

LEGEND:

- SS LOW PRESSURE SEWER
- GM GRAVITY MAIN
- PW POTABLE WATER LINE
- WW WELL WATER LINE
- SMH 1 EXISTING WELL
- PS 3 SEWER MANHOLE
- PS 1 PUMP STATION
- PS 2 LOW PRESSURE SEWER
- PS 4 FORCE MAIN
- PS 5 GRAVITY MAIN
- PS 6 POTABLE WATER LINE
- PS 7 WELL WATER LINE

NOTES:
WATER SERVICES WILL BE PROVIDED TO EACH CAMPING SITE BUT ARE NOT SHOWN FOR CLARITY

BAR SCALE
0 25 50 100
1 inch = 50 ft.

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Prepared for:
Terramor Outdoor Resorts
550 N 31st Street
Billings, MT 59101

ISSUED FOR:
SKETCH PLAN APPLICATION

Project Title:
Terramor Catskills
NY ROUTE 212
Saugerties, NY 12477

Project No.:	2021096
Design:	JRG
Drawn: KM	Ch'k'd: CRK
Date: 06/30/22	Scale: 1"=50'

Rev.	Description:	Date:

Drawing Title
UTILITY SITE PLAN

Drawing No.

C1.1

Terramor
Outdoor Resorts

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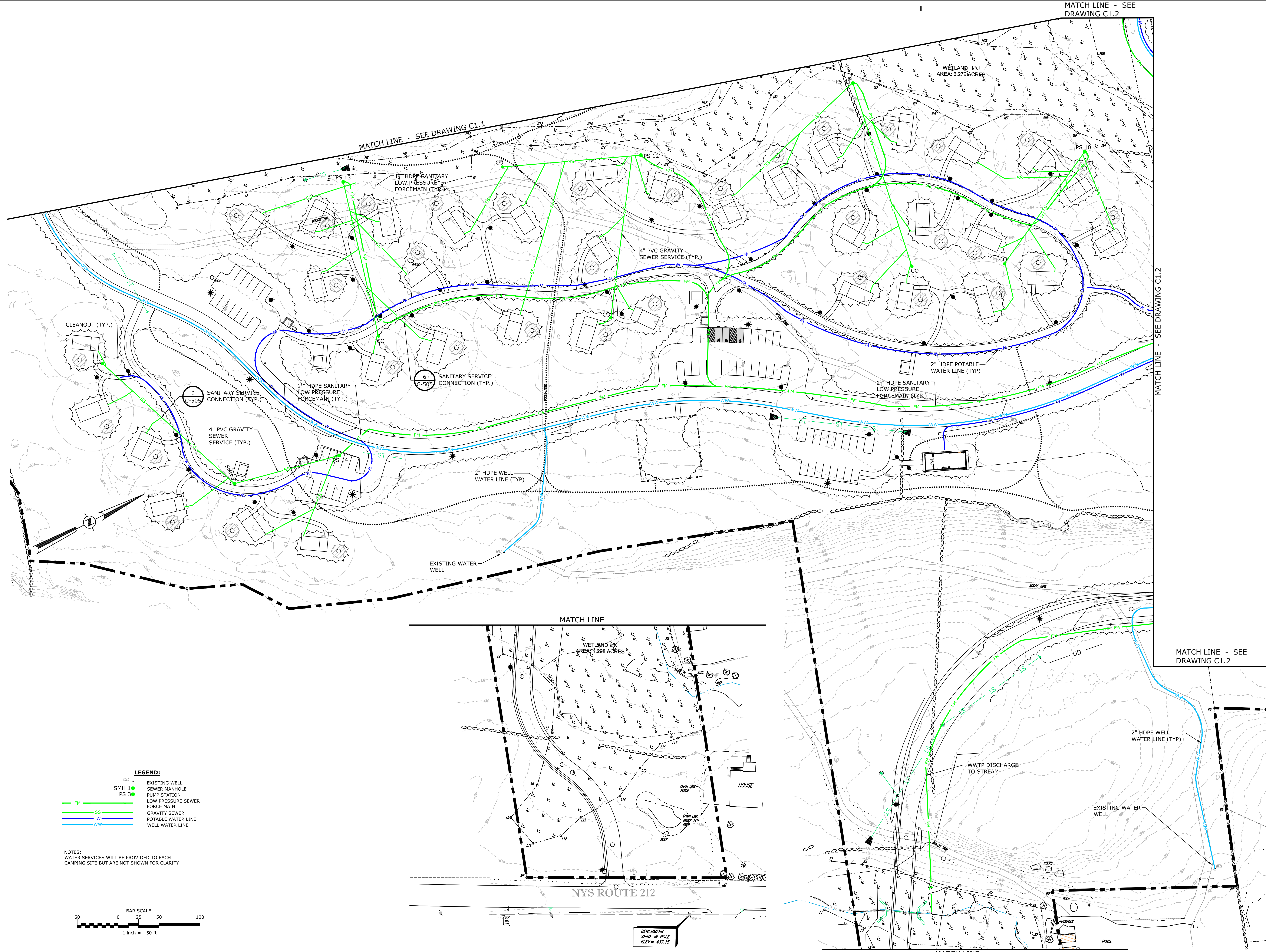
UTILITY
SITE PLAN

Drawing No.

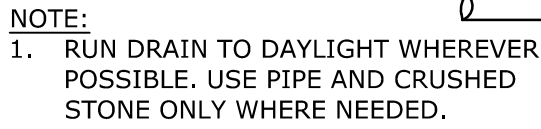
C1.2



Project No.:	2021096		
Design:	JRG		
Drawn:	KM	Ch'k'd:	CRK
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ISSUED FOR:
SKETCH PLAN APPLICATION

C5.1

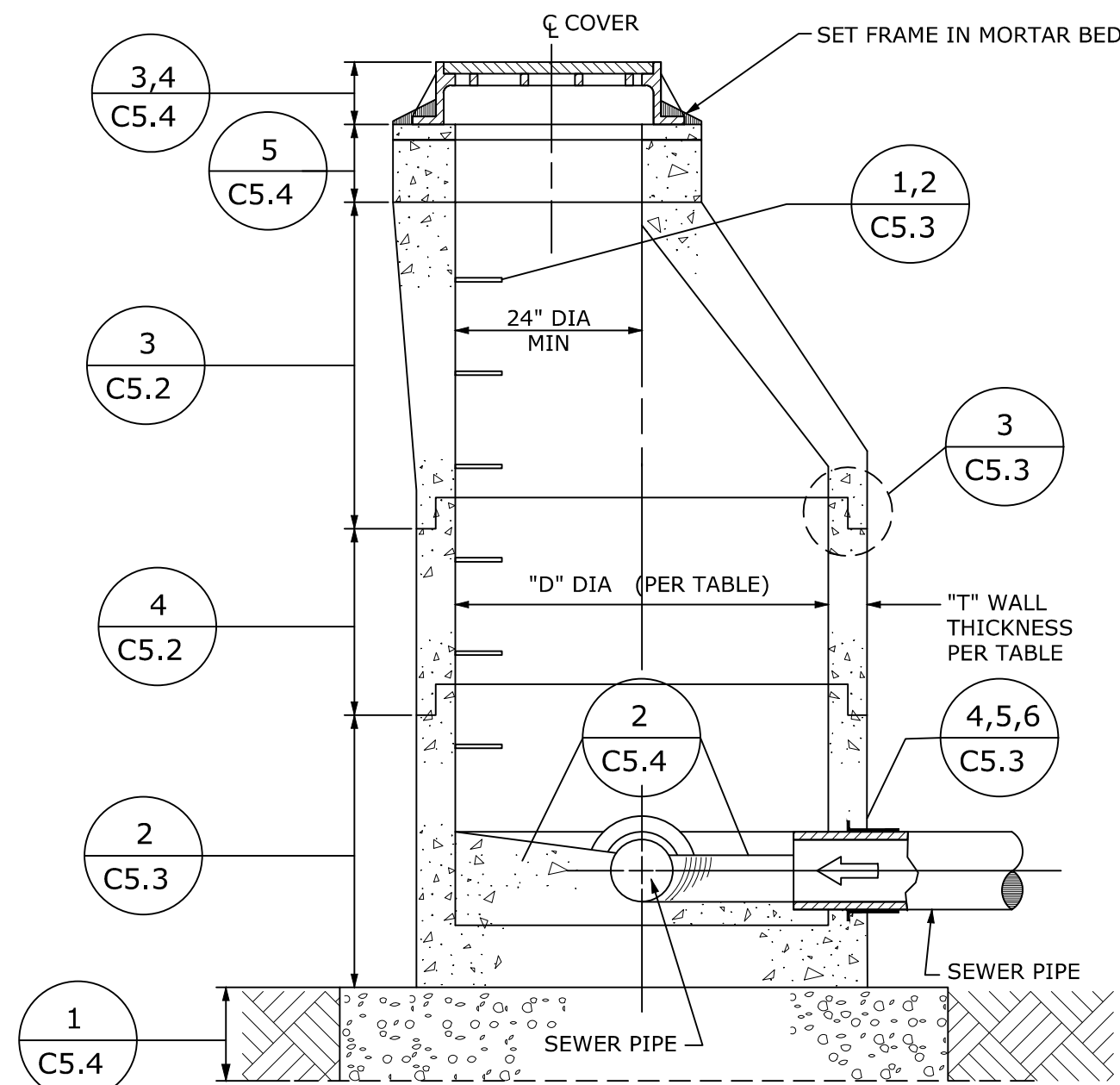
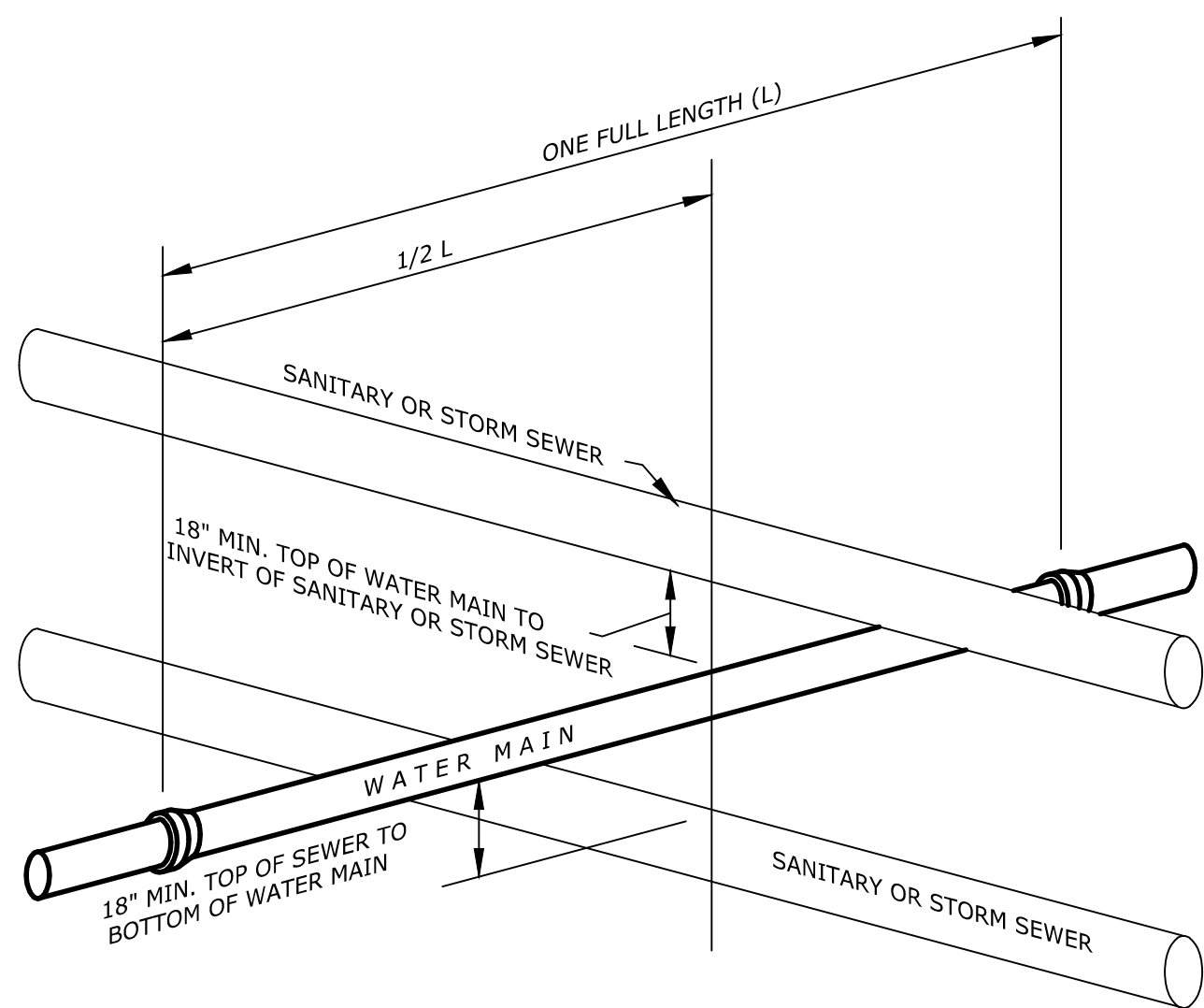


TABLE		
OUTLET SEWER PIPE SIZE	"D" DIA MIN	"T" WALL THICKNESS MIN
8" THRU 24" 30"	4'-0" 5'-0"	5" 6"

USE AIR ENTRAINED CONCRETE 4000 PSI MIN
WET CAST ONLY (ENTRAINED AIR 5%-8%)

1 PRECAST CONCRETE MANHOLE

SCALE: NONE
CROSS REFERENCE: C1.1



NOTE:
PREFERRED METHOD IS TO
HAVE WATER MAIN OVER
SANITARY AND STORM SEWER.

6 WATER/SEWER CROSSING

SCALE: NONE
CROSS REFERENCE: C1.1-1.3

GENERAL NOTES

- REQUIREMENTS OF REGULATORY AGENCIES:
 - SUBPART 23-4, "EXCAVATION OPERATIONS", OF NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 23.
 - SUBPART P, "EXCAVATIONS" OF UNITED STATES DEPARTMENT OF LABOR OSHA REGULATIONS FOR CONSTRUCTION.
- THE MORE STRINGENT REQUIREMENT IN EACH OF THE ABOVE CODES SHALL APPLY. THESE REQUIREMENTS ARE MINIMUM REQUIREMENTS AND SHALL BE INCREASED IF NECESSARY TO PROVIDE SAFE WORKING CONDITIONS.
- ALL MUNICIPAL, COUNTY, STATE, OR FEDERAL ORDINANCES, REGULATIONS, OR LAWS AND ALL NECESSARY PERMITS AND APPROVALS OBTAINED BY THE CONTRACTOR SHALL BE OBSERVED.

DETAIL 1 - PRECAST CONCRETE MANHOLE

- LOCATION AND SPACING
 - AT END OF EACH SEWER LINE.
 - AT ALL INTERSECTIONS OF SEWERS 8 INCHES AND LARGER.
 - AT ALL CHANGES IN SIZE, ALIGNMENT AND GRADE OF SEWER.
 - FOR MANHOLES WITH INTERIOR DROP PIPE OR 24" PIPE SIZE OR LARGER, 5 FEET DIAMETER MINIMUM.
- SIZE
 - MINIMUM DIAMETER - 4 FEET INSIDE (DROP MH 5').
 - FOR MANHOLES WITH INTERIOR DROP PIPE OR 24" PIPE SIZE OR LARGER, 5 FEET DIAMETER MINIMUM.
 - ACCESS OPENING 24 INCHES CLEAR MINIMUM.
 - OTHER MANHOLES THAN THAT DESCRIBED ABOVE RELATING TO MINIMUM DIAMETERS, MINIMUM WALL THICKNESSES, AND STRUCTURAL SHAPE SHALL NOT BE USED, WITHOUT THE PRIOR APPROVAL OF THE TOWN OF COLONIE PURE WATERS DEPARTMENT.
- PRECAST CONCRETE MATERIAL
 - ALL PRECAST CONCRETE UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C478-(LATEST REVISION) AT A STRENGTH OF 4,000 PSI AT 28 DAYS.
 - USE TYPE I, TYPE II OR TYPE III CEMENT.
 - USE AIR ENTRAINING ADMIXTURE TO ACHIEVE 5 TO 8% AIR CONTENT IN FRESH CONCRETE, OR USE AIR ENTRAINING CEMENT TYPE IA, TYPE IIA OR TYPE IIIA.
 - ONLY THE WET-CAST PROCESS SHALL BE USED. DRY-CAST CONCRETE UNITS ARE NOT ACCEPTABLE. DURING POURING, FORMS SHALL BE VIBRATED AS WELL AS DIRECTLY VIBRATING THE IN-PLACE CONCRETE AS MUCH AS POSSIBLE.
 - NO EXTRA EXTERNAL WATERPROOF COATING WILL BE REQUIRED ON ANY PRECAST UNIT.

DETAIL 2 - BASE SECTION

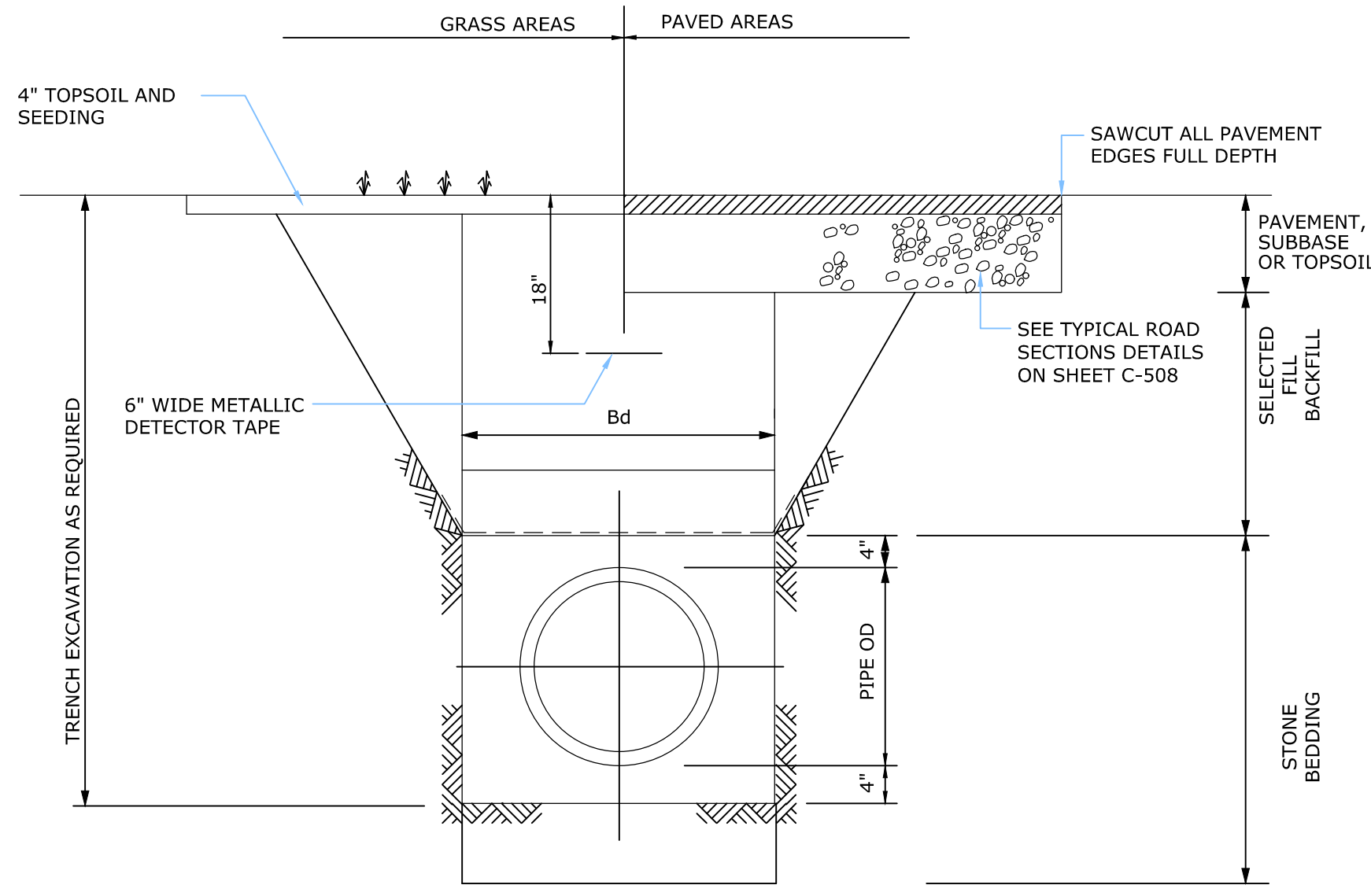
- APPLICATION - REINFORCEMENT, THICKNESS AND DESIGN
 - ALL BASE SLAB SECTIONS SHALL BE 8 INCHES THICK MINIMUM, WITH WALLS 5 INCHES THICK MINIMUM OF INTEGRAL WALL-BASE SLAB CONSTRUCTION, CAST MONOLITHICALLY AT ONE TIME, WITH POSITIVE STEEL REINFORCEMENT CONNECTING THE BASE SLAB TO THE WALLS.
 - WALL STEEL REINFORCEMENT SIZE PER TABLE IN DETAIL NUMBER 2.
 - ALL BASE SLABS SHALL HAVE STEEL REINFORCEMENT IN TWO LAYERS, TOP AND BOTTOM, EACH LAYER HAVING AT LEAST THE SAME CROSS SECTIONAL AREA IN EACH DIRECTION AS THE CIRCUMFERENTIAL STEEL IN THE WALLS.
 - SECTION JOINTS SHALL BE OF THE PLAIN BELL AND SPIGOT OR TONGUE AND GROOVE DESIGN.
- PRECAST CONCRETE MATERIAL
 - ALL PRECAST CONCRETE UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C478-(LATEST REVISED) AT A STRENGTH OF 4,000 PSI AT 28 DAYS.
 - USE TYPE I, TYPE II OR TYPE III CEMENT.
 - USE AIR ENTRAINING ADMIXTURE TO ACHIEVE 5 TO 8% AIR CONTENT IN FRESH CONCRETE, OR USE AIR ENTRAINING CEMENT TYPE IA, TYPE IIA OR TYPE IIIA.
 - ONLY THE WET-CAST PROCESS SHALL BE USED. DRY-CAST CONCRETE UNITS ARE NOT ACCEPTABLE. DURING POURING, FORMS SHALL BE VIBRATED AS WELL AS DIRECTLY VIBRATING THE IN-PLACE CONCRETE AS MUCH AS POSSIBLE.
 - NO EXTRA EXTERNAL WATERPROOF COATING WILL BE REQUIRED ON ANY PRECAST UNIT.
- INSTALLATION
 - AS A MINIMUM, ALL MANHOLE BASES SHALL BE SET ON A SUBBASE LAYER OF CRUSHED STONE, AT LEAST 12 INCHES THICK ON UNDISTURBED EARTH, AND AT LEAST 6 INCHES ON ROCK, AND EXTENDING 12 INCHES LARGER ALL AROUND THAN THE OUTSIDE OF THE MANHOLE BASE.
 - MANHOLE BASES ARE NOT TO BE PLACED ON AN UNSTABLE SUBBASE CONDITION. ADDITIONAL EXCAVATION, DEWATERING, STABILIZATION PRODUCTS OR OTHER APPROVED METHODS, AS REQUIRED, SHALL BE COMPLETED TO ASSURE A FIRM CRUSHED STONE SUBBASE.
 - ANGULAR CRUSHED STONE, SIZE NO. 2 - (3/4" - 1 1/2").
 - MANHOLE BASES SHALL BE SET IN A "TRUE AND PLUMB" MANNER IN THEIR PROPER LOCATION.
 - MANHOLE JOINTS SHALL BE CLEAN PRIOR TO THE PLACEMENT OF A DOUBLE LOOP OF 1" MIN BUTYL ROPE.

DETAIL 3 - CONE SECTION

- OPENING AND APPLICATION
 - CONE SECTION MUST HAVE 24 INCH CLEAR OPENING.
 - ECCENTRIC CONE SECTION SHALL BE USED AS STANDARD.
 - WALL STEEL REINFORCEMENT SIZE PER TABLE IN DETAIL NUMBER 3.
 - USE OF FLAT TOP REQUIRES WRITTEN APPROVAL OF TOWN OF COLONIE PURE WATERS DEPARTMENT.
- PRECAST CONCRETE MATERIAL
 - ALL PRECAST CONCRETE UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C478-(LATEST REVISION) AT A STRENGTH OF 4,000 PSI AT 28 DAYS.
 - USE TYPE I, TYPE II OR TYPE III CEMENT.
 - USE AIR ENTRAINING ADMIXTURE TO ACHIEVE 5 TO 8% AIR CONTENT IN FRESH CONCRETE, OR USE AIR ENTRAINING CEMENT TYPE IA, TYPE IIA OR TYPE IIIA.
 - ONLY THE WET-CAST PROCESS SHALL BE USED. DRY-CAST CONCRETE UNITS ARE NOT ACCEPTABLE. DURING POURING, FORMS SHALL BE VIBRATED AS WELL AS DIRECTLY VIBRATING THE IN-PLACE CONCRETE AS MUCH AS POSSIBLE.
 - NO EXTRA EXTERNAL WATERPROOF COATING WILL BE REQUIRED ON ANY PRECAST UNIT.
- INSTALLATION
 - LIFTING HOOKS SHALL BE BENT OVER AFTER THE PLACEMENT OF THE CONE SECTION, NOT TO PROTRUDE INTO THE 24 INCH CLEAR OPENING. LIFTING HOOKS SHALL BE CAST IN SUCH A MANNER BY THE MANUFACTURER AS TO NOT BE PROTRUDING INTO THE 24 INCH CLEAR OPENING.
 - MANHOLE JOINTS SHALL BE CLEAN, PRIOR TO THE PLACEMENT OF A DOUBLE LOOP OF 1" MIN BUTYL ROPE, FOR THE PLACEMENT OF EACH CONE SECTION.

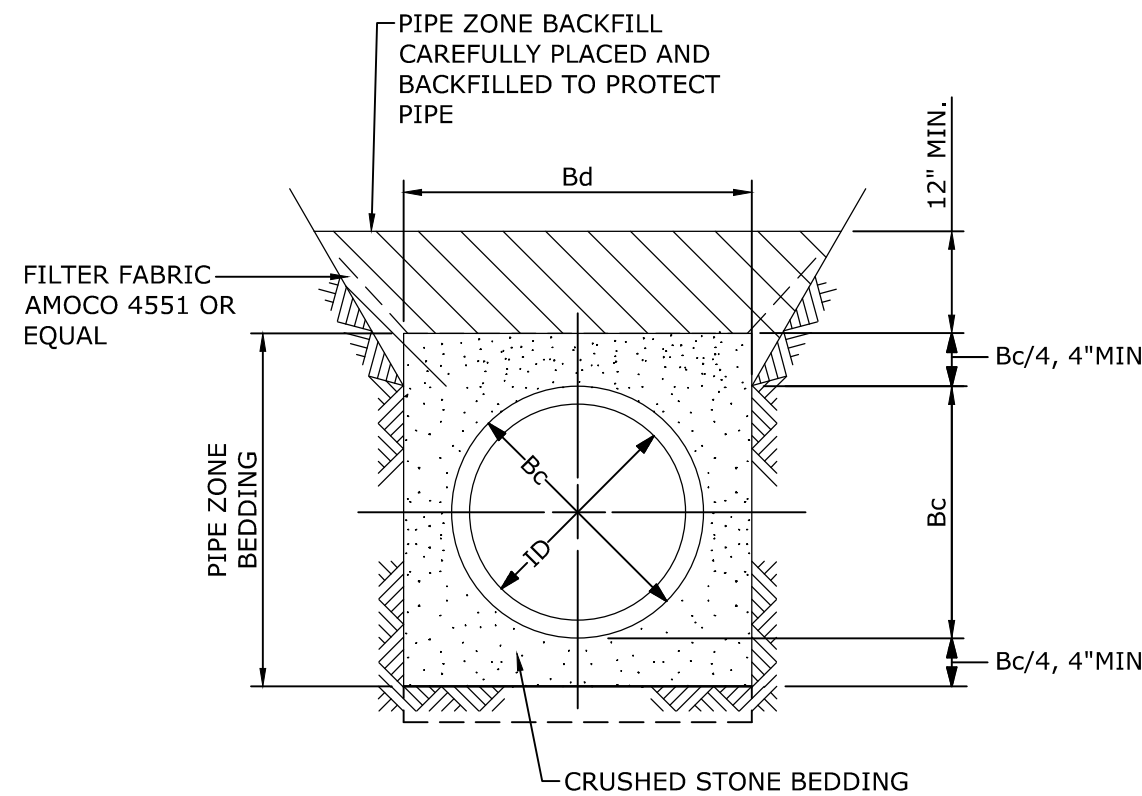
DETAIL 4 - RISER SECTION

- APPLICATION, REINFORCEMENT, THICKNESS AND DESIGN
 - RISER SECTIONS SHALL HAVE A MINIMUM HEIGHT OF 1' - 0".
 - BETWEEN THE BASE AND CONE, THE LEAST AMOUNT OF RISER SECTIONS WHICH CAN BE USED, PRODUCING THE FEWEST JOINTS, UNLESS OPENINGS WILL NOT PERMIT SHALL BE THE REQUIRED AMOUNT OF RISERS USED.
 - SECTION JOINTS SHALL BE OF THE PLAIN BELL AND SPIGOT OR TONGUE AND GROOVE DESIGN.
 - WALL STEEL REINFORCEMENT SIZE PER TABLE IN DETAIL NUMBER 4.
- PRECAST CONCRETE MATERIAL
 - ALL PRECAST CONCRETE UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C478-(LATEST REVISION) AT A STRENGTH OF 4,000 PSI AT 28 DAYS.
 - USE TYPE I, TYPE II OR TYPE III CEMENT.
 - USE AIR ENTRAINING ADMIXTURE TO ACHIEVE 5 TO 8% AIR CONTENT IN FRESH CONCRETE, OR USE AIR ENTRAINING CEMENT TYPE IA, IIA OR TYPE IIIA.
 - ONLY THE WET-CAST PROCESS SHALL BE USED. DRY-CAST CONCRETE UNITS ARE NOT ACCEPTABLE. DURING POURING, FORMS SHALL BE VIBRATED AS WELL AS DIRECTLY VIBRATING THE IN-PLACE CONCRETE AS MUCH AS POSSIBLE.
 - NO EXTRA EXTERNAL WATERPROOF COATING WILL BE REQUIRED ON ANY PRECAST UNIT.
- INSTALLATION
 - MANHOLE JOINT SEALING SHALL ONLY BE APPLIED TO CLEAN JOINTS, ASSURING A TOP QUALITY WATERPROOF BOND. PRIOR TO PLACING EACH SECTION INTO PLACE, CLEAN OFF THE BOTTOM JOINT. MANHOLE JOINT SEALING, SHALL BE A 1" WIDE PERFORMED, READY-TO-APPLY, FLEXIBLE BUTYL ROPE, SUCH AS E-2 STIK BY CONCRETE PRODUCTS SUPPLY CO., THAT IS WRAPPED AROUND THE MANHOLE JOINT IN TWO LOCATIONS JUST BEFORE JOINING THE SECTIONS. A PAPER WRAPPER ON ONE SIDE IS PEELED OFF DURING INSTALLATION.
 - STEP ALIGNMENT IN THE VERTICAL AND HORIZONTAL POSITIONS SHALL BE MANDATORY, IN THE MANUFACTURING PROCESS OF EACH SECTION CAST, AND IN THE FIELD PLACEMENT OF EACH SUCCESSIVE PIECE UPON ANOTHER.



5 TYPICAL TRENCH DETAIL

SCALE: NONE
CROSS REFERENCE: NONE



7 TYPICAL PVC/ HDPE BEDDING DETAIL

SCALE: NONE
CROSS REFERENCE: C1.1-1.3

PIPE DIMENSIONS				TRENCH DIMENSIONS	
NOMINAL ID	DISPLACEMENT 1/2 PIPE OD (CY/LF)	BARREL OD (6c)	BELL OD	Bd	ROCK* EXCAVATION BELOW PIPE(d)
4"	0.005	4.5"	5.00"	30"	6"
8"	0.008	9.1"	11.1"	32"	6"
10"	0.012	11.1"	13.2"	34"	6"
12"	0.018	13.2"	15.3"	36"	6"
14"	0.024	15.3"	17.9"	38"	6"
16"	0.031	17.4"	20.0"	40"	6"
18"	0.038	19.5"	22.1"	42"	6"
20"	0.047	21.6"	24.3"	44"	6"
24"	0.067	25.8"	28.5"	48"	6"
30"	0.103	32.0"	35.0"	54"	9"
36"	0.148	38.3"	41.4"	60"	9"
42"	0.200	44.5"	-	66"	9"
48"	0.260	50.8"	-	72"	9"
54"	0.329	57.1"	-	78"	9"

*BELOW AND ON EACH SIDE OF ALL PIPE, VALVES & FITTINGS.

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Drawing Title

TYPICAL SEWER DETAILS

Drawing No.

C5.2

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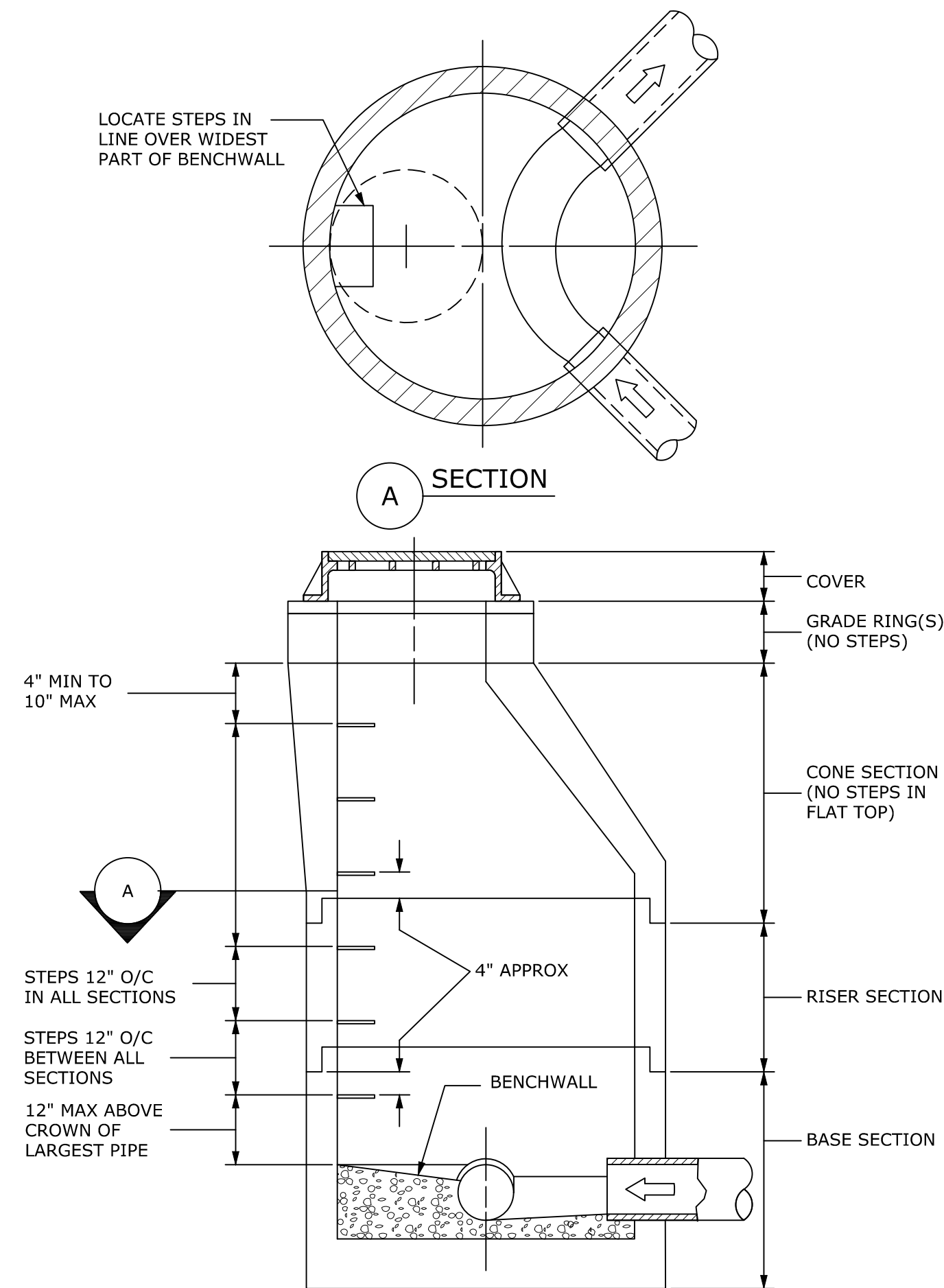
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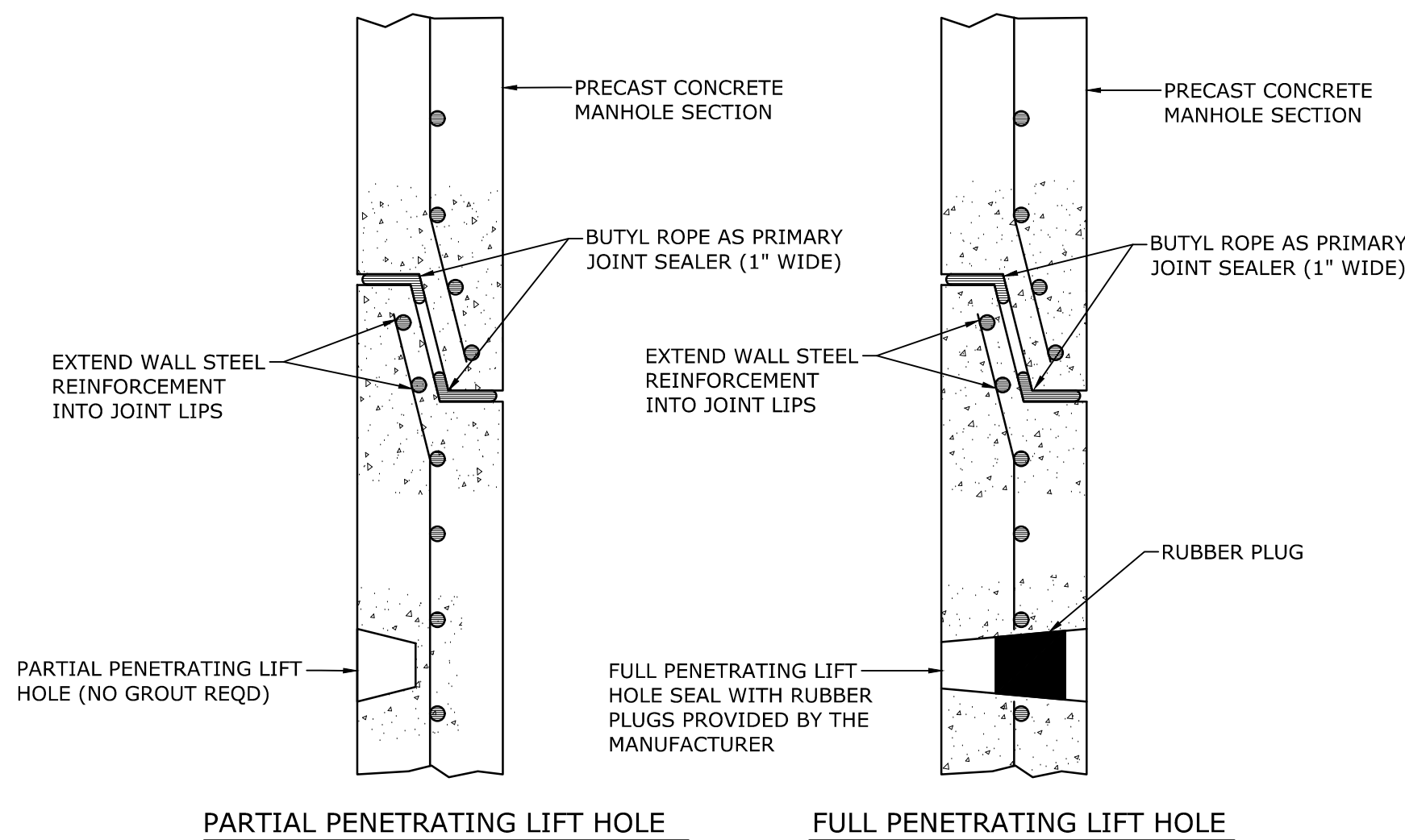
TYPICAL
SEWER DETAILS

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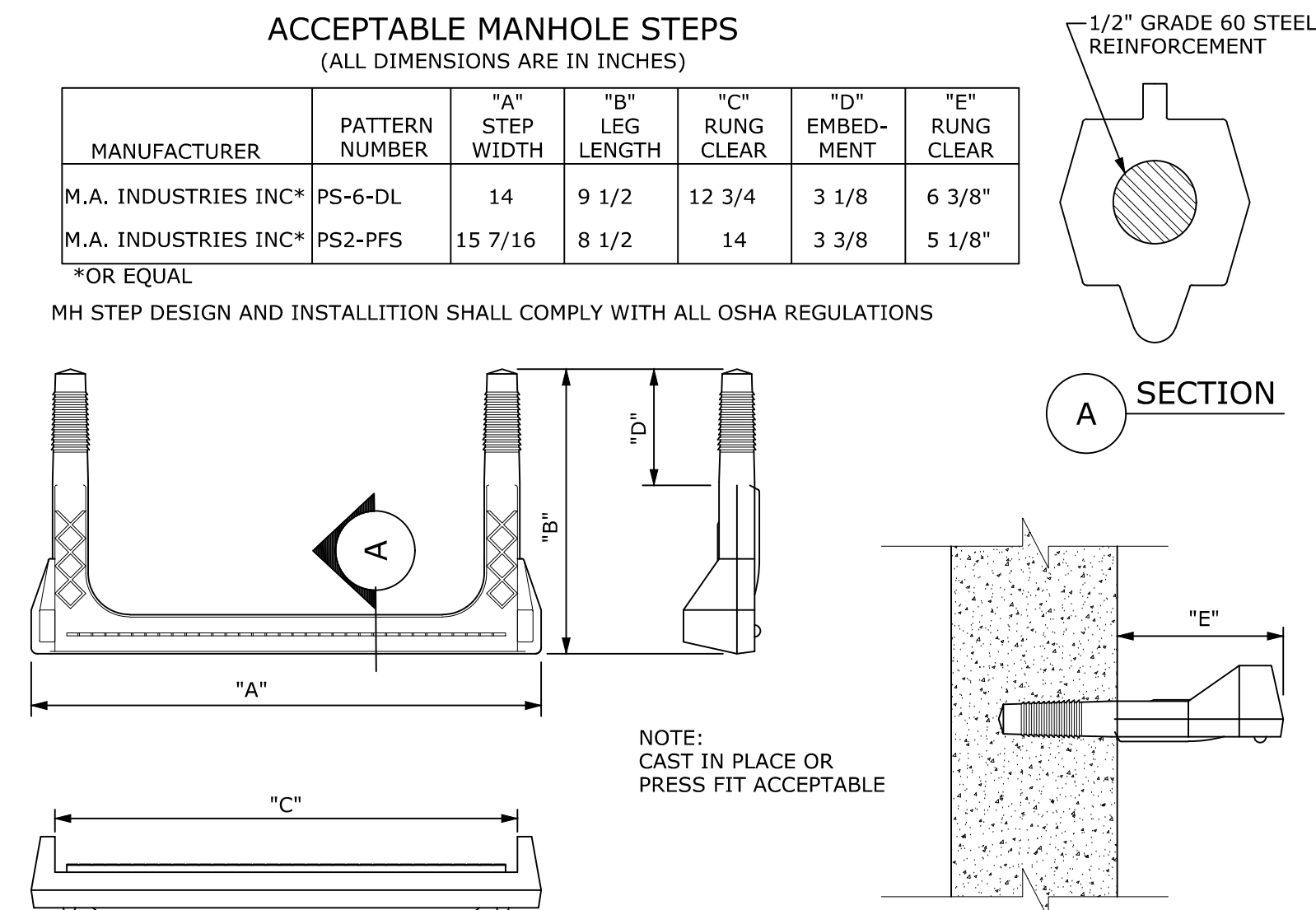
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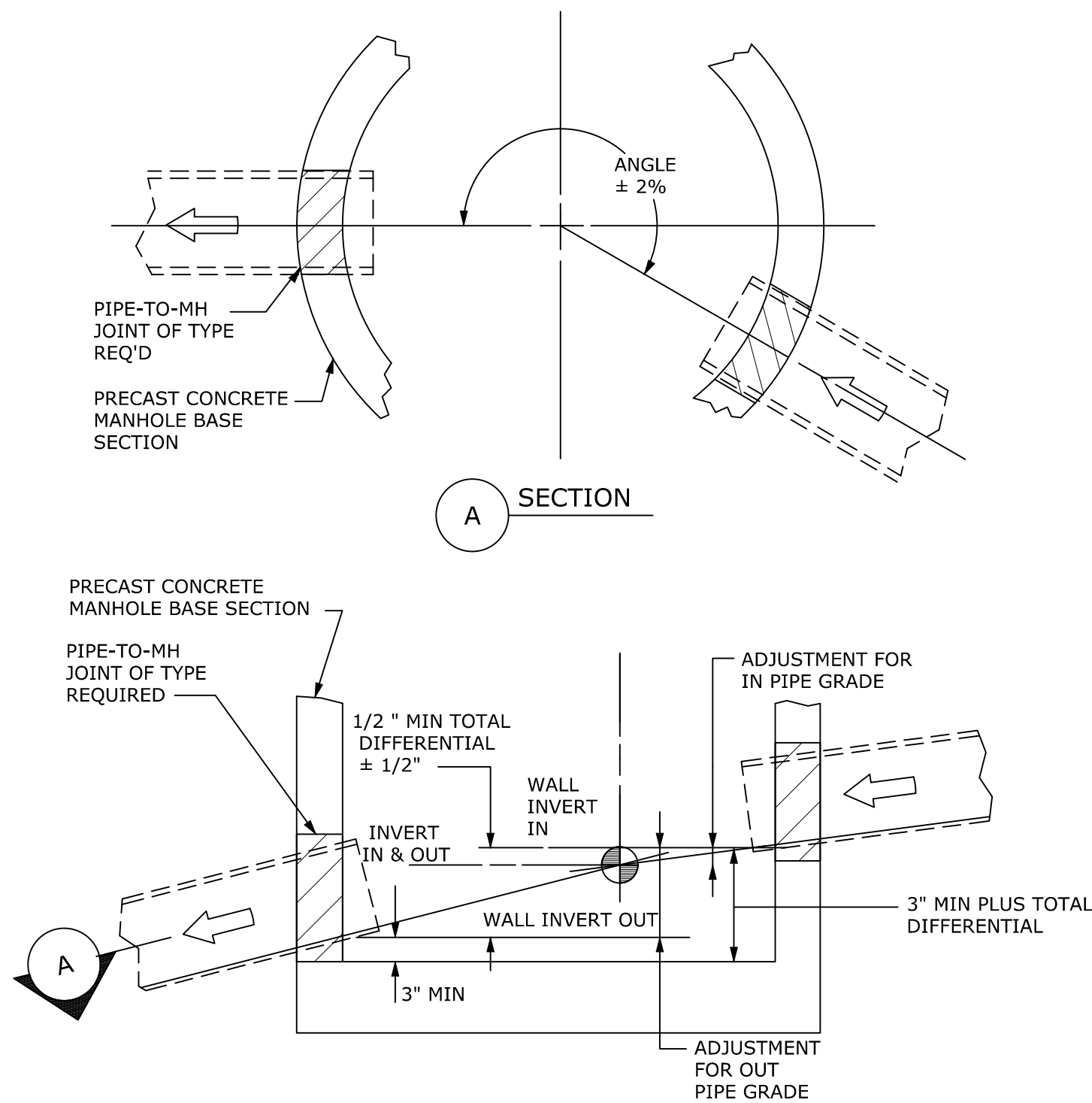
2 MH STEP PLACEMENT
SCALE: NONE
CROSS REFERENCE: 1/C5.2



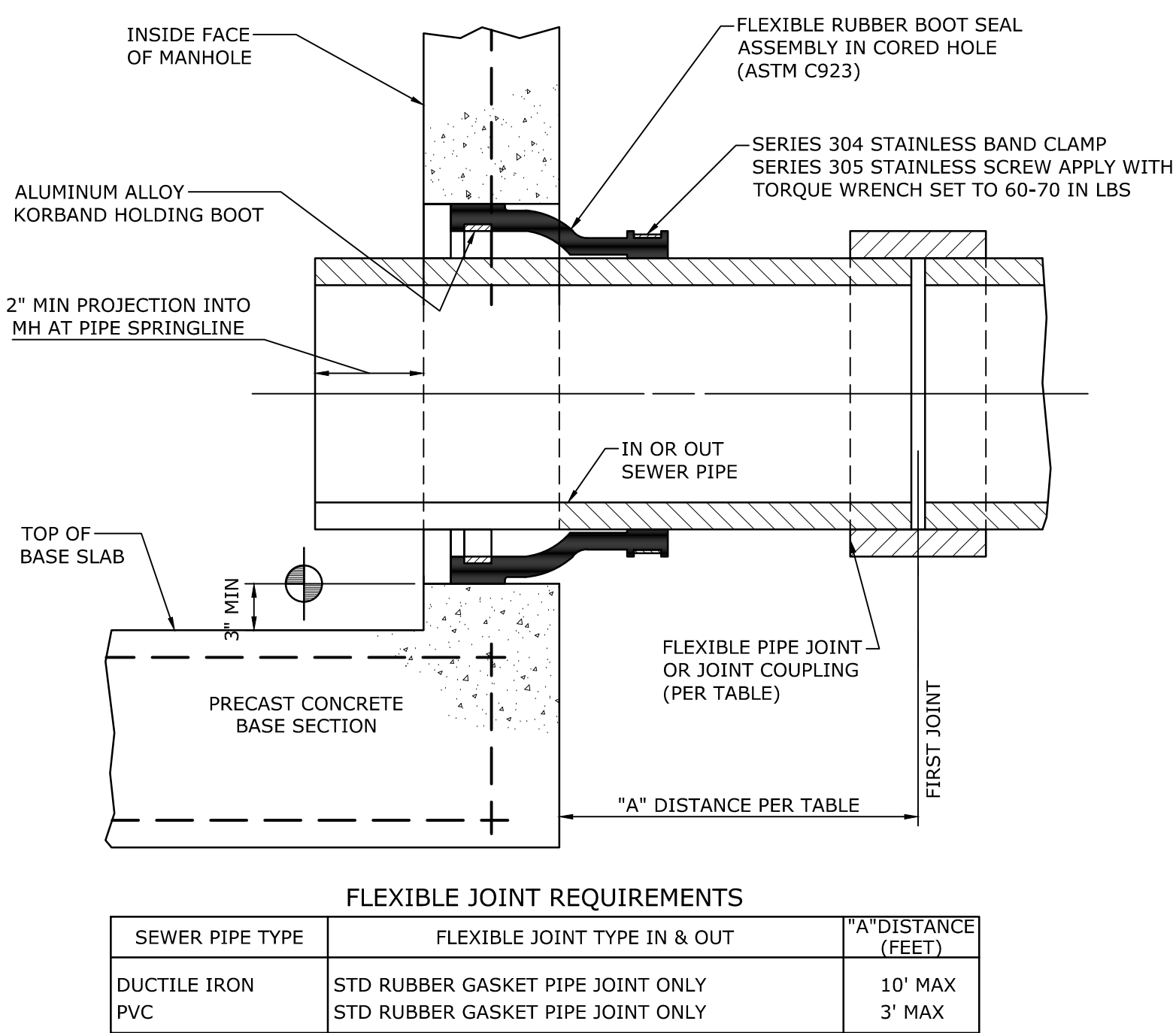
3 MANHOLE JOINT
SCALE: NONE
CROSS REFERENCE: 1/C5.2



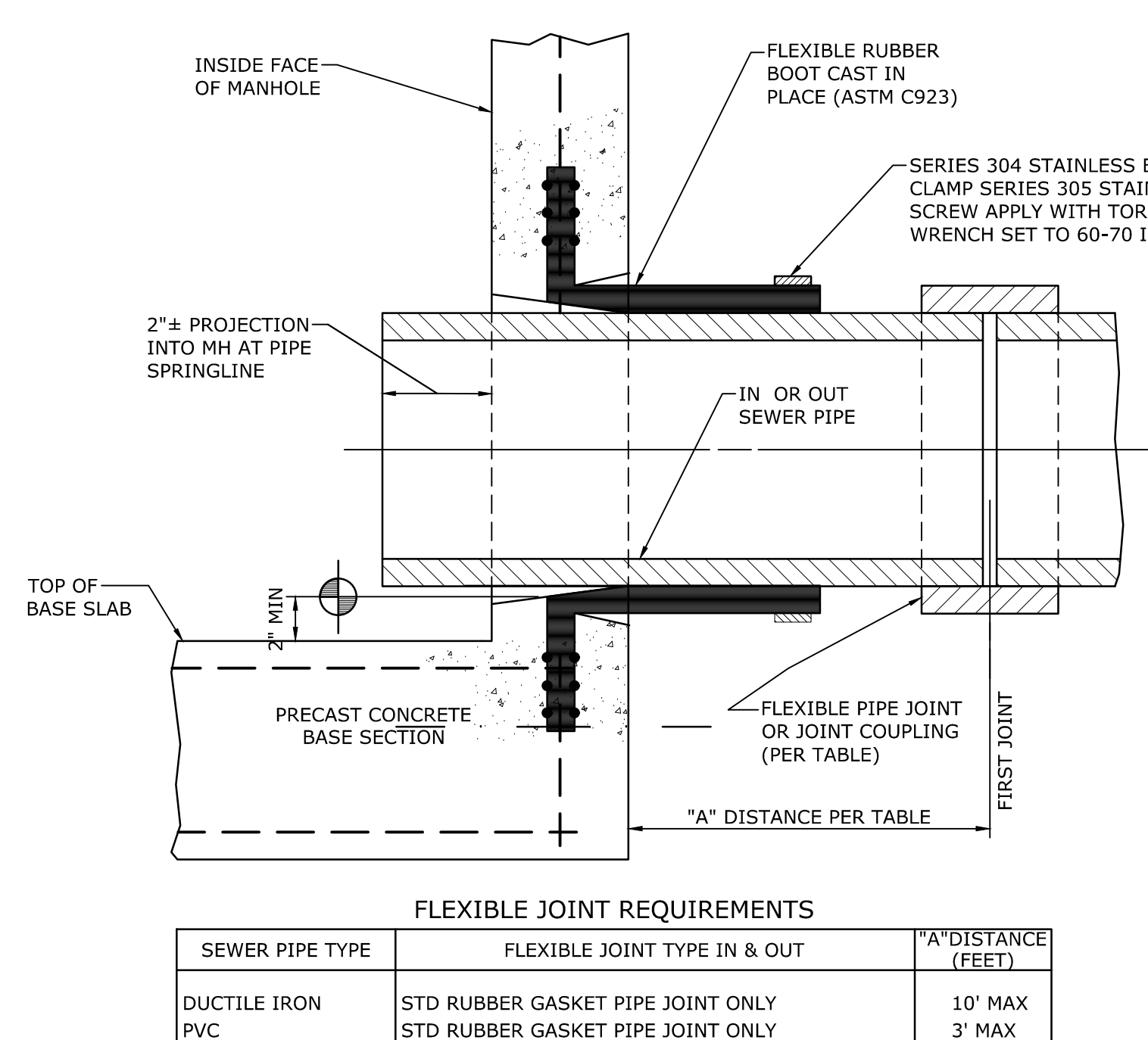
1 COPOLYMER POLYPROPYLENE PLASTIC MANHOLE STEP
SCALE: NONE
CROSS REFERENCE: 1/C5.2



4 PIPE-TO-MH JOINT PLACEMENT TOLERANCES
SCALE: NONE
CROSS REFERENCE: 1/C5.2



5 FORMED OR CORED HOLE WITH FLEXIBLE PIPE-TO-MH-JOINT
SCALE: NONE
CROSS REFERENCE: 1/C5.2



6 PRECAST HOLE FLEXIBLE PIPE-TO-MH-JOINT
SCALE: NONE
CROSS REFERENCE: 1/C5.2

FLEXIBLE JOINT REQUIREMENTS		
SEWER PIPE TYPE	FLEXIBLE JOINT TYPE IN & OUT	"A" DISTANCE (FEET)
DUCTILE IRON	STD RUBBER GASKET PIPE JOINT ONLY	10' MAX
PVC	STD RUBBER GASKET PIPE JOINT ONLY	3' MAX

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SEWER PIPE TYPE	FLEXIBLE JOINT TYPE IN & OUT	"A" DISTANCE (FEET)
DUCTILE IRON	STD RUBBER GASKET PIPE JOINT ONLY	10' MAX
PVC	STD RUBBER GASKET PIPE JOINT ONLY	3' MAX



The LA GROUP

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People. Purpose. Place.

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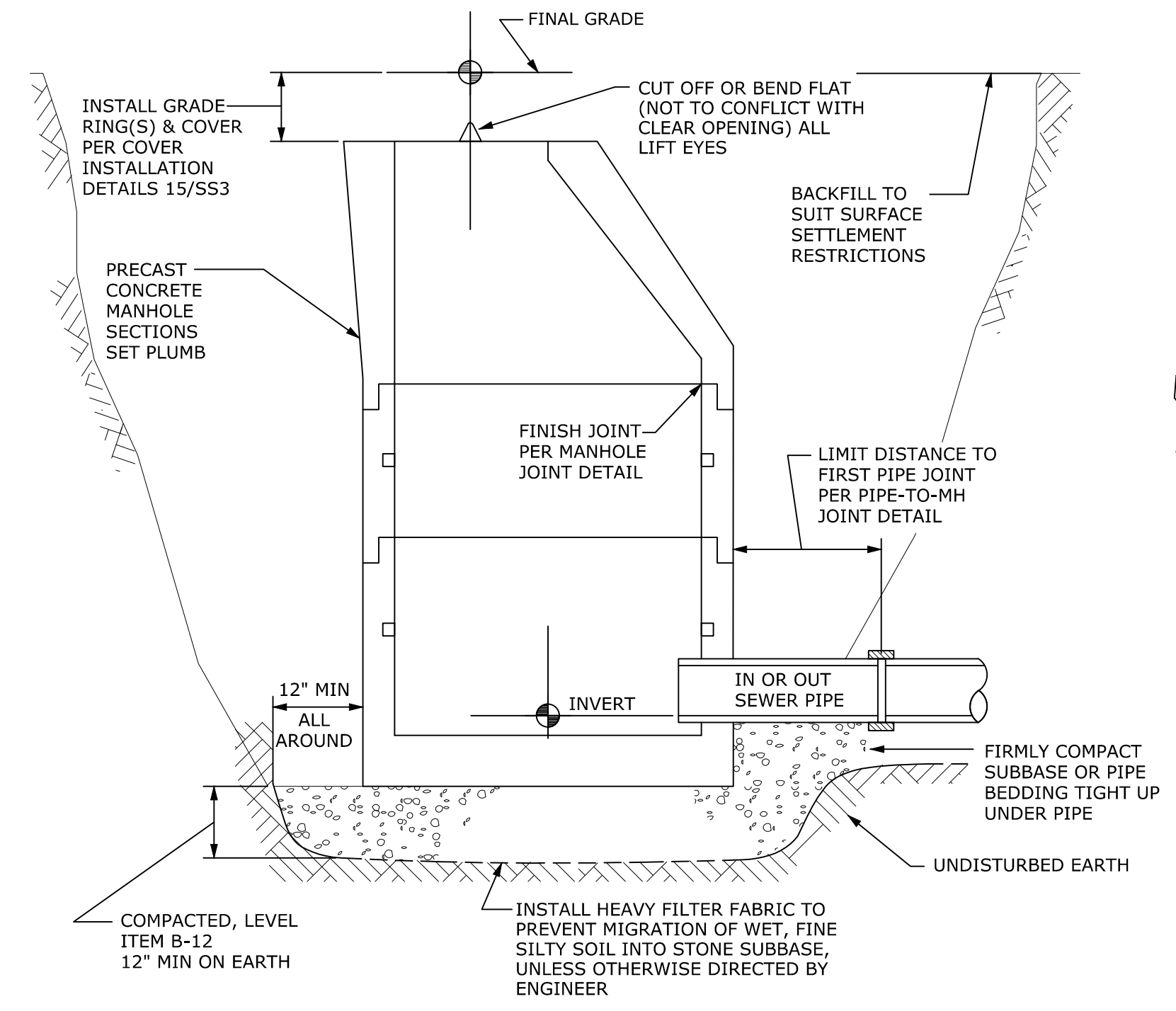
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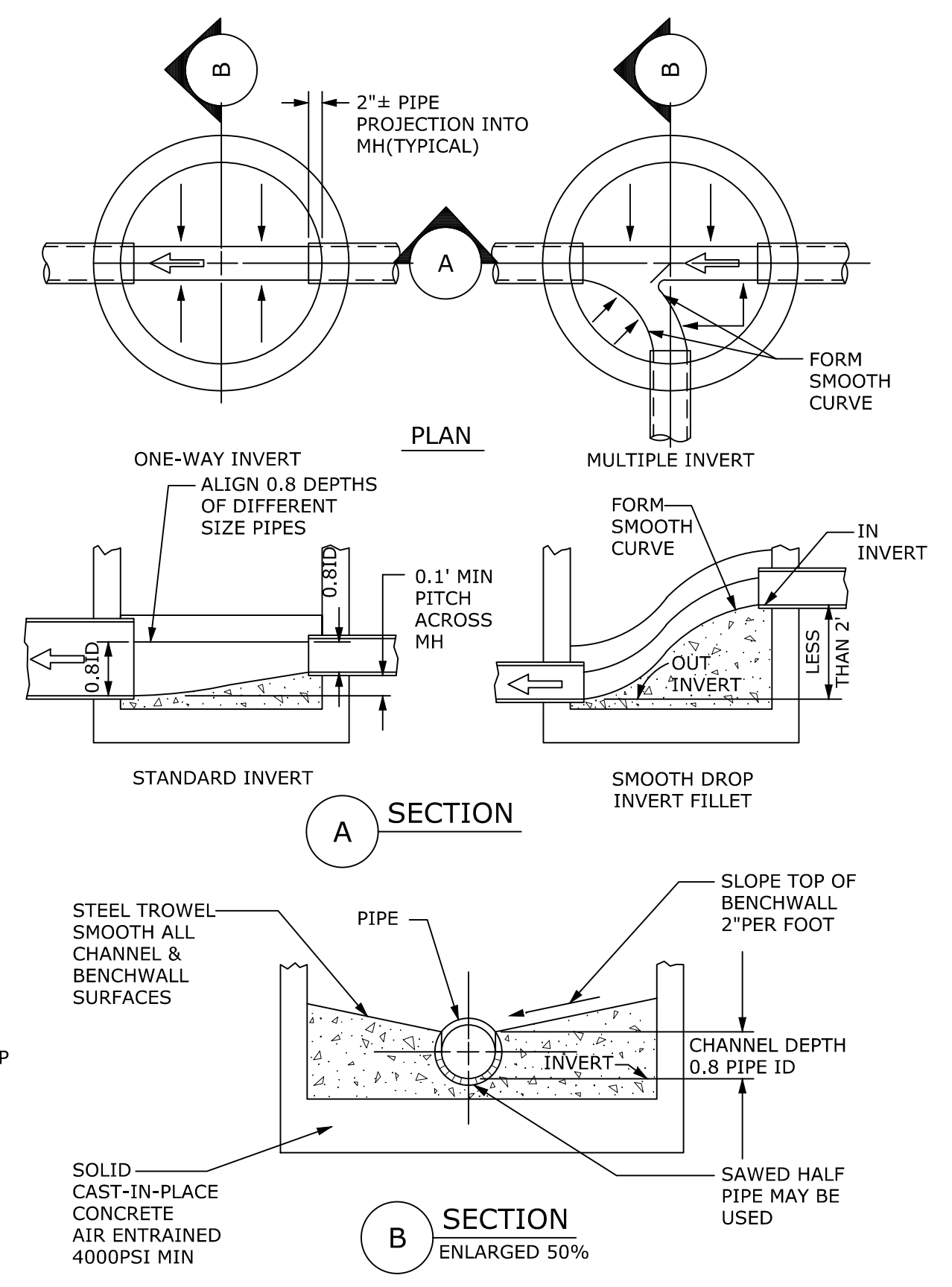
TYPICAL
SEWER DETAILS

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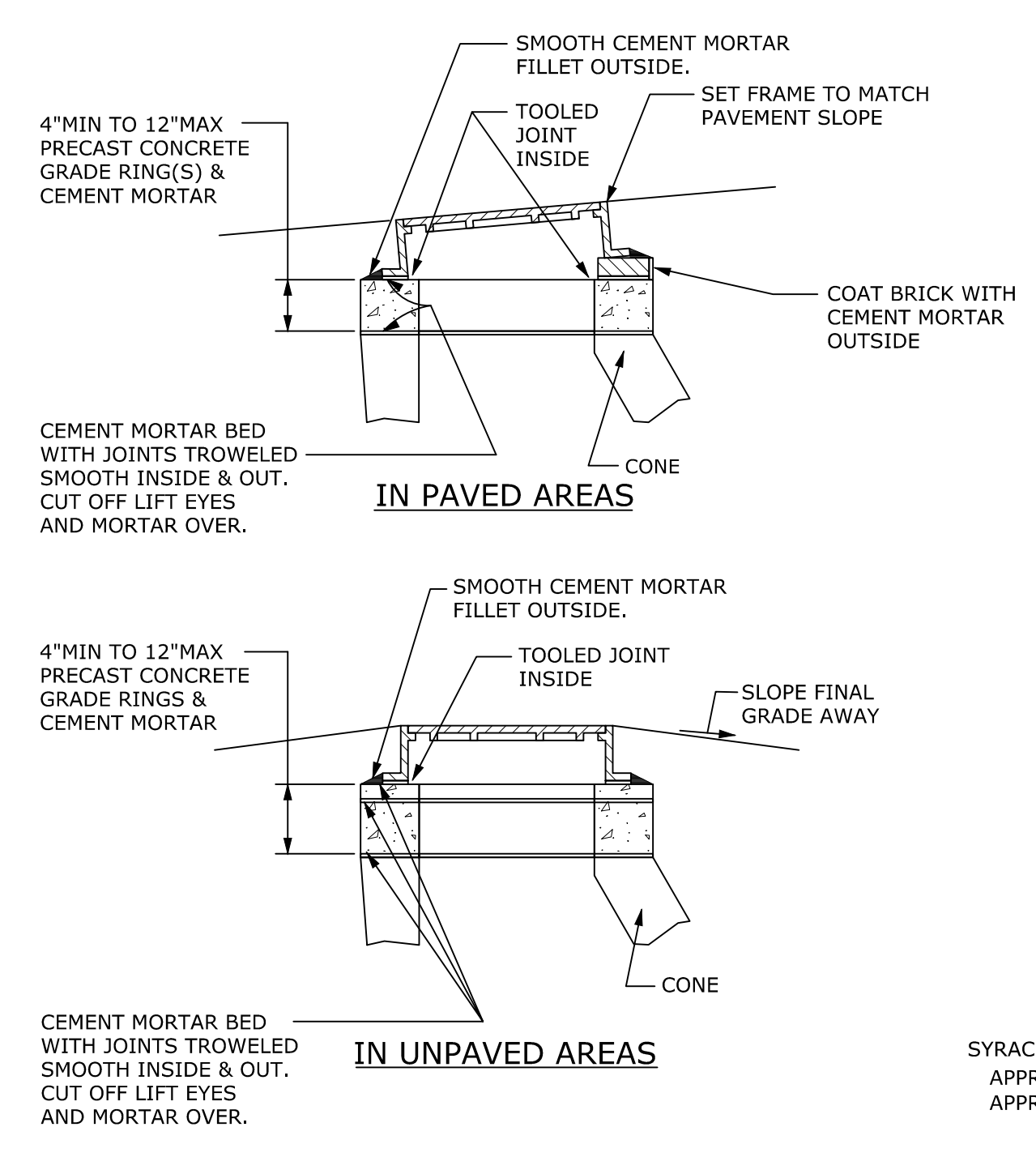
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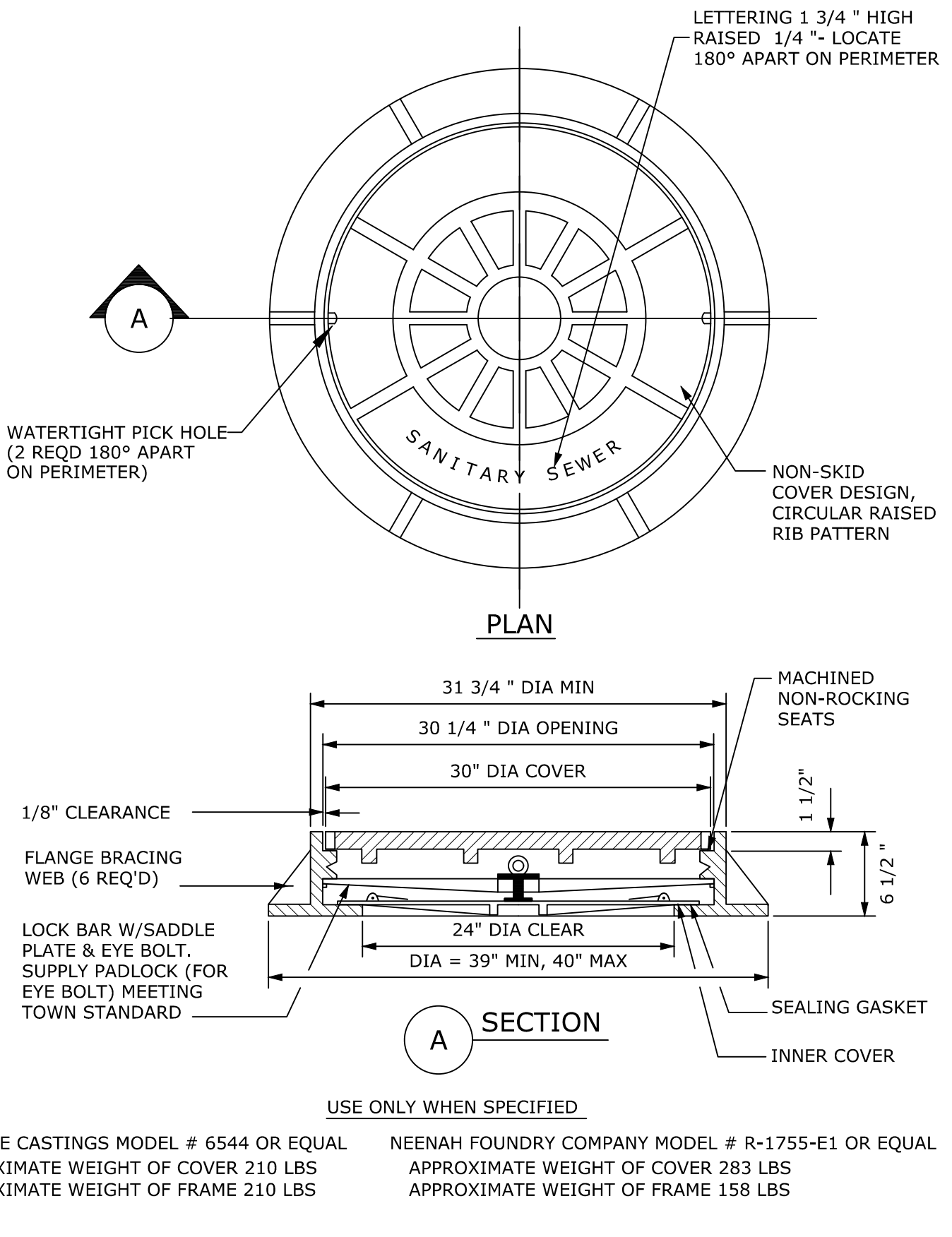
1 PRECAST CONCRETE MH INSTALLATION
SCALE: NONE
CROSS REFERENCE: 1/C5.2



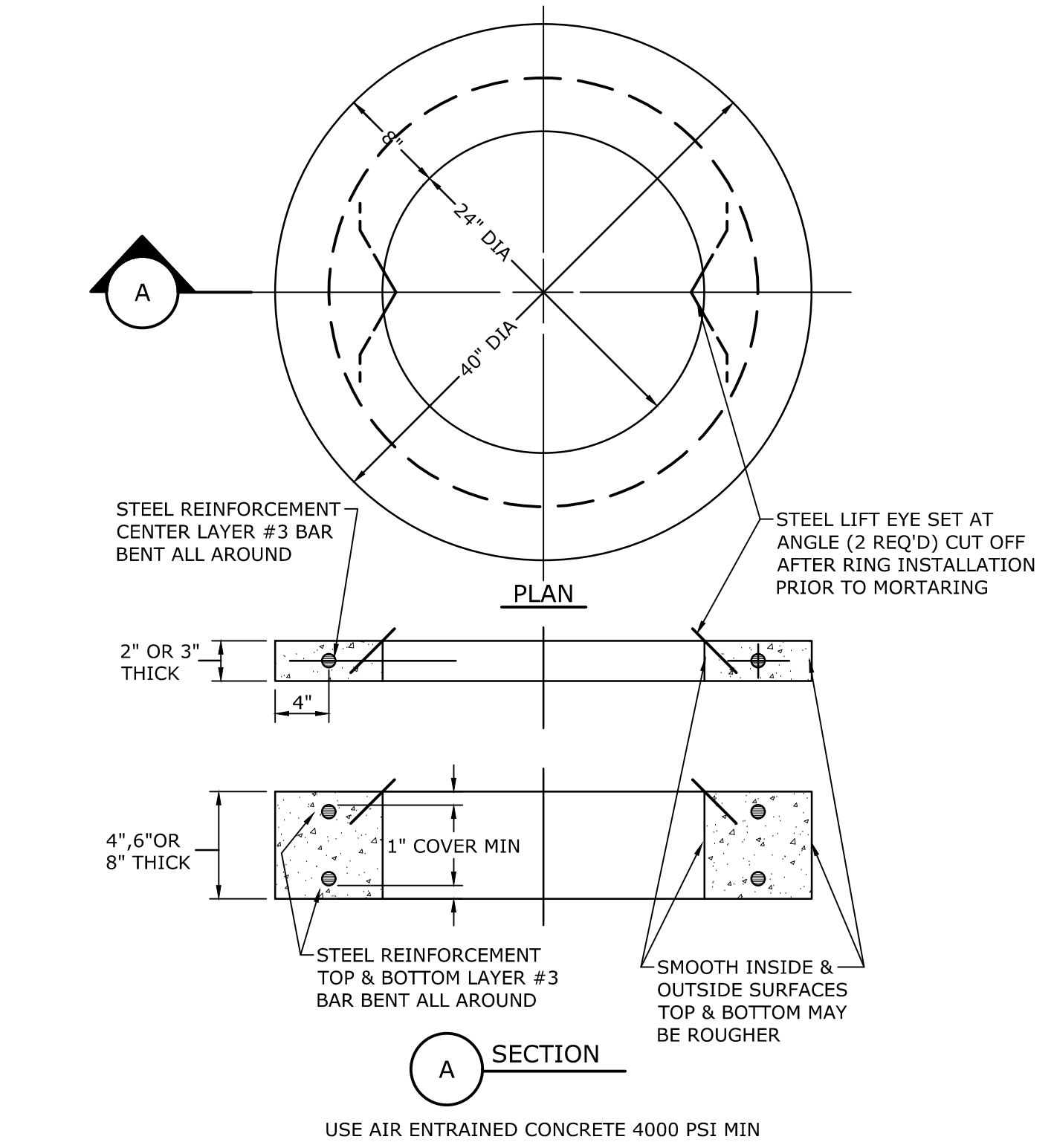
2 INVERT, CHANNEL AND BENCHWALLS
SCALE: NONE
CROSS REFERENCE: 1/C5.2



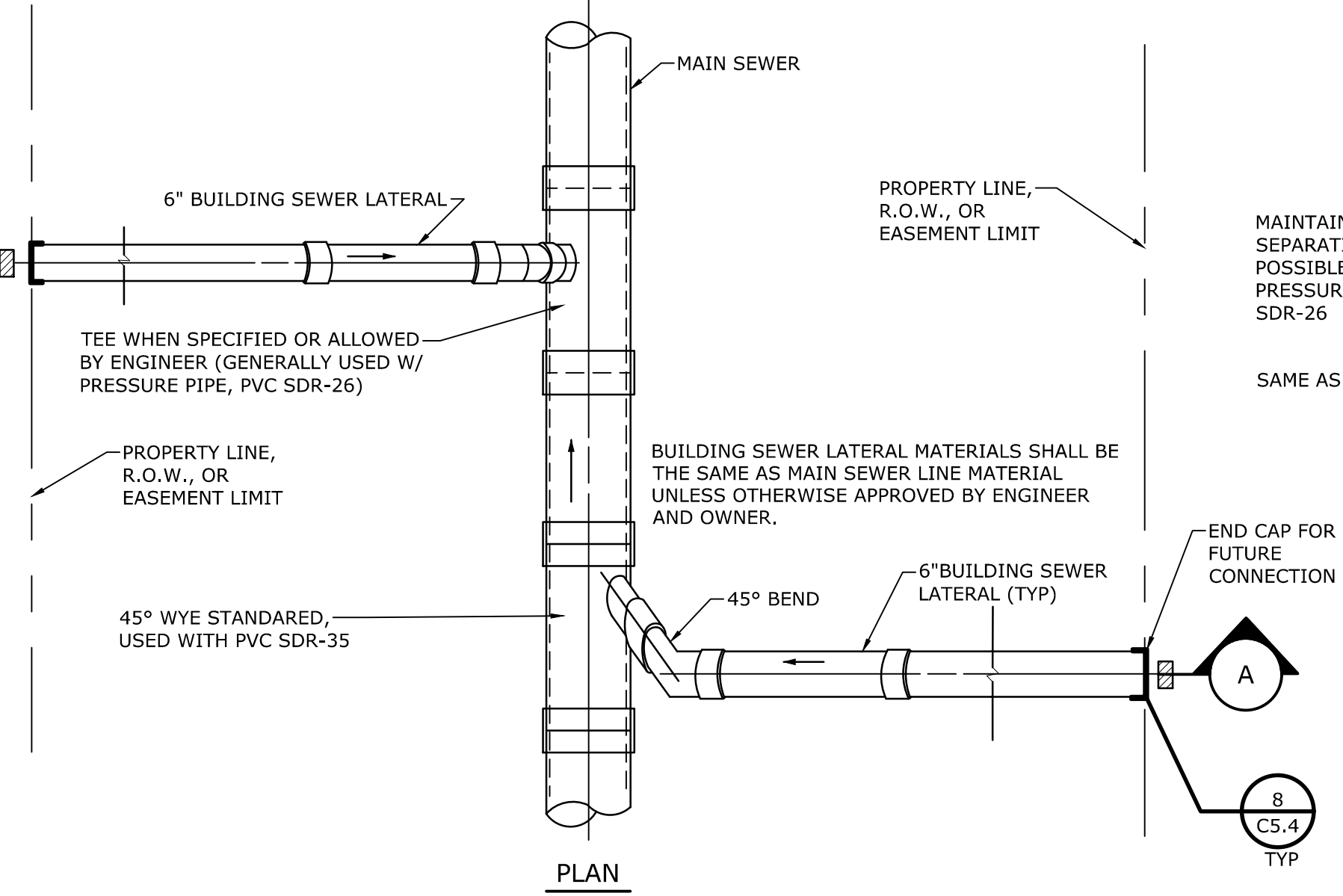
3 CAST IRON MH COVER INSTALLATION
SCALE: NONE
CROSS REFERENCE: 1/C5.2



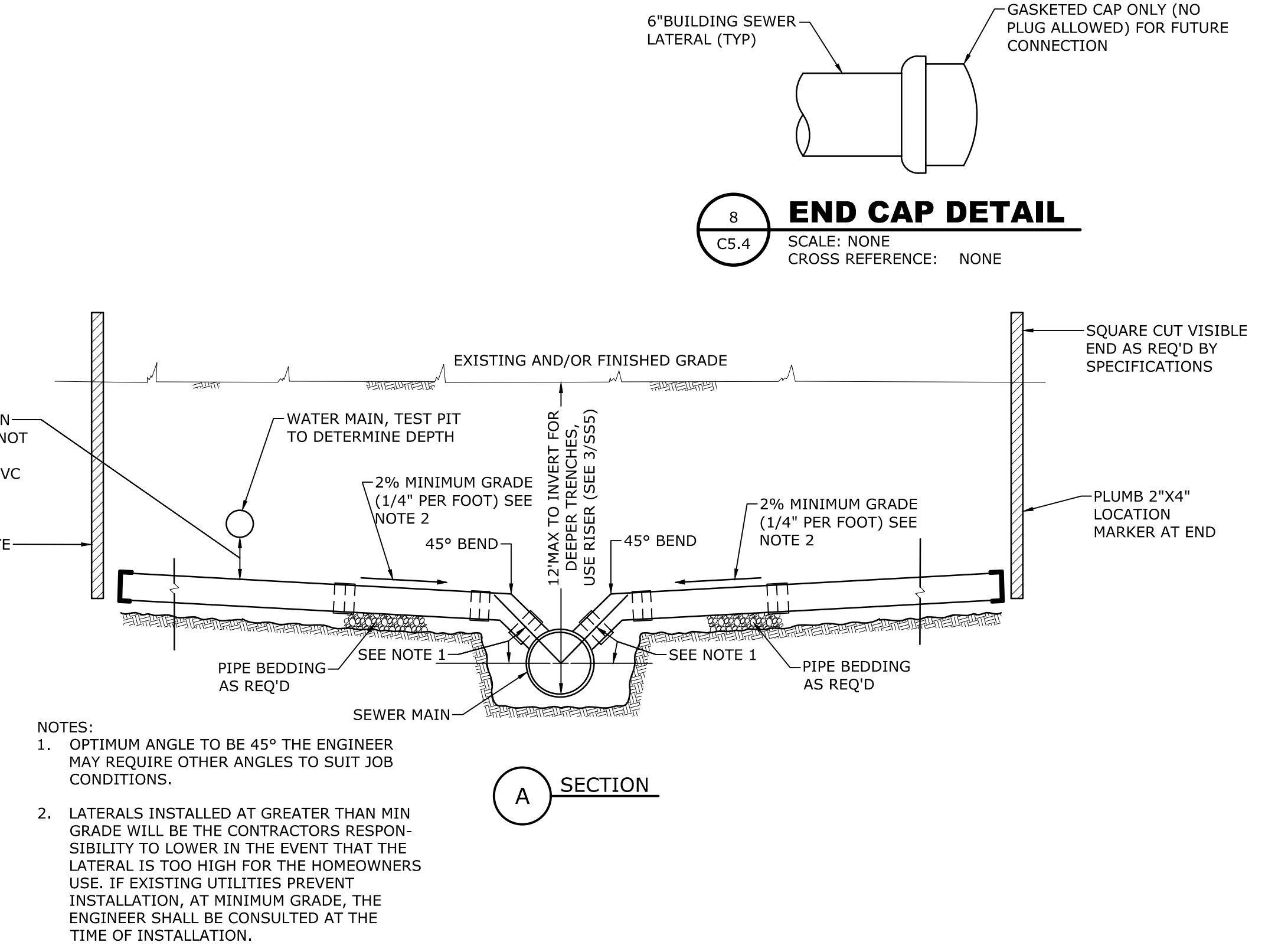
4 WATERTIGHT/LOCKING CAST IRON MH COVER
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CROSS REFERENCE: 1/C5.2



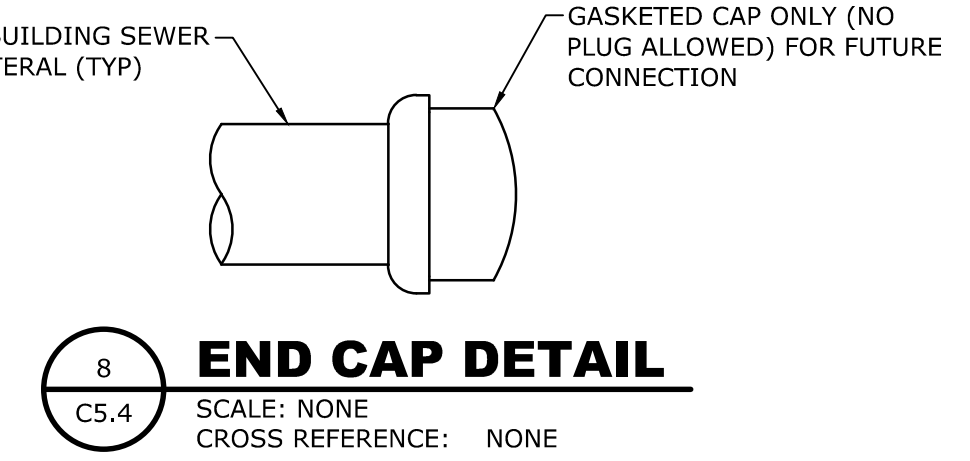
5 PRECAST CONCRETE MH GRADE RING
SCALE: NONE
CROSS REFERENCE: 1/C5.2



6 STANDARD SEWER SERVICE CONNECTION PLAN
SCALE: NONE
CROSS REFERENCE: NONE



7 STANDARD SEWER SERVICE CONNECTION SECTION
SCALE: NONE
CROSS REFERENCE: NONE



8 END CAP DETAIL
SCALE: NONE
CROSS REFERENCE: NONE

Drawn By: JRG
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