

BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

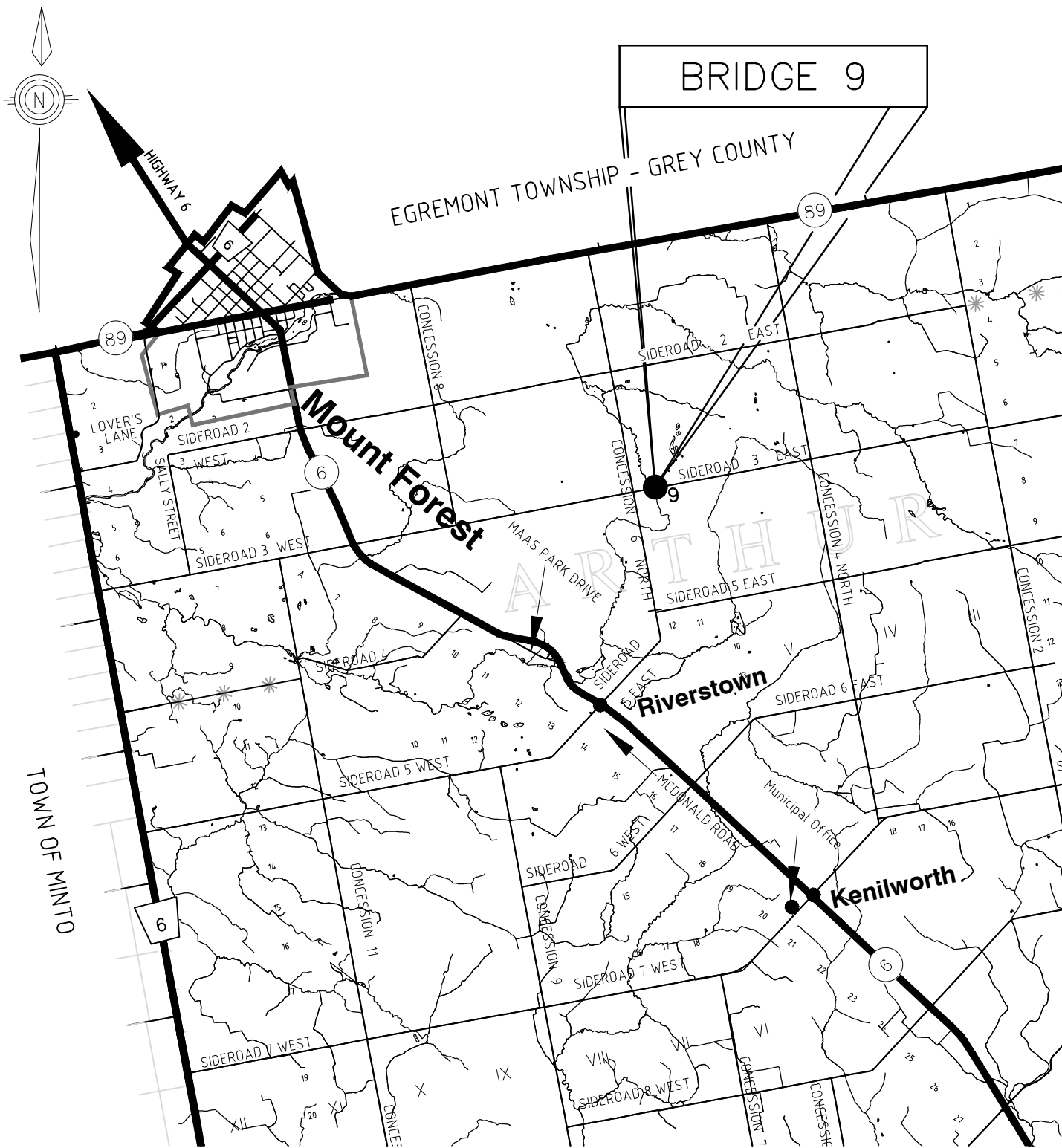


LIST OF DRAWINGS

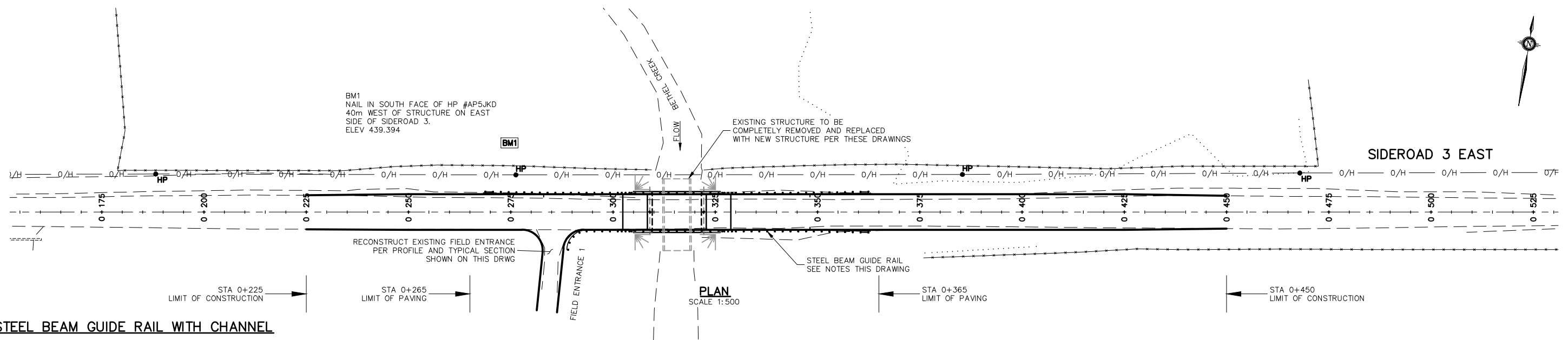
1. PLAN
2. PROFILE
3. GENERAL ARRANGEMENT
4. CHANNEL DETAILS
5. EROSION AND SEDIMENT CONTROL – PHASE 1
6. EROSION AND SEDIMENT CONTROL – PHASE 2
7. ABUTMENT DIMENSIONS AND FOUNDATION
8. ABUTMENT REINFORCEMENT
9. WEST WINGWALL DETAILS
10. EAST WINGWALL DETAILS
11. GIRDER DETAILS
12. DECK DETAILS 1
13. DECK DETAILS 2
14. APPROACH SLAB DETAILS
15. FOUR TUBE RAILING ON SIDEWALK (WITH CONCRETE END WALL) – TL4 – MODIFIED
16. END CONNECTION FOR CURB RAILING AND STEEL BEAM GUIDE RAIL – MODIFIED

CONTRACT DRAWINGS

RFT 2024-003

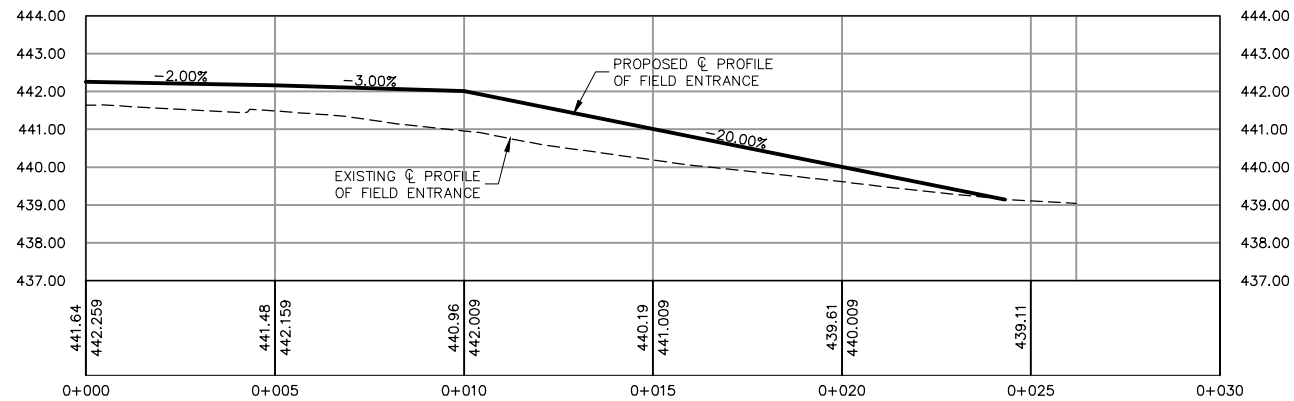


KEY PLAN
N.T.S.

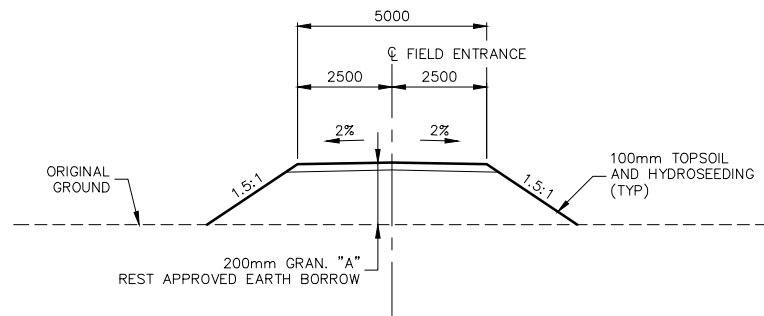


STEEL BEAM GUIDE RAIL WITH CHANNEL

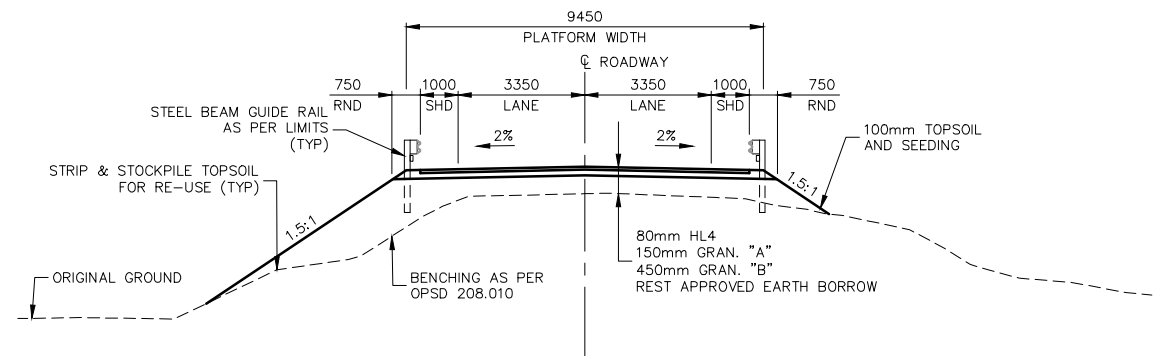
- NORTHWEST, NORTHEAST AND SOUTHEAST QUADRANTS**
 5 - SBGR PANELS @ 3.81m = 19.05m (OPSD 912.130)
 1 - TYPE M TRANSITION RAIL @ 2.86m = 2.86m (OPSD 912.124)
 1 - SBEAT END TREATMENT = 15.24m (OPSD 922.186)
- SOUTHWEST QUADRANT**
 3 - SBGR PANELS @ 3.81m = 11.43m (OPSD 912.130)
 2 - SBGR PANELS @ 3.81m, R = 4.851m = 7.62m (OPSD 912.140)
 1 - "FISHTAIL" END TREATMENT (SEE SPECIFICATIONS)



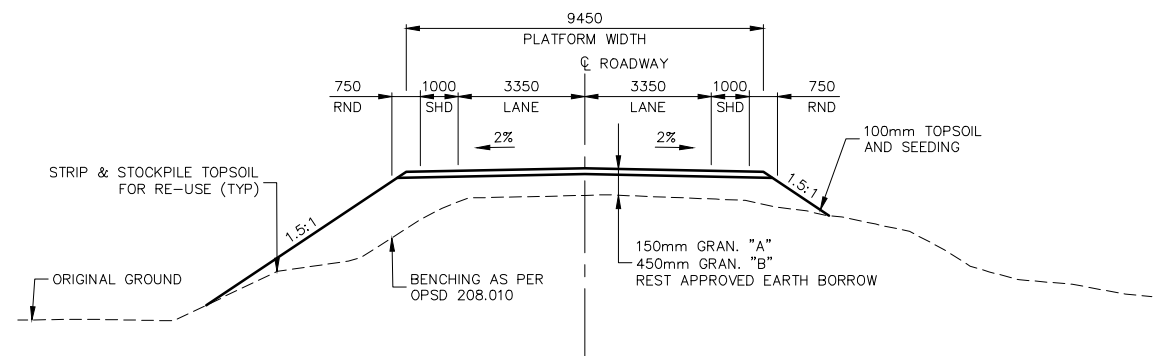
FIELD ENTRANCE PROFILE
SCALE 1:100



TYPICAL FIELD ENTRANCE CROSS-SECTION
SCALE 1:100



ROADWAY SECTION - STA 0+265 TO STA 0+365
SCALE 1:100



ROADWAY SECTION - REMAINDER
SCALE 1:100

No.	REVISION	DATE	DESIGNED BY: A.G.
1.	ISSUED FOR APPROVALS	APR. 17/23	CHECKED BY: --
2.	RE-ISSUED FOR APPROVALS	OCT. 2/23	DRAWN BY: J.A.
3.	ISSUED FOR TENDER	JAN. 10/24	CHECKED BY: --
			FIELD BOOK:

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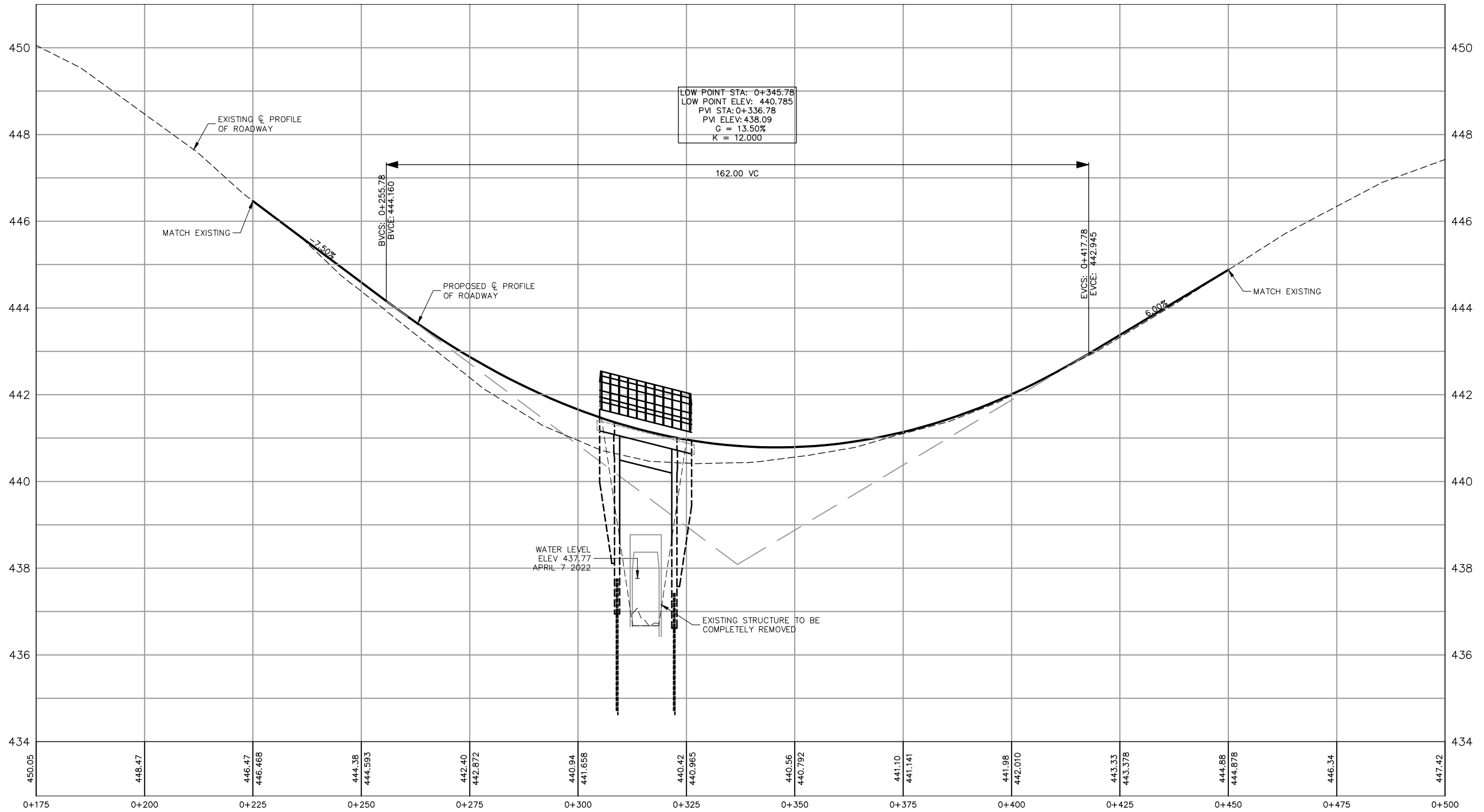
(ON 24 x 36 PAPER)

BRIDGE 9 REPLACEMENT
TOWNSHIP OF WELLINGTON NORTH

PLAN AND SECTIONS

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER	22-067
DATE	OCTOBER 2022
DRAWING NUMBER	1



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BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

PROFILE



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 CONSULTING ENGINEERS AND PLANNERS
 KITCHENER SUDBURY

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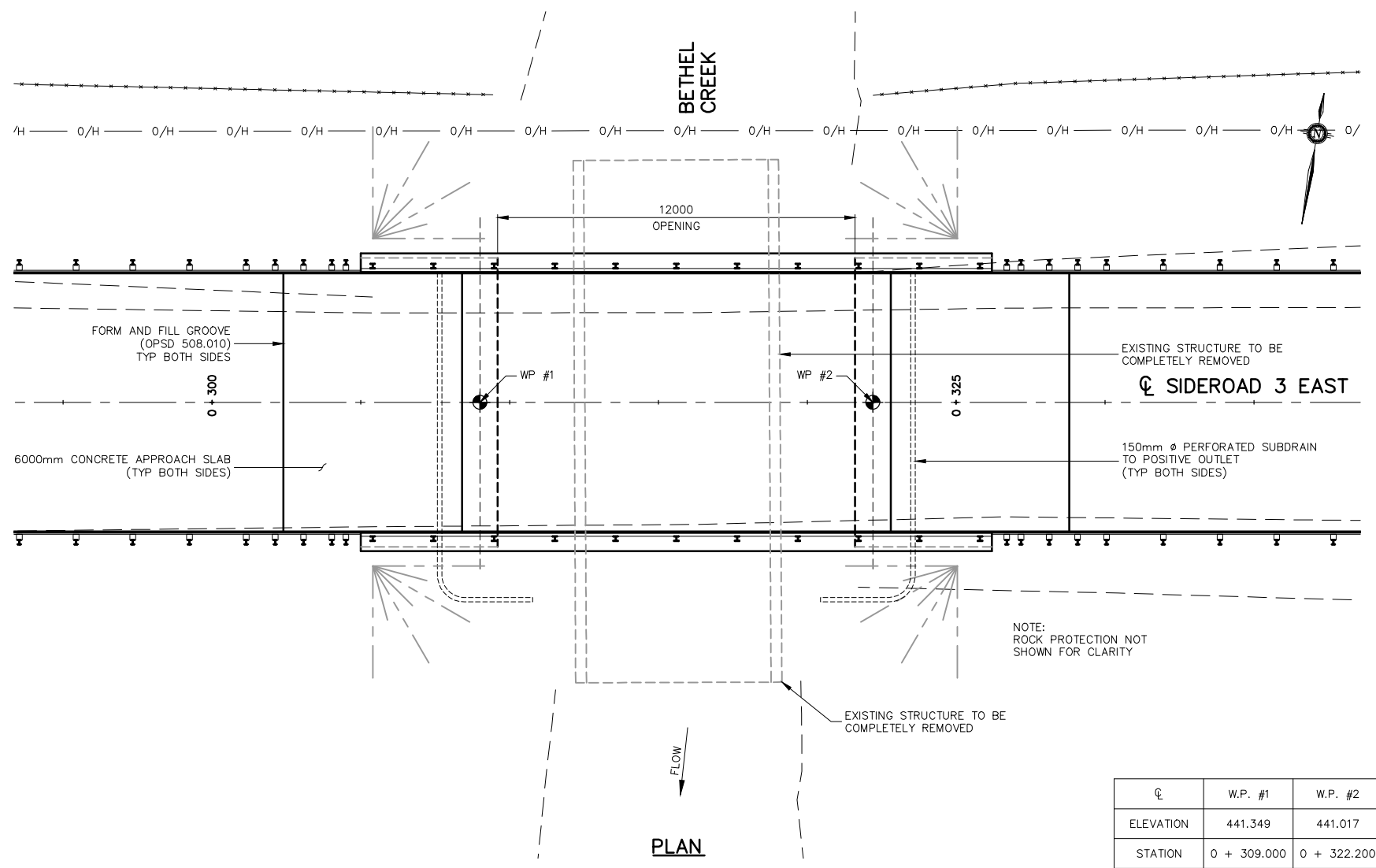
22-067

DATE

OCTOBER 2022

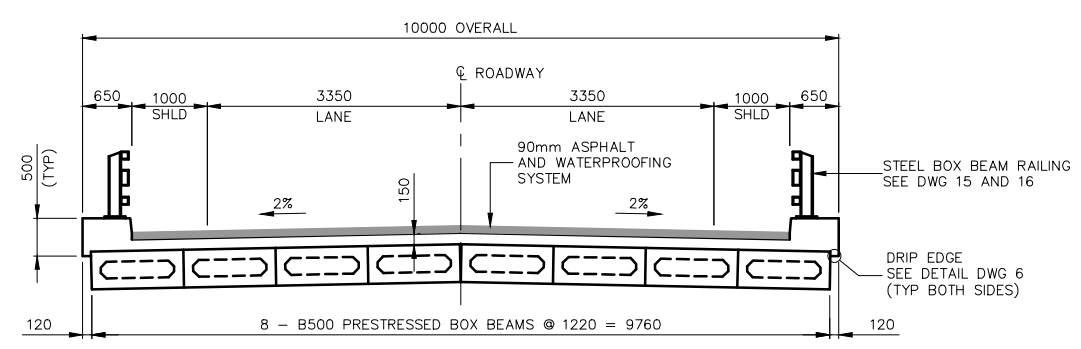
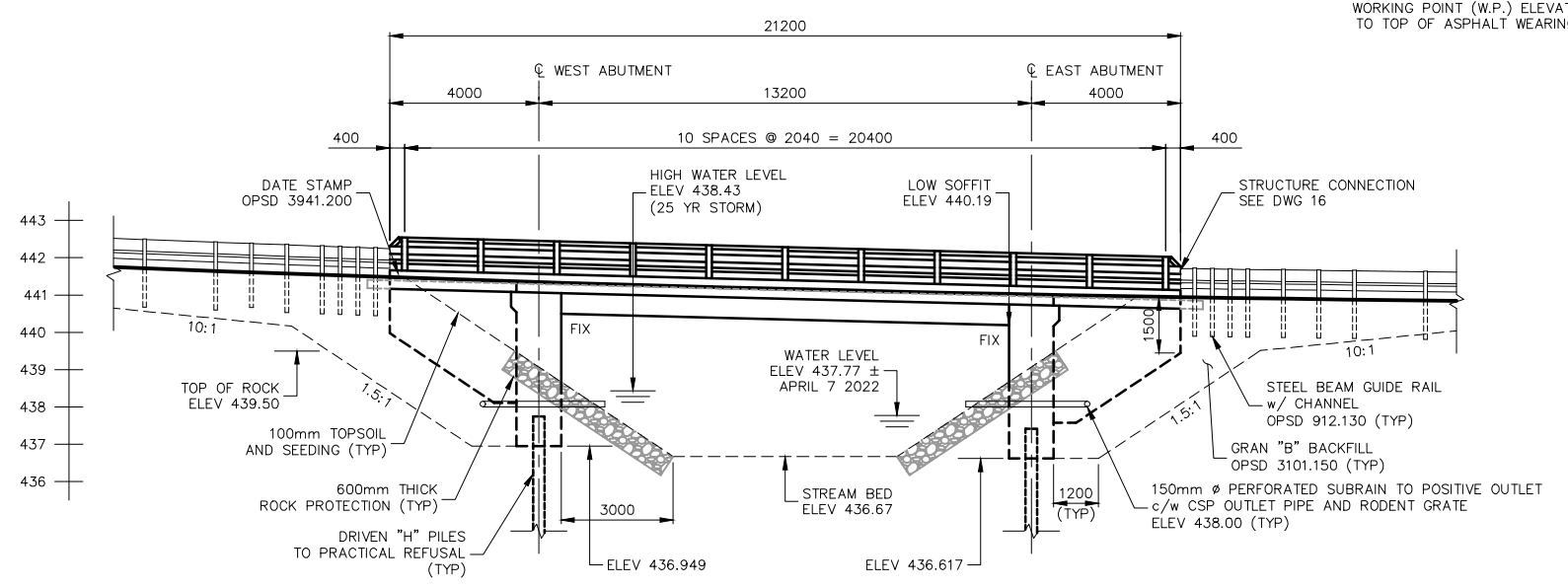
DRAWING NUMBER

2



W.P. #	W.P. #1	W.P. #2
ELEVATION	441.349	441.017
STATION	0 + 309.000	0 + 322.200

WORKING POINT (W.P.) ELEVATIONS GIVEN TO TOP OF ASPHALT WEARING SURFACE



CONSTRUCTION NOTES

- STRUCTURE DESIGNED FOR CL-625 (ONT) LOADING PLUS 90mm OF ASPHALT IN ACCORDANCE WITH THE CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBDC) 2014.
- WORK ON THE STRUCTURE MUST NOT BE COMMENCED UNTIL MONUMENTS TO FIX CONTROL POINTS HAVE BEEN ERECTED AND CHECKED BY THE CONTRACT ADMINISTRATOR.
- STRUCTURE TO BE BUILT IN ACCORDANCE WITH THE MOST CURRENT OPS SPECIFICATIONS AND DRAWINGS AS WELL AS THE CONTRACT ADMINISTRATOR'S SPECIFICATIONS.
- THE COMPLETE SOIL INVESTIGATION BY CMT ENGINEERING INC. FORM PART OF THE CONTRACT DOCUMENTS. THE CONTRACT ADMINISTRATOR DOES NOT GUARANTEE THE ACCURACY OF THIS REPORT. THE CONTRACTOR SHALL REVIEW THE REPORT AND DETERMINE HIS OWN METHOD TO CONTROL GROUND WATER DURING THE EXCAVATION.
- THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON THE JOB AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK.
- CLASS OF CONCRETE
 CAST-IN-PLACE CONCRETE 35 MPa C-1 MIX
 PRESTRESSED CONCRETE REFER TO RELEVANT DRAWINGS
 ALL CONCRETE SHALL INCLUDE AN APPROVED AIR ENTRAINING ADMIXTURE
- CLEAR COVER TO REINFORCING STEEL TO BE:
 UNDERSIDE OF ABUTMENTS 100 ± 25mm
 REMAINDER (UNLESS NOTED OTHERWISE) 70 ± 20mm
 PRESTRESSED CONCRETE SEE PRESTRESSED DRAWINGS
- REINFORCING STEEL SHALL BE GRADE 400 (BLACK) OR 500 (STAINLESS). BARS MARKED WITH PREFIX "S" DENOTE STAINLESS STEEL BARS. UNLESS OTHERWISE SHOWN, TENSION LAP LENGTHS NOT INDICATED ON THE CONTRACT DRAWINGS SHALL BE CLASS "B". BAR HOOKS SHALL BE MINIMUM LENGTH AND STIRRUPS SHALL HAVE MINIMUM HOOKS, UNLESS INDICATED OTHERWISE.
- MINIMUM LAP OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CHBDC (2014)
- ALL CONCRETE SHALL BE PLACED IN THE DRY.
- NO CONCRETE SHALL BE PLACED BEFORE MATERIALS, FORMWORK AND REINFORCING HAVE BEEN CHECKED AND APPROVED BY THE CONTRACT ADMINISTRATOR.
- ALL EXPOSED EDGES SHALL BE CHAMFERED 19mm UNLESS OTHERWISE NOTED. ALL ACUTE ANGLES TO BE FILLETED AS INDICATED.
- CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
- BEARING SEATS TO BE FINISHED DEAD LEVEL TO THE SPECIFIED ELEVATIONS TO A TOLERANCE OF ±3mm.
- THE BRIDGE DECK SHALL BE FINISHED USING AN APPROVED FINISHING MACHINE IN ACCORDANCE WITH OPSS.MUNI 904.
- ANY EXCAVATED OR IMPORTED MATERIAL SHALL BE STOCKPILED WELL AWAY FROM THE EDGE OF THE EXCAVATION AND AT APPROVED LOCATIONS.
- NO BACKFILL SHALL BE PLACED UNLESS APPROVED BEFOREHAND BY THE CONTRACT ADMINISTRATOR. NATIVE MATERIAL SHALL NOT BE REMOVED FROM THE CONSTRUCTION SITE WITHOUT WRITTEN APPROVAL FROM THE CONTRACT ADMINISTRATOR.
- ROCK PROTECTION SHALL BE 300mm NOMINAL SIZE WITH 50% LARGER THAN 300mm AND 50% SMALLER THAN 300mm. ROCK PROTECTION SHALL BE PLACED ON GEOTEXTILE UNDERLAY.

SEQUENCE OF CONSTRUCTION

- THE ABUTMENTS INCLUDING WINGWALLS SHALL BE CONSTRUCTED FIRST TO BEARING SEAT LOCATION.
- THE GIRDERS SHALL BE PLACED ON RUBBER BEARINGS THAT ALLOW ROTATION AND DEFLECTION OF THE GIRDERS DUE TO SELF WEIGHT AND DEAD LOAD OF THE DECK.
- THE DECK AND THE PORTION OF THE ABUTMENT ABOVE BEARING SEAT ELEVATION SHALL BE CAST INTEGRALLY WITH THE DECK.
- THE DECK AND THE ABUTMENT TO THE BEARING SEAT LEVEL, SHALL BE POURED IN SEQUENCE SO THAT THE STRUCTURE BECOMES INTEGRAL WITH NO RESIDUAL STRESSES. THE ENDS OF THE DECK AND THE ABUTMENTS SHALL BE PLACED LAST UNLESS CONCRETE CAN BE RETARDED SUFFICIENTLY TO ALLOW THE PLACEMENT FROM ONE END TO THE OTHER IN A SINGLE POUR, SUBJECT TO THE APPROVAL OF THE CONTRACT ADMINISTRATOR.
- THE STABILITY AND INTEGRITY OF THE STRUCTURE SHALL BE MAINTAINED AT ALL STAGES OF CONSTRUCTION.
- BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK HAS REACHED 75% OF ITS SPECIFIED STRENGTH.
- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS, KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN HEIGHTS OF BACKFILL BE GREATER THAN 500mm.

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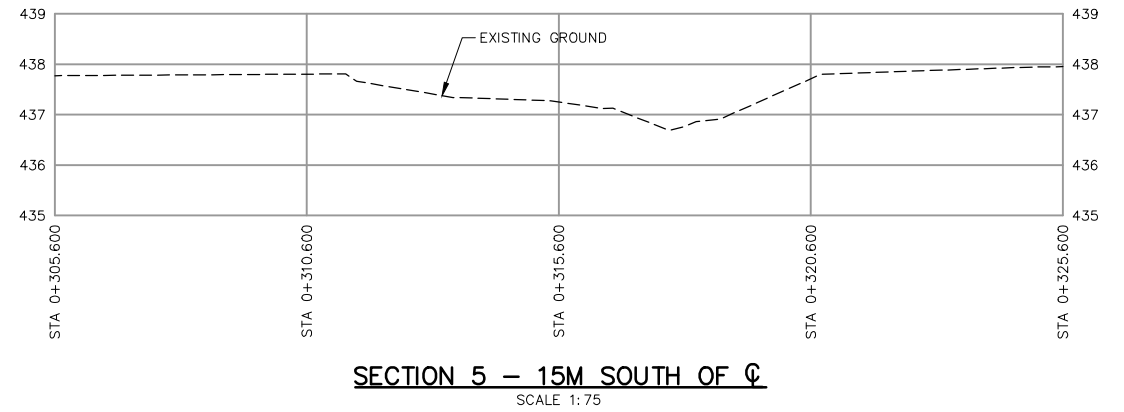
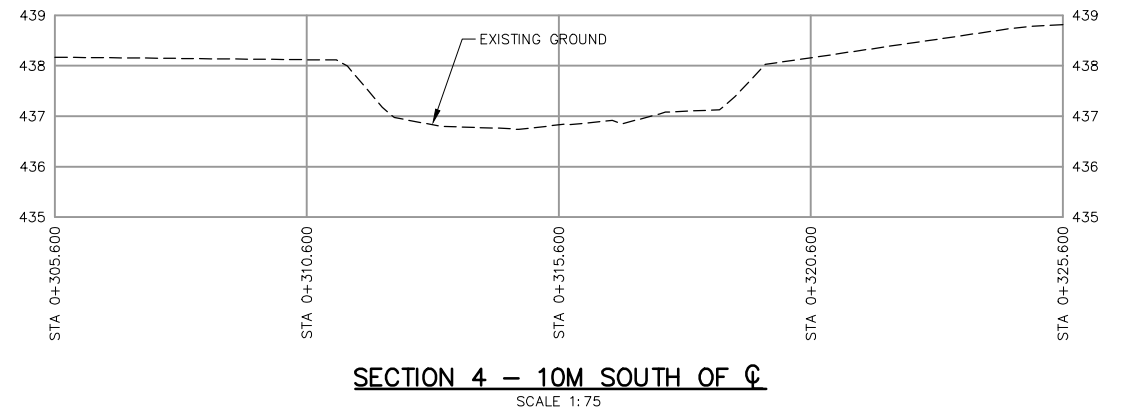
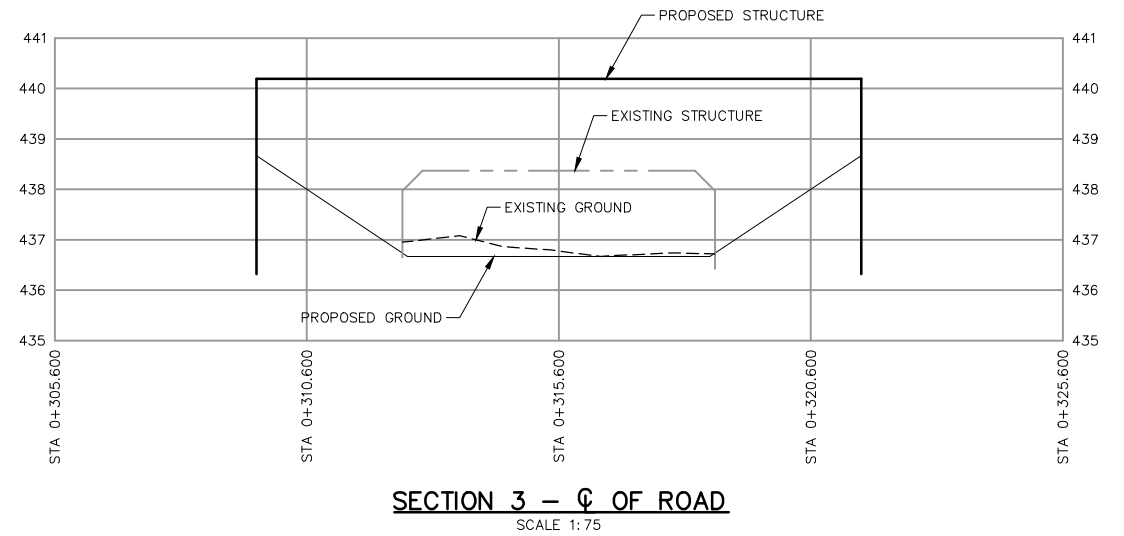
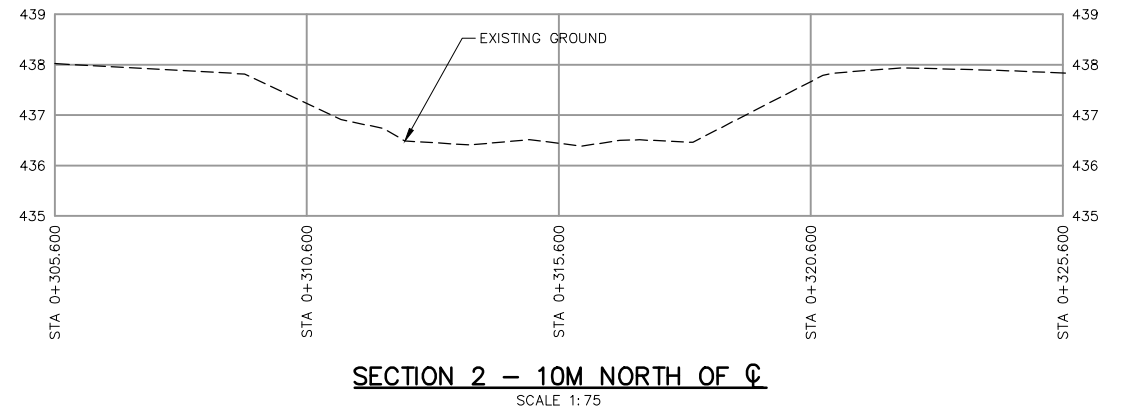
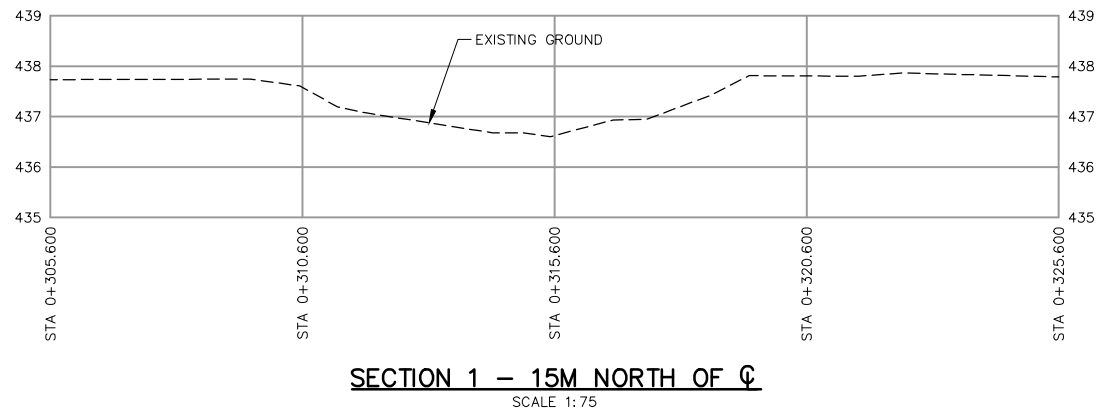
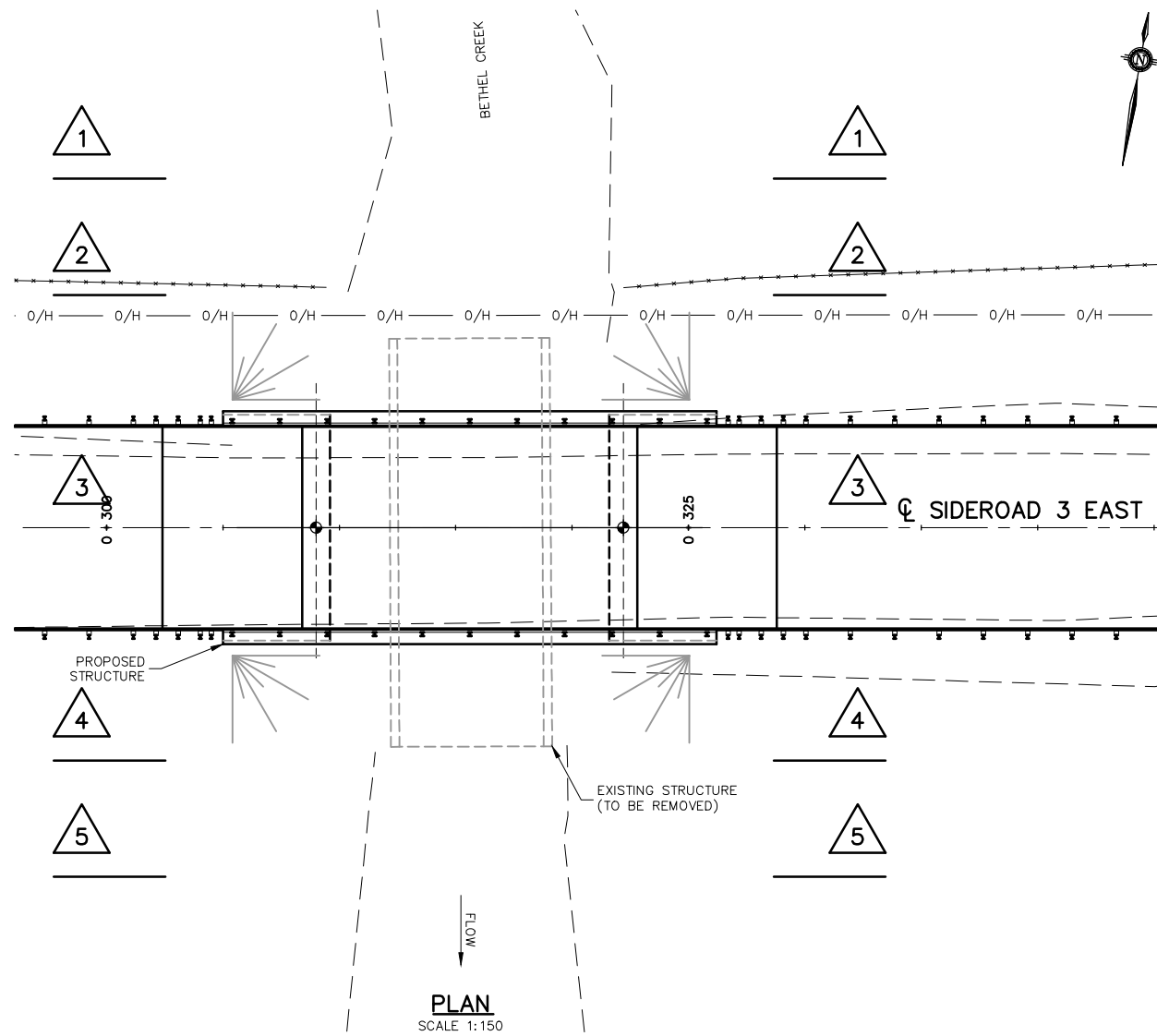
BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

GENERAL ARRANGEMENT

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER	22-067
DATE	OCTOBER 2022
DRAWING NUMBER	3



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BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

CHANNEL DETAILS



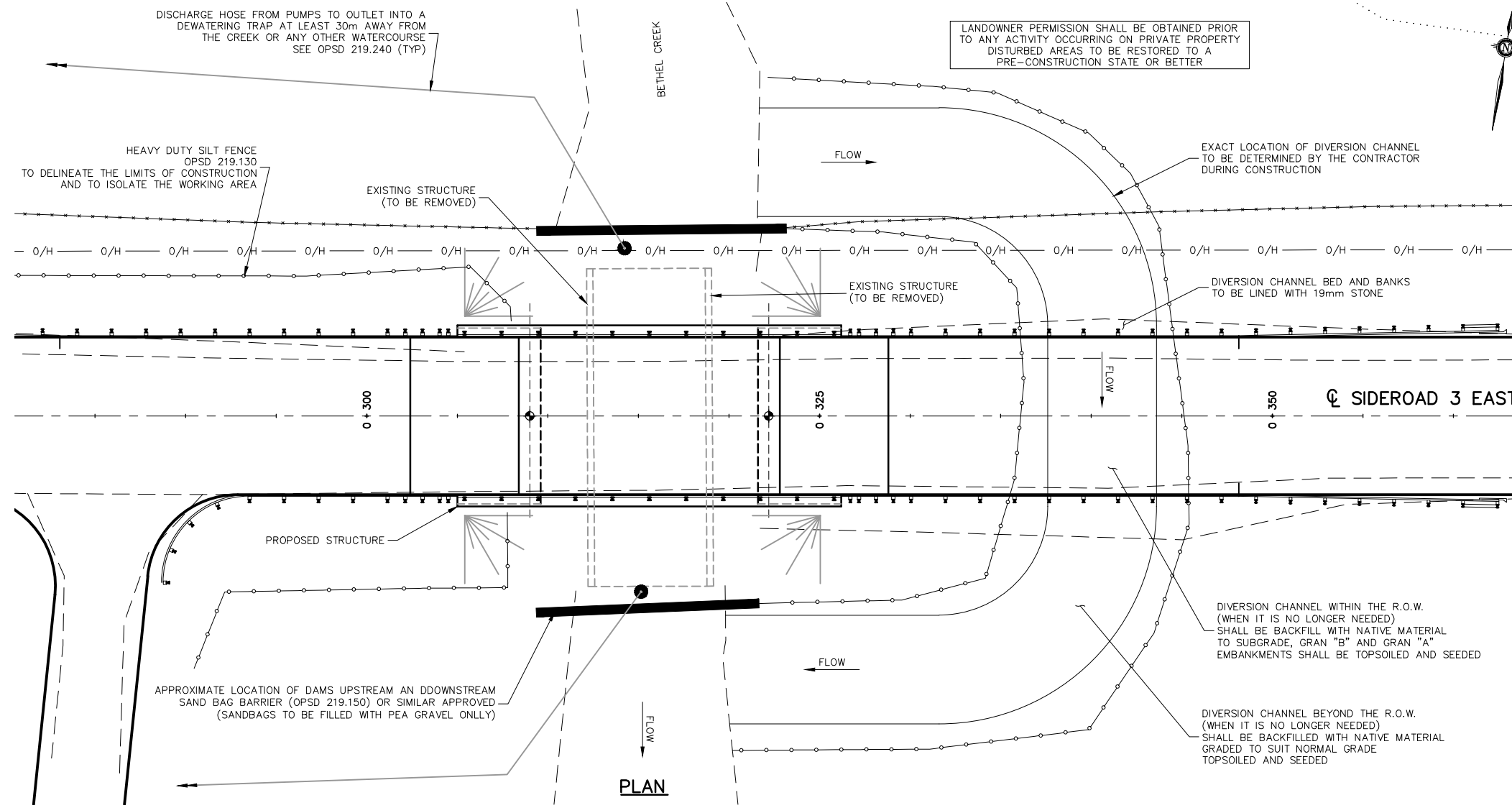
JOB NUMBER 22-067
DATE OCTOBER 2022
DRAWING NUMBER 4

EROSION CONTROL – BRIDGE RECONSTRUCTION

1. ALL WORK SHALL BE DONE IN THE DRY.
2. IN-WATER WORK SHALL ONLY TAKE PLACE BETWEEN JUNE 15 AND SEPTEMBER 15.
3. DEWATERING OF THE SITE SHALL BE ACHIEVED BY THE CONSTRUCTION OF A TEMPORARY DIVERSION CHANNEL, INSTALLATION OF COFFERDAMS TO ISOLATE THE WORKING AREA AND THE PLACEMENT OF CONVENTIONAL SUMP PUMPS WHERE REQUIRED. THE CONTRACTORS SPECIFIC METHOD SHALL BE APPROVED BEFOREHAND BY THE CONTRACT ADMINISTRATOR. ALTERNATIVE METHODS OF DEWATERING, SUCH AS DEEP WELLS OR WELL POINTS, MAY BE POSSIBLE PENDING THE APPROVAL OF THE CONTRACT ADMINISTRATOR.
4. THE TEMPORARY DIVERSION CHANNEL SHALL BE CONSTRUCTED WITH A STABLE BED AND STREAM BANKS IN ACCORDANCE WITH THE SPECIFICATIONS GIVEN IN THE CONTRACT DOCUMENTS. AFTER COMPLETION, THE DIVERSION CHANNEL SHALL BE COMPLETELY REMOVED AND BACKFILLED, TOPSOILED AND SEEDED TO ITS ORIGINAL CONDITION OR BETTER. BACKFILLING OF THE DIVERSION CHANNEL ACROSS THE ROADWAY TO BE GRANULAR "B" AND "A" COMPACTED TO 100% SPD.
5. DISCHARGE FROM PUMPING OPERATIONS SHALL FIRST OUTLET INTO A SILTING POND OR SEDIMENT TRAP BEFORE THE WATER IS ALLOWED TO RE-ENTER THE STREAM OR ANOTHER WATERCOURSE.
6. COFFERDAMS SHALL BE DESIGNED BY THE CONTRACTOR AND SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR APPROVAL.
7. ALL DISTURBED AREAS INCLUDING BANKS ABOVE WATER LEVEL SHALL BE REGRADED, TOPSOILED AND SEEDED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AS SOON AS POSSIBLE.
8. ALL EROSION CONTROL MEASURES (SILT DAMS, SILTATION POND/DEWATERING TRAP, ETC.) SHALL BE CHECKED DAILY DURING ON-SITE WORK AND BE MAINTAINED IN GOOD STATE SO THAT THEY ARE FUNCTIONING PROPERLY. SILT FENCE AND STRAW BALE CHECK DAMS TO BE LEFT IN PLACE FOR 12 MONTHS OR UNTIL SUCH TIME AS THE SITE STABILIZES (THESE ARE LOCATED ABOVE HIGH WATER LEVEL).
9. NO MACHINERY SHALL CROSS THE STREAM AT ANY TIME. ANY MACHINERY THAT IS REQUIRED ON THE OTHER SIDE OF THE STREAM WHILE THE BRIDGE IS DISMANTLED OR UNDER CONSTRUCTION SHALL BE HAULED BY FLOAT OR DRIVEN AROUND ON THE ROADS. MACHINERY, VEHICLES, EQUIPMENT PUMPS, ETC., WILL NOT BE REFUELED WITHIN 30 METRES OF THE WATERCOURSE. MACHINERY SHALL NOT BE CLEANED WITHIN 30 METRES OF THE STREAM.
10. ALL WASTE MATERIAL FROM CONSTRUCTION SHALL BE STORED AWAY AND ABOVE THE HIGH WATERMARK AND AT NO TIME SHALL SUCH MATERIAL ENTER IN THE WATER.
11. FOR TYPICAL CHECK DAMS REFER TO OPSD 219.210
12. FOR SILT FENCE REFER TO OPSD 219.130 HEAVY DUTY.
13. SEED MIX TO BE "STANDARD ROADSIDE MIX" IN ACCORDANCE WITH OPSS.MUNI 804 TABLE 1.

ADDITIONAL ENVIRONMENTAL MEASURES TO BE ADHERED TO:

1. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE IMPLEMENTED PRIOR TO WORK, AND MAINTAINED DURING THE WORK PHASE, TO PREVENT THE ENTRY OF SEDIMENT INTO THE WATER OR THE MOVEMENT OF RE-SUSPENDED SEDIMENT.
2. A FLOATING TURBIDITY CURTAIN OR SILT FENCE SHOULD BE PLACED IMMEDIATELY AROUND THE WORK SITE PRIOR TO THE INSTALLATION OF COFFERDAMS.
3. ALL DISTURBED WORK AREAS SHOULD BE STABILIZED AND RE-VEGETATED AS REQUIRED UPON THE COMPLETION OF WORK AND RESTORED TO A PRE-DISTURBED STATE OR BETTER.
4. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE LEFT IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
5. EXISTING STREAM FLOWS SHOULD BE MAINTAINED DOWNSTREAM OF THE DE-WATERED WORK AREA WITHOUT INTERRUPTION, DURING ALL STAGES OF WORK. THERE SHOULD BE NO INCREASE IN WATER LEVELS UPSTREAM OF THE DE-WATERED WORK AREA.
6. FISH SHOULD BE REMOVED FROM THE WORK AREA PRIOR TO DE-WATERING AND RELEASED ALIVE IMMEDIATELY DOWNSTREAM.
7. SILT OR DEBRIS THAT HAS ACCUMULATED AROUND THE TEMPORARY COFFERDAMS SHOULD BE REMOVED PRIOR TO THE WITHDRAWAL.
8. NATURAL STRUCTURES SUCH AS LOGJAMS AND IN-STREAM WOODY COVER SHOULD NOT BE REMOVED UNLESS THEY REPRESENT A BARRIER TO FLOWS OR FISH MOVEMENT.
9. OPERATE HEAVY MACHINERY ON LAND AND IN A MANNER THAT MINIMIZES DISTURBANCE TO THE BANKS OR BED OF THE STREAM.
10. ENSURE THAT MACHINERY ARRIVES ON SITE IN A CLEAN, WASHED CONDITION AND IS MAINTAINED FREE OF FLUID LEAKS.
11. WASH, REFUEL AND SERVICE MACHINERY AND STORE FUEL AND OTHER MATERIALS FOR THE MACHINERY AWAY FROM THE WATER TO PREVENT ANY DELETERIOUS SUBSTANCE FROM ENTERING THE WATER OR SPREADING ONTO THE ICE SURFACE.
12. KEEP AN EMERGENCY SPILL KIT ON SITE IN CASE OF FLUID LEAKS OR SPILLS FROM MACHINERY.
13. STABILIZE ANY WASTE MATERIALS REMOVED FROM THE WORK SITE TO PREVENT IT FROM ENTERING THE WATERBODY. THIS COULD INCLUDE COVERING STOCKPILES WITH BIODEGRADABLE MATS OR TARPS, OR PLANTING STOCKPILES WITH GRASS OR SHRUBS.
14. ALL UNSTABLE BANKS OF THE WATERCOURSE SHOULD BE STABILIZED AND SIDE RUN-OFF DITCHES SHOULD BE CONSTRUCTED TO DIVERT ROAD RUN-OFF THROUGH THE GREENBELT BEFORE ENTERING THE STREAM.
15. VEGETATE AND STABILIZE ANY DISTURBED AREAS BY SEEDING AND PLANTING TREES, SHRUBS, OR GRASSES.
16. STREAM CROSSINGS SHOULD ALLOW FOR UNIMPEDED UPSTREAM AND DOWNSTREAM MOVEMENT OF FISH.
17. CONCRETE LEACHATE IS ALKALINE AND HIGHLY TOXIC TO FISH AND AQUATIC LIFE AND MEASURES MUST BE TAKEN TO PREVENT ANY INCIDENCE OF CONCRETE OR CONCRETE LEACHATE FROM ENTERING THE WATERCOURSE. ALL CAST-IN-PLACE CONCRETE, GROUT, MORTARS, ETC. SHOULD BE TOTALLY ISOLATED FROM PRECIPITATION AND THE WATERS OF THE CANAL FOR A MINIMUM 48 HOUR PERIOD OR UNTIL SIGNIFICANTLY CURED. TO ALLOW THE pH TO REACH NEUTRAL LEVELS. CONTAINMENT FACILITIES SHOULD BE PROVIDED AT THE SITE FOR THE WASH-DOWN FROM CONCRETE DELIVERY TRUCKS, CONCRETE PUMPING EQUIPMENT, AND OTHER TOOLS AND EQUIPMENT AS REQUIRED.



LANDOWNER PERMISSION SHALL BE OBTAINED PRIOR TO ANY ACTIVITY OCCURRING ON PRIVATE PROPERTY DISTURBED AREAS TO BE RESTORED TO A PRE-CONSTRUCTION STATE OR BETTER

DEWATERING SEQUENCE

1. ATTEND A PRE-CONSTRUCTION MEETING WITH THE OWNER, CONTRACT ADMINISTRATOR, AND SAUGEEN VALLEY CONSERVATION AUTHORITY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. INSTALL PHASE 1 SILT FENCE, STRAW BALE FLOW CHECK DAMS, SILTING PONDS/DEWATERING TRAPS AND ANY OTHER EROSION CONTROL MEASURES WHICH MAY BE REQUIRED..
3. CONSTRUCT TEMPORARY DIVERSION CHANNEL LEAVING AN EARTH "PLUG" AT END OF THE DIVERSION CHANNEL.
4. INSTALL TEMPORARY CULVERT UNDER THE ROADWAY (OPTIONAL). TEMPORARY CULVERT SHALL BE DESIGNED BY THE CONTRACTOR TO CONVEY THE 2 YEAR STORM.
5. REMOVE THE DOWNSTREAM END "PLUG" AND ALLOW THE DIVERSION CHANNEL TO FILL WITH WATER.
6. ALLOW THE WATER IN THE DIVERSION CHANNEL TO SIT FOR A MINIMUM OF 24 HOURS.
7. SLOWLY REMOVE THE UPSTREAM END "PLUG" AND DIRECT FLOW THROUGH THE DIVERSION CHANNEL.
8. DEWATER AND DEFISH (REFER TO SPECIFICATIONS) EXISTING STREAMBED BETWEEN THE UPSTREAM AND DOWNSTREAM COFFERDAMS.
9. DEMOLISH THE EXISTING STRUCTURE AND DISPOSE OF THE DEBRIS OFF THE SITE.
10. EXCAVATE AS REQUIRED TO CONSTRUCT NEW STRUCTURE.
11. DRIVE PILES AND CONSTRUCT ABUTMENTS/WINGWALLS UP TO BEARING SEAT ELEVATIONS.
12. PLACE BACKFILL AS REQUIRED ON BOTH SIDES OF BOTH ABUTMENTS TO JUST ABOVE STREAM BANK ELEVATION.
13. REPAIR/REBUILD STREAMBED THROUGH STRUCTURE. STREAMBED MATERIAL SHALL BE SIMILAR TO THE EXISTING WATERCOURSE SUBSTRATE OR WASHED, WELL GRADED ROUND RIVER STONE.
14. REMOVE DOWNSTREAM COFFERDAM AND ALLOW NEW STREAMBED THROUGH STRUCTURE TO FLOOD FOR A MINIMUM OF 24 HOURS..
15. REMOVE UPSTREAM COFFERDAM AND DIVERT WATERCOURSE THROUGH NEW STRUCTURE.
16. REPAIR UPSTREAM AND DOWNSTREAM WATERCOURSE BANKS AS REQUIRED (REFER TO SPECIFICATIONS).
17. DEWATER AND DEFISH (REFER TO SPECIFICATIONS) DIVERSION CHANNEL.
18. REMOVE TEMPORARY CULVERT UNDER THE ROADWAY (IF ANY) AND BACKFILL DIVERSION CHANNEL.
19. COMPLETE REMAINING CONSTRUCTION OF THE BRIDGE.
20. COMPLETE ROADWORK.
21. INSTALL PHASE 2 SILT FENCE AND STRAW BALE CHECK DAMS.

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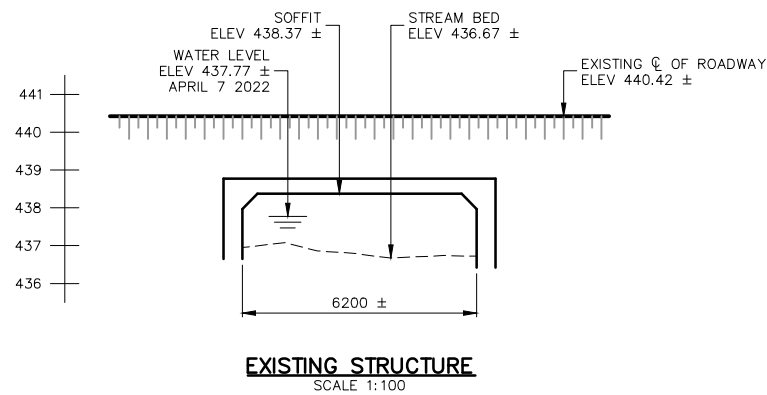
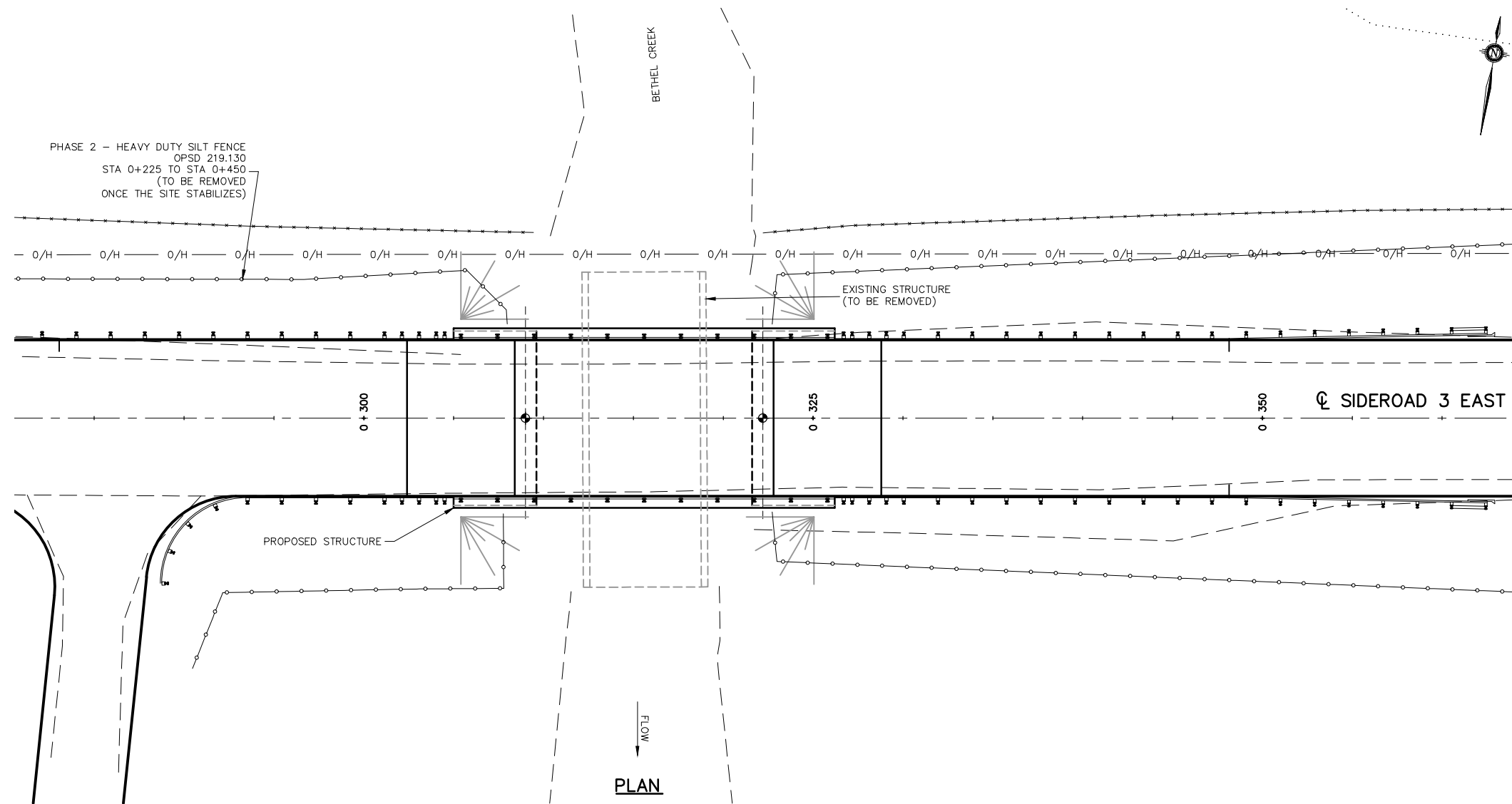
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BRIDGE 9 REPLACEMENT
TOWNSHIP OF WELLINGTON NORTH

EROSION AND SEDIMENT CONTROL - PHASE 1

K. SMART ASSOCIATES LIMITED
 CONSULTING ENGINEERS AND PLANNERS
 KITCHENER SUDBURY

JOB NUMBER: 22-067
 DATE: OCTOBER 2022
 DRAWING NUMBER: 5



NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 5
2. ANY PHASE 1 EROSION AND SEDIMENT CONTROL MEASURES WHICH ARE NO LONGER NEEDED OR CONFLICT WITH PHASE 2 MEASURES SHALL BE REMOVED.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED BY THE CONTRACTOR AFTER THE SITE STABILIZES OR UPON REQUEST BY THE CONTRACT ADMINISTRATOR

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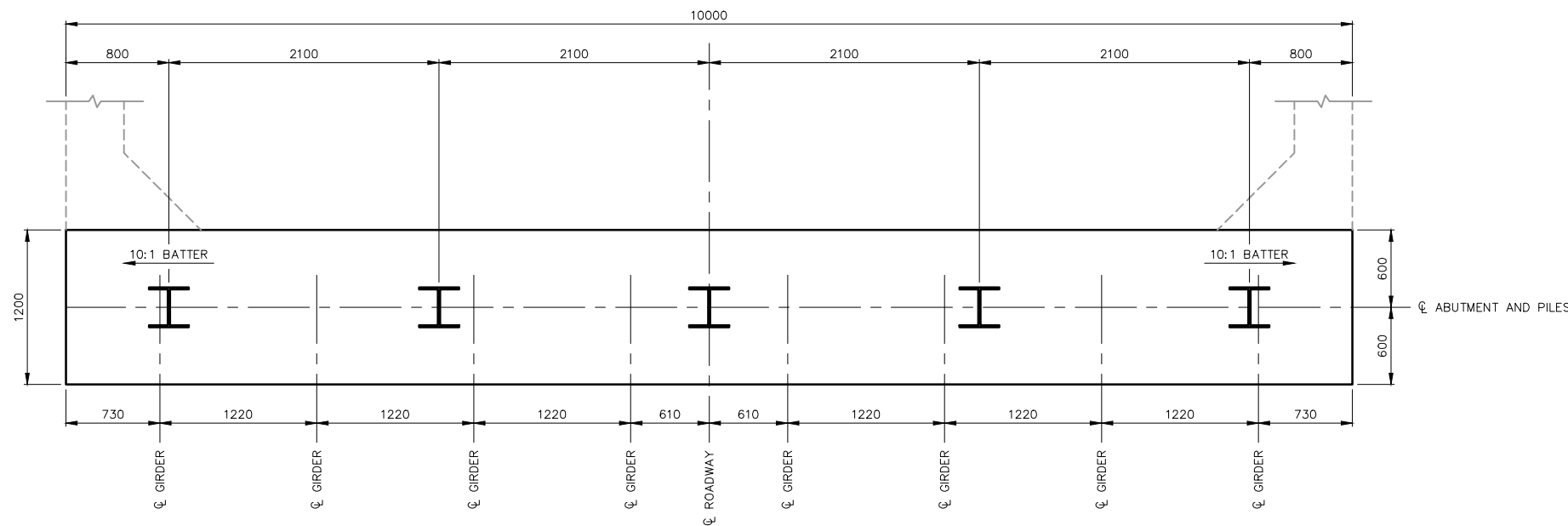
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EROSION AND SEDIMENT CONTROL - PHASE 2

KS K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

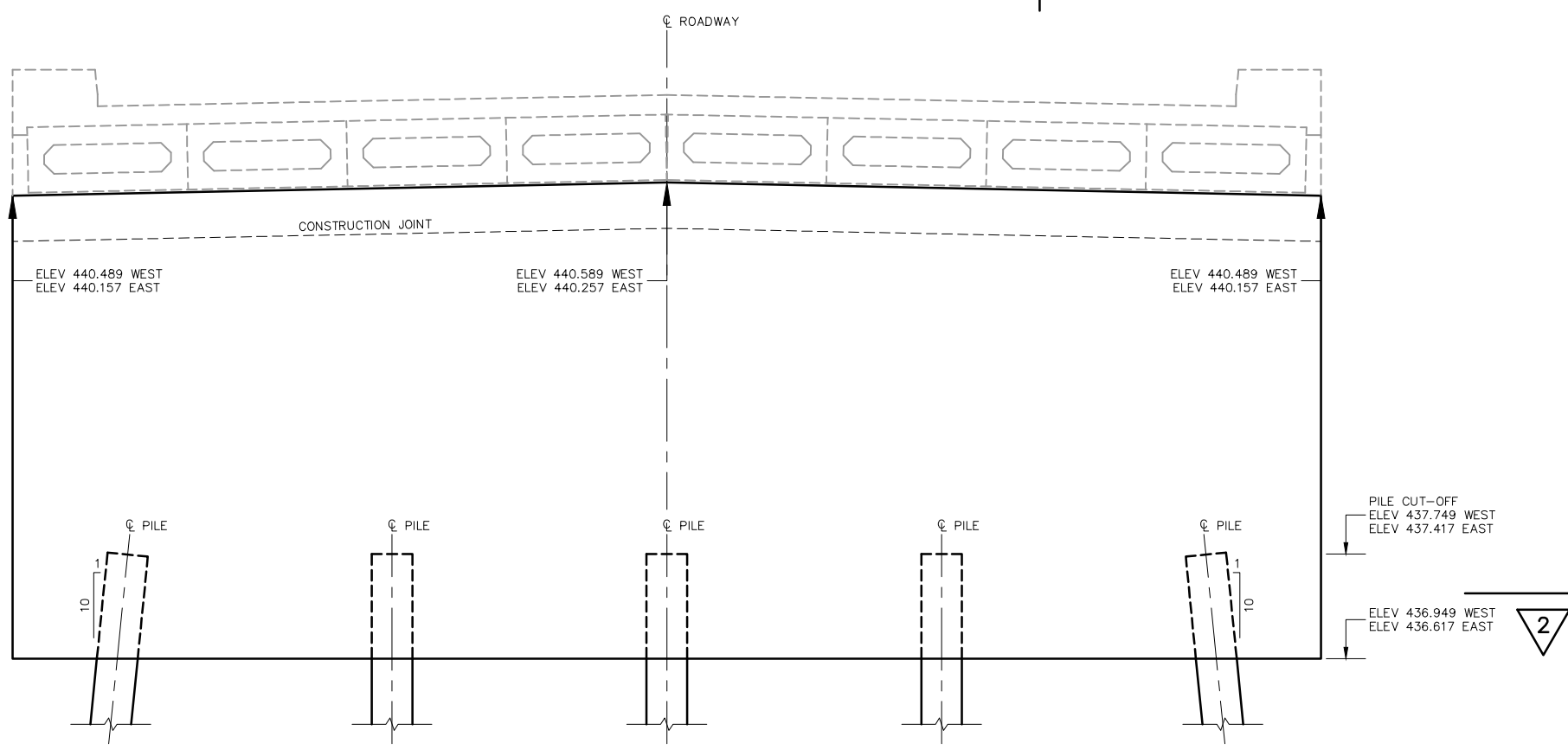
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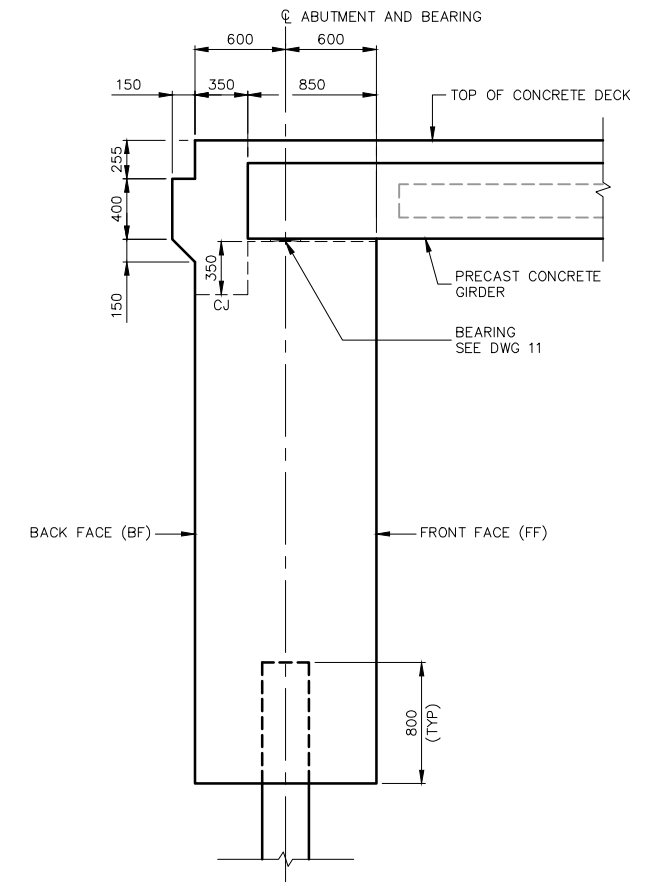
SECTION 2

- NOTES FOR PILES**
1. ALL PILES SHALL BE HP310 x 110 (HP12 x 74) STEEL PILES BATTERED AS SHOWN.
 2. STEEL PILES SHALL CONFORM TO CSA G40.21 GRADE 350W (GRADE 44).
 3. ALL PILES ARE DESIGNED FOR A MINIMUM LOADING CAPACITY OF 750 KN (SLS) AND 1200 KN (ULS).
 4. ALL PILES SHALL BE DRIVEN TO AT LEAST ELEV 424.000.
 5. FOR DETAILS OF SPlicing, REFER TO OPSD 3000.150. ALL SPLICES SHALL BE APPROVED BY THE CONTRACT ADMINISTRATOR.
 6. WELDING SHALL CONFORM TO CSA STANDARD W59 AND SHALL BE DONE BY A WELDER QUALIFIED IN ACCORDANCE WITH CSA STANDARD W47.1.
 7. NO PILES SHALL BE CUT OFF UNTIL THE CONTRACT ADMINISTRATOR HAS APPROVED THE LOADING CAPACITY OF THE PILES.
 8. DRIVING OF PILES SHALL NOT START BEFORE THE CONTRACT ADMINISTRATOR HAS CHECKED THE LAYOUT OF THE FOUNDATION.
 9. FOR TOLERANCES OF PILE DRIVING, REFER TO OPSS.MUNI 903.
 10. SPACING OF PILES IS TO BE MEASURED AT THE UNDERSIDE OF THE ABUTMENT.
 11. PILE LENGTH SHOWN IS THEORETICAL LENGTH BELOW CUT-OFF ELEVATION.
 12. PILE SHOES IN ACCORDANCE WITH OPSD 3000.100 TYPE 1 SHALL BE PROVIDED ON EACH PILE.
 13. PILE DRIVING EQUIPMENT SHALL BE APPROPRIATE TO THE DRIVING CONDITIONS AND CAPABLE OF DELIVERING A MINIMUM SPECIFIED ENERGY OF 40 KJ PER BLOW.

LIST OF PILES			
LOCATION	NUMBER	LENGTH	BATTER
WEST ABUTMENT	3	13.75 ±	VERTICAL
WEST ABUTMENT	2	13.82 ±	10:1
EAST ABUTMENT	3	13.42 ±	VERTICAL
EAST ABUTMENT	2	13.49 ±	10:1



ABUTMENT ELEVATION - DIMENSIONS



SECTION 1

No.	REVISION	DATE	DESIGNED BY: A.G.
1.	ISSUED FOR APPROVALS	APR. 17/23	CHECKED BY: --
2.	RE-ISSUED FOR APPROVALS	OCT. 2/23	DRAWN BY: J.A.
3.	ISSUED FOR TENDER	JAN. 10/24	CHECKED BY: --
			FIELD BOOK:

SCALE
1:25

(ON 24 x 36 PAPER)

BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

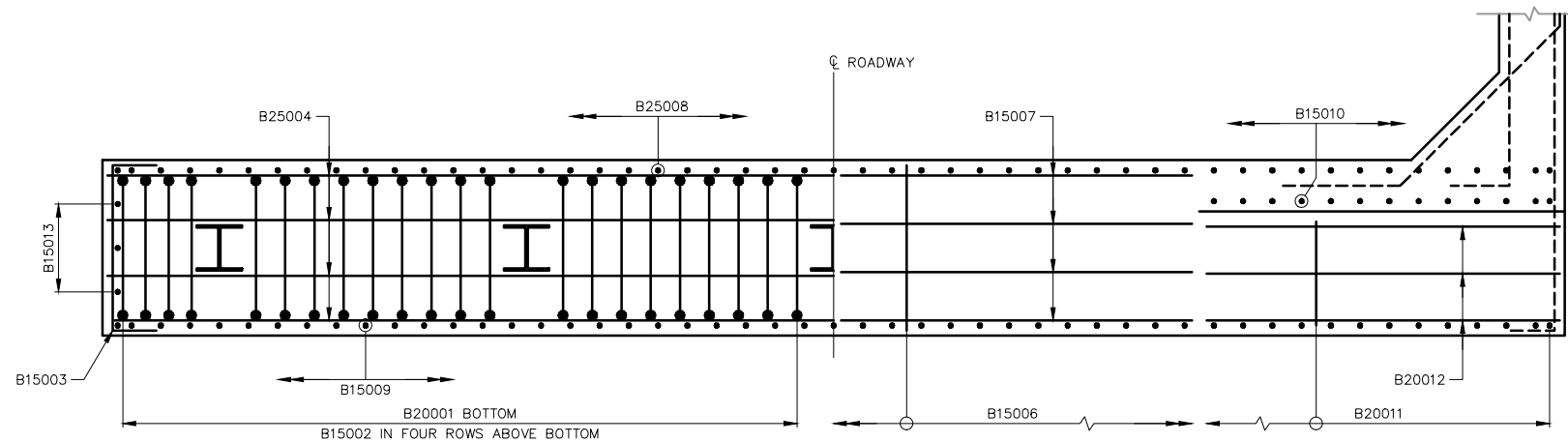
ABUTMENT DIMENSIONS AND FOUNDATION

JOB NUMBER 22-067
DATE OCTOBER 2022
DRAWING NUMBER 7

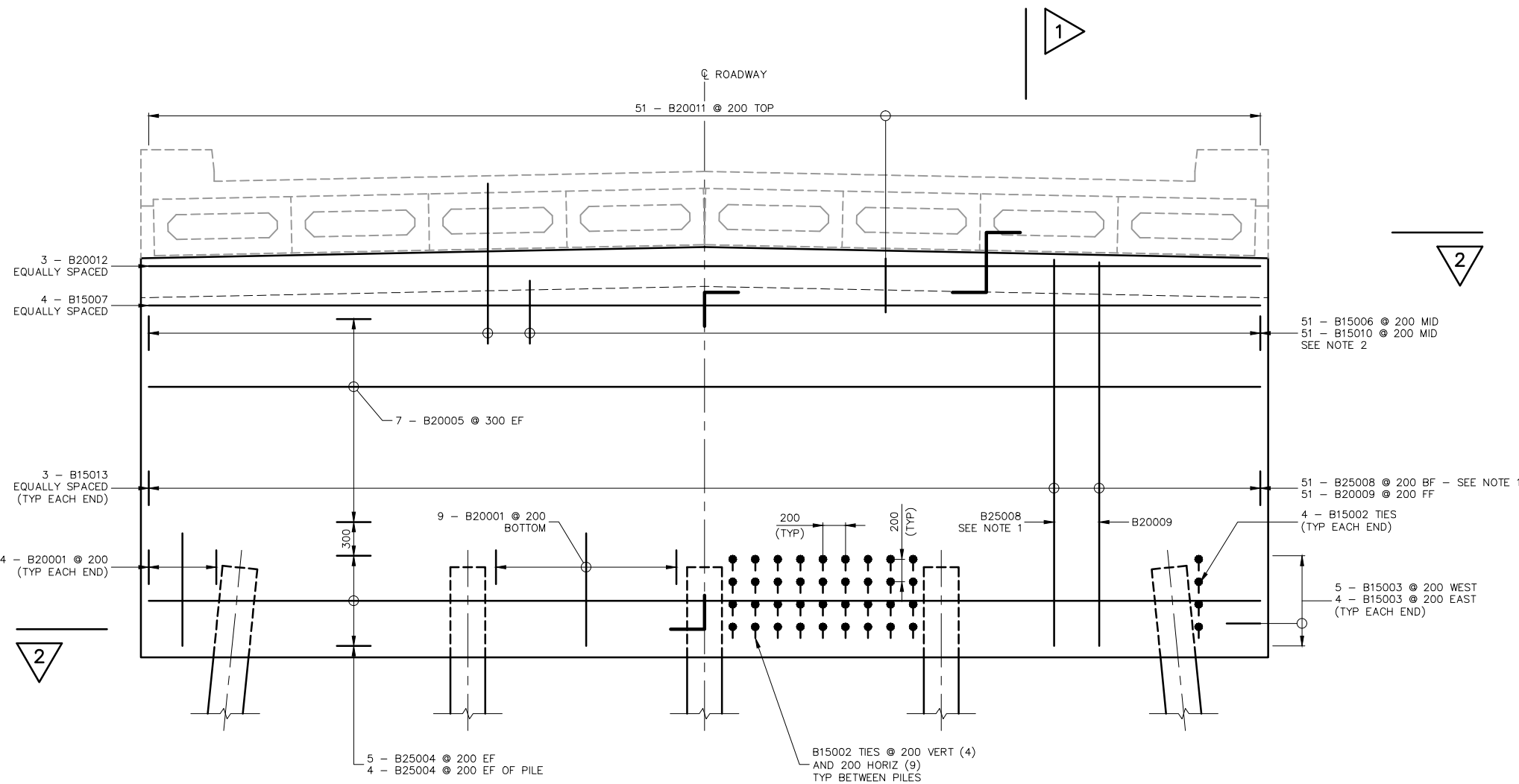
NOTES

1. THE CONTRACTOR SHALL ADJUST BAR B25008 VERTICALLY AS REQUIRED TO MAINTAIN A CONSTANT PROJECTION OF 300mm ABOVE THE CONSTRUCTION JOINT
OR
THE CONTRACTOR SHALL INSTALL BAR B25008 SLIGHTLY ABOVE THE LOCATION OF THE SPLICE AND FIELD CUT THE BAR AT THE EXACT LOCATION.
2. BAR B15010 CAN BE "WET CAST" DURING THE ABUTMENT POUR(S).
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWINGS 3, 7, 9 AND 10.

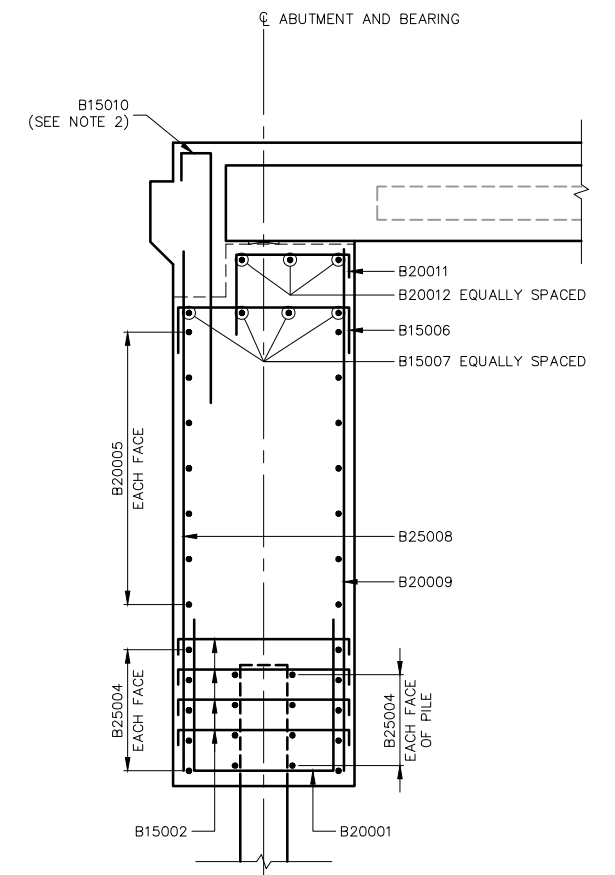
NOTE:
FOR WINGWALL REINFORCEMENT
REFER TO DRAWING 9 AND 10



SECTION 2



ABUTMENT ELEVATION - REINFORCEMENT



SECTION 1

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			FIELD BOOK:

SCALE
1:25

(ON 24 x 36 PAPER)

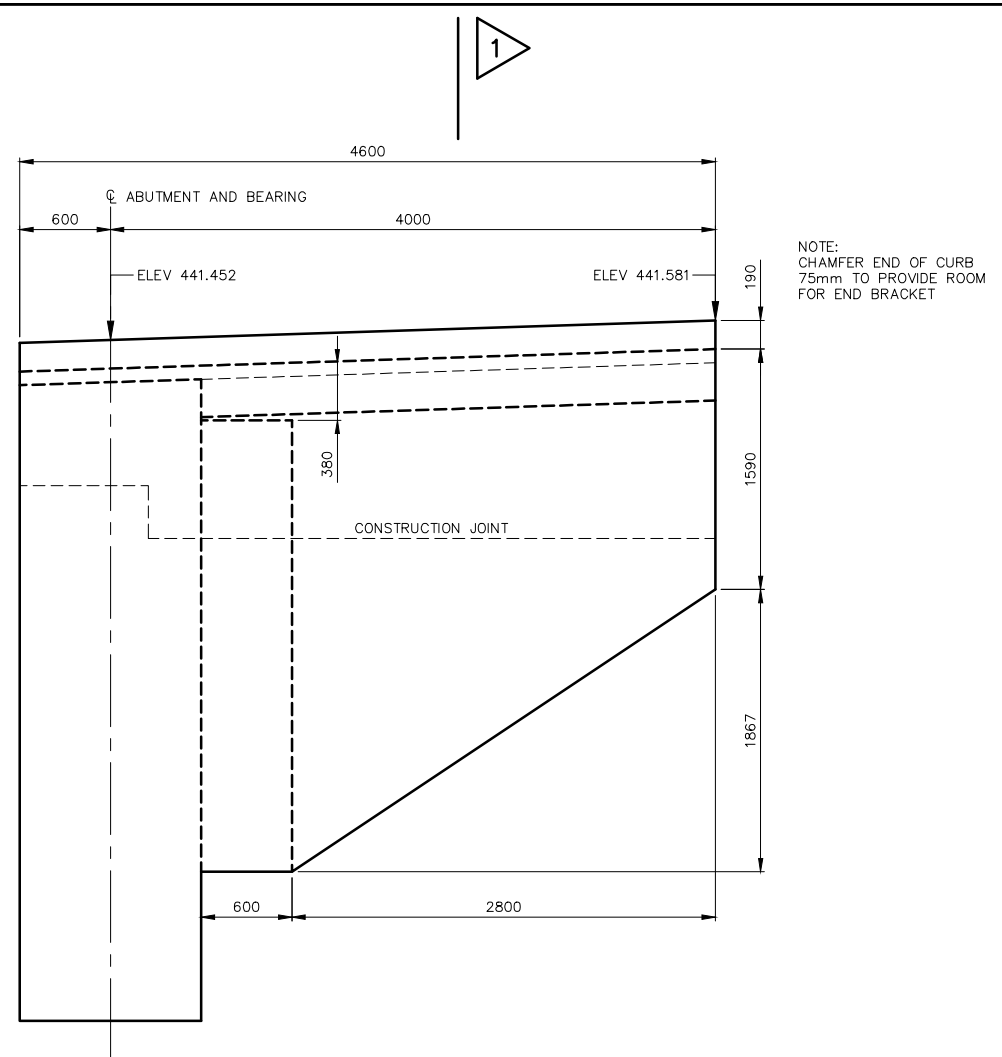
BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

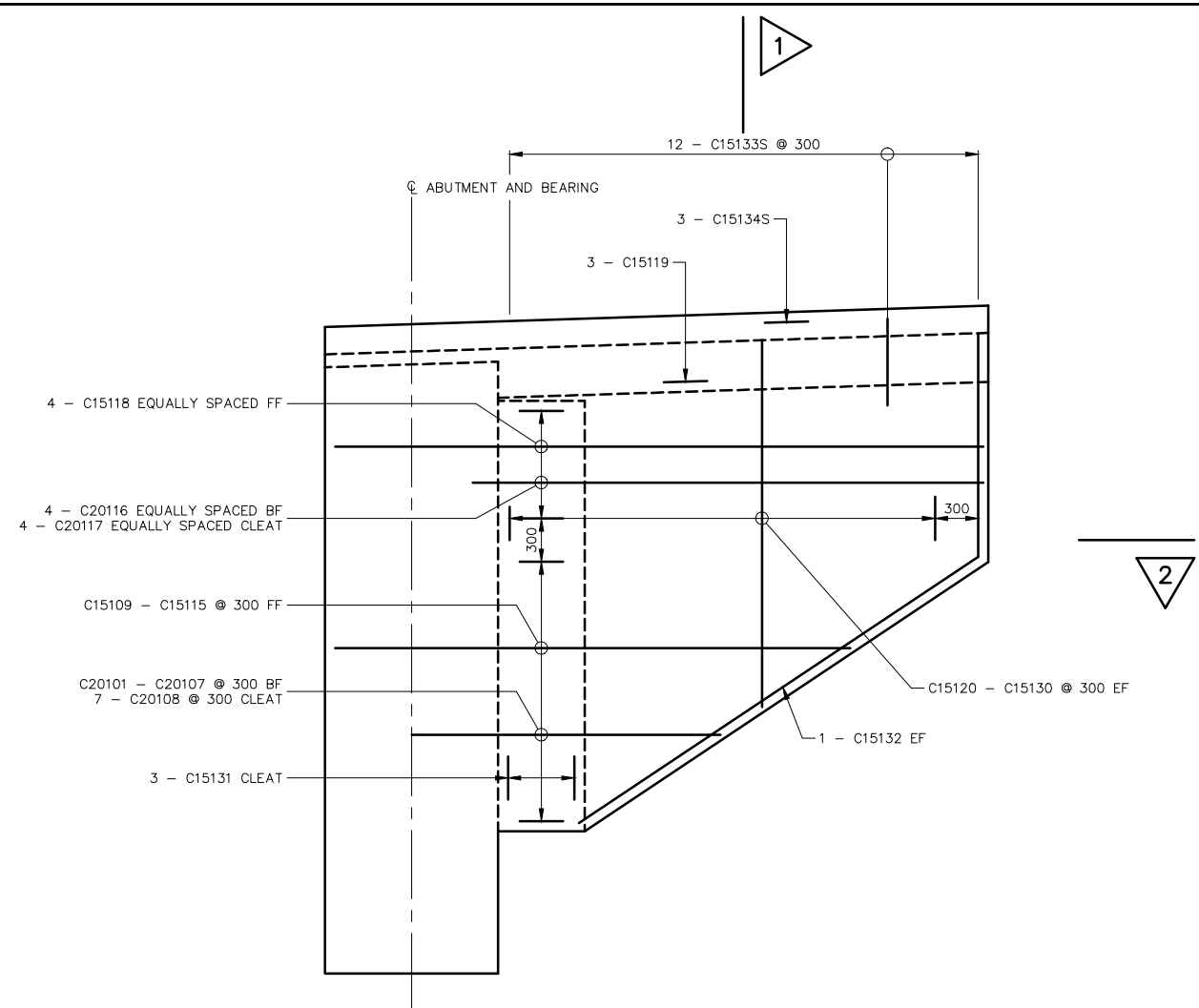
ABUTMENT REINFORCEMENT

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

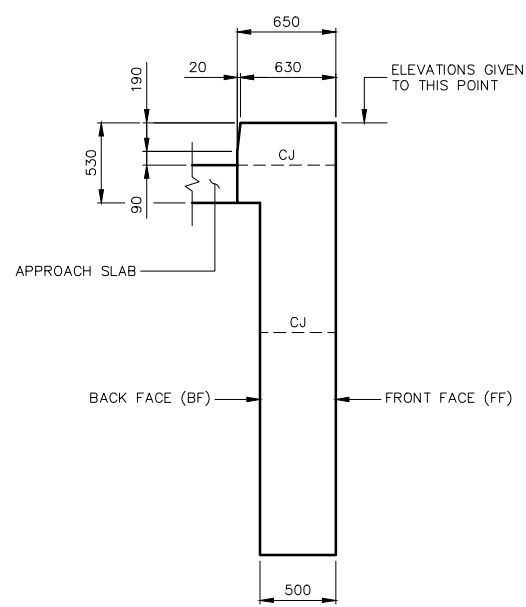
JOB NUMBER 22-067
DATE OCTOBER 2022
DRAWING NUMBER 8



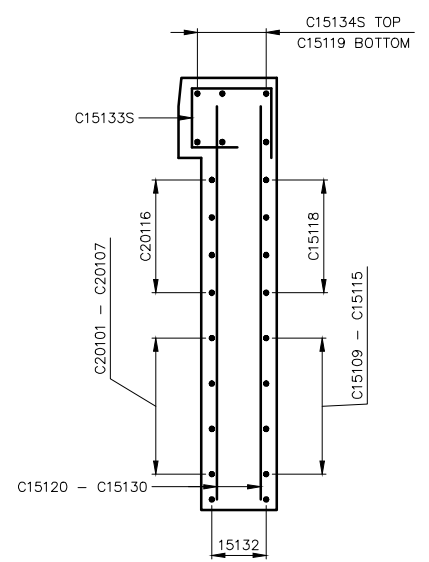
ELEVATION – DIMENSIONS



ELEVATION – REINFORCEMENT

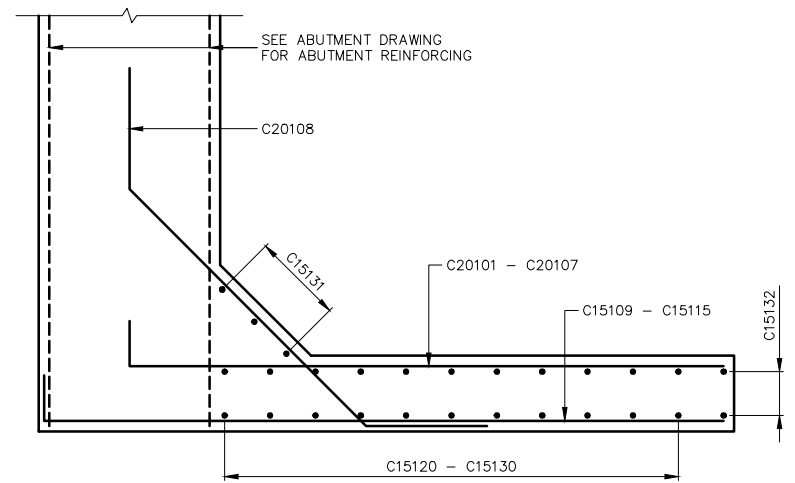


DIMENSIONS



REINFORCEMENT

SECTION 1



SECTION 2

No.	REVISION	DATE	DESIGNED BY: A.G.
1.	ISSUED FOR APPROVALS	APR. 17/23	CHECKED BY: --
2.	RE-ISSUED FOR APPROVALS	OCT. 2/23	DRAWN BY: J.A.
3.	ISSUED FOR TENDER	JAN. 10/24	CHECKED BY: --
			FIELD BOOK:

SCALE
1:25

(ON 24 x 36 PAPER)

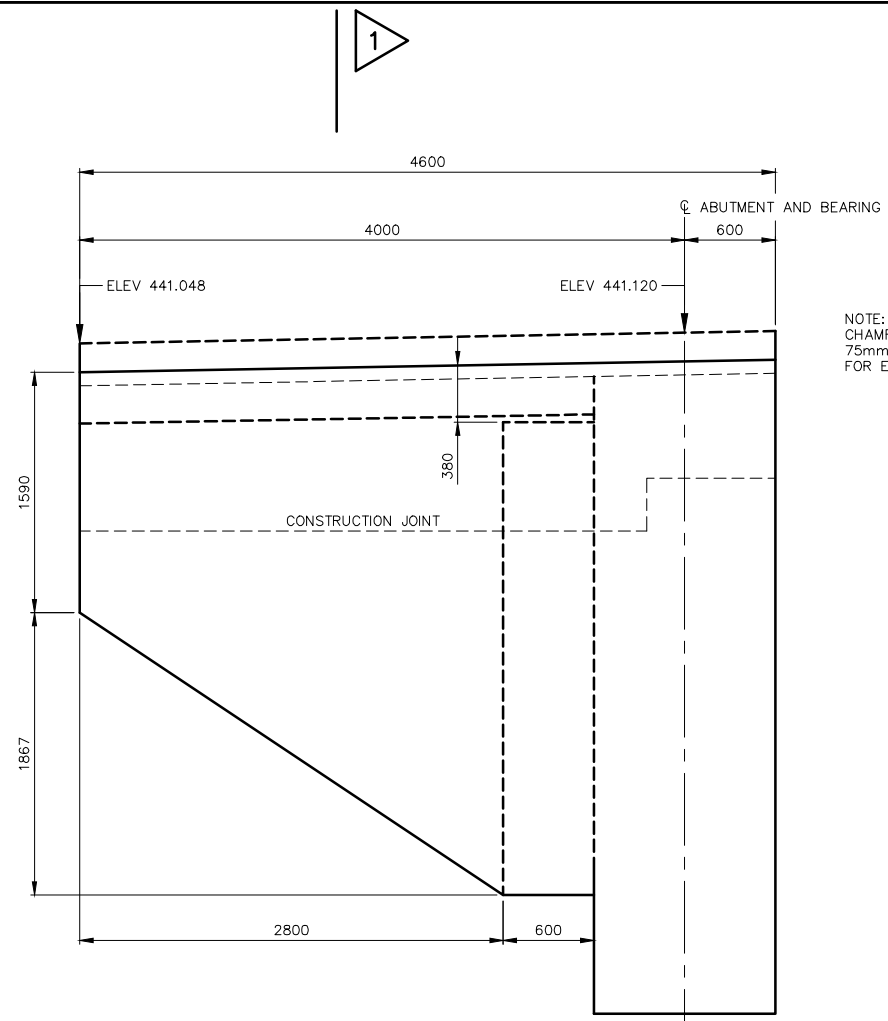
BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

WEST WINGWALL DETAILS

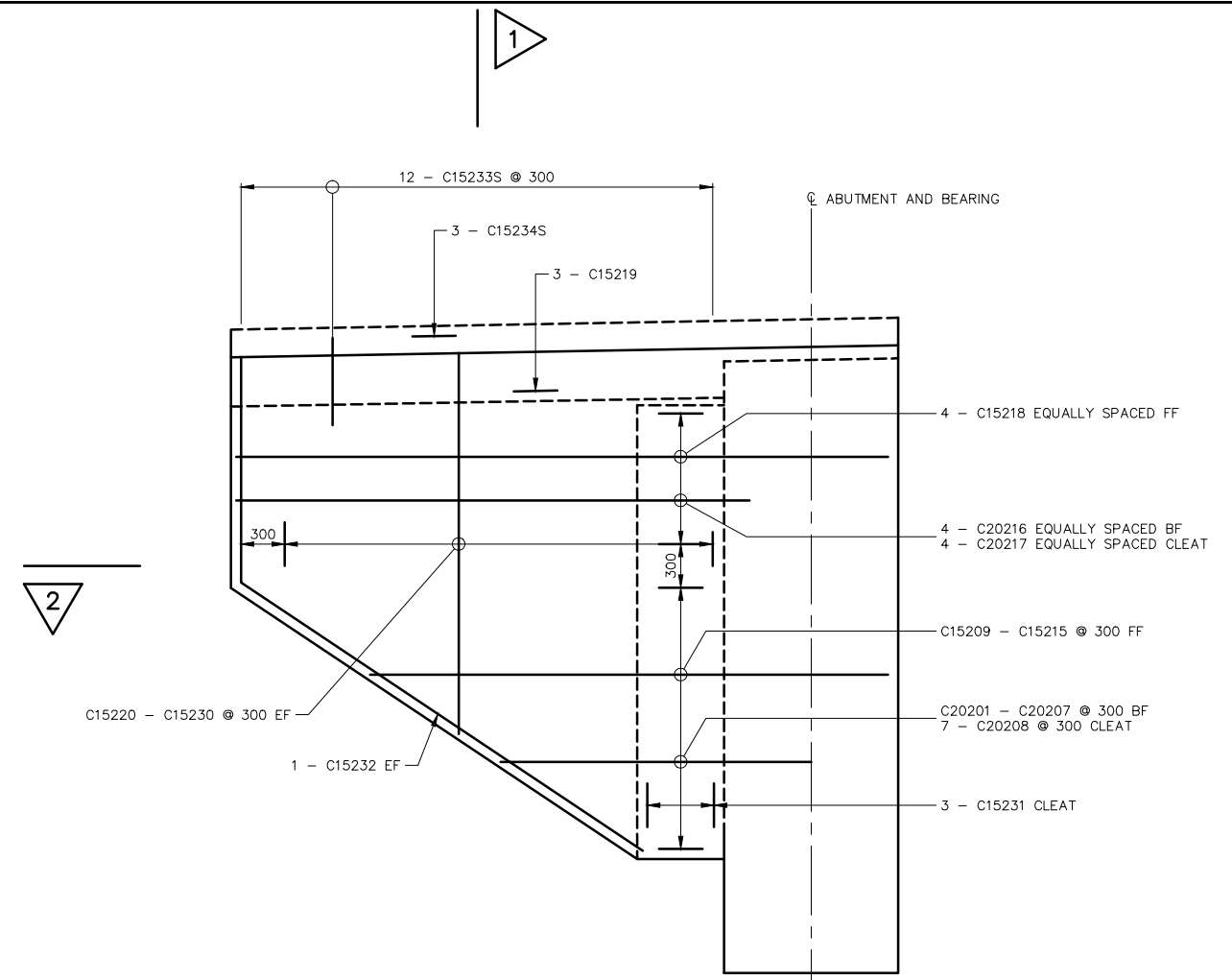
K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER 22-067
DATE OCTOBER 2022
DRAWING NUMBER 9

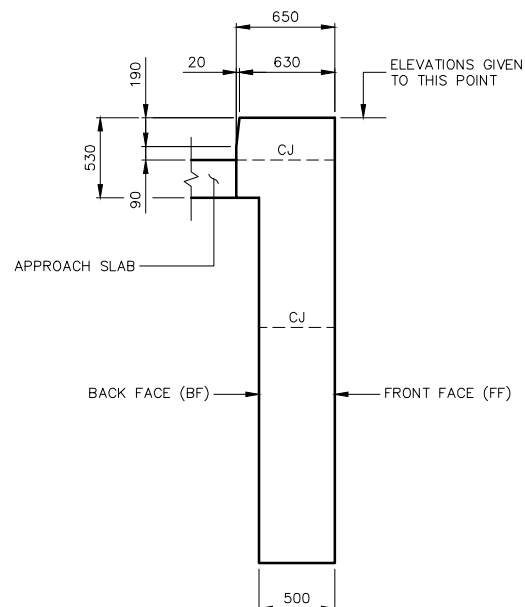


NOTE:
CHAMFER END OF CURB
75mm TO PROVIDE ROOM
FOR END BRACKET

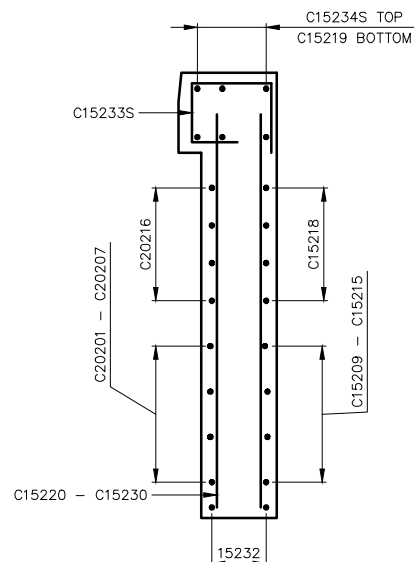
ELEVATION - DIMENSIONS



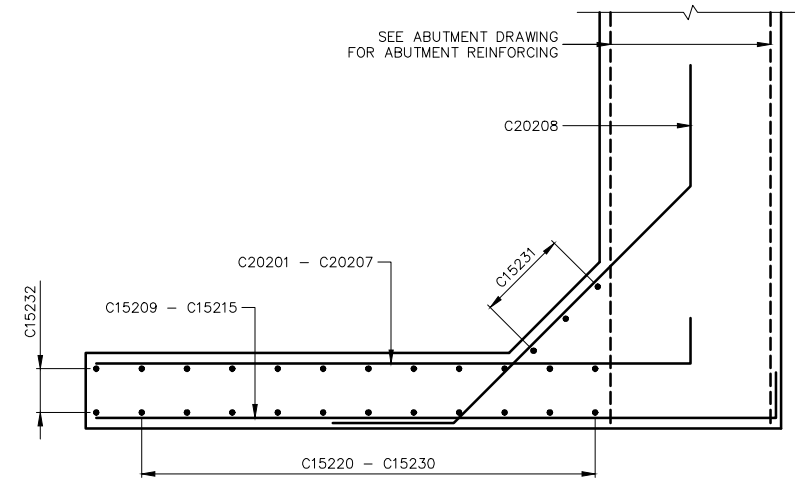
ELEVATION - REINFORCEMENT



DIMENSIONS



REINFORCEMENT



SECTION 2

SECTION 1

No.	REVISION	DATE	DESIGNED BY: A.G.
1.	ISSUED FOR APPROVALS	APR. 17/23	CHECKED BY: --
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3.	ISSUED FOR TENDER	JAN. 10/24	CHECKED BY: --
			FIELD BOOK:

SCALE
1:25

(ON 24 x 36 PAPER)

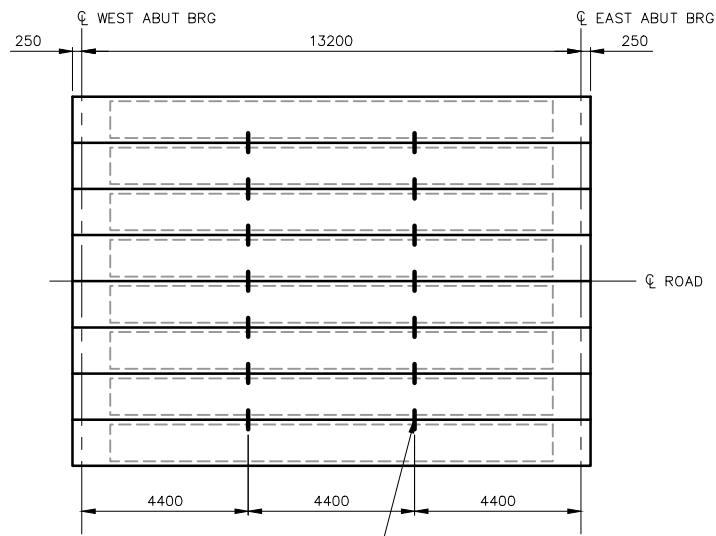
BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

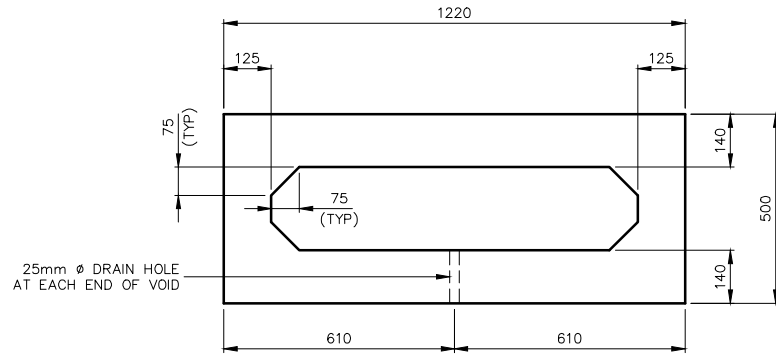
EAST WINGWALL DETAILS

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

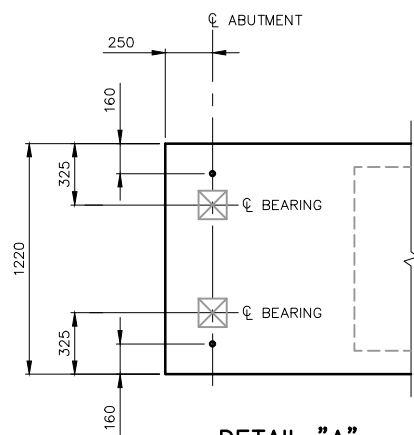
JOB NUMBER 22-067
DATE OCTOBER 2022
DRAWING NUMBER 10



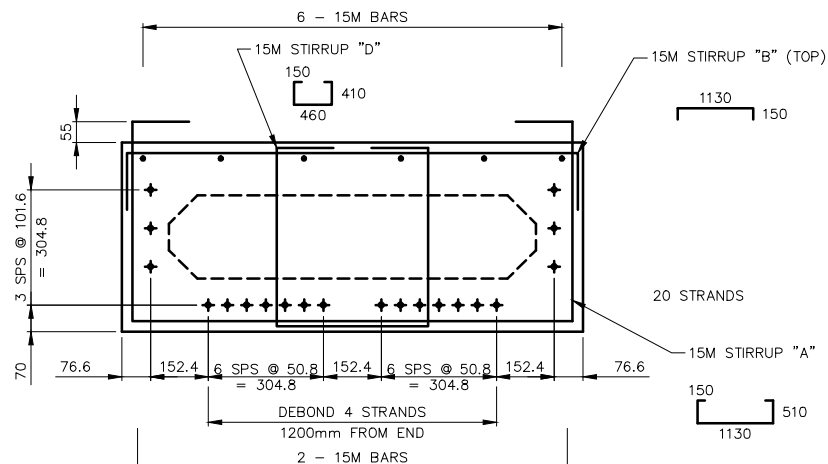
GIRDER FRAMING PLAN
SCALE 1:100



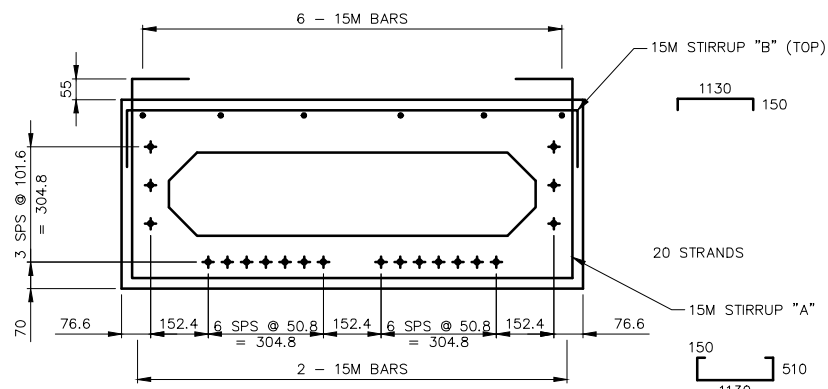
UNIT DIMENSIONS
SCALE 1:10



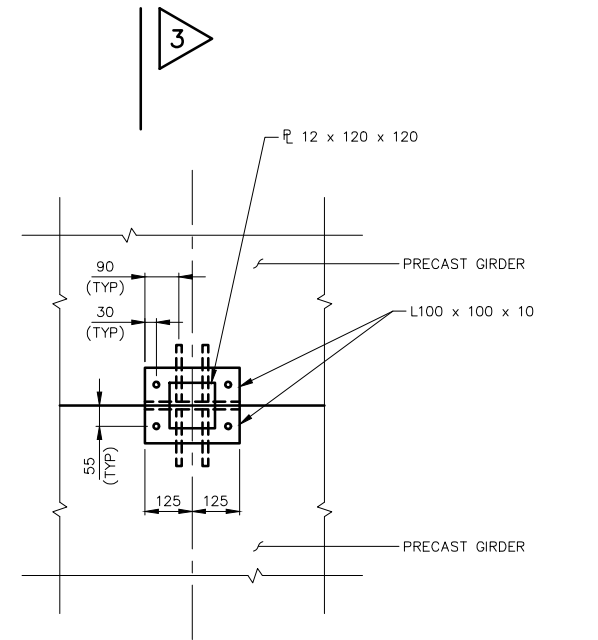
DETAIL "A"
SCALE 1:20



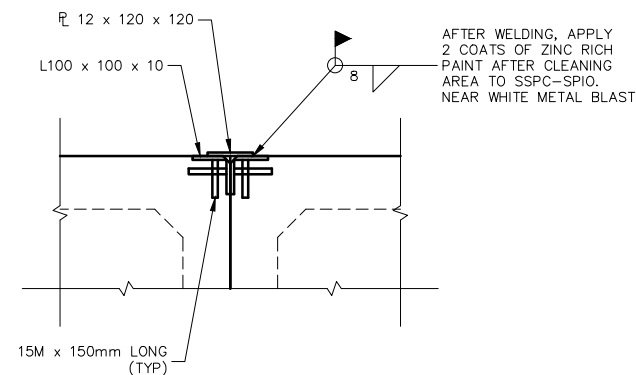
SECTION 1
SCALE 1:10



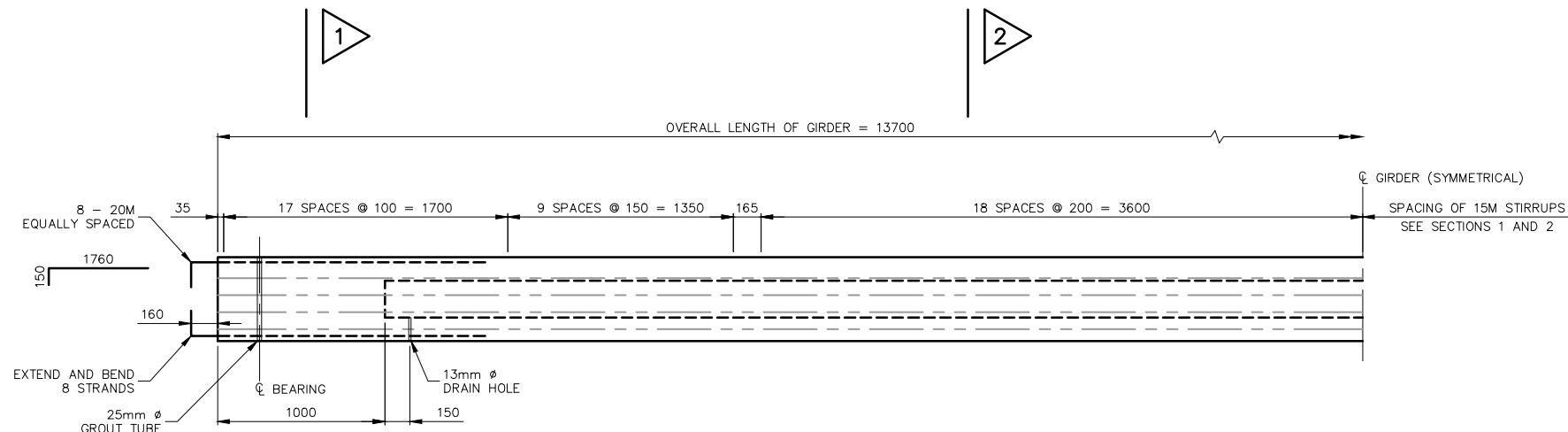
SECTION 2
SCALE 1:10



DETAIL "B"
SCALE 1:10



SECTION 3
SCALE 1:10



HALF ELEVATION - REINFORCEMENT
SCALE 1:20

LOAD TYPES	LOCATION AND REQUIREMENTS AT SERVICEABILITY LIMIT STATES LOADING	
	NORTH ABUTMENT	SOUTH ABUTMENT
DEAD LOAD (kN)	---	---
TOTAL LOAD (kN)	---	---
MOVEMENT (mm)	0	0
MAXIMUM SHEAR RATE (kN/mm)	0	0
BEARING SIZE (mm)	150 x 150 x 20	150 x 150 x 20
NUMBER REQUIRED	16	16
BEARING TYPE	NATURAL RUBBER	NATURAL RUBBER

NOTES

- PRESTRESSING STEEL SHALL BE LOW-RELAXATION SEVEN WIRE STRAND, SIZE DESIGNATION 13 SPECIAL (1/2" SPECIAL).
- MINIMUM BREAKING STRENGTH PER STRAND - 200.3 KN.
- JACKING FORCE PER STRAND - 150.2 KN.
- FORCE PER STRAND AFTER ALL LOSSES - 124.9 KN.
- THE ELAPSED TIME INTERVAL BETWEEN JACKING OF STRANDS AND TRANSFER SHALL NOT BE LESS THAN 15 HOURS.
- CLASS OF CONCRETE - 50 MPA.
- CONCRETE STRENGTH AT TRANSFER - 35 MPA.
- REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CAN/CSA STANDARD G30.18-M92, GRADE 400W.
- CLEAR COVER TO REINFORCING STEEL - 45 +10/-5mm.
- THE TOP SURFACE OF THE GIRDERS SHALL BE GIVEN A ROUGH SURFACE FINISH WITH AN AVERAGE AMPLITUDE OF 5mm.
- BEARINGS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR

No.	REVISION	DATE	DESIGNED BY: A.G.
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3.	ISSUED FOR TENDER	JAN. 10/24	CHECKED BY: --
			FIELD BOOK:

SCALE
AS NOTED
(ON 24 x 36 PAPER)

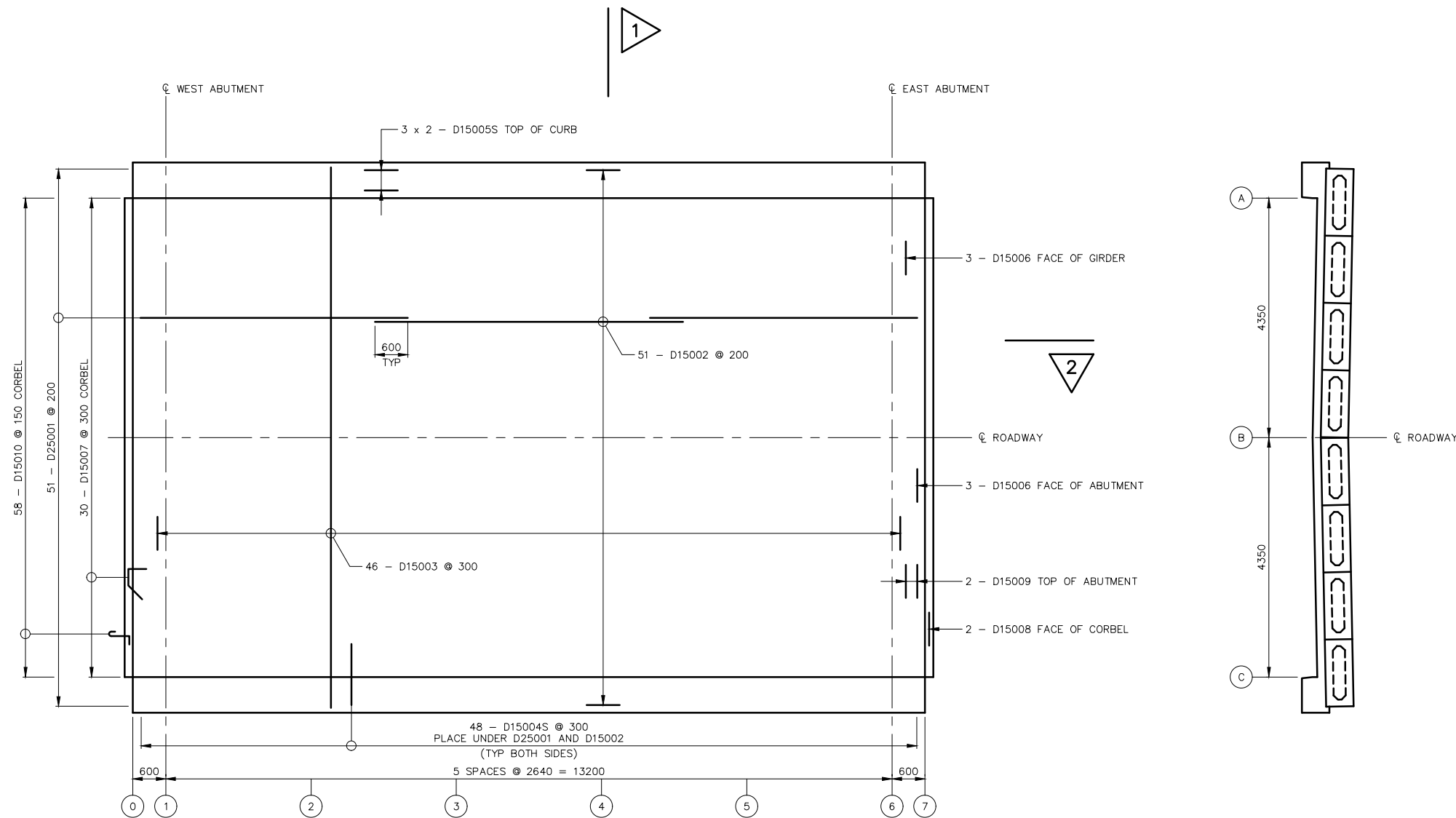
BRIDGE 9 REPLACEMENT
TOWNSHIP OF WELLINGTON NORTH
PRESTRESSED GIRDER DETAILS



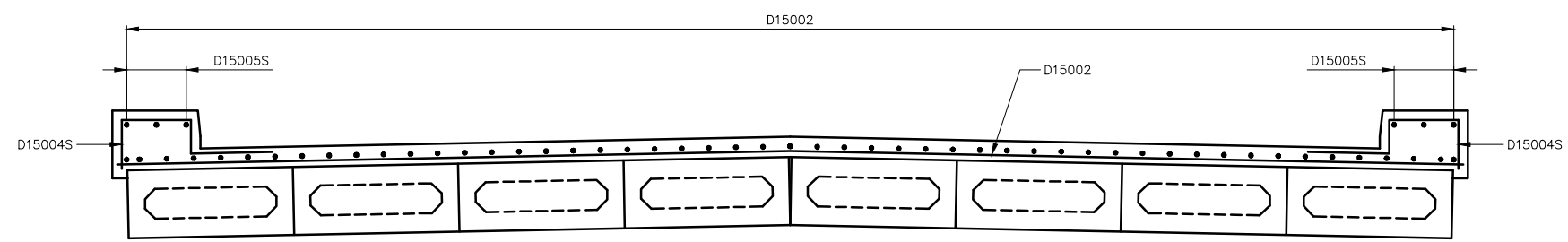
JOB NUMBER
22-067
DATE
OCTOBER 2022
DRAWING NUMBER
11

NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 13.
2. FOR SECTION 2, REFER TO DRAWING 13.
3. SEE DRAWING 13 FOR SCREED ELEVATIONS. SCREED ELEVATIONS GIVEN ARE TO TOP OF CONCRETE DECK AND INCLUDE AN ALLOWANCE FOR ROADWAY PROFILE, DEFLECTIONS DUE TO WEIGHT OF DECK SLAB AND SUPERIMPOSED DEAD LOAD.
4. THE BRIDGE DECK SHALL BE FINISHED USING AN APPROVED DECK FINISHING MACHINE IN ACCORDANCE WITH OPSS.MUNI 904.
5. PRECAST GIRDERS SHALL NOT BE DRILLED TO PROVIDE SUPPORT FOR THE SCREED RAIL POSTS. IN CONJUNCTION WITH THE PRECAST FABRICATOR, THE CONTRACTOR MAY PLACE STEEL DOWELS IN THE OUTSIDE GIRDERS DURING CASTING TO SUPPORT THE SCREED RAIL.
6. CONCRETE SHALL BE RETARDED USING TYPE "rx" RETARDANT FOR THE DURATION OF THE POUR.
7. A MINIMUM COMPRESSIVE STRENGTH OF 24.5 MPa SHALL BE ATTAINED BY THE DECK CONCRETE PRIOR TO PLACING ANY BACKFILL AROUND THE ABUTMENTS OR APPLICATION OF ANY TRAFFIC LOADING, UNLESS OTHERWISE APPROVED BY THE CONTRACT ADMINISTRATOR.



PLAN
SCALE 1:50



SECTION 1
SCALE 1:25


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3.	ISSUED FOR TENDER	JAN. 10/24	CHECKED BY: --
			FIELD BOOK:

SCALE
AS NOTED
(ON 24 x 36 PAPER)

BRIDGE 9 REPLACEMENT

TOWNSHIP OF WELLINGTON NORTH

DECK DETAILS 1

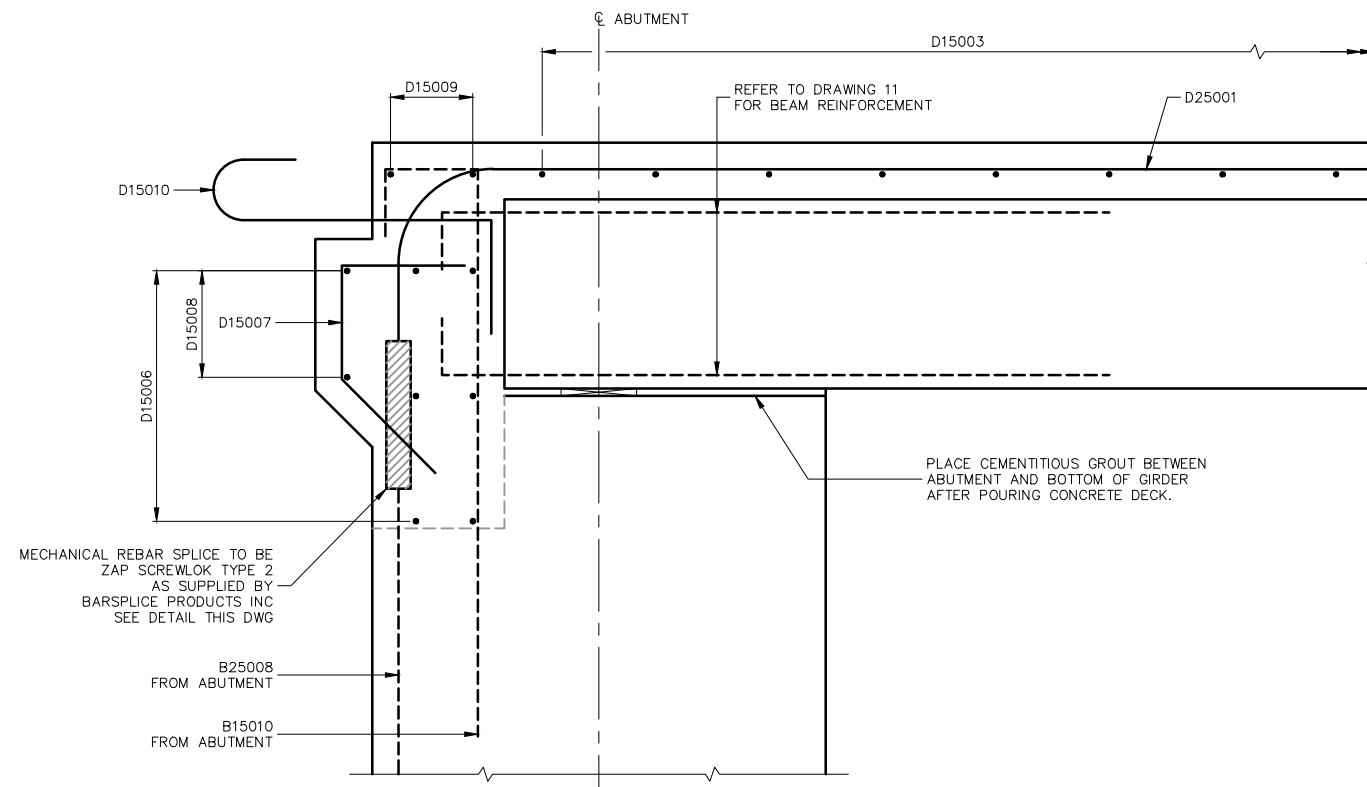


K. SMART ASSOCIATES LIMITED
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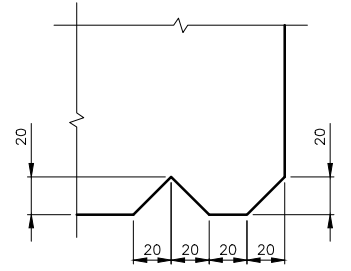
JOB NUMBER	22-067
DATE	OCTOBER 2022
DRAWING NUMBER	12

NOTES

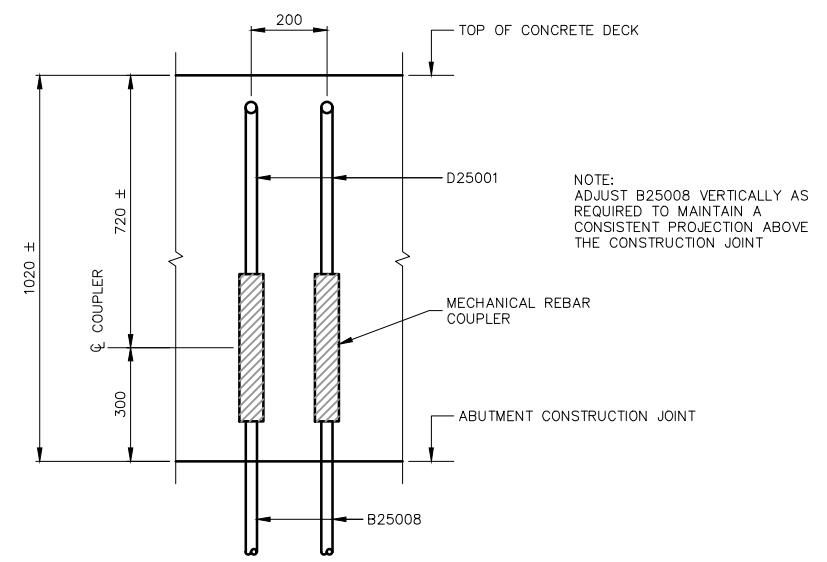
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING 12.



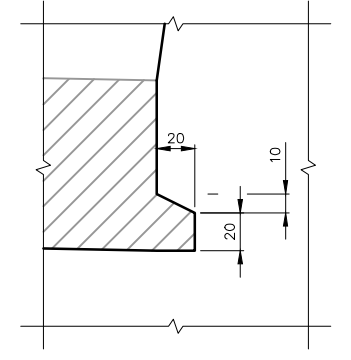
SECTION 2



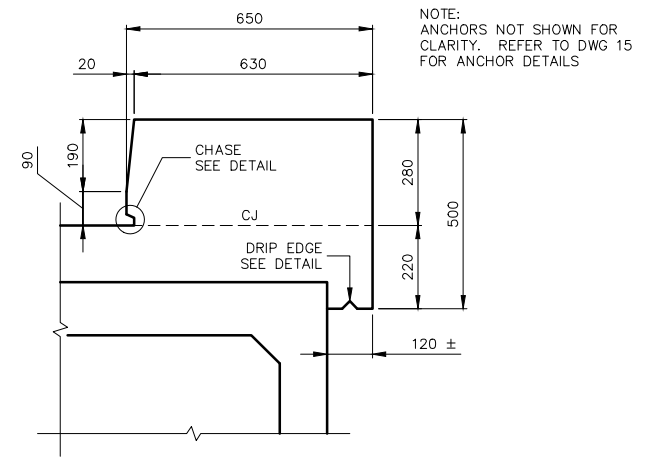
DRIP EDGE DETAIL
NOT TO SCALE



MECHANICAL COUPLER DETAIL



CHASE DETAIL
NOT TO SCALE

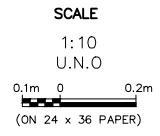


CURB DETAILS

LOCATION	SCREED ELEVATIONS							
	0	1	2	3	4	5	6	7
A								
B								
C								

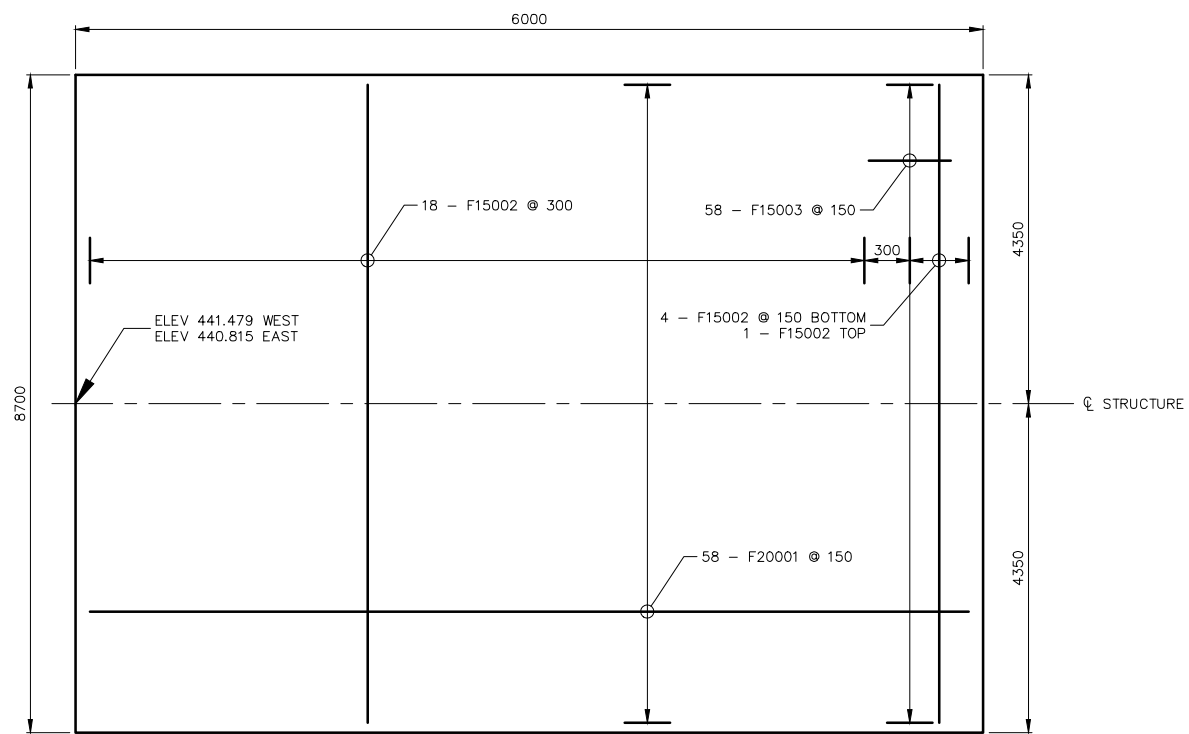
NOTE: SCREED ELEVATIONS WILL BE PROVIDED AFTER THE GIRDERS ARE ERECTED AND FIXED IN THEIR FINAL POSITIONS

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			FIELD BOOK:



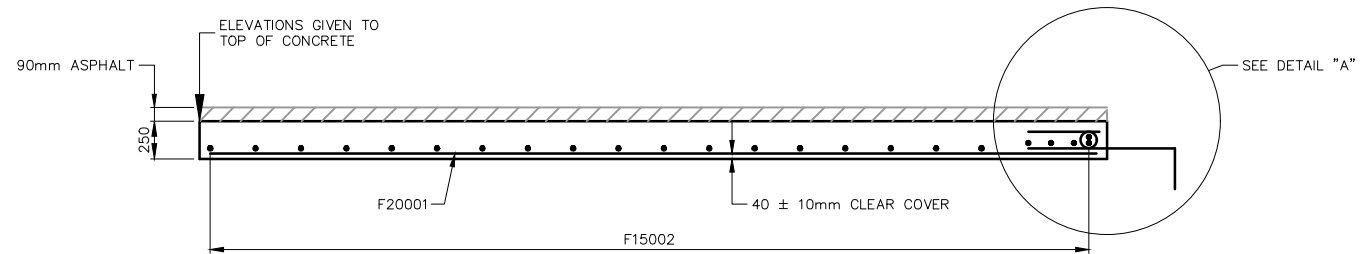
BRIDGE 9 REPLACEMENT
TOWNSHIP OF WELLINGTON NORTH
DECK DETAILS 2

JOB NUMBER	22-067
DATE	OCTOBER 2022
DRAWING NUMBER	13

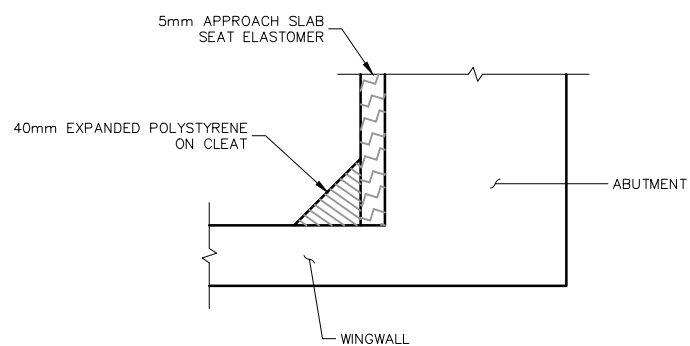


PLAN

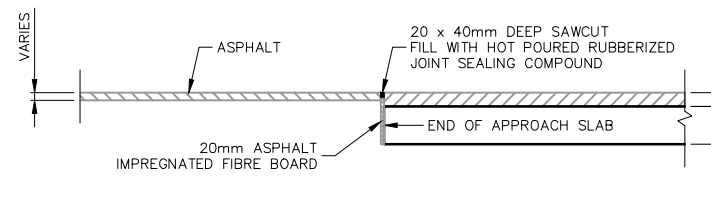
NOTE:
ELEVATIONS GIVEN TO TOP OF CONCRETE



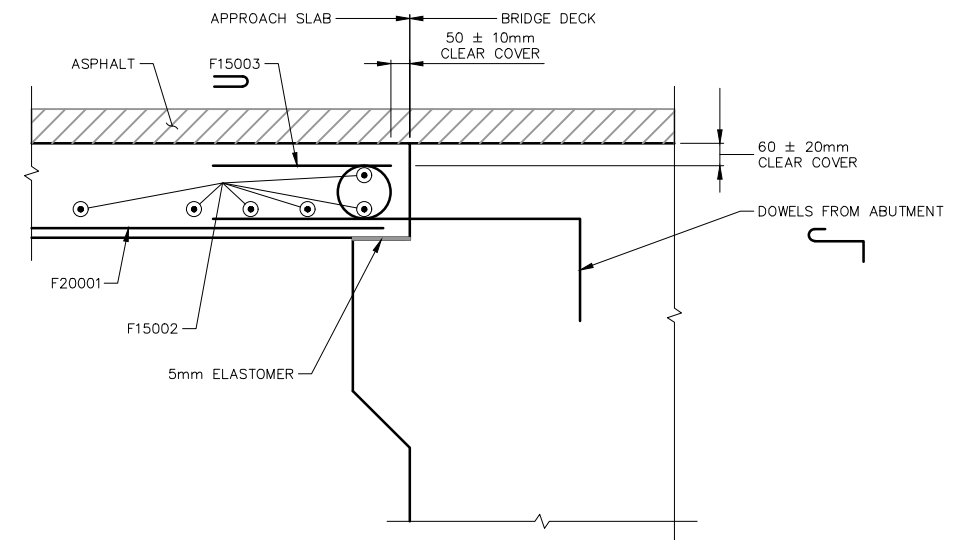
LONGITUDINAL SECTION



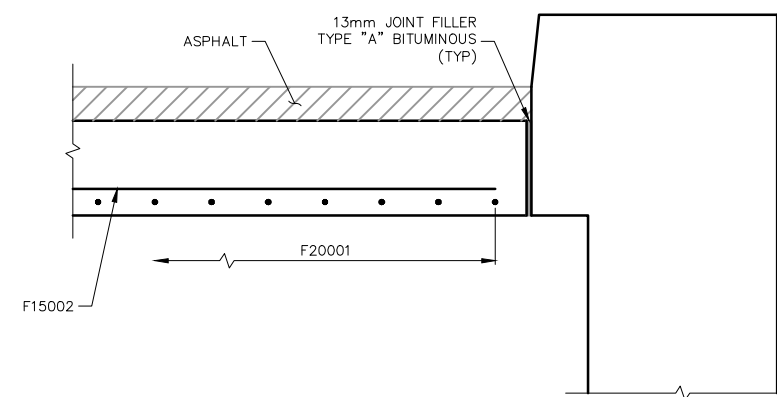
DETAIL AT CLEAT



EXPANSION JOINT AT END OF APPROACH SLAB



DETAIL "A"



SECTION AT WINGWALL

NOTES

1. CLEAR COVER TO REINFORCING STEEL TO BE 70 ± 20mm EXCEPT AS NOTED.
2. PLAN SHOWN ON THIS DRAWING IS FOR WEST APPROACH SLAB, EAST APPROACH SLAB IS SIMILAR.
3. WATERPROOFING AT JOINT BETWEEN BRIDGE AND APPROACH SLAB TO BE IN ACCORDANCE WITH OPSD 3370.101.

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

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			FIELD BOOK:

SCALE N.T.S.
(ON 24 x 36 PAPER)

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BRIDGE 9 REPLACEMENT
TOWNSHIP OF WELLINGTON NORTH

APPROACH SLAB DETAILS

KS K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

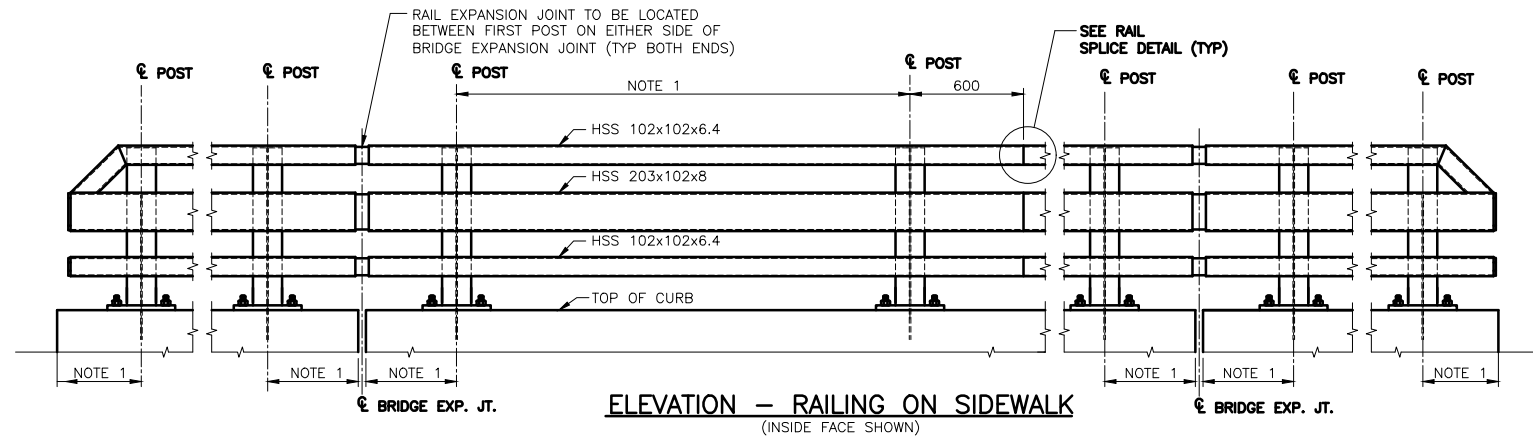
JOB NUMBER 22-067
DATE OCTOBER 2022
DRAWING NUMBER 14

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

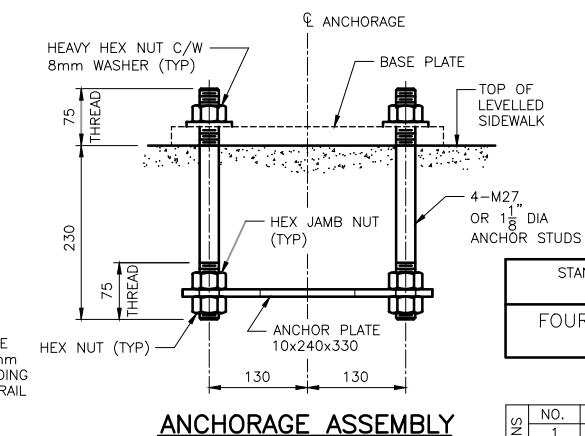
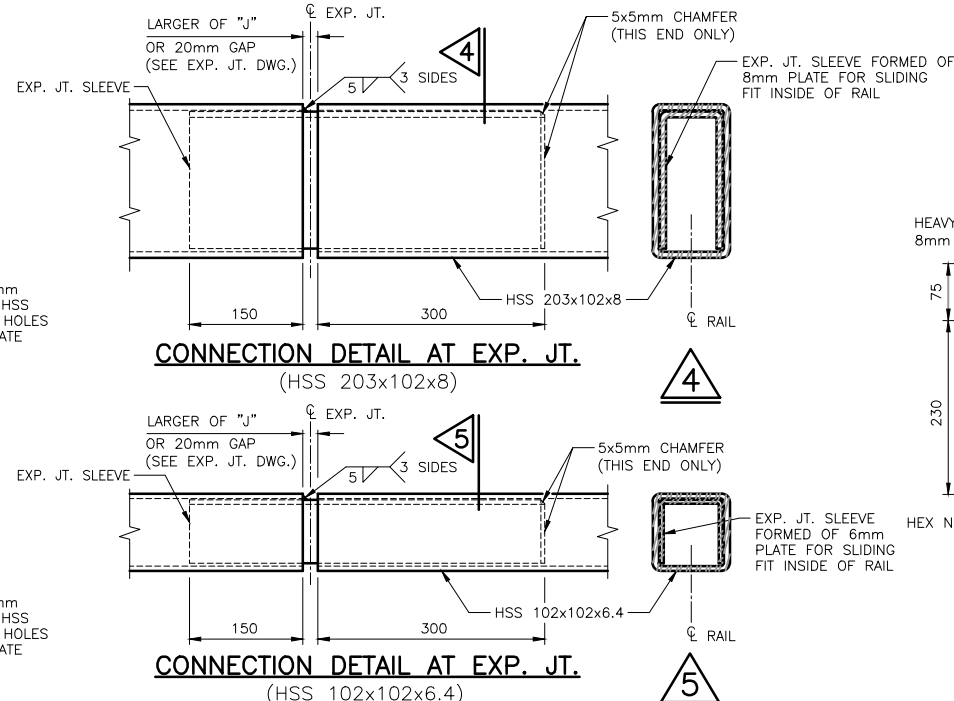
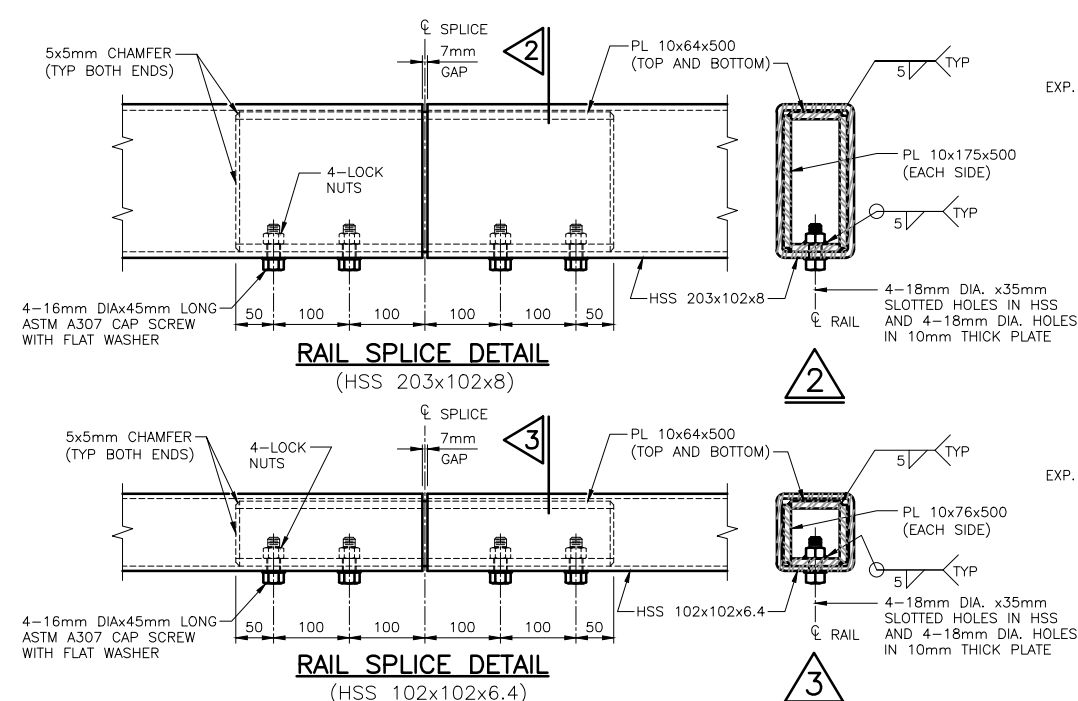
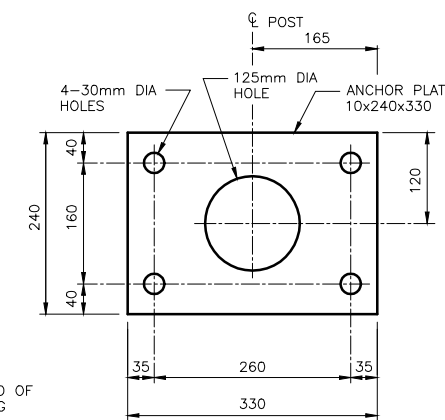
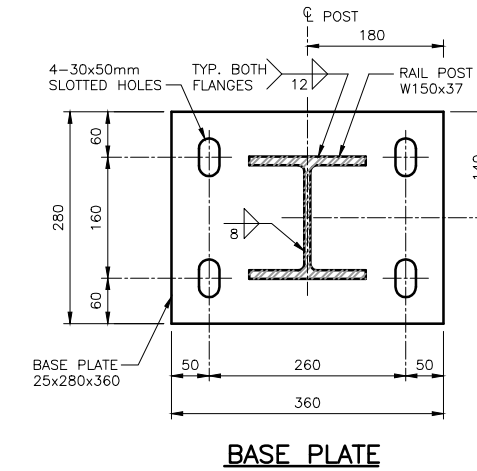
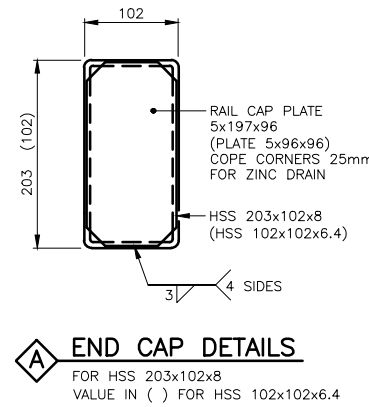
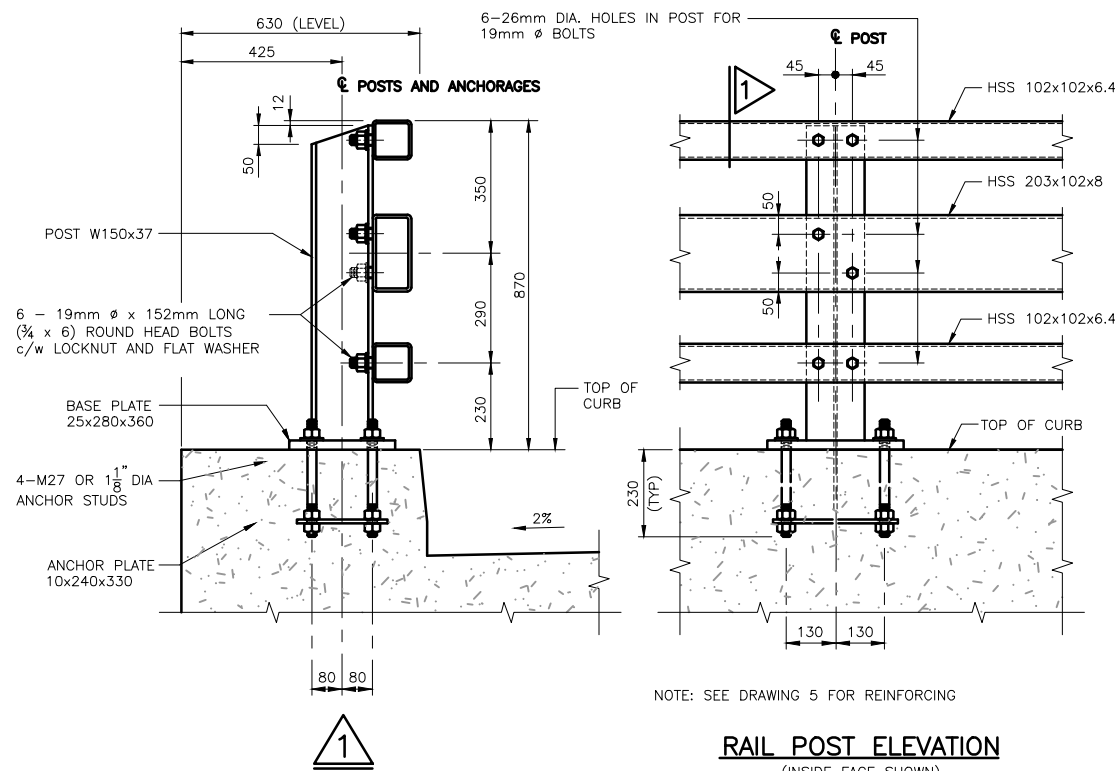
CONT No
WP No

MODIFIED
FOUR TUBE RAILING ON SIDEWALK- TL4
(WITH CONCRETE END WALL)

SHEET



NOTE 1:
REFER TO GENERAL ARRANGEMENT
DRAWING FOR POST SPACING



NOTES:

1. SYSTEM CONFIGURATION MEETS THE REQUIREMENTS OF NCHRP 350.
2. RAIL ELEMENTS SHALL BE HOLLOW STRUCTURAL SECTIONS GRADE 350WT CATEGORY 1 CLASS C.
3. POSTS AND PLATES SHALL BE GRADE 350WT.
4. THE NOTCH TOUGHNESS REQUIREMENTS FOR POSTS AND PLATES SHALL BE THE SAME AS THOSE SPECIFIED IN NOTE 2.
5. ANCHOR STUDS, WASHERS AND NUTS SHALL CONFORM TO ASTM A449.
6. BOLTS, WASHERS AND NUTS FOR FASTENING GUIDE RAILS TO POST SHALL CONFORM TO ASTM A307.
7. RAIL SHALL BE SUPPLIED IN LENGTH TO BE ATTACHED TO A MINIMUM OF THREE (3) RAIL POSTS EXCEPT WHEN THE WINGWALL LENGTH OF A BRIDGE WITH EXPANSION JOINT DOES NOT PERMIT THIS. IN THIS CASE, THE RAIL LENGTH SHALL BE ATTACHED TO TWO (2) POSTS ON THE WINGWALL.
8. GALVANIZING ON MATING SURFACES OF RAILS TO HAVE UNIFORM THICKNESS NOT EXCEEDING 0.15mm TO ENSURE SLIDING FIT.
9. RAILS, POSTS, RAIL SPLICES, AND END CAPS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
10. BOLTS, ANCHOR STUDS, PLATES, WASHERS AND NUTS SHALL BE HOT-DIP GALVANIZED. LOCK NUTS SHALL BE ZINC PLATED ACCORDING TO ASTM-B695.
11. RAILS SHALL BE PRESENT TO FOLLOW ROAD CURVATURE WHERE RADIUS IS LESS THAN 150 METRES.
12. RAIL POSTS SHALL BE SET PERPENDICULAR TO GRADE.
13. RAILS MAY BE CUT AS REQUIRED IN THE FIELD, CUT TO BE SURFACE TREATED WITH A ZINC TOUCH-UP SOLDER, GALVAGUARD OR AN APPROVED EQUIVALENT.
14. WHEN CONNECTING TO EXISTING RAILING, RAILS MUST BE MADE CONTINUOUS AND POST SPACINGS TO BE DETERMINED WITH REFERENCE TO EXISTING POSTS.
15. GROUT SHALL NOT BE USED UNDER BASE PLATES. THIN PAD OF EPOXY GROUT MAY BE USED WHEN REQUIRED FOR FILLING THE VOIDS UNDER THE BASE PLATE.
16. POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT CONDITION AND GIVEN AN ADDITIONAL 1/3 OF A TURN.
17. BOLTS IN RAIL SPLICES SHALL BE TIGHTENED TO A CONDITION THAT WILL ALLOW RAIL MOVEMENT.
18. STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500 MPA.

STANDARD DRAWING
MARCH 2016
SS110-49
FOUR TUBE RAILING ON SIDEWALK - TL4
(WITH CONCRETE END WALL)

MODIFIED		DATE
NO.	REVISION	DATE
1	ISSUED FOR TENDER	JAN. 10/24
DESIGN	A.G. CHK D.H. CODE CHBDC-14 LOAD	DATE SEPT. 2016
DRAWN	D.S. CHK A.G. SITE	DWG 15

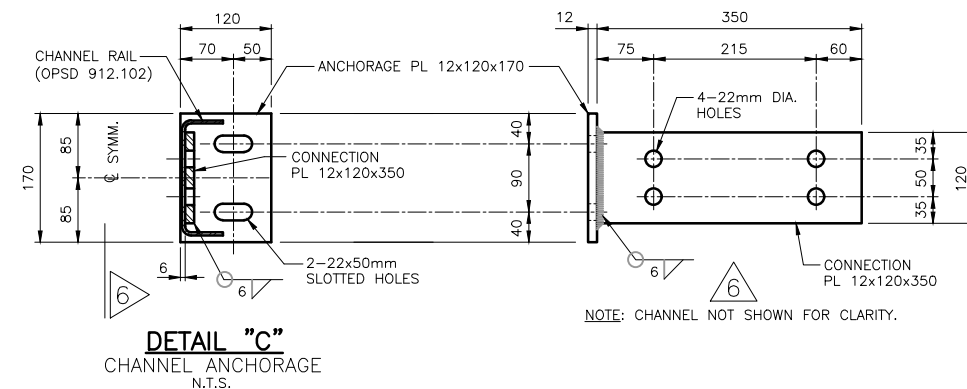
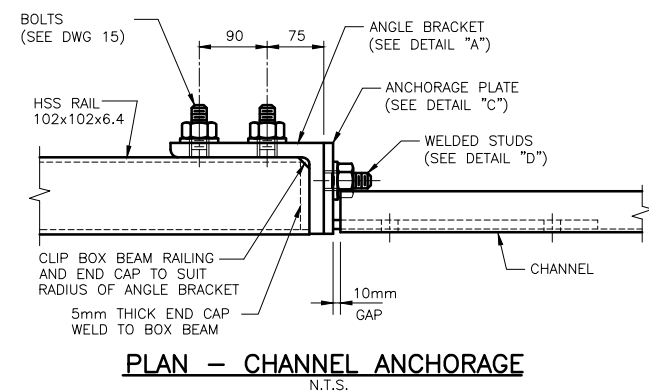
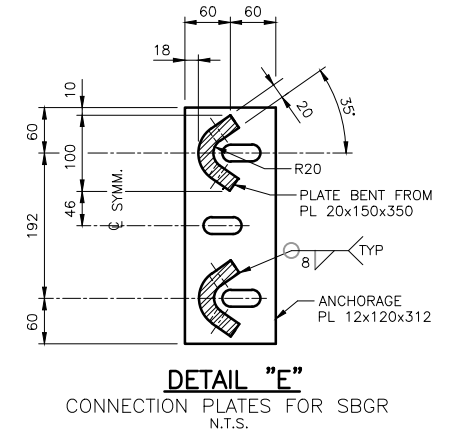
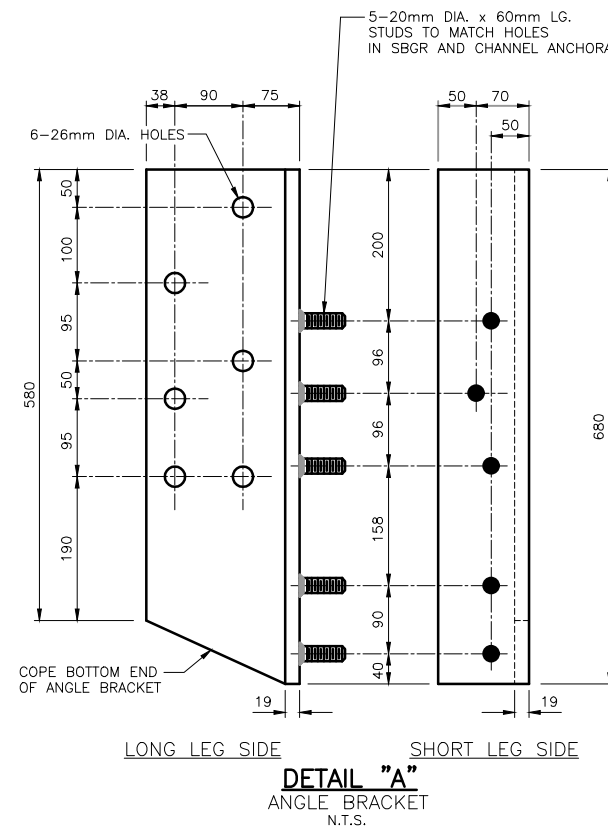
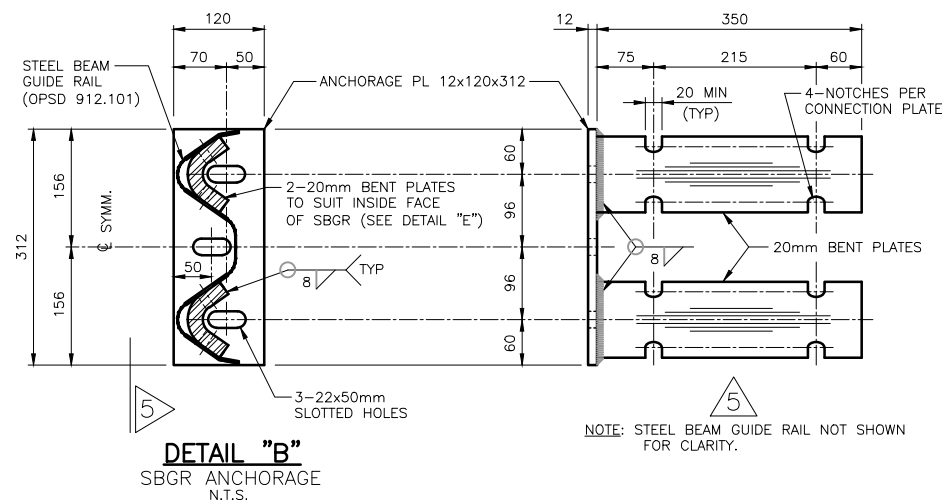
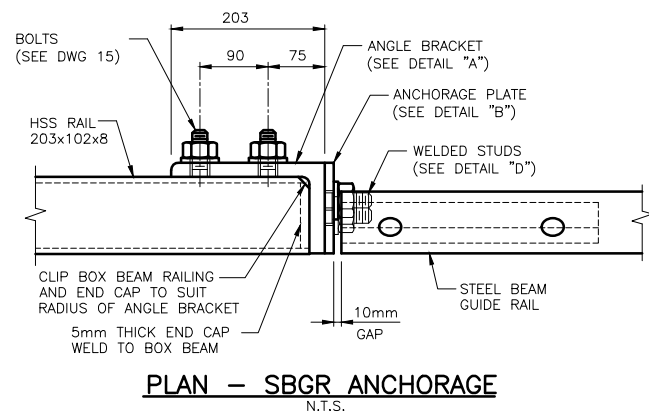
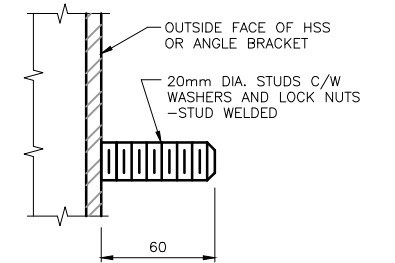
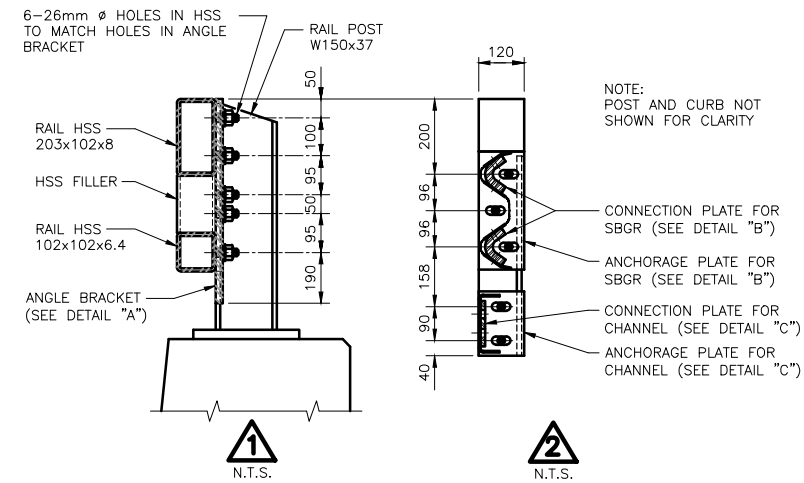
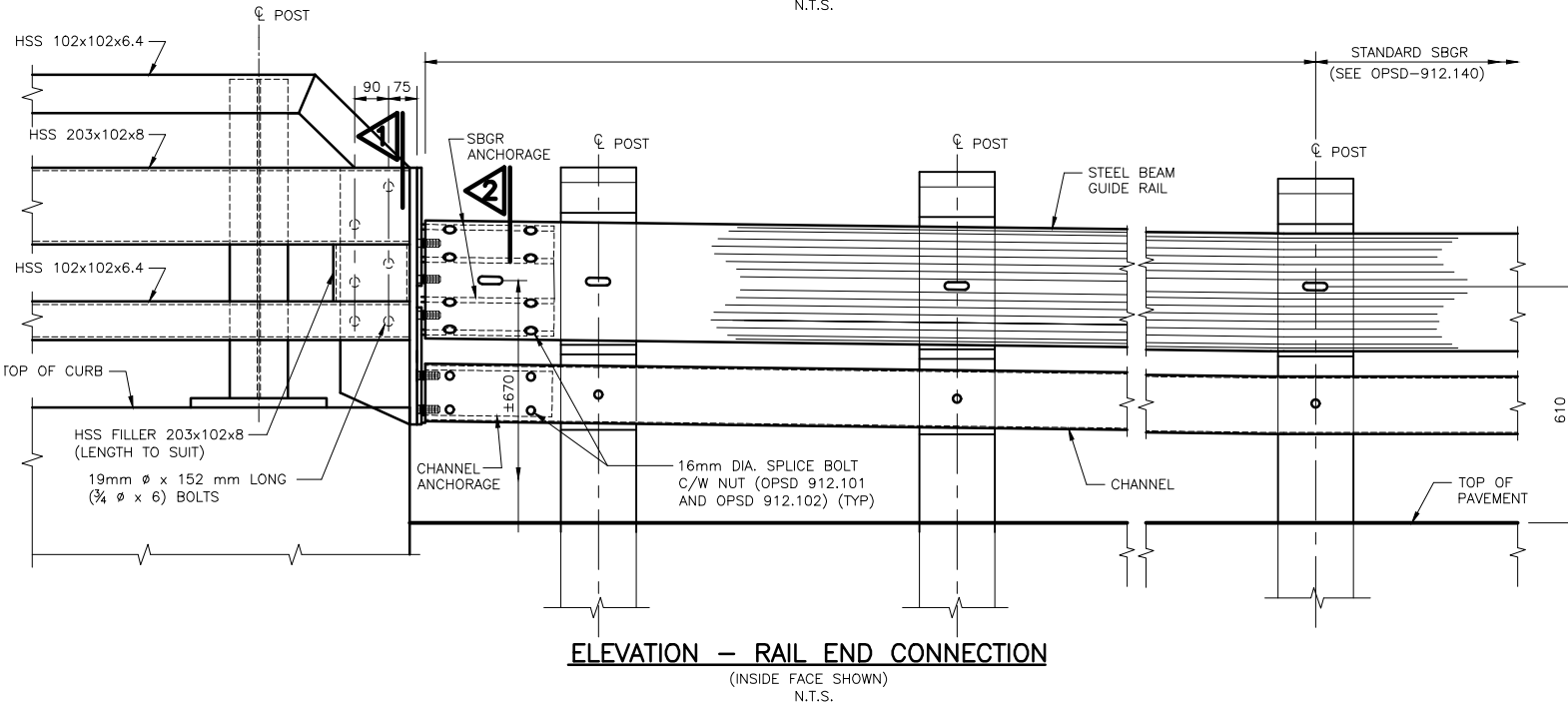
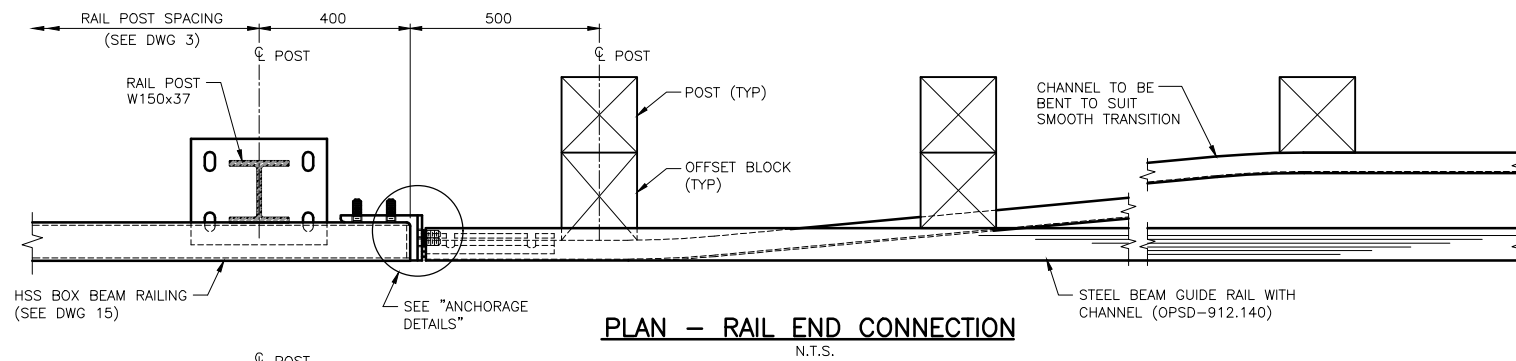
DRAWING NOT TO BE SCALED
100 mm ON ORIGINAL DRAWING

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

CONT No
WP No

SHEET

END CONNECTION FOR CURB RAILING
AND STEEL BEAM GUIDE RAIL



DRAWING NOT TO BE SCALED
100mm ON ORIGINAL DRAWING

STANDARD DRAWING
JULY 2014
SS110-45
END CONNECTION FOR CURB RAILING
AND STEEL BEAM GUIDE RAIL

MODIFIED

NO.	REVISION	DATE
1	ISSUED FOR TENDER	JAN. 10/24
DESIGN	A.G. CHK D.H. CODE CHBDC-06 LOAD	DATE OCT. 2023
DRAWN	D.S. CHK A.G. SITE	DWG 16