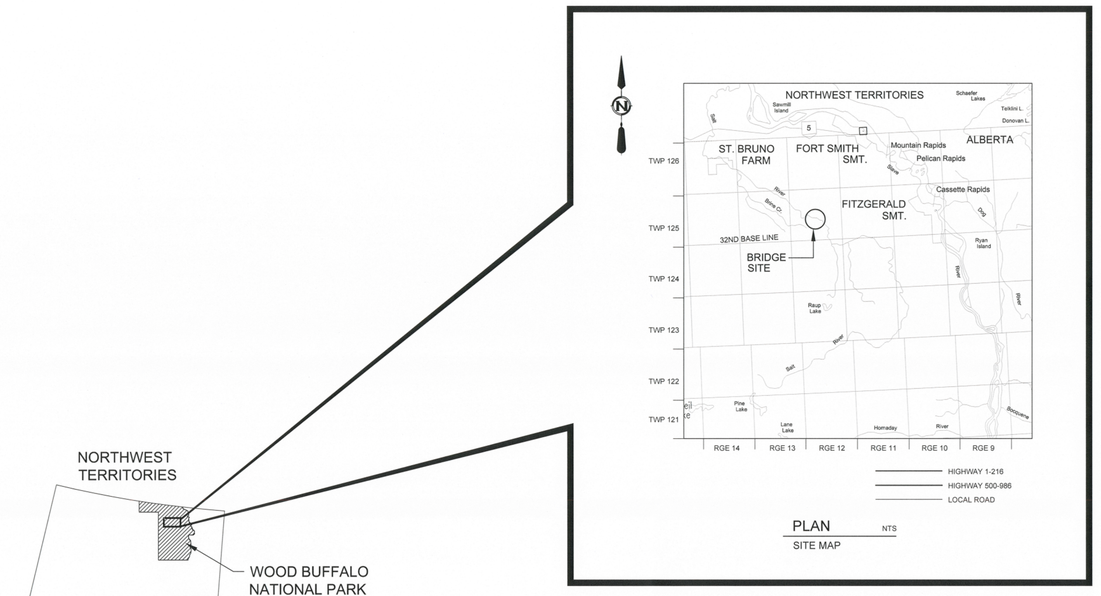
Public Works and Government Services Canada

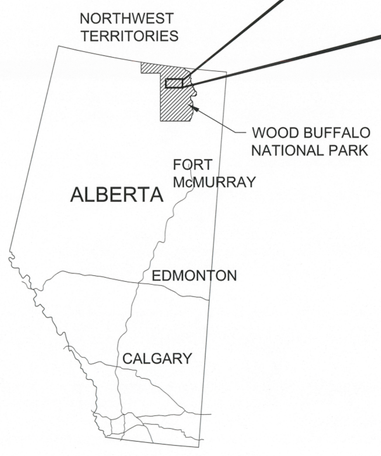
Travaux publics et Services gouvernementaux Canada

SALT RIVER BRIDGE REPAIR
WOOD BUFFALO NATIONAL PARK
ALBERTA CANADA
PROJECT NUMBER: R.076217.001

Drawing List Table				
Sheet #	DRAWING NUMBER	MAJOR DESCRITION	DRAWING DESCRITION	IN THIS SUBMISSION
GENERAL				
1	G-01	COVER PAGE	AND DRAWING LIST	ISSUED
CIVIL				
2	C-01	CIVIL WORKS		ISSUED
STRUCTURAL				
3	S-01	GENERAL ARRANGEMENT	AND NOTES	ISSUED
4	S-02	DEMOLITION AND REMOVALS		ISSUED
5	S-03	NEW CONSTRUCTION		ISSUED
STANDARD REFERENCE DRAWINGS				
	S-1653-00	PL-1 LOW HEIGHT THRIE BEAM BRIDGE RAIL		
	RDG B1.5	W-BEAM STRONG POST TL-3 FLEAT 350 ENERGY ABSORBING TERMINAL		



PLAN NTS
SITE MAP



PLAN NTS
LOCATION MAP

Canada

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P 3979

ASSOCIATED ENGINEERING QUALITY MANAGEMENT | QUALITY MANAGER | DATE 9-FEB-16 | PROJECT CAD LEAD | DATE 2016/02/16

No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
0	2016FEB08	ISSUED FOR TENDER & CONSTRUCTION	MDJ	MP

Revision / Revision

A detail number numéro de detail
B source drawing no. de dessin no.
C detail on drawing no. detail sur dessin no.

Consultant's Name
Nom de l'expert-conseil
Associated Engineering

Eng. Stamp
Sceau de l'ingenieur
PROFESSIONAL ENGINEER ALBERTA
2016-02-08

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

Client Services Team Southern Alberta Operations Branch
Le Client Entretient l'Équipe Alberta Méridional Branche d'Opérations

Canada

Client/client
Parks Canada Agency
L'Agence Parcs Canada

Western and Northern Region
Ouest et Nord du Canada

Project title/Titre du projet
SALT RIVER BRIDGE REPAIR
WOOD BUFFALO
NATIONAL PARK

Drawing title/Titre du dessin
COVER PAGE
AND DRAWING LIST

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
----	M. JARVIS	2015SEPT
Designed by/Concept par	Reviewed by/Revise par	Scale/Echelle
M. SCANLON	J. GAGNE	AS SHOWN

PWGSC Project Manager/Administrateur de Projets TPSGC

Client Acceptance/Acceptation du client
Park Responsible Officer/Agent Responsable

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PWGSC Project Manager/Administrateur de Projets TPSGC

Project No./No. du projet	Asset No./No. du-bien	Sheet No./ No. de la feuille
R.076217.001	---	1
Drawing Reference No./No. de référence du dessin		5
G-01		

AD 11IN x 8IN

NOTES:

1. COMPACTED FILL TO BE BENCHED AS REQUIRED.
2. VOLUME OF ALL BACKFILL MATERIAL:
   1. ROAD TAPERS: 250 m³.
   2. BRIDGE EMBANKMENTS: 360 m³.

AS 1188 x 841

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Sceau de l'ingenieur

PROFESSIONAL ENGINEER ALBERTA
2016-03-08

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WOOD BUFFALO NATIONAL PARK

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CIVIL
CIVIL WORKS

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
	M. REVET	2015Sep25
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
M. SCANLON	J. GAGNE	1:250

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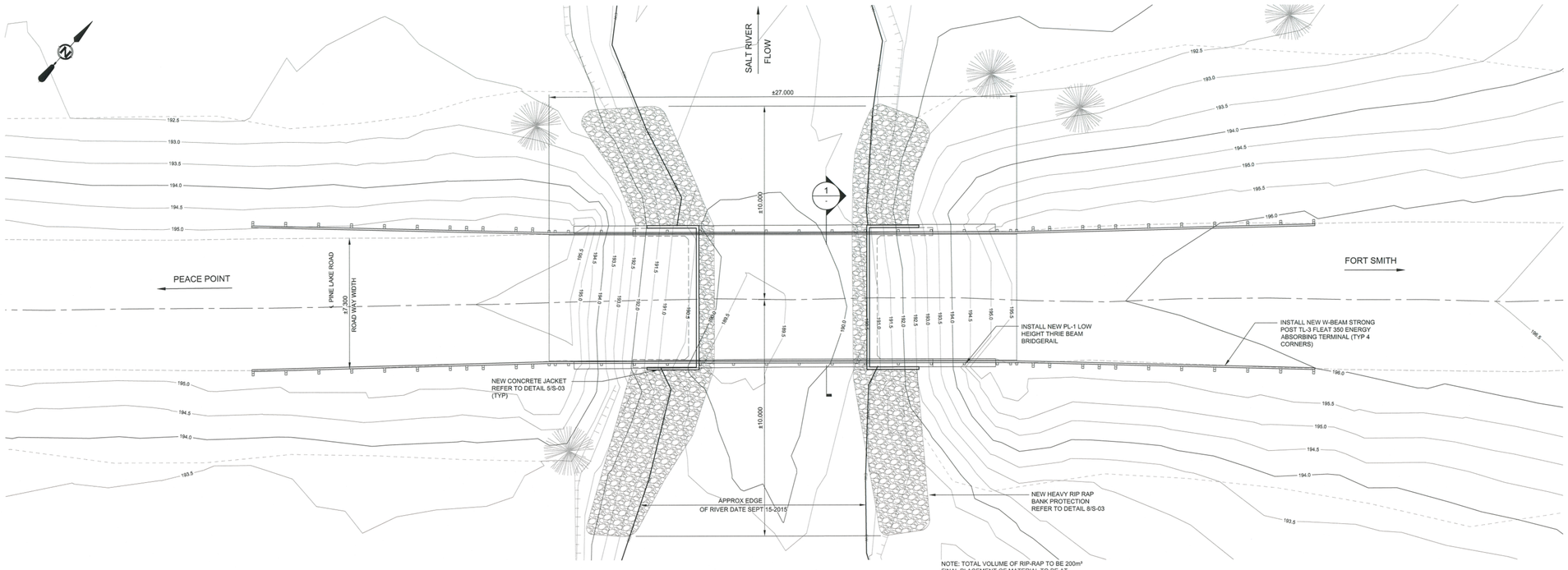
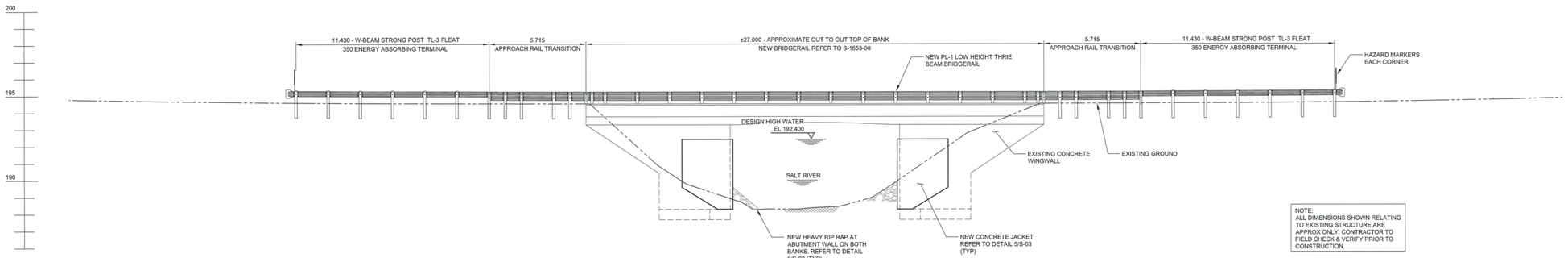
R.076217.001		2
Drawing Reference No./No. de référence du dessin		5
C-01		



PLAN 1:100



ELEVATION 1:100

NOTE:
ALL DIMENSIONS SHOWN RELATING TO EXISTING STRUCTURE ARE APPROX.ONLY. CONTRACTOR TO FIELD CHECK & VERIFY PRIOR TO CONSTRUCTION.

GENERAL NOTES

A. GENERAL

.1 ALL DIMENSIONS SHOWN ON THE GENERAL LAYOUT AND INFORMATION SHEETS ARE GIVEN IN METRES UNLESS NOTED OTHERWISE.
.2 ALL OTHER DRAWINGS ARE DIMENSIONED IN MILLIMETRES EXCEPT FOR STATIONS. ELEVATIONS AND COORDINATES ARE EXPRESSED IN METRES UNLESS NOTED OTHERWISE
.3 EXISTING DRAWINGS "DEPARTMENT OF PUBLIC WORKS CANADA, DEVELOPMENT ENGINEERING BRANCH STRUCTURES DIVISION, CONTRACT N0. 28 / 66 / WB-NA, No.1- No.4"

.1 DESIGN CRITERIA

.1 CAN/CSA S6-14 - CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBDC)

.2 REFERENCE SPECIFICATIONS

.1 CSA S350 "CODE OF PRACTICE FOR SAFETY IN DEMOLITION OF STRUCTURES"
.2 CSA A23.1 - "CONCRETE MATERIALS AND METHODS OF CONSTRUCTION"
.3 CSA W59 - "WELDED STEEL CONSTRUCTION"

.3 CONTRACTOR SHALL CHECK ALL DIMENSIONS AND DETAILS PRIOR TO CONSTRUCTION TO ENSURE COMPATIBILITY. ANY DISCREPANCIES OR DESIRED MODIFICATIONS SHALL BE REPORTED TO THE ENGINEER. ALL MATERIAL AND WORKMANSHIP TO CONFORM TO ALBERTA BUILDING CODE, LATEST EDITION.

.4 DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT PROJECT SPECIFICATIONS

.5 HYDROLOGY AND HYDRAULIC ASSESSMENT

.1 DRAINAGE AREA = 1654 Km²
.2 DESIGN DISCHARGE = 46 m³/S
.3 AVERAGE UPSTREAM AND DOWNSTREAM STREAMBED SLOPE = 0.003 mm

.6 SURVEY

.1 SURVEY BY OLLERHEAD AND ASSOCIATES LTD. UNDER THE DIRECTION OF ANTHONY BEST, COMPLETED ON SEPT 15 AND 16, 2015
.2 SURVEYED IN UTM (NORTH) ZONE 12 WITH A COMBINED SCALE FACTOR OF 0.99960875 USING CONTROL POINT 15
.3 BENCH MARKS BY OLLERHEAD AND ASSOCIATES LTD.
.1 CP 15, IRON BAR, LOCATED AT EL 200.916 M (N = 6631508.496 E = 445988.352)
.2 CP 16, IRON BAR, LOCATED AT EL 196.526 M (N = 6631405.197 E = 445748.752)
.4 DIMENSION SHOWN ARE TO GROUND. CONTROL POINTS ARE TO UTM GRID COORDINATES

.7 EXISTING STRUCTURE

.1 THE EXISTING BRIDGE STRUCTURE COMPRISES OF A CAST-IN-PLACE CONCRETE RIGID FRAME ON CONCRETE SPREAD FOOTING FOUNDATION. THE BRIDGE HAS A 9.1 m MAIN SPAN, AN OVERALL LENGTH OF 27 m

B. REINFORCED CONCRETE

1. CONCRETE
1.1 CONCRETE COMPRESSIVE STRENGTH f'c - 35MPa @ 28 DAYS
1.2 CONCRETE AS PER SPECIFICATION SECTION 033000
1.3 ALL CONCRETE AND REINFORCED CONCRETE IN ACCORDANCE WITH CSA A23.1
1.4 FOR CONCRETE FINISHES REFER TO SPECIFICATIONS
1.5 PROVIDE 20mm CHAMFER AT ALL EXPOSED EDGES UNLESS NOTED OTHERWISE
1.6 WET-CURE CONCRETE MINIMUM OF 7 DAYS AS SPECIFIED

2. REINFORCEMENT
2.1 ALL CONCRETE REINFORCEMENT IN ACCORDANCE WITH CSA G30.18
2.2 REINFORCING BARS TO BE BILLET STEEL, DEFORMED BARS, GRADE 400R
2.3 ACCURATELY PLACE REINFORCEMENT AND SECURE AGAINST DISPLACEMENT DURING CONCRETE PLACING. SUPPORTS HALL BE BY MEANS OF GALVANIZED OR PLASTIC CHAIRS, SPACERS OR GALVANIZED HANGERS AND THE RECOMMENDATIONS OF REINFORCING STEEL - MANUAL OF STANDARD PRACTICE" (REINFORCING INSTITUTE OF CANADA).
2.4 USE CLASS 'B' SPLICE UNLESS SHOWN OTHERWISE ON DRAWINGS. STAGGER SPLICES IN SLABS.
2.5 PROVIDE 75 mm COVER FOR REINFORCEMENT UNLESS NOTED OTHERWISE.

C. STRUCTURAL AND MISCELLANEOUS STEEL

.1 ALL WELDING SHALL BE IN ACCORDANCE WITH W59
.2 FABRICATION AND ERECTION OF WELDED STRUCTURAL STEEL SHALL BE PERFORMED BY SHOPS CERTIFIED IN ACCORDANCE WITH CSA W47.1, DIVISION 1 OR 2
.3 FABRICATOR SHALL ASSUME RESPONSIBILITY FOR THE DESIGN OF ALL STRUCTURAL CONNECTIONS. CONNECTIONS SHALL BE SHOP WELDED AND FIELD BOLTED UNLESS SPECIFIED OTHERWISE.
.4 FABRICATE AND ERECT STRUCTURAL STEEL TO CSA CAN3-S16.1 SUBMIT SHOP DRAWINGS SHOWING ALL DETAILS AND MATERIAL SPECIFICATIONS FOR REVIEW PRIOR TO FABRICATION.
.5 PROVIDE STRUCTURAL STEEL TO CSA G40.21 WITH THE FOLLOWING GRADES:

CHANNELS AND ANGLES	300W
HSS SECTIONS (CLASS C)	350W
STRUCTURAL BARS AND PLATES	300W
MISCELLANEOUS STEEL	300W

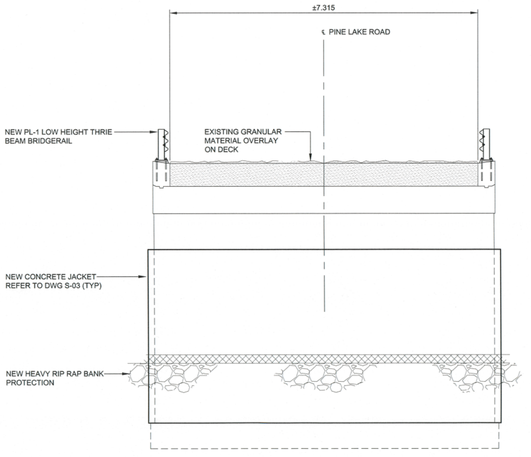
6. PROVIDE ERECTION BOLTS TO ASTM A325, MINIMUM 19mm DIAMETER. DESIGN BOLTED CONNECTIONS TO ASTM A325 FOR THREADS EXCLUDED FROM SHEAR PLANE. TIGHTEN BOLTS BY THE "TURN OF NUT" METHOD TO BOLT TENSIONS SPECIFIED IN CSA S16.1 ANCHOR BOLTS TO ASTM A307 (UNLESS NOTED OTHERWISE)
.7 WELD TO CSA W59 BY FABRICATORS CERTIFIED TO CSA W47.1 DIV.1 OR DIV. 2.1.1. WELDING OF REINFORCING SHALL CONFORM TO CSA W186.
.8 HOT DIP GALVANIZE ALL STEEL AFTER FABRICATION U.N.O. CLEAN ALL SURFACES FROM RUST AND FOREIGN MATTER BEFORE GALVANIZING. GALVANIZE TO CSA G164 610G/M² MIN. COATING.
.9 PAINT FIELD WELDS WITH ZINC-RICH PAINT, ZINGA OR EQUIVALENT.

D. CONSTRUCTION NOTES

.1 THE CONTRACTOR SHALL EXAMINE AND VERIFY SITE CONDITIONS, DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION COMMENCEMENT OF WORK AND REPORT DISCREPANCIES TO THE CONSULTANT
.2 ADEQUATE ACCESS SHOULD BE PROVIDED TO FACILITATE INSPECTION BY THE CONSULTANT OF THE ENTIRE WORK AND PERFORMANCE OF THE CONTRACTOR WORK
.3 CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY THE WORK TO THEIR ORIGINAL CONDITION TO THE SATISFACTION OF THE CONSULTANT
.4 THE DEPOSITION OF DELETERIOUS MATERIALS IN THE WATERCOURSE IS PROHIBITED
.5 DISTURBANCE OF THE BED AND BANKS OF SALT RIVER ARISING FROM ANY ACTIVITY OR EQUIPMENT USED IN THE CONSTRUCTION IS TO BE KEPT TO A MINIMUM AND CONFINED TO THE IMMEDIATE WORK SITE
.6 ALL REMOVED MATERIALS TO BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH PROVINCIAL GUIDELINES
.7 CONTRACTOR TO COORDINATE WITH ANY AFFECTED UTILITIES FOR RELOCATION, TEMPORARY DISCONNECTION OR SUPPORT

E. DEMOLITION NOTES

.1 EQUIPMENT AND METHODS FOR UNSOUND CONCRETE REMOVAL MUST NOT INCLUDE VIBRATIONS THAT MAY INDUCE CRACKING.
.2 CUT REINFORCING 40mm BACK FROM CONCRETE SURFACE AND PATCH WITH WATERPROOF GROUT.
.3 NO OVER CUTTING.



1/- SECTION 1:50

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P 3979

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PROFESSIONAL ENGINEER ALBERTA
2016-02-08

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SALT RIVER BRIDGE REPAIR
WOOD BUFFALO NATIONAL PARK

Drawing title/Titre du dessin
STRUCTURAL GENERAL ARRANGEMENT AND NOTES

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
----	M. JARVIS	2015SEPT
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
M. SCANLON	J. GAGNE	AS SHOWN

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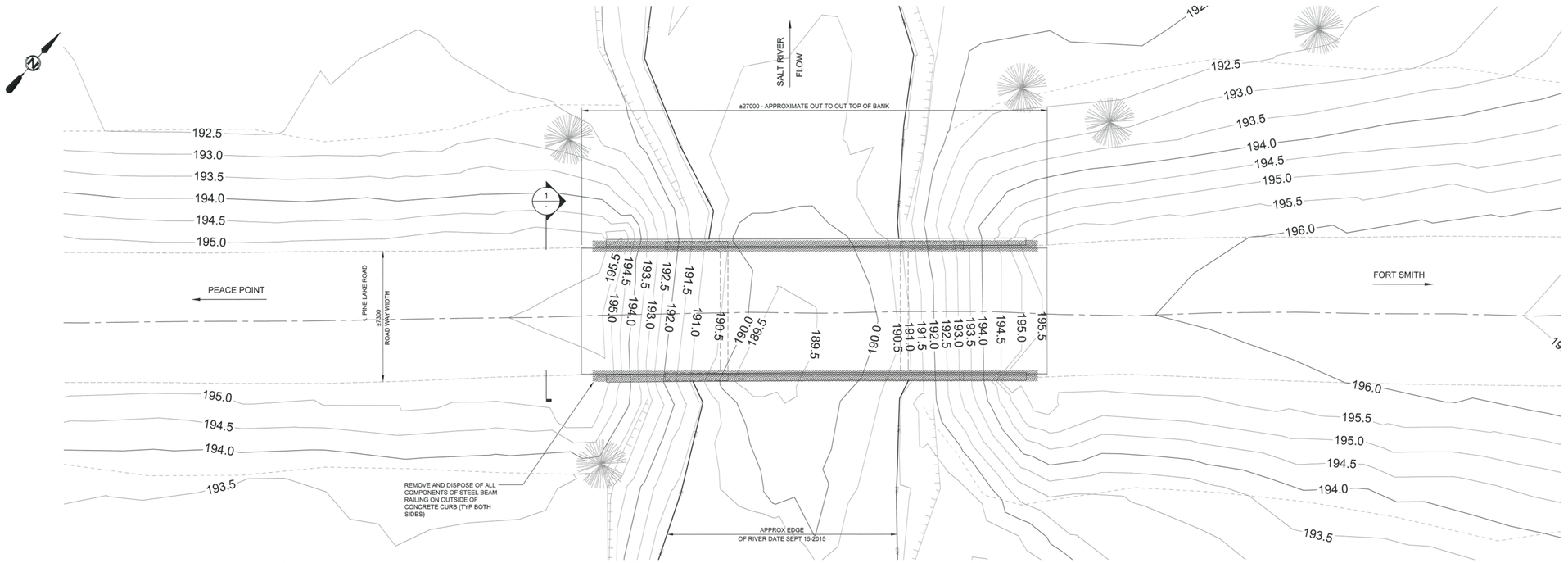
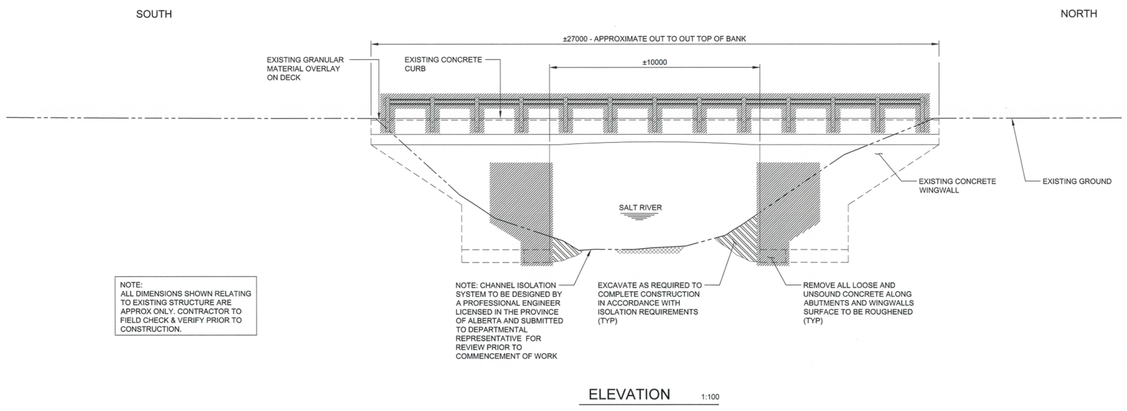
R.076217.001		3
Drawing Reference No./No. de reference du dessin: S-01		5

A0 1189 x 841



PLAN 1:100



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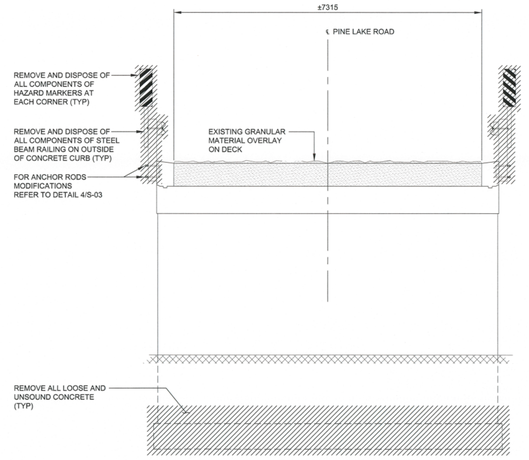
ELEVATION 1:100



1 SECTION 1:50

APEGA
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P 3979

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Associated Engineering

Eng. Stamp / Sceau de l'ingenieur
PROFESSIONAL ENGINEER PROVINCE OF ALBERTA
2016-02-08

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada
Client Services Team Southern Alberta Operations Branch
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WOOD BUFFALO
NATIONAL PARK

Drawing title/Titre du dessin
STRUCTURAL
DEMOLITION AND REMOVALS

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
----	M. JARVIS	2015SEPT
Designed by/Concept par	**Reviewed by/Revisé par**	**Scale/Echelle**
M. SCANLON	J. GAGNÉ	AS SHOWN

PWGSC Project Manager/Administrateur de Projets TPSGC

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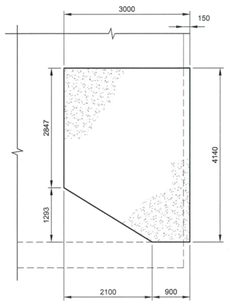
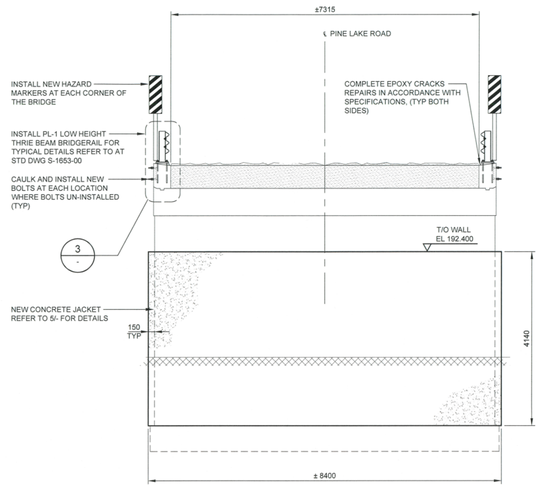
R.076217.001	----	4 / 5
Drawing Reference No./No. de référence du dessin		
S-02		

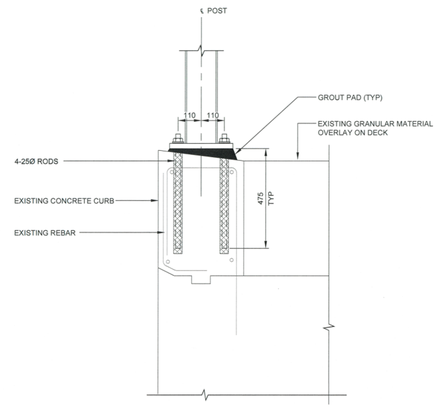
A0 1189 x 841



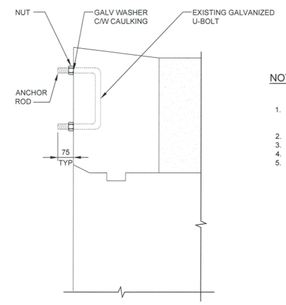
1 ELEVATION 1:50
ABUTMENT SIDE



2 ELEVATION 1:50
ABUTMENT FRONT



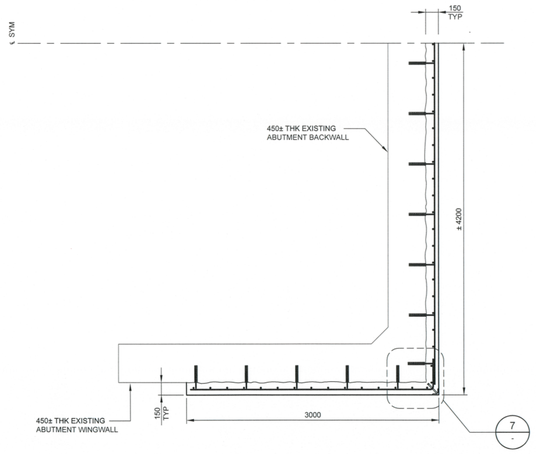
3 DETAIL 1:10
ANCHOR BOLT ASSEMBLY



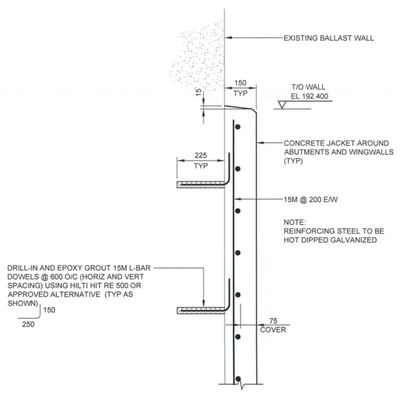
4 DETAIL 1:10
EXISTING ANCHOR BOLT MODIFICATION

NOTES:

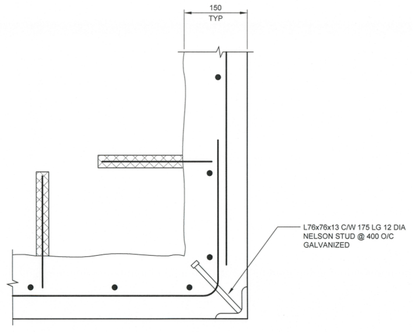
1. TO REMOVE POST CAREFULLY, REMOVE NUTS AVOIDING DAMAGE TO ANCHOR RODS
2. INSTALL WASHER C/W CAULKING
3. RE-INSTALL NUTS
4. CUT ANCHOR RODS
5. TREAT ANCHOR ROD CUT ENDS WITH GALVANIZE



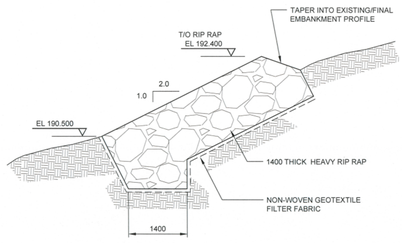
5 PARTIAL PLAN 1:25
S-01 CONCRETE JACKET



6 DETAIL 1:10



7 DETAIL 1:5



8 SECTION 1:50
S-01 BANK PROTECTION REPAIRS

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STRUCTURAL
NEW CONSTRUCTION

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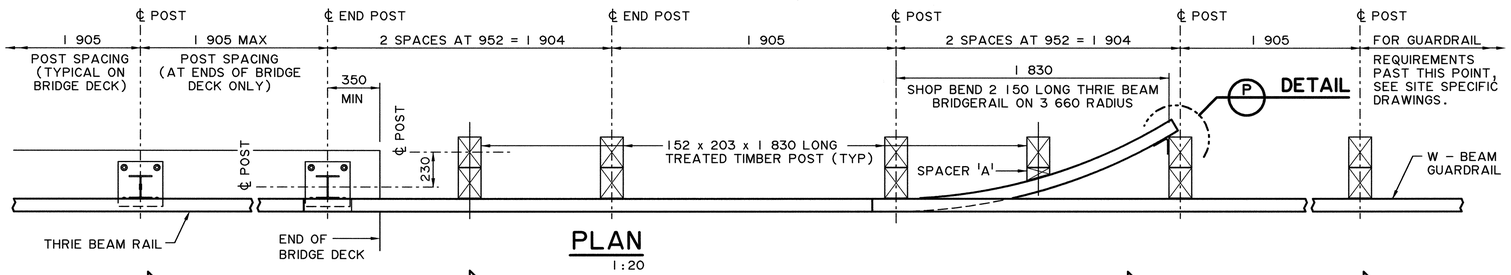
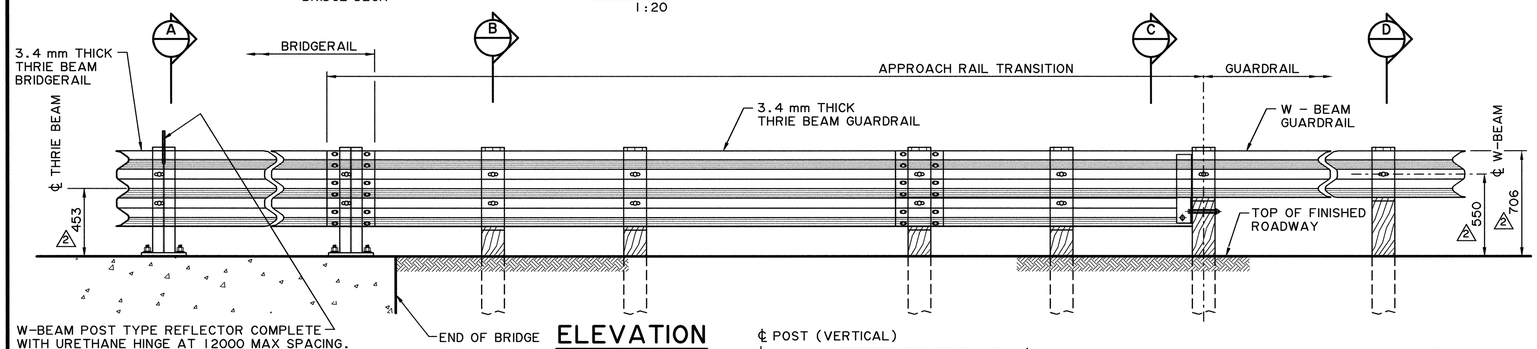
S–03		

AD 1189 x 841

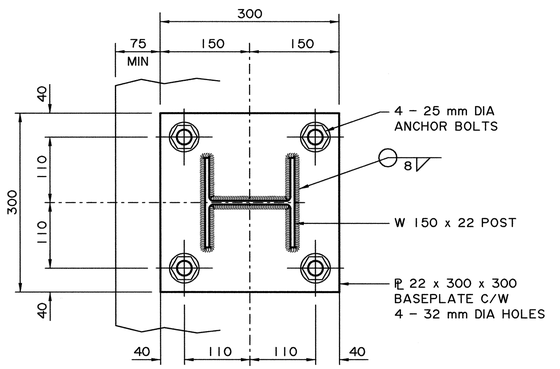


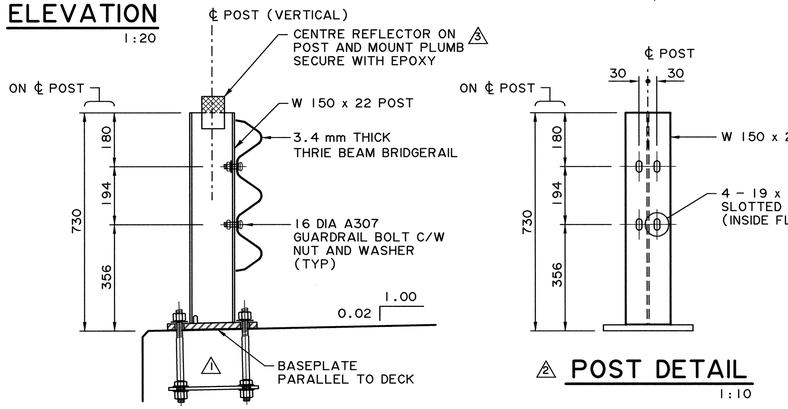
PLAN
1:20



ELEVATION
1:20

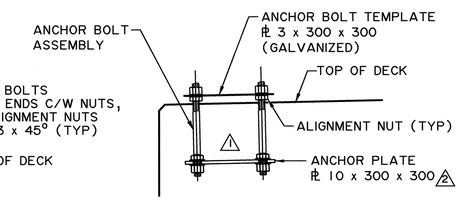
W-BEAM POST TYPE REFLECTOR COMPLETE WITH URETHANE HINGE AT 12000 MAX SPACING. REFLECTOR IS DOUBLE SIDED SHEETING 108 mm x 76 mm (MIN) MEETING ASTM D4956 TYPE IX OR XI FOR LUMINANCE LEVEL. SHEETING COLOR TO BE FLOURESCENT YELLOW OR WHITE TO MATCH PAVEMENT EDGE LINE. 3





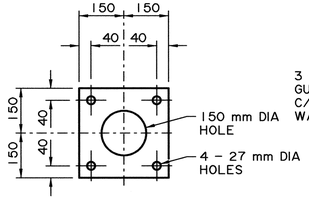
A SECTION
1:10

2 POST DETAIL
1:10



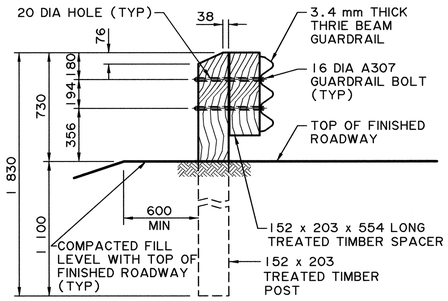
ANCHOR BOLT ASSEMBLY DETAIL
1:5

NOTE:
ANCHOR BOLT ASSEMBLY SHALL BE MINIMUM 25 mm CLEAR FROM BOTTOM OF DECK.

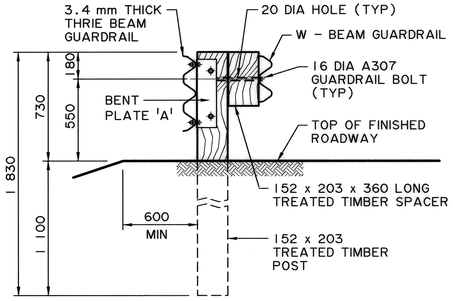


ANCHOR PLATE AND ANCHOR BOLT TEMPLATE DETAIL
1:10

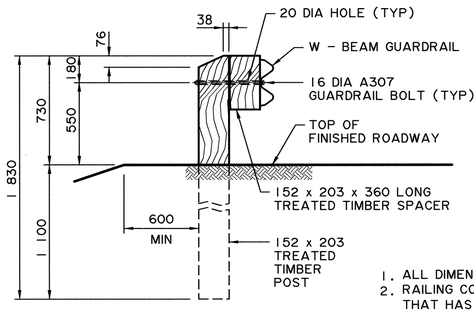
NOTE:
ANCHOR BOLT TEMPLATE C/W NUTS AND ALIGNMENT NUTS TO BE INSTALLED DURING FABRICATION OF ANCHOR BOLT ASSEMBLIES. ANCHOR BOLT TEMPLATE AND ALIGNMENT NUTS TO BE REMOVED AFTER PLACING OF DECK CONCRETE AND PRIOR TO INSTALLATION OF W150x22 POST.



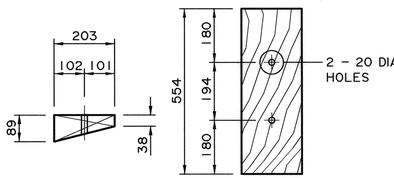
B SECTION
1:20



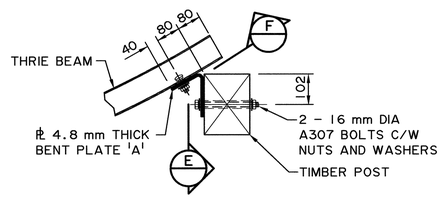
C SECTION
1:20



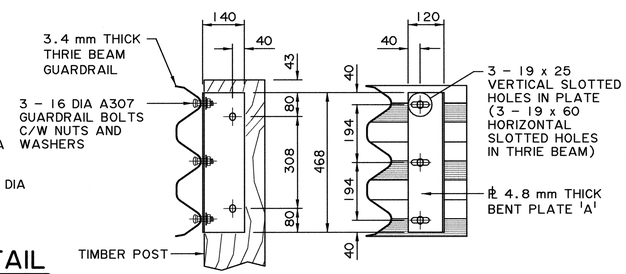
D SECTION
1:20



SPACER 'A' DETAIL
1:10



P BENT PLATE DETAIL
1:10



E SECTION
1:10

F SECTION
1:10

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. RAILING CONFIGURATION IS BASED ON A RAILING CONFIGURATION THAT HAS BEEN CRASH TESTED AND MEETS THE REQUIREMENTS OF PERFORMANCE LEVEL 1 OF THE AASHTO GUIDE SPECIFICATIONS FOR BRIDGE RAILING, 1989.
3. RAILING SHALL NOT BE USED WITH CURB.
4. RAILING SHALL BE USED FOR CLEAR ROADWAYS LESS THAN 9.0 m ONLY.
5. DESIGN OF DECK REBAR SHALL BE CARRIED OUT ON A SITE SPECIFIC BASIS TO DEVELOP THE CAPACITY OF THE BRIDGERAIL POSTS, BASED ON Fy = 350 MPa. 1

FABRICATION

1. BRIDGERAIL, INCLUDING APPROACH RAIL TRANSITION, SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE SPECIFICATIONS FOR BRIDGE CONSTRUCTION SECTION 12 - BRIDGERAIL AND SECTION 14 - GUARDRAIL.
2. ALL PLATE STEEL AND STRUCTURAL SHAPES SHALL CONFORM TO CSA G40.21 GRADE 350W OR ASTM A36. 1
3. ALL ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A193 GRADE B7 (Fy = 725 Mpa, Fu = 860 Mpa). ALL NUTS AND WASHERS SHALL CONFORM TO A325. GALVANIZING SHALL STRICTLY FOLLOW THE FOLLOWING PROCEDURE WITH THE PRESENCE OF THE CONSULTANT: 1
   - BRUSH BLAST ANCHOR BOLTS TO REMOVE MILL SCALE AND OIL AFTER THREADING ENDS.
   - FLASH PICKLING NOT TO EXCEED 5 MINUTES.
   - QUICK DRY PRIOR TO HOT-DIP GALVANIZING (DO NOT STORE IN FLUX OR ACID RINSE).
4. ALL W-BEAM AND THRIE BEAM GUARDRAIL (INCLUDING W-THRIE BEAM TRANSITION SECTION) SHALL HAVE A MIN. YIELD STRENGTH OF 345 MPa.
5. TIMBER POSTS AND SPACERS SHALL BE COAST DOUGLAS FIR, PACIFIC COAST HEMLOCK OR LODGEPOLE PINE CONFORMING TO THE STRESS GRADE "SELECT STRUCTURAL POSTS AND TIMBERS" (NLGA PARAGRAPH 131 a). 1
6. ALL WELDING SHALL CONFORM TO CURRENT AWS SPECIFICATION D1.5.
7. ALL STEEL MATERIALS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123/A123M AND ASTM F2329 UNLESS NOTED OTHERWISE. 3

ERECTION

1. BRIDGERAIL ANCHOR BOLTS SHALL BE TIGHTENED AN ADDITIONAL ½ TURN OF THE NUT PAST THE "SNUG TIGHT" CONDITION.
2. ALL POSTS SHALL BE PERPENDICULAR TO GRADE.
3. ALL DIMENSIONS ARE MEASURED PARALLEL TO TOP OF BRIDGE DECK AND ALONG THE CENTRELINE OF ANCHOR BOLT ASSEMBLIES.
4. LINE AND ELEVATION OF RAIL SHALL HAVE A TOLERANCE OF 6 mm.
5. ALL NON-STANDARD GUARDRAIL LENGTHS SHALL BE SAW CUT TO SUIT AND ALL NON-STANDARD GUARDRAIL HOLES SHALL BE DRILLED. FLAME CUTTING OF GUARDRAIL SHALL NOT BE ALLOWED. APPLY TWO COATS OF ZINC RICH PAINT ON AREAS DAMAGED BY SAW CUTTING OR DRILLING.

UMA Engineering Ltd.
Engineers, Planners & Surveyors

PERMIT TO PRACTICE
UMA ENGINEERING LTD.
PERMIT NUMBER: P 5778
ORIGINAL SIGNED AND STAMPED
BY: ART WASHUTA
ON: NOVEMBER 21, 2000
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

DESIGNER
PROFESSIONAL ENGINEER ALBERTA — ORIGINAL STAMPED AND SIGNED — BY: R. J. RAMSAY — ON: NOV 21, 2000
DATE _____

CHECKER
PROFESSIONAL ENGINEER ALBERTA — ORIGINAL STAMPED AND SIGNED — BY: D. B. SERINK — ON: NOV 21, 2000
DATE _____

REV	DATE	REVISIONS	BY
6			
5			
4			
3	2011-12-22	REFLECTORS ADDED	CM
2	2007-02-14	APPROACH RAIL HEIGHT	RY
1	2004-03-01	GENERAL NOTES	RY

RECOMMENDED
DIRECTOR BRIDGE ENGINEERING
ORIGINAL SIGNED BY
REG QUINTON

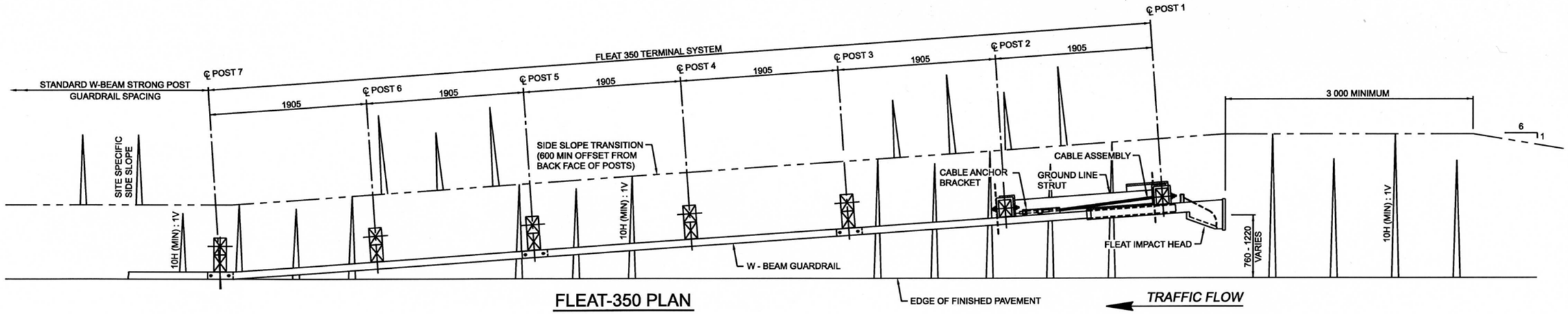
APPROVED
EXECUTIVE DIRECTOR
TECHNICAL STANDARDS BRANCH
ORIGINAL SIGNED BY
TIM HAWNT
DATE NOV 22, 2000

Alberta INFRASTRUCTURE

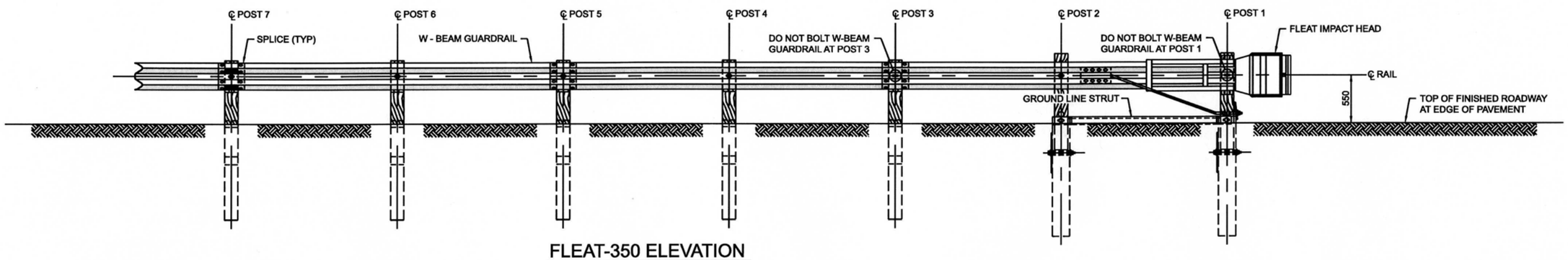
PL-1 LOW HEIGHT THRIE BEAM BRIDGERAIL

AI BAR CODE	DATE	SHEET	DRAWING
	2000-03-27	OF	S-1653-00

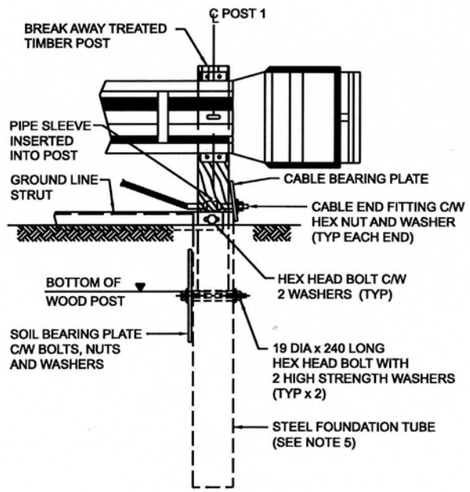
NH 2011-12-22 S1653x00.rv3



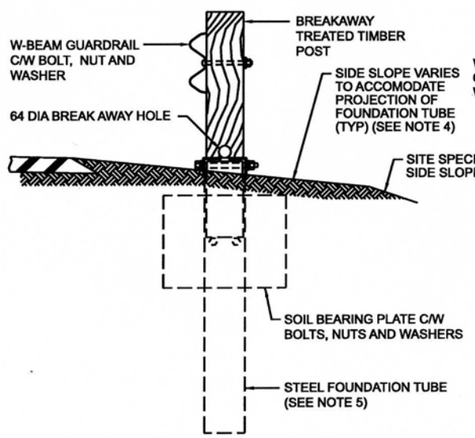
FLEAT-350 PLAN



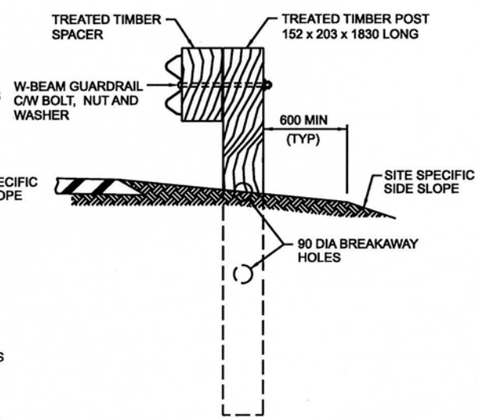
FLEAT-350 ELEVATION



POST 1 ELEVATION
DO NOT BOLT W-BEAM GUARDRAIL TO POST 1



POST 2 SECTION



POSTS 3, 4, 5, 6, AND 7 SECTION
(DO NOT BOLT W-BEAM GUARDRAIL TO POST 3)

POST DETAILS

NOTES:

1. THE FLEAT 350 SYSTEM DEPICTED ON THIS DRAWING IS PROPRIETARY TO ROAD SYSTEMS INC (RSI) AND MEETS THE REQUIREMENTS OF NCHRP REPORT 350 FOR TEST LEVEL 3 (TL-3). THE INSTALLATION OF THIS SYSTEM SHALL BE AS PER THE RSI INSTALLATION MANUAL.
2. THIS DRAWING SHOWS THE INSTALLATION OF THE RIGHT SHOULDER EXTRUDER TERMINAL. FOR LEFT SHOULDER INSTALLATIONS, SUCH AS FOR UNIDIRECTIONAL TRAFFIC OR DIVIDED HIGHWAYS WITH WIDE MEDIANS, THE EXTRUDER TERMINAL SHOWN IS INVERTED.
3. RAIL SECTIONS ARE TO BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.
4. TOP OF FOUNDATION TUBES SHALL BE SET BETWEEN 64 AND 76 ABOVE THE TOP OF PAVED SHOULDER EDGE AND SHALL NOT PROJECT MORE THAN 100 ABOVE THE FINISHED SIDE SLOPE GRADE AT POST.
5. FOR POSTS 1 AND 2, THE FOLLOWING FOUNDATION TUBES MAY BE USED:
   a. 1830 LONG SPLIT OR SOLID FOUNDATION TUBES WITHOUT SOIL BEARING PLATES.
   b. 1524 LONG SOLID OR 1370 LONG SOLID FOUNDATION TUBES WITH SOIL BEARING PLATES.
6. TO ENSURE PROPER DELINEATION, REFLECTIVE SHEETING ON THE FRONT FACE OF THE FLEAT 350 HEAD SHALL BE PROVIDED AS PART OF THE INSTALLED SYSTEM.
7. POST 3 MARKS THE BEGINNING OF THE CALCULATED LENGTH OF NEED.
8. ALL FITTINGS AND HARDWARE SHALL BE GALVANIZED.
9. POSTS SHALL BE SET BY INSTRUMENT FOR ALIGNMENT AND GRADE.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.

No.	REVISIONS	BY	DATE
2			
1			

Approved:
Executive Director,
Technical Standards Branch

Date: NOVEMBER, 2007

Alberta
INFRASTRUCTURE AND TRANSPORTATION

W-BEAM STRONG POST TL-3 FLEAT 350 ENERGY ABSORBING TERMINAL

Prepared By: MO	Checked By: WS	Scale: N.T.S.	Dwg No.: RDG-B1.5