

PETAWAWA RESEARCH FOREST BRIDGE REHABILITATION

CHALK RIVER, ONTARIO



OWNER

PETAWAWA RESEARCH FOREST
1000 CLOUTIER ROAD
P.O. BOX 2000
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PRIME CONSULTANT

MET ENERGY SYSTEMS
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SAULT STE. MARIE, ON
P6A 1Z5
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tsjanzen@meteng.on.ca



PROJECT No. 14-1103

STRUCTURAL CONSULTANT

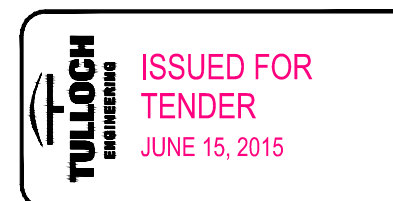
TULLOCH ENGINEERING INC.
DAN MOODY, A.Sc.T.
71 BLACK ROAD, UNIT #8
SAULT STE. MARIE, ON
P6B 0A3
ph (705) 949-1457
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CORRY LAKE BRIDGE



YOUNG'S CREEK BRIDGE



NOTES

GENERAL

ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND O.REG. 213/91 (REGULATIONS FOR CONSTRUCTION PROJECTS).

CHECK ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS PRIOR TO STARTING WORK. REPORT ANY DISCREPANCIES TO THE CONSULTANT BEFORE PROCEEDING WITH THE WORK.

THE CONTRACTOR SHALL REVIEW THE SITE CONDITIONS AND ASSUME RESPONSIBILITY FOR EXISTING SERVICES (WATER, POWER, SEWER, GAS, ETC.) THAT POTENTIALLY EXISTS AT THE SITE.

PROVIDE ALL REQUIRED TEMPORARY WORKS INCLUDING SHORING, SCAFFOLDING AND UNDERPINNING TO EXECUTE THE PROJECT SAFELY.

FEATURES OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME CHARACTER AS SHOWN FOR SIMILAR CONDITIONS.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING (AND PAYING ALL COSTS ASSOCIATED WITH) ALL REQUIRED PERMITS.

ROAD CLOSURES

THE CONTRACTOR SHALL ENSURE THAT THE CLIENT IS NOTIFIED A MINIMUM OF 1 WEEK IN ADVANCE OF ALL ROAD CLOSURES.

TRAFFIC CONTROL

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SHALL SUPPLY AND PROPERLY PLACE ALL SIGNS REQUIRED TO MAINTAIN TRAFFIC CONTROL. THE CONTRACTOR SHALL ENSURE THAT ALL SIGNS ARE ON THE SITE AND PROPERLY PLACED TWENTY-FOUR (24) HOURS PRIOR TO COMMENCEMENT OF ANY WORK. THE SIGNS AND PLACEMENT SHALL CONFORM TO THE MINISTRY OF TRANSPORTATION OF ONTARIO TRAFFIC MANUAL.

THE CONTRACTOR SHALL ALSO SUPPLY AND PLACE IN THE PROPER LOCATION ROUGH ROAD SIGNS, AND REDUCED SPEED LIMIT SIGNS.

TIMBER NOTES

ALL TIMBERS AND RUNNING BOARDS SHALL BE S.P.F. ROUGH SAWN.

ALL TIMBERS TO BE PRESSURE TREATED WITH ALKALINE COPPER QUATERNARY (ACQ) OR COPPER AZOLE (CA) IN ACCORDANCE WITH CAN/CSA-080 SERIES-08 (R2012).

ALL FIELD CUTS & HOLES TO BE LIBERALLY PAINTED WITH COPPER NAPHTHANATE PRESERVATIVE.

ALL LUMBER INSTALLATIONS (I.E. RUNNING BOARDS) TO BE FASTENED WITH 4" GALVANIZED ARDOX SPIKES. TWO (2) AT EACH END AND ONE (1) AT 16" c/c ALTERNATING SIDES.

ALL TIMBER INSTALLATIONS TO BE FASTENED WITH 5" GALVANIZED ARDOX SPIKES. TWO (2) AT EACH END AND ONE (1) AT 16" c/c ALTERNATING SIDES.

GALVANIZED HARDWARE NOTES

ALL METAL & BOLTS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE TO CSA G164

ALL NAILS AND SPIKES TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH CSA B111

ALL TIMBER BOLTS TO BE GRADE A307

STRUCTURAL STEEL

ALL STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH CSA S16.1, GRADE 350W MINIMUM.

FABRICATION, ERECTION AND WORKMANSHIP SHALL CONFORM TO CSA S16.1. WELDING SHALL CONFORM TO CSA S16 AND W59-03, AND SHALL BE DONE BY WELDERS QUALIFIED UNDER W47-03.

ALL JOINTS SHALL BE WELDED USING 490 MPa STRENGTH ELECTRODES OR BOLTED USING BEARING TYPE CONNECTIONS USING A325M HIGH STRENGTH BOLTS UNLESS NOTED.

ALL STEEL TO BE HOT DIPPED GALVANIZED WITH ZINC COATING 600 g/m2 AS PER CANCSA-G164.

-SURFACE FINISH: THE GALVANIZED COAT SHALL BE CONTINUOUS, ADHERANT, AS SMOOTH AND EVENLY DISTRIBUTED AS POSSIBLE AND FREE FROM ANY DEFECT THAT IS DETRIMENTAL TO THE STATED END USE OF THE COATED ARTICLE.

-THE INTEGRITY OF THE COATING SHALL BE DETERMINED BY VISUAL INSPECTION AND COATING THICKNESS MEASUREMENTS.

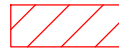
-ADHESION: THE GALVANIZED COATING SHALL BE SUFFICIENTLY ADHERENT TO WITHSTAND NORMAL HANDLING DURING TRANSPORT AND ERECTION.

ALL STEEL SHALL BE GROUND SMOOTH PRIOR TO GALVANIZATION.

SCOPE OF WORK

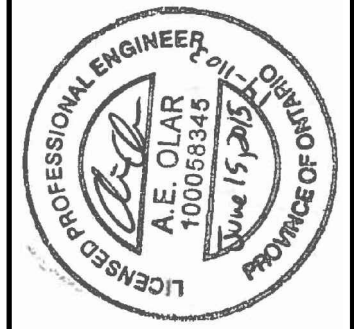
REFER TO THE "INSTRUCTION TO BIDDERS" (WITHIN THE TENDER DOCUMENTS) FOR A DETAILED, WRITTEN SCOPE OF WORK.

LEGEND



ITEMS SHOWN IN RED INDICATE AREAS OF REPAIR OR REPLACEMENT.

3	06/15/15	DM	ISSUED FOR TENDER
2	09/23/14	DM	ISSUED FOR TENDER
1	09/19/14	DM	ISSUED FOR 95% REVIEW
0	09/12/14	DM	ISSUED FOR PRELIMINARY REVIEW
No.	DATE	BY	ISSUES / REVISIONS
DRAWN BY: NS		CHECKED BY: .	PROJECT No.: 141103
DESIGNED BY: NS		APPROVED BY: AO	DRAWING No. YC1
SCALE: AS NOTED		DATE: SEPT 10, 2014	REVISION No. 3



ENGINEER'S SEAL

PROJECT:
**BRIDGE REDMIAL REPAIR WORKS
 PETAWAWA RESEARCH FOREST
 PETAWAWA, ON**

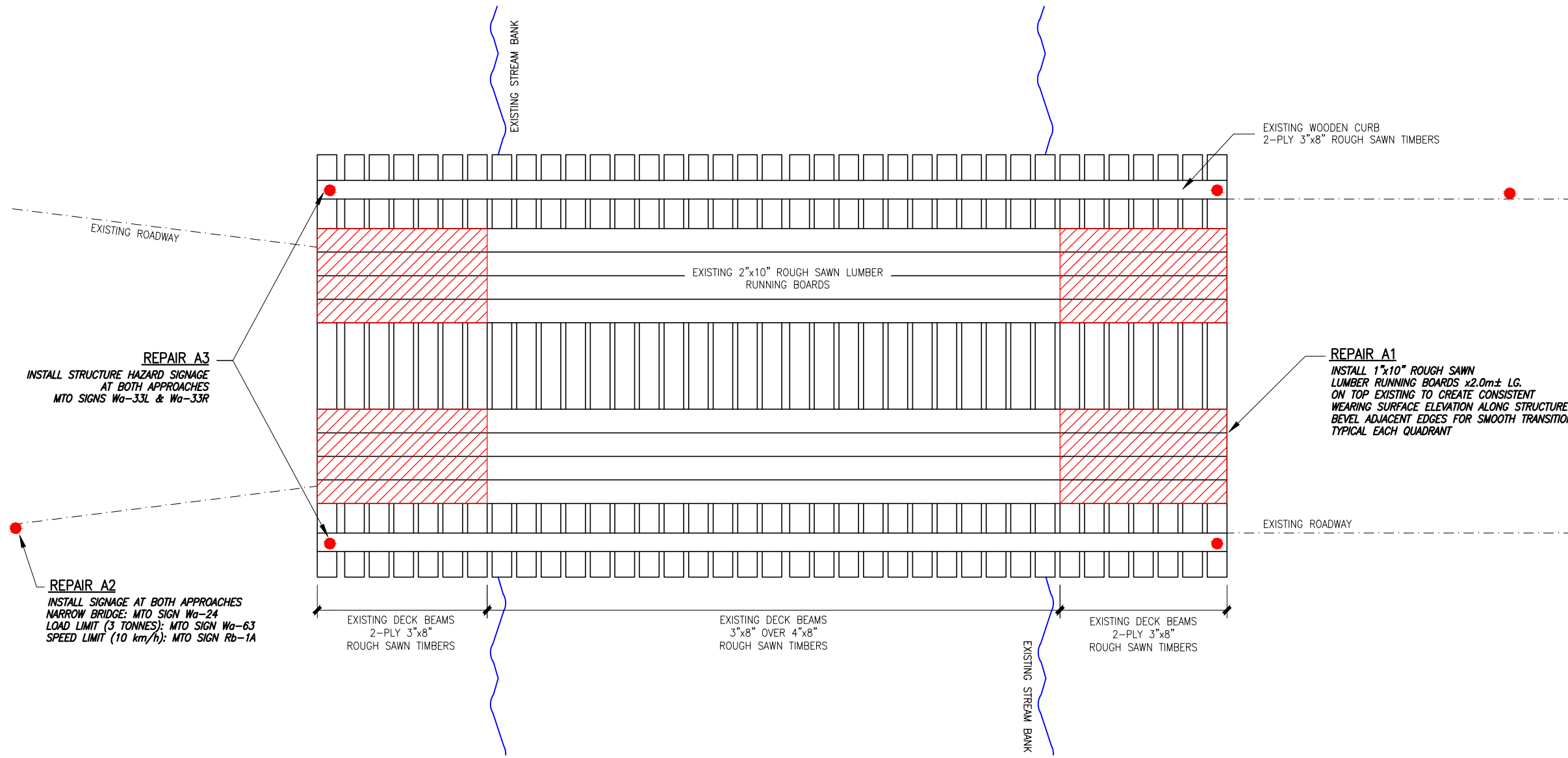
DRAWING:
TULLOCH ENGINEERING

met ENERGY SYSTEMS

NOTES



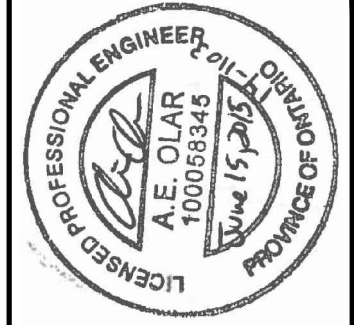
PROJECT NORTH



PLAN
SCALE 1:50M

CONTRACTOR TO FIELD VERIFY ALL MEASUREMENTS AND CONFIGURATIONS PRIOR TO FABRICATION

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AS NOTED		SEPT 10, 2014	3

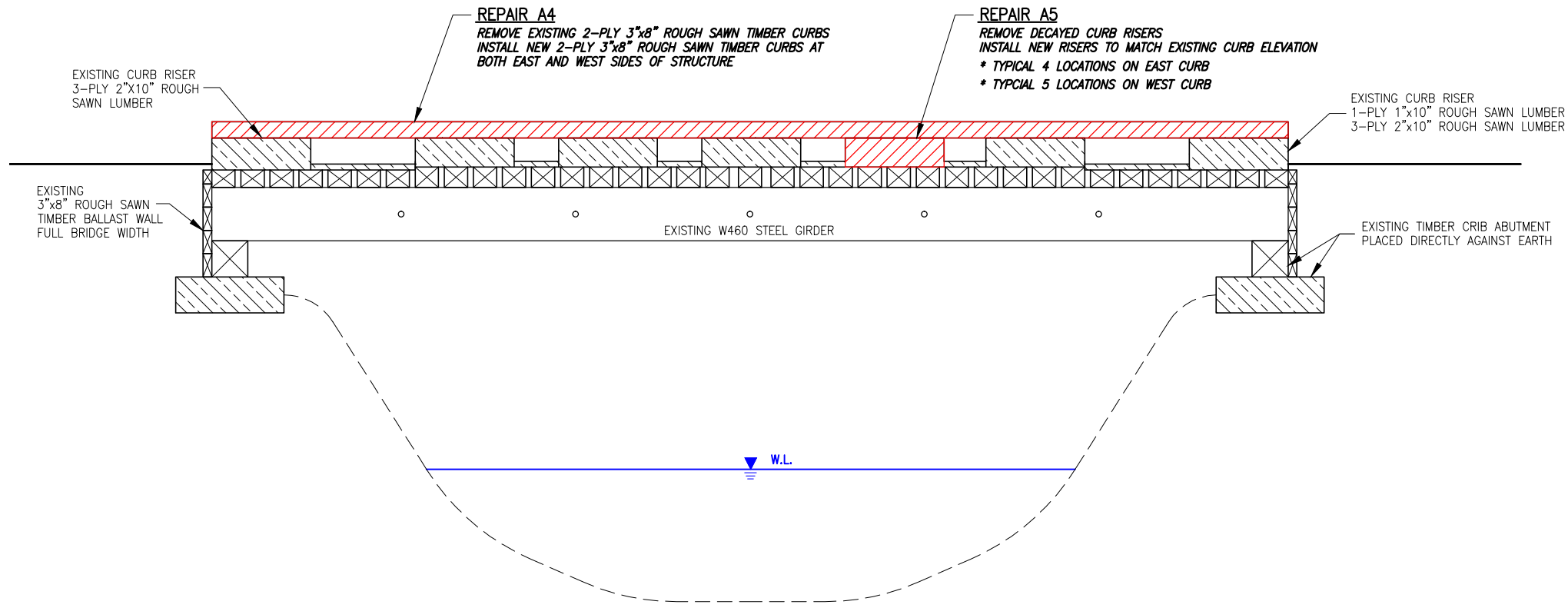


ENGINEER'S SEAL

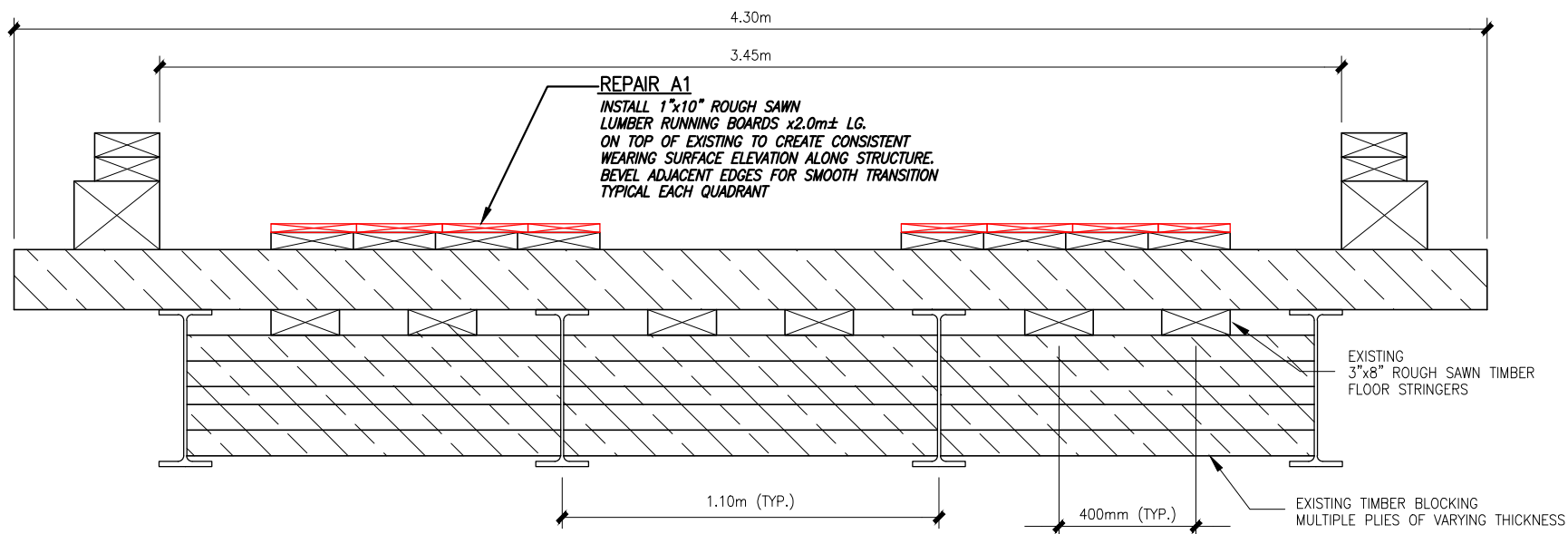
PROJECT:
**BRIDGE REDMIAL REPAIR WORKS
PETAWAWA RESEARCH FOREST
PETAWAWA, ON**

DRAWING:
**YOUNG'S CREEK BRIDGE
PLAN**





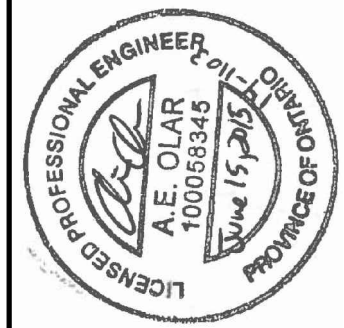
ELEVATION
SCALE 1:50M



CROSS SECTION
SCALE 1:20M

CONTRACTOR TO FIELD VERIFY ALL MEASUREMENTS AND CONFIGURATIONS PRIOR TO FABRICATION

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DESIGNED BY:		APPROVED BY:	DRAWING No.
NS		AO	YC2
SCALE:		DATE:	REVISION No.
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ENGINEER'S SEAL

PROJECT:
**BRIDGE REDMIAL REPAIR WORKS
PETAWAWA RESEARCH FOREST
PETAWAWA, ON**

DRAWING:
**YOUNG'S CREEK BRIDGE
ELEVATION & SECTION**





REPAIR A1

PHOTO #1 - EXISTING TIMBER RUNNING BOARDS



REPAIR A4

PHOTO #1 - DECAY ON CURB TIMBER



REPAIR A5

PHOTO #1 - SEVERE DECAY OF CURB RISERS

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NS		AO	YC3
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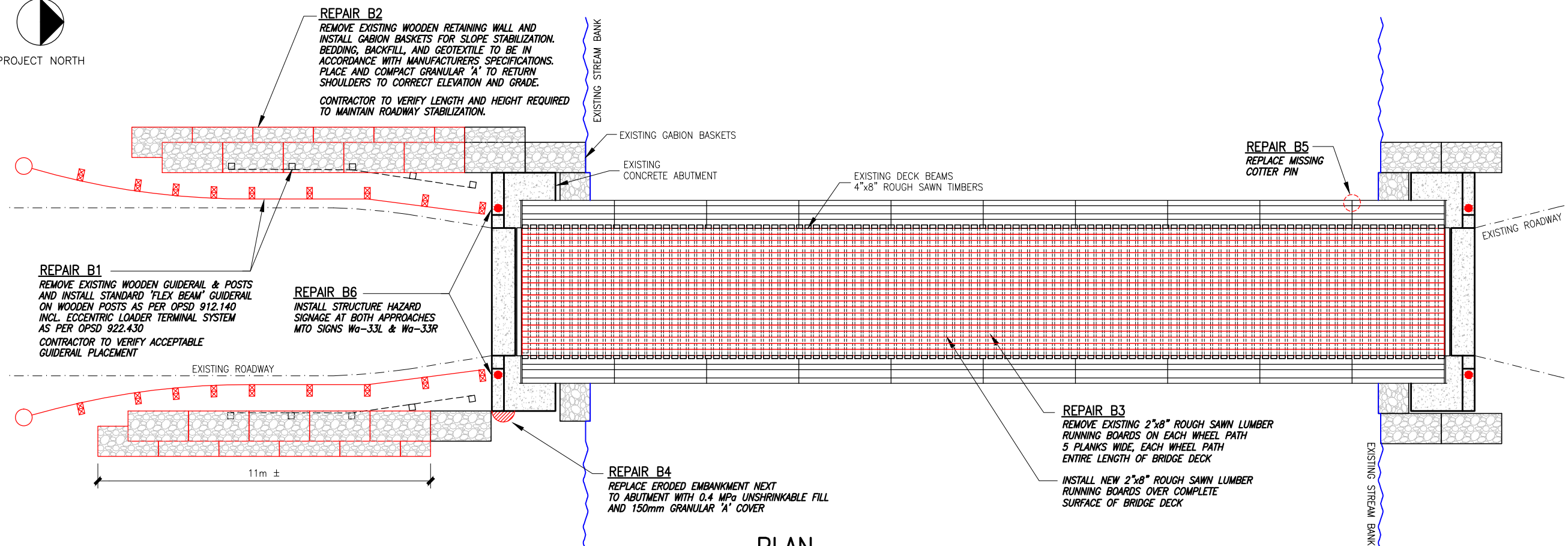


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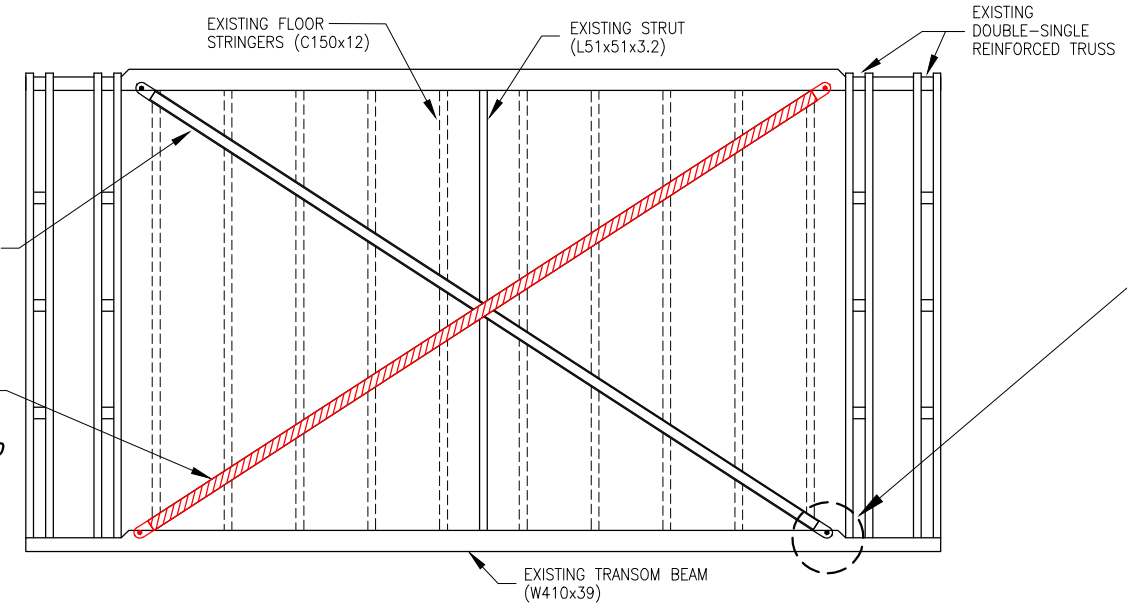
PROJECT:
BRIDGE REDMIAL REPAIR WORKS
PETAWAWA RESEARCH FOREST
PETAWAWA, ON



DRAWING:
YOUNG'S CREEK BRIDGE
REPAIR PHOTOS



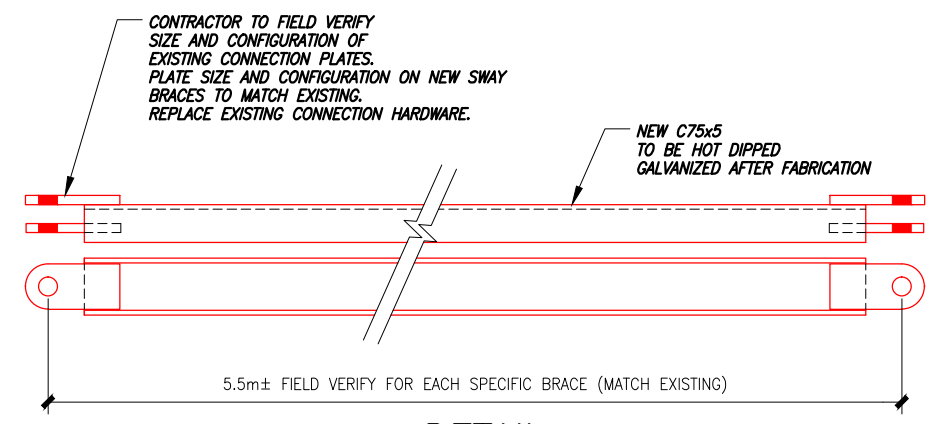
PLAN
SCALE 1:150M



PANEL SUPERSTRUCTURE
VIEW FROM UNDERSIDE LOOKING UP
SCALE 1:50M



SWAY BRACE BOLTED CONNECTION



DETAIL
NEW SWAY BRACES
(10 REQ'D)
SCALE 1:10M

CONTRACTOR TO FIELD VERIFY ALL MEASUREMENTS AND CONFIGURATIONS PRIOR TO FABRICATION

NEW SWAY BRACES TO BE INSTALLED TOES DOWN

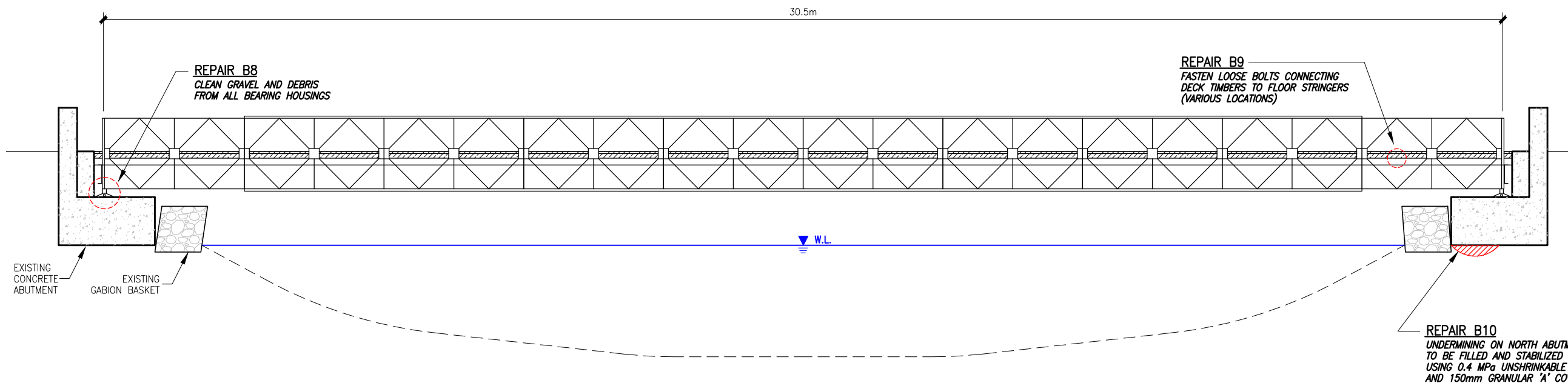
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PROJECT No.: 141103			
DRAWING No.: CL1			
REVISION No.: 3			

PROFESSIONAL ENGINEER
A.E. OLAR
100058345
June 15, 2015
PROVINCE OF ONTARIO
ENGINEER'S SEAL

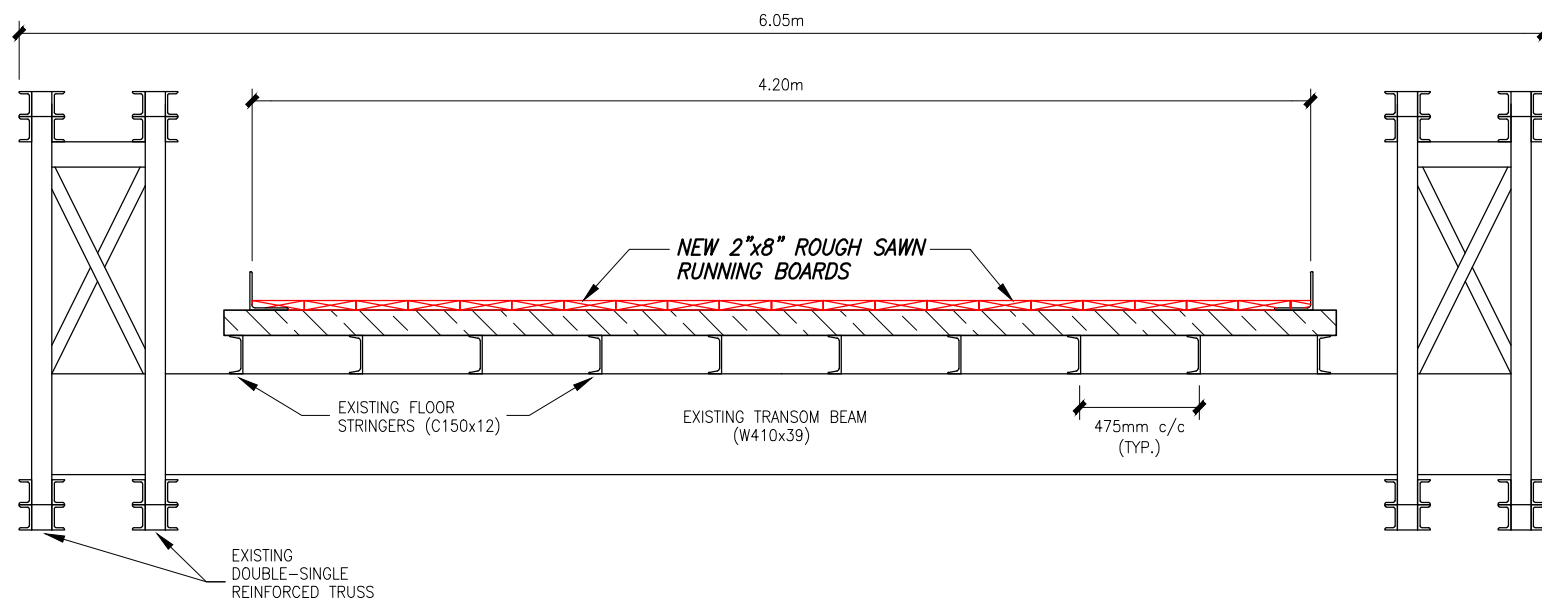
BRIDGE REDMIAL REPAIR WORKS
PETAWAWA RESEARCH FOREST
PETAWAWA, ON

DRAWING:
CORRY LAKE BRIDGE
PLAN

met ENERGY SYSTEMS
TULLOCH ENGINEERING



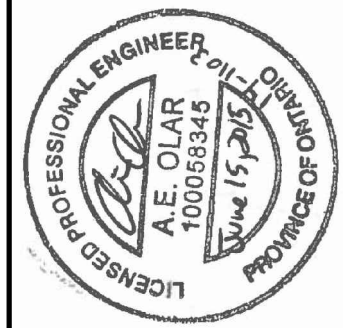
ELEVATION
SCALE 1:100M



CROSS SECTION
SCALE 1:30M

CONTRACTOR TO FIELD VERIFY ALL MEASUREMENTS AND CONFIGURATIONS PRIOR TO FABRICATION

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DRAWING No.: CL2			
REVISION No.: 3			



ENGINEER'S SEAL

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**BRIDGE REDMIAL REPAIR WORKS
PETAWAWA RESEARCH FOREST
PETAWAWA, ON**

DRAWING:
**CORRY LAKE BRIDGE
ELEVATION AND SECTION**





REPAIR B1

PHOTO #1 - EXISTING WOODEN GUIDERAIL



REPAIR B2

PHOTO #1 - EXISTING RETAINING WALL



REPAIR B3

PHOTO #1 - DAMAGED RUNNING BOARDS



REPAIR B4

PHOTO #1 - EROSION ADJACENT TO ABUTMENT



REPAIR B5

PHOTO #1 - MISSING COTTER PIN



REPAIR B7

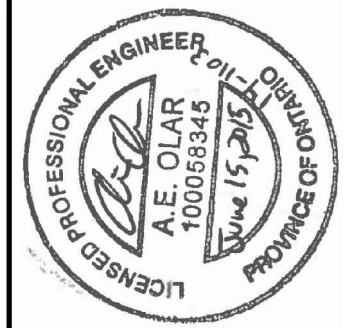
PHOTO #1 - CORRODED SWAY BRACE



REPAIR B10

PHOTO #1 - ABUTMENT UNDERMINING

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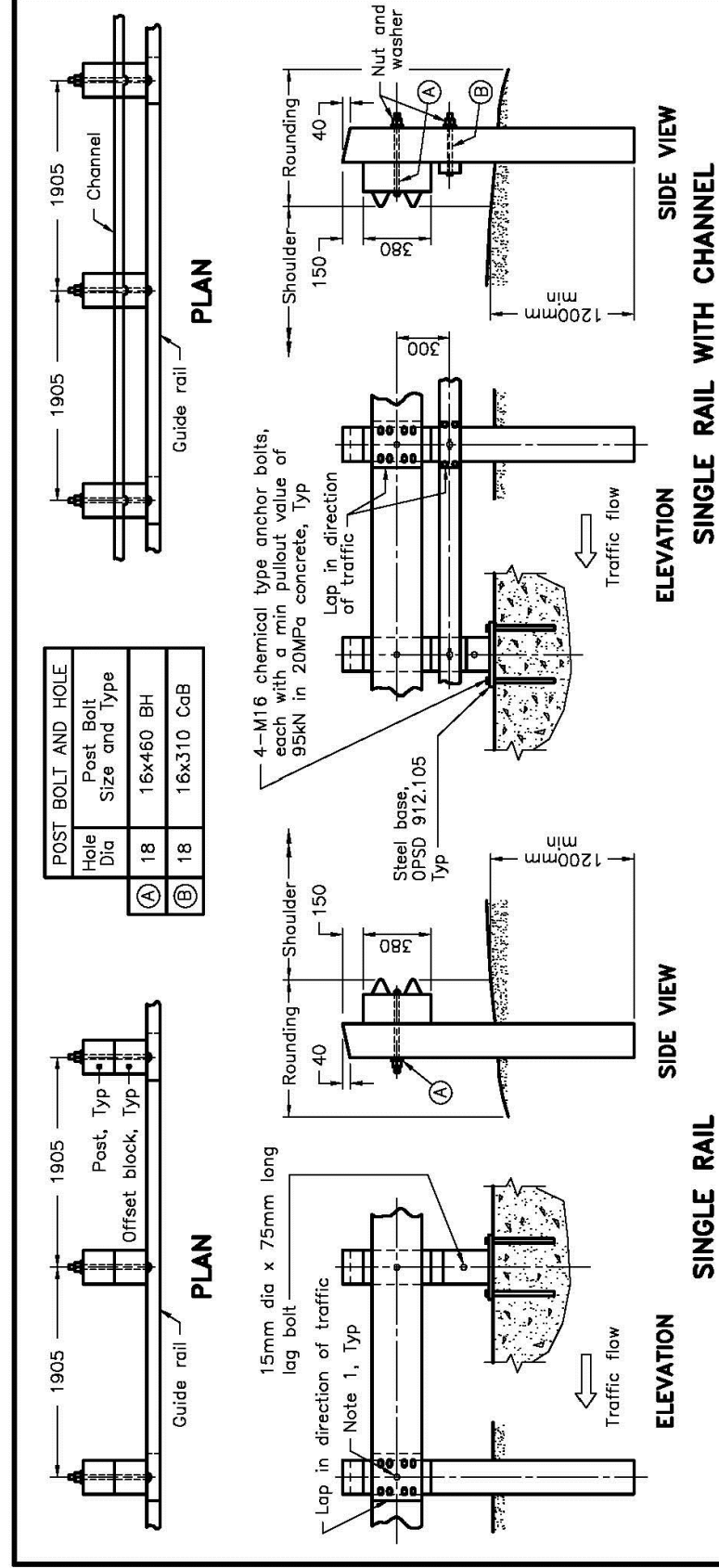


ENGINEER'S SEAL

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BRIDGE REDMIAL REPAIR WORKS
PETAWAWA RESEARCH FOREST
PETAWAWA, ON

DRAWING:
CORRY LAKE BRIDGE
REPAIR PHOTOS

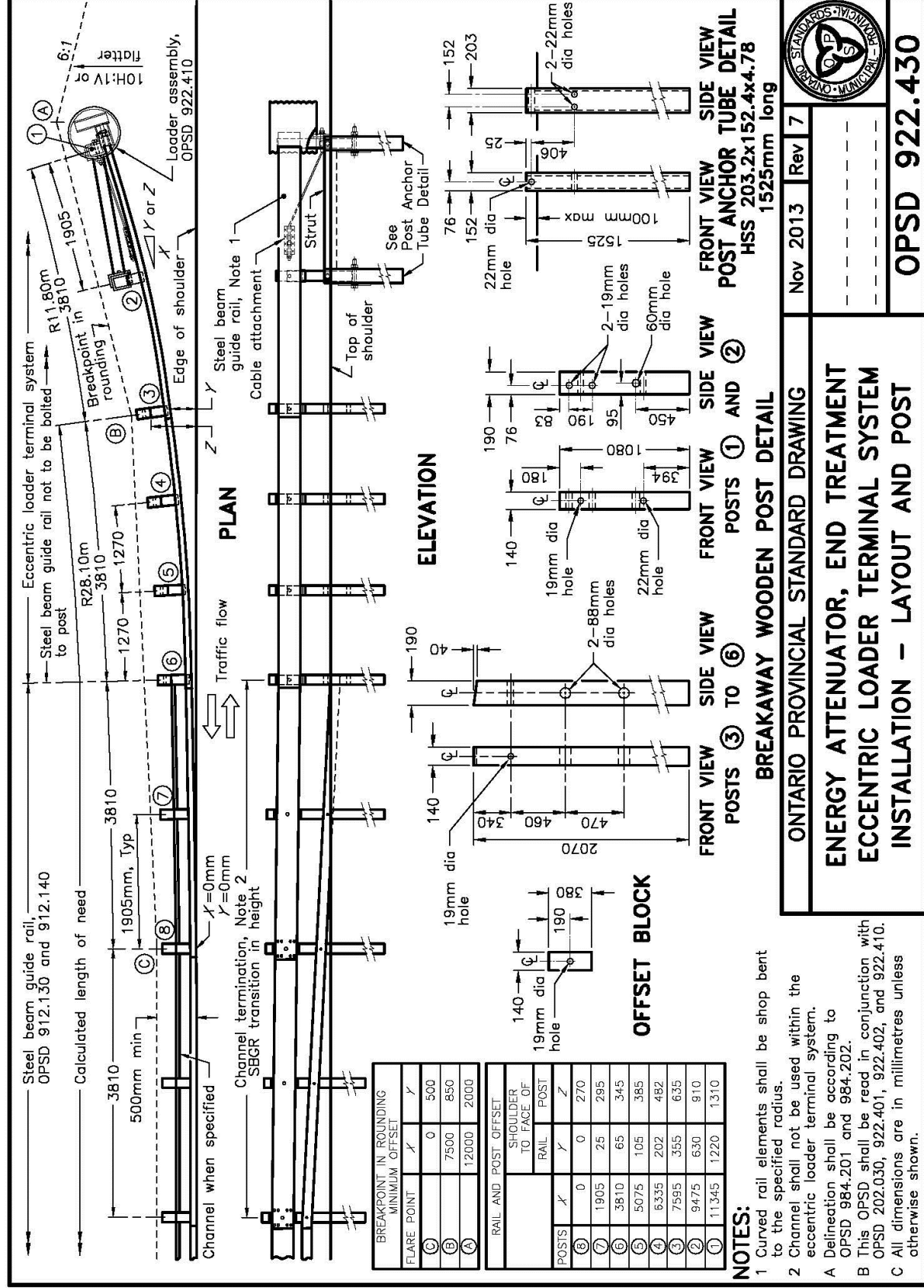




NOTES:

- 1 Washer shall not be installed at front face of rail. One bolt located at centre of steel beam guide rail.
- A Wooden posts and offset blocks shall be 190x190mm. Tops to have 25mm chamfer.
- B Steel beam guide rail mounting heights shall be as specified.
- C This OPSD shall be read in conjunction with OPSPD 912.101 and 912.102.
- D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2010	Rev 2
GUIDE RAIL SYSTEM, STEEL BEAM WOODEN POST ASSEMBLY INSTALLATION - SINGLE RAIL	OPSD 912.140	



NOTES:

- 1 Curved rail elements shall be shop bent to the specified radius.
- 2 Channel shall not be used within the eccentric loader terminal system.
- A Delineation shall be according to OPSPD 984.201 and 984.202.
- B This OPSPD shall be read in conjunction with OPSPD 202.030, 922.401, 922.402, and 922.410.
- C All dimensions are in millimetres unless otherwise shown.

BREAKPOINT IN ROUNDING MINIMUM OFFSET	
FLARE POINT	Y
①	0
②	500
③	7500
④	850
⑤	12000
⑥	2000

RAIL AND POST OFFSET	
SHOULDER TO FACE OF RAIL	POST
①	0
②	270
③	0
④	295
⑤	345
⑥	105
⑦	385
⑧	202
⑨	482
⑩	355
⑪	635
⑫	9475
⑬	630
⑭	910
⑮	11,345
⑯	1220
⑰	1310

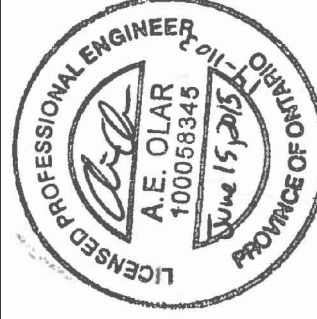
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2013	Rev 7
ENERGY ATTENUATOR, END TREATMENT ECCENTRIC LOADER TERMINAL SYSTEM INSTALLATION - LAYOUT AND POST BREAKAWAY WOODEN POST DETAIL	OPSD 922.430	

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PETAWAWA RESEARCH FOREST
PETAWAWA, ON**



**CORRY LAKE BRIDGE
APPLICABLE OPSPD'S**



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			CL4
			REVISION No.
			3