

# KM 17.9 - BOW VALLEY PARKWAY

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## JOHNSTON CREEK BRIDGE

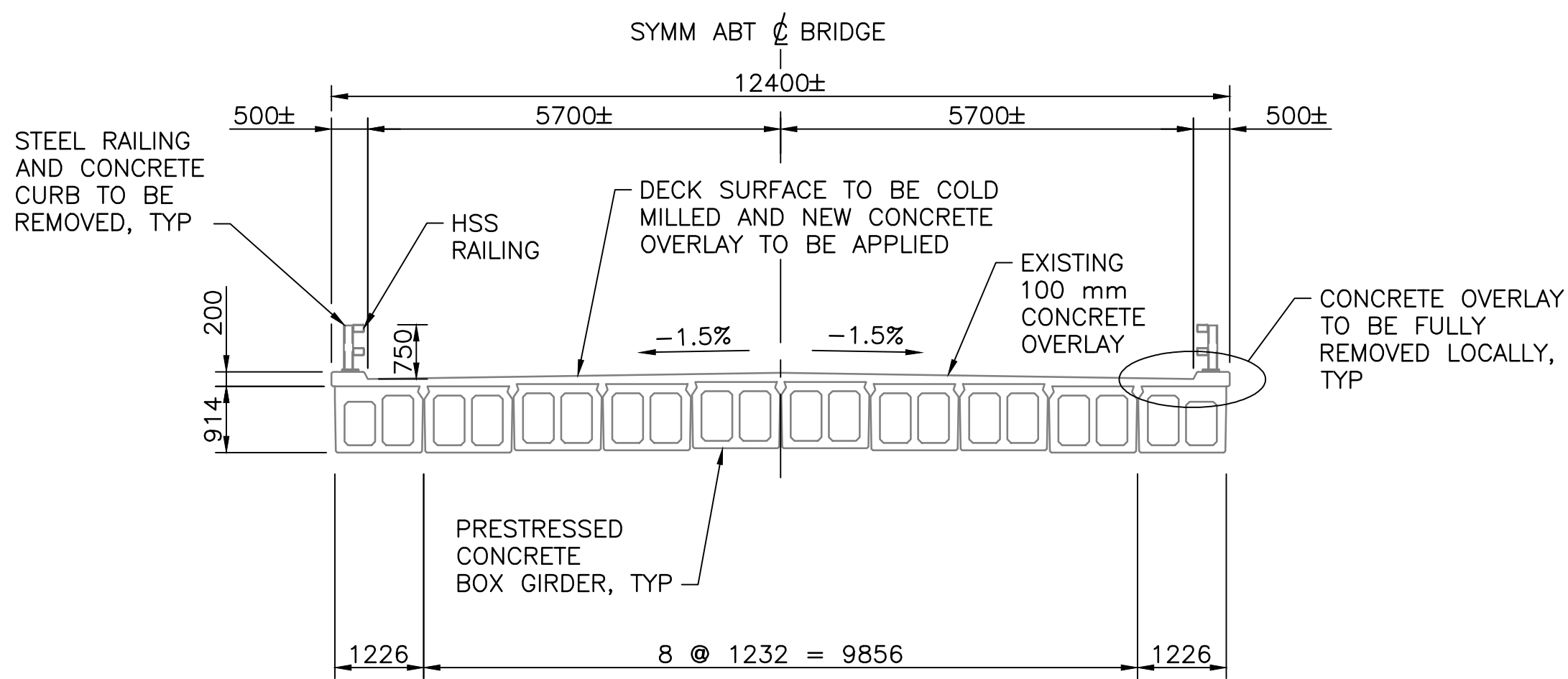
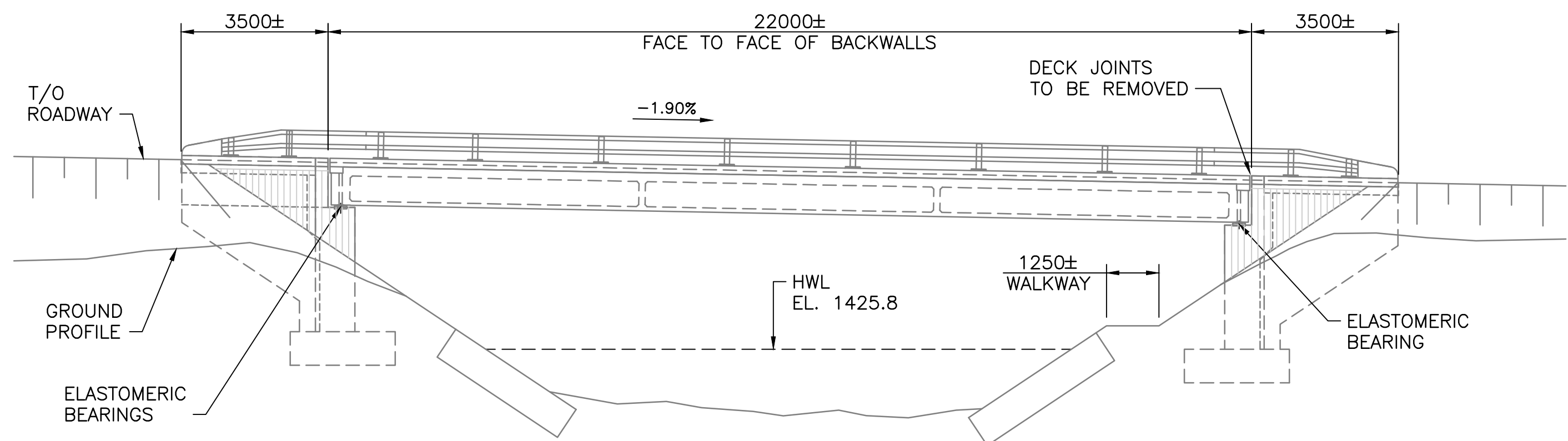
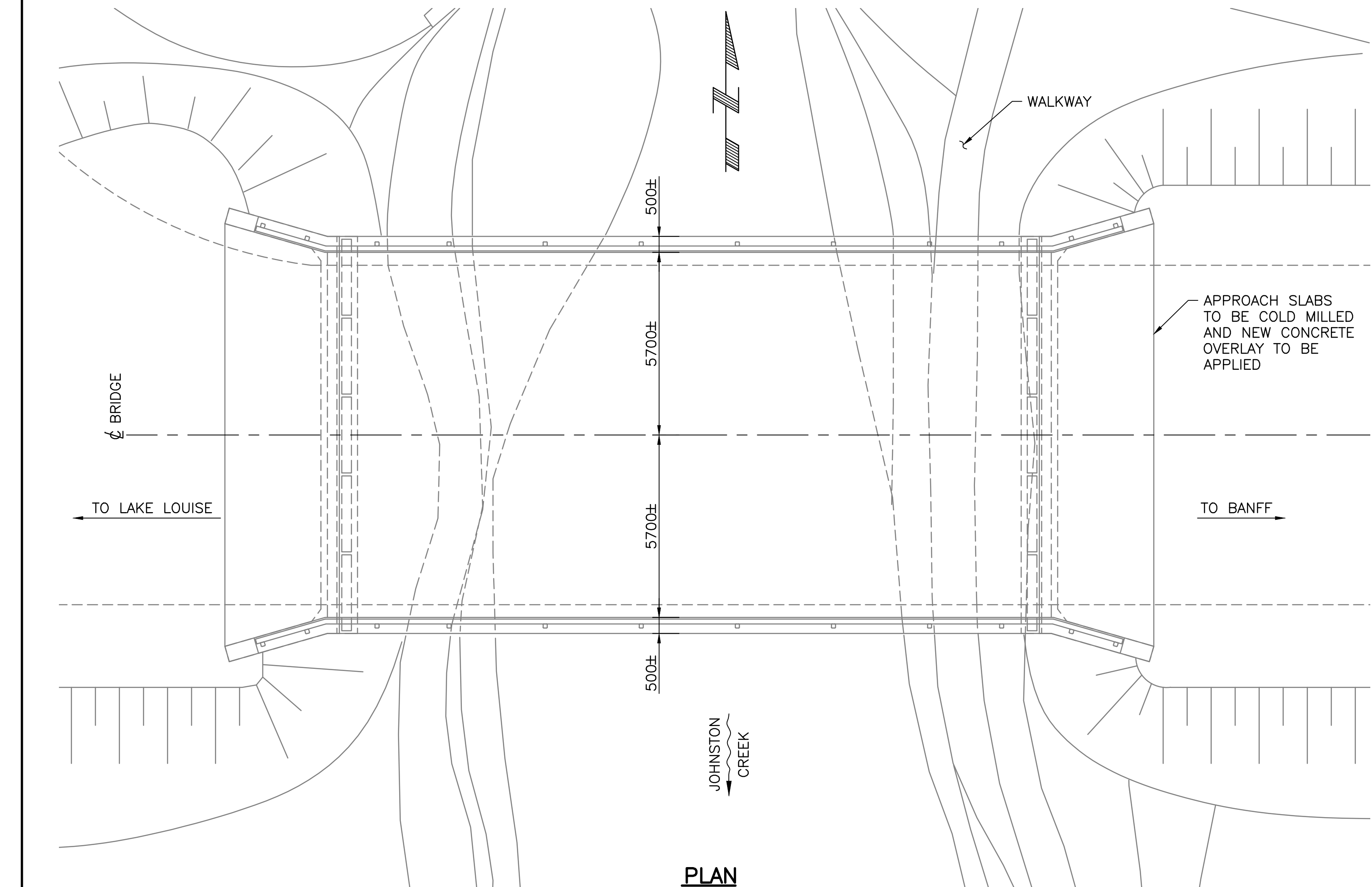


1979 ORIGINAL SHOP DRAWINGS OF JOHNSTON CREEK BRIDGE

	OF	
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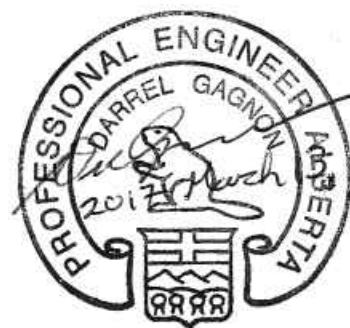
NOTES:

1. DIMENSIONS PROVIDED FOR REFERENCE ONLY. CONTRACTOR TO VERIFY ACCURACY OF SUCH INFORMATION BY FIELD MEASUREMENT.
2. DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE.

SCOPE OF WORK:

1. REMOVAL AND DISPOSAL OF EXISTING CURB, STEEL RAILING, DECK OVERLAY (LOCALLY) AND DECK JOINTS.
2. LOCALIZED CONCRETE REMOVAL AT DECK JOINTS AND WING WALLS.
3. COLD MILLING OF CONCRETE DECK AND APPROACH SLABS.
4. PARTIAL DEPTH CONCRETE DECK REPAIRS WHEN AUTHORIZED BY DEPARTMENTAL REPRESENTATIVE.
5. SUPPLY AND CONSTRUCTION OF NEW CONCRETE OVERLAY AND WING WALL CROWNS.
6. SUPPLY AND CONSTRUCTION OF NEW CAST-IN-PLACE BARRIERS
7. SUPPLY AND INSTALLATION OF DECK JOINTS.
8. SUPPLY, FABRICATION AND INSTALLATION OF NEW STEEL BICYCLE RAILING.
9. MODIFICATION OF APPROACH ROADWAY.
10. APPLICATION OF LANE MARKINGS ON NEW FINISHED ROAD SURFACE.

ISSUED FOR CONSTRUCTION



DO NOT SCALE DRAWINGS

0	ISSUED FOR CONSTRUCTION	2017/03/13
Revision/ Révision	Description/Description	Date/Date

Client/client  
Parks Canada Agency / L'Agence Parcs Canada

COWI

Project title/Titre du projet  
BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA  
KM 17.9 - BOW VALLEY PARKWAY  
JOHNSTON CREEK BRIDGE

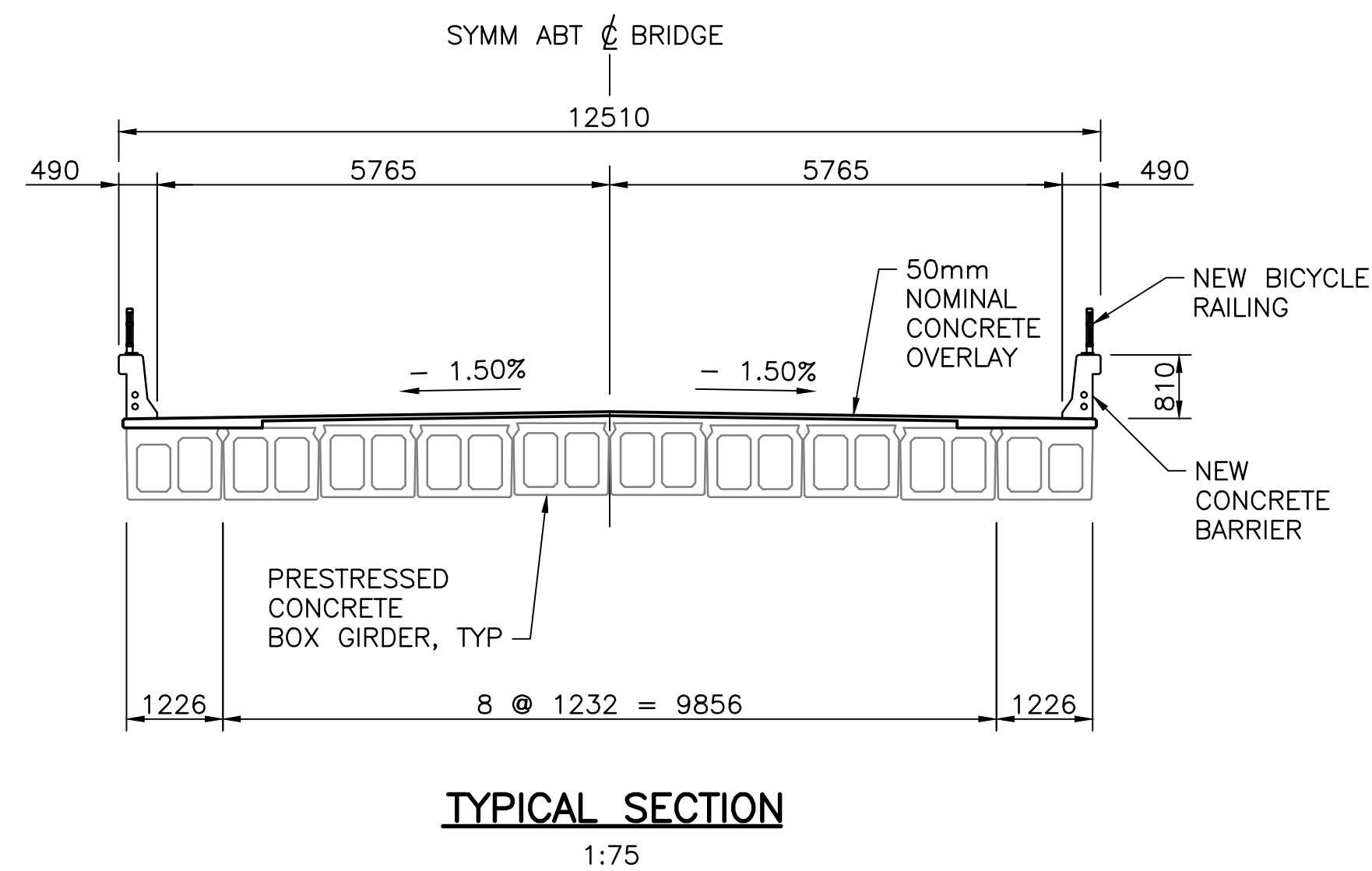
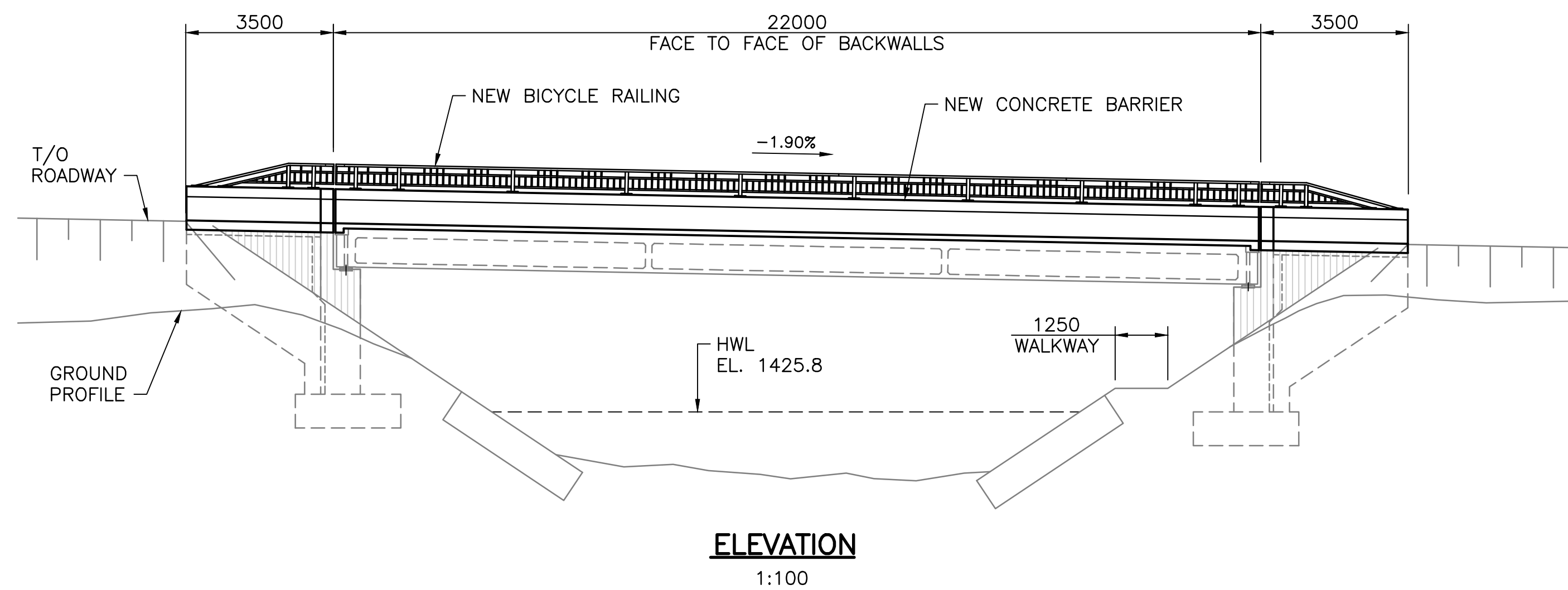
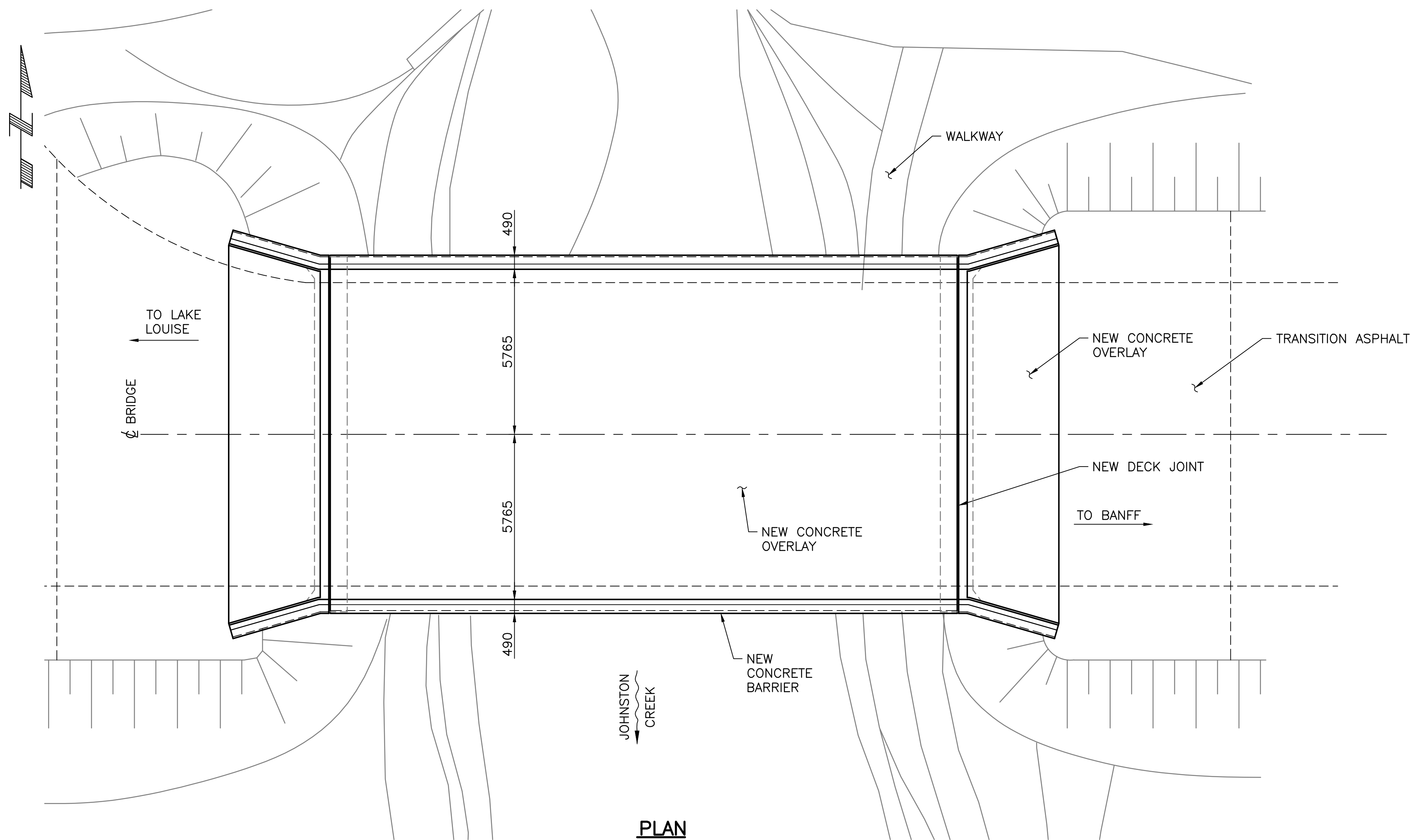
Approved by/Approuvé par  
DPG  
Designed by/Concept par  
TWB  
Drawn by/Dessiné par  
JAET  
PWGSC Project Manager/Administrateur de Projets TPSCG  
PWGSC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG  
Client/client  
PCA  
Drawing title/Titre du dessin

GENERAL ARRANGEMENT  
EXISTING CONDITION

Project No./No. du projet 967-02	Sheet/Feuille 002 OF	Revision no./ La Révision no. 0
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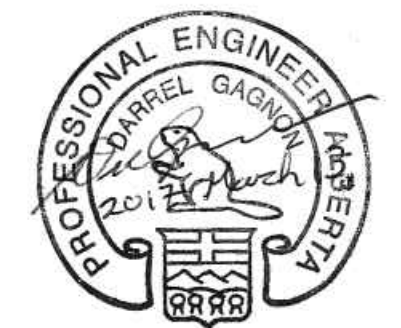
#### NOTES:

1. THE GRADE AND CROSS SLOPE OF THE COMPLETED DECK SHALL BE TRANSITIONED TO THE GRADE AND CROSS SLOPE OF THE EXISTING APPROACH ROADWAY OVER A DISTANCE OF 6m PAST THE APPROACH SLAB AT EACH END OF THE COMPLETED BRIDGE STRUCTURE. THE TRANSITION SHALL BE DONE BY SCARIFYING THE EXISTING PAVEMENT AND PLACING AN ASPHALT LAYER OF NO LESS THAN 50mm THICKNESS.

#### GENERAL NOTES:

1. DESIGN STANDARDS: CANADIAN STANDARDS ASSOCIATION  
-CAN/CSA-S6-14 - DECEMBER 2014. DESIGN LIFE: 30 YEARS
2. DESIGN LOADS:
  - 2.1. UNIT MATERIAL WEIGHTS
    - REINFORCED CONCRETE: 24.0 kN/m<sup>3</sup>
    - STEEL: 77.0 kN/m<sup>3</sup>
    - CONCRETE OVERLAY: 23.5 kN/m<sup>3</sup>
  - 2.2. LIVE LOADS
    - CL-625 TRUCK, LANE LOADING AND DYNAMIC LOAD ALLOWANCE AS PER S6-14.
  - 2.3. TRAFFIC BARRIER: TL-2
  - 2.4. TEMPERATURE DATA:
    - EFFECTIVE CONSTRUCTION TEMPERATURE: 10°C
    - MAXIMUM MEAN DAILY TEMPERATURE: 26°C
    - MINIMUM MEAN DAILY TEMPERATURE: -40°C

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Client/client		
	Parks Canada Agency	L'Agence Parcs Canada

COWI

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**

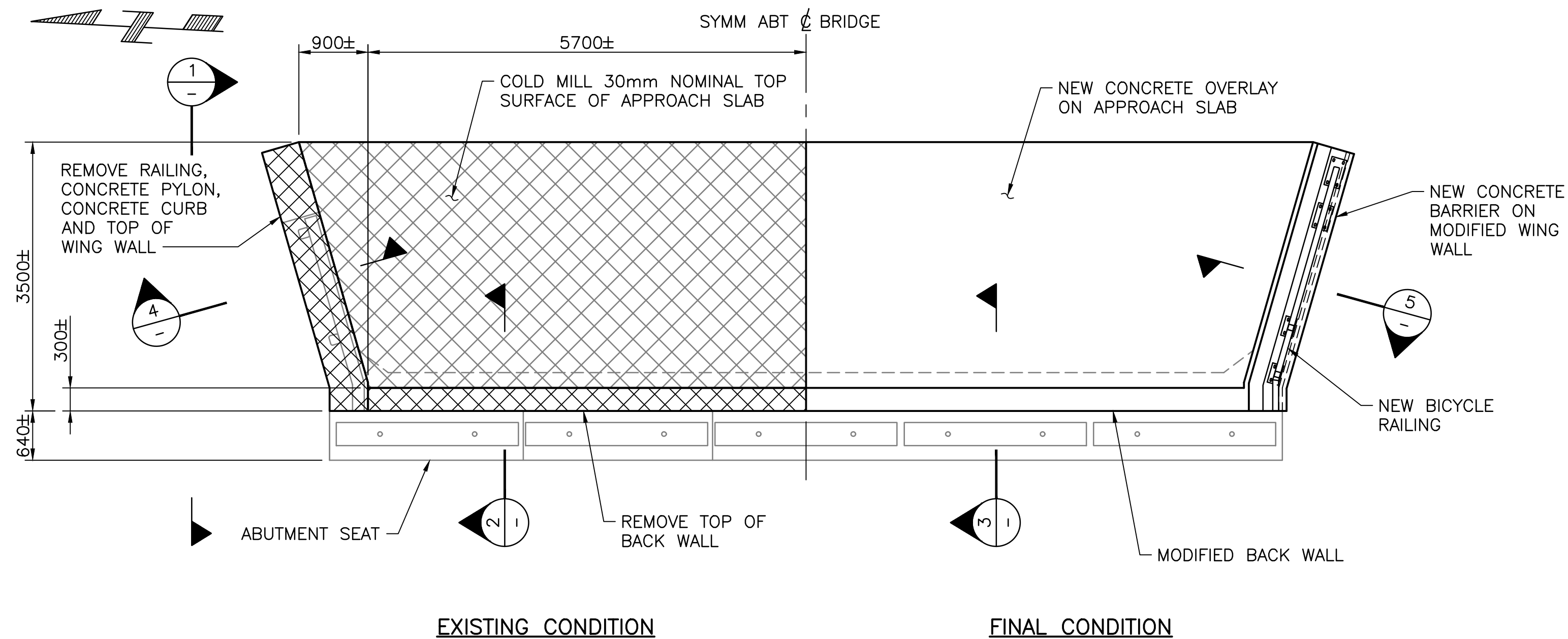
**KM 17.9 - BOW VALLEY PARKWAY  
JOHNSTON CREEK BRIDGE**

Approved by/Approuvé par DPG
Designed by/Concept par TWB
Drawn by/Dessiné par BEXU
PWGSC Project Manager/Administrateur de Projets TPSCG
PWGSC, Architectural and Engineering Resources Manager/ Ressources Architectural et de Directeur d'Ingénierie, TPSCG
Client/client PCA
Drawing title/Titre du dessin

**GENERAL ARRANGEMENT  
FINAL CONDITION**

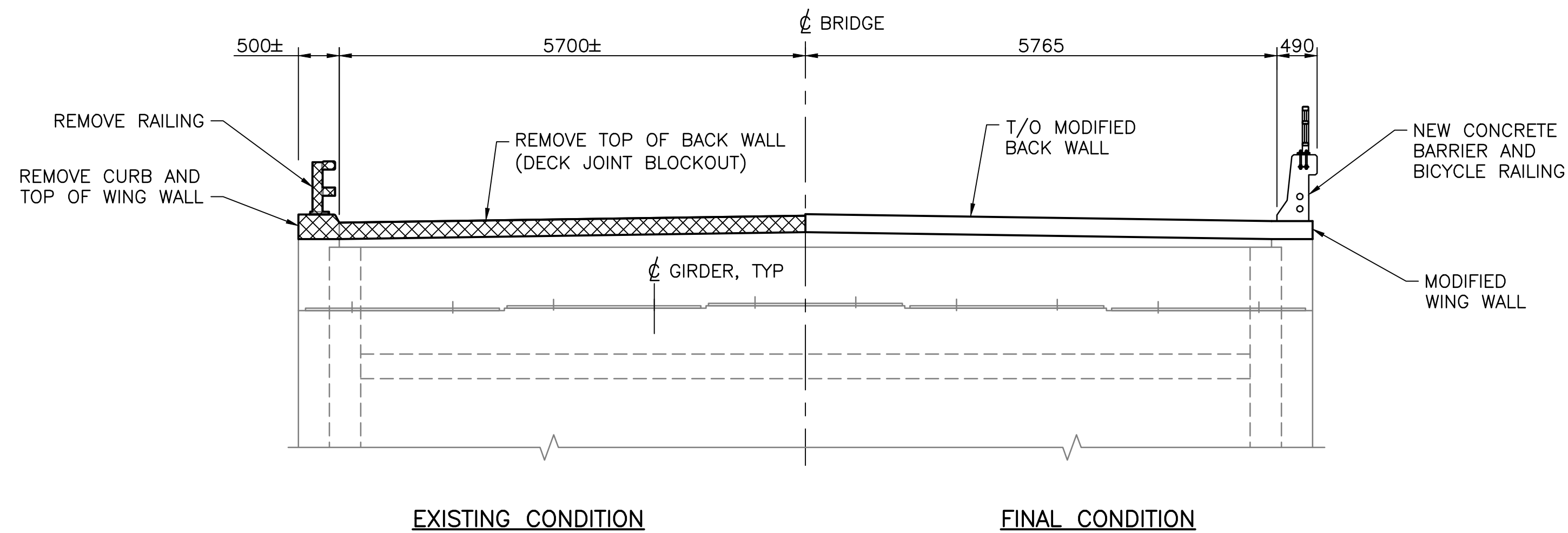
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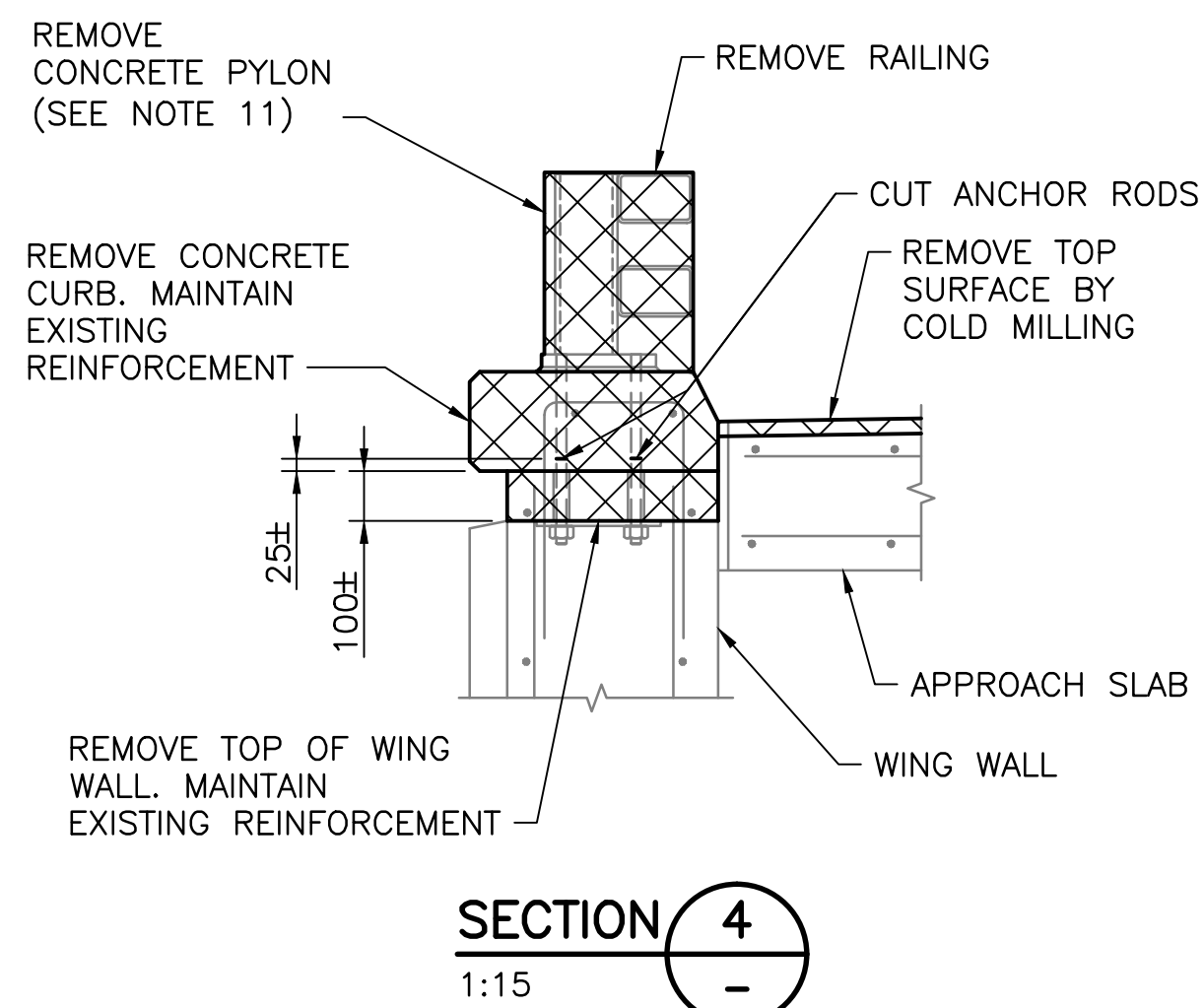
**ABUTMENT PLAN**

1:50  
(EAST ABUTMENT SHOWN - WEST ABUTMENT SIMILAR)

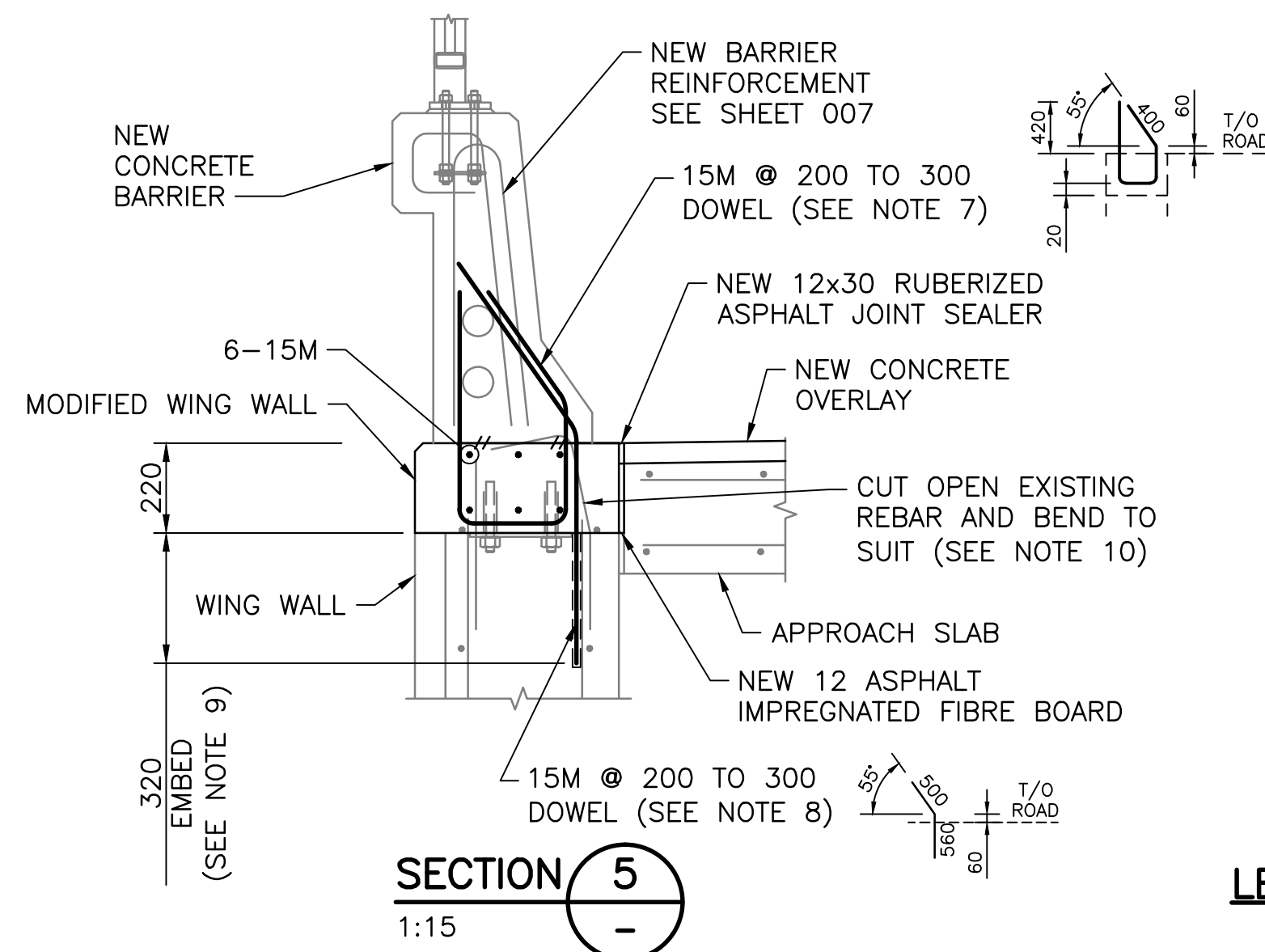


**ABUTMENT ELEVATION**

1:50  
(EAST ABUTMENT-LOOKING EAST, WEST ABUTMENT MIRROR IMAGE)



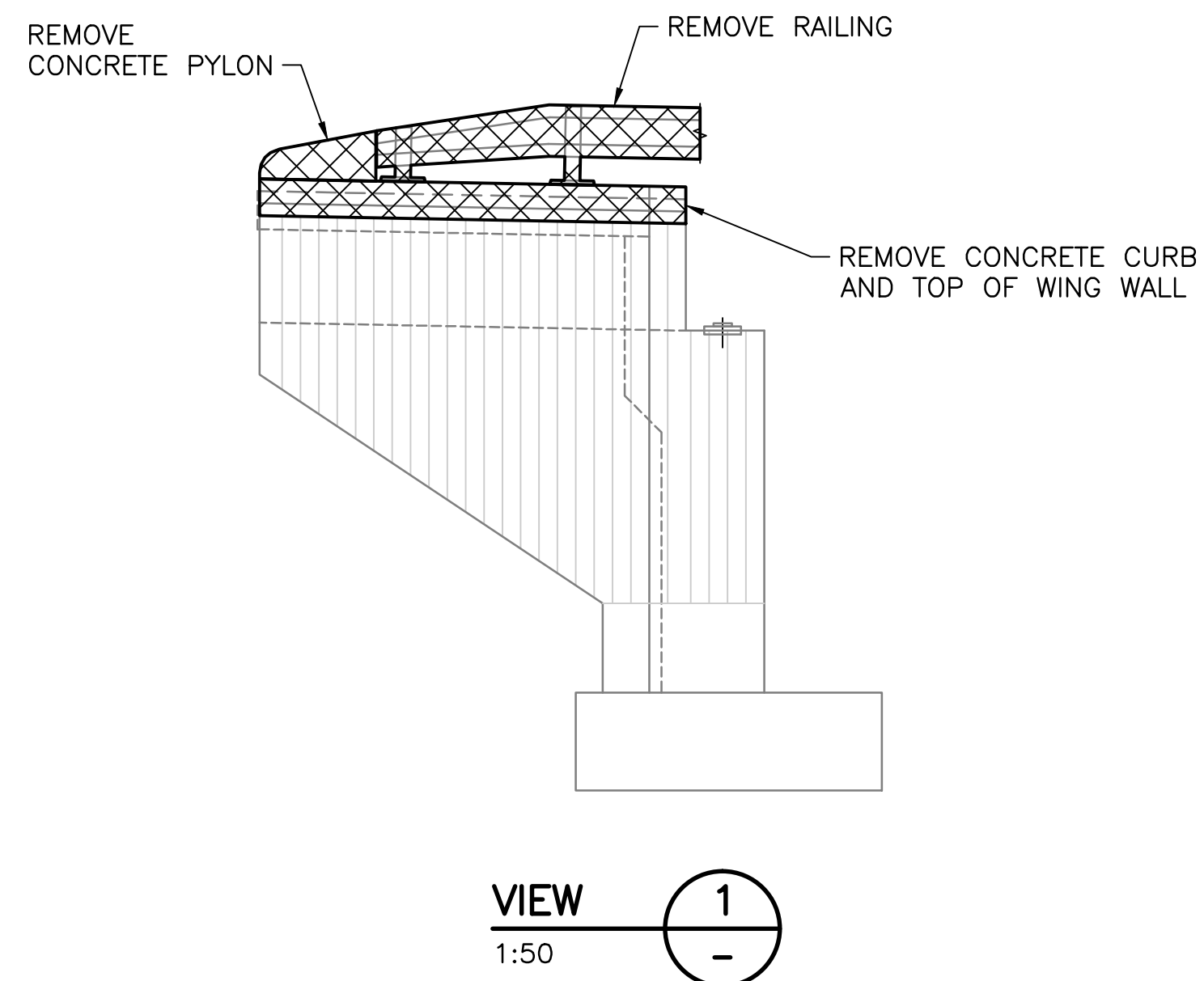
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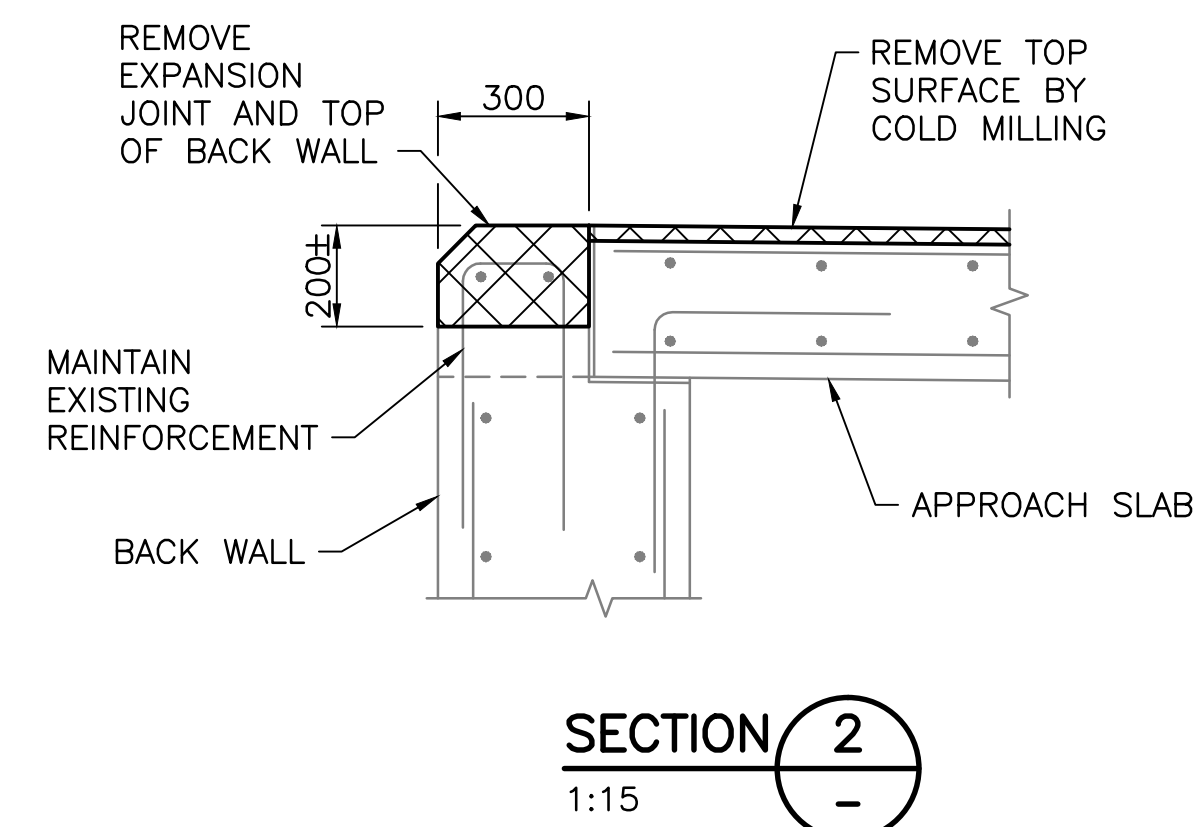
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**LEGEND:**

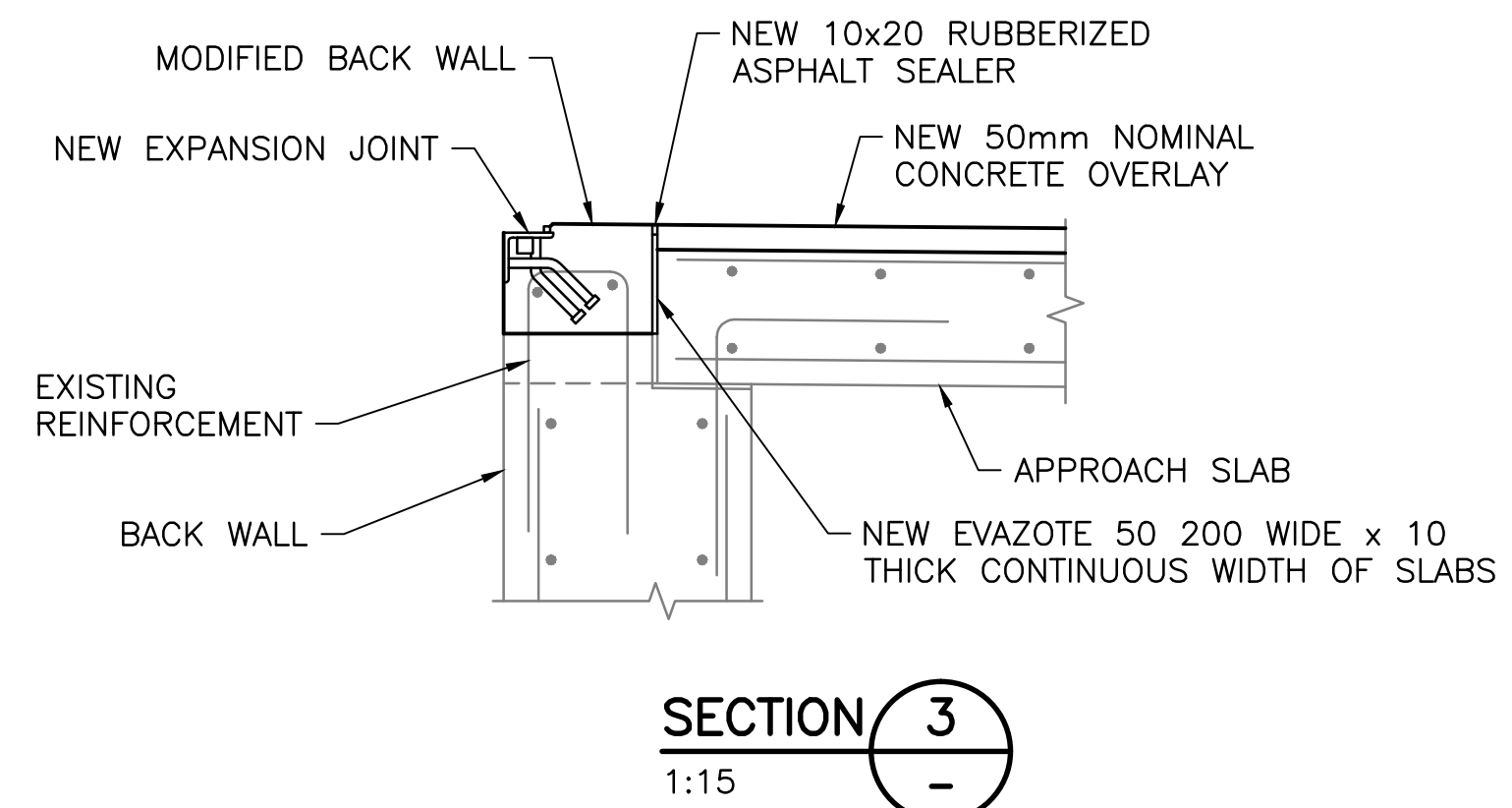
- REMOVALS



**VIEW 1**  
1:50



**SECTION 2**  
1:15



**SECTION 3**  
1:15

**NOTES:**

1. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE: 45 MPa AT 28 DAYS.
2. CHAMFER EXPOSED EDGES 20.
3. REINFORCING STEEL: CAN/CSA G30.18M GRADE 400W.
4. MINIMUM COVER: 50 UNO.
5. MINIMUM LAP: 500 UNO.
6. SAWCUT 25 DEPTH ALONG EDGE OF CONCRETE REMOVALS.
7. SPACING TO MATCH EXISTING REBAR.
8. ANCHOR DOWELS CENTERED BETWEEN EXISTING REBAR.
9. DOWELS TO BE ANCHORED WITH HILTI HIT-HY200 OR APPROVED EQUIVALENT.
10. FIELD BENDING SHALL BE DONE CAREFULLY, COLD AND SHALL SATISFY THE MINIMUM BEND DIAMETERS OF CAN/CSA S6-14.
11. REBARS PROJECTING INTO CONCRETE PYLON MAY BE CUT AT TOP OF EXISTING CONCRETE CURB.
12. CONSTRUCTION JOINTS TO BE CLEAN, FREE OF LAITANCE AND ROUGHENED.

**ISSUED FOR CONSTRUCTION**



**DO NOT SCALE DRAWINGS**

Revision/Revision	Description/Description	Date/Date
0	ISSUED FOR CONSTRUCTION	2017/03/13

Client/client	Parks Canada Agency	L'Agence Parcs Canada
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**COWI**

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**  
**KM 17.9 BOW VALLEY PARKWAY  
JOHNSTON CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Concept par  
TWB

Drawn by/Dessiné par  
JAET

PWOSC Project Manager/Administrateur de Projets TPSCG

PWOSC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

Drawing title/Titre du dessin

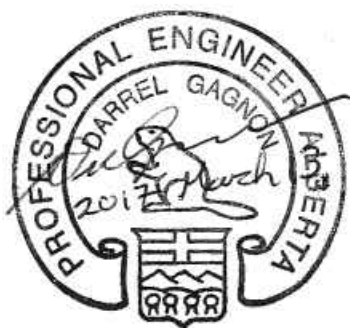
**ABUTMENT MODIFICATIONS**

Project No./No. du projet <b>967-02</b>	Sheet/Feuille <b>004</b> OF	Revision no./ La Révision no. <b>0</b>
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BANFF NATIONAL PARK, ALBERTA**

**KM 17.9 BOW VALLEY PARKWAY  
JOHNSTON CREEK BRIDGE**

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DPG

Designed by/Concept par  
TWB

Drawn by/Dessiné par  
JAET

PWGC Project Manager/Administrateur de Projets TPSCG

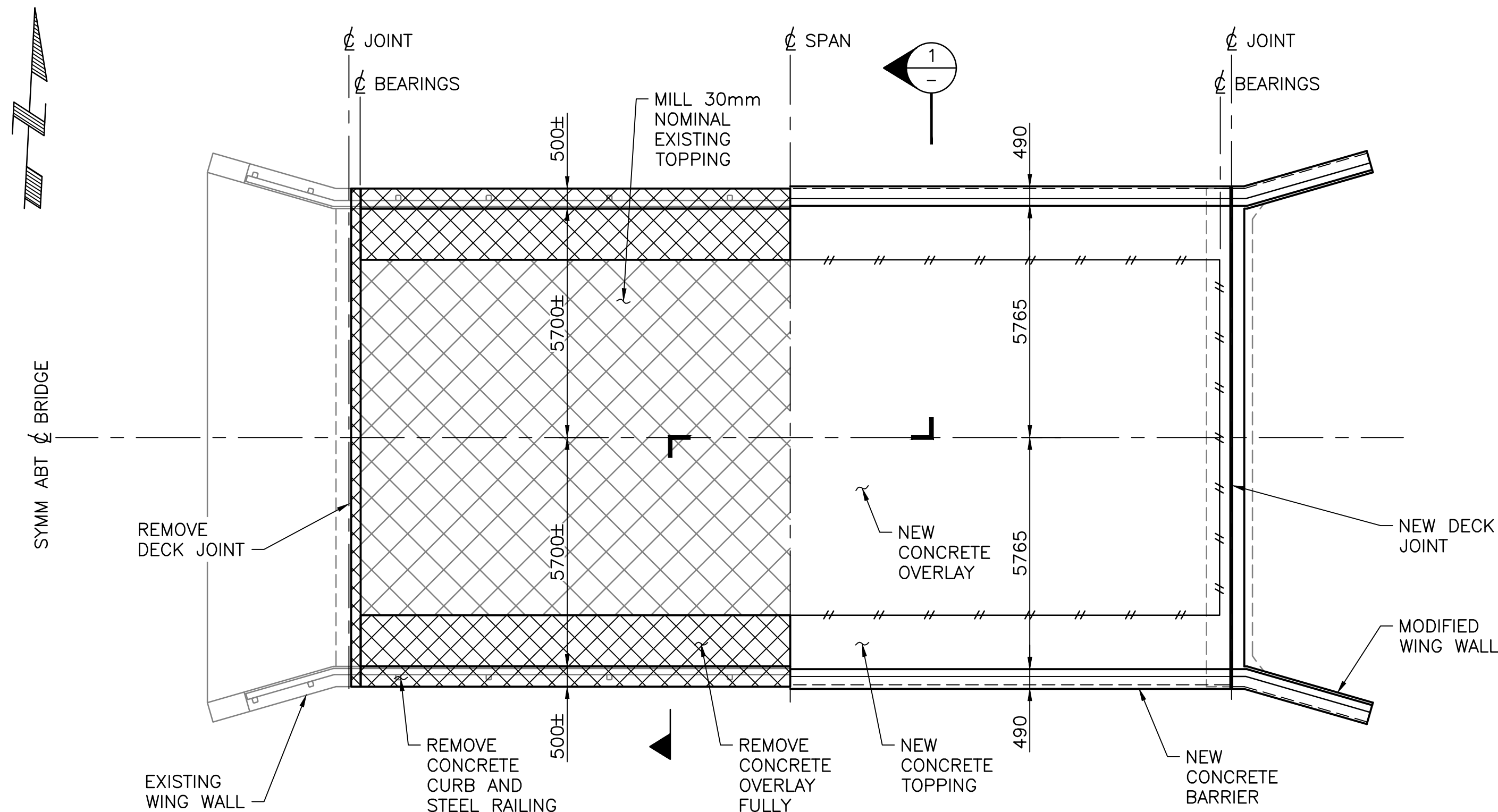
PWGC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

Drawing title/Titre du dessin

**CONCRETE DECK MODIFICATIONS**

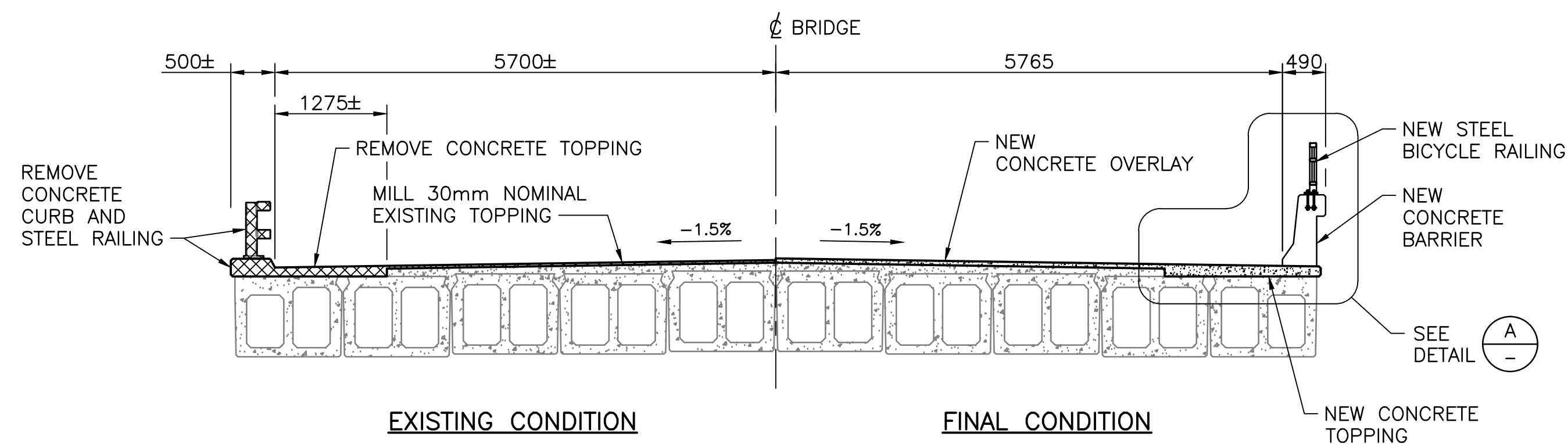
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EXISTING CONDITION

FINAL CONDITION

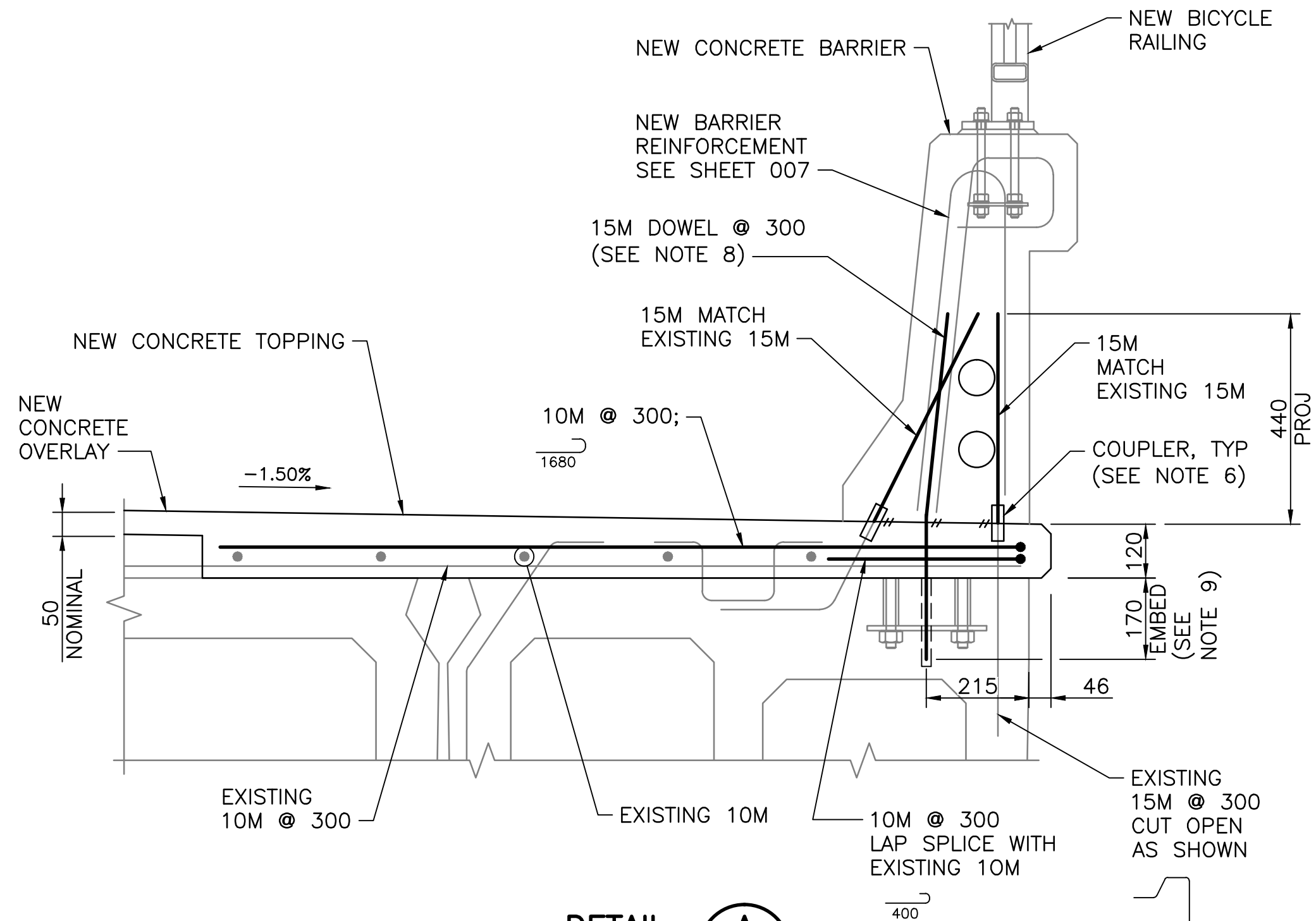
PLAN  
1:100



EXISTING CONDITION

FINAL CONDITION

SECTION 1  
1:50



DETAIL A  
1:10

#### NOTES:

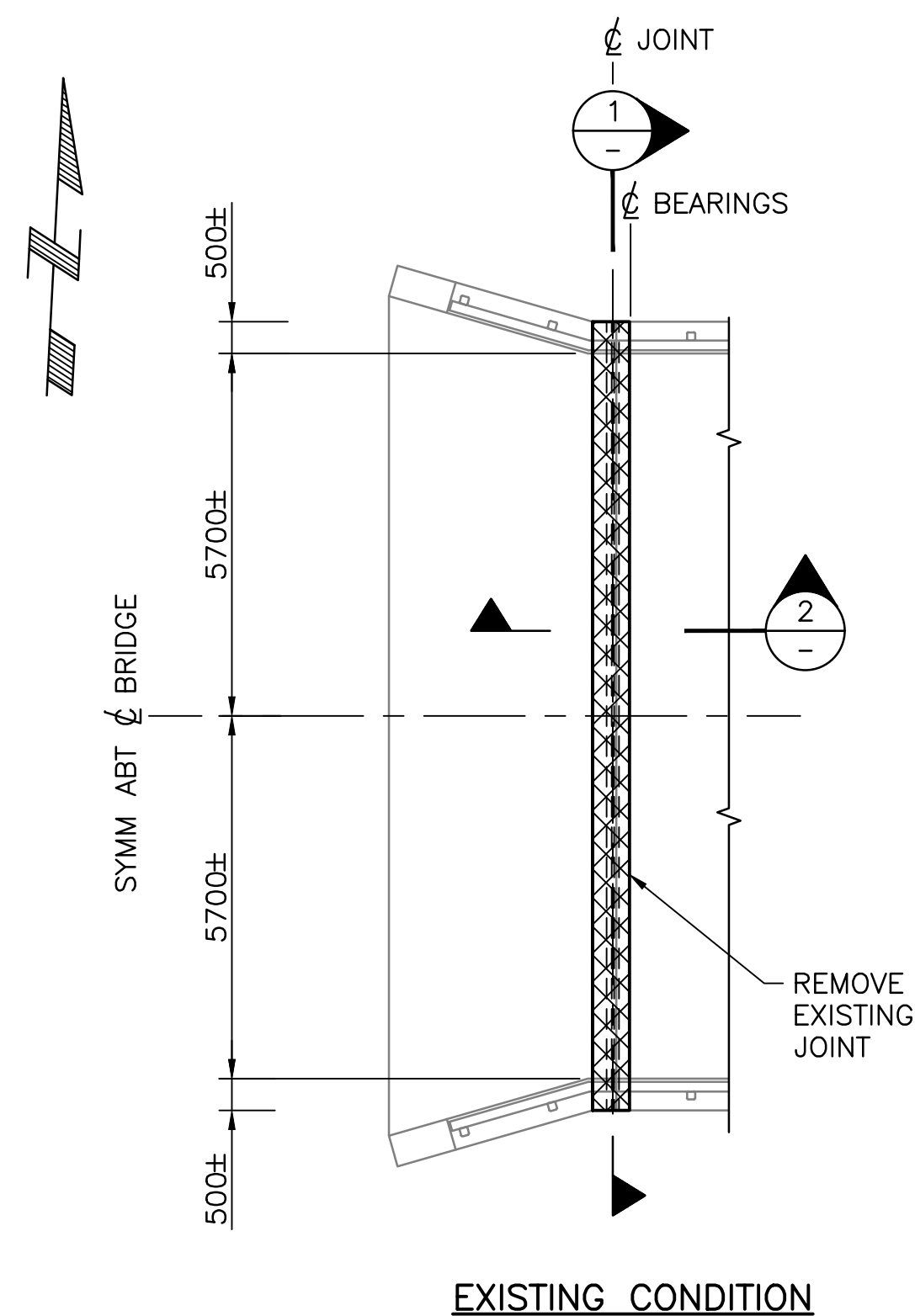
1. CONCRETE: 45 MPa AT 28 DAYS MINIMUM.
2. CHAMFER EXPOSED EDGES 20.
3. REINFORCING STEEL: CAN/CSA G30.18M GRADE 400W.
4. MINIMUM COVER:
  - 70 TO TOP OF DECK
  - 50 ALL OTHER
5. MINIMUM LAP 350 FOR 10M REBARS UNO. LAP SPLICES NOT SHOWN.
6. COUPLERS SHALL BE LENTON LOCK S-SERIES OR APPROVED EQUIVALENT.
7. CONSTRUCTION JOINTS TO BE CLEAN, FREE OF LAITANCE AND ROUGHENED.
8. PLACE DOWELS BETWEEN TRANSVERSE TOP REBARS IN PRESTRESSED BOX GIRDER.
9. DOWELS TO BE ANCHORED WITH HILTI HIT-HY200 OR APPROVED EQUIVALENT.
10. MAINTAIN EXISTING REINFORCEMENT.

#### LEGEND:

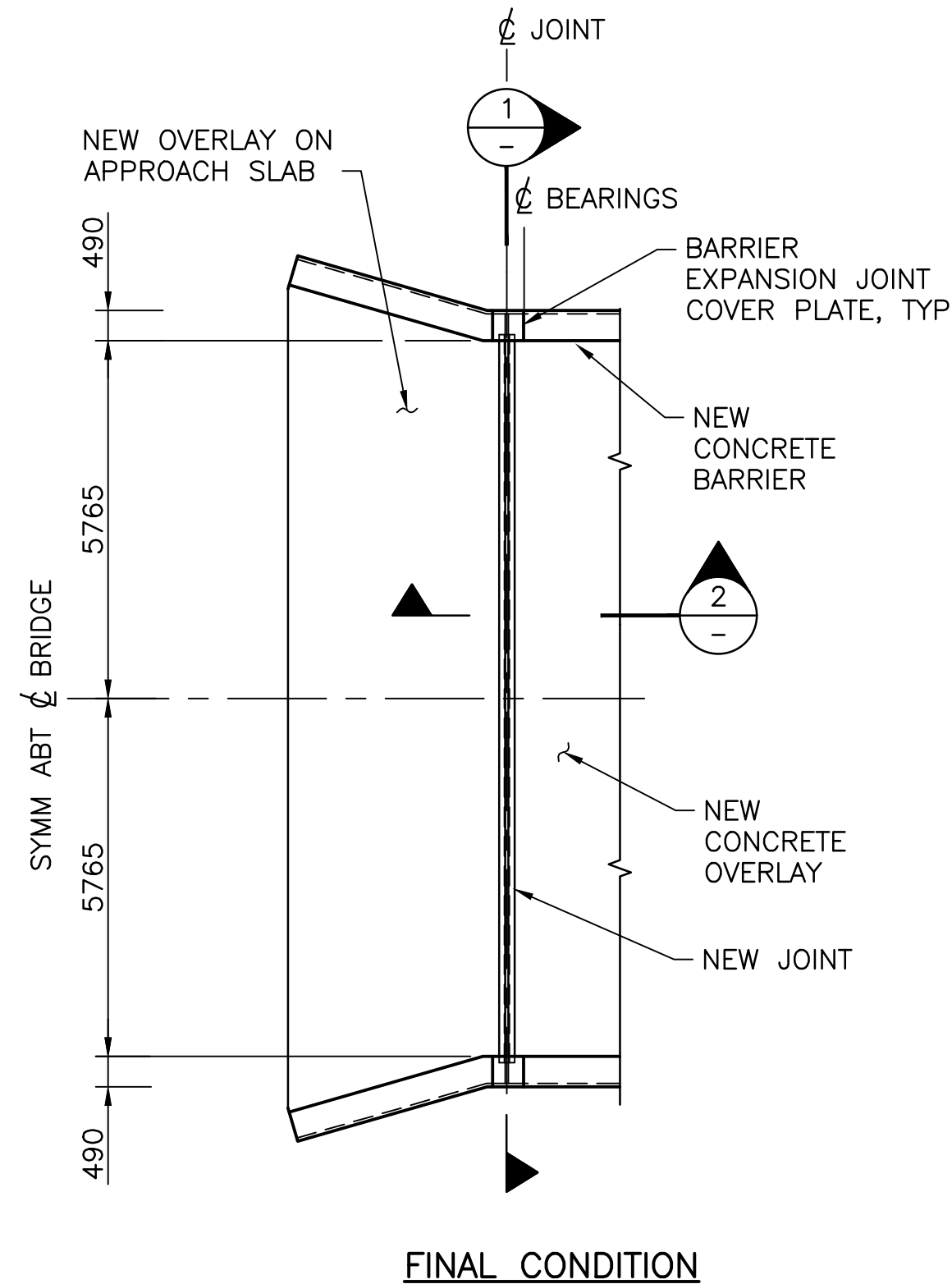
- REMOVALS



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EXISTING CONDITION

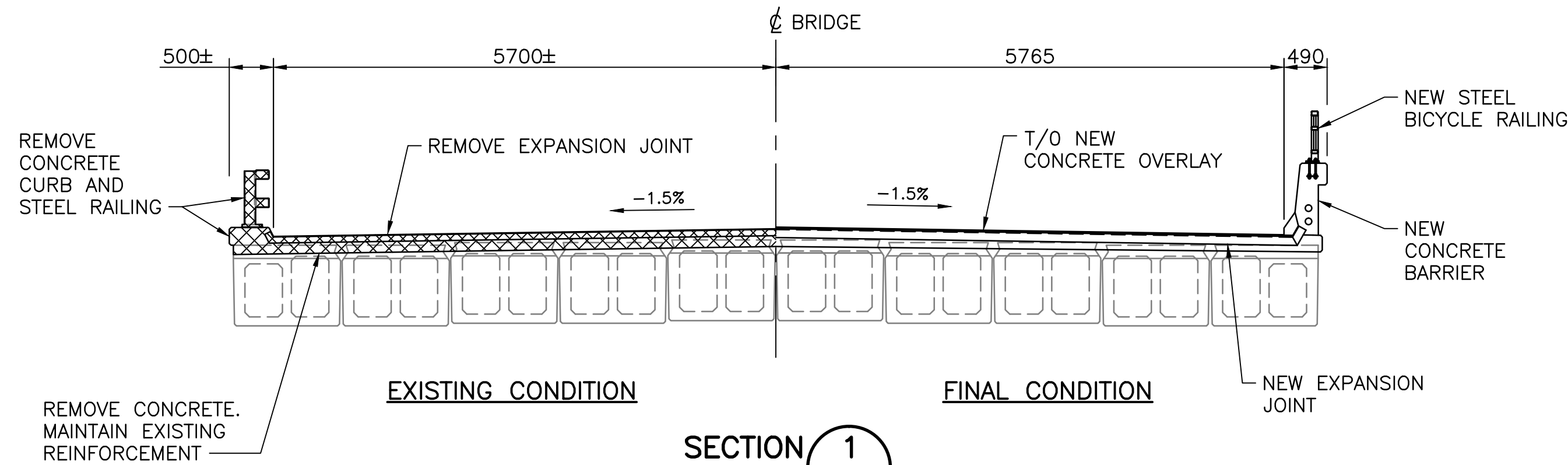


FINAL CONDITION

PLAN

1:100

(WEST JOINT SHOWN, EAST JOINT SIMILAR)

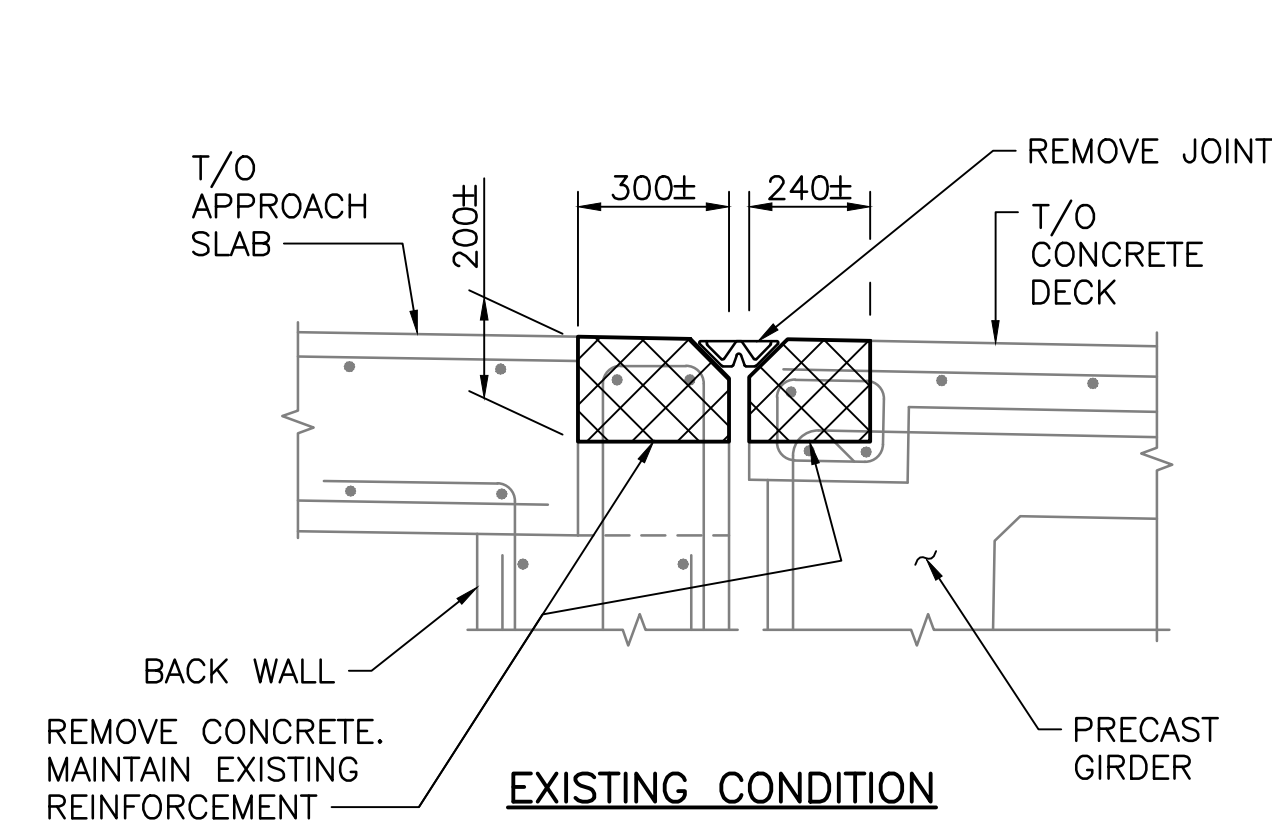


EXISTING CONDITION

FINAL CONDITION

SECTION 1

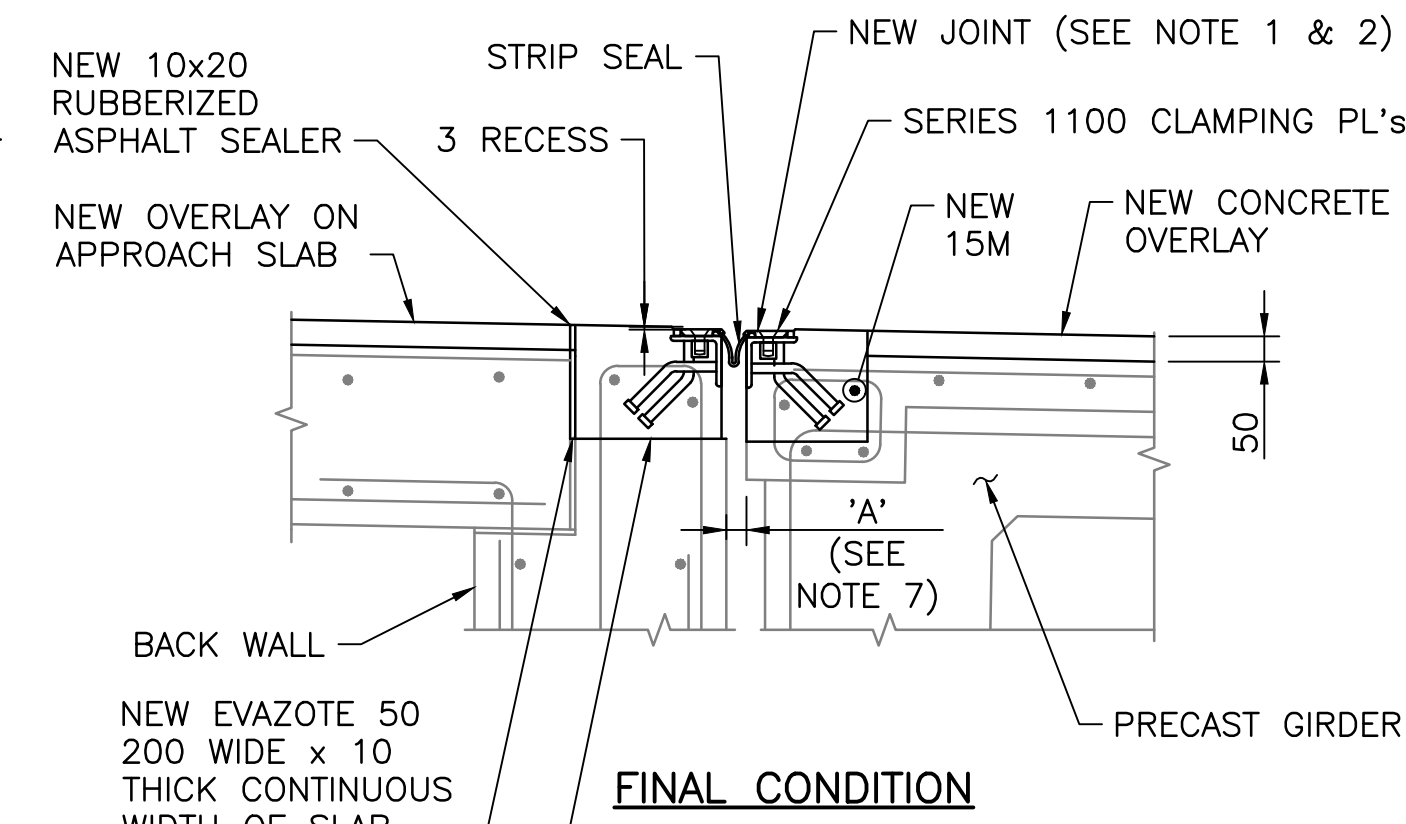
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EXISTING CONDITION

SECTION 2

1:15

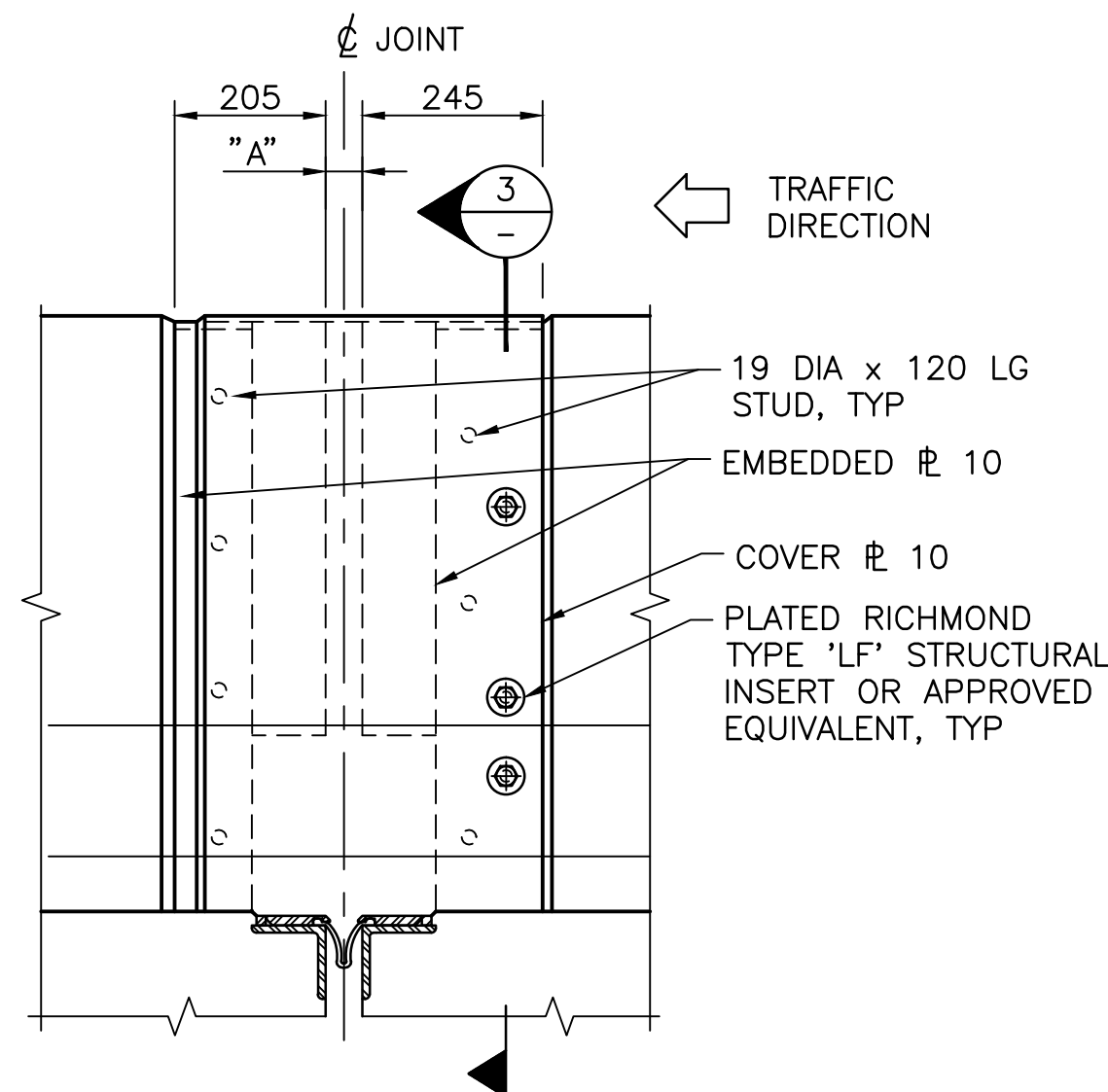


FINAL CONDITION

SECTION 2

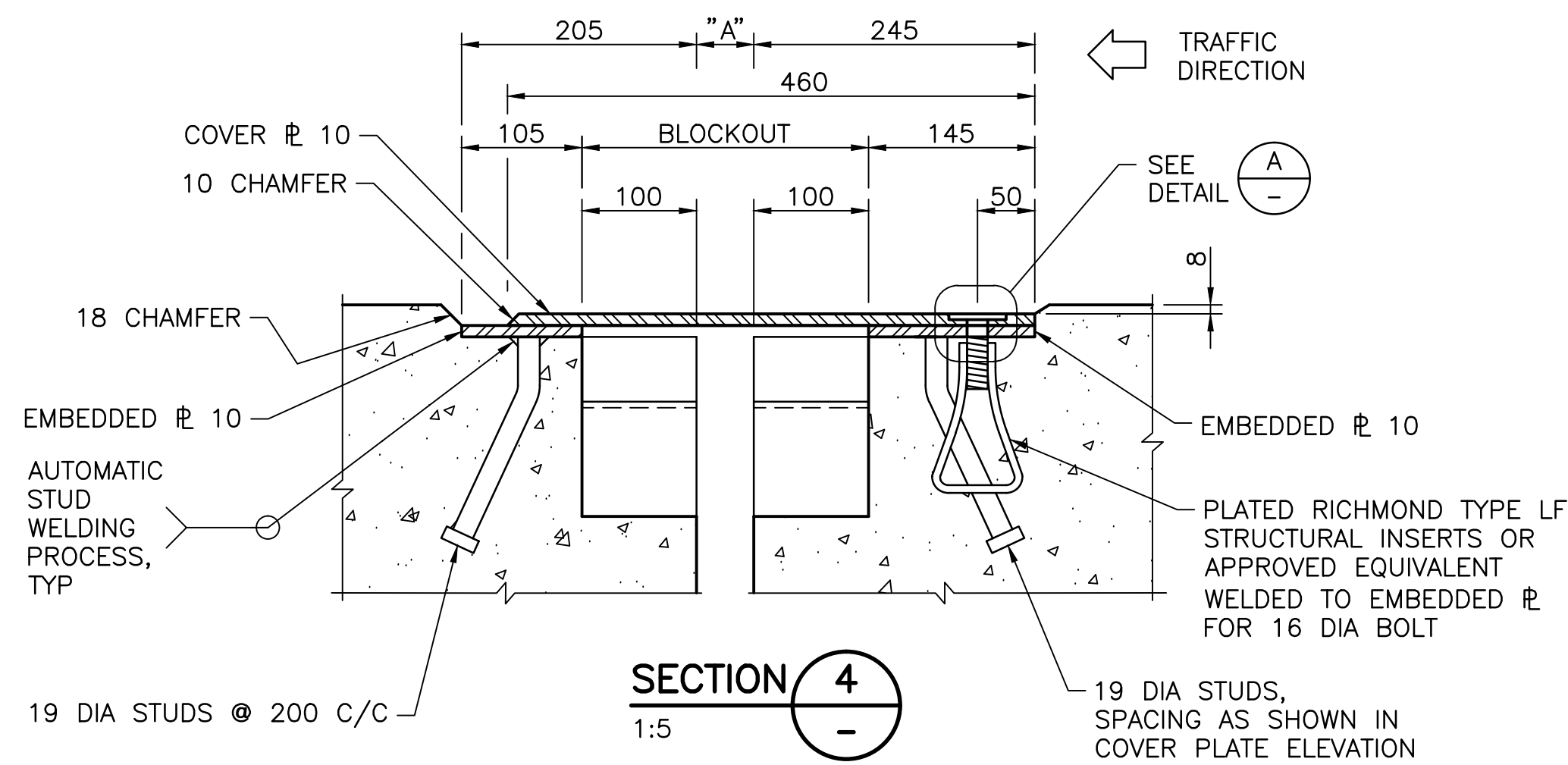
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FOR DETAIL SEE SHEET 004



BARRIER EXPANSION JOINT COVER PLATE - ELEVATION

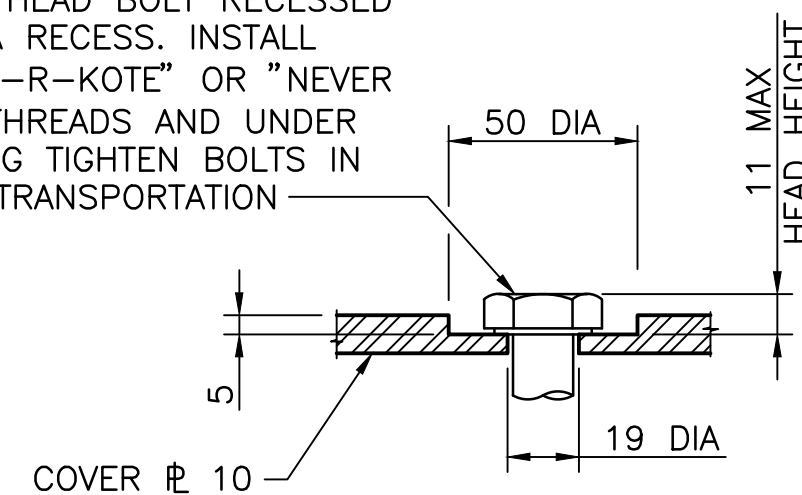
1:10



SECTION 4

1:5

16 DIA TYPE 304 STAINLESS STEEL HEXAGONAL HEAD BOLT RECESSED INTO 50 DIA RECESS. INSTALL USING "KOP-R-KOTE" OR "NEVER SEEZ" ON THREADS AND UNDER HEADS. SNUG TIGHTEN BOLTS IN SHOP FOR TRANSPORTATION



DETAIL A

1:2

LEGEND:

REMOVALS

NOTES:

- NEW DECK JOINTS "GOODFLEX SERIES 1100 BY GOODCO Z-TECH" OR APPROVED EQUIVALENT, INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
- JOINT NEOPRENE SEAL "GOODCO FL-75" OR APPROVED EQUIVALENT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- NEW STEEL: CSA G40.21M GRADE 300W.
- STUDS: CAN/CSA W59 APPENDIX H, TYPE B, GALVANIZE AFTER FABRICATION.
- WELDING: CAN/CSA W59.
- CONSTRUCTION JOINT TO BE CLEAN, FRE OF LAITANCE AND ROUGHENED.
- INSTALL GAP "A" IN ACCORDANCE WITH THE TABLE BELOW:

INSTALLATION TEMPERATURE	-10°C	0°C	10°C	20°C	30°C
GAP "A" (mm)	54	52	50	48	46

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DO NOT SCALE DRAWINGS

Revision/Revision	Description/Description	Date/Date
0	ISSUED FOR CONSTRUCTION	2017/03/13

Client/client	Parks Canada Agency / L'Agence Parcs Canada
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COWI

Project title/Titre du projet  
BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA

KM 17.9 BOW VALLEY PARKWAY  
JOHNSTON CREEK BRIDGE

Approved by/Approuvé par  
DPG

Designed by/Concept par  
TWB

Drawn by/Dessiné par  
JAET

PWGSC Project Manager/Administrateur de Projets TFGC

PWGSC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TFGC

Client/client  
PCA

Drawing title/Titre du dessin

DECK JOINT REPLACEMENT

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
967-02	006 OF	0



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Revision/ Révision	Description/Description	Date/Date

Client/client	Parks Canada Agence	L'Agence Parcs Canada
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COWI

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**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**

**KM 17.9 BOW VALLEY PARKWAY  
JOHNSTON CREEK BRIDGE**

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TWB

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JAET

PWGC Project Manager/Administrateur de Projets TPSCG

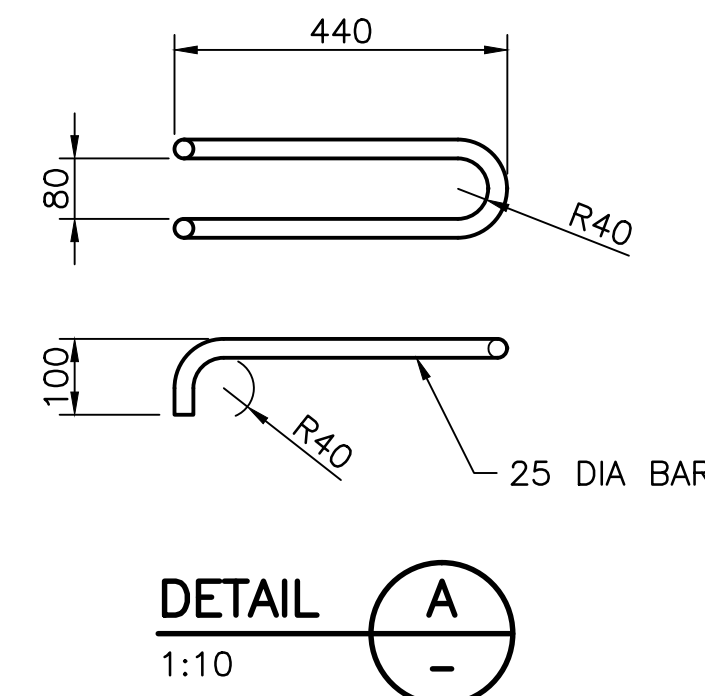
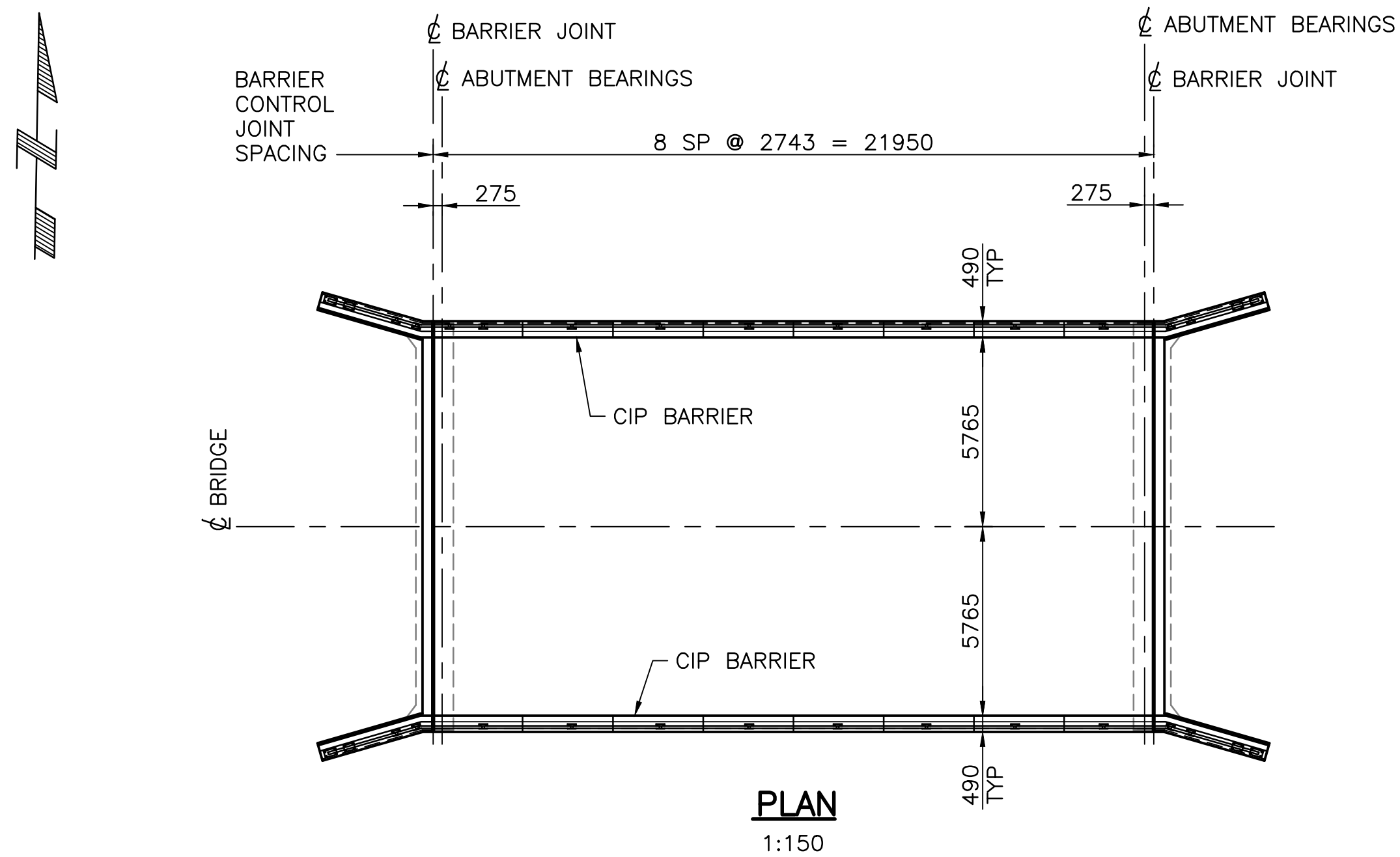
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Client/client  
PCA

Drawing title/Titre du dessin

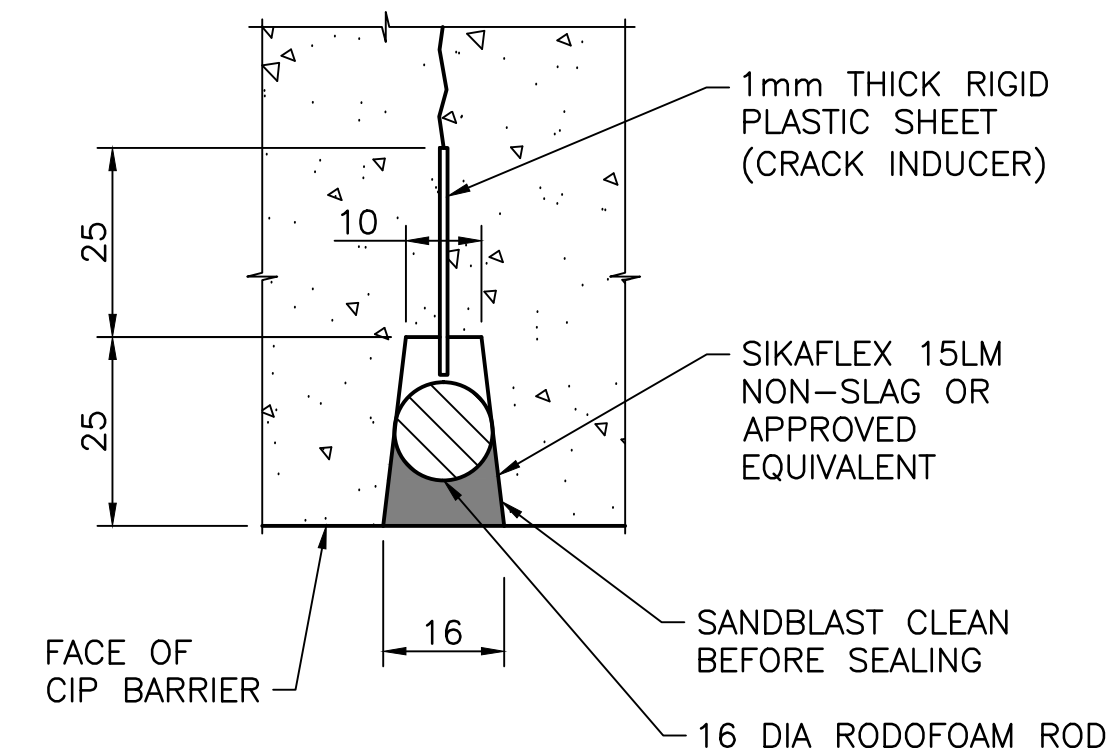
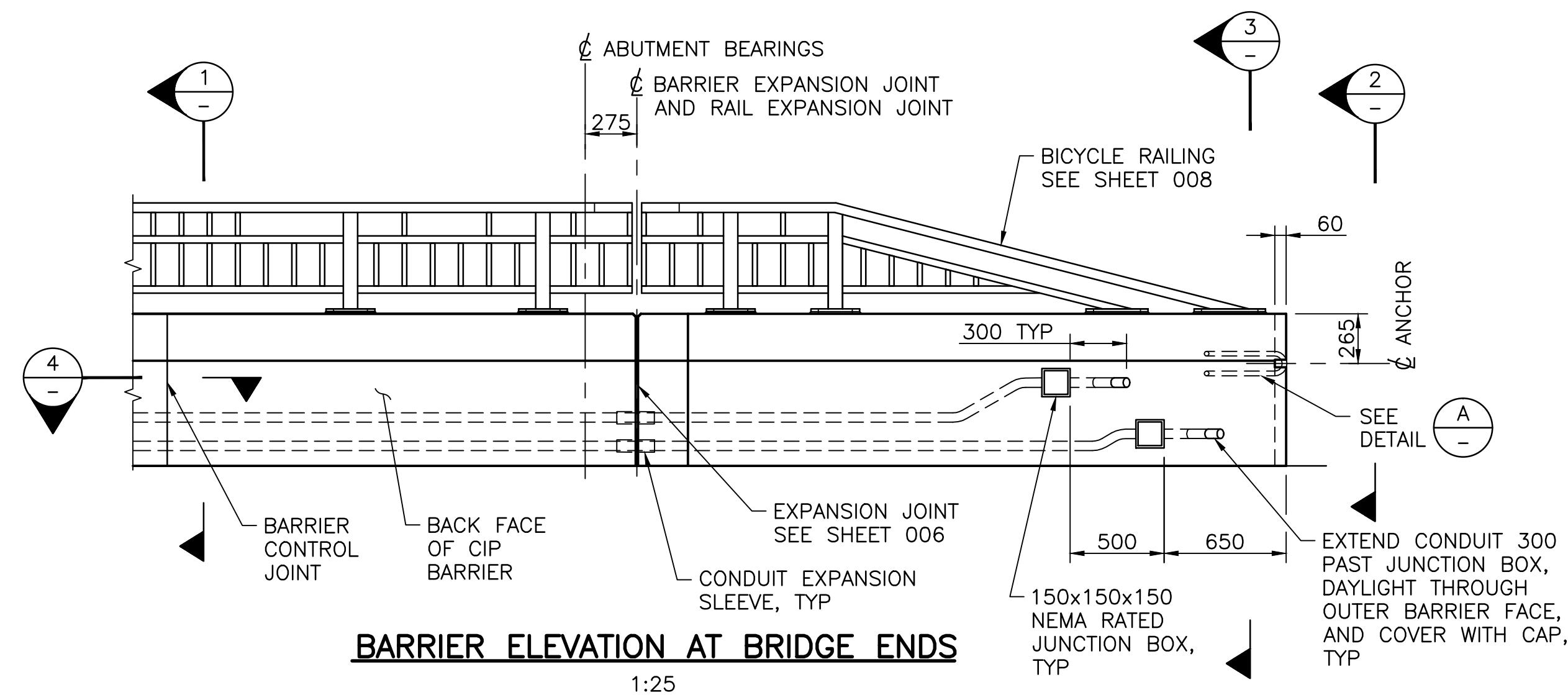
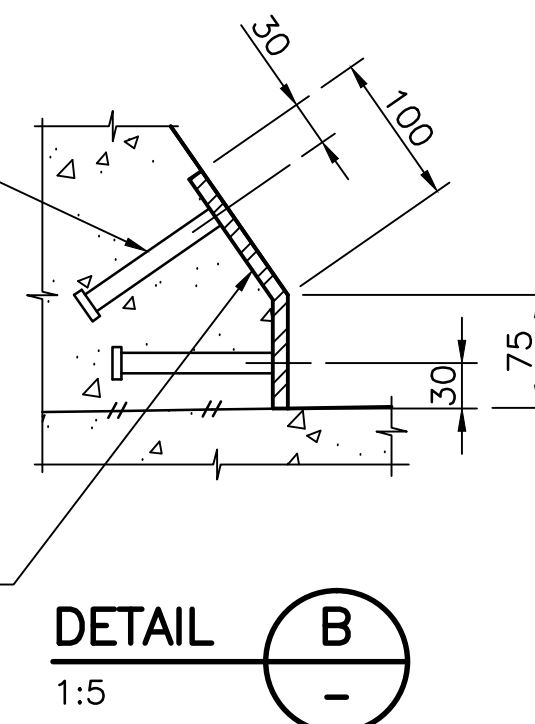
**CAST-IN-PLACE BARRIER  
LAYOUT AND REINFORCEMENT**

Project No./No. du projet	Sheet/Feuille 007 OF	Revision no./ La Révision no.
967-02		0



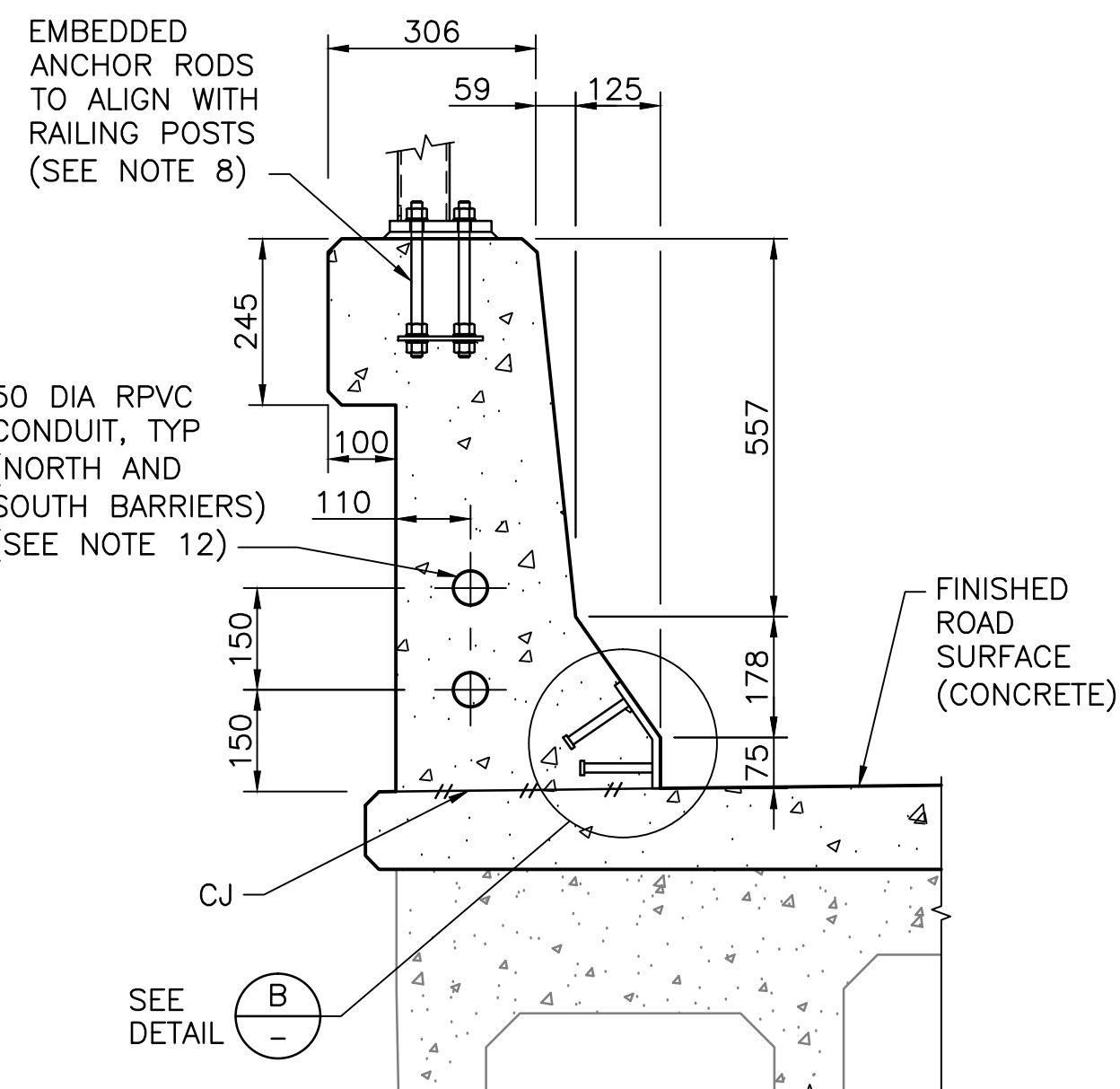
12 DIA STUD, 100 LONG  
@ 400, TYP STAGGERED  
MAX 100 FROM FREE EDGE

GALVANIZED BENT # 10  
CHAMFER ENDS @  
SPICES AND ALIGN  
IN DIRECTION OF TRAVEL

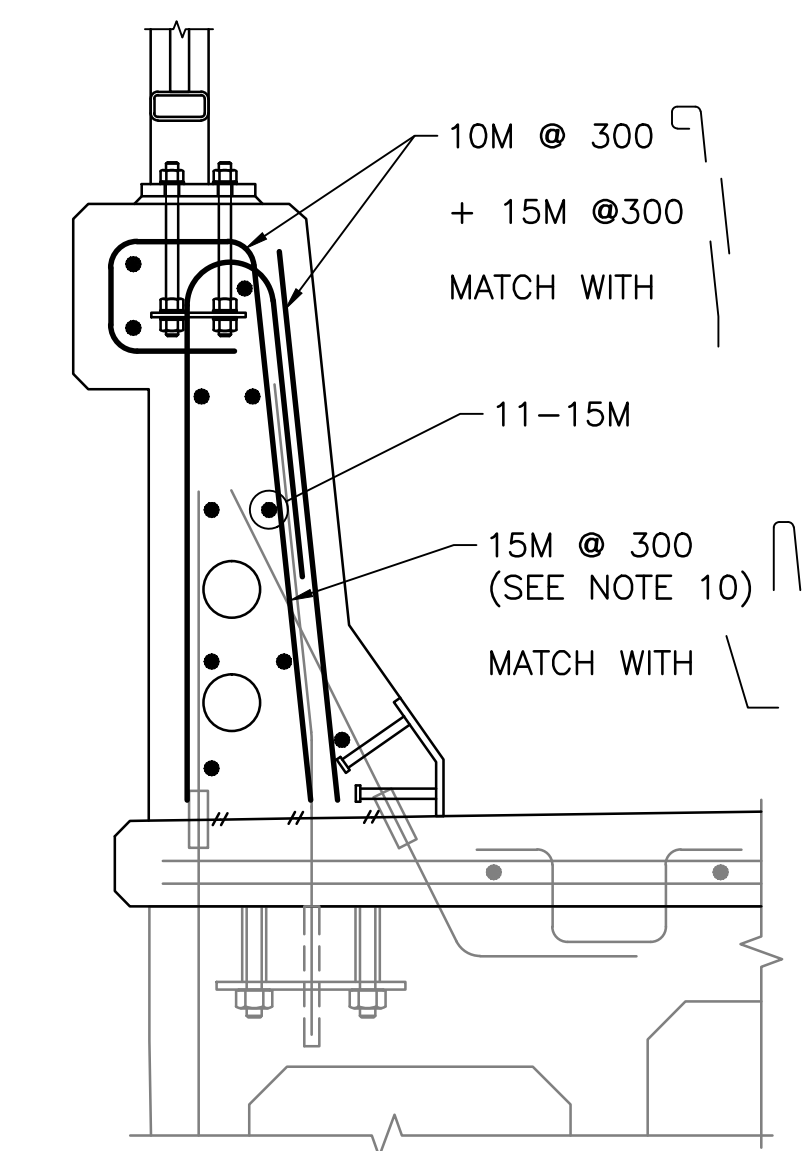


TYPICAL BARRIER CONTROL JOINT

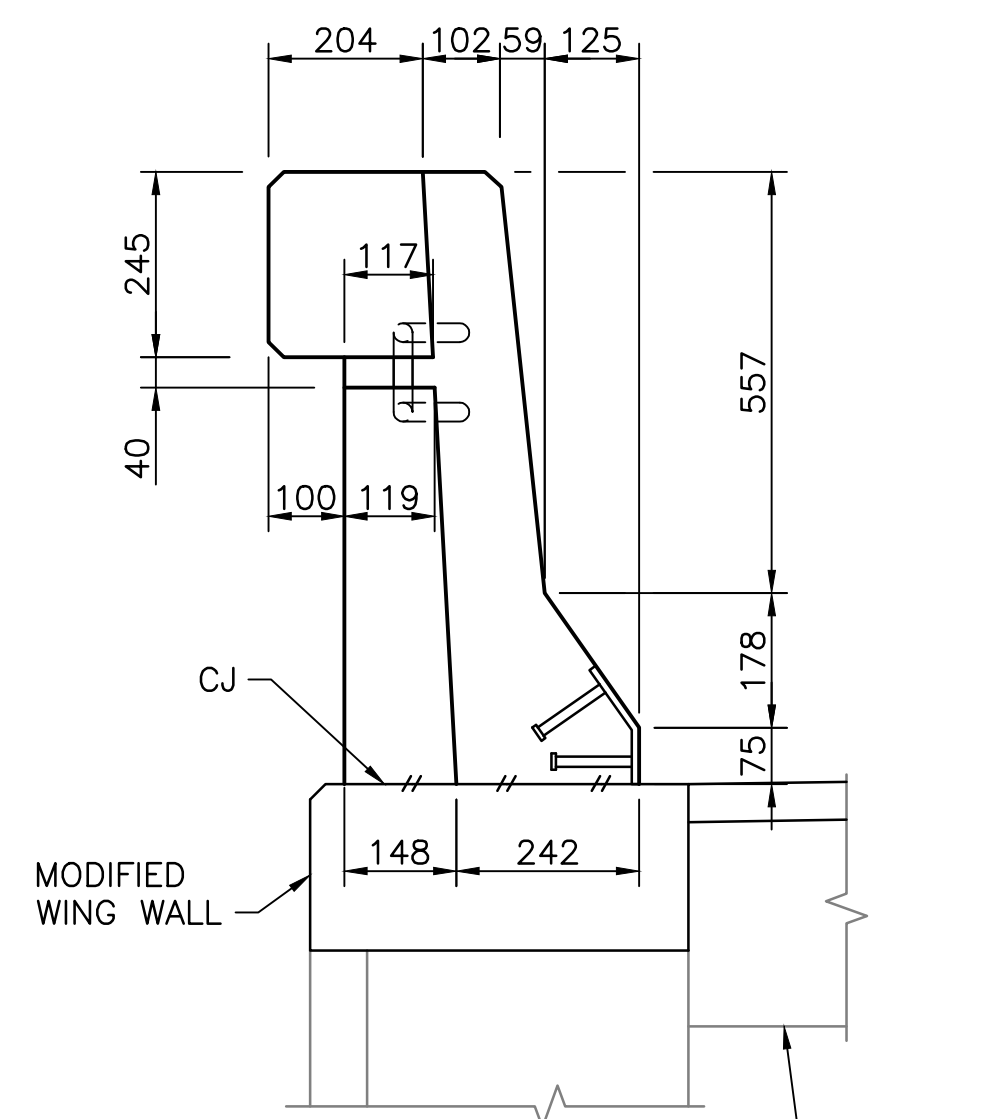
SECTION 4  
1:1



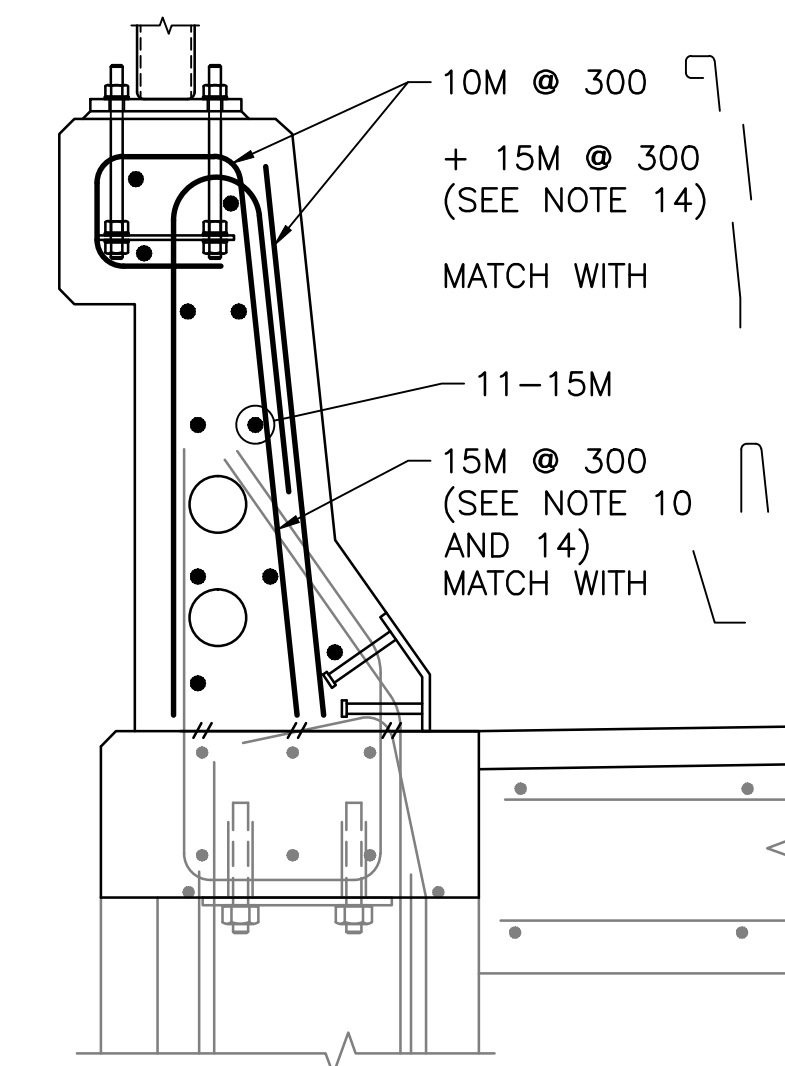
SECTION 1  
1:10



SECTION 1  
1:10



VIEW 2  
1:10



SECTION 3  
1:10

#### NOTES:

- MINIMUM COMPRESSIVE STRENGTH OF CONCRETE: 45 MPa AT 28 DAYS.
- CHAMFER EXPOSED EDGES 20.
- REINFORCING STEEL: CAN/CSA G.30.18M GRADE 400W.
- MINIMUM COVER: 50 UNO.
- MINIMUM LAP:  
10M - 410 UNO.  
15M - 600 UNO.
- STEEL: CAN/CSA G40.21M GRADE 300W, GALVANIZE AFTER FABRICATION.
- STUDS: CSA W59 APPENDIX H, TYPE B, GALVANIZE AFTER FABRICATION.
- ANCHOR ROD DETAILS PROVIDED ON SHEET 008.
- HOT DIP GALVANIZE TO ASTM A123/A123M.
- PROVIDE REDUCED BEND DIAMETER OF 81 (MEASURED ON THE INSIDE OF THE BAR) AND PLACE BAR ON SKEW TO SATISFY COVER REQUIREMENTS.
- PLACE HAIRPINS 10M @ 100 HORIZONTALLY AT BARRIER ENDS.
- REPLACE BARRIER REINFORCEMENT CUT FOR JUNCTION BOX WITH ADDITIONAL EQUIVALENT BARS ADJACENT TO THE BOX.
- CONDUIT ELBOWS NOT TO EXCEED 22.5 DEGREES. ENDS OF CONDUITS SHALL TERMINATE IN RADIAL SWEEPS OR 22.5 DEGREE ELBOWS.
- SPACING TO MATCH STARTER BARS.









# KM 38.4 - BOW VALLEY PARKWAY

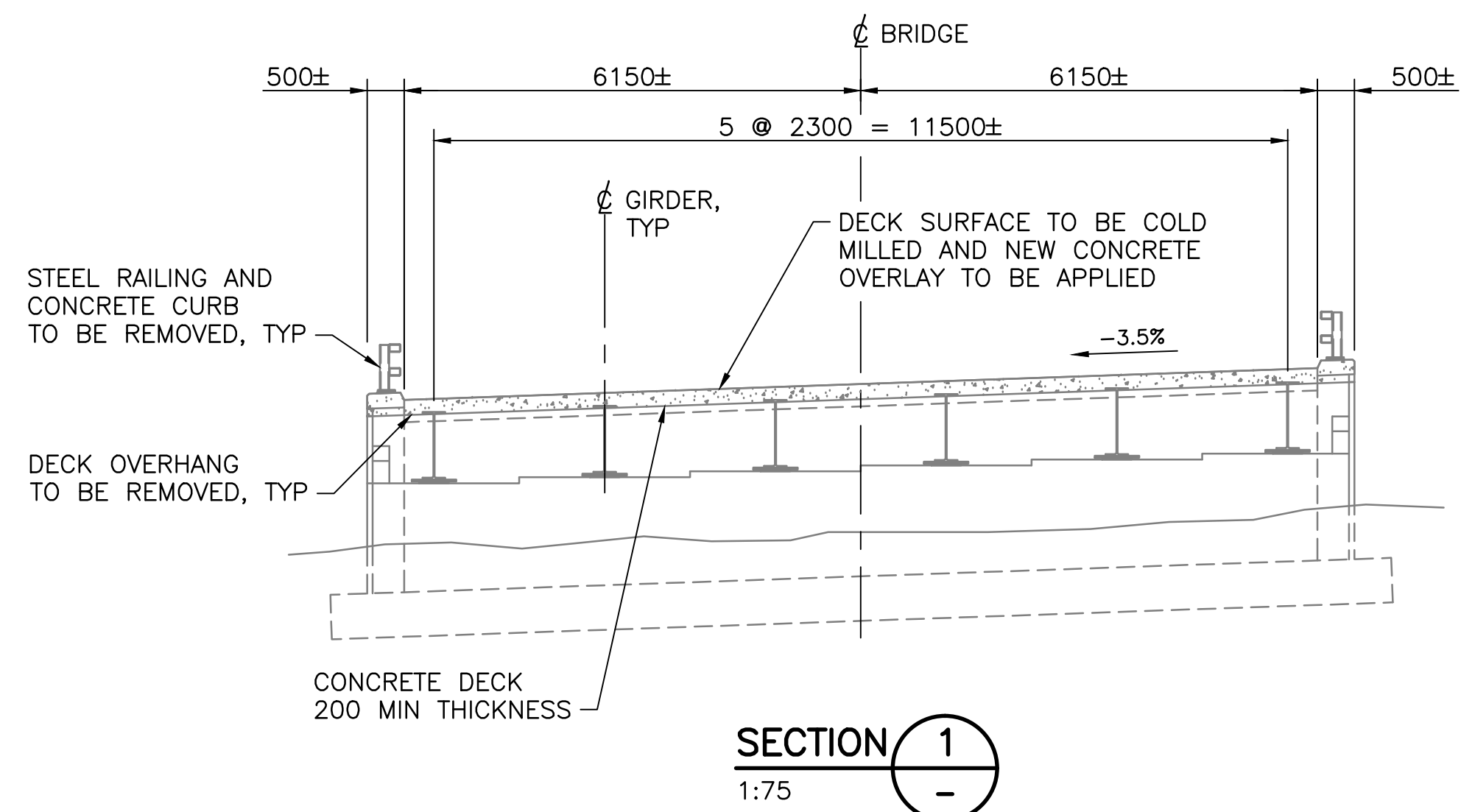
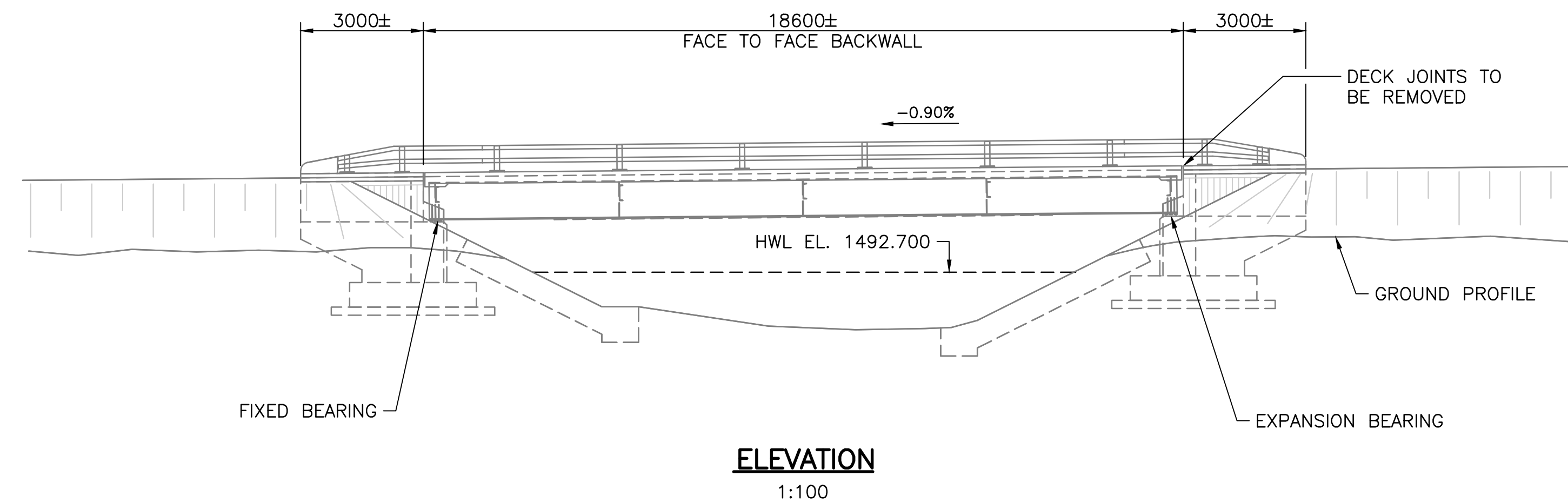
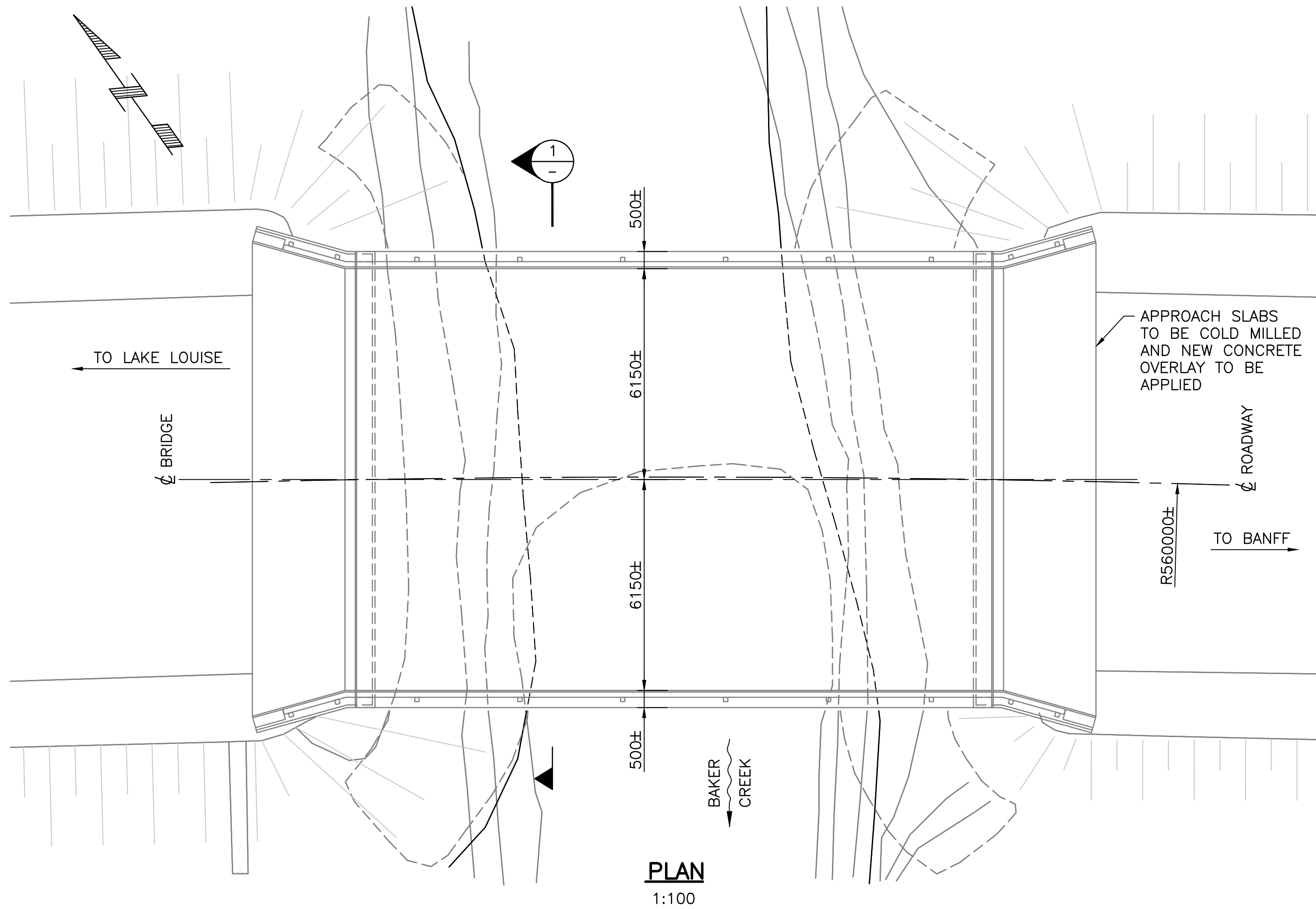
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## BAKER CREEK BRIDGE





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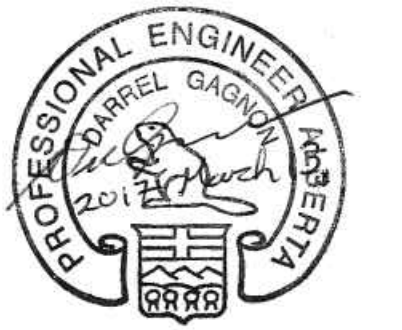
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2. DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE.

#### SCOPE OF WORK:

1. REMOVAL AND DISPOSAL OF EXISTING CURB, STEEL RAILING, DECK OVERHANGS AND DECK JOINTS.
2. LOCALIZED CONCRETE REMOVAL AT DECK JOINTS AND WING WALLS.
3. COLD MILLING OF CONCRETE DECK AND APPROACH SLABS.
4. PARTIAL DEPTH CONCRETE DECK REPAIRS WHEN AUTHORIZED BY DEPARTMENTAL REPRESENTATIVE.
5. SUPPLY AND CONSTRUCTION OF NEW CONCRETE DECK OVERHANGS, CONCRETE OVERLAY AND WING WALL CROWNS.
6. SUPPLY AND CONSTRUCTION OF NEW CAST-IN-PLACE BARRIERS.
7. SUPPLY AND INSTALLATION OF DECK JOINTS.
8. SUPPLY, FABRICATION AND INSTALLATION OF NEW STEEL BICYCLE RAILING.
9. MODIFICATION OF APPROACH ROADWAY.
10. APPLICATION OF LANE MARKINGS ON NEW FINISHED ROAD SURFACE.

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0	ISSUED FOR CONSTRUCTION	2017/03/13
Revision/ Révision	Description/Description	Date/Date

Client/client	Parks Canada Agence	L'Agence Parcs Canada
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COWI

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**  
**KM 38.4 BOW VALLEY PARKWAY  
BAKER CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Conçu par  
TWB

Drawn by/Dessiné par  
JAET

PWGSC Project Manager/Administrateur de Projets TPSCG

PWGSC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

Drawing title/Titre du dessin

**GENERAL ARRANGEMENT  
EXISTING CONDITION**

Project No./No. du projet 967-02	Sheet/Feuille 102 OF	Revision no./ La Révision no. 0
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Parks Canada Agency	L'Agence Parcs Canada

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**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**  
**KM 38.4 BOW VALLEY PARKWAY  
BAKER CREEK BRIDGE**

Approved by/Approuvé par DPG
Designed by/Concept par TWB
Drawn by/Dessiné par BEXU
PWGC Project Manager/Administrateur de Projets TPSCG
PWGC, Architectural and Engineering Resources Manager/ Ressources Architectural et de Directeur d'Ingénierie, TPSCG
Client/client PCA
Drawing title/Titre du dessin

GENERAL ARRANGEMENT  
FINAL CONDITION

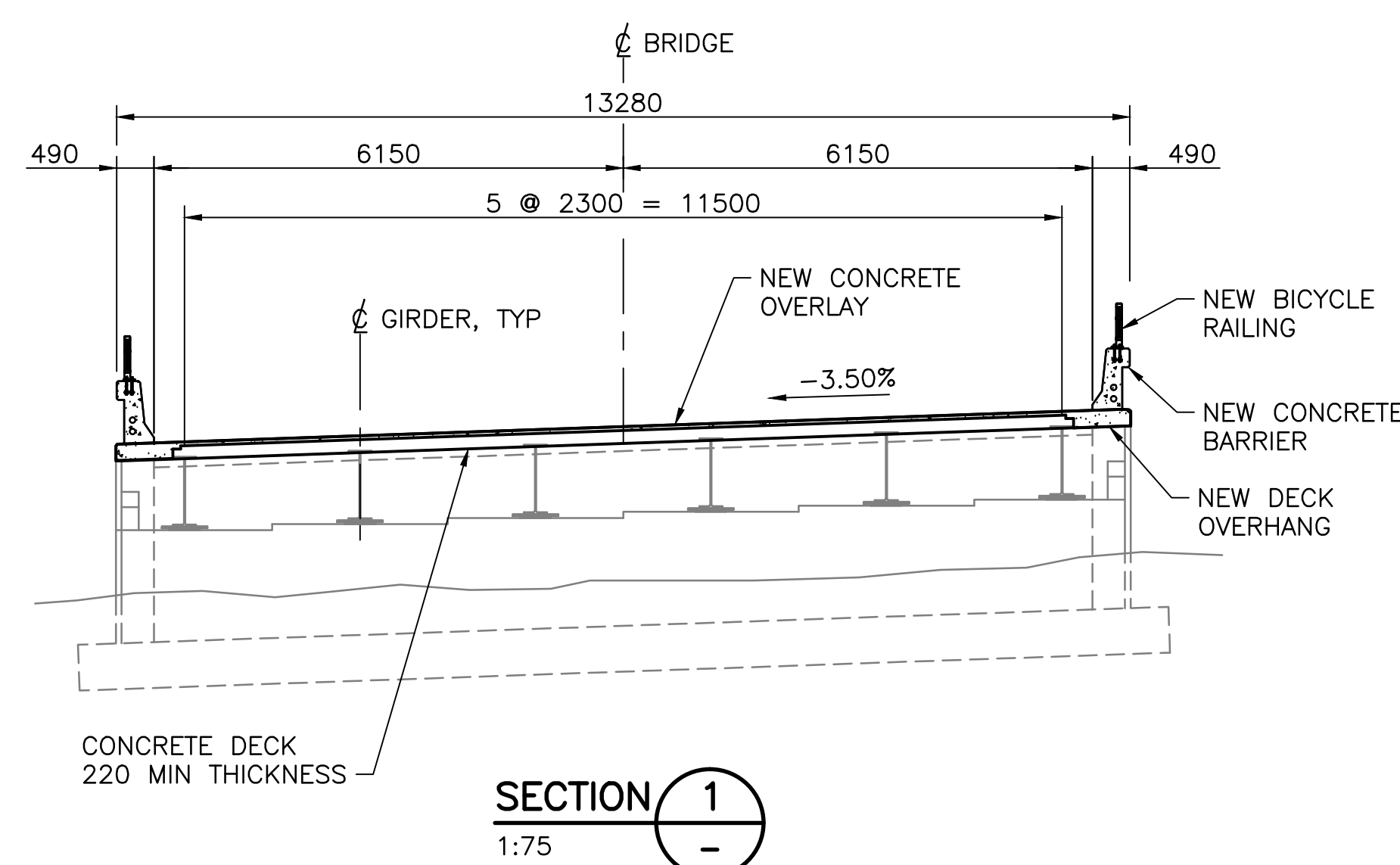
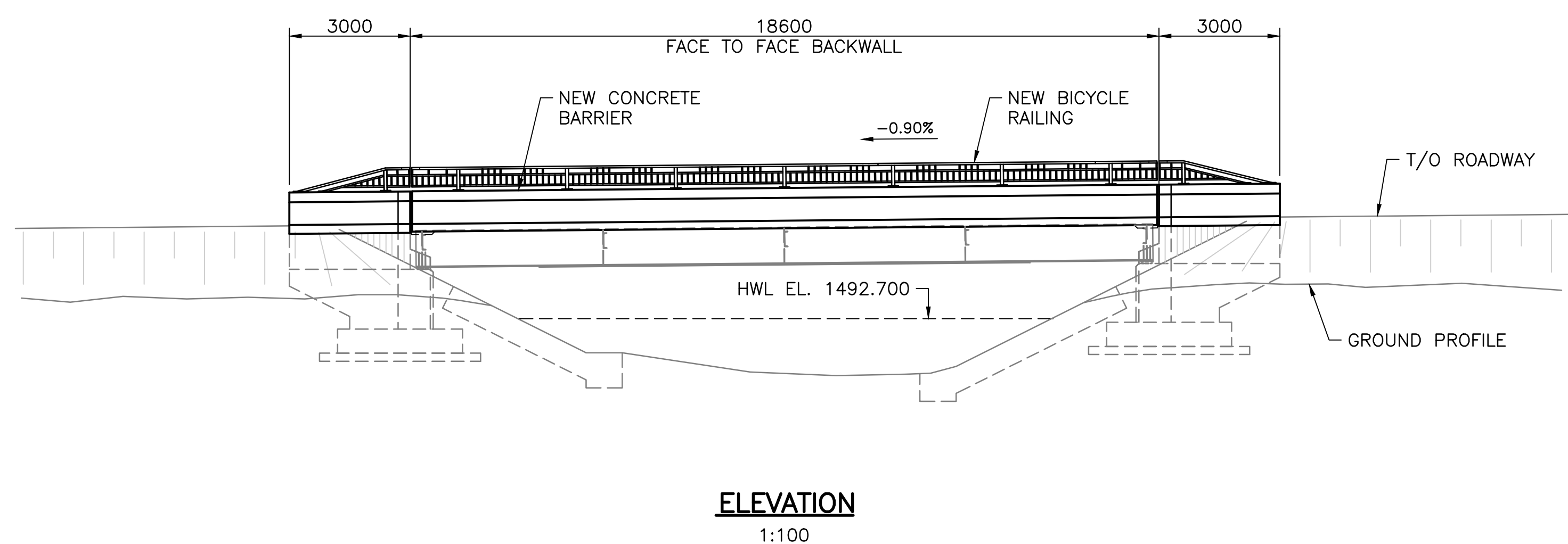
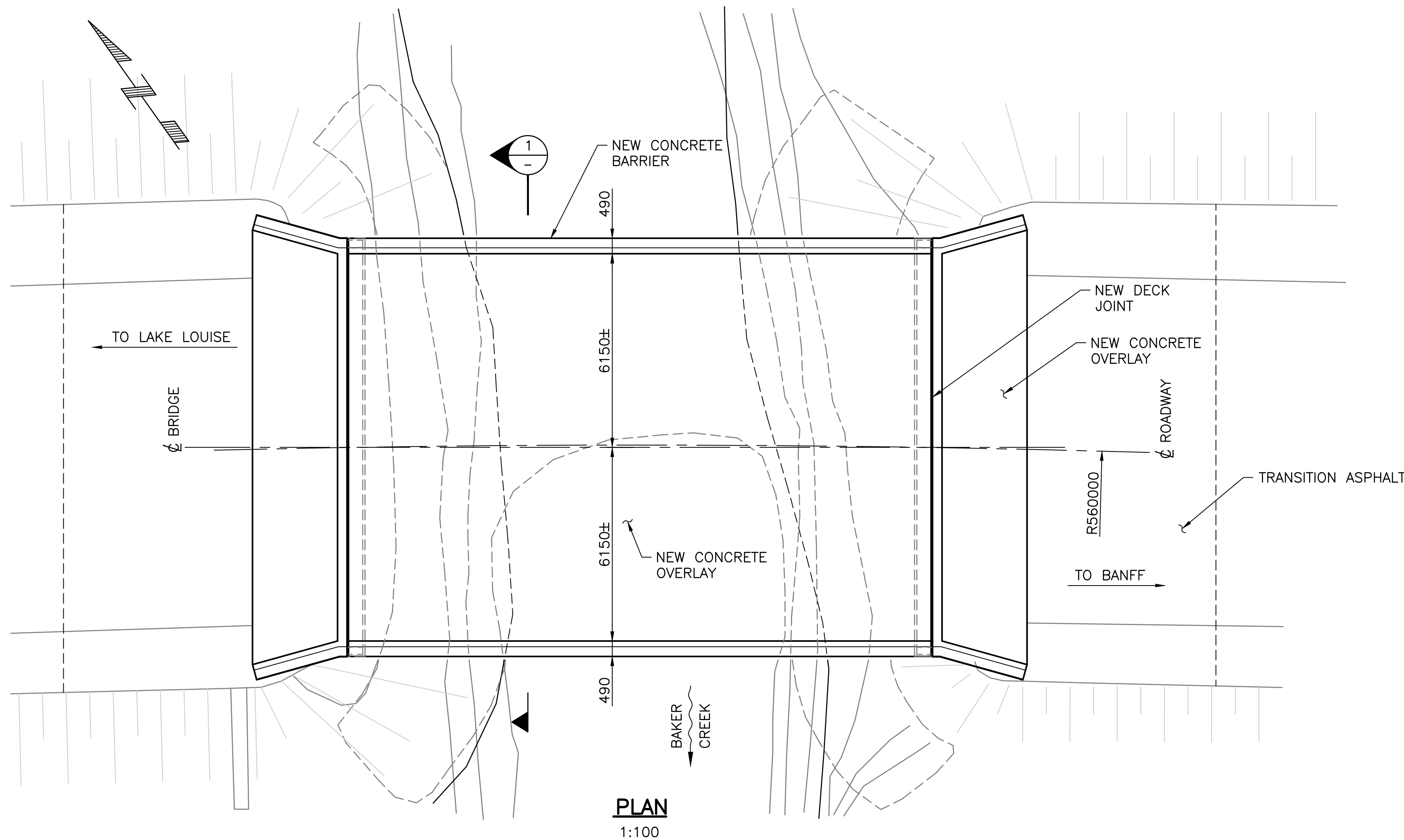
Project No./No. du projet 967-02	Sheet/Feuille 103 OF	Revision no./ La Révision no. 0
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**NOTES:**

1. THE GRADE AND CROSS SLOPE OF THE COMPLETED DECK SHALL BE TRANSITIONED TO THE GRADE AND CROSS SLOPE OF THE EXISTING APPROACH ROADWAY OVER A DISTANCE OF 6m PAST THE APPROACH SLAB AT EACH END OF THE COMPLETED BRIDGE STRUCTURE. THE TRANSITION SHALL BE DONE BY SCARIFYING THE EXISTING PAVEMENT AND PLACING AN ASPHALT LAYER OF NO LESS THAN 50mm THICKNESS.

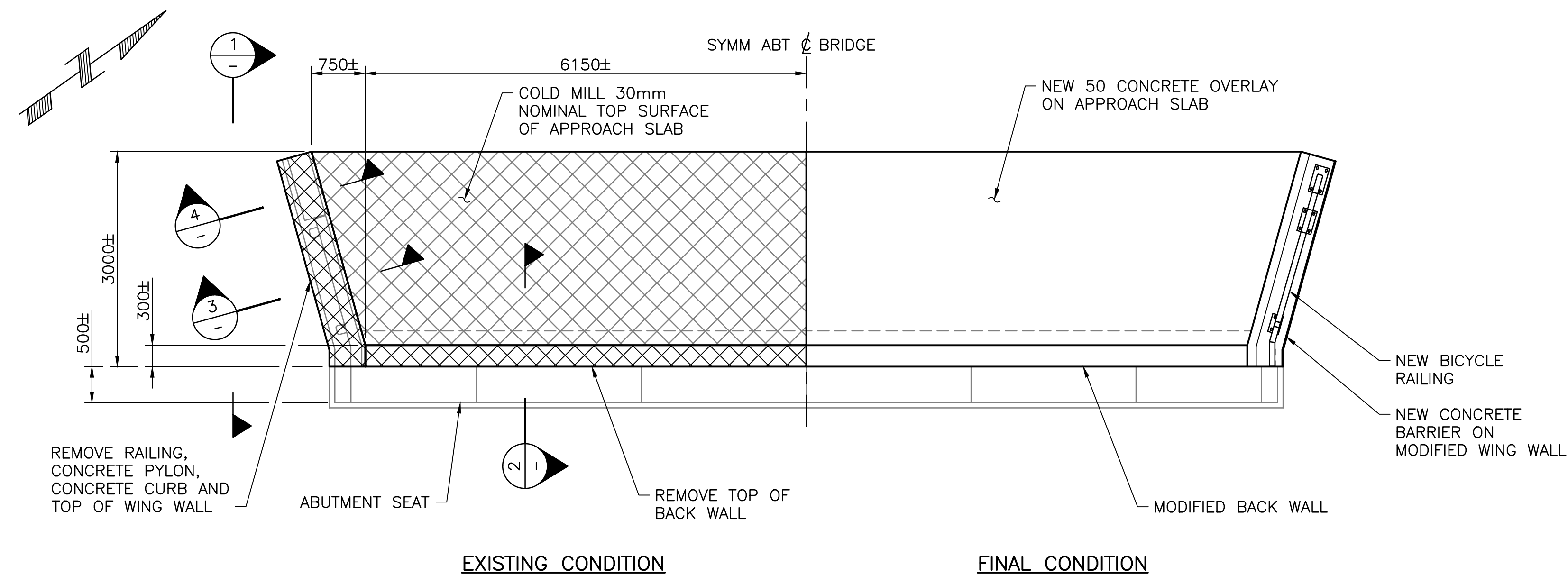
**GENERAL NOTES:**

1. DESIGN STANDARDS: CANADIAN STANDARDS ASSOCIATION  
-CAN/CSA-S6-14 - DECEMBER 2014. DESIGN LIFE: 30 YEARS
2. DESIGN LOADS:
  - 2.1. UNIT MATERIAL WEIGHTS
    - REINFORCED CONCRETE: 24.0 kN/m<sup>3</sup>
    - STEEL: 77.0 kN/m<sup>3</sup>
    - CONCRETE OVERLAY: 23.5 kN/m<sup>3</sup>
  - 2.2. LIVE LOADS
    - CL-625 TRUCK, LANE LOADING AND DYNAMIC LOAD ALLOWANCE AS PER S6-14.
  - 2.3. TRAFFIC BARRIER: TL-2
  - 2.4. TEMPERATURE DATA:
    - EFFECTIVE CONSTRUCTION TEMPERATURE: 10°C
    - MAXIMUM MEAN DAILY TEMPERATURE: 26°C
    - MINIMUM MEAN DAILY TEMPERATURE: -40°C





G:\1945\02-Drawings\967-02-100 (Bnl\_BYP\_38.4 Baker Creek Bridge)\02-Drawings\967-02-104.dwg 3/14/2017 12:43:23 PM by Ben Xun

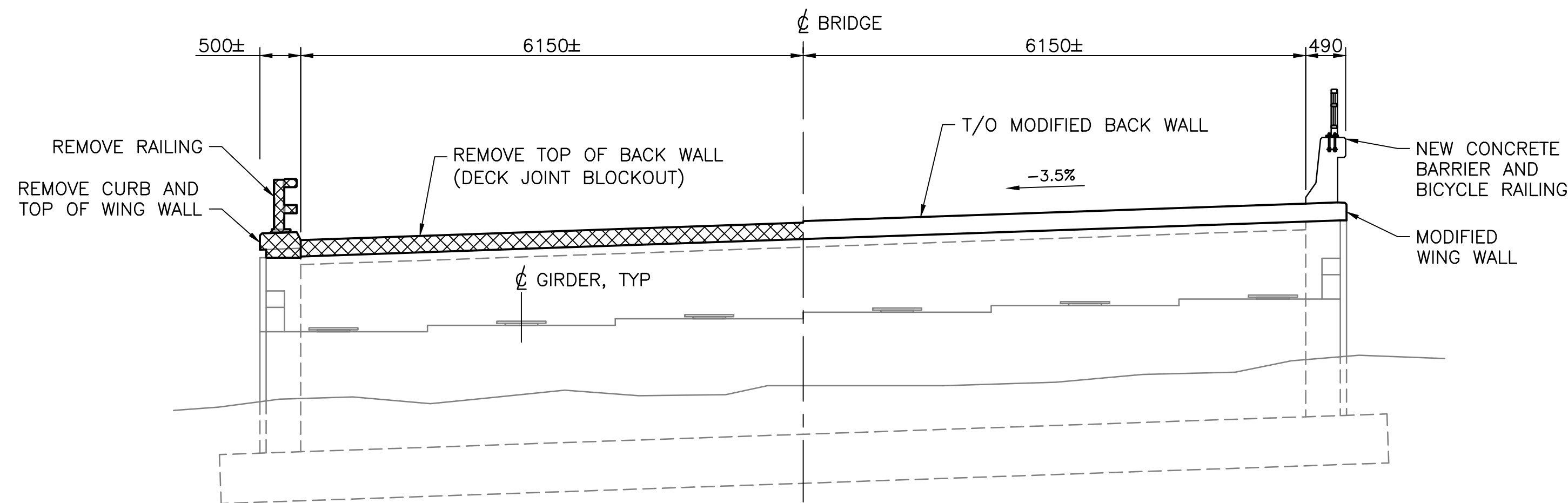


EXISTING CONDITION

FINAL CONDITION

### ABUTMENT PLAN

1:50  
(WEST ABUTMENT SHOWN - EAST ABUTMENT SIMILAR)

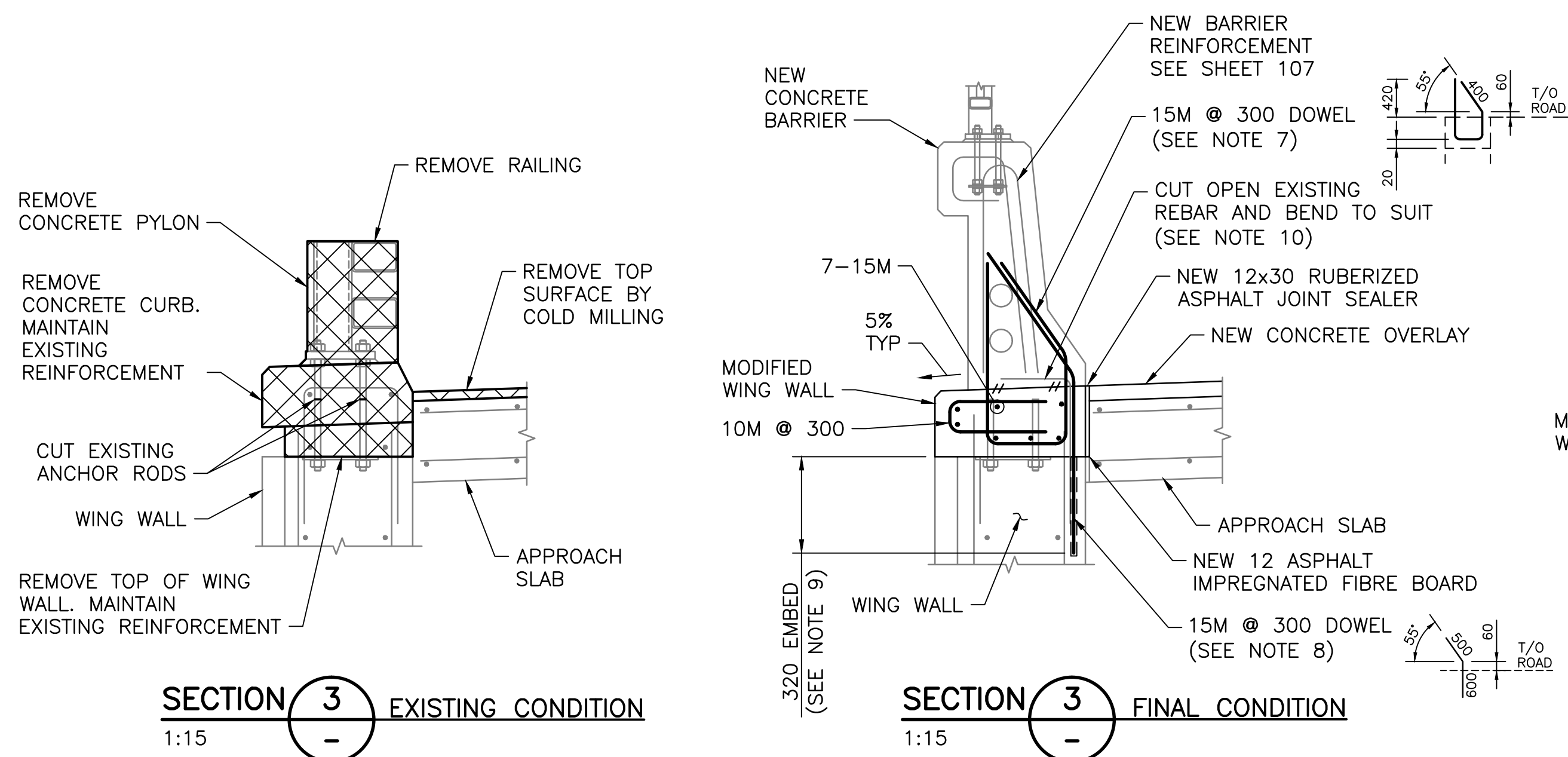


EXISTING CONDITION

FINAL CONDITION

### ABUTMENT ELEVATION

1:50  
(WEST ABUTMENT-LOOKING WEST, EAST ABUTMENT MIRROR IMAGE)

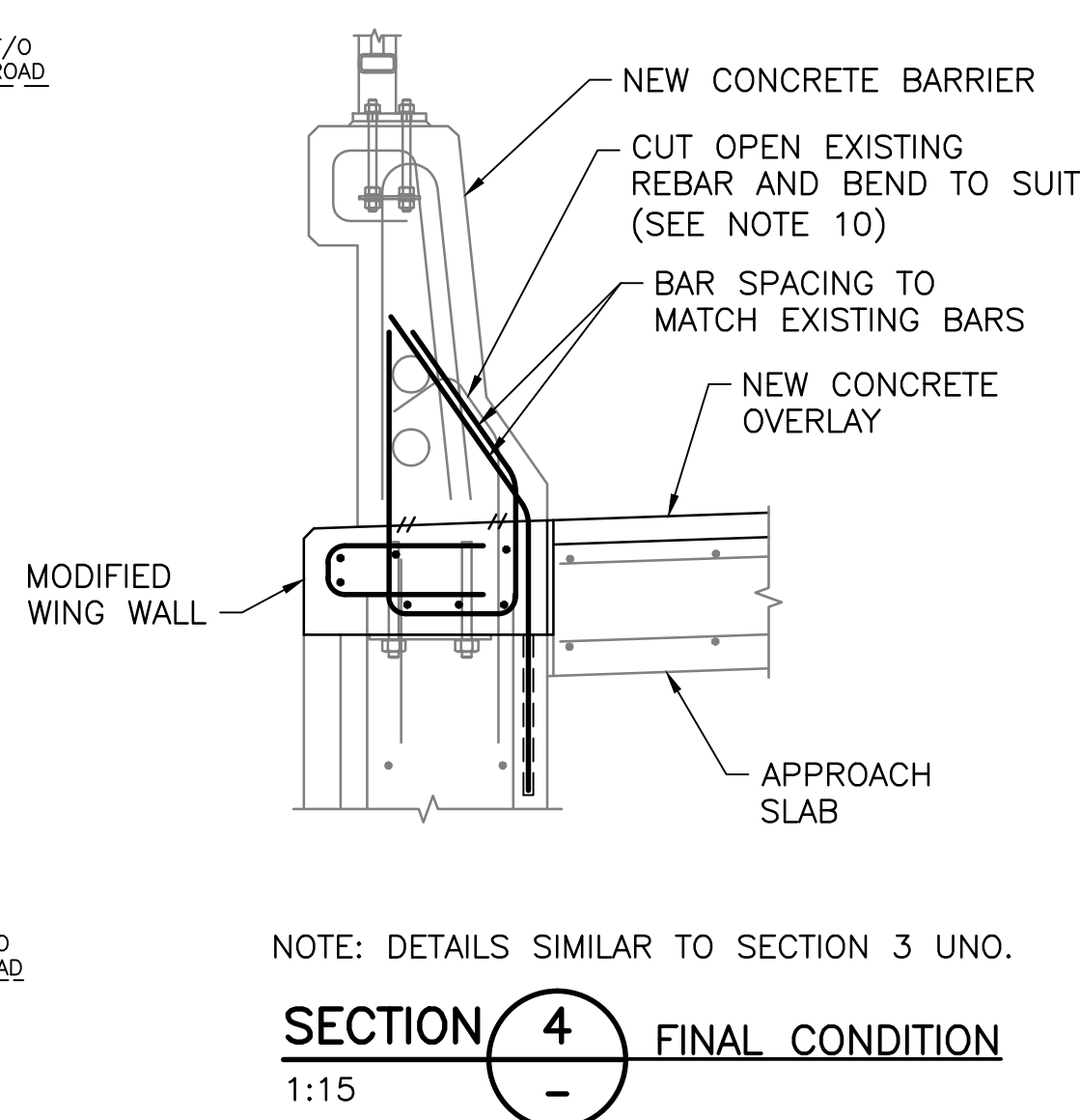


### SECTION 3 EXISTING CONDITION

1:15

### SECTION 3 FINAL CONDITION

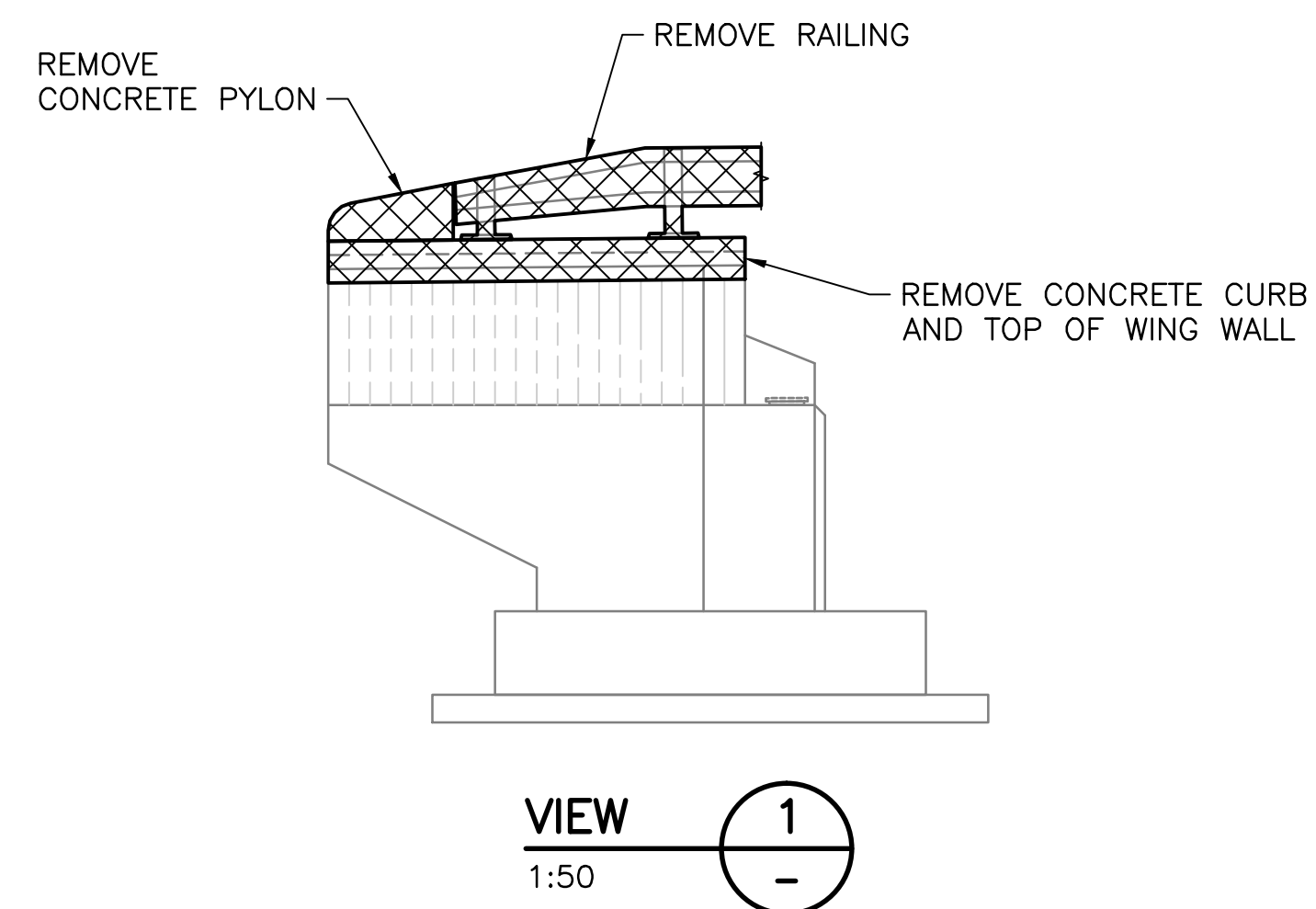
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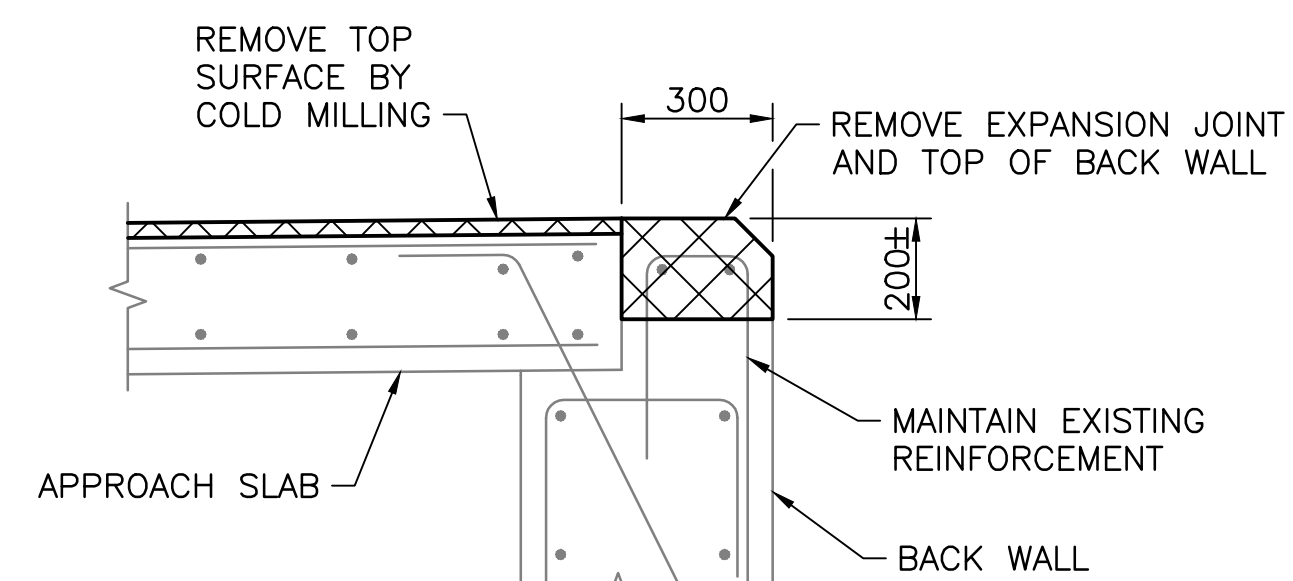
NOTE: DETAILS SIMILAR TO SECTION 3 UNO.

### SECTION 4 FINAL CONDITION

1:15

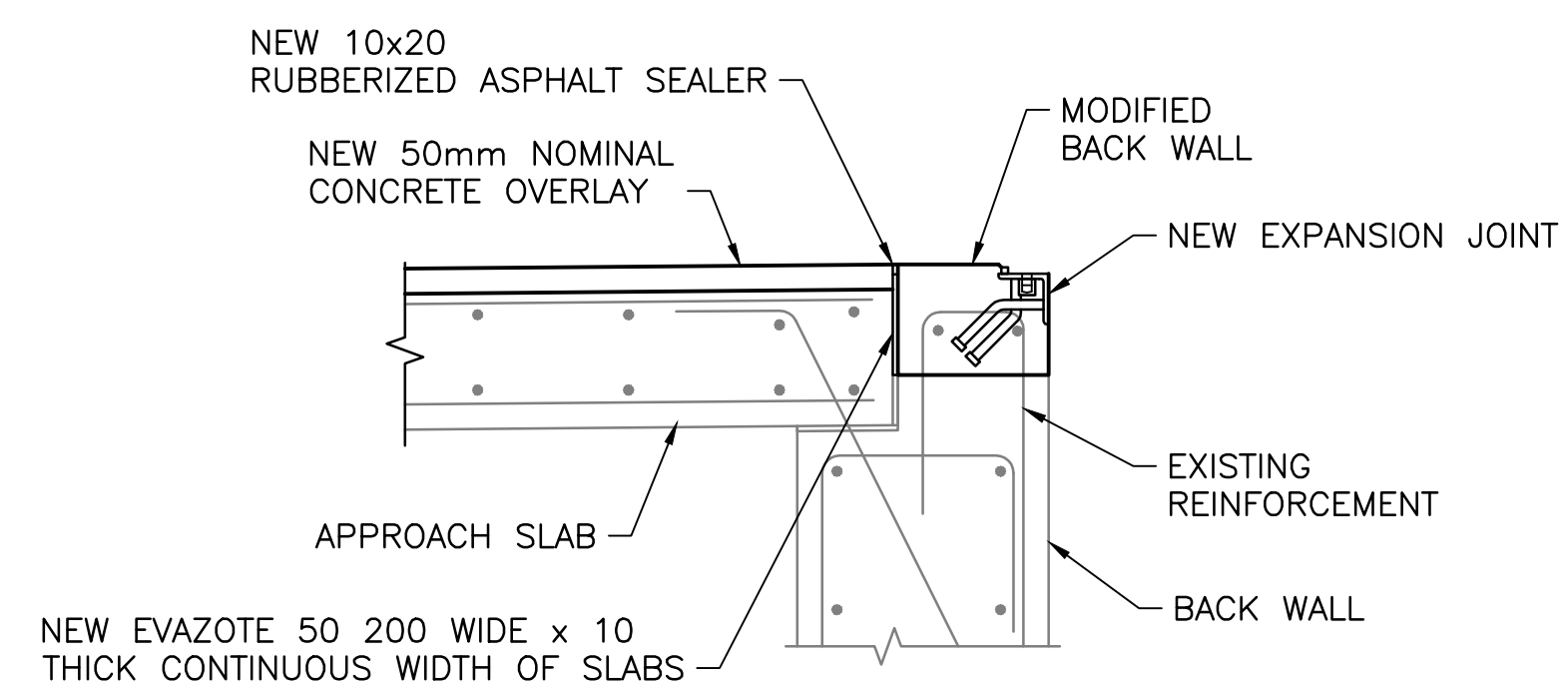


### VIEW 1 1:50



### SECTION 2 EXISTING CONDITION

1:15



### SECTION 2 FINAL CONDITION

1:15

### LEGEND:

XXXX - REMOVALS

### NOTES:

1. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE: 45 MPa AT 28 DAYS.
2. CHAMFER EXPOSED EDGES 20.
3. REINFORCING STEEL: CAN/CSA G30.18M GRADE 400W.
4. MINIMUM COVER: 50 UNO.
5. MINIMUM LAP: 500 UNO.
6. SAWCUT 25 DEPTH ALONG EDGE OF CONCRETE REMOVALS.
7. SPACING TO MATCH EXISTING REBAR.
8. ANCHOR DOWELS CENTERED BETWEEN EXISTING REBARS.
9. BARS TO BE ANCHORED WITH HILTI HIT HY200 OR APPROVED EQUIVALENT.
10. FIELD BENDING SHALL BE DONE CAREFULLY, COLD AND SHALL SATISFY THE MINIMUM BEND DIAMETERS OF CAN/CSA S6-14.
11. CONSTRUCTION JOINTS TO BE CLEAN, FREE OF LAITANCE AND ROUGHENED.

ISSUED FOR CONSTRUCTION



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Revision	Description/Description	Date/Date
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COWI

Project title/Titre du projet  
BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA

KM 38.4 BOW VALLEY PARKWAY  
BAKER CREEK BRIDGE

Approved by/Approuvé par  
DPG

Designed by/Concept par  
TWS

Drawn by/Dessiné par  
JAET

PWGS Project Manager/Administrateur de Projets TPSCG

PWGS, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

Drawing title/Titre du dessin

ABUTMENT  
MODIFICATIONS

Project No./No. du projet 986-02	Sheet/Feuille 104 OF	Revision no./ La Révision no. 0
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0	ISSUED FOR CONSTRUCTION	2017/03/13
<b>Revision/</b>	<b>Description/Description</b>	<b>Date/Date</b>

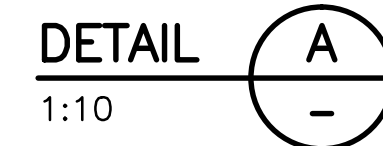
# COWI

Approved by/Approuvé par DPG
Designed by/Concept par TWB
Drawn by/Dessiné par JBAJET
WGSC Project Manager/Administrateur de Projets TFGSC
WGSC, Architectural and Engineering Resources Manager/ Ressources Architectural et de Directeur d'ingénierie, TFGSC
Client/client PCA
Drawing title/Titre du dessin

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967-02	105 OF	0



DETAIL   
1:10



AIL  $\odot$



1:10



1:10

 - REMOVALS

1. CONCRETE: 45 MPa AT 28 DAYS MINIMUM.
2. CHAMFER EXPOSED EDGES 20.
3. REINFORCING STEEL: CAN/CSA G30.18M GRADE 400W.
4. MINIMUM COVER:
  - 70 TO TOP OF SLAB
  - 25 TO SOFFIT OF SLAB
  - 50 ALL OTHER
6. MINIMUM LAP 500 FOR 15M REBARS UNO. LAP SPLICES NOT SHOWN.
7. CONSTRUCTION JOINTS TO BE CLEAN, FREE OF LAITANCE AND ROUGHENED.





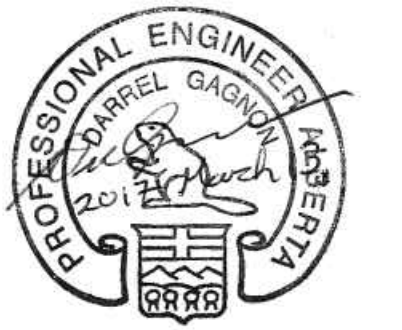
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BANFF NATIONAL PARK, ALBERTA**

**KM 38.4 BOW VALLEY PARKWAY  
BAKER CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Conçu par  
TWB

Drawn by/Dessiné par  
JESH

PWOSC Project Manager/Administrateur de Projets TPSCG

PWOSC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

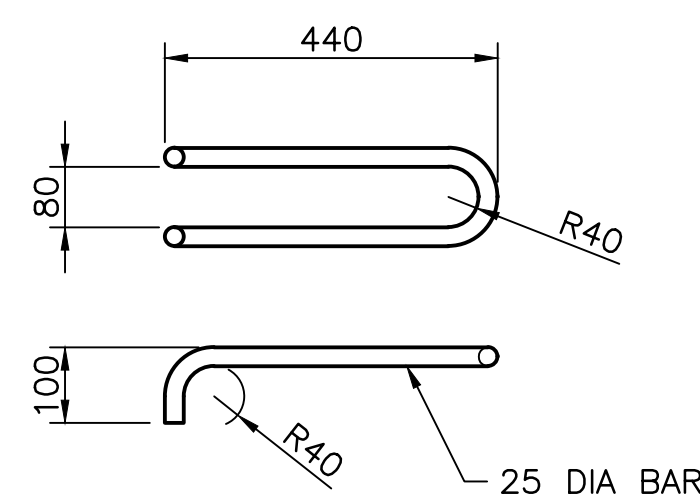
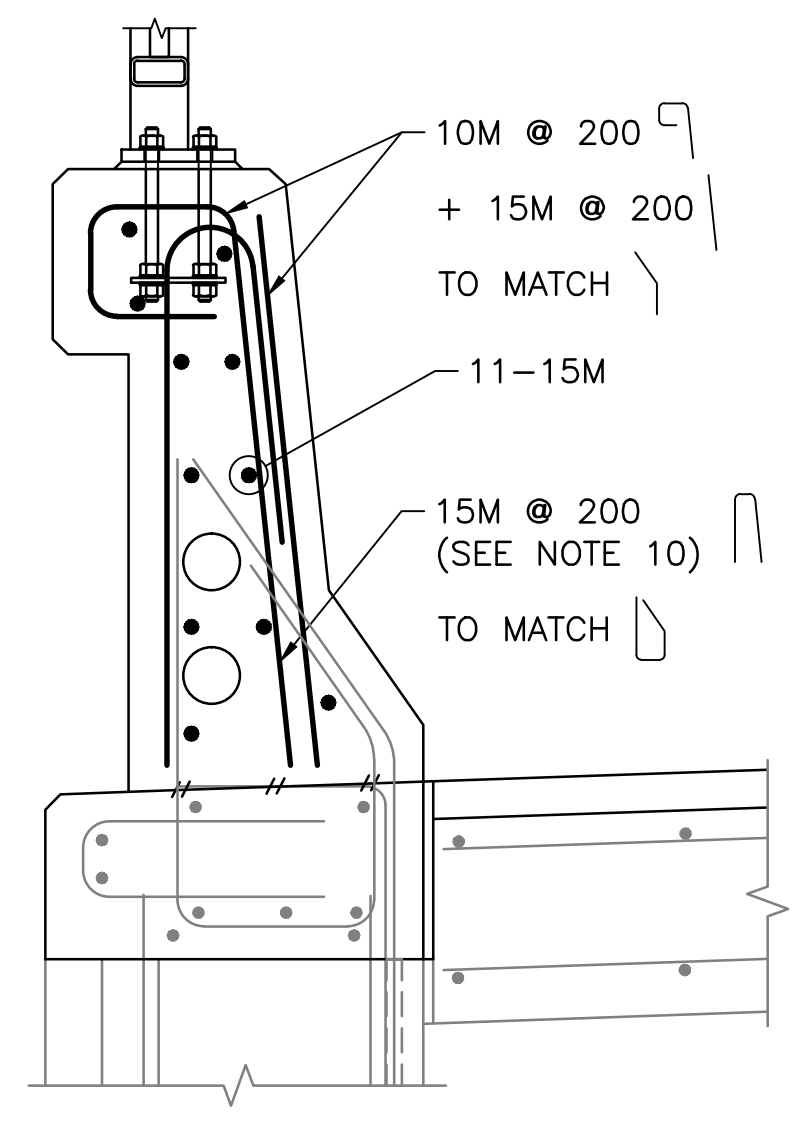
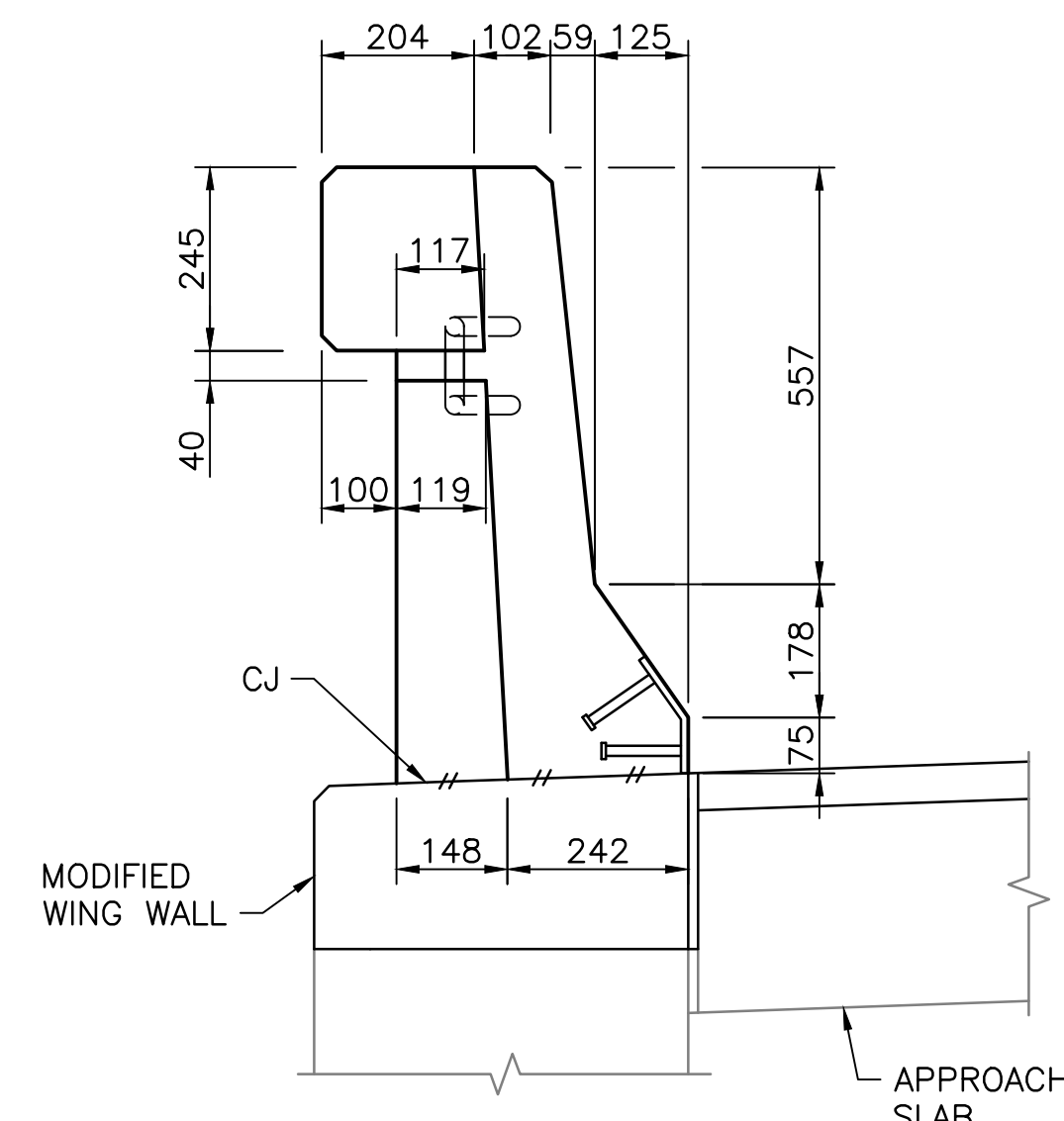
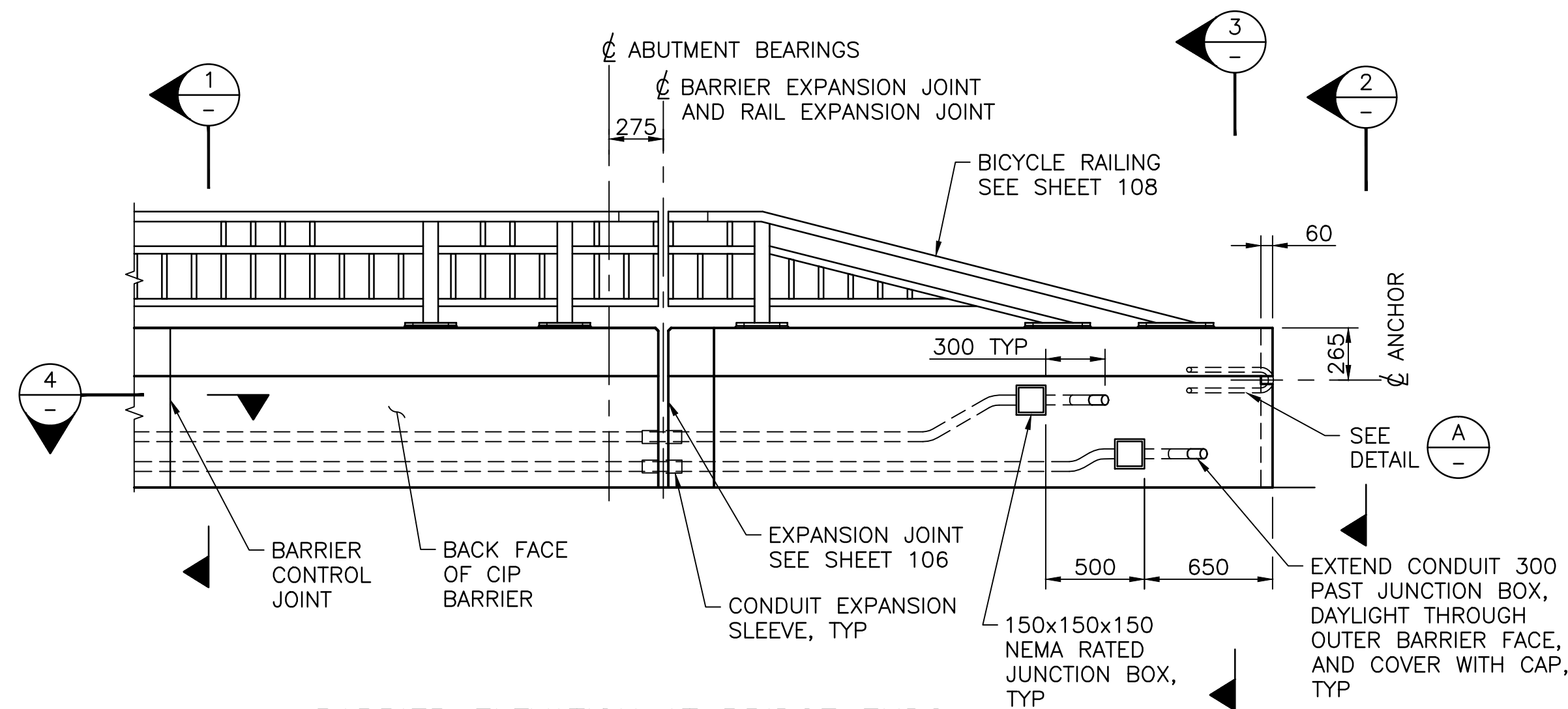
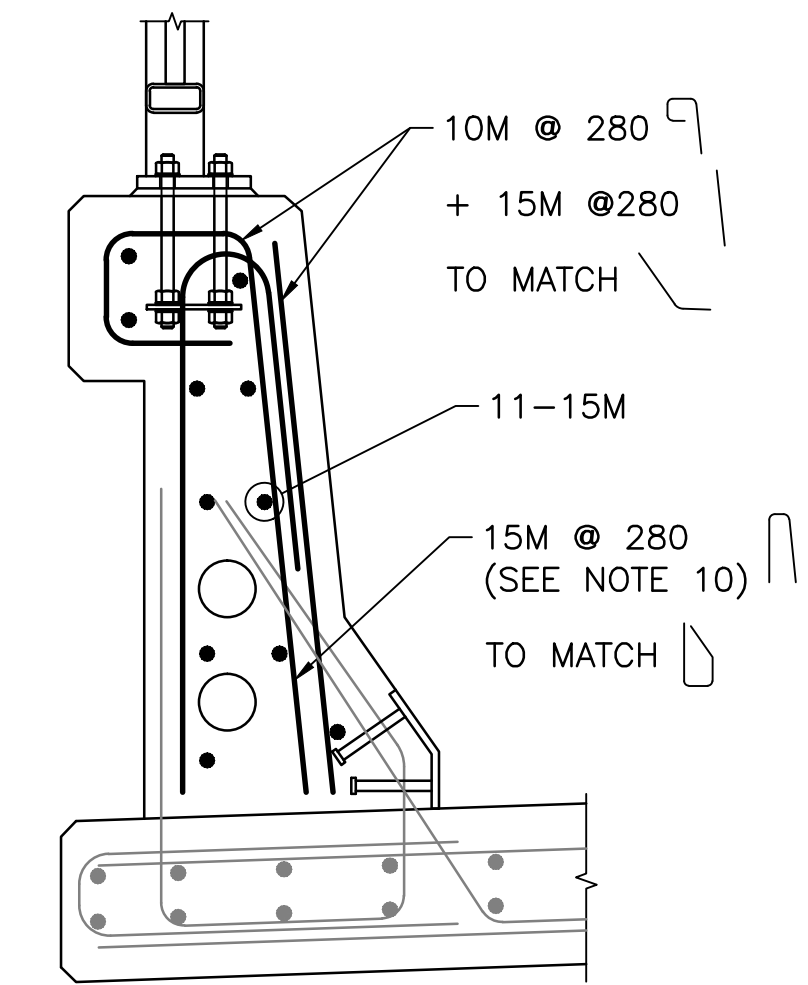
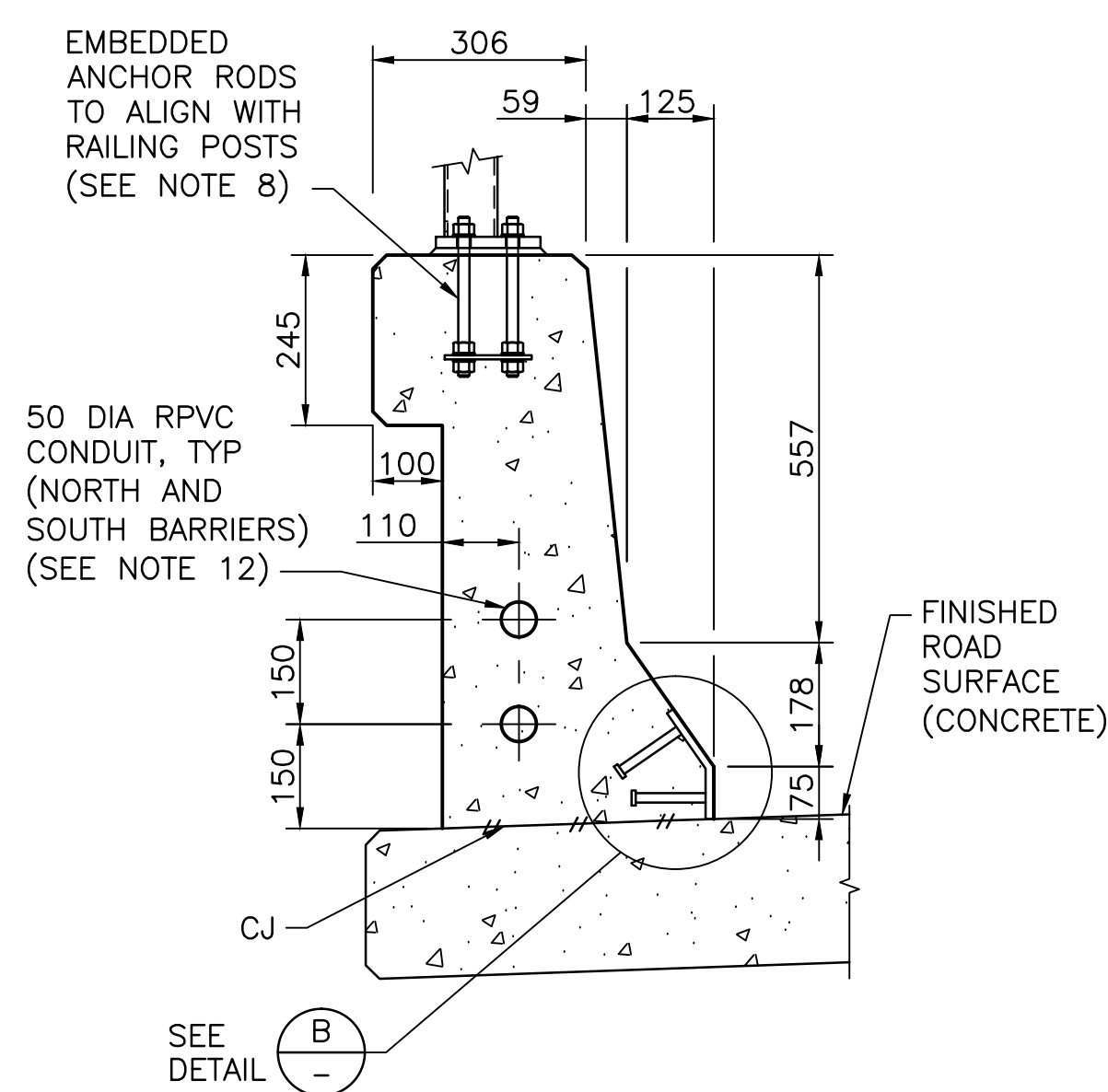
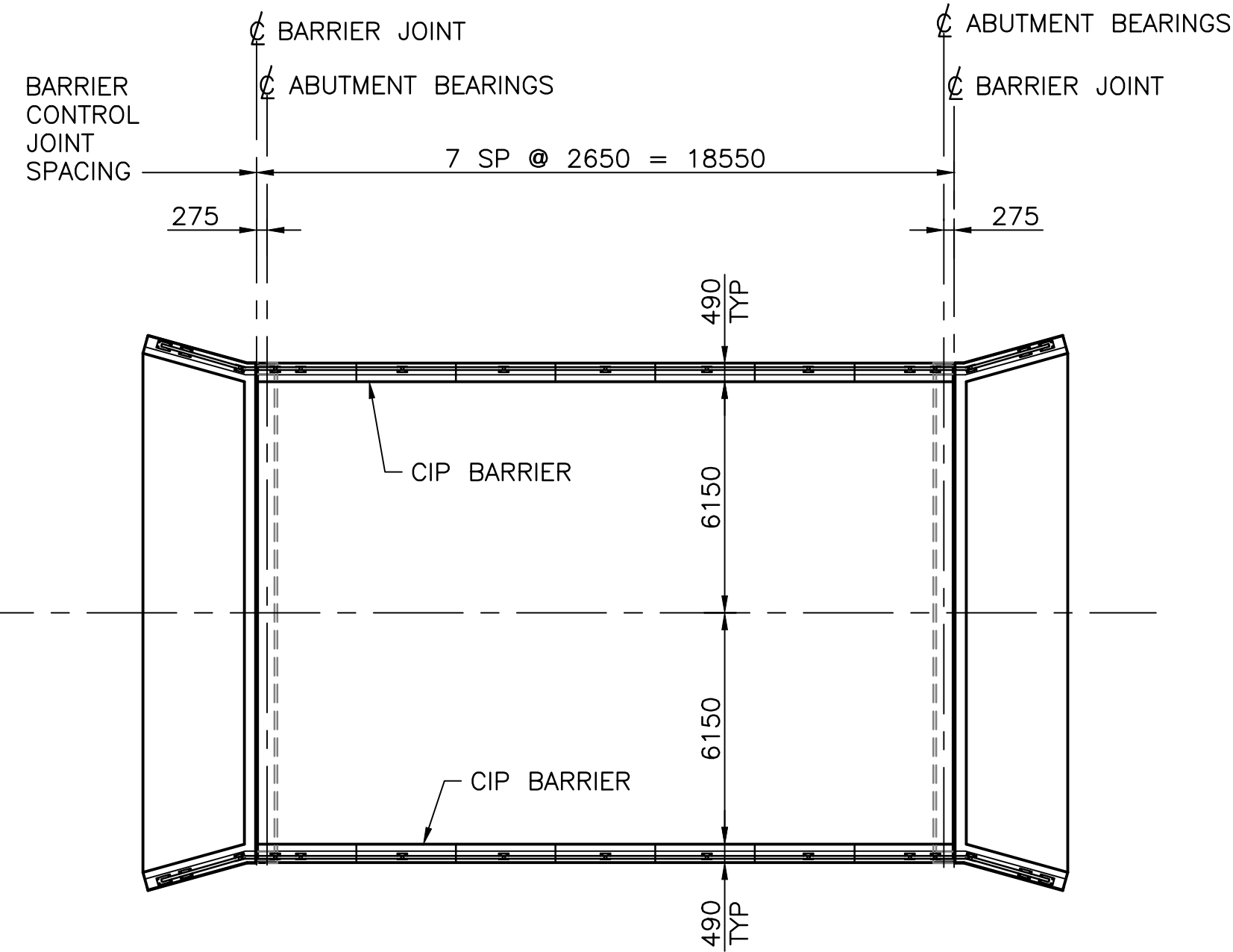
Drawing title/Titre du dessin

**CAST-IN-PLACE BARRIER  
LAYOUT AND REINFORCEMENT**

Project No./No. du  
projet  
**967-02**

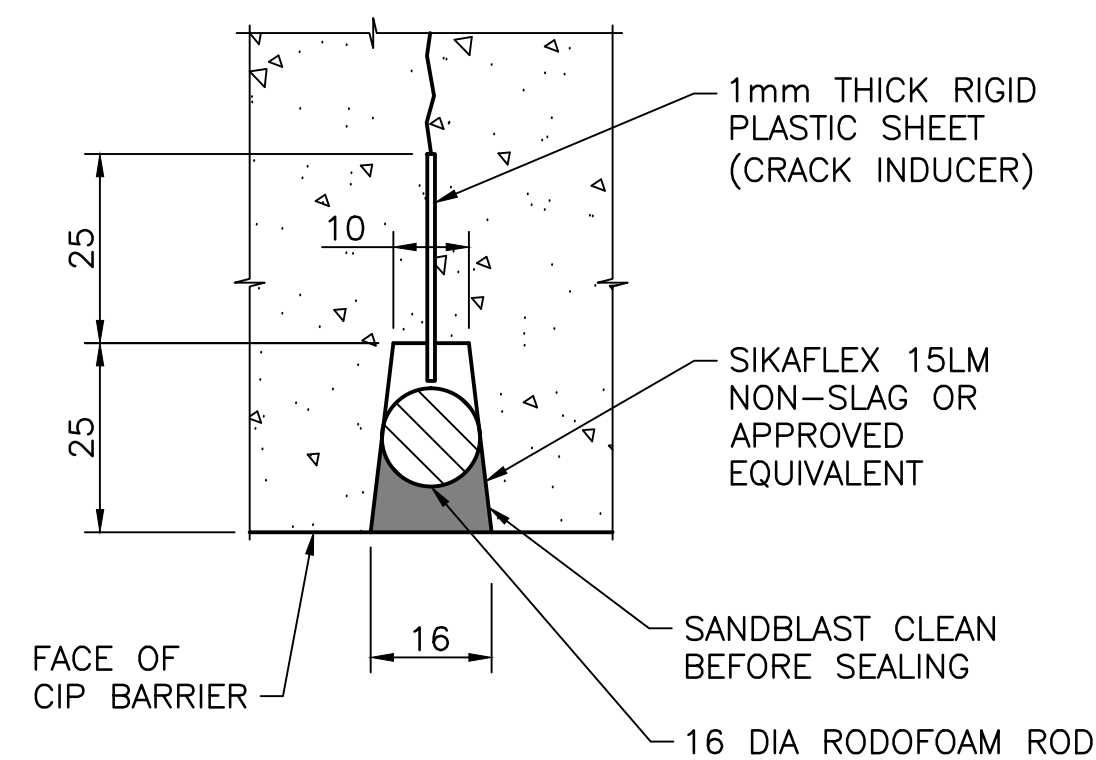
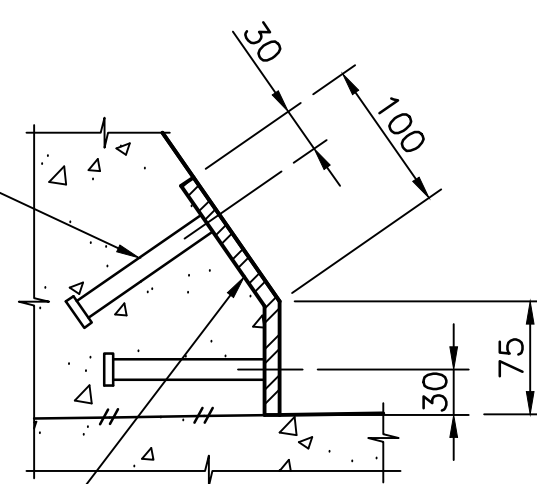
Sheet/Feuille  
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OF

Revision no./  
La Révision  
no.  
**0**



12 DIA STUD, 100 LONG @ 400, TYP STAGGERED MAX 100 FROM FREE EDGE

GALVANIZED BENT #10 CHAMFER ENDS @ SPLICES AND ALIGN IN DIRECTION OF TRAVEL



TYPICAL BARRIER CONTROL JOINT

#### NOTES:

- MINIMUM COMPRESSIVE STRENGTH OF CONCRETE: 45 MPa AT 28 DAYS.
- CHAMFER EXPOSED EDGES 20.
- REINFORCING STEEL: CAN/CSA G.30.18M GRADE 400W.
- MINIMUM COVER: 50 UNO.
- MINIMUM LAP:  
10M: 410  
15M: 600
- STEEL: CAN/CSA G40.21M GRADE 300W, GALVANIZE AFTER FABRICATION.
- STUDS: CSA W59 APPENDIX H, TYPE B, GALVANIZE AFTER FABRICATION.
- ANCHOR ROD DETAILS PROVIDED ON SHEET 108.
- HOT DIP GALVANIZE TO ASTM A123/A123M.
- PROVIDE REDUCED BEND DIAMETER OF 81 (MEASURED ON THE INSIDE OF THE BAR) AND PLACE BAR ON SKEW TO SATISFY COVER REQUIREMENTS.
- REPLACE BARRIER REINFORCEMENT CUT FOR JUNCTION BOX WITH ADDITIONAL EQUIVALENT BARS ADJACENT TO THE BOX.
- CONDUIT ELBOWS NOT TO EXCEED 22.5 DEGREES. ENDS OF CONDUITS SHALL TERMINATE IN RADIAL SWEEPS OR 22.5 DEGREE ELBOWS.
- SPACING TO MATCH STARTER REBARS.
- PLACE HAIRPINS 10M@100 HORIZONTALLY AT BARRIER ENDS.





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COWI

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**

**KM 38.4 BOW VALLEY PARKWAY  
BAKER CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Concept par  
TWB

Drawn by/Dessiné par  
JESH

PWGC Project Manager/Administrateur de Projets TPSCG

PWGC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

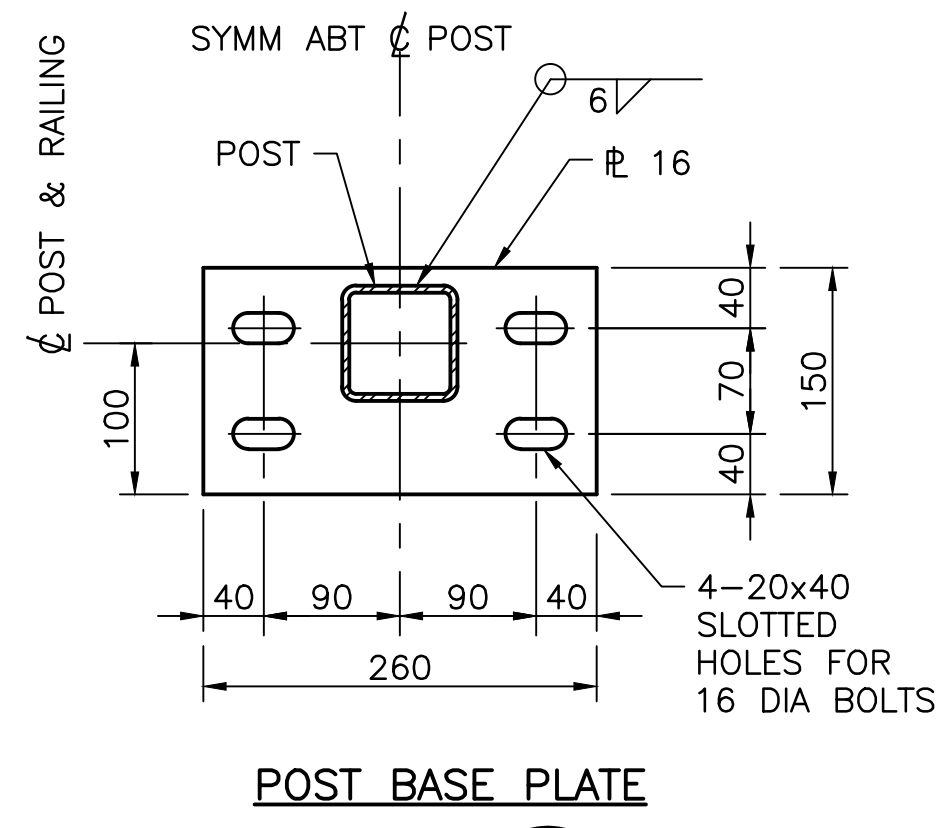
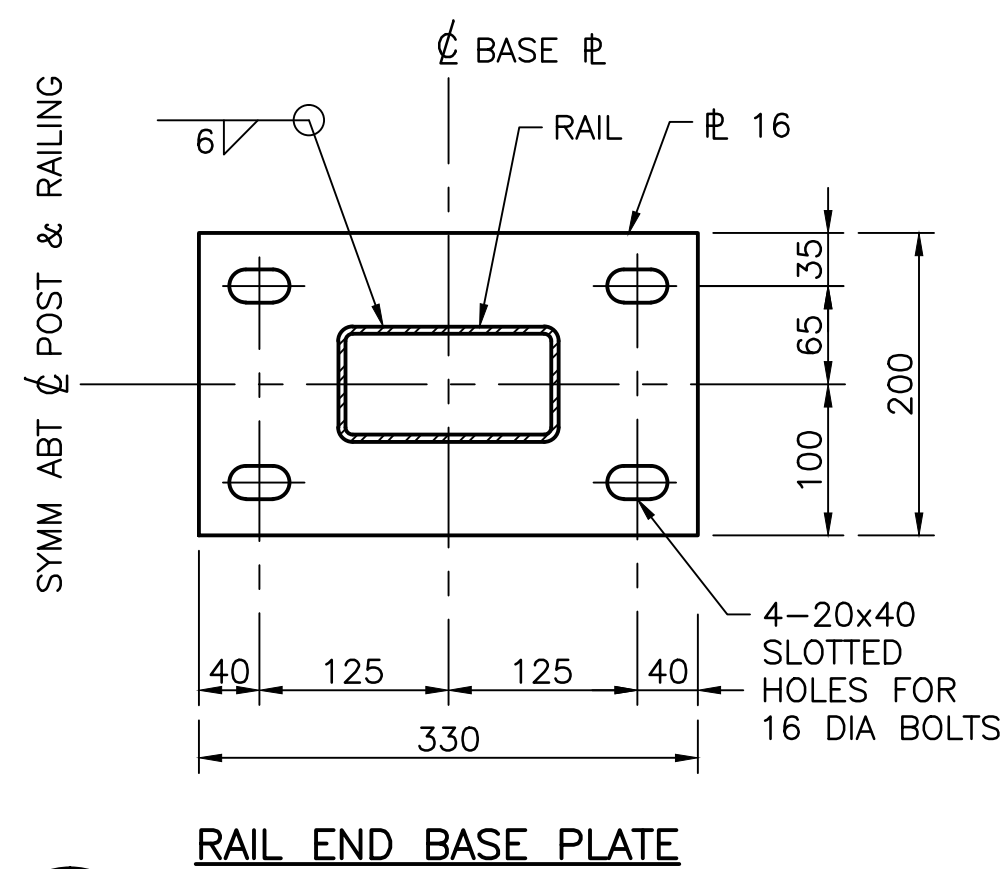
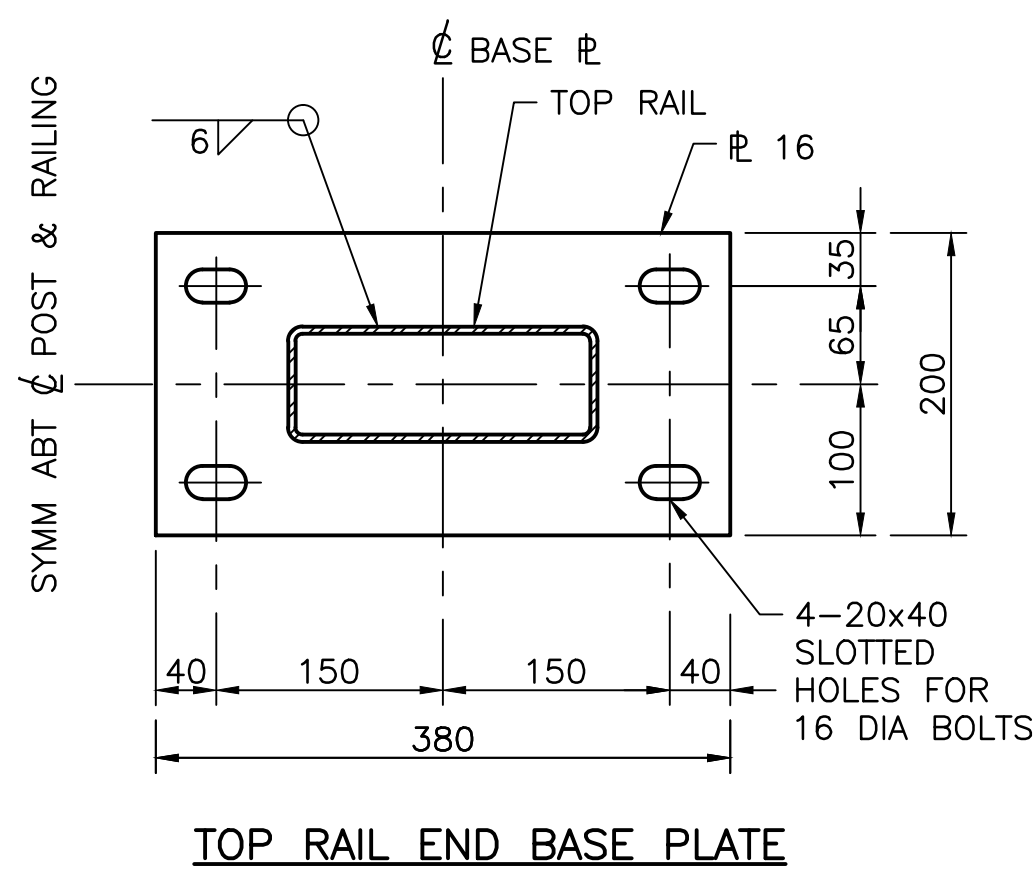
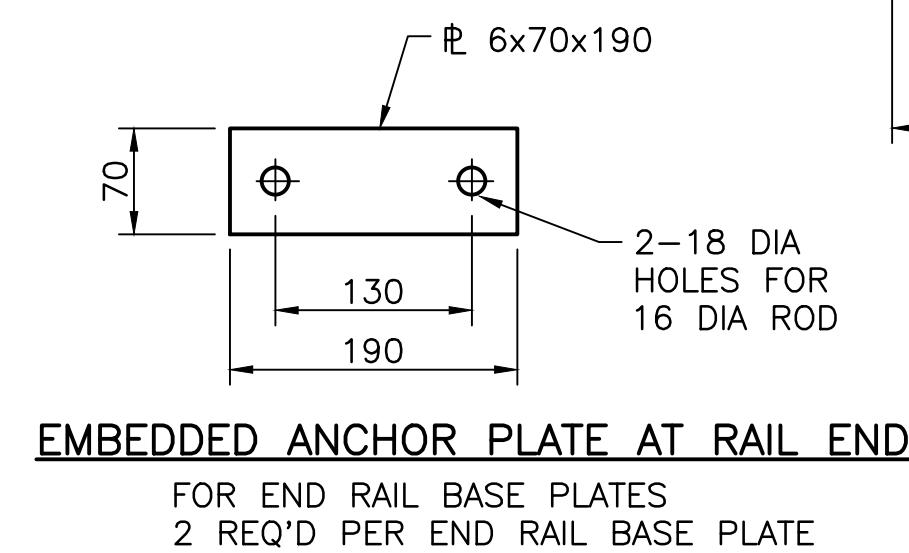
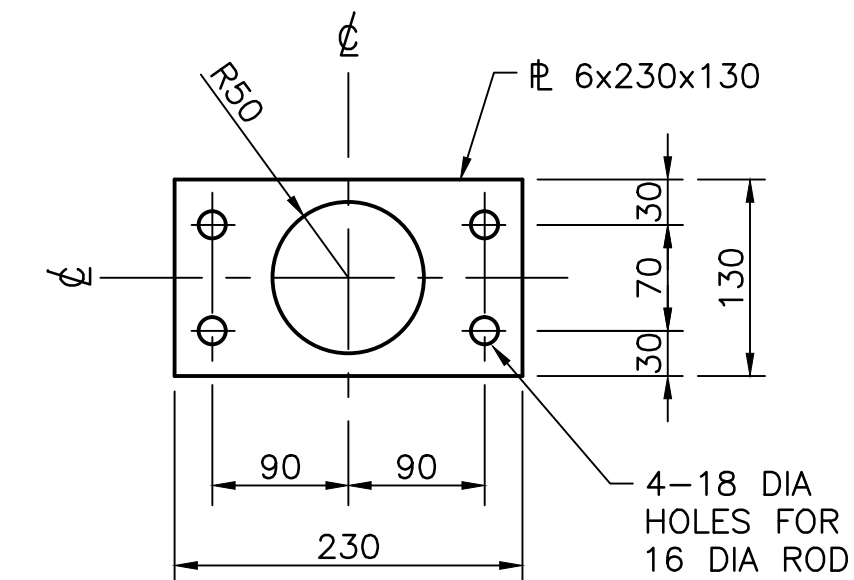
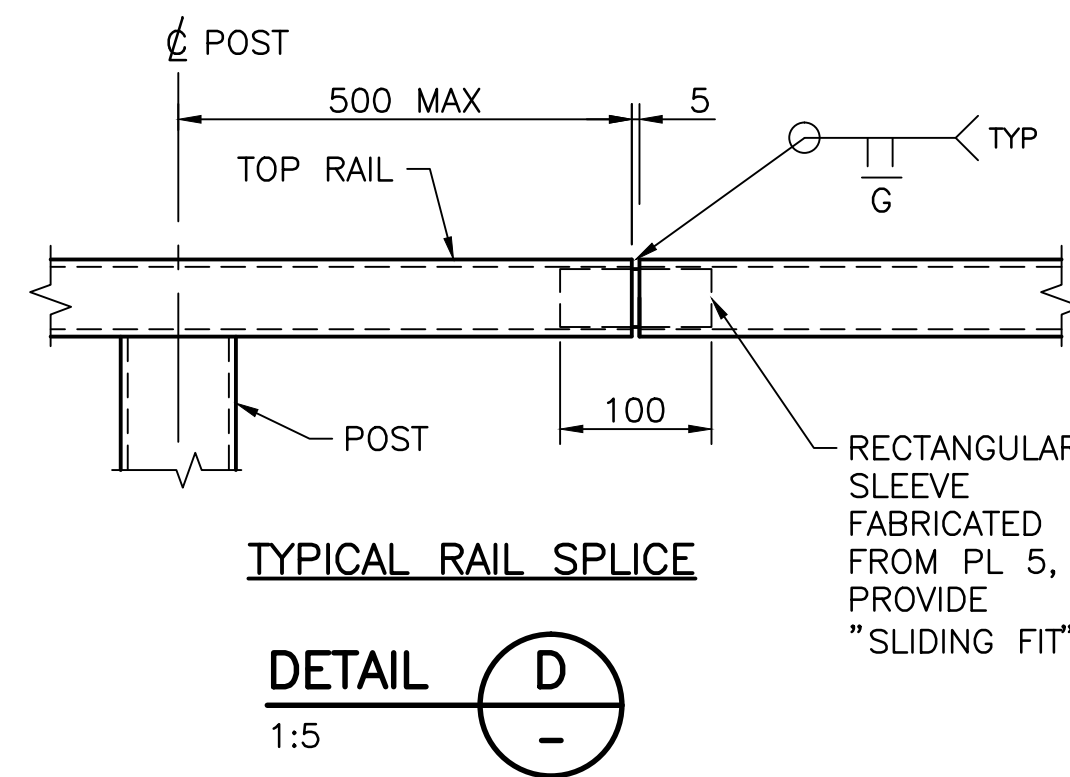
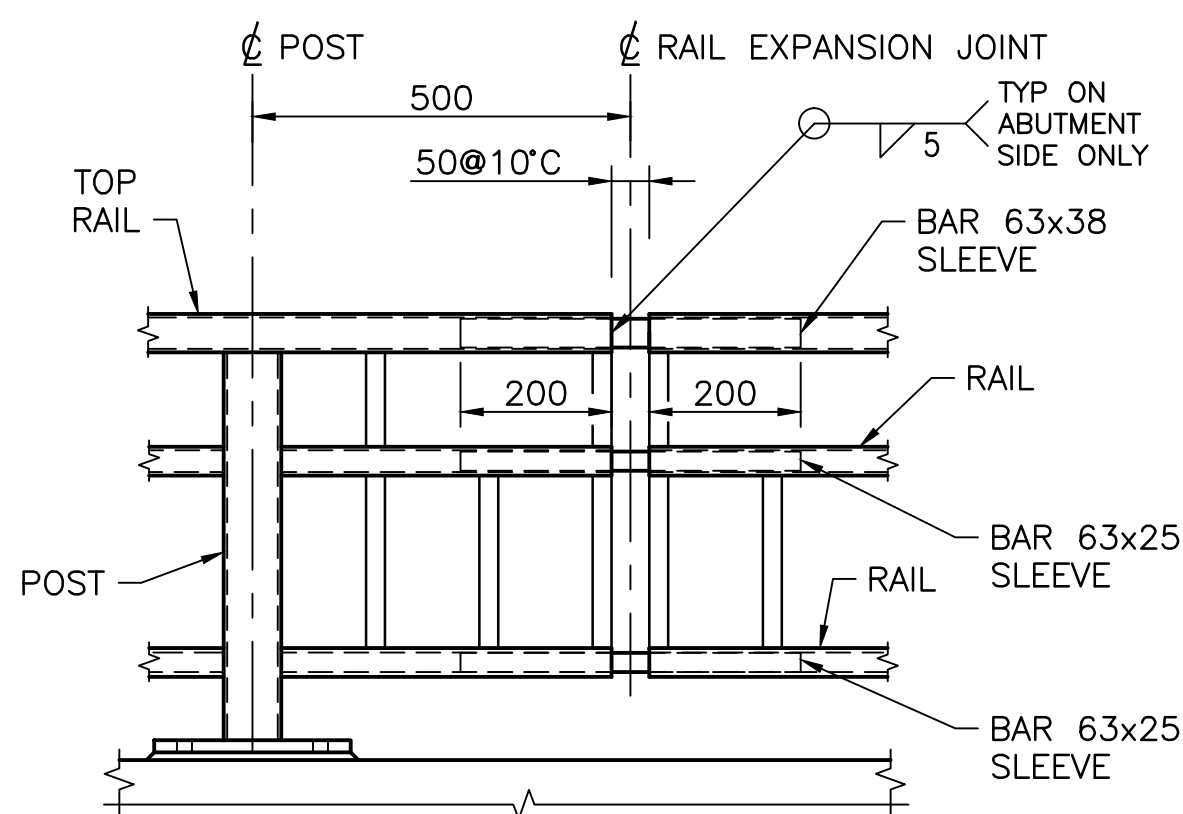
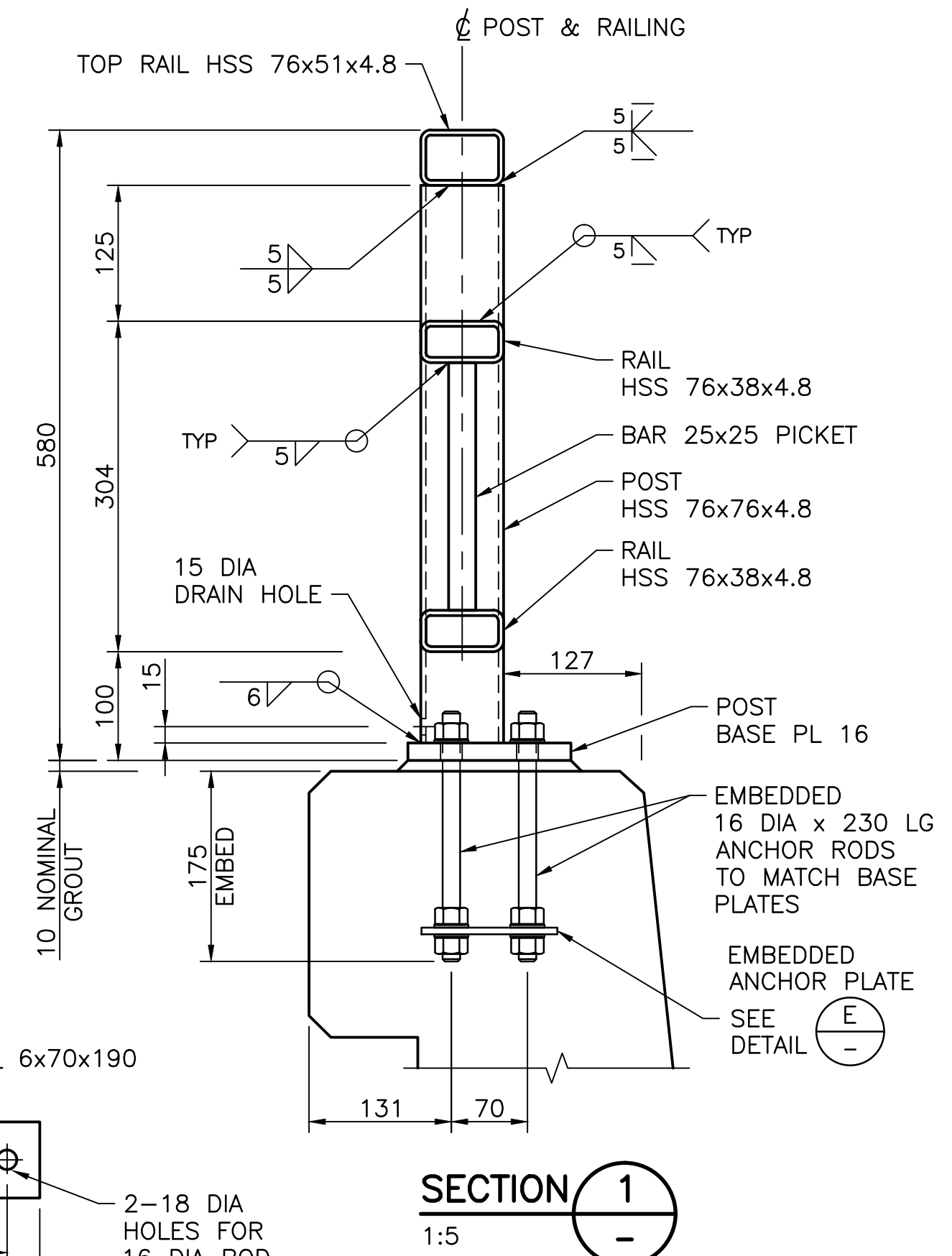
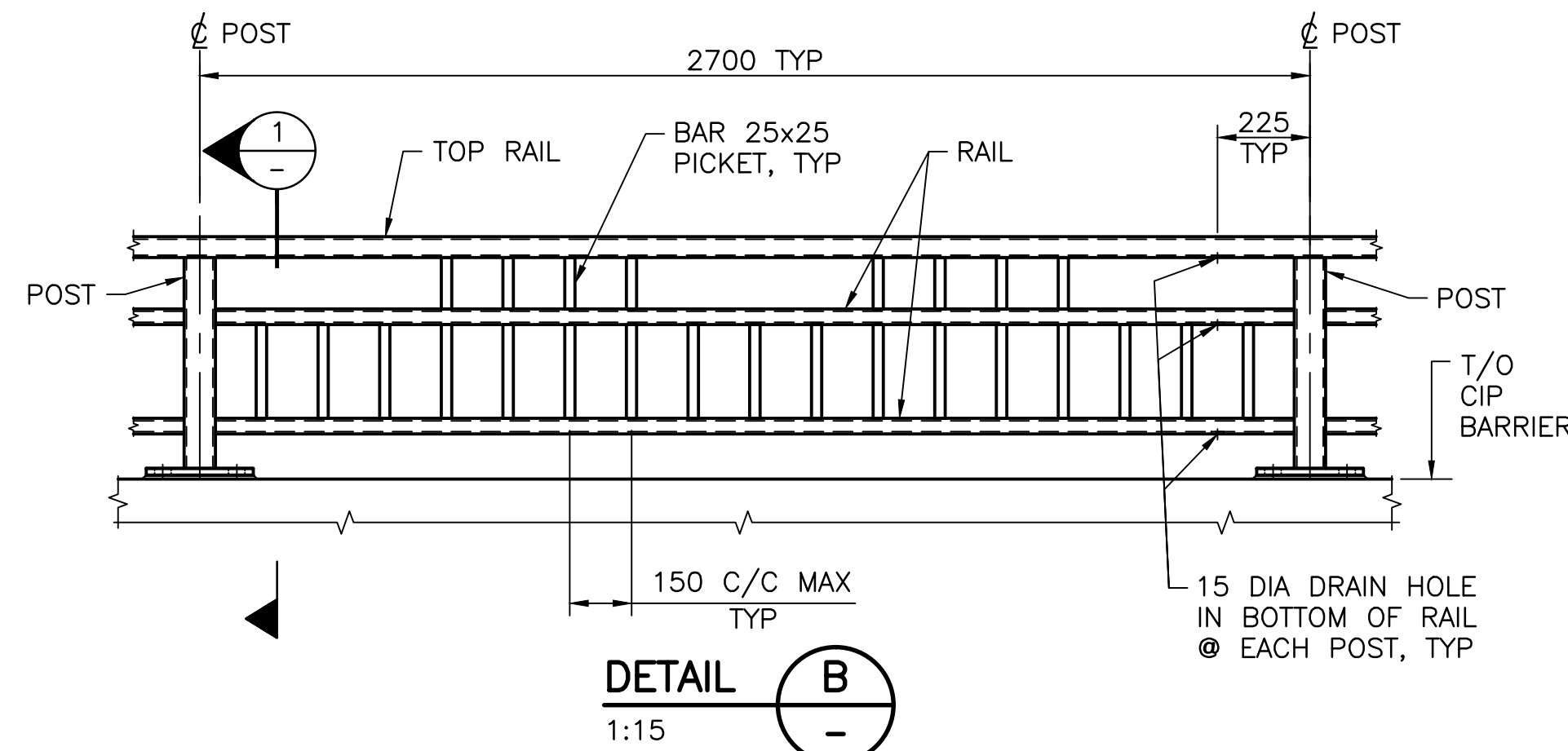
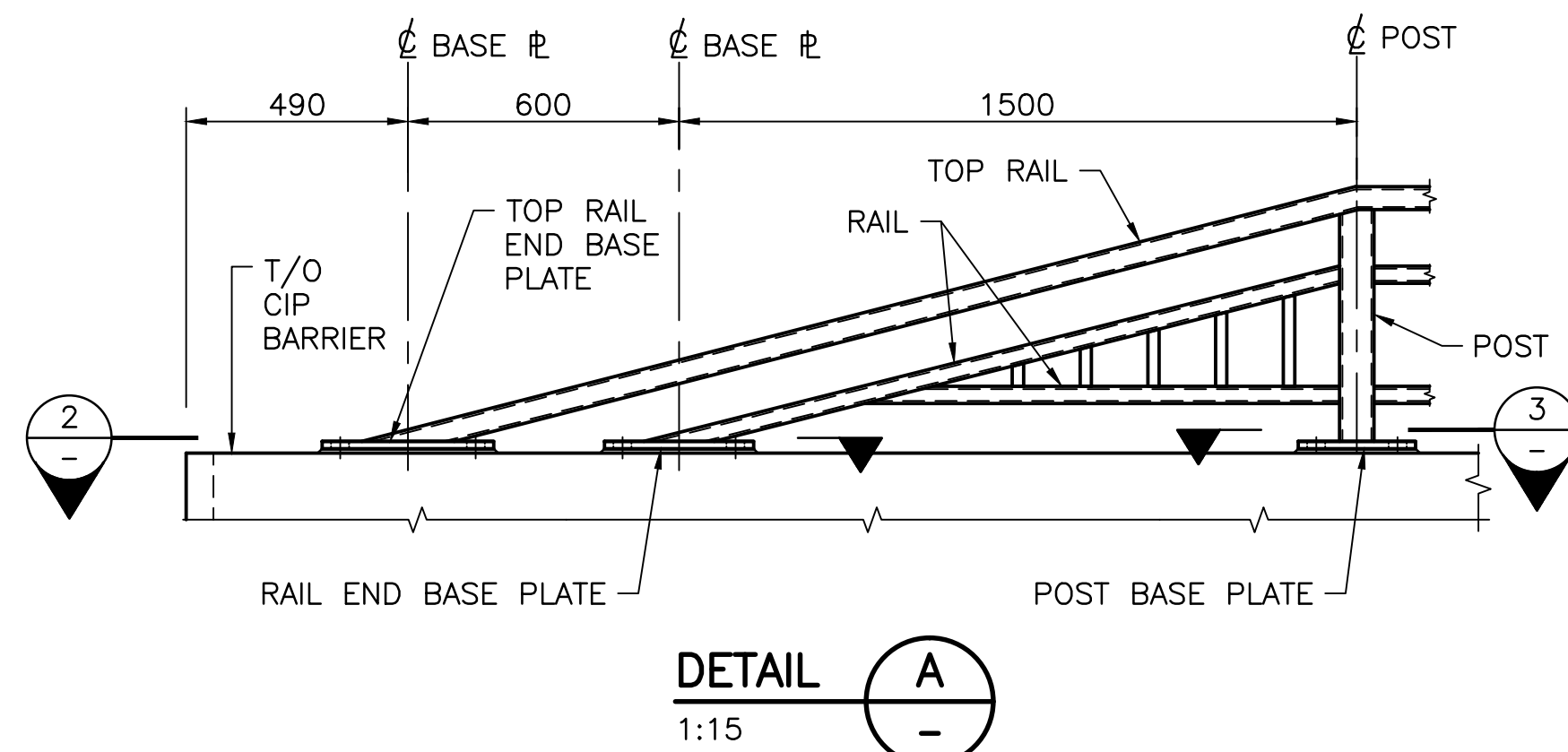
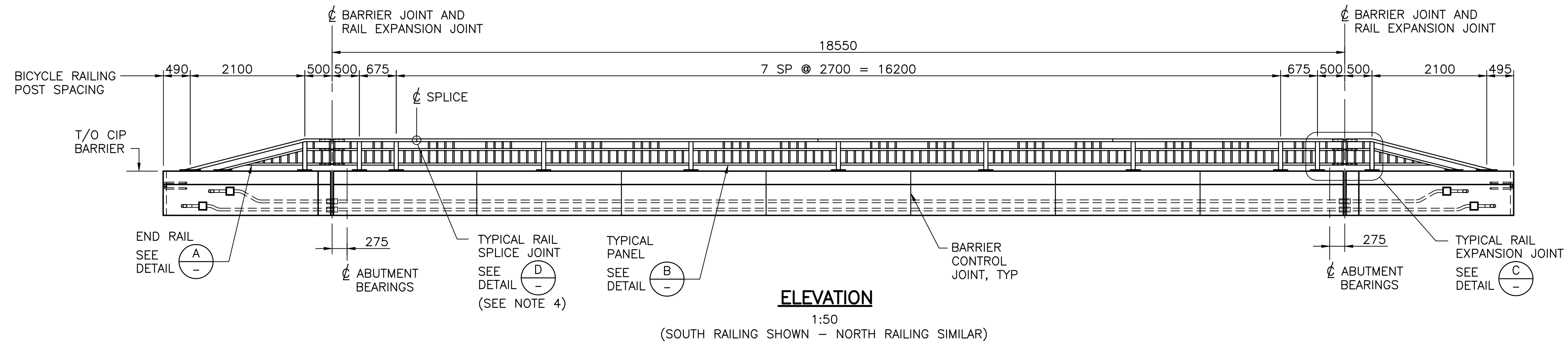
Drawing title/Titre du dessin

**BICYCLE RAILING**

Project No./No. du  
projet  
**967-02**

Sheet/Feuille  
**108**  
OF

Revision no./  
La Révision  
no.  
**0**



#### NOTES:

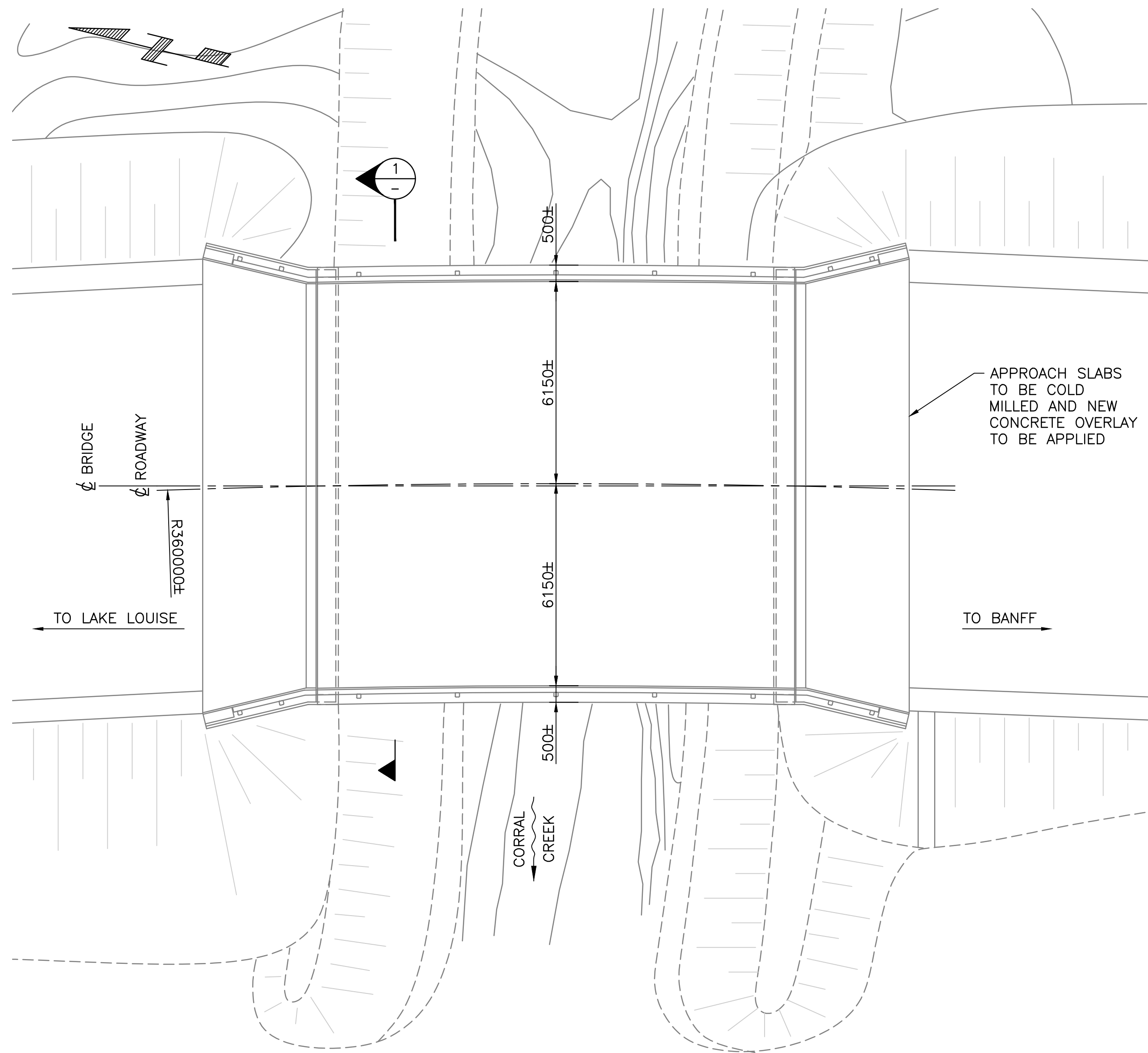
- STEEL:  
HSS: CSA G40.20 CLASS C OR ASTM A500 GRADE B  
ANCHOR RODS, NUTS, WASHERS: TYPE 316 STAINLESS STEEL  
OTHER: G40.21M GRADE 300W
- HOT DIP GALVANIZE TO ASTM A123/A123M.
- ANCHOR POSTS TO THE BARRIER WITH 16 DIA CAST-IN ANCHOR RODS. PROVIDE 175 ROD EMBEDMENT DEPTH AND 55 PROJECTION.
- NOT ALL RAIL SPLICE JOINTS SHOWN. RAIL SEGMENTS MUST SPAN 3 POSTS MINIMUM AND 4 POSTS WHERE POSSIBLE. RAIL SPLICES TO BE LOCATED 500 MAX FROM  $\phi$  POST.
- WELDING TO CSA W59.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.
- ACCURATELY PLACE ANCHORAGES TO PROVIDE CORRECT ALIGNMENT OF RAILING, SET NORMAL TO GRADE.
- CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.
- ALL EXPOSED MATERIAL (EXCEPT FOR STAINLESS STEEL) SHALL BE GALVANIZED AND PAINTED (DUPLEX COATED).
- VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.
- TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE AT NO EXTRA COST.



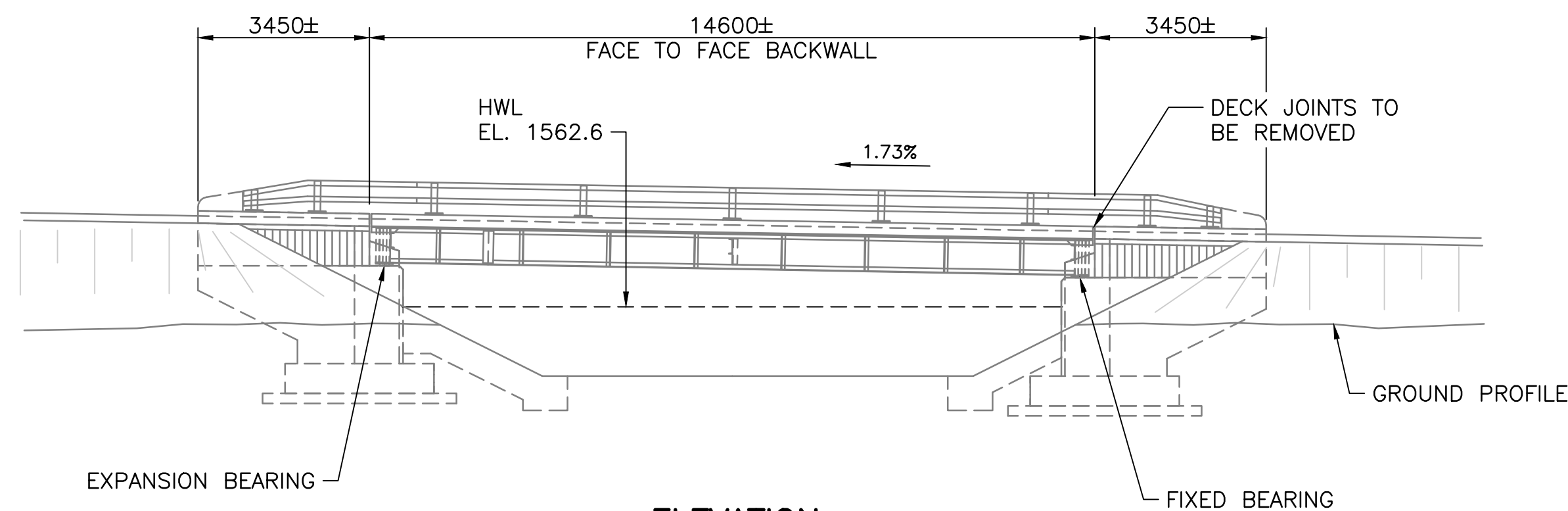




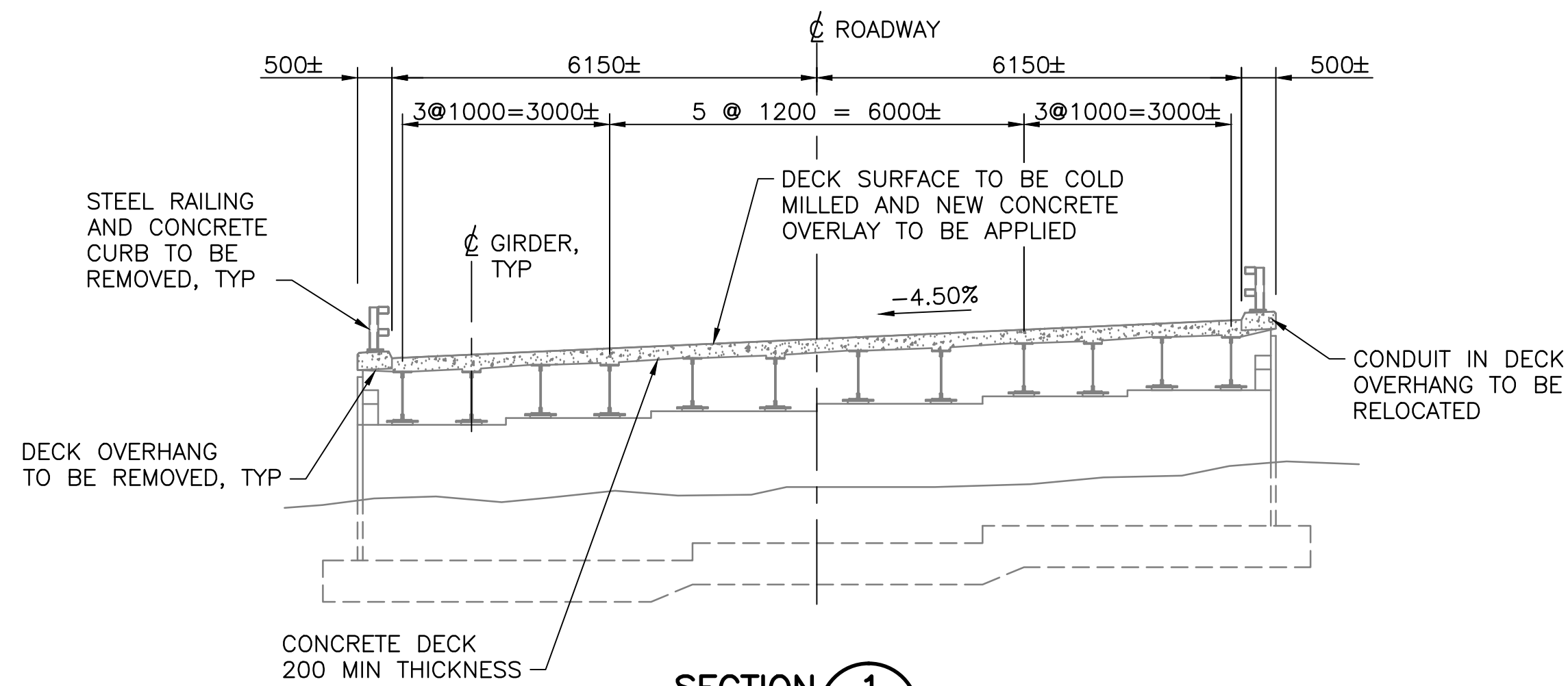
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**PLAN**  
1:100



**ELEVATION**  
1:100



**SECTION 1**  
1:75

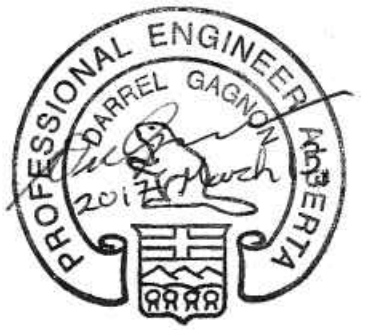
**NOTES:**

1. DIMENSIONS PROVIDED FOR REFERENCE ONLY. CONTRACTOR TO VERIFY ACCURACY OF SUCH INFORMATION BY FIELD MEASUREMENT.
2. DIMENSIONS IN MILLIMETERS UNLESS NOTED OTHERWISE.

**SCOPE OF WORK:**

1. REMOVAL AND DISPOSAL OF EXISTING CURB AND STEEL RAILING, DECK OVERHANGS, DECK JOINTS.
2. LOCALIZED CONCRETE REMOVAL AT DECK JOINTS AND WING WALLS.
3. COLD MILLING OF CONCRETE DECK AND APPROACH SLABS.
4. PARTIAL DEPTH CONCRETE DECK REPAIRS WHEN AUTHORIZED BY DEPARTMENTAL REPRESENTATIVE.
5. SUPPLY AND CONSTRUCTION OF NEW CONCRETE DECK OVERHANGS, CONCRETE OVERLAY AND WING WALL CROWNS.
6. SUPPLY AND CONSTRUCTION OF NEW CAST-IN-PLACE BARRIERS
7. SUPPLY AND INSTALLATION OF DECK JOINTS.
8. SUPPLY, FABRICATION AND INSTALLATION OF NEW STEEL BICYCLE RAILING.
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**COWI**

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**  
  
**KM 48.0 BOW VALLEY PARKWAY  
CORRAL CREEK BRIDGE**

Approved by/Approuvé par DPG
Designed by/Concept par TWB
Drawn by/Dessiné par JAET
PWGC Project Manager/Administrateur de Projets TPSCG
PWGC, Architectural and Engineering Resources Manager/ Ressources Architectural et de Directeur d'Ingénierie, TPSCG
Client/client PCA

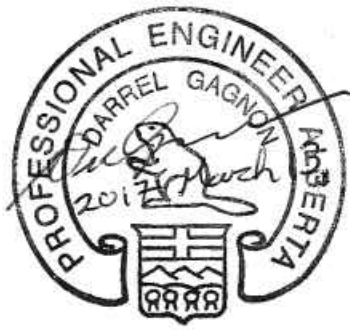
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**GENERAL ARRANGEMENT  
EXISTING CONDITION**

Project No./No. du projet <b>967-02</b>	Sheet/Feuille <b>202</b> OF	Revision no./La Révision no. <b>0</b>
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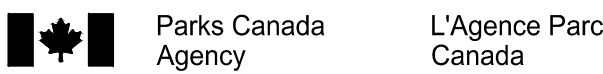
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BANFF NATIONAL PARK, ALBERTA

KM 48.0 BOW VALLEY PARKWAY  
CORRAL CREEK BRIDGE

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TWB

Drawn by/Dessiné par  
BEXU

PWGC Project Manager/Administrateur de Projets TPSC

PWGC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSC

Client/client  
PCA

Drawing title/Titre du dessin

GENERAL ARRANGEMENT  
FINAL CONDITION

Project No./No. du  
projet

967-02

Sheet/Feuille

203

OF

Revision no./  
La Révision  
no.

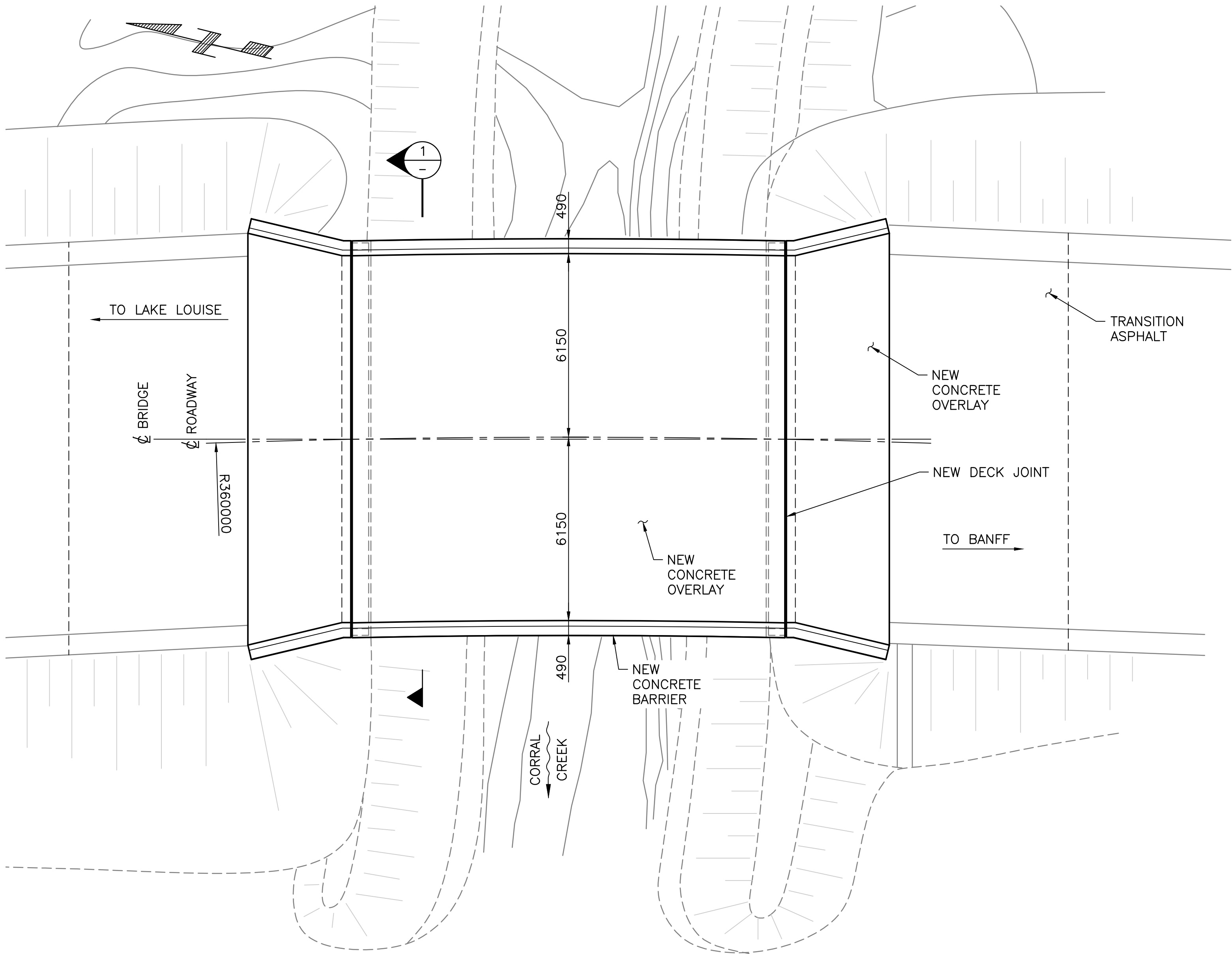
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NOTES:

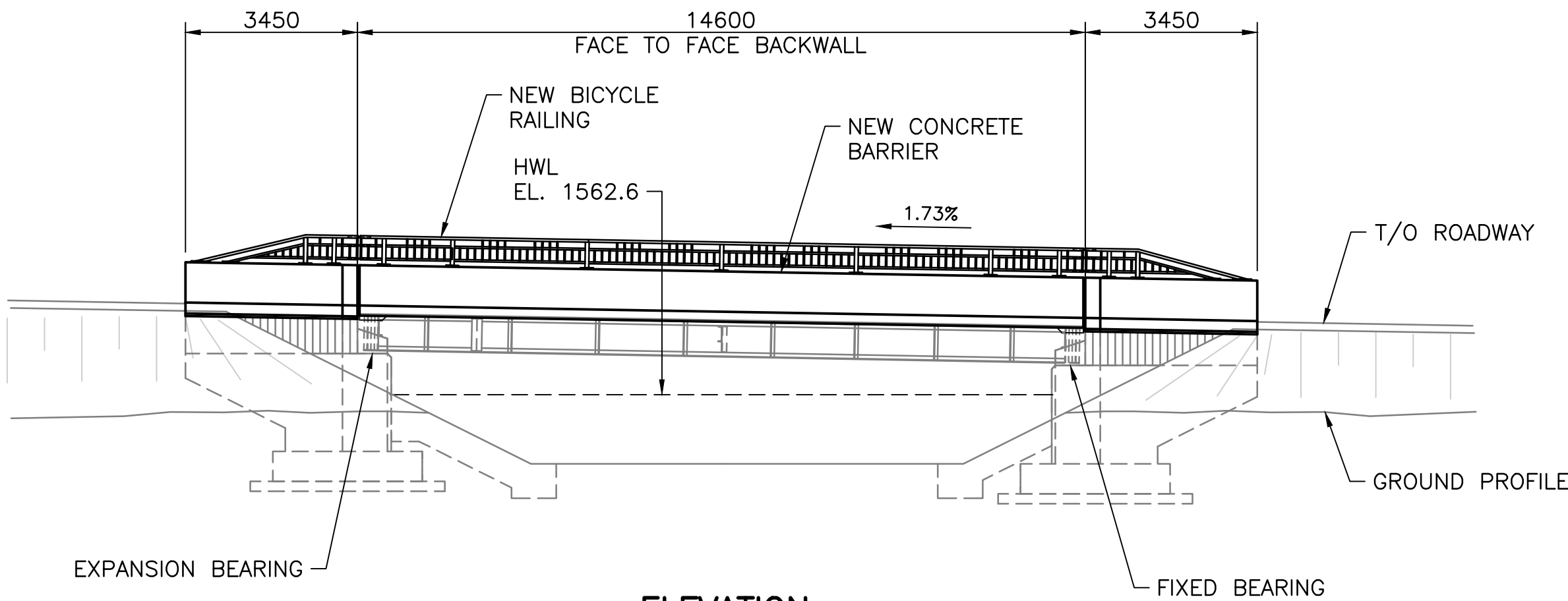
1. THE GRADE AND CROSS SLOPE OF THE COMPLETED DECK SHALL BE TRANSITIONED TO THE GRADE AND CROSS SLOPE OF THE EXISTING APPROACH ROADWAY OVER A DISTANCE OF 6m PAST THE APPROACH SLAB AT EACH END OF THE COMPLETED BRIDGE STRUCTURE. THE TRANSITION SHALL BE DONE BY SCARIFYING THE EXISTING PAVEMENT AND PLACING AN ASPHALT LAYER OF NO LESS THAN 50mm THICKNESS.

GENERAL NOTES:

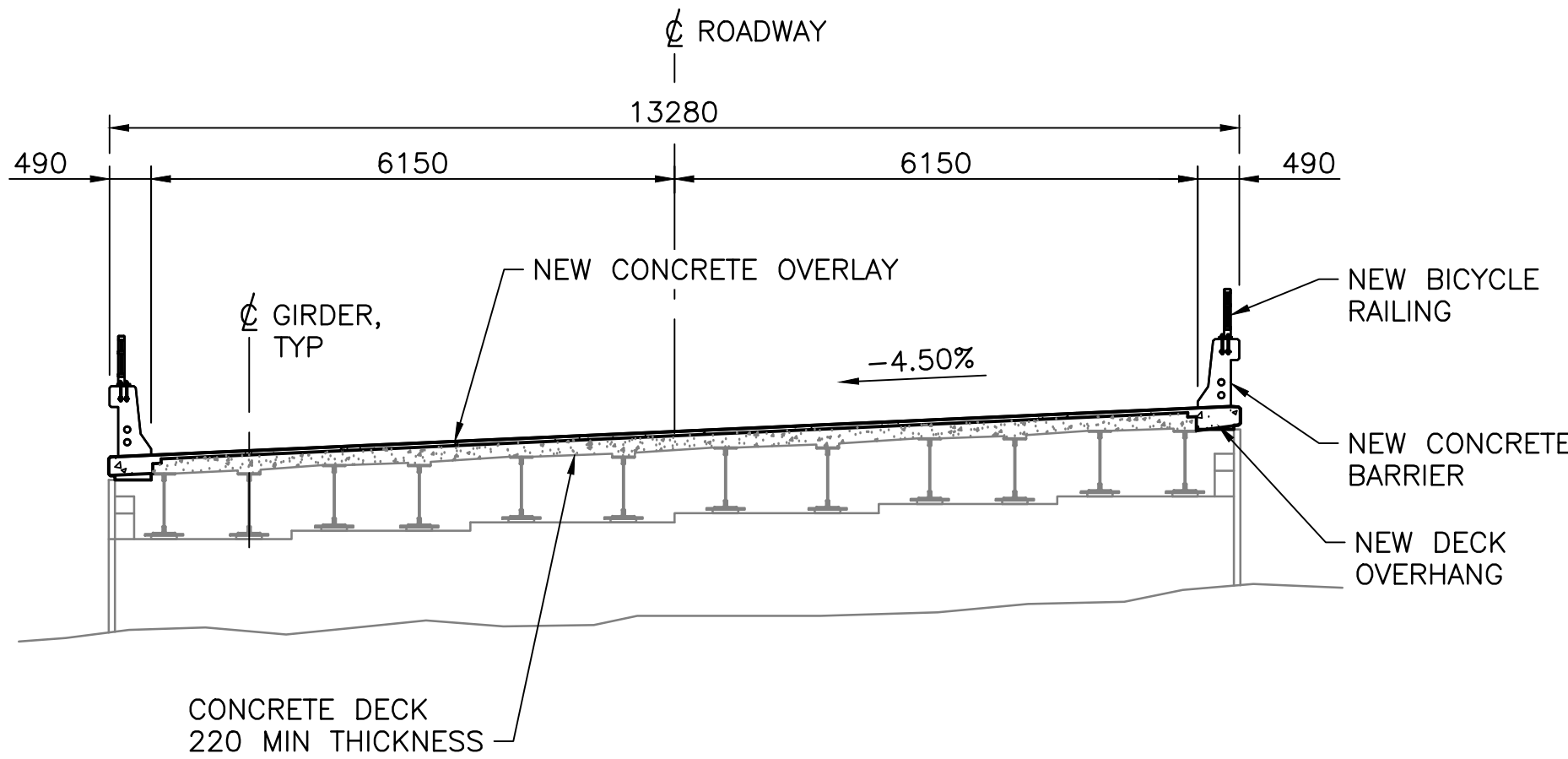
1. DESIGN STANDARDS: CANADIAN STANDARDS ASSOCIATION  
-CAN/CSA-S6-14 - DECEMBER 2014. DESIGN LIFE: 30 YEARS
2. DESIGN LOADS:
  - 2.1. UNIT MATERIAL WEIGHTS
    - REINFORCED CONCRETE: 24.0 kN/m<sup>3</sup>
    - STEEL: 77.0 kN/m<sup>3</sup>
    - CONCRETE OVERLAY: 23.5 kN/m<sup>3</sup>
  - 2.2. LIVE LOADS
    - CL-625 TRUCK, LANE LOADING AND DYNAMIC LOAD ALLOWANCE AS PER S6-14.
  - 2.3. TRAFFIC BARRIER: TL-2
  - 2.4. TEMPERATURE DATA:
    - EFFECTIVE CONSTRUCTION TEMPERATURE: 10°C
    - MAXIMUM MEAN DAILY TEMPERATURE: 26°C
    - MINIMUM MEAN DAILY TEMPERATURE: -40°C



PLAN  
1:100



ELEVATION  
1:100

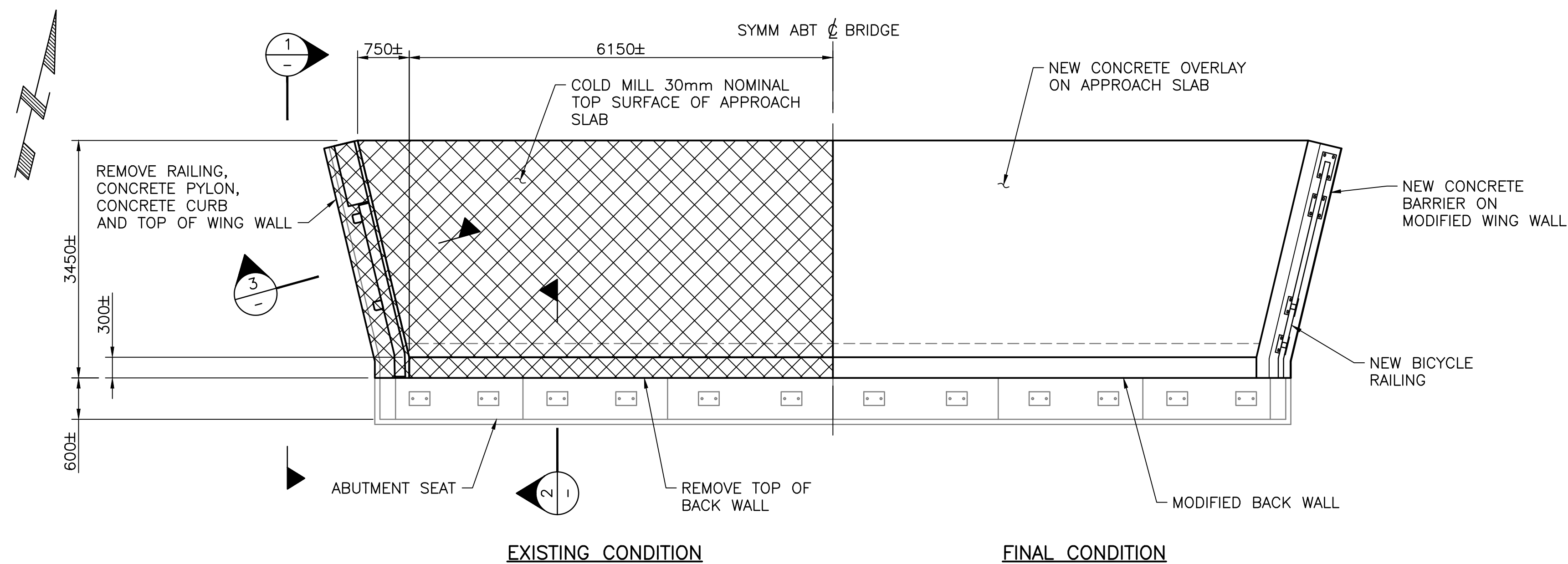


SECTION 1  
1:75



G:\1945\02-Drawings\967-02-200 (BnL BVP\_48.0 Corral Creek Bridge)\02-Drawings\967-02-204.dwg 3/14/2017 1:35:59 PM by Ben Xun

PWGSC - A1 - 841X594

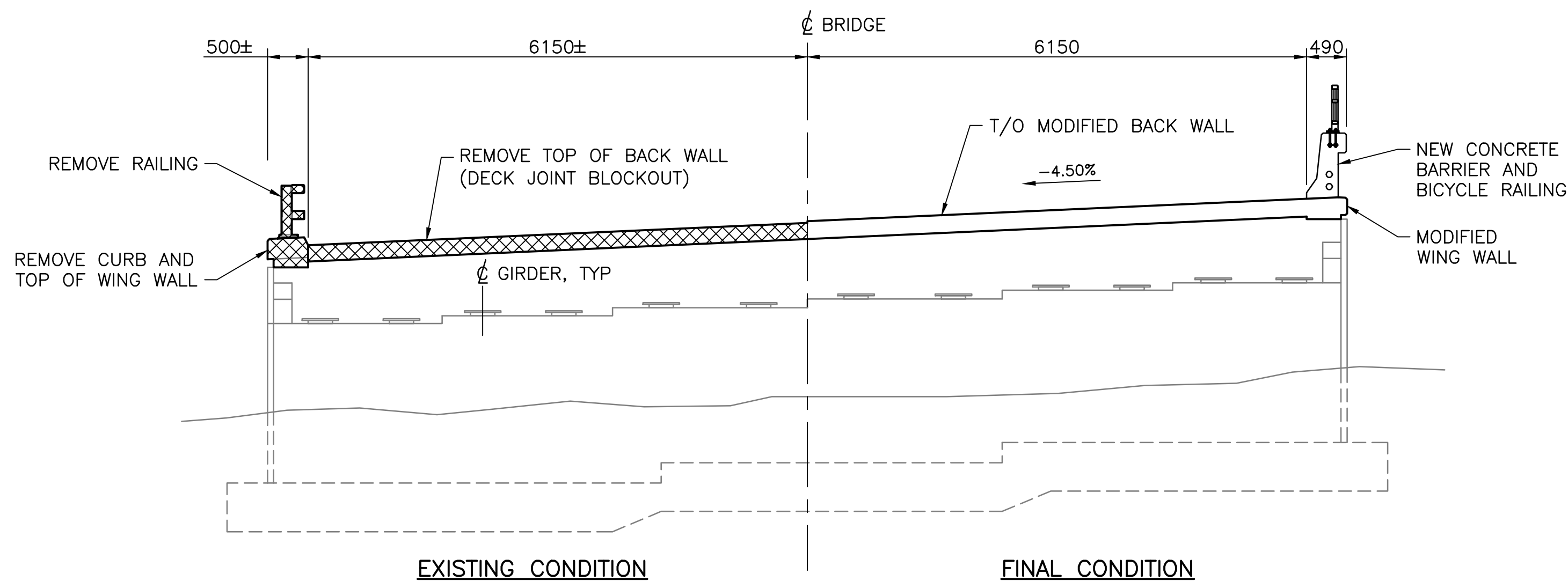


EXISTING CONDITION

FINAL CONDITION

**ABUTMENT PLAN**

1:50  
(NORTH ABUTMENT SHOWN - SOUTH ABUTMENT SIMILAR)

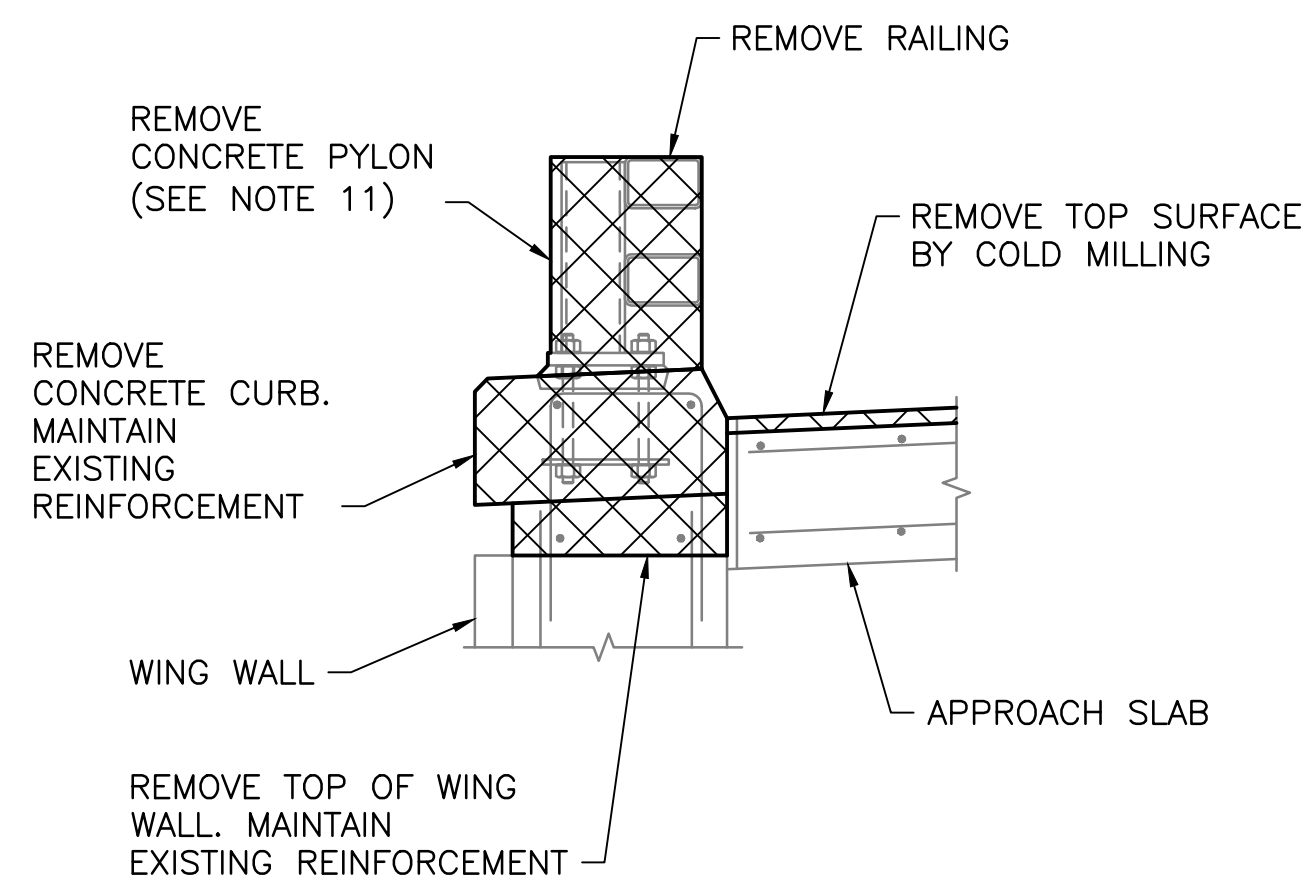


EXISTING CONDITION

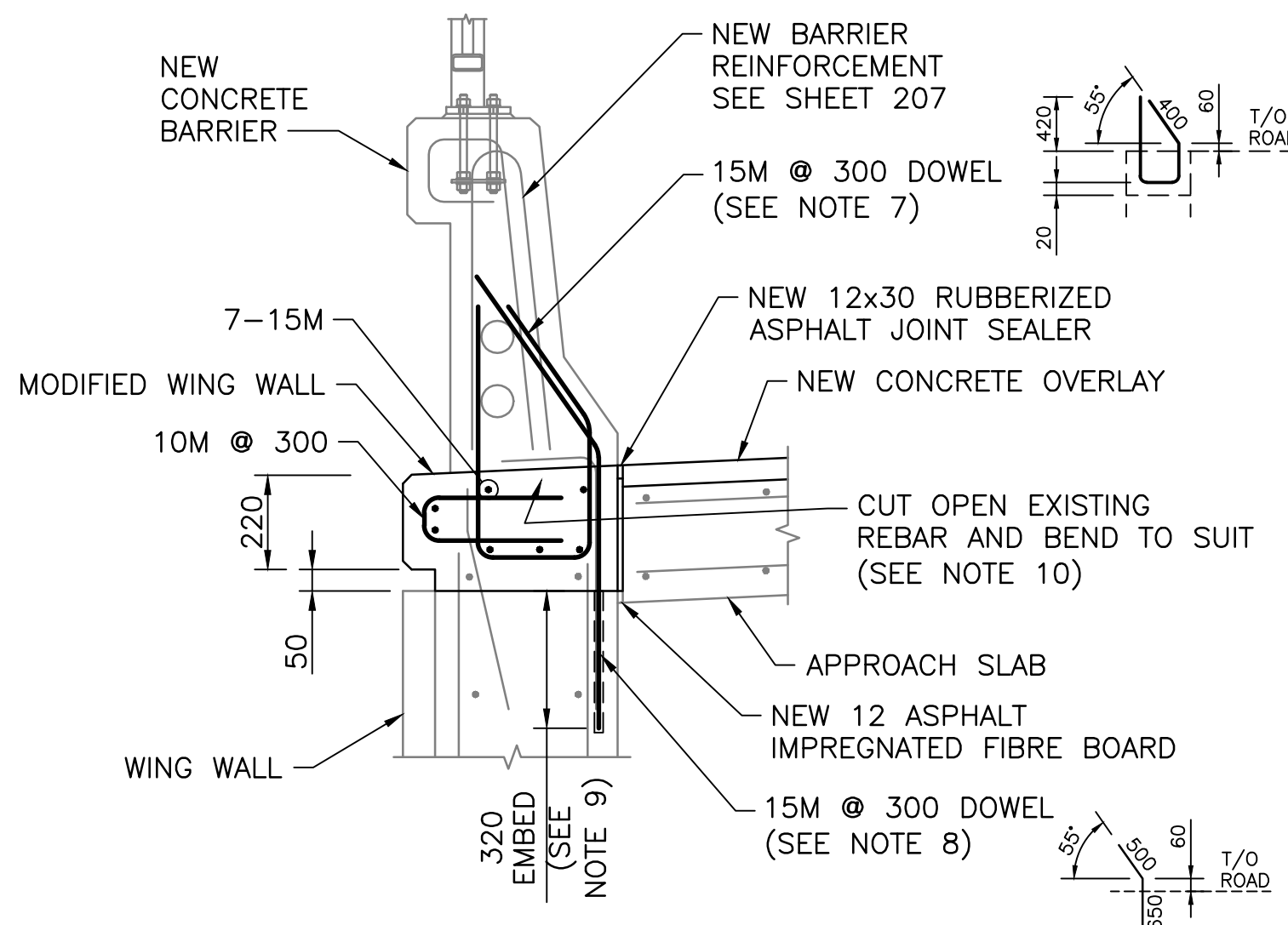
FINAL CONDITION

**ABUTMENT ELEVATION**

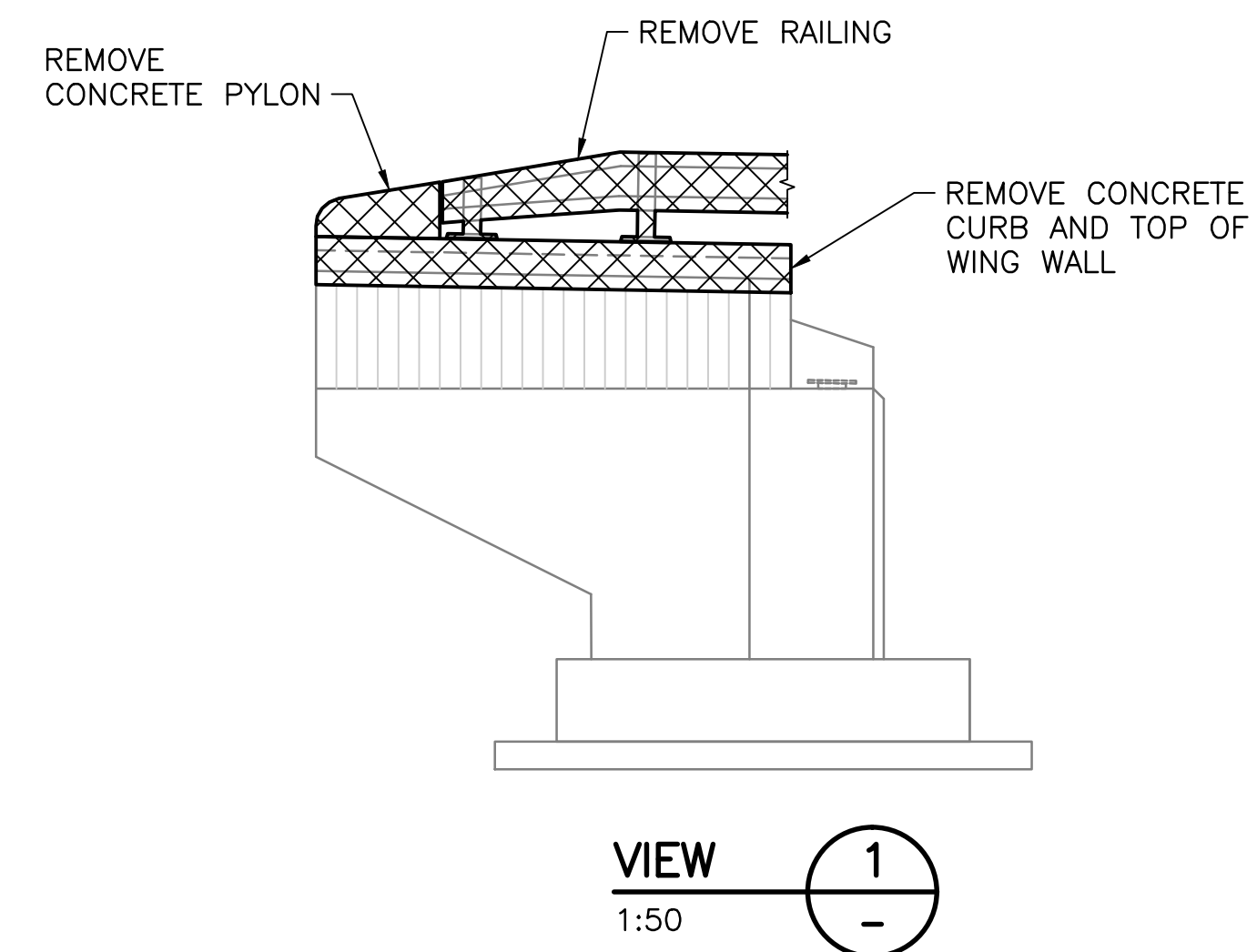
1:50  
(NORTH ABUTMENT-LOOKING NORTH, SOUTH ABUTMENT MIRROR IMAGE)



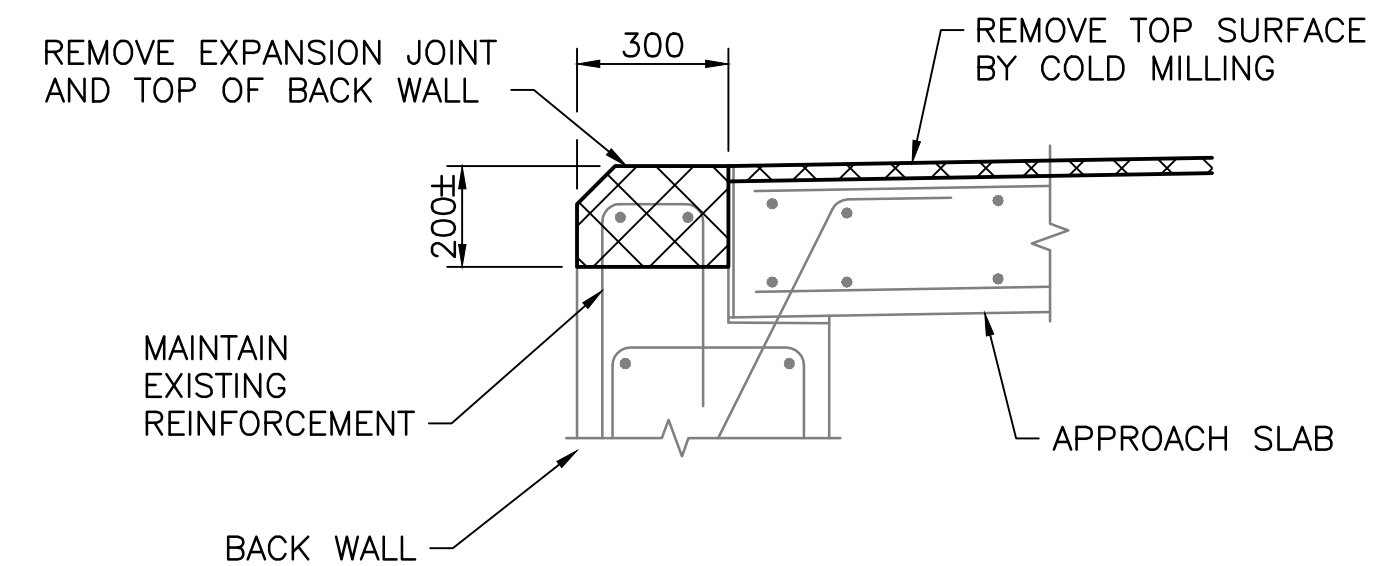
**SECTION 3**  
1:15



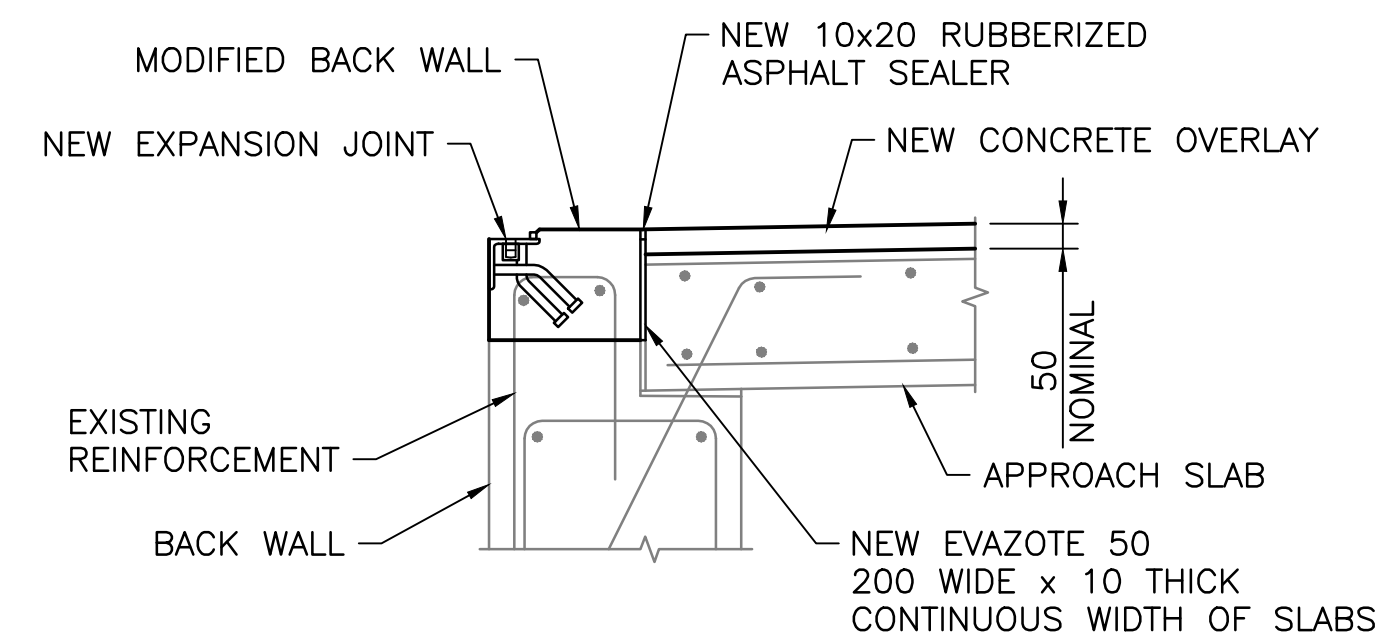
**SECTION 3**  
1:15



**VIEW 1**  
1:50



**SECTION 2**  
1:15



**SECTION 3**  
1:15

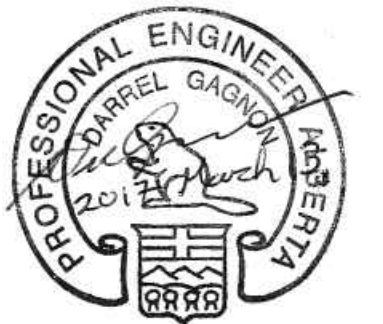
**LEGEND:**

XXXX - REMOVALS

**NOTES:**

1. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE: 45 MPa @ 28 DAYS.
2. CHAMFER EXPOSED EDGES 20.
3. REINFORCING STEEL: CAN/CSA G30.18M GRADE 400W.
4. MINIMUM COVER: 50 UNO.
5. MINIMUM LAP: 500 UNO.
6. SAWCUT 25 DEPTH ALONG EDGE OF CONCRETE REMOVALS.
7. SPACING TO MATCH EXISTING REBAR.
8. ANCHOR DOWELS CENTERED BETWEEN EXISTING REBAR.
9. DOWELS TO BE ANCHORED WITH HILTI HIT-HY200 OR APPROVED EQUIVALENT.
10. FIELD BENDING SHALL BE DONE CAREFULLY, COLD AND SHALL SATISFY THE MINIMUM BEND DIAMETERS OF CAN/CSA S6-14.
11. REBARS PROJECTING INTO CONCRETE PYLON MAY BE CUT.
12. CONSTRUCTION JOINTS TO BE CLEAN, FREE OF LAITANCE AND ROUGHENED.

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**DO NOT SCALE DRAWINGS**

Revision	Description/Description	Date/Date
0	ISSUED FOR CONSTRUCTION	2017/03/13

Client/client
Parks Canada Agency / L'Agence Parcs Canada

**COWI**

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**  
  
**KM 48.0 BOW VALLEY PARKWAY  
CORRAL CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Concept par  
TWB

Drawn by/Dessiné par  
JAET

PWGSC Project Manager/Administrateur de Projets TFSGC

PWGSC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TFSGC

Client/client  
PCA

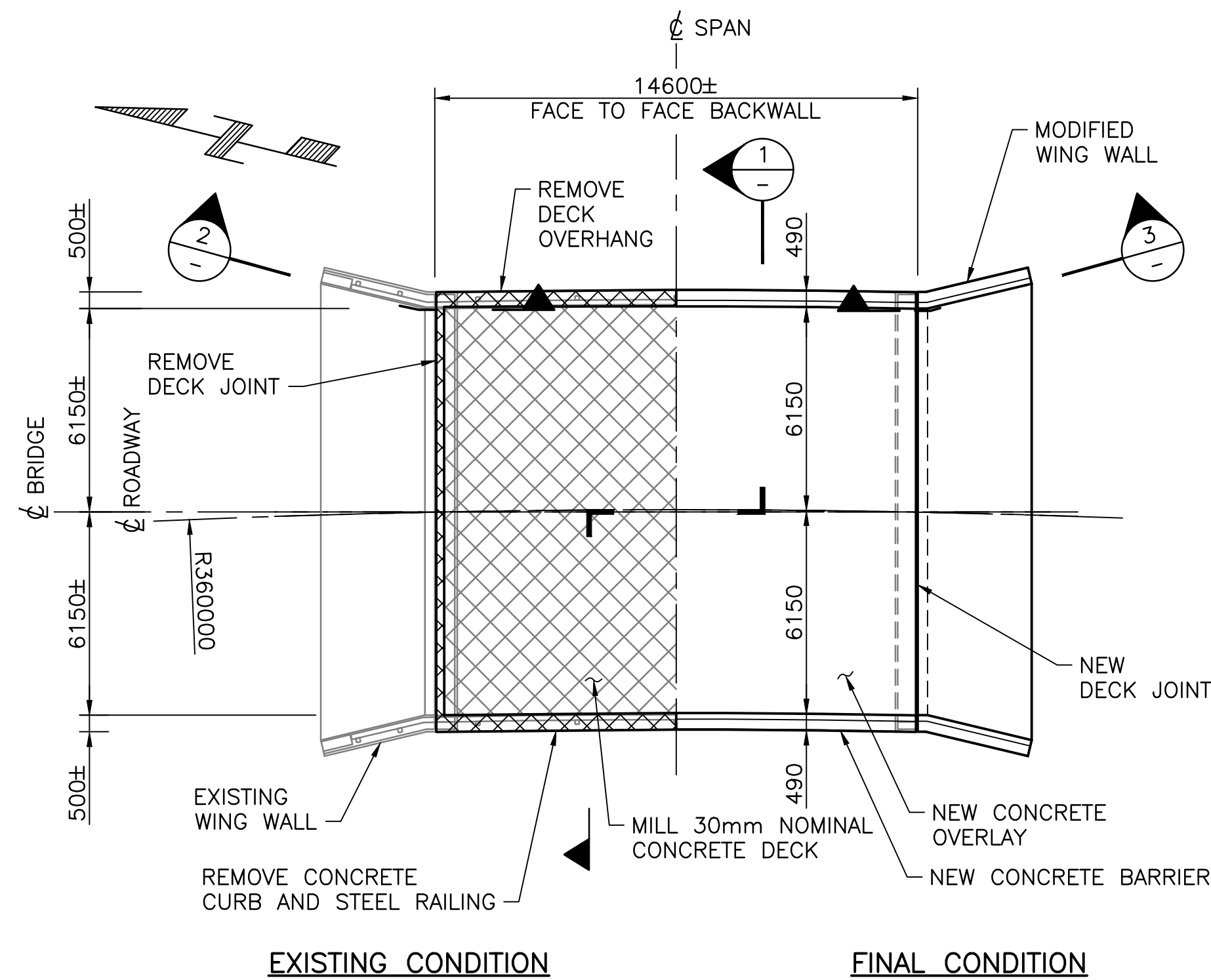
Drawing title/Titre du dessin

**ABUTMENT  
MODIFICATIONS**

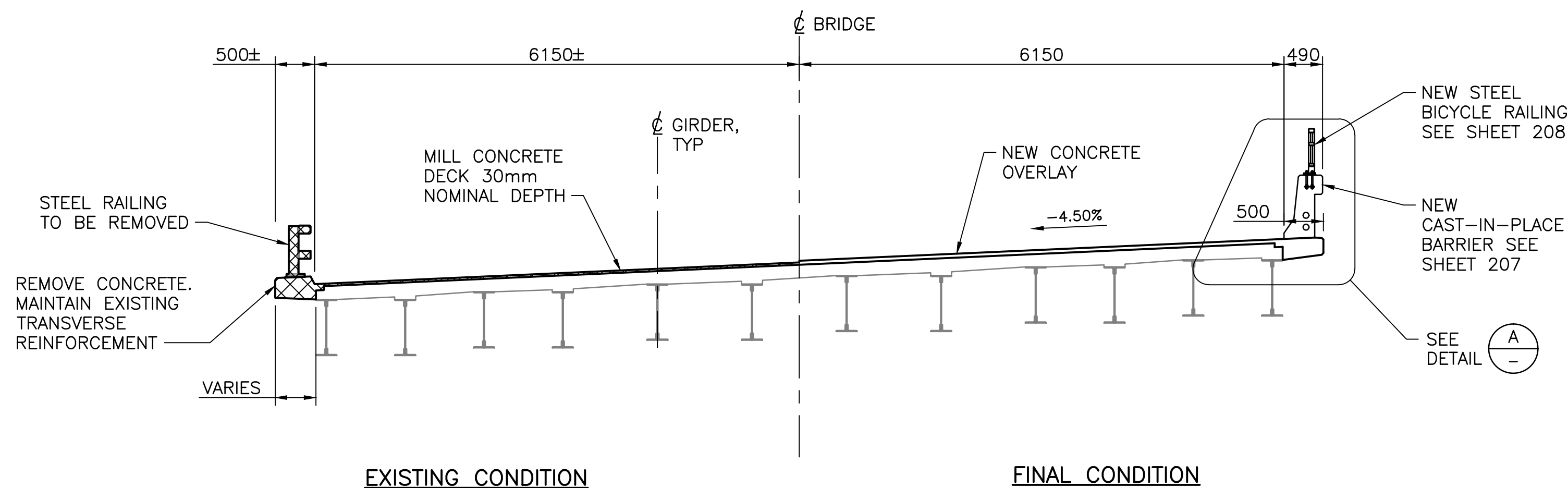
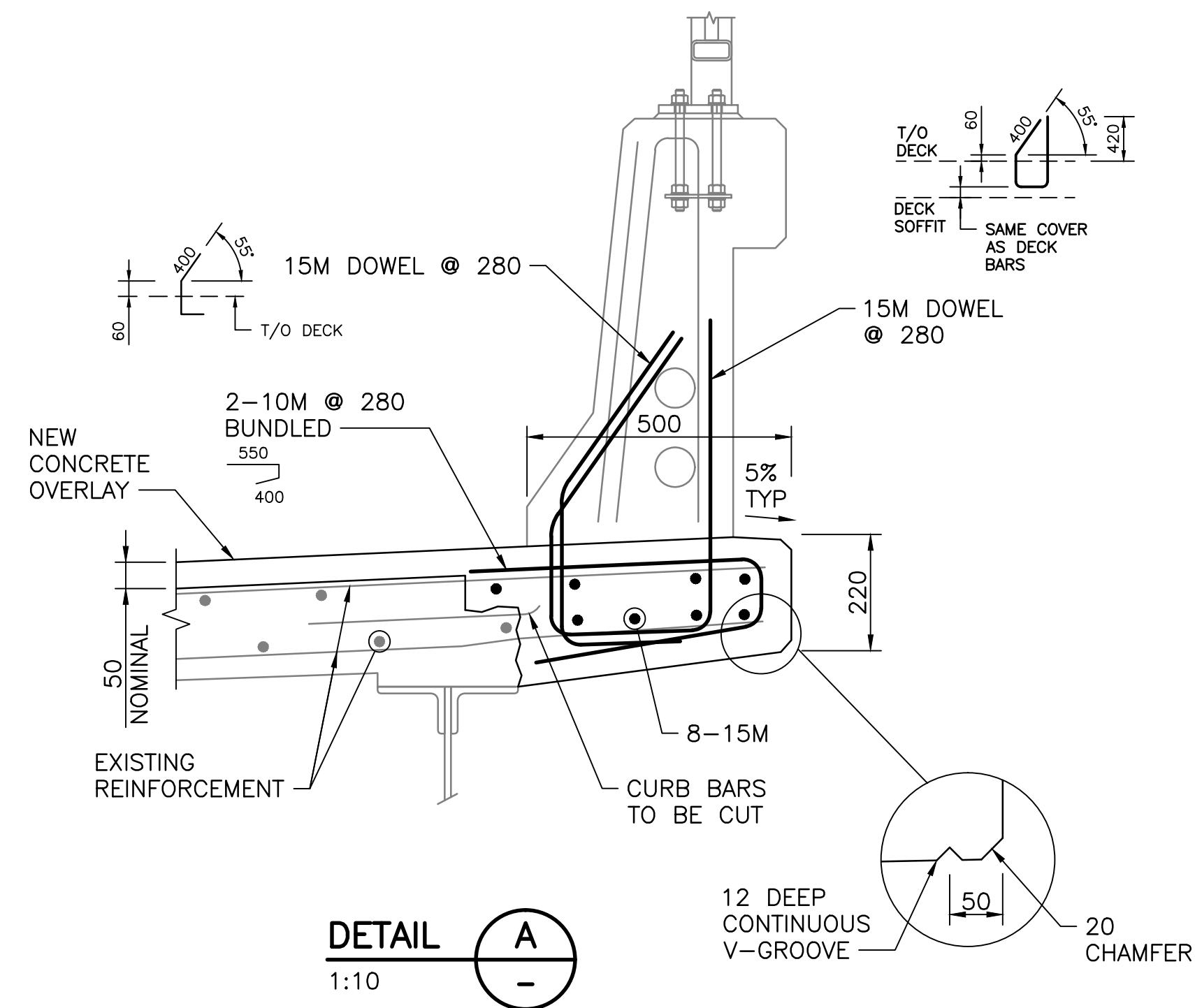
Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
967-02	204 OF	0



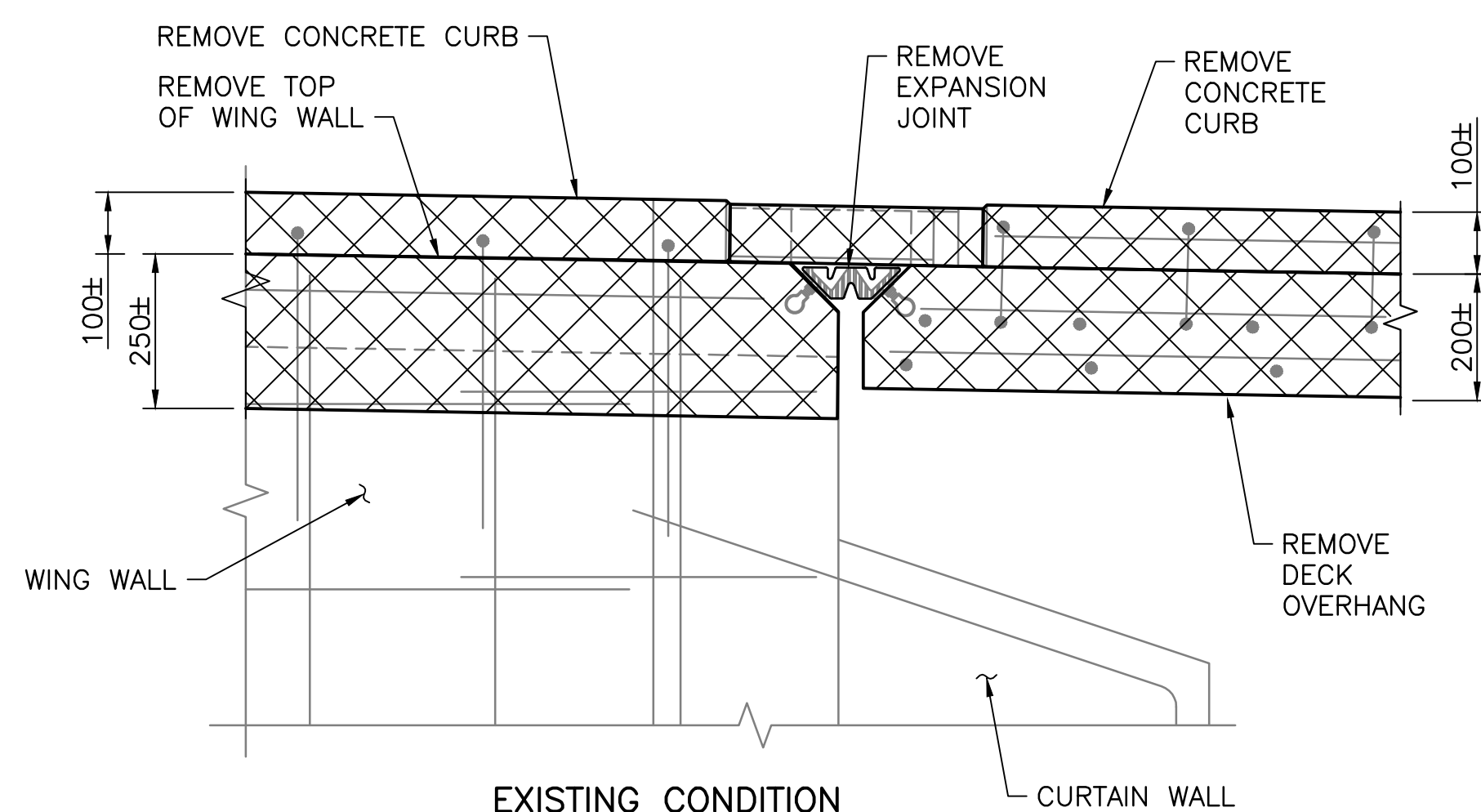
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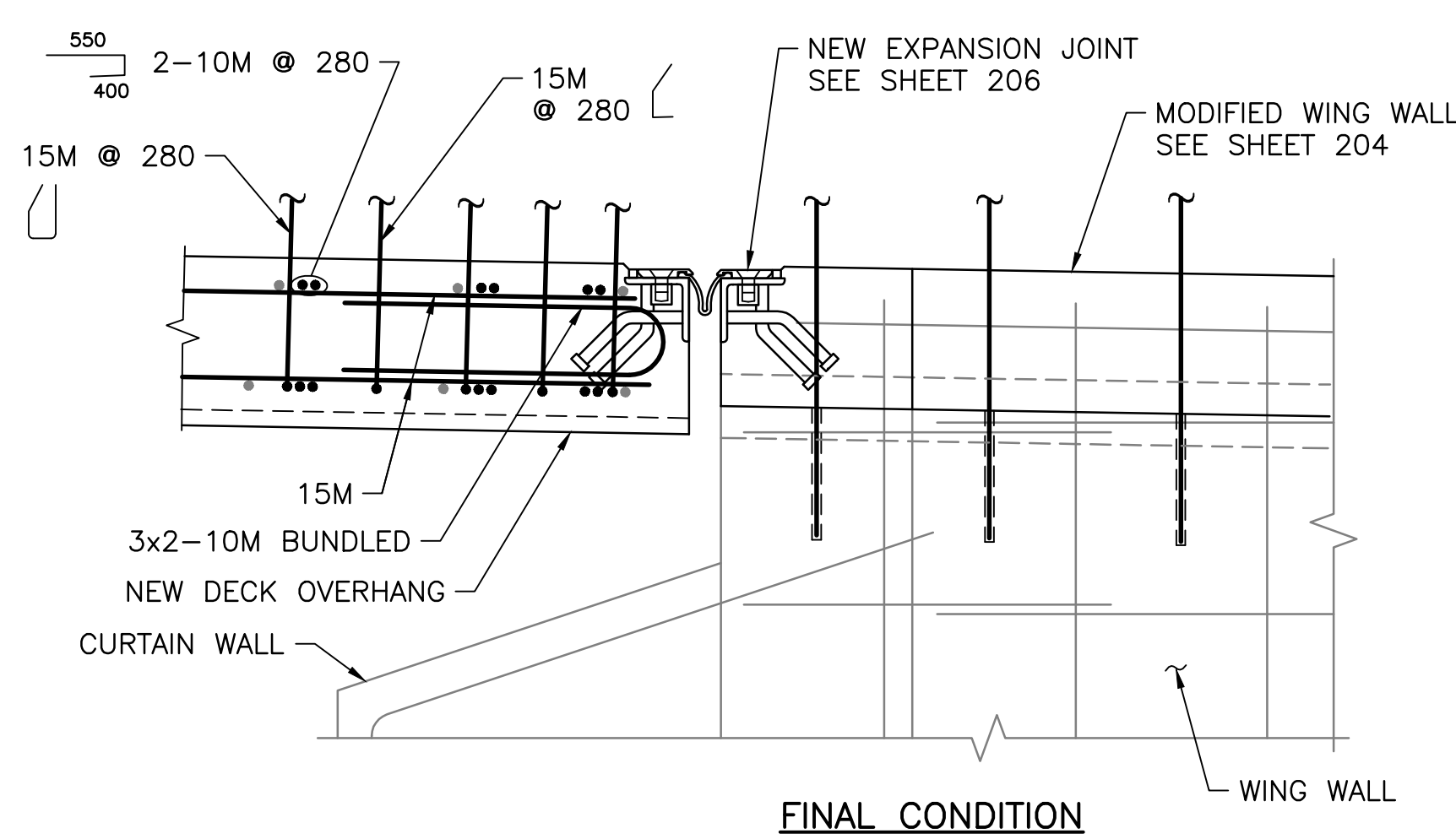
PLAN  
1:150



SECTION 1  
1:50




SECTION 2  
1:10



SECTION 3  
1:10

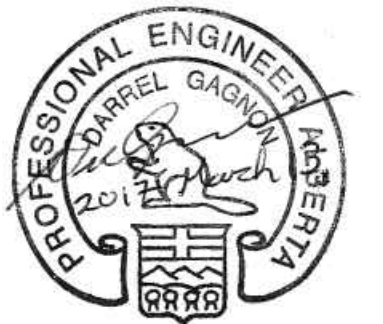
#### LEGEND:

 - REMOVALS

#### NOTES:

1. CONCRETE: 45 MPa AT 28 DAYS MINIMUM.
2. CHAMFER EXPOSED EDGES 20.
3. REINFORCING STEEL: CAN/CSA G30.18M GRADE 400W
4. MINIMUM COVER:
  - 70 TO TOP OF SLAB
  - 40 TO SOFFIT OF SLAB
  - 50 ALL OTHER
6. MINIMUM LAP 500 FOR 15M REBARS UNO. LAP SPLICES NOT SHOWN.
7. CONSTRUCTION JOINTS TO BE CLEAN, FREE OF LAITANCE AND ROUGHENED.

ISSUED FOR CONSTRUCTION



DO NOT SCALE DRAWINGS

Revision/	Description/Description	Date/Date
0	ISSUED FOR CONSTRUCTION	2017/03/13

Client/client	Parks Canada Agency	L'Agence Parcs Canada
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COWI

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**  
**KM 48.0 BOW VALLEY PARKWAY  
CORRAL CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Concept par  
TWB

Drawn by/Dessiné par  
JAET

PWGS Project Manager/Administrateur de Projets TPSCG

PWGS, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

Drawing title/Titre du dessin

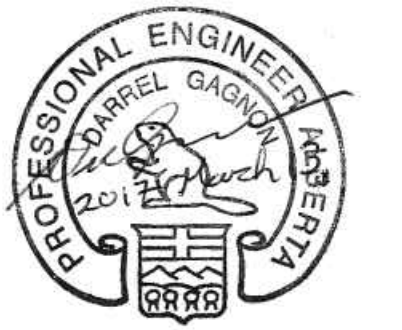
DECK MODIFICATIONS

Project No./No. du projet	Sheet/Feuille <b>205</b> OF	Revision no./ La Révision no. <b>0</b>
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Revision/	Description/Description	Date/Date

Client/client	Parks Canada Agency	L'Agence Parcs Canada
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COWI

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**

**KM 48.0 BOW VALLEY PARKWAY  
CORRAL CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Concept par  
TWB

Drawn by/Dessiné par  
JAET

PWGS Project Manager/Administrateur de Projets TPSCG

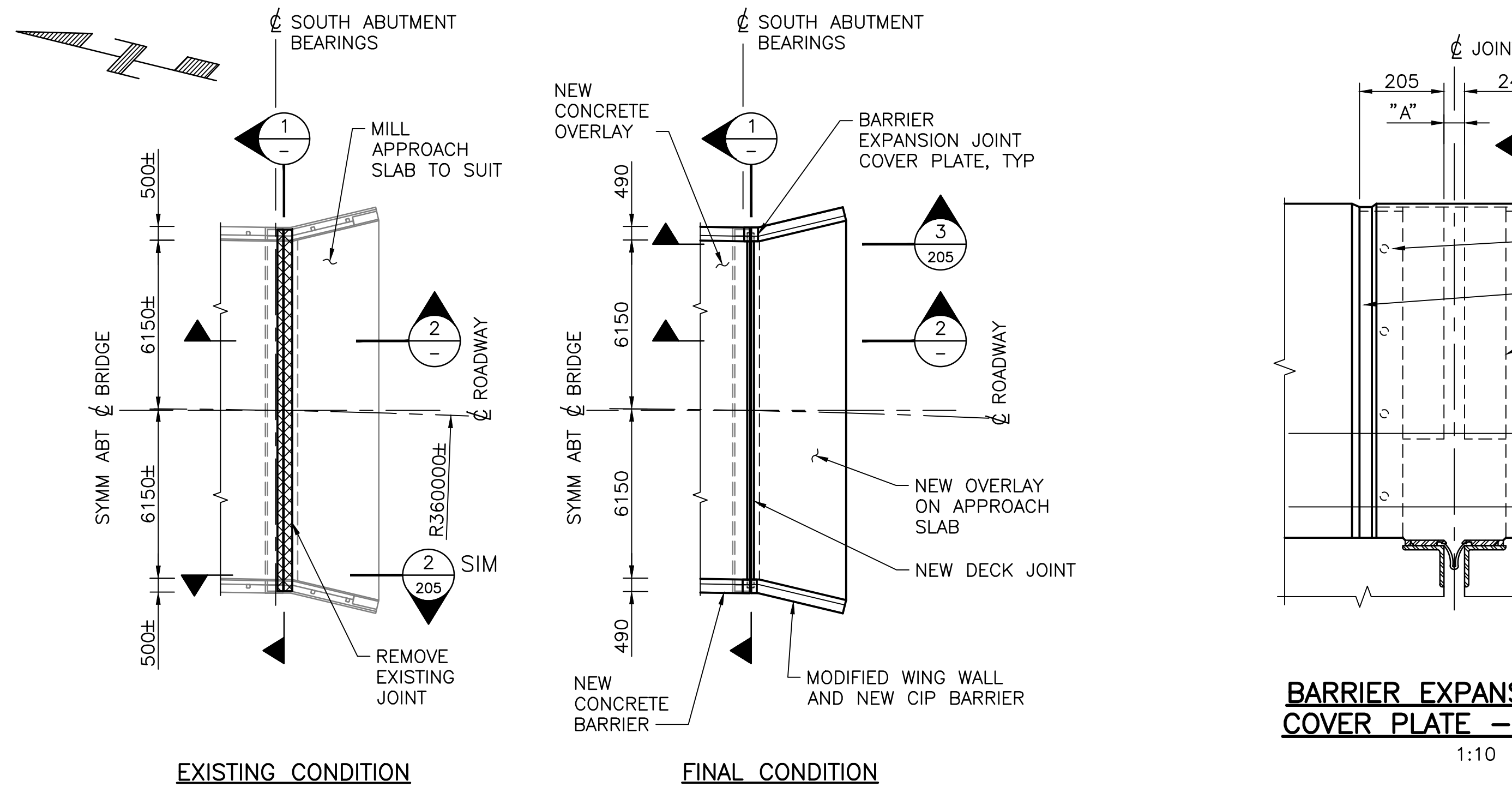
PWGS, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

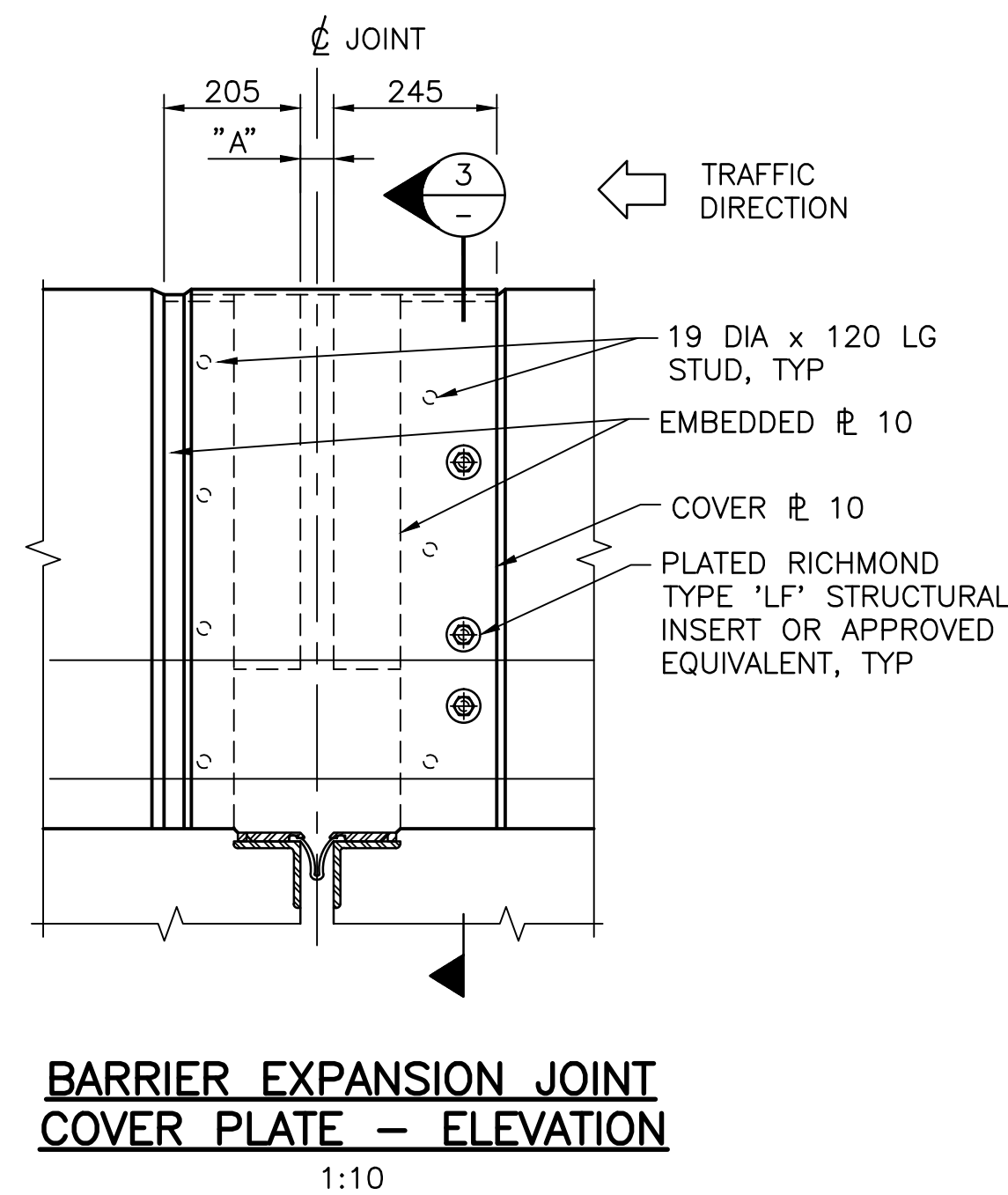
Drawing title/Titre du dessin

**DECK JOINT REPLACEMENT**

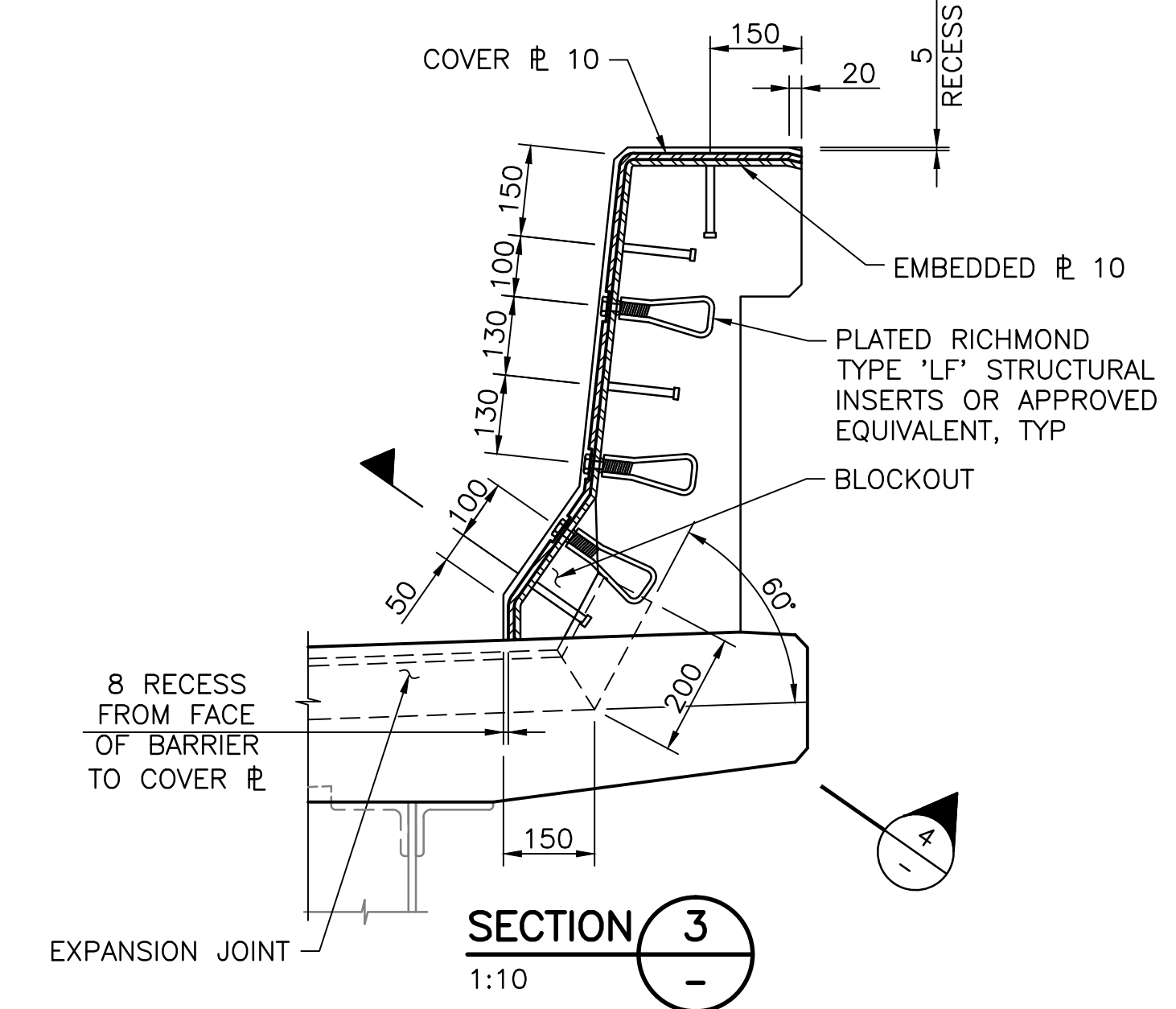
Project No./No. du projet	Sheet/Feuille	Revision no./ La Révision no.
967-02	206 OF	0



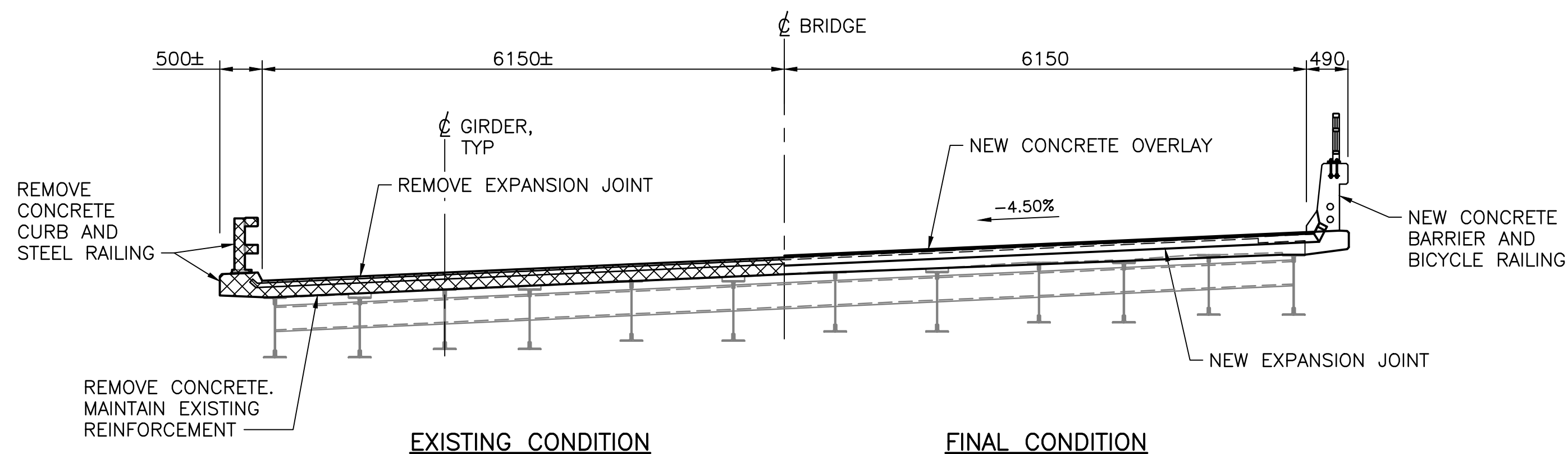
PLAN  
1:150



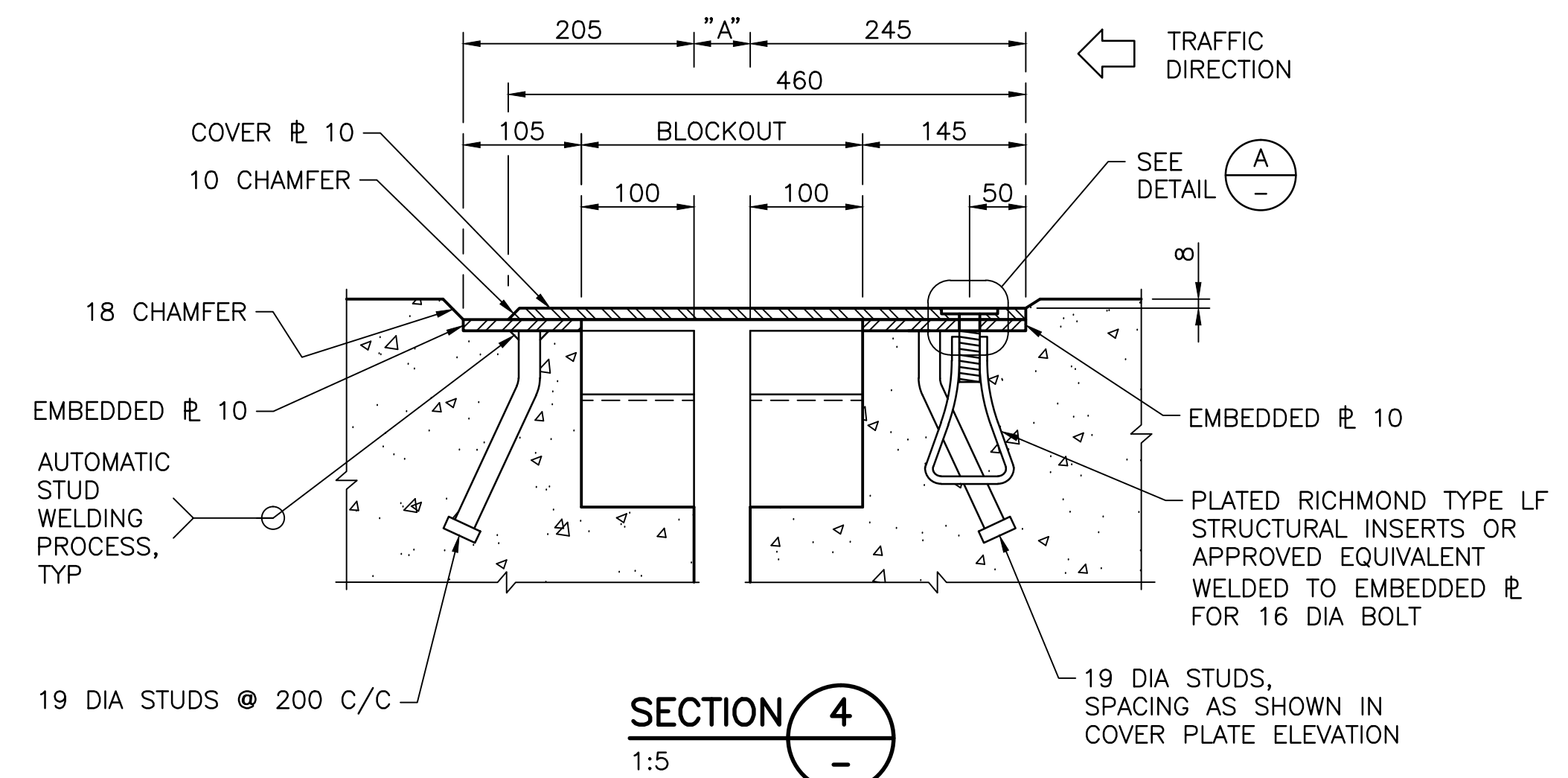
BARRIER EXPANSION JOINT  
COVER PLATE - ELEVATION  
1:10



SECTION 3  
1:10



SECTION 1  
1:50



SECTION 4  
1:5

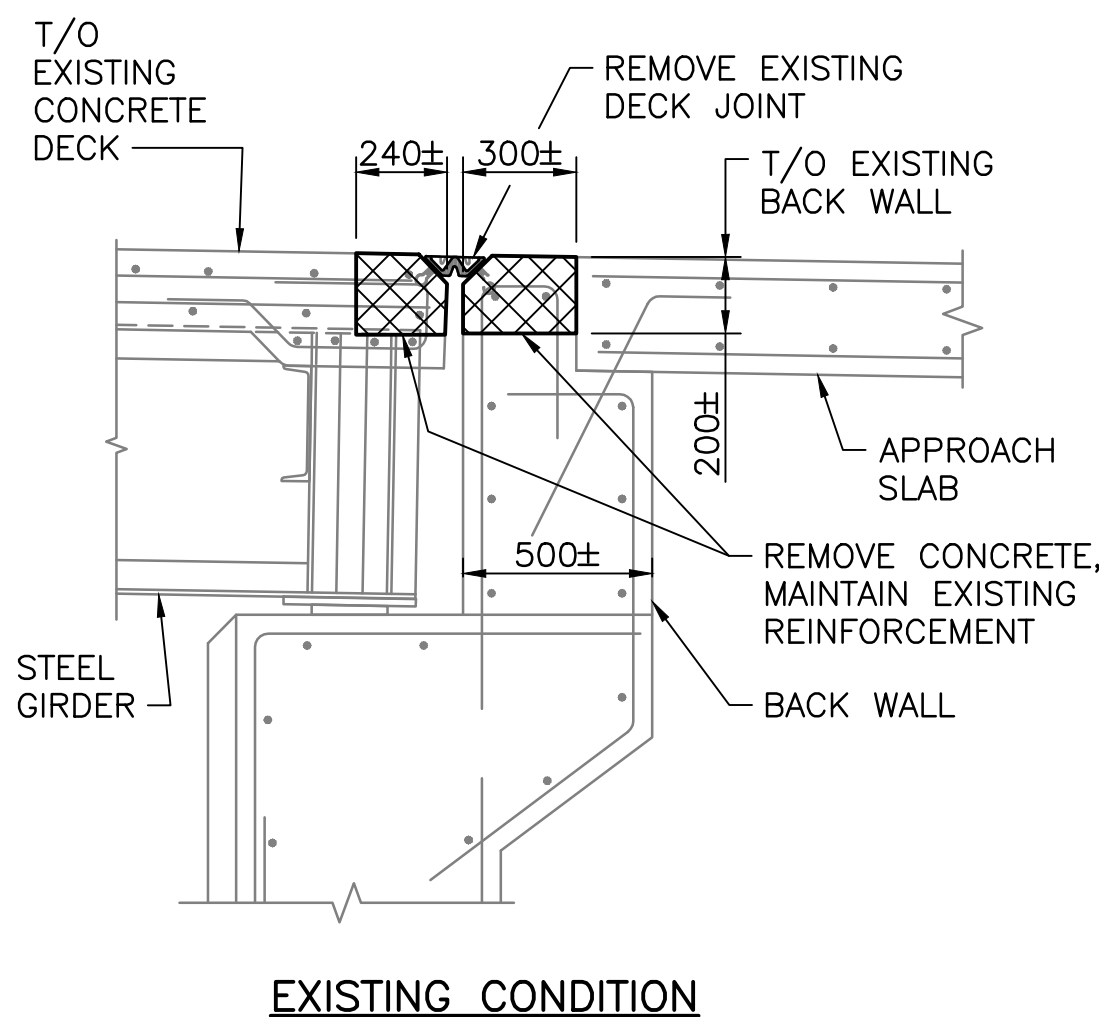
LEGEND:

XXXX - REMOVALS

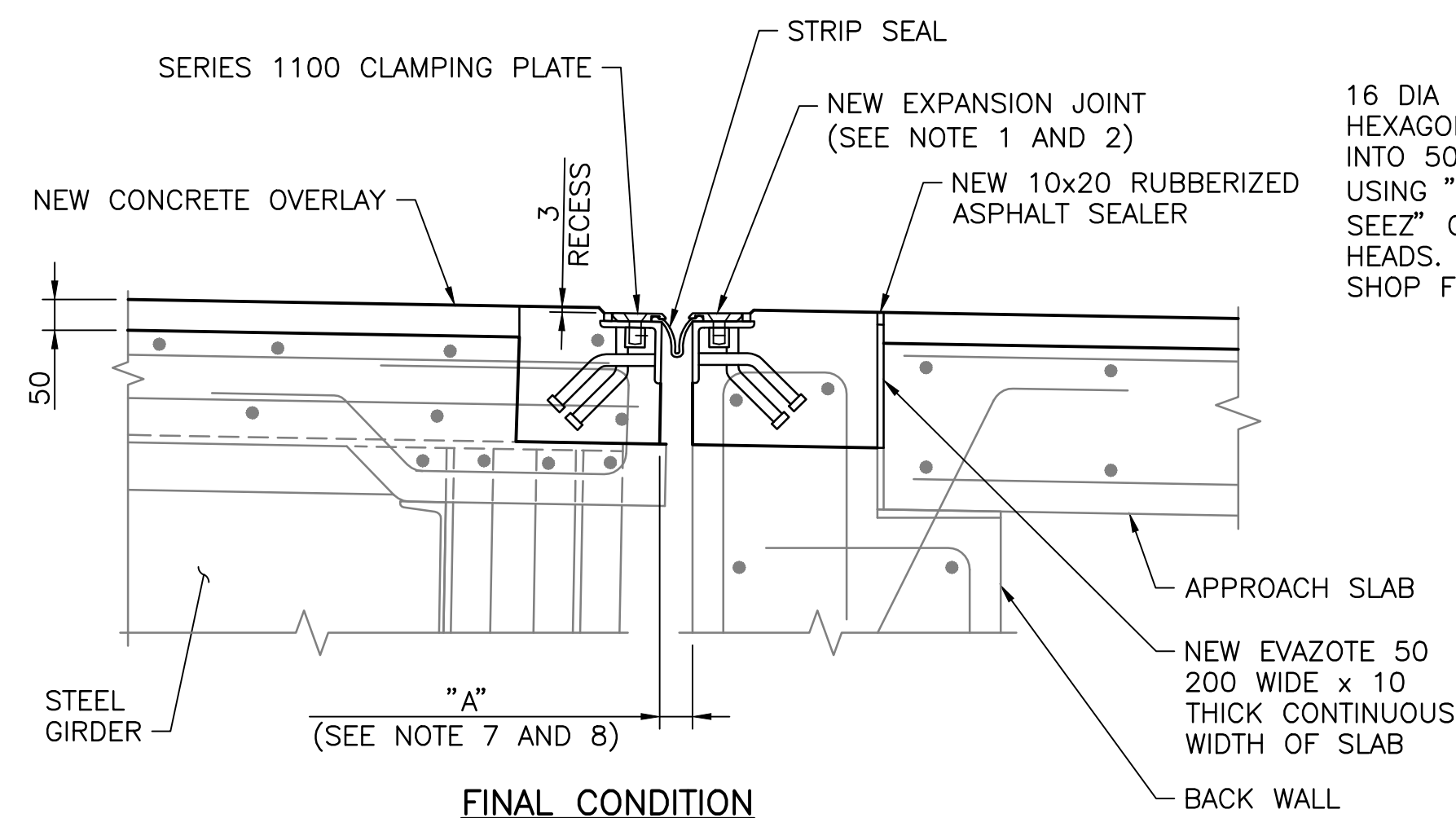
NOTES:

- NEW DECK JOINTS "GOODFLEX SERIES 1100 BY GOODCO Z-TECH" OR APPROVED EQUIVALENT, INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
- JOINT NEOPRENE SEAL "GOODCO FL-75" OR APPROVED EQUIVALENT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- NEW STEEL: CSA G40.21M GRADE 300W.
- STUDS: CAN/CSA W59 APPENDIX H, TYPE B, GALVANIZE AFTER FABRICATION.
- WELDING: CAN/CSA W59.
- CONSTRUCTION JOINTS TO BE CLEAN, FREE OF LAITANCE AND ROUGHENED.
- GAP "A" FOR DECK JOINT AT FIXED BEARING SIDE TO BE 50.
- INSTALL GAP "A" FOR EXPANSION JOINT IN ACCORDANCE WITH THE TABLE BELOW:

INSTALLATION TEMPERATURE	-10°C	0°C	10°C	20°C	30°C
GAP "A" (mm)	54	52	50	48	46



SECTION 2  
1:20



SECTION 2  
1:10

(FIXED JOINT SHOWN, EXPANSION JOINT SIMILAR)



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0	ISSUED FOR CONSTRUCTION	2017/03/13
Revision/ Révision	Description/Description	Date/Date

Client/client	Parks Canada Agence	L'Agence Parcs Canada
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COWI

Project title/Titre du projet  
**BRIDGE REHABILITATION  
BANFF NATIONAL PARK, ALBERTA**

**KM 48.0 BOW VALLEY PARKWAY  
CORRAL CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Conçu par  
TWB

Drawn by/Dessiné par  
JAET

PWGC Project Manager/Administrateur de Projets TPSCG

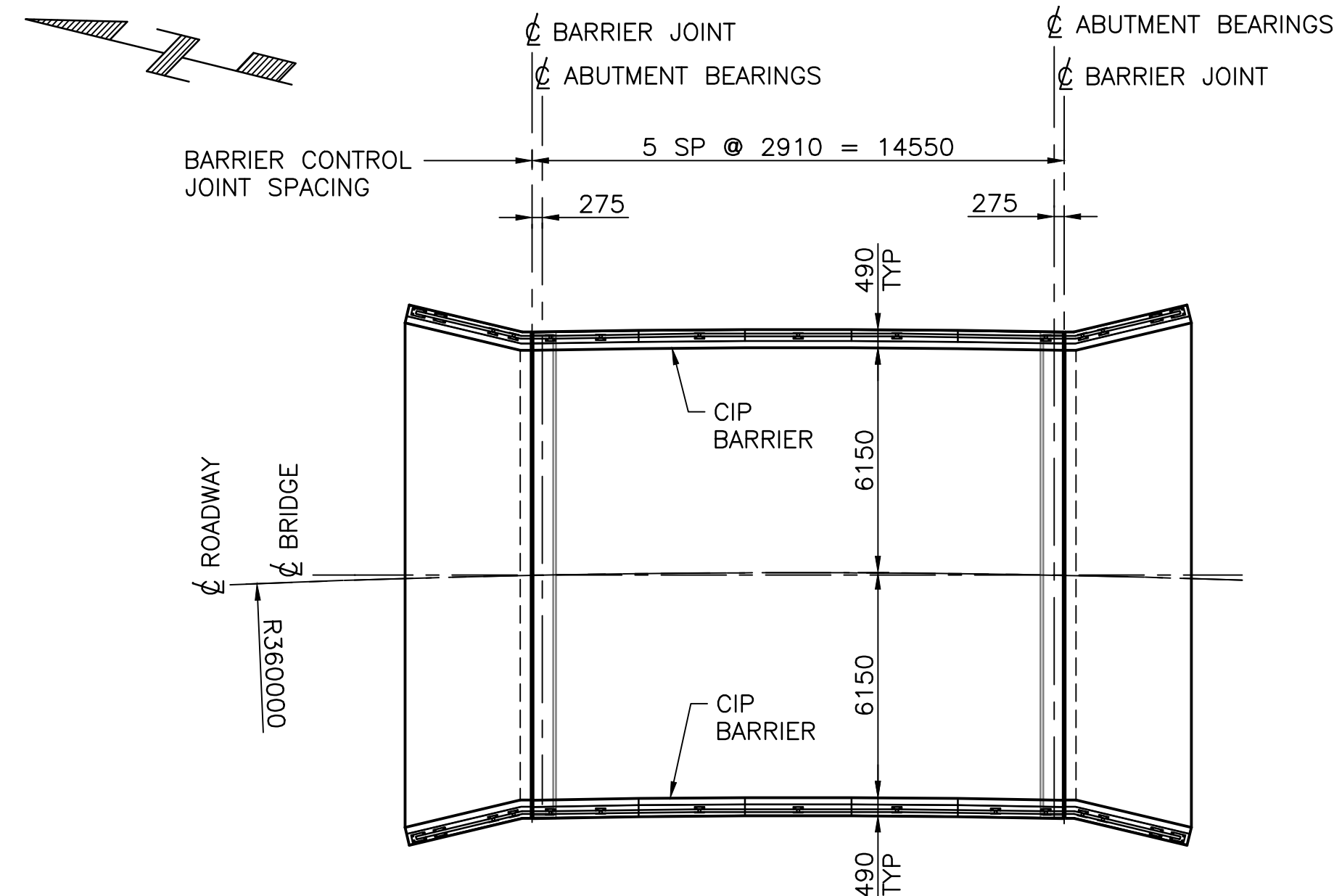
PWGC, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSCG

Client/client  
PCA

Drawing title/Titre du dessin

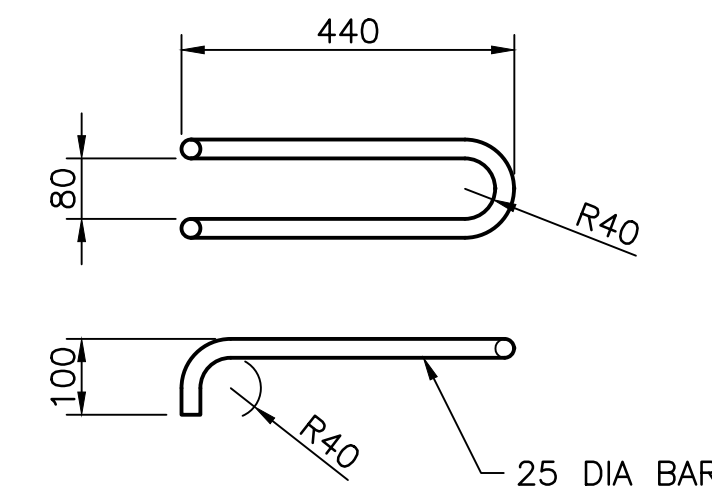
**CAST-IN-PLACE BARRIER  
LAYOUT AND REINFORCEMENT**

Project No./No. du projet	Sheet/Feuille <b>207</b> OF	Revision no./ La Révision no. <b>0</b>
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**PLAN**

1:150

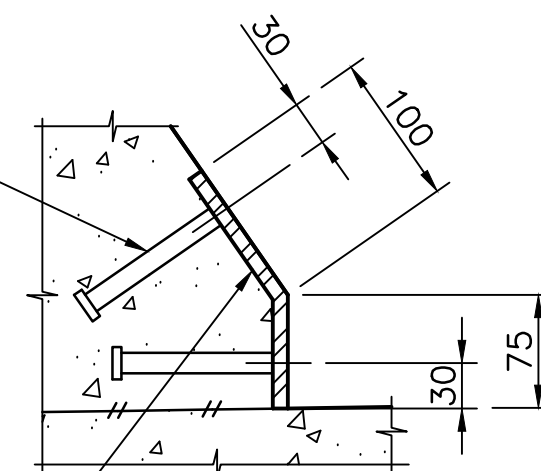


**DETAIL A**

1:10

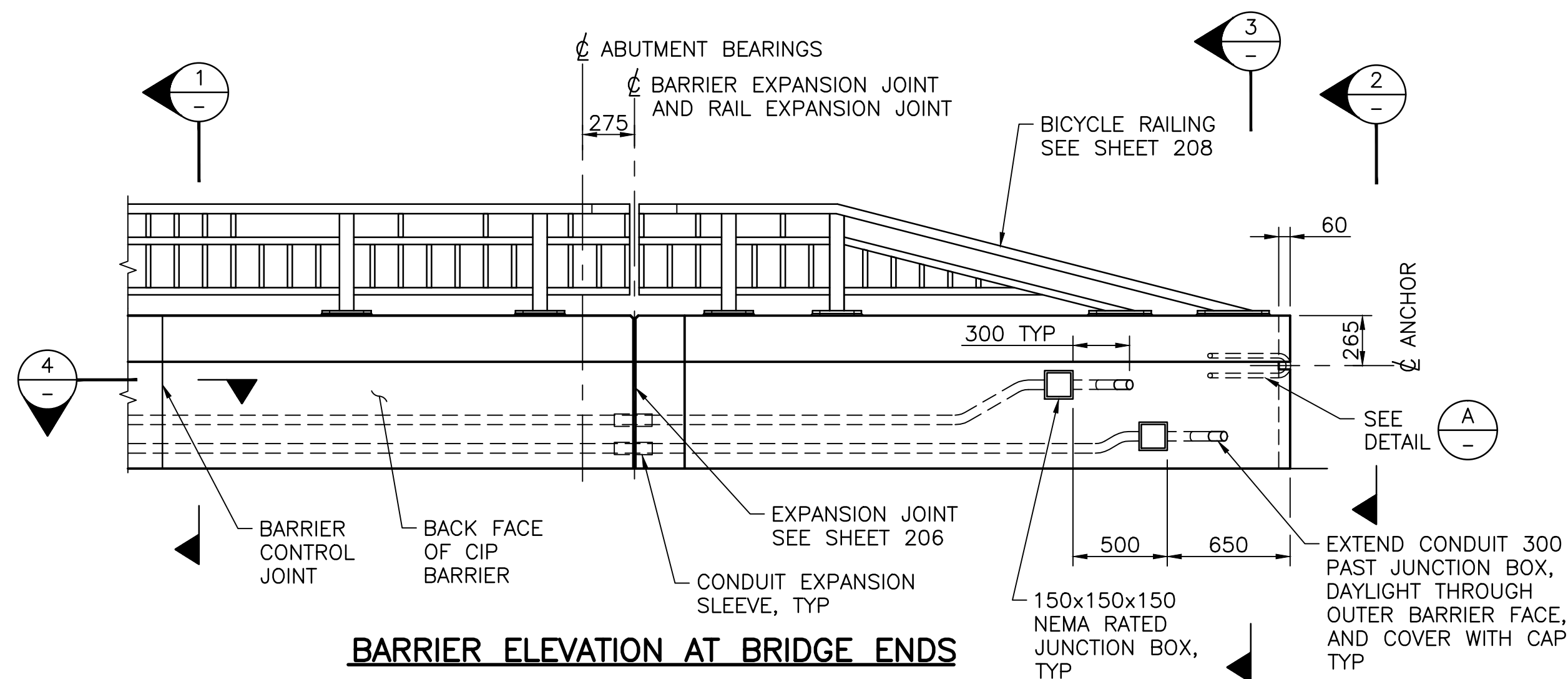
12 DIA STUD, 100 LONG  
@ 400, TYP STAGGERED  
MAX 100 FROM FREE EDGE

GALVANIZED BENT # 10  
CHAMFER ENDS @  
SPICES AND ALIGN  
IN DIRECTION OF TRAVEL



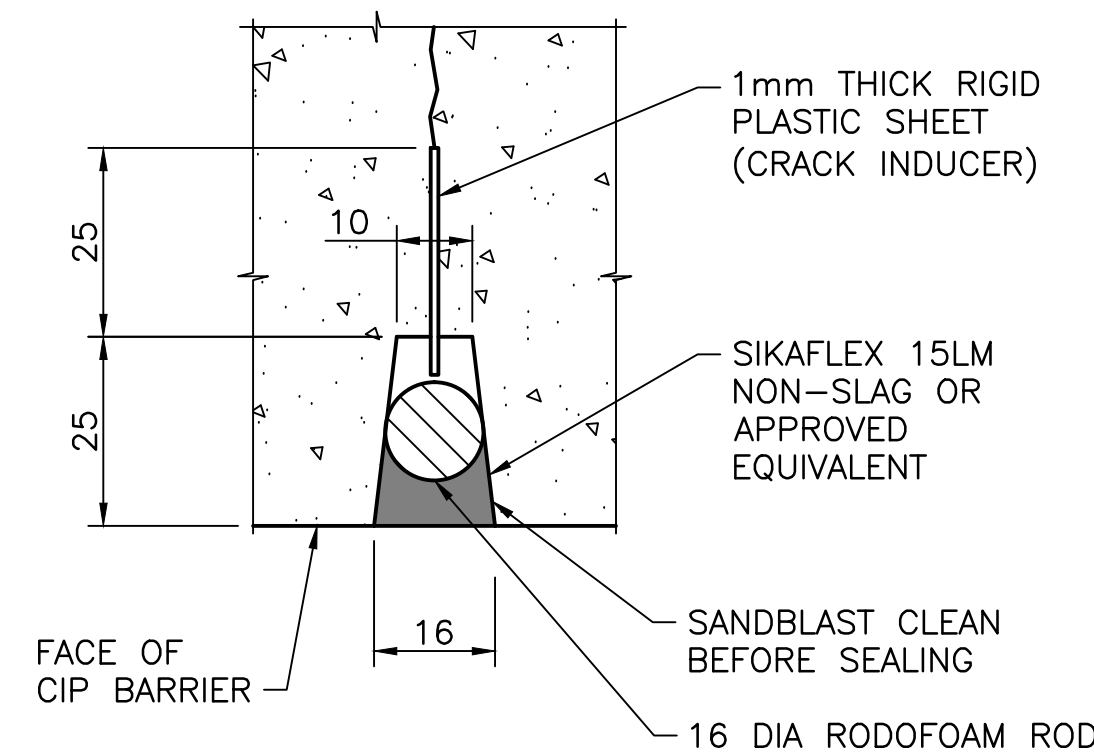
**DETAIL B**

1:5



**BARRIER ELEVATION AT BRIDGE ENDS**

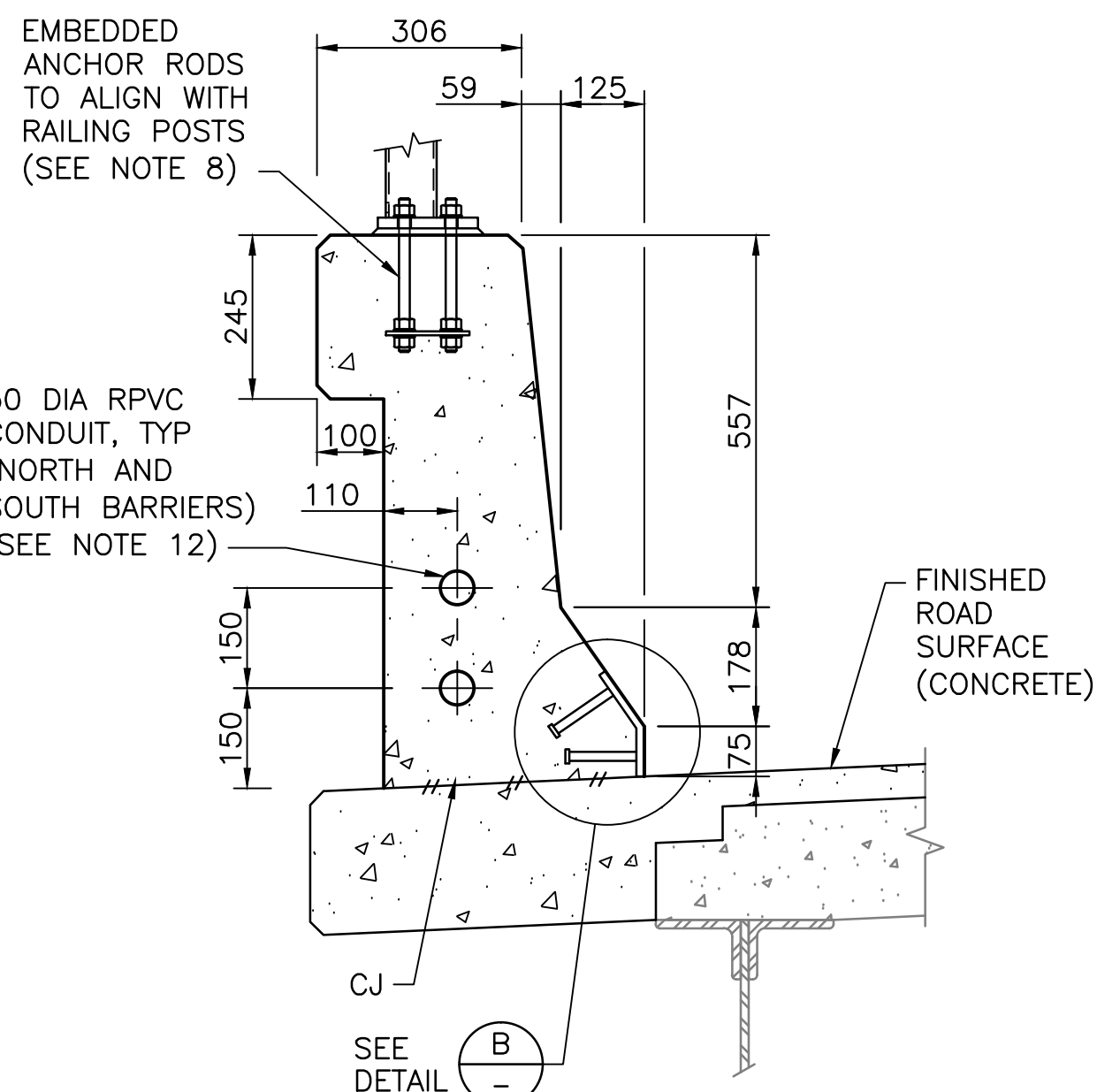
1:25



**TYPICAL BARRIER CONTROL JOINT**

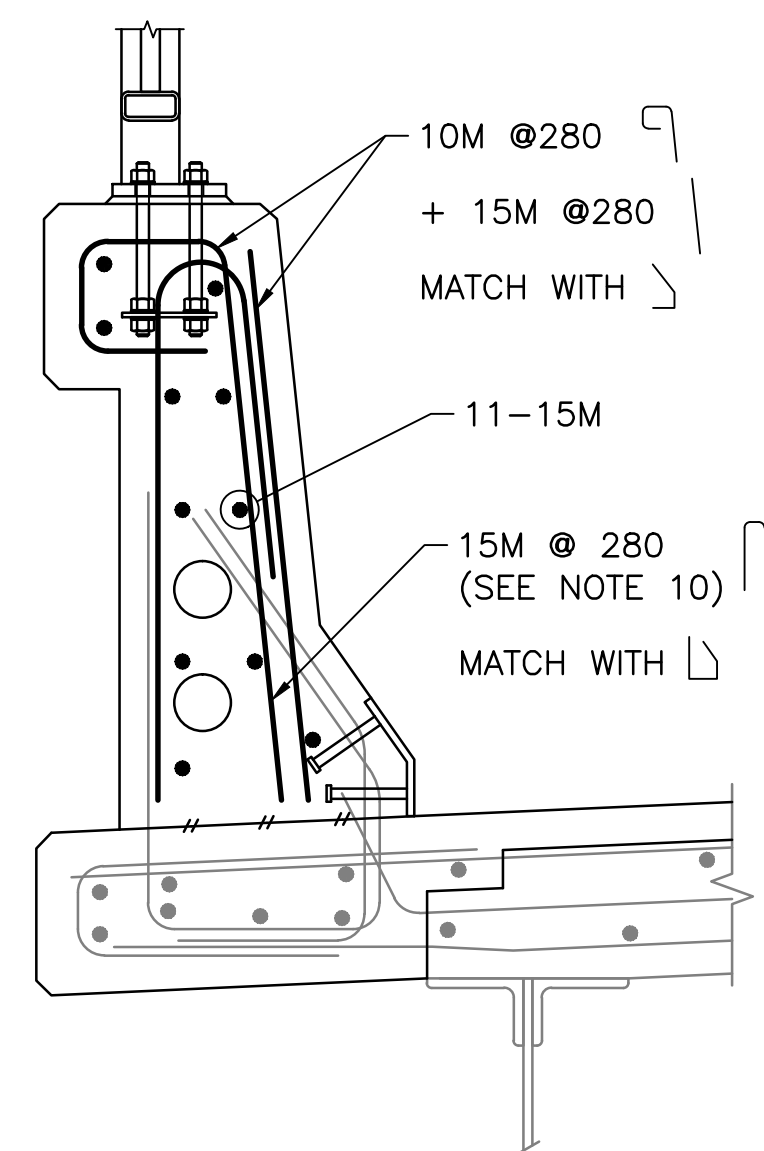
**SECTION 4**

1:1



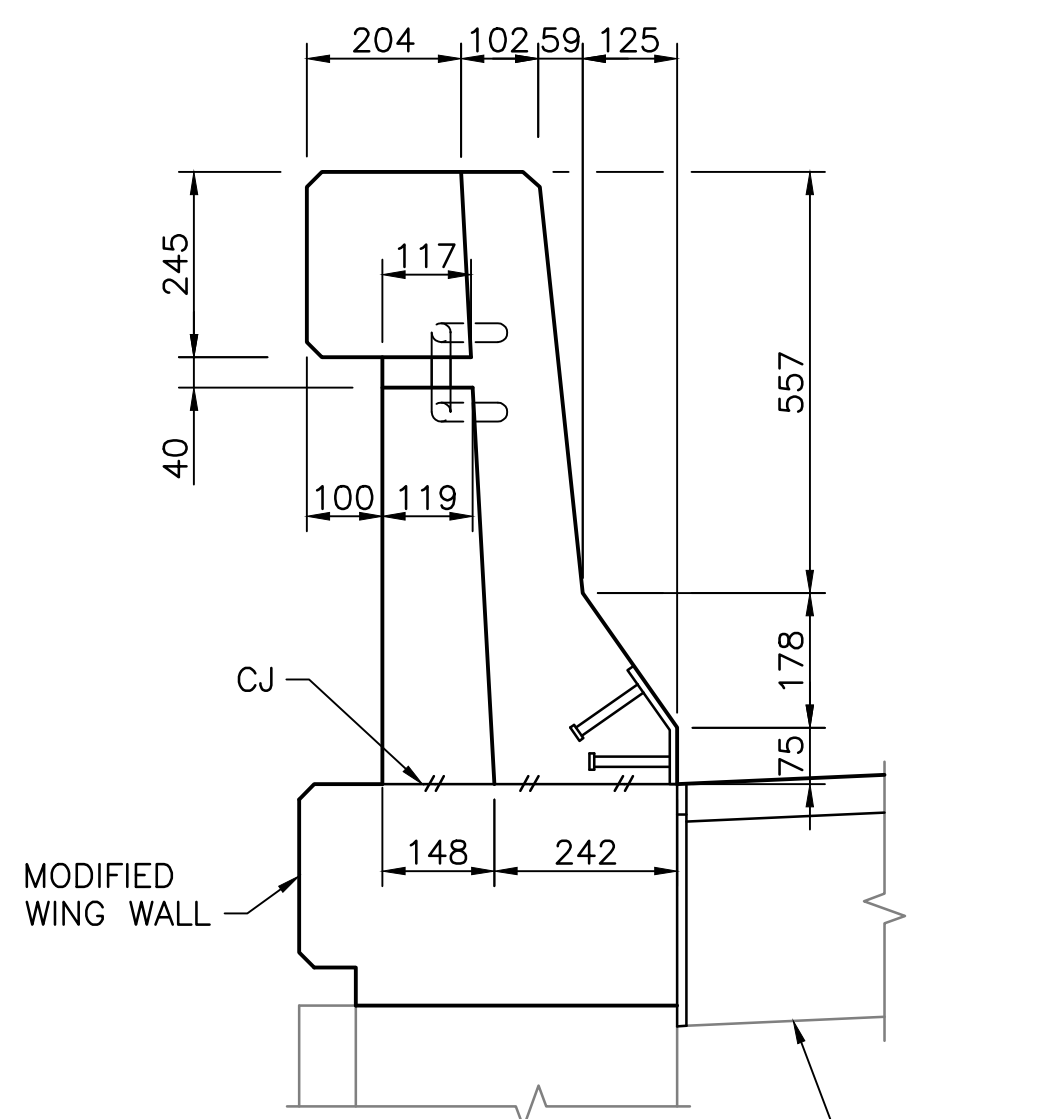
**SECTION 1 OUTLINE**

1:10



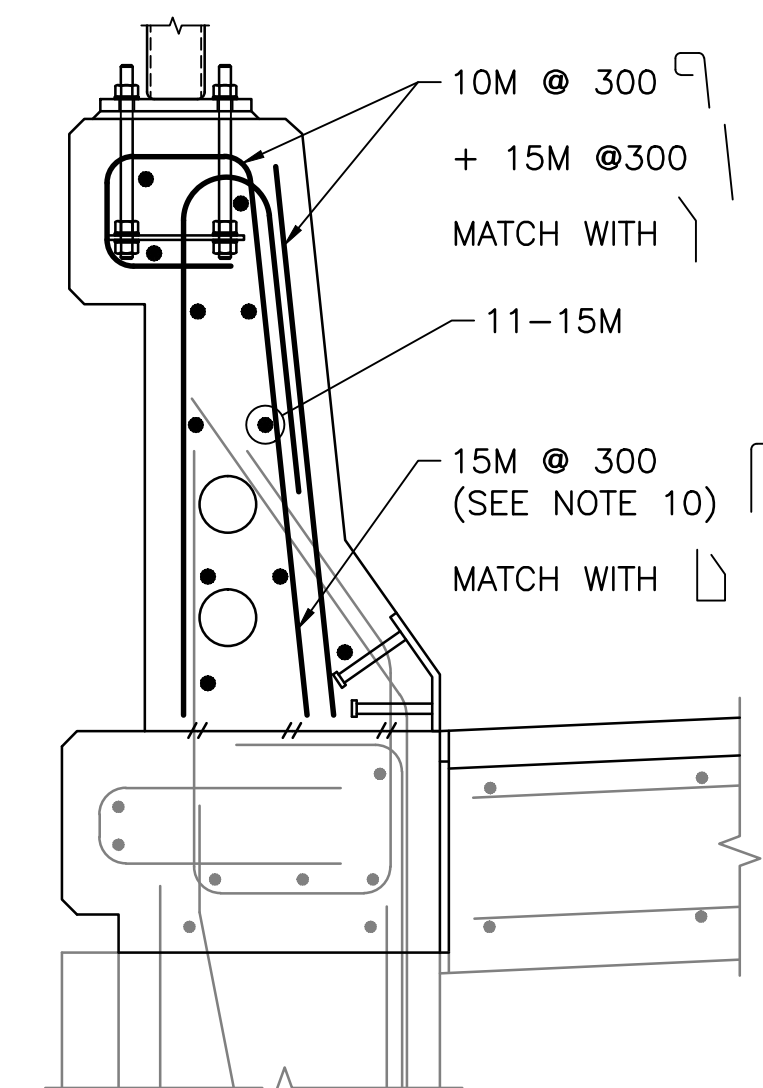
**SECTION 1 REINFORCEMENT**

1:10



**VIEW 2 OUTLINE**

1:10



**SECTION 3 REINFORCEMENT**

1:10

**NOTES:**

- MINIMUM COMPRESSIVE STRENGTH OF CONCRETE: 45 MPa AT 28 DAYS.
- CHAMFER EXPOSED EDGES 20.
- REINFORCING STEEL: CAN/CSA G.30.18M GRADE 400W.
- MINIMUM COVER: 50 UNO.
- MINIMUM LAP:  
10M - 410 UNO.  
15M - 600 UNO.
- STEEL: CAN/CSA G40.21M GRADE 300W, GALVANIZE AFTER FABRICATION.
- STUDS: CSA W59 APPENDIX H, TYPE B, GALVANIZE AFTER FABRICATION.
- ANCHOR ROD DETAILS PROVIDED ON SHEET 208.
- HOT DIP GALVANIZE TO ASTM A123/A123M.
- PROVIDE REDUCED BEND DIAMETER OF 81 (MEASURED ON THE INSIDE OF THE BAR) AND PLACE BAR ON SKEW TO SATISFY COVER REQUIREMENTS.
- PLACE HAIRPINS 10M @ 100 HORIZONTALLY AT BARRIER ENDS.
- REPLACE BARRIER REINFORCEMENT CUT FOR JUNCTION BOX WITH ADDITIONAL EQUIVALENT BARS ADJACENT TO THE BOX.
- CONDUIT ELBOWS NOT TO EXCEED 22.5 DEGREES. ENDS OF CONDUITS SHALL TERMINATE IN RADIAL SWEEPS OR 22.5 DEGREE ELBOWS.





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DO NOT SCALE DRAWINGS

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0	ISSUED FOR CONSTRUCTION	2017/03/13

Client/client	Parks Canada Agence	L'Agence Parcs Canada
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COWI

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BANFF NATIONAL PARK, ALBERTA**

**KM 48.0 BOW VALLEY PARKWAY  
CORRAL CREEK BRIDGE**

Approved by/Approuvé par  
DPG

Designed by/Concept par  
TWB

Drawn by/Dessiné par  
JAET

PWGS Project Manager/Administrateur de Projets TPSSC

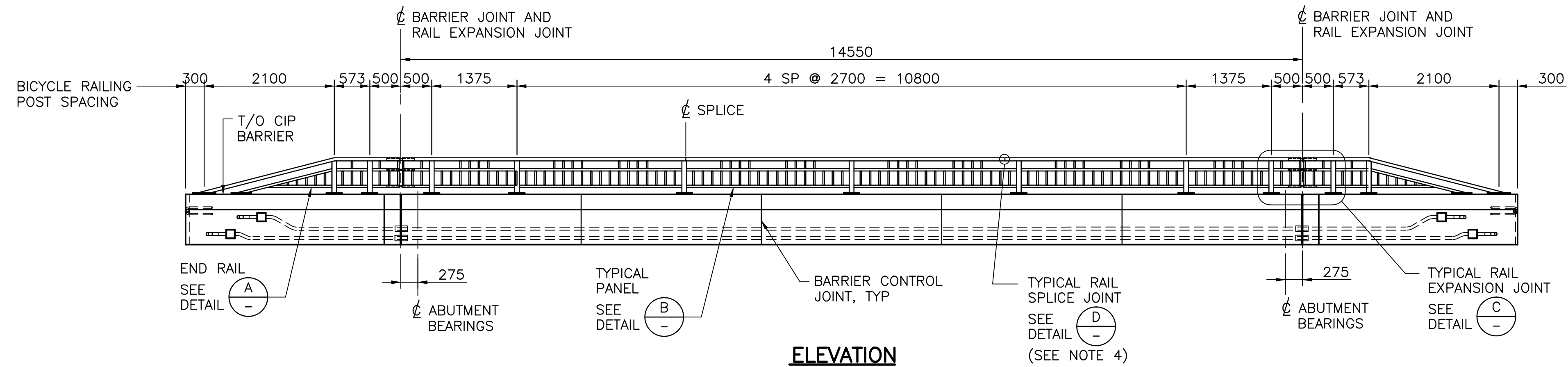
PWGS, Architectural and Engineering Resources Manager/  
Ressources Architectural et de Directeur d'Ingénierie, TPSSC

Client/client  
PCA

Drawing title/Titre du dessin

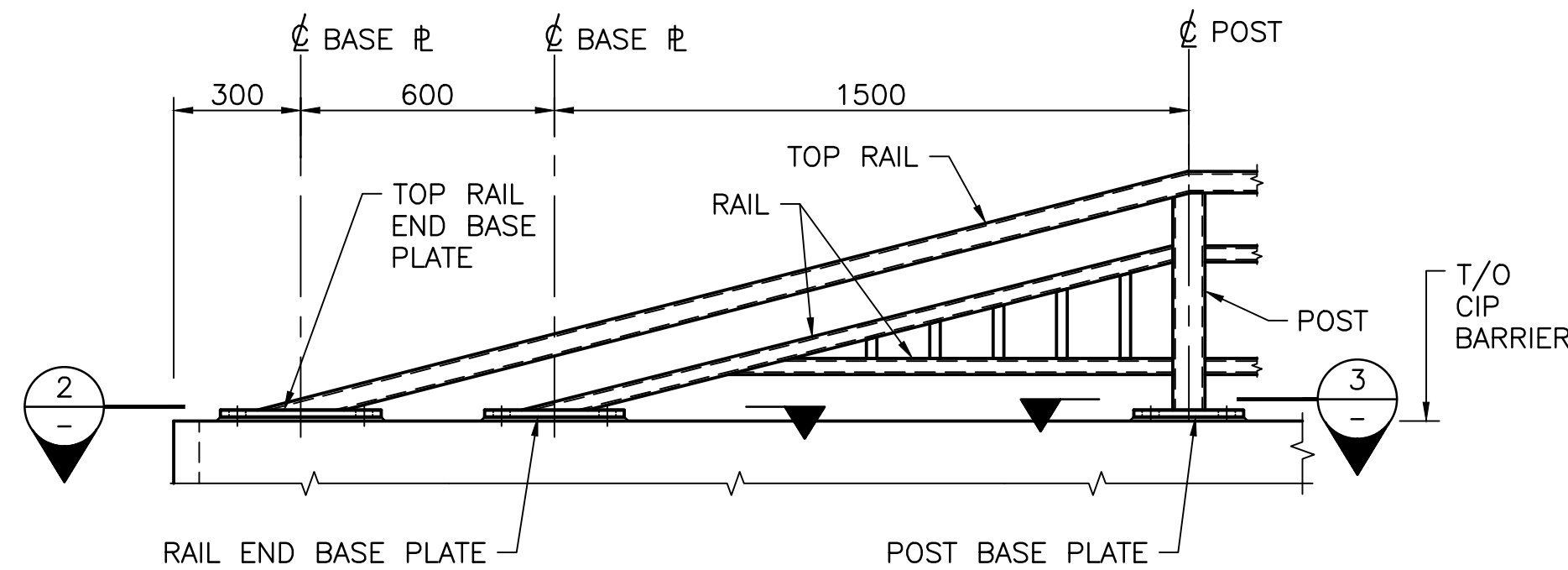
**BICYCLE RAILING**

Project No./No. du projet	Sheet/Feuille <b>208</b> OF	Revision no./ La Révision no. <b>0</b>
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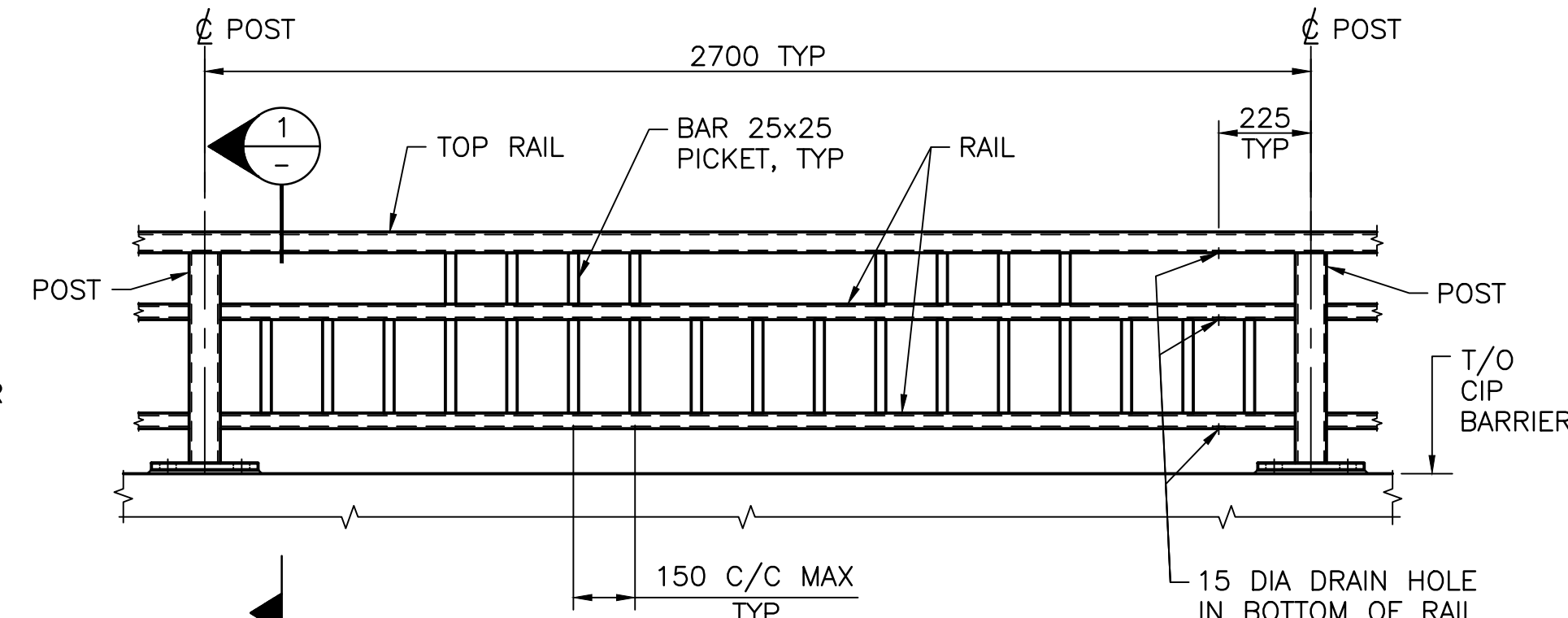
**ELEVATION**

1:50  
(SOUTH RAILING SHOWN - NORTH RAILING SIMILAR)



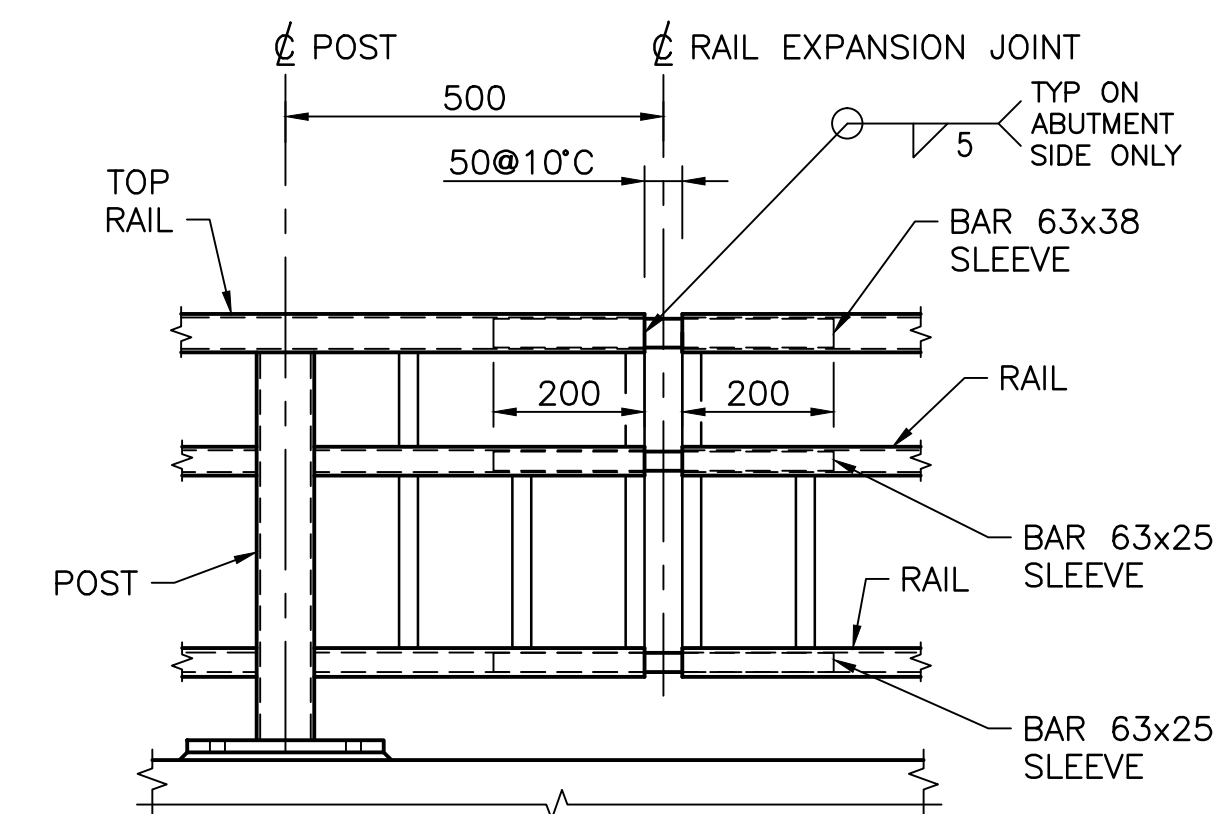
**DETAIL A**

1:15



**DETAIL B**

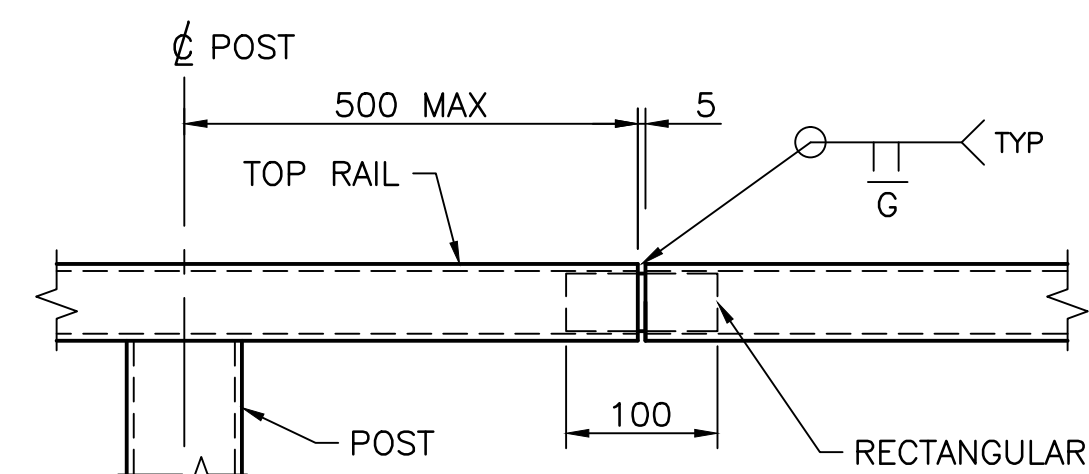
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**TYPICAL RAIL EXPANSION JOINT**

**DETAIL C**

1:10

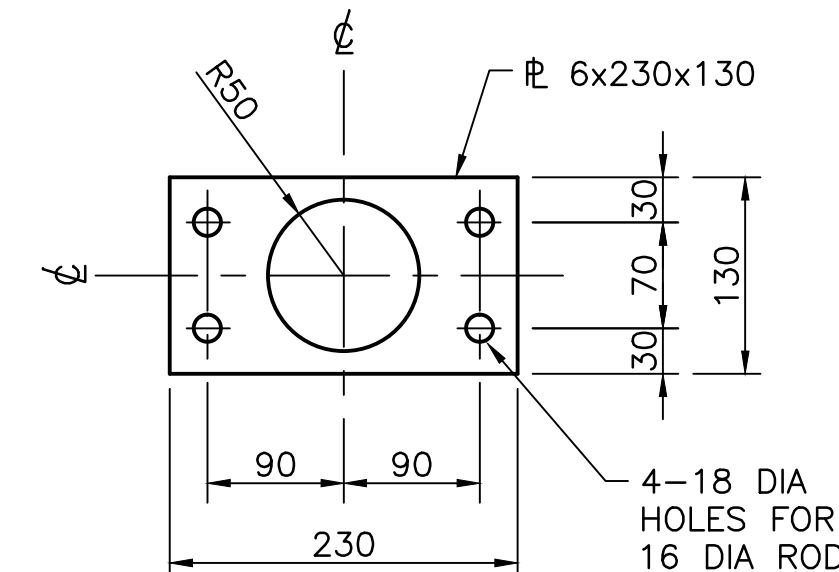


**TYPICAL RAIL SPLYCE**

**DETAIL D**

1:5

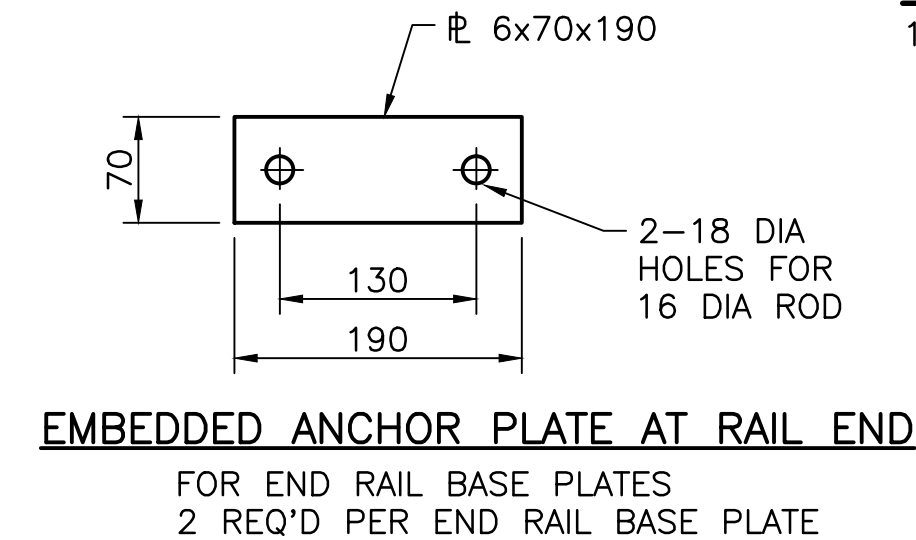
(TOP RAIL SHOWN - OTHER SIMILAR)



**EMBEDDED ANCHOR PLATE AT POST**

**DETAIL E**

1:10

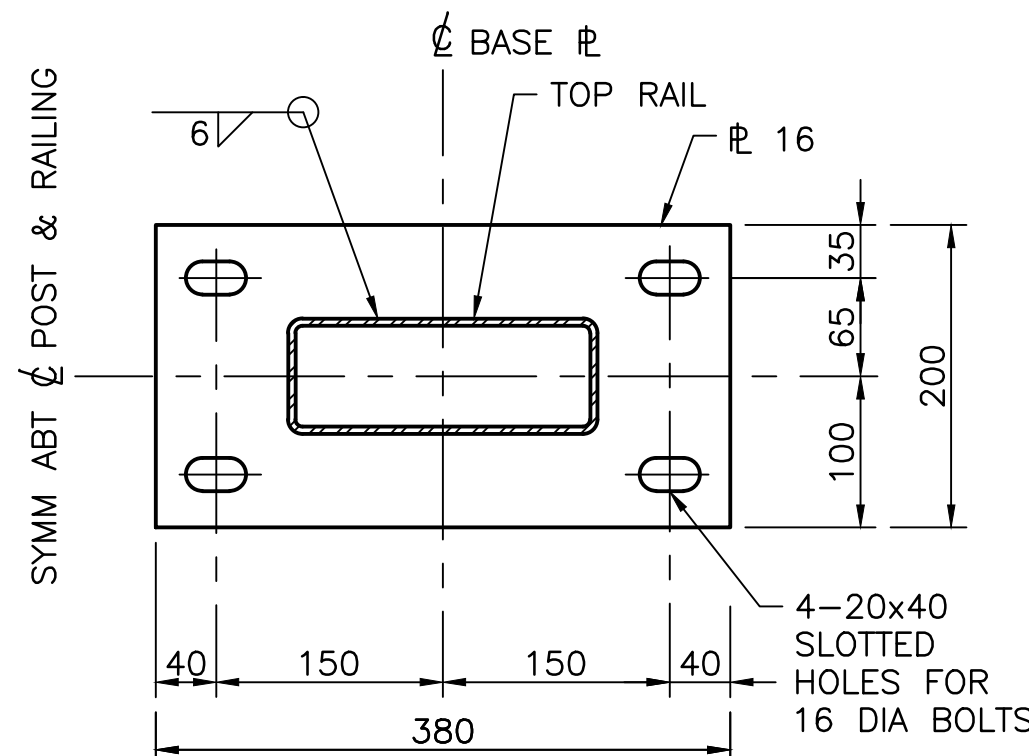


**EMBEDDED ANCHOR PLATE AT RAIL END**

FOR END RAIL BASE PLATES  
2 REQ'D PER END RAIL BASE PLATE

**NOTES:**

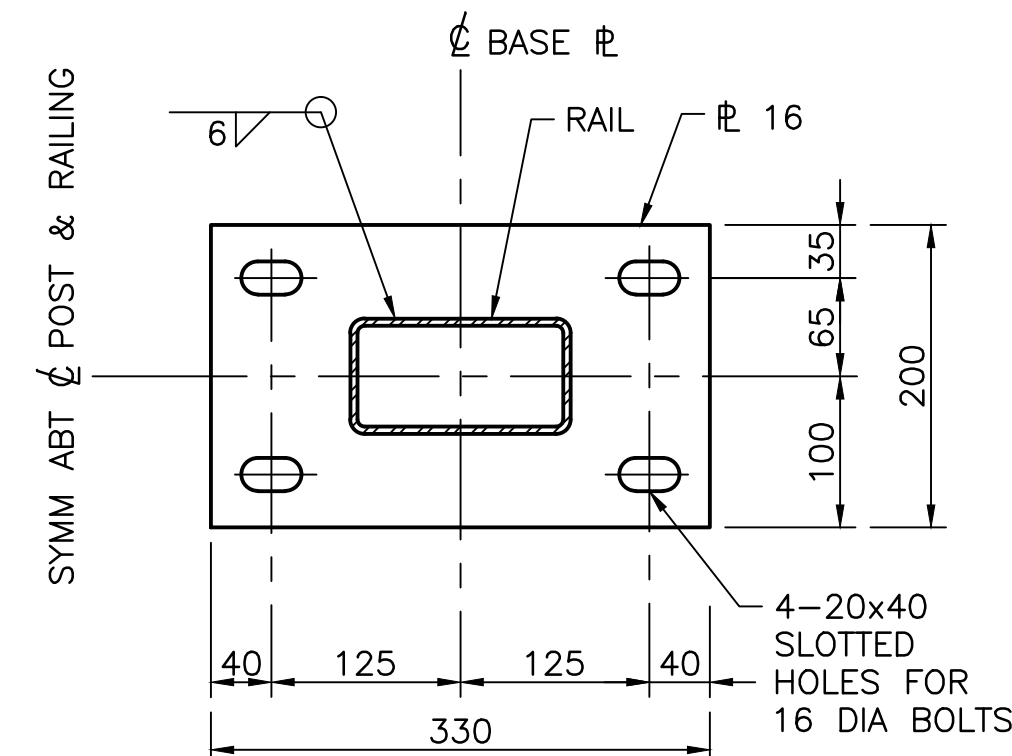
- STEEL:  
HSS: CSA G40.20 CLASS C OR ASTM A500 GRADE B  
ANCHOR RODS, NUTS, WASHERS: TYPE 316 STAINLESS STEEL  
OTHER: G40.21M GRADE 300W
- HOT DIP GALVANIZE TO ASTM A123/A123M.
- ANCHOR POSTS TO THE BARRIER WITH 16 DIA CAST-IN ANCHOR RODS. PROVIDE 175 ROD EMBEDMENT DEPTH AND 55 PROJECTION.
- NOT ALL RAIL SPLYCE JOINTS SHOWN. RAIL SEGMENTS MUST SPAN 3 POSTS MINIMUM AND 4 POSTS WHERE POSSIBLE. RAIL SPLYCES TO BE LOCATED 500 MAX FROM C POST.
- WELDING TO CSA W59.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.
- ACCURATELY PLACE ANCHORAGES TO PROVIDE CORRECT ALIGNMENT OF RAILING, SET NORMAL TO GRADE.
- CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.
- ALL EXPOSED MATERIAL (EXCEPT FOR STAINLESS STEEL) SHALL BE GALVANIZED AND PAINTED (DUPLEX COATED).
- VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.
- TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE AT NO EXTRA COST.



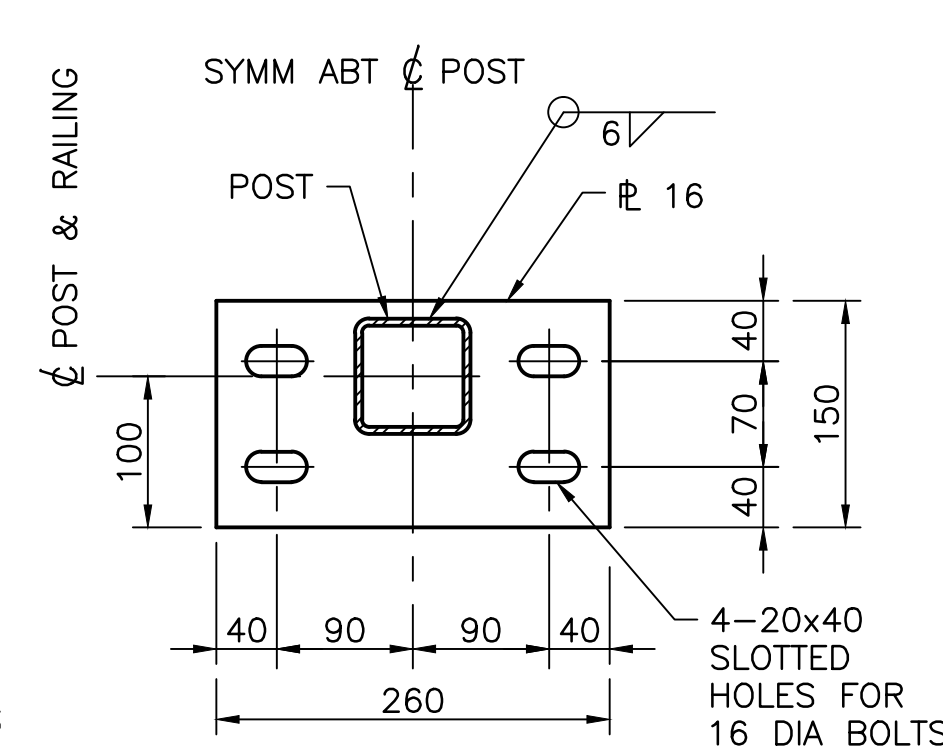
**TOP RAIL END BASE PLATE**

**SECTION 2**

1:5



**RAIL END BASE PLATE**



**POST BASE PLATE**

**SECTION 3**

1:5