

**STRUCTURAL NOTES**

**CONCRETE\*\***  
-ALL CONCRETE SHALL BE 32 MPa AT 28 DAYS  
-AIR ENTRAINMENT SHALL BE 4-7% ± 1% BY VOLUME  
-CEMENT SHALL BE TYPE HS SULPHATE RESISTANT

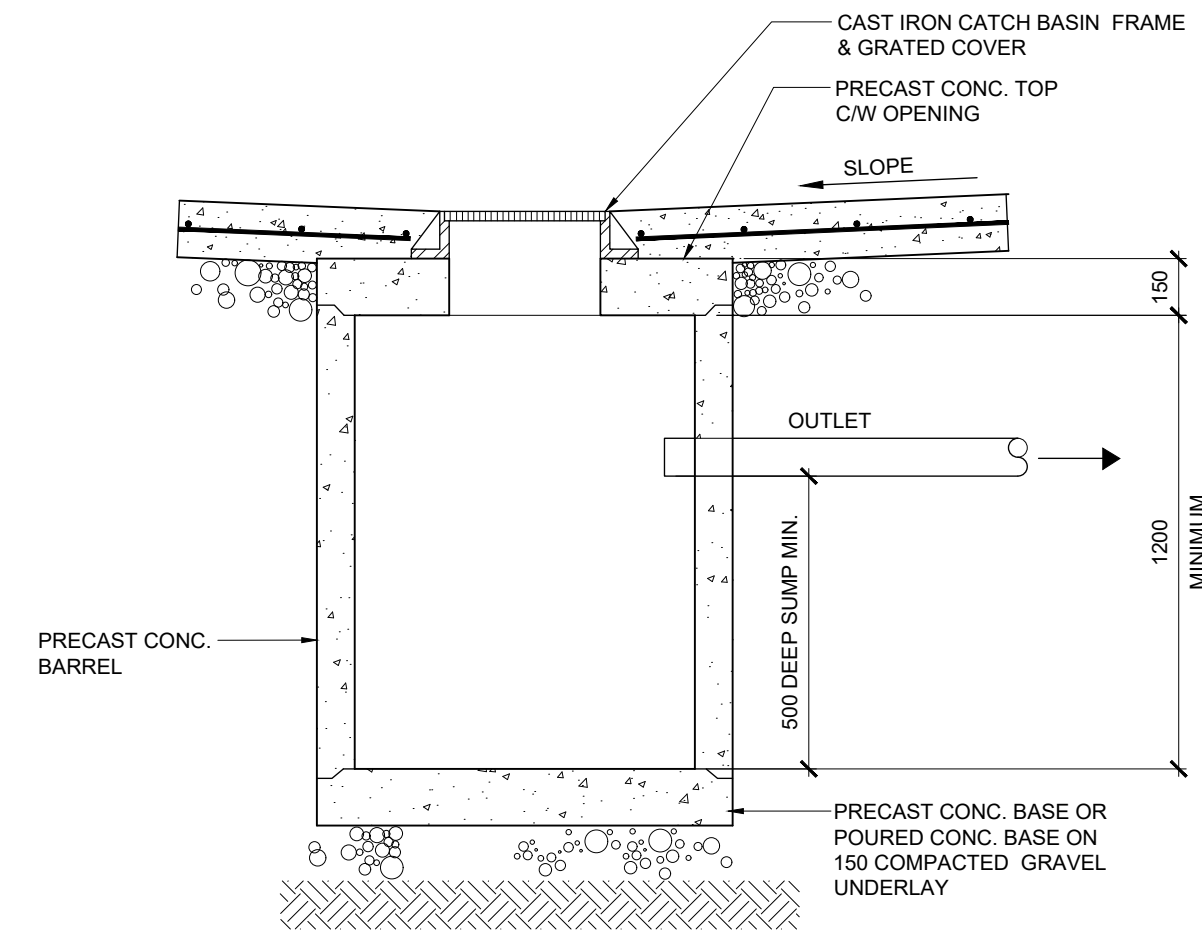
**REINFORCING STEEL**  
-BARS 15M AND LARGER SHALL BE GRADE 400 MPa -BARS 10M SHALL BE GRADE 300 MPa MINIMUM

**GRAVEL**  
-UNDERLAY ALL SLABS & BASES WITH 150mm COMPACTED 19mm Ø GRAVEL OR AS PER GEOTECHNICAL REPORT

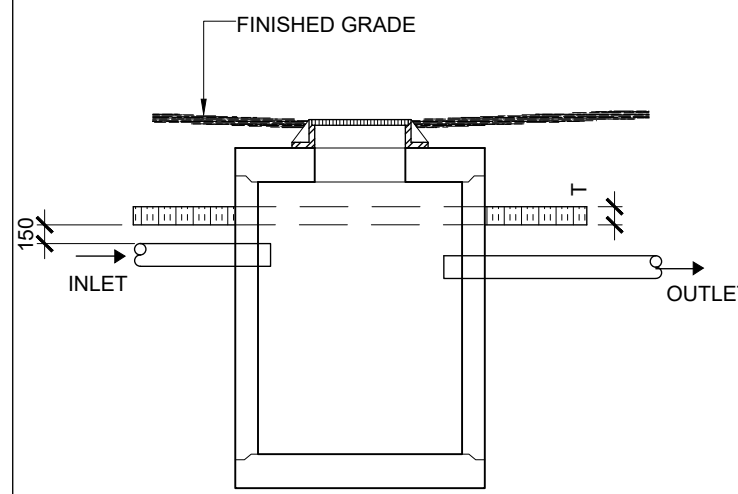
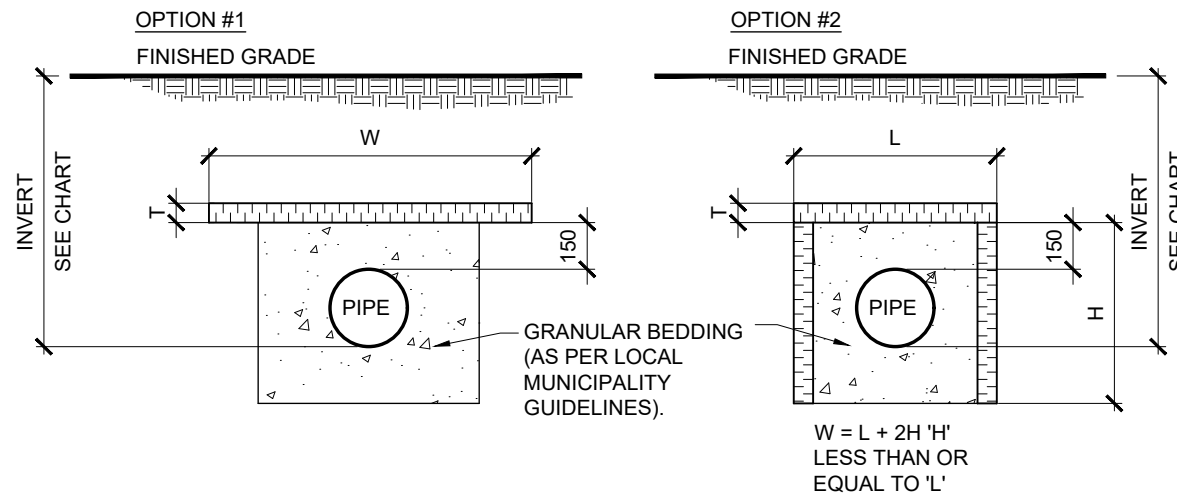
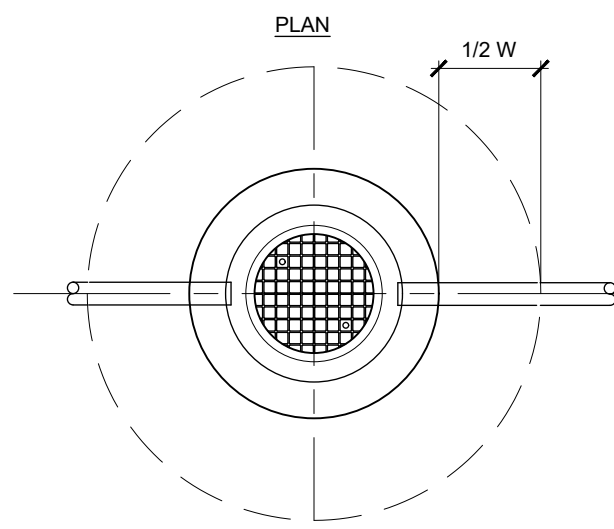
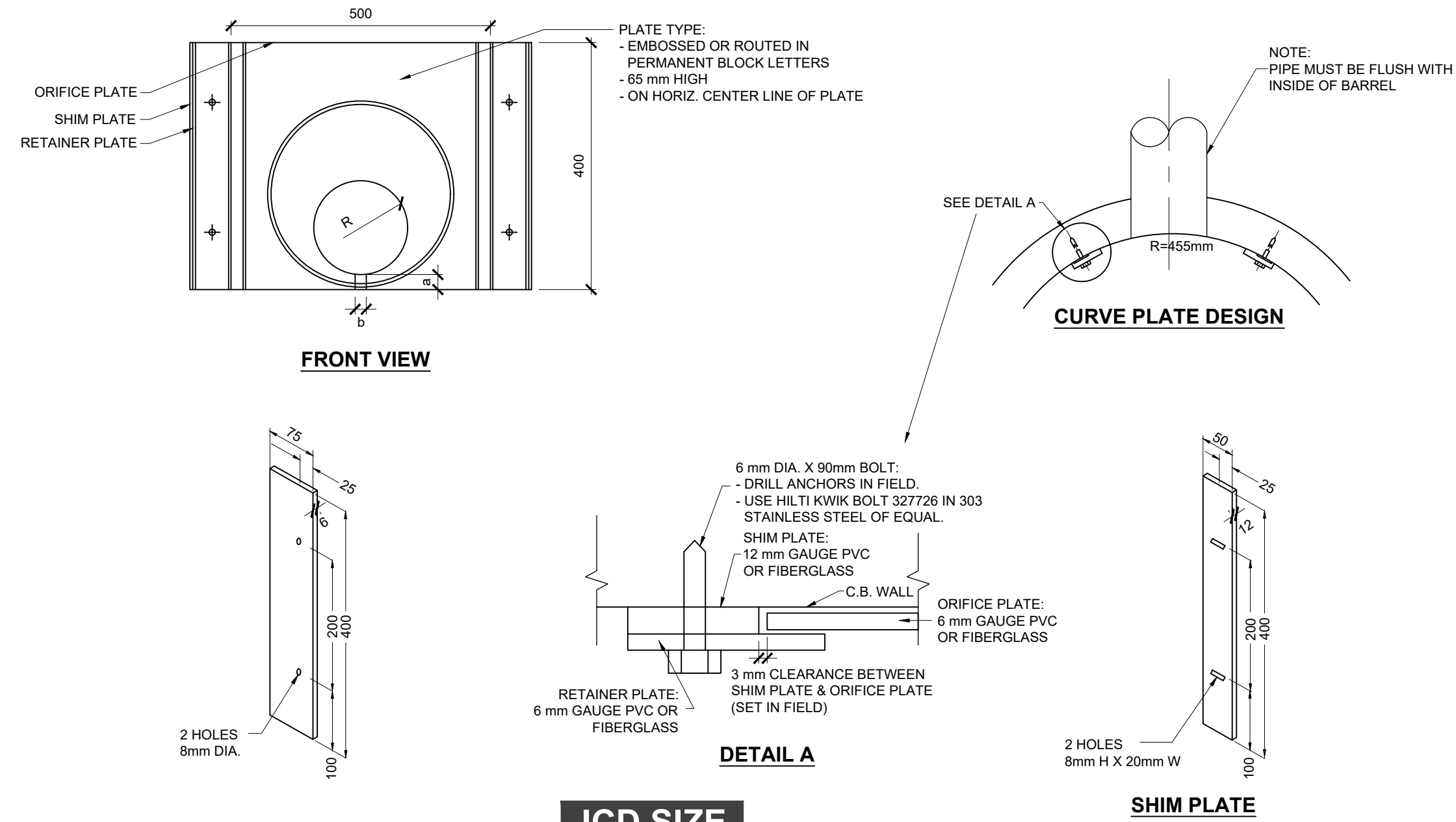
**CASTINGS \*\***  
-FRAMES SHALL BE GREY CAST IRON CONFORMING TO CLASS 20 ASTM A48 -COVERS SHALL BE CAST STEEL CONFORMING TO GRADE 60-90 ASTM A148 OR DUCTILE IRON CONFORMING TO ASTM A536 GRADE 60-40-18

**PRECAST CONCRETE**  
-CATCH BASIN BARRELS SHALL CONFORM TO ASTM C-478  
CATCH BASIN -CATCH BASIN TO BE BENCHED WHEN REQUIRED BY LOCAL AUTHORITY

\*\*-TO BE DETERMINED AS PER THE RESULTS OF THE SOILS REPORT



**1 SUMPED CB & GTMH DETAIL**  
SCALE: NTS



**INSULATION CHART**

PIPE INVERT	INSULATION THICKNESSES	OPTION #1		OPTION #2	
		WIDTH W	HEIGHT "H"	WIDTH "L"	HEIGHT "H"
900 - 1199	100	2400	1200	600	600
1200 - 1499	75	1800	600	600	-
1500 - 1799	75	1200	1200	-	-
1800 - 2100	50	600	600	-	-

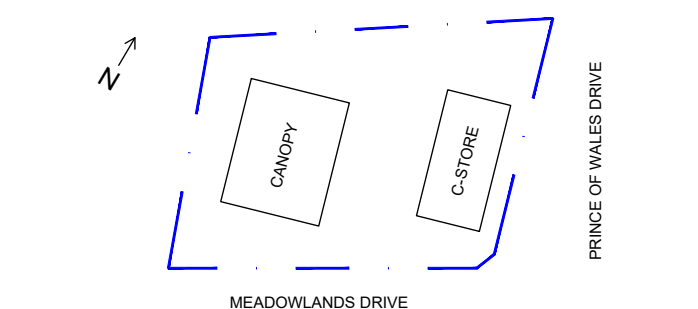
**NOTE:**  
INSULATION TYPE TO BE STYROFOAM HIGH LOAD 40, OR APPROVED EQUIVALENT.

\*DESIGN INSTALL THICKNESS IS A PRODUCT OF CURRENT SUPPLY AND DEMAND AVAILABILITY OF PRODUCT. 2400L X 600W X 50 THICK.  
\*\* MINIMUM WIDTHS TAKEN FROM 600 WIDE SHEET BEING AVAILABLE FOR SIDEWALLING TO DEPTH "H"

**2 FROST PROTECTION DETAIL**  
SCALE: NTS



NO.	DATE	DESCRIPTION
C	2024-12-03	ISSUED FOR SPC PHASE 3
B	2024-11-27	ISSUED FOR CLIENT REVIEW (SPC COMMENTS)
A	2024-08-01	ISSUED FOR SPC - PHASE 3
IR	DATE	DESCRIPTION



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