

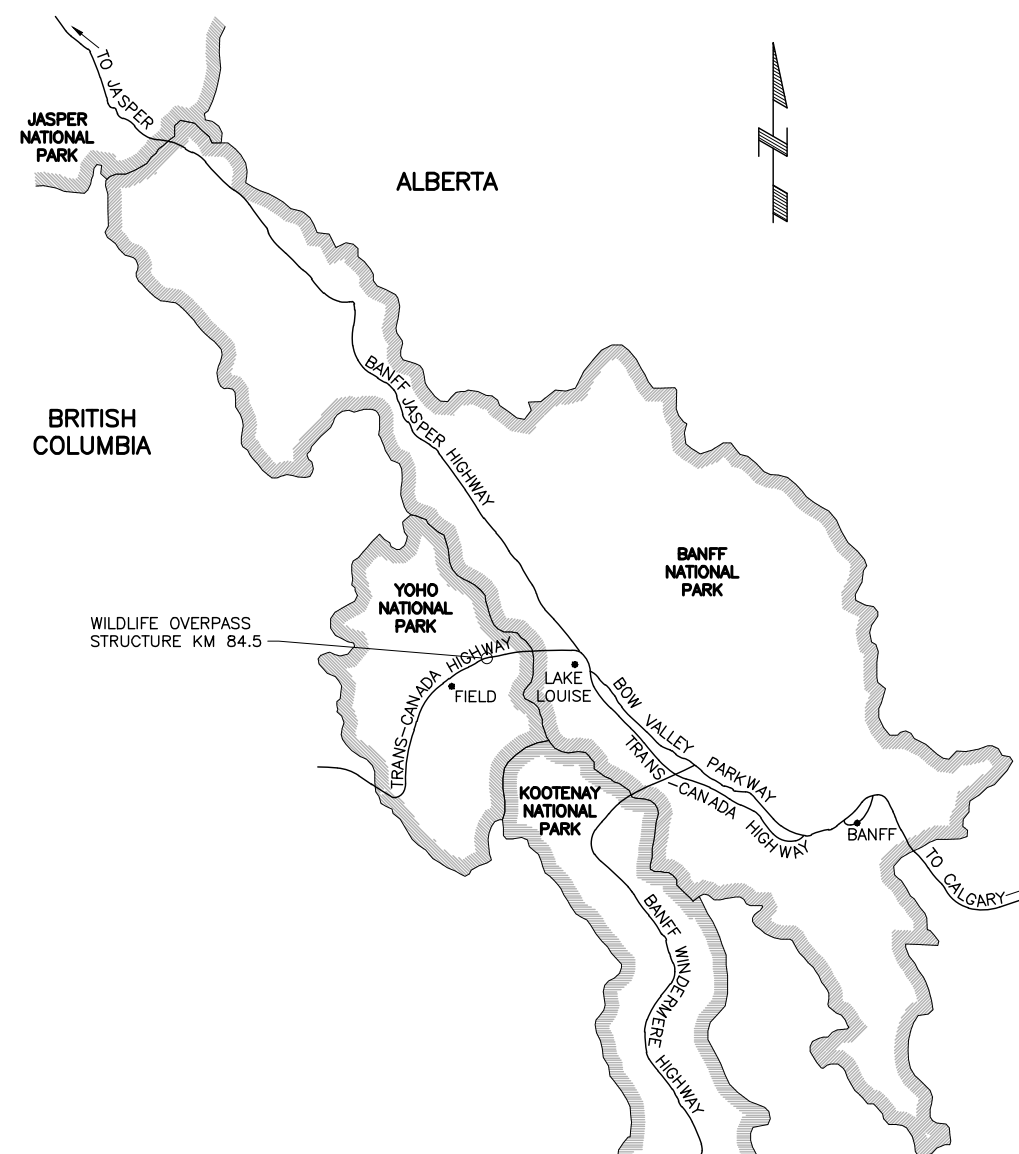
ISSUED FOR TENDER
NOT FOR CONSTRUCTION

TRANS-CANADA HIGHWAY TWINNING

YOHO NATIONAL PARK, BRITISH COLUMBIA

KM 84.5- TRANS-CANADA HIGHWAY

WILDLIFE OVERPASS STRUCTURE



LOCATION MAP
N.T.S.

DRAWING LIST:

- 201615-001 COVER SHEET, DRAWING LIST AND LOCATION MAP
- 201615-002 GENERAL ARRANGEMENT
- 201615-003 GENERAL ARRANGEMENT - SECTIONS
- 201615-004 ABUTMENTS - LAYOUT AND DETAILS
- 201615-005 ABUTMENTS - REINFORCEMENT - 1
- 201615-006 ABUTMENTS - REINFORCEMENT - 2
- 201615-007 PRECAST ARCH - GEOMETRY & DETAILS
- 201615-008 DRAINAGE - LAYOUT AND DETAILS
- 201615-009 MSE RETAINING WALLS - LAYOUT AND DETAILS
- 201615-010 ROAD CONSTRUCTION - PLAN AND SECTION

DO NOT SCALE DRAWINGS

0	ISSUED FOR TENDER	16/07/22

Revision/Revisions	Description/Description	Date/Date
Client/Client		
Parks Canada Agency	L'Agence Parcs Canada	



Project title/Titre du projet
TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA

**KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE**

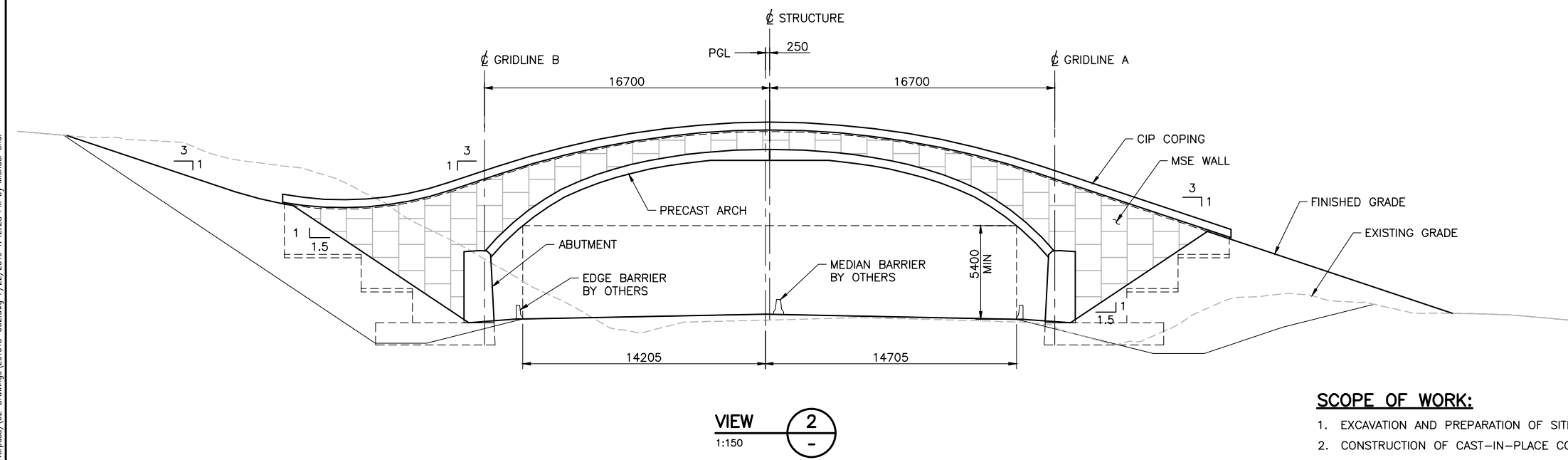
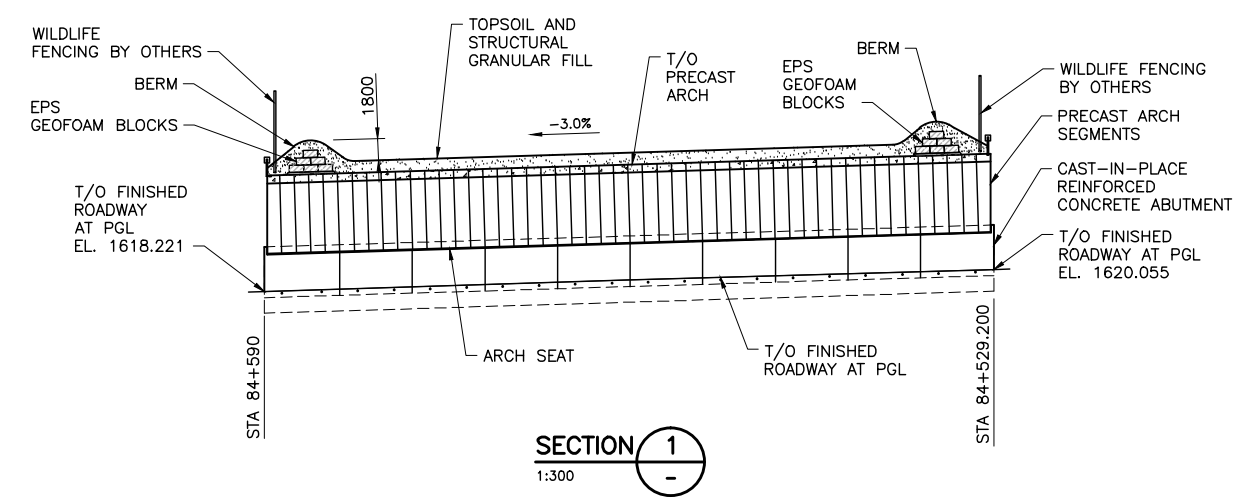
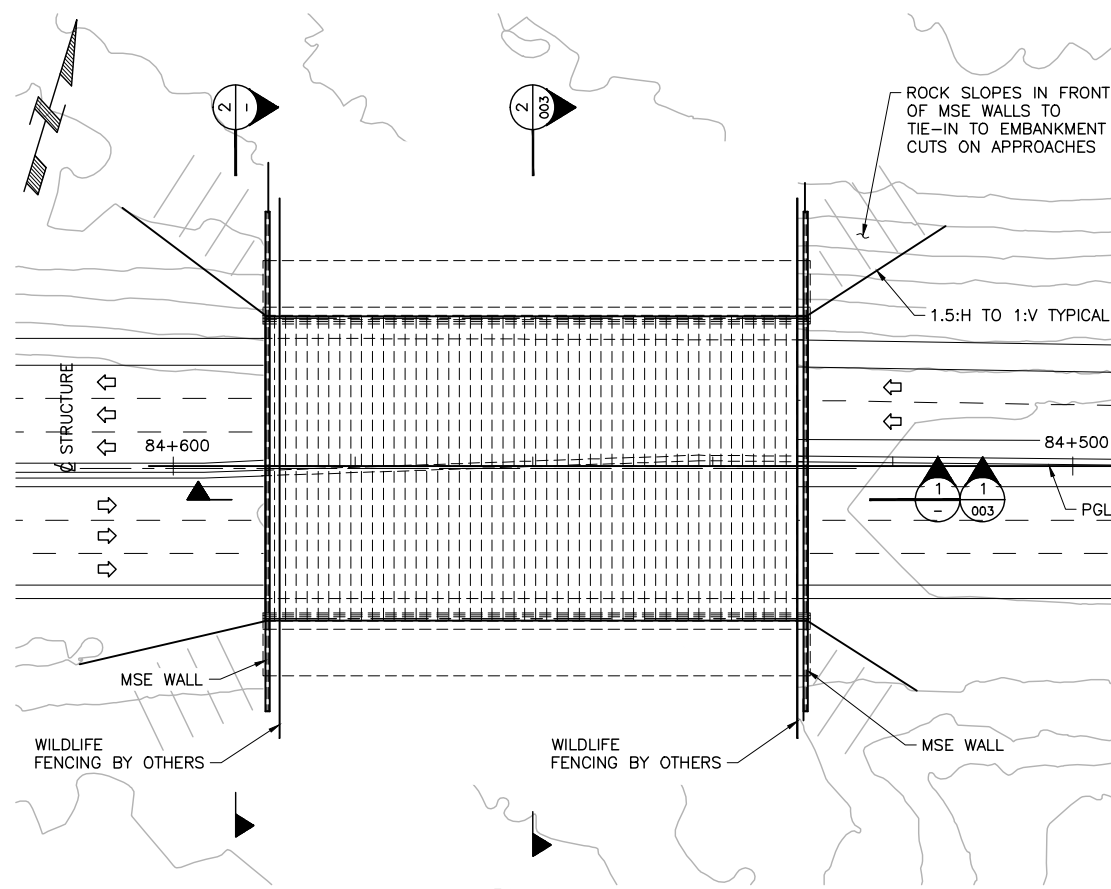
Approved by/Approuvé par DPG	
Designed by/Concept par PCRN	
Drawn by/Dessiné par JAET	
PWGSC Project Manager/Administrateur de Projets TP5GC	
PWGSC, Architectural and Engineering Resources Manager/ Ressources Architecturales et de Directeur d'Ingénierie, TP5GC	
Client/Client PCA	

Drawing title/Titre du dessin

COVER SHEET DRAWING LIST AND LOCATION MAP

Project No./No. du projet 201615	Sheet/Feuille 001 OF	Revision no./La Révision no. 0
-------------------------------------	-----------------------------------	--

ISSUED FOR TENDER
NOT FOR CONSTRUCTION



SCOPE OF WORK:

1. EXCAVATION AND PREPARATION OF SITE FOR CONSTRUCTION.
2. CONSTRUCTION OF CAST-IN-PLACE CONCRETE ABUTMENTS.
3. "DESIGN AND BUILD" OF PRECAST CONCRETE ARCH SEGMENTS.
4. CONSTRUCTION OF CAST-IN-PLACE ARCH INFILL JOINTS.
5. SUPPLY AND INSTALLATION OF ARCH WATERPROOFING.
6. "DESIGN AND BUILD" REINFORCED SOIL RETAINING WALLS AT LOCATIONS SHOWN ON THE DRAWINGS.
7. SUPPLY AND INSTALLATION OF ARCH AND ABUTMENT WALL DRAINAGE.
8. BACKFILLING OF ABUTMENTS AND PRECAST ARCH.
9. SUPPLY AND INSTALLATION OF EPS GEOFOAM FOR BERM SHAPING.
10. CONSTRUCTION OF CAST-IN-PLACE COPING TO TOP OF REINFORCED EARTH WALLS.
11. APPROXIMATELY 120m OF HIGHWAY WIDENING WORK INCLUDING RELATED DRAINAGE

DO NOT SCALE DRAWINGS

Revision/Revisions	Description/Description	Date/Date
0	ISSUED FOR TENDER	18/07/22

Client/Client
Parks Canada / L'Agence Parcs Canada



Project title/Titre du projet
TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA
**KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE**

Approved by/Approuvé par
DPG

Designed by/Concepté par
PCRN

Drawn by/Dessiné par
JAET

PWGS/C Project Manager/Administrateur de Projets TP/SGC

PWGS/C Architectural and Engineering Resources Manager/
Ressources Architecturales et de Directeur d'Ingénierie, TP/SGC

Client/Client
PCA

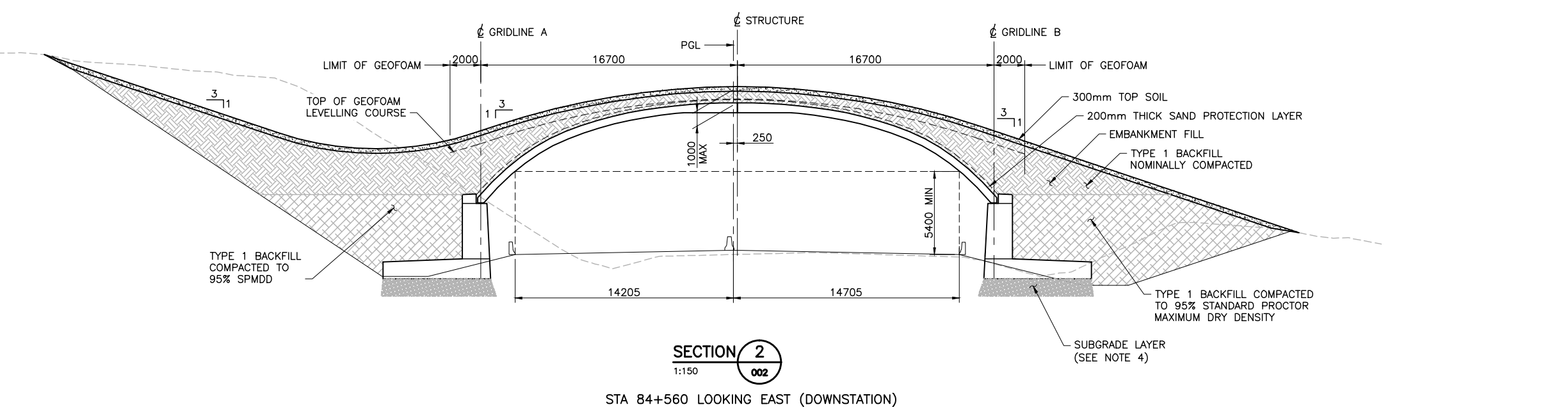
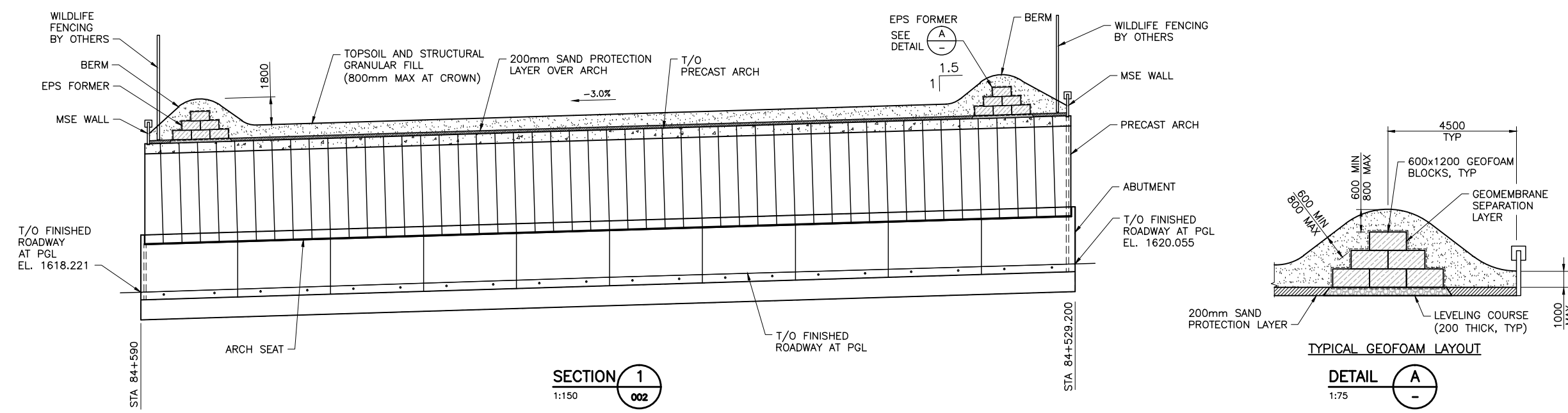
Drawing title/Titre du dessin

GENERAL ARRANGEMENT

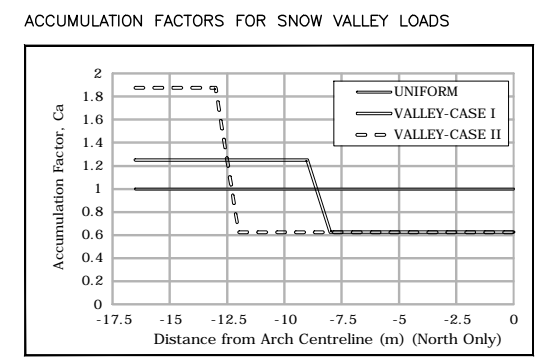
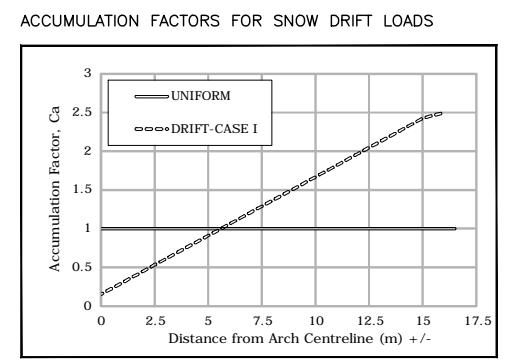
Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
201615	002 OF	0

C:\19445\02-Drawings\201615 (YHO_TCH_KM 84.5_Wildlife Overpass)\02-Drawings\201615-002.dwg 7/22/2016 1:42:28 PM by Michael Chui

ISSUED FOR TENDER
NOT FOR CONSTRUCTION



- DESIGN DATA:**
- DESIGN STANDARD: CANADIAN STANDARDS ASSOCIATIONS CAN/CSA-S6-14.
 - DESIGN LIFE: 75 YEARS.
 - DESIGN LOADS:
 - UNIT MATERIAL WEIGHTS
 - REINFORCED CONCRETE: 24 kN/m³
 - FILL MATERIAL: 22 kN/m³
 - EARTH FILL OVER ARCH TO BE STRICTLY IN ACCORDANCE WITH DRAWING. MAXIMUM TOTAL DEPTH AT CROWN = 1000mm.
 - SNOW LOADS:
 - SNOW LOADS TO NBCC 2015
 - 1 IN 50 YEAR GROUND SNOW LOAD: 5.0 kN/m²
 - THE FOLLOWING SNOW LOAD CONFIGURATIONS SHALL BE CONSIDERED IN ACCORDANCE WITH NBCC 2015.
 - FULL SNOW LOAD
 - PARTIAL SNOW LOAD
 - SNOW DRIFT UNBALANCED FOR ARCH SURFACES
 - SNOW VALLEY LOADING AT NORTH VALLEY
 - SEE FIGURES FOR ACCUMULATION FACTORS.



ARCH BEARING DEMANDS ASSUMED FOR THE DESIGN

LOAD TYPE	Vertical Load (kN/m)	Horizontal Load (kN/m)	Notes
DEAD LOAD ARCH	V _{DL} = 230 kN/m	H _{DL} = 310 kN/m	ARCH ELEMENTS ONLY (INCLUDING CROWN JOINT CONCRETE)
OVERFILL LOAD	V _{FILL} = 500 kN/m H _{FILL} = 400 kN/m		BACKFILL AND OVERFILL ONLY (NO DL) (22 kN/m ³)
SNOW LOAD	V _{SNOW} = 80 kN/m H _{SNOW} = 100 kN/m		SNOW LOAD ONLY (NO DL+FILL) (5 kN/m OVER COMPLETE ARCH SPAN)
TOTAL (UNFACTORED)	V _{TOTAL} = 810 kN/m H _{TOTAL} = 810 kN/m		

- NOTES:**
- VERTICAL POSITION OF EPS TO FOLLOW FINAL VERTICAL GRADE OF BERM. I.E. TOP OF EPS FORMER TO BE 800mm FROM TOP OF BERM AT ALL TIMES.
 - GEOFOAM FORMER REQUIRED OVER ARCH ONLY (SEE LIMITS SHOWN).
 - LEVELING COURSE TO BE PROVIDED IN ACCORDANCE WITH SPECS.
 - SUBGRADE TO BE INSPECTED BY GEOTECHNICAL ENGINEER TO VISUALLY CONFIRM DENSE TO VERY DENSE NATIVE TILL DEPOSIT. FACTORED BEARING RESISTANCE ASSUMED IN DESIGN IS 500 kPa, ANGLE OF INTERNAL FRICTION IS ASSUMED TO BE 34° FOR SLIDING.
 - ABUTMENT BACKFILL TO BE COMPLETED PRIOR TO INSTALLATION OF ARCHES.
 - BACKFILLING OF ARCH TO FOLLOW SEQUENCING SPECIFIED BY ARCH SUPPLIER, AND APPROVED BY DEPARTMENTAL REPRESENTATIVE.

DO NOT SCALE DRAWINGS

Revision/Revisions	Description/Description	Date/Date
0	ISSUED FOR TENDER	16/07/22

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



Project Title/Titre du projet: TRANS-CANADA HIGHWAY TWINNING YOHO NATIONAL PARK, BRITISH COLUMBIA

KM 84.5 TRANS-CANADA HIGHWAY WILDLIFE OVERPASS STRUCTURE

Approved by/Approve par: DPG

Designed by/Concept par: PCRN

Drawn by/Designe par: JAET

PIWGSC Project Manager/Administrateur de Projets TPISGC

PIWGSC Architectural and Engineering Resources Manager/ Ressources Architecturales et de Directeur d'Ingénierie, TPISGC

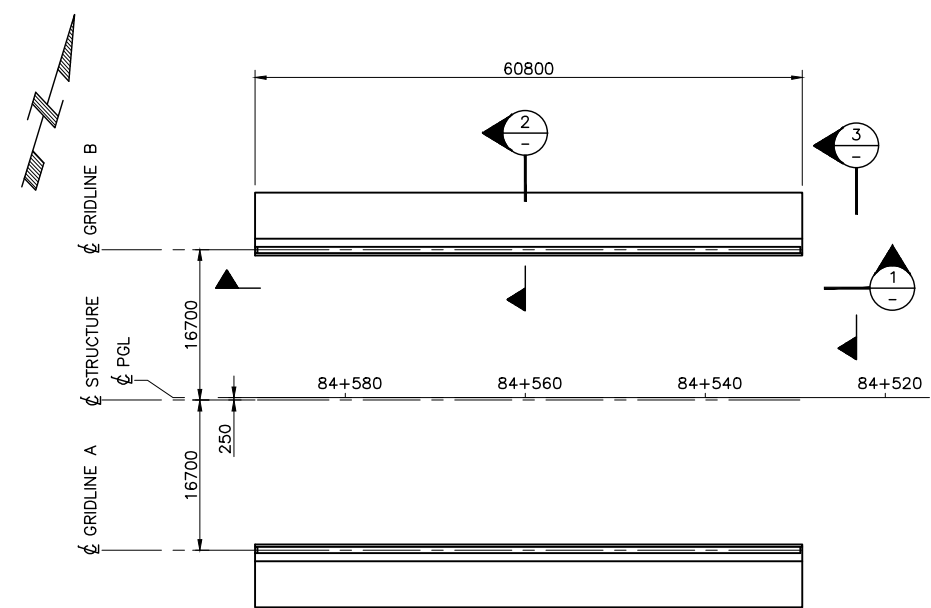
Client/Client: PCA

Drawing Title/Titre du dessin: GENERAL ARRANGEMENT SECTIONS

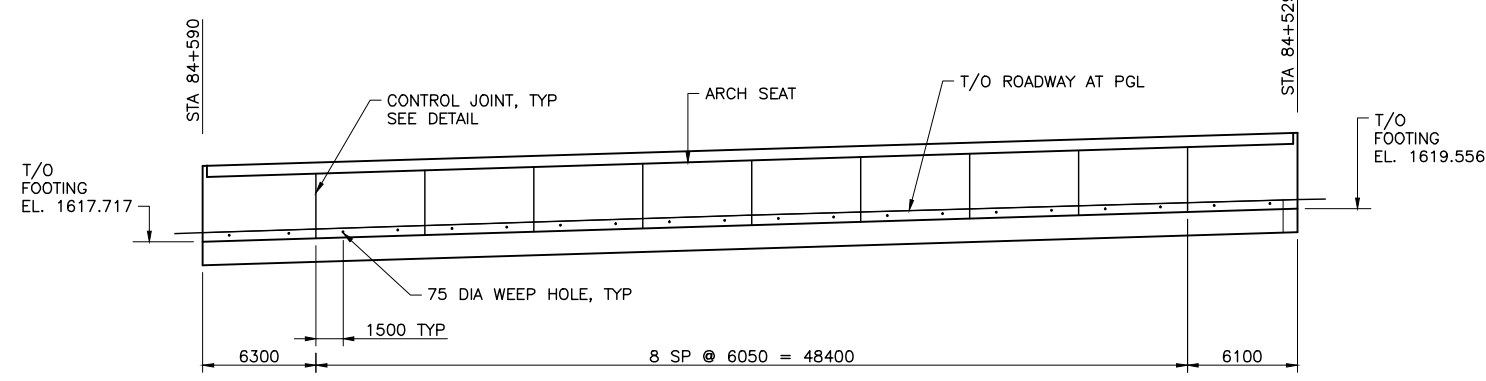
Project No./No. du projet	Sheet/Feuille	Revision No./La Révision no.
201615	003 OF	0

C:\19445\02-Drawings\201615 (Wildlife Overpass)\02-Drawings\201615-003.dwg 7/22/2016 3:45:33 PM by Michael Chui

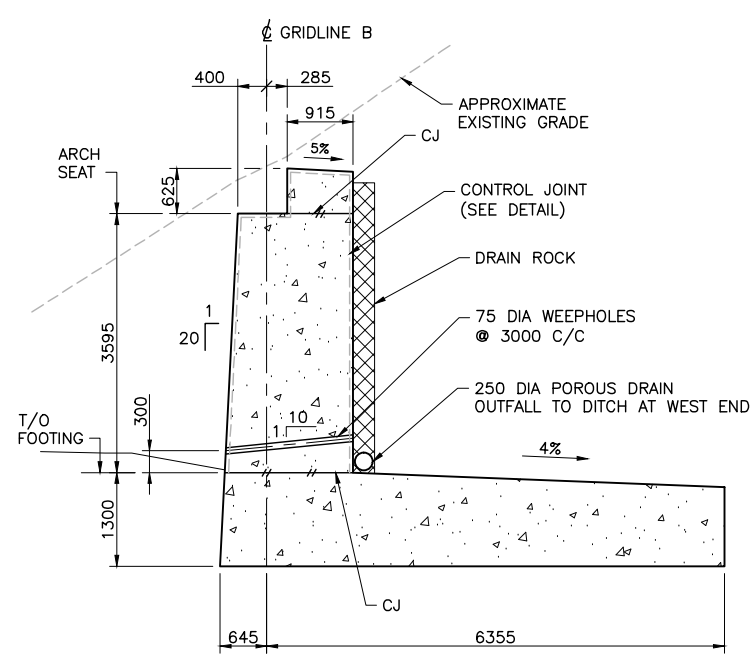
ISSUED FOR TENDER
NOT FOR CONSTRUCTION



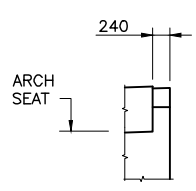
PLAN
1:400



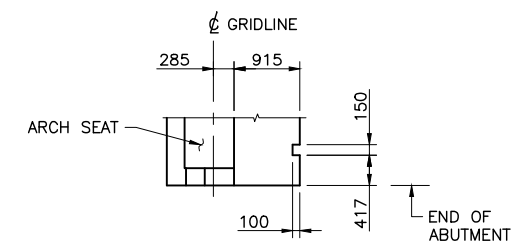
VIEW 1
1:200



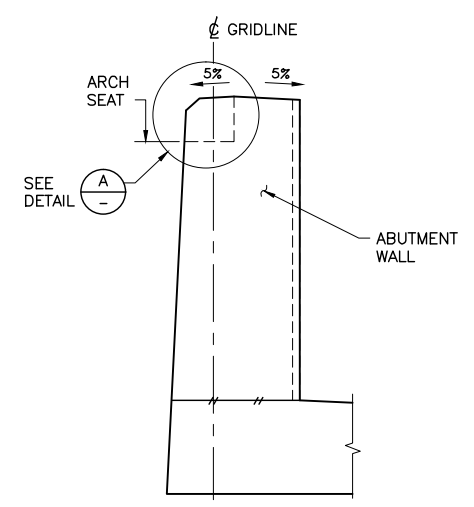
SECTION 2
1:50



SIDE VIEW

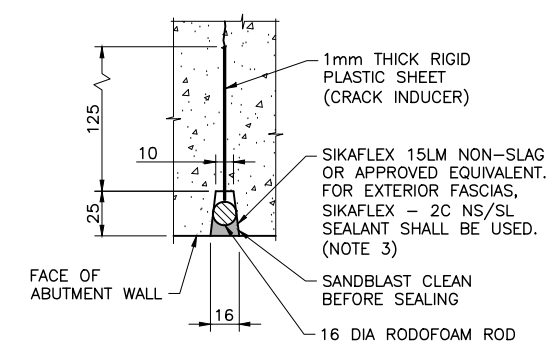


PLAN

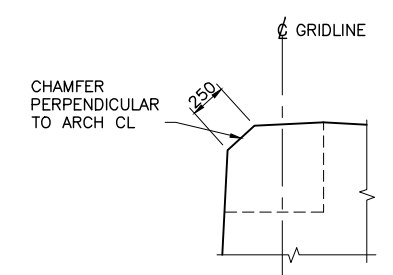


ABUTMENT WALL END DETAIL

VIEW 3
1:50



TYPICAL CONTROL JOINT AT FRONT FACE OF ABUTMENT
1:2



DETAIL A
1:25

NOTES:

1. CONCRETE $f'_c = 35$ MPa.
2. CHAMFER EXPOSED EDGES 25x25, U.N.O.
3. THE COLOUR OF THE 2C NS/SL SEALANT SHALL CLOSELY MATCH THE COLOUR OF ADJACENT CONCRETE SURFACES.
4. ALL CONSTRUCTION JOINTS SHALL BE CLEAN, FREE OF LAITANCE AND INTENTIONALLY ROUGHENED TO AN AMPLITUDE OF 5mm AND A SPACING OF ABOUT 15mm.

DO NOT SCALE DRAWINGS

Revision/Revisions	Description/Description	Date/Date
0	ISSUED FOR TENDER	16/07/22

Client/Client	Parks Canada / L'Agence Parcs Canada
---------------	--------------------------------------



Project title/Titre du projet
TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA
KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE

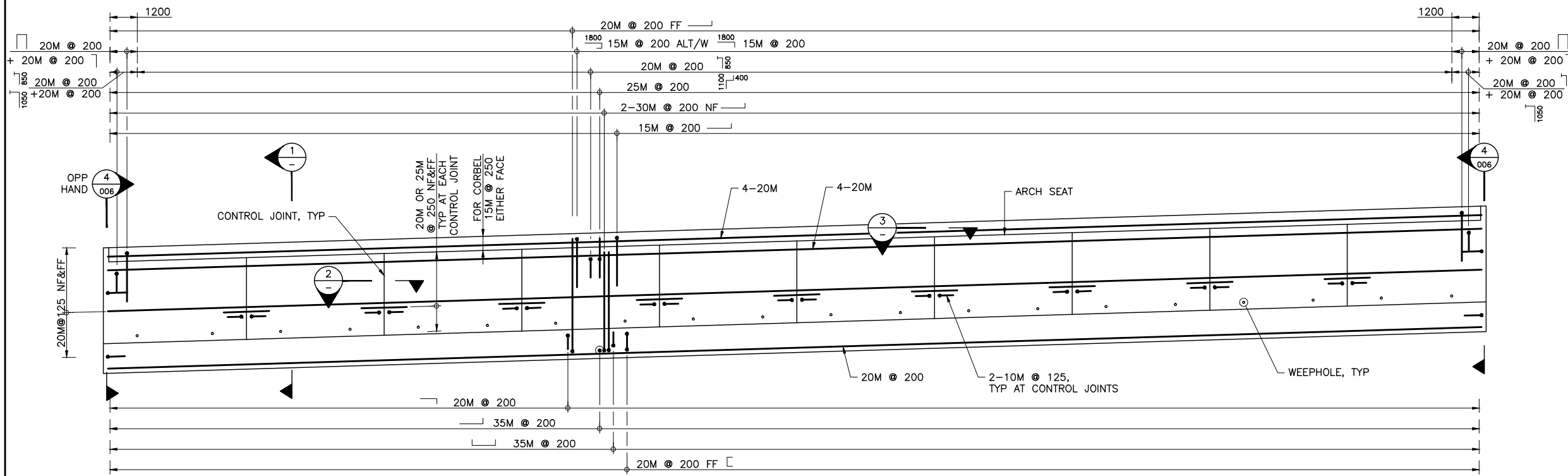
Approved by/Approuvé par	DPG
Designed by/Concept par	TB
Drawn by/Dessiné par	JAET
PWSSC Project Manager/Administrateur de Projets	TPSSC
PWSSC, Architectural and Engineering Resources Manager/Ressources Architecturales et de Directeur d'Ingénierie, TPSSC	
Client/Client	PCA
Drawing title/Titre du dessin	

ABUTMENTS
LAYOUT AND DETAILS

Project No./No. du projet	201615	Sheet/Feuille	004	Revision no./La Révision no.	0
---------------------------	--------	---------------	-----	------------------------------	---

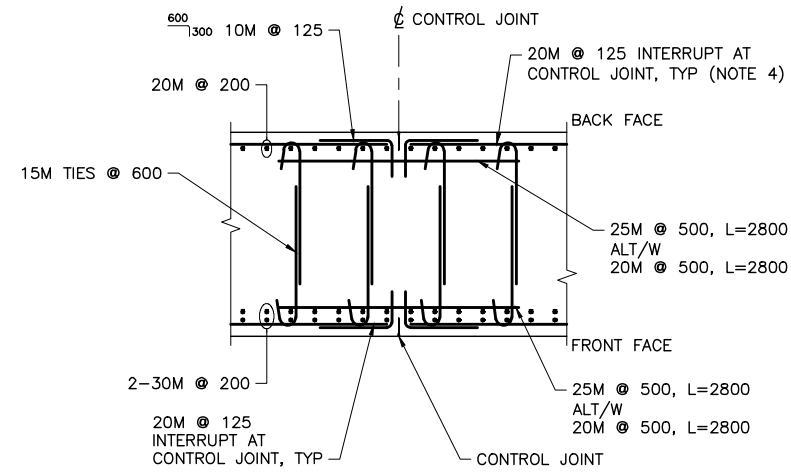
C:\19445\02-Drawings\201615 (YHO_TCH_KM 84.5_Wildlife Overpass)\02-Drawings\201615-004.dwg 7/22/2016 3:44:03 PM by Coqy Grunert

**ISSUED FOR TENDER
NOT FOR CONSTRUCTION**



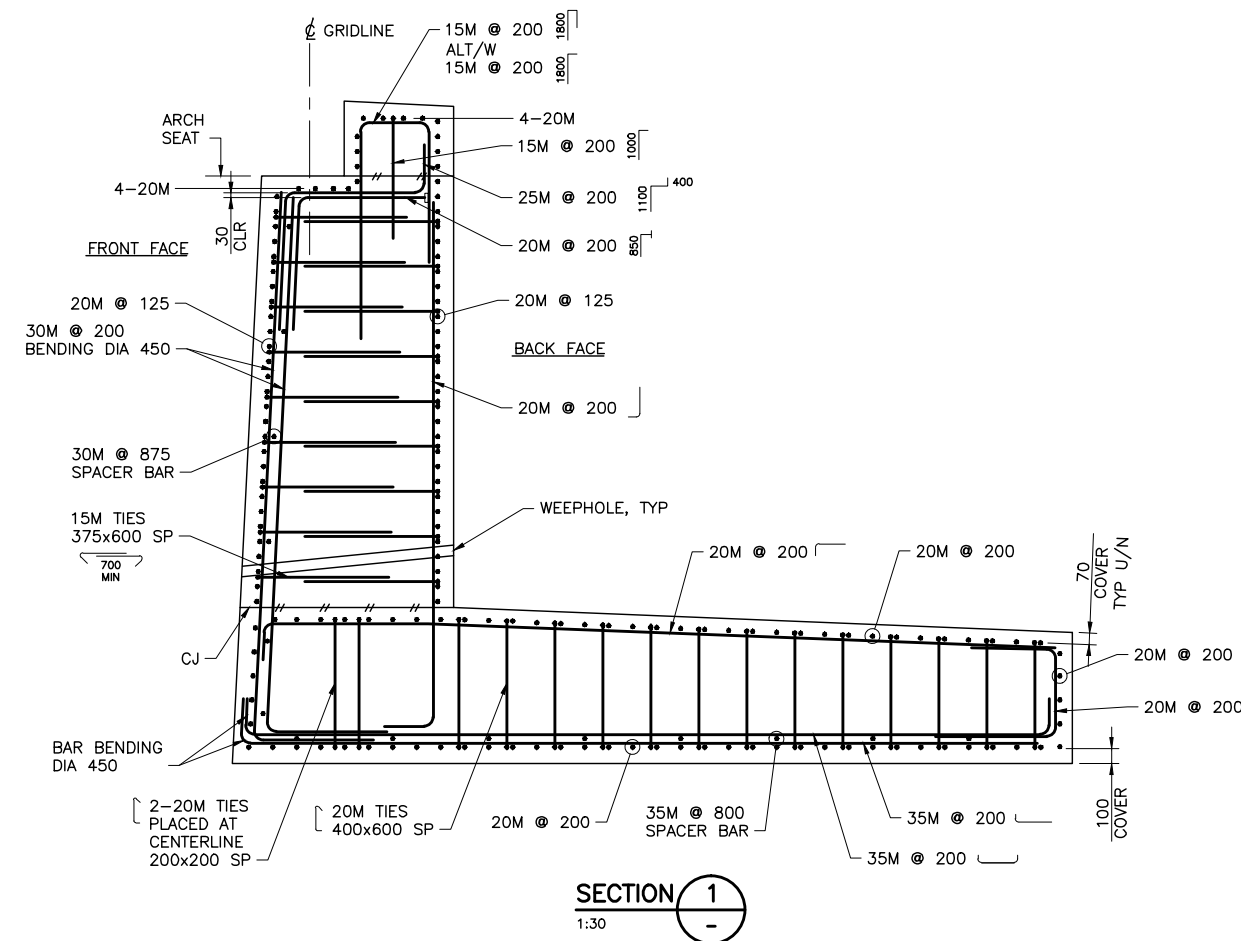
ELEVATION

1:100



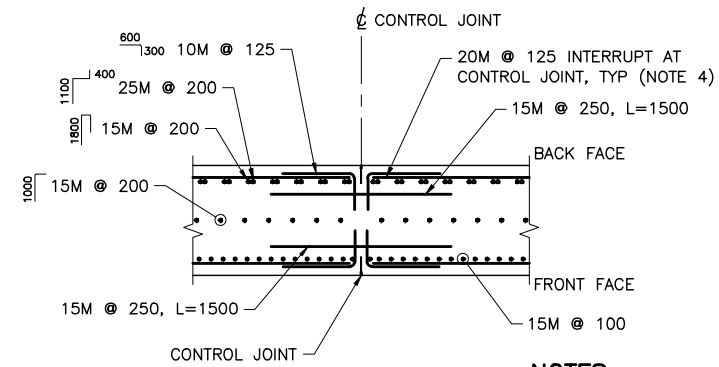
SECTION 2

1:30



SECTION 1

1:30



SECTION 3

1:30

NOTES:

1. CONCRETE: $f'_c = 35 \text{ MPa}$.
2. REINFORCING STEEL: CAN/CSA G30.18M GRADE 400W U.N.O.
3. MINIMUM COVER: 70mm
4. LAYOUT APPLIES TO 20M REBARS AT HORIZONTAL SURFACES AS WELL.
5. T-HEADS SHALL BE LENTON-TERMINATOR OR APPROVED EQUIVALENT.

DO NOT SCALE DRAWINGS

Revision/Revision	Description/Description	Date/Date
0	ISSUED FOR TENDER	16/07/22

Client/Client

Parks Canada Agency	L'Agence Parcs Canada
---------------------	-----------------------

COWI

Project title/Titre du projet
TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA

**KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE**

Approved by/Approuvé par
DPG

Designed by/Concept par
TB

Drawn by/Designé par
JAET

PIWGC Project Manager/Administrateur de Projets PIWGC

PIWGC, Architectural and Engineering Resources Manager/
Ressources Architecturales et de Directeur d'Ingénierie, PIWGC

Client/Client

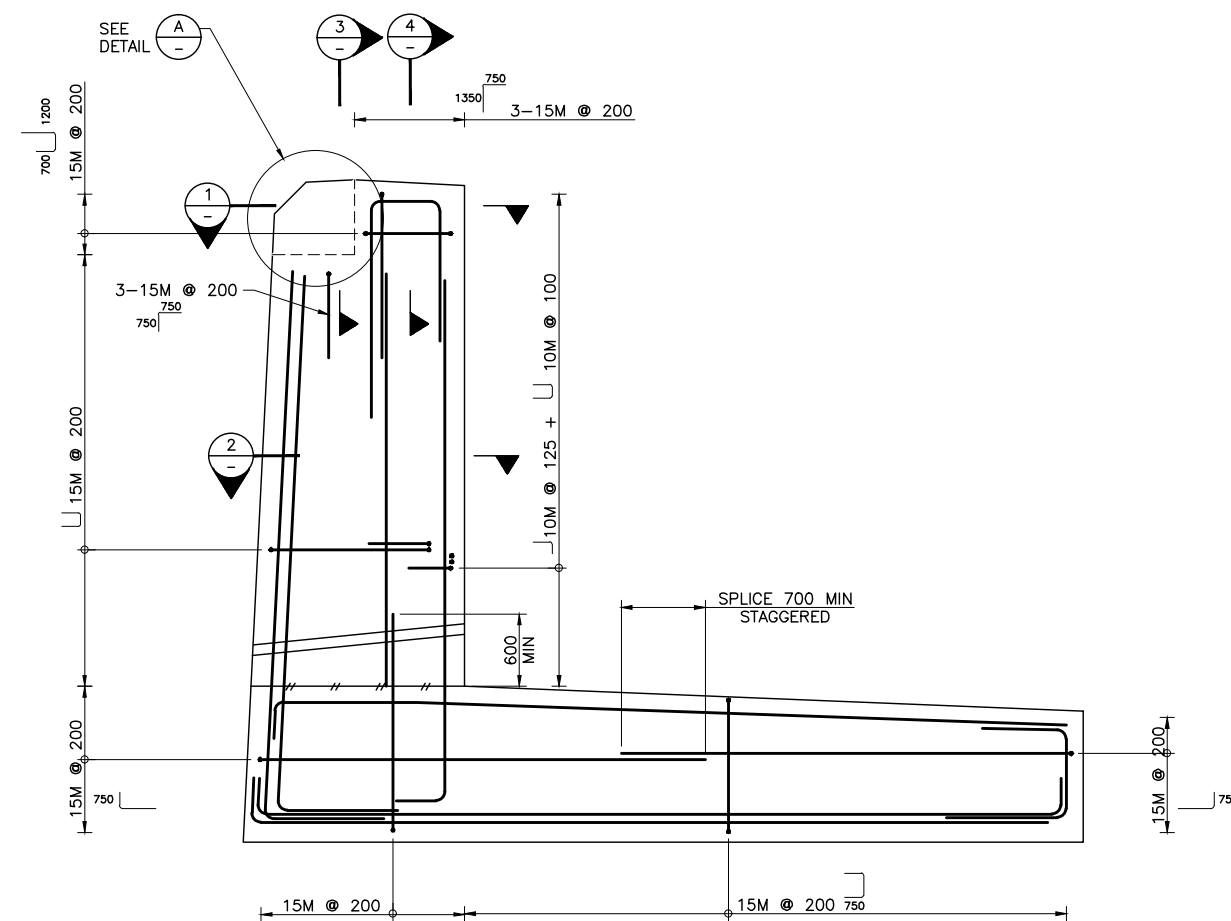
PCA

Drawing title/Titre du dessin

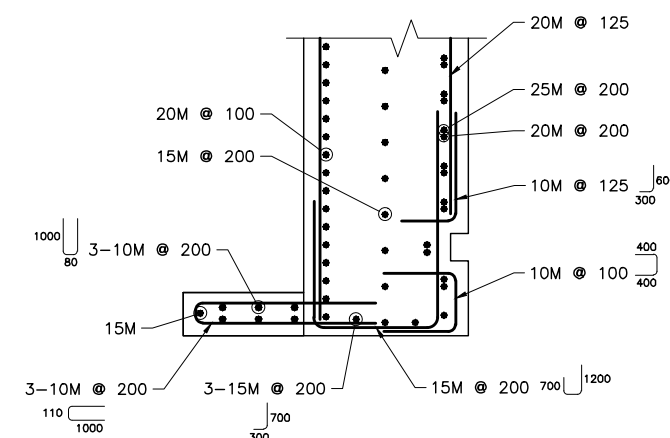
**ABUTMENTS
REINFORCEMENT - 1**

Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
201615	005 OF	0

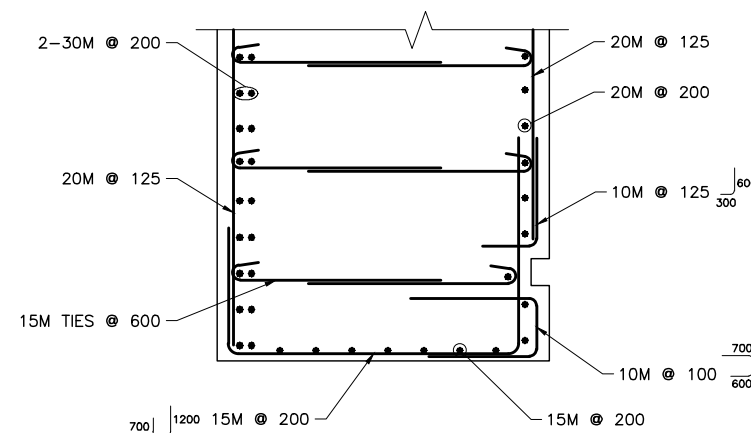
ISSUED FOR TENDER
NOT FOR CONSTRUCTION



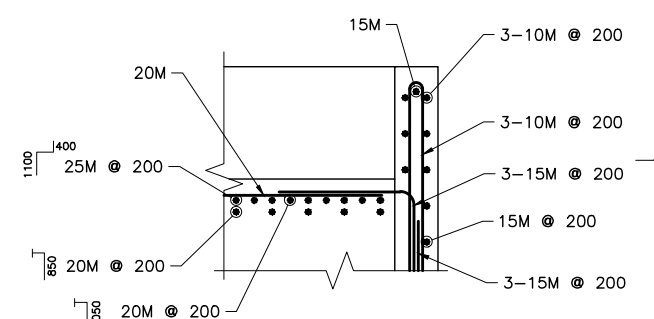
SECTION 4
1:30



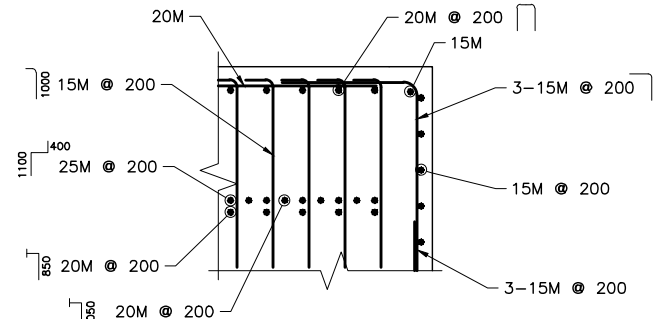
SECTION 1
1:20



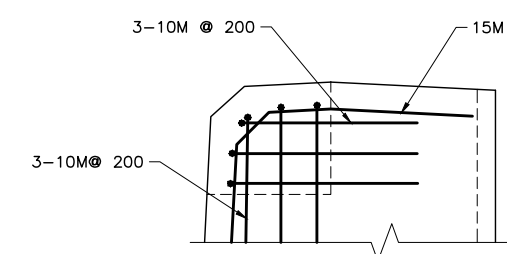
SECTION 2
1:20



SECTION 3
1:20



SECTION 4
1:20



DETAIL A
1:20

NOTES:

1. CONCRETE: $f'_c = 35 \text{ MPa}$.
2. REINFORCING STEEL: CAN/CSA G30.18M GRADE 400W U.N.O.
3. MINIMUM COVER: 70mm
4. LAYOUT APPLIES TO 20M REBARS AT HORIZONTAL SURFACES AS WELL.

DO NOT SCALE DRAWINGS

Revision/	Description/Description	Date/Date
0	ISSUED FOR TENDER	16/07/22

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



Project Title/Titre du projet
**TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA**
**KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE**

Approved by/Approuvé par
DPG

Designed by/Concepté par
TB

Drawn by/Dessiné par
JAET

PIWGSC Project Manager/Administrateur de Projets TPISGC

PIWGSC, Architectural and Engineering Resources Manager/
Ressources Architecturales et de Directeur d'Ingénierie, TPISGC

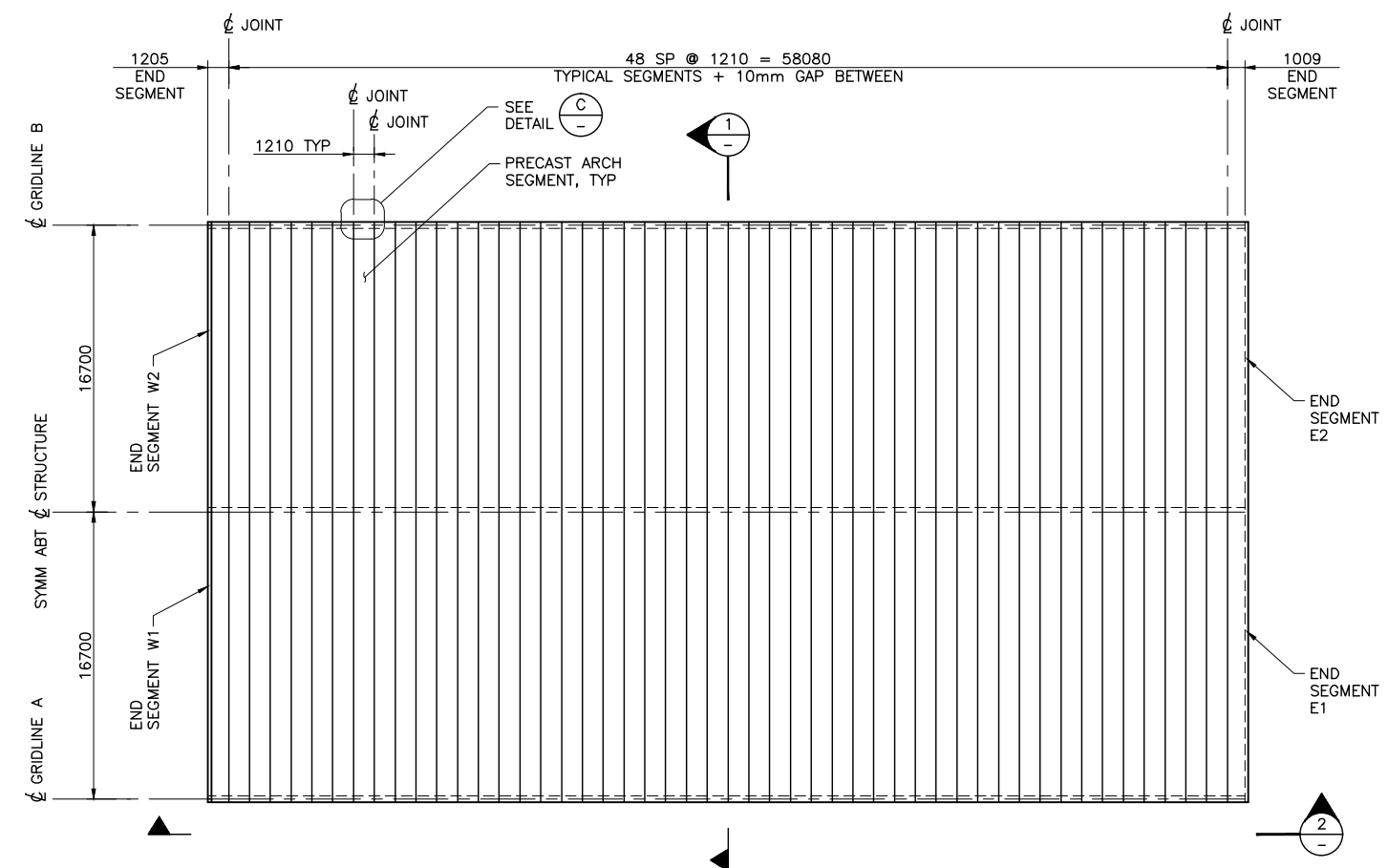
Client/Client
PCA

Drawing Title/Titre du dessin

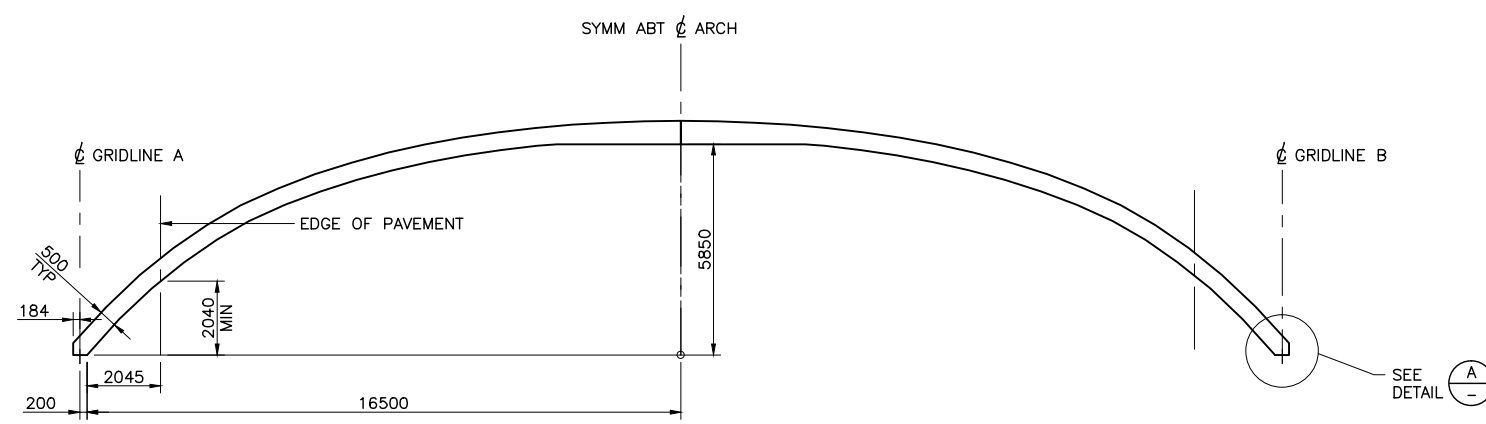
**ABUTMENTS
REINFORCEMENT - 2**

Project No./No. du projet 201615	Sheet/Feuille 006 OF	Revision no./La Révision no. 0
-------------------------------------	----------------------------	-----------------------------------

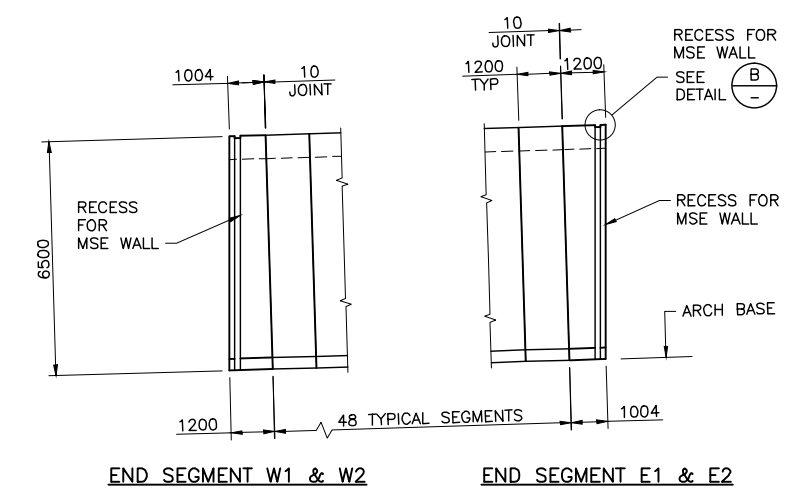
ISSUED FOR TENDER
NOT FOR CONSTRUCTION



PLAN
 1:200
 (ALL DIMENSIONS SHOWN AT ARCH SEAT)

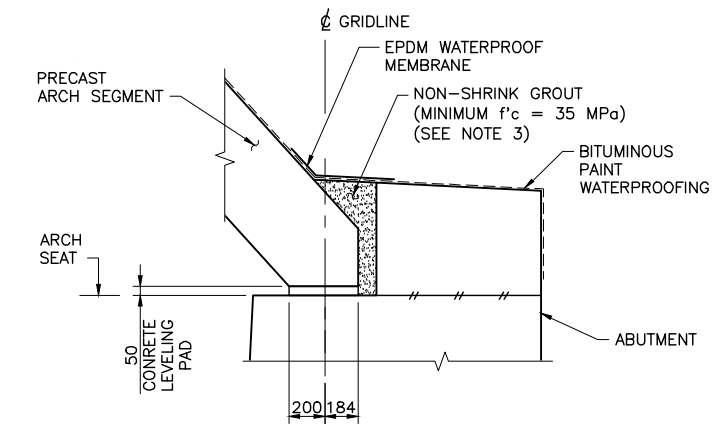


SECTION 1
 1:100

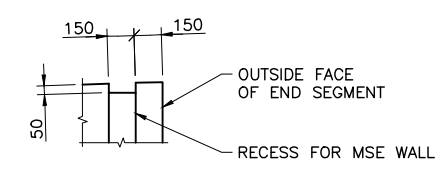


END SEGMENT W1 & W2 **END SEGMENT E1 & E2**

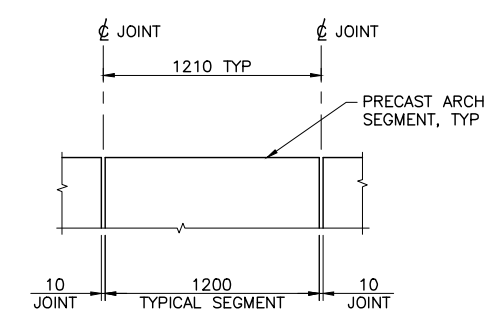
VIEW 2
 1:100



DETAIL A
 1:20



DETAIL B
 1:20



DETAIL C
 1:20

NOTES:

1. ARCH SEGMENTS TO BE DESIGNED IN ACCORDANCE WITH LOADS DEFINED ON SHEET 201615-003.
2. ARCH DESIGNER TO PROVIDE REACTIONS TO DEPARTMENTAL REPRESENTATIVE FOR APPROVAL. REACTIONS TO BE WITHIN LIMIT SHOWN ON DRAWING 201615-003.
3. JOINT BETWEEN ARCH PANEL AND WINGWALL TO BE GROUTED AND SEALED WITH SIKAFLEX-2C NS/SL.

DO NOT SCALE DRAWINGS

Revision/Revisions	Description/Description	Date/Date
0	ISSUED FOR TENDER	18/07/22

Client/Client	Parks Canada / L'Agence Parcs Canada
---------------	--------------------------------------



Project title/Titre du projet
TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA
KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE

Approved by/Approuvé par
 DPG
 Designed by/Concept par
 PCRN
 Drawn by/Dessiné par
 JAET
 PWGSC Project Manager/Administrateur de Projets TPWGC

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

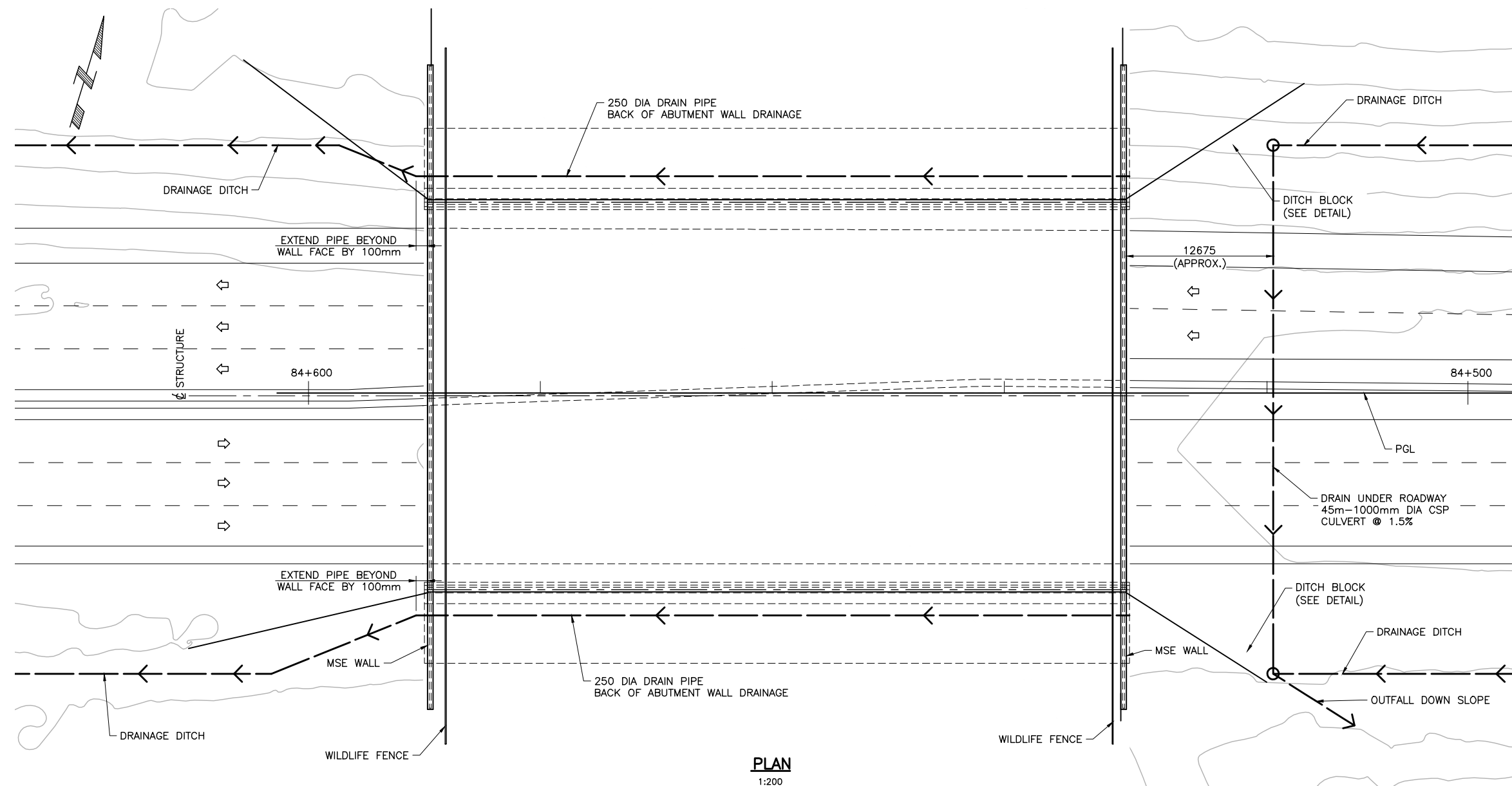
Client/Client
 PCA

Drawing title/Titre du dessin
PRECAST ARCH
GEOMETRY AND DETAILS

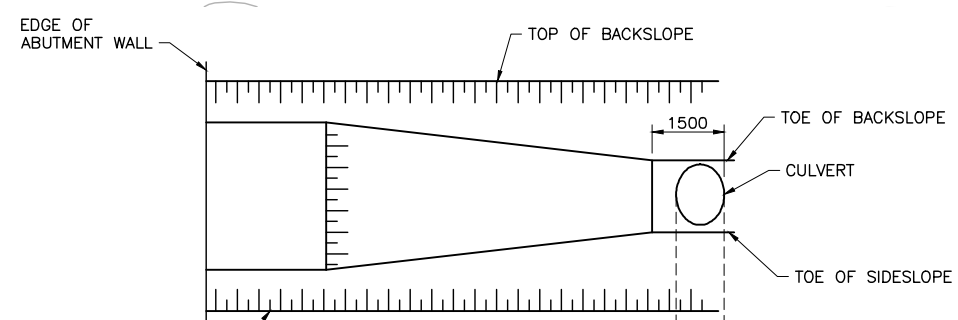
Project No./No. du projet 201615	Sheet/Feuille 007 OF	Revision no./La Révision no. 0
-------------------------------------	----------------------------	-----------------------------------

C:\19445\02-Drawings\201615 (Wildlife Overpass)\02-Drawings\201615-007.dwg 7/22/2016 2:50:28 PM by Michael Chui

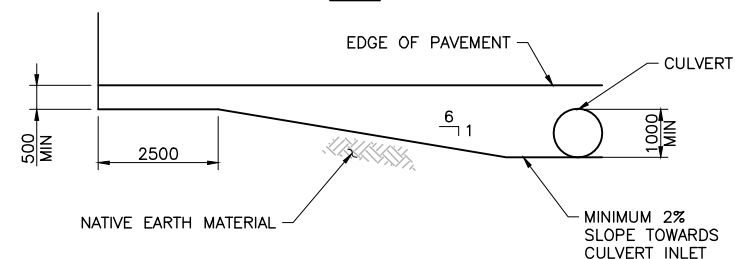
ISSUED FOR TENDER
NOT FOR CONSTRUCTION



PLAN
1:200



PLAN



ELEVATION

DITCH BLOCK DETAILS

1:50

NOTES:

1. REFER TO REFERENCE DRAWINGS "201612 - ROAD CONSTRUCTION km 82.5 TO 88.0 - TCH TWINNING - YOHO NATIONAL PARK" FOR COMPLETE DRAINAGE DETAILS ALONG WORK AREA.
2. PROVIDE RIPRAP AT CULVERT ENDS AS REQUIRED.
3. PROVIDE MESH END COVERS TO BACK OF WALL DRAIN PIPES TO PREVENT WILDLIFE ACCESS.

DO NOT SCALE DRAWINGS

0	ISSUED FOR TENDER	16/07/22
---	-------------------	----------

Revision/Revisions	Description/Description	Date/Date

Client/Client	Parks Canada / L'Agence Parcs Canada
---------------	--------------------------------------



Project title/Titre du projet
**TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA**

**KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE**

Approved by/Approuvé par
DPG

Designed by/Concept par
PCRN

Drawn by/Dessiné par
JAET

PWGC Project Manager/Administrateur de Projets TP5GC

PWGC, Architectural and Engineering Resources Manager/
Ressources Architecturales et de Directeur d'Ingénierie, TP5GC

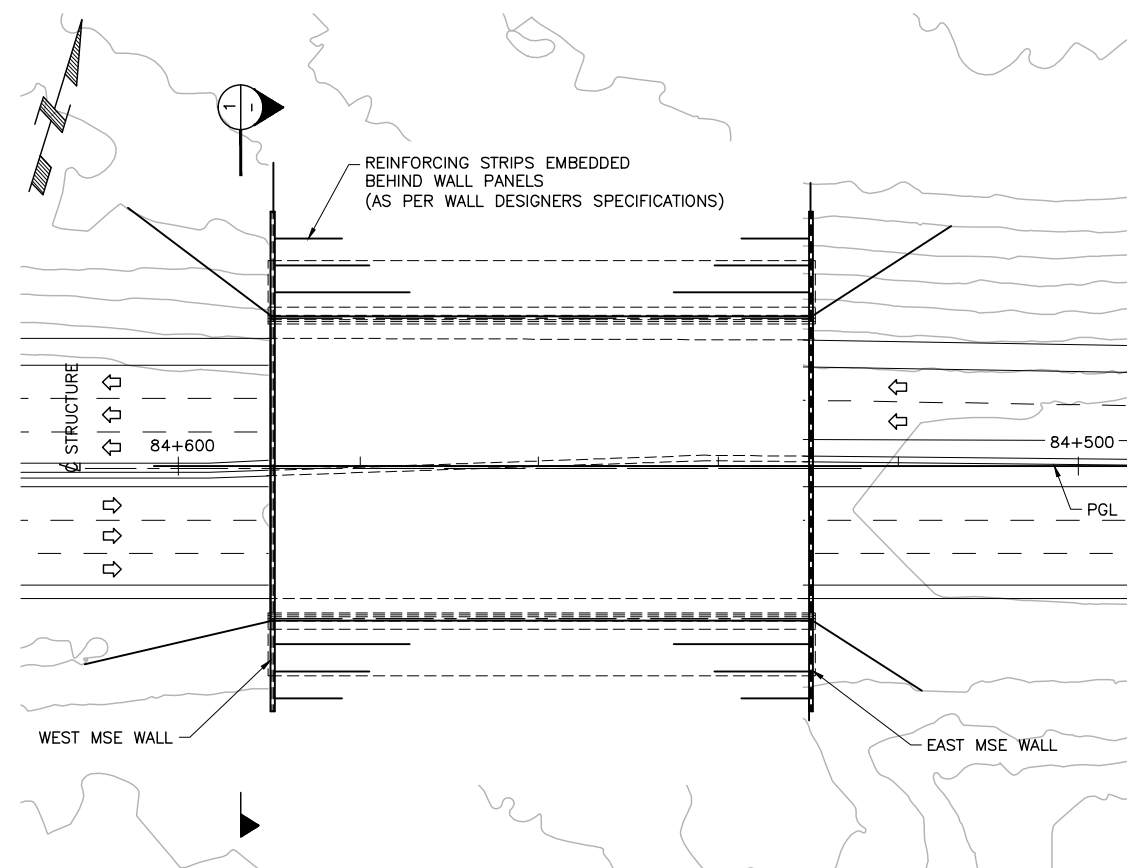
Client/Client
PCA

Drawing title/Titre du dessin

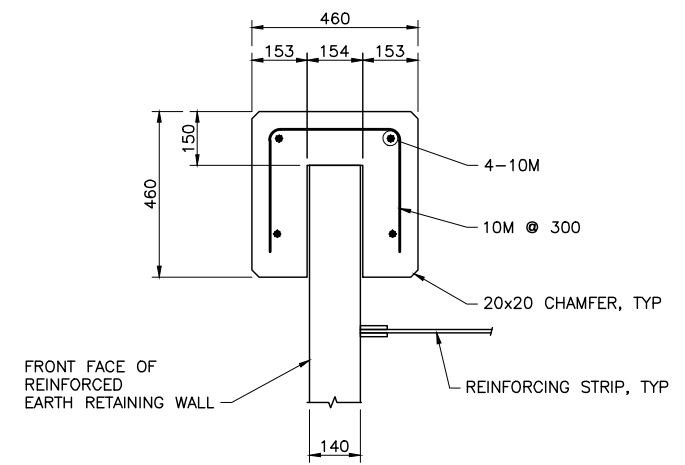
**DRAINAGE
LAYOUT AND DETAILS**

Project No./No. du projet 201615	Sheet/Feuille 008 OF	Revision no./La Révision no. 0
--	-----------------------------------	--

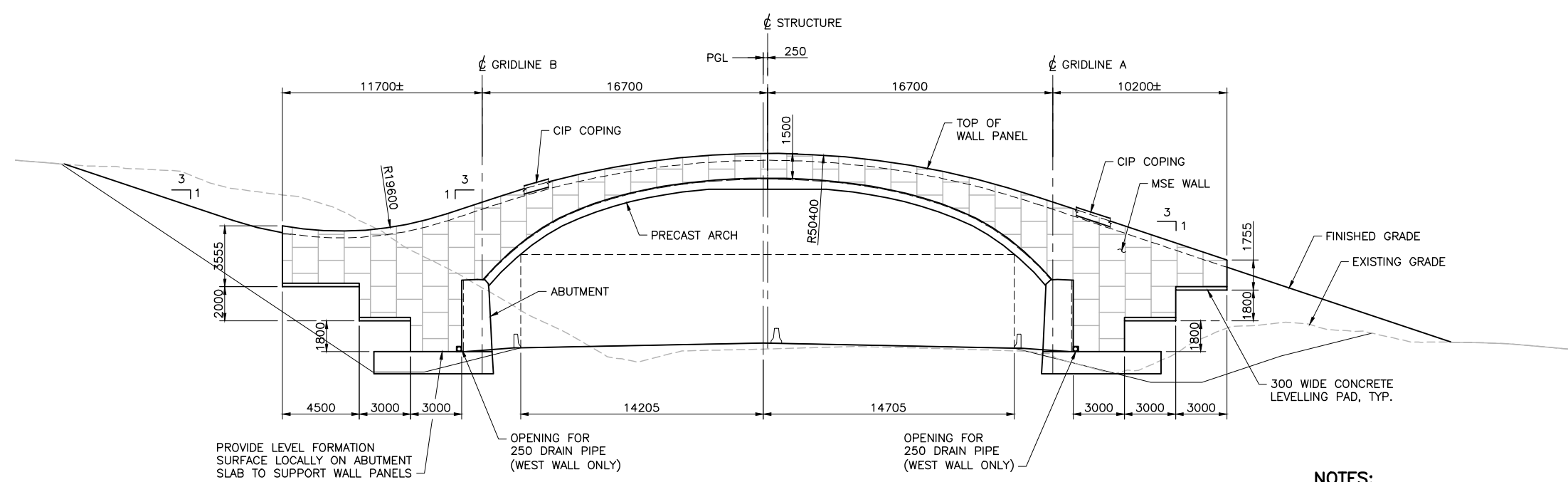
ISSUED FOR TENDER
NOT FOR CONSTRUCTION



PLAN
1:400



CAST-IN-PLACE COPING DETAIL
1:10



VIEW 1
1:150

(WEST MSE WALL SHOWN - EAST MSE WALL SIMILAR OPPOSITE HAND)

NOTES:

1. CAST-IN-PLACE COPING ONLY PARTIALLY SHOWN FOR CLARITY.
2. REFER TO ARCH SUPPLIER FOR BACKFILLING SEQUENCING OVER ARCH.
3. ABUTMENT WALL AND SLAB, AND END ARCH SEGMENTS CONTAIN RECESS FOR WALL SEATING.
4. MSE WALL DESIGNER TO ENSURE REINFORCING STRIPS DO NOT EXTEND INTO EPS GEOFOAM LAYER.
5. MSE WALL PANEL FINISH AND ARRANGEMENT TO BE APPROVED BY DEPARTMENTAL REPRESENTATIVE.

DO NOT SCALE DRAWINGS

Revision/Revisions	Description/Description	Date/Date
0	ISSUED FOR TENDER	18/07/22

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



Project title/Titre du projet
TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA
KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE

Approved by/Approuvé par
DPG

Designed by/Concept par
PCRN

Drawn by/Dessiné par
JAET

PIWGSC Project Manager/Administrateur de Projets TP5GC

PIWGSC, Architectural and Engineering Resources Manager/
 Ressources Architecturales et de Directeur d'Ingénierie, TP5GC

Client/Client
PCA

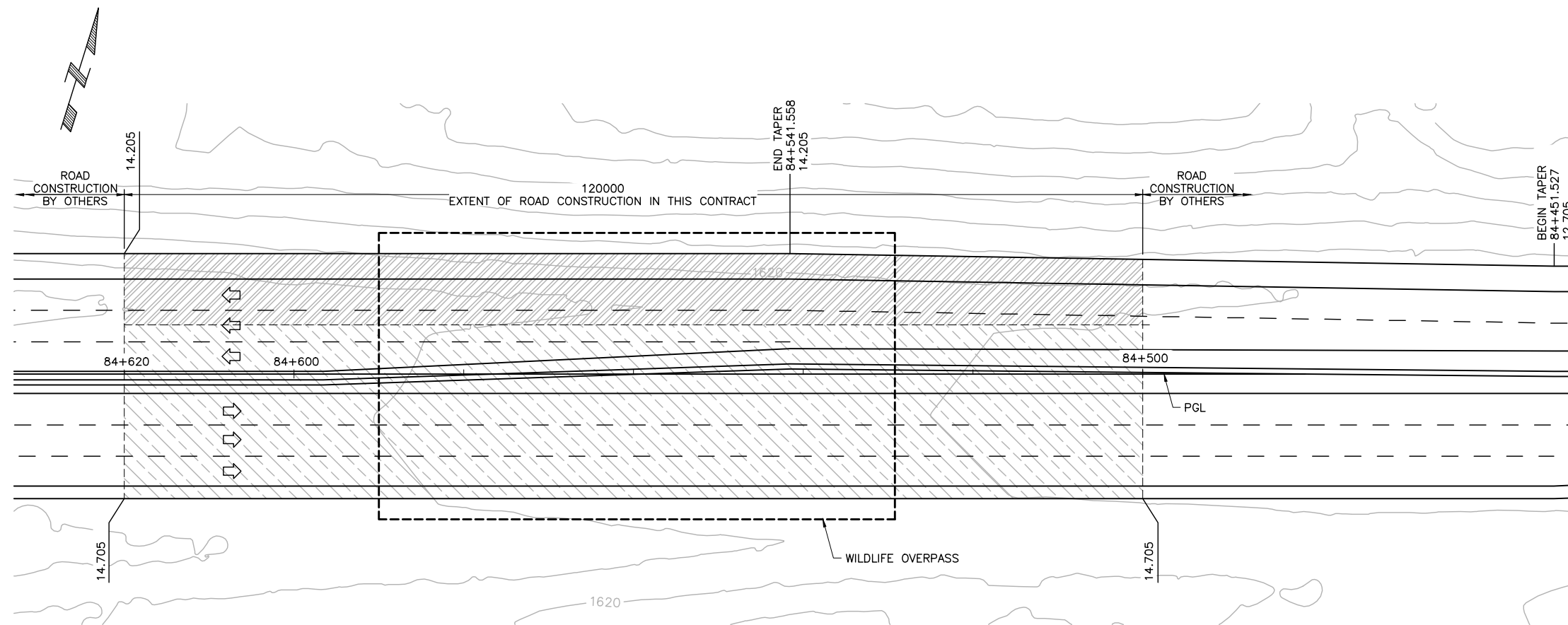
Drawing title/Titre du dessin

MSE RETAINING WALLS
LAYOUT AND DETAILS

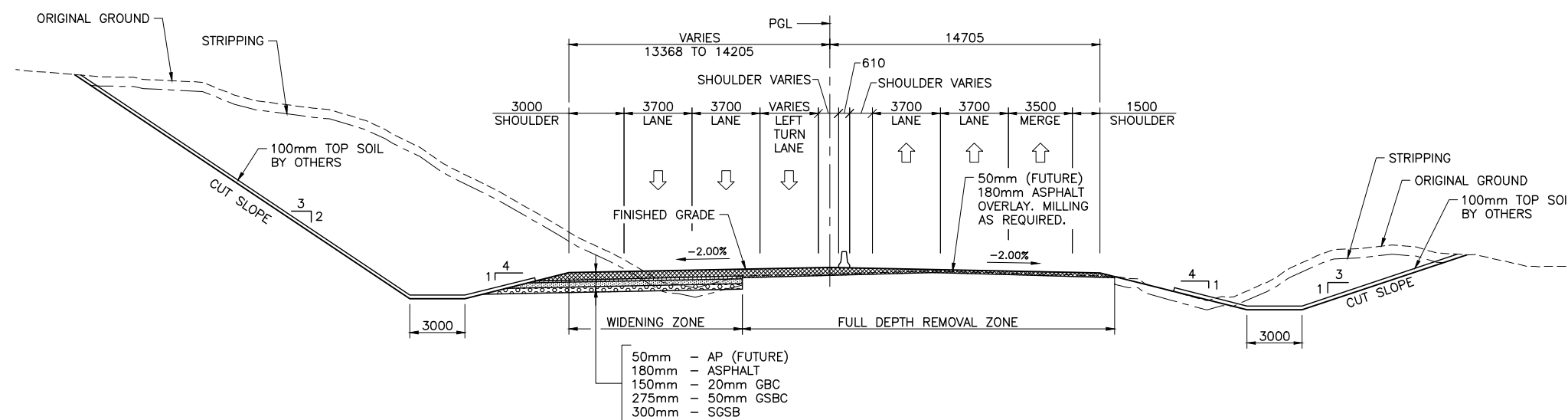
Project No./No. du projet	Sheet/Feuille	Revision no./La Révision no.
201615	009 OF	0

C:\1945\02-Drawings\201615 (Wildlife Overpass)\02-Drawings\201615-009.dwg 7/22/2016 11:30:20 PM by Michael Chui

ISSUED FOR TENDER
NOT FOR CONSTRUCTION



PLAN
1:300



TYPICAL SECTION (LOOKING DOWNSTATION)
1:150

LEGEND:

- ASPHALT FULL DEPTH REMOVAL BY MILLING
- ROADWAY WIDENING

NOTES:

1. REFER TO DRAWINGS FOR PROJECT No. 201612 FOR DETAILED ROAD CONSTRUCTION DETAILS.
2. TOP SOIL BY OTHERS.
3. LINE PAINTING BY OTHERS.
4. SUPPLY AND INSTALLATION OF MEDIAN BARRIER BY OTHERS.
5. LANDSCAPING AND FENCING BY OTHERS.

DO NOT SCALE DRAWINGS

Revision/Revisions	Description/Description	Date/Date
0	ISSUED FOR TENDER	18/07/22

Client/Client	Parks Canada / L'Agence Parcs Canada
---------------	--------------------------------------



Project title/Titre du projet
**TRANS-CANADA HIGHWAY TWINNING
YOHO NATIONAL PARK, BRITISH COLUMBIA**

**KM 84.5 TRANS-CANADA HIGHWAY
WILDLIFE OVERPASS STRUCTURE**

Approved by/Approuvé par
DPG

Designed by/Concept par
PCRN

Drawn by/Dessiné par
JAET

PWGS/C Project Manager/Administrateur de Projets TP/SGC

PWGS/C Architectural and Engineering Resources Manager/
Ressources Architecturales et de Directeur d'Ingénierie, TP/SGC

Client/Client
PCA

Drawing title/Titre du dessin

**ROAD CONSTRUCTION
PLAN AND SECTION**

Project No./No. du projet 201615	Sheet/Feuille 010 OF	Revision no./ La Révision no. 0
-------------------------------------	----------------------------	---------------------------------------