

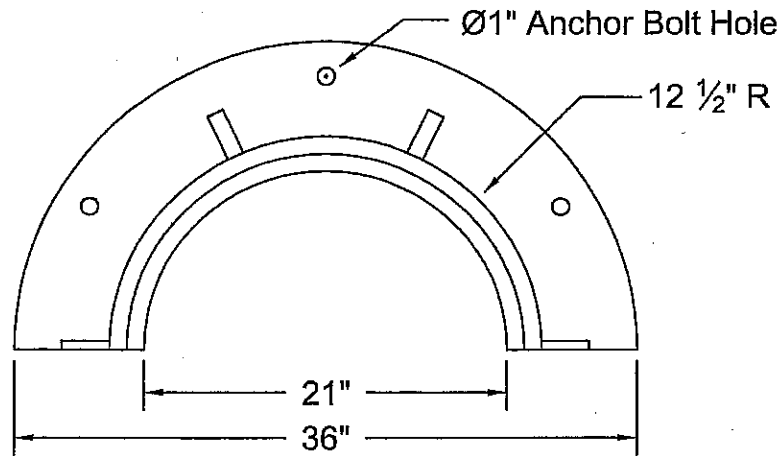
1. 24 HOUR NOTICE IS REQUIRED PRIOR TO STARTING CONSTRUCTION.
2. FALL THROUGH MANHOLES SHALL BE APPROVED BY THE GRADE OF THE SEWER IN STRAIGHT-THROUGH MANHOLES OR ANGLE MANHOLES UNDER 45° WHERE THE GRADE IS 1.00 % OR MORE FOR STRAIGHT-THROUGH OR ANGLE MANHOLES OVER 45° WHERE GRADE OF SEWER IS LESS THAN 1.00 % OR FOR JUNCTION MANHOLES A MINIMUM FALL OF 0.10 FOOT SHALL BE PROVIDED THROUGH MANHOLES.
3. BOTTOM SECTION OF MANHOLE BARRELS SHALL HAVE SLOTS FOR PIPES PREFORMED AT THE TIME OF CASTING. CUTTING OF SLOTS IN BARRELS WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY WMU'S ENGINEER. LIFTING HOLES FOR BARREL SECTIONS SHALL BE PREFORMED AND CAST IN PLACE.
4. INVERTS FOR MANHOLES SHALL BE FORMED OF MASS CONCRETE OR BE PRECAST WITH A SMOOTH FINISH. (BRUSH FINISH IS NOT ACCEPTABLE)
5. ALL FLOORS OF MANHOLES MUST HAVE A BRUSH FINISH.
6. CONNECTIONS TO EXISTING WMU MANHOLES WILL BE MADE ONLY AFTER SEWER LINES ARE SUBSTANTIALLY COMPLETE AND READY FOR ACCEPTANCE BY WMU. AUTHORIZATION FOR FINAL CONNECTION MUST BE RECEIVED FROM WMU BEFORE CONNECTION IS MADE. 24 HOUR NOTICE IS REQUIRED PRIOR TO FINAL CONNECTION.
7. WHENEVER POSSIBLE THE ECCENTRIC CONE SHALL BE PLACED PERPENDICULAR TO THE LINE OF THE SEWER TO MINIMIZE FUTURE MEASUREMENT ERRORS ALONG THE SEWER.
8. CONCENTRIC CONE MAHOLES MAY BE USED IN LIEU OF ECCENTRIC CONE MANHOLES WHEN REQUESTED BY THE CONTRACTOR AND UPON APPROVAL BY WMU'S ENGINEER OF SHOP DRAWINGS SHOWING THE CONSTRUCTION TO BE USED.
9. ALL SEWER SHALL BE MARKED BY USING DETECTABLE MYLAR SEWER LINE TAPE APPROVED BY WMU. (A MIN. OF 18" BELOW FINAL GRADE.)
10. MANHOLES SHALL BE LOCATED AT ALL BENDS AND AT EVERY 300'. (MAX. LENGTH)
11. ALL VISABLE LEAKS IN MANHOLES OBSERVED DURING DURING CONSTRUCTION OR INSPECTION SHALL BE CORRECTED EVEN THOUGH INFILTRATION REQUIREMENTS HAVE ALREADY BEEN MET.
12. UNLESS OTHERWISE INDICATED OR SPECIFIED, UNREINFORCED CONCRETE FOR CRADLES ENCASMENT SHALL BE CLASS 'C' (2000 PSI) MANHOLE INVERTS AND REINFORCED BASE AND TOP SLABS SHALL BE CLASS 'B' (3000 PSI) CONCRETE.
13. SHALLOW MANHOLES SHALL BE CONSTRUCTED WITH 4' Ø PRECAST CONCRETE RINGS WITH TOP SLAB AND MANHOLE & COVER AS SHOWN IN SDS - 08.
14. MANHOLE CASTINGS SHALL CONSIST OF CAST IRON FRAMES, 22" Ø COVERS, WEIGHING NO LESS THAN 460 POUNDS PER FRAME AND LID. IN SPECIAL CONDITIONS A 510 POUND FRAME AND LID WILL BE USED. MANHOLE CASTINGS SHALL BE 310 LBS., JR HOE MF-310 OR APPROVED EQUAL.
15. A MINIMUM SEPARATION OF 18" IS REQUIRED AT ANY LOCATION WHERE A WATER LINE GROSSES A SANITARY SEWER LINE. IF THIS SEPARATION CAN NOT FEASIBLY BE OBTAINED , THE WATER LINE MUST BE INSTALLED IN SUCH A MANNER THAT NO JOINT IS WITHIN 5' OF THE SANITARY SEWER LINE AND A SEPARATION OF 6" MUST BE MAINTAINED.
16. WATER/SEWER LINE TRENCHES IN EXISTING DRIVEWAYS OR STREETS SHALL BE BACKFILLED WITH #9 CRUSHED STONE TO THE TOP OF THE TRENCH.
17. SEWER LINE TRENCHES OUTSIDE EXISTING DRIVEWAYS OR STREETS SHALL BE BACKFILLED WITH A MIXTURE OF CLEAN EARTH FREE OF ROCK NO LARGER THAN 1' SQ. AND DEBRIS, FROM THAT POINT TO THE TOP OF THE TRENCH.
18. MANHOLE STEPS SHALL BE POLYPROPYLENE PLASTIC WITH $\frac{3}{8}$ " STEEL REINFORCING ROD GRADE 60. STEPS SHALL CONFORM TO ASTM 2 /46-68 GRADE 16906 AND ASTM A-615.
19. NO BRICK PERMITTED IN MANHOLES. (WALLS OR ADJUSTMENT COLLARS)
20. RUBBER WATER STOPS SHALL BE REQUIRED FOR ALL PIPES ENTERING MANHOLES AND MUST BE GROUTED IN PLACE IN THE MANHOLE WALL. (INDIANA SEALS OR APPROVED EQUAL)
21. PROVIDE NO. 4 REBAR, PAINTED YELLOW, TO PROTECT END OF PIPE ALONG WITH DETECTABLE MYLAR SEWER TAPE FOR LATERAL PROTECTION.
22. PRECAST MANHOLES SECTIONS SHALL BE SEALED WITH CONSEAL OR KENT SEAL #2 ADHESIVE O-RING GASKETS OR APPROVED EQUAL. (TO INCLUDE GRADE RINGS AND FRAME CASTINGS)
23. STEEL ENCASMENT PIPE SHALL PLACED AT THE LOCATION SHOWN ON THE PLANS IN ACCORDANCE WITH THE NOTED SIZE, LENGTH, AND TYPE OF MATERIAL. THE ENCASMENT PIPE SHALL HAVE A MINIMUM WALL THICKNESS OF $\frac{1}{4}$ " FOR NEW CASING PIPE OR $\frac{3}{8}$ " FOR SALVAGED CASING PIPE. FOR EXISTING PIPE INSTALLATION, APPLICATIONS, SPLIT STEEL CASING PIPE SHALL CONFORM TO THE ABOVE SPECIFICATIONS EXCEPT THAT IT SHALL BE IN TWO (2) SEMICIRCULAR SECTIONS JOINED BY A CONTINUOUS WELD FROM ONE END TO THE OTHER WITHOUT ANY TRACEABLE VOIDS. THE ENCASMENT PIPE MUST BE BITUMINOUS COATED INSIDE AND OUT, AND SEALED ON BOTH ENDS WITH A RUBBER FERNCO END SEAL.



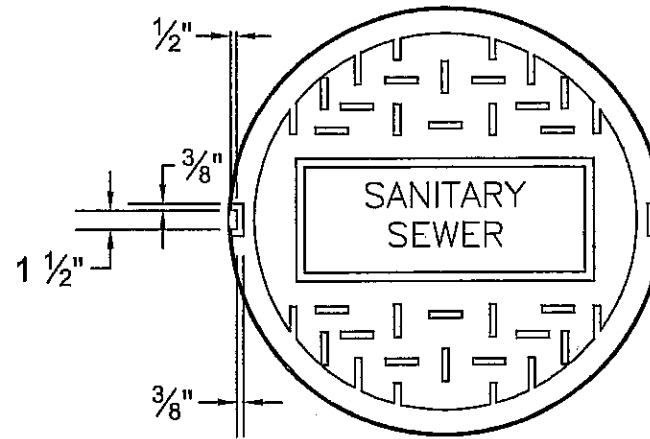
*Winchester
Municipal
Utilities*

General Notes (Sanitary Sewer)

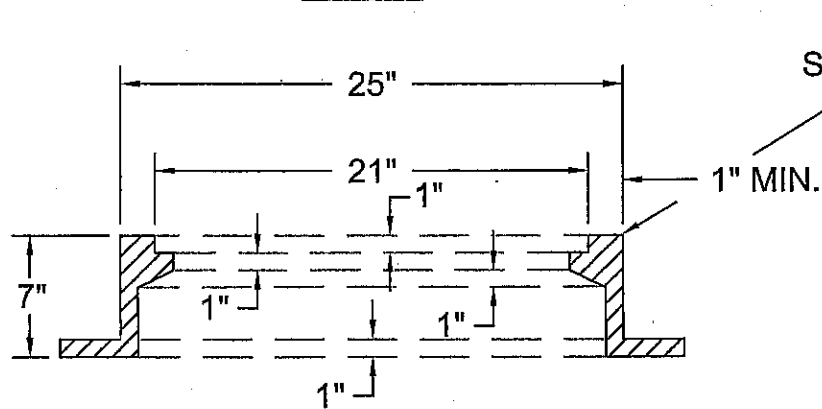
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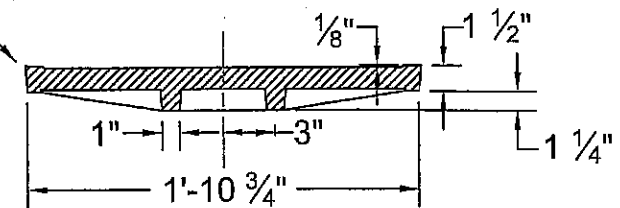
FRAME



COVER



Machined Seating Edges



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Manhole Frame And Cover
MIN. WT. 460 LBS.

SCALE:

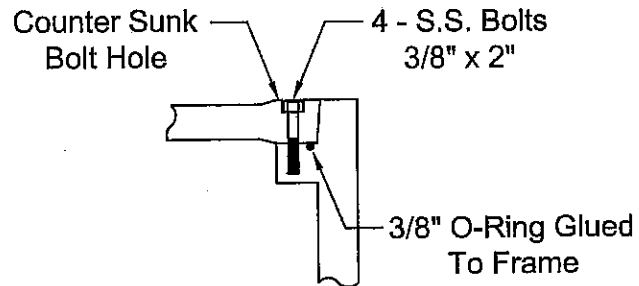
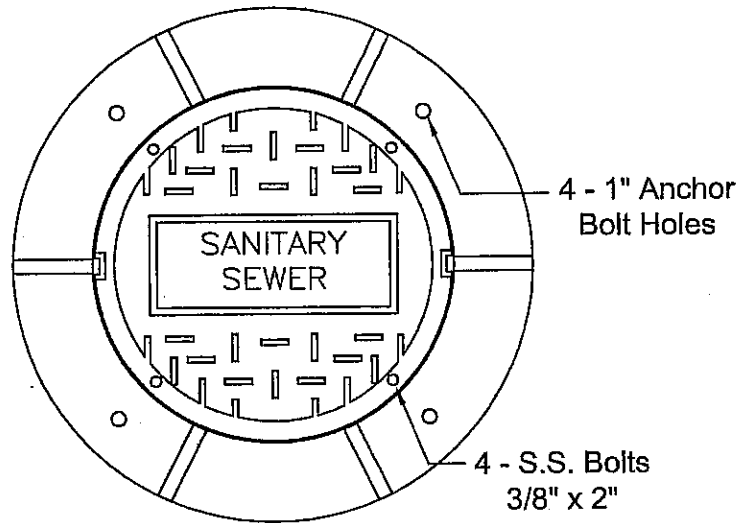
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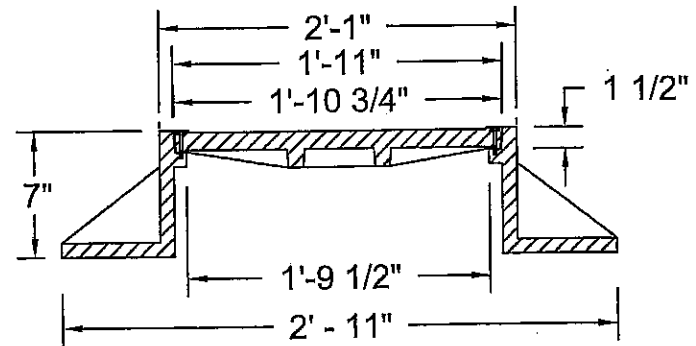
FEB 2003

DWG. NO.:

SDS - 02



TYPICAL WATERTIGHT
DETAIL



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Bolt Down MH Frame And Cover

SCALE:

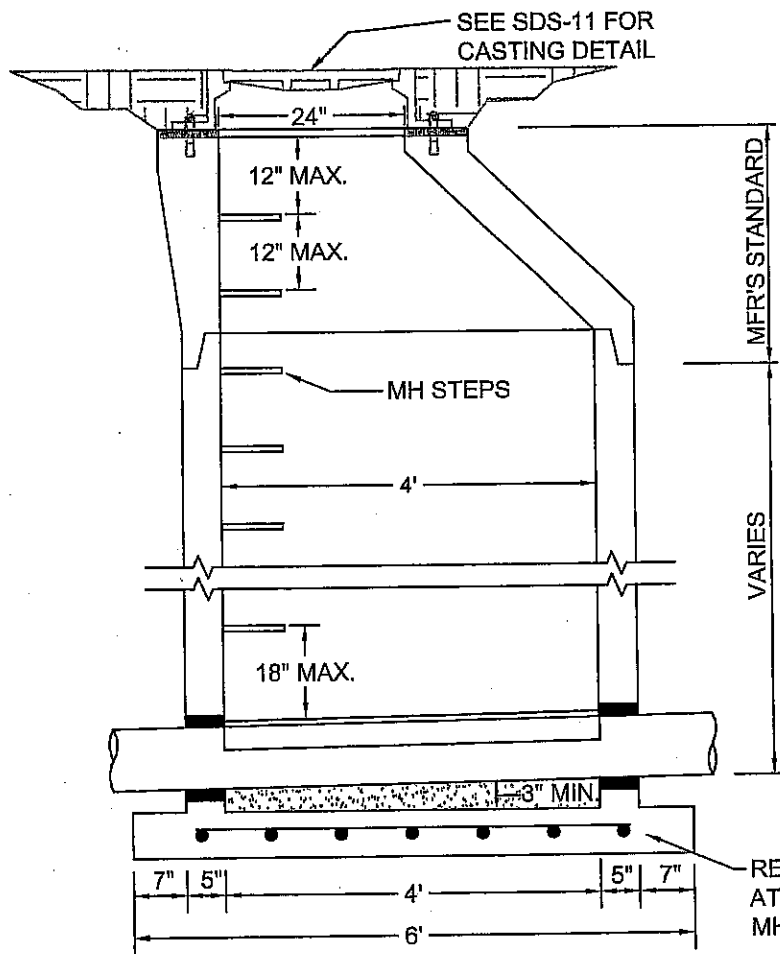
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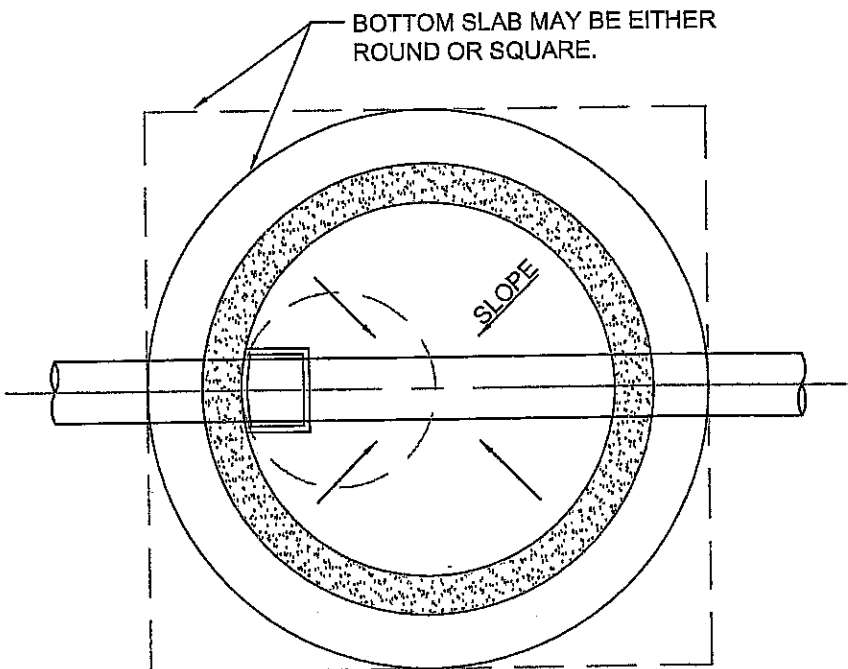
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SDS - 03

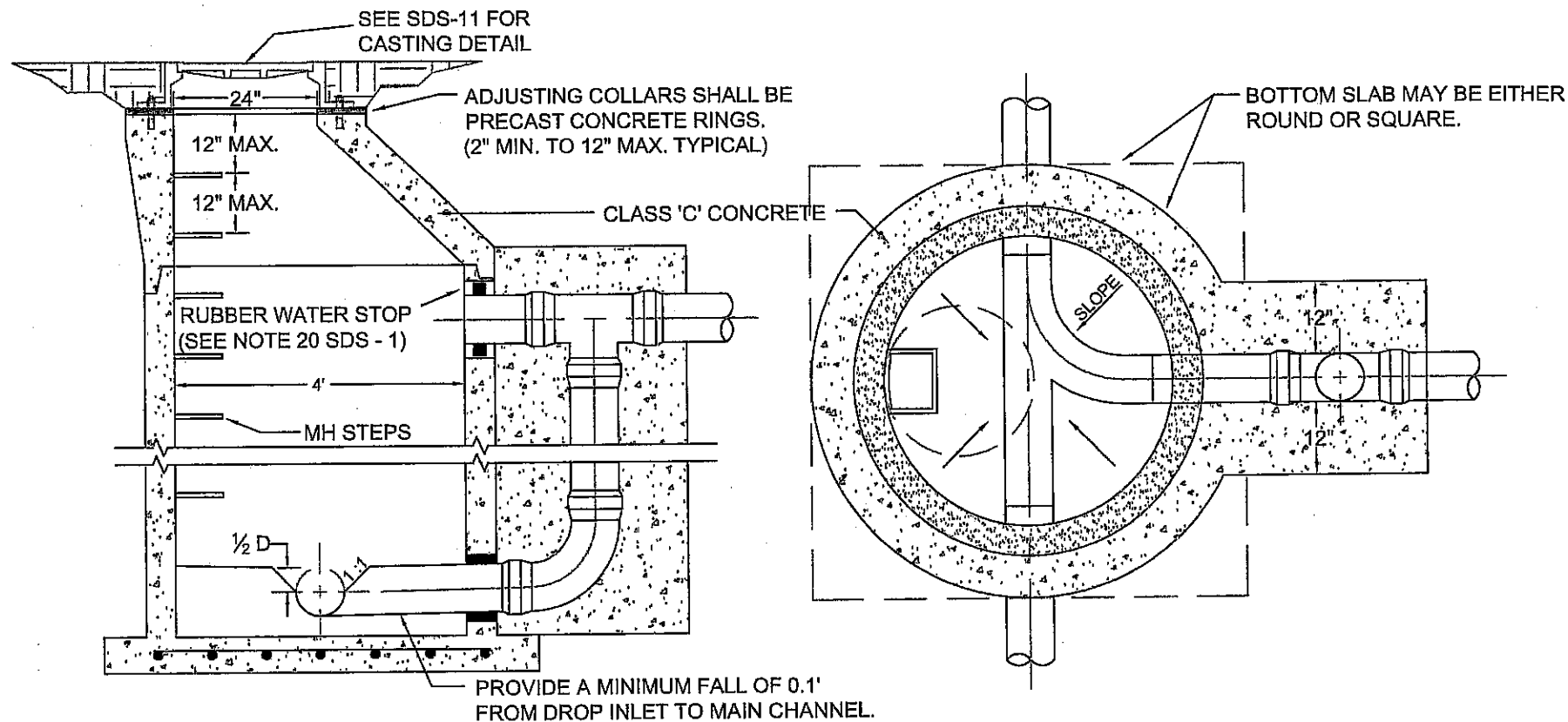


REINFORCE WITH #4 BARS AT 8" O.C. BOTH WAYS FOR MH'S GREATER THAN 12'.



NOTE: PRECAST CONCRETE RINGS FOR MANHOLES 12' OR LESS IN DEPTH SHALL CONFORM TO ASTM STD. SPEC. C-76, TABLE II, WALL B, WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI TABLE III PRECAST CONCRETE RINGS SHALL BE USED FOR MANHOLES OVER 12' DEEP.

 Winchester Municipal Utilities	Standard Precast Manhole		
	SCALE: NONE	DATE: FEB 2003	DWG. NO.: SDS - 04



NOTE: PRECAST CONCRETE RINGS FOR MANHOLES 12' OR LESS IN DEPTH SHALL CONFORM TO ASTM STD. SPEC. C-76, TABLE II, WALL B, WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI TABLE III PRECAST CONCRETE RINGS SHALL BE USED FOR MANHOLES OVER 12' DEEP.



Winchester
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Utilities

Standard Precast Outside Drop MH

SCALE:

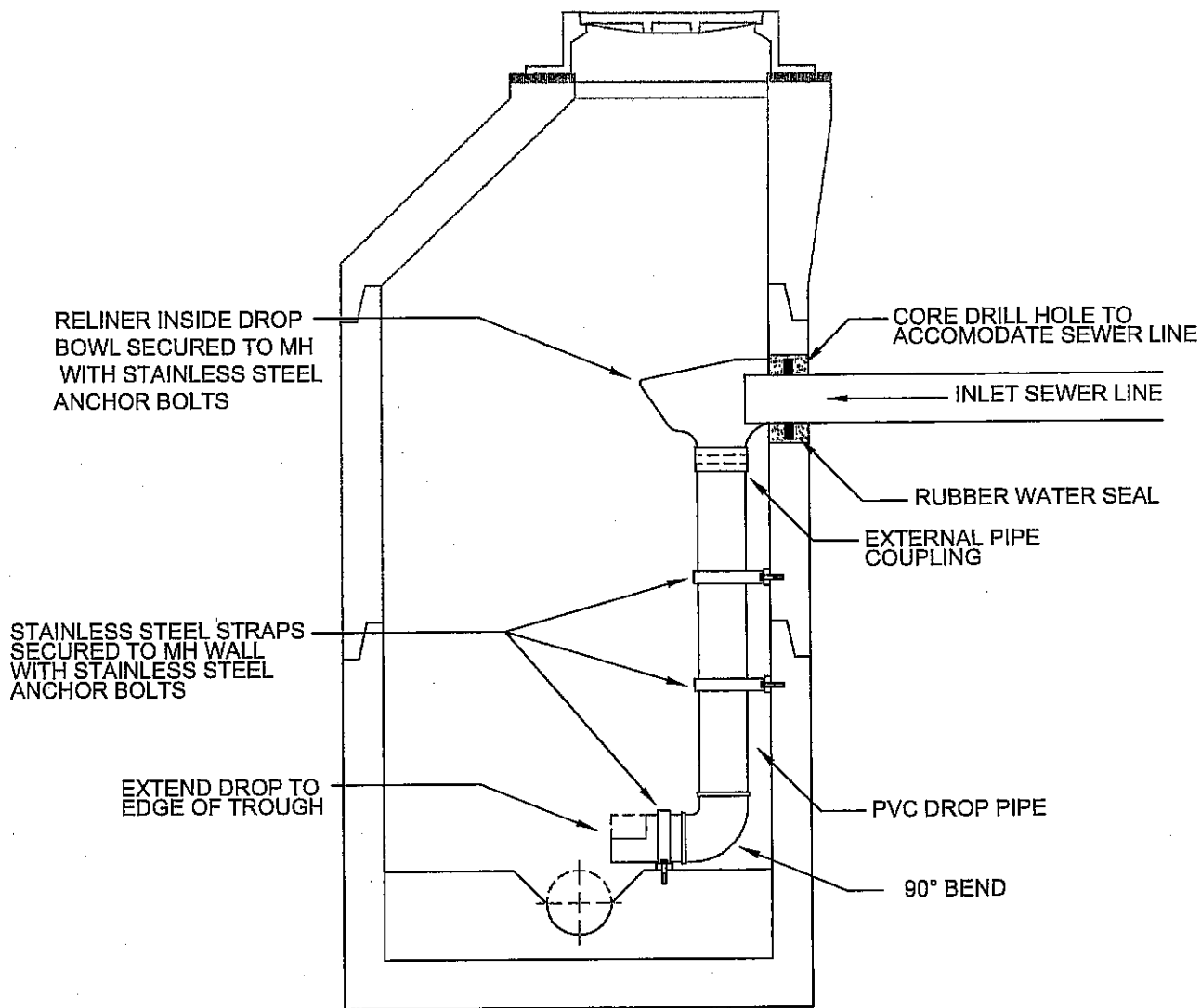
NONE

DATE:

FEB 2003

DWG. NO.:

SDS - 05



*Winchester
Municipal
Utilities*

Standard Precast Inside Drop MH

SCALE:

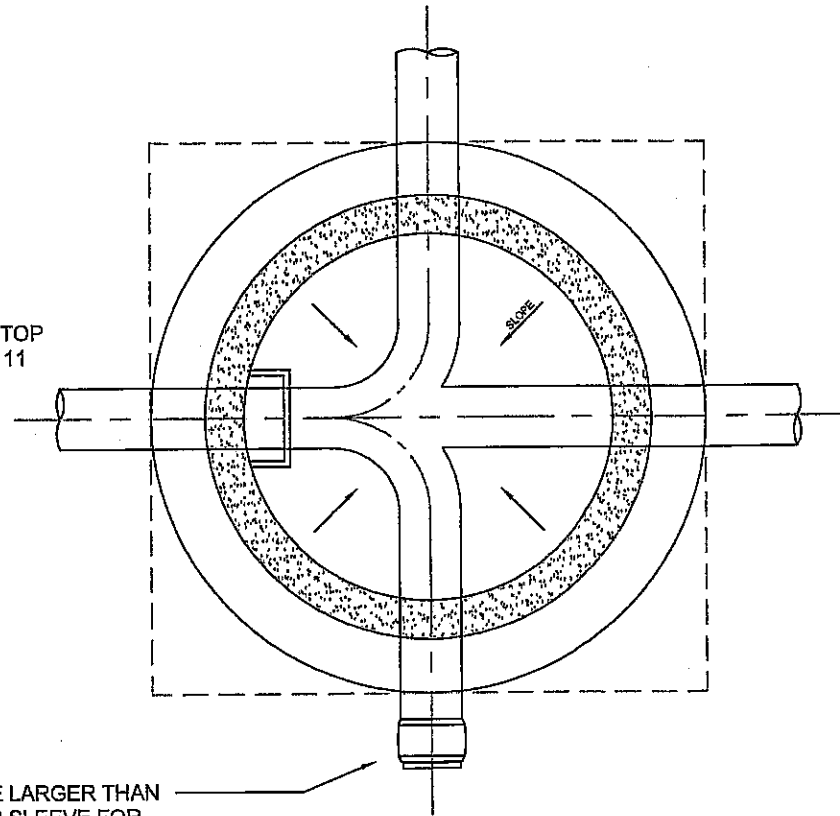
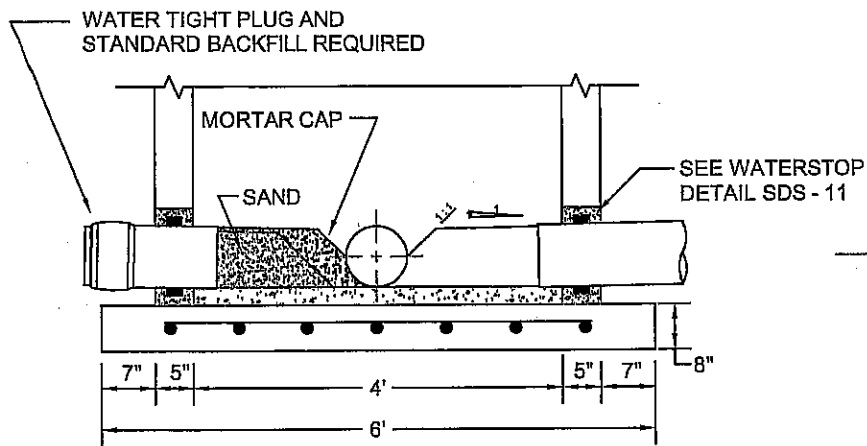
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DATE:

FEB 2003

DWG. NO.:

SDS - 06



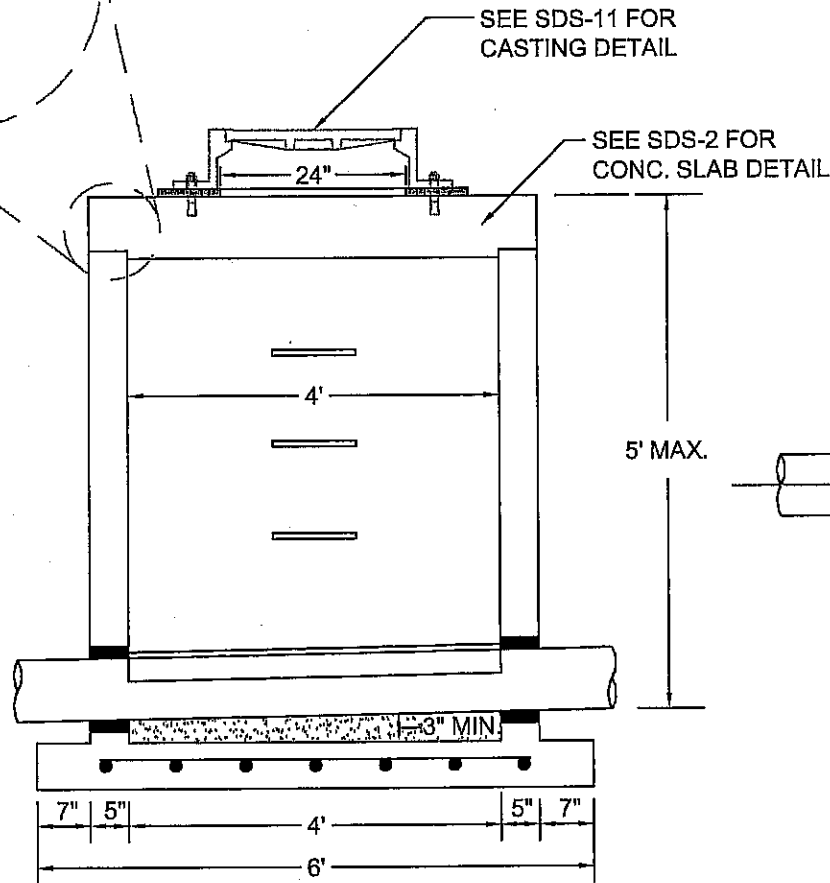
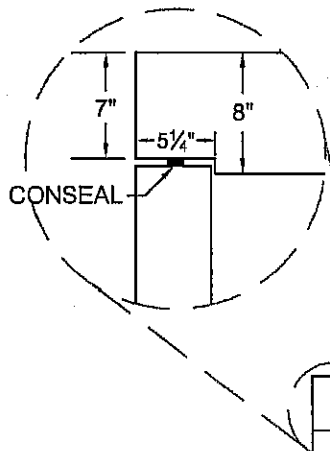
10" MIN. OR ONE SIZE LARGER THAN ANTICIPATED SEWER SLEEVE FOR FUTURE SEWER, 12" MAX. LENGTH. STUBS ARE REQUIRED WHERE CONNECTIONS TO MANHOLES MAY OCCUR IN THE FUTURE.



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Standard Junction Manhole

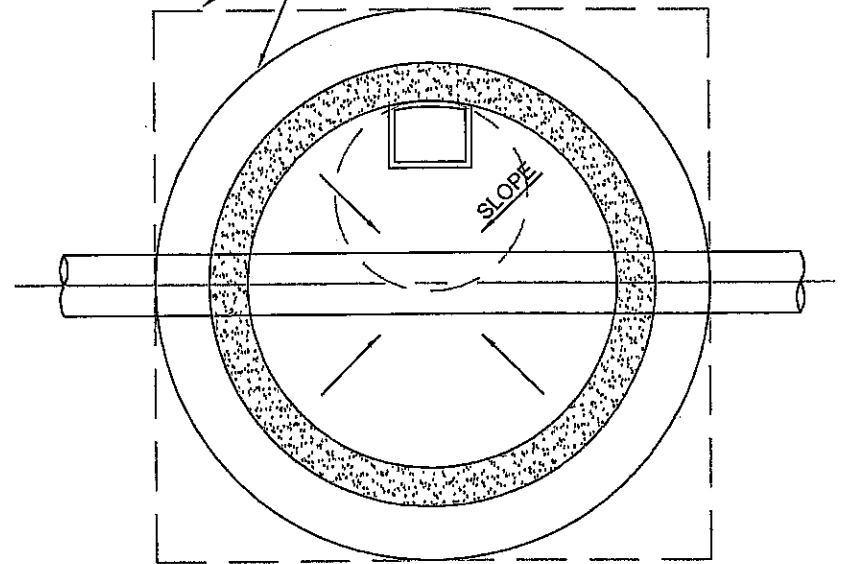
SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 07



SEE SDS-11 FOR CASTING DETAIL

SEE SDS-2 FOR CONC. SLAB DETAIL

BOTTOM SLAB MAY BE EITHER ROUND OR SQUARE.



NOTE: PRECAST CONCRETE RINGS FOR MANHOLES 12' OR LESS IN DEPTH SHALL CONFORM TO ASTM STD. SPEC. C-76, TABLE II, WALL B, WITH A MINIMUM CONCRETE STRENGTH OF 4,000 PSI TABLE III PRECAST CONCRETE RINGS SHALL BE USED FOR MANHOLES OVER 12' DEEP.



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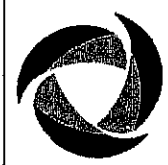
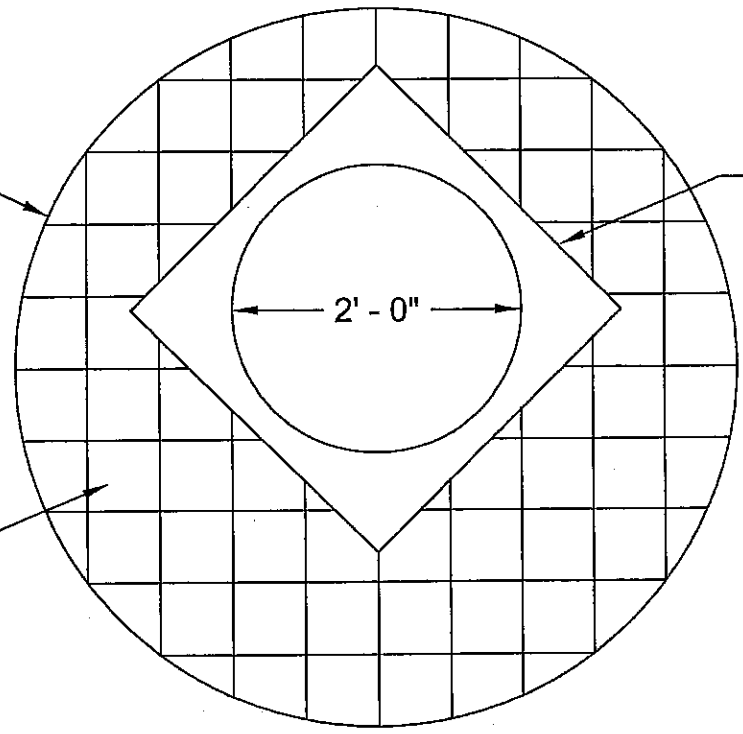
Standard Precast Shallow Manhole

SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 08

Ø4' - 10"

4 - #3 BARS
TOP AND BOTTOM

4/4 - 4" x 4" SPACING
MESH REINFORCING
TOP AND BOTTOM

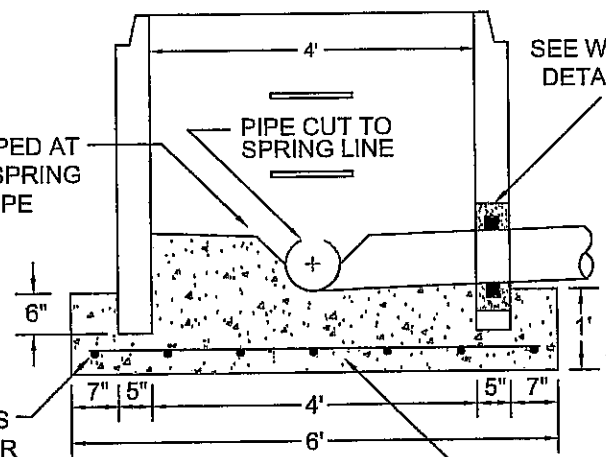


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Concrete Top Slab For Shallow MH

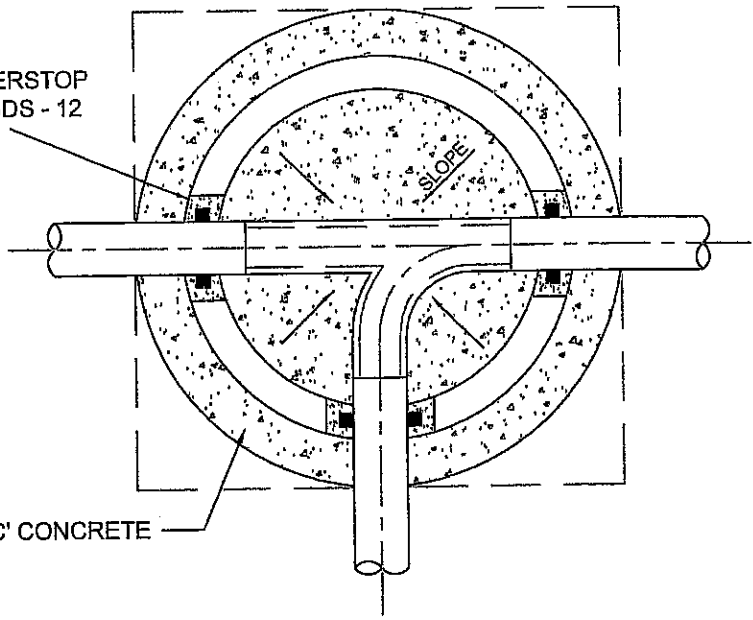
SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 09

CONCRETE TO BE SLOPED AT 45° ANGLE FROM THE SPRING LINE TO THE TOP OF PIPE

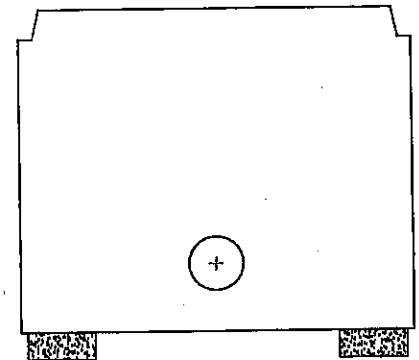


REINFORCE WITH #4 BARS AT 8" O.C. BOTH WAYS FOR MH'S GREATER THAN 12'

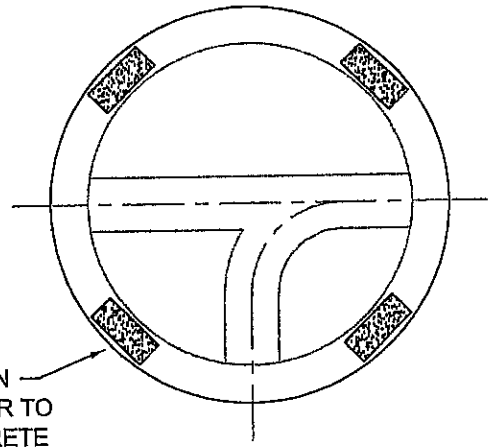
SEE WATERSTOP DETAIL SDS - 12



CLASS 'C' CONCRETE



MANHOLE SET ON CAP BLOCK PRIOR TO POURING CONCRETE



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Standard Setover Manhole

SCALE:

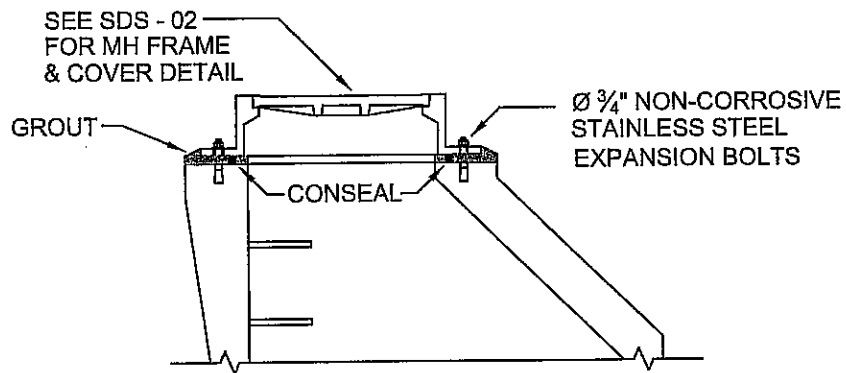
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NONE

FEB 2003

SDS - 10



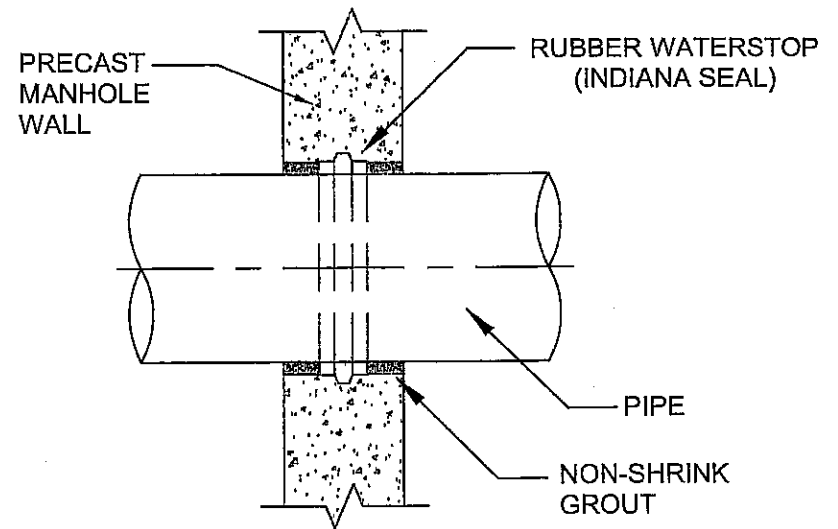
- NOTES: 1.) TIGHTEN BOLTS PRIOR TO MORTAR SETTING UP.
 2.) CASTING TO BE SET IN FULL MORTAR BED.



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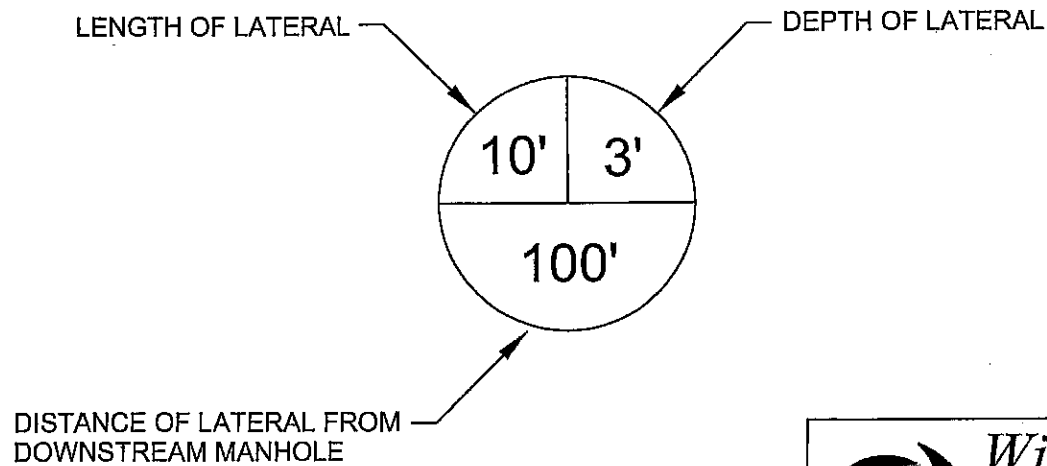
Expansion Bolts & Grout Detail

SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 11



WATER STOP DETAIL
SEE SDS - 01 NOTE 20

LATERAL INDICATOR DETAIL
REQUIRED ON RECORD DRAWING



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Water Stop And Lateral Indicator

SCALE:

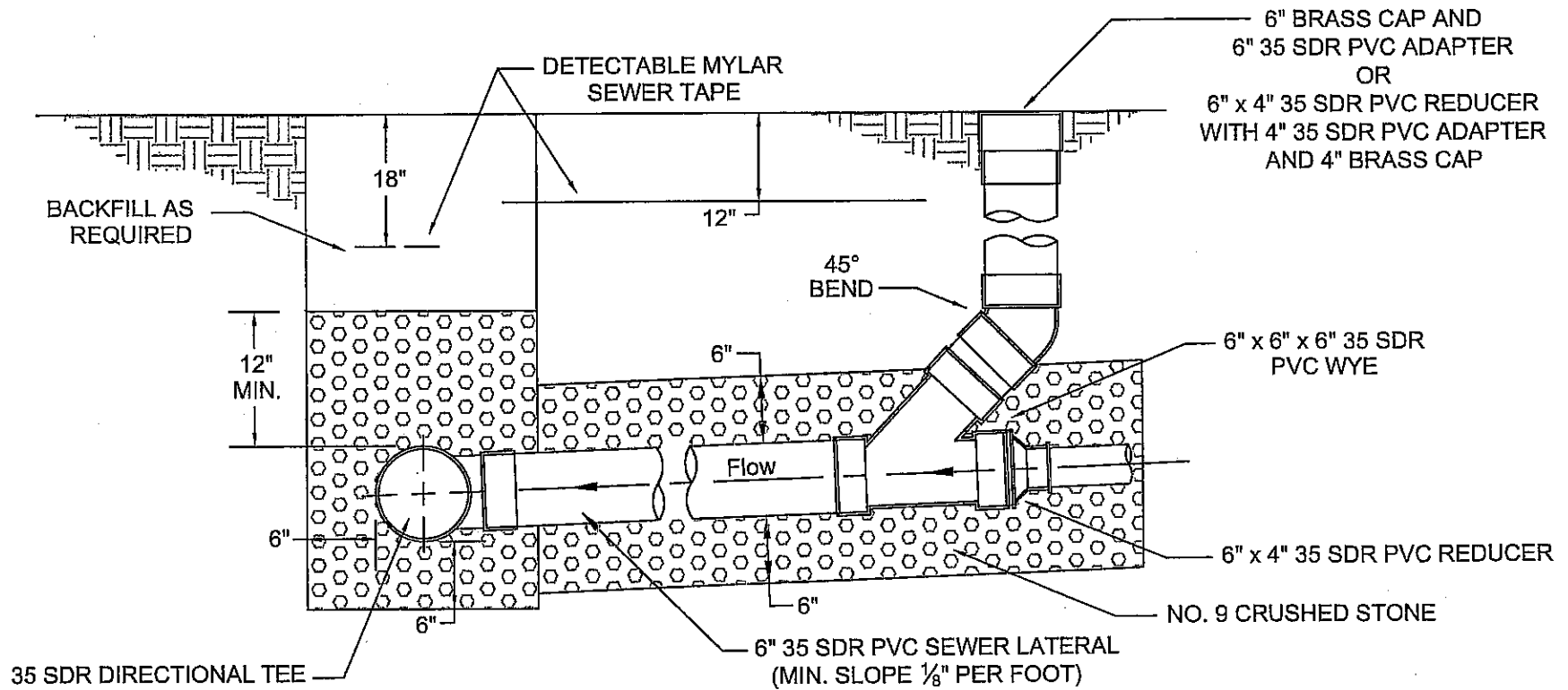
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DATE:

FEB 2003

DWG. NO.:

SDS - 12



NOTES:

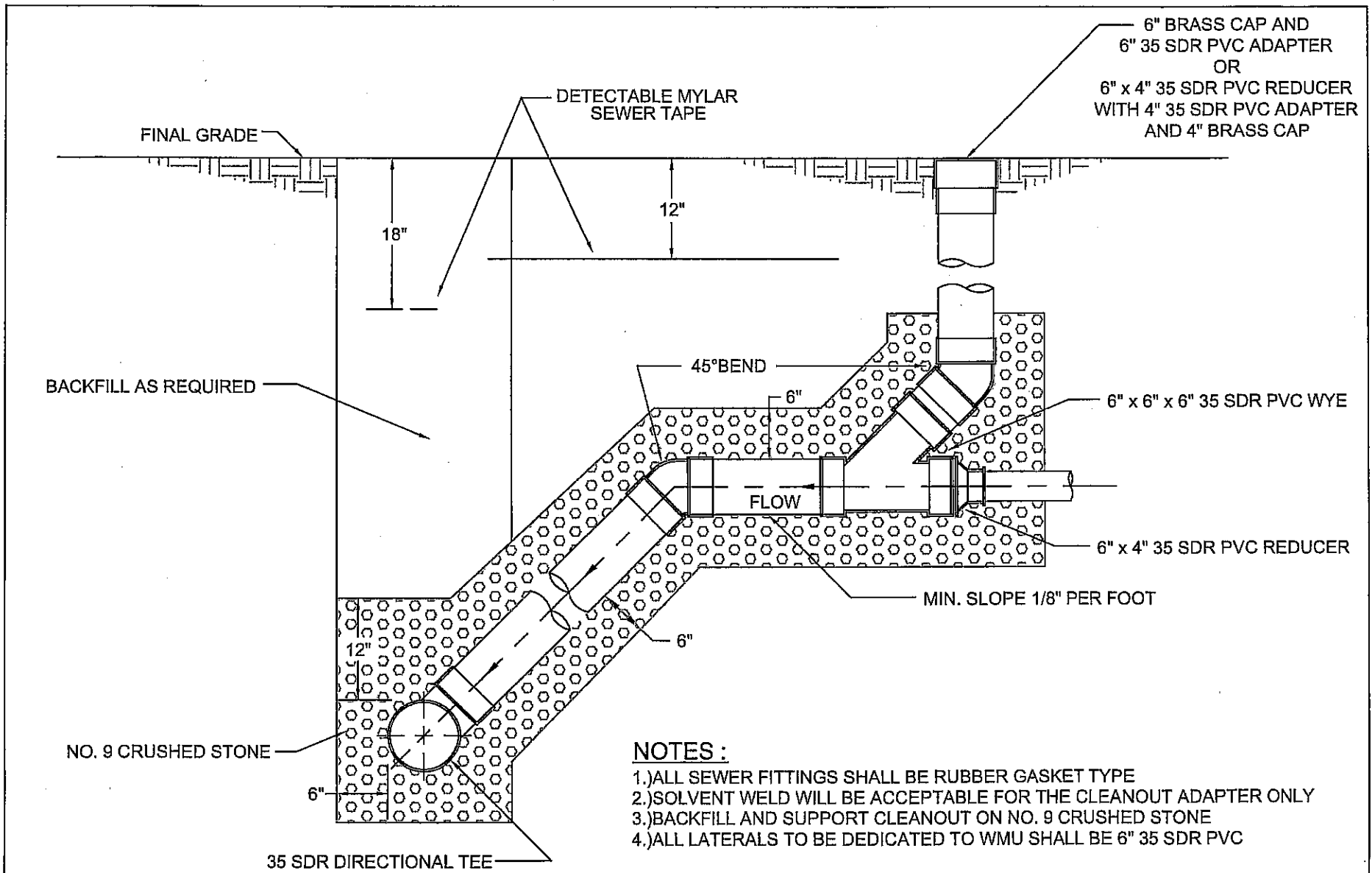
- 1.) ALL SEWER FITTINGS SHALL BE RUBBER GASKET TYPE
 - 2.) SOLVENT WELD WILL BE ACCEPTABLE FOR THE CLEANOUT ADAPTER ONLY
 - 3.) BACKFILL AND SUPPORT CLEANOUT ON NO. 9 CRUSHED STONE
- ALL LATERALS TO BE DEDICATED TO WMU SHALL BE 6" 35 SDR



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Typical Cleanout Detail

SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 13

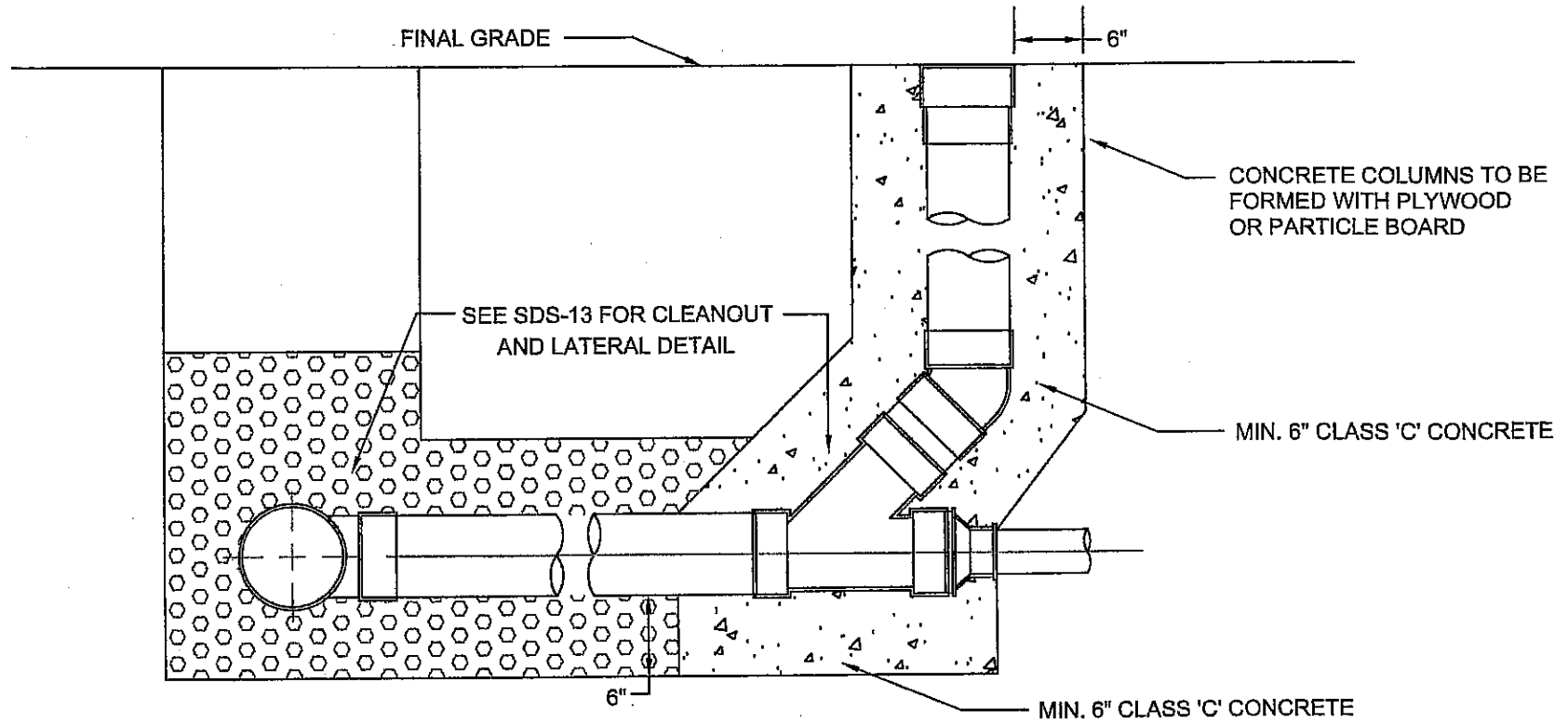


NOTES :

- 1.) ALL SEWER FITTINGS SHALL BE RUBBER GASKET TYPE
- 2.) SOLVENT WELD WILL BE ACCEPTABLE FOR THE CLEANOUT ADAPTER ONLY
- 3.) BACKFILL AND SUPPORT CLEANOUT ON NO. 9 CRUSHED STONE
- 4.) ALL LATERALS TO BE DEDICATED TO WMU SHALL BE 6" 35 SDR PVC

 <i>Winchester Municipal Utilities</i>	Typical Deep Cleanout Detail		
	SCALE: NONE	DATE: FEB 2003	DWG. NO.: SDS - 14

CONCRETE COLUMN DETAIL FOR CLEANOUTS IN TRAFFIC AREA



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Typical Concrete Cleanout Column

SCALE:

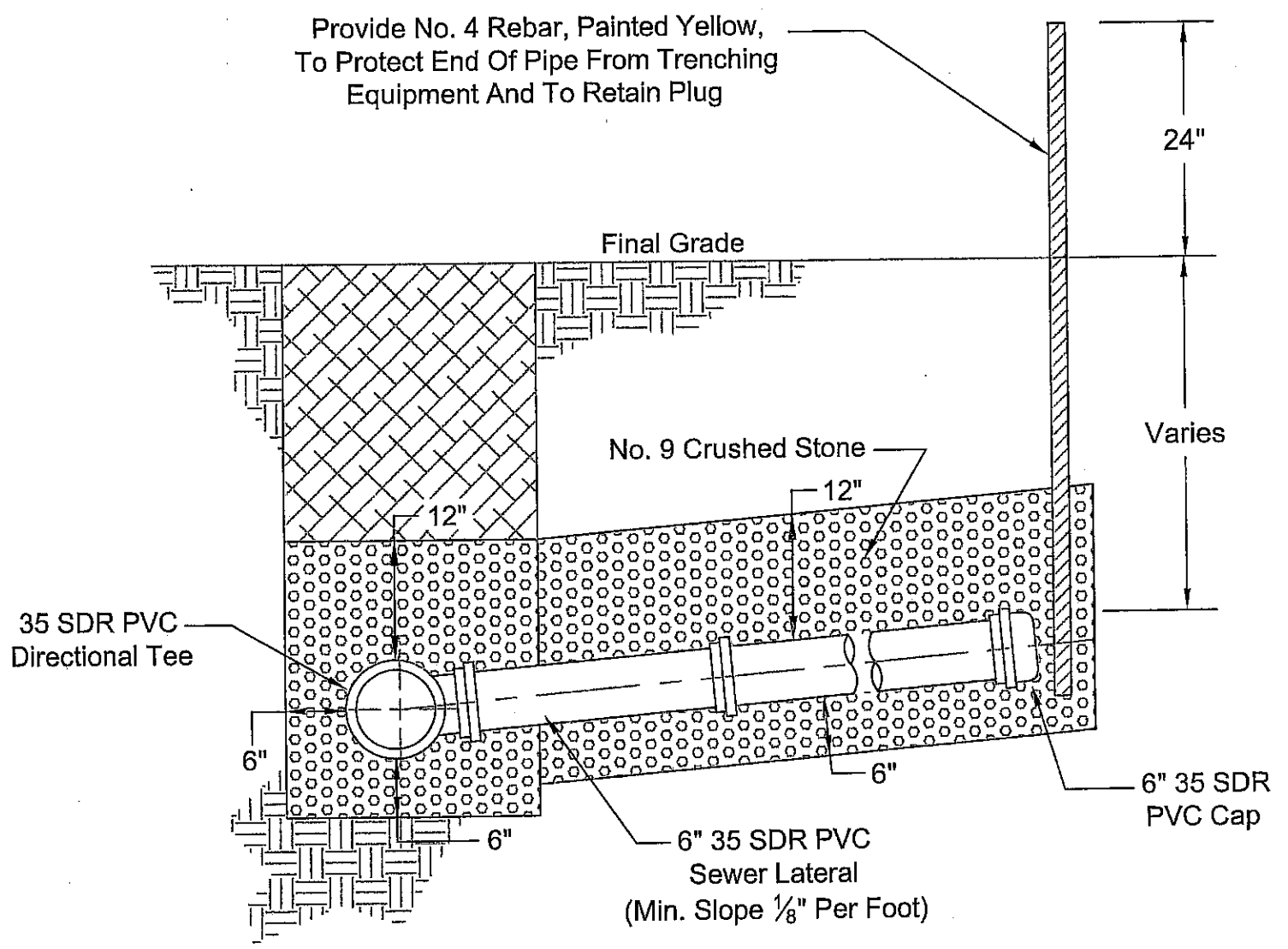
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DATE:

FEB 2003

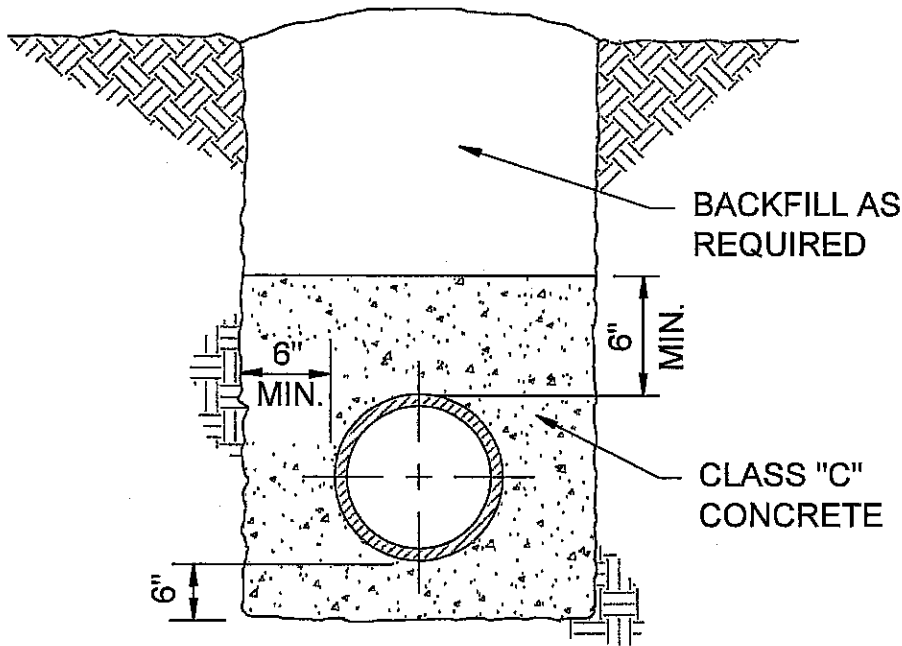
DWG. NO.:

SDS - 15

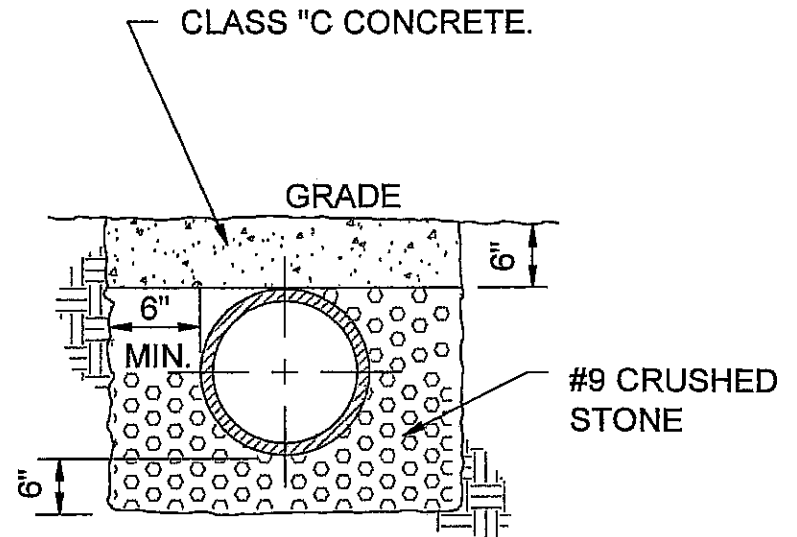


 Winchester Municipal Utilities	Typical Sewer Lateral		
	SCALE: NONE	DATE: FEB 2003	DWG. NO.: SDS - 16

NOTE: SEWER LINE TO BE WRAPPED IN HEAVY PLASTIC (4 MILS MIN.) PRIOR TO POURING CONCRETE.



CONCRETE
ENCASEMENT



TYPICAL CONCRETE CAP
FOR SHALLOW SANITARY SEWER
CREEK CROSSING



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Concrete Encasement And Cap

SCALE:

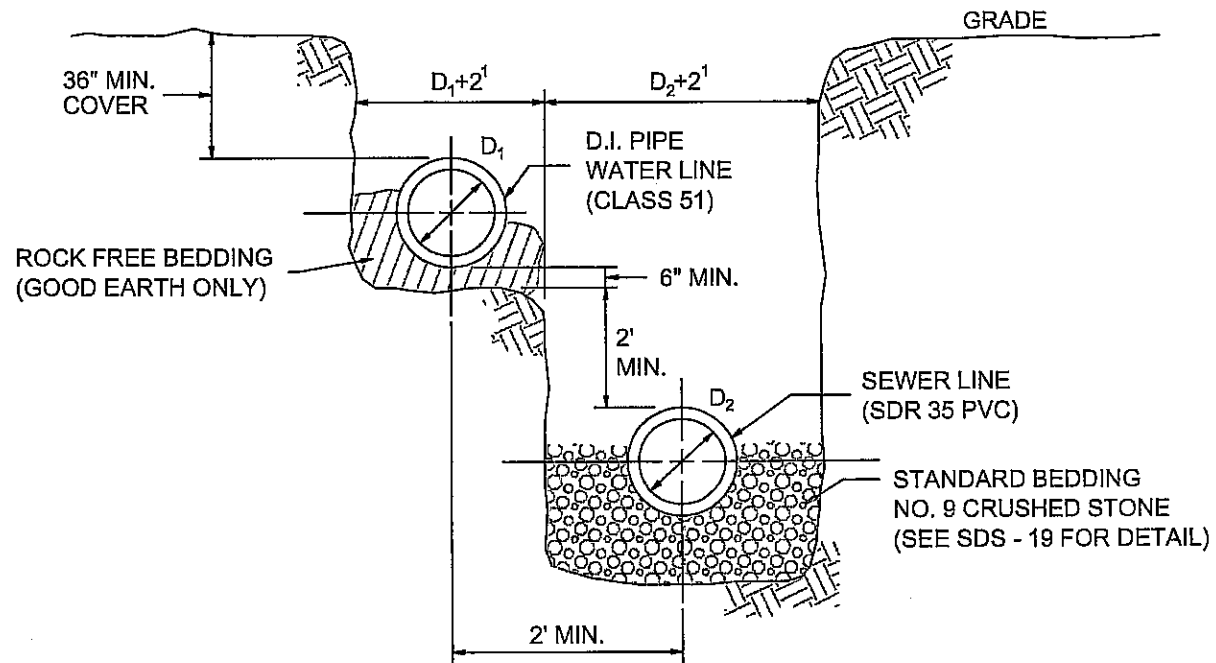
NONE

DATE:

FEB 2003

DWG. NO.:

SDS - 17



NOTE:

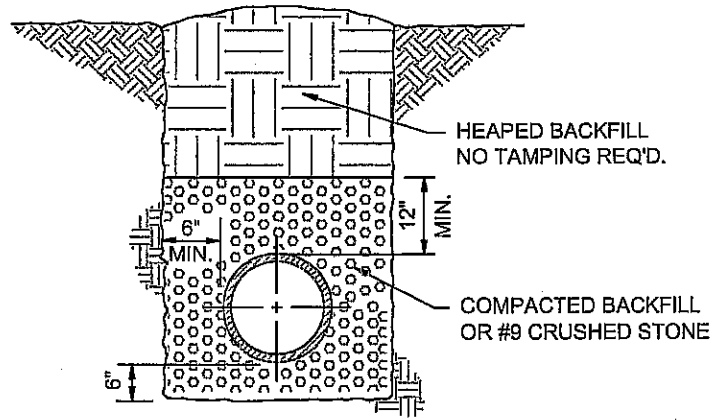
WATER LINES AND SEWER LINES LAID ON SAME ELEVATION MUST BE SEPERATED A MINIMUM DISTANCE OF 10'.



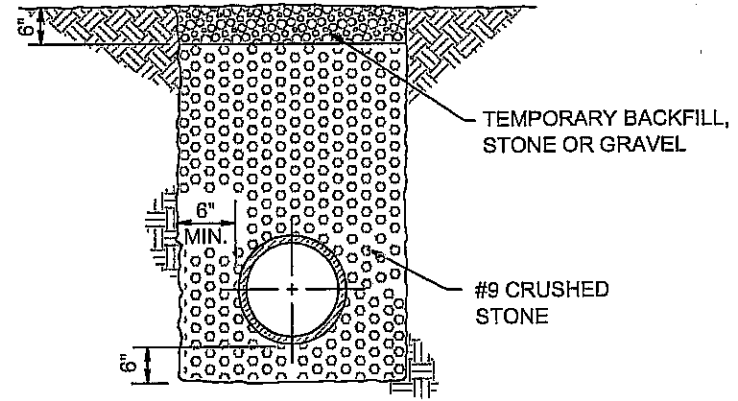
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Utilities*

Typical Section Through Trench

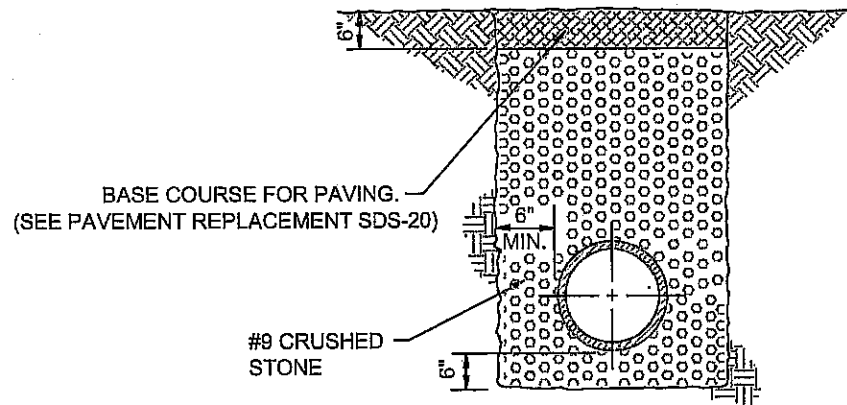
SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 18



METHOD "A"



METHOD "B"



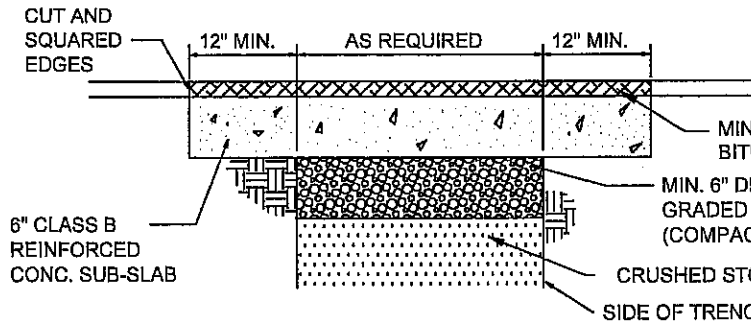
METHOD "C"
(SPECIAL)



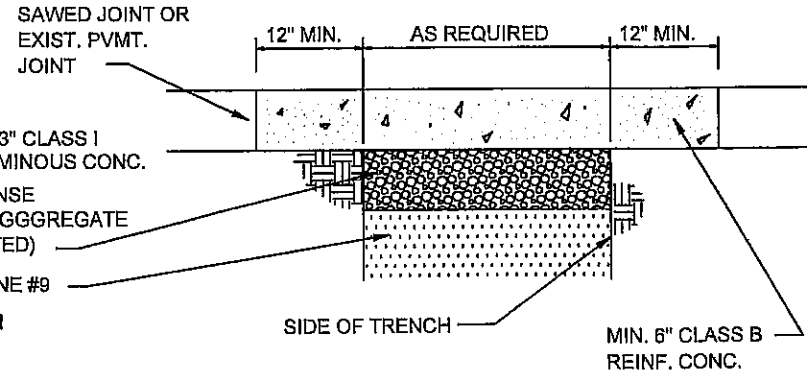
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Utilities*

Backfill Detail (Sanitary Sewer)

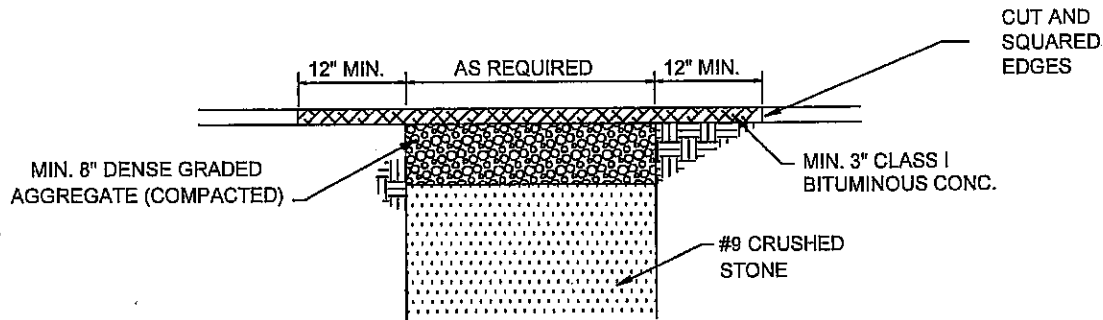
SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 19



HEAVY DUTY BITUMINOUS



CONCRETE



LIGHT DUTY BITUMINOUS

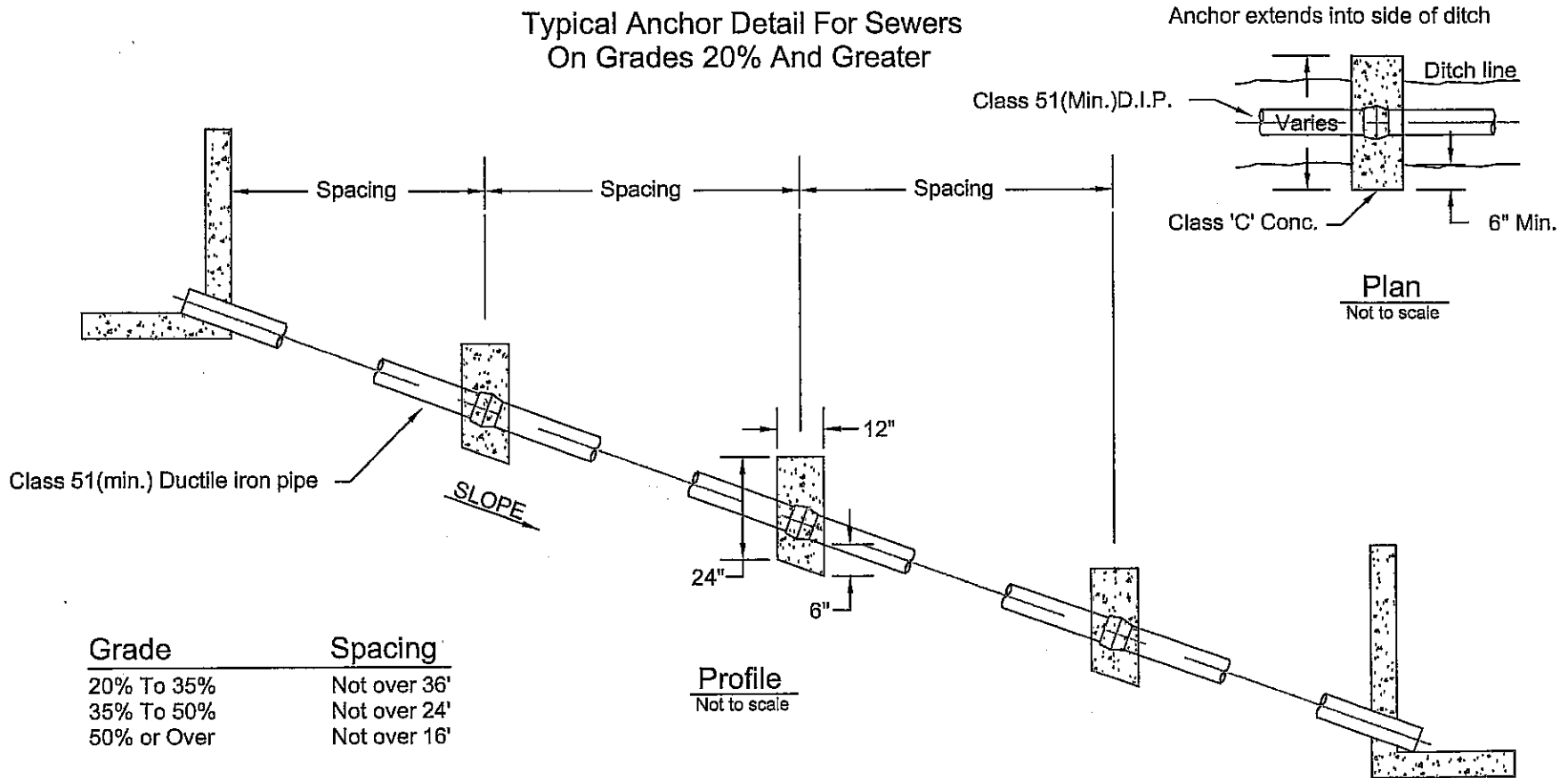


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Pavement Replacement

SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 20

Typical Anchor Detail For Sewers On Grades 20% And Greater



Grade	Spacing
20% To 35%	Not over 36'
35% To 50%	Not over 24'
50% or Over	Not over 16'

The first anchor shall be placed on the first joint upstream from lower manhole.

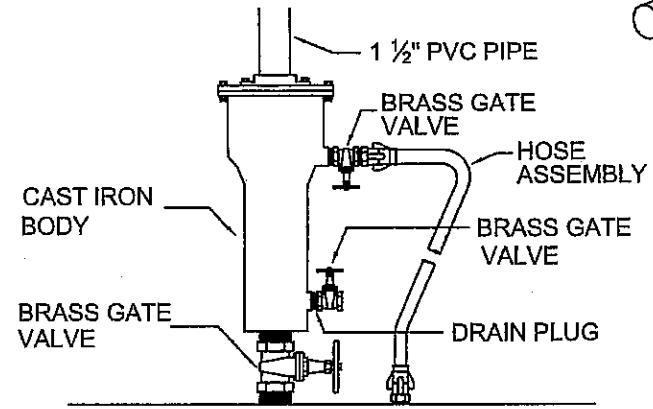
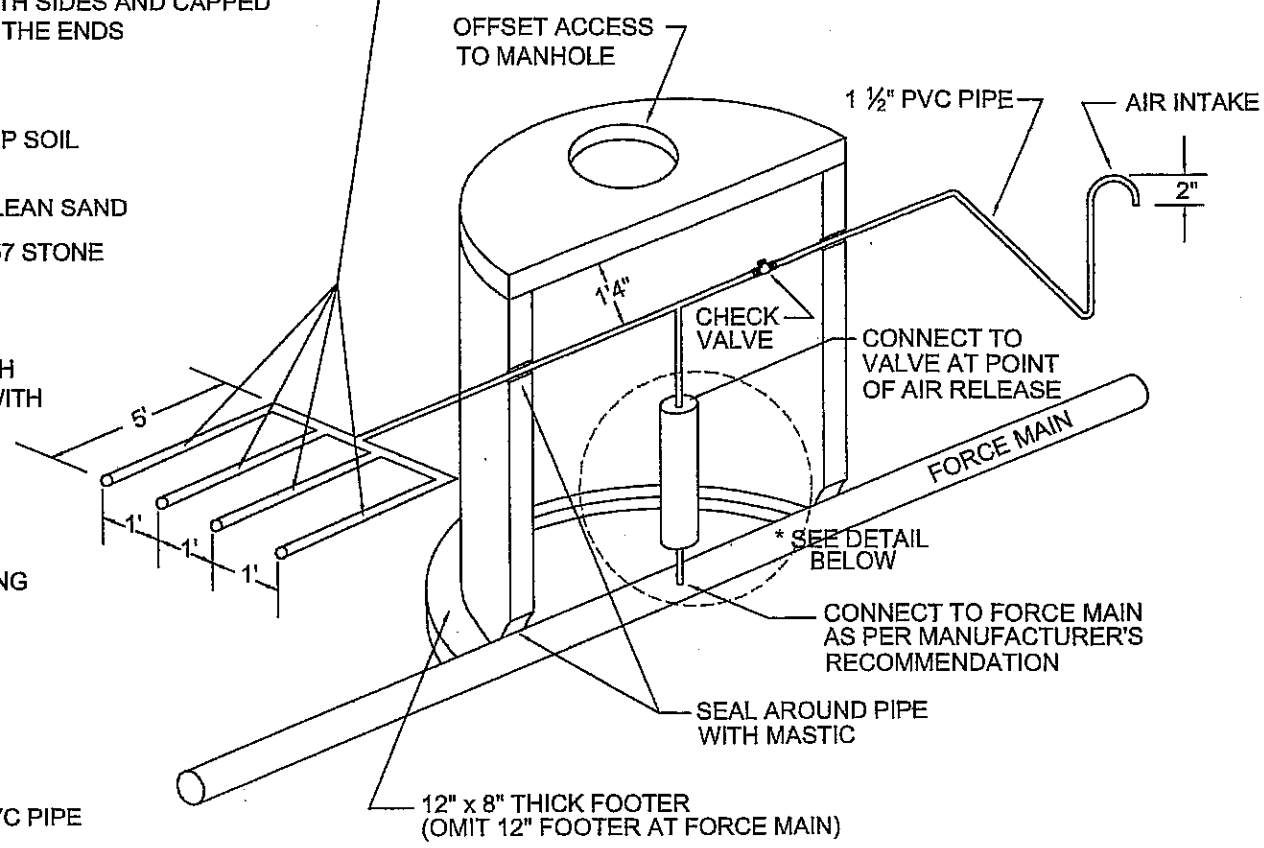
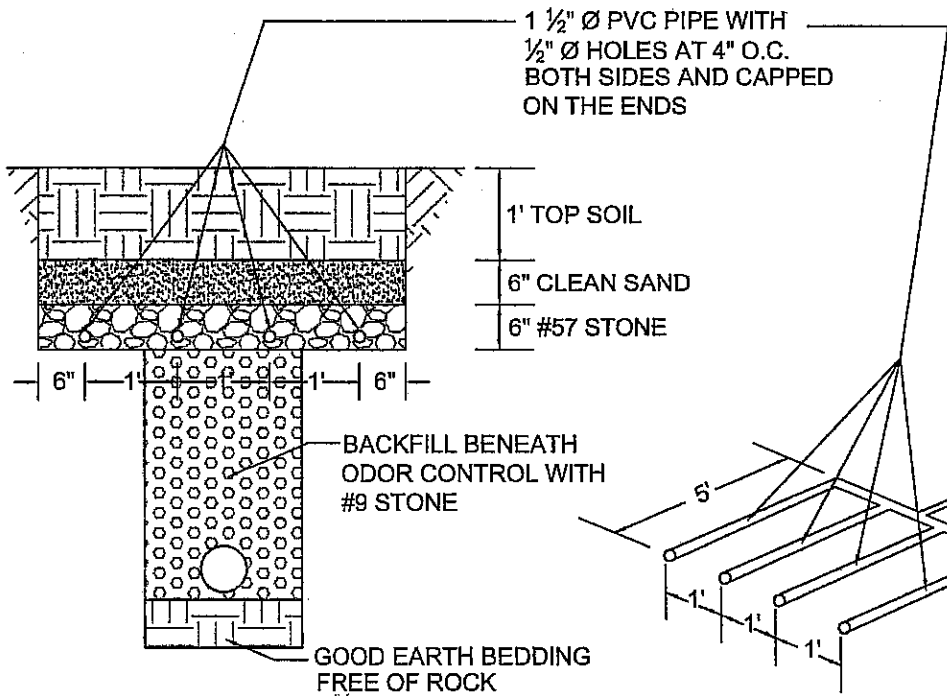
The location of the first anchor and the maximum spacing required shall determine the number of anchors used between manholes.



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Sewer Anchor Detail

SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 21



AIR/VACUUM SEWER VALVE DETAIL
NOT TO SCALE



Combination Sewage Air And Vacuum Valve With Odor Control		
SCALE:	DATE:	DWG. NO.:
NONE	FEB 2003	SDS - 22