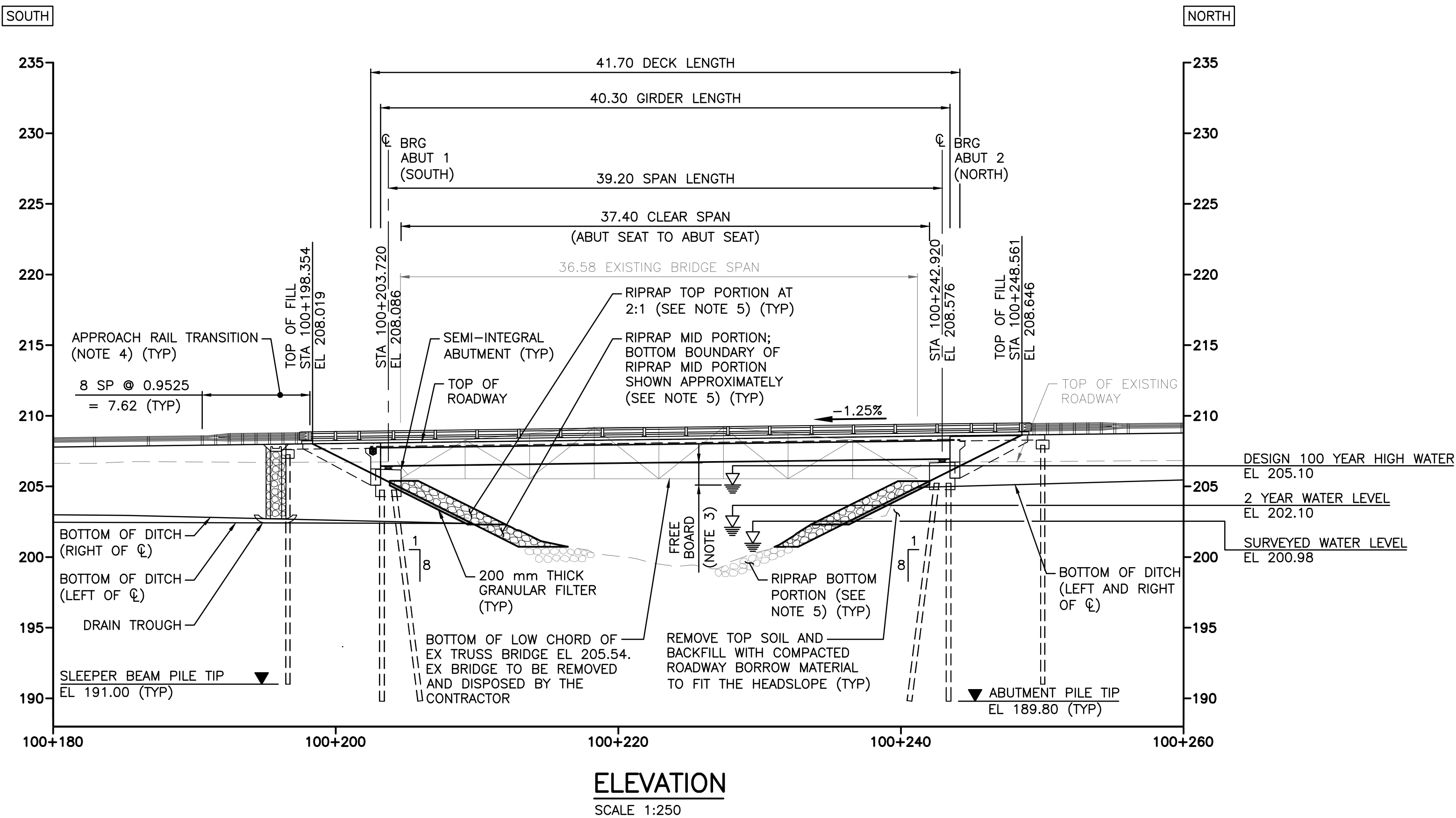


WORK POINT SCHEDULE					
WORK POINT	NORTHING	EASTING	STATION	OFFSET	ELEVATION
WP 1	6813599.524	593974.476	100+203.720	0.00	208.086
WP 2	6813638.714	593973.606	100+242.920	0.00	208.576

BENCHMARK POINT TABLE			
DESCRIPTION	NORTHING	EASTING	ELEVATION
BM1	6813590.94	593981.66	206.55
WSC 209	6813636.61	593979.31	205.21
WSC 210	6813600.75	593980.07	205.16



NOTES

- DIMENSIONS ON THIS DRAWING ARE IN METRES UNLESS NOTED OTHERWISE.
- ELEVATIONS ARE GIVEN TO THE TOP OF ROADWAY ALONG THE HIGHWAY 1 CONTROL LINE.
- REQUIRED MINIMUM FREE BOARD
FREE BOARD PROVIDED AT ABUTMENT 1 = 1.20 m
FREE BOARD PROVIDED AT ABUTMENT 2 = 1.67 m
FREE BOARD PROVIDED AT MID-SPAN = 1.44 m
- APPROACH RAIL TRANSITION: FIRST SIX SPACES AT 952.5 mm TO BE TWO LAYERS OF 2.7 mm THICK THRIE BEAM GUARDRAIL WITH TERMINAL CONNECTOR. LAST TWO SPACES AT 952.5 mm TO BE 2.7 mm THICK W-THRIE BEAM TRANSITION SECTION. REFER TO ALBERTA TRANSPORTATION STANDARD DRAWINGS S-1642-20, S-1643-20 AND SHEET 53 FOR DETAILS.
- RIPRAP SHALL BE PLACED AS BELOW:

TOP PORTION:
(ABOVE THE 1:2-YEAR WATER LEVEL OF 202.10 m TO THE TOP OF RIPRAP ELEVATION OF 205.4 m FOR BOTH ABUTMENTS)
USE A COMBINATION OF SALVAGED EXISTING RIPRAP AND IMPORTED RIPRAP UNDERLAIN BY 200 mm THICK GRANULAR FILTER BASE. IF CLASS 1 GRADATION IS USED, IT SHALL BE PREFERENTIALLY PLACED AT THE TOP OF THE RIPRAP REVETMENT (I.E., WHERE FLOW VELOCITY IS THE LOWEST). IF EXISTING RIPRAP IS SALVAGED, IT SHALL BE BLENDED WITH SMALLER RIPRAP, COBBLES, AND GRAVELS TO MEET THE FULL CLASS 2 GRADATION, TO THE SATISFACTION OF THE ENGINEER'S REPRESENTATIVE - HYDROTECHNICAL ENGINEER. GRANULAR FILTER BASE MATERIAL SHALL BE APPROVED EITHER AS WELL GRADED CRUSHED GRANULAR MATERIAL WITH D100 OF 100 TO 150 mm OR EQUIVALENT WELL GRADED UNCRUSHED BANK PITRUN GRAVEL. THE CONTRACTOR SHALL SUBMIT THE PROPOSED MATERIAL FOR APPROVAL BY THE HYDROTECHNICAL ENGINEER AT LEAST 2 WEEKS PRIOR TO THE WORKS.

MID PORTION:
(BELOW THE 1:2-YEAR WATER LEVEL OF 202.10 m AND ABOVE THE WATER LEVEL AT THE TIME OF THE RIPRAP PLACEMENT FOR THIS PORTION. RIPRAP FOR THIS PORTION SHALL BE PLACED DURING LOWER WATER LEVEL SEASON(S))
ADD SMALLER PIECES OF RIPRAP, COBBLES, AND GRAVELS TO THE VOIDS OF THE EXISTING RIPRAP SURFACE TO APPROXIMATELY MEET THE CLASS 2 GRADATION, TO THE SATISFACTION OF THE HYDROTECHNICAL ENGINEER.

BOTTOM PORTION:
(EXISTING RIPRAP BELOW THE WATER LEVEL AT THE TIME OF PLACING MID PORTION RIPRAP DURING LOWER WATER LEVEL SEASON)
NO NEW RIPRAP PLACEMENT BELOW THE WATER LEVEL. EXISTING RIPRAP BELOW THE WATER LEVEL SHALL REMAIN AND UNDISTURBED.
(THIS PORTION OF RIPRAP SHOWN ON THE DRAWING IS SCHEMATIC)

RIPRAP THICKNESS SHALL BE 0.6 m FOR CLASS 1 AND 1.0 m FOR CLASS 2, MEASURED PERPENDICULAR TO THE SLOPE.

PRELIMINARY – NOT FOR CONSTRUCTION



Jacobs

Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
GENERAL LAYOUT

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN	DATE	2024-03-25
PROJECT No.		SHEET No.	
CE857700		23 OF 55	
DRAWING No.		SC-INF01-6081-S001	

GENERAL

READ THESE GENERAL NOTES IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS, DRAWINGS, AND OTHER CONTRACT DOCUMENTS.

OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT THAT INFORMATION CONTAINED ELSEWHERE IN THE CONTRACT DOCUMENTS APPEARS TO CONFLICT WITH THESE GENERAL NOTES.

DO NOT SCALE DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETERS (mm OR MM) UNO.

ALL STATIONS, ELEVATIONS, EASTINGS, AND NORTHINGS ARE IN METERS (m OR M) UNO.

STATIONS, NORTHINGS, EASTINGS AND DIMENSIONS ARE GIVEN IN GRID COORDINATES AND VALUES UNO.

ANY UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR SHALL DETERMINE THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AND PROTECT AS REQUIRED. FOR RELOCATING EXISTING UNDERGROUND UTILITIES, REFER TO SPECIAL PROVISIONS.

ALL CONSTRUCTION SHALL CONFORM TO SPECIAL PROVISIONS, GOVERNMENT OF NORTHWEST TERRITORIES STANDARD SPECIFICATIONS FOR BRIDGE CONSTRUCTION (SSBC) (EDITION 1 2021), AND THESE DRAWINGS.

ALL CONSTRUCTION MATERIALS NOT SPECIFIED HEREIN AND IN THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS IN SSBC.

DESIGN CRITERIA & LOADING

DESIGN IS BASED ON:

- CAN/CSA-S6-19 'CANADIAN HIGHWAY BRIDGE DESIGN CODE' (REFERRED TO HEREFTER AS 'CSA S6').
- DESIGN CRITERIA / STANDARDS BY GOVERNMENT OF NORTHWEST TERRITORIES (GNWT) WITH APPROVED DESIGN EXCEPTIONS (DE)
- ALBERTA TRANSPORTATION BRIDGE STRUCTURES DESIGN CRITERIA, VERSION 9.0, JANUARY 2022

DESIGN LIVE LOAD: CL-800

BARRIERS DESIGNED FOR PERFORMANCE LEVEL: TL-4

CONSTRUCTION LIVE LOAD ON DECK = 1.5 kPa (NOT ON THE DECK CANTILEVER UNLESS BALANCED)

50-YEAR RETURN PERIOD MINIMUM AND MAXIMUM DAILY MEAN TEMPERATURES = -48 AND 28 °C
MINIMUM AND MAXIMUM EFFECTIVE TEMPERATURES = -46 AND 43 °C

LONGITUDINAL BRAKING FORCE = 228 kN

MEAN WIND PRESSURE FOR 50 YEAR RETURN PERIOD = 0.41 kPa
MEAN WIND PRESSURE FOR 10 YEAR RETURN PERIOD (DURING CONSTRUCTION) = 0.30 kPa

DESIGN HORIZONTAL WIND PRESSURE = 1.64 kPa

DESIGN VERTICAL WIND PRESSURE = 0.82 kPa

SAFETY RAIL DESIGN LOAD: A CONCENTRATED LOAD OF 1.0 kN APPLIED AT ANY POINT SO AS TO PRODUCE THE MOST CRITICAL EFFECT, AS PER NATIONAL BUILDING CODE, CL 7.4.5.14 (B), APPLICABLE TO WHERE THE GATHERING OF MANY PEOPLE IS IMPROBABLE.

SEISMIC:

LIFELINE BRIDGE

SITE CLASS: C

SEISMIC PERFORMANCE CATEGORY: 1

S(0.2) = 0.169

SEISMIC CONNECTION HORIZONTAL LOAD AT ABUTMENTS: 455 kN, EACH DIRECTION

(TRANSVERSE DIRECTION RESTRAINED BY SHEAR BLOCKS; LONGITUDINAL DIRECTION RESTRAINED BY BACKFILL PASSIVE EARTH PRESSURE BEHIND ABUTMENT DIAPHRAGMS)

CAST-IN-PLACE CONCRETE

DRAIN TROUGHS AND SHEAR BLOCKS ON ABUTMENT SEATS:
CLASS C, 28-DAY STRENGTH 35 MPa

PRECAST CONCRETE ELEMENT CONNECTIONS, POCKETS AND GIRDER HAUNCHES:
APPROVED 120 MPa UHPC WITH 2% FIBER

ALL UHPC CASTING FORMWORK SHALL BE WATER-TIGHT TESTED PRIOR TO THE CONCRETE PLACEMENT.

PRECAST CONCRETE

DECK PANELS, DIAPHRAGMS AND APPROACH SLABS:
CLASS HPC, 28-DAY STRENGTH 45 MPa

ALL OTHER PRECAST CONCRETE ELEMENTS:
CLASS C, 28-DAY STRENGTH 35 MPa

REINFORCING STEEL SHALL HAVE 50 mm CLEAR CONCRETE COVER, EXCEPT THAT POCKET AND UHPC CONNECTION JOINT SURFACES TO HAVE MINIMUM 25 mm CLEAR CONCRETE COVER, UNLESS NOTED OTHERWISE.

ALL CORNERS (NOT INCLUDING CORNERS AT POCKET AND UHPC CONNECTION SURFACES) SHALL BE CONSTRUCTED WITH A MINIMUM 20 mm CHAMFER OR FILLET UNO.

THE CONTRACTOR IS RESPONSIBLE FOR ALL ASPECTS OF LIFTING (INCLUDING DESIGN OF LIFTING AND LEVELING DEVICES), HANDLING, ERECTION AND INSTALLATION OF PRECAST ELEMENTS AND TEMPORARY WORKS. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE PLANS AND DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE NORTHWEST TERRITORIES INDICATING ALL LOADS, AND ANY TEMPORARY SUPPORT SYSTEM REQUIRED AT LEAST 2 WEEKS PRIOR TO THE FABRICATION. THE SUBMISSION SHALL VERIFY THAT THE PRECAST ELEMENTS ARE CAPABLE OF RESISTING ALL CONSTRUCTION LOADS SAFELY AND WITHOUT DAMAGE.

ALL JOINT AND POCKET SURFACES OF PRECAST ELEMENTS SHALL BE PRE-ROUGHENED (AT PLANT) BY ABRASIVE BLASTING TO ICRI CSP NO. 6, AS PER SSBC SECTION 7.2.5.15.

THE ESTIMATED MASS OF PRECAST CONCRETE ELEMENTS SHOWN IN THE DRAWINGS ARE FOR THE GOVERNMENT OF NORTHWEST TERRITORIES USE ONLY AND THE DEPARTMENT ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY OR USE BY OTHERS.

REINFORCING STEEL

PLAIN REINFORCING STEEL SHALL CONFORM TO CAN/CSA-G30.18-M. GRADE 400W.

STAINLESS STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A276 AND A955/A955M (INCLUDING ANNEXES) WITH MINIMUM YIELD STRENGTH OF 420 MPa.

BAR MARK SUFFIX SS DENOTES SOLID STAINLESS STEEL BARS.

WELDING OF REINFORCEMENT IS NOT PERMITTED WITHOUT THE WRITTEN APPROVAL FROM THE ENGINEER.

STRUCTURAL STEEL & MISC METAL

PILES: STEEL SHALL CONFORM TO CAN/CSA-G40.21 GRADE 350W.

ALL STEEL FOR GIRDERS, STIFFENERS, SPLICE PLATES, AND ALL MATERIALS WELDED TO THE GIRDERS, INCLUDING PLATES EMBEDDED IN PRECAST CONCRETE ABUTMENT DIAPHRAGM FOR GIRDER CONNECTIONS, SHALL CONFORM TO CSA G40.21M-350AT, CATEGORY 3, WITH CHARPY V-NOTCH STRENGTH OF 27 JOULES AT -45°C.

ALL OTHER STEEL INCLUDING DIAPHRAGM ELEMENTS AND LATERAL BRACINGS SHALL CONFORM TO CSA G40.21M-350A.

SHEAR STUDS:
ASTM STANDARD A108, GRADES 1015, 1018, OR 1020, AND CONFORMING TO AWS D1.5 TABLE 7.1 FOR TYPE B STUDS

BOLTS:
STRUCTURAL BOLTS TO WEATHERING STEEL APPLICATIONS SHALL BE ASTM A325M - TYPE 3;
STRUCTURAL BOLTS TO GALVANIZED STEEL APPLICATIONS SHALL BE A325M - TYPE 1 GALVANIZED IN ACCORDANCE WITH ASTM F2329

NUTS AND WASHERS FOR GIRDERS:
MARKED WITH A "3" TO DENOTE WEATHERING GRADE

USE TWO WASHERS FOR ALL CONNECTIONS.

BRIDGERAIL AND APPROACH RAIL TRANSITION MATERIALS SHALL BE IN ACCORDANCE WITH ALBERTA TRANSPORTATION STANDARD DRAWING S-1642-20.

ALL MATERIALS AND CONNECTIONS ARE DESIGNED BASED ON METRIC UNITS. CHANGING TO IMPERIAL UNITS SHALL NOT BE DONE WITHOUT APPROVAL FROM THE ENGINEER. IMPERIAL SIZE COMPONENTS LARGER THAN METRIC SPECIFIED SHALL NOT BE AN EXTRA COST TO THE CONTRACT.

GALVANIZED COMPONENTS:
ALL COMPONENTS, EXCEPT WEATHERING STEEL, SHALL BE HOT DIP GALVANIZED, IN ACCORDANCE WITH ASTM A123M WITH A MINIMUM NET RETENTION OF 600 g/m², UNO.

GRIND ALL WELDS SMOOTH BEFORE GALVANIZING.

FIELD WELDS AND DAMAGED AREAS OF GALVANIZING SHALL BE METALLIZED IN ACCORDANCE WITH SSBC SECTION 6.2.7.3.3

EMBEDDED GALVANIZED STEEL ELEMENTS IN CONTACT WITH PLAIN OR STAINLESS REINFORCING STEEL SHALL BE SEPARATED BY PLASTIC ISOLATOR CLIPS OR APPROVED EQUIVALENT. WEATHERING STEEL COMPONENTS IN CONTACT WITH GALVANIZED ELEMENTS SHALL BE ISOLATED USING AN APPROVED COATING.

SEE SPECIFICATIONS AND THE DRAWINGS FOR FABRICATION AND INSTALLATION DETAILS, AND MATERIALS NOT SPECIFIED ABOVE.

STEEL GIRDERS

ALL BOLTED CONNECTIONS SHALL BE MADE WITH 22 mm DIAMETER UNO. BOLTED CONNECTIONS SHALL BE DETAILED WITH THREAD EXCLUDED FROM THE SHEAR PLANE.

THE ESTIMATED MASS OF THE STEEL GIRDER (GIRDERS AND DIAPHRAGMS BUT NOT BEARINGS, STUDS, BOLTS, ETC.) IS 23 TONNES. THIS ESTIMATE IS FOR THE GOVERNMENT OF NORTHWEST TERRITORIES USE ONLY AND THE DEPARTMENT ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY OR USE BY OTHERS.

DESIGN

DISTRIBUTION FACTORS

SHEAR (ULS, SLS)	= 0.647
BENDING (ULS, SLS)	= 0.578
SHEAR (FLS)	= 0.611
BENDING (FLS)	= 0.398
DEAD LOAD:	
GIRDER	= 6.66 kN/m (MID-SPAN) / 6.26 kN/m (END SPAN) PER GIRDER
DECK AND HAUNCH	= 18.3 kN/m PER GIRDER

FATIGUE: ACCORDING TO CAN/CSA-S6-19, HIGHWAY CLASS A

ASSUMED CONSTRUCTION LOADS = 1.5 kPa

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW CONSTRUCTION PLANS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE NORTHWEST TERRITORIES INDICATING ALL LOADS, PROPOSED METHODS AND SEQUENCES OF CONSTRUCTION, AND ANY TEMPORARY SUPPORT SYSTEMS REQUIRED. THE SUBMISSION SHALL VERIFY THAT THE GIRDERS ARE CAPABLE OF RESISTING THE ACTUAL LOADS SAFELY AND WITHOUT DAMAGE.

FABRICATION

FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH SSBC.

ALL GIRDER DIMENSIONS ARE CORRECT AT 20°C AND GIRDER LENGTHS ARE MEASURED ALONG THE BOTTOM FLANGE.

ALL WELDING, CUTTING AND PREPARATION SHALL BE IN ACCORDANCE WITH THE AWS BRIDGE WELDING CODE, D1.5.

BEARING STIFFENERS UNDER FULL BRIDGE DEAD LOAD SHALL BE VERTICAL. INTERMEDIATE WEB STIFFENERS AND DIAPHRAGM CONNECTION STIFFENERS SHALL BE INSTALLED PERPENDICULAR TO THE GIRDER FLANGES.

THE CONTRACTOR SHALL SUBMIT WELD SIZES AND WELDING PROCEDURE TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

ALL WELD METAL DEPOSITS SHALL HAVE CHARPY V NOTCH IMPACT STRENGTH OF AT LEAST 27 JOULES AT -45°C. ALL WELD METAL DEPOSITS SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER AND SHALL PRODUCE BOTH THE CORROSION RESISTANCE AND THE COLOUR PROPERTIES OF THE BASE METAL.

ALL BOLT HOLES SHALL BE DRILLED 2 mm LARGER THAN THE SPECIFIED BOLT DIAMETER UNLESS NOTED OTHERWISE.

TIGHTENING OF ALL HIGH STRENGTH BOLTS SHALL BE DONE BY THE TURN OF NUT METHOD ONLY IN ACCORDANCE WITH SSBC. BEFORE FINAL TIGHTENING THERE SHALL BE A SUFFICIENT NUMBER OF BOLTS BROUGHT TO A SNUG TIGHT CONDITION TO ENSURE THAT PARTS OF THE JOINT ARE BROUGHT INTO FULL CONTACT WITH EACH OTHER.

GIRDERS SHALL MEET THE CAMBER REQUIREMENTS AS SHOWN ON GIRDER CAMBER DIAGRAM.

ALL STEEL SHALL BE BLAST CLEANED AFTER FABRICATION IN ACCORDANCE WITH SSBC SECTION 6.2.7.1

TEMPORARY SUPPORT

THE CONTRACTOR SHALL INSTALL TEMPORARY SUPPORTING STRUCTURES TO MAINTAIN THE GIRDER'S STABILITY SOON AFTER THE GIRDERS ARE ERECTED.

GIRDERS SHALL BE TEMPORARILY RESTRAINED SOON AFTER BEING PLACED ON THE BEARINGS AND PRIOR TO RELEASING THE LIFTING DEVICE TO AVOID SLIDING. THE RESTRAINING SYSTEM SHALL REMAIN IN PLACE UNTIL BACKFILL WITH COMPACTION BEHIND ABUTMENT DIAPHRAGMS IS MINIMUM 1.2 m ABOVE THE BOTTOM OF THE DIAPHRAGMS TO RETAIN THE SLIDING FORCE.

INSPECTION & NON-DESTRUCTIVE TESTING

WELD INSPECTION AND TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH SSBC.

BRIDGE ELEMENTS LIFTING & ERECTION

THE CONTRACTOR SHALL SUBMIT GIRDER AND PRECAST CONCRETE ELEMENT LIFTING AND ERECTION PROCEDURES TO THE ENGINEER FOR REVIEW AT LEAST 2 WEEKS PRIOR TO THE WORKS AS PER THE CONTRACT SPECIAL PROVISION AND SSBC.

THE LIFTING AND ERECTION PROCEDURES FOR ALL BRIDGE ELEMENTS SHALL BE DESIGNED, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE NORTHWEST TERRITORIES.

HYDROTECHNICAL DATA

HYDROTECHNICAL DESIGN REPORT PREPARED BY MATRIX SOLUTIONS INC. DATED JANUARY 16, 2024.

DESIGN FLOOD RETURN PERIOD: 1:100 YEAR
DESIGN FLOW: 210 m³/s
DESIGN WATER LEVEL: 205.10 m
DESIGN VELOCITY: 2.1 m/s

GEOTECHNICAL

GEOTECHNICAL REPORT WAS COMPLETED BY MASKWA ENGINEERING LTD., DATED OCTOBER 30, 2023.

SURVEY

TOPOGRAPHICAL SURVEY WAS COMPLETED BY STANTEC CONSULTING LTD. IN 2019. SUPPLEMENTAL TOPOGRAPHICAL SURVEY WAS COMPLETED BY MASKWA ENGINEERING LTD. IN JUNE 2023.

BRIDGE CONSTRUCTION SEQUENCE

BELOW IS A GENERAL DESCRIPTION OF THE CONSTRUCTION SEQUENCE ASSUMED FOR THE PURPOSE OF THE DESIGN OF THE WORKS. IT IS NOT A DETAILED WORK PLAN AND HIGHLIGHTS ONLY CERTAIN ACTIVITIES REQUIRED TO COMPLETE THE WORK. SPECIFIC WORK PLANNING AND DETAILS OF THE CONSTRUCTION EXECUTION AND SCHEDULING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR'S PLAN IS SUBJECT TO THE REVIEW AND ACCEPTANCE OF THE ENGINEER AS WELL AS OTHER AUTHORITIES HAVING JURISDICTION.

AN ALTERNATE SEQUENCE PLAN WILL BE GIVEN CONSIDERATION BY THE ENGINEER SO LONG AS THE CONTRACTOR SUBMITS A COMPLETE PROPOSAL FOR REVIEW. SUCH AN ALTERNATIVE SEQUENCE PLAN MAY OR MAY NOT BE GIVEN ACCEPTANCE BY THE ENGINEER AND THE ENGINEER'S RULING SHALL GOVERN.



- SURVEY EXISTING BRIDGE PILE ROW LOCATIONS AS PER DRAWING S005 AND S006 (SHEET 27 AND 28);
- BUILD DETOUR ROAD AND TEMPORARY BRIDGE;
- REMOVE THE EXISTING BRIDGE;
- INSTALL PILES;
- INSTALL ABUTMENT SEATS AND UHPC CONNECTION JOINTS;
- INSTALL SLEEPER BEAM (FLEXIBLE STAGE AS DETERMINED BY THE CONTRACTOR);
- INSTALL HEAD SLOPE AND RIPRAP (FLEXIBLE STAGE AS DETERMINED BY THE CONTRACTOR);
- INSTALL BEARINGS, BUT DO NOT GROUT THE BEARING POCKETS;
- INSTALL GIRDERS AND PROVIDE GIRDER TEMPORARY STABILITY SUPPORTS, ALSO INCLUDING THE SUPPORT SYSTEM TO PREVENT GIRDER LONGITUDINAL SLIDING. THE LONGITUDINAL SUPPORT SYSTEM TO STAY IN PLACE UNTIL BACKFILL BEHIND ABUTMENTS IS COMPLETED;
- INSTALL GIRDER INTERMEDIATE DIAPHRAGMS;
- GROUT BEARING POCKETS;
- INSTALL PRECAST CONCRETE ABUTMENT DIAPHRAGMS;
- INSTALL PRECAST CONCRETE WINGWALLS WITH TEMPORARY SUPPORTS (LATERALLY AND VERTICALLY) AND UHPC CONNECTION JOINTS;
- BACKFILL BEHIND ABUTMENTS UP TO 1.2 m ABOVE BOTTOM OF ABUTMENT DIAPHRAGMS WITH BALANCED METHOD SPECIFIED IN THE DRAWINGS;
- INSTALL PRECAST CONCRETE DECK PANELS AND UHPC CONNECTION JOINTS;
- COMPLETE BACKFILL AND INSTALL APPROACH SLAB ELEMENTS AND UHPC CONNECTION JOINTS;
- INSTALL BRIDGERAILS AND APPROACH RAIL POSTS;
- INSTALL CIP CONCRETE DRAIN TROUGHS

IN ADDITION TO SUBMITTING EXISTING BRIDGE PILE ROW SURVEY DATA, THE CONTRACTOR SHALL HAVE THE BEARINGS DESIGNED AND SUBMIT THE SHOP DRAWINGS AT AN EARLIEST POSSIBLE TIME FOR THE ENGINEER'S REVIEW PRIOR TO THE FABRICATION OF BRIDGE ELEMENTS THAT ARE RELATED TO ACTUAL BEARING ASSEMBLY SIZES.

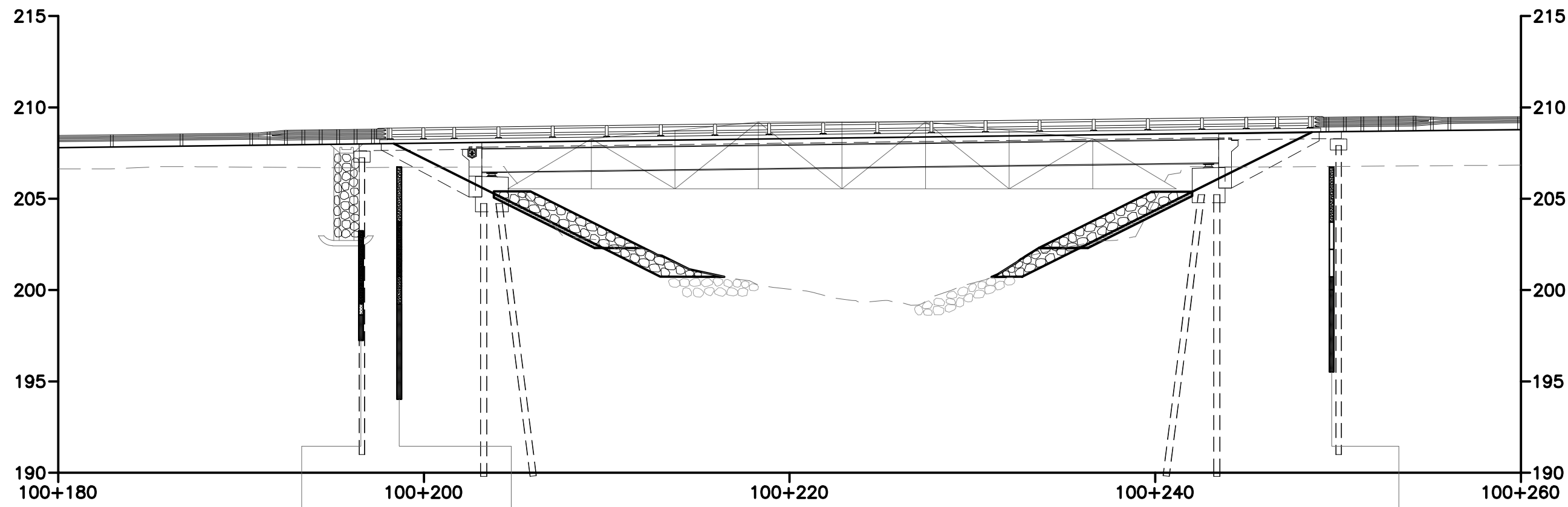
LEGEND & ABBREVIATIONS

●BH	BOREHOLE	GALV	GALVANIZED
℄	CENTRELINE	HPC	HIGH PERFORMANCE CONCRETE
▲	SURVEY CONTROL POINT	HORIZ	HORIZONTAL
▽	WATER LEVEL	HWY	HIGHWAY
⚡WP	WORK POINT	INT	INTERIOR
ABUT	ABUTMENT	LG	LONG
AIFB	ASPHALT IMPREGNATED FIBREBOARD	MIN	MINIMUM
APP	APPROACH	MISC	MISCELLANEOUS
B/W	BETWEEN	NOM	NOMINAL
BRG	BEARING	NTS	NOT TO SCALE
BOTT	BOTTOM	PL	PLATE
C/W	COMPLETE WITH	PROJ	PROJECTION
CIP	CAST-IN-PLACE	QTY	QUANTITY
CJ	CONSTRUCTION JOINT	SIM	SIMILAR
CLR	CLEAR	SS	STAINLESS STEEL BAR
CONT	CONTINUOUS	STA	STATION
CSP	CORRUGATED STEEL PIPE	SYM	SYMMETRICAL
DIA	DIAMETER	TYP	TYPICAL
DIAPH	DIAPHRAGM	UHPC	ULTRA HIGH PERFORMANCE CONCRETE
EL	ELEVATION	UNO	UNLESS NOTED OTHERWISE
EX	EXISTING	VERT	VERTICAL
EXT	EXTERIOR	WSC	WATER SURVEY OF CANADA
FO	FIBRE OPTIC CABLE (BURIED)	WW	WINGWALL

PRELIMINARY – NOT FOR CONSTRUCTION

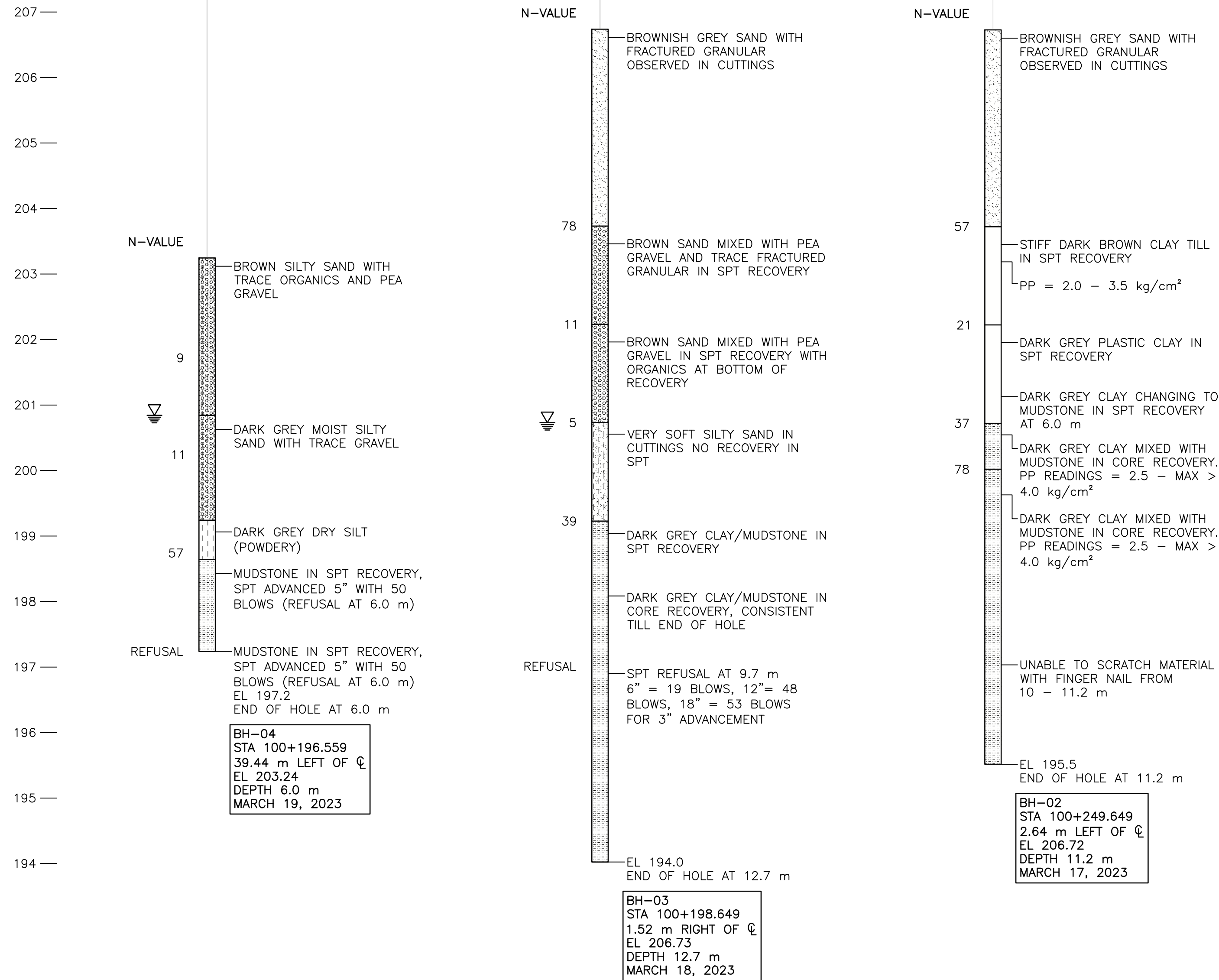
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Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL
R E V I S I O N S			
<div>Government of Northwest Territories</div> <div>HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2</div> <div>JEAN MARIE RIVER BRIDGE</div> <div>GENERAL NOTES</div>			
DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE		AS SHOWN	
		PREPARED UNDER THE DIRECTION OF	
		YING YI LI, P.ENG. ENGINEER OF RECORD	
		DATE 2024-03-25	
PROJECT No.	SHEET No.	DRAWING No.	
CEB57700	24 OF 55	SC-INF01-6081-S002	C

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PLOTTED : Wednesday, March 20, 2024



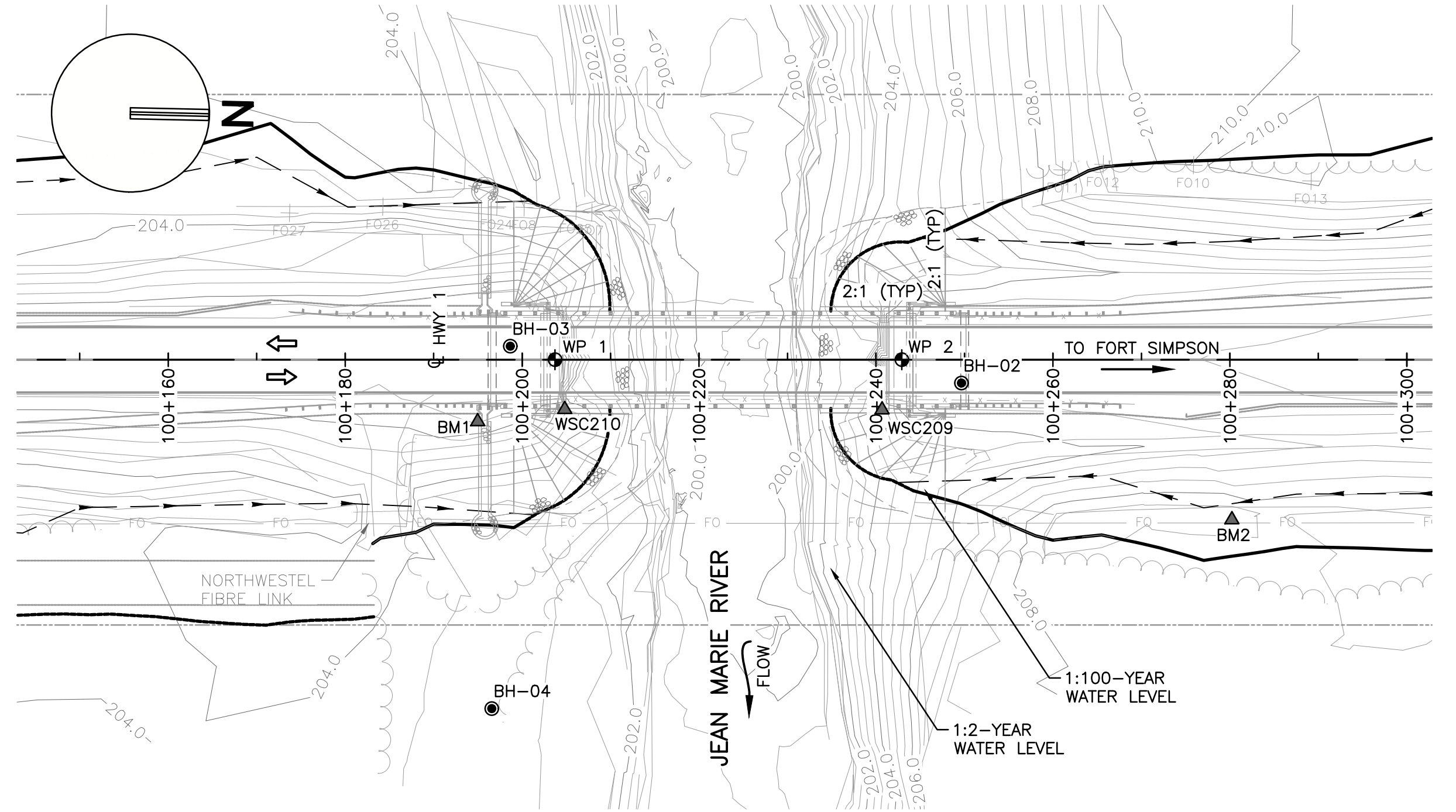
BRIDGE ELEVATION

SCALE 1:250



BOREHOLE LOGS

SCALE 1:50



SITE PLAN

SCALE 1:500

NOTES

- ALL GEOTECHNICAL INFORMATION PROVIDED FOR THIS PROJECT HAS BEEN COMPILED FOR THE GOVERNMENT OF NORTHWEST TERRITORIES FOR DESIGN PURPOSES ONLY. WHILE IT IS BELIEVED TO CORRECTLY REPRODUCE OR SUMMARIZE OBSERVATIONS MADE DURING TESTING, IT IS ONLY VALID FOR THE PRECISE LOCATION(S) SHOWN, AND IS NOT TO BE CONSTRUED AS GUARANTEEING THE ACTUAL MATERIALS AND CONDITIONS EXISTING THROUGHOUT THE SITE. THE TESTING METHODS USED MAY NOT HAVE DETERMINED THE PRESENCE, ABSENCE OR EXTENT OF BOULDERS, HARD OR SOFT FORMATIONS, WATER TABLES, ARTESIAN CONDITIONS AND OTHER VARIABLES. IT IS THE RESPONSIBILITY OF OTHERS USING THIS INFORMATION TO ENSURE THAT IT IS ADEQUATE FOR THEIR PURPOSES, OR TO SUPPLEMENT IT WITH ADDITIONAL INFORMATION.
- THE INFORMATION IS COMPILED FOR CONVENIENCE FROM HIGHWAY 1 JEAN MARIE RIVER BRIDGE REPLACEMENT GEOTECHNICAL INVESTIGATION REPORT BY MASKWA ENGINEERING LTD. ALL DISCLAIMERS IN THIS REPORT ARE APPLICABLE. REFER TO REPORT FOR FULL GEOTECHNICAL INFORMATION AND IN CASE OF DISCREPANCY THE GEOTECHNICAL REPORT GOVERNS.
- FOR PILE DRIVING REFUSAL CRITERIA REFER TO THE GEOTECHNICAL REPORT BY MASKWA ENGINEERING LTD.

PRELIMINARY – NOT FOR CONSTRUCTION



Consultant Logo

Jacobs

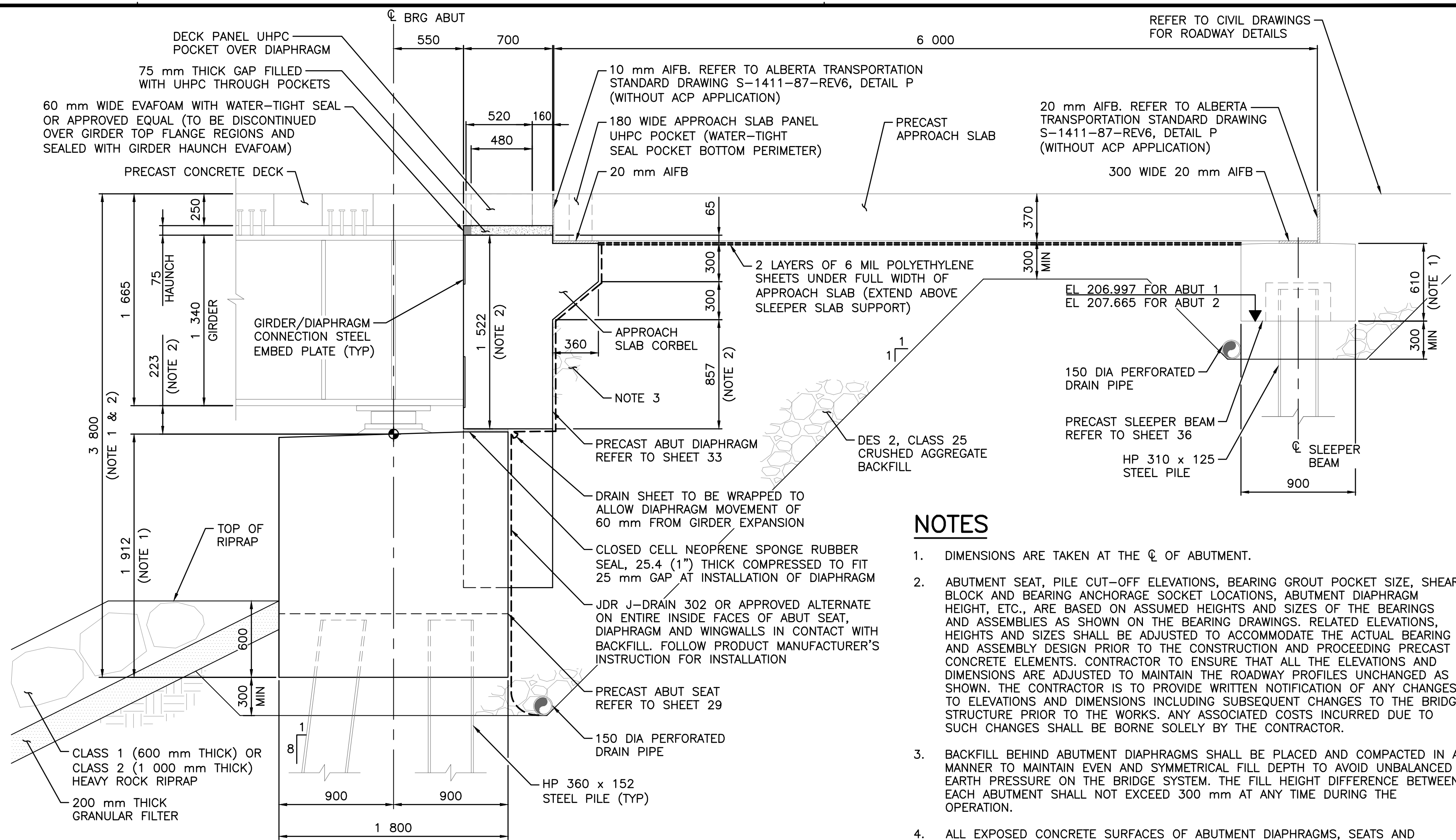
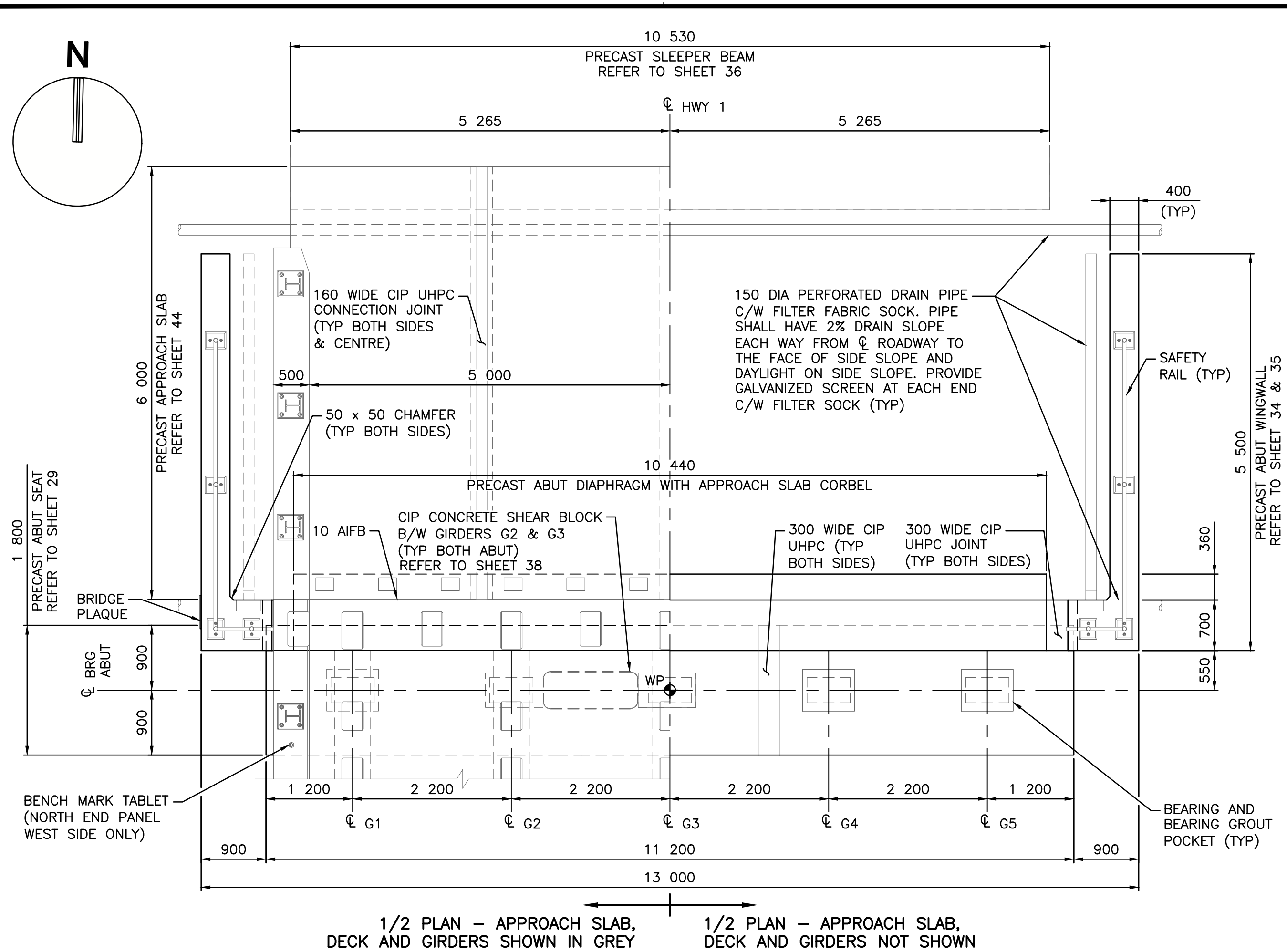
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A	2023-10-06	ISSUED FOR 80% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
GEOTECHNICAL INFORMATION SHEET

DESIGNED	YL	DATE	2024-03-25
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PROJECT No.	CE857700	SHEET No.	25 OF 55
		DRAWING No.	SC-INF01-6081-S003
			B

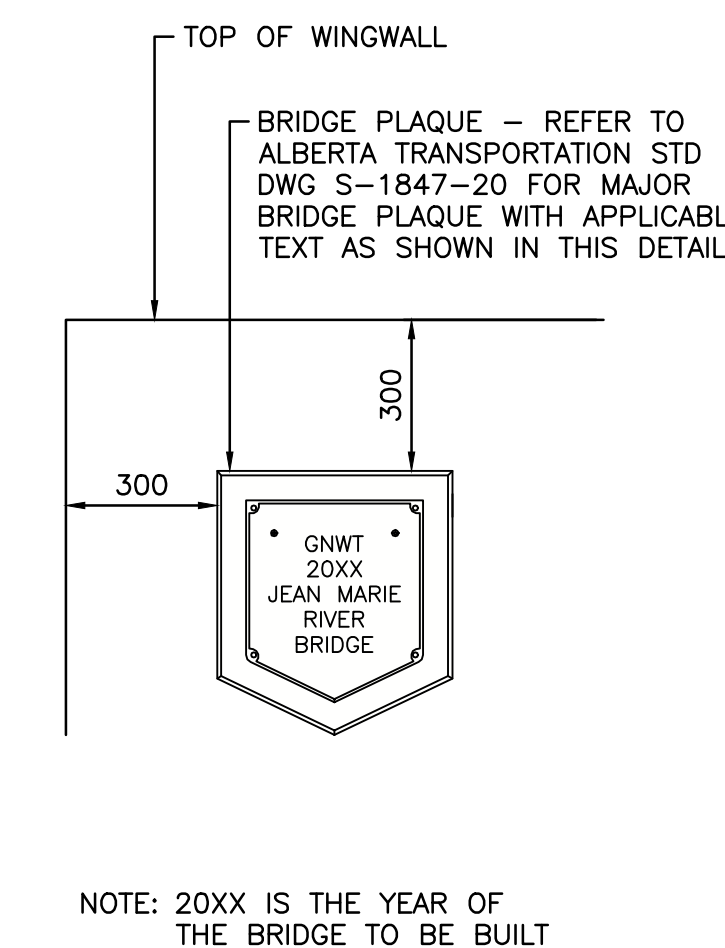
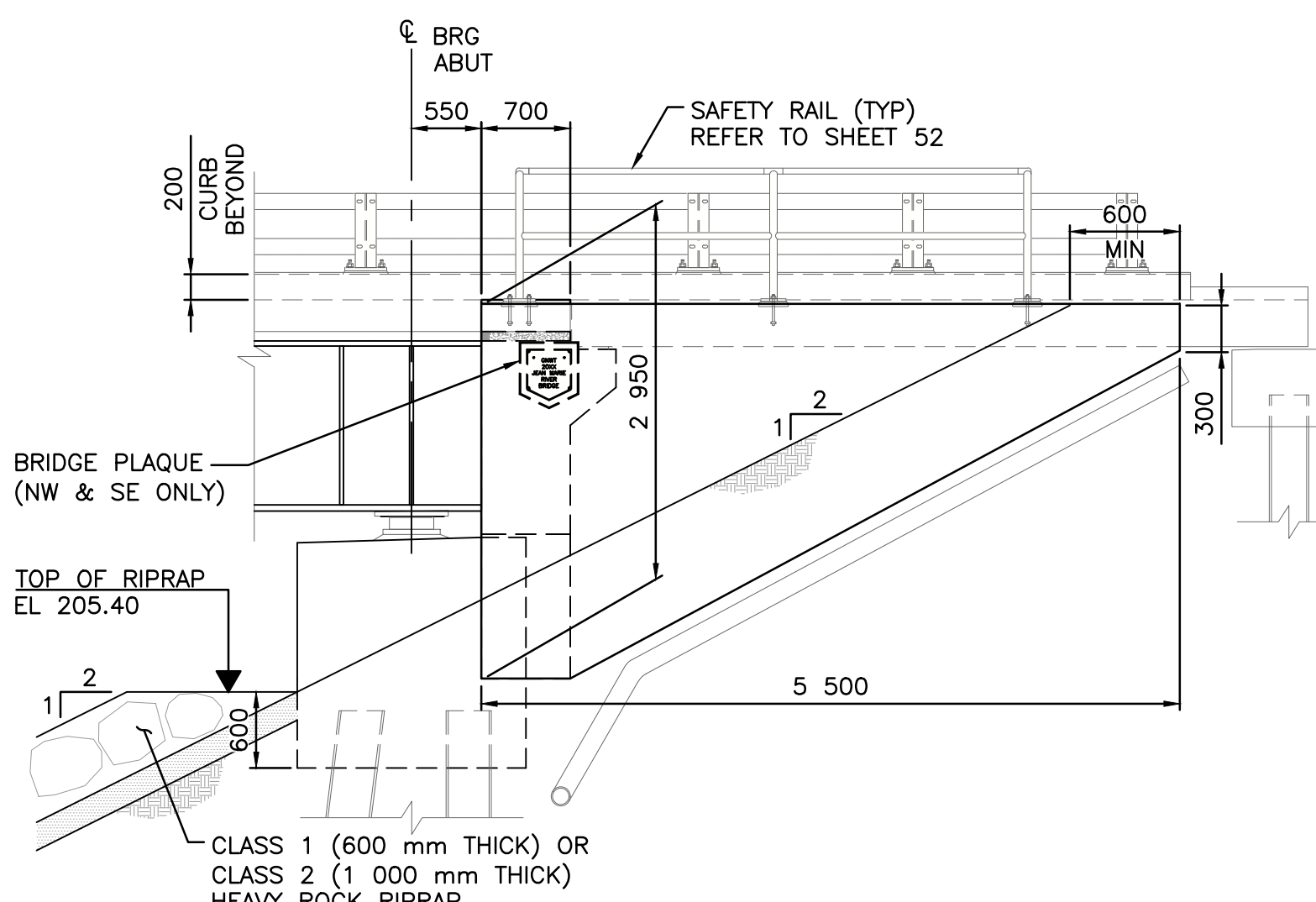
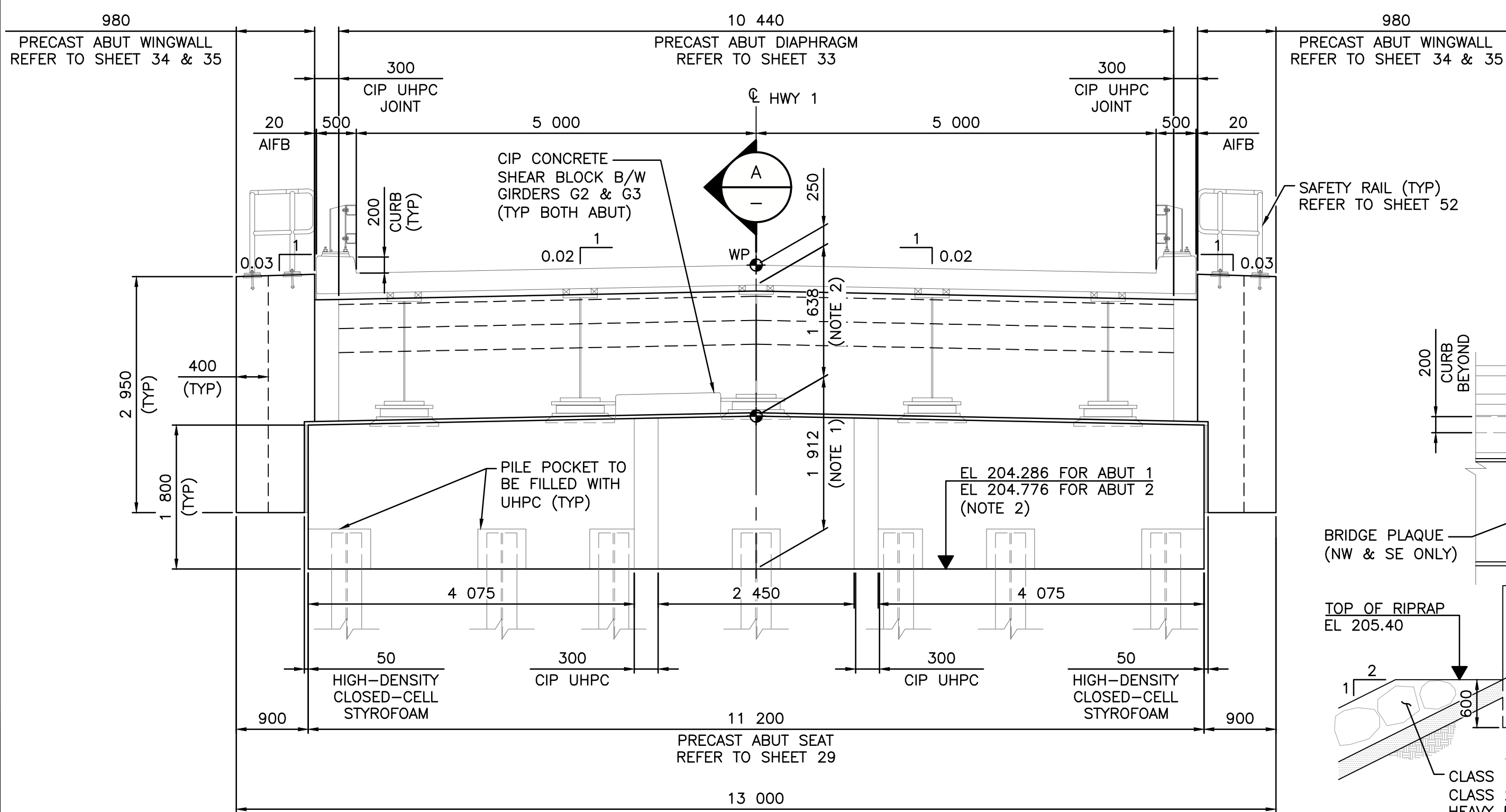
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PLOTTED : Monday, March 25, 2024



NOTES

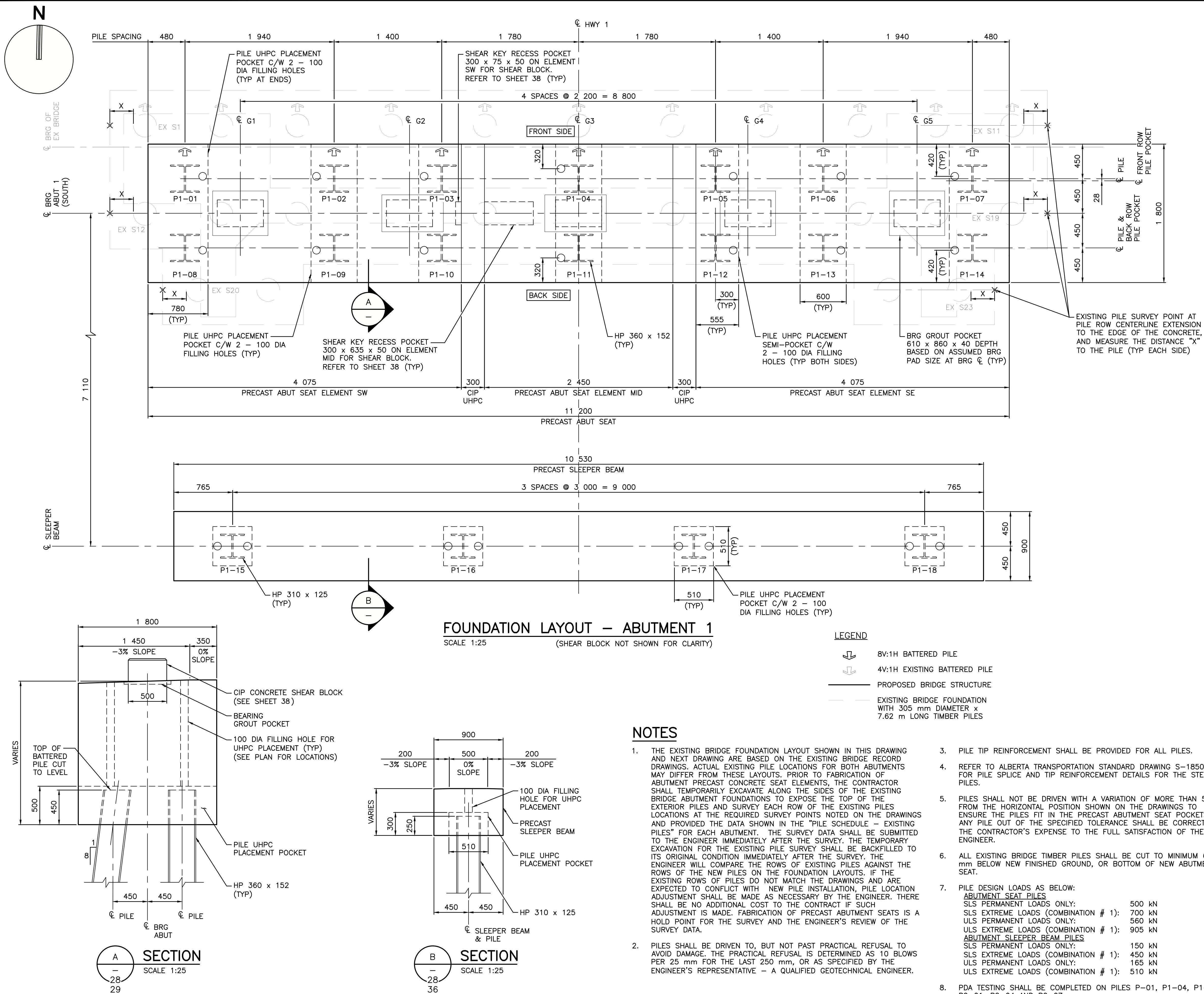
- DIMENSIONS ARE TAKEN AT THE CL OF ABUTMENT.
- ABUTMENT SEAT, PILE CUT-OFF ELEVATIONS, BEARING GROUT POCKET SIZE, SHEAR BLOCK AND BEARING ANCHORAGE SOCKET LOCATIONS, ABUTMENT DIAPHRAGM HEIGHT, ETC., ARE BASED ON ASSUMED HEIGHTS AND SIZES OF THE BEARINGS AND ASSEMBLIES AS SHOWN ON THE BEARING DRAWINGS. RELATED ELEVATIONS, HEIGHTS AND SIZES SHALL BE ADJUSTED TO ACCOMMODATE THE ACTUAL BEARING AND ASSEMBLY DESIGN PRIOR TO THE CONSTRUCTION AND PROCEEDING PRECAST CONCRETE ELEMENTS. CONTRACTOR TO ENSURE THAT ALL THE ELEVATIONS AND DIMENSIONS ARE ADJUSTED TO MAINTAIN THE ROADWAY PROFILES UNCHANGED AS SHOWN. THE CONTRACTOR IS TO PROVIDE WRITTEN NOTIFICATION OF ANY CHANGES TO ELEVATIONS AND DIMENSIONS INCLUDING SUBSEQUENT CHANGES TO THE BRIDGE STRUCTURE PRIOR TO THE WORKS. ANY ASSOCIATED COSTS INCURRED DUE TO SUCH CHANGES SHALL BE BORNE SOLELY BY THE CONTRACTOR.
- BACKFILL BEHIND ABUTMENT DIAPHRAGMS SHALL BE PLACED AND COMPACTED IN A MANNER TO MAINTAIN EVEN AND SYMMETRICAL FILL DEPTH TO AVOID UNBALANCED EARTH PRESSURE ON THE BRIDGE SYSTEM. THE FILL HEIGHT DIFFERENCE BETWEEN EACH ABUTMENT SHALL NOT EXCEED 300 mm AT ANY TIME DURING THE OPERATION.
- ALL EXPOSED CONCRETE SURFACES OF ABUTMENT DIAPHRAGMS, SEATS AND WINGWALLS, INCLUDE UHPC AREAS, EXTEND TO 600 mm BELOW FINISHED GROUND LINE SHALL RECEIVE PIGMENTED TYPE 3 SEALER, COLOUR OF CONCRETE GREY.

PRELIMINARY - NOT FOR CONSTRUCTION



Consultant Logo			
Jacobs			
Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL
REVISIONS			
Government of Northwest Territories HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2 JEAN MARIE RIVER BRIDGE ABUTMENT LAYOUT			
DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		
PROJECT No.		PREPARED UNDER THE DIRECTION OF	
CE857700		YING YI LI, P.ENG. ENGINEER OF RECORD	
SHEET No.		DATE	
26 OF 55		2024-03-25	
DRAWING No.		SC-INF01-6081-S004	
C		C	

FILE: C:\pw_workdir\jacobs-us-va-pw-02\dms92401\S005.dwg
PLOTTED : Monday, March 25, 2024





PILE SCHEDULE – ABUTMENT 1					
PILE MARK	NORTHING	EASTING	CUT OFF ELEVATION	APPROXIMATE TIP ELEVATION	PILE LENGTH
P1-01	6813599.86	593969.35	204.736	189.800	14.936
P1-02	6813599.90	593971.29	204.736	189.800	14.936
P1-03	6813599.93	593972.69	204.736	189.800	14.936
P1-04	6813599.97	593974.47	204.736	189.800	14.936
P1-05	6813600.01	593976.25	204.736	189.800	14.936
P1-06	6813600.04	593977.65	204.736	189.800	14.936
P1-07	6813600.09	593979.58	204.736	189.800	14.936
P1-08	6813598.96	593969.37	204.736	189.800	15.052
P1-09	6813599.00	593971.31	204.736	189.800	15.052
P1-10	6813599.03	593972.71	204.736	189.800	15.052
P1-11	6813599.07	593974.49	204.736	189.800	15.052
P1-12	6813599.11	593976.27	204.736	189.800	15.052
P1-13	6813599.14	593977.67	204.736	189.800	15.052
P1-14	6813599.19	593979.60	204.736	189.800	15.052
P1-15	6813592.32	593970.13	207.247	191.000	16.247
P1-16	6813592.38	593973.13	207.247	191.000	16.247
P1-17	6813592.45	593976.13	207.247	191.000	16.247
P1-18	6813592.52	593979.13	207.247	191.000	16.247

PILE SCHEDULE – EXISTING PILES					
PILE MARK	NORTHING*	EASTING*	NORTHING**	EASTING**	OFFSET "X"
EX S1	6813600.54	593968.81			
EX S11	6813600.79	593980.09			
EX S12	6813599.39	593968.84			
EX S19	6813599.64	593980.11			
EX S20	6813598.42	593969.55			
EX S23	6813598.64	593979.45			

NOTE:
* THEORETICAL NORTHING/EASTING AT CENTRE OF PILES BASED ON GEOMETRIC INFORMATION FROM RECORD DRAWINGS
** SURVEY POINT NORTHING/EASTING AND OFFSET DISTANCE "X" TO BE PROVIDED BY THE CONTRACTOR

PRELIMINARY – NOT FOR CONSTRUCTION





Consultant Logo

Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

Government of Northwest Territories

HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2

JEAN MARIE RIVER BRIDGE

FOUNDATION LAYOUT

SHEET 1

DESIGNED

YJ

DATE

2024-03-25

CHECKED

JZ

DATE

2024-03-25

DRAWN

KK

DATE

2024-03-25

SCALE

AS SHOWN

PREPARED UNDER THE DIRECTION OF

YING YI LI, P.ENG.

ENGINEER OF RECORD

DATE

2024-03-25

PROJECT No.

CE857700

SHEET No.

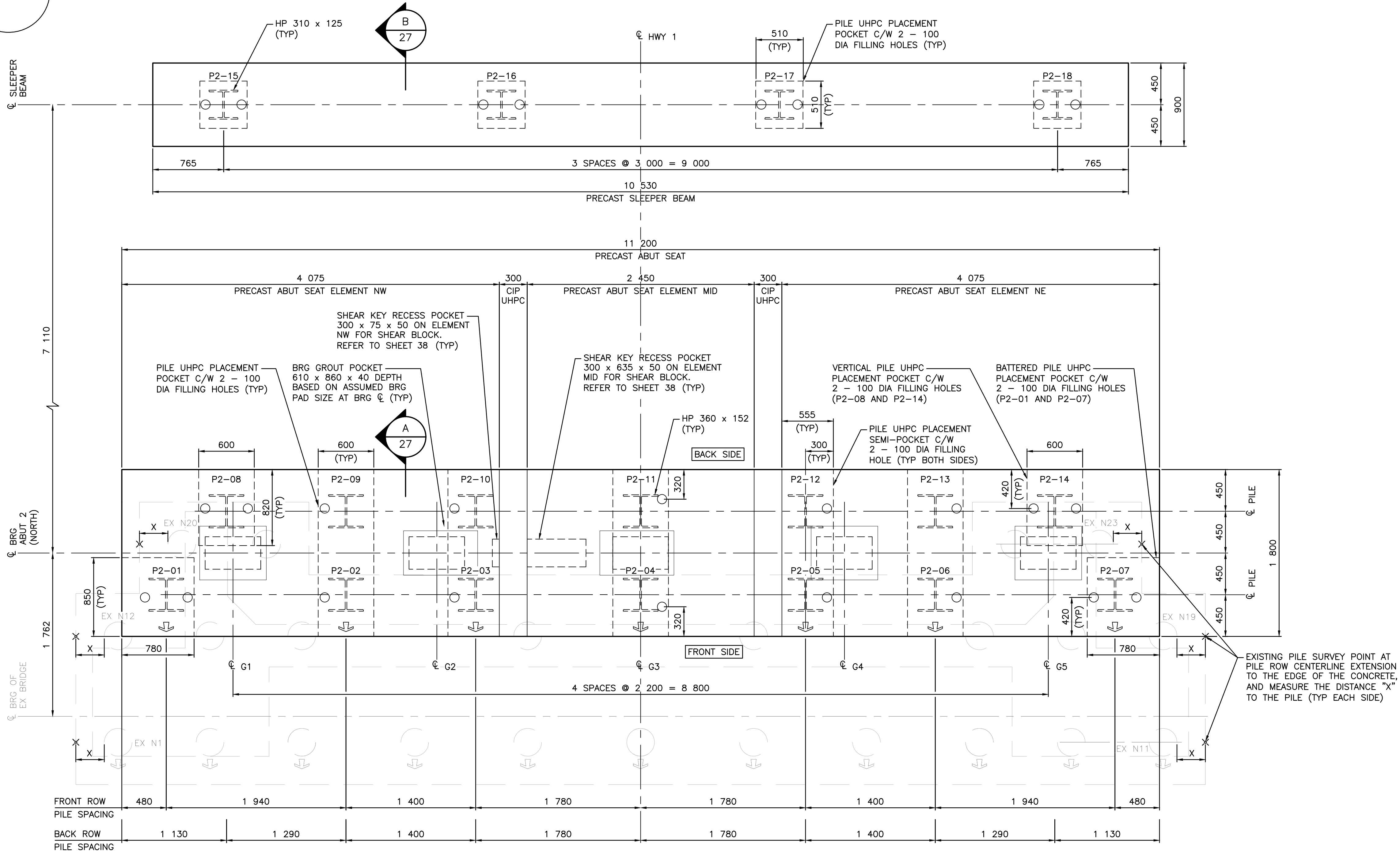
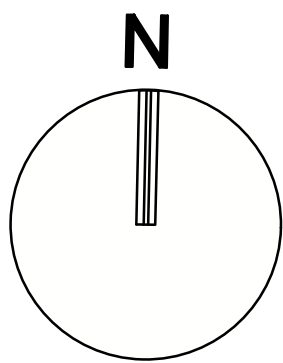
27 OF 55

DRAWING No.

SC-INF01-6081-S005



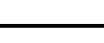

C

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PLOTTED : Monday, March 25, 2024



FOUNDATION LAYOUT – ABUTMENT 2
SCALE 1:25 (SHEAR BLOCK NOT SHOWN FOR CLARITY)

LEGEND

-  8V:1H BATTERED PILE
-  4V:1H EXISTING BATTERED PILE
-  PROPOSED BRIDGE STRUCTURE
-  EXISTING BRIDGE FOUNDATION WITH 305 mm DIAMETER x 7.62 m LONG TIMBER PILES

PILE SCHEDULE – ABUTMENT 2

PILE MARK	NORTHING	EASTING	CUT OFF ELEVATION	APPROXIMATE TIP ELEVATION	PILE LENGTH
P2-01	6813638.15	593968.50	205.226	189.800	15.426
P2-02	6813638.19	593970.44	205.226	189.800	15.426
P2-03	6813638.22	593971.84	205.226	189.800	15.426
P2-04	6813638.26	593973.62	205.226	189.800	15.426
P2-05	6813638.30	593975.40	205.226	189.800	15.426
P2-06	6813638.33	593976.80	205.226	189.800	15.426
P2-07	6813638.38	593978.73	205.226	189.800	15.426
P2-08	6813639.06	593969.13	205.226	189.800	15.546
P2-09	6813639.09	593970.42	205.226	189.800	15.546
P2-10	6813639.12	593971.82	205.226	189.800	15.546
P2-11	6813639.16	593973.60	205.226	189.800	15.546
P2-12	6813639.20	593975.38	205.226	189.800	15.546
P2-13	6813639.23	593976.78	205.226	189.800	15.546
P2-14	6813639.26	593978.06	205.226	189.800	15.546
P2-15	6813645.72	593968.95	207.915	191.000	16.915
P2-16	6813645.79	593971.95	207.915	191.000	16.915
P2-17	6813645.86	593974.95	207.915	191.000	16.915
P2-18	6813645.92	593977.94	207.915	191.000	16.915



PILE SCHEDULE – EXISTING PILES

PILE MARK	NORTHING*	EASTING*	NORTHING**	EASTING**	OFFSET "X"
EX N1	6813636.55	593968.01			
EX N11	6813636.80	593979.29			
EX N12	6813637.70	593967.99			
EX N19	6813637.95	593979.26			
EX N20	6813638.70	593968.65			
EX N23	6813638.92	593978.55			

NOTE:

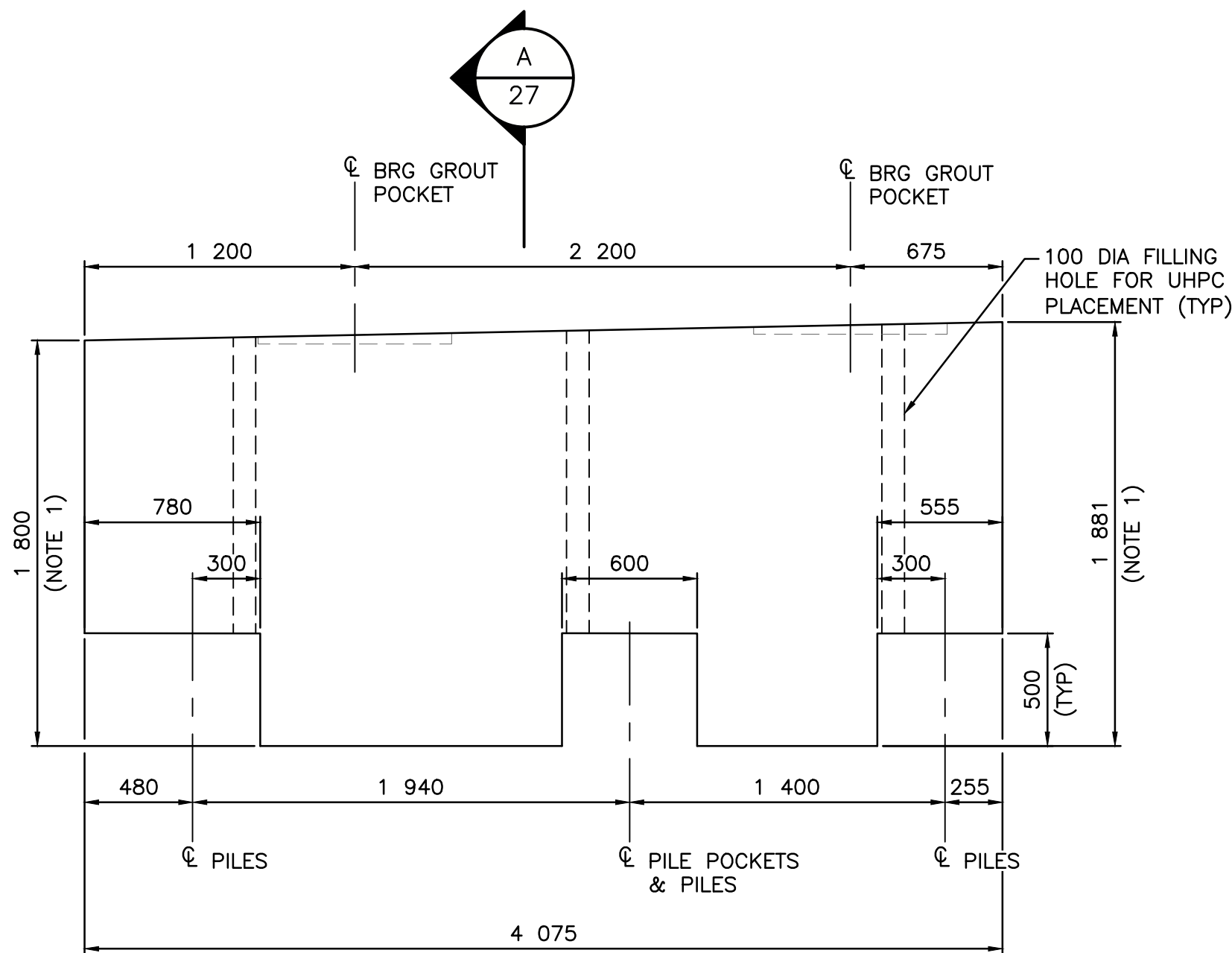
- * THEORETICAL NORTHING/EASTING AT CENTRE OF PILES BASED ON GEOMETRIC INFORMATION FROM RECORD DRAWINGS
- ** SURVEY POINT NORTHING/EASTING AND OFFSET DISTANCE "X" TO BE PROVIDED BY THE CONTRACTOR

PRELIMINARY – NOT FOR CONSTRUCTION

			
Consultant Logo			
			
Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL
REVISIONS			
Government of Northwest Territories HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2 JEAN MARIE RIVER BRIDGE FOUNDATION LAYOUT SHEET 2			
DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		
PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
SHEET No. 28 OF 55		DRAWING No. SC-INF01-6081-S006	
		C	

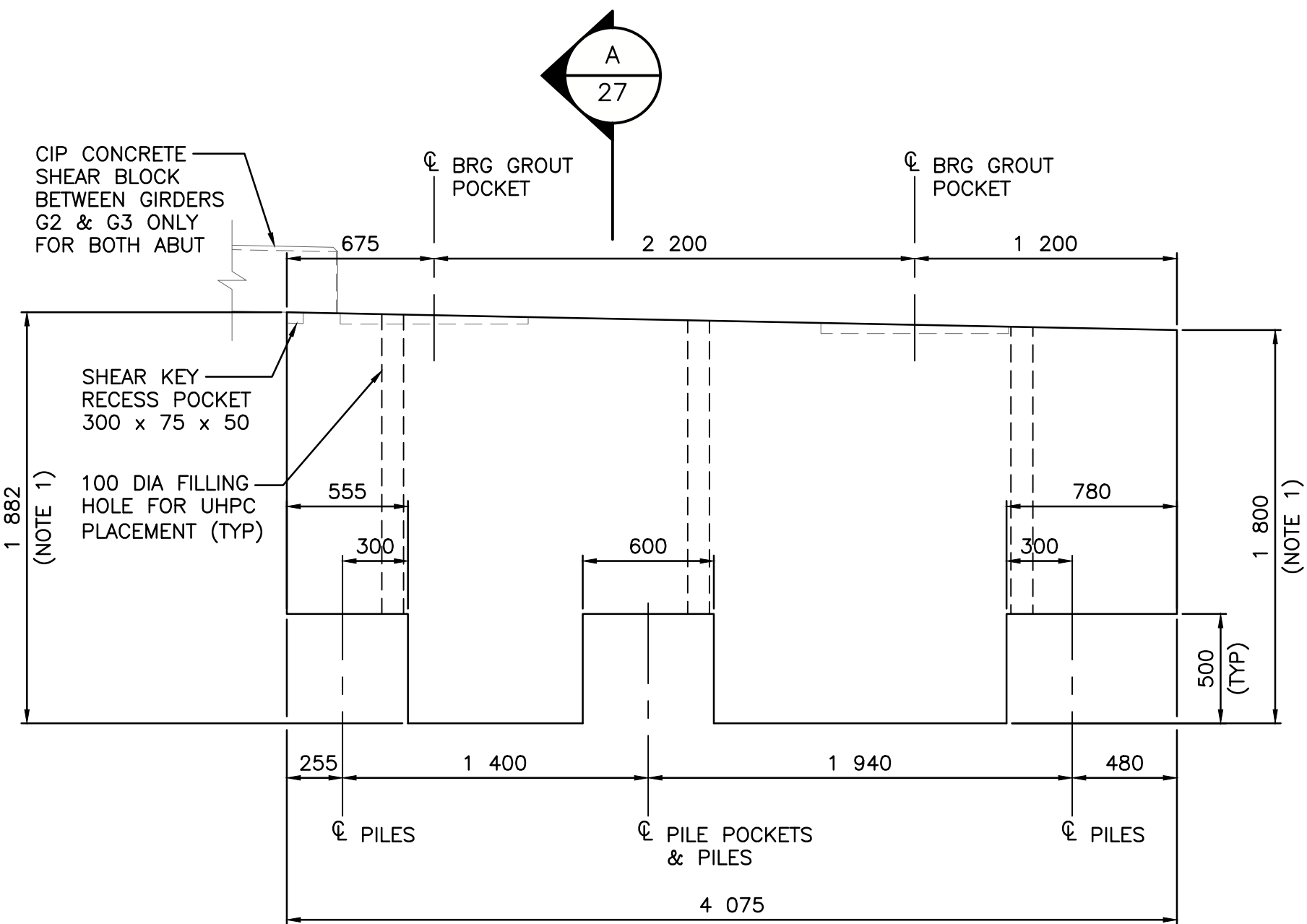
NOTES

1. DIMENSIONS ARE TAKEN AT THE ϕ OF BEARING.
2. FOR PRECAST ABUTMENT SEAT ELEMENT PLAN, REFER TO SHEET 27 AND 28.
3. FOR BEARING AND SHEAR BLOCK DETAILS, REFER TO SHEET 38.



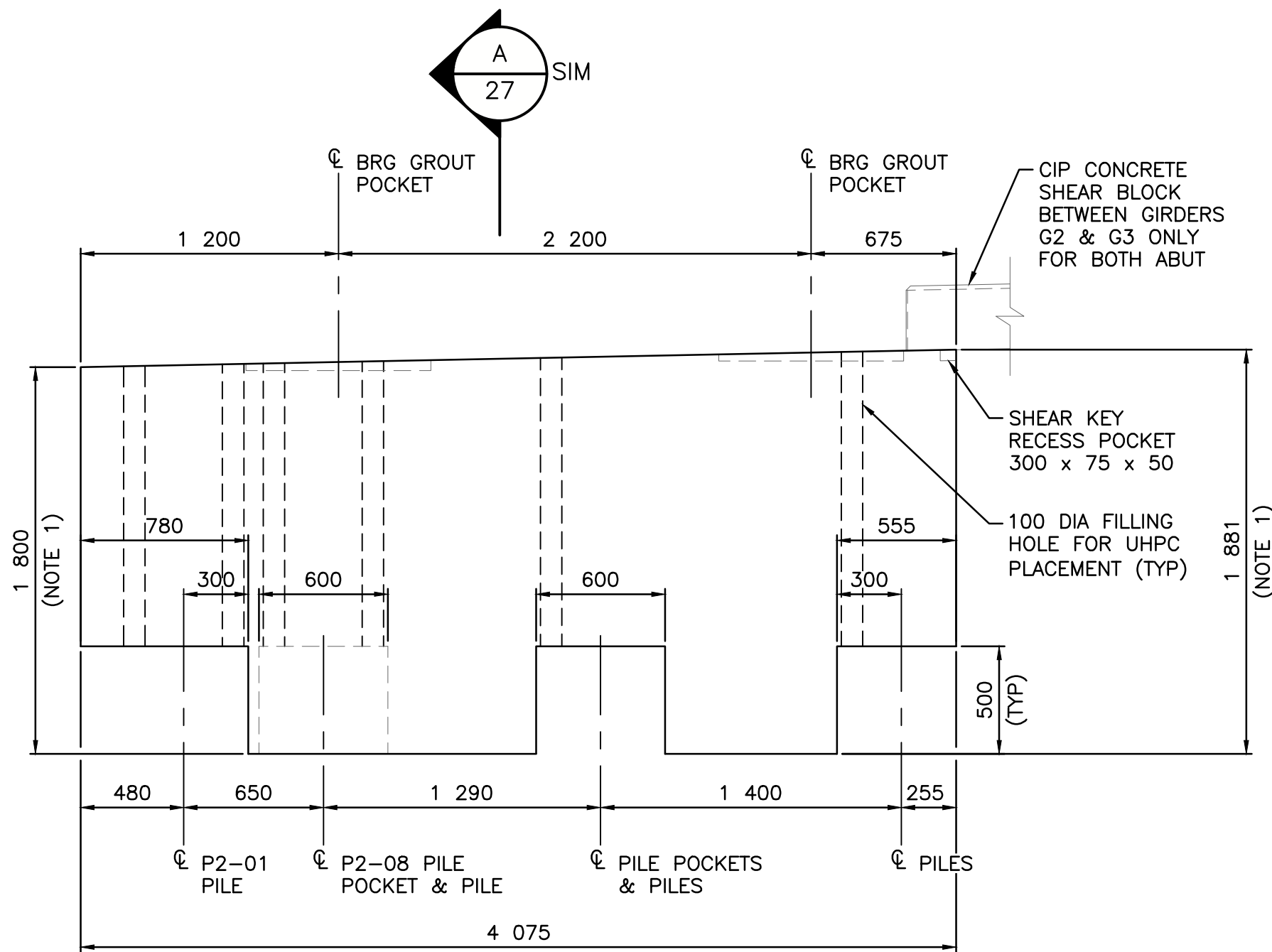
PRECAST ABUTMENT SEAT ELEVATION
ELEMENT SE (FOR ABUTMENT 1)

SCALE 1:25
LOOKING SOUTH (1 REQUIRED)
(ELEMENT ESTIMATED WEIGHT: 28 800 kg, EACH)



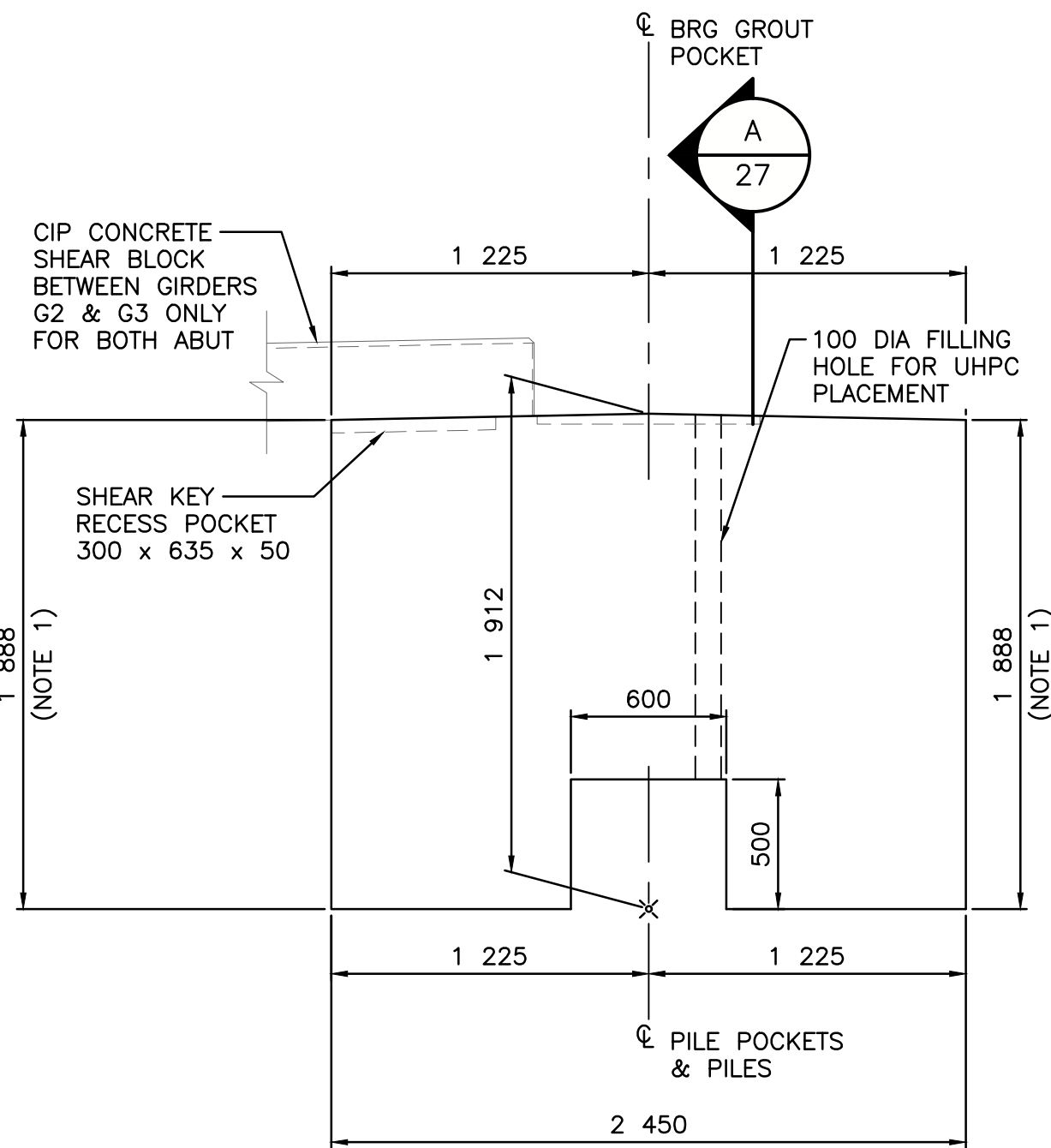
PRECAST ABUTMENT SEAT ELEVATION
ELEMENT SW (FOR ABUTMENT 1)

SCALE 1:25
LOOKING SOUTH (1 REQUIRED)
(ELEMENT ESTIMATED WEIGHT: 28 800 kg, EACH)



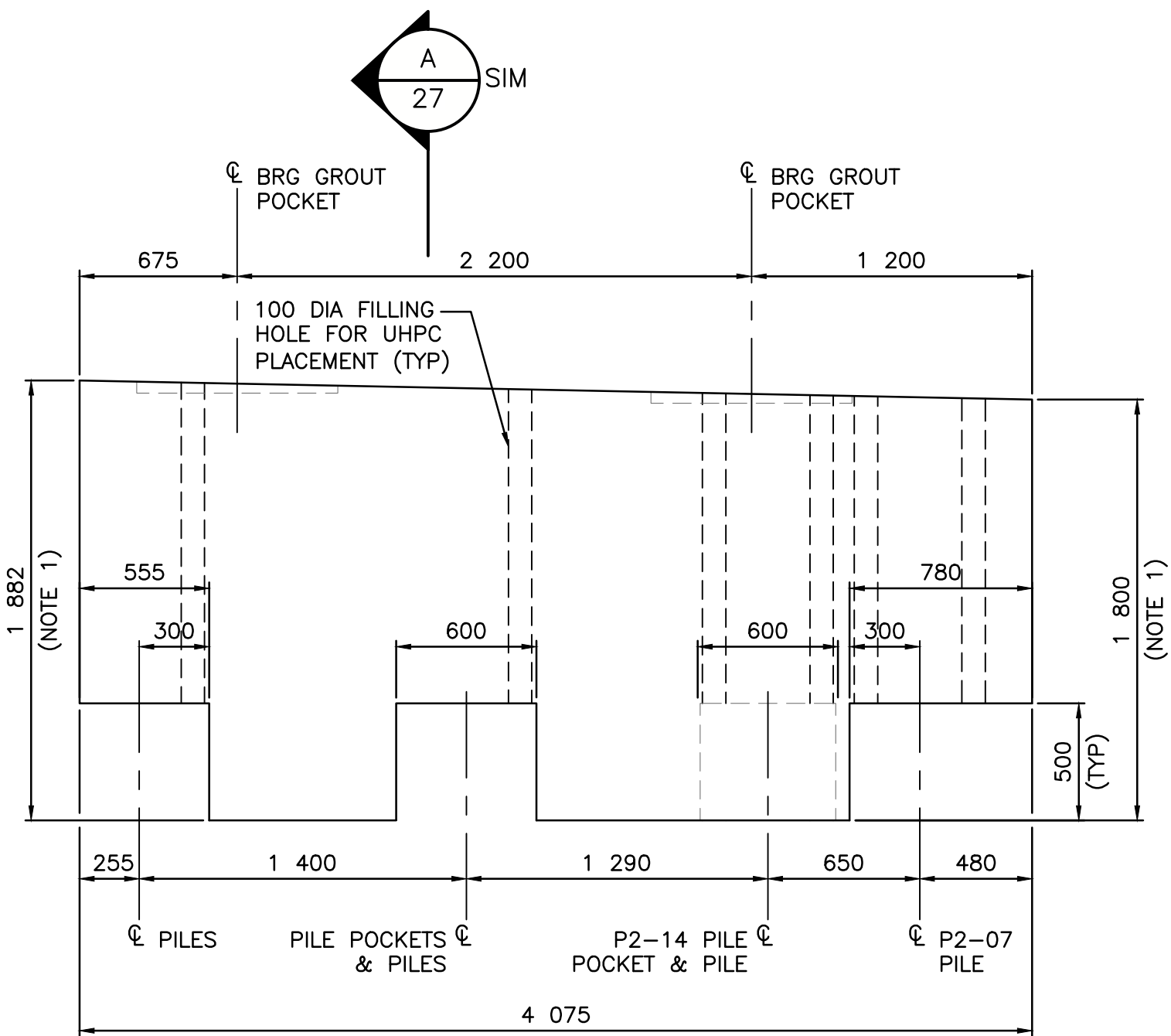
PRECAST ABUTMENT SEAT ELEVATION
ELEMENT NW (FOR ABUTMENT 2)

SCALE 1:25
LOOKING NORTH (1 REQUIRED)
(ELEMENT ESTIMATED WEIGHT: 29 100 kg, EACH)



PRECAST ABUTMENT SEAT ELEVATION
ELEMENT MID (FOR BOTH ABUTMENTS)

SCALE 1:25
(1 REQUIRED FOR EACH ABUTMENT)
(ELEMENT ESTIMATED WEIGHT: 19 200 kg, EACH)



PRECAST ABUTMENT SEAT ELEVATION
ELEMENT NE (FOR ABUTMENT 2)

SCALE 1:25
LOOKING NORTH (1 REQUIRED)
(ELEMENT ESTIMATED WEIGHT: 29 100 kg, EACH)

PRELIMINARY – NOT FOR CONSTRUCTION



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Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST ABUTMENT SEAT ELEMENT DETAILS
SHEET 1

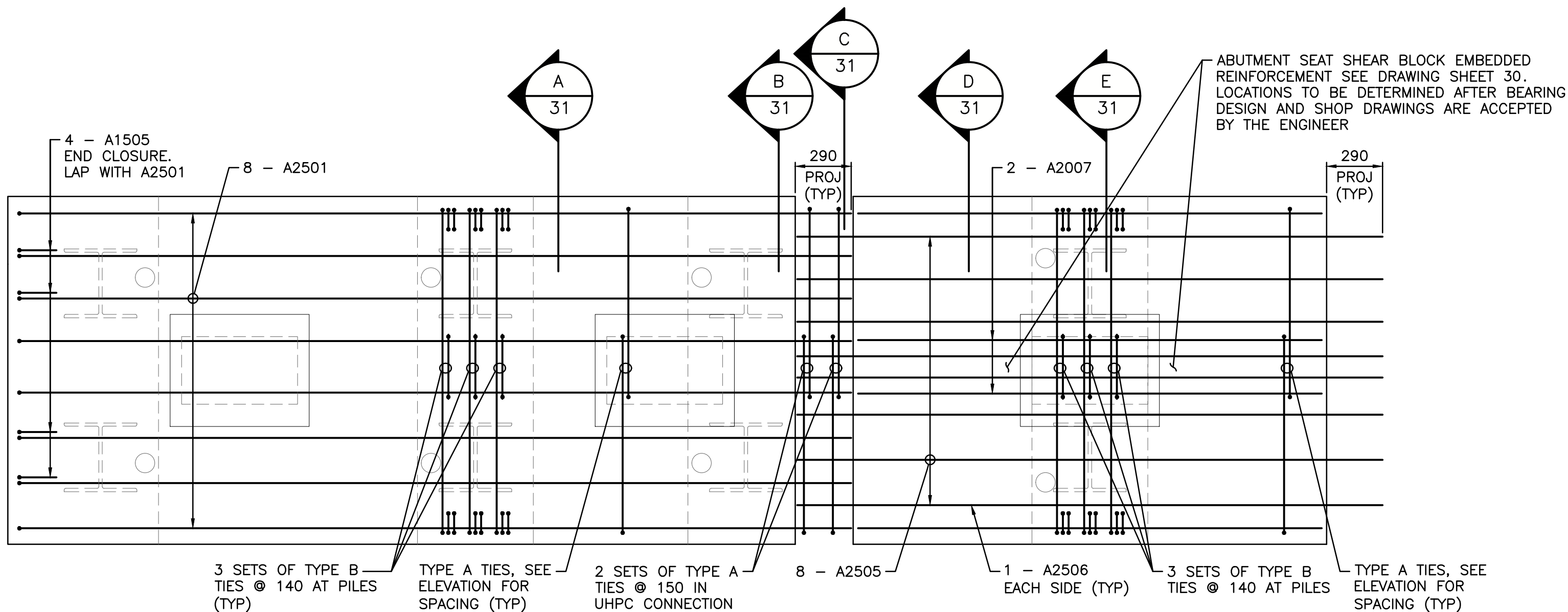
DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
		SHEET No. 29 OF 55	DRAWING No. SC-INF01-6081-S007

C

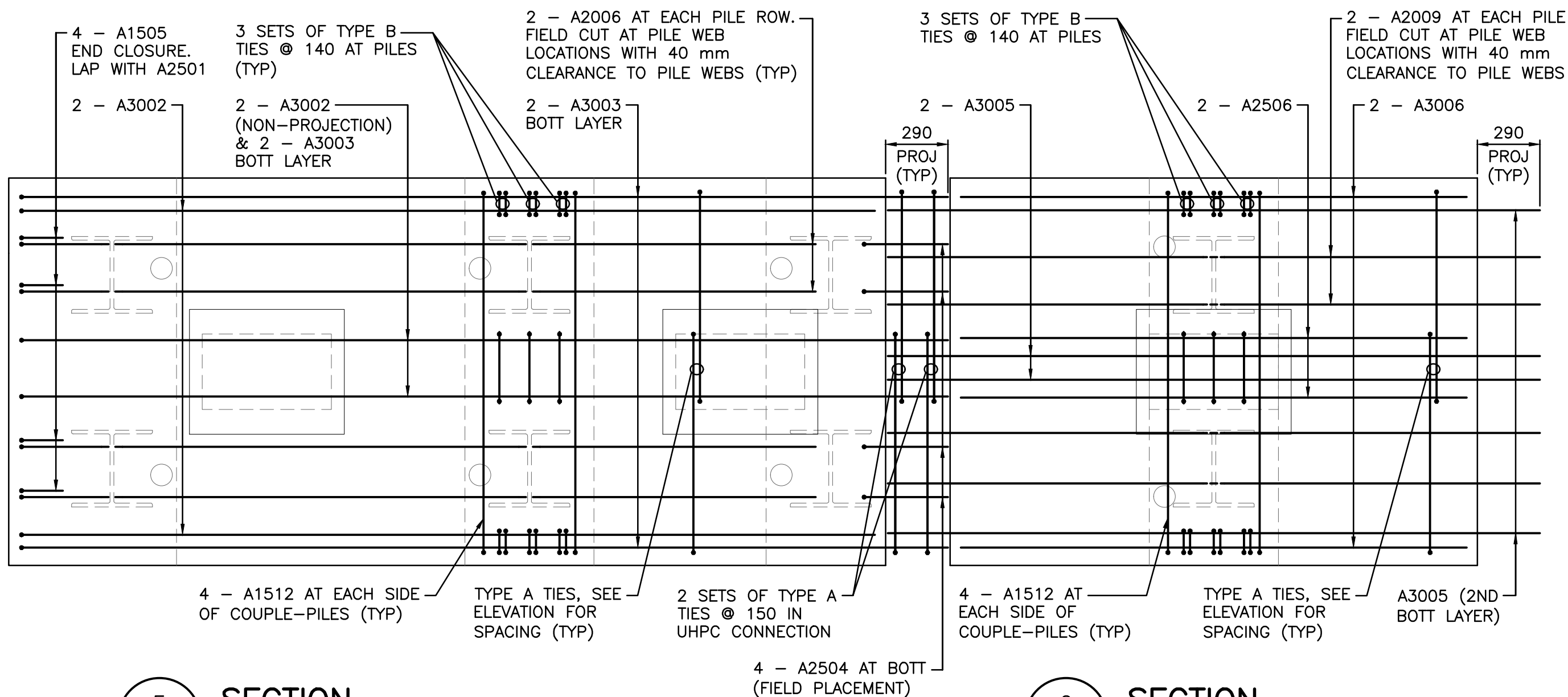
NOTES

1. A SET OF TYPE A TIES (BEYOND PILE LOCATIONS) CONSISTS OF A PAIR OF A2001, A PAIR OF A2002 AND 3-A1501 HOOK TIES AS SHOWN ON SECTION A, C AND D ON SHEET 31.
2. A SET OF TYPE B TIES (AT A PAIR OF PILES) CONSISTS OF ONE BUNDLE OF TWO PAIRS OF A1503, ONE BUNDLE OF TWO PAIRS OF A1502 ON EACH SIDE AND 4-A2003 HOOKS AS SHOWN ON SECTION B AND E ON SHEET 31.
3. A SET OF TYPE C TIES (AT PILE P2-01) CONSISTS OF A PAIR OF A2002 AND ONE BUNDLE OF 2 PAIRS OF A1502 CLOSED TIES, A PAIR OF A2005 AND 4-A2003 AS SHOWN ON SECTION H ON SHEET 32.
4. A SET OF TYPE D TIES (AT PILE P2-08) CONSISTS OF A PAIR OF A2001 AND ONE BUNDLE OF 2 PAIRS OF A1502 CLOSED TIES, A PAIR OF A2005 AND 4-A2003 AS SHOWN ON SECTION J ON SHEET 32.
5. SHEAR BLOCK EMBEDDED BARS NOT SHOWN FOR CLARITY. REFER TO SHEET 38 FOR DETAILS.



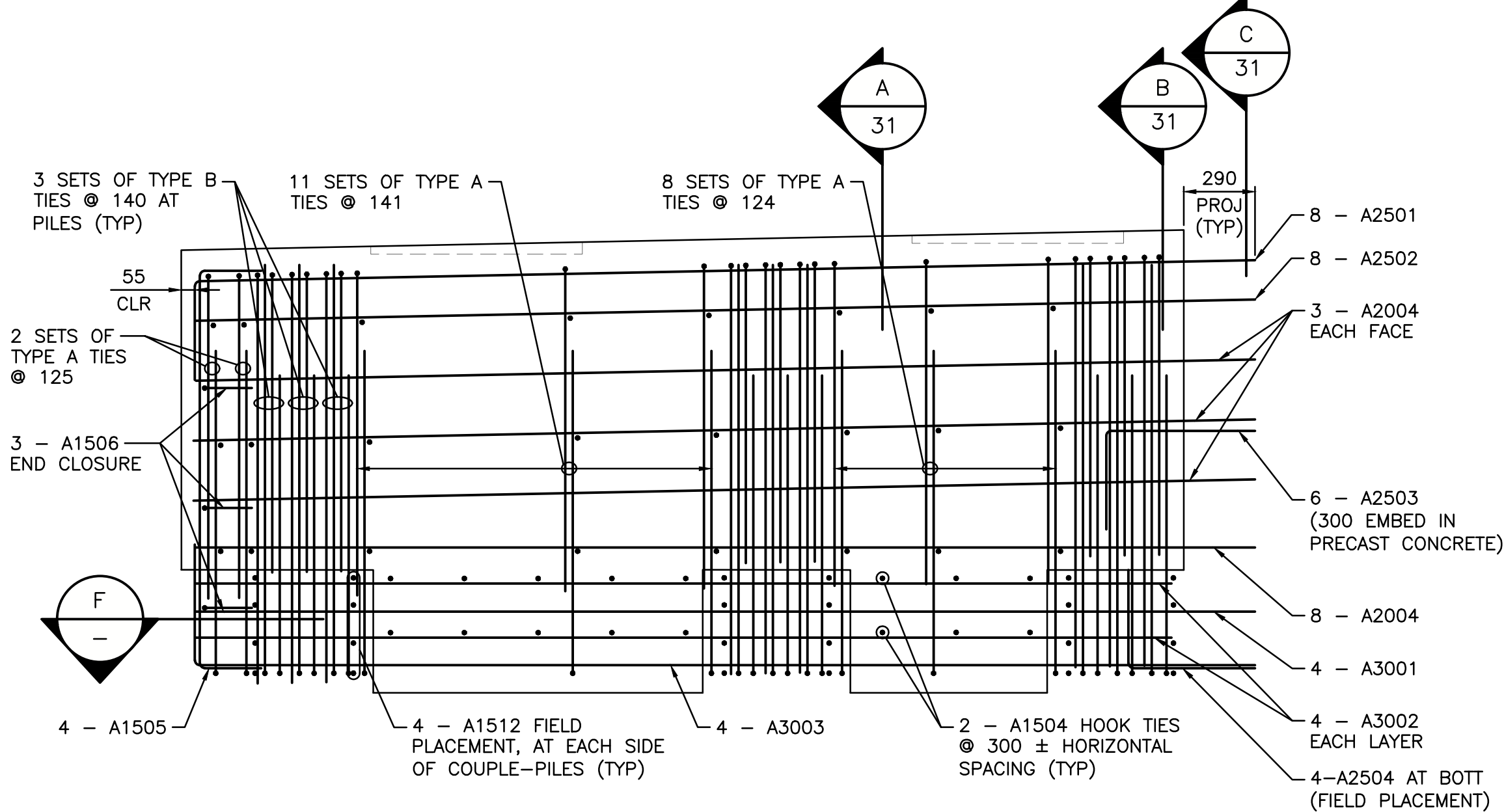
ABUTMENT 1
PRECAST ABUTMENT SEAT ELEMENT SE
TOP LAYER OF REINFORCEMENT - PLAN
SCALE 1:20 (ELEMENT SW ON SYMMETRIC)

ABUTMENT 1 & 2
PRECAST ABUTMENT SEAT ELEMENT MID
TOP LAYER OF REINFORCEMENT - PLAN
SCALE 1:20

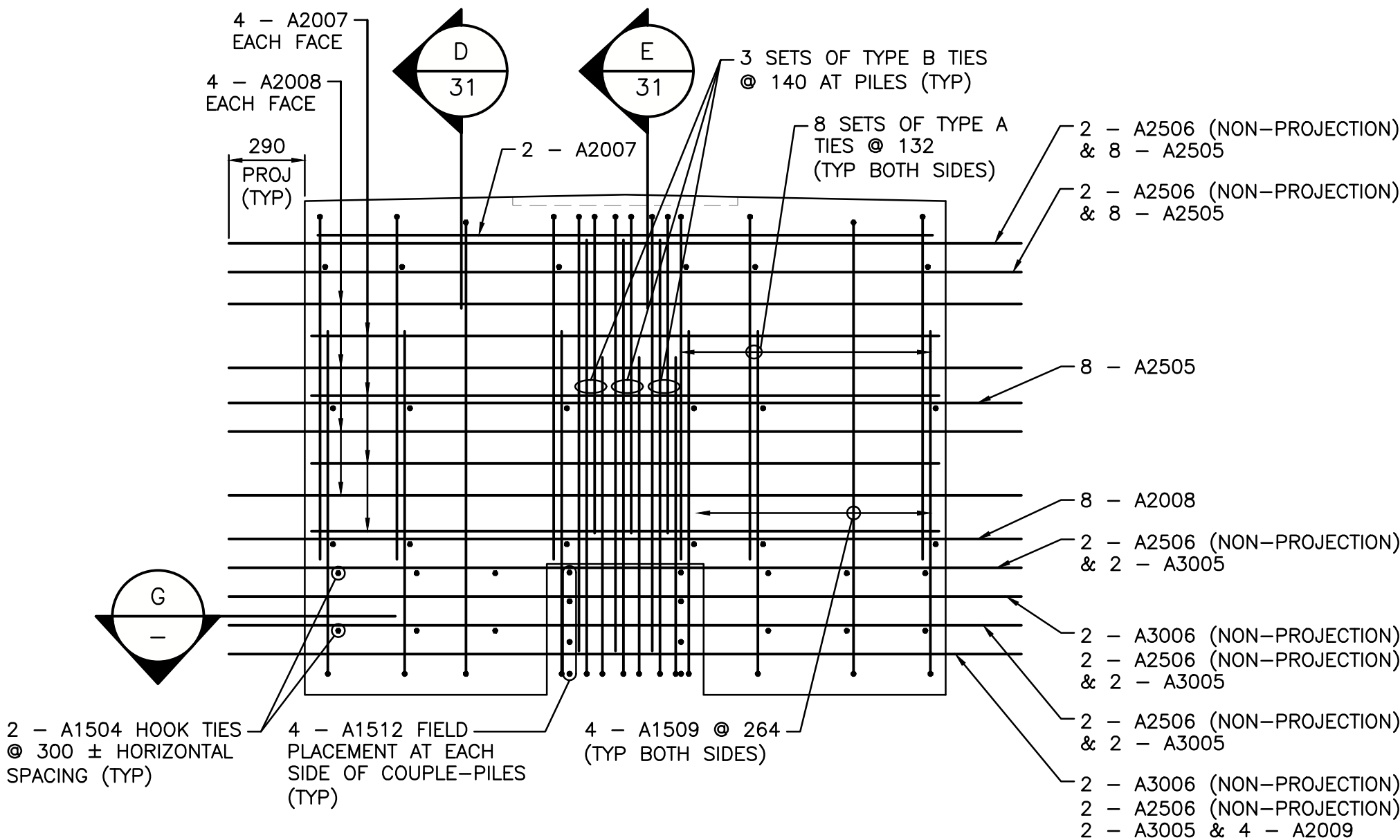


SECTION
SCALE 1:20 (ABUTMENT 1 ELEMENT SE AS SHOWN. ABUTMENT 1 ELEMENT SW ON SYMMETRIC)

SECTION
SCALE 1:20 (APPLICABLE FOR BOTH ABUTMENTS)



ABUTMENT 1
PRECAST ABUTMENT SEAT ELEMENT SE
REINFORCEMENT DETAIL - ELEVATION
SCALE 1:20 (ELEMENT SW ON SYMMETRIC)



ABUTMENT 1 & 2
PRECAST ABUTMENT SEAT ELEMENT MID
REINFORCEMENT DETAIL - ELEVATION
SCALE 1:20

PRELIMINARY - NOT FOR CONSTRUCTION



Consultant Logo

Jacobs

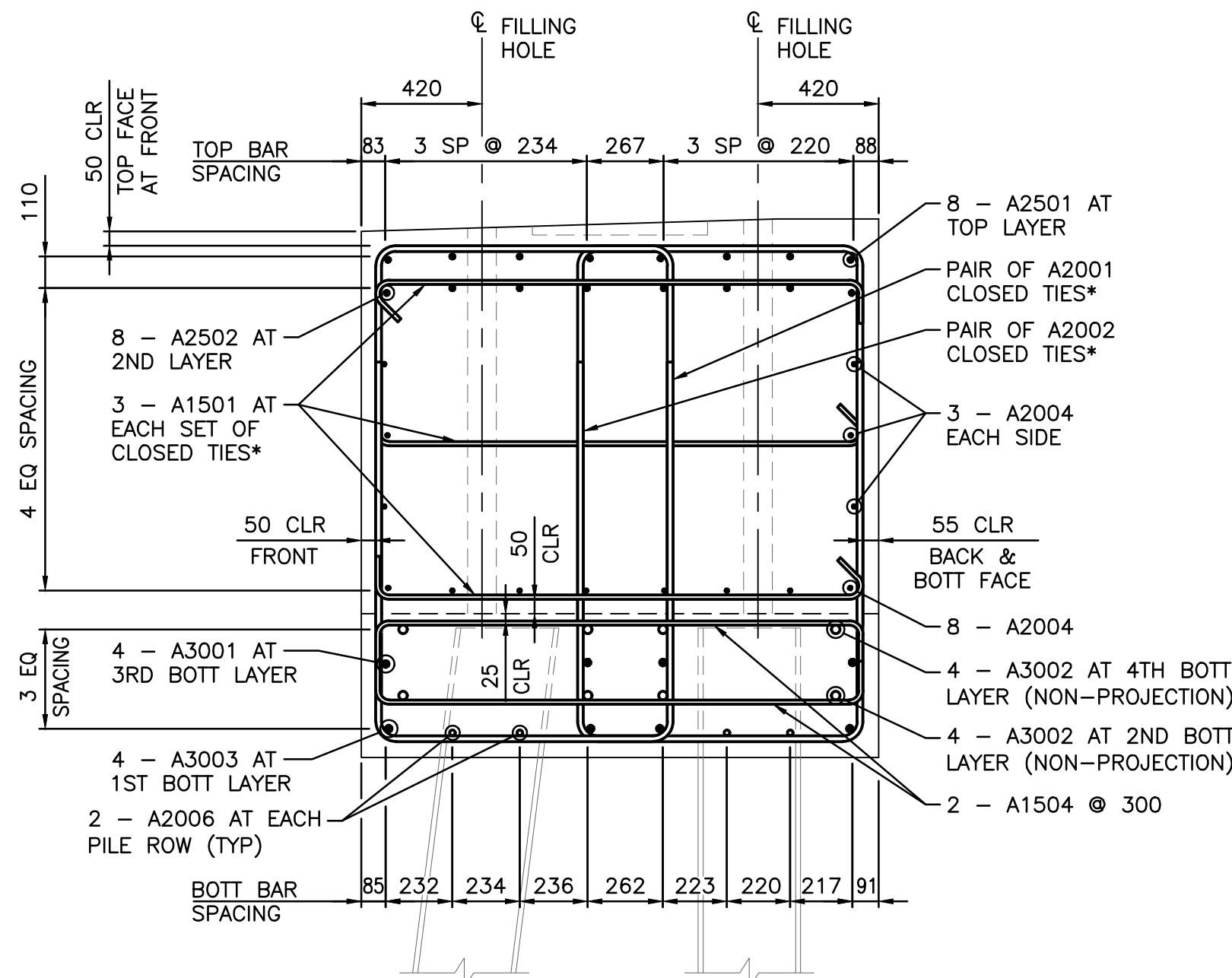
Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
A	2023-10-06	ISSUED FOR 80% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST ABUTMENT SEAT ELEMENT DETAILS
SHEET 2

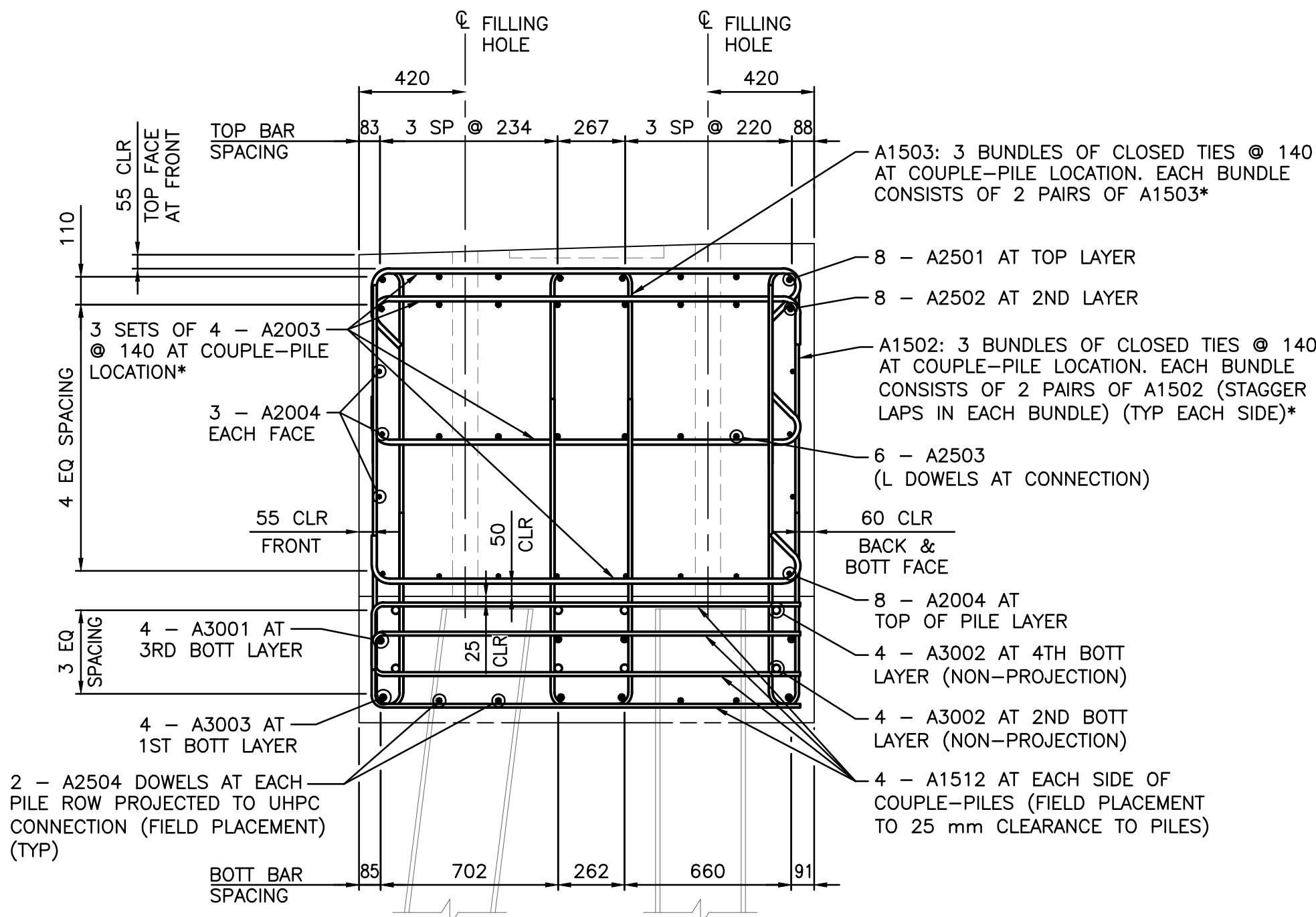
DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
		SHEET No. 30 OF 55	DRAWING No. SC-INF01-6081-S008



A SECTION
30 SCALE 1:20 (BETWEEN PAIR OF PILES)
32

- NOTE:
- DENOTES NON-PROJECTION BARS
 - DENOTES PROJECTION BARS
 - * DENOTES BARS AS A PART OF TYPE A CLOSED TIES

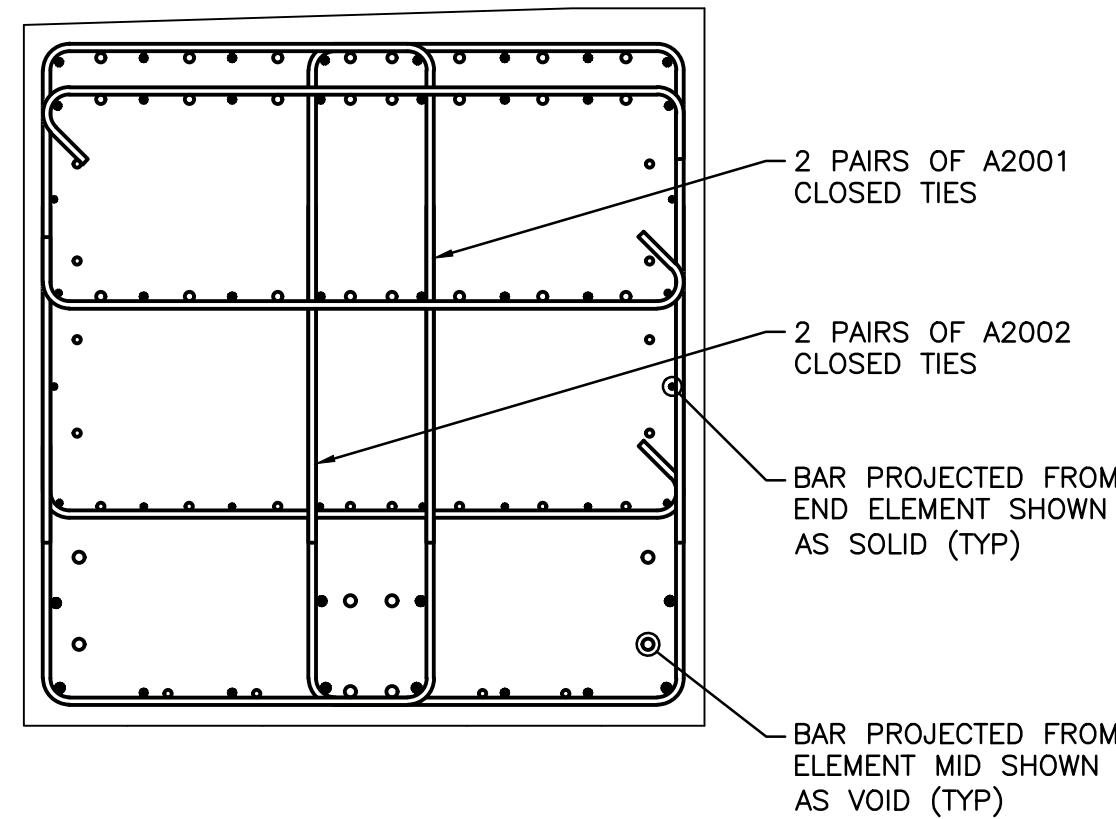


B SECTION
30 SCALE 1:20 (AT COUPLE-PILES)
32

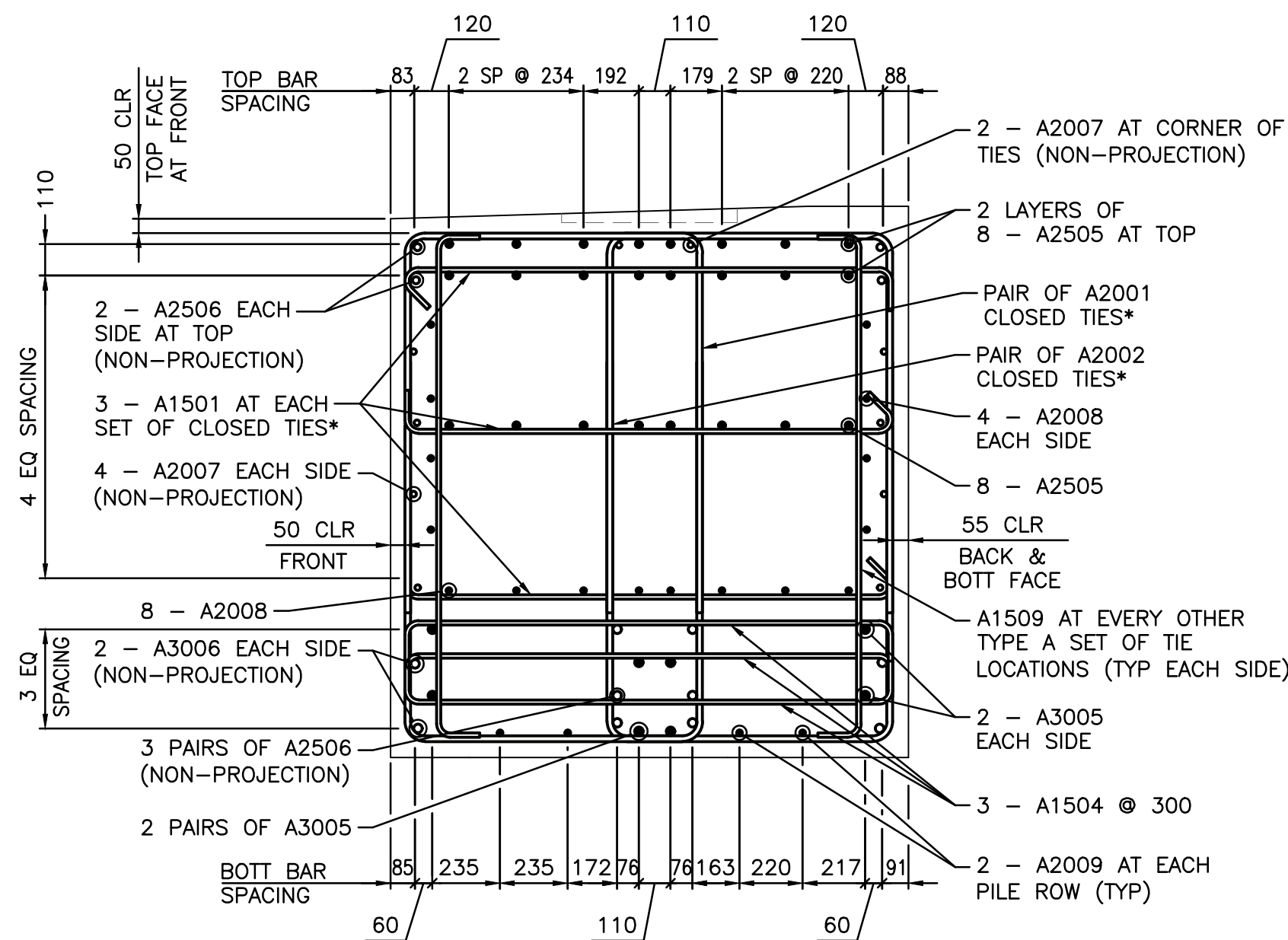
- NOTE:
- DENOTES NON-PROJECTION BARS
 - DENOTES PROJECTION BARS
 - * DENOTES BARS AS A PART OF TYPE B CLOSED TIES

NOTES

1. SHEAR BLOCK EMBEDDED BARS NOT SHOWN FOR CLARITY. REFER TO SHEET 38 FOR DETAILS.

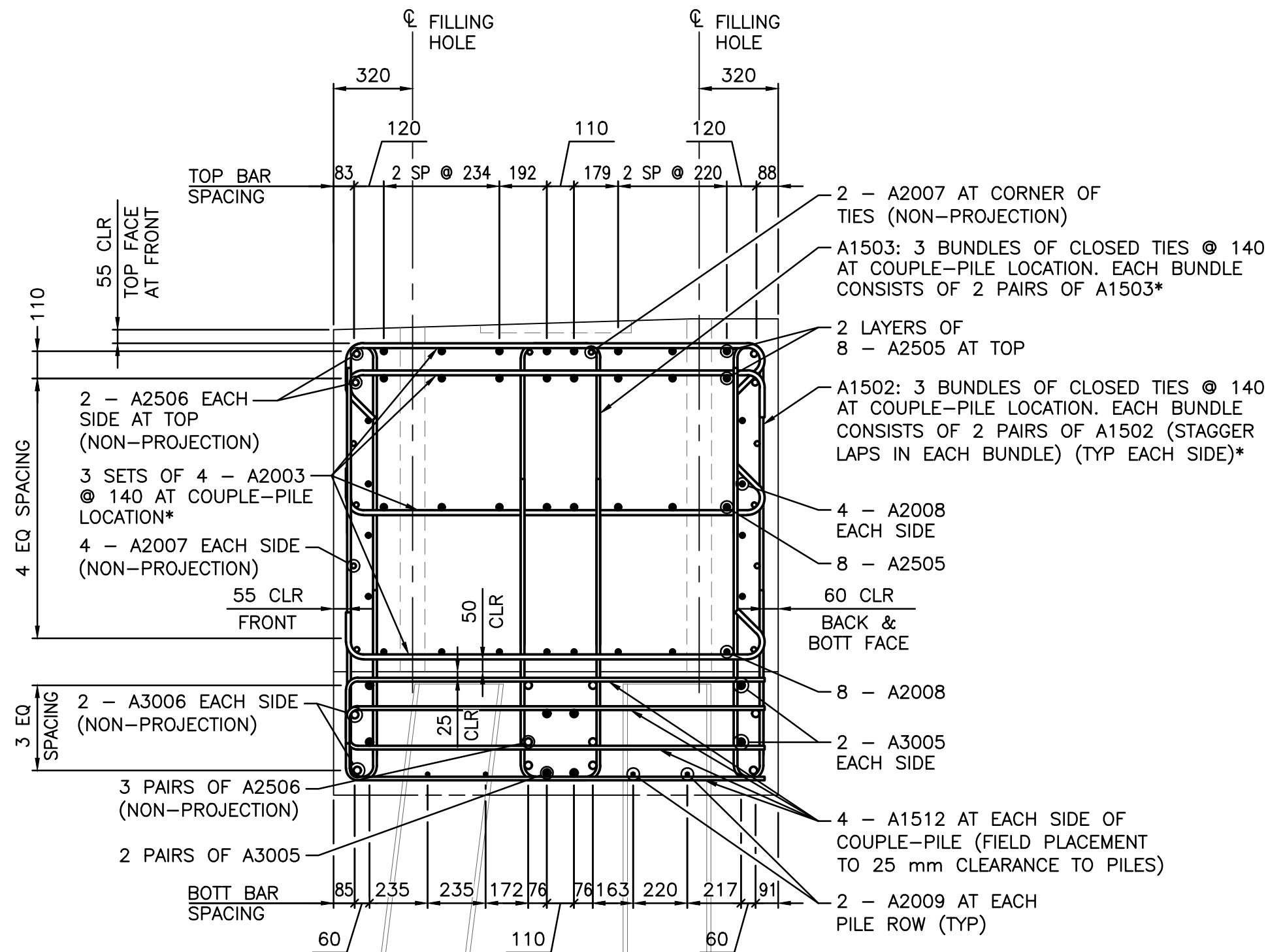


C SECTION
30 SCALE 1:20 (AT UHPC CONNECTION REGION.
32 APPLICABLE TO BOTH ABUTMENTS)



D SECTION
30 SCALE 1:20 (AT OFF PILES)
32

- NOTE:
- DENOTES NON-PROJECTION BARS
 - DENOTES PROJECTION BARS
 - * DENOTES BARS AS A PART OF TYPE A CLOSED TIES



E SECTION
30 SCALE 1:20 (AT PILES)
32

- NOTE:
- DENOTES NON-PROJECTION BARS
 - DENOTES PROJECTION BARS
 - * DENOTES BARS AS A PART OF TYPE B CLOSED TIES

PRELIMINARY – NOT FOR CONSTRUCTION



Jacobs

Consultant Logo

Rev	Date	Description	Init
A	2024-03-25	ISSUED FOR 100% REVIEW	YL

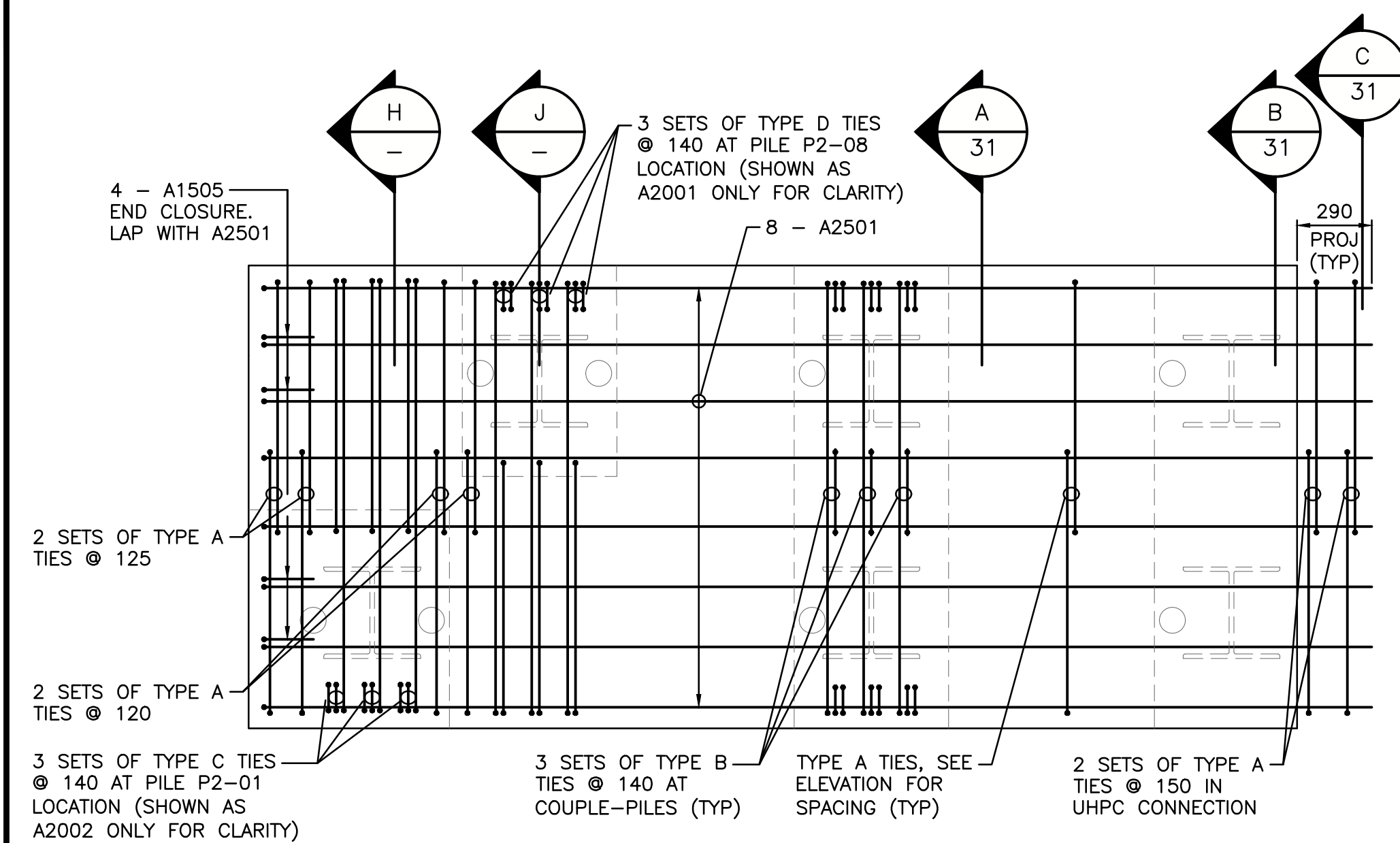
REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST ABUTMENT SEAT ELEMENT DETAILS
SHEET 3

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

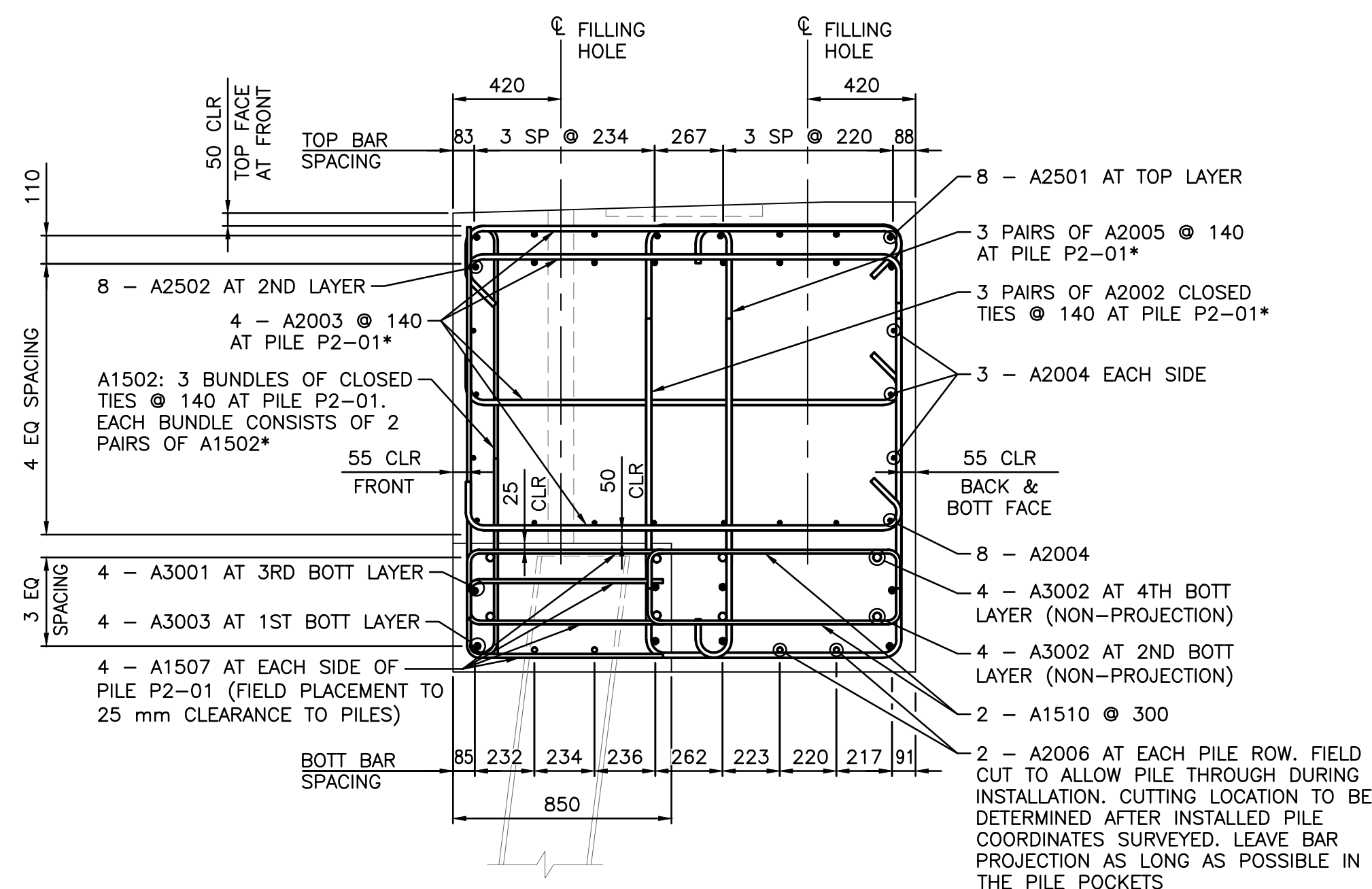
PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
		SHEET No. 31 OF 55	DRAWING No. SC-INF01-6081-S009

A



ABUTMENT 2
PRECAST ABUTMENT SEAT ELEMENT NW
TOP LAYER OF REINFORCEMENT – PLAN

SCALE 1:20 (ELEMENT NE ON SYMMETRIC)

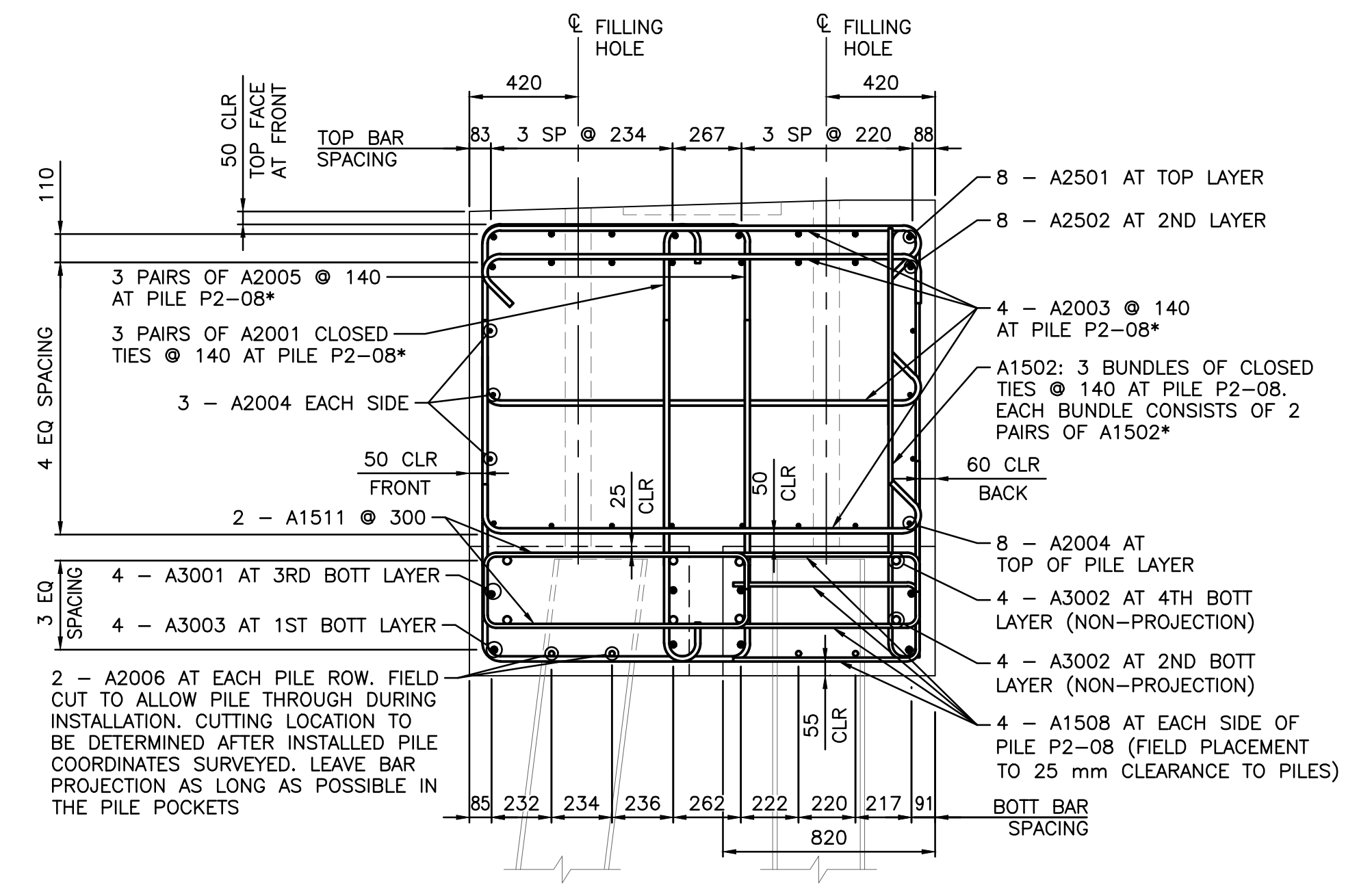


SECTION

SCALE 1:20 (AT PILE P2-01)

NOTE: NON-PROJECTION BARS SHOWN AS VOID CIRCLE

* DENOTE BARS AS A PART OF TYPE C CLOSED TIES

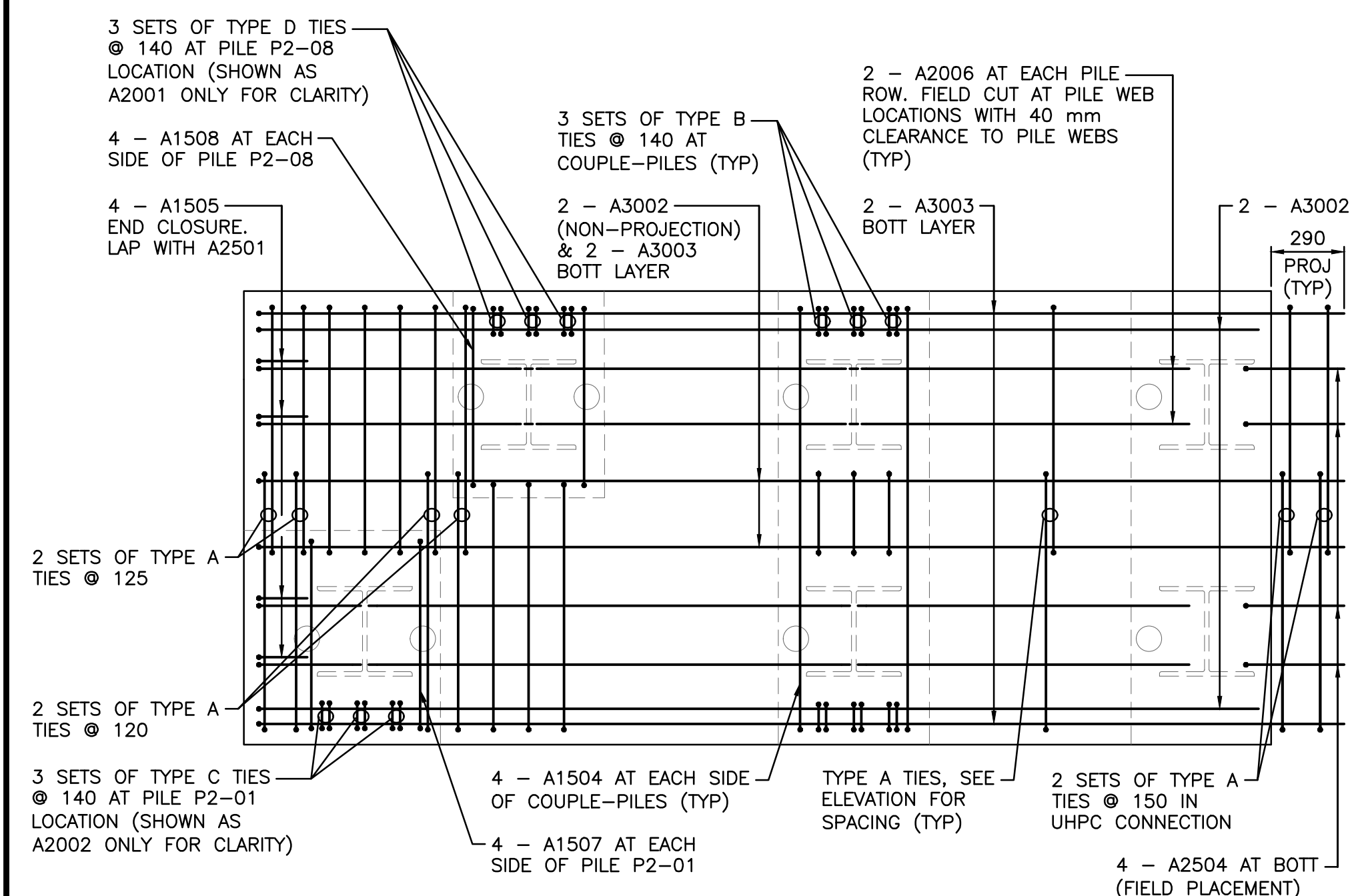


SECTION

SCALE 1:20 (AT PILE P2-08)

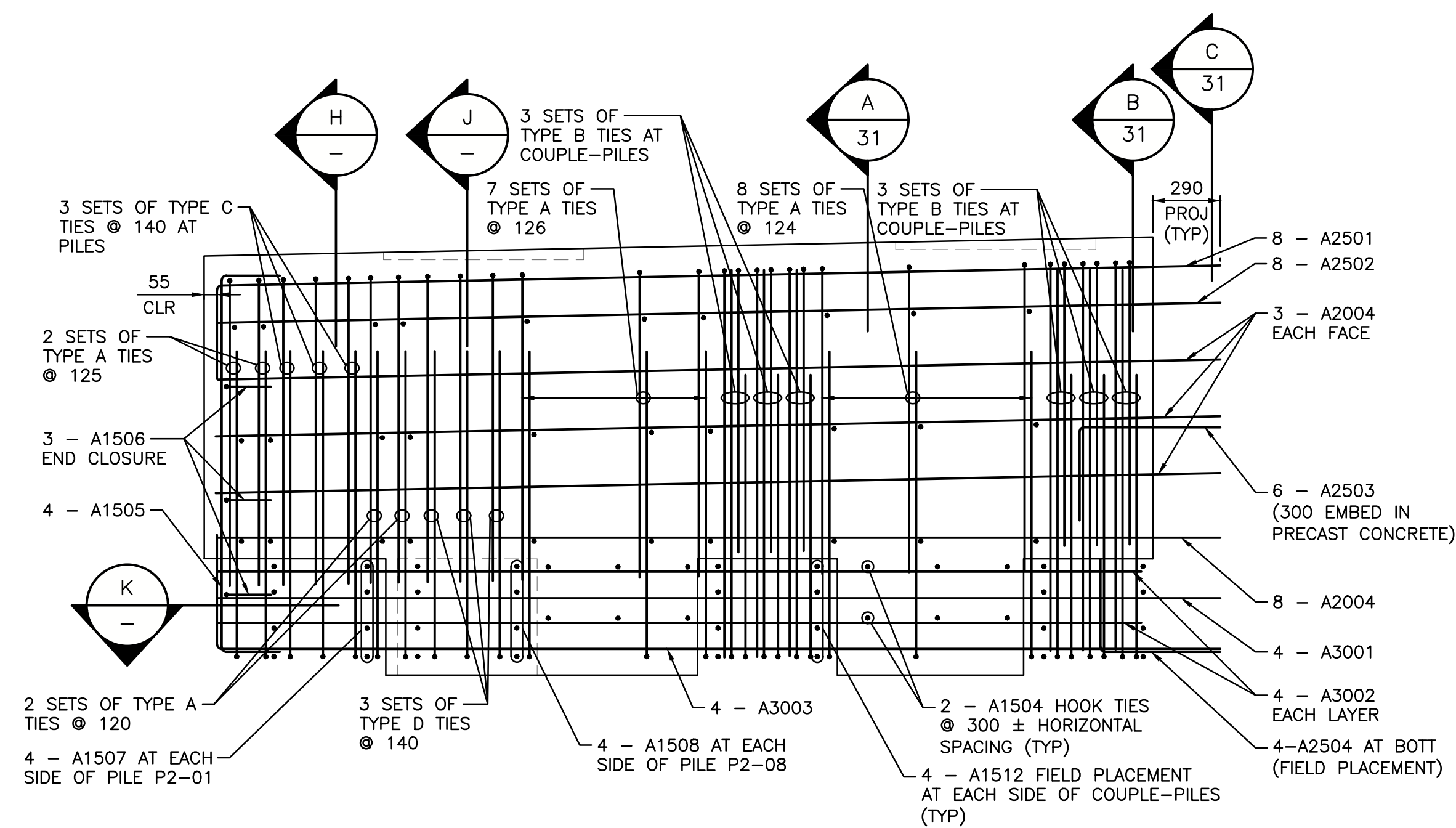
NOTE: NON-PROJECTION BARS SHOWN AS VOID CIRCLE

* DENOTE BARS AS A PART OF TYPE D CLOSED TIES



SECTION

SCALE 1:20 (ABUTMENT 2 ELEMENT NW AS SHOWN.
ABUTMENT 2 ELEMENT NE ON SYMMETRIC)



ABUTMENT 2
PRECAST ABUTMENT SEAT ELEMENT NW
REINFORCEMENT DETAIL — ELEVATION
SCALE 1:20 (ELEMENT NE ON SYMMETRIC)

NOTES

1. SHEAR BLOCK EMBEDDED BARS NOT SHOWN FOR CLARITY. REFER TO SHEET 38 FOR DETAILS.

PRELIMINARY — NOT FOR CONSTRUCTION



Consultant Logo

Jacobs.

Rev	Date	Description	Init
A	2024-03-25	ISSUED FOR 100% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST ABUTMENT SEAT ELEMENT DETAILS
SHEET 4

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PREPARED UNDER THE DIRECTION OF

YING YI LI PENG

ENGINEER OF RECORD

DATE 2024-03-25

PROJECT No. CE857700

SHEET No.
32 OF 5

DRAWING No.

SC-INF01-6081-S010

A



SCALE 1:25 (2 REQUIRED)
(ELEMENT ESTIMATED WEIGHT: 31 400 kg, EACH)



SCALE 1:25 (CORBEL REINFORCEMENT NOT SHOWN FOR CLARITY)

1. DIMENSIONS ARE BASED ON THE ASSUMED HEIGHT OF ELASTOMERIC BEARING PAD (103 mm) AND NEED TO BE ADJUSTED BASED ON ACTUAL BEARING PAD THICKNESS.
2. STEEL EMBEDDED PLATES SHALL CONFORM TO CAN/CSA G40.21M-350AT, CATEGORY 3, WITH CHARTPY V-NOTCH STRENGTH OF 27 JOULES AT -45°C.
3. SHEAR STUDS SHALL BE CONFORM TO SUBSECTION 6.2.4.3, STUD SHEAR CONNECTORS, OF STANDARD SPECIFICATIONS FOR BRIDGE CONSTRUCTION.

PRELIMINARY – NOT FOR CONSTRUCTION



Consultant Logo

Jacobs.

Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST ABUTMENT DIAPHRAGM ELEMENT DETAILS

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PREPARED UNDER THE DIRECTION OF

YING YI LI PENG

DATE 2024-03-25

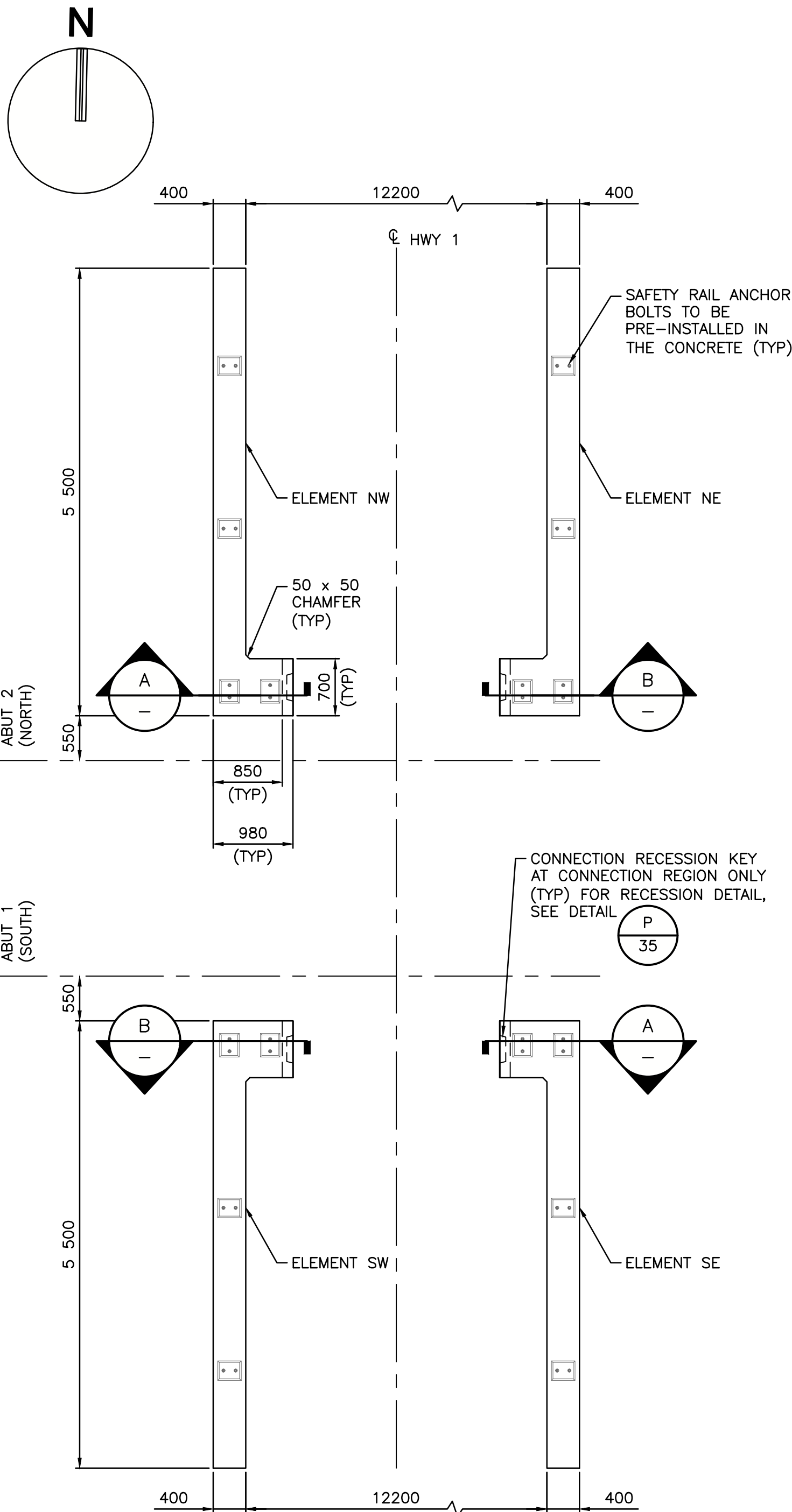
PROJECT No.
CE857700

SHEET No.
33 OF

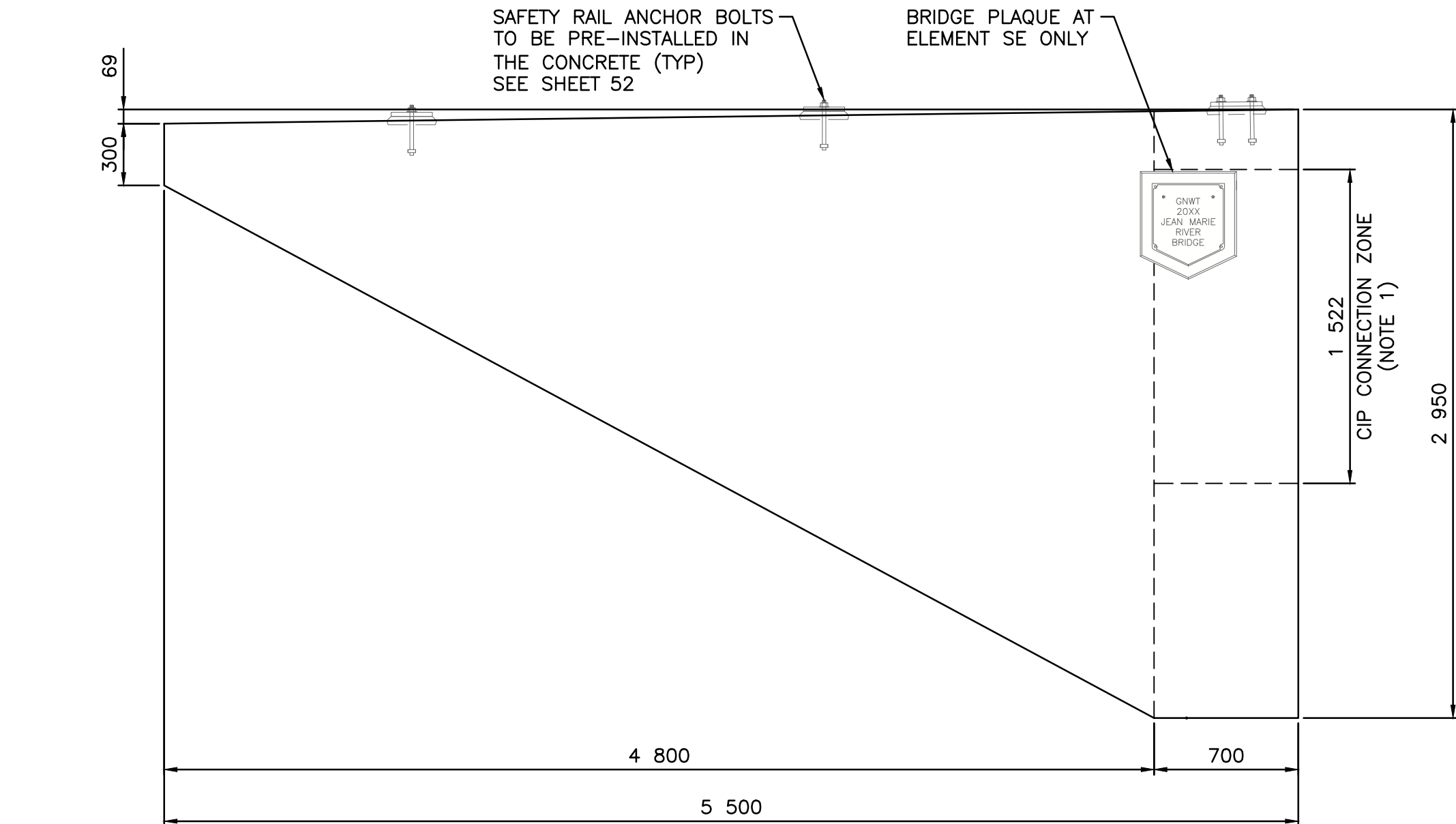
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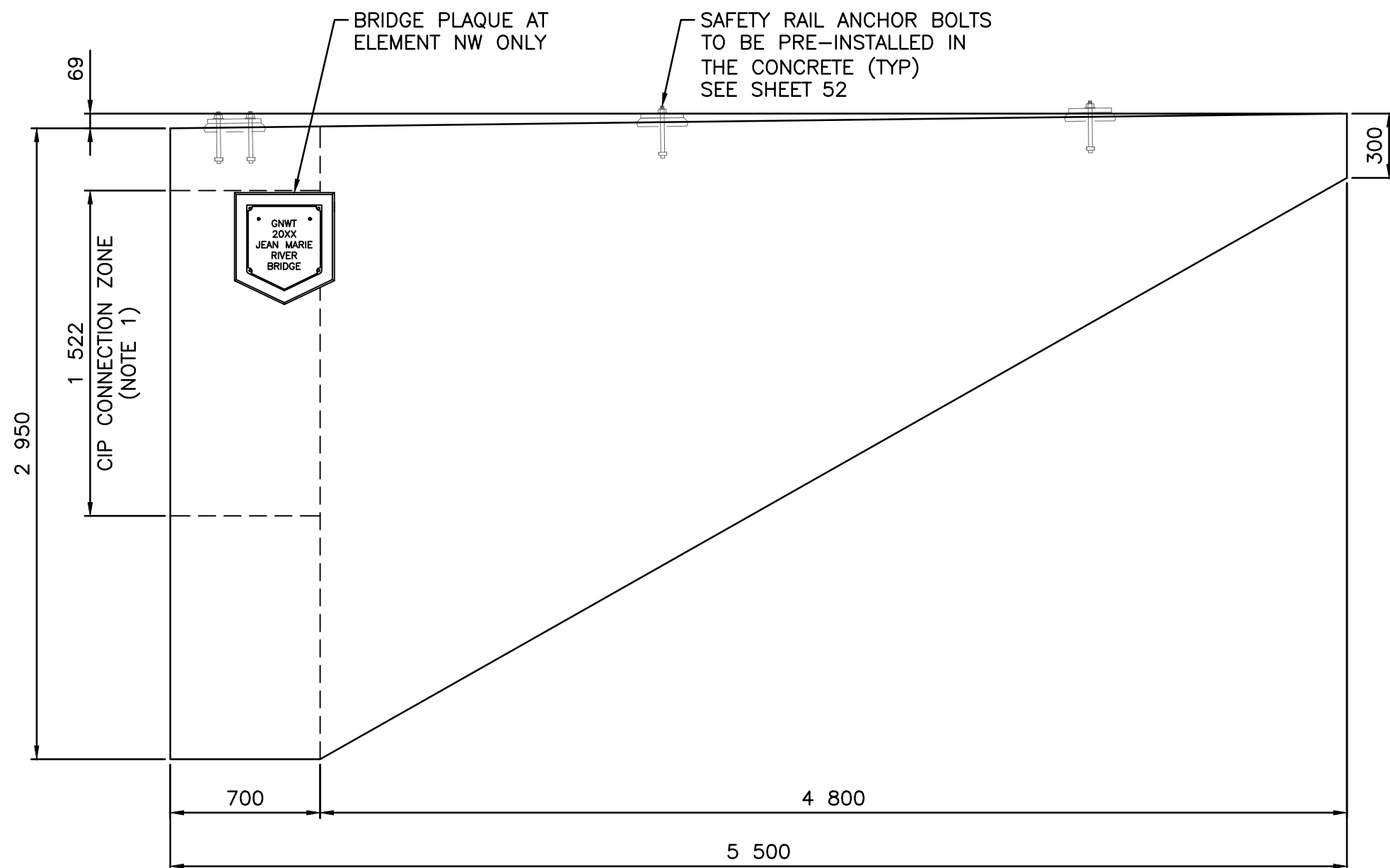
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PLOTTED : Thursday, March 21, 2024



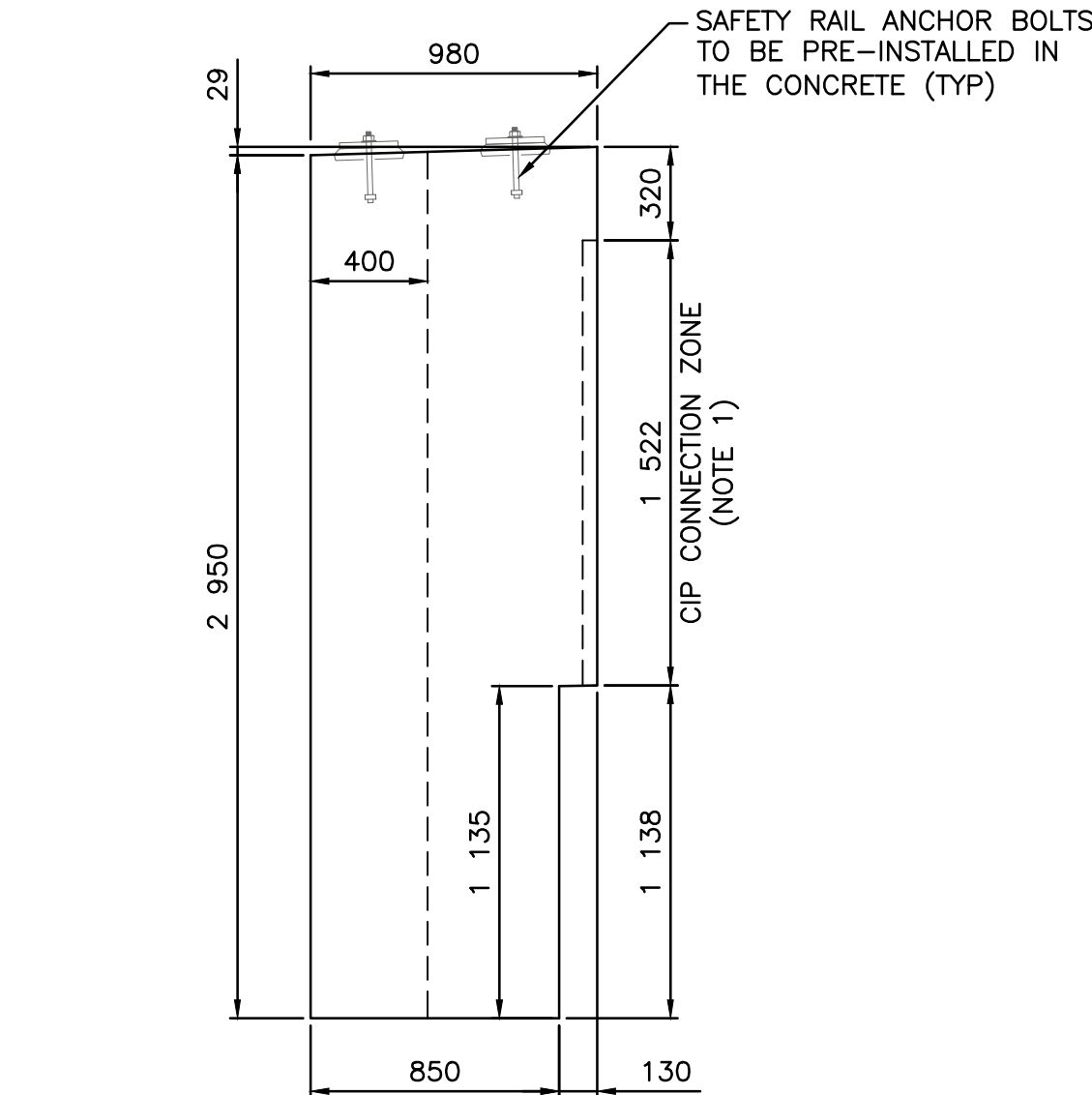
PRECAST ABUTMENT WINGWALL
ELEMENT PLAN
SCALE 1:50



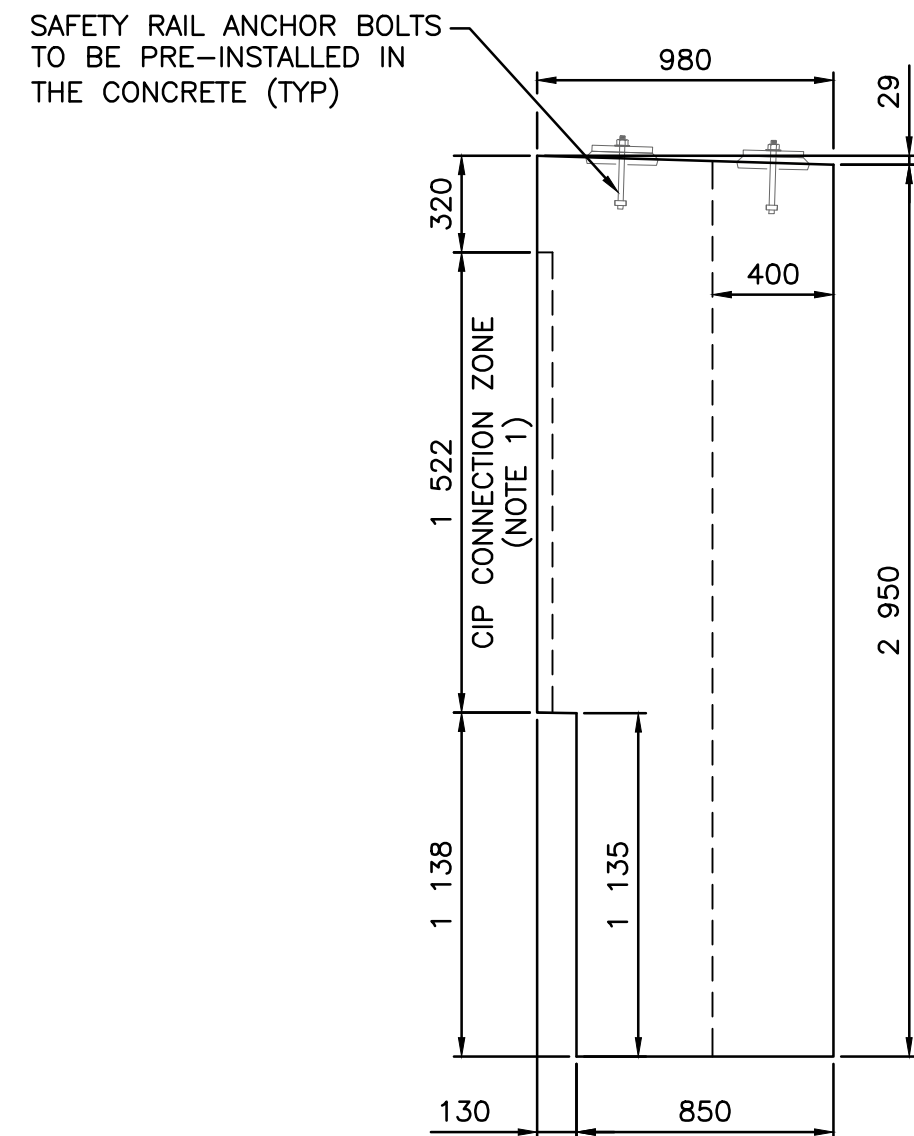
PRECAST ABUTMENT WINGWALL ELEVATION
ELEMENT SE OR SW FOR ABUTMENT 1
SCALE 1:25
ELEMENT SE SHOWN, SW OPPOSITE ON CORNER
(1 REQUIRED EACH CORNER)
(ELEMENT ESTIMATED WEIGHT: 12 400 kg, EACH)



PRECAST ABUTMENT WINGWALL ELEVATION
ELEMENT NE OR NW FOR ABUTMENT 2
SCALE 1:25
ELEMENT NE SHOWN, NW OPPOSITE ON CORNER
(1 REQUIRED EACH CORNER)
(ELEMENT ESTIMATED WEIGHT: 12 400 kg, EACH)



PRECAST ABUTMENT
WINGWALL SECTION
ELEMENT NW OR SE
SCALE 1:25 (1 REQUIRED EACH CORNER)



PRECAST ABUTMENT
WINGWALL SECTION
ELEMENT NE OR SW
SCALE 1:25 (1 REQUIRED EACH CORNER)

NOTES

- DIMENSIONS ARE BASED ON THE ASSUMED HEIGHT OF ELASTOMERIC BEARING PAD (103 mm) AND NEED TO BE ADJUSTED BASED ON ACTUAL BEARING PAD THICKNESS.

PRELIMINARY – NOT FOR CONSTRUCTION



Consultant Logo

Jacobs

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B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

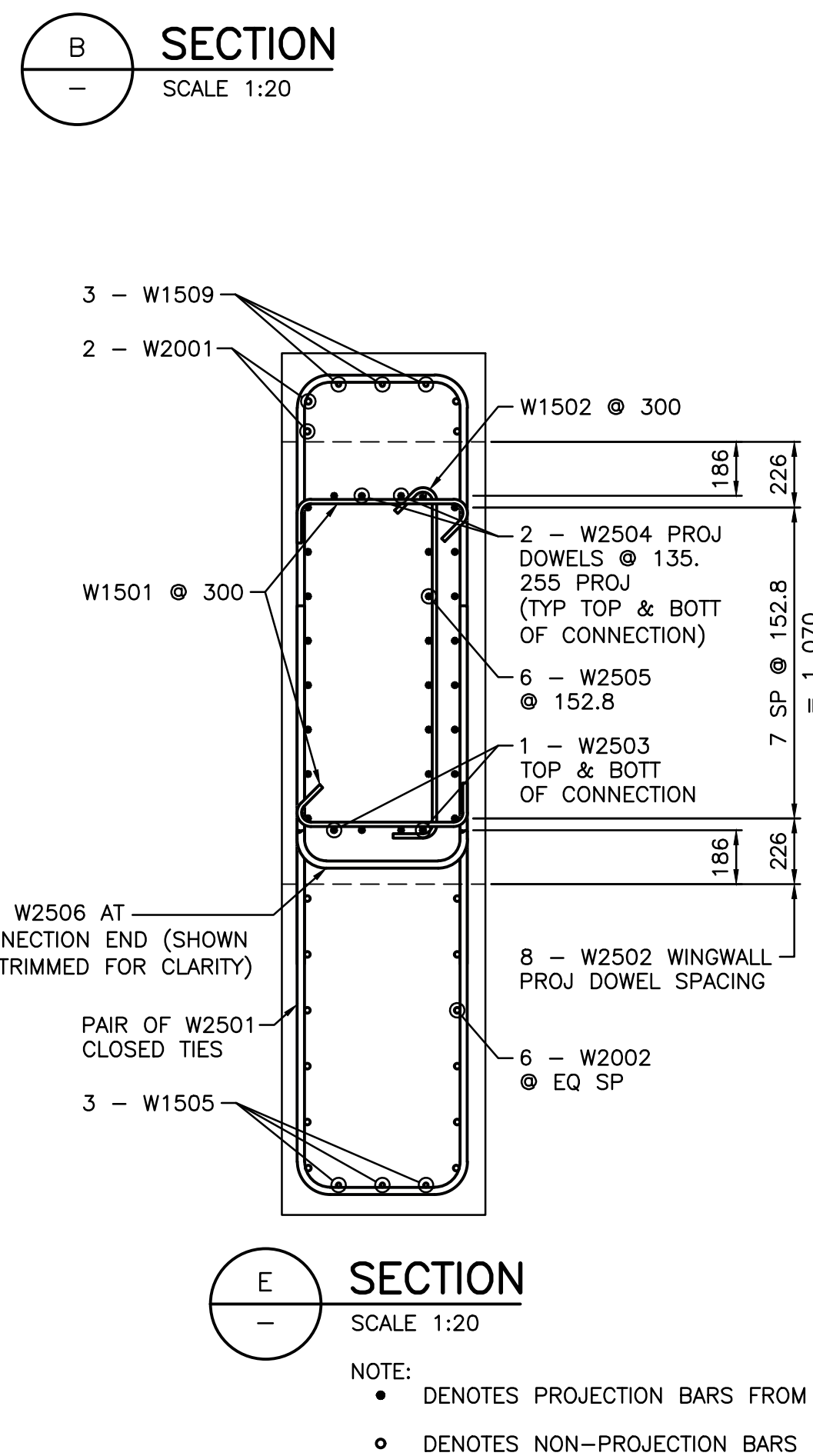
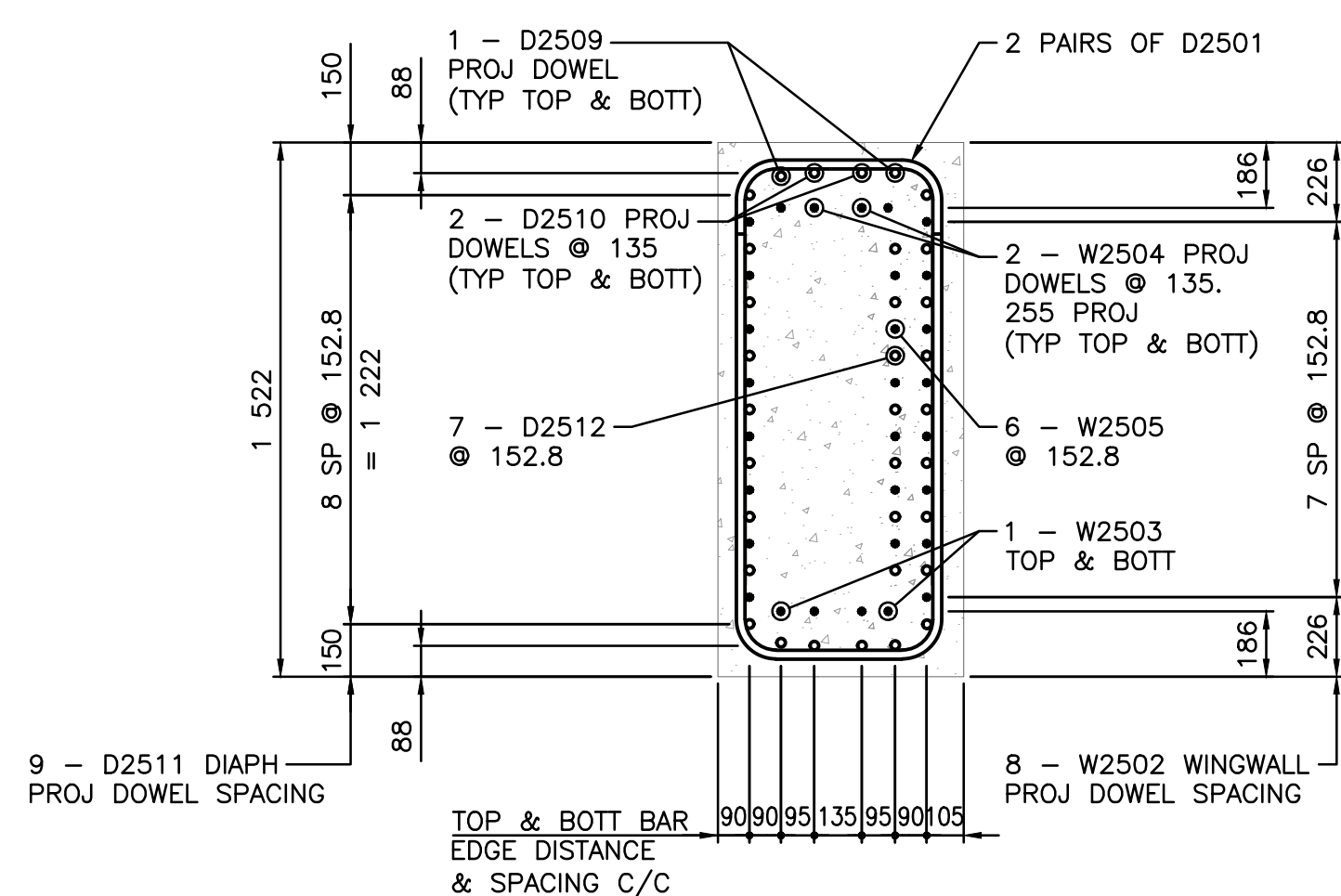
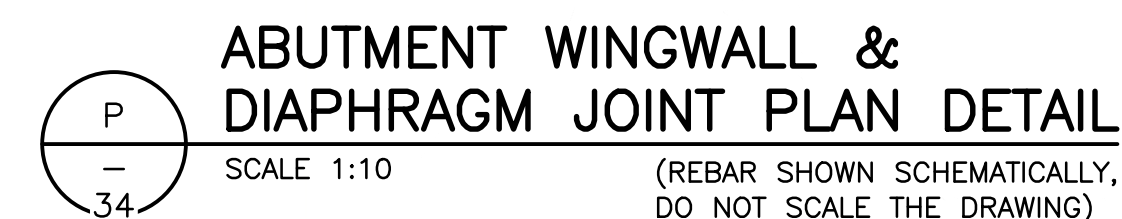
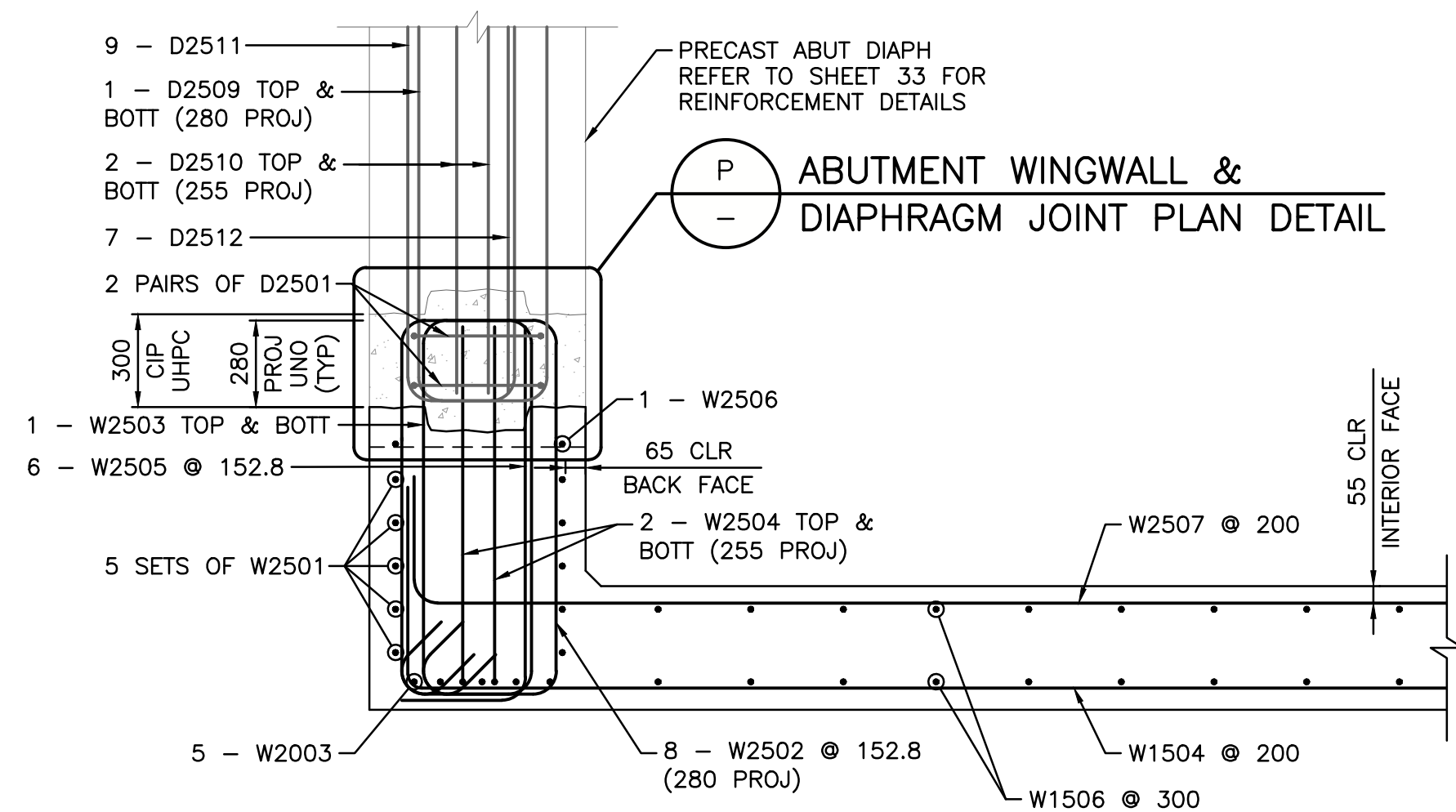
REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST ABUTMENT WINGWALL ELEMENT DETAILS
SHEET 1

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
		SHEET No. 34 OF 55	DRAWING No. SC-INF01-6081-S012

C



PRELIMINARY — NOT FOR CONSTRUCTION



Consultant Logo

Jacobs

Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
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REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST ABUTMENT WINGWALL ELEMENT DETAILS
SHEET 2

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE		AS SHOWN	

PREPARED UNDER THE DIRECTION OF

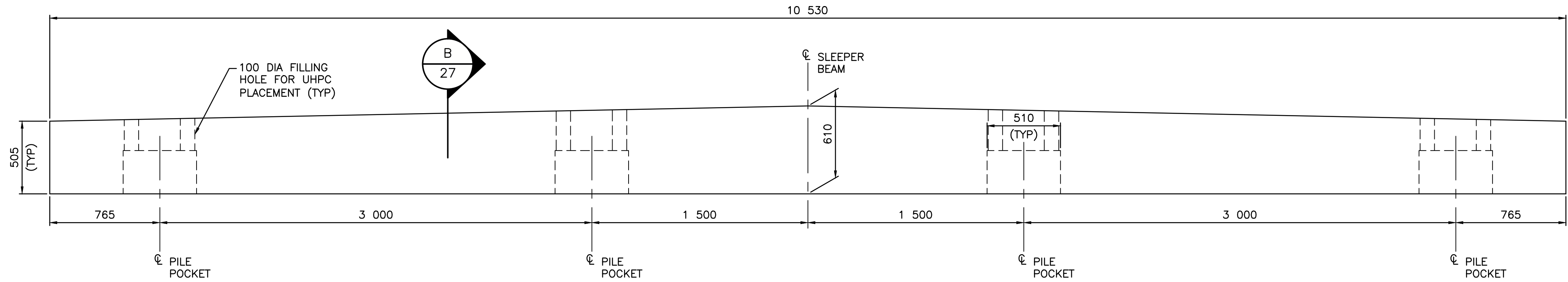
YING YI LI, P.ENG.
ENGINEER OF RECORD
DATE 2004.07.05

PROJECT No. CE857700

SHEET No.
35 OF

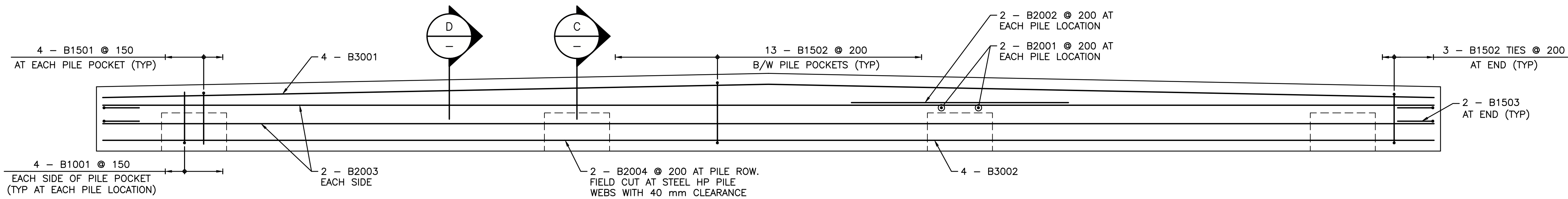
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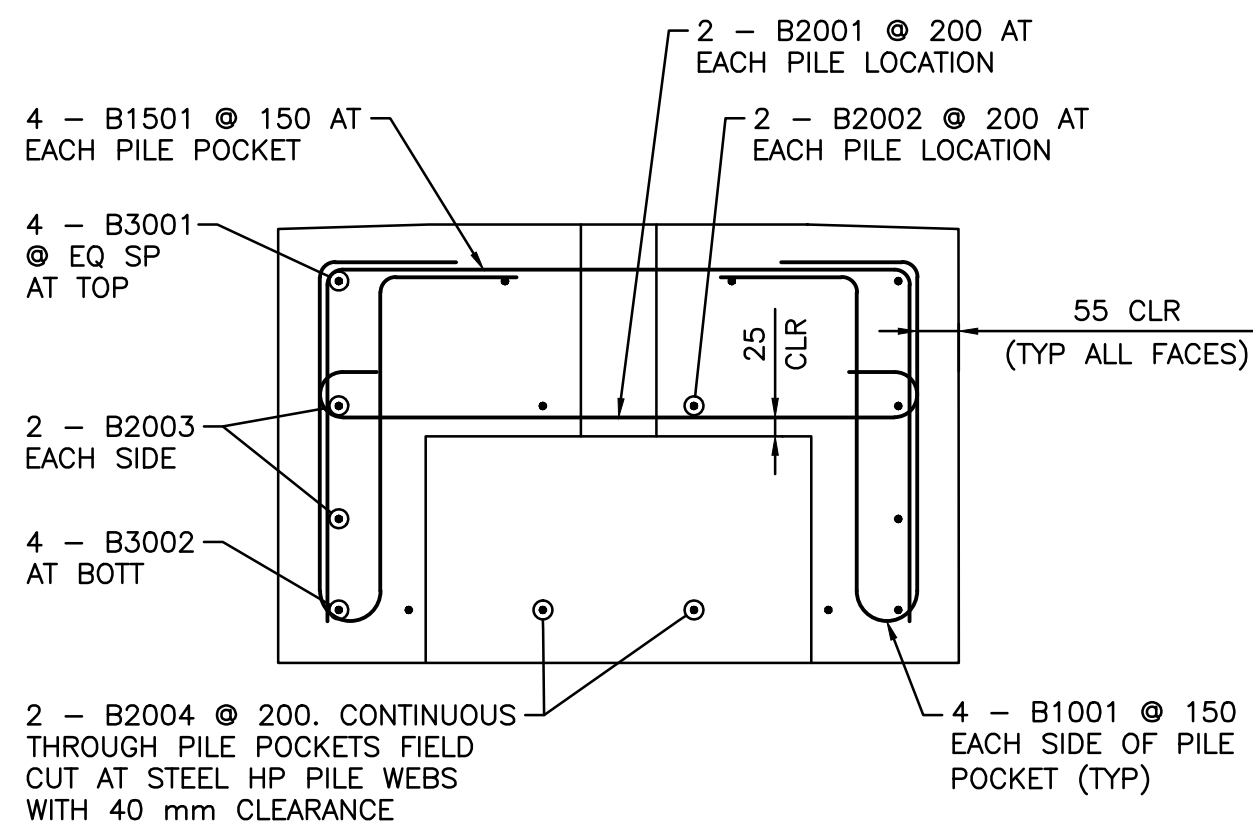
PRECAST SLEEPER BEAM ELEMENT ELEVATION

SCALE 1:20 (2 REQUIRED)
(ELEMENT ESTIMATED WEIGHT: 12 950 kg, EACH)

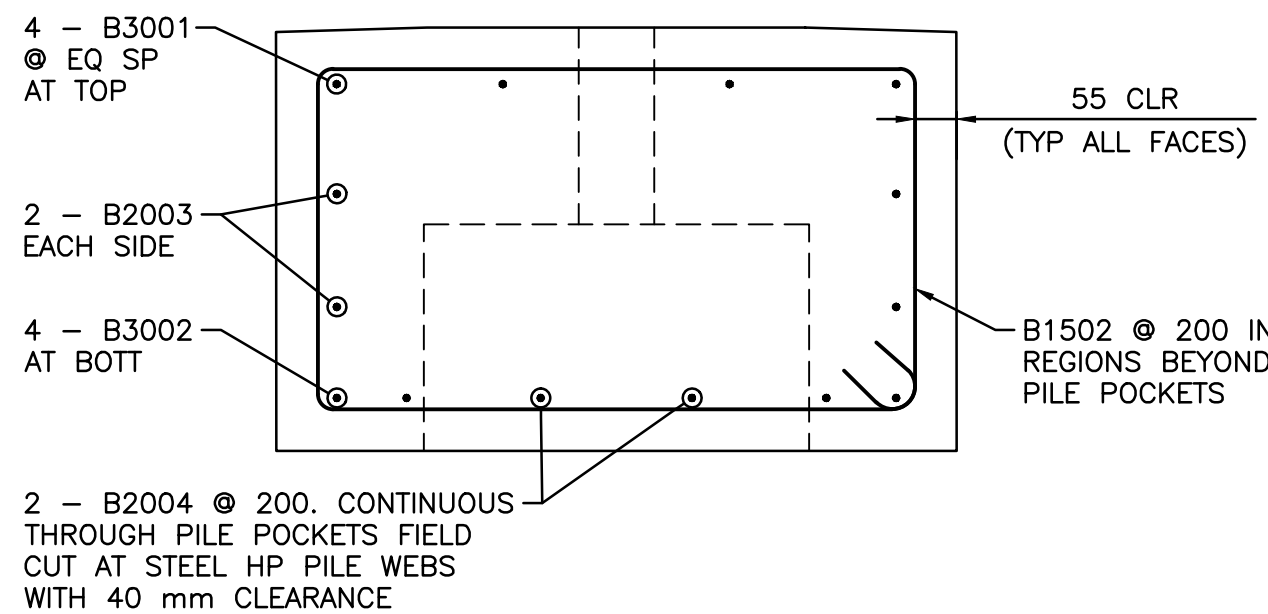


PRECAST SLEEPER BEAM ELEMENT REINFORCEMENT ELEVATION

SCALE 1:20



SECTION C SCALE 1:10



SECTION D SCALE 1:10

PRELIMINARY – NOT FOR CONSTRUCTION



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REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST SLEEPER BEAM ELEMENT DETAILS

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

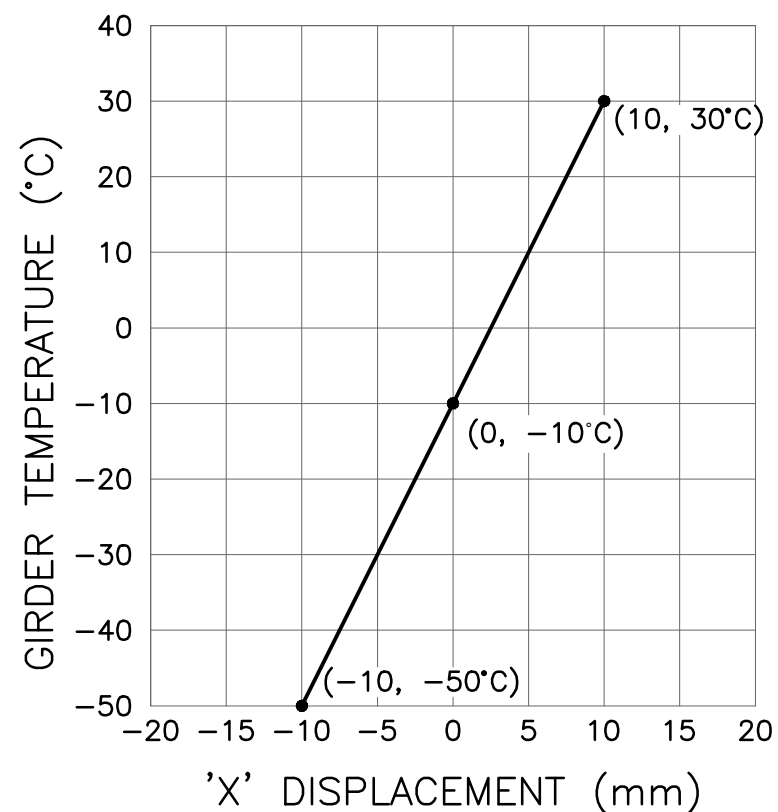
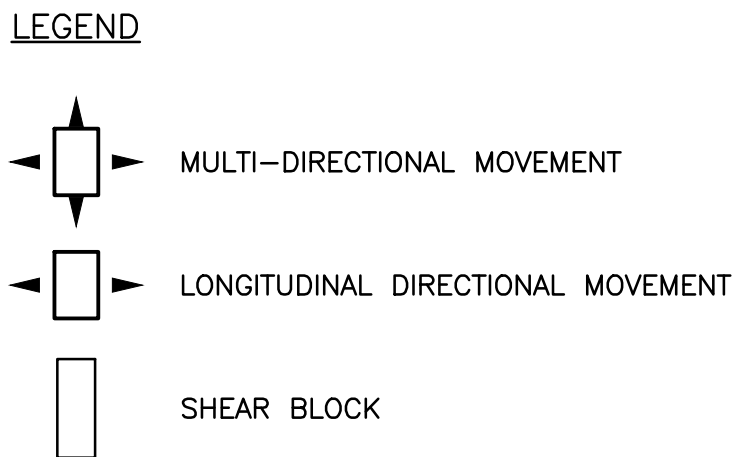
PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
		SHEET No. 36 OF 55	DRAWING No. SC-INF01-6081-S014

C

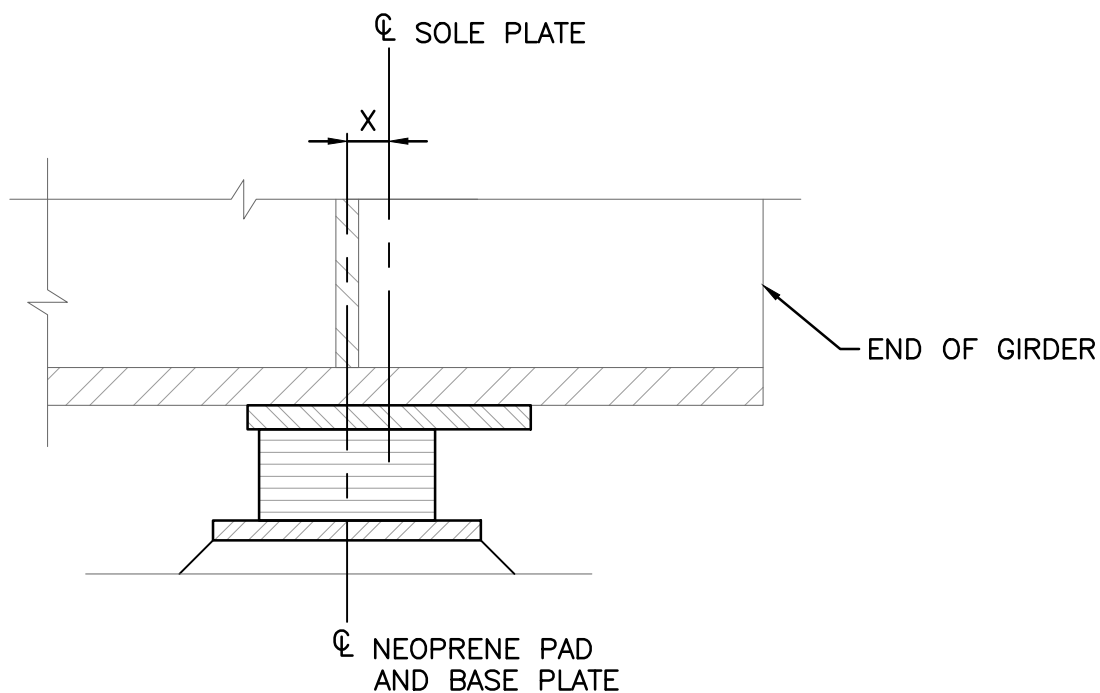
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PLOTTED : Monday, March 25, 2024



BEARING LAYOUT
NTS



ABUTMENT EXPANSION
BEARING SETTING CHART
'X' IS POSITIVE WHEN MEASURED FROM CL
BASE PLATE TOWARD NEAREST GIRDER END



BEARING NOTES

GENERAL

- ALL BEARINGS SHALL BE DESIGNED BY BEARING MANUFACTURER AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE NORTHWEST TERRITORIES.
- LAMINATED ELASTOMERIC BEARING PADS AND ALL OTHER COMPONENTS INCLUDING BUT NOT LIMITED TO TOP PLATES, STAINLESS STEEL SLIDING PLATES, BASE PLATES, CONNECTIONS, ANCHOR RODS SHALL BE DESIGNED IN ACCORDANCE WITH CAN/CSA-S6-19 AND THE ALBERTA TRANSPORTATION STRUCTURES DESIGN CRITERIA V9.0 APPENDIX D.
- ALL REQUIREMENTS OF GNWT STANDARD SPECIFICATIONS FOR BRIDGE CONSTRUCTION (SSBC) SECTION 6 FOR THE SUPPLY OF STRUCTURAL STEEL AND SECTION 8 SHALL BE MET.
- ABUTMENT SEAT AND PILE CUT-OFF ELEVATIONS, AND RELATED BRIDGE ELEMENT SIZES SHALL BE ADJUSTED TO ACCOMMODATE THE PROPOSED BEARING ASSEMBLIES AS PER ACCEPTED SHOP DRAWINGS. THE CONTRACTOR SHALL ENSURE THAT THE ROADWAY PROFILE IS MAINTAINED AS SHOWN. THE CONTRACTOR IS TO PROVIDE WRITTEN NOTIFICATION OF ANY CHANGE TO ELEVATIONS AND PRECAST CONCRETE ELEMENT DIMENSIONS INCLUDING ANY SUBSEQUENT CHANGES TO THE BRIDGE STRUCTURE. ANY ASSOCIATED COSTS INCURRED DUE TO SUCH CHANGES SHALL BE BORNE SOLELY BY THE CONTRACTOR.
- FABRICATION OF BEARINGS SHALL NOT COMMENCE UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND ACCEPTED BY THE ENGINEER.
- THE CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING COMPANY AT THE CONTRACTOR'S EXPENSE TO PERFORM TESTING OF THE BEARINGS. THE TESTING SHALL BE IN ACCORDANCE AS DESCRIBED IN SSBC.

INSTALLATION

- BEARING GROUT PADS SHALL BE GROUTED AFTER GIRDERS ARE ERECTED AND INTERMEDIATE DIAPHRAGMS ARE INSTALLED. PRECAST CONCRETE DECK AND ABUTMENT DIAPHRAGM ELEMENTS INSTALLATION SHALL NOT BE STARTED UNTIL GROUT PADS HAVE A MINIMUM COMPRESSIVE STRENGTH OF 35 MPa.
- ALL BEARINGS SHALL BE SUPPLIED COMPLETE WITH SOLE PLATES, BASE PLATES AND BOLTS AS DETAILED.
- ALL WELDING SHALL CONFORM TO CURRENT AWS BRIDGE WELDING CODE D1.5.

MATERIALS

- GROUT PADS AND ANCHOR BOLT VOIDS SHALL BE GROUTED WITH SIKA 212, FLOWABLE GROUT OR APPROVED EQUIVALENT. GROUT SHALL HAVE A MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 45 MPa AND SHALL NOT BE DRY PACKED.
- SOLE PLATE STEEL SHALL CONFORM TO CSA G40.21M-350 AT CATEGORY 3 WITH CHARPY V-NOTCH STRENGTH OF 27 JOULES AT -45°C. THE STEEL FOR BASE PLATE, KEEPER BARS, PINTELS AND SHIMS SHALL CONFORM TO THE REQUIREMENTS OF CSA G40.21 GRADE 300W.

GALVANIZING

- GALVANIZING SHALL BE HOT DIP METHOD AFTER FABRICATION IN ACCORDANCE WITH THE CURRENT EDITION OF ASTM A123/A123M STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS AND ASTM F2329 STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP).

JACKING LOADS

PERMANENT DEAD LOAD: 825 kN (UN-FACTORED)

PERMANENT DEAD LOAD +
1 LANE OF CL 800 TRUCK
(AT CENTER OF ROADWAY): 990 kN (UN-FACTORED)

(ABOVE JACKING LOADS PROVIDED BY ASSUMING NO BACKFILL SOIL FRICTION ON DIAPHRAGMS AND WINGWALLS DURING THE JACKING)

BEARING SCHEDULE

BEARING				G1, G4, G5		G2 & G3	
				VALUE	LC	VALUE	LC
DESIGN BEARING REACTION (kN)	SLS	VERT	MAX	1320		1320	
			PERM	825		825	
			MIN	825		825	
		LONG		135		135	
		TRANS		135		135	
	ULS	VERT	MAX	1840	ULS1	1840	ULS1
			PERM	910	ULS1	910	ULS1
			MIN	750	ULS1	750	ULS1
		LONG		455 (ULS 5)*			
		TRANS		455 (ULS 5)*			
	FLS	VERT		420		420	
DESIGN BEARING MOVEMENT (mm)		LONG		±60		±60	
		TRANS		±12		±2	
DESIGN BEARING ROTATION (rad)	SLS	LONG		0.025		0.025	
		TRANS		-		-	

NOTE: * BEARING TRAVERSE LOAD IS RESISTED BY EACH SHEAR BLOCK;
LONGITUDINAL LOAD IS RESISTED BY BACKFILL SOIL BEHIND EACH ABUTMENT DIAPHRAGM.

GIRDER AND BEARING ELEVATIONS AT CL OF BEARING

ABUT 1 (SOUTH)	G1	G2	G3	G4	G5
TOP OF GROUT PAD ELEVATION (m)					
BEARING HEIGHT (mm)					
UNDERSIDE OF GIRDER ELEVATION (m)	206.333	206.377	206.421	206.377	206.333
ABUT 2 (NORTH)	G1	G2	G3	G4	G5
TOP OF GROUT PAD ELEVATION (m)					
BEARING HEIGHT (mm)					
UNDERSIDE OF GIRDER ELEVATION (m)	206.823	206.867	206.911	206.867	206.823

NOTE: TOP OF GROUT PAD ELEVATIONS AND BEARING HEIGHTS TO BE DETERMINED AFTER BEARING SHOP DRAWINGS ARE APPROVED AT CONSTRUCTION STAGE WHEN THE DESIGN BEARING HEIGHTS ARE KNOWN

PRELIMINARY – NOT FOR CONSTRUCTION



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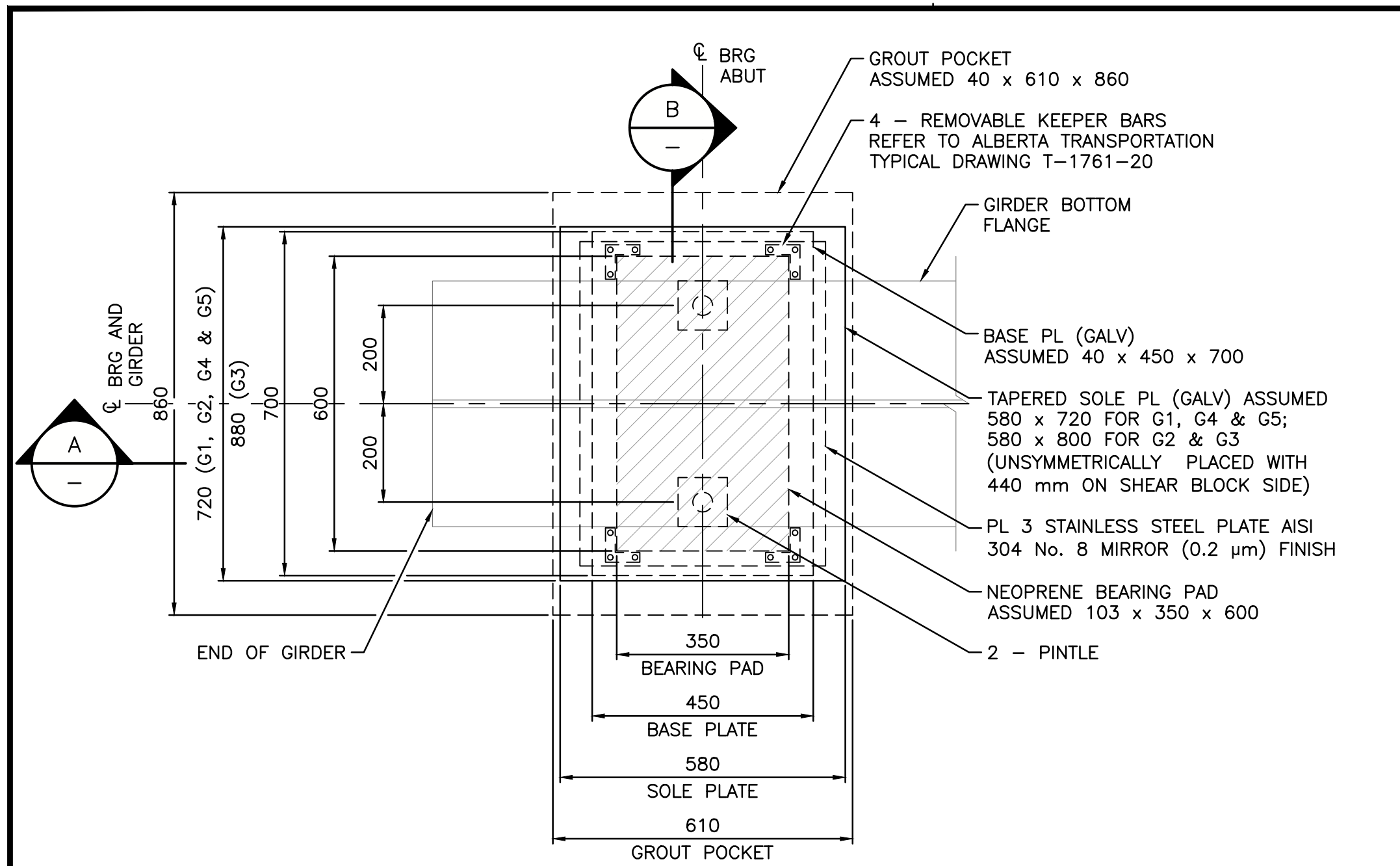
Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
A	2023-10-06	ISSUED FOR 80% REVIEW	YL

REVISIONS

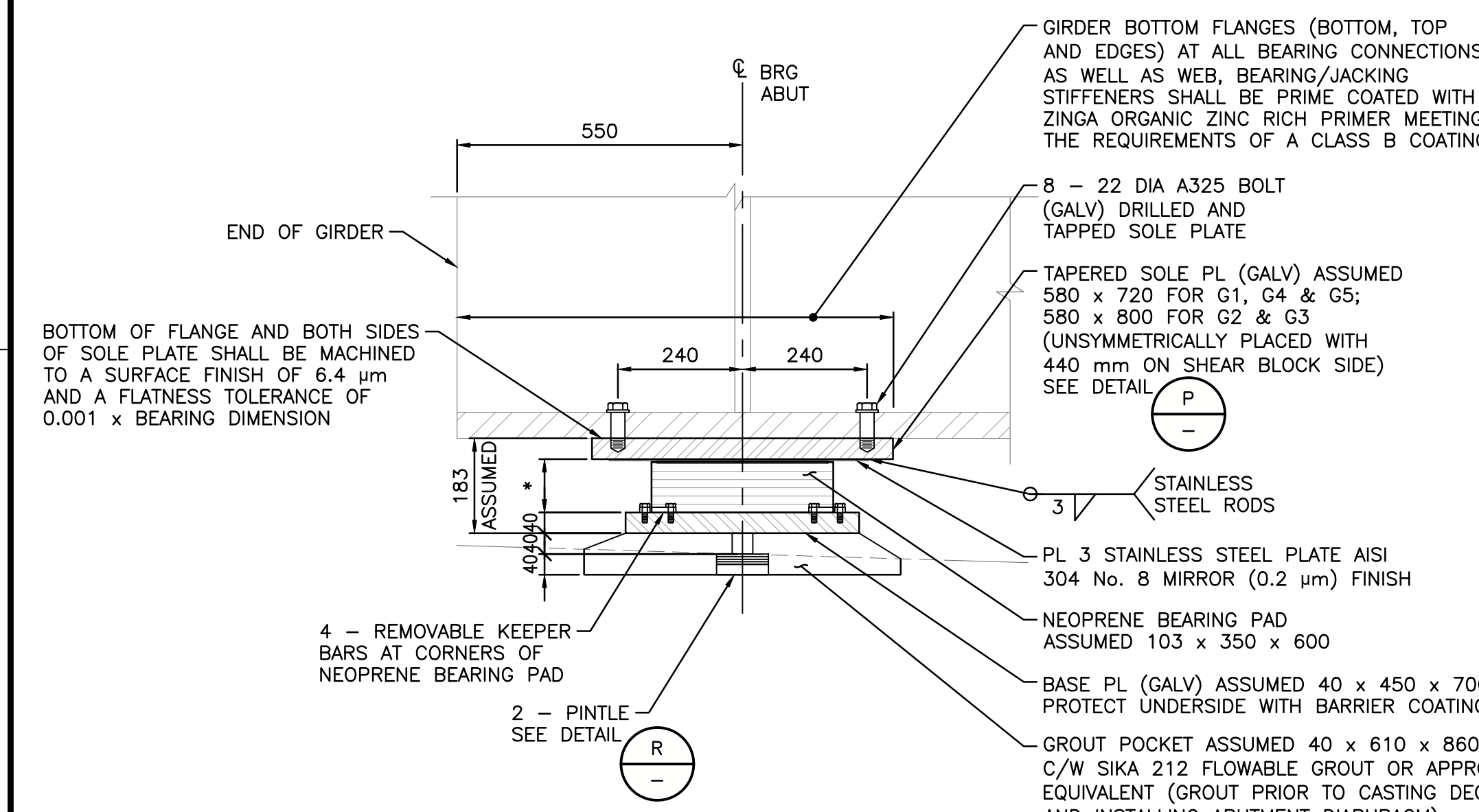
Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
BEARING LAYOUT

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

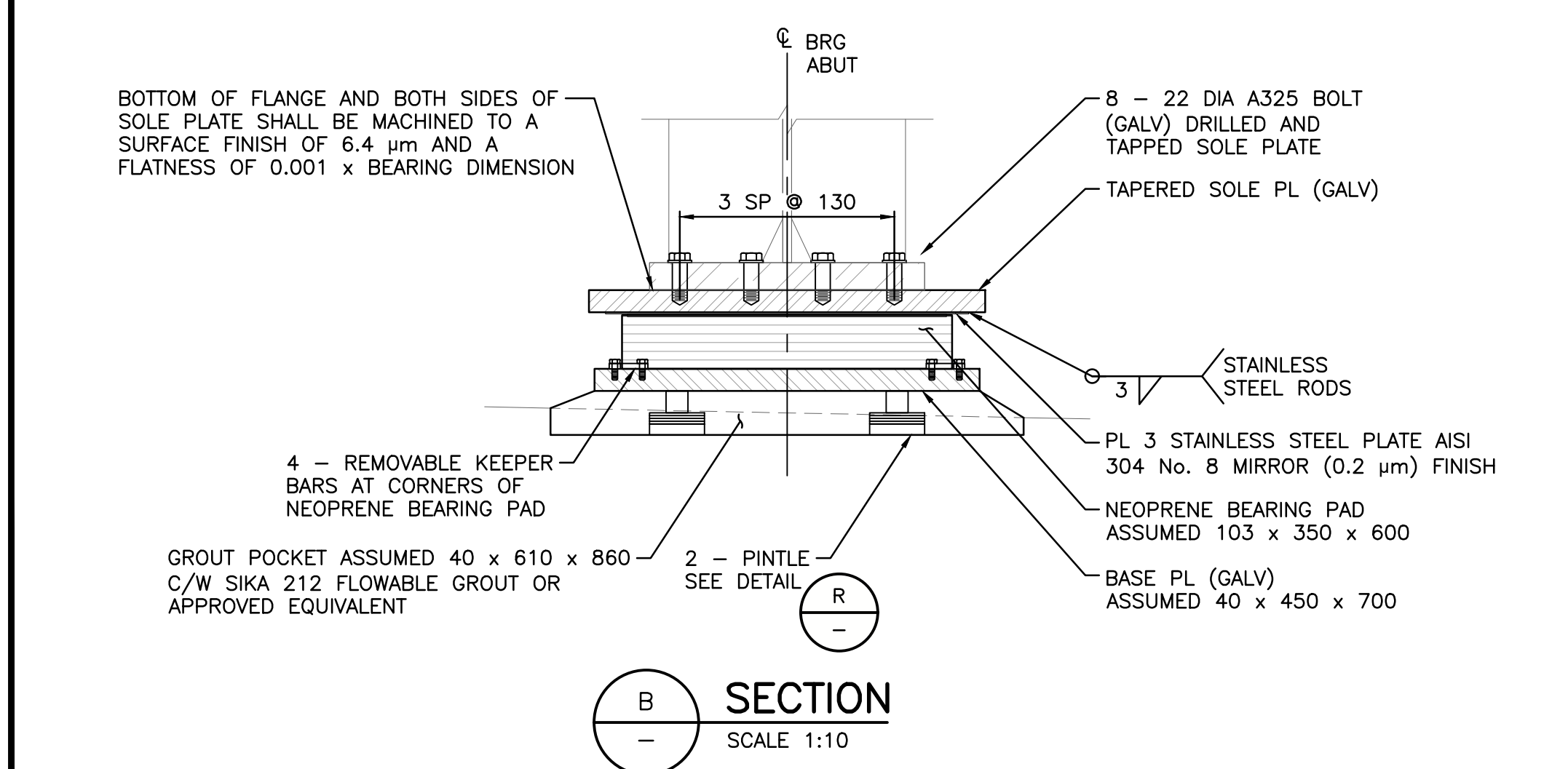
PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF	
		YING YI LI, P.ENG. ENGINEER OF RECORD	
		DATE 2024-03-25	
SHEET No. 37 OF 55		DRAWING No. SC-INF01-6081-S015	
		B	



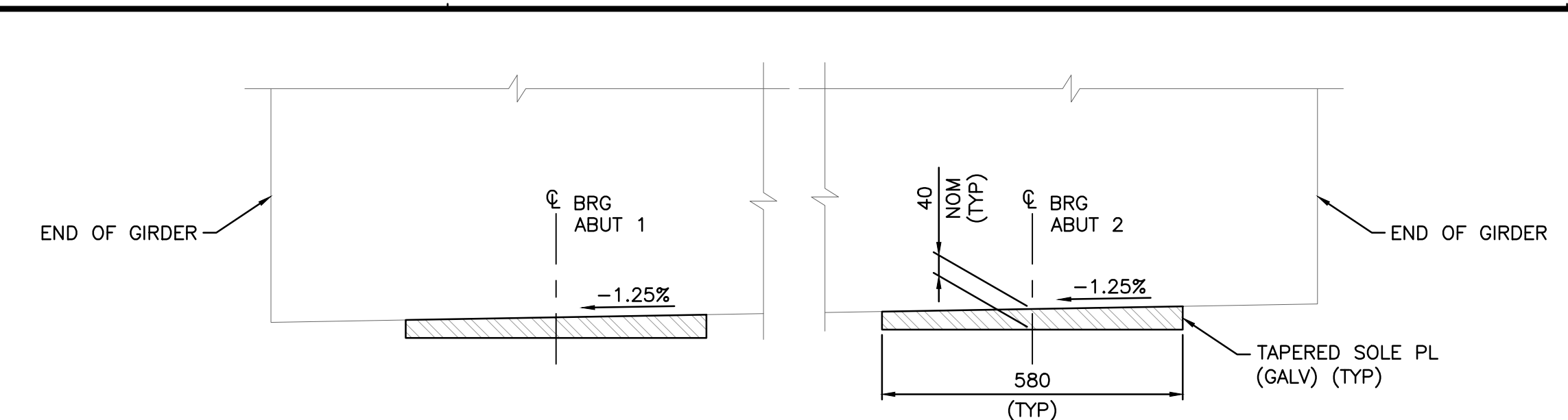
BEARING PLAN
SCALE 1:10



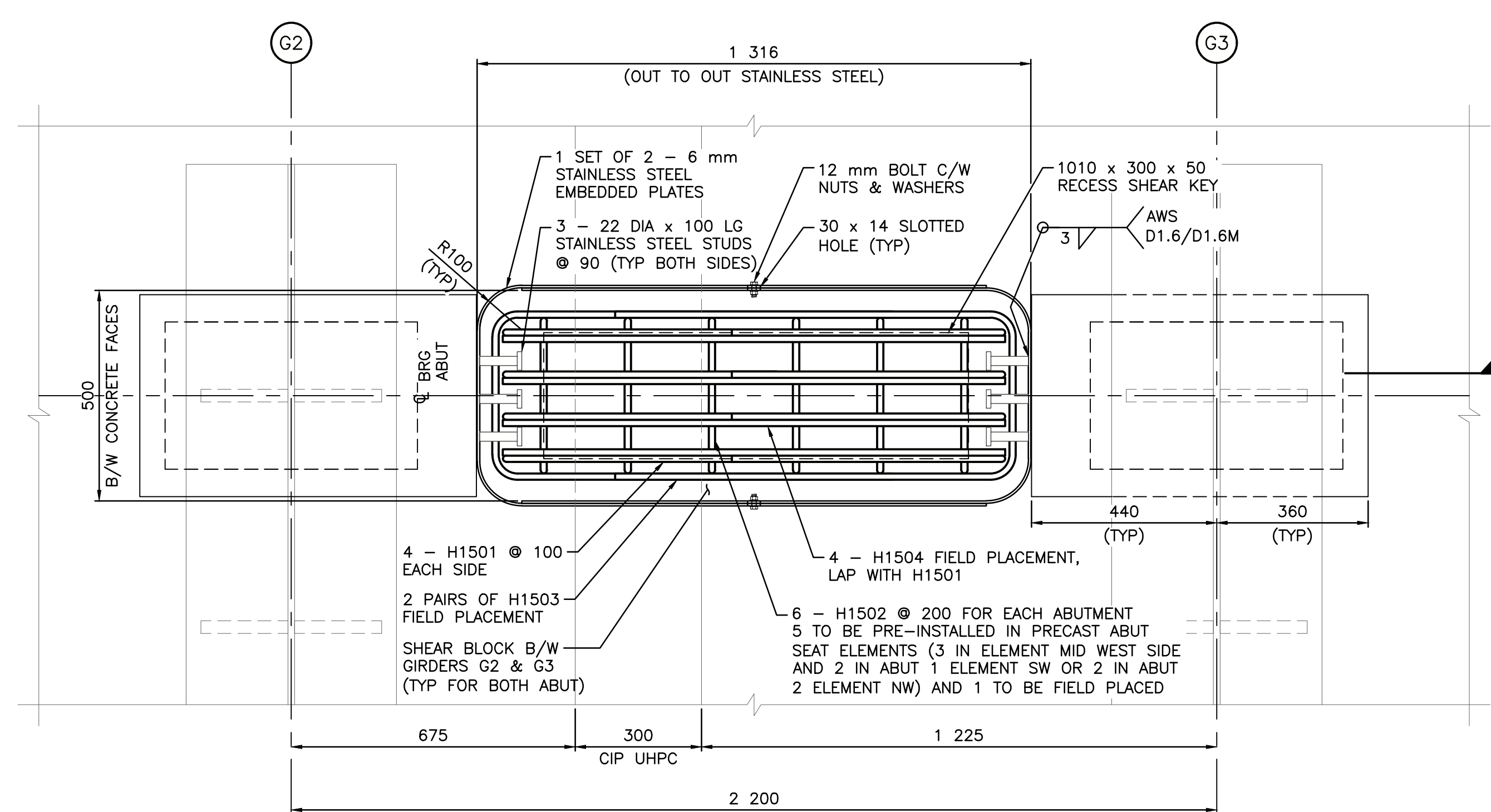
SECTION A
SCALE 1:10



SECTION B
SCALE 1:10

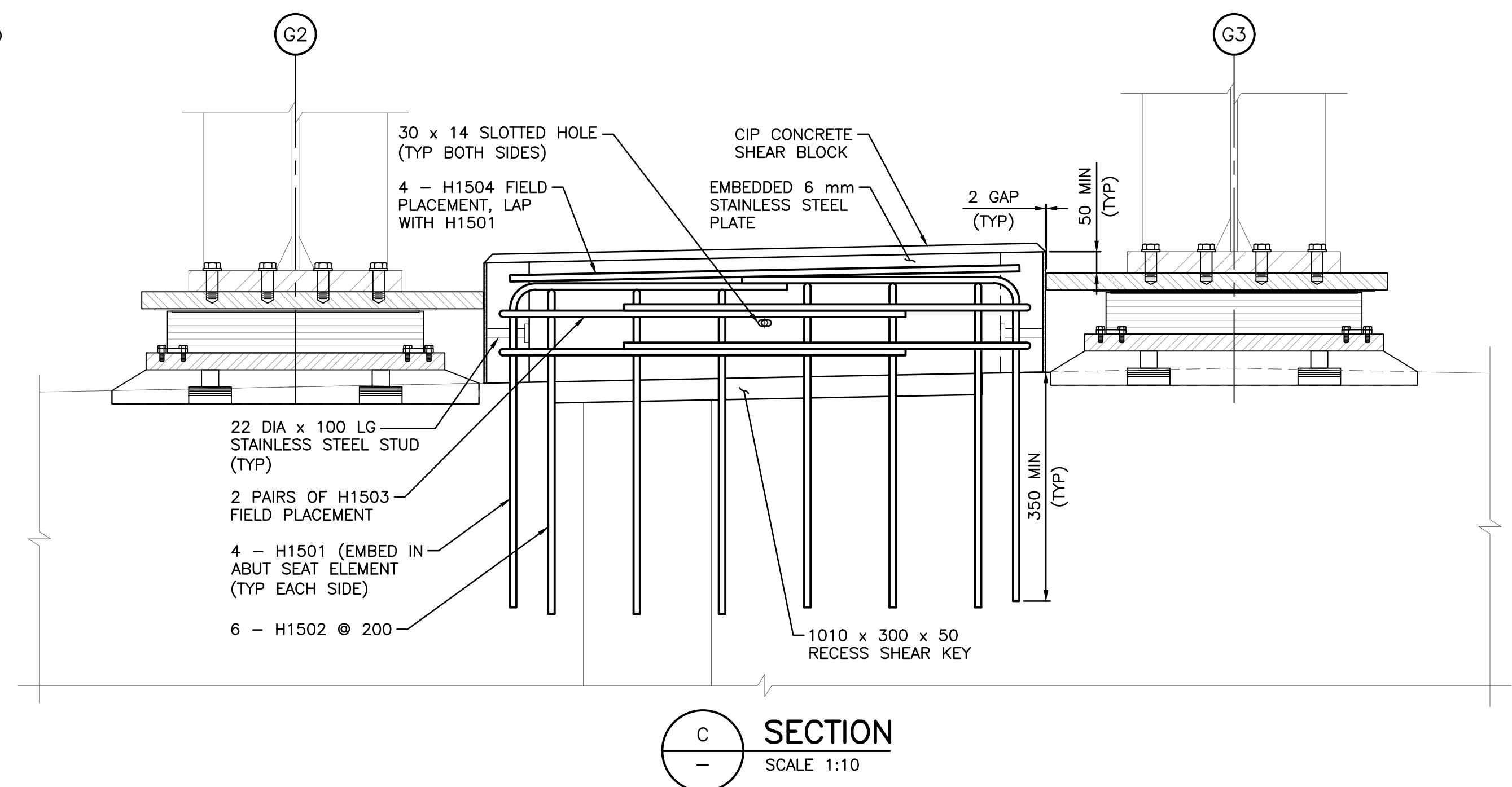


TAPERED SOLE PLATE DETAIL
SCALE 1:10

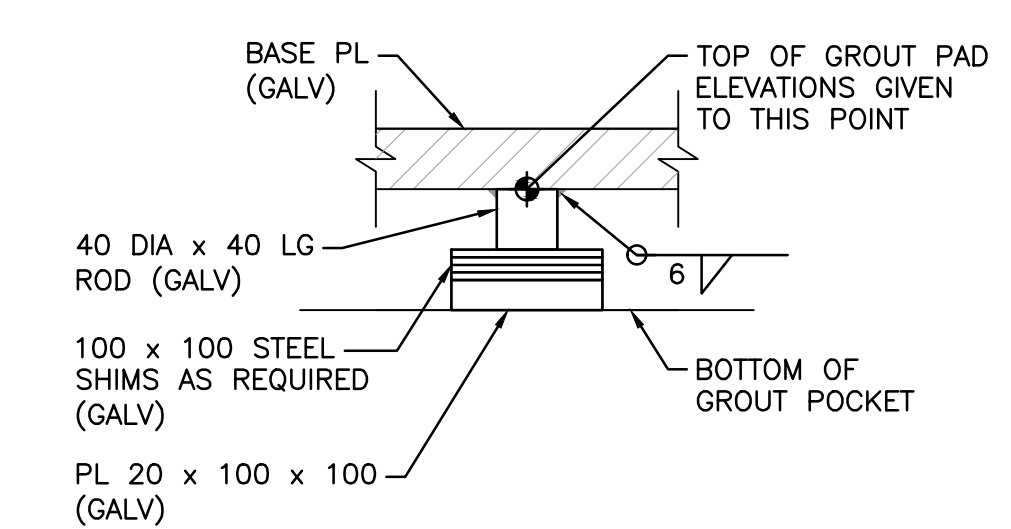


SHEAR BLOCK PLAN
SCALE 1:10

NOTE: SHEAR BLOCK ASSEMBLY SIZES TO BE ADJUSTED BASED ON ACTUAL BEARING DESIGN



SECTION C
SCALE 1:10



PINTLE DETAIL
SCALE 1:5

PRELIMINARY - NOT FOR CONSTRUCTION



Jacobs

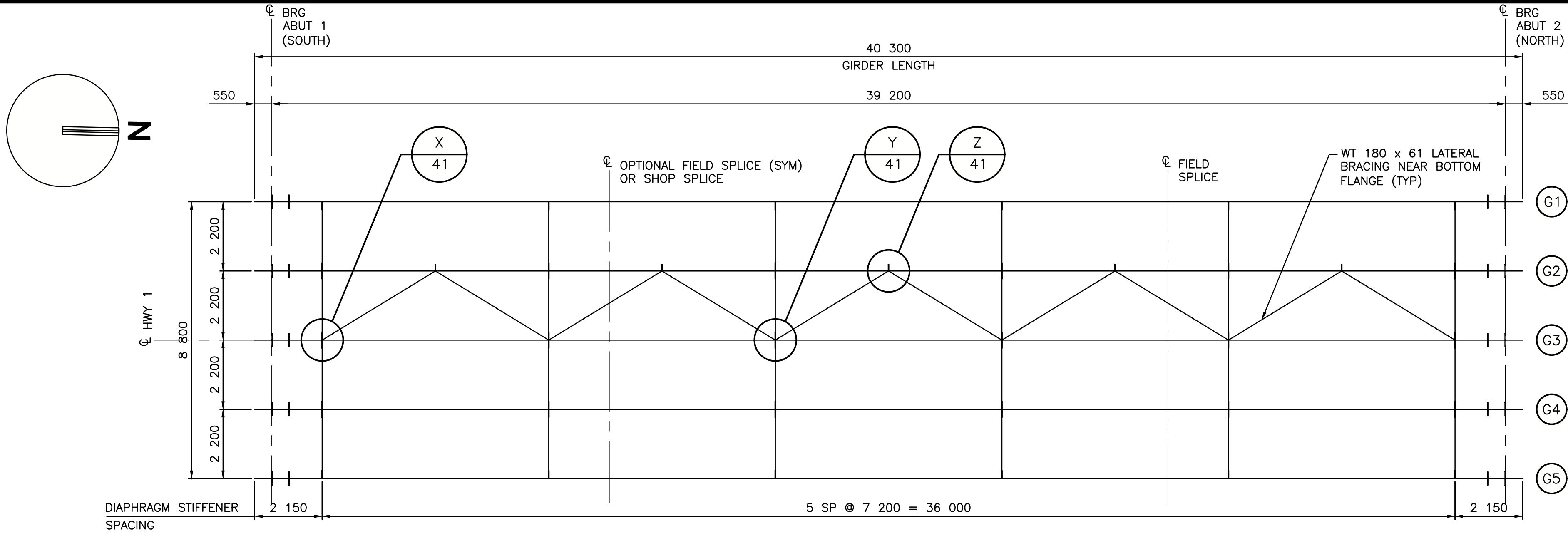
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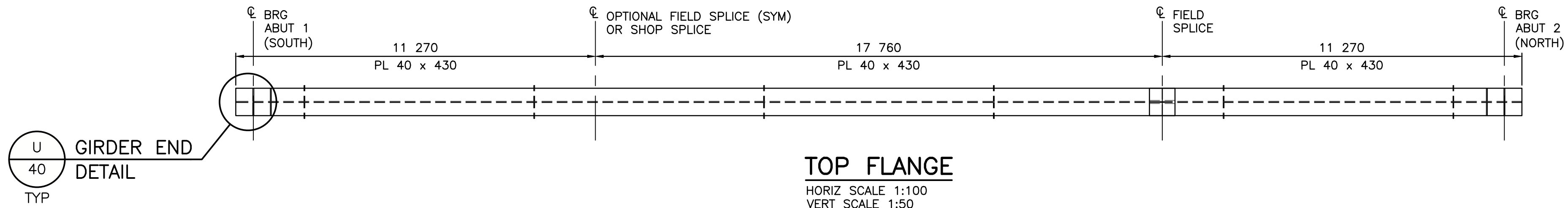
REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
BEARING AND SHEAR BLOCK DETAILS

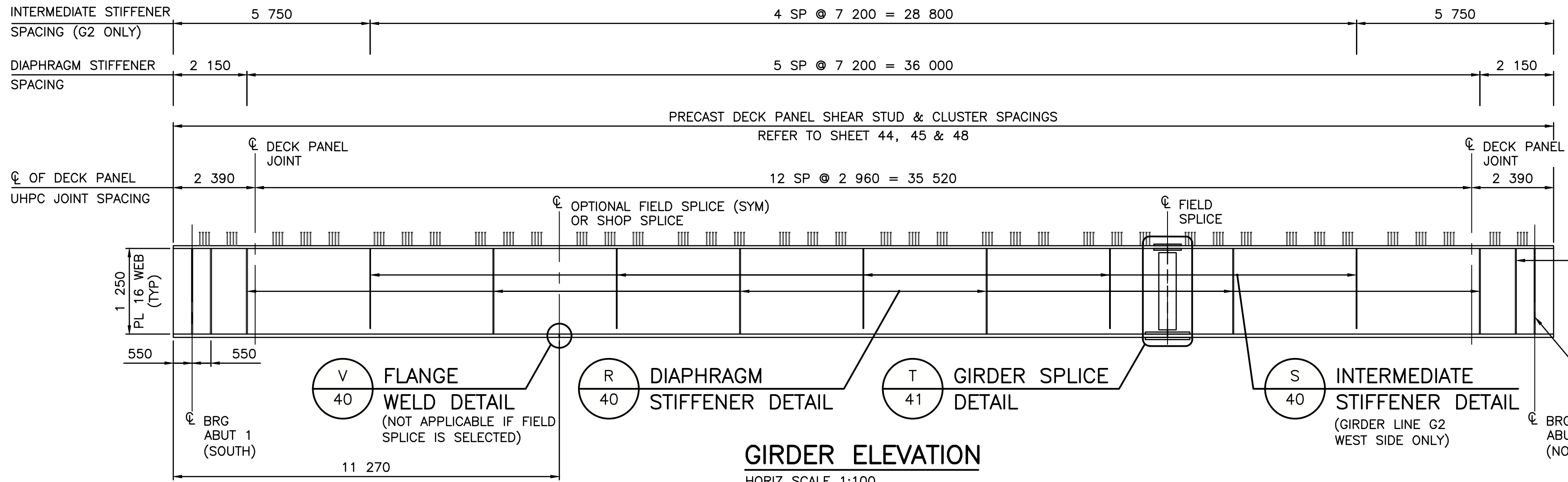
DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		
PROJECT No.		PREPARED UNDER THE DIRECTION OF	
CE857700		YING YI LI, P.ENG.	
SHEET No.		ENGINEER OF RECORD	
38 OF 55		DATE	
		2024-03-25	
		DRAWING No.	
		SC-INF01-6081-S016	



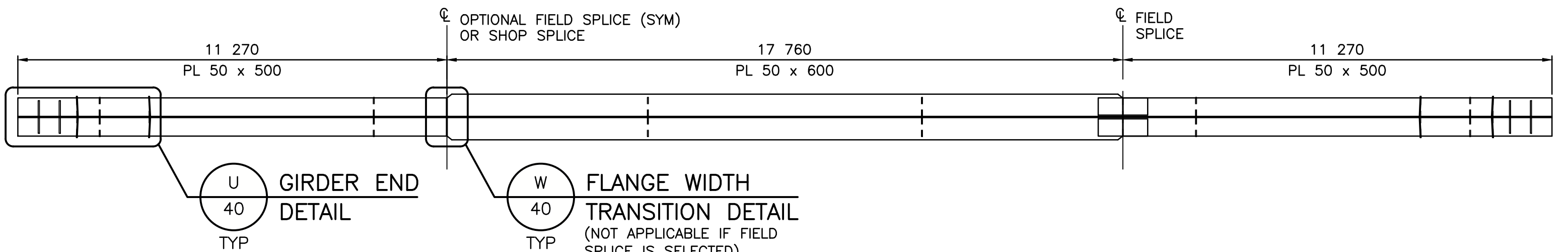
GIRDER & DIAPHRAGM LAYOUT
SCALE 1:100



TOP FLANGE
HORIZ SCALE 1:100
VERT SCALE 1:50



GIRDER ELEVATION
HORIZ SCALE 1:100
VERT SCALE 1:50



BOTTOM FLANGE
HORIZ SCALE 1:100
VERT SCALE 1:50

PRELIMINARY – NOT FOR CONSTRUCTION



Consultant Logo

Jacobs

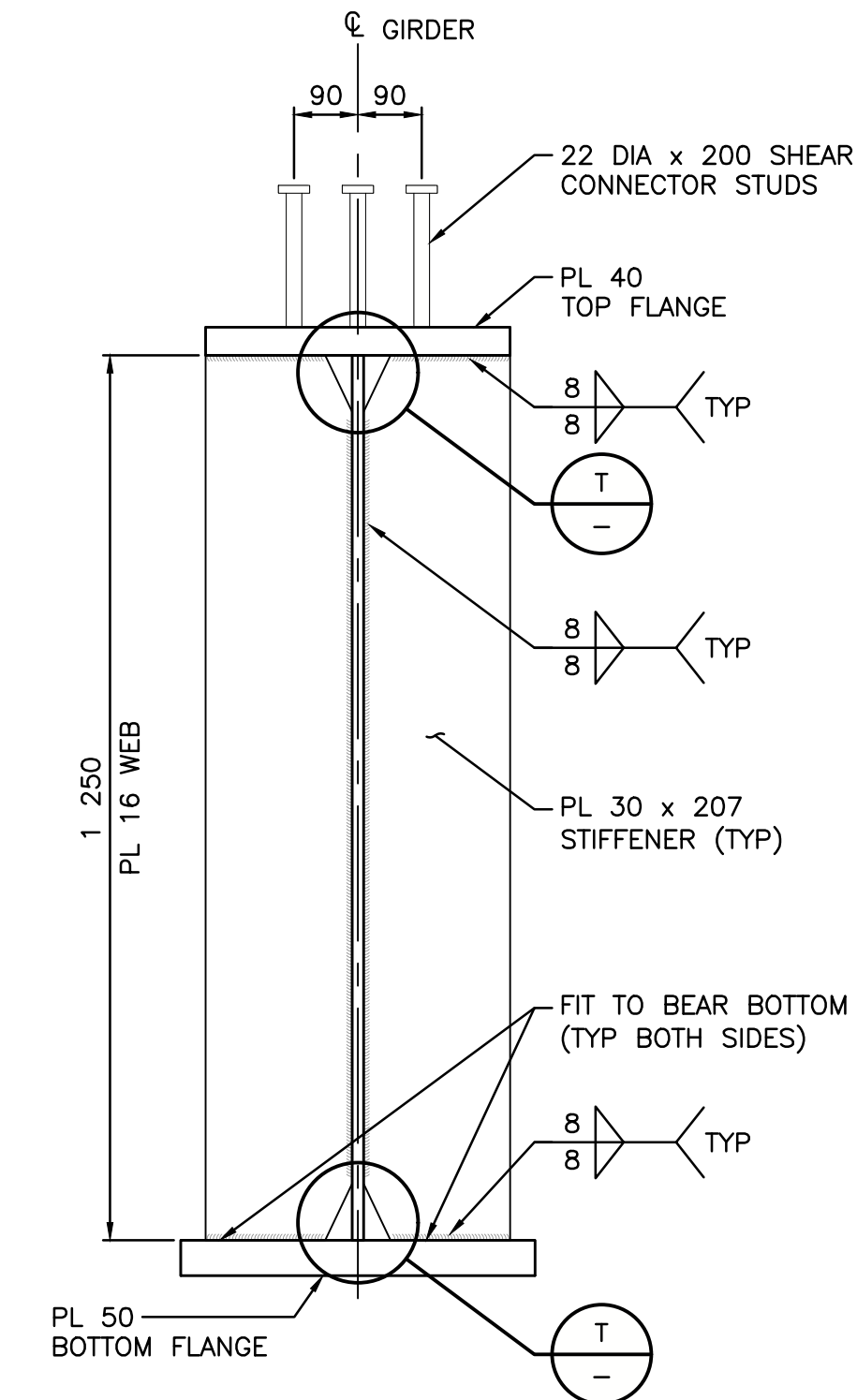
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B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

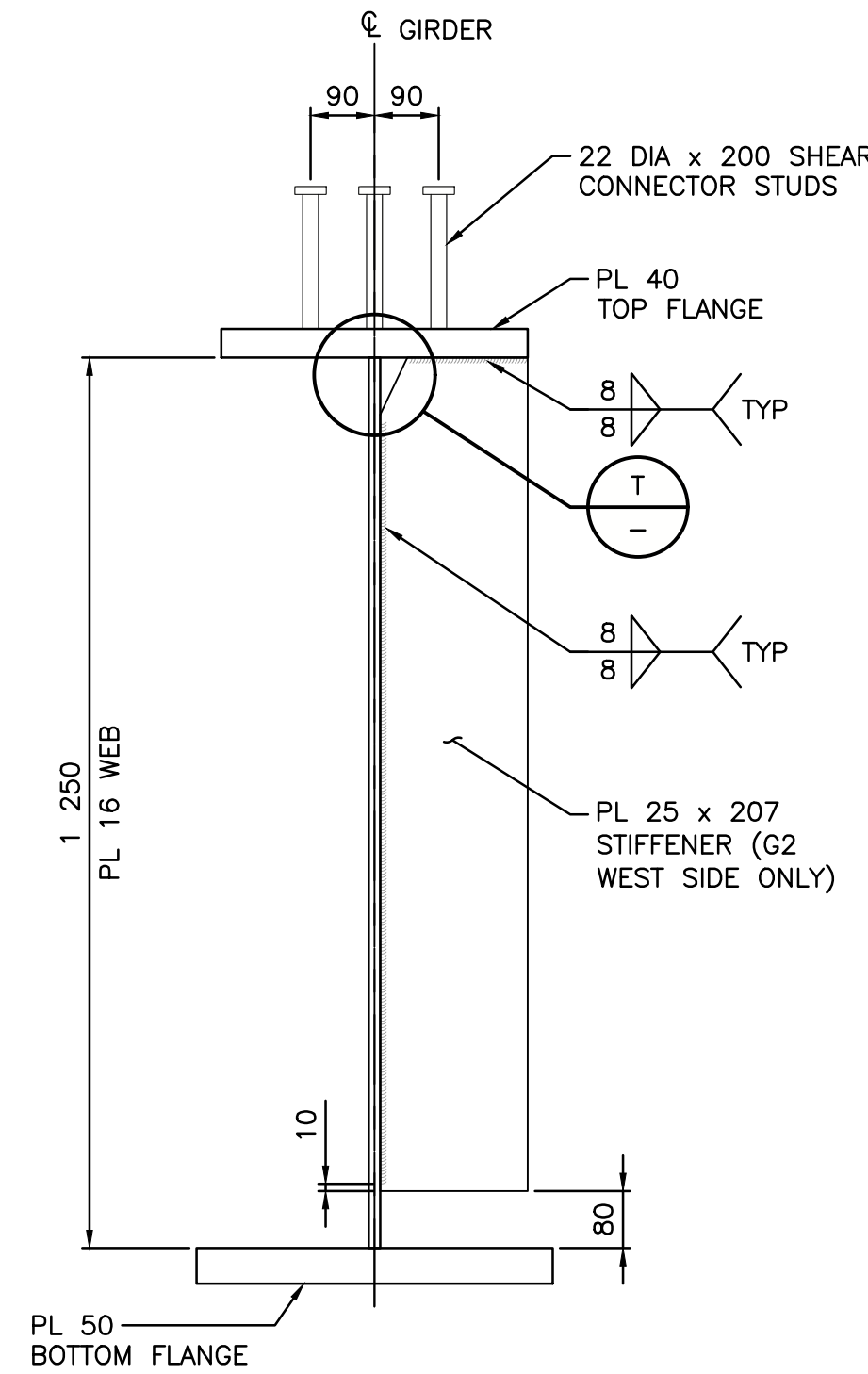
Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
GIRDER LAYOUT

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

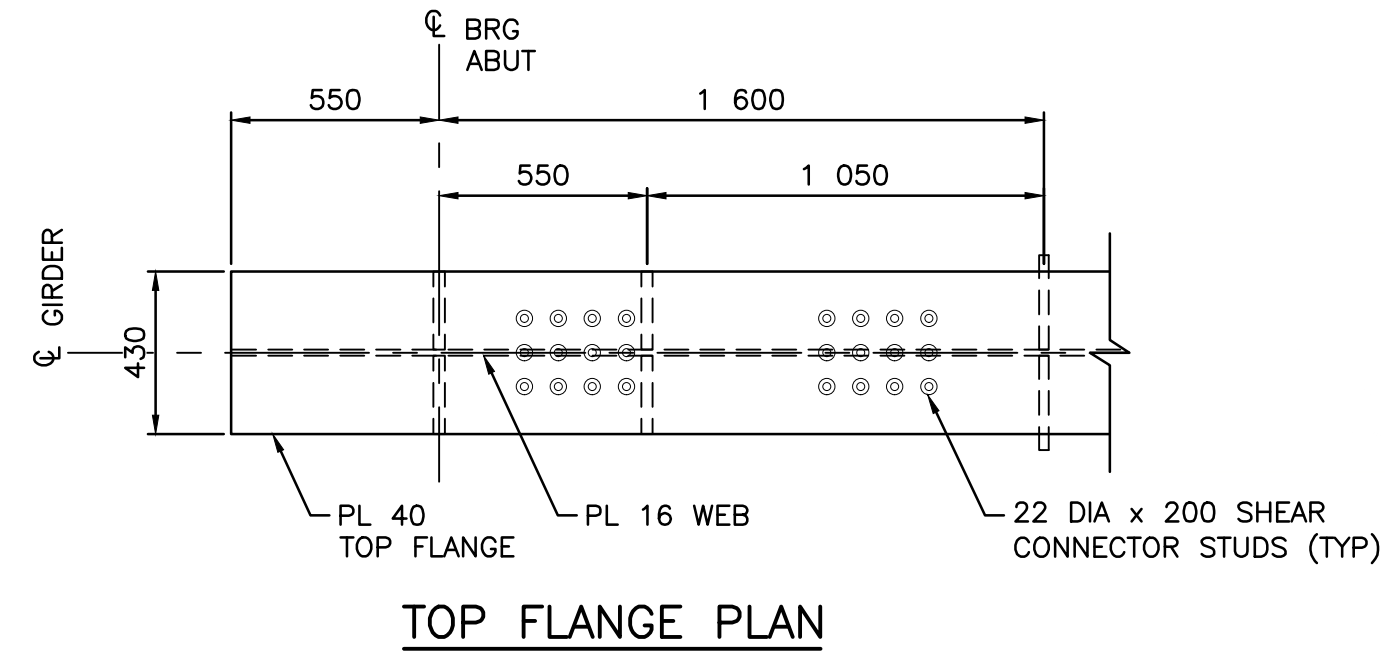
PROJECT No. CE857700		SHEET No. 39 OF 55		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25 DRAWING No. SC-INF01-6081-S017	
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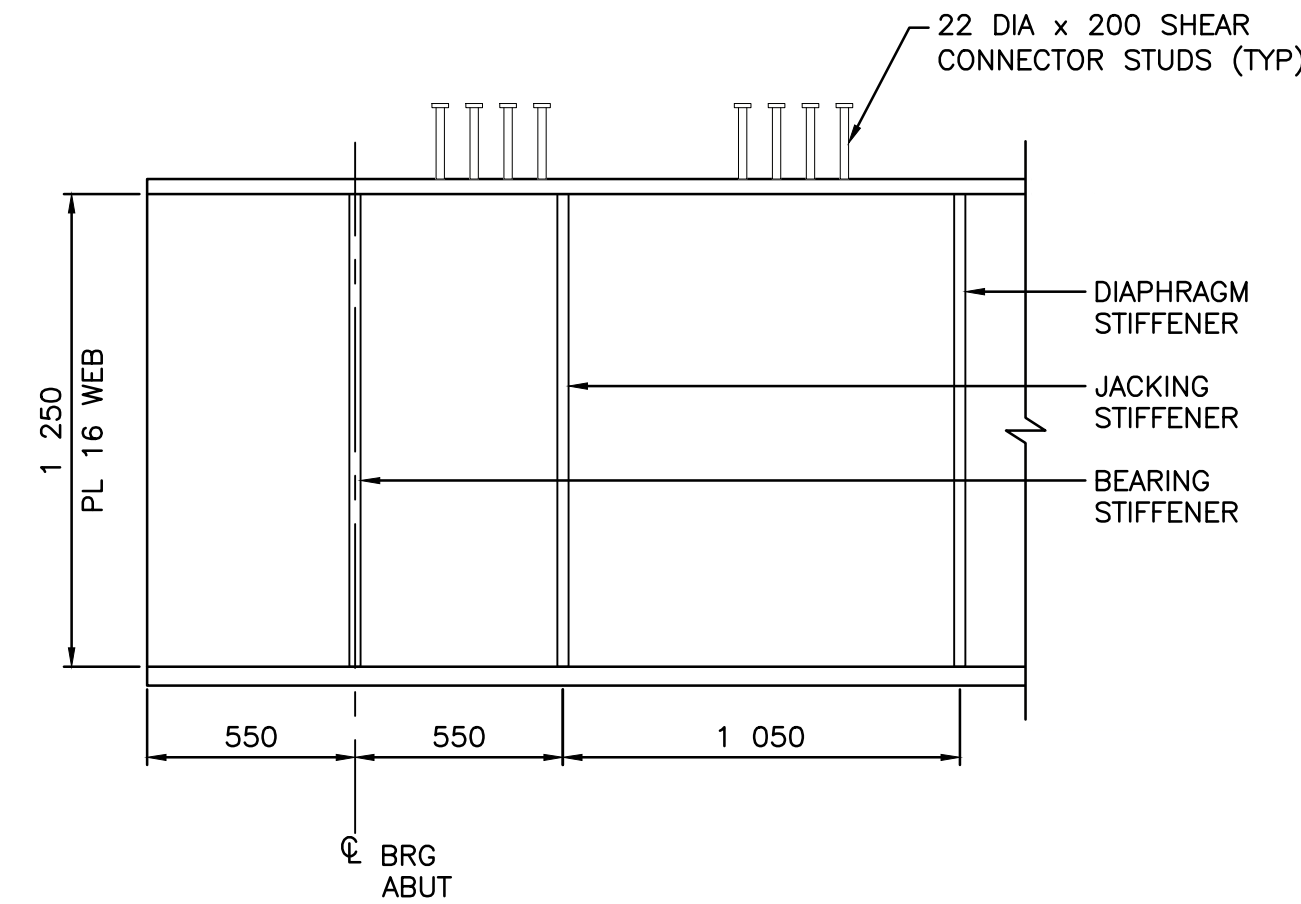
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SCALE 1:10



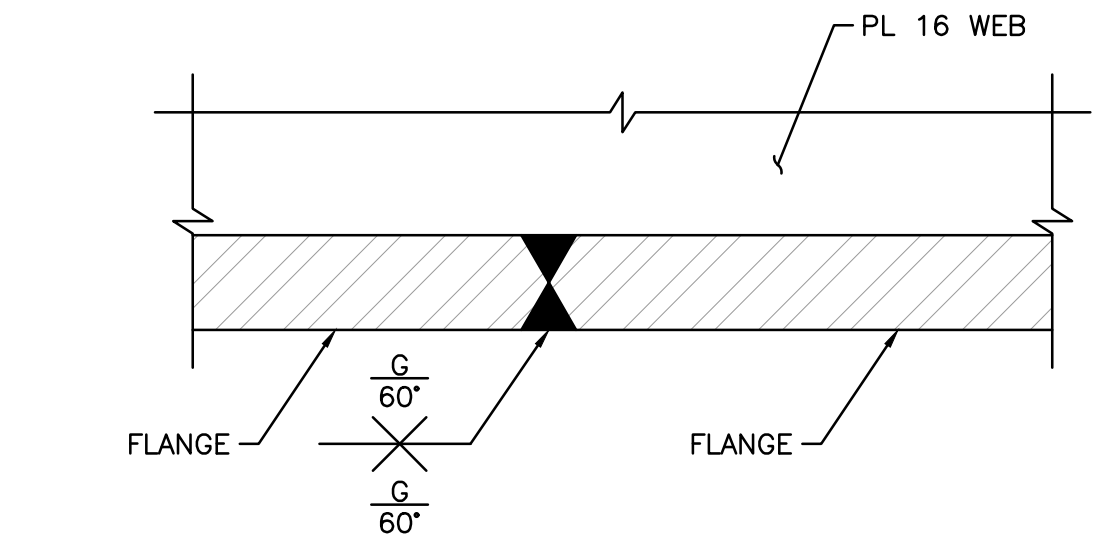
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SCALE 1:10



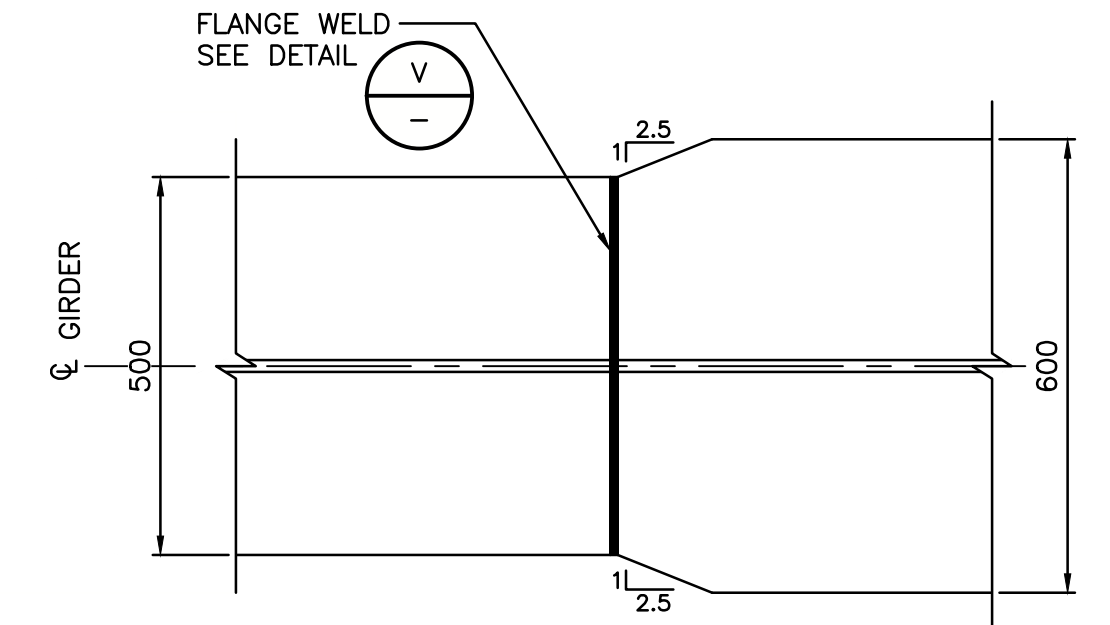
TOP FLANGE PLAN



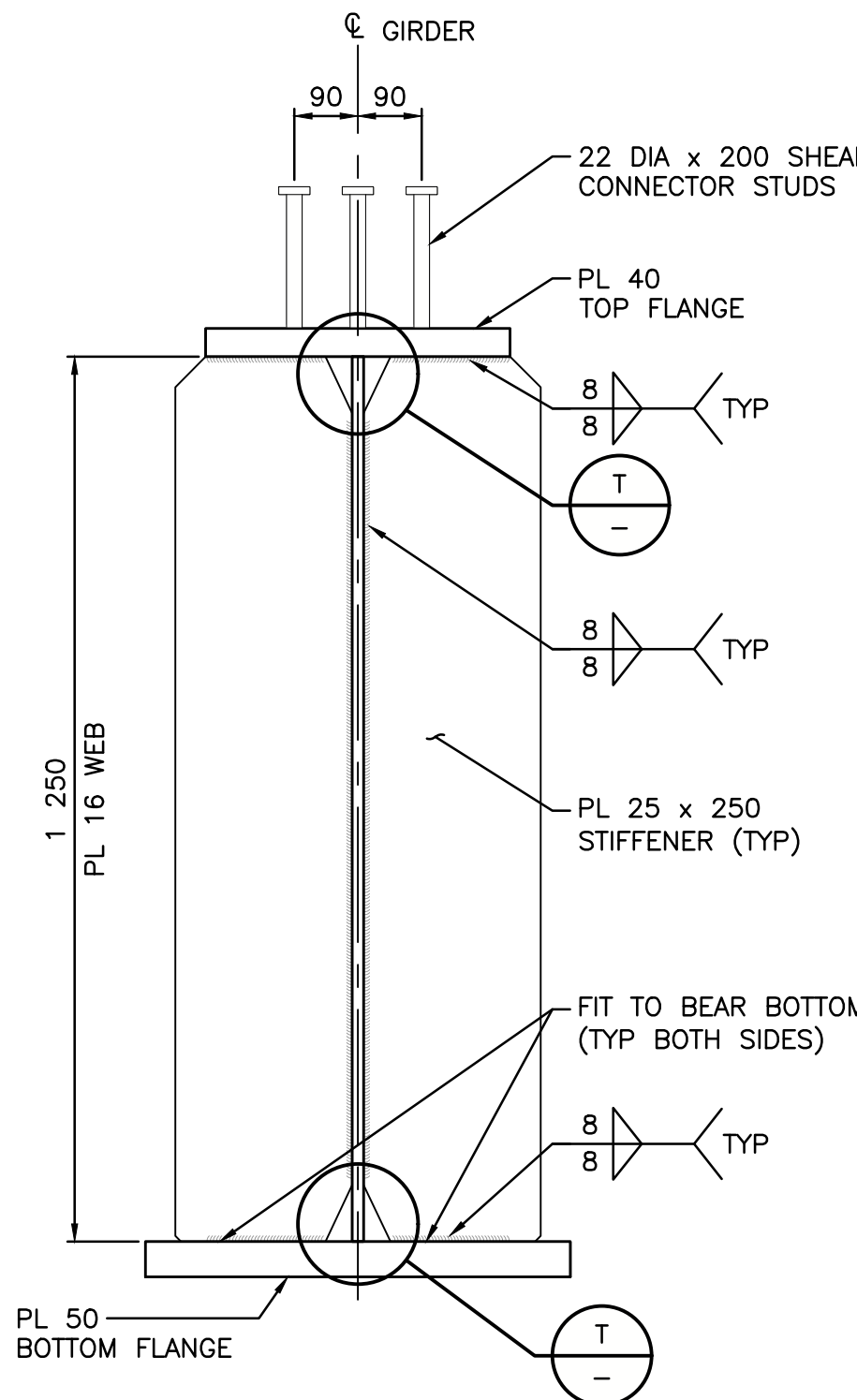
GIRDER ELEVATION



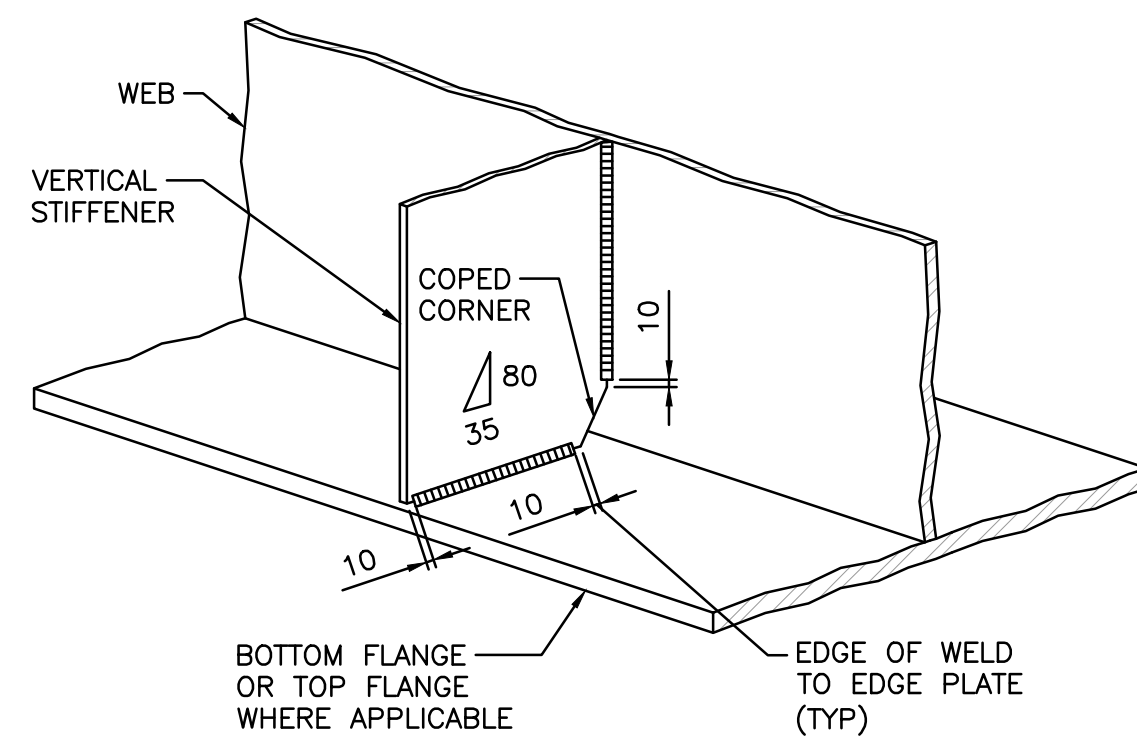
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39
FLANGE WELD DETAIL
NTS



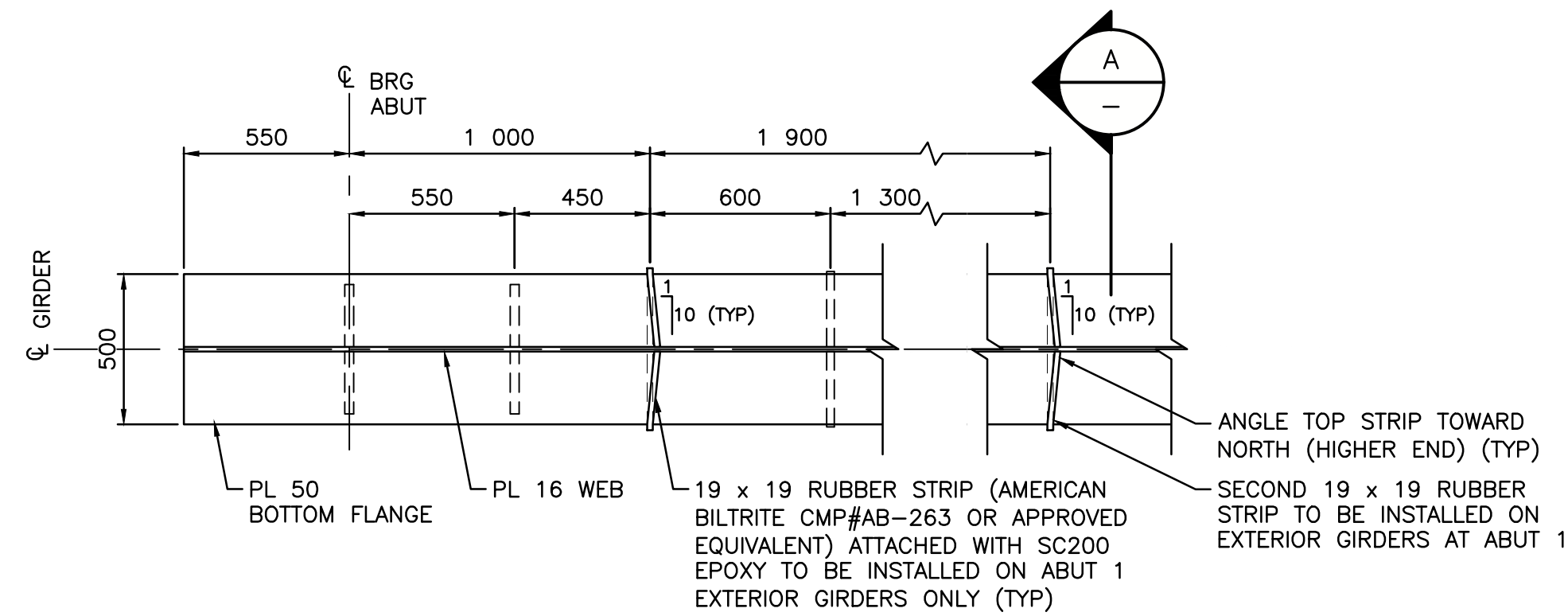
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FLANGE WIDTH TRANSITION DETAIL
SCALE 1:10



R
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SCALE 1:10

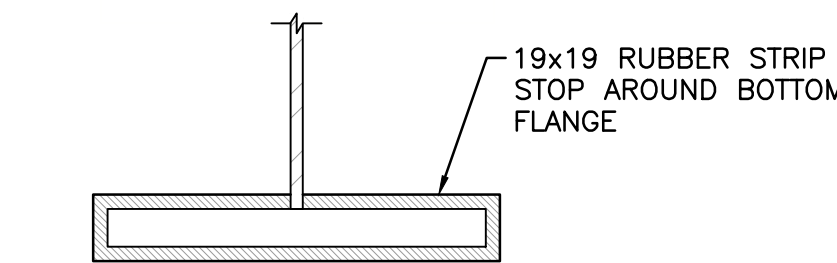


T
39
SCALE 1:10



BOTTOM FLANGE PLAN

U
39
GIRDER END DETAIL
SCALE 1:20



A
39
SCALE 1:10

PRELIMINARY – NOT FOR CONSTRUCTION



Jacobs

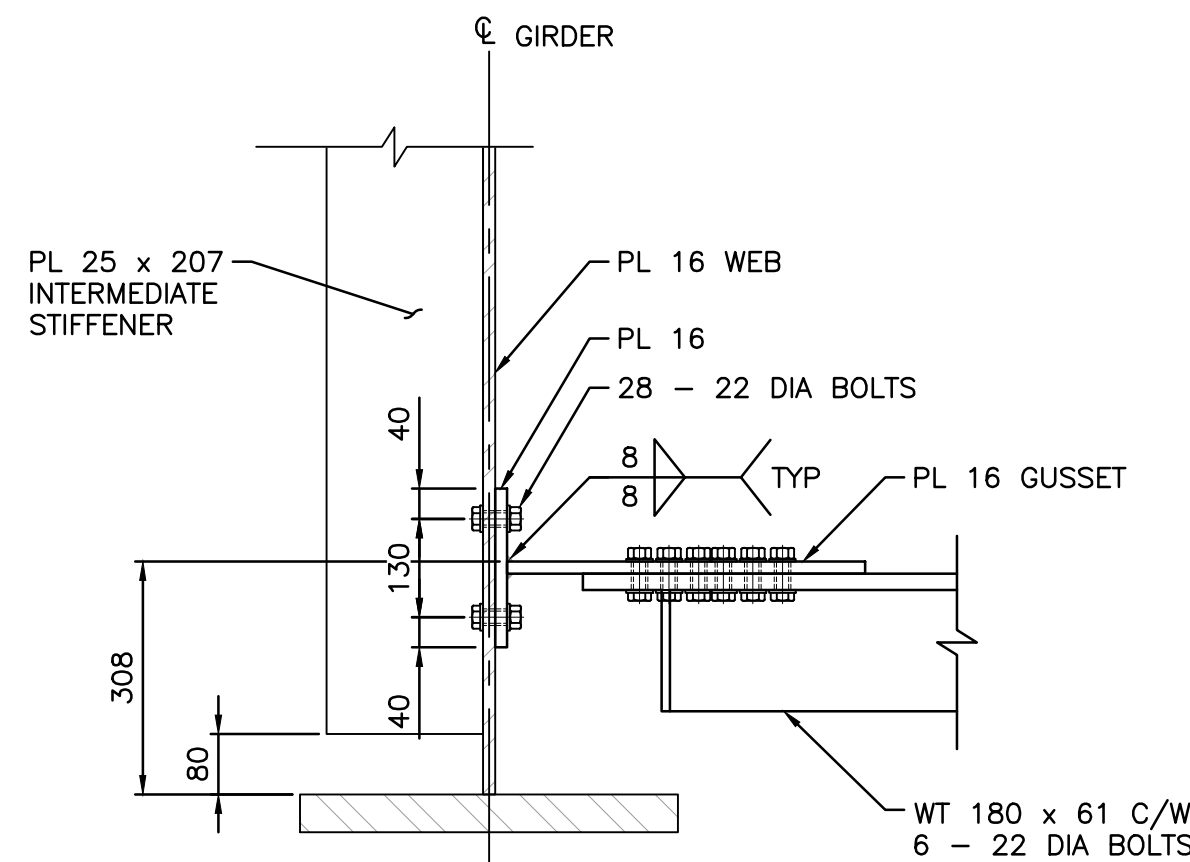
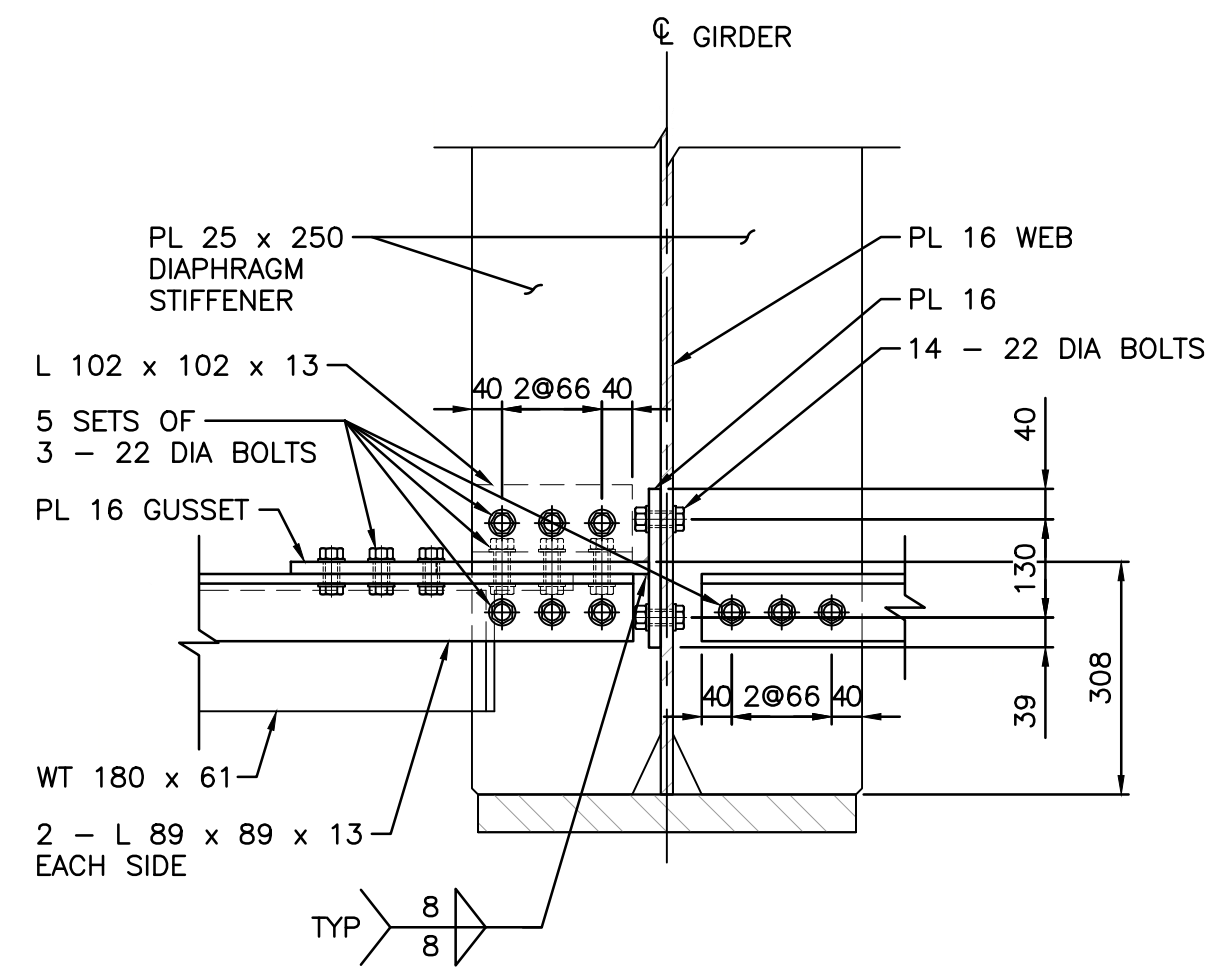
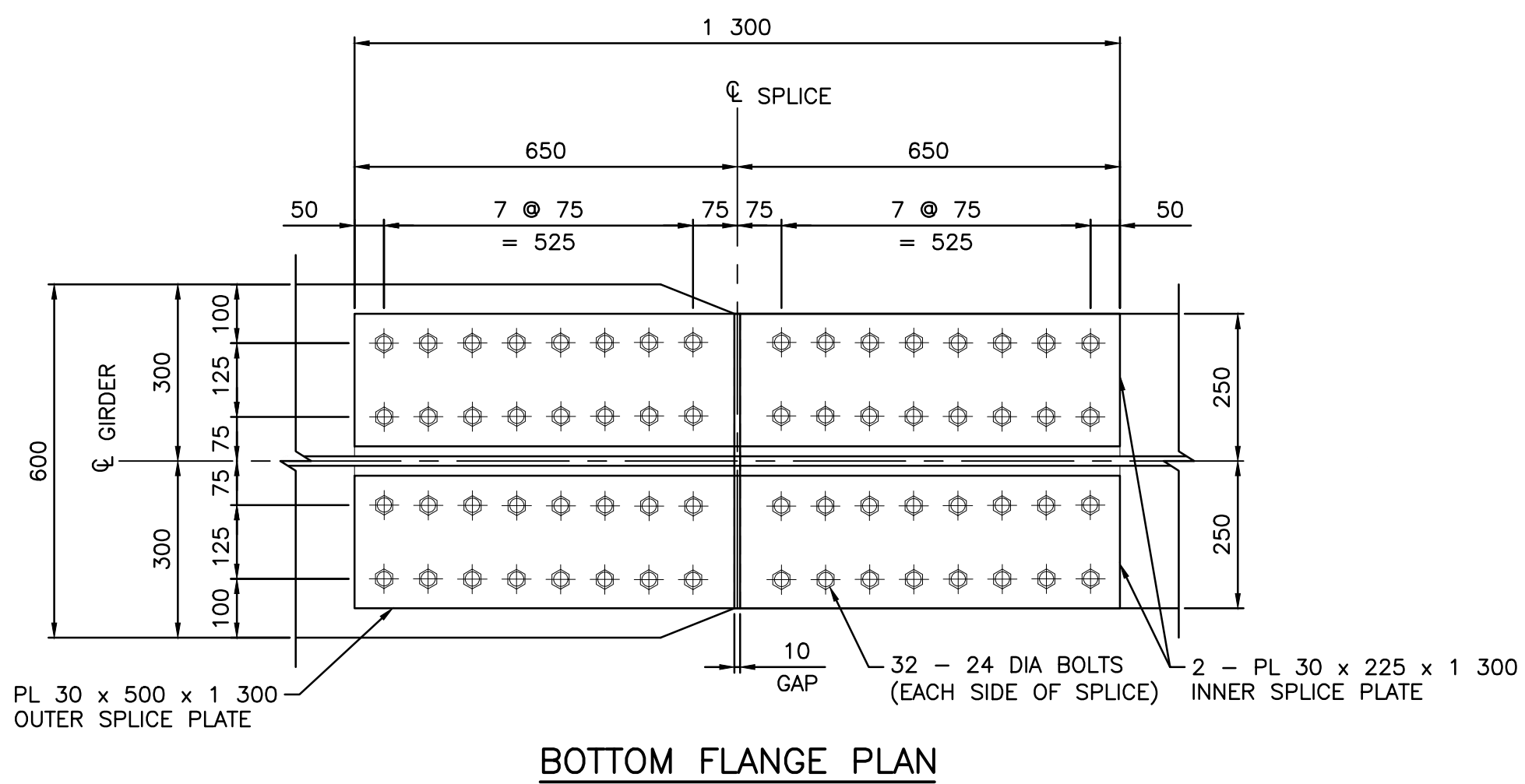
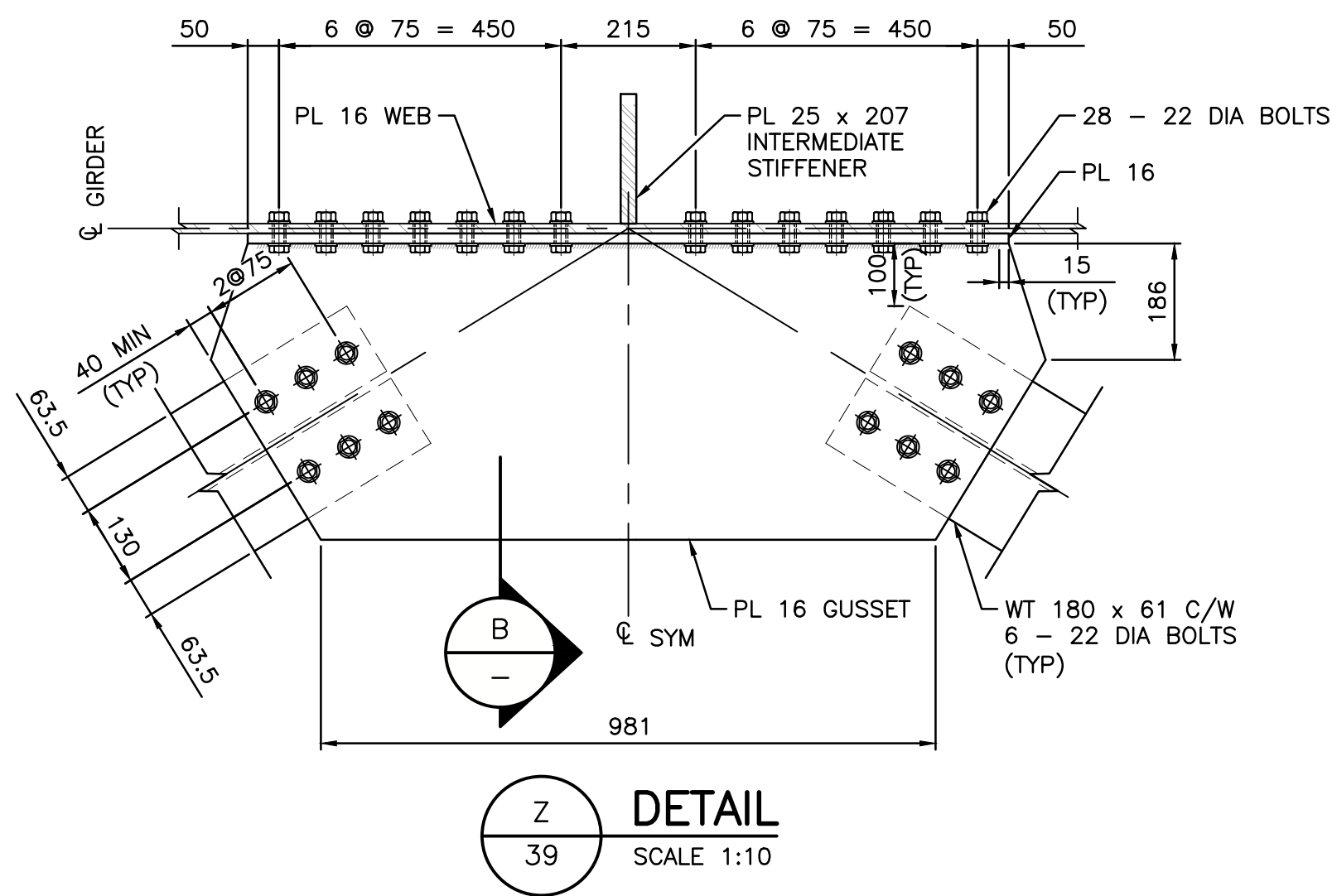
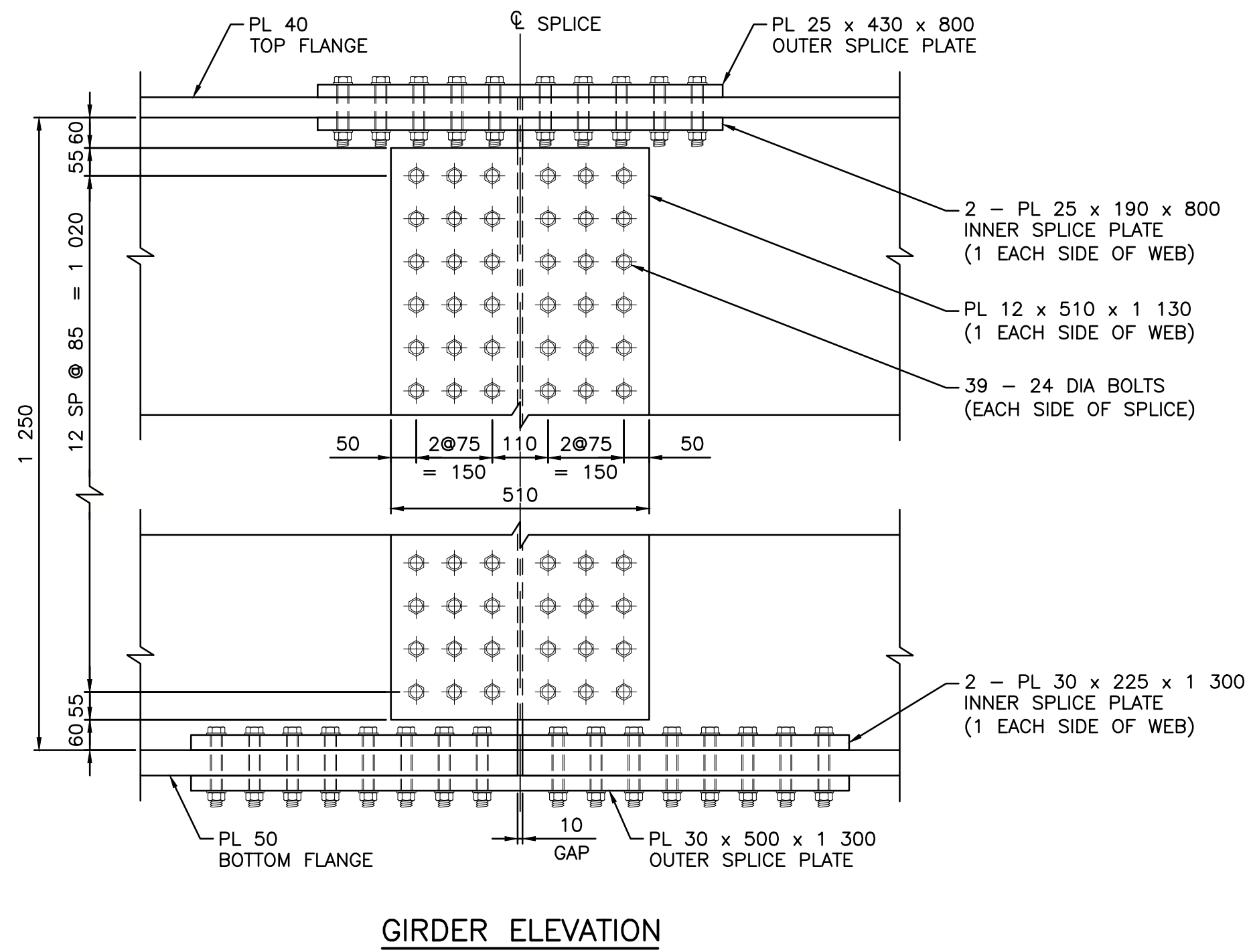
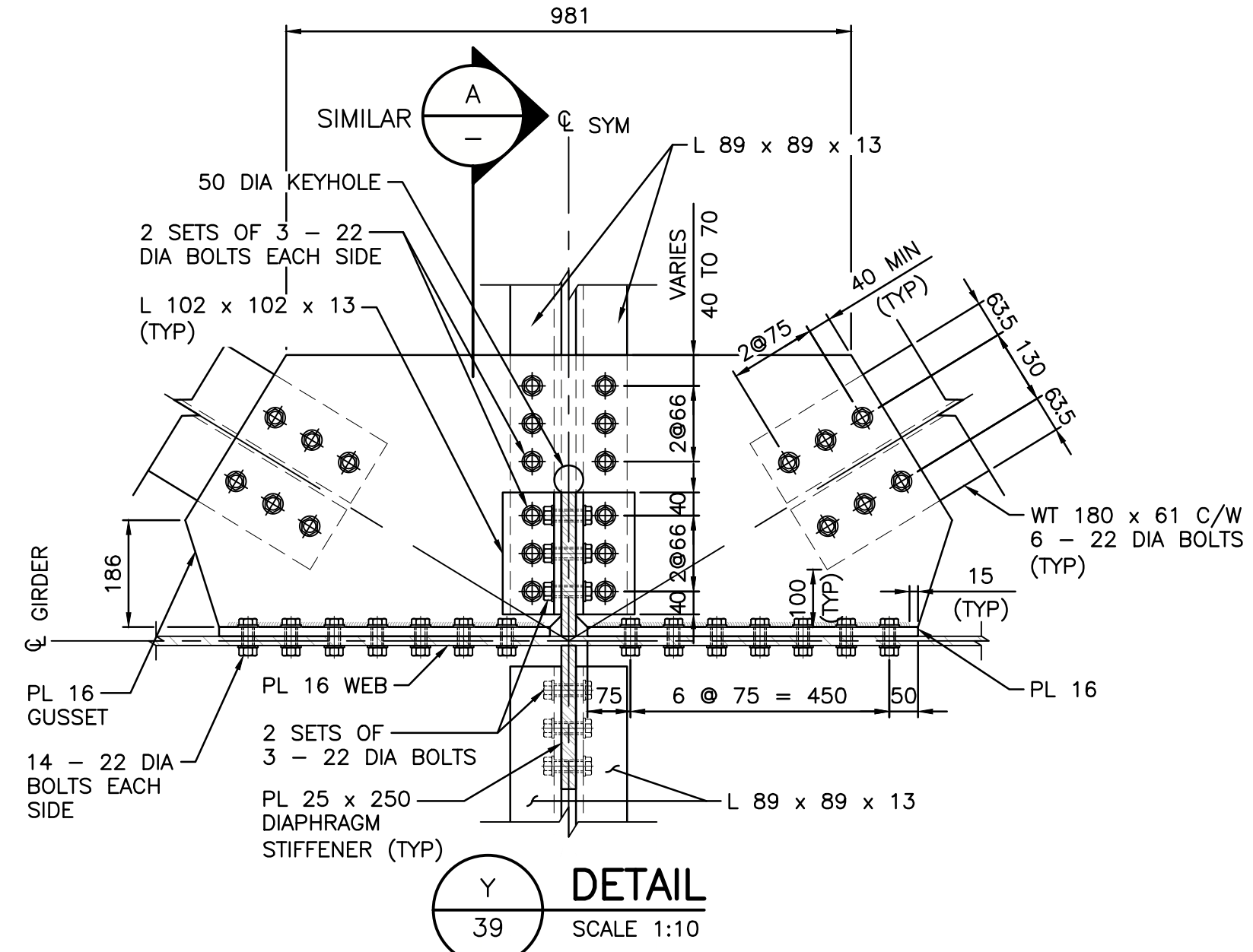
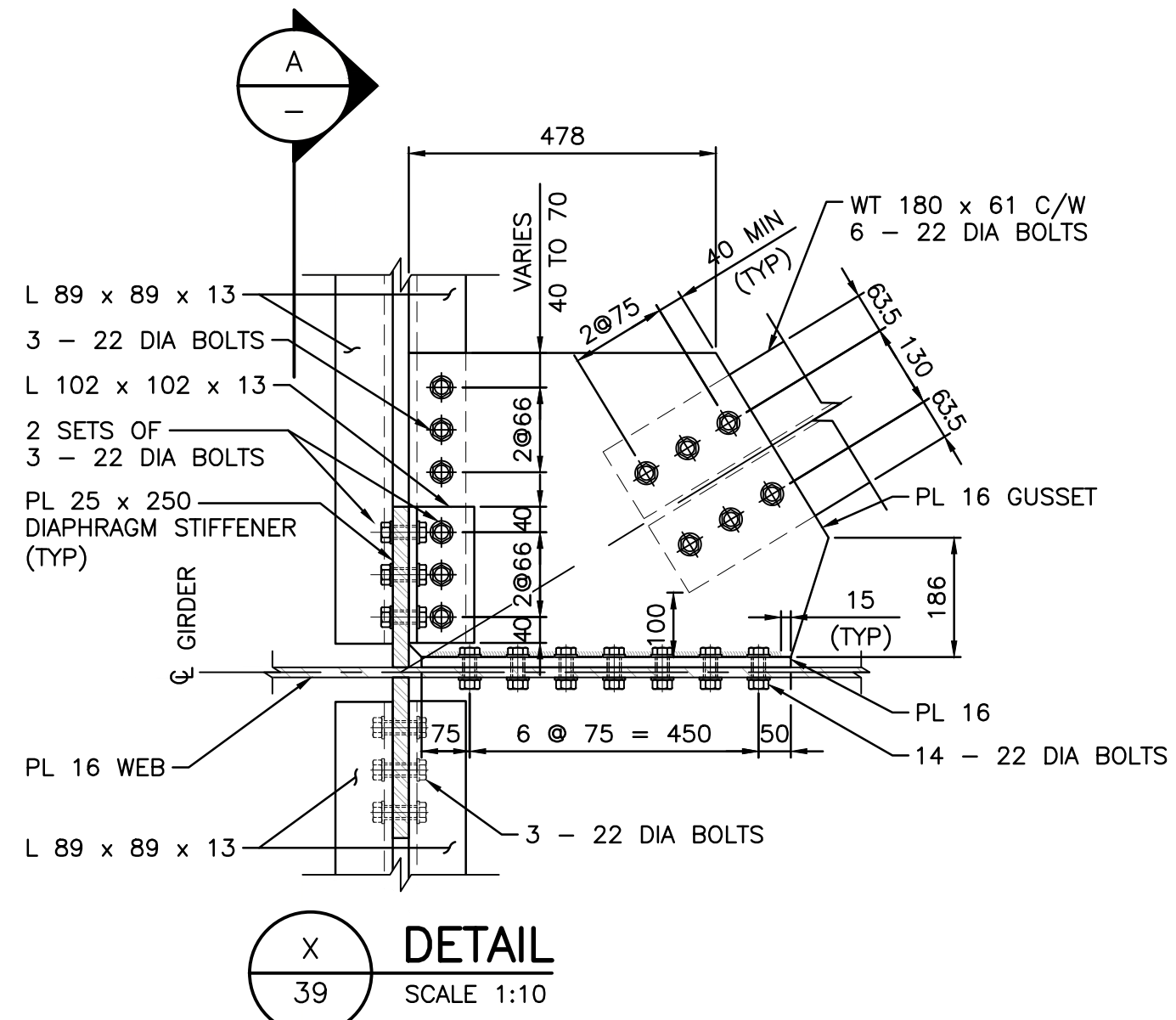
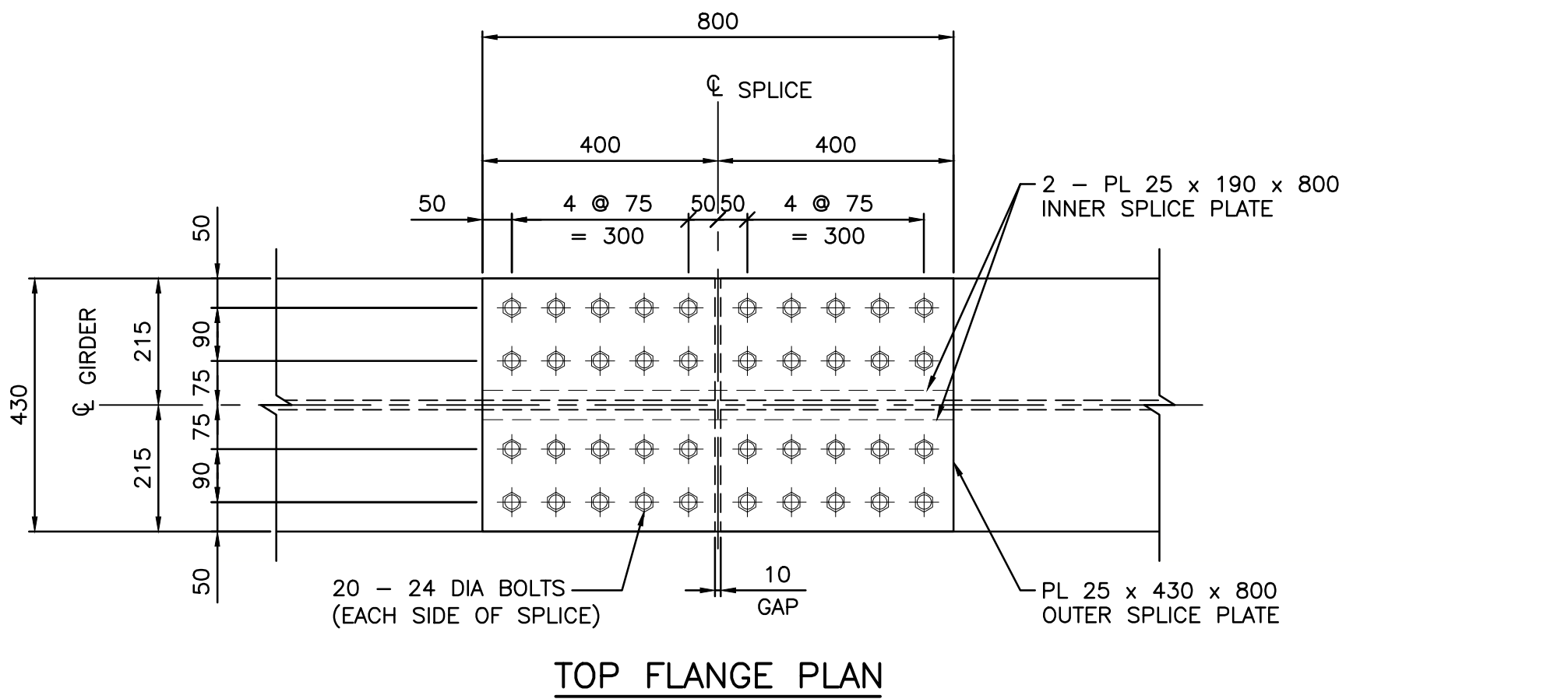
Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
GIRDER DETAILS
SHEET 1

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No.	CE857700	SHEET No.	40 OF 55	PREPARED UNDER THE DIRECTION OF	YING YI LI, P.ENG.
				ENGINEER OF RECORD	
				DATE	2024-03-25
				DRAWING No.	SC-INF01-6081-S018



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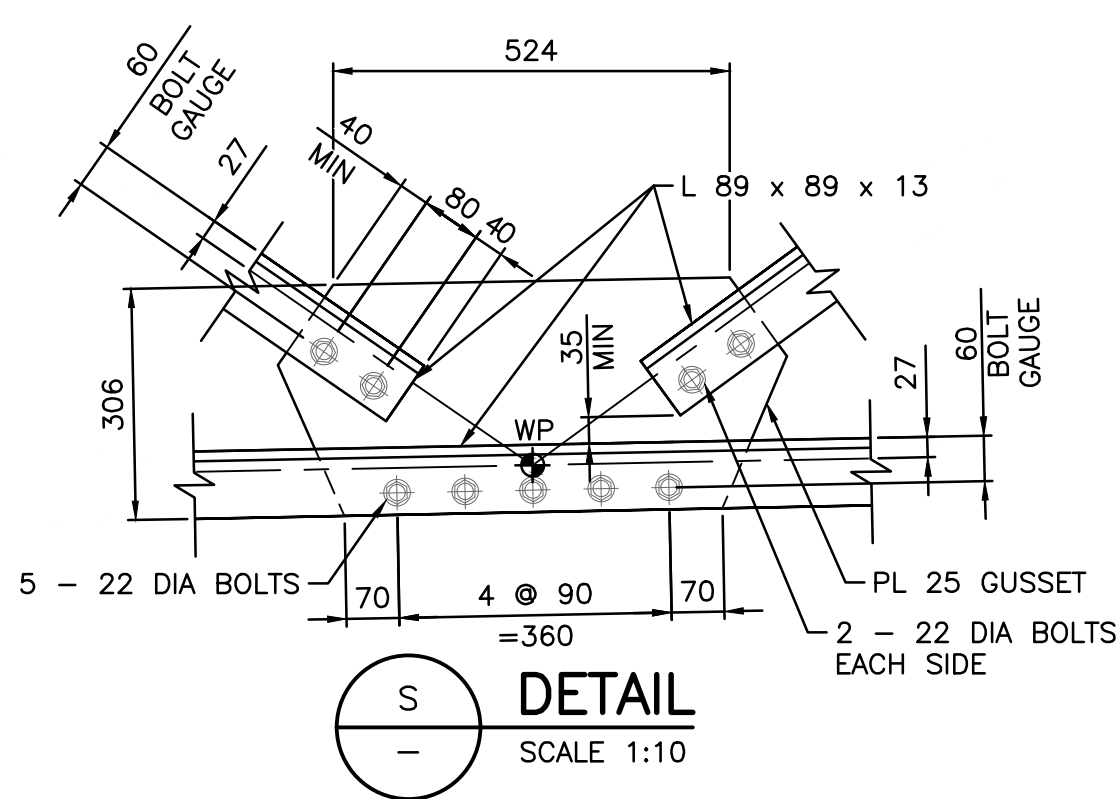
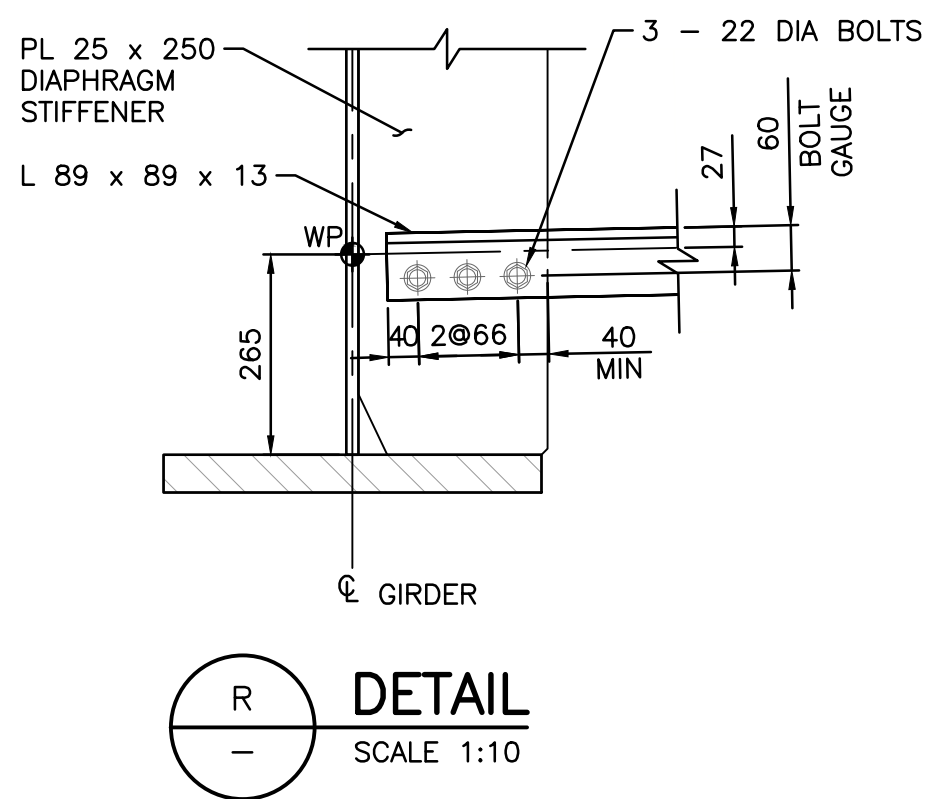
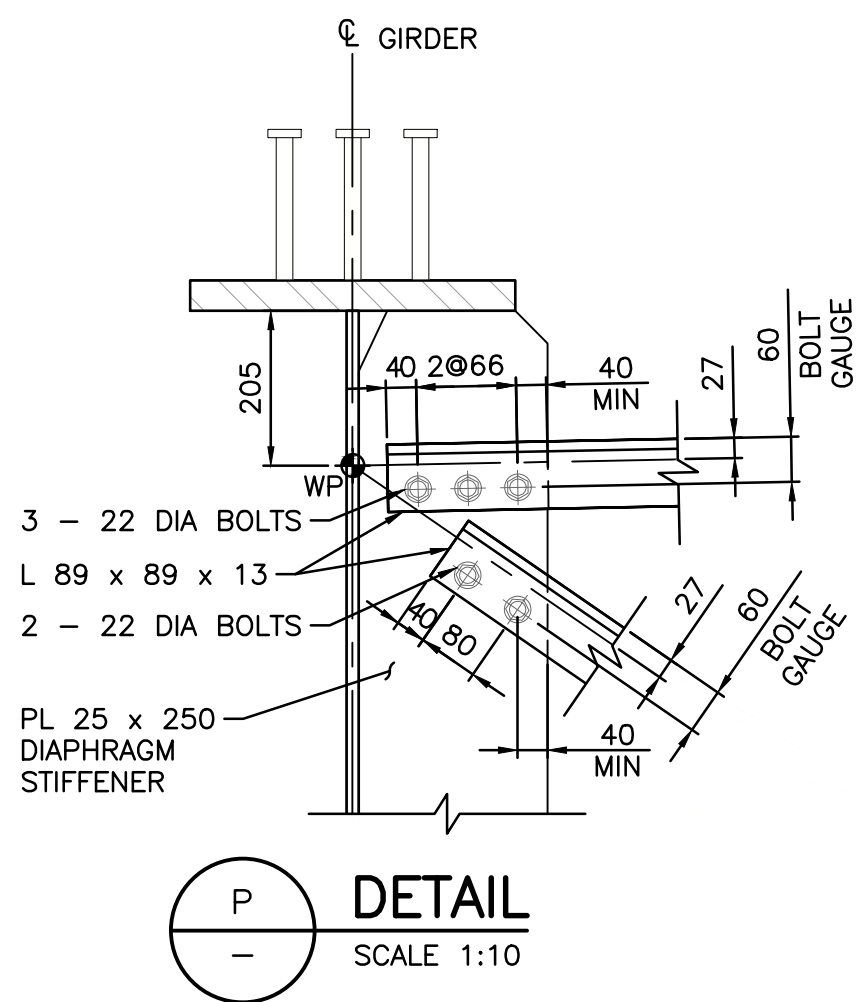
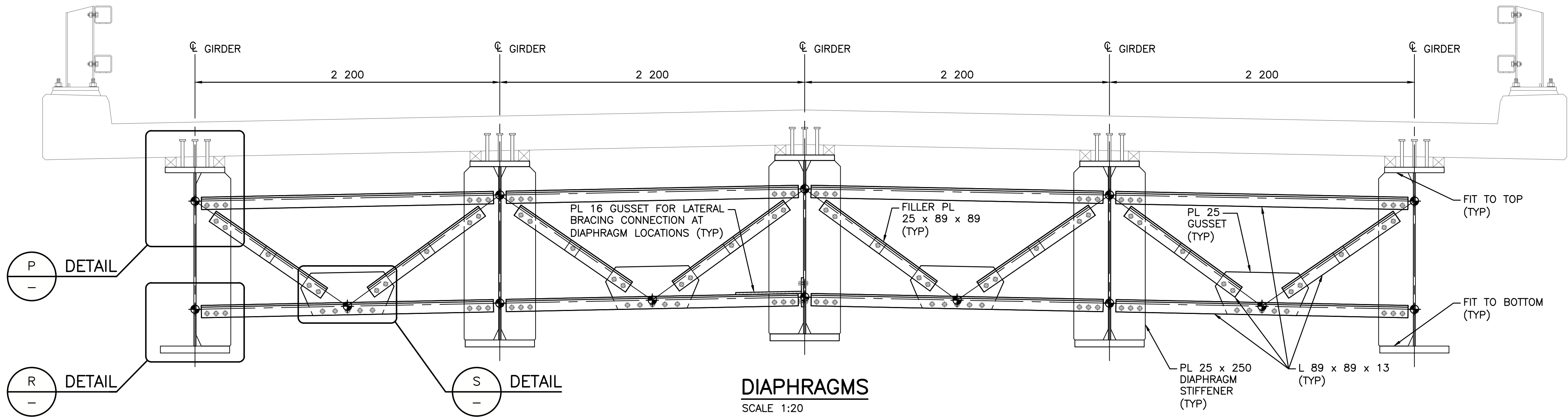
Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
GIRDER DETAILS
SHEET 2

DESIGNED	KA/YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No.	CE857700	SHEET No.	41 OF 55	PREPARED UNDER THE DIRECTION OF	YING YI LI, P.ENG.
				ENGINEER OF RECORD	
				DATE	2024-03-25
				DRAWING No.	SC-INF01-6081-S019



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Rev	Date	Description	Init
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A	2023-10-06	ISSUED FOR 80% REVIEW	YL

REVISIONS

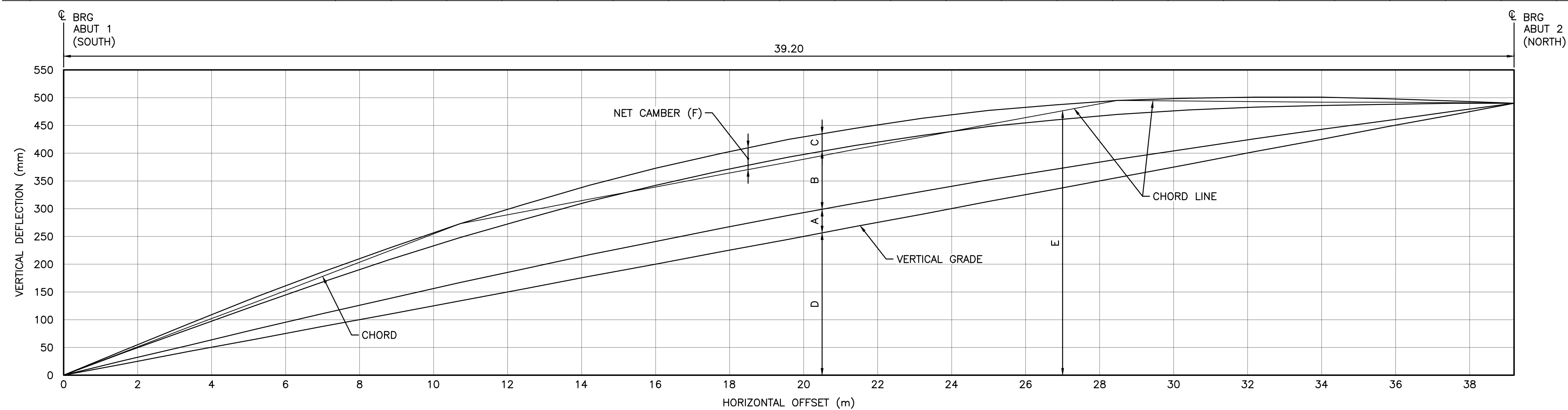
Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
GIRDER DETAILS
SHEET 3

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF	
		YING YI LI, P.ENG. ENGINEER OF RECORD	
		DATE 2024-03-25	
SHEET No. 42 OF 55		DRAWING No. SC-INF01-6081-S020	
		B	

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PLOTTED : Wednesday, March 20, 2024

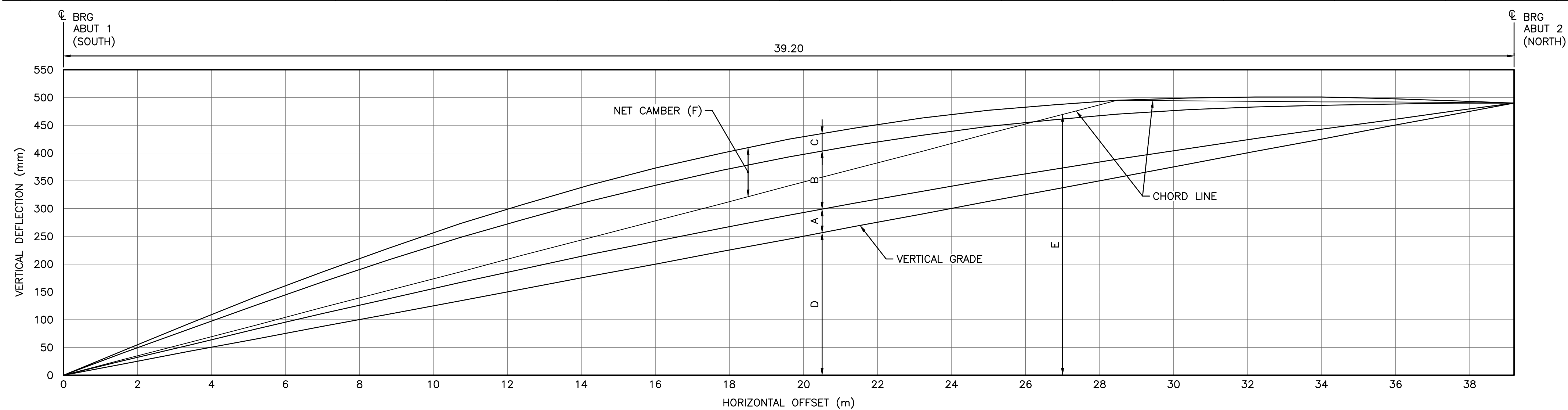
CAMBER DIAGRAM TABLE – FOR TWO FIELD SPLICES OPTION																								
DISTANCE TO ABUT 1 Ȣ BRG (m)		0.00	1.60	3.40	5.20	7.00	8.80	10.72	12.40	14.20	16.00	17.80	19.60	21.40	23.20	25.00	26.80	28.48	30.40	32.20	34.00	35.80	37.60	39.20
LOCATION NOTE		Ȣ BRG ABUT 1						FIELD SPLICE										FIELD SPLICE						Ȣ BRG ABUT 2
A	DEAD LOAD – GIRDER (mm)	0	6	12	18	23	28	33	36	39	41	43	43	43	41	39	36	33	28	23	18	12	6	0
B	DEAD LOAD – DECK + HAUNCH + DIAPHRAGM (mm)	0	14	29	43	57	69	81	89	96	101	104	105	104	101	96	89	81	69	57	43	29	14	0
C	DECK SHRINKAGE + DEAD LOAD OF RAIL (mm)	0	5	10	14	18	22	25	27	29	30	31	31	31	30	29	27	25	22	18	14	10	5	0
D	VERTICAL GRADE (mm)	0	20	43	65	88	110	134	155	178	200	223	245	268	290	313	335	356	380	403	425	448	470	490
E	CHORD (mm)	0	41	87	132	178	224	273	294	317	339	362	384	407	429	452	474	495	494	493	492	492	491	490
F	NET CAMBER (mm)	0	4	7	8	8	5	0	13	25	34	39	41	39	34	25	13	0	5	8	8	7	4	0
G	AS CONSTRUCTION EL (m)																							



CAMBER DIAGRAM – FOR TWO FIELD SPLICES OPTION

HORIZ SCALE 1:75
VERT SCALE 1:5

CAMBER DIAGRAM TABLE – FOR ONE FIELD SPLICE OPTION																								
DISTANCE TO ABUT 1 Ȣ BRG (m)		0.00	1.60	3.40	5.20	7.00	8.80	10.72	12.40	14.20	16.00	17.80	19.60	21.40	23.20	25.00	26.80	28.48	30.40	32.20	34.00	35.80	37.60	39.20
LOCATION NOTE		Ȣ BRG ABUT 1						SHOP SPLICE										FIELD SPLICE						Ȣ BRG ABUT 2
A	DEAD LOAD – GIRDER (mm)	0	6	12	18	23	28	33	36	39	41	43	43	43	41	39	36	33	28	23	18	12	6	0
B	DEAD LOAD – DECK + HAUNCH + DIAPHRAGM (mm)	0	14	29	43	57	69	81	89	96	101	104	105	104	101	96	89	81	69	57	43	29	14	0
C	DECK SHRINKAGE + DEAD LOAD OF RAIL (mm)	0	5	10	14	18	22	25	27	29	30	31	31	31	30	29	27	25	22	18	14	10	5	0
D	VERTICAL GRADE (mm)	0	20	43	65	88	110	134	155	178	200	223	245	268	290	313	335	356	380	403	425	448	470	490
E	CHORD (mm)	0	28	59	90	122	153	186	216	247	278	309	341	372	403	435	466	495	494	493	492	492	491	490
F	NET CAMBER (mm)	0	17	34	50	65	76	87	92	95	95	91	84	73	59	42	21	0	5	8	8	7	4	0
G	AS CONSTRUCTION EL (m)																							



CAMBER DIAGRAM – FOR ONE FIELD SPLICE OPTION

HORIZ SCALE 1:75
VERT SCALE 1:5

NOTES

- NET CAMBER (F) = A + B + C + D – E
- "NET CAMBER" FIGURES ARE FOR GIRDER SECTIONS IN ZERO LOAD CONDITIONS.
- FABRICATOR IS RESPONSIBLE FOR MAKING ALLOWANCES SUCH THAT CAMBER ON COMPLETED GIRDER SECTIONS WILL BE WITHIN ALLOWABLE TOLERANCES. ALL PROCEDURES FOR CAMBER ADJUSTMENT MUST BE APPROVED BY THE ENGINEER PRIOR TO USE.
- LONGITUDINAL GIRDER DIMENSIONING (SHOWN HORIZONTAL) IS CORRECT ALONG THE BOTTOM FLANGE AT 20 °C.

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Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
A	2023-10-06	ISSUED FOR 80% REVIEW	YL

REVISIONS

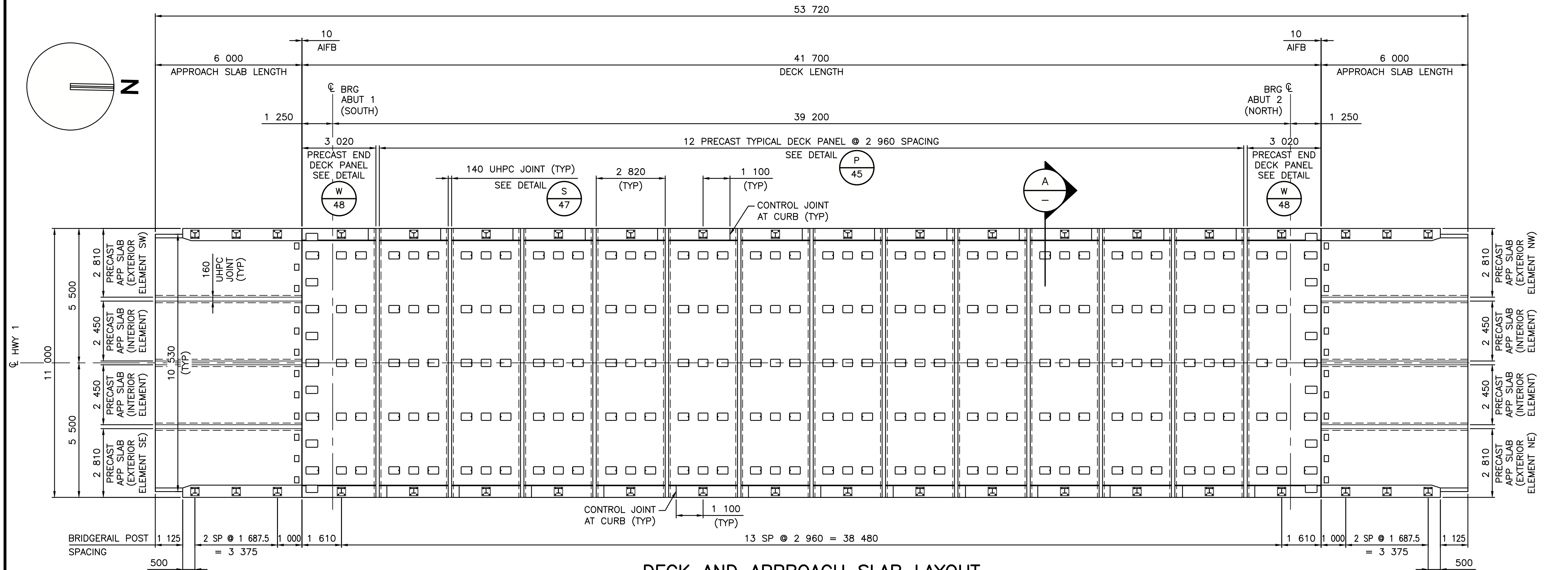
Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
GIRDER CAMBER DIAGRAM

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF	
		YING YI LI, P.ENG. ENGINEER OF RECORD	
		DATE 2024-03-25	
SHEET No. 43 OF 55		DRAWING No. SC-INF01-6081-S021	

B

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PLOTTED : Thursday, March 21, 2024

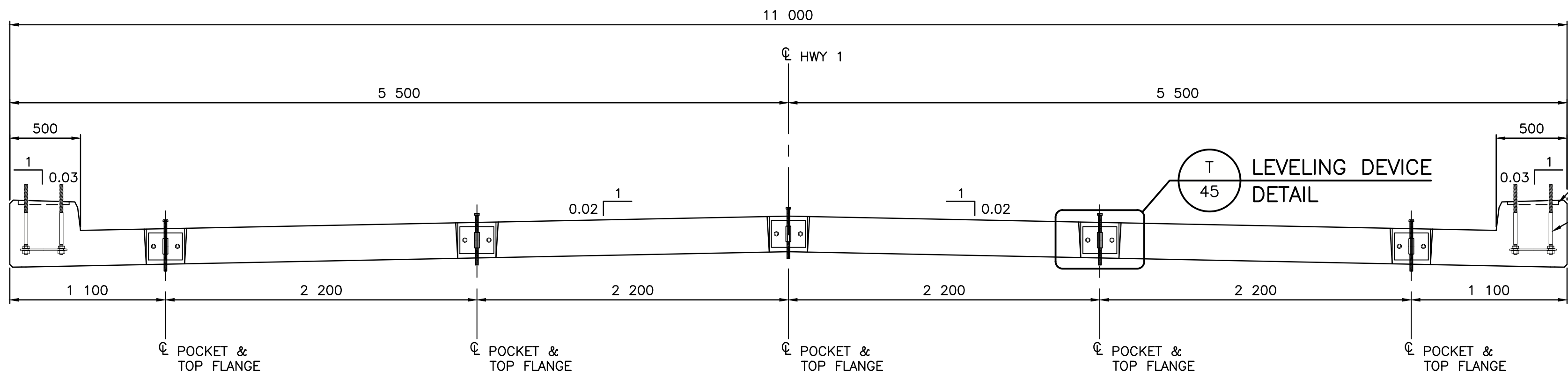


DECK AND APPROACH SLAB LAYOUT

SCALE 1:100

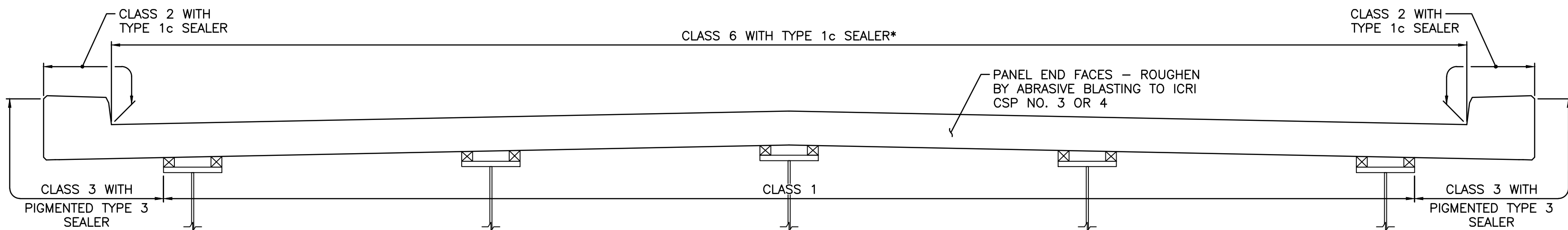
NOTE:

- FOR PRECAST APPROACH SLAB EXTERIOR ELEMENTS, REFER TO SHEET 50.
- FOR PRECAST APPROACH SLAB INTERIOR ELEMENTS, REFER TO SHEET 51.



SECTION A

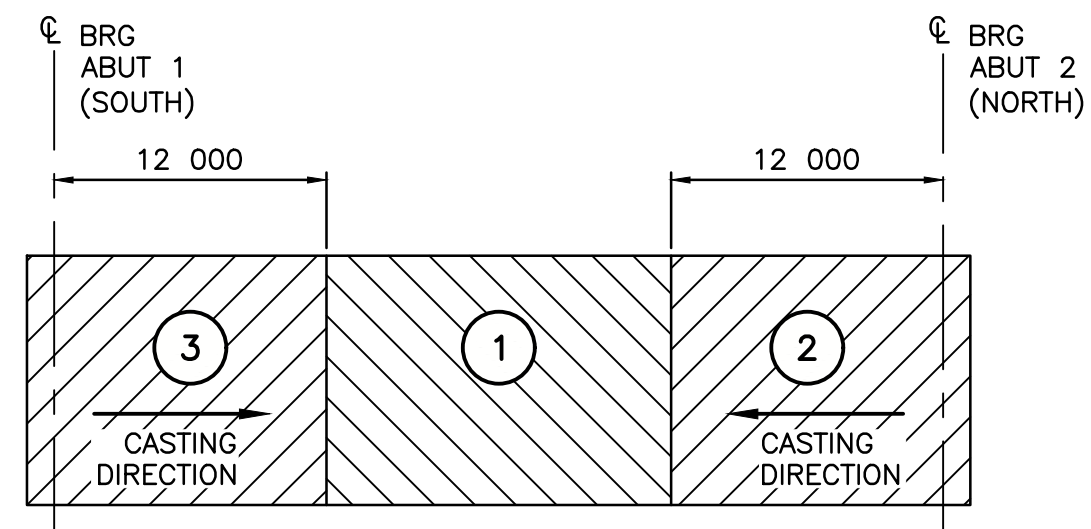
SCALE 1:25



NOTE: FOR SEALER APPLICATION SEE SPECIAL PROVISIONS. PIGMENTED TYPE 3 SEALER SHALL BE CONCRETE GREY COLOUR

TYPICAL DECK FINISHES

NTS (TYP FOR BOTH TYPICAL DECK PANELS AND END PANELS)
(TYP FOR APPROACH SLAB PANELS EXCEPT ENTIRE BOTTOM FACE TO BE CLASS 1)



NOTE: CONTRACTOR MAY SUBMIT ALTERNATE CASTING SEQUENCE FOR REVIEW PRIOR TO FABRICATION OF GIRDERS

JOINT AND STUD POCKET CASTING SEQUENCE

NTS

FABRICATION AND ERECTION

- DECK PANELS SHALL BE INSTALLED AFTER ALL GIRDER DIAPHRAGMS, BRACING AND ABUTMENT DIAPHRAGMS WITH WINGWALLS ARE INSTALLED, AND BACKFILL BEHIND ABUTMENT DIAPHRAGMS ARE COMPLETED.
- DECK PANEL FABRICATION SEQUENCE SHALL BE THE SAME AS INSTALLATION SEQUENCE.
- DECK PANELS SHALL HAVE A MINIMUM AGE OF 60 DAYS AT TIME OF SITE-CASTING THE COMPOSITE JOINTS AND POCKETS.
- PROVIDE TEMPORARY SUPPORTS AS REQUIRED TO ELIMINATE DIFFERENTIAL DEFLECTION BETWEEN ADJACENT DECK PANELS. PROVIDE TEMPORARY SUPPORTS AS REQUIRED AT DECK CANTILEVERS TO MAINTAIN DECK STABILITY DURING THE CONSTRUCTION.
- EVAFOAM TO BE BONDED TO TOP OF STEEL GIRDER, TOP OF ABUTMENT DIAPHRAGMS, AND UNDERSIDE OF PRECAST PANEL WITH COMPATIBLE CONSTRUCTION ADHESIVE. ADHESIVE SHALL PROVIDE A SEAL PREVENTING UHPC LEAKING OUT DURING CASTING.
- EACH DECK PANEL SHALL BE INITIALLY INSTALLED ON GIRDERS WITH 4 LEVELING DEVICE SUPPORT RODS AT 2 EXTERIOR GIRDERS FULLY ENGAGED TO PROVIDE SUPPORTS, THEN EXTEND THE OTHER SUPPORT RODS TO BE ENGAGED AND TO BE ADJUSTED TO FIT REQUIRED HAUNCH DEPTH. ONLY ONE LEVELING DEVICE ADJUSTMENT PERSONAL IS ALLOWED ON THE DECK PANEL UNTIL ALL THE SUPPORT RODS IN THE PANEL ARE FULLY ENGAGED ON THE GIRDERS.
- BEFORE DECK PANELS ARE CONNECTED WITH GIRDERS, ONLY LIGHT CONSTRUCTION EQUIPMENT AND NON-MECHANICAL CONSTRUCTION CART WITH CONSTRUCTION PERSONALS ARE ALLOWED ON DECK PANELS TO TRANSPORT AND PLACE UHPC MATERIAL, AND WITH BALANCED CONSTRUCTION LOADS WHEN OPERATING OVER DECK OVERHANG REGIONS UNLESS TEMPORARY SUPPORTS AT DECK CANTILEVERS ARE PROVIDED. THE CONTRACTOR TO PROVIDE LOADING TO BE USED ON THE DECK PANELS DURING CONSTRUCTION TO THE ENGINEER FOR REVIEW PRIOR TO STARTING THE WORK.
- THE CONTRACTOR MAY PROPOSE CHANGES TO THE FABRICATION DETAILS SUBJECT TO THE ENGINEER'S APPROVAL. THE CONTRACTOR SHALL MAKE ALL NECESSARY ADJUSTMENTS AND SUBMIT DRAWINGS AND CALCULATIONS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE NORTHWEST TERRITORIES, TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
- ALL UHPC CASTING FORMWORK SHALL BE WATER-TIGHT TESTED PRIOR TO THE CONCRETE PLACEMENT.

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Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

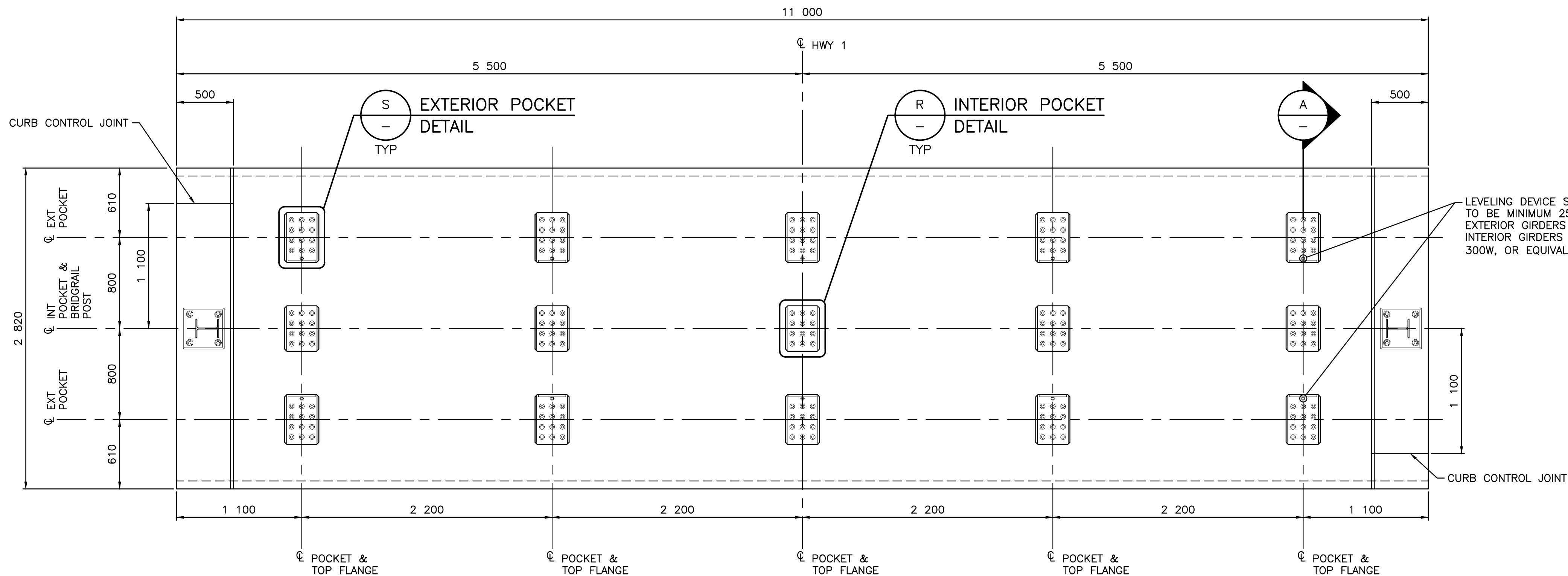
REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
DECK AND APPROACH SLAB LAYOUT

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

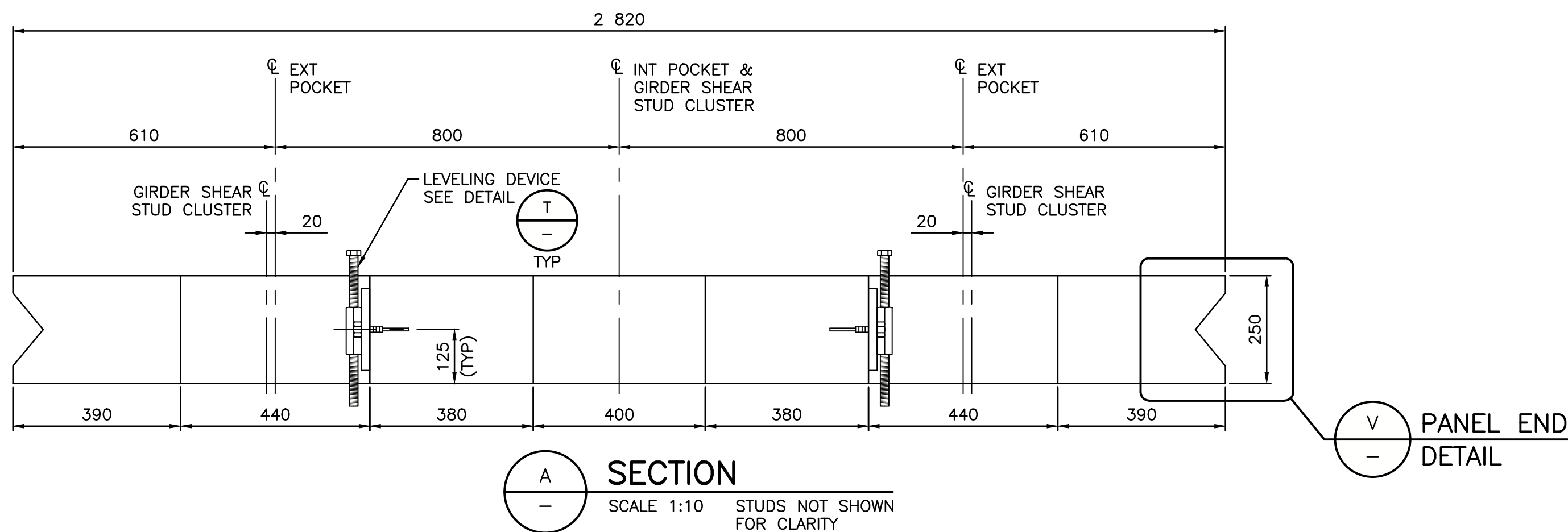
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CHECKED		DATE	
DRAWN		DATE	
SCALE		AS SHOWN	
PROJECT No.		SHEET No.	
CE857700		44 OF 55	
PREPARED UNDER THE DIRECTION OF		YING YI LI, P.ENG.	
		ENGINEER OF RECORD	
		DATE	
		2024-03-25	
		DRAWING No.	
		SC-INF01-6081-S022	
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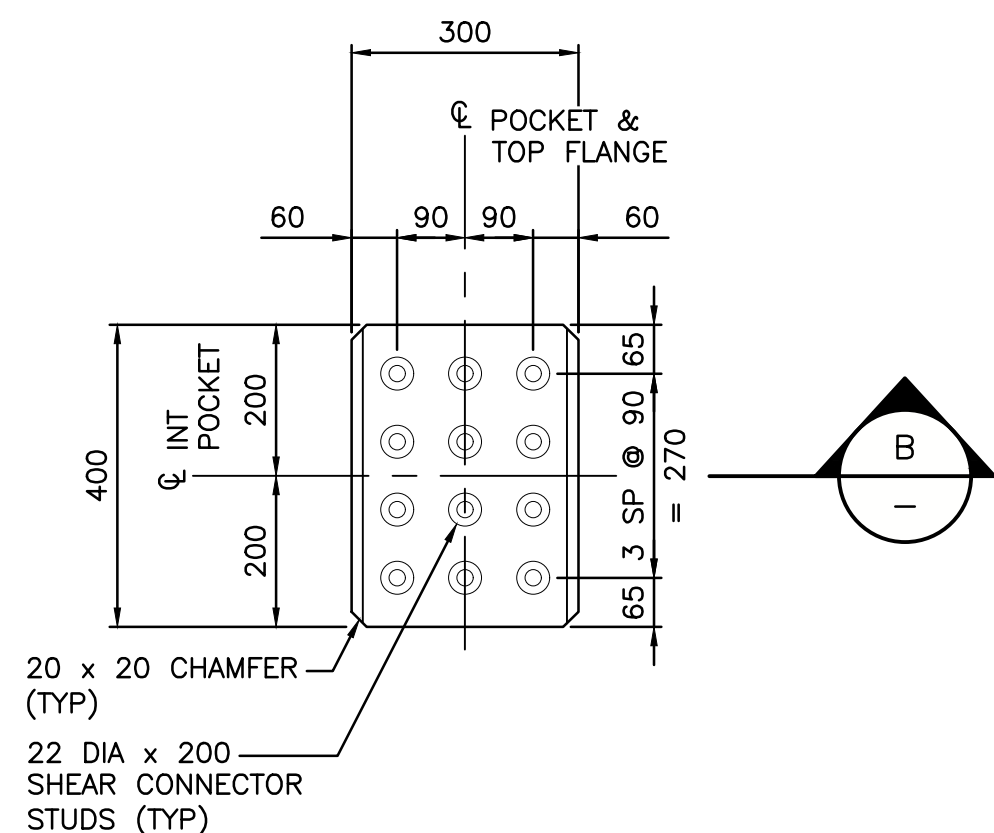
P
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44
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PRECAST TYPICAL DECK PANEL DETAIL
SCALE 1:25 (12 REQUIRED)
(ELEMENT ESTIMATED WEIGHT: 20 380 kg, EACH)



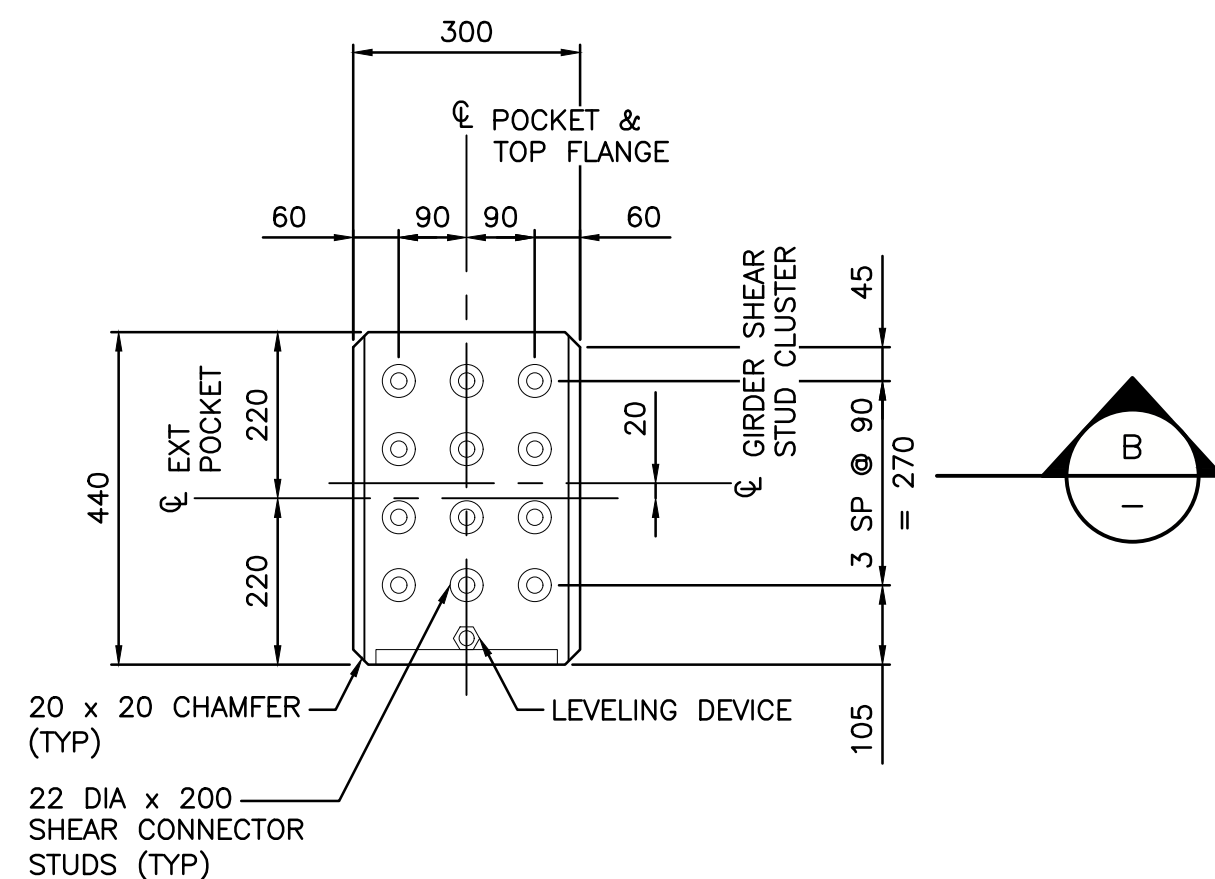
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SECTION
SCALE 1:10 STUDS NOT SHOWN FOR CLARITY



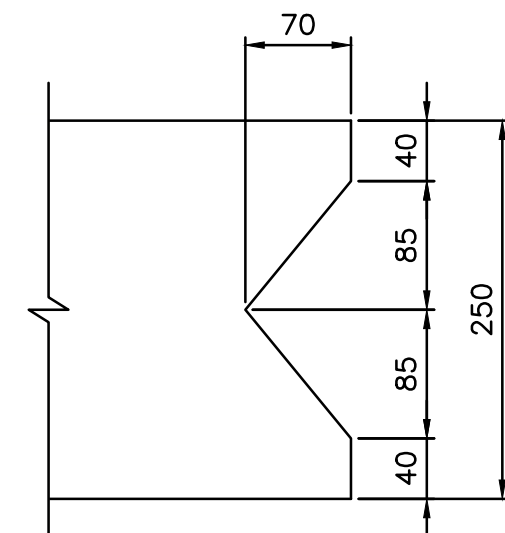
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INTERIOR POCKET DETAIL
SCALE 1:10



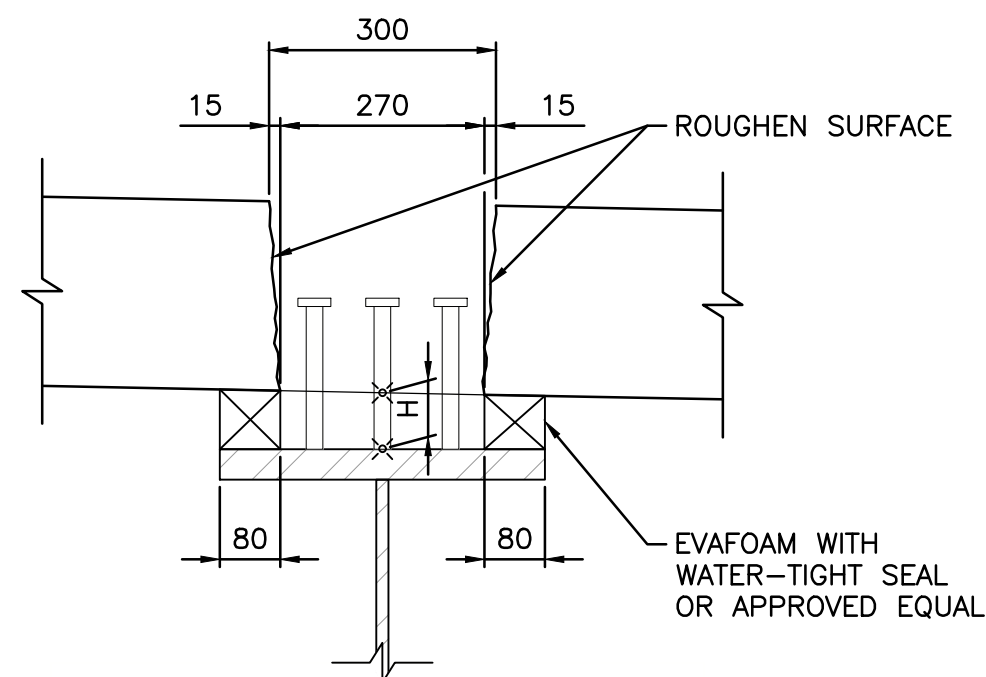
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EXTERIOR POCKET DETAIL
SCALE 1:10



V
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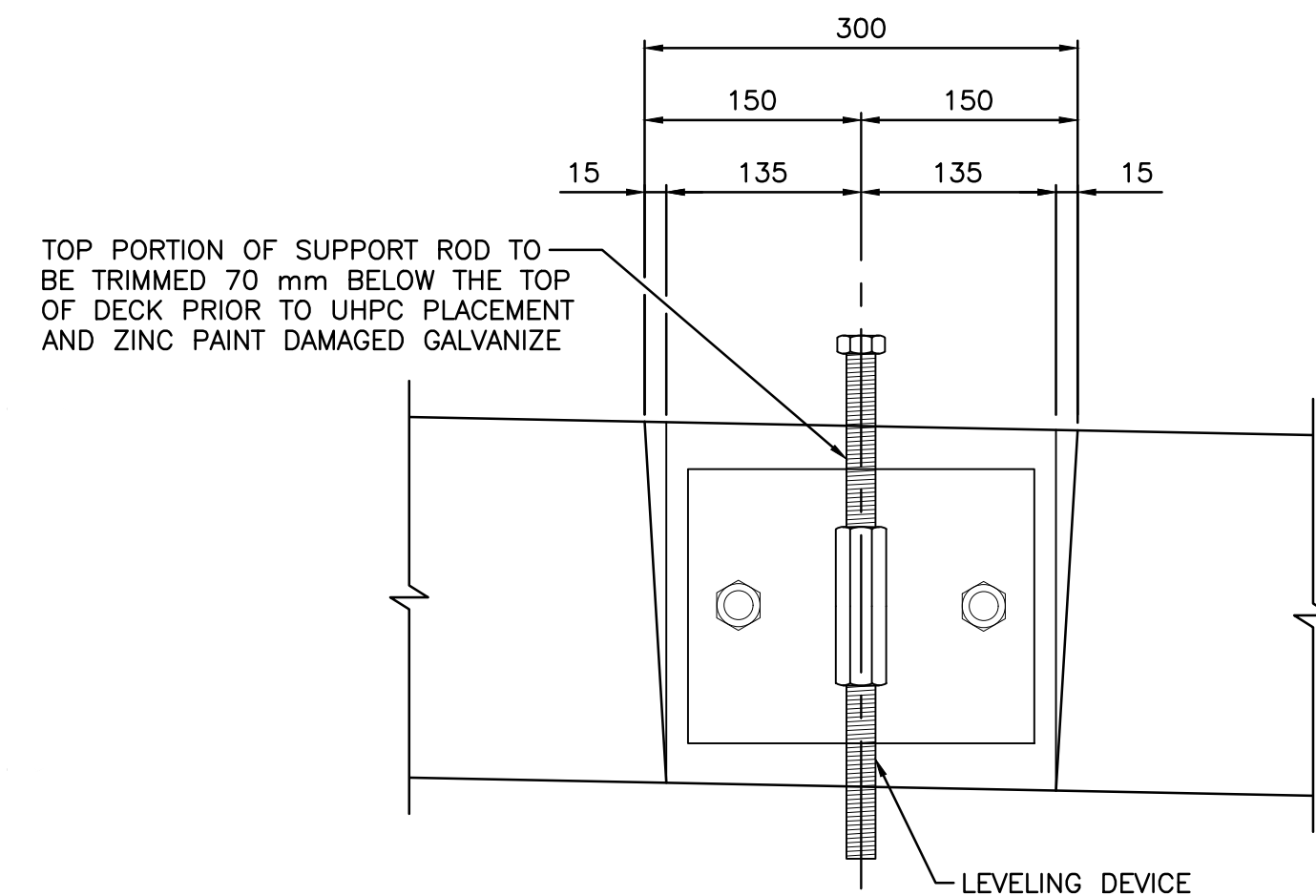
PANEL END DETAIL
SCALE 1:5



NOTE:
H = 75 AT ABUTMENT CENTERLINE OF BEARINGS. IT MAY VARY ALONG THE GIRDERS DUE TO GIRDER FABRICATION TOLERANCE ON CAMBERS. THE CONTRACTOR SHALL SUBMIT TOP OF GIRDER ELEVATION SURVEY DATA ALONG EACH GIRDER AT CAMBER DIAGRAM CONTROL POINTS (SHOWN ON SHEET 43) AFTER GIRDERS ARE ERECTED, AND SUBMIT THE DATA TO THE ENGINEER FOR REVIEW AND PROVIDING CONFIRMATION ON THE H VALUES ALONG EACH GIRDER TO ACCOMMODATE THE CAMBERS.

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48
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49

SECTION
SCALE 1:10



NOTE: ALL LEVELING DEVICES SHALL BE PRE-INSTALLED IN THE PRECAST DECK PANELS AND HOT-DIP GALVANIZED

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49

LEVELING DEVICE DETAIL
SCALE 1:5

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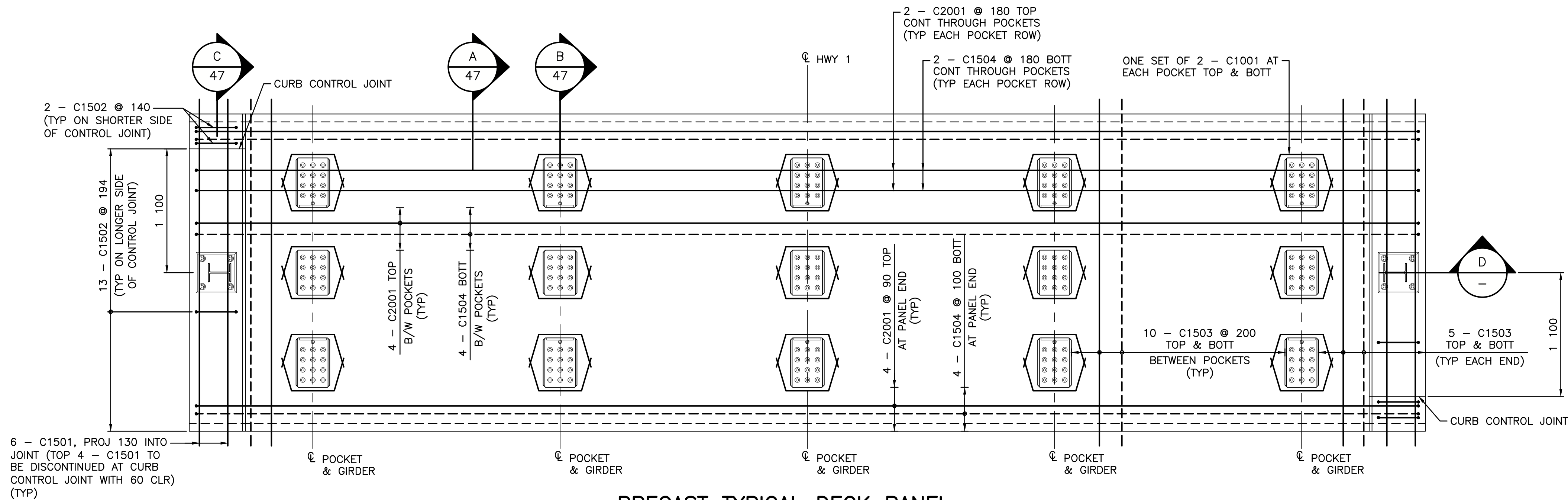
Rev	Date	Description	Init
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B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST TYPICAL DECK DETAILS
SHEET 1

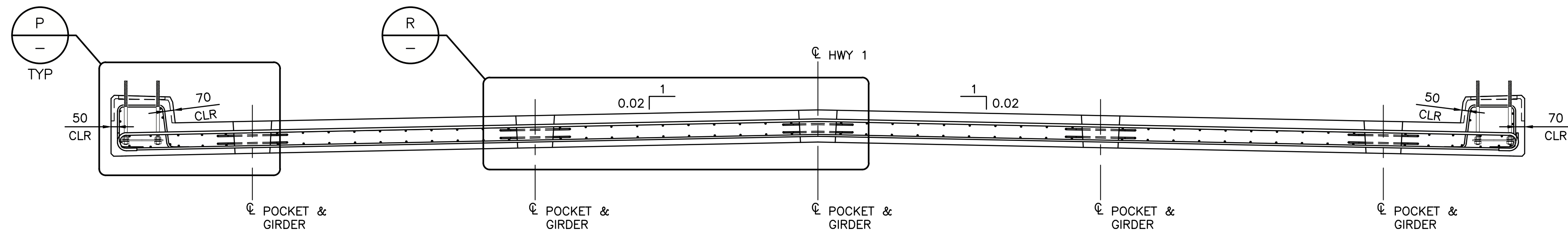
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CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		
PROJECT No.		PREPARED UNDER THE DIRECTION OF	
CE857700		YING YI LI, P.ENG. ENGINEER OF RECORD	
SHEET No.		DATE	
45 OF 55		2024-03-25	
DRAWING No.		SC-INF01-6081-S023	
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PLOTTED : Thursday, March 21, 2024



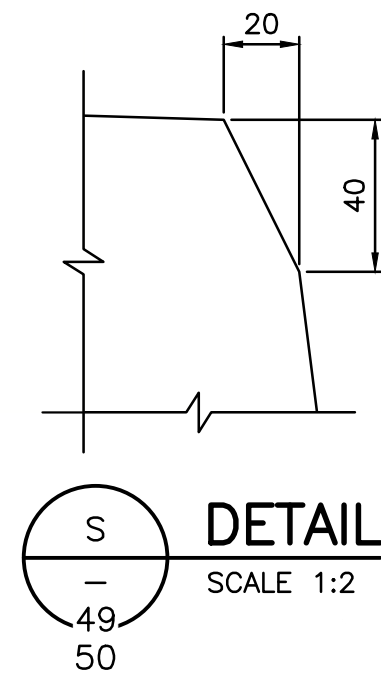
PRECAST TYPICAL DECK PANEL
REINFORCEMENT PLAN

SCALE 1:25



PRECAST TYPICAL DECK PANEL
REINFORCEMENT SECTION

SCALE 1:25



CONTROL JOINT DETAIL

SCALE 1:1

- NOTE:
- LONGITUDINAL REINFORCEMENT SHALL BE DISCONTINUOUS AT THE CONTROL JOINT AND HAVE 60 mm CLEAR CONCRETE COVER FROM THE CENTRELINE OF THE CONTROL JOINTS
 - CONTROL JOINT CRACK INDUCER SHALL BE REMOVED PRIOR TO SURFACE PREPARATION AND APPLICATION OF SEALANT PRIMER
 - CONTROL JOINT SEALANT SHALL BE APPLIED WITH PRECAST CONCRETE DECK PANELS

PRELIMINARY – NOT FOR CONSTRUCTION



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Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
A	2023-10-06	ISSUED FOR 80% REVIEW	YL

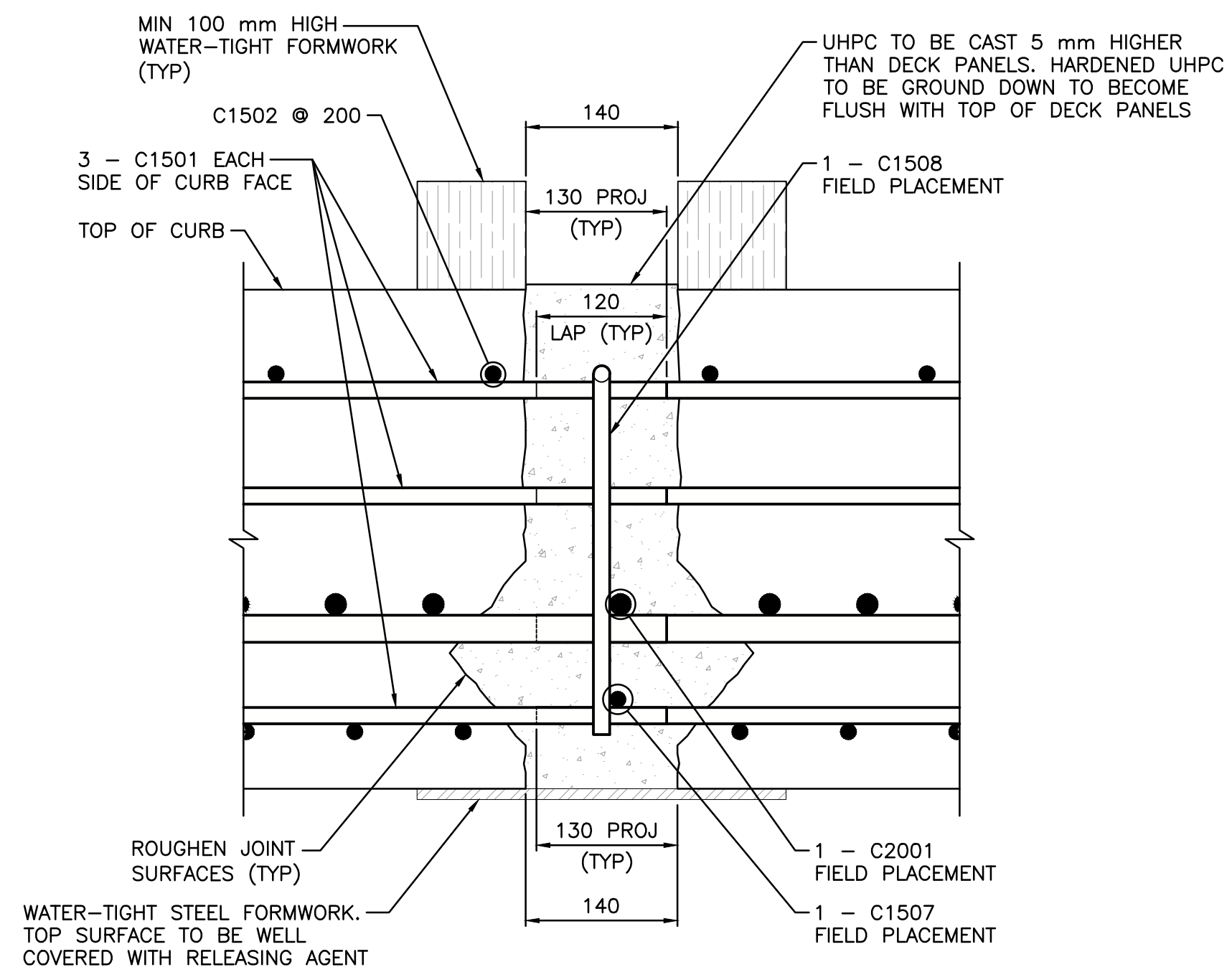
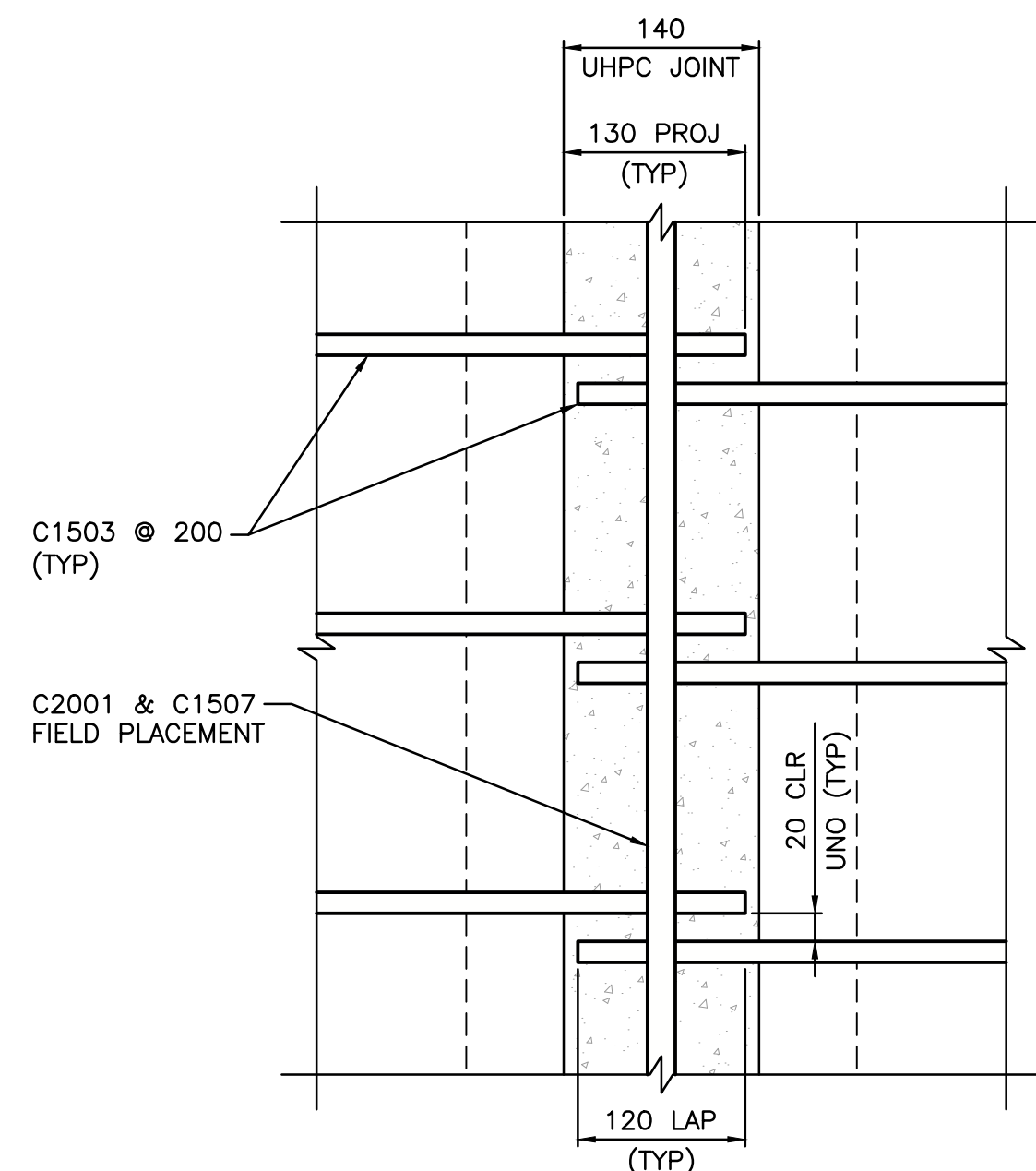
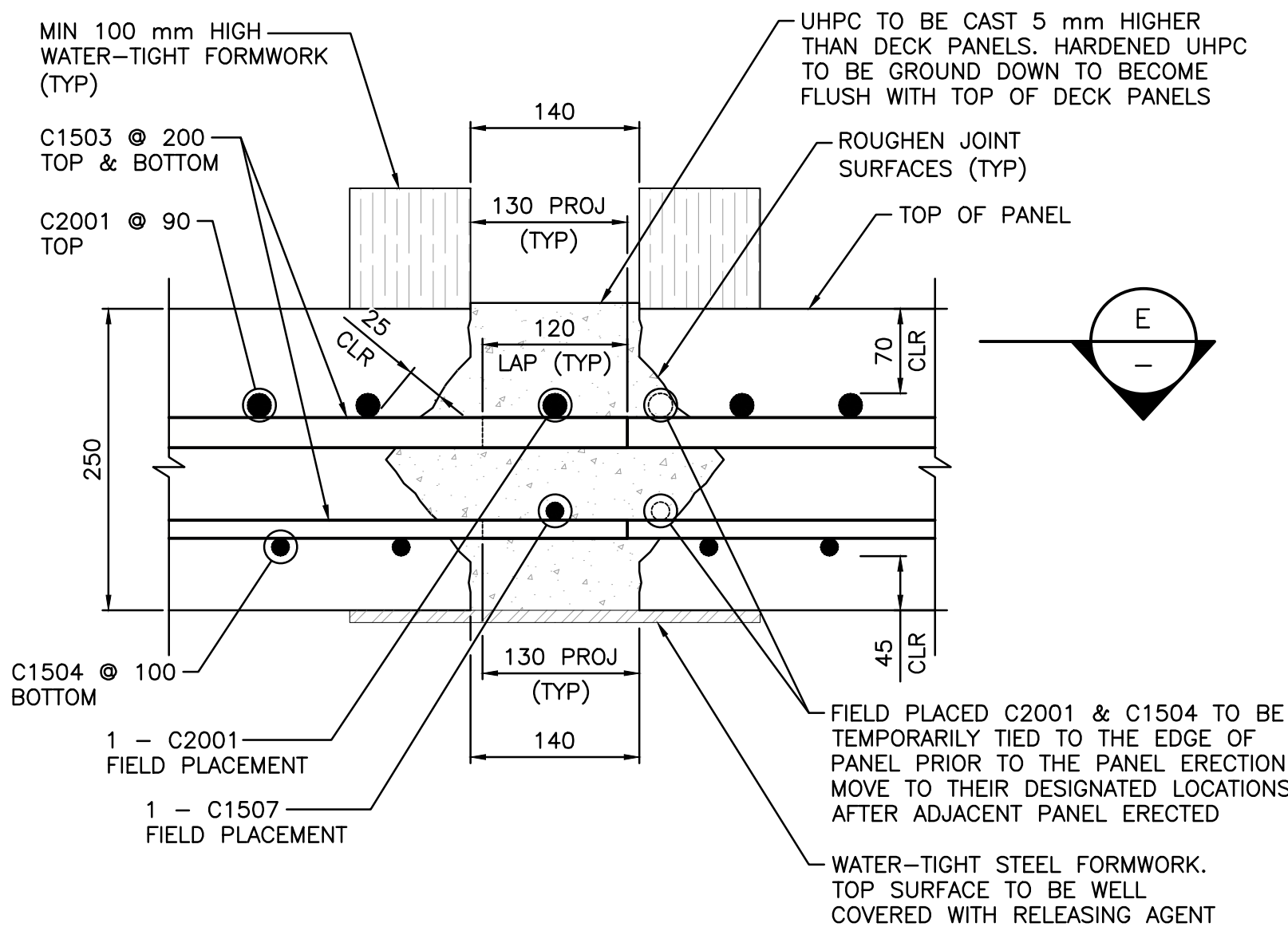
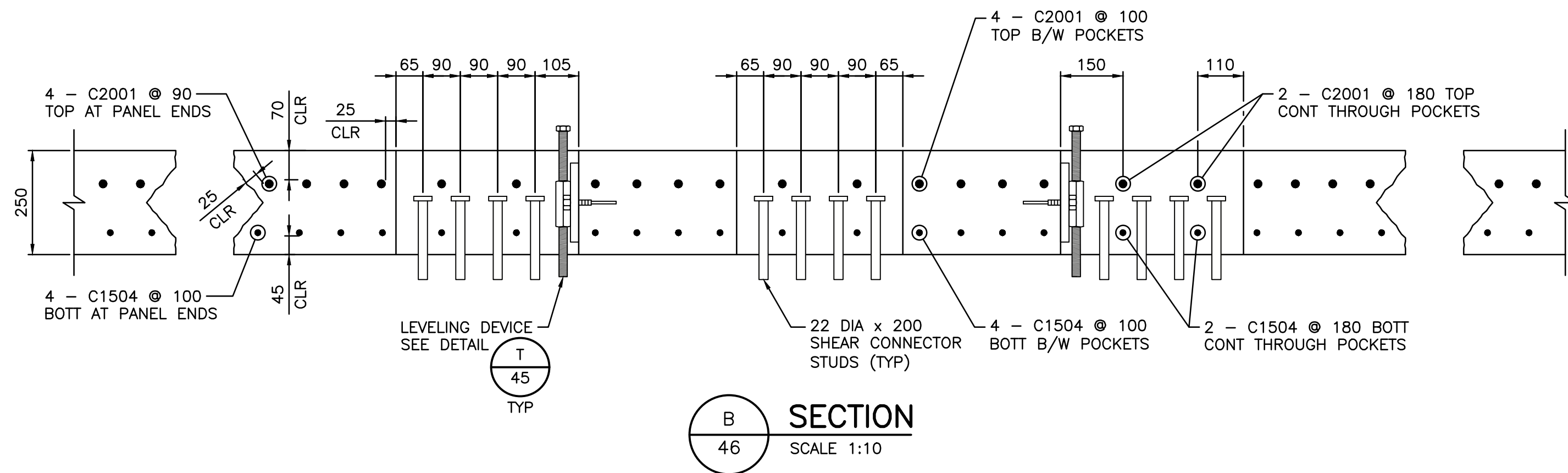
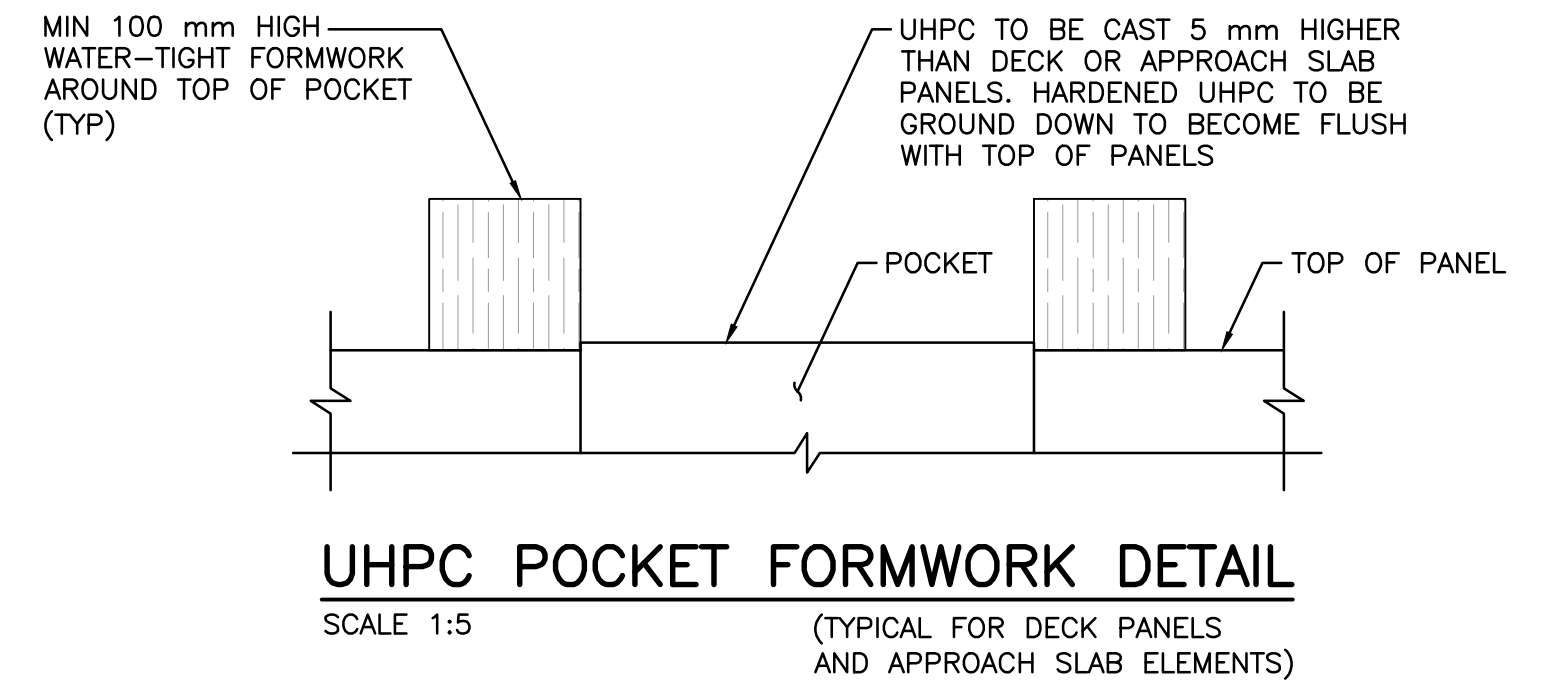
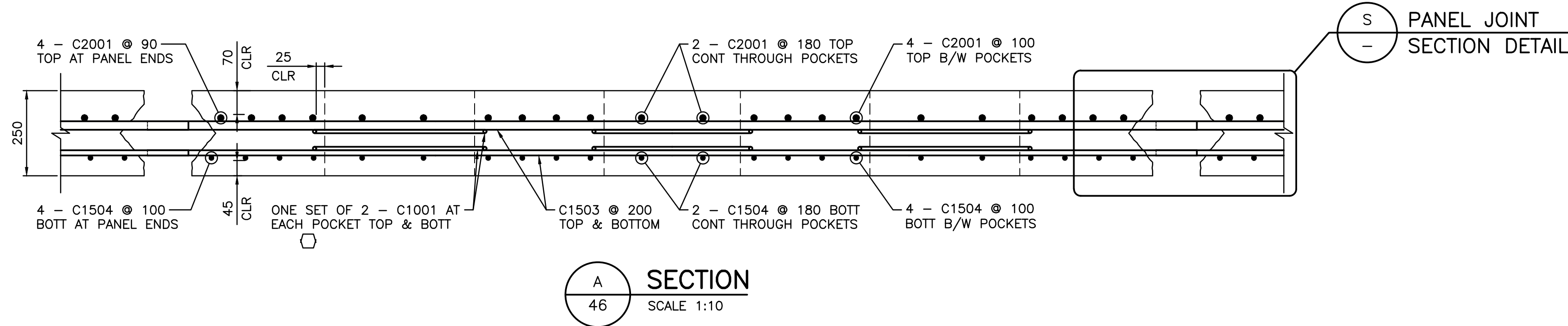
REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST TYPICAL DECK DETAILS
SHEET 2

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
		SHEET No. 46 OF 55	DRAWING No. SC-INF01-6081-S024

B



S DECK PANEL JOINT SECTION DETAIL
44 SCALE 1:5
49

E DECK PANEL JOINT PLAN SECTION
46 SCALE 1:5

C DECK PANEL JOINT SECTION AT CURB
46 SCALE 1:5

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Consultant Logo

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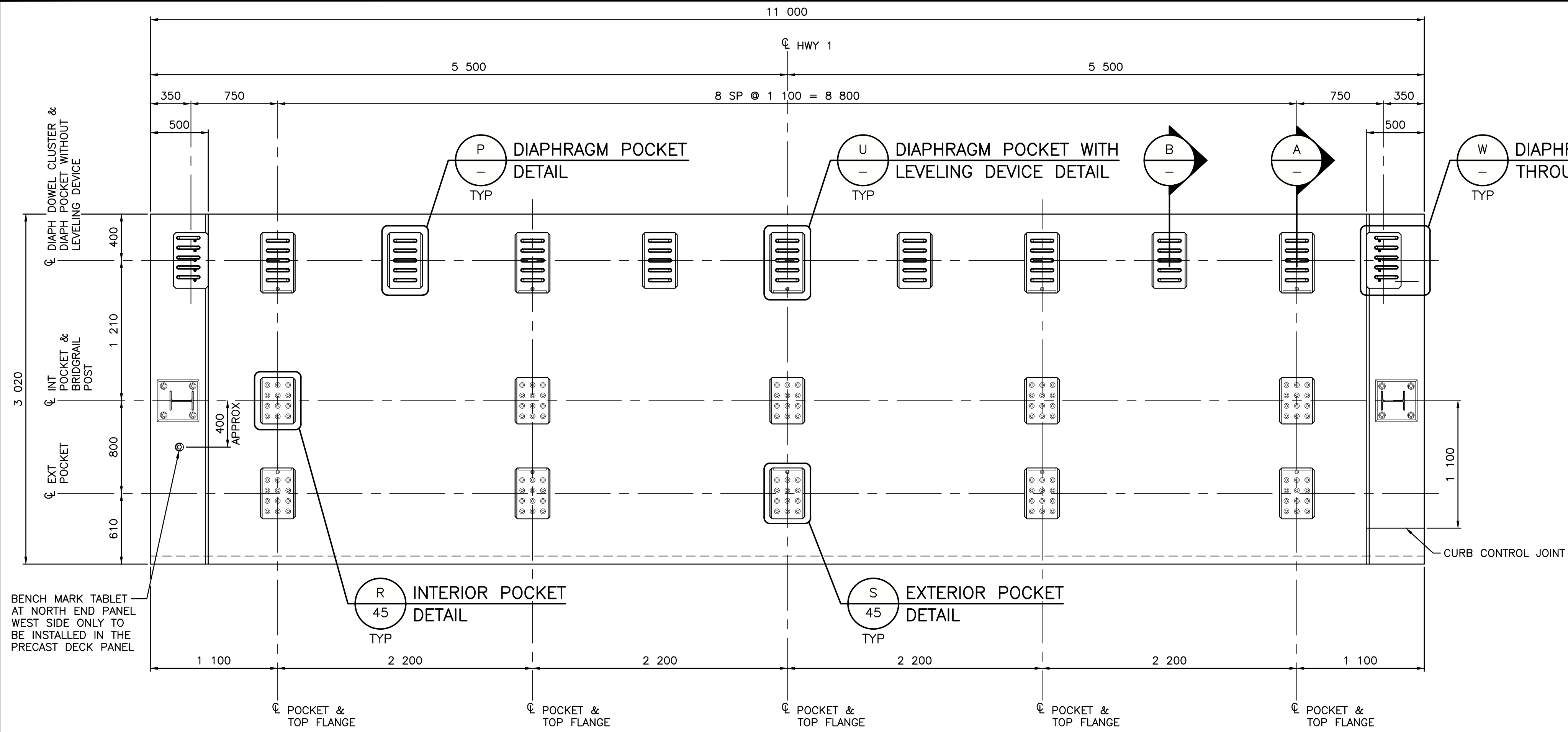
Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
A	2023-10-06	ISSUED FOR 80% REVIEW	YL

REVISIONS

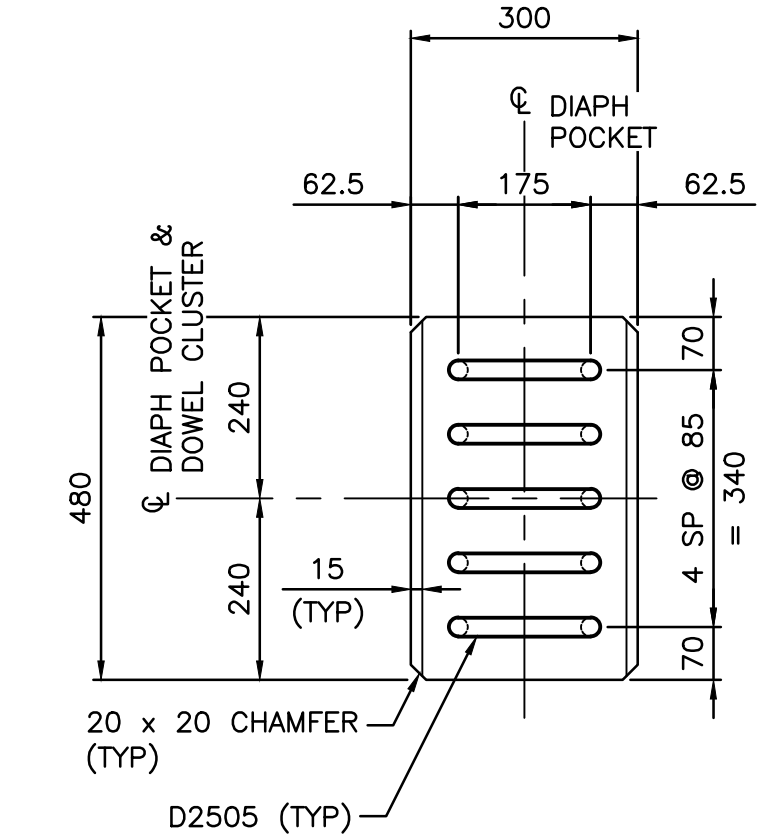
Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST TYPICAL DECK DETAILS
SHEET 3

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

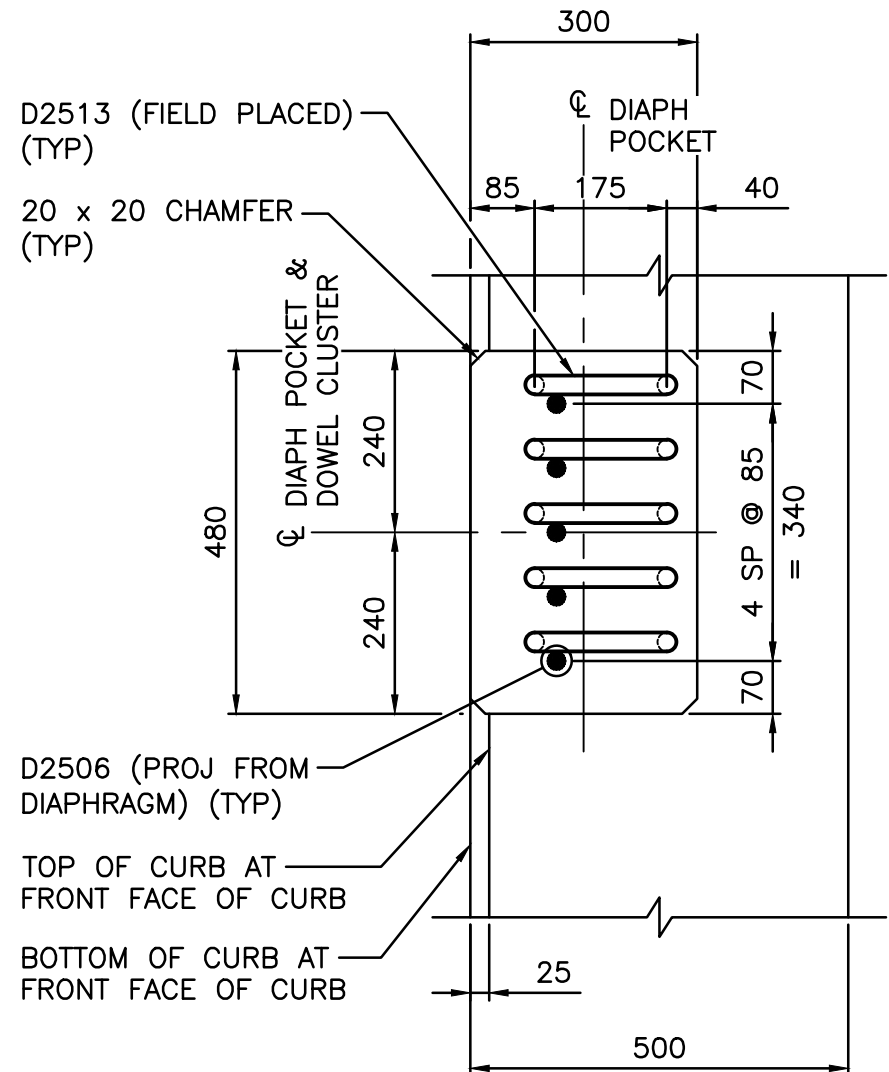
PROJECT No. CE857700		SHEET No. 47 OF 55		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25 DRAWING No. SC-INF01-6081-S025	
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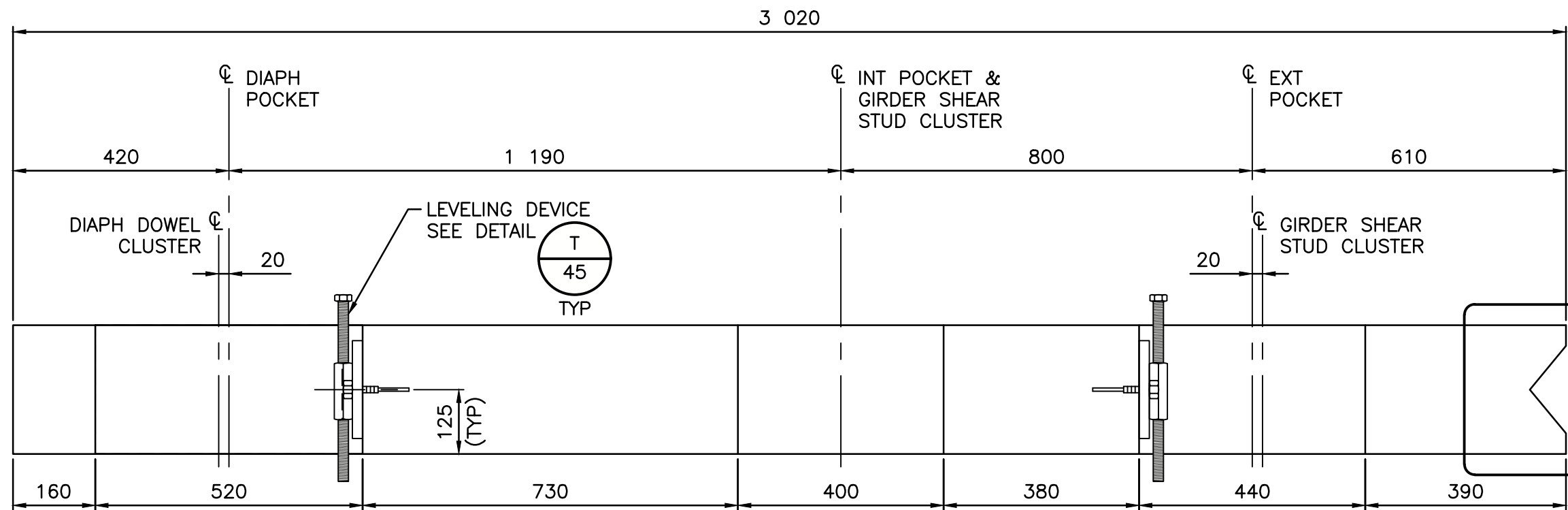
W PRECAST END DECK PANEL DETAIL
SCALE 1:25
(ELEMENT ESTIMATED WEIGHT: 21 820 kg, EACH)



P DIAPHRAGM POCKET DETAIL
SCALE 1:10

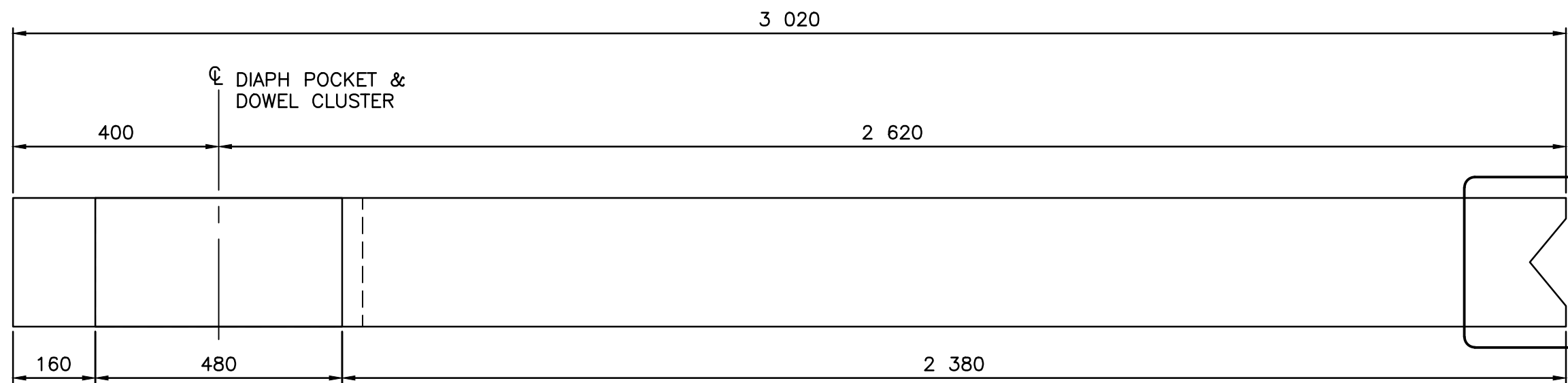


W DIAPHRAGM END POCKET THROUGH CURB DETAIL
SCALE 1:10



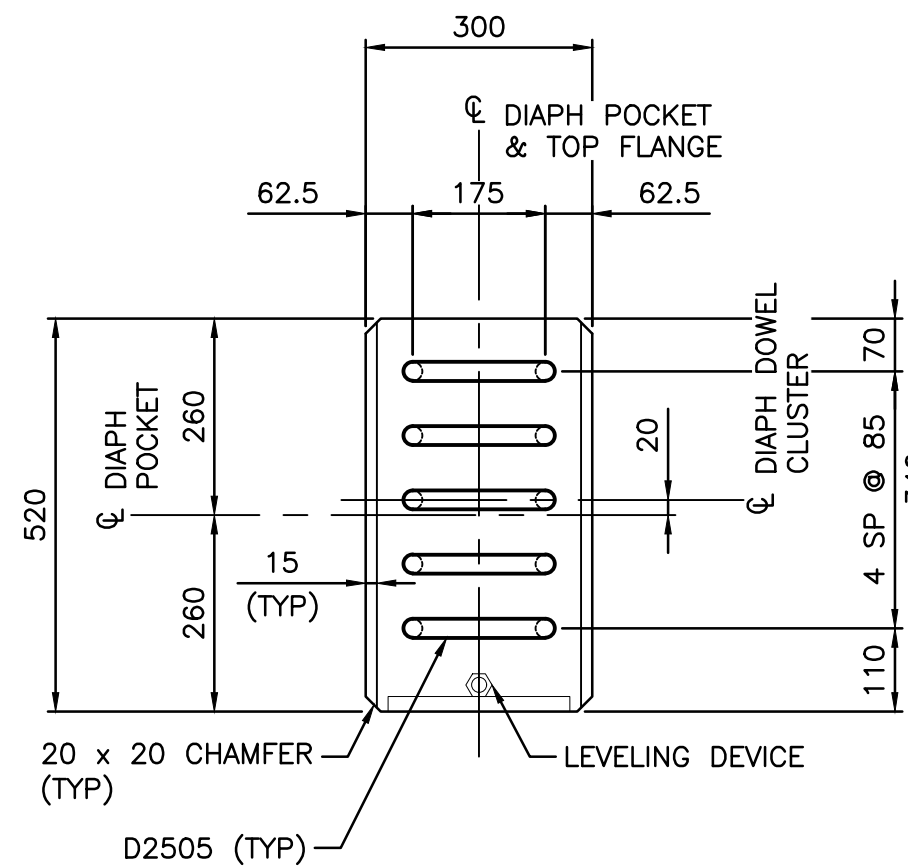
A SECTION
SCALE 1:10

V 45 PANEL END DETAIL



B SECTION
SCALE 1:10

V 45 PANEL END DETAIL



U DIAPHRAGM POCKET WITH LEVELING DEVICE DETAIL
SCALE 1:10

PRELIMINARY – NOT FOR CONSTRUCTION



Consultant Logo

Jacobs

Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

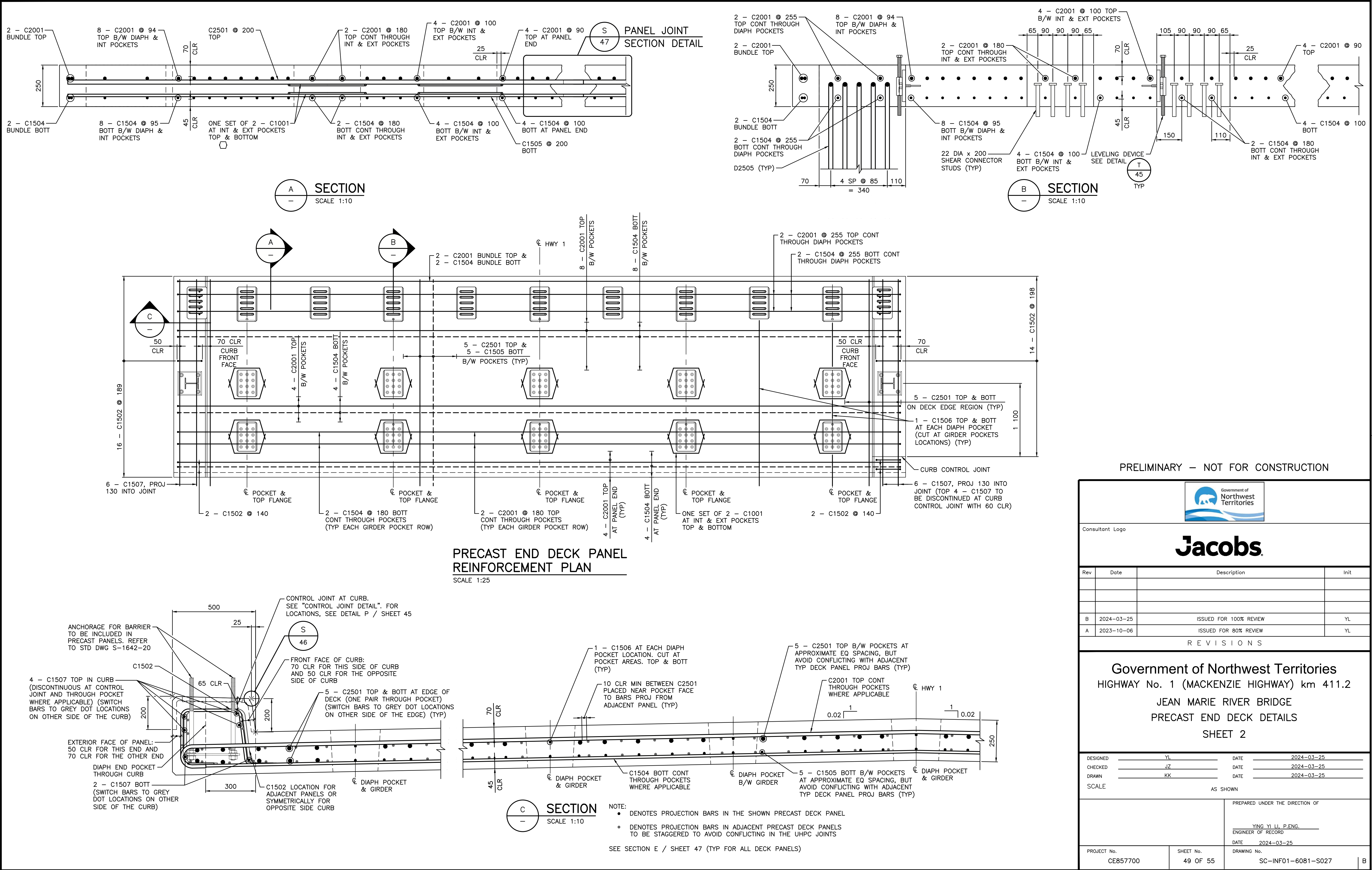
REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST END DECK DETAILS
SHEET 1

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
		SHEET No. 48 OF 55	DRAWING No. SC-INF01-6081-S026

C



PRELIMINARY – NOT FOR CONSTRUCTION



Consultant Logo

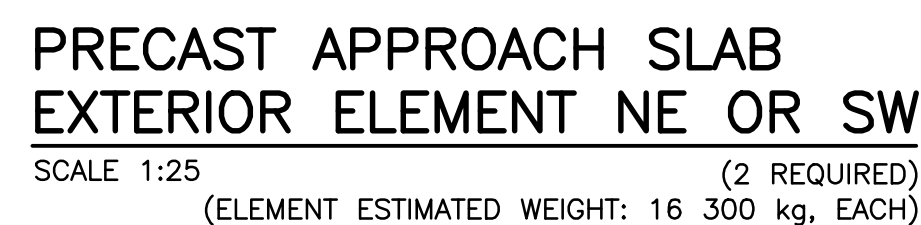
Jacobs

Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
A	2023-10-06	ISSUED FOR 80% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST END DECK DETAILS
SHEET 2

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		
PROJECT No.		PREPARED UNDER THE DIRECTION OF	
CEB57700		YING YI LI, P.ENG.	
SHEET No.		ENGINEER OF RECORD	
49 OF 55		DATE	
		2024-03-25	
		DRAWING No.	
		SC-INF01-6081-S027	



Jacobs.

Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

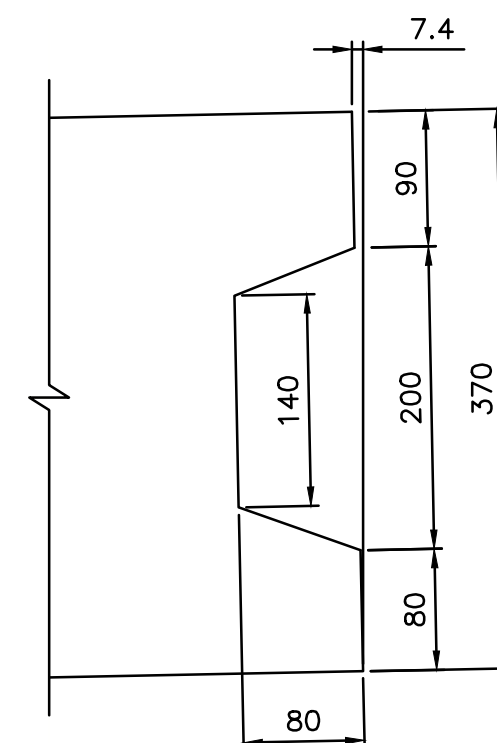
Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
PRECAST APPROACH SLAB
EXTERIOR ELEMENT DETAILS

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

		PREPARED UNDER THE DIRECTION OF	
		YING YI LI, P.ENG.	
		ENGINEER OF RECORD	
		DATE 2024-03-25	
PROJECT No.	SHEET No.	DRAWING No.	
CE857700	50 OF 55	SC-INF01-6081-S028	

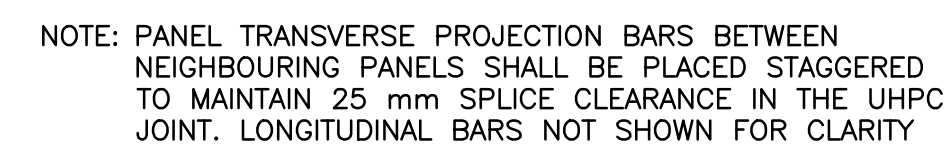


SCALE 1:25 (4 REQUIRED)
(ELEMENT ESTIMATED WEIGHT: 13 320 kg, EACH)



APPROACH SLAB
PANEL END DETAIL

SCALE 1:5



APPROACH SLAB PANEL JOINT
REINFORCEMENT STAGGER DETAIL

SCALE 1:5

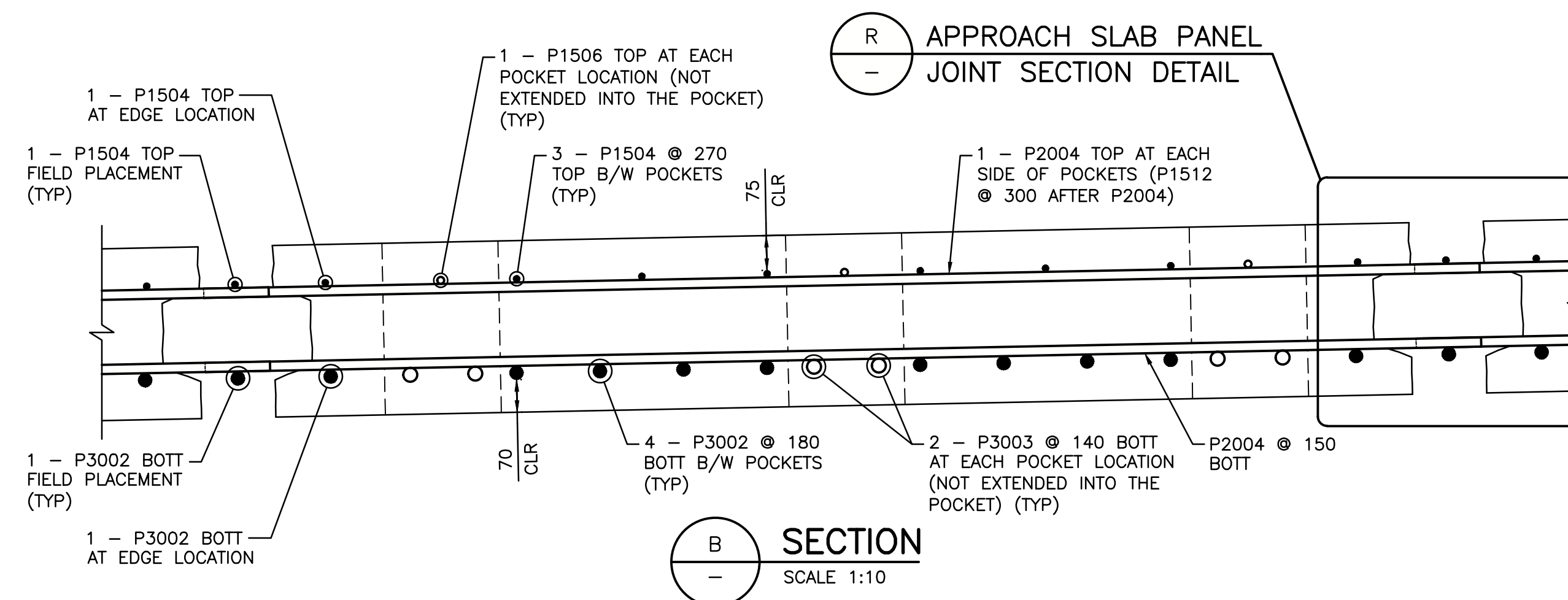


SCALE 1:5



SCALE 1:25

NOTE:
* DENOTES PROJECTION BARS TO BE PLACED OFFSET FROM PRECAST APPROACH SLAB EXTERIOR ELEMENT PROJECTION BARS BY CLEARANCE OF 25 mm



SECTION

SCALE 1:10

PRELIMINARY — NOT FOR CONSTRUCTION



Consultant Logo

Jacobs.

Rev	Date	Description	Init
C	2024-03-25	ISSUED FOR 100% REVIEW	YL
B	2023-10-06	ISSUED FOR 80% REVIEW	YL
A	2023-06-19	ISSUED FOR 50% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2

JEAN MARIE RIVER BRIDGE
PRECAST APPROACH SLAB
INTERIOR ELEMENT DETAILS

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PREPARED UNDER THE DIRECTION OF

YING YI LI, P.ENG.
ENGINEER OF RECORD

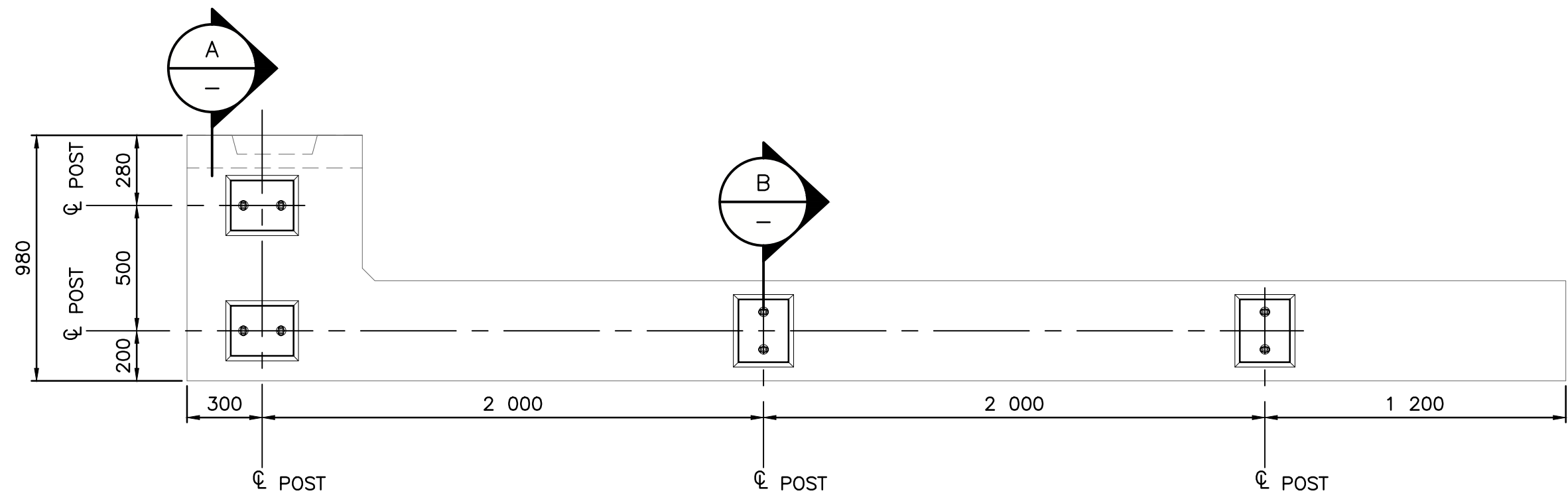
DATE 2024-03-25

PROJECT No. CE857700

SHEET No.
51 OF 5

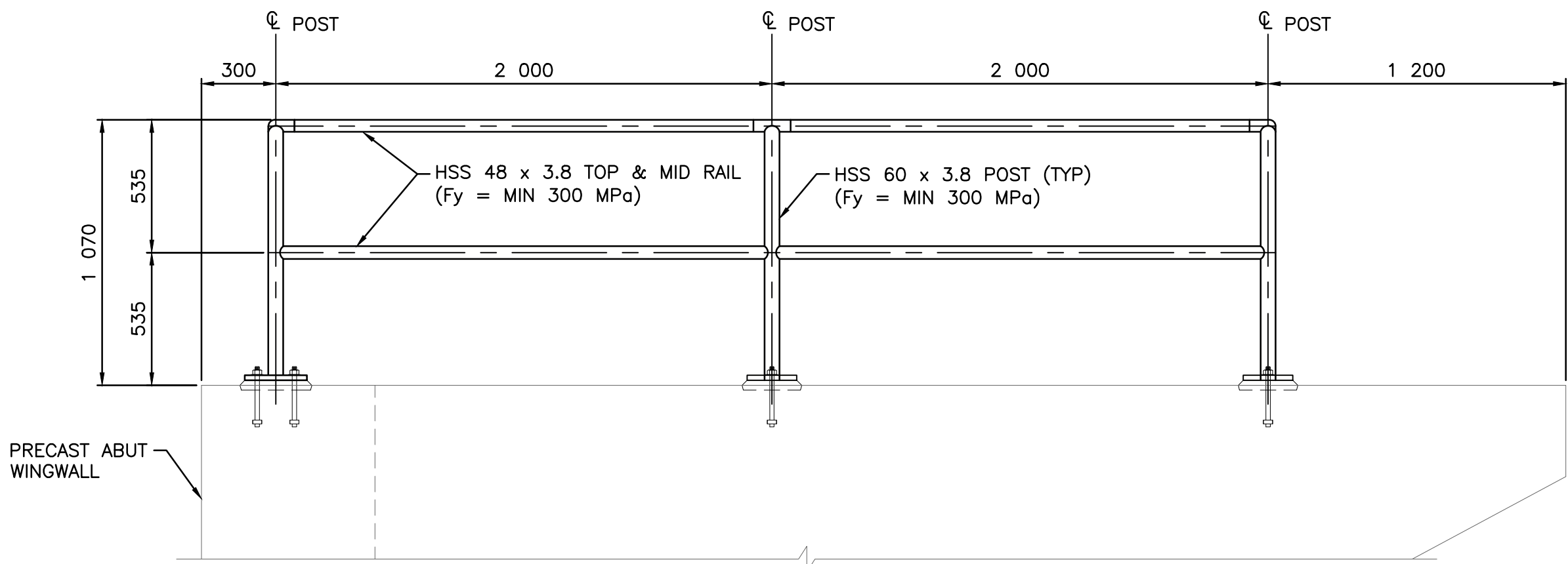
WING No. SC-INF01-6081-S029

C



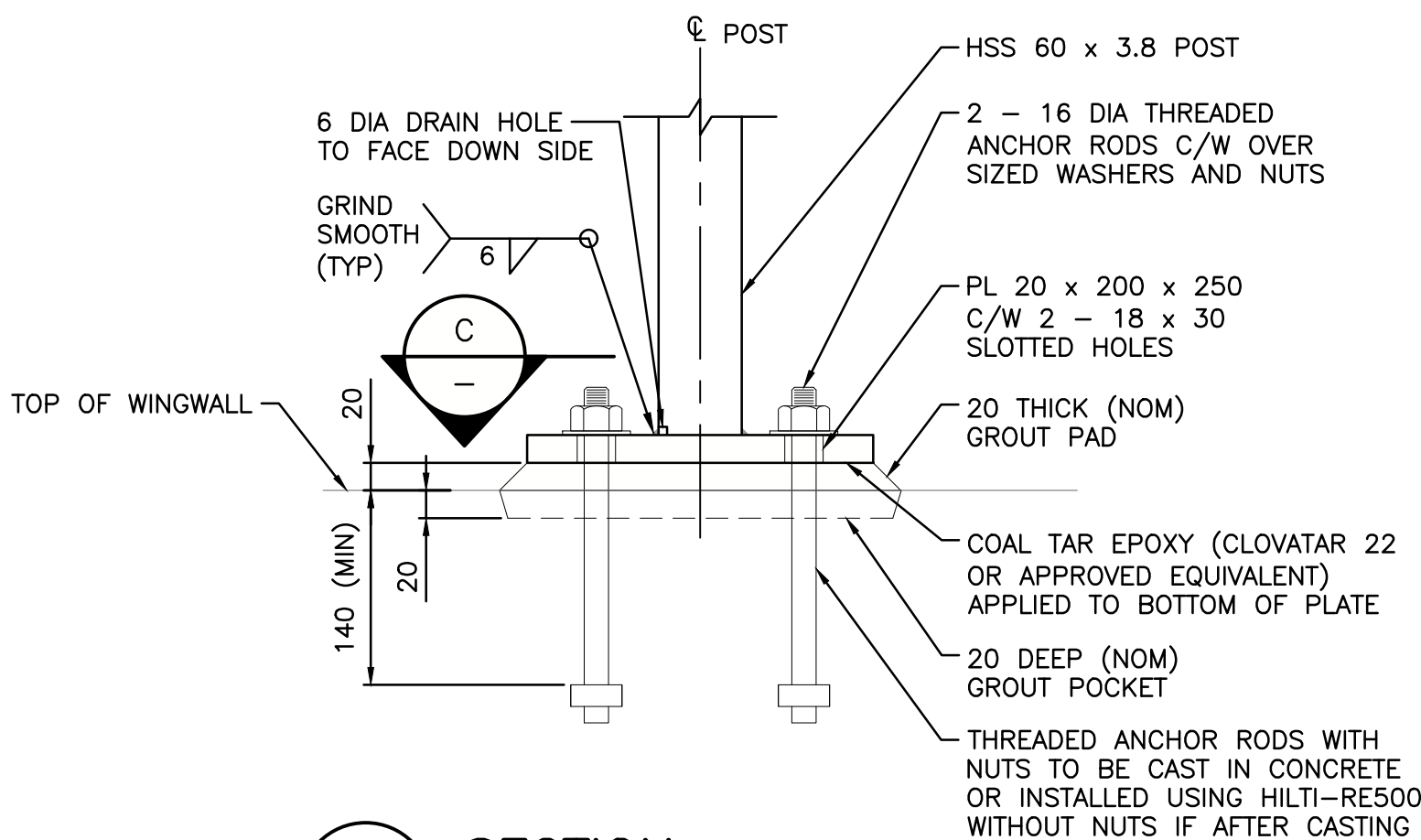
SAFETY RAIL PLAN

SCALE 1:20 (RAIL NOT SHOWN FOR CLARITY)
(SW AND NE SHOWN. NW AND SE OPPOSITE.)



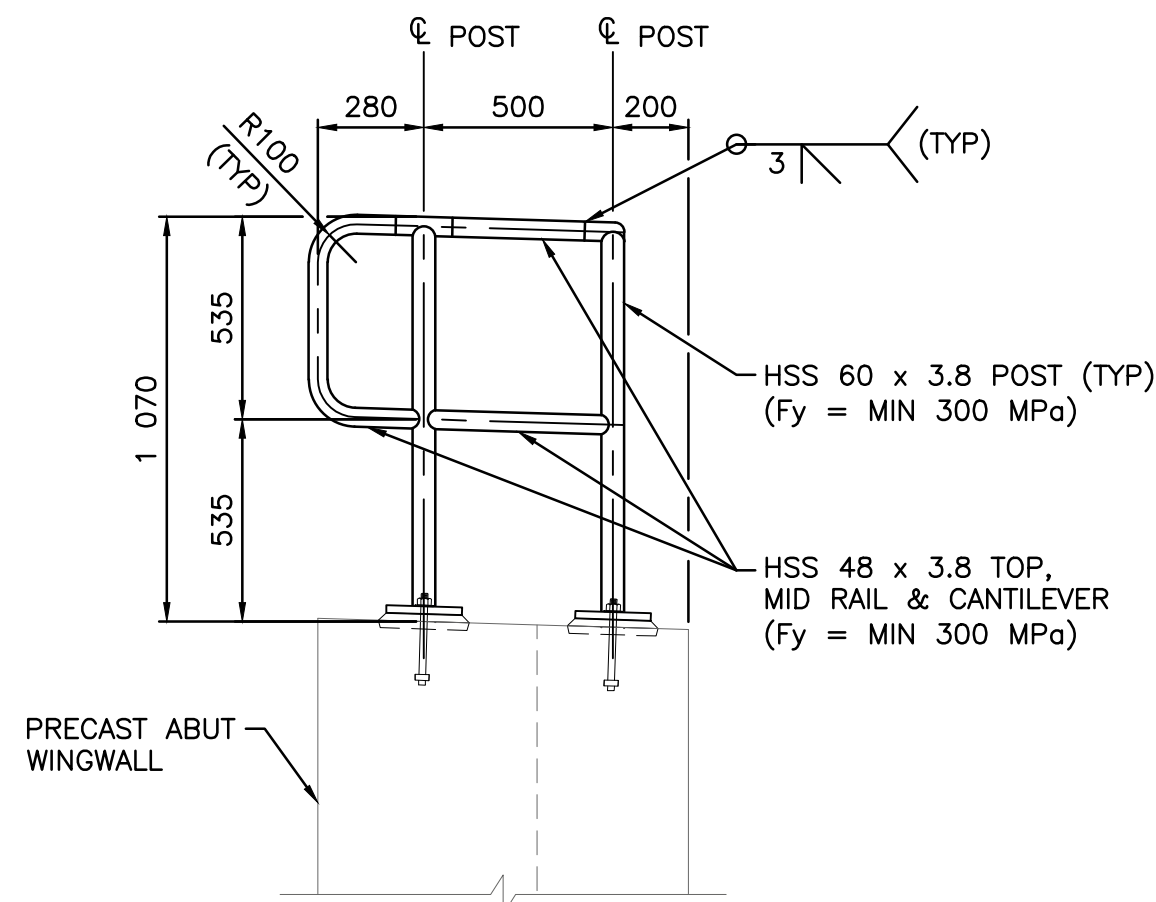
SAFETY RAIL ELEVATION

SCALE 1:20



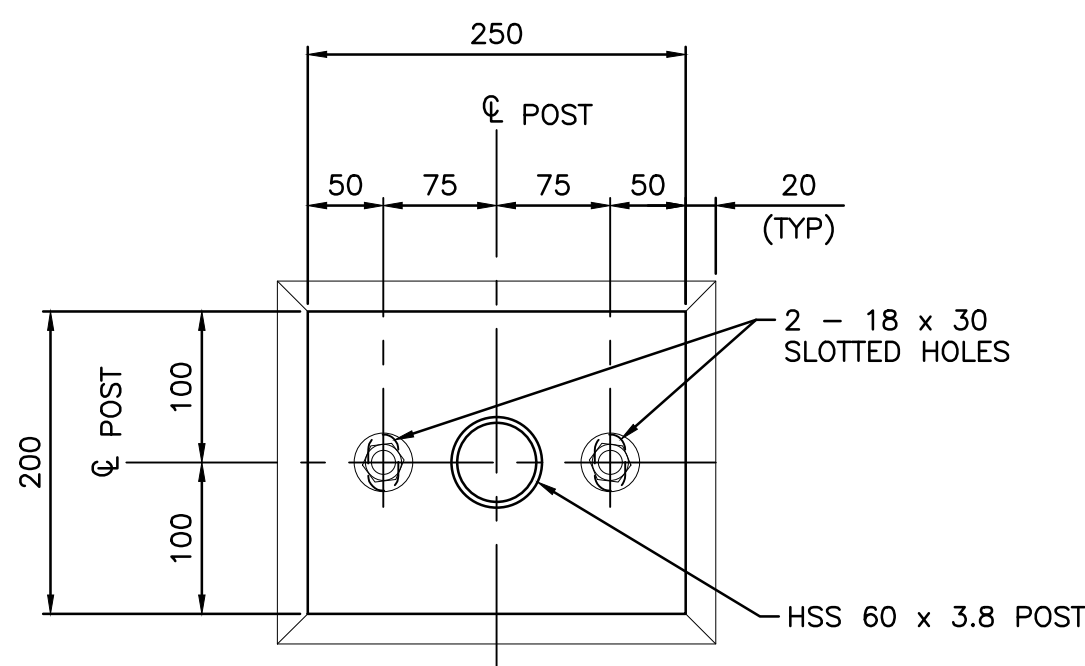
SECTION B

SCALE 1:5 (TYPICAL FOR ALL SAFETY
RAIL POST-TO-ANCHOR
CONNECTIONS)



SECTION A

SCALE 1:20



SECTION C

SCALE 1:5

NOTES

- POST SPACING SHOWN IS CORRECT AT 15°C. LOCATION OF THE POST ANCHOR ROD ASSEMBLIES SHALL BE ADJUSTED TO ACCOUNT FOR INSTALLATION TEMPERATURE.
- ALL REQUIREMENTS OF GNWT SPECIFICATIONS FOR BRIDGE CONSTRUCTION (SSBC) SECTION 12 SHALL BE MET.
- ALL STEEL SHALL CONFORM TO CSA SPECIFICATION G40.21M GRADE 300W. ANCHOR RODS SHALL CONFORM TO ASTM F1554 GRADE 55. ALL NUTS AND WASHERS SHALL CONFORM TO ASTM A563 AND ASTM F436 RESPECTIVELY.
- ALL WELDING SHALL CONFORM TO CURRENT AWS SPECIFICATION D1.1 AND D1.5.
- ALL MATERIALS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123/A123M AND ASTM F2329 UNLESS NOTED OTHERWISE.
- REPAIR OF GALVANIZED SHALL BE COMPLETED AS PER THE SSBC SECTION 6.2.7.3.3, REPAIR OF GALVANIZED AND METALLIZED MATERIAL.
- ALL EXPOSED CUT TUBE ENDS SHALL BE GROUND SMOOTH.
- THE BOTTOM SURFACE OF THE BASE PLATES SHALL BE COATED WITH CLOVATAR 22 OR AN APPROVED EQUIVALENT SUITABLE FOR APPLICATION ON GALVANIZED STEEL TO PREVENT CONTACT BETWEEN THE ZINC AND THE GROUT. THE COLOUR SHALL BE MEDIUM GREY.
- ALL POSTS SHALL BE VERTICAL.

PRELIMINARY – NOT FOR CONSTRUCTION



Consultant Logo

Jacobs

Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
A	2023-10-06	ISSUED FOR 80% REVIEW	YL

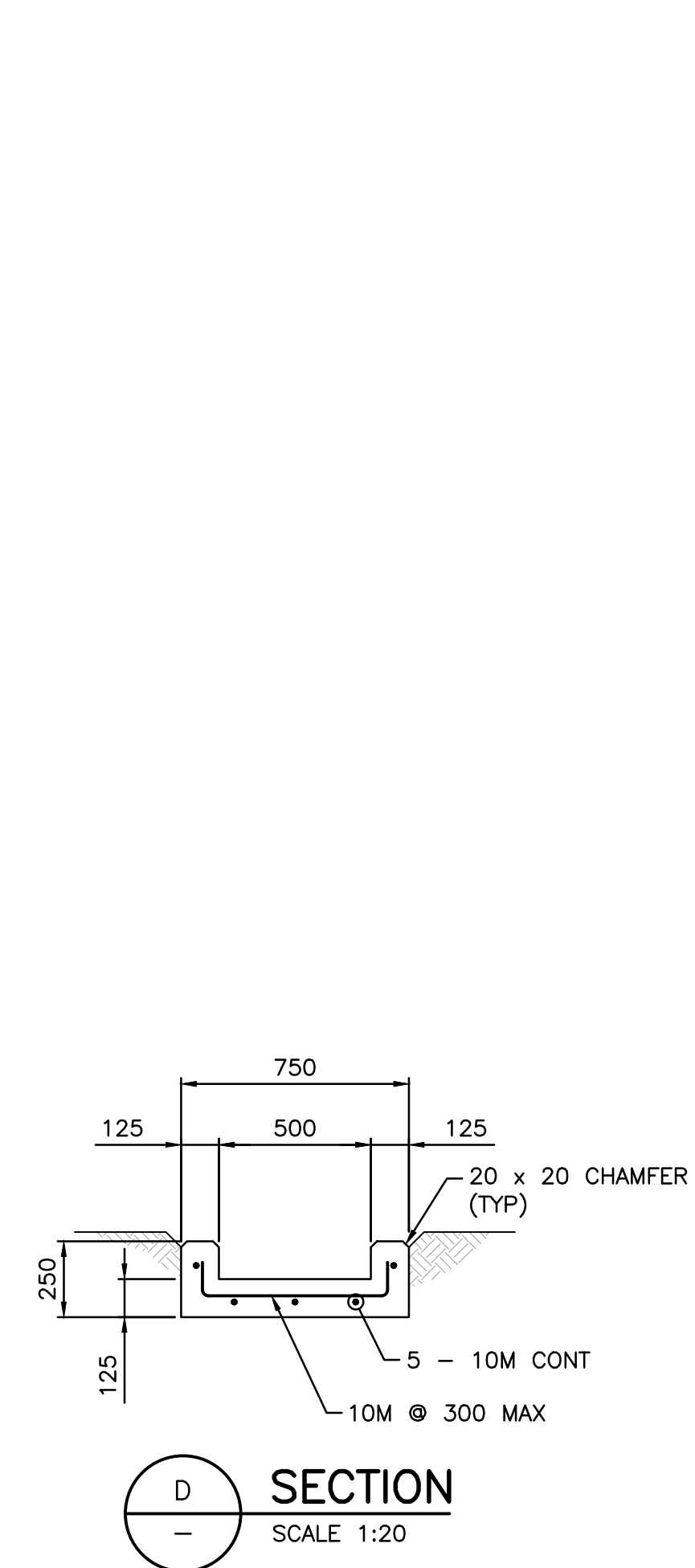
REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
SAFETY RAIL DETAILS

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF YING YI LI, P.ENG. ENGINEER OF RECORD DATE 2024-03-25	
		SHEET No. 52 OF 55	DRAWING No. SC-INF01-6081-S030

B



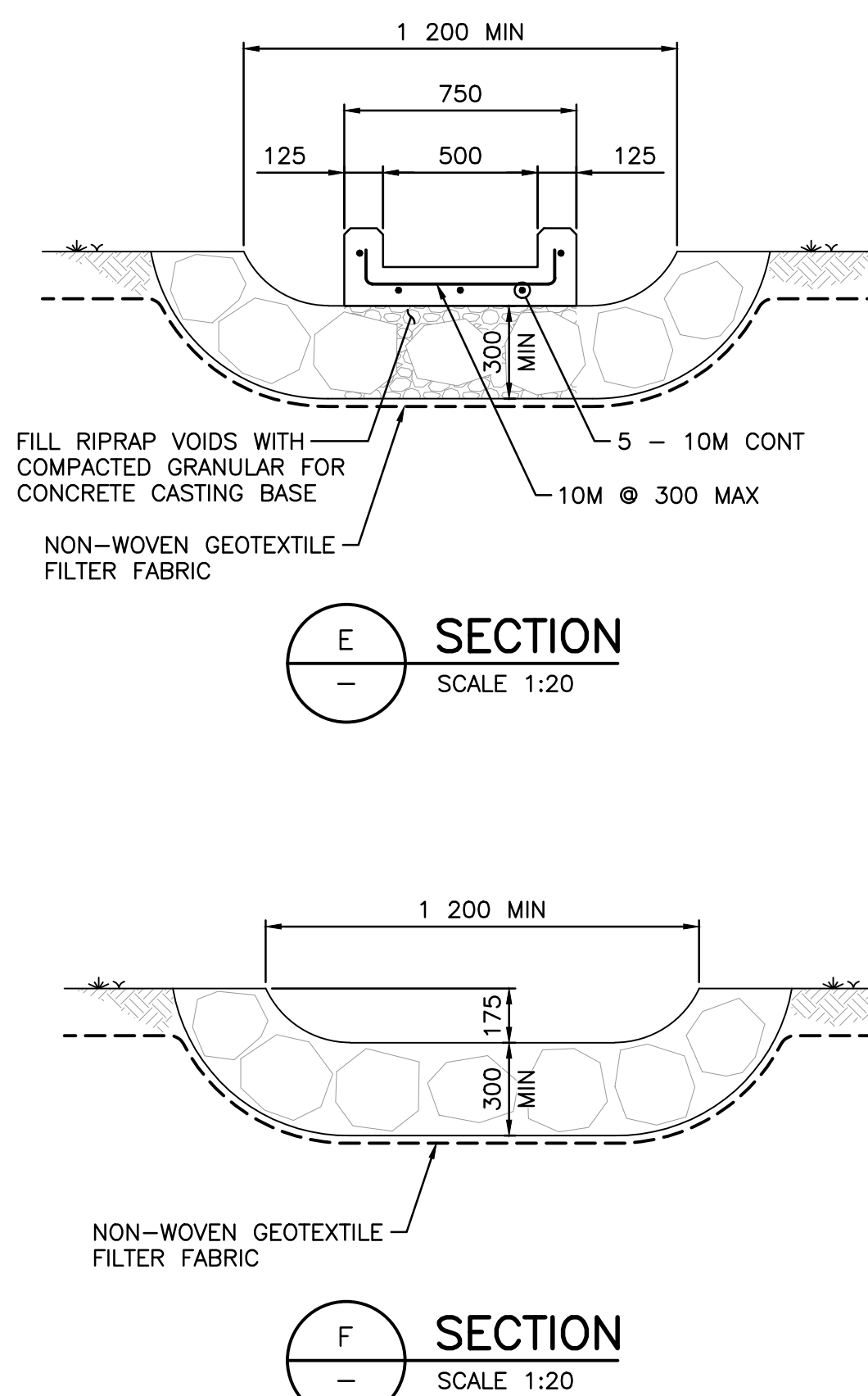
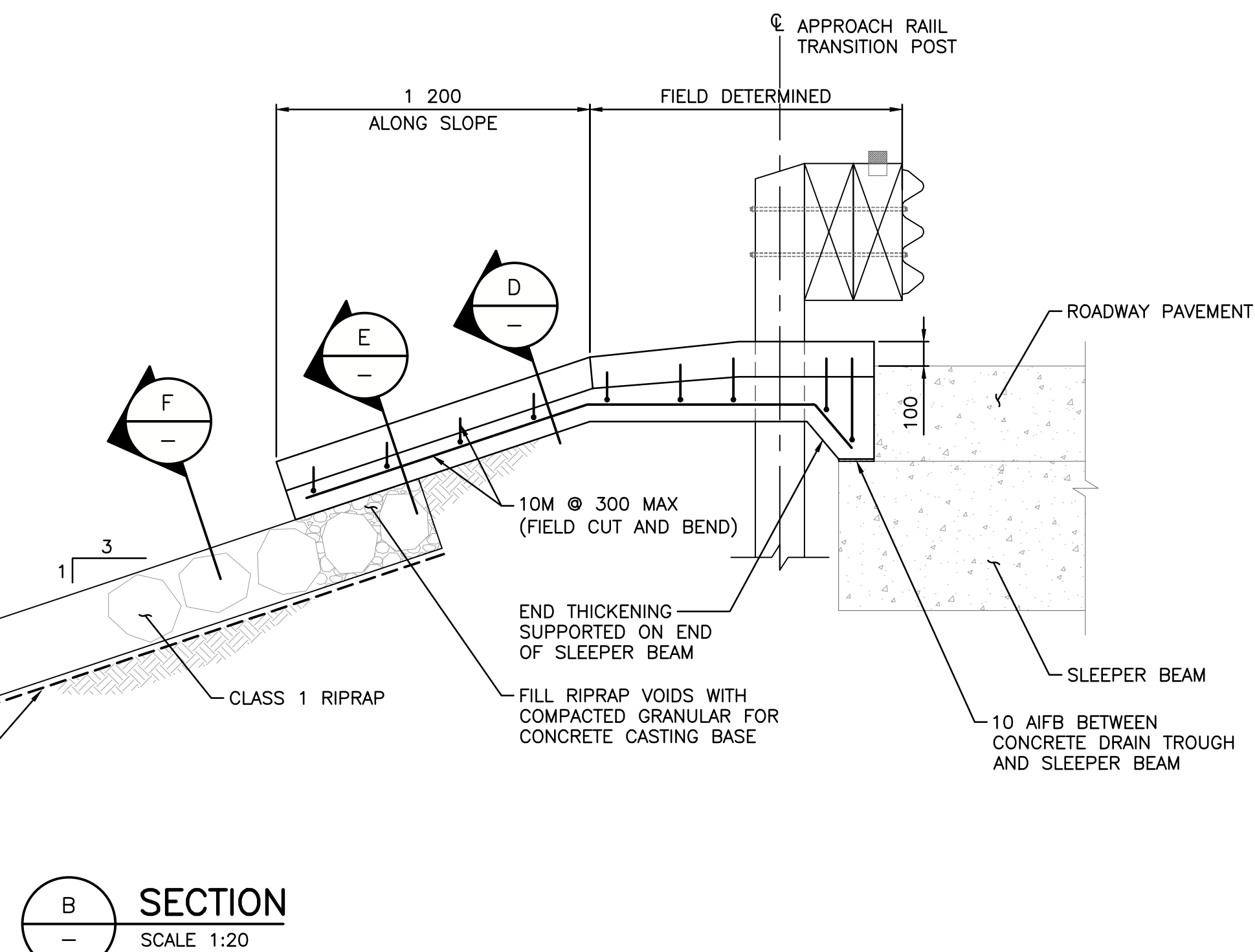
TECHNICAL DRAWING OF A SECTION OF A TRACK, SHOWING THE CROSS-SECTION OF THE RAIL AND THE UNDERLYING STRUCTURE. THE DRAWING INCLUDES LABELS FOR VARIOUS COMPONENTS AND DIMENSIONS.

COMPONENTS AND DIMENSIONS:

- APPROACH RAIL TRANSITION POST
- CENTRE REFLECTOR ON SPACER AND MOUNT PLUMB SECURE WITH EPOXY (TYP)
- APPROACH RAIL TRANSITION THRIE BEAM (TYP)
- x 560 MEMBER SPACER
- M 307 BOLTS C/W WASHERS
- x 2 130 MEMBER
- 25 (TYP)
- 803 (TYP)
- 828 (TYP)

SECTION

SCALE 1:20



- PRELIMINARY — NOT FOR CONSTRUCTION



Consultant Logo

Jacobs.

Rev	Date	Description	Init
B	2024-03-25	ISSUED FOR 100% REVIEW	YL
A	2023-10-06	ISSUED FOR 80% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
DRAIN TROUGH AND
APPROACH RAIL TRANSITION DETAILS

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE		AS SHOWN	
		PREPARED UNDER THE DIRECTION OF	
		YING YI LI, P.ENG.	
		ENGINEER OF RECORD	
		DATE	2024-03-25
PROJECT No.	SHEET No.	DRAWING No.	
CE857700	53 OF 55	SC-INF01-6081-S031	B

FILE: c:\pw_workdir\jacobs-us-va-pw-02\dms92401\S032.dwg
PLOTTED : Monday, March 25, 2024

BAR LIST: ABUTMENT SEATS

MARK	SIZE	TYPE	X	Y	Z	LENGTH	QTY IN 1 PRECAST UNIT ABUT 1 SE OR SW ELEMENT	QTY IN 1 PRECAST UNIT ABUT 2 NE OR NW ELEMENT	QTY IN 1 PRECAST UNIT MID ELEMENT ABUT 1 OR ABUT 2	TOTAL QTY IN 6 PRECAST UNITS	QTY FIELD PLACEMENT IN PILE POCKETS ABUT 1	QTY FIELD PLACEMENT IN PILE POCKETS ABUT 2	QTY FIELD PLACEMENT IN 4 CONNECTIONS	TOTAL QTY IN FIELD PLACEMENT	MASS IN 6 PRECAST UNITS (kg)	MASS IN FIELD PLACEMENT (kg)
A1501	15	P	1 695			1 975	63	57	48	336			24	24	1 042	74
A1502	15	R	120	770	1 670	2 560	72	72	24	336					1 350	
A1503	15	G	322	1 220		2 762	36	24	12	144					624	
A1504	15	G	1 695	140		1 975	16	12	12	80					248	
A1505	15	G	1 695	200		2 095	4	4		16					53	
A1506	15	G	1 695	250		2 195	3	3		12					41	
A1507	15	E	762	140		902						16		16		23
A1508	15	E	720	140		860						16		16		22
A1509	15	G	1 756	140		2 036			16	32					102	
A1510	15	G	982	140		1 262		6		12					24	
A1511	15	G	1 024	140		1 304		6		12					25	
A1512	15	E	1 695	140		1 835					56	32		88		254
A2001	20	G	1 034	1 320		3 674	42	44	32	236			16	16	2 042	138
A2002	20	G	992	1 320		3 632	42	44	32	236			16	16	2 019	137
A2003	20	P	1 695			2 095	36	48	12	192					947	
A2004	20	STR				4 315	14			56					569	
A2005	20	M	1 320			1 520		12		24					86	
A2006	20	E	3 700	250		3 950	4	4		16					149	
A2007	20	STR				2 400			10	20					113	
A2008	20	STR				3 030			16	32					228	
A2009	20	STR				3 030			4	8					57	
A2501	25	E	4 315	400		4 715	8	8		32					592	
A2502	25	STR				4 315	8	8		32					542	
A2503	25	E	400	590		990	6	6		24					93	
A2504	25	E	510	400		910				0	8	8		16		57
A2505	25	STR				3 030			24	48					571	
A2506	25	STR				2 400			10	20					188	
A3001	30	STR				4 315	4	4		16					379	
A3002	30	STR				3 975	8	8		32					699	
A3003	30	E	4 315	490		4 805	4	4		16					422	
A3005	30	STR				3 030			8	16					266	
A3006	30	STR				2 400			4	8					106	
H1501	15	E	650	760		1410	4	4	4	16					35	
H1502	15	G	370	760		1890	2	2	3	10			2	2	30	6
H1503	15	G	400	952		2304							8	8		29
H1504	15	STR				1194							8	8		15

PLAIN TOTAL IN 6 PRECAST ELEMENTS (kg): 13 644

PLAIN TOTAL IN FIELD PLACEMENT (kg): 755

BAR LIST: SLEEPER BEAMS

MARK	SIZE	TYPE	W	X	Y	Z	LENGTH	QTY IN 1 PRECAST UNIT	QTY IN 2 PRECAST UNITS	MASS (kg)
B1001	10	L		80	440 (AVE)	180	1 220	32	64	61
B1501	15	G		790	440 (AVE)		1 670	16	32	84
B1502	15	H		790	450 (AVE)		2 760	45	90	390
B1503	15	G		760	500		1 760	4	8	22
B2001	20	Y		790			1 130	8	16	43
B2002	20	STR					1 700	8	16	64
B2003	20	STR					10 440	4	8	197
B2004	20	STR					10 440	2	4	98
B3001	30	J	5 220	10 440	104	104	10 440	4	8	459
B3002	30	STR					10 440	4	8	459

PLAIN TOTAL IN 2 PRECAST ELEMENTS (kg): 1 877

NOTES

- BARS DENOTED AS 'SS' SHALL BE SOLID STAINLESS REINFORCING STEEL.
- DIAMETERS OF ALL BENDS AND DETAILS OF ALL HOOKS, UNLESS NOTED OTHERWISE SHALL CONFORM TO THE RECOMMENDED SIZED DETAILED IN THE CURRENT EDITION OF THE REINFORCING STEEL STANDARD PRACTICE MANUAL PUBLISHED BY THE REINFORCING STEEL INSTITUTE OF CANADA.
- WHERE SPLICES ARE SPECIFICALLY DETAILED ON THESE DRAWINGS THE MINIMUM SPLICE LENGTHS SHALL BE THE LONGER LENGTH SHOWN IN THE SPECIFIC DETAIL OR AS SUMMARIZED IN THE FOLLOWING TABLE. FOR ALL OTHER CASES APPROVAL IN WRITING FROM THE ENGINEER IS REQUIRED.

REINFORCING SPLICE LENGTHS (UNO)	
BAR SIZE	SPLICE LENGTH
10M	450
15M	650
20M	850
25M	1300
30M	1550
35M	1800

PRELIMINARY – NOT FOR CONSTRUCTION

BAR LIST: ABUTMENT DIAPHRAGMS

MARK	SIZE	TYPE	V	W	X	Y	Z	LENGTH	IN 1 PRECAST UNIT	QTY IN 2 PRECAST UNITS	TOTAL QTY IN FIELD PLACEMENT	MASS IN 2 PRECAST UNITS (kg)	MASS IN FIELD PLACEMENT (kg)
D1501	15	P			1 422			1 702	24	48		128	
D2001	20	J		5 155	10 310	103	103	10 310	5	10		243	
D2002	20	T	300	834	670	200	715	2 269	52	104		556	
D2003SS	20	S		300	160	750		2 260	12	24		128	
D2501	25	G			585	1 211		3 007			16		189
D2502	25	H			585	1 422		4 574	53	106		1 903	
D2503	25	STR						6 000	10	20		471	
D2504	25	STR						3 200	10	20		251	
D2505	25	G			200	920		2 040	45	90		721	
D2506	25	C			74	750	400	1 154	10	20		91	
D2507	25	J		3 900	7 800	78	78	7 800	6	12		367	
D2508	25	STR						4 600	12	24		433	
D2509	25	G			350	3 000		6 350	4	8		199	
D2510	25	STR						3 000	8	16		188	
D2511	25	G			535	3 000		6 535	18	36		923	
D2512	25	STR						3 500	14	28		385	
D2513	25	R			200	1 200	450	1 850			20		145

PLAIN TOTAL IN 2 PRECAST ELEMENTS (kg): 6 860

SS TOTAL IN 2 PRECAST ELEMENTS (kg): 128

PLAIN TOTAL IN FIELD PLACEMENT (kg): 334

BAR LIST: ABUTMENT WINGWALLS

MARK	SIZE	TYPE	W	X	Y	Z	LENGTH	QTY IN 1 PRECAST UNIT ABUT 1 SE OR SW ELEMENT	QTY IN 1 PRECAST UNIT ABUT 2 NE OR NW ELEMENT	TOTAL QTY IN 4 PRECAST UNITS	MASS IN 4 PRECAST UNITS (kg)
W1501	15	P		585			865	6	6	24	33
W1502	15	P		1 205			1 485	3	3	12	28
W1502	15	F	180	4 740	2 551	630	6 193	2		4	39
W1503	15	F	180	4 740	2 687	630	6 259		2	4	39
W1504	15	E		3 400 (AVE)	750		4 280	14	14	56	376
W1505	15	R		710	1 635	250	2 595	3	3	12	49
W1506	15	G		255	1 600 (AVE)		3 455	15	15	60	325
W1507	15	G		295	620		1 535	2	2	8	19
W1508	15	G		255	620		1 495	15	15	60	141
W1509	15	R		810	820	250	1 880	3	3	12	35
W2001	20	H		535	832		3 134	2	2	8	59
W2002	20	H		535	750		2 970	6	6	24	168
W2003	20	G		2 850	300		3 450	5	5	20	162
W2501	25	G		585	2 025		4 635	10	10	40	728
W2502	25	H		535	1 210		4 290	8	8	32	539
W2503	25	H		350	1 210		3 920	2	2	8	123
W2504	25	E		1 160	400		1 560	4	4	16	98
W2505	25	E		1 210	400		1 610	6	6	24	152
W2506	25	H		585	1 742		4 150	1	1	4	65
W2507	25	E		3 400 (AVE)	400		3 800	14	14	56	835

PLAIN TOTAL IN 4 PRECAST ELEMENTS (kg): 4 014

FILE: c:\pw_workdir\jacobs-us-pw-02\dms92401\S033.dwg
PLOTTED : Thursday, March 21, 2024

BAR LIST: DECK PANELS

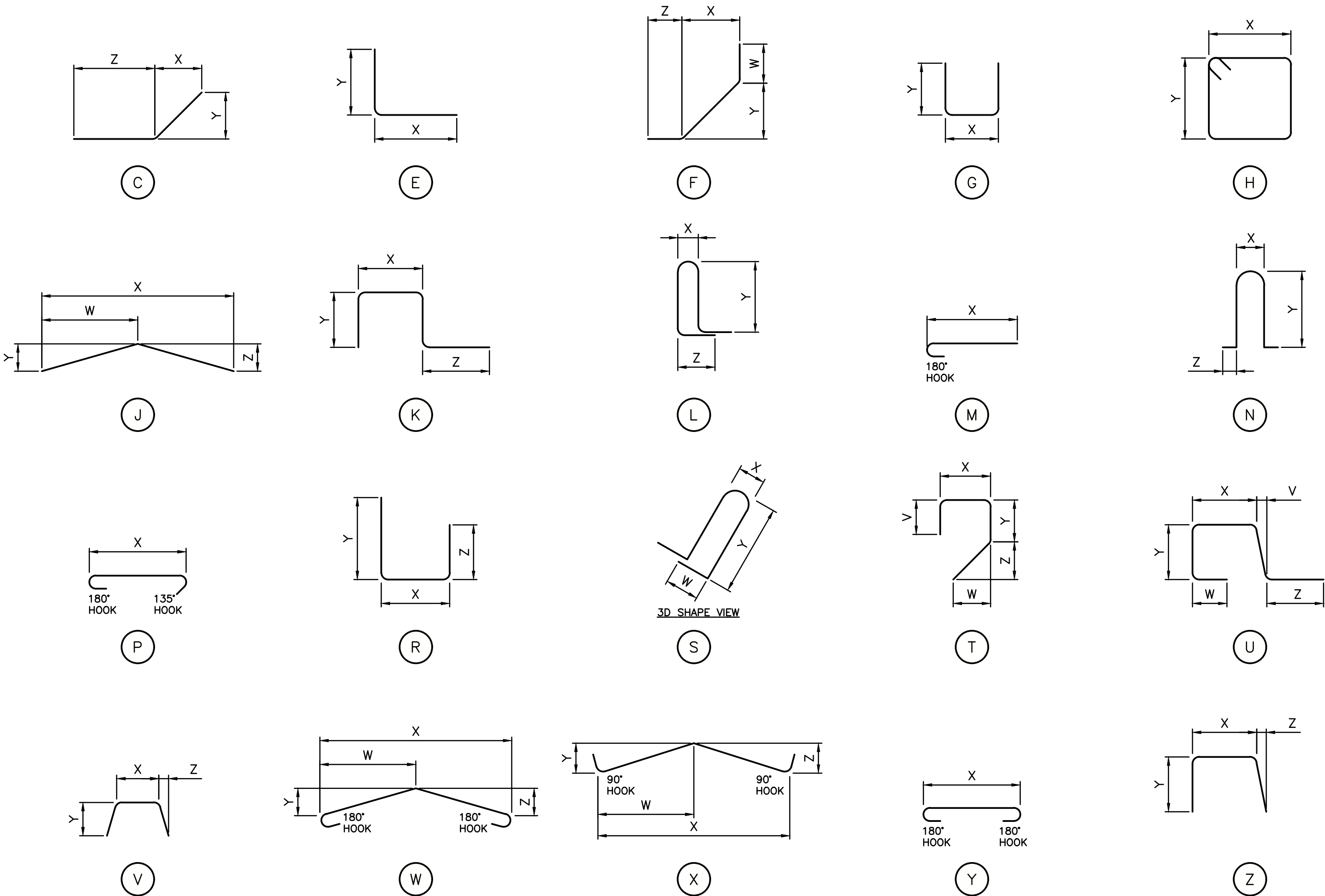
MARK	SIZE	TYPE	V	W	X	Y	Z	LENGTH	QTY IN 1 TYP DECK PANEL	QTY IN 1 END DECK PANEL	TOTAL QTY IN 14 PRECAST UNITS	TOTAL QTY IN FIELD PLACEMENT	MASS IN 14 PRECAST UNITS (kg)	MASS IN FIELD PLACEMENT (kg)
C1001	10	V			380	585	172	1 600	60	40	800		1 005	
C1501	15	STR						3 080	12		144		696	
C1502	15	U	44	250	362	350	340	1 652	30	32	424		1 100	
C1503	15	STR						3 080	100		1 200		5 803	
C1504	15	X		5 450	10 880	109	109	11 380	22	24	312	13	5 574	232
C1505	15	STR						3 100		40	80		389	
C1506	15	STR						2 495		18	36		141	
C1507	15	STR						3 100		12	24		117	
C1508	15	Z			382	340	54	1 066				26		44
C2001	20	W		5 450	10 880	109	109	11 280	22	24	312	13	8 288	345
C2501	25	STR						3 100		20	40		487	

PLAIN TOTAL IN 14 PRECAST ELEMENTS (kg): 23 600
PLAIN TOTAL IN FIELD PLACEMENT (kg): 621

BAR LIST: APPROACH SLAB PANELS

MARK	SIZE	TYPE	V	W	X	Y	Z	LENGTH	QTY IN 1 EXTERIOR ELEMENT	QTY IN 1 INTERIOR ELEMENT	TOTAL QTY IN 8 PRECAST ELEMENTS	TOTAL No. OF BARS FOR FIELD PLACEMENT	MASS IN PRECAST ALL ELEMENTS (kg)	MASS IN FIELD PLACEMENT (kg)
P1501	15	STR						4 775	2		8		60	
P1502	15	U	50	250	362*	400	250	1 662	24		96		250	
P1503	15	STR						4 775	1		4		30	
P1504	15	STR						5 900	9	8	68	6	630	56
P1505	15	E			300	300		600	6		24		23	
P1506	15	STR						5 625	3	3	24		212	
P1507	15	M			2 910			3 080	30		120		580	
P1508	15	G			225	300		825	18	16	136		176	
P1509	15	C			4 465	308	101	4 789	1		4		30	
P1510	15	STR						1 475	1		4		9	
P1511	15	M			2 675			2 845	3		12		54	
P1512	15	STR						2 750		18	72		311	
P1513	15	G			415	250		915	5		20		29	
P2001	20	M			2 910			3 110	2		8		59	
P2002	20	STR						2 910	32		128		877	
P2003	20	STR						2 675	7		28		176	
P2004	20	STR						2 750		41	164		1 062	
P3001	30	STR						4 775	2		8		210	
P3002	30	STR						5 900	12	10	88	6	2 853	195
P3003	30	STR						5 625	6	6	48		1 484	

NOTE: * ADJUST LAST 2 END BARS TO FIT CURB END CHAMFER
PLAIN TOTAL IN 8 PRECAST ELEMENTS (kg): 9 115
PLAIN TOTAL IN FIELD PLACEMENT (kg): 250



PRELIMINARY – NOT FOR CONSTRUCTION



Consultant Logo

Jacobs

Rev	Date	Description	Init
A	2024-03-25	ISSUED FOR 100% REVIEW	YL

REVISIONS

Government of Northwest Territories
HIGHWAY No. 1 (MACKENZIE HIGHWAY) km 411.2
JEAN MARIE RIVER BRIDGE
BAR LIST
SHEET 2

DESIGNED	YL	DATE	2024-03-25
CHECKED	JZ	DATE	2024-03-25
DRAWN	KK	DATE	2024-03-25
SCALE	AS SHOWN		

PROJECT No. CE857700		PREPARED UNDER THE DIRECTION OF	
		YING YI LI, P.ENG. ENGINEER OF RECORD	
		DATE 2024-03-25 DRAWING No. SC-INF01-6081-S033	
SHEET No. 55 OF 55		A	