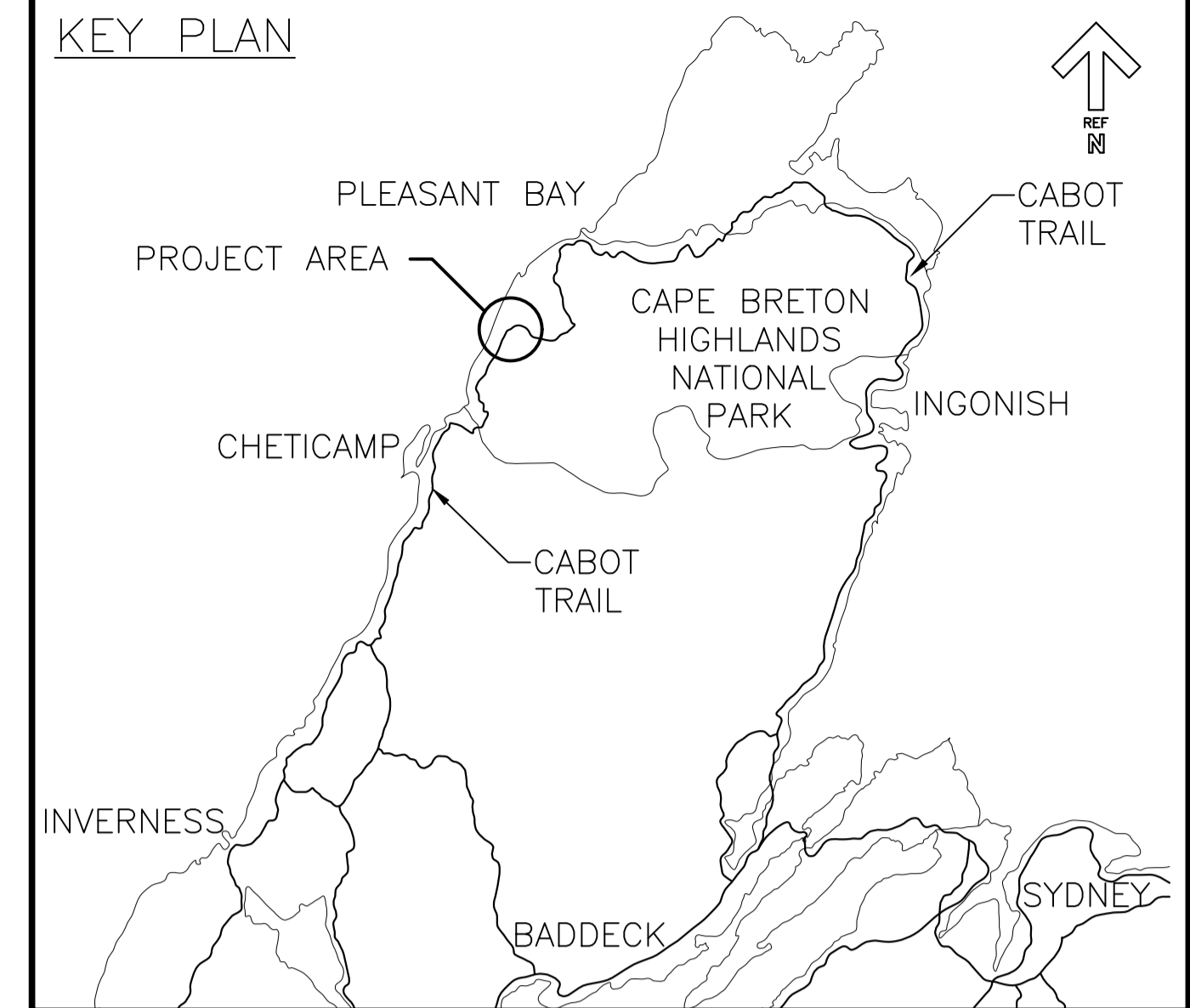




**Parks  
Canada**

**Parcs  
Canada**

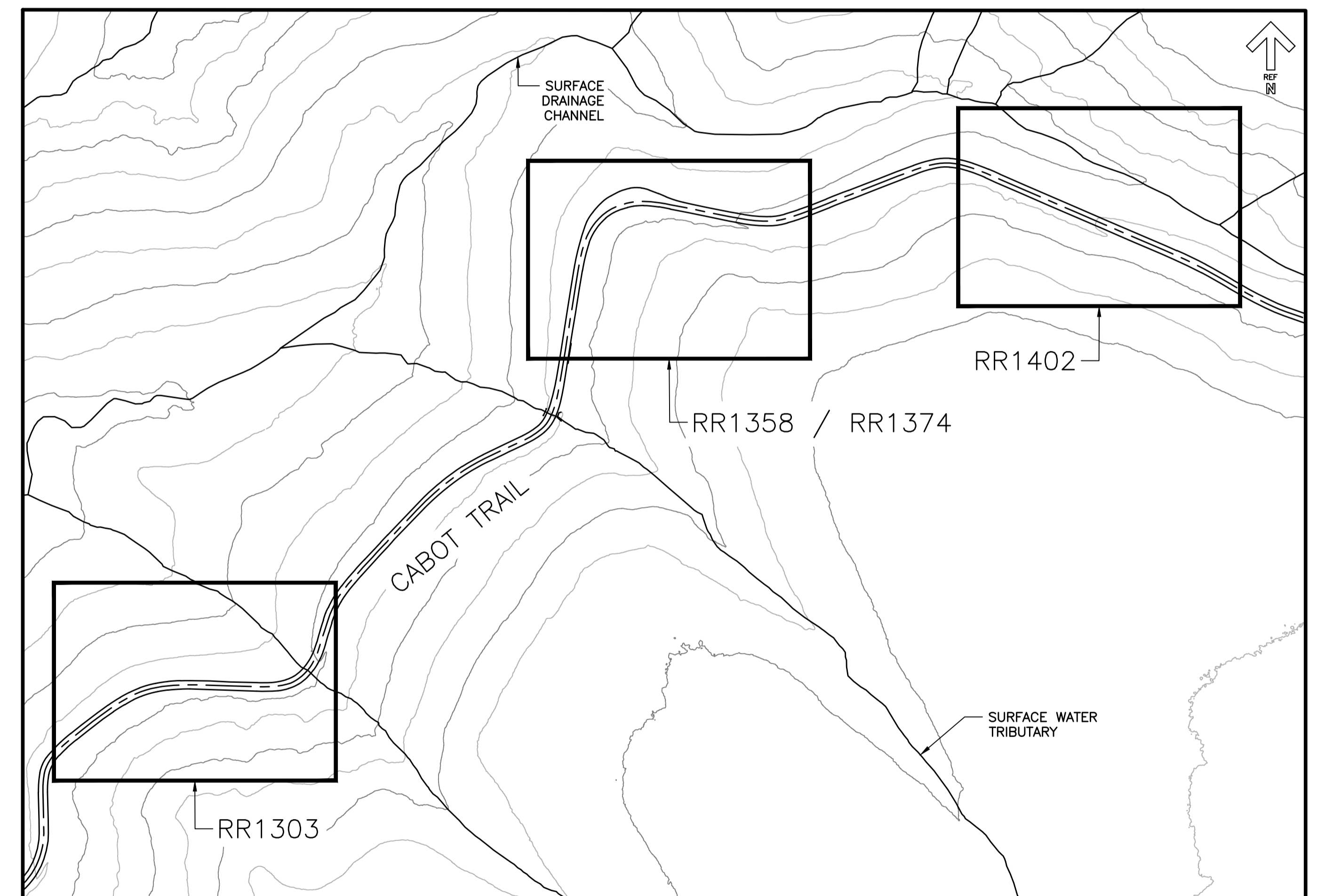


**PHASE 9 - FRENCH MOUNTAIN  
SLOPE STABILIZATION  
RR1303 / RR1358 / RR1372 / RR1402  
CAPE BRETON HIGHLANDS NATIONAL PARK  
INVERNESS COUNTY, NOVA SCOTIA**

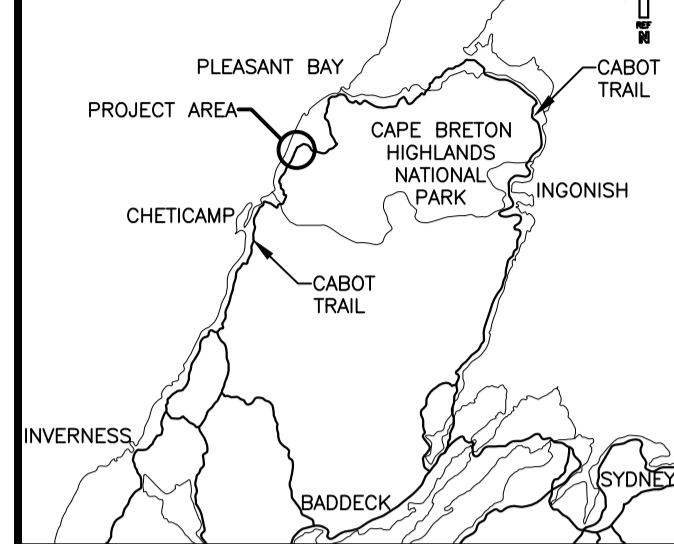
**PROJECT NO. 669**

**DRAWING LIST**

DWG. NO.	TITLE	DWG. NO.	TITLE
G01	RR1303 SITE PLAN	G08	RR1402 SECTIONS
G02	RR1303 SITE PHOTOGRAPHS	G09	RR1402 SITE PHOTOGRAPHS SHEET 1 OF 2
G03	RR1358 / RR1372 SITE PLAN	G10	RR1402 SITE PHOTOGRAPHS SHEET 2 OF 2
G04	RR1358 / RR1372 SECTIONS	G11	CONSTRUCTION NOTES & DETAILS SHEET 1 OF 2
G05	RR1358 SITE PHOTOGRAPHS	G12	CONSTRUCTION NOTES & DETAILS SHEET 2 OF 2
G06	RR1372 SITE PHOTOGRAPHS		
G07	RR1402 SITE PLAN		



KEY PLAN



0	ISSUED FOR TENDER	JUL 27 2020
revisions		date
project		proj

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

**RR1303  
SITE PLAN**

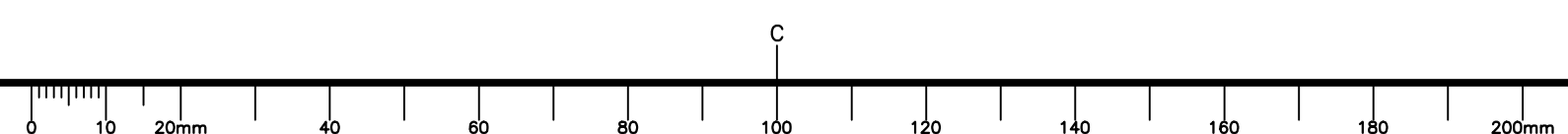
designed	J. MATTHEW	conçu
date	MAR. 3, 2020	
drawn	D. HENDERSON	dessiné
date	MAR. 4, 2020	
approved	M. MATTHEW	approuvé
date	JULY 27, 2020	
Tender	S. BABSTOCK	Submission
PCA Project Manager	Administrateur de projets TPSGC	
project number	669	no. du projet
drawing no.	G01	no. du dessin



PLAN VIEW RR1303

1  
G01

SCALE: 1:400



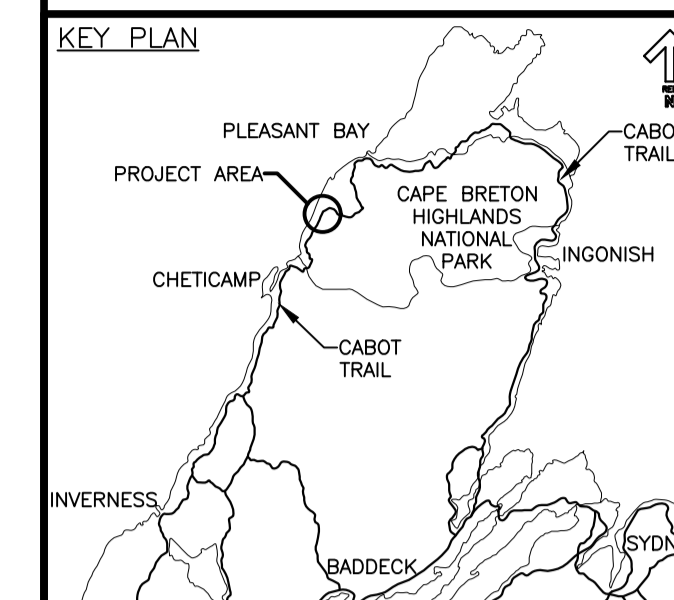


PHOTO 1: AERIAL VIEW RR1303 1  
G02

RR1303 – SLOPE CONDITIONS
SLOPE GEOMETRY IN AREA OF BUTTRESS (APPROX.)
SLOPE LENGTH: 50 m SLOPE HEIGHT: UP TO 20 m SLOPE ANGLE: 45° TO 75° (AVERAGE)
GEOHAZARD DESCRIPTION
<ul style="list-style-type: none"> <li>RAVELLING FROM THE ROCK FACE.</li> <li>ROCK CUT UNDERMINED AT PORTION OF THE TOE RESULTING IN A LARGE, UNSTABLE, OVERHANGING ROCK MASS.</li> <li>PREVIOUS SLOPE STABILIZATION WORK AT RR1303 INCLUDED SCALING, ANCHOR INSTALLATION, DITCH RESTORATION, AND PARTIAL COMPLETION OF REINFORCED CONCRETE BUTTRESS AT OVERHANGING ROCK MASS (INSTALLATION OF TOE PINS ONLY)</li> </ul>

RR1303 – REMEDIAL WORK		
KEY	EST. QUANTITY	
<span style="border: 1px dashed green; display: inline-block; width: 10px; height: 10px;"></span>	CONCRETE BUTTRESS	7 x $\Phi$ 26mm x 6 m LONG INCLINED ROCK DOWELS 70m <sup>3</sup> CONCRETE (FOR DETAILS REFER TO G12)



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project		projet

PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK

drawing dessin  
**RR1303  
SITE PHOTOGRAPHS**

designed J. MATTHEW	conçu
date MAR. 3, 2020	
drawn D. HENDERSON	dessiné
date MAR. 4, 2020	
approved M. MATTHEW	approuvé
date JULY 27, 2020	

Tender S. BABSTOCK	Soumission
PCA Project Manager Administrateur de projets TPSGC	
project number 669	no. du projet
drawing no. G02	no. du dessin



PHOTO 2: RR1303 2  
G02



PHOTO 3: RR1303 3  
G02

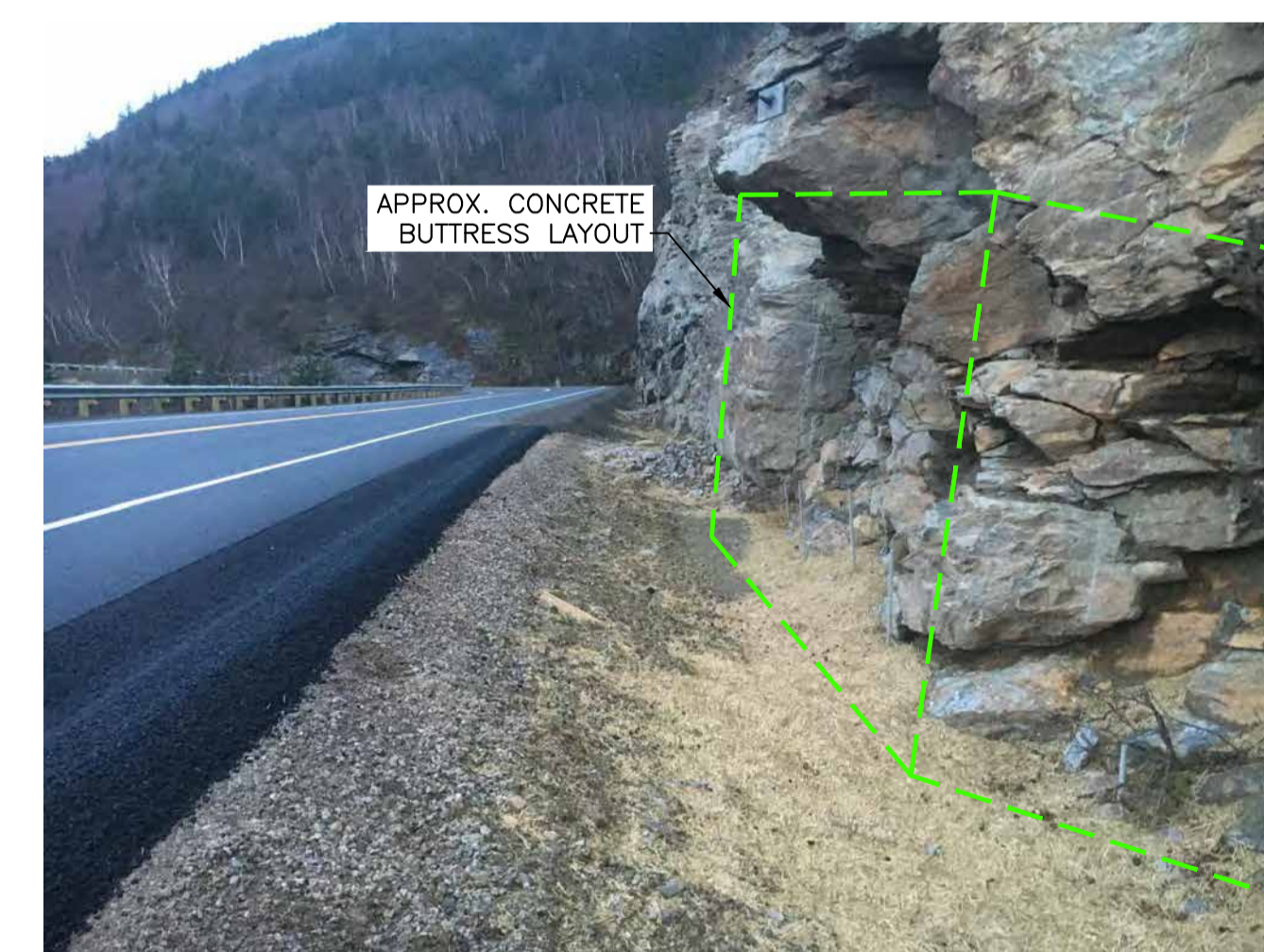
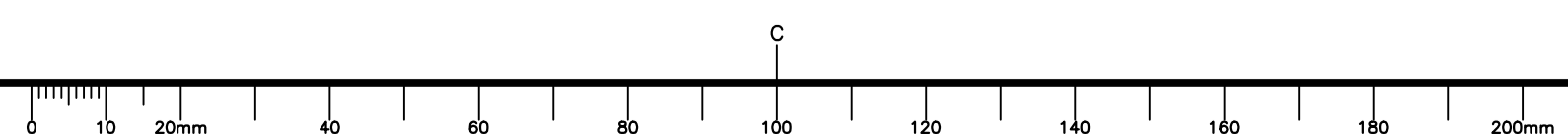
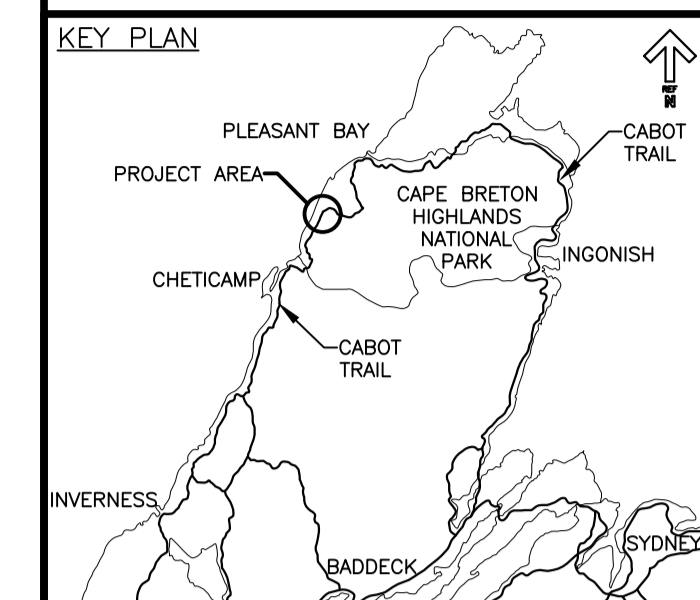


PHOTO 4: RR1303 4  
G02





0	ISSUED FOR TENDER	JUL 27 2020
revisions		date
project		projct

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

drawing dessin

**RR1358 / RR1372  
SITE PLAN**

designed J. MATTHEW conçu

date MARCH 3, 2020

drawn D. HENDERSON dessiné

date MARCH 4, 2020

approved M. MATTHEW approuvé

date JULY 27, 2020

Tender Soumission

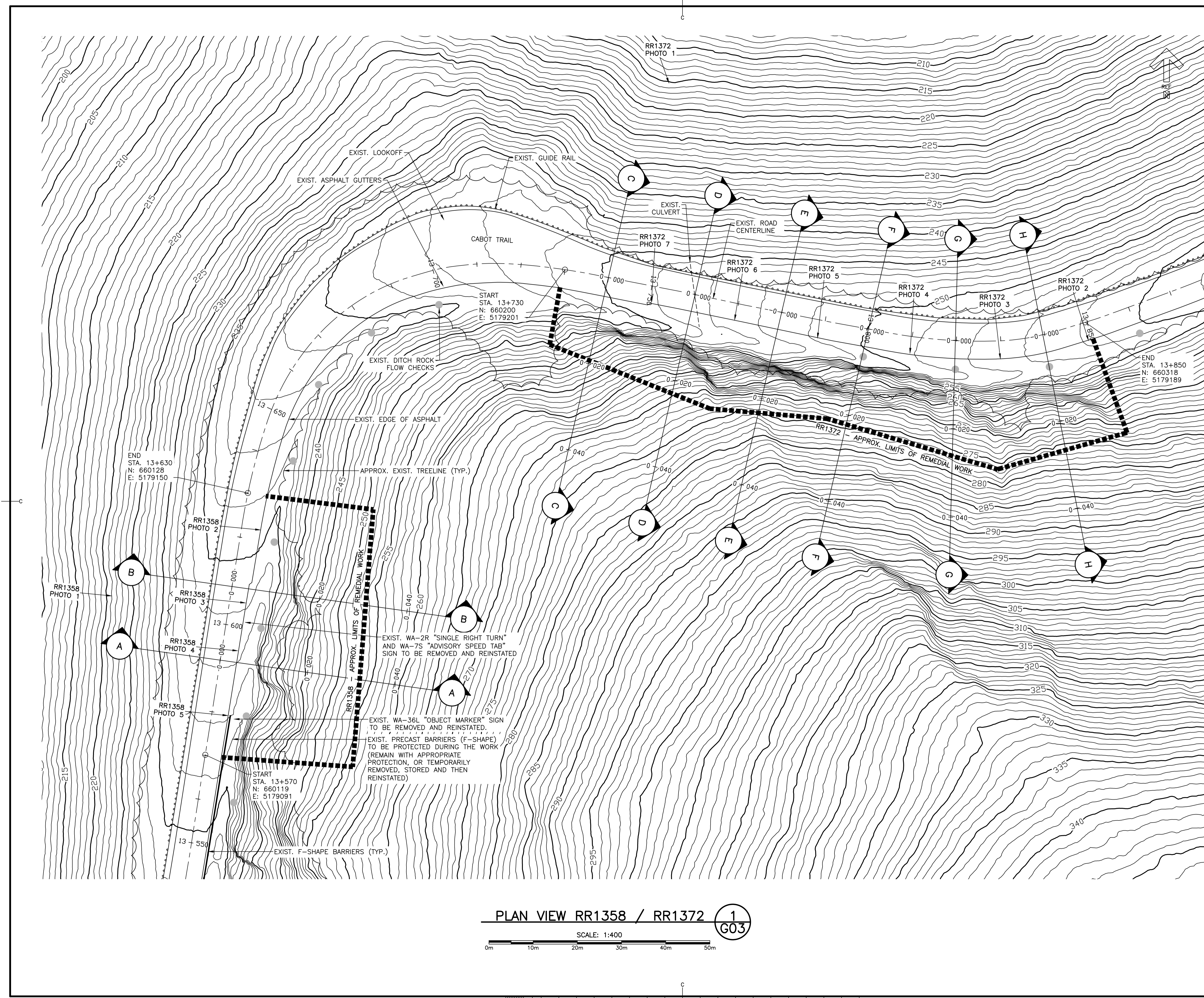
S. BABSTOCK  
PCA Project Manager Administrateur de projets TPSGC

project number no. du projet

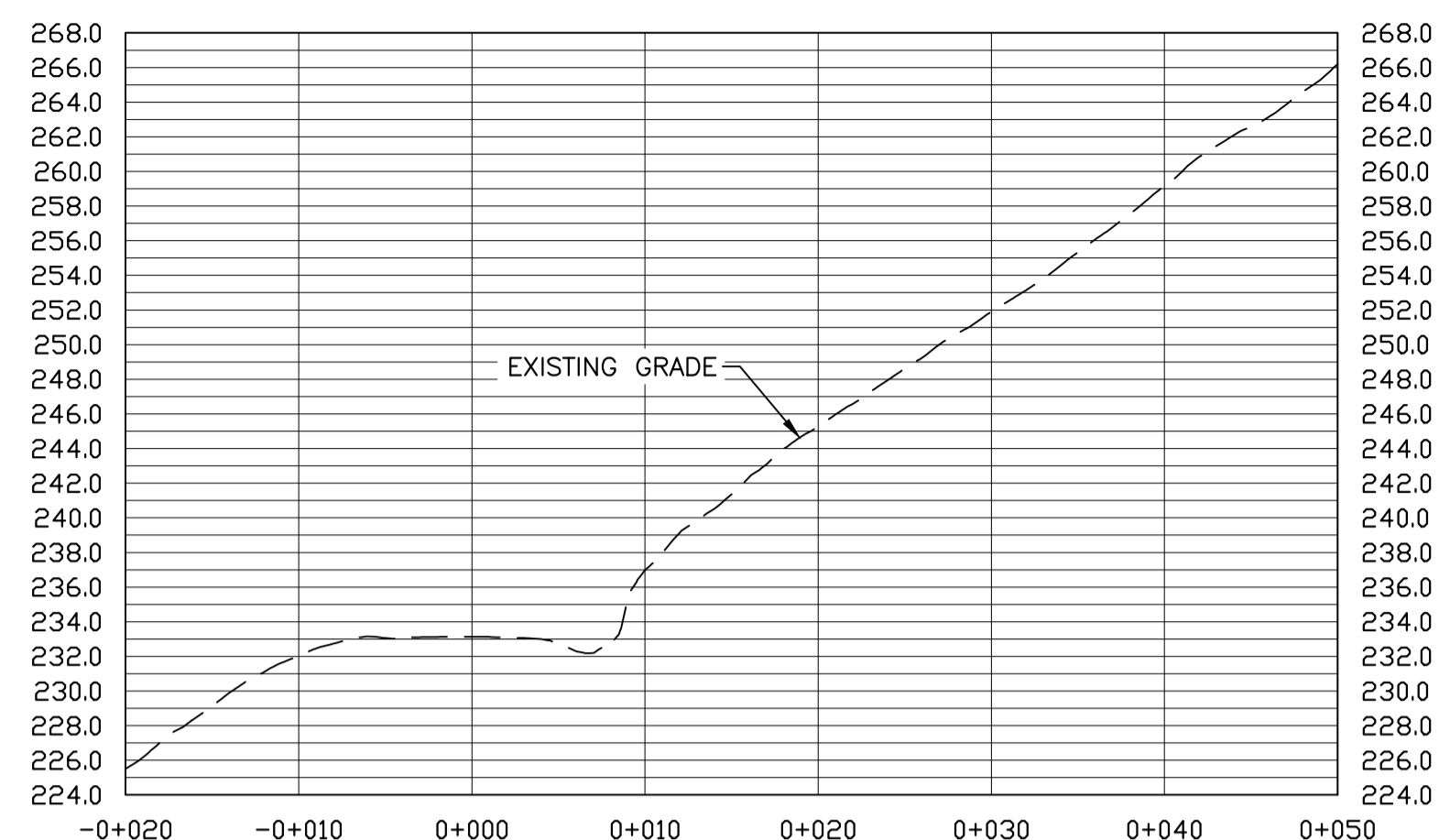
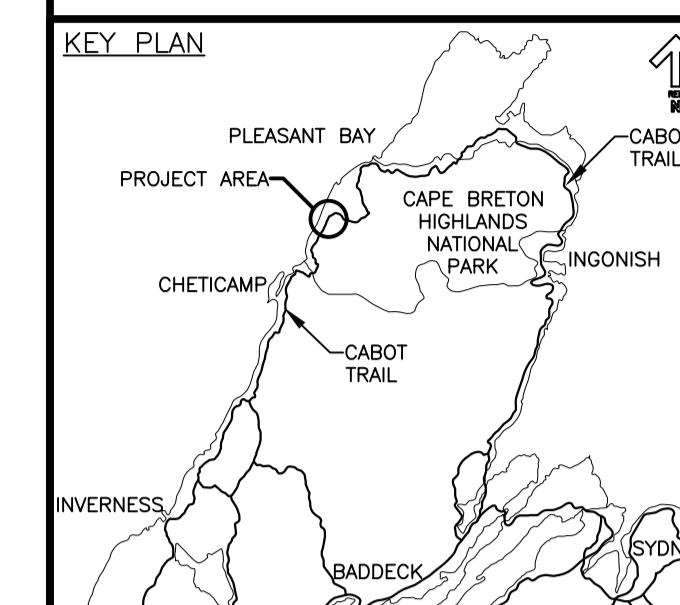
**669**

drawing no. no. du dessin

**G03**

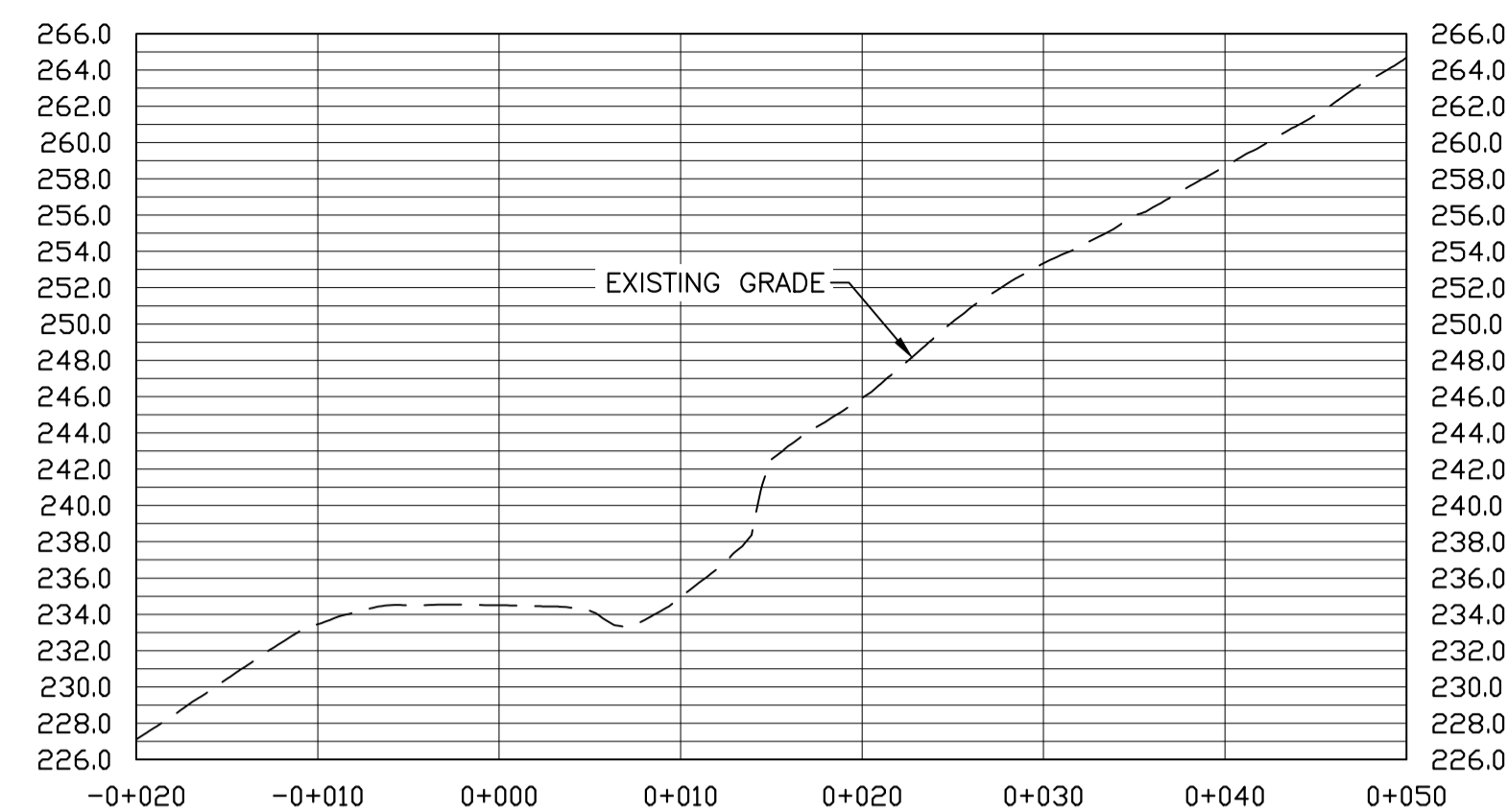


**PLAN VIEW RR1358 / RR1372** **1**  
**G03**



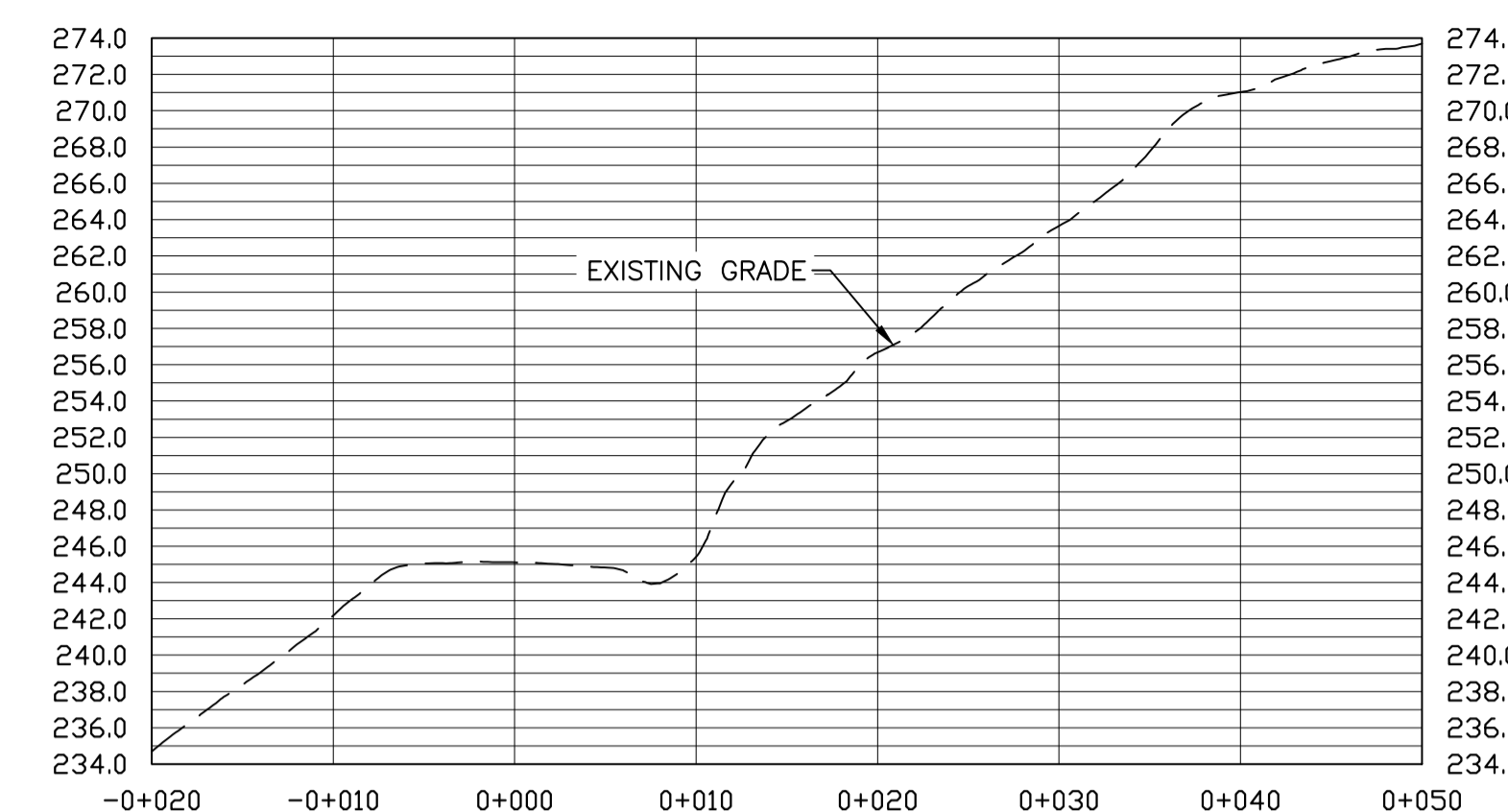
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1  
G04



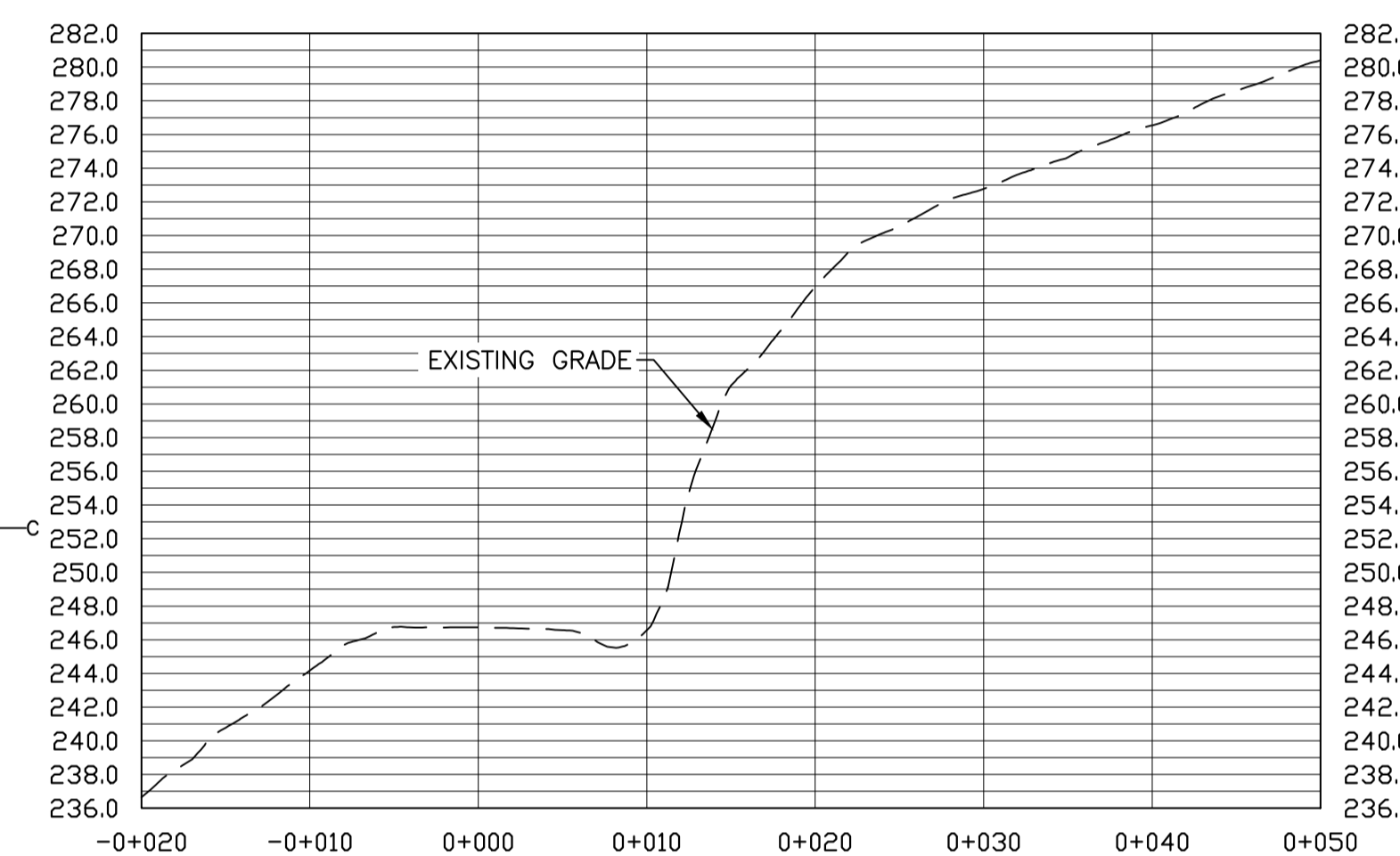
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2  
G04



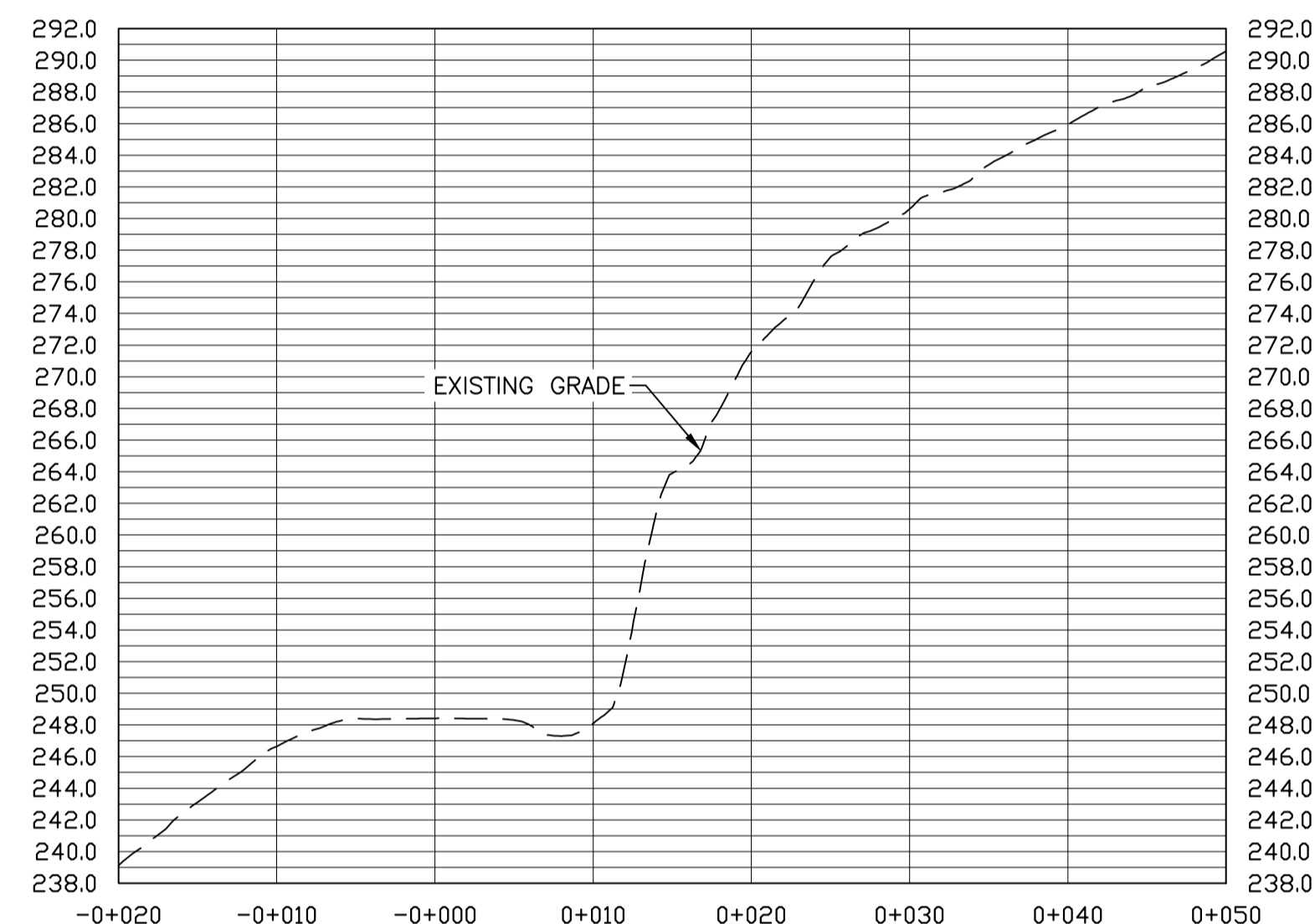
**SECTION C**  
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3  
G04



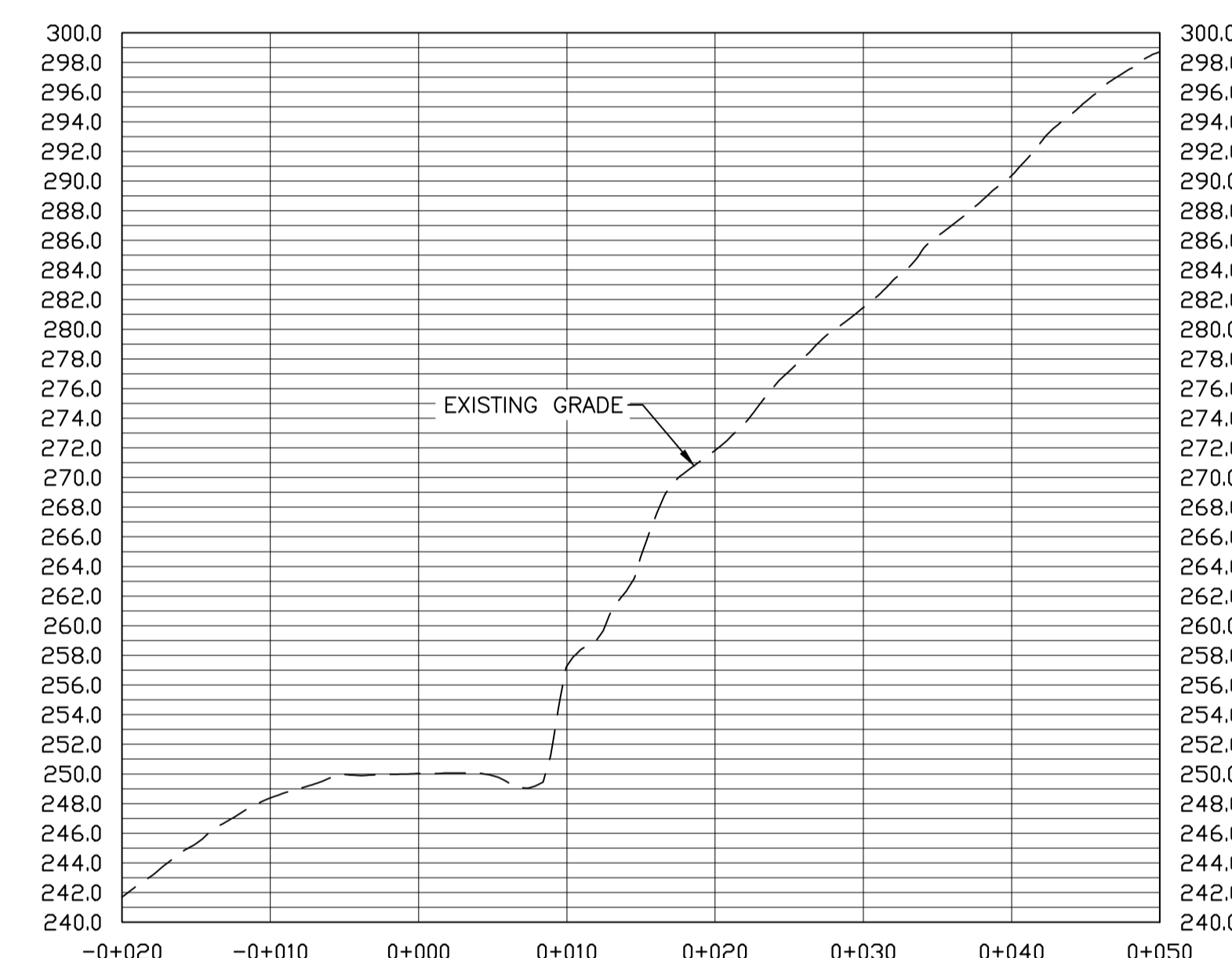
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4  
G04



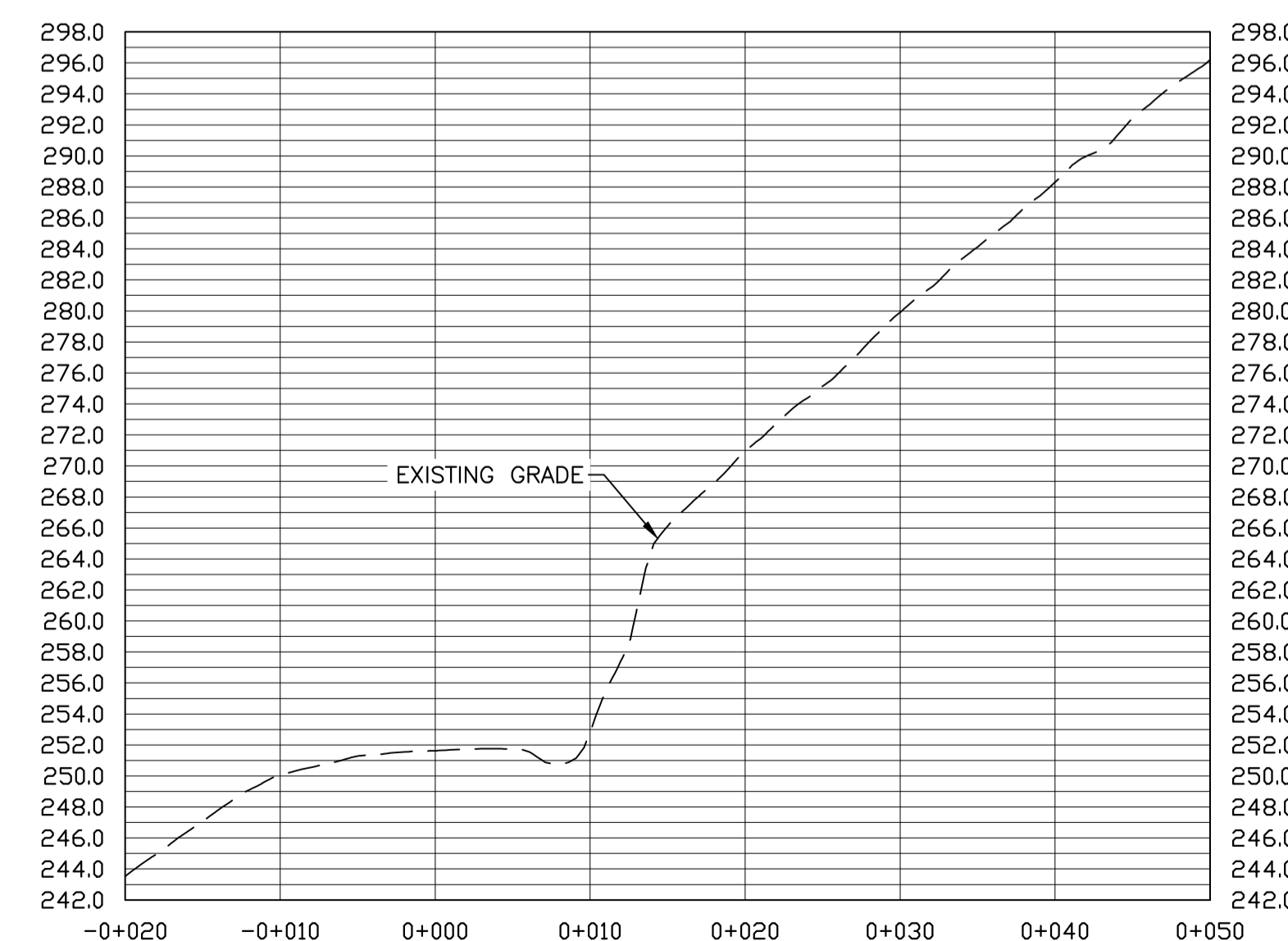
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5  
G04



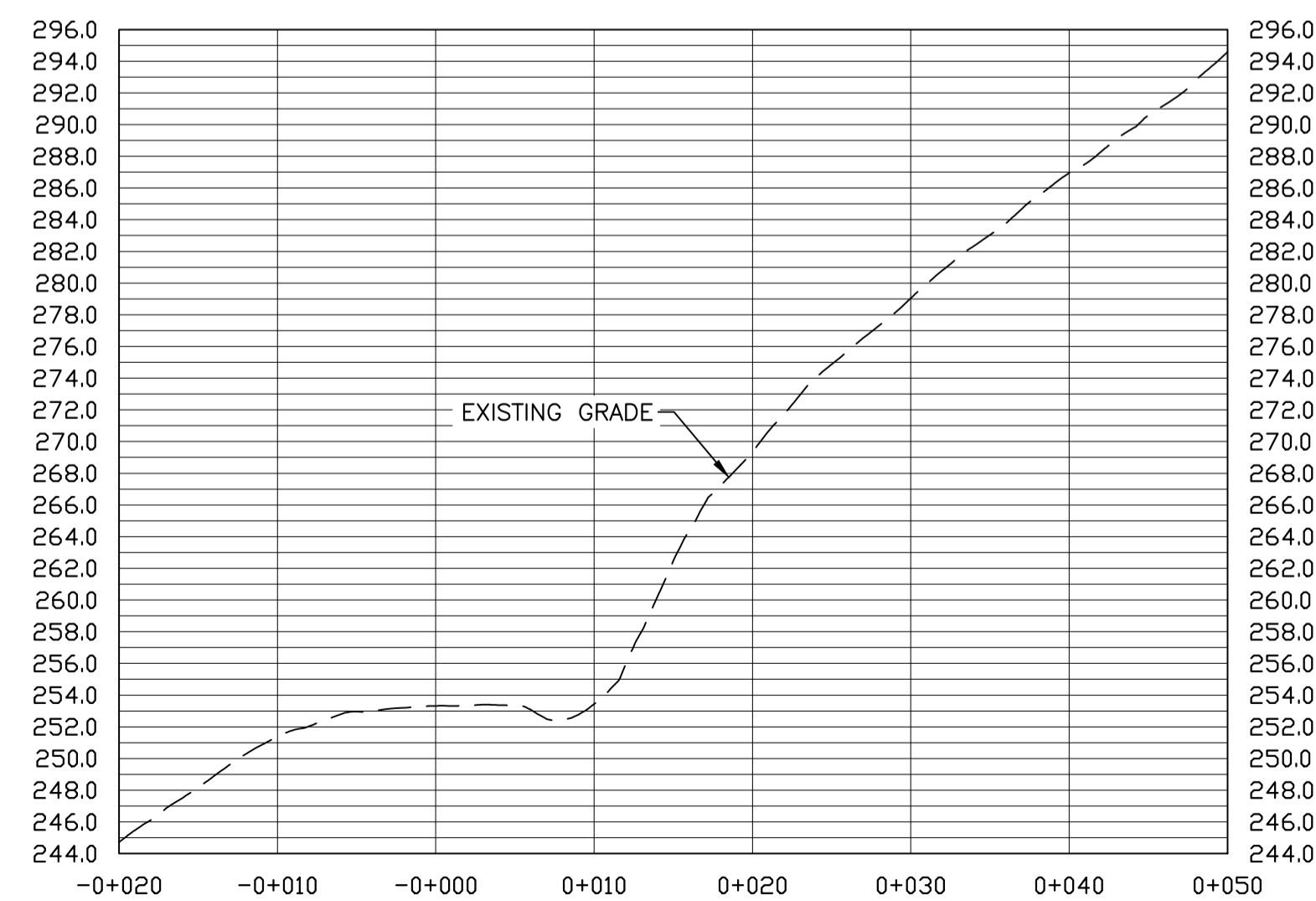
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6  
G04



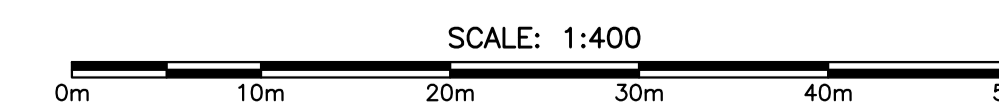
**SECTION G**  
SCALE: H=1:400 V=1:1

7  
G04



**SECTION H**  
SCALE: H=1:400 V=1:1

8  
G04



0	ISSUED FOR TENDER	JUL 27 2020
revisions	date	project

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

drawing dessin

**RR1358 / RR1372  
SECTIONS**

designed J. MATTHEW conçu

date MAR. 3, 2020

drawn D. HENDERSON dessiné

date MAR. 4, 2020

approved M. MATTHEW approuvé

date JULY 27, 2020

Tender Soumission

S. BABSTOCK Administrateur de projets TPSGC

project number no. du projet

**669**

drawing no. no. du dessin

**G04**



PHOTO 1: AERIAL VIEW RR1358 1  
G05



PHOTO 2: RR1358 2  
G05

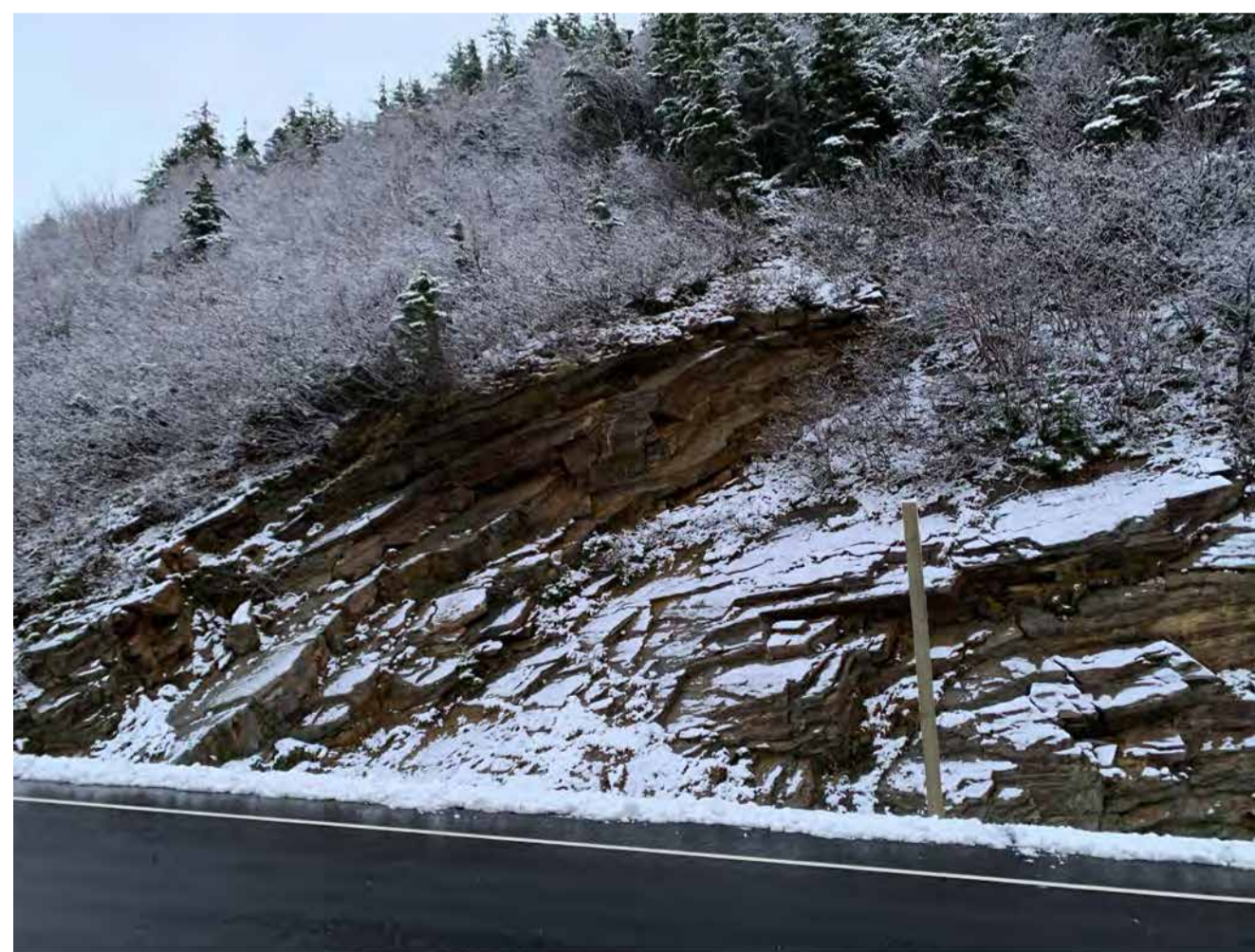


PHOTO 3: RR1358 3  
G05

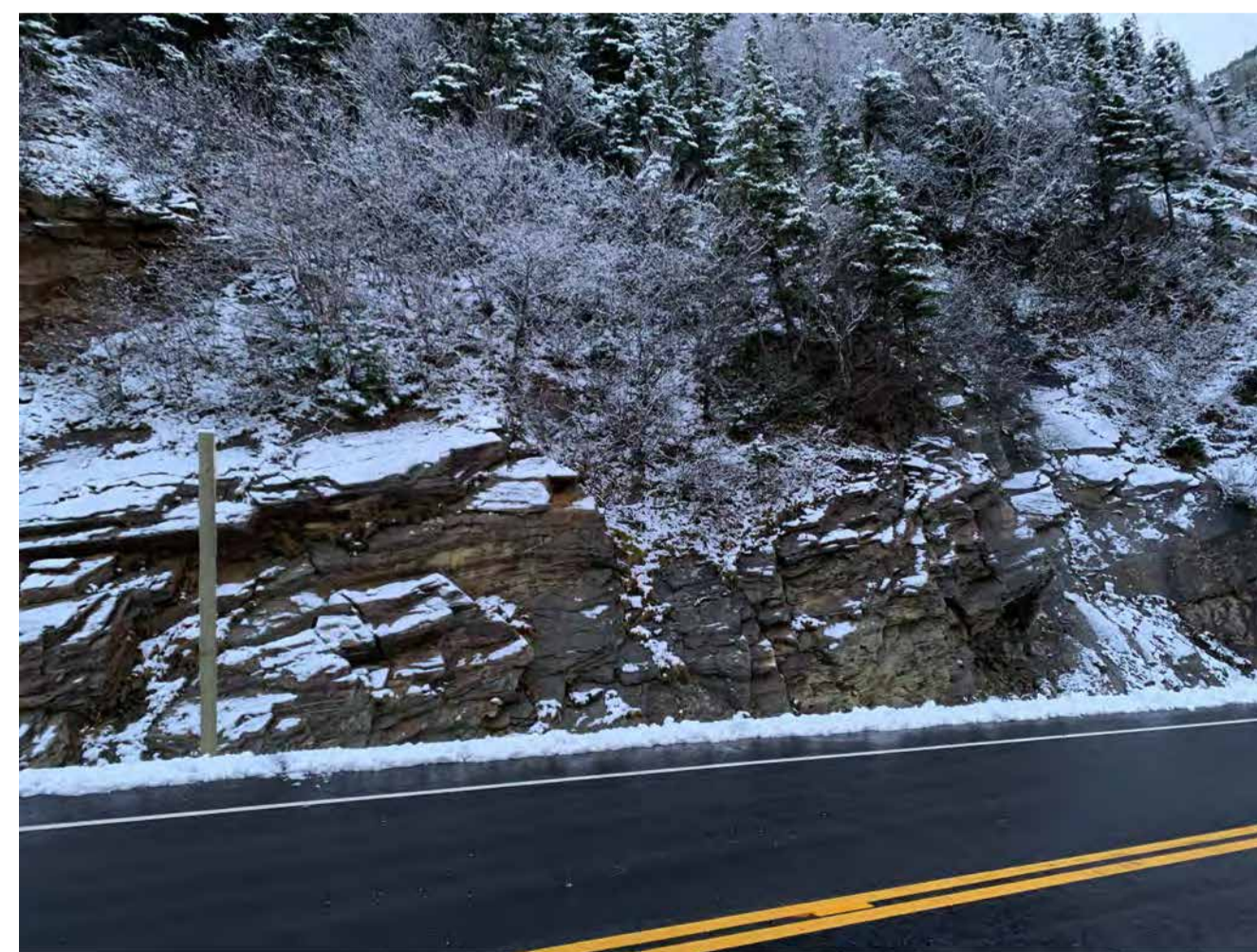


PHOTO 4: RR1358 4  
G05

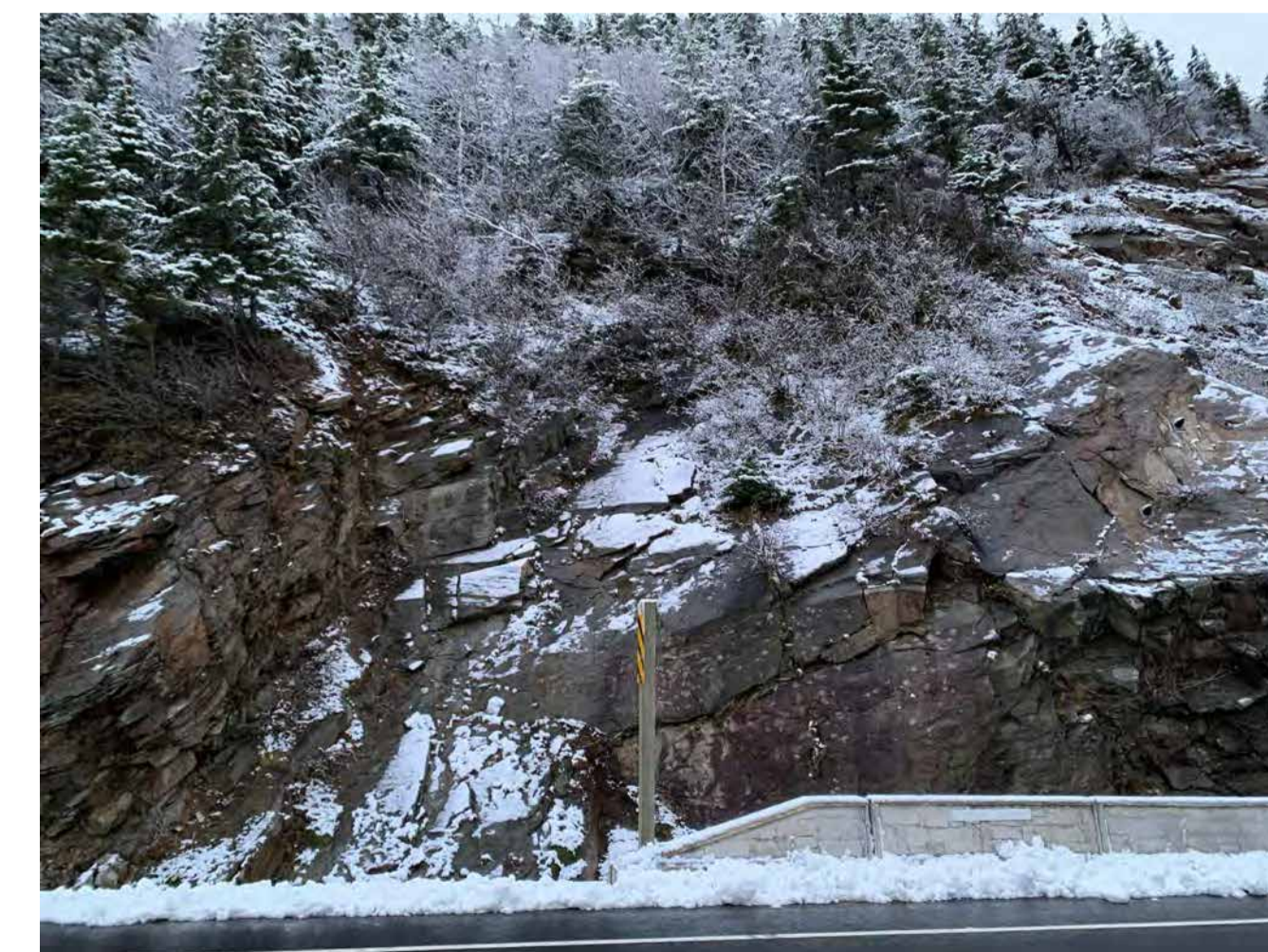
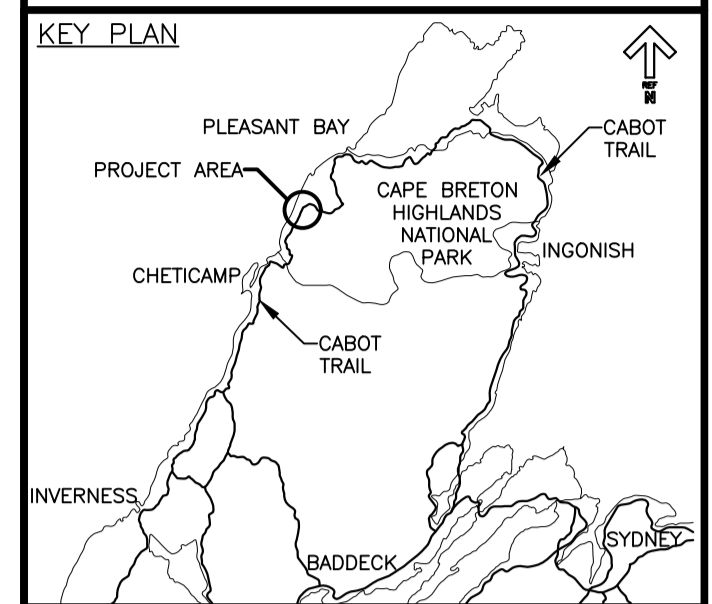


PHOTO 5: RR1358 5  
G05

RR1358 - SLOPE CONDITIONS
<b>SLOPE GEOMETRY (APPROX.)</b>
SLOPE LENGTH: 60 m
SLOPE HEIGHT: UP TO 15 m
SLOPE ANGLE: 45° TO 65° (AVERAGE)
<b>GEOHAZARD DESCRIPTION</b>
<ul style="list-style-type: none"> <li>ROCK FOLIATION IS DAYLIGHTING OUT OF THE ROCK CUT RESULTING IN POTENTIAL PLANAR SLIDING FAILURES.</li> <li>RAVELLING FROM THE ROCK FACE.</li> <li>EROSION OF OVERBURDEN AT CREST AND RELEASE OF COBBLES/BOULDERS.</li> </ul>

RR1358 - REMEDIAL DESIGN	
KEY	EST. QUANTITY
---	<b>SCALING</b> 20 HRS ROPE CREW 5 HRS BOOMLIFT
	<b>ROCK ANCHORS (FOR DETAILS REFER TO G11)</b> 16 x Φ 26 mm x 6 m LONG (TENSIONED)* 8 x Φ 26 mm x 9 m LONG (TENSIONED)* *LOCATION TO BE DETERMINED IN FIELD, POST-SCALING, AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE
	<b>COMMON EXCAVATION</b> 110 m <sup>3</sup> MATERIAL REMOVED



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project		projet

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

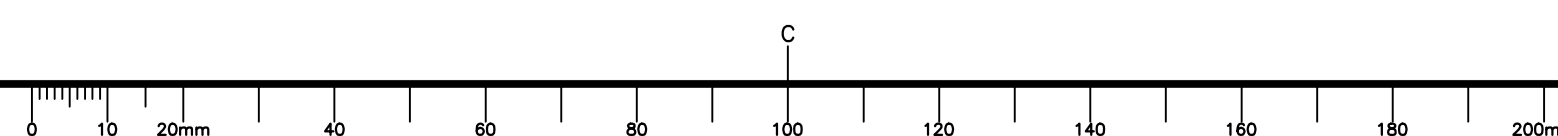
RR1358  
SITE PHOTOGRAPHS

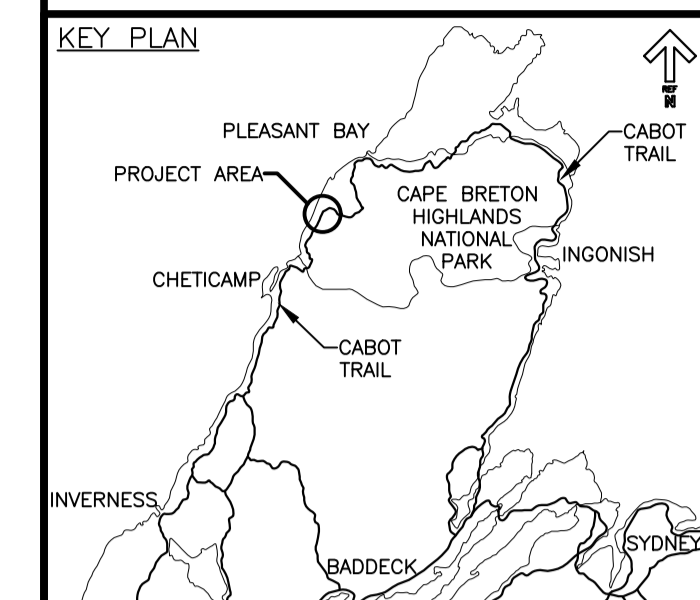
designed J. MATTHEW	conçu
date MARCH 3, 2020	
drawn D. HENDERSON	dessiné
date MARCH 4, 2020	
approved M. MATTHEW	approuvé
date JULY 27, 2020	

Tender Soumission  
S. BABSTOCK  
PCA Project Manager Administrateur de projets TPSGC

project number no. du projet  
**669**

drawing no. no. du dessin  
**G05**





RR1372 - SLOPE CONDITIONS
<b>SLOPE GEOMETRY (APPROX.)</b>
SLOPE LENGTH: 120 m
SLOPE HEIGHT: UP TO 30 m
SLOPE ANGLE: 65° TO 70° (AVERAGE)
<b>GEOHAZARD DESCRIPTION</b>
<ul style="list-style-type: none"> <li>RAVELLING FROM THE ROCK FACE.</li> <li>INTERSECTING JOINT SETS DAYLIGHTING OBLIQUELY TO SLOPE FACE FORMING SEVERAL LARGE WEDGES THAT ARE POTENTIALLY UNSTABLE.</li> <li>EROSION OF FRACTURED ROCK. BOULDERS AND OVERBURDEN FROM HEAVILY VEGETATED CREST.</li> </ul>

RR1372 - REMEDIAL DESIGN	
KEY	EST. QUANTITY
---	<b>SCALING</b> 90 HRS MANUAL 10 HRS BOOMLIFT
	<b>ROCK ANCHORS (FOR DETAILS REFER TO G11)</b> 13 x $\Phi$ 26 mm x 9 m LONG (TENSIONED)* 27 x $\Phi$ 26 mm x 6 m LONG (TENSIONED)* *LOCATION TO BE DETERMINED IN FIELD, POST-SCALING, AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE
	<b>COMMON EXCAVATION</b> 550 m <sup>3</sup> MATERIAL REMOVED

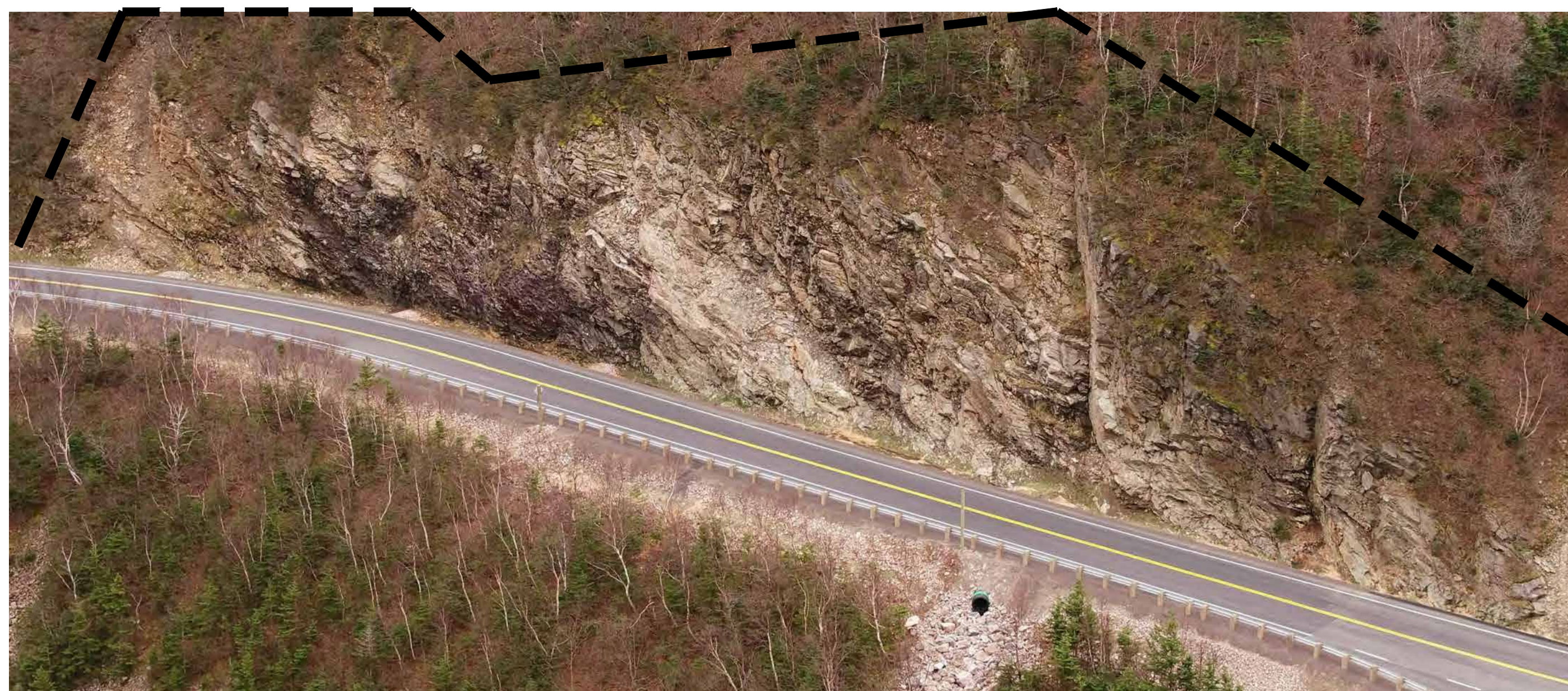


PHOTO 1: AERIAL VIEW RR1372 1  
G06

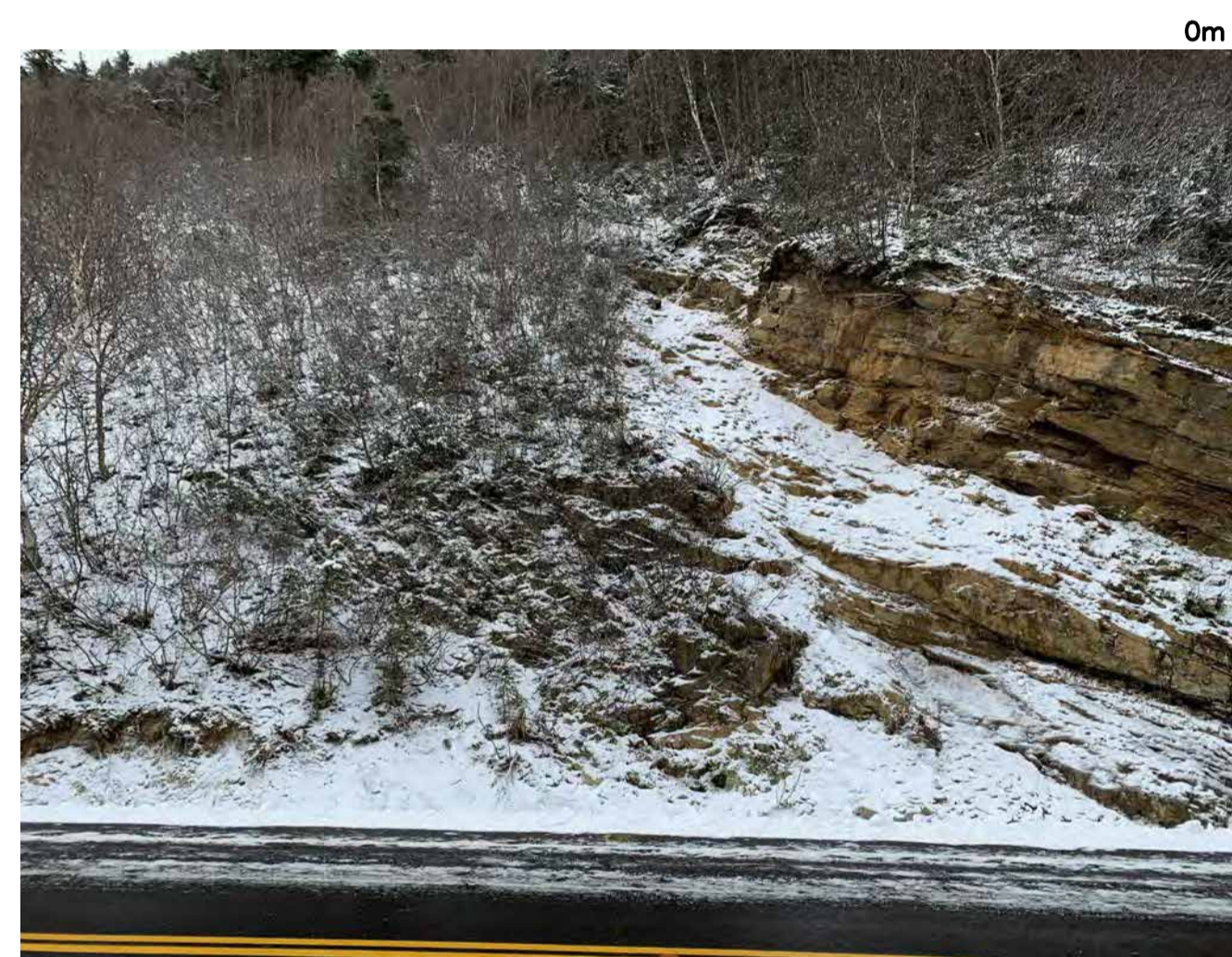


PHOTO 2: RR1372 2  
G06



PHOTO 3: RR1372 3  
G06

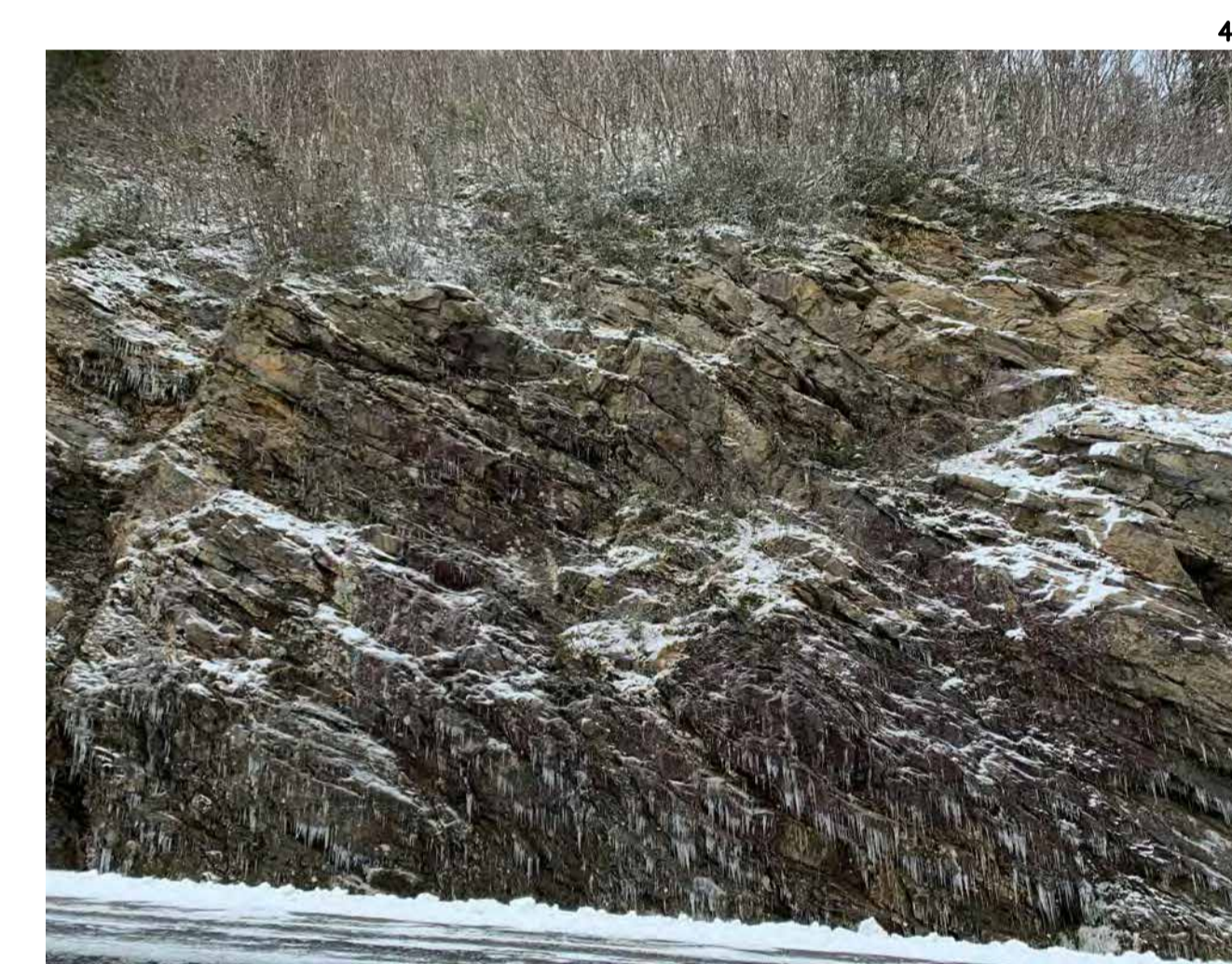


PHOTO 4: RR1372 4  
G06



PHOTO 5: RR1372 5  
G06

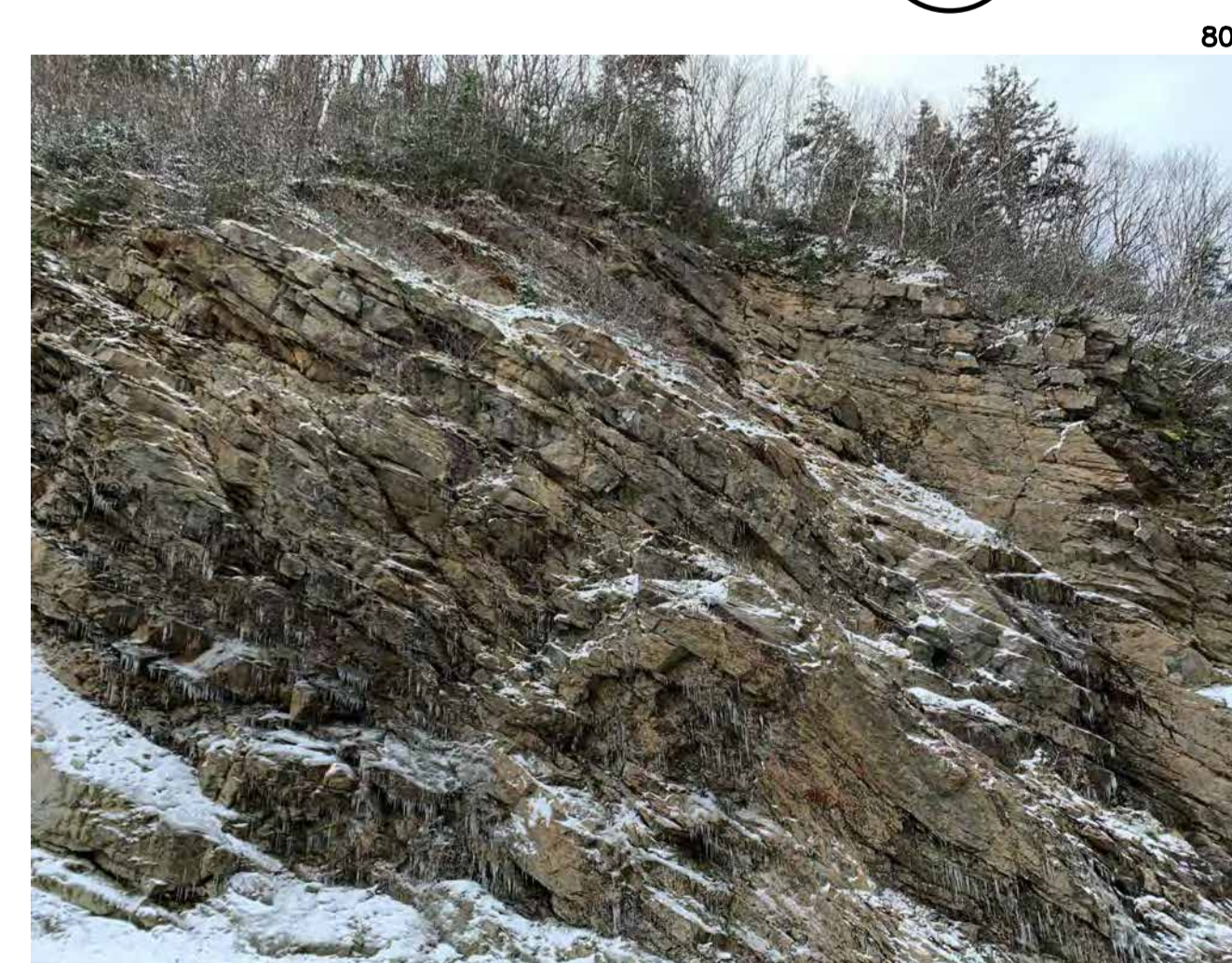


PHOTO 6: RR1372 6  
G06

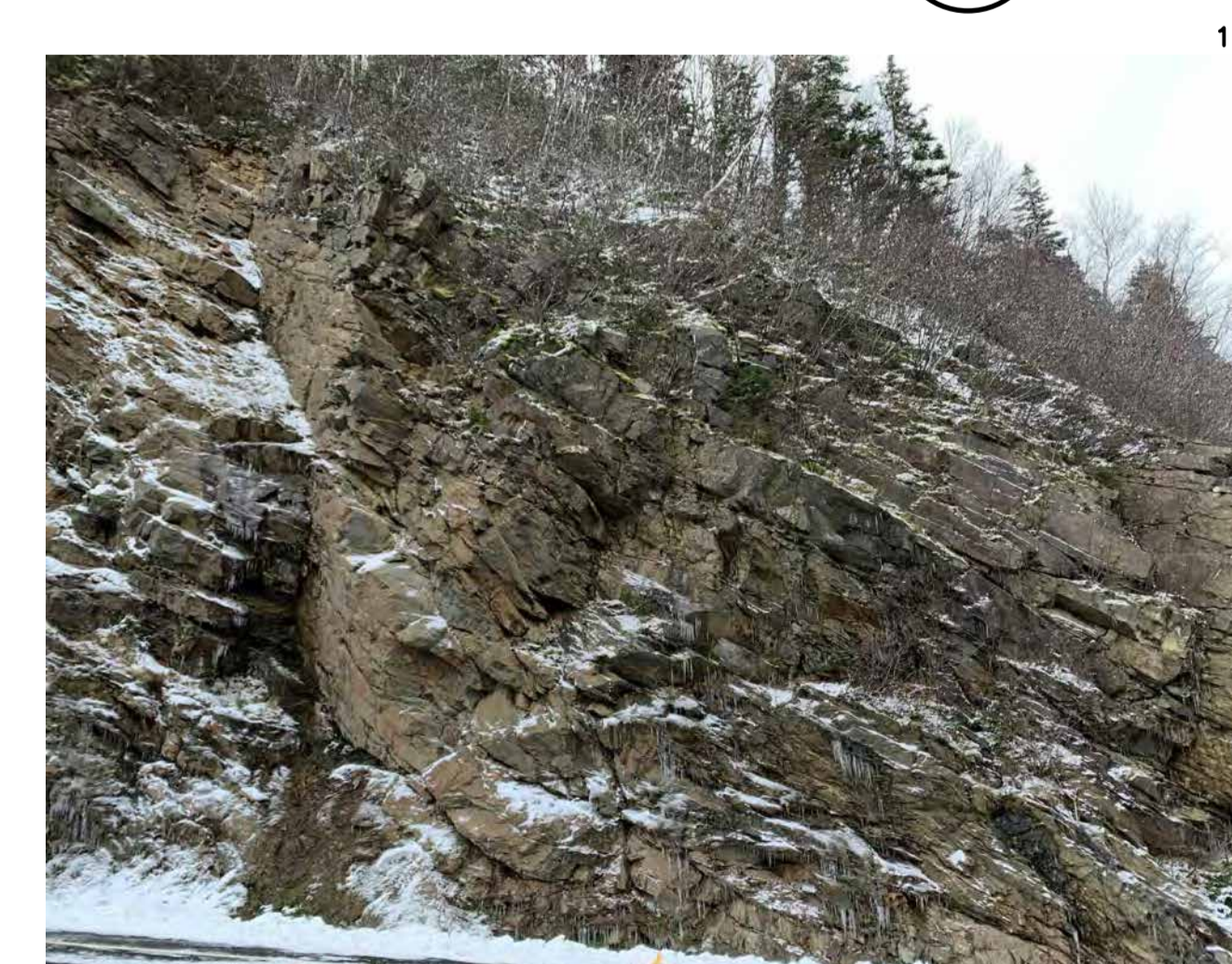


PHOTO 7: RR1372 7  
G06



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revisions		date
project		projet

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

drawing dessin

**RR1372  
SITE PHOTOGRAPHS**

designed J. MATTHEW conçu

date MARCH 2, 2020

drawn D. HENDERSON dessiné

date MARCH 3, 2020

approved M. MATTHEW approuvé

date JULY 27, 2020

Tender Soumission

S. BABSTOCK

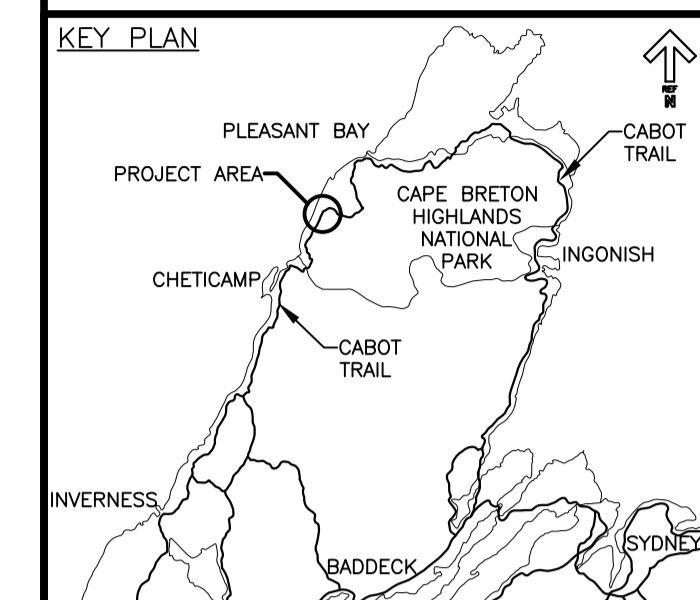
PCA Project Manager Administrateur de projets TPSGC

project number no. du projet

**669**

drawing no. no. du dessin

**G06**



0	ISSUED FOR TENDER	JUL 27 2020
revisions		date
project		proj

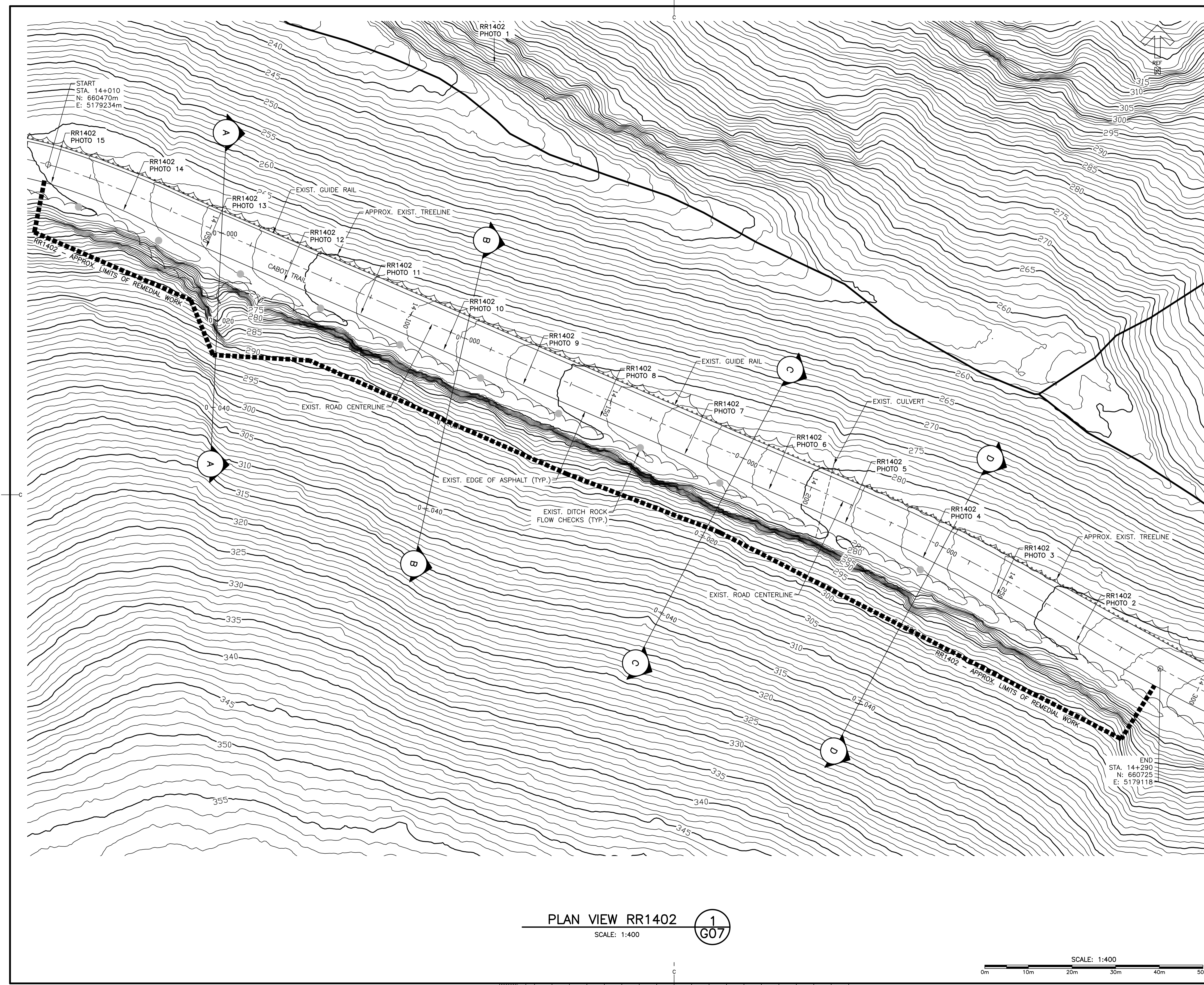
**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

**RR1402  
SITE PLAN**

designed	J. MATTHEW	conçu
date	MARCH 3, 2020	
drawn	D. HENDERSON	dessiné
date	MARCH 4, 2020	
approved	M. MATTHEW	approuvé
date	JULY 27, 2020	
Tender	S. BABSTOCK	Submission
PCA Project Manager	Administrateur de projets TPSGC	
project number		no. du projet

669

drawing no.	G07	no. du dessin
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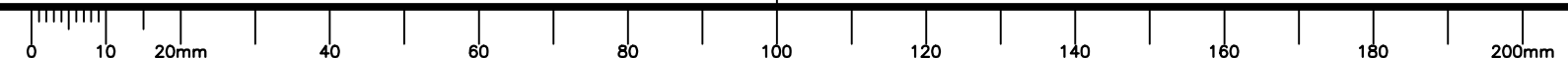


**PLAN VIEW RR1402**

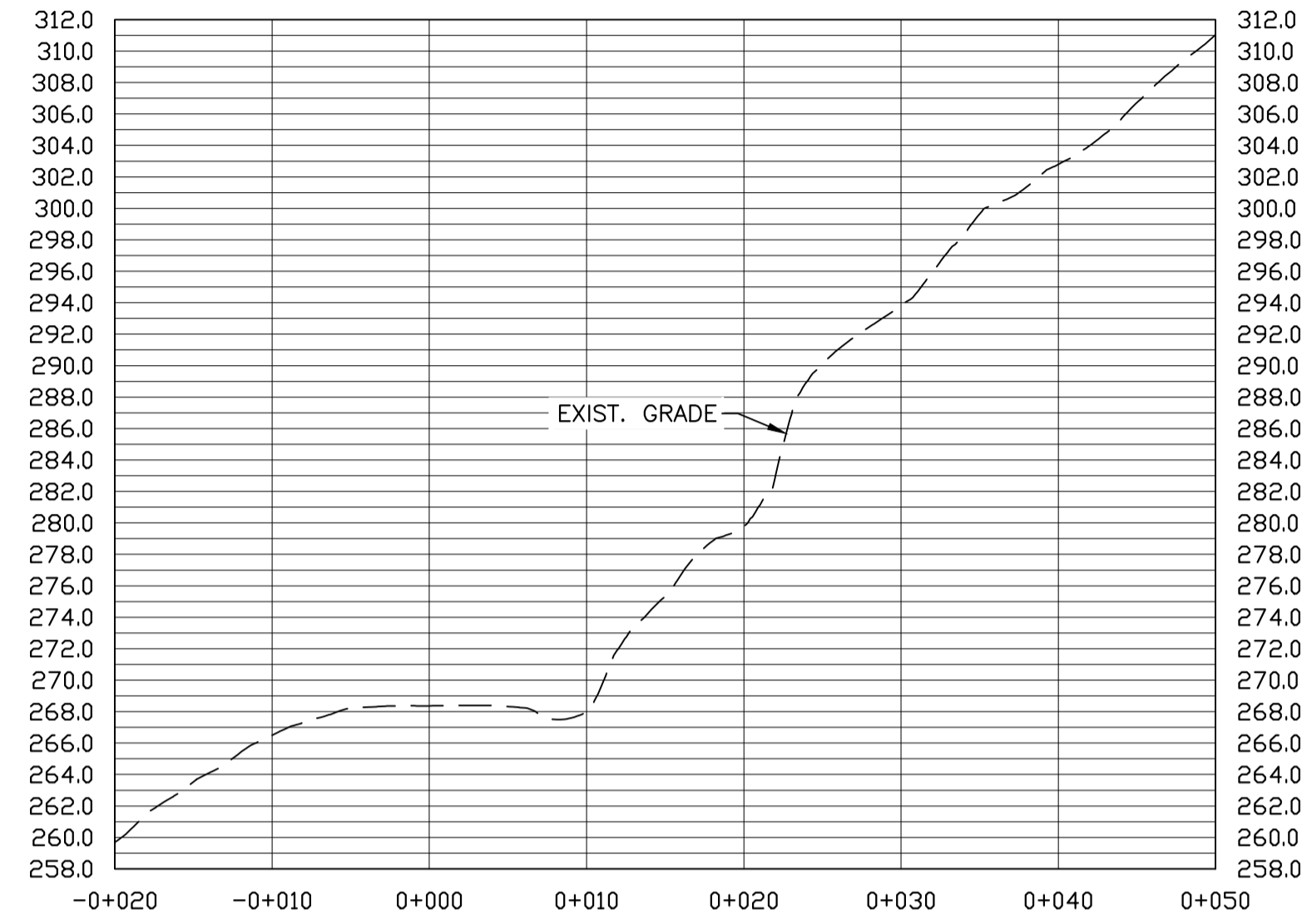
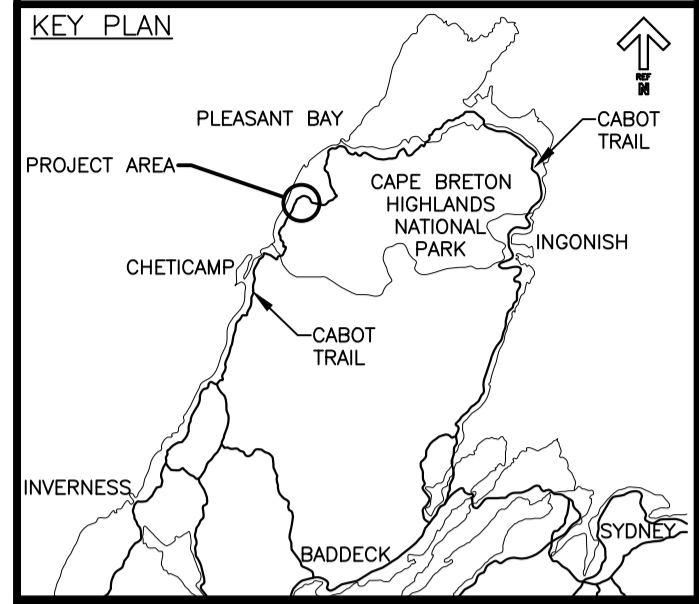
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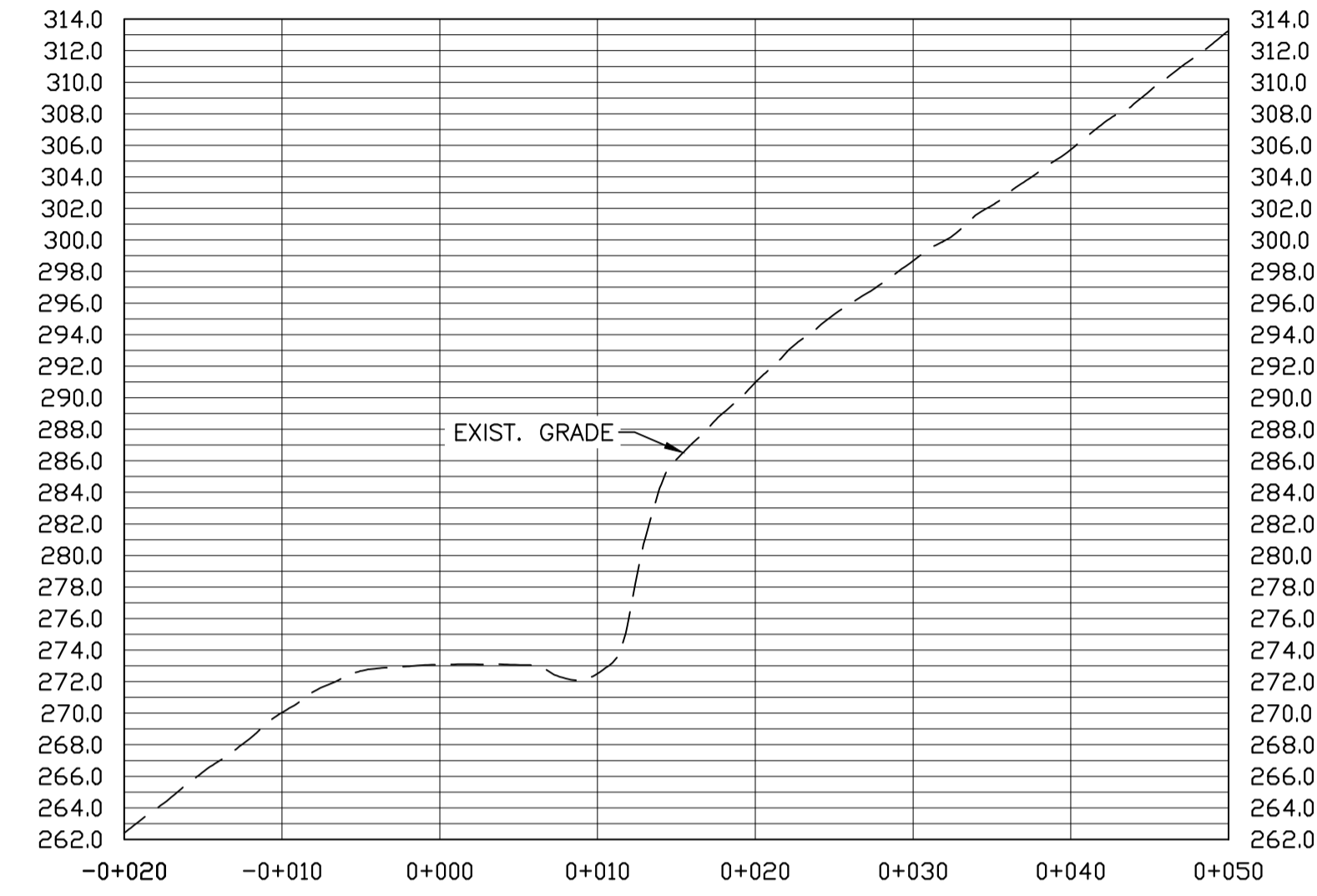
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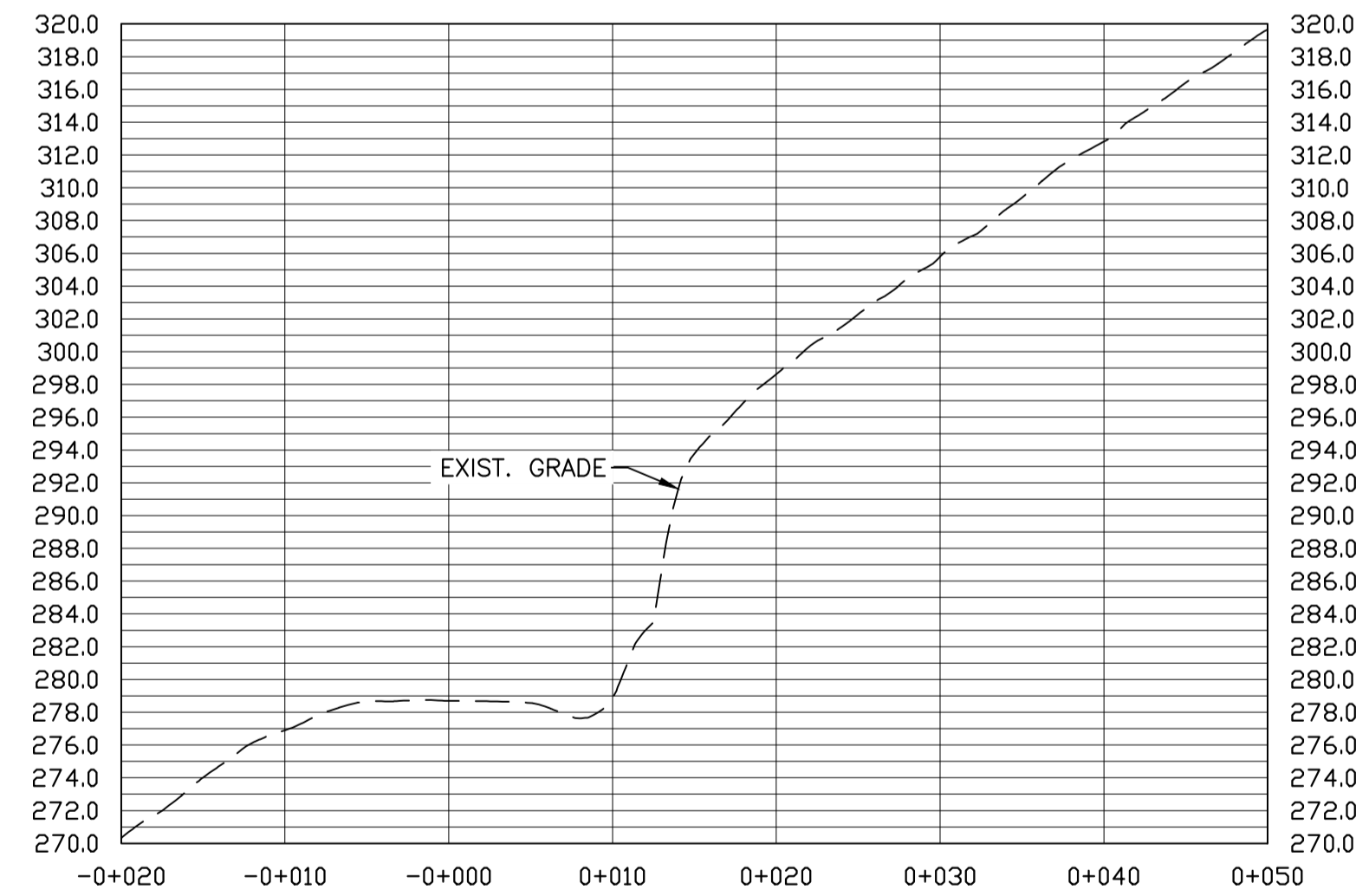




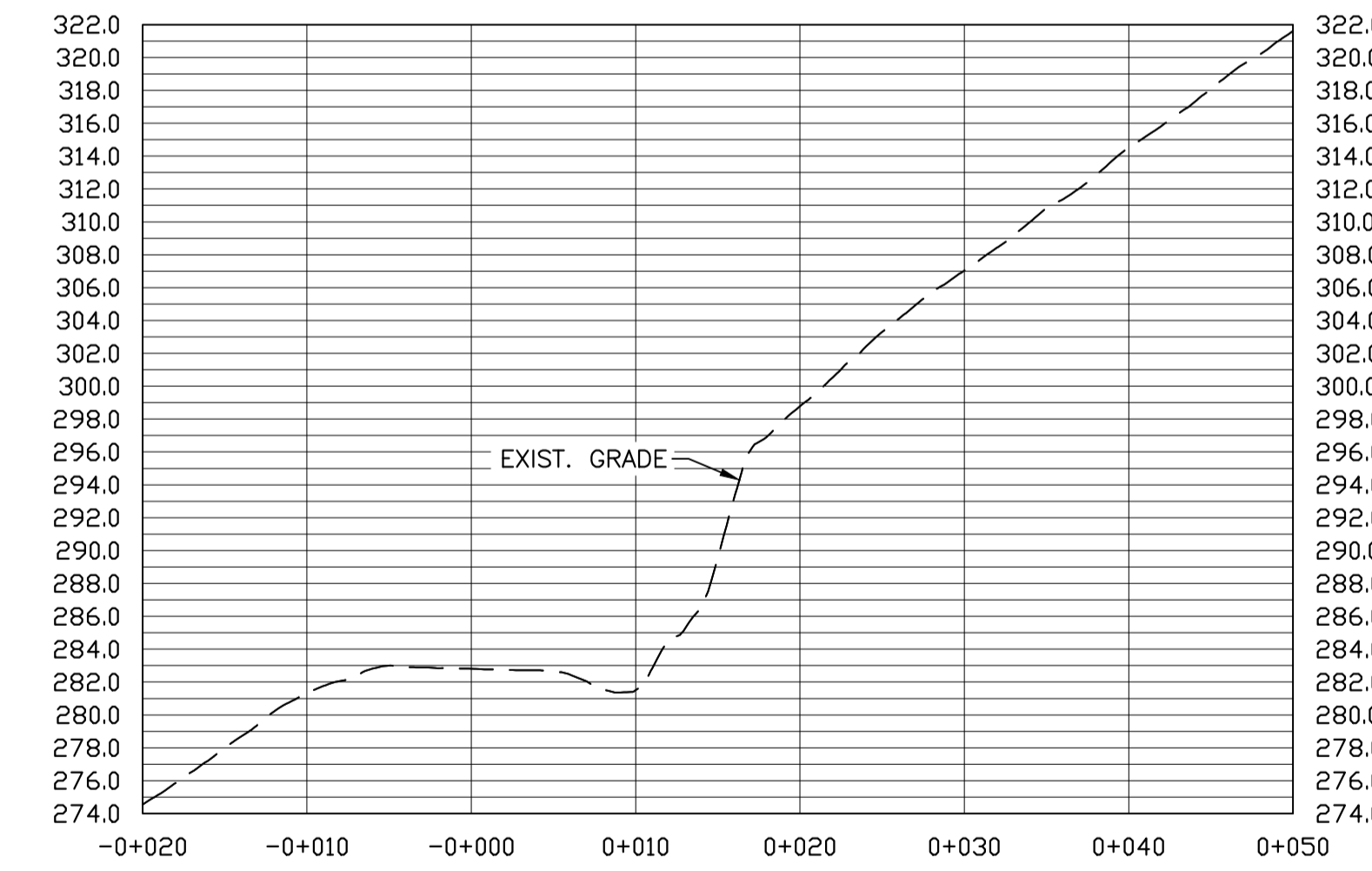
SECTION A 1  
SCALE: H=1:400 V=1:1 G08



SECTION B 2  
SCALE: H=1:400 V=1:1 G08



SECTION C 3  
SCALE: H=1:400 V=1:1 G08



SECTION D 4  
SCALE: H=1:400 V=1:1 G08



0	ISSUED FOR TENDER	JUL. 27 2020
revisions		date
project		projct

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

drawing dessin

**RR1402  
SECTIONS**

designed	J. MATTHEW	conçu
date	MARCH 3, 2020	
drawn	D. HENDERSON	dessiné
date	MARCH 4, 2020	
approved	M. MATTHEW	approuvé
date	JULY 27, 2020	

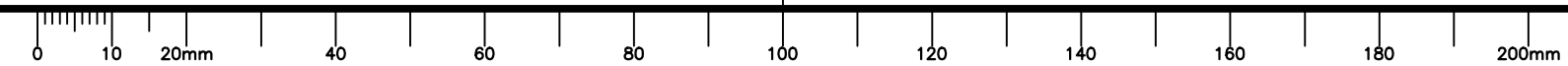
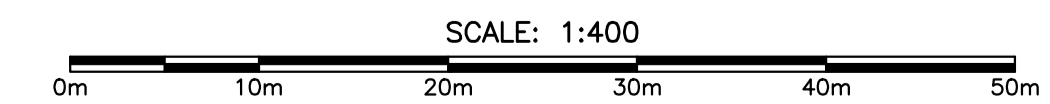
Tender S. BABSTOCK  
PCA Project Manager Administrateur de projets TPSGC

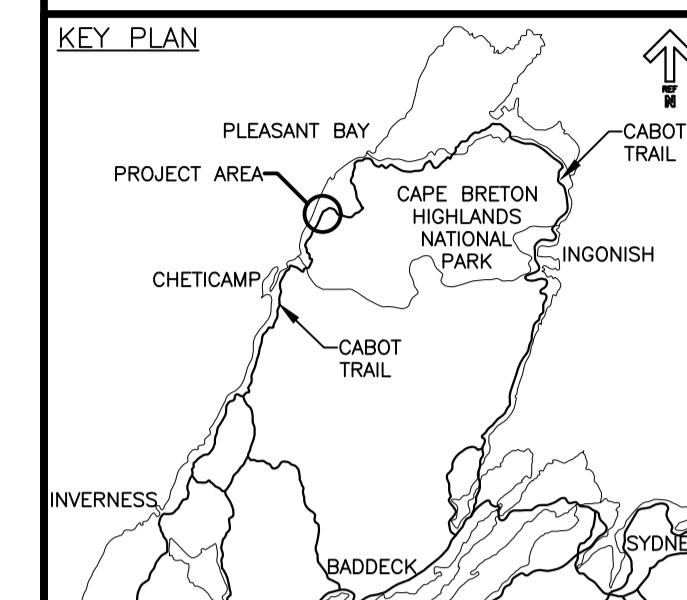
project number no. du projet

**669**

drawing no. no. du dessin

**G08**





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revisions		date
project		projet

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

drawing dessin

**RR1402  
SITE PHOTOGRAPHS  
SHEET 1 OF 2**

designed J. MATTHEW	conçu
date MARCH 3, 2020	
drawn D. HENDERSON	dessiné
date MARCH 4, 2020	
approved M. MATTHEW	approuvé
date JULY 27, 2020	

Tender Soumission  
S. BABSTOCK  
PCA Project Manager Administrateur de projets TPSGC

project number no. du projet

669

drawing no. no. du dessin

G09

RR1402 – SLOPE CONDITIONS
<b>SLOPE GEOMETRY (APPROX.)</b>
SLOPE LENGTH: 280 m
SLOPE HEIGHT: UP TO 20 m
SLOPE ANGLE: 40° TO 60° (AVERAGE)
<b>GEOHAZARD DESCRIPTION</b>
<ul style="list-style-type: none"> <li>RAVELLING FROM ROCK FACE.</li> <li>FAILURE OF INDIVIDUAL ROCK BLOCKS OR ROCK.</li> </ul>

RR1402 – REMEDIAL DESIGN	
KEY	EST. QUANTITY
---	<b>SCALING</b> 60 HRS MANUAL 10 HRS BOOMLIFT
	<b>ROCK ANCHORS</b> 26 x Ø 26 mm x 6 m LONG (UN-TENSIONED)* 8 x Ø 26 mm x 9 m LONG (UN-TENSIONED)* *LOCATION TO BE DETERMINED IN FIELD, POST-SCALING, AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE
	<b>COMMON EXCAVATION</b> 850 m <sup>3</sup> MATERIAL REMOVED



PHOTO 1: AERIAL VIEW RR1402 1  
G09



PHOTO 2: RR1402 2  
G09



PHOTO 3: RR1402 3  
G09

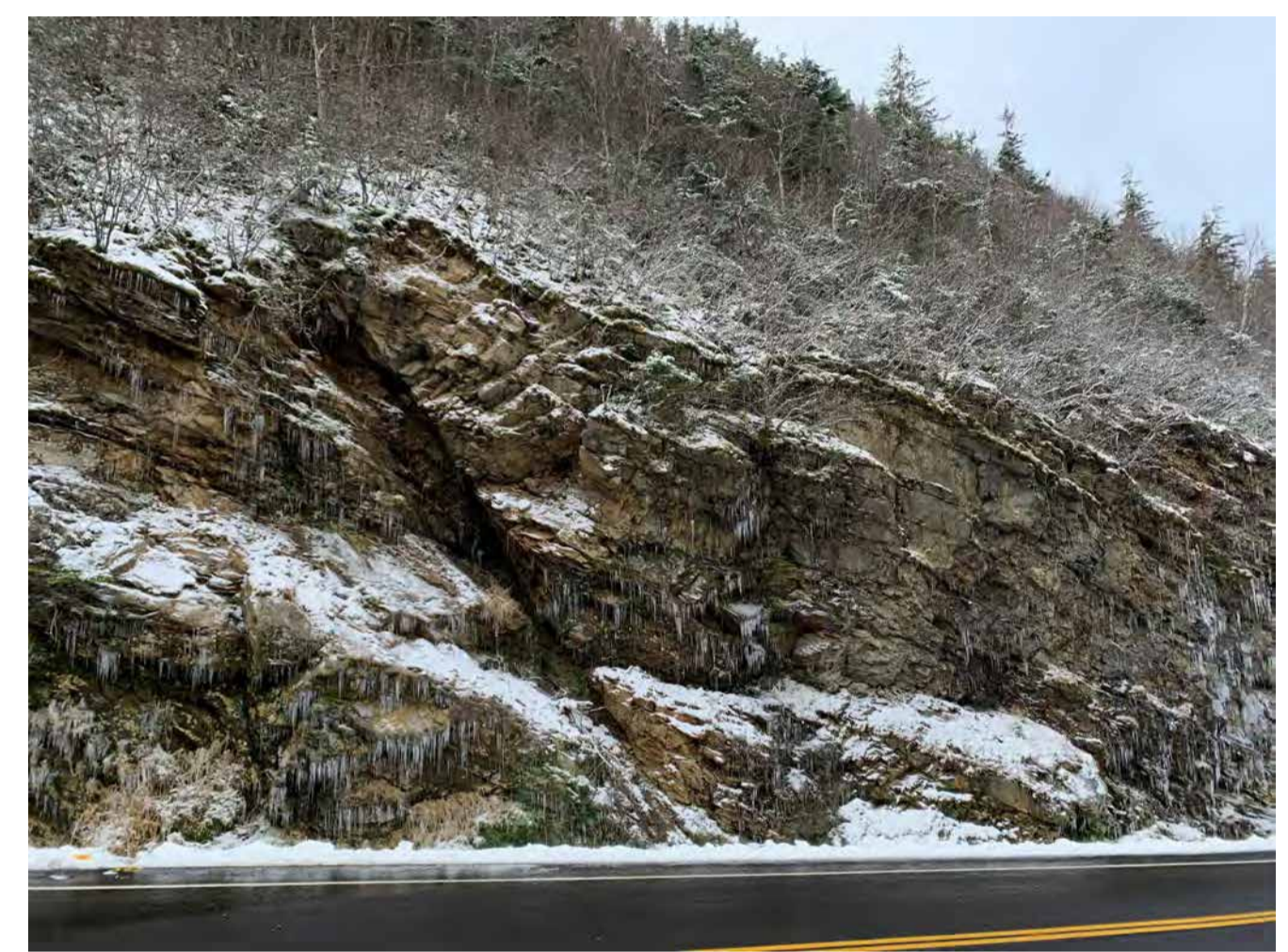


PHOTO 4: RR1402 4  
G09



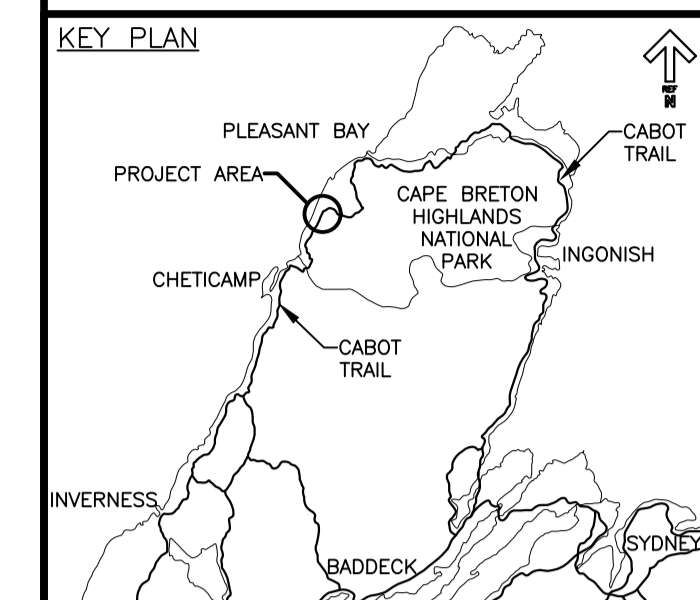
PHOTO 5: RR1402 5  
G09



PHOTO 6: RR1402 6  
G09



PHOTO 7: RR1402 7  
G09



0	ISSUED FOR TENDER	JUL 27 2020
revisions		date
project	project	

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

**RR1402  
SITE PHOTOGRAPHS  
SHEET 2 OF 2**

designed	J. MATTHEW	conçu
date	MARCH 3, 2020	
drawn	D. HENDERSON	dessiné
date	MARCH 4, 2020	
approved	M. MATTHEW	approuvé
date	JULY 27, 2020	
Tender	S. BABSTOCK	Soumission
PCA Project Manager	Administrateur de projets TPSGC	
project number	669	no. du projet
drawing no.	G10	no. du dessin



PHOTO 8: RR1402 (1) G10

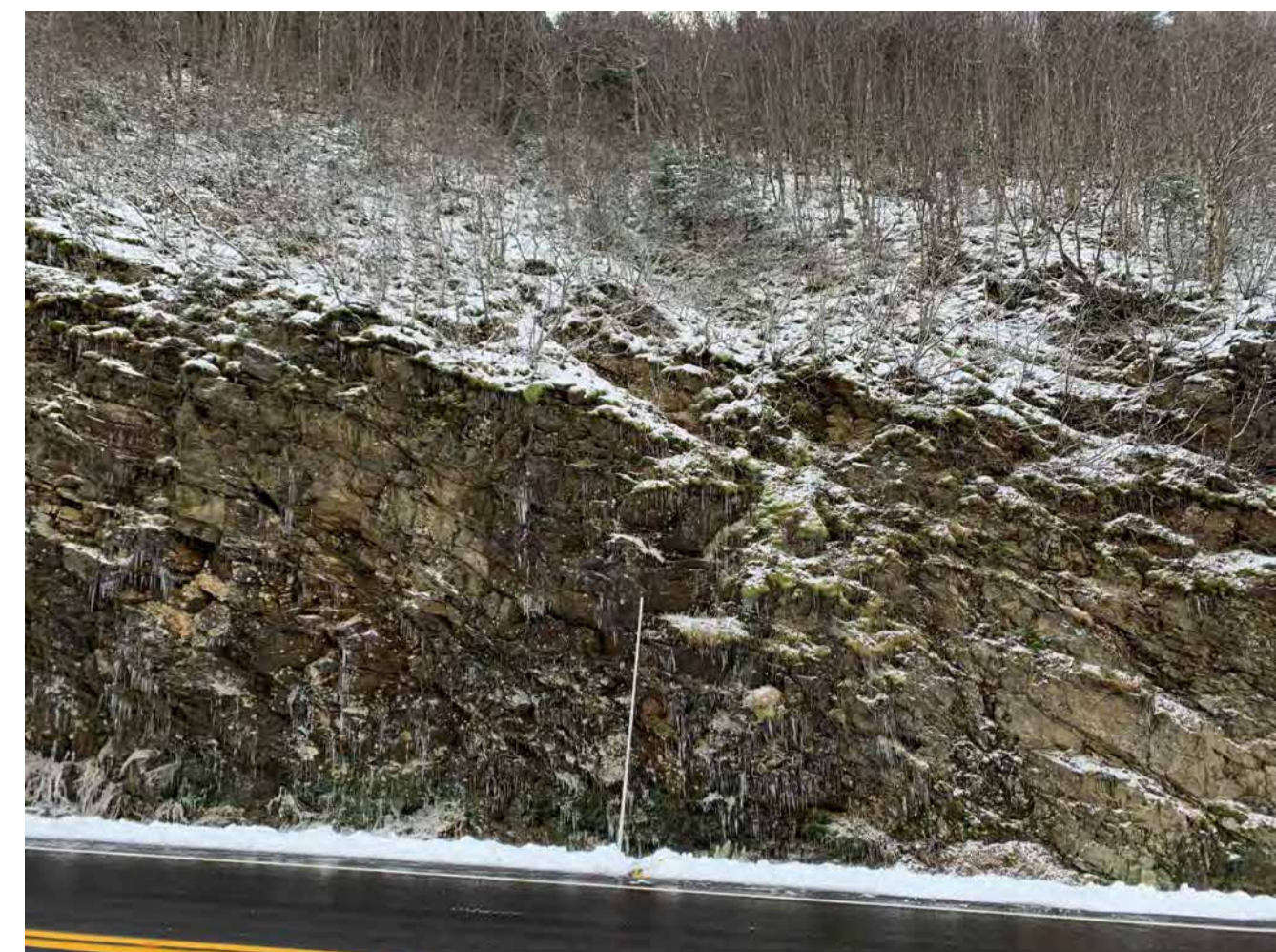


PHOTO 9: RR1402 (2) G10



PHOTO 10: RR1402 (3) G10



PHOTO 11: RR1402 (4) G10



PHOTO 12: RR1402 (5) G10



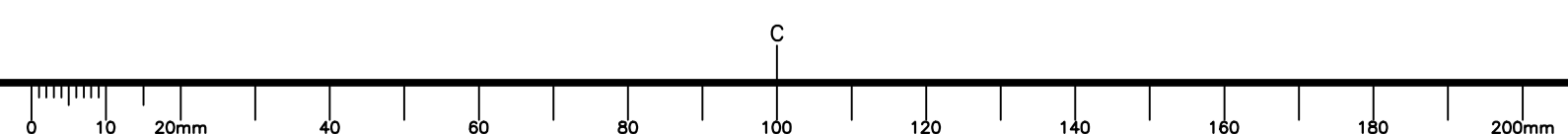
PHOTO 13: RR1402 (6) G10



PHOTO 14: RR1402 (7) G10



PHOTO 15: RR1402 (8) G10



**GENERAL NOTES:**

1. ALL DIMENSIONS AND COORDINATES ARE METRIC UNITS UNLESS OTHERWISE NOTED.
2. ALL COORDINATES IN ACCORDANCE WITH NAD83 (CSRS) UTM ZONE 20.
3. ALL SITE PHOTOGRAPHS TAKEN NOVEMBER 2019.
4. ALL SITE CONDITIONS, DIMENSIONS AND ELEVATIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. CONTRACTOR TO REPORT ANY DISCREPANCIES TO THE DEPARTMENTAL REPRESENTATIVE.

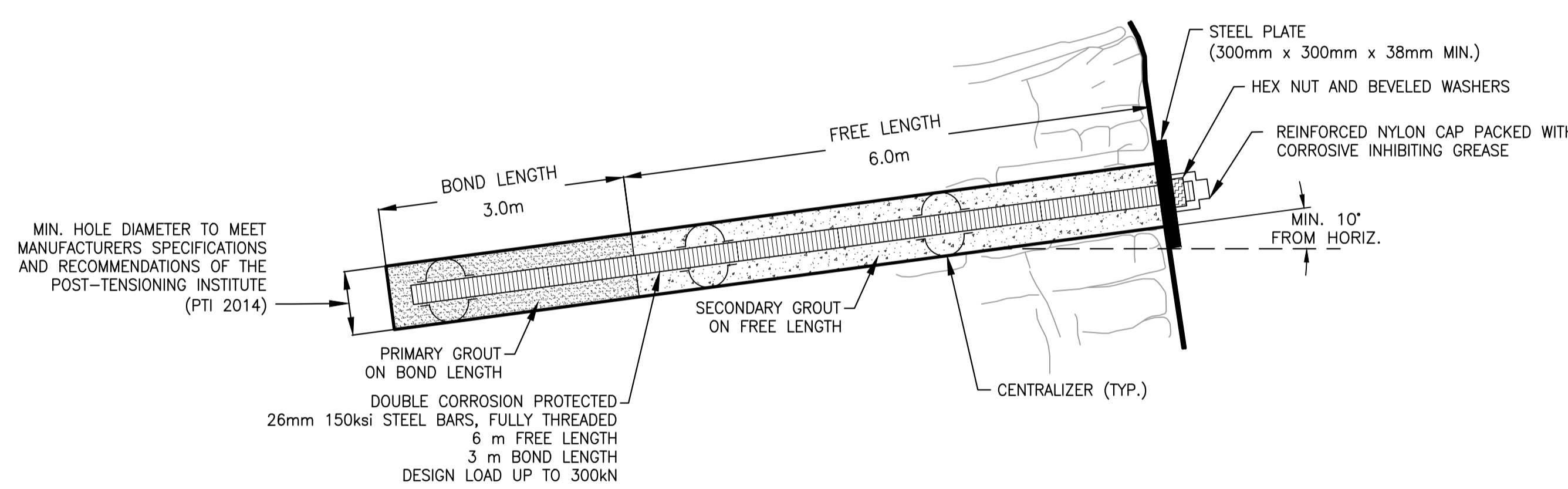
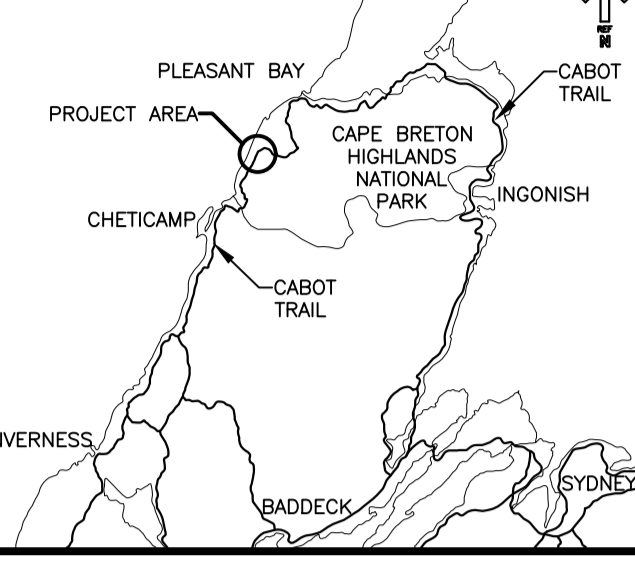
**CONSTRUCTION NOTES:**

1. SCALING
  - 1.1. SEE PROJECT SPECIFICATION SECTION 31 23 20.
2. ROCK ANCHORS
  - 2.1. SEE PROJECT SPECIFICATION SECTION 31 33 13.
  - 2.2. INSTALL ROCK ANCHORS FROM THE TOP DOWN UNLESS OTHERWISE APPROVED BY THE DEPARTMENTAL REPRESENTATIVE.
  - 2.3. CONTRACTOR IS TO ASSUME THE POTENTIAL FOR POOR ROCKMASS CONDITIONS CONTAINING WEAK ROCK, VOIDS, SAND SEAMS AND CLOSELY SPACED FRACTURES, AND TAKE SPECIAL MEASURES INCIDENTAL TO ROCK ANCHOR INSTALLATION TO MAINTAIN OPEN DRILL HOLES, SEAL HOLES AND PREVENT ANCHOR GROUT LOSS, INCLUDING: TEMPORARY CASING TO STABILIZE DRILL HOLE SIDEWALLS, THE USE OF GROUT SOCKS, MODIFICATION OF THE GROUT MIXTURE (ADMIXTURES, ETC.), AND PRE-GROUTING AND RE-DRILLING. SPECIAL MEASURES REQUIRE THE REVIEW AND APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE.
3. EXCAVATION OF SLOPE DEBRIS
  - 3.1. SEE PROJECT SPECIFICATION SECTION 31 23 16.
  - 3.2. ROAD SHOULDERS AND CATCHMENT DITCHES SHALL BE CLEANED OF ALL DEBRIS AND REINSTATED TO PRE-CONSTRUCTION CONDITIONS. TO VERIFY REINSTATEMENT OF CATCHMENT DITCHES, A SURVEY SHALL BE COMPLETED PRIOR TO THE START OF WORK AND AFTER THE COMPLETION OF EXCAVATION ACTIVITIES. AS A MINIMUM, THE SURVEY SHALL INCLUDE THE COLLECTION OF SECTIONS AT 5 m STATIONS (EDGE OF ASPHALT, TOP OF FORESLOPE, TOE OF FORESLOPE, TOE OF BACKSLOPE) AND RELEVANT FEATURES (CHECK DAMS, CULVERTS, ETC.).
  - 3.3. ALL CULVERTS SHALL BE IDENTIFIED AND PROVIDED WITH ADEQUATE PROTECTION TO PREVENT DAMAGE.
  - 3.4. ALL BURIED UTILITIES WITHIN THE ROAD SHOULDER SHALL BE IDENTIFIED AND PROTECTED WITH BLASTING MATS IN AREAS OF ACTIVE SLOPE WORK TO PREVENT DAMAGE.
  - 3.5. ALL DITCH CHECK DAMS TO BE IDENTIFIED AND PROTECTED / REINSTATED POST-CONSTRUCTION.
  - 3.6. EXISTING ASPHALT AND RAP SHOULDER SURFACES TO BE PROTECTED DURING THE WORK.
  - 3.7. ANY DAMAGE AS A RESULT OF THE CONTRACTOR MUST BE REPAIRED PRIOR TO CONTRACT COMPLETION AT NO COST TO PCA.

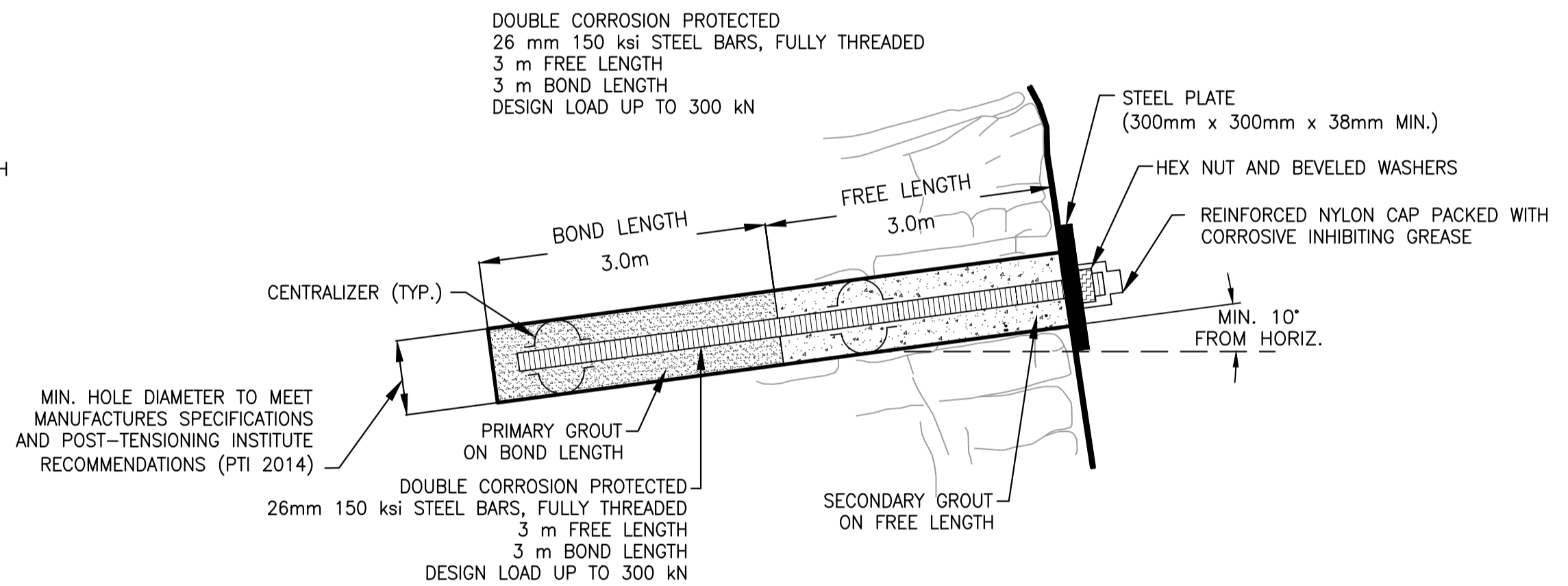
**CONSTRUCTION NOTES CONTINUED:**

4. CONCRETE BUTTRESS
  - 4.1. SEE PROJECT SPECIFICATION SECTION 32 32 13.
  - 4.2. PARTIALLY COMPLETED CONCRETE BUTTRESS AT RR1303 TO BE COMPLETED AS PER PROJECT DRAWING G12 AND PROJECT SPECIFICATIONS. THE SLOPE FACE WAS SCALED AND VERTICAL BUTTRESS DOWELS (SHEAR PINS) WERE INSTALLED AT THE TOE OF THE PROPOSED BUTTRESS DURING PREVIOUS WORK. ALL REMAINING WORK TO BE COMPLETED BY THE CONTRACTOR (INCLINED BUTTRESS DOWELS, FORMWORK, REINFORCED CONCRETE, ETC.).
  - 4.3. CONCRETE PIGMENTATION TO REDUCE COLOUR CONTRAST WITH THE ADJACENT ROCK WAS PREVIOUSLY SELECTED. CONTRACTOR SHALL USE PREVIOUSLY APPROVED PIGMENT WITH AN APPROVED COMPATIBLE CONCRETE MIX, OR MAY, AT NO COST TO PCA, PROPOSE AN ALTERNATE PIGMENT SUBJECT TO THE REQUIREMENTS OF SECTION 32 32 13.

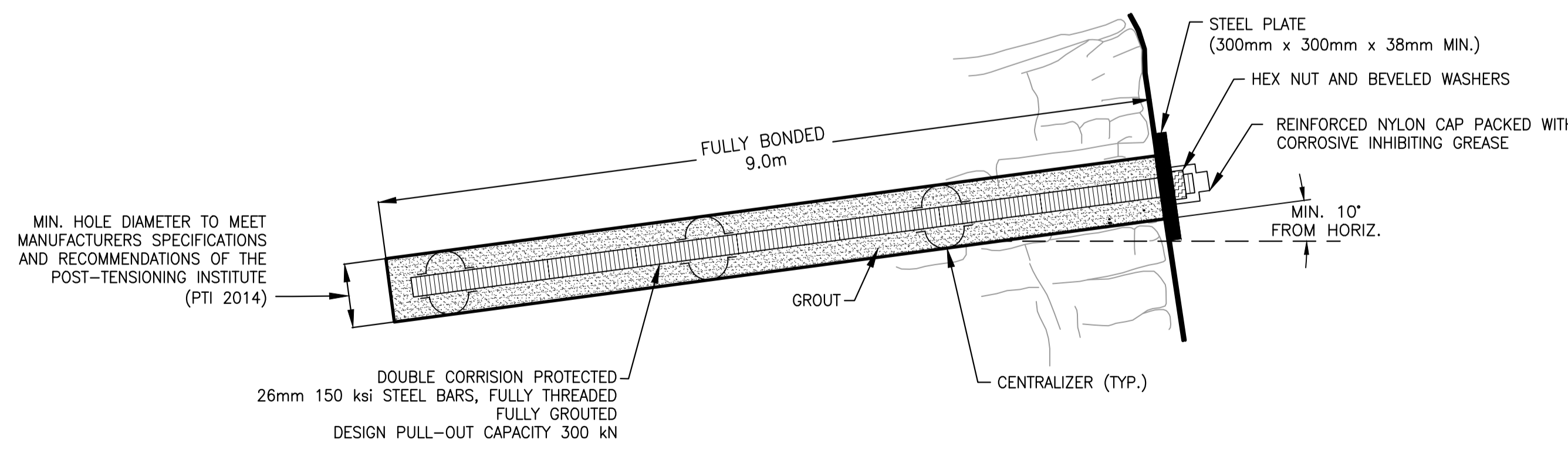
**KEY PLAN**



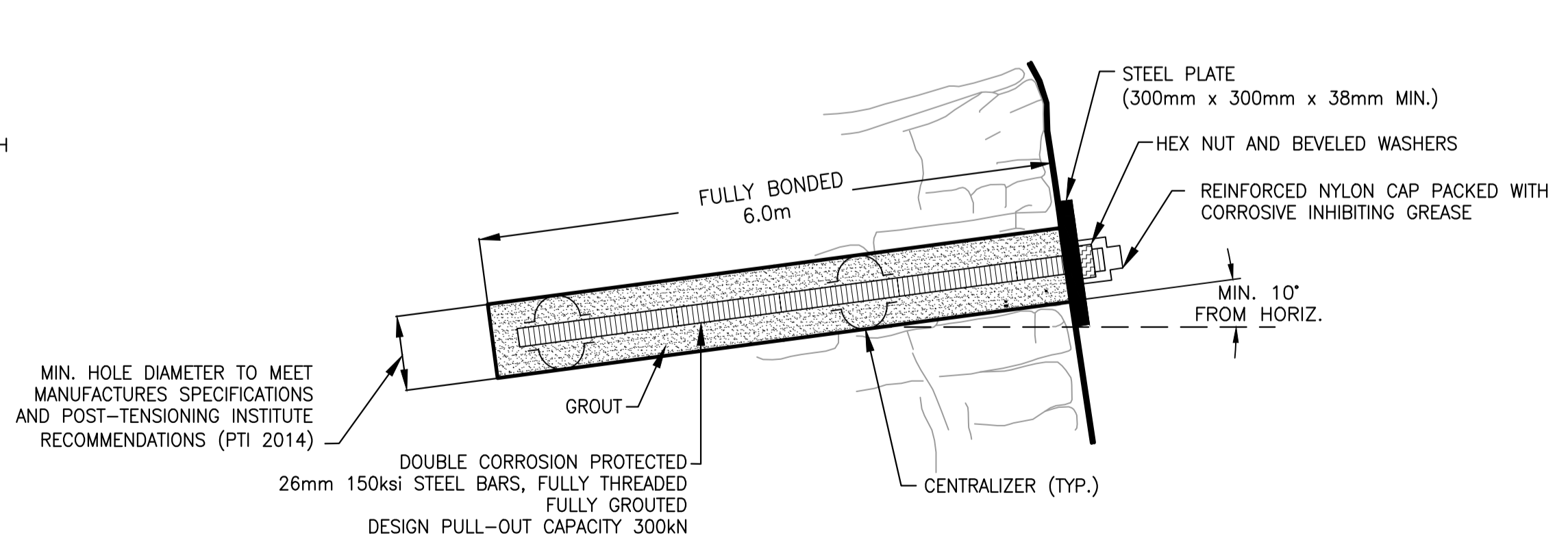
**9m LONG 26mm DIA. TENSIONED ROCK ANCHOR (1A)**  
(NOT TO SCALE) **G11**



**6m LONG 26mm DIA. TENSIONED ROCK ANCHOR (2A)**  
(NOT TO SCALE) **G11**



**9m LONG 26mm DIA. UN-TENSIONED ROCK ANCHOR (1B)**  
(NOT TO SCALE) **G11**



**6m LONG 26mm DIA. UN-TENSIONED ROCK ANCHOR (2B)**  
(NOT TO SCALE) **G11**

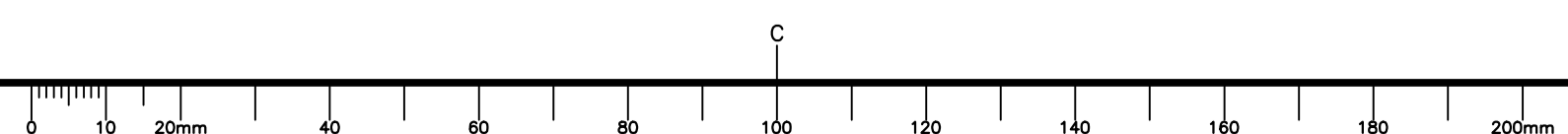


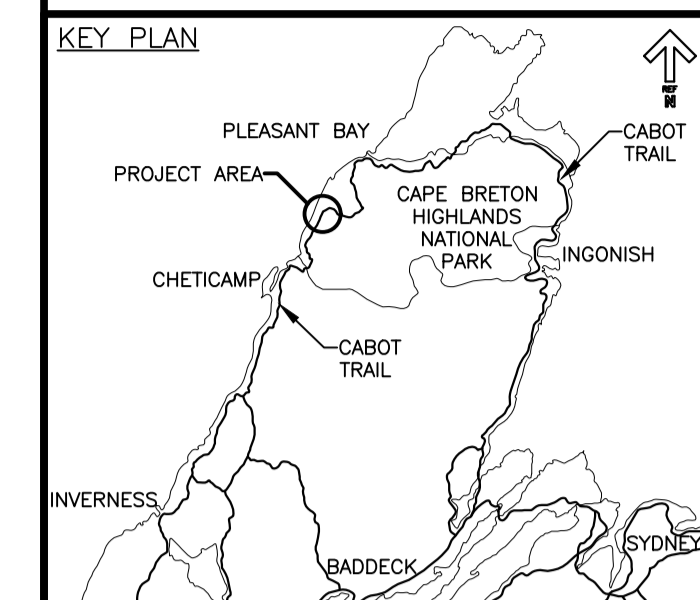
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revisions		date
project		projct

**PHASE 9  
FRENCH MOUNTAIN  
SLOPE STABILIZATION  
CAPE BRETON HIGHLANDS  
NATIONAL PARK**

**CONSTRUCTION DETAILS  
SHEET 1 OF 2**

designed	J. MATTHEW	conçu
date	MARCH 3, 2020	
drawn	D. HENDERSON	dessiné
date	MARCH 4, 2020	
approved	M. MATTHEW	approuvé
date	JULY 27, 2020	
Tender	S. BABSTOCK	Soumission
PCA Project Manager	Administrateur de projets TPSGC	
project number	669	no. du projet
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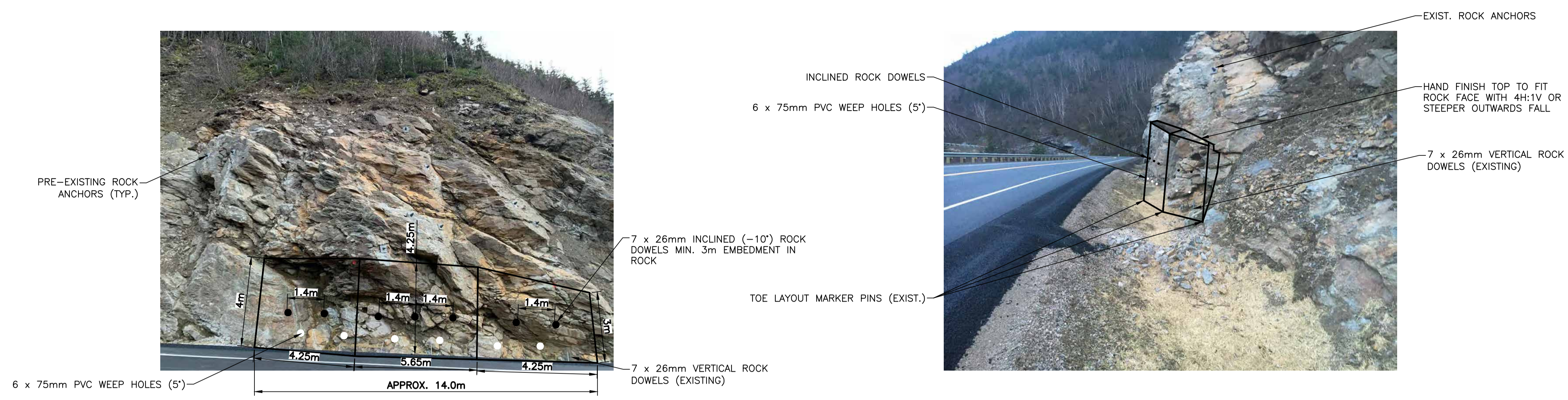


0	ISSUED FOR TENDER	JUL 27 2020
revisions		date

project  
**PHASE 9  
 FRENCH MOUNTAIN  
 SLOPE STABILIZATION  
 CAPE BRETON HIGHLANDS  
 NATIONAL PARK**

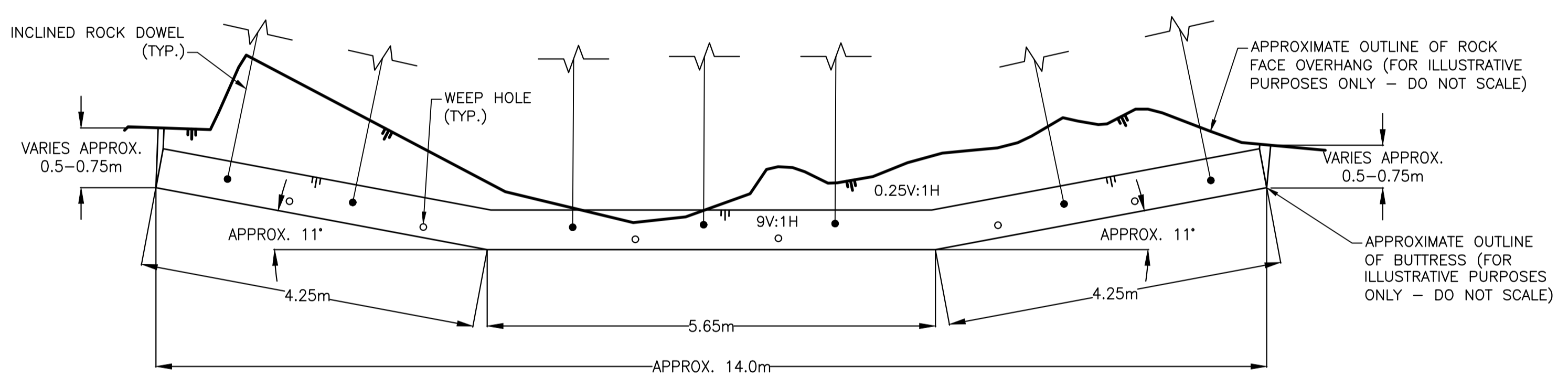
drawing  
 CONSTRUCTION DETAILS  
 SHEET 2 OF 2

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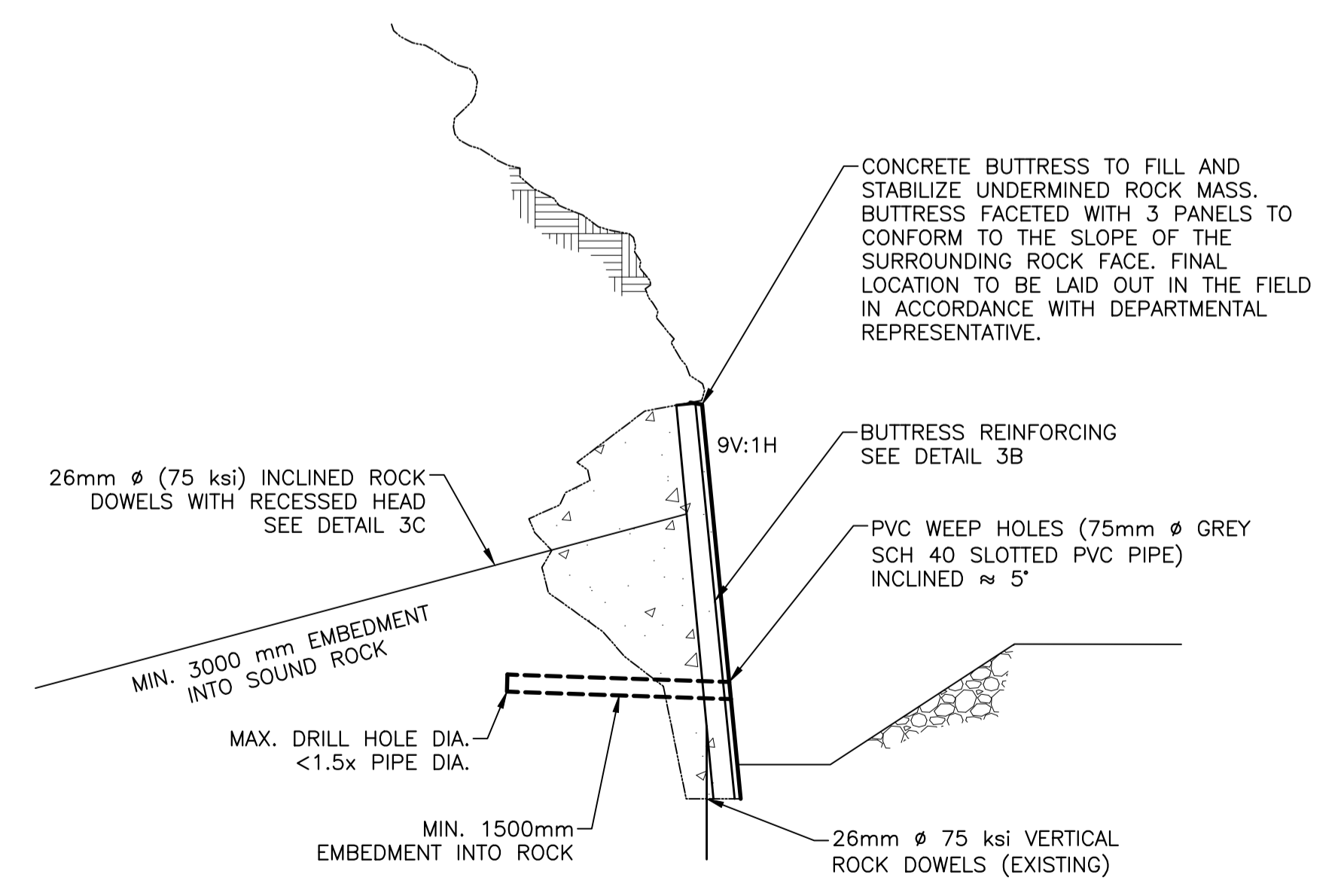


**BUTTRESS SCHEMATIC FRONT VIEW** (1) G12

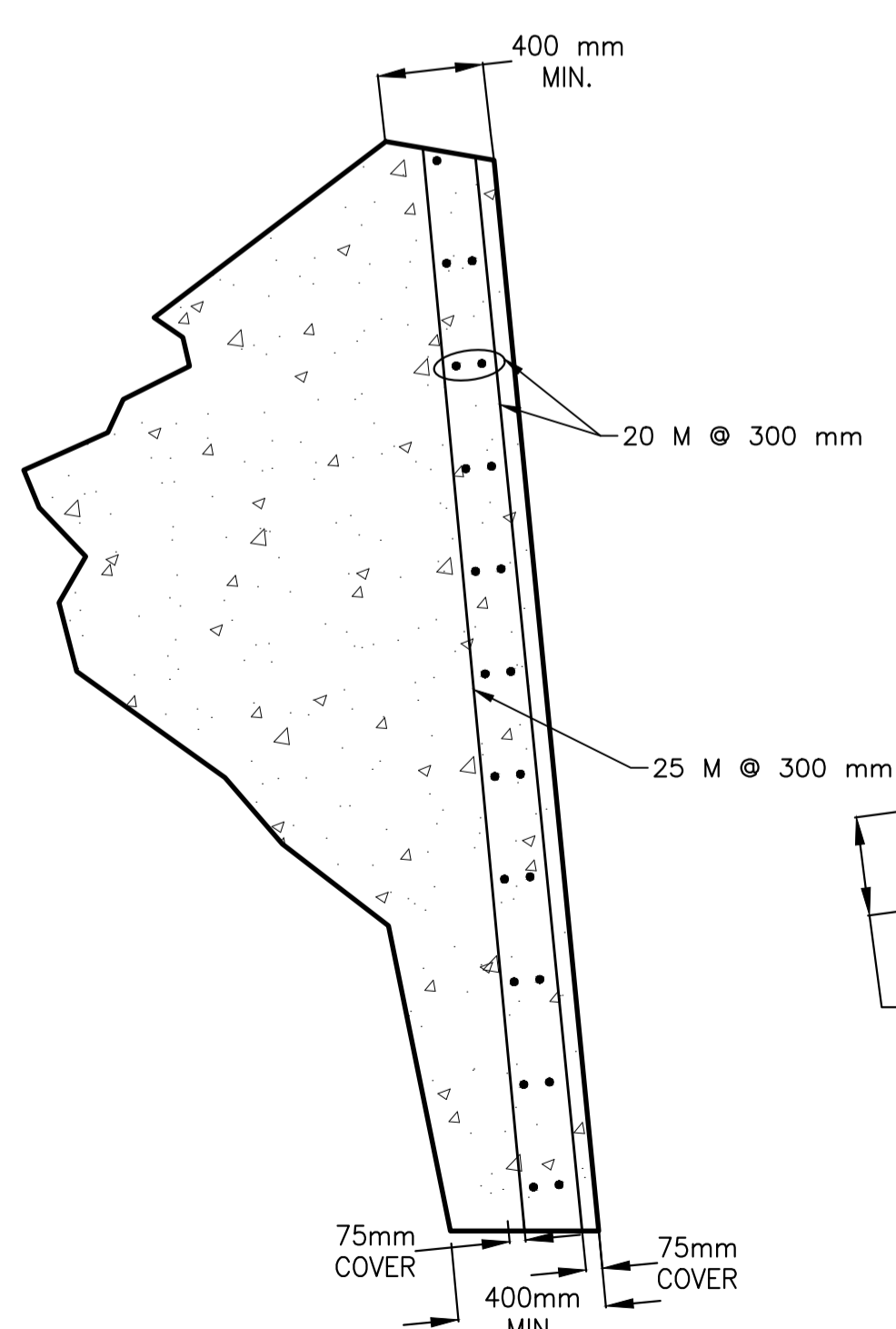
**BUTTRESS SCHEMATIC SIDE VIEW** (2) G12



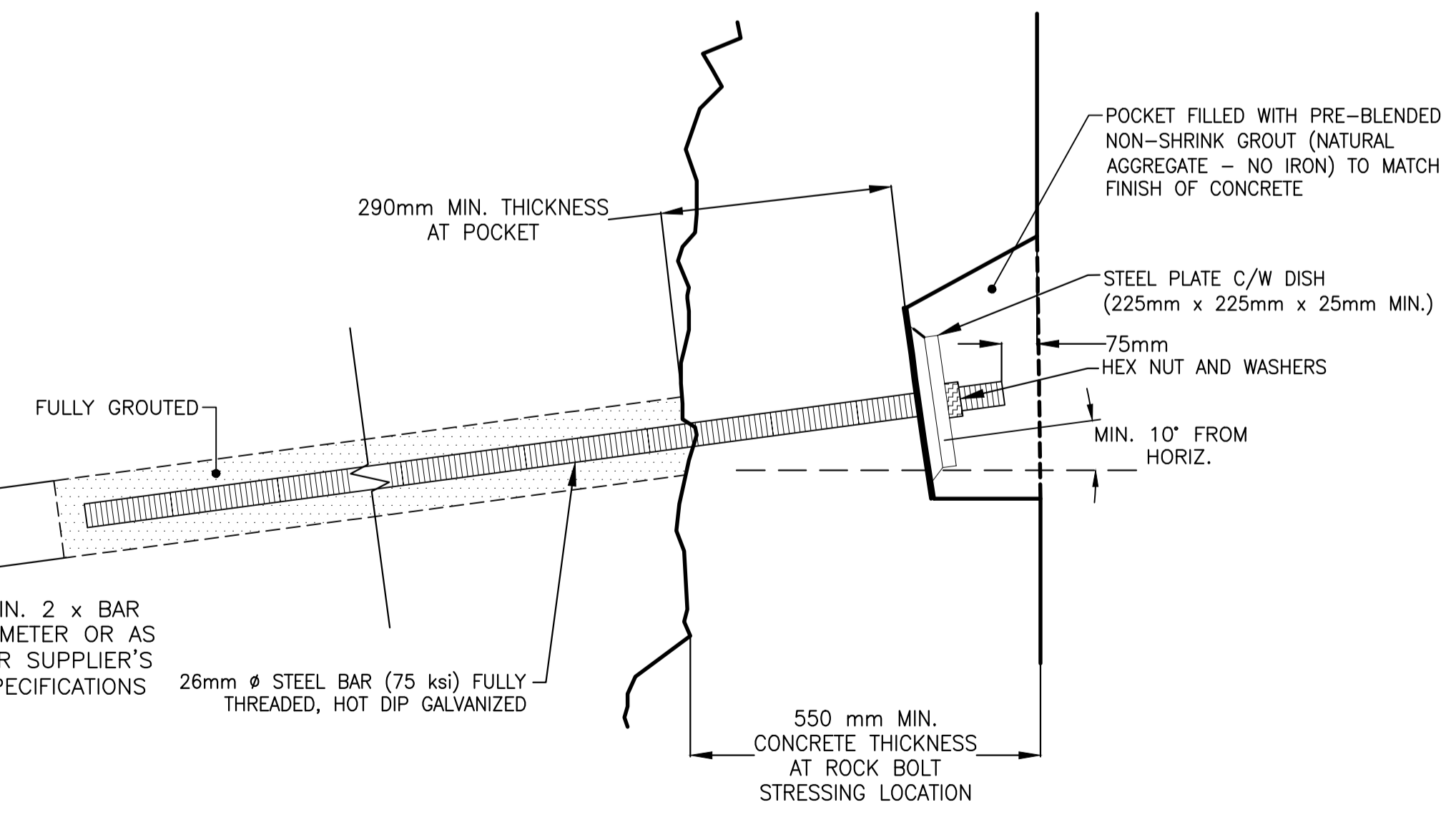
**BUTTRESS SCHEMATIC TOP VIEW** (3) G12



**REINFORCED CONCRETE BUTTRESS DETAIL (PROFILE VIEW)** (4A) G12



**REINFORCING DETAIL** (4B) G12



**ROCK DOWEL DETAIL** (4C) G12

