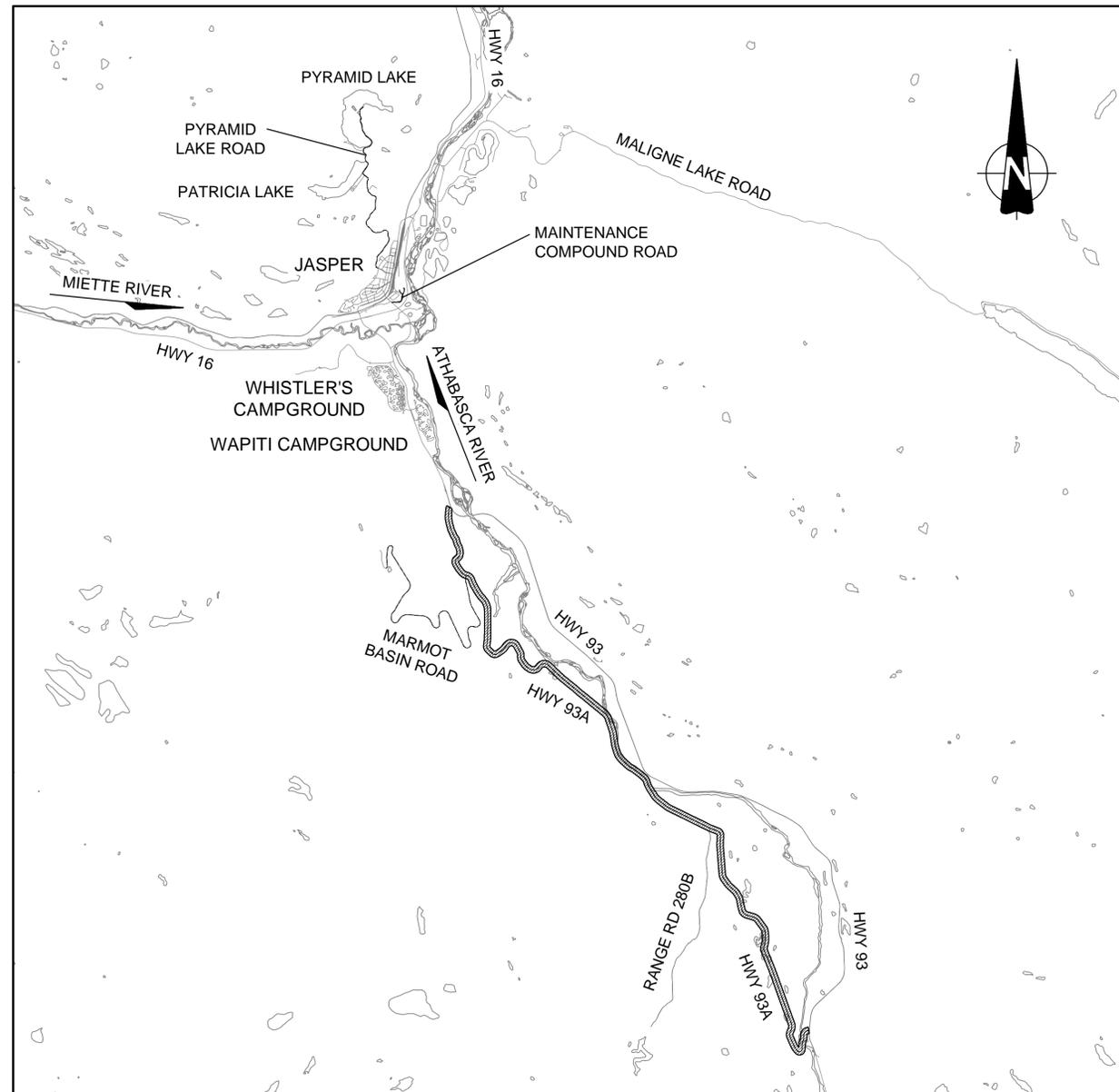


PARKS CANADA AGENCY JASPER NATIONAL PARK CONDITION 'D' CATEGORY 4 TO 6 ROADS REHABILITATION PROJECT No. 60506644 HWY 93A

LIST OF PROJECT DRAWINGS

DRAWING No.	DISCIPLINE	DESCRIPTION
GENERAL		
G000	GENERAL	COVER SHEET
CIVIL ENGINEERING		
HWY 93A		
C200	CIVIL	PLAN AND PROFILE
C201	CIVIL	PLAN AND PROFILE
C202	CIVIL	PLAN AND PROFILE
C203	CIVIL	PLAN AND PROFILE
C204	CIVIL	PLAN AND PROFILE
C205	CIVIL	PLAN AND PROFILE
C206	CIVIL	PLAN AND PROFILE
C207	CIVIL	PLAN AND PROFILE
C208	CIVIL	DITCHING PLAN AND PROFILE
C209	CIVIL	DITCHING PLAN AND PROFILE
C210	CIVIL	DITCHING PLAN AND PROFILE
C211	CIVIL	DITCHING PLAN AND PROFILE
C212	CIVIL	DITCHING PLAN AND PROFILE
C213	CIVIL	DITCHING PLAN AND PROFILE
C214	CIVIL	SECTIONS AND DETAILS
C215	CIVIL	SECTIONS AND DETAILS
C216	CIVIL	CULVERT DATA TABLES
C217	CIVIL	CULVERT DATA TABLES
C218	CIVIL	CULVERT DETAILS
C219	CIVIL	PAVING LIMITS



KEY PLAN
SCALE: 1:100000

No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number A Numero de detail
B	Sheet number B Numero de la feuille

Linear dimensions In millimetres	Dimensions lineaires en millimetres
-------------------------------------	--

Consultant's Name Nom de l'expert-conseil	Eng. Stamp Sceau de l'ingenieur
AECOM	

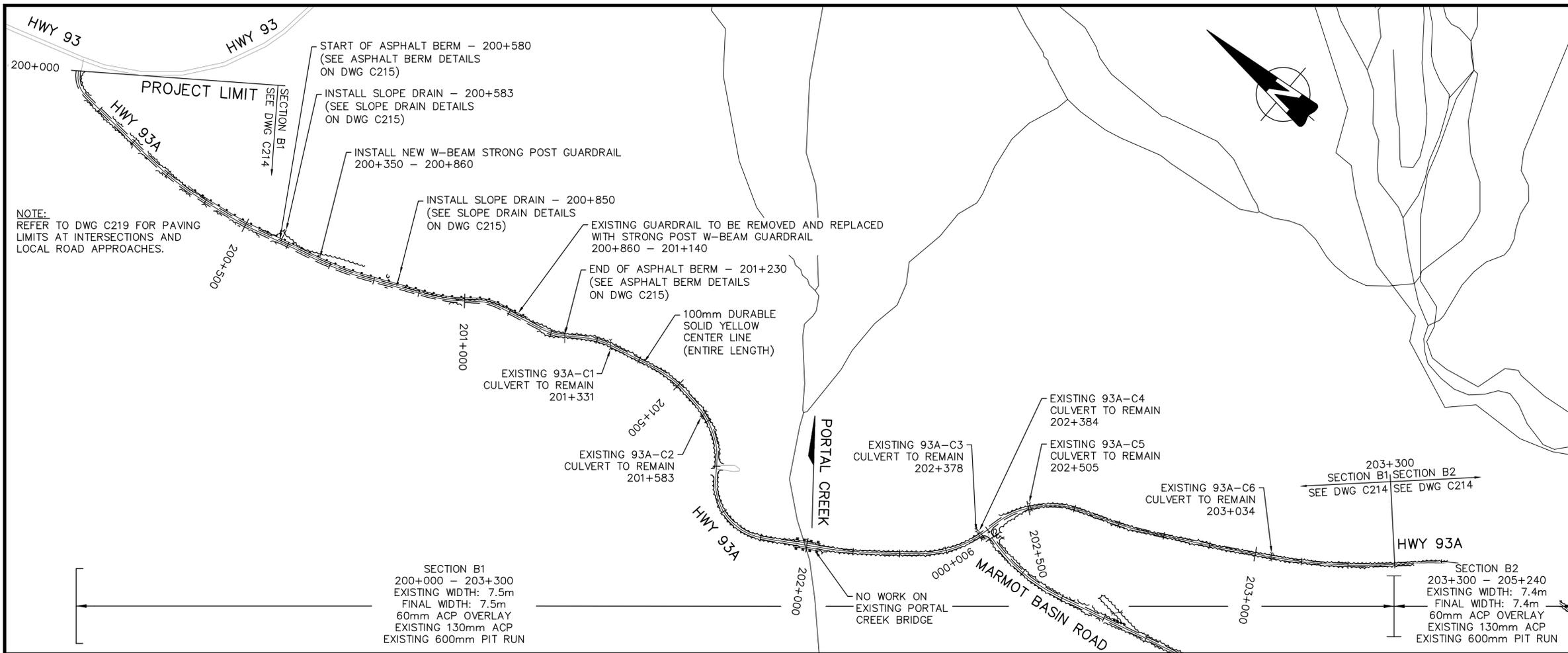
Parks Canada Strategic Asset Management, Western and Northern Region	Parcs Canada Gestion Stratégique des Biens, Région de l'Ouest et du Nord
Canada	

Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin
**HWY 93A
COVER SHEET**

Surveyed by/Arpente par	Drawn by/Dessine par	Date
-	DT	2017-07-06
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
JS	DC	
Client Acceptance/Acceptation du client	Approved by/Approuvé par	

Project No./N° du projet	Asset No./N° du bien	Sheet No./N° de la feuille
60506644	-	G000
Drawing Set No./N° de série du dessin		



- LEGEND**
- PROPOSED EDGE OF PAVEMENT
 - - - EXISTING EDGE OF PAVEMENT
 - EXISTING CULVERT
 - == NEW CULVERT
 - EXISTING/REPLACE CULVERT
 - TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta
DATE: July 6, 2017

No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number A Numero de detail
B	Sheet number B Numero de la feuille

Linear dimensions In millimetres	Dimensions lineaires en millimetres
-------------------------------------	--

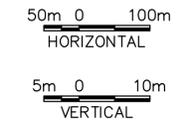
Consultant's Name
Nom de l'expert-conseil

AECOM

Eng. Stamp
Sceau de l'ingenieur

Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'ouest et du Nord

Canada

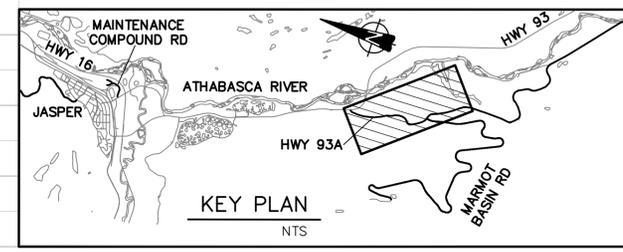
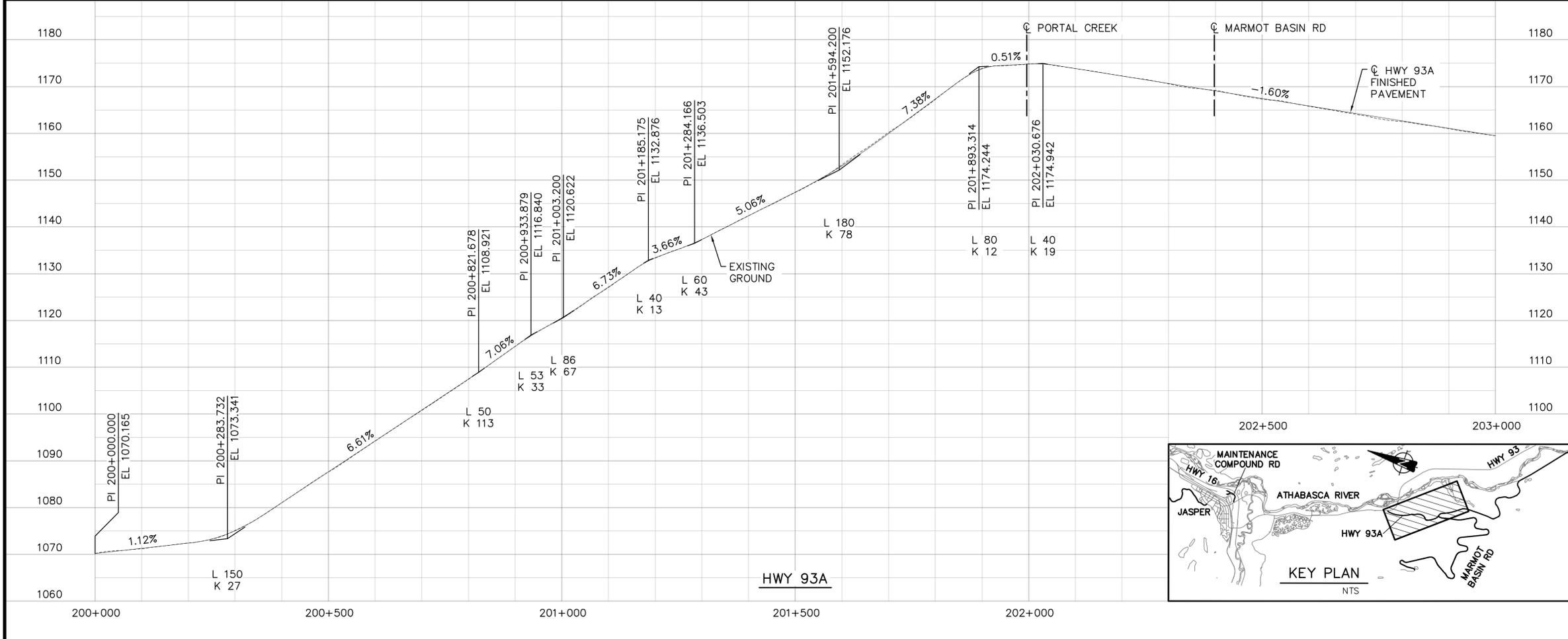


Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

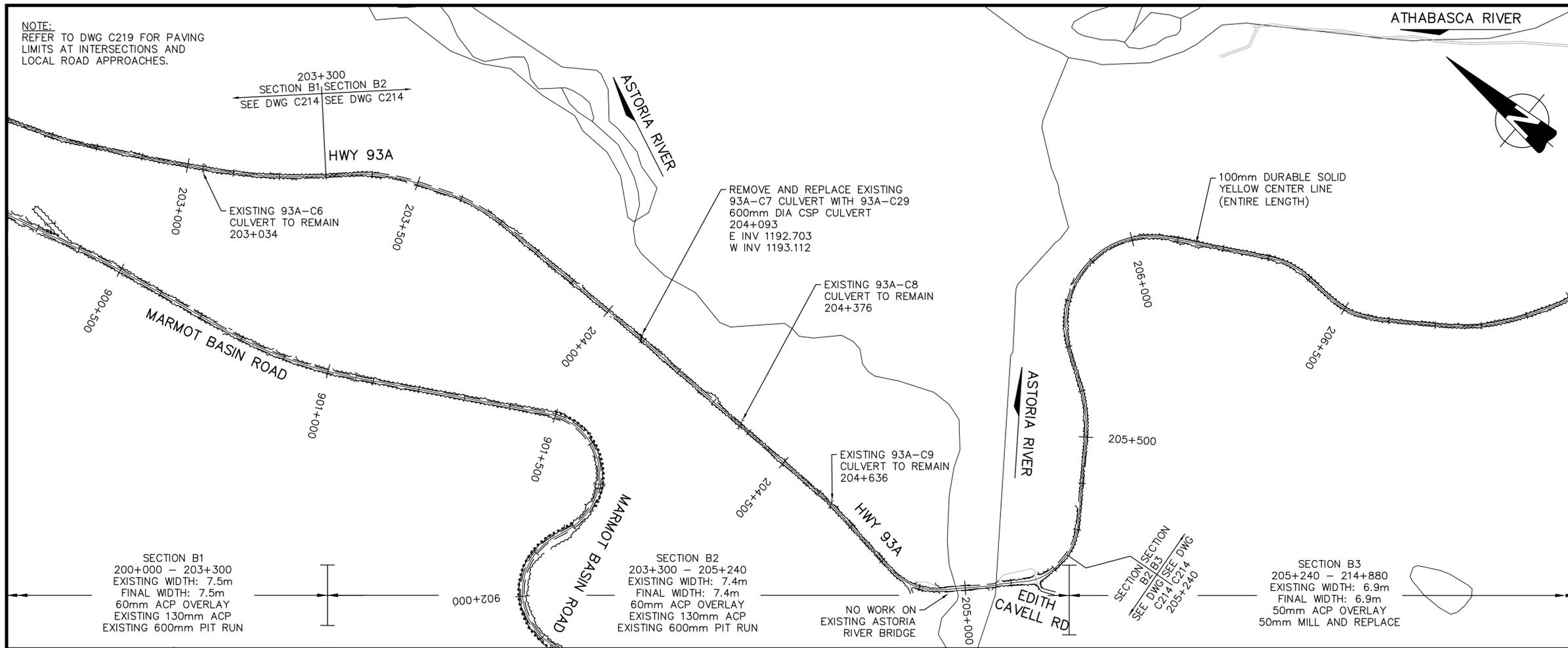
Drawing title/Titre du dessin
**HWY 93A
PLAN AND PROFILE**

Surveyed by/Arpente par	Drawn by/Dessine par	Date
-	DT	2017-07-06
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
JS	DC	-
Client Acceptance/Acceptation du client	Approved by/Approuvé par	

Project No./N° du projet	Asset No./N° du bien	Sheet No./N° de la feuille
60506644	-	C200
Drawing Set No./N° de serie du dessin		



NOTE:
REFER TO DWG C219 FOR PAVING
LIMITS AT INTERSECTIONS AND
LOCAL ROAD APPROACHES.



- LEGEND**
- PROPOSED EDGE OF PAVEMENT
 - - - EXISTING EDGE OF PAVEMENT
 - EXISTING CULVERT
 - == NEW CULVERT
 - EXISTING/REPLACE CULVERT
 - ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.

Signature: *[Signature]*
Date: July 6, 2017

PERMIT NUMBER: P10450
The Association of Professional
Engineers and Geoscientists of Alberta

DATE: July 6, 2017

1	17.07.06	ISSUED FOR TENDER	DT	JS
No.	Date	Description	Drawn by Dessine par	Approved Approuve
Revision / Revision				

A	Detail number	A Numero de detail
B	Sheet number	B Numero de la feuille

Linear dimensions
in millimetres

Dimensions lineaires
en millimetres

Consultant's Name
Nom de l'expert-conseil

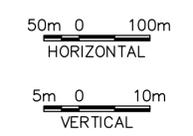
Eng. Stamp
Sceau de l'ingenieur

AECOM

Canada

Parks Canada
Strategic Asset
Management,
Western and Northern
Region

Parcs Canada
Gestion Stratégique
des Biens,
Région de l'Ouest et
du Nord



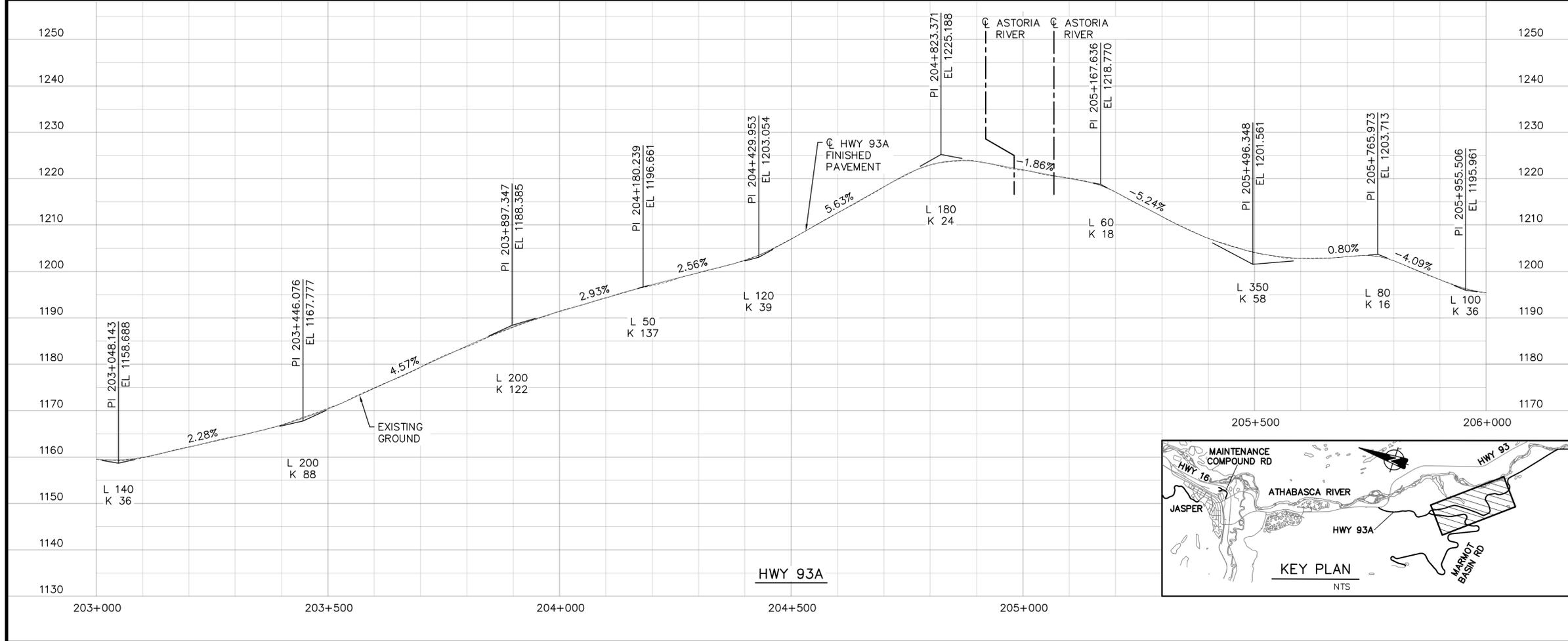
Project title/Titre du projet

**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

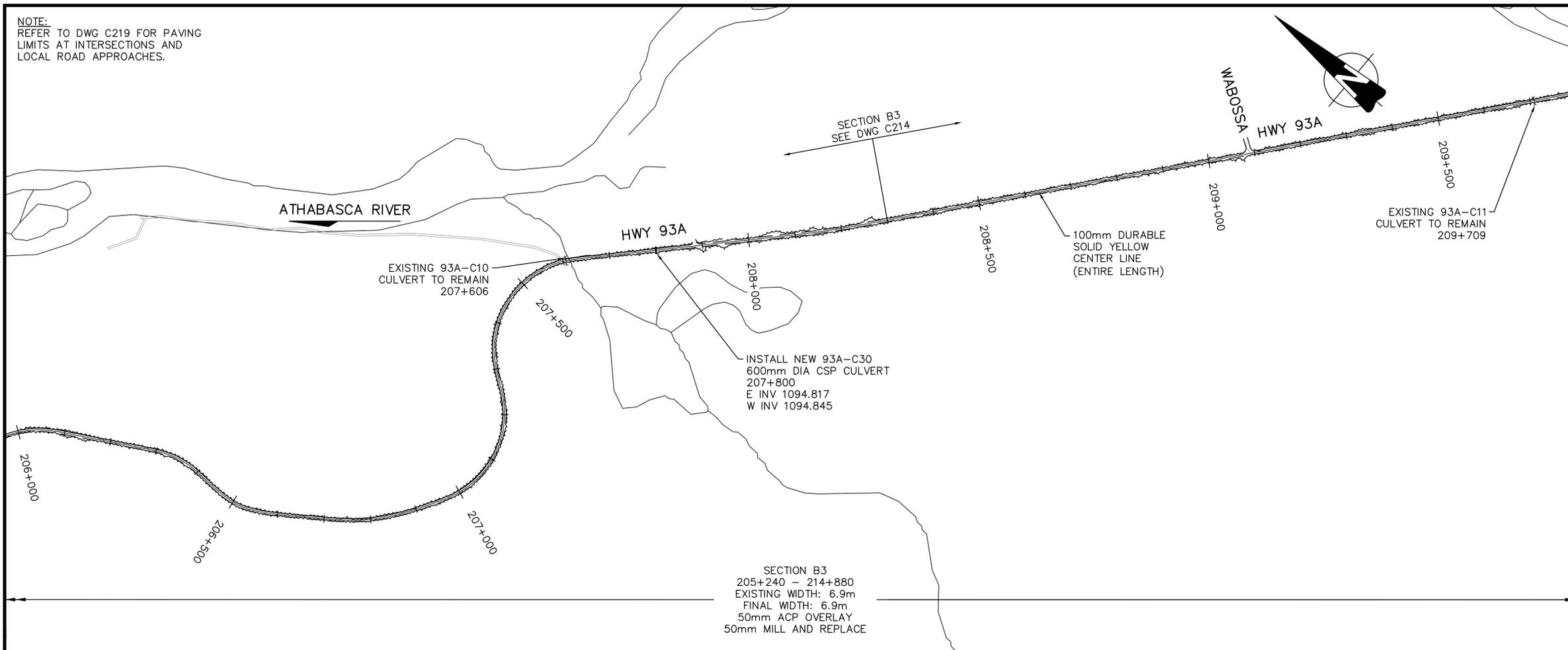
Drawing title/Titre du dessin

**HWY 93A
PLAN AND PROFILE**

Surveyed by/Arpente par	Drawn by/Dessine par	Date
DT	DT	2017-07-06
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
JS	DC	
Client Acceptance/Acceptation du client	Approved by/Approuvé par	
Project No./N° du projet	Asset No./N° du bien	Sheet No./ N° de la feuille
60506644		C201
Drawing Set No./N° de série du dessin		



NOTE:
REFER TO DWG C219 FOR PAVING
LIMITS AT INTERSECTIONS AND
LOCAL ROAD APPROACHES.



SECTION B3
205+240 - 214+880
EXISTING WIDTH: 6.9m
FINAL WIDTH: 6.9m
50mm ACP OVERLAY
50mm MILL AND REPLACE

LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- EXISTING CULVERT
- == NEW CULVERT
- EXISTING/REPLACE CULVERT
- TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 06, 2017
PERMIT NUMBER: P10450
The Association of Professional
Engineers and Geoscientists of Alberta



1	17.07.06	ISSUED FOR TENDER	DT	JS
No.	Date	Description	Drawn by Dessine par	Approved Approuve

Revision / Revision	
A	Detail number A Numero de detail
B	Sheet number B Numero de la feuille

Linear dimensions
In millimetres

Dimensions lineaires
en millimetres

Consultant's Name
Nom de l'expert-conseil

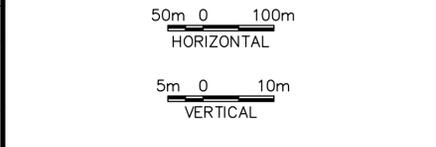
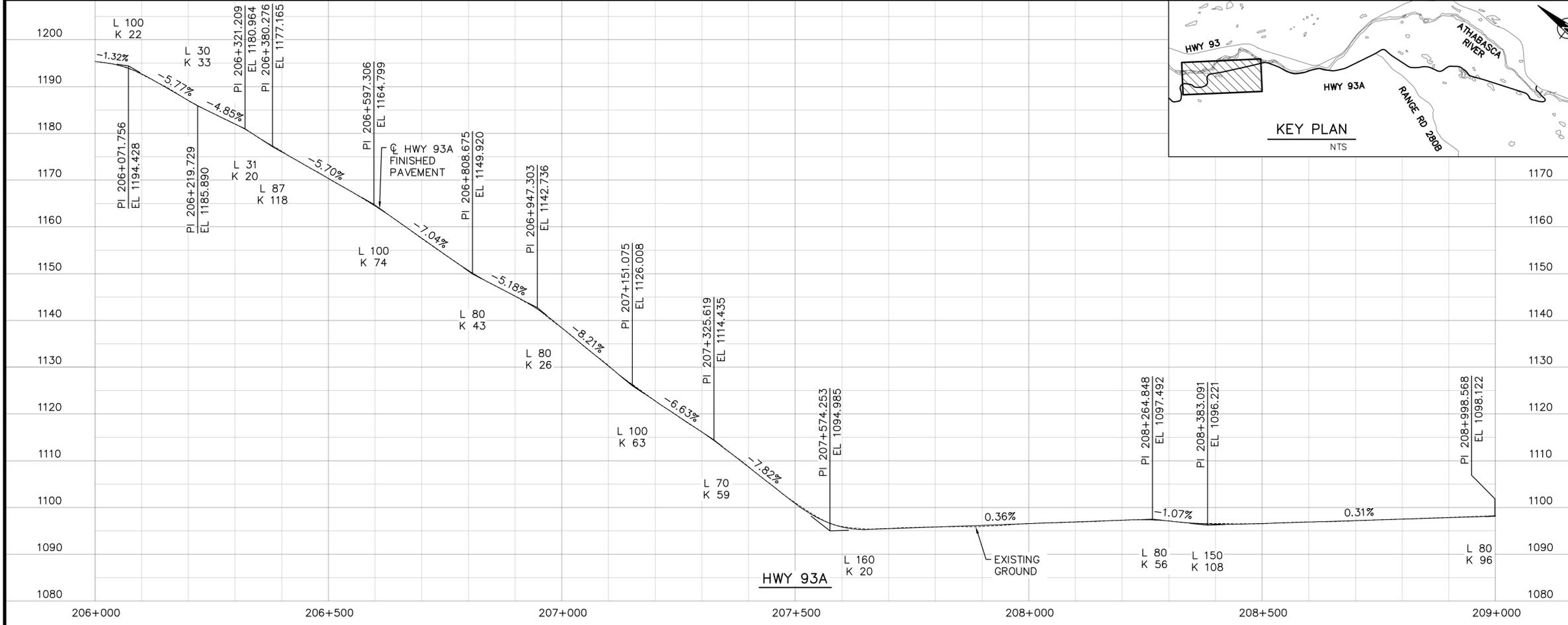
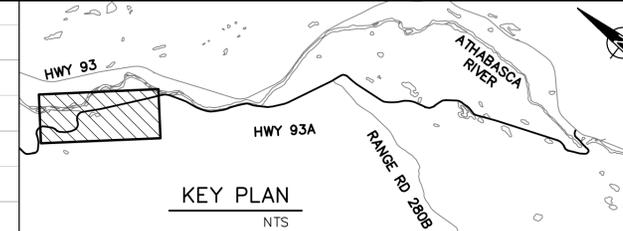
Eng. Stamp
Sceau de l'ingenieur

AECOM

Canada

Parks Canada
Strategic Asset
Management,
Western and Northern
Region

Parcs Canada
Gestion Stratégique
des Biens,
Région de l'Ouest et
du Nord



Project title/Titre du projet

**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin

**HWY 93A
PLAN AND PROFILE**

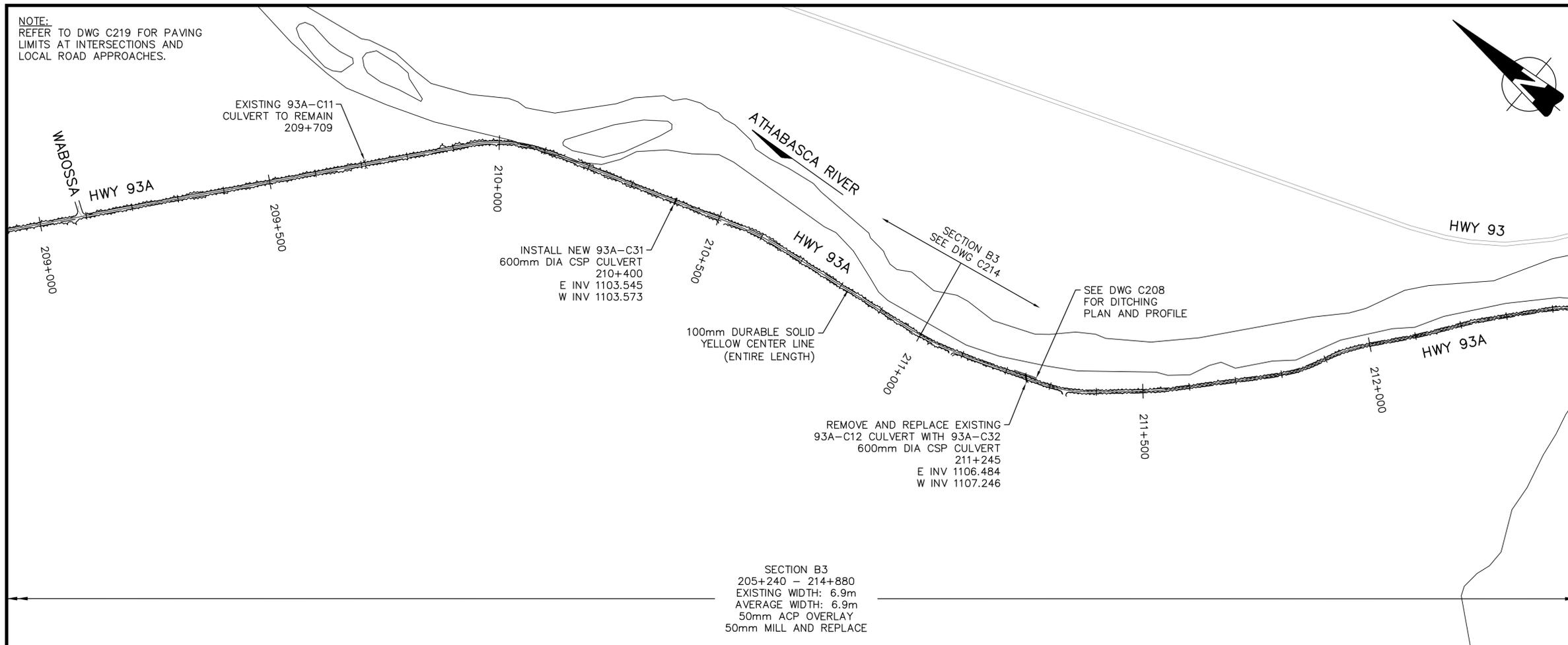
Surveyed by/Arpente par	Drawn by/Dessine par	Date
JS	DT	2017-07-06
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
JS	DC	
Client Acceptance/Acceptation du client	Approved by/Approuvé par	

Project No./No du projet: 60506644

Asset No./No du bien: -

Sheet No./No de la feuille: **C202**

NOTE:
REFER TO DWG C219 FOR PAVING
LIMITS AT INTERSECTIONS AND
LOCAL ROAD APPROACHES.



LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- EXISTING CULVERT
- == NEW CULVERT
- EXISTING/REPLACE CULVERT
- ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional
Engineers and Geoscientists of Alberta



DATE July 6, 2017

1	17.07.06	ISSUED FOR TENDER	DT	JS
No.	Date	Description	Drawn by Dessine par	Approved Approuve

Revision / Revision	
A	Detail number A Numero de detail
B	Sheet number B Numero de la feuille

Linear dimensions
In millimetres

Dimensions lineaires
en millimetres

Consultant's Name
Nom de l'expert-conseil

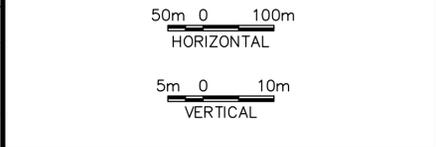
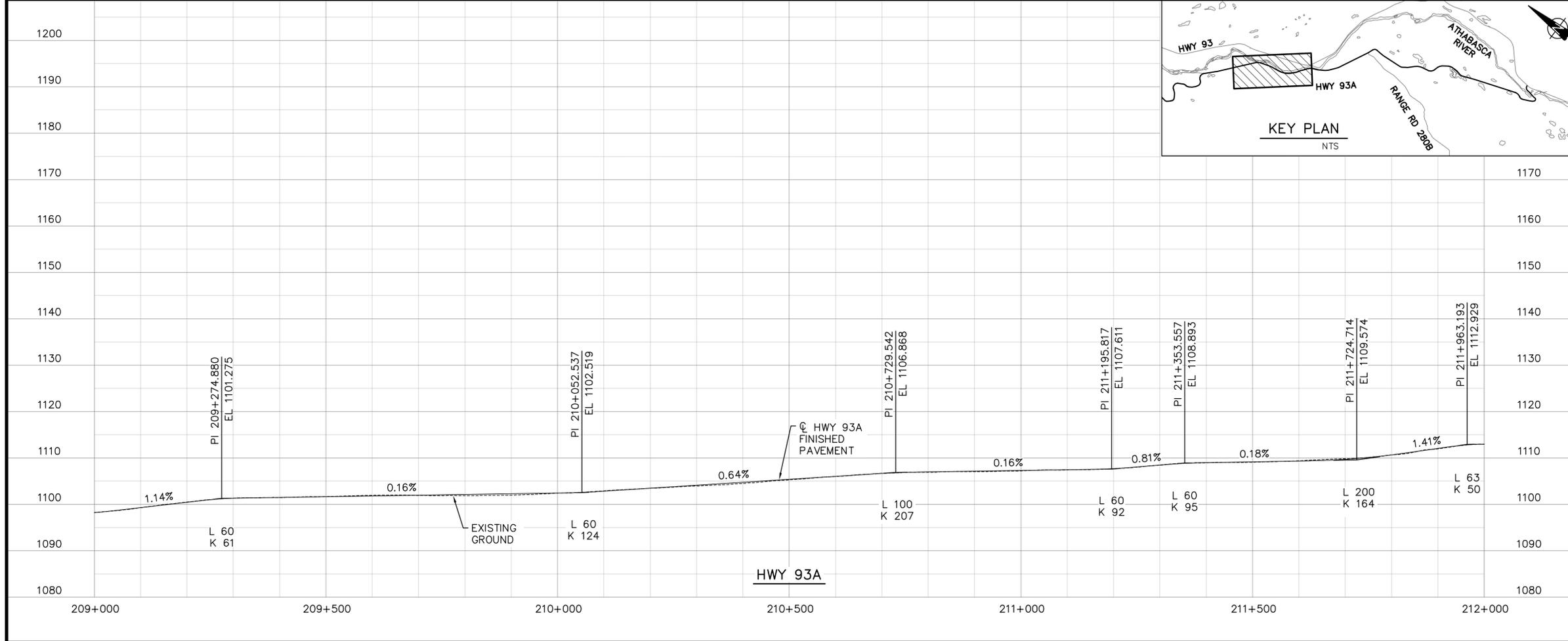
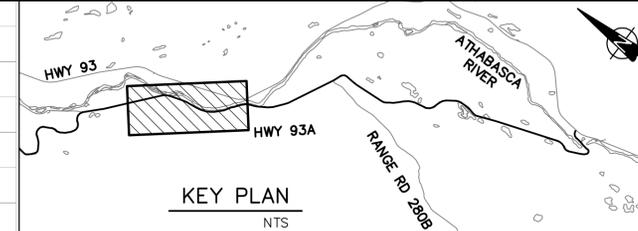
Eng. Stamp
Sceau de l'ingenieur

AECOM

Canada

Parks Canada
Strategic Asset
Management,
Western and Northern
Region

Parcs Canada
Gestion Stratégique
des Biens,
Région de l'Ouest et
du Nord



Project title/Titre du projet

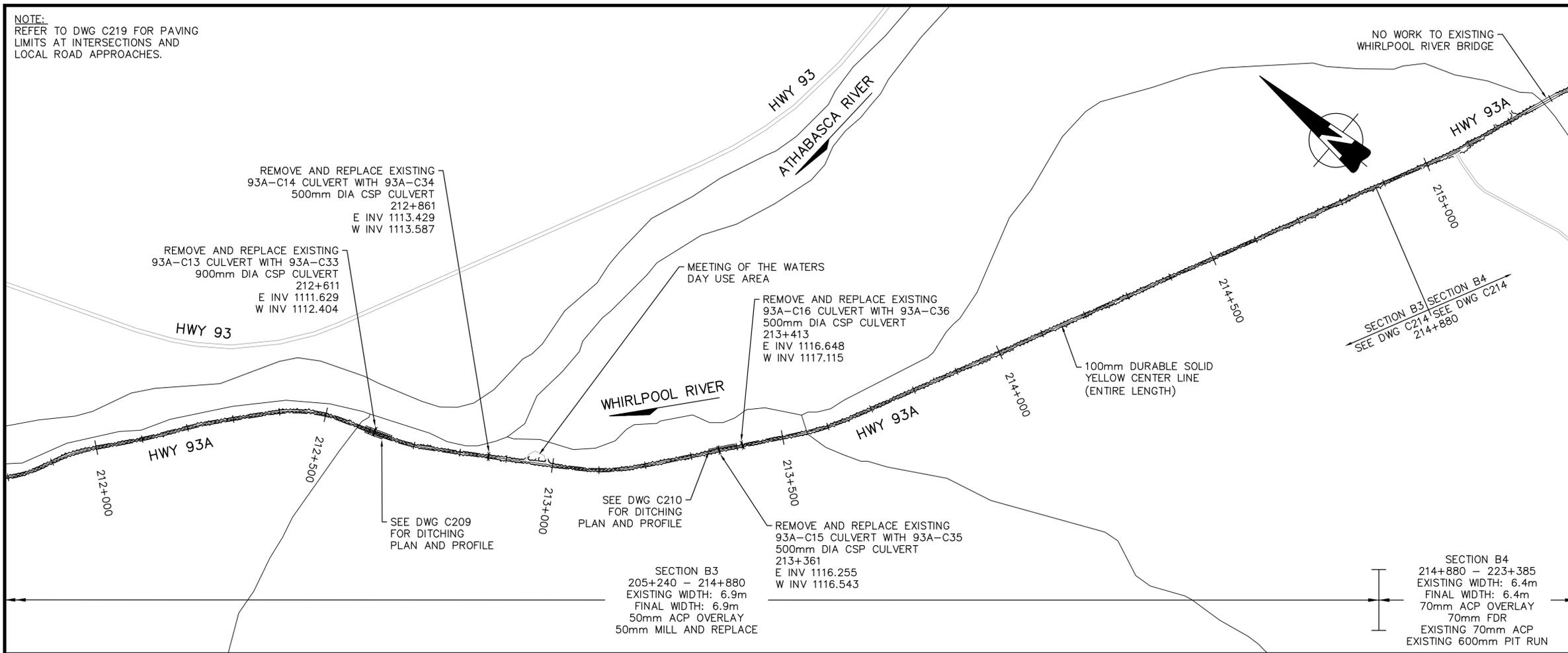
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin

**HWY 93A
PLAN AND PROFILE**

Surveyed by/Arpente par	Drawn by/Dessine par	Date
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
Client Acceptance/Acceptation du client	Approved by/Approuvé par	
Project No./N° du projet	Asset No./N° du bien	Sheet No./N° de la feuille
60506644		C203

NOTE:
REFER TO DWG C219 FOR PAVING
LIMITS AT INTERSECTIONS AND
LOCAL ROAD APPROACHES.



LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- X — EXISTING CULVERT
- = — NEW CULVERT
- X — EXISTING/REPLACE CULVERT
- ~ — TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta
DATE: July 6, 2017

1	17.07.06	ISSUED FOR TENDER	DT	JS
No.	Date	Description	Drawn by Dessine par	Approved Approuve

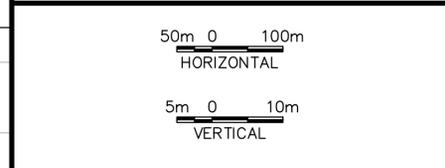
A	Detail number	A Numero de detail
B	Sheet number	B Numero de la feuille

Linear dimensions in millimetres / Dimensions lineaires en millimetres

Consultant's Name / Nom de l'expert-conseil: **AECOM**

Eng. Stamp / Sceau de l'ingenieur: [Stamp]

Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'ouest et du Nord
Canada

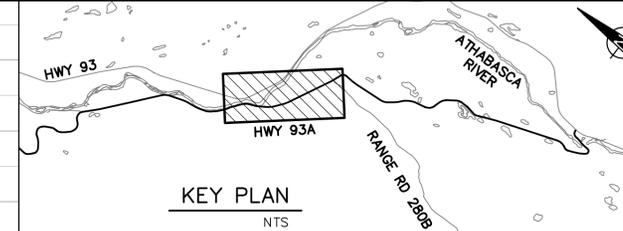
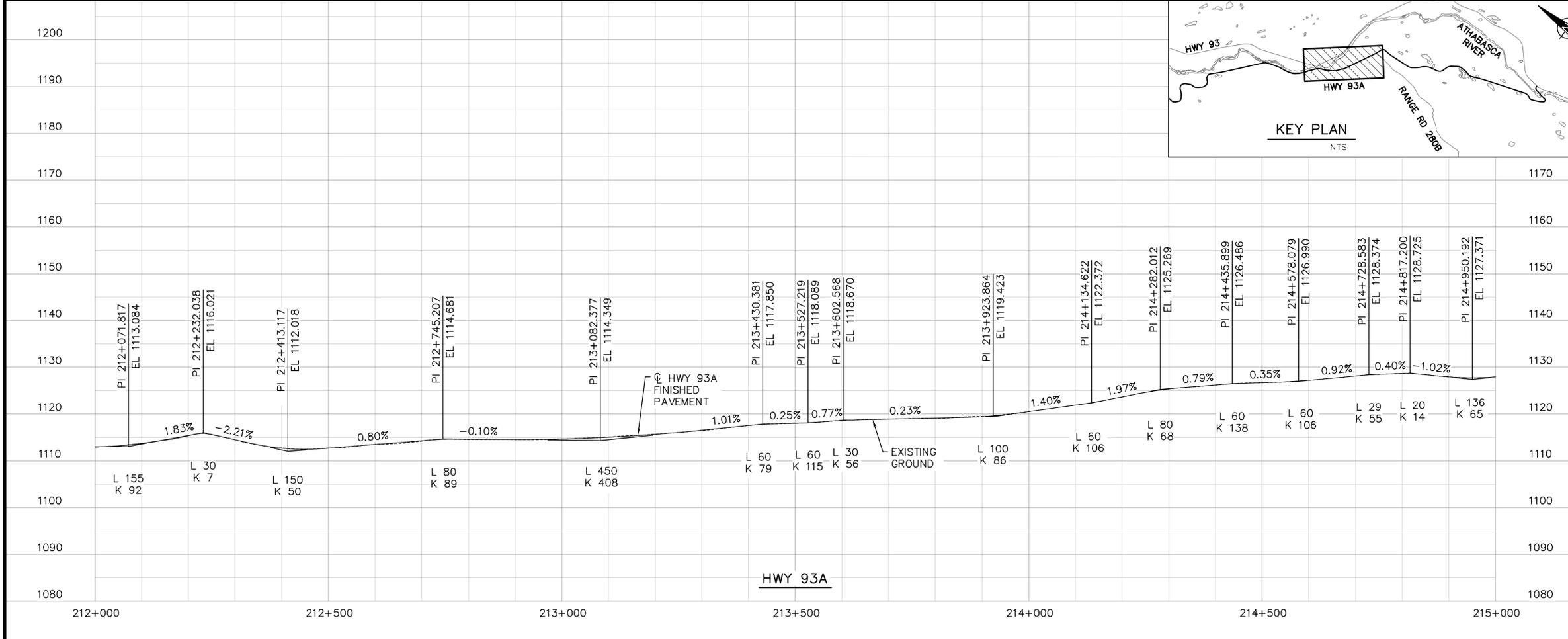


Project title/Titre du projet: **JNP 4-6 ROADS REHAB 96% DETAILED DESIGN**

Drawing title/Titre du dessin: **HWY 93A PLAN AND PROFILE**

Surveyed by/Arpente par: -	Drawn by/Dessine par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -	Approved by/Approuvé par: -	Date: -

Project No./No du projet: 60506644	Asset No./No du bien: -	Sheet No./No de la feuille: C204
Drawing Set No./No de serie du dessin: -		



NOTE:
REFER TO DWG C219 FOR PAVING
LIMITS AT INTERSECTIONS AND
LOCAL ROAD APPROACHES.

NO WORK TO EXISTING
WHIRLPOOL RIVER BRIDGE

SEE DWG C211
FOR DITCHING
PLAN AND PROFILE

REMOVE AND REPLACE EXISTING
93A-C17 CULVERT WITH 93A-C37
600mm DIA CSP CULVERT
215+473
E INV 1127.536
W INV 1127.861

REMOVE AND REPLACE EXISTING
93A-C18 CULVERT WITH 93A-C38
500mm DIA CSP CULVERT
217+655
E INV 1170.091
W INV 1169.371

100mm DURABLE
SOLID YELLOW
CENTER LINE
(ENTIRE LENGTH)

REMOVE AND REPLACE EXISTING
93A-C19 CULVERT WITH 93A-C39
600mm DIA CSP CULVERT
218+163
E INV 1191.185
W INV 1191.865

SEE DWG C212
FOR DITCHING
PLAN AND PROFILE

SECTION B3
205+240 - 214+880
EXISTING WIDTH: 6.9m
FINAL WIDTH: 6.9m
50mm ACP OVERLAY
50mm MILL AND
REPLACE

SECTION B4
214+880 - 223+385
EXISTING WIDTH: 6.4m
FINAL WIDTH: 6.4m
70mm ACP OVERLAY
70mm FDR
EXISTING 70mm ACP
EXISTING 600mm PIT RUN

LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- X- EXISTING CULVERT
- = NEW CULVERT
- X- EXISTING/REPLACE CULVERT
- ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 06, 2017
PERMIT NUMBER: P10450
The Association of Professional
Engineers and Geoscientists of Alberta



DATE: July 6, 2017

No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number A Numero de detail
B	Sheet number B Numero de la feuille

Linear dimensions
In millimetres

Dimensions lineaires
en millimetres

Consultant's Name
Nom de l'expert-conseil

AECOM

Eng. Stamp
Sceau de l'ingenieur

Parks Canada
Strategic Asset
Management,
Western and Northern
Region

Parcs Canada
Gestion Stratégique
des Biens,
Région de l'Ouest et
du Nord

Canada

50m 0 100m
HORIZONTAL

5m 0 10m
VERTICAL

Project title/Titre du projet

**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin

**HWY 93A
PLAN AND PROFILE**

Surveyed by/Arpente par
-
DT
2017-07-06

Designed by/Concept par
JS
Reviewed by/Revisé par
DC

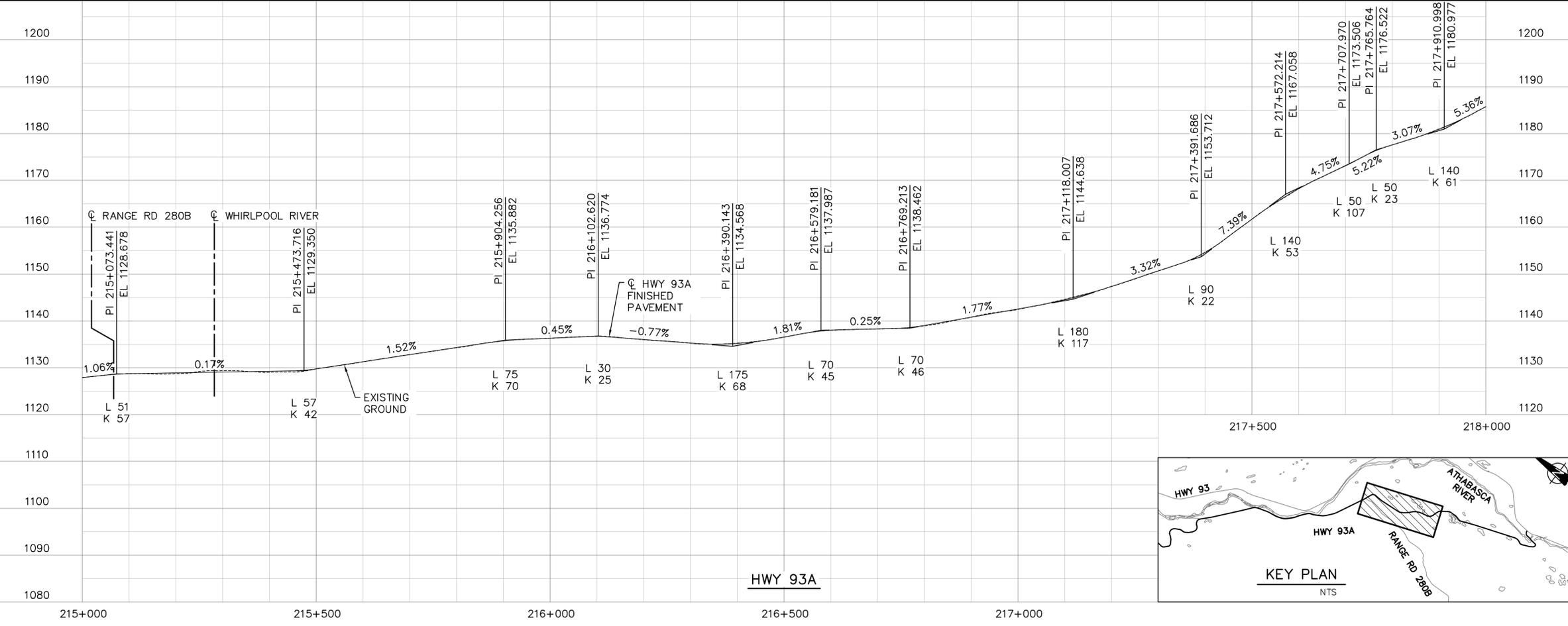
Client Acceptance/Acceptation du client
Approved by/Approuvé par

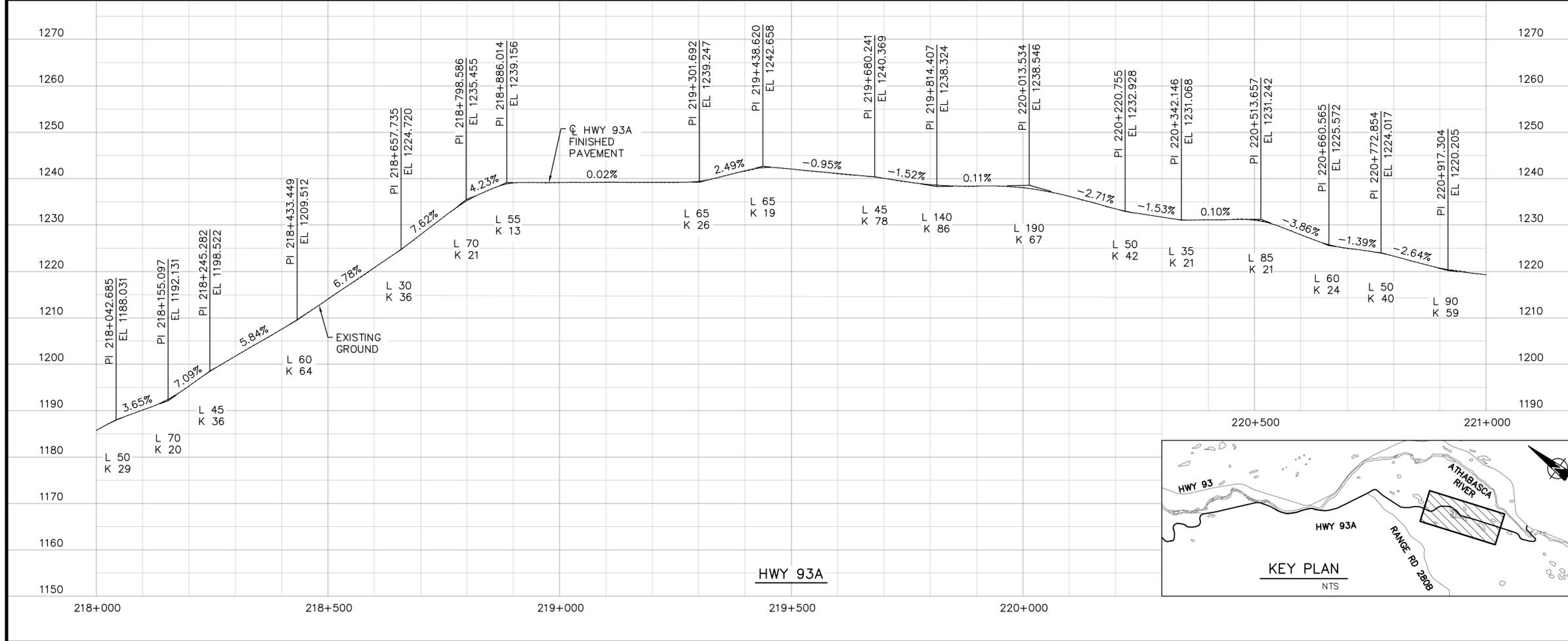
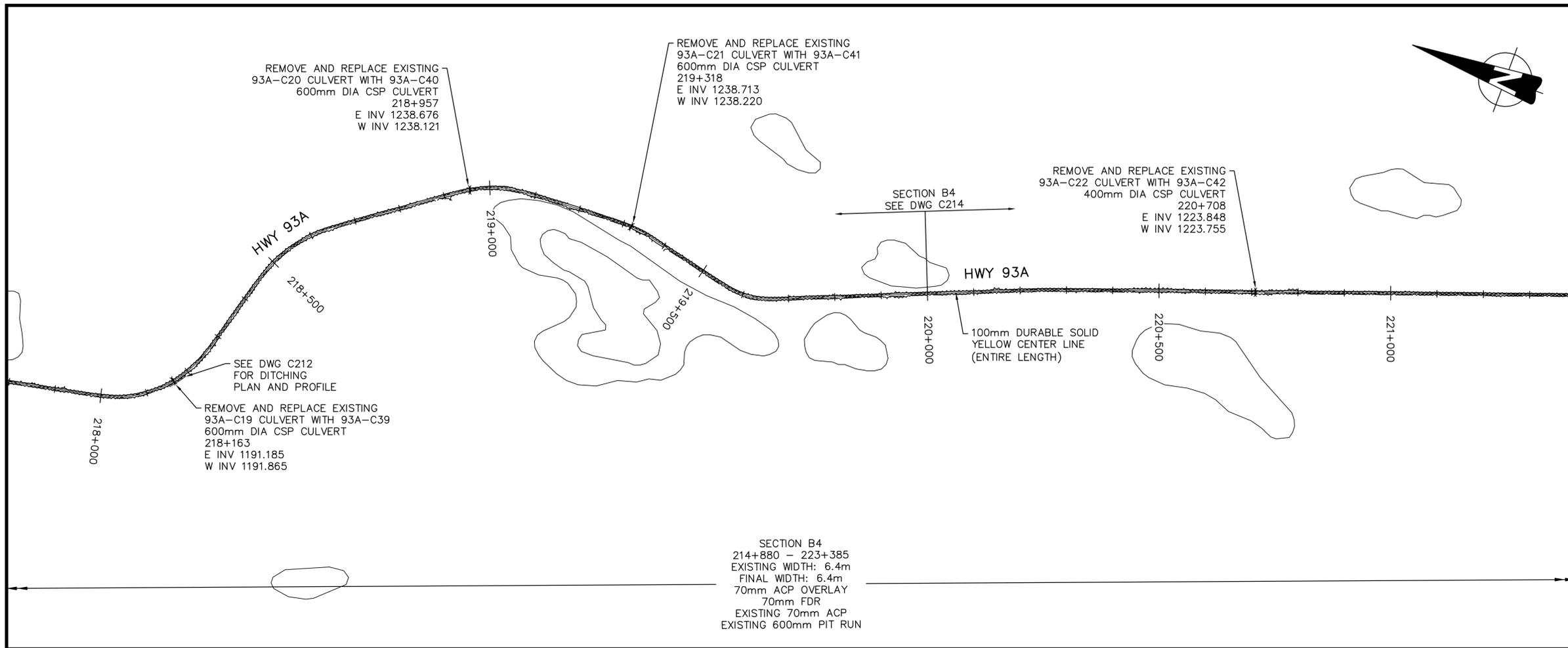
Date

Project No./N° du projet
60506644

Asset No./N° du bien
-

Sheet No./N° de la feuille
C205





LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- EXISTING CULVERT
- == NEW CULVERT
- EXISTING/REPLACE CULVERT
- ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 06, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta
DATE: July 6, 2017

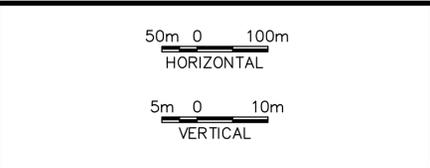
No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number / A Numero de detail
B	Sheet number / B Numero de la feuille

Linear dimensions in millimetres / Dimensions lineaires en millimetres

Consultant's Name / Nom de l'expert-conseil: **AECOM**
Eng. Stamp / Sceau de l'ingenieur: [Stamp]

Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord
Canada



Project title/Titre du projet: **JNP 4-6 ROADS REHAB 96% DETAILED DESIGN**

Drawing title/Titre du dessin: **HWY 93A PLAN AND PROFILE**

Surveyed by/Arpente par: -	Drawn by/Dessine par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -		Approved by/Approuvé par: -
Project No./N° du projet: 60506644		Asset No./N° du bien: -
Drawing Set No./N° de série du dessin: -		Sheet No./N° de la feuille: C206

NOTE:
REFER TO DWG C219 FOR PAVING
LIMITS AT INTERSECTIONS AND
LOCAL ROAD APPROACHES.



LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- EXISTING CULVERT
- == NEW CULVERT
- EXISTING/REPLACE CULVERT
- ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional
Engineers and Geoscientists of Alberta



DATE July 6, 2017

No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

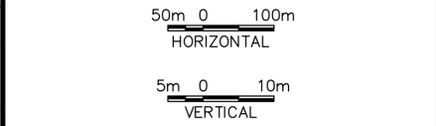
Revision / Revision
A B

Linear dimensions in millimetres / Dimensions lineaires en millimetres

Consultant's Name / Nom de l'expert-conseil: **AECOM**



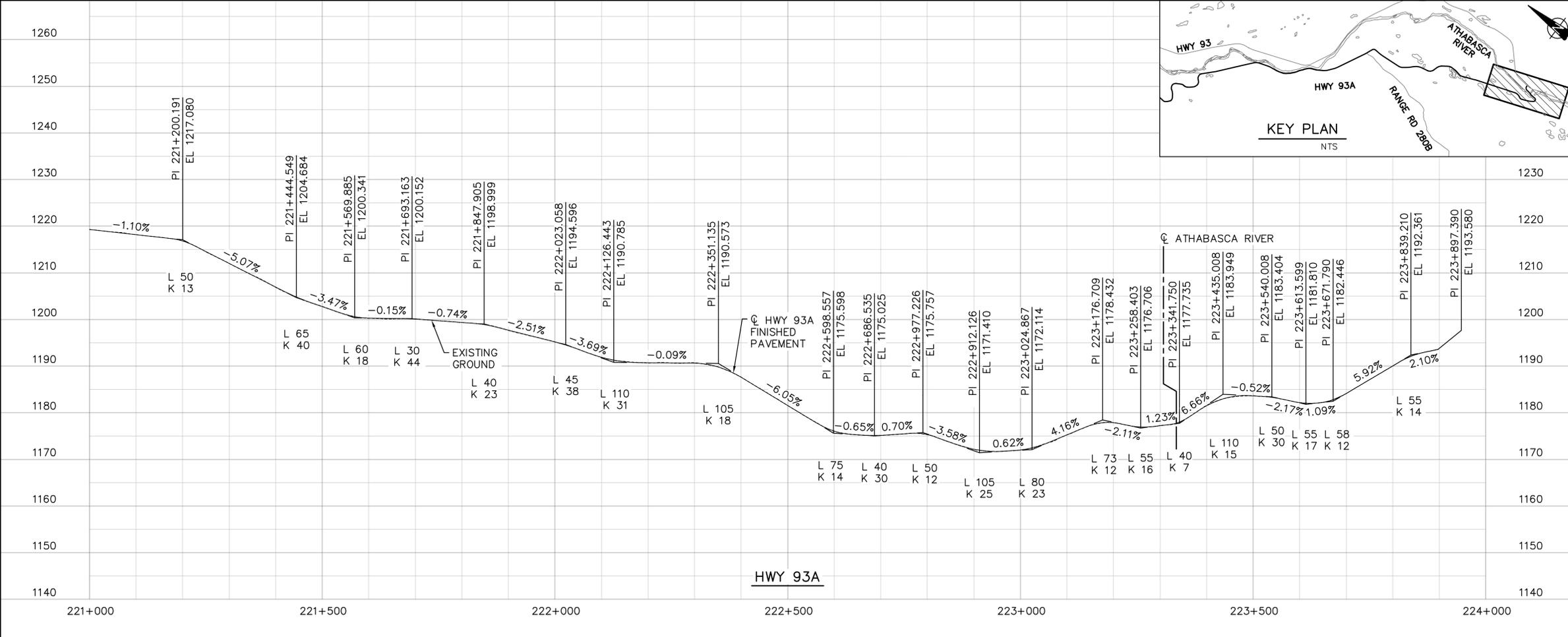
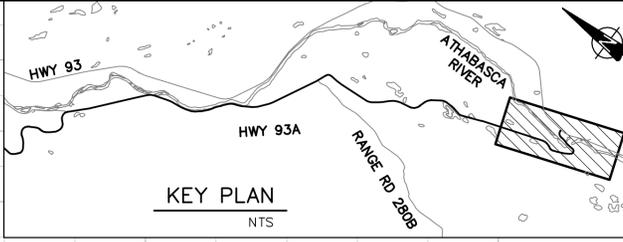
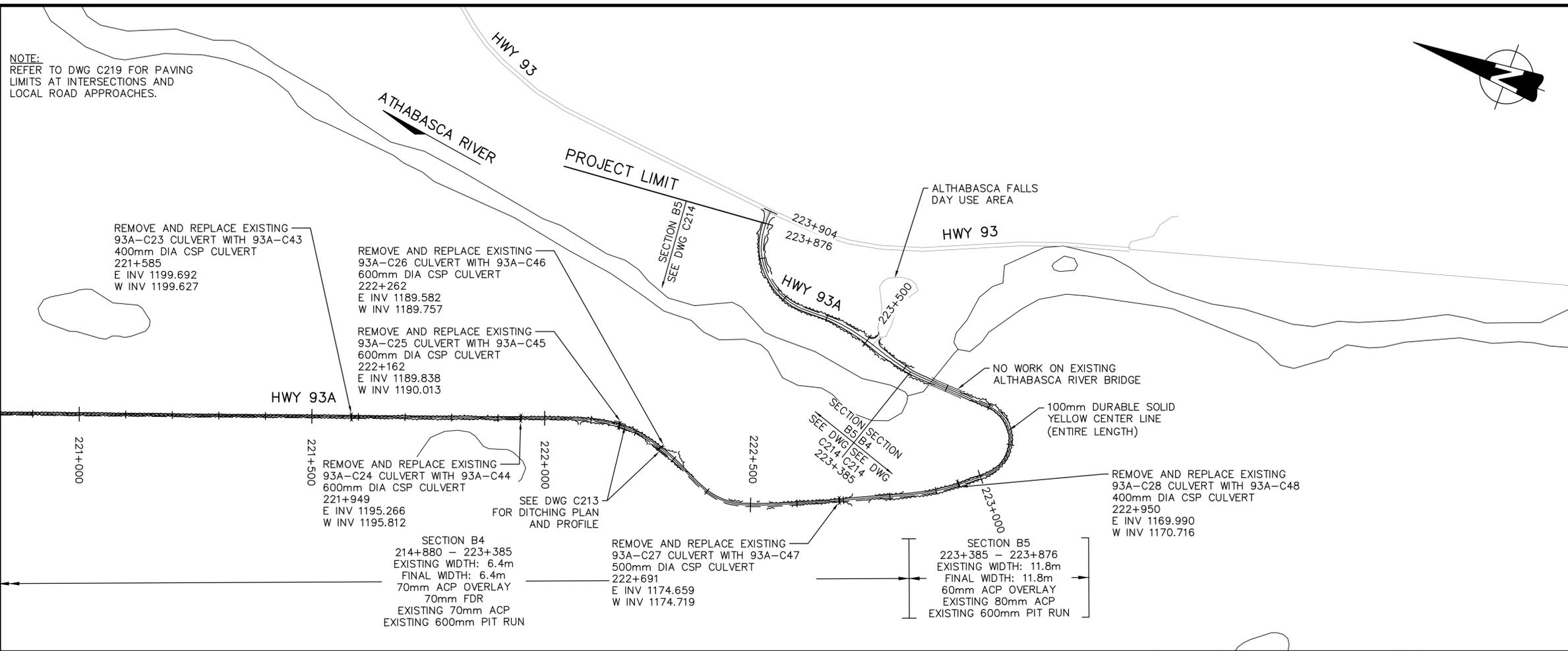
Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'ouest et du Nord

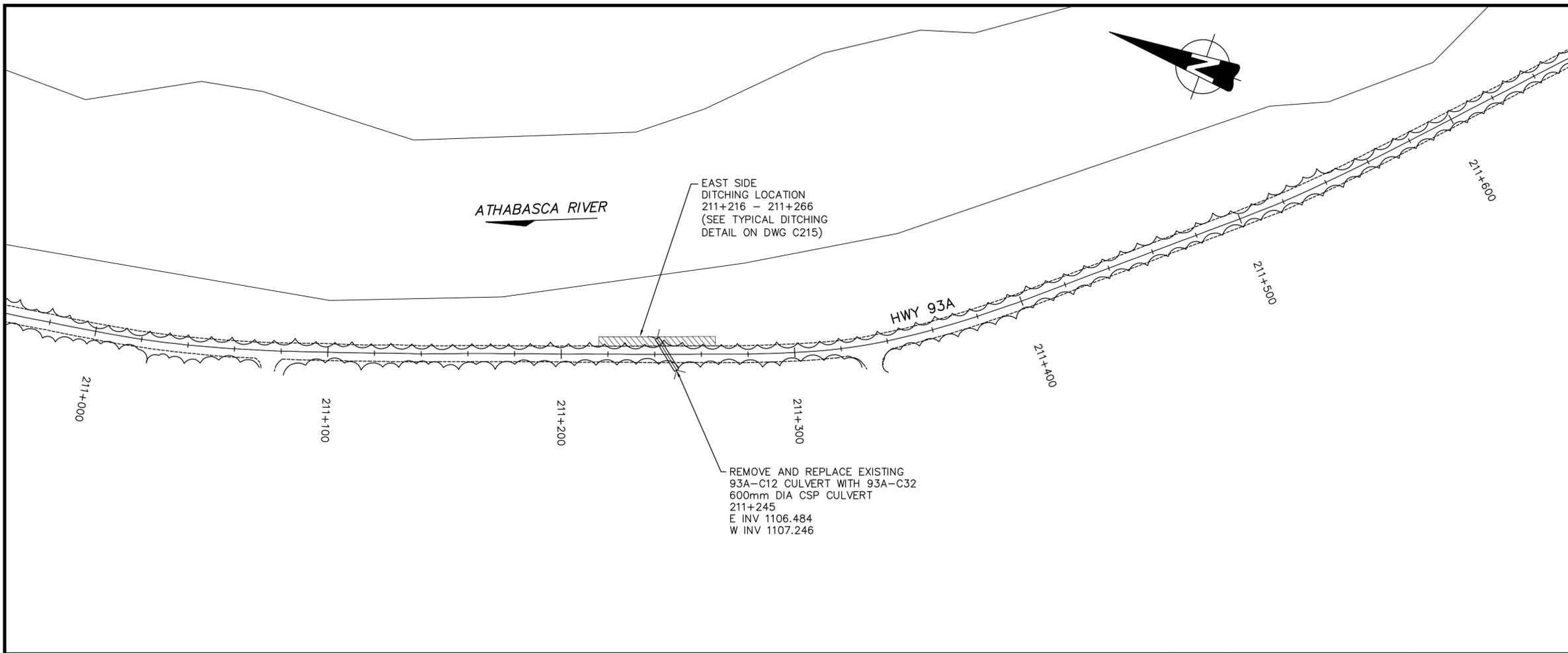


Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin
**HWY 93A
PLAN AND PROFILE**

Surveyed by/Arpente par: -	Drawn by/Dessine par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -	Approved by/Approuvé par: -	Date: -
Project No./N° du projet: 60506644	Asset No./N° du bien: -	Sheet No./N° de la feuille: C207





LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- <--- EXISTING CULVERT
- = = = NEW CULVERT
- <--- EXISTING/REPLACE CULVERT
- /// DITCHING
- ~ ~ ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.

Signature: *[Signature]*
Date: July 06, 2017

PERMIT NUMBER: P10450
The Association of Professional
Engineers and Geoscientists of Alberta

DATE: July 6, 2017

No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision

A	Detail number	A Numero de detail
B	Sheet number	B Numero de la feuille

Linear dimensions
In millimetres

Dimensions lineaires
en millimetres

Consultant's Name
Nom de l'expert-conseil

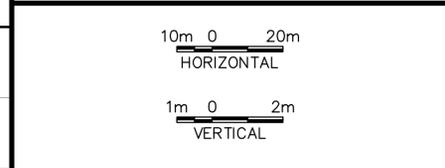
Eng. Stamp
Sceau de l'ingenieur

AECOM

Parks Canada
Strategic Asset
Management,
Western and Northern
Region

Parcs Canada
Gestion Stratégique
des Biens,
Région de l'Ouest et
du Nord

Canada



Project title/Titre du projet

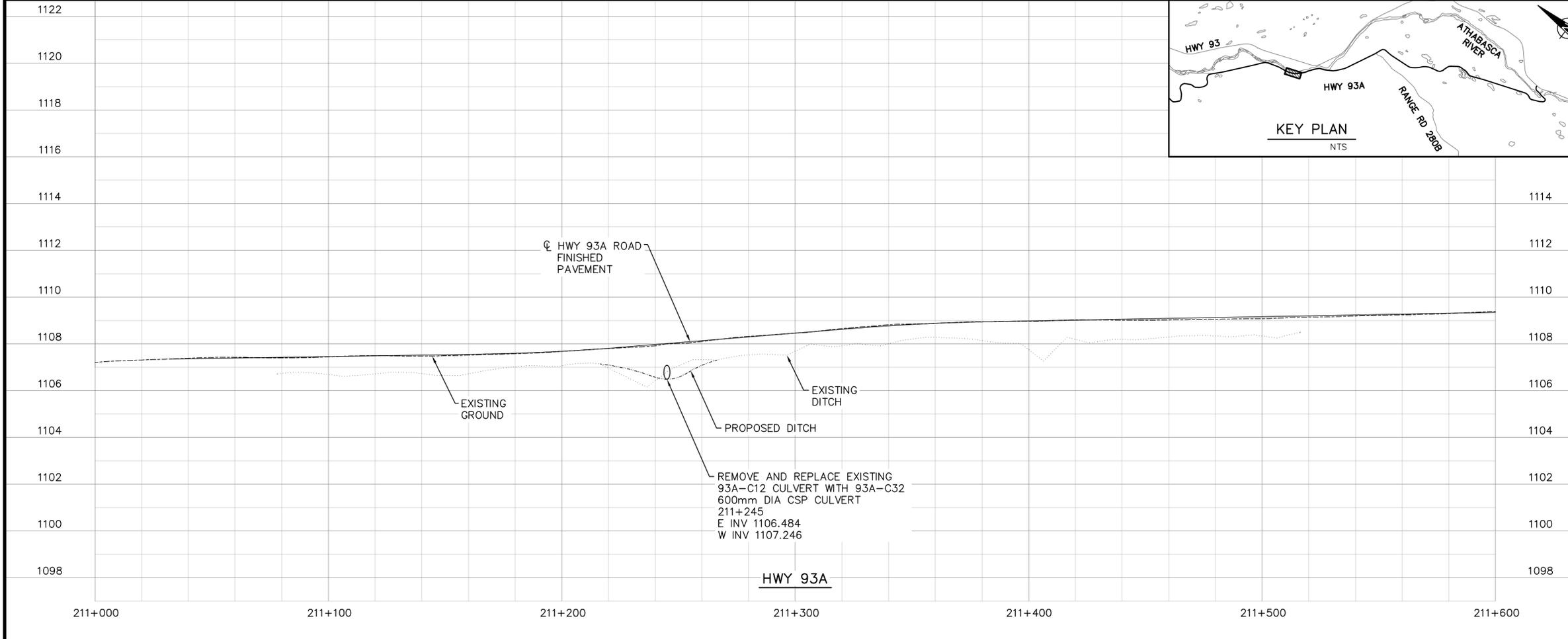
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

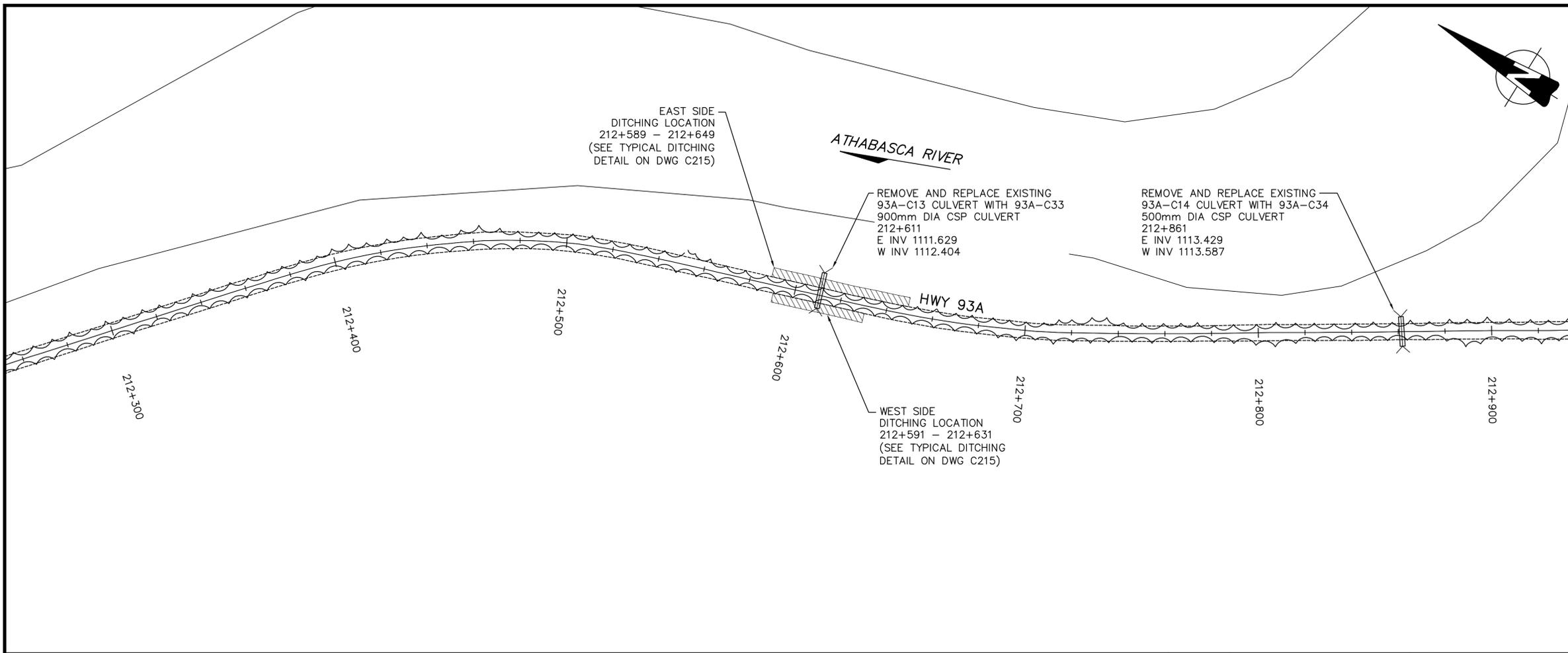
Drawing title/Titre du dessin

**HWY 93A
DITCHING
PLAN AND PROFILE**

Surveyed by/Arpente par -	Drawn by/Dessine par DT	Date 2017-07-06
Designed by/Concept par JS	Reviewed by/Revisé par DC	Scale/Echelle
Client Acceptance/Acceptation du client	Approved by/Approuvé par	
Date	Date	

Project No./N° du projet 60506644	Asset No./N° du bien -	Sheet No./ N° de la feuille C208
Drawing Set No./N° de série du dessin -		





LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- >-> EXISTING CULVERT
- = = = NEW CULVERT
- >-> EXISTING/REPLACE CULVERT
- ▨ DITCHING
- ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 06, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta



No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number / A Numero de detail
B	Sheet number / B Numero de la feuille

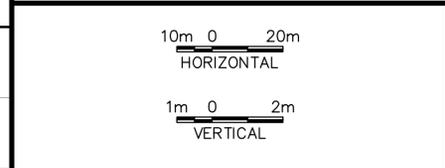
Linear dimensions / Dimensions lineaires
In millimetres / en millimetres

Consultant's Name / Nom de l'expert-conseil: **AECOM**

Eng. Stamp / Sceau de l'ingenieur

Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord

Canada

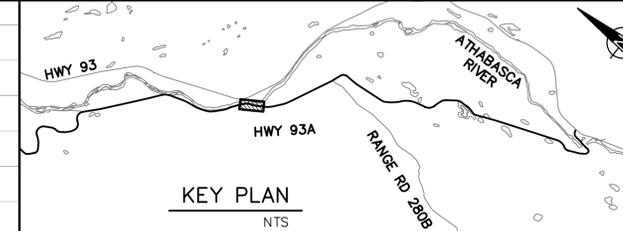
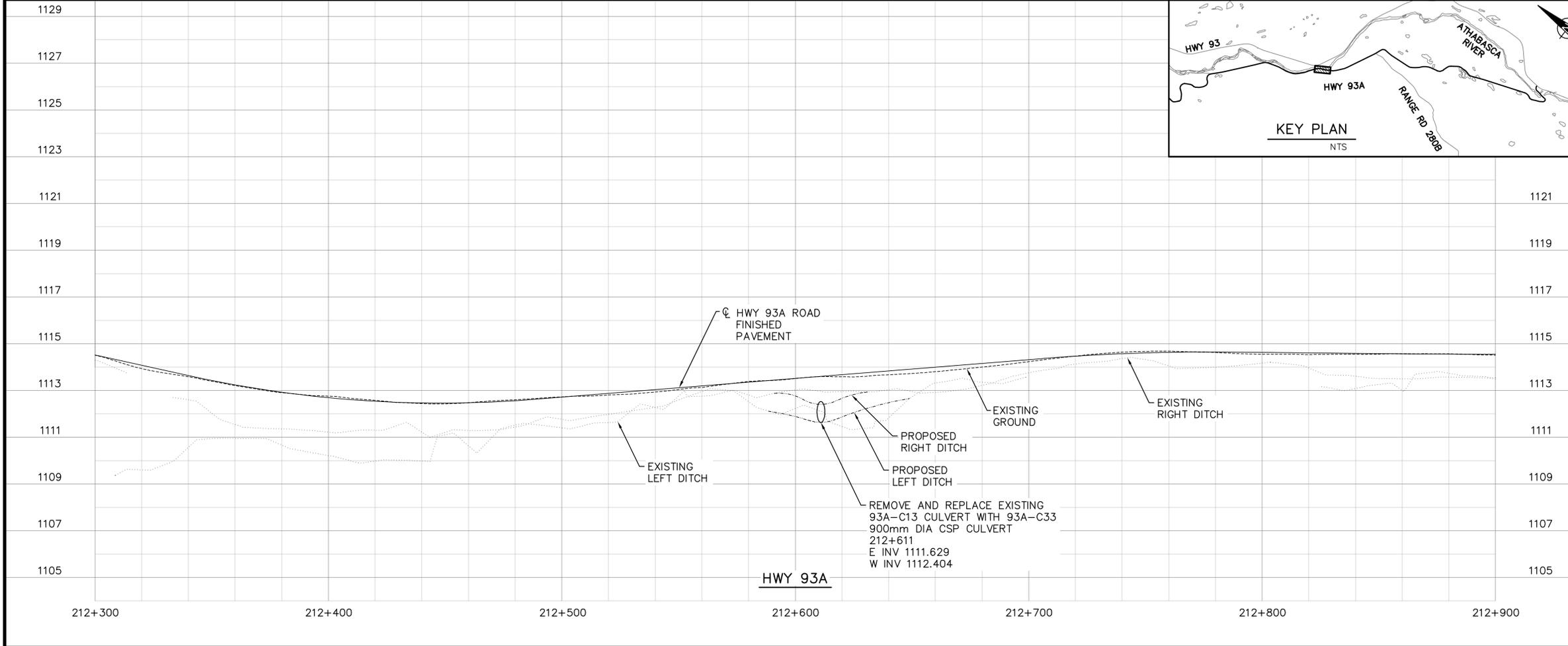


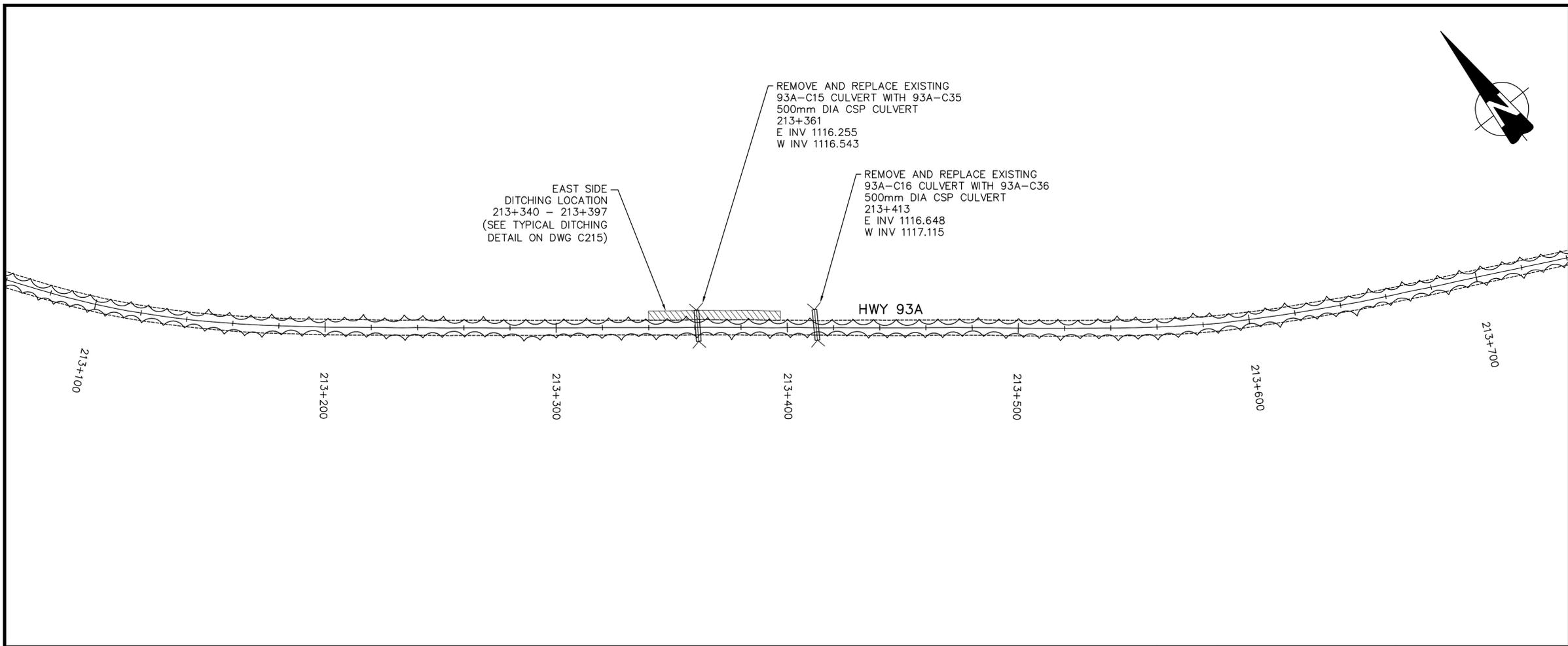
Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin
**HWY 93A
DITCHING
PLAN AND PROFILE**

Surveyed by/Arpente par: -	Drawn by/Dessine par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -	Approved by/Approuvé par: -	Date: -

Project No./N° du projet: 60506644	Asset No./N° du bien: -	Sheet No./N° de la feuille: C209
Drawing Set No./N° de série du dessin: -		





LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- >-> EXISTING CULVERT
- = NEW CULVERT
- >-> EXISTING/REPLACE CULVERT
- ▨ DITCHING
- ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional
Engineers and Geoscientists of Alberta



No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

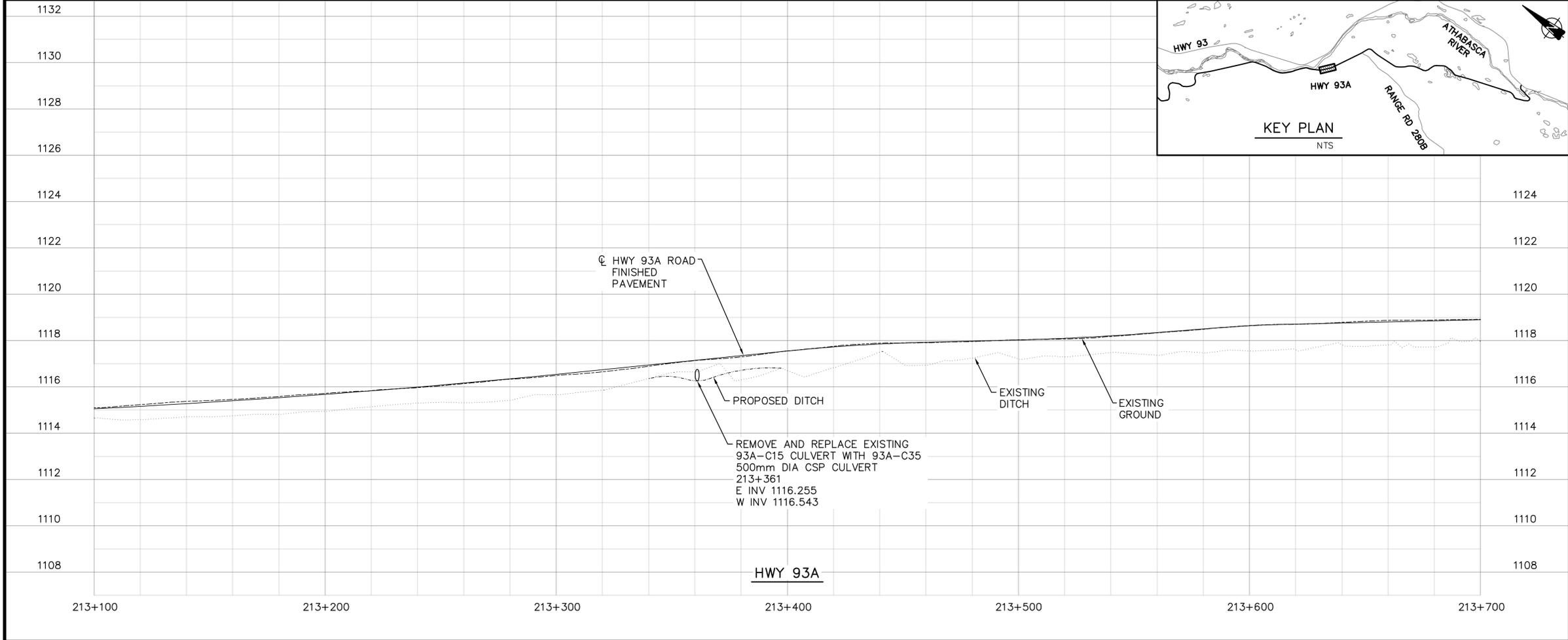
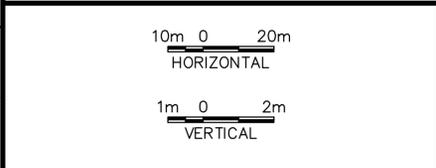
Revision / Revision	
A	Detail number / A Numero de detail
B	Sheet number / B Numero de la feuille

Linear dimensions / Dimensions lineaires
in millimetres / en millimetres

Consultant's Name / Nom de l'expert-conseil
AECOM

Eng. Stamp / Sceau de l'ingenieur

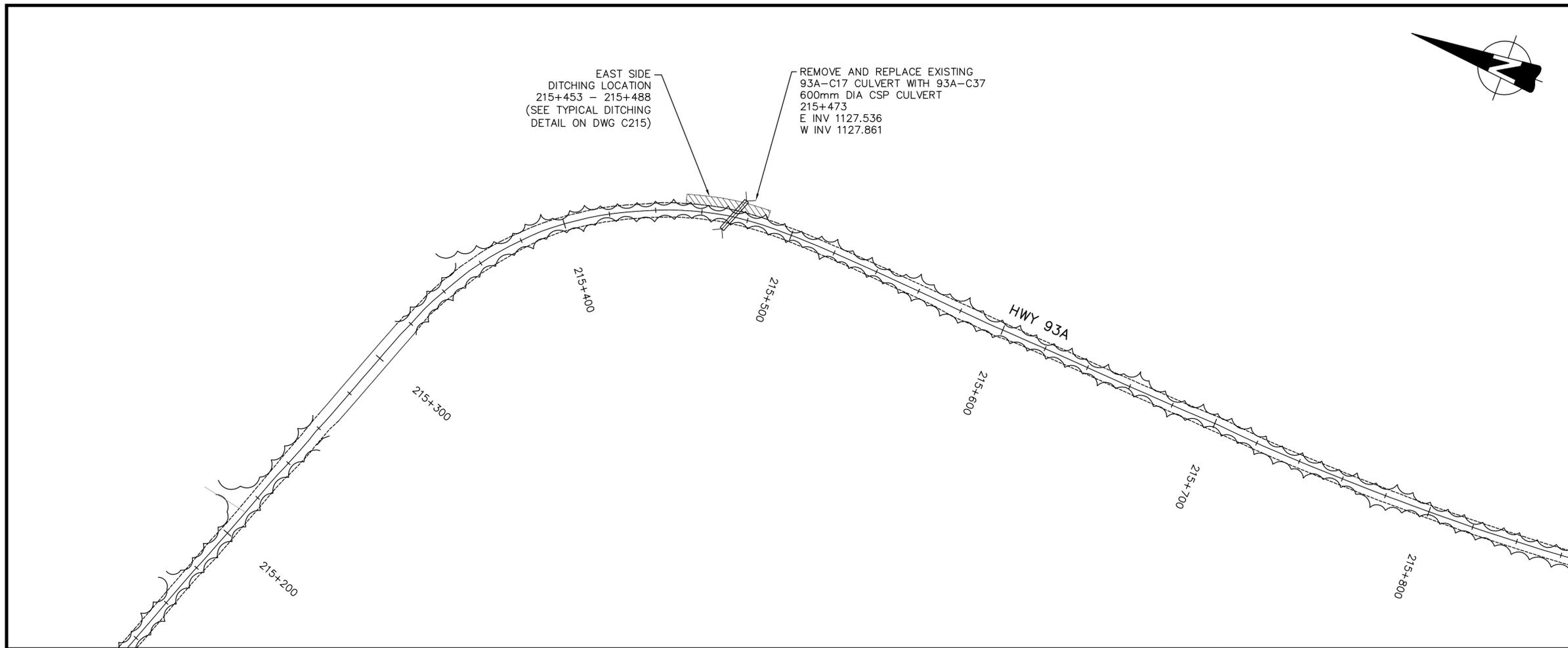
Canada
Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'ouest et du Nord



Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin
**HWY 93A
DITCHING
PLAN AND PROFILE**

Surveyed by/Arpente par -	Drawn by/Dessine par DT	Date 2017-07-06
Designed by/Concept par JS	Reviewed by/Revisé par DC	Scale/Echelle
Client Acceptance/Acceptation du client		Approved by/Approuvé par
Date		Date
Project No./No du projet 60506644	Asset No./No du bien -	Sheet No./No de la feuille C210
Drawing Set No./No de serie du dessin		



LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- X- EXISTING CULVERT
- = NEW CULVERT
- X- EXISTING/REPLACE CULVERT
- ▨ DITCHING
- ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 06, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta



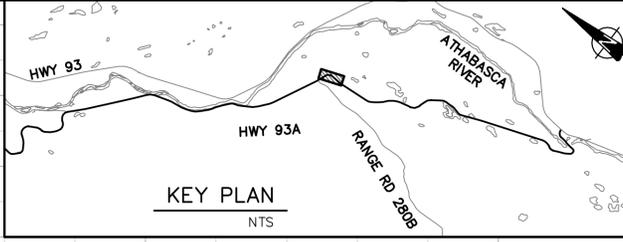
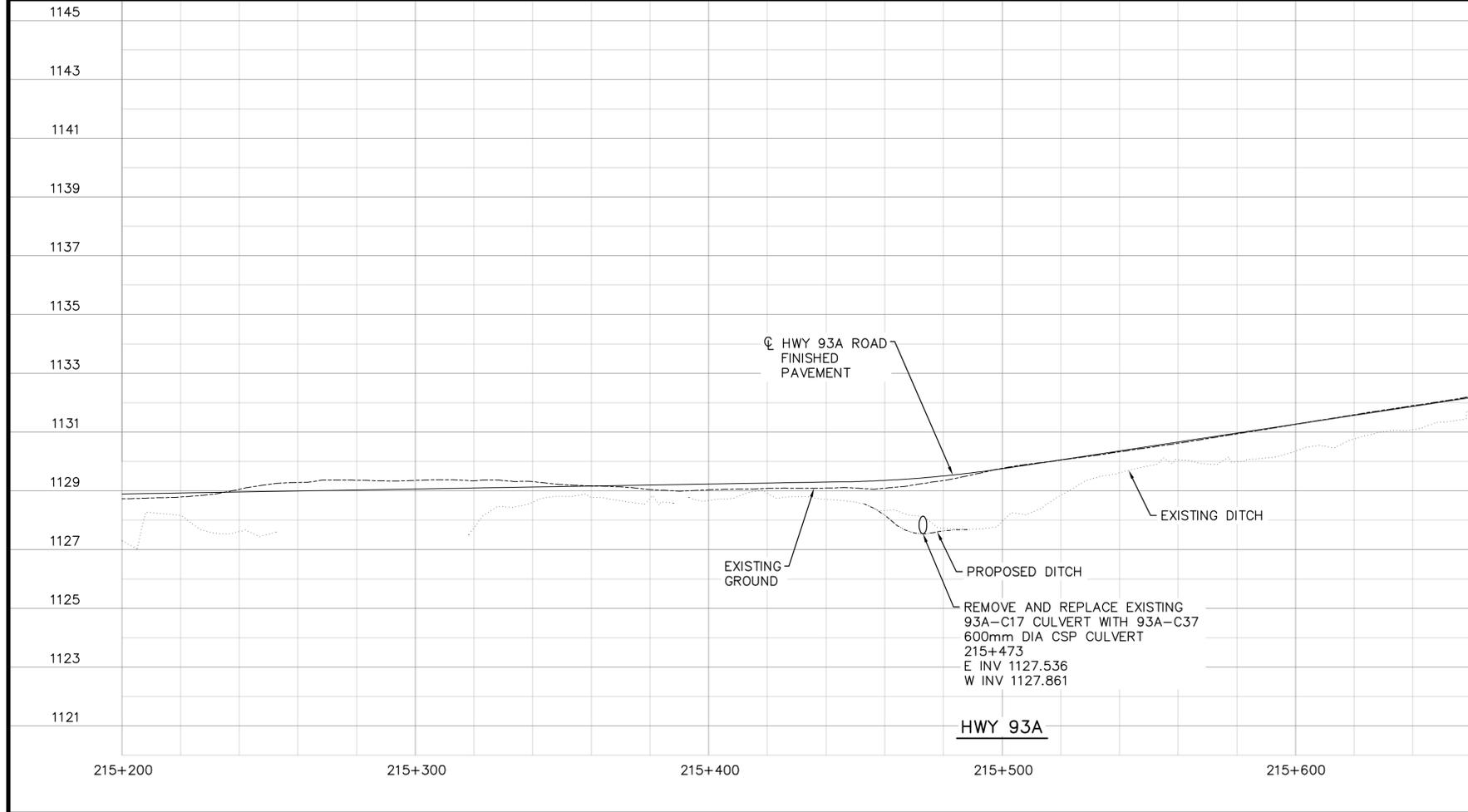
No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number / A Numero de detail
B	Sheet number / B Numero de la feuille

Linear dimensions in millimetres / Dimensions lineaires en millimetres

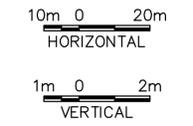
Consultant's Name / Nom de l'expert-conseil: **AECOM**

Eng. Stamp / Sceau de l'ingenieur: [Stamp]



Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord

Canada

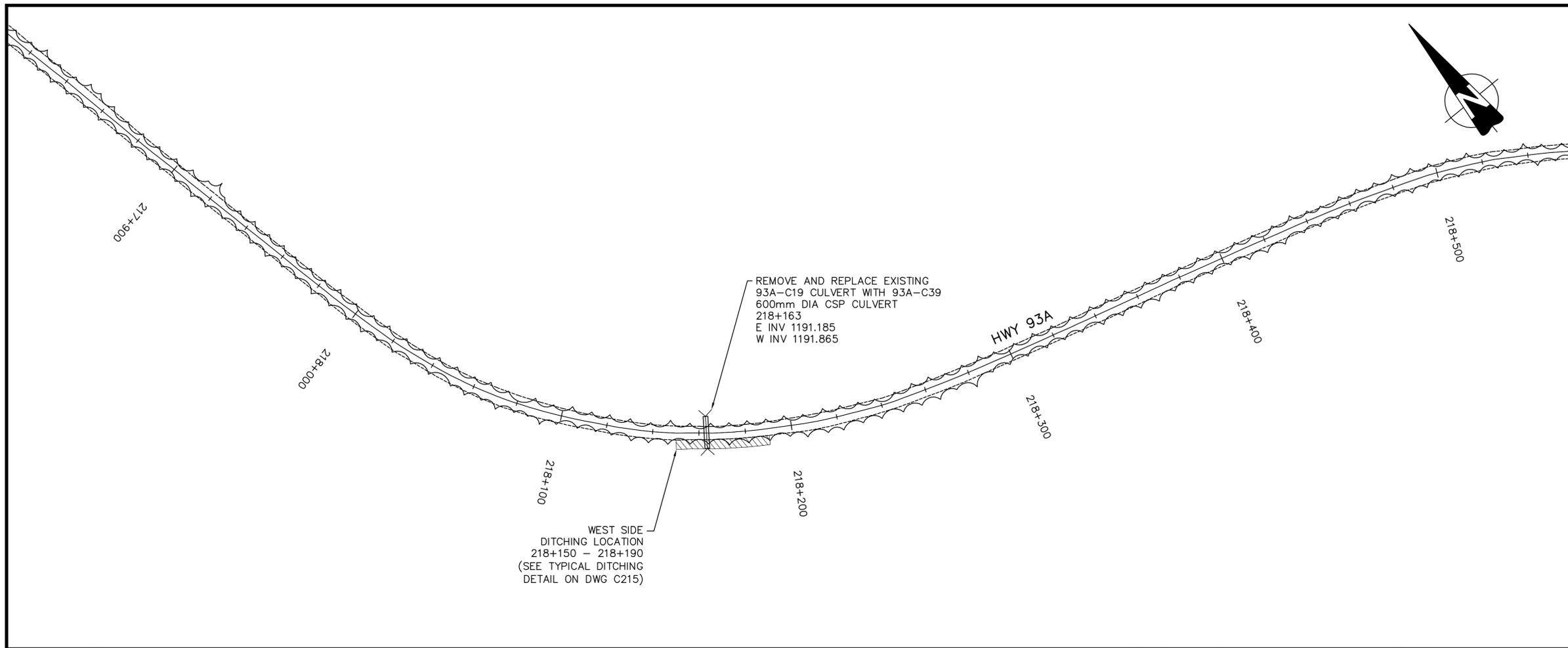


Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin
**HWY 93A
DITCHING
PLAN AND PROFILE**

Surveyed by/Arpente par: -	Drawn by/Dessine par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -	Approved by/Approuvé par: -	Date: -

Project No./N° du projet: 60506644	Asset No./N° du bien: -	Sheet No./N° de la feuille: C211
Drawing Set No./N° de série du dessin: -		



LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- >-> EXISTING CULVERT
- = = = NEW CULVERT
- >-> EXISTING/REPLACE CULVERT
- ▨ DITCHING
- ~ ~ ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta



No.	Date	Description	Drawn by Dessine par	Approved Approuvé
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision

A	Detail number	A Numero de detail
B	Sheet number	B Numero de la feuille

Linear dimensions
In millimetres

Dimensions lineaires
en millimetres

Consultant's Name
Nom de l'expert-conseil

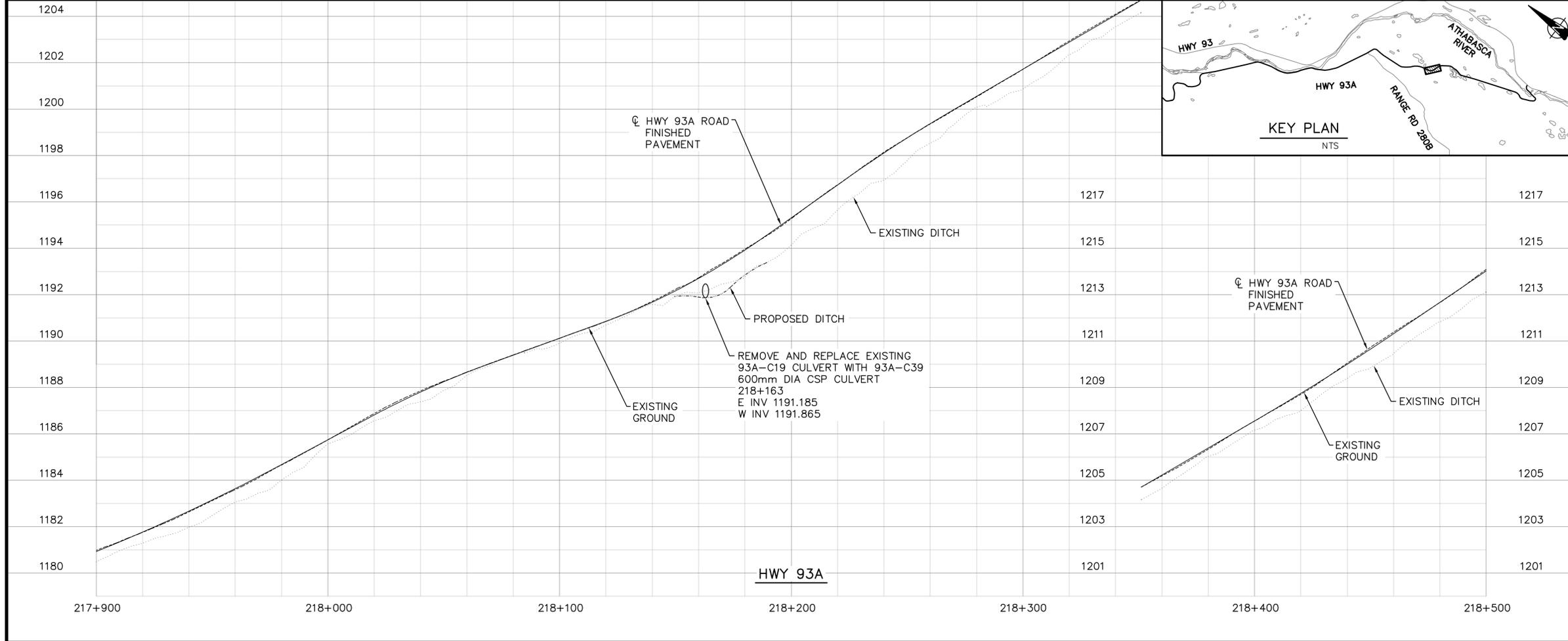
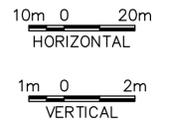
Eng. Stamp
Sceau de l'ingenieur

AECOM

Parcs Canada
Strategic Asset Management,
Western and Northern Region

Parcs Canada
Gestion Stratégique des Biens,
Région de l'Ouest et du Nord

Canada



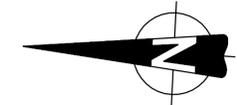
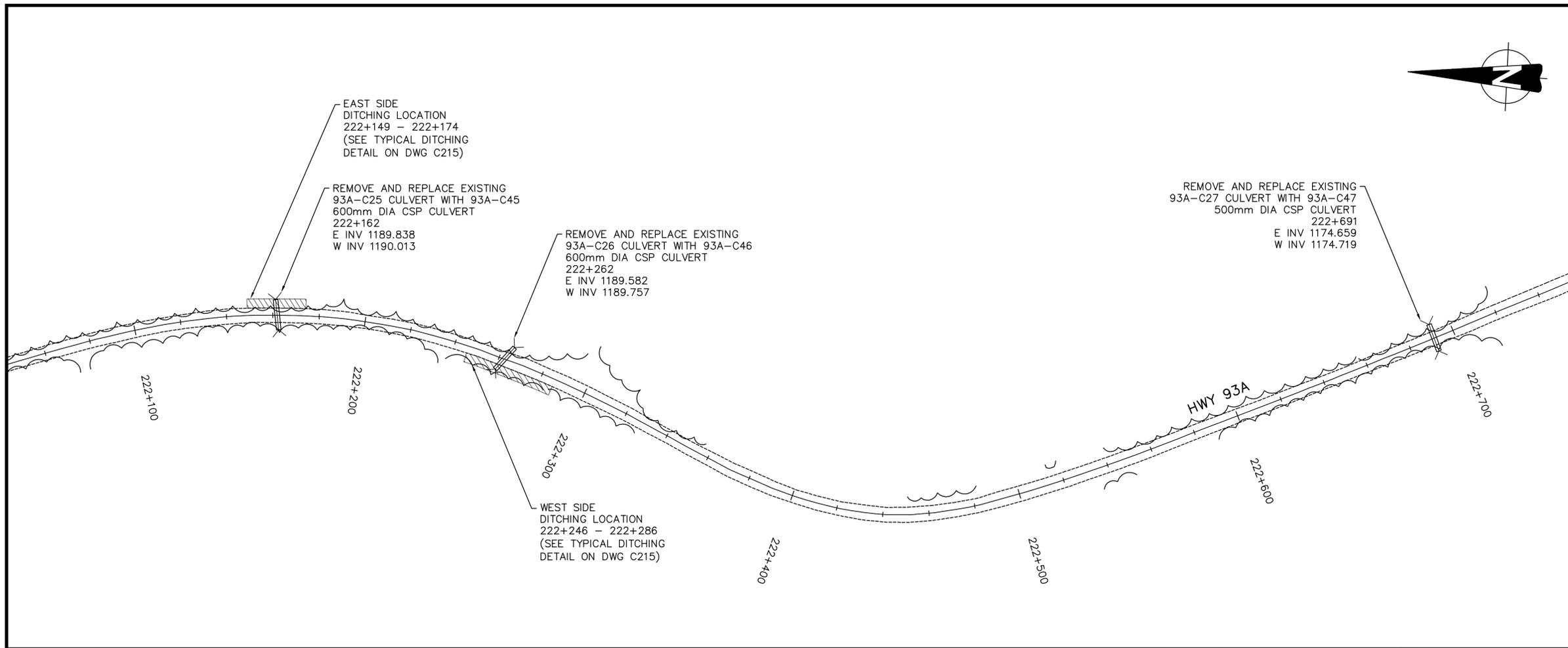
Project title/Titre du projet

**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin

**HWY 93A
DITCHING
PLAN AND PROFILE**

Surveyed by/Arpente par	Drawn by/Dessine par	Date
-	DT	2017-07-06
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
JS	DC	-
Client Acceptance/Acceptation du client	Approved by/Approuvé par	Date
-	-	-
Project No./No du projet	Asset No./No du bien	Sheet No./No de la feuille
60506644	-	C212
Drawing Set No./No de serie du dessin	-	



LEGEND

- PROPOSED EDGE OF PAVEMENT
- - - EXISTING EDGE OF PAVEMENT
- <--- EXISTING CULVERT
- = = = NEW CULVERT
- EXISTING/REPLACE CULVERT
- ▨ DITCHING
- ~ ~ ~ TREE LINE

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 06, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta



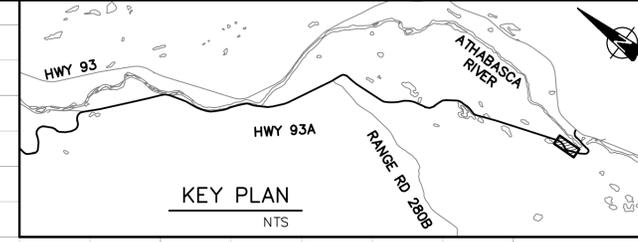
1	17.07.06	ISSUED FOR TENDER	DT	JS
No.	Date	Description	Drawn by / Dessiné par	Approved / Approuvé
Revision / Revision				

(A)	Detail number	A Numero de detail
(B)	Sheet number	B Numero de la feuille

Linear dimensions in millimetres / Dimensions linéaires en millimètres

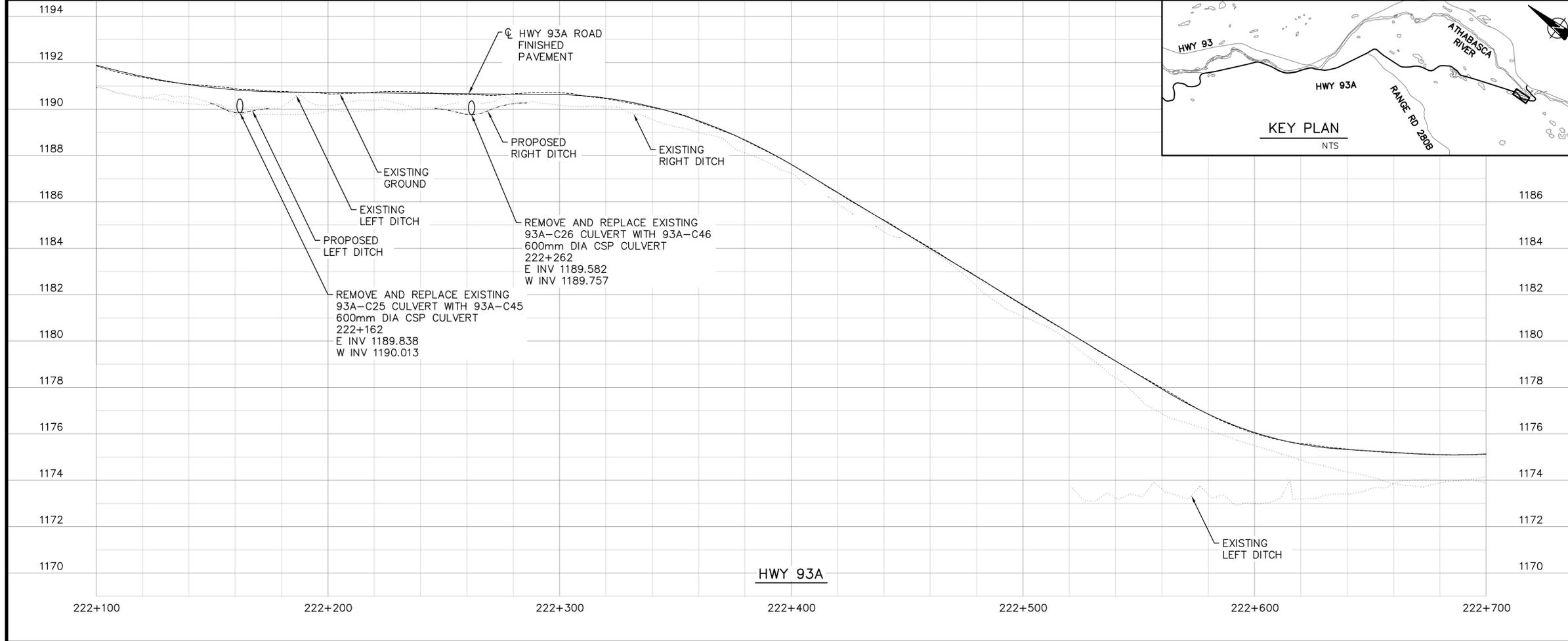
Consultant's Name / Nom de l'expert-conseil: **AECOM**
Eng. Stamp / Sceau de l'ingénieur: [Blank]

Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord



10m 0 20m
HORIZONTAL

1m 0 2m
VERTICAL

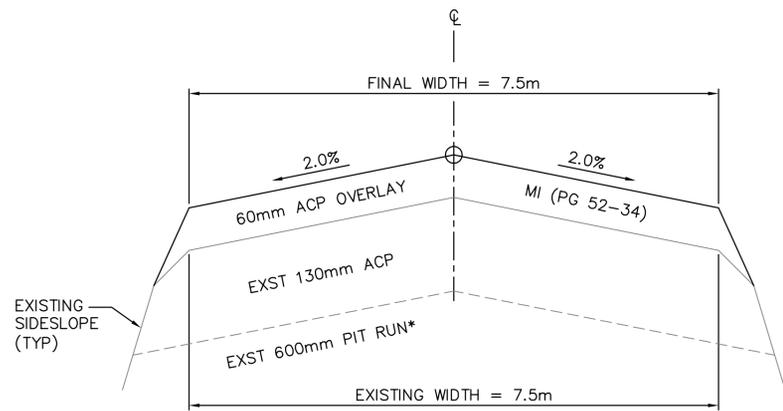


Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

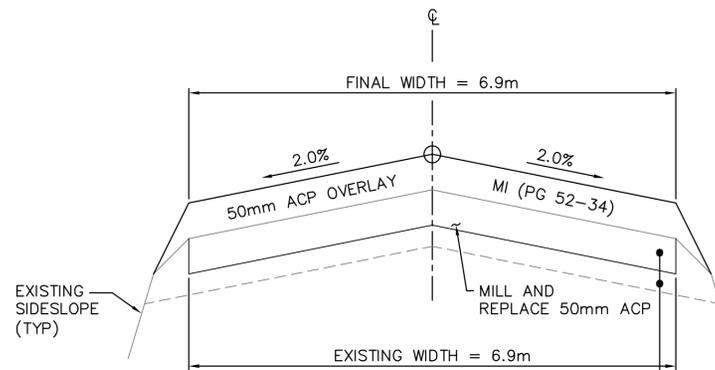
Drawing title/Titre du dessin
**HWY 93A
DITCHING
PLAN AND PROFILE**

Surveyed by/Arpenté par: -	Drawn by/Dessiné par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -	Approved by/Approuvé par: -	Date: -

Project No./N° du projet: 60506644
Asset No./N° du bien: -
Drawing Set No./N° de série du dessin: -
Sheet No./N° de la feuille: **C213**

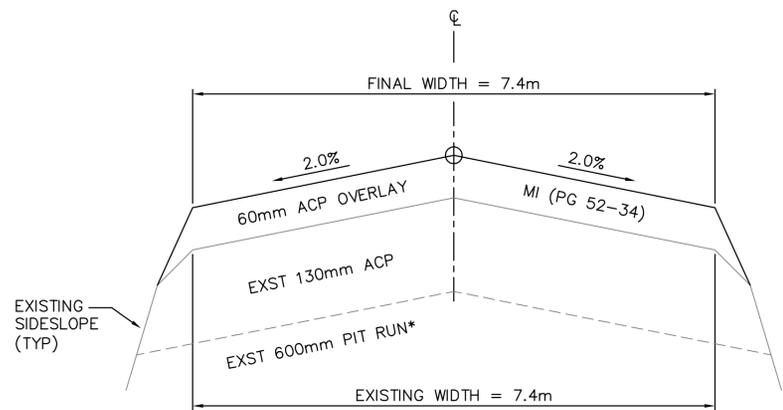


TYPICAL SECTION B1
HIGHWAY 93A SOUTH km 200+000 – km 203+300

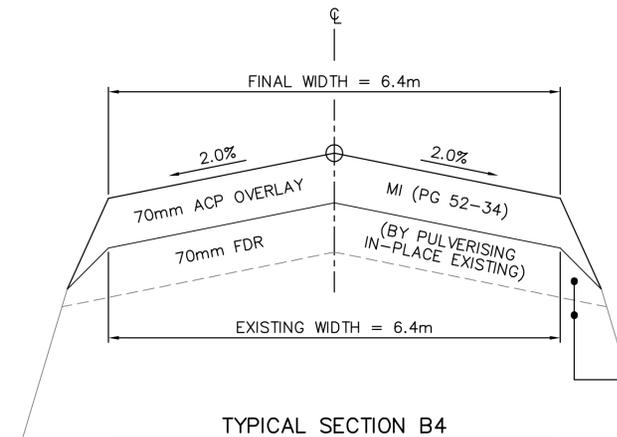


TYPICAL SECTION B3
HIGHWAY 93A SOUTH km 205+240 – km 214+880

205+240 – 207+750
EXST 130mm ACP
EXST 600mm PIT RUN*
207+750 – 214+880
EXST 80mm ACP
EXST 600mm PIT RUN*

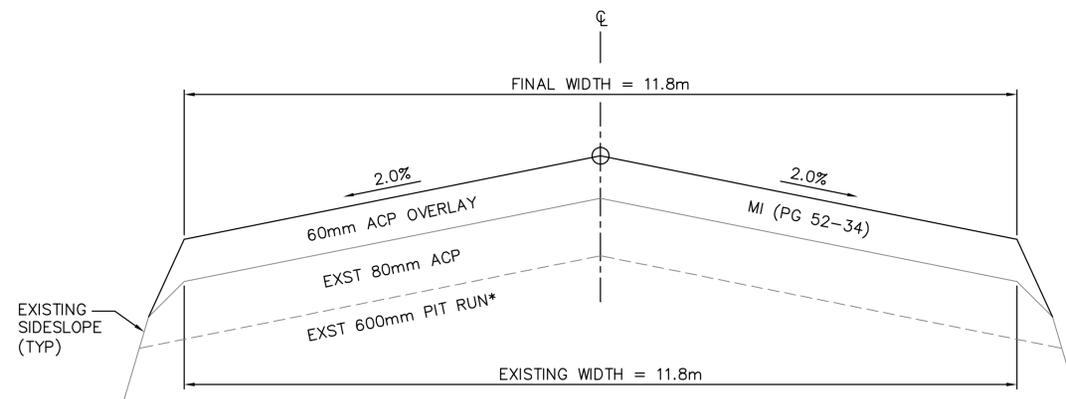


TYPICAL SECTION B2
HIGHWAY 93A SOUTH km 203+300 – km 205+240



TYPICAL SECTION B4
HIGHWAY 93A SOUTH km 214+880 – km 223+385

EXST 70mm ACP
EXST 600mm PIT RUN*



TYPICAL SECTION B5
HIGHWAY 93A SOUTH km 223+385 – km 223+876

* THE UNDERLYING BASE MATERIAL BENEATH THE BITUMINIOUS LAYER WAS PRIMARILY SAND/GRAVEL MIXTURE (PIT RUN) OF VARYING THICKNESSES

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta



DATE July 6, 2017

No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number
B	Sheet number

Linear dimensions in millimetres / Dimensions linéaires en millimètres

Consultant's Name / Nom de l'expert-conseil: **AECOM**
Eng. Stamp / Sceau de l'ingénieur: [Stamp]

Parcs Canada / Parc Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord
Canada

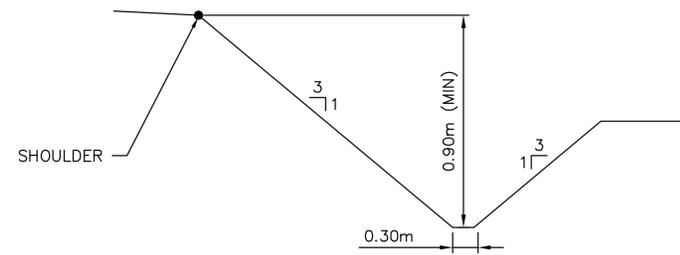
0.50m 0 1.00m
HORIZONTAL
0.05m 0 0.10m
VERTICAL

Project title/Titre du projet: **JNP 4-6 ROADS REHAB 96% DETAILED DESIGN**

Drawing title/Titre du dessin: **HWY 93A SECTIONS AND DETAILS**

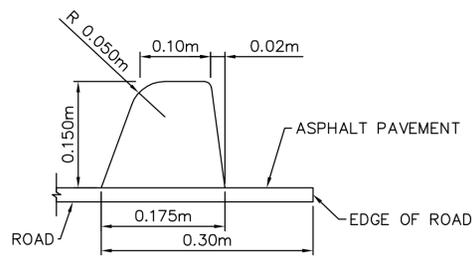
Surveyed by/Arpente par: -	Drawn by/Dessine par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -	Approved by/Approuvé par: -	Date: -

Project No./N° du projet: 60506644
Asset No./N° du bien: -
Drawing Set No./N° de série du dessin: -
Sheet No./N° de la feuille: **C214**



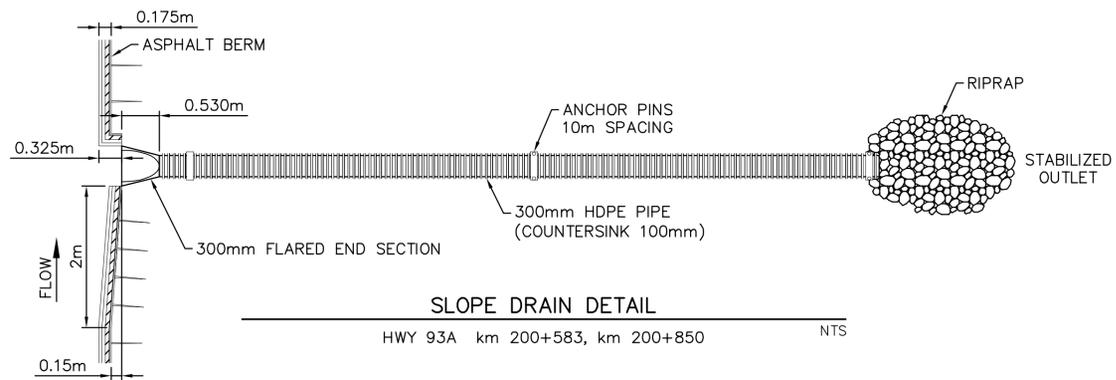
TYPICAL DITCHING SECTION
NTS

HWY 93
 km 211+216 - km 211+266 LT
 km 212+589 - km 212+649 LT
 km 212+591 - km 212+631 RT
 km 213+340 - km 213+397 LT
 km 215+453 - km 215+488 LT
 km 218+150 - km 218+190 RT
 km 222+149 - km 222+174 LT
 km 222+246 - km 222+286 RT



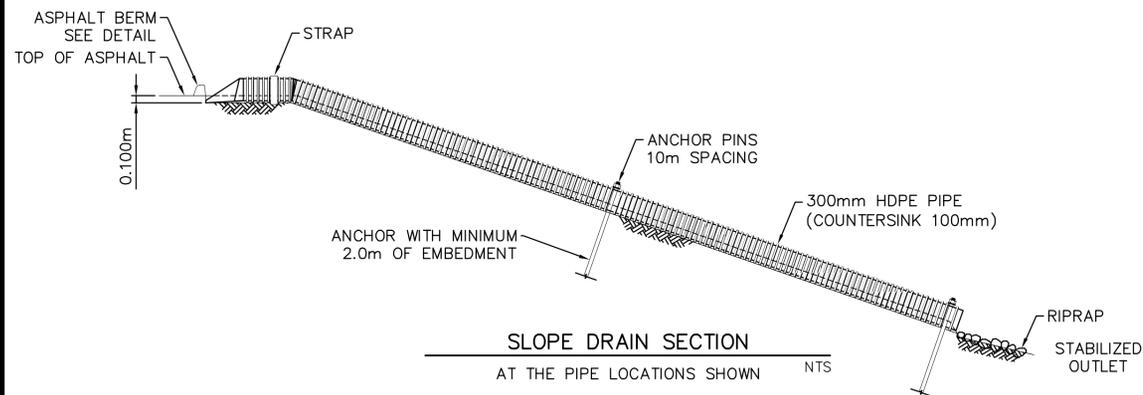
ASPHALT BERM DETAIL

HWY 93A km 200+580 - km 201+230 NTS



SLOPE DRAIN DETAIL

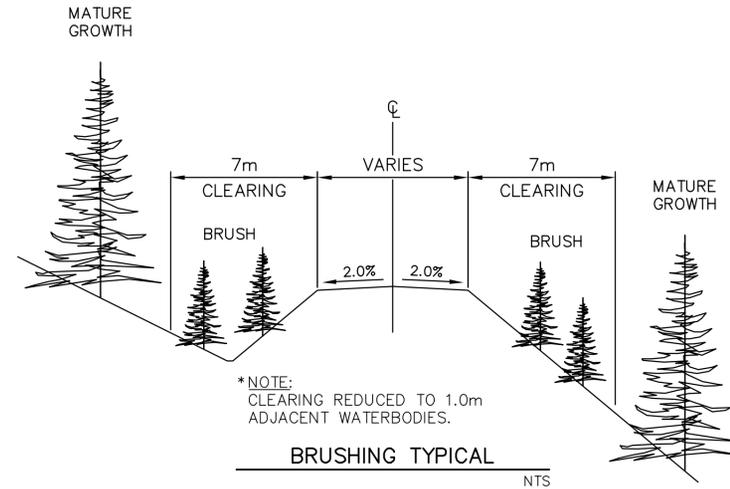
HWY 93A km 200+583, km 200+850 NTS



SLOPE DRAIN SECTION
AT THE PIPE LOCATIONS SHOWN

NTS

* THE UNDERLYING BASE MATERIAL BENEATH THE BITUMINOUS LAYER WAS PRIMARILY SAND/GRAVEL MIXTURE (PIT RUN) OF VARYING THICKNESSES



*NOTE: CLEARING REDUCED TO 1.0m ADJACENT WATERBODIES.

BRUSHING TYPICAL

NTS

HIGHWAY 93A CLOSE CUT CLEARING

FROM STATION (km)	TO STATION (km)	LEFT+RIGHT
200+500	200+520	RT
200+500	200+530	LT
201+210	201+270	RT
201+480	201+510	LT
201+840	201+890	RT
202+460	202+540	LT
202+560	202+630	LT
202+670	202+690	LT
202+710	202+940	LT
203+380	203+570	LT
203+800	203+850	LT
204+000	204+080	LT
204+170	204+190	LT
204+730	204+800	LT
204+730	204+800	RT
205+000	205+080	LT
205+180	205+280	LT
205+580	205+590	RT
205+850	206+000	LT
206+400	206+430	LT
206+580	206+900	LT
207+360	207+440	LT
207+520	207+580	RT
207+580	210+000	LT
207+580	211+000	RT
210+000	211+000	LT
211+100	211+250	RT
211+170	211+200	LT
211+600	211+740	LT
211+680	211+730	RT
211+700	212+060	LT
212+110	213+170	LT
212+770	213+300	RT
213+380	213+680	LT
213+400	213+940	LT
213+750	213+830	RT

HIGHWAY 93A BRUSH CLEARING

FROM STATION (km)	TO STATION (km)	LEFT+RIGHT
214+760	214+835	LT
214+880	214+930	LT
214+980	215+020	LT
217+150	217+220	RT
221+750	221+770	LT
222+340	222+460	LT
222+670	222+710	RT
223+230	223+260	LT

ACP M1 MIX GRADATION

SIEVE DESIGNATION	PERCENT PASSING
12,500	100
10,000	83-92
5,000	55-70
1,250	26-45
630	18-38
315	12-30
160	8-20
80	4-10

GBC 2-25 GRADATION

SIEVE DESIGNATION	PERCENT PASSING
25,000	100
20,000	82-97
16,000	70-94
10,000	52-79
5,000	35-64
1,250	18-43
630	12-34
315	8-26
160	5-18
80	2-10

SIEVE TABLES

PERMIT TO PRACTICE
 AECOM CANADA LTD.
 Signature: *[Signature]*
 Date: July 6, 2017
 PERMIT NUMBER: P10450
 The Association of Professional Engineers and Geoscientists of Alberta



DATE July 6, 2017

No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number
B	Sheet number
A	Numero de detail
B	Numero de la feuille

Linear dimensions in millimetres / Dimensions lineaires en millimetres

Consultant's Name / Nom de l'expert-conseil: **AECOM**
 Eng. Stamp / Sceau de l'ingenieur: [Stamp]

Parks Canada / Parcs Canada
 Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord
Canada

Project title/Titre du projet: **JNP 4-6 ROADS REHAB 96% DETAILED DESIGN**

Drawing title/Titre du dessin: **HWY 93A SECTIONS AND DETAILS**

Surveyed by/Arpente par	Drawn by/Dessine par	Date
-	DT	2017-07-06
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
JS	DC	-
Client Acceptance/Acceptation du client		Approved by/Approuvé par
-		-
Date	Date	
-	-	-

Project No./N° du projet: 60506644
 Asset No./N° du bien: -
 Drawing Set No./N° de serie du dessin: -
 Sheet No./N° de la feuille: **C215**

EXISTING CULVERT INVENTORY – 93A

CULVERT NAME	STATION	LOCATION	TYPE	SIZE (mm)	LENGTH (m)	ELEVATION			GRADE (%)	FLOW DIRECTION	COND.	REMARKS
						Lt W	PROP C/L	Rt E				
93A-C1	201+331	CENTRELINE	CSP	500	17.3	1138.462		1137.530	5.39%			OBVERT ELEVATIONS
93A-C2	201+583	CENTRELINE	CSP	500	14.0	1151.274		1150.788	3.47%			OBVERT ELEVATIONS
93A-C3	202+378	CENTRELINE	CSP	200?	?	?		?	?			
93A-C4	202+384	CENTRELINE	CSP	600	26.3	1166.800		1165.764	3.94%			OBVERT ELEVATIONS
93A-C5	202+505	CENTRELINE	CSP	500	13.2	1166.730		1166.453	2.10%			OBVERT ELEVATIONS
93A-C6	203+034	CENTRELINE	CSP	500	13.2	1159.018		1158.592	3.23%			OBVERT ELEVATIONS
93A-C7	204+093	CENTRELINE	CSP	700	13.7	1193.980		1193.403	4.21%			OBVERT ELEVATIONS
93A-C8	204+376	CENTRELINE	CSP	600	17.7	1200.103		1199.712	2.21%			OBVERT ELEVATIONS
93A-C9	204+636	CENTRELINE	CSP	?	13.6	1214.081		1213.534	4.02%			OBVERT ELEVATIONS
93A-C10	207+606	CENTRELINE	CSP	700	15.2	1095.454		1095.161	1.93%			OBVERT ELEVATIONS
93A-C11	209+709	CENTRELINE	CSP	450	13.4	1101.314		1101.271	0.32%			OBVERT ELEVATIONS
93A-C12	211+245	CENTRELINE	CSP	600	15.9	1107.846		1107.085	4.80%			OBVERT ELEVATIONS
93A-C13	212+611	CENTRELINE	CSP	900	15.5	1113.576		1112.801	5.00%			INVERT ELEVATIONS
93A-C14	212+861	CENTRELINE	CSP	500	12.6	1113.587		1113.429	1.25%			INVERT ELEVATIONS
93A-C15	213+361	CENTRELINE	CSP	450	13.5	1117.043		1116.755	2.13%			OBVERT ELEVATIONS
93A-C16	213+413	CENTRELINE	CSP	450	13.2	1117.615		1117.148	3.53%			OBVERT ELEVATIONS
93A-C17	215+473	CENTRELINE	CSP	600	16.0	1128.461		1128.136	2.03%			OBVERT ELEVATIONS
93A-C18	217+655	CENTRELINE	CSP	500	13.8	1169.871		1170.591	-5.21%			OBVERT ELEVATIONS
93A-C19	218+163	CENTRELINE	CSP	600	13.9	1192.465		1191.785	4.90%			OBVERT ELEVATIONS
93A-C20	218+957	CENTRELINE	CSP	600	13.3	1238.721		1239.276	-4.18%			OBVERT ELEVATIONS
93A-C21	219+318	CENTRELINE	CSP	600	13.2	1238.820		1239.313	-3.74%			OBVERT ELEVATIONS
93A-C22	220+708	CENTRELINE	CSP	400	13.0	1224.155		1224.248	-0.71%			OBVERT ELEVATIONS
93A-C23	221+585	CENTRELINE	CSP	400	13.1	1200.027		1200.092	-0.50%			OBVERT ELEVATIONS
93A-C24	221+949	CENTRELINE	CSP	600	12.8	1196.412		1195.866	4.25%			OBVERT ELEVATIONS
93A-C25	222+162	CENTRELINE	CSP	400	13.1	1190.413		1190.238	1.34%			OBVERT ELEVATIONS
93A-C26	222+262	CENTRELINE	CSP	600	12.5	1190.802		1190.627	1.40%			OBVERT ELEVATIONS
93A-C27	222+691	CENTRELINE	CSP	500	12.2	1175.219		1175.159	0.49%			OBVERT ELEVATIONS
93A-C28	222+950	CENTRELINE	CSP	400	13.1	1171.116		1170.390	5.56%			OBVERT ELEVATIONS
TOTAL LENGTH OF EXISTING CULVERTS =					388.3							

CULVERT REMOVAL – 93A

CULVERT NAME	STATION	LOCATION	TYPE	SIZE (mm)	LENGTH (m)	REMOVE, SALVAGE & RE-INSTALL				REMOVE & DISPOSE				REMARKS
						UP TO 700mm DIA.		OVER 700mm DIA.		UP TO 700mm DIA.		OVER 700mm DIA.		
						LT.	RT.	LT.	RT.	LT.	RT.	LT.	RT.	
93A-C7	204+093	CENTRELINE	CSP	700	13.7					6.9	6.9			BUCKLING AND HEAVING OF THE ROAD SURFACE
93A-C12	211+245	CENTRELINE	CSP	600	15.9					7.9	7.9			BUCKLING AND HEAVING OF THE ROAD SURFACE
93A-C13	212+611	CENTRELINE	CSP	900	15.5							7.8	7.8	BUCKLING AND HEAVING OF THE ROAD SURFACE
93A-C14	212+861	CENTRELINE	CSP	500	12.6					6.3	6.3			LOW COVER. DIP IN THE ROAD SURFACE
93A-C15	213+361	CENTRELINE	CSP	450	13.5					6.8	6.8			LOW COVER. DIP IN THE ROAD SURFACE
93A-C16	213+413	CENTRELINE	CSP	450	13.2					6.6	6.6			LOW COVER. DIP IN THE ROAD SURFACE
93A-C17	215+473	CENTRELINE	CSP	600	16.0					8.0	8.0			
93A-C18	217+655	CENTRELINE	CSP	500	13.8					6.9	6.9			
93A-C19	218+163	CENTRELINE	CSP	600	13.9					6.9	6.9			
93A-C20	218+957	CENTRELINE	CSP	600	13.3					6.6	6.6			
93A-C21	219+318	CENTRELINE	CSP	600	13.2					6.6	6.6			
93A-C22	220+708	CENTRELINE	CSP	400	13.0					6.5	6.5			
93A-C23	221+585	CENTRELINE	CSP	400	13.1					6.6	6.6			
93A-C24	221+949	CENTRELINE	CSP	600	12.8					6.4	6.4			
93A-C25	222+162	CENTRELINE	CSP	400	13.1					6.5	6.5			
93A-C26	222+262	CENTRELINE	CSP	600	12.5					6.2	6.2			LOW COVER. REPLACE WITH SMALLER CULVERT
93A-C27	222+691	CENTRELINE	CSP	500	12.2					6.1	6.1			
93A-C28	222+950	CENTRELINE	CSP	400	13.1					6.5	6.5			
TOTALS =					244.42					107.6	107.6	7.8	7.8	

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta



1	17.07.06	ISSUED FOR TENDER	DT	JS
No.	Date	Description	Drawn by Dessine par	Approved Approuve

Revision / Revision	
A	Detail number A Numero de detail
B	Sheet number B Numero de la feuille
Linear dimensions in millimetres	
Dimensions lineaires en millimetres	

Consultant's Name
Nom de l'expert-conseil
AECOM

Eng. Stamp
Sceau de l'ingenieur

Parks Canada
Strategic Asset Management,
Western and Northern Region

Parcs Canada
Gestion Stratégique des Biens,
Région de l'Ouest et du Nord

Canada

Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin
**HWY 93A
CULVERT DATA
TABLES**

Surveyed by/Arpente par -	Drawn by/Dessine par DT	Date 2017-07-06
Designed by/Concept par JS	Reviewed by/Revisé par DC	Scale/Echelle
Client Acceptance/Acceptation du client		Approved by/Approuvé par
Date		Date

Project No./N° du projet 60506644	Asset No./N° du bien -	Sheet No./N° de la feuille C216
Drawing Set No./N° de série du dessin		

CULVERT INSTALLATION – 93A

CULVERT NAME	STATION	LOCATION	TYPE	SIZE (mm)	STRAIGHT END INSTALL (m)		OPEN EXC. INSTALL (m)		SLOPED ENDS			INVERT LENGTHS (m)				CONTRACTOR SUPPLY OF MATERIAL (Y=YES)	HAND-LAID RIP-RAP REQ'S (Y=YES)				REMARKS
					LT.	RT.	LT.	RT.	LENGTH (m)		THICKNESS CLASS	EXIST	REMOVE	NEW	TOTAL		INLET	OUTLET	INLET APRON	OUTLET APRON	
									LT.	RT.											
93A-C29	204-093	CENTRELINE	CSP	600	1	1			6	6	1.6	13.7		14.0	14.0	Y	Y	Y	Y	Y	ROAD SURFACE DISTORTED
93A-C30	207-800	CENTRELINE	CSP	600	1	1			6	6	1.6			14.0	14.0	Y	Y	Y	Y	Y	ROAD SURFACE DISTORTED
93A-C31	210-400	CENTRELINE	CSP	600	1	1			6	6	1.6			14.0	14.0	Y	Y	Y	Y	Y	ROAD SURFACE DISTORTED
93A-C32	211+245	CENTRELINE	CSP	600	2	2			6	6	1.6	15.9		16.0	16.0	Y	Y	Y	Y	Y	BUCKLING AND HEAVING OF THE ROAD SURFACE
93A-C33	212+611	CENTRELINE	CSP	900	2	2			6	6	1.6	15.5		16.0	16.0	Y	Y	Y	Y	Y	BUCKLING AND HEAVING OF THE ROAD SURFACE
93A-C34	212+861	CENTRELINE	CSP	500	0.5	0.5			6	6	1.6	12.6		13.0	13.0	Y	Y	Y	Y	Y	LOW COVER. DIP IN THE ROAD SURFACE
93A-C35	213+361	CENTRELINE	CSP	500	1	1			6	6	1.6	13.5		14.0	14.0	Y	Y	Y	Y	Y	LOW COVER. DIP IN THE ROAD SURFACE
93A-C36	213+413	CENTRELINE	CSP	500	1	1			6	6	1.6	13.2		14.0	14.0	Y	Y	Y	Y	Y	LOW COVER. DIP IN THE ROAD SURFACE
93A-C37	215+473	CENTRELINE	CSP	600	2	2			6	6	1.6	16.0		16.0	16.0	Y	Y	Y	Y	Y	
93A-C38	217+655	CENTRELINE	CSP	500	1	1			6	6	1.6	13.8		14.0	14.0	Y	Y	Y	Y	Y	
93A-C39	218+163	CENTRELINE	CSP	600	1	1			6	6	1.6	13.9		14.0	14.0	Y	Y	Y	Y	Y	
93A-C40	218+957	CENTRELINE	CSP	600	1	1			6	6	1.6	13.3		14.0	14.0	Y	Y	Y	Y	Y	
93A-C41	219+318	CENTRELINE	CSP	600	1	1			6	6	1.6	13.2		14.0	14.0	Y	Y	Y	Y	Y	
93A-C42	220+708	CENTRELINE	CSP	400	1	1			6	6	1.6	13.0		14.0	14.0	Y	Y	Y	Y	Y	
93A-C43	221+585	CENTRELINE	CSP	400	1	1			6	6	1.6	13.1		14.0	14.0	Y	Y	Y	Y	Y	
93A-C44	221+949	CENTRELINE	CSP	600	1	1			6	6	1.6	12.8		14.0	14.0	Y	Y	Y	Y	Y	
93A-C45	222+162	CENTRELINE	CSP	600	1	1			6	6	1.6	13.1		14.0	14.0	Y	Y	Y	Y	Y	
93A-C46	222+262	CENTRELINE	CSP	500	0.5	0.5			6	6	1.6	12.5		13.0	13.0	Y	Y	Y	Y	Y	
93A-C47	222+691	CENTRELINE	CSP	400	0.5	0.5			6	6	1.6	12.2		13.0	13.0	Y	Y	Y	Y	Y	LOW COVER. REPLACE WITH SMALLER DIA. CULVERT
93A-C48	222+950	CENTRELINE	CSP	400	1	1			6	6	1.6	13.1		14.0	14.0	Y	Y	Y	Y	Y	
TOTAL =					43.0				240							283.0					

CHANNEL EXCAVATION CALCULATION – 93A

CULVERT NAME	STATION	LOCATION	TYPE	D	b	EXCAVATION ABOVE INVERT					L	UNDERCUT V2=2.4*D*L	TOTAL V1+V2	REMARKS	
						L1	h	0.5 (b+L1)	7+D+2h	V1					
93A-C29	204-093	CENTRELINE	CSP	600	6.9	14	1.0	10.5	9.6	100	14.0	20	120.5	ROAD SURFACE DISTORTED	
93A-C30	207-800	CENTRELINE	CSP	600	6.9	14	1.0	10.5	9.6	100	14.0	20	120.5	ROAD SURFACE DISTORTED	
93A-C31	210-400	CENTRELINE	CSP	600	6.9	14	1.0	10.5	9.6	100	14.0	20	120.5	ROAD SURFACE DISTORTED	
93A-C32	211+245	CENTRELINE	CSP	600	6.9	16	1.0	11.4	9.6	109	16.0	23	133.0	BUCKLING AND HEAVING OF THE ROAD SURFACE	
93A-C33	212+611	CENTRELINE	CSP	900	6.9	16	1.5	11.2	10.9	183	16.0	34	221.8	BUCKLING AND HEAVING OF THE ROAD SURFACE	
93A-C34	212+861	CENTRELINE	CSP	500	6.9	13	1.0	9.8	9.5	93	13.0	15	110.1	LOW COVER. DIP IN THE ROAD SURFACE	
93A-C35	213+361	CENTRELINE	CSP	500	6.9	14	1.0	10.2	9.5	97	14.0	16	116.1	LOW COVER. DIP IN THE ROAD SURFACE	
93A-C36	213+413	CENTRELINE	CSP	500	6.9	13	1.0	10.1	9.5	96	14.0	16	116.1	LOW COVER. DIP IN THE ROAD SURFACE	
93A-C37	215+473	CENTRELINE	CSP	600	6.4	16	1.0	11.2	9.6	108	16.0	23	130.6		
93A-C38	217+655	CENTRELINE	CSP	500	6.4	14	1.0	10.1	9.5	96	14.0	17	113.7		
93A-C39	218+163	CENTRELINE	CSP	600	6.4	14	1.0	10.1	9.6	97	14.0	20	118.1		
93A-C40	218+957	CENTRELINE	CSP	600	6.4	13	1.0	9.8	9.6	94	14.0	19	118.1		
93A-C41	219+318	CENTRELINE	CSP	600	6.4	13	1.0	9.8	9.6	94	14.0	19	118.1		
93A-C42	220+708	CENTRELINE	CSP	400	6.4	13	1.0	9.7	9.4	91	14.0	12	109.3		
93A-C43	221+585	CENTRELINE	CSP	400	6.4	13	1.0	9.8	9.4	92	14.0	13	109.3		
93A-C44	221+949	CENTRELINE	CSP	600	6.4	13	1.0	9.6	9.6	92	14.0	18	118.1		
93A-C45	222+162	CENTRELINE	CSP	600	6.4	13	1.0	9.7	9.4	92	14.0	20	118.1		
93A-C46	222+262	CENTRELINE	CSP	500	6.4	12	1.0	9.4	9.5	90	13.0	15	107.8		
93A-C47	222+691	CENTRELINE	CSP	400	6.4	12	1.0	9.3	9.4	87	13.0	12	103.7	LOW COVER. REPLACE WITH SMALLER DIA. CULVERT	
93A-C48	222+950	CENTRELINE	CSP	400	6.4	13	1.0	9.7	9.4	92	14.0	13	109.3		
TOTALS =											283.0		2432.5		

CULVERT BEDDING SUMMARY – 93A

CULVERT NAME	STATION	LOCATION	TYPE	SIZE (mm) DIA.	NEW INSTALL L (m)	GRAVEL BEDDING m³
93A-C29	204-093	CENTRELINE	CSP	600	14	11
93A-C30	207-800	CENTRELINE	CSP	600	14	11
93A-C31	210-400	CENTRELINE	CSP	600	14	11
93A-C32	211+245	CENTRELINE	CSP	600	16	13
93A-C33	212+611	CENTRELINE	CSP	900	16	21
93A-C34	212+861	CENTRELINE	CSP	500	13	8
93A-C35	213+361	CENTRELINE	CSP	500	14	9
93A-C36	213+413	CENTRELINE	CSP	500	14	9
93A-C37	215+473	CENTRELINE	CSP	600	16	13
93A-C38	217+655	CENTRELINE	CSP	500	14	9
93A-C39	218+163	CENTRELINE	CSP	600	14	11
93A-C40	218+957	CENTRELINE	CSP	600	14	11
93A-C41	219+318	CENTRELINE	CSP	600	14	11
93A-C42	220+708	CENTRELINE	CSP	400	14	7
93A-C43	221+585	CENTRELINE	CSP	400	14	7
93A-C44	221+949	CENTRELINE	CSP	600	14	11
93A-C45	222+162	CENTRELINE	CSP	600	14	10
93A-C46	222+262	CENTRELINE	CSP	500	13	8
93A-C47	222+691	CENTRELINE	CSP	400	13	6
93A-C48	222+950	CENTRELINE	CSP	400	14	7
TOTALS =					283.0	204

CHANNEL EXCAVATION = V1+V2
 = 0.5H*(7 + D + 2H)*(B + L1) + 0.8*(3DL)
 V1 = EXCAVATION ABOVE INVERT. (m³)
 V2 = UNDERCUT FOR BEDDING (m³)

- V1 = EXCAVATION ABOVE INVERT. (m³)
- V2 = UNDERCUT FOR BEDDING (m³)
- L1 = EMBANKMENT EXC LENGTH (m)
- L = NEW CULVERT LENGTH (m)
- D = CULVERT DIAMETER (mm)

PERMIT TO PRACTICE
 AECOM CANADA LTD.
 Signature: *[Signature]*
 Date: July 6, 2017
 PERMIT NUMBER: P10450
 The Association of Professional Engineers and Geoscientists of Alberta
 DATE: July 6, 2017

No.	Date	Description	Drawn by	Approved
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number
B	Sheet number

Linear dimensions in millimetres / Dimensions linéaires en millimètres

Consultant's Name / Nom de l'expert-conseil: **AECOM**

Eng. Stamp / Sceau de l'ingénieur: [Stamp]

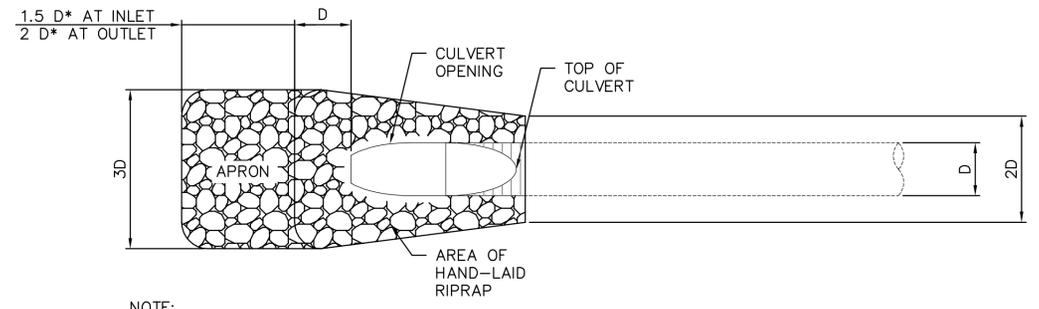
Parks Canada / Parcs Canada
 Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord

Canada

Project title/Titre du projet: **JNP 4-6 ROADS REHAB 96% DETAILED DESIGN**

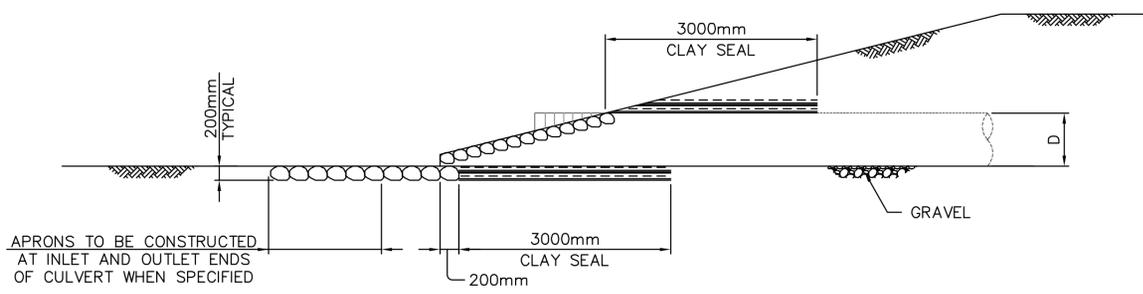
Drawing title/Titre du dessin: **HWY 93A CULVERT DATA TABLES**

Surveyed by/Arpente par: -	Drawn by/Dessine par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -	Approved by/Approuvé par: -	Date: -
Project No./N° du projet: 60506644	Asset No./N° du bien: -	Sheet No./N° de la feuille: C217
Drawing Set No./N° de série du dessin: -		



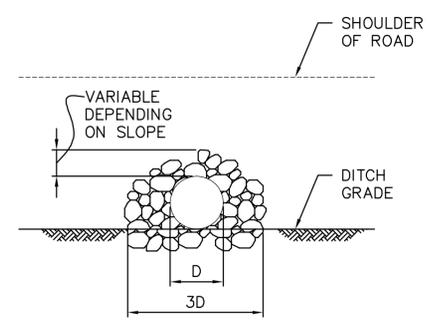
NOTE:
* THESE ARE TYPICAL MINIMUM DIMENSIONS.

PLAN



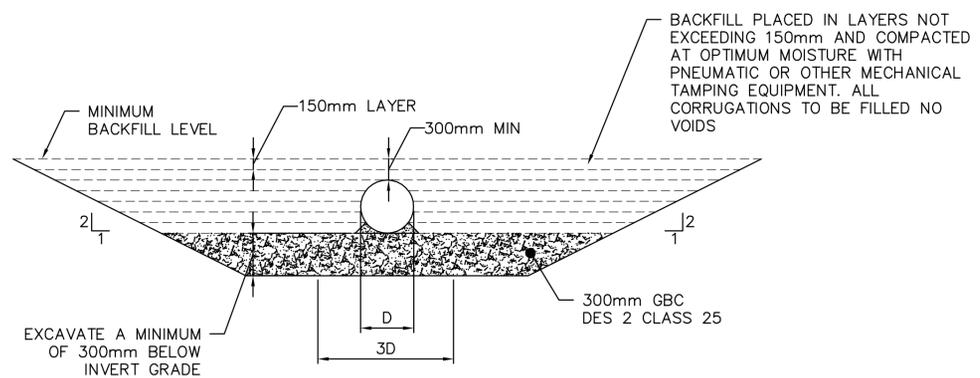
APRONS TO BE CONSTRUCTED AT INLET AND OUTLET ENDS OF CULVERT WHEN SPECIFIED

ELEVATION



SECTION

HANLDAID RIPRAP
NTS
ROCK OR SACKED MATERIAL



EXCAVATION, CULVERT BASE AND BACKFILLING

NTS

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: *July 6, 2017*
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta



No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision

A	Detail number	A Numero de detail
B	Sheet number	B Numero de la feuille

Linear dimensions in millimetres / Dimensions lineaires en millimetres

Consultant's Name / Nom de l'expert-conseil: **AECOM**

Eng. Stamp / Sceau de l'ingenieur

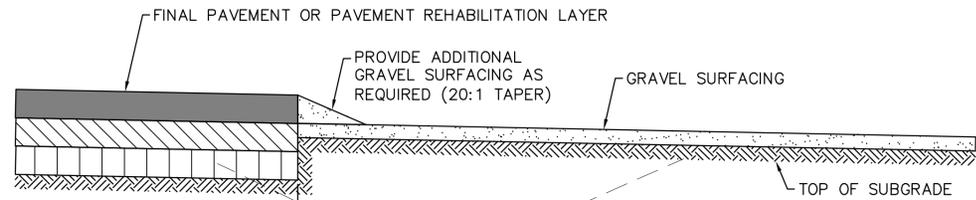
Parcs Canada / Parc Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord
Canada

Project title/Titre du projet
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin
**HWY 93A
CULVERT DETAILS**

Surveyed by/Arpente par	Drawn by/Dessine par	Date
-	DT	2017-07-06
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
JS	DC	-
Client Acceptance/Acceptation du client	Approved by/Approuvé par	

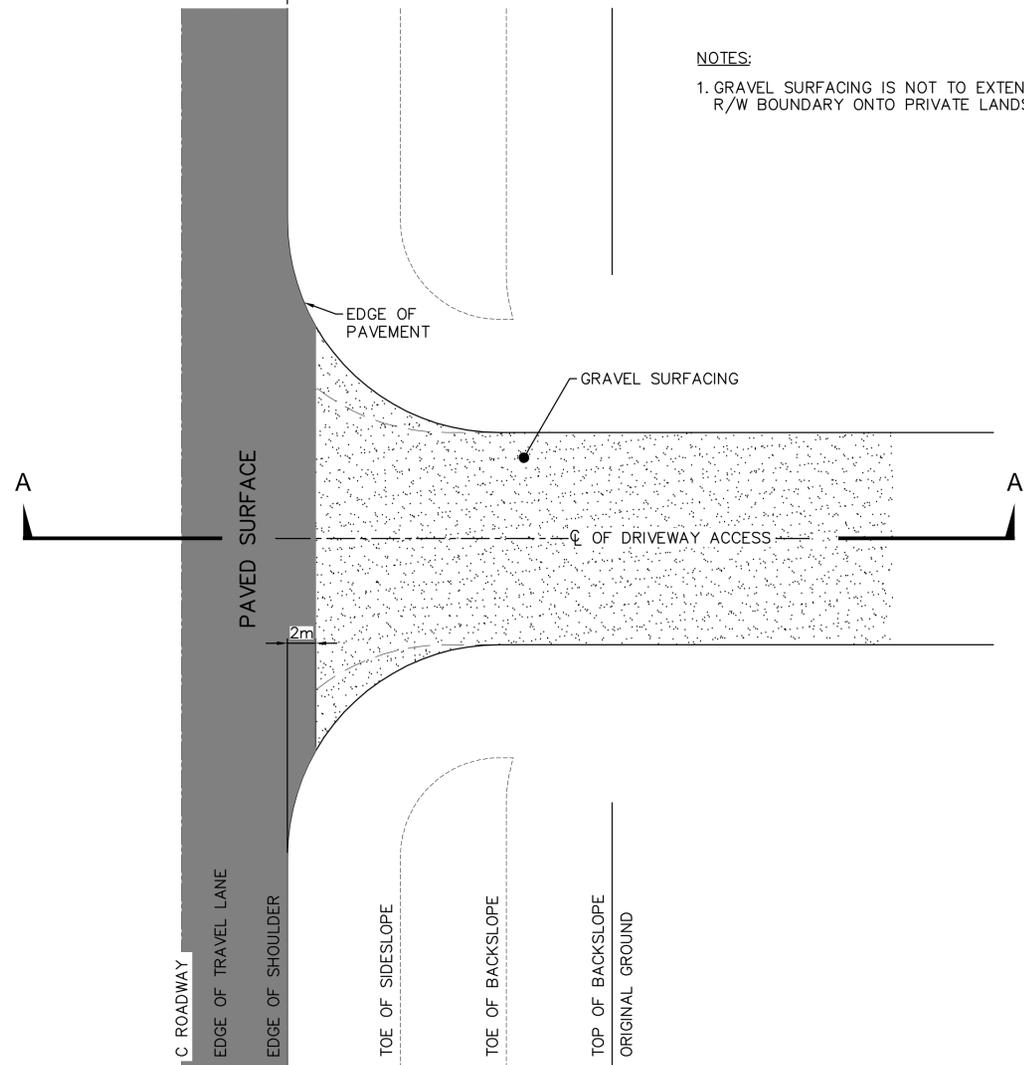
Project No./N° du projet: 60506644
Asset No./N° du bien: -
Drawing Set No./N° de serie du dessin: -
Sheet No./N° de la feuille: **C218**



SECTION A-A
NTS

2m

NOTES:
1. GRAVEL SURFACING IS NOT TO EXTEND BEYOND R/W BOUNDARY ONTO PRIVATE LANDS.



PAVING LIMITS OF DRIVEWAY ACCESSES AT TIME OF PAVEMENT REHABILITATION

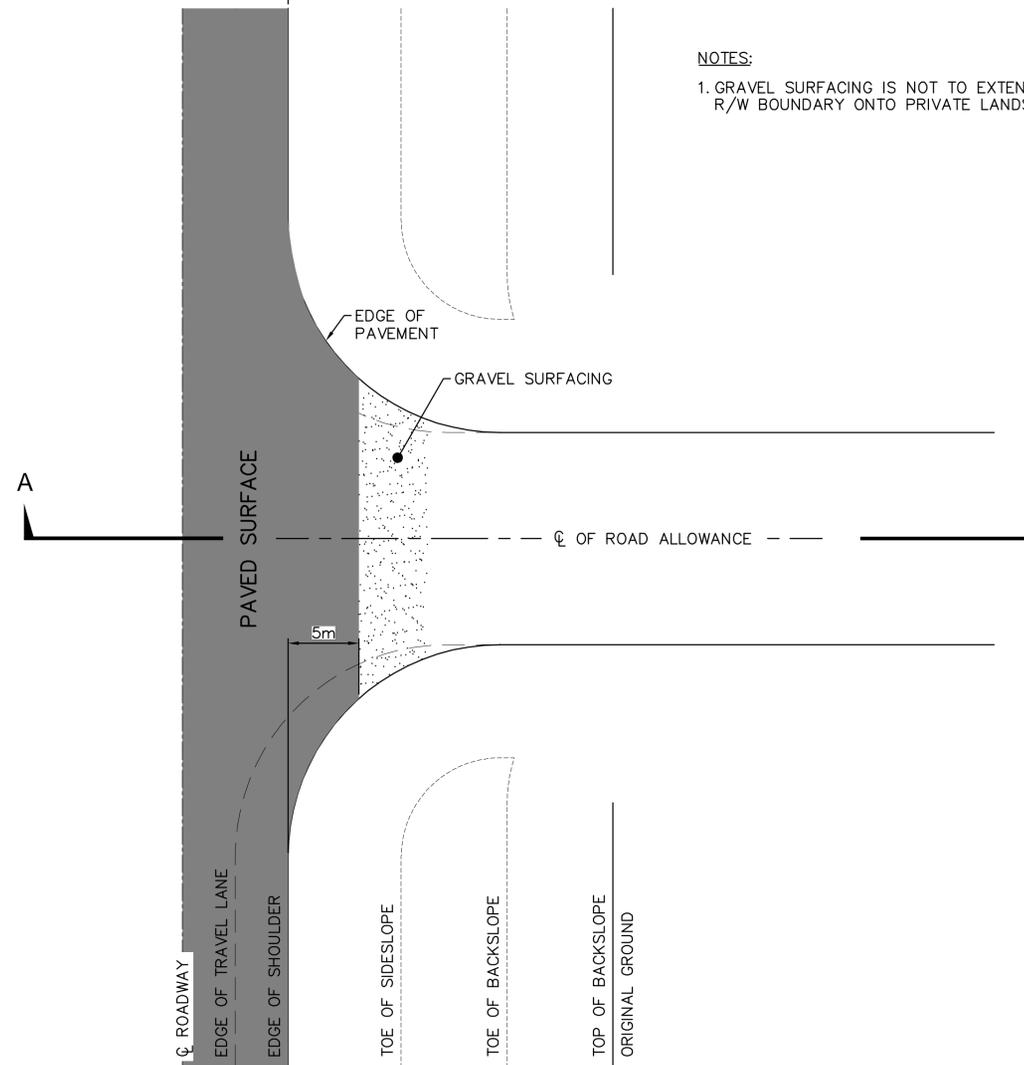
NTS



SECTION A-A
NTS

5m

NOTES:
1. GRAVEL SURFACING IS NOT TO EXTEND BEYOND R/W BOUNDARY ONTO PRIVATE LANDS.



PAVING LIMITS OF INTERSECTING ROADWAYS AT TIME OF PAVEMENT REHABILITATION

NTS

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature: *[Signature]*
Date: July 6, 2017
PERMIT NUMBER: P10450
The Association of Professional Engineers and Geoscientists of Alberta



DATE July 6, 2017

No.	Date	Description	Drawn by Dessine par	Approved Approuve
1	17.07.06	ISSUED FOR TENDER	DT	JS

Revision / Revision	
A	Detail number
B	Sheet number
A	Numero de detail
B	Numero de la feuille

Linear dimensions in millimetres / Dimensions lineaires en millimetres

Consultant's Name / Nom de l'expert-conseil: **AECOM**
Eng. Stamp / Sceau de l'ingenieur: [Blank]

Parks Canada / Parcs Canada
Strategic Asset Management, Western and Northern Region / Gestion Stratégique des Biens, Région de l'Ouest et du Nord
Canada

Project title/Titre du projet:
**JNP 4-6 ROADS REHAB
96% DETAILED DESIGN**

Drawing title/Titre du dessin:
**HWY 93A
PAVING LIMITS**

Surveyed by/Arpente par: -	Drawn by/Dessine par: DT	Date: 2017-07-06
Designed by/Concept par: JS	Reviewed by/Revisé par: DC	Scale/Echelle: -
Client Acceptance/Acceptation du client: -		Approved by/Approuvé par: -

Project No./N° du projet: 60506644
Asset No./N° du bien: -
Drawing Set No./N° de série du dessin: -
Sheet No./N° de la feuille: **C219**