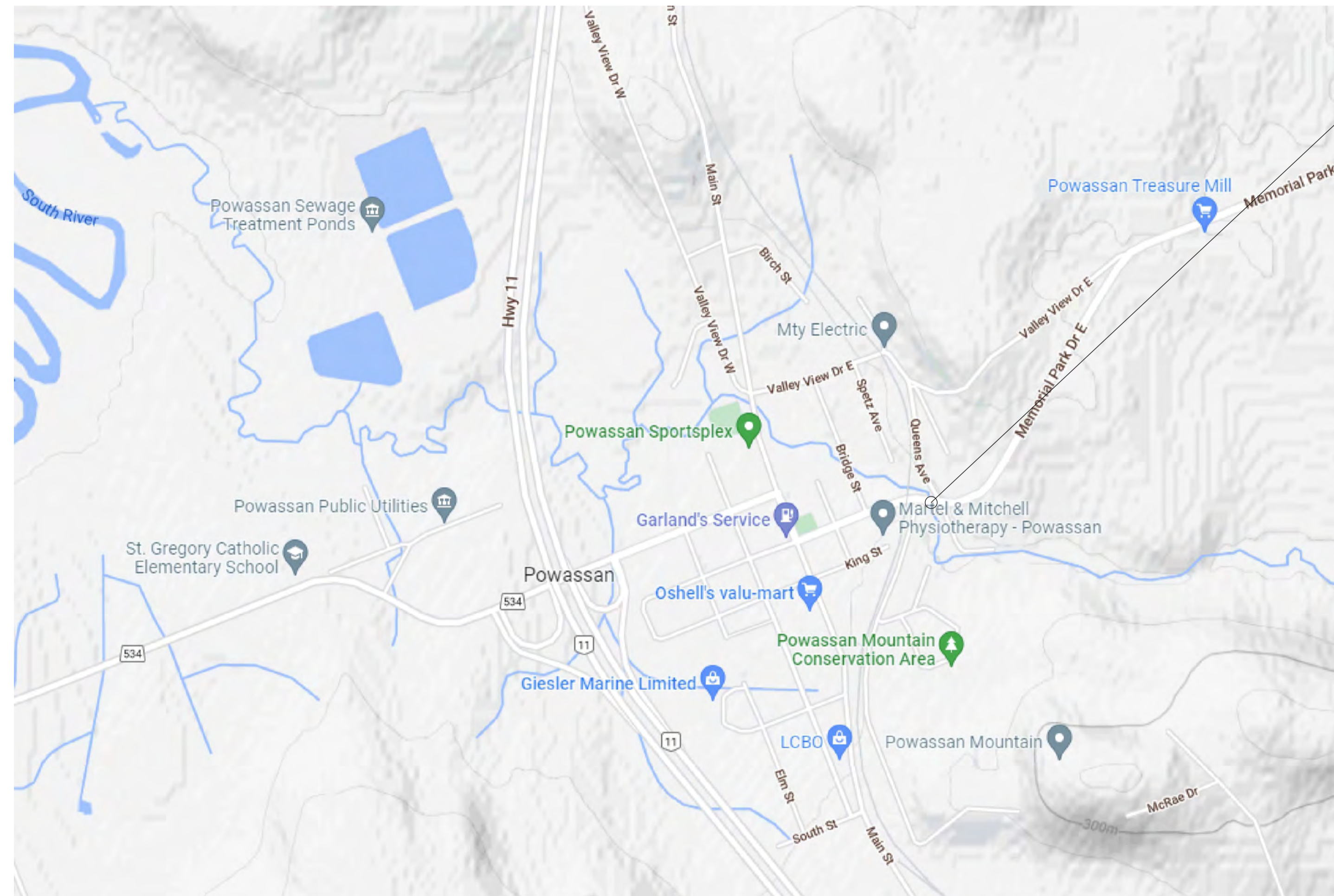


ISSUED FOR TENDER  
JULY 22, 2022

# THE MUNICIPALITY OF POWASSAN



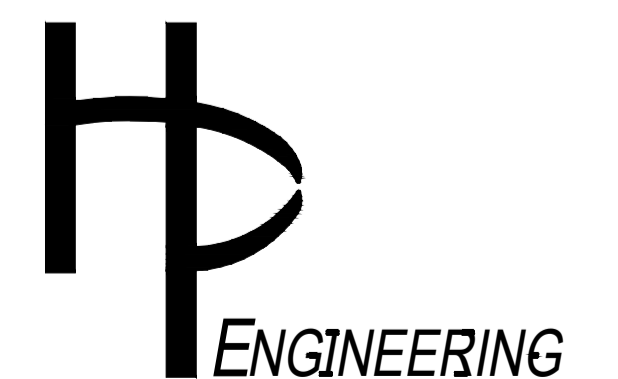
SITE LOCATION

#### LIST OF DRAWINGS

- COVER SHEET
- 1. GENERAL NOTES / SCOPE OF WORK
- 2. SITE PHOTOGRAPHS
- 3. REINFORCED CONCRETE LINER DETAILS
- 4. PLATE JOINT REPAIR DETAILS
- 5. UNDERMINING REPAIR DETAILS

## MEMORIAL PARK DRIVE EAST (#222) CULVERT REHABILITATION

TENDER 2022-06





**GENERAL NOTES:**

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND THE CONTRACT SPECIFICATIONS.
- ALL CONSTRUCTION PROCEDURES AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT ONTARIO PROVINCIAL STANDARDS. ALL MATERIAL SUPPLIED SHALL BE FROM MTO DESIGNATED SOURCES, WHERE APPLICABLE.
- ALL EXISTING CONDITIONS SHOWN ON THE CONTRACT DRAWINGS ARE TAKEN FROM AVAILABLE INFORMATION AND SITE MEASUREMENTS. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS PRIOR TO COMMENCING WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR.
- THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED . .
- ALL ENVIRONMENTAL PROTECTION, EROSION & SEDIMENT CONTROL SCHEMES SHALL BE FULLY EFFECTIVE IN PREVENTING CONTAMINATION OF THE WATERWAY AND THE SURROUNDING ENVIRONMENT. THE CONTRACTOR SHALL OBTAIN APPROVAL FOR ALL ENVIRONMENTAL PROTECTION, EROSION & SEDIMENT CONTROL SCHEMES FROM ALL AUTHORITIES HAVING JURISDICTION.
- THE CONTRACTOR'S PRICE FOR THE WORK SHALL INCLUDE ALL LABOUR, EQUIPMENT, MATERIAL AND TRANSPORTATION NECESSARY TO COMPLETE THE WORK INCLUDING ANY AND ALL INCIDENTAL WORK WHETHER OR NOT EXPLICITLY DETAILED ON THE CONTRACT DRAWINGS OR CONTRACT SPECIFICATIONS BUT REQUIRED FOR THE PROPER PERFORMANCE AND COMPLETION OF THE WORKS AS PER THE DRAWINGS AND SPECIFICATIONS.
- THE SCOPE OF WORK PROVIDED ON THIS DRAWINGS IS PROVIDED FOR GENERAL INFORMATION ONLY AND SHALL NOT BE CONSTRUED AS EXHAUSTIVE OR AS DEPICTING THE EXACT SEQUENCE OF WORK.
- ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH BOOK 7 OF THE ONTARIO TRAFFIC MANUAL. THE CONTRACTOR IS FULLY AND SOLELY RESPONSIBLE FOR THE SAFETY OF PEDESTRIANS, VEHICULAR TRAFFIC, HIS WORKERS AND THE GENERAL PUBLIC AT ALL TIMES DURING CONSTRUCTION.
- ALL WORK UNDER THIS CONTRACT SHALL BE CARRIED OUT FOLLOWING ALL APPLICABLE MINISTRY OF LABOUR AND OCCUPATIONAL HEALTH AND SAFETY ACT REQUIREMENTS.
- ALL REMOVED MATERIALS SHALL BE TRANSPORTED OFF-SITE AND PROPERLY DISPOSED OF AT AN APPROVED OFF-SITE DISPOSAL FACILITY.
- ALL WORK UNDER THIS CONTRACT SHALL BE COMPLETE BETWEEN JULY 15, 2022 AND SEPTEMBER 30, 2022.
- ALL INCIDENTS (i.e. SPILLS, RELEASE OF DELETERIOUS MATERIALS, ENCOUNTERS WITH SPECIES AT RISK, ETC.) SHALL BE REPORTED TO THE MEC'S SPILL ACTION LINE WITHIN 24 HOURS.
- COFFERDAM SHALL BE DESIGNED BY THE CONTRACTOR. CONTRACTOR SHALL SUBMIT COFFERDAM DESIGN DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.
- THE CONTRACTOR SHALL SUBMIT AN ENVIRONMENTAL PROTECTION, EROSION & SEDIMENT CONTROL PLAN / DRAWINGS FOR REVIEW PRIOR TO COMMENCING WORK.
- THE CONTRACTOR SHALL MAKE HIS OWN ASSESSMENT AS TO THE OVERALL ANTICIPATED WATER LEVELS/ FLOW CONDITIONS OVER THE COURSE OF THEIR ON-SITE WORK AND SHALL BID ACCORDINGLY.
- DESIGN OF FORMWORK SHALL BE BY THE CONTRACTOR. FORMWORK SHALL BE ANCHORED TO THE EXISTING CONCRETE AND / OR SUITABLY SUPPORTED / BRACED TO ENSURE NO DEFLECTION OR MOVEMENT OF FORMWORK DURING CONCRETE PLACEMENT. FORMWORK SHOP DRAWINGS SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW PRIOR TO PLACEMENT OF CONCRETE.

**ENVIRONMENTAL PROTECTION / EROSION AND SEDIMENT CONTROL NOTES:**

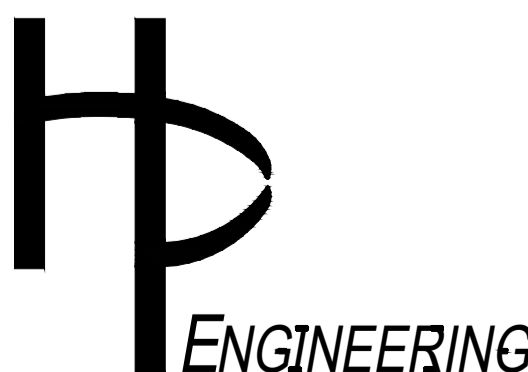

- A SPILL CONTROL KIT SHALL BE MAINTAINED ON SITE AT ALL TIMES.
- ADDITIONAL TURBIDITY CURTAIN SHALL BE AVAILABLE ONSITE AND SHALL BE INSTALLED IF DEEMED NECESSARY DURING INSTALLATION OR REMOVAL OF TEMPORARY COFFERDAMS OR DURING HEAVY RAINS.
- THE WORK AREA SHALL BE SWEEP DAILY FOR THE PRESENCE OF SPECIES AT RISK. SHOULD SPECIES AT RISK BE ENCOUNTERED, WORK SHALL CEASE IMMEDIATELY AND THE CONTRACT ADMINISTRATOR SHALL BE CONTACTED FOR FURTHER REVIEW.
- ALL ENVIRONMENTAL PROTECTION AND EROSION & SEDIMENT CONTROLS SHALL BE INSPECTED AND CLEANED DAILY TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY AND ANY NECESSARY CORRECTIVE ACTION SHALL BE TAKEN IMMEDIATELY IN ORDER TO MINIMIZE POTENTIAL ECOLOGICAL IMPACT.
- INSPECTION FREQUENCY SHALL INCREASE ACCORDING TO WEATHER CONDITIONS AND UNTIL ALL NOTED DEFICIENCIES ARE ADDRESSED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.
- ALL PROTECTION MEASURES SHALL BE COMPLETELY REMOVED AFTER COMPLETION OF THE WORK.

**DEWATERING NOTES:**

- DISCHARGE OF FILTERED WATER (FROM THE SEDIMENTATION BASIN) SHALL BE MONITORED AND CONTROLLED IN A MANNER TO PREVENT EROSION.
- ANY STRANDED FISH (CAPTURED IN THE SEDIMENTATION BASIN) SHALL BE CAPTURED AND RELEASED UNHARMED INTO THE DOWNSTREAM WATERCOURSE. A SCIENTIFIC COLLECTION PERMIT FROM MNRF SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO COMMENCING DEWATERING OPERATIONS.
- FISH-OUT PROCEDURE (WITHIN COFFERDAM ISOLATED AREAS) SHALL BE COMPLETED GENERALLY AS FOLLOWS:
  - ISOLATE WORK AREA FROM NORMAL RIVER FLOW WITH SAND BAG COFFERDAMS
  - SWEEP ISOLATED WORK AREA, CAPTURE AND RELEASE UNHARMED ANY STRANDED FISH INTO DOWNSTREAM WATERCOURSE BEYOND TURBIDITY CURTAIN.
  - LOWER WATER LEVEL IN ISOLATED WORK AREA MAXIMUM 200mm, RE-SWEEP, CAPTURE AND RELEASE UNHARMED ANY STRANDED FISH INTO DOWNSTREAM WATERCOURSE BEYOND TURBIDITY CURTAIN
  - REPEAT ABOVE PROCESS (LOWERING WATER LEVEL BY A MAXIMUM OF 200mm EACH TIME) AND REPEAT ABOVE PROCESS UNTIL NO WATER REMAINS IN THE ISOLATED WORK AREA.
- ALL PUMPS UTILIZED TO PUMP WATER ON THE CONTRACT SHALL BE FITTED WITH INTAKE SCREENS WITH AN EFFECTIVE SCREEN AREA OF 0.45m<sup>2</sup>. FOR SCREENS, A 12" DIAMETER x 20" LONG CYLINDRICAL INTAKE SCREEN (USING #45 STAINLESS STEEL WEDGE WIRE SCREEN [1.10mm WIRE DIAMETER / 2.54mm OPENING WIDTH]) SHALL BE USED. SCREENS HAVE BEEN SELECTED BASED ON THE DFO'S 'FRESHWATER INTAKE END-OF-PIPE FISH SCREEN GUIDELINES' DOCUMENT ASSUMING A MINIMUM FISH LENGTH OF 25mm.
- A FULLY FUNCTIONING BACK-UP PUMP SHALL BE KEPT ON SITE AT ALL TIMES DURING DEWATERING ACTIVITIES.

**GENERAL SCOPE OF WORK:**

- A** MOBILIZE TO SITE
- B** SET UP ENVIRONMENTAL PROTECTION, EROSION AND SEDIMENT CONTROL MEASURES
- C** SET UP TEMPORARY DEWATERING / COFFERDAMS AND ISOLATE WORK AREA
- C** CARRY OUT ABRASIVE BLAST CLEANING/MECHANICAL REMOVAL OF CORRODED AREAS
- D** DRY PACK REPAIR MORTAR/INJECTION GROUT VOIDS BEHIND STEEL ARCH
- E** INSTALL FUSION-WELDED HEADED CONCRETE ANCHORS AND REINFORCING STEEL INCLUDING DOWELS
- F** INSTALL FORMWORK, PLACE AND CURE CONCRETE LINERS
- G** PERFORM PLATE REPAIRS AT TWO (2) LOCATIONS (PROVISIONAL)
- H** INSTALL VERTICAL FORMWORK (EXTENDING TO CREEK BED LEVEL AND CUT TO THE PROFILE OF THE CREEK BED) AT TWO (2) LOCATIONS AT FACE OF FOOTING (PROVISIONAL)
- I** PLACE / PUMP FLOWABLE (HIGH SLUMP) CONCRETE (MIN. 20 MPa) THROUGH FORMWORK OPENINGS / PORTS TO FILL VOIDS BELOW FOOTINGS (PROVISIONAL)
- J** REMOVE TEMPORARY DEWATERING / COFFERDAMS AND REINSTATE CREEK FLOW
- K** REMOVE ENVIRONMENTAL PROTECTION, EROSION AND SEDIMENT CONTROL MEASURES
- L** DEMOBILIZE FROM SITE

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			1	ISSUED FOR TENDER	T.D.	25/07/22		Dwn. N.B. Chk. T.D.
PROJECT TITLE <b>MEMORIAL PARK DRIVE EAST (#222) CULVERT REHABILITATION</b>								Scale: AS SHOWN
DRAWING TITLE <b>GENERAL NOTES / SCOPE OF WORK</b>								Des. N.B. Chk. T.D.
								CONTRACT NO. <b>2022-06</b>
								SHEET 2 OF 6
								DWG. NO. <b>1</b>



ABRASIVE BLAST CLEAN OR MECHANICALLY REMOVE AREAS OF CORROSION TO NEAR-WHITE METAL ALONG BOTTOM SECTION OF STEEL ARCH



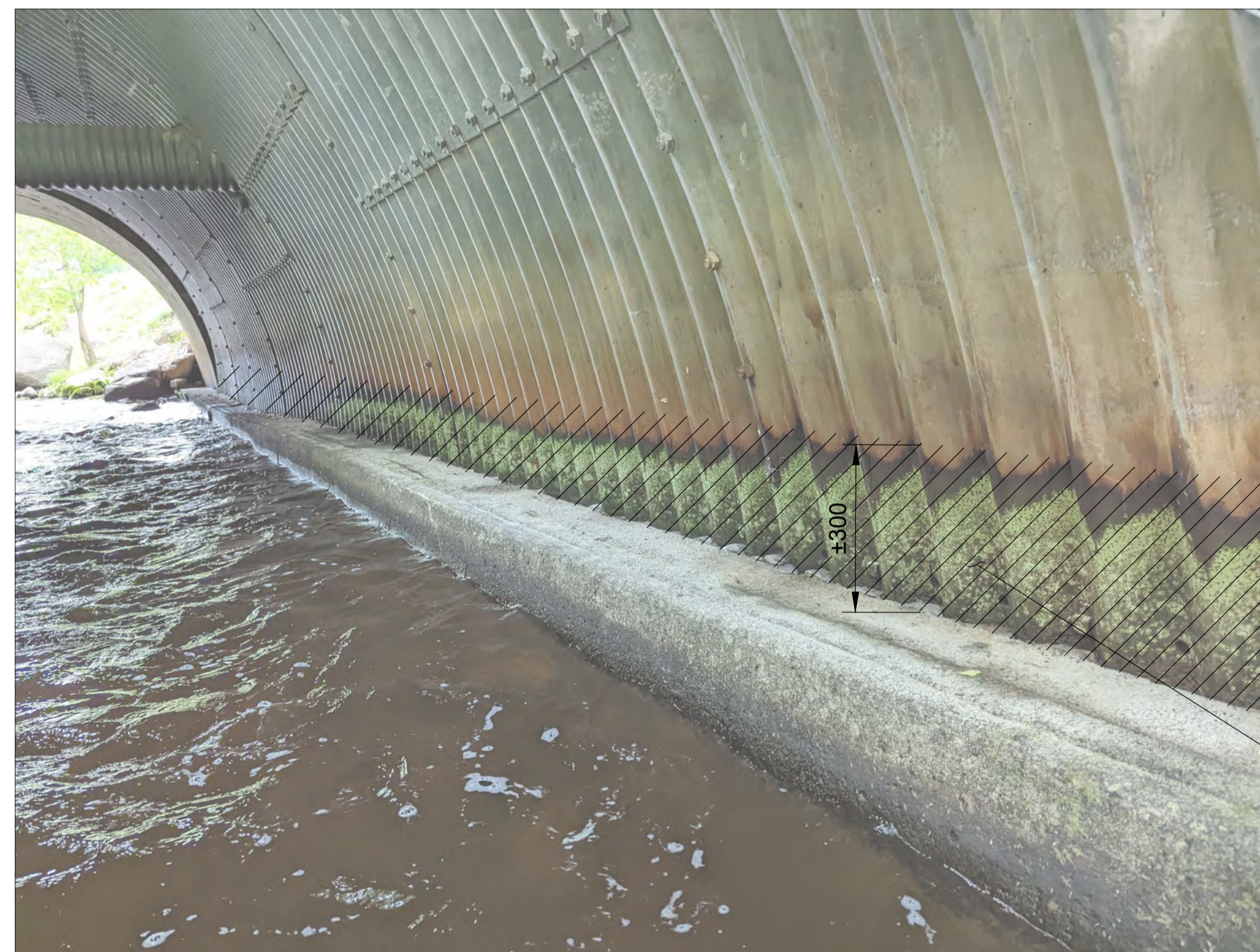
NORTH ELEVATION

ABRASIVE BLAST CLEAN OR MECHANICALLY REMOVE AREAS OF CORROSION TO NEAR-WHITE METAL ALONG BOTH SECTION OF STEEL ARCH



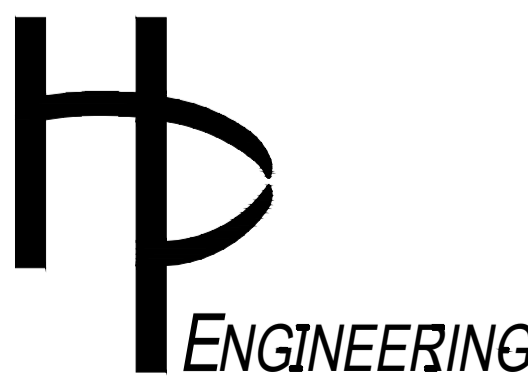

PERFORATIONS AT BOTTOM OF STRUCTURAL PLATE (EAST SIDE)

DRY PACK WITH REPAIR MORTAR/GROUT INJECT VOIDS (MAXIMUM DEPTH ±350 FROM PLATE CREST) BEHIND CORRUGATED STRUCTURAL PLATES AFTER REMOVAL OF SURFACE CORROSION, TYP.

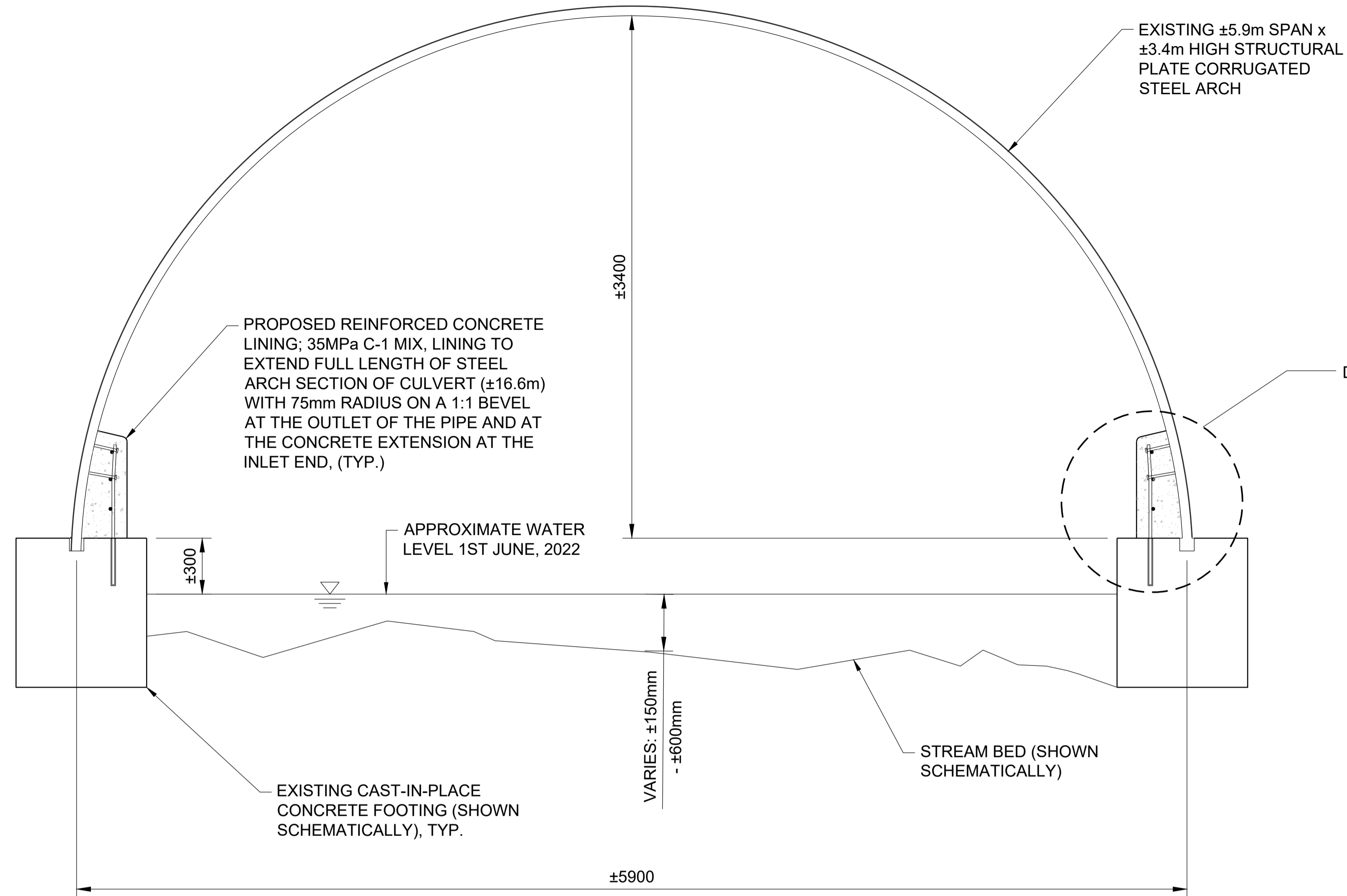


WEST INTERIOR OF STRUCTURE

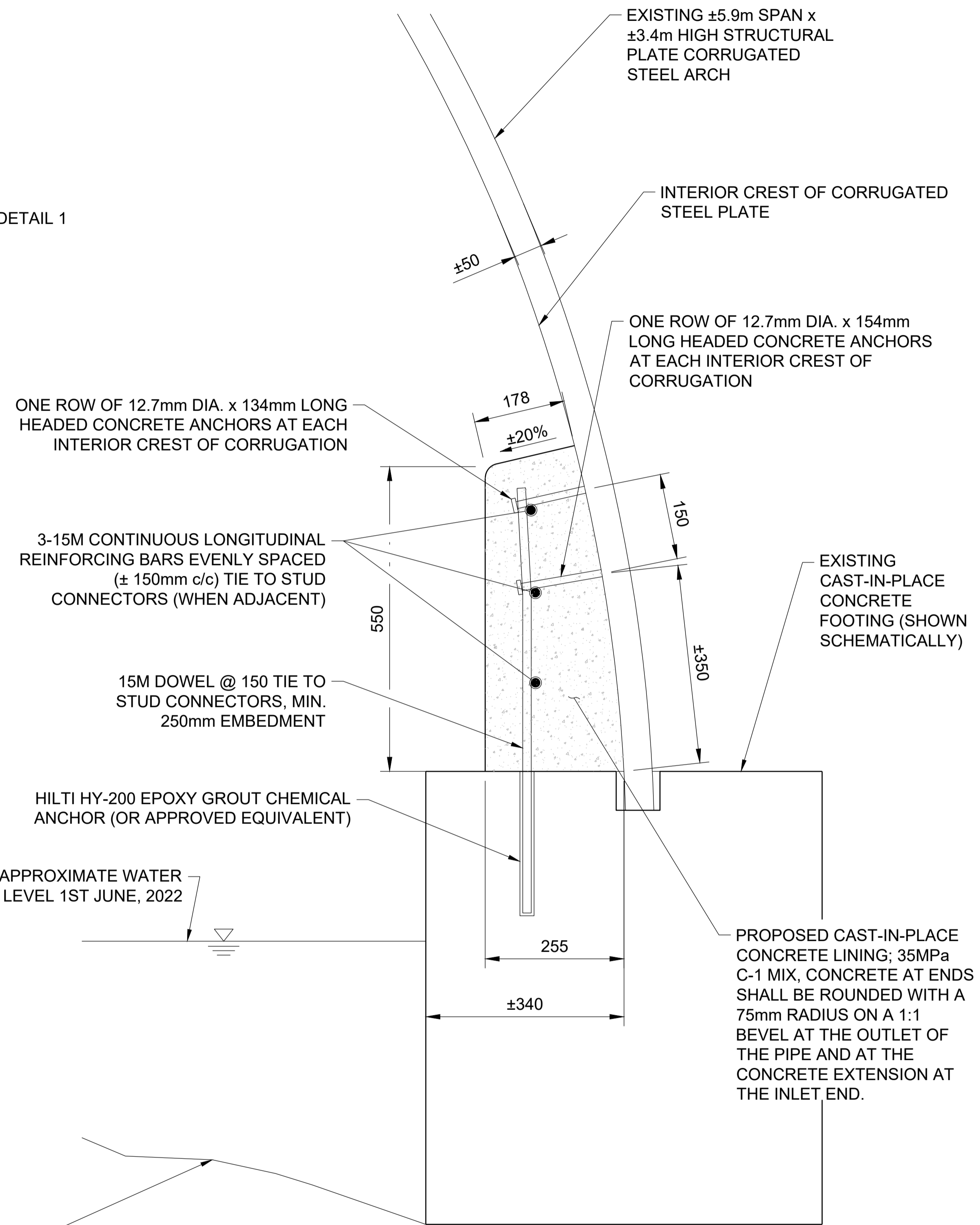
ABRASIVE BLAST CLEAN OR MECHANICALLY REMOVE AREAS OF CORROSION TO NEAR-WHITE METAL ALONG BOTTOM SECTION OF STEEL ARCH (BOTH SIDES)

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						PROJECT TITLE	Scale: AS SHOWN
						MEMORIAL PARK DRIVE EAST (#222) CULVERT REHABILITATION	Des. N.B. Chk. T.D.
						DRAWING TITLE	CONTRACT NO. 2022-06
						SITE PHOTOGRAPHS	SHEET 3 OF 6
							DWG. NO. 2





TYPICAL SECTION THROUGH STEEL ARCH CULVERT  
N.T.S.



DETAIL 1 - REINFORCED CONCRETE LINING  
N.T.S.

- NOTES:**
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS.
  - CLASS OF CONCRETE: EXPOSURE CLASS C-1 (35MPa) TO CSA A23.1-2019.
  - REINFORCING STEEL BARS SHALL BE GRADE 400W.
  - HEADED CONCRETE STUD ANCHORS SHALL BE "TYPE B" PER CSA W59-2018, TABLE H.1.
  - MINIMUM 50mm CLEAR COVER TO REINFORCING STEEL AND STUD CONNECTORS.
  - CONCRETE SHALL BE ROUNDED WITH A 75mm RADIUS ON A 1:1 BEVEL AT THE ENDS OF THE INLET AND OUTLET OF THE PIPE.
  - HEADED CONCRETE STUD ANCHORS SHALL BE WELDED TO THE INTERIOR CREST OF EXISTING PLATE CORRUGATIONS THROUGH FUSION WELDING, IN ACCORDANCE WITH CSA W59-2019, AND BY COMPANIES AND INDIVIDUALS CERTIFIED BY THE CANADIAN WELDING BUREAU (CWB) IN ACCORDANCE WITH CSA W47.1-2019.
  - DEFECTIVELY ATTACHED SHEAR STUD CONNECTORS SHALL BE LEFT IN PLACE AND REPLACED WITH AN ADDITIONAL SHEAR STUD CONNECTOR.
  - WHERE SHEAR STUDS CANNOT BE ADEQUATELY WELDED TO THE EXISTING CORRUGATED STEEL PLATE (DUE TO EXCESSIVE SECTION LOSS, PERFORATIONS, OR OTHER), THE ENGINEER SHALL BE CONTACTED FOR REVIEW AND DELINEATION OF THE PLATE REPAIR DETAIL SHOWN ON THIS DRAWING.
  - PRIOR TO WELDING HEADED CONCRETE ANCHORS, THE CONTRACTOR SHALL LOCALLY REMOVE GALVANIZED COATINGS ON THE EXISTING CORRUGATED STEEL PLATE SECTION TO EXPOSE BARE STEEL. THE BARE STEEL SHALL BE ADEQUATELY CLEANED AND PREPARED PRIOR TO WELDING.
  - WELDING CORRUGATED STEEL PLATE REPAIRS / SPLICE REPAIRS SHALL BE COMPLETED USING ELECTRODE CLASSIFICATION E49XX. FILLET WELDS SHALL BE COMPLETED IN ACCORDANCE WITH CSA W59-2019, AND BY COMPANIES AND INDIVIDUALS CERTIFIED BY THE CANADIAN WELDING BUREAU (CWB) IN ACCORDANCE WITH CSA W48-2018.
  - ALL DAMAGED AREAS OF GALVANIZED COATING SHALL BE TOUCHED UP WITH AN APPROVED ZINC-RICH PAINT.
  - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

		<table border="1"> <thead> <tr> <th>NO.</th> <th>REVISION</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ISSUED FOR TENDER</td> <td>T.D.</td> <td>25/07/22</td> </tr> </tbody> </table>	NO.	REVISION	BY	DATE	1	ISSUED FOR TENDER	T.D.	25/07/22	CLIENT <b>THE MUNICIPALITY OF POWASSAN</b>	DATE: JUNE 2022 Dwn. N.B. Chk. T.D. Scale: AS SHOWN
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PROJECT TITLE <b>MEMORIAL PARK DRIVE EAST (#222) CULVERT REHABILITATION</b>	CONTRACT NO. <b>2022-06</b>											
DRAWING TITLE <b>REINFORCED CONCRETE LINER DETAILS</b>	SHEET 4 OF 6 DWG. NO. <b>3</b>											





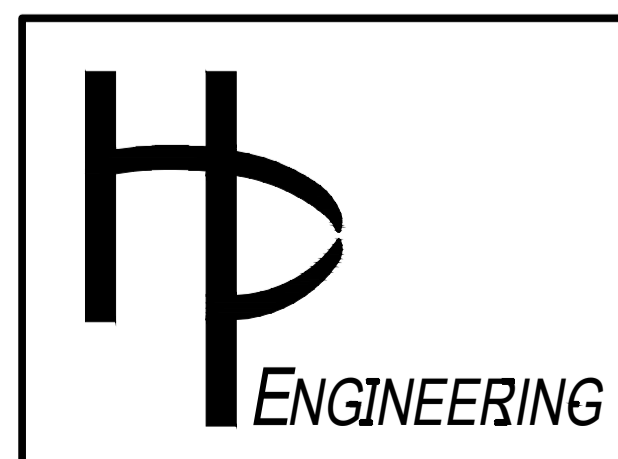
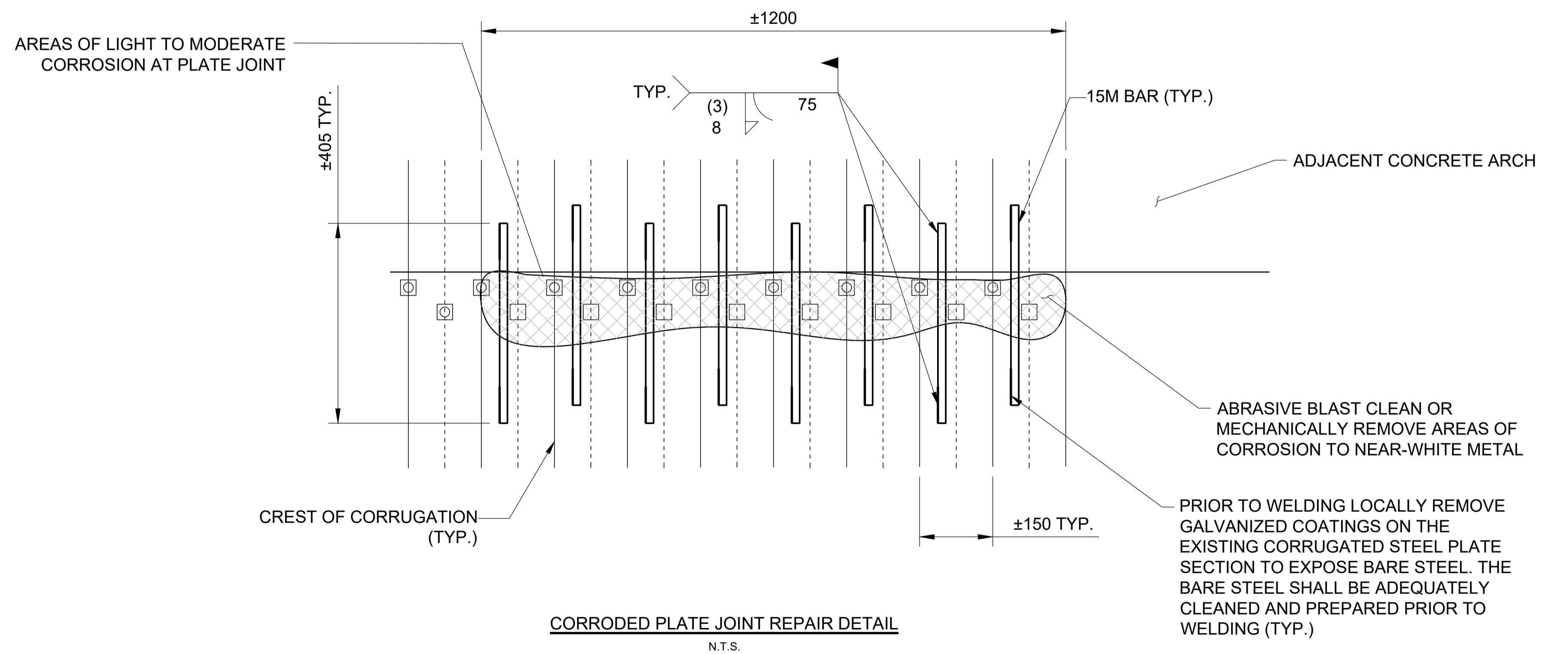
TOP OF ARCH AT END OF STRUCTURAL PLATE

LOCATION 1: TOP OF ARCH AT END OF STRUCTURAL PLATE SECTION, REFER TO REPAIR DETAIL ON THIS PAGE. AFTER COMPLETION OF REPAIR APPLY A ZINC RICH PAINT COATING OVER REPAIR AREA INCLUDING ALL DAMAGED AREAS OF GALVANIZING



EAST SIDE OF ARCH AT END OF STRUCTURAL PLATE

LOCATION 2: EAST SIDE OF ARCH AT END OF STRUCTURAL PLATE SECTION, REFER TO REPAIR DETAIL ON THIS PAGE. AFTER COMPLETION OF REPAIR APPLY A ZINC RICH PAINT COATING OVER REPAIR AREA INCLUDING ALL DAMAGED AREAS OF GALVANIZING



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CLIENT	THE MUNICIPALITY OF POWASSAN
PROJECT TITLE	MEMORIAL PARK DRIVE EAST (#222) CULVERT REHABILITATION
DRAWING TITLE	PLATE JOINT REPAIR DETAILS (PROVISIONAL)

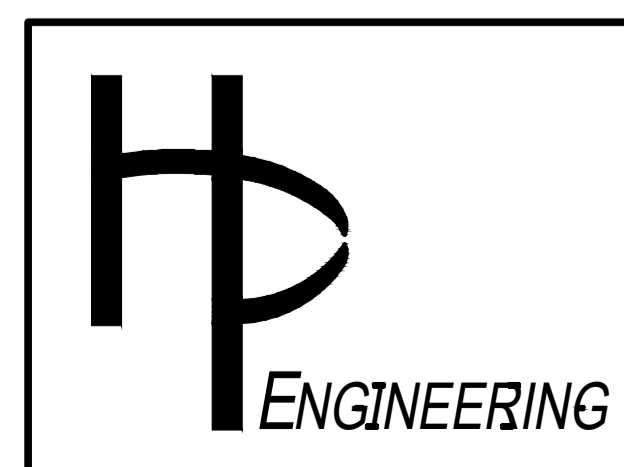
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NORTH ELEVATION

- LOCALLY DEWATER AS REQUIRED
- INSTALL VERTICAL FORMWORK (EXTENDING TO CREEK BED LEVEL AND CUT TO THE PROFILE OF THE CREEK BED) ALONG FACE OF FOOTINGS
- PLACE / PUMP FLOWABLE (HIGH SLUMP/MIN. 20 MPa) CONCRETE THROUGH FORMWORK OPENINGS / PORTS TO FILL VOIDS BELOW FOOTINGS
- LOCATIONS AND DIMENSIONS ON THIS DRAWINGS ARE DEPICTED SCHEMATICALLY ONLY



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PROJECT TITLE	<b>MEMORIAL PARK DRIVE EAST (#222) CULVERT REHABILITATION</b>
DRAWING TITLE	<b>UNDERMINING REPAIR DETAILS (PROVISIONAL)</b>

DATE:	JUNE 2022
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DWG. NO.	<b>5</b>