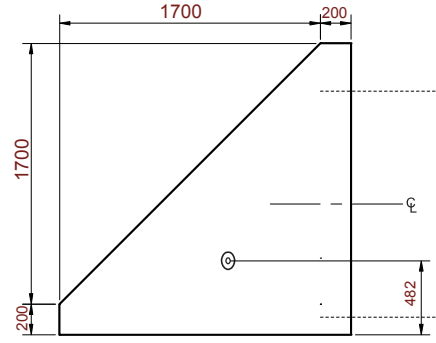
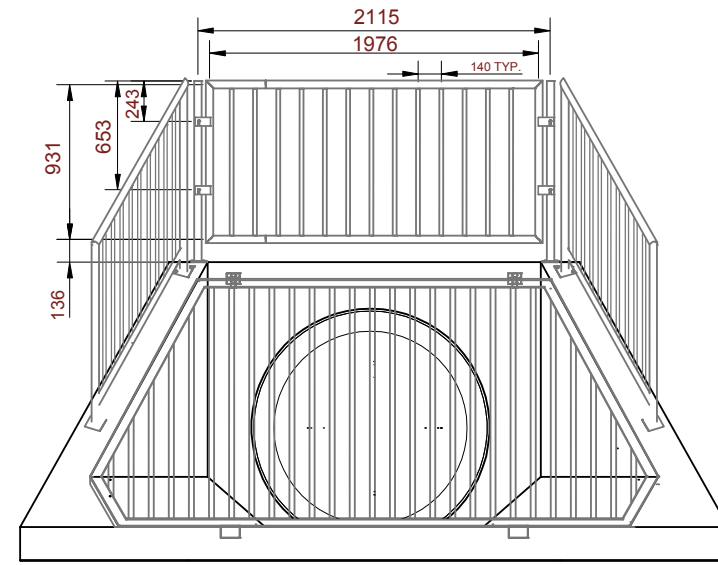


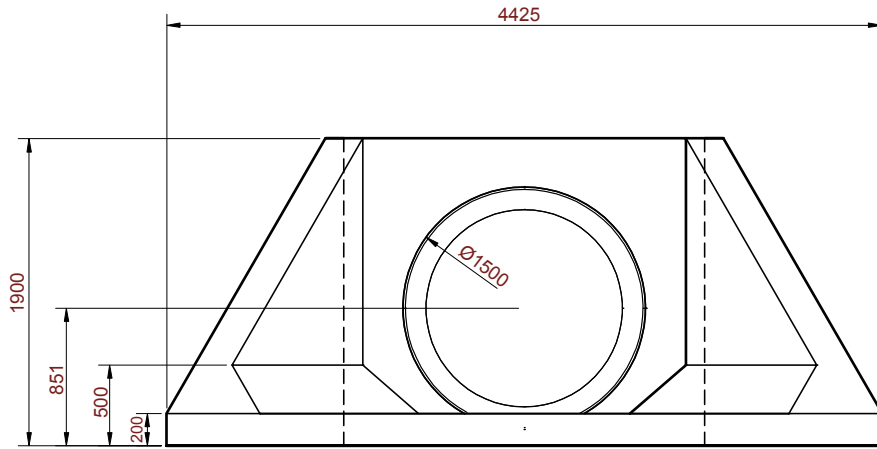
TOP VIEW



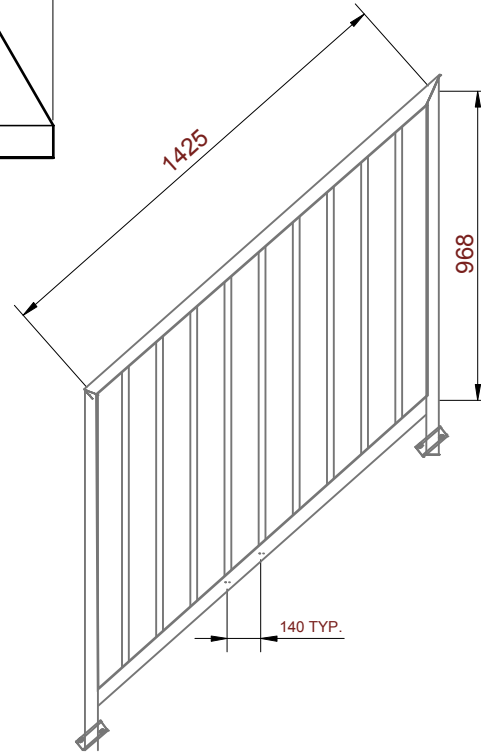
SIDE VIEW



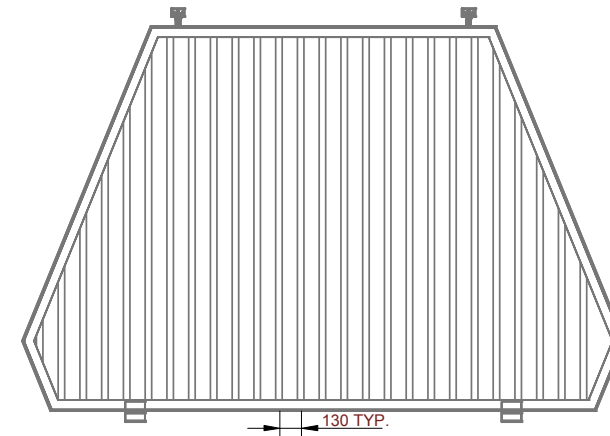
HAND RAIL



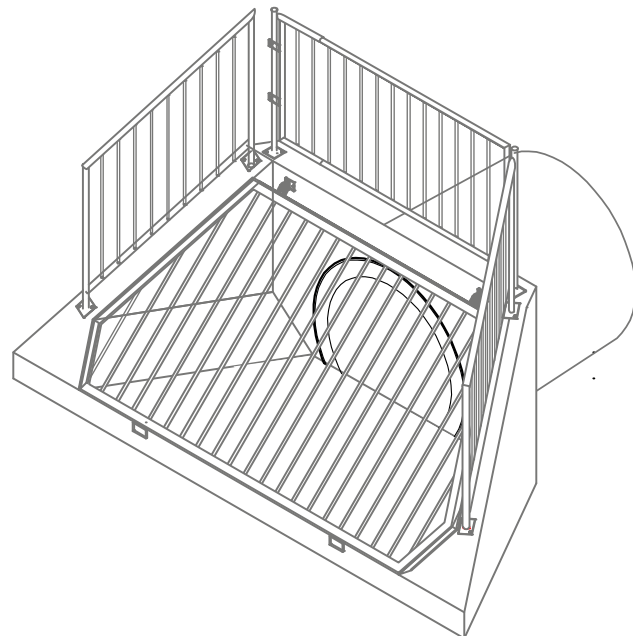
FRONT VIEW



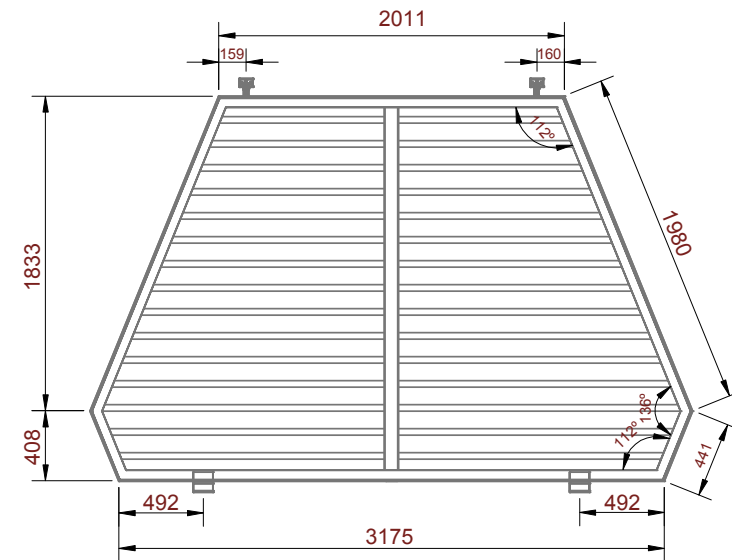
SIDE HAND RAIL TYPICAL



INFLOW GRATE



ISOMETRIC



OUTFLOW GRATE

TYPICAL GRATE

SHAW SUPPLIED ITEMS	
3	STAINLESS STEEL "L" BRACKETS
6	190mm (3/4") STAINLESS DROP-IN ANCHORS
6	190mm (3/4") x 380mm (1 1/2") BOLTS
6	190mm (3/4") WASHERS

NOTES

GENERAL  
1. FOR HANDLING, STORAGE, TRANSPORTATION AND ERECTION PROCEDURES PLEASE REFER TO "HEADWALL INSTALLATION GUIDE" AND "DAYTON/RICHMOND GUIDELINES FOR HANDLING CONCRETE PIPE AND UTILITY PRODUCTS".

2. WEIGHT = 6100 kg

3. TOLERANCE FOR STRUCTURAL ELEMENTS, MATERIALS & CONSTRUCTION CONFORM TO CAN/CSA A23.4 "PRECAST CONCRETE" CLAUSE 10.

4. PRECAST HEADWALL MUST BE FASTENED TO REINFORCED CONCRETE PIPE WITH SHAW SUPPLIED HARDWARE (SEE HEADWALL INSTALLATION GUIDE).

GEOTECHNICAL  
1. GEOTECHNICAL ENGINEER TO PROVIDE ON-SITE INSPECTION FOR PLACEMENT AND COMPACTION OF BACKFILL.

DESIGN  
1. THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH CAN/CSA S6.06 UNDER THE FOLLOWING DESIGN PARAMETERS:  
- DESIGN LIVE LOAD = CL-625  
- DESIGN DEAD LOAD = 2H:1V EARTH FILL TOP SLOPE.  
- CONCRETE UNIT WEIGHT = 24.0 kN/m<sup>3</sup>  
- SOIL/BACKFILL UNITWEIGHT = 22.0 kN/m<sup>3</sup>

REINFORCEMENT  
1. ALL REINFORCING STEEL SHALL BE GRADE 400 AND CONFORM TO CAN/CSA G30.18 (LATEST EDITION).

2. ALL WELDED WIRE MESH SHALL HAVE A F<sub>y</sub> = 485 MPA AND CONFORM TO CAN/CSA G30.14 AND G30.15 (LATEST EDITION).

3. ALL REINFORCING SHALL BE DETAILED, FABRICATED, PLACED AND SUPPORTED IN ACCORDANCE WITH CAN/CSA A23.4 (LATEST EDITION).

4. THE CONCRETE COVER OVER PRINCIPAL REINFORCING SHALL BE 50mm ± 10mm AS REQUIRED BY ENVIRONMENTAL EXPOSURE 8.11.2.2 (a) IN CAN/CSA S6.06.

CONCRETE  
1. CONCRETE MIX DESIGNS SHALL CONFORM TO REQUIREMENTS:  
- CONCRETE STRENGTH = 28 MPA AT TIME OF STRIPPING  
- DESIGN CONCRETE STRENGTH OF 45 MPA AT 28 DAYS OR TIME OF SHIPPING  
- 5% TO 7% AIR ENTRAINMENT  
- GLEN HOLME AGGREGATE SHALL BE USED WITH A NOMINAL AGGREGATE SIZE OF 13mm

2. CONCRETE CURING SHALL BE IN CONFORMANCE WITH CAN/CSA A23.1 (LATEST EDITION).

3. SHAW CONCRETE BATCH No. SHALL BE 406.

ITEMS INCLUDED:  
1. HWHANDSM  
2. HWG1900H OR HWG1900V

REV NO.	REASON	DATE



DRAWING NO. XXXXXXXXX

DRAWING NO. STANDARD HEADWALL 1900 X 1900 C/W 1200 PIPE

DRAWING NO. STANDARD LAYOUT HAND RAILS INFLOW / OUTFLOW GRATES

CONTRACTOR XXXXXXXXX

DATE 22 JANUARY 2008 SCALE AS NOTED

DRAWN N. DIMOCK CHECKED R. MacDOW

SHEET 1 OF 1