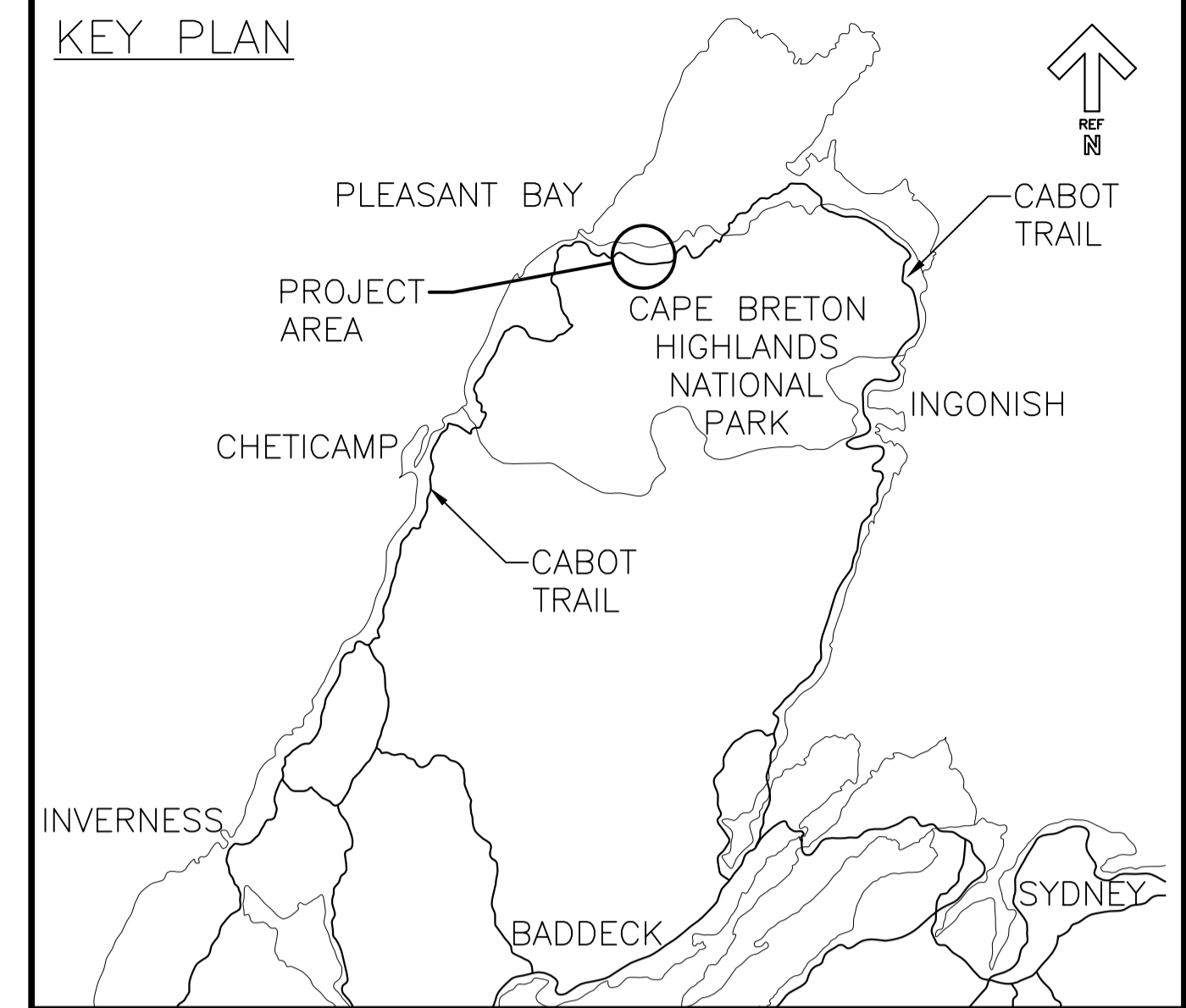


Parks
Canada

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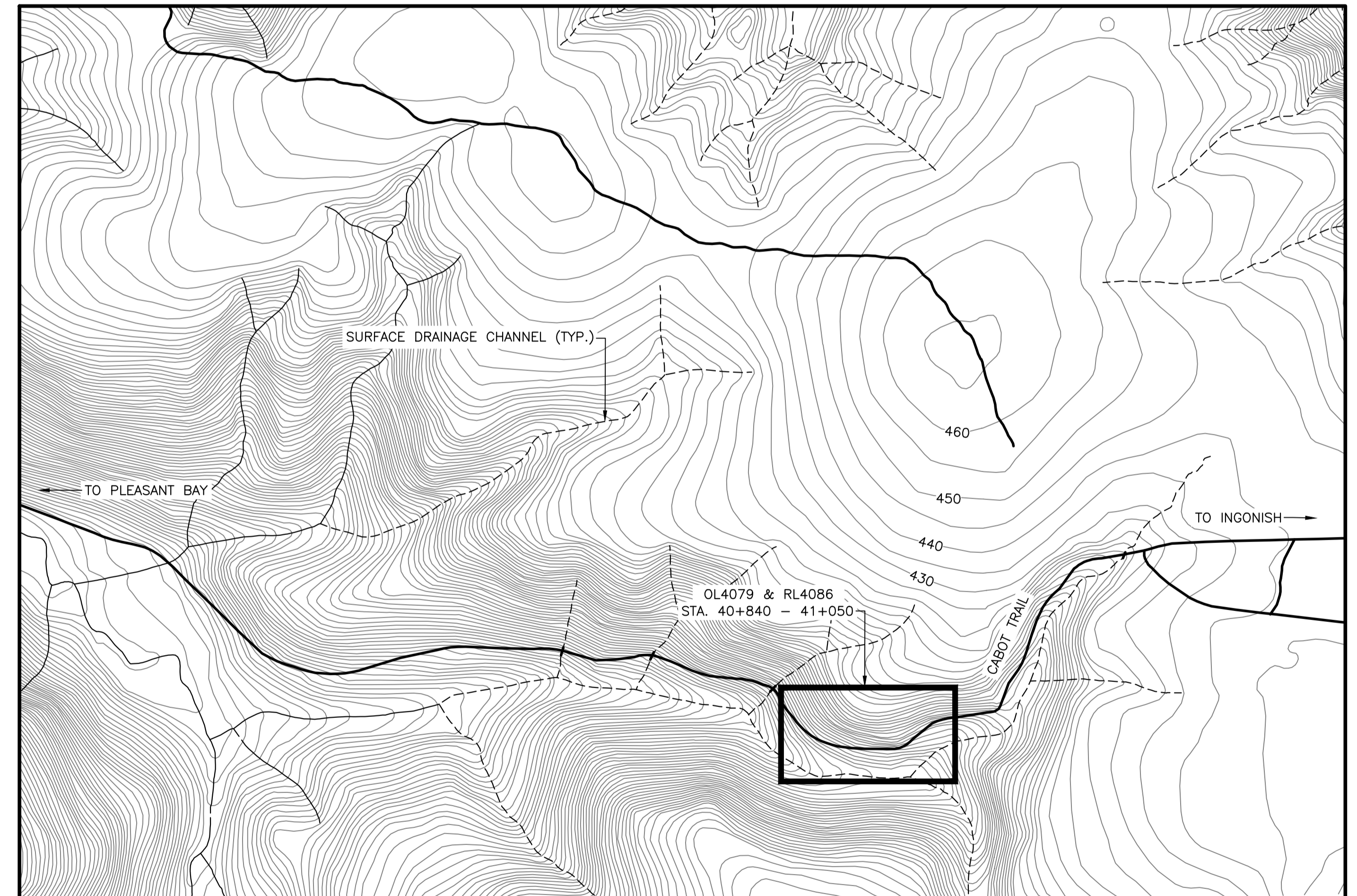


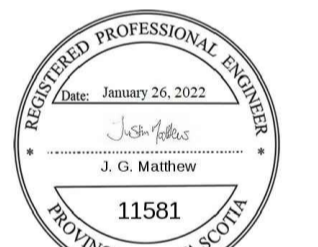
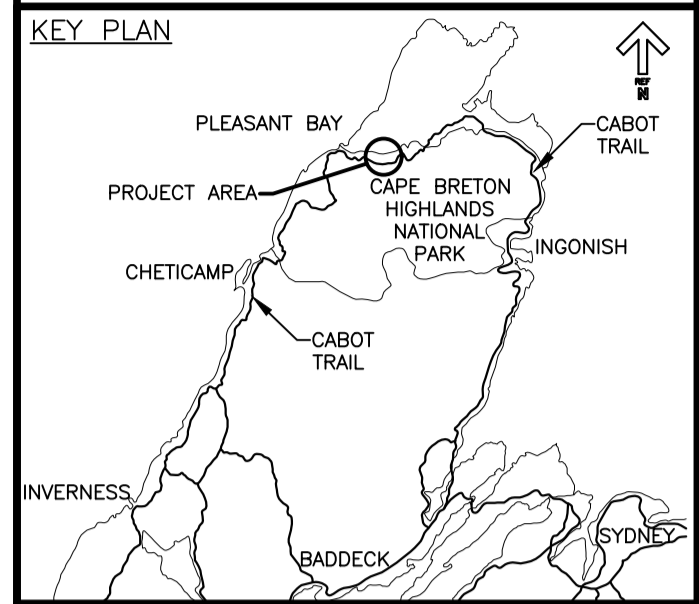
**PHASE 8 - NORTH MOUNTAIN
SLOPE STABILIZATION
OL4079 / RL4086
CAPE BRETON HIGHLANDS NATIONAL PARK
INVERNESS COUNTY, NOVA SCOTIA**

PROJECT NO. 669

DRAWING LIST

DRAWING NO.	TITLE	DATE
G01	SITE PLAN	JAN 2022
G02	SECTIONS – SHEET 1 OF 2	JAN 2022
G03	SECTIONS – SHEET 2 OF 2	JAN 2022
G04	SITE PHOTOGRAPHS	JAN 2022
G05	CONSTRUCTION NOTES AND DETAILS	JAN 2022





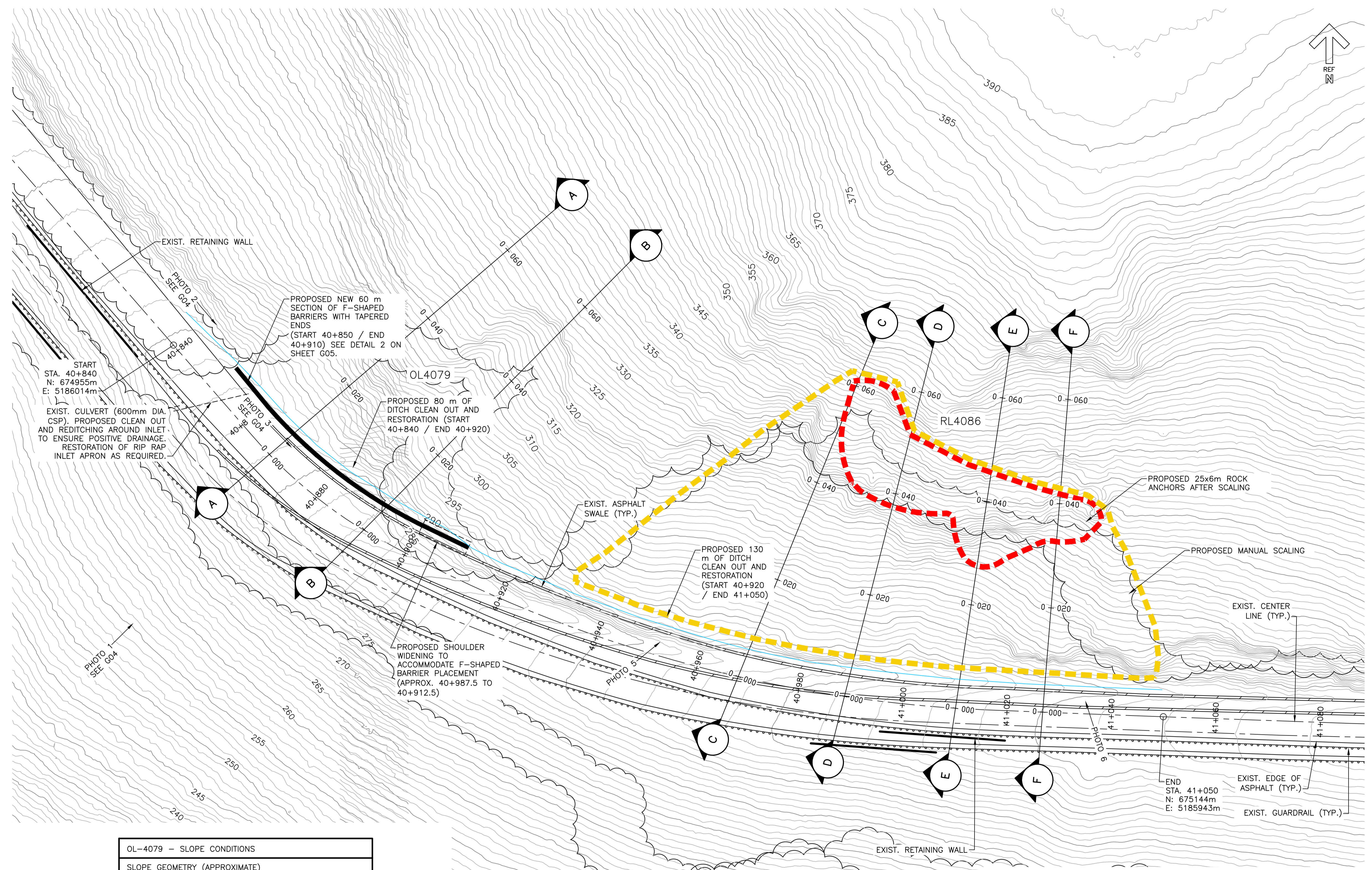
C	ISSUED FOR TENDER	JAN. 26 2022
B	ISSUED FOR 100% REVIEW	OCT. 25 2021
A	ISSUED FOR 99% REVIEW	JUN. 15 2021
revisions		date
project		projct

**PHASE 8
NORTH MOUNTAIN
SLOPE STABILIZATION
CAPE BRETON HIGHLANDS
NATIONAL PARK**

drawing dessin

**OL4079 / RL4086
SITE PLAN**

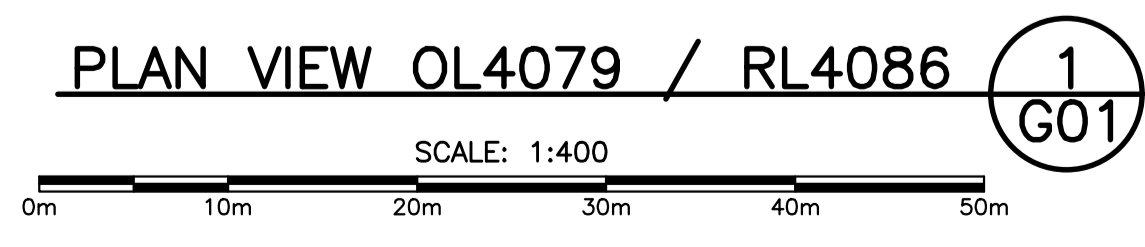
designed	J. MATTHEW	conçu
date	JUNE 15, 2021	
drawn	D. HENDERSON	dessiné
date	JUNE 15, 2021	
approved	J. MATHEW	approuvé
date	OCT. 25, 2021	
Tender	S. BABSTOCK	Soumission
PCA Project Manager	Administrateur de projets TPSGC	
project number		no. du projet
	121618431	
drawing no.		no. du dessin
	G01	



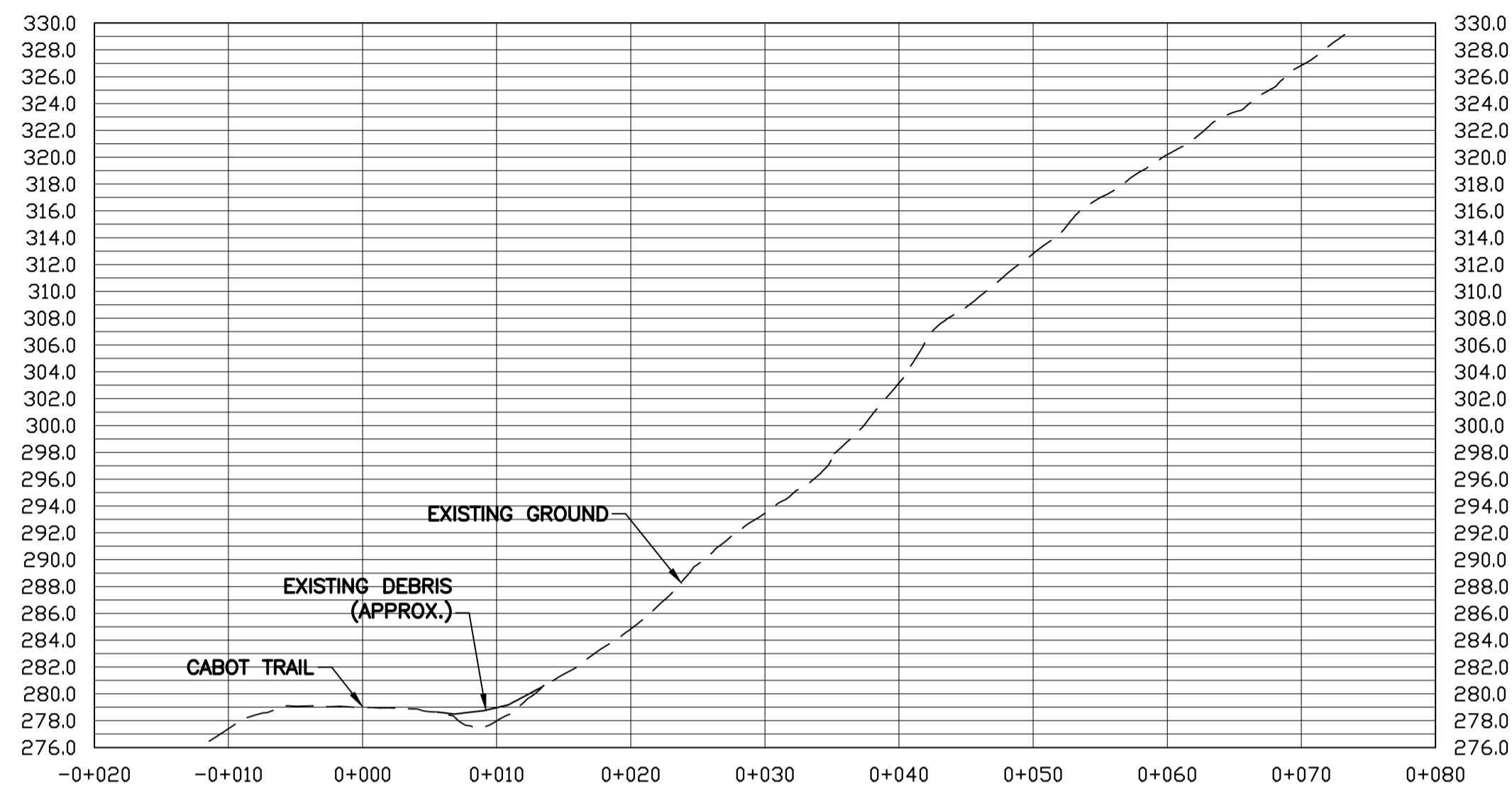
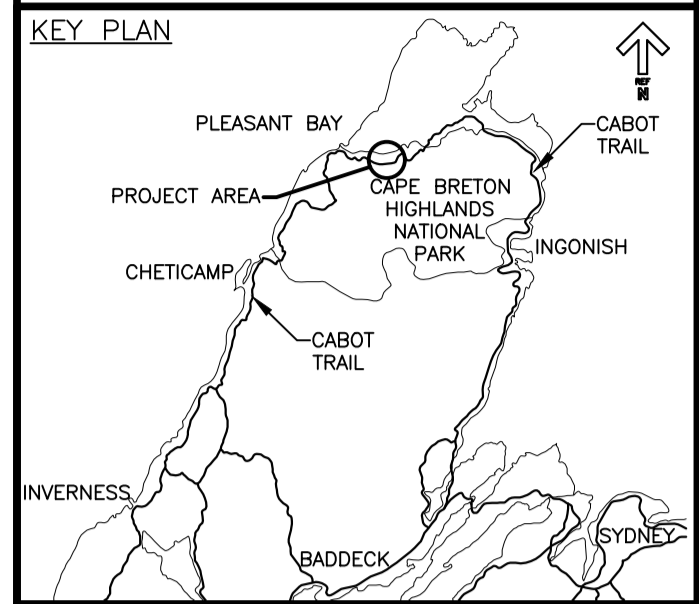
OL-4079 - SLOPE CONDITIONS	
SLOPE GEOMETRY (APPROXIMATE)	
SLOPE LENGTH: 80 m	
SLOPE HEIGHT: UP TO 44 m	
SLOPE ANGLE: 40° (OVERALL)	
GEOTECHNICAL DESCRIPTION	
<ul style="list-style-type: none"> OVERBURDEN SLOPE WITH LARGE, ACTIVE EROSION SCAR SURFICIAL SLOUGHING AND EROSION ACTIVE RECEDING OF OVER-STEEPENED HEADSCARP WITH UNDERCUTTING OF ROOTMAT, TOPPLING OF TREES 	

RL-4086 - SLOPE CONDITIONS	
SLOPE GEOMETRY (APPROXIMATE)	
SLOPE LENGTH: 130 m	
SLOPE HEIGHT: UP TO 48 m	
SLOPE ANGLE: 45° (OVERALL)	
GEOTECHNICAL DESCRIPTION	
<ul style="list-style-type: none"> CONTINUOUS RAVELING RELEASING INDIVIDUAL ROCK BLOCKS AND SMALL ROCK MASSES FROM HIGHLY FRACTURED AND WEATHERED UPPER CLIFF FACE 	

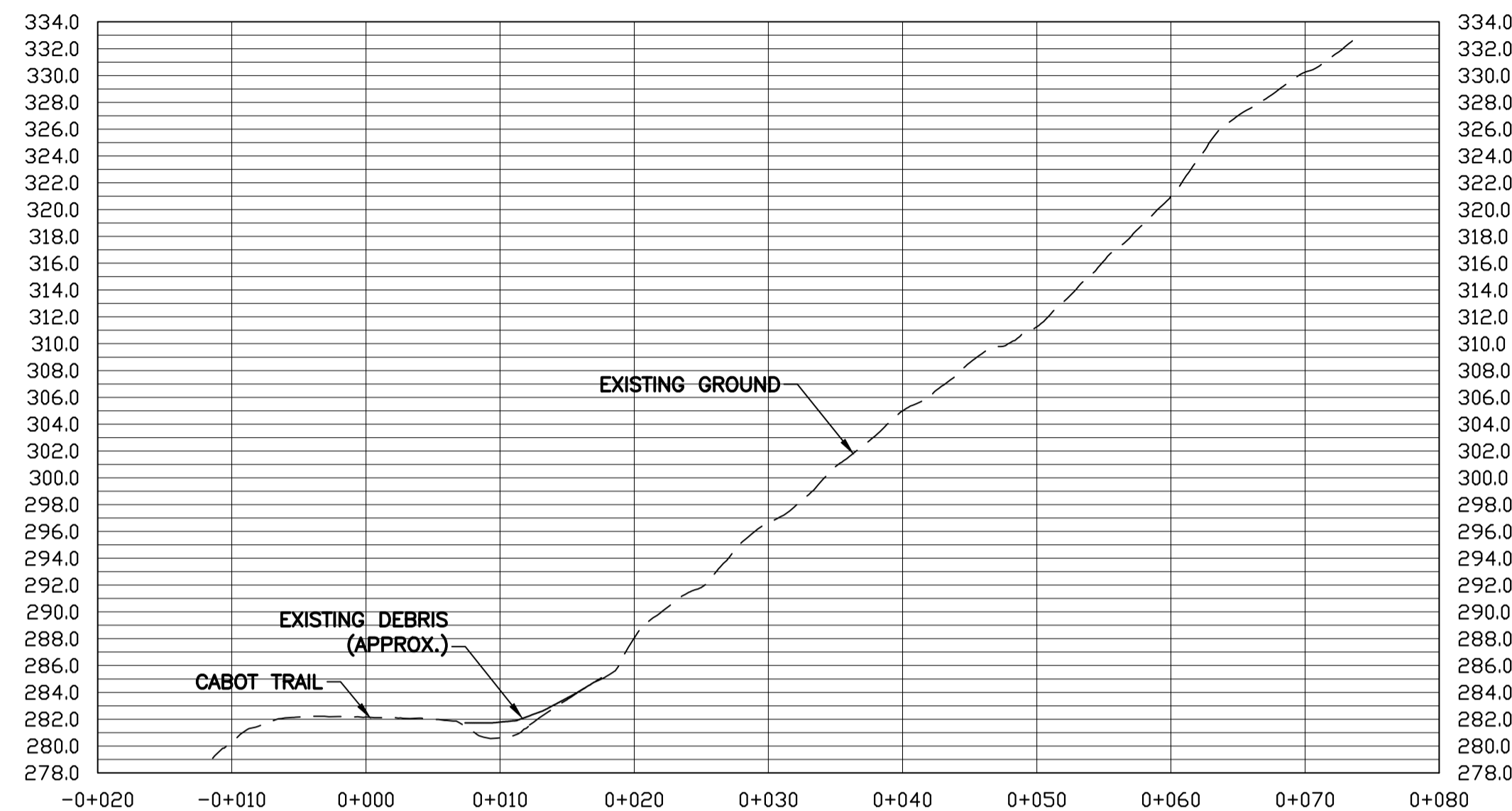
LEGEND		OL4079 - REMEDIAL DESIGN
KEY	STABILIZATION ITEM	EST. QUANTITY
	MATERIAL REMOVAL & DITCH CLEANOUT/RESTORATION	100 m ³ MATERIAL REMOVED (STA 40+840 TO 40+920)
	F-SHAPE CONCRETE BARRIERS	60 m / 24 BARRIERS
	SHOULDER WIDENING	15 m ³ OF MATERIAL REMOVED 17 tonne OF TYPE 1S 45 tonne OF GRAVEL BORROW



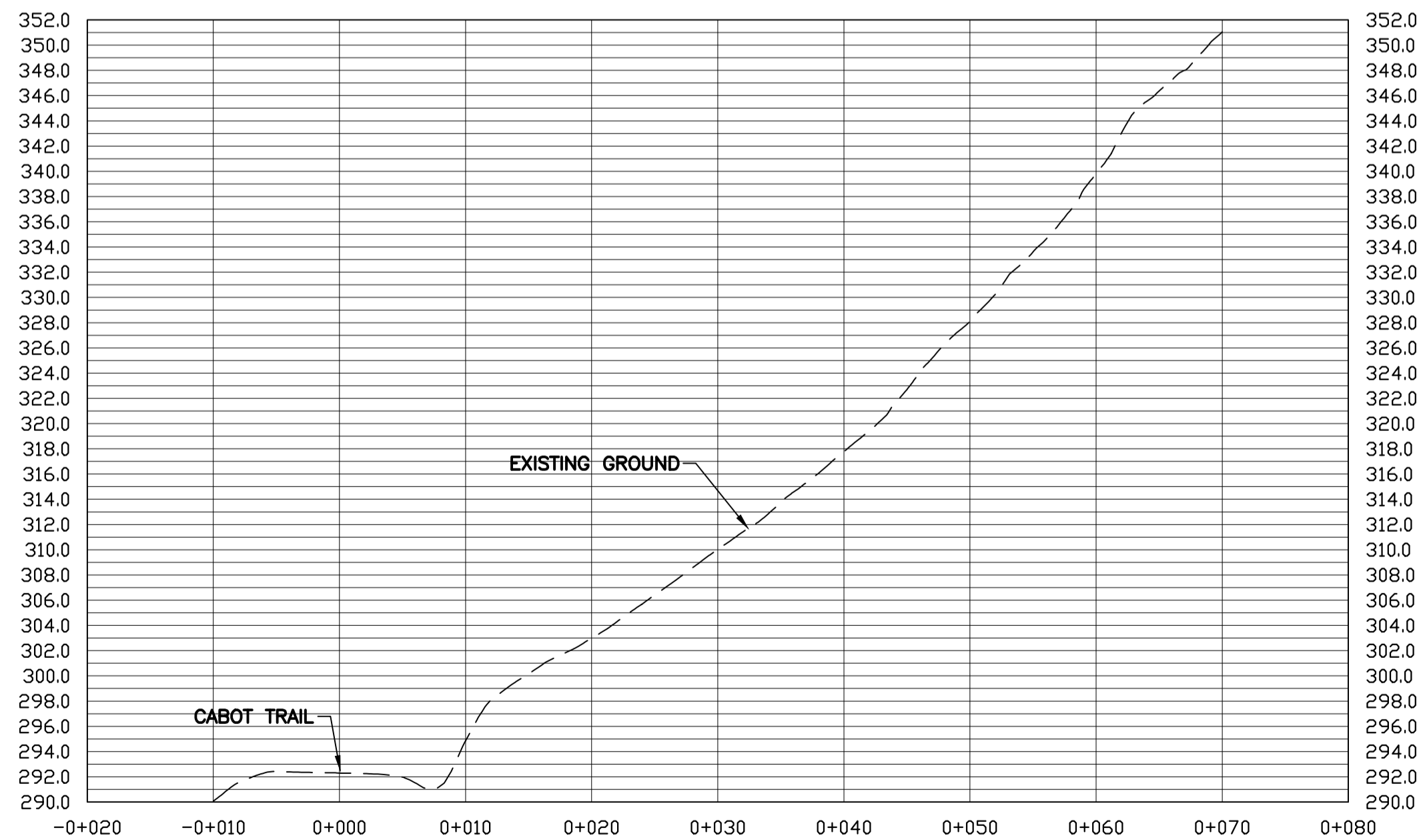
LEGEND		RL-4086 - REMEDIAL DESIGN
KEY	STABILIZATION ITEM	EST. QUANTITY
	LIMITS OF ROCK ANCHORS	30 x φ 26 mm X 6 m LONG UN-TENSIONED ROCK ANCHORS
	LIMITS OF SCALING	75 HRS MANUAL, 20 HRS BOOM LIFT
	MATERIAL REMOVAL & DITCH CLEANOUT/RESTORATION	550 m ³ MATERIAL REMOVED (STA 40+920 TO 41+050)



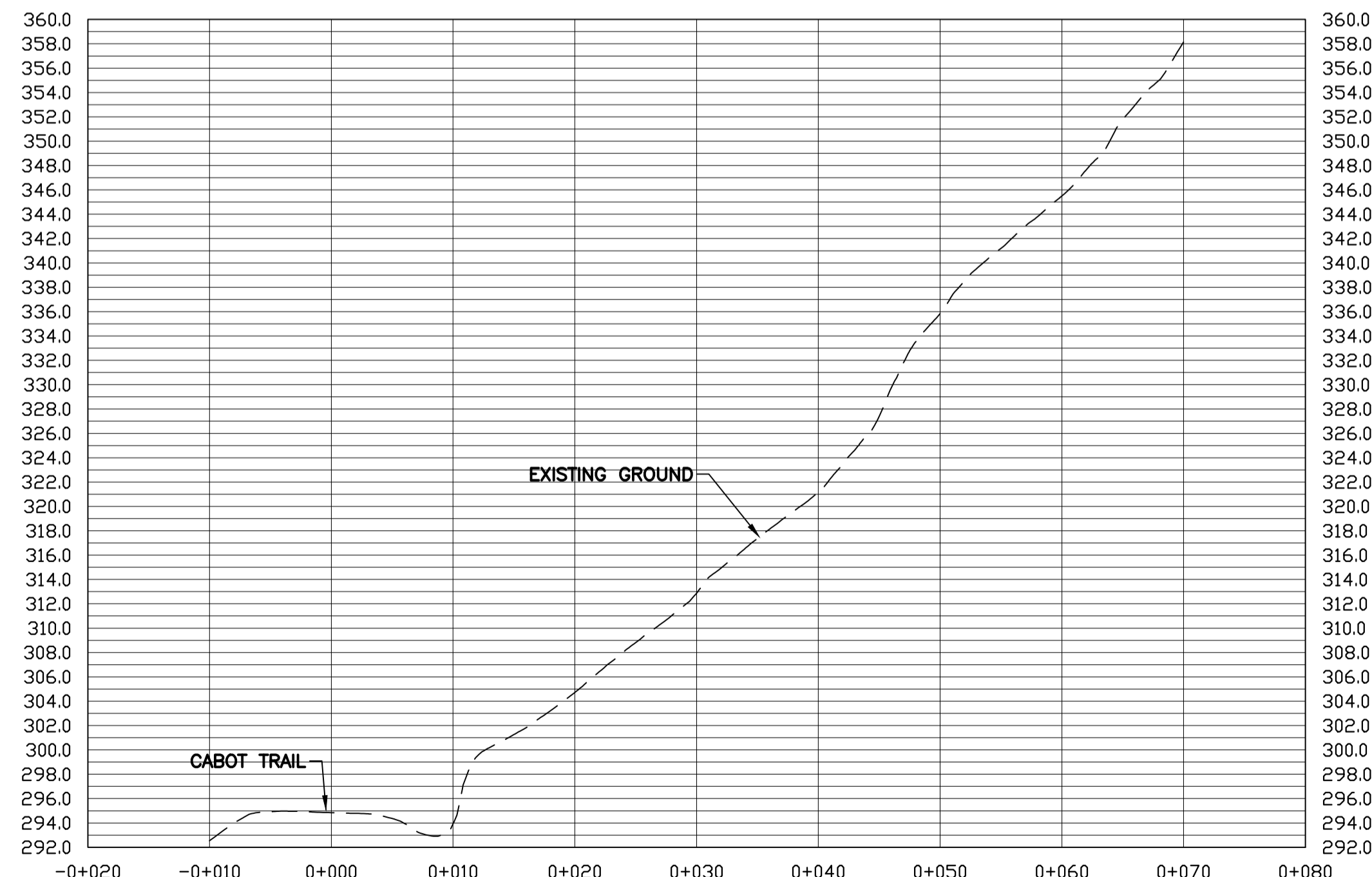
SECTION **A**
SCALE: H=1:400 V=1:400
G01



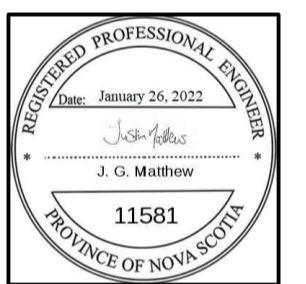
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G01



SECTION **C**
SCALE: H=1:400 V=1:400
G01



SECTION **D**
SCALE: H=1:400 V=1:400
G01

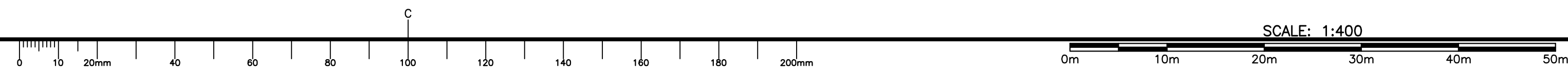


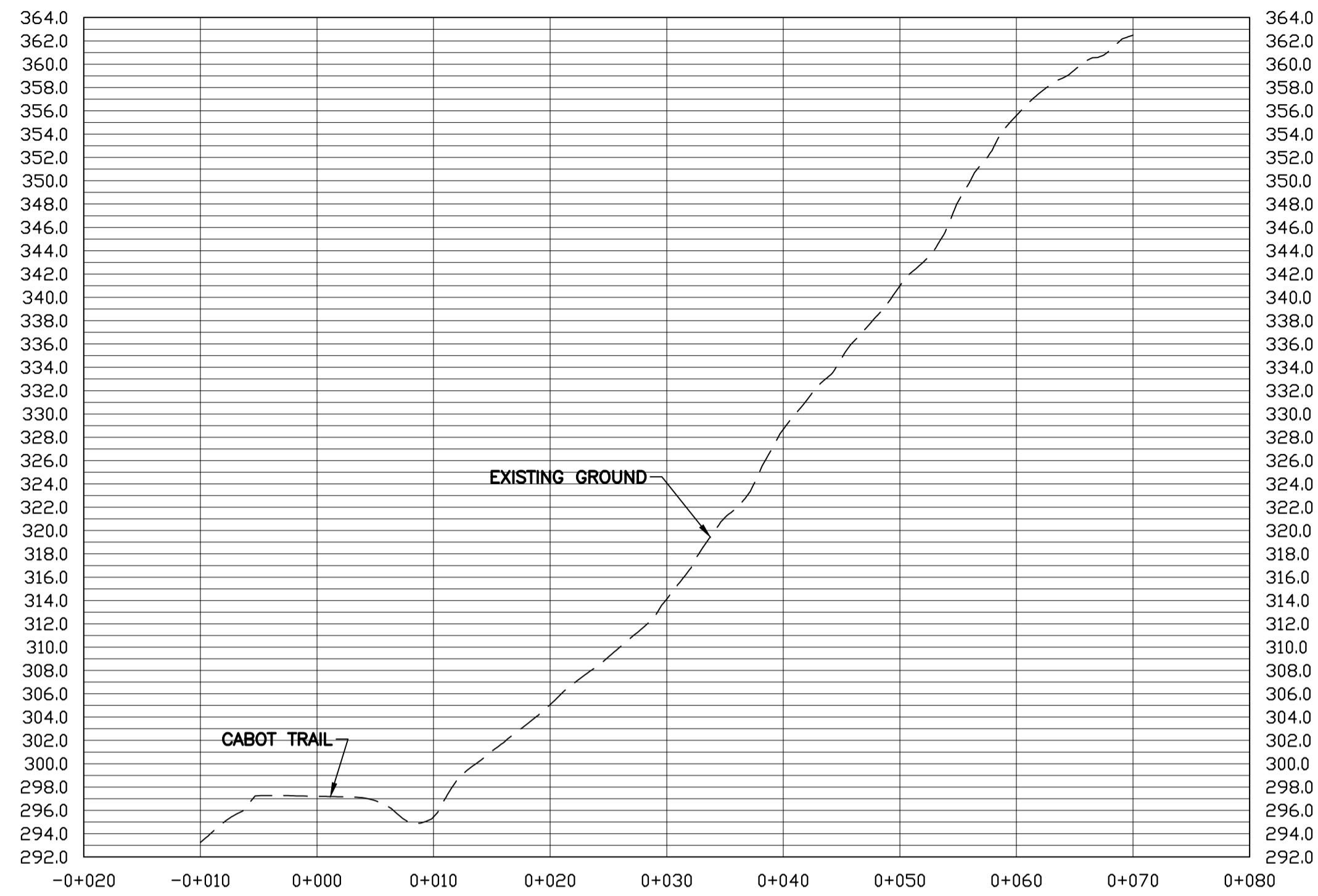
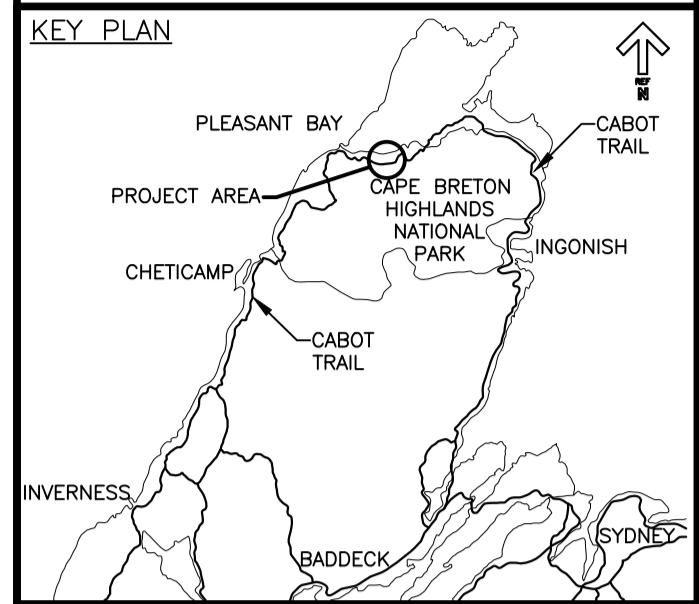
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**PHASE 8
NORTH MOUNTAIN
SLOPE STABILIZATION
CAPE BRETON HIGHLANDS
NATIONAL PARK**

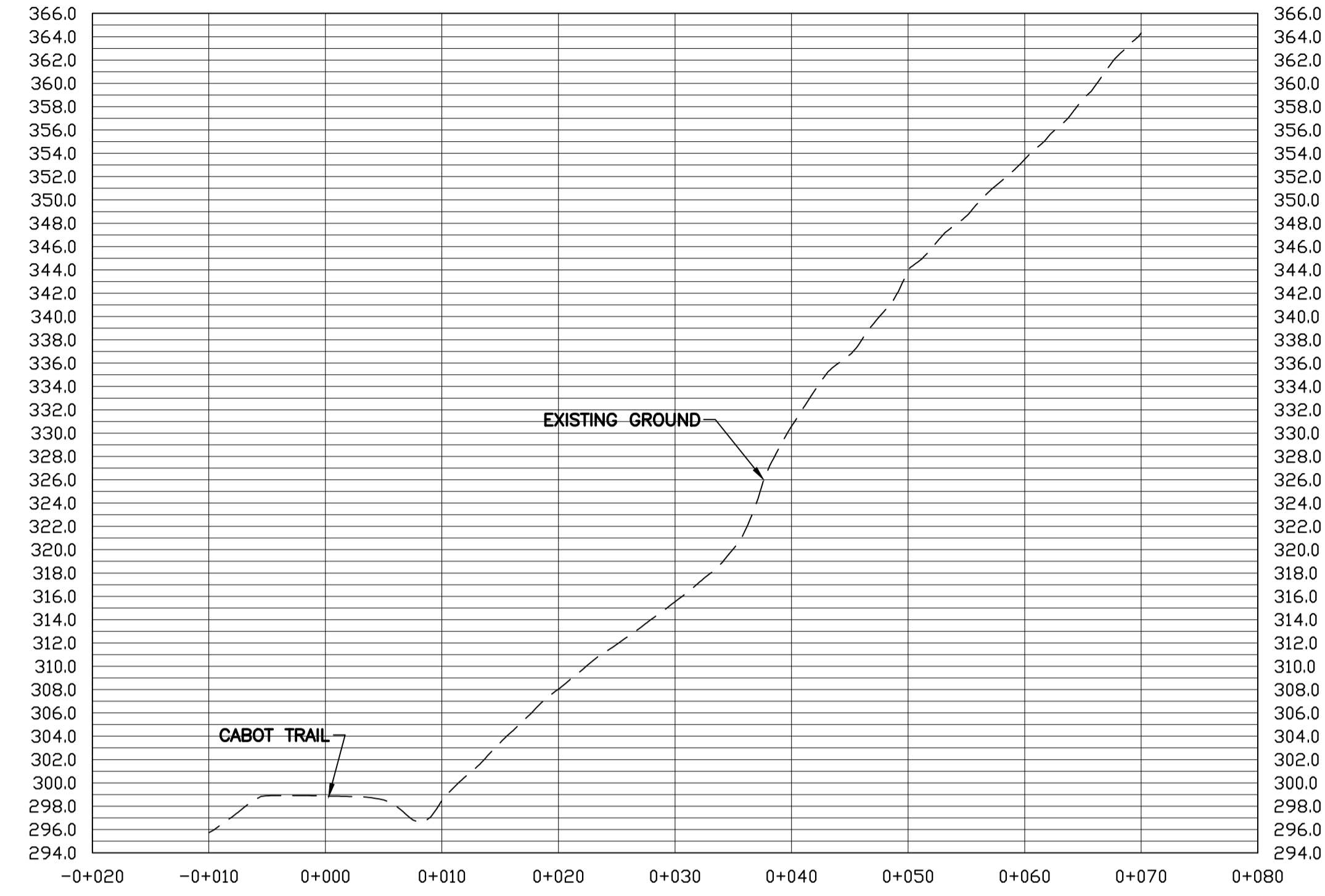
**OL4079 / RL4086
SECTIONS
SHEET 1 OF 2**

designed	J. MATTHEW	conçu
date	JUNE 15, 2021	
drawn	D. HENDERSON	dessiné
date	JUNE 15, 2021	
approved	M. MATTHEW	approuvé
date	OCT. 25, 2021	
Tender	S. BABSTOCK	Soumission
PCA Project Manager	Administrateur de projets TPSGC	
project number	no. du projet	
	121618431	
drawing no.	no. du dessin	
	G02	

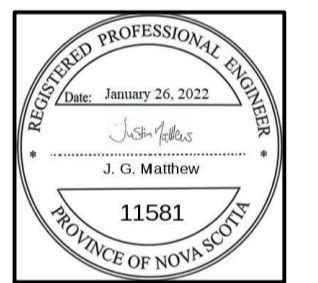




SECTION **E**
SCALE: H=1:400 V=1:400
G01



SECTION **F**
SCALE: H=1:400 V=1:400
G01



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PHASE 8
NORTH MOUNTAIN
SLOPE STABILIZATION
CAPE BRETON HIGHLANDS
NATIONAL PARK

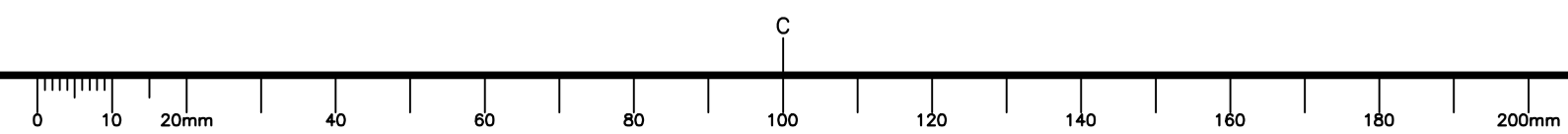
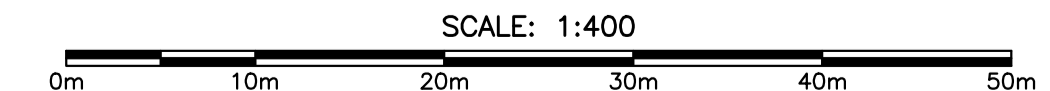
drawing dessin
OL4079 / RL4086
SECTIONS
SHEET 2 OF 2

designed	J. MATTHEW	conçu
date	JUNE 15, 2021	
drawn	D. HENDERSON	dessiné
date	JUNE 15, 2021	
approved	M. MATTHEW	approuvé
date	OCT. 25, 2021	

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

project number no. du projet
121618431

drawing no. no. du dessin
G03



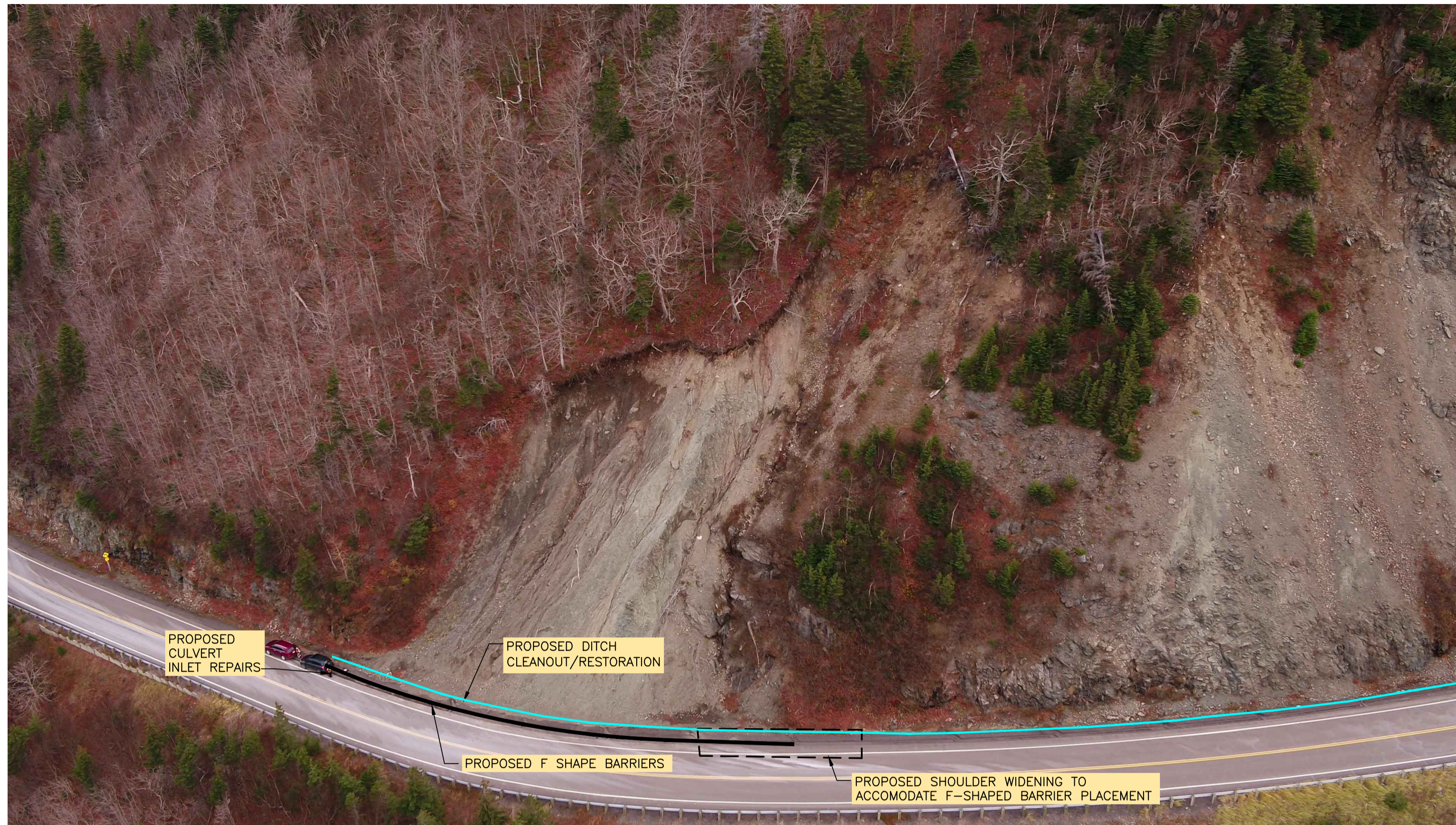


PHOTO 1: AERIAL VIEW OL4079 (1) G01

IMAGE TAKEN NOV. 7, 2019

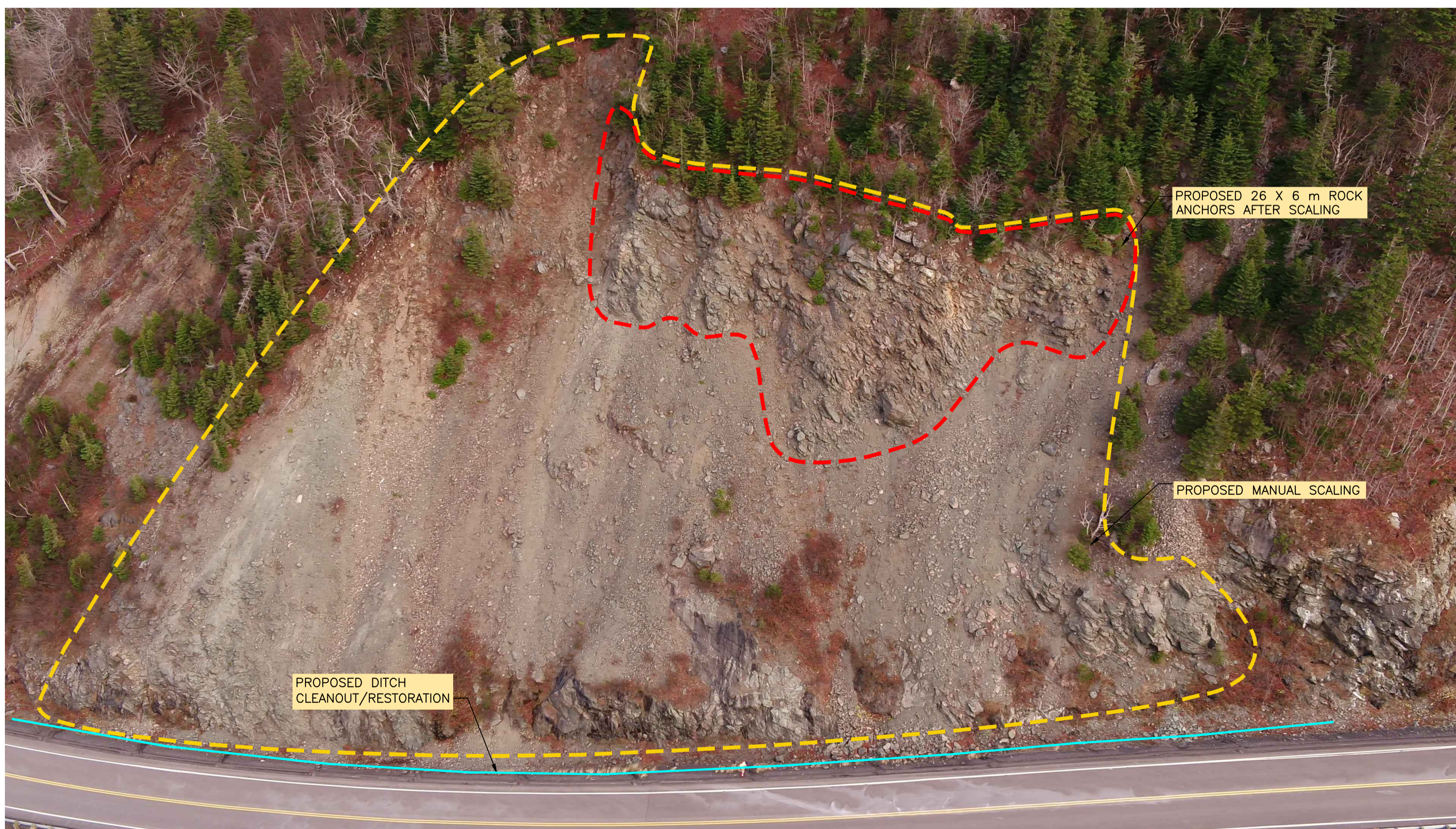


PHOTO 4: AERIAL VIEW RL4086 (4) G01

IMAGE TAKEN NOV. 7, 2019



IMAGE TAKEN NOVEMBER 5, 2021

PHOTO 2: OL4079 (2) G01



IMAGE TAKEN NOVEMBER 5, 2021

PHOTO 3: OL4079 (3) G01

OL-4079 - SLOPE CONDITIONS	
SLOPE GEOMETRY (APPROXIMATE)	
SLOPE LENGTH: 80 m	
SLOPE HEIGHT: UP TO 44 m	
SLOPE ANGLE: 40° (OVERALL)	
GEOTECHNICAL DESCRIPTION	
<ul style="list-style-type: none"> OVERBURDEN SLOPE WITH LARGE, ACTIVE EROSION SCAR SURFICIAL SLOUGHING AND EROSION ACTIVE RECEDING OF OVER-STEEPENED HEADSCARP WITH UNDERCUTTING OF ROOTMAT, TOPPLING OF TREES 	

LEGEND		OL4079 - REMEDIAL DESIGN
KEY	STABILIZATION ITEM	EST. QUANTITY
	MATERIAL REMOVAL & DITCH CLEANOUT/RESTORATION	100 m ³ MATERIAL REMOVED (STA 40+840 TO 40+920)
—	F-SHAPE CONCRETE BARRIERS	60 m / 24 BARRIERS
□ □ □	SHOULDER WIDENING	15 m ³ OF MATERIAL REMOVED 17 tonne OF TYPE 1S 45 tonne OF GRAVEL BORROW



IMAGE TAKEN JUNE 15, 2021

PHOTO 5: RL 4086 (5) --

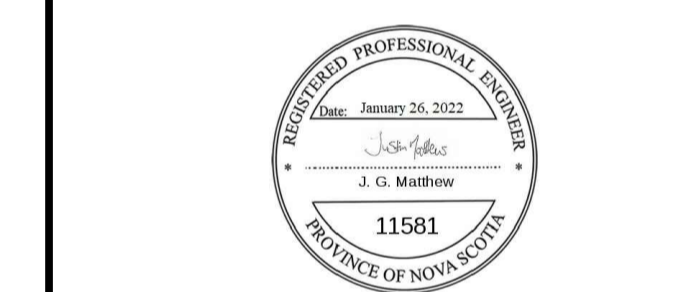
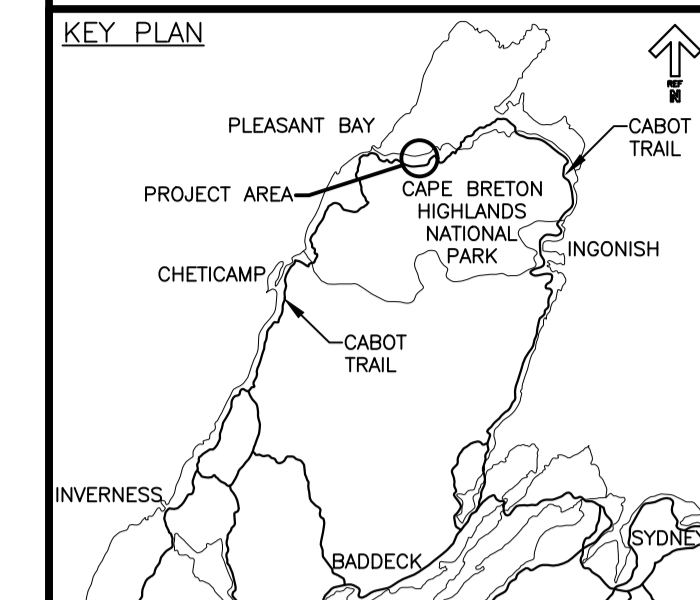


IMAGE TAKEN JUNE 15, 2021

PHOTO 6: RL 4086 (6) --

RL-4086 - SLOPE CONDITIONS	
SLOPE GEOMETRY (APPROXIMATE)	
SLOPE LENGTH: 130 m	
SLOPE HEIGHT: UP TO 48 m	
SLOPE ANGLE: 45° (OVERALL)	
GEOTECHNICAL DESCRIPTION	
<ul style="list-style-type: none"> CONTINUOUS RAVELING RELEASING INDIVIDUAL ROCK BLOCKS AND SMALL ROCK MASSES FROM HIGHLY FRACTURED AND WEATHERED UPPER CLIFF FACE 	

LEGEND		RL-4086 - REMEDIAL DESIGN
KEY	STABILIZATION ITEM	EST. QUANTITY
— —	LIMITS OF ROCK ANCHORS	30 x φ 26 mm X 6 m LONG UN-TENSIONED ROCK ANCHORS
— — —	LIMITS OF SCALING	75 HRS MANUAL, 20 HRS BOOM LIFT
	MATERIAL REMOVAL & DITCH CLEANOUT/RESTORATION	550 m ³ MATERIAL REMOVED (STA 40+920 TO 41+050)



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revisions		date
project		projct

PHASE 8
NORTH MOUNTAIN
SLOPE STABILIZATION
CAPE BRETON HIGHLANDS
NATIONAL PARK

drawing no. du dessin

OL4079 / RL4086
SITE PHOTOGRAPHS
AND REMEDIAL DESIGN

designed	J. MATTHEW	conçu
date	JUNE 15, 2021	
drawn	D. HENDERSON	dessiné
date	JUNE 15, 2021	
approved	M. MATTHEW	approuvé
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Tender S. BABSTOCK
PCA Project Manager Administrateur de projets TPSGC

project number no. du projet
121618431

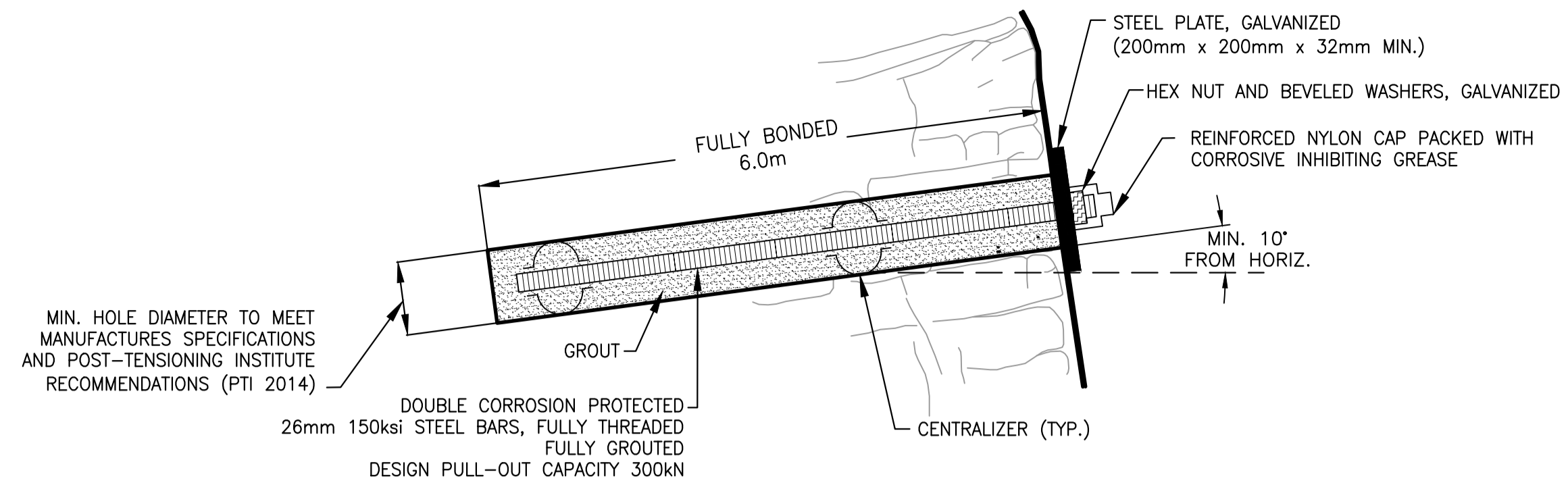
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GENERAL NOTES:

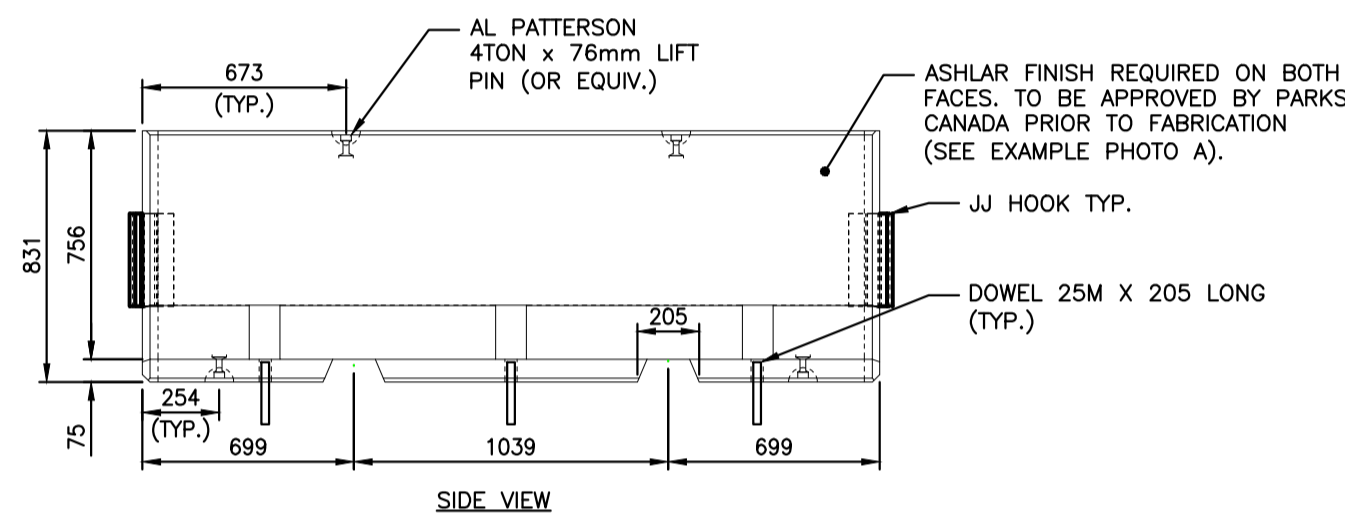
1. ALL DIMENSIONS AND COORDINATES ARE METRIC UNITS UNLESS OTHERWISE NOTED.
2. ALL COORDINATES REFER TO NAD83 (CSRS) UTM ZONE 20.
3. ALL SITE CONDITIONS, DIMENSIONS AND ELEVATIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. CONTRACTOR TO REPORT ANY DISCREPANCIES TO THE DEPARTMENTAL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

CONSTRUCTION NOTES:

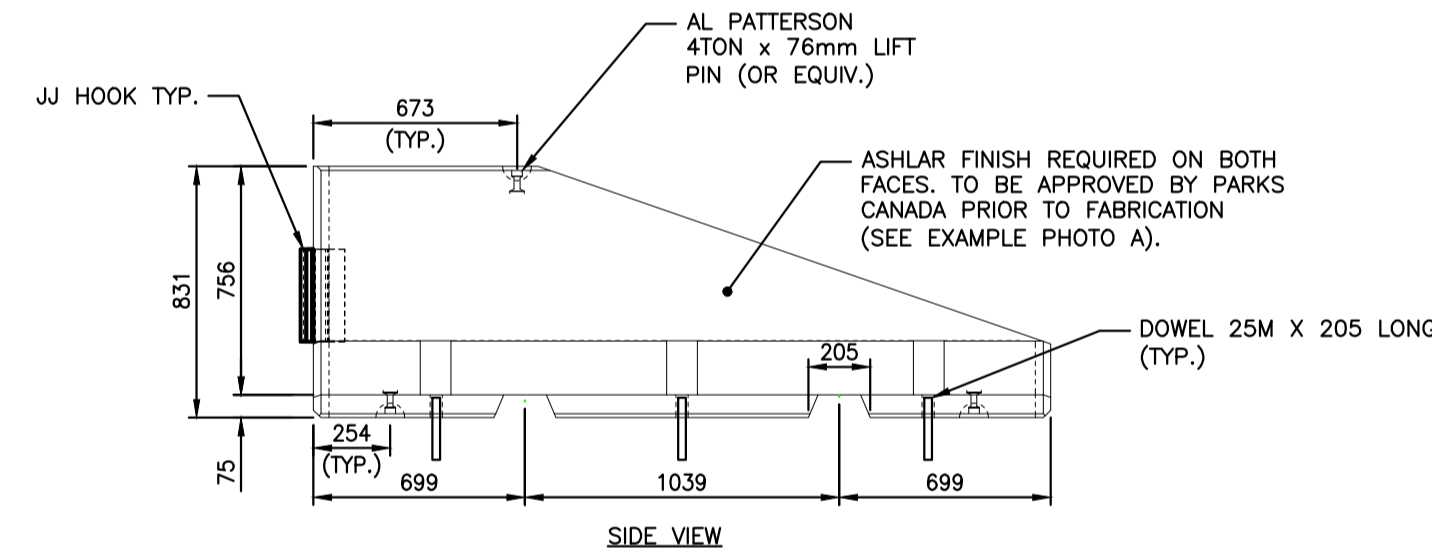
1. SCALING
 - 1.1. SEE PROJECT SPECIFICATION SECTION 31 23 20.
 - 1.2. UPPER CLIFF FACE TO BE SCALED MANUALLY USING ROPE ACCESS. LOWER SLOPE FACE TO BE SCALED MANUALLY USING ROPE ACCESS OR LIFT BOOM ACCESS.
 - 1.3. CONTROL AND LIMIT SCALING ACTIVITIES AT CREST TO AVOID EXCESSIVE DISTURBANCE TO VEGETATIVE MAT AND UNDERCUTTING OF OVERBURDEN/HIGHLY FRACTURED AND WEATHERED BEDROCK. VEGETATION REMOVAL IS TO BE GENERALLY LIMITED TO THE ROCK FACE WHERE DELETERIOUS VEGETATION GROWTH IS LEADING TO ROOT JACKING.
2. ROCK ANCHORS
 - 2.1. SEE PROJECT SPECIFICATION SECTION 31 33 13.
 - 2.2. INSTALL ROCK ANCHORS FROM THE TOP DOWN AT LOCATIONS SPECIFIED IN THE FIELD 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 REDRILLING. 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 MAY BE REQUIRED 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. AFTER EXCAVATION IS COMPLETE, THE HIGHWAY DITCH SHALL BE REINSTATED TO THE PRE-CONSTRUCTION CONDITIONS, OR OTHER LINES, LIMITS, AND GRADES AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE TO ALLOW FUNCTIONALITY AS CATCHMENT AND DRAINAGE AREA, WHICH INCLUDES SLOPED SIDE AND BOTTOMS TO ALLOW ROCKFALL RETAINMENT AND PREVENT THE PONDING OF WATER. ANY EXISTING DITCH CHECK DAMS ARE TO BE PROTECTED, OR RE-INSTATED POST-CONSTRUCTION.
 - 3.4. EXISTING ASPHALT GUTTERS, RAP SHOULDER SURFACES AND OFFTAKES TO BE PROTECTED DURING THE WORK.
 - 3.5. ANY DAMAGE AS A RESULT OF THE CONTRACTOR MUST BE REPAIRED PRIOR TO CONTRACT COMPLETION AT NO COST TO PCA.
4. PERMANENT F-SHAPED CONCRETE JERSEY BARRIERS
 - 4.1. SEE PROJECT SPECIFICATION SECTION 34 71 43.
 - 4.2. WHERE REQUIRED, EXTEND THE ROAD SHOULDER WIDTH TO A MINIMUM OF 0.87 METRES BEYOND THE EDGE OF THE 1.50 METRE WIDE USABLE SHOULDER/ASPHALT GUTTER FOR BARRIER INSTALLATION. WIDEN EMBANKMENT USING GRAVEL BORROW IN ACCORDANCE WITH SECTION 31 23 33.01 AND SECTION 31 24 13. SCARIFY/BENCH INTO THE EXISTING SLOPES TO ENSURE PROPER BOND AS PER NSTIR STD. DWG. S-2009-016 AND DO NOT UNDERMINE THE EDGE OF THE EXISTING ASPHALT. TOP WITH 200 mm LAYER OF TYPE 1S SHOULDER GRAVEL IN ACCORDANCE WITH SECTION 32 11 23. EXCESS/UNSUITABLE MATERIALS TO BE DISPOSED WITH SLOPE DEBRIS OUTSIDE THE PARK.
 - 4.3. WHERE SHOULDER IS IMPACTED BY WASHOUT/EROSION/ETC. PERFORM SHOULDER SURFACE MAINTENANCE TO REINSTATE GRADE AND COMPACTION. REPAIR DAMAGE BY RECOVERING WASHED-OUT MATERIAL OR ADDING IMPORTED SHOULDER GRAVELS AT THE DAMAGE SITE. COMPACT AS REQUIRED, BRING TO GRADE AND RE-COMPACT.
 - 4.4. PRECAST CONCRETE JERSEY BARRIER SHALL MEET NSTIR F-SHAPE BARRIER SPECIFICATIONS.
 - 4.5. JERSEY BARRIER SHALL CONTAIN AN ASHLAR FINISH ON BOTH FACES, TO BE APPROVED BY DEPARTMENTAL REPRESENTATIVE PRIOR TO FABRICATION. SEE EXAMPLE PHOTO.
 - 4.6. PLACEMENT OF BARRIERS TO BE FIELD FIT TO AVOID CONFLICT BETWEEN BARRIER DOWELS AND PAVED ASPHALT GUTTER OFFTAKES/BLEEDERS.



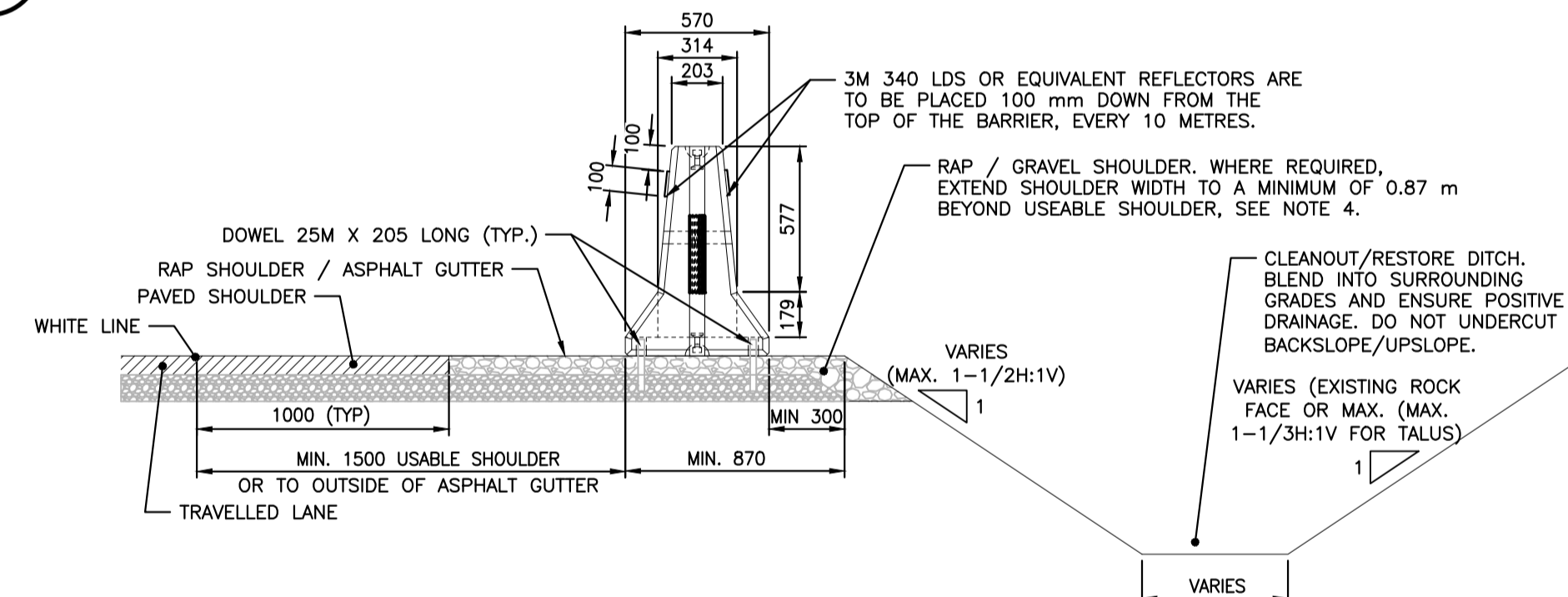
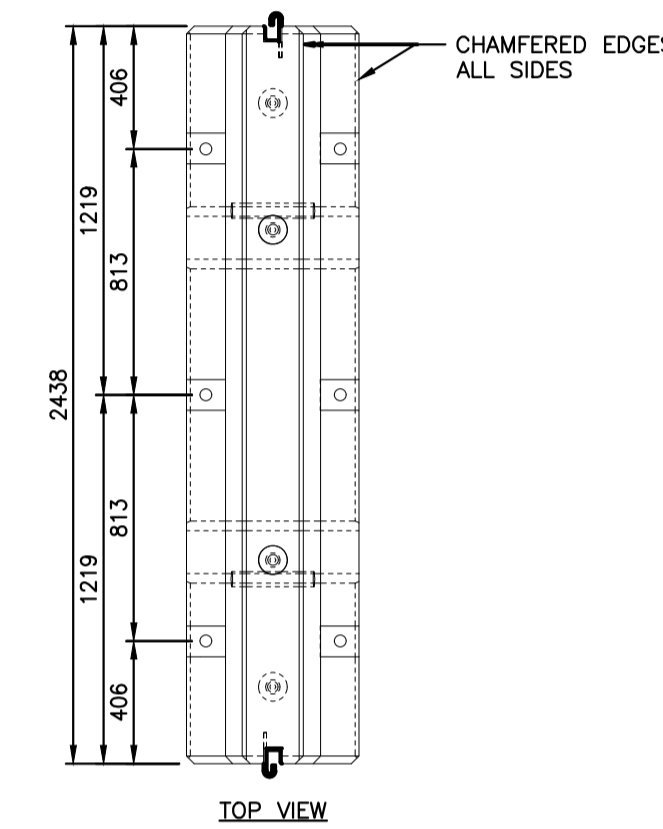
6m LONG 26mm DIA. UN-TENSIONED ROCK ANCHOR 1A
(NOT TO SCALE) **G01**



PERMANENT STANDARD F SHAPE CONCRETE JERSEY BARRIER 2A
G01/G03



PERMANENT TAPERED F SHAPE CONCRETE JERSEY BARRIER 2B
G01/G03



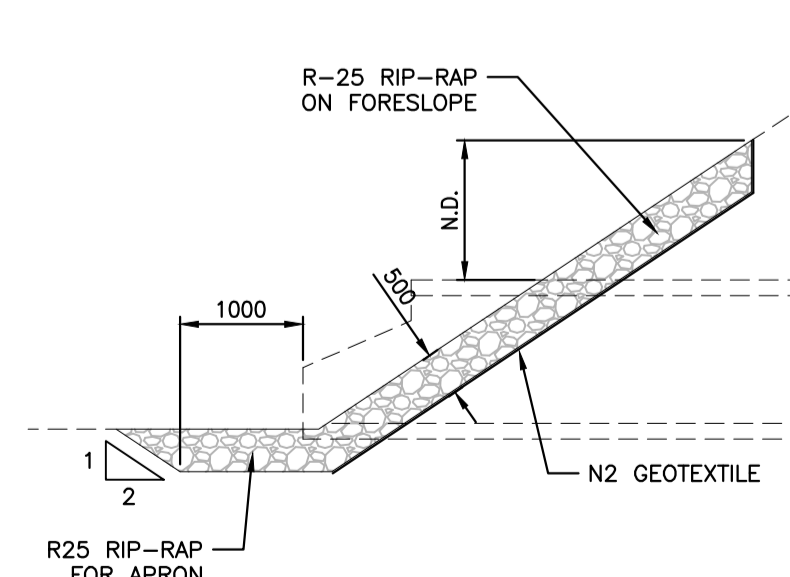
BARRIER OVER RAP / GRAVEL SHOULDER 2C
G01/G03



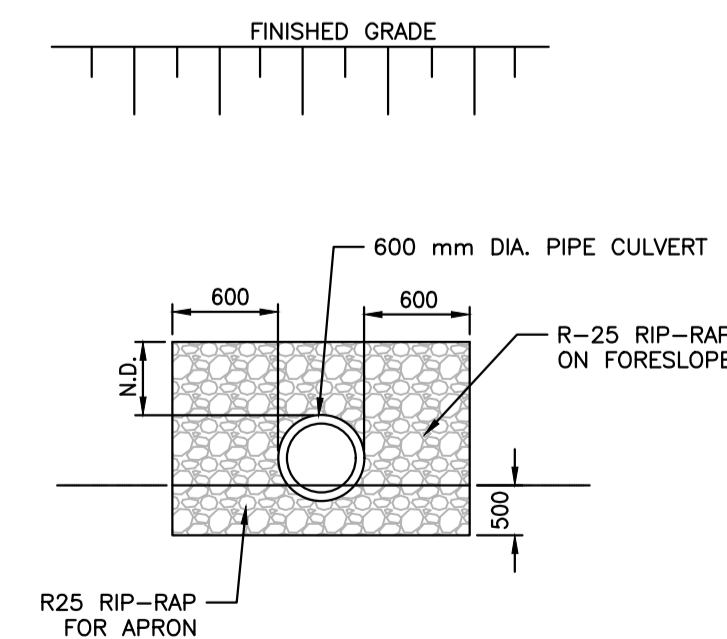
EXAMPLE BARRIER FINISH 2D

5. PIPE CULVERT INLET REPAIRS

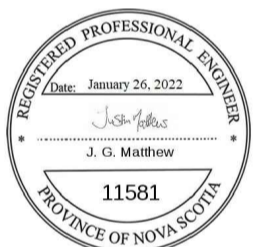
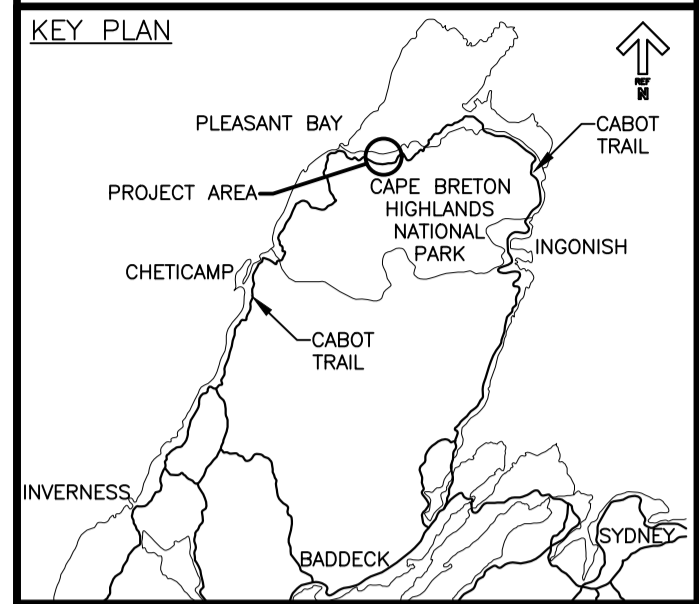
- 5.1 CLEAN DEBRIS OUT OF EXISTING CULVERT INLET AT 0L4079.
- 5.2 REDITCH AROUND INLET TO ENSURE POSITIVE DRAINAGE.
- 5.3 RESTORE INLET END TREATMENT (RIP-RAP APRON). SEE DETAIL 3A/3B.
- 5.4 DAMAGE TO CULVERT CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO PCA. IF CULVERT IS DAMAGED BEYOND REPAIR, A FULL REPLACEMENT IS REQUIRED.
- 5.5 MATERIAL FROM CULVERT CLEANOUT/RESTORATION TO BE DISPOSED WITH SLOPE DEBRIS OUTSIDE THE PARK.



SECTION OF CULVERT RIP-RAP INLET APRON 3A
G01/G03



ELEVATION OF CULVERT RIP-RAP INLET APRON 3B
G01/G03



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project project

**PHASE 8
NORTH MOUNTAIN
SLOPE STABILIZATION
CAPE BRETON HIGHLANDS
NATIONAL PARK**

drawing dessin

**0L4079 / RL4086
CONSTRUCTION NOTES
AND DETAILS**

designed	J. MATTHEW	conçu
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Tender S. BABSTOCK
PCA Project Manager Administrateur de projets TPSGC

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drawing no. no. du dessin

G05

