

FILE: \\spp1\TAL\CD\02411\Project\2411-01\186-00 - RDEK - Cold Spring Creek Debris Flow Mitigation - Ph.2\1.0 Drawings\1.0 Structural\2411-01\186-00-S-4
 DATE: 2023-07-05 1:43:32 PM
 McElhanney ANS D - 2023-01-01

DESIGN CRITERIA:

1. DESIGN STANDARDS:

GUARDRAIL: OCCUPATIONAL HEALTH & SAFETY REGULATION
 CONCRETE: CSA-A23.3-19
 STEEL: CSA-S16-19

2. DESIGN LOADS:

GUARDRAIL: 550 N (125 lbs) HORIZONTALLY
 1.5 kN/m (100 plf) VERTICALLY
 INTAKE WEIR STEEL GRATE: 3 kN (675 lbs) COBBLES (MAX. 600 mm (24") DIA.)
 INTAKE WEIR CONCRETE STRUCTURE: 8.4 kPa/m UNIFORM ACTIVE EARTH PRESSURE
 68.4 kPa/m UNIFORM PASSIVE EARTH PRESSURE

THE INTAKE WEIR CONCRETE STRUCTURE DESIGN IS BASED ON THE TECHNICAL MEMO RE: "WATER DIVERSION WEIR / SOIL LOADS (REV.1)" PREPARED BY McELHANNEY ON 2023-FEB-08.

GENERAL:

1. CODES AND STANDARDS REFERENCED ON THE DRAWINGS SHALL BE THE EDITIONS LISTED IN TABLE 1.3.1.2. OF DIVISION B OF THE CURRENT EDITION OF THE BUILDING CODE UNLESS NOTED OTHERWISE. CODES AND STANDARDS NOT LISTED IN THE BUILDING CODE SHALL BE THE LATEST EDITIONS UNLESS NOTED OTHERWISE.
2. CONSTRUCTION SHALL COMPLY WITH THE CODES AND STANDARDS LISTED ON THE DRAWINGS AS WELL AS ALL APPLICABLE FEDERAL, PROVINCIAL AND MUNICIPAL REGULATIONS AND BYLAWS.
3. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS BEFORE COMMENCING ANY WORK AND NOTIFY THE ENGINEER OF ANY ERRORS OR OMISSIONS.
4. THE CONTRACTOR SHALL COMPARE ALL RELATED DRAWINGS BEFORE COMMENCING ANY WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES BETWEEN DRAWINGS.
5. DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. ELEVATIONS ARE IN METRES UNLESS NOTED OTHERWISE.
6. ONLY USE WRITTEN DIMENSIONS. DO NOT SCALE OFF THE DRAWINGS.
7. DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS MARKED ISSUED FOR CONSTRUCTION (IFC) AND SEALED BY A PROFESSIONAL ENGINEER.
8. THESE NOTES SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS. THE MOST STRINGENT SPECIFICATIONS SHALL BE USED IF DISCREPANCIES OR INCONSISTENCIES ARE FOUND BETWEEN THE DRAWINGS AND OTHER CONTRACT DOCUMENTS, UNLESS APPROVED BY THE ENGINEER.
9. MATERIALS SHALL BE NEW AND BE PROTECTED FROM DAMAGE DURING SHIPPING, HANDLING, STORAGE AND INSTALLATION.
10. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE CORRECTION OF DEFICIENCIES, AS DIRECTED BY THE ENGINEER.
11. MATERIALS SHALL BE ORDERED IN A TIMELY MANNER TO ENSURE PROCUREMENT TIMES DO NOT NEGATIVELY IMPACT THE PROJECT SCHEDULE. SCHEDULING PROBLEMS WILL NOT JUSTIFY SUBSTITUTIONS.

FIELD REVIEWS:

1. THE ENGINEER SHALL BE NOTIFIED OF THE CONSTRUCTION SCHEDULE IN ORDER TO SCHEDULE FIELD REVIEWS. IF THE ENGINEER IS NOT AFFORDED THE OPPORTUNITY TO REVIEW THE STRUCTURAL WORKS PRIOR TO CONCEALMENT, THEN FINAL CERTIFICATION OF THE PROJECT WILL NOT BE ISSUED.
2. THE ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE FOR INSPECTION AND APPROVAL OF THE FOLLOWING:

FOUNDATION SOILS, BEFORE BACKFILLING OR CONCRETING
 REINFORCING STEEL, BEFORE CONCRETING/GROUTING
 STRUCTURAL STEEL, BEFORE CONCEALMENT
 POST-INSTALLED ANCHORS, BEFORE INSTALLATION

3. ALL WORK SHALL BE MADE ACCESSIBLE FOR INSPECTION. FAILURE TO GIVE THE REQUIRED NOTIFICATION AND ACCESSIBILITY MAY RESULT IN THE ENGINEER REQUIRING THE REMOVAL AND REPLACEMENT OF THE WORK AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR SHALL REVIEW SUB-CONTRACTORS' WORK PRIOR TO THE ENGINEER'S FIELD REVIEW.
5. FIELD REVIEWS ARE PROVIDED ONLY FOR THE WORK SHOWN ON THE STRUCTURAL DRAWINGS PREPARED BY THE ENGINEER. REVIEWS ARE PERIODIC, AND AT THE PROFESSIONAL JUDGEMENT OF THE ENGINEER TO DETERMINE THAT THE WORK IS IN GENERAL CONFORMANCE WITH THE DRAWINGS AND CONTRACT DOCUMENTS, AND TO FACILITATE COMPLETION OF THE LETTERS OF ASSURANCE REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ).
6. FIELD REVIEWS SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY AND OBLIGATION TO COMPLY WITH DRAWINGS AND CONTRACT DOCUMENTS. QUALITY CONTROL REMAINS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. ADDITIONAL FIELD REVIEWS THAT ARE REQUIRED DUE TO DEFICIENT OR INCOMPLETE WORK SHALL BE AT THE CONTRACTOR'S EXPENSE.

BACKFILL:

1. BACKFILL INCLUDING GRANULAR MATERIAL, COMPACTION AND COMPACTION TESTING SHALL CONFORM TO THE MASTER MUNICIPAL CONSTRUCTION DOCUMENT (MMD) AND THE REQUIREMENTS OF THE GEOTECHNICAL ENGINEER.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH CSA-A23.1 AND THE RISC MANUAL OF STANDARD PRACTICE.
2. REINFORCING STEEL SHALL CONFORM TO CSA-G30.18 GRADE 400 UNLESS NOTED OTHERWISE.
3. REINFORCING STEEL SHALL NOT BE WELDED UNLESS SPECIFIED OR AUTHORIZED BY THE ENGINEER. WELDING SHALL CONFORM TO CSA-W186.
4. REINFORCING STEEL SHALL BE CLEAN AND FREE OF MUD, OIL, EXCESSIVE RUST, MILL SCALE OR DAMAGE.
5. PROVIDE CLEAR CONCRETE COVER FOR REINFORCING STEEL IN CAST-IN-PLACE CONCRETE AS FOLLOWS, UNLESS NOTED OTHERWISE:

EXPOSED TO FREEZING/THAWING/SULPHATE: 40 mm (1 1/2")

CAST-IN-PLACE CONCRETE:

1. CONCRETE SHALL BE MIXED, PLACED, FINISHED AND CURED IN ACCORDANCE WITH CSA-A23.1.
2. CONCRETE SHALL BE NORMAL WEIGHT CONCRETE AND MIXED USING TYPE GU CEMENT UNLESS NOTED OTHERWISE. CONCRETE SHALL CONTAIN MAXIMUM 20 mm (3/4") AGGREGATE, EXCEPT CONCRETE SLABS ON STEEL DECKING SHALL CONTAIN MAXIMUM 12 mm (1/2") AGGREGATE. CONCRETE SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

ELEMENT	EXPOSURE	STRENGTH	MAX W/C	SLUMP*	AIR	CURING TYPE
INTAKE WEIR	F-2	30 MPa	0.50	25 - 100 mm	5 - 8%	1

* SUPERPLASTICIZER SHALL BE ADDED AFTER SLUMP HAS BEEN MEASURED.

3. THE CONTRACTOR SHALL SUBMIT MIX DESIGNS TO THE ENGINEER FOR REVIEW AT LEAST TWO WEEKS PRIOR TO PLACING.
4. THE USE OF ADMIXTURES OTHER THAN AIR ENTRAINMENT, STANDARD WATER REDUCERS, OR SUPER PLASTICIZERS IS NOT PERMITTED UNLESS SPECIFIED OR AUTHORIZED BY THE ENGINEER.
5. WATER SHALL NOT BE ADDED TO THE CONCRETE AFTER LEAVING THE BATCH PLANT.
6. CONCRETE SHALL BE COMPLETELY DISCHARGED WITHIN 120 MINUTES OF INITIAL MIXING. CONCRETE SHALL BE REJECTED IF THIS TIME LIMIT CANNOT BE MET.
7. LAITANCE SHALL BE REMOVED. AGGREGATE SHALL BE PARTIALLY EXPOSED, AND THE SURFACE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF AT LEAST 5 mm (3/16") WHERE FRESH CONCRETE IS CAST AGAINST HARDENED CONCRETE. THE HARDENED CONCRETE SHALL BE SATURATED WITH WATER AND BE IN A DAMP CONDITION WITH NO FREE SURFACE WATER (SATURATED SURFACE DRY) IMMEDIATELY BEFORE PLACING FRESH CONCRETE.

STRUCTURAL STEEL:

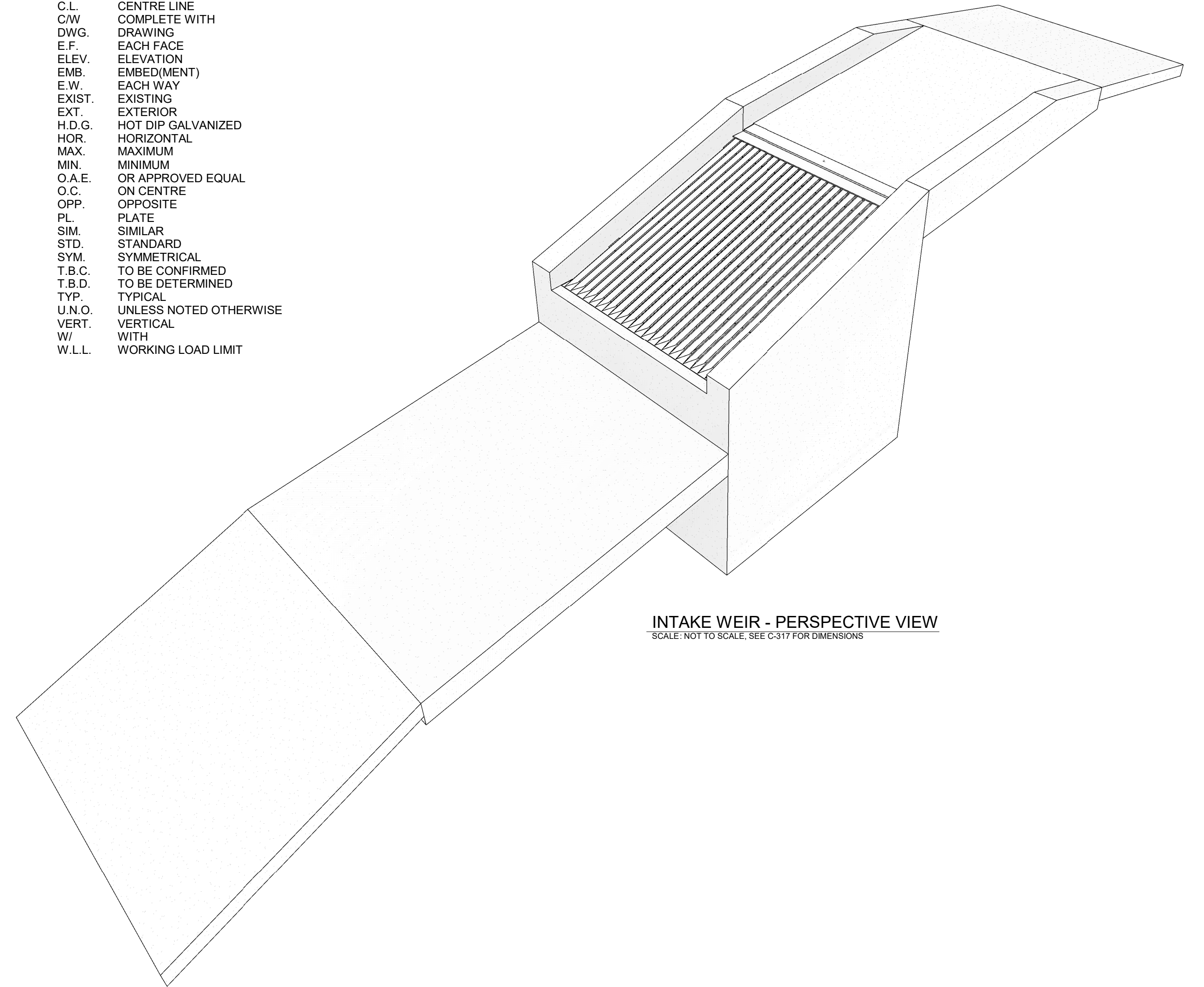
1. STRUCTURAL STEEL SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH CSA-S16 AND THE CISC CODE OF STANDARD PRACTICE.
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS NOTED OTHERWISE:

BARS & PLATES:	CSA-G40.21 GRADE 300W
BEAMS & TEES:	CSA-G40.21 GRADE 350W OR ASTM A992
HSS:	CSA-G40.21 GRADE 350W OR ASTM A500 GRADE C
ANGLES & CHANNELS:	CSA-G40.21 GRADE 350W
ANCHOR BOLTS:	ASTM F1554 GRADE 36

3. STRUCTURAL STEEL SHALL BE WELDED IN ACCORDANCE WITH CSA-W59 BY COMPANIES AND WELDERS CERTIFIED TO CSA-W47.1 BY CWB.
4. WELDS SHALL BE MADE USING E490XX (E70XX) ELECTRODES OR BETTER UNLESS NOTED OTHERWISE.
5. FIELD WELDING IS NOT PERMITTED UNLESS SPECIFIED OR AUTHORIZED BY THE ENGINEER.
6. EXTERIOR STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH CSA-G164 UNLESS NOTED OTHERWISE. GALVANIZED STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE AGA DESIGN GUIDE TO ALLOW PROPER DRAINAGE AND VENTING.
7. EXTERIOR FASTENERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.
8. DAMAGED GALVANIZING SHALL BE TOUCHED UP WITH TWO COATS OF LANCO GALVACON GC-243 COLD GALVANIZING COMPOUND OR APPROVED EQUIVALENT IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.
9. HSS SECTIONS AND PIPES SHALL BE PROVIDED WITH SEAL WELDED CAP PLATES AT OPEN ENDS AND DRAIN HOLES AT THE BASE.
10. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL STRUCTURAL STEEL TO THE ENGINEER FOR REVIEW AT LEAST TWO WEEKS PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL SHOW ALL DETAILS AND MATERIAL SPECIFICATIONS.

ABBREVIATIONS:

B.O.	BOTTOM OF
BTM.	BOTTOM
CONT.	CONTINUOUS
C.L.	CENTRE LINE
C/W	COMPLETE WITH
DWG.	DRAWING
E.F.	EACH FACE
ELEV.	ELEVATION
EMB.	EMBED(MENT)
E.W.	EACH WAY
EXIST.	EXISTING
EXT.	EXTERIOR
H.D.G.	HOT DIP GALVANIZED
HOR.	HORIZONTAL
MAX.	MAXIMUM
MIN.	MINIMUM
O.A.E.	OR APPROVED EQUAL
O.C.	ON CENTRE
OPP.	OPPOSITE
PL.	PLATE
SIM.	SIMILAR
STD.	STANDARD
SYM.	SYMMETRICAL
T.B.C.	TO BE CONFIRMED
T.B.D.	TO BE DETERMINED
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
W/	WITH
W.L.L.	WORKING LOAD LIMIT



INTAKE WEIR - PERSPECTIVE VIEW

SCALE: NOT TO SCALE, SEE C-317 FOR DIMENSIONS

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ORIGINAL DWG SIZE: ANSI D (22" x 34")



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REGIONAL DISTRICT OF EAST KOOTENAY
 19 24th AVENUE SOUTH, CRANBROOK, BC V1C 2N5
COLD SPRING CREEK
DEBRIS FLOW MITIGATION
INTAKE WEIR DETAILS 1 of 2

Drawing No.

C-317

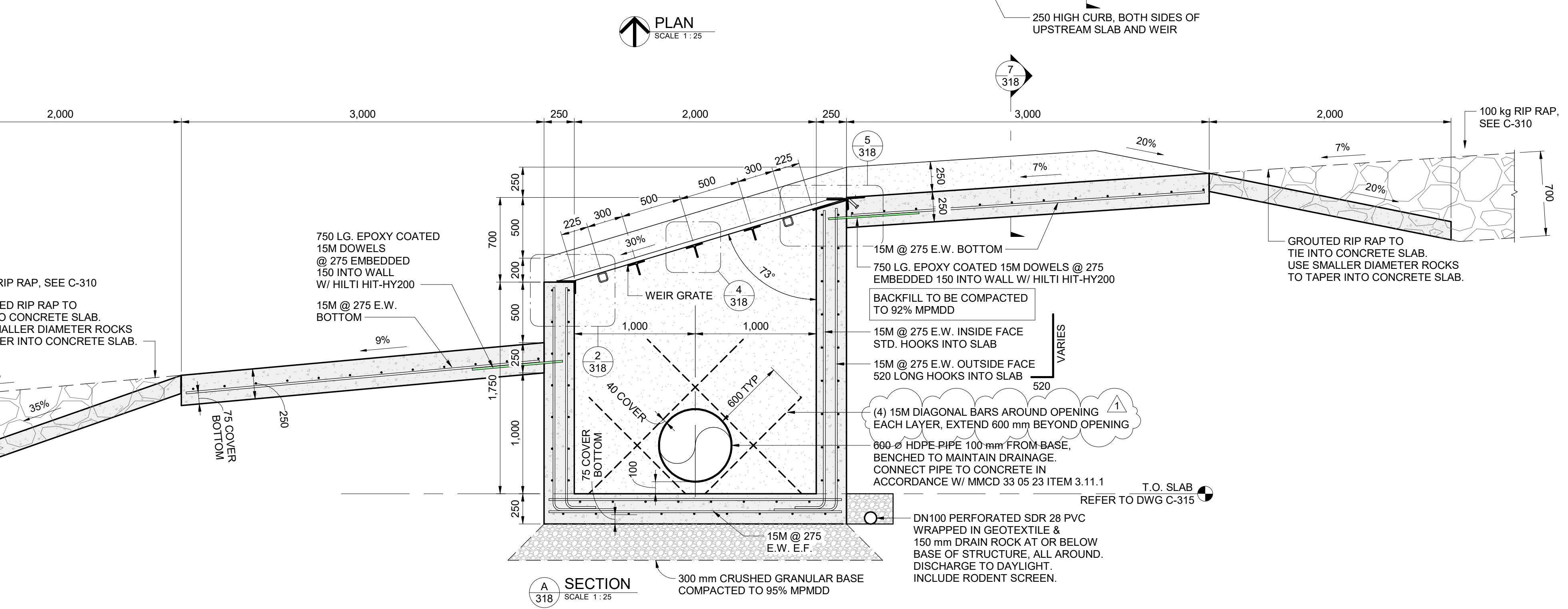
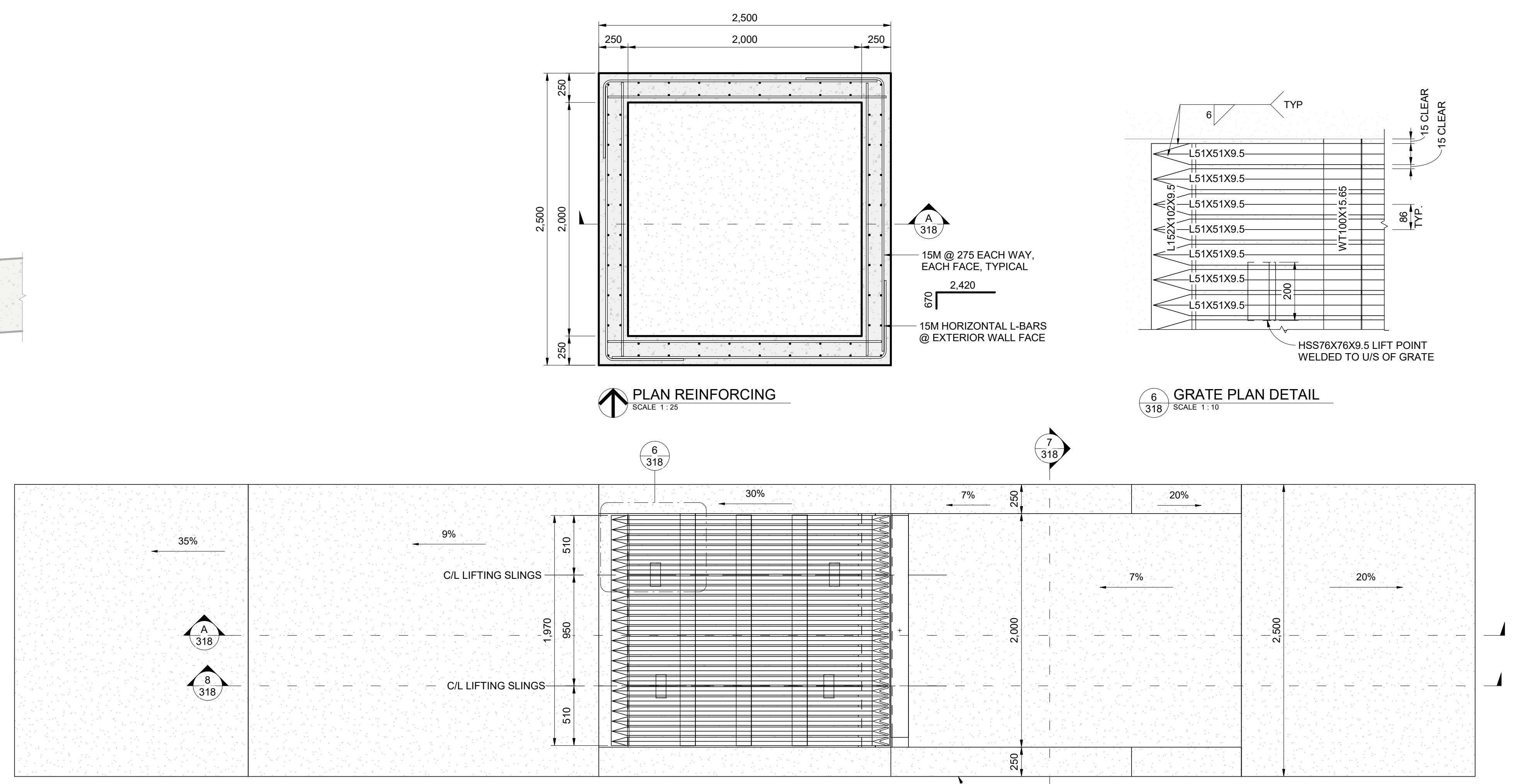
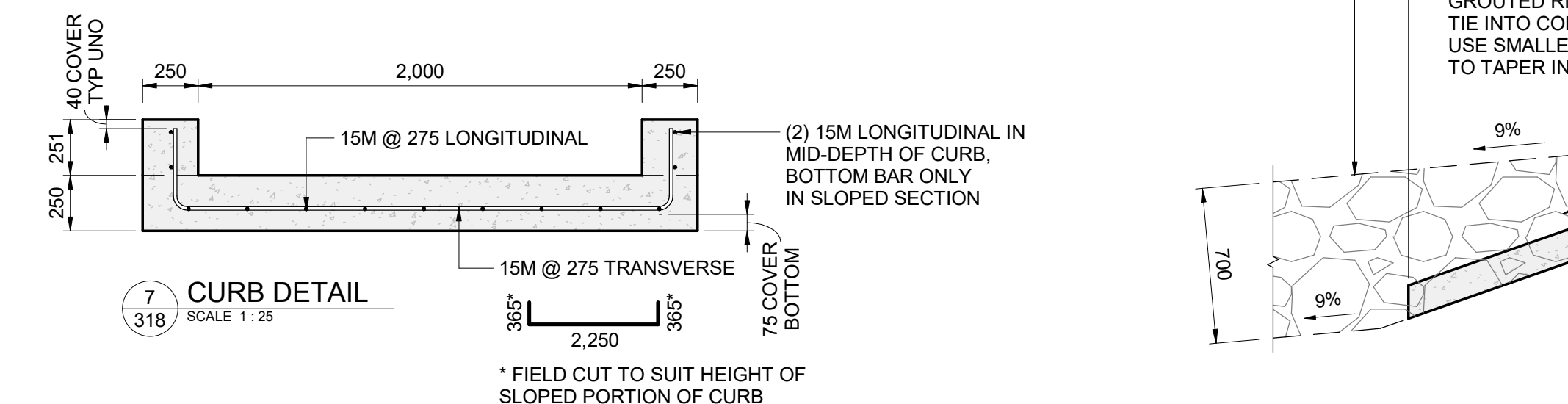
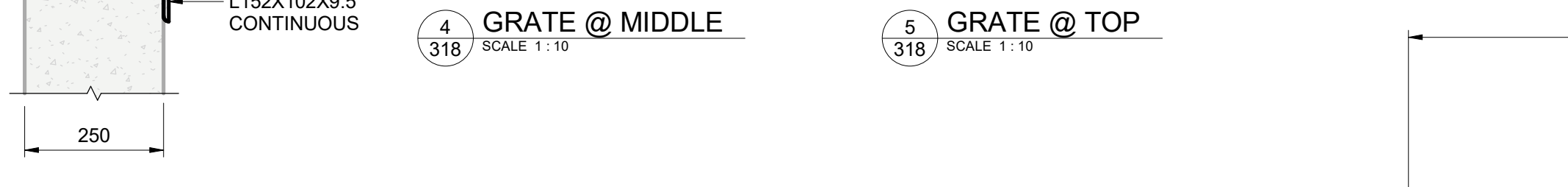
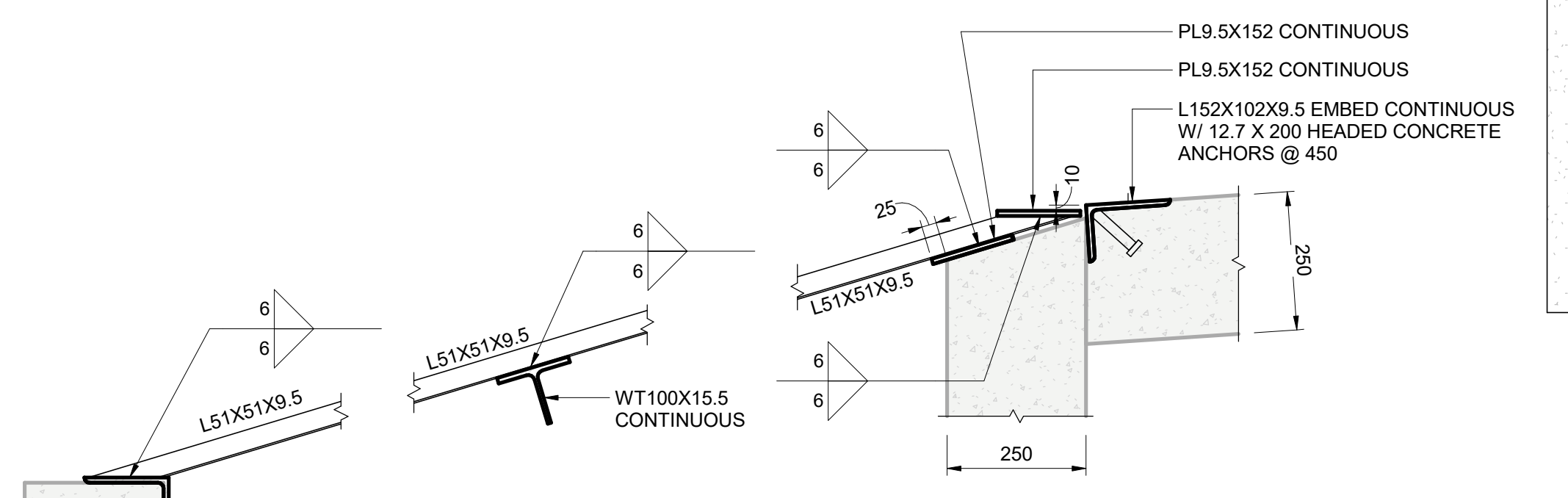
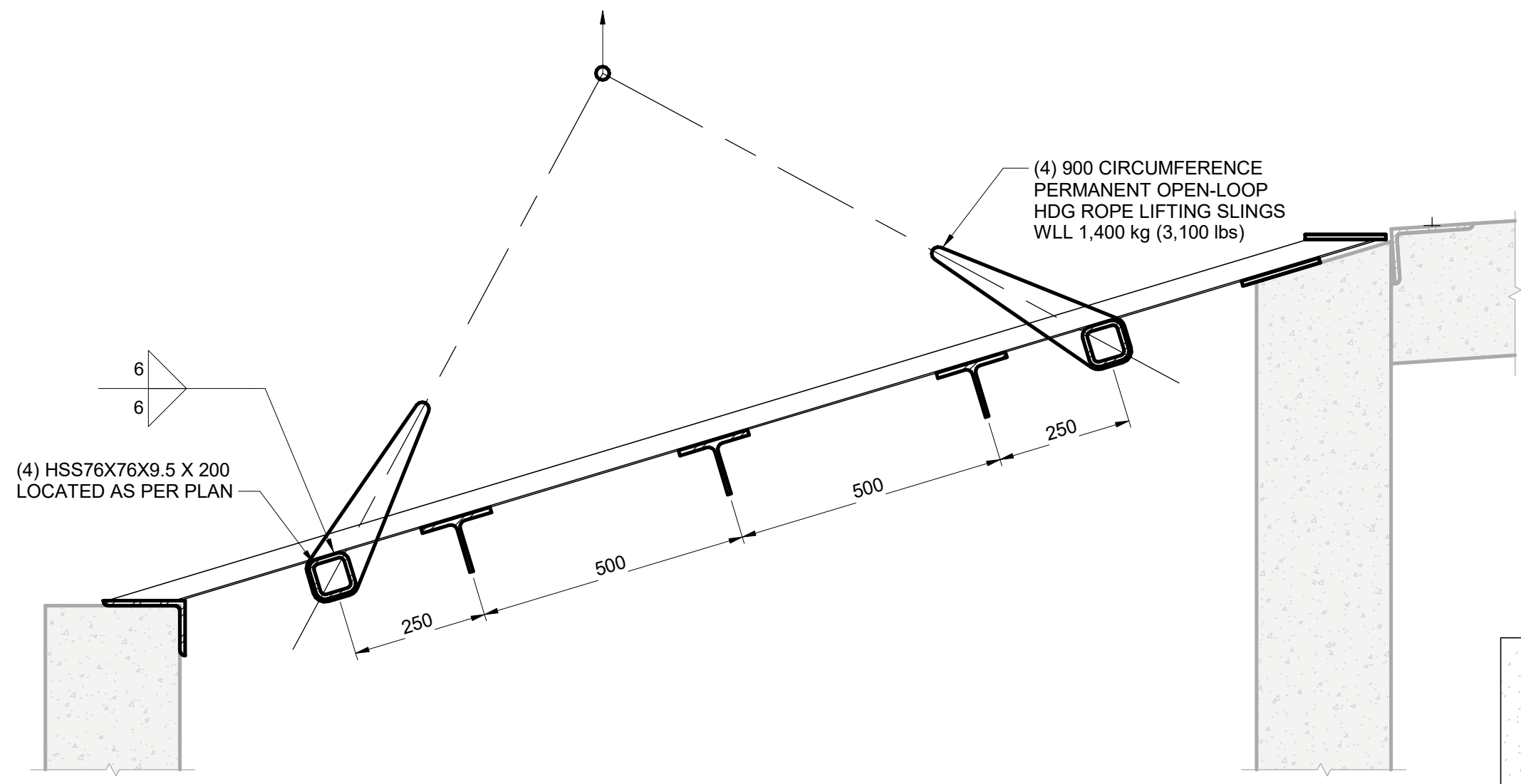
Project Number
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COPY ALL PRINTS BEARING PREVIOUS REVISION

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 FILE: U:\AS\TAL\CO\2441\Projects\2441-01186-00 - RDEK - Cold Spring Creek Debris Flow Mitigation Ph 210 - Drawings\11.0 Structural\2441-01186-00-S-14

NOTE:
 REFER TO DRAWING C-317 FOR STRUCTURAL SPECIFICATIONS
 REFER TO DRAWING C-315 FOR CIVIL DETAILS



Rev	Date	Description	Drawn	Design	App'd
1	2023-07-05	ISSUED FOR CONSTRUCTION	TRM	DM	SF
0	2023-03-31	ISSUED FOR TENDER	TRM	DM	SF

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**COLD SPRING CREEK
 DEBRIS FLOW MITIGATION
 INTAKE WEIR DETAILS 2 of 2**

Drawing No.
C-318

Project Number
 2441-01186

Rev.
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