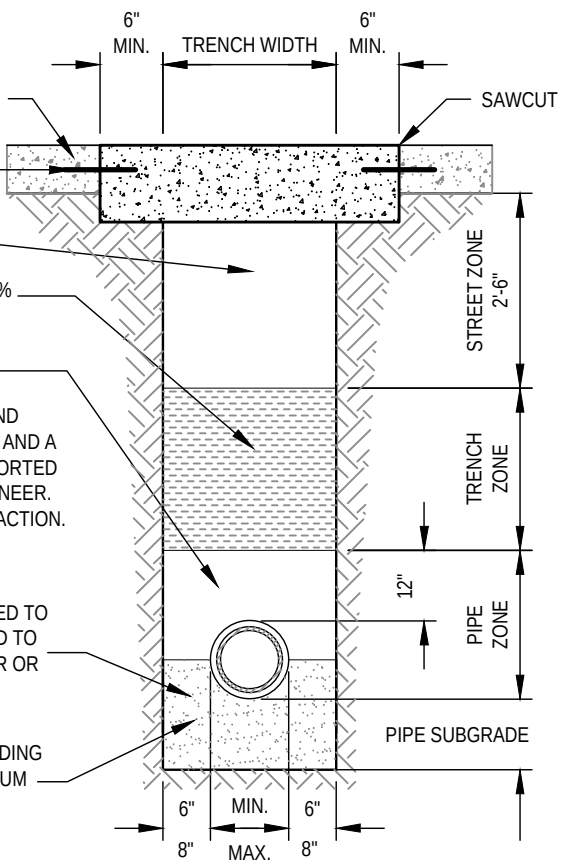
TYPE 1

NOTES:

1. SAND AND SELECT MATERIAL SHALL BE PER STANDARD SPECIFICATIONS FOR EARTHWORK.
2. SEE STANDARD SPECIFICATIONS FOR EARTHWORK IF TRENCH WIDTH EXCEEDS THE MAXIMUM SHOWN ON THIS DRAWING.
3. STREET ZONE TO BE COMPACTED TO 95% RELATIVE COMPACTION IF WITHIN ROADBED OR TO 90% RELATIVE COMPACTION IF OUTSIDE OF ROADBED. SEE STANDARD SPECIFICATIONS FOR EARTHWORK.
4. MINIMUM COVER OVER ALL SEWER MAINS TO BE 6' AS MEASURED FROM FINISHED GRADE.
5. PERCENT RELATIVE COMPACTION IS THE PERCENT OF THE MAX. DRY DENSITY AS DETERMINED BY ASTM D-1557 (5 LAYER).
6. PAVEMENT, BASE, AND SUBBASE SHALL BE REPLACED IN STREET ZONE PER STANDARD SPECIFICATIONS.
8. PAVE 6" A.C. (OR EXISTING PAVEMENT THICKNESS PLUS 1", WHICHEVER IS GREATER) WITH D2-PG-6410, C2-PG-6410 A.C., B-PG-6410 REFER TO APWA STD PLAN 132-3 AND 133-3 (SHOWN IN TYPE 2 BELOW). OR PLACE 8" P.C.C. CLASS 520-A-2500 (OR EXISTING PAVEMENT THICKNESS PLUS 1", WHICHEVER IS GREATER) TO NEAREST SCORE LINE REFER TO APWA STD PLAN 132-3 (SHOWN IN TYPE 3 BELOW).



TYPE 2
ROCKY OR OVER-EXCAVATED



TYPE 3
UNSUITABLE MATERIALS IN SUBGRADE

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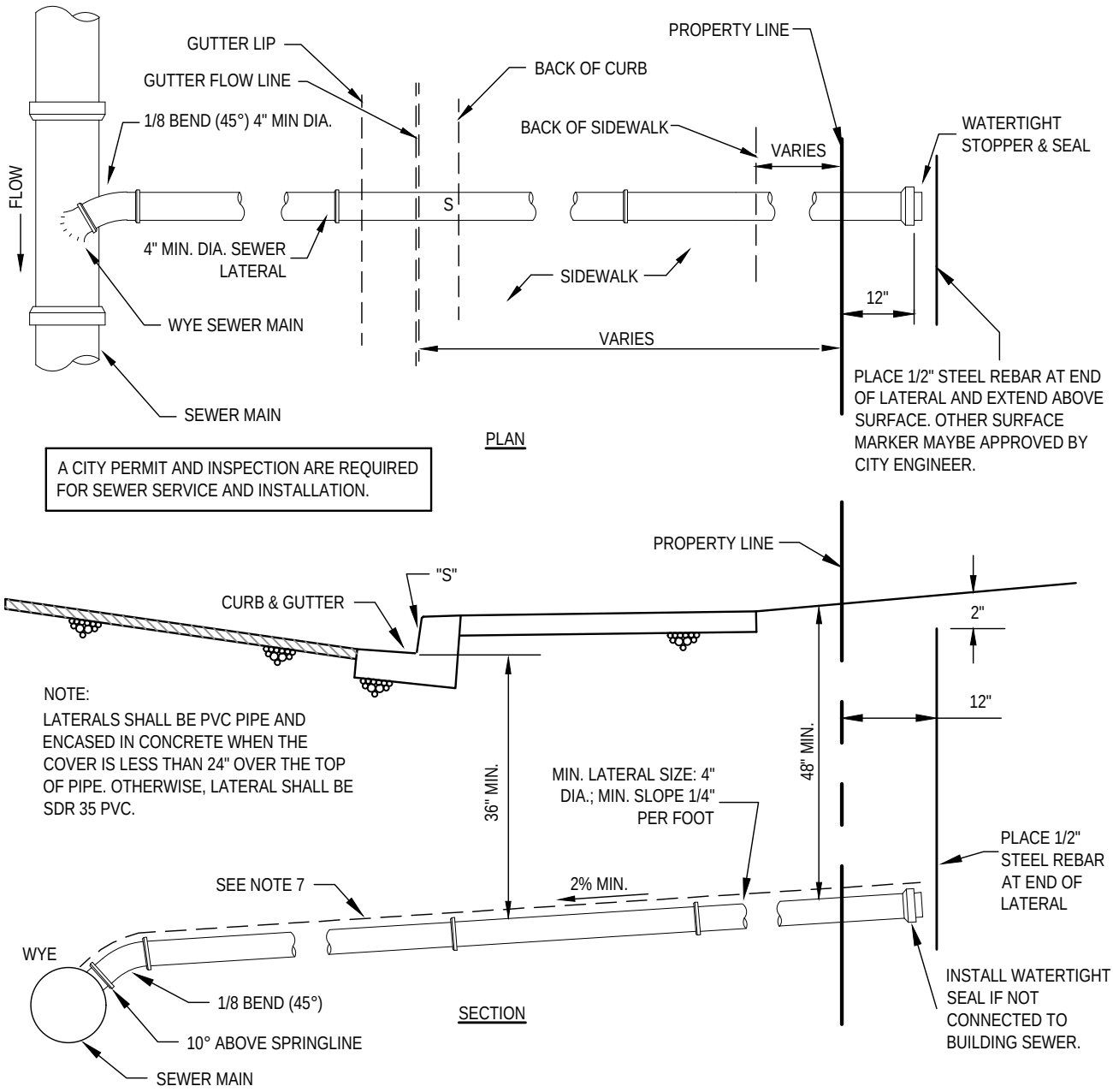
SEWER PIPE BEDDING AND BACKFILL DETAILS

S-1



NOTES:

1. "S" SHALL BE MARKED ON CURB FACE OVER LATERAL.
2. THE "S" SHALL BE STAMPED INTO NEW CONCRETE AND SHALL BE CHISELED INTO EXISTING CONCRETE.
3. THE "S" SHALL BE NOT LESS THAN 3" HIGH, 2" WIDE AND 3/16" DEEP.
4. MAINTAIN MINIMUM 10' HORIZONTAL SEPARATION FROM WATER SERVICE.
5. LATERAL SEWERS SHALL NOT BE LOCATED IN DRIVEWAYS UNLESS APPROVED BY THE CITY ENGINEER.
6. FOR LATERAL SEWERS CONNECTING ONTO EXIST. SEWER MAIN, A SEWER SADDLE MAYBE USED AS DIRECTED BY THE CITY ENGINEER.
7. LOCATOR WIRE: USE 14 GAUGE SOLID-CORE COPPER INSULATED WIRE FOR ALL SERVICE ASSEMBLES.

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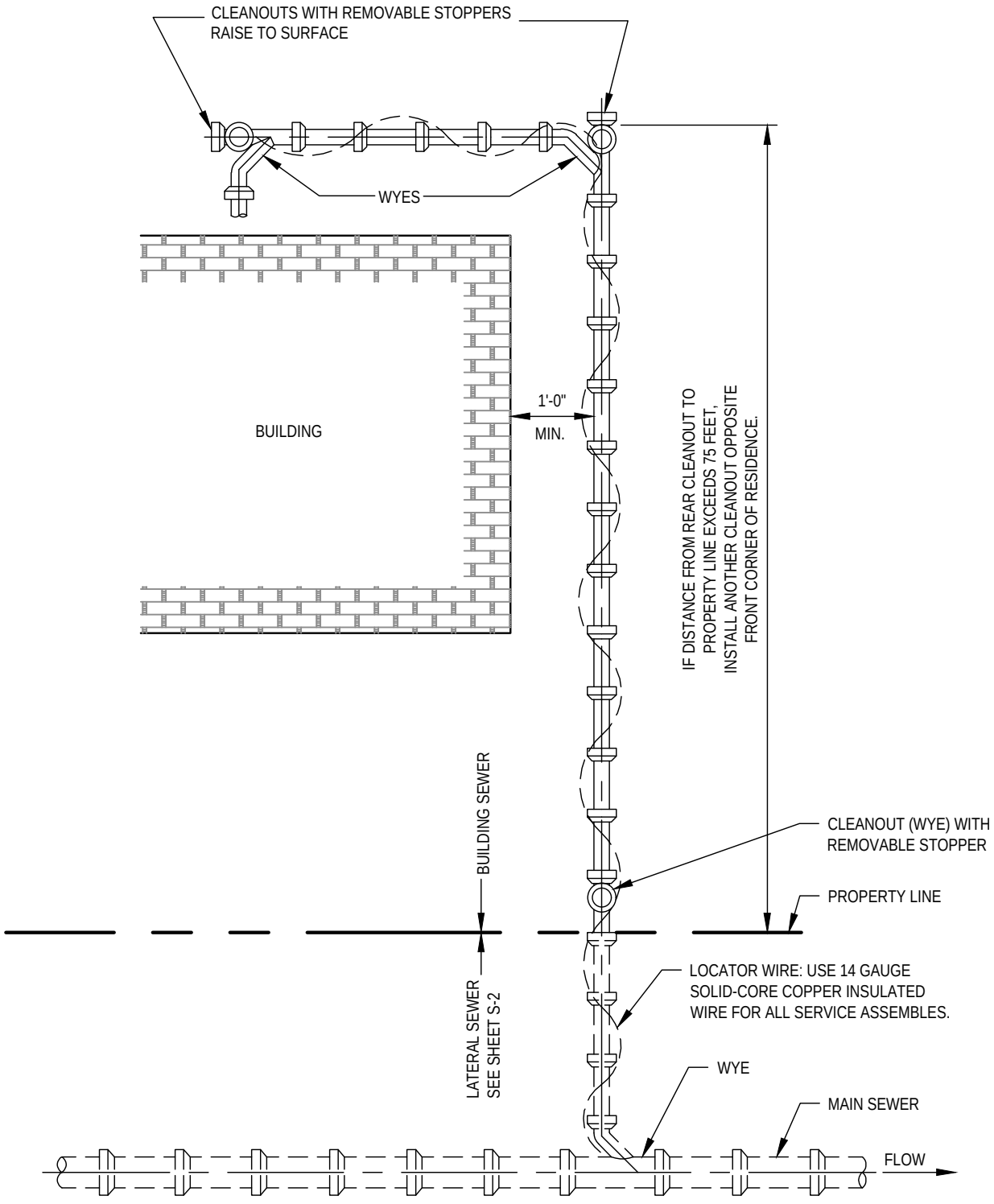
TYPICAL SEWER LATERAL

S-2



PLAN

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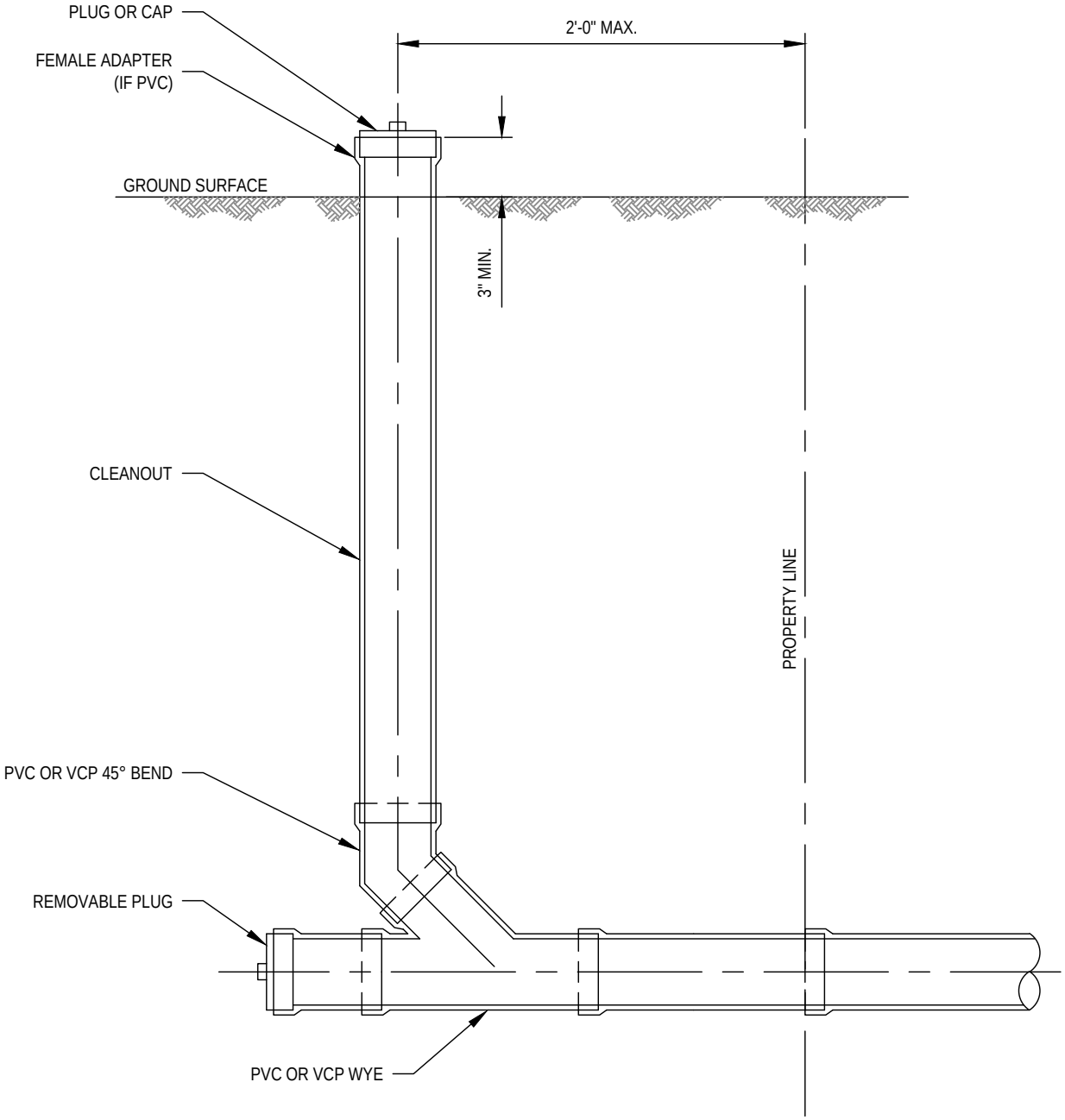
TYPICAL HOUSE CONNECTION

S-3



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CITY OF McFARLAND
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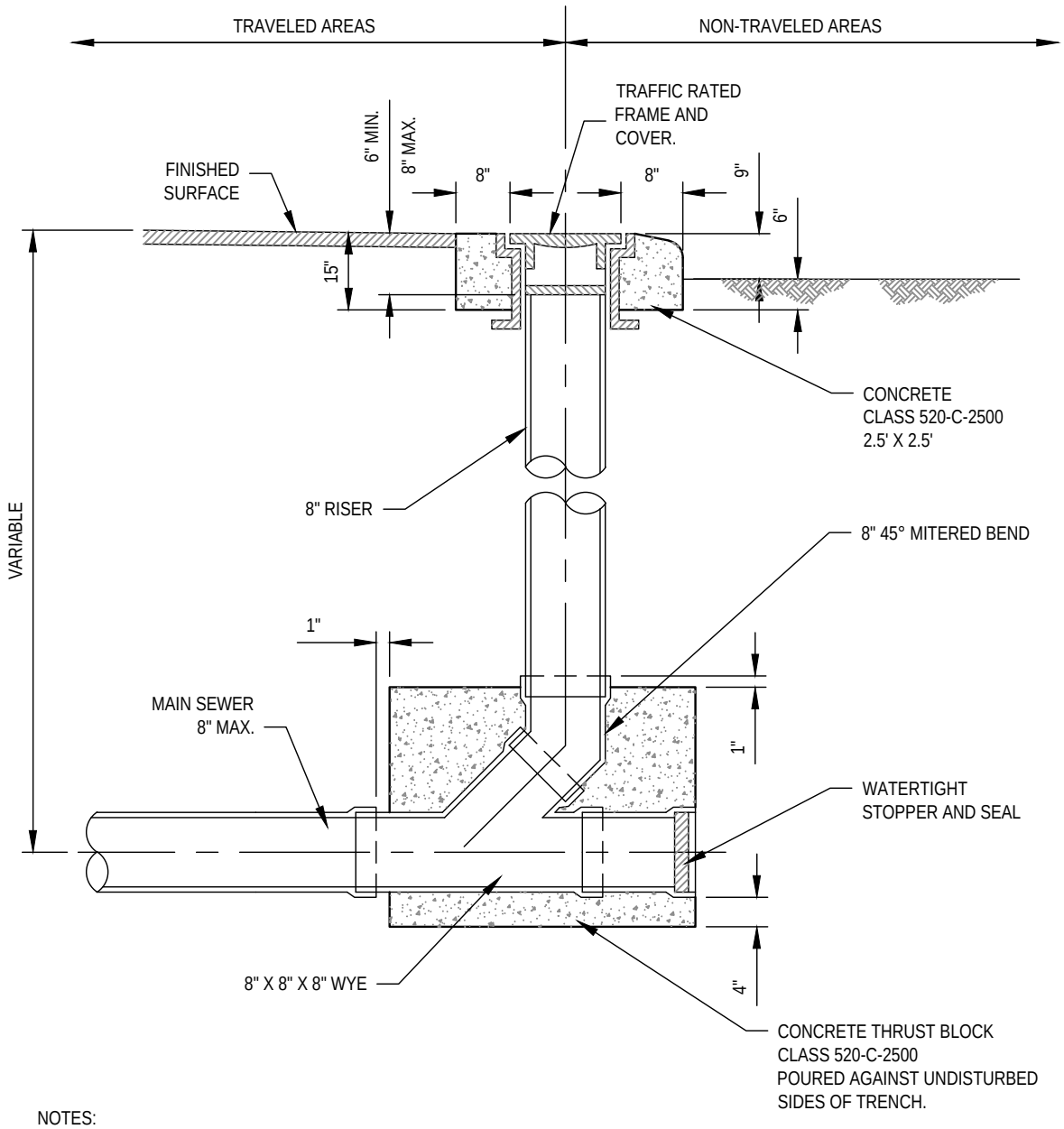
HOUSE STANDARD CLEANOUT

S-4



NOTES:

1. RISER SHALL BE OF SAME MATERIAL AS SEWER PIPE.
2. FRAME AND COVER SHALL BE ALHAMBRA FOUNDRY A-1240 OR APPROVED EQUAL.
3. SET FRAME AND COVER FLUSH WITH PAVEMENT GRADE, EXCEPT WHEN CONSTRUCTED IN EXISTING ROADSIDE DITCH, RIGHT-OF-WAY, OR EASEMENT, SEE "ALTERNATE COLLAR" DWG. S-9A.
4. CLEANOUT LARGER THAN 8" SHALL BE PROVIDED SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.
5. ALL PIPE AND FITTINGS SHALL BE SDR-35 P.V.C. PER ASTM 3034.

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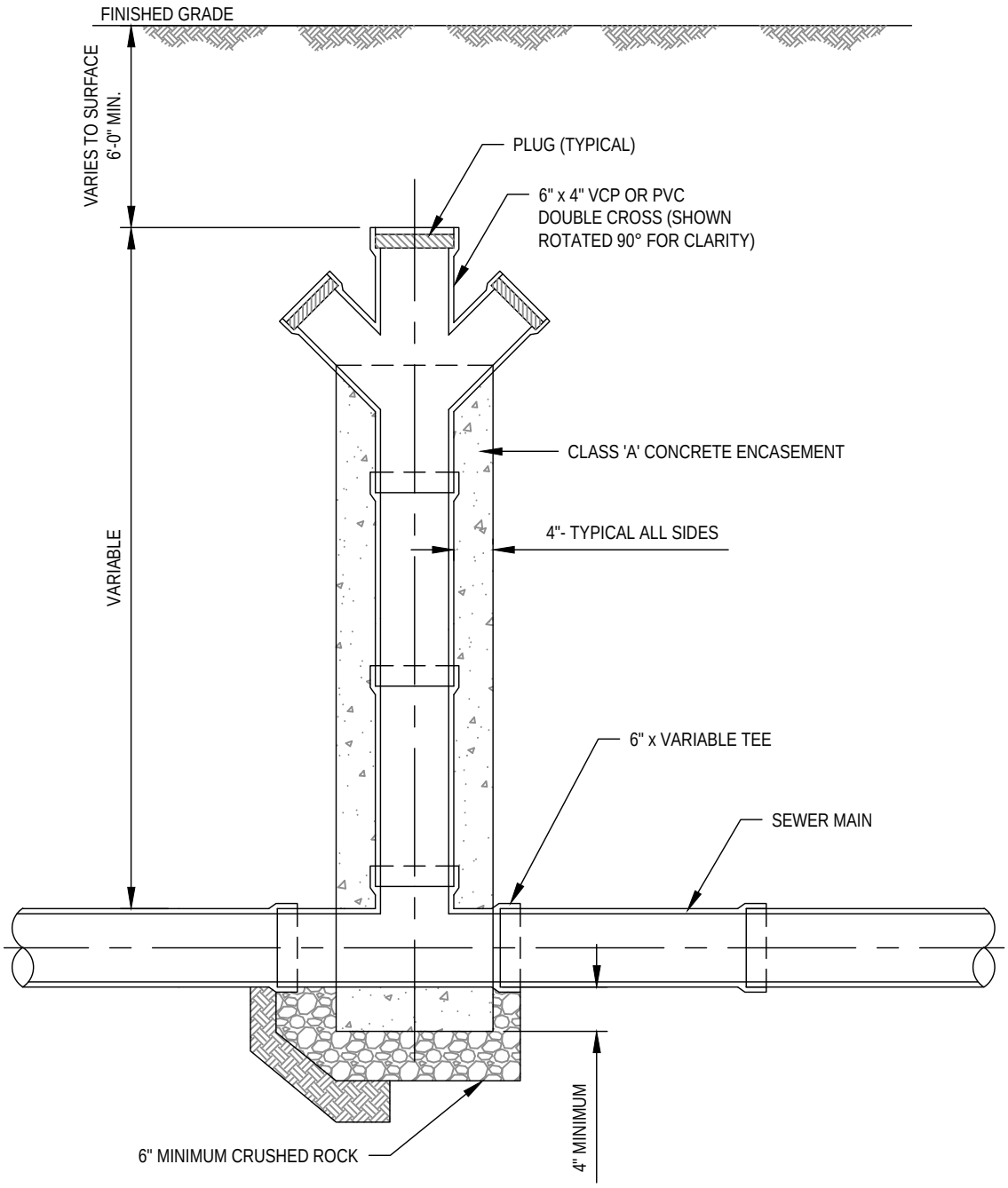
MAIN SEWER LINE STANDARD CLEANOUT

S-5



SECTION

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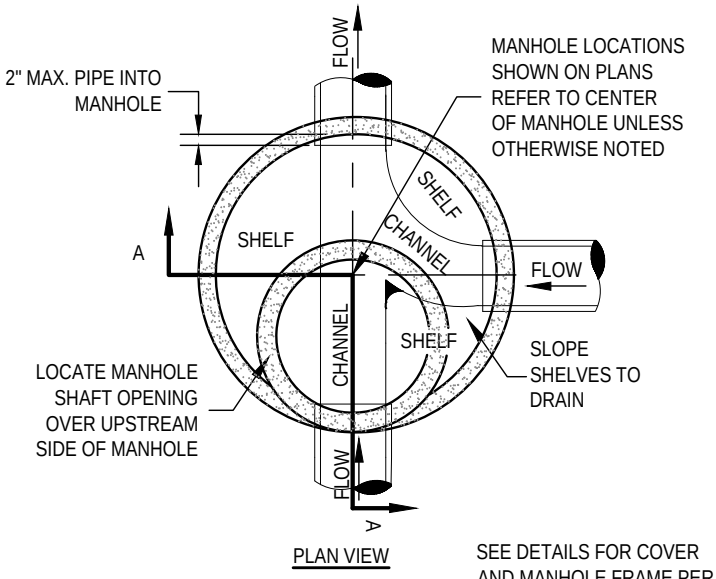
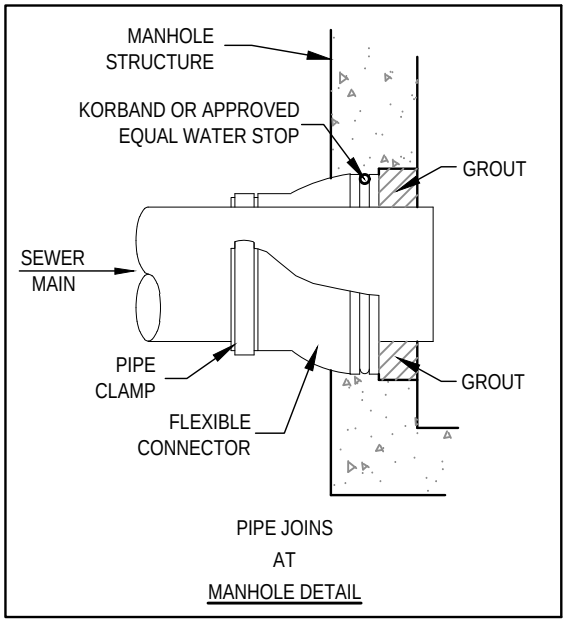
STANDARD CHIMNEY

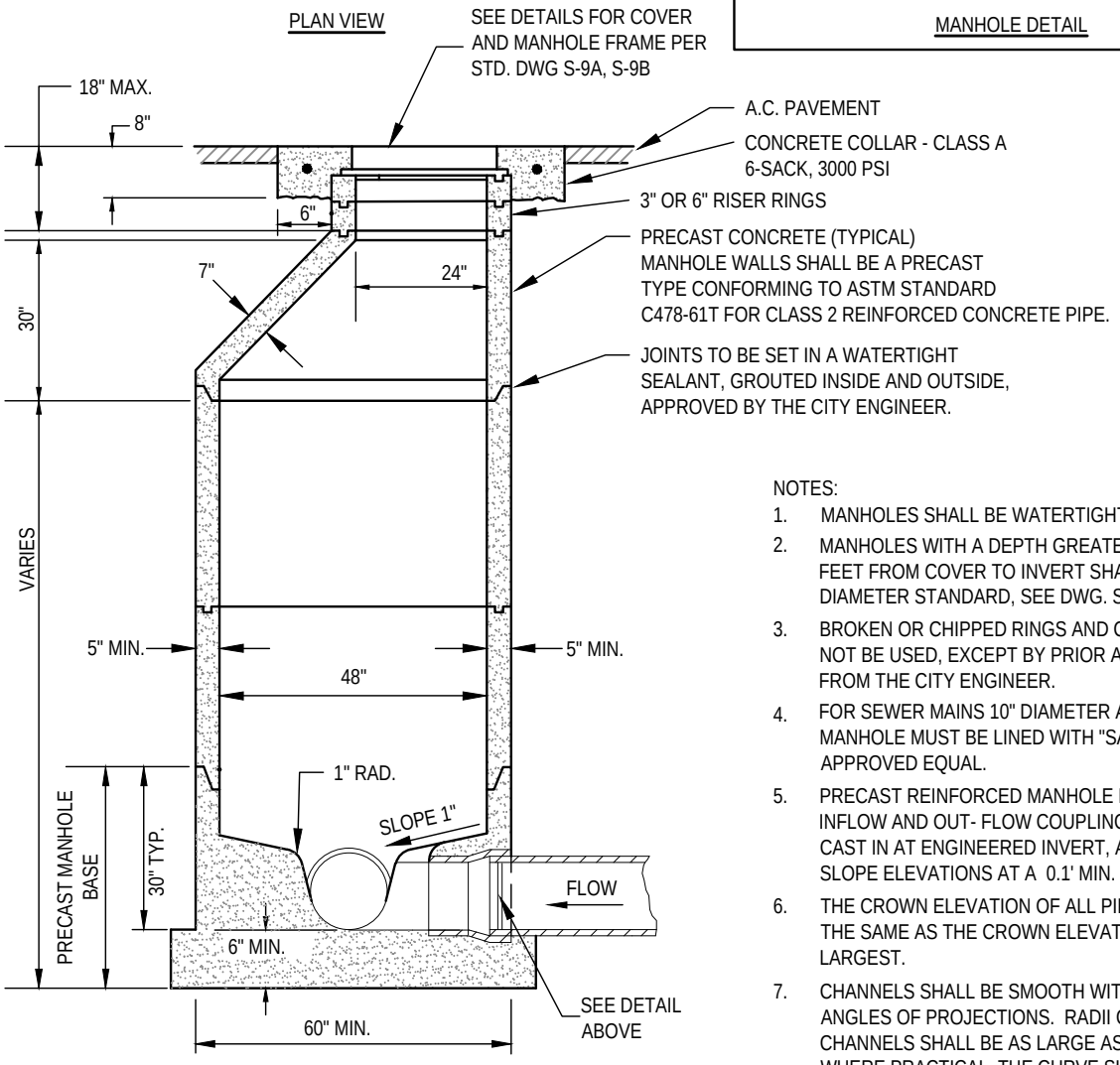
S-6



PLAN VIEW



PIPE JOINS AT MANHOLE DETAIL



SECTION A-A

NOTES:

1. MANHOLES SHALL BE WATERTIGHT.
2. MANHOLES WITH A DEPTH GREATER THAN 10 FEET FROM COVER TO INVERT SHALL BE 60" DIAMETER STANDARD, SEE DWG. S-8.
3. BROKEN OR CHIPPED RINGS AND CONES SHALL NOT BE USED, EXCEPT BY PRIOR APPROVAL FROM THE CITY ENGINEER.
4. FOR SEWER MAINS 10" DIAMETER AND LARGER, MANHOLE MUST BE LINED WITH "SANCON" OR APPROVED EQUAL.
5. PRECAST REINFORCED MANHOLE BASES WITH INFLOW AND OUT- FLOW COUPLINGS SHALL BE CAST IN AT ENGINEERED INVERT, ANGLE AND SLOPE ELEVATIONS AT A 0.1' MIN. GRADIENT.
6. THE CROWN ELEVATION OF ALL PIPES SHALL BE THE SAME AS THE CROWN ELEVATION OF THE LARGEST.
7. CHANNELS SHALL BE SMOOTH WITH NO SHARP ANGLES OF PROJECTIONS. RADII OF CURVED CHANNELS SHALL BE AS LARGE AS POSSIBLE. WHERE PRACTICAL, THE CURVE SHALL BE TANGENT TO THE CHANNEL WITH WHICH IT CONNECTS.

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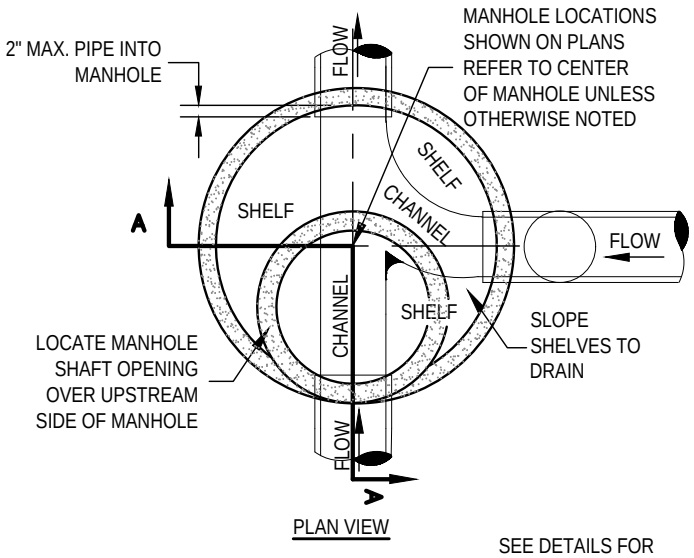
48" I.D. STANDARD MANHOLE WITH PRECAST BASE

S-7A



PLAN VIEW

NOTES:

1. MANHOLES SHALL BE WATERTIGHT.
2. MANHOLES WITH A DEPTH GREATER THAN 10 FEET FROM MANHOLE COVER TO INVERT SHALL BE 60" DIAMETER STANDARD, SEE DWG. S-8.
3. BROKEN OR CHIPPED RINGS AND CONES SHALL NOT BE USED, EXCEPT BY PRIOR APPROVAL FROM THE CITY ENGINEER.
4. FOR SEWER MAINS 10" DIAMETER AND LARGER, MANHOLE MUST BE LINED WITH "SANCON" OR APPROVED EQUAL.
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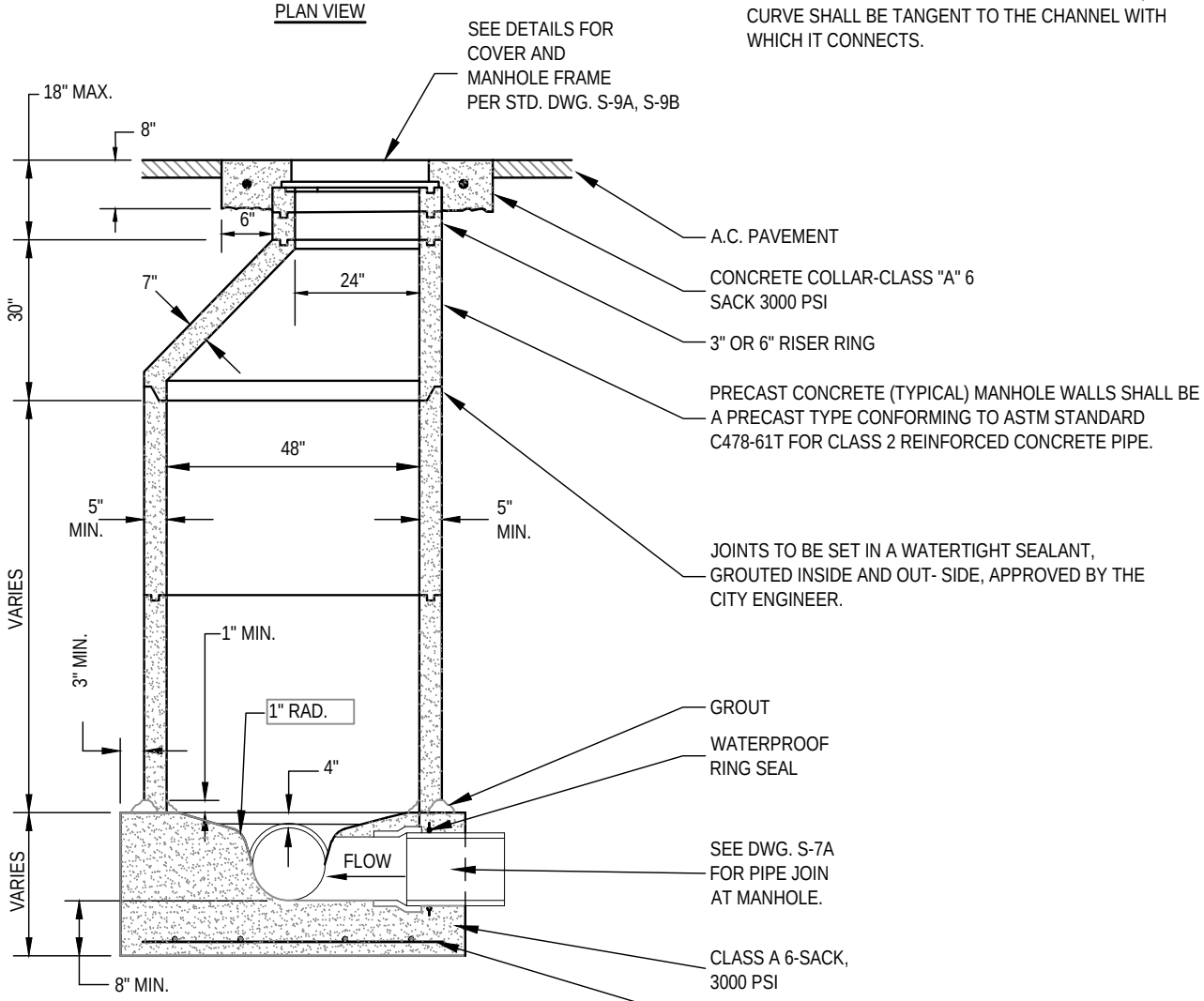

SECTION A-A

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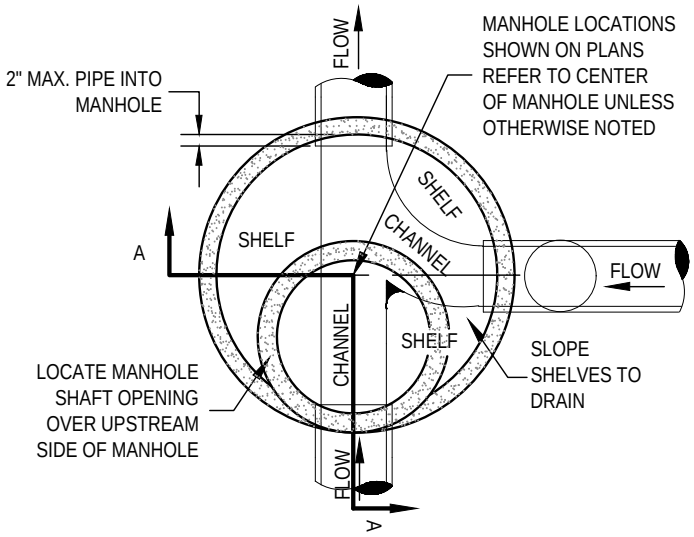
48" I.D. STANDARD MANHOLE WITH CAST-IN-PLACE BASE

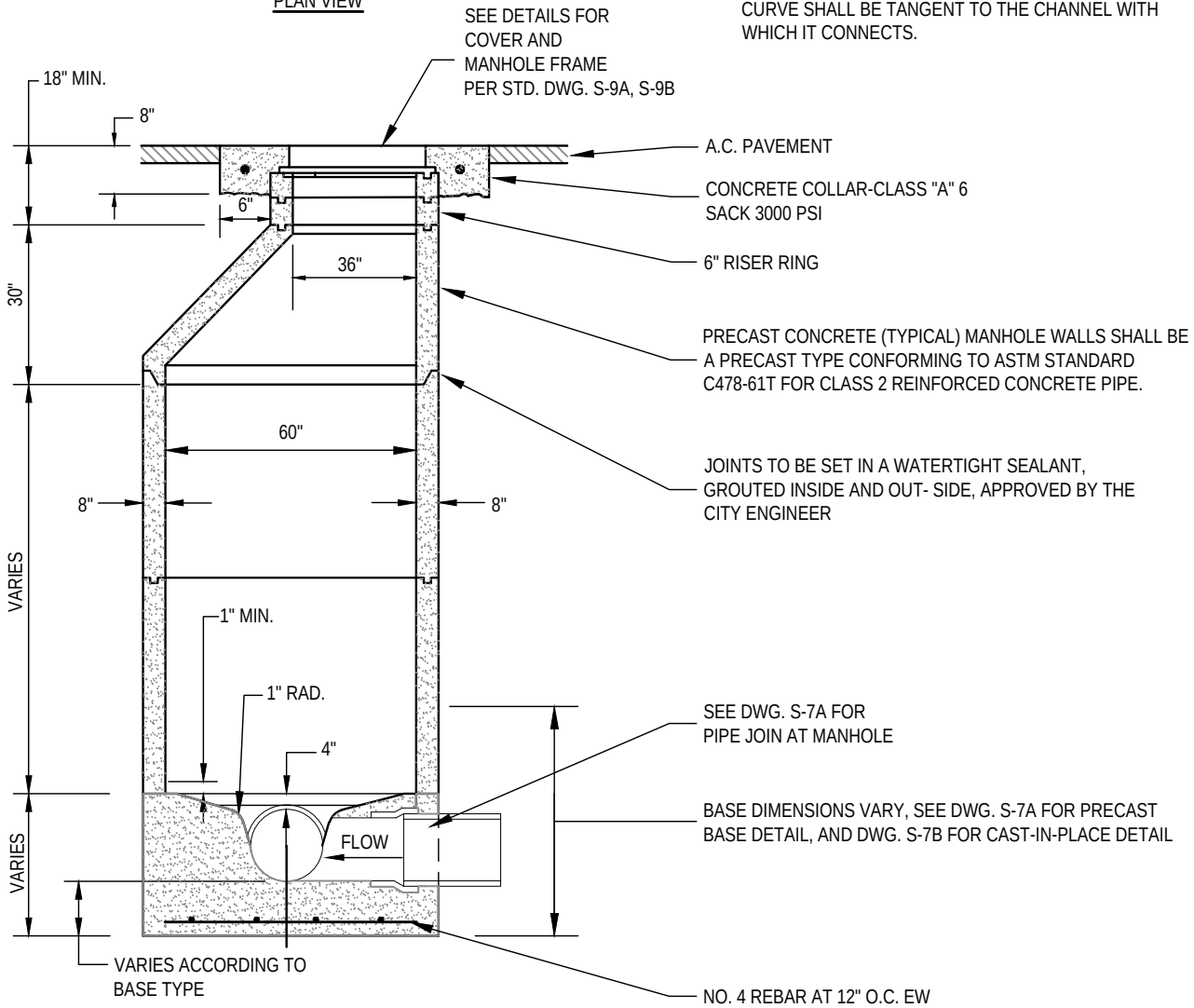
S-7B



PLAN VIEW

NOTES:

1. MANHOLES SHALL BE WATERTIGHT.
2. MANHOLES WITH A DEPTH GREATER THAN 10 FEET FROM MANHOLE COVER TO INVERT SHALL BE 60" DIAMETER STANDARD.
3. BROKEN OR CHIPPED RINGS AND CONES SHALL NOT BE USED, EXCEPT BY PRIOR APPROVAL FROM THE CITY ENGINEER.
4. FOR SEWER MAINS 10" DIAMETER AND LARGER, MANHOLE MUST BE LINED WITH "SANCON" OR APPROVED EQUAL.
5. PRECAST REINFORCED MANHOLE BASES WITH INFLOW AND OUT- FLOW COUPLINGS SHALL BE CAST IN AT ENGINEERED INVERT, ANGLE AND SLOPE ELEVATIONS AT A 0.1' MIN. GRADIENT.
6. THE CROWN ELEVATION OF ALL PIPES SHALL BE THE SAME AS THE CROWN ELEVATION OF THE LARGEST.
7. CHANNELS SHALL BE SMOOTH WITH NO SHARP ANGLES OF PROJECTIONS. RADII OF CURVED CHANNELS SHALL BE AS LARGE AS POSSIBLE. WHERE PRACTICAL, THE CURVE SHALL BE TANGENT TO THE CHANNEL WITH WHICH IT CONNECTS.



SECTION A-A

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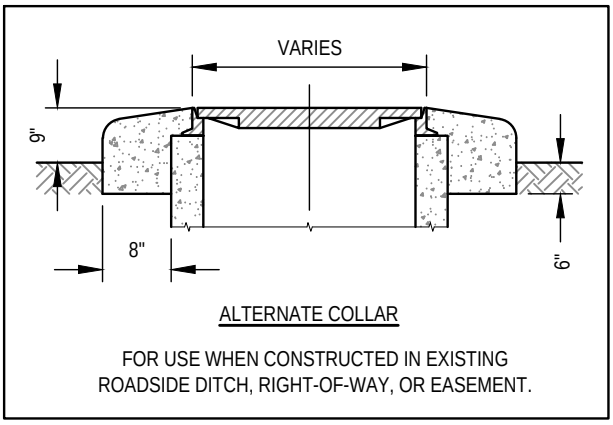
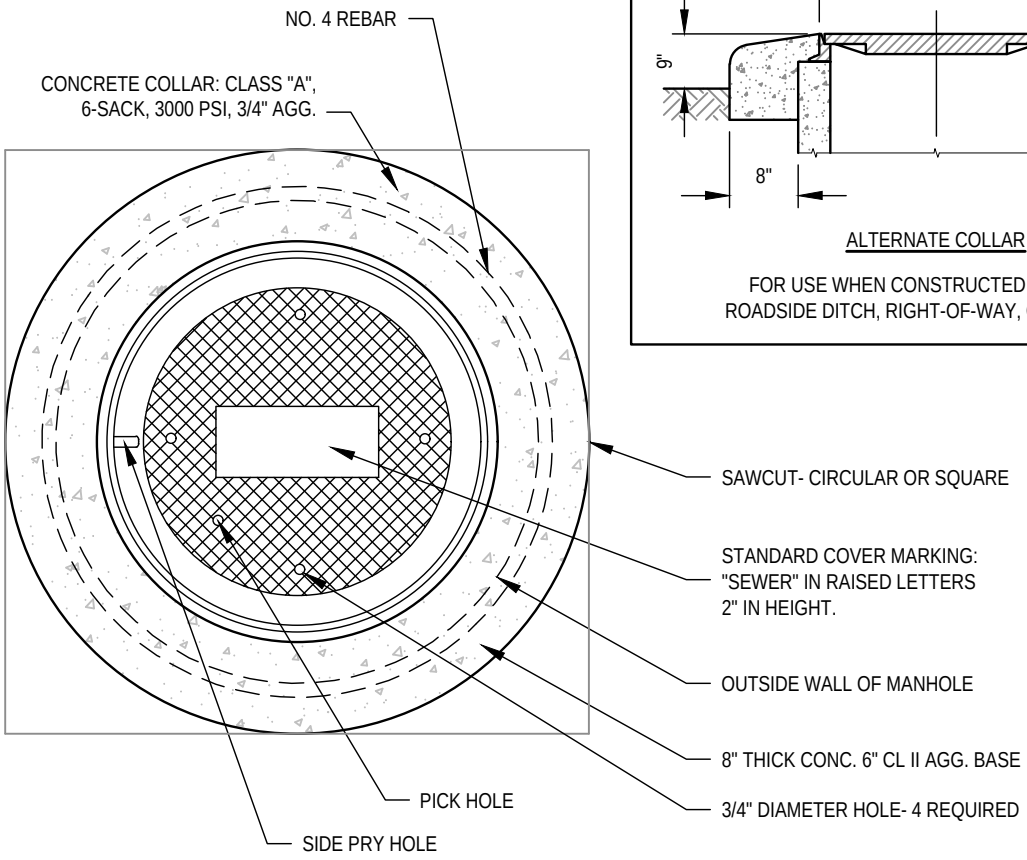
60" I.D. STANDARD MANHOLE

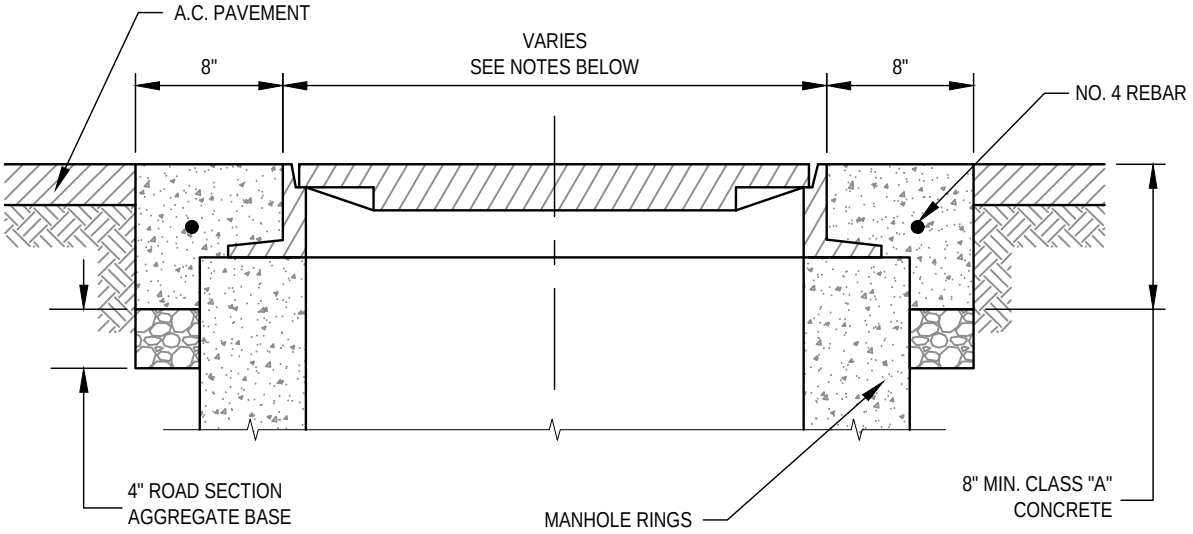
S-8



ALTERNATE COLLAR

FOR USE WHEN CONSTRUCTED IN EXISTING ROADSIDE DITCH, RIGHT-OF-WAY, OR EASEMENT.





NOTES:

1. FOR 24" DIAMETER COVER, USE ALHAMBRA FOUNDRY NO. A-1254 OR APPOVED EQUAL.
2. FOR 36" DIAMETER COVER, USE ALHAMBRA FOUNDRY NO. A-1251 OR APPROVED EQUAL.
3. ALL CONTACT SURFACES TO BE MACHINED.
4. A HIGH TRAFFIC COVER MAY BE REQUIRED IN AREAS AS DETERMINED BY CITY ENGINEER.

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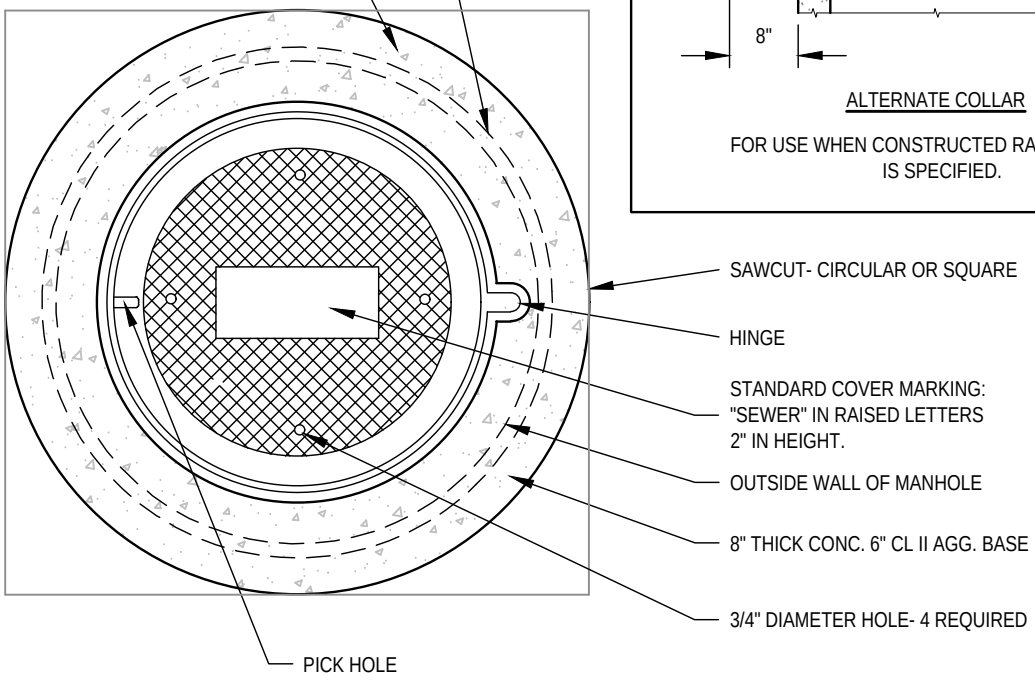
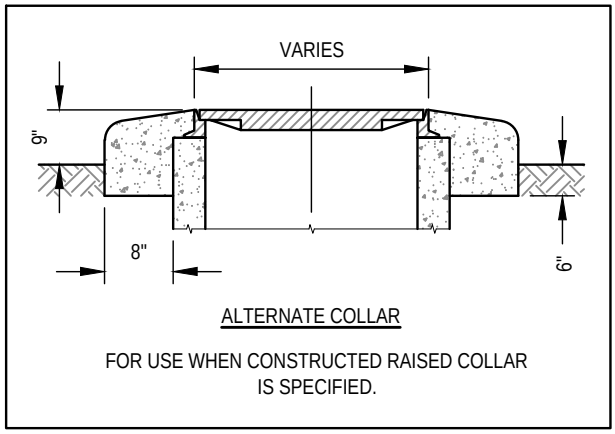
MANHOLE FRAME AND COVER

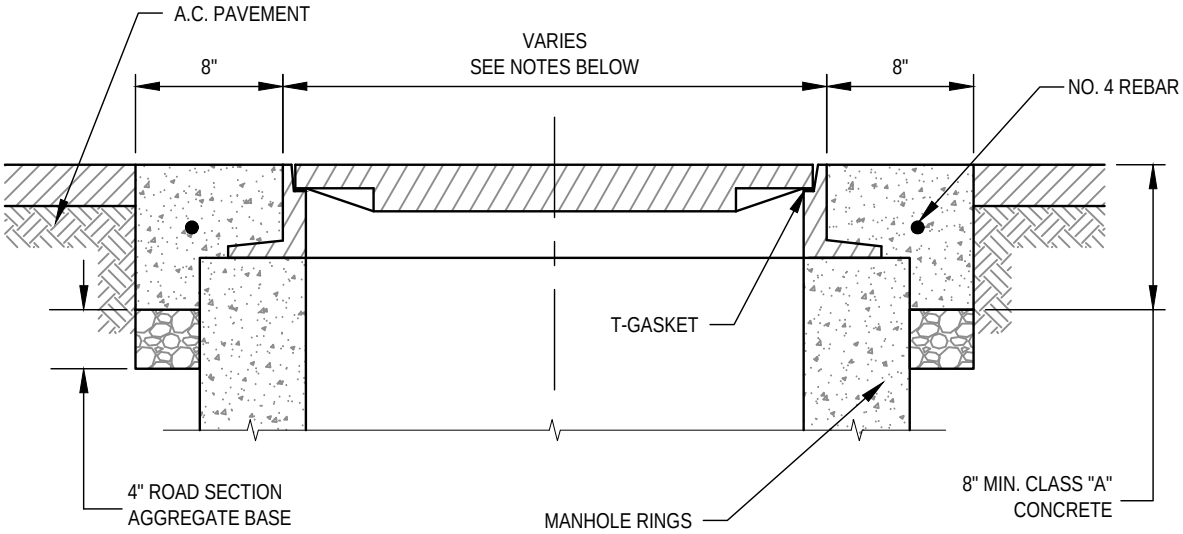
S-9A





ALTERNATE COLLAR

FOR USE WHEN CONSTRUCTED RAISED COLLAR IS SPECIFIED.



NOTES:

1. FOR 24" DIAMETER COVER, USE ERGO ACCESS ASSEMBLY OR APPOVED EQUAL.
2. FOR 30" AND LARGER DIAMETER COVER, USE ERGO XL ACCESS ASSEMBLY OR APPROVED EQUAL.
3. ALL CONTACT SURFACES TO BE MACHINED.
4. A HIGH TRAFFIC COVER MAY BE REQUIRED IN AREAS AS DETERMINED BY CITY ENGINEER.

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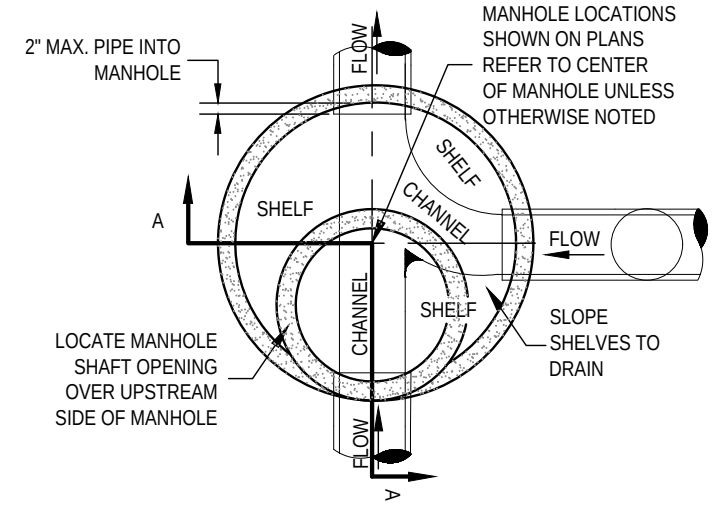
MANHOLE HINGED FRAME AND COVER

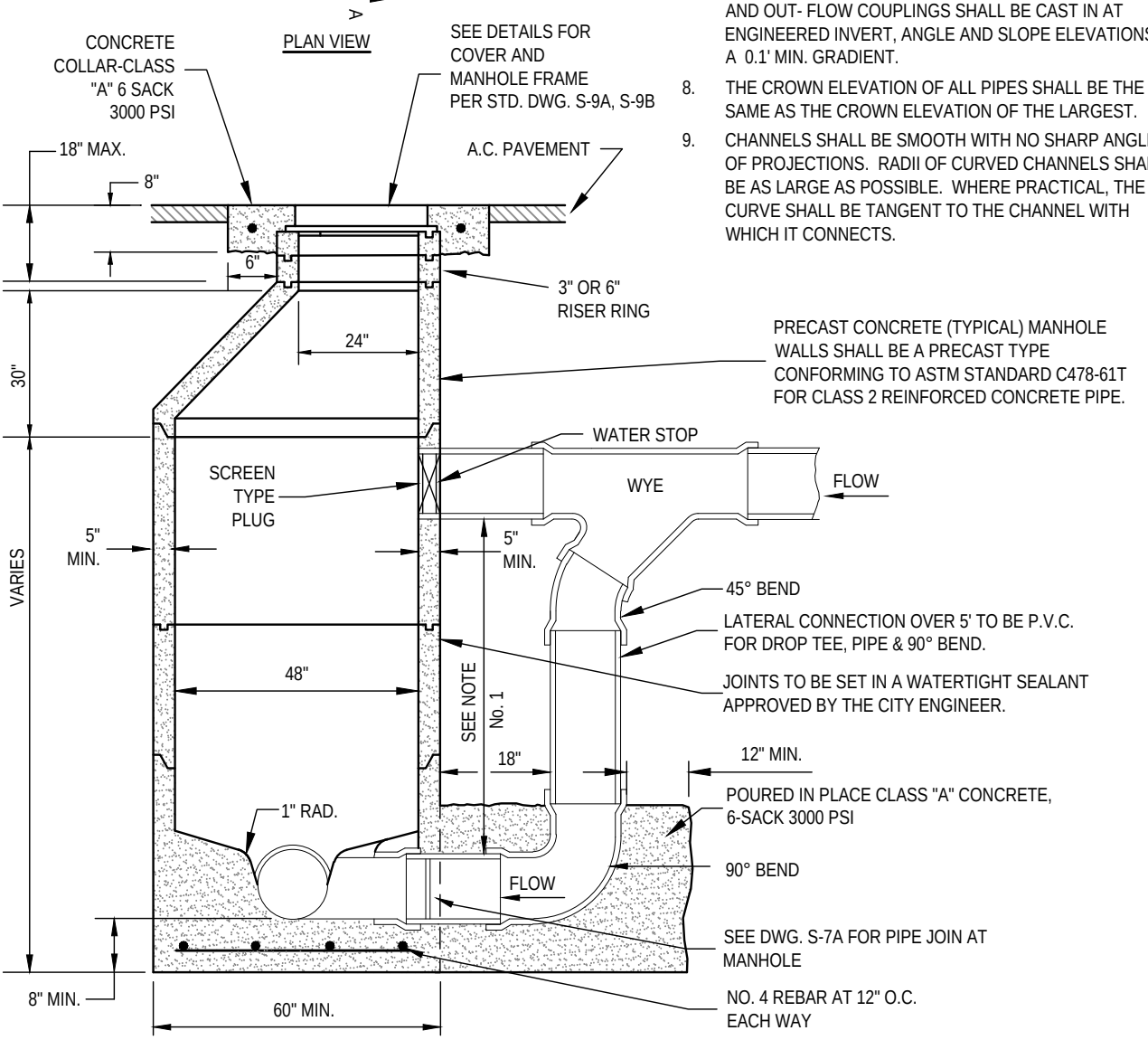
S-9B



PLAN VIEW

NOTES:

1. A DROP MANHOLE SHALL BE USED WHEN SEWER MAIN IS MORE THAN 12" ABOVE THE MANHOLE BOTTOM.
2. FOR SEWER MAINS LESS THAN 12" ABOVE THE MANHOLE BOTTOM, A CONCRETE TROUGH SHALL BE INSTALLED TO INSURE SMOOTH TRANSITION FROM PIPE TO MANHOLE.
3. MANHOLES SHALL BE WATERTIGHT.
4. MANHOLES WITH A DEPTH GREATER THAN 10 FEET FROM MANHOLE COVER TO INVERT SHALL BE 60" DIAMETER STANDARD, SEE DWG. S-8.
5. BROKEN OR CHIPPED RINGS AND CONES SHALL NOT BE USED, EXCEPT BY PRIOR APPROVAL FROM THE CITY ENGINEER.
6. FOR SEWER MAINS 10" DIAMETER AND LARGER, MANHOLE MUST BE LINED WITH "SANCON" OR APPROVED EQUAL.
7. PRECAST REINFORCED MANHOLE BASES WITH INFLOW AND OUT- FLOW COUPLINGS SHALL BE CAST IN AT ENGINEERED INVERT, ANGLE AND SLOPE ELEVATIONS AT A 0.1' MIN. GRADIENT.
8. THE CROWN ELEVATION OF ALL PIPES SHALL BE THE SAME AS THE CROWN ELEVATION OF THE LARGEST.
9. CHANNELS SHALL BE SMOOTH WITH NO SHARP ANGLES OF PROJECTIONS. RADII OF CURVED CHANNELS SHALL BE AS LARGE AS POSSIBLE. WHERE PRACTICAL, THE CURVE SHALL BE TANGENT TO THE CHANNEL WITH WHICH IT CONNECTS.



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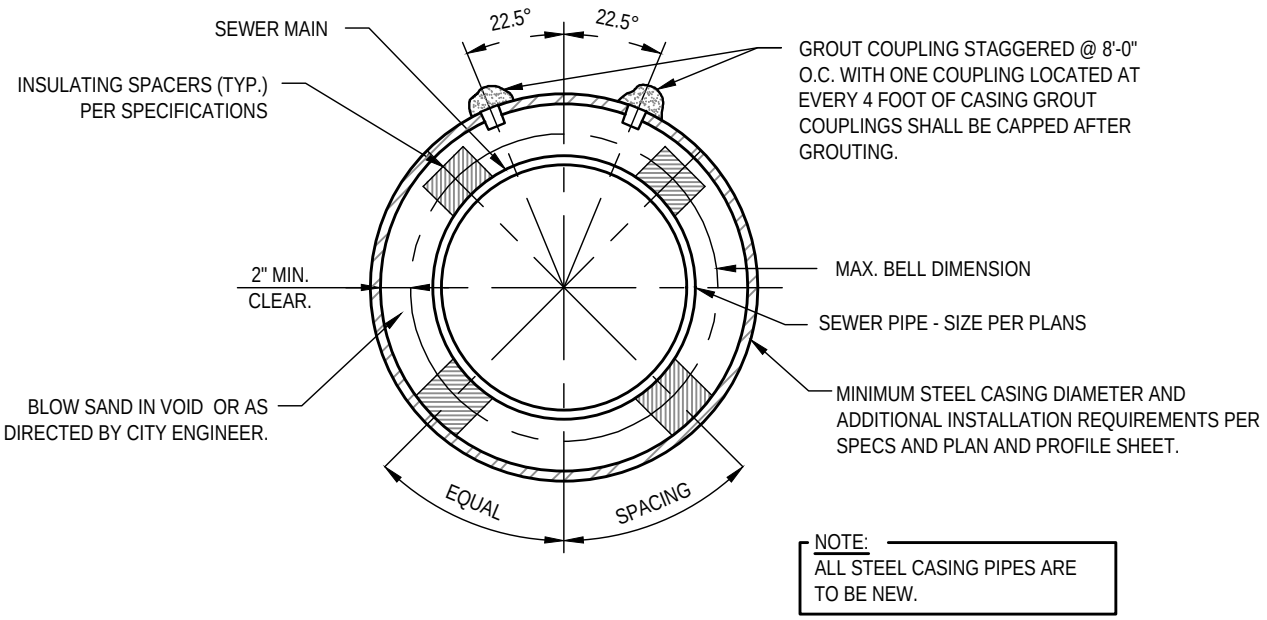
MANHOLE - DROP INLET

S-10



NOTE:
ALL STEEL CASING PIPES ARE TO BE NEW.

1. ALL STEEL CASING PIPE FIELD JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.

2. THE ENDS OF CASING SHALL BE SEALED WITH 1/8" TYPE "C" RUBBER END-SEALS IN ACCORDANCE WITH THE SPECIFICATIONS AND CLAMPS MADE OF SST.

3. PLACE WARNING TAPE (SEE SPECIFICATIONS) ON PIPE PRIOR TO ATTACHING INSULATING SPACERS.

4. SPACERS SHALL BE 12 INCHES IN WIDTH AND OF SUFFICIENT HEIGHT TO PROVIDE A MINIMUM OF 2 INCH CLEARANCE AT THE BELL AND A MAXIMUM OF 2" CLEARANCE BETWEEN SPACER AND INSIDE TOP OF CASING. ALL SPACERS SHALL BE EQUAL DIMENSIONS AND POSITIONED UNIFORMLY.

5. SPACERS SHALL BE ATTACHED IN PLACE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

6. MINIMUM NUMBER OF SPACERS PER SPACER ASSEMBLY AND MINIMUM NUMBER OF SPACER ASSEMBLIES PER JOINT OF PIPE.

CARRIER PIPE SIZE (INCHES)	NUMBER OF SPACERS	WIDTH OF SPACER ASSEMBLY (MIN.)
12- UNDER	4	12-INCHES
14-16	5	12-INCHES
18-24	6	12-INCHES
30 & OVER	8	12-INCHES

3 SPACER ASSEMBLIES WILL BE REQUIRED PER EACH LENGTH OF PIPE.

8. MINIMUM WALL THICKNESS OF STEEL CASING SHALL BE 3/8-INCH. CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATION OF ACTUAL CASING WALL THICKNESSES AND STRENGTH NEEDED TO MATCH EQUIPMENT TO BE USED BY CONTRACTOR.

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STEEL CASING FOR SEWER PIPE

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