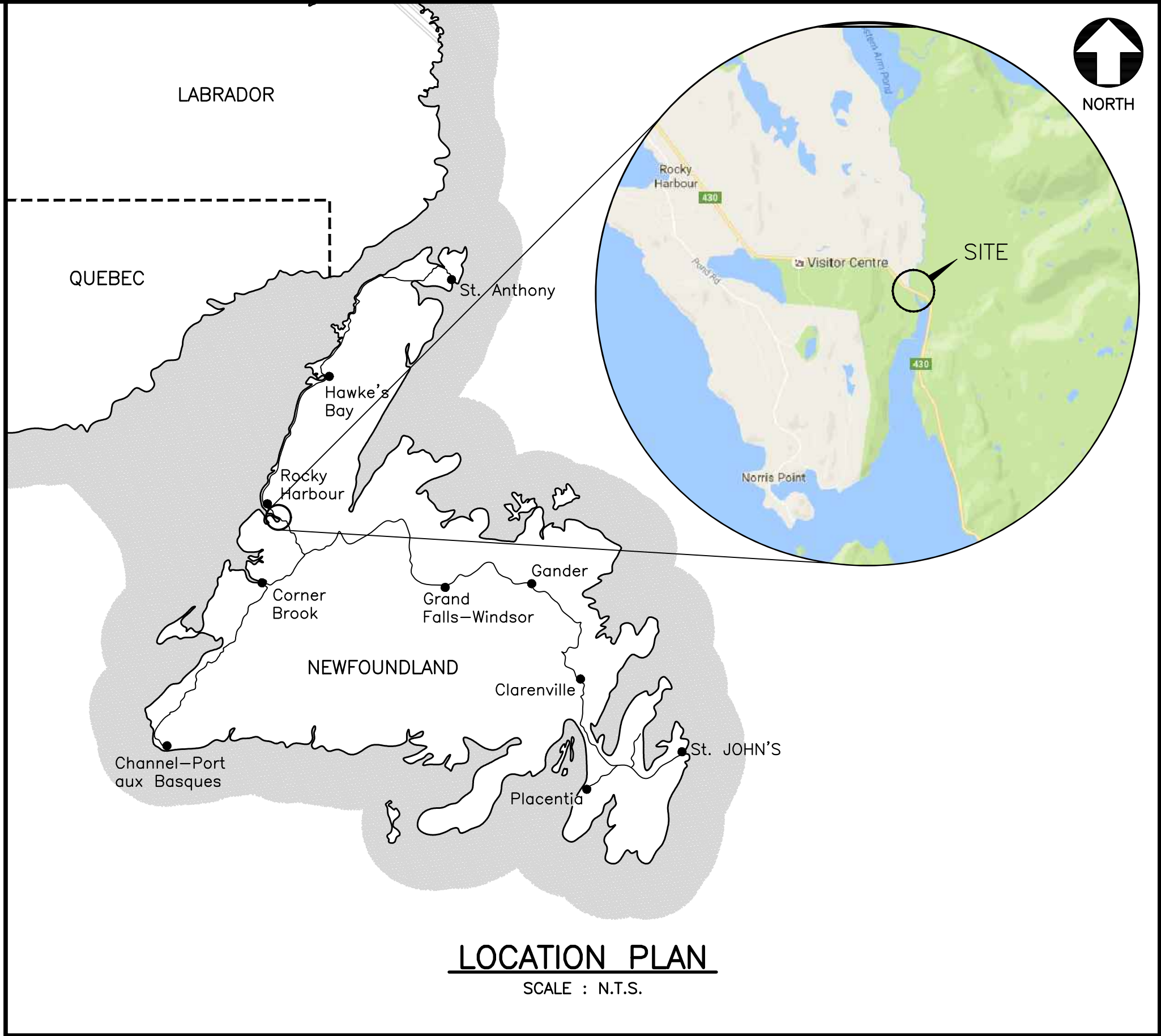


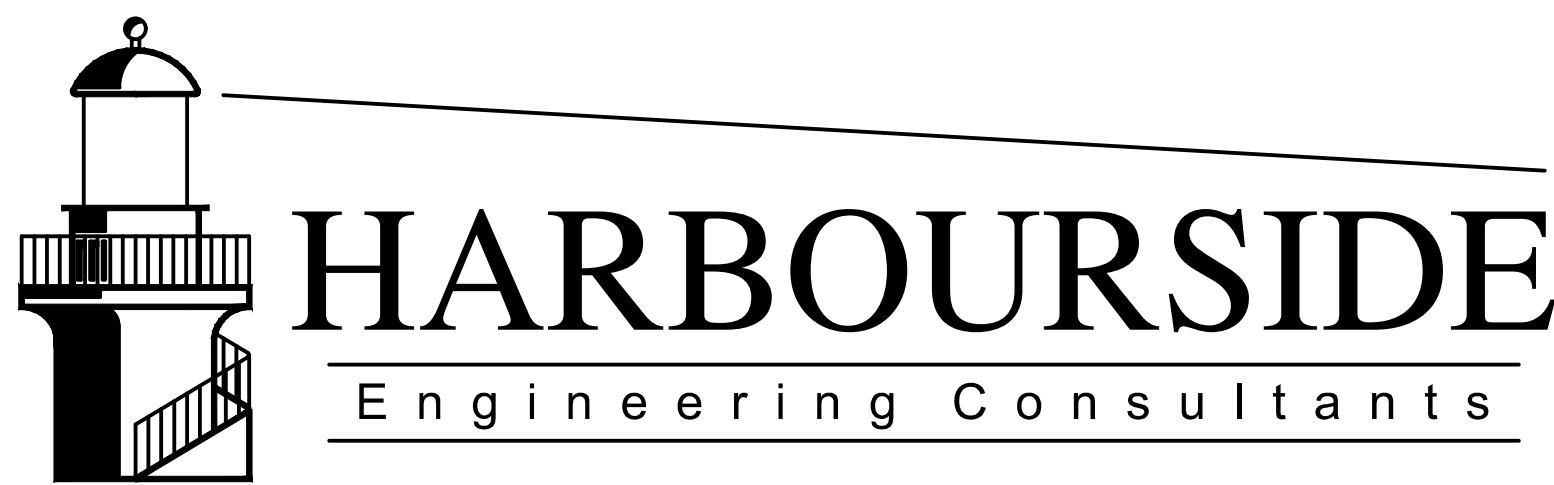
Parcs
Canada

Parks
Canada



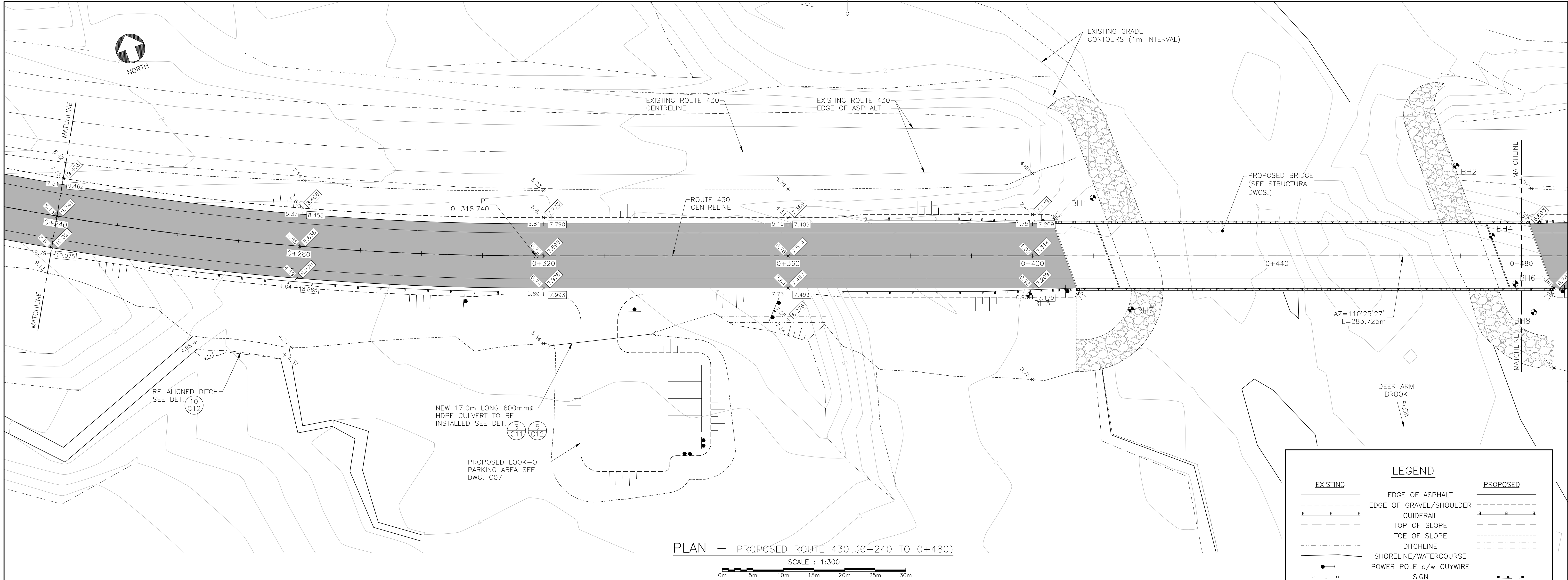
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BRIDGE REPLACEMENT
GROS MORNE NATIONAL PARK
NEWFOUNDLAND
AND LABRADOR

PROJECT NO. 1117

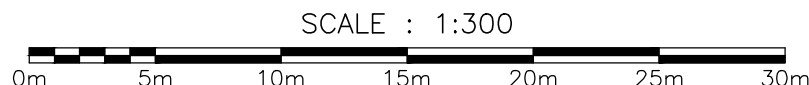


DRAWING LIST

CIVIL		BRIDGE REPLACEMENT	
C01	EXISTING CONDITIONS AND REMOVALS PLAN	S1	GENERAL ARRANGEMENT PLAN AND PROFILE
C02	PROPOSED ROUTE 430 STA. 0+000 TO 0+240	S2	GENERAL ARRANGEMENT ELEVATIONS, SECTION AND DETAIL
C03	PROPOSED ROUTE 430 STA. 0+240 TO 0+480	S3	ABUTMENT PLANS AND DETAIL
C04	PROPOSED ROUTE 430 STA. 0+480 TO 0+720	S4	ABUTMENT AND WINGWALL ELEVATIONS
C05	PROPOSED ROUTE 430 STA. 0+720 TO 0+960	S5	ABUTMENT SECTIONS AND DETAILS
C06	PROPOSED ROUTE 430 STA. 0+960 TO 1+160	S6	WINGWALL PILASTER SECTIONS AND DETAILS
C07	PROPOSED LOOK-OFF PARKING AREA AND TRAIL ACCESS ROAD	S7	BOX GIRDER LAYOUT PLAN AND SECTIONS
C08	SIGNAGE AND PAVEMENT MARKING PLAN	S8	BOX GIRDER SECTIONS AND DETAILS
C09	CROSS SECTIONS (SHEET 1 OF 3)	S9	BOX GIRDER CAMBER PROFILES AND WEB CUTS
C10	CROSS SECTIONS (SHEET 2 OF 3)	S10	BOX GIRDER DETAILS
C11	CROSS SECTIONS (SHEET 3 OF 3)	S11	DIAPHRAGM D1 SECTION AND DETAILS
C12	MISCELLANEOUS SECTIONS AND DETAILS	S12	BOX GIRDER HATCH AND BEARING DETAILS
C13	CLEARING AND WASTE MATERIAL REMOVAL PLAN	S13	DECK PLAN AND SCREED ELEVATIONS
		S14	DECK, CURB AND RAILING SECTIONS AND DETAILS
		S15	DECORATIVE PLAQUE DETAILS
		S16	BRIDGE EXCAVATION AND FILL QUANTITIES, DETAILS AND SECTIONS
		S17	ABUTMENT REINFORCING (SHEET 1 OF 2)
		S18	ABUTMENT REINFORCING (SHEET 2 OF 2)
		S19	WINGWALL REINFORCING
		S20	DECK REINFORCING PLAN, SECTIONS AND DETAIL
		S21	BOREHOLE LOCATION PLAN
		S22	BOREHOLE LOGS (SHEET 1 OF 3)
		S23	BOREHOLE LOGS (SHEET 2 OF 3)
		S24	BOREHOLE LOGS (SHEET 3 OF 3)



PLAN - PROPOSED ROUTE 430 (0+240 TO 0+480)



LEGEND

EXISTING

PROPOSED

EDGE OF ASPHALT

EDGE OF GRAVEL/SHOULDER

GUIDERAIL

TOP OF SLOPE

TOE OF SLOPE

DITCHLINE

SHORELINE/WATERCOURSE

POWER POLE c/w GUYWIRE

SIGN

CULVERT

OVERHEAD WIRE

SPOT ELEVATION

BOREHOLE

ASPHALT

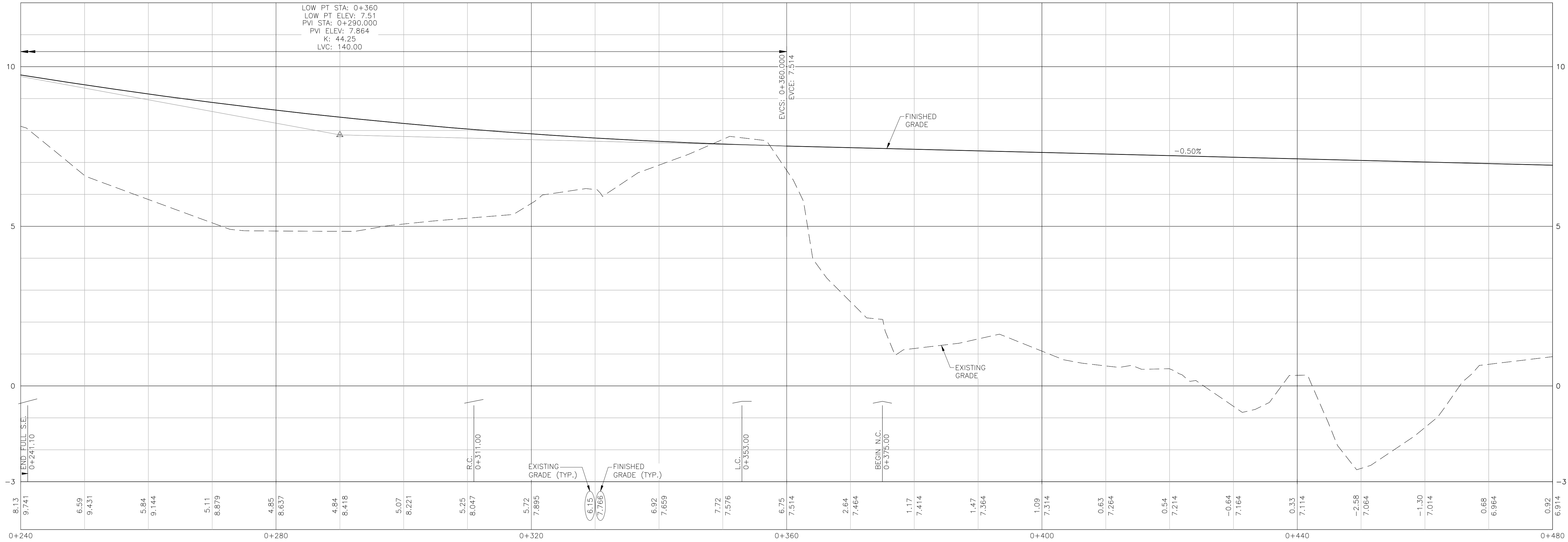
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L = LENGTH

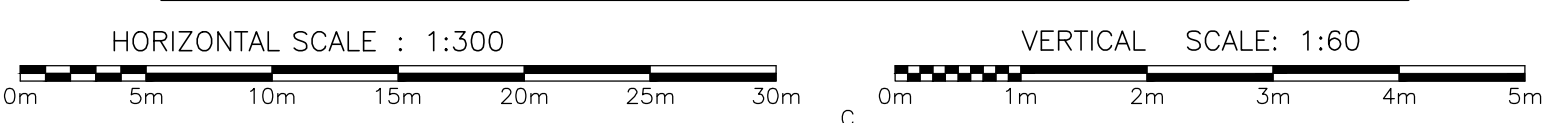
D = DELTA

L = LENGTH

R = RADIUS



PROFILE - PROPOSED ROUTE 430 (0+240 TO 0+480)



Parcs Canada

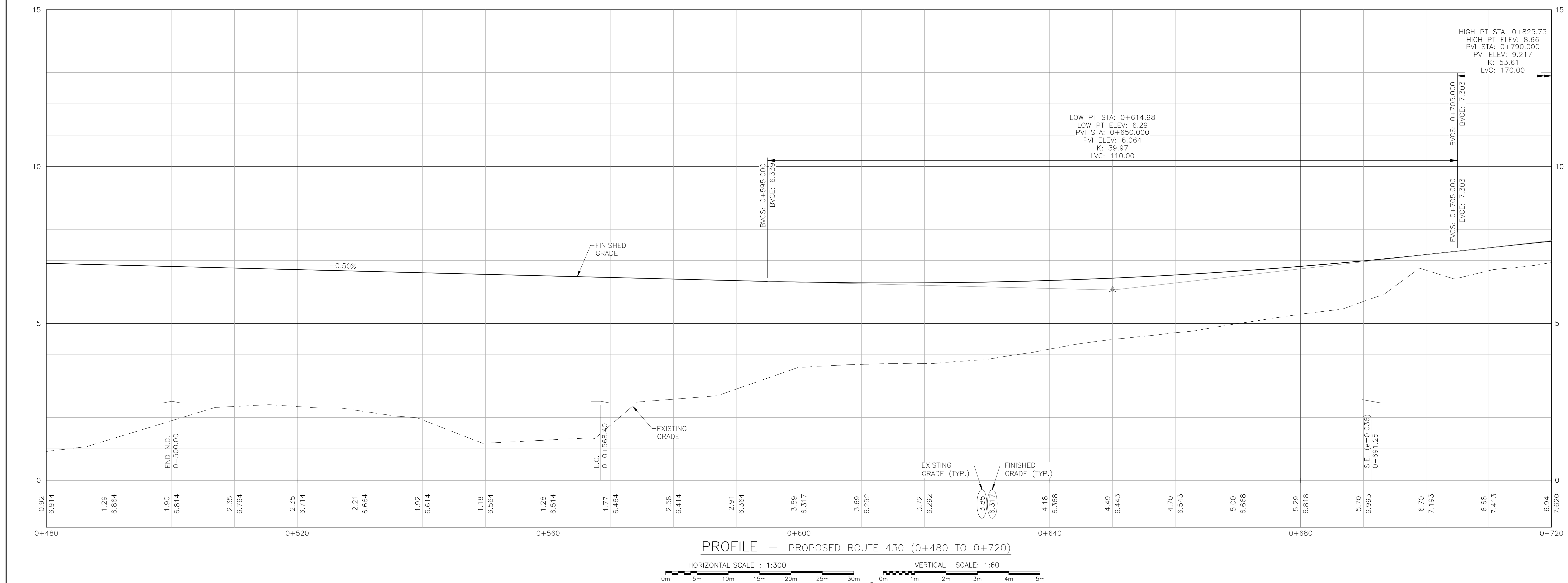
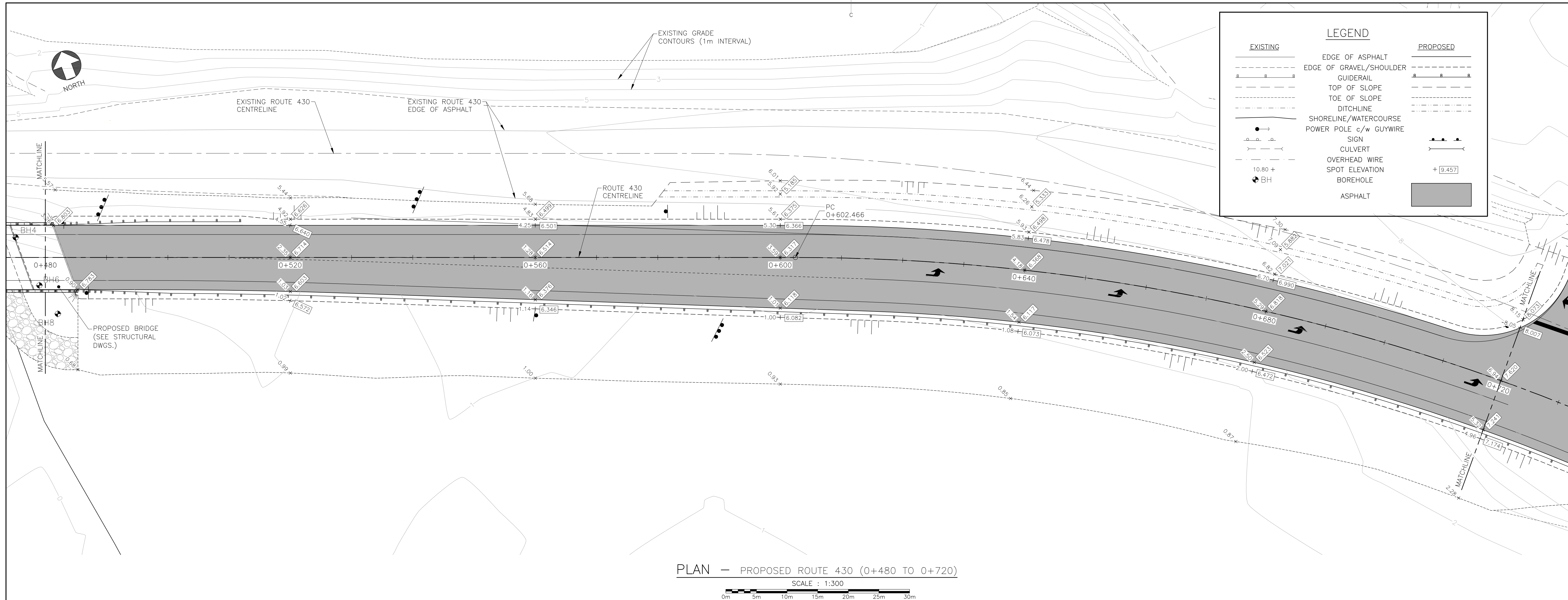
Parks Canada

NOTES:
1. FOR GENERAL NOTES SEE DRAWING C01.
2. FOR SIGNAGE AND PAVEMENT MARKINGS SEE DRAWING C08.
3. HORIZONTAL ALIGNMENT CONTROL POINTS CONSISTS OF:
- PT = POINT OF TANGENCY
- PC = POINT OF CURVATURE
- PRC = POINT OF REVERSE CURVATURE
LINE DATA
- AZ = AZIMUTH
- L = LENGTH
CURVE DATA
- D = DELTA
- L = LENGTH
- R = RADIUS

PROVINCE OF NEWFOUNDLAND
PERMIT HOLDER
CLASS "A"
This Permit Allows
Harbourside Transportation Consultants
To practice Professional Engineering
in Newfoundland and Labrador
Permit No. as issued by PEGNL N0763
which is valid for the year 2017.

0	ISSUED FOR TENDER	FEB/10 2017
revisions		date
project	DEER ARM BROOK BRIDGE REPLACEMENT	project
drawing	GROS MORNE NATIONAL PARK	design
designed	TIM JORDAN	conv
date	NOVEMBER 2016	
drawn	KEVIN MacDONALD	dessiné
date	NOVEMBER 2016	
approved	MICHAEL MACDONALD	approuvé
date	NOVEMBER 2016	
Tender		Soumission
PWOSC Project Manager	Administrateur de projet TPSOC	
project number	1117	no. du projet
drawing no.	C03	no. du dessin

E-DRM/GDD-EI



Parcs Canada Parks Canada

HARBOURSIDE
Engineering Consultants

HARBOURSIDE
Transportation Consultants

NOTES:

1. FOR GENERAL NOTES SEE DRAWING C01.

2. FOR SIGNAGE AND PAVEMENT MARKINGS SEE DRAWING C08.

3. HORIZONTAL ALIGNMENT CONTROL POINTS CONSISTS OF:

- PT = POINT OF TANGENCY
- PC = POINT OF CURVATURE
- PRC = POINT OF REVERSE CURVATURE

LINE DATA

- AZ = AZIMUTH
- L = LENGTH

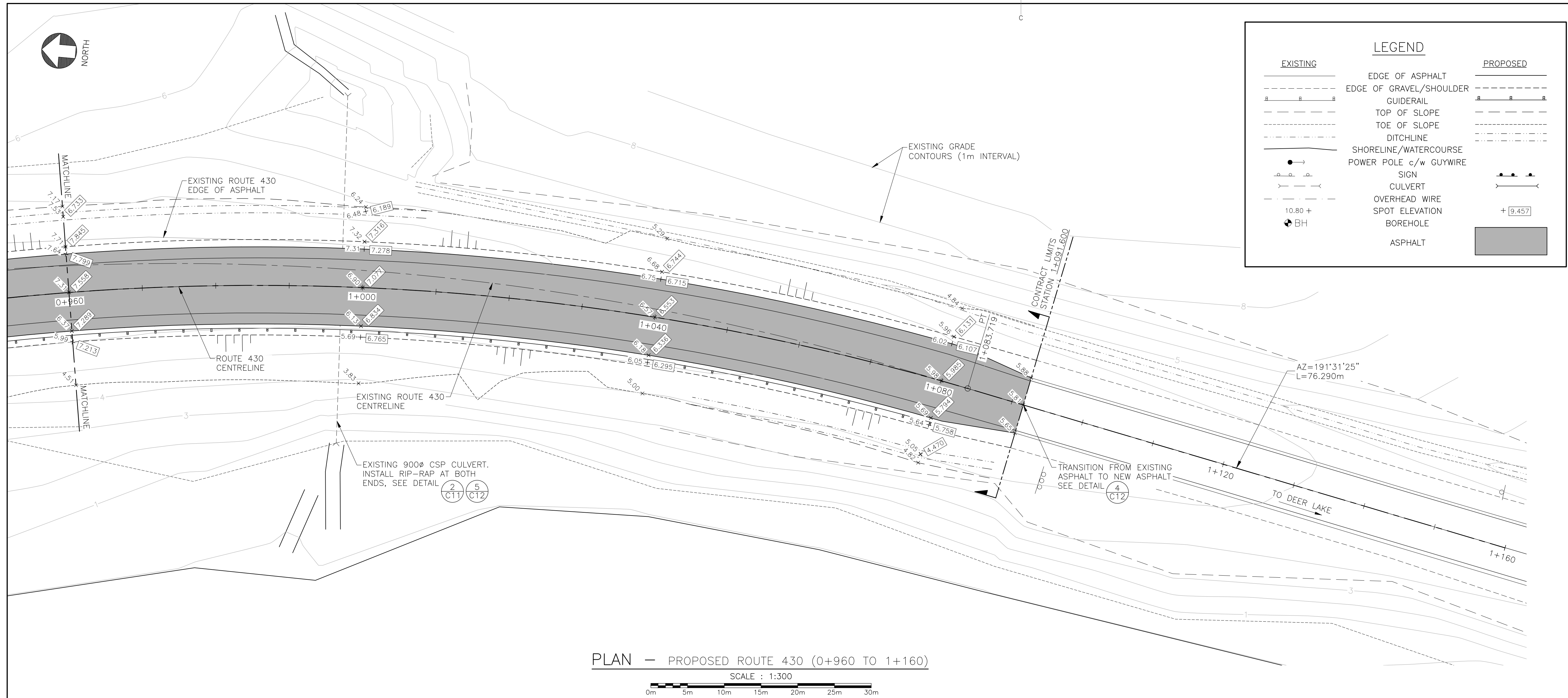
CURVE DATA

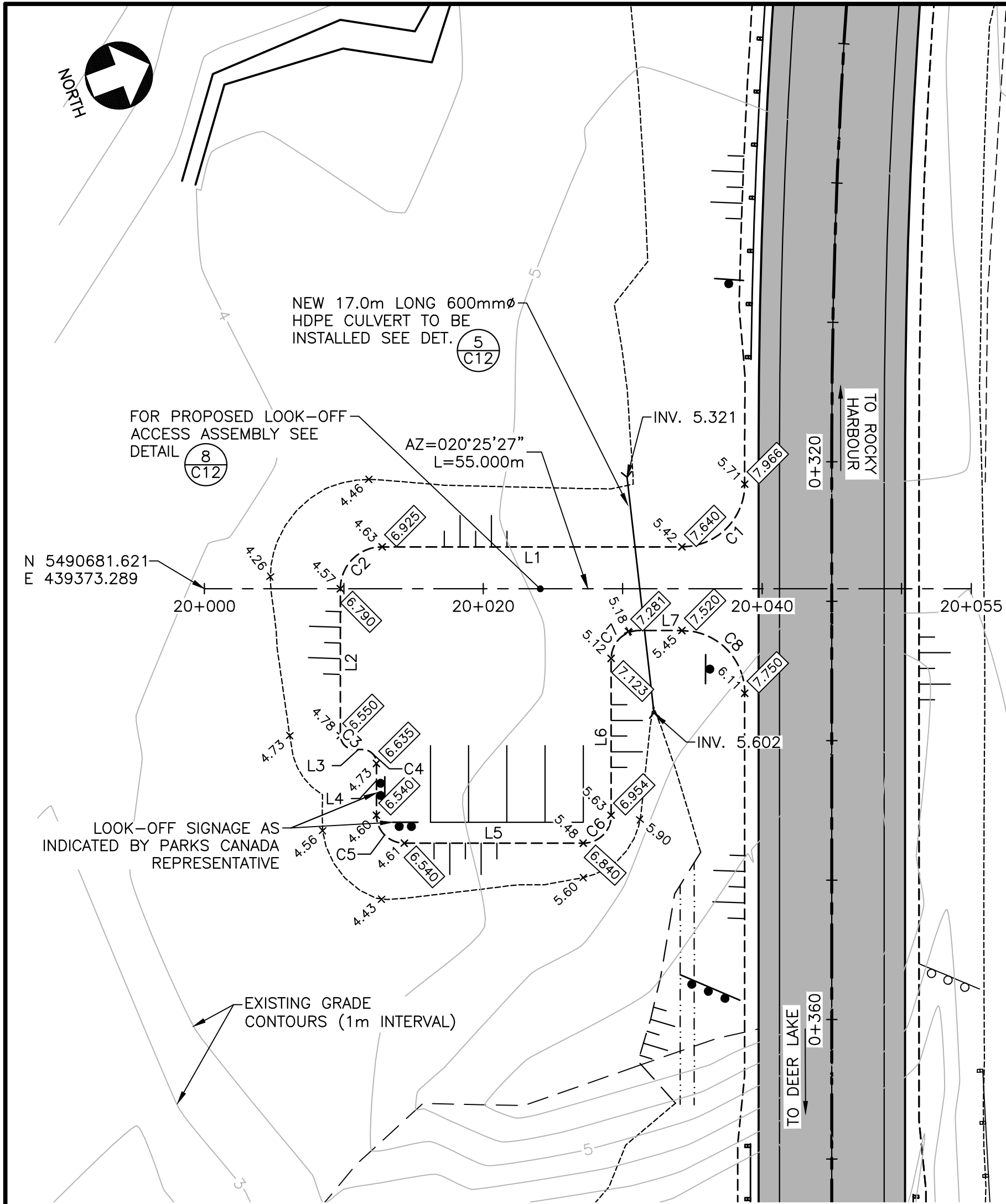
- D = DELTA
- L = LENGTH
- R = RADIUS

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REGISTERED PROFESSIONAL ENGINEER
MICHAEL S. MACDONALD
Feb. 10/17
DATE

0	ISSUED FOR TENDER	FEB/10 2017
revisions		date
project	DEER ARM BROOK BRIDGE REPLACEMENT	project
drawing	GROS MORNE NATIONAL PARK	dessin
designed	TIM JORDAN	conçu
date	NOVEMBER 2016	
drawn	KEVIN MacDONALD	dessiné
date	NOVEMBER 2016	
approved	MICHAEL MACDONALD	approuvé
date	NOVEMBER 2016	
Tender		Soumission
PWOSC Project Manager	Administrateur de projets TPSOC	
project number	1117	no. du projet
drawing no.	C04	no. du dessin





PLAN — PROPOSED LOOK-OFF PARKING AREA

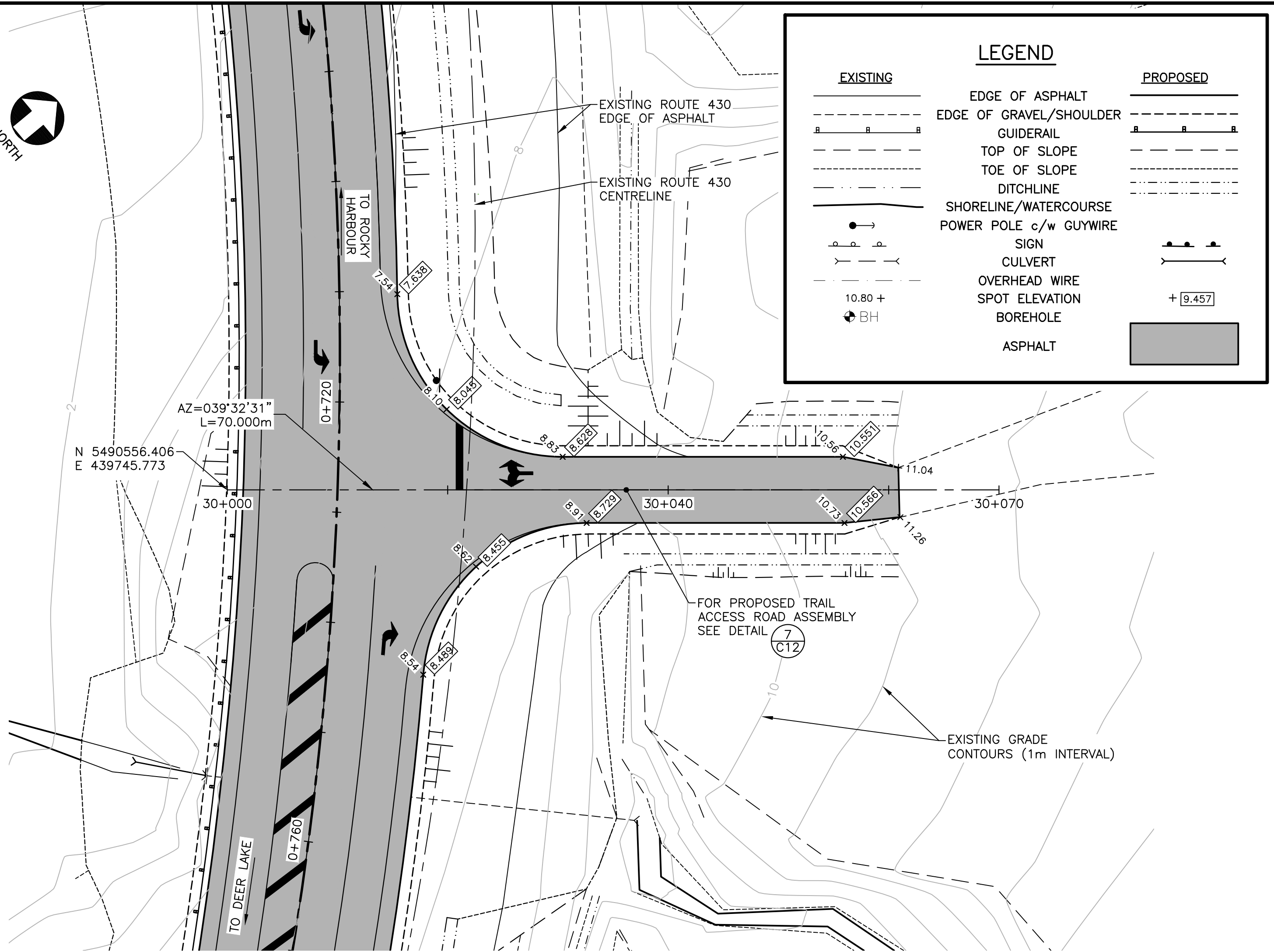
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LINE #	LENGTH	AZIMUTH	START	END
L1	21.50	200° 25' 27"	(N=5490714.765, E=439382.430)	(N=5490694.617, E=439374.927)
L2	10.54	110° 25' 27"	(N=5490690.758, E=439376.691)	(N=5490687.082, E=439386.564)
L3	0.59	020° 25' 27"	(N=5490687.670, E=439387.851)	(N=5490688.220, E=439388.055)
L4	3.71	110° 25' 27"	(N=5490688.808, E=439389.341)	(N=5490687.512, E=439392.823)
L5	12.83	020° 25' 27"	(N=5490688.688, E=439395.395)	(N=5490700.715, E=439399.873)
L6	11.25	290° 25' 27"	(N=5490703.287, E=439398.697)	(N=5490707.213, E=439388.154)
L7	3.08	020° 25' 27"	(N=5490709.785, E=439386.978)	(N=5490712.671, E=439388.052)

CURVE #	LENGTH	RADIUS	TANGENT	DELTA	START	END
C1	7.07	4.50	4.500	090.00	(N=5490720.552, E=439379.783)	(N=5490714.765, E=439382.430)
C2	4.71	3.00	3.000	090.00	(N=5490694.617, E=439374.927)	(N=5490690.758, E=439376.691)
C3	1.57	1.00	1.000	090.00	(N=5490687.082, E=439386.564)	(N=5490687.670, E=439387.851)
C4	1.57	1.00	1.000	090.00	(N=5490688.220, E=439388.055)	(N=5490688.808, E=439389.341)
C5	3.14	2.00	2.000	090.00	(N=5490687.512, E=439392.823)	(N=5490688.688, E=439395.395)
C6	3.14	2.00	2.000	090.00	(N=5490700.715, E=439399.873)	(N=5490703.287, E=439398.697)
C7	3.14	2.00	2.000	090.00	(N=5490707.213, E=439388.154)	(N=5490709.785, E=439386.978)
C8	7.07	4.50	4.500	090.00	(N=5490712.671, E=439388.052)	(N=5490715.318, E=439393.840)

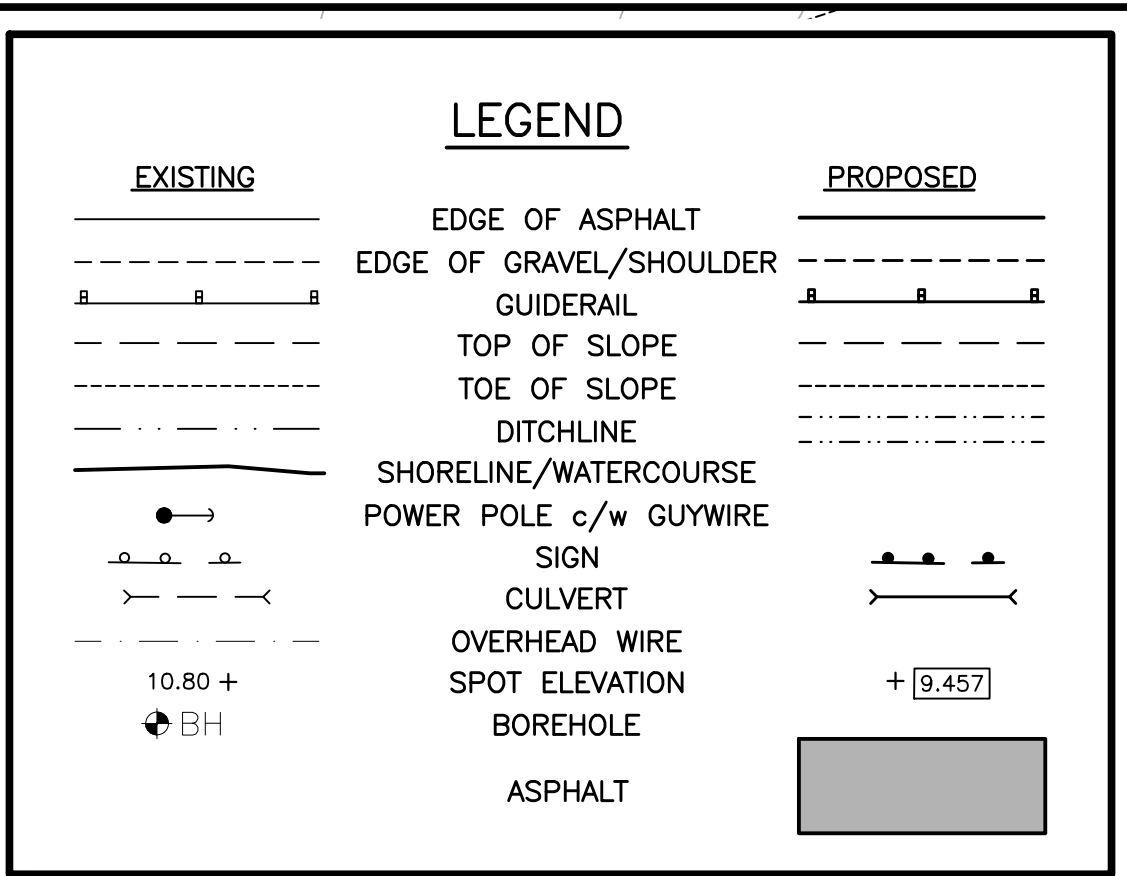
EXISTING ROUTE 430
EDGE OF ASPHALT

EXISTING ROUTE 430
CENTRELINE

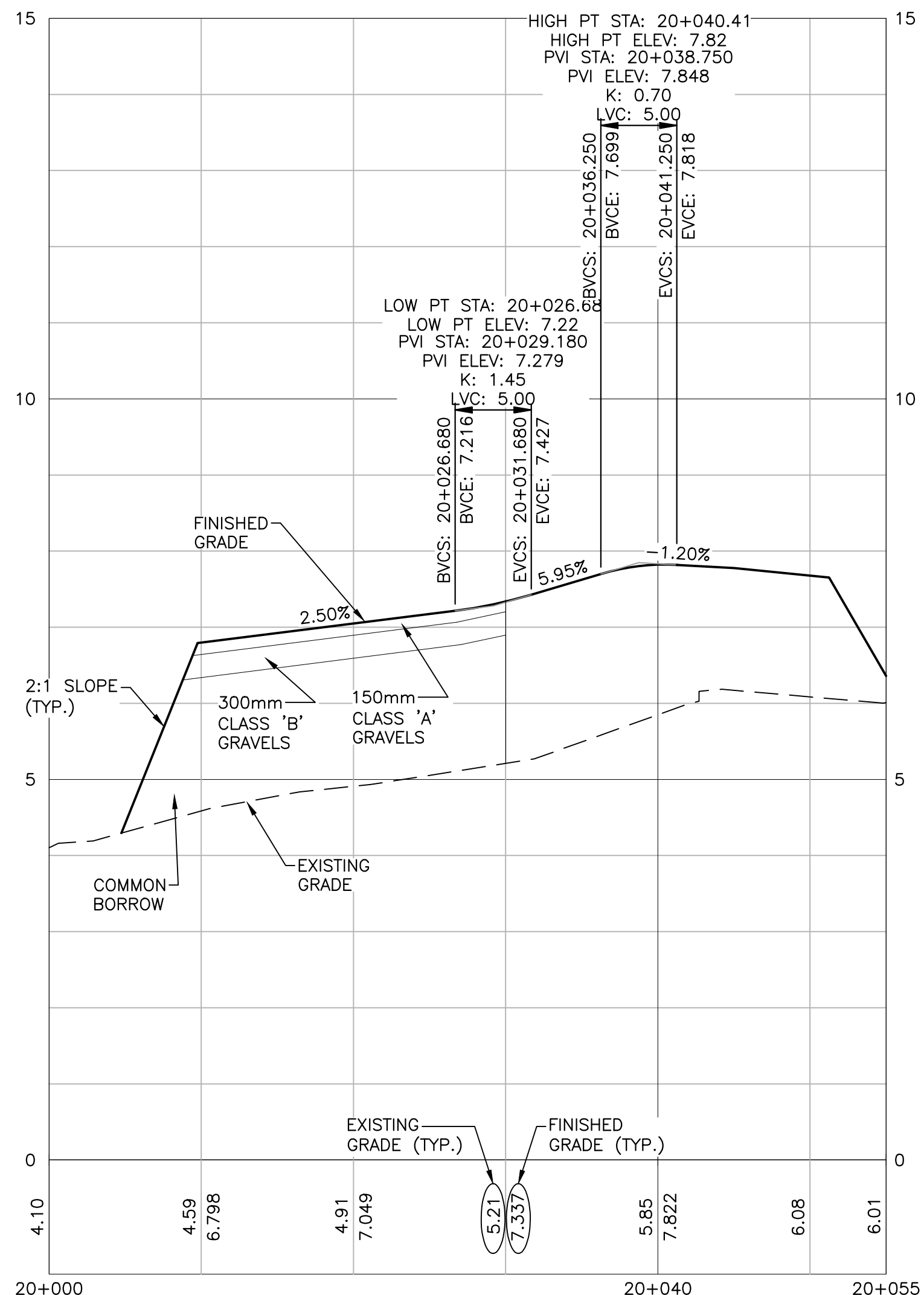


PLAN — TRAIL ACCESS ROAD

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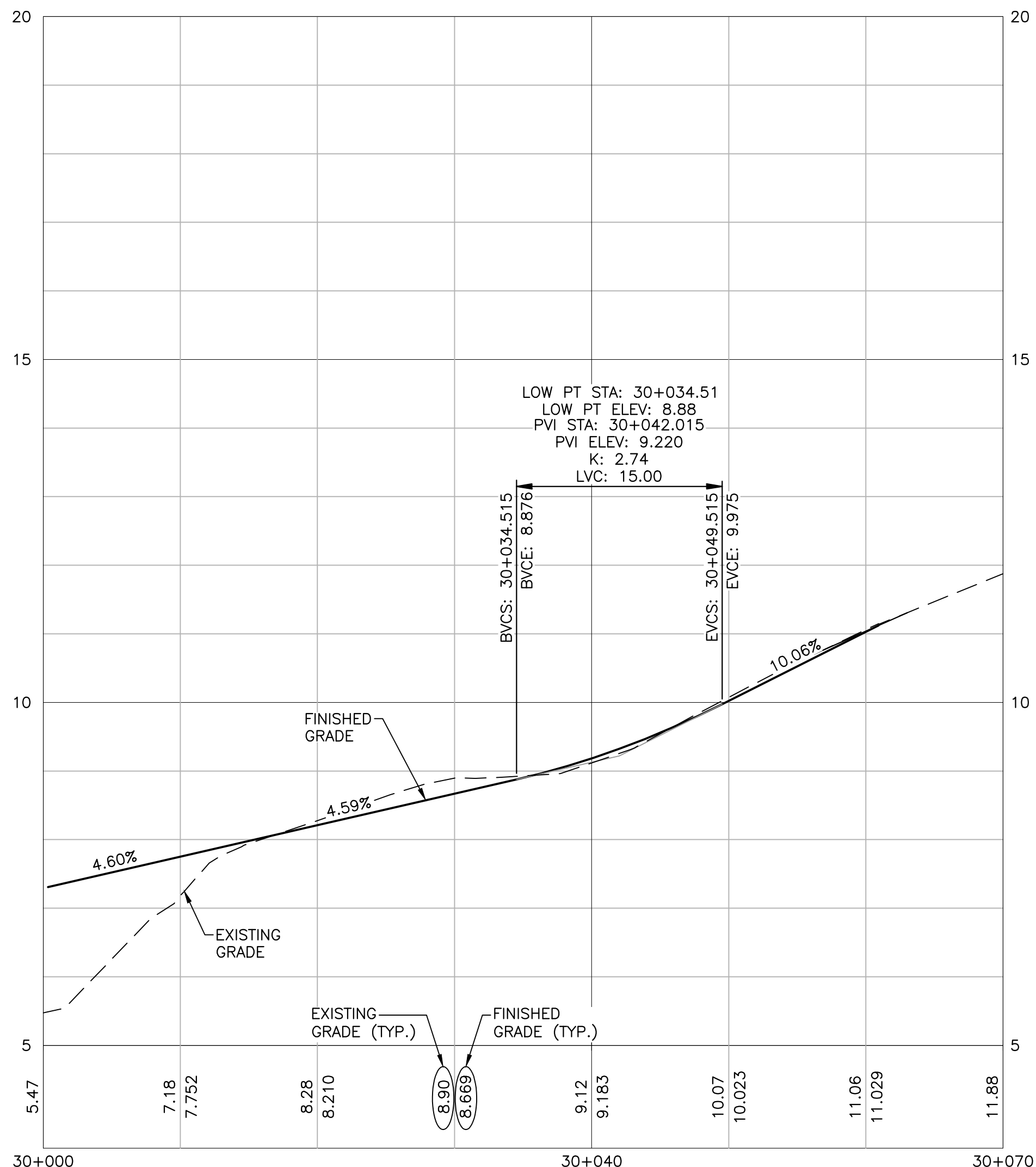


- NOTES:
- FOR GENERAL NOTES SEE DRAWING C01.
 - FOR SIGNAGE AND PAVEMENT MARKINGS SEE DRAWING C08.
 - HORIZONTAL ALIGNMENT CONTROL POINTS CONSISTS OF:
 - PT = POINT OF TANGENCY
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 - PRC = POINT OF REVERSE CURVATURE
- LINE DATA
- AZ = AZIMUTH
 - L = LENGTH
- CURVE DATA
- D = DELTA
 - L = LENGTH
 - R = RADIUS



PROFILE — PROPOSED LOOK-OFF PARKING AREA

HORIZONTAL SCALE : 1:300
VERTICAL SCALE: 1:60



PROFILE — TRAIL ACCESS ROAD

HORIZONTAL SCALE : 1:300
VERTICAL SCALE: 1:60

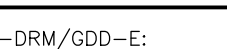
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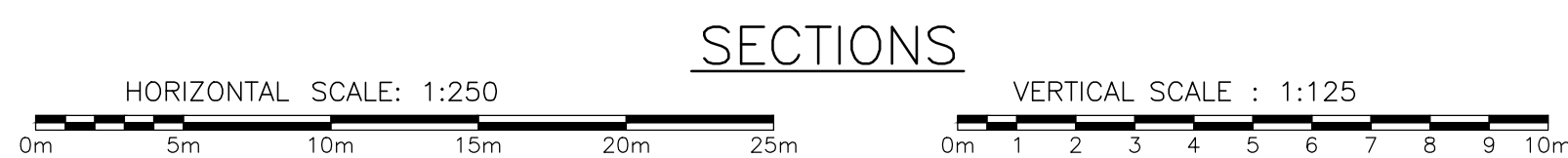
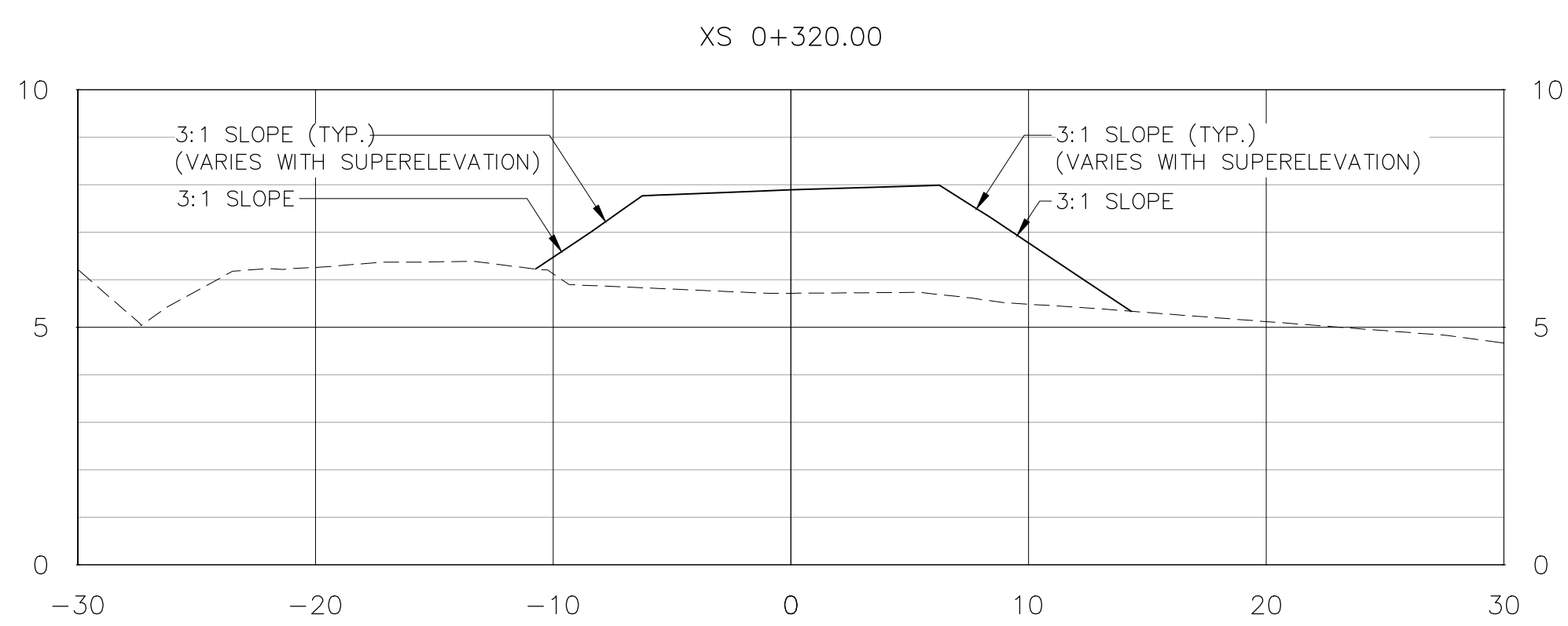
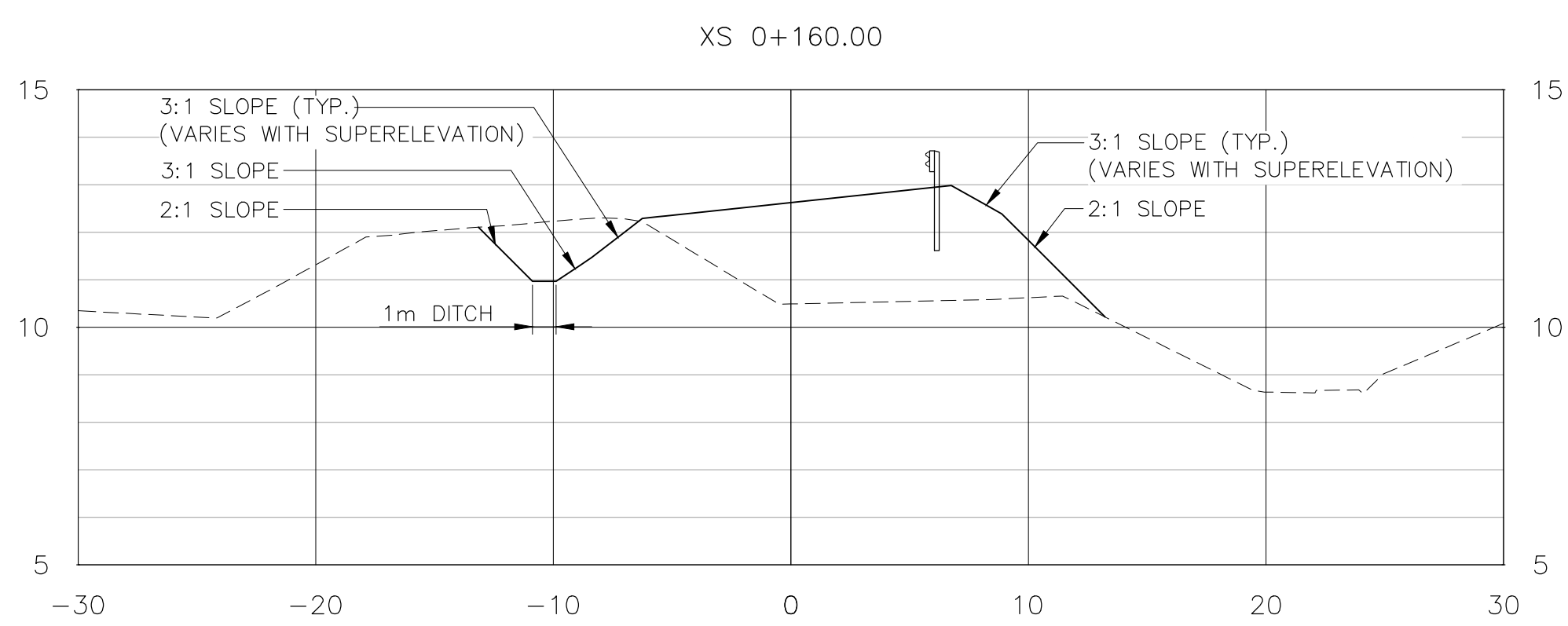
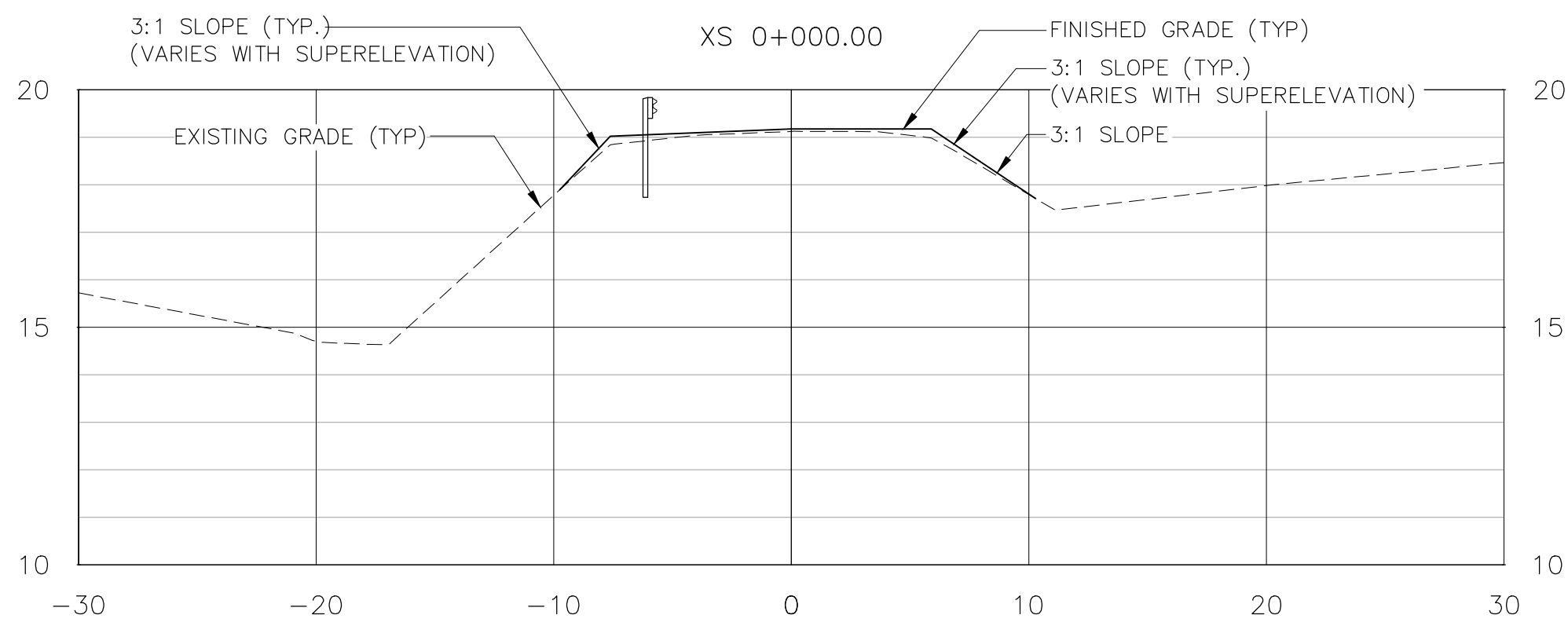
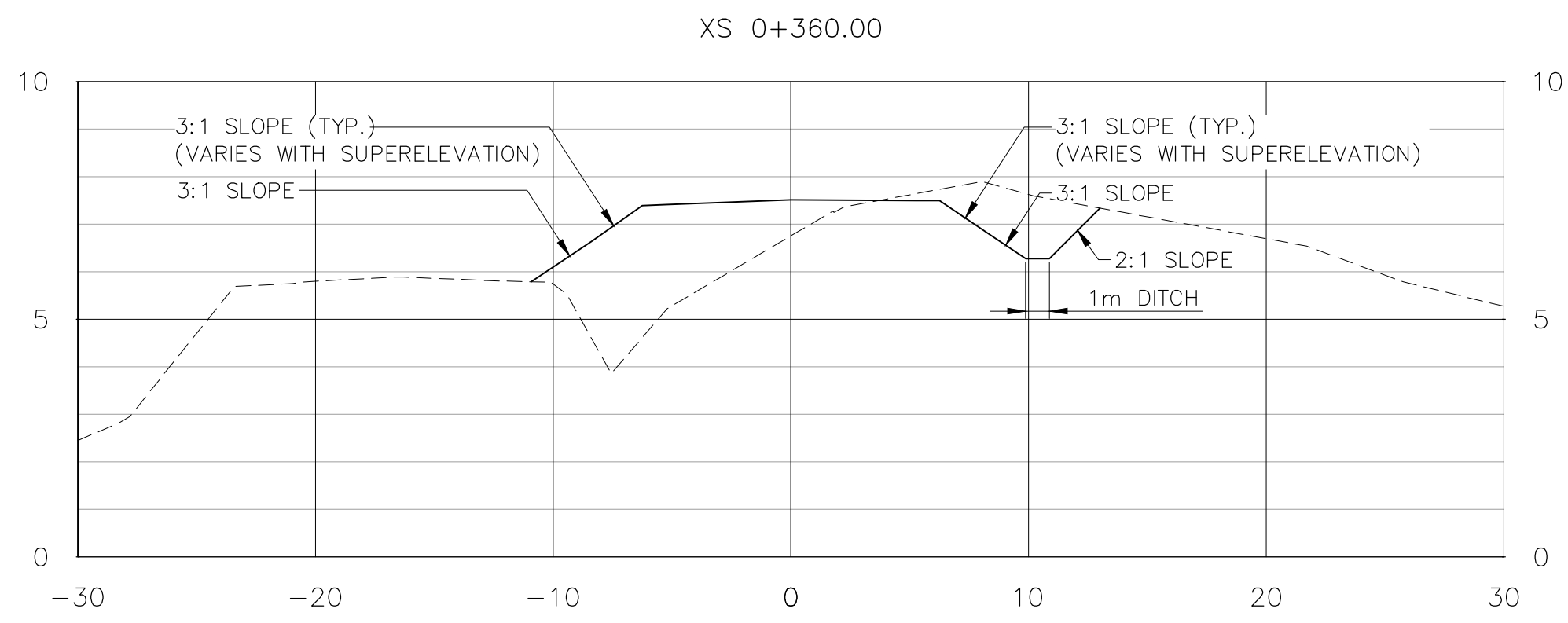
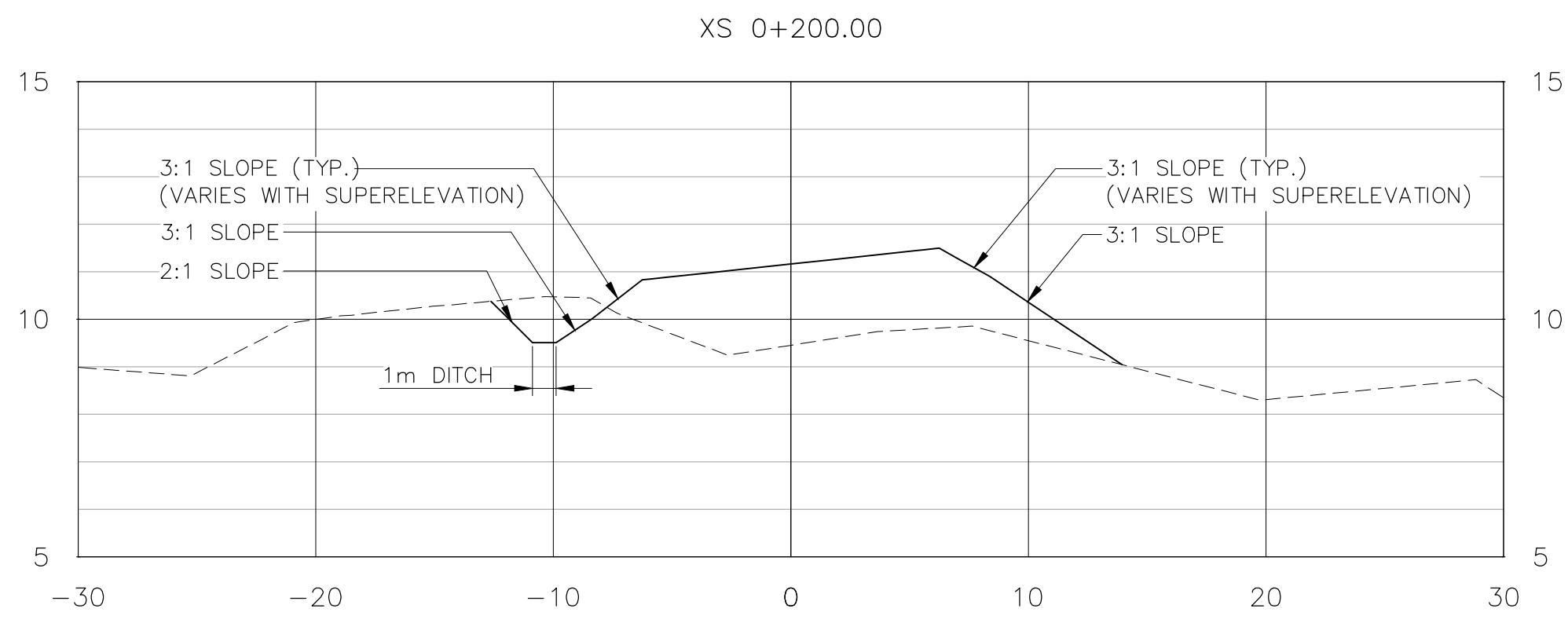
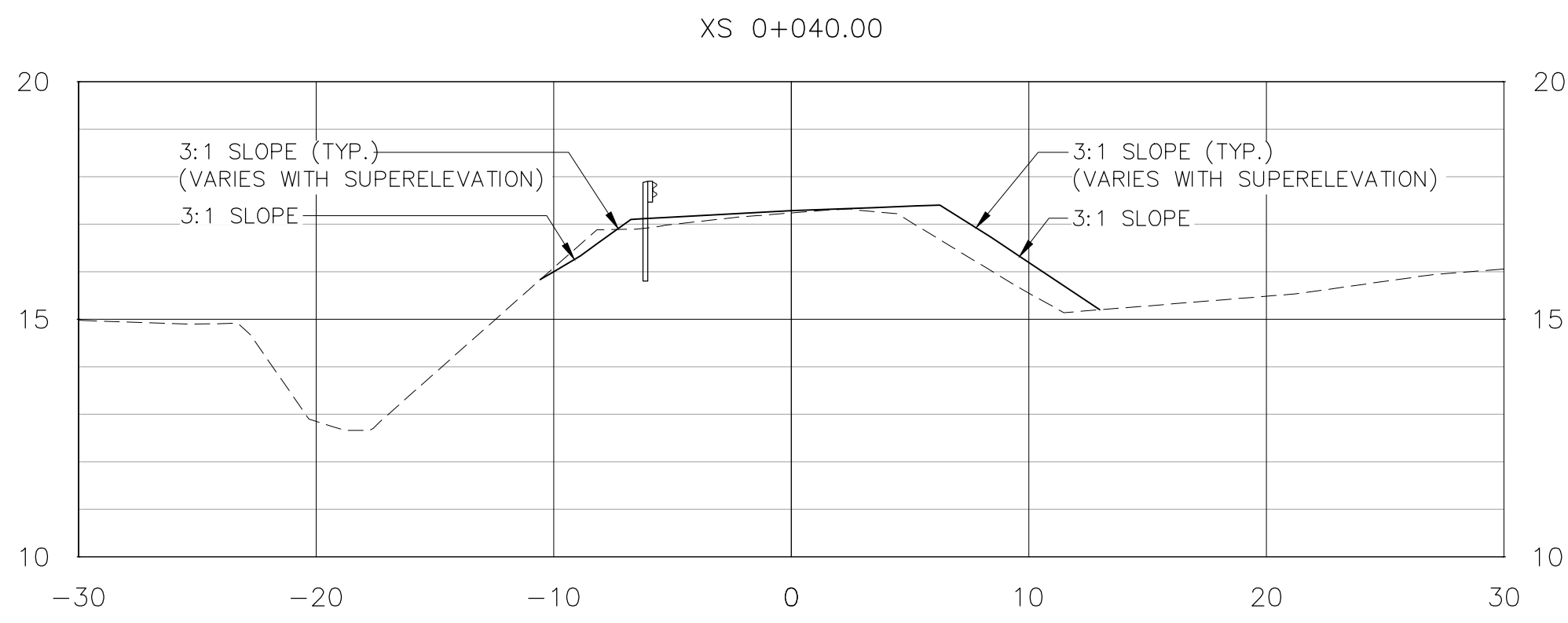
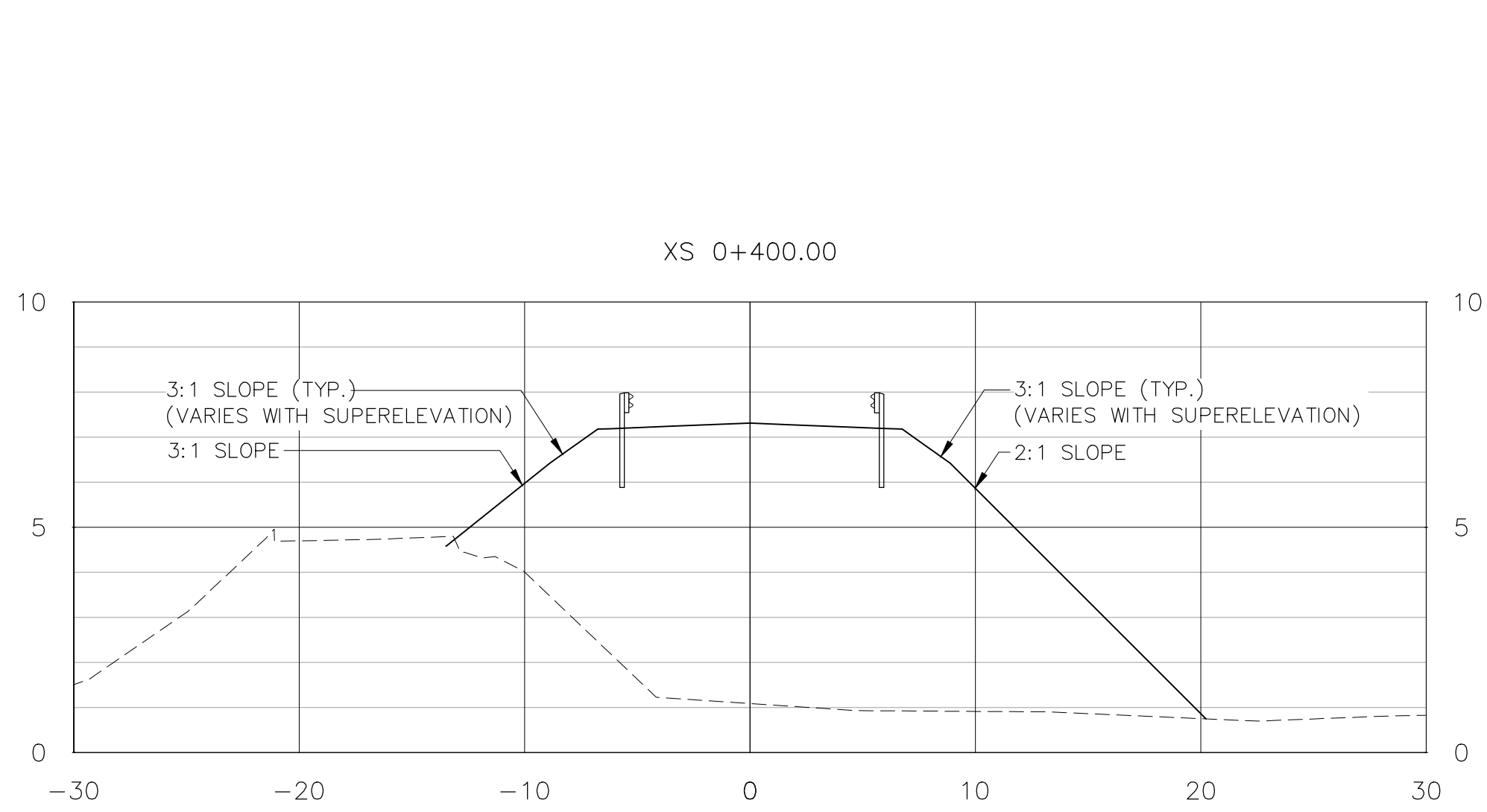
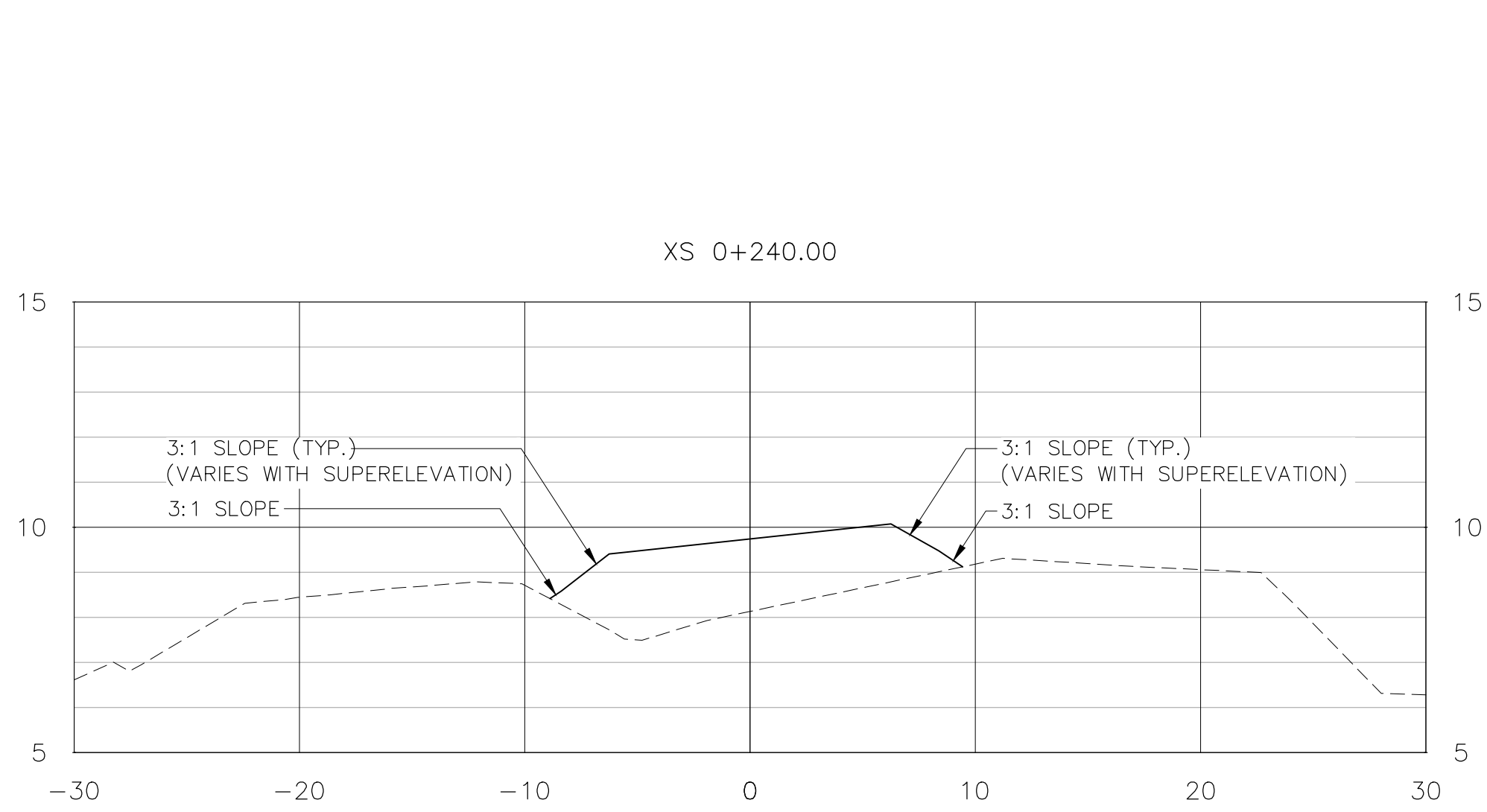
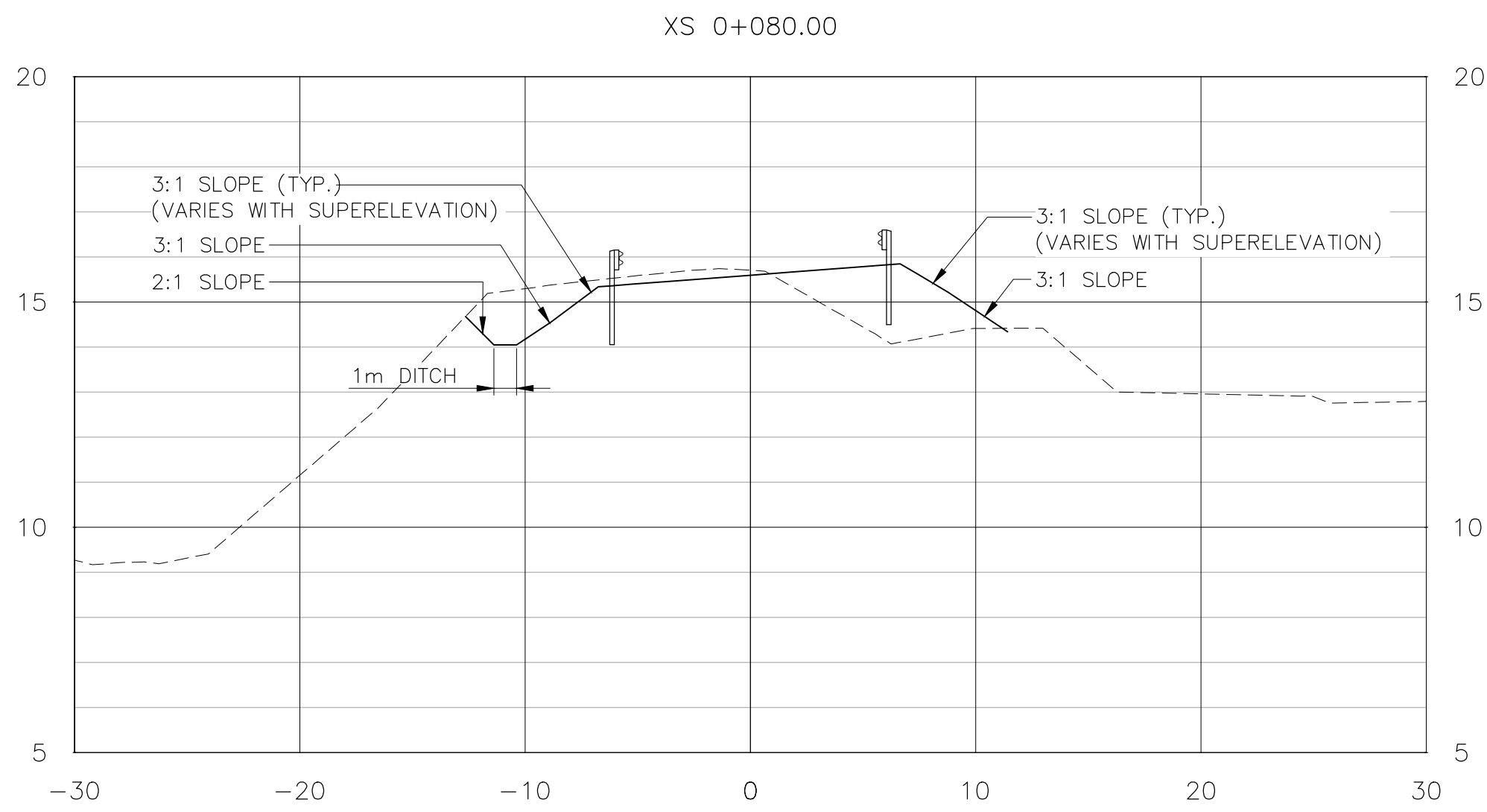
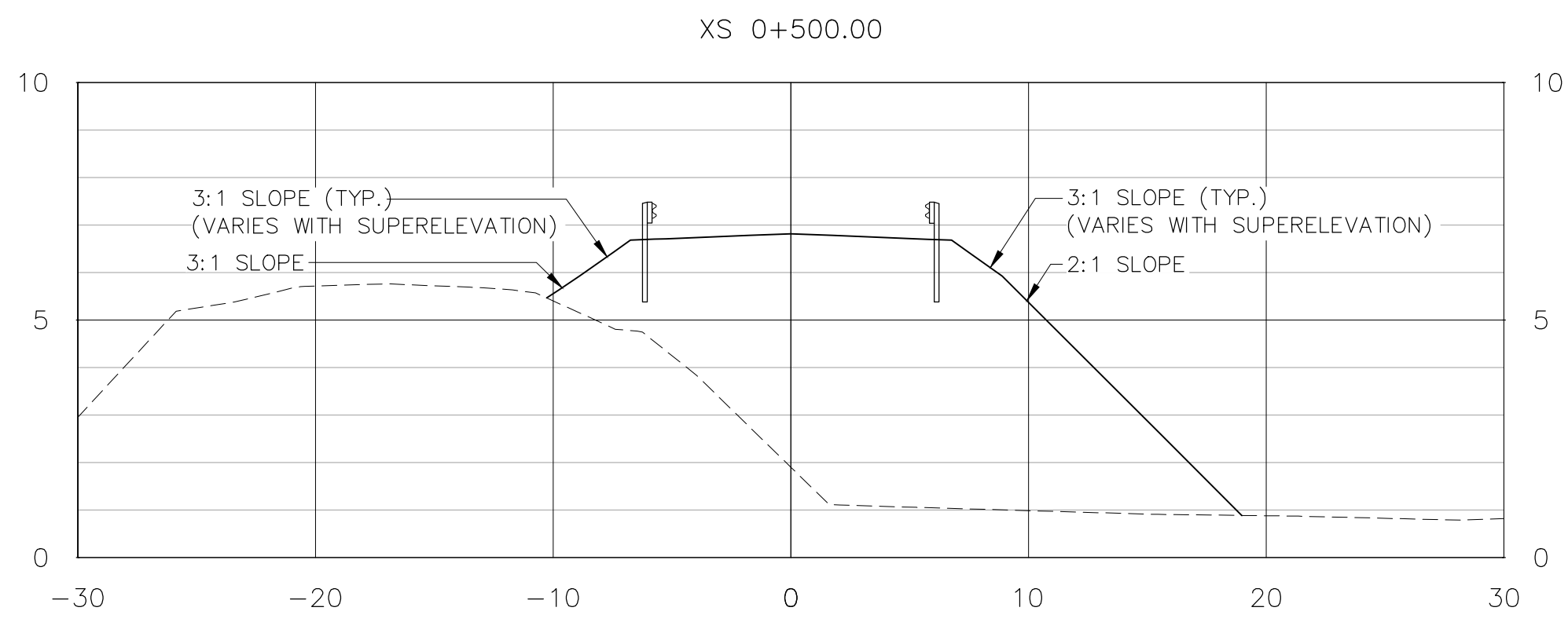
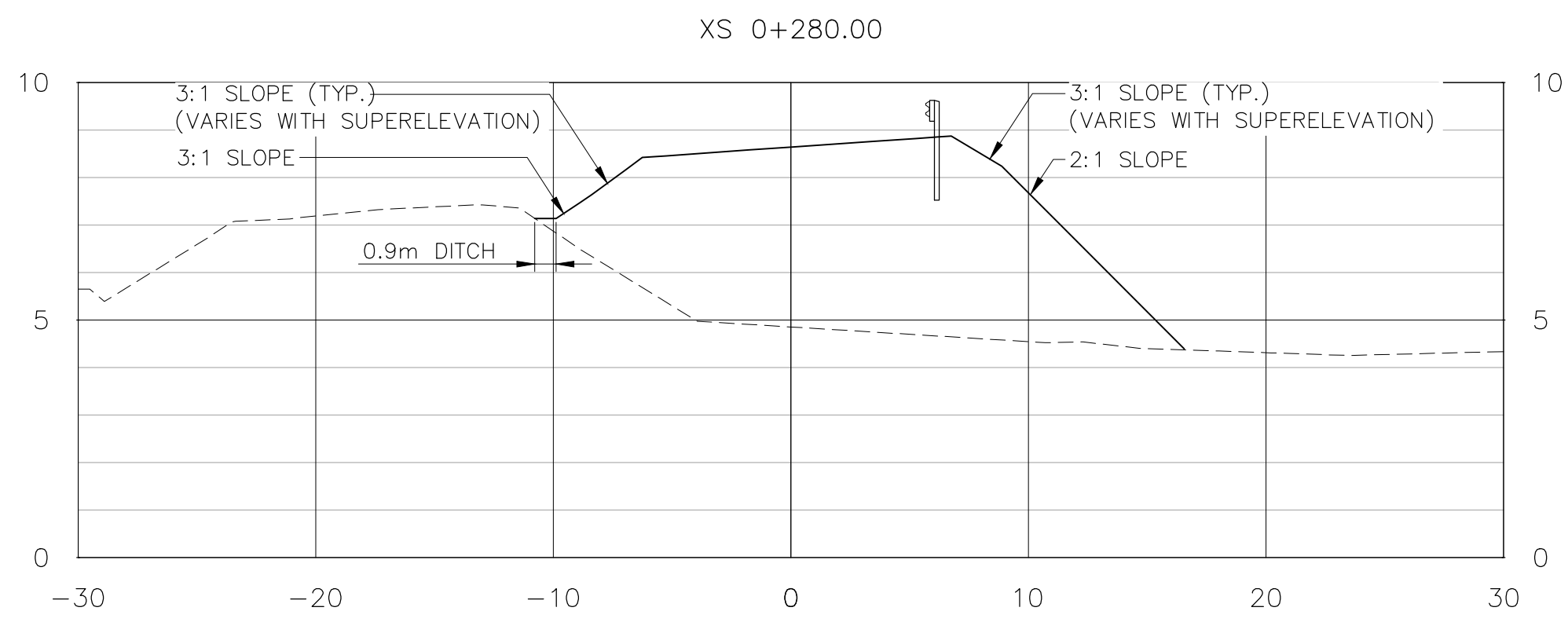
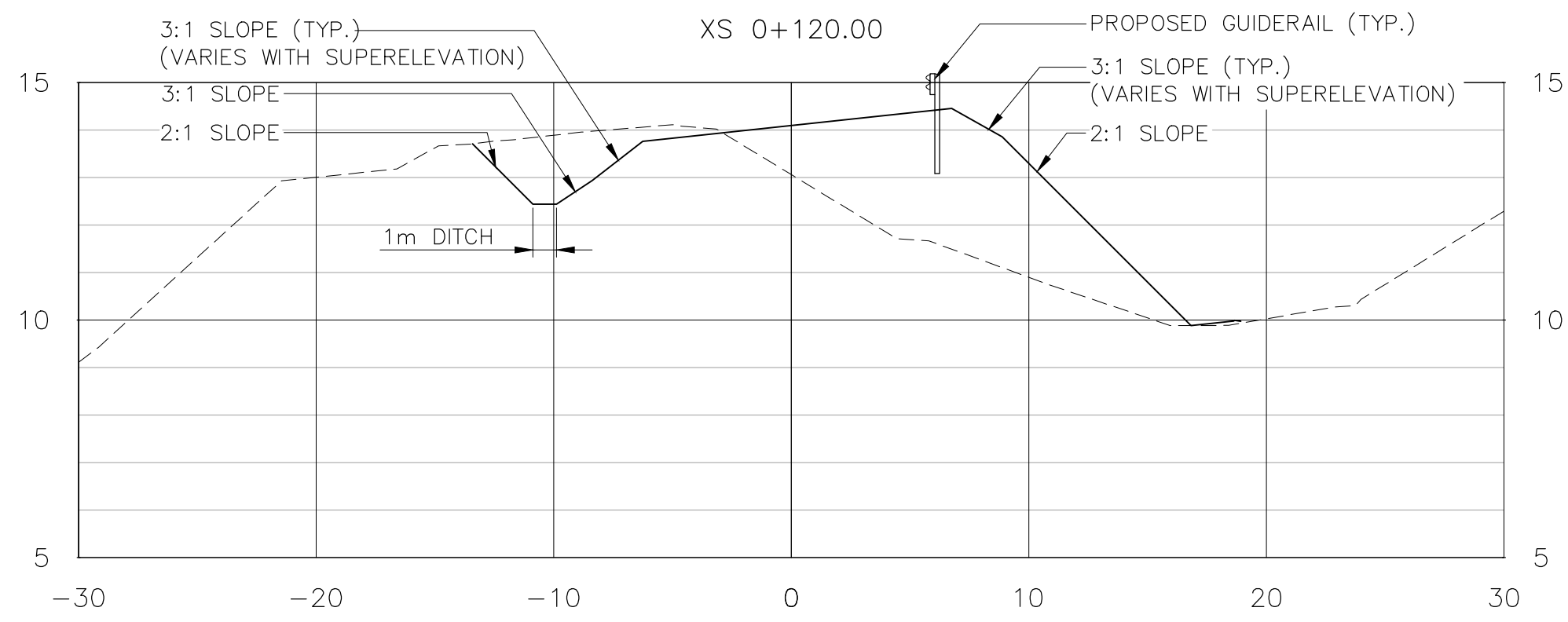


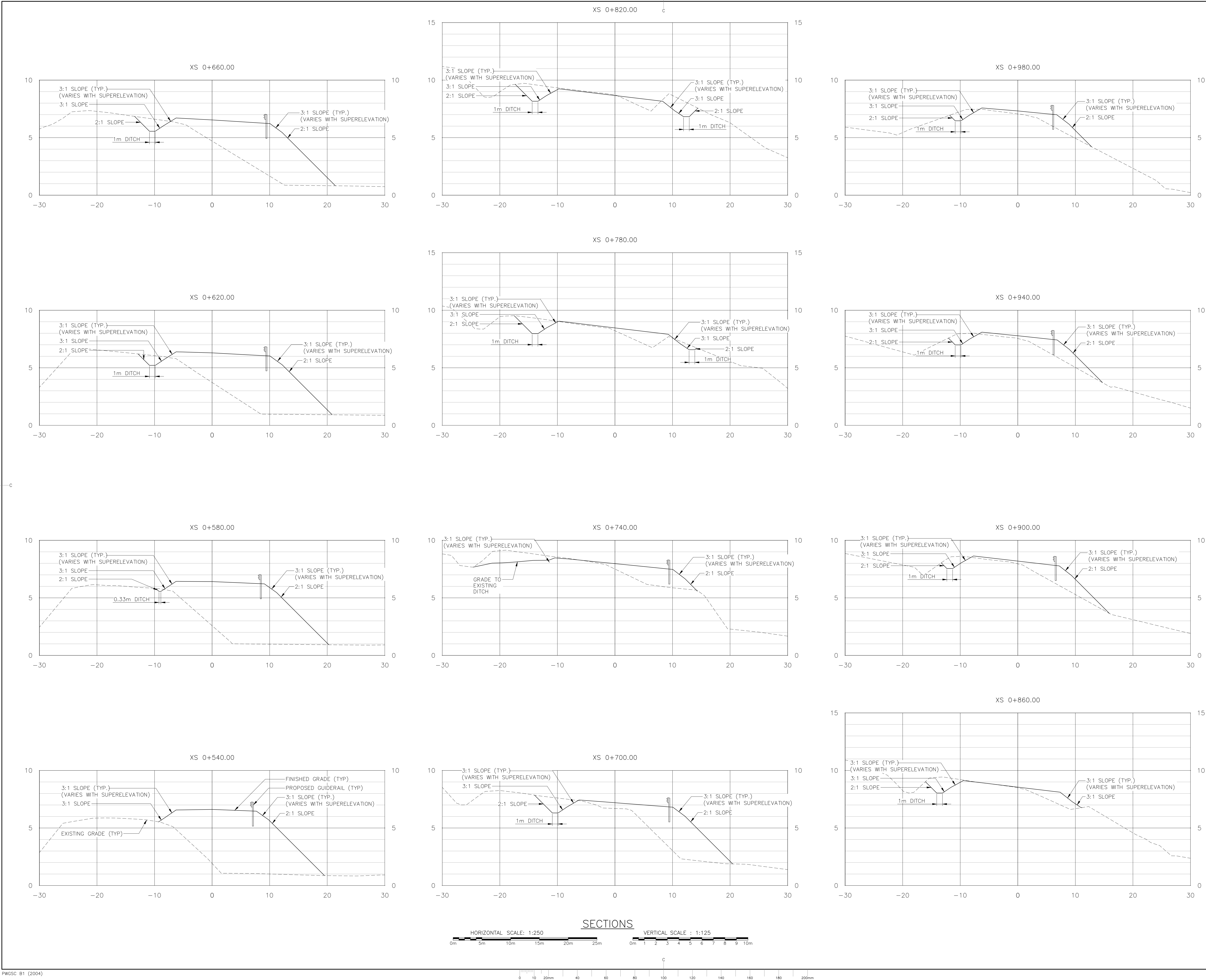
GROS MORNE
NATIONAL PARK

SIGNAGE AND PAVEMENT MARKING PLAN

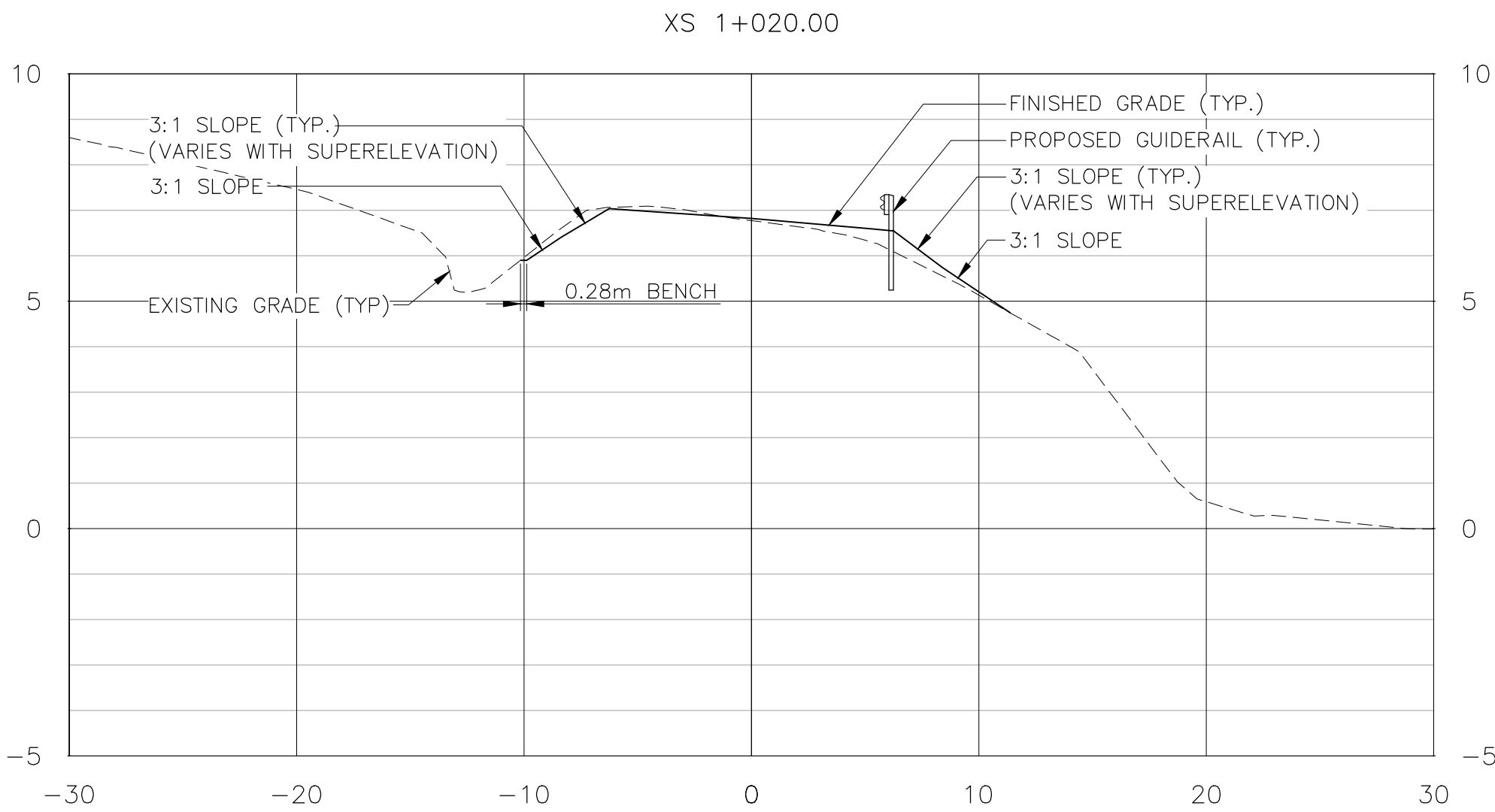
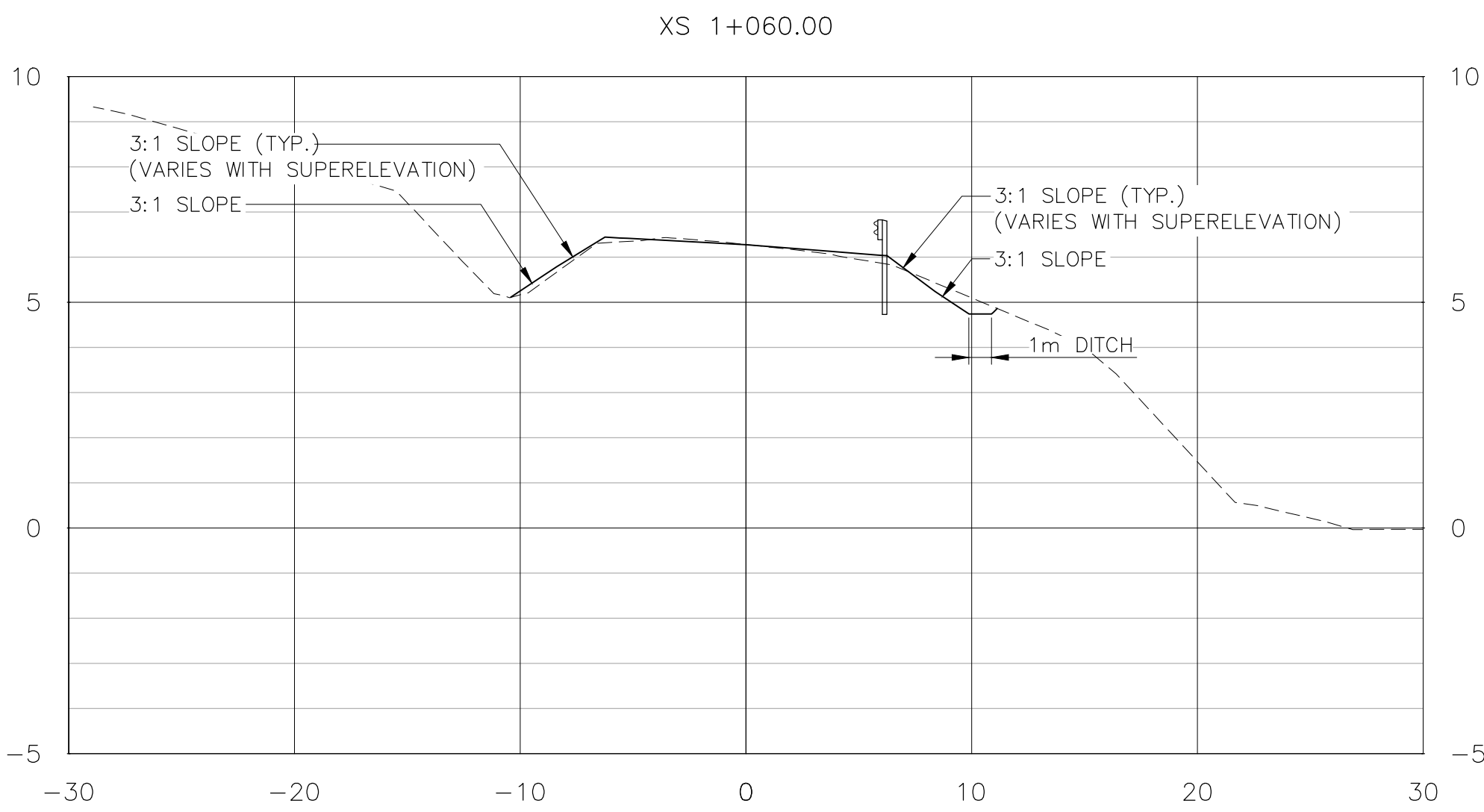
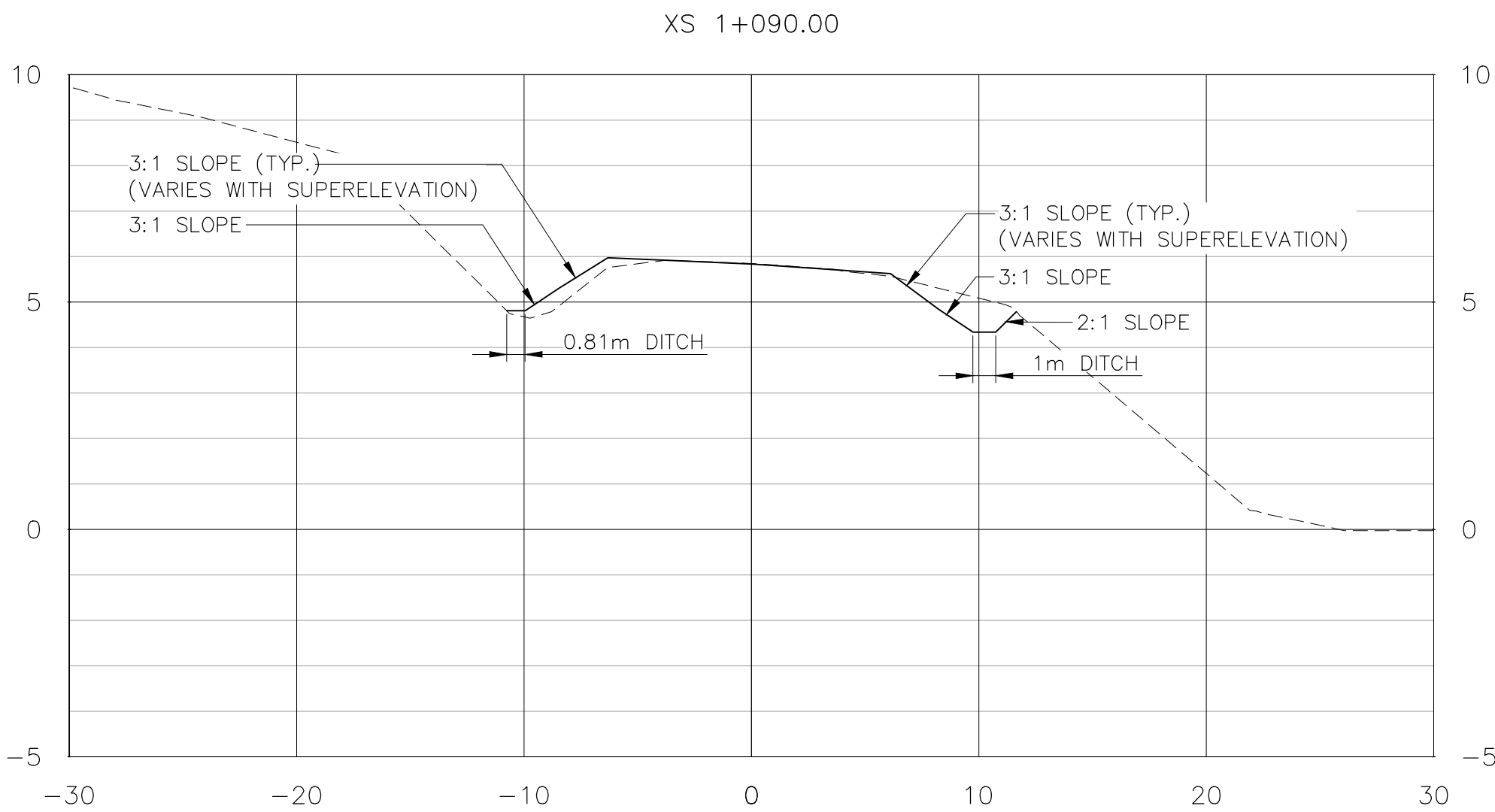
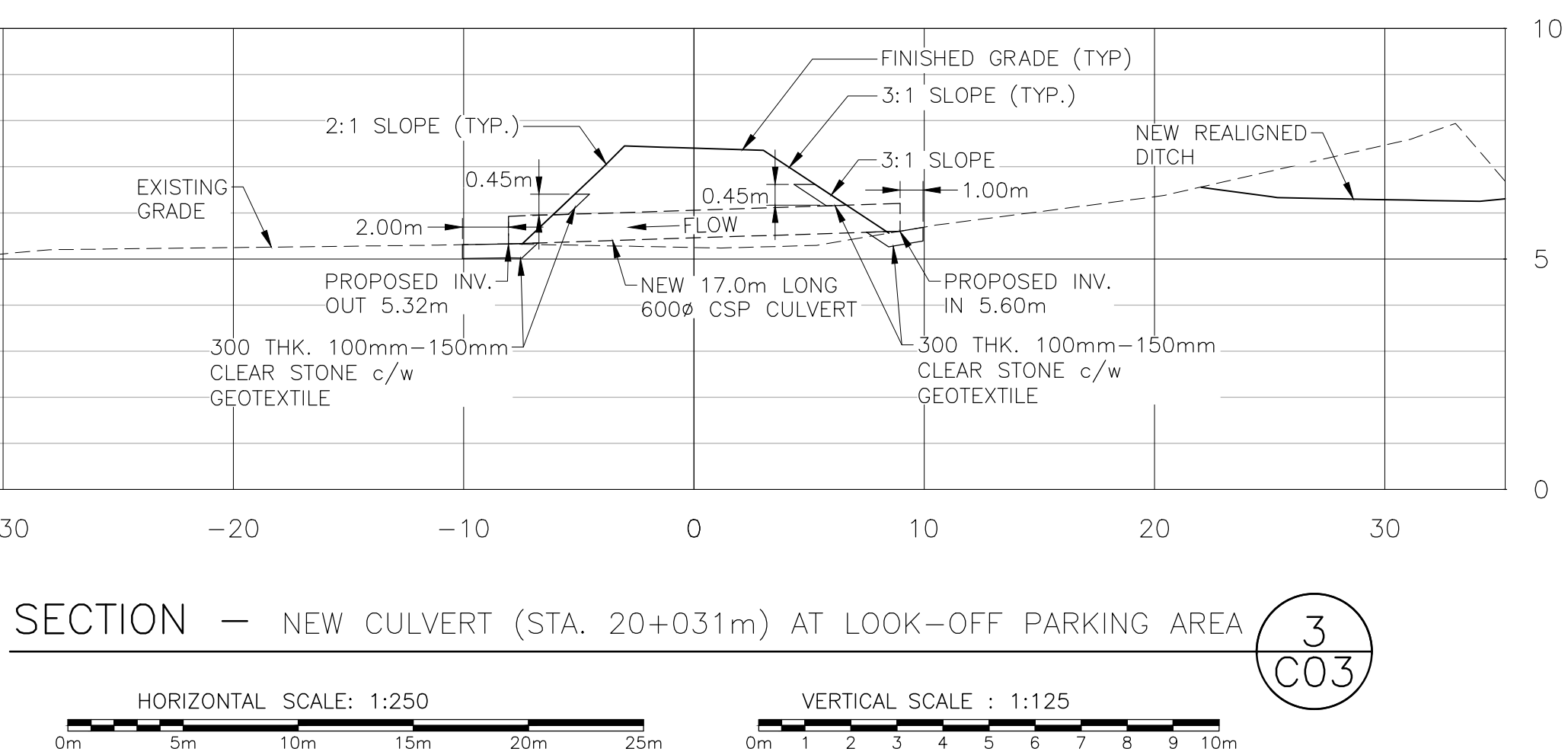
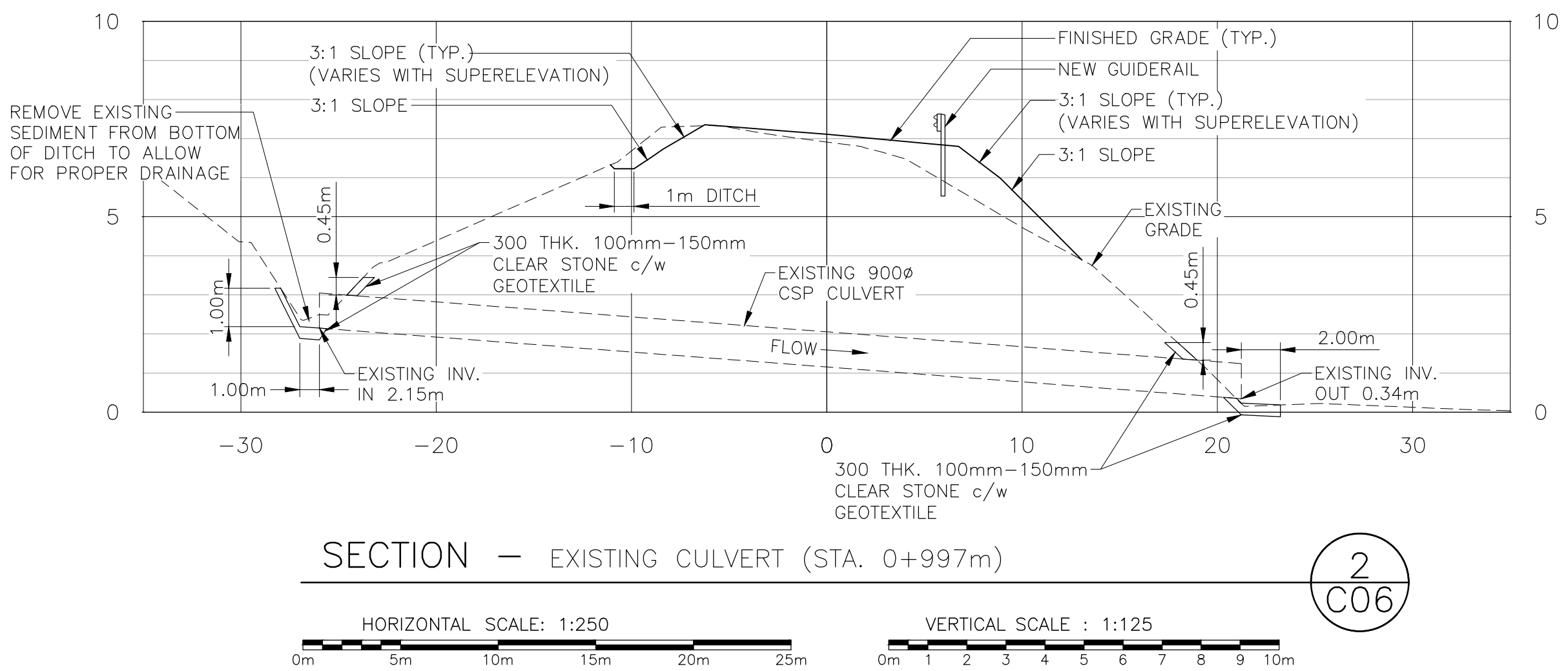
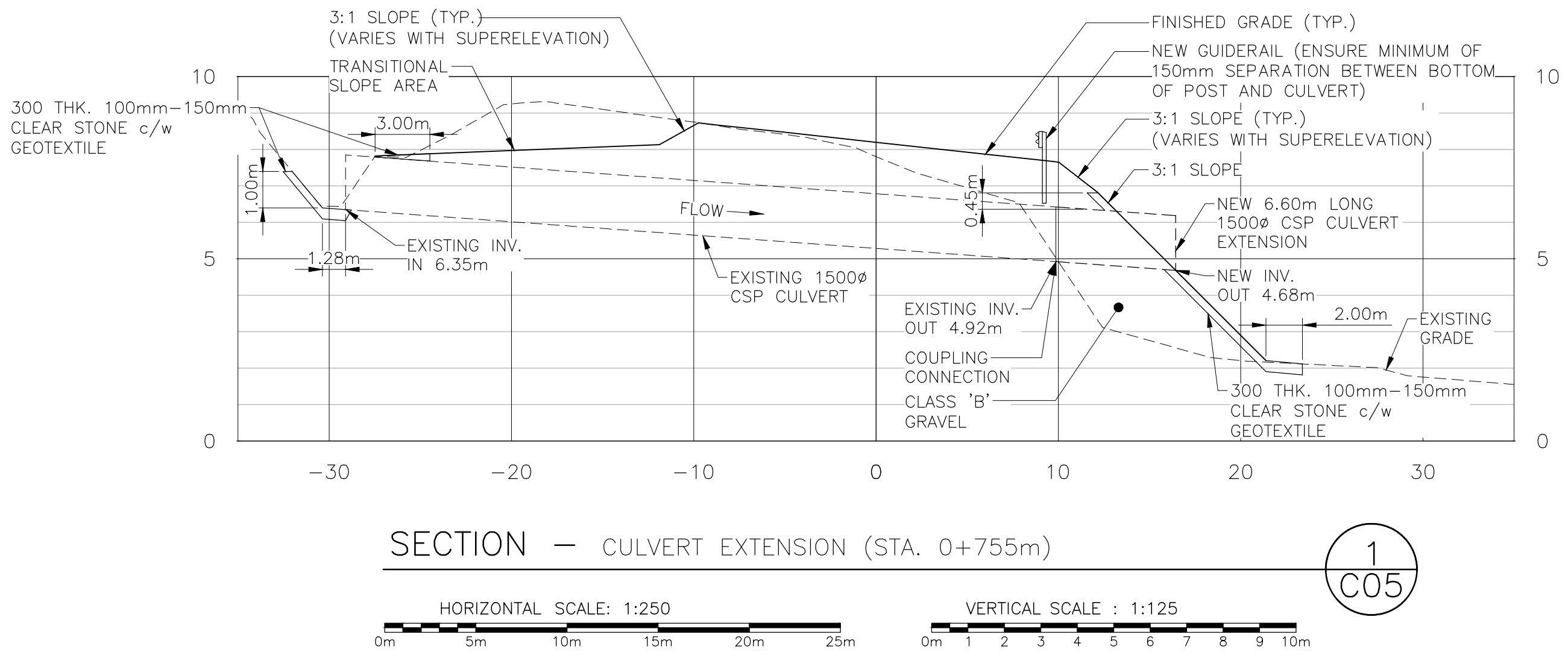
drawing no.	no. du dessin
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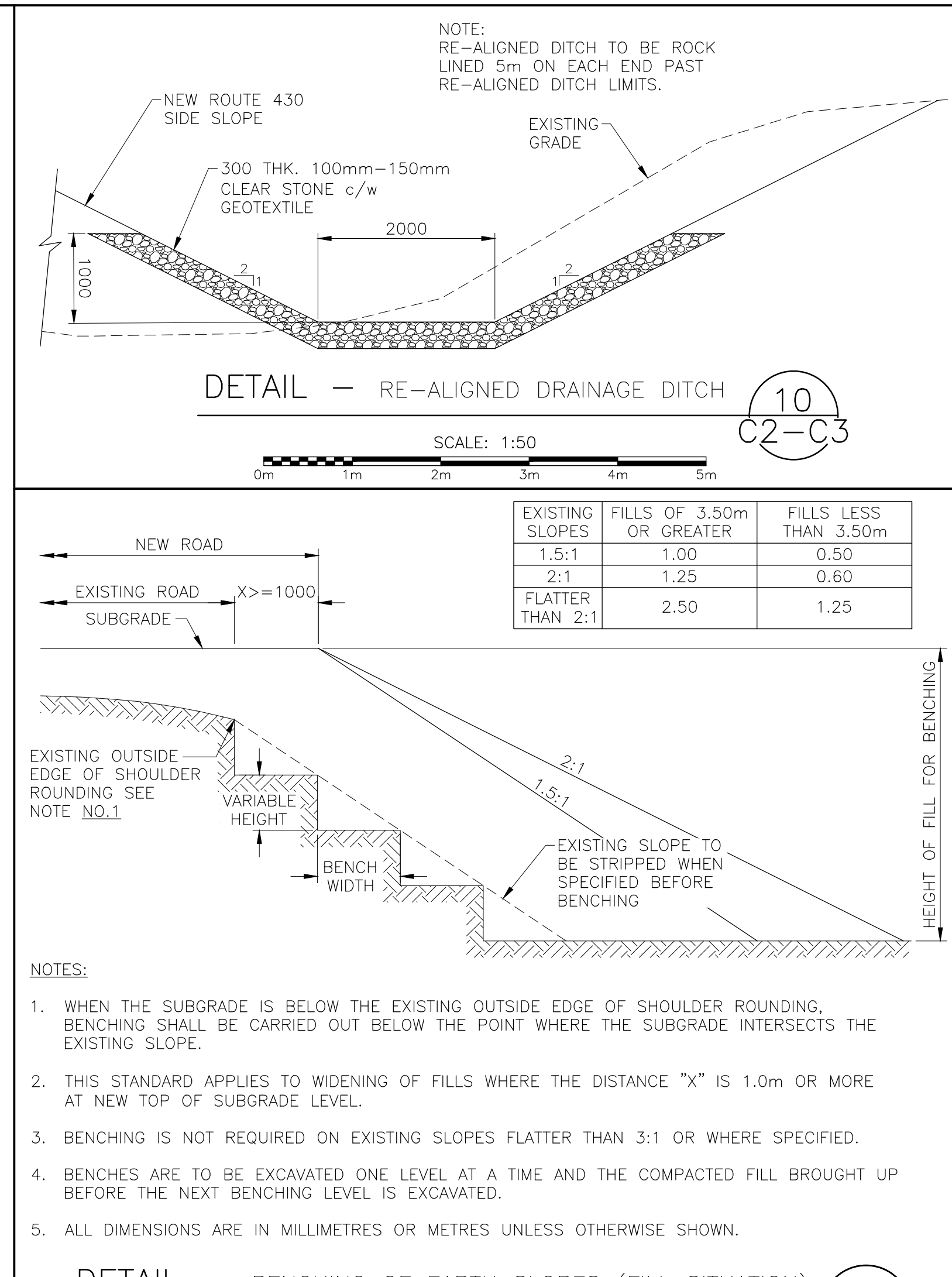
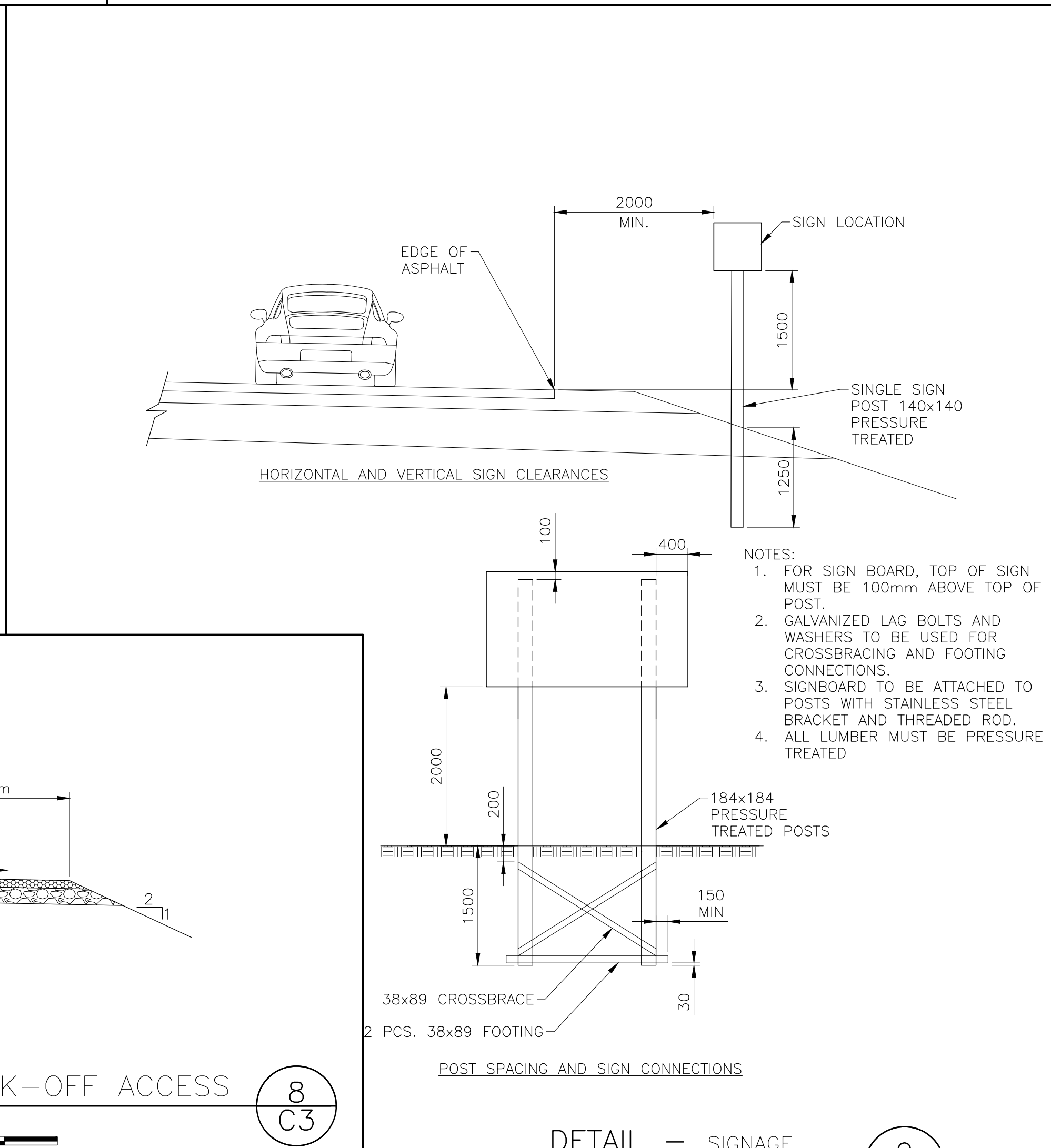
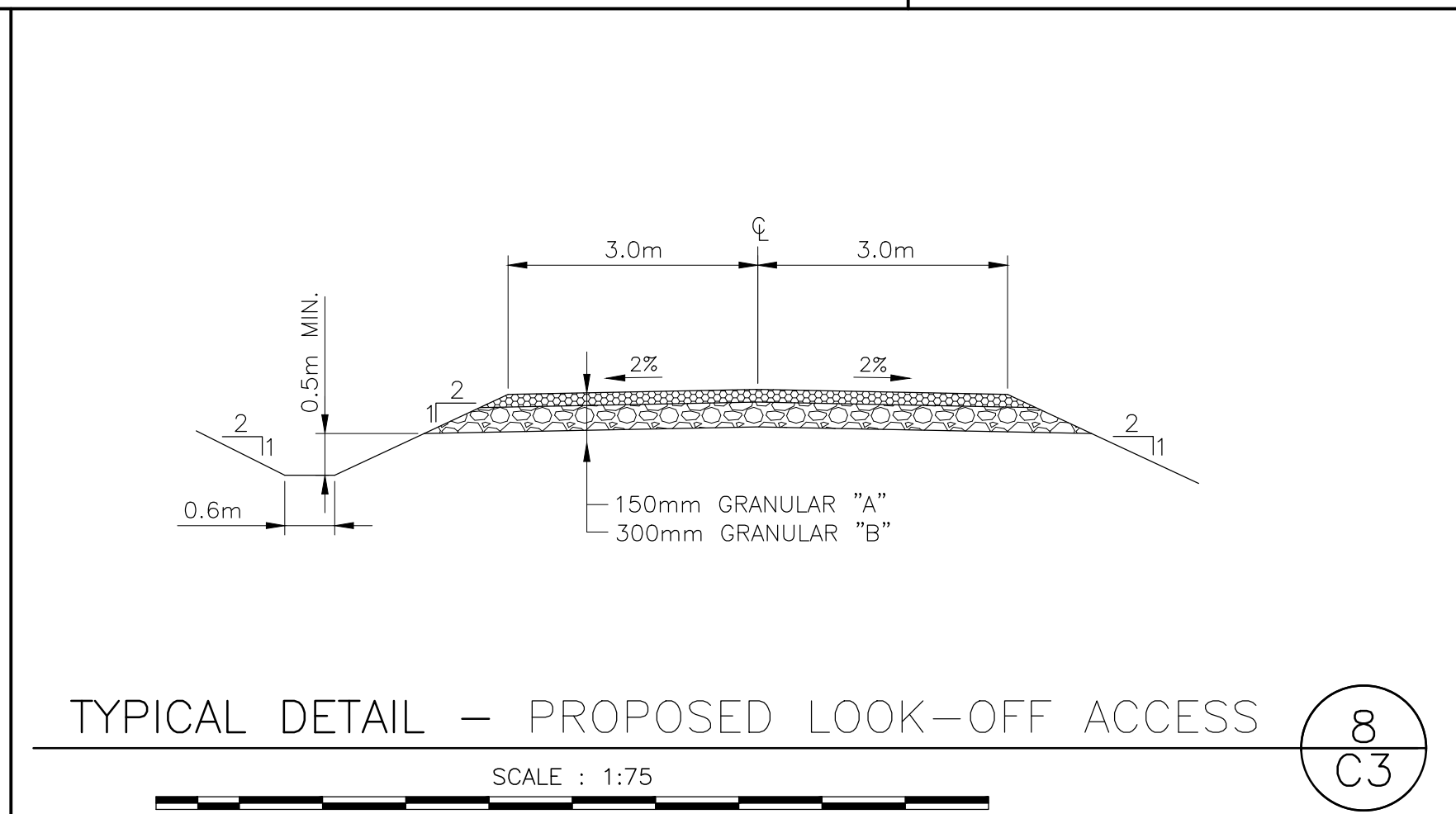
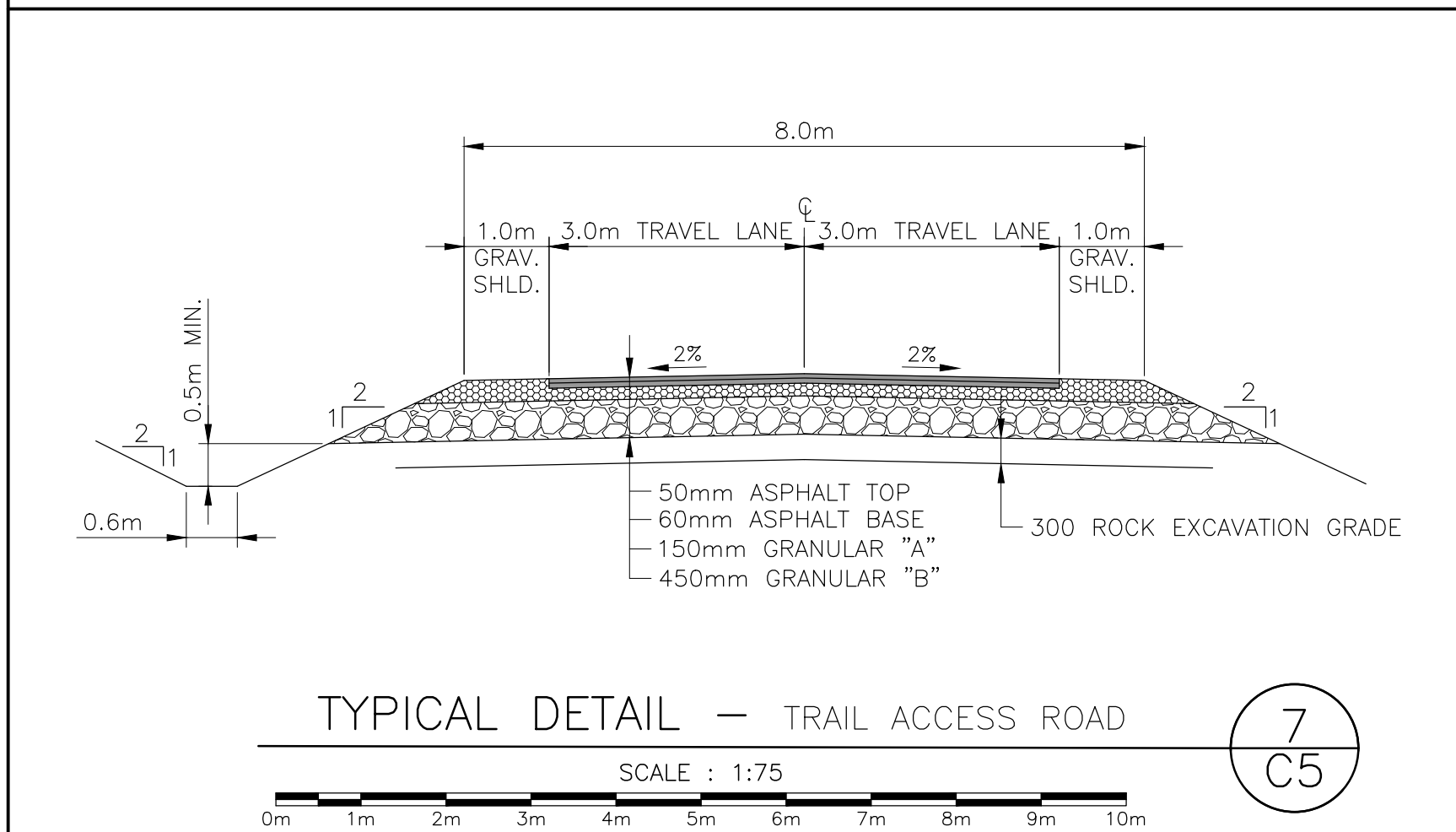
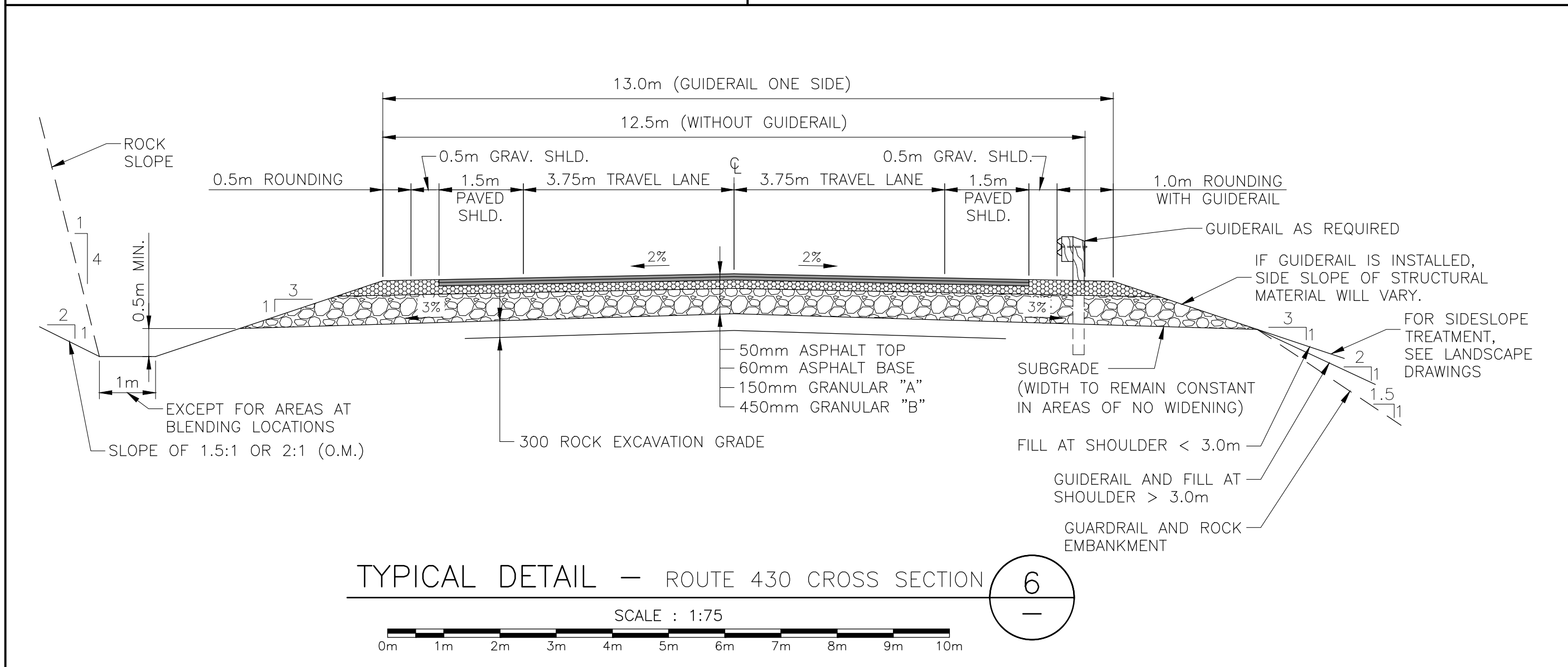
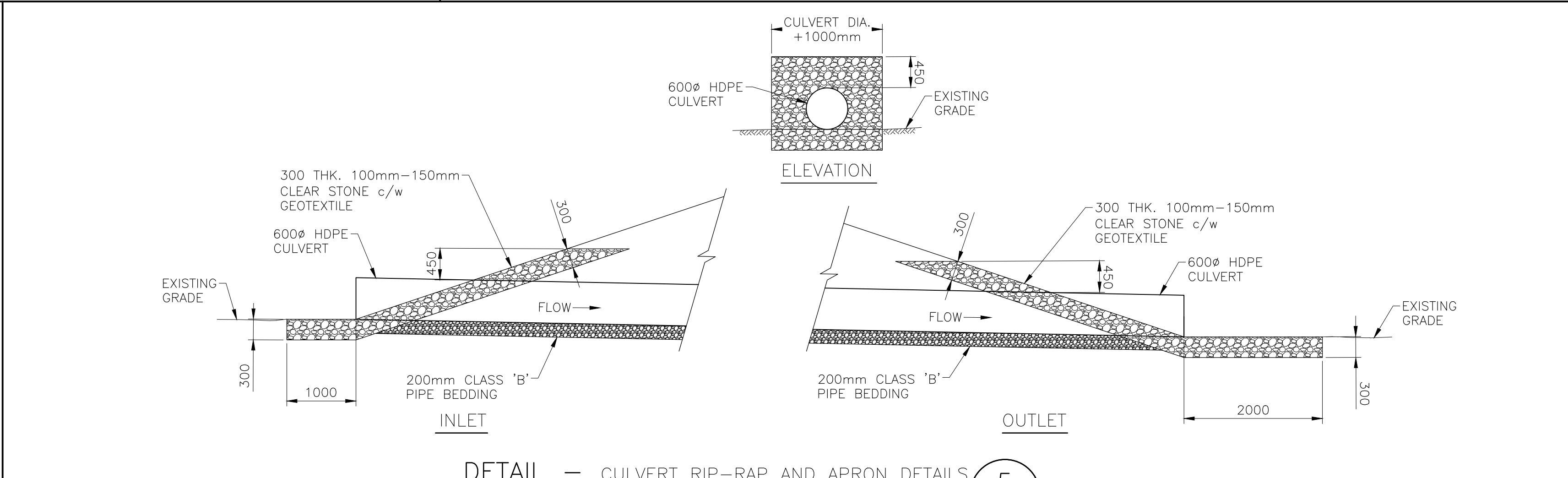
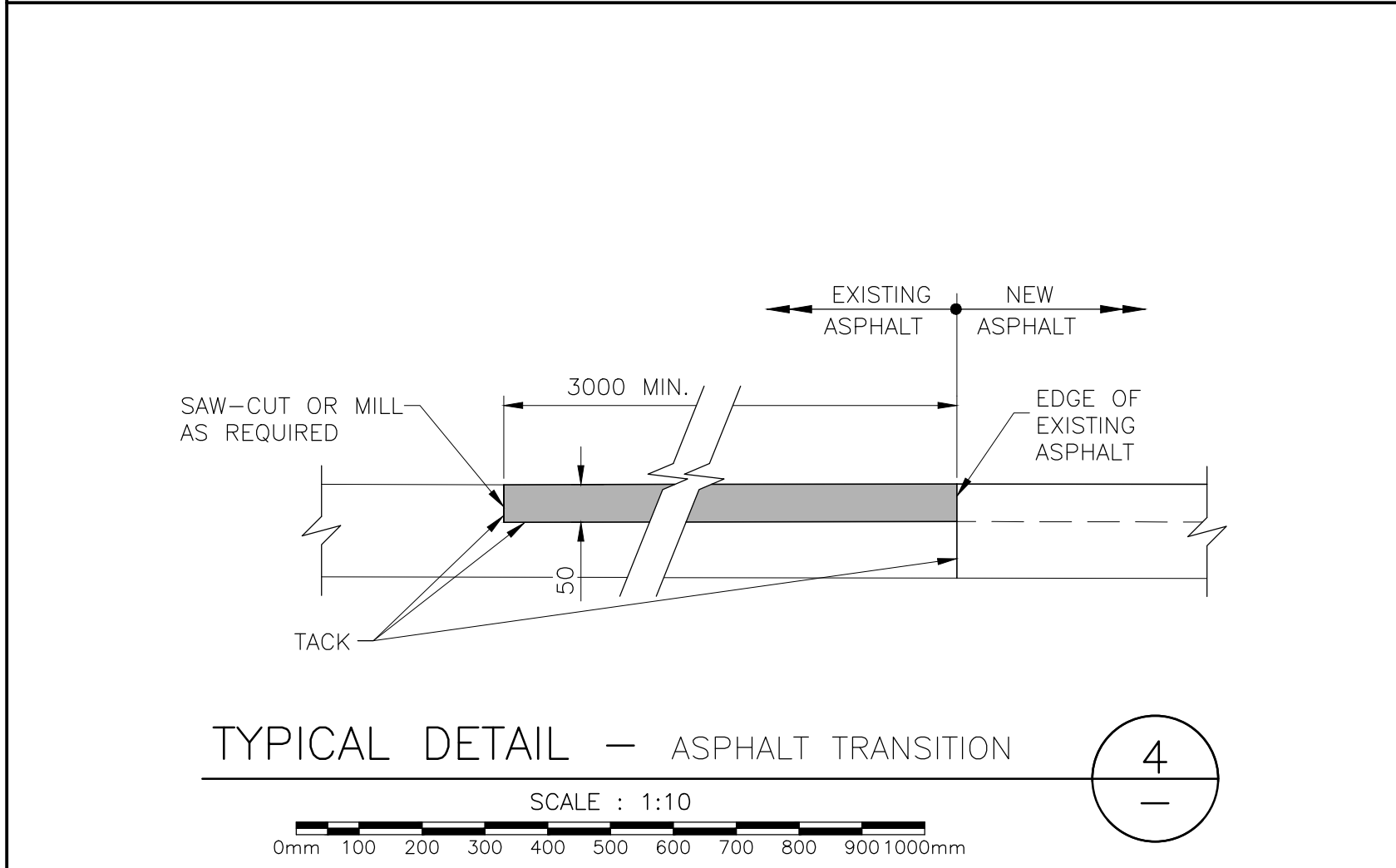
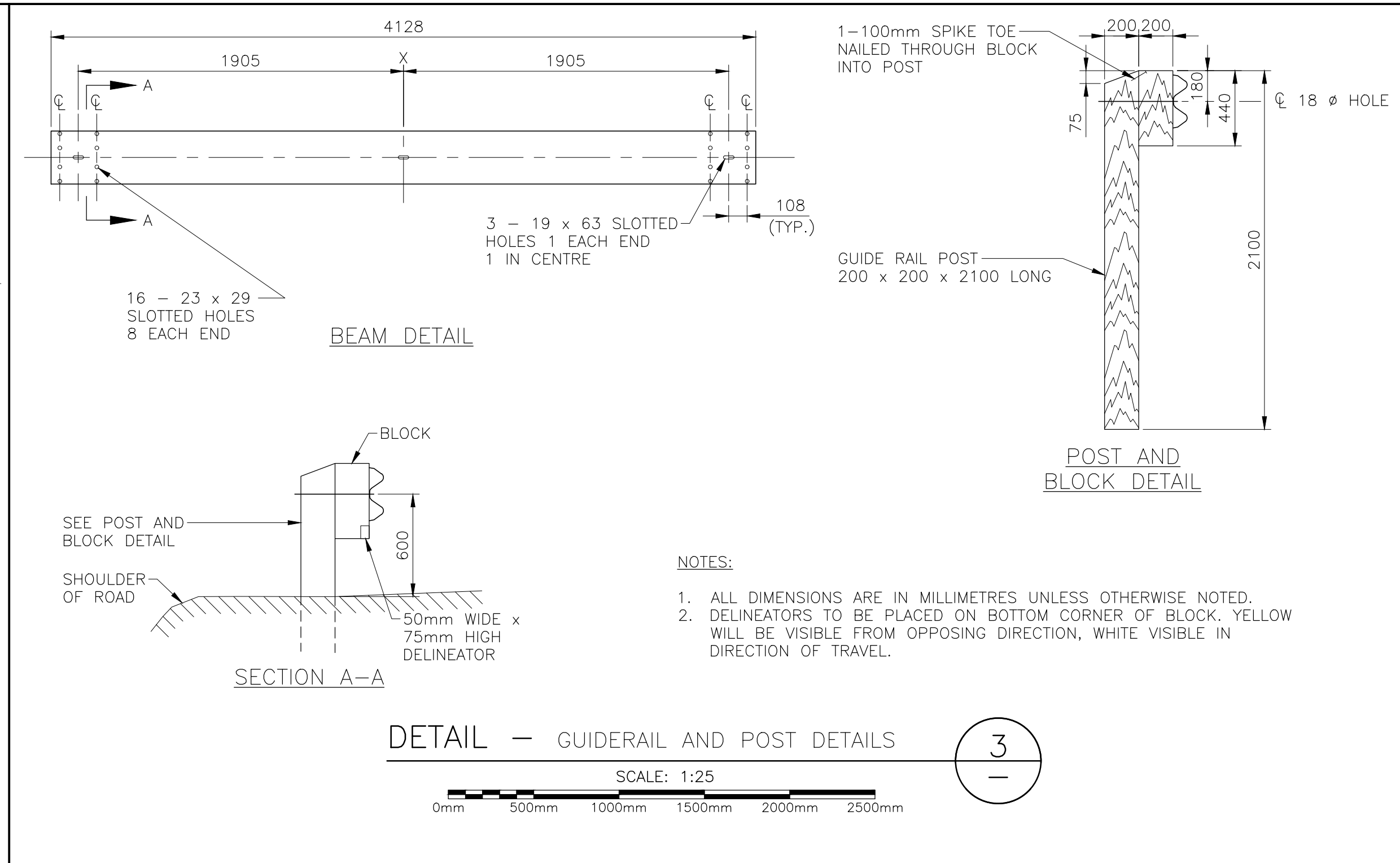
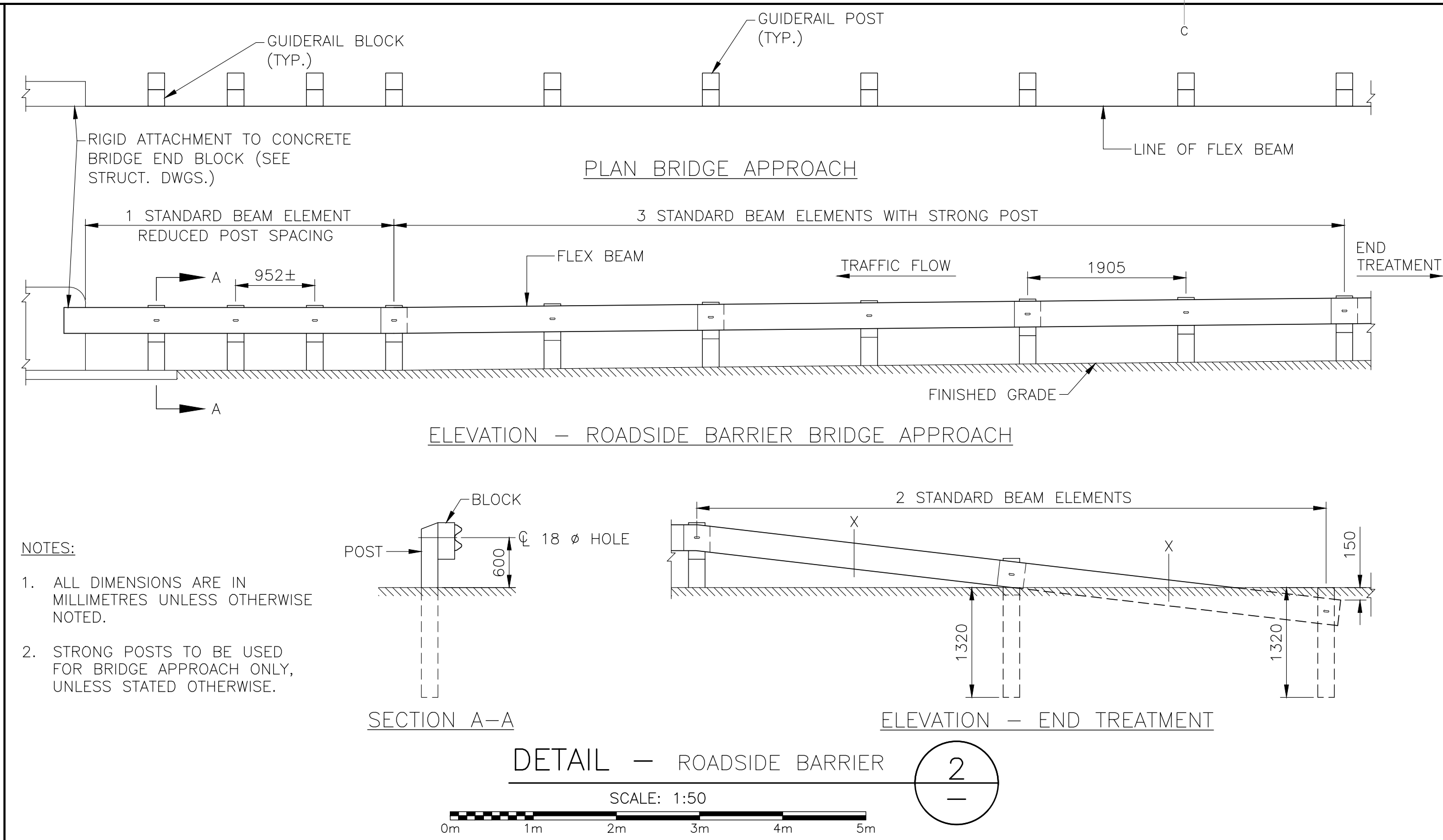
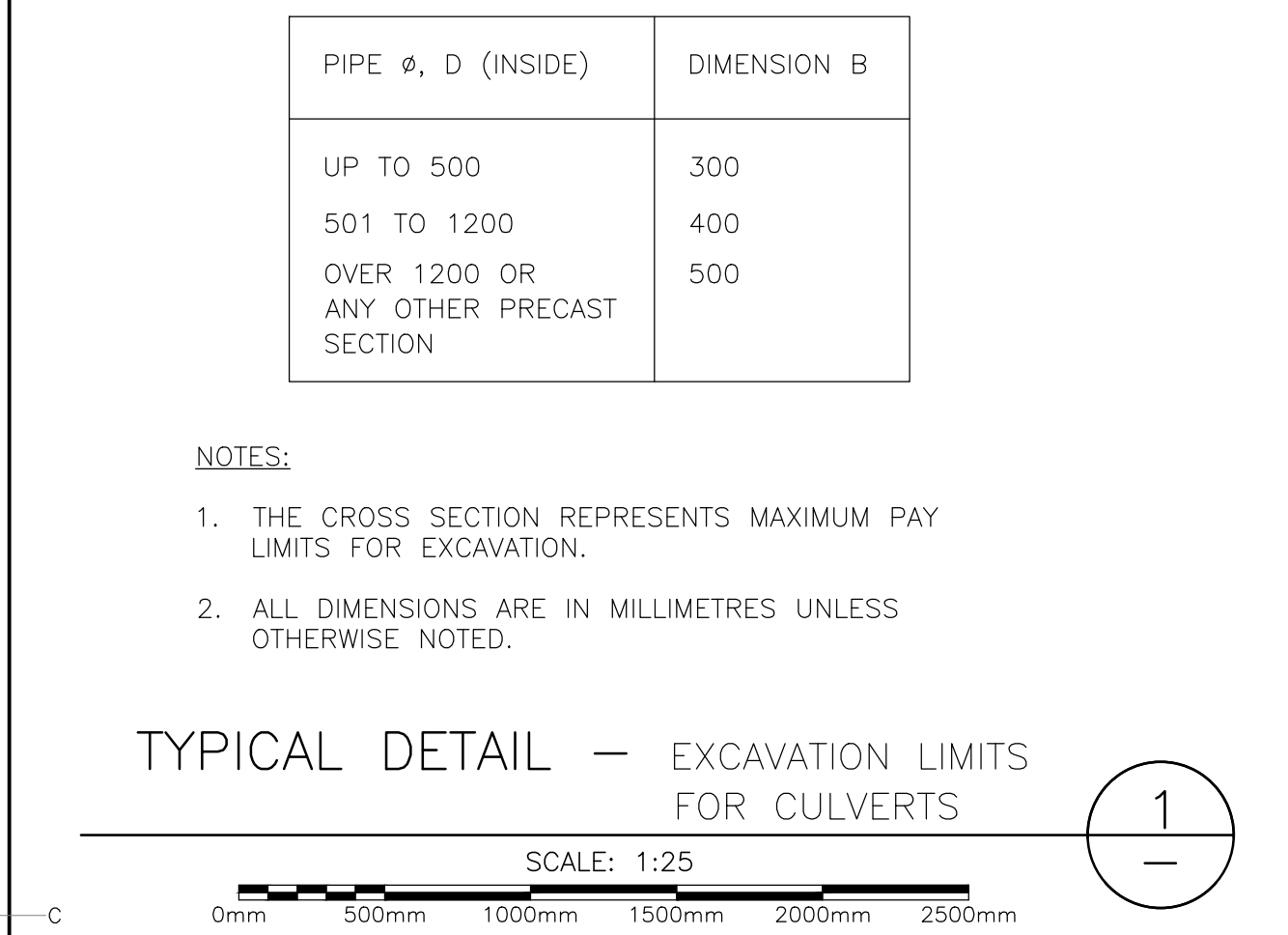
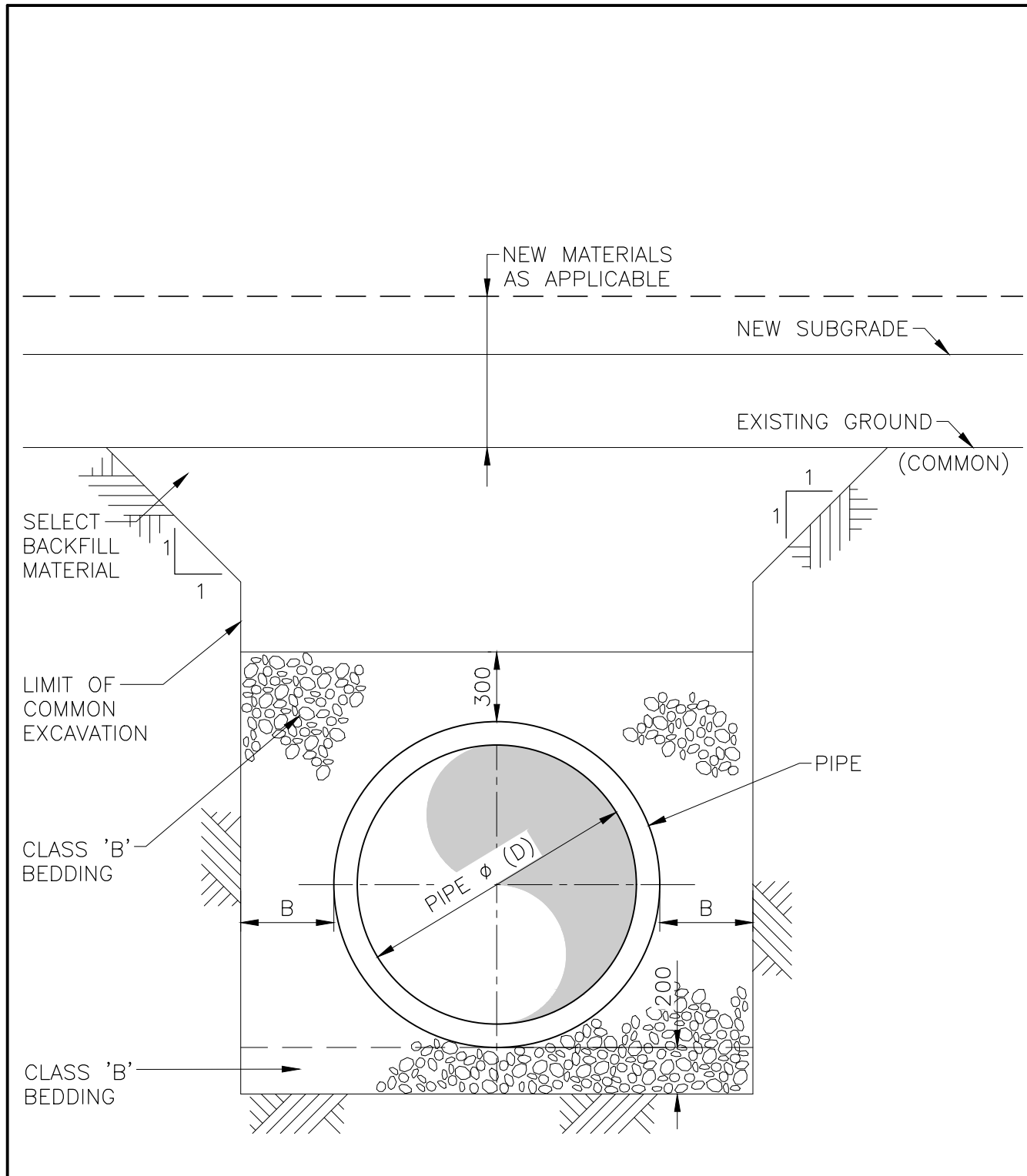


0	ISSUED FOR TENDER	FEB. 10 2017
revisions		date
project	DEER ARM BRIDGE REPLACEMENT GROS MORNE NATIONAL PARK	project
drawing		dessin
	CROSS SECTIONS (SHEET 2 OF 3)	
designed	TIM JORDAN	conçu
date	NOVEMBER 2016	
drawn	CORY BAKER	dessiné
date	NOVEMBER 2016	
approved	MICHAEL MACDONALD	approuvé
date	NOVEMBER 2016	
Tender	Submission	
PWSC Project Manager	Administrateur de projets TPSGC	
project number	1117	no. du projet
drawing no.	C10	no. du dessin



SECTIONS





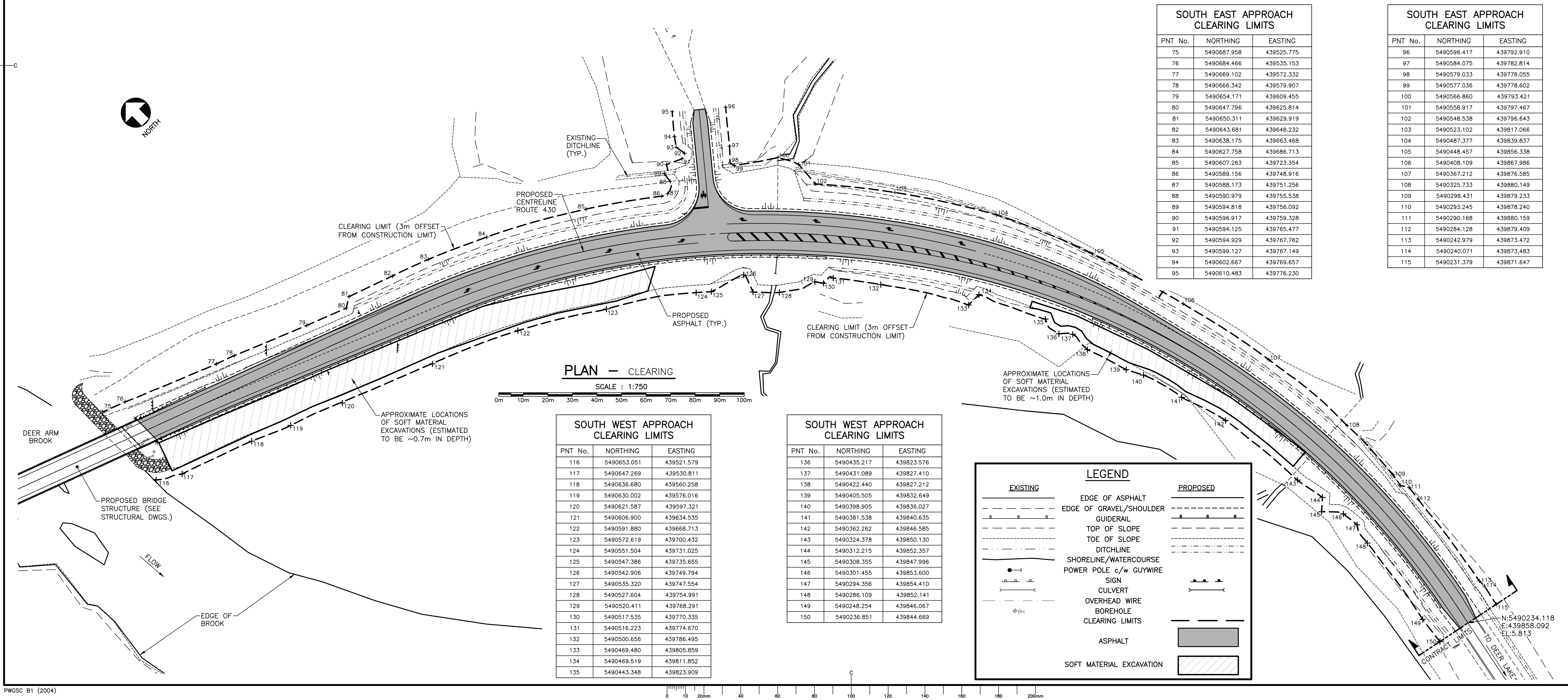
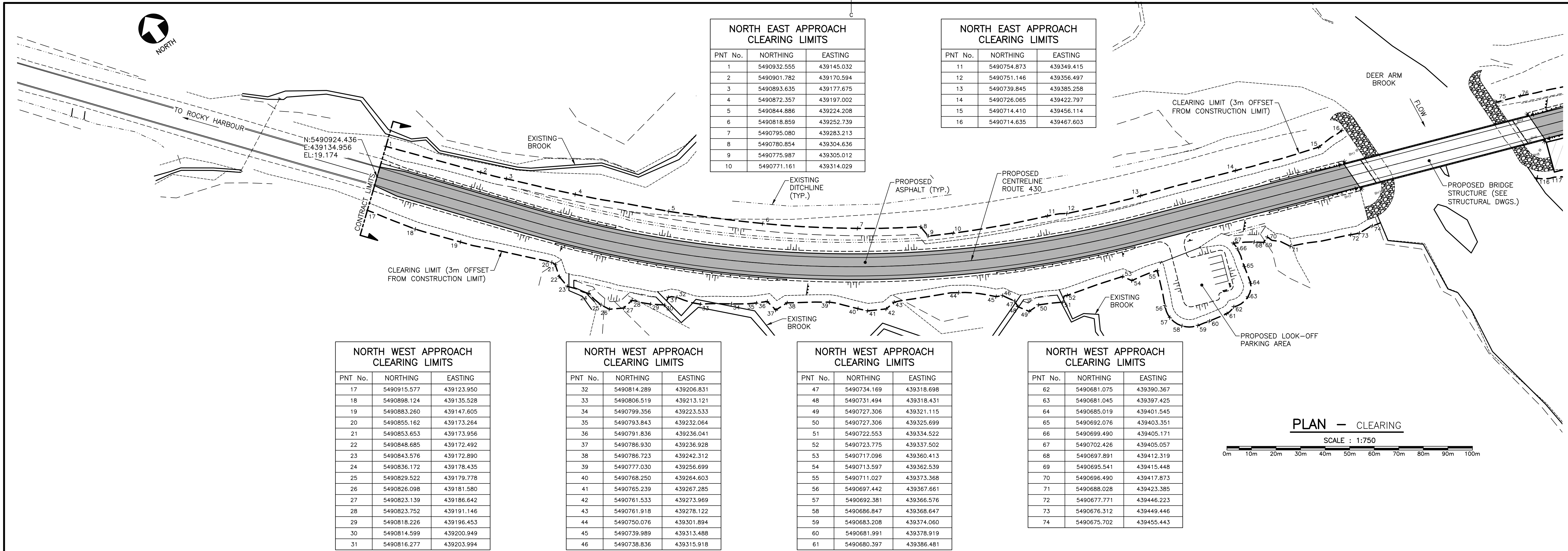
GENERAL NOTES:

- FOR GENERAL NOTES SEE DRAWING C01.

PROVINCE OF NEWFOUNDLAND
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 PERMIT HOLDER
 CLASS "A"
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 Permit No. as issued by PEGNL N0763
 which is valid for the year 2017.

REGISTERED PROFESSIONAL ENGINEER
 MICHAEL S. MACDONALD
 FEB. 10/17
 DATE

0	ISSUED FOR TENDER	FEB. 10 2017
revisions		date
project	DEER ARM BROOK BRIDGE REPLACEMENT	project
drawing	GROS MORNE NATIONAL PARK	design
MISCELLANEOUS SECTIONS AND DETAILS		
designed	TIM JORDAN	conçu
date	NOVEMBER 2016	
drawn	KEVIN MACDONALD	dessiné
date	NOVEMBER 2016	
approved	MICHAEL MACDONALD	approuvé
date	NOVEMBER 2016	
Tender		Submission
PCA Project Manager		no. du projet
project number	1117	no. du dessin
drawing no.	C12	



NOTES:
1. FOR GENERAL NOTES SEE DRAWING C01.

PROVINCE OF NEWFOUNDLAND
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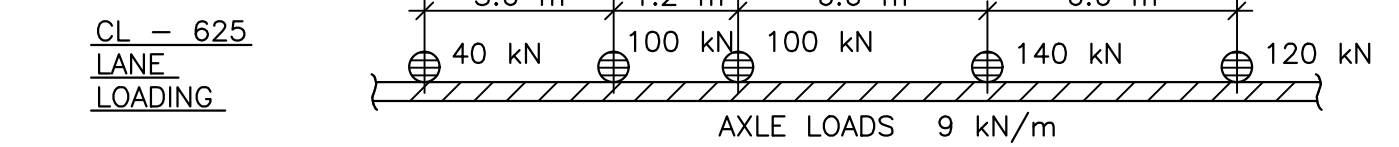
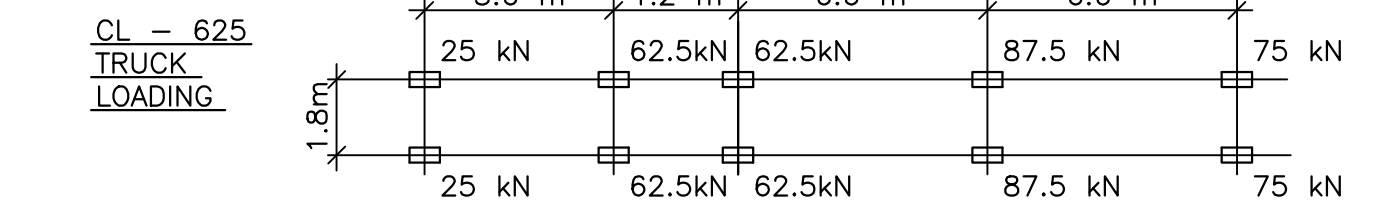


0 ISSUED FOR TENDER FEB/10 2017
revisions date
project DEER ARM BROOK BRIDGE REPLACEMENT
drawing design
designed TIM JORDAN
date NOVEMBER 2016
drawn KEVIN MacDONALD
date NOVEMBER 2016
approved MICHAEL MACDONALD
date NOVEMBER 2016
Tender Submission
PWSC Project Manager Administrateur de projets TPSC
project number 1117
drawing no. C13

GENERAL NOTES:

1. GENERAL REQUIREMENTS GOVERNING DESIGN, MATERIALS, AND CONSTRUCTION ARE AS FOLLOWS:

A) LOADING AND GENERAL DESIGN TO CAN/CSA - S6 - 14, WITH LATEST REVISIONS, LIVE LOAD CL-625.



B) CONCRETE MATERIALS AND METHODS OF CONSTRUCTION TO CAN/CSA-A23.1 AND METHODS OF TEST FOR CONCRETE TO CAN/CSA-A23.2, LATEST EDITION AT TIME OF TENDER.

C) REFERENCE DRAWING S3 FOR CONCRETE AND REINFORCING NOTES.

D) REFERENCE DRAWING S3 FOR PILE NOTES.

E) REFERENCE DRAWING S7 FOR STRUCTURAL STEEL NOTES.

F) REFERENCE DRAWING S14 FOR MISCELLANEOUS METALS NOTES.

2. ALL DIMENSIONS SHOWN IN MILLIMETRES (mm). ELEVATIONS IN METERS (m).

3. ALL STANDARDS AND SPECIFICATION NOTES TO REFLECT THE "LATEST EDITION" AT TIME OF TENDER.

4. FOUNDATION DESIGN BASED ON INFORMATION PROVIDED IN HARBOURSIDE GEOTECHNICAL CONSULTANTS REPORT No. 163517.DA, DATED NOVEMBER 10, 2016.

5. ALIGNMENT INFORMATION AS PER HARBOURSIDE TRANSPORTATION CONSULTANTS CIVIL DRAWINGS, SURVEY INFORMATION PROVIDED BY DESIGN POINT.

- SURVEY IS REFERENCED HORIZONTALLY TO UTM ZONE 21 NORTH NAD83 (CSRS).
- SURVEY IS VERTICALLY REFERENCED TO CGVD28 (HTV2.0 GEOD MODEL).
- CONTROL IS DERIVED FROM 10 HOUR 49 MINUTE STATIC GPS OBSERVATION ON NAIL 1000 HAVING COORDINATES OF N: 5489992.427 E: 439853.818 EL.=3.333m.
- RAW GPS DATA PROCESSED USING NATURAL RESOURCES CANADA PRECISE POINT POSITIONING SOFTWARE.
- FIELD SURVEYS WERE CARRIED OUT FROM MAY 18 TO MAY 20, 2016.
- COORDINATES ARE GRID, APPLY COMBINED SCALE FACTOR OF 1/0.999644 TO CALCULATE GROUND DISTANCES.

6. ANY DISCREPANCIES BETWEEN DRAWINGS AND FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE DEPARTMENTAL REPRESENTATIVE PRIOR TO PROCEEDING WITH CONSTRUCTION.

7. REFERENCE CIVIL DRAWINGS FOR ROAD ALIGNMENT OVER BRIDGE STRUCTURE AND CONSTRUCTION PHASING TO TRANSITION TRAFFIC TO NEW STRUCTURE, FOLLOWED BY DEMOLITION OF EXISTING STRUCTURE.

8. CONSTRUCTION SHALL BE CARRIED OUT AS PER CAN/CSA-S6-14.

9. BRIDGE CLASSIFIED AS A "MAJOR-ROUTE BRIDGE" FOR THE PURPOSE OF SEISMIC ANALYSIS AS PER CAN/CSA-S6-14.

10. BRIDGE BARRIERS AND ANCHORAGES CONFORM TO TL-4 CRASH TEST REQUIREMENTS AS PER CAN/CSA-S6-14.

11. BRIDGE QUANTITIES IN SPECIFICATIONS ARE BASED ON THE FOLLOWING EXTENTS:
LONGITUDINALLY : MEASURED FROM END OF WINGWALL TO END OF WINGWALL
TRANSVERSELY : MEASURED FROM TOE OF FINISHED SIDE SLOPE (SOUTH) TO DEMARCATION LINE (NORTH) EXCEPT FOR ARMOUR RIP RAP WITHIN DEMOLITION ZONE WHICH WILL ALSO BE INCLUDED IN BRIDGE QUANTITIES.

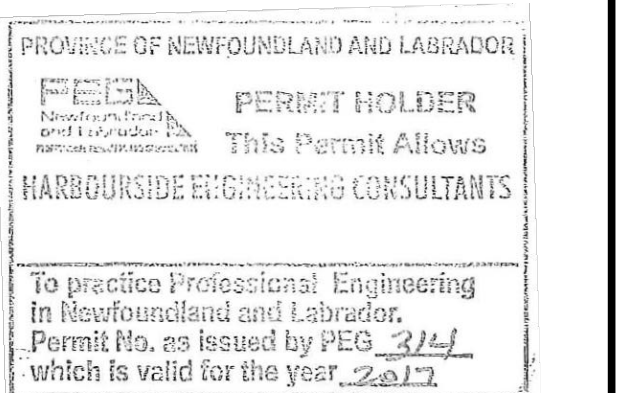
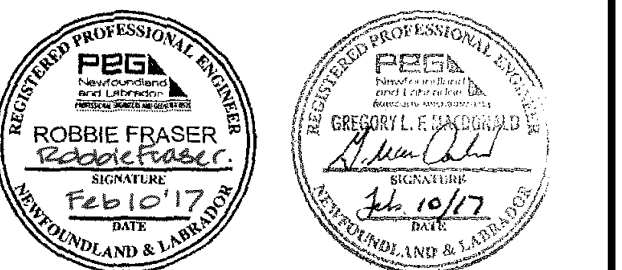
12. FULL WIDTH OF EXISTING STRUCTURE TO REMAIN IN-SERVICE UNTIL THE END OF CONSTRUCTION WHEN TRAFFIC DIVERTED ONTO FULLY COMPLETED NEW STRUCTURE.

13. CONTRACTOR TO PROVIDE EROSION AND SEDIMENTATION CONTROL PLAN TO THE DEPARTMENT REPRESENTATIVE AT THE START OF THE PROJECT FOR ALL PHASES OF WORK AND MAINTAIN CONTROLS THROUGHOUT CONSTRUCTION.

14. EACH PHASE OR WORK TO BE INSPECTED AND APPROVED BY DEPARTMENTAL REPRESENTATIVE PRIOR TO PROCEEDING TO NEXT PHASE OF WORK.

15. WATER ELEVATIONS INDICATED BASED ON DESIGN POINT FINAL HYDROLOGY AND HYDRAULICS REPORT DATED DECEMBER 16, 2016.

16. DEMOLITION OF EXISTING BRIDGE TO BE UNDERTAKEN AFTER TRAFFIC IS DIVERTED TO NEW STRUCTURE AND WRITTEN APPROVAL TO PROCEED IS PROVIDED BY DEPARTMENTAL REPRESENTATIVE. CONTRACTOR IS RESPONSIBLE FOR BRIDGE DEMOLITION DESIGN (REFERENCE PROJECT SPECIFICATIONS FOR REQUIREMENTS). ALL EXISTING FOUNDATIONS TO BE REMOVED TO 1 METER BELOW FINISHED GRADE. CONTRACTOR TO COORDINATE AND OBTAIN APPROVAL OF DEMOLITION PLAN FROM DEPARTMENTAL REPRESENTATIVE AND DFO PRIOR TO INITIATING DEMOLITION ACTIVITIES. CONTRACTOR ALSO RESPONSIBLE FOR EXCAVATION, BACKFILL AND SLOPE PREPARATION FOR ARMOUR RIP RAP, FILLS AND HYDROSEEDING IN DEMOLITION AREA AS INDICATED ON DRAWING S1. REFERENCE PROJECT SPECIFICATIONS.



0	ISSUED FOR TENDER	02/10/2017
revisions		date

project DEER ARM BROOK BRIDGE REPLACEMENT

GROS MORNE NATIONAL PARK

drawing design

GENERAL ARRANGEMENT
PLAN AND PROFILE

designed WADE POTTIE conçu

date OCTOBER 2016

drawn G.R. MATHESON dessiné

date OCTOBER 2016

approved ROBBIE FRASER approuvé

date OCTOBER 2016

Tender Submission

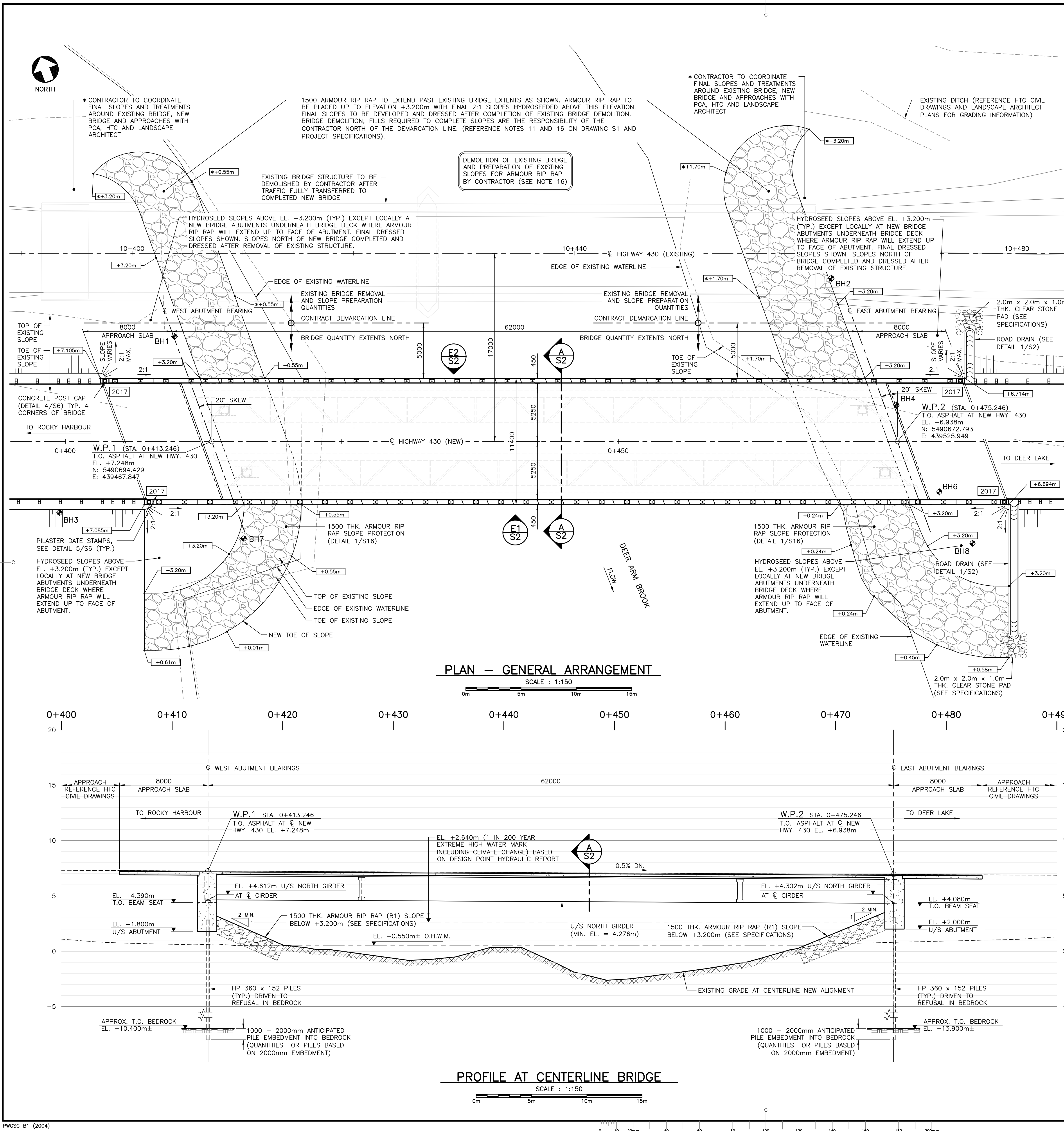
PWOSC Project Manager Administrateur de projets TPSC

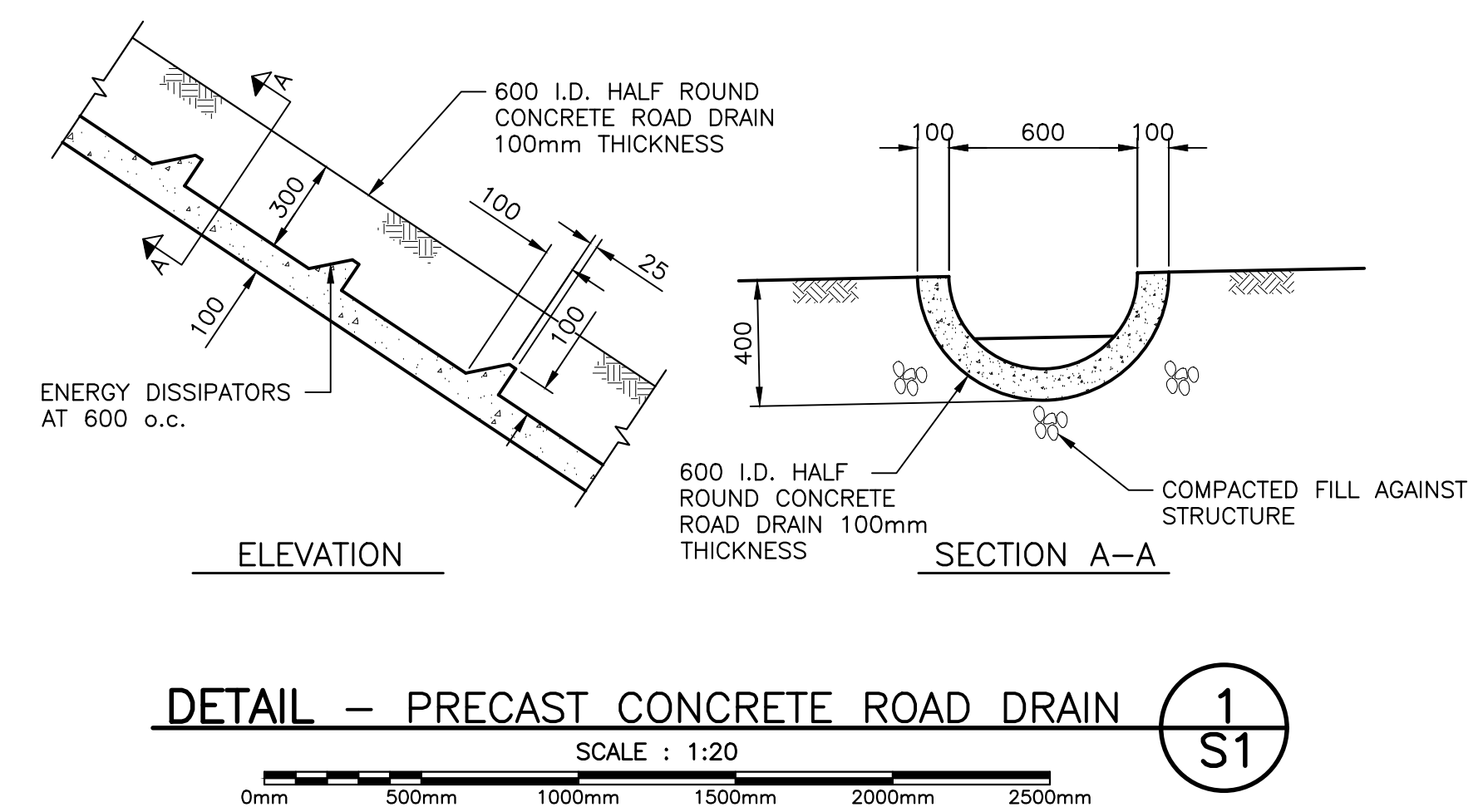
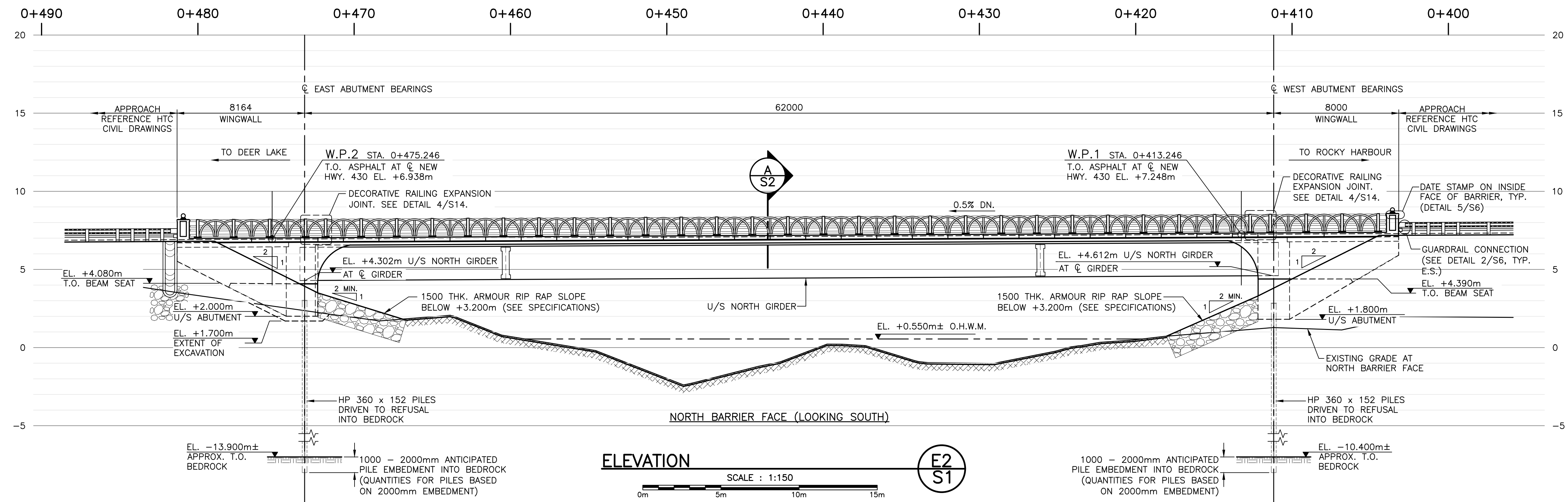
project number no. du projet

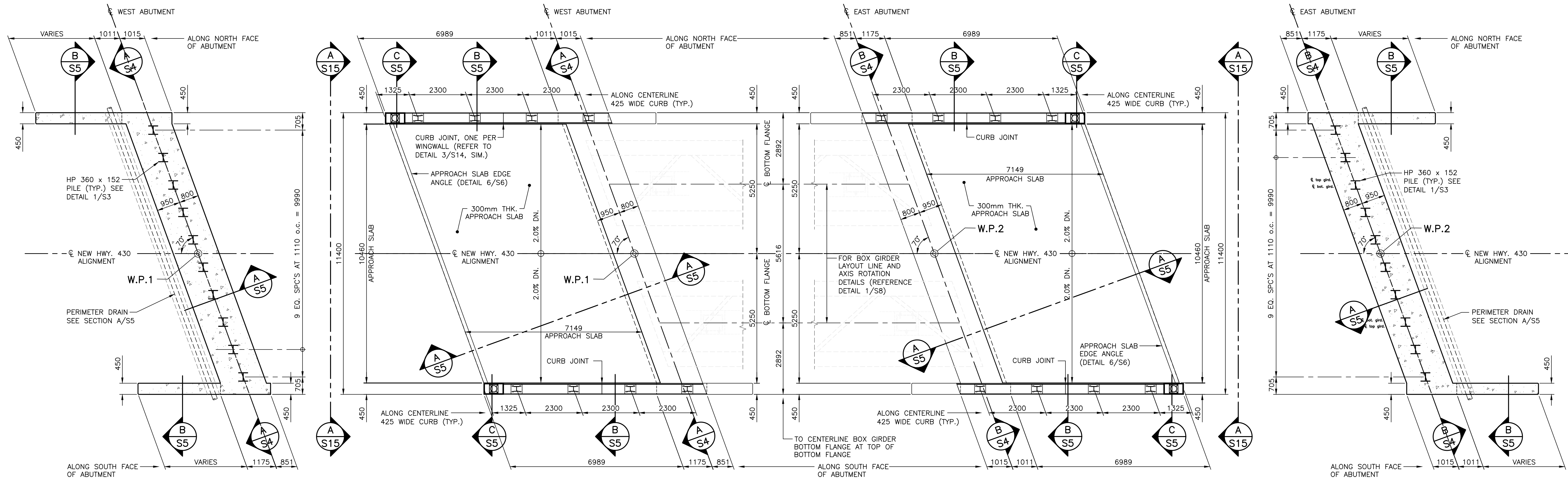
1117

drawing no. no. du dessin

S1





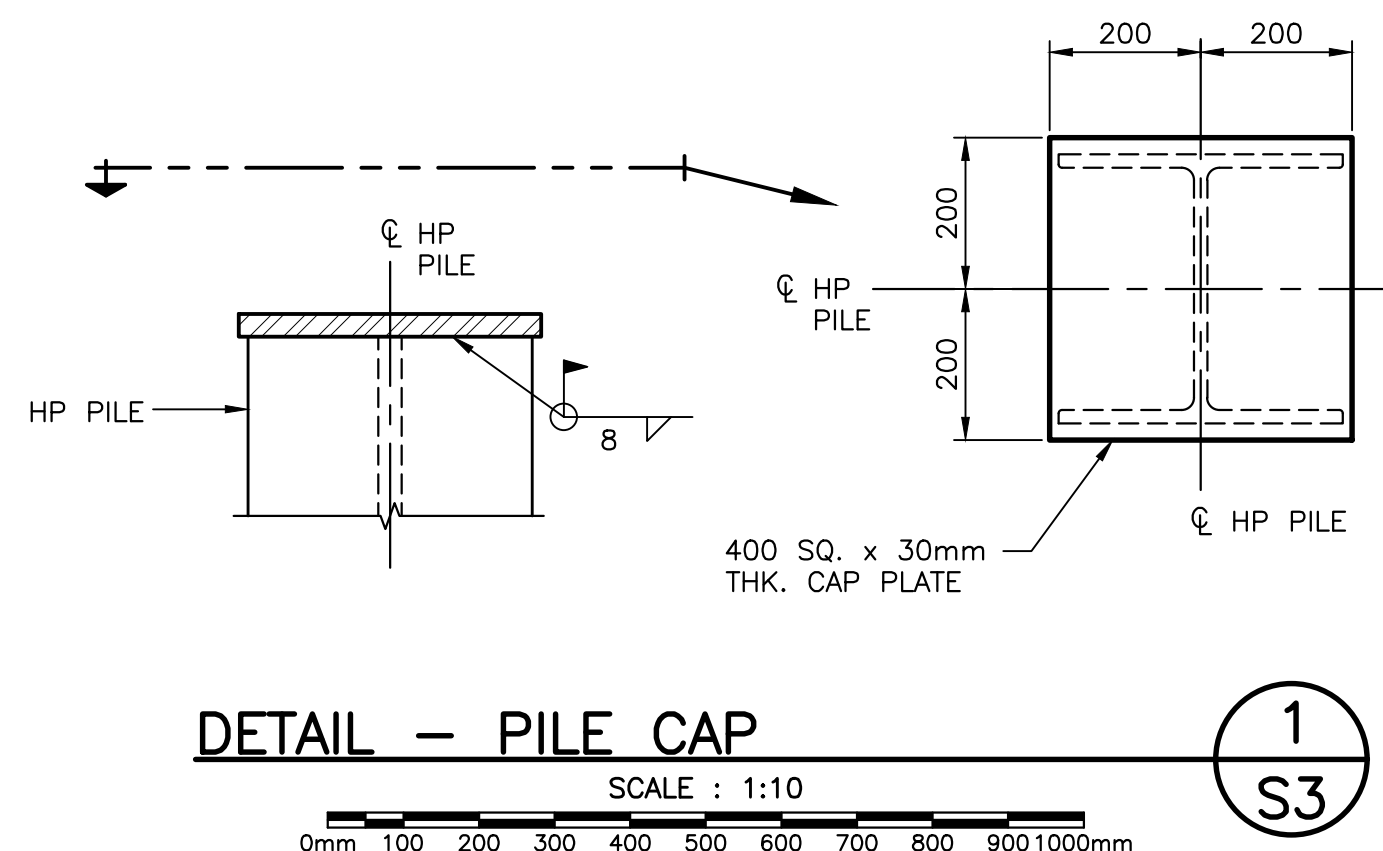


WEST ABUTMENT - PILE LAYOUT PLAN

WEST ABUTMENT - TOP PLAN

EAST ABUTMENT - TOP PLAN

EAST ABUTMENT - PILE LAYOUT PLAN



DETAIL - PILE CAP

1
S3

C.I.P. CONCRETE NOTES

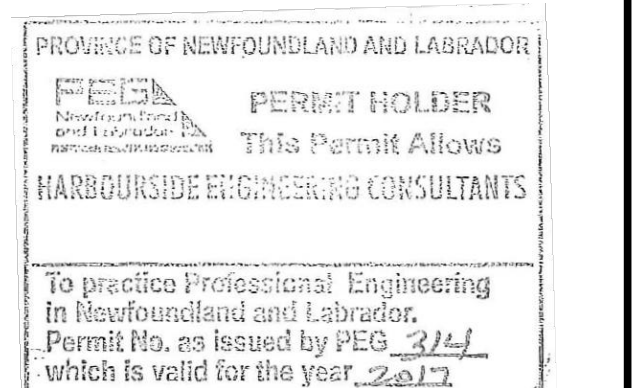
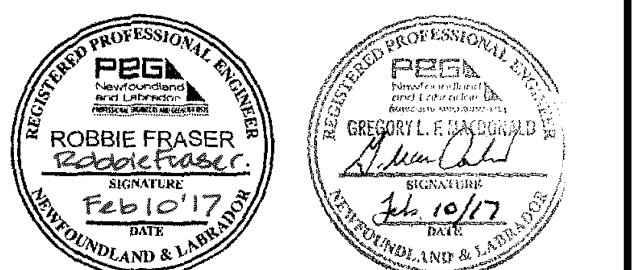
- ALL EXPOSED CORNERS OF CONCRETE TO HAVE 25mm CHAMFERS.
- LOCATION OF CONSTRUCTION JOINTS AND SEQUENCE OF CONCRETE PLACEMENT TO BE APPROVED BY THE DEPARTMENTAL REPRESENTATIVE.
- CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS:
 - ABUTMENTS, WINGWALLS, APPROACH SLABS, CONCRETE DECK AND CURBS 45 MPa WITH 20mm MAX. AGGREGATE SIZE AND 6% ± 1% AIR ENTRAINMENT (AIR VOID SPACING REQUIREMENTS AS PER PROJECT SPECIFICATIONS), MAX. WATER-CEMENT RATIO 0.35.
 - BEARING PLINTHS 35 MPa WITH 20mm MAX. AGGREGATE SIZE AND 6% ± 1% AIR ENTRAINMENT (AIR VOID SPACING REQUIREMENTS AS PER PROJECT SPECIFICATIONS), MAX. WATER-CEMENT RATIO 0.35. REFERENCE DRAWING S12 AND PROJECT SPECIFICATIONS FOR PLINTH CONCRETE MIX AND CURING REQUIREMENTS.
- CONCRETE COVER TO REINFORCING STEEL AS NOTED ON DRAWINGS.
- REINFORCING STEEL TO BE GRADE 400W DEFORMED BARS AS PER PROJECT SPECIFICATIONS WITH YIELD STRENGTH OF 400 MPa (WELDABLE). ALL REINFORCING TO BE GALVANIZED IN ACCORDANCE WITH PROJECT SPECIFICATIONS. BEND DIAMETERS PRIOR TO GALVANIZING AS PER PROJECT SPECIFICATIONS, FIELD BENDING OF GALVANIZED BARS IS NOT PERMITTED.
- ALL REINFORCEMENT TO BE INSPECTED BY THE DEPARTMENTAL REPRESENTATIVE PRIOR TO CLOSING FORMWORK OR PLACING CONCRETE.
- COMPACTING IMMEDIATELY ADJACENT TO BACK WALL SHALL BE ACCOMPLISHED WITH LIGHT COMPACTING EQUIPMENT. MODERATE COMPACTING WITH A TRENCH ROLLER IN 300mm LIFTS ELSEWHERE (ALL COMPACTION SHALL BE TO 98% STD. PROCTOR DENSITY). BACKFILLING SHALL NOT BE UNDERTAKEN UNTIL GIRDERS ARE ERECTED AND SLAB AND ABUTMENT CAPS ARE COMPLETED ($f_c \geq 35$ MPa) AND SHALL BE ACCOMPLISHED IN EQUAL/BALANCED LIFTS BEHIND EACH ABUTMENT. WHEEL LOADS SHALL BE KEPT 5.0m MINIMUM CLEAR OF ABUTMENTS UNTIL CONCRETE REACHES DESIGN STRENGTH AND BACKFILLING IS COMPLETED BEHIND BOTH ABUTMENTS. SURCHARGING FROM CONSTRUCTION EQUIPMENT TO BE AVOIDED UNLESS OTHERWISE APPROVED BY DEPARTMENTAL REPRESENTATIVE IN WRITING.
- FOR BENT REINFORCING BAR TYPES REFER TO R.S.I.C. REINFORCING MANUAL OF STANDARD PRACTICE TYPICAL BAR BENDS EXCEPT BAR BEND DIAMETERS AS PER PROJECT SPECIFICATIONS (U.N.O.).
- EACH PHASE OF WORK TO BE INSPECTED BY THE DEPARTMENT REPRESENTATIVE PRIOR TO PROCEEDING TO THE NEXT PHASE OF WORK.
- BACKFILL IMMEDIATELY BEHIND ABUTMENTS TO BE "FILL AGAINST STRUCTURE" MATERIAL AS PER PROJECT SPECIFICATIONS. LIMITS AS INDICATED ON DRAWING S16.

PRECAST CONCRETE NOTES

- ALL EXPOSED CORNERS OF CONCRETE TO HAVE 25mm CHAMFERS.
- CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS:
 - ROAD DRAINS: 35MPa, NON-REINFORCED, 6% ± 1% AIR ENTRAINMENT, AS PER PROJECT SPECIFICATIONS.

PILE NOTES

- PILE MATERIAL
 - STEEL H-PILES IN ABUTMENT, HP360 x 152, $F_y = 350$ MPa (MIN.)
 - ALL PILE SPLICES, IF REQUIRED AND AT THE APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE, SHALL BE FULL STRENGTH WELDED CONNECTIONS (LIMIT 1 SPLICE PER PILE)
 - CAP PLATE, $F_y = 350$ MPa MINIMUM
 - WELDING MATERIAL TO CSA G40.1 - LATEST EDITION
 - WELDING TO BE IN ACCORDANCE TO CSA W59 - LATEST EDITION
- PILE INSTALLATION CRITERIA AS PER HGC REPORT No. 163517.DA DATED NOVEMBER 10, 2016.
- SEE PROJECT SPECIFICATION FOR PILE SET CRITERIA.
- ALL PILES SHALL BE DRIVEN WITH A PROTECTIVE H-PILE DRIVING SHOE. ALL POINTS SHALL MATCH PILE SIZE AND SHALL BE WELDED TO PILE TIPS AS PER MANUFACTURER'S RECOMMENDATIONS. PILE TIP DETAILS SHALL BE FORWARDED TO THE DEPARTMENTAL REPRESENTATIVE FOR REVIEW AND ACCEPTANCE PRIOR TO DRIVING.
- FULL TIME INSPECTION SHALL BE UNDERTAKEN DURING PILE DRIVING AND COMPLETE DRIVING RECORDS SHALL BE KEPT BY CONTRACTOR.
- PILE CAPACITIES OF AT LEAST TWO PILES PER ABUTMENT SHALL BE CONFIRMED BY PDA TESTING WITH ADDITIONAL PDA TESTING TO BE COMPLETED AT THE DISCRETION OF THE DEPARTMENTAL REPRESENTATIVE.
- DESIGN PILE CAPACITY AT ULS:
 - HP360 x 152 PILES ----- 1400 kN (COMPRESSION)
- MINIMUM RATED HAMMER ENERGY OF 350 J/cm² OF STEEL CROSS SECTION-SECTIONAL AREA SHALL BE USED, A PILE DRIVING HAMMER CAPABLE OF DELIVERING VARIABLE AMOUNTS OF ENERGY SHALL BE USED ON THIS PROJECT.
- PRACTICAL REFUSAL TAKEN AS PILE PENETRATION OF LESS THAN 25mm FOR 15 BLOWS AT THE RATED ENERGY FOR 4 CONSECUTIVE 25mm INCREMENTS.
- RE-STRIKING OF 2 PILES PER ABUTMENT SHALL BE UNDERTAKEN NO SOONER THAN 24 HOURS AFTER ACHIEVING THE REFUSAL CRITERIA AND SUFFICIENTLY DRIVEN TO RE-ESTABLISH THE REFUSAL CRITERIA AS PER GEOTECHNICAL ENGINEER RECOMMENDATIONS (REFERENCE HARBOURSIDE GEOTECHNICAL CONSULTANTS PROJECT GEOTECHNICAL REPORT).



0	ISSUED FOR TENDER	02/10/2017
revisions		date

project DEER ARM BROOK BRIDGE REPLACEMENT

GROS MORNE NATIONAL PARK

drawing

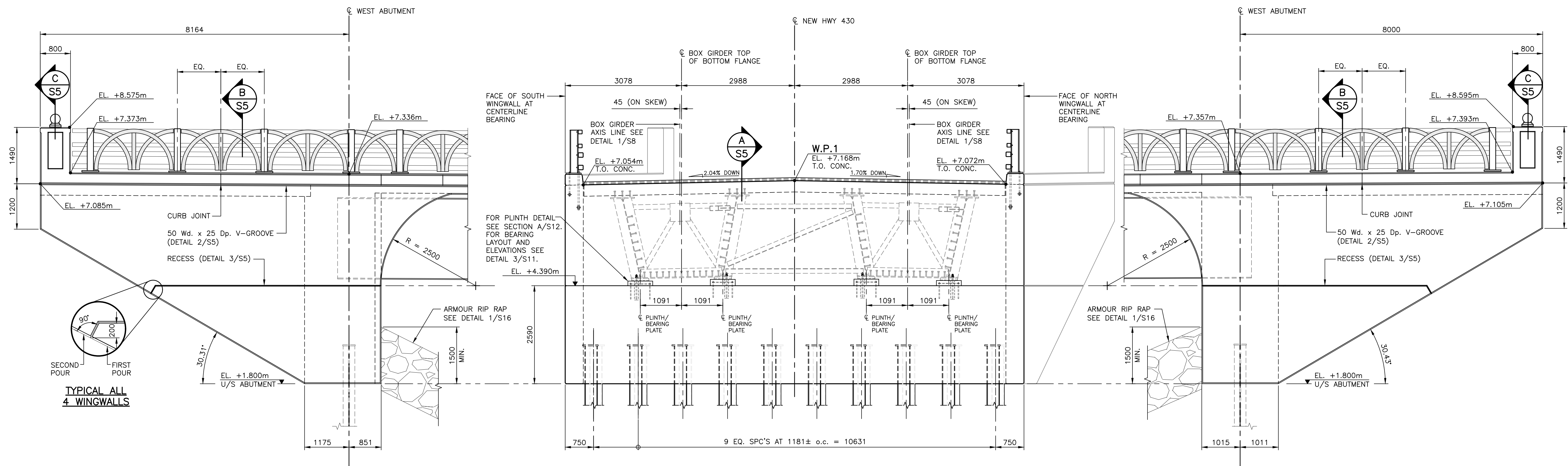
ABUTMENT PLANS AND DETAIL

designed WADE POTTIER	conçu
drawn G.R. MATHESON	dessiné
date OCTOBER 2016	date
approved ROBBIE FRASER	approuvé
date OCTOBER 2016	date

Tender PWGSC Project Manager Administrateur de projets TPSCG

project number 1117 no. du projet

drawing no. S3 no. du dessin

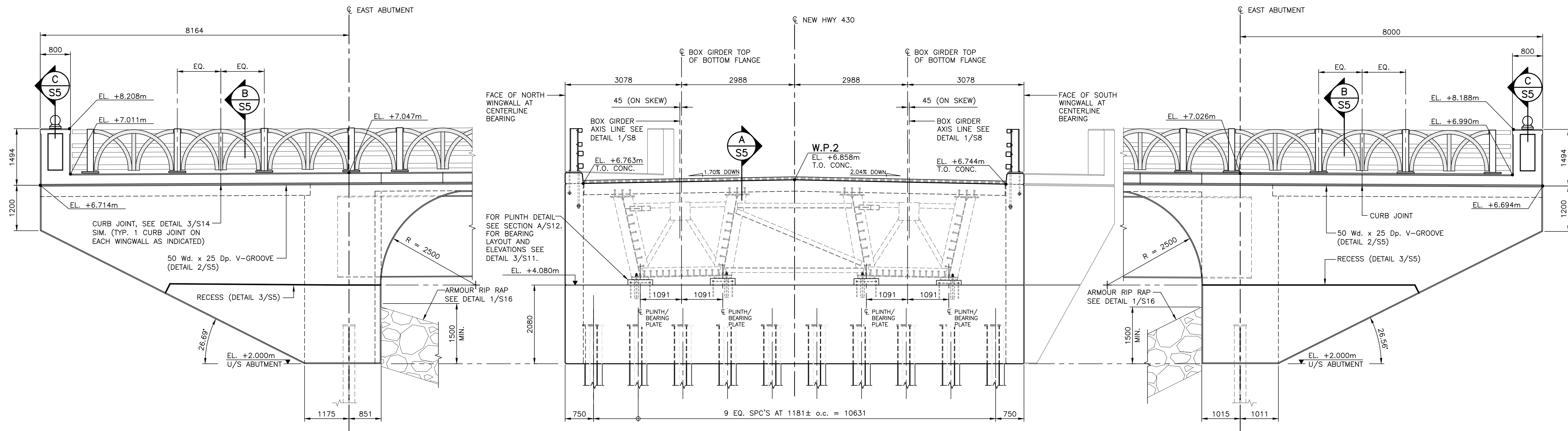


ELEVATION - SOUTHWEST WINGWALL

SECTION THROUGH CENTERLINE WEST ABUTMENT

ELEVATION - NORTHWEST WINGWALL

SECTION - WEST ABUTMENT
SCALE: 1:50

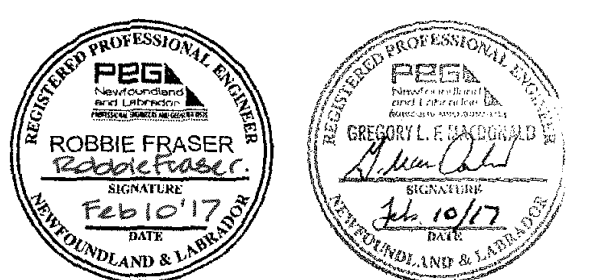


ELEVATION - NORTHEAST WINGWALL

SECTION THROUGH CENTERLINE EAST ABUTMENT

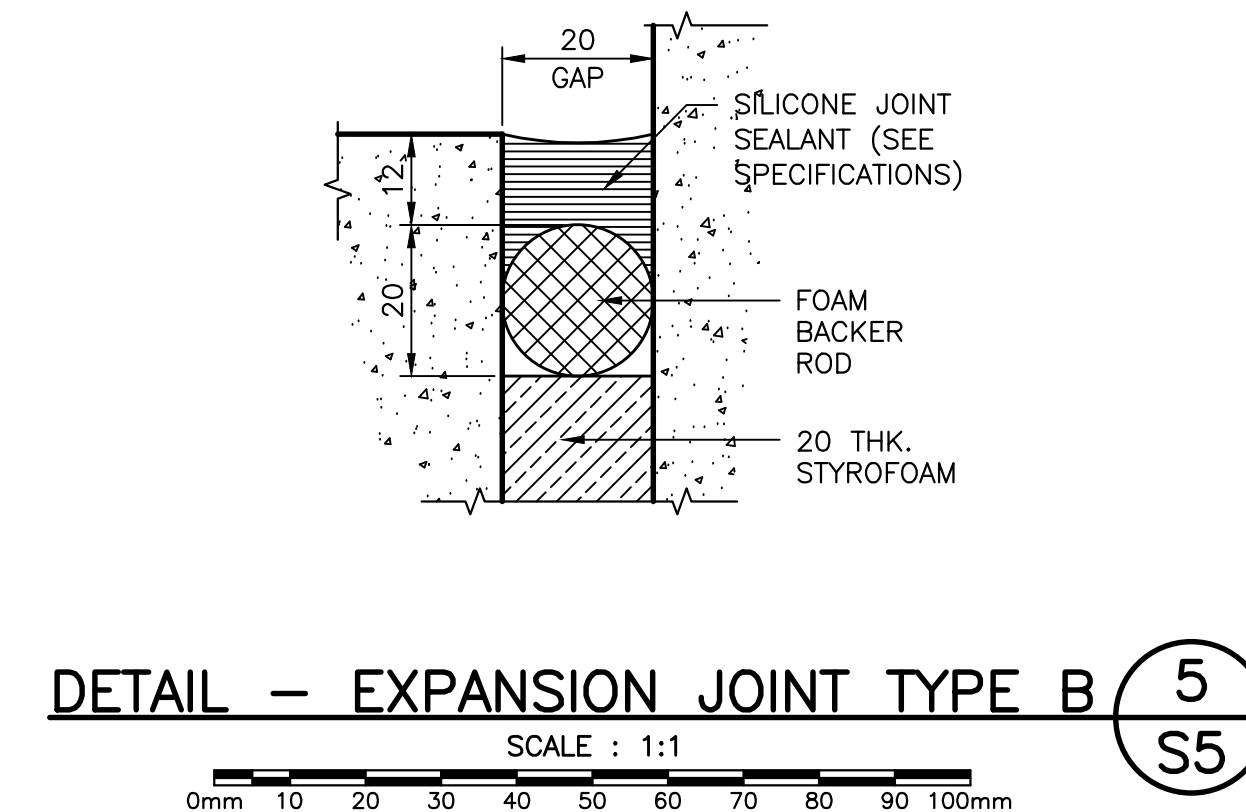
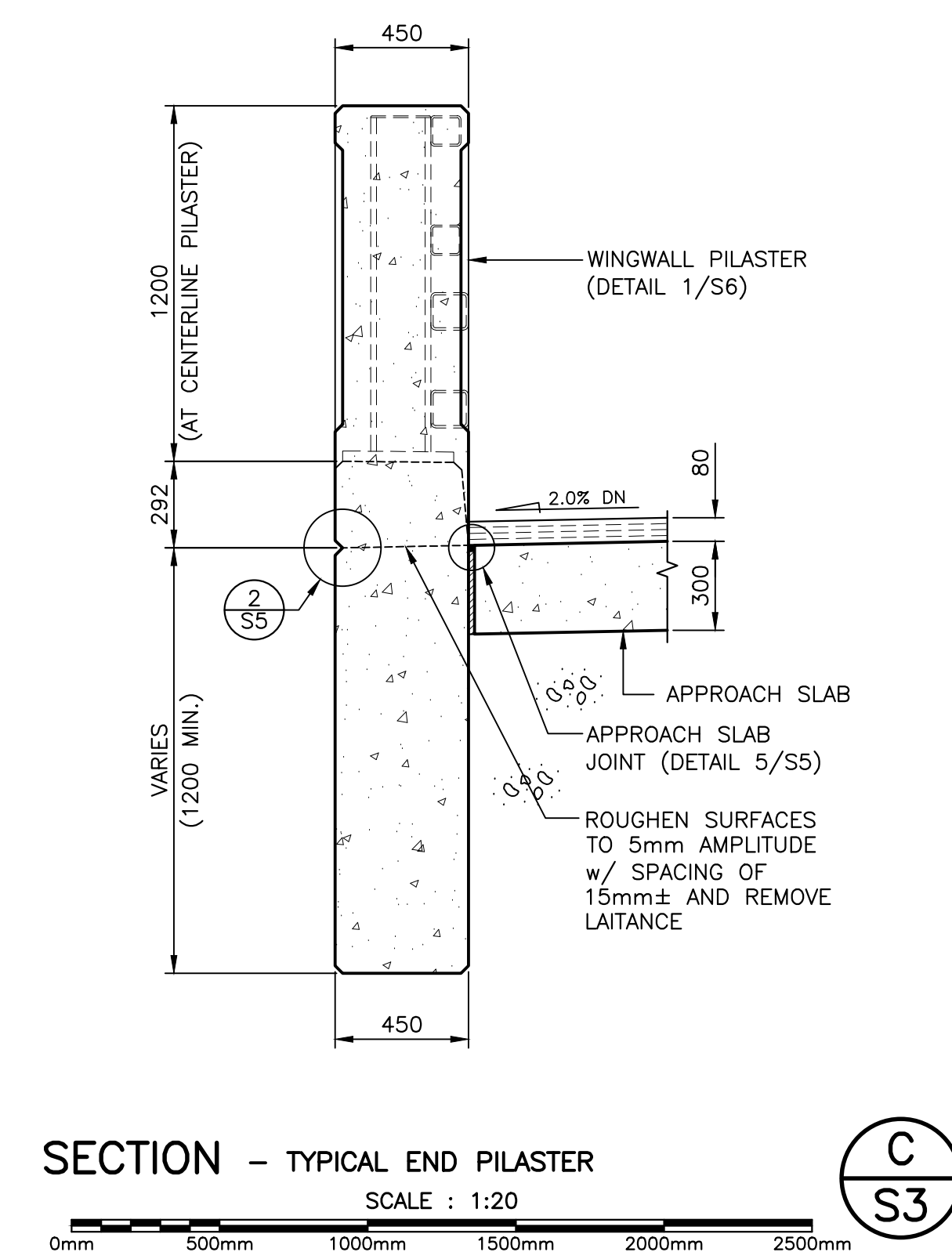
ELEVATION - SOUTHEAST WINGWALL

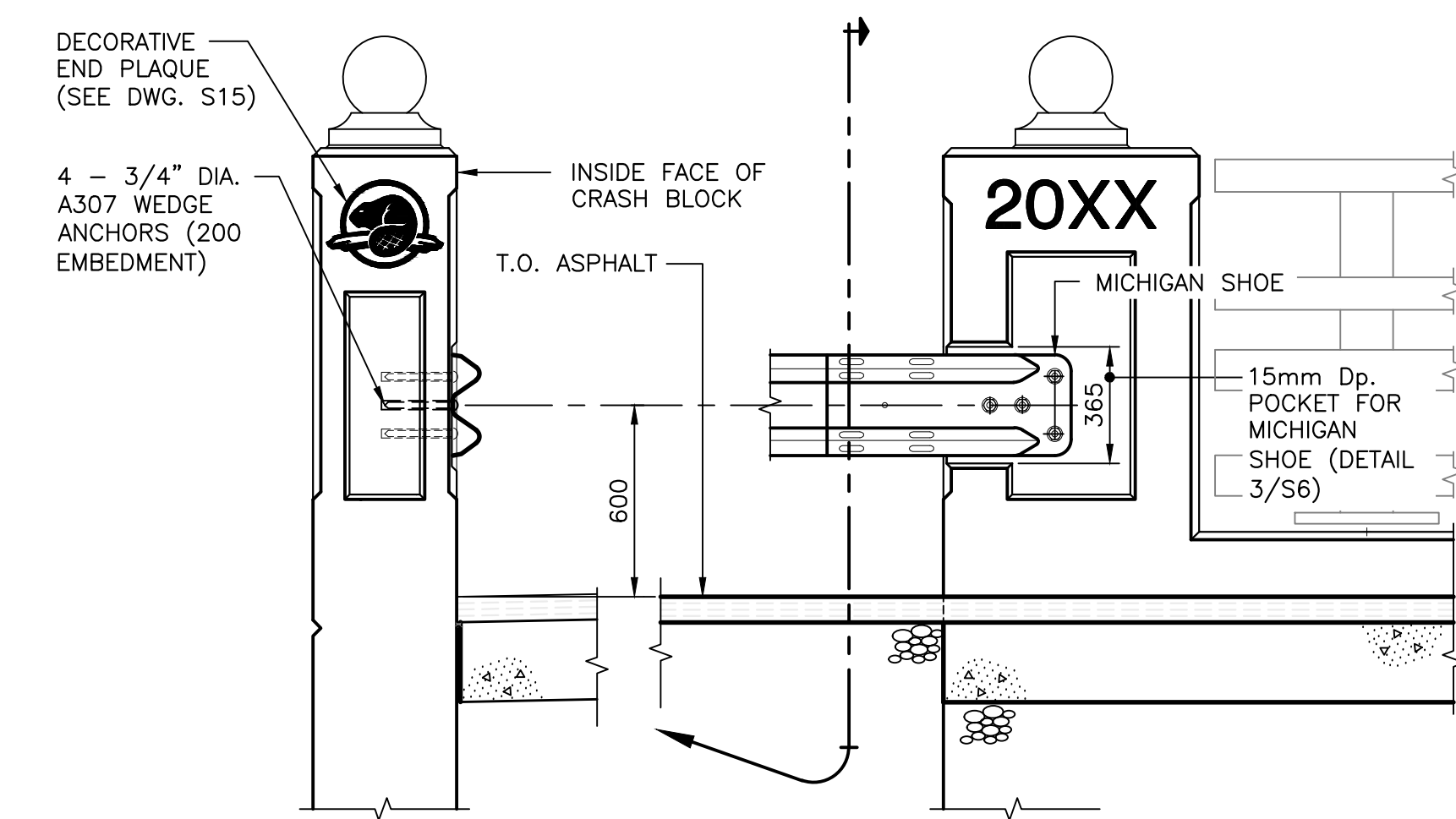
SECTION - EAST ABUTMENT
SCALE: 1:50



PROFESSIONAL ENGINEER
PERMIT HOLDER
This Permit Allows
HARBOURSIDE ENGINEERING CONSULTANTS
To practice Professional Engineering
in Newfoundland and Labrador,
Permit No. as issued by PEG 3117
which is valid for the year 2017

0	ISSUED FOR TENDER	02/10/2017
revisions		date
project	DEER ARM BROOK BRIDGE REPLACEMENT	project
	GROS MORNE NATIONAL PARK	
drawing	ABUTMENT AND WINGWALL ELEVATIONS	dessin
designed	WADE POTTIE	conçu
date	OCTOBER 2016	
drawn	G.R. MATHESON	dessiné
date	OCTOBER 2016	
approved	ROBBIE FRASER	approuvé
date	OCTOBER 2016	
Tender		Submission
PWOSC Project Manager	Administrateur de projets TPSC	
project number	1117	no. du projet
drawing no.	S4	no. du dessin





(SOUTHEAST SHOWN)

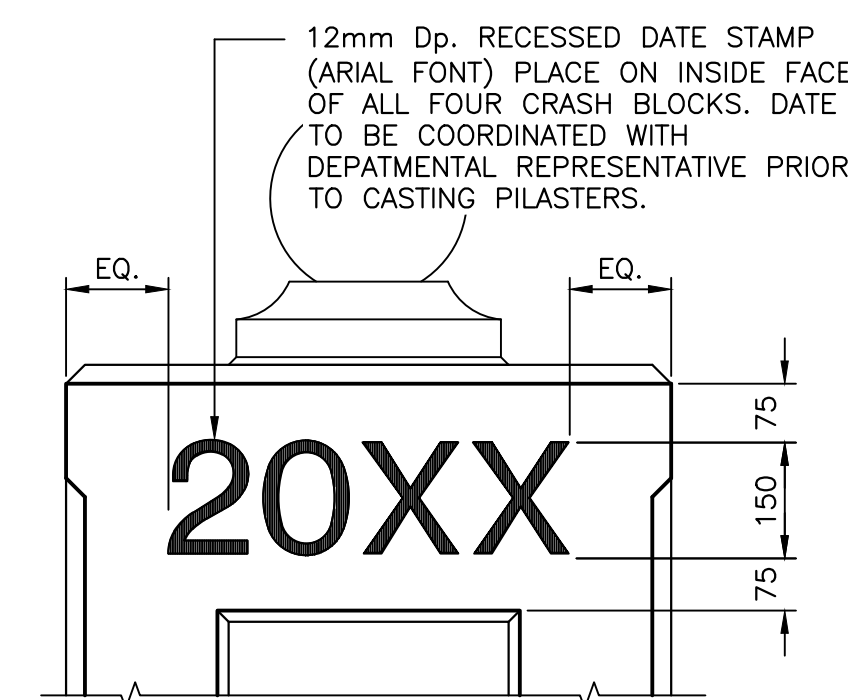
DETAIL - TYPICAL GUARDRAIL CONNECTION

SCALE : 1:20

0mm 500mm 1000mm 1500mm 2000mm 2500mm

2
S2

(SOUTHEAST SHOWN)



DETAIL - TYPICAL PILASTER DATE STAMP

SCALE : 1:10

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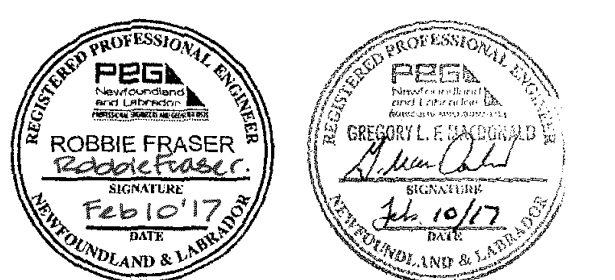
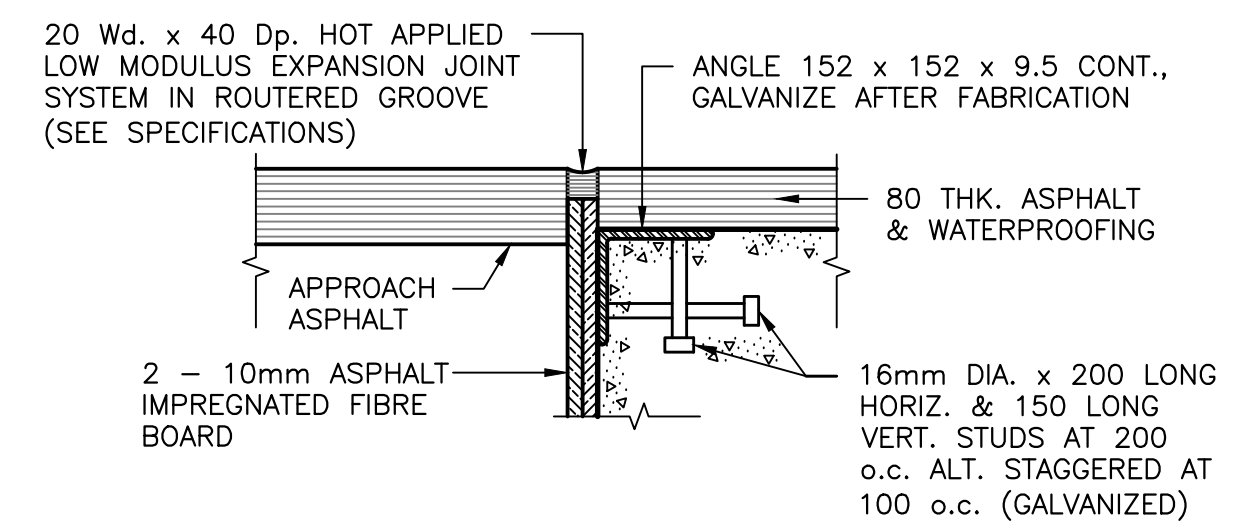
5
S1

DETAIL — APPROACH SLAB EDGE ANGLE

SCALE : 1:10

0mm 100 200 300 400 500 600 700 800 900 1000mm

6
S3



PROVINCE OF NEWFOUNDLAND AND LABRADOR

PEG **PERMIT HOLDER**
Engineering Permit
Professional Engineer
ART-2000-00000000000000000000

This Permit Allows
HARBURSIDE ENGINEERING CONSULTANTS

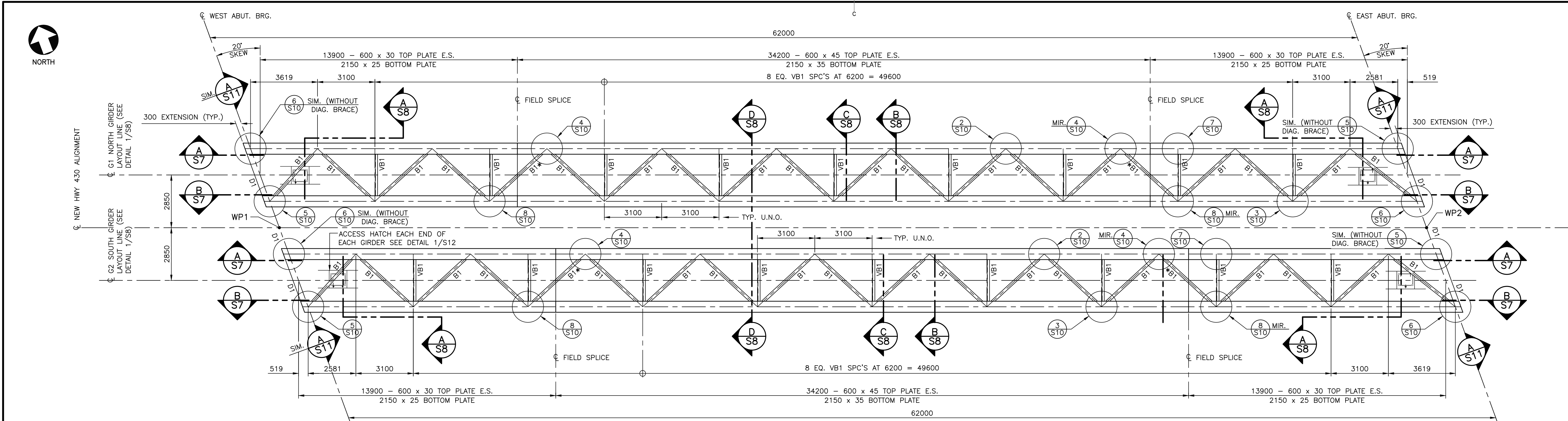
To practice Professional Engineering
In Newfoundland and Labrador.
Permit No. as issued by PEG 314
which is valid for the year 2017

project	projet
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GROS MORNE
NATIONAL PARK

WINGWALL PILASTER SECTIONS AND DETAILS

designed	WADE POTTIE	conçu
date	OCTOBER 2016	
drawn	G.R. MATHESON	dessiné
date	OCTOBER 2016	
approved	ROBBIE FRASER	approuvé
date	OCTOBER 2016	
Tender	<i>John Wiley</i>	Soumission
PWOSC Project Manager Administrateur de projets TPSCG		
project number	1117	no. du projet
drawing no.		no. du dessin



BOX GIRDER LAYOUT PLAN

SCALE : 1:100

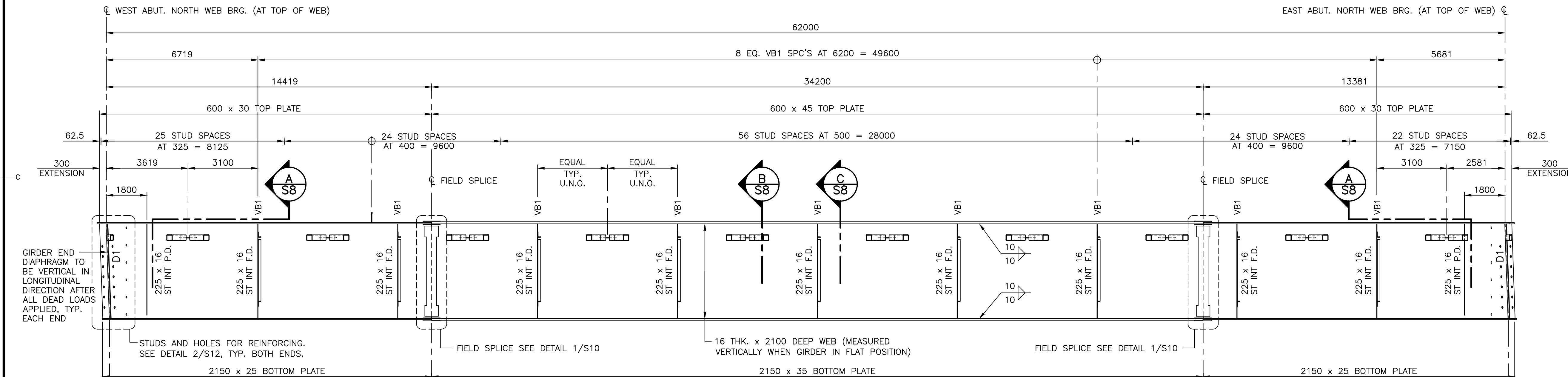
* B1 BRACE TO BE BOLTED TO GUSSETS IN THE FIELD FOLLOWING CONNECTION OF FIELD SPLICE

LEGEND:

- D1 ----- TYPICAL ABUTMENT DIAPHRAGM (SECTION A/S11)
- VB1 ----- TYPICAL INTERIOR DIAPHRAGM (SECTION C/S8)
- B1 ----- HSS 127 x 127 x 9.5 BRACING
- *B1 ----- HSS 127 x 127 x 9.5 BRACING c/w BOLTED FIELD SPLICES, EACH END
- ST INT FD -- STIFFENER INTERIOR -- FULL DEPTH (DETAIL 3/S8 AND 4/S8)
- ST INT PD -- STIFFENER INTERIOR -- PARTIAL DEPTH (DETAIL 3/S8 AND 5/S8)

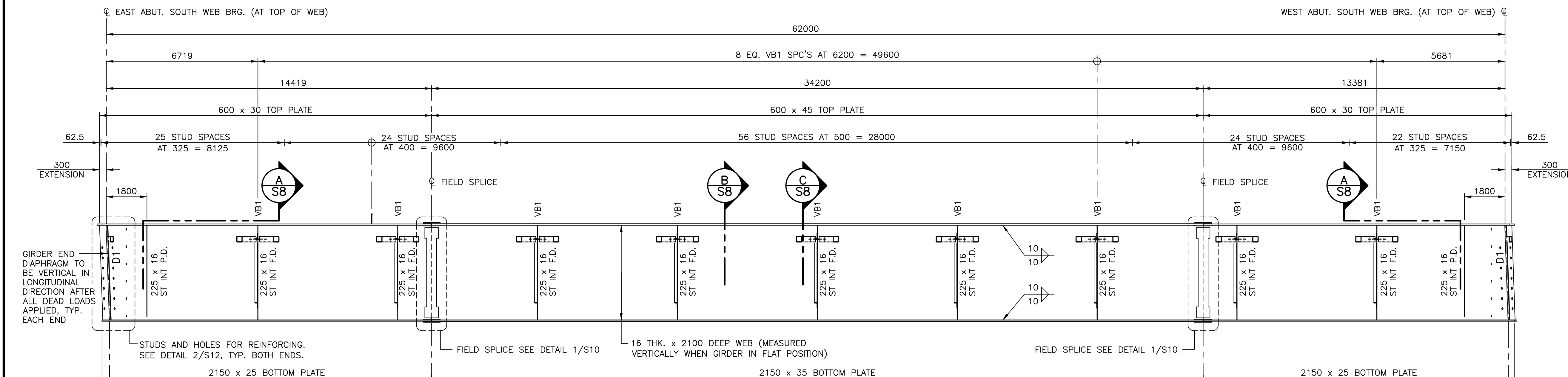
STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING C.S.A. STANDARDS AND A.S.T.M. STANDARDS:
 - A) BOX GIRDERS: WEBS, FLANGE PLATES, STIFFENERS, SPLICE PLATES, GUSSET PLATES TO G40.21M - 350WT CAT 2.
 - B) ANGLES, WIDE FLANGE BARRIER POSTS, AND MISC. PLATES TO G40.21M - 350W OR EQUIVALENT.
 - C) HSS RAILS & BRACES: ASTM A500 GRADE C.
 - D) HIGH STRENGTH BOLTS ASTM A325 TYPE 1, THREADS TO BE EXCLUDED FROM ALL SHEAR PLANES (U.N.O.). ALL BOLT HOLES TO BE DRILLED RATHER THAN PUNCHED.
 - E) BEARING PLATE THREADED ANCHOR RODS ASTM A615 (75 ksi).
2. ALL WELDING SHALL BE IN ACCORDANCE WITH C.S.A. STANDARD W59, LATEST EDITION.
3. SHEAR STUD CONNECTORS SHALL BE MANUFACTURED FROM COLD DRAWN STEEL CONFORMING TO ASTM A29, GRADES 1010 TO 1020.
4. FABRICATE, DELIVER TO SITE AND ERECT STEELWORK IN ACCORDANCE WITH CAN/CSA-S6-14.
5. COAT ALL STEEL IN ACCORDANCE WITH PROJECT SPECIFICATIONS. PRIMER COAT ONLY ON ALL INSIDE SURFACES OF BOX. NO PAINT ON TOP SURFACES OF TOP FLANGES. DRILLED HOLES IN GIRDER WEBS AND BOTTOM FLANGE PLATES FOR INTEGRAL ABUTMENT REINFORCING SHALL BE FULLY COATED TO ENSURE ISOLATION BETWEEN GIRDER AND GALVANIZED ABUTMENT REINFORCING STEEL TO AVOID POTENTIAL OF GALVANIC REACTION. BOX GIRDER DRAIN HOLES SHALL ALSO BE FULLY COATED. CONFIRM TOP COAT COLOR WITH DEPARTMENTAL REPRESENTATIVE PRIOR TO FABRICATION.
6. GRIND ALL BEARING STIFFENERS AT ABUTMENTS TO BEAR AT BOTTOM, THEN WELD.
7. ALL FAYING SURFACES AT BOLTED CONNECTIONS SHALL BE CLASS B, OR BETTER. ALL BOLTS BROUGHT TO SLIP CRITICAL CONDITION BY TURN OF NUT METHOD.
8. CONTRACTOR RESPONSIBLE FOR LIFTING & STABILITY OF GIRDERS DURING ALL PHASES OF CONSTRUCTION.
9. D1 DIAPHRAGMS TO BE VERTICAL IN THE LONGITUDINAL DIRECTION AFTER ALL DEAD LOAD DEFLECTIONS OCCUR. ALL OTHER STIFFENERS (INCLUDING VB1 LOCATIONS) TO BE PERPENDICULAR TO FLANGES.
10. STUD HEIGHTS VARY ALONG SPAN AND ARE DEPENDENT ON AS-BUILT GIRDER ELEVATIONS AND CAMBERS. THEORETICAL STUD HEIGHTS CAN BE DETERMINED USING DETAIL 6/S8 (MAX. AND MIN. PROJECTION INTO DECK), ALONG WITH THEORETICAL HAUNCH DEPTHS ALONG SPAN. THEORETICAL HAUNCH DEPTHS CAN BE DETERMINED AT EACH SCRED STATION USING FINAL GIRDER ELEVATIONS AT EACH ABUTMENT, THE THEORETICAL CAMBER PROFILE AND THE TOP OF DECK FINAL ELEVATIONS INDICATED ON S13.
11. BOTTOM BEARING POINT OF SLAB OVERHANG BRACKET SHALL BE ORIENTATED NO HIGHER THAN 25mm ABOVE EXTERIOR GIRDER BOTTOM FLANGE/WEB INTERFACE DURING DECK CASTING. CONTRACTOR SHALL ENSURE STABILITY OF GIRDERS DURING ALL PHASES OF CONSTRUCTION.
12. BOX GIRDERS ARE FRACTURE CRITICAL MEMBERS AS PER SECTION 12 OF CSA W59-13 AND SECTION 10 OF CSA S6-14. SPECIFICALLY, THE BOTTOM FLANGE AND THE LOWER 1700mm PORTION OF GIRDER WEB ALONG THE ENTIRE SPAN, ALONG WITH THE BOTTOM FLANGE AND WEB SPLICE PLATES, SHALL ALL BE CONSIDERED FRACTURE CRITICAL COMPONENTS OF THE STRUCTURE.
13. ABUTMENT D1 BRACING BETWEEN BOXES TO BE DETAILED AND MATCH DRILLED WITH BOXES IN SELFWEIGHT ONLY CONDITION.



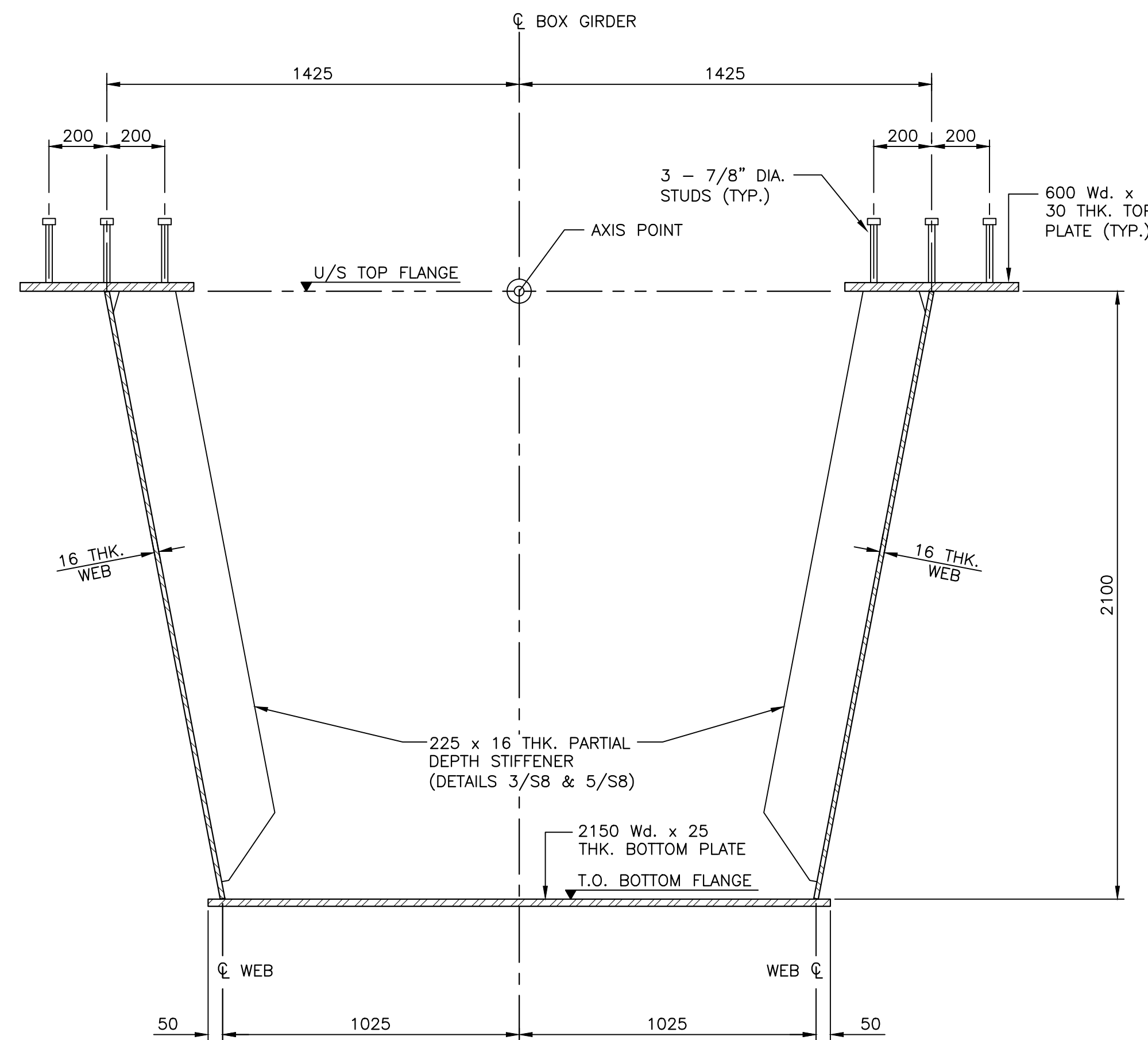
SECTION - G1 NORTH WEB - G2 NORTH WEB

SCALE : 1:100

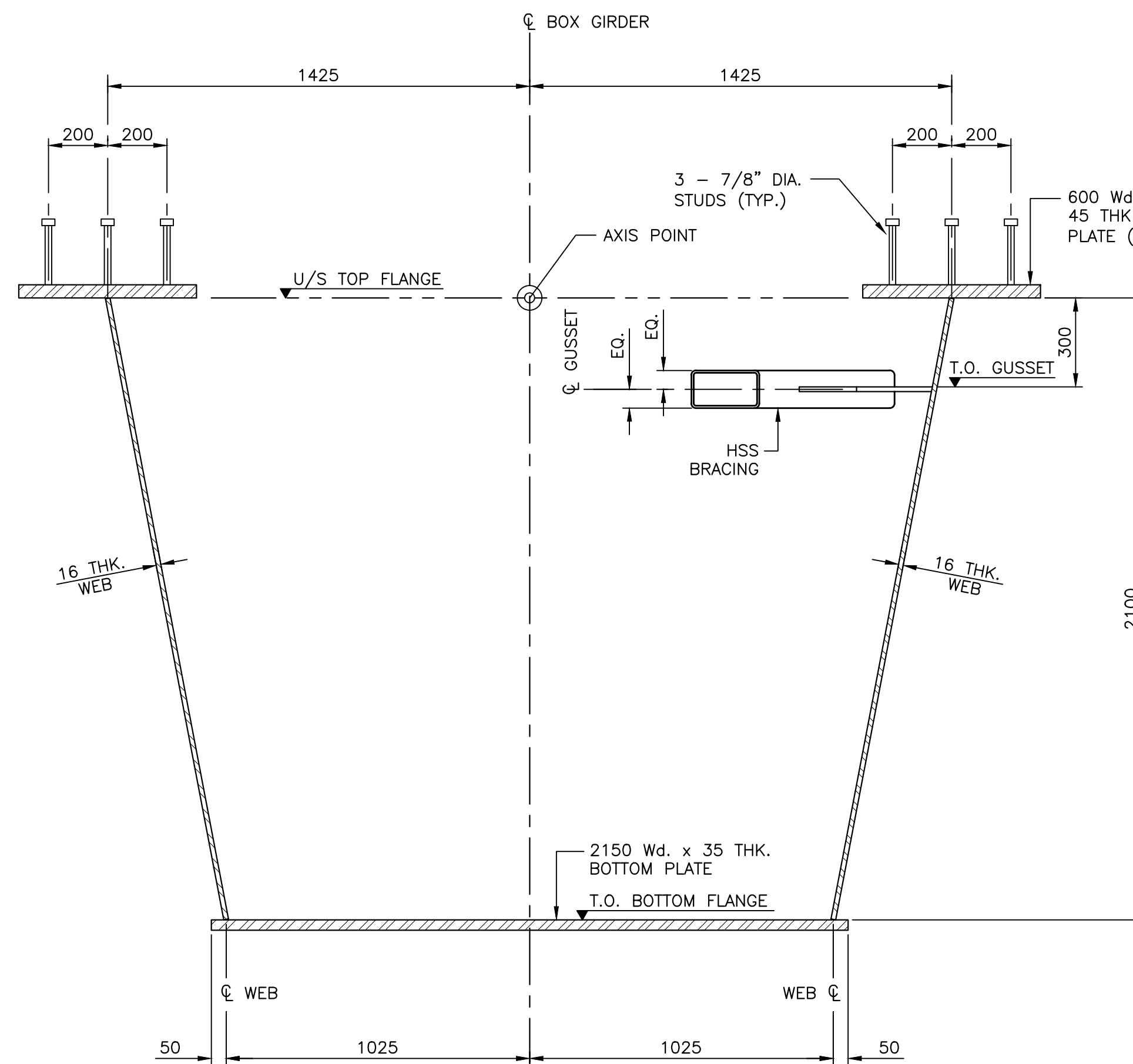


SECTION - G1 SOUTH WEB - G2 SOUTH WEB

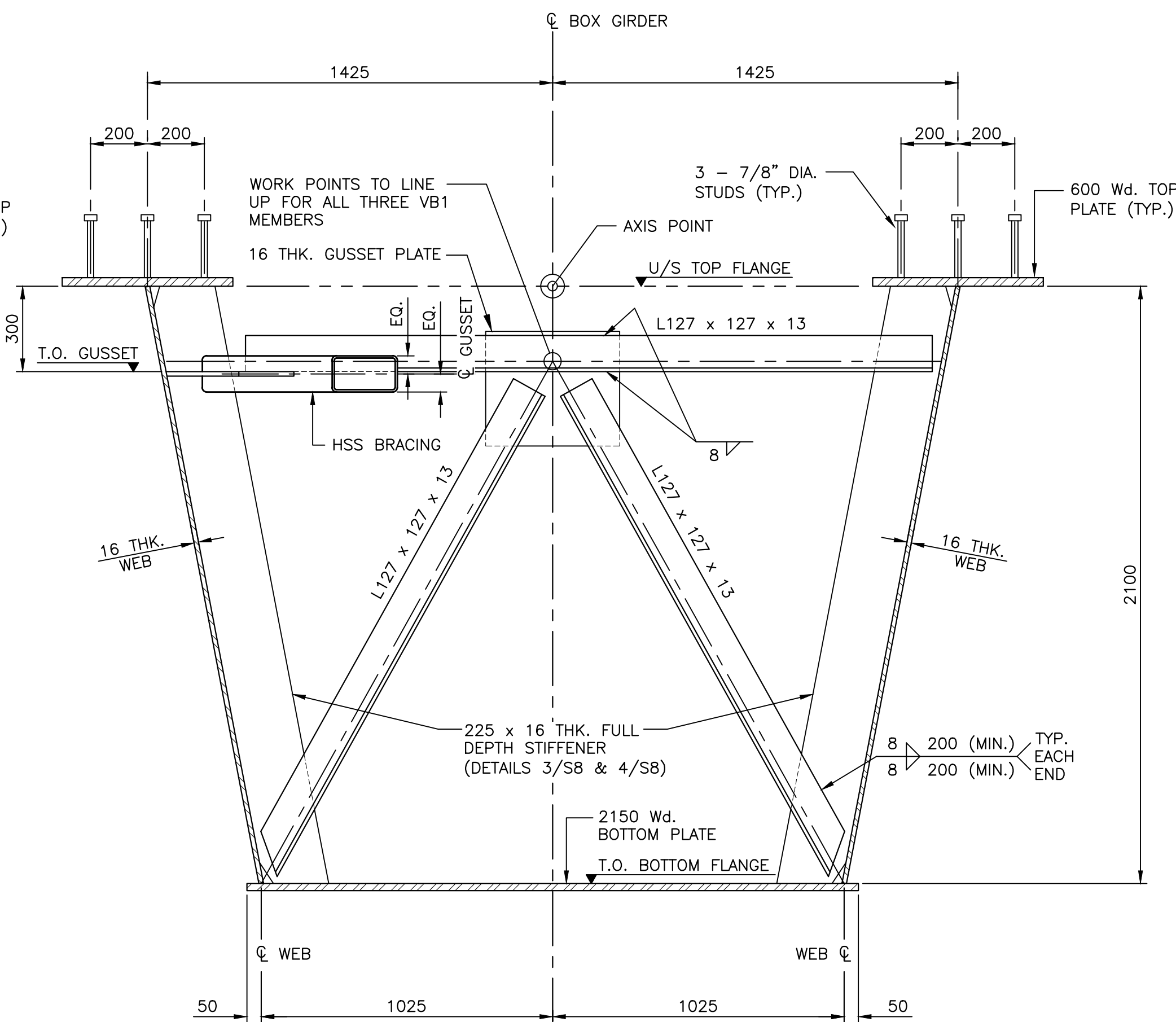
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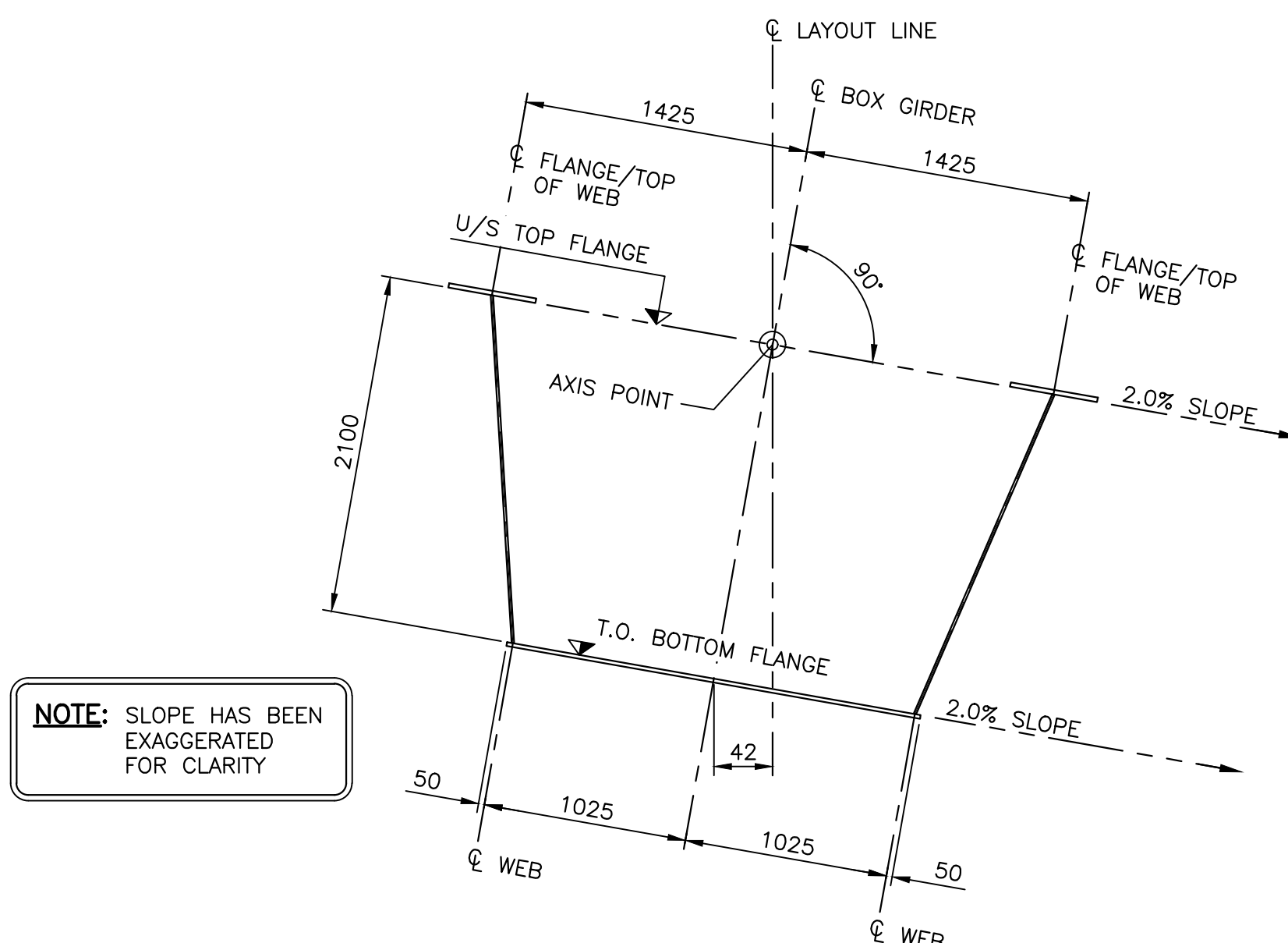
SECTION A S7
SCALE: 1:15
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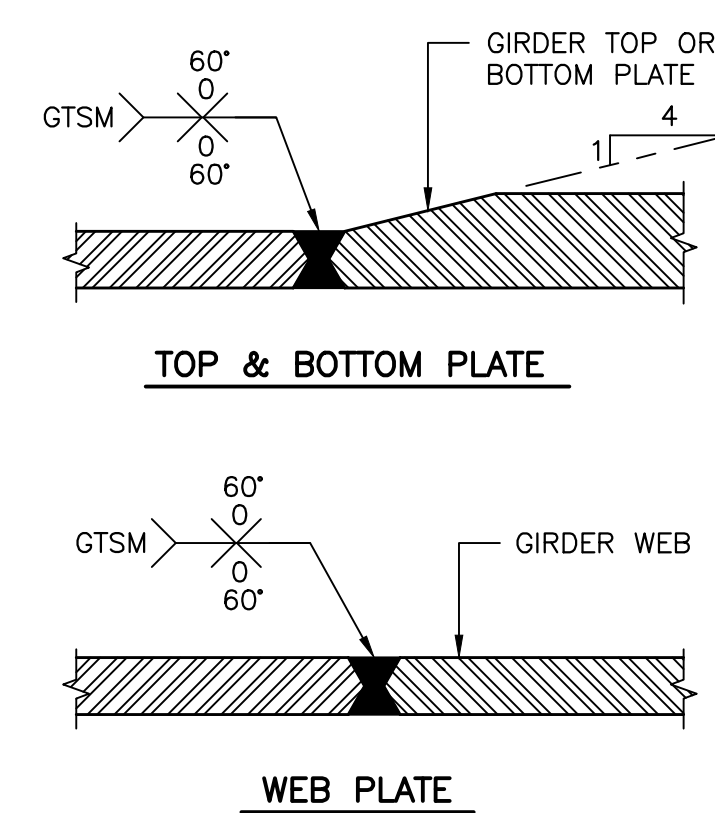
SECTION B S7
SCALE: 1:15
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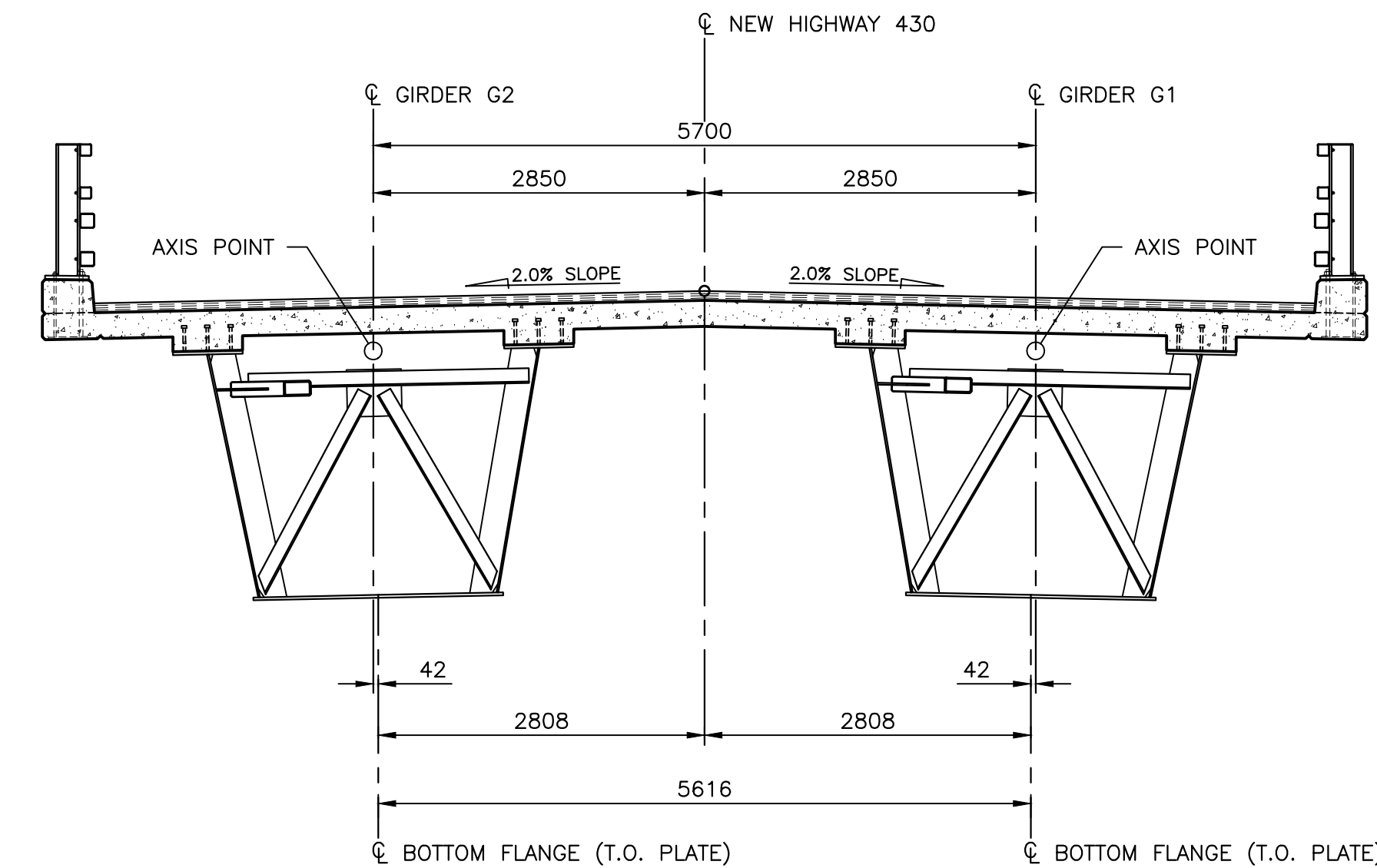
SECTION - TYPICAL VB1 INTERIOR DIAPHRAGM C S7
SCALE: 1:15
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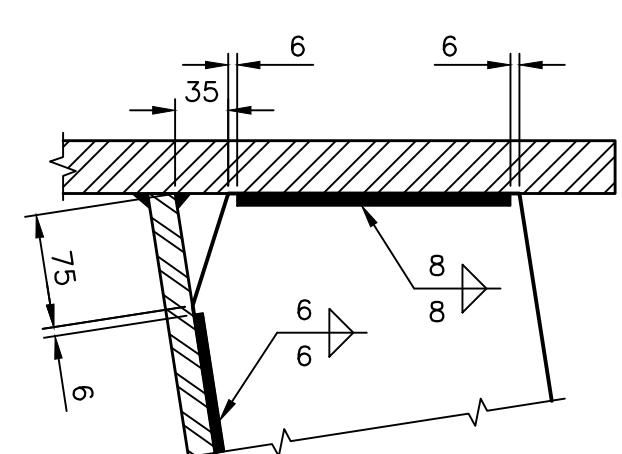
DETAIL - TYPICAL BOX GIRDER DESIGN CRITERIA 1 S3
SCALE: N.T.S.



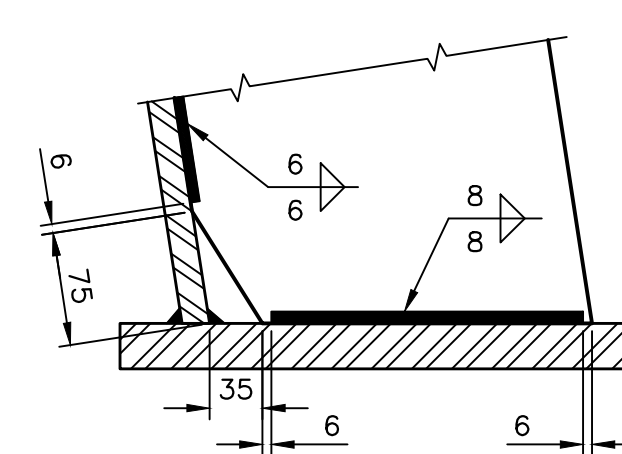
DETAIL - OPTIONAL SHOP SPLICE
SCALE: N.T.S.



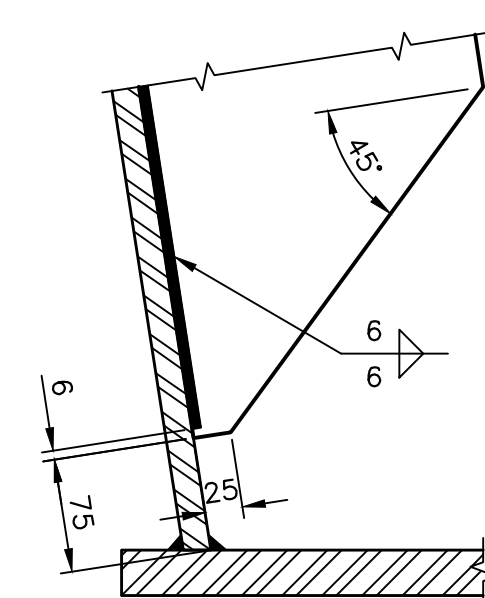
TYPICAL SECTION D S7
SCALE: 1:50
0m 1m 2m 3m 4m 5m



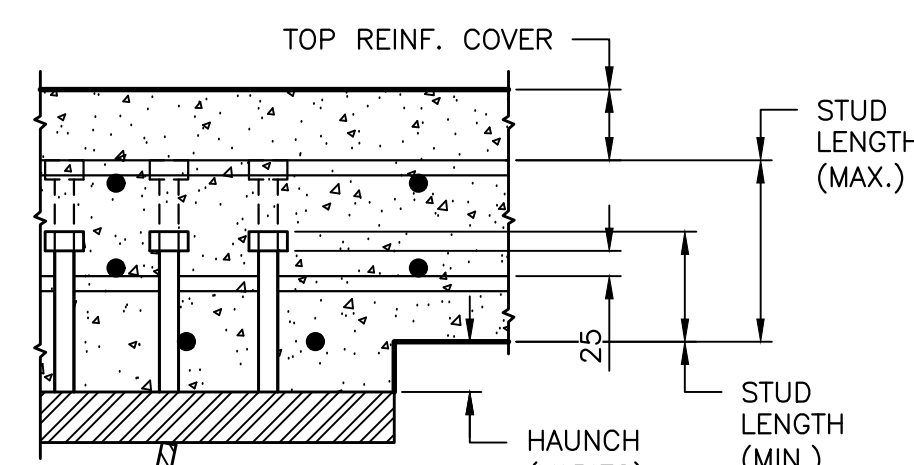
DETAIL 3 S7
SCALE: N.T.S.



DETAIL 4 S7
SCALE: N.T.S.

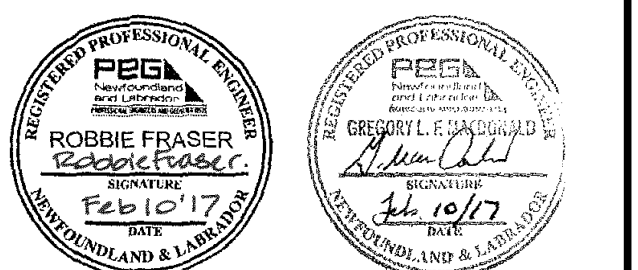


DETAIL 5 S7
SCALE: N.T.S.



NOTES:
1. CONTRACTOR RESPONSIBLE FOR ACTUAL STUD LENGTHS BASED ON AS-BUILT CAMBERS AND AS-BUILT BEARING ELEVATIONS.

DETAIL - TYPICAL STUD LENGTHS 6 S7
SCALE: N.T.S.



PROVINCE OF NEWFOUNDLAND AND LABRADOR
PERMIT HOLDER
This Permit Allows
HARBOURSIDE ENGINEERING CONSULTANTS
To practice Professional Engineering
in Newfoundland and Labrador.
Permit No. as issued by PEG 3114
which is valid for the year 2017.

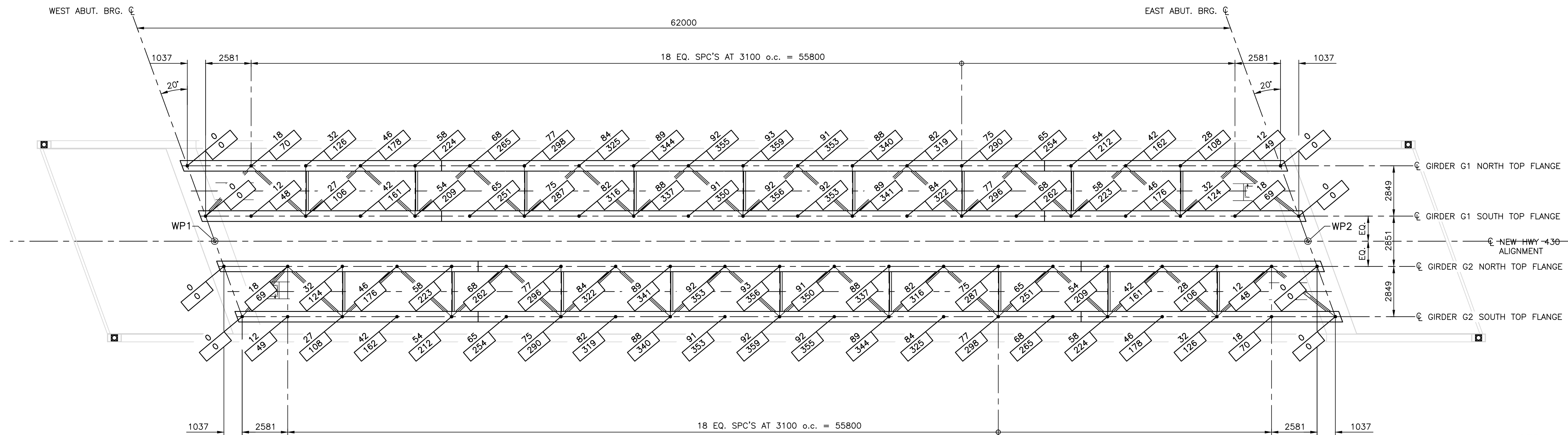
0	ISSUED FOR TENDER	02/10/2017
revisions		date

project DEER ARM BROOK BRIDGE REPLACEMENT
GROS MORNE NATIONAL PARK

drawing BOX GIRDER SECTIONS AND DETAILS

designed WADE POTTIE
date OCTOBER 2016
drawn G.R. MATHESON
date OCTOBER 2016
approved ROBBIE FRASER
date OCTOBER 2016
Tender PWSC Project Manager
project number 1117

drawing no. S8



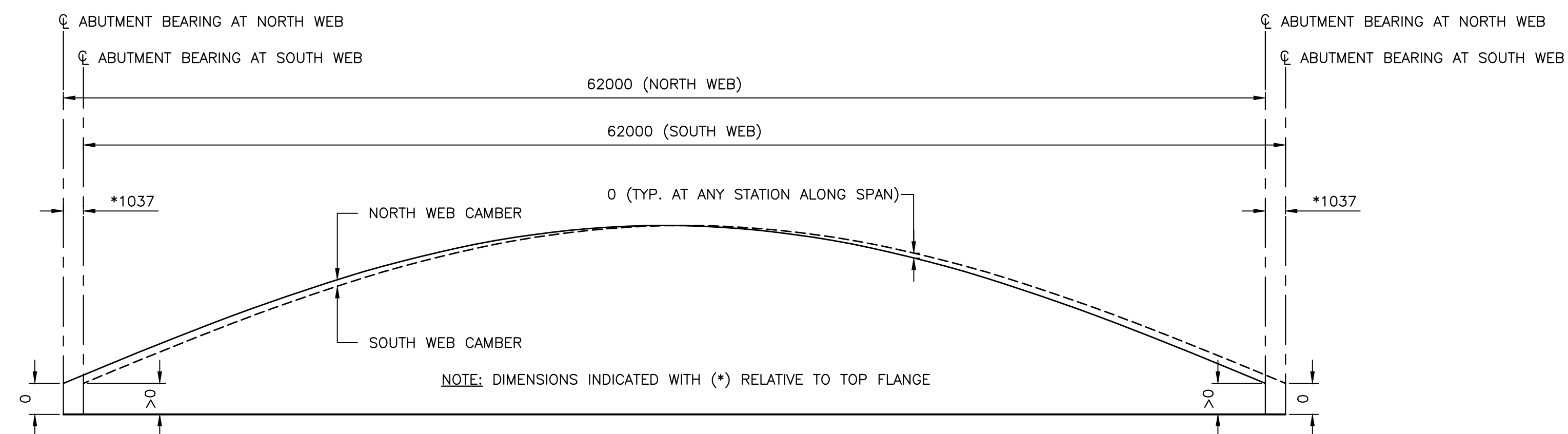
DEAD LOAD DEFLECTION DIAGRAM

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0m 1 2 3 4 5 6 7 8 9 10m

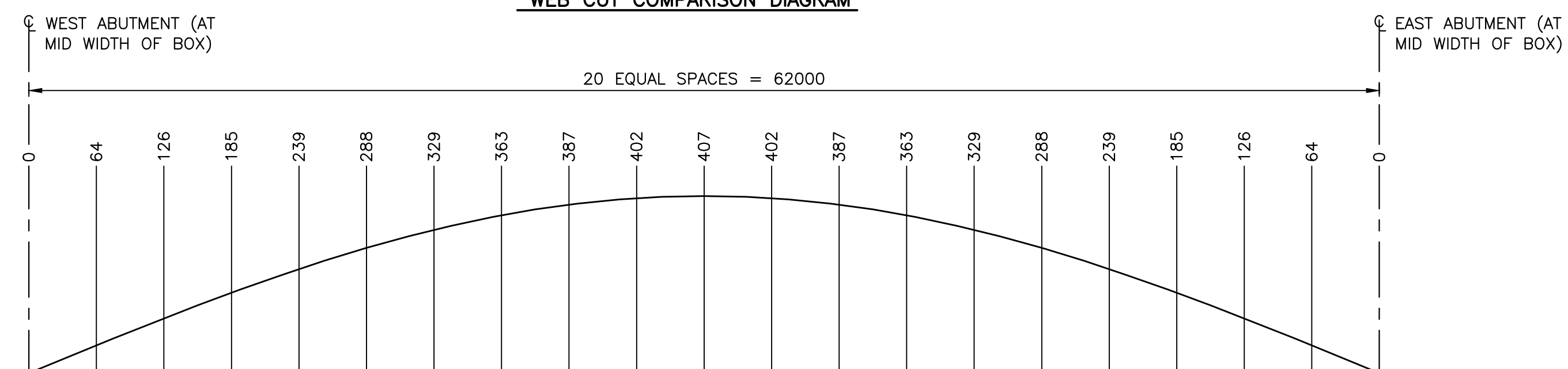
NOTE:

SELF WEIGHT AND TOTAL DEAD LOAD DEFLECTIONS ARE GIVEN ALONG WEB LINE (TOP OF WEB) WITH POSITION ALONG SPAN AS INDICATED ON PLAN RELATIVE TO CENTERLINE OF INDIVIDUAL WEB.

XX — BARE STEEL DEFLECTION (mm)
XX — TOTAL DEAD LOAD DEFLECTION (mm)



WEB CUT COMPARISON DIAGRAM

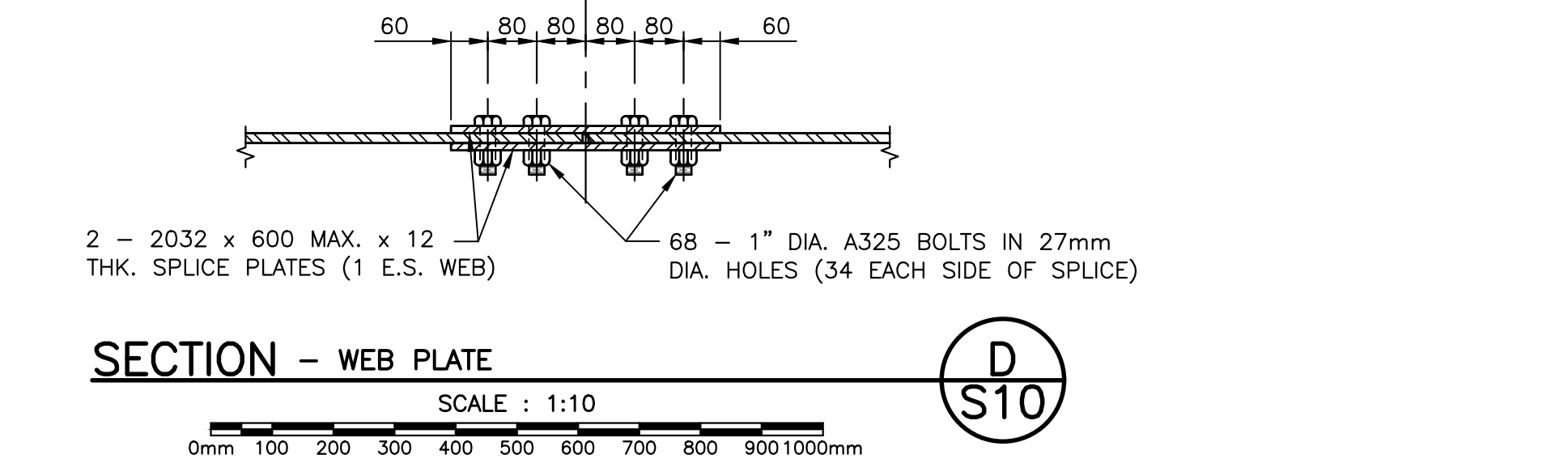
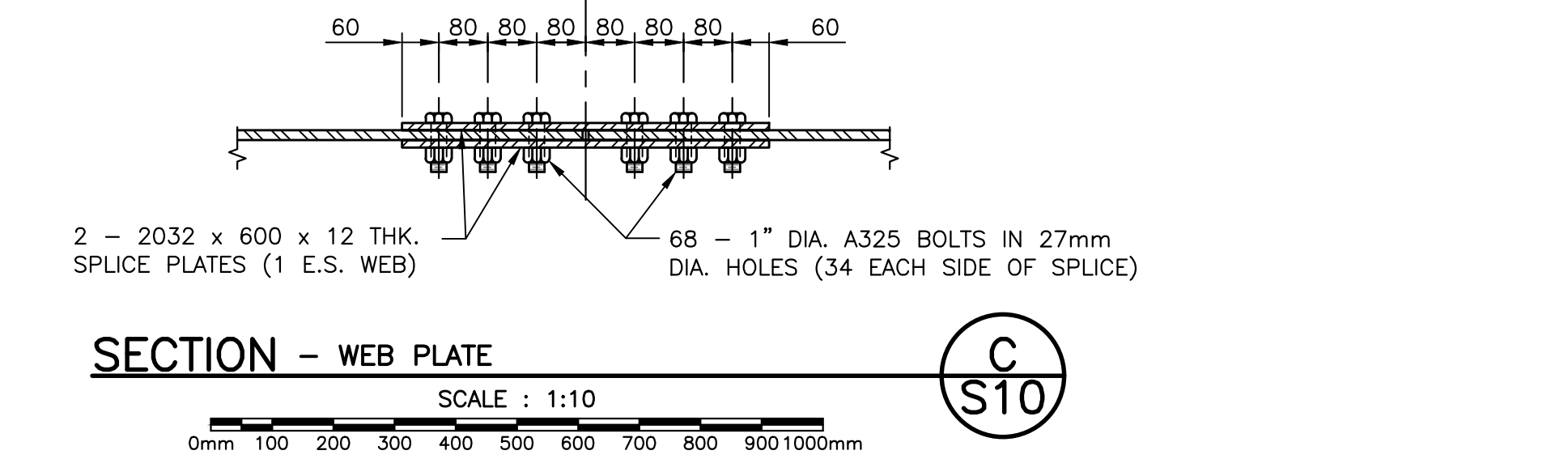
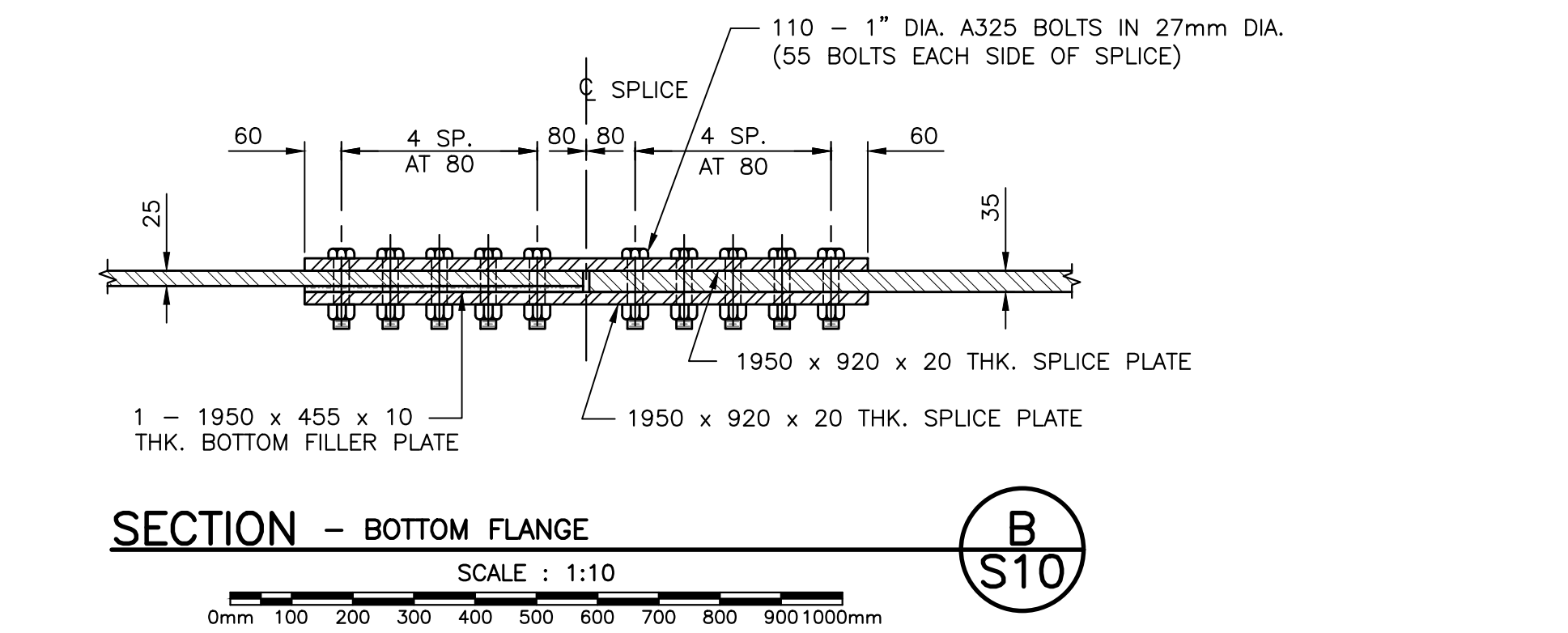
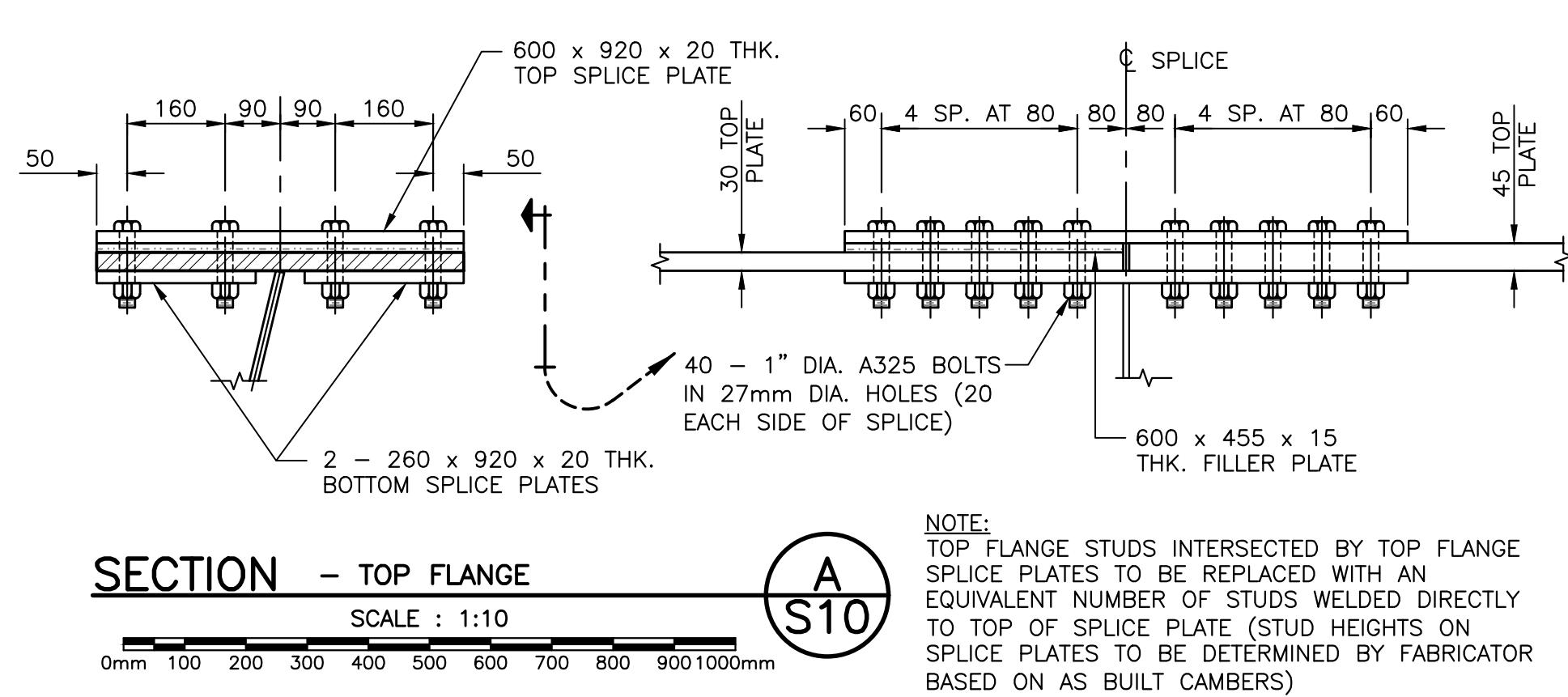
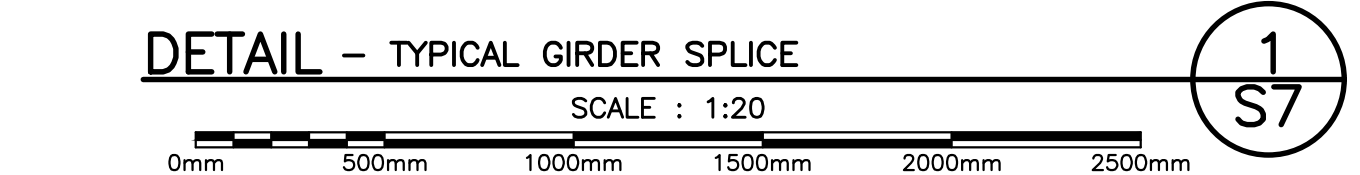
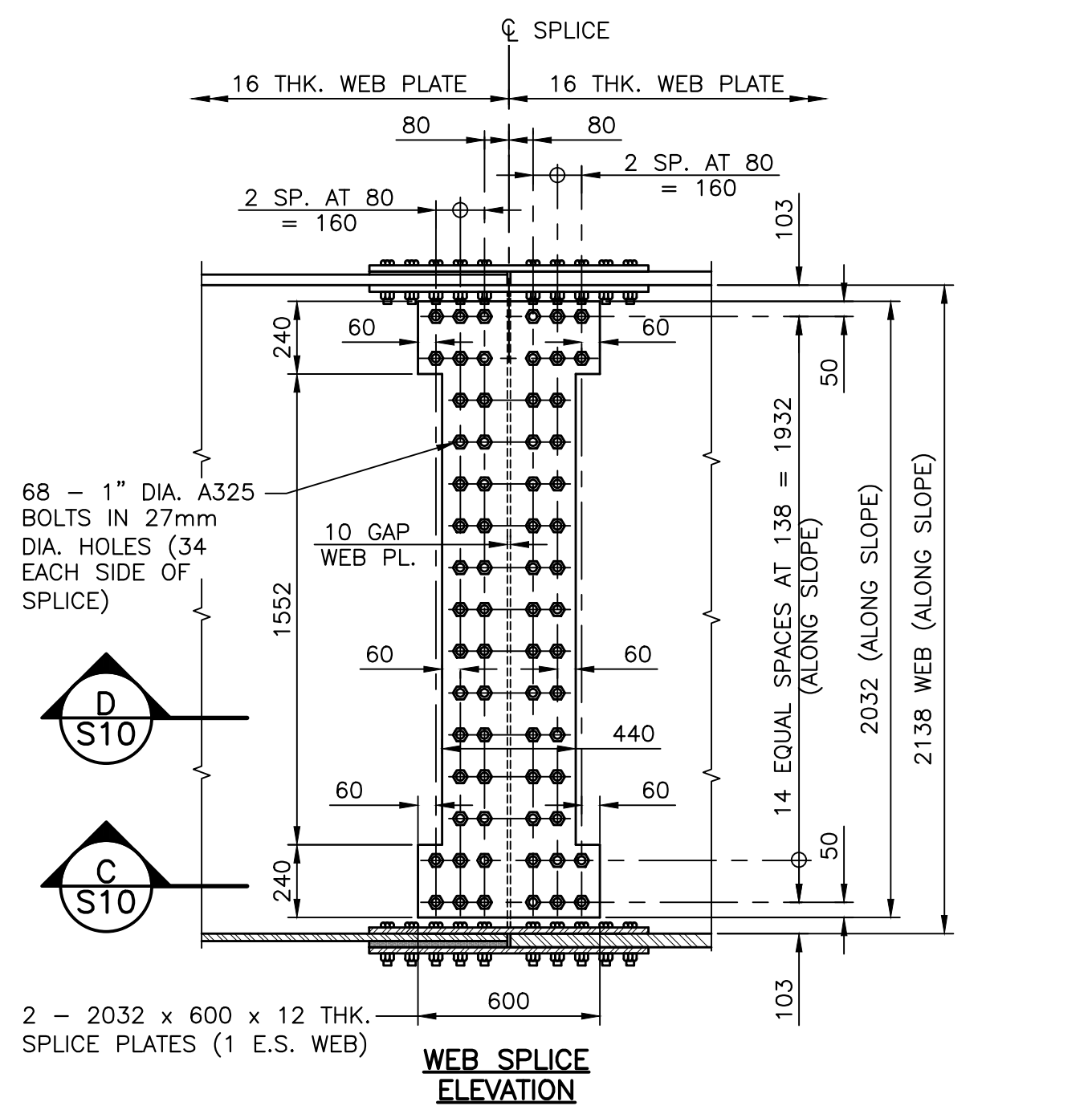
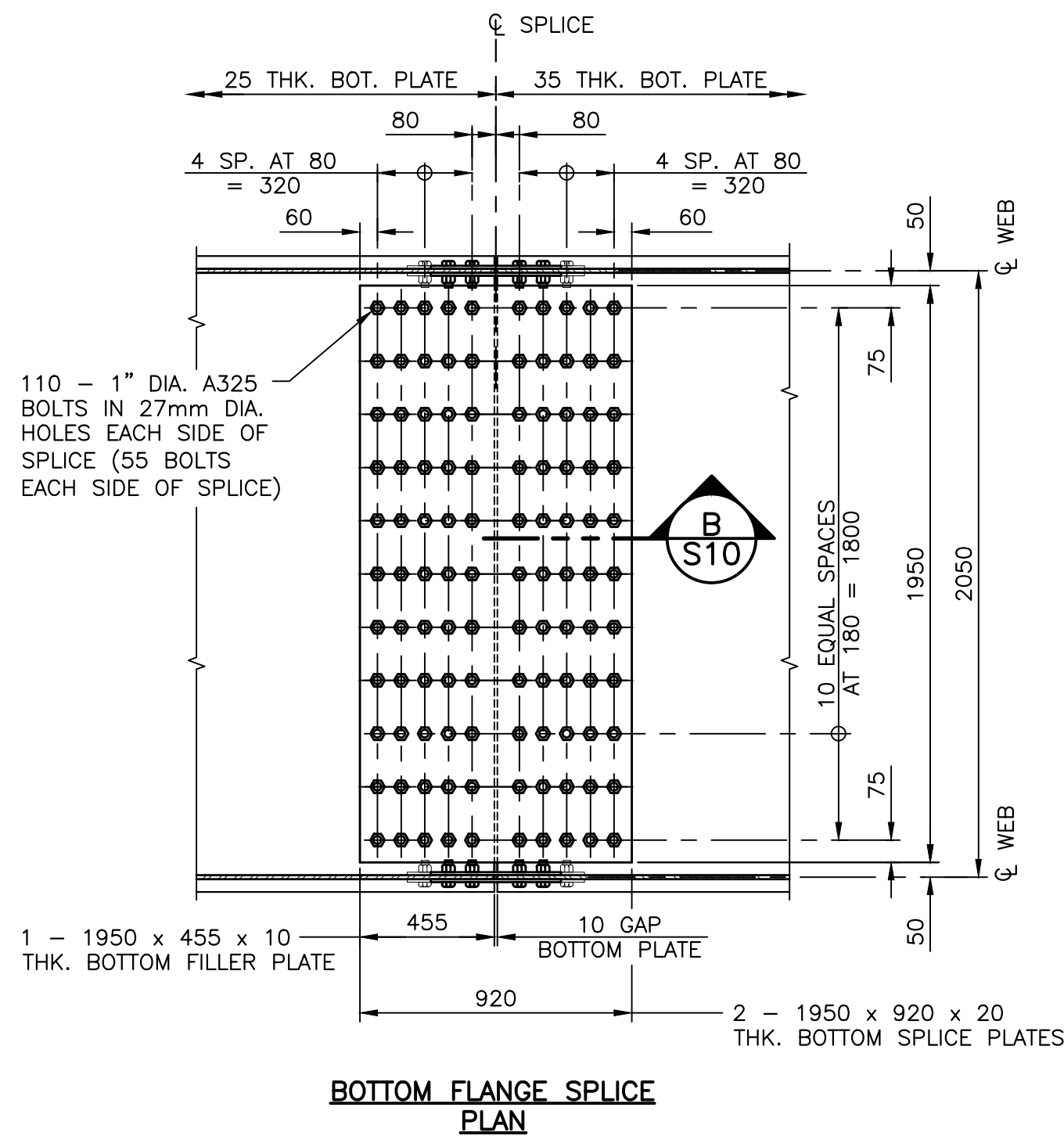
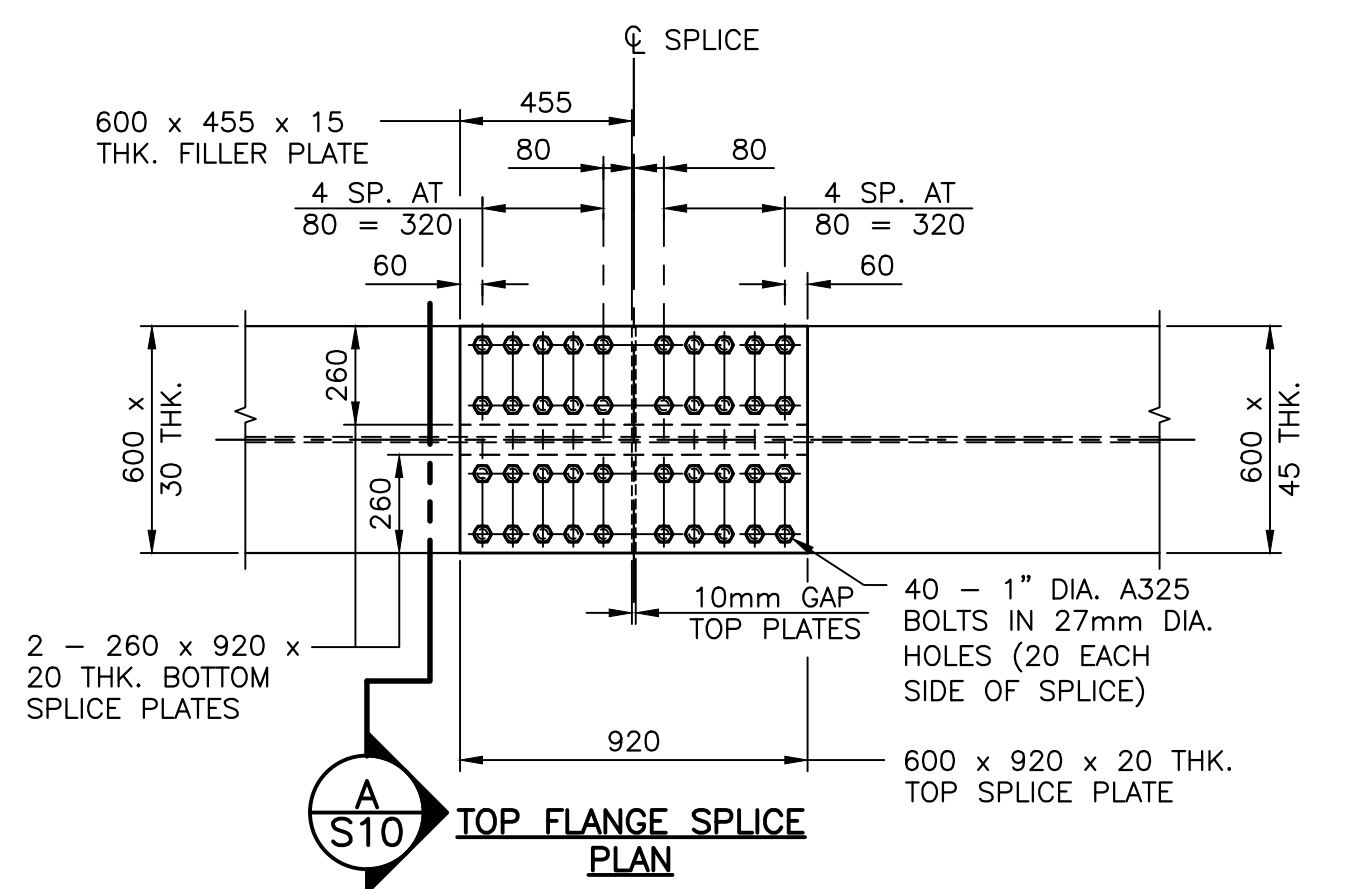


BOX GIRDER WEB CUTS (TYPICAL GIRDER G1 AND G2)

NOTE: WEB CUT DIAGRAMS ARE RELATIVE TO CENTERLINE BOX WITH WEBS CAMBERED BY SAME AMOUNT AT EACH LOCATION (STATION) ALONG SPAN TO ENSURE FIT-UP OF BOTTOM PLATE TO U/S WEBS (REFER TO WEB CUT COMPARISON DIAGRAM).

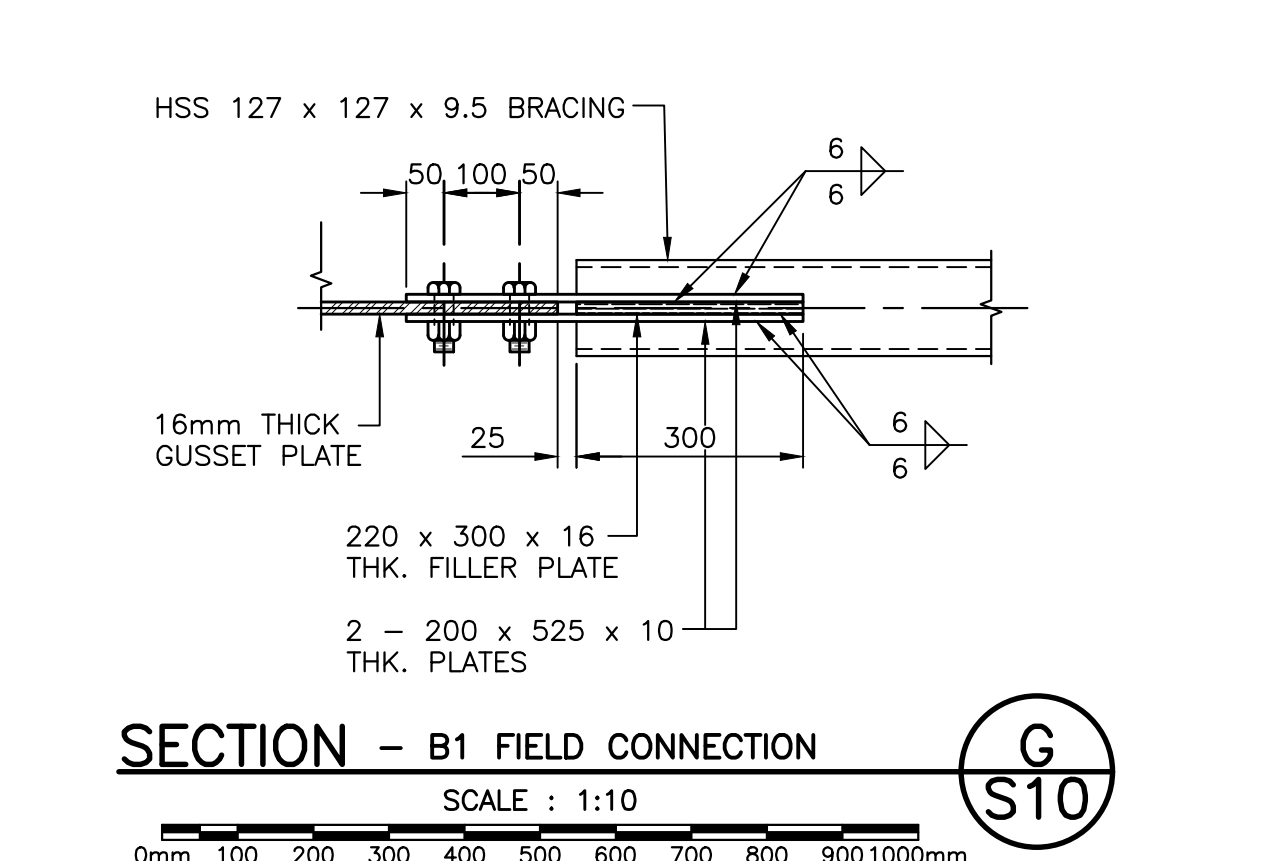
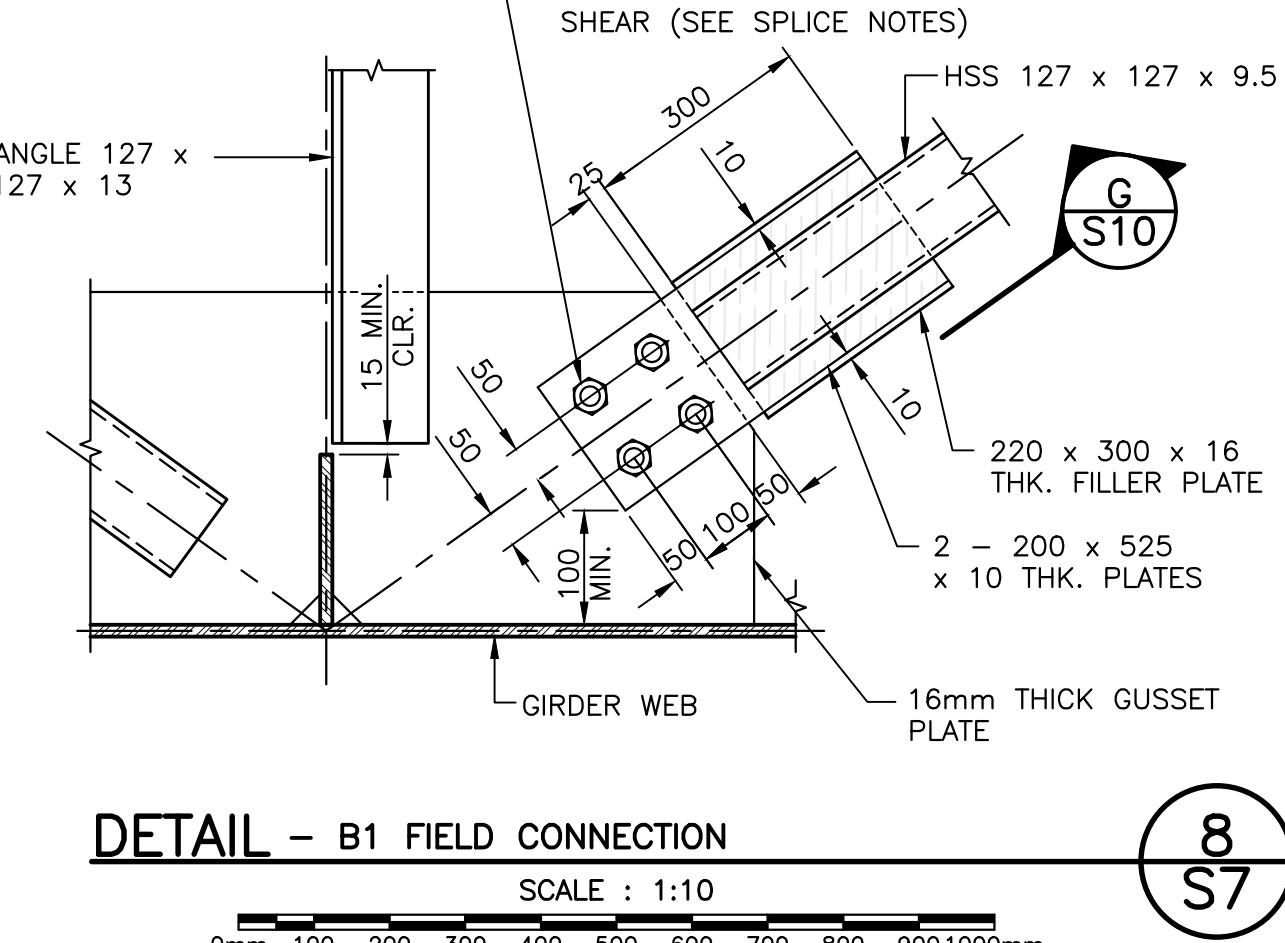
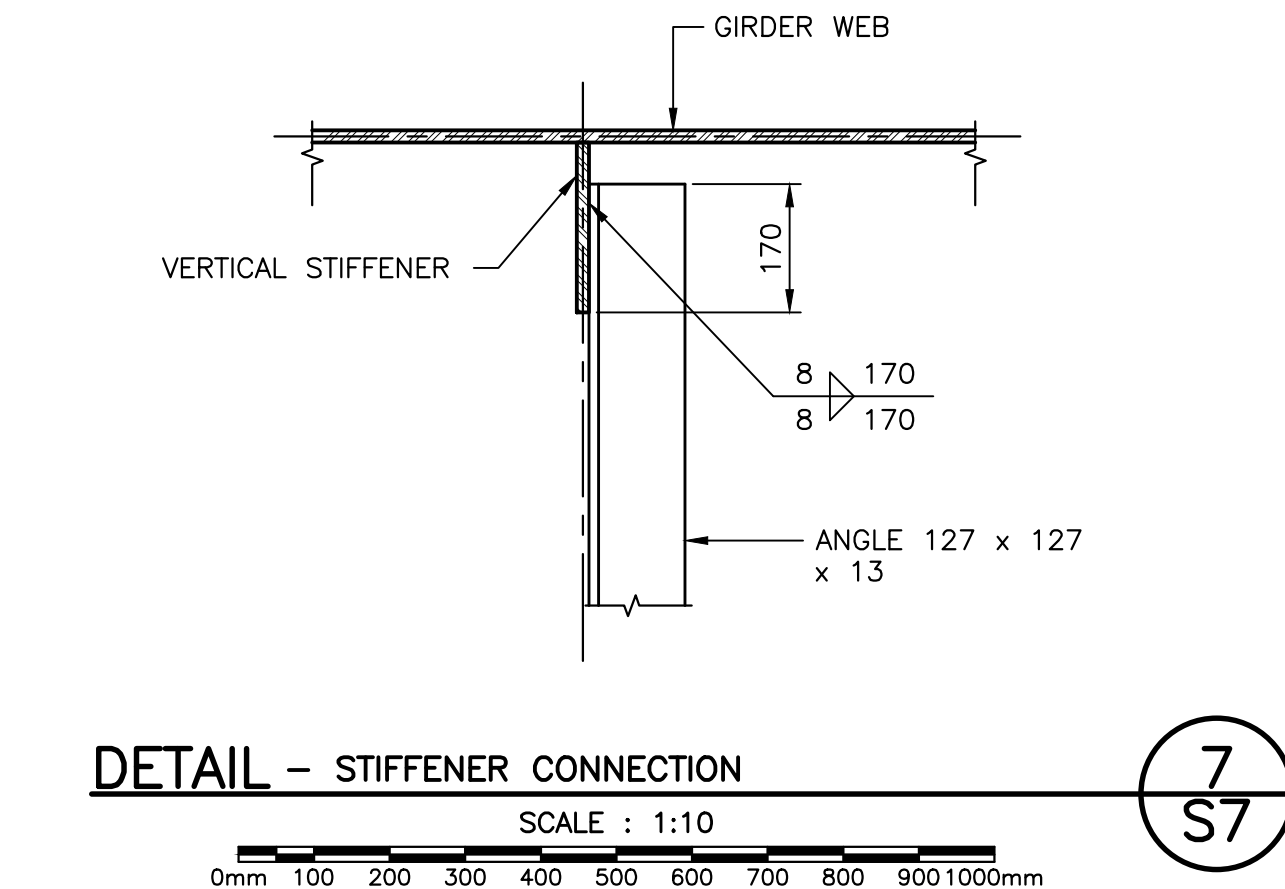
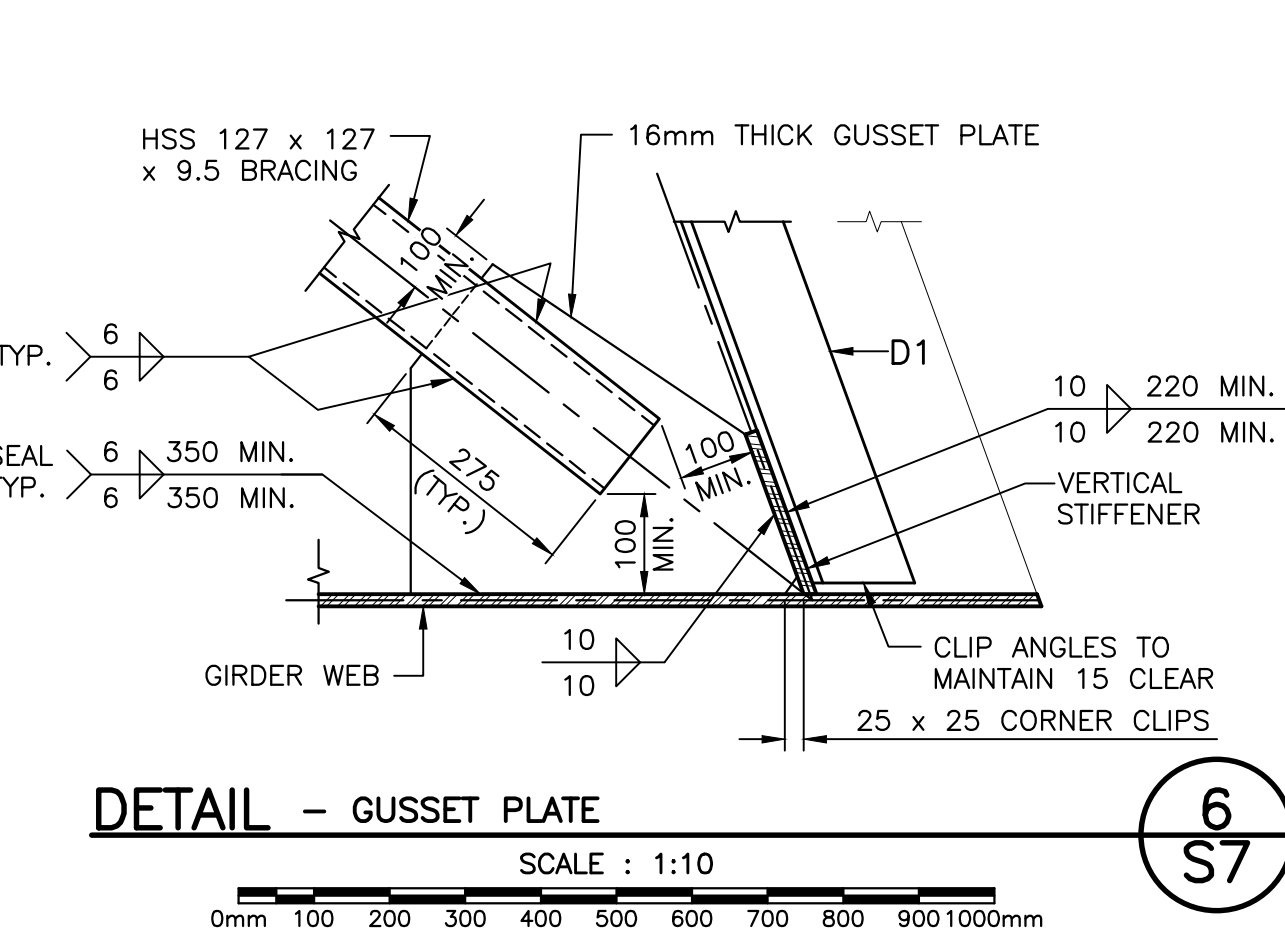
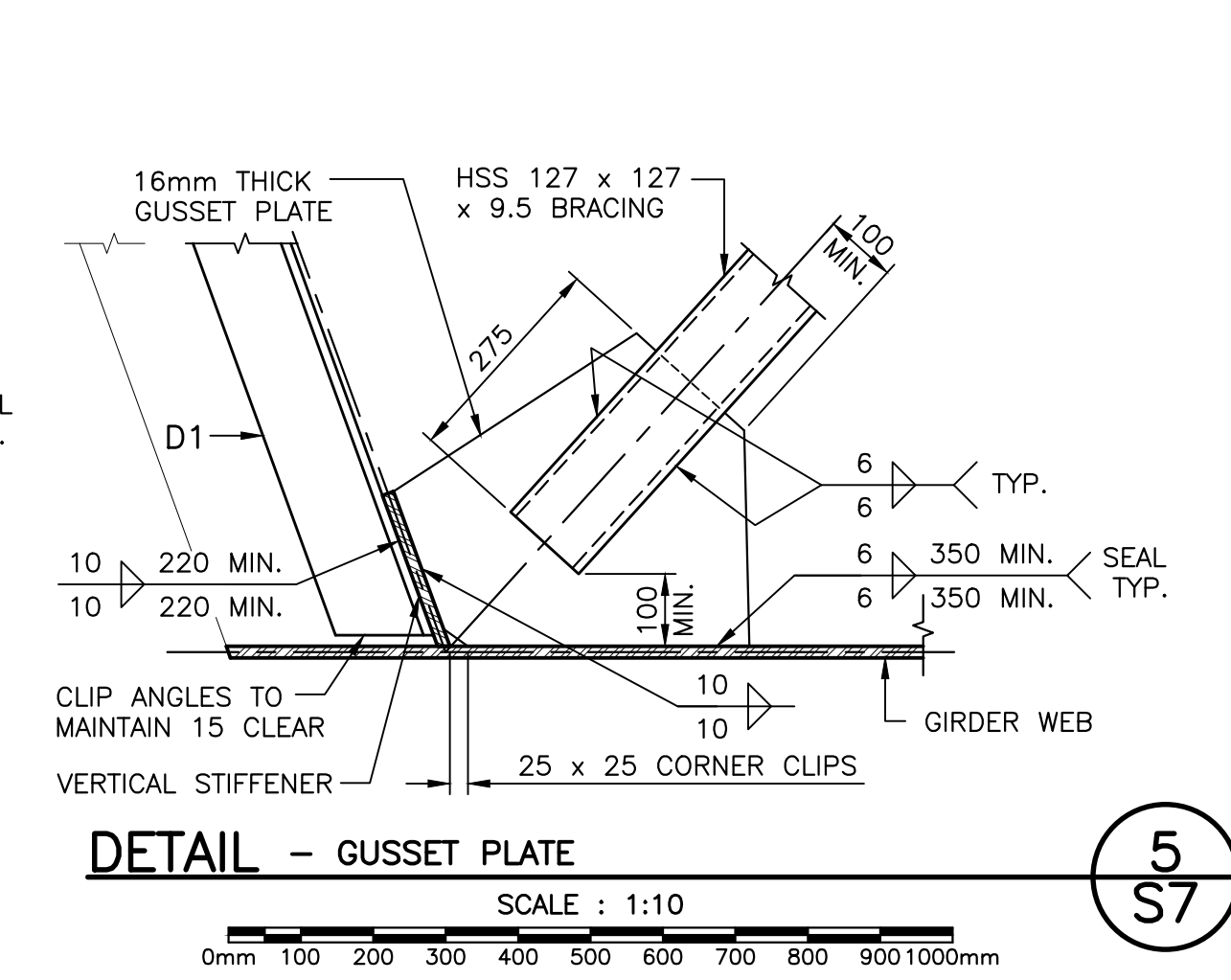
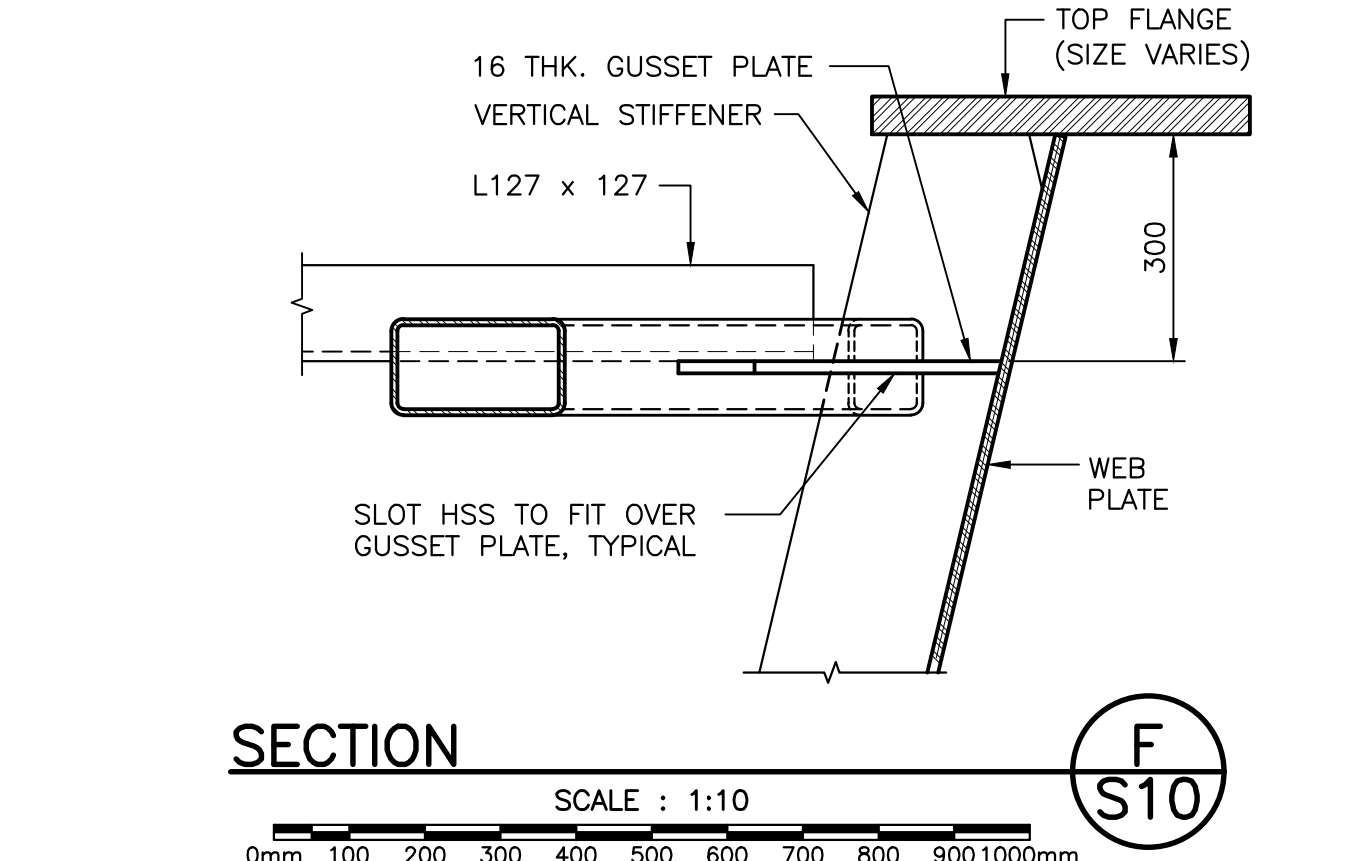
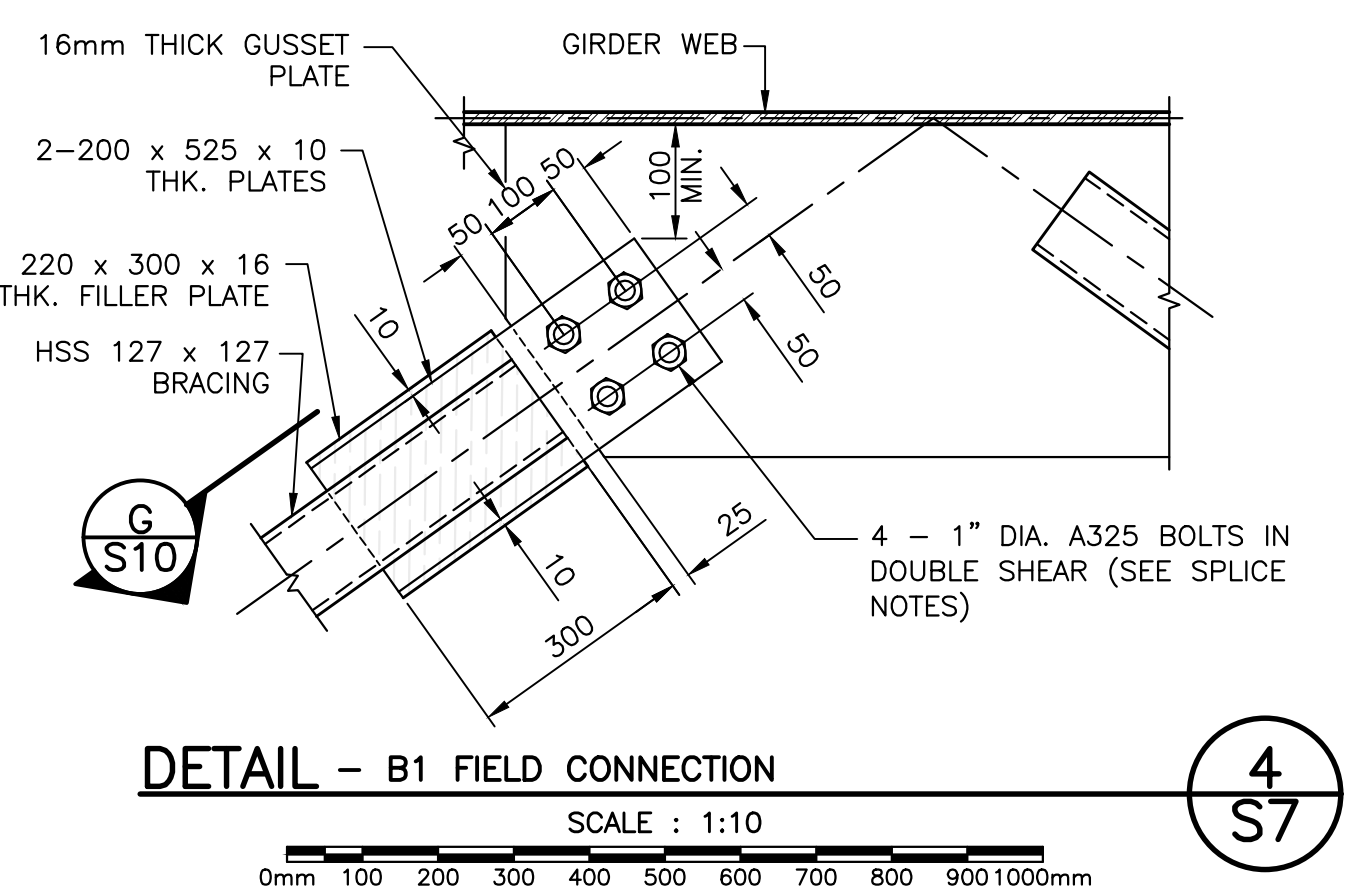
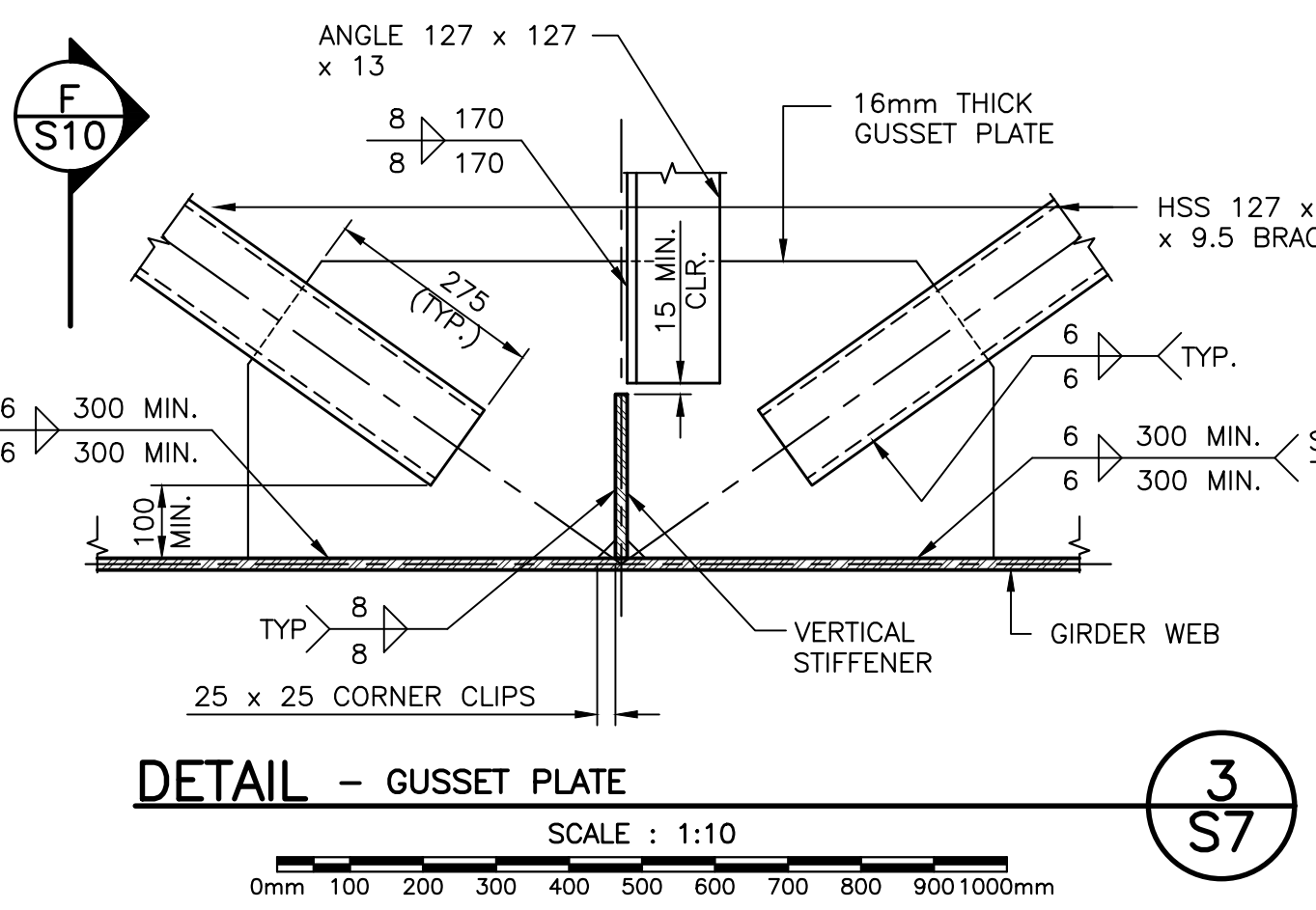
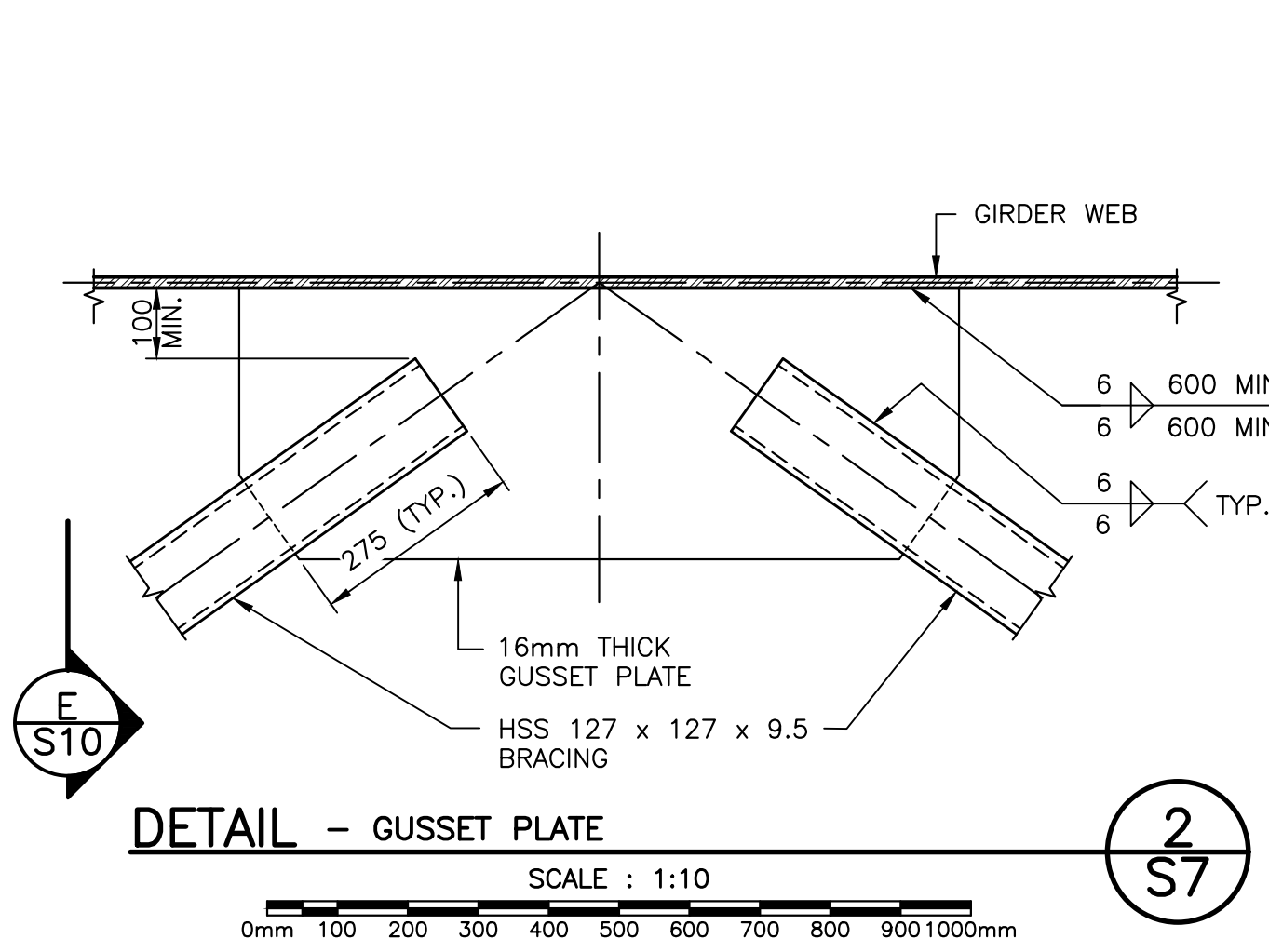
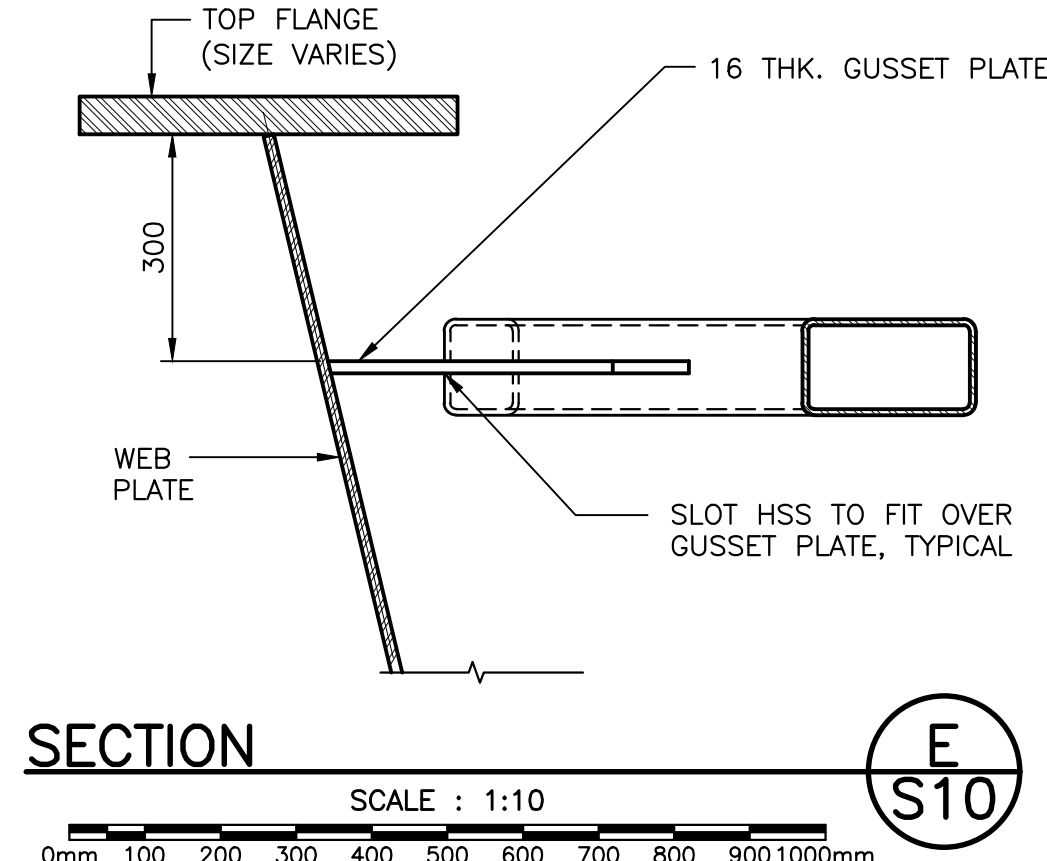
CAMBER /WEB CUT DIAGRAMS

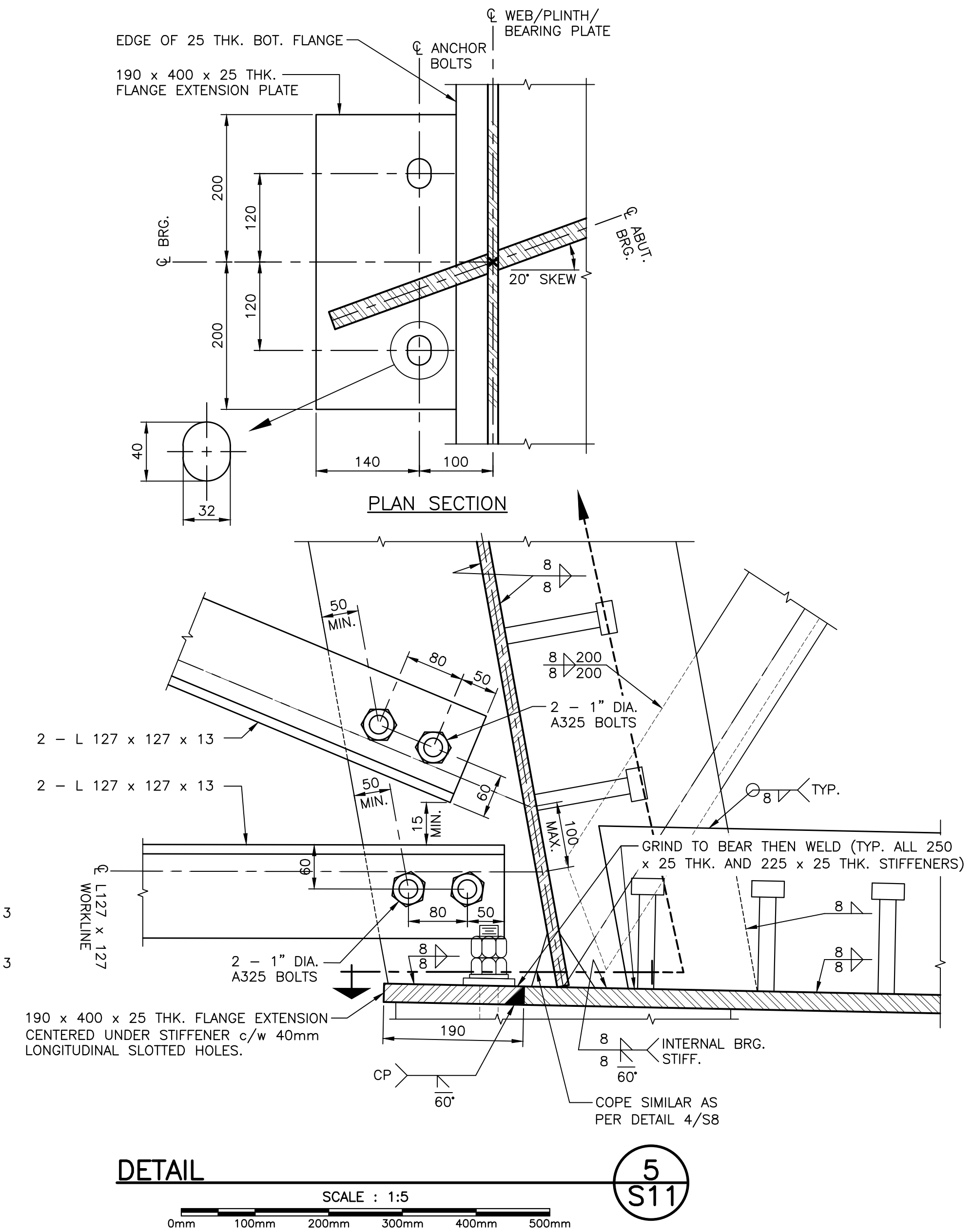
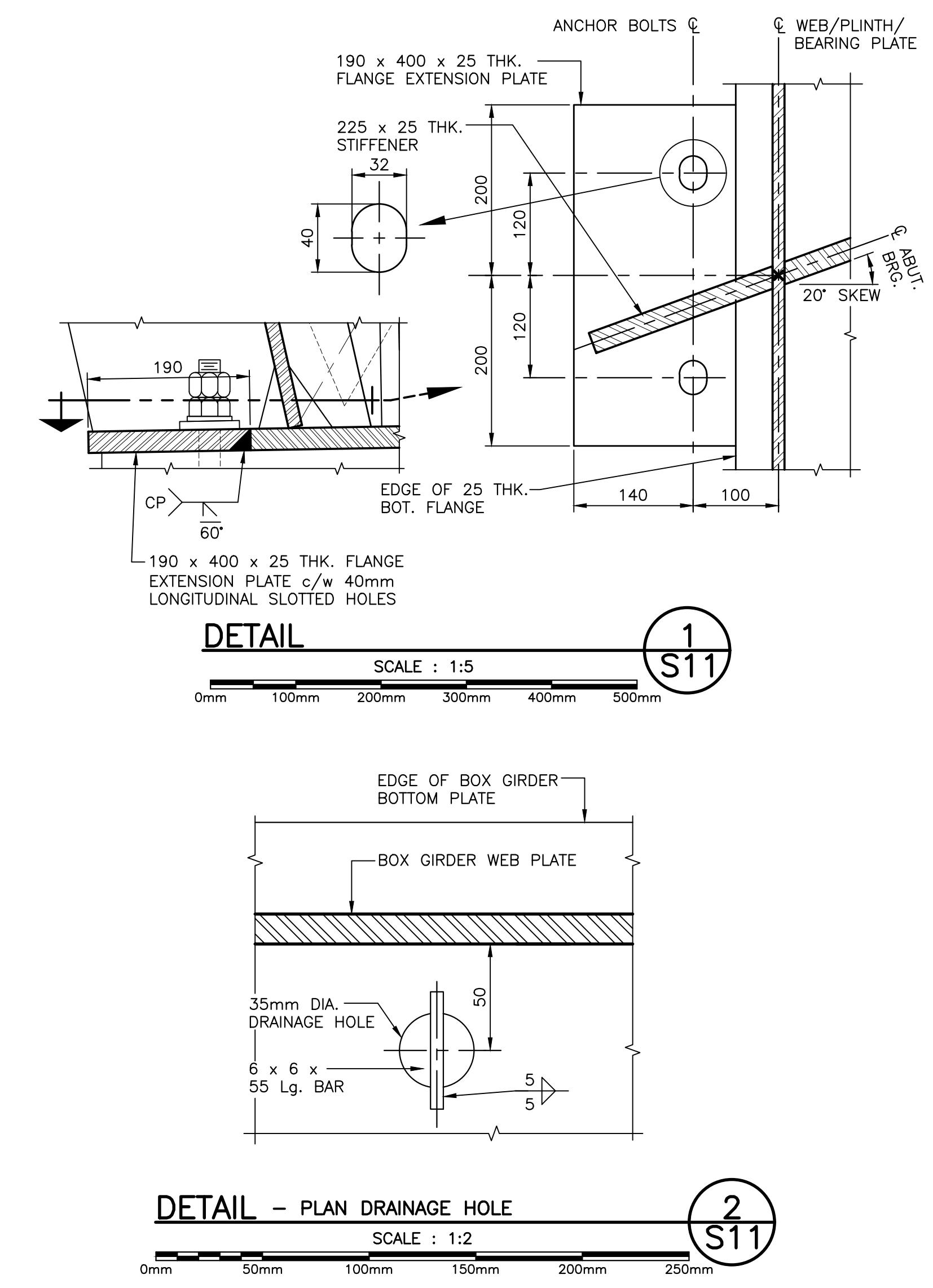
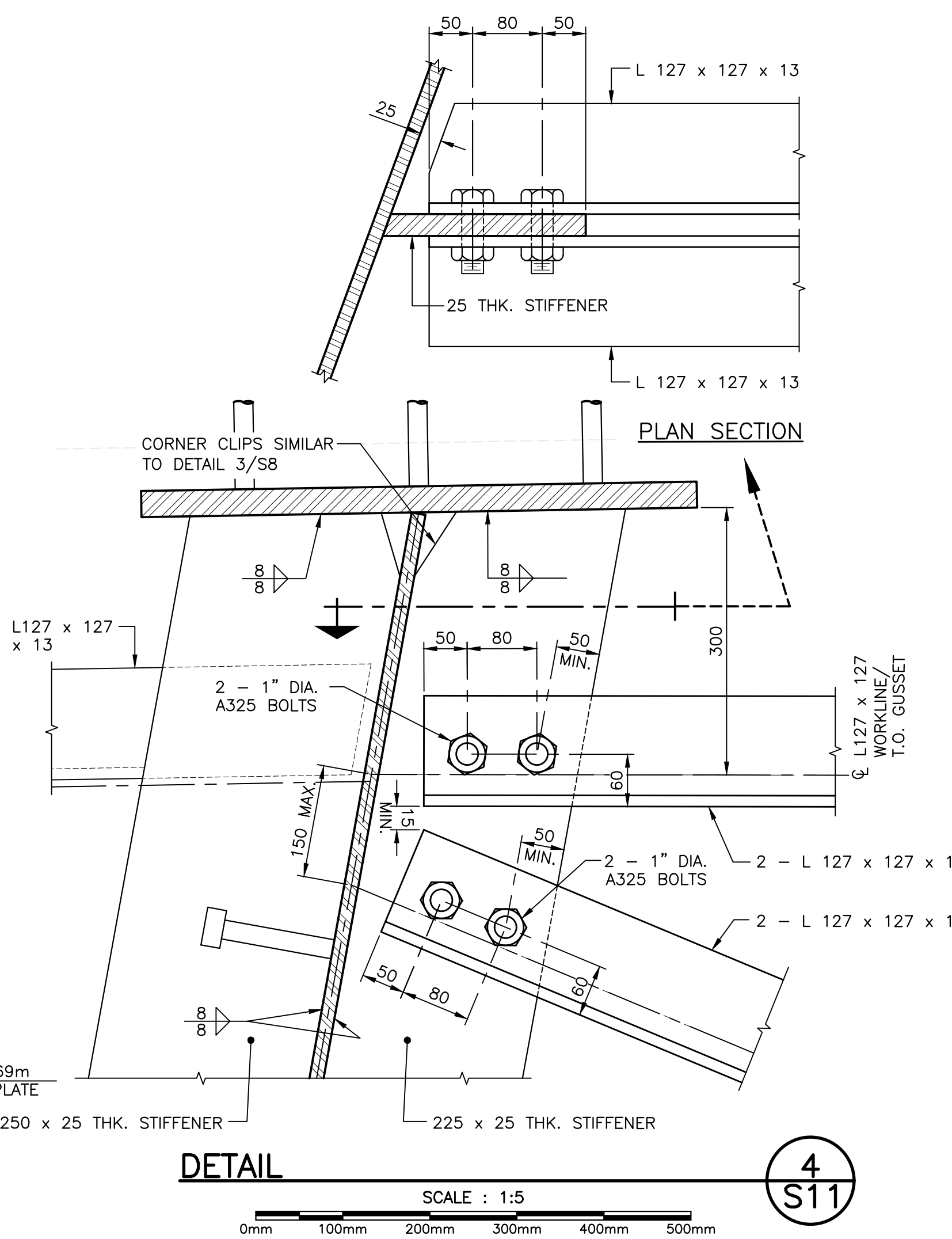
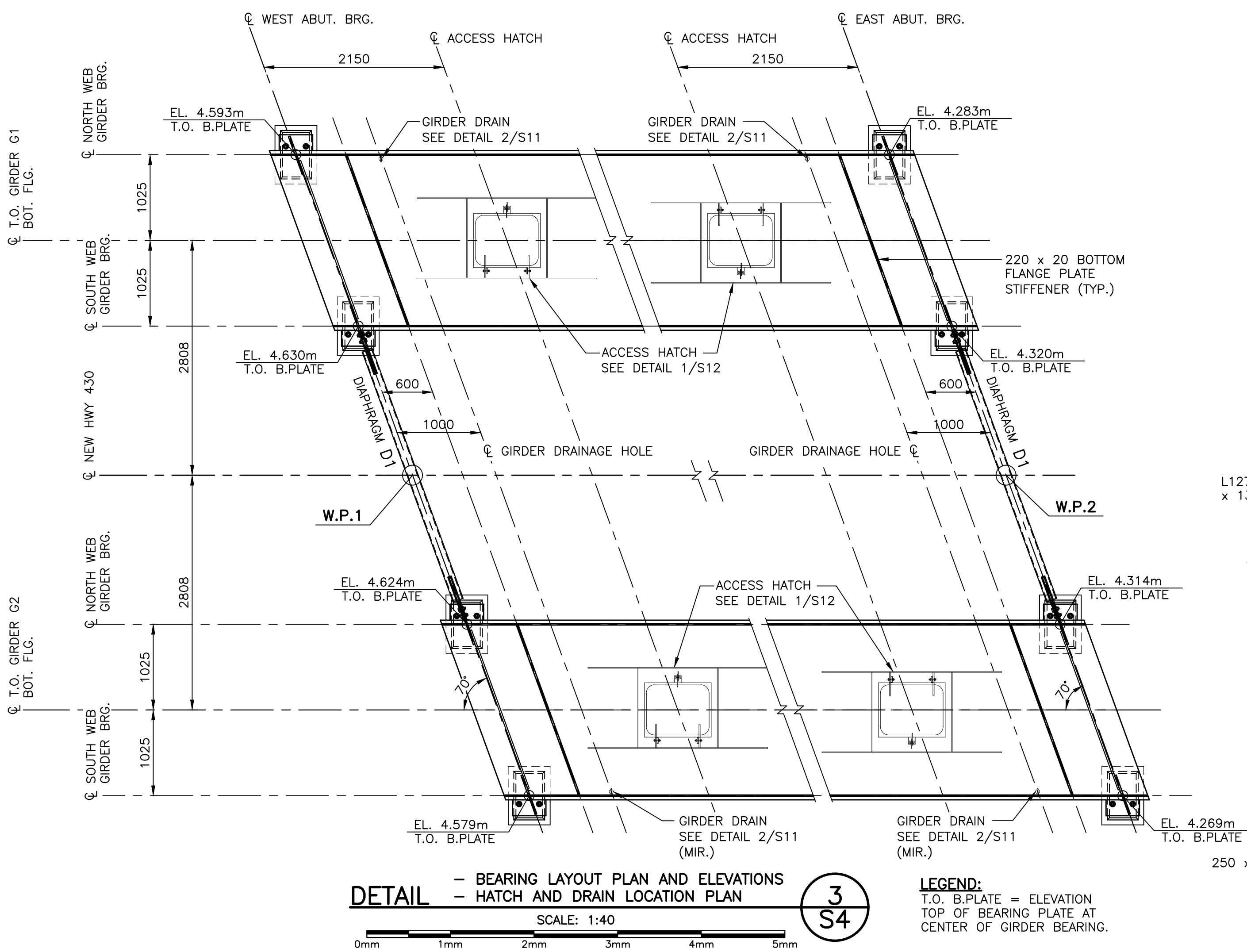
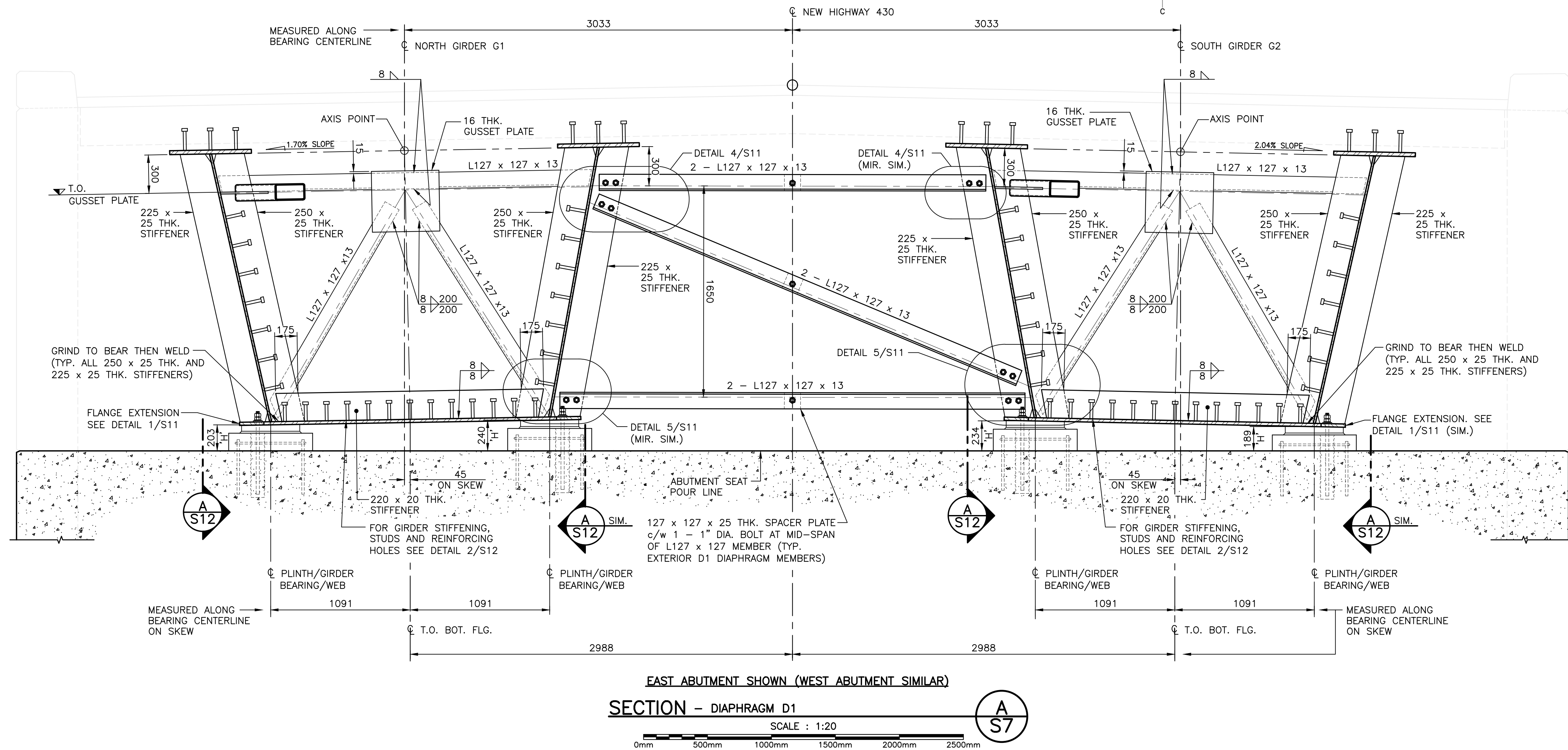
SCALE: 1:200
0m 5m 10m 15m 20m 25m
SCALE: 1:10
0mm 100 200 300 400 500 600 700 800 9001000mm



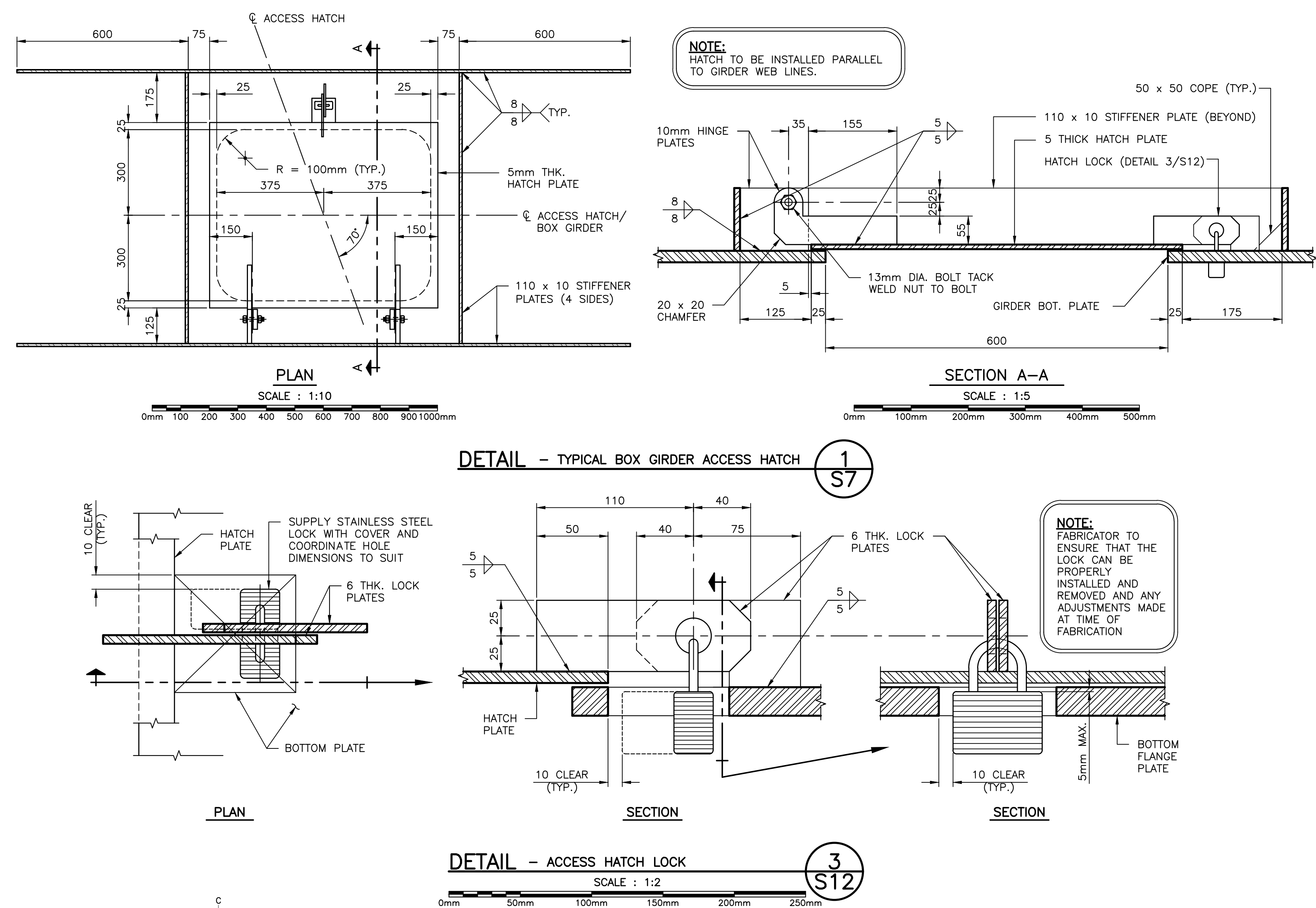
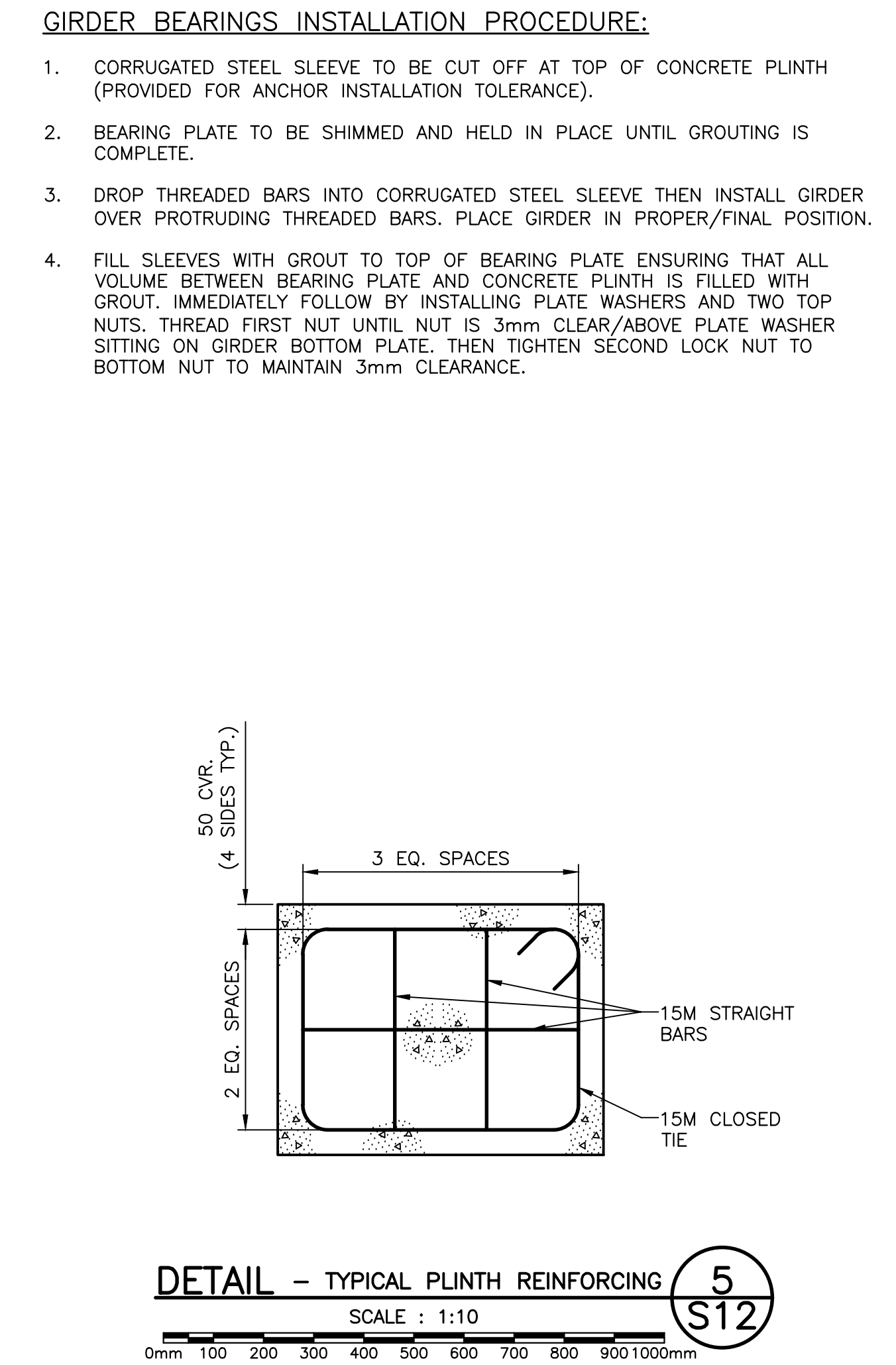
FIELD SPLICE INSTALLATION NOTES:

1. ALL BOLTS BROUGHT TO SLIP CRITICAL CONDITION BY TURN-OF-NUT METHOD.
2. ALL THREADS EXCLUDED FROM SHEAR PLANES
3. ALL FAYING SURFACES TO BE CLASS B SLIP SURFACE OR BETTER.
4. ALL BOLT HOLES TO BE DRILLED RATHER THAN PUNCHED.
5. ALL BOLTS SHALL BE ASTM A325 TYPE 1.
6. SPLICES DESIGNED FOR IN-SERVICE CONDITION ONLY. CONTRACTOR MUST VERIFY CAPACITY OF ALL FIELD SPLICES BASED ON METHOD OF GIRDER ERECTION, DURING DECK CASTING, AND ALL OTHER STAGES OF CONSTRUCTION.
7. TOP FLANGE STUDS INTERSECTED BY TOP FLANGE SPLICE PLATES TO BE REPLACED WITH AN EQUIVALENT NUMBER OF STUDS WELDED DIRECTLY TO TOP OF SPLICE PLATE.





0	ISSUED FOR TENDER	02/10/2017
revisions		date
project	DEER ARM BROOK BRIDGE REPLACEMENT	project
drawing	GROS MORNE NATIONAL PARK	dessin
	DIAPHRAGM D1 SECTION AND DETAILS	
designed	WADE POTTIE	conçu
date	OCTOBER 2016	
drawn	G.R. MATHESON	dessiné
date	OCTOBER 2016	
approved	ROBBIE FRASER	approuvé
date	OCTOBER 2016	
Tender		Submission
PWOSC Project Manager	Administrateur de projets TPSC	
project number	1117	no. du projet
drawing no.	S11	no. du dessin





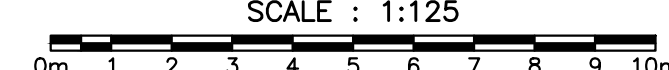
1. SCREED ELEVATIONS ARE BASED ON THE DECK PROFILE ELEVATIONS PRIOR TO PLACING CONCRETE DECK, CURBS, BARRIERS, HAUNCHES AND ASPHALT SURFACE.
2. IT IS ASSUMED THAT THE ENTIRE DECK IS CAST MONOLITHICALLY. IF DECK IS POURED IN SEGMENTS, THE GIVEN SCREED ELEVATIONS ARE NOT VALID AND THE CONTRACTOR MUST REVISE THE SCREED ELEVATIONS ACCORDINGLY.
3. IT IS ALSO ASSUMED THAT ENTIRE DECK IS CAST AND REACHES 35 MPa PRIOR TO CASTING CURBS, INSTALLING BARRIERS AND WATERPROOFING AND PAVING DECK.
4. CASTING SEQUENCE DURING MONOLITHIC DECK CASTING OPERATION: PLACE CONCRETE IN ALL AREAS OF DECK PRIOR TO CASTING INTEGRAL ABUTMENTS. TO ACHIEVE THIS, LEAVE 3m OF DECK AT EACH END OF BRIDGE/ADJACENT TO ABUTMENTS UNTIL CONCRETE IS PLACED IN REMAINDER OF DECK.
5. DECK SHALL NOT BE CAST SHOULD WINDS EXCEEDING 100 km/h (3 SEC. GUST) BE FORECAST OR ANTICIPATED DURING DECK CASTING OPERATIONS OR WITHIN 24 HOURS OF COMPLETION OF DECK CASTING.

LEGEND:

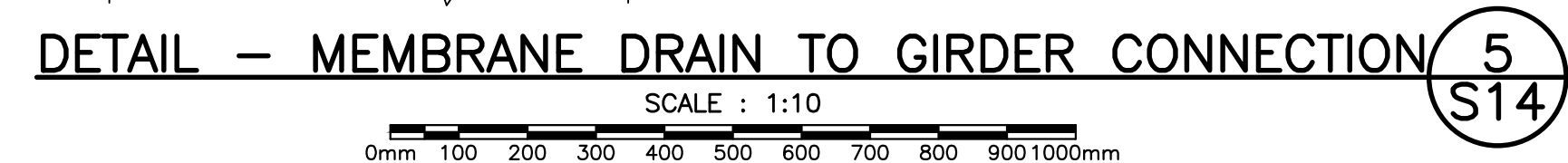
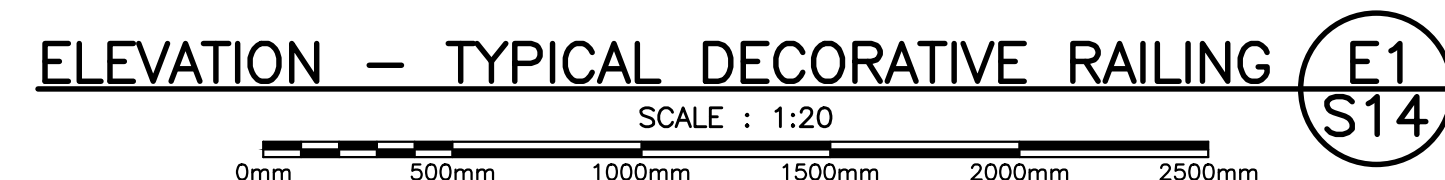
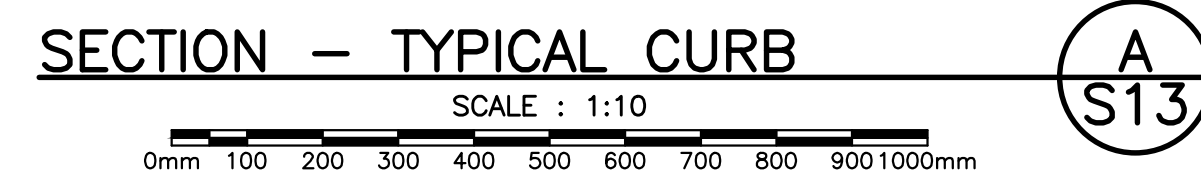
M.D. --- MEMBRANE DRAIN (DETAIL 2/S14)

OVERHANG NOTES:

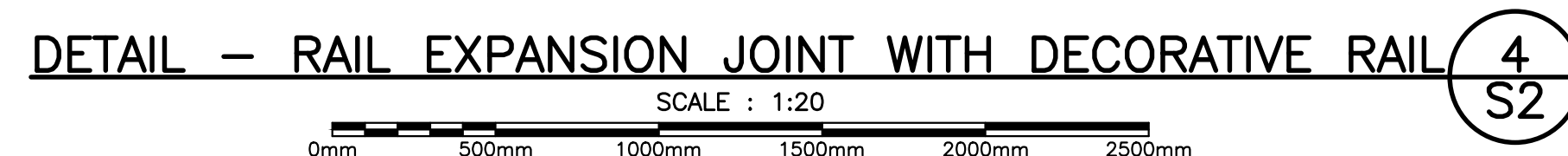
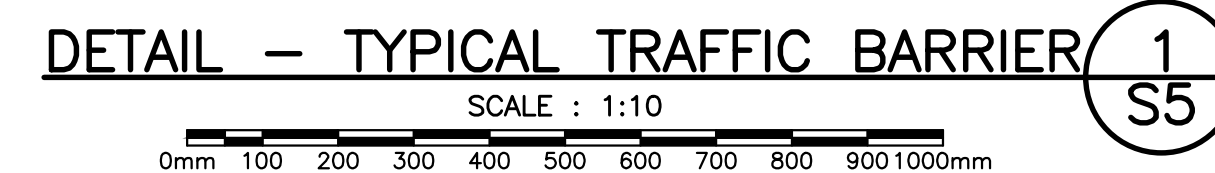
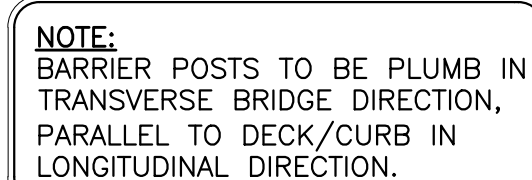
1. ALL DECK FORMWORK SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN NEWFOUNDLAND AND LABRADOR.
2. THE OVERHANG BRACKETS SHALL BE ORIENTED AS INDICATED UNLESS AN ALTERNATE DETAIL IS ACCEPTED IN WRITING BY THE DEPARTMENTAL REPRESENTATIVE.
3. OVERHANG BRACKET SPACING SHALL BE LESS THAN OR EQUAL TO 1200mm o.c.
4. MAXIMUM FACTORED SCREED LOAD PER SIDE OF BRIDGE ASSUMED TO BE 15kn.
5. DECK CASTING SHALL PROGRESS IN A BALANCED FASHION BY ESSENTIALLY BALANCING THE WET CONCRETE WEIGHT ON EACH SIDE OF THE GIRDERS. TO ACCOMPLISH THIS, CASTING SHALL PROGRESS ACROSS THE FULL WIDTH OF THE BRIDGE DECK WITH CASTING ADVANCING A MAXIMUM OF 3m± ON ONE SIDE OF A GIRDER VERSUS THE OTHER SIDE OF THE SAME GIRDER. THIS BALANCED PROCEDURE IS ESSENTIAL TO PREVENT EXCESSIVE UNBALANCED LOADS/TORSIONS IN GIRDERS.
6. CONTRACTOR TO ENSURE GIRDER STABILITY DURING ALL PHASES OF CONSTRUCTION.
7. AS INDICATED IN DETAIL 1/513 THE BOTTOM BEARING POINT OF THE SLAB OVERHANG BRACKET SHALL BE ORIENTATED NO HIGHER THAN 25mm ABOVE THE EXTERIOR GIRDER BOTTOM FLANGE/WEB INTERFACE DURING DECK CASTING.



1. MISC. PLATE AND ANGLES TO CAN/CSA G40.21-350W
2. DRAIN PIPE TO ASTM A53 OR APPROVED ALTERNATE.
3. ALL WELDING SHALL BE IN ACCORDANCE WITH CSA STANDARD W59 (LATEST EDITION WITH REVISIONS).
4. COAT STEEL AS NOTED AND AS PER DETAILS AND PROJECT SPECIFICATIONS.



NOTE:
ALL BARRIER ASSEMBLIES TO BE
GALVANIZED AFTER FABRICATION

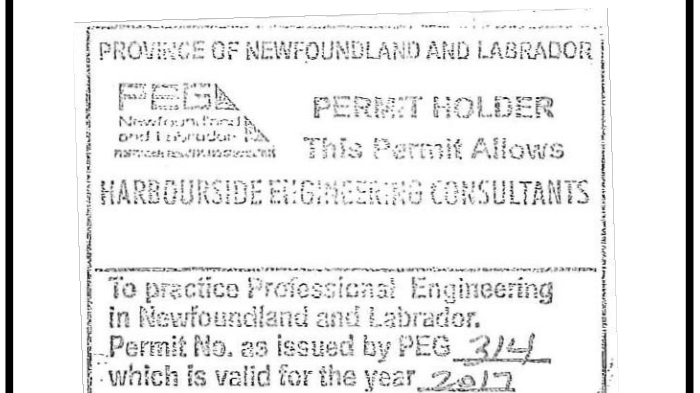
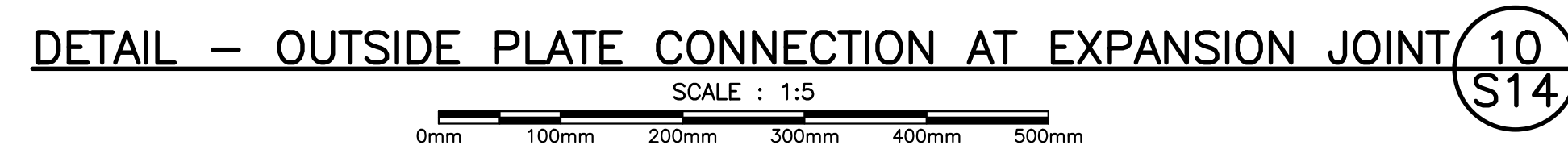
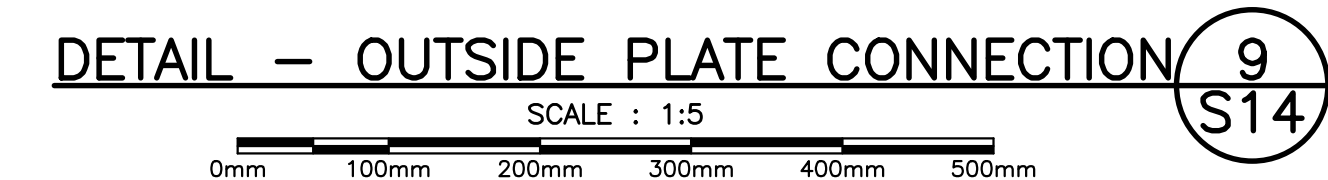
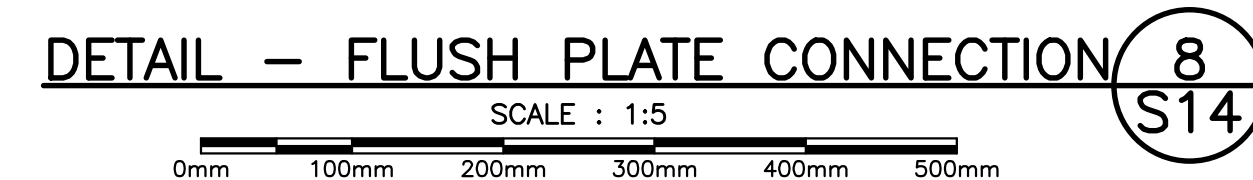
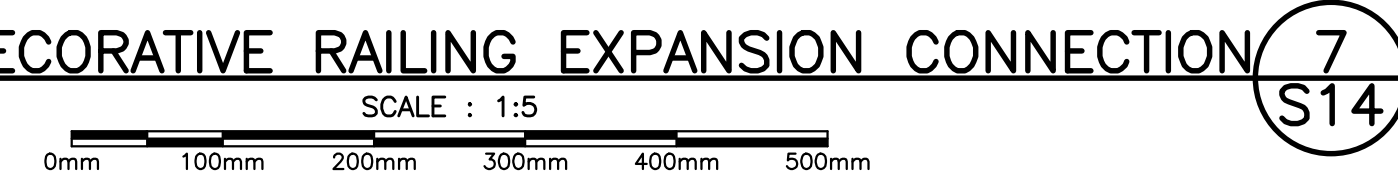
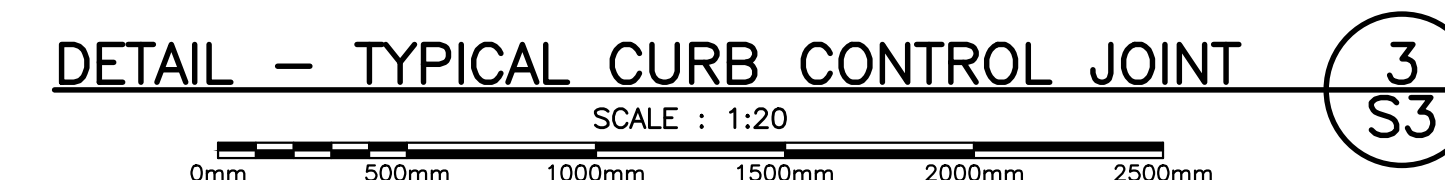
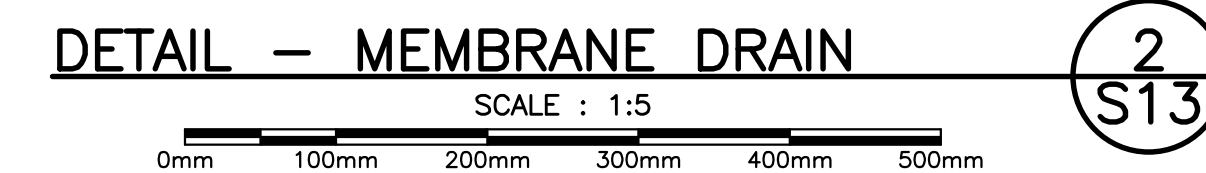
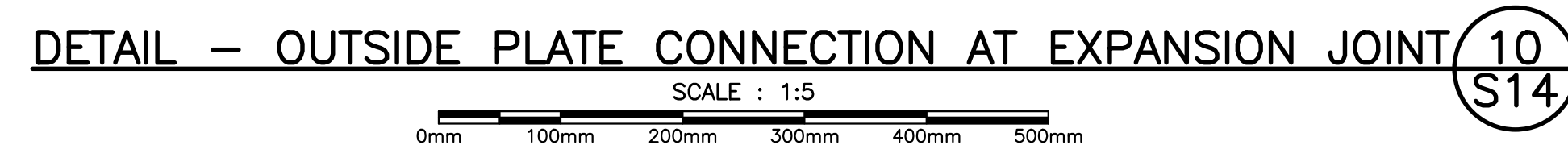
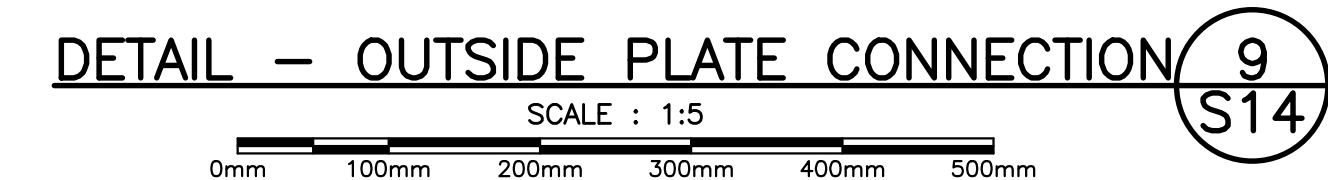
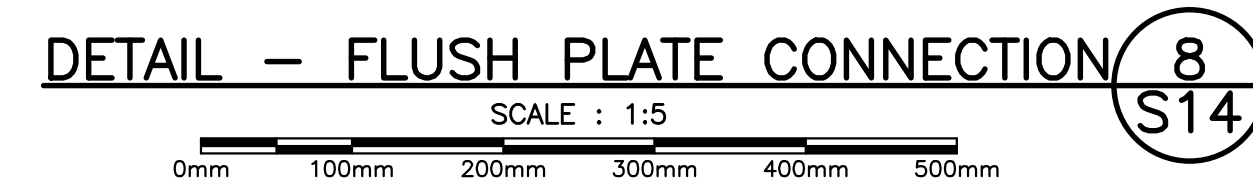


DETAIL — DECORATIVE RAILING EXPANSION CONNECTION

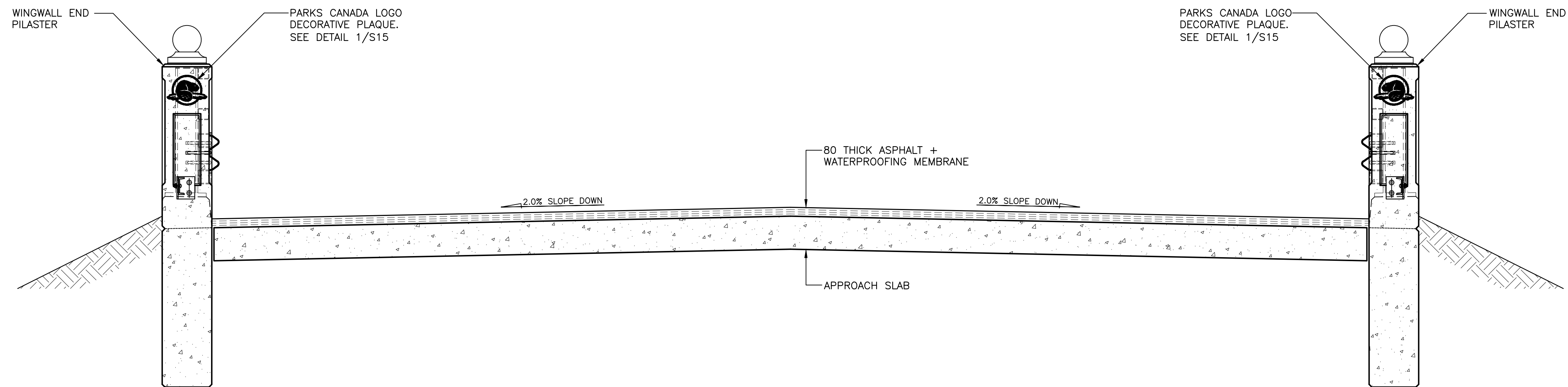
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0mm 100mm 200mm 300mm 400mm 500mm

7
S14



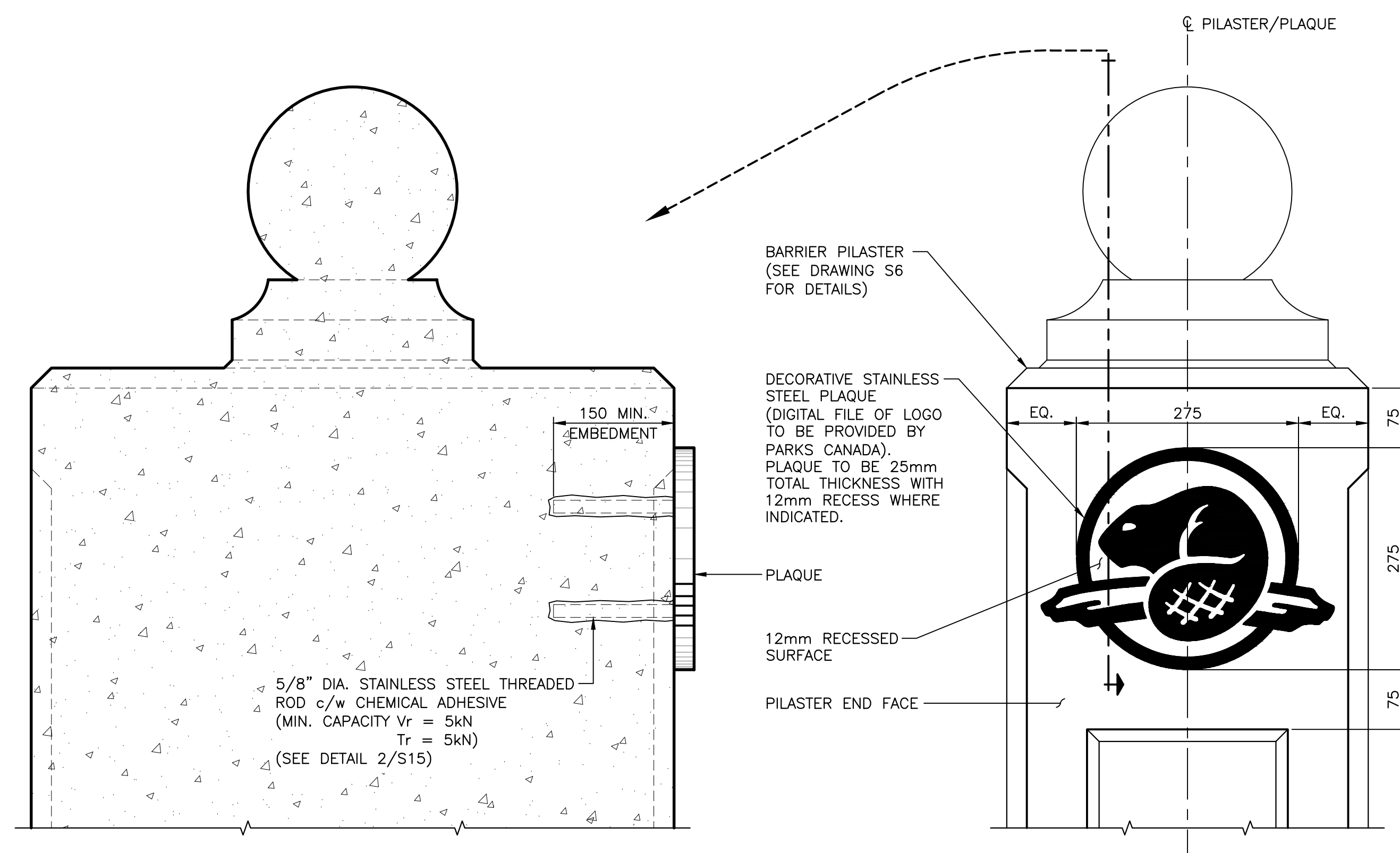
designed	WADE POTTIE	conçu
date	OCTOBER 2016	
drawn	G.R. MATHESON	dessiné
date	OCTOBER 2016	
approved	ROBBIE FRASER	approuvé
date	OCTOBER 2016	
Tender	<i>Indena Wilby</i>	Soumission
PWGSC Project Manager	Administrateur de projets TPSC	
project number	1117	no. du projet
drawing no.	S14	no. du dessin



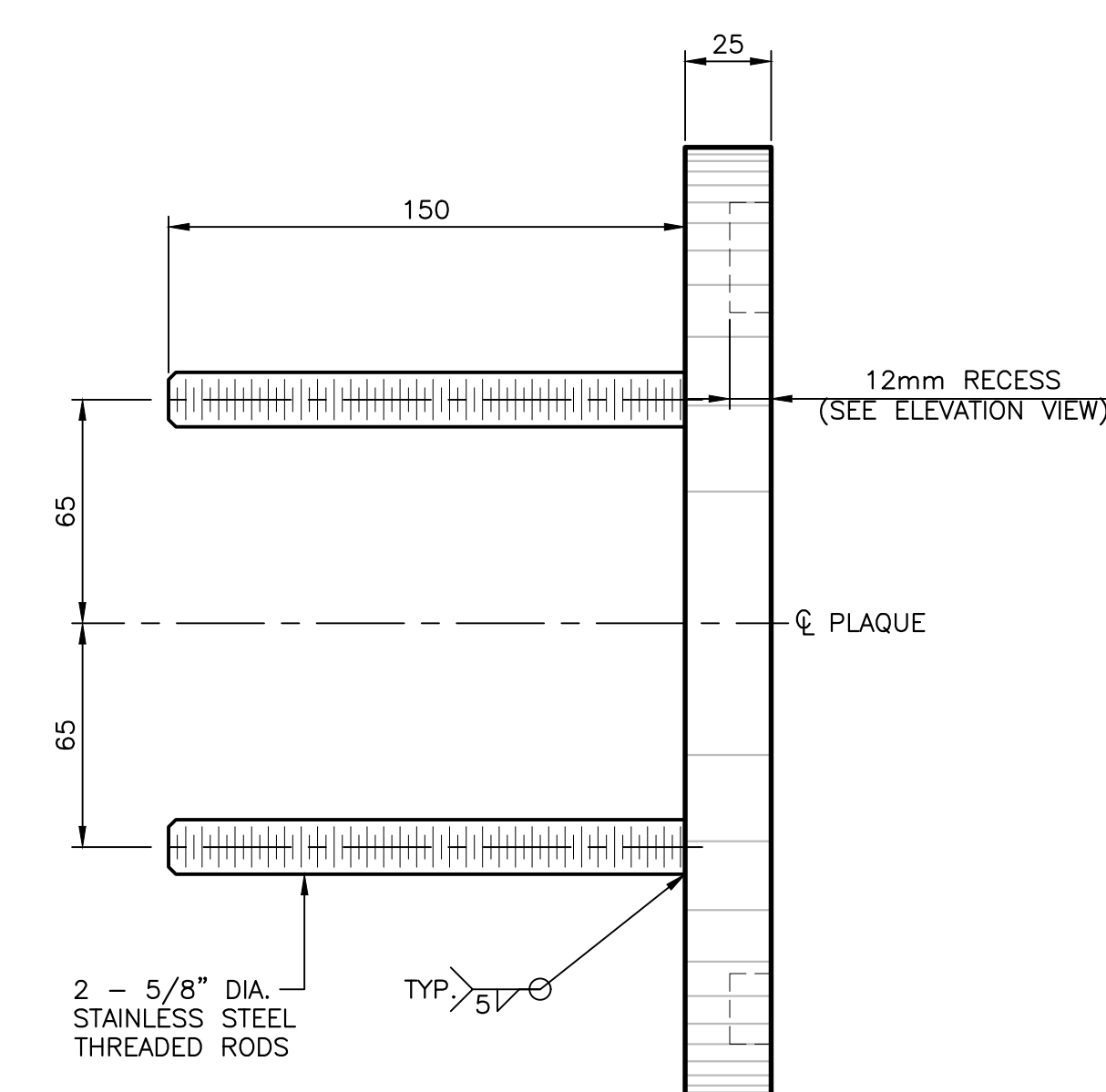
SECTION - DECORATIVE PLAQUE
SCALE: 1:25
0mm 500mm 1000mm 1500mm 2000mm 2500mm

PLAQUE NOTES:

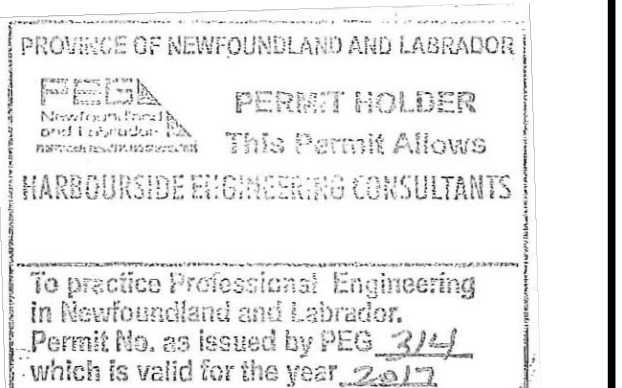
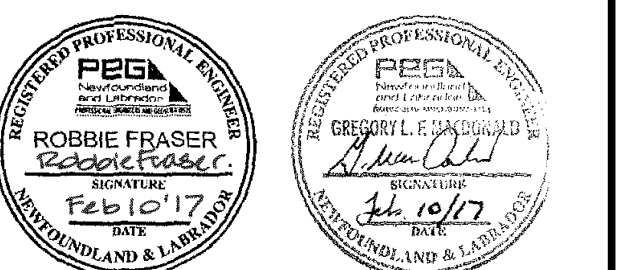
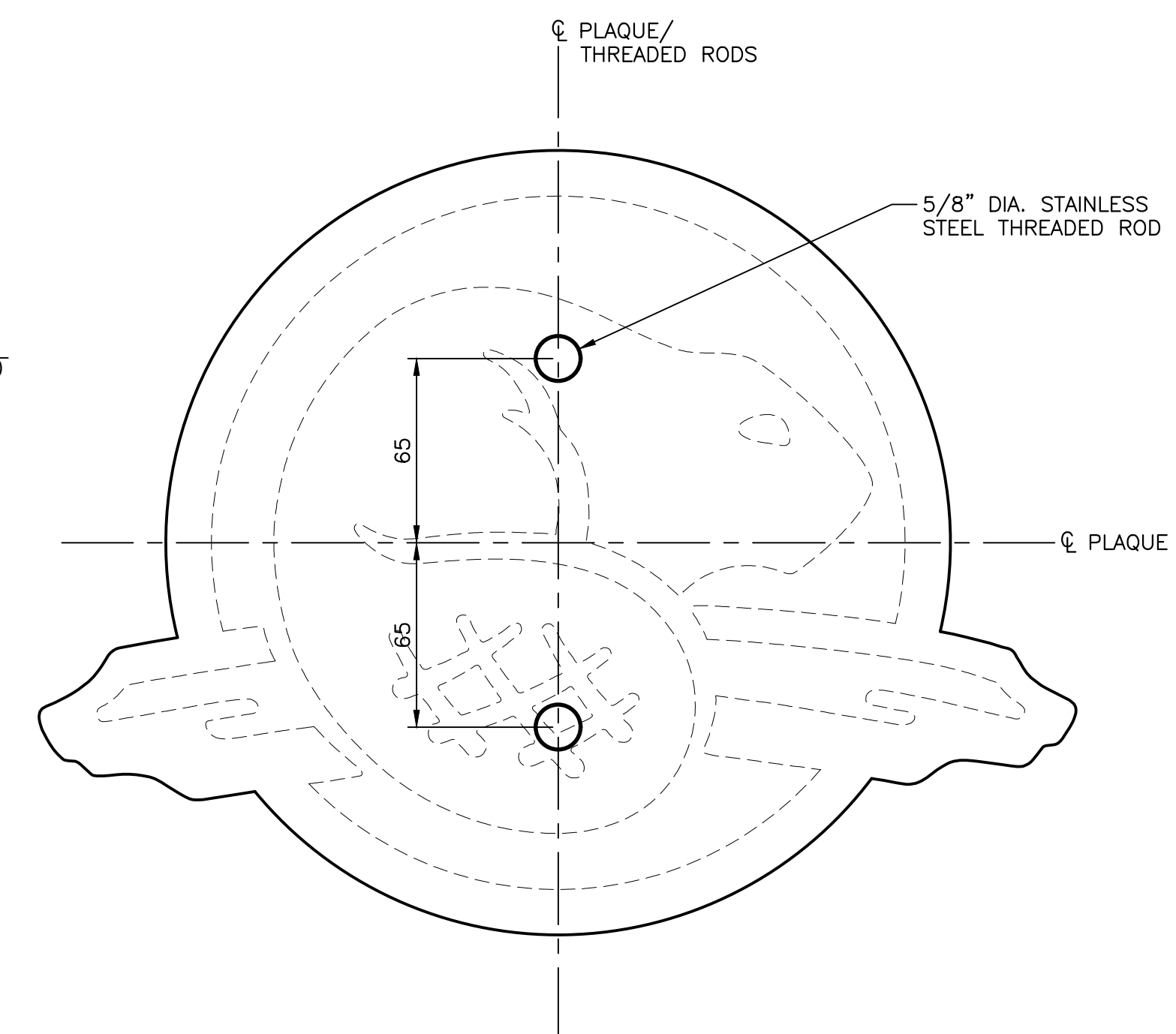
1. DIGITAL FILE OF LOGO (IN AUTOCAD FORMAT) TO BE PROVIDED BY PARKS CANADA.
2. PLAQUE TO BE FABRICATED FROM STAINLESS STEEL PLATE TO ASTM A240 - TYPE 316L.
3. STAINLESS STEEL THREADED RODS TO ASTM F593 - TYPE 316L.
4. ALL WELDING IN ACCORDANCE WITH CSA STANDARD W59 LATEST EDITION.
5. HOLES IN PILASTER FOR THREADED ROD ANCHORS SHALL BE DRILLED AND CLEANED AS PER THE CHEMICAL ADHESIVE MANUFACTURER'S RECOMMENDATIONS.
6. CARE SHALL BE TAKEN WHEN DRILLING HOLES IN PILASTER TO ENSURE THE HOLE LOCATIONS ON THE PILASTER MATCH THE AS-BUILT PLAQUE THREADED RODS TO ENSURE CONNECTED PLAQUE IS ORIENTATED ON PILASTER AS SHOWN IN DETAIL 1/S15.
7. PROVIDE CLEAR CAULKING AROUND PERIMETER OF PLAQUE AFTER INSTALLATION.



DETAIL - DECORATIVE PLAQUE
SCALE: 1:5
0mm 100mm 200mm 300mm 400mm 500mm



DETAIL - THREADED ROD CONNECTION
SCALE: 1:2
0mm 50mm 100mm 150mm 200mm 250mm



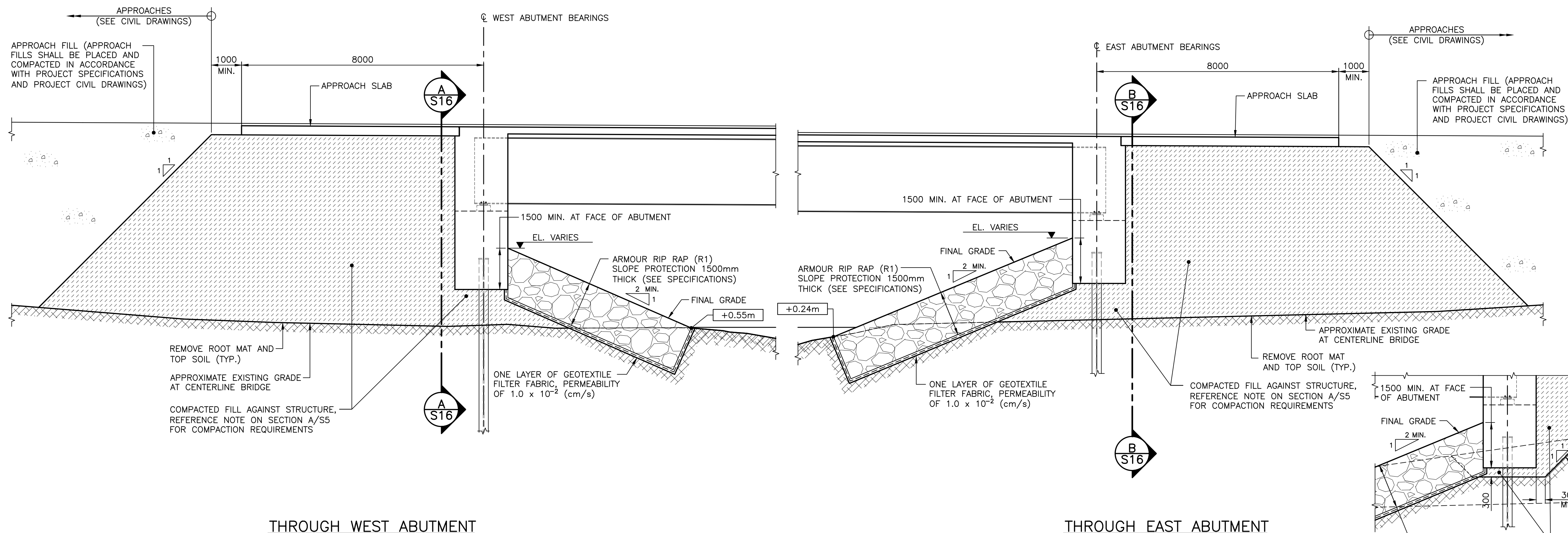
0	ISSUED FOR TENDER	02/10/2017
revisions		date

DEER ARM BROOK
BRIDGE REPLACEMENT

GROS MORNE
NATIONAL PARK

DECORATIVE
PLAQUE DETAILS

designed	WADE POTTIE	conçu
date	OCTOBER 2016	
drawn	G.R. MATHESON	dessiné
date	OCTOBER 2016	
approved	ROBBIE FRASER	approuvé
date	OCTOBER 2016	
Tender		Submission
PWOSC Project Manager	Administrateur de projets TPSC	
project number	1117	no. du projet
drawing no.	S15	no. du dessin

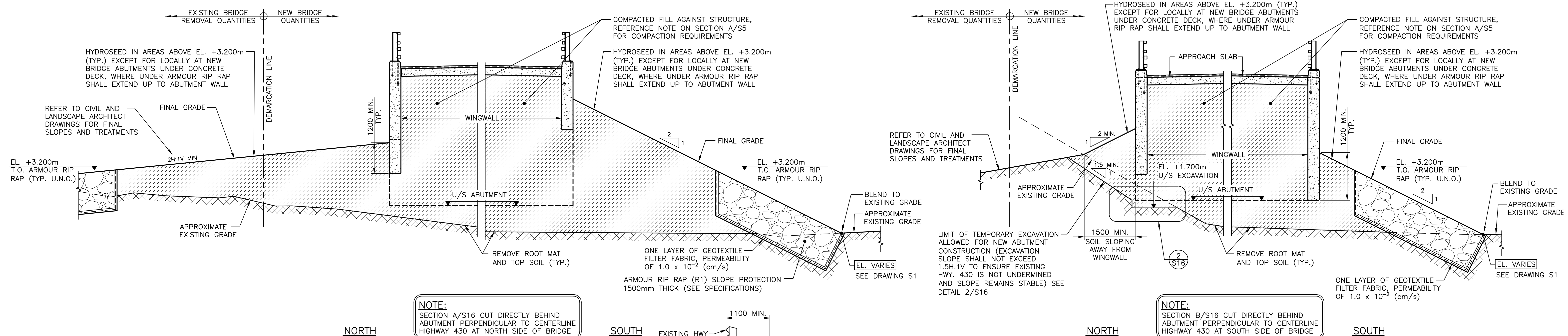


THROUGH WEST ABUTMENT

THROUGH EAST ABUTMENT

DETAIL - FILL AGAINST STRUCTURE/ RIP RAP DIAGRAMS 1 S1

WHERE EXCAVATION OCCURS AT NORTH END OF EAST ABUTMENT



NORTH

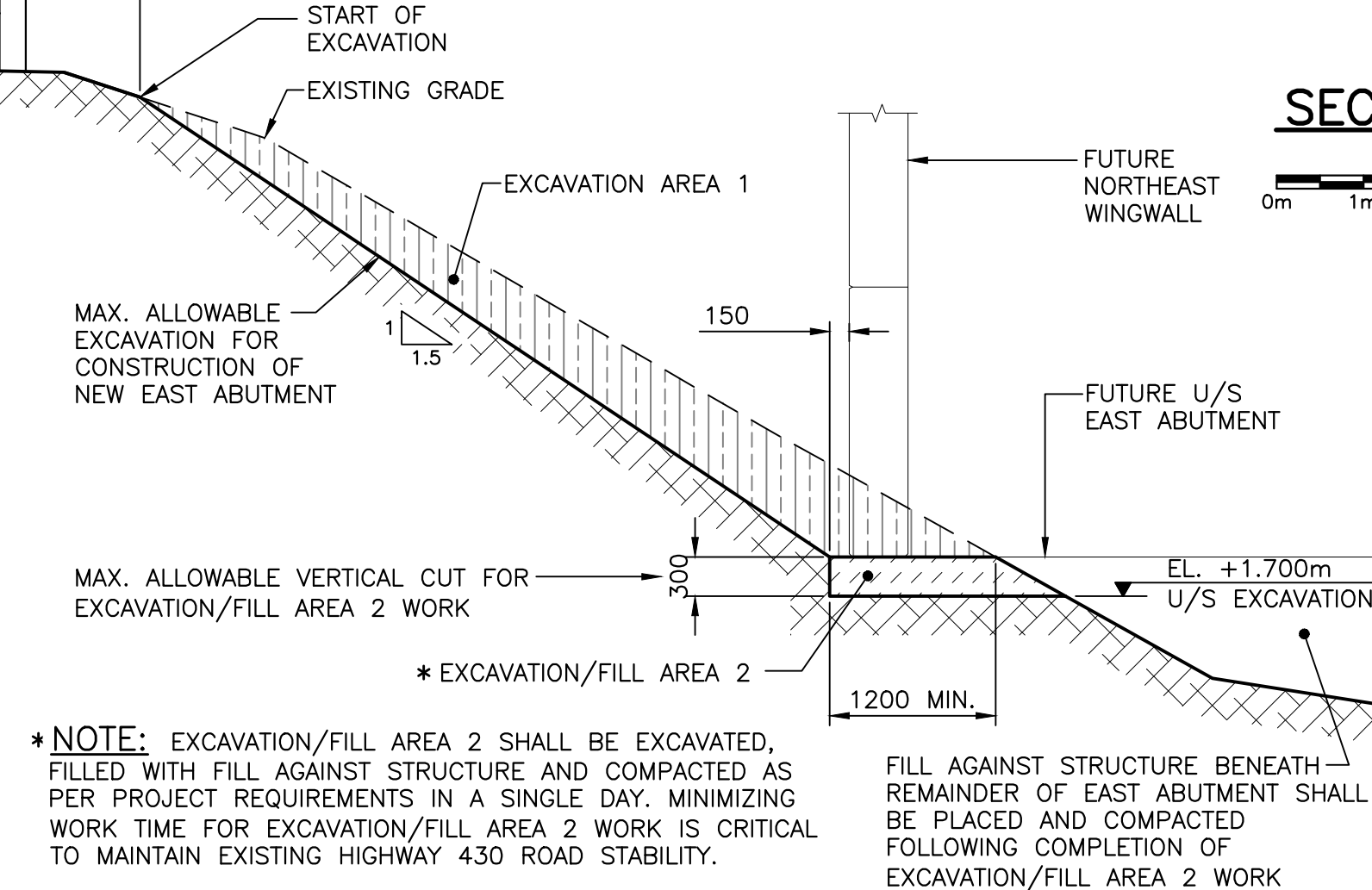
SOUTH

NORTH

SOUTH

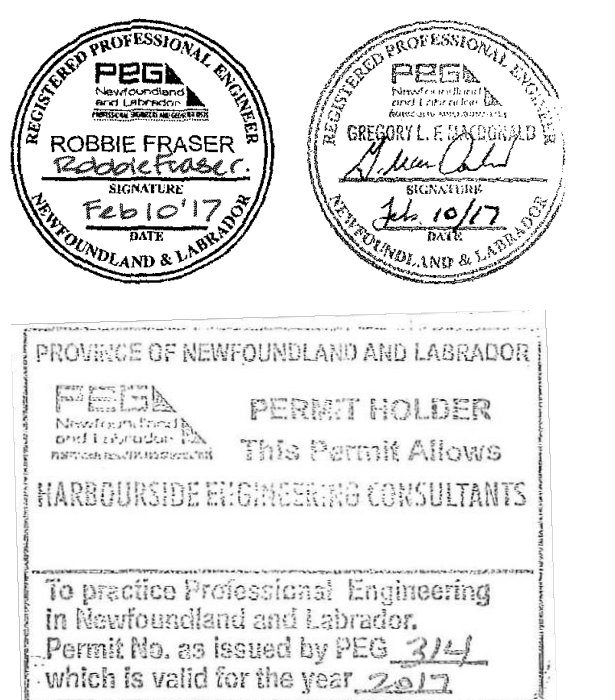
SECTION - WEST ABUTMENT WINGWALLS

SECTION - EAST ABUTMENT WINGWALLS

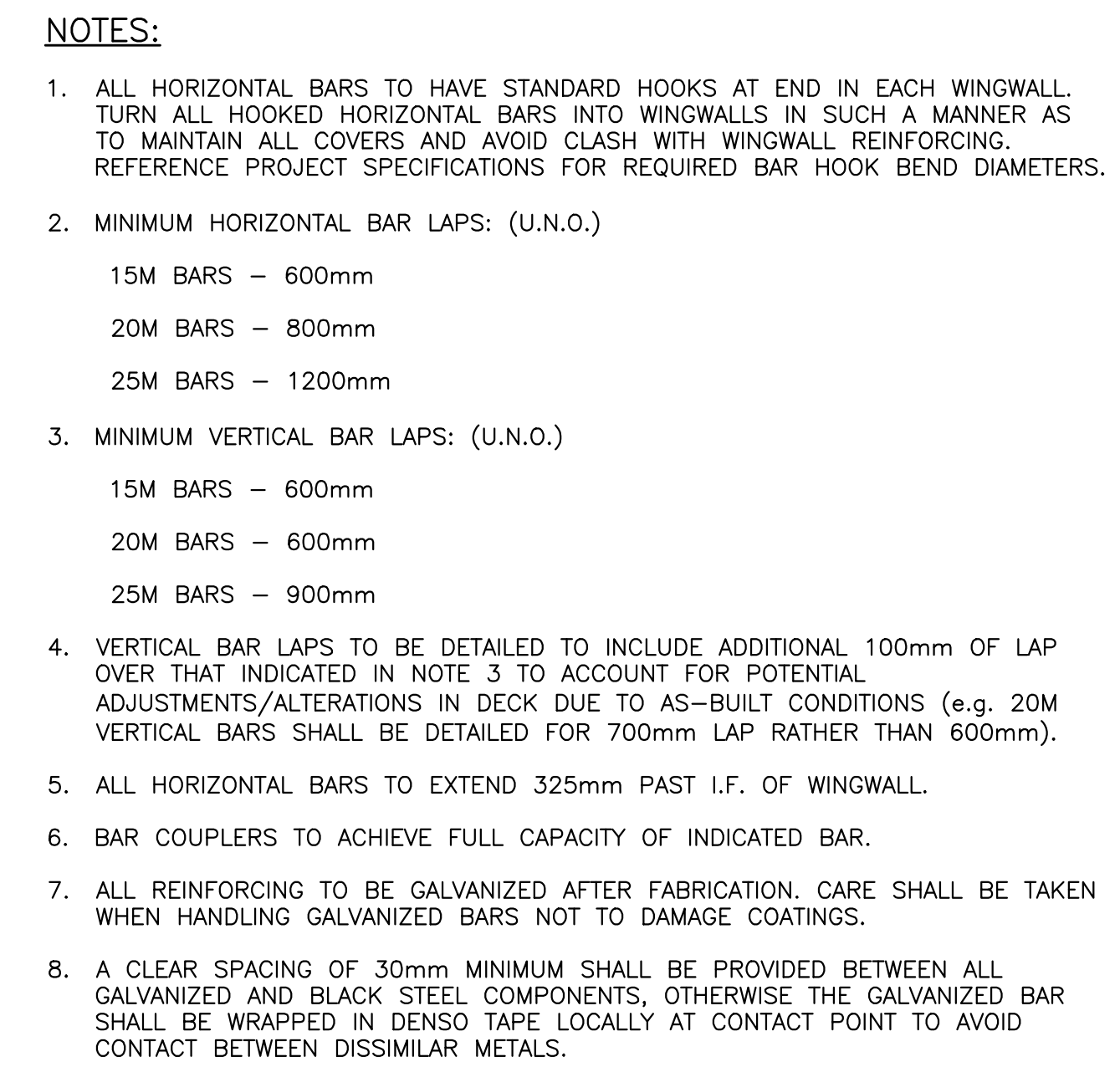


DETAIL - EAST ABUTMENT TEMPORARY EXCAVATION 2 S16

- LEGEND:
- FILL AGAINST STRUCTURE
 - EXCAVATION




0	ISSUED FOR TENDER	02/10/2017
revisions		date
project	DEER ARM BROOK BRIDGE REPLACEMENT	project
	GROS MORNE NATIONAL PARK	
drawing		dessin
	BRIDGE EXCAVATION AND FILL QUANTITIES, DETAILS AND SECTIONS	
designed	WADE POTTIE	conçu
date	OCTOBER 2016	
drawn	G.R. MATHESON	dessiné
date	OCTOBER 2016	
approved	ROBBIE FRASER	approuvé
date	OCTOBER 2016	
Tender		Submission
PWSC Project Manager	Administrateur de projets TPSC	
project number	1117	no. du projet
drawing no.	S16	no. du dessin

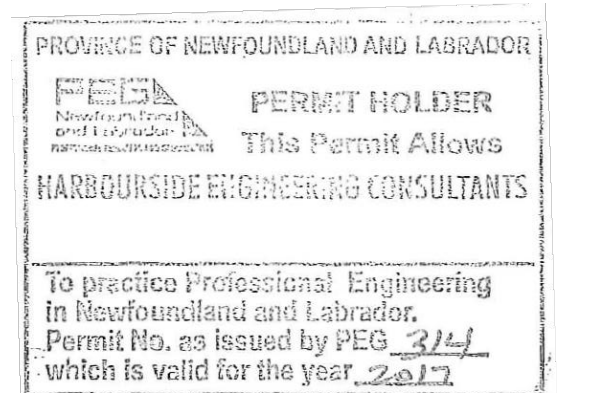
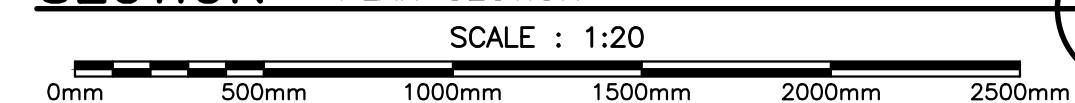


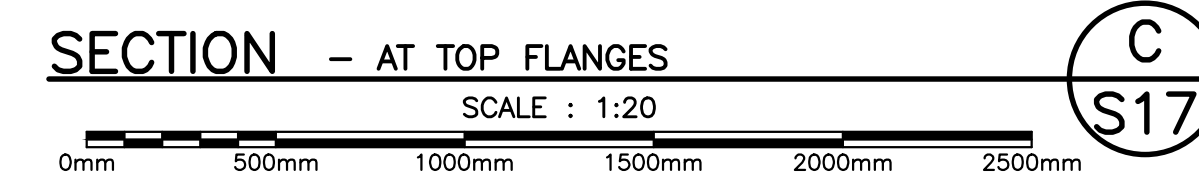
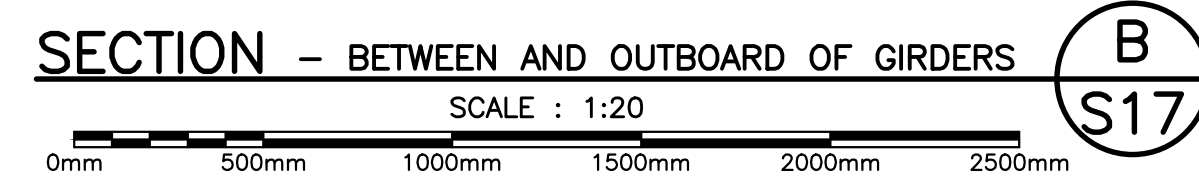
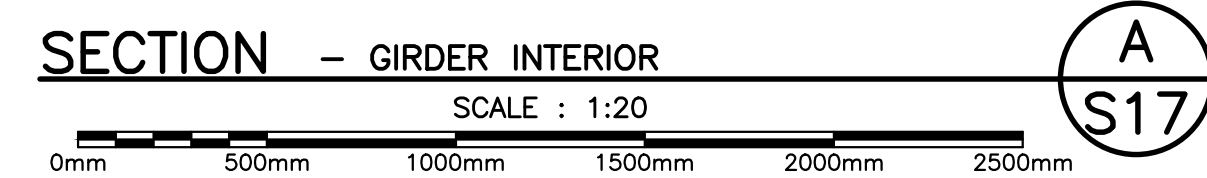
N.F. _____	NEAR FACE	B.L.L. _____	BOTTOM LOWER LAYER
F.F. _____	FAR FACE	W.A. _____	WEST ABUTMENT
N.F.F. _____	NEAR FAR FACE	E.A. _____	EAST ABUTMENT
F.F.F. _____	FAR FAR FACE	N.E. _____	NORTH EAST WINGWALL
E.F. _____	EACH FACE	N.W. _____	NORTH WEST WINGWALL
E.W. _____	EACH WAY	S.E. _____	SOUTH EAST WINGWALL
I.F. _____	INSIDE FACE	S.W. _____	SOUTH WEST WINGWALL
O.F. _____	OUTSIDE FACE	N.C. _____	NORTH CURB
I.C. _____	IN CENTER	S.C. _____	SOUTH CURB
T.U.L. _____	TOP UPPER LAYER	CVR. _____	COVER
T.L.L. _____	TOP LOWER LAYER	CLR. _____	CLEAR
B.U.L. _____	BOTTOM UPPER LAYER		

SCALE : 1:30

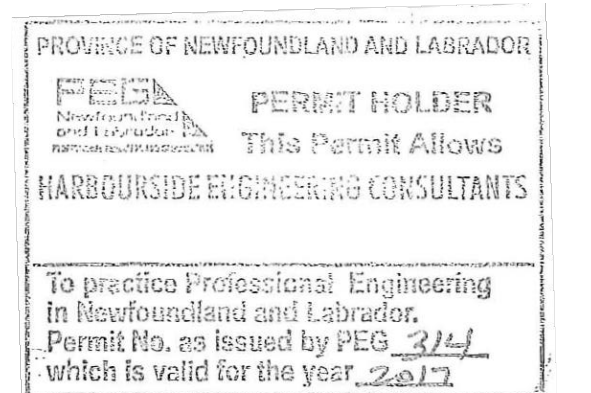


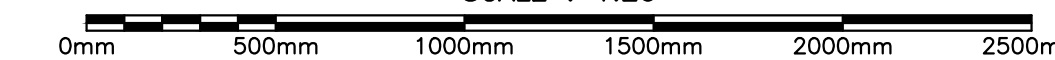
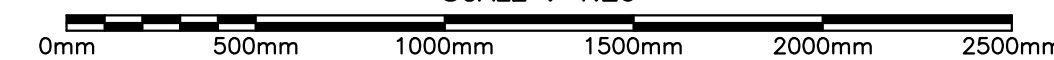
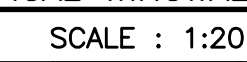
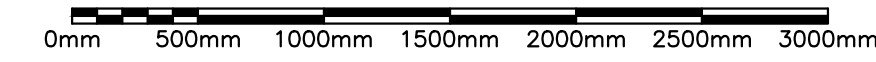
0mm 500mm 1000mm 1500mm 2000mm 2500mm 3000mm

S17

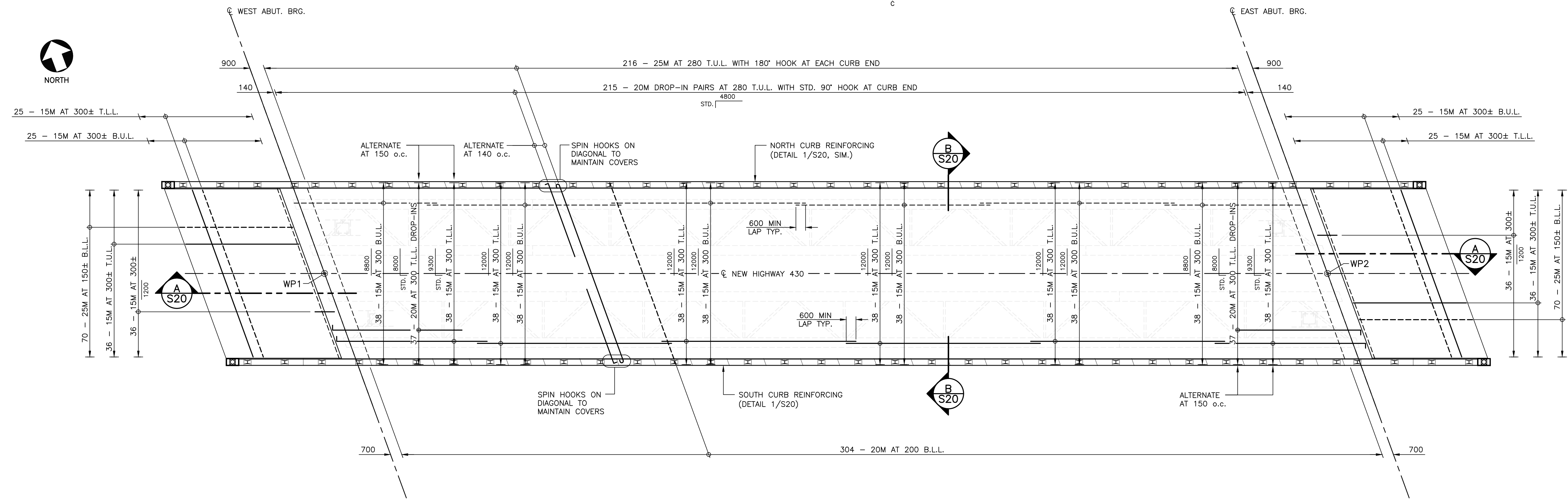


- | | | | |
|--------------|--------------------|--------------|---------------------|
| N.F. _____ | NEAR FACE | B.L.L. _____ | BOTTOM LOWER LAYER |
| F.F. _____ | FAR FACE | W.A. _____ | WEST ABUTMENT |
| N.F.F. _____ | NEAR FAR FACE | E.A. _____ | EAST ABUTMENT |
| F.F.F. _____ | FAR FAR FACE | N.E. _____ | NORTH EAST WINGWALL |
| E.F. _____ | EACH FACE | N.W. _____ | NORTH WEST WINGWALL |
| E.W. _____ | EACH WAY | S.E. _____ | SOUTH EAST WINGWALL |
| I.F. _____ | INSIDE FACE | S.W. _____ | SOUTH WEST WINGWALL |
| O.F. _____ | OUTSIDE FACE | N.C. _____ | NORTH CURB |
| I.C. _____ | IN CENTER | S.C. _____ | SOUTH CURB |
| T.U.L. _____ | TOP UPPER LAYER | CVR. _____ | COVER |
| T.L.L. _____ | TOP LOWER LAYER | CLR. _____ | CLEAR |
| B.U.L. _____ | BOTTOM UPPER LAYER | | |

S18

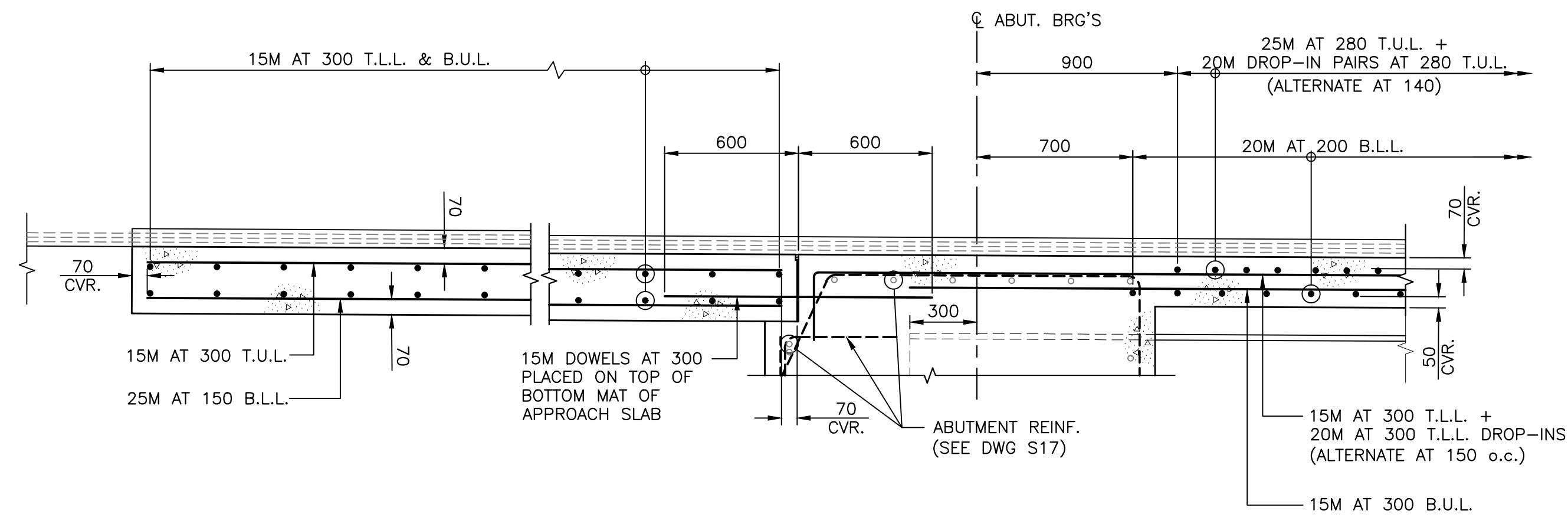


- S19



BRIDGE DECK/APPROACH SLAB REINFORCING

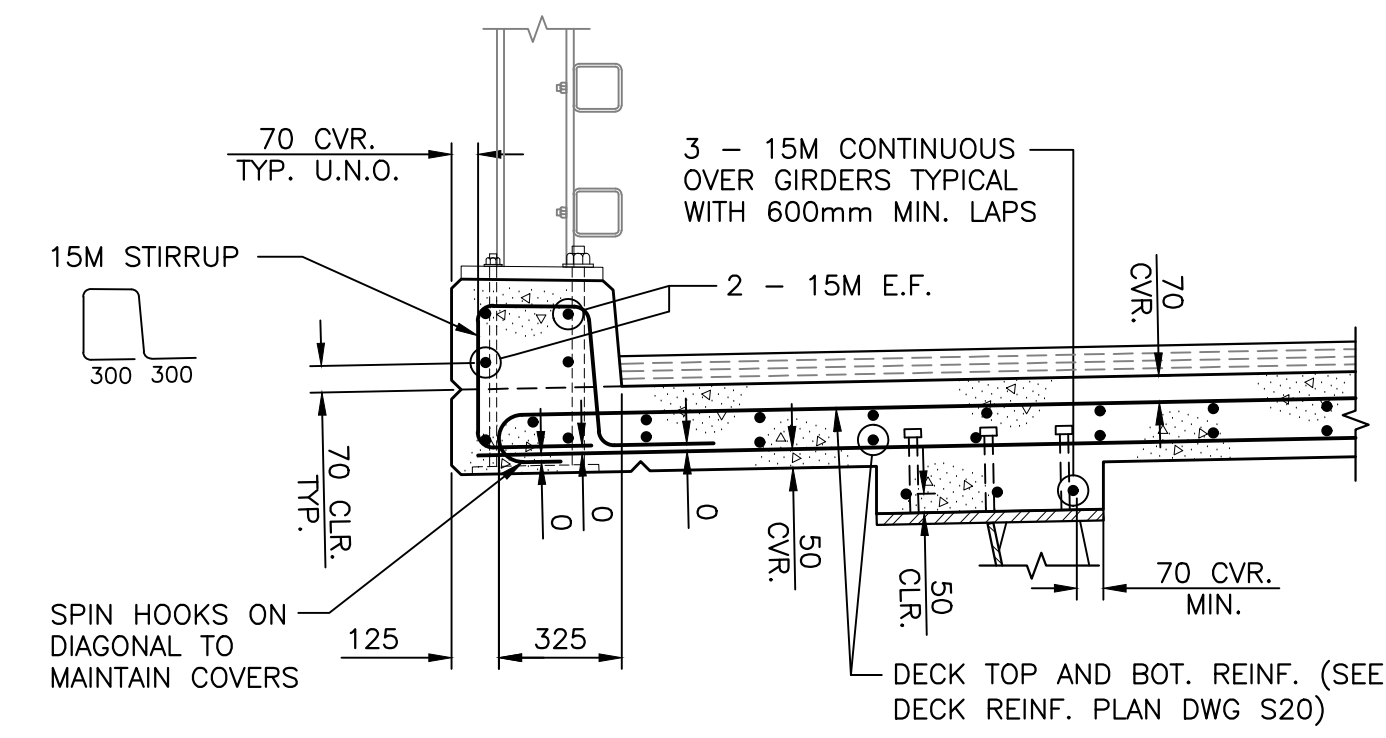
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0m 1 2 3 4 5 6 7 8 9 10m



SECTION - APPROACH SLAB

SCALE : 1:20

0mm 500mm 1000mm 1500mm 2000mm 2500mm

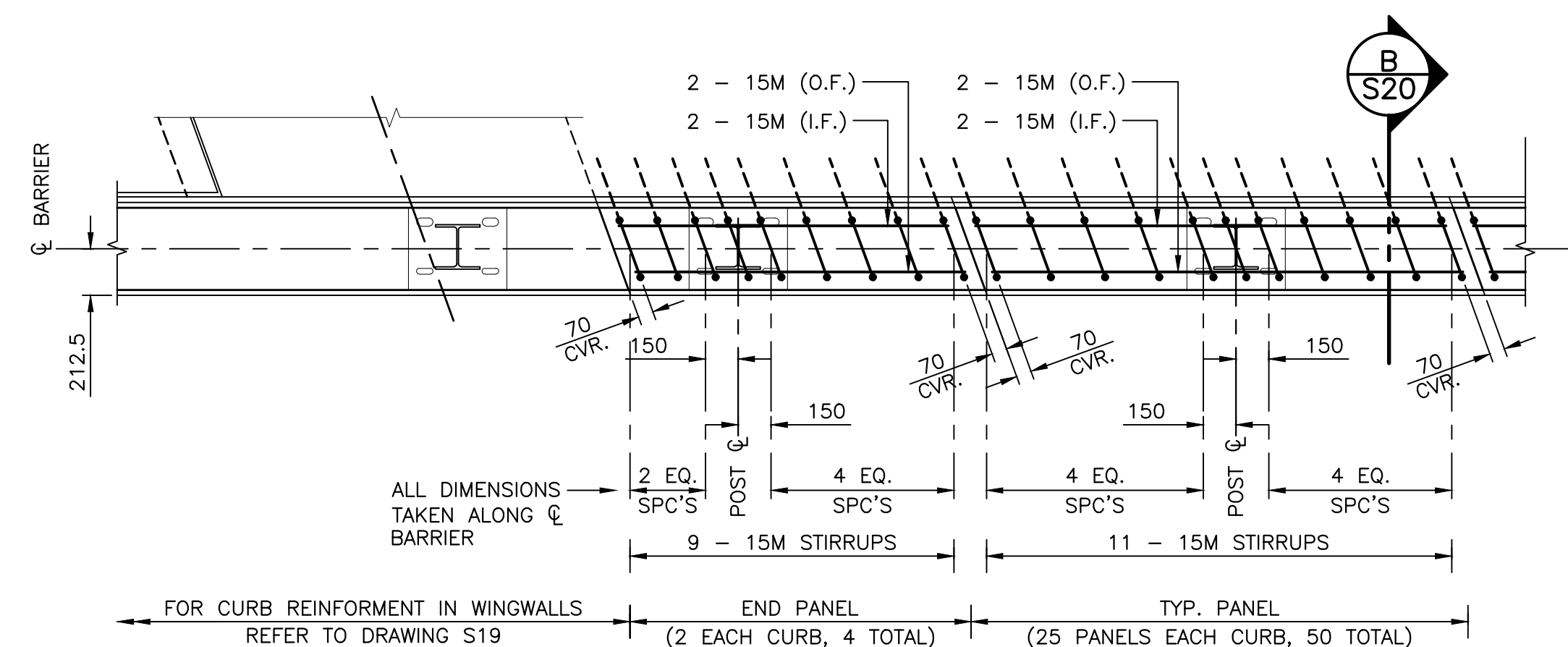


SECTION - OVERHANG REINFORCING

SCALE : 1:20

0mm 500mm 1000mm 1500mm 2000mm 2500mm

NOTE: A CLEAR SPACING OF 30mm MIN. SHALL BE PROVIDED BETWEEN ALL GALVANIZED AND BLACK STEEL COMPONENTS, OTHERWISE THE GALVANIZED BAR SHALL BE WRAPPED IN DENSO TAPE LOCALLY AT CONTACT POINT TO AVOID CONTACT BETWEEN DISSIMILAR METALS. LAPS AS INDICATED ON THIS DRAWING.



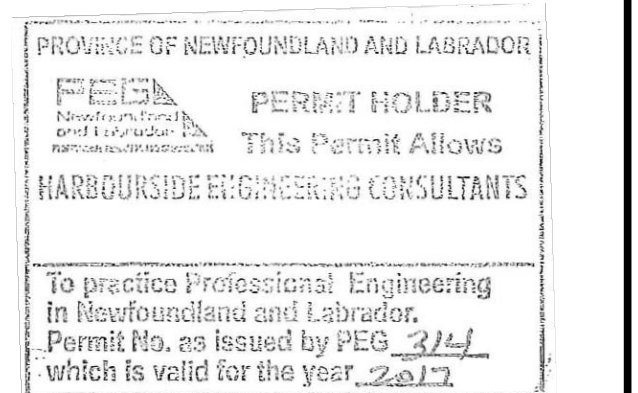
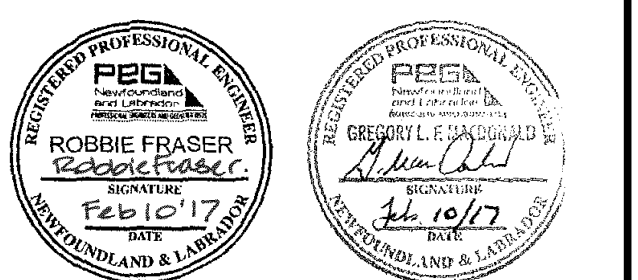
DETAIL - CURB REINFORCING

SCALE : 1:25

0mm 500mm 1000mm 1500mm 2000mm 2500mm

REINFORCING LEGEND:

N.F. — NEAR FACE	B.L.L. — BOTTOM LOWER LAYER
F.F. — FAR FACE	W.A. — WEST ABUTMENT
N.F.F. — NEAR FAR FACE	E.A. — EAST ABUTMENT
F.F.F. — FAR FAR FACE	N.E. — NORTH EAST WINGWALL
E.F. — EACH FACE	N.W. — NORTH WEST WINGWALL
E.W. — EACH WAY	S.E. — SOUTH EAST WINGWALL
I.F. — INSIDE FACE	S.W. — SOUTH WEST WINGWALL
O.F. — OUTSIDE FACE	N.C. — NORTH CURB
I.C. — IN CENTER	S.C. — SOUTH CURB
T.U.L. — TOP UPPER LAYER	CVR. — COVER
T.L.L. — TOP LOWER LAYER	CLR. — CLEAR
B.U.L. — BOTTOM UPPER LAYER	

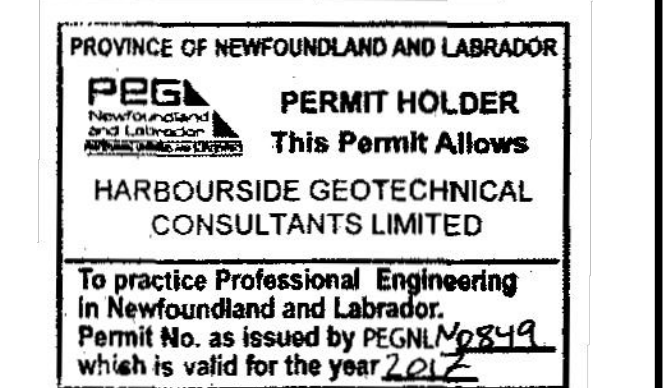
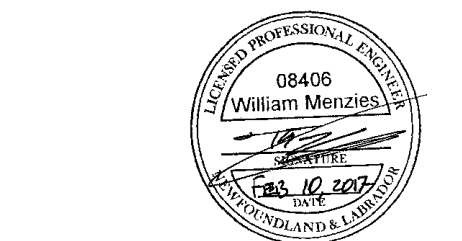
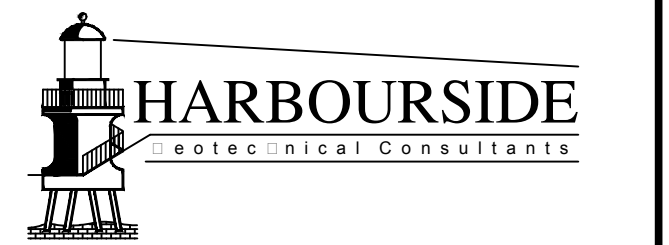


0	ISSUED FOR TENDER	02/10/2017
revisions		date

project DEER ARM BROOK BRIDGE REPLACEMENT
GROS MORNE NATIONAL PARK

DECK REINFORCING PLAN, SECTIONS AND DETAIL

designed WADE POTTIE	conçu
date OCTOBER 2016	
drawn G.R. MATHESON	dessiné
date OCTOBER 2016	
approved ROBBIE FRASER	approuvé
date OCTOBER 2016	
Tender	Soumission
PWOSC Project Manager	Administrateur de projets TPSC
project number 1117	no. du projet
drawing no. S20	no. du dessin



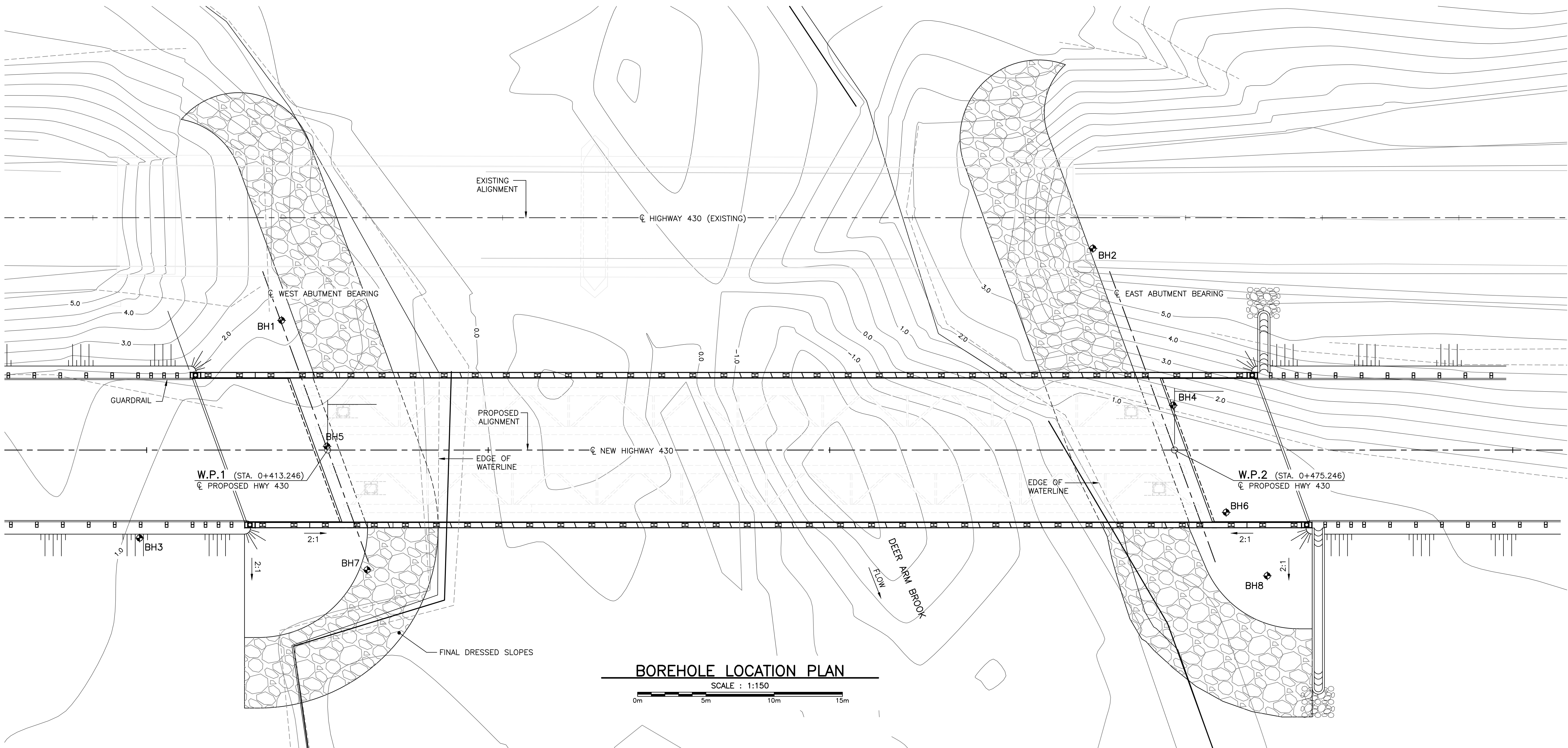
0	ISSUED FOR TENDER	01/10/2017
revisions		date

project project
**DEER ARM BROOK
BRIDGE REPLACEMENT**

**GROS MORNE
NATIONAL PARK**

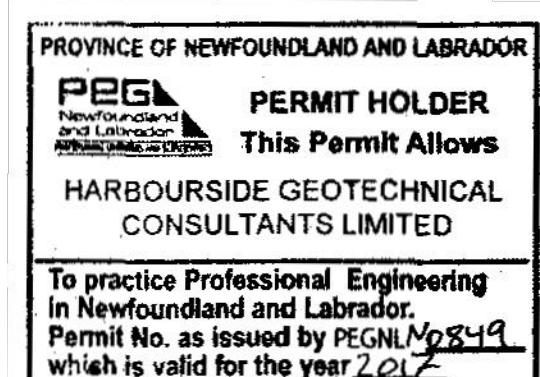
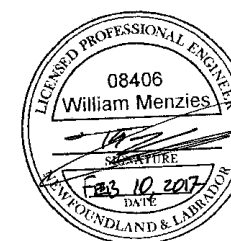
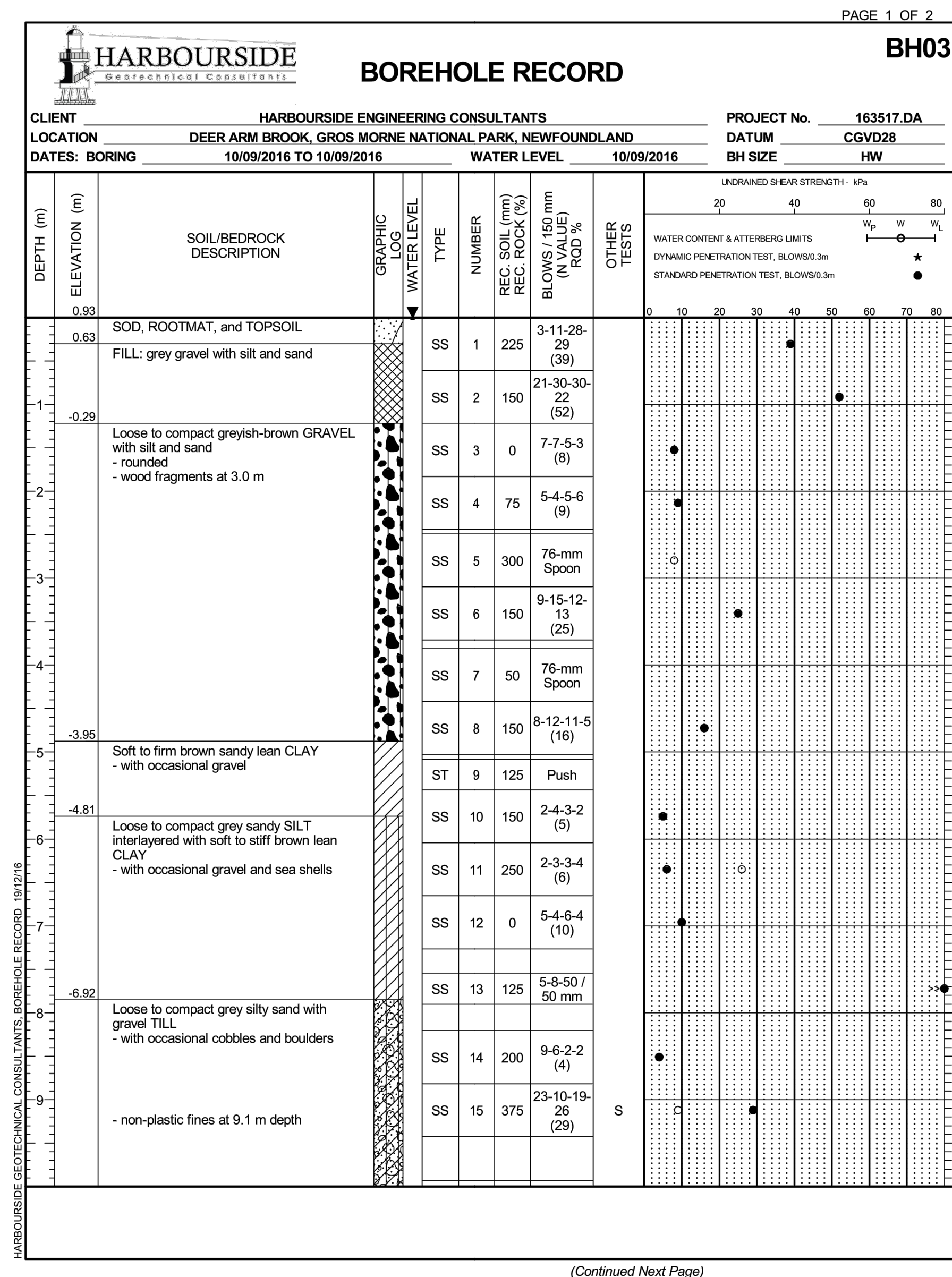
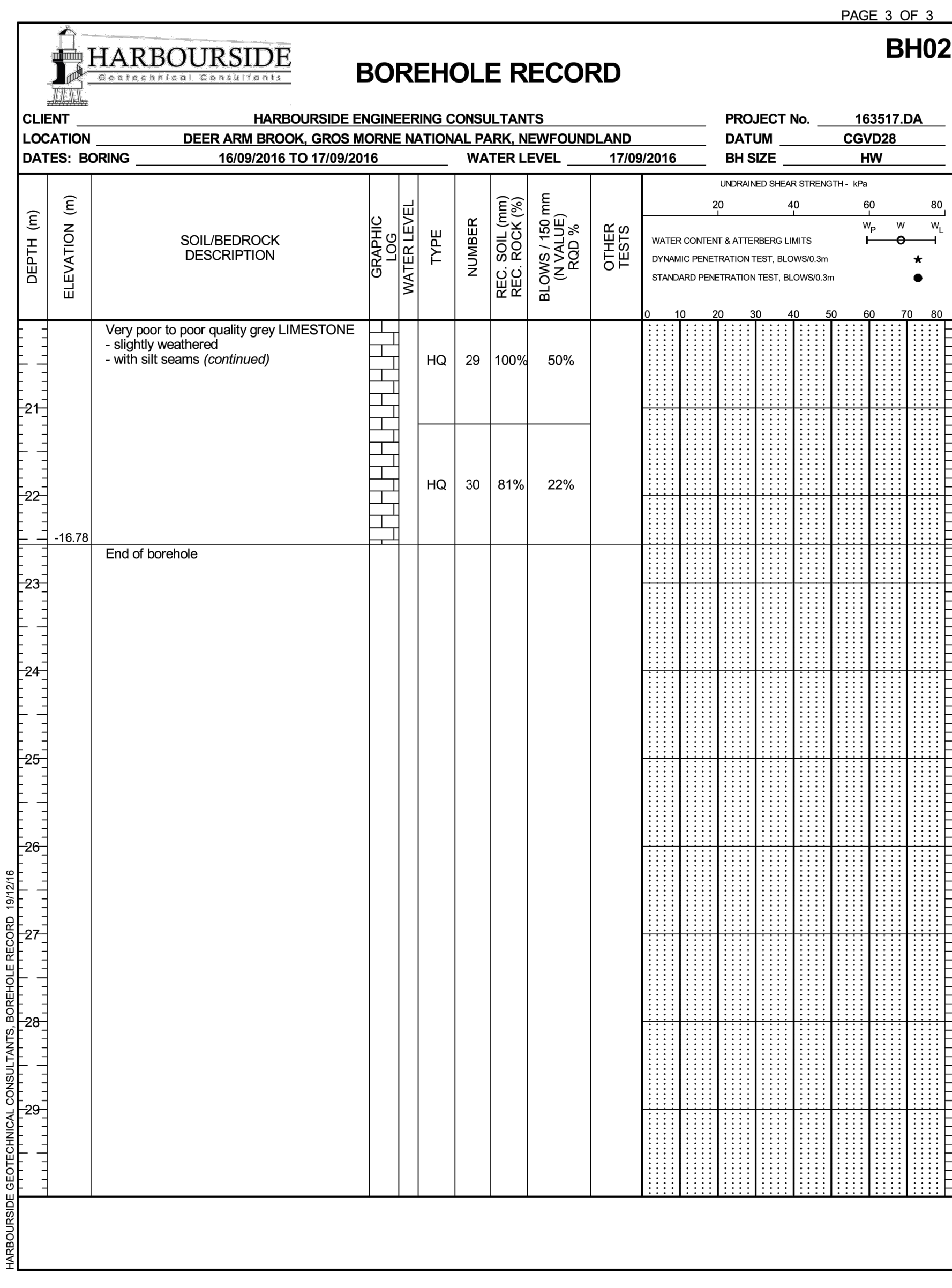
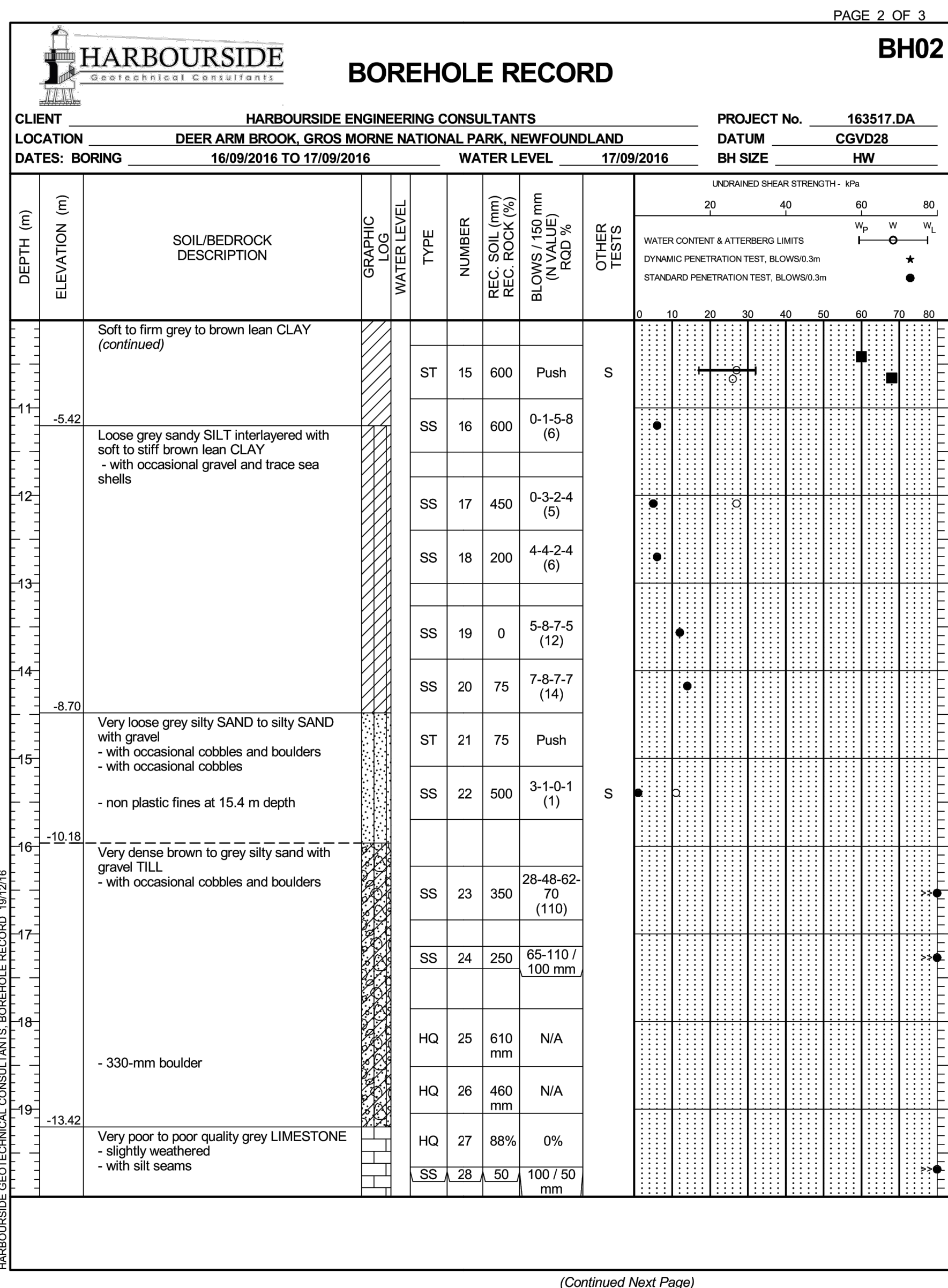
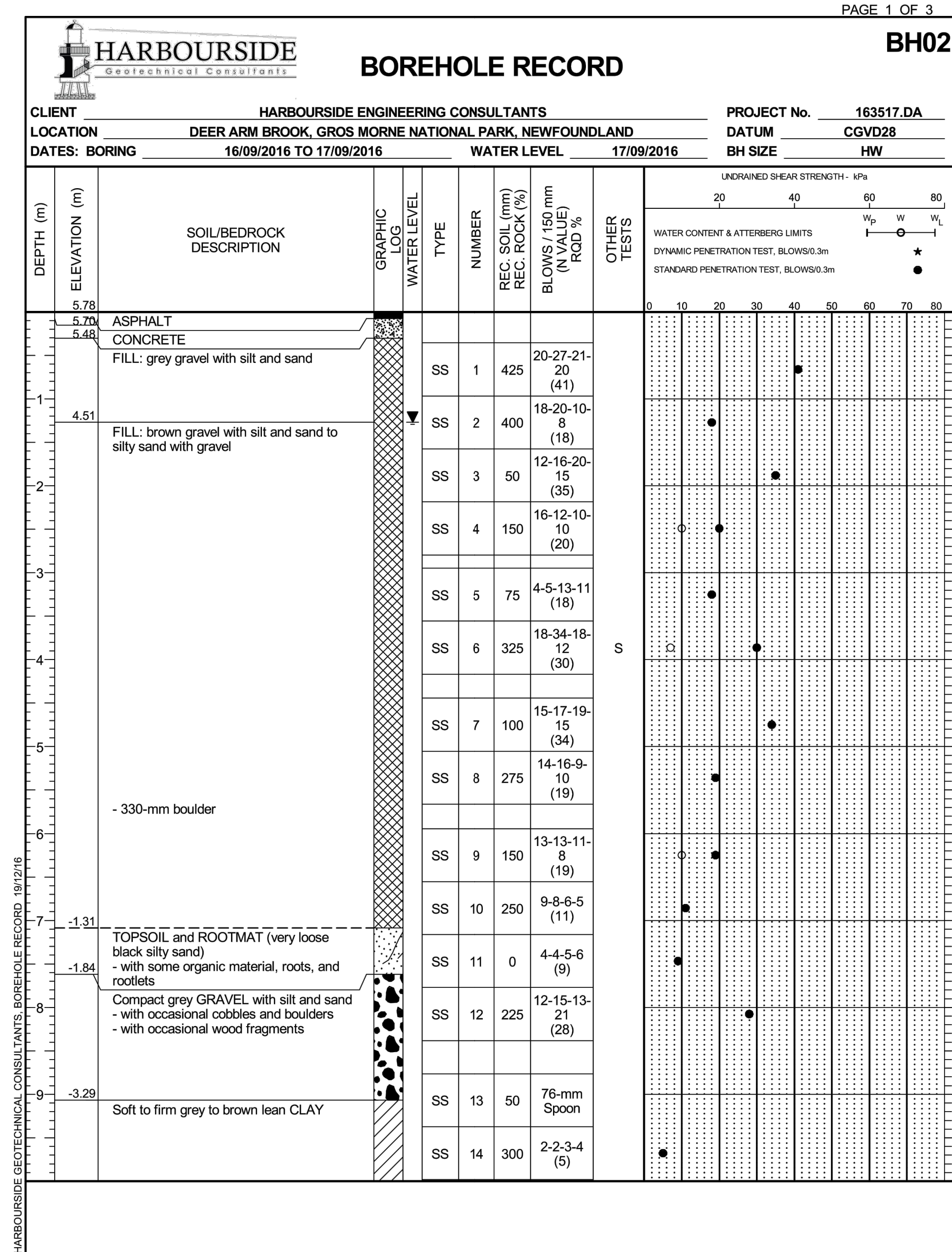
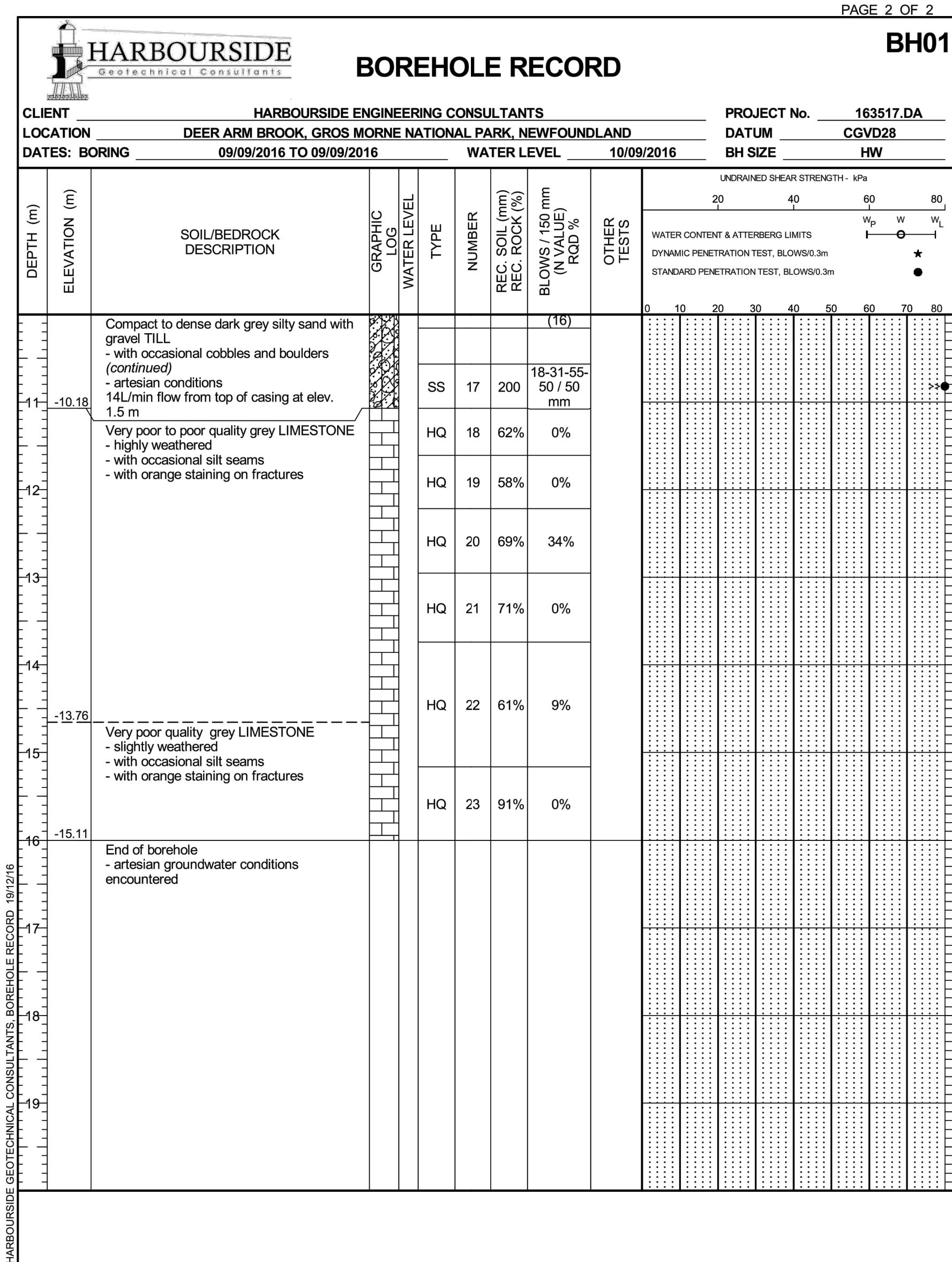
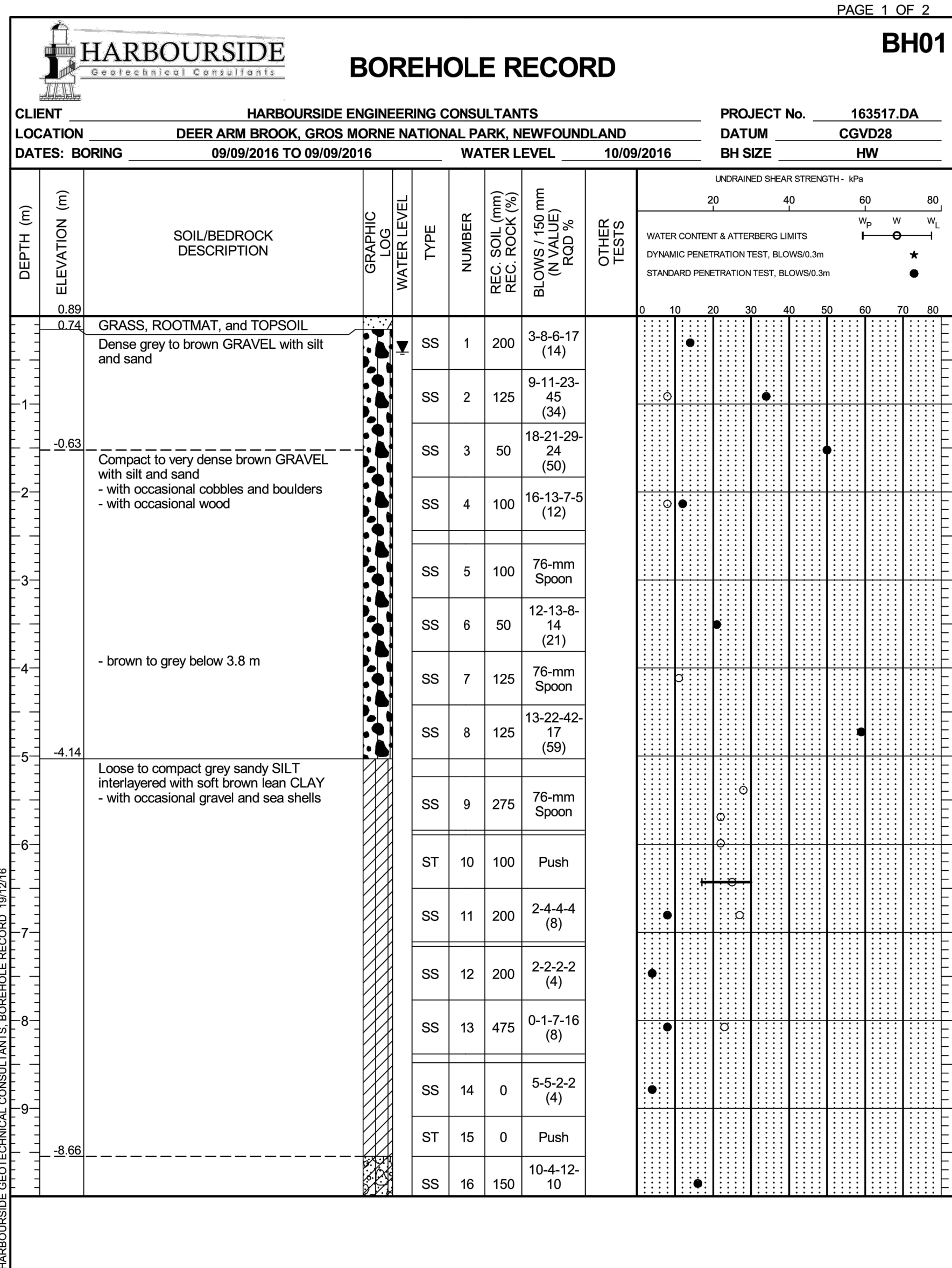
drawing dessin
**BOREHOLE
LOCATION PLAN**

designed	VINCE GOREHAM	conçu
date	OCTOBER 2016	
drawn	G.R. MATHESON	dessiné
date	OCTOBER 2016	
approved	TODD MENZIES	approuvé
date	OCTOBER 2016	
Tender	<i>Todd Menzies</i>	Soumission
PWOSC Project Manager	Administrateur de projets TPSC	
project number	1117	no. du projet
drawing no.	S21	no. du dessin



BOREHOLE LOCATION PLAN
SCALE : 1:150
0m 5m 10m 15m

BOREHOLE LOCATIONS			
BOREHOLE No.	NORTHINGS	EASTINGS	TOP ELEVATION (m)
BH1	N 5490704.5	E 439468.0	0.89
BH2	N 5490688.7	E 439525.5	5.78
BH3	N 5490693.2	E 439452.7	0.93
BH4	N 5490675.9	E 439527.0	1.07
BH5	N 5490694.7	E 439467.9	0.38
BH6	N 5490667.2	E 439527.9	1.06
BH7	N 5490685.2	E 439467.5	0.25
BH8	N 5490661.8	E 439529.1	0.74



0	ISSUED FOR TENDER	01/10/2017
revisions		date

DEER ARM BROOK
BRIDGE REPLACEMENT

GROS MORNE
NATIONAL PARK

BOREHOLE LOGS
(SHEET 1 OF 3)

designed	VINCE GOREHAM	conçu
date	OCTOBER 2016	
drawn	G.R. MATHESON	dessiné
date	OCTOBER 2016	
approved	TODD MENZIES	approuvé
date	OCTOBER 2016	
Tender		Submission
PWOSC Project Manager	Administrateur de projets TPSC	
project number		no. du projet

1117

S22

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HARBOURSIDE
 Geotechnical Consultants

BOREHOLE RECORD

BH03

CLIENT HARBOURSIDE ENGINEERING CONSULTANTS

PROJECT No. 163517.DA

LOCATION DEER ARM BROOK, GROS MORNE NATIONAL PARK, NEWFOUNDLAND

DATUM CGVD28

DATES: BORING 10/09/2016 TO 10/09/2016

WATER LEVEL 10/09/2016

BH SIZE HW

DEPTH (m)	ELEVATION (m)	SOIL/BEDROCK DESCRIPTION	GRAPHIC LOG	WATER LEVEL	TYPE	NUMBER	REC. SOIL (mm) REC. ROCK (%)	BLOWS / 150 mm (N VALUE) ROD %	OTHER TESTS	UNDRAINED SHEAR STRENGTH - kPa 20 40 60 80 W _p W WATER CONTENT & ATTERBERG LIMITS DYNAMIC PENETRATION TEST: BLOW/50.3m STANDARD PENETRATION TEST: BLOW/50.3m									
-9.41		- artesian groundwater flow 30L/min from top of casing at elev. 1.5 m			SS	16	100	27.25-50 125 mm											
		Very poor to poor quality grey LIMESTONE - slightly weathered - with frequent silt seams			HQ	17	59%	0%											
					HQ	18	81%	19%											
					HQ	19	100%	48%	Qu										
-12.02		End of borehole - artesian groundwater conditions encountered																	
13																			
14																			
15																			
16																			
17																			
18																			
19																			

HARBOURSIDE GEOTECHNICAL CONSULTANTS BOREHOLE RECORD - 19/2/16

PAGE 1 OF 2

HARBOURSIDE
Geotechnical Consultants

BOREHOLE RECORD

BH04

CLIENT	HARBOURSIDE ENGINEERING CONSULTANTS		PROJECT No.	163517 DA
LOCATION	DEER ARM BROOK, GROS MORNE NATIONAL PARK, NEWFOUNDLAND		DATUM	CGVD28
DATES: BORING	15/09/2016 TO 15/09/2016	WATER LEVEL	15/09/2016	BH SIZE HW

DEPTH (m)	ELEVATION (m)	SOIL/BEDROCK DESCRIPTION	GRAPHIC LOG	WATER LEVEL	TYPE	NUMBER	SOL (mm) REC. ROCK (%)	BL (mm) BLOW (mm) B VALUE ROD %	OTHER TESTS	UNDRAINED SHEAR STRENGTH: kPa 20 40 60 80 W _p W _L WATER CONTENT & ATTERBERG LIMITS DYNAMIC PENETRATION TEST, BLOW/50 cm STANDARD PENETRATION TEST, BL/CWS/50 cm
0.07		ROOTMAT and TOPSOIL - with some partially decayed vegetable matter			SS	1	0	0-0-0-1 (0)		0 10 20 30 40 50 60 70 80
1	-0.07				SS	2	400	3-2-7-4 (9)		
2		Loose to compact grey to brown SAND with silt to GRAVEL with silt and sand - with occasional cobbles and boulders			SS	3	100	8-10-8-10 (18)		
3					SS	4	250	2-4-3-4 (7)	S	
4					SS	5	0	4-2-2-3 (4)		
5					SS	6	150	16-72-44-25 (89)		
6	-2.74	Firm brown sandy CLAY interlayered with dark grey sandy SILT - with occasional sea shells			SS	7	200	7-3-4-4 (7)		
7	-3.35	Firm brown lean CLAY with gravel - with occasional layers of dark grey sandy silt - with occasional sea shells			SS	8	150	4-8-4-2 (6)		
8					SS	9	150	Push		
9					SS	10	300	3-3-3-2 (5)		
10					SS	11	550	76-mm Spoon	S	
11					SS	12	250	4-4-2-2 (4)		
12	-6.70	Loose to compact grey to brown sandy SILT with gravel interlayered with firm brown lean CLAY - with occasional gravel and sea shells			SS	13	300	5-7-7-6 (13)		
13					SS	14	350	3-4-5-8 (9)		
14					SS	15	0	3-4-6-6 (10)		
15					SS	16	100	3-3-3-3 (6)		

HARBOURSIDE GEOTECHNICAL CONSULTANTS, BOREHOLE RECORD 19/12/16

PAGE 2 OF 2

HARBOURSIDE
Geotechnical Consultants

BOREHOLE RECORD

BH01

CLIENT **HARBOURSIDE ENGINEERING CONSULTANTS** PROJECT No. **163517.DA**
LOCATION **DEER ARM BROOK, GROS MORNE NATIONAL PARK, NEWFOUNDLAND** DATUM **CGVD28**
DATES: BORING **15/09/2016 TO 15/09/2016** WATER LEVEL **15/09/2016** BH SIZE **HW**

DEPTH (m)	ELEVATION (m)	SOIL/BEDROCK DESCRIPTION	GRAPHIC WATER LEVEL	TYPE	NUMBER	REC. SOIL (mm) REC. ROCK (%)	BLOWS / 150 mm (N VALUE) RQD %	OTHER TESTS	UNDRAINED SHEAR STRENGTH - kPa		WATER CONTENT & ATTERBERG LIMITS		DYNAMIC PENETRATION TEST, BLOWN(0.3m)		STANDARD PENETRATION TEST, BLOWN(0.3m)	
									20	40	60	80	100	120	140	160
-1		Loose to compact grey to brown sandy SILT with gravel interlayered with firm brown lean CLAY - with occasional gravel and sea shells <i>(continues)</i>		ST	17	0	Push									
-11				SS	18	375	0-1-0-1 (1)									
-12	-11.05	Very dense grey silty clayey sand with gravel TILL - with occasional cobbles and boulders		SS	19	0	1-1-6-21 (7)									
-13				SS	20	500	26-28-26-54 (54)	S								
-14				SS	21	200	22-45-75 / 125 mm									
-15	-13.67	- artesian groundwater conditions 26 L/min from top of casing at 1.6 m No flow from top of casing at 4.0 m Very poor to poor quality grey LIMESTONE - slightly to moderately weathered - with silt seams		HQ	22	180 mm	N/A									
-16				HQ	23	255 mm	N/A									
-17				HQ	24	100%	0%									
-18	-16.43	End of borehole - artesian groundwater conditions encountered		HQ	25	100%	21%									
-19				HQ	26	98%	31%									

HARBOURSIDE GEOTECHNICAL CONSULTANTS, BOREHOLE RECORD 30/2/16

PAGE 1 OF 2

HARBOUTSIDE
 GEOTECHNICAL CONSULTANTS

BOREHOLE RECORD

BH05

CLIENT **HARBOUTSIDE ENGINEERING CONSULTANTS**

PROJECT No. **163517-DA**

LOCATION **DEER ARM BROOK, GROS MORNE NATIONAL PARK, NEWFOUNDLAND**

DATUM **CGVD28**

DATES: BORING **11/09/2016 TO 11/09/2016**

WATER LEVEL **11/09/2016**

BH SIZE **HW**

DEPTH (m)	ELEVATION (m)	SOIL/BEDROCK DESCRIPTION	GRAPHIC LOG	WATER LEVEL	TYPE	NUMBER	REC. SOIL (mm)	REC. ROCK (%)	BLOWES / 150 mm (N VALUE)	BLOWES / 300 mm (N VALUE)	ROD %	OTHER TESTS	UNDRAINED SHEAR STRENGTH - kPa		WATER CONTENT & ATTERBERG LIMITS		DYNAMIC PENETRATION TEST - BLOWES/30		STANDARD PENETRATION TEST - BLOWES/30m	
													20	40	60	80	W _p	W _L	W _p	W _L
	0.36	ROOTMAT and TOPSOIL (very loose black silty sand with some organics)			SS	1	200		1-1-3-8 (4)											
	-0.19	Loose to compact brown GRAVEL with silt and sand - with occasional cobbles and boulders			SS	2	175		8-13-15-13 (28)			S								
1					SS	3	100		76-mm Spoon											
2					SS	4	125		8-6-3-3 (6)											
3	-2.57	Compact brown to grey GRAVEL with silt and sand - rounded - with occasional wood			SS	5	100		4-2-4-18 (6)			S								
4					SS	6	225		25-14-13-10 (23)											
5					SS	7	200		76-mm Spoon											
6					SS	8	200		9-17-15-16 (31)											
7					SS	9	500		8-12-17-12 (29)											
8	-5.18	Loose to compact grey sandy SILT interlayered with soft to stiff brown lean CLAY - with occasional gravel and sea shells			SS	10	0		6-4-2-2 (4)											
9					ST	11	0		Push											
10					ST	12	0		Push											
11					SS	13	600		Weight of Rods											
12	-7.93	Very dense brown silty sand with gravel TILL - artesian groundwater conditions 15 L/min from top of casing at elev. 1.5 m			SS	14	225		6-50 / 125 mm											
13	-8.21	Very poor to poor quality grey LIMESTONE CONGLOMERATE - slightly weathered - with calcite seams			HQ	15	62%		0%											
14					HQ	16	95%		31%											

UNRECORDED GEOTECHNICAL CONSULTANTS BOREHOLE RECORD - 19/07/16

PAGE 2 OF 2

HARBOURSIDE Geotechnical Consultants		BOREHOLE RECORD				BH05											
CLIENT _____ LOCATION DEER ARM BROOK, GROS MORNE NATIONAL PARK, NEWFOUNDLAND DATES: BORING 11/09/2016 TO 11/09/2016 WATER LEVEL 11/09/2016		PROJECT No. 163517.DA DATUM CGVD28 BH SIZE HW															
DEPTH (m) ELEVATION (m)	SOIL/BEDROCK DESCRIPTION	GRAPHIC LOG	WATER LEVEL	TYPE	NUMBER	REC. SOIL (mm) REG. ROCK (%) BLOWS PER METRE (N VALUE) ROD %	OTHER TESTS	UNDRAINED SHEAR STRENGTH - kPa <div style="text-align: right;">20 40 60 80</div> <div style="text-align: center;">V_u V_c + —</div> <div style="text-align: center;">WATER CONTENT & ATTERBERG LIMITS DYNAMIC PENETRATION TEST, BLOWED 3in STANDARD PENETRATION TEST, BLLOWED 3in</div> <div style="text-align: right;">0 10 20 30 40 50 60 70 80</div>									
-10.36	Very poor to poor quality grey LIMESTONE CONGLOMERATE - slightly weathered - with calcite seams (<i>continued</i>)	[Graphic Log]		HQ	17	70%	20%	Qu	[Data Grid Columns 9-18]								
-11.13	Very poor quality grey LIMESTONE - slightly weathered - with calcite seams	[Graphic Log]							[Data Grid Columns 9-18]								
-12	End of borehole - artesian groundwater conditions encountered	[Graphic Log]							[Data Grid Columns 9-18]								
-13									[Data Grid Columns 9-18]								
-14									[Data Grid Columns 9-18]								
-15									[Data Grid Columns 9-18]								
-16									[Data Grid Columns 9-18]								
-17									[Data Grid Columns 9-18]								
-18									[Data Grid Columns 9-18]								
-19									[Data Grid Columns 9-18]								

PAGE 1 OF 2

HARBOURSIDE
 GEOTECHNICAL CONSULTANTS

BOREHOLE RECORD

BH01

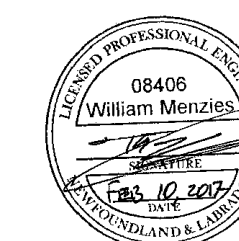
CLIENT **HARBOURSIDE ENGINEERING CONSULTANTS**
 LOCATION **DEER ARM BROOK, GROS MORNE NATIONAL PARK, NEWFOUNDLAND**
 DATES: BORING **14/09/2016 TO 14/09/2016** WATER LEVEL **14/09/2016**

PROJECT No. **163517.DA**
 DATUM **CGVD28**
 BH SIZE **HW**

DEPTH (m)	ELEVATION (m)	SOIL/BEDROCK DESCRIPTION	GRAPHIC WATER LEVEL	TYPE	NUMBER	REC. SOIL (%) REC. ROCK (%)	BLOWS / 150 mm (N VALUE) RCD %	OTHER TESTS	UNCORRECTED SHEAR STRENGTH - kPa 20 40 60 80 100	WATER CONTENT & LIQUIDITY LIMITS LIQUIDITY LIMITS STANDARD PENETRATION TEST, BLOWS/30m
0.06		FILL: grey gravel with sand		SS	1	175	7-8-50 / 0			
0.45		ROOTMAT and TOPSOIL								
0.15		FILL: brown silty sand with gravel		SS	2	225	2-1-4-5 (5)			
				SS	3	225	7-9-10-6 (16)			
-0.92		TOPSOIL and ROOTMAT (very loose brown silty sand) - with some organic material, roots, and rootlets		SS	4	250	5-2-1-1 (2)			
-1.53		Compact to dense grey GRAVEL with silt and sand - with occasional cobbles and boulders		SS	5	200	6-42-24-18 (42)			
-2.60		Loose to compact dark grey SILT - with occasional gravel and sea shells		SS	6	0	8-12-16-8 (24)			
-3.36				SS	7	400	76-mm Spoon			
		Soft to firm grey lean CLAY interlayered with loose grey sandy SILT - with occasional gravel and sea shells - non plastic fines at 4.6 m depth		ST	8	600	Push			
				SS	9	150	2-2-3-4 (5)			
		- greyish-brown below 5.6 m		SS	10	525	WL Of Hammer			
		- brown below 6.2 m		SS	11	600	0-2-2-2 (4)			
-5.80		Very soft to stiff brown sandy lean CLAY to SILTY CLAY interlayered with loose to compact grey sandy SILT - with occasional gravel		ST	12	550	Push			
				SS	13	350	0-1-0-2 (1)			
				SS	14	350	3-7-4-9 (11)			
				SS	15	250	2-3-3-3 (6)			
-8.47		Very loose to compact grey silty sand with gravel TILL		SS	16	375	2-9-12-8 (20)			

■ Miniature Vane □ Torvane
 ◆ Penetrometer ◇ UU Triaxial
 ▲ Field Vane △ Uncorrected Compression

HARBOURSIDE GEOTECHNICAL CONSULTANTS, BOREHOLE RECORD, 19/07/16



PROVINCE OF NEWFOUNDLAND AND LABRADOR

PEG
Newfoundland and Labrador
Professional Engineers and Geoscientists
Association of the Province of Newfoundland and Labrador

PERMIT HOLDER
This Permit Allows

**HARBOURSIDE GEOTECHNICAL
CONSULTANTS LIMITED**

To practice Professional Engineering
in Newfoundland and Labrador.
Permit No. as issued by PEGNL **M6849**
which is valid for the year **2012**

0	ISSUED FOR TENDER	01/20
revisions		da

project DEER ARM BROOK
BRIDGE REPLACEMENT

GROS MORNE
NATIONAL PARK

BOREHOLE LOGS
(SHEET 2 OF 3)

designed VINCE GOREHAM

date OCTOBER 2016

drawn G.R. MATHESON dess

date OCTOBER 2016

approved TODD MENZIES approved
OCTOBER 2016

date	OCTOBER 2016		
Tender	1	2	Soumission

John Kelly
PWGSC Project Manager Administrateur de projets TPS

project number	no. du pro
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