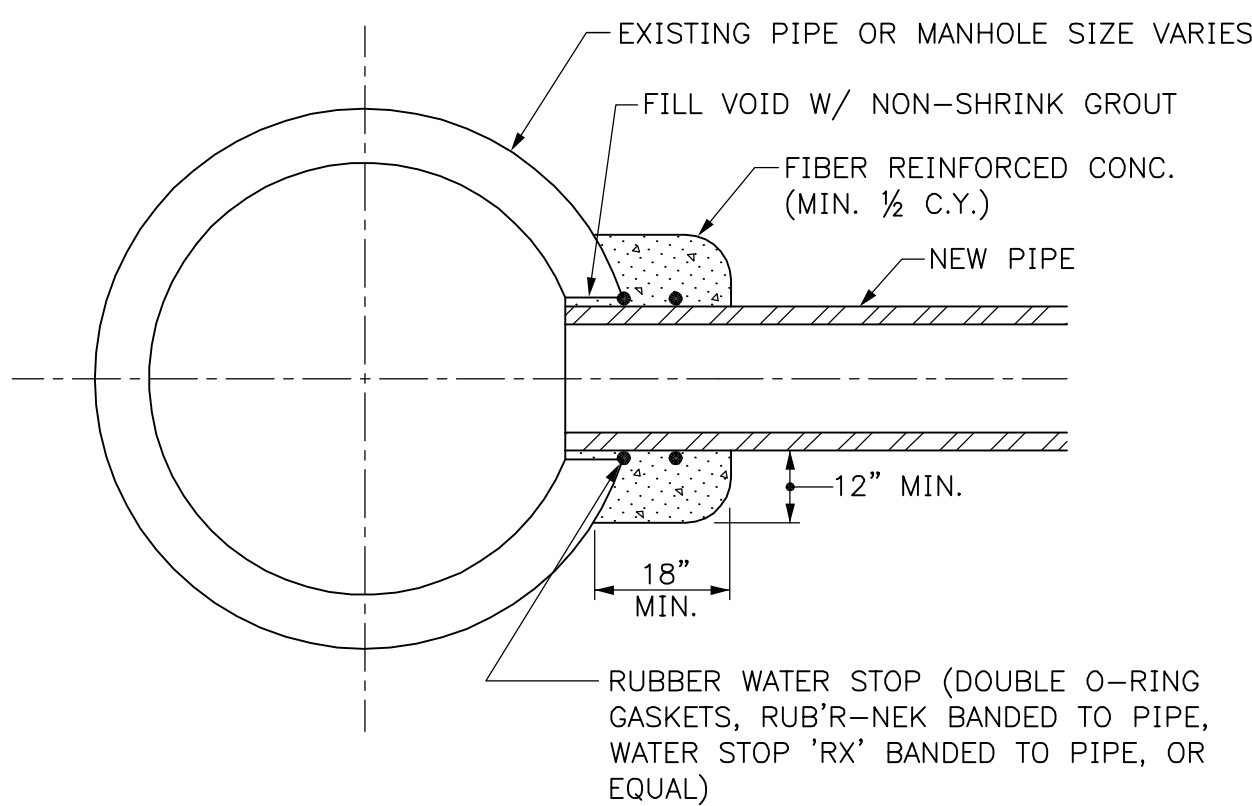


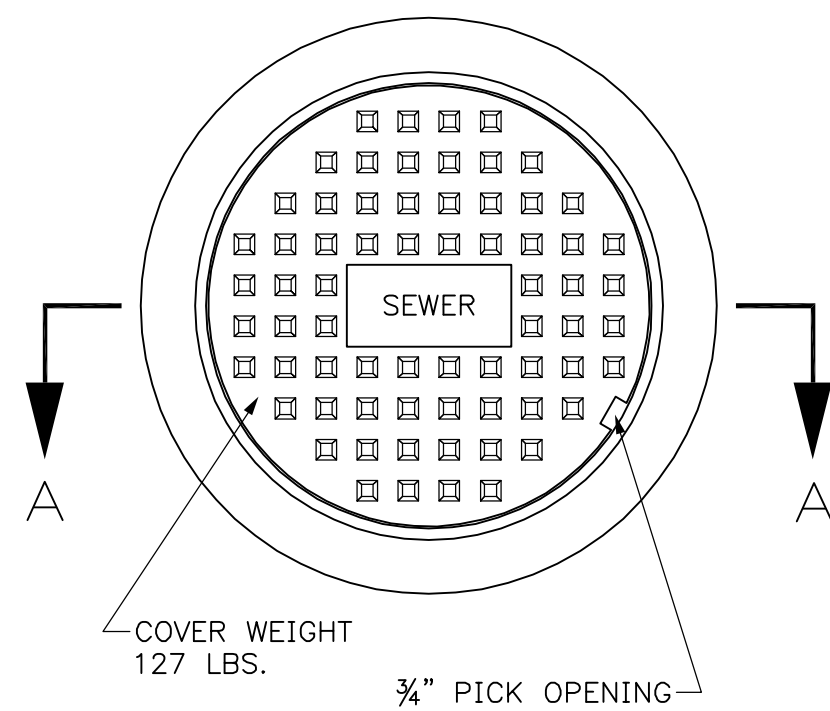
INVERTS SHALL BE FORMED TO PROVIDE A 24" MINIMUM APPROACH IN LINE WITH EACH PIPE FOR MAINTENANCE EQUIPMENT.

SECTION B-B

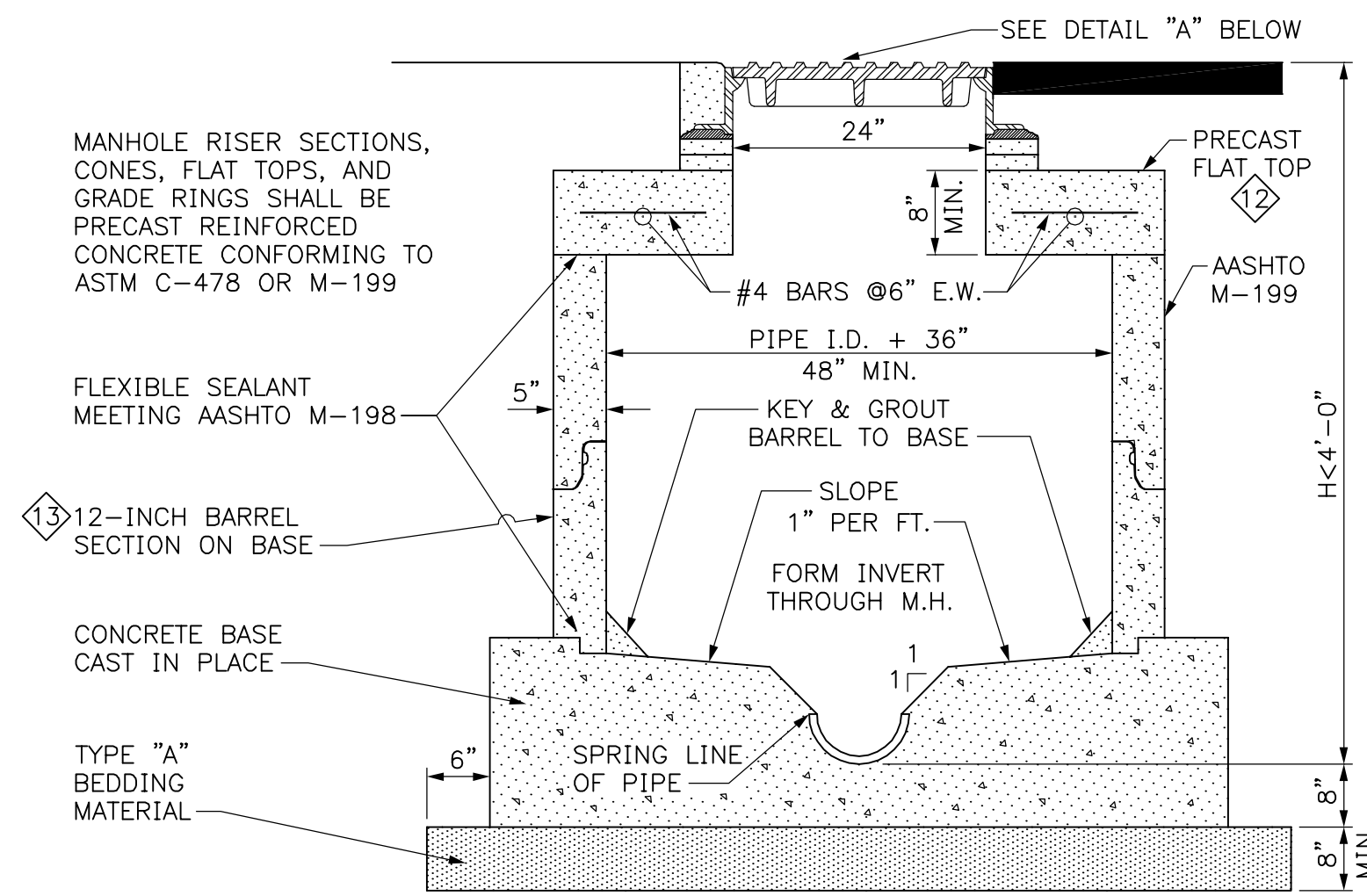
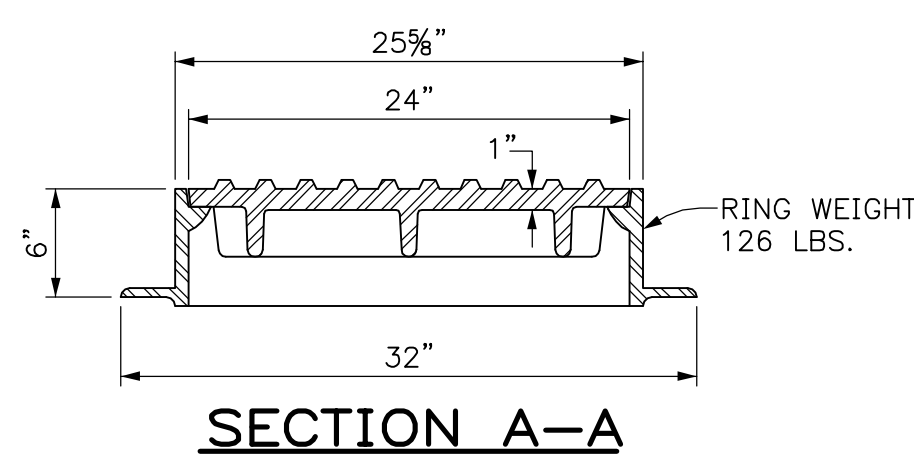


NOTE: IF THE HOLE IN THE EXISTING PIPE OR MANHOLE IS CORED, THE CONNECTION CAN BE MADE BY INSTALLING A FLEXIBLE PIPE TO MANHOLE CONNECTOR ("BOOT") AND THE CONCRETE ENCASEMENT ELIMINATED.

CONNECTION TO EXISTING MANHOLE OR INLET BOX



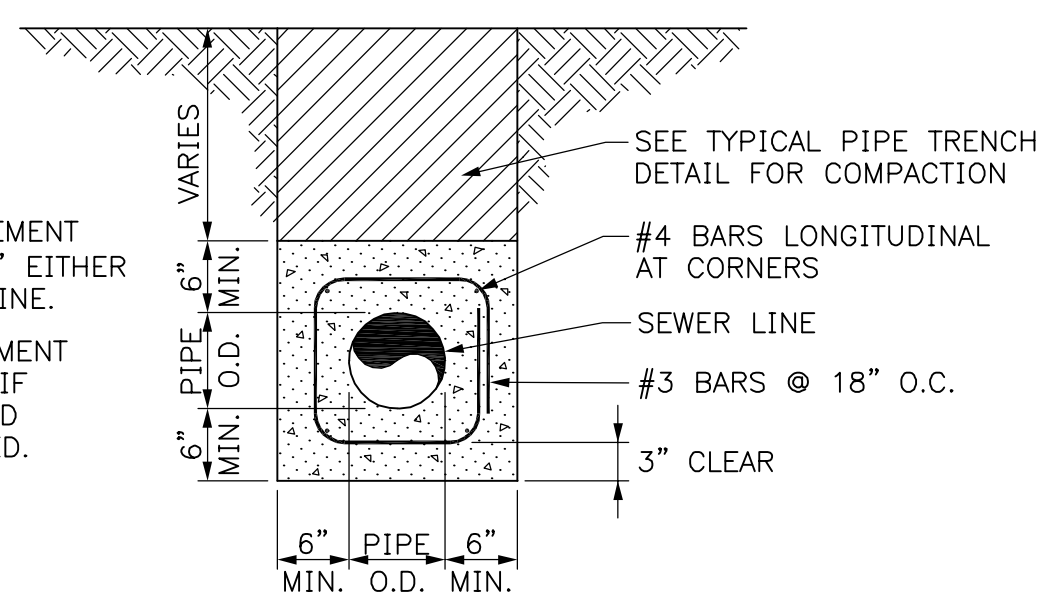
STANDARD CAST IRON MANHOLE RING & COVER



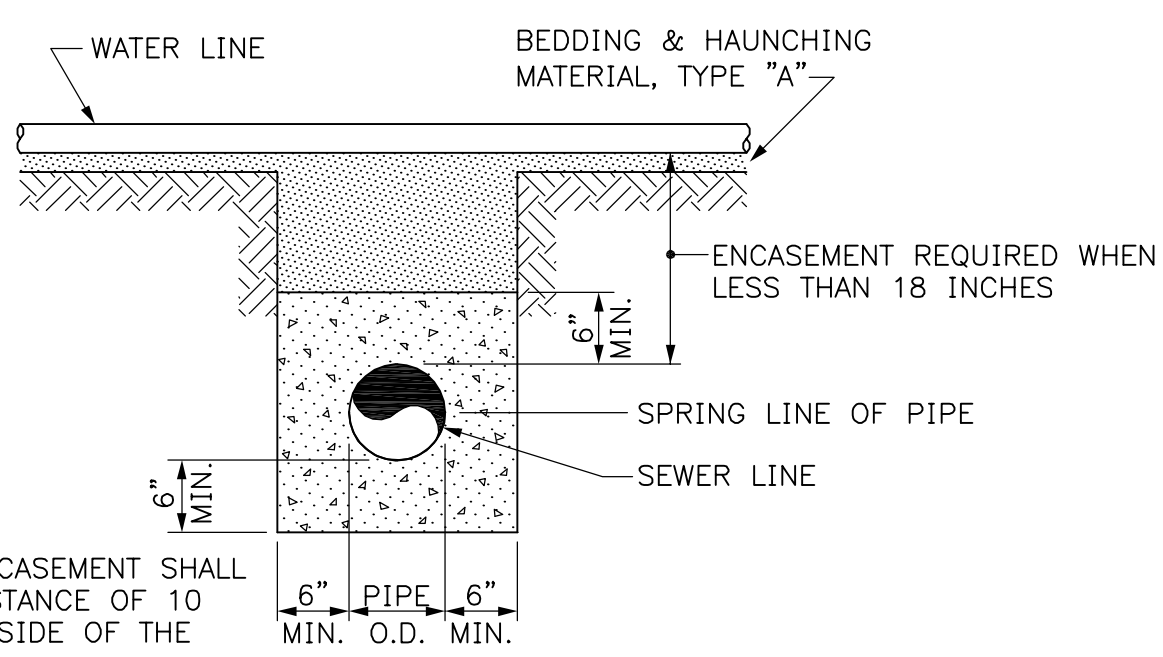
STANDARD SHALLOW MANHOLE CAST-IN-PLACE BASE

NOTES

- 1) CONCRETE ENCASEMENT SHALL EXTEND 10' EITHER SIDE OF WATER LINE.
- 2) STEEL REINFORCEMENT MAY BE DELETED IF FIBER-REINFORCED CONCRETE IS USED.

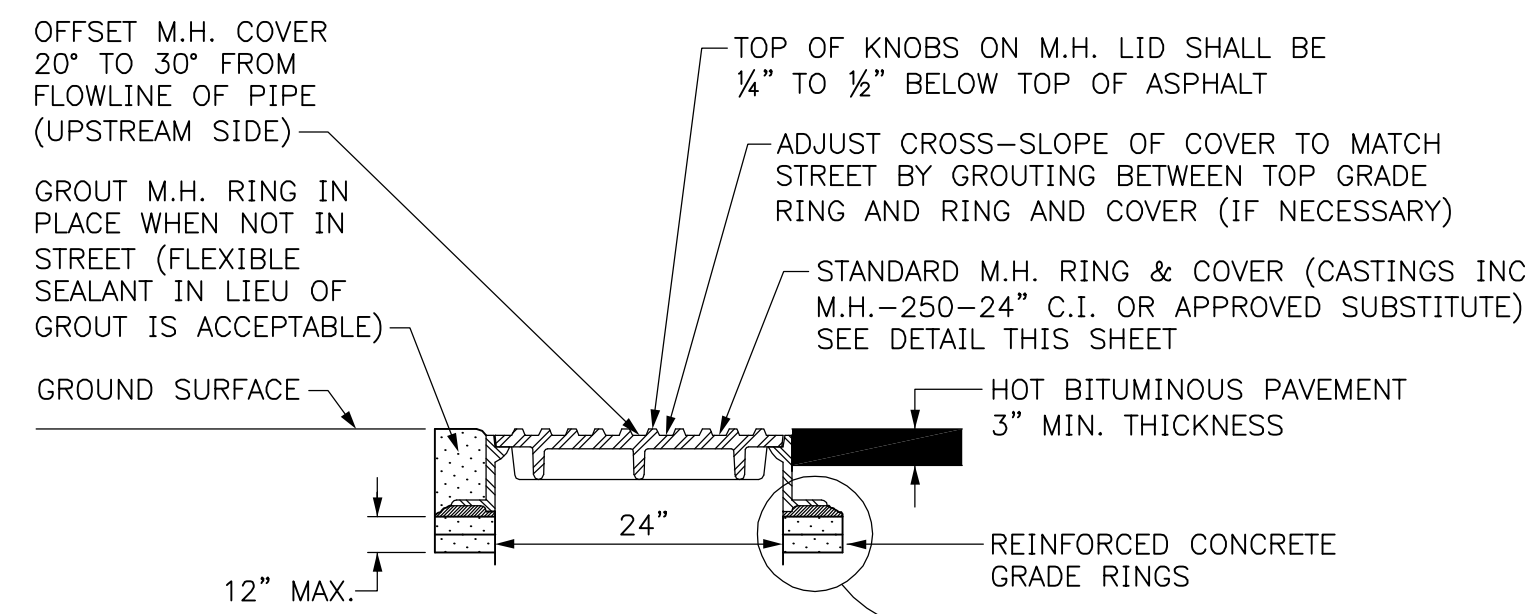


WATER LINE BELOW SEWER LINE

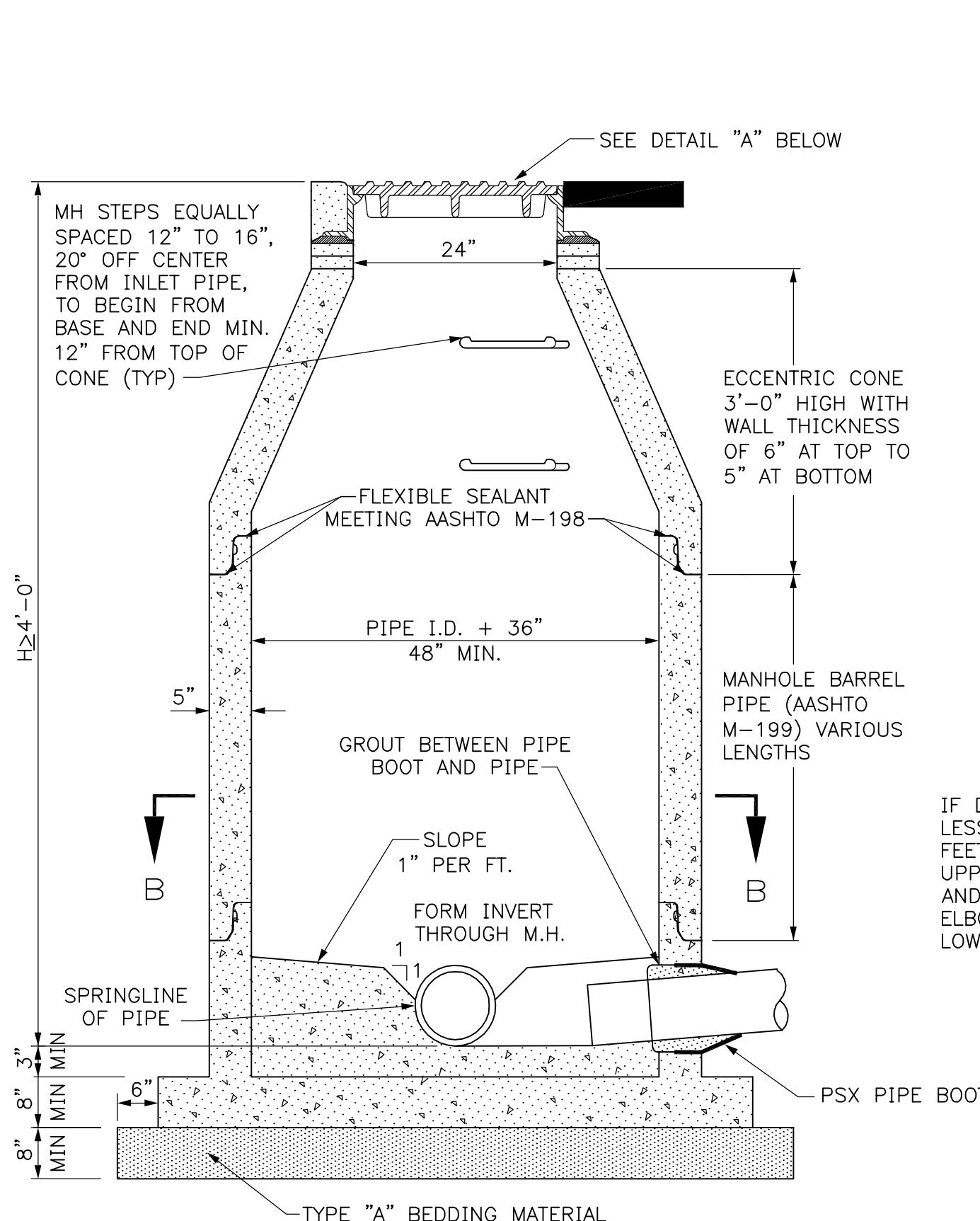


WATER LINE ABOVE SEWER LINE

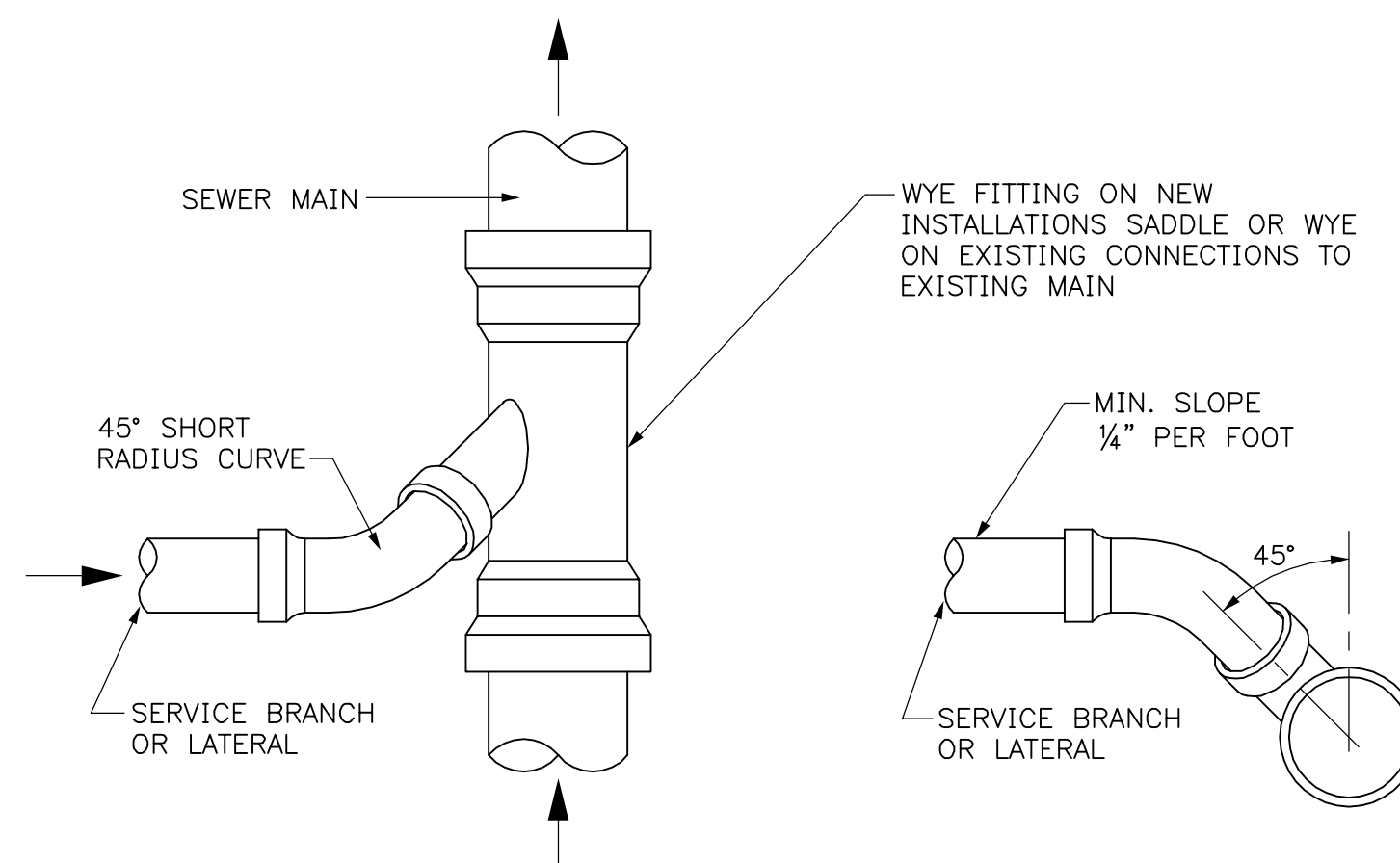
CONCRETE ENCASEMENT DETAIL



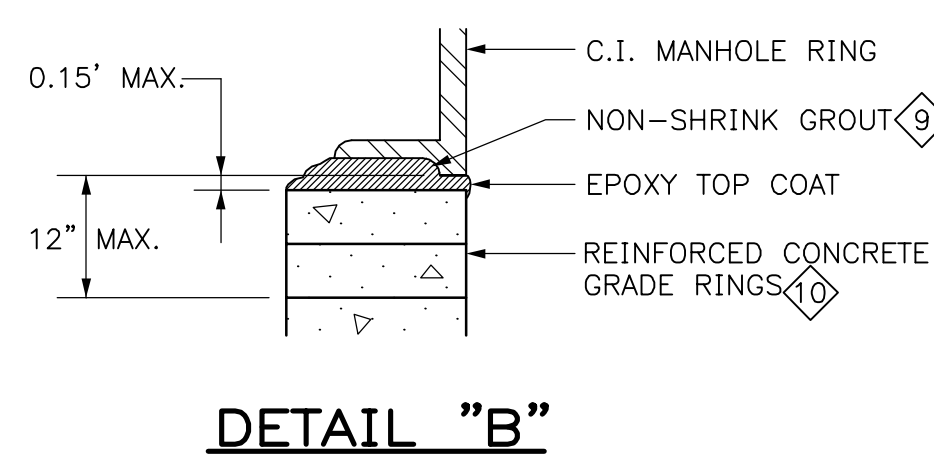
DETAIL "A"



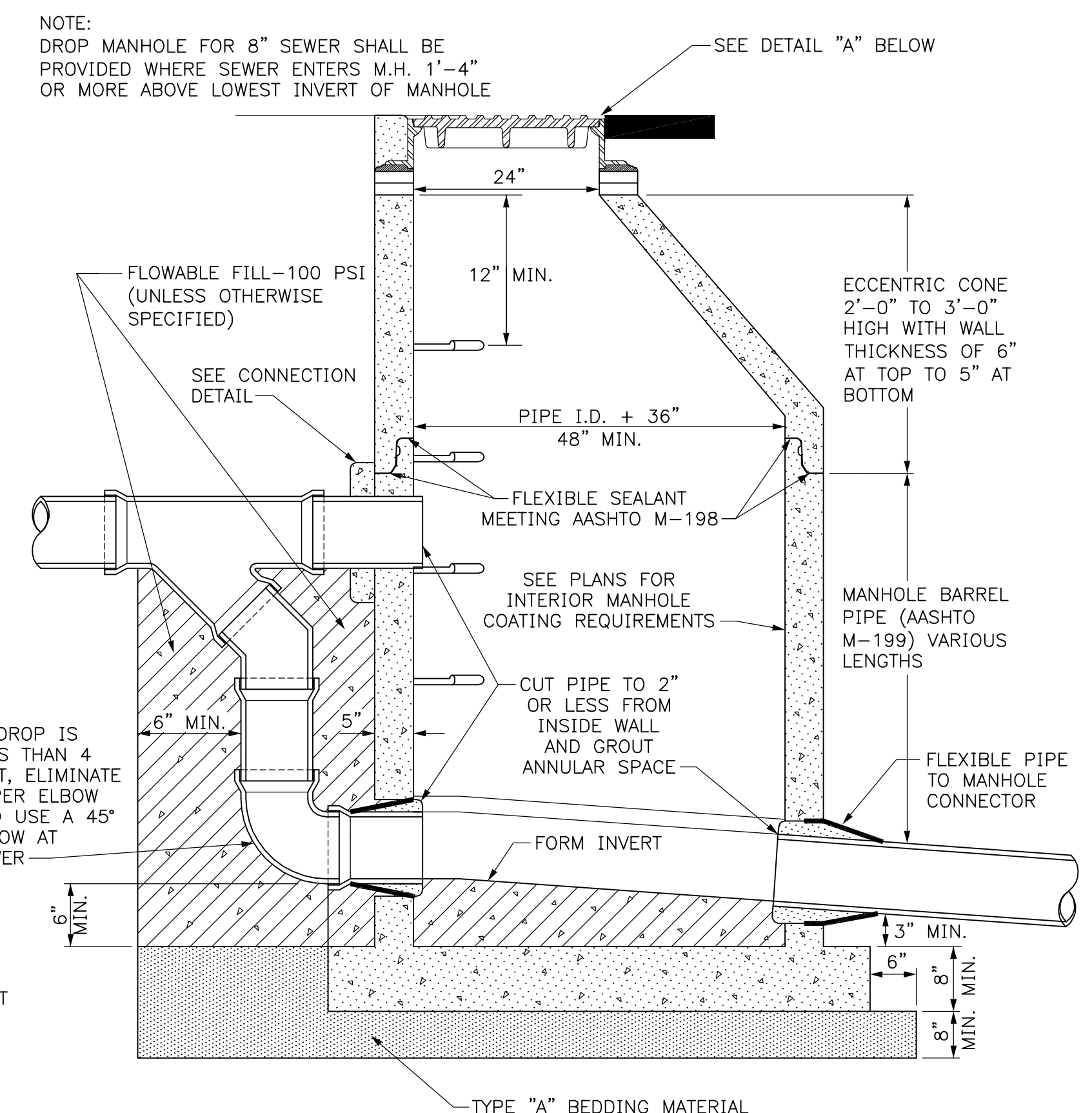
STANDARD MANHOLE WITH PRE-CAST BASE



TYPICAL SERVICE "Y" CONNECTION

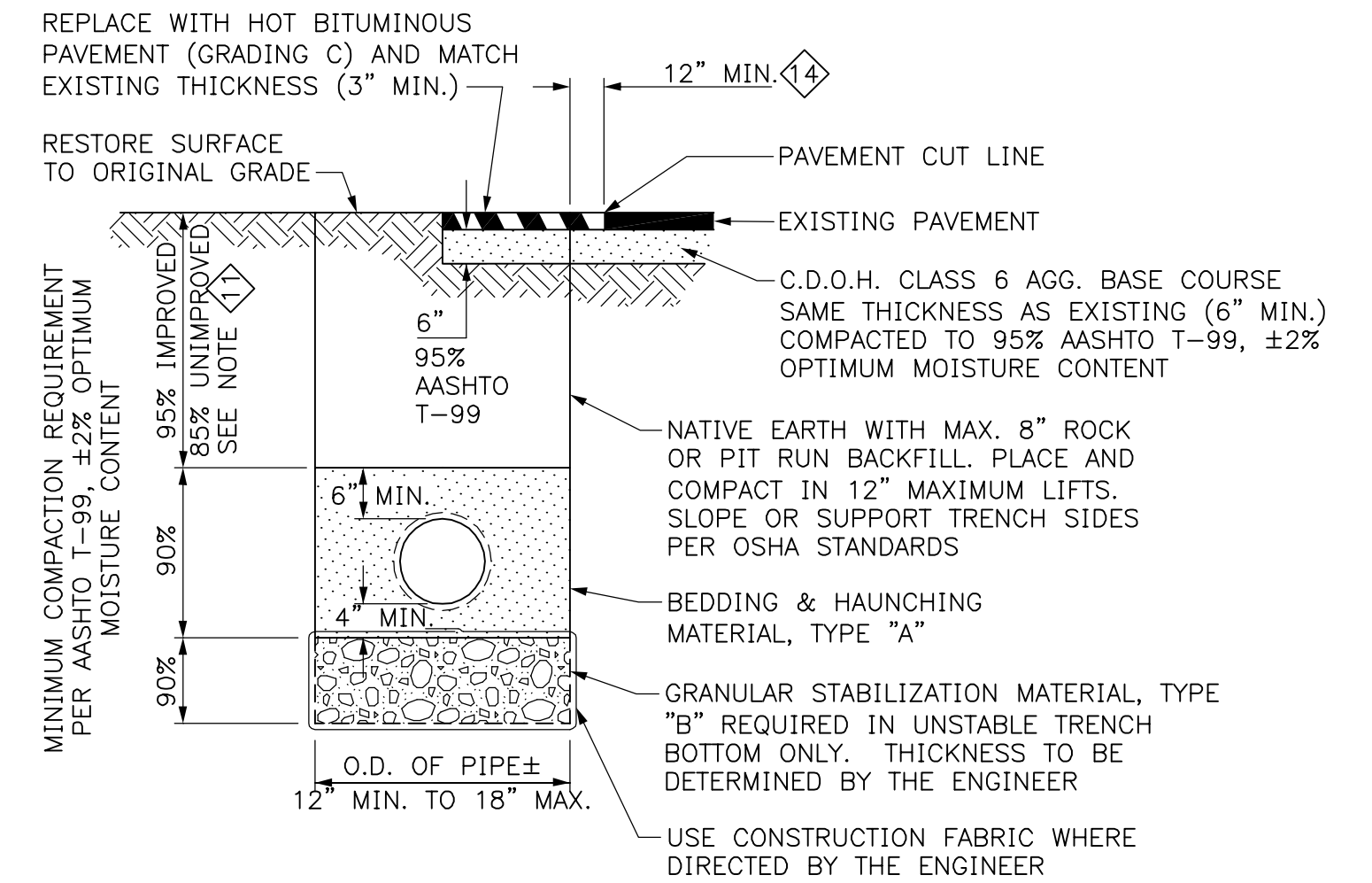


DETAIL "B"



DROP MANHOLE PRE-CAST BASE

NOTE: PRECAST BASE AND FLEXIBLE PIPE CONNECTORS ARE TO BE USED FOR ALL STANDARD AND DROP MANHOLE TYPES UNLESS OTHERWISE APPROVED BY THE ENGINEER



TYPICAL TRENCH DETAIL

SIEVE SIZE	PERCENT BY WEIGHT PASSING SQUARE MESH SIEVES		
	PIPE BEDDING & HAUNCHING MATERIAL (TYPE A)	GRANULAR STABILIZATION MATERIAL (SCREENED OR CRUSHED ROCK TYPE B)	PIT RUN AGGREGATE (TO BE USED WHERE SPECIFIED OR DIRECTED BY THE ENGINEER)
8 INCH	---	---	---
2 INCH	---	100	---
3/4 INCH	100	---	---
NO 200	20 MAX	15 MAX	20 MAX

ALL BACKFILL MATERIAL SHALL BE PLACED FULL WIDTH IN 12" MAX. LIFTS AND COMPACTED TO THE MIN. RELATIVE DENSITIES SHOWN

GENERAL NOTES

1. Concrete shall be Colorado Division of Highways Class 'B' (Section 601.02).
2. All cement used in mortar, concrete bases, grade rings, riser sections, cones, and flat tops, for sanitary sewer manholes, shall be Type II or modified Type II Portland Cement with less than 5% tricalcium aluminate.
3. Manhole riser sections, cones, flat tops, and grade rings shall be precast reinforced concrete conforming to ASTM C-478 or AASHTO M-199.
4. Backfill around manholes and other structures shall be placed in 8-inch max. lifts and compacted to 95% AASHTO T-99 unless otherwise specified.
5. All work shall be in accordance with approved plans and District specifications.
6. Manhole cone and flat top sections shall be positioned such that the manhole ring and cover are offset 20 degrees to 30 degrees from the upstream main sewer line into the manhole.
7. Manhole steps shall be installed in vertical alignment with the ring and cover.
8. Refer to Plans or Specifications for any manhole waterproofing and/or corrosion protection that may be required for the project.
9. Precast concrete grade rings are to be used for grade adjustment on all new manholes. Paving rings are not allowed for grade adjustment unless otherwise approved by the District Engineer.
10. Minimum trench compaction requirements:
 - 95% in all areas of public or street right-of-ways including trenches beneath pavement, grooved areas, borrow ditches, and open space.
 - 85% or to match existing (whichever is greater) in unimproved or landscaped areas, fields, or private easements that are not within road or street right-of-ways.
11. Flat lid slabs are allowed only when the shortest precast eccentric cone is too tall or as required by the Plans.
12. For shallow manholes using flat top slabs, cast in place bases shall be used with a 1-foot barrel section placed on the base. Precast bases can be used only if total height of base section is 24-inches or less.
13. See Plans for top asphalt width and T-Lock patch requirements.

SCALE: HORIZONTAL N.T.S.
VERTICAL N.T.S.

REVISIONS	DATE
REVIEW/UPDATED	04-2009

WestWater Engineering
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Grand Junction, CO 81505
(970) 241-7076

ORCHARD MESA SANITATION DISTRICT
SANITARY SEWER DETAILS

Design by:	Drafted by:	Date:	Project No.:	Sheet:
	WWE			of