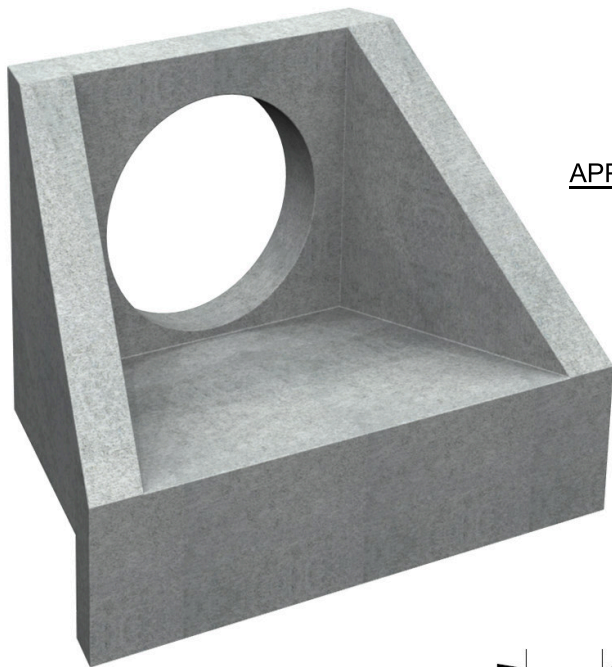


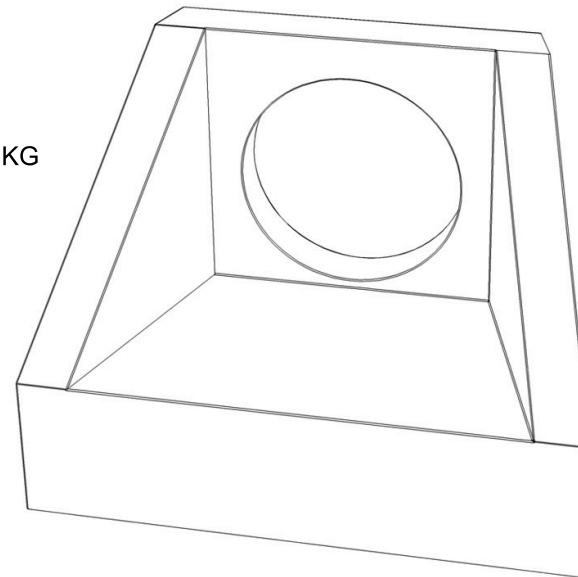
- Notes:
- Dimensions are in mm, (unless otherwise noted)
 - Rough core as shown (Max 400mm)
 - Includes embedded threaded inserts
 - Approx weight - 3300 lbs
 - Min concrete strength - 30 MPa
 - Min rebar yield strength - 414 MPa



| | | | | | |
|--|----------------|-------------------------|-------------------------|------------|-------------|
| TRI-KON PRECAST PRODUCTS LTD. 601 PATTERSON ST WEST CRANBROOK BC, VIC 613 250-426-8162 | | | | | |
| Drawn by: TF | Checked by: XX | Approved date: XX/XX/XX | Date Drawn: 08/01/20 | Scale: 1:1 | Page #: 1/1 |
| Tri-Kon Precast Products Ltd. | | | Type 1 Headwall & Grill | | |



APPROXIMATE WEIGHT: 5600 LBS / 2550 KG



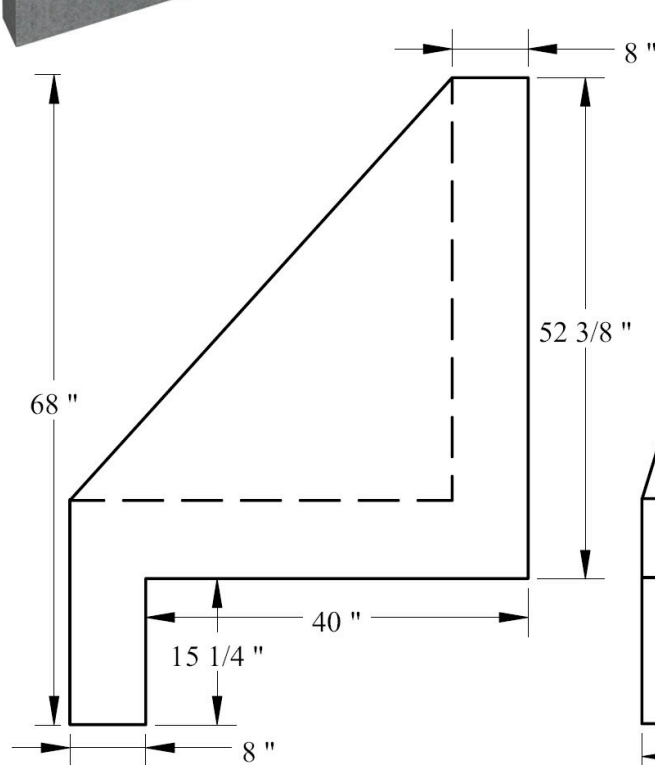
HEADWALL STRUCTURE

NO SCALE

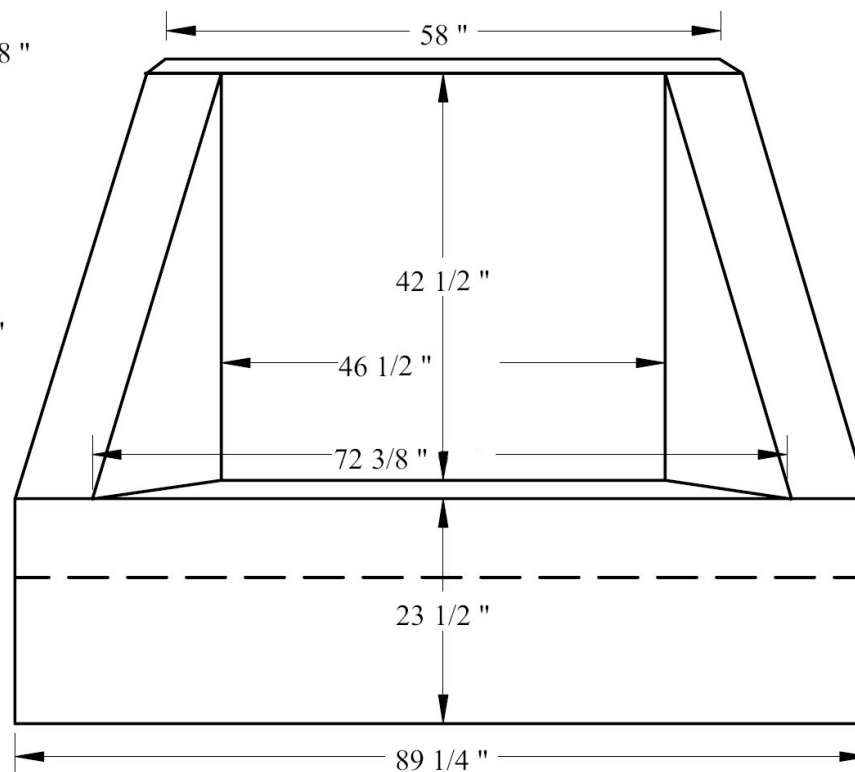
FEB 19/2009

DRAWN: RAB

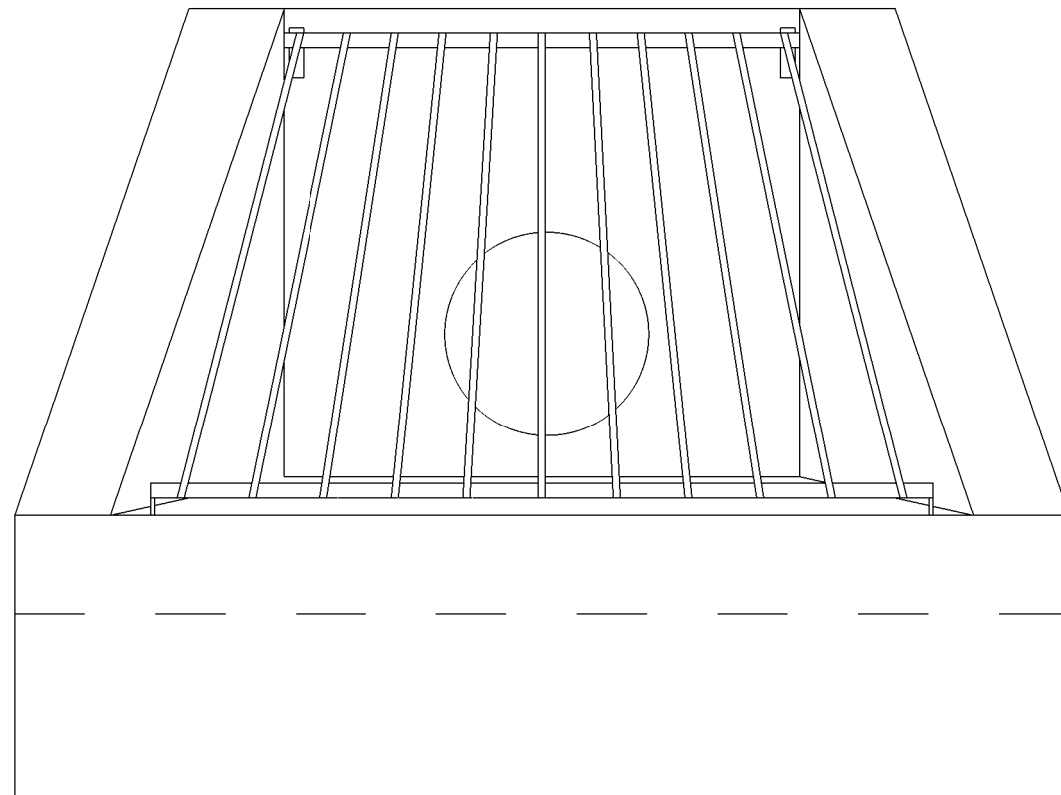
601 Patterson West
Cranbrook, B.C.
PO BOX 491 V1C 4J6
Phone 250-426-8162
Fax 250-489-4013
email: info@trikonprecast.com
www.trikonprecast.com



SIDE VIEW

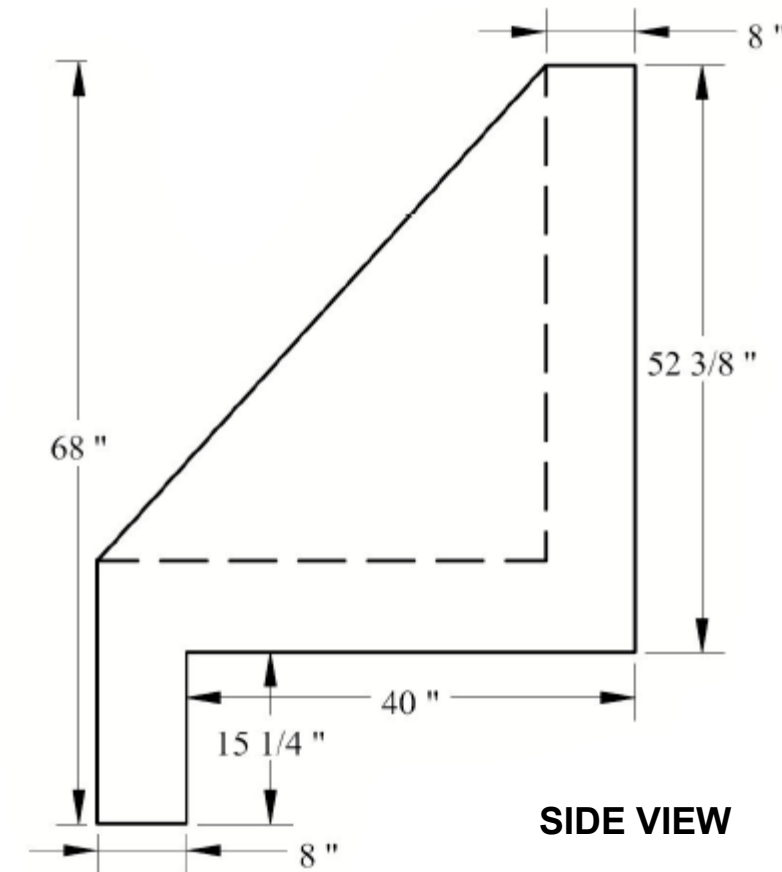
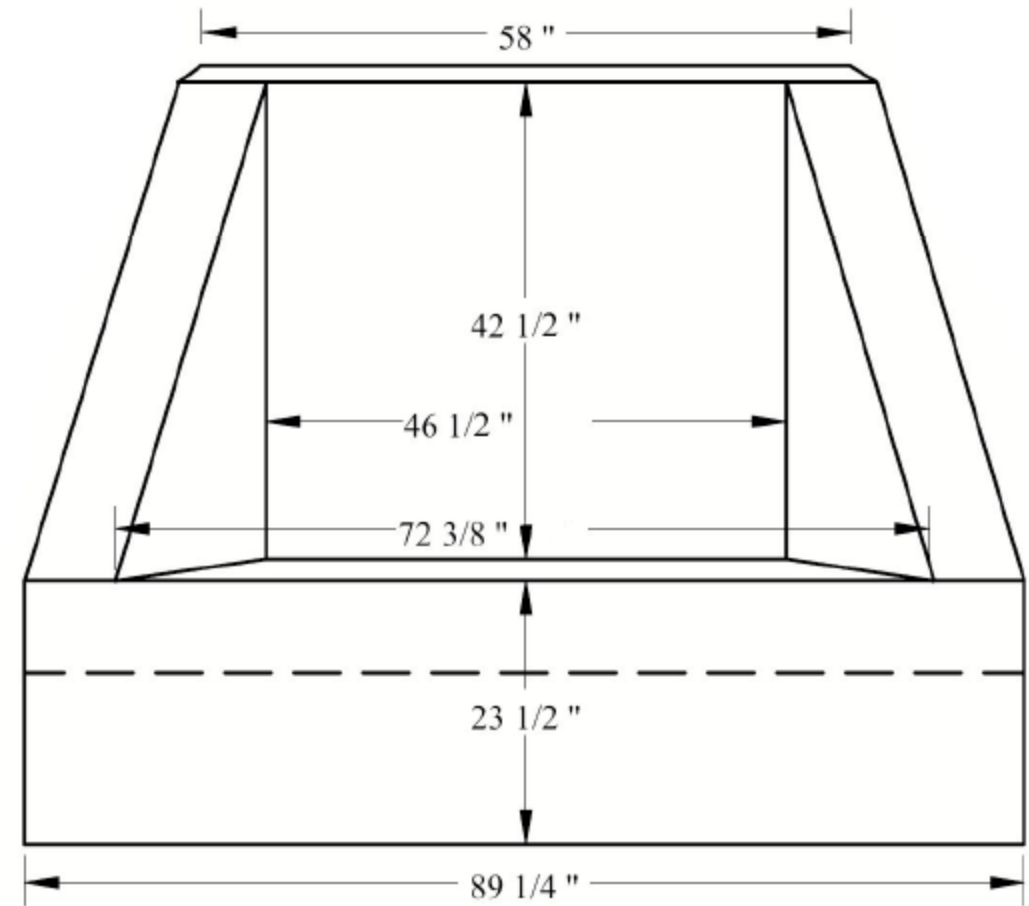


FRONT VIEW



FRONT VIEW w/ GRATE

FRONT VIEW



SIDE VIEW

REVISIONS

REMARKS

MM/DD/YY

1

2

3

4

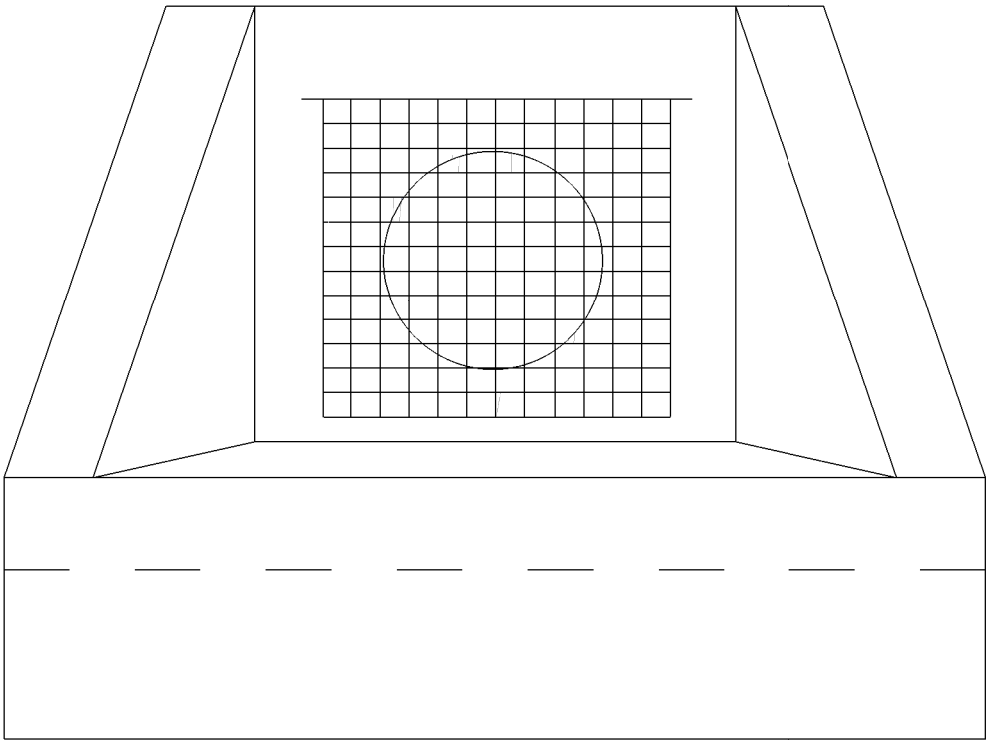
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TRI-KON
Precast
Concrete Products

HW200-600
&
Inlet Grate

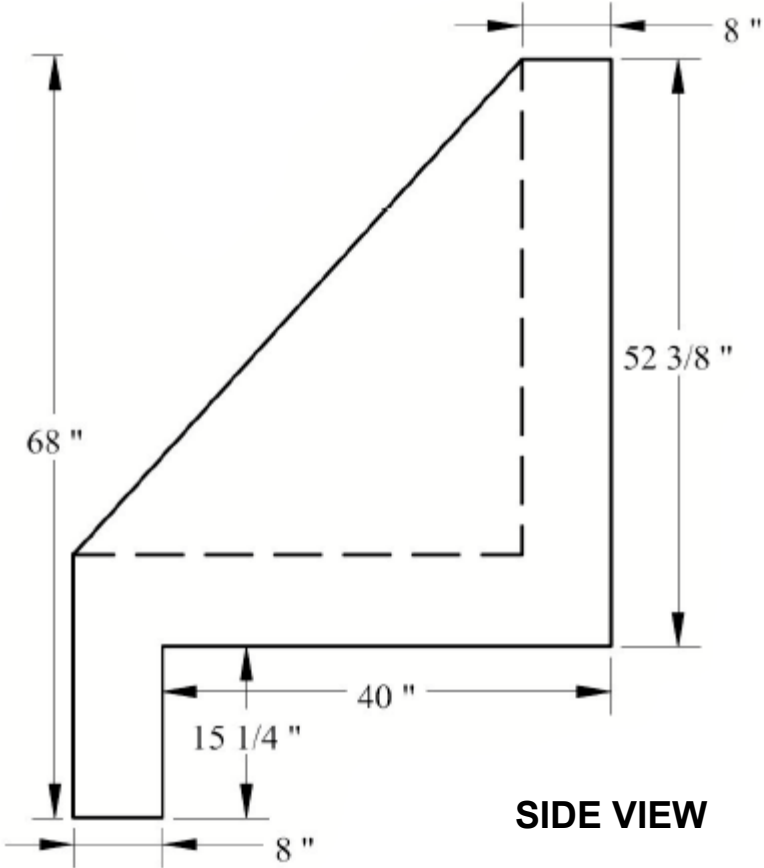
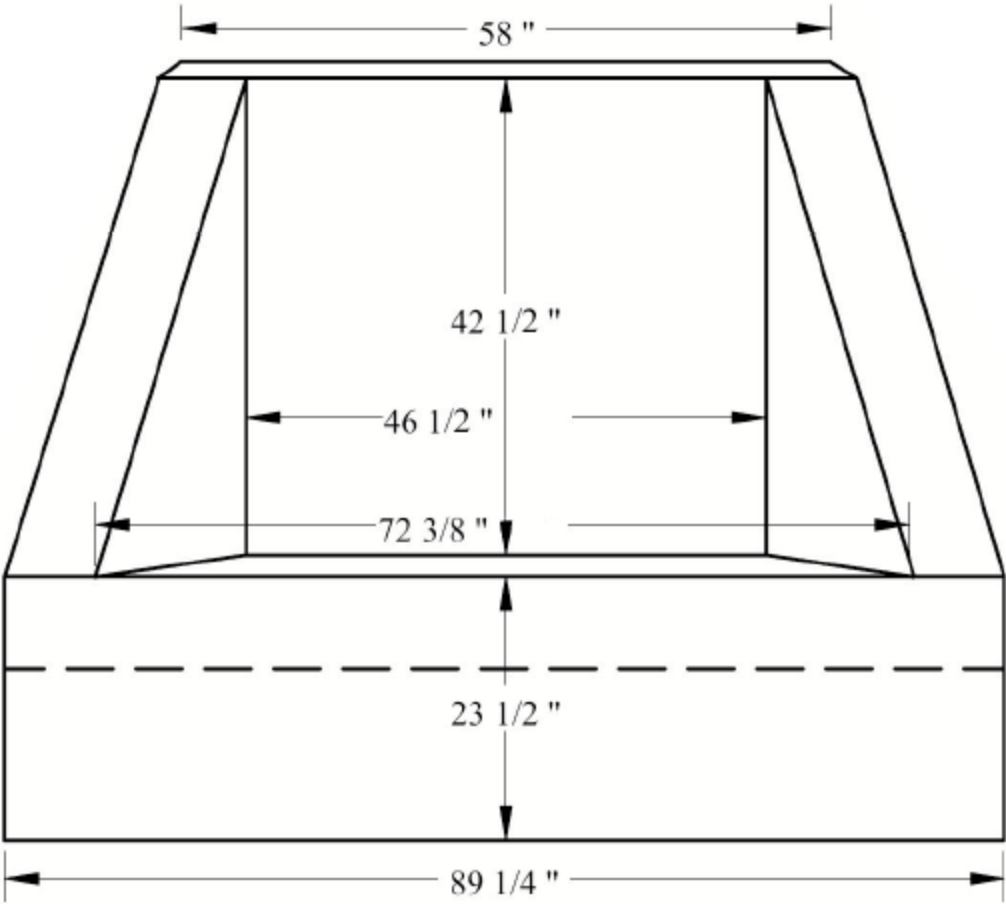
A

001



FRONT VIEW w/ HINGED GRATE

FRONT VIEW



SIDE VIEW

| REVISIONS | | REMARKS |
|-----------|----------|---------|
| MM/DD/YY | | |
| 1 | --/--/-- | ... |
| 2 | --/--/-- | ... |
| 3 | --/--/-- | ... |
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| 5 | --/--/-- | ... |

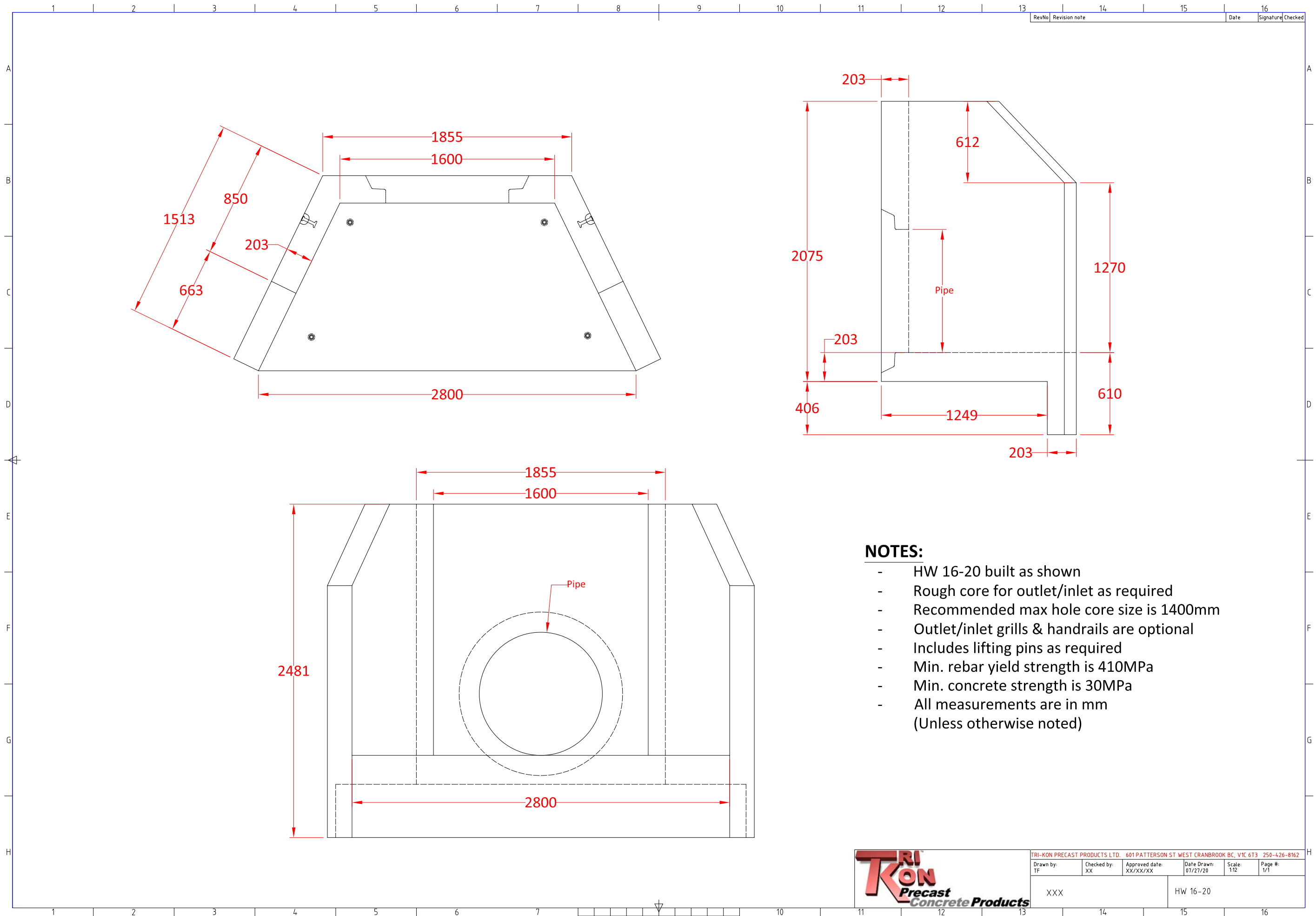
TRI

KON

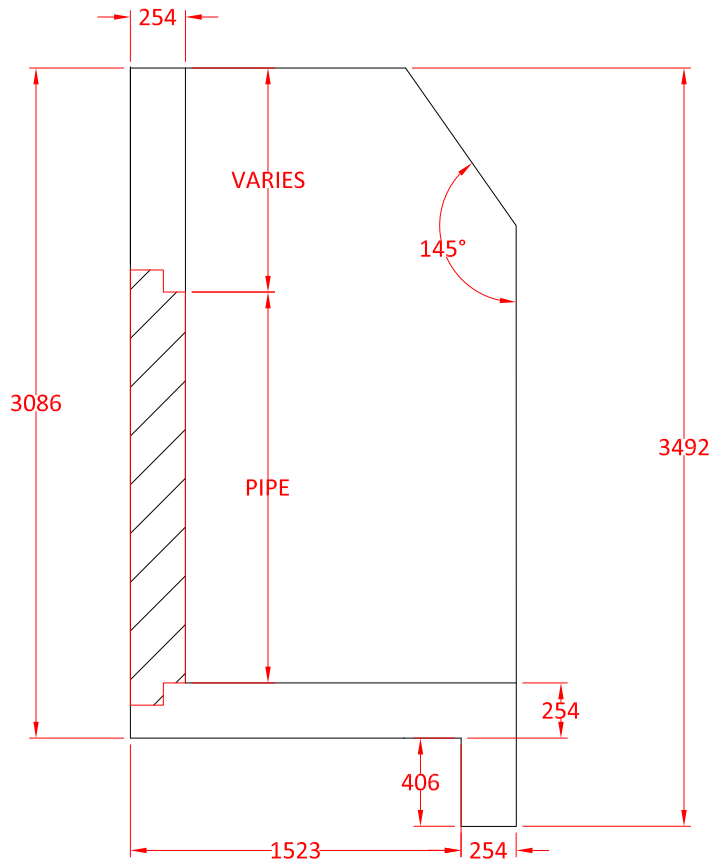
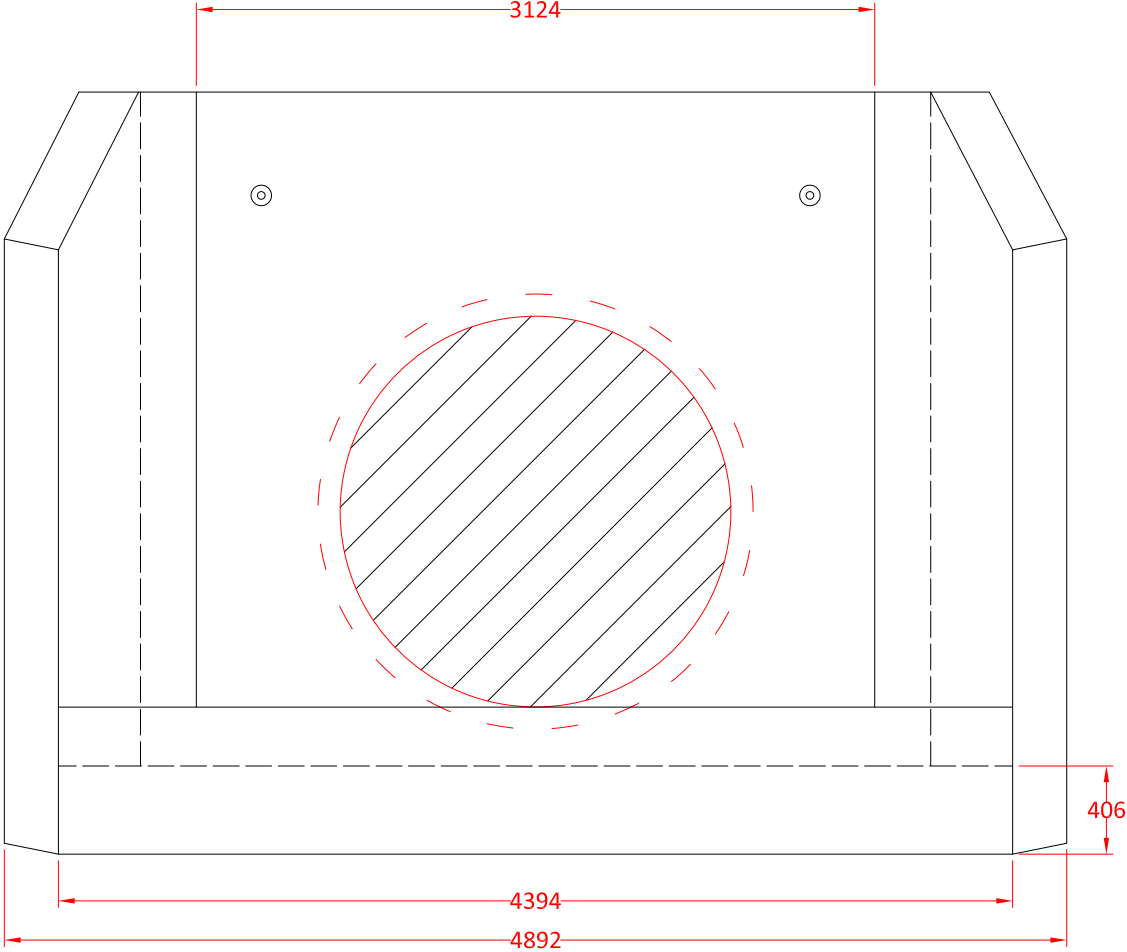
Precast Concrete Products

HW200-600 & Outlet Grate

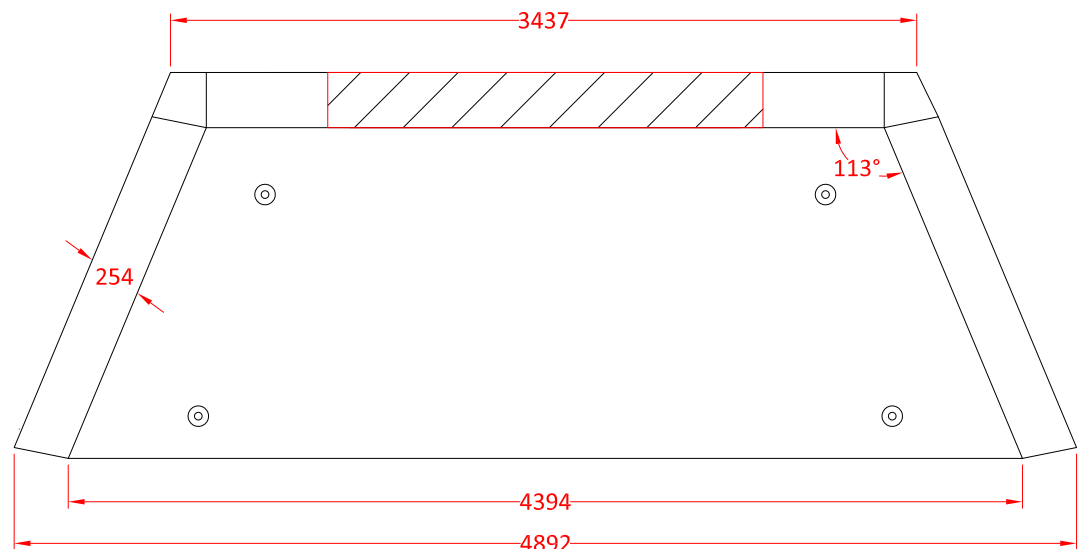
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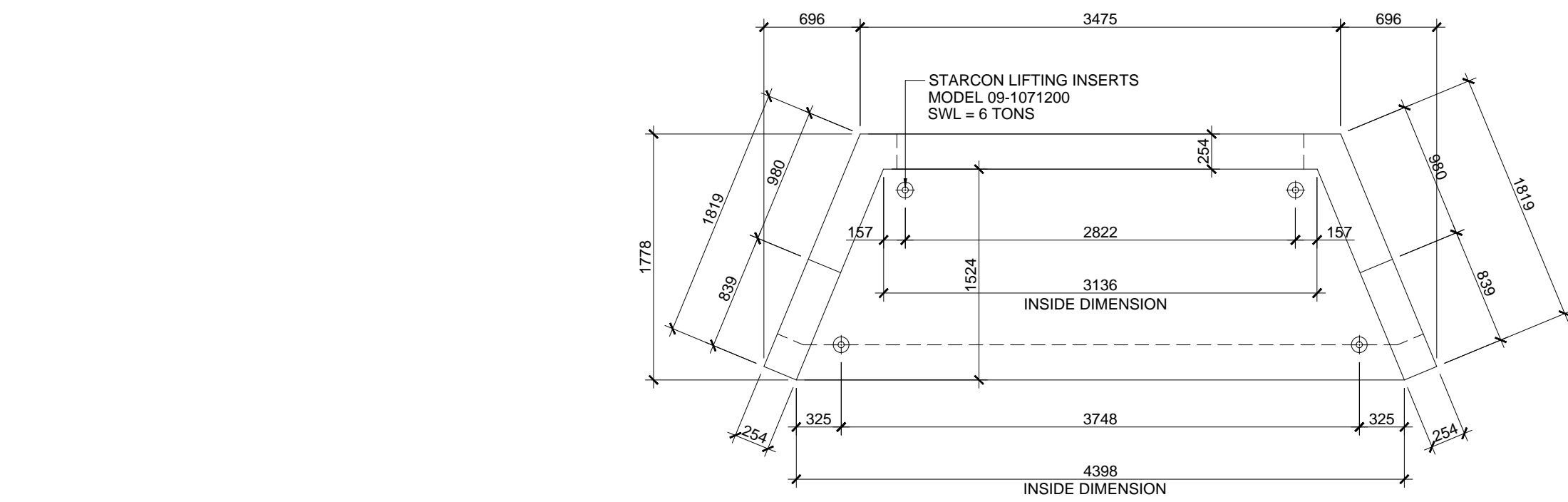
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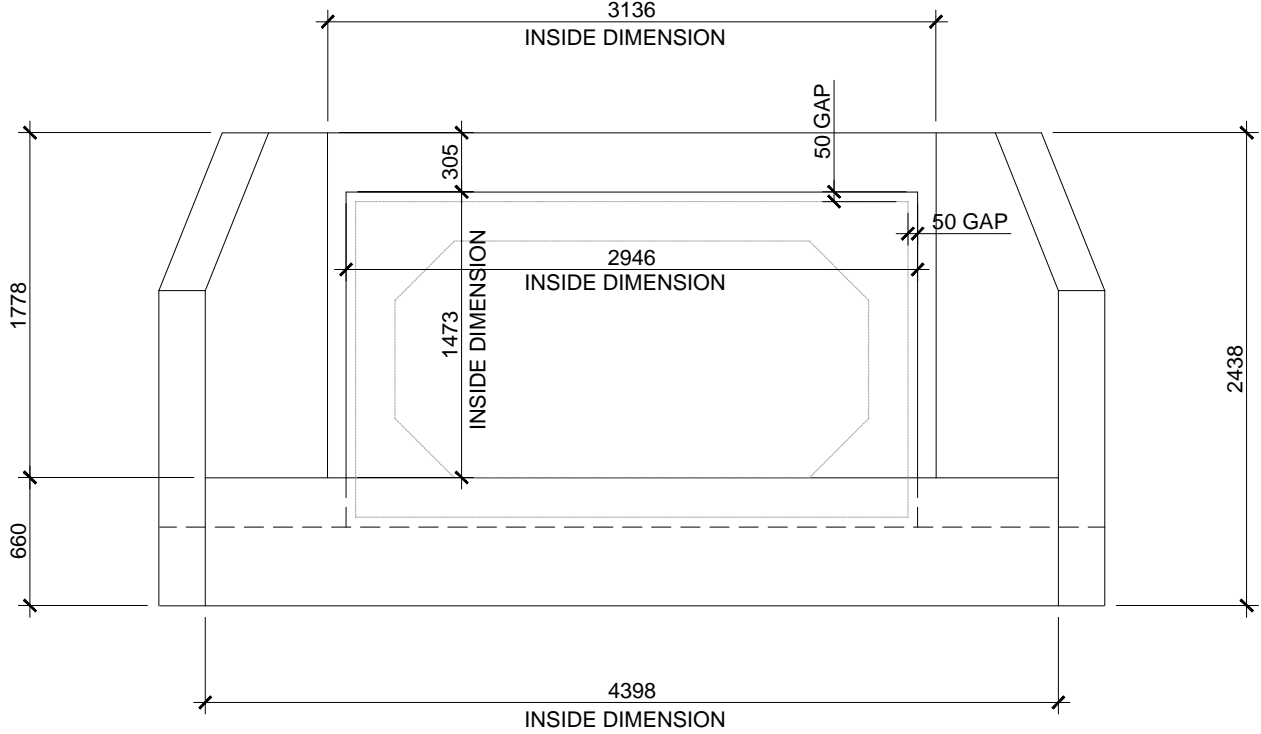
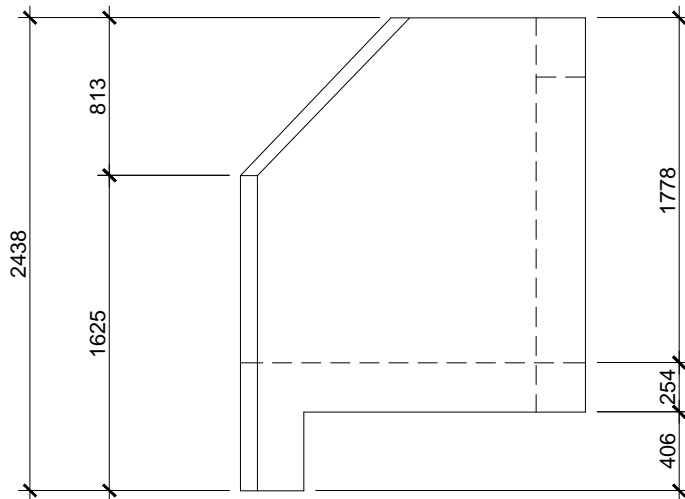
- NOTES:**
- HW 26-28 built as shown
 - Rough core for outlet/inlet as required
 - Outlet/inlet grills & handrails are optional
 - Includes lifting pins as required
 - Min. rebar yield strength is 410MPa
 - Min. concrete strength is 30MPa
 - All measurements are in mm (Unless otherwise noted)



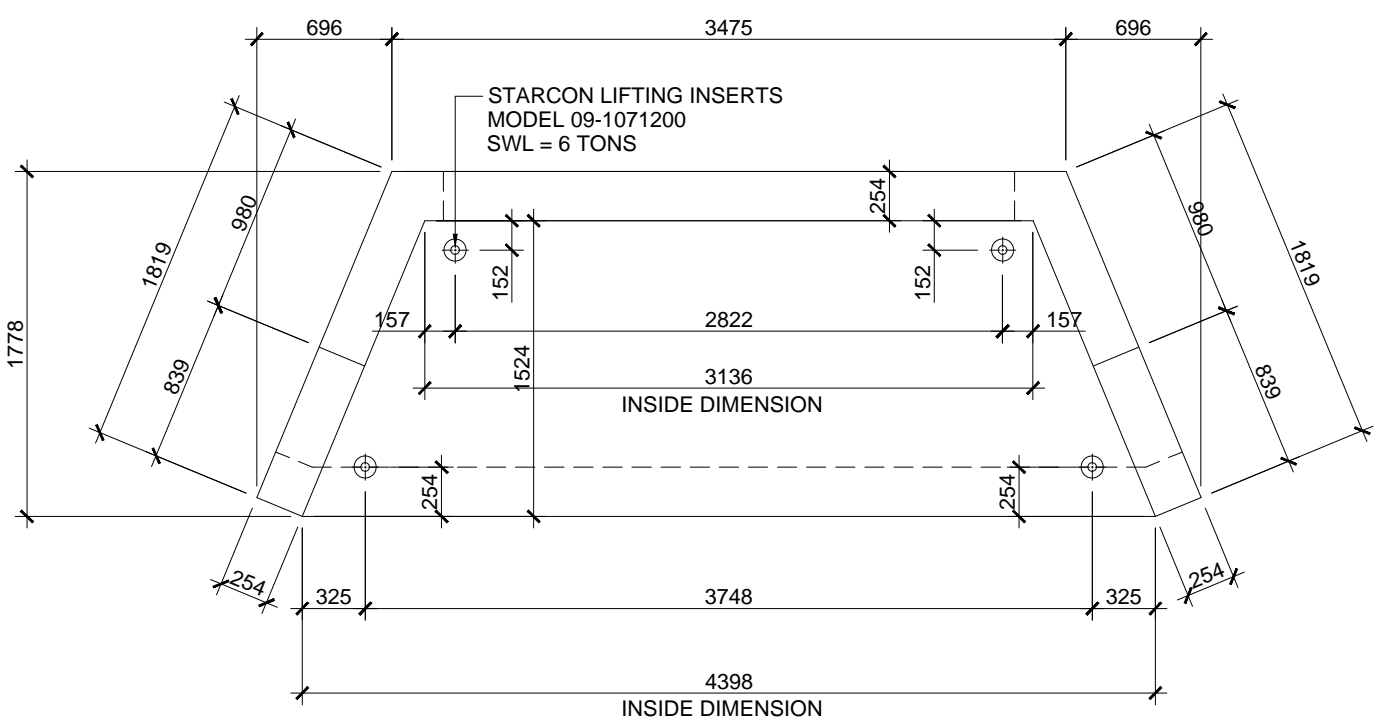
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|--|-------------------|----------------------------|-------------------------|----------------|----------------|
| TRI-KON PRECAST PRODUCTS LTD. 601 PATTERSON ST WEST CRANBROOK BC, VIC 6T3 250-426-8162 | | | | | |
| Drawn by: TF | Checked by: XX | Approved date: XX/XX/XX | Date Drawn: 03/27/19 | Scale: 1:16 | Page #: 1/1 |
| XXXXXX | | | HW 26-28 | | |



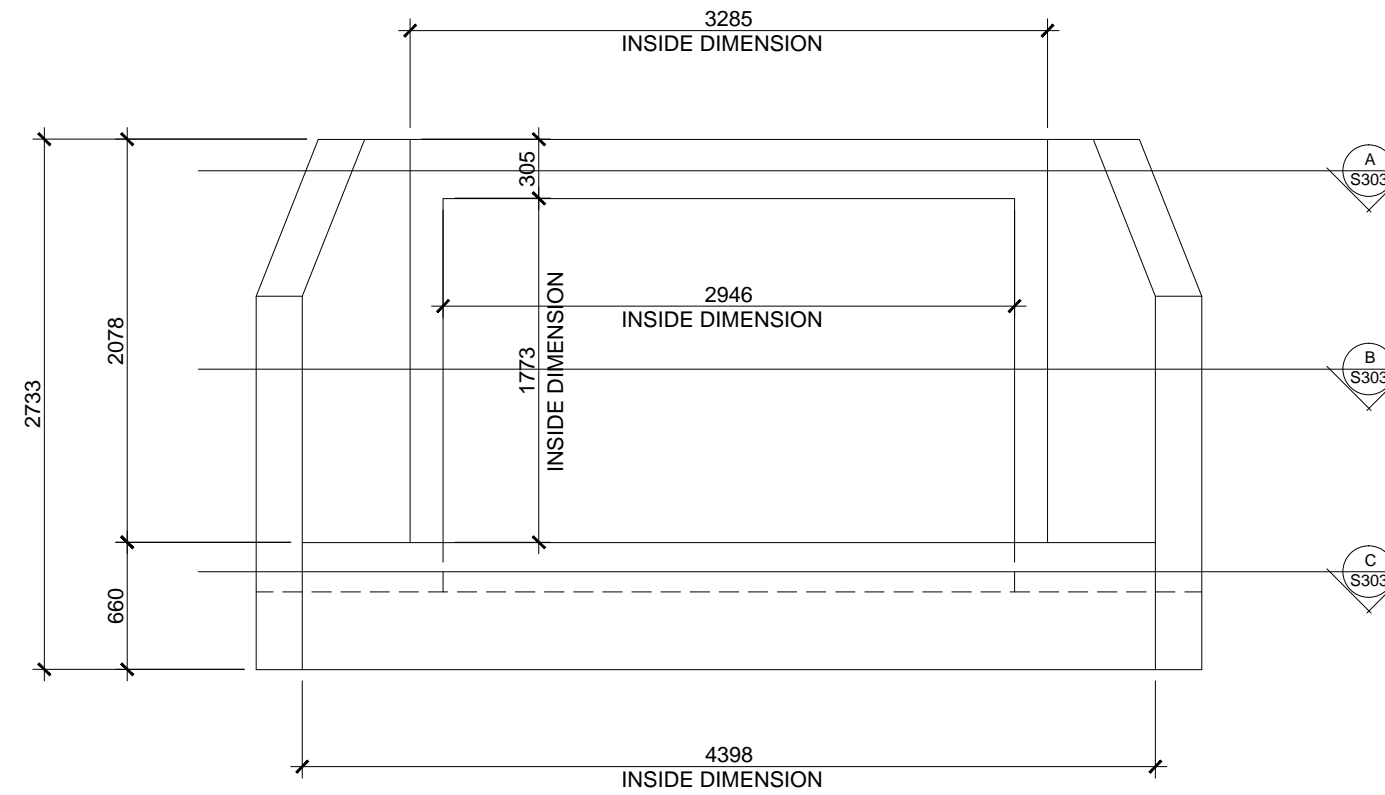
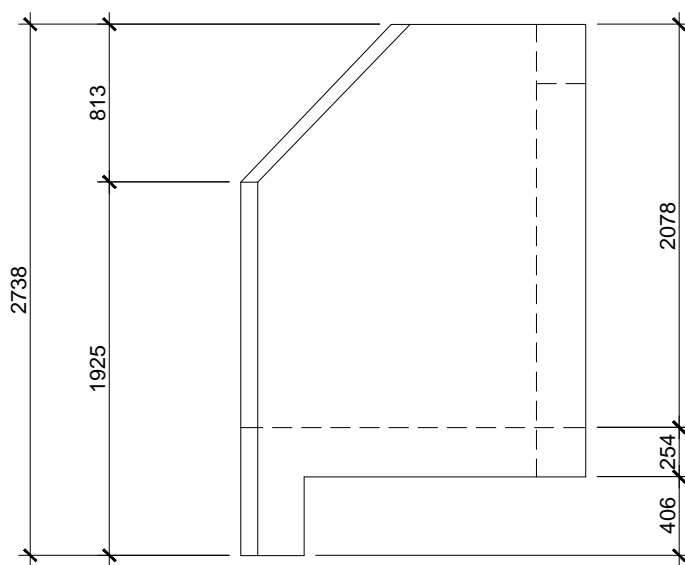
ESTIMATED WEIGHT = 103 kN (23,100 LBS)



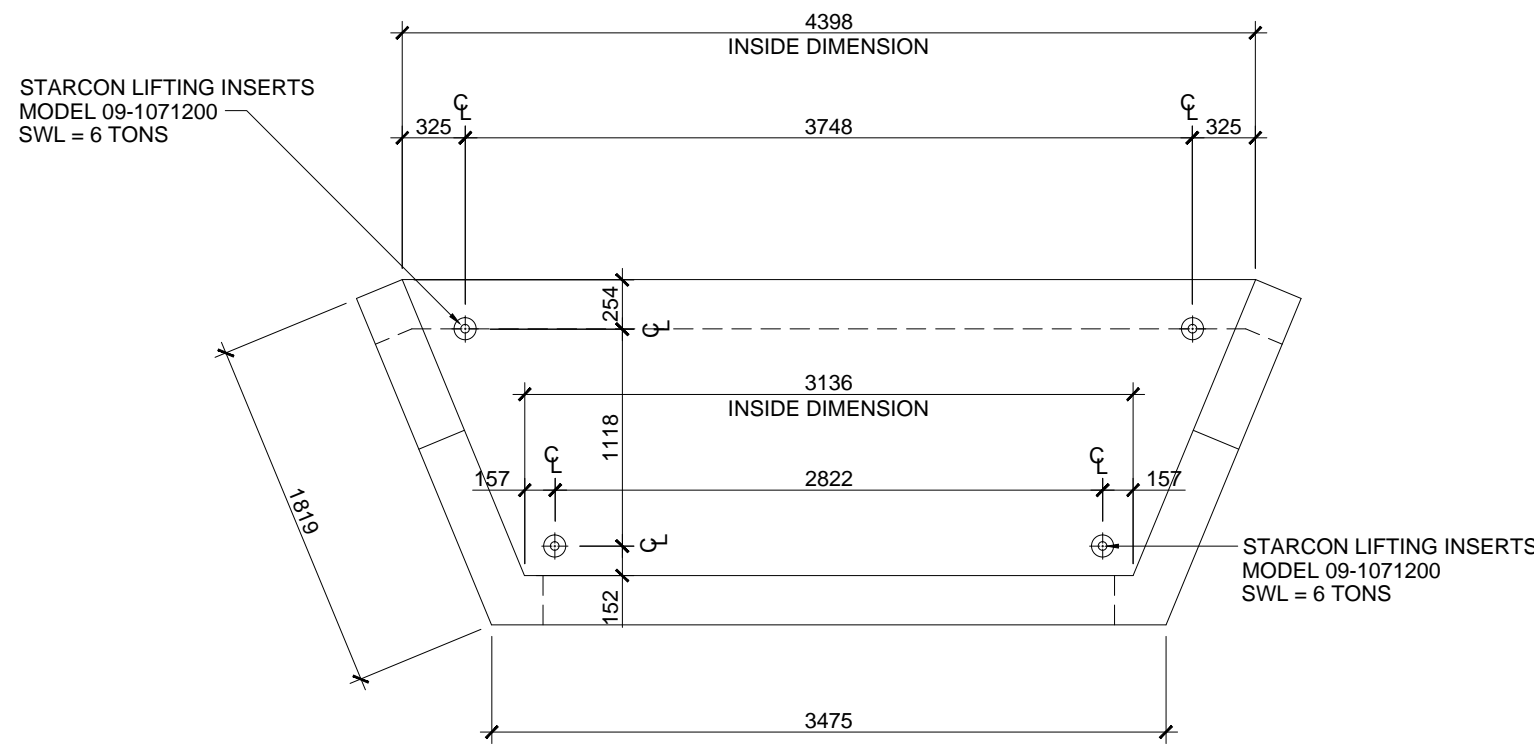
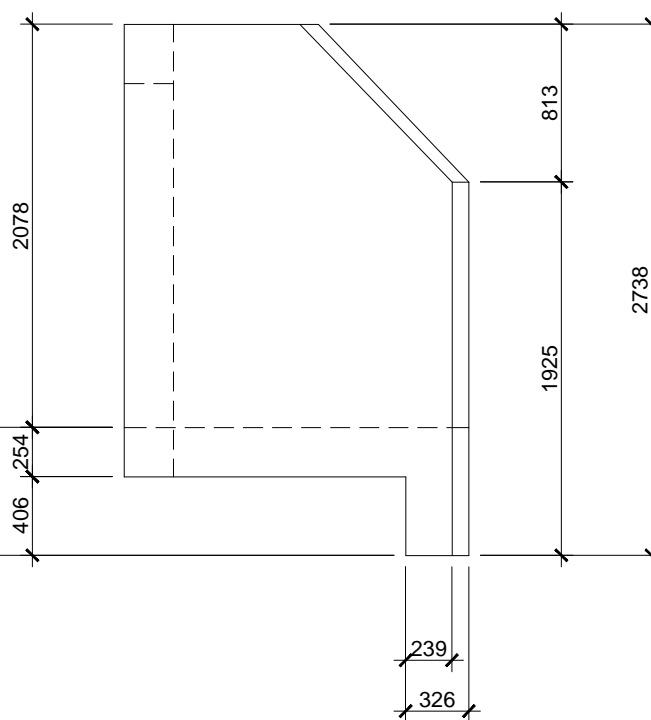
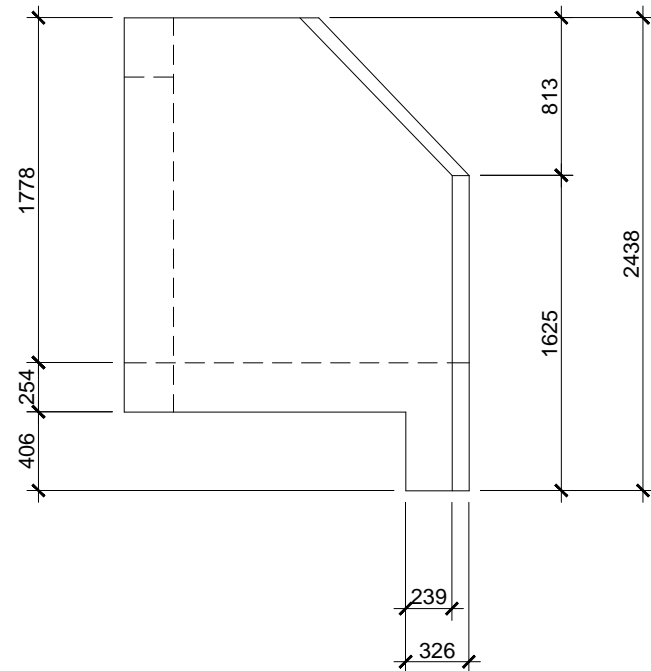
A HEADWALL TYPE "HW -1"
SCALE: 1:40



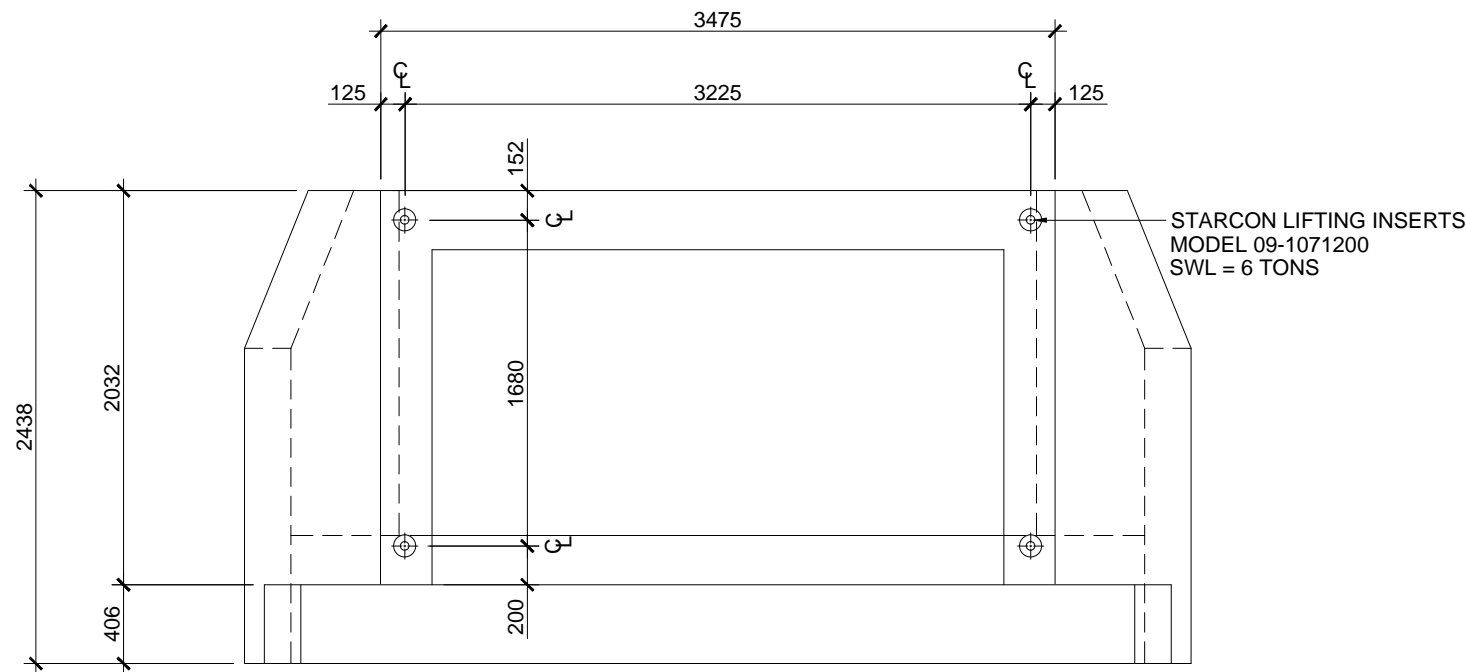
ESTIMATED WEIGHT = 112 kN (25,100 LBS)



C HEADWALL TYPE "HW -2"
SCALE: 1:40

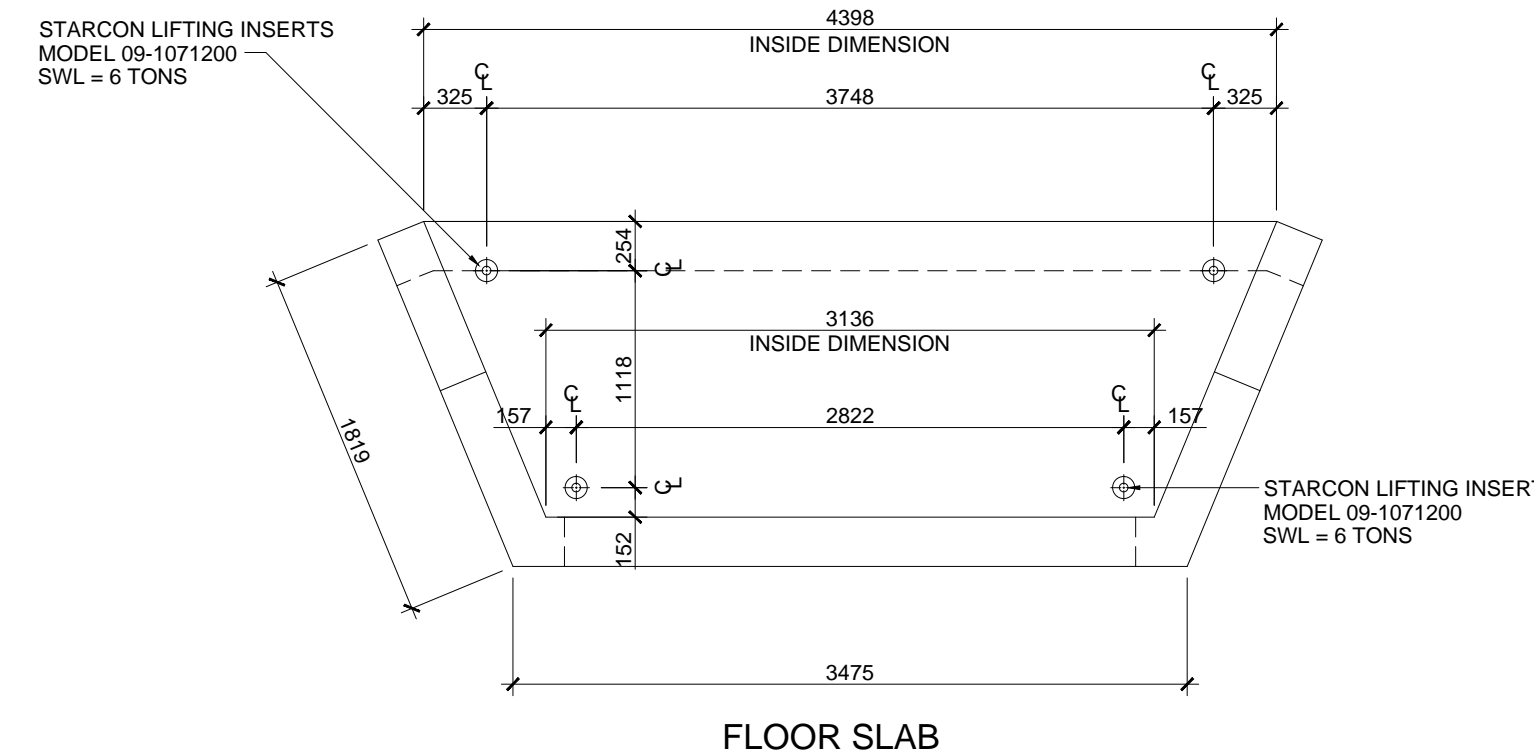


FLOOR SLAB

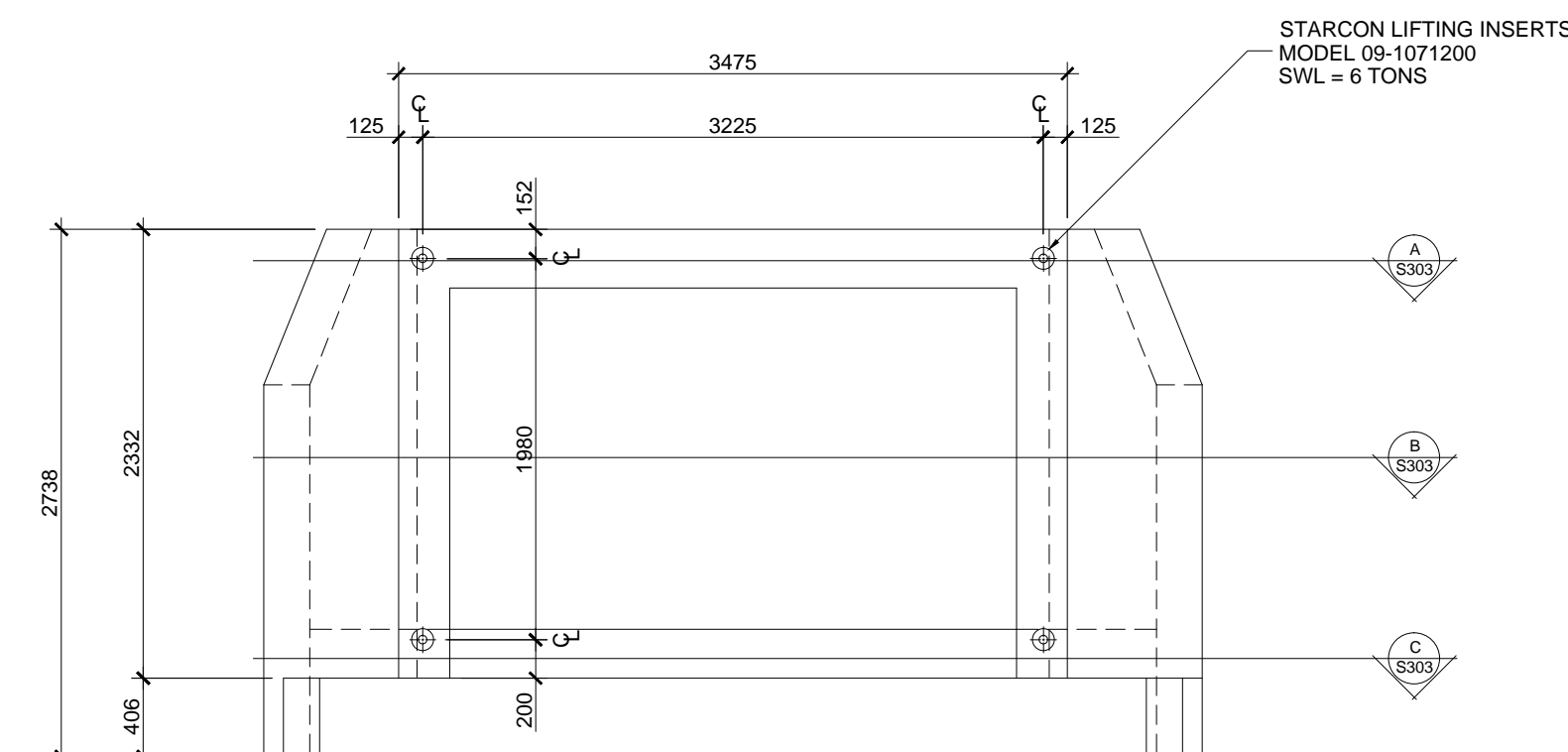


BACK WALL

B "HW-1" LIFTING INSERT LOCATIONS
SCALE: 1:40



FLOOR SLAB



BACK WALL

D "HW-2" LIFTING INSERT LOCATIONS
SCALE: 1:40

STRUCTURAL SPECIFICATION

GENERAL

- 1) ALL CONSTRUCTION SHALL CONFORM TO ASTM C1433M STANDARDS AND SUBSEQUENT REVISIONS.
- 2) ALL REFERENCES TO STANDARDS SHALL REFER TO THE LATEST REVISED ISSUE
- 3) THE STRUCTURAL ENGINEER ASSUMES NO RESPONSIBILITY FOR INSPECTION OF CONSTRUCTION OR VERIFICATION OF CONSTRUCTION UNLESS EXPRESSLY RETAINED TO DO SO.
- 4) INSTALLATION POSITIONING, BEDDING AND BACKFILL IS TO BE SPECIFIED BY OTHERS.

CONCRETE

- 1) ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND CSA STANDARD CAN/CSA-A23.1-09/CAN/CSA-A23.2-09
- 2) CONCRETE PROPERTIES:

| ITEM | AGG. SIZE | 28 DAY STRENGTH | W/C RATIO | AIR | TYPE |
|------|-----------|-----------------|-----------|-------|------|
| ALL | 20mm | 45 MPa. | 0.40 | 4%-7% | HS |
- 3) BEFORE PLACING CONCRETE, THE CONTRACTOR SHALL CHECK ALL APPLICABLE DRAWINGS FOR ANCHOR BOLTS, INSERTS, EMBEDS, RECESSES AND BLOCKOUTS. THEIR LOCATIONS SHALL BE CONFIRMED BY THE VARIOUS SUBTRADES.
- 4) CONCRETE COVER OVER REINFORCEMENT IS TO BE:
 - a. FORMED SURFACE EXPOSED TO GROUND OR WEATHER =50mm

REINFORCING STEEL

- 1) STEEL REINFORCEMENT SHALL BE MINIMUM GRADE 400 MPa. DEFORMED BARS CONFORMING TO CAN/CSA G30.18M92 9R2002)
- 2) WWM REINFORCEMENT SHALL BE MINIMUM GRADE 480 MPa. DEFORMED BARS CONFORMING TO CAN/CSA G30.18M92 9R2002. DIAMETER AS NOTED ON THE DRAWINGS (10mmØ AND 13mmØ)
- 3) REINFORCING STEEL IS TO BE PLACED AS DETAILED TO 10mm TOLERANCE AND IS TO BE SUPPORTED BY METAL OR PLASTIC SUPPORTS AND/OR HANGERS IN ACCORDANCE WITH CAN/CSA A23.1
- 4) LAP ALL REINFORCING BAR SPLICES 32 BAR DIAMETERS MINIMUM UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- 5) REINFORCING STEEL IS TO BE CLEAN, FREE OF CORROSION AND UNDAMAGED.
- 6) DO NOT WELD BARS OR USE HEAT TO BEND REINFORCING STEEL.

LIFTING INSERTS

- 1) LIFTING INSERTS ARE TO BE AS MANUFACTURED BY STARCON MODEL 09-1071200 WITH RATED CAPACITY OF 6 TONS. CONTRACTOR IS TO GROUT ALL INSERT POCKETS PRIOR TO BACK FILLING THE BOX CULVERT.

REFERENCE DRAWINGS

- 1) LAYOUT AND STRUCTURAL SIZING IS BASED ON DESIGN DRAWINGS PREPARED BY McELHANNEY DATED 16-05-24. (YOHO CULVERT REPLACEMENTS AND REPAIRS)
- 2) McELHANNEY HAS RELIED ON THE PROVIDED DRAWING SET AS ACCURATE AND TRUE. CONSULTANT IS NOT RESPONSIBLE FOR ANY ERROR/OMISSIONS ON THESE DRAWINGS AS A RESULT OF ERRORS OR SUBSEQUENT CHANGES TO THE PROVIDED DRAWING SET OR UNKNOWN SITE AND AS-BUILT CONDITIONS.
- 3) IF CHANGES ARE MADE TO THE LAYOUT OF THE STRUCTURE, OR SITE CONDITIONS VARY FROM ASSUMED, OR THE ASSUMED LOAD PATHS ARE ALTERED (RELOCATED ELEMENTS, ETC), THE STRUCTURAL ENGINEER SHOULD BE NOTIFIED SUCH THAT CHANGES CAN BE MADE TO THE DESIGN IF REQUIRED.

PRECAST COMPONENT LIFTING AND RIGGING

- 1) THE PRECAST CONTRACTOR IS RESPONSIBLE FOR ALL RIGGING AND LIFTING PROCEDURES REQUIRED TO ENSURE SAFE LIFTING AND PLACEMENT OF PRECAST CONCRETE COMPONENTS IN ACCORDANCE WITH INDUSTRY STANDARDS AND WORKSAFE BC REQUIREMENTS.
- 2) THE CONTRACTOR IS TO ENSURE THAT THE HOISTING DEVICES INCLUDING ALL ASSOCIATED ACCESSORIES (SHACKLES, SLINGS, PINS ETC.) ARE RATED TO THE APPLICABLE LOAD AND ARE IN GOOD WORKING CONDITION.
- 3) THE CONTRACTOR IS TO ENSURE THAT ALL PERSONNEL OPERATING OR WORKING WITH THE HOISTING DEVICES ARE PROPERLY TRAINED, EXPERIENCED AND CERTIFIED ON THE HOISTING DEVICE.

| Rev | Date | Description | Drawn | Design | App'd |
|-----|--------------|---------------------------|-------|--------|-------|
| 1 | AUG.12, 2016 | GENERAL REVISION | BN | BN | BN |
| 0 | AUG.5, 2016 | ISSUED FOR "CONSTRUCTION" | BN | BN | BN |

| |
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|  | McElhanney McElhanney Consulting Services Ltd. |
| <hr/> | |
| | 42 - 8th Avenue S Suite 200 Cranbrook BC Canada V1C 2K3 Tel 250-489-3013 |

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|--|
| TRI-KON PRECAST PRODUCTS Ltd. 601 PATTERSON STREET WEST, CRANBROOK, BC |
| YOHO NATIONAL PARK, BRITISH COLUMBIA CULVERT REPLACEMENTS AND REPAIRS REINFORCED CONCRETE HEADWALL STRUCTURES HEADWALL TYPE "HW-1" AND HEADWALL TYPE "HW-2" |

| | |
|----------------|---------------|
| Drawing No. | S301 |
| Project Number | 2441-00440-00 |
| Rev. | 1 |