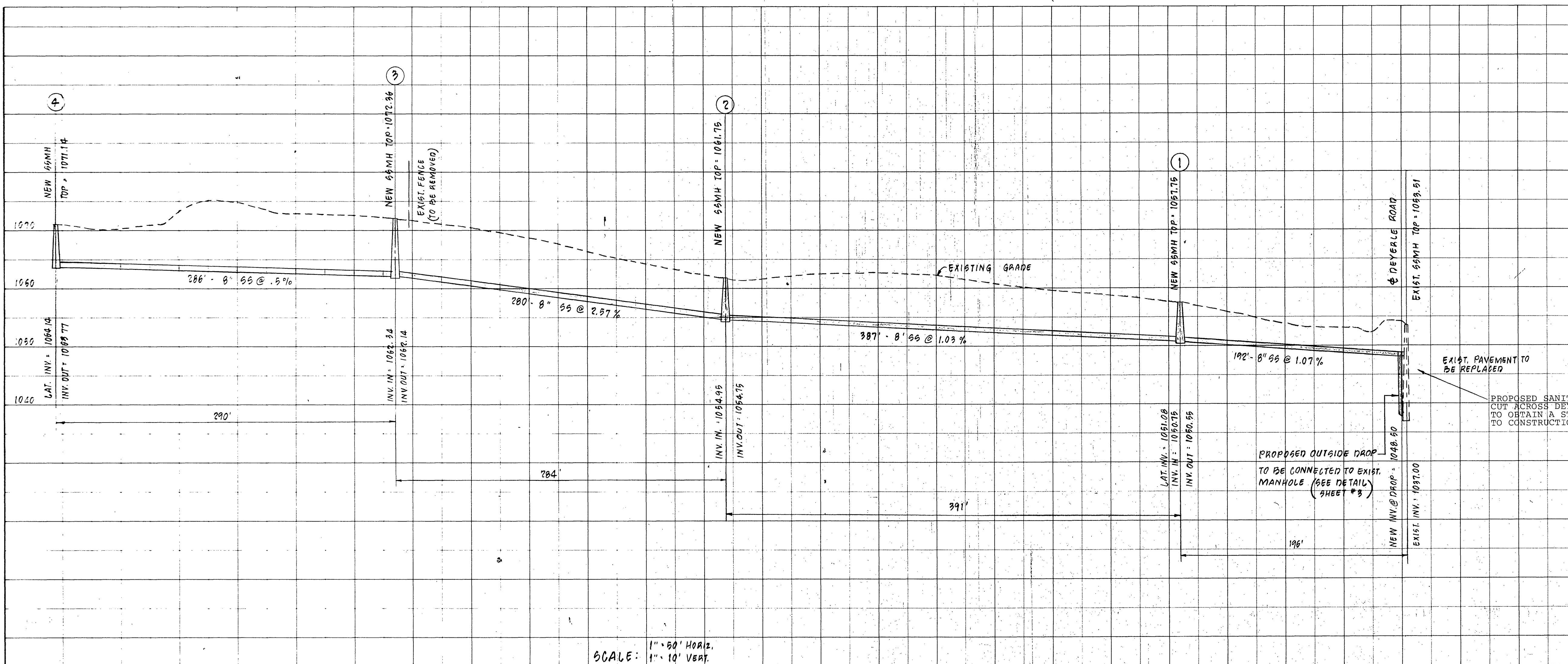
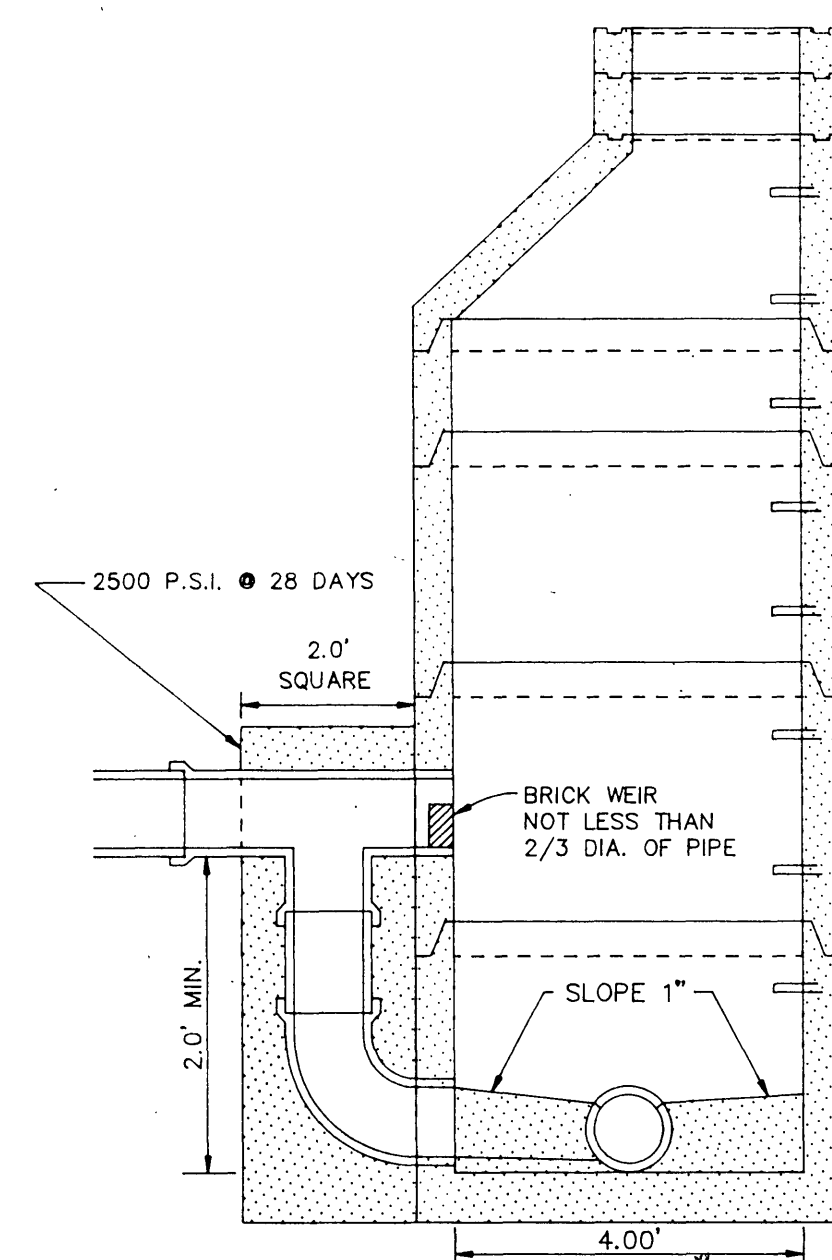




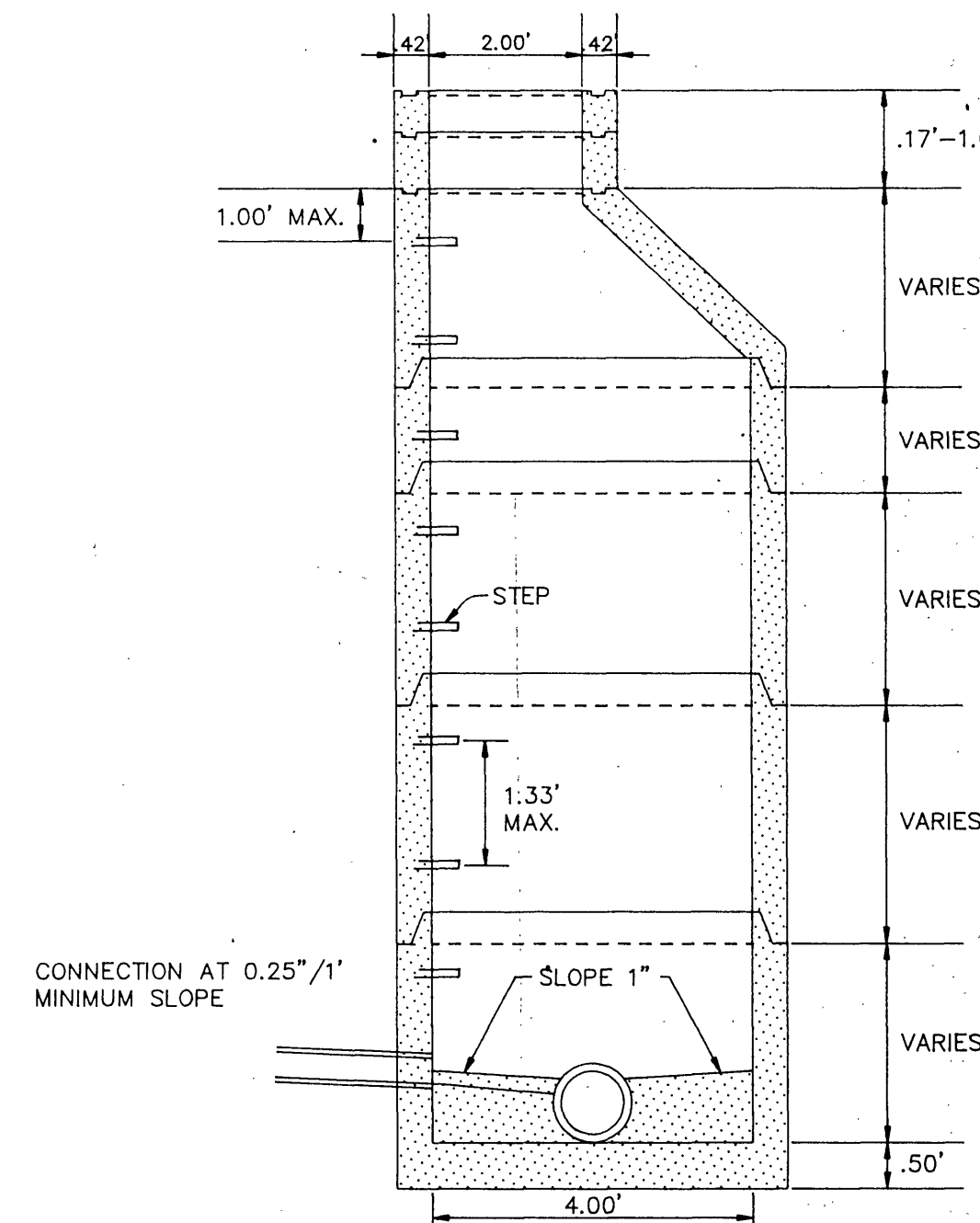
- SANITARY SEWER SPECIFICATIONS**
- PIPE AND FITTINGS:** All sanitary sewer pipe and fittings shall be polyvinyl chloride (PVC), SDR 35, and shall conform with ASTM D-3034.
 - INSTALLATION:** The sanitary sewer pipe shall be installed in accordance with the pipe manufacturer's recommendations and these specifications. The pipe shall be laid in true straight lines with the bell ends upstream and with the invert of the pipe being the true elevation and grade of the system. The pipe shall be visually inspected for defects before lowering the pipe in the trench. Field cutting of the pipe shall be done so in a neat and workmanlike manner, so as to leave a smooth end at right angles to the axis of the pipe.
 - TRENCH EXCAVATION:** Trenches shall be excavated in straight lines and shall be of sufficient width to permit the proper installation of bracing, shoring or sheeting. Trench width shall not exceed manufacturer's recommendation. The bottom of the pipe trench shall be excavated to a minimum over depth of four (4) inches below the bottom of the pipe, to provide for the compacted bedding material.
 - BEDDING:** Bedding material shall be coarse aggregate size Number 57 and shall conform with VDOT Section 203 and/or ASTM C33. Bedding material shall be placed and compacted in four (4) inches below the pipe and as a minimum up to the springline of the pipe. Care shall be taken to insure the bedding material fully supports the side and bottom of the pipe in accordance with manufacturer's recommendations.
 - BACKFILL:** Backfill material shall be either approved excavated material or approved suitable material from other sources that is free of organic material, loam, debris, or other objectionable material. Backfill from pipe bedding to minimum one (1) foot above the top of pipe shall be free of stones larger than two (2) inches and shall be placed in six (6) inch layers and compacted with hand tampers. Backfill from this point to top of trench shall be free of stones larger than four (4) inches and shall be placed in layers not to exceed eight (8) inches and compacted with mechanical tampers.
Backfill below unpaved areas shall be compacted to 90 percent. Backfill below paved areas shall be compacted to 95 percent. Backfill compaction testing shall be in accordance with ASTM D-1557.
 - TESTING OF SANITARY SEWER:** Testing for watertightness shall be made utilizing a low pressure air test. The testing equipment, procedure and results will all be subject to the approval of the City Engineer. The air test shall be in accordance with ASTM C-828, current revision.
The contractor shall deflection test the entire length of pipe by means of a go-no-go sandbar to assure that 5.0% deflection has not been exceeded. Mandrel shall be sized at 54 less than ASTM dimension for the sewer.

NOTE: WATER INSTALLATION SHALL FOLLOW SPECIFICATIONS FOR THE INSTALLATION OF DUCTILE WATER MAINS, DATED MAY 18, 1972 BY CITY OF ROANOKE WATER DEPARTMENT.

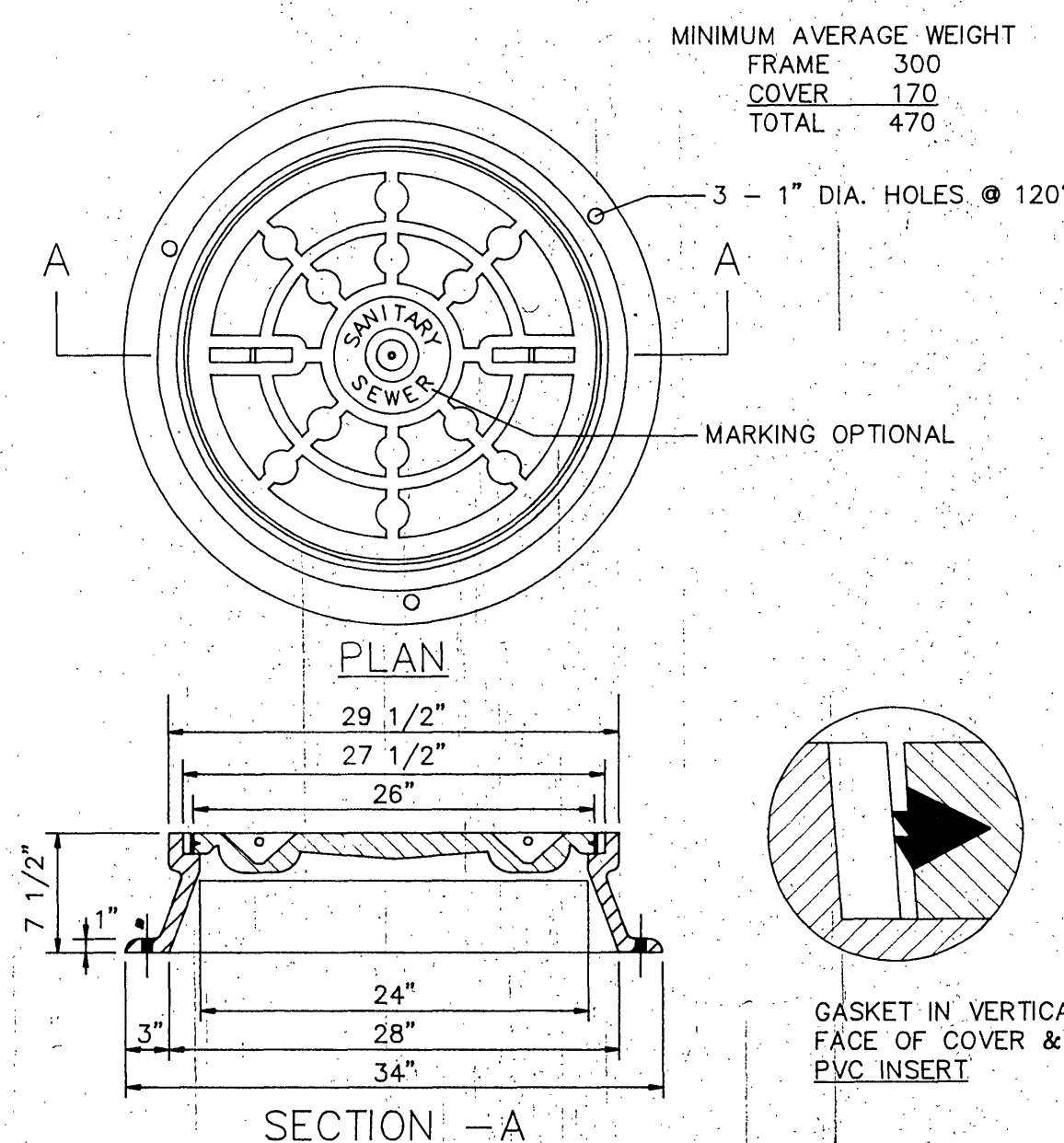
- SHEET REFERENCES:**
- SEE SHEET #2 FOR RECORD PLAT.
 - SEE SHEET #3 FOR NOTES & CONSTRUCTION DETAILS.
 - SEE SHEET #4 FOR SITE & EROSION CONTROL PLAN.



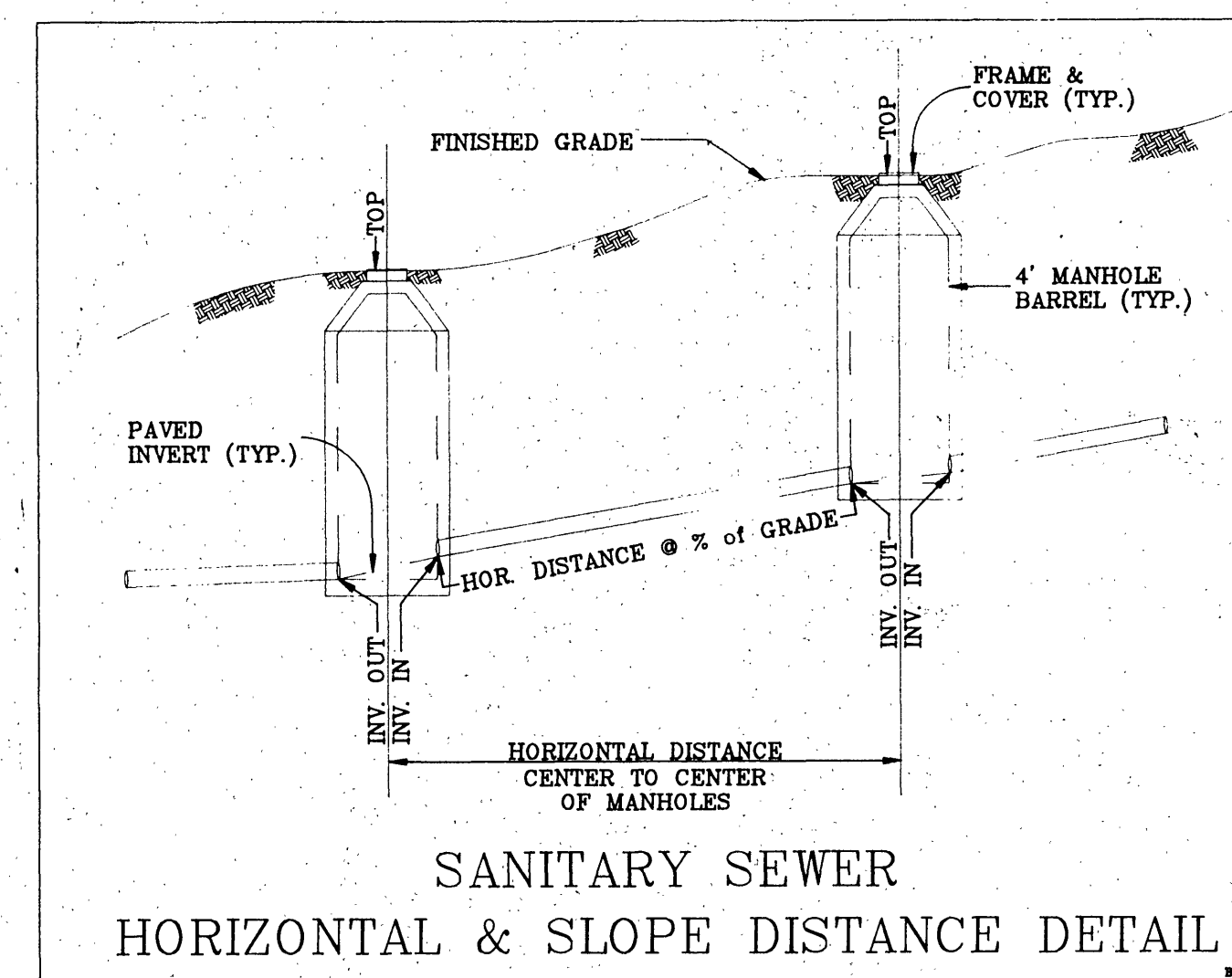
DROP CONNECTION INTO AN EXISTING MANHOLE



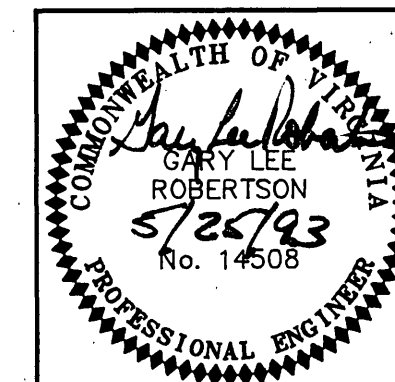
STANDARD MANHOLE



WATERTIGHT MANHOLE FRAME & COVER
MH-RCR-3000EC
PER DEWEY BROS., INC.
STANDARD MANHOLE



SANITARY SEWER
HORIZONTAL & SLOPE DISTANCE DETAIL



REVISION	DATE	DESCRIPTION
DESIGNED	gmp	SANITARY SEWER PROFILE
DRAWN	vwb	FOR
CHECKED	gla	"RENFIELD FARM"
		PREPARED FOR
		HERITAGE BUILDERS, LTD of Roanoke
		ROANOKE, VIRGINIA
LUMSDEN ASSOCIATES, P.C.		
ENGINEERS-SURVEYORS-PLANNERS		
ROANOKE, VIRGINIA		
SCALE: AS NOTED	DATE: 19 MAR. 1993	COMM: #92-549
		SHEET 5 of 5