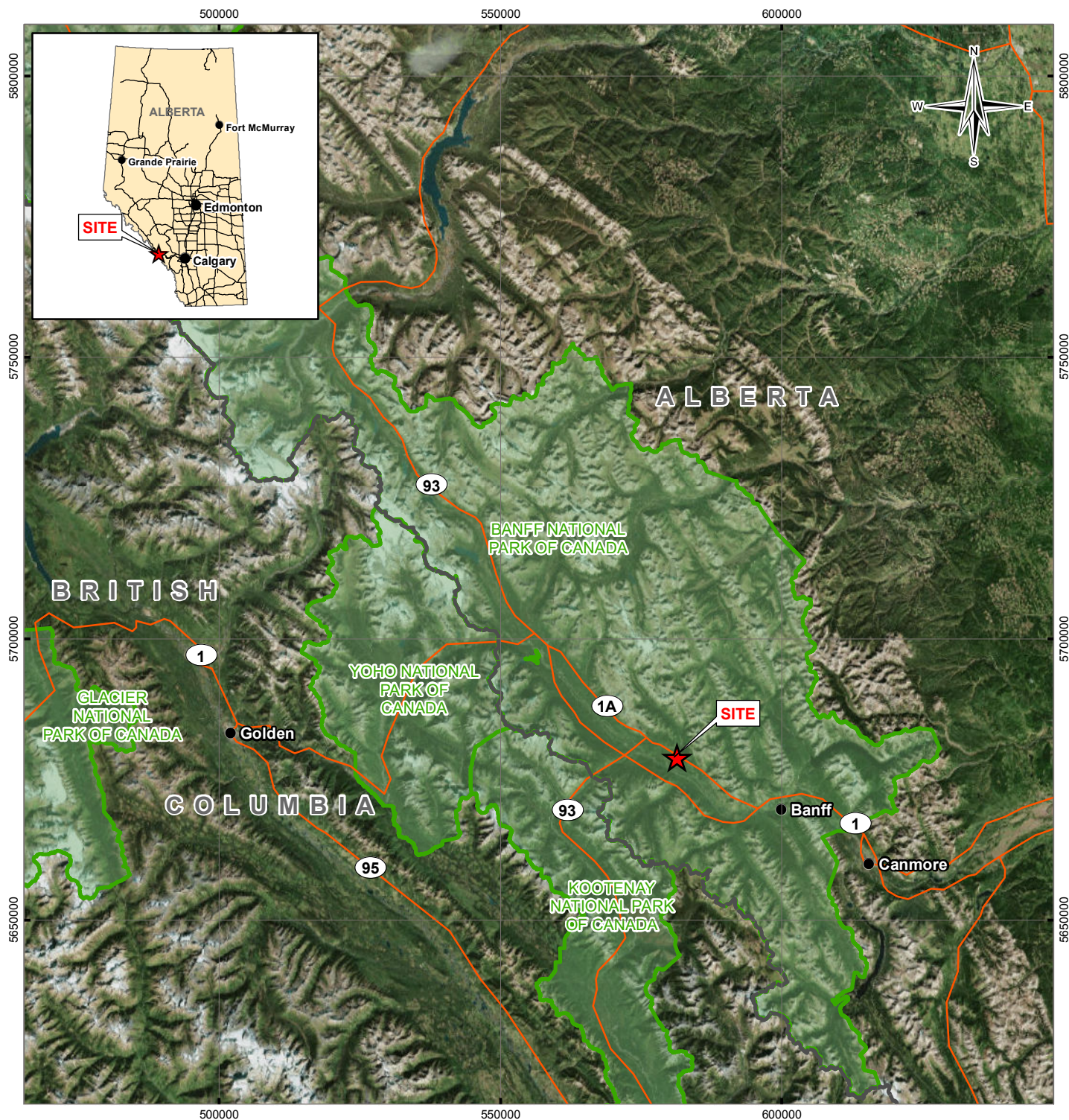







Q:\Vancouver\GIS\ENGINEERING\134\13403101-01\Figure01_SiteLocation.mxd modified 6/12/2015 by morgan.zondervan



LEGEND

-  Site Location
-  City
-  Major Road
-  National Park
-  Provincial Boundary

NOTES

Base data source:
Imagery from ESRI Basemaps
(various dates)

STATUS
ISSUED FOR USE

JOHNSTON CANYON SLOPE STABILIZATION BANFF NATIONAL PARK

Site Location

PROJECTION

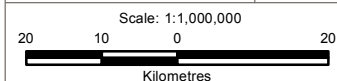
UTM Zone 11

DATUM

NAD83

CLIENT

 Parks Canada Parcs Canada



FILE NO.

V13403101-01_Figure01_SiteLocation.mxd

PROJECT NO.

V13403101-01

DWN

MEZ

CKD

SL

APVD

SM

REV

0

OFFICE

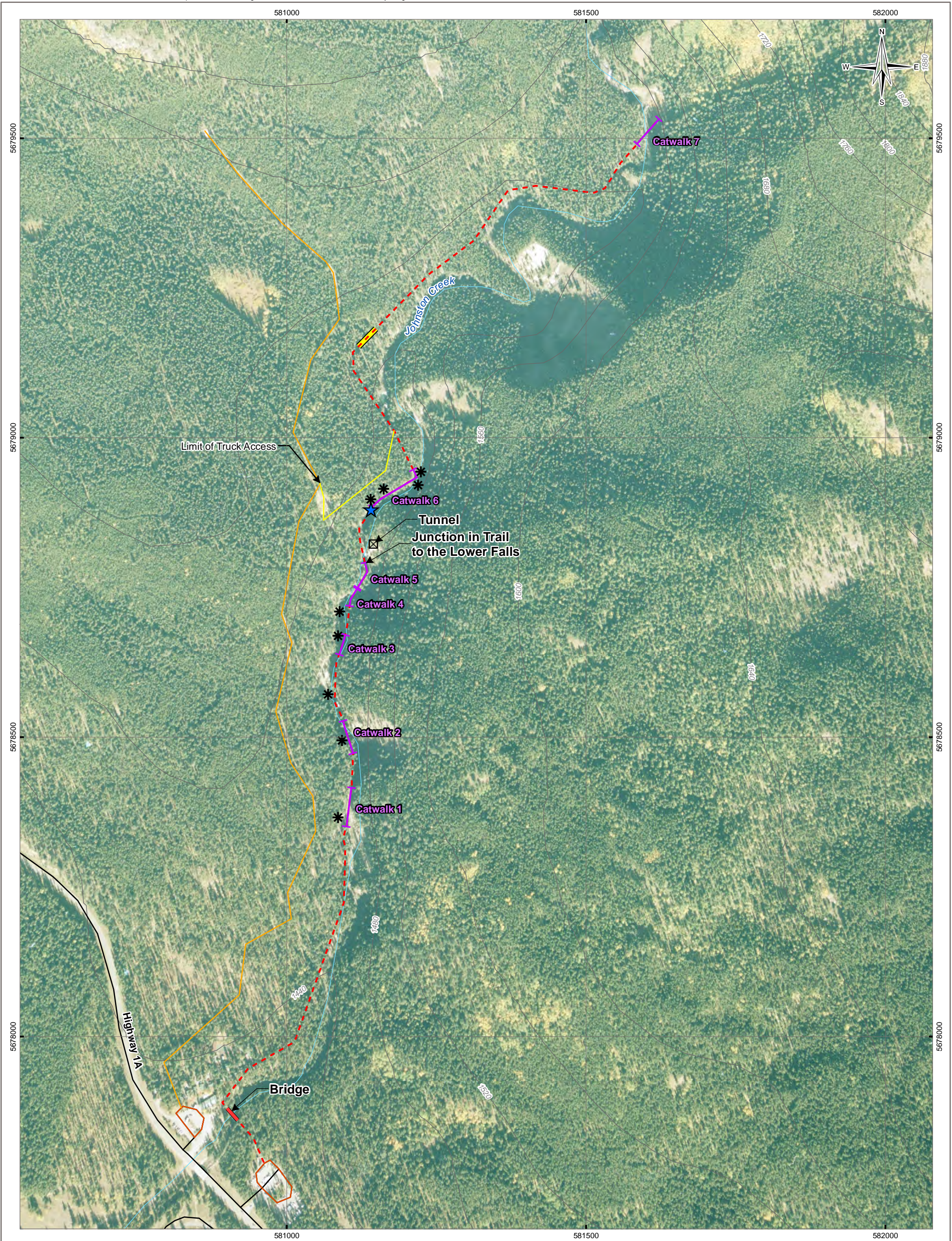
T/EBA-VANC

DATE

June 12, 2015



Figure 1



LEGEND

- ★

Location of Trim Blasting
- ✱

Location of Rock Bolting (approximate)
- ⊠

Tunnel
- Johnston Canyon Hiking Trail
- Bridge
- Pickup Truck Access Trail from Johnston Canyon Resort (fire road)
- Foot Path Connecting Truck Access to Hiking Trail
- Catwalk
- Pavement Replacement Required
- Road
- Parking Lot
- Contour (40 m)
- Watercourse

NOTES
1. Locations taken using a handheld GPS and are therefore approximate
2. Base data source:
Imagery from The National Air Photo Library (A31849_029)
CanVec 1:50,000

STATUS
ISSUED FOR USE

JOHNSTON CANYON
SLOPE STABILIZATION
BANFF NATIONAL PARK

Site Plan

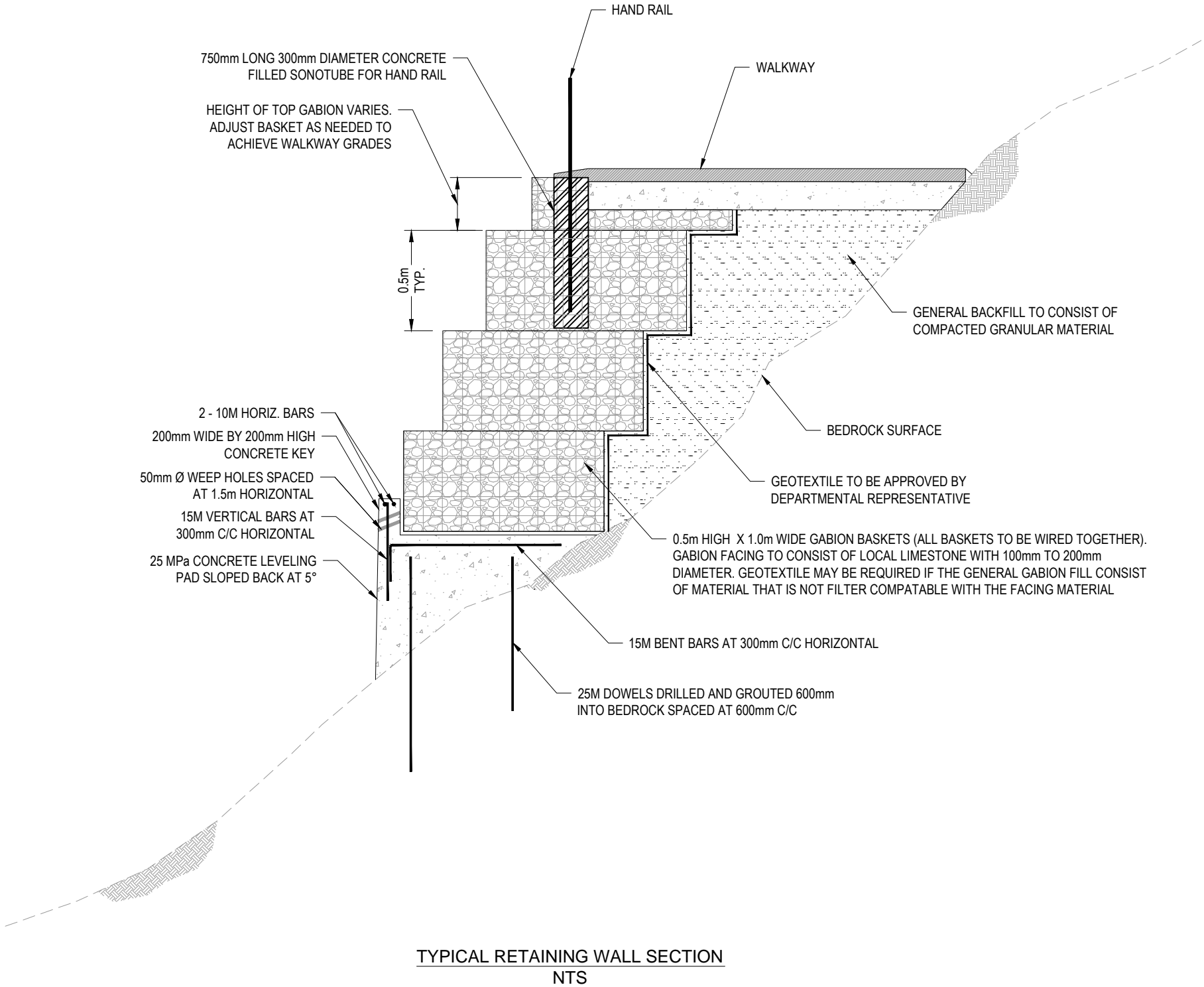
PROJECTION UTM Zone 11		DATUM NAD83		CLIENT <div><div></div><div>Parks Canada</div><div>Parcs Canada</div></div>	
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FILE NO. V13403101-01_Figure02_SitePlan.mxd					
PROJECT NO. V13403101-01	DWN MEZ	CKD SL	APVD RB	REV 0	Figure 2
OFFICE Tt EBA-VANC	DATE June 12, 2015				



LOCATION OF RETAINING WALL TO BE REPLACED

NOTES:

1. USE GALVANIZED AND GREY PVC COATED MACCAFERRI GABION BASKETS OR EQUIVALENT (TO BE APPROVED BY DEPARTMENTAL REPRESENTATIVE).
2. INSTALL GABION BASKETS IN ACCORDANCE WITH MANUFACTURES' RECOMMENDATIONS AND SPECIFICATIONS.
3. DOWELS TO CONSIST OF 25 mm DIAMETER, GRADE 517/690 MPa DEFORMED STEEL BARS CONFORMING TO CAN/CSA G30.18, SUCH AS "DYWIDAG THREADBAR" MANUFACTURED BY DYWIDAG CANADA LIMITED, OR APPROVED EQUIVALENT. INSTALL DOWELS USING CEMENT GROUT IN ACCORDANCE WITH ROCK BOLT SPECIFICATIONS.
4. REMOVE SOFT/LOOSE/DELETERIOUS MATERIAL FROM CONCRETE LEVELING PAD SUBGRADE. SUBGRADE TO BE APPROVED BY THE DEPARTMENTAL REPRESENTATIVE PRIOR TO PLACING CONCRETE.
5. CONCRETE LEVELING PAD TO CONSIST OF MINIMUM 25 MPa, 28 DAY UNCONFINED COMPRESSIVE STRENGTH, WITH EXPOSURE CLASS F-1. INSTALL REBAR WITH CONCRETE LEVELING PAD AS SHOWN ON DRAWING.
6. COMPACT GRANULAR BACKFILL USING A HANDHELD PLATE COMPACTOR IN LOOSE LIFTS NOT EXCEEDING 200 mm TO 93% STANDARD PROCTOR, UNLESS OTHERWISE APPROVED IN THE FIELD BY DEPARTMENTAL REPRESENTATIVE.
7. INSTALL WEEP HOLES WITH MINIMUM 50 mm DIAMETER AS SHOWN ON DRAWING.




LEGEND

NOTES

1. THIS DRAWING IS NOT BASED ON A MEASURABLE SCALE.
2. DETAILS SHOWN ON THIS DRAWING WILL REQUIRE FIELD FITTING.

CLIENT

 Parks Canada Agency
L'Agence Parcs Canada

JOHNSTON CANYON

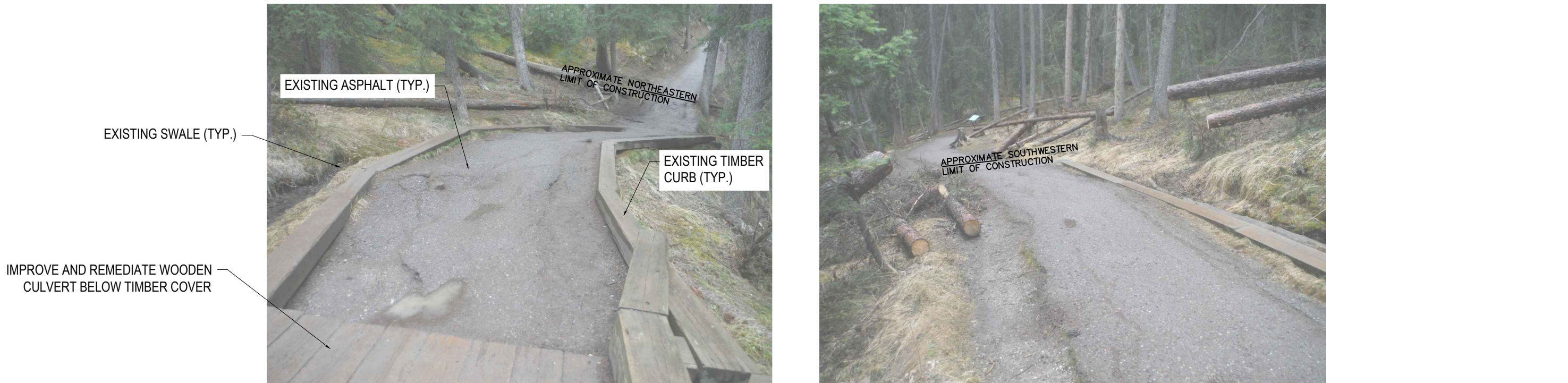
RETAINING WALL TYPICAL SECTION

ISSUED FOR USE



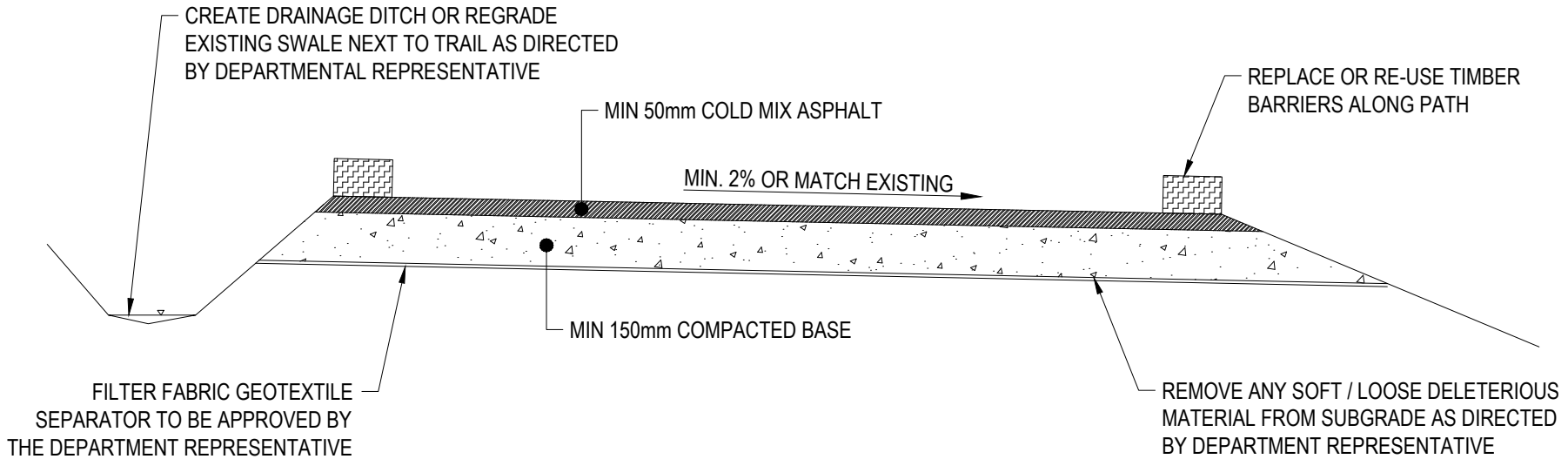
PROJECT NO. V13403101	DWN EY	CKD CH	REV 0
OFFICE VANC	DATE JUNE 2015		

FIGURE 3



NOTES:

1. RE-PAVE DAMAGED ASPHALT AREA WITHIN LIMIT OF CONSTRUCTION (LOC) FOR A SECTION APPROXIMATELY 30m LONG AND 2.7m WIDE WITH 50mm (MIN.) THICK APPROVED COLD MIX ASPHALT AND 150mm MIN THICK BASE COURSE.
2. WORK LOCATION TO BE CONFIRMED BY DEPARTMENTAL REPRESENTATIVE ON SITE.
3. REMOVE TIMBER CURBS AND STOCKPILE ON SITE TO BE REUSED.
4. SAWCUT EXISTING PAVEMENT IN LOC. REMOVE EXISTING ASPHALT AND DISPOSE AT DESIGNATED DISPOSAL SITE.
5. REMOVE ANY SOFT/LOOSE, DELETERIOUS MATERIAL FROM SUBGRADE. SUBGRADE SURFACE TO BE APPROVED BY DEPARTMENTAL REPRESENTATIVE.
6. RE-SHAPE BASE GRAVEL TO MATCH EXISTING TRAIL GEOMETRY.
7. HANDHELD PLATE COMPACTOR SHALL BE USED TO ACHIEVE 93% MODIFIED PROCTOR DENSITY (OR OTHERWISE APPROVED BY DEPARTMENTAL REPRESENTATIVE) ON BASE GRAVEL AND ASPHALT.
8. REGRADE EXISTING SWALE TO PREVENT PONDING WATER.
9. RE-INSTALL TIMBER CURBS.
10. INSTALL ADDITIONAL CULVERTS AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.
11. REFER TO CONTRACT SPECIFICATIONS FOR ADDITIONAL DETAILS.



TYPICAL SECTION THROUGH NEW PAVEMENT
STRUCTURE NORTH OF CATWALK 6
NTS

LEGEND

NOTES

1. THIS DRAWING IS NOT BASED ON A MEASURABLE SCALE.

CLIENT



Parks Canada
Agency

L'Agence Parcs
Canada

JOHNSTON CANYON

EXISTING TRAIL RE-PAVING
CONSTRUCTION DETAILS

PROJECT NO.
V13403101

DWN
EY

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CH

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0

OFFICE
VANC

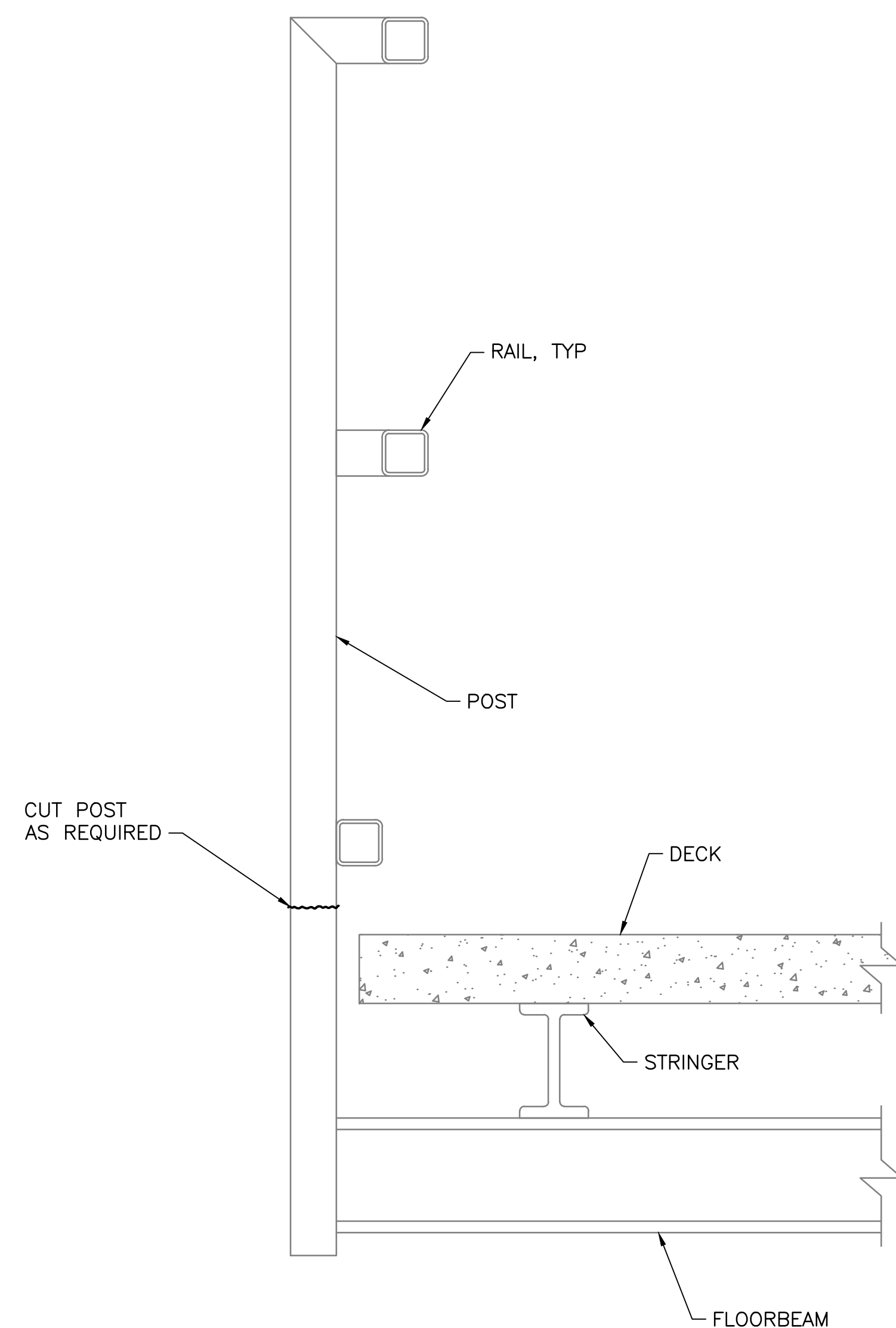
DATE
JUNE 2015

FIGURE 4

ISSUED FOR USE



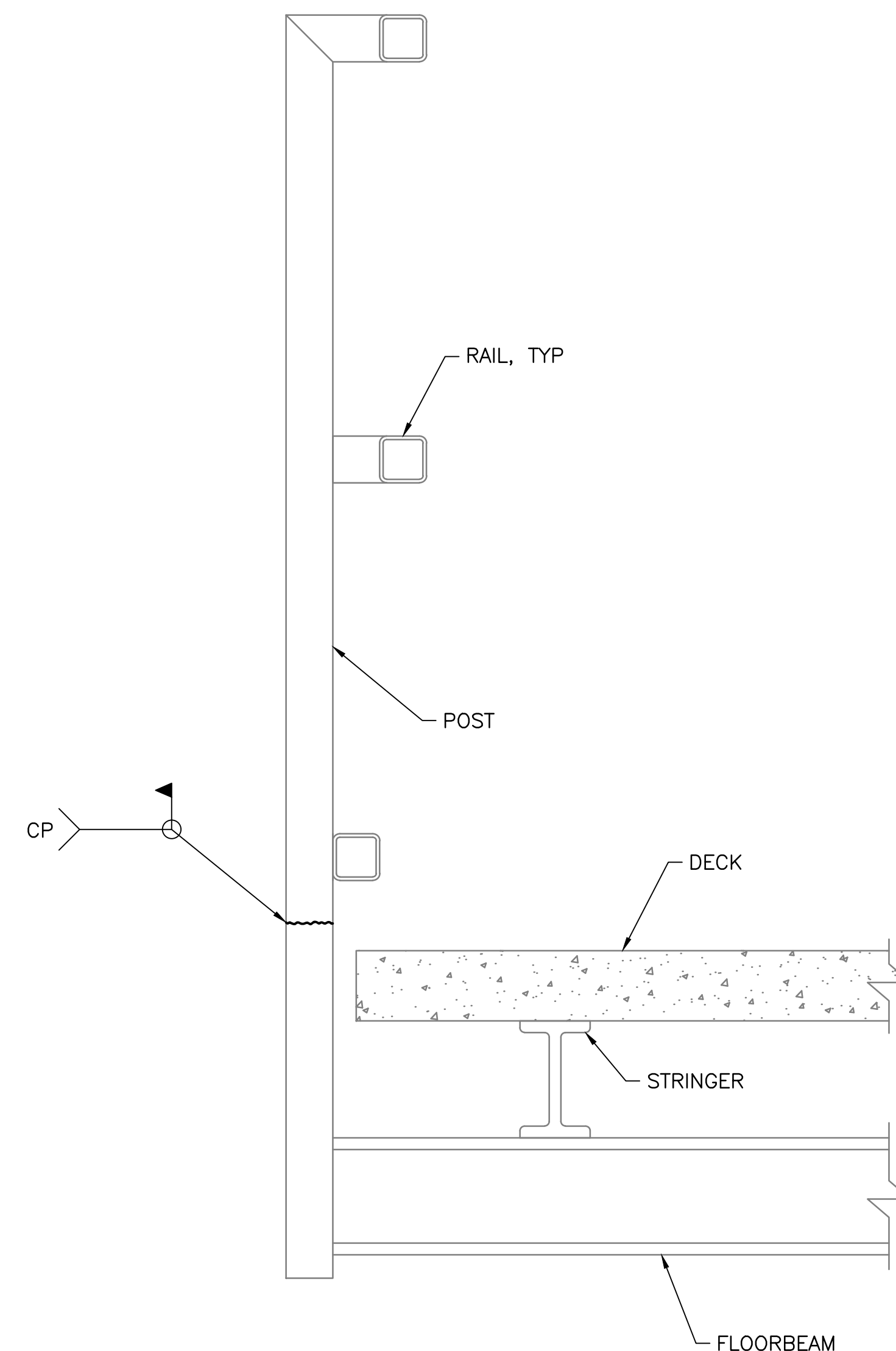
TETRA TECH EBA



WALKWAY RAILING – REMOVAL

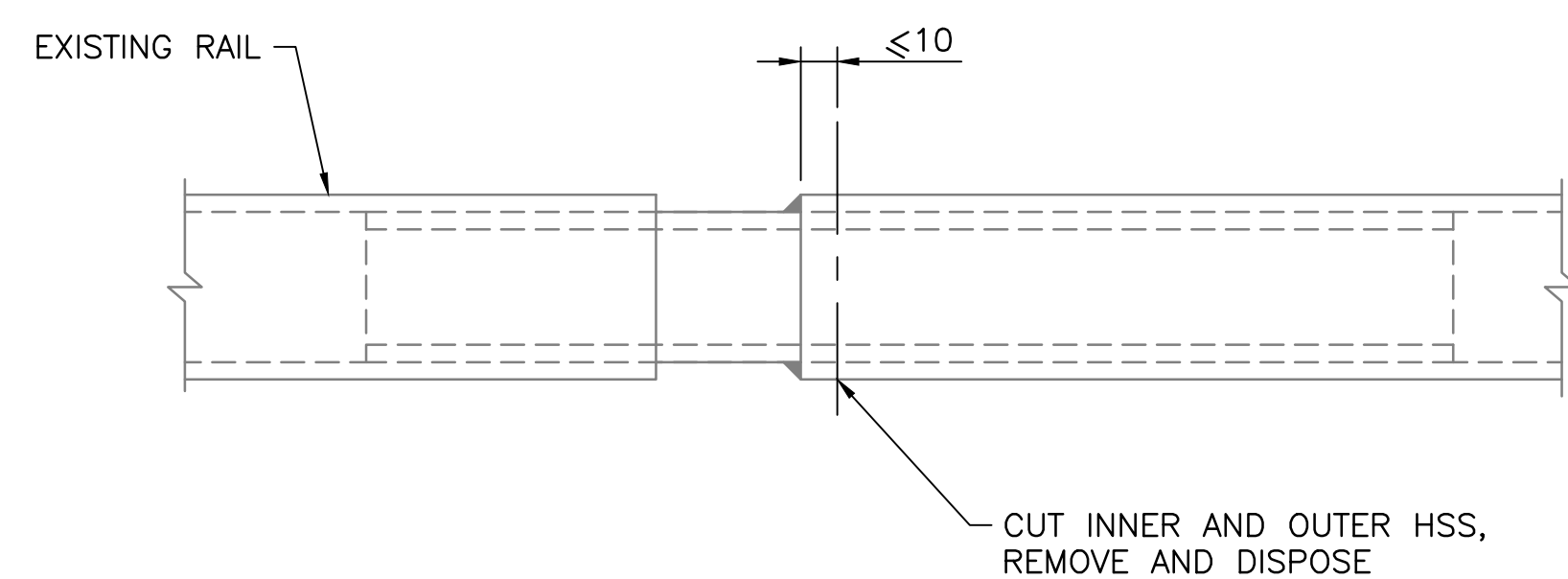
1:5

NOTE:
ACTUAL RAILING GEOMETRY MAY DIFFER INCLUDING
NUMBER OF RAILS.



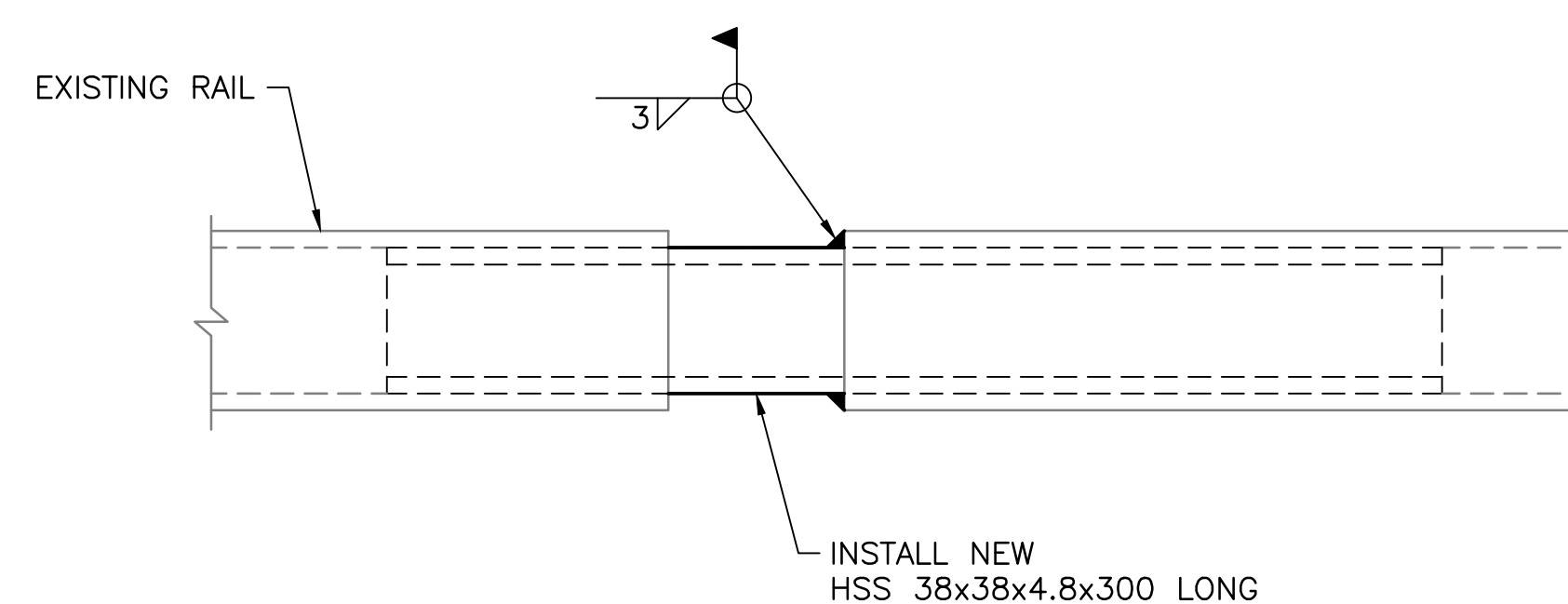
WALKWAY RAILING – REPLACEMENT

1:5



RAIL SPLICE – REMOVAL

1:2



RAIL SPLICE – REPLACEMENT

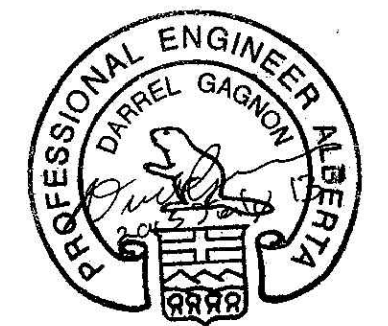
1:2

NOTE:
WELD TO BE ON DOWNHILL END OF SPLICE

NOTES:

1. WELDING TO CAN/CSA W59
2. NEW HSS: G40.21M GRADE 350W CLASS C
3. TOUCH UP DAMAGED COATINGS WITH AN APPROVED SYSTEM SUCH AS CARBOLINE CARBOGUARD 954H8 WITH CARBOCOAT 30R.

ISSUED FOR TENDER
NOT FOR CONSTRUCTION



DO NOT SCALE DRAWINGS

Revision/	Description/Description	Date/Date
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Client/client		
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	Parks Canada Agency	L'Agence Parcs Canada
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Project title/Titre du projet

BANFF NATIONAL PARK, ALBERTA

JOHNSTON CANYON TRAIL

Approved by/Approuvé par
DPG

Designed by/Concept par
DAWO

Drawn by/Dessiné par
JAET

PWGSC Project Manager/Administrateur de Projets TPSGC

PWGSC, Architectural and Engineering Resources Manager/
Ressources Architectural et de Directeur d'ingénierie, TPSGC

Client/client
PCA

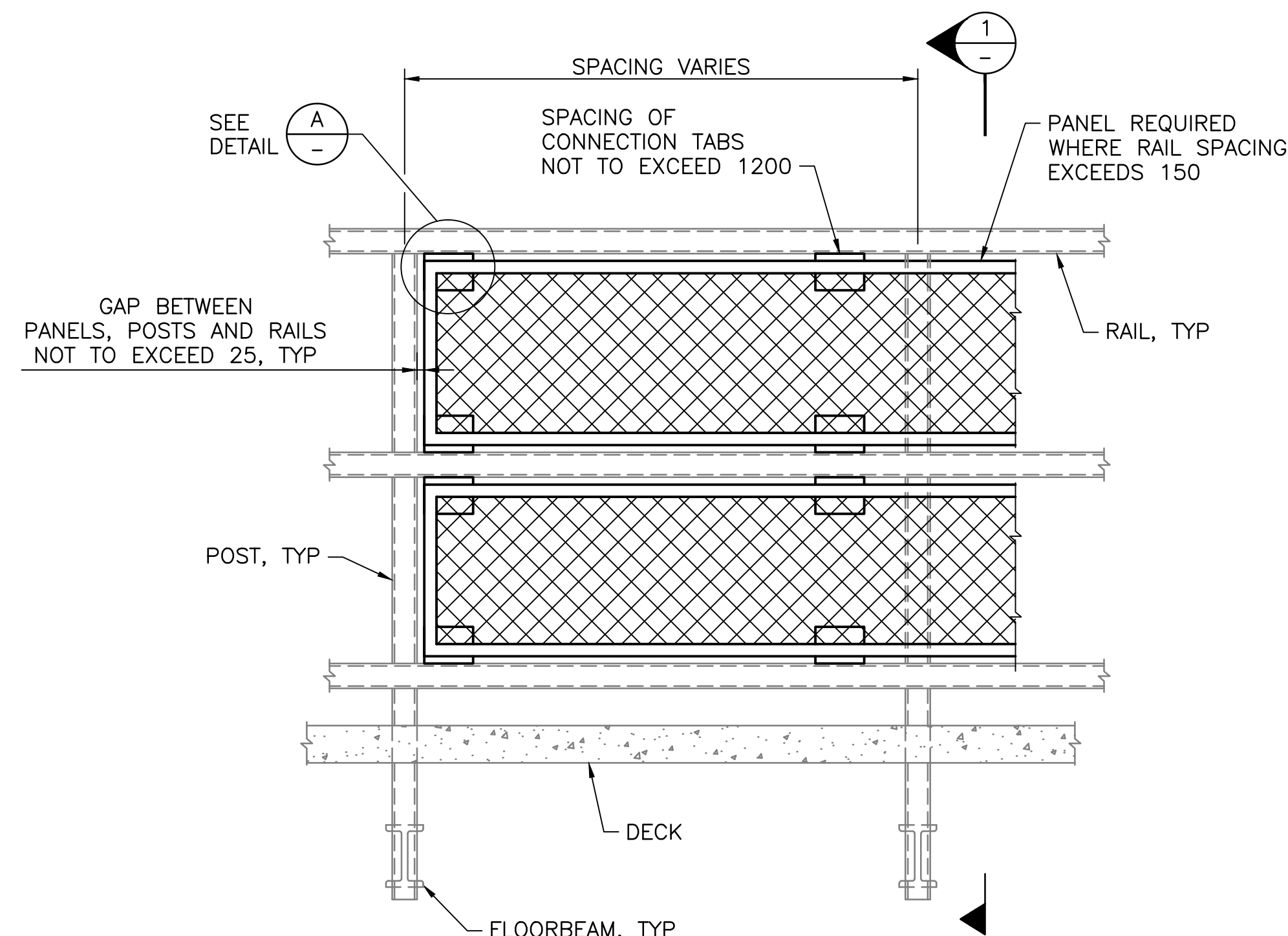
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RAILING INFILL PANELS

Project No./No. du projet	Sheet/Feuille	Revision no./ La Révision no.
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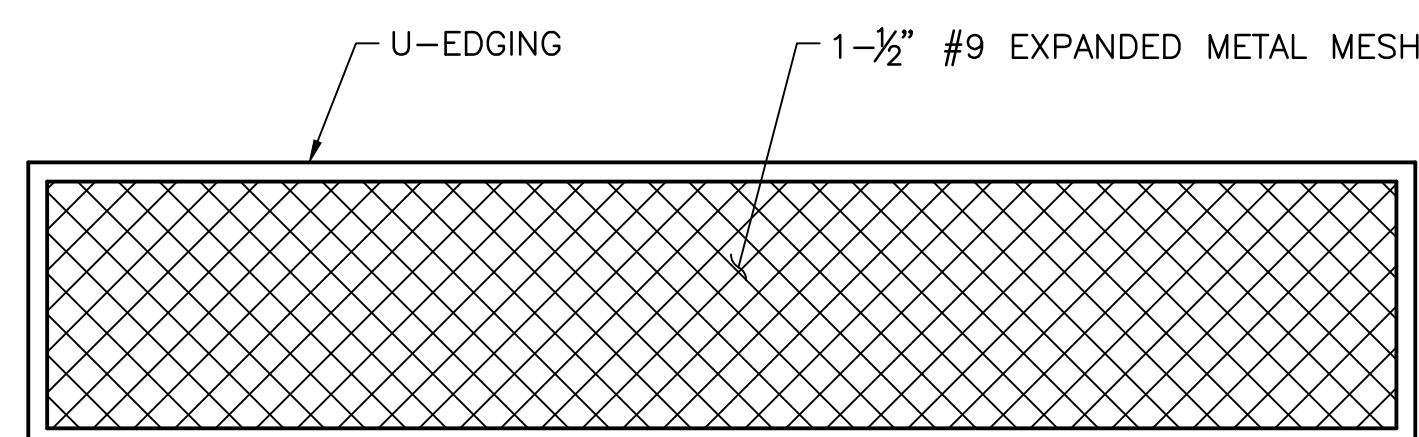
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OF 1



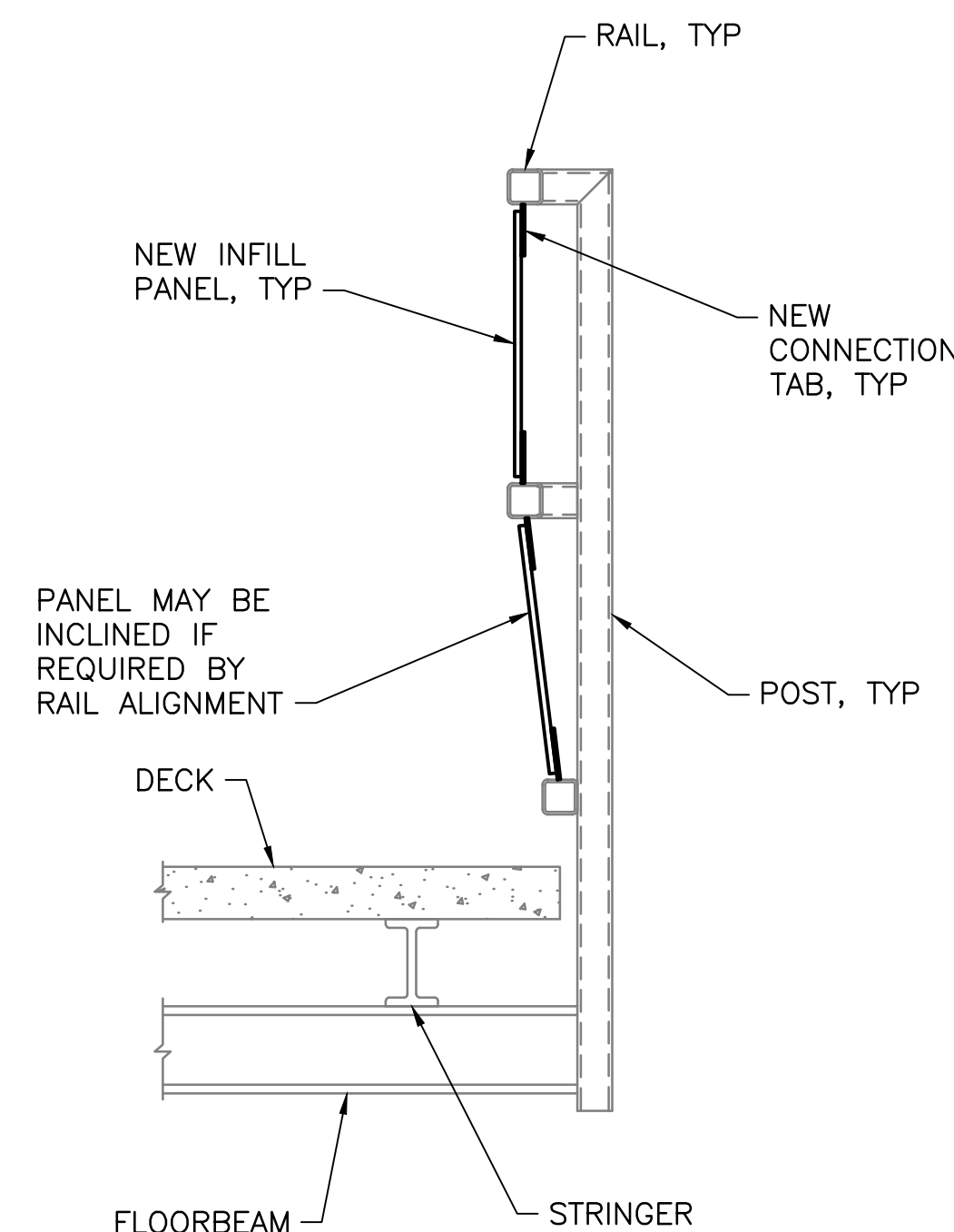
RAILING - ELEVATION

1:10



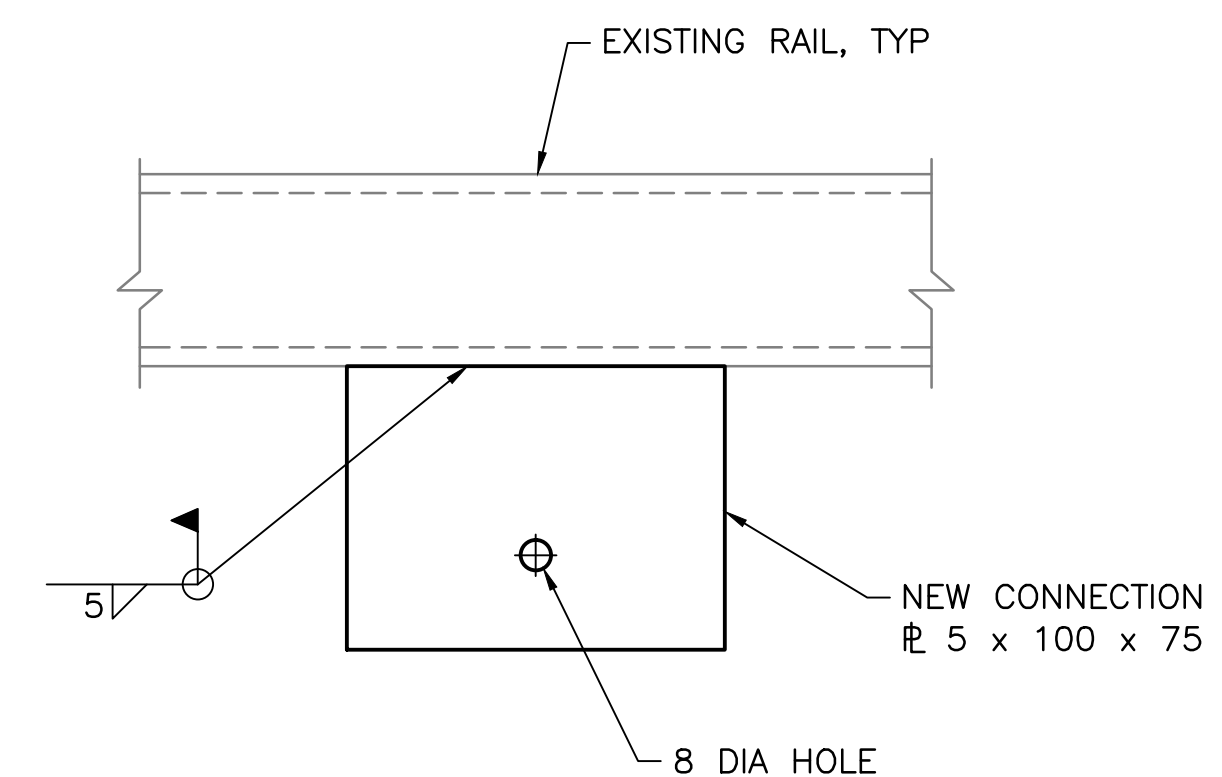
TYPICAL PANEL

NTS



SECTION 1

1:10

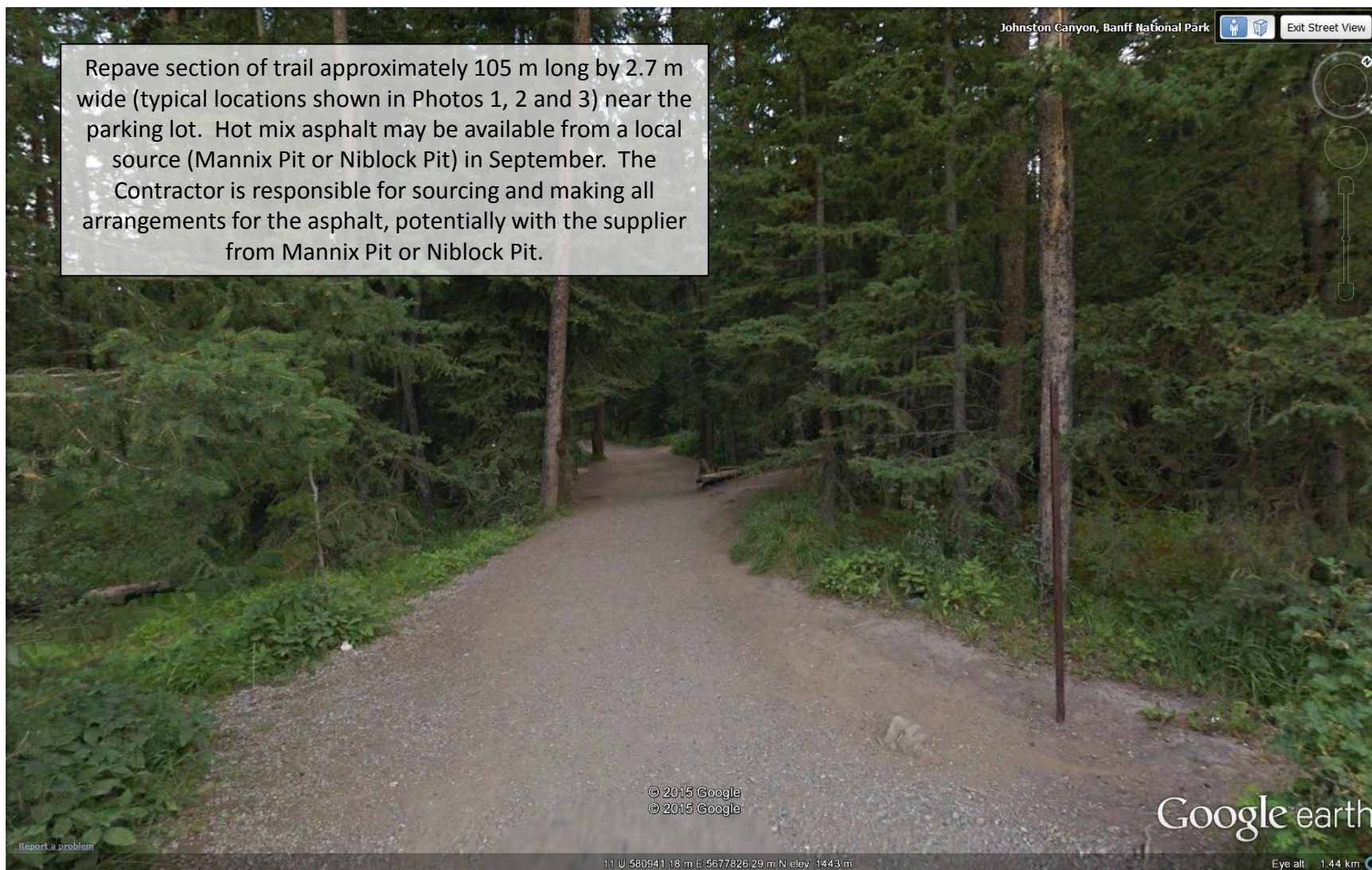


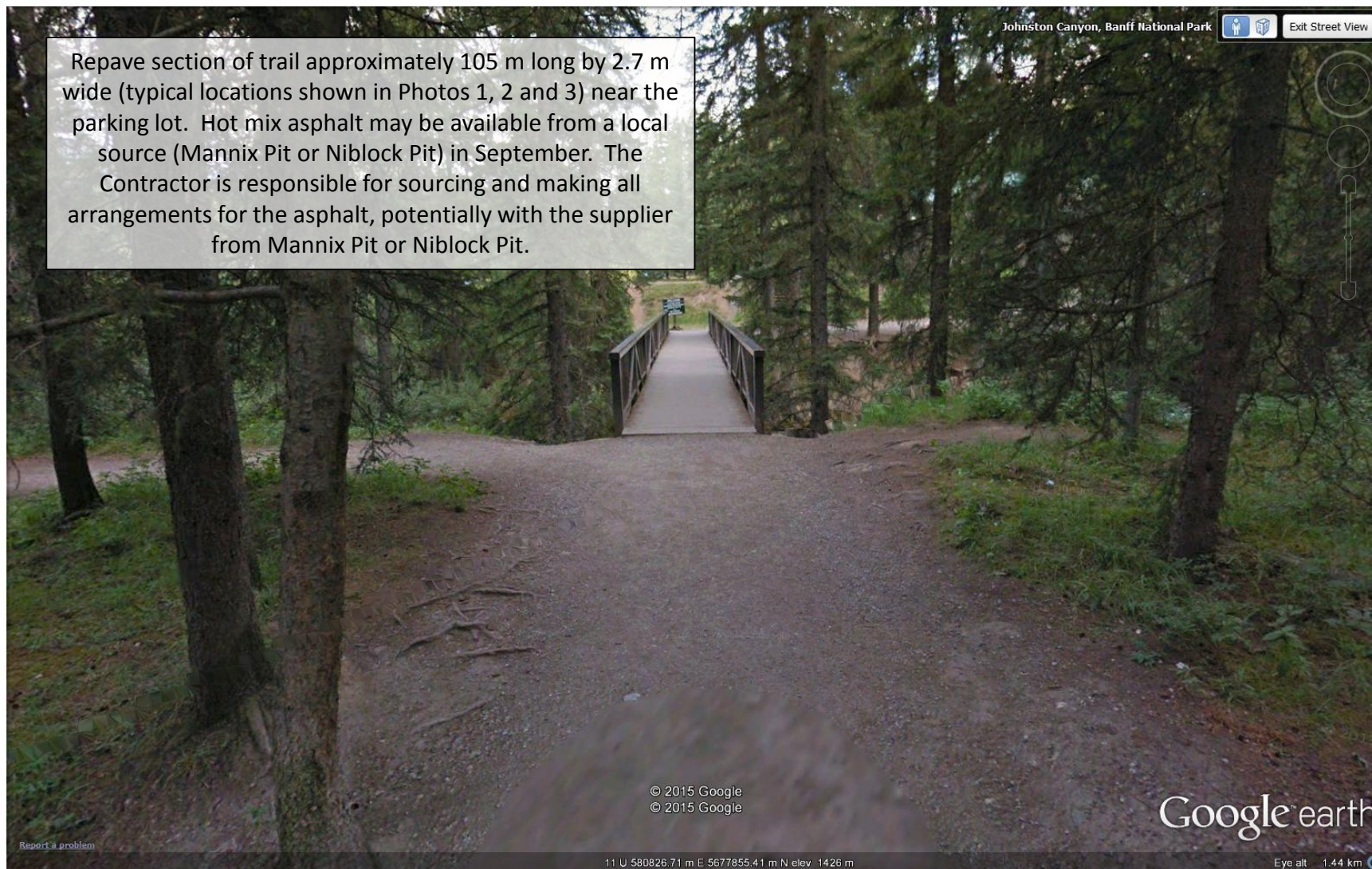
DETAIL A

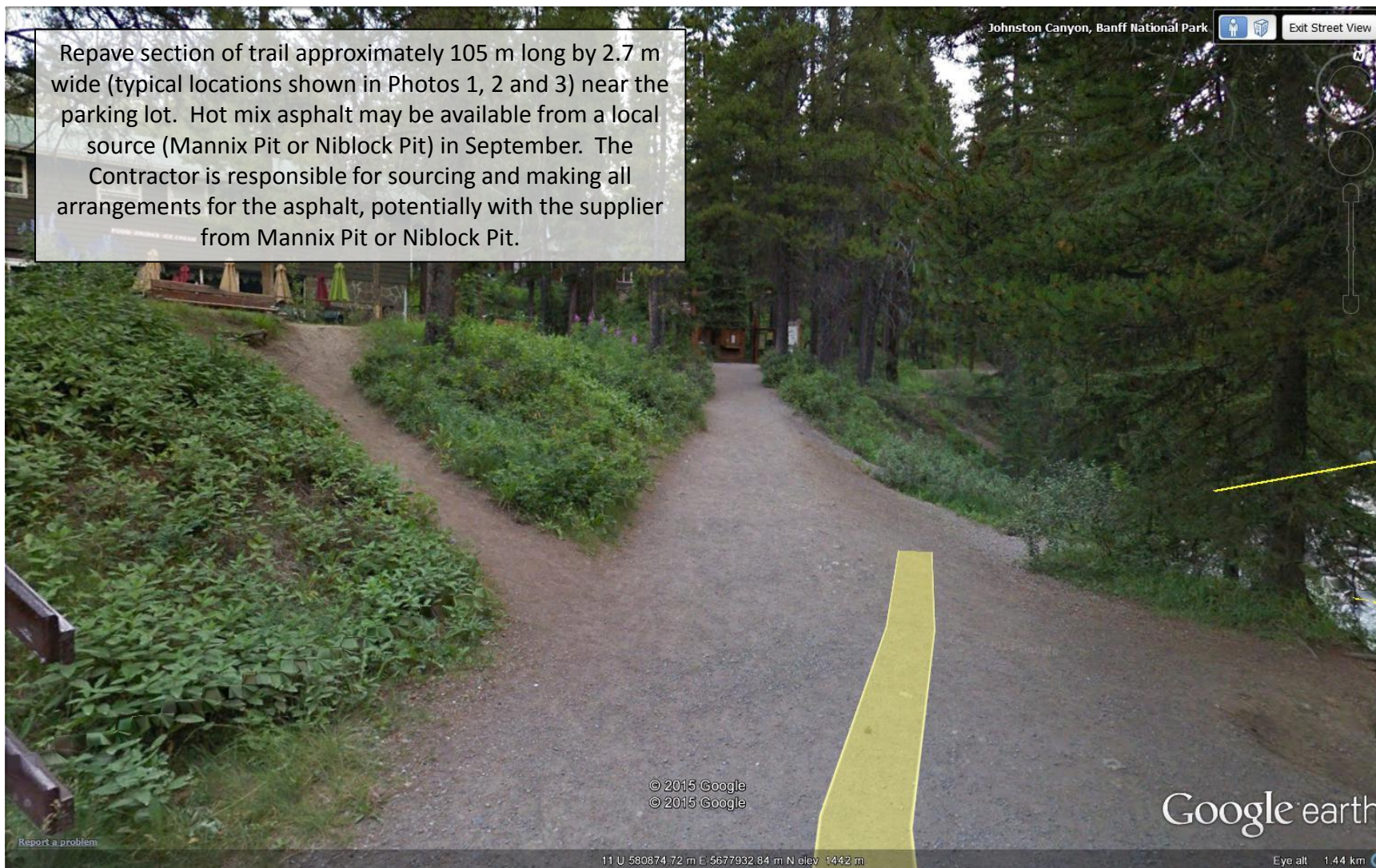
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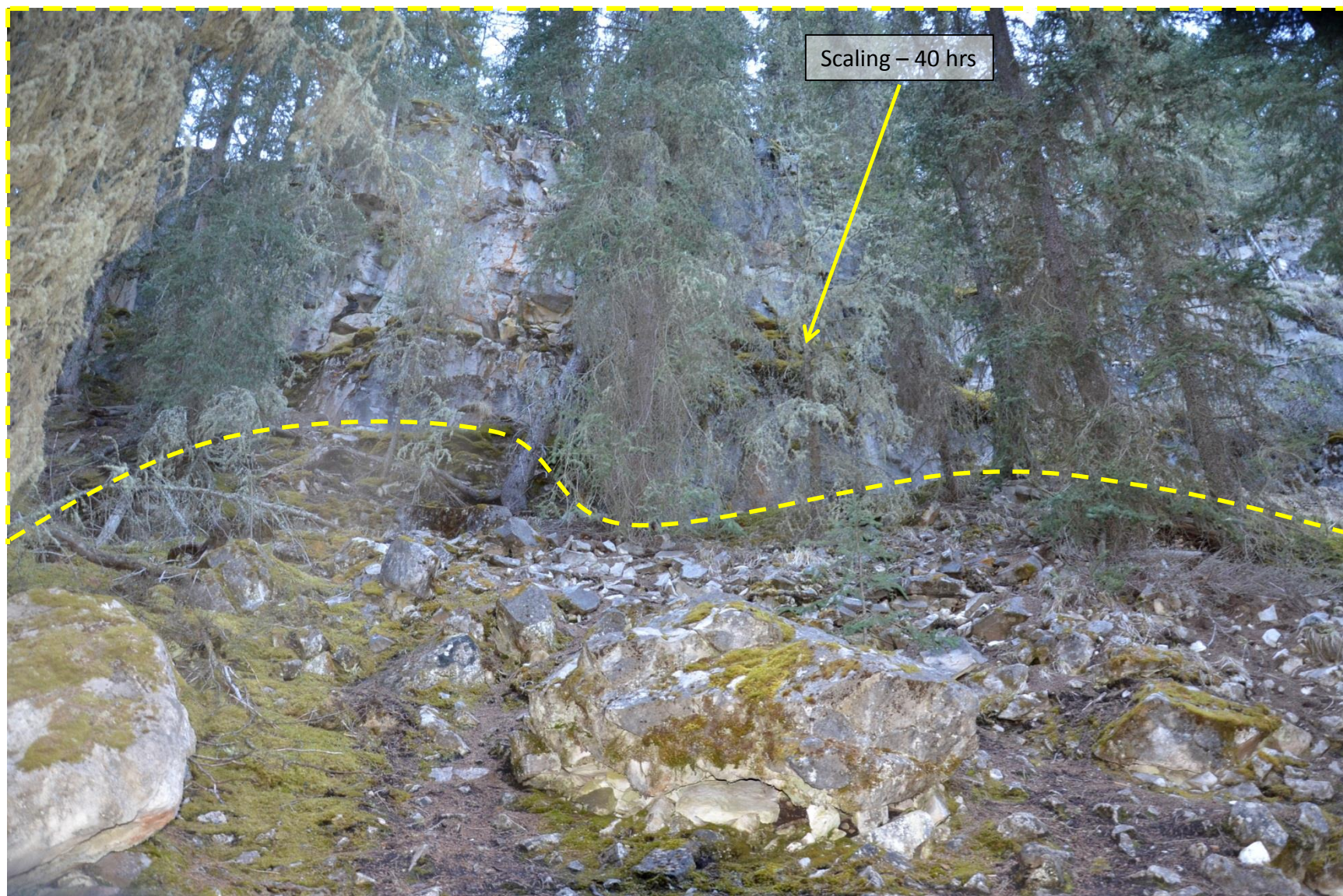
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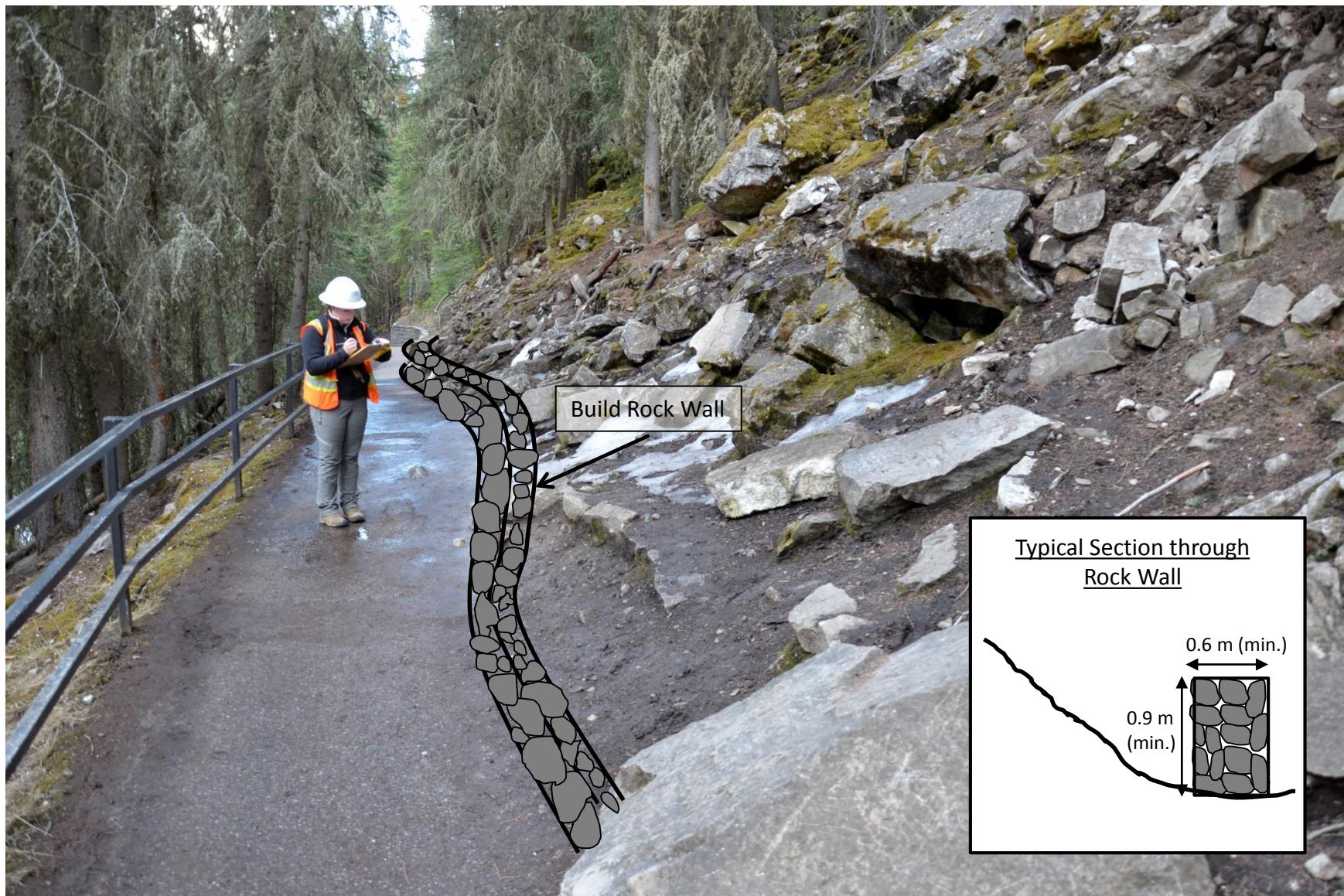
1. WELDING TO CAN/CSA W59
2. PLATES: G40.21M GRADE 350W
3. EXPANDED METAL MESH AND U-EDGING TO BE HOT DIP GALVANIZED.
4. FASTEN WITH 1/4" A307 GALVANIZED BOLTS WITH SUITABLE WASHERS.
5. REPAIR DAMAGED PAINT ON EXISTING RAILING WITH AN APPROVED SYSTEM.
6. INFILL PANEL SHALL NOT PROTRUDE BEYOND FACE OF RAILS.











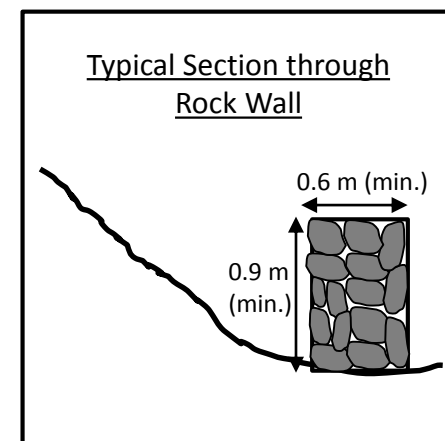
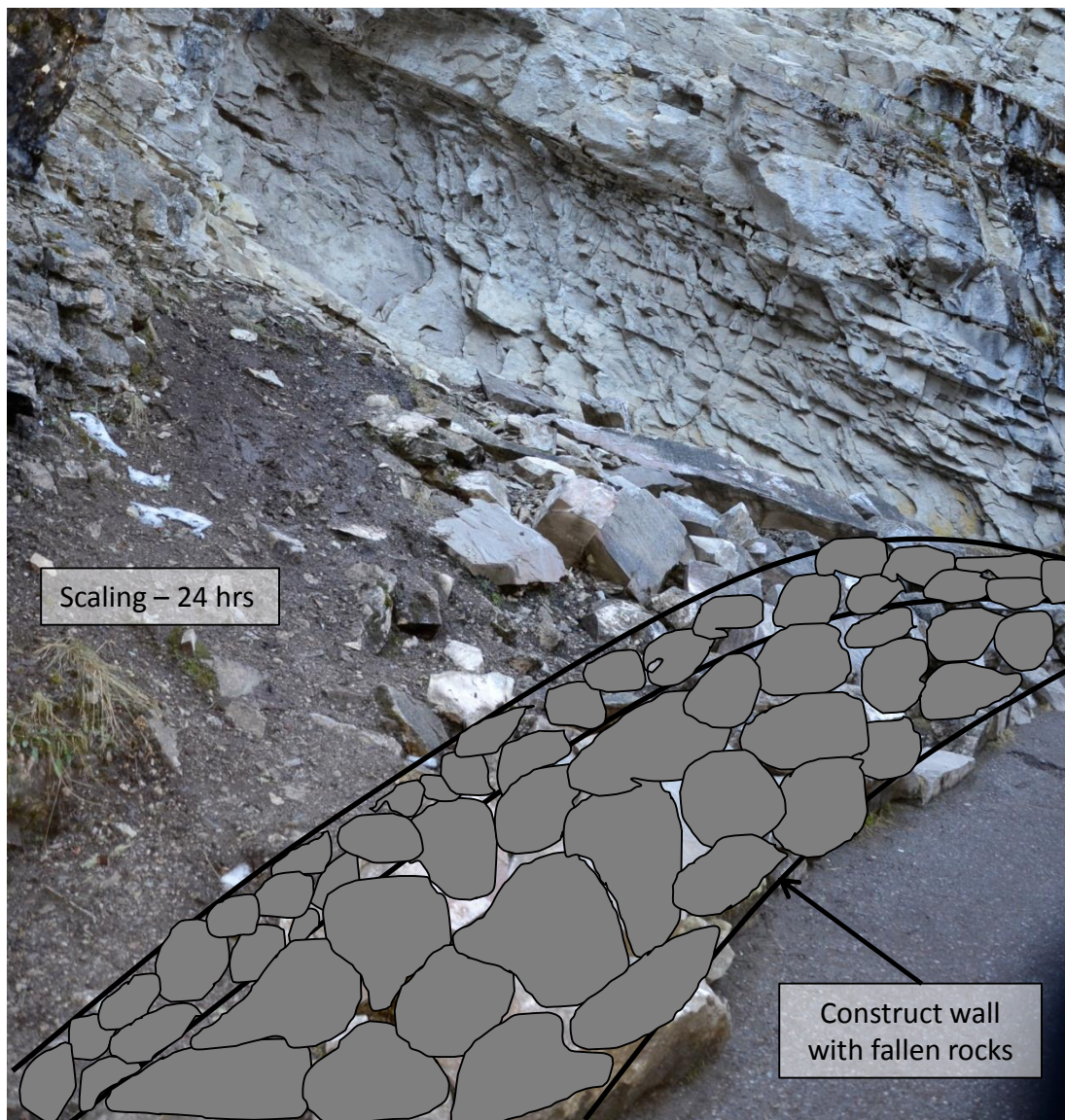


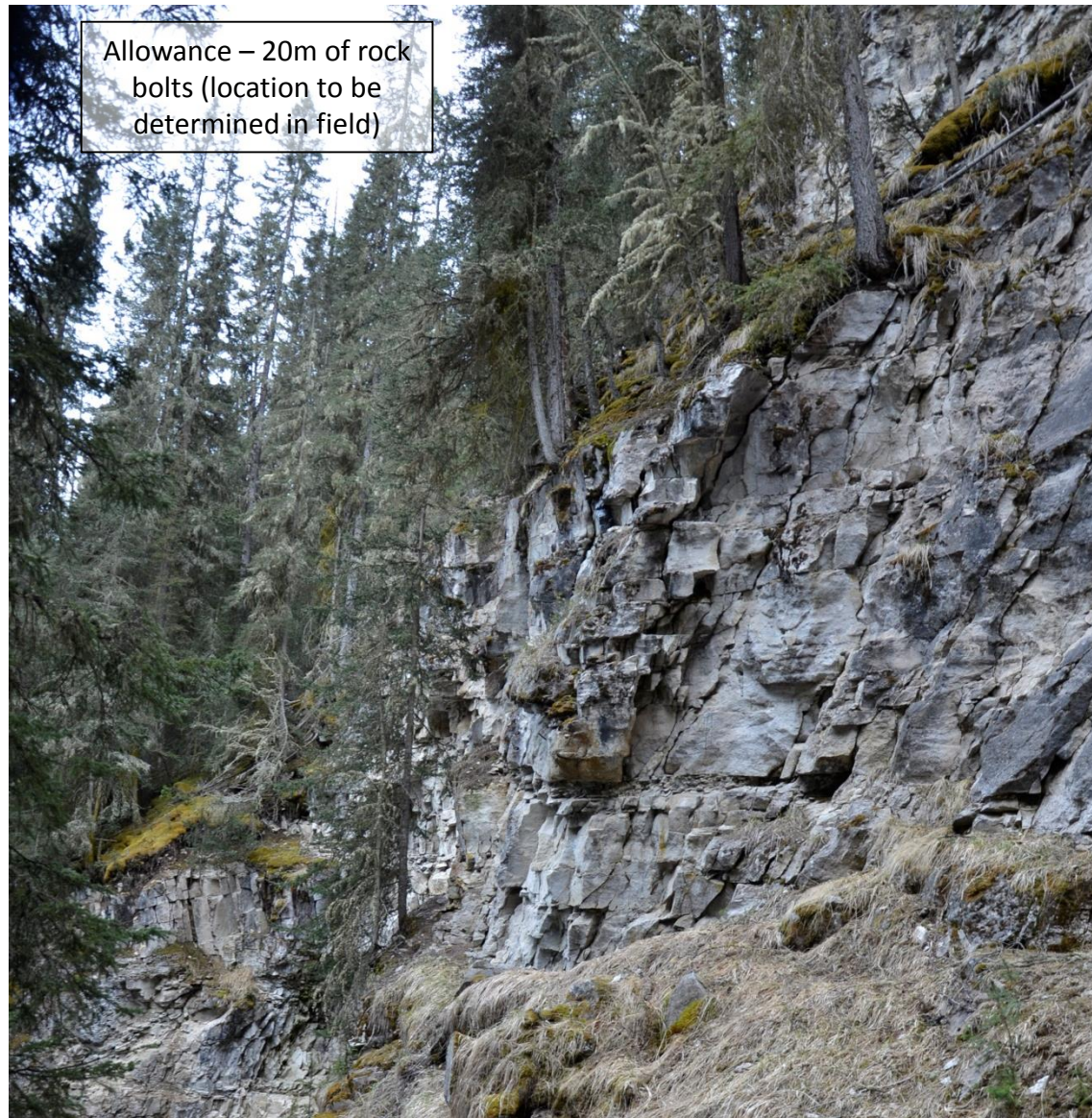


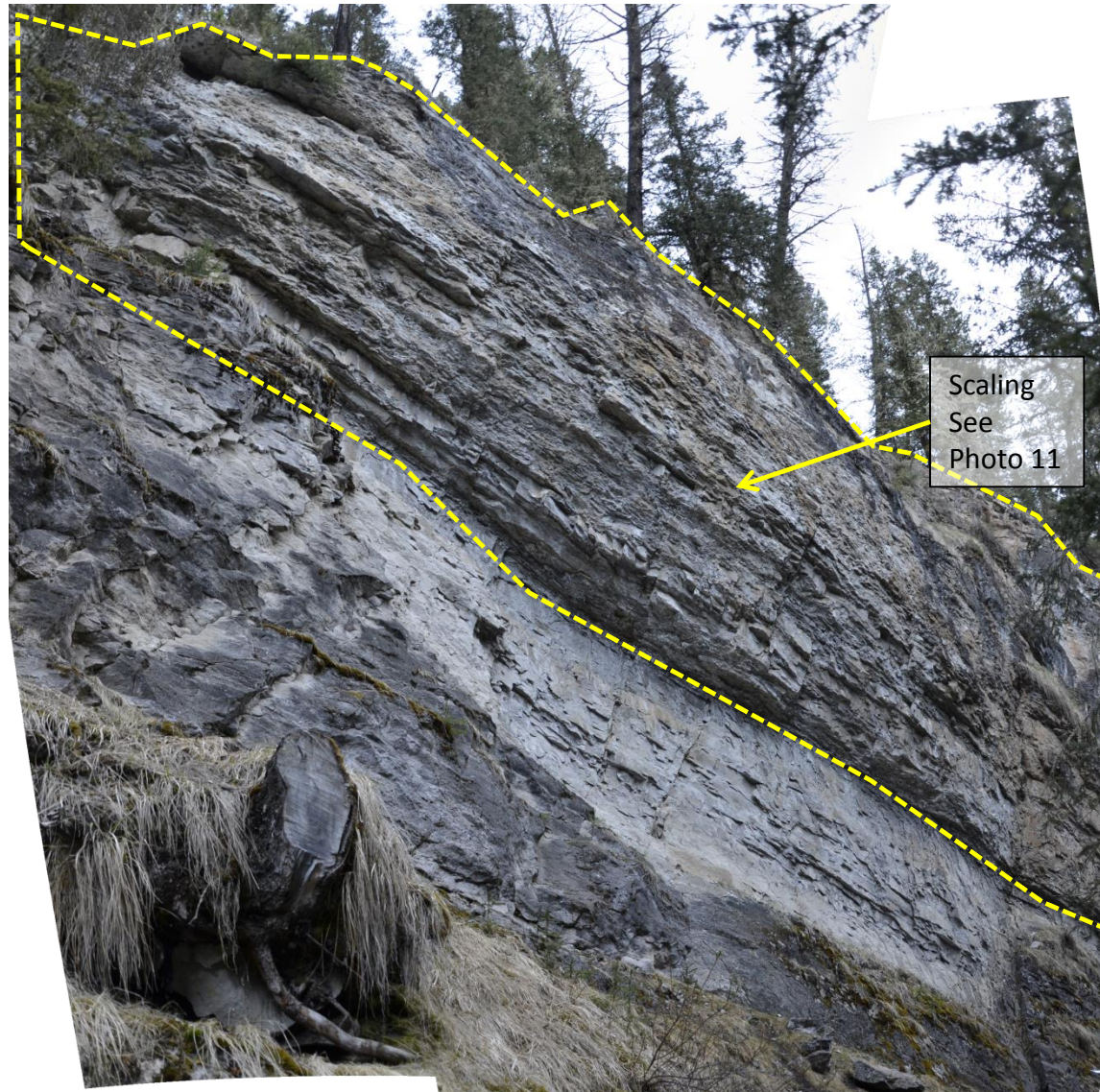




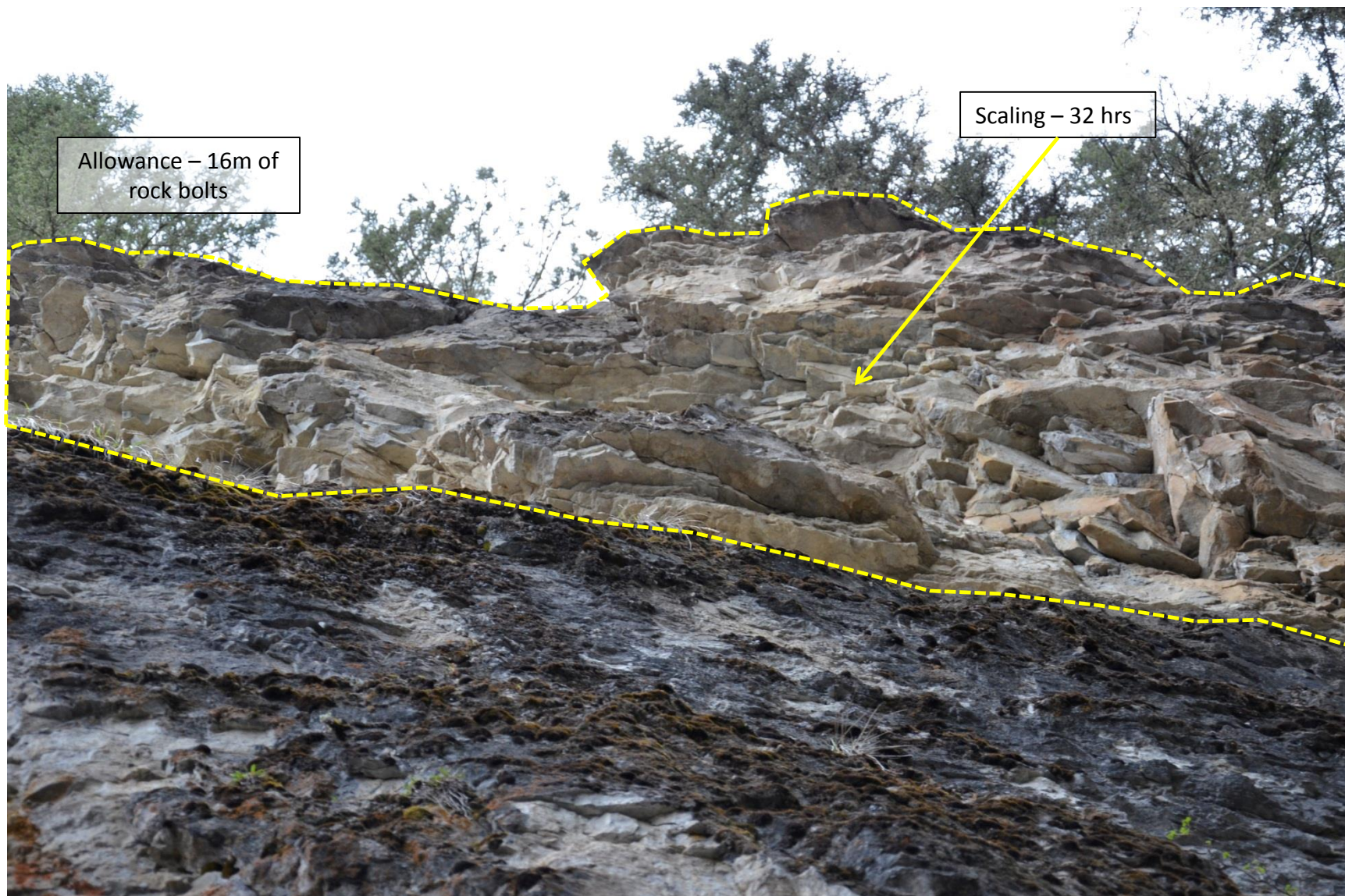




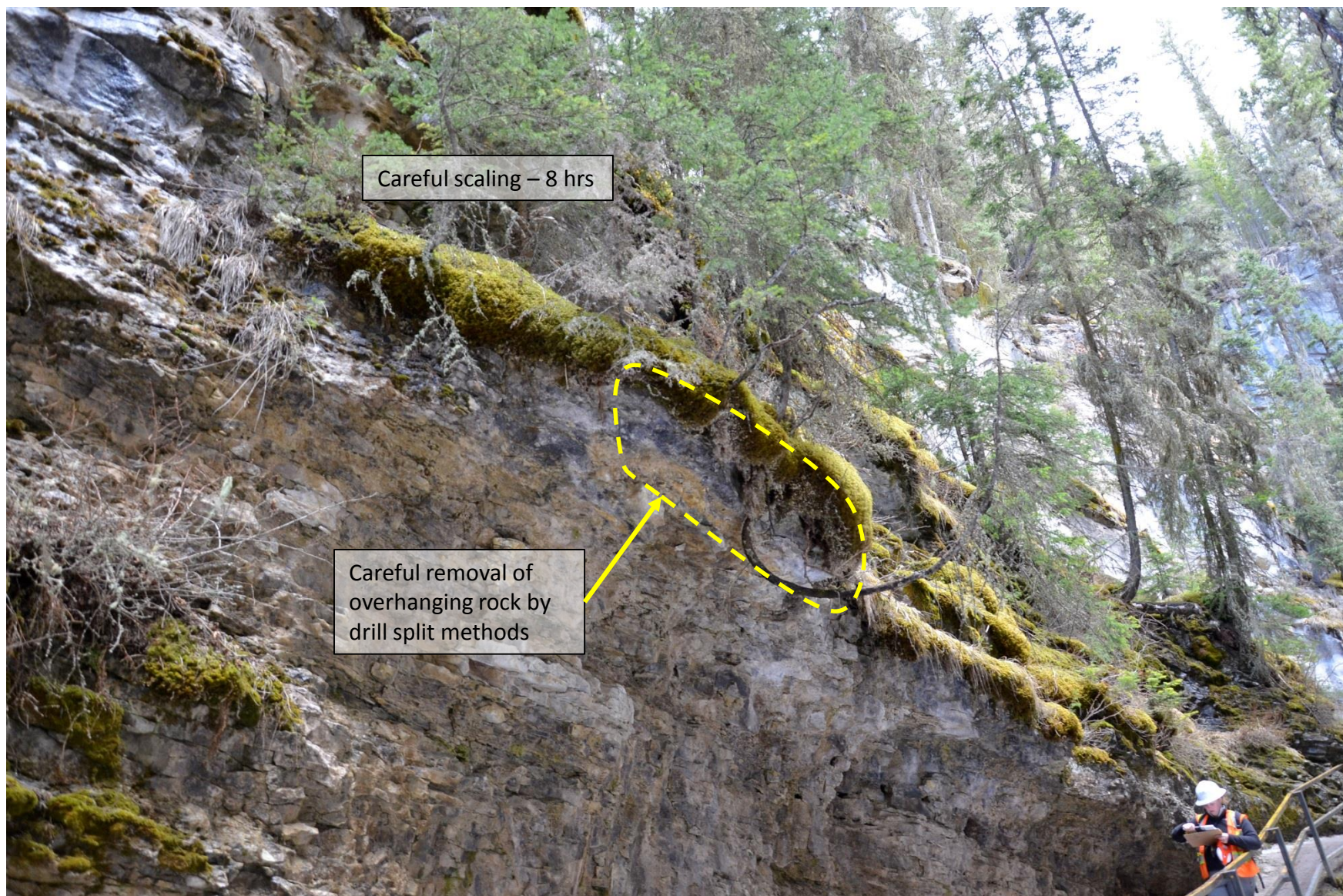








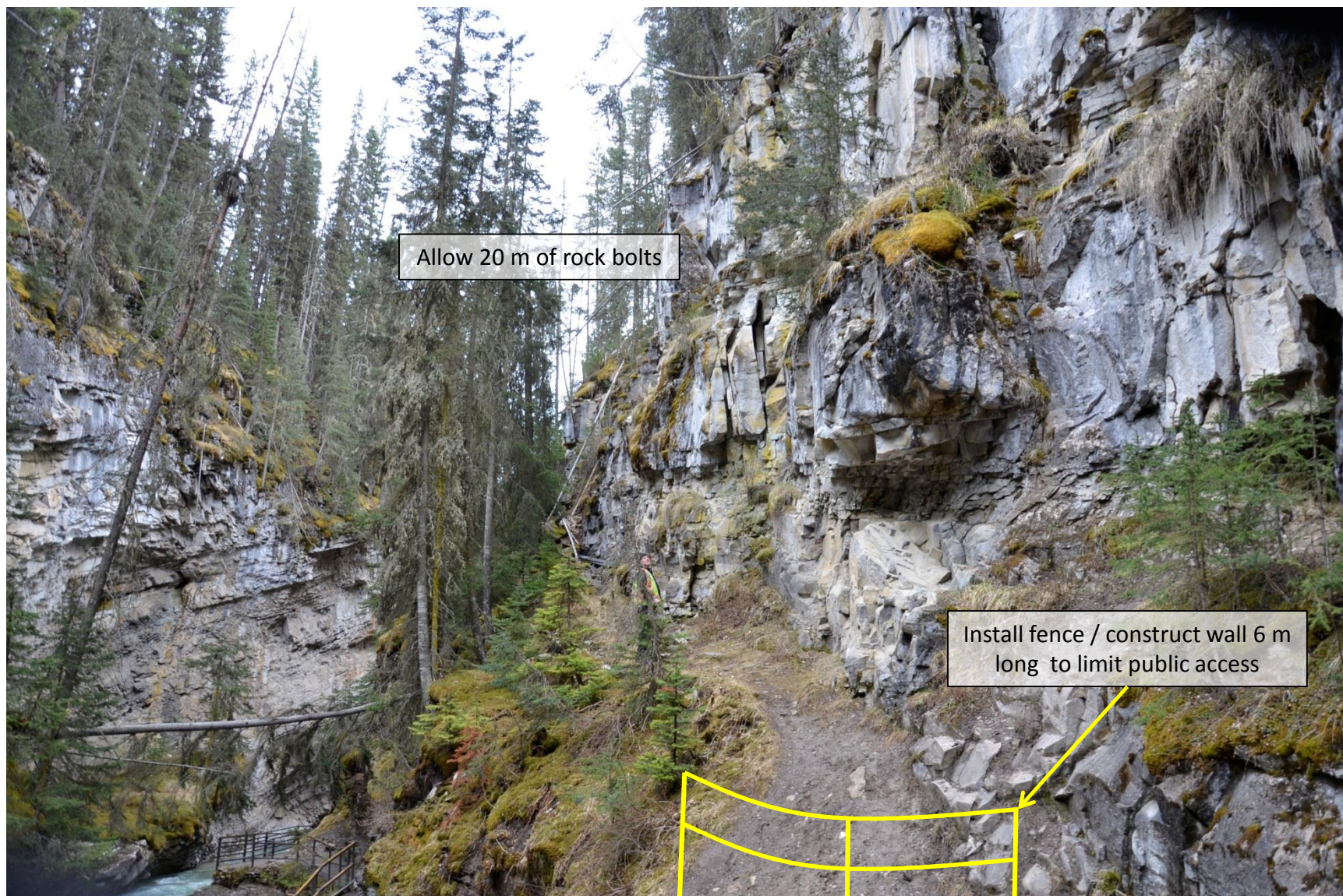


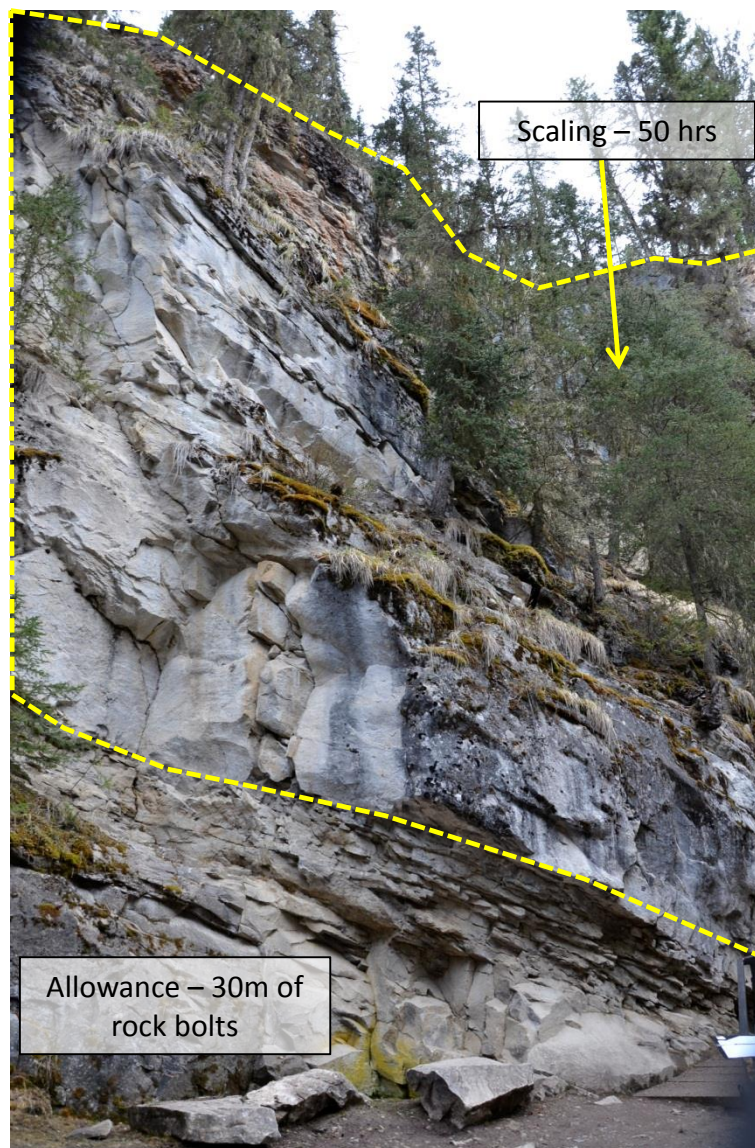


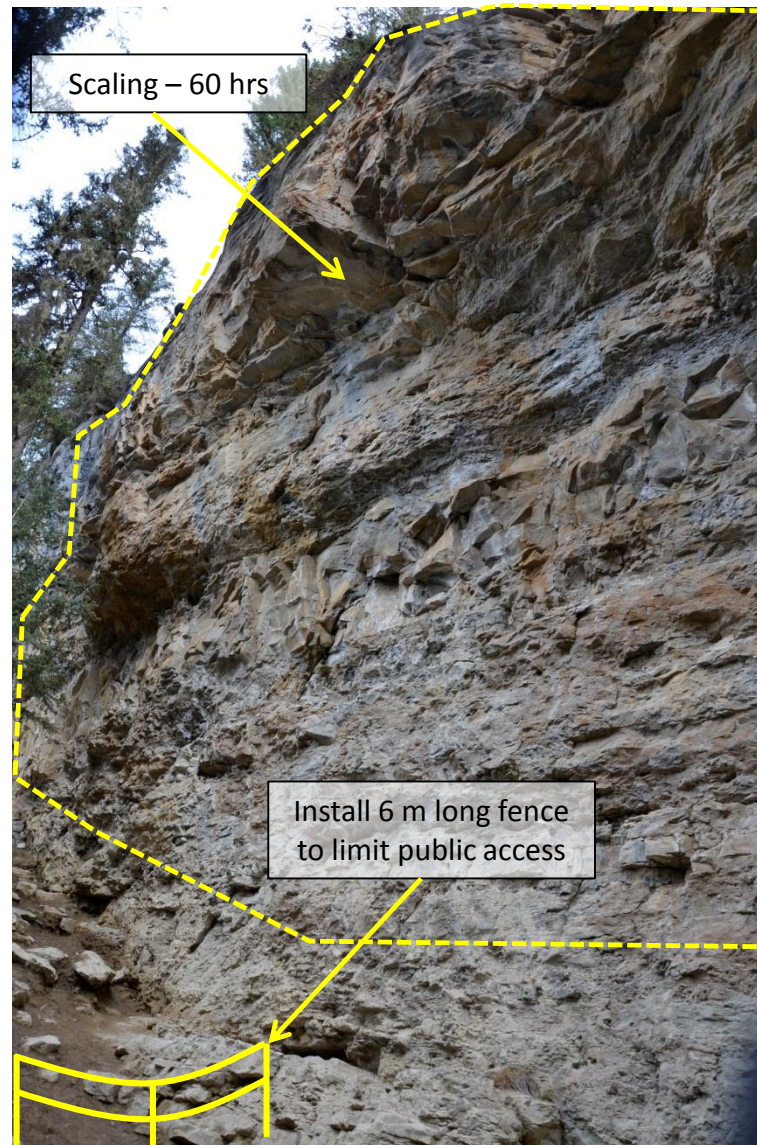
Careful scaling – 8 hrs

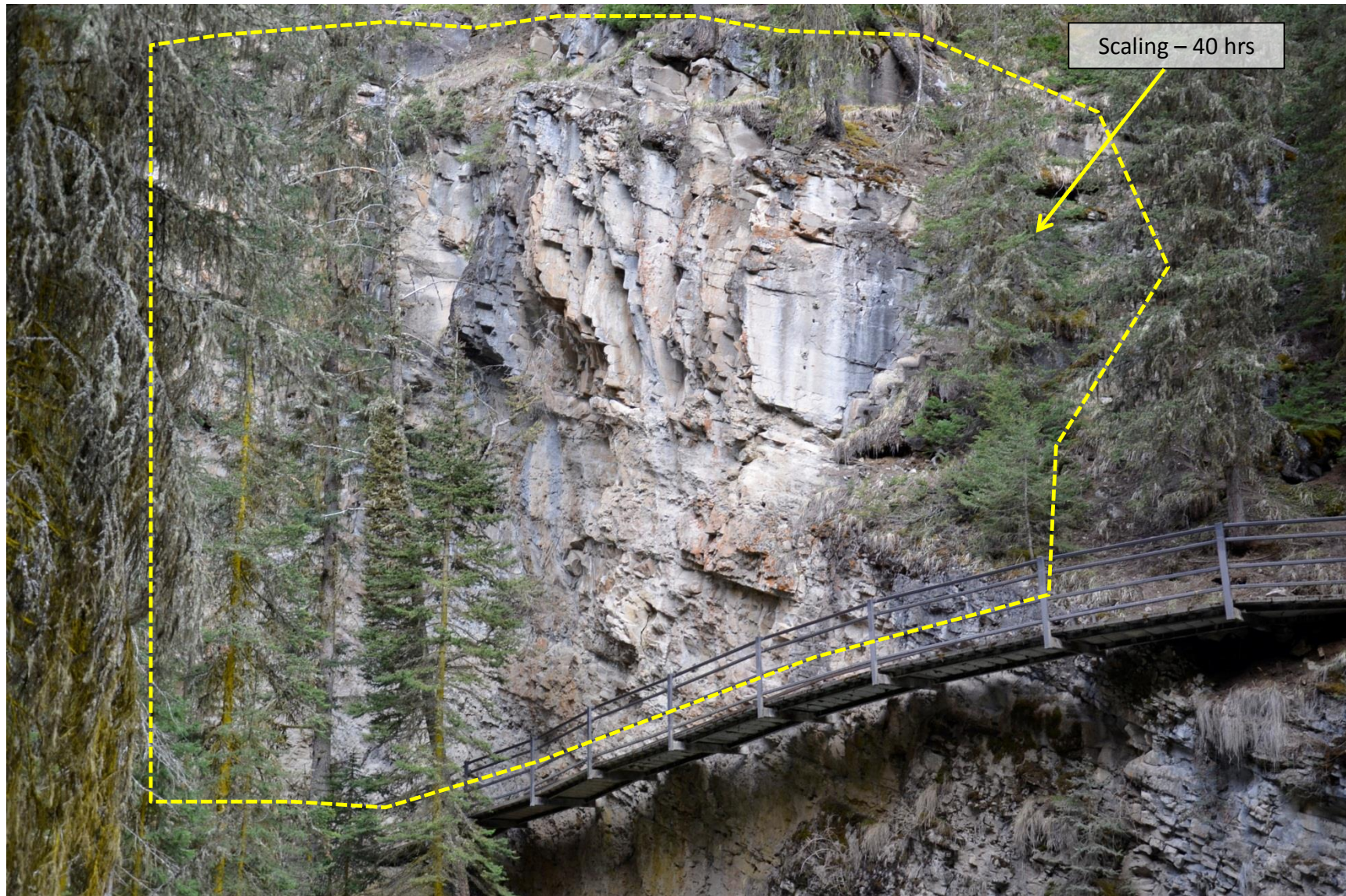
Careful removal of
overhanging rock by
drill split methods

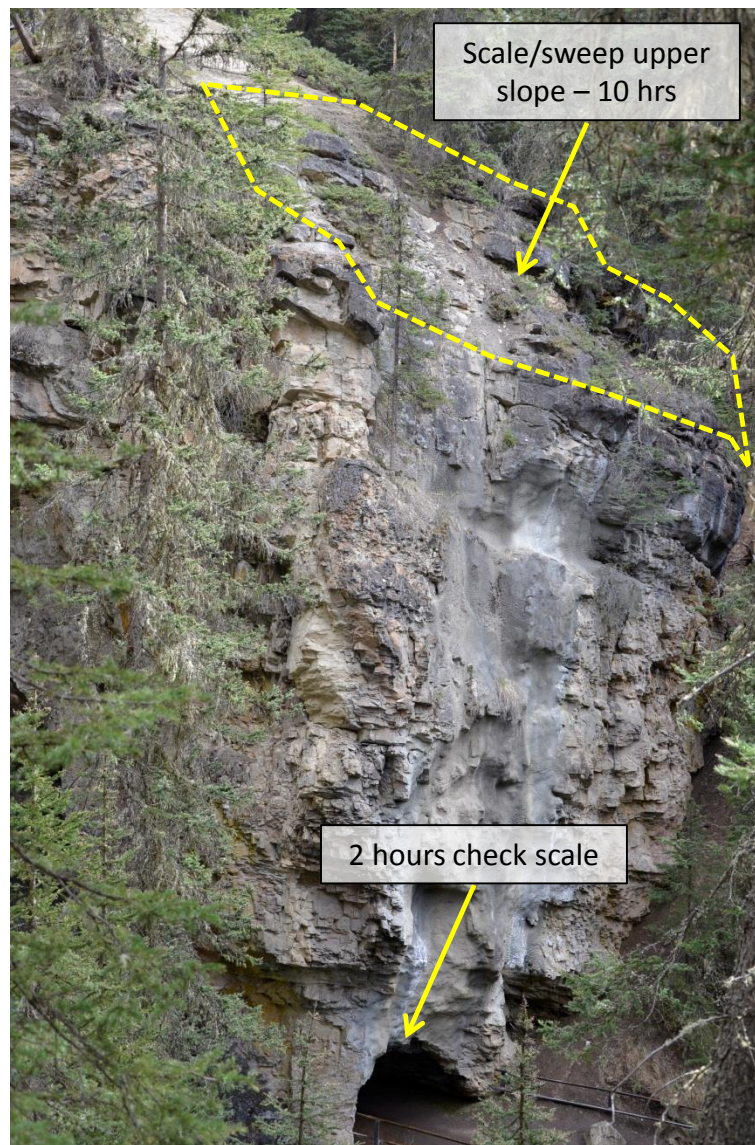




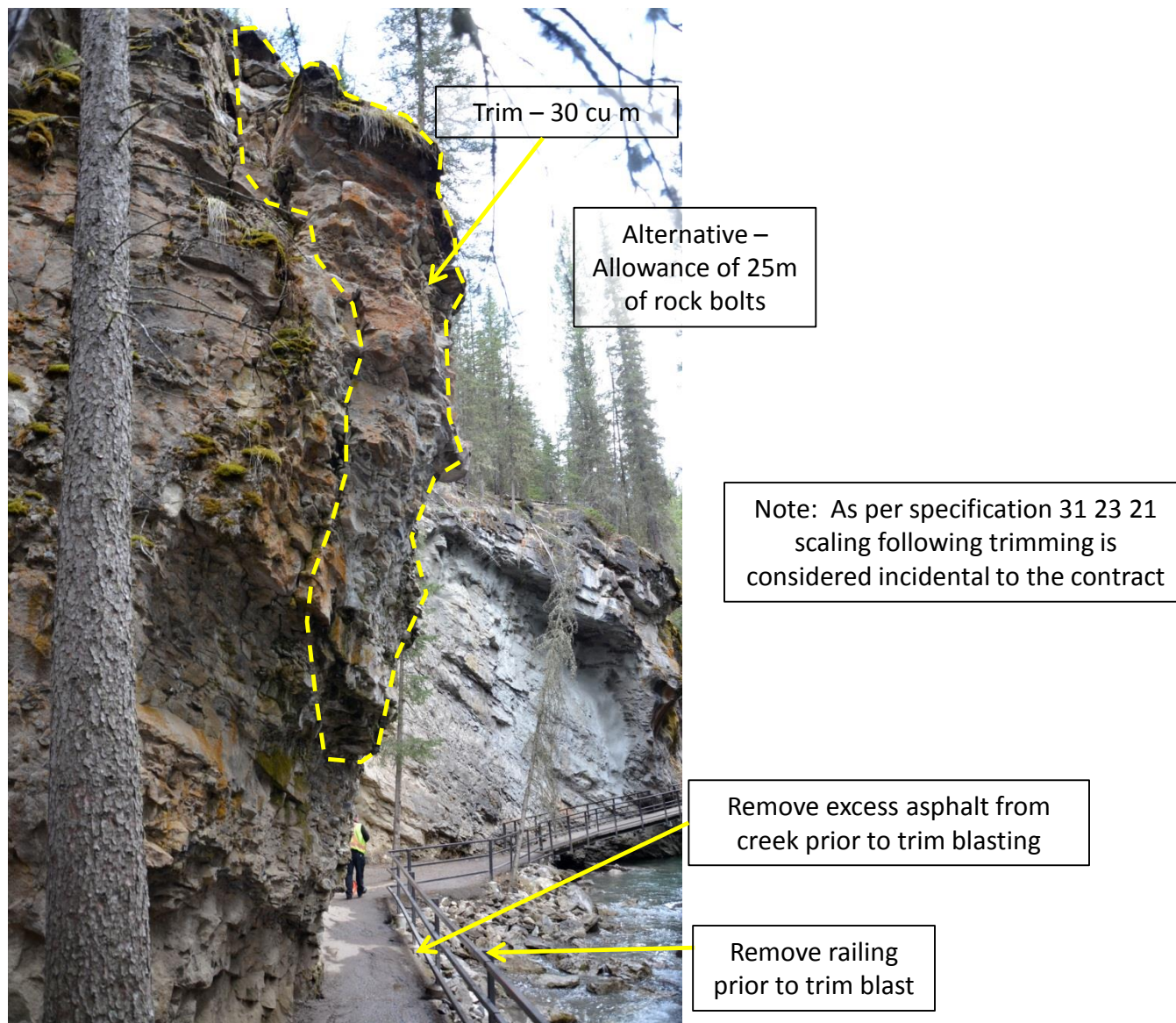


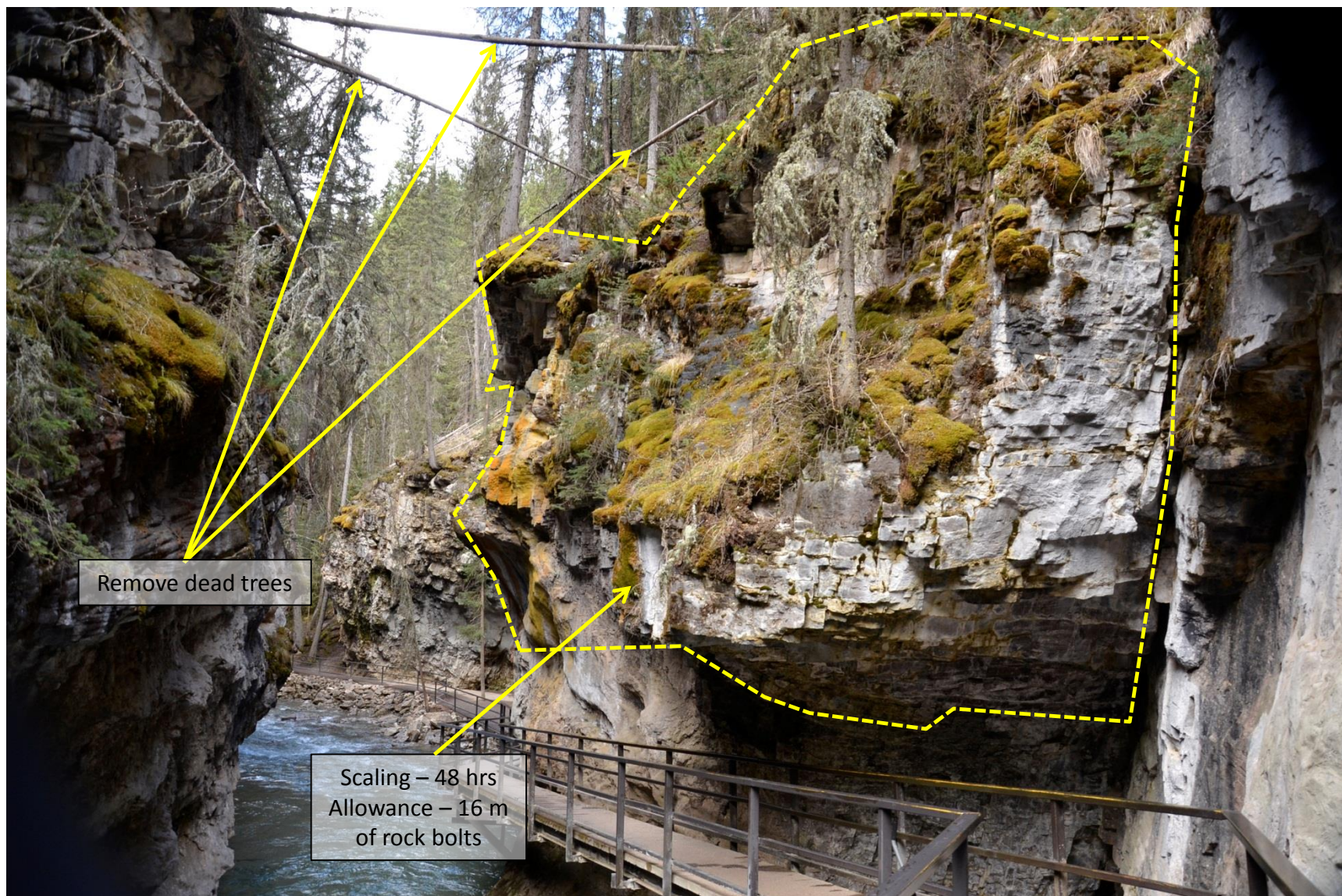


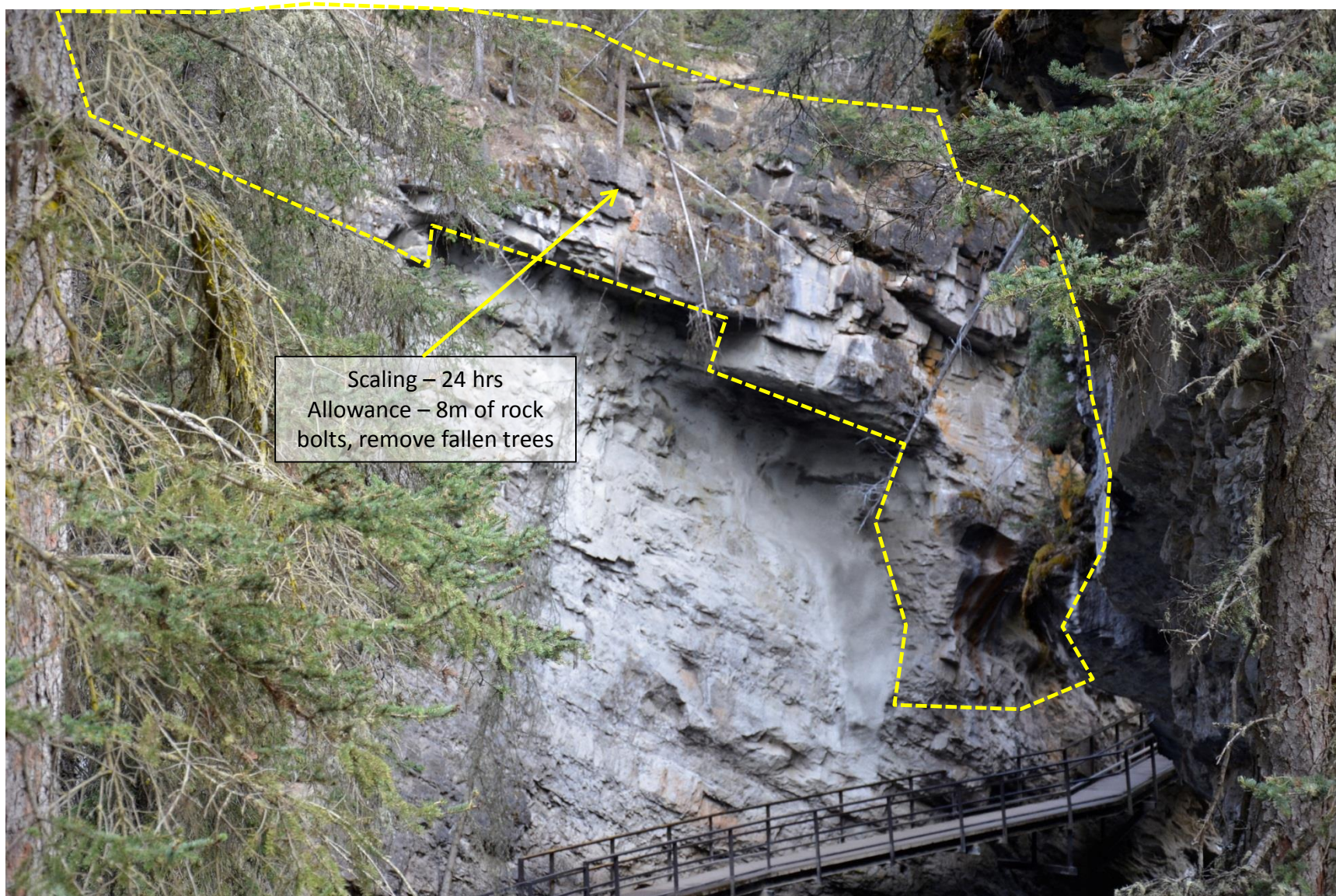


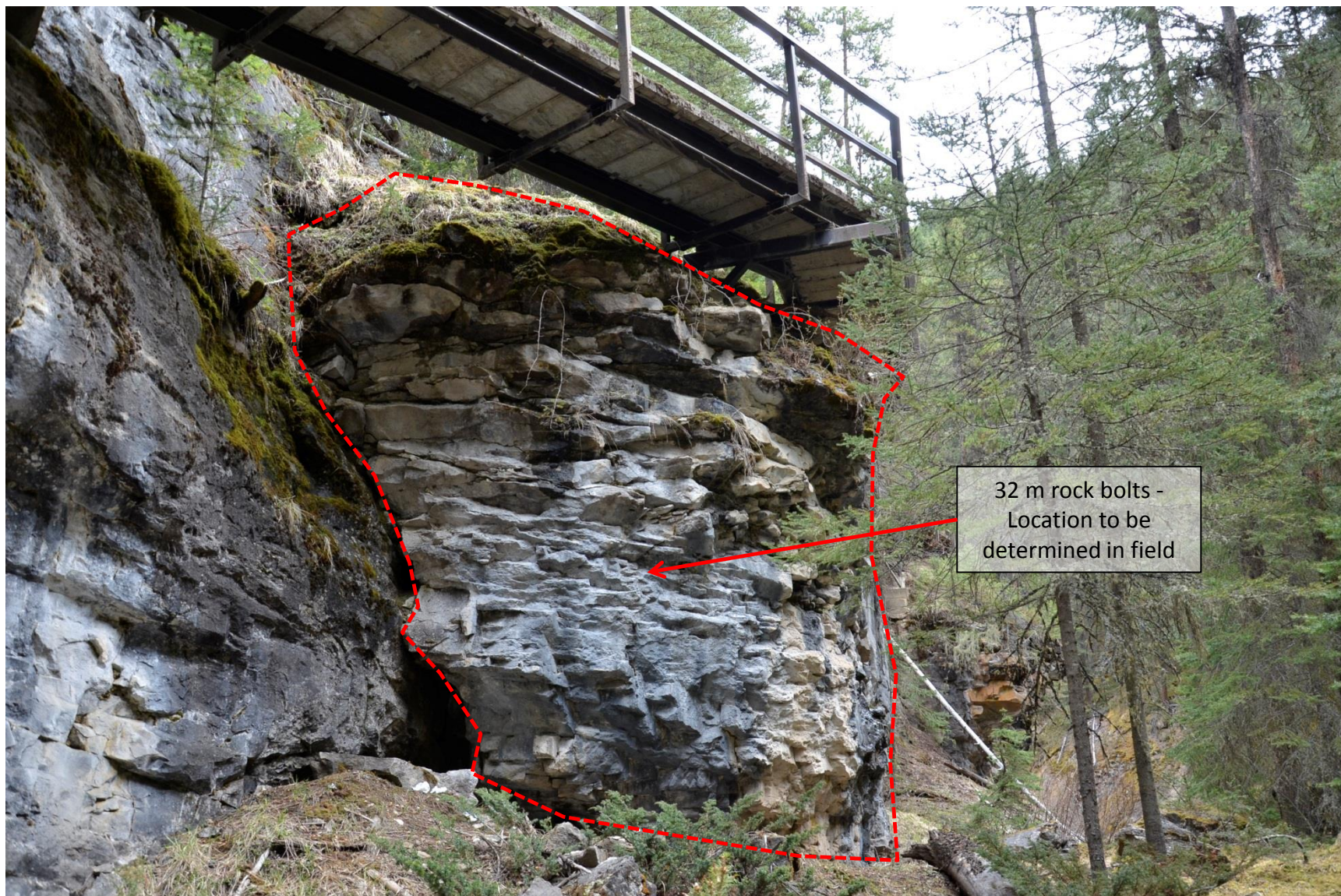












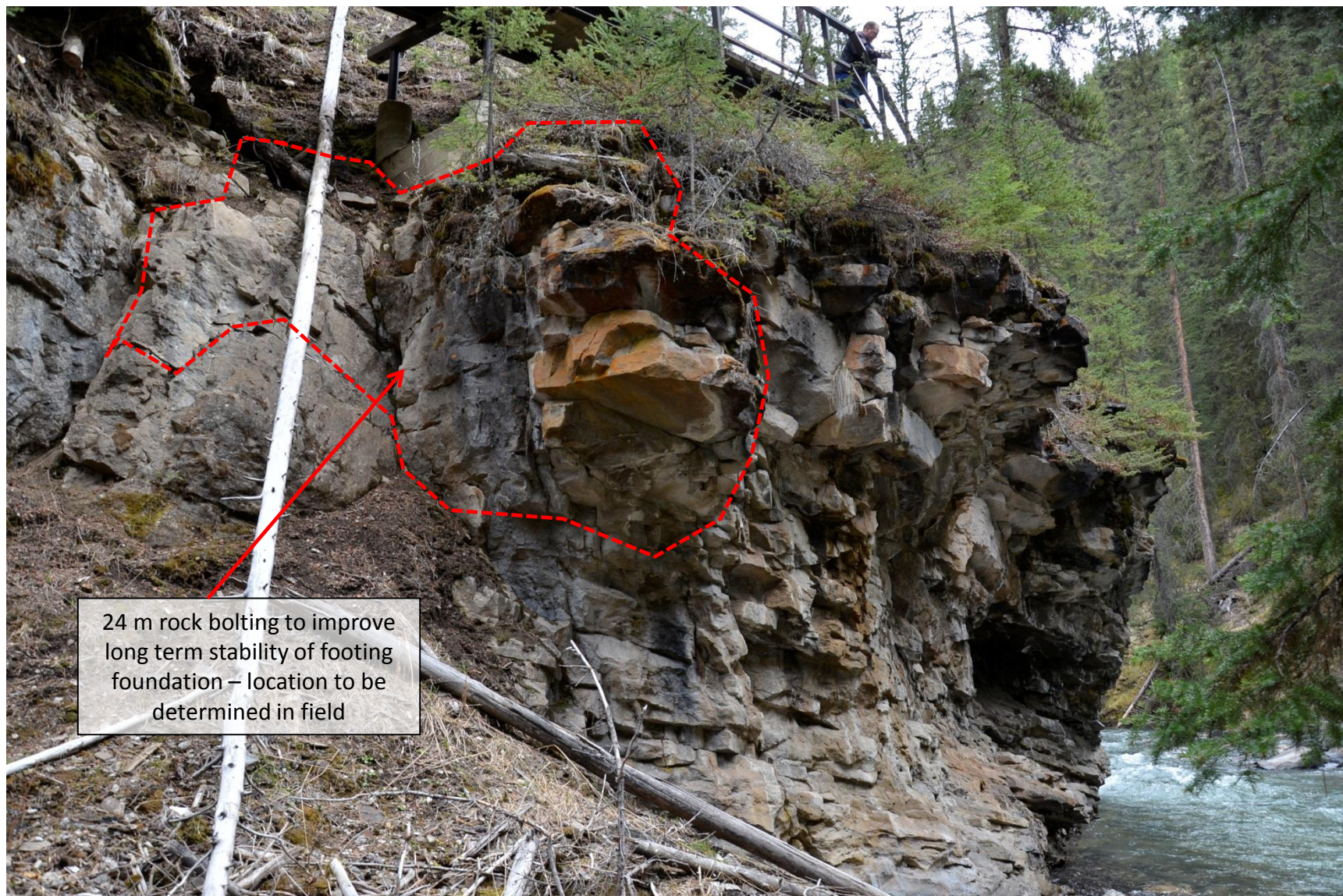


Erosion below footing
foundation – to be
monitored

Note: Clean out to competent
rock under the direction of the
Departmental Representative.
Form and place concrete
(estimated 0.2 m³).

Photo 30





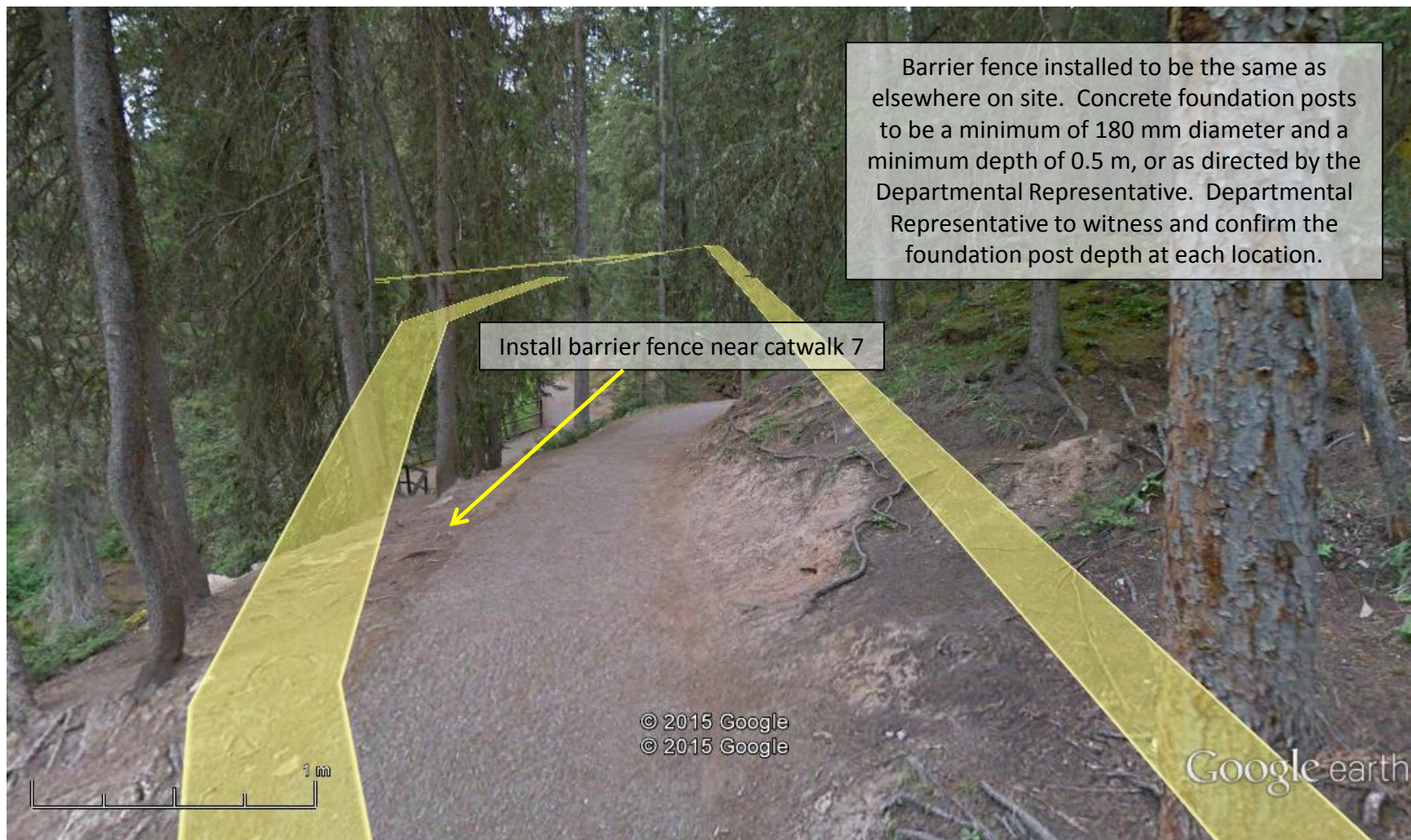
24 m rock bolting to improve
long term stability of footing
foundation – location to be
determined in field

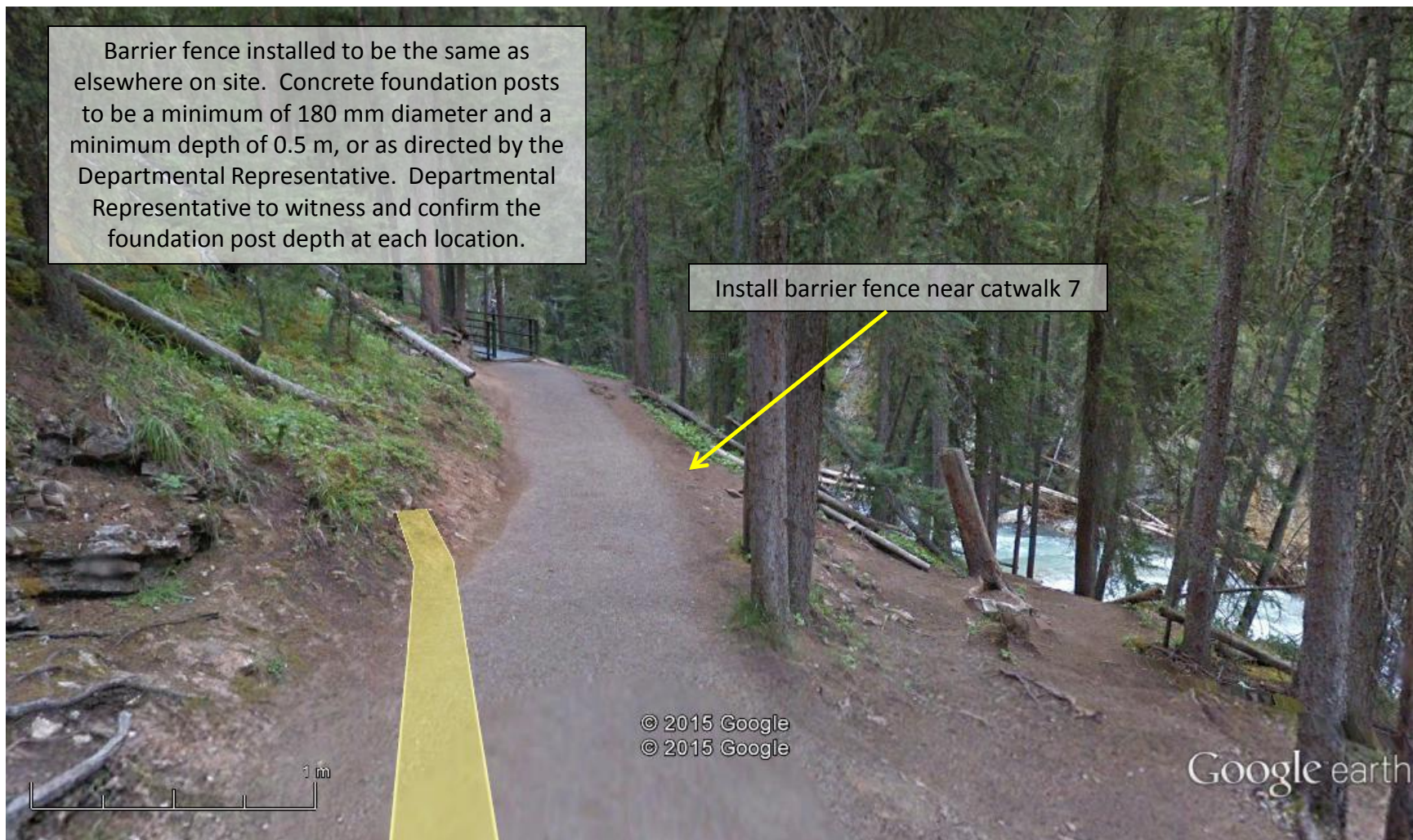


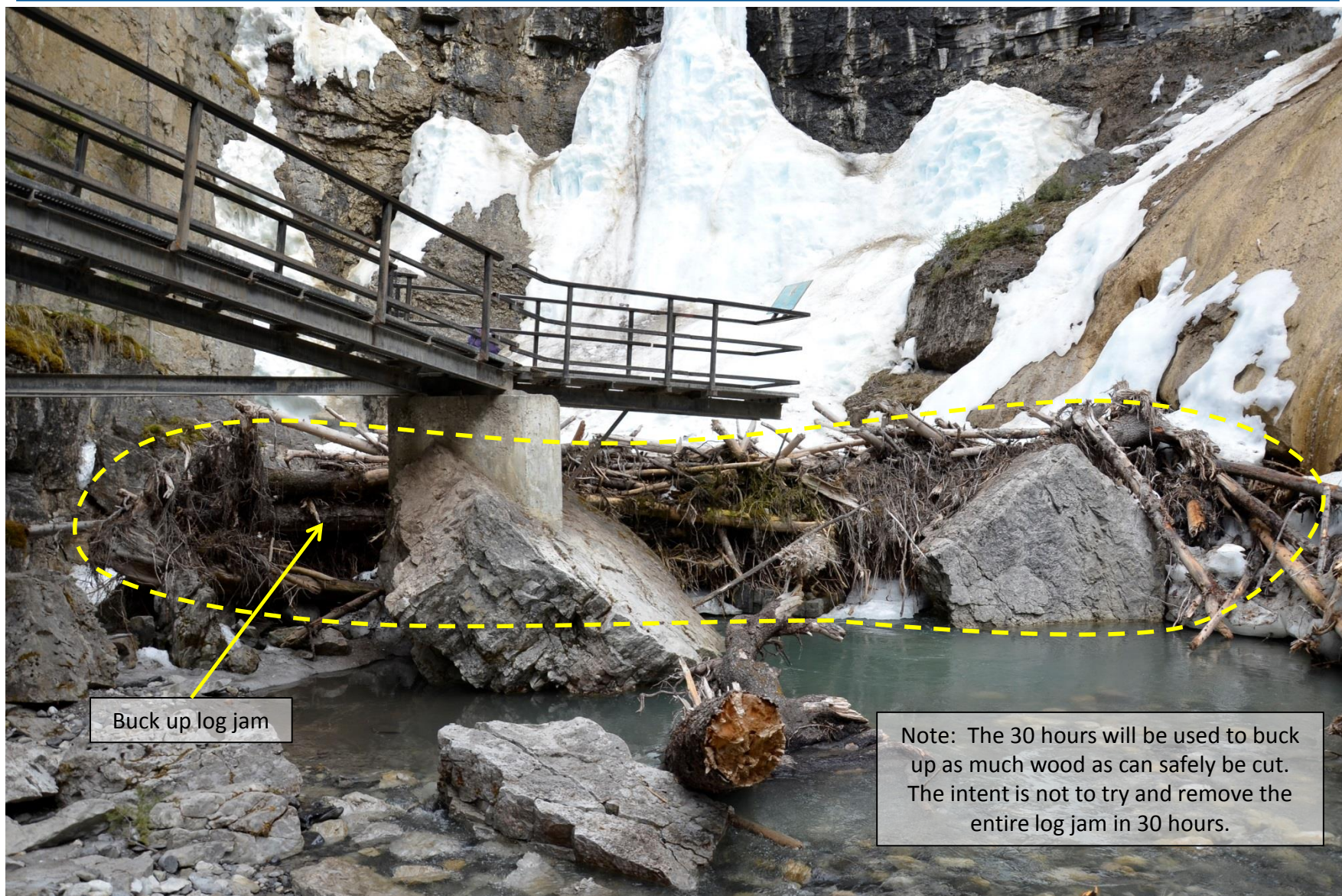














Summary of Cold Patch Locations

Location	Estimated Cold Patch Area (m ²)
Parking lot to Catwalk 1	9
Between Catwalk 1 and 2	3
Between Catwalk 2 and 3	21
On Catwalk 3	3
Between Catwalk 3 and 4	7
Between Catwalk 4 and 5	2
5 th Catwalk to tunnel	3
Lower Falls trail junction to 6 th Catwalk	20
Between 6 th Catwalk and fire road foot access path	4
Between fire road foot access path and 7 th Catwalk	141*

*Total includes the 30 m x 2.7 m stretch of trail to be replaced shown on Photo 27, where granular base will be required as shown on Figure 4. At other cold patch locations, only small quantities of granular base may be required.