

# TAY VALLEY TOWNSHIP

## REPLACEMENT OF THE BOLINGBROKE BRIDGE



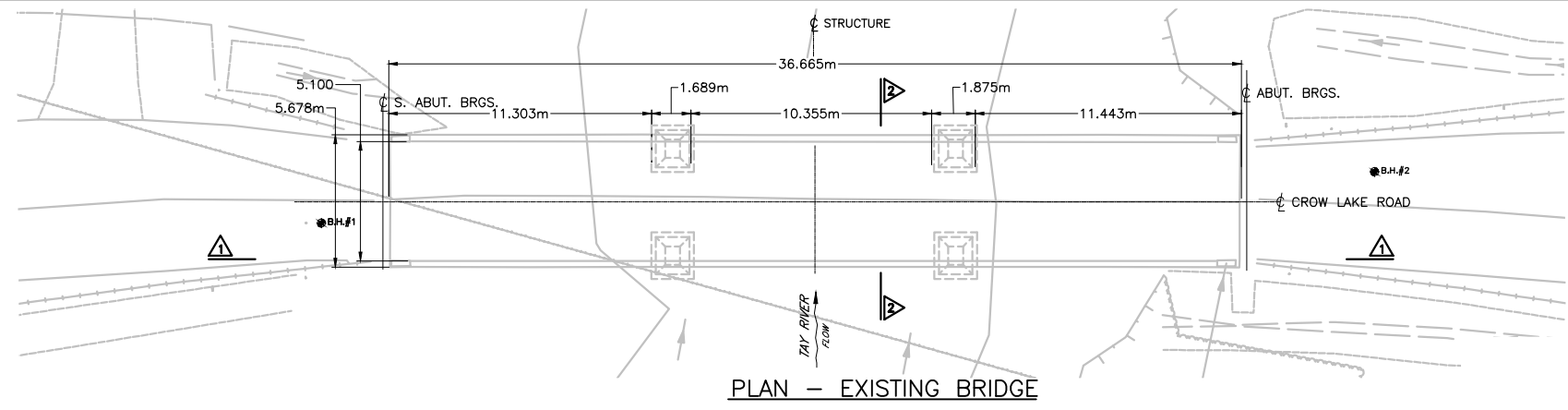
**CONTRACT No. 2020-PW-11**

MANAGER OF PUBLIC WORKS:  
SEAN ERVIN C.E.T.

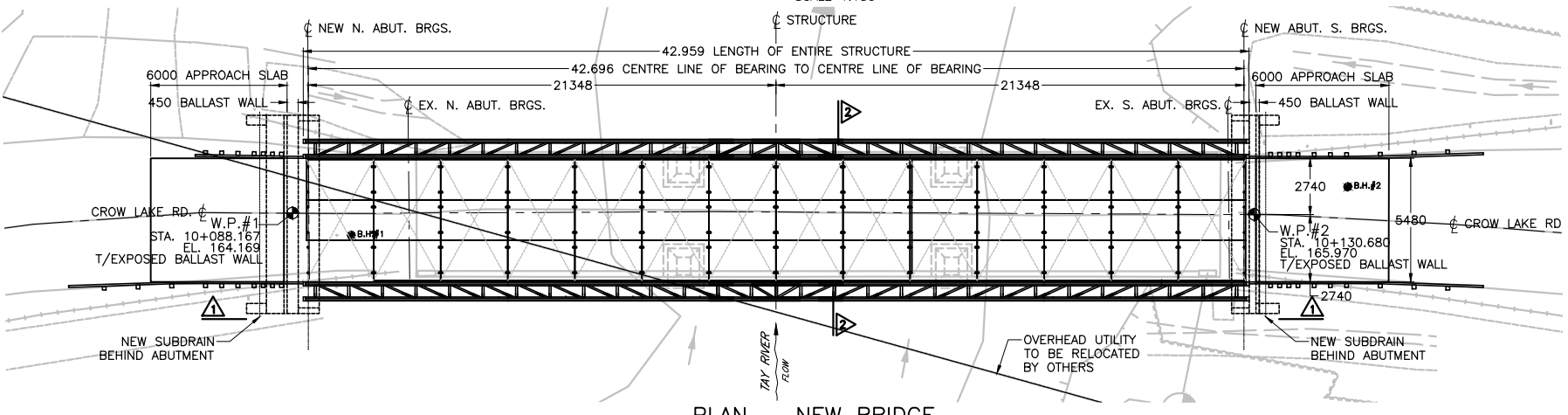


LIST of DRAWINGS:

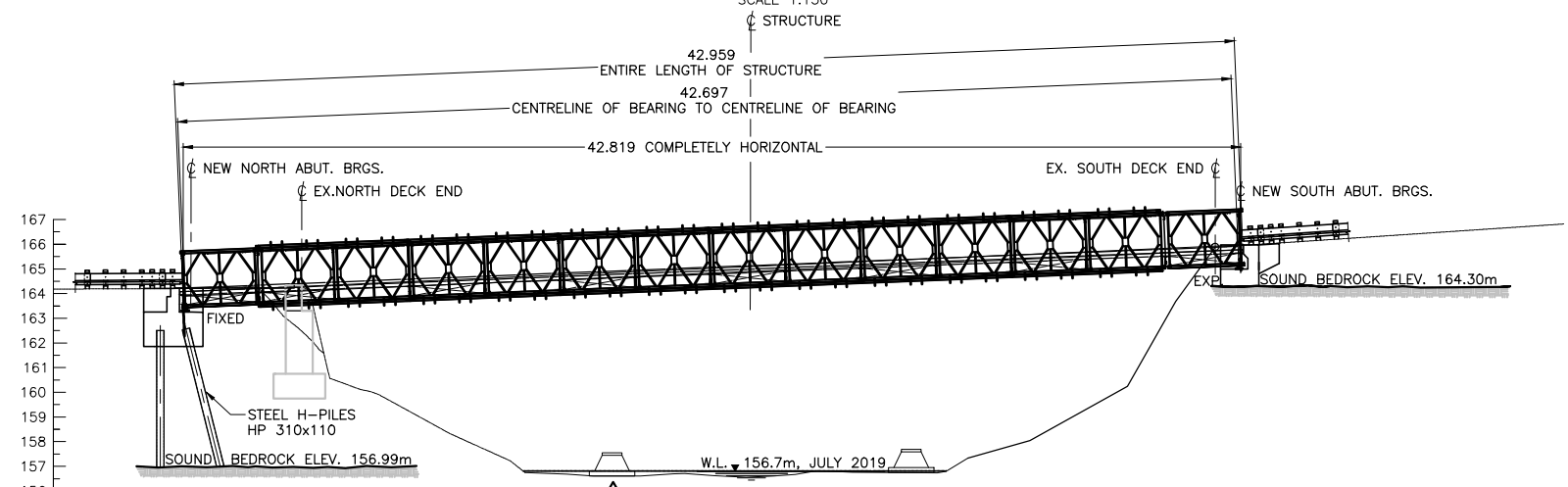
- 00- TITLE SHEET
- 01- GENERAL ARRANGEMENT I
- 02- GENERAL ARRANGEMENT II
- 03- DETOUR
- 04- ENVIRONMENTAL CONTROL PLAN
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- 10- NEW CONSTRUCTION – NORTH ABUTMENT
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- 12- REINFORCING DETAILS – NORTH ABUTMENT
- 13- REINFORCING DETAILS – SOUTH ABUTMENT
- 14- PILE LAYOUT – NORTH ABUTMENT
- 15- 6000mm APPROACH SLAB {SSD 0116.001}



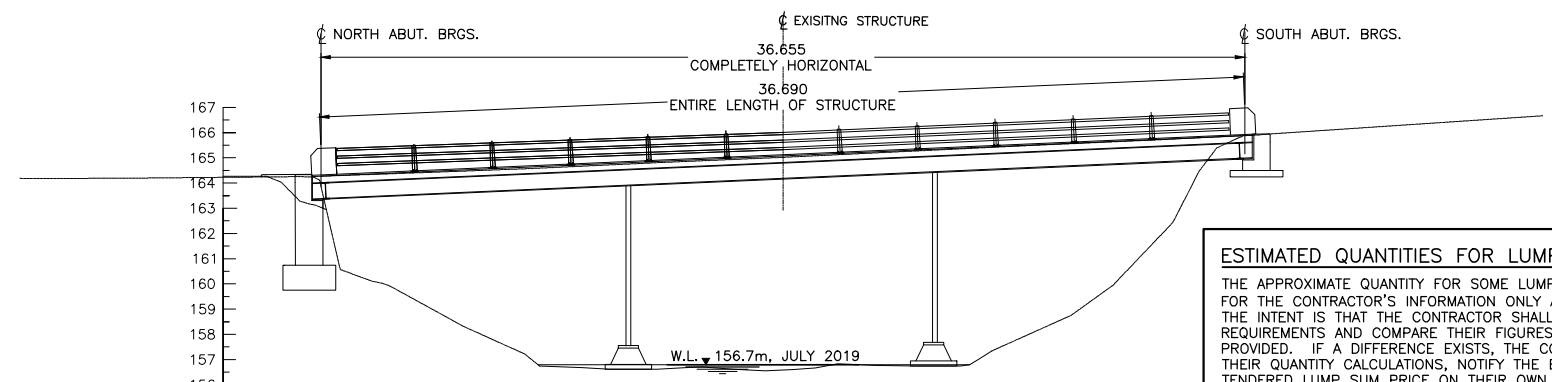
PLAN - EXISTING BRIDGE  
SCALE 1:150



PLAN - NEW BRIDGE  
SCALE 1:150



WEST ELEVATION - NEW BRIDGE  
EAST ELEVATION SIMILAR  
SCALE 1:150



WEST ELEVATION - EXISTING BRIDGE  
EAST ELEVATION SIMILAR  
SCALE 1:150

**SCOPE OF WORK FOR BRIDGE:**

- RELOCATE BELL POLE AND LINES SO AS TO PREVENT INTERFERENCE WITH CONSTRUCTION OF NEW NORTH ABUTMENT
- INSTALL/IMPLEMENT TRAFFIC CONTROL MEASURES, ROAD CLOSURE AND DETOUR SIGNAGE
- INSTALL ENVIRONMENTAL PROTECTION MEASURES AND INSTALL AND MAINTAIN DEBRIS PLATFORM
- REMOVE EXISTING STRUCTURE INCLUDING CONCRETE RAILINGS AND GUIDE RAIL SYSTEM
- COMPLETE EXCAVATIONS TO PERMIT NEW ABUTMENT CONSTRUCTION AND PILING OPERATIONS
- INSTALL PILES FOR NORTH ABUTMENT
- CONSTRUCT ABUTMENTS, TO BEARING SEAT ELEVATIONS (WITHOUT BALLAST WALLS)
- BACKFILL ABUTMENTS
- ASSEMBLE AND INSTALL NEW MODULAR BRIDGE
- CONSTRUCT BALLAST WALLS, WINGWALLS AND CURTAIN WALLS
- INSTALL EXPANSION JOINTS
- INSTALL APPROACH SLAB (BOTH SIDES)
- COMPLETE ROAD WORK ON APPROACHES AND ASPHALT PAVING
- INSTALL GUIDERAILS

**NOTE:**

THE SCOPE OF WORK DESCRIBED ABOVE IS NOT INTENDED TO BE AN EXHAUSTIVE LIST OF ALL ITEMS REQUIRED TO COMPLETE THE WORK, NOR IS IT INTENDED TO BE A SEQUENCE OF WORK.

**APPLICABLE STANDARD DRAWINGS:**

- OPSD 219.110 LIGHT DUTY SILT FENCE BARRIER
- OPSD 219.180 STRAW BALE FLOW CHECK
- OPSD 912.130 GUIDE RAIL SYSTEM, STEEL BEAM STEEL POST WITH OFFSET BLOCK ASSEMBLY INSTALLATION
- OPSD 3190.100 WALL RETAINING AND ABUTMENT WALL DRAIN

**CLASS OF CONCRETE:**

CLASS OF CONCRETE SHALL BE 30 MPa.

**REINFORCING STEEL:**

- REINFORCING STEEL SHALL BE GRADE 400W
- TENSION LAP SLICES SHALL BE CLASS B

**CLEAR COVER TO REINFORCING STEEL:**

FACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 100 ± 25  
CLEAR COVER TO BE: .....70 ± 20  
UNLESS OTHERWISE NOTED: .....70 ± 20

**CONSTRUCTION NOTES:**

THE MODULAR BRIDGE SHALL BE ACROW 700 XS PANEL BRIDGE OR EQUIVALENT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSPORTATION, ASSEMBLY, LAUNCHING AND OVERALL CONSTRUCTION OF THE MODULAR BRIDGE.

CONTRACTOR TO CONFIRM ALL BEARING LOCATIONS AND ELEVATIONS AND ADJUST THE LAYOUT OR ELEVATIONS AS REQUIRED TO SUIT MODULAR BRIDGE AS SUPPLIED.

LAUNCHING OF THE MODULAR BRIDGE SHALL NOT COMMENCE UNTIL CONCRETE IN THE ABUTMENTS HAS REACHED 30MPa STRENGTH.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS WHICH DESCRIBE THE METHOD OF ERECTION AND LAUNCHING PRIOR TO COMMENCEMENT OF THE WORK.

**GENERAL NOTES:**

THE CONTRACTOR SHALL VERIFY ALL RELEVANT DIMENSIONS AND ELEVATIONS OF THE EXISTING STRUCTURE AND ALL DETAILS ON SITE AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK.

THE CONTRACTOR SHALL LOCATE AND PROTECT ALL UTILITIES, SERVICES AND ROADWAYS FOR THE DURATION OF CONSTRUCTION OPERATIONS.

THE CONTRACTOR SHALL INSTALL EROSION AND SEDIMENT CONTROL MEASURES, TRAFFIC CONTROL MEASURES, ROAD CLOSURE AND DETOUR SIGNAGE PRIOR TO COMMENCEMENT OF ANY WORK ON SITE.

THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH ENVIRONMENTAL REGULATIONS, SPECIFICATIONS AND OPERATIONAL CONSTRAINTS SPECIFIED WITHIN THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL CONTROL OPERATIONS TO PREVENT ENTRY OF ANY DELETERIOUS MATERIALS INTO THE WATERCOURSE.

THE CONTRACTOR SHALL MAINTAIN THE FLOWS IN THE WATERCOURSE AT ALL TIMES.

STABILITY AND INTEGRITY OF THE STRUCTURE DURING THE EXECUTION OF THE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED AT ALL STAGES OF CONSTRUCTION.

ALL AREAS AFFECTED BY CONSTRUCTION ACTIVITIES SHALL BE FULLY REINSTATED TO PRE-CONSTRUCTION OR BETTER CONDITIONS TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR, INCLUDING THE REINSTATEMENT OF ALL VEGETATION, PATHWAYS, FENCES, AND AREAS USED FOR SITE ACCESS.

**ESTIMATED QUANTITIES FOR LUMP SUM ITEMS:**

THE APPROXIMATE QUANTITY FOR SOME LUMP SUM ITEMS ARE PROVIDED FOR THE CONTRACTOR'S INFORMATION ONLY AND ARE NOT GUARANTEED. THE INTENT IS THAT THE CONTRACTOR SHALL CALCULATE QUANTITY REQUIREMENTS AND COMPARE THEIR FIGURES TO THE INFORMATION PROVIDED. IF A DIFFERENCE EXISTS, THE CONTRACTOR SHALL RE-CHECK THEIR QUANTITY CALCULATIONS, NOTIFY THE ENGINEER, AND BASE THEIR TENDERED LUMP SUM PRICE ON THEIR OWN INFORMATION.

- EARTH EXCAVATION FOR STRUCTURE \_\_\_\_\_ 184.0m<sup>3</sup>
- CONCRETE IN ABUTMENTS \_\_\_\_\_ 47.6<sup>3</sup>
- CONCRETE IN WINGWALLS \_\_\_\_\_ 1.6m<sup>3</sup>
- CONCRETE IN CURTAIN WALLS \_\_\_\_\_ 1.1m<sup>3</sup>
- CONCRETE IN APPROACH SLABS \_\_\_\_\_ 16.4m<sup>3</sup>
- LIGHT-DUTY SILT FENCE \_\_\_\_\_ 123.0m
- STRAW BALE FLOW CHECK DAM \_\_\_\_ 3 INSTALLATIONS

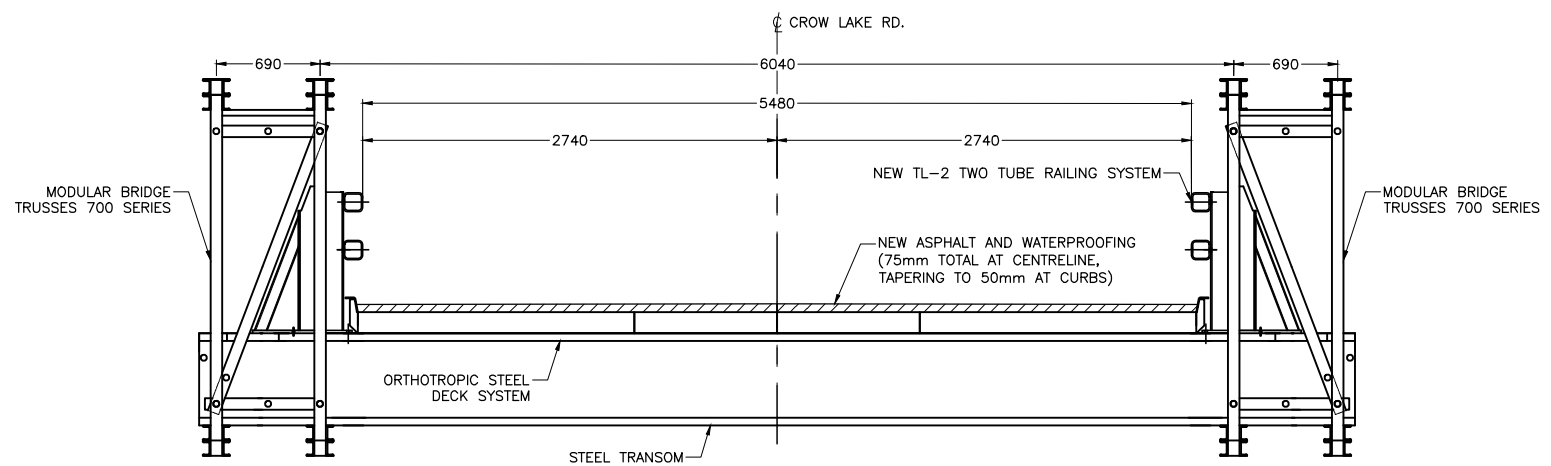
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01	90% SUBMISSION	04.09.2020	MRF

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		DESIGN: MRF
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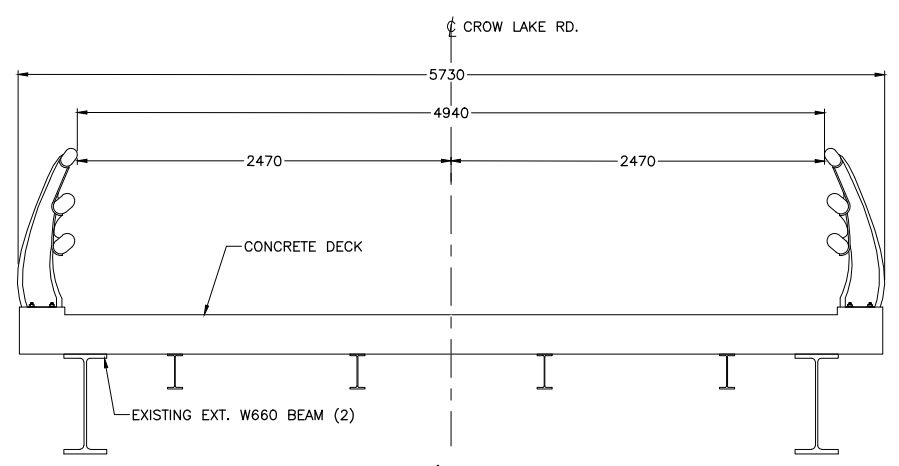
**TAY VALLEY TOWNSHIP**  
**BOLINGBROKE BRIDGE REPLACEMENT**

GENERAL ARRANGEMENT - I

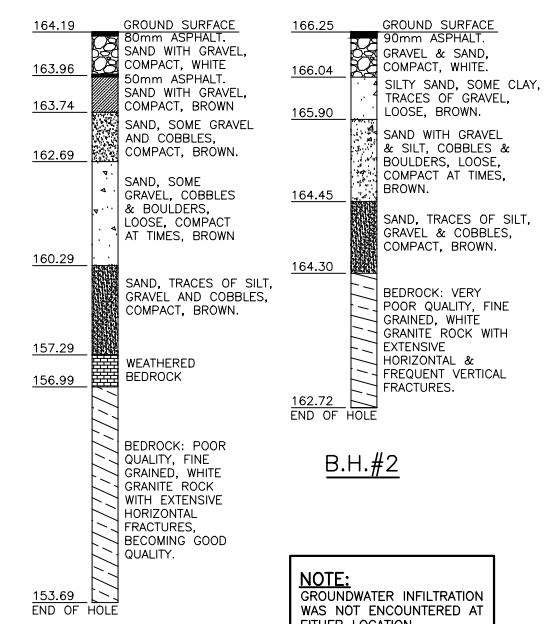
CONTRACT No. 19543-1      DWG 01



**SECTION - NEW BRIDGE**  
SCALE 1:25



**SECTION - EXISTING SECTION**  
SCALE 1:25



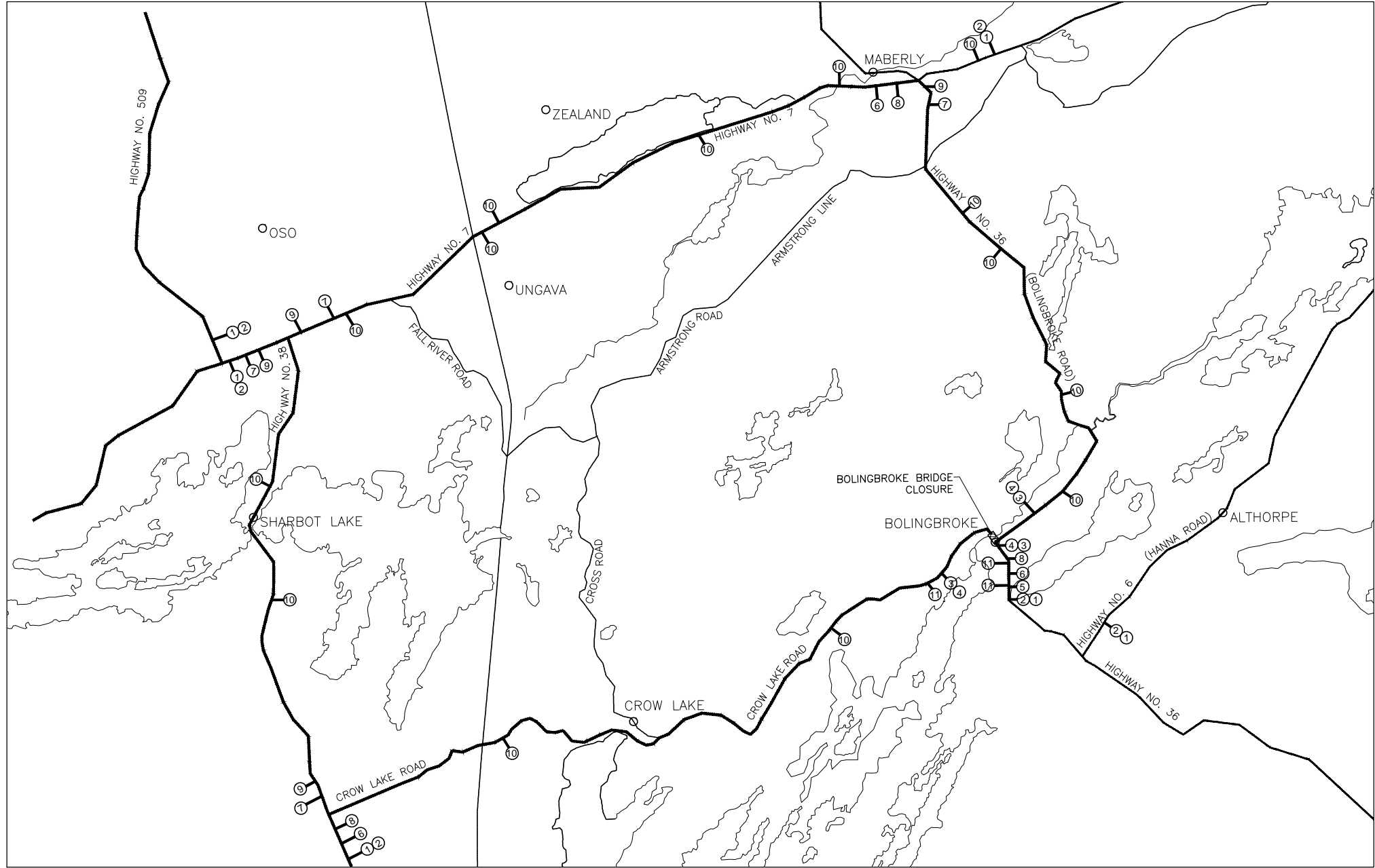
**BOREHOLE LOGS**  
AINLEY GROUP LTD.  
PROJECT No. 2019-PW-006 AG FILE No. 19543-1  
DRILL DATE: JULY 3, 2019

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		DATE:
		MAY 2020

**inley** CONSULTING ENGINEERS PLANNERS  
**TAY VALLEY TOWNSHIP**  
**BOLINGBROKE BRIDGE REPLACEMENT**  
**GENERAL ARRANGEMENT - II**

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**LEGEND:**

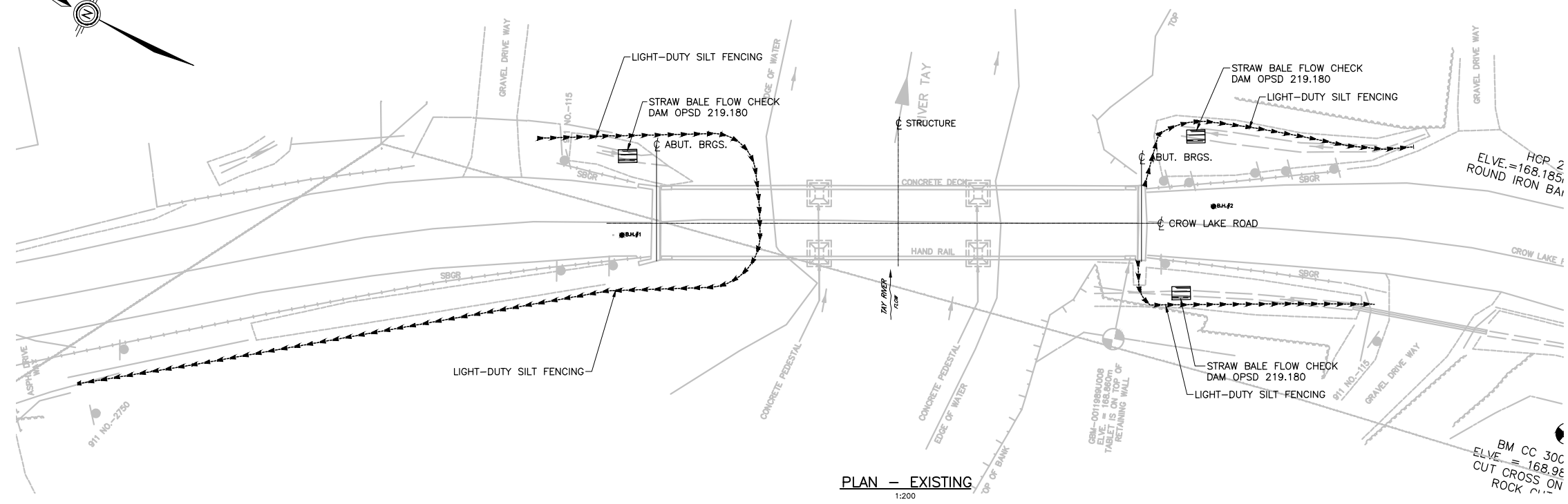
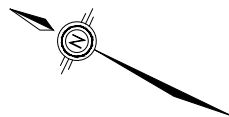
- |             |   |             |                 |
|-------------|---|-------------|-----------------|
| 1 TC-64     | BOLINGBROKE BRIDGE CLOSED FOR BRIDGE WORK BETWEEN SHERBROKE ROAD AND BOLINGBROKE ROAD | 8 TC-10B(R) | DETOUR D-1      |
|             | DATE to DATE  | 9 TC-10B(L) | DETOUR D-1      |
| 2 TC-10     | FOLLOW DETOUR D-1   | 10 TC-10C   | DETOUR D-1      |
| 3 TC-71B    | LOCAL TRAFFIC ONLY  | 11 TC-10D   | DETOUR D-1 ENDS |
| 4 TC-71A    | ROAD CLOSED   |             |                 |
| 5 TC-5      | DETOUR  |             |                 |
| 6 TC-10A(R) | DETOUR D-1  |             |                 |
| 7 TC-10A(L) | DETOUR D-1  |             |                 |

**NOTES:**

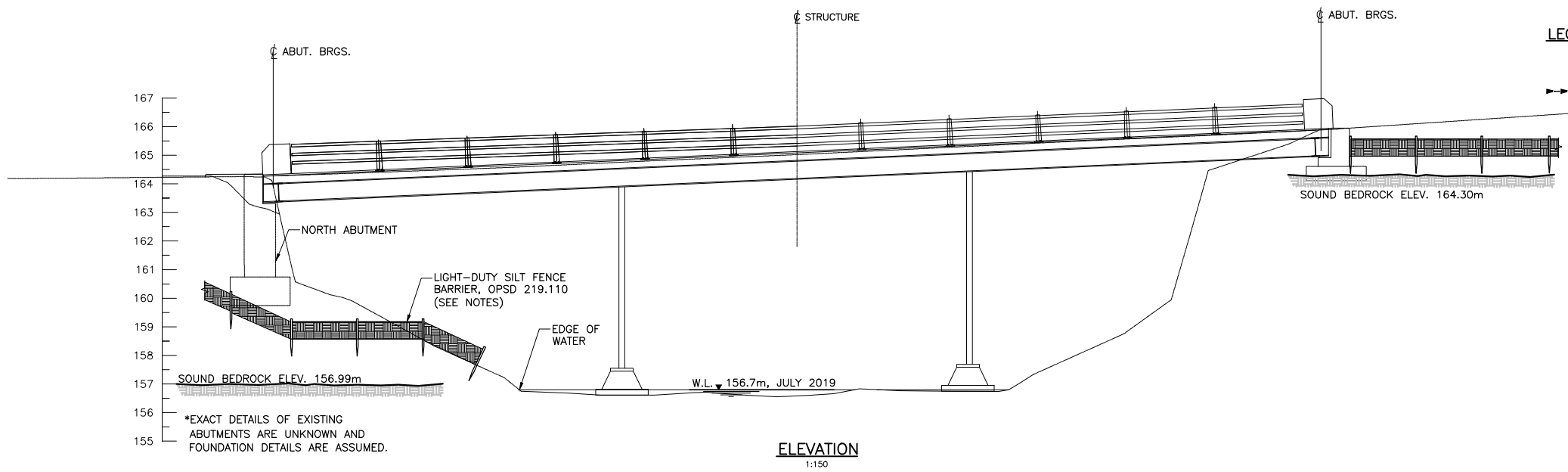
- SIGN 1 TO BE ERRECTED TWO WEEKS PRIOR TO CONSTRUCTION.
- PROTECTIVE BARRIERS IN THE FORM OF TCB TO BE INSTALLED ACROSS ROAD AT BOTH ENDS OF JOB SITE.
- INSTALLATION OF DETOURS AND ROAD CLOSURE SIGNS SHALL BE INSTALLED DURING NON-PEAK HOURS (8:30am TO 4:30pm).
- ALL DELINEATORS AND SIGNAGE/FLAGGING SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH THE ONTARIO TRAFFIC MANUAL, BOOK 7, TEMPORARY CONDITIONS. DETOUR SIGNING, ADVISORY SPEED AND LANE CLOSURE SIGNS (INCLUDING ADVANCE WARNING or CLOSURE SIGNS) SHALL BE PROVIDED, INSTALLED, MAINTAINED AND REMOVED BY THE CONTRACTOR.
- SIGNAGE SHOWN SHALL BE THE MINIMUM REQUIRED AND SHALL BE AUGMENTED AS REQUIRED BY THE ONTARIO TRAFFIC MANUAL BOOK 7 TEMPORARY CONDITIONS.

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		DATE: MAY 2020	
<b>Inley</b> CONSULTING ENGINEERS PLANNERS			
<b>TAY VALLEY TOWNSHIP</b>			
<b>BOLINGBROKE BRIDGE REPLACEMENT</b>			
DETOUR			
CONTRACT No. 19543-1		DWG 03	

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PLAN - EXISTING  
1:200



ELEVATION  
1:150

**GENERAL NOTES:**

THE COMPLETENESS AND ACCURACY OF UTILITIES INFORMATION SHOWN ON THIS DRAWING IS NOT GUARANTEED. THE LOCATION OF UTILITIES IS APPROXIMATE ONLY AND THE EXACT LOCATION SHOULD BE DETERMINED BY CONSULTING THE APPROPRIATE AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING UTILITIES AND PROVIDING ADEQUATE PROTECTION FROM DAMAGE.

SEDIMENT AND EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING CONSTRUCTION TO PREVENT ENTRY OF SEDIMENT INTO THE WATERCOURSE.

CONTRACTOR SHALL SUPPLY AND MAINTAIN MOE APPROVED "SPILL KITS" ON SITE AT ALL TIMES

ALL EQUIPMENT MAINTENANCE AND REFUELLING WILL BE CONTROLLED TO PREVENT ANY DISCHARGE OR PETROLEUM PRODUCTS INCLUDING HYDRAULIC PRODUCTS INTO ENVIRONMENTALLY SENSITIVE AREAS. VEHICULAR MAINTENANCE AND REFUELLING SHALL BE CONDUCTED AT LEAST 30m DISTANCE FROM THE WATERCOURSE BANKS.

ALL SEDIMENT CONTROL MEASURES MEET THE REQUIREMENTS OF THE GOVERNING AUTHORITIES. MAKE ALL CHANGES TO THE SEDIMENTATION CONTROL WORKS AS REQUESTED BY THESE AUTHORITIES AND AT NO ADDITIONAL COST TO THE CONTRACT.

THE EROSION AND SEDIMENT CONTROL STRATEGIES OUTLINED ON THE PLANS ARE NOT STATIC AND MAY NEED TO BE UPGRADED AND/OR AMENDED AS SITE CONDITIONS CHANGE TO PREVENT SEDIMENT RELEASES TO THE NATURAL ENVIRONMENT. THE CONTRACT ADMINISTRATOR SHOULD BE IMMEDIATELY CONTACTED SHOULD THE EROSION AND SEDIMENT CONTROL PLANS CHANGE. FAILED EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REPAIRED IMMEDIATELY AND/OR UPGRADED AS REQUIRED.

FOLLOWING CONSTRUCTION, ONCE DISTURBED AREAS HAVE STABILIZED WITH THE VEGETATION AND APPROVAL HAS BEEN GIVEN BY THE CONTRACT ADMINISTRATOR, ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED.

THE CONTRACTOR SHALL CONTROL OPERATIONS TO PREVENT ENTRY OF DELETERIOUS MATERIAL INTO THE WATERCOURSE.

**SILT FENCING NOTES:**

SILT FENCE BARRIERS TO BE IN ACCORDANCE WITH OPSS 805 AND OPSD 219.110 AND SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE CONTRACT ADMINISTRATOR.

STRAW BALE FLOW CHECK DAMS TO BE ACCORDANCE WITH OPSS 805 AND OPSD 219.180 AND SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE CONTRACT ADMINISTRATOR.

EXTEND SILT FENCE UNDERNEATH THE BRIDGE AND TO A MINIMUM SETBACK OF 3000mm FROM THE THE ABUTMENT WALL. MAKE GOOD THE CLOSURE OF INTERFACE BETWEEN THE SILT FENCE AND WINGWALL SUCH THAT NO SEDIMENT CAN ENTER THE CREEK TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR.

**LEGEND:**

- STRAW BALE FLOW CHECK DAM (OPSD 219.180)
- LIGHT DUTY SILT FENCE (OPSD 219.110)

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		MAY 2020

**inley** CONSULTING ENGINEERS PLANNERS

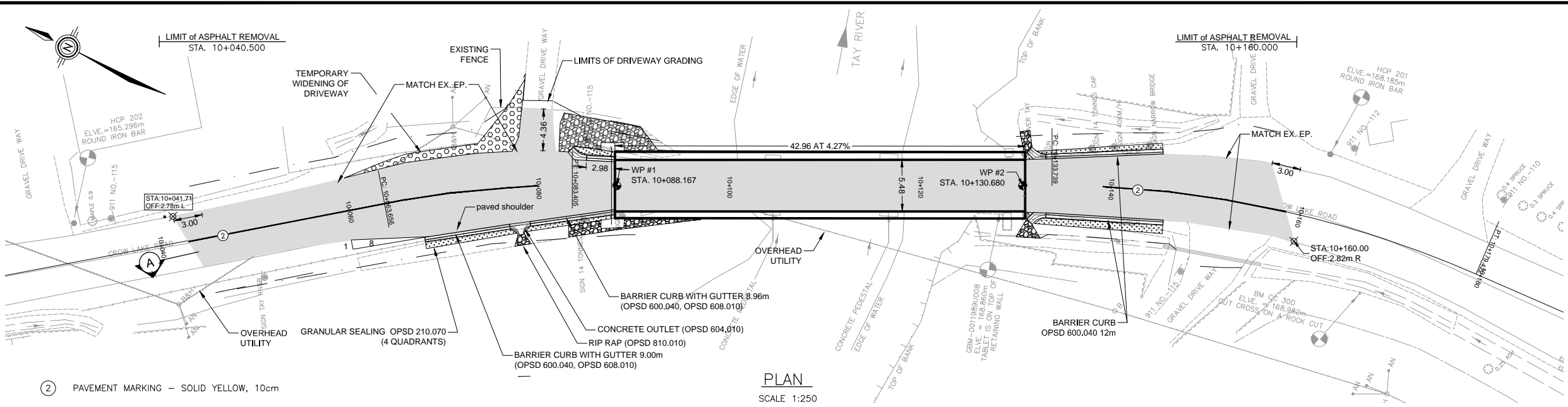
**TAY VALLEY TOWNSHIP**

**BOLINGBROKE BRIDGE REPLACEMENT**

**ENVIRONMENTAL CONTROL PLAN**

CONTRACT No. 19543-1      DWG 04

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② PAVEMENT MARKING - SOLID YELLOW, 10cm

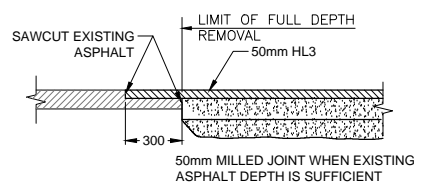
PLAN  
SCALE 1:250

PAVEMENT STRUCTURE FOR APPROACHES

STRUCTURE TYPE	DEPTH(mm)	AC GRADE
HL3 SURFACE	50	58-34
GRANULAR 'A'	150	-
GRANULAR 'B' TYPE I	300	-

PAVEMENT STRUCTURE FOR DECK

STRUCTURE TYPE	DEPTH(mm)	AC GRADE
HL3 SURFACE	75	58-34
WATERPROOFING	10	-

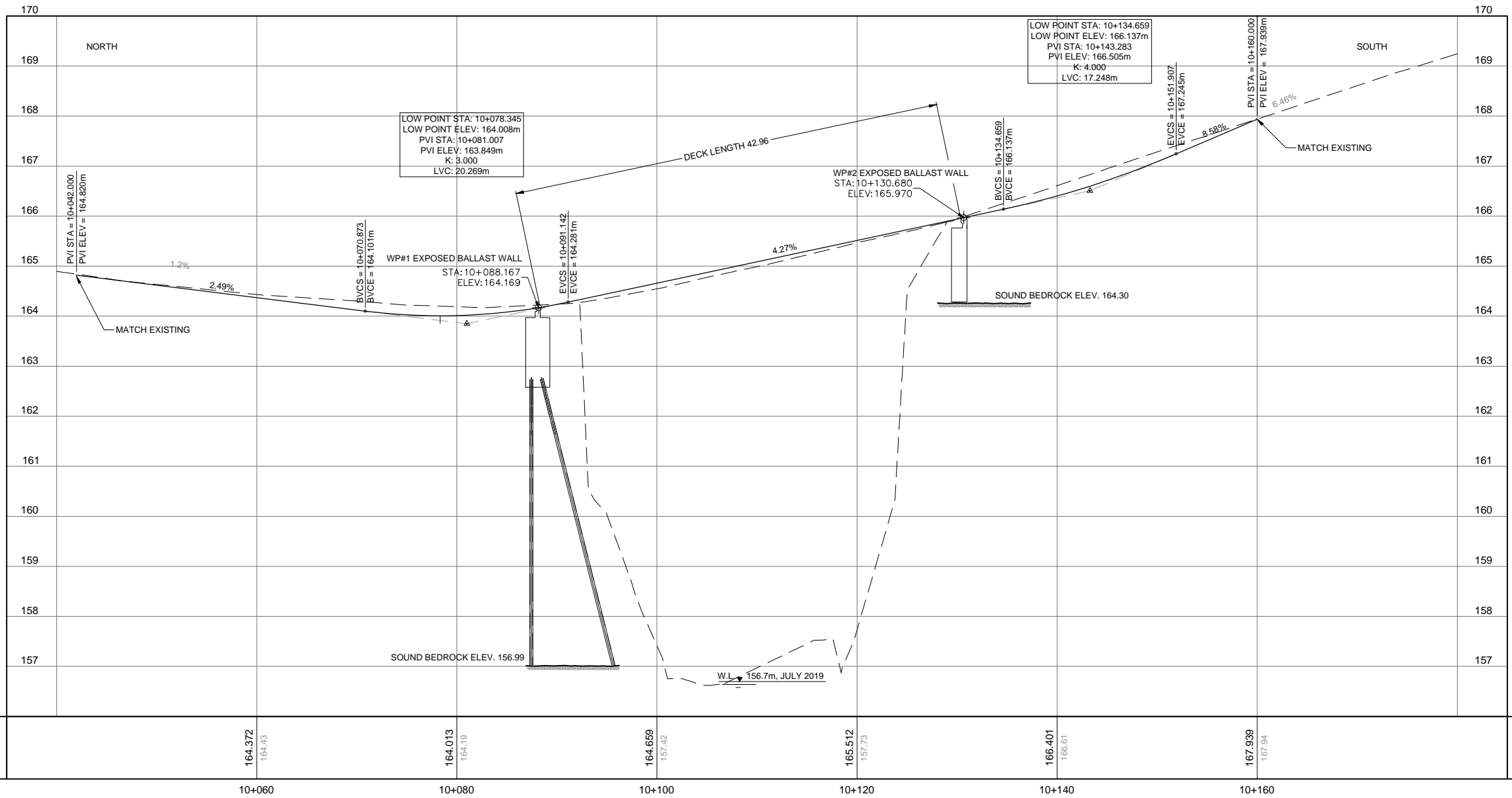


LEGEND

- RIP RAP
- DRIVEWAY WIDENING
- GRANULAR SEALING

GENERAL NOTES

- THE COMPLETENESS AND ACCURACY OF UTILITY INFORMATION SHOWN ON THESE DRAWINGS IS NOT GUARANTEED. THE LOCATION OF UTILITIES IS APPROXIMATELY ONLY AND THE EXACT LOCATION SHOULD BE DETERMINED BY CONSULTING THE APPROPRIATE AUTHORITIES CONCERNED. THE CONTRACTOR SHALL PROVIDE THE LOCATION OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION FROM DAMAGE.
- ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH ONTARIO TRAFFIC MANUAL BOOK 11 PAVEMENT, HAZARD AND DELINEATION MARKINGS.
- CONTRACTOR IS RESPONSIBLE FOR ALL SURVEY CONTROL ON THE PROJECT AND ESTABLISH ALL LAYOUT POINTS.
- |                 |                |
|-----------------|----------------|
| WP#1            | WP#2           |
| STA. 10+088.167 | STA 10+130.680 |
| ELEV. 164.169   | ELEV. 165.970  |
| N. 4957401.584  | N. 4957369.784 |
| E. 379700.003   | E. 379728.233  |



PROFILE  
SCALE 1:250  
SCALE Vt 1:50

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02	ISSUE FOR TENDER	05.05.2020	MRF
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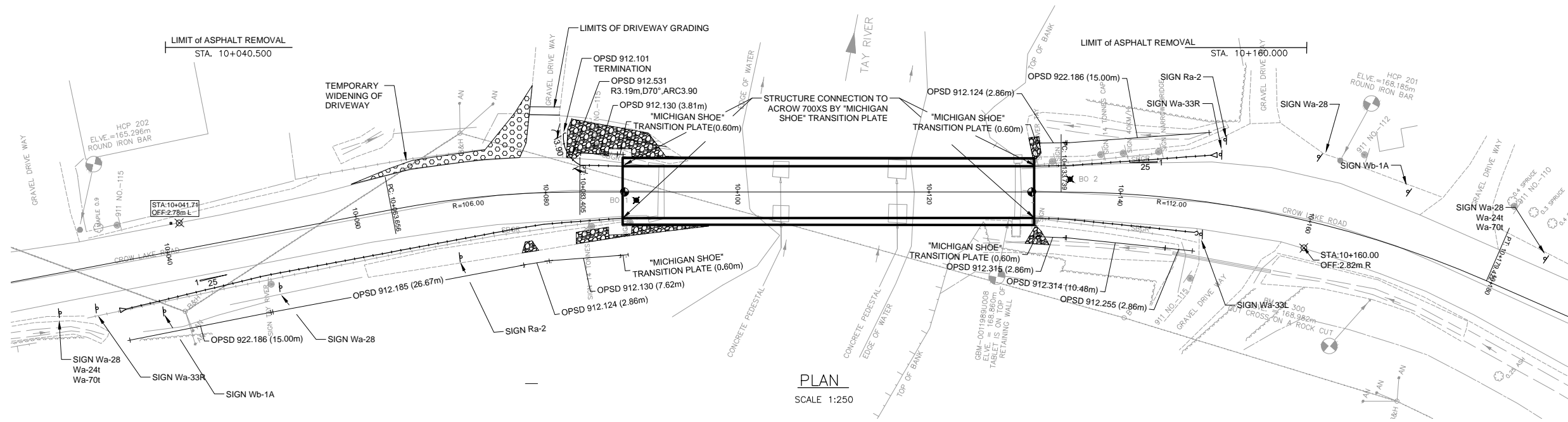
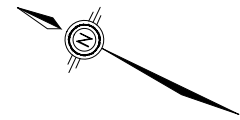
**TAY VALLEY TOWNSHIP**

**BOLINGBROKE BRIDGE REPLACEMENT**

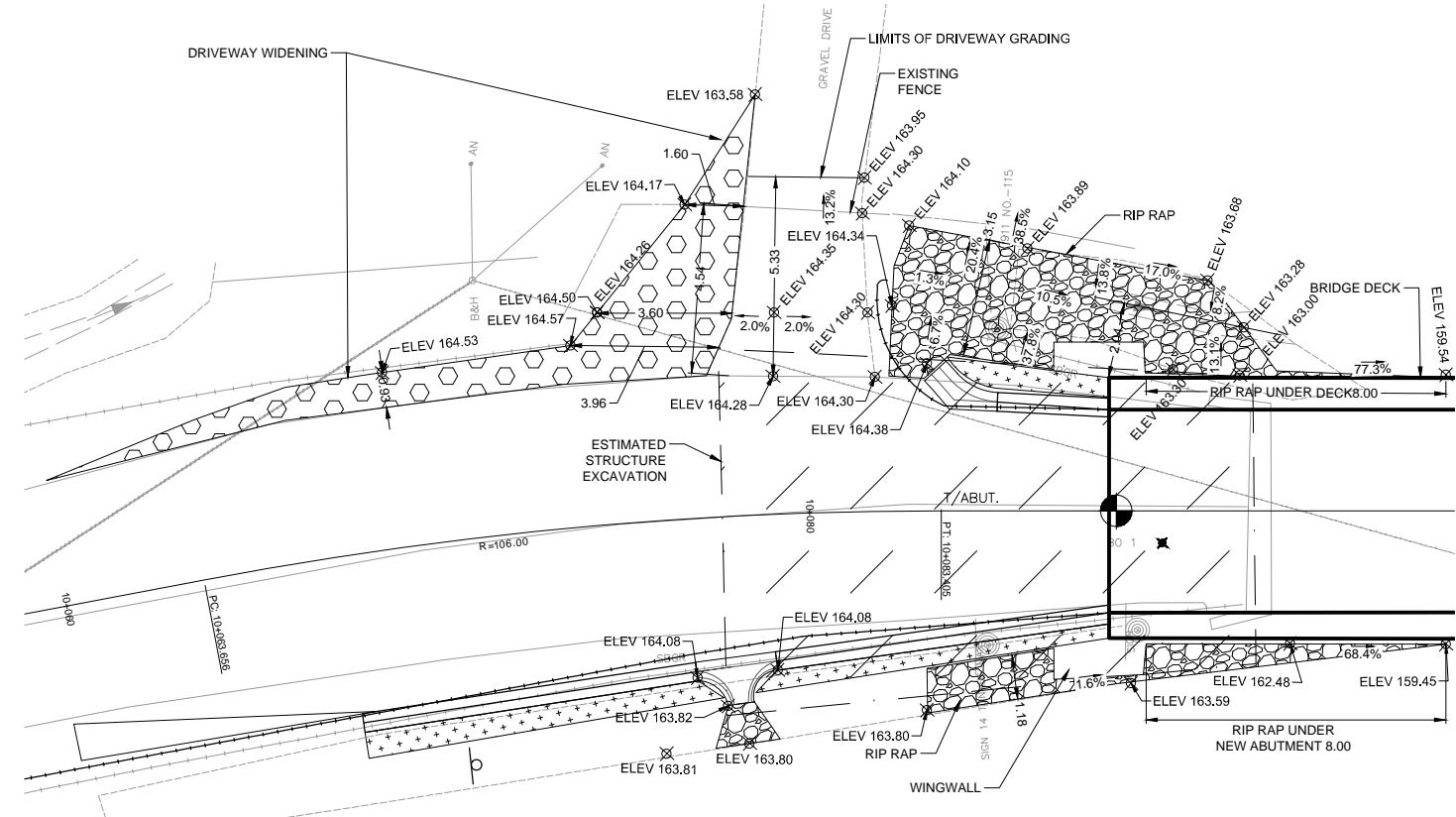
**GRADING & PAVING**

CONTRACT No. 19543-1      DWG 05

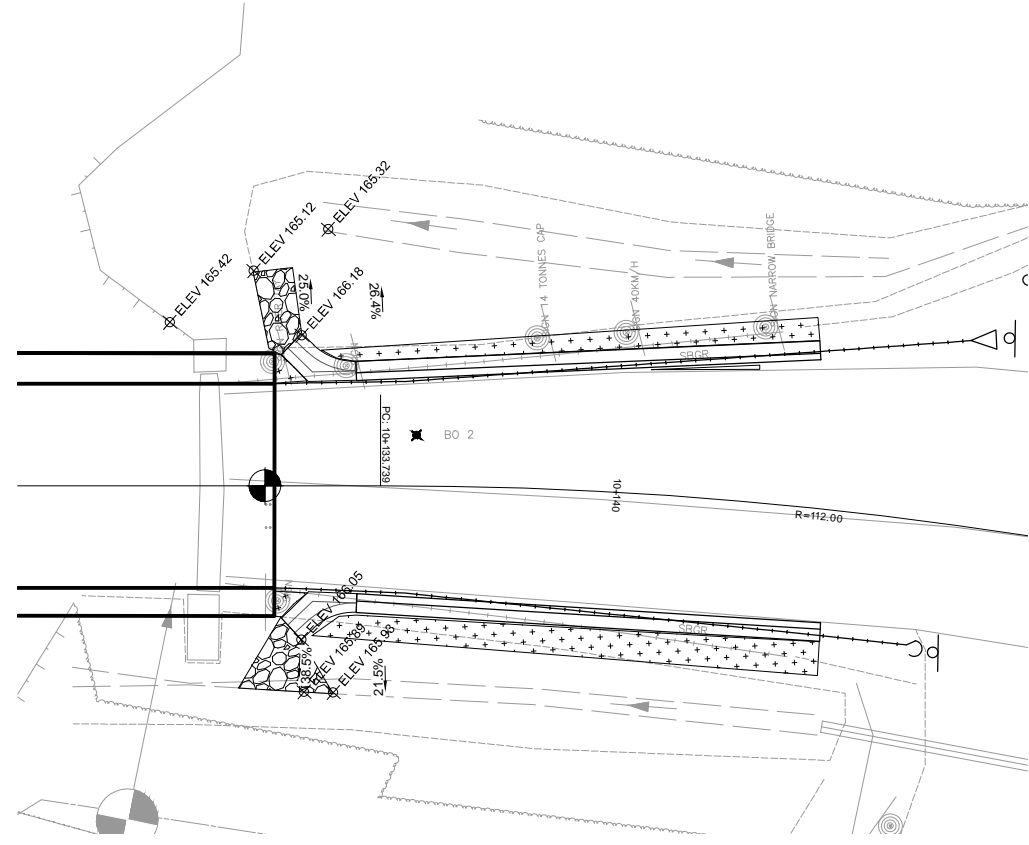
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PLAN  
SCALE 1:250



NORTH SIDE  
SCALE 1:100



SOUTH SIDE  
SCALE 1:100

LEGEND

- RIP RAP
- DRIVEWAY WIDENING
- GRANULAR SEALING

SIGNS

- Wa-33L 30x90
- Wa-33R 30x90
- Wa-28 60x60
- Wa-1A 75x75
- Wa-24t 45x60
- Wa-70t 30x60
- Ra-2 (75)
- Rb-1 60x75

GENERAL NOTES

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2. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH ONTARIO TRAFFIC MANUAL BOOK 11 PAVEMENT, HAZARD AND DELINEATION MARKINGS.
3. CONTRACTOR IS RESPONSIBLE FOR ALL SURVEY CONTROL ON THE PROJECT AND ESTABLISH ALL LAYOUT POINTS.
4. WP#1 STA. 10+188.171 N. 4957401.548 E. 379700.009  
WP#2 STA 10+130.680 N. 4957369.784 E. 379728.233

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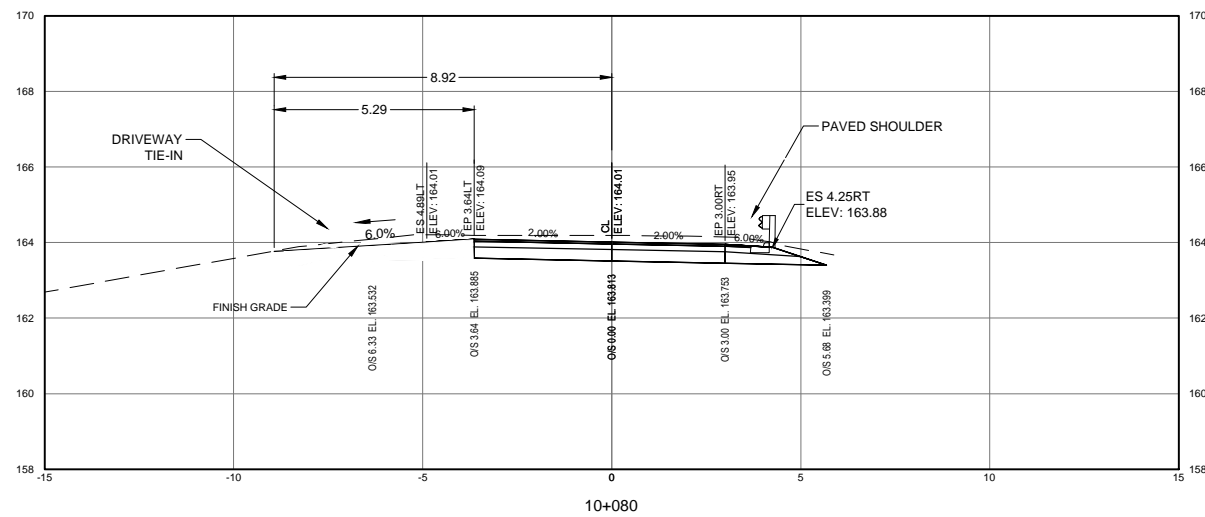
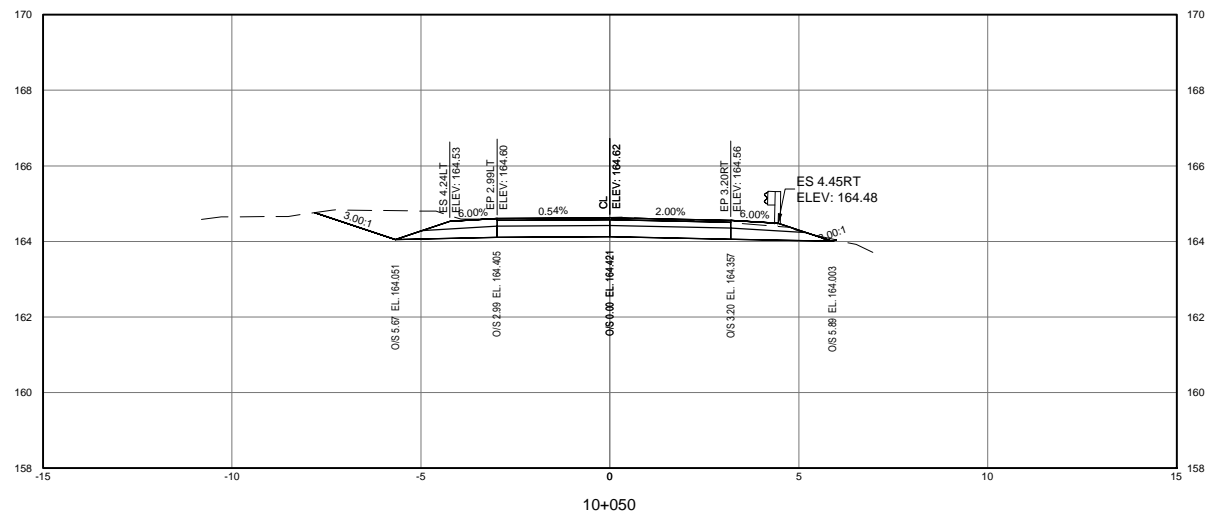
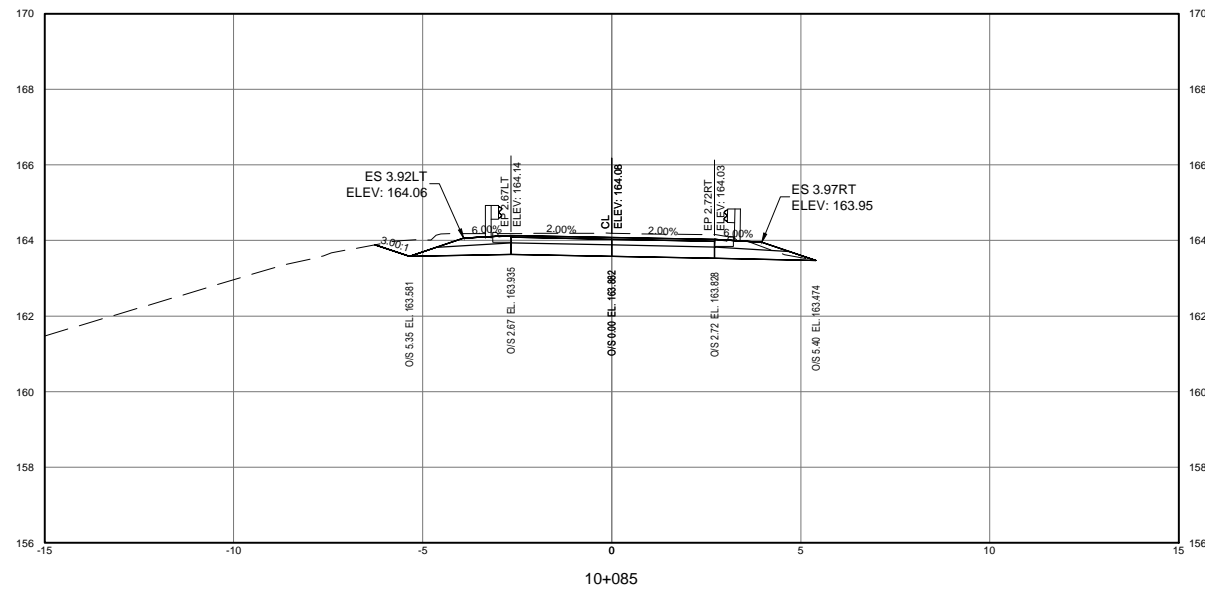
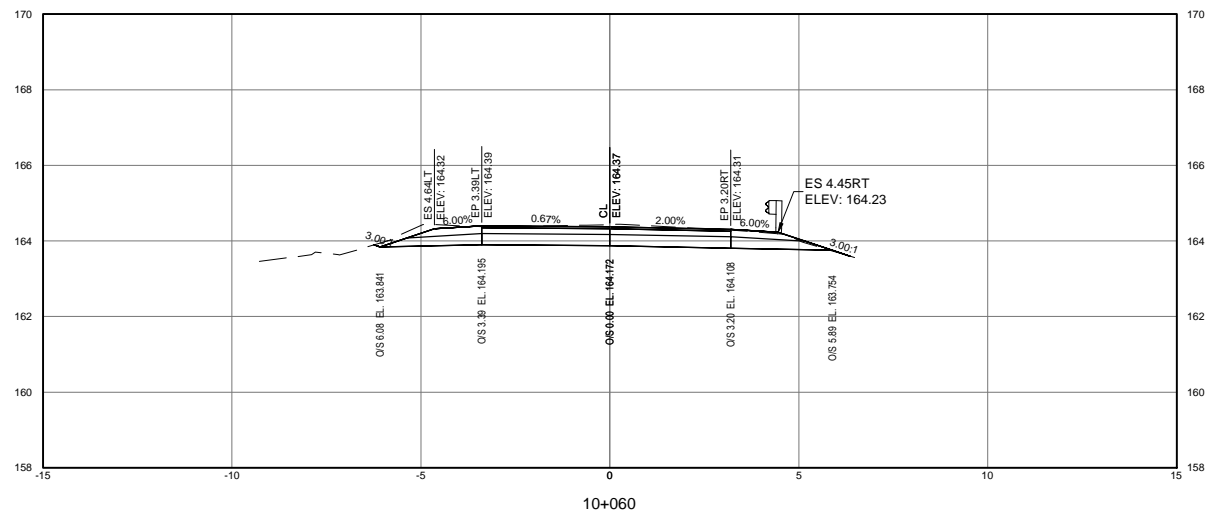
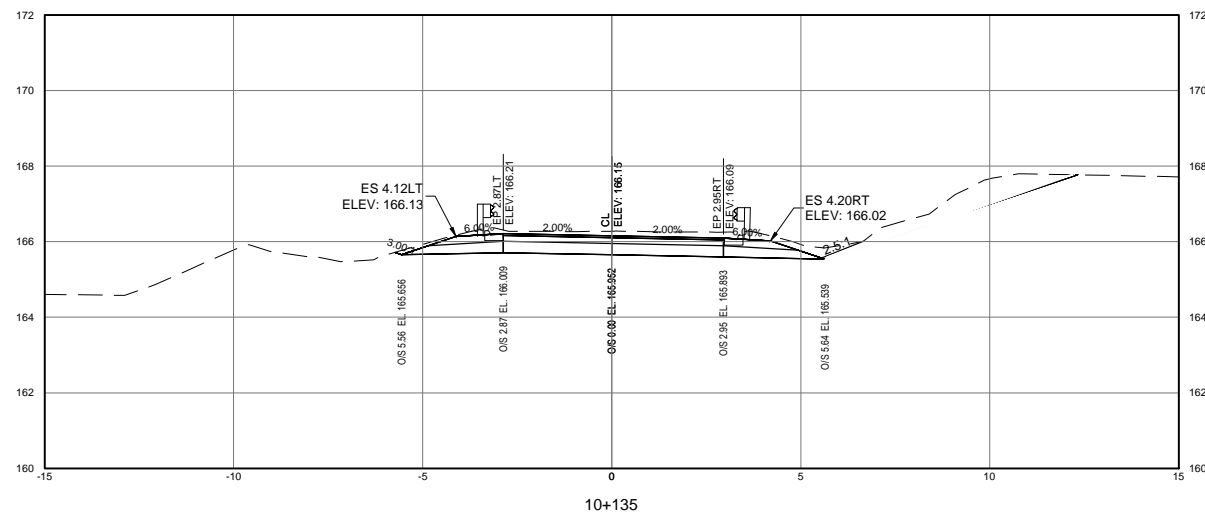
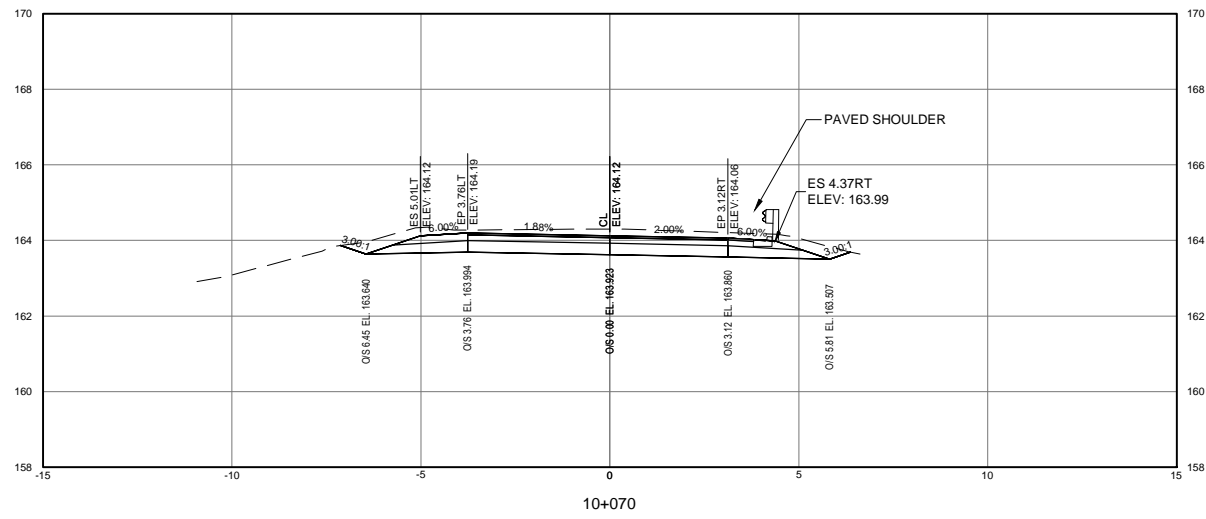
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DATE:	MAY 2020

**TAY VALLEY TOWNSHIP**  
**BOLINGBROKE BRIDGE REPLACEMENT**

REINSTATEMENT

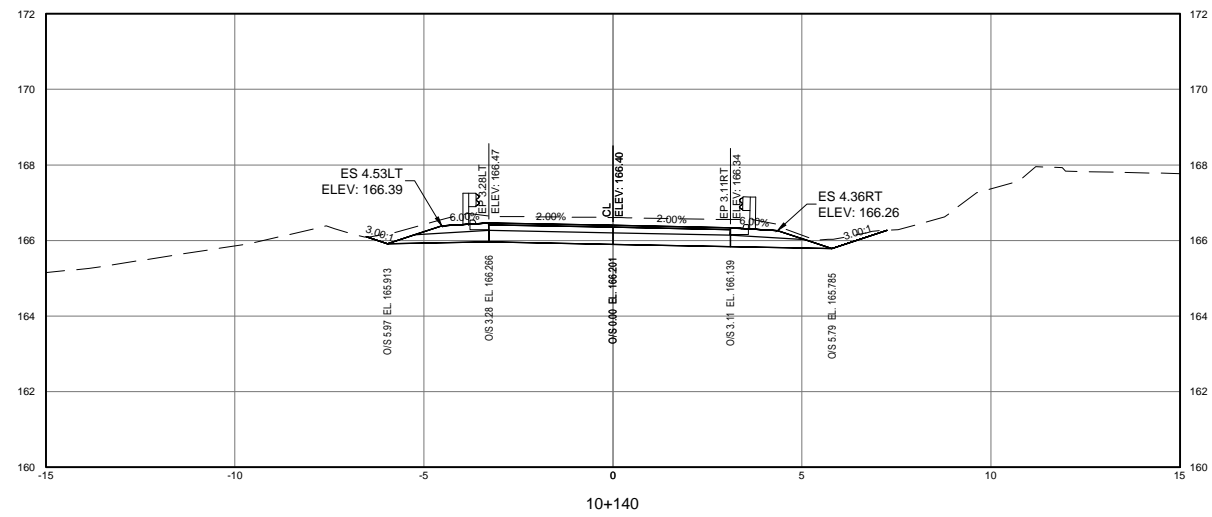
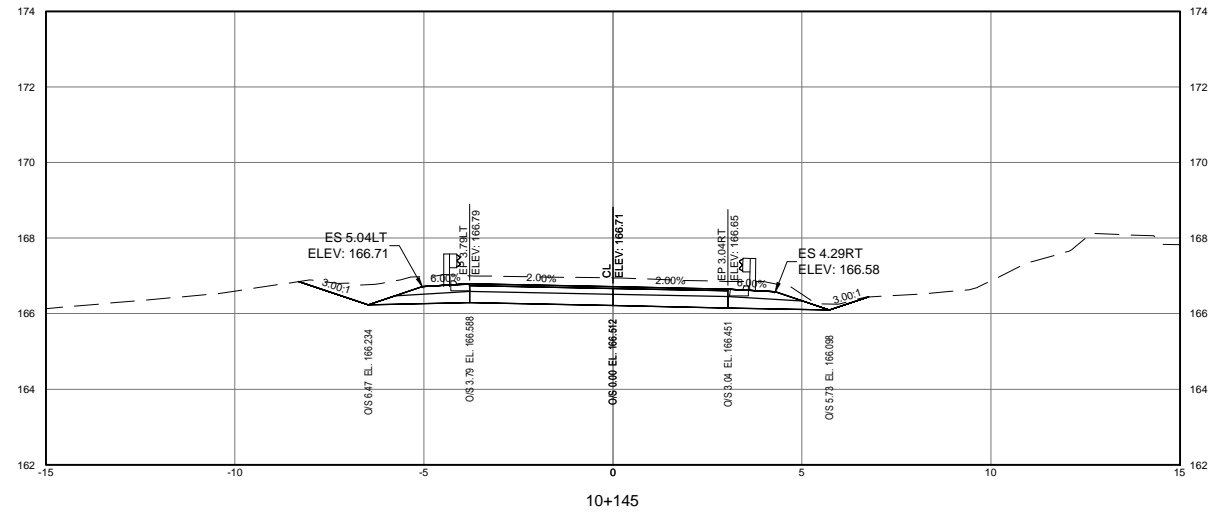
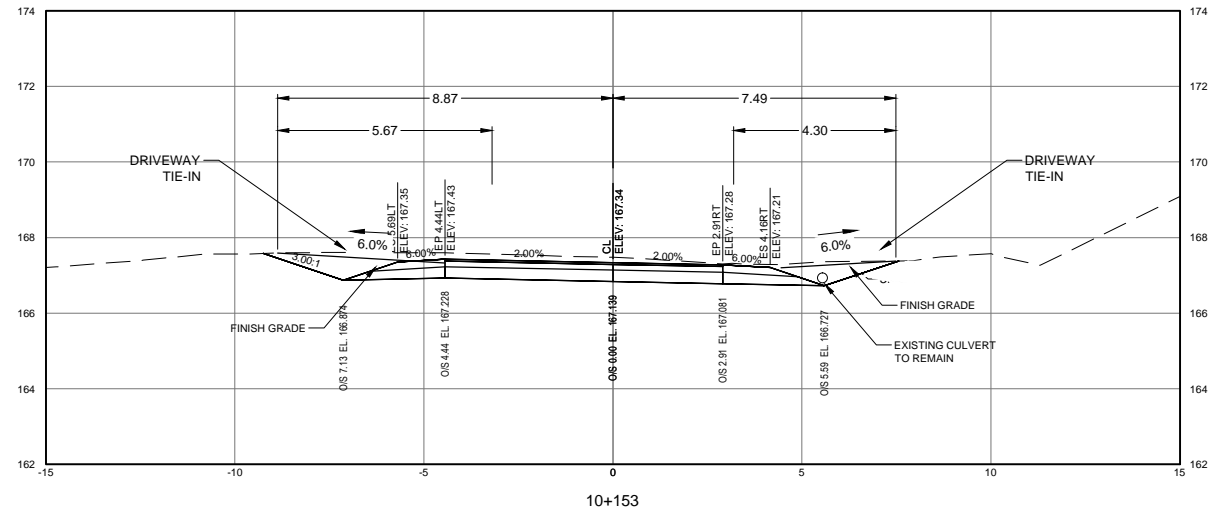
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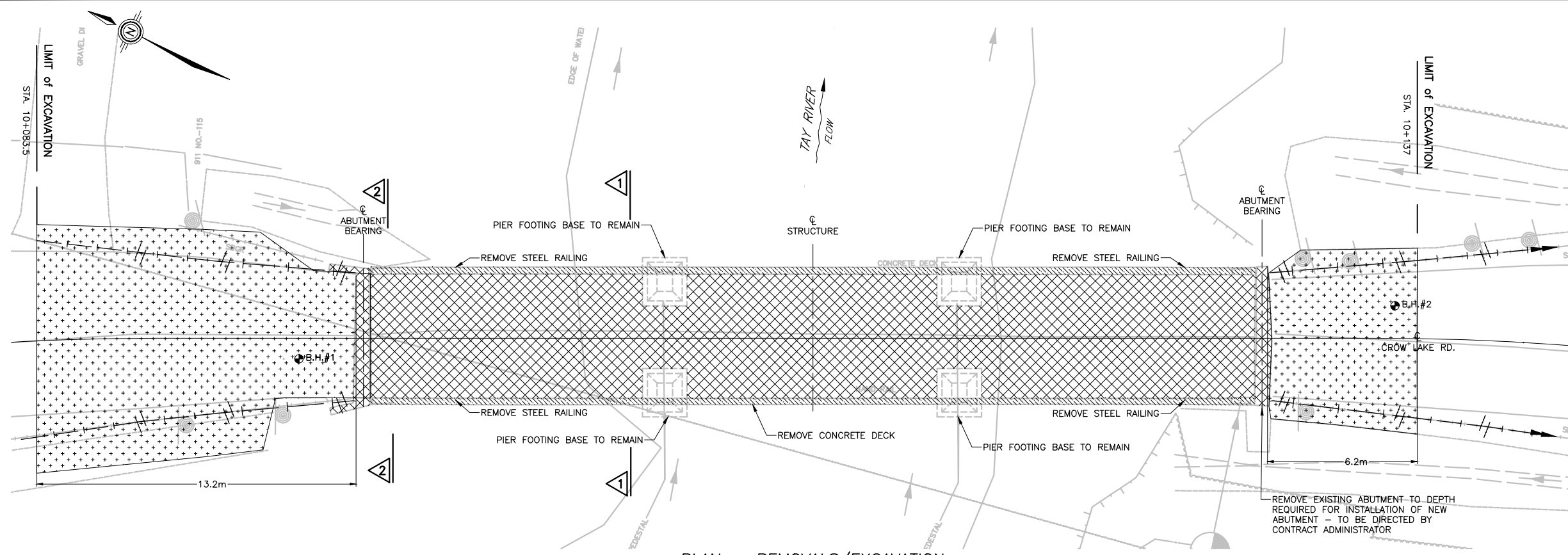


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<b>TAY VALLEY TOWNSHIP</b>			
<b>BOLINGBROKE BRIDGE REPLACEMENT</b>			
<b>CROSS SECTIONS I</b>			
CONTRACT No. 19543-1		DWG 07	





02	ISSUE FOR TENDER	05.05.2020	MRF
01	90% SUBMISSION	04.09.2020	MRF
REV.#	REVISIONS	DATE	INITIAL
Not Valid Unless Signed And Dated			SCALE: AS SHOWN
			DESIGN: RAC
			DRAWN: RAC
			CHECKED: MRF
			DATE: MAY 2020
<b>Linley</b> CONSULTING ENGINEERS PLANNERS			
TAY VALLEY TOWNSHIP			
BOLINGBROKE BRIDGE REPLACEMENT			
CROSS SECTIONS 2			
CONTRACT No. 19543-1		DWG 08	



**PLAN – REMOVALS/EXCAVATION**  
SCALE 1:100

**REMOVALS NOTES:**

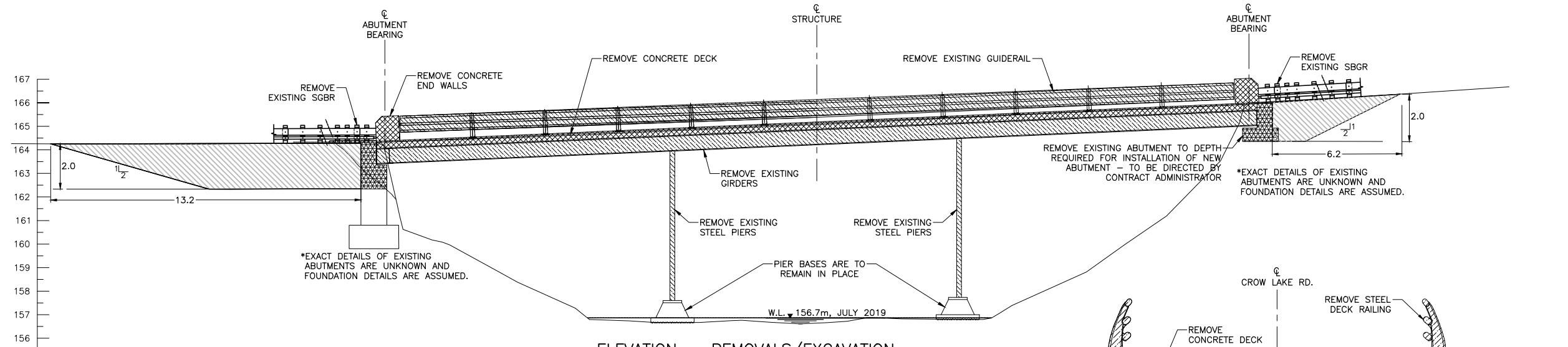
1. ALL REMOVALS ARE TO BE CO-ORDINATED WITH THE CONTRACT ADMINISTRATOR.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS.
3. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT HIS OWN SURVEY OF THE STRUCTURE TO CONFIRM DIMENSIONS ON THE SITE.
4. ANY REMAINING PORTION OF PIER FOOTINGS SHALL NOT OBSTRUCT THE WATERCOURSE, OR CREATE HYDRAULIC INSTABILITY.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY TEMPORARY STRUCTURES/ DEWATERING AS WELL AS DEBRIS CONTAINMENT REQUIRED FOR REMOVAL OF EXISTING STRUCTURE.
6. THE CONTRACTOR SHALL CONTROL OPERATIONS TO PREVENT THE INFILTRATION OF DELETERIOUS MATERIAL IN TO THE WATERCOURSE.

**LEGEND:**

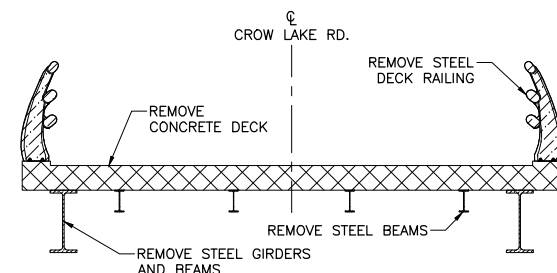
- FULL DEPTH ASPHALT REMOVAL
- FULL DEPTH CONCRETE REMOVAL
- PARTIAL DEPTH CONCRETE REMOVAL
- STEEL REMOVALS
- EARTH EXCAVATION
- SBGR REMOVALS

**LIST OF ABBREVIATIONS:**

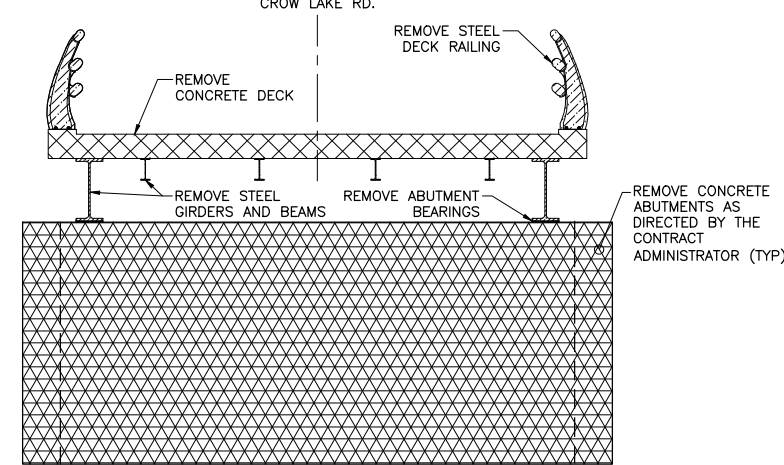
- CL CENTERLINE
- DWG DRAWING
- EL. ELEVATION (METRES)
- B&H BELL-HYDRO POLE
- AN ANCHOR
- STA STATION
- D/S DOWNSTREAM
- U/S UPSTREAM
- SBGR STEEL BEAM GUIDE RAIL



**ELEVATION – REMOVALS/EXCAVATION**  
SCALE 1:100



**1 DECK SECTION – REMOVALS**  
SCALE 1:40



**2 ABUTMENT SECTION – REMOVALS/ EXCAVATION**  
SCALE 1:25

REV.#	REVISIONS	DATE	INITIAL
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01	90% SUBMISSION	04.09.2020	MRF

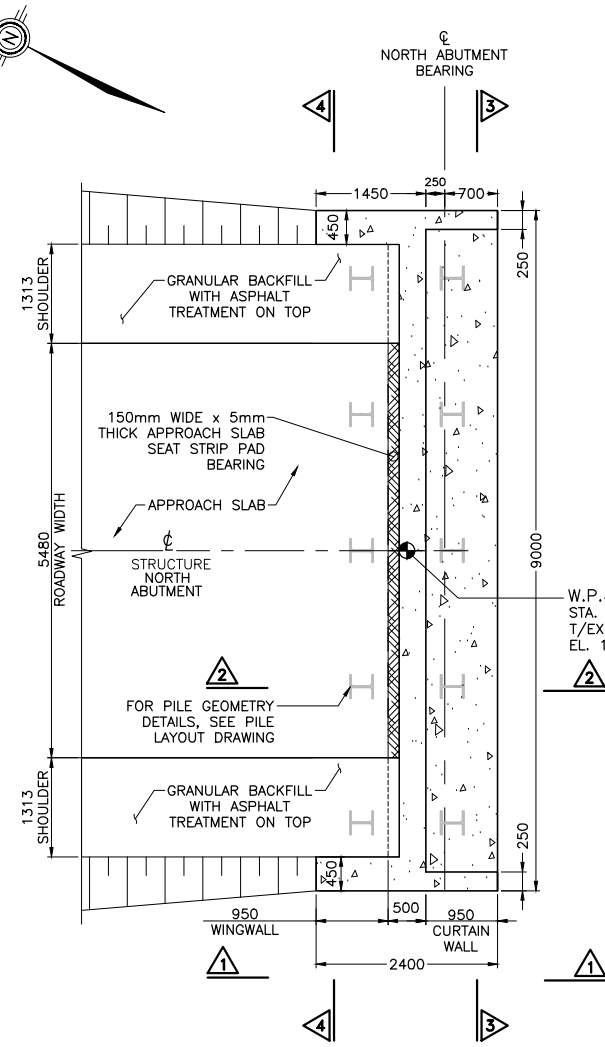
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		CHECKED:	
		BDM	
		DATE:	
		MAY 2020	

**inley** CONSULTING ENGINEERS PLANNERS  
TAY VALLEY TOWNSHIP  
BOLINGBROKE BRIDGE REPLACEMENT

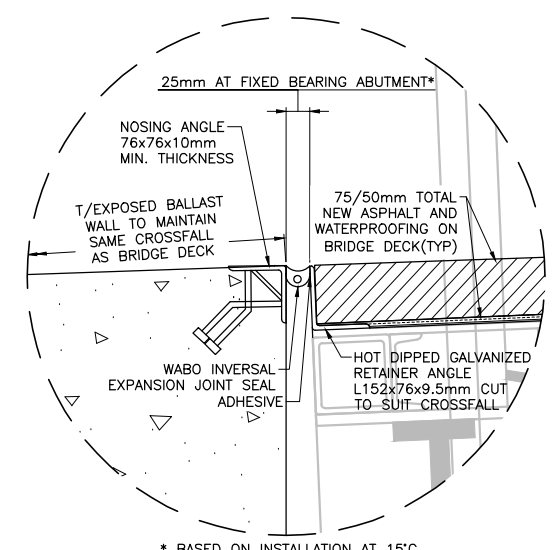
STRUCTURAL REMOVALS

K:\Projects\19543 - Bolingbroke Bridge\Drawings\19543-1 09 Bolingbroke Bridge - Removals V4.dwg 2020-05-04 11:11 AM Liza Guilbeau

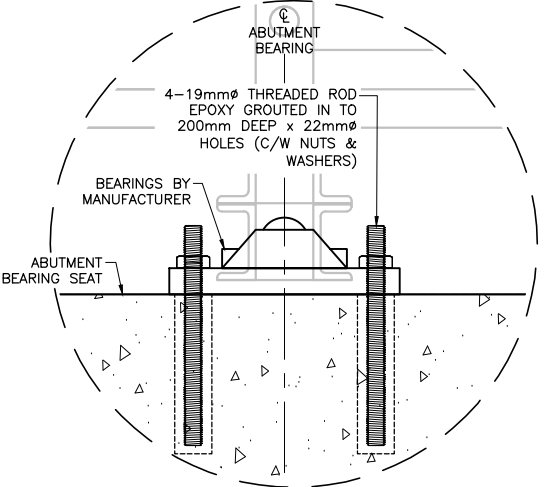
K:\Projects\19543 - Bolingbroke Bridge\19543-1 10 Bolingbroke Bridge - N Abutment - New Construction - N Abut V4.dwg 2020-05-09 2:27 PM Liza Gulbau



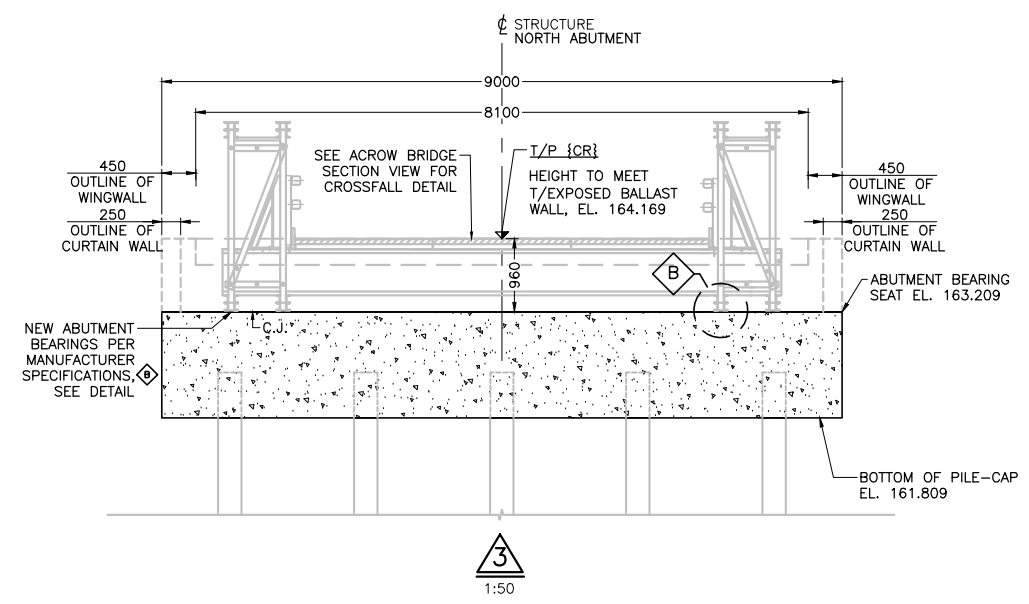
**PLAN - NEW CONSTRUCTION**  
RAILING OMITTED FOR CLARITY  
SCALE 1:50



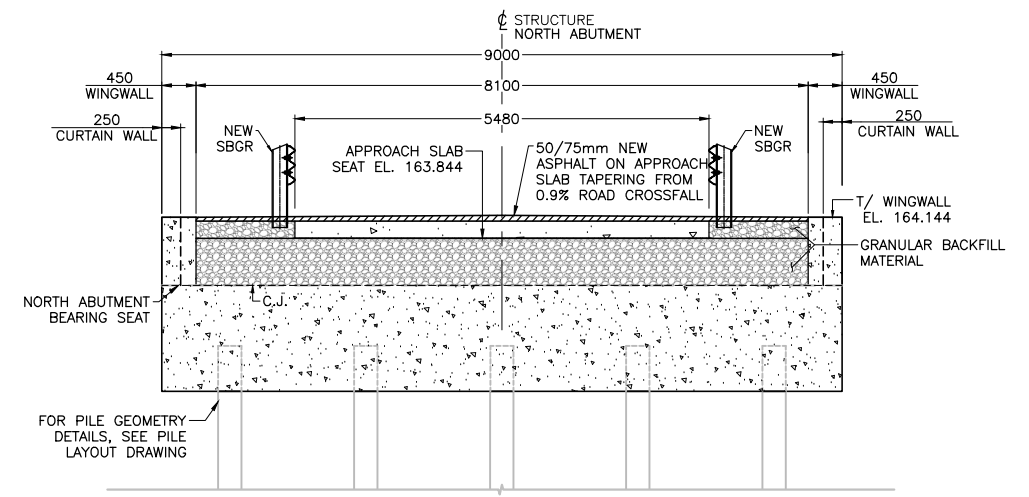
**DECK END JOINT DETAIL**  
FIXED BEARING AT NORTH ABUTMENT  
BRIDGE DECK DRAWN SCHEMATICALLY  
SCALE 1:5



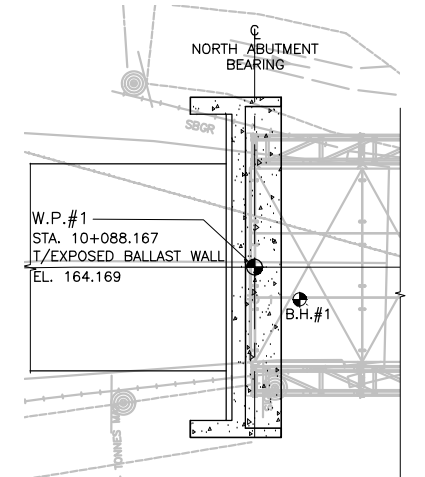
**BEARING DETAIL (TYP.)**  
N.T.S.



**3**  
1:50



**4**  
1:50



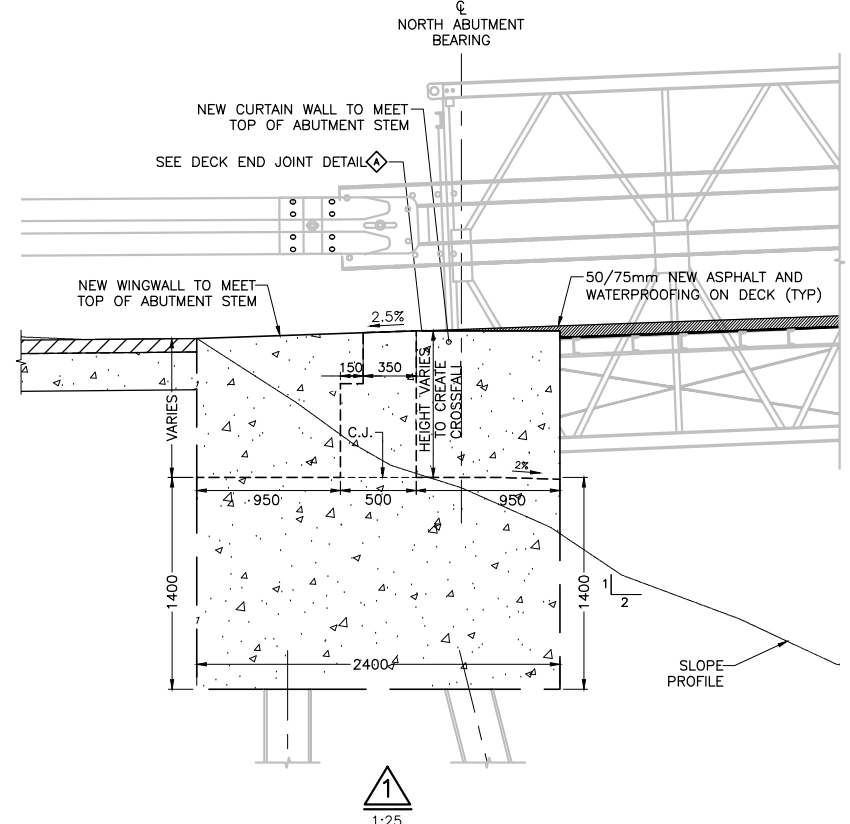
**KEY PLAN**  
SCALE 1:100

**GENERAL NOTES:**

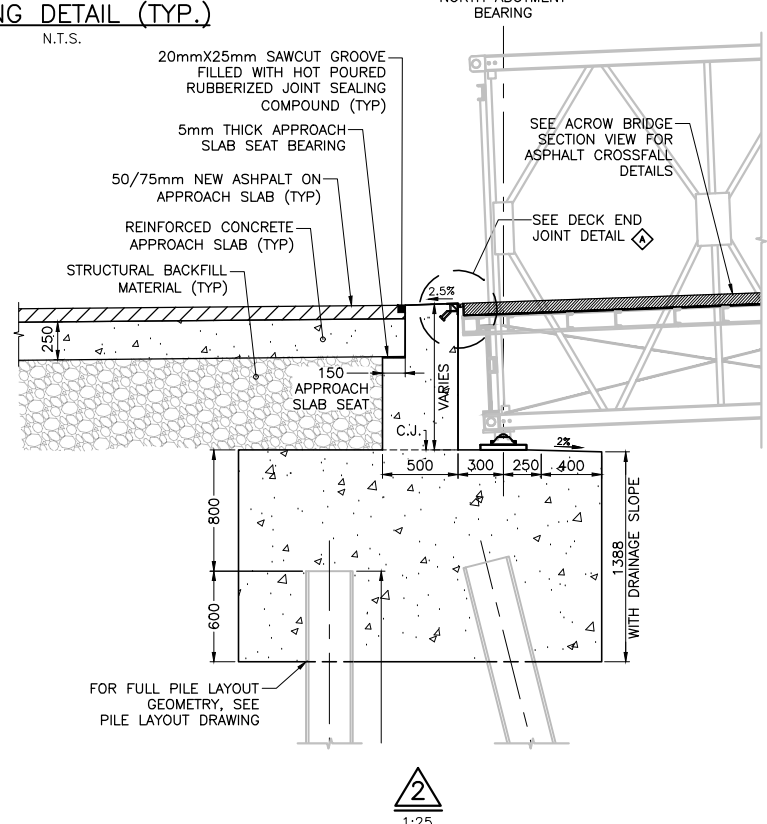
- SEE GENERAL ARRANGEMENT DRAWING FOR NOTES.
- SEE ENVIRONMENTAL PROTECTION DRAWING FOR RELATED ENVIRONMENTAL REQUIREMENTS.
- ALL BEDROCK SURFACES TO RECEIVE MASS CONCRETE FOUNDATIONS ARE TO BE CLEARED OF DEBRIS, LOOSE AND UNSOUND ROCK
- 35M BEDROCK ANCHOR IS REQUIRED TO BE 1200mm LONG AND SPACED AT 1.5m INTERVALS ANYWHERE TRANSVERSELY SLOPING BEDROCK ANGLE EXCEEDS 27°. THIS CONFIGURATION WILL SUPERCEDE REGULARLY SPACED BEDROCK ANCHORS.
- MODULAR BRIDGE WILL BE INSTALLED PRIOR TO THE CASTING OF THE BALLAST WALLS AND WING WALLS.

**CONCRETE:**

- CONSTRUCTION TOLERANCES:  
BEARING SEAT ELEVATION ±3mm  
ALIGNMENT OF BEARING PADS ±3mm  
HORIZONTAL ALIGNMENT OF GIRDERS ±6mm
- ALL EXPOSED CORNERS TO BE CHAMFERED 20mm
- CONCRETE MATERIALS, MIXING, PLACING, CURING & FORM WORK SHALL BE IN ACCORDANCE WITH CSA STANDARD CAN/CSA-A23.1-04.
- TESTING OF CONCRETE MATERIALS AND HARDENED CONCRETE SHALL BE IN ACCORDANCE WITH CSA STANDARD CAN/CSA-A23.2-04.
- CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 30 MPa. ALL CONCRETE SHALL BE AIR ENTRAINED.
- SUBMIT MIX DESIGN TO CONTRACT ADMINISTRATOR, A MINIMUM OF THREE DAYS PRIOR TO PLACING CONCRETE.



**1**  
1:25



**2**  
1:25

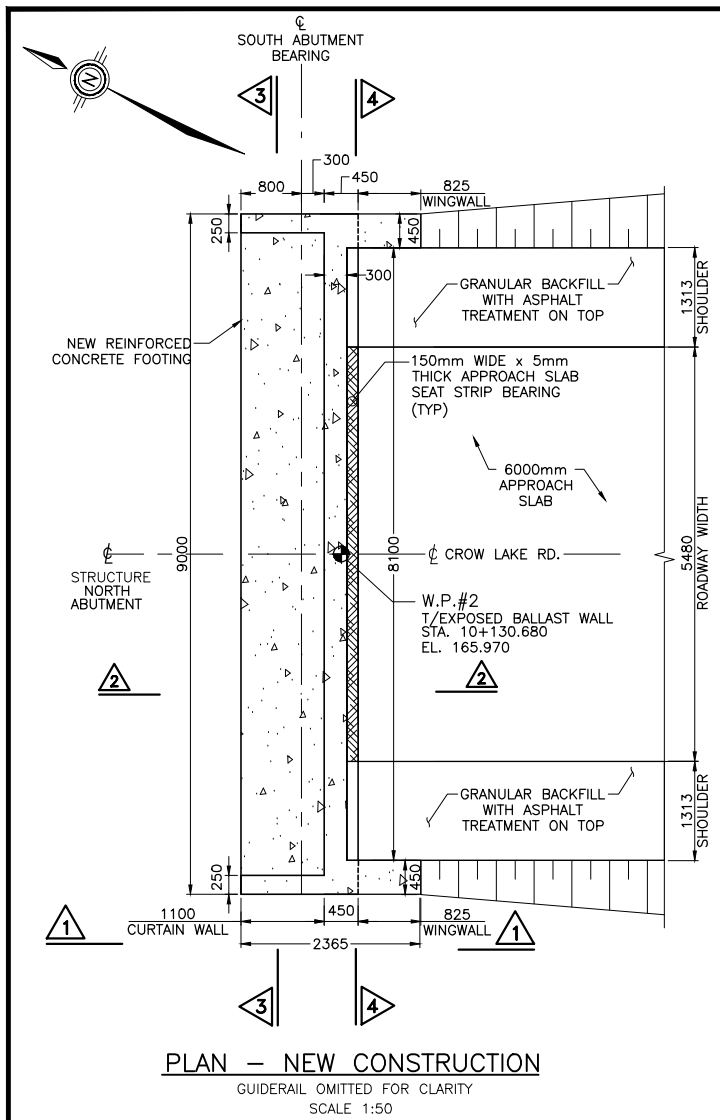
**LEGEND:**

- NEW ASPHALT
- NEW CONCRETE
- ELASTOMERIC STRIP BEARING
- BEDROCK / INFERRER BEDROCK
- STRUCTURAL BACKFILL MATERIAL
- TYPE "A" BITUMINOUS JOINT FILLER
- HOT-POURED RUBBERIZED JOINT SEALING COMPOUND
- DOW CORNING 888 SILICONE JOINT COMPOUND

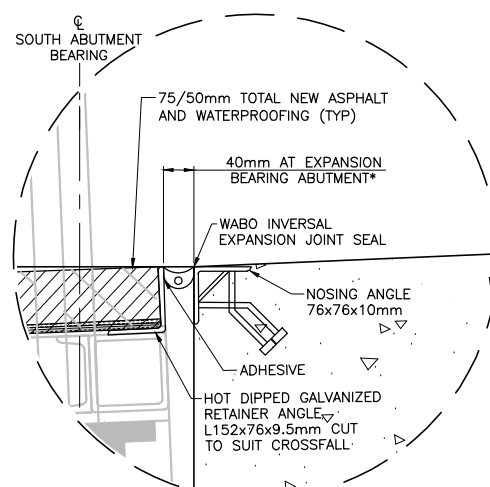
**LIST OF ABBREVIATIONS:**

- CL CENTERLINE
- DWG DRAWING
- EL ELEVATION (METRES)
- ABUT. ABUTMENT
- B&H BELL-HYDRO POLE
- AN ANCHOR
- STA STATION
- D/S DOWNSTREAM
- U/S UPSTREAM
- SBGR STEEL BEAM GUIDE RAIL

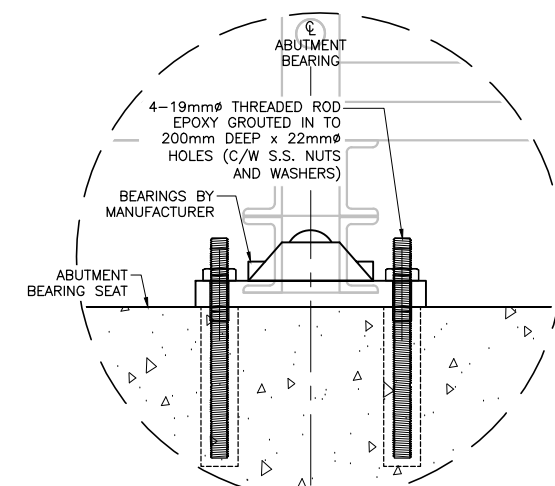
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01	90% SUBMISSION	04.09.2020	MRF
REV.#	REVISIONS	DATE	INITIAL
Not Valid Unless Signed And Dated			
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		DRAWN: LNG	
		CHECKED: BDM	
		DATE: MAY 2020	
<b>Inley</b> CONSULTING ENGINEERS PLANNERS			
<b>TAY VALLEY TOWNSHIP</b>			
<b>BOLINGBROKE BRIDGE REPLACEMENT</b>			
<b>NEW CONSTRUCTION - NORTH ABUTMENT</b>			
CONTRACT No. 19543-1		DWG 10	



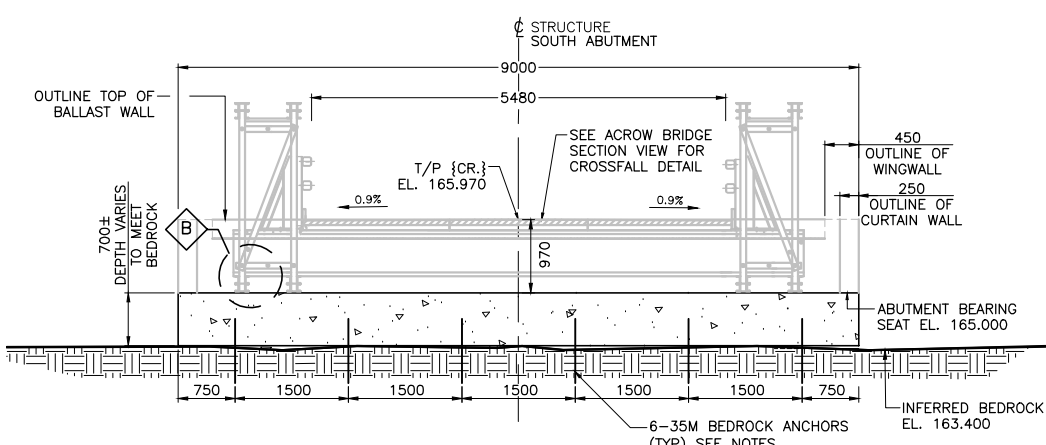
**PLAN - NEW CONSTRUCTION**  
GUIDERAIL OMITTED FOR CLARITY  
SCALE 1:50



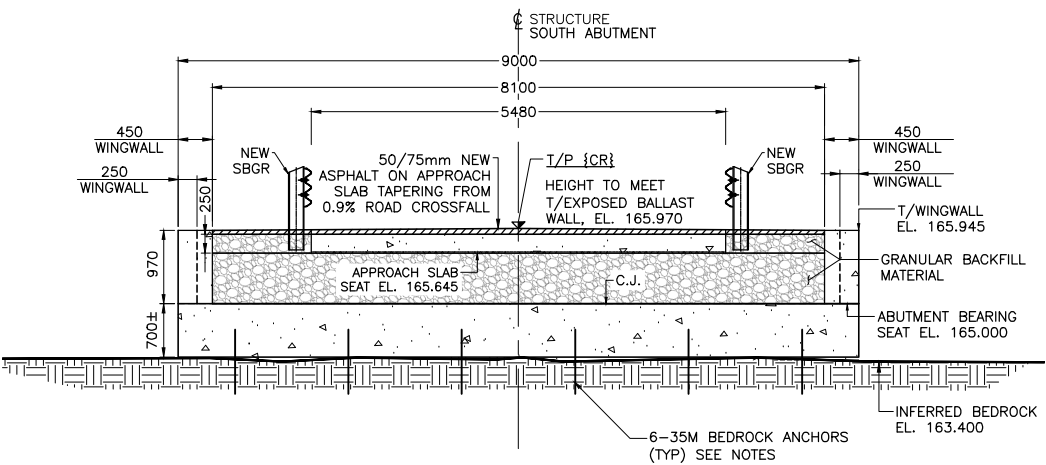
**A DECK END JOINT DETAIL**  
EXPANSION BEARING AT SOUTH ABUTMENT  
BRIDGE DECK DRAWN SCHEMATICALLY  
SCALE 1:5



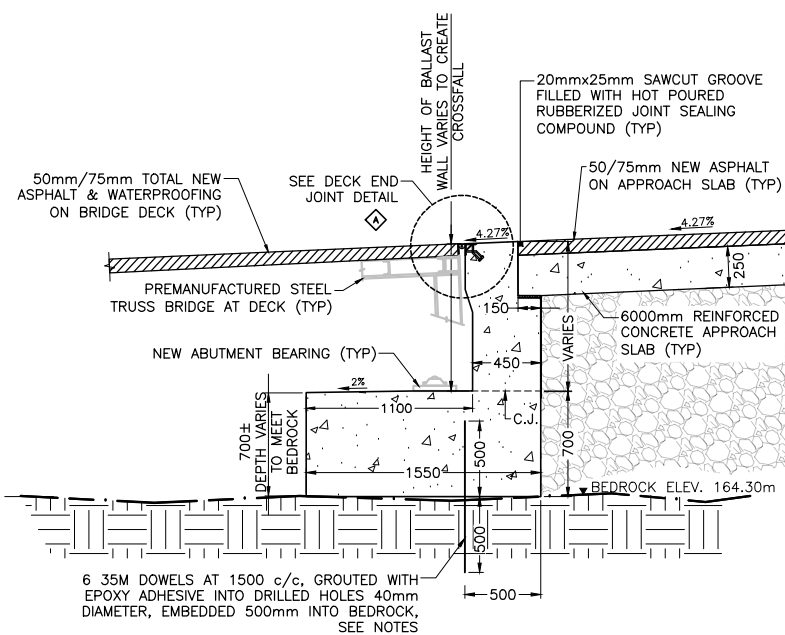
**B BEARING DETAIL (TYP.)**  
N.T.S.



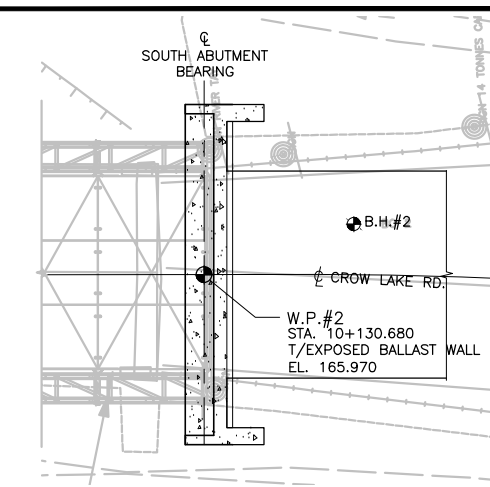
**3**  
1:50



**4**  
1:50



**2**  
BRIDGE OMITTED FOR CLARITY  
1:25



**KEY PLAN**  
SCALE 1:100

**GENERAL NOTES:**

- SEE GENERAL ARRANGEMENT DRAWING FOR NOTES.
- SEE ENVIRONMENTAL PROTECTION DRAWING FOR RELATED ENVIRONMENTAL REQUIREMENTS.
- ALL BEDROCK SURFACES TO RECEIVE MASS CONCRETE FOUNDATIONS ARE TO BE CLEARED OF DEBRIS, LOOSE AND UNSOUND ROCK
- 6-35M BEDROCK ANCHORS SHALL BE INSTALLED AS SHOWN ON TYPICAL DETAILS BELOW (SECTIONS 1,2, AND 4). IN ADDITION 35M BEDROCK ANCHOR IS REQUIRED TO BE 1000mm LONG AND SPACED AT 1.5m INTERVALS ANYWHERE TRANSVERSELY SLOPING BEDROCK ANGLE EXCEEDS 27°.
- MODULAR BRIDGE WILL BE INSTALLED PRIOR TO THE CASTING OF THE BALLAST WALLS AND WING WALLS.

**CONCRETE:**

- CONSTRUCTION TOLERANCES:  
BEARING SEAT ELEVATION ±3mm  
ALIGNMENT OF BEARING PADS ±3mm  
HORIZONTAL ALIGNMENT OF GIRDERS ±6mm
- ALL EXPOSED CORNERS TO BE CHAMFERED 20mm
- CONCRETE MATERIALS, MIXING, PLACING, CURING & FORM WORK SHALL BE IN ACCORDANCE WITH CSA STANDARD CAN/CSA-A23.1-04.
- TESTING OF CONCRETE MATERIALS AND HARDENED CONCRETE SHALL BE IN ACCORDANCE WITH CSA STANDARD CAN/CSA-A23.2-04.
- CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 30 MPa. ALL CONCRETE SHALL BE AIR ENTRAINED.
- SUBMIT MIX DESIGN TO CONTRACT ADMINISTRATOR, A MINIMUM OF THREE DAYS PRIOR TO PLACING CONCRETE.

**LEGEND:**

- NEW ASPHALT
- NEW CONCRETE
- ELASTOMERIC STRIP BEARING
- BEDROCK / INFERRED BEDROCK
- STRUCTURAL BACKFILL MATERIAL
- TYPE "A" BITUMINOUS JOINT FILLER
- HOT-POURED RUBBERIZED JOINT SEALING COMPOUND
- DOW CORNING 888 SILICONE JOINT COMPOUND

**LIST OF ABBREVIATIONS:**

- C CENTERLINE
- DWG DRAWING
- EL ELEVATION (METRES)
- ABUT. ABUTMENT
- B&H BELL-HYDRO POLE
- AN ANCHOR
- STA STATION
- D/S DOWNSTREAM
- U/S UPSTREAM
- SBGR STEEL BEAM GUIDE RAIL
- BRG. BEARING

REV.#	REVISIONS	DATE	INITIAL
02	ISSUED FOR TENDER	05.05.2020	MRF
01	90% SUBMISSION	04.09.2020	MRF

SCALE:	AS SHOWN
DESIGN:	MRF
DRAWN:	LNG
CHECKED:	BDM
DATE:	MAY 2020

**Inley** CONSULTING ENGINEERS PLANNERS

**TAY VALLEY TOWNSHIP**

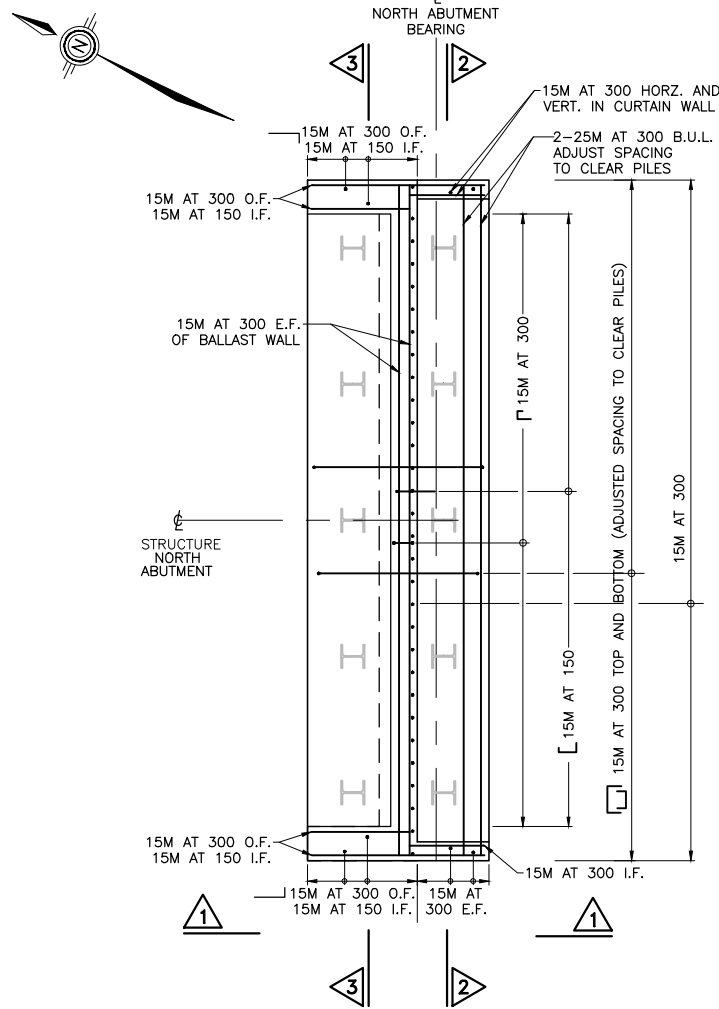
**BOLINGBROKE BRIDGE REPLACEMENT**

**NEW CONSTRUCTION - SOUTH ABUTMENT**

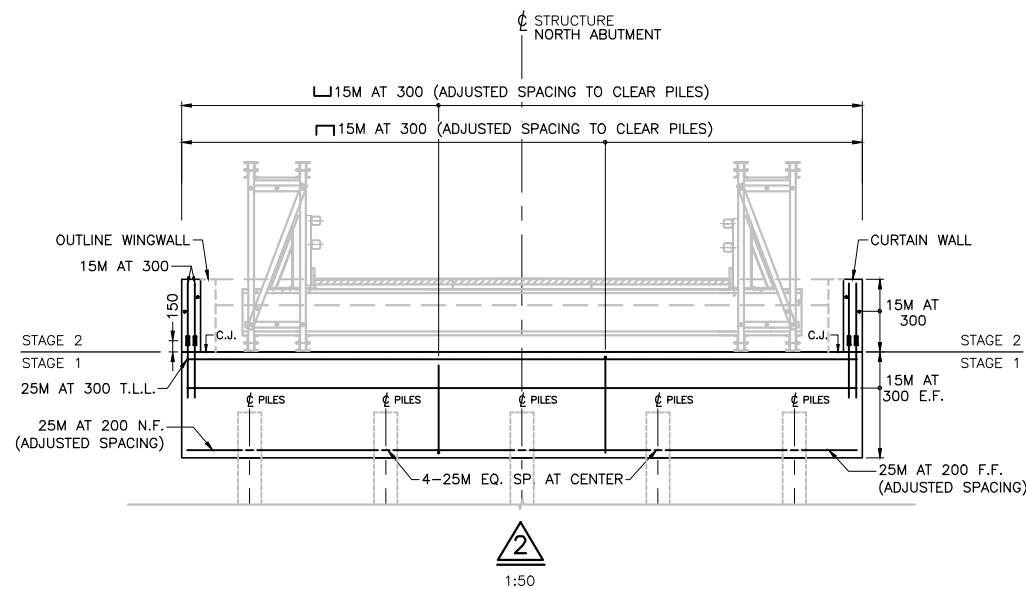
CONTRACT No. 19543-1      DWG 11

BEDROCK ELEVATIONS ARE DRAWN SCHEMATICALLY AND NEW FOUNDATIONS WILL VARY TO MEET BEDROCK. BELOW GRADE CONDITIONS ARE ASSUMED.

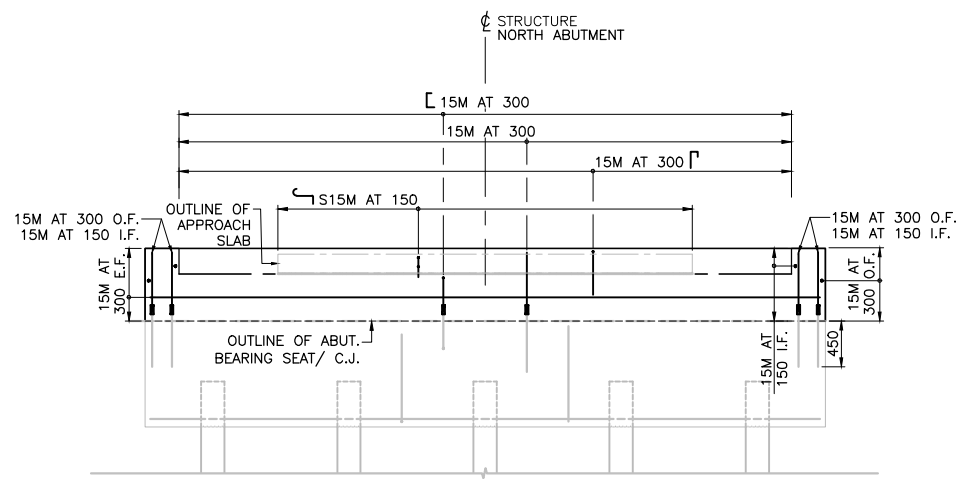
K:\Projects\19543 - Bolingbroke Bridge\19543-11 Bolingbroke Bridge - S Abutment - New Construction - S Abut v6.dwg 2020-05-05 2:00 PM Liza Guilbeau



PLAN - NORTH ABUTMENT  
SCALE 1:50



2  
1:50



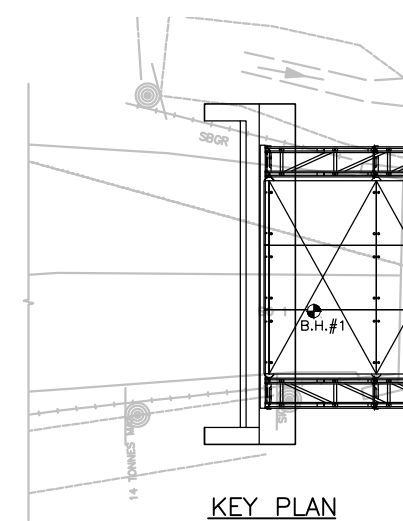
2  
1:50

LEGEND

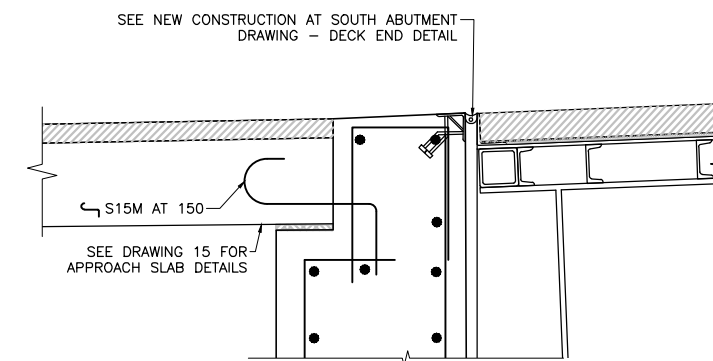
- EXISTING REINFORCING STEEL
- - - CONSTRUCTION JOINT
- NEW REINFORCING STEEL
- ▨ NEW ASPHALT
- ▨ ELASTOMERIC BEARING STRIP

LIST OF ABBREVIATIONS

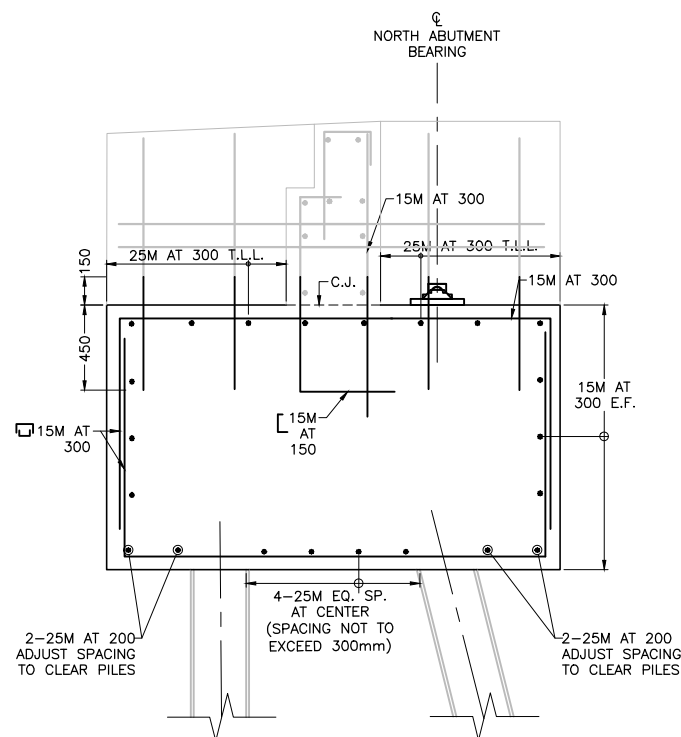
- I.F. INSIDE FACE
- O.F. OUTSIDE FACE
- N.F. NEAR FACE
- C.J. CONSTRUCTION JOINT
- F.F. FAR FACE
- E.F. EACH FACE
- T.U.L. TOP UPPER LAYER
- T.L.L. TOP LOWER LAYER
- B.U.L. BOTTOM UPPER LAYER
- B.L.L. BOTTOM LOWER LAYER
- EQ. SP. EQUAL SPACING



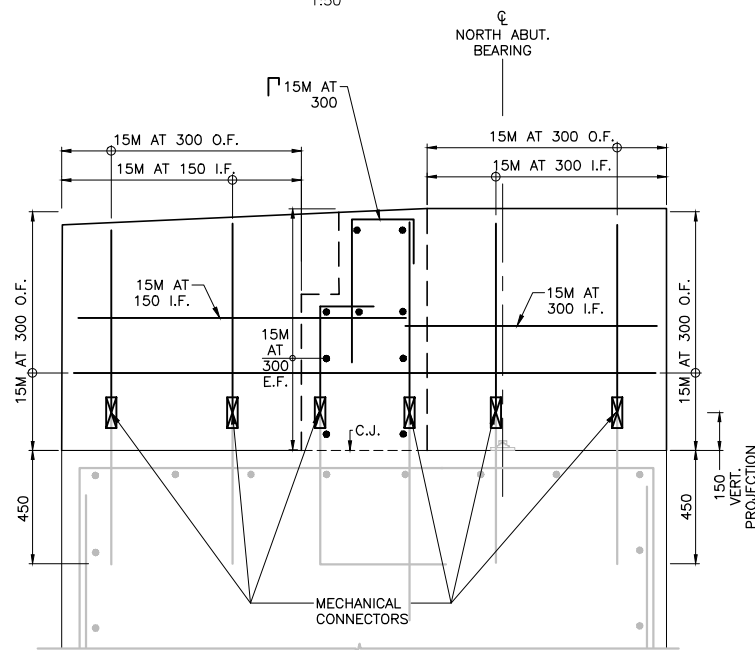
KEY PLAN  
SCALE 1:100



APPROACH SLAB CONNECTION DETAIL  
BRIDGE DECK DRAWN SCHEMATICALLY  
SCALE 1:10

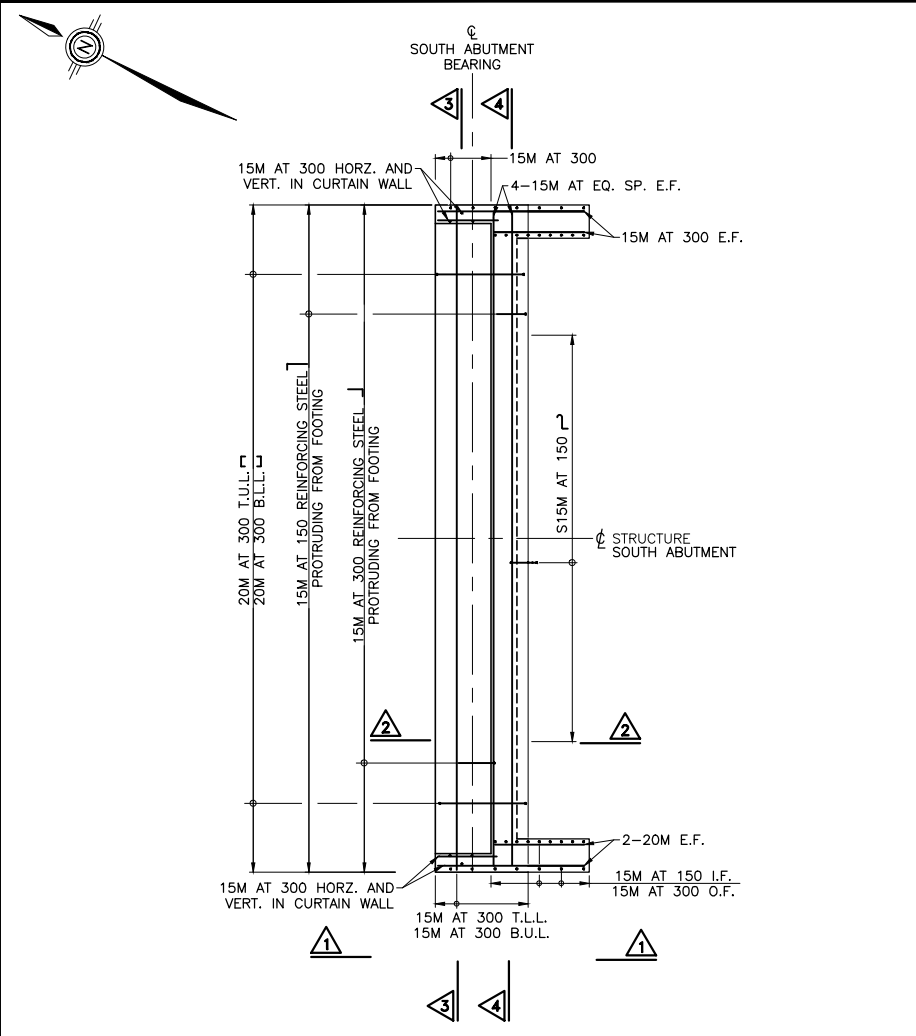


1 STAGE 1  
MECHANICAL CONNECTORS N.T.S.  
1:20

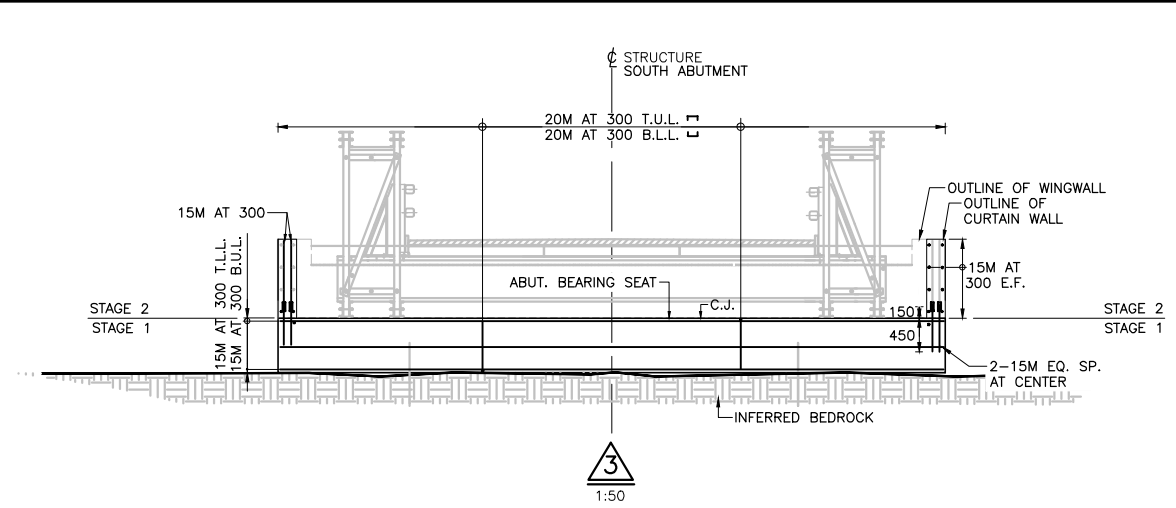


1 STAGE 2  
MECHANICAL CONNECTORS N.T.S.  
1:20

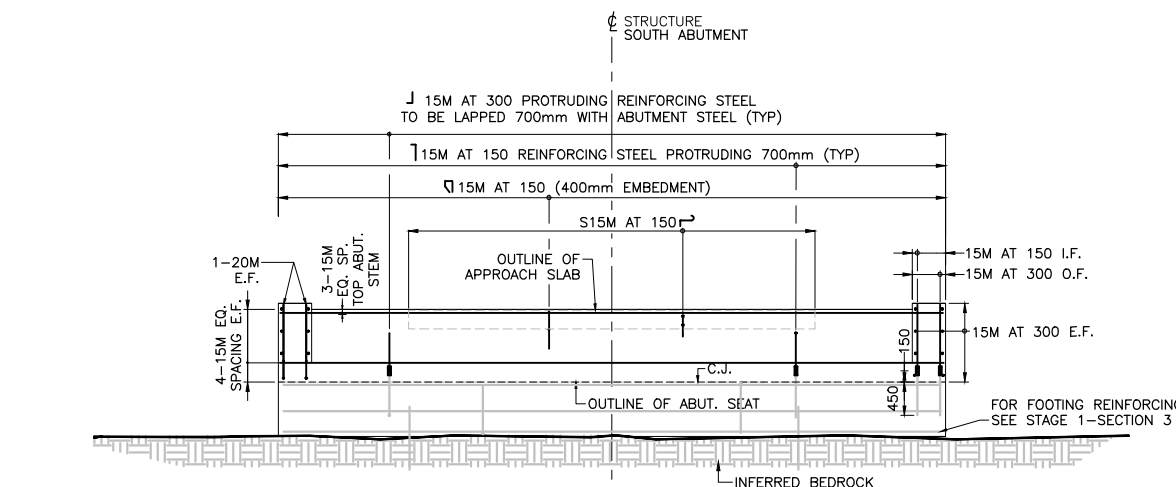
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01	90% SUBMISSION	04.09.2020	MRF
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	MAY 2020		
<b>Anley</b> CONSULTING ENGINEERS PLANNERS			
<b>TAY VALLEY TOWNSHIP</b>			
<b>BOLINGBROKE BRIDGE REPLACEMENT</b>			
<b>REINFORCING DETAILS - NORTH ABUTMENT</b>			
CONTRACT No. 19543-1		DWG 12	



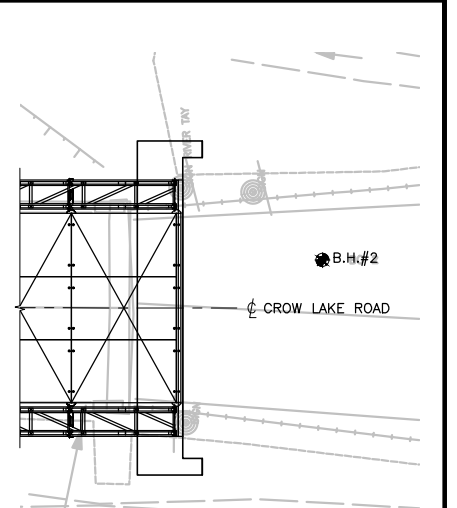
**PLAN - SOUTH ABUTMENT**  
SCALE 1:50



**3**  
1:50



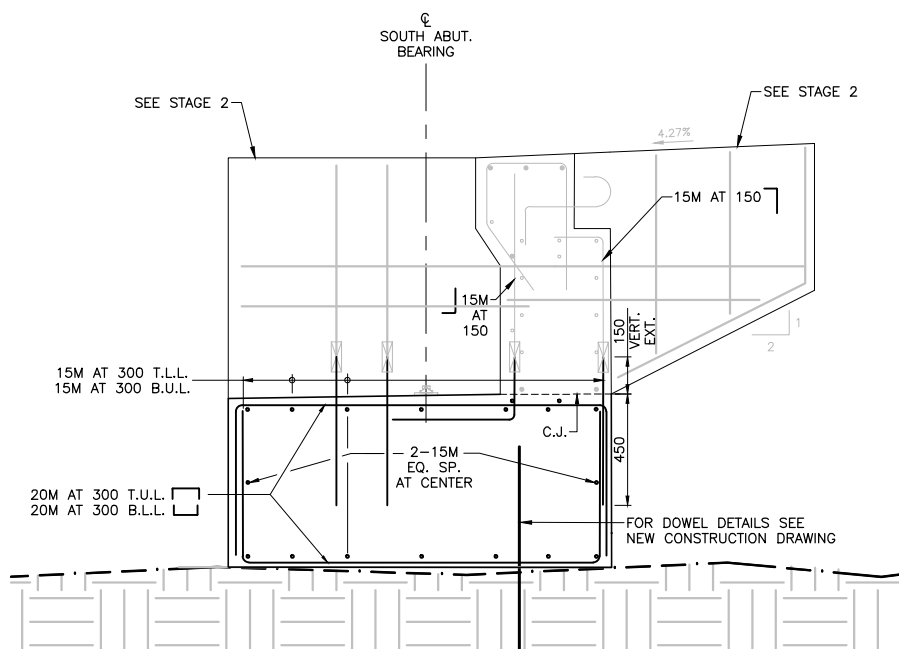
**4**  
1:50



**KEY PLAN**  
SCALE 1:100

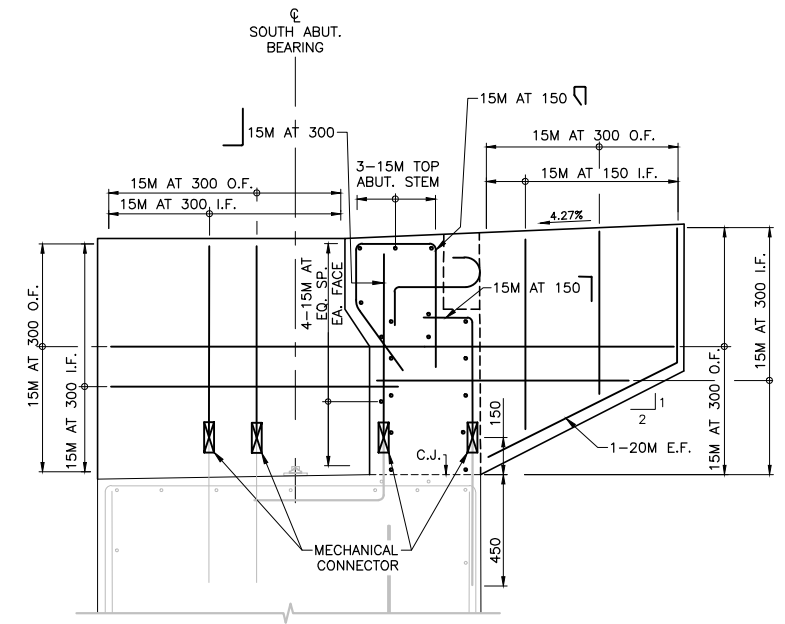
- LEGEND**
- EXISTING REINFORCING STEEL
  - - - CONSTRUCTION JOINT
  - NEW REINFORCING STEEL
  - ▨ NEW ASPHALT
  - ▨ ELASTOMERIC BEARING STRIP

- LIST OF ABBREVIATIONS**
- I.F. INSIDE FACE
  - O.F. OUTSIDE FACE
  - N.F. NEAR FACE
  - C.J. CONSTRUCTION JOINT
  - F.F. FAR FACE
  - E.F. EACH FACE
  - T.U.L. TOP UPPER LAYER
  - T.L.L. TOP LOWER LAYER
  - B.U.L. BOTTOM UPPER LAYER
  - B.L.L. BOTTOM LOWER LAYER

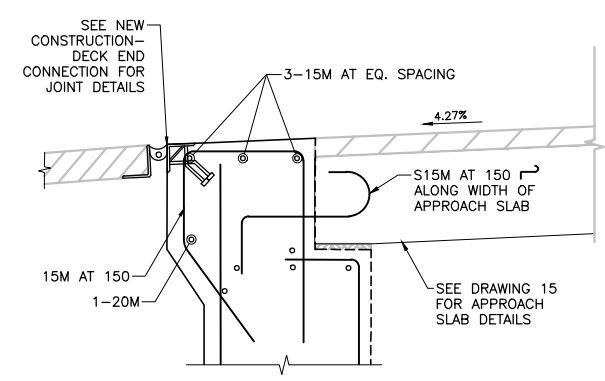


**1** **STAGE 1**  
MECHANICAL CONNECTORS N.T.S.  
1:15

BEDROCK ELEVATIONS ARE DRAWN SCHEMATICALLY AND NEW FOUNDATIONS WILL VARY TO MEET BEDROCK. BELOW GRADE CONDITIONS ARE ASSUMED.



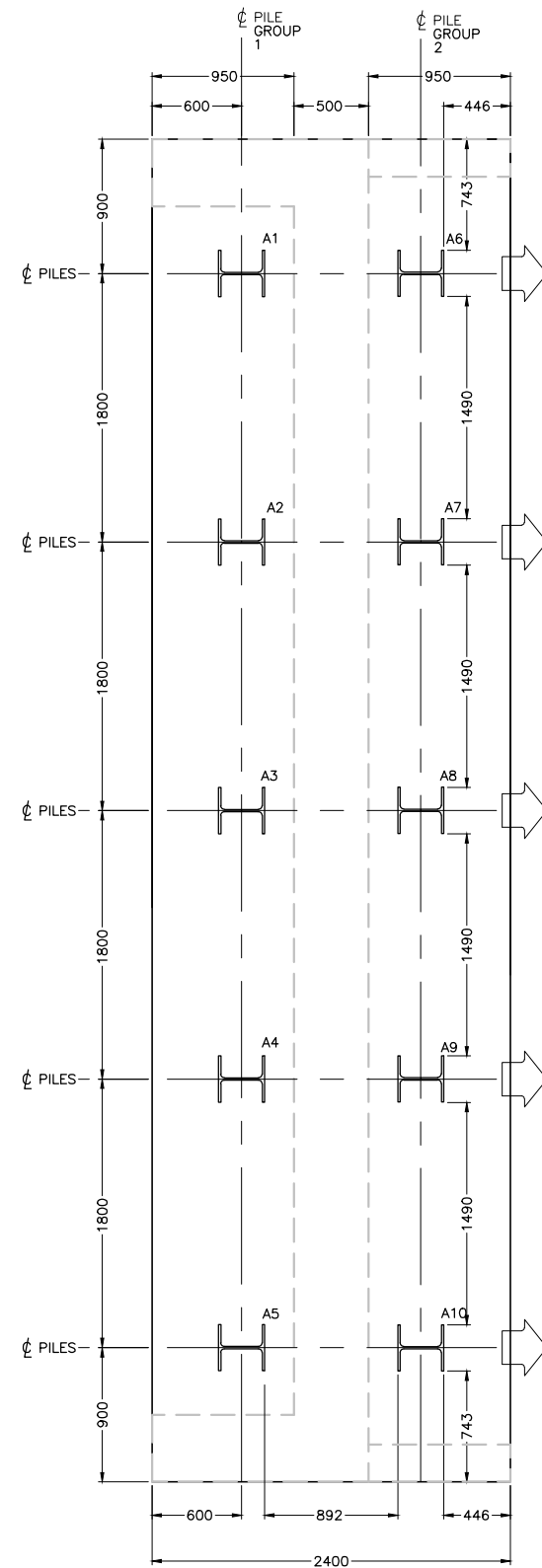
**1** **STAGE 2**  
MECHANICAL CONNECTORS N.T.S.  
1:15



**2** **SECTION AT APPROACH SLAB SEAT**  
1:10

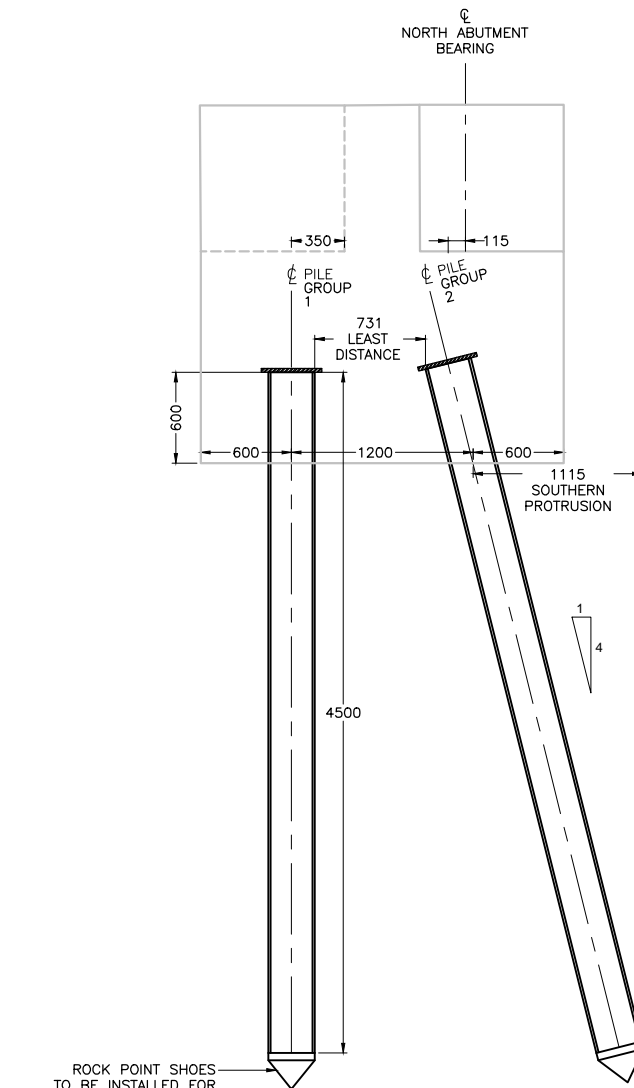
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01	90% SUBMISSION	04.09.2020	MRF
Not Valid Unless Signed And Dated			
SCALE: AS SHOWN			
DESIGN: MRF			
DRAWN: LNO			
CHECKED: BDM			
DATE: MAY 2020			
<b>Anley</b> CONSULTING ENGINEERS PLANNERS			
<b>TAY VALLEY TOWNSHIP</b>			
<b>BOLINGBROKE BRIDGE REPLACEMENT</b>			
<b>REINFORCING DETAILS - SOUTH ABUTMENT</b>			
CONTRACT No. 19543-1			DWG 13

K:\Projects\19543 - Bolingbroke Bridge\19543-1 - Bolingbroke Bridge - S Abutments - Reinforcing V5.dwg 2020-05-04 11:43 AM Liza Gulibau

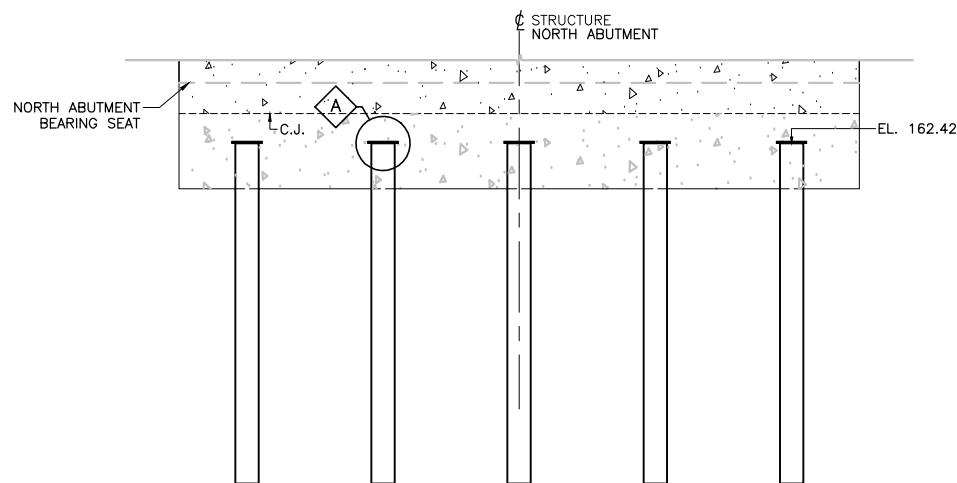


PLAN - GEOMETRY  
SCALE 1:25

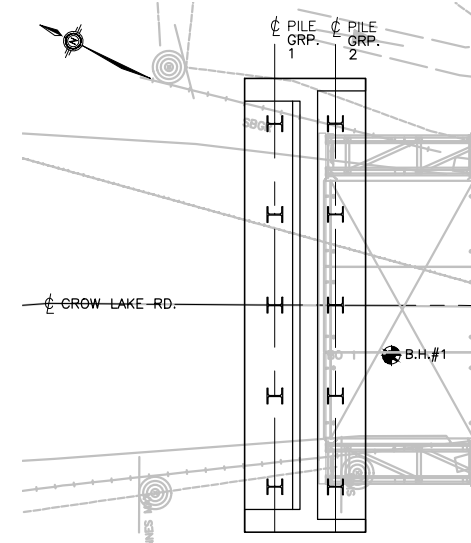
TOP PLATE DETAIL HAS BEEN OMITTED FROM PLAN VIEW FOR CLARITY. PLEASE SEE DETAIL A



ELEVATION-DEPTH  
SCALE 1:25



SECTION-DEPTH  
ELEV. POINT PRIOR TO INSTALLATION OF TOP PLATE  
SCALE 1:50



KEY PLAN

TOP PLATE OMITTED  
SCALE 1:75

REFERENCE POINT			
	LOCATION	X COORDINATE	Y COORDINATE
NORTH ABUTMENT			
PILE GRP. 1	A1	379702.0941	4957404.8675
	A2	379700.7475	4957403.6731
	A3	379699.4009	4957402.4787
	A4	379698.0542	4957401.2843
	A5	379696.7076	4957400.0899
	A6	379707.8920	4957403.9703
	A7	379701.5454	4957402.7759
	A8	379700.1988	4957401.5815
	A9	379698.8521	4957400.3871
PILE GRP. 2	A10	379697.5031	4957399.1906

GENERAL NOTES:

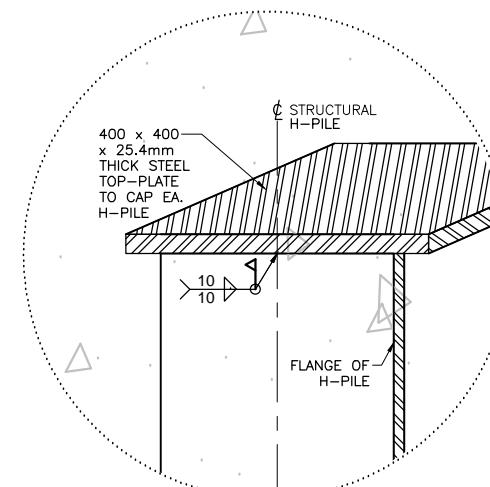
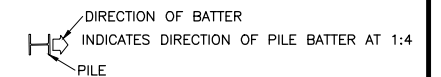
- SEE GENERAL ARRANGEMENT DRAWING FOR NOTES.

NOTES:

- PILES TO BE DRIVEN TO REFUSAL.
- PILE SPACING TO BE MEASURED AT 600mm BELOW THE CUTOFF ELEVATION.
- PILE LENGTHS SHOWN ARE THEORETICAL LENGTHS BELOW CUT OFF ELEVATION, BASED UPON BOREHOLE LOGS FROM THE SITE. THE CONTRACTOR SHOULD ENSURE THAT SUFFICIENT LENGTHS OF PILE ARE AVAILABLE TO PREVENT DELAYS SHOULD SOIL CONDITIONS VARY SIGNIFICANTLY.
- ALL CENTRE LINES ARE PARALLEL.
- ADJUST REINFORCING SPACING AS REQUIRED TO CLEAR PILING.
- PILES IN GROUP 2 TO BE DRIVEN WITH A BATTER OF 1:4.
- PILES SHALL BE INSTALLED IN ACCORDANCE WITH OPSS 903.
- PILES TO BE DRIVEN USING PILE DRIVING EQUIPMENT CAPABLE OF DEVELOPING A MINIMUM OF 30 kJ OF ENERGY PER BLOW IN ORDER TO SET THE PILES. MAXIMUM ENERGY UTILIZED SHOULD BE IN THE ORDER OF APPROXIMATELY 50 kJ PER BLOW.
- PILES TO BE INSTALLED IN ACCORDANCE WITH OPSS 903 UTILIZING DRIVING SHOES IN ACCORDANCE WITH OPSD 3000.100 TYPE I.
- PROVIDE FOR RE-STRIKING ALL PILES AT LEAST ONCE TO CONFIRM THE DESIGN SET AND/OR THE PERMANENCE OF THE SET AND FOR UPWARD DISPLACEMENT DUE TO DRIVING THE ADJACENT PILES. PILE THAT DO NOT MEET THE DESIGN SET CRITERIA SHALL RECEIVE ADDITIONAL RE-STRIKING UNTIL THE DESIGN SET IS MET, AND PILES ARE PROPERLY SEATED. ALL RE-STRIKING SHALL BE PERFORMED AFTER 48 HOURS OF THE PREVIOUS SET.
- FOR SUBSURFACE CONDITIONS AND BOREHOLE DATA, REFER TO ANILEY GROUP REPORT (18812-2 OCTOBER 2018).
- TOP PLATES ARE TO BE WELDED TO H-PILES BY FILLET WELDS IN ACCORDANCE WITH CSA STANDARD W59, AND CAN/CSA-S16.1-M
- WELDS TO BE 10mm PER DRAWING DETAIL A
- TOP PLATES ARE TO BE WELDED TO THE H-PILES AFTER INSTALLATION OF PILES MEET APPROVAL OF CONTRACT ADMINISTRATOR

PILE DATA (H PILE-310x110)				
LOCATION	BATTER	No. REQ'd	TOTAL LENGTH	CUT OFF ELEV.
NORTH ABUT.	VERT	5	5x4.5m=22.5m	162.42m
	1:4	5	5x4.66m=23.3m	162.42m

LEGEND:



H-PILE/TOP-PLATE DETAIL  
ORTHOGRAPHIC VIEW  
N.T.S.

REV.#	REVISIONS	DATE	INITIAL
02	ISSUED FOR TENDER	05.05.2020	MRF
01	90% SUBMISSION	04.09.2020	MRF
Not Valid Unless Signed And Dated			
SCALE:			AS SHOWN
DESIGN:			MRF
DRAWN:			LNG
CHECKED:			BDM
DATE:			MAY 2020

**Anley** CONSULTING ENGINEERS PLANNERS  
TAY VALLEY TOWNSHIP  
BOLINGBROKE BRIDGE REPLACEMENT

PILE LAYOUT - NORTH ABUTMENT

K:\Projects\19543 - Bolingbroke Bridge\19543-1 14 Bolingbroke Bridge - Pile Layout V6.dwg 2020-05-04 11:23 AM Lisa Guibreau

**METRIC**  
DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

**NOTES:**

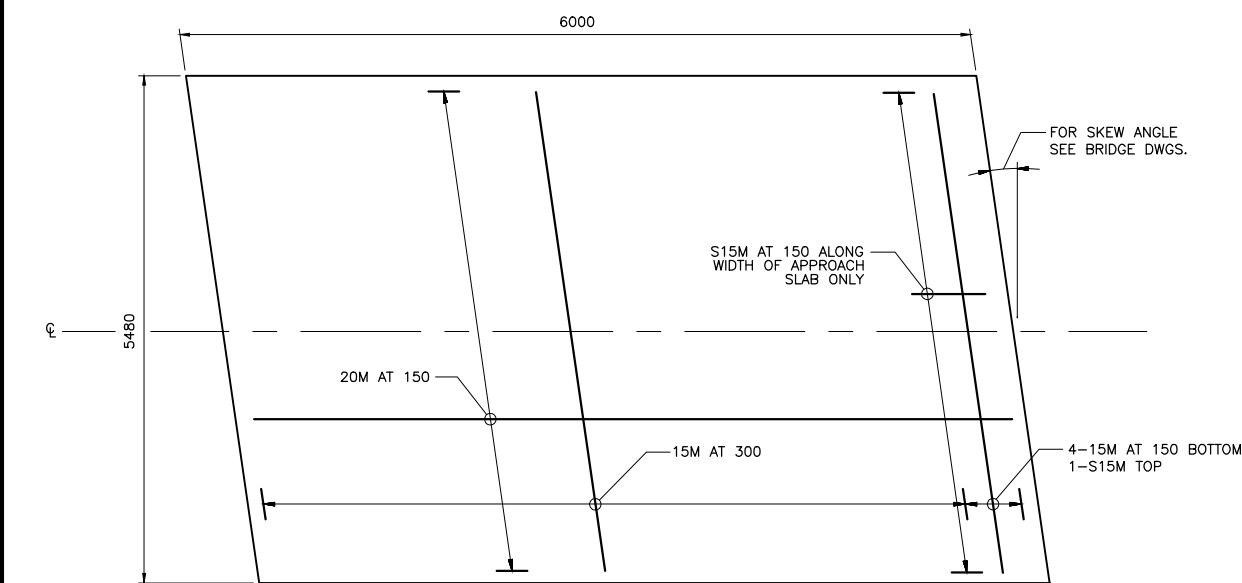
- CLEAR COVER TO REINFORCING STEEL 70 ± 20 mm EXCEPT AS NOTED.
- LAYOUT OF REINFORCING STEEL WILL BE SIMILAR FOR LEFT HAND AND ZERO DEGREE SKEW.
- STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500MPa. REINFORCING STEEL SHALL BE GRADE 400W.
- WATERPROOFING AT JOINT BETWEEN BRIDGE AND APPROACH SLAB TO BE IN ACCORDANCE WITH OPSD 3370.100.
- WATERPROOFING FOR BRIDGES WITHOUT EXPANSION JOINTS (RIGID FRAMES AND INTEGRAL ABUTMENTS) TO BE IN ACCORDANCE WITH OPSD 3370.101.
- BARS MARKED WITH PREFIX S DENOTE STAINLESS STEEL BARS.

**APPLICABLE STANDARD DRAWINGS**

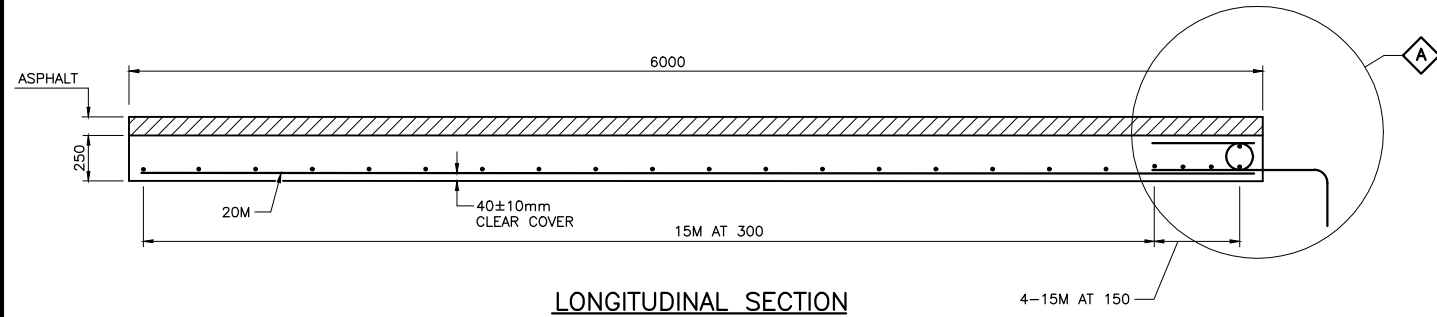
- OPSD 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD  
 OPSD 3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS

REFER TO 1.1.8 IN THE STRUCTURAL MANUAL FOR PROFESSIONAL ENGINEER STAMPING REQUIREMENTS

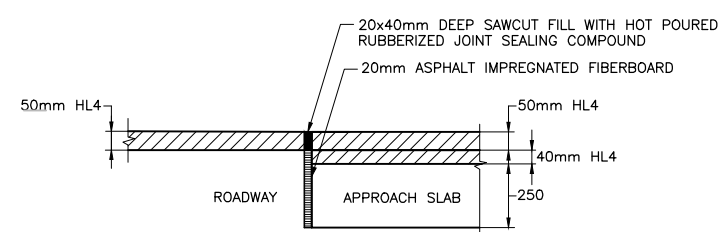
STANDARD DRAWING MARCH 2016	<b>SS116-1</b>
6000 mm APPROACH SLAB	



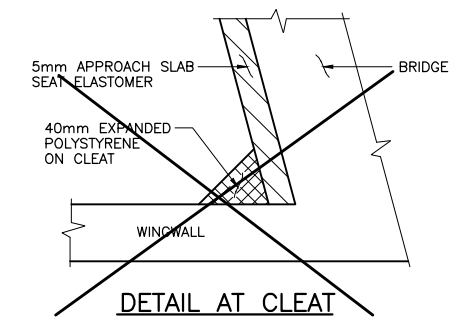
**PLAN**



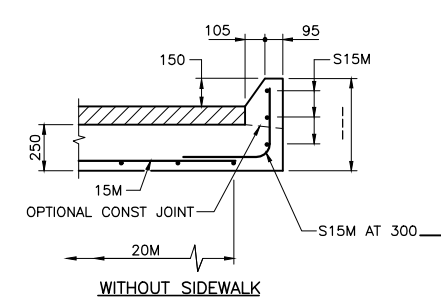
**LONGITUDINAL SECTION**



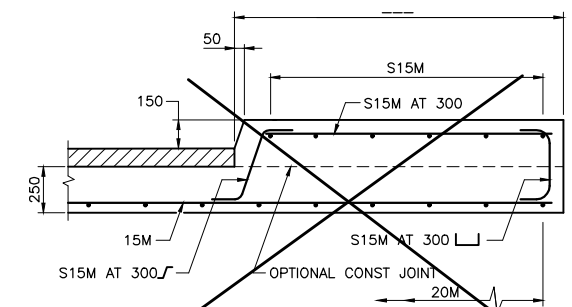
**TRANSITION DETAIL - EXPANSION JOINT AT END OF APPROACH SLAB**



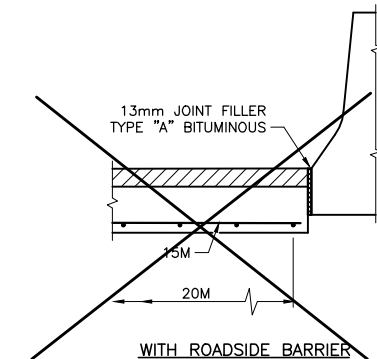
**DETAIL AT CLEAT**



**WITHOUT SIDEWALK**

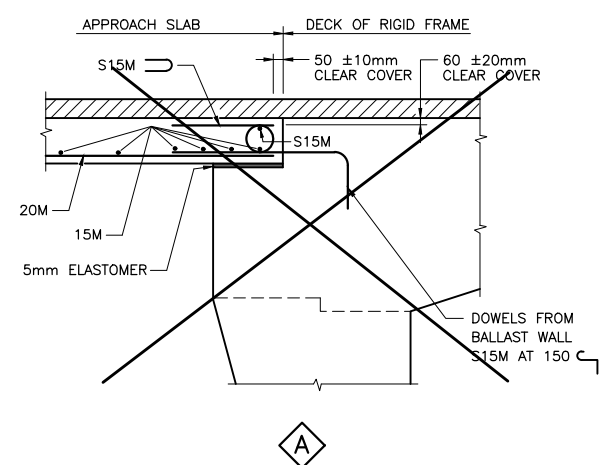


**WITH SIDEWALK**

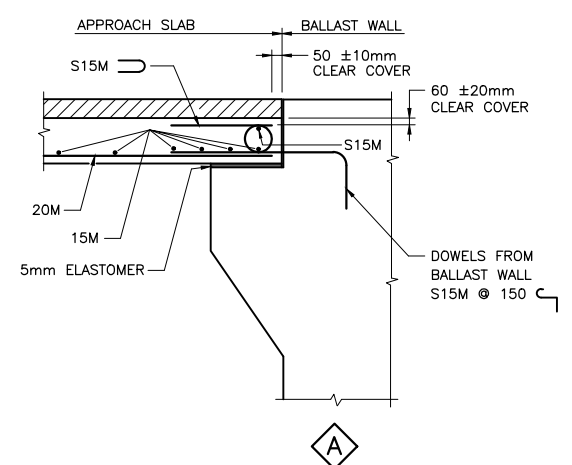


**WITH ROADSIDE BARRIER**

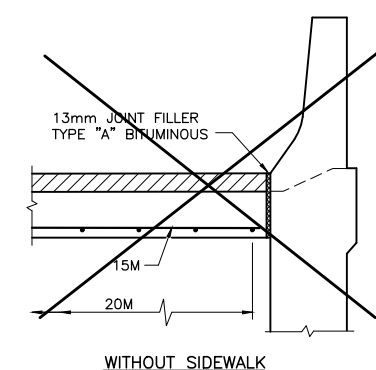
**SECTION BEYOND WINGWALL**



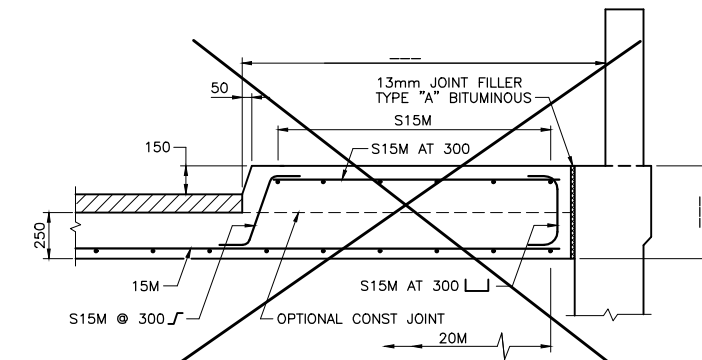
**FOR BRIDGES WITHOUT EXPANSION JOINTS**



**FOR BRIDGES WITH EXPANSION JOINTS**



**WITHOUT SIDEWALK**



**WITH SIDEWALK**

**SECTION AT WINGWALL**

DRAWING NOT TO BE SCALED  
100 mm ON ORIGINAL DRAWING

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Not Valid Unless Signed And Dated			SCALE: AS SHOWN
			DESIGN: MRF
			DRAWN: LNG
			CHECKED: BDM
			DATE: MAY 2020
<b>Linley</b> CONSULTING ENGINEERS PLANNERS			
<b>TAY VALLEY TOWNSHIP</b>			
<b>BOLINGBROKE BRIDGE REPLACEMENT</b>			
6000mm APPROACH SLAB SSD 0116.0001			
CONTRACT No. 19543-1		DWG 15	

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