

Parcs
Canada

Parks
Canada

HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL

PROJECT NO. 1418

DRAWING INDEX

C01 HIGHWAY 430 OVERALL SITE PLAN

PLAN AND PROFILE

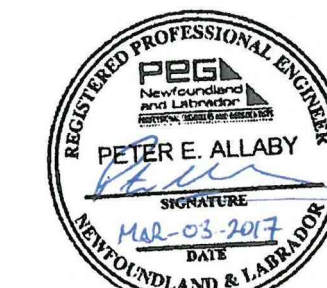
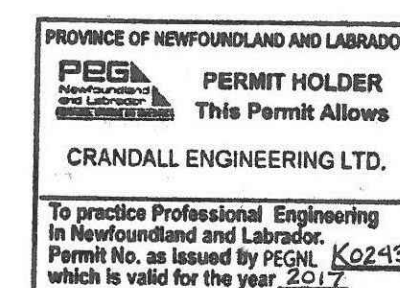
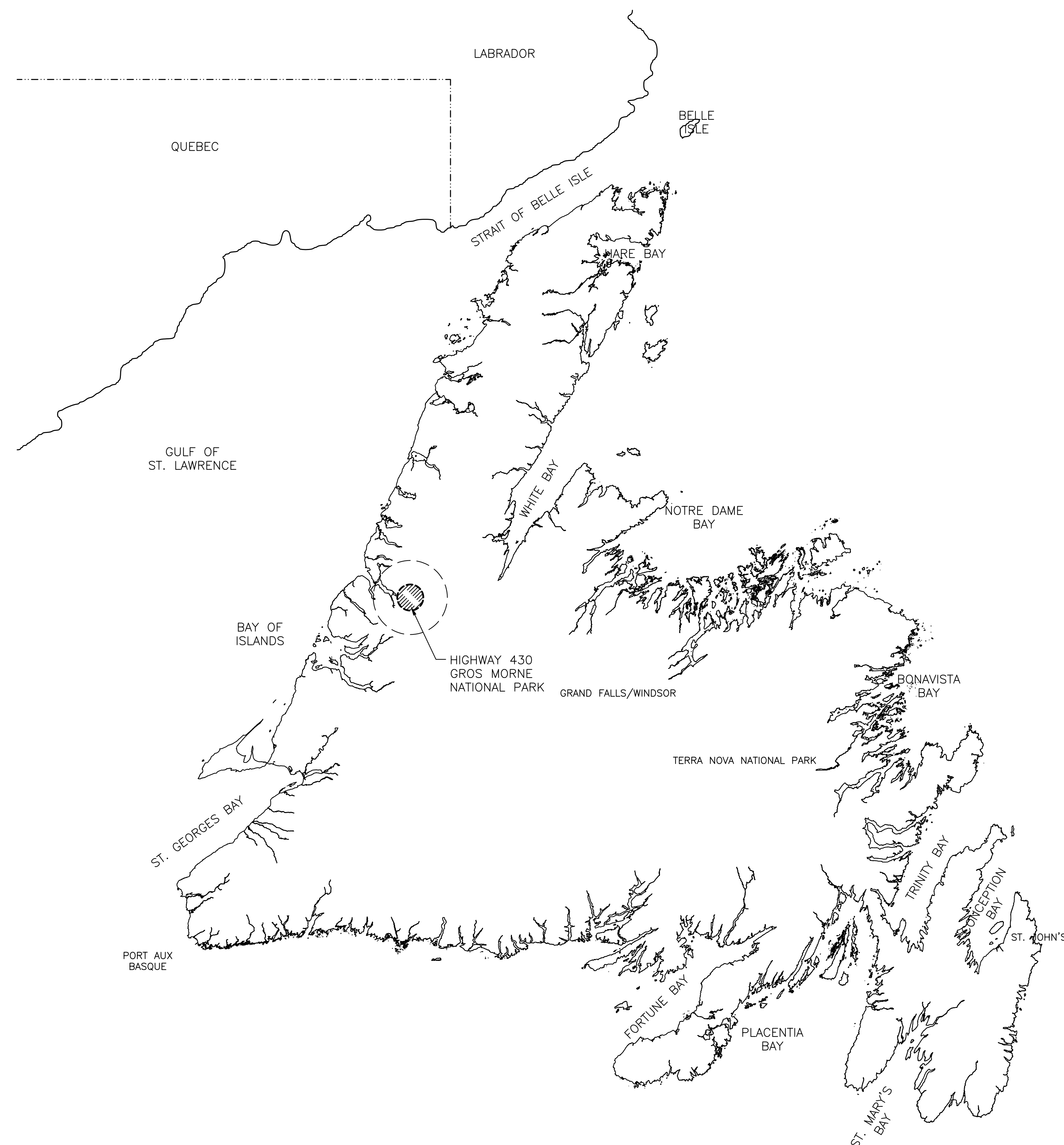
C02 HIGHWAY 430 PLAN AND PROFILE: 7+200 TO 7+900
C03 HIGHWAY 430 PLAN AND PROFILE: 7+900 TO 8+600
C04 HIGHWAY 430 PLAN AND PROFILE: 8+600 TO 9+300
C05 HIGHWAY 430 PLAN AND PROFILE: 9+300 TO 10+000
C06 HIGHWAY 430 SECTIONS

CULVERT EXTENTIONS AND REPLACEMENTS

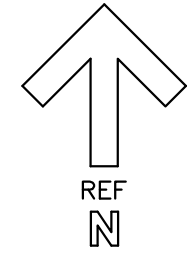
C07 HIGHWAY 430 CULVERT EXTENSIONS STA 7+502 & 7+668
C08 HIGHWAY 430 CULVERT EXTENSIONS STA 8+103 & 8+554
C09 HIGHWAY 430 CULVERT EXTENSIONS STA 8+945 & 9+288
C10 HIGHWAY 430 STA 9+013 NEW 900mm DIA. CSP CULVERT PLAN AND PROFILE VIEWS
C11 HIGHWAY 430 STA 9+118 NEW 900mm DIA. CSP CULVERT PLAN AND PROFILE VIEWS

DETAILS

C12 TYPICAL ROADWAY SECTIONS
C13 TYPICAL ROADWAY SECTIONS, ASPHALT KEY AND ASPHALT GUTTER
C14 CULVERT AND SUB-DRAIN DETAILS
C15 TYPICAL GUIDING RAIL DETAILS
C16 TYPICAL CLIMBING LANE PAVEMENT MARKINGS, SIGNAGE AND EROSION CONTROL DETAILS
S01 HIGHWAY 430 CONCRETE BACKSTOP DETAILS STA. 8+103



Canada



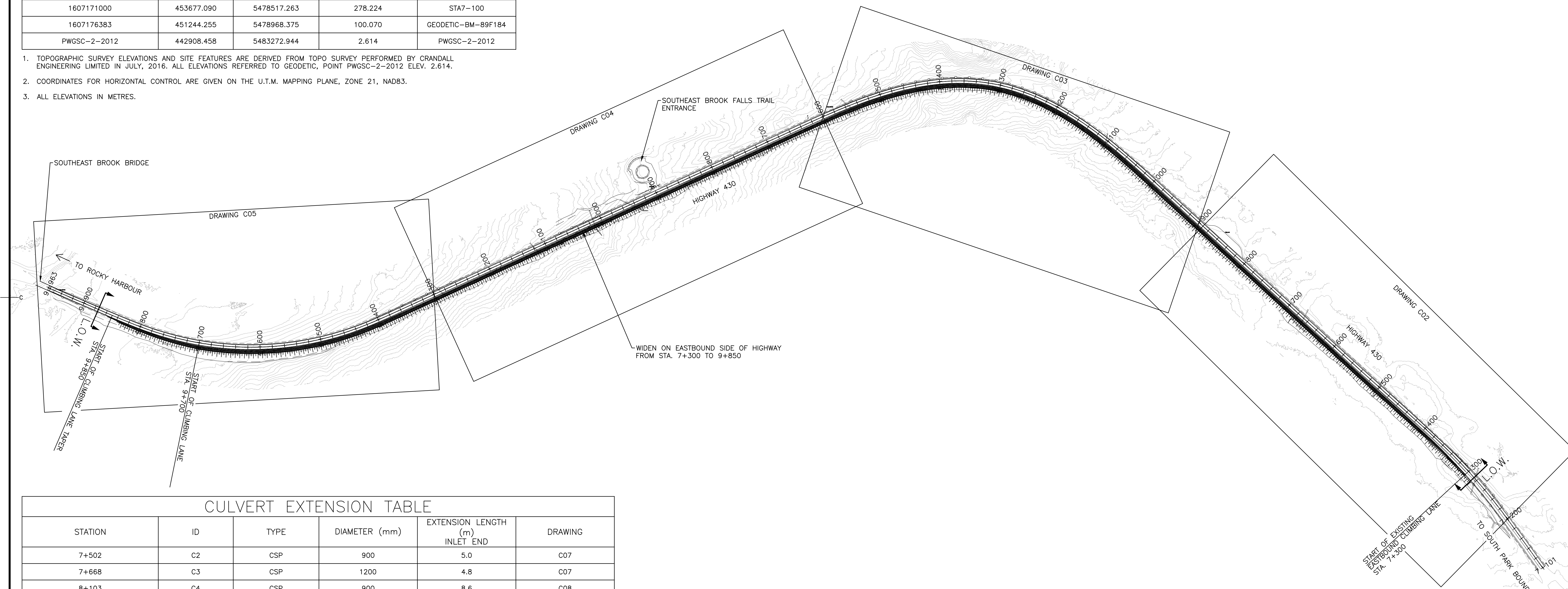
SURVEY CONTROL POINTS

POINT NAME	EASTING	NORTHING	ELEVATION	DESCRIPTION
4	452210.383	5479137.127	170.189	CP99SEHILL
98	453152.788	5479062.428	266.022	CEL-CP-98-12"-SPIKE
99	452210.383	5479137.127	170.189	CEL-CP-99-12"-SPIKE
10098	453152.774	5479062.408	266.021	CP98SEHILL
10269	452106.262	5479082.157	158.436	CELCBP801
10271	453152.782	5479062.423	266.022	CHECKCP98
1607145001	452500.658	5479267.589	201.831	GEODETIC-BM-89F183
1607145002	450214.164	5478719.312	118.092	GEODETIC-BM-89F185
1607171000	453677.090	5478517.263	278.224	STA7-100
1607176383	451244.255	5478968.375	100.070	GEODETIC-BM-89F184
PWGSC-2-2012	442908.458	5483272.944	2.614	PWGSC-2-2012

1. TOPOGRAPHIC SURVEY ELEVATIONS AND SITE FEATURES ARE DERIVED FROM TOPO SURVEY PERFORMED BY CRANDALL ENGINEERING LIMITED IN JULY, 2016. ALL ELEVATIONS REFERRED TO GEODETIC, POINT PWGSC-2-2012 ELEV. 2.614.
2. COORDINATES FOR HORIZONTAL CONTROL ARE GIVEN ON THE U.T.M. MAPPING PLANE, ZONE 21, NAD83.
3. ALL ELEVATIONS IN METRES.

SUPERELEVATION TABLE

STATION	LEFT OUTSIDE LANE CROSS-SLOPE	DESCRIPTION
7+300	-4.50%	END FULL SUPER, START OF CONTRACT
7+340	-2.00%	NORMAL CROSS-SLOPE
8+300	-6.00%	BEGIN FULL SUPER
8+340	-6.00%	END FULL SUPER
8+440	-2.00%	NORMAL CROSS-SLOPE
9+280	0.00%	LEVEL CROSS-SLOPE
9+380	2.00%	REVERSE CROSS-SLOPE
9+520	5.20%	BEGIN FULL SUPER
9+795	5.20%	END FULL SUPER
9+820	2.00%	REVERSE CROSS-SLOPE
9+840	0.00%	LEVEL CROSS-SLOPE
9+880	-2.00%	NORMAL CROSS-SLOPE, END OF CONTRACT



CULVERT EXTENSION TABLE

STATION	ID	TYPE	DIAMETER (mm)	EXTENSION LENGTH (m) INLET END	DRAWING
7+502	C2	CSP	900	5.0	C07
7+668	C3	CSP	1200	4.8	C07
8+103	C4	CSP	900	8.6	C08
8+554	C5	CSP	1200	8.2	C08
8+945	C6	CSP	900	5.3	C09
9+288	C9	CSP	900	9.3	C09

CULVERT REPLACEMENTS

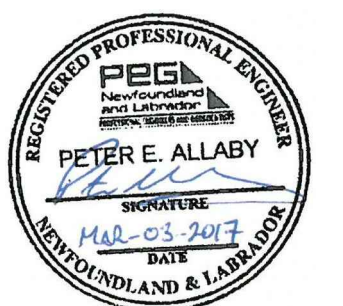
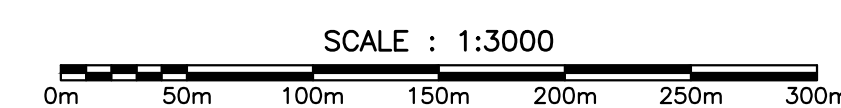
STATION	ID	TYPE	DIAMETER (mm)	CULVERT LENGTH (m)	DRAWING
9+013	C7	CSP	900	44.2	C10
9+118	C8	CSP	900	28.7	C11

NEW CULVERT INSTALLATIONS

STATION	ID	TYPE	DIAMETER (mm)	CULVERT LENGTH (m)	DRAWING
9+860*	C10	CSP	1000	30	NA

* FINAL LOCATION AND INVERTS OF THIS CULVERT TO BE DETERMINED BY THE DEPARTMENTAL REPRESENTATIVE.

SITE PLAN



revisions	description	date
2	ISSUED FOR TENDER	03/03/2017
1	ISSUED FOR 99% REVIEW	02/10/2017
0	ISSUED FOR 90% REVIEW	12/16/2016

project **HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL** project

drawing **HIGHWAY 430 OVERALL SITE PLAN** dessin

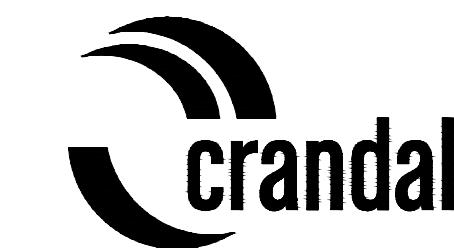
designed PETER ALLABY, P.ENG. conçu
 date DECEMBER 12, 2016
 drawn KEVIN WARD dessiné
 date DECEMBER 12, 2016
 approved PETER ALLABY, P.ENG. approuvé
 date DECEMBER 12, 2016
 Tender Soumission

PCA Project Manager Administrateur de projets PCA
 project number no. du projet

1418

drawing no. no. du dessin

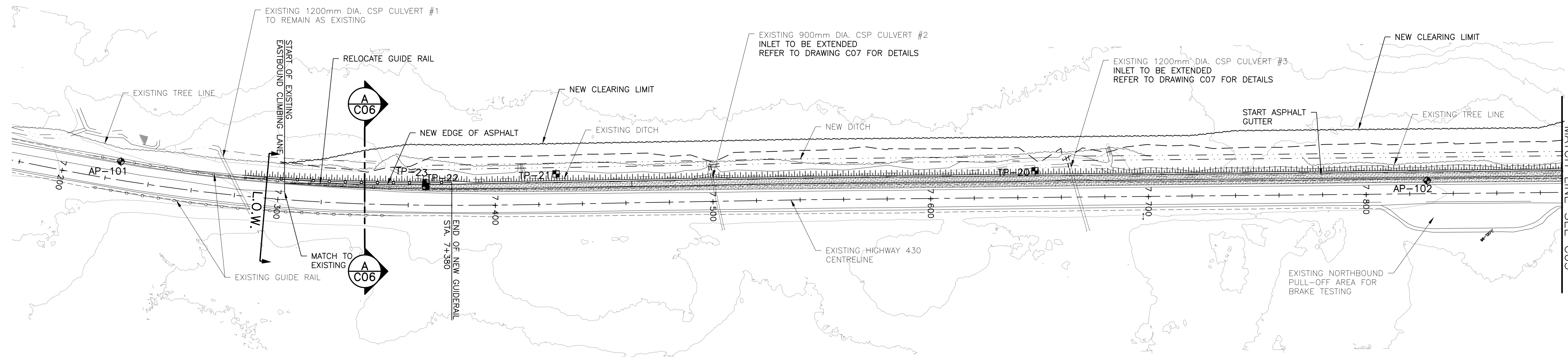
C01



MONCTON 1077 Blvd. St. George Blvd. 1000
 SAINT JOHN 133 Prince William Street 200
 FREDERICTON 544 Prospect Street 100
 506 853-2277 506 853-2277 506 853-2277
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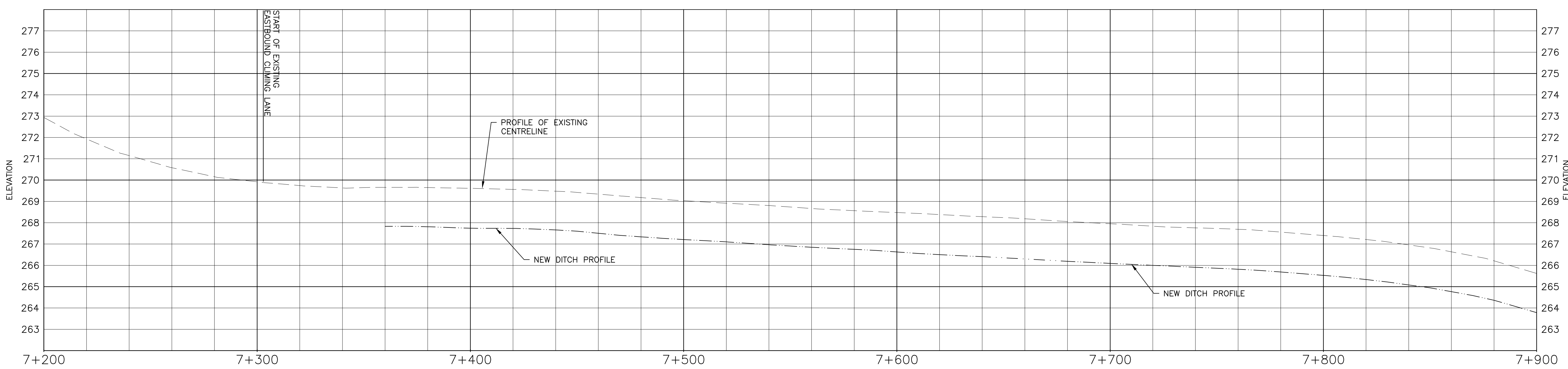
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	NEW EDGE OF ASPHALT
	NEW SLOPE DAYLIGHT LINE
	NEW GUIDE RAIL
	EXISTING TREELINE
	NEW TREELINE
	NEW DITCH
	NEW EDGE OF GRAVEL SHOULDER
	AREA OF ASPHALT WIDENING
	AUGER PROBE
	TEST PIT
	SURVEY CONTROL POINT



PLAN

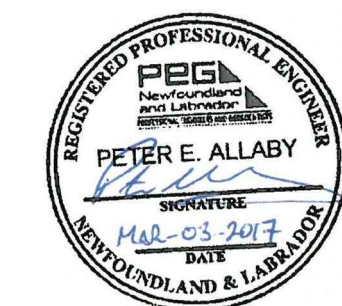
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PROFILE

HORIZONTAL SCALE : 1:1000

VERTICAL SCALE : 1:100



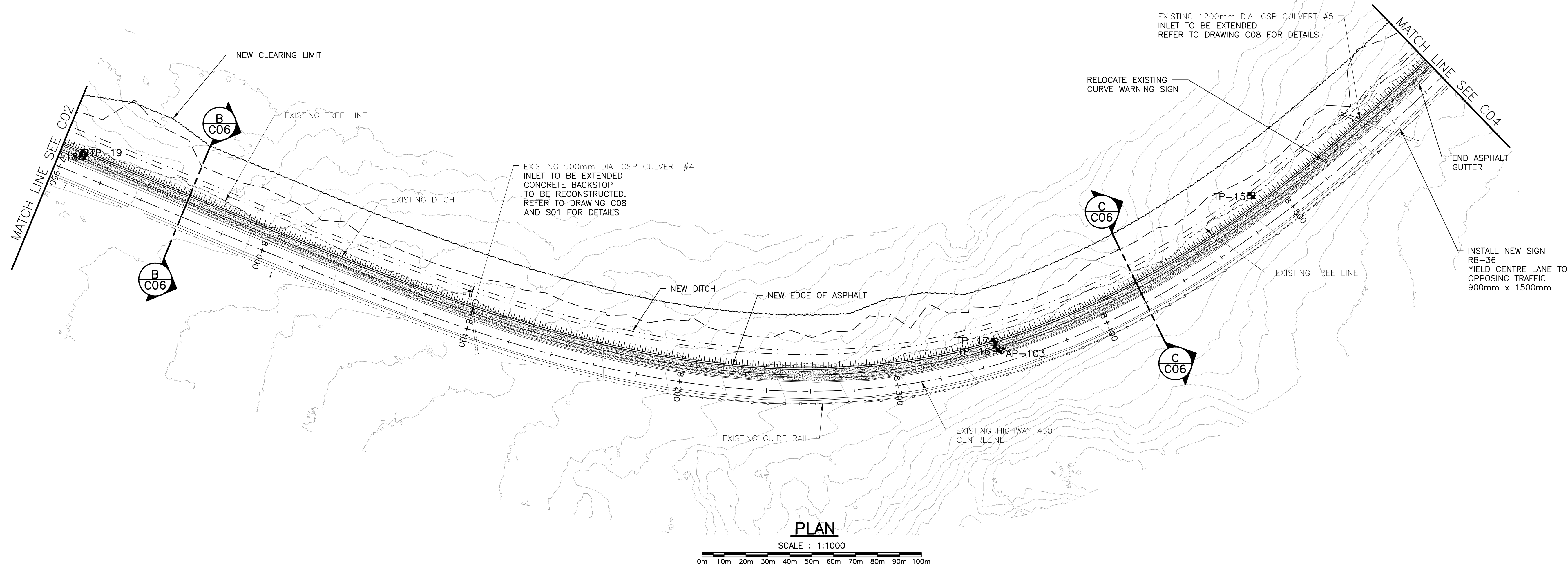
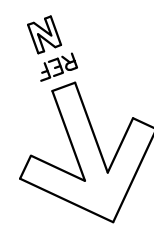
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2	02/10/2017
1	12/16/2016
0	09/06/2016

project HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL

drawing design
HIGHWAY 430 PLAN AND PROFILE 7+200 TO 7+900

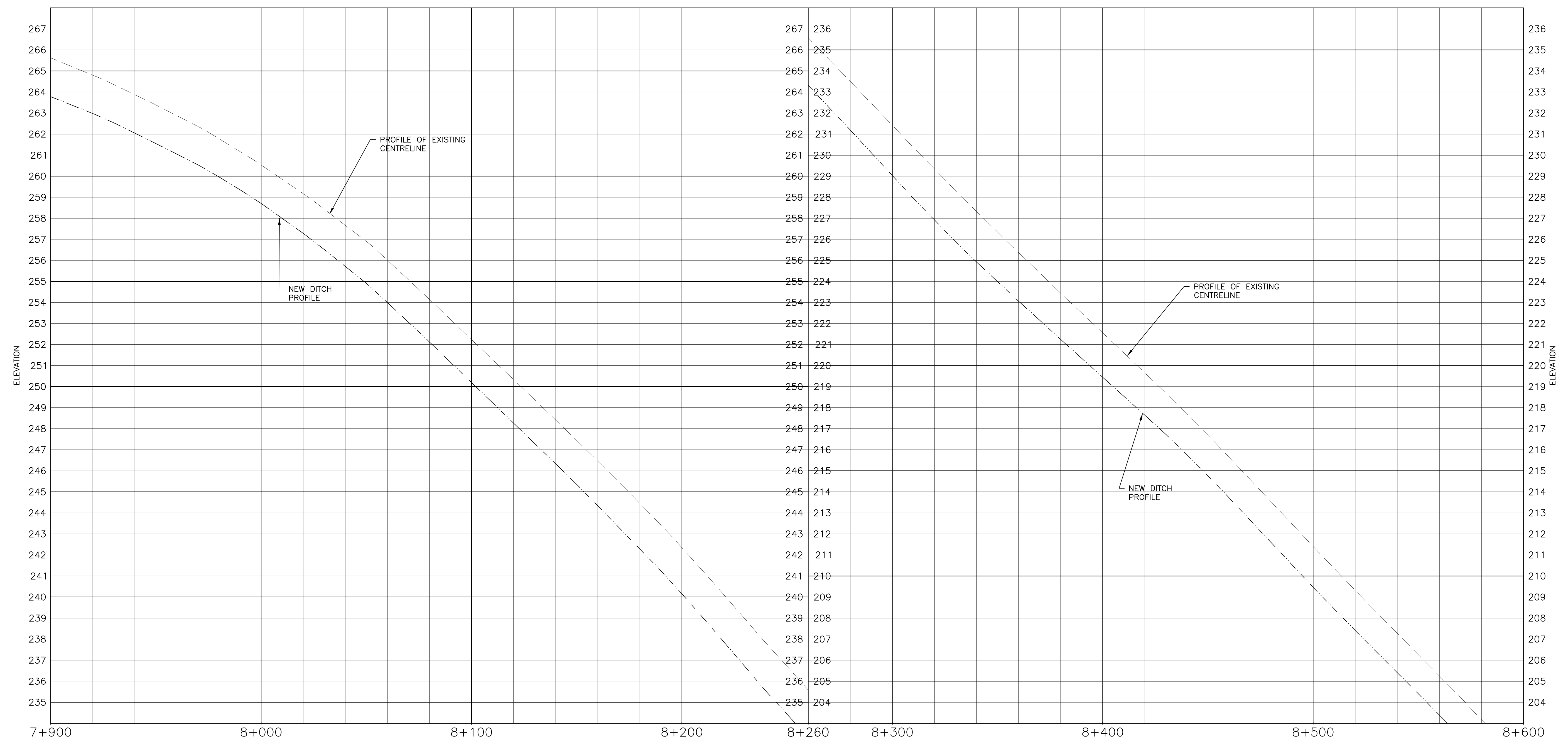
designed PETER ALLABY, P.ENG. conçu
 date AUGUST 29, 2016
 drawn KEVIN WARD dessiné
 date AUGUST 29, 2016
 approved PETER ALLABY, P.ENG. approuvé
 date AUGUST 29, 2016
 Tender Soumission

PCA Project Manager Administrateur de projets PCA
 project number no. du projet
1418
 drawing no. no. du dessin
C02



PLAN

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PROFILE

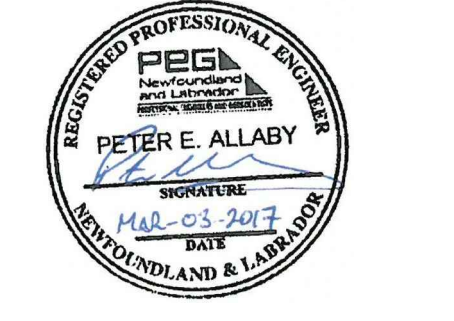
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VERTICAL SCALE : 1:100
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0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m



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 1000 M.B. Canada 1000 M.B. Canada 1000 M.B. Canada
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 Fax: (506) 853-2753 Fax: (506) 853-2753 Fax: (506) 853-2753
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LEGEND:

---	NEW EDGE OF ASPHALT
- - - -	NEW SLOPE DAYLIGHT LINE
—○—○—	NEW GUIDE RAIL
~~~~~	EXISTING TREELINE
~~~~~	NEW TREELINE
- - - -	NEW DITCH
	NEW EDGE OF GRAVEL SHOULDER
	AREA OF ASPHALT WIDENING
◆AP#	AUGER PROBE
■TP-##	TEST PIT
△###	SURVEY CONTROL POINT

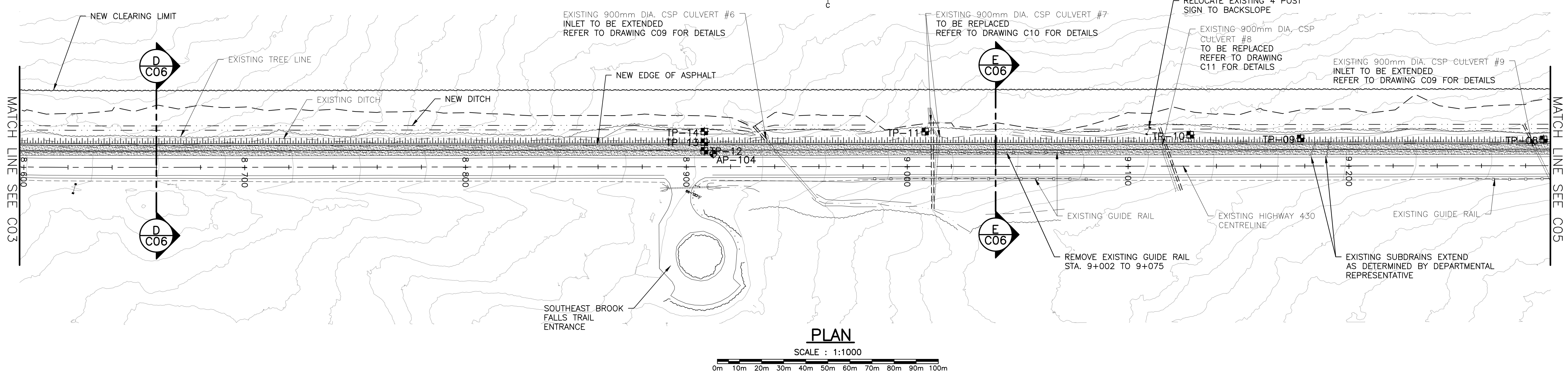
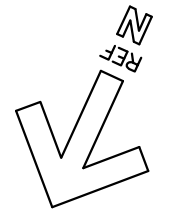


revisions	project	date
3	ISSUED FOR TENDER	03/03/2017
2	ISSUED FOR 99% REVIEW	02/10/2017
1	ISSUED FOR 90% REVIEW	12/16/2016
0	ISSUED FOR RS2 REVIEW	09/06/2016

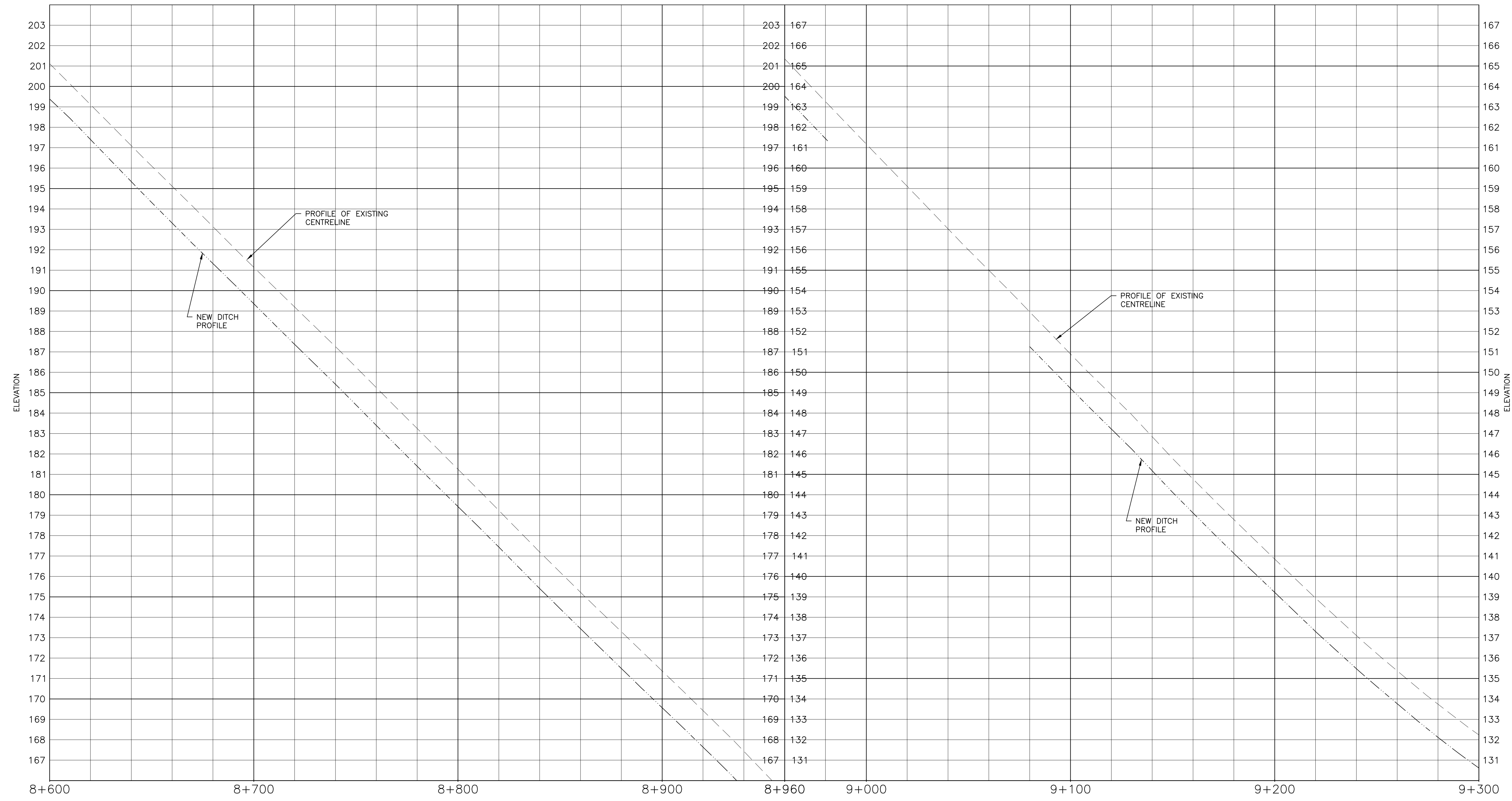
project project
**HIGHWAY 430
 SAFETY AND STANDARDS
 REHABILITATION
 GROS MORNE
 NATIONAL PARK, NL**

drawing dessin
**HIGHWAY 430
 PLAN AND PROFILE
 7+900 TO 8+600**

designed	PETER ALLABY, P.ENG.	conçu
date	AUGUST 29, 2016	
drawn	KEVIN WARD	dessiné
date	AUGUST 29, 2016	
approved	PETER ALLABY, P.ENG.	approuvé
date	AUGUST 29, 2016	
Tender		Soumission
PCA Project Manager	Administrateur de projets PCA	no. du projet
		1418
drawing no.		no. du dessin
		C03



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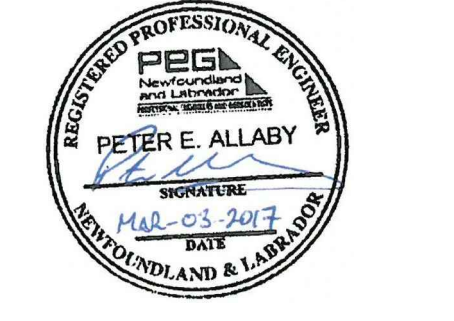
PROFILE
SCALE : 1:1000



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 FREDERICTON 544 Prospect Street Suite 101 Fredericton, N.B. Canada E3B 0C5 Tel: (506) 461-4443 Fax: (506) 463-2266
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LEGEND:

	NEW EDGE OF ASPHALT
	NEW SLOPE DAYLIGHT LINE
	NEW GUIDE RAIL
	EXISTING TREELINE
	NEW TREELINE
	NEW DITCH
	NEW EDGE OF GRAVEL SHOULDER
	AREA OF ASPHALT WIDENING
	AP# AUGER PROBE
	TP-## TEST PIT
	### SURVEY CONTROL POINT



revisions	date	description
3	03/03/2017	ISSUED FOR TENDER
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0	09/06/2016	ISSUED FOR RS2 REVIEW

project **HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL** project

drawing **HIGHWAY 430 PLAN AND PROFILE 8+600 TO 9+300** dessin

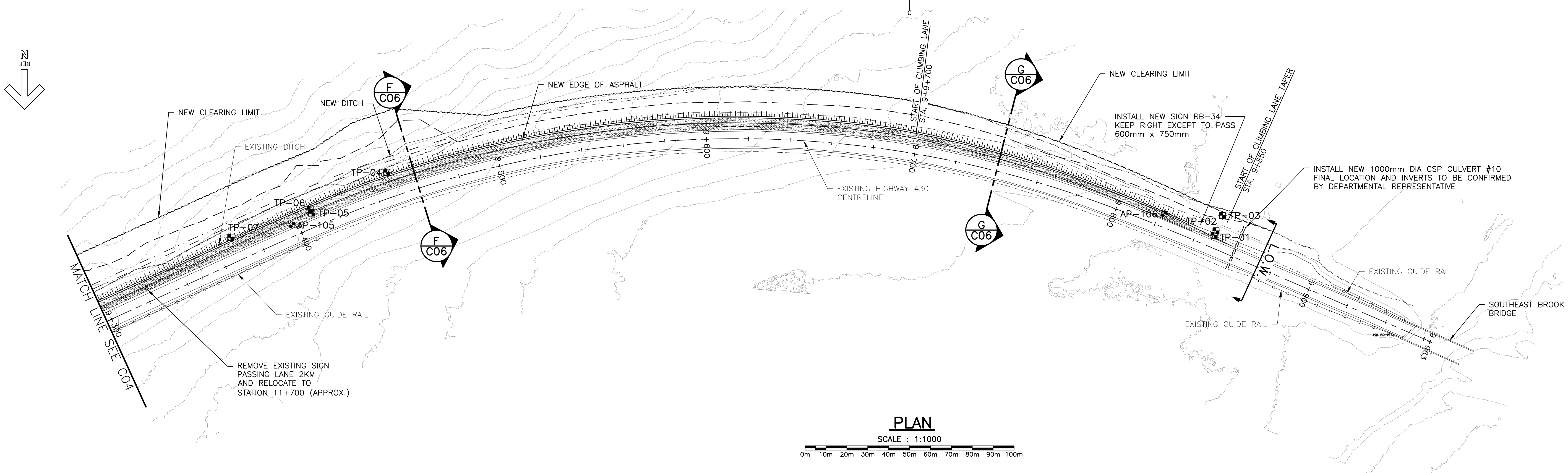
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drawn KEVIN WARD	dessiné
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approved PETER ALLABY, P.ENG.	approuvé
date AUGUST 29, 2016	
Tender	Soumission
PCA Project Manager	Administrateur de projets PCA
project number	no. du projet
1418	
drawing no.	no. du dessin
C04	



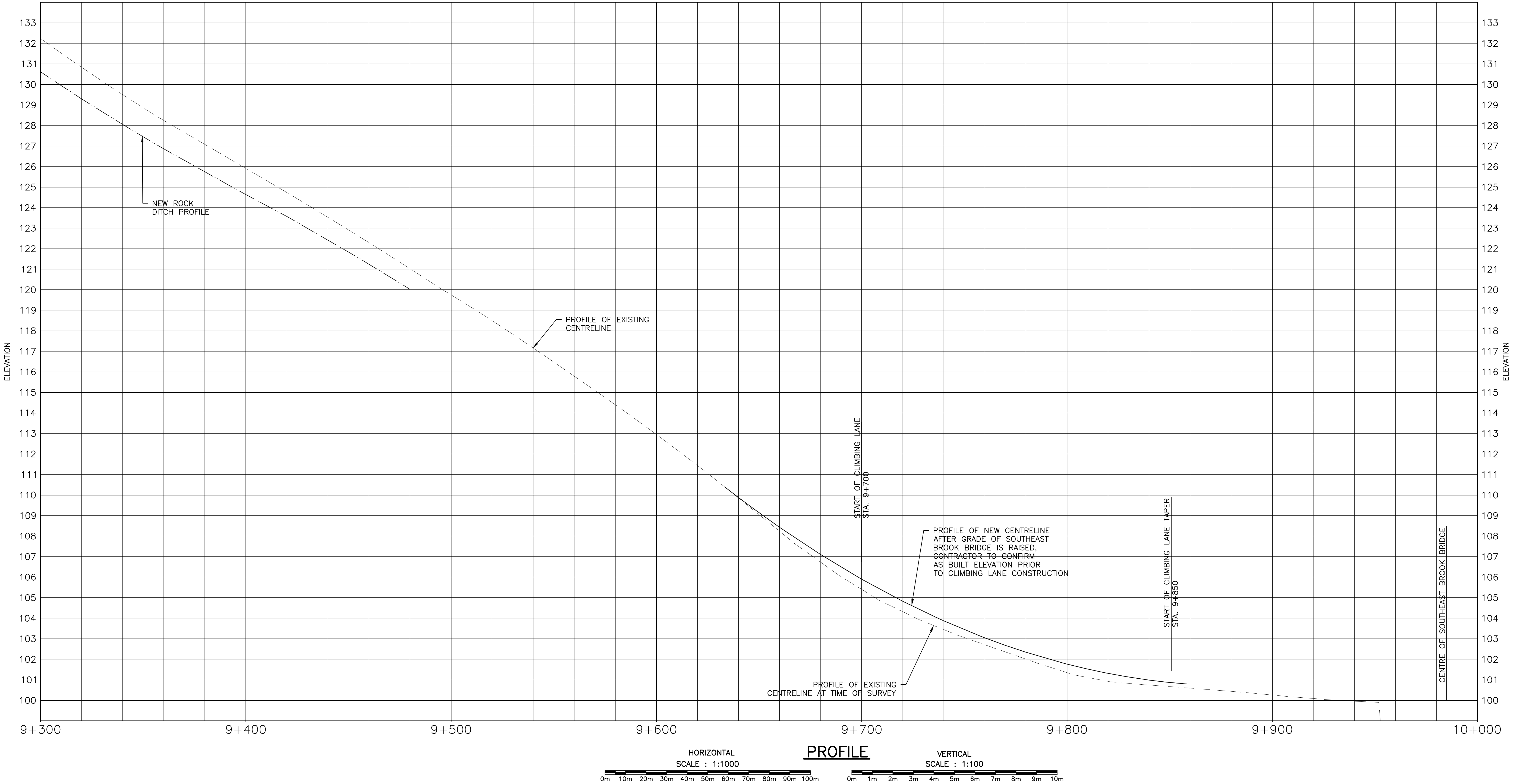
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 Saint John 132 Pictou Street
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 1000 M.B. Canada 1000 M.B. Canada 1000 M.B. Canada
 Tel: (506) 853-2777 Tel: (506) 853-2777 Tel: (506) 853-2777
 Fax: (506) 857-2753 Fax: (506) 857-2753 Fax: (506) 857-2753
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LEGEND:

	NEW EDGE OF ASPHALT
	NEW SLOPE DAYLIGHT LINE
	NEW GUIDE RAIL
	EXISTING TREELINE
	NEW TREELINE
	NEW DITCH
	NEW EDGE OF GRAVEL SHOULDER
	AREA OF ASPHALT WIDENING
	AUGER PROBE
	TEST PIT
	SURVEY CONTROL POINT

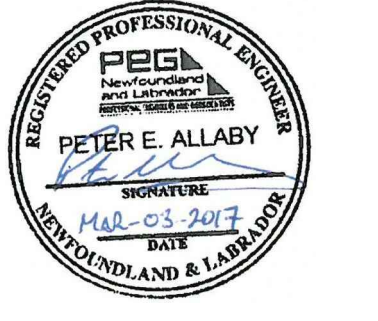


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PROFILE
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 VERTICAL SCALE : 1:100
 0m 10m 20m 30m 40m 50m 60m 70m 80m 90m 100m
 0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

PROVINCE OF NEWFOUNDLAND AND LABRADOR
 PERMIT HOLDER
 This Permit Allows
 CRANDALL ENGINEERING LTD.
 to practice Professional Engineering
 in Newfoundland and Labrador.
 Permit No. as issued by PEG, 50243
 which is valid for the year 2017.

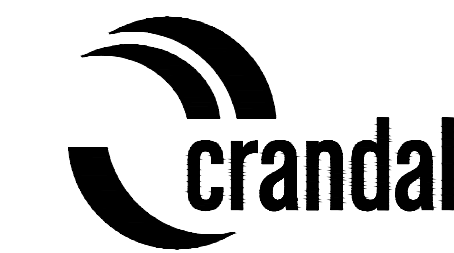


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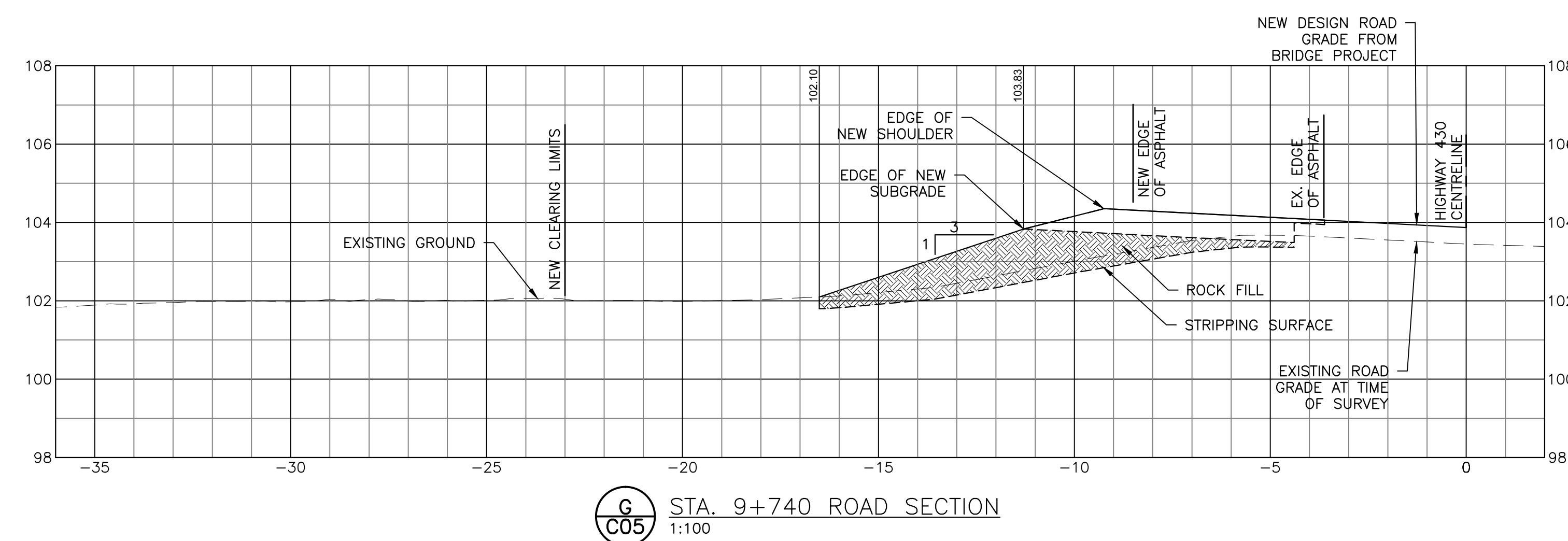
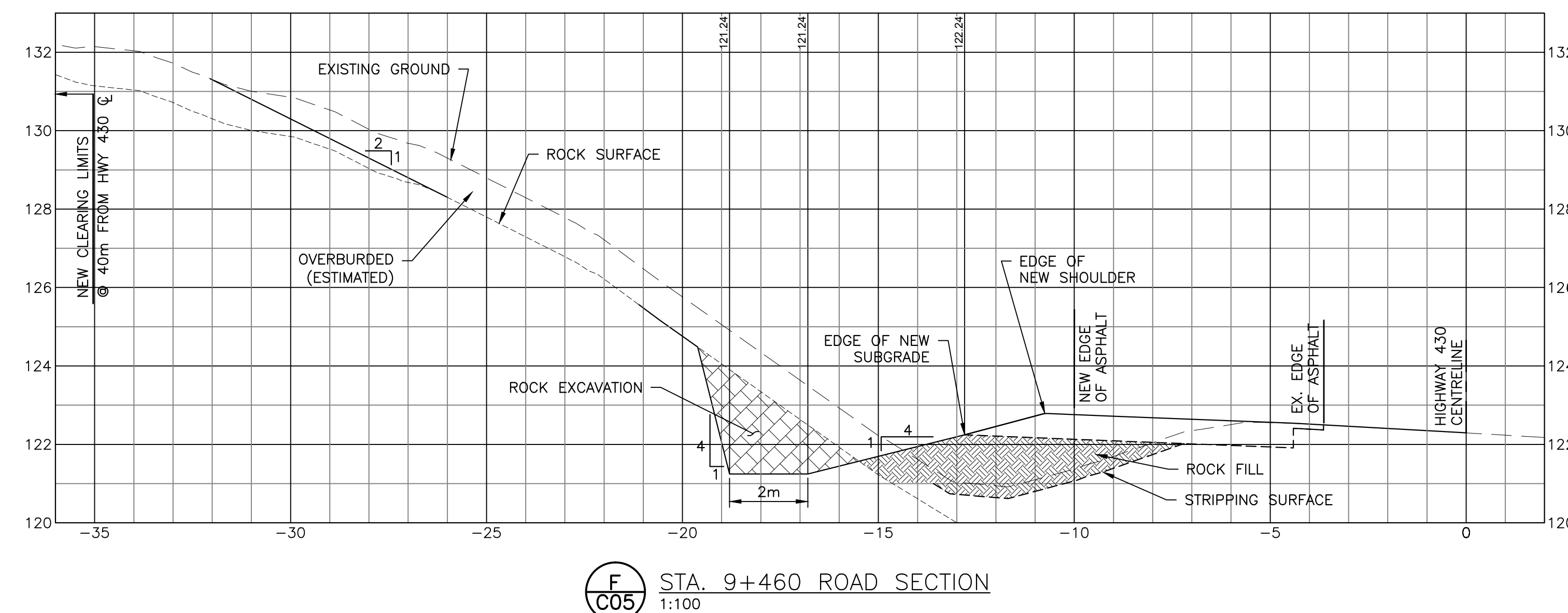
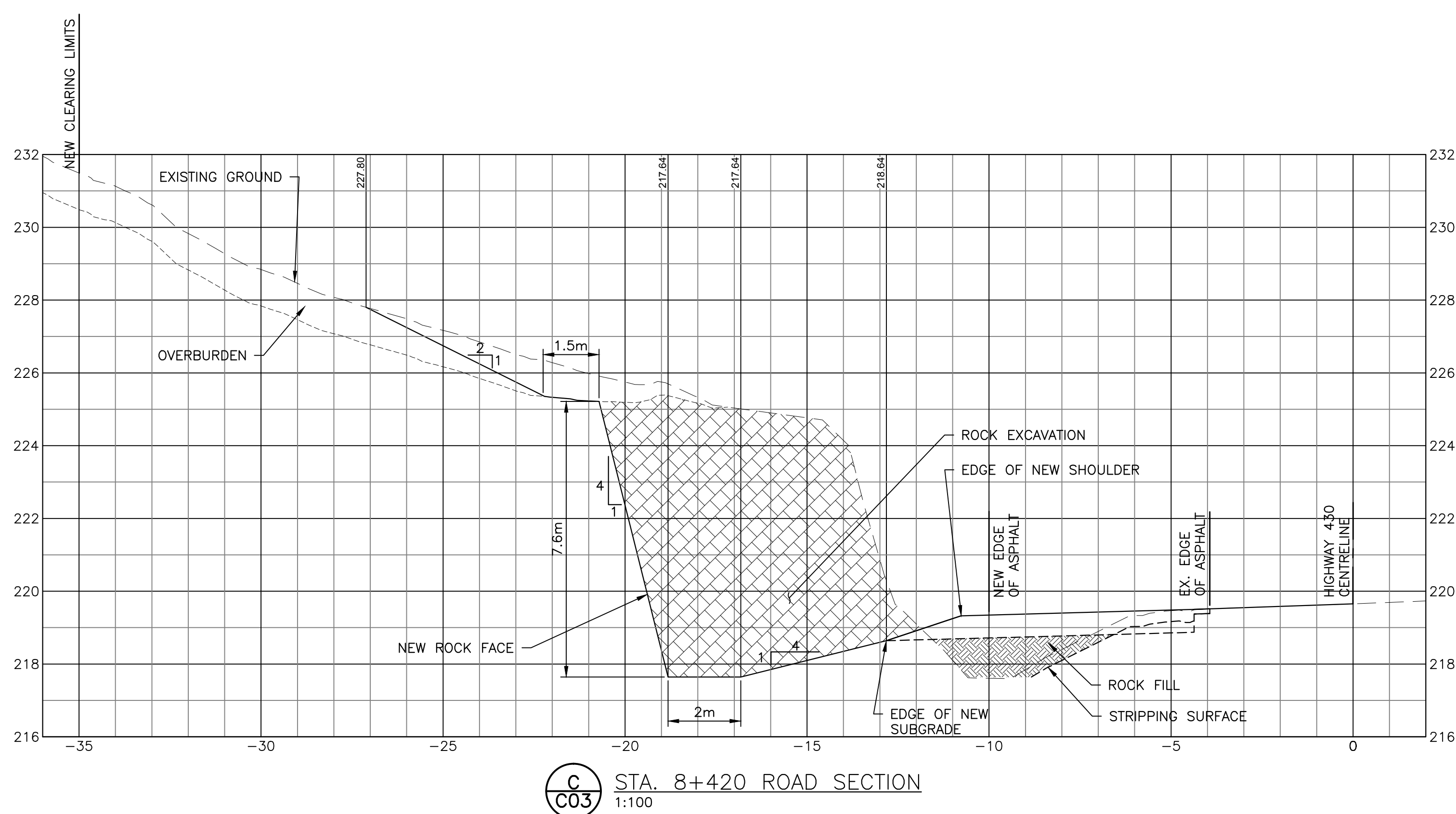
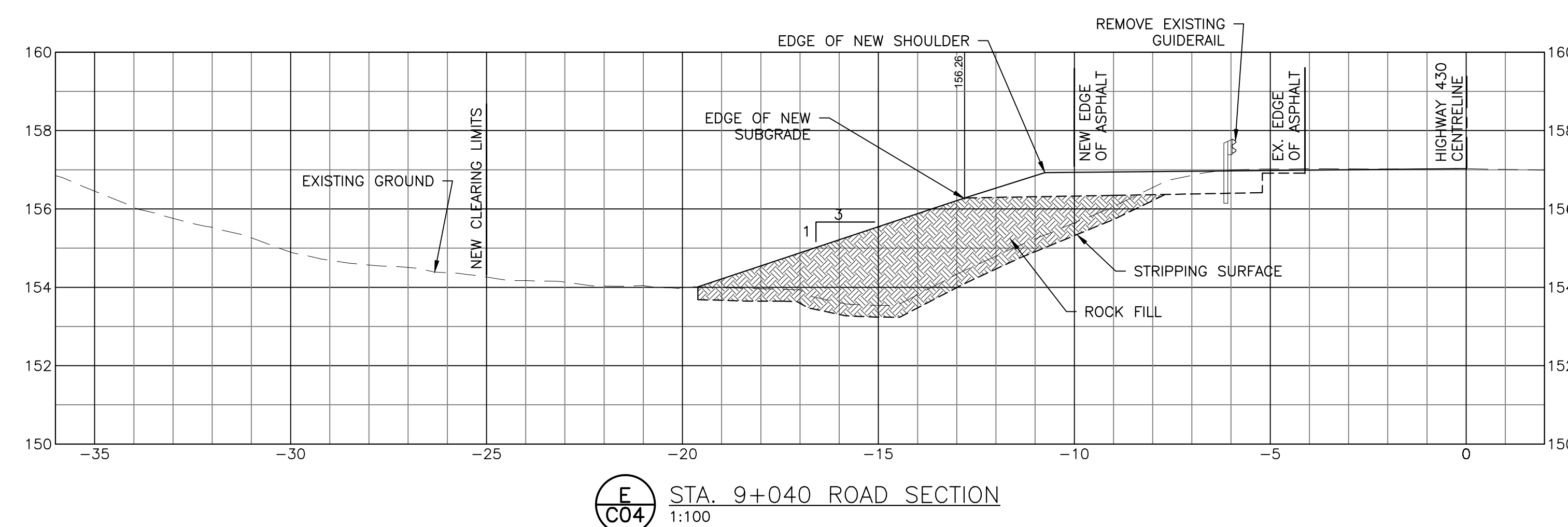
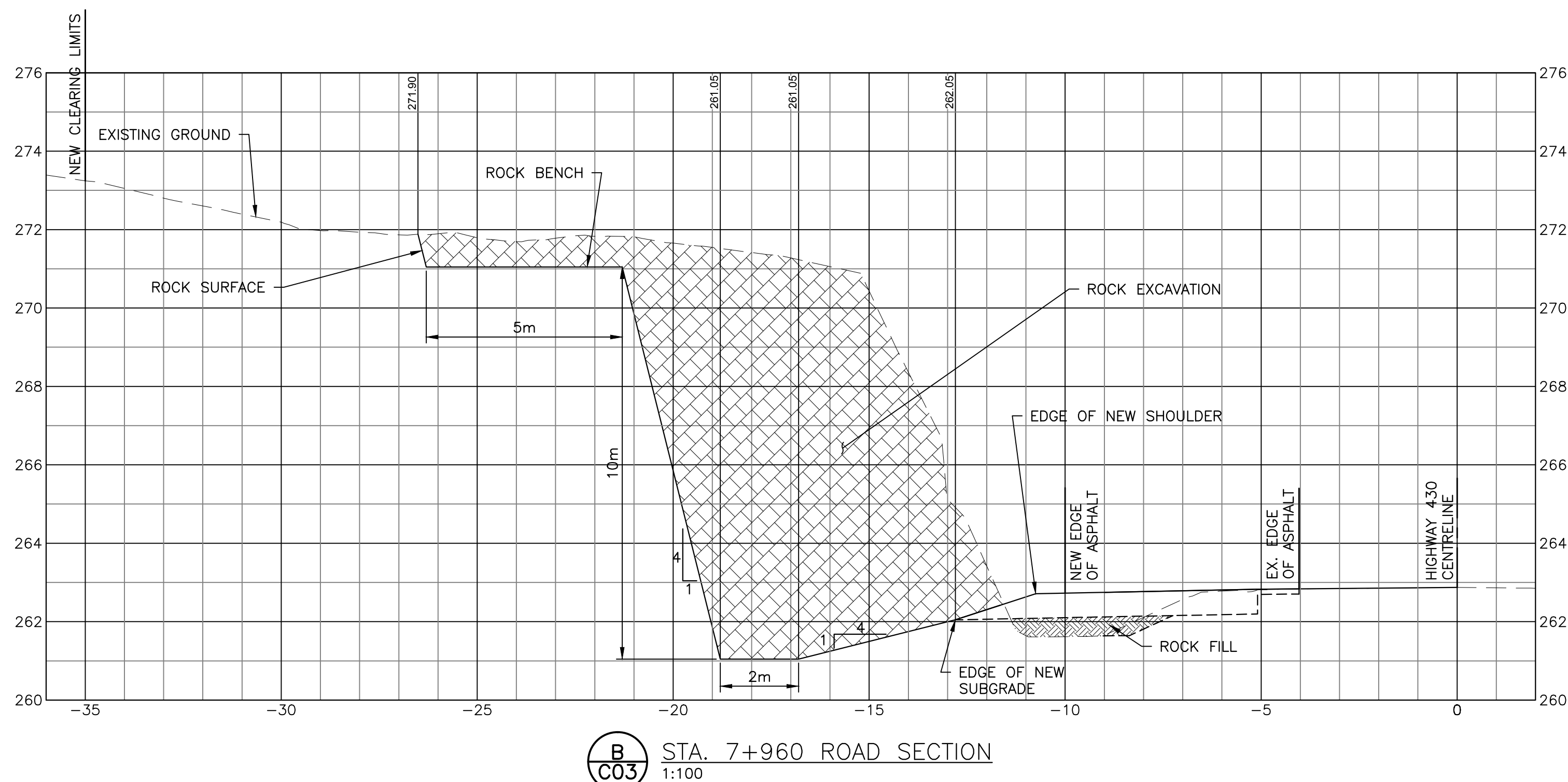
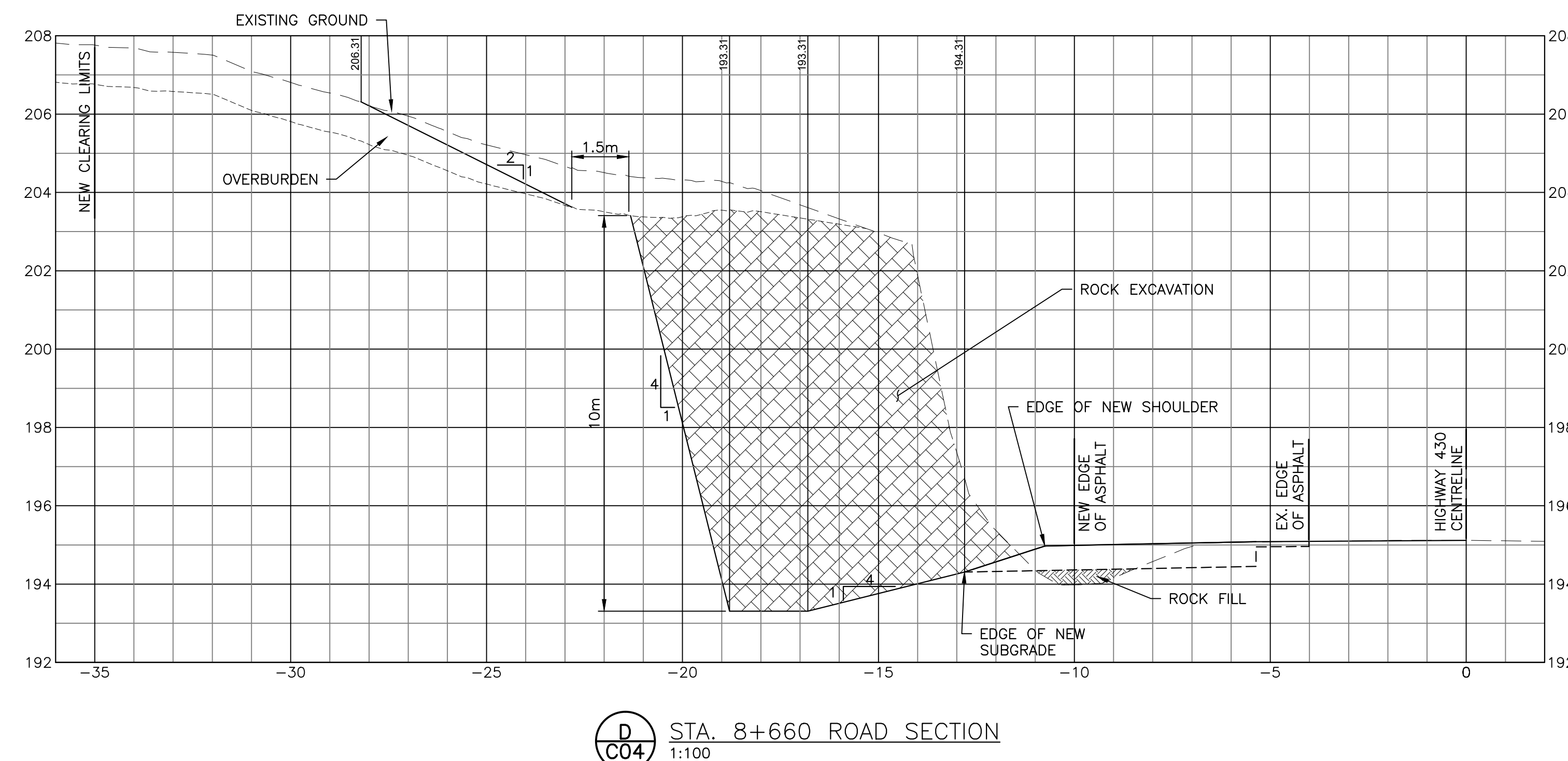
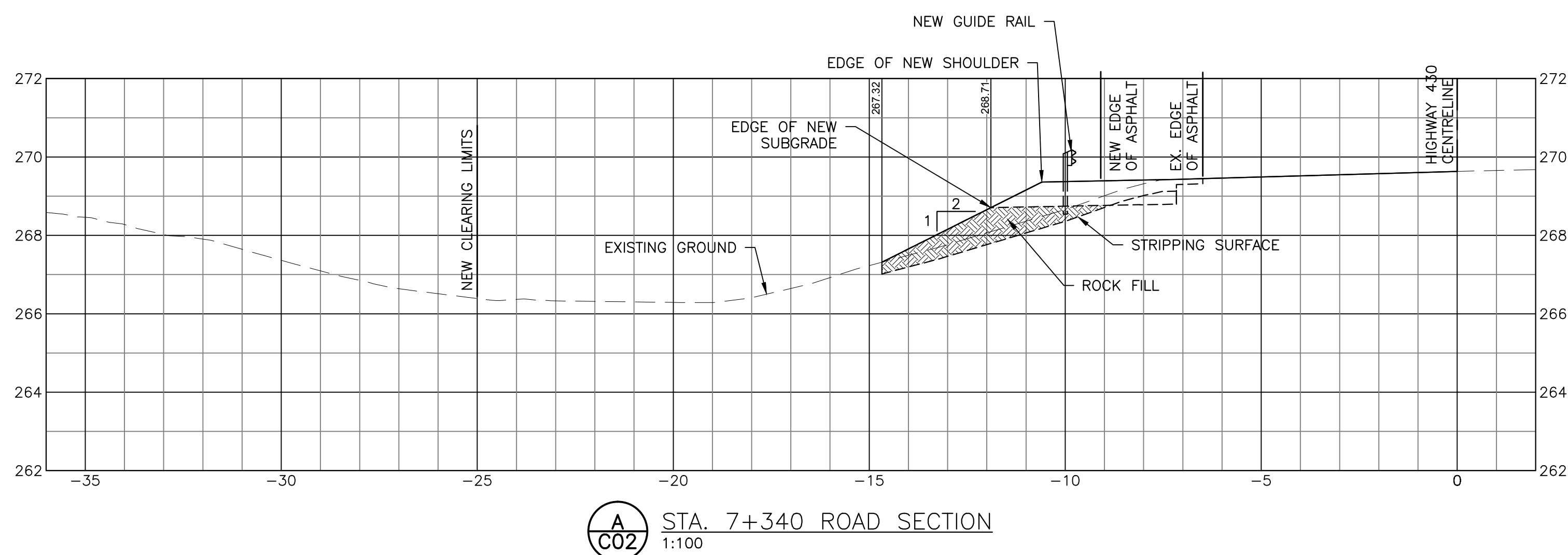
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 GROS MORNE
 NATIONAL PARK, NL**

drawing
**HIGHWAY 430
 PLAN AND PROFILE
 9+300 TO 10+000**

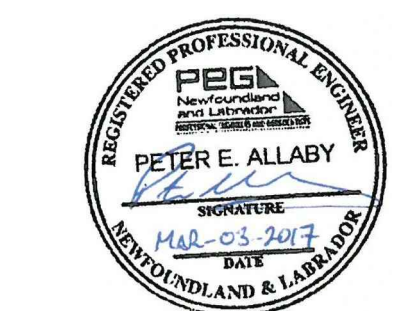
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PCA Project Manager	Administrateur de projets PCA	no. du projet
		1418
drawing no.		no. du dessin
		C05



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 CRANDALLENGINEERING.CA



PROVINCE OF NEWFOUNDLAND AND LABRADOR
 PERMIT HOLDER
 This Permit Allows
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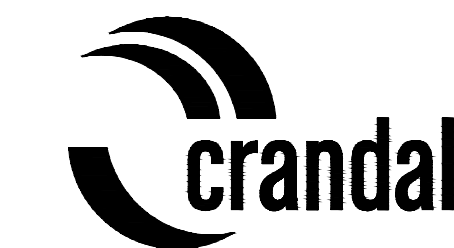


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project HIGHWAY 430
 SAFETY AND STANDARDS
 REHABILITATION
 GROS MORNE
 NATIONAL PARK, NL

drawing design
 HIGHWAY 430
 SECTIONS

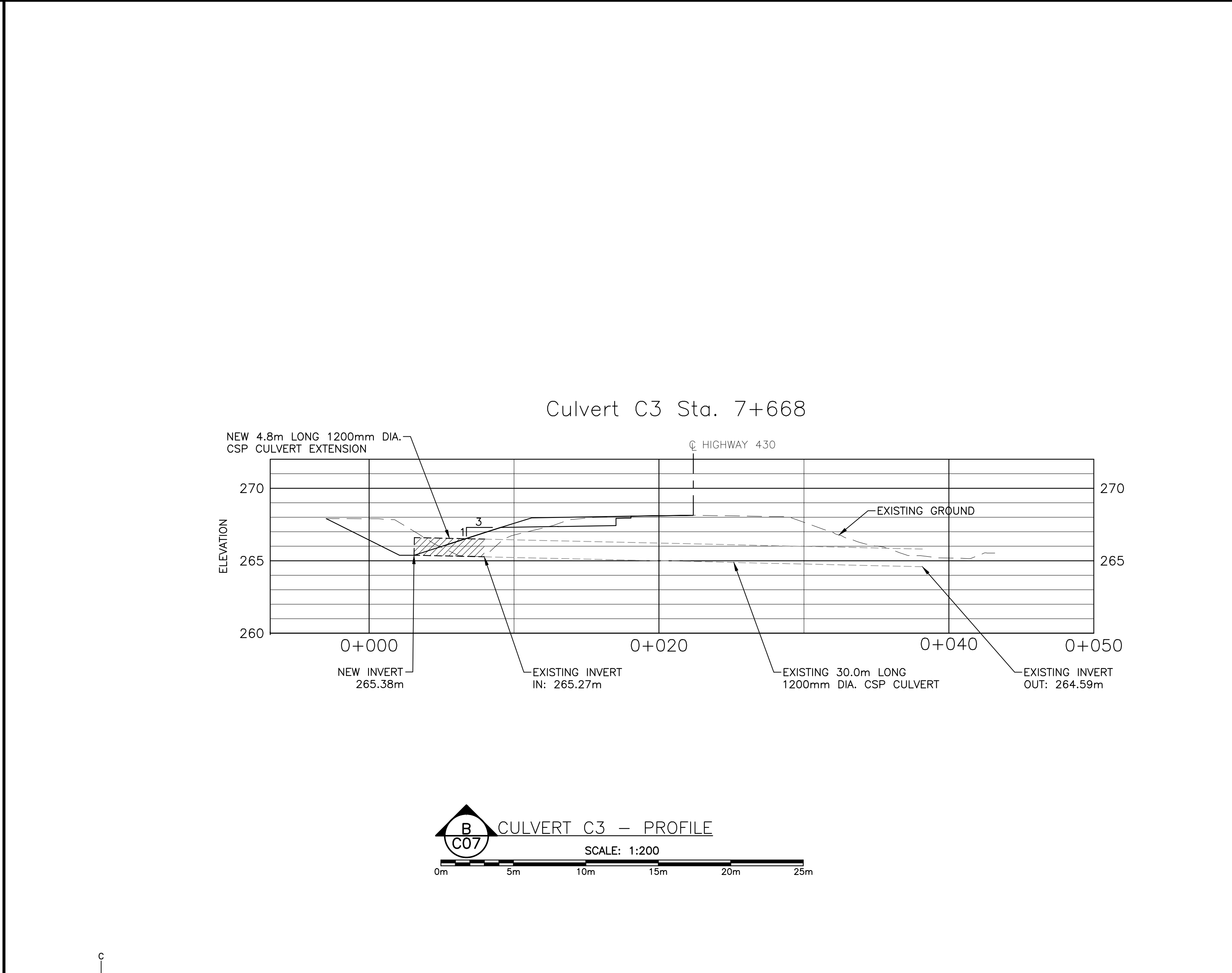
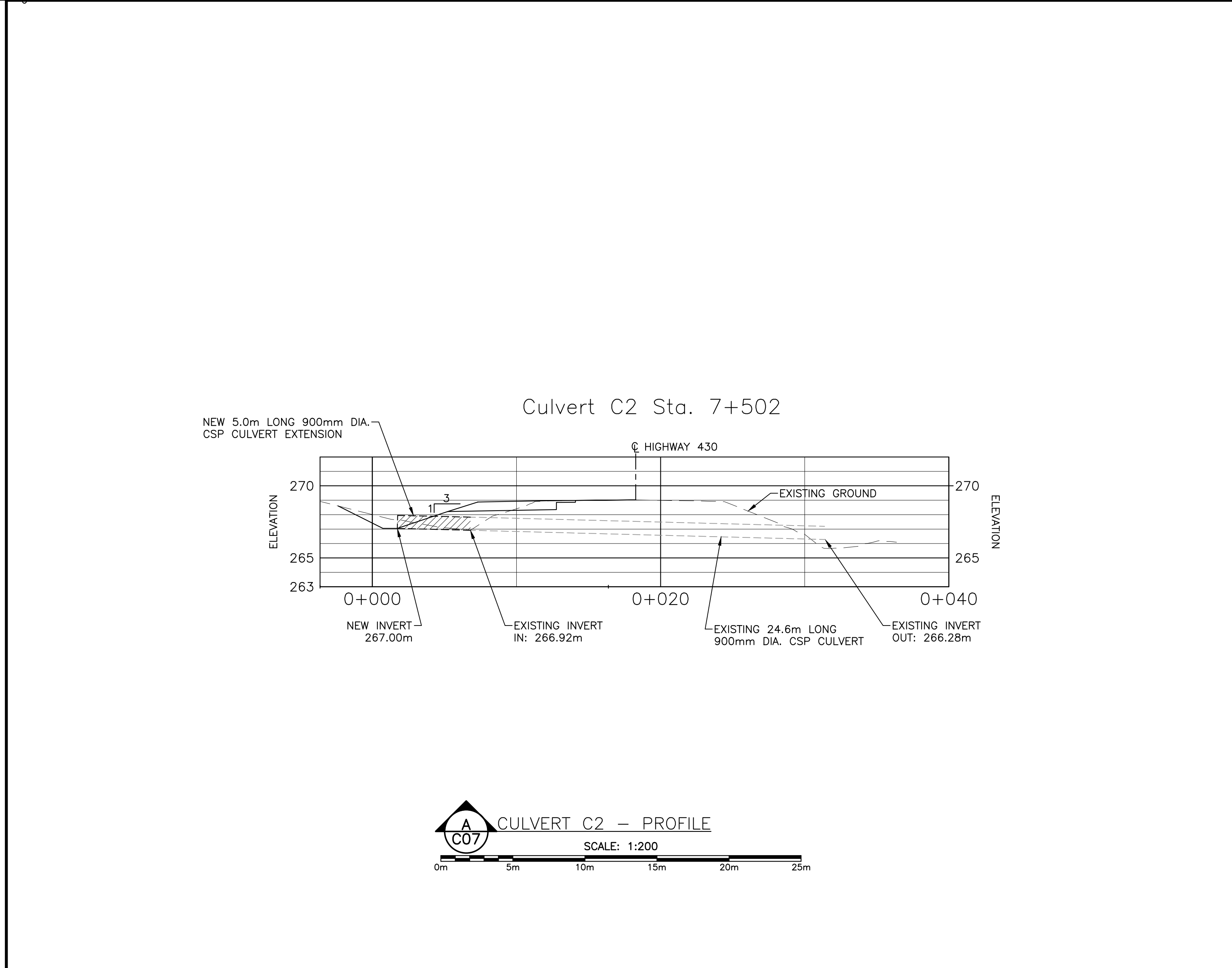
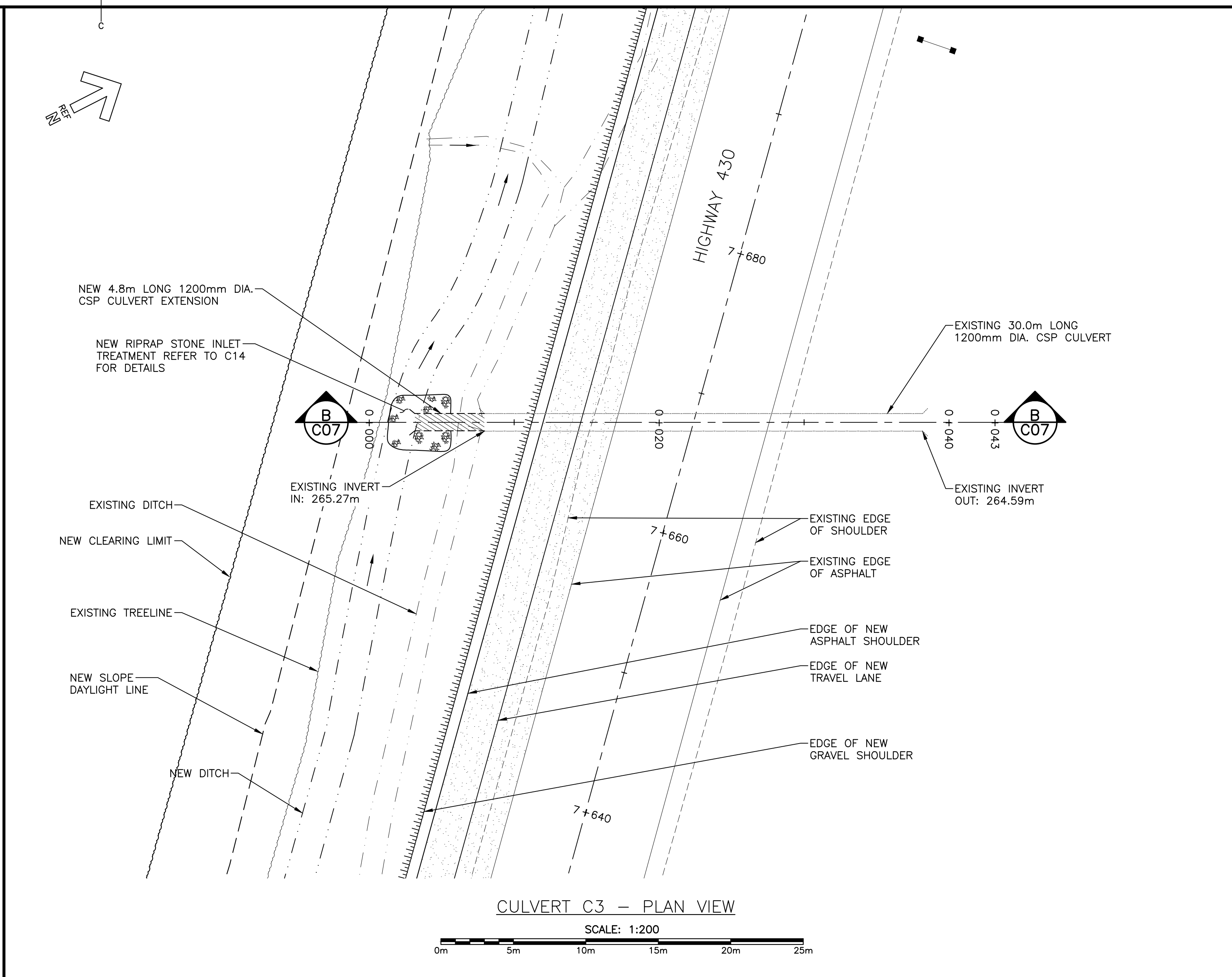
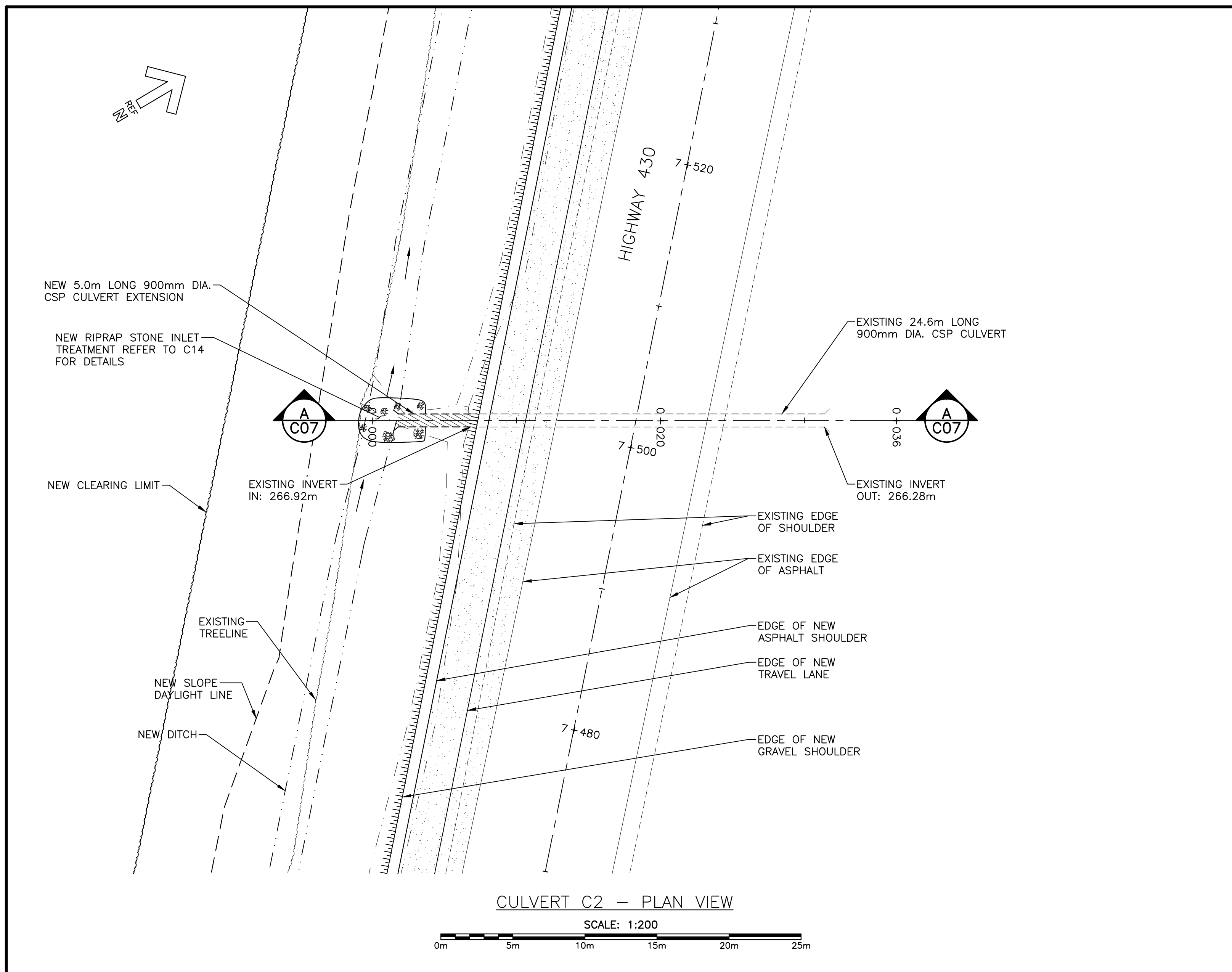
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 SAINT JOHN 133 Pique William Street Suite 207 Saint John, N.B. Canada A1B 1X1 Tel: (506) 643-0443 Fax: (506) 643-2550
 FREDERICTON 564 Prospect Street Suite 101 Fredericton, N.B. Canada S2R 1Y1 Tel: (506) 461-4443 Fax: (506) 463-2550
 CRANDALLENGINEERING.CA

LEGEND:

	NEW EDGE OF ASPHALT
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	NEW GUIDE RAIL
	EXISTING TREELINE
	NEW TREELINE
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	NEW EDGE OF GRAVEL SHOULDER
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	SURVEY CONTROL POINT



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project **HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL** project

drawing **HIGHWAY 430 CULVERT EXTENSIONS STA 7+502 & 7+668** dessin

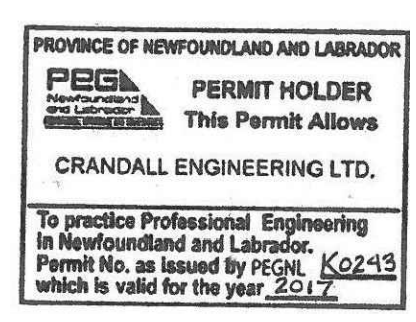
designed PETER ALLABY, P.ENG.	conçu
date AUGUST 29, 2016	
drawn KEVIN WARD	dessiné
date AUGUST 29, 2016	
approved PETER ALLABY, P.ENG.	approuvé
date AUGUST 29, 2016	
Tender	Soumission
PCA Project Manager	Administrateur de projets PCA
project number	no. du projet
1418	
drawing no.	no. du dessin
C07	



MONCTON 1077 Blvd. St. George Blvd. 133 Pictou Street
 Saint John 133 Pictou Street
 Fredericton 544 Prospect Street
 1000 1000 957-2753 1000 957-2753 1000 957-2753
 1000 1000 957-2753 1000 957-2753 1000 957-2753
 CRANDALLENGINEERING.CA

LEGEND:

---	NEW EDGE OF ASPHALT
- - -	NEW SLOPE DAYLIGHT LINE
—○—○—	NEW GUIDE RAIL
~~~~~	EXISTING TREELINE
-----	NEW TREELINE
---	NEW DITCH
	NEW EDGE OF GRAVEL SHOULDER
	AREA OF ASPHALT WIDENING
▲###	SURVEY CONTROL POINT

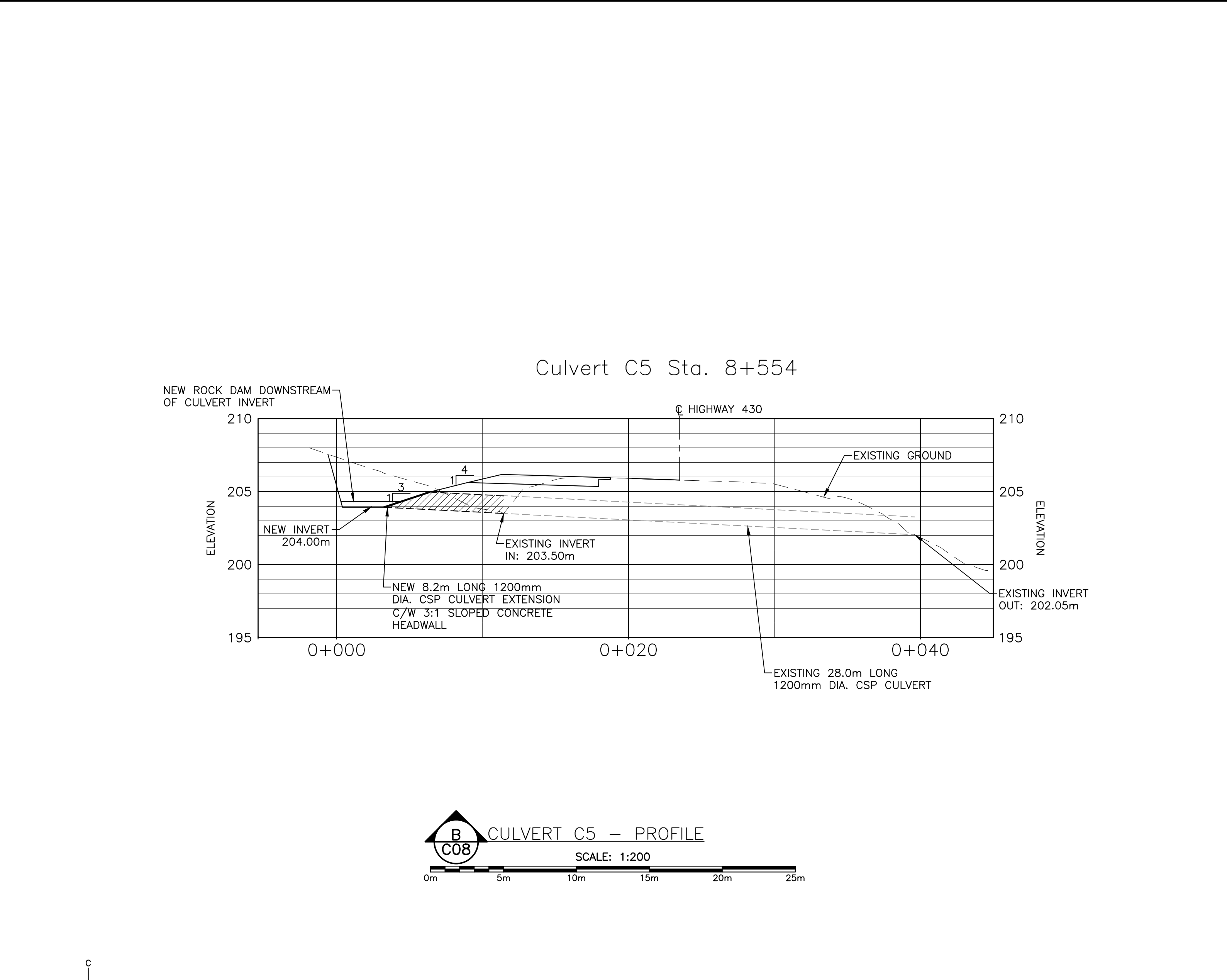
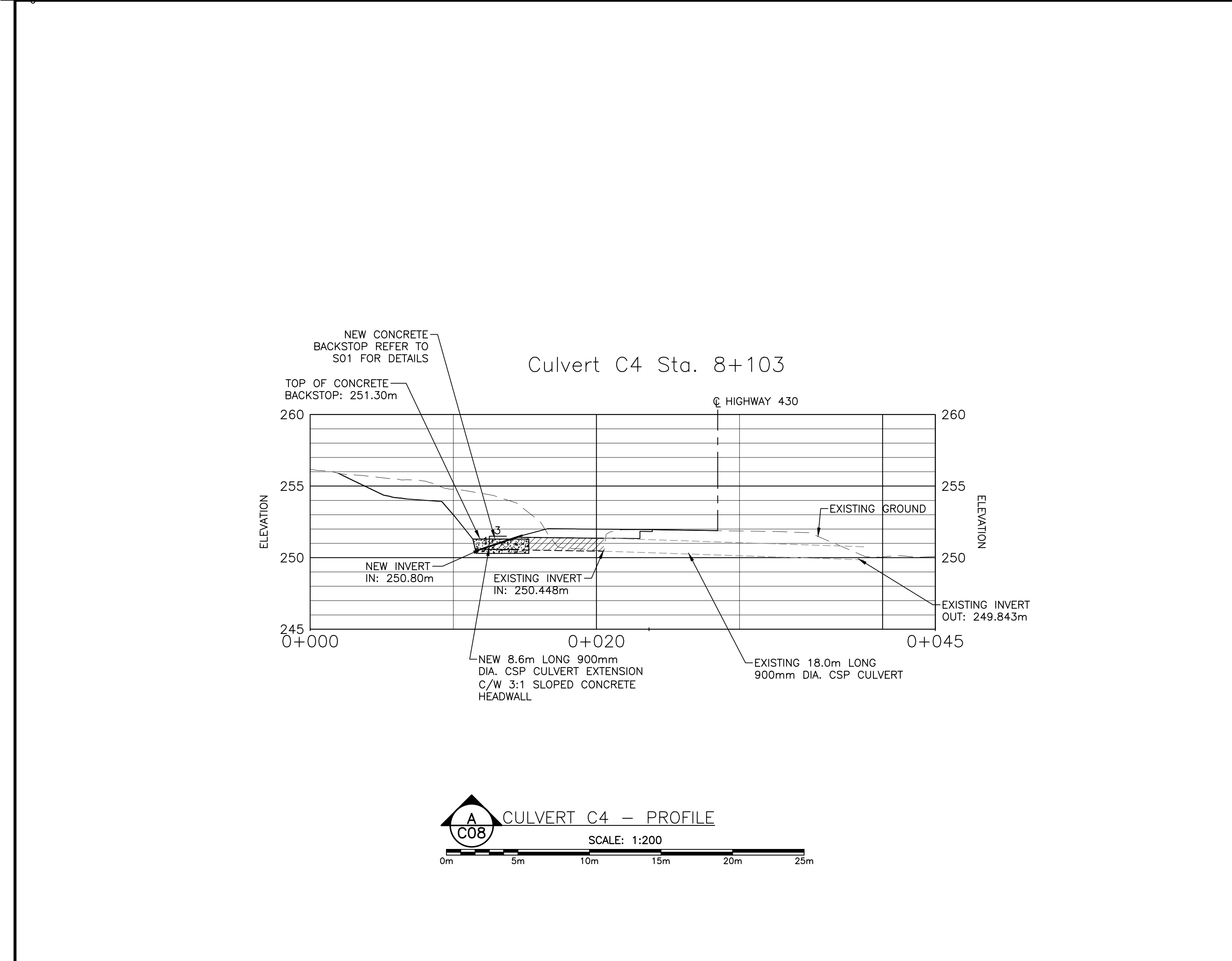
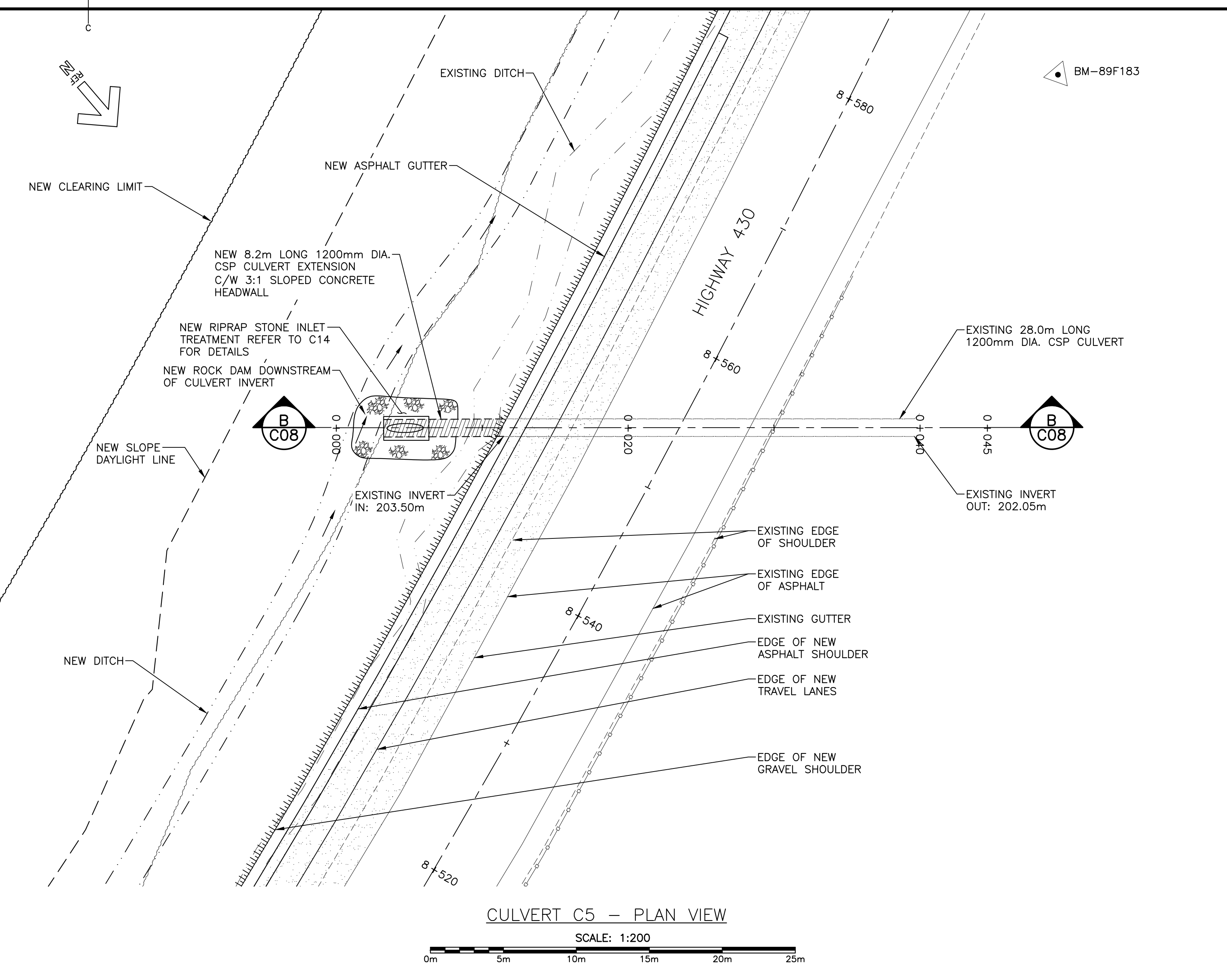
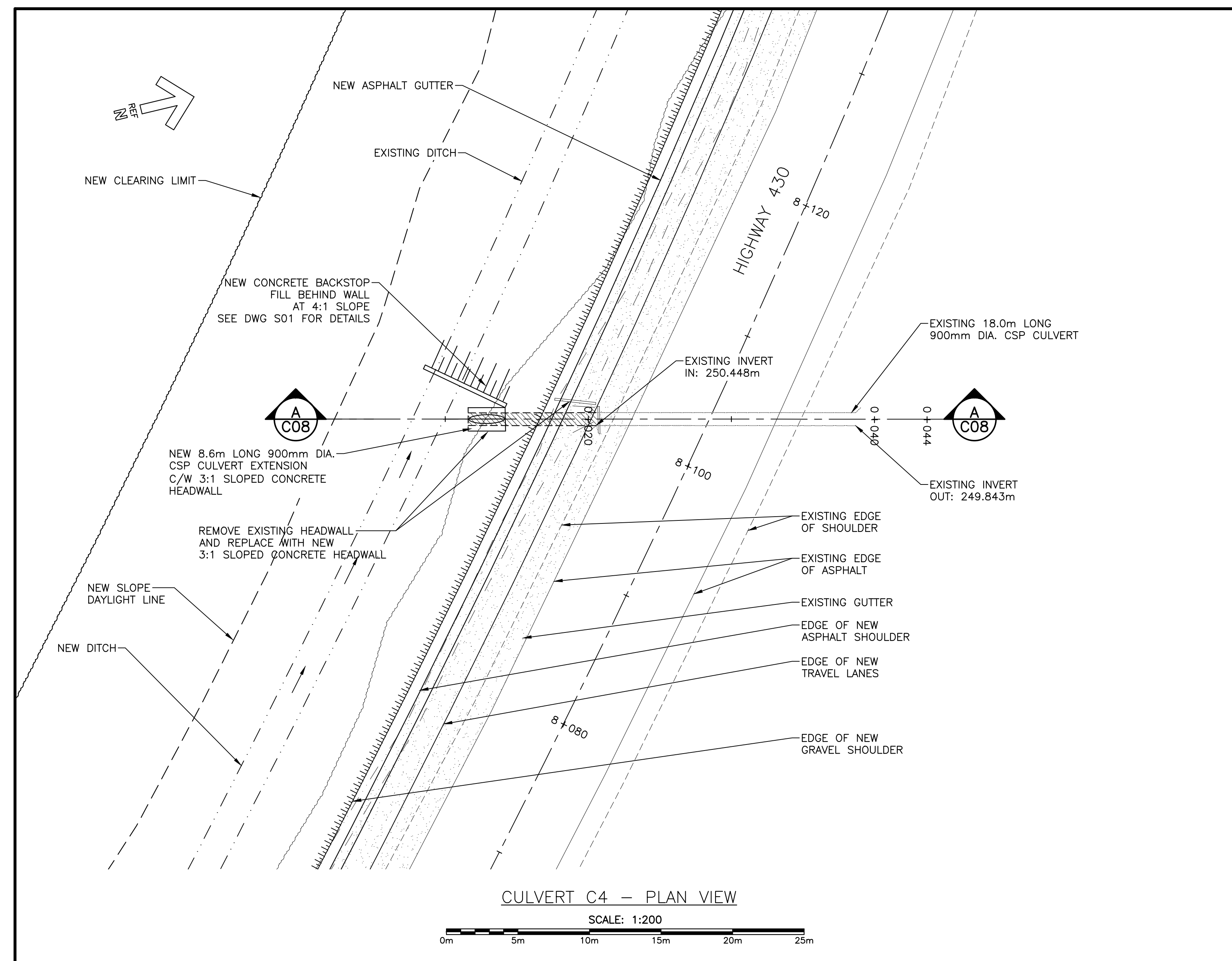


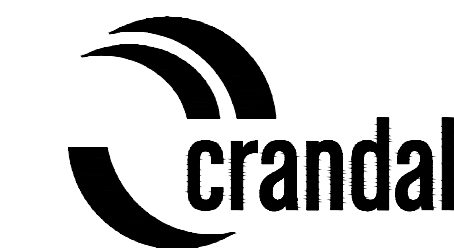
2	ISSUED FOR TENDER	03/03/2017
1	ISSUED FOR 99% REVIEW	02/10/2017
0	ISSUED FOR 90% REVIEW	12/16/2016

project HIGHWAY 430  
 project SAFETY AND STANDARDS  
 project REHABILITATION  
 project GROS MORNE  
 project NATIONAL PARK, NL

drawing HIGHWAY 430  
 design CULVERT EXTENSIONS  
 design STA 8+103 & 8+554

designed	PETER ALLABY, P.ENG.	conçu
date	AUGUST 29, 2016	
drawn	KEVIN WARD	dessiné
date	AUGUST 29, 2016	
approved	PETER ALLABY, P.ENG.	approuvé
date	AUGUST 29, 2016	
Tender		Soumission
PCA Project Manager	Administrateur de projets PCA	no. du projet
project number		1418
drawing no.		C08

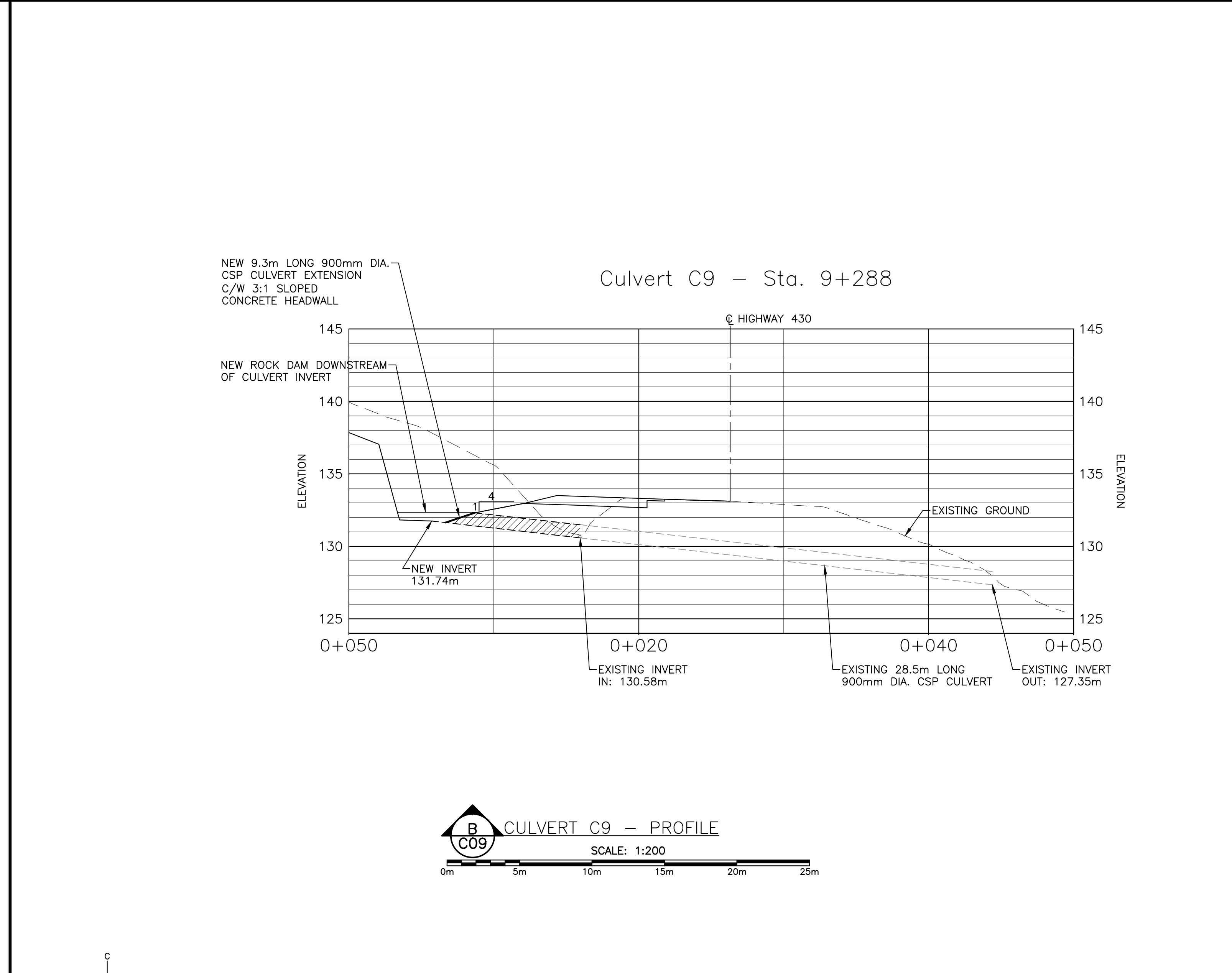
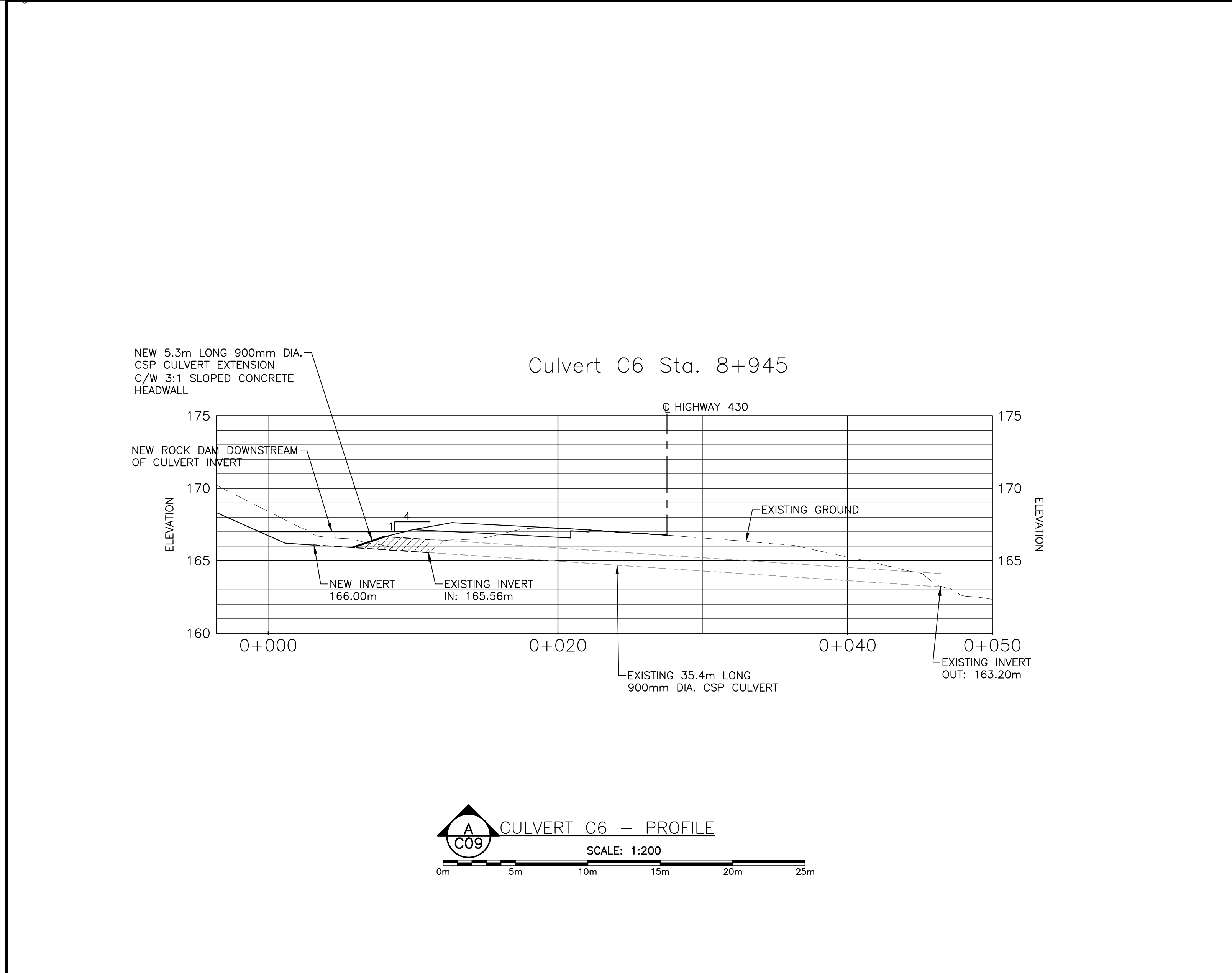
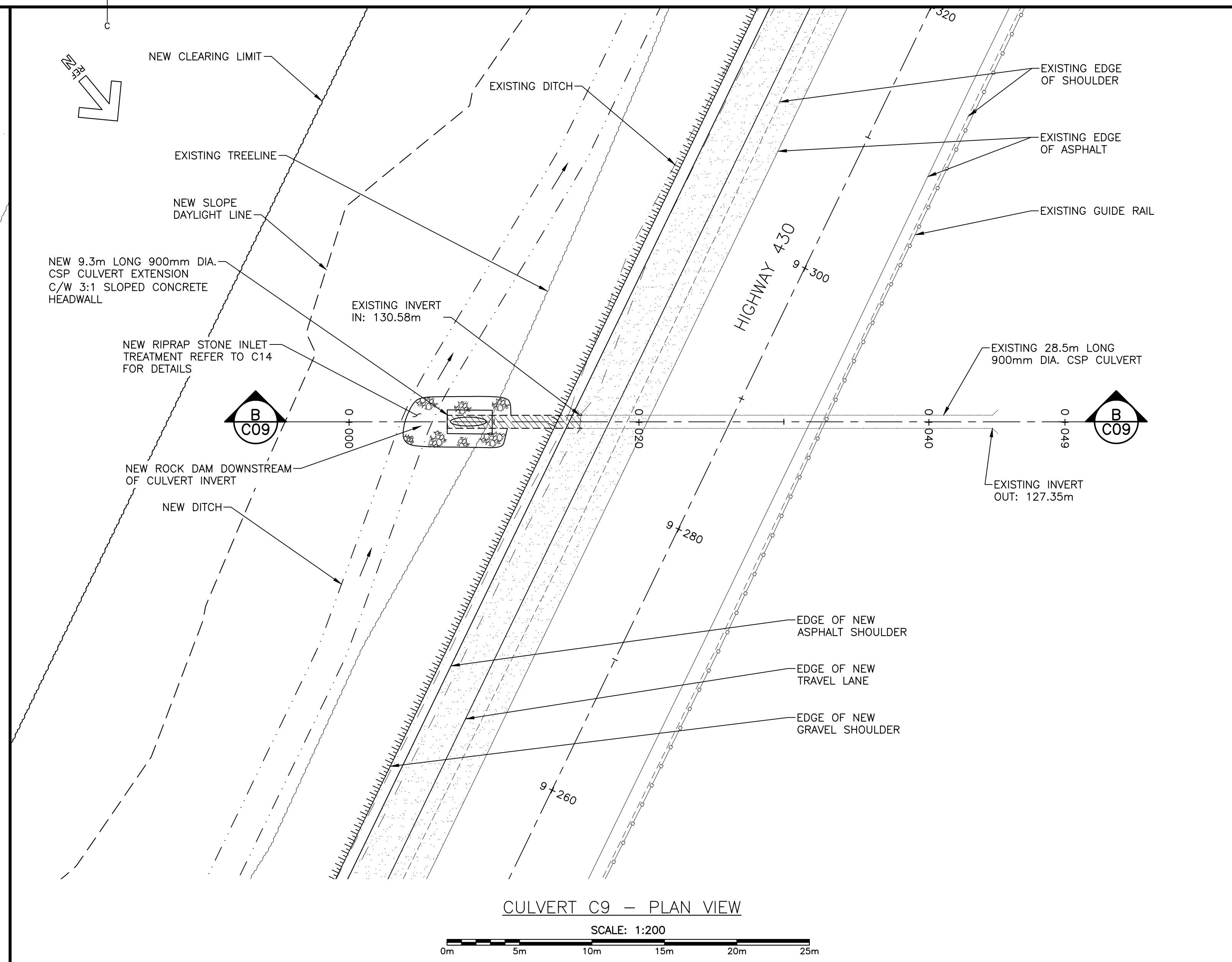
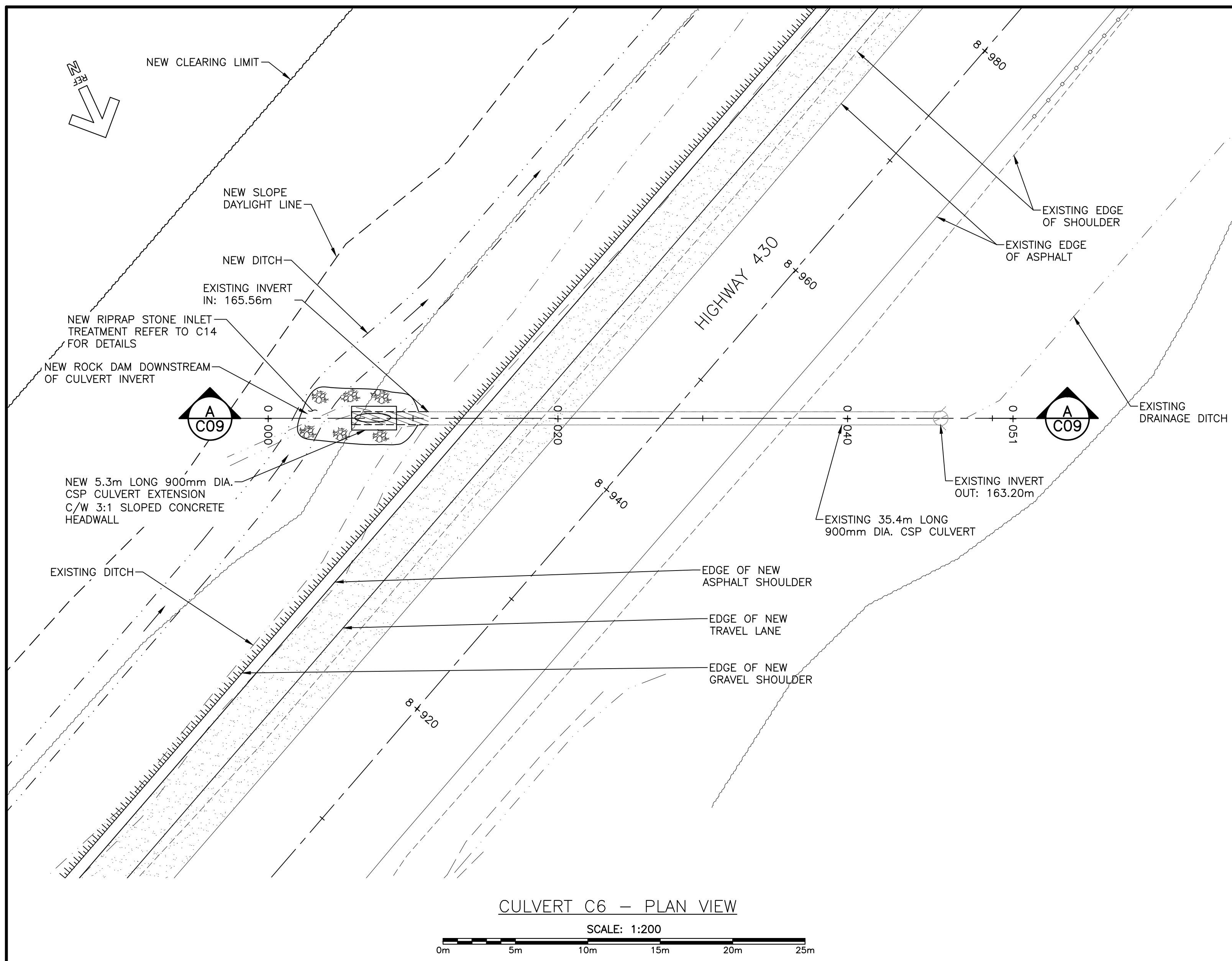




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LEGEND:

	NEW EDGE OF ASPHALT
	NEW SLOPE DAYLIGHT LINE
	NEW GUIDE RAIL
	EXISTING TREELINE
	NEW TREELINE
	NEW DITCH
	NEW EDGE OF GRAVEL SHOULDER
	AREA OF ASPHALT WIDENING
	SURVEY CONTROL POINT



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
 PERMIT HOLDER  
 This Permit Allows  
 CRANDALL ENGINEERING LTD.  
 to practice Professional Engineering  
 in Newfoundland and Labrador.  
 Permit No. as issued by PEGG, 60243  
 which is valid for the year 2017.



2	ISSUED FOR TENDER	03/03/2017
1	ISSUED FOR 99% REVIEW	02/10/2017
0	ISSUED FOR 90% REVIEW	12/16/2016
revisions		date

project project  
**HIGHWAY 430  
 SAFETY AND STANDARDS  
 REHABILITATION  
 GROS MORNE  
 NATIONAL PARK, NL**

drawing dessin  
**HIGHWAY 430  
 CULVERT EXTENSIONS  
 STA 8+945 & 9+288**

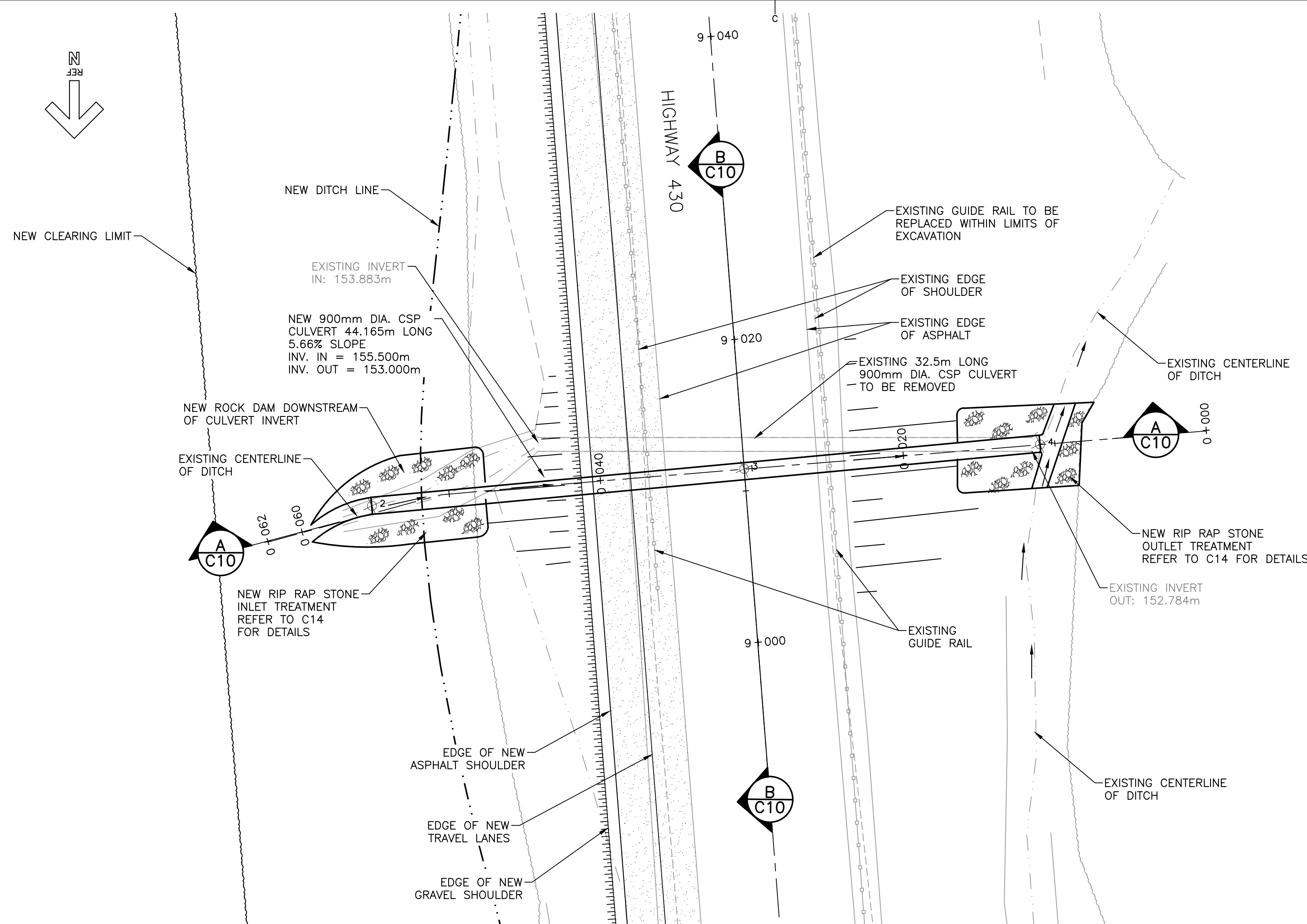
designed PETER ALLABY, P.ENG. conçu  
 date AUGUST 29, 2016  
 drawn KEVIN WARD dessiné  
 date AUGUST 29, 2016  
 approved PETER ALLABY, P.ENG. approuvé  
 date AUGUST 29, 2016  
 Tender Soumission  
 PCA Project Manager Administrateur de projets PCA  
 project number no. du projet  
**1418**  
 drawing no. no. du dessin  
**C09**



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LEGEND:

	NEW EDGE OF ASPHALT
	NEW SLOPE DAYLIGHT LINE
	NEW GUIDE RAIL
	EXISTING TREELINE
	NEW TREELINE
	NEW DITCH
	NEW EDGE OF GRAVEL SHOULDER
	AREA OF ASPHALT WIDENING
	AP# AUGER PROBE
	TP-## TEST PIT
	### SURVEY CONTROL POINT

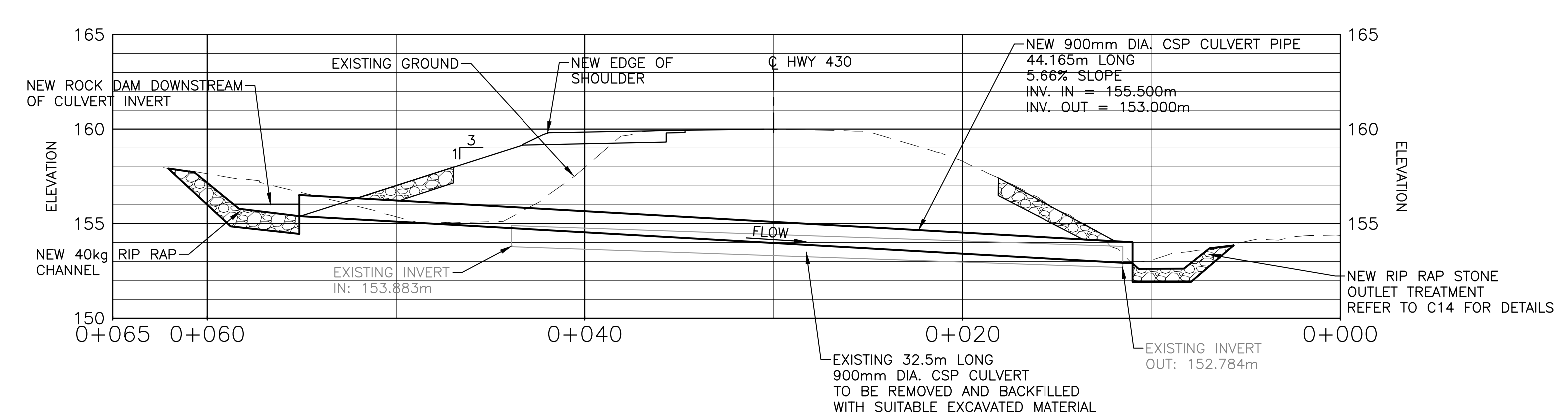


CULVERT C7 - PLAN VIEW  
SCALE: 1:200

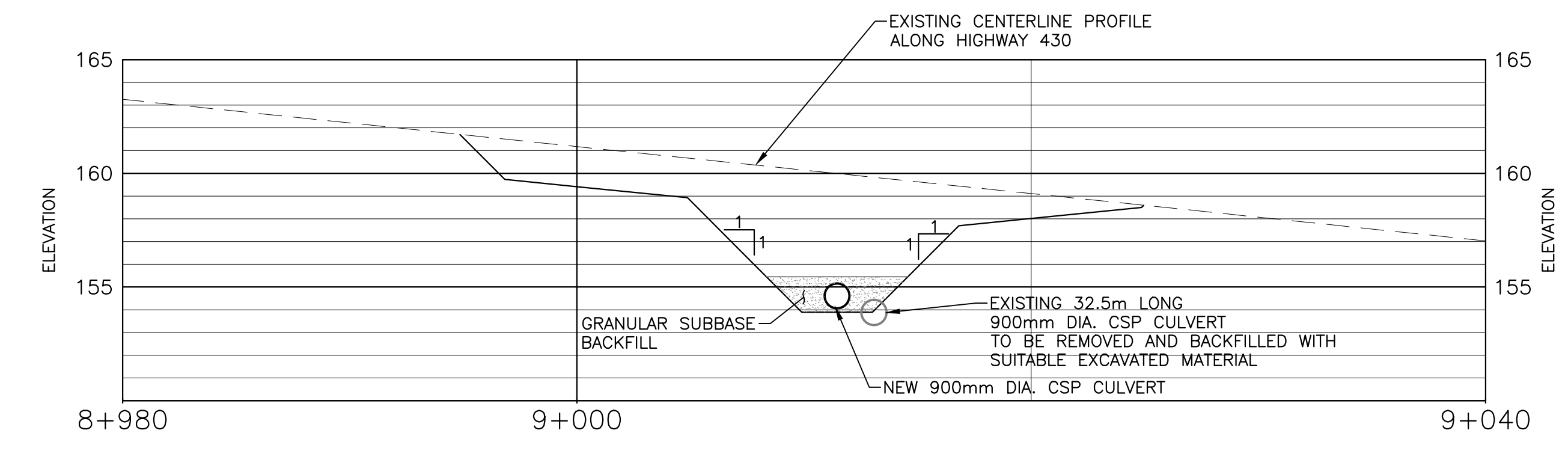
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3	HWY 430 CL	452119.9937	5479080.7853	154.089
4	OUTLET	452111.7879	5479098.5071	153.000



Culvert C7 Sta. 9+013



NEW 900mm DIA. CSP CULVERT STA 9+013 - PROFILE VIEW  
SCALE: 1:200



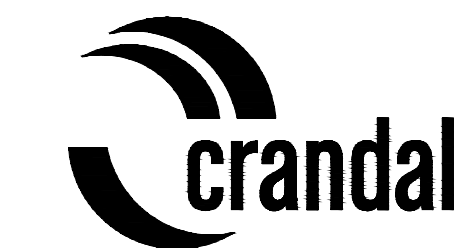
NEW 900mm DIA. CULVERT EXCAVATION LIMITS - SECTION VIEW  
SCALE: 1:200

revisions	description	date
2	ISSUED FOR TENDER	03/03/2017
1	ISSUED FOR 99% REVIEW	02/10/2017
0	ISSUED FOR 90% REVIEW	12/16/2016

project  
**HIGHWAY 430  
 SAFETY AND STANDARDS  
 REHABILITATION  
 GROS MORNE  
 NATIONAL PARK, NL**

drawing  
**HIGHWAY 430  
 STA 9+013  
 NEW 900mm DIA. CSP  
 CULVERT PLAN AND  
 PROFILE VIEWS**

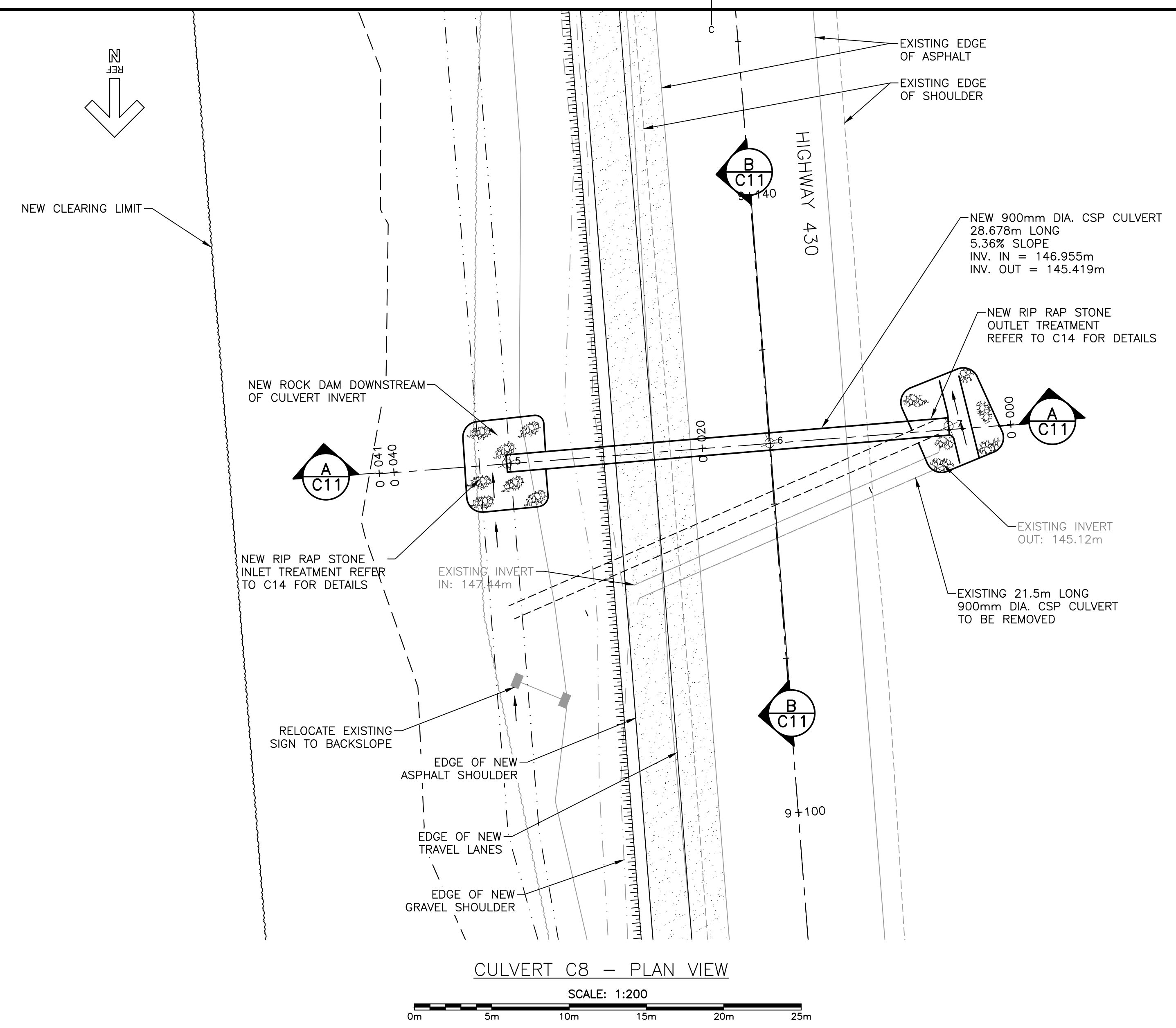
designed	PETER ALLABY, P.ENG.	conçu
date	AUGUST 29, 2016	
drawn	KEVIN WARD	dessiné
date	AUGUST 29, 2016	
approved	PETER ALLABY, P.ENG.	approuvé
date	AUGUST 29, 2016	
Tender		Soumission
PCA Project Manager	Administrateur de projets PCA	
project number	no. du projet	
	<b>1418</b>	
drawing no.	no. du dessin	
	<b>C10</b>	



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LEGEND:

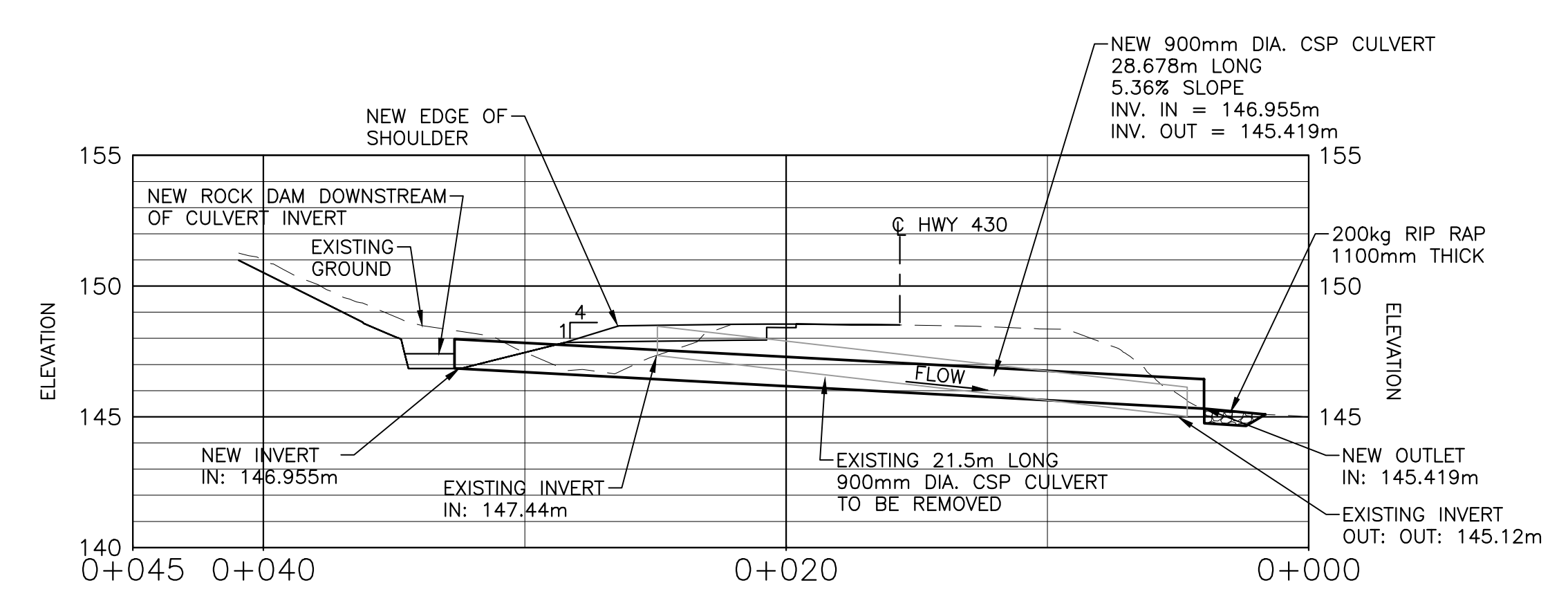
	NEW EDGE OF ASPHALT
	NEW SLOPE DAYLIGHT LINE
	NEW GUIDE RAIL
	EXISTING TREELINE
	NEW TREELINE
	NEW DITCH
	NEW EDGE OF GRAVEL SHOULDER
	AREA OF ASPHALT WIDENING
	AP#
	TP-##
	###



CULVERT C8 - PLAN VIEW

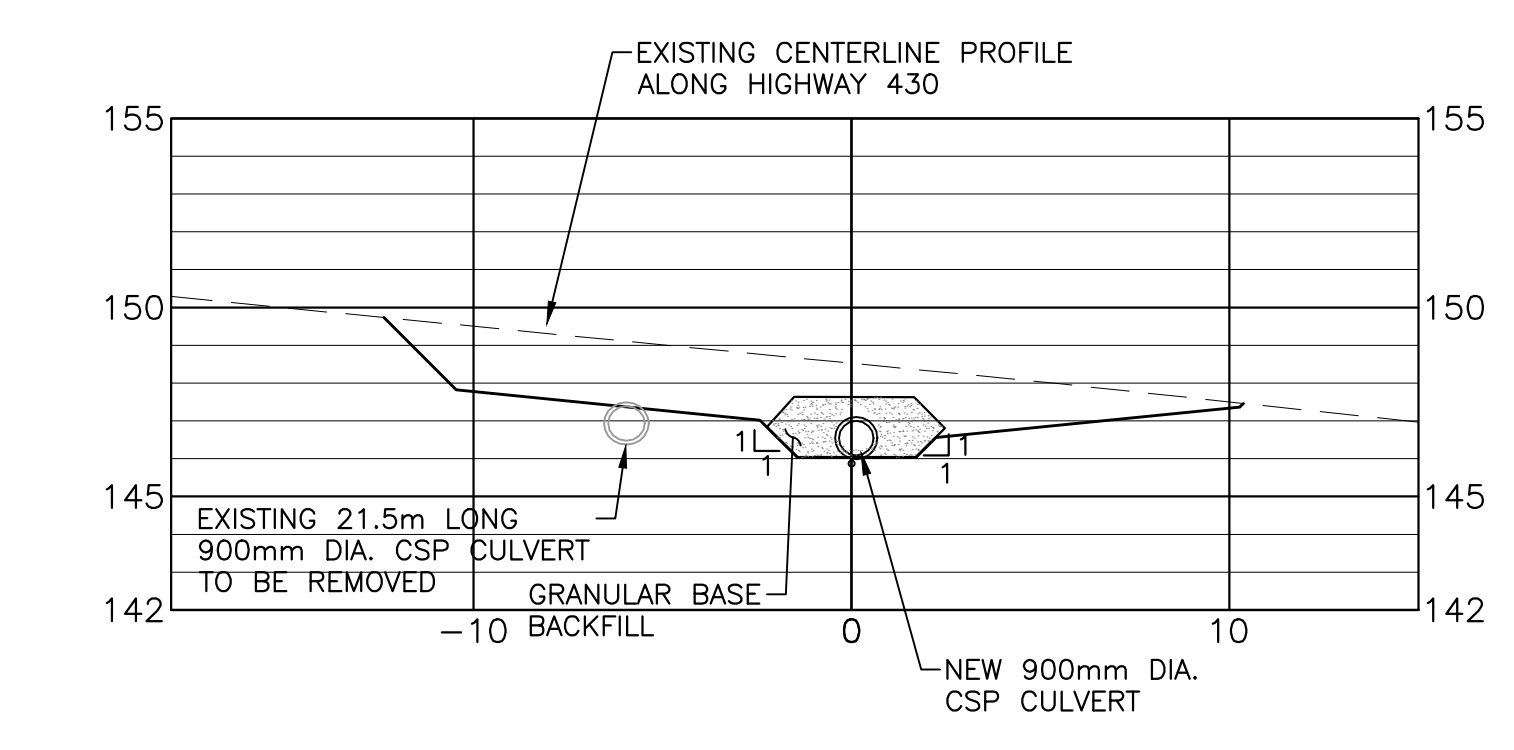
SCALE: 1:200

Point #	Raw Description	Easting	Northing	Elevation
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6	HWY 430 CL	452017.6625	5479034.0109	146.046
7	OUTLET	452012.6595	5479044.5189	145.419



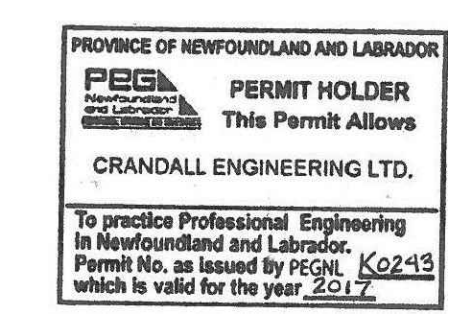
NEW 900mm DIA. CSP CULVERT STA 9+118 - PROFILE VIEW

SCALE: 1:200



NEW 900mm DIA. CULVERT EXCAVATION LIMITS - SECTION VIEW

SCALE: 1:200

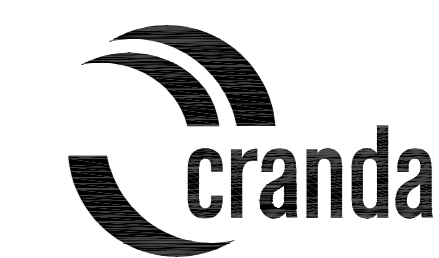


revisions	description	date
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0	ISSUED FOR 90% REVIEW	12/16/2016

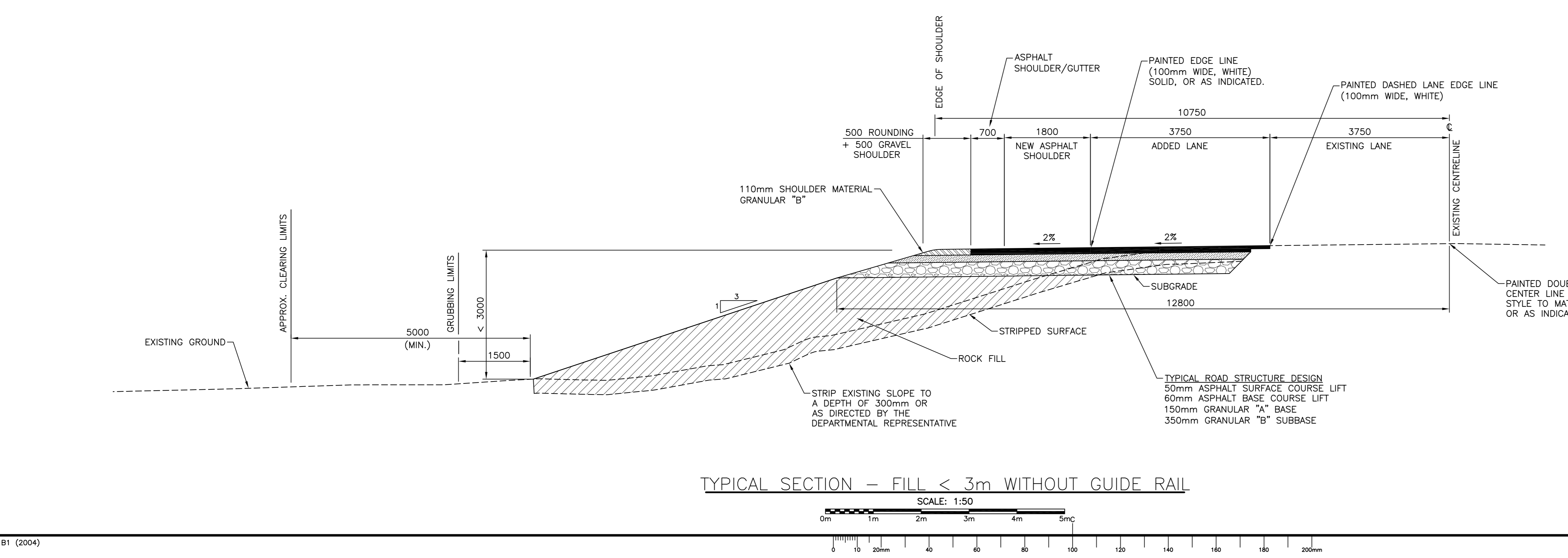
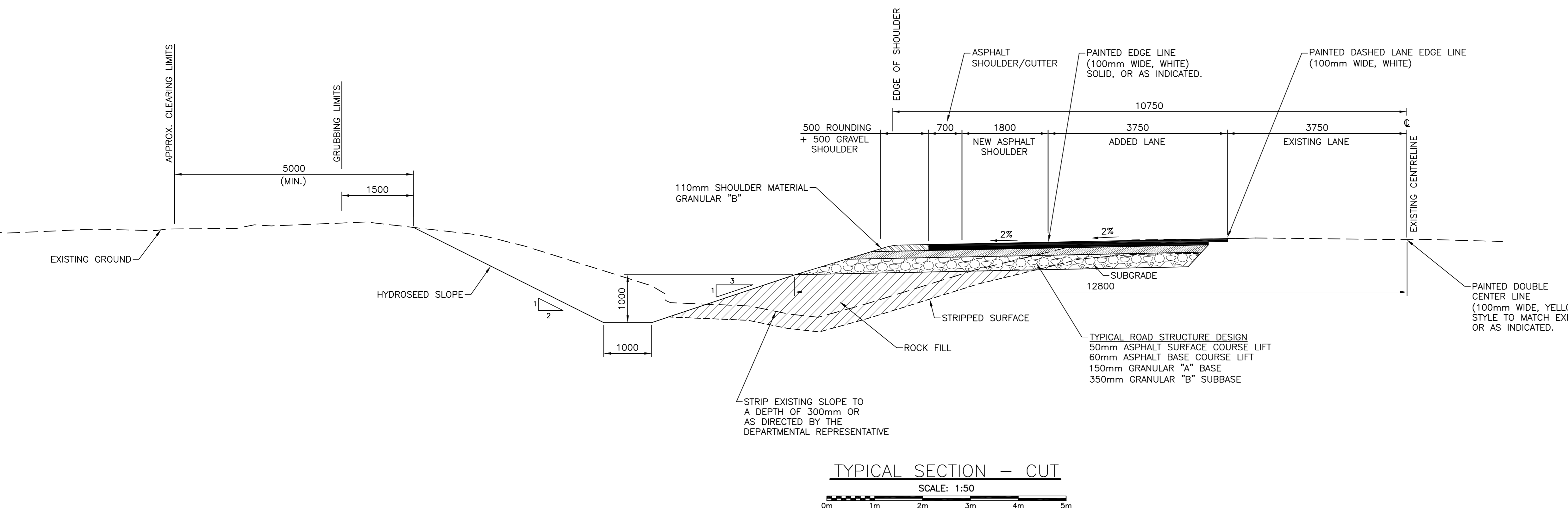
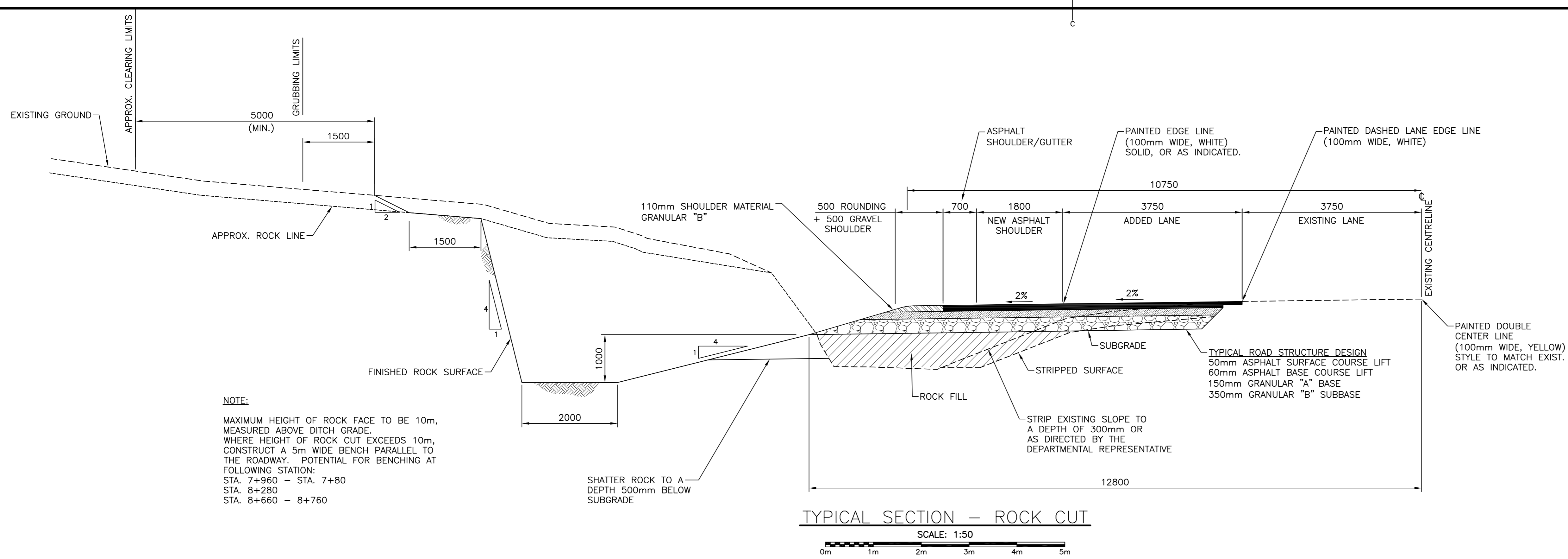
project HIGHWAY 430  
 project SAFETY AND STANDARDS  
 project REHABILITATION  
 project GROS MORNE  
 project NATIONAL PARK, NL

drawing HIGHWAY 430  
 design STA 9+118  
 design NEW 900mm DIA. CSP  
 design CULVERT PLAN AND  
 design PROFILE VIEWS

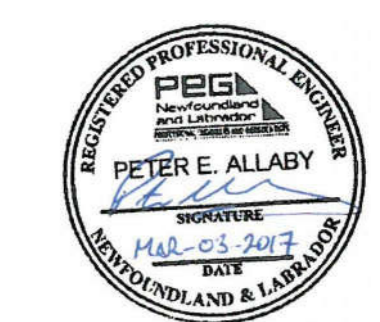
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approved PETER ALLABY, P.ENG.	approuvé
date AUGUST 29, 2016	
Tender	Submission
PCA Project Manager	Administrateur de projets PCA
project number	no. du projet
1418	
drawing no.	no. du dessin
C11	



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 FREDERICTON 514 Princes Street Suite 101 Fredericton, N.B. Canada E3B 1A1 Tel: (506) 451-4600 Fax: (506) 451-2200  
 CRANDALLENGINEERING.CA



PROVINCE OF NEWFOUNDLAND AND LABRADOR  
**P.E.G.** PERMIT HOLDER  
 This Permit Allows  
 CRANDALL ENGINEERING LTD.  
 To practice Professional Engineering  
 in Newfoundland and Labrador.  
 Permit No. as issued by P.E.G. K-02-13  
 which is valid for the year 2017.



revisions	date
3	ISSUED FOR TENDER 03/03/2017
2	ISSUED FOR 99% REVIEW 02/10/2017
1	ISSUED FOR 90% REVIEW 12/16/2016
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project  
**HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL**  
 project

designed PETER ALLABY, P.ENG. conçu  
 date AUGUST 29, 2016  
 drawn KEVIN WARD dessiné  
 date AUGUST 29, 2016  
 approved PETER ALLABY, P.ENG. approuvé  
 date AUGUST 29, 2016  
 Tender Soumission

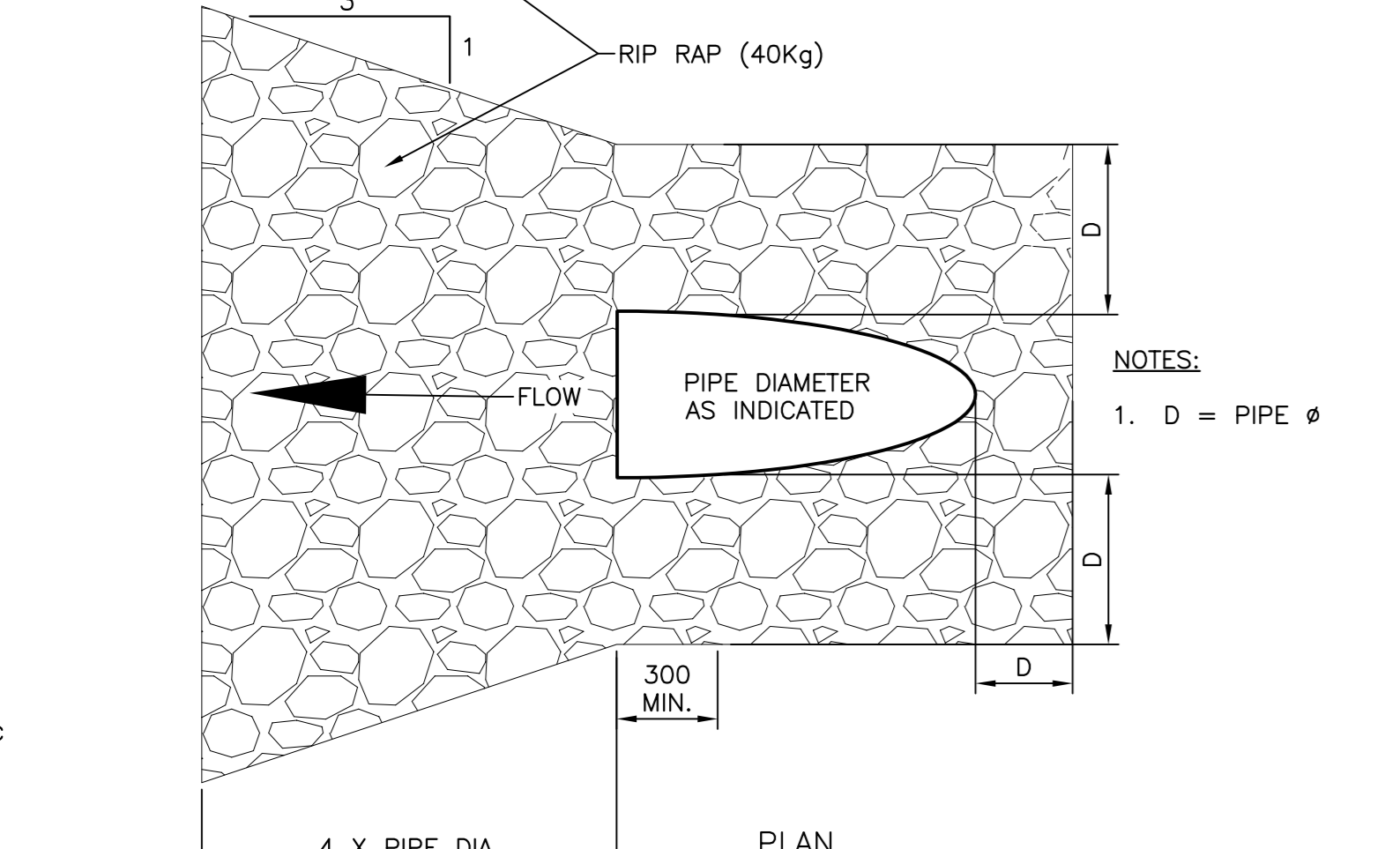
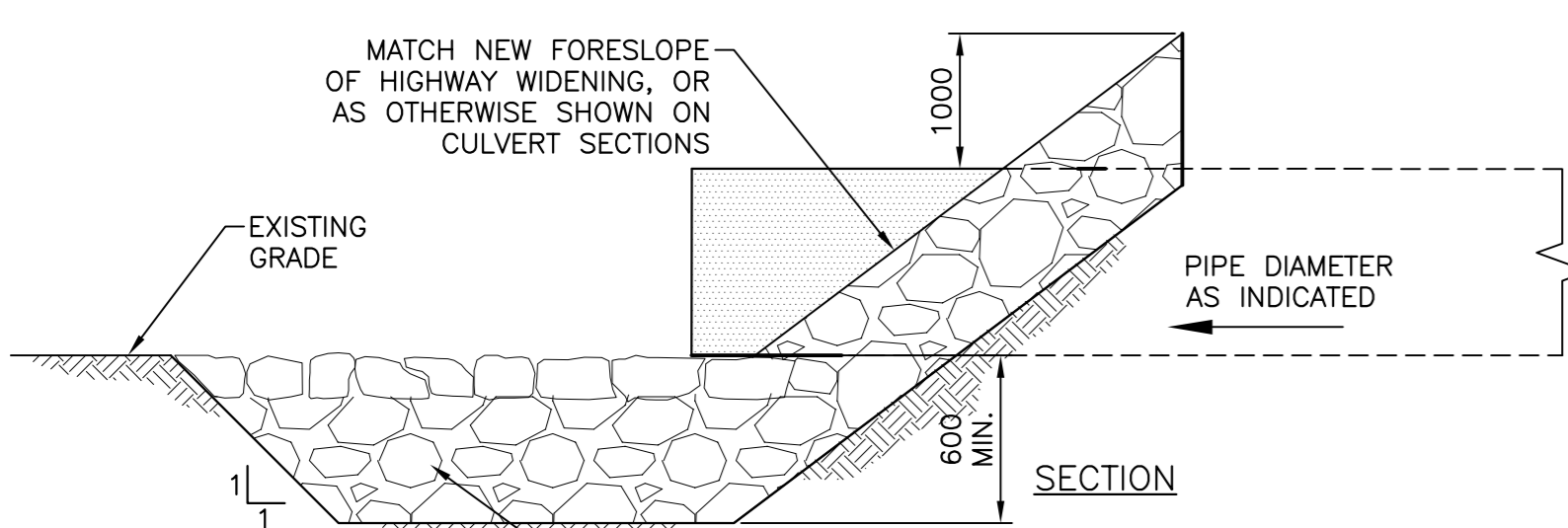
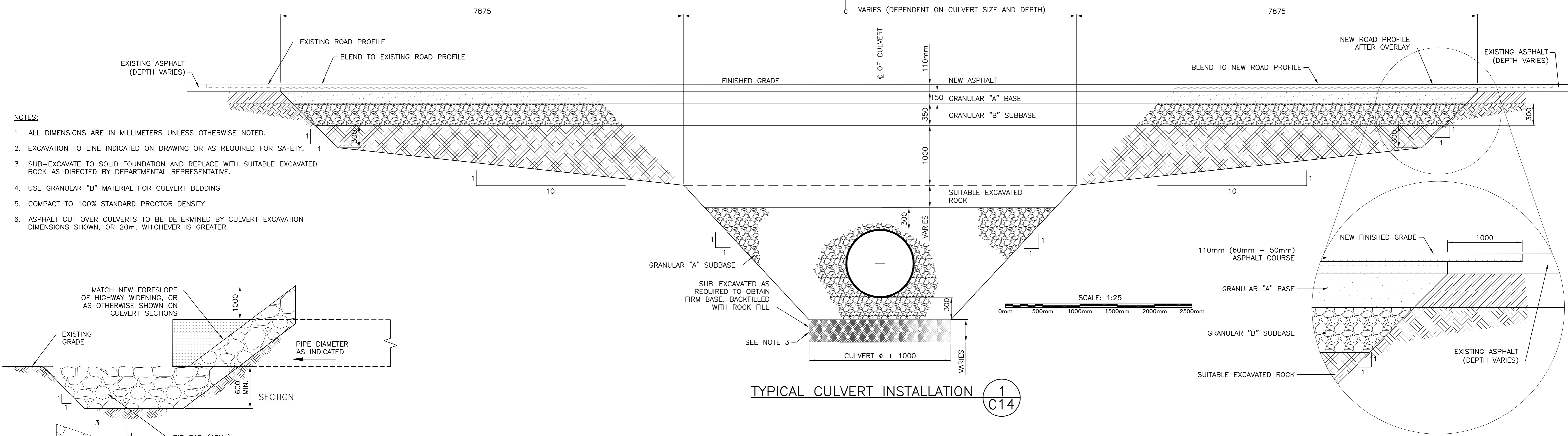
PCA Project Manager Administrateur de projets PCA  
 project number no. du projet  
**1418**  
 drawing no. no. du dessin  
**C12**



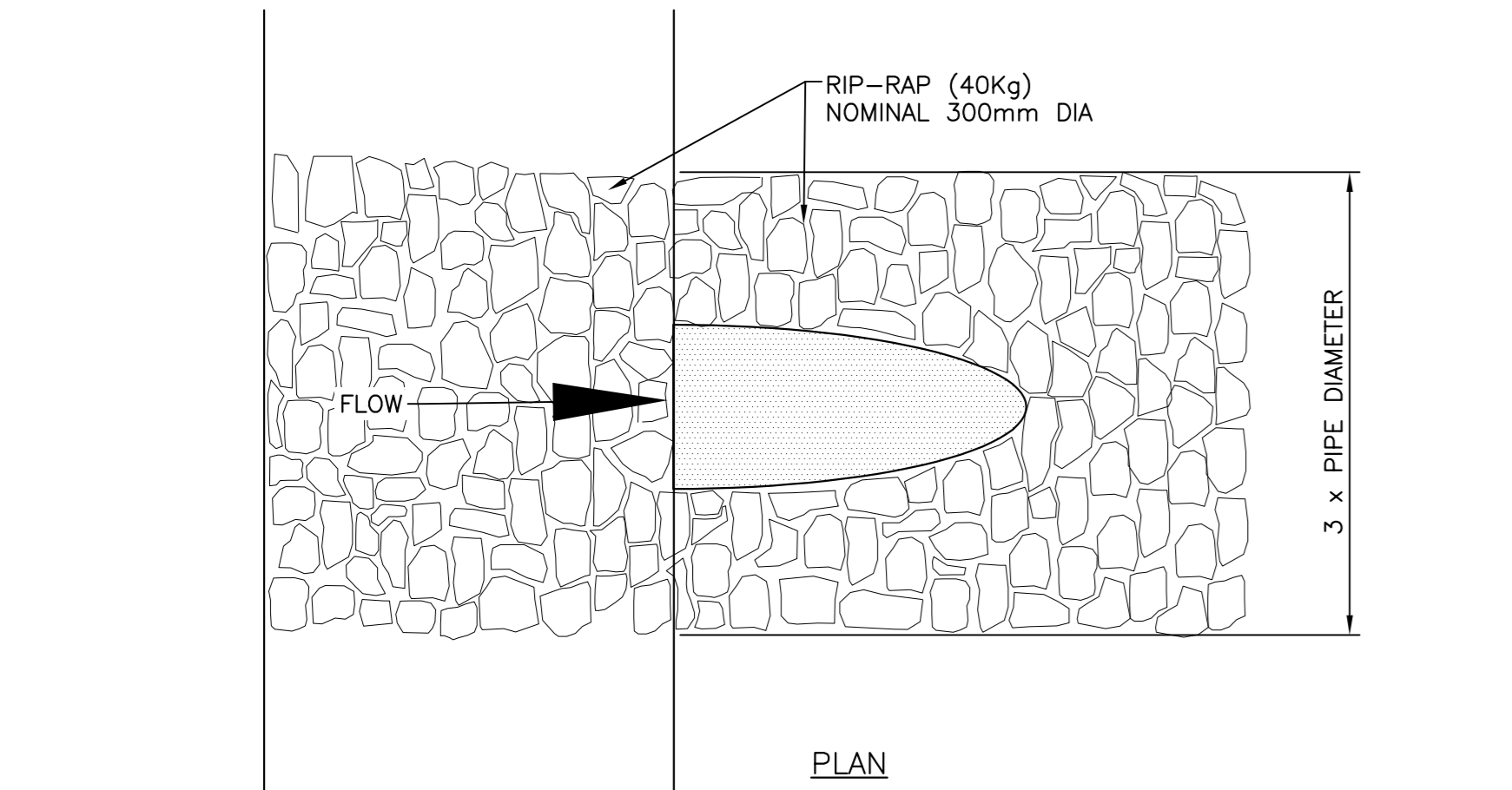
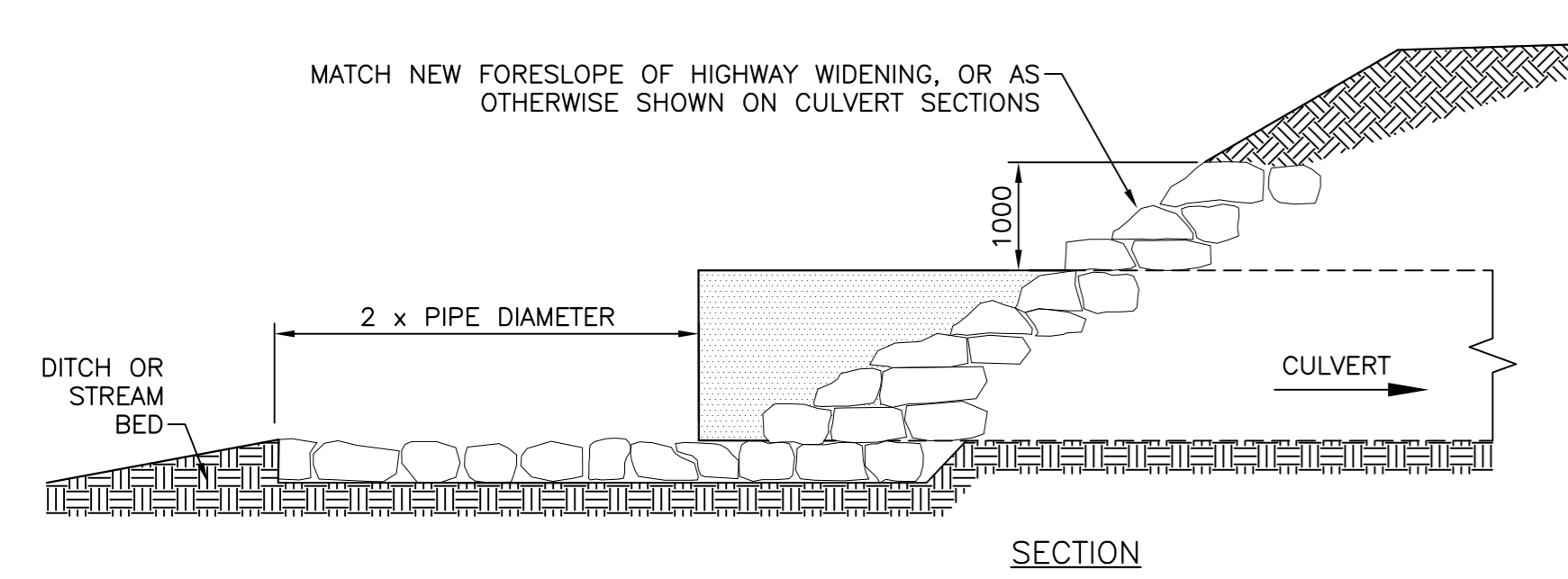


MONCTON 1077 Reg. St. George Blvd. Suite 400 Moncton, N.B. Canada E1C 9B5 Tel: (506) 851-2775 Fax: (506) 851-2755  
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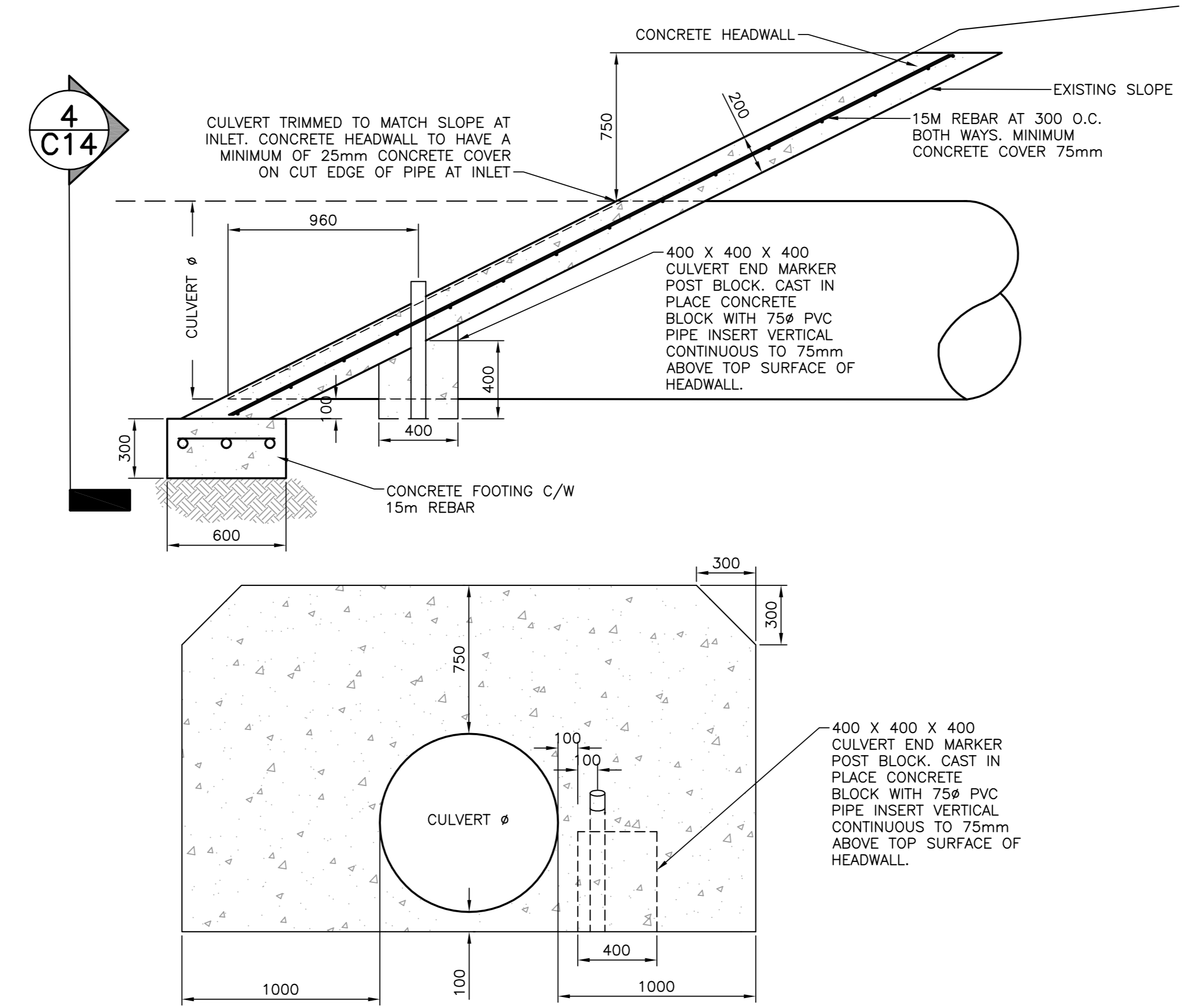
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
  2. EXCAVATION TO LINE INDICATED ON DRAWING OR AS REQUIRED FOR SAFETY.
  3. SUB-EXCAVATE TO SOLID FOUNDATION AND REPLACE WITH SUITABLE EXCAVATED ROCK AS DIRECTED BY DEPARTMENTAL REPRESENTATIVE.
  4. USE GRANULAR "B" MATERIAL FOR CULVERT BEDDING
  5. COMPACT TO 100% STANDARD PROCTOR DENSITY
  6. ASPHALT CUT OVER CULVERTS TO BE DETERMINED BY CULVERT EXCAVATION DIMENSIONS SHOWN, OR 20m, WHICHEVER IS GREATER.



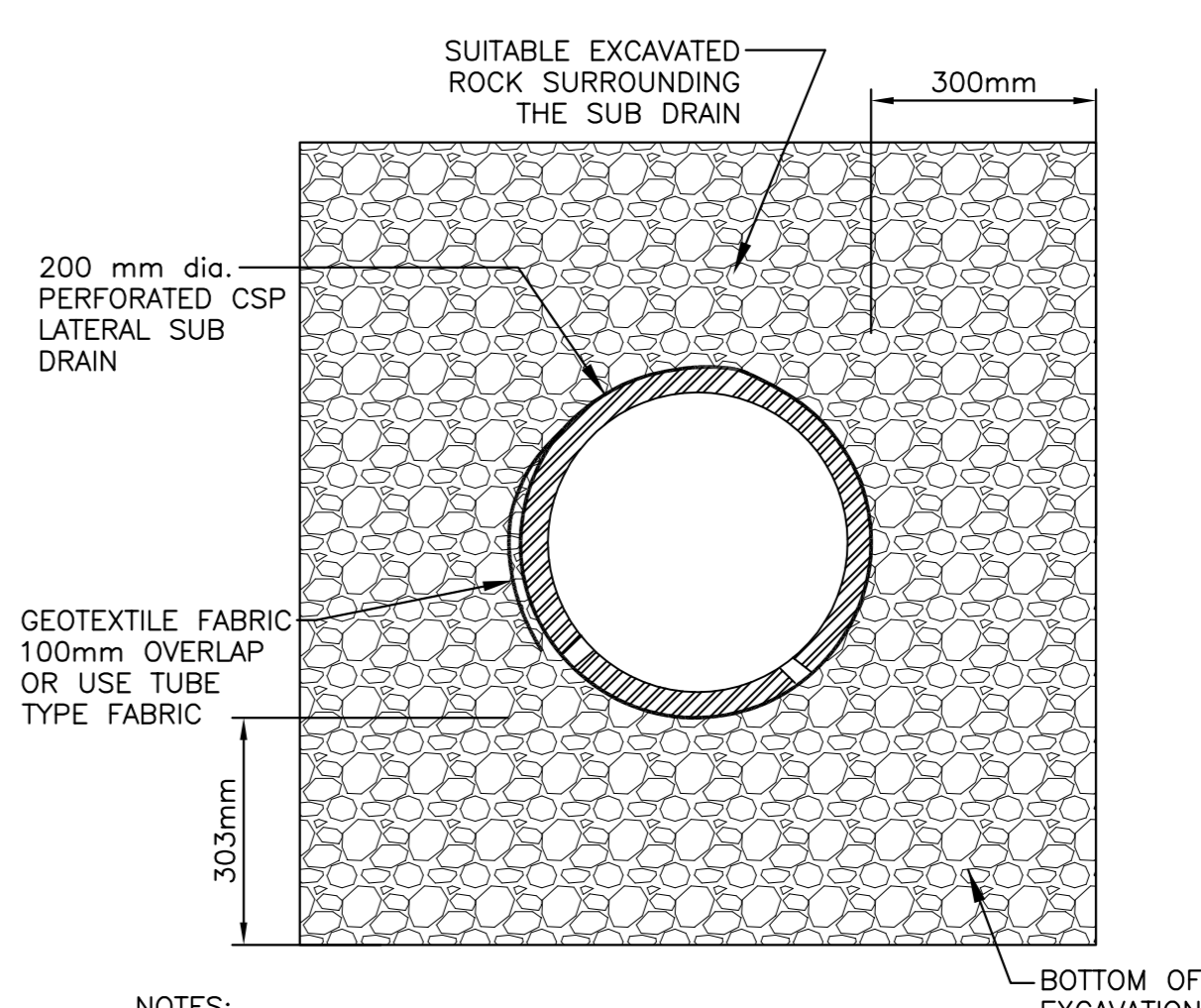
**RIP-RAP APRON AT CULVERTS OUTLET (TYP.)** SCALE : N.T.S. (3) C14



**RIP-RAP TREATMENT AT CULVERT INLET (TYP.)** SCALE : N.T.S. (2) C14

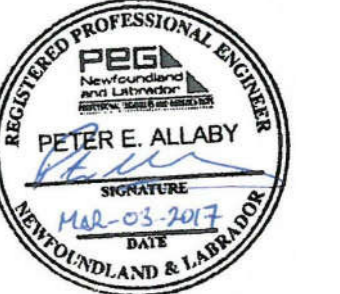


**CONCRETE HEADWALL (TYP.)** (4) C14 SCALE : 1:20



- NOTES:**
1. FASTEN FABRIC TO PIPE AT 600mm INTERVALS.
  2. SUBDRAINS TO BE PLACED AT A MINIMUM SLOPE OF 0.5%.
  3. SUBDRAINS TO BE PLACED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

**TRANSVERSE SUB-DRAIN DETAIL** SCALE : N.T.S.



revisions	date
3	ISSUED FOR TENDER 03/03/2017
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1	ISSUED FOR 90% REVIEW 12/16/2016
0	ISSUED FOR RS2 REVIEW 09/06/2016

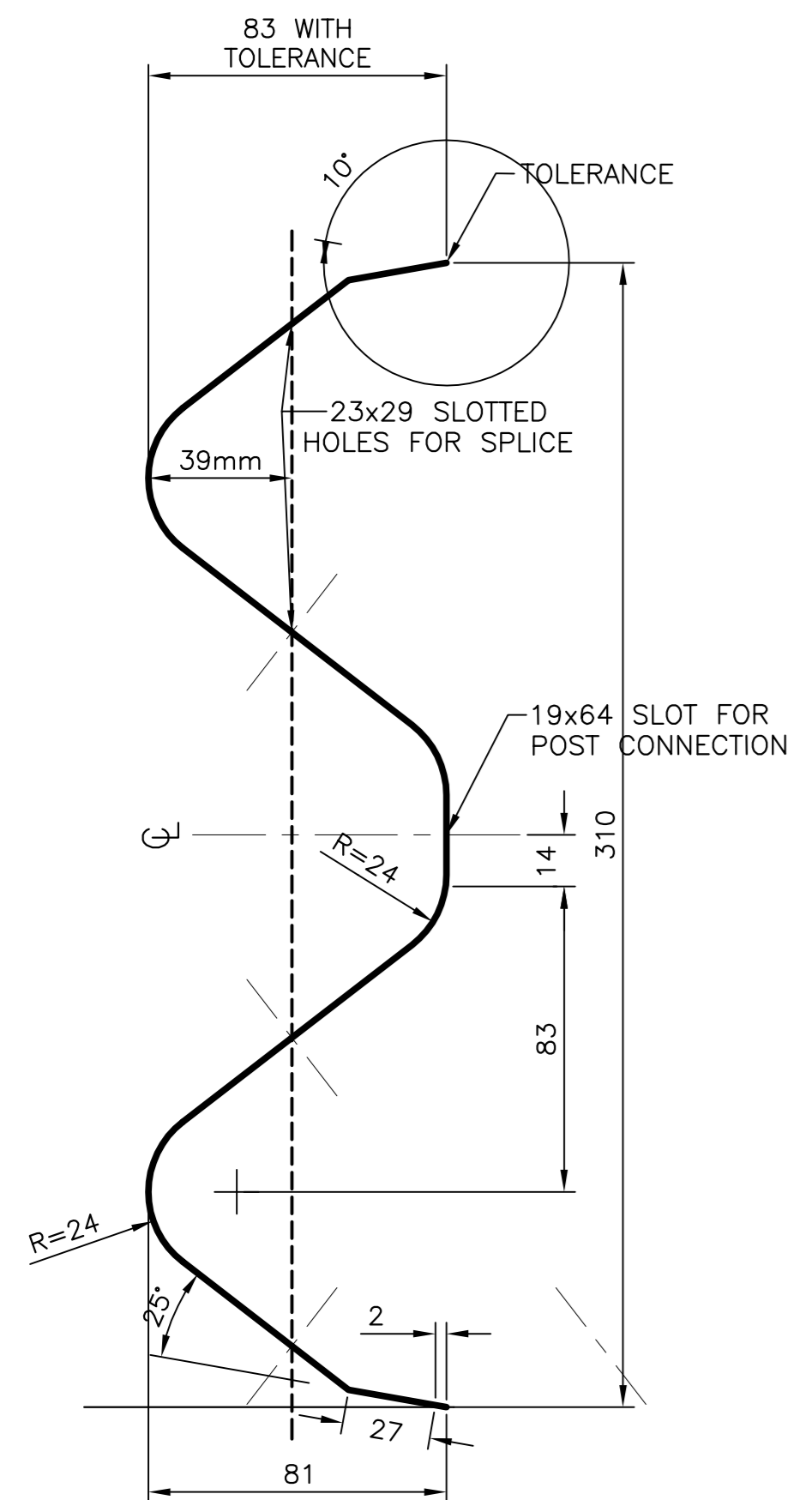
project **HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL** project

**CULVERT AND SUB-DRAIN DETAILS**

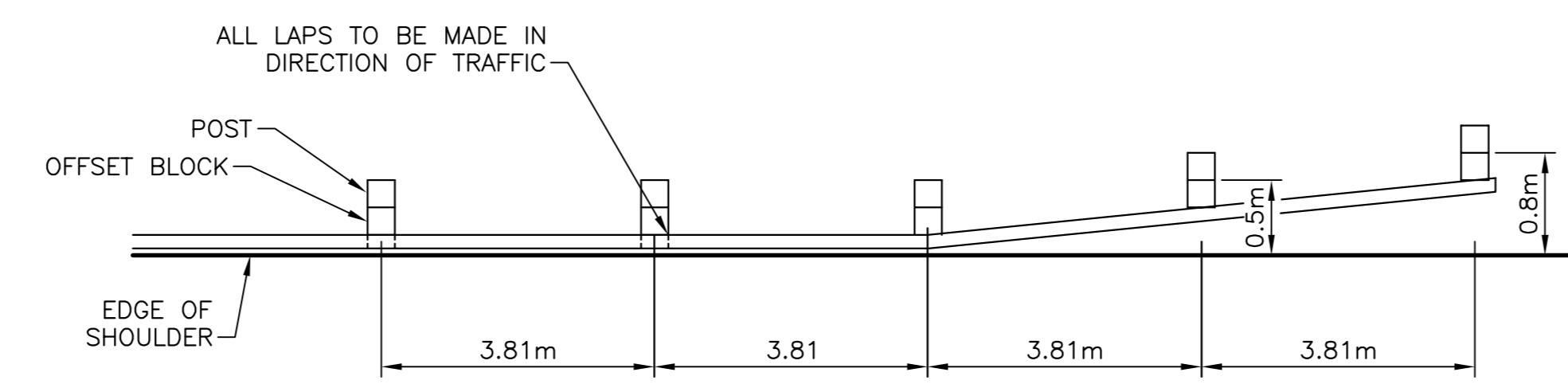
designed PETER ALLABY, P.ENG. conçu  
 date AUGUST 29, 2016  
 drawn KEVIN WARD dessiné  
 date AUGUST 29, 2016  
 approved PETER ALLABY, P.ENG. approuvé  
 date AUGUST 29, 2016

Tender  
 PCA Project Manager Administrateur de projets PCA  
 project number no. du projet **1418**

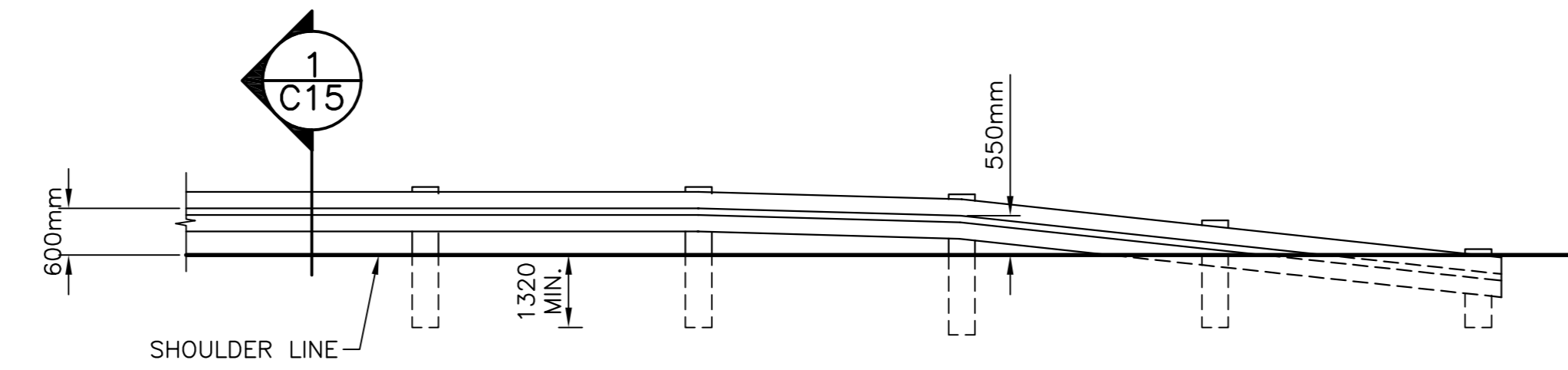
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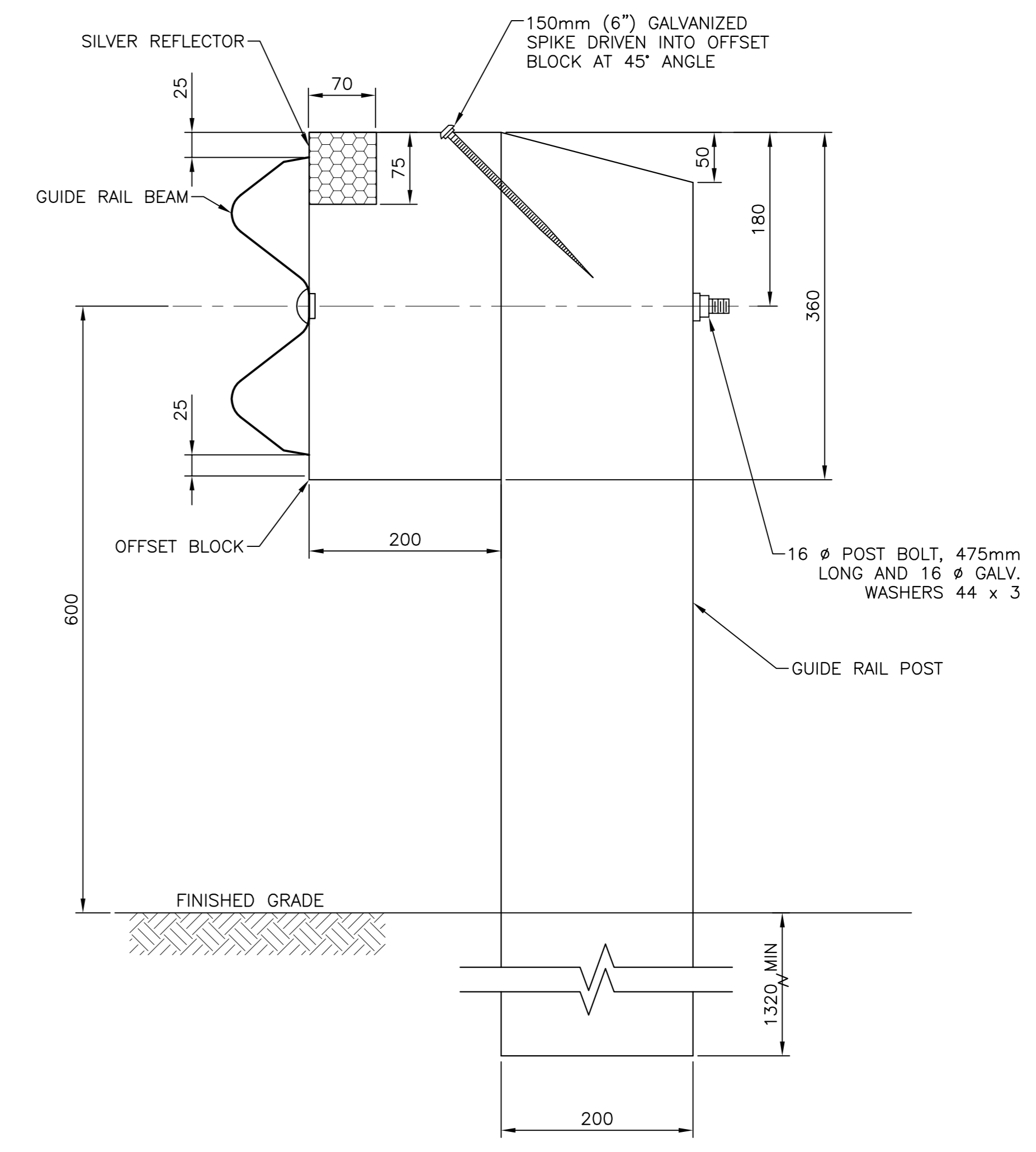
TYPICAL GUIDE RAIL BEAM SECTION  
SCALE : N.T.S. **C15**



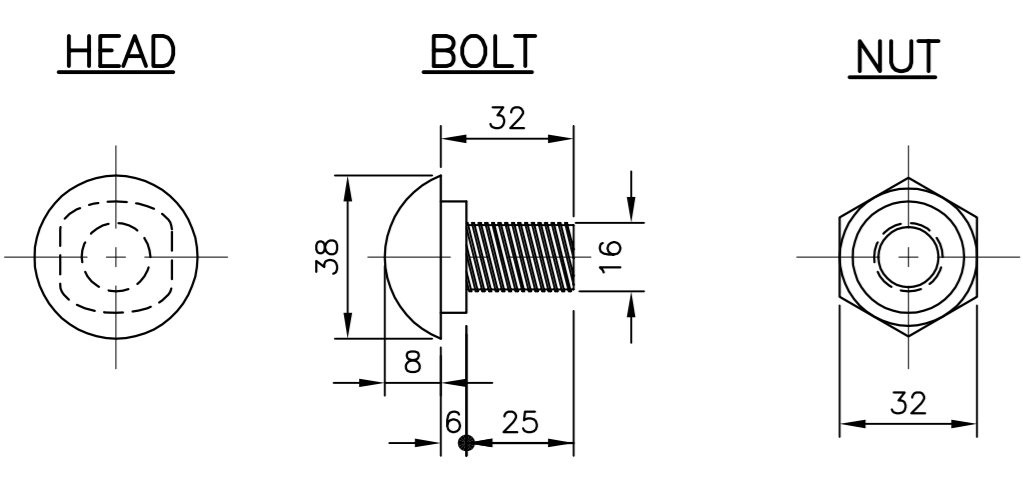
PLAN VIEW (END OF GUIDE RAIL)



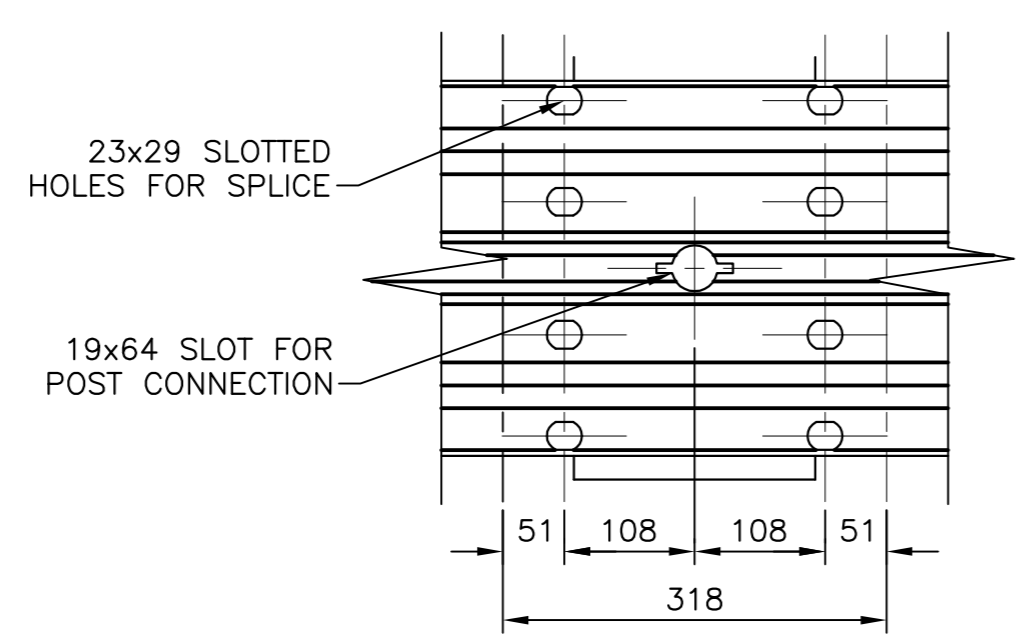
ELEVATION (END OF GUIDE RAIL)



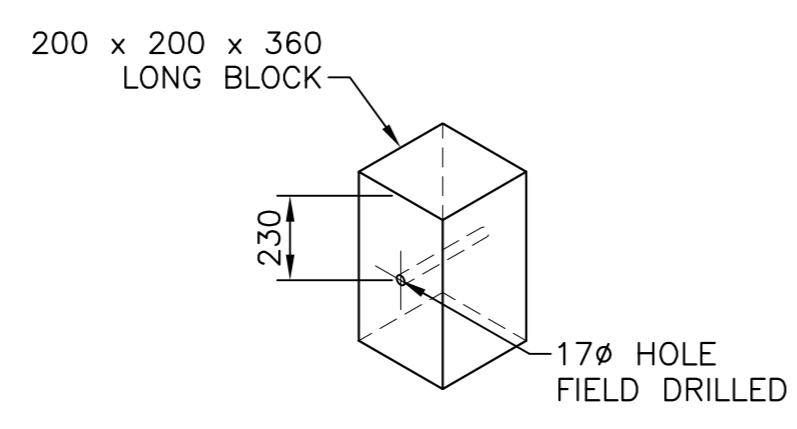
POST DETAIL



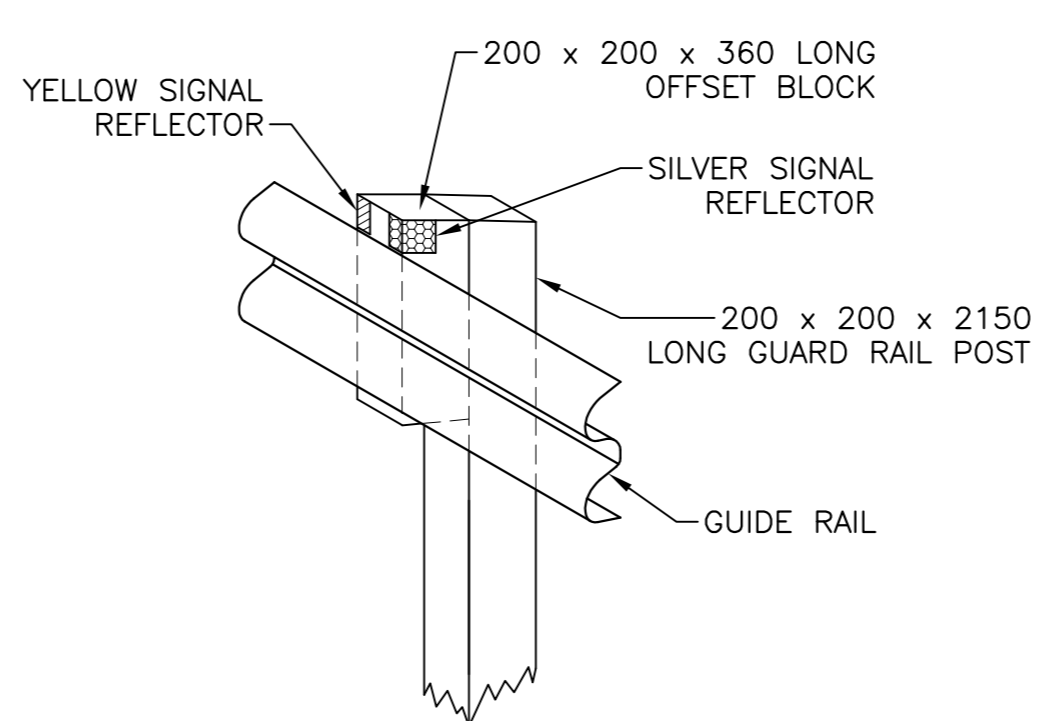
SPLICE BOLT DETAIL



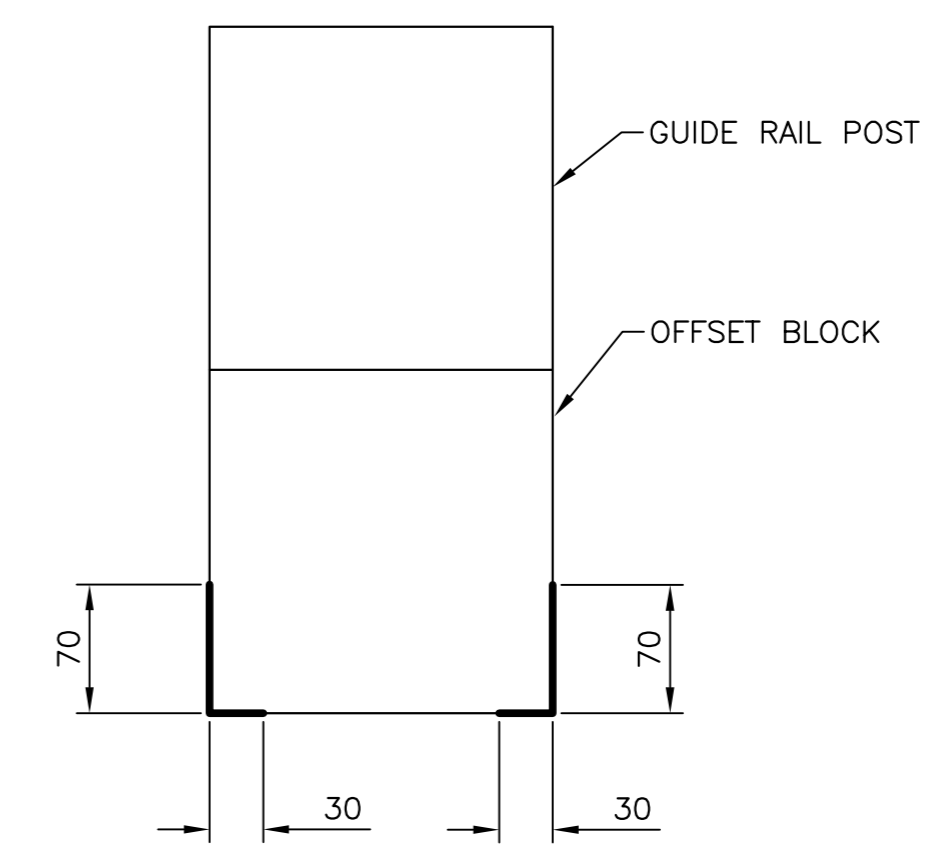
DETAIL OF BEAM SPLICE



OFFSET BLOCK DETAIL



SIGNAL REFLECTORS ON GUIDE RAIL POSTS



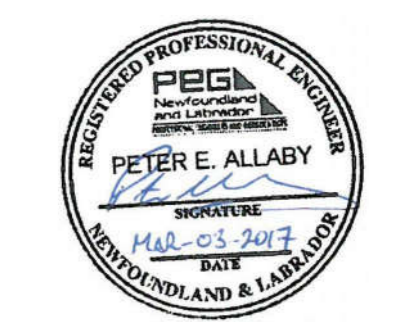
FRONT OF BLOCK (GUIDE RAIL NOT SHOWN)  
SILVER REFLECTOR ON RIGHT,  
YELLOW REFLECTOR ON LEFT  
TOP VIEW OF SIGNAL REFLECTORS ON GUIDE RAIL POSTS

- NOTES:
1. IF REQUIRED RADIUS OF CURVATURE FOR RAIL IS LESS THAN 45m, FLEX BEAM MUST BE ORDERED BY SPECIFIC RADIUS SO IT CAN BE CURVED IN SHOP. STATE WHETHER TRAFFIC FACE IS CONVEX OR CONCAVE.
  2. FOR STRONG POST GUIDE RAIL SYSTEM, POST SPACING IS 1905mm

TYPICAL GUIDE RAIL DETAILS  
SCALE : N.T.S.



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 FREDERICTON 534 Pringall Street Suite 103 Fredericton, N.B. Canada E1B 4G6 Tel: (506) 851-4600 Fax: (506) 851-2500  
 CRANDALLENGINEERING.CA



revisions	date
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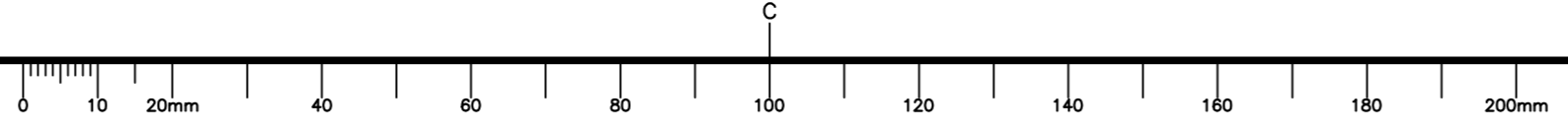
project HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL

TYPICAL GUIDE RAIL DETAILS

designed PETER ALLABY, P.ENG. conçu  
 date DECEMBER 12, 2016  
 drawn KEVIN WARD dessiné  
 date DECEMBER 12, 2016  
 approved PETER ALLABY, P.ENG. approuvé  
 date DECEMBER 12, 2016  
 Tender Soumission

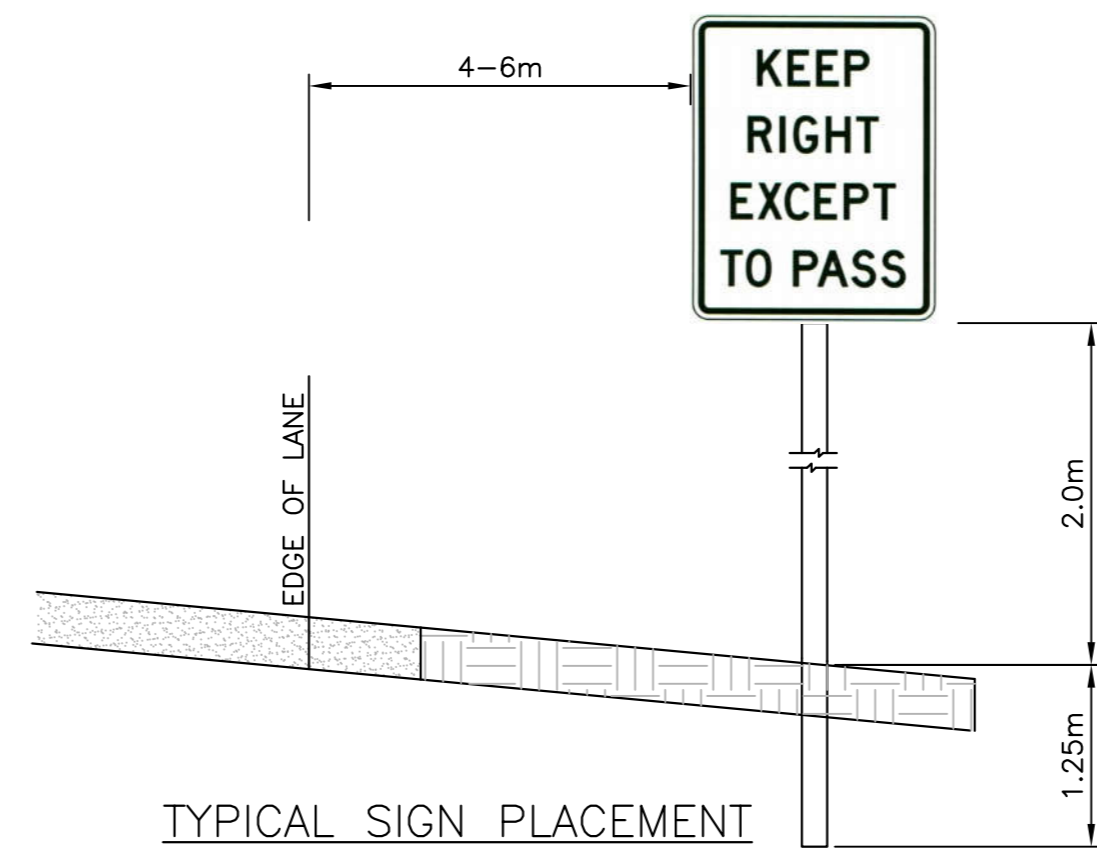
PCA Project Manager Administrateur de projets PCA  
 project number no. du projet  
 1418

drawing no. no. du dessin  
 C15





LONGITUDINAL AND TRANSVERSE PAVEMENT MARKINGS					
	NAME	LENGTH DIMENSIONS (m)	WIDTH DIMENSIONS (mm)	COLOUR	USE
①	DOUBLE CENTRELINE		100 100	YELLOW	DIRECTIONAL DIVIDING LINES
②	DOUBLE + BROKEN CENTRELINE		100 100	YELLOW	DIRECTIONAL DIVIDING LINES ALLOWING PASSING IN ONE DIRECTION
③	BROKEN CENTRELINE		100	YELLOW	DIRECTIONAL DIVIDING LINES ALLOWING PASSING IN BOTH DIRECTIONS
④	LANE EDGE AND BIKE LANE LINE		100	WHITE	LANE EDGE LINES, LINES PROHIBITING LANE CHANGES
⑤	LANE EDGE LINE, DASHED		100	WHITE	CONTINUITY LINES IN MERGING AND DIVerging AREAS, SPECIAL FUNCTION LANE LINES

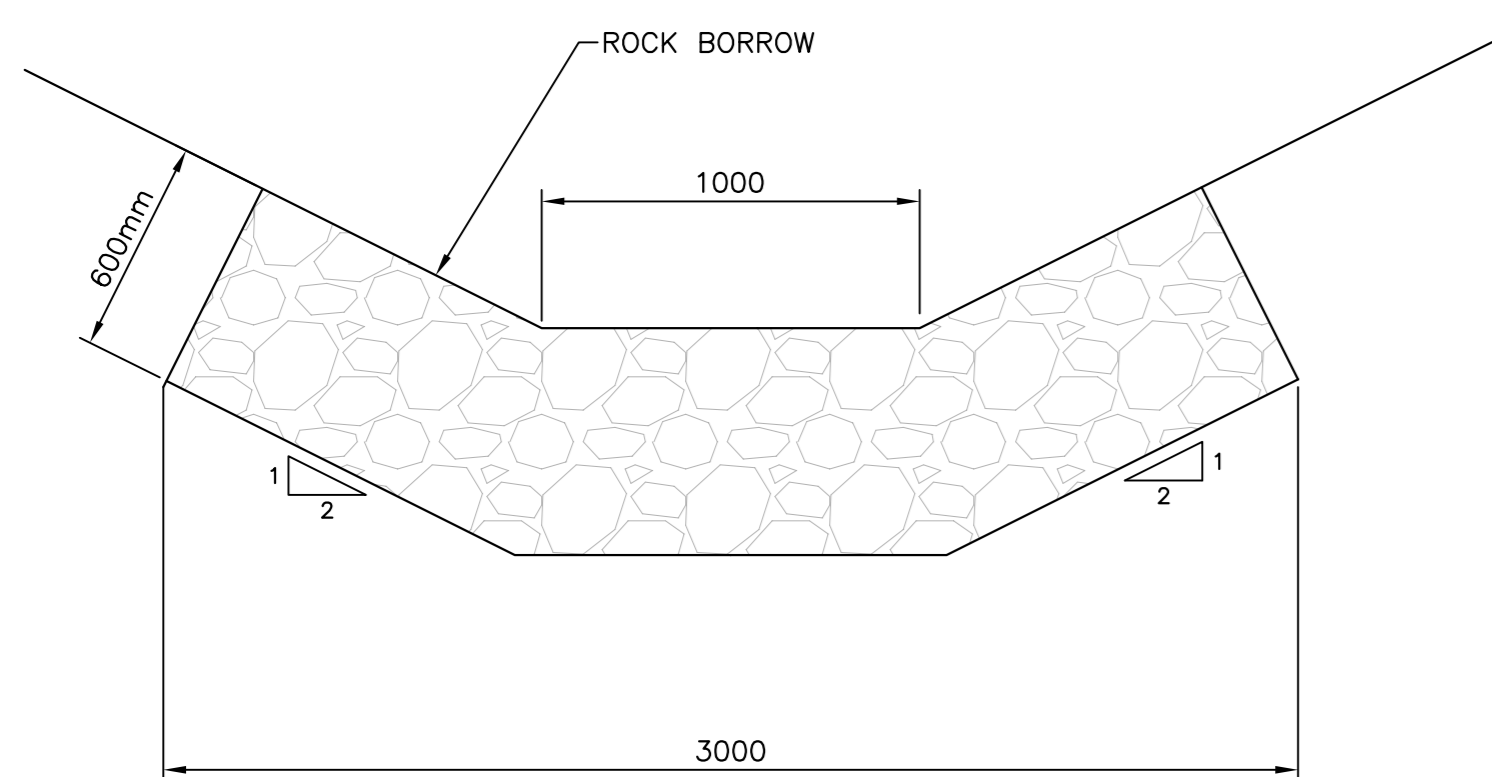


SIGNAGE SCHEDULE				
	SIGN	NAME	MUTCD CODE	SIZE
①		KEEP RIGHT EXCEPT TO PASS	RB-34	600mm x 750mm
②		PASSING LANE	RB-37	900mm x 900mm
③		PASSING LANE 2KM (TAB)	RB-37T	900mm x 600mm
④		YIELD CENTRE LANE TO OPPOSING TRAFFIC	RB-36	900mm x 1500mm

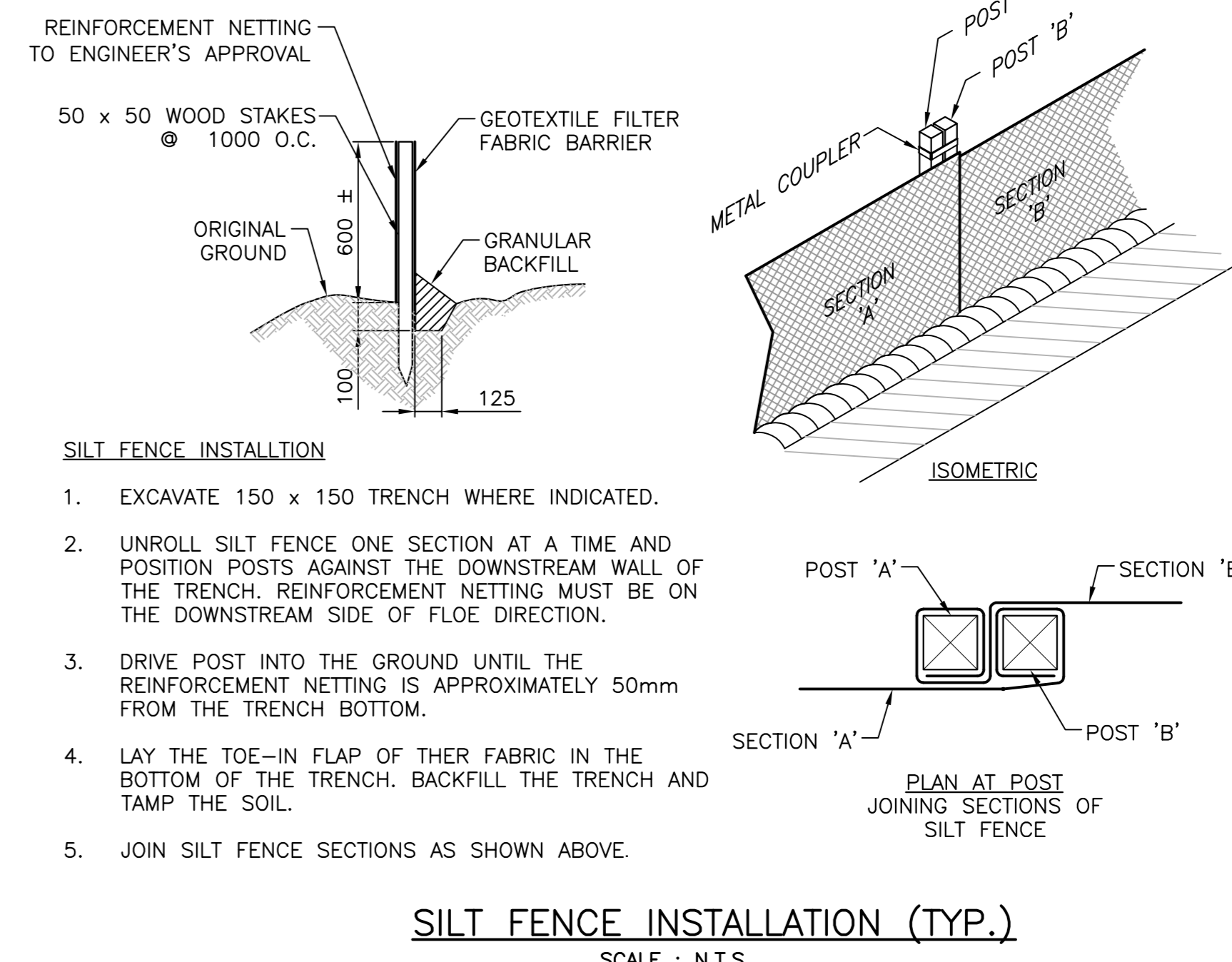
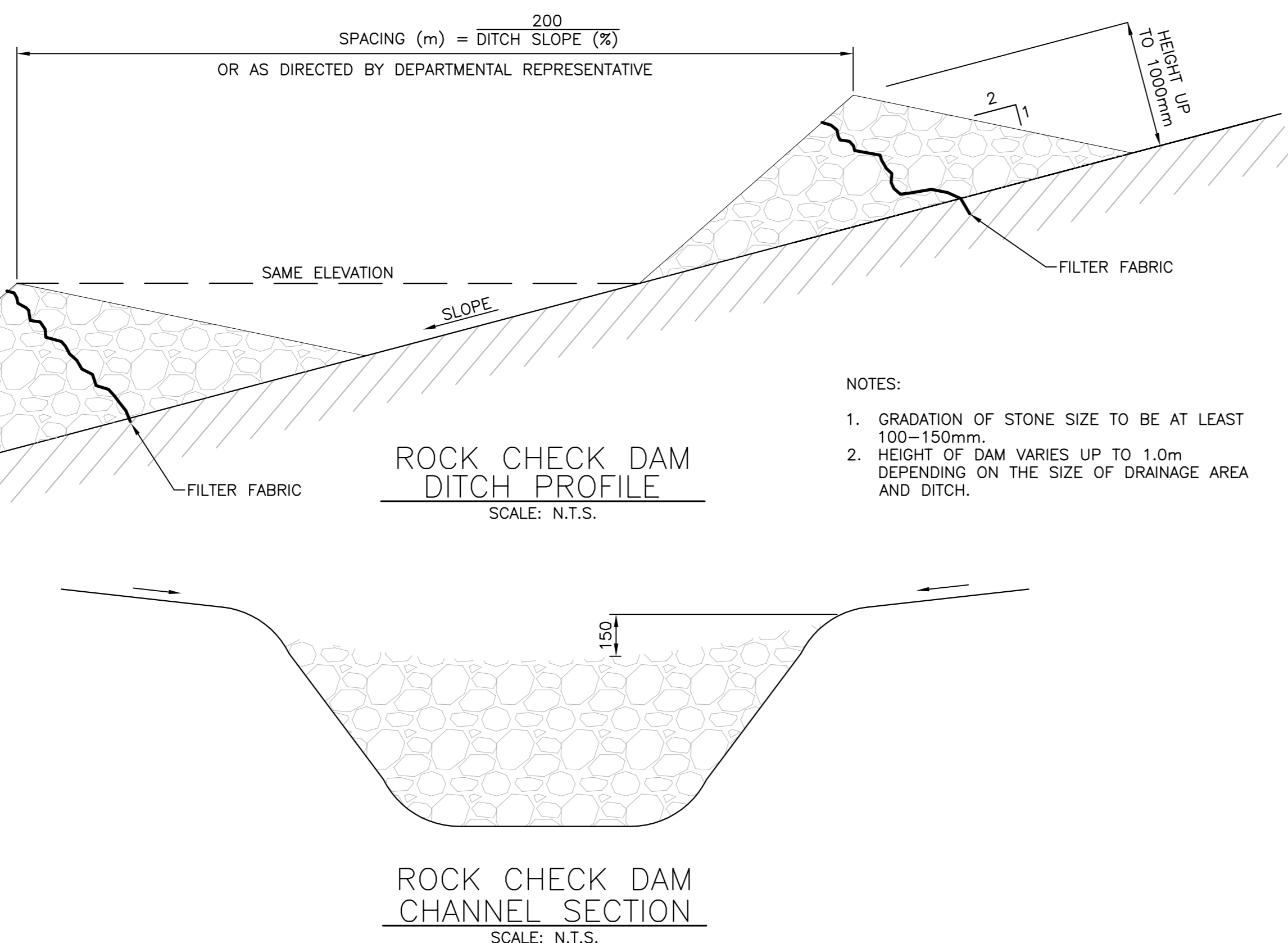
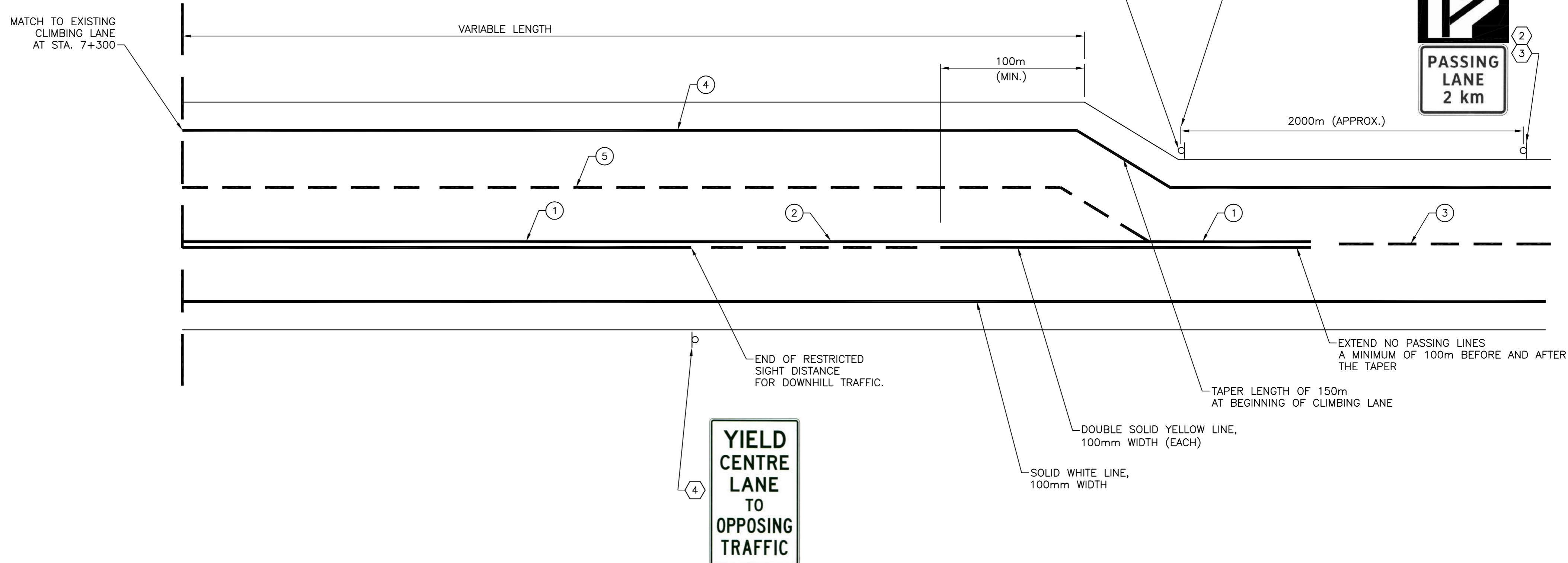


MONCTON 1077 St. George Blvd. Suite 400 St-Jean, N.B. Canada E1A 4E6 Tel: (506) 857-3772 Fax: (506) 857-3750  
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 CRANDALLENGINEERING.CA

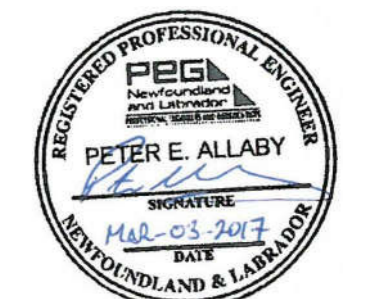
- NOTES:  
 1. APPLY ROCK LINED DITCH TO ALL EARTHEN DITCHES WITH SLOPE  $\geq$  5%.



ROCK LINED DITCH  
 SCALE: 1:20



PROVINCE OF NEWBRUNSWICK AND LABRADOR  
 PERMIT HOLDER  
 This Permit Allows  
 CRANDALL ENGINEERING LTD.  
 To practice Professional Engineering in New Brunswick and Labrador.  
 Permit No. as Issued by P.E.Q. 66243  
 which is valid for the year 2017.



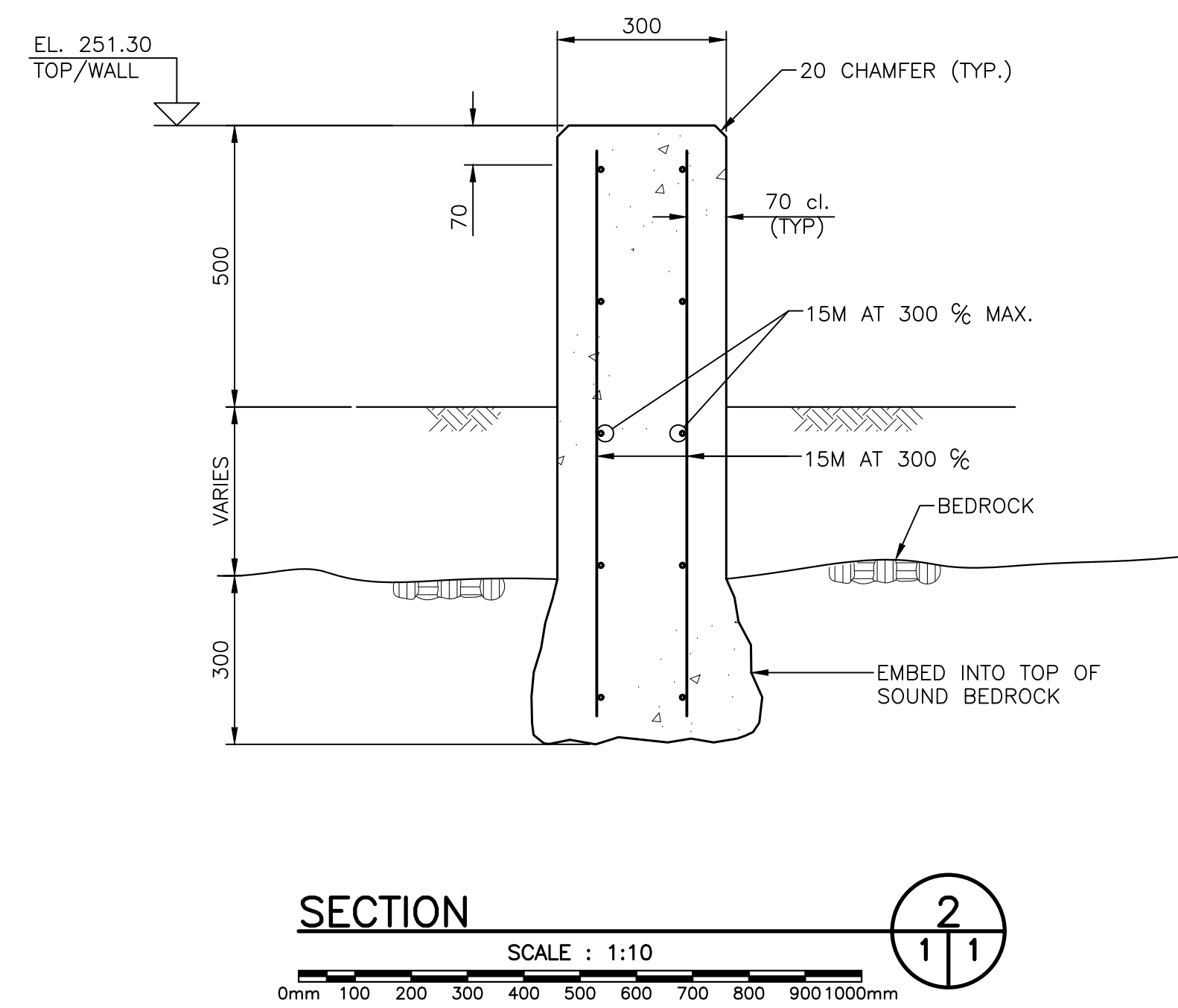
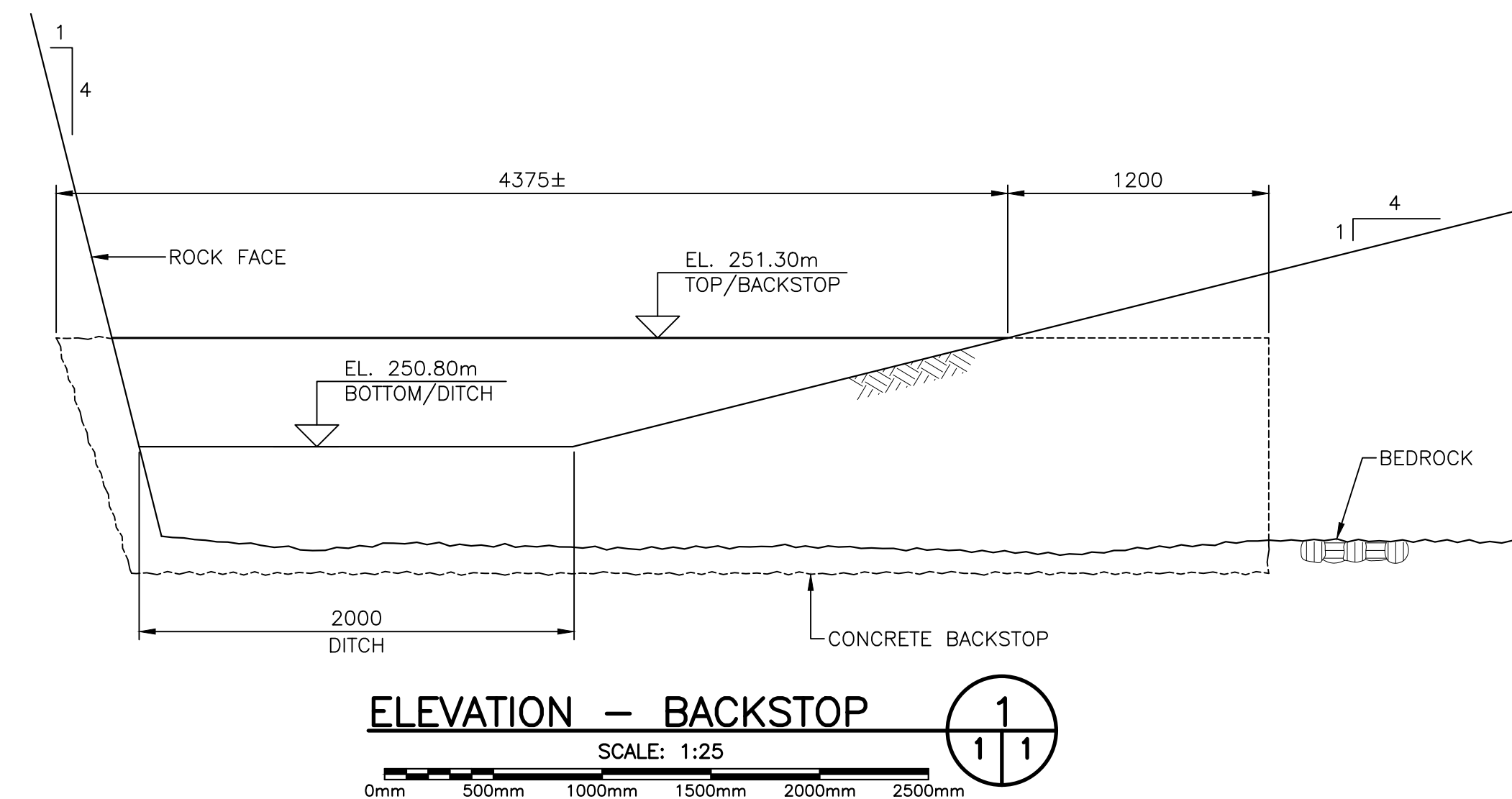
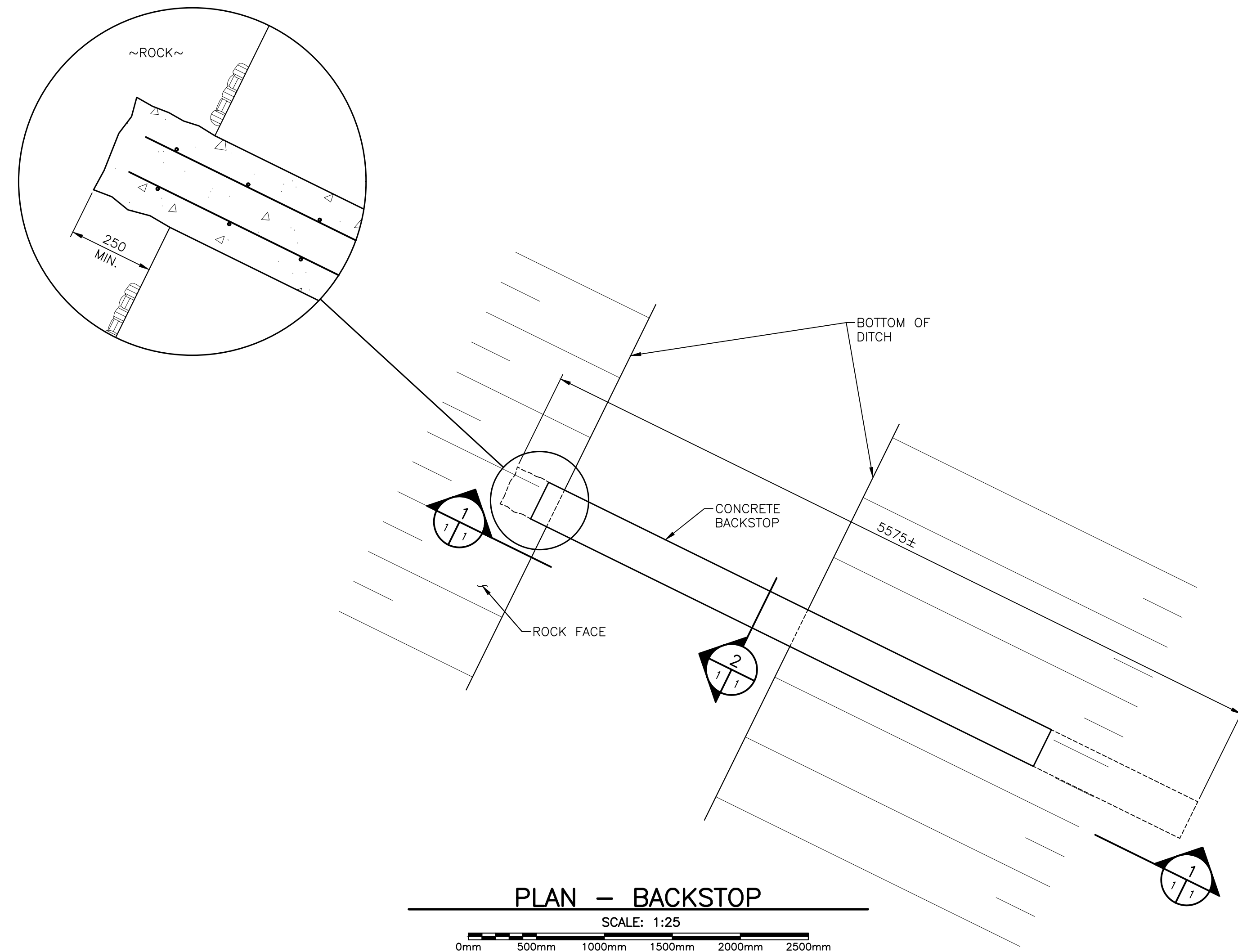
revisions	date
2	ISSUED FOR TENDER 03/03/2017
1	ISSUED FOR 99% REVIEW 02/10/2017

project  
 HIGHWAY 430 SAFETY AND STANDARDS REHABILITATION GROS MORNE NATIONAL PARK, NL  
 project

drawing  
 TYPICAL CLIMBING LANE PAVEMENT MARKINGS, SIGNAGE, AND EROSION CONTROL DETAILS  
 dessin

designed	PETER ALLABY, P.ENG.	conçu
date	JANUARY 20, 2017	
drawn	KEVIN WARD	dessiné
date	JANUARY 20, 2017	
approved	PETER ALLABY, P.ENG.	approuvé
date	JANUARY 20, 2017	

Tender  
 PWOSC Project Manager Administrateur de projets TPSCG  
 project number 1418  
 no. du projet  
 drawing no. C16  
 no. du dessin



PROVINCE OF NEWFOUNDLAND  
 PERMIT HOLDER  
 This Permit Allows  
 Valron Engineers Inc.  
 To practice Professional Engineering  
 in Newfoundland and Labrador.  
 Permit No. as issued by APEGN 20000  
 which is valid for this year 2017



0	ISSUED FOR TENDER	MAR 03 2017
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revisions		date
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project		projet
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HIGHWAY 430  
 SAFETY AND STANDARDS  
 REHABILITATION  
 GROS MORNE  
 NATIONAL PARK, NL

drawing		dessin
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HIGHWAY 430  
 CONCRETE BACKSTOP  
 PLAN AND PROFILE  
 STA. 8+103

designed RF		conçu
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date DEC. 2016	<i>Robert Vally</i>	date
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drawn CW		dessiné
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date DEC. 2016		date
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approved RBV	<i>Robert Vally</i>	approuvé
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date DEC. 2016		date
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Tender		Submission
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PWSC Project Manager	Administrateur de projets TPSCG
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project number	no. du projet
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1418

drawing no.	no. du dessin
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S01