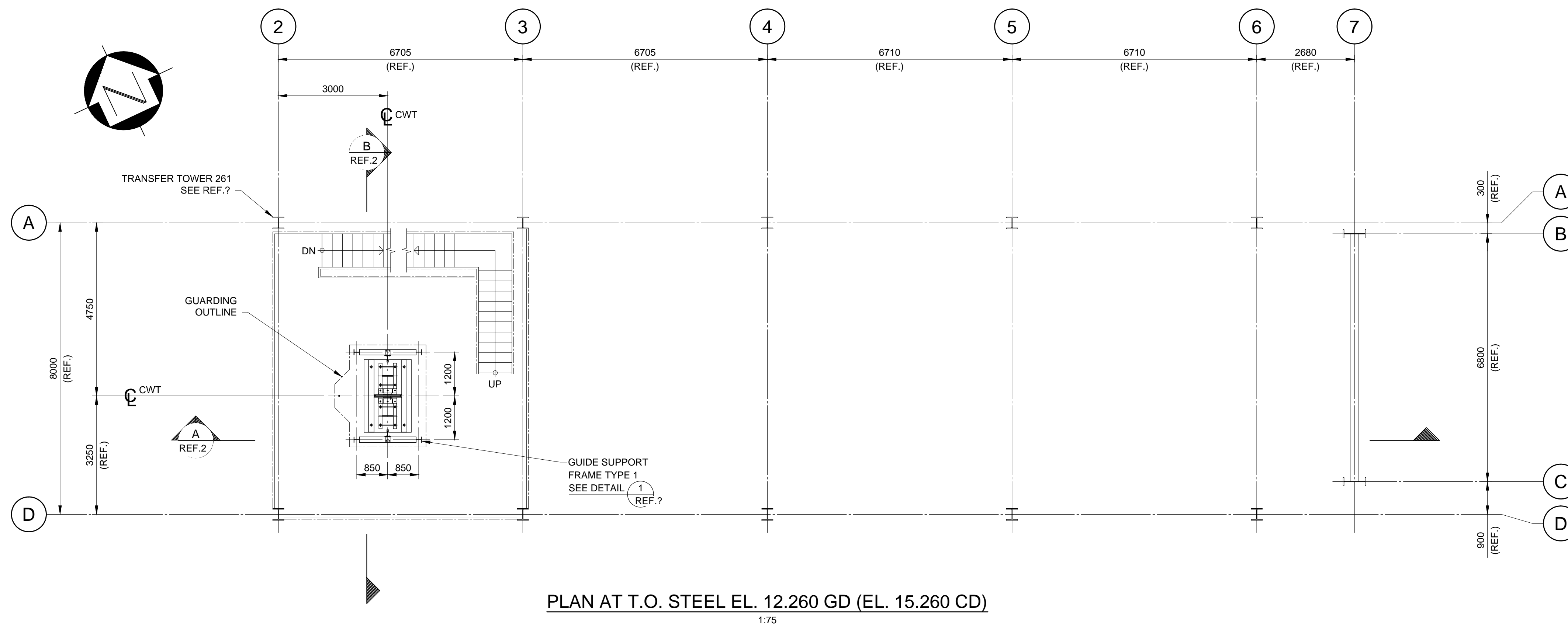
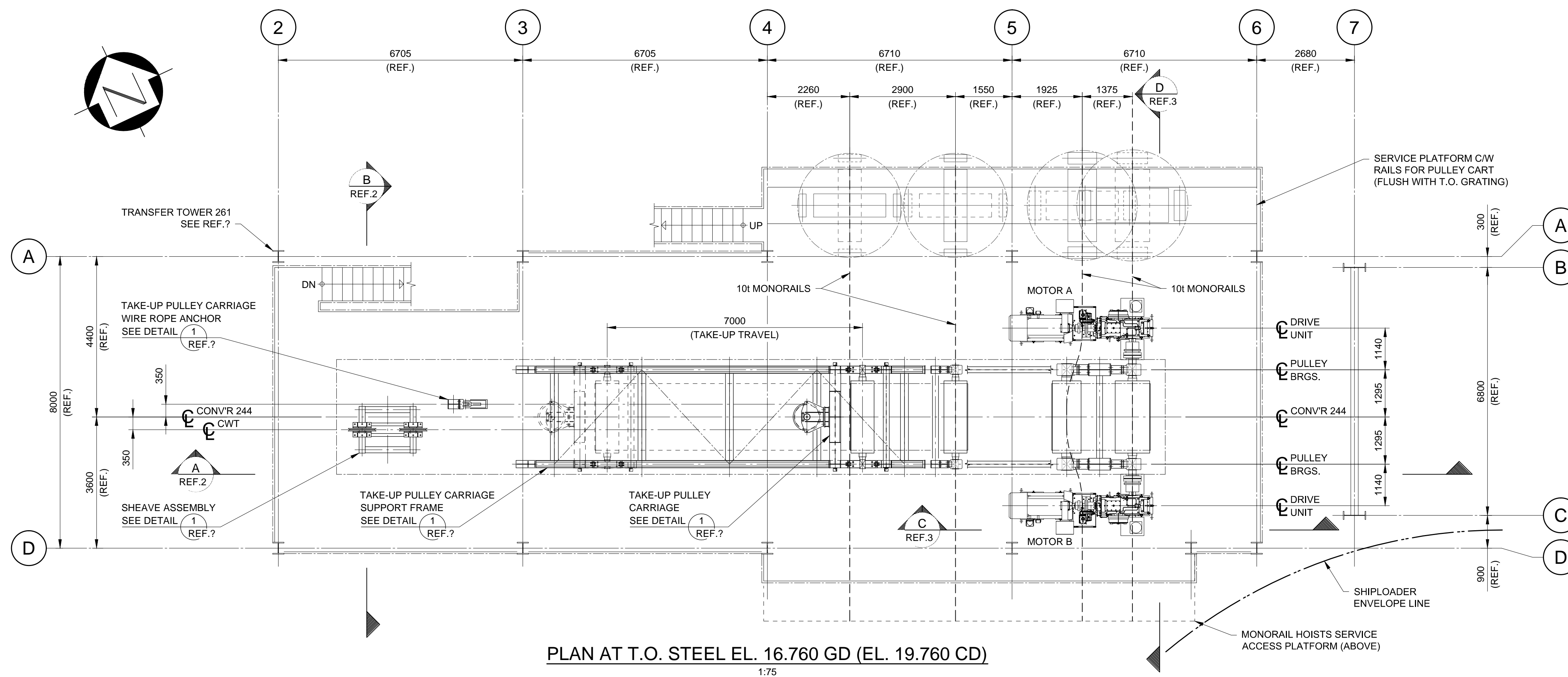


GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. USE MONUMENT NBTC8 FOR PROJECT DATUM IN THIS AREA (AS PER UNDERHILL & UNDERHILL SURVEY DWG. No. H-1813_R6)
3. COORDINATES ARE BASED ON GROUND LEVEL NBTC COORDINATES
4. UNLESS NOTED OTHERWISE, ELEVATIONS ARE IN METRES TO GEODETIC DATUM (GD) CVD28GVRD USING MONUMENT NBTC8; ELEV. 3.323 m. (AS PER UNDERHILL & UNDERHILL SURVEY DWG. No. H-1813_R6)



REVISION IN PROGRESS

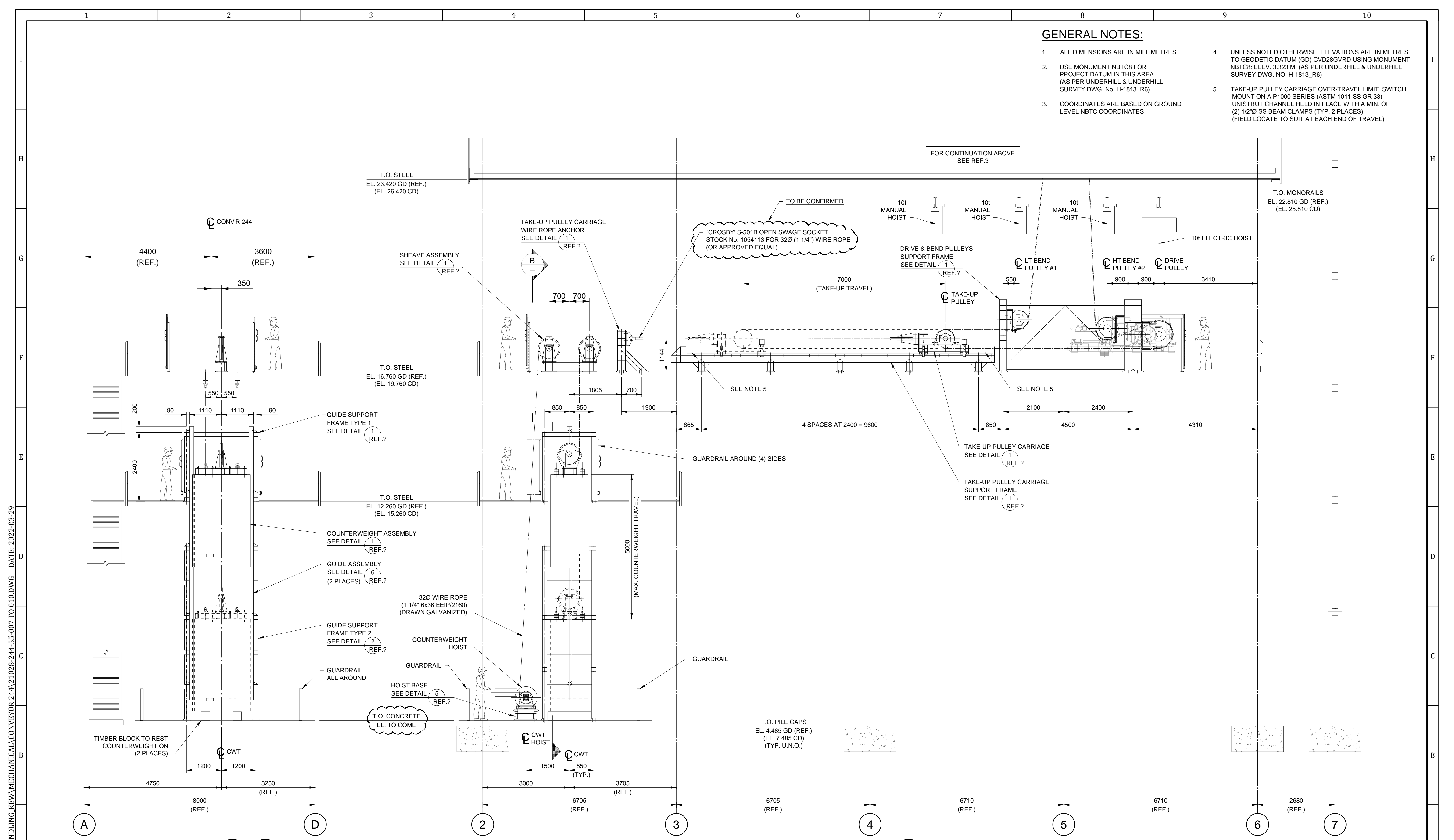
PRELIMINARY
NOT FOR CONSTRUCTION

G:\2021\21028 - NBTL - POTASH MATERIALS HANDLING - KEW\MECHANICAL\CONVEYOR 244\21028-244-55-007 TO 010.DWG DATE: 2022-03-29

PROJECT / W.O.: B2 CONVEYORS		ENGINEERING SEAL:		VENDOR: CWA PROJECT No. 21028		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: CONVEYOR 244 DRIVE AND TAKE-UP AREA GENERAL ARRANGEMENT - SHEET 1	
3	21028-244-55-010	CONVEYOR 244 - DRIVE AND TAKE-UP AREA - G.A. - SHT. 4							
2	21028-244-55-009	CONVEYOR 244 - DRIVE AND TAKE-UP AREA - G.A. - SHT. 3	B	2022-03-31	ISSUED FOR ESTIMATE	SJM			
1	21028-244-55-001	CONVEYOR 244 - GENERAL ARRANGEMENT	A	2022-02-11	ISSUED FOR REVIEW	SJM			
REF	DRAWING NO.	DRAWING DESCRIPTION / TITLE	REV	YYYY-MM-DD	DESCRIPTION	DRAWN	APPROVED		
REFERENCE DRAWINGS / DESIGN STANDARDS		DISCIPLINE: MECHANICAL		ISSUES / REVISIONS				SCALE: NOTED	REV: B
								SHEET OF: 1 1	DRAWING NO.: 21028-244-55-007

GENERAL NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES
- USE MONUMENT NBTC8 FOR PROJECT DATUM IN THIS AREA (AS PER UNDERHILL & UNDERHILL SURVEY DWG. No. H-1813_R6)
- COORDINATES ARE BASED ON GROUND LEVEL NBTC COORDINATES
- UNLESS NOTED OTHERWISE, ELEVATIONS ARE IN METRES TO GEODETIC DATUM (GD) CVD28GVRD USING MONUMENT NBTC8: ELEV. 3.323 M. (AS PER UNDERHILL & UNDERHILL SURVEY DWG. NO. H-1813_R6)
- TAKE-UP PULLEY CARRIAGE OVER-TRAVEL LIMIT SWITCH MOUNT ON A P1000 SERIES (ASTM 1011 SS GR 33) UNISTRUT CHANNEL HELD IN PLACE WITH A MIN. OF (2) 1/2" SS BEAM CLAMPS (TYP. 2 PLACES) (FIELD LOCATE TO SUIT AT EACH END OF TRAVEL)



SECTION B-B
1:60
REF. 1 & 2

SECTION A-A
1:60
REF. 1 & 2

REVISION IN PROGRESS

PRELIMINARY
NOT FOR CONSTRUCTION

3	21028-244-55-005	C 244 - TAIL END AND CAMELBACK AREA - G.A. - SHT. 1
2	21028-244-55-008	CONVEYOR 244 - DRIVE AND TAKE-UP AREA - G.A. - SHT. 2
1	21028-244-55-007	CONVEYOR 244 - DRIVE AND TAKE-UP AREA - G.A. - SHT. 1
REF.	DRAWING NO.	DRAWING DESCRIPTION / TITLE
REFERENCE DRAWINGS / DESIGN STANDARDS		

PROJECT / W.O.:	B2 CONVEYORS
SYSTEM:	POTASH
ASSET:	244
DISCIPLINE:	MECHANICAL
ENGINEERING SEAL:	
VENDOR:	CWA PROJECT No. 21028
ISSUED AS RECORD COPY? (YES/NO)	NO
TITLE:	CONVEYOR 244 DRIVE AND TAKE-UP AREA GENERAL ARRANGEMENT - SHEET 3
SCALE:	NOTED
SHEET OF:	1 OF 1
DRAWING NO.:	21028-244-55-009
REV:	B

REV	DATE	DESCRIPTION	DRAWN	APPROVED
B	2022-03-31	ISSUED FOR ESTIMATE	SJM	
A	2022-02-11	ISSUED FOR REVIEW	SJM	
REV	YYYY-MM-DD	DESCRIPTION	DRAWN	APPROVED
ISSUES / REVISIONS				

C:\2021\21028 - NBTL - POTASH MATERIALS HANDLING\MECHANICAL\CONVEYOR 244\21028-244-55-007 TO 010.DWG DATE: 2022-03-29



Doc Title:
Doc Ref #:
Doc Rev #:

B2 Design Drawing Report
REP-B2D2-0003
1

APPENDIX E: B2 MARINE STRUCTURES (ADVISIAN)



BERTH 2 SHIPLoader PROJECT MARINE AND CIVIL

DRAWING LIST	
DRAWING NUMBER	DESCRIPTION
317071-00041-03-GE-DGA-1000	COVER SHEET AND DRAWING LIST
317071-00041-03-GE-DGA-1001	DESIGN CRITERIA
317071-00041-03-GE-DGA-1002	GENERAL NOTES
317071-00041-03-MA-DGA-1500	EXISTING SITE PLAN AND DEMOLITION PLAN
317071-00041-03-MA-DGA-1501	GENERAL ARRANGEMENT
317071-00041-03-MA-DGA-1502	MOORING ARRANGEMENT - PANAMAX PINCHAT
317071-00041-03-MA-DGA-1503	MOORING ARRANGEMENT - HANDY AND HANDYMAX CLASS
317071-00041-03-MA-DGA-1504	SCOUR PROTECTION REMOVAL AND DREDGING - PLAN
317071-00041-03-MA-DGA-1505	SCOUR PROTECTION REMOVAL AND DREDGING - SECTIONS
317071-00041-03-MA-DGA-1506	GROUND IMPROVEMENT - PLAN AND SECTION
317071-00041-03-MA-DGA-1507	SCOUR PROTECTION - PLAN AND SECTIONS
317071-00041-03-MA-DGA-1508	SCOUR PROTECTION - SECTIONS
317071-00041-03-MA-DGA-1510	SHIPLoader FOUNDATION - PLAN
317071-00041-03-MA-DGA-1511	SHIPLoader FOUNDATION - TYPICAL SECTIONS
317071-00041-03-MA-DGA-1512	MARINE STRUCTURES - PILE PLAN - SHEET 1
317071-00041-03-MA-DGA-1513	MARINE STRUCTURES - PILE PLAN - SHEET 2
317071-00041-03-MA-DGA-1514	MARINE STRUCTURES - PILE LIST
317071-00041-03-MA-DGA-1515	SHIPLoader FOUNDATION - PILE TYPICAL DETAILS
317071-00041-03-MA-DGA-1516	SHIPLoader FOUNDATION - PILE CAPS - SHEET 1
317071-00041-03-MA-DGA-1517	SHIPLoader FOUNDATION - PILE CAPS - SHEET 2
317071-00041-03-MA-DGA-1518	SHIPLoader FOUNDATION - PILE CAPS - SHEET 3
317071-00041-03-MA-DGA-1519	SHIPLoader FOUNDATION - PILE CAPS - SECTIONS
317071-00041-03-MA-DGA-1520	SHIPLoader FOUNDATION - PILE CAPS - DETAILS
317071-00041-03-MA-DGA-1521	SHIPLoader FOUNDATION - RAIL BEAMS - DETAILS
317071-00041-03-MA-DGA-1522	SHIPLoader FOUNDATION - RAIL BEAM WALKWAYS - PLAN
317071-00041-03-MA-DGA-1523	SHIPLoader FOUNDATION - RAIL BEAM WALKWAYS - DETAILS
317071-00041-03-MA-DGA-1524	FENDER PANEL AND MOORING HOOK PLATFORM - SECTIONS AND DETAILS
317071-00041-03-MA-DGA-1525	SERVICE PLATFORM - PLAN
317071-00041-03-MA-DGA-1526	SERVICE PLATFORM - SECTIONS AND DETAILS - SHEET 1
317071-00041-03-MA-DGA-1527	SERVICE PLATFORM - SECTIONS AND DETAILS - SHEET 2
317071-00041-03-MA-DGA-1530	COMBI WALL - SECTIONS AND DETAILS
317071-00041-03-MA-DGA-1531	COMBI WALL - DETAILS
317071-00041-03-MA-DGA-1532	COMBI WALL - WALKWAY - PLAN AND DETAILS
317071-00041-03-MA-DGA-1533	SHORE MOORING 3 - PLAN AND DETAILS
317071-00041-03-MA-DGA-1534	BERTH 1 TEMPORARY MOORING ARRANGEMENT - PLAN
317071-00041-03-MA-DGA-1535	BERTH 1 TEMPORARY MOORING DOLPHIN - PLAN AND DETAILS
317071-00041-03-MA-DGA-1536	BERTH 1 TEMPORARY MOORING DOLPHIN WALKWAY - PLAN AND DETAILS
317071-00041-03-MA-DGA-1537	BERTH 1 PONY WALL MODIFICATIONS - PLAN AND SECTIONS

DRAWING LIST	
DRAWING NUMBER	DESCRIPTION
317071-00041-03-MA-DGA-1540	CONVEYOR 244 FOUNDATIONS - PLAN AND DETAILS
317071-00041-03-MA-DGA-1541	CONVEYOR 244 FOUNDATIONS - DETAILS (TO COME)
317071-00041-03-MA-DGA-1542	TRANSFER TOWER 261 FOUNDATIONS - PLAN AND SECTIONS
317071-00041-03-MA-DGA-1543	PEDESTRIAN OVERPASS FOUNDATION - PLAN AND SECTIONS (TO COME)
317071-00041-03-MA-DGA-1550	EAST GANGWAY LANDING PLATFORM - PLAN AND SECTIONS
317071-00041-03-MA-DGA-1551	EAST GANGWAY LANDING PLATFORM - DETAILS - SHEET 1
317071-00041-03-MA-DGA-1552	EAST GANGWAY LANDING PLATFORM - DETAILS - SHEET 2
317071-00041-03-MA-DGA-1553	EAST GANGWAY LANDING PLATFORM - WALKWAY - PLAN AND DETAILS
317071-00041-03-MA-DGA-1554	EAST GANGWAY LANDING PLATFORM - WALKWAY - DETAILS
317071-00041-03-MA-DGA-1555	WEST GANGWAY LANDING PLATFORM - SHEET 1
317071-00041-03-MA-DGA-1556	WEST GANGWAY LANDING PLATFORM - SHEET 2
317071-00041-03-MA-DGA-1560	MOORING DOLPHIN - PLAN AND DETAILS
317071-00041-03-MA-DGA-1561	MOORING DOLPHIN WALKWAY - PLAN AND DETAILS
317071-00041-03-MA-DGA-1564	MISCELLANEOUS DETAILS - SHEET 1
317071-00041-03-MA-DGA-1565	MISCELLANEOUS DETAILS - SHEET 2
317071-00041-03-MA-DGA-1570	CONVEYOR 243 SUPPORT FOUNDATIONS - PLAN AND DETAILS
317071-00041-03-MA-DGA-1573	TRANSFER TOWER 260 FOUNDATIONS - PLAN AND DETAILS
317071-00041-03-MA-DGA-1574	ELECTRICAL ROOM 211 - PLAN AND SECTIONS (TO COME)
317071-00041-03-MA-DGA-1576	LANDSIDE EXCAVATIONS AND LAYDOWN - PLAN AND SECTIONS
317071-00041-03-MA-DGA-1577	CONSTRUCTION SEQUENCE - SECTIONS
317071-00041-03-GT-DGA-8001	GEOTECHNICAL MONITORING - PLAN
317071-00041-03-CI-DGA-1001	SITE GRADING AND PAVEMENT - PLAN (TO COME)
317071-00041-03-CI-DGA-1002	PAVEMENT AND PIPE TRENCH DETAILS - SHEET 1 (TO COME)
317071-00041-03-CI-DGA-1003	PAVEMENT AND PIPE TRENCH DETAILS - SHEET 2 (TO COME)
317071-00041-03-CI-DGA-1004	SITE DRAINAGE - PLAN (TO COME)
317071-00041-03-CI-DGA-1005	SITE DRAINAGE - SECTIONS, DETAILS, AND PROFILES - SHEET 1 (TO COME)
317071-00041-03-CI-DGA-1006	SITE DRAINAGE - SECTIONS, DETAILS, AND PROFILES - SHEET 2 (TO COME)
317071-00041-03-CI-DGA-1007	ABOVE GROUND PIPE - SITE PLAN AND PROFILE (TO COME)
317071-00041-03-CI-DGA-1008	ABOVE GROUND PIPE SUPPORTS - SECTIONS AND DETAILS (TO COME)
317071-00041-03-CI-DGA-1009	WEST CONCRETE SUMPS - PLAN AND SECTIONS
317071-00041-03-CI-DGA-1010	EAST CONCRETE SUMPS - PLAN AND SECTIONS (TO COME)
317071-00041-03-CI-DGA-1011	CONCRETE SUMPS - DETAILS (TO COME)
317071-00041-03-CI-DGA-1012	TEMPORARY CONSTRUCTION ROAD - LAYOUT
317071-00041-03-CI-DGA-1013	TEMPORARY CONSTRUCTION ROAD - SECTIONS AND DETAILS

PRELIMINARY
DO NOT USE FOR CONSTRUCTION
Last Saved: Feb. 16/23 2:46pm

DRAWING NO.		DRAWING DESCRIPTION / TITLE		PROJECT / W.O.: B2 MARINE WORKS		SYSTEM: POTASH		ASSET: 251		DISCIPLINE: STRUCTURAL		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLoader PROJECT - MARINE AND CIVIL COVER SHEET AND DRAWING LIST	
REFERENCE DRAWINGS / DESIGN STANDARDS				REV		2023-02-16		ISSUED FOR CLIENT REVIEW		AAL		AMT		OEM:		Neptune TERMINALS		SCALE: NONE	
				REV		YYYY-MM-DD		DESCRIPTION		DRAWN		APPROVED		VENDOR P2P:		THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.		SHEET 1 OF 1	
																		DRAWING NO. 317071-00041-03-GE-DGA-1000	
																		REV: A	

U:\VVR\317071\00041_NEP_B2SHIPLOADER\11_DRAWINGS\15_I_AND_E\02_MARINE\317071-00041-03-GE-DGA-1000.DWG DATE: 2023-02-16

DESIGN CRITERIA:

1.0 DESIGN STANDARDS

1.1 THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE FOLLOWING STANDARDS, UNLESS NOTED OTHERWISE:

- NATIONAL BUILDING CODE OF CANADA (NBC) 2015
- CSA S16-19 DESIGN OF STEEL STRUCTURES
- CSA W59-18 WELDED STEEL CONSTRUCTION
- CSA A23.3-19 DESIGN OF CONCRETE STRUCTURES
- CSA A23.1-19 CONCRETE

2.0 DESIGN SERVICE LIFE

2.1 MARINE STRUCTURES HAVE BEEN DESIGNED FOR A MINIMUM SERVICE LIFE OF 50 YEARS PROVIDED THE FOLLOWING INSPECTION AND MAINTENANCE IS IMPLEMENTED:

- ROUTINE INSPECTION FOR DETERIORATION AND DAMAGE
- REPAIRS OF DETERIORATED AND DAMAGED AREAS

"SERVICE LIFE" IS DEFINED AS THE PERIOD OF TIME OVER WHICH IT WILL BE ECONOMICALLY PRACTICAL TO CARRY OUT REGULARLY SCHEDULED MAINTENANCE AND PERIODIC REFURBISHMENT OF THE STRUCTURES IN ORDER TO MAINTAIN THE DESIGN LOAD CARRYING CAPACITIES.

2.2 COATING OF MARINE STRUCTURAL STEEL IS DESIGNED FOR A SERVICE LIFE OF 15 YEARS.

3.0 PROJECT DATUM AND TIDE ELEVATIONS

3.1 DIMENSIONS ARE IN MILLIMETRES, UNLESS NOTED OTHERWISE.

3.2 ALL ELEVATIONS ARE IN METRES MEASURED TO HYDROGRAPHIC (TIDE AND CHART DATUM).
CHART DATUM - GEODETIC DATUM + 3.0m.
(NBTC9 ELEVATION - 3.665m GEODETIC; NBTC9 ELEVATION - 6.665m CHART)

3.3 TIDE ELEVATIONS AT THE SITE ARE OBTAINED FROM THE 2023 CANADIAN TIDE AND CURRENT TABLES FOR VANCOUVER AND ARE AS FOLLOWS:

EXTREME HIGH WATER LEVEL (EXTREME TIDE)	EHWL	+5.6m
HIGHER HIGH WATER LEVEL (LARGE TIDE)	HHWL	+5.0m
HIGHER HIGH WATER LEVEL (MEAN TIDE)	HWL	+4.5m
MEAN WATER LEVEL	MWL	+3.1m
LOWER LOW WATER LEVEL (MEAN TIDE)	LWL	+1.2m
LOWER LOW WATER LEVEL (LARGE TIDE)	LLWL	+0.1m
EXTREME LOW WATER LEVEL (EXTREME TIDE)	ELWL	-0.3m

4.0 DESIGN LOADS

4.1 DEAD LOADS

THE DEAD LOAD INCLUDES THE WEIGHT OF ALL MATERIALS OF CONSTRUCTION.

4.2 GANGWAY LANDING PLATFORM LIVE LOADS

UNIFORM LIVE LOAD: 4.8 kPa
POINT LOAD (VESSEL GANGWAY): 25 kN (INCLUDING GANGWAY DEAD LOAD)

4.3 SERVICE PLATFORM LIVE LOADS

UNIFORM LIVE LOAD: 24 kPa*
* REDUCED TO 4.8 kPa WHEN COMBINED WITH CRANE OUTRIGGER LOADS

4.4 WALKWAYS:

UNIFORM LIVE LOAD: 4.8 kPa

4.5 COMBI-WALL LIVE LOAD SURCHARGE

UNIFORM LOAD: 24 kPa

4.5 SNOW LOAD

1 IN 50 YEAR GROUND SNOW LOAD, Ss 3.0 kPa
1 IN 50 YEAR RAIN LOAD, Sr 0.3 kPa
IMPORTANCE CATEGORY FOR SNOW LOW

4.6 HOURLY WIND PRESSURE

1 IN 10 YEAR 0.36 kPa
1 IN 50 YEAR 0.48 kPa

5.0 DESIGN VESSEL AND BERTHING CRITERIA

DESIGN VESSEL CHARACTERISTICS

VESSEL CLASS	LARGEST (PANAMAX)				SMALLEST (HANDYSIZE)		
	VALIANT SPLENDOR*	M.V. PINCHAT	CANPOTEX INSPIRE	DRAFT VADER	ULTRA INNOVATION	ANNA BARBARA	QUEEN OF ASIA
DEADWEIGHT TONNES (t)	100,535	81,828	81,690	66,585	61,188	55,535	28,425
DISPLACEMENT TONNAGE (t)	115,567	94,950	94,798	78,092	72,075	65,772	34,857
MAX. BERTHING DISPLACEMENT TONNAGE WITH 80% CARGO CAPACITY (t)	95,460	78,584	78,460	64,775	59,837	54,665	29,172
LENGTH OVERALL (m)	240	229	229	200	200	190	170
BEAM (m)	39.0	32.3	32.3	36.0	32.2	32.3	27.2
DEPTH (m)	20.1	20.0	20.0	18.5	18.6	17.8	13.6
LOADED DRAFT (m)	14.2	14.4	14.5	12.9	13.0	12.5	9.8
30% BALLAST DRAFT (m)	5.6	5.7	5.8	5.2	5.3	5.1	4.2

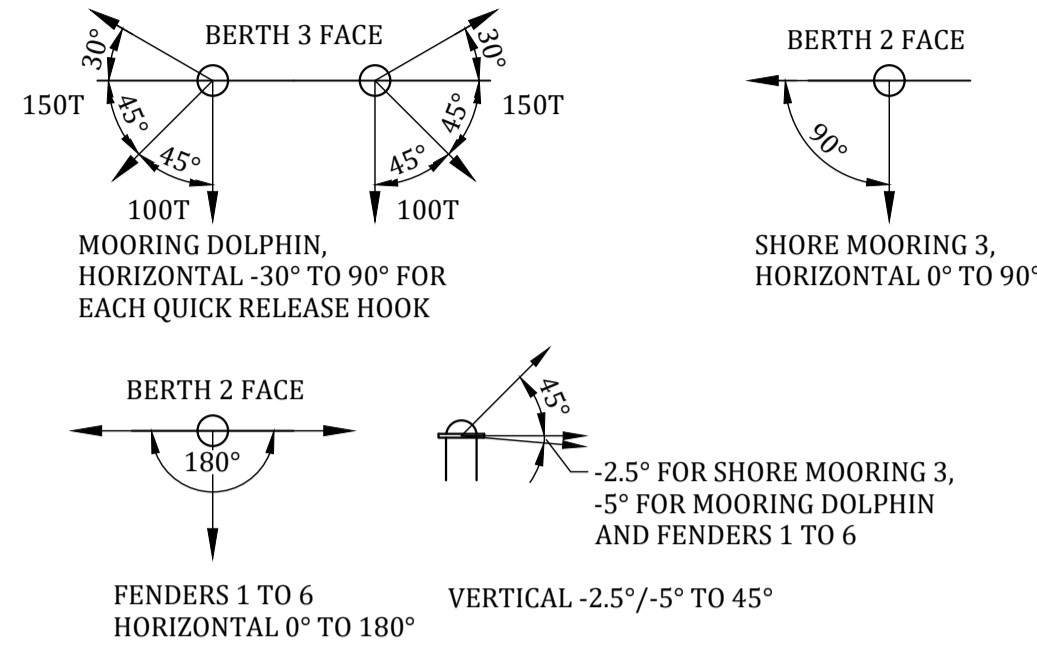
* THIS VESSEL IS USED ONLY FOR THE MOORING, BERTHING ENERGY CALCULATIONS, SCOUR PROTECTION AND SHIPLoader OUTREACH

- IMPACT VELOCITY (PERPENDICULAR TO BERTH FACE): 0.1 m/s
- ANGLE OF APPROACH: 6°
- BERTHING FRICTION (HORIZONTAL AND VERTICAL): 30%
- RATED DESIGN ENERGY: 800 kNm
- RATED FENDER REACTION: 1300 kN
- MAXIMUM HULL PRESSURE: 20 TONNE/m²

6.0 MOORING LOADS

6.1 MOORING STRUCTURE SAFE WORKING LOAD:

- SHORE MOORING 3: 200 TONNES
 - MOORING DOLPHIN: 100-150 TONNES
 - TEMPORARY MOORING DOLPHIN: 150 TONNES
 - EACH MOORING HOOK AT FENDER 1 TO 6: 100 TONNES
- (THROUGH THE RANGE OF DIRECTIONS INDICATED BELOW)



THE SAFE WORKING LOAD SPECIFIED ABOVE IS THE TOTAL LOAD FOR THE MOORING STRUCTURE, NOT FOR EACH INDIVIDUAL HOOK MOUNTED ON THE STRUCTURE.

7.0 SEISMIC CRITERIA

7.1 A SITE SPECIFIC SEISMIC GROUND RESPONSE ANALYSIS PERFORMED BY ADVISIAN, BASED UPON A 2% PROBABILITY OF EXCEEDANCE IN 50 YEARS (1 IN 2475 YEAR RETURN), IS AS FOLLOWS:

SEISMIC CRITERIA (1 IN 2475 YEAR RETURN)			
SPECTRAL ACCELERATIONS (FIRM GROUND)	Sa	GROUND SURFACE	AT -40m CD
		0.2	0.660
0.5	0.660	0.600	
1.0	0.480	0.440	
2.0	0.470	0.260	
5.0	0.130	0.120	
PEAK GROUND ACCELERATION	PGA	0.240	
SITE CLASSIFICATION		F	F
IMPORTANCE CATEGORY FOR EARTHQUAKE		LOW	LOW

7.2 SEISMIC CRITERIA AS PUBLISHED FOR THE SITE BY NATURAL RESOURCES CANADA, BASED UPON A 40% PROBABILITY OF EXCEEDANCE IN 50 YEARS (1 IN 100 YEAR RETURN), IS AS FOLLOWS:

SEISMIC CRITERIA FOR OPERATION BASIS EARTHQUAKE (OBE) (1 IN 100 YEAR RETURN)		
SPECTRAL ACCELERATIONS (FIRM GROUND)	Sa (0.2)	0.221
	Sa (0.5)	0.218
	Sa (1.0)	0.116
	Sa (2.0)	0.064
	Sa (5.0)	0.014
PEAK GROUND ACCELERATION	PGA	0.098
SITE CLASSIFICATION		D
IMPORTANCE CATEGORY FOR EARTHQUAKE		LOW

7.3 PERFORMANCE CRITERIA

ALL STRUCTURES ARE DESIGNED FOR THE INERTIA FORCES AND SOIL LIQUEFACTION FROM THE DESIGN EARTHQUAKE WITHOUT COLLAPSE. THE STRUCTURE WILL SUSTAIN SUBSTANTIAL STRUCTURAL DAMAGE AND DISPLACEMENT IN THE DESIGN EARTHQUAKE (1 IN 2475 YEAR RETURN).

THE STRUCTURES ARE NOT DESIGNED FOR COLLISION LOADS FROM THE FAILURE OF ADJACENT STRUCTURES IN THE DESIGN EARTHQUAKE.

7.4 SEISMIC FORCE MODIFICATION FACTORS

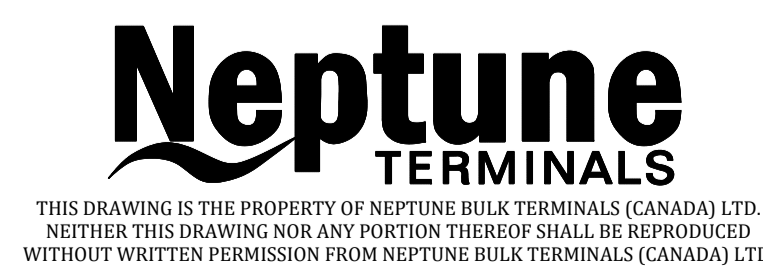
DESIGN OF FOUNDATION WITH THE MODIFICATION FACTORS AS FOLLOWS:

MODIFICATION FACTOR	SEISMIC FORCE MODIFICATION FACTORS							
	COMPONENT							
	PILE AXIAL LOAD	PILE BENDING MOMENT (INERTIAL EQ LOAD ONLY)	PILE BENDING MOMENT (INERTIAL EQ LOAD COMBINED WITH KINEMATIC EQ LOAD)	PILE BENDING MOMENT (KINEMATIC EQ LOAD COMBINED WITH INERTIAL EQ LOAD)	PILE PLUG	PILE CAP BEAM BENDING	PILE CAP BEAM CANTILEVER BENDING	PILE CAP BEAM SHEAR
Rd	1.0	1.0	1.5	1.0	1.5	1.0 OR 1.5*	1.0	1.0
Ro	1.0	1.3	1.3	1.0	1.3	1.3	1.3	1.3

* Rd=1.5 IS USED FOR ALL NEW CONVEYOR AND TRANSFER TOWER FOUNDATION PILE CAP BEAMS

PRELIMINARY
DO NOT USE FOR CONSTRUCTION
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PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) YES		TITLE: BERTH 2 SHIPLoader PROJECT - MARINE AND CIVIL DESIGN CRITERIA	
SYSTEM: POTASH		2023-02-16		ISSUED FOR CLIENT REVIEW		AAL		AMT	
ASSET: 251		REV		YYYY-MM-DD		DESCRIPTION		DRAWN APPROVED	
DISCIPLINE: STRUCTURAL		ISSUES / REVISIONS		VENDOR P2P:		SCALE: NONE		SHEET OF 1 1	
DRAWING NO. REFERENCE DRAWINGS / DESIGN STANDARDS		DRAWING DESCRIPTION / TITLE		DRAWING NO. 317071-00041-03-GE-DGA-1001		REV: A			



GENERAL NOTES:

1.0 GENERAL

- 1.1 NEPTUNE TERMINALS BERTH 2 IS A BULK POTASH SHIPPING TERMINAL.
- 1.2 DETAILED REQUIREMENTS FOR MATERIALS, FABRICATION AND INSTALLATION PROCEDURES ARE DEFINED IN THE SPECIFICATIONS. FOR CONVENIENCE, CERTAIN EXTRACTS ARE REPRODUCED BELOW. IN THE EVENT OF CONFLICT, THE CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE CONSULTANT.
- 1.3 MATERIALS AND TESTING HAVE BEEN SPECIFIED TO CONFORM TO THE CURRENT EDITIONS OF RELEVANT STANDARDS PUBLISHED BY THE FOLLOWING ORGANIZATIONS:
 - CANADIAN STANDARDS ASSOCIATIONS (CSA)
 - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
 - CANADIAN WELDING BUREAU (CWB)
- 1.4 LOCATIONS AND ELEVATIONS OF EXISTING ELEMENTS AS SHOWN ON THE DRAWINGS ARE BASED ON REFERENCE INFORMATION AND ARE SUBJECT TO CONSTRUCTION VARIATIONS. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK, TAKE THEIR OWN MEASUREMENTS OF ALL EXISTING STRUCTURES, GROUND AND OTHER WORK. ALL DIMENSIONS AND DETAILS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONSULTANT.
- 1.5 NEPTUNE TERMINALS IS AN OPERATING FACILITY. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION ACTIVITIES WITH NEPTUNE TERMINAL OPERATIONS TO AVOID ANY DISRUPTION TO OPERATIONS.
- 1.6 ALL WORK SHALL CONFORM TO WORK SAFE BC OCCUPATIONAL HEALTH AND SAFETY REGULATIONS, NEPTUNE TERMINALS AND SPECIFIC REGULATORY AGENCIES HAVING JURISDICTION INCLUDING THE PORT OF VANCOUVER, CITY OF NORTH VANCOUVER, DFO, AND THE CANADIAN COAST GUARD.
- 1.7 CONTRACTOR SHALL READ AND COMPLY WITH EXISTING PERMITS AND THE DFO LETTER OF ADVISEMENT OBTAINED BY NEPTUNE TERMINALS REGARDING THE WORK AND SHALL OBTAIN ALL OTHER PERMITS REQUIRED FOR THE EXECUTION OF THE WORK.
- 1.8 CONTRACTOR SHALL PROVIDE A SITE SPECIFIC ENVIRONMENTAL PROTECTION PLAN FOR THE EXECUTION OF THE WORK.
- 1.9 THESE DRAWING SHOW PERMANENT STRUCTURES IN THEIR COMPLETED CONDITION. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ANY TEMPORARY STRUCTURES AND THE DRAWINGS FOR SUCH STRUCTURES, SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF BRITISH COLUMBIA. THE DESIGN OF THE TEMPORARY MOORING DOLPHIN IS EXCLUDED FROM THE CONTRACTOR'S RESPONSIBILITY.
- 1.10 CONTRACTOR SHALL NOTIFY THE CONSULTANT OF ANY CONTRADICTIONS BETWEEN THE DRAWINGS AND PROJECT DOCUMENTS.
- 1.11 ALL CONSTRUCTION AND MATERIAL ASSOCIATED WITH THE CIVIL INFRASTRUCTURE WORKS ILLUSTRATED ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH:
 - APPLICABLE CONTRACT DOCUMENTS AND ALL SPECIFICATIONS.
 - MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (PLATINUM, 2009)
 - CITY OF BURNABY ROAD RESTORATION POLICY, VER.1.0, JULY 2020
- 1.12 THE CONTRACTOR SHALL EXPOSE AND VERIFY THE LOCATION OF ALL EXISTING SERVICES PRIOR TO CONSTRUCTION AND NOTIFY THE CONSULTANT OF ANY DISCREPANCIES, CONFLICTS OR OMISSIONS.
- 1.13 THE CONTRACTOR SHALL TAKE EXTREME CARE WHEN WORKING NEAR OR AROUND EXISTING SERVICES. ANY DISTURBANCES ARE TO BE REPORTED TO THE NBT CONSTRUCTION SUPERVISOR AND TO BE REPLACED OR MADE GOOD TO THE SATISFACTION OF THE OWNER.
- 1.14 CONTRACTOR SHALL RECORD AS-BUILT INFORMATION DURING CONSTRUCTION ON A SET OF ISSUED FOR CONSTRUCTION DRAWINGS AND PROVIDE THE MARKED UP DRAWINGS TO THE CONSULTANT AT SUBSTANTIAL COMPLETION, THE AS-BUILT INFORMATION REQUIRED SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- 1.15 CONTRACTOR SHALL PROTECT EXISTING SURVEY MONUMENTS AND PROPERTY PINS. ANY DISTURBED MONUMENTS OR PINS SHALL BE REPLACED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

2.8 THE GEOTECHNICAL INVESTIGATION REPORTS ARE PROVIDED BELOW:

REPORT NUMBER	TITLE	DATED
317071-00041-00-SS-REP-0001	BERTH NO. 2 SHIPLOADER STUDY, GEOTECHNICAL INVESTIGATION REPORT, BY ADVISIAN	2011-06-11
1780811-040-R	GEOTECHNICAL DESIGN REPORT, CARGILL OVERPASS EXTENSION DESIGN - ALLISON PROJECT - NEPTUNE BULK TERMINALS, BY GOLDER ASSOCIATES LTD.	2018
191220406-001-R 191220406-002-R 191220406-003-R	GOLDER DYNAMIC TESTING AND ANALYSIS OF PRODUCTION PILES, BY GOLDER ASSOCIATES LTD.	2019-2020

2.9 WHERE THE CONTRACTOR ELECTS TO INTERPRET THE PROVIDED GEOTECHNICAL DATA, IT SHALL BE ENTIRELY AT ITS OWN RISK.

3.0 DEMOLITION

- 3.1 TAKE ALL NECESSARY PRECAUTIONS TO CONTAIN THE DEMOLITION WITHIN THE FOOTPRINT OF THE DEMOLITION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO THE EXISTING STRUCTURES OR UTILITIES.
- 3.2 ANY DAMAGE INCURRED IN THE EXECUTION OF THIS CONTRACT TO ANY PART OF THE PROPERTY OR STRUCTURE NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED, REPLACED, AND/OR RECONSTRUCTED TO ITS ORIGINAL CONDITION BY THE CONTRACTOR AT THEIR EXPENSE.
- 3.3 REMOVE AND DISPOSE OF ALL DEMOLITION MATERIAL OFF SITE IN ACCORDANCE WITH ALL MUNICIPAL, PROVINCIAL, AND FEDERAL REQUIREMENTS.

4.0 STEEL PIPE PILES

- 4.1 STEEL PIPE FOR PILING SHALL BE CSA Z245.1 CAT. 1 OR API 5L PSL-1 WITH A MINIMUM YIELD STRENGTH OF 355 MPa WITH WELDING CONFORMING TO CSA W59 AND STEEL PLATE AND COIL TO CSA G-40.21, GRADE 300W OR APPROVED EQUIVALENT. FABRICATE FULL LENGTH PILES FROM THE CONTRACTOR SUPPLIED PIPE. ALL PIPE SPLICES SHALL BE FULL PENETRATION WELDS IN ACCORDANCE WITH CSA W59 AND THE SPECIFICATIONS.
- 4.2 STEEL PIPE PILE COATING, EXCEPT FOR THE COMBI WALL PILING, SHALL BE FACTORY APPLIED POLYETHYLENE WITH A MINIMUM TOTAL THICKNESS OF 2.5MM AND IN ACCORDANCE WITH CSA Z245.21 SYSTEM B1 OR APPROVED EQUIVALENT.
- 4.3 COMBI WALL COATING SHALL BE NEPTUNE COATING SYSTEM 10A AND ONLY THE WATERSIDE OF BOTH THE PIPE AND SHEET PILES SHALL BE COATED. ENSURE COATED SECTION OF PILES ARE EMBEDDED 3.0m INTO SEABED.
- 4.4 DRIVE STEEL PIPE PILES USING AN APPROPRIATE AIR OR DIESEL HAMMER TO DEVELOP THE FACTORED AXIAL COMPRESSIVE LOADS BASED ON THE PILE LOAD TABLES. CRITERIA FOR FINAL SET WILL BE DETERMINED BY THE GEOTECHNICAL CONSULTANT AFTER CONFIRMATION OF DETAILS OF PILE DRIVING EQUIPMENT USED.
- 4.5 CLEARLY MARK EACH PILE WITH ITS NUMBER AND OVERALL LENGTH. IN ADDITION, CLEARLY MARK EACH PILE AT INTERVALS OF 0.3m ALONG ITS FULL LENGTH PRIOR TO DRIVING. MAINTAIN ACCURATE RECORD OF BLOW COUNTS FOR EACH 0.3m OF PENETRATION FOR EACH PILE AND FOR EACH 25mm OF PENETRATION FOR THE FINAL 150mm OF PENETRATION.
- 4.6 DRIVE PILES CONTINUOUSLY TO TIP ELEVATIONS SPECIFIED ON THE DRAWINGS. IF DRIVING IS INTERRUPTED BEFORE FINAL TIP ELEVATION IS REACHED, DO NOT TAKE THE RECORD FOR FINAL TIP ELEVATION UNTIL AT LEAST 300mm OF PENETRATION HAS BEEN OBTAINED AFTER RESUMPTION OF DRIVING.
- 4.7 ENSURE THAT THE LEADS OF THE PILE DRIVING EQUIPMENT DO NOT EXERT LATERAL FORCES ON THE PILES DURING DRIVING. NO ADJUSTMENT OF A POSSIBLE MISALIGNMENT WILL BE PERMITTED DURING DRIVING, EXCEPT AT THE INITIAL STAGE.
- 4.8 CUT-OFF PILES NEATLY AND HORIZONTALLY AT THE ELEVATIONS INDICATED.
- 4.9 PILE HEADS TO BE DRIVEN WITHIN 75mm OF LOCATIONS INDICATED.
- 4.10 PILES NOT TO BE MORE THAN 1/100 OF LENGTH OUT OF THE AXIAL ALIGNMENT.

5.0 STEEL SHEET PILING

- 5.1 STEEL SHEET PILES SHALL CONFORM TO CSA G40.21, GRADE 350W.
- 5.2 THE SPECIFIED SHEET PROFILE IS AS PER THE DRAWINGS, OR APPROVED EQUIVALENT. THE CONTRACTOR MAY SUBMIT ALTERNATE PRODUCTS FOR APPROVAL. THE CRITERIA FOR APPROVAL OF ALTERNATE PROFILES WILL BE THAT PROPERTIES GENERALLY MATCH THE SPECIFIED SHEETS INCLUDING:

STEEL YIELD STRENGTH	345 MPa
SHEET WIDTH	700 mm
SHEET HEIGHT	460 mm
ELASTIC SECTION MODULUS	2760 cm ³ /m
PLASTIC SECTION MODULUS	3270 cm ³ /m
WEIGHT	116.7 kg/m

5.3 MATERIAL GRADES FOR CLUTCHES AND CORNER INTERLOCKS FOR CONNECTIONS TO COMBI WALL PILES SHALL BE COMPATIBLE WITH SHEETS.

6.0 STRUCTURAL AND MISCELLANEOUS STEEL

- 6.1 STEELWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH CSA S16 TO THE LINES AND ELEVATIONS SHOWN.
- 6.2 ALL STRUCTURAL STEEL SHALL CONFORM TO CSA G40.21 WITH THE FOLLOWING GRADES, UNLESS NOTED OTHERWISE:
 - ROLLED W SECTIONS: 350W
 - ANGLES, CHANNELS, PLATES, AND BARS: 300W
 - HOLLOW STRUCTURAL SECTIONS: 350W, CLASS C
 - STAINLESS STEEL PLATES: ASTM A66, TYPE 316
 - STAINLESS STEEL PIPES: ASTM A312 304/304L
 - STAINLESS STEEL CHANNELS AND ANGLES: ASTM A276 OR ASTM 479
- 6.3 WELDING TO W59, CLAUSE 11 - STATICALLY-LOADED STRUCTURES. TEST ALL WELDS IN ACCORDANCE WITH THE SPECIFICATIONS.
- 6.4 WELDING ELECTRODES SHALL BE GRADE E490XX.
- 6.5 UNLESS NOTED OTHERWISE, MINIMUM WELD SHALL BE 6mm FILLET WELD, AND ALL WELDS SHALL BE SEAL WELDS.
- 6.6 ALL STEELWORK SHALL BE PAINTED OR HOT-DIP GALVANIZED AS PER THE CONTRACT SPECIFICATIONS. TOUCH UP PAINT AT FIELD WELD ZONE SHALL BE DONE AS PER THE CONTRACT SPECIFICATIONS.
- 6.7 UNLESS NOTED OTHERWISE, ALL BOLTS, NUTS, AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125 GRADE A325 TYPE 1 OF NORTH AMERICAN OR EUROPEAN MANUFACTURE ONLY. DIAMETER AND THREADS TO BE TO IMPERIAL MEASUREMENT STANDARDS.
- 6.8 UNLESS NOTED OTHERWISE, ALL HANDRAILS, STAIR TREADS AND TOPS OF FIXED LADDERS SHALL BE STAINLESS STEEL. FASTENERS INCLUDING BOLTS, NUTS, WASHERS, AND ANCHOR RODS SHALL BE STAINLESS STEEL.
- 6.9 UNLESS NOTED OTHERWISE, ALL GRATING SHALL BE ROUGH TOP STAINLESS "SERRATED" BEARING BARS 5 x 32. ALL GRATING SHALL BE FISHER LUDLOW TYPE 19-4, 4" x 1-3/16" SPACING, SS 304/304L.
- 6.10 THE FOLLOWING NBT DESIGN STANDARDS SHALL BE USED FOR REFERENCE AND INSTALLATION:
 - DS-000-5-401-16 STAIR DETAILS
 - DS-000-5-402-22 GRATING DETAILS
 - DS-000-5-403-13 HANDRAIL DETAILS

7.0 CONCRETE

- 7.1 CONCRETE SHALL CONFORM TO CSA A23.1/A23.2. CONCRETE EXPOSURE CLASS TO BE C-XL.
- 7.2 PILE PLUG CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 35 MPa. ALL OTHER CONCRETE SHALL HAVE A MINIMUM 56 DAY COMPRESSIVE STRENGTH OF 50 MPa.
- 7.3 CONCRETE CLEAR COVER TO REINFORCING SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

SURFACE	CAST-IN-PLACE/SUMP	PRE-CAST EXCL. SUMPS
BOTTOM	100	75
SIDE	75	60
TOP	75	60

*FOR REINFORCEMENT IN PRE-CAST AND EXTENDED INTO CAST-IN-PLACE, CAST-IN-PLACE COVER THICKNESS SHALL APPLY.

- 7.4 PROVIDE 25mm CHAMFERS AT ALL EXPOSED EDGES AND 25mm FILLETS AT RE-ENTRANT CORNERS, UNLESS NOTED OTHERWISE.
- 7.5 TOP SURFACE OF EXPOSED CONCRETE SHALL RECEIVE A LIGHT BROOM FINISH. SURFACES WHICH ARE ULTIMATELY RECEIVE ADDITIONAL CONCRETE SHALL BE ROUGHENED TO 6mm AMPLITUDE. ALL OTHER SURFACES SHALL BE FORM FINISHED.

8.0 CONCRETE REINFORCING

- 8.1 REINFORCING STEEL: BILLET STEEL DEFORMED BARS TO CAN/CSA G30.18 GRADE 400R. IF REINFORCING STEEL IS TO BE WELDED, BILLET STEEL DEFORMED BARS TO CAN/CSA 30.18 GRADE 400W IS ALLOWED.
- 8.2 REINFORCEMENT ABBREVIATIONS:

H2E	HOOK 2 ENDS, STANDARD HOOK
H1E	HOOK 1 END, STANDARD HOOK
H2E900	HOOK 2 ENDS, 900 LONG HOOK
20M2000	20M STRAIGHT BAR, 2000 LONG
20M2000 H2E	20M BAR, 2000 LONG, HOOK 2 ENDS, STANDARD HOOK
20M2000 H2E250	20M BAR, 2000 LONG, HOOK 2 ENDS, 250 LONG HOOK
- 8.3 SPLICING OF THE PILE PLUG LONGITUDINAL BARS IS NOT PERMITTED, UNLESS APPROVED BY THE CONSULTANT.

8.4 MINIMUM LAP LENGTH FOR ANY REINFORCING SPLICES SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

BAR SIZE	BOTTOM BARS	TOP BARS
10M	400	400
15M	400	550
20M	550	700
25M	850	1100
30M	1000	1300
35M	1200	1550

THE LISTED LAP LENGTHS ARE FOR 50MPa CONCRETE. FOR 35MPa CONCRETE, THE LAP LENGTHS SHALL BE INCREASED BY 20%. TOP BARS ARE HORIZONTAL REINFORCING BARS PLACED SUCH THAT MORE THAN 300mm OF FRESH CONCRETE IS CAST BELOW THE BAR.

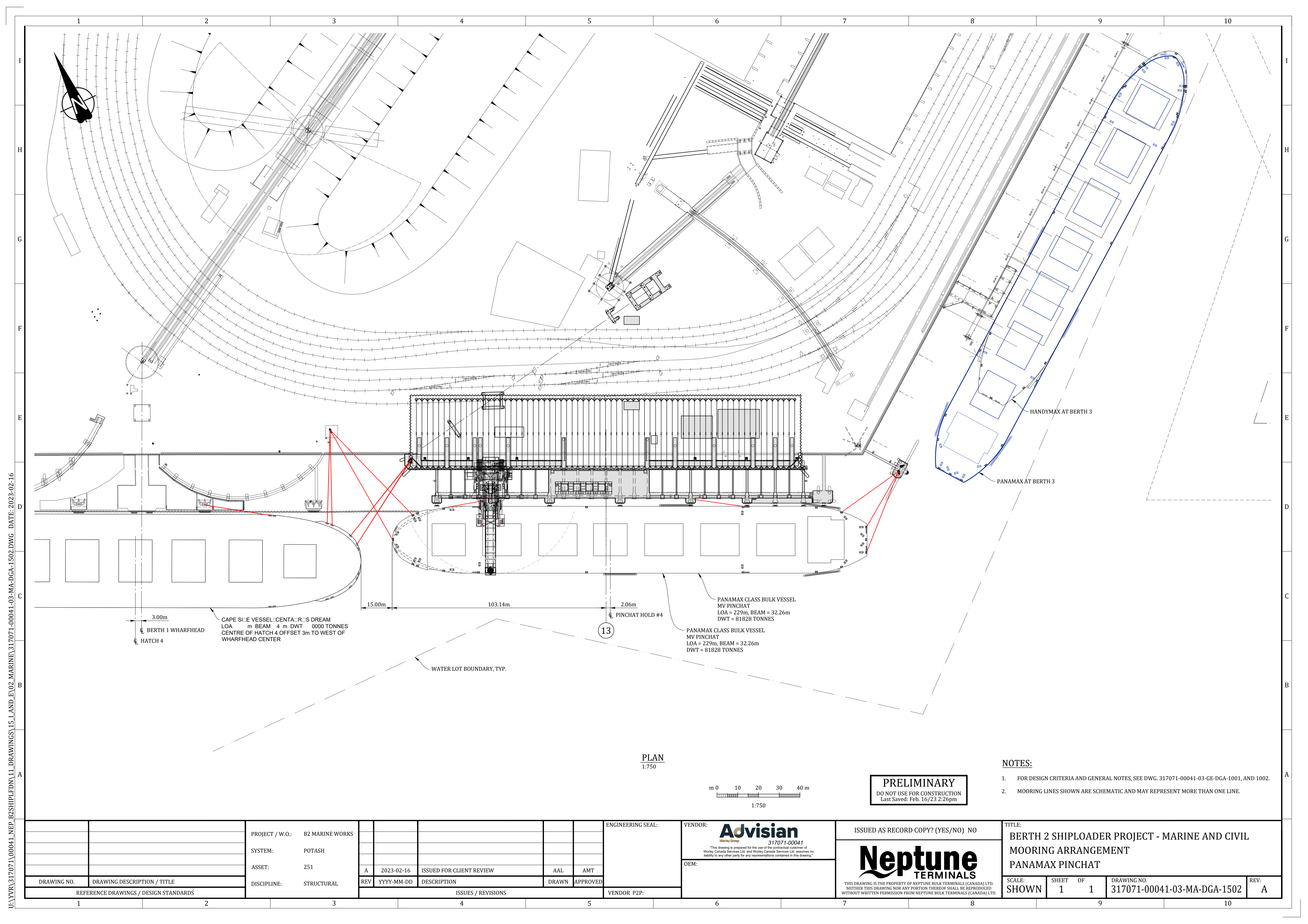
8.5 COLD-DRAWN STEEL WIRES TO ASTM 1064/1064M.

9.0 TRENCHING AND BACKFILL

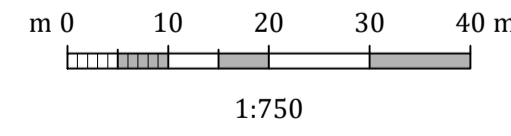
- 9.1 GRANULAR PIPE BEDDING SHALL BE PLACED FROM THE BOTTOM OF THE TRENCH TO 300mm MINIMUM ABOVE THE TOP OF THE PIPE.
- 9.2 ALL UNSUITABLE SOILS OF EARTH SHALL BE REMOVED FROM PIPE TRENCH AS DIRECTED BY THE CONSULTANT.
- 9.3 THE CONTRACTOR SHALL PROVIDE EVIDENCE TO THE CONSULTANT THAT THE COMPACTION OF THE BEDDING AND PIPE SURROUND MATERIAL AND TRENCH BACKFILL MEETS PROJECT SPECIFICATIONS (MINIMUM 95% SPD).
- 9.4 EXISTING SURFACE SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION SUBSEQUENT TO CONSTRUCTION. TRENCH BACKFILL AND PAVEMENT RESTORATION SHALL BE IN ACCORDANCE WITH NBT DEP 34.11.00.11 AND DEP 34.13.20.31 FOR THE APPLICABLE ROAD CLASSIFICATION.
- 9.5 THE CONTRACTOR SHALL TAKE EXTRA CARE WHILE PLACING MATERIAL AROUND THE PIPE NOT TO DAMAGE THE PIPE EXTERNAL COATING.

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		PROJECT / W.O.: B2 MARINE WORKS				ENGINEERING SEAL:	VENDOR:	ISSUED AS RECORD COPY? (YES/NO) YES	TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL
		SYSTEM: POTASH					*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*		GENERAL NOTES
		ASSET: 251					OEM:		SCALE: NONE
DRAWING NO.	DRAWING DESCRIPTION / TITLE	DISCIPLINE: STRUCTURAL	REV	2023-02-16	ISSUED FOR CLIENT REVIEW	AAL	AMT	DRAWING NO. 317071-00041-03-GE-DGA-1002	REV: A
REFERENCE DRAWINGS / DESIGN STANDARDS			ISSUES / REVISIONS			VENDOR P2P:			



PLAN
1:750



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NOTES:

- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
- MOORING LINES SHOWN ARE SCHEMATIC AND MAY REPRESENT MORE THAN ONE LINE.

PROJECT / W.O.: B2 MARINE WORKS
SYSTEM: POTASH
ASSET: 251
DISCIPLINE: STRUCTURAL

REV	YYYY-MM-DD	DESCRIPTION	DRAWN	APPROVED
A	2023-02-16	ISSUED FOR CLIENT REVIEW	AAL	AMT

ENGINEERING SEAL:
VENDOR P2P:

VENDOR: **Advisian**
317071-00041
Worley Group
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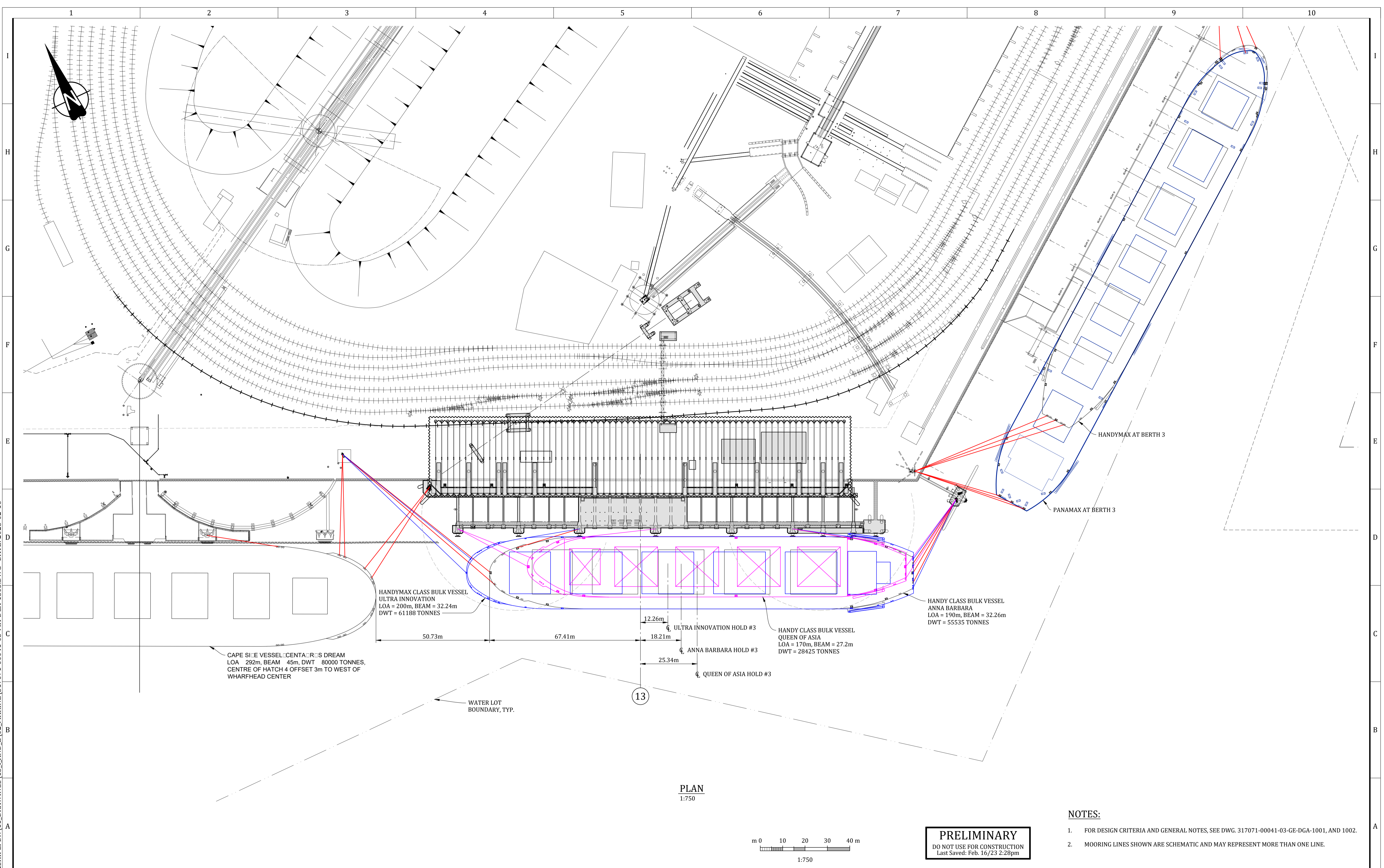
ISSUED AS RECORD COPY? (YES/NO) NO

Neptune TERMINALS

THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.

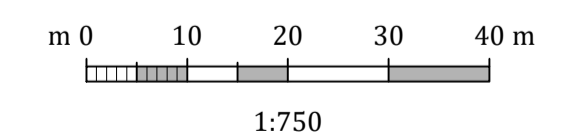
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SCALE: SHOWN	SHEET 1	OF 1	DRAWING NO. 317071-00041-03-MA-DGA-1502
			REV: A

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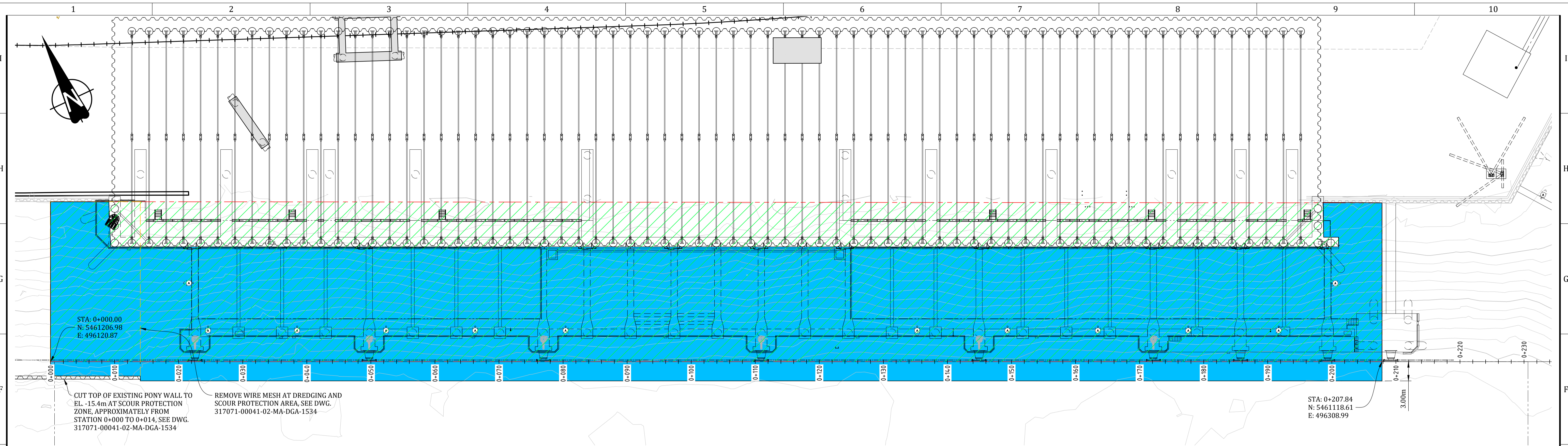


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- NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
 - MOORING LINES SHOWN ARE SCHEMATIC AND MAY REPRESENT MORE THAN ONE LINE.

DRAWING NO.		DRAWING DESCRIPTION / TITLE		PROJECT / W.O.:	B2 MARINE WORKS	ENGINEERING SEAL:	VENDOR:	ISSUED AS RECORD COPY? (YES/NO)	NO	TITLE:	BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL MOORING ARRANGEMENT HANDY AND HANDYMAX CLASS		
DRAWING NO.		DRAWING DESCRIPTION / TITLE		SYSTEM:	POTASH		Advisian Worley Group 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>			SCALE:	SHEET	OF	DRAWING NO.
DRAWING NO.		DRAWING DESCRIPTION / TITLE		ASSET:	251		OEM:			SHOWN	1	1	317071-00041-03-MA-DGA-1503
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DRAWING NO.		DRAWING DESCRIPTION / TITLE		ISSUES / REVISIONS				VENDOR P2P:					

1 2 3 4 5 6 7 8 9 10



PLAN
1:300

STA: 0+000.00
N: 5461206.98
E: 496120.87

CUT TOP OF EXISTING PONY WALL TO
EL. -15.4m AT SCOUR PROTECTION
ZONE, APPROXIMATELY FROM
STATION 0+000 TO 0+014, SEE DWG.
317071-00041-02-MA-DGA-1534

REMOVE WIRE MESH AT DREDGING AND
SCOUR PROTECTION AREA, SEE DWG.
317071-00041-02-MA-DGA-1534

STA: 0+207.84
N: 5461118.61
E: 496308.99

ESTIMATED DREDGE AREA AND VOLUMES			
TYPE	TYPE	AREA (m ²)	VOLUME (m ³)
SCOUR PROTECTION REMOVAL	NOMINAL	5700	5200
	OVERDREDGE (0.3m)	3320	900
DREDGING	OVERDREDGE (0.3m)		1000
	TOTAL DREDGING		1900

NOTE: DEPTH OF EXCAVATION +0.0m/-0.3m OVERDREDGING BY
THE CONTRACTOR BEYOND THE SPECIFIED TOLERANCE
SHALL NOT BE PAID FOR.

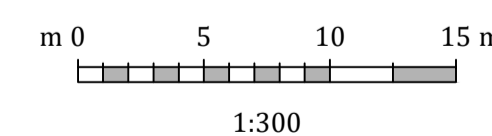
LEGEND:

- SCOUR PROTECTION REMOVAL AREA
- DREDGING AREA

NOTES:

1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
2. THE VOLUMES ARE ESTIMATED BASED ON LIMITED INFORMATION. FACTORS THAT MAY IMPACT THE VOLUMES ARE EXISTING ROCK LAYER THICKNESS AND CONTOURS.
3. POST RIP-RAP REPLACEMENT DRAWING OBTAINED FROM VANCOUVER PILE DRIVING, DRAWING NO. N-01-1, "PMV - NEPTUNE TERMINALS - RIP RAP PLACEMENT", DATED AUGUST 14, 2014.

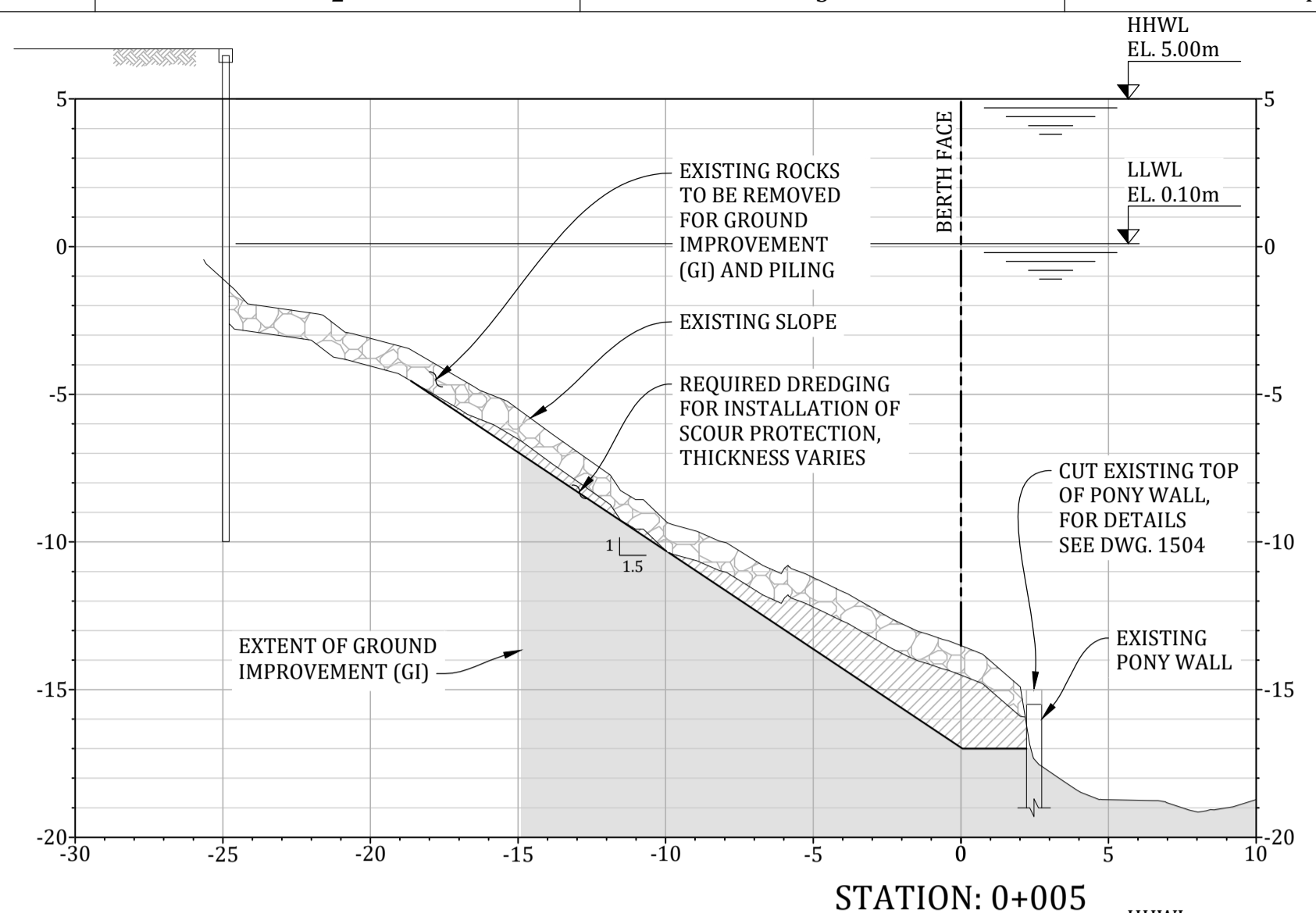
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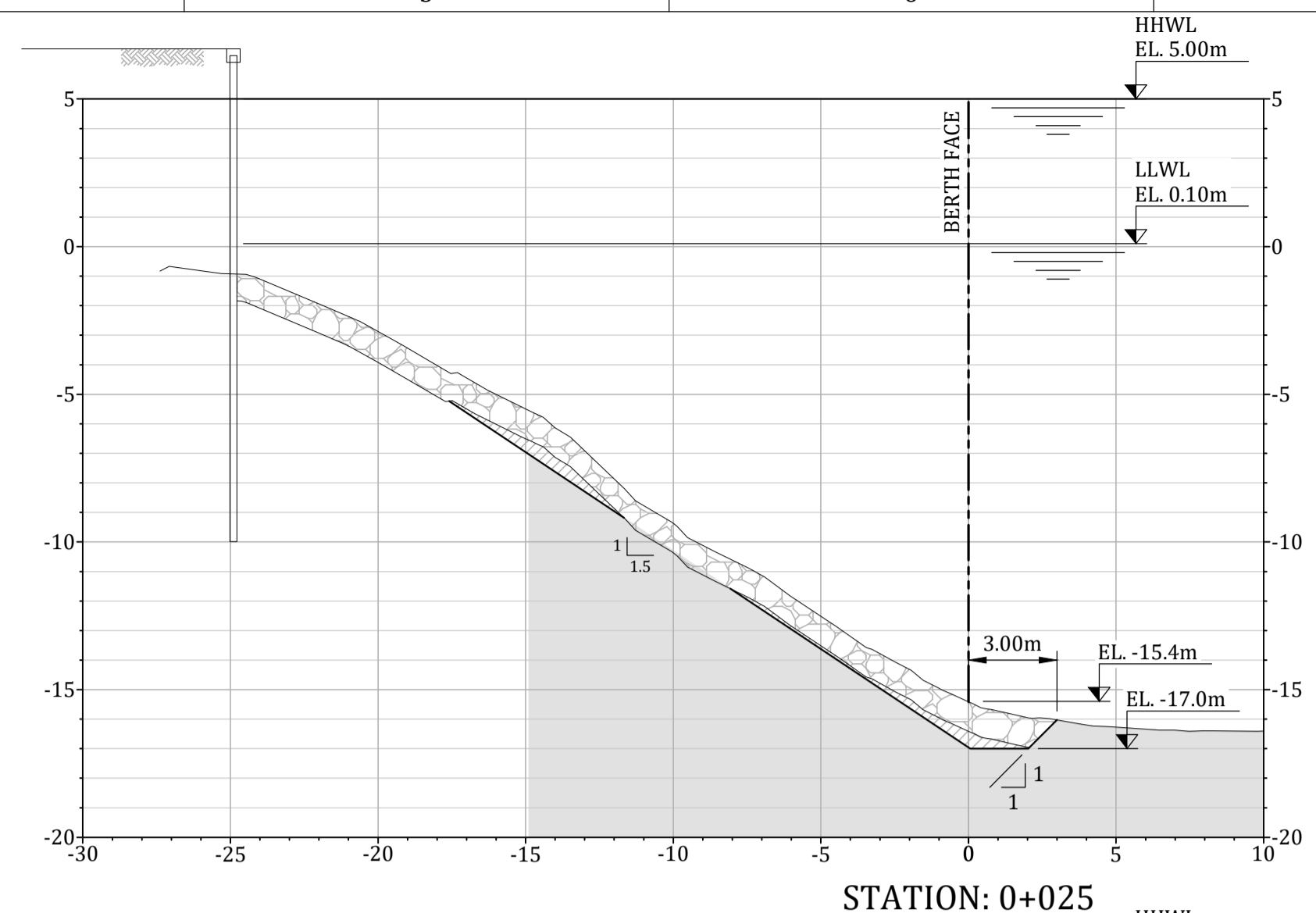
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		SYSTEM: POTASH		ASSET: 251		OEM:		SCALE: SHOWN			
DISCIPLINE: STRUCTURAL		REV: A 2023-02-16 ISSUED FOR CLIENT REVIEW		DRAWN: AAL		APPROVED: AMT		SHEET OF: 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1504	
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS		VENDOR P2P:		REV: A					

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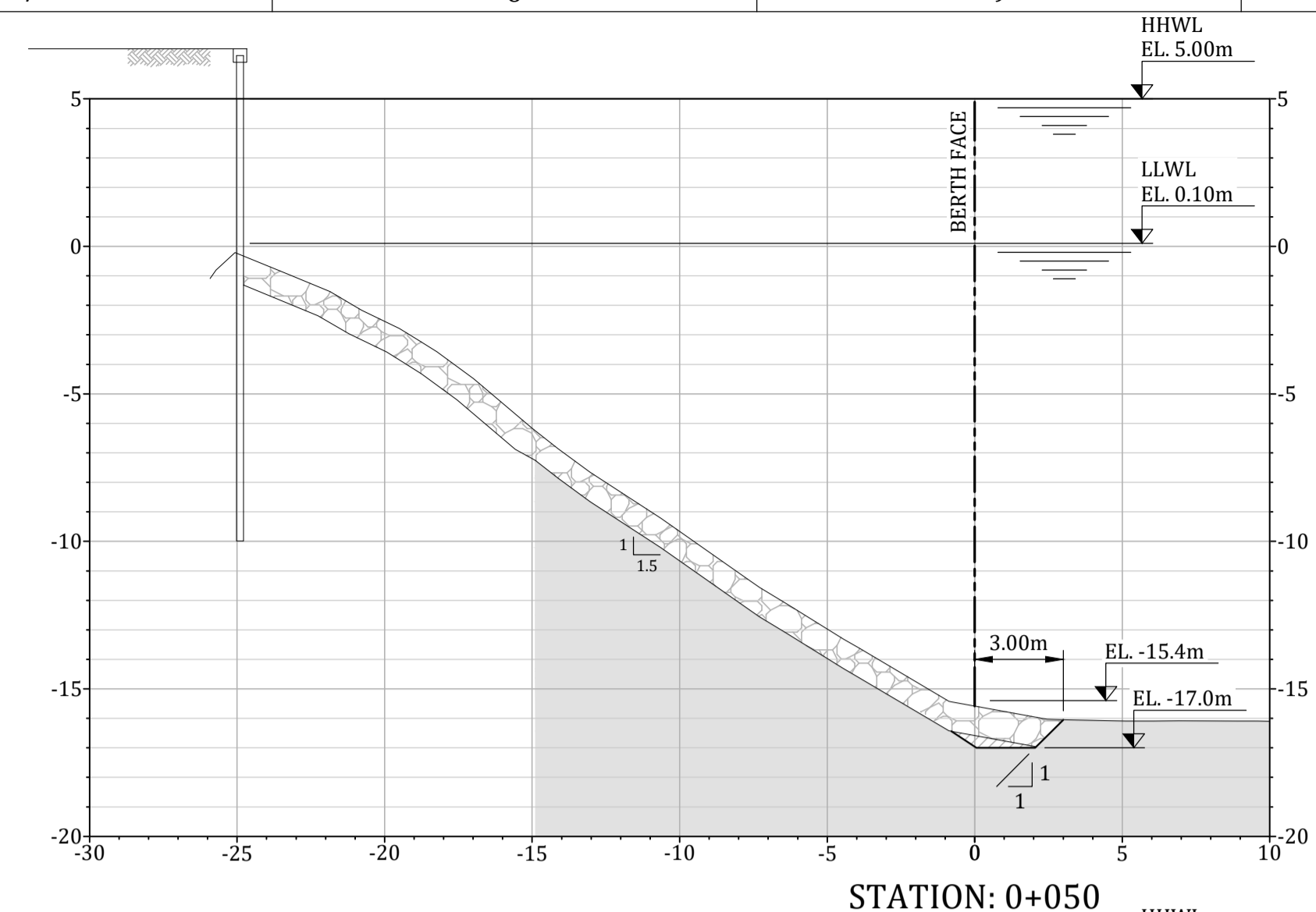
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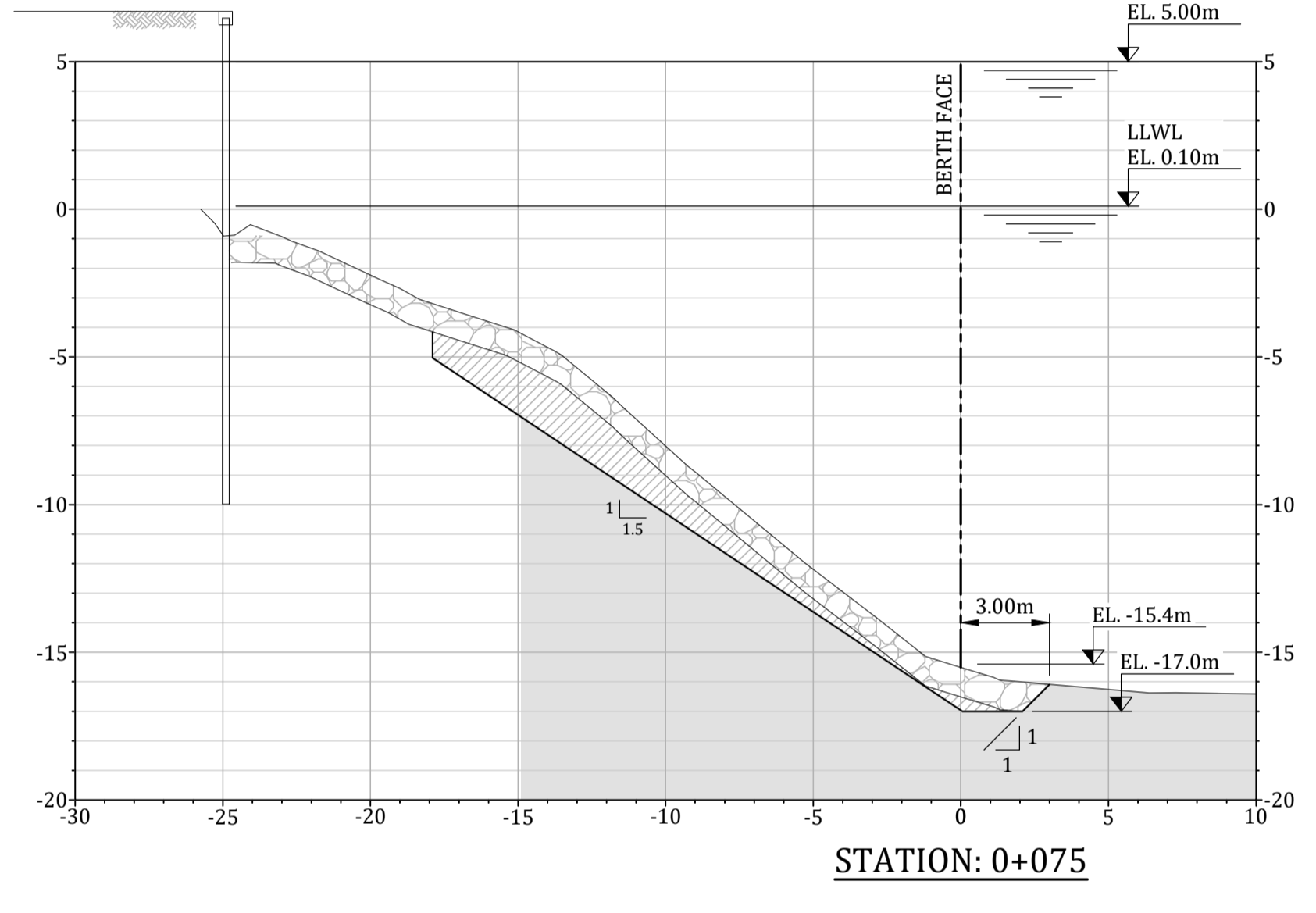
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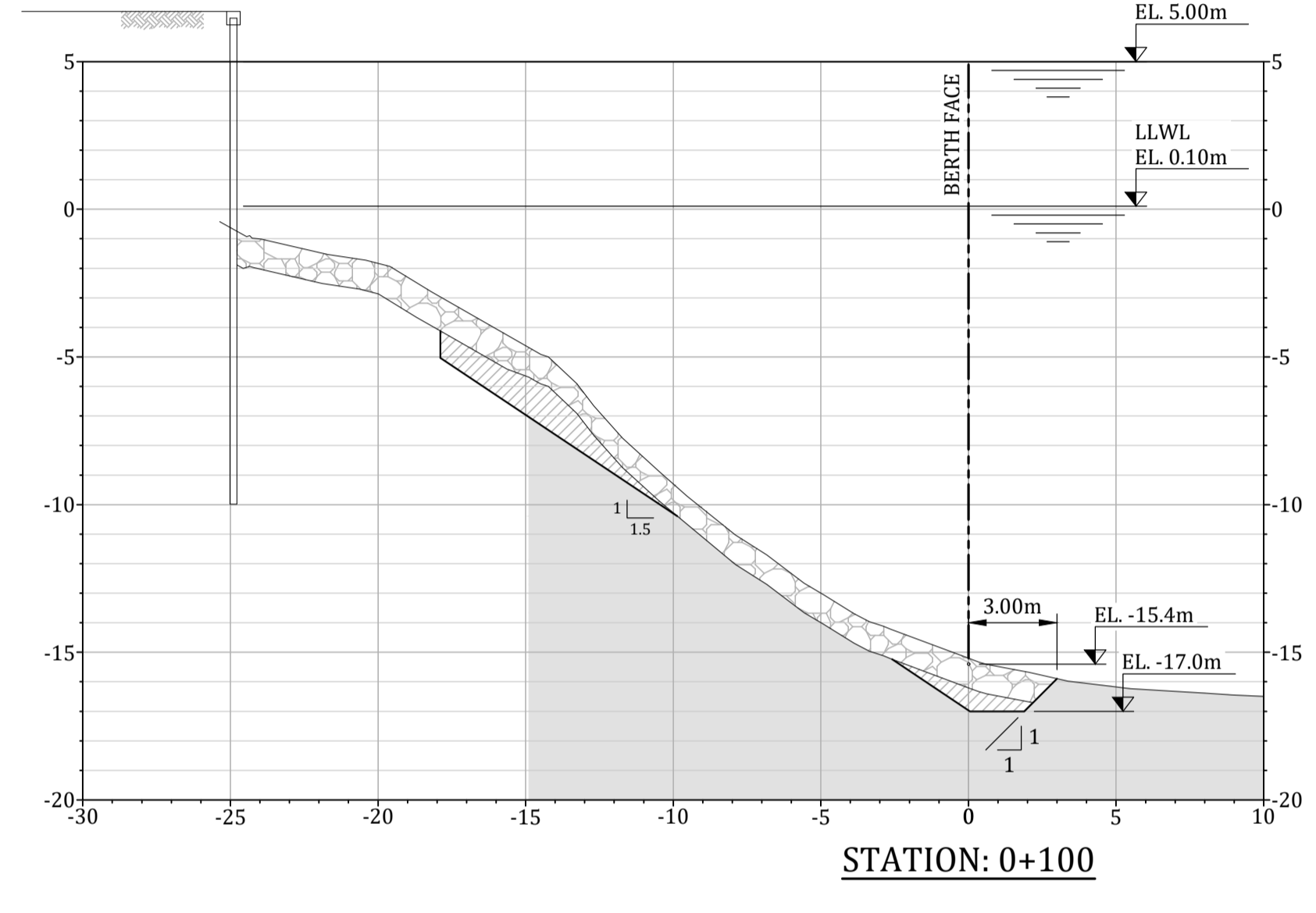
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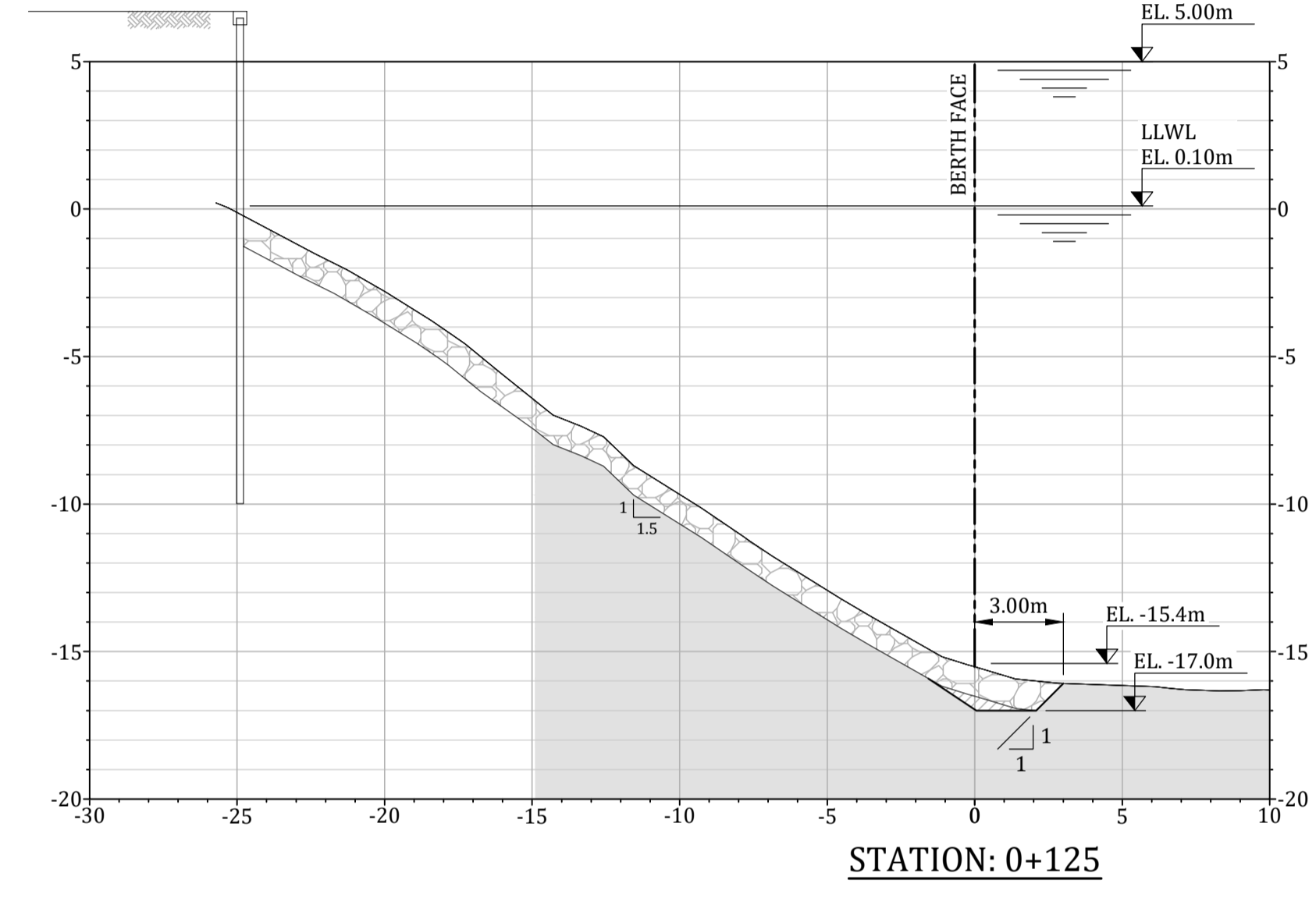
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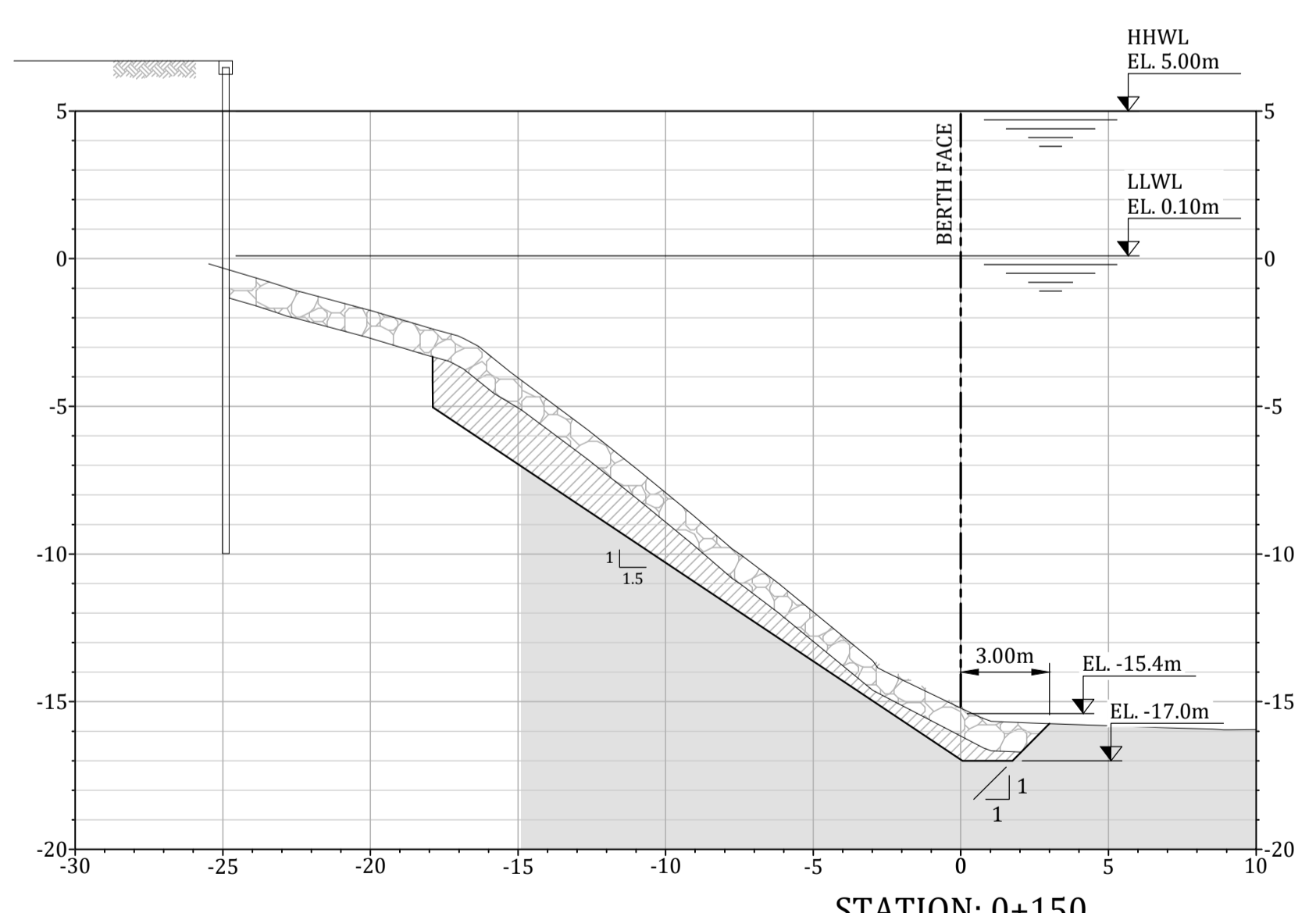
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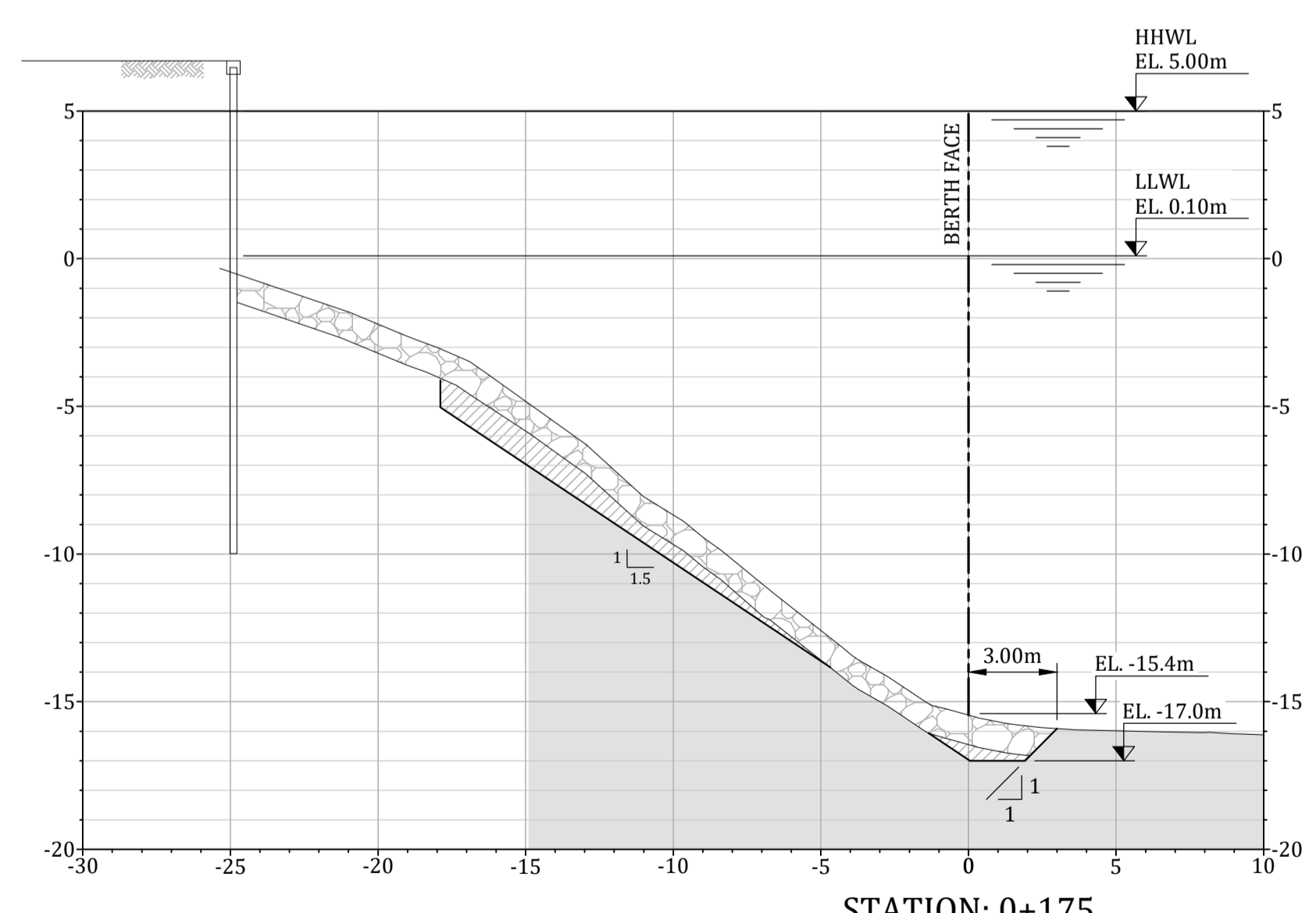
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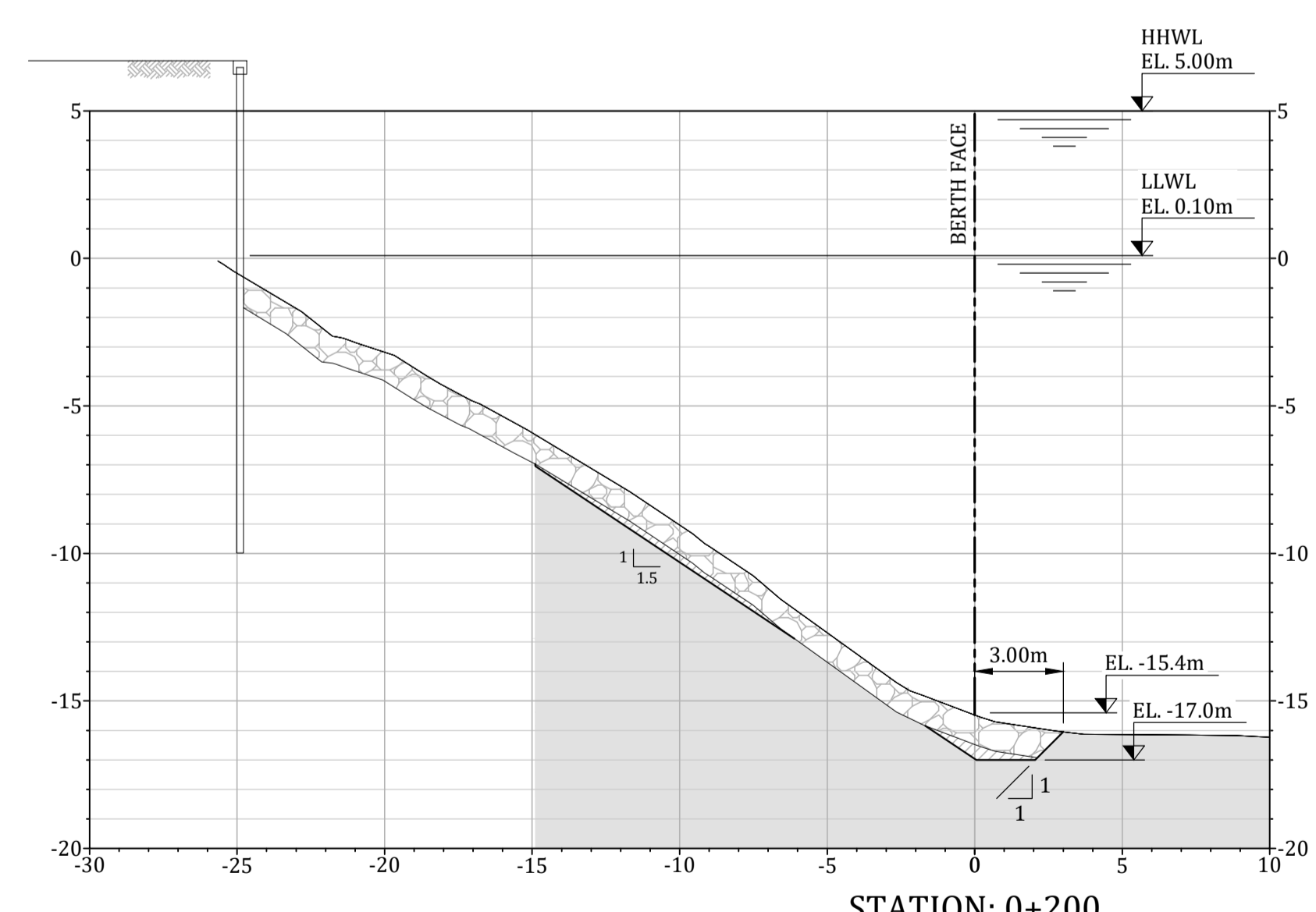
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STATION: 0+150

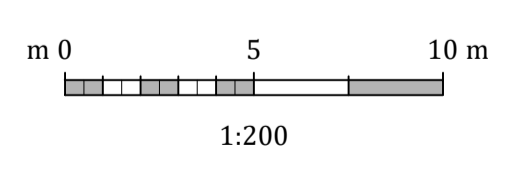


STATION: 0+175



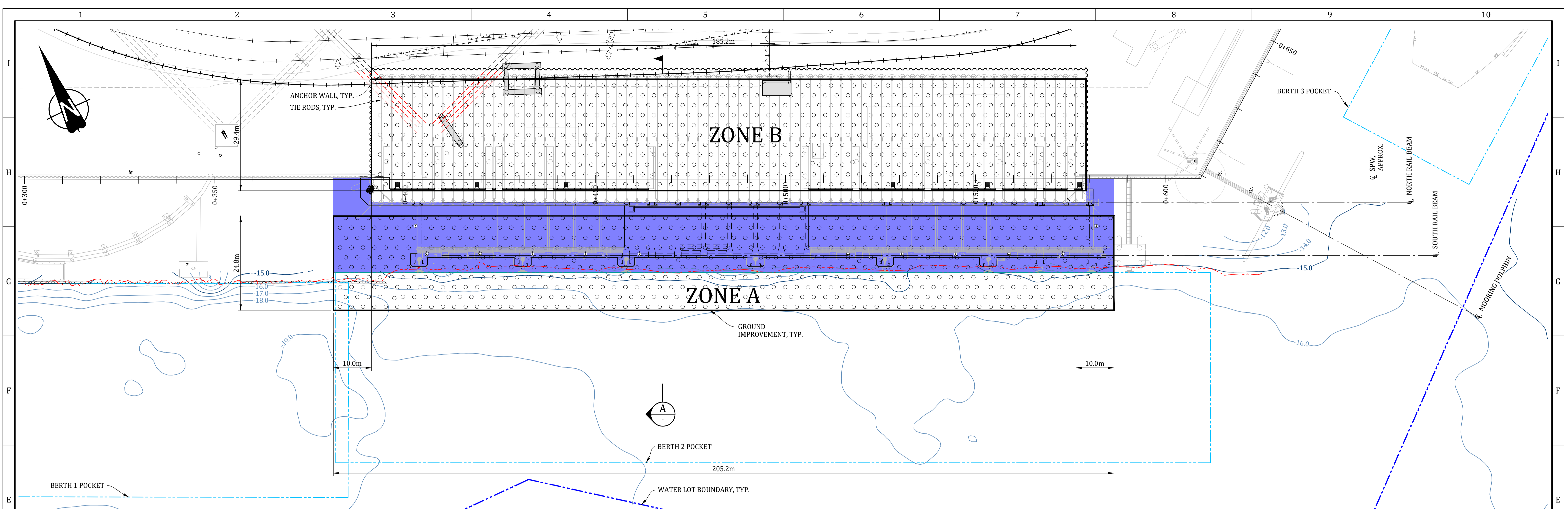
STATION: 0+200

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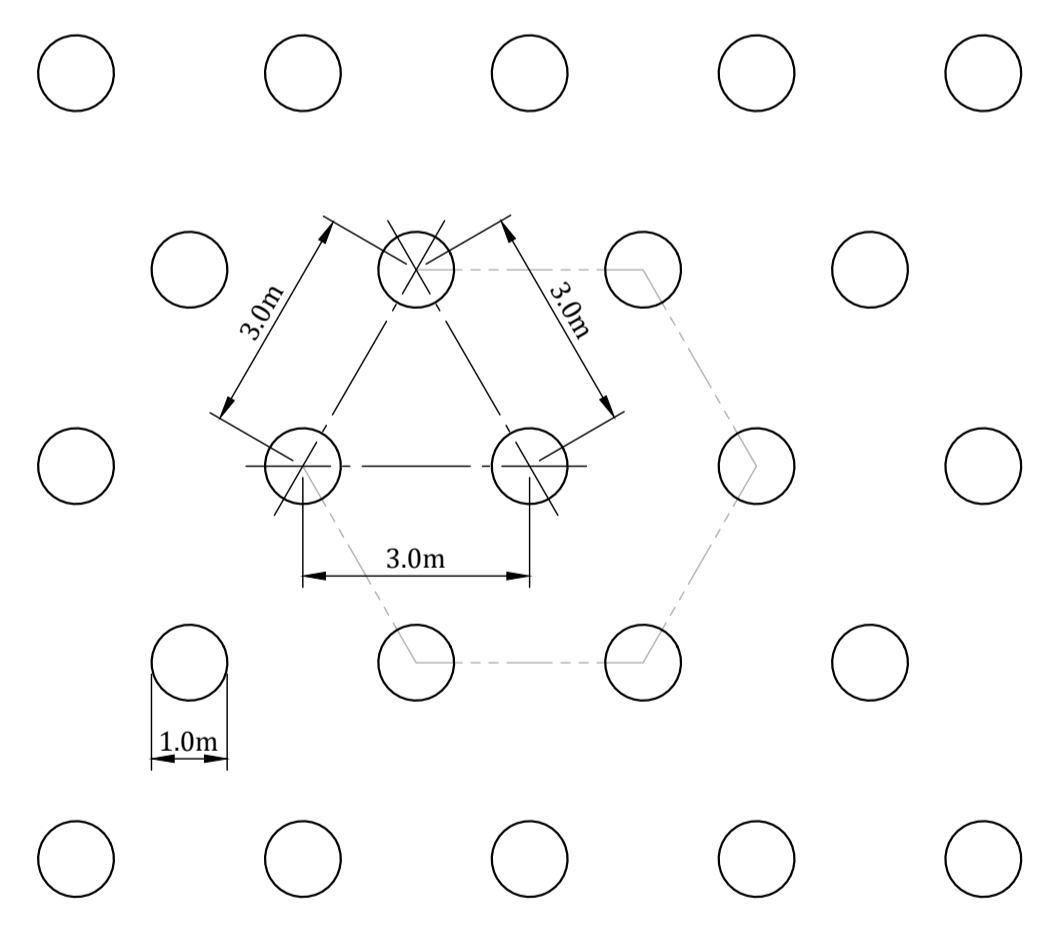
NOTES:
1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL ROCK REMOVAL AND DREDGING SECTIONS			
SYSTEM: POTASH		AAL AMT		OEM:		Neptune TERMINALS		SCALE: SHEET OF DRAWING NO. REV: SHOWN 1 1 317071-00041-03-MA-DGA-1505 A			
ASSET: 251		A 2023-02-16 ISSUED FOR CLIENT REVIEW		AAL AMT		THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.					
DISCIPLINE: STRUCTURAL		REV YYYY-MM-DD DESCRIPTION		DRAWN APPROVED		VENDOR P2P:					
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS									

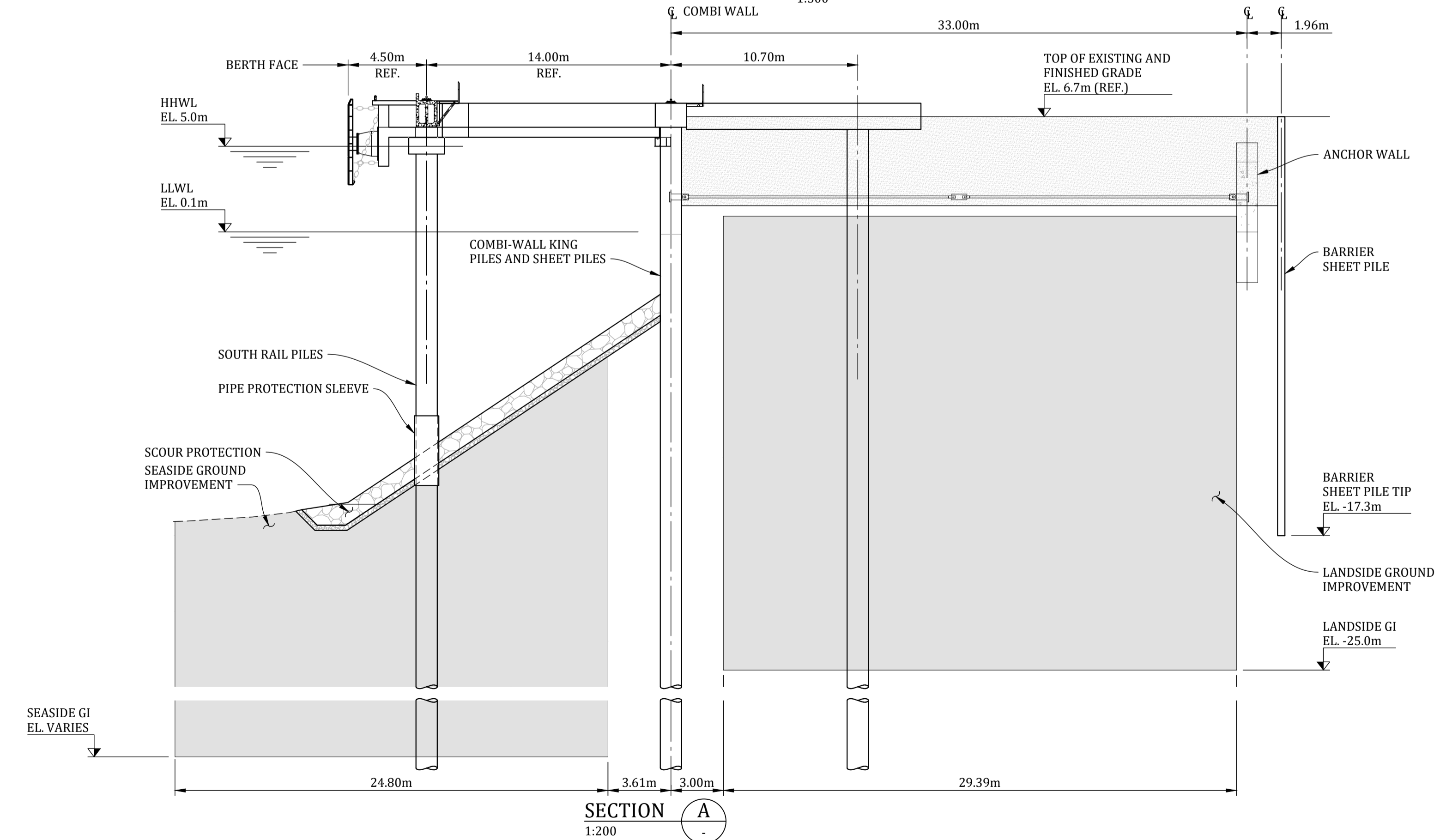


PLAN
1:500

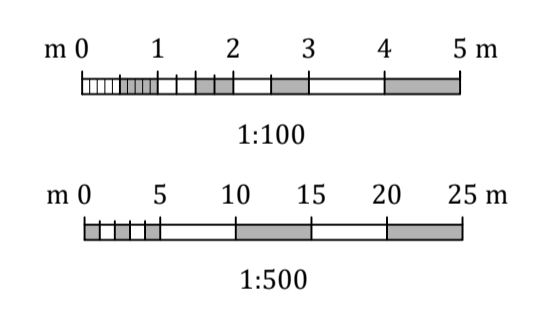
STONE COLUMNS		
ZONE	AREA (m ²)	NO. OF COLUMNS
A	5090	673
B	5520	681
TOTAL	10610	1354



PLAN - VIBRO STONE COLUMNS
1:100



SECTION A
1:200



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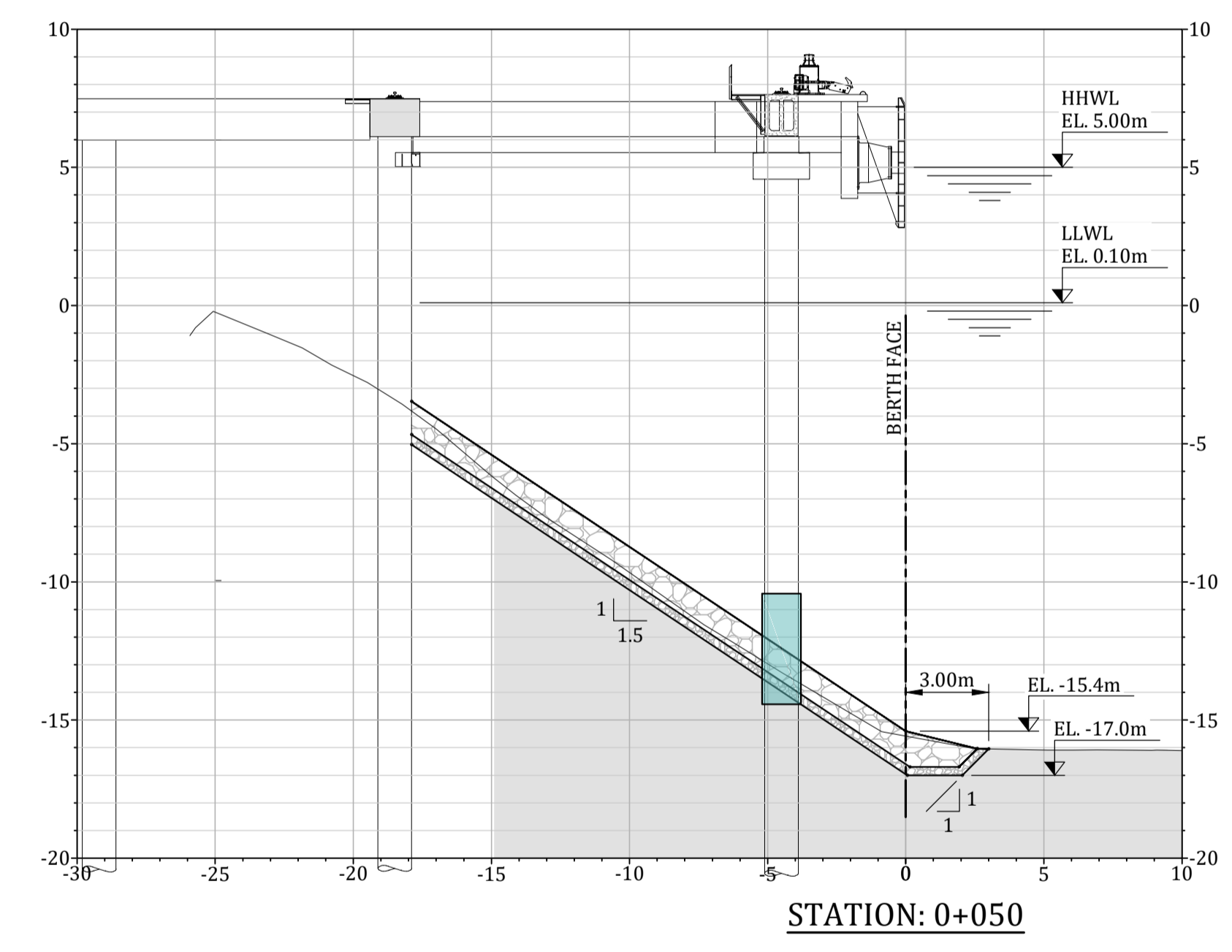
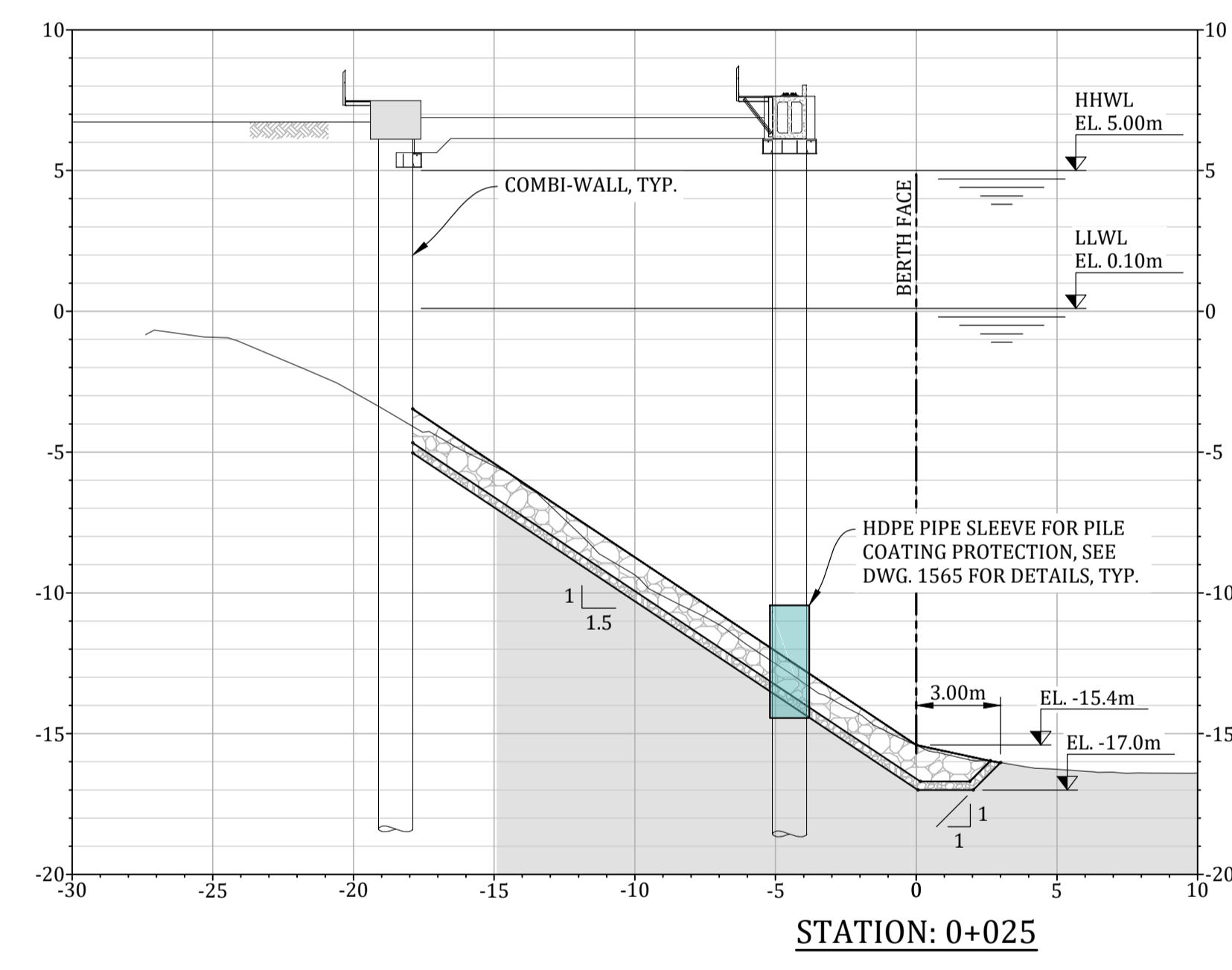
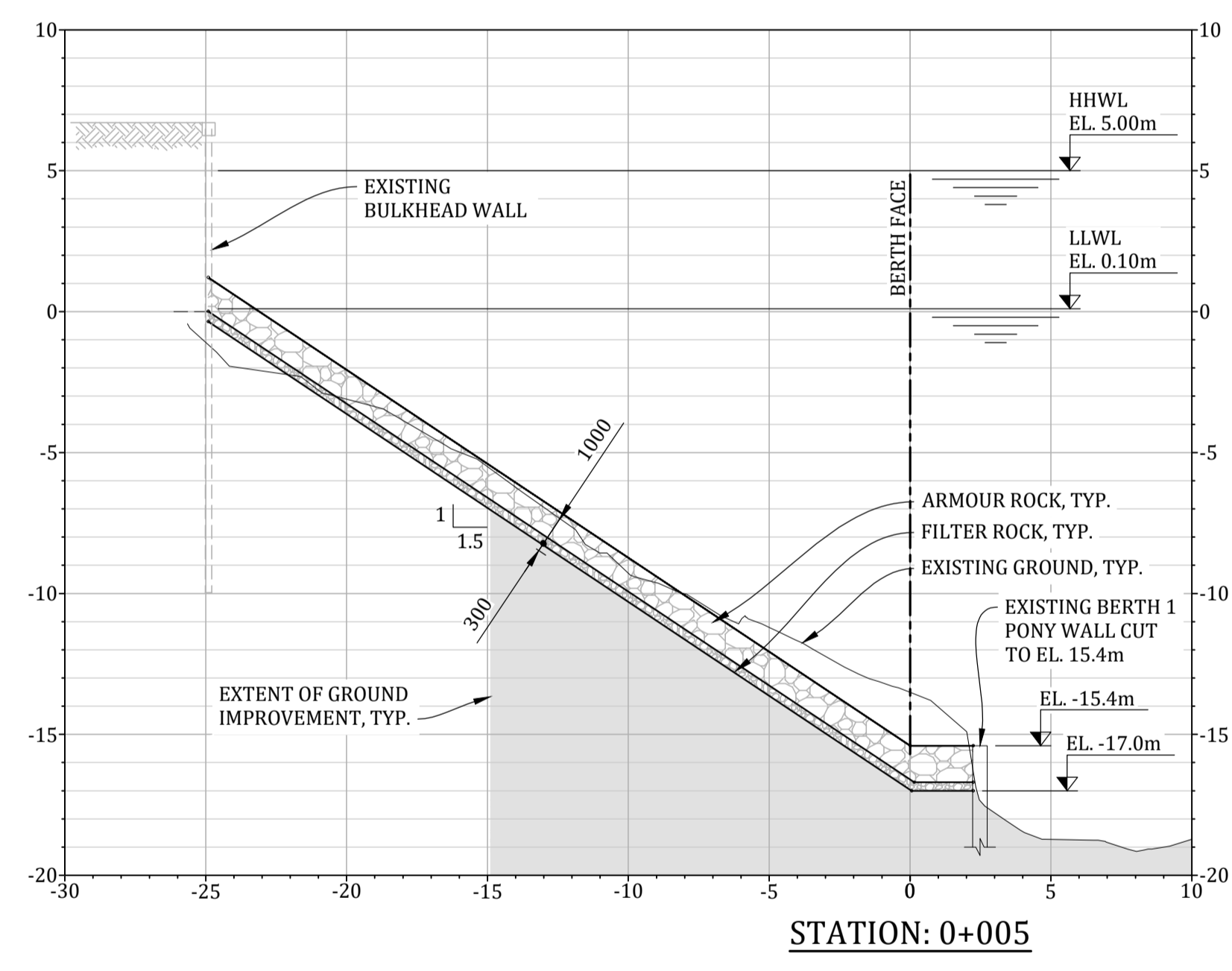
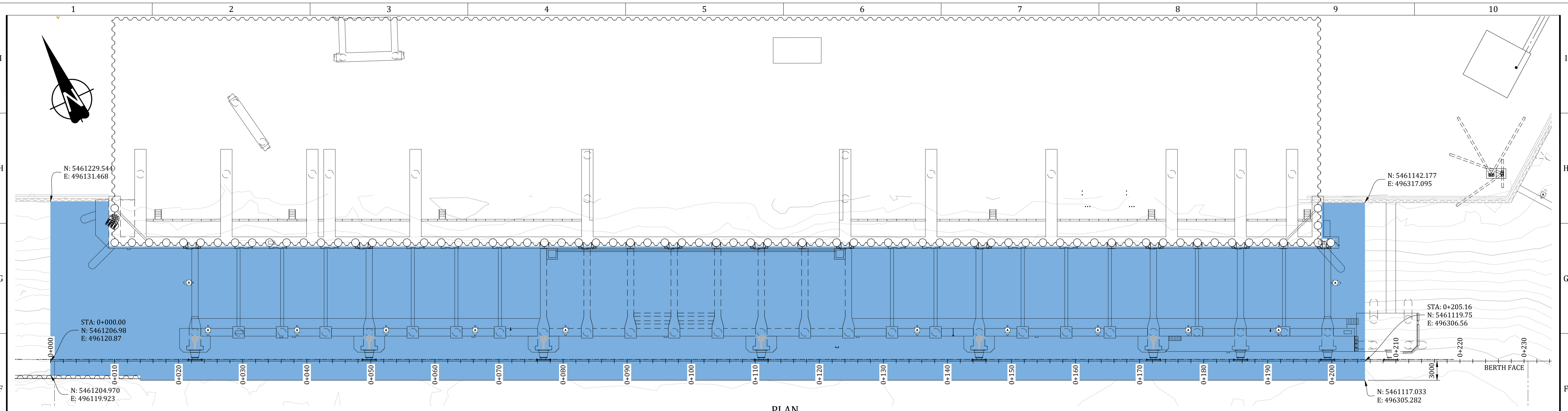
LEGEND:

- DREDGING AND SCOUR PROTECTION AREA, FOR VOLUMES SEE DWG. 1507
- ASSUMED EXTENT OF EXISTING SCOUR PROTECTION

NOTES:

- STONE COLUMNS TO BE CONSTRUCTED WITH 'BOTTOM FEED' TECHNIQUE.
- STONE COLUMN REPLACEMENT RATIO SHALL BE 10%, TO BE CONFIRMED BY A FIELD TRIAL.
- STONE COLUMN NOMINAL SPACING = 3.0m ON AN EQUILATERAL TRIANGULAR GRID.
- STONE COLUMN NOMINAL DIAMETER SHALL BE 1.0m.
- STONE COLUMN GRID SPACING AND DIAMETER TO BE CONFIRMED BY A FIELD TRIAL.
- IN THE MARINE (OFFSHORE) SIDE, VERTICAL EXTENT OF THE STONE COLUMNS TO APPROXIMATELY 1m BELOW THE BOUNDARY BETWEEN THE GRANULAR AND THE COHESIVE MARINE DEPOSITS, WITH MINIMUM (i.e. NO SHALLOWER THAN) ELEVATION -32m CD IN THE MARINE WEST, -35m CD IN THE CENTRAL ZONES AND -37m CD IN THE MARINE EAST ZONE, AS SHOWN IN REPORT '317071-00041-00-SS-REP-0004'.

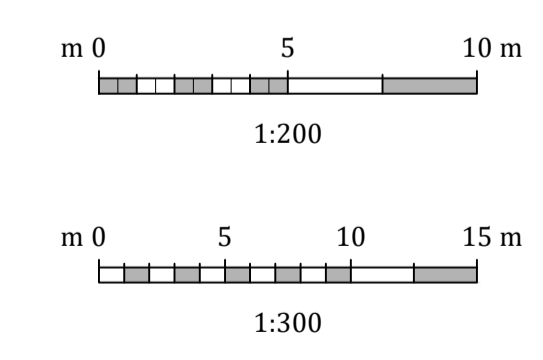
PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>WorleyParsons</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL GROUND IMPROVEMENT PLAN AND SECTION							
SYSTEM: POTASH															
ASSET: 251															
DISCIPLINE: STRUCTURAL		REV: A 2023-02-16 ISSUED FOR CLIENT REVIEW		AAL		AMT									
DRAWING NO. REFERENCE DRAWINGS / DESIGN STANDARDS		REV: YYYY-MM-DD DESCRIPTION		DRAWN		APPROVED									
		ISSUES / REVISIONS													
				VENDOR P2P:											
								SCALE: SHOWN		SHEET 1 OF 1		DRAWING NO. 317071-00041-03-MA-DGA-1506		REV: A	



ESTIMATED MATERIAL VOLUMES

FILL TYPE	VOLUME (m³)
FILTER ROCK	1700
ARMOUR ROCK	5600

LEGEND:
 SCOUR PROTECTION AREA

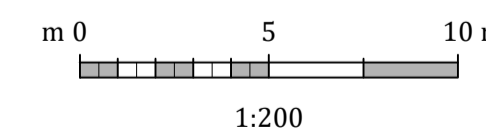
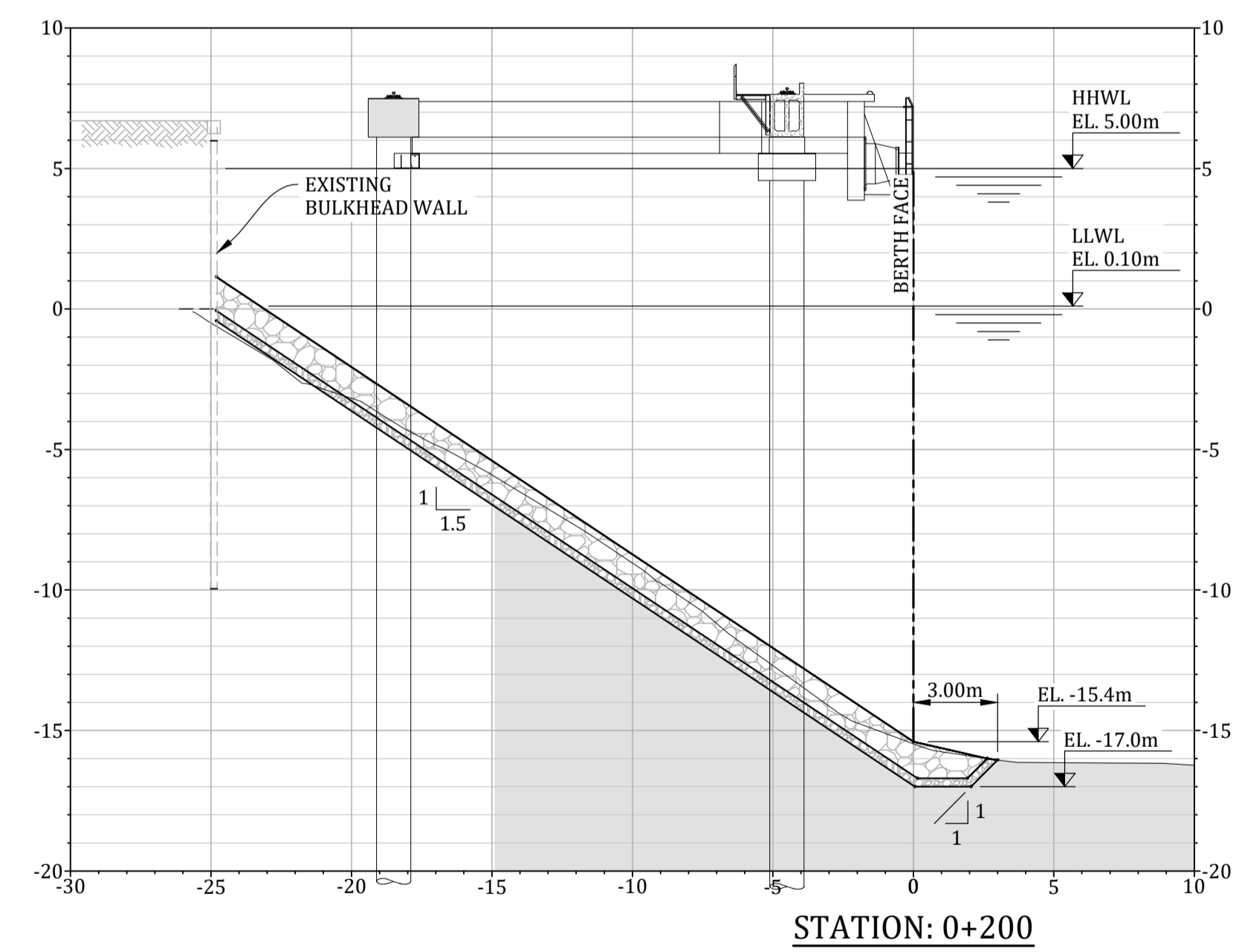
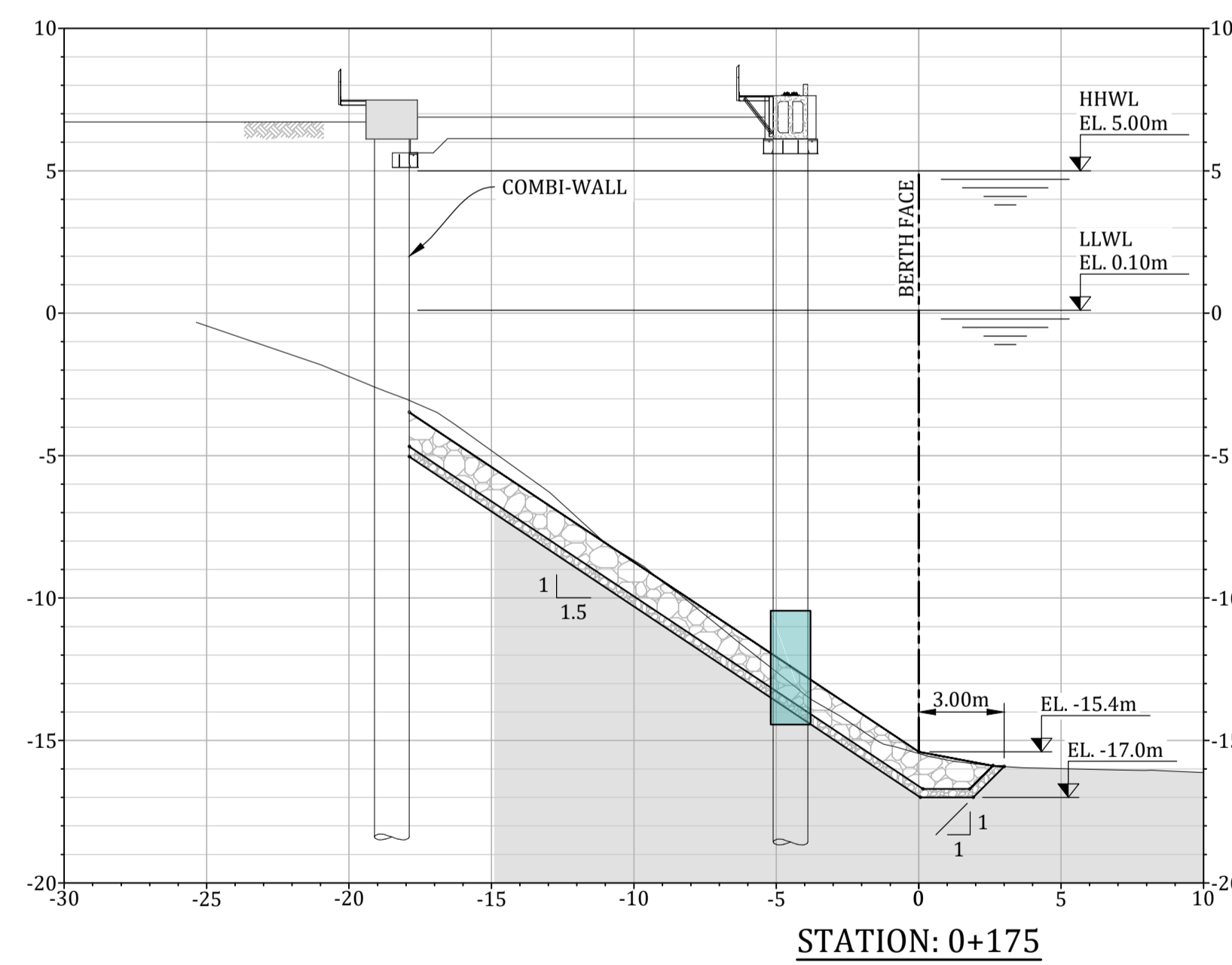
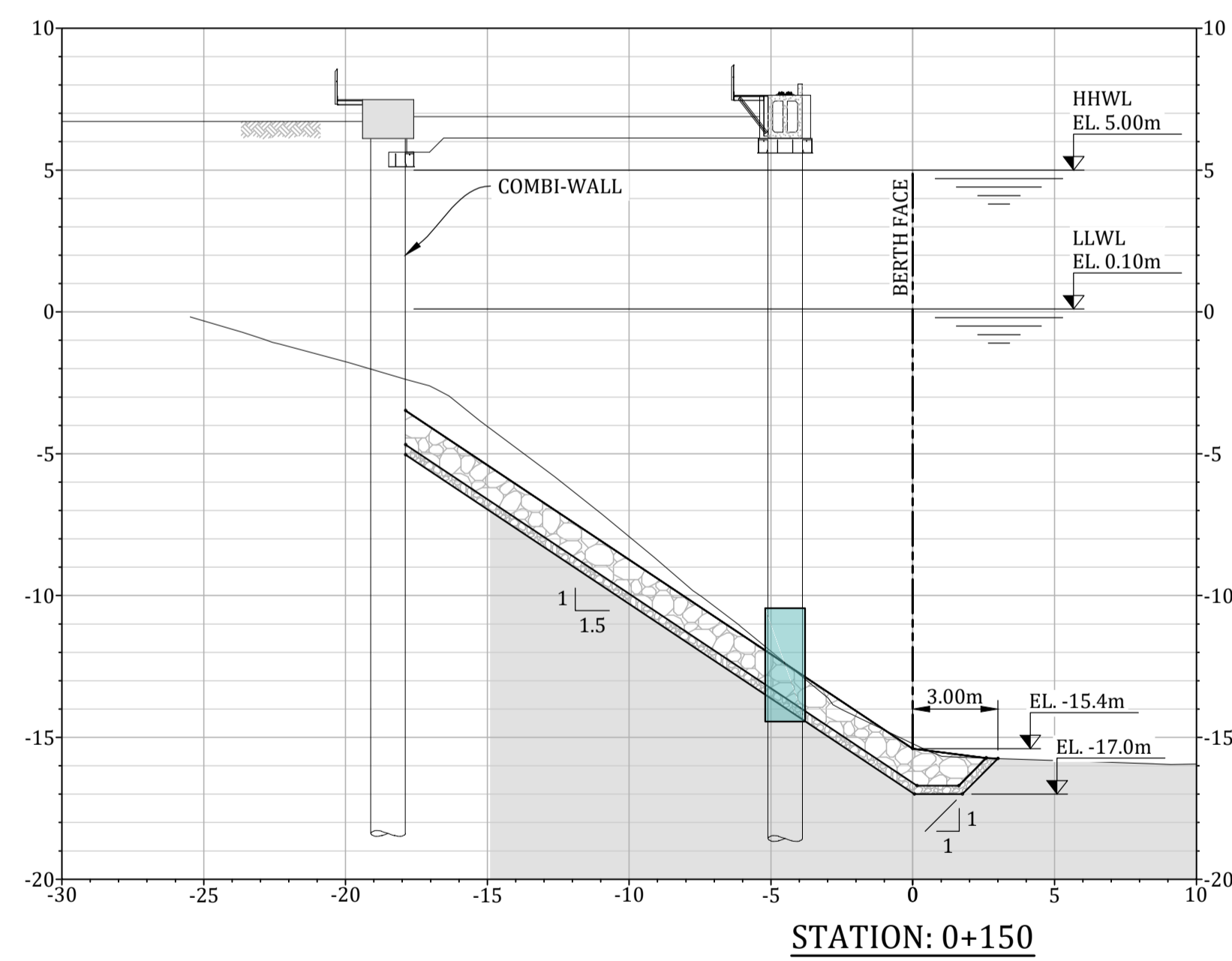
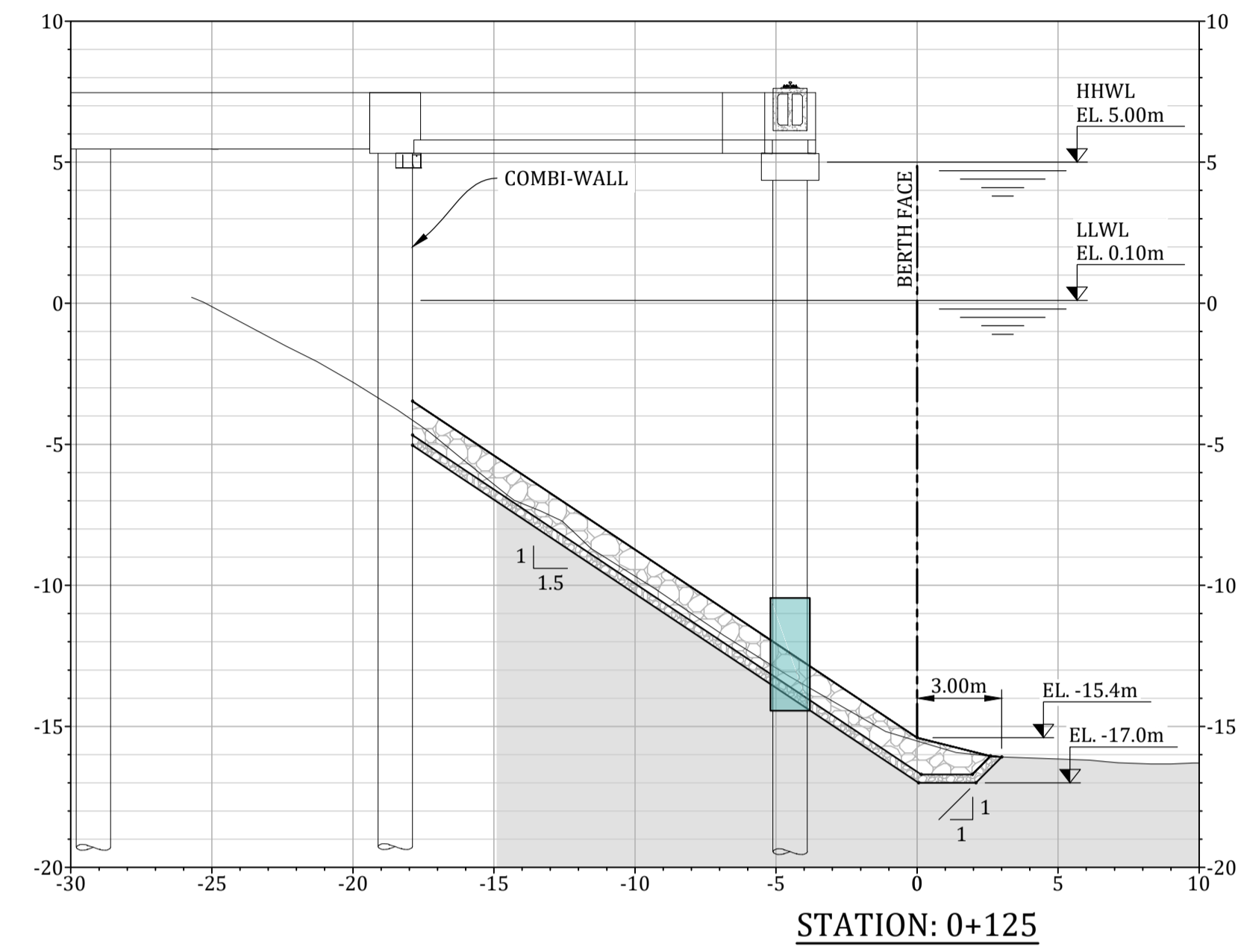
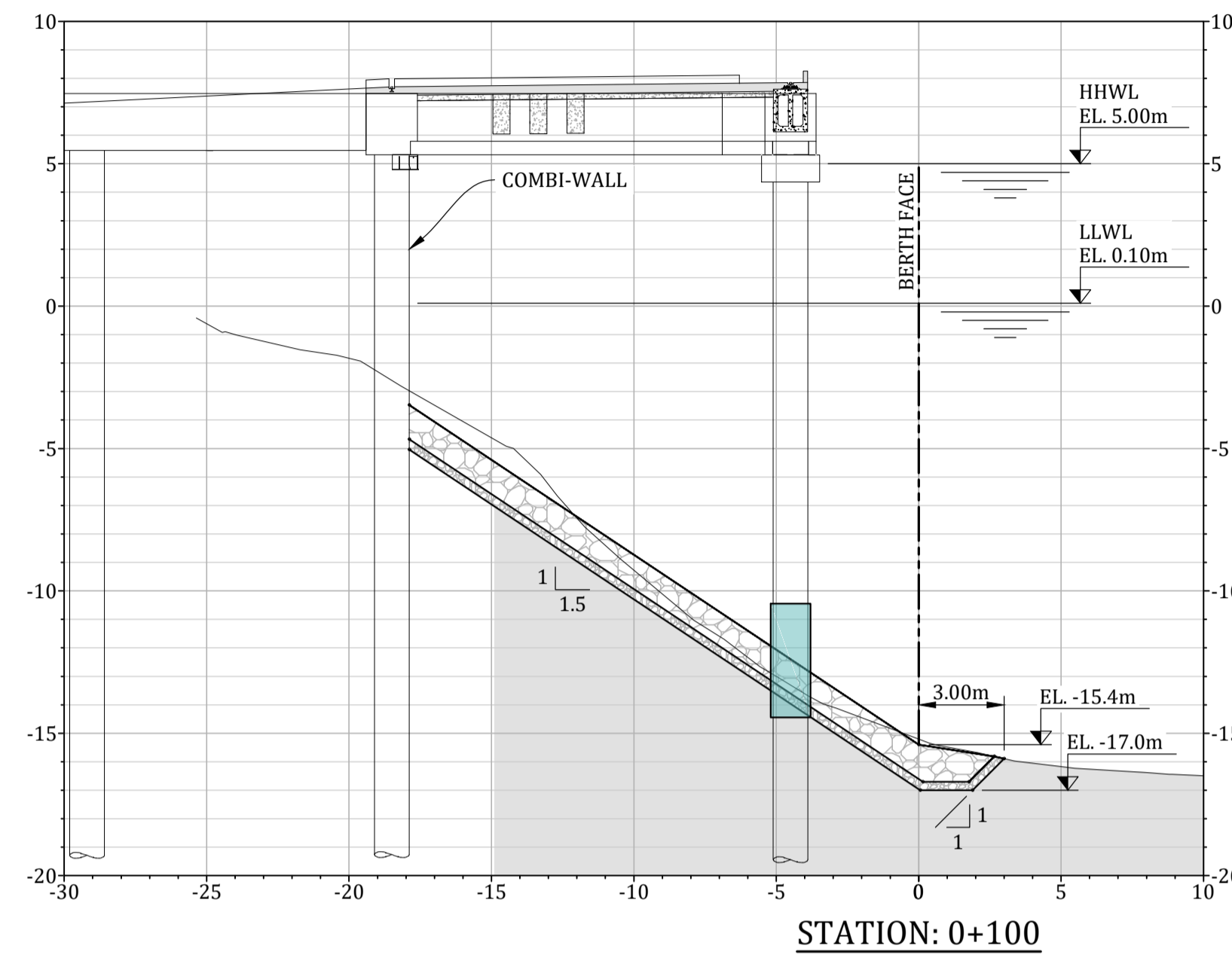
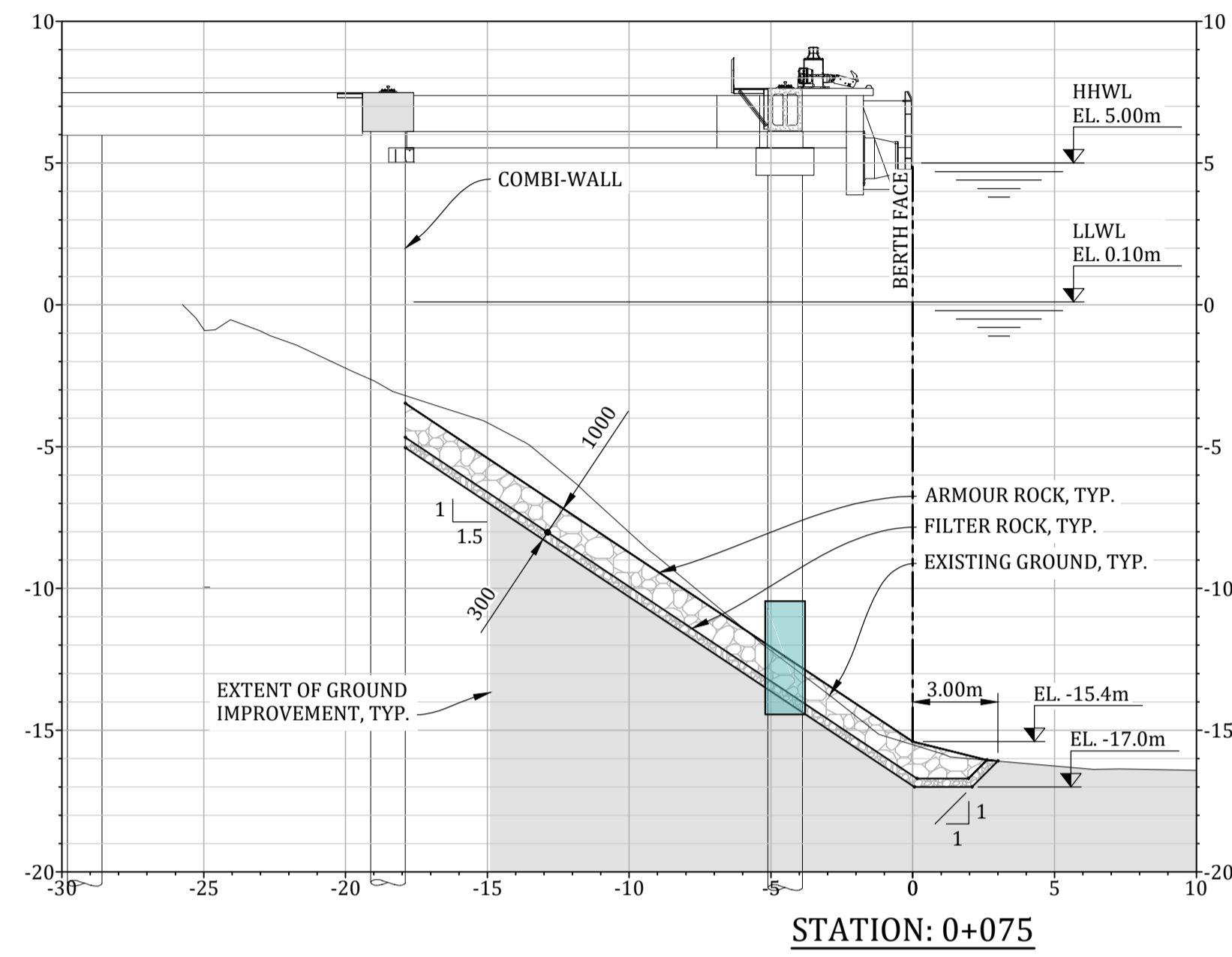


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- NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
 - FOR SCOUR PROTECTION REMOVAL AND EXTENTS, SEE DWG. 317071-00041-03-MA-DGA-1504.

PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>Worley Group</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SCOUR PROTECTION - PLAN AND SECTIONS				
SYSTEM: POTASH								SCALE: SHOWN				
ASSET: 251								SHEET OF: 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1507		REV: A
DISCIPLINE: STRUCTURAL		REV: A		2023-02-16		ISSUED FOR CLIENT REVIEW		AAL		AMT		
REFERENCE DRAWINGS / DESIGN STANDARDS		REV: YYYY-MM-DD		DESCRIPTION		DRAWN		APPROVED		VENDOR P2P:		
1		2		3		4 / ISSUES / REVISIONS		5		6		

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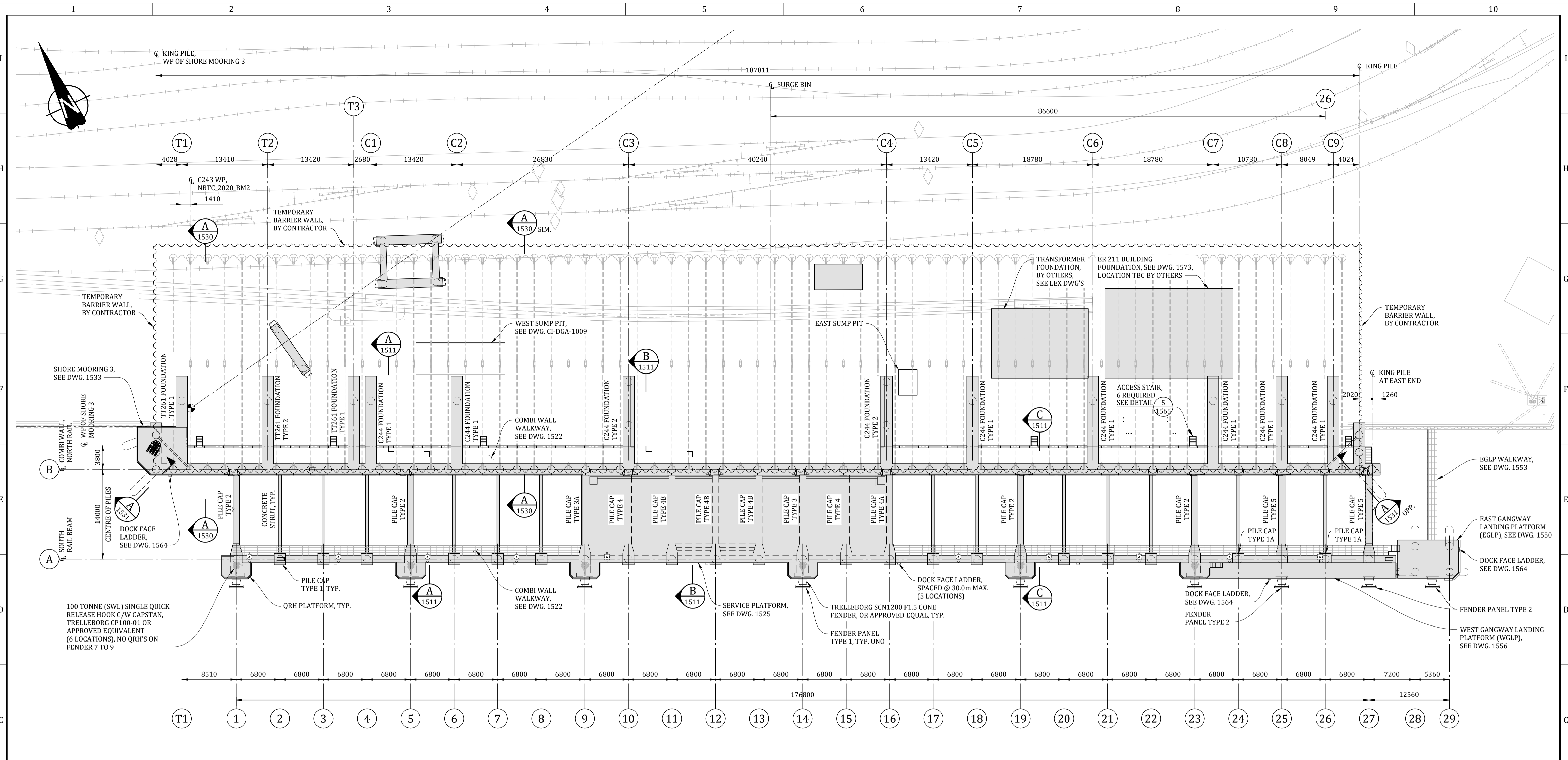
PRELIMINARY
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NOTES:

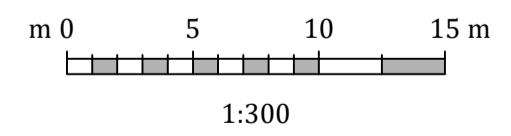
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
- FOR SCOUR PROTECTION REMOVAL AND EXTENTS, SEE DWG. 317071-00041-03-MA-DGA-1504.

DRAWING NO. 1		DRAWING DESCRIPTION / TITLE		PROJECT / W.O.: B2 MARINE WORKS		SYSTEM: POTASH		ASSET: 251		DISCIPLINE: STRUCTURAL		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLoader PROJECT - MARINE AND CIVIL SCOUR PROTECTION - SECTIONS	
REFERENCE DRAWINGS / DESIGN STANDARDS				REV: A		2023-02-16		ISSUED FOR CLIENT REVIEW		AAL		AMT		OEM:		Neptune TERMINALS		SCALE: SHOWN	
1		2		3		4		5		6		7		8		9		10	
1		2		3		4		5		6		7		8		9		10	

U:\VVR\317071\00041_NEP_B2SHIPLOADER\11_DRAWINGS\15_I_AND_E\02_MARINE\317071-00041-03-MA-DGA-1507-1508.DWG DATE: 2023-02-16



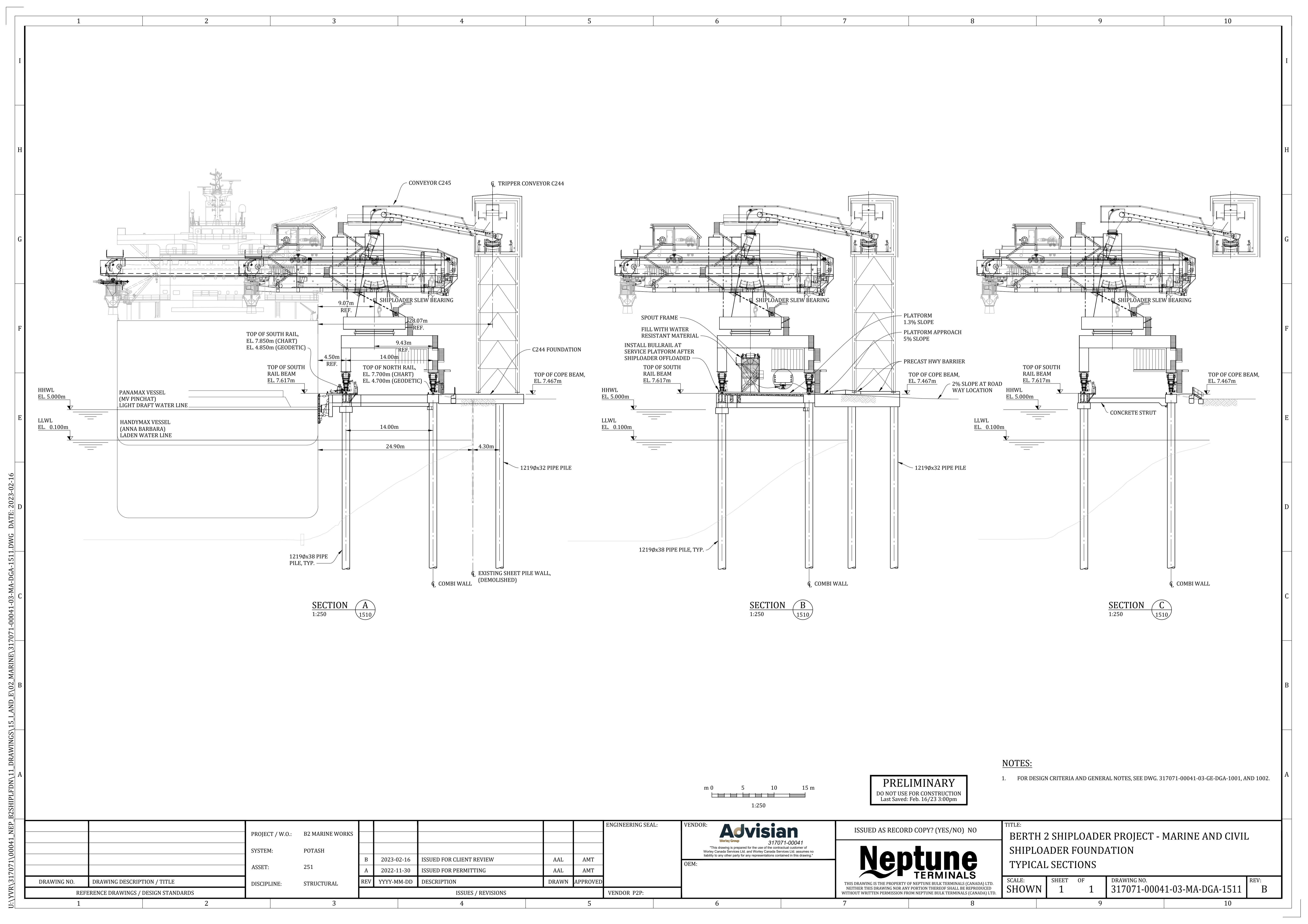
PLAN
1:300



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- NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
 - FOR PILE PLAN, PILE LIST, AND PILE DETAILS, SEE DWG. 317071-00041-03-MA-DGA-1512 TO 1514.
 - FOR PILE CAP DETAILS, SEE DWG. 317071-00041-03-MA-DGA-1515.
 - FOR C244 FOUNDATION DETAILS, SEE DWG. 317071-00041-03-MA-DGA-1540.
 - FOR TT261 FOUNDATION DETAILS, SEE DWG. 317071-00041-03-MA-DGA-1541.
 - FOR FENDER PANEL DETAILS, SEE DWG. 317071-00041-03-MA-DGA-1524.

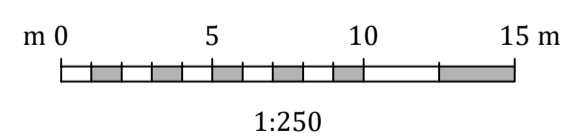
PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SHIPLOADER FOUNDATION PLAN				
SYSTEM: POTASH		REV: 2023-02-16		AAL		AMT		SCALE: SHOWN				
ASSET: 251		REV: 2022-11-30		AAL		AMT		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1510		REV: B
DISCIPLINE: STRUCTURAL		REV: YYYY-MM-DD		DESCRIPTION		DRAWN		APPROVED		VENDOR P2P:		
DRAWING NO.		DRAWING DESCRIPTION / TITLE		ISSUES / REVISIONS		VENDOR P2P:						
REFERENCE DRAWINGS / DESIGN STANDARDS												



SECTION A
1:250

SECTION B
1:250

SECTION C
1:250

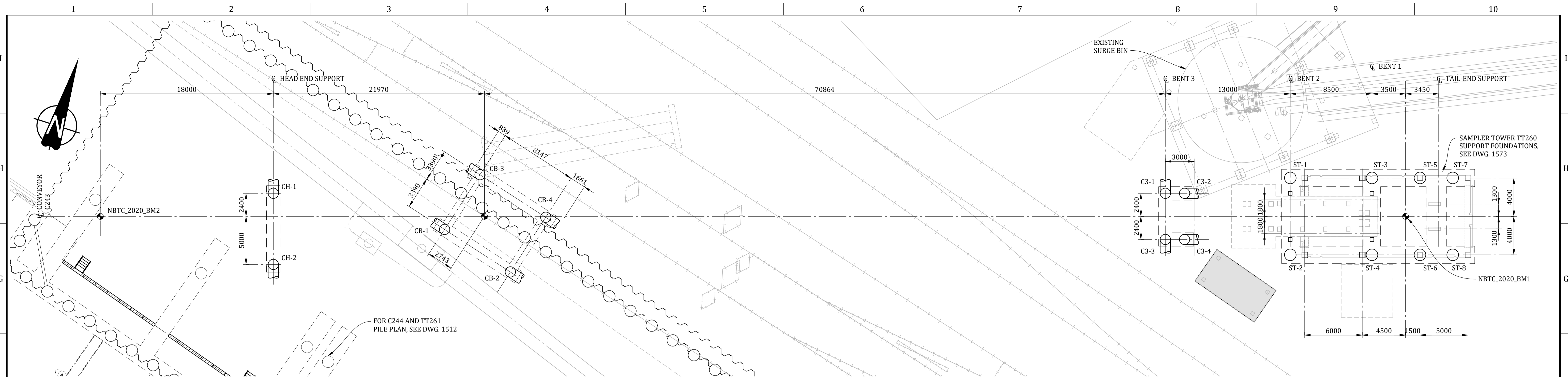


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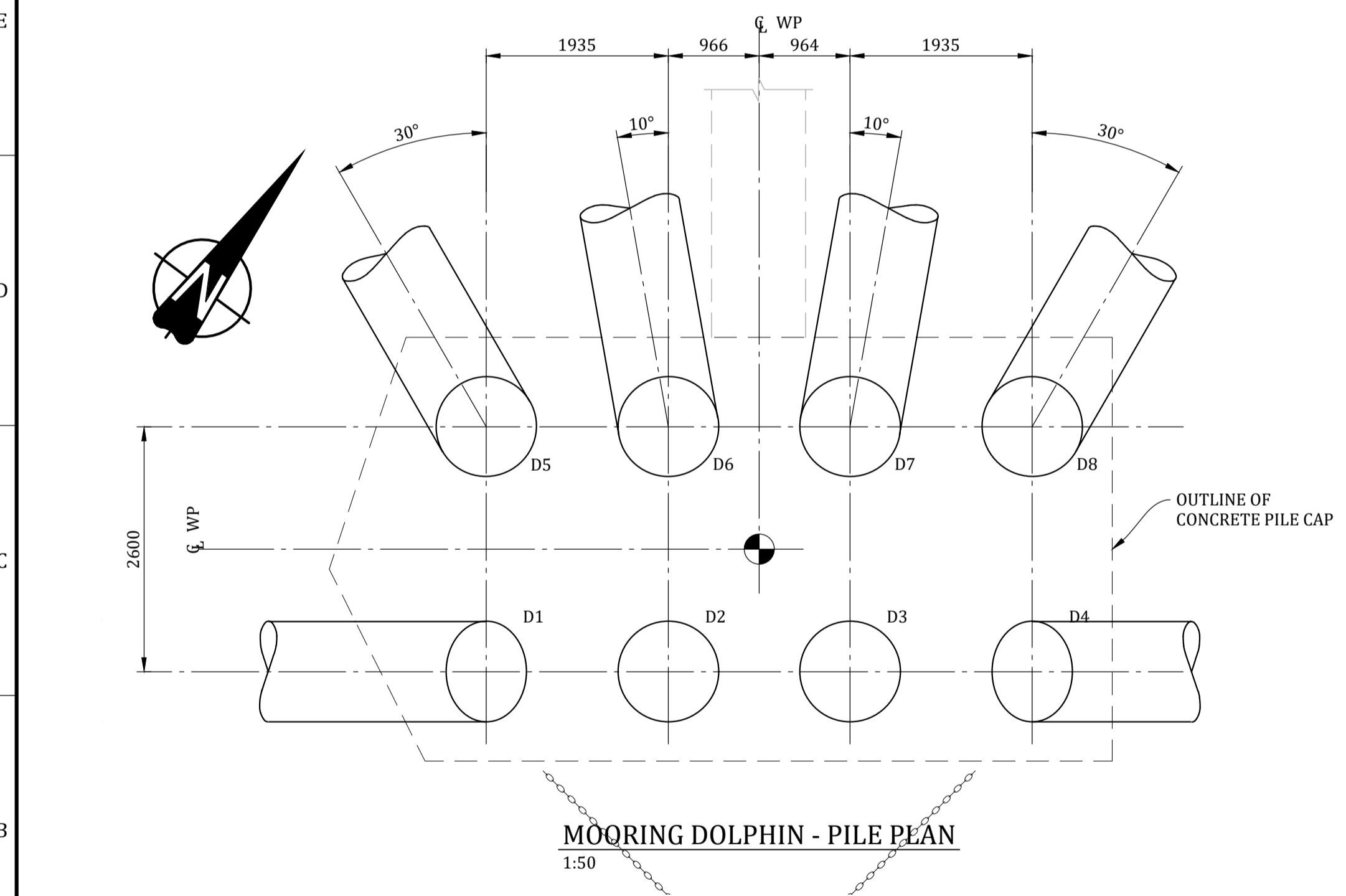
- NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SHIPLOADER FOUNDATION TYPICAL SECTIONS							
SYSTEM: POTASH		REV: B 2023-02-16 ISSUED FOR CLIENT REVIEW		OEM:		<p>THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.</p>		SCALE: SHOWN		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1511		REV: B	
ASSET: 251		REV: A 2022-11-30 ISSUED FOR PERMITTING		DRAWN: AAL				APPROVED: AMT		DRAWING NO. 317071-00041-03-MA-DGA-1511		REV: B			
DISCIPLINE: STRUCTURAL		REV: YYY-MM-DD DESCRIPTION		DRAWN		APPROVED		DRAWING NO. 317071-00041-03-MA-DGA-1511		REV: B					
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS		VENDOR P2P:											

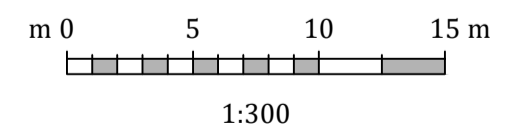
U:\VVR\317071\00041_NEP_B2SHIPLOADER\11_DRAWINGS\15_I_AND_E\02_MARINE\317071-00041-03-MA-DGA-1511.DWG DATE: 2023-02-16



CONVEYOR 243 AND SAMPLER TOWER TT260 PILE PLAN
 1:200
 NOTE: CONCRETE PEDESTALS AND ANCHORS NOT SHOWN FOR CLARITY



MOORING DOLPHIN - PILE PLAN
 1:50



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- NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
 - FOR PILE DETAILS, SEE DWG. 317071-00041-03-MA-DGA-1514 AND 1515.
 - FOR C243 FOUNDATION DETAILS, SEE DWG. 317071-00041-03-MA-DGA-1570.
 - FOR TT260 FOUNDATION DETAILS, SEE DWG. 317071-00041-03-MA-DGA-1573.

PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>Worley Group</small> <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL MARINE STRUCTURES PILE PLAN - SHEET 2				
SYSTEM: POTASH		B 2023-02-16 ISSUED FOR CLIENT REVIEW		AAL		AMT		SCALE: SHOWN				
ASSET: 251		A 2022-11-30 ISSUED FOR PERMITTING		AAL		AMT		SHEET 1 OF 1		DRAWING NO. 317071-00041-03-MA-DGA-1513		REV: B
DISCIPLINE: STRUCTURAL		REV YYYY-MM-DD DESCRIPTION		DRAWN		APPROVED		REV: B		DRAWING NO. 317071-00041-03-MA-DGA-1513		REV: B
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS		VENDOR P2P:		THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.						

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SHIPLoader, C244, TT261 AND GANGWAY LANDING PLATFORM PILE LIST															
PILE #	SIZE (OD x THK. mm)	BATTER	CUT-OFF EL. (m)	APPROX. SEABED EL. (m)	EST. PILE TIP EL. (m)	ALLOWANCE (m)	SUPPLIED LENGTH (m)	COATED LENGTH (m)	FACTORED PILE AXIAL DESIGN LOAD (kN)	CONCRETE PLUG				AS-BUILT PILE DATA	
										LENGTH (m)	REBAR	EXTENT OF REBAR IN PILE (m)	# OF SHEAR RINGS	SEABED EL. (m)	PILE TIP EL. (m)
R1	1219 x 38.1	VERTICAL	5.057	-13.0	-77	2.9	85	24	Cf=6000kN	3.5	36-35M	3.5	3		
R2	1219 x 38.1	VERTICAL	5.642	-13.0	-77	3.4	86	25	Cf=6700kN	3.5	36-35M	3.5	3		
R3	1219 x 38.1	VERTICAL	5.642	-13.0	-77	3.4	86	25	Cf=6700kN	3.5	36-35M	3.5	3		
R4	1219 x 38.1	VERTICAL	5.642	-13.0	-77	3.4	86	25	Cf=6700kN	3.5	36-35M	3.5	3		
R5	1219 x 38.1	VERTICAL	5.057	-13.0	-77	2.9	85	24	Cf=6700kN	3.5	36-35M	3.5	3		
R6	1219 x 38.1	VERTICAL	5.642	-13.0	-77	3.4	86	25	Cf=6700kN	3.5	36-35M	3.5	3		
R7	1219 x 38.1	VERTICAL	5.642	-13.0	-80	3.4	89	25	Cf=6700kN	3.5	36-35M	3.5	3		
R8	1219 x 38.1	VERTICAL	5.642	-13.0	-80	3.4	89	25	Cf=6700kN	3.5	36-35M	3.5	3		
R9	1219 x 38.1	VERTICAL	5.057	-13.0	-80	2.9	88	24	Cf=7500kN	3.5	36-35M	3.5	3		
R10	1219 x 38.1	VERTICAL	5.057	-13.0	-84	2.9	92	24	Cf=7500kN	3.5	36-35M	3.5	3		
R11	1219 x 38.1	VERTICAL	4.857	-13.0	-84	3.1	92	24	Cf=7500kN	3.5	36-35M	3.5	3		
R12	1219 x 38.1	VERTICAL	4.857	-13.0	-84	3.1	92	24	Cf=7500kN	3.5	36-35M	3.5	3		
R13	1219 x 38.1	VERTICAL	4.857	-13.0	-84	3.1	92	24	Cf=7500kN	3.5	36-35M	3.5	3		
R14	1219 x 38.1	VERTICAL	5.057	-13.0	-84	2.9	92	24	Cf=7500kN	3.5	36-35M	3.5	3		
R15	1219 x 38.1	VERTICAL	5.057	-13.0	-84	2.9	92	24	Cf=7500kN	3.5	36-35M	3.5	3		
R16	1219 x 38.1	VERTICAL	5.057	-13.0	-84	2.9	92	24	Cf=7500kN	3.5	36-35M	3.5	3		
R17	1219 x 38.1	VERTICAL	5.642	-13.0	-84	3.4	93	25	Cf=6700kN	3.5	36-35M	3.5	3		
R18	1219 x 38.1	VERTICAL	5.057	-13.0	-84	2.9	92	24	Cf=6700kN	3.5	36-35M	3.5	3		
R19	1219 x 38.1	VERTICAL	5.642	-13.0	-84	3.4	93	25	Cf=6700kN	3.5	36-35M	3.5	3		
R20	1219 x 38.1	VERTICAL	5.642	-13.0	-84	3.4	93	25	Cf=6700kN	3.5	36-35M	3.5	3		
R21	1219 x 38.1	VERTICAL	5.642	-13.0	-87	3.4	96	25	Cf=6700kN	3.5	36-35M	3.5	3		
R22	1219 x 38.1	VERTICAL	5.057	-13.0	-87	2.9	95	24	Cf=6700kN	3.5	36-35M	3.5	3		
R23	1219 x 38.1	VERTICAL	5.642	-13.0	-87	3.4	96	25	Cf=6700kN	3.5	36-35M	3.5	3		
R24	1219 x 38.1	VERTICAL	5.642	-13.0	-87	3.4	96	25	Cf=6700kN	3.5	36-35M	3.5	3		
R25	1219 x 38.1	VERTICAL	5.642	-13.0	-87	3.4	96	25	Cf=6700kN	3.5	36-35M	3.5	3		
R26	1219 x 38.1	VERTICAL	5.057	-13.0	-87	2.9	95	24	Cf=6000kN	3.5	36-35M	3.5	3		
R27	1219 x 38.1	VERTICAL	5.057	-13.0	-87	2.9	95	24	Cf=6000kN	3.5	36-35M	3.5	3		
T1	1219 x 31.8	VERTICAL	5.742		-70	3.3	79	6	Cf=7200kN	3.5	36-35M	3.5	3		
T2	1219 x 31.8	VERTICAL	5.642		-70	3.4	79	6	Cf=7200kN	3.5	36-35M	3.5	3		
T3	1219 x 31.8	VERTICAL	5.742		-70	3.3	79	6	Cf=7200kN	3.5	36-35M	3.5	3		
C1	1219 x 31.8	VERTICAL	5.642		-70	3.4	79	6	Cf=6700kN	3.5	36-35M	3.5	3		
C2	1219 x 31.8	VERTICAL	5.642		-75	3.4	84	6	Cf=6700kN	3.5	36-35M	3.5	3		
C3N	1219 x 31.8	VERTICAL	5.642		-75	3.4	84	6	Cf=6000kN	3.5	36-35M	3.5	3		
C3S	1219 x 31.8	VERTICAL	5.642		-75	3.4	84	6	Cf=6000kN	3.5	36-35M	3.5	3		
C4N	1219 x 31.8	VERTICAL	5.642		-75	3.4	84	6	Cf=6000kN	3.5	36-35M	3.5	3		
C4S	1219 x 31.8	VERTICAL	5.642		-75	3.4	84	6	Cf=6000kN	3.5	36-35M	3.5	3		
C5	1219 x 31.8	VERTICAL	5.642		-80	3.4	89	6	Cf=6700kN	3.5	36-35M	3.5	3		
C6	1219 x 31.8	VERTICAL	5.642		-80	3.4	89	6	Cf=6700kN	3.5	36-35M	3.5	3		
C7	1219 x 31.8	VERTICAL	5.642		-85	3.4	94	6	Cf=6000kN	3.5	36-35M	3.5	3		
C8	1219 x 31.8	VERTICAL	5.642		-85	3.4	94	6	Cf=5500kN	3.5	36-35M	3.5	3		
G1	1219 x 38.1	1H : 8V	4.785	-15.0	-80	3.2	88	26							
G2	1219 x 38.1	1H : 8V	4.785	-15.0	-80	3.2	88	26							
G3	1219 x 38.1	1H : 8V	4.785	-12.0	-80	2.6	88	22							
G4	1219 x 38.1	1H : 8V	4.785	-12.0	-80	2.6	88	22							

$\phi_{GUC}=0.4, \phi_{GUT}=0.3$ FOR PILES R#, T# AND C#; $\phi_{GUC}=0.5, \phi_{GUT}=0.3$ FOR PILES G#.

MOORING DOLPHIN PILE LIST															
PILE #	PILE SIZE (mm)	BATTER (H:V)	CUT-OFF EL. (m)	APPROX. SEABED EL. (m)	EST. PILE TIP EL. (m)	ALLOWANCE (m)	PILE LENGTH (INCLUDES ALLOWANCE)	COATED LENGTH (m)	FACTORED PILE AXIAL DESIGN LOAD (kN)	CONCRETE PLUG				AS-BUILT PILE DATA	
										LENGTH (m)	REBAR	EXTENT OF REBAR IN PILE (m)	# OF SHEAR RINGS	SEABED EL. (m)	PILE TIP EL. (m)
D1	1067x25.4	3:4	5.075	-12.0	-60	1.8	83.0	25.0	Tf=1900kN Cf=3200kN	3.5	18-35M	3.5	2		
D2	1067x25.4	VERTICAL	5.075	-12.0	-78	2.0	85.0	17.0	Tf=1450kN Cf=3200kN	3.5	18-35M	3.5	2		
D3	1067x25.4	VERTICAL	5.075	-12.0	-78	2.0	85.0	17.0	Tf=1450kN Cf=3200kN	3.5	18-35M	3.5	2		
D4	1067x25.4	3:4	5.075	-12.0	-60	1.8	83.0	25.0	Tf=1900kN Cf=3200kN	3.5	18-35M	3.5	2		
D5	1067x25.4	1:7	5.075	-8.0	-76	2.2	84.0	18.0	Tf=2250kN Cf=2200kN	3.5	36-35M	3.5	2		
D6	1067x25.4	1:10	5.075	-8.0	-63	1.6	70.0	18.0	Tf=1800kN Cf=1900kN	3.5	22-35M	3.5	2		
D7	1067x25.4	1:10	5.075	-8.0	-63	1.6	70.0	18.0	Tf=1800kN Cf=1900kN	3.5	22-35M	3.5	2		
D8	1067x25.4	1:7	5.075	-8.0	-76	2.2	84.0	18.0	Tf=2250kN Cf=2200kN	3.5	36-35M	3.5	2		

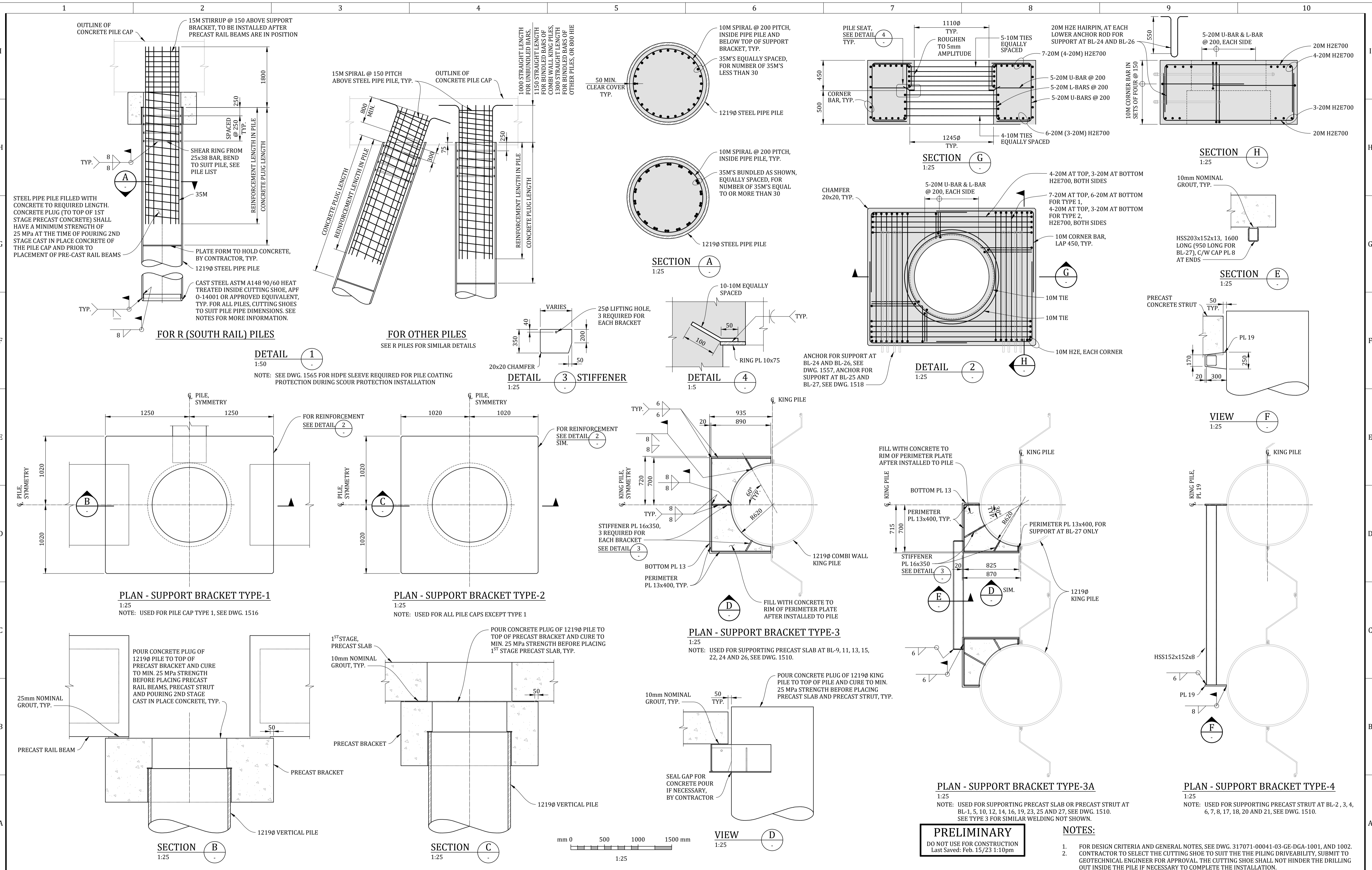
$\phi_{GUC}=0.4, \phi_{GUT}=0.3$

TEMPORARY MOORING DOLPHIN PILE LIST														
PILE #	PILE SIZE (mm)	BATTER (H:V)	CUT-OFF EL. (m)	APPROX. SEABED EL. (m)	EST. PILE TIP EL. (m)	ALLOWANCE (m)	PILE LENGTH (INCLUDES ALLOWANCE)	COATED LENGTH (m)	CONCRETE PLUG				AS-BUILT PILE DATA	
									LENGTH (m)	REBAR	EXTENT OF REBAR IN PILE (m)	# OF SHEAR RINGS	SEABED EL. (m)	PILE TIP EL. (m)
TD1	1219 x 38.1	VERTICAL	6.7270	-12	-52	3	62	19	N/A	N/A	N/A	N/A		
TD2	1219 x 38.1	VERTICAL	6.7270	-12	-52	3	62	19	N/A	N/A	N/A	N/A		
TD3	1219 x 38.1	VERTICAL	6.7270	-12	-52	3	62	19	N/A	N/A	N/A	N/A		
TD4	1219 x 38.1	VERTICAL	6.7270	-12	-52	3	62	19	N/A	N/A	N/A	N/A		

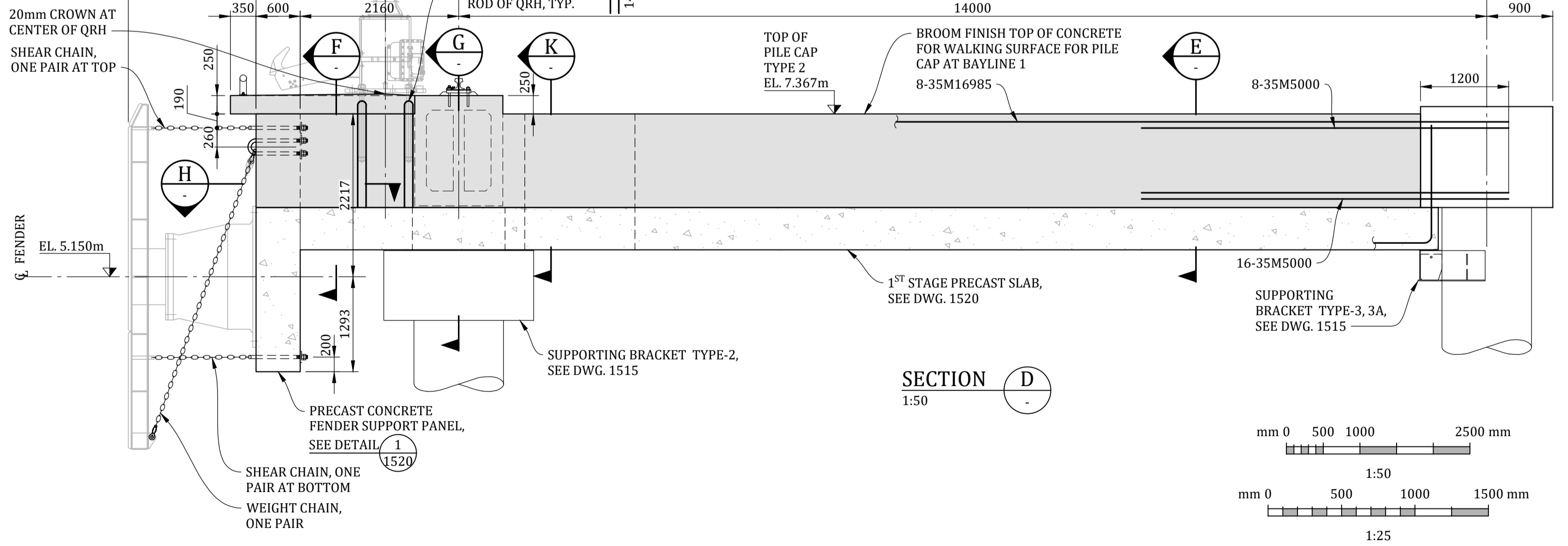
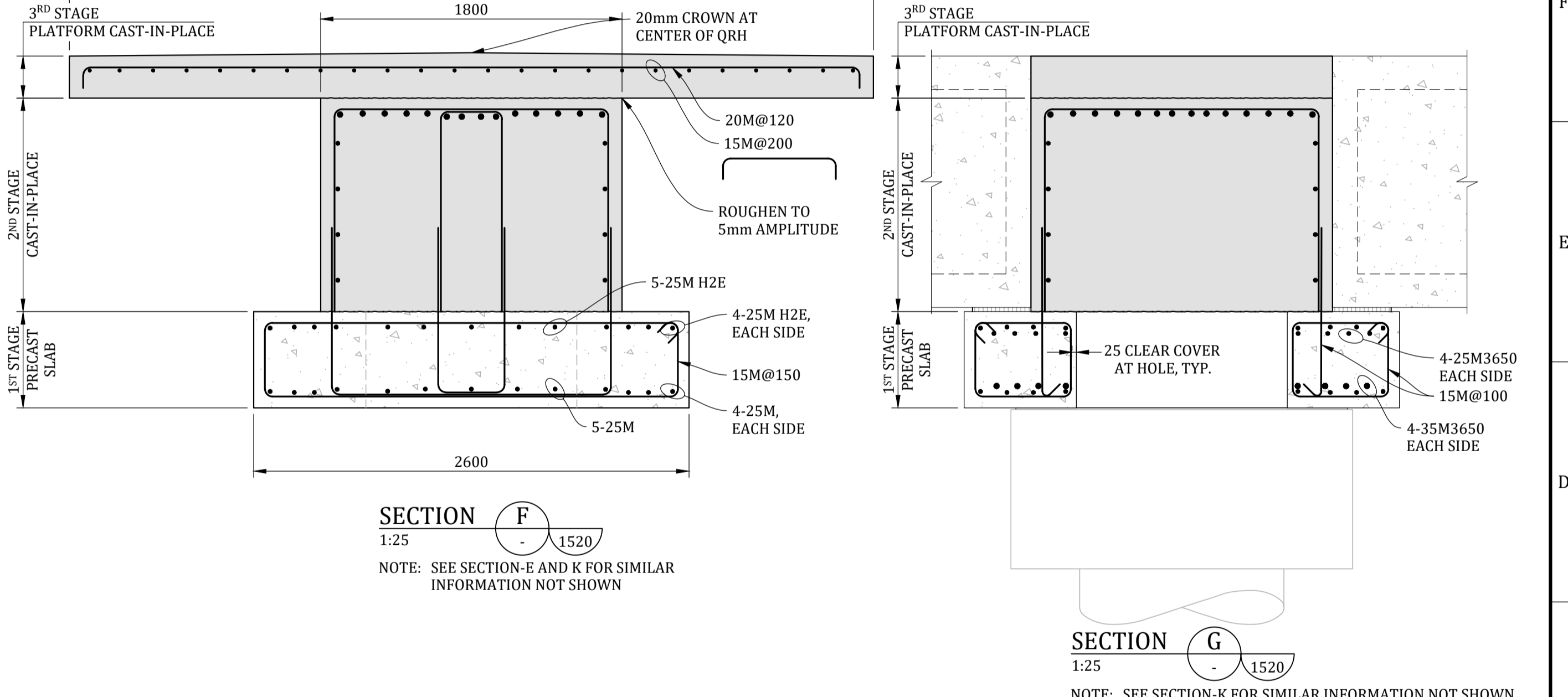
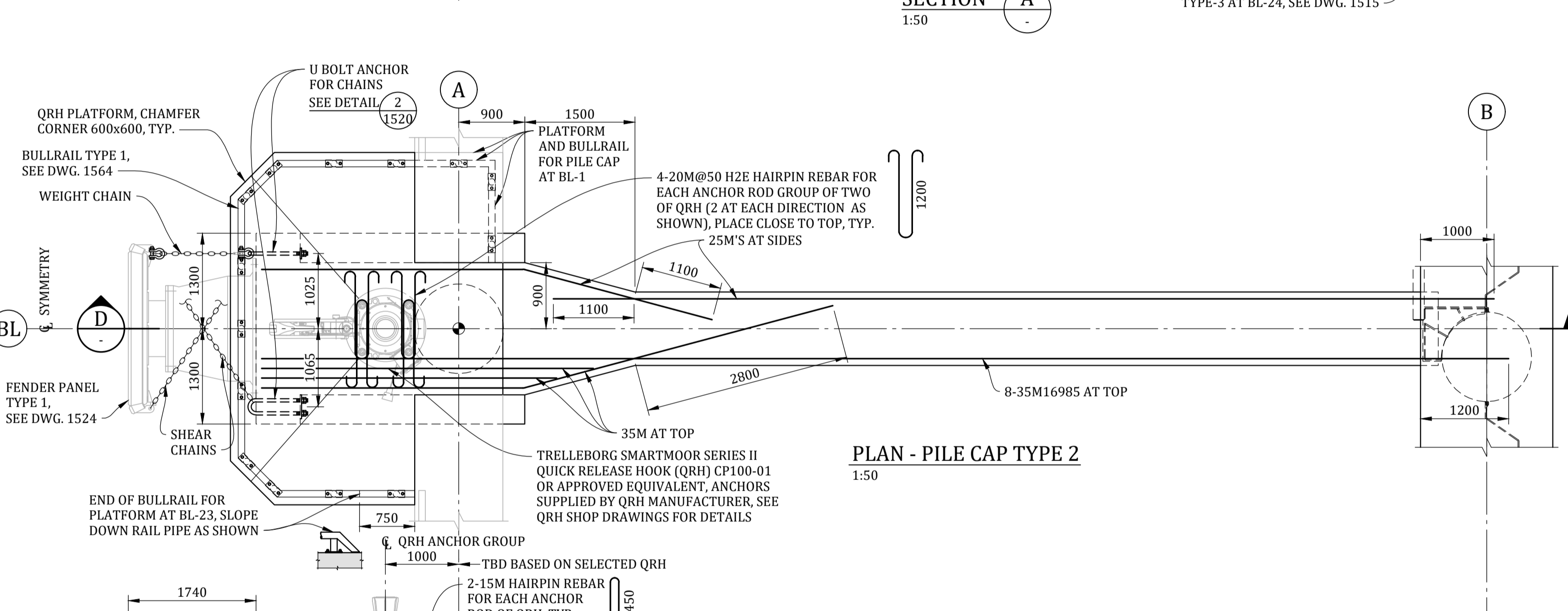
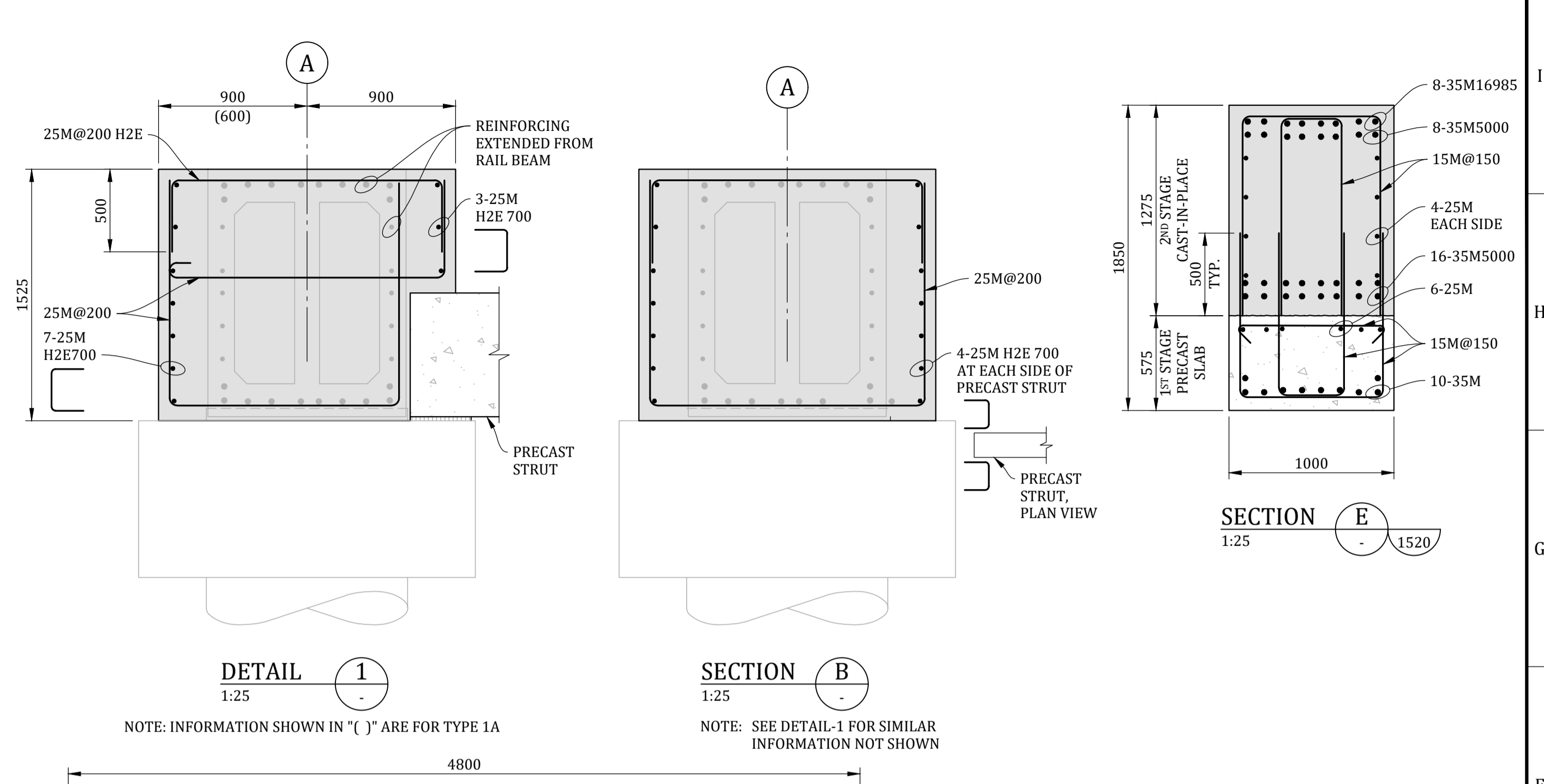
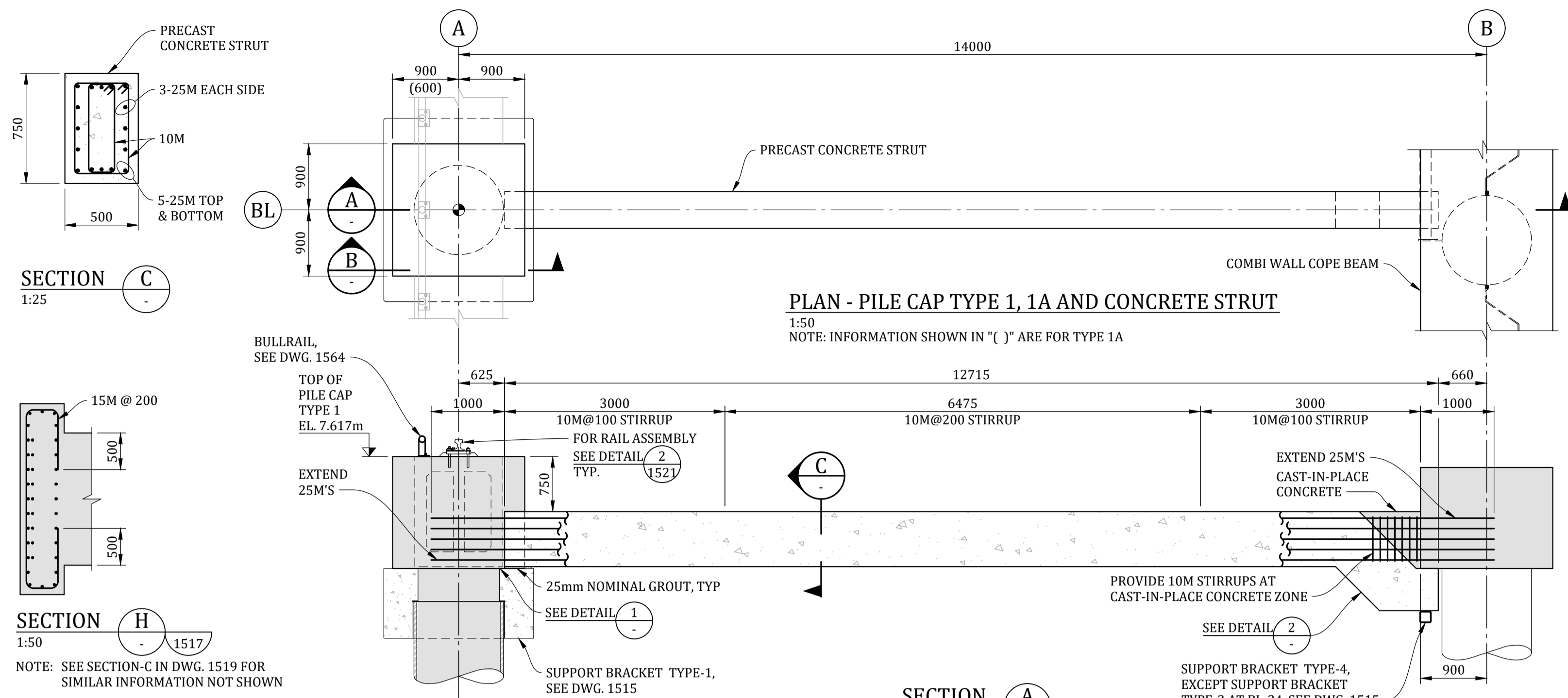
$\phi_{GUC}=0.4, \phi_{GUT}=0.3$
AFTER TEMPORARY MOORING DOLPHIN REMOVED, PILES TD1 TO TD4 COULD BE REUSED FOR UNCOATED PILES WITH SAME OR THINNER WALL THICKNESS, TO BE DETERMINED BY CONTRACTOR TO SUIT CONSTRUCTION SCHEDULE.

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COMBI WALL AND ANCHOR WALL KING PILE, SHEET PILES PILE LIST															
PILE #	SIZE (OD x THK. mm)	BATTER	CUT-OFF EL. (m)	APPROX. SEABED EL. (m)	EST. PILE TIP EL. (m)	ALLOWANCE (m)	SUPPLIED LENGTH (m)	COATED LENGTH (m)	FACTORED PILE AXIAL DESIGN LOAD (kN)	CONCRETE PLUG				AS-BUILT PILE DATA	
										LENGTH (m)	REBAR	EXTENT OF REBAR IN PILE (m)	# OF SHEAR RINGS	SEABED EL. (m)	PILE TIP EL. (m)
K1	1219 x 34.9	VERTICAL	6.167	-3.0	-72	2.8	81	15	Tf=2000kN Cf=3800kN	6	36-35M	3.5	0		
K2	1219 x 34.9	VERTICAL	6.167	-4.5	-72	2.8	81	17	Tf=2000kN Cf=3800kN	6	36-35M	3.5	0		
K3 to K5	1219 x 34.9	VERTICAL	6.167	-6.0	-70	2.8	79	18	Cf=3800kN	6	36-35M	3.5	0		
K6 to K8	1219 x 34.9	VERTICAL	6.167	-6.0	-70	2.8	79	18	Cf=3800kN	6	24-35M	3.5	0		
K9 to K10	1219 x 34.9	VERTICAL	6.167	-6.0	-70	2.8	79	18	Cf=4500kN	6	36-35M	3.5	0		
K11 to K13	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=3800kN	6	24-35M	3.5	0		
K14 to K16	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=5000kN	6	36-35M	3.5	0		
K17 to K19	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=3800kN	6	24-35M	3.5	0		
K20 to K21	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=4500kN	6	36-35M	3.5	0		
K22 to K29	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=3800kN	6	24-35M	3.5	0		
K30 to K31	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=4500kN	6	36-35M	3.5	0		
K32 to K44	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=3800kN	6	24-35M	3.5	0		
K45 to K46	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=4500kN	6	36-35M	3.5	0		
K47 to K49	1219 x 34.9	VERTICAL	6.167	-6.0	-75	2.8	84	18	Cf=3800kN	6	24-35M	3.5	0		
K50 to K51	1219 x 34.9	VERTICAL	6.167	-6.0	-80	2.8	89	18	Cf=4500kN	6	36-35M	3.5	0		
K52 to K56	1219 x 34.9	VERTICAL	6.167	-6.0	-80	2.8	89	18	Cf=3800kN	6	24-35M	3.5	0		
K57 to K58	1219 x 34.9	VERTICAL	6.167	-6.0	-80	2.8	89	18	Cf=4500kN	6	36-35M	3.5	0		
K59 to K63	1219 x 34.9	VERTICAL	6.167	-6.0	-80	2.8	89	18	Cf=3800kN	6	24-35M	3.5	0		
K64 to K65	1219 x 34.9	VERTICAL	6.167	-6.0	-82	2.8	91	18	Cf=4500kN	6	36-35M	3.5	0		
K66 to K67	1219 x 34.9	VERTICAL	6.167	-6.0	-85	2.8	94	18	Cf=3800kN	6	24-35M	3.5	0		
K68 to K69	1219 x 34.9	VERTICAL	6.167	-6.0	-85	2.8	94	18	Cf=4500kN	6	36-35M	3.5	0		
K70 to K72	1219 x 34.9	VERTICAL	6.167	-6.0	-85	2.8	94	18	Cf=3800kN	6	24-35M	3.5	0		
K73	1219 x 34.9	VERTICAL	6.167	-4.5	-85	2.8	94	17	Cf=3800kN	6	24-35M	3.5	0		
K74	1219 x 34.9	VERTICAL	6.167	-3.0	-										

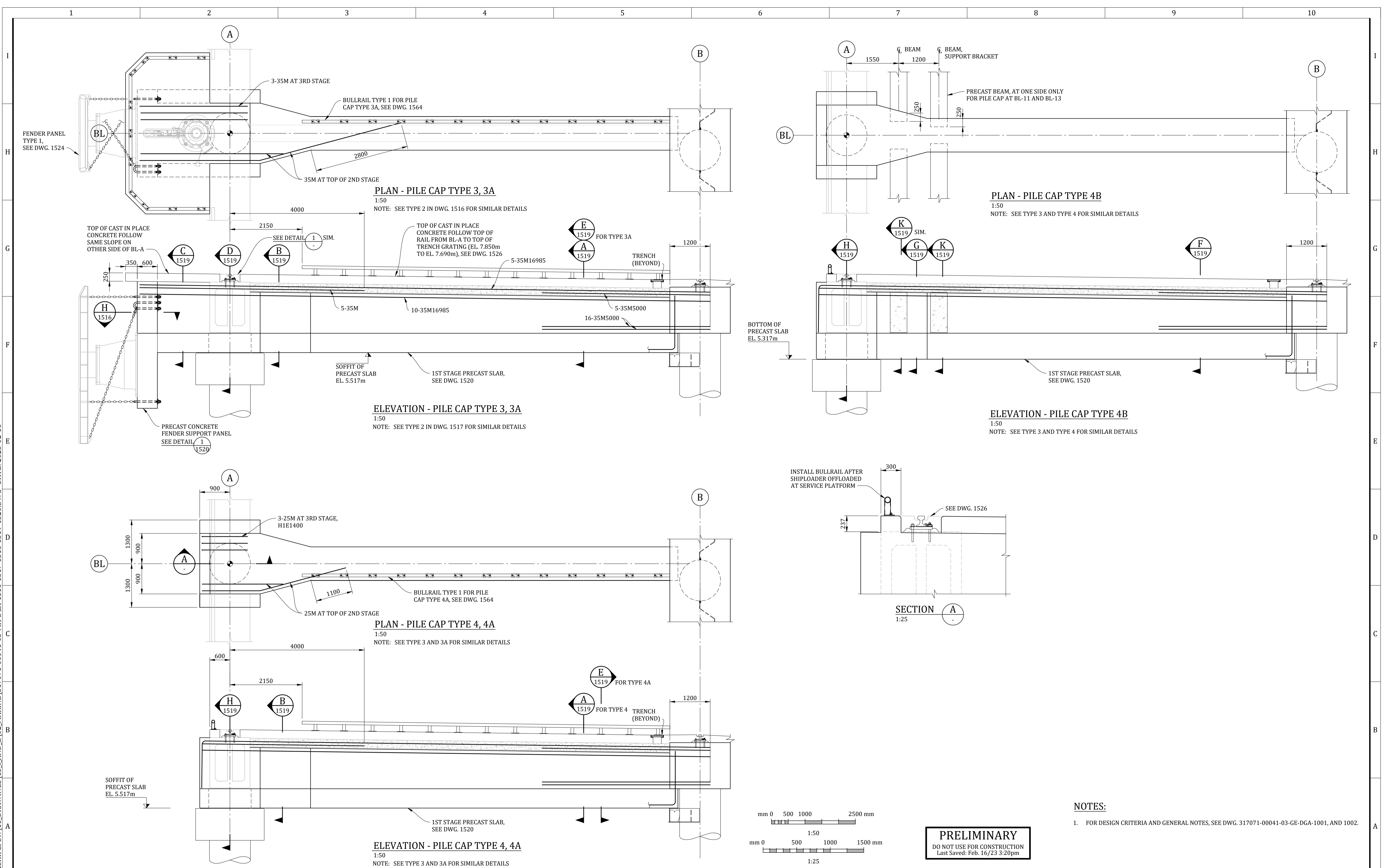


PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SHIPLOADER FOUNDATION PILE TYPICAL DETAILS	
SYSTEM: POTASH		2023-02-16 ISSUED FOR CLIENT REVIEW		317071-00041		Neptune TERMINALS		SCALE: SHEET OF DRAWING NO. REV. SHOWN 1 1 317071-00041-03-MA-DGA-1515 B	
ASSET: 251		2022-11-30 ISSUED FOR PERMITTING		*This drawing is prepared for the use of the contractual customer of Worthy Canada Services Ltd. and Worthy Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*		THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.			
DISCIPLINE: STRUCTURAL		REV. YYYY-MM-DD DESCRIPTION		OEM:					
DRAWING NO. DRAWING DESCRIPTION / TITLE		REV. YYYY-MM-DD DESCRIPTION		DRAWN APPROVED					
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS		VENDOR P2P:					



PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SHIPLOADER FOUNDATION PILE CAPS - SHEET 1			
SYSTEM: POTASH		B 2023-02-16 ISSUED FOR CLIENT REVIEW		GL AMT				SCALE: SHEET OF DRAWING NO. REV:			
ASSET: 251		A 2022-11-30 ISSUED FOR PERMITTING		GL AMT				SHOWN 1 1 317071-00041-03-MA-DGA-1516 B			
DISCIPLINE: STRUCTURAL		REV YYYY-MM-DD DESCRIPTION		DRAWN APPROVED		VENDOR P2P:					
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS									

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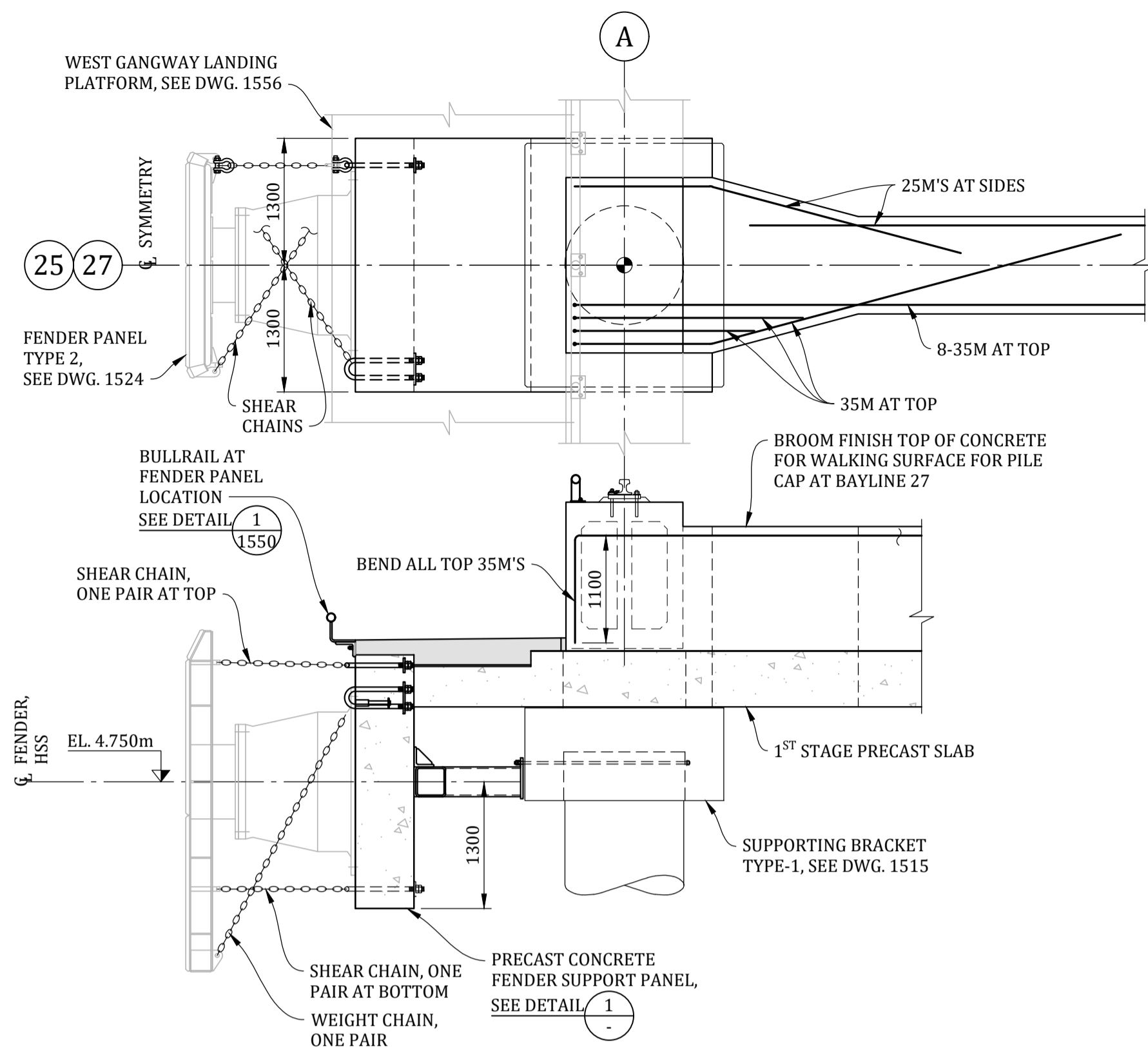


NOTES:
1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

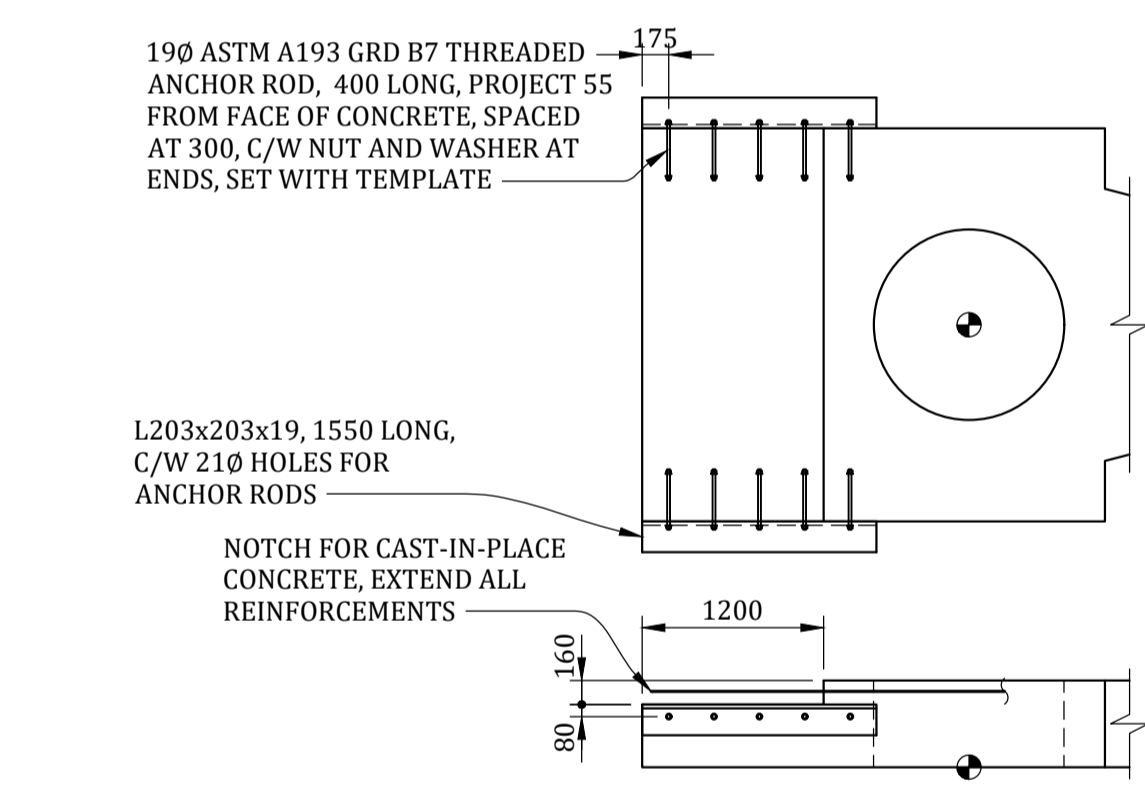
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PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 *This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SHIPLOADER FOUNDATION PILE CAPS - SHEET 2					
SYSTEM: POTASH		REV: B 2023-02-16 ISSUED FOR CLIENT REVIEW		OEM:		DRAWING NO. 317071-00041-03-MA-DGA-1517		SCALE: SHOWN		SHEET OF 1 1		REV: B	
ASSET: 251		REV: A 2022-11-30 ISSUED FOR PERMITTING		DRAWN: GL		DRAWING NO. 317071-00041-03-MA-DGA-1517		SCALE: SHOWN		SHEET OF 1 1		REV: B	
DISCIPLINE: STRUCTURAL		REV: YYY-MM-DD DESCRIPTION		DRAWN: GL		DRAWING NO. 317071-00041-03-MA-DGA-1517		SCALE: SHOWN		SHEET OF 1 1		REV: B	
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS		APPROVED:		DRAWING NO. 317071-00041-03-MA-DGA-1517		SCALE: SHOWN		SHEET OF 1 1		REV: B	
1		2		3		4		5		6		7	

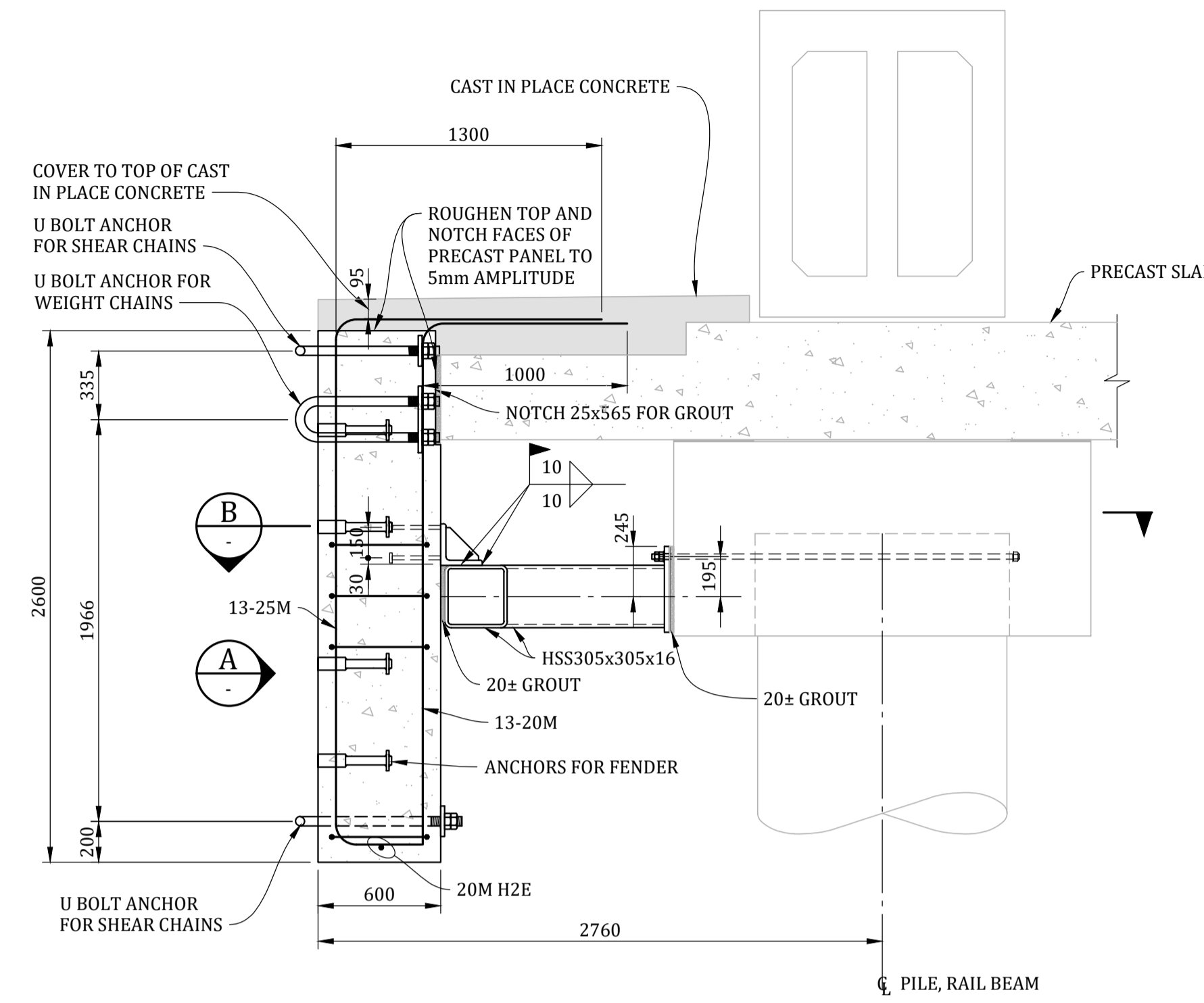
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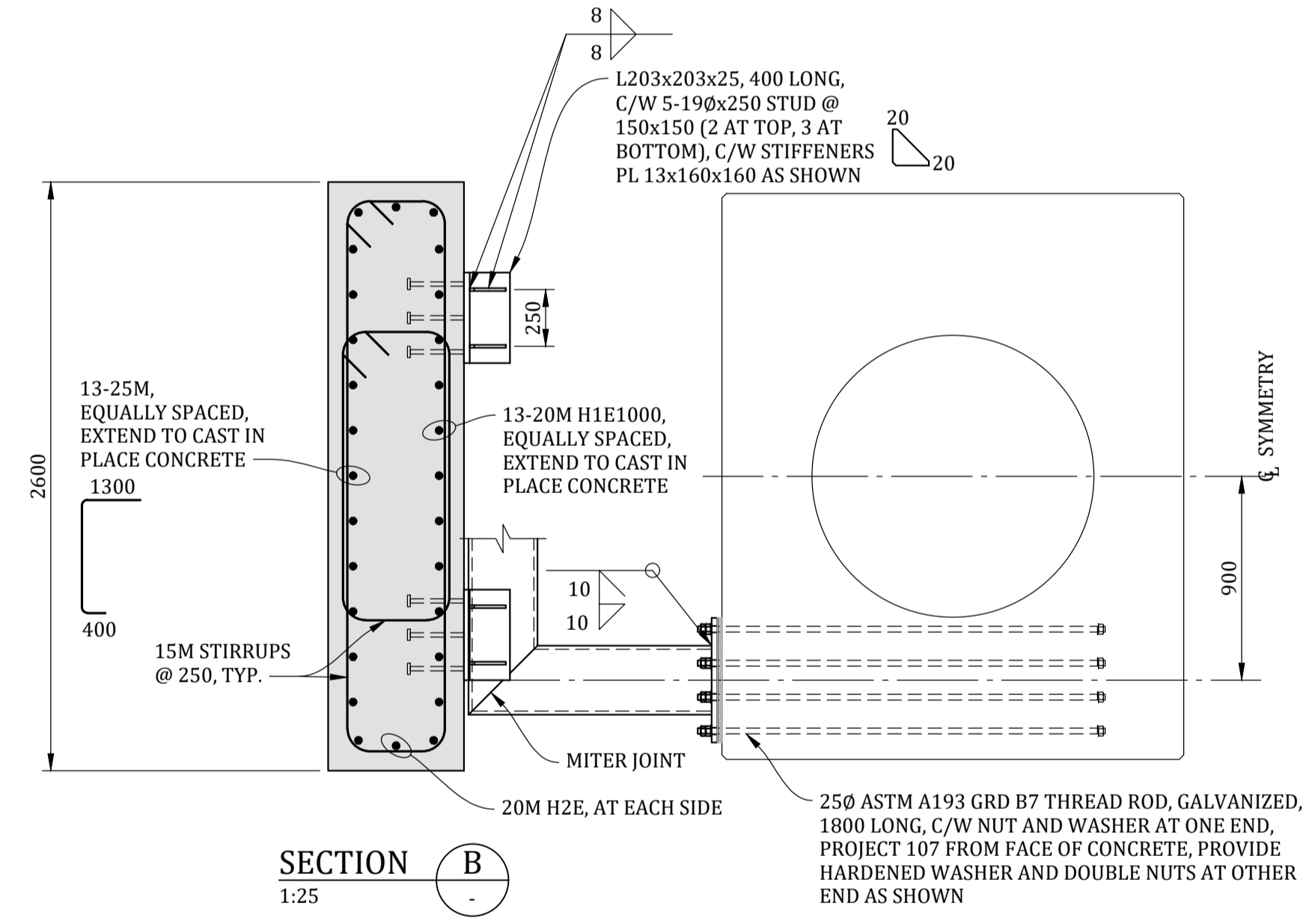
PILE CAP TYPE 5
1:50
SEE PILE CAP TYPE 2 FOR SIMILAR DETAILS



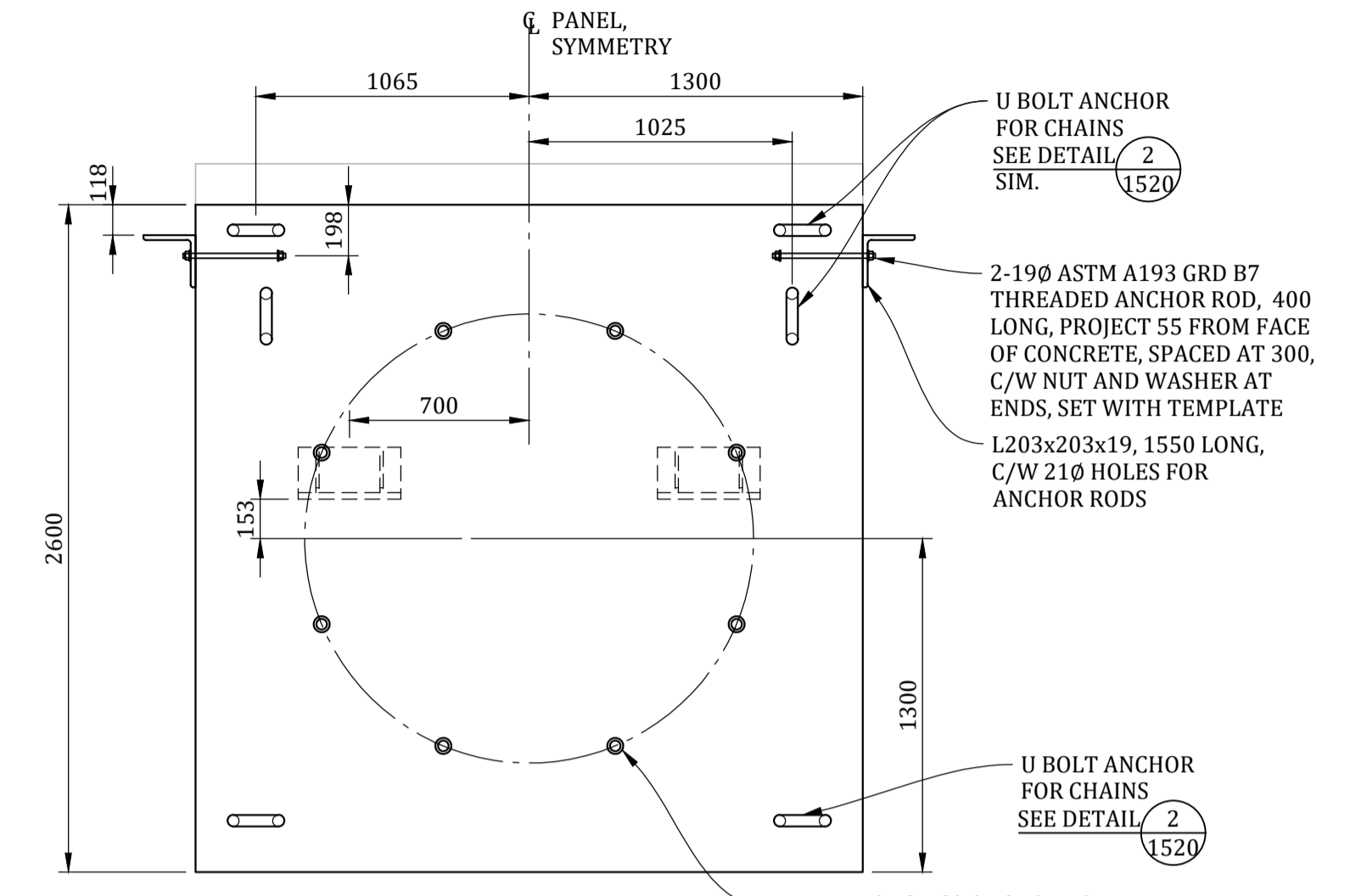
PRECAST SLAB FOR PILE CAP TYPE 5
1:50
SEE PRECAST SLAB FOR PILE CAP TYPE 2 FOR DETAILS



DETAIL 1
1:25

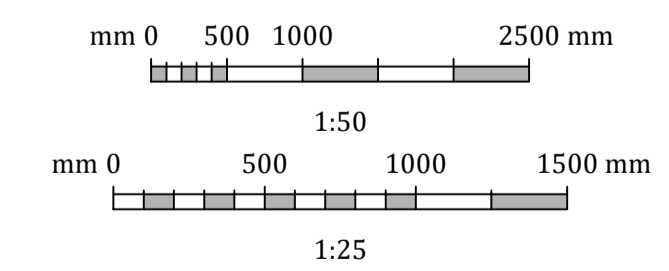


SECTION B
1:25



VIEW A
1:25

NOTE: CONFIRM WITH RUBBER FENDER AND CHAIN SHOP DRAWINGS PRIOR TO FABRICATION AND INSTALLATION OF FENDER FIXING INSERTS AND CHAIN LUGS

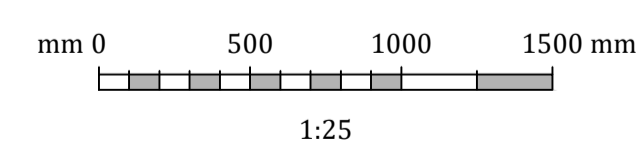
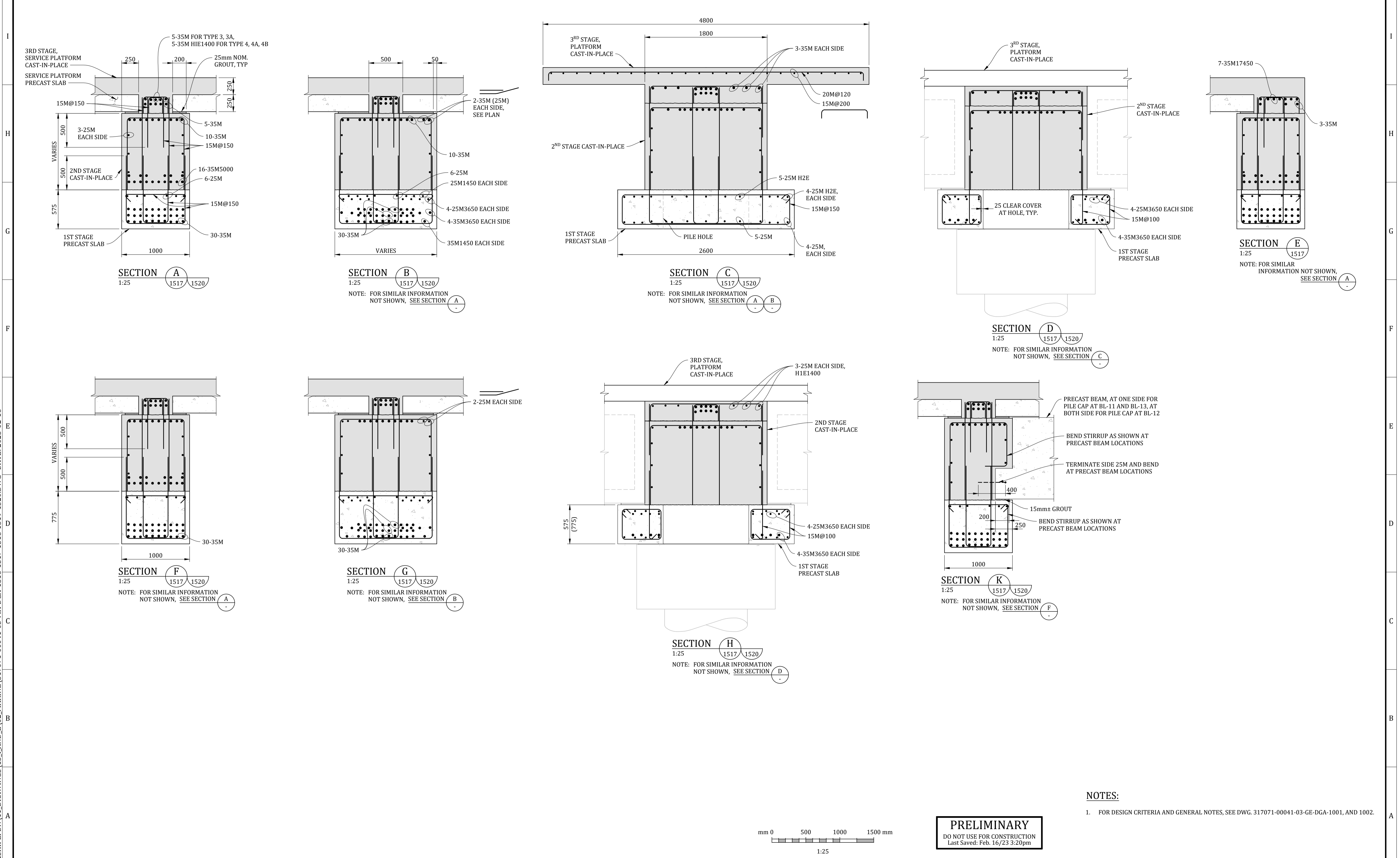


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- NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
 - FOR FENDER PANEL CHAIN INFORMATION, SEE DWG. 317071-00041-03-MA-DGA-1524.

PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian Worley Group 317071-00041 *This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SHIPLOADER FOUNDATION PILE CAPS - SHEET 3							
SYSTEM: POTASH		REV: B 2023-02-16 ISSUED FOR CLIENT REVIEW GL AMT		OEM:		<p>THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.</p>		SCALE: SHOWN		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1518		REV: B	
ASSET: 251		REV: A 2022-11-30 ISSUED FOR PERMITTING GL AMT		DRAWN APPROVED				DRAWING NO. 317071-00041-03-MA-DGA-1518							
DISCIPLINE: STRUCTURAL		REV: YYY-MM-DD DESCRIPTION		DRAWN APPROVED		VENDOR P2P:									
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS													

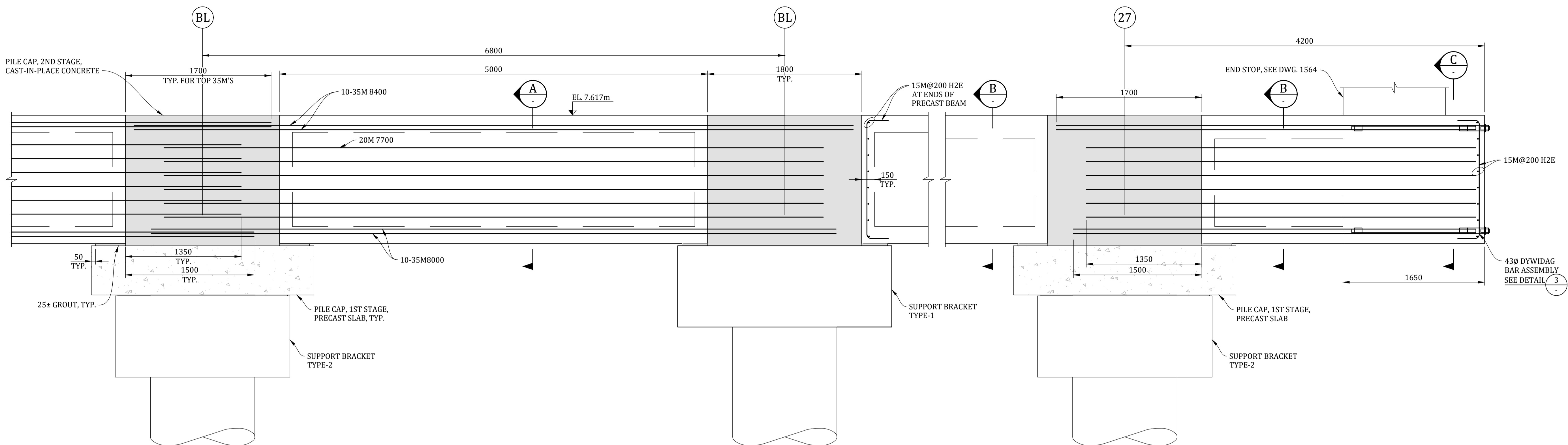
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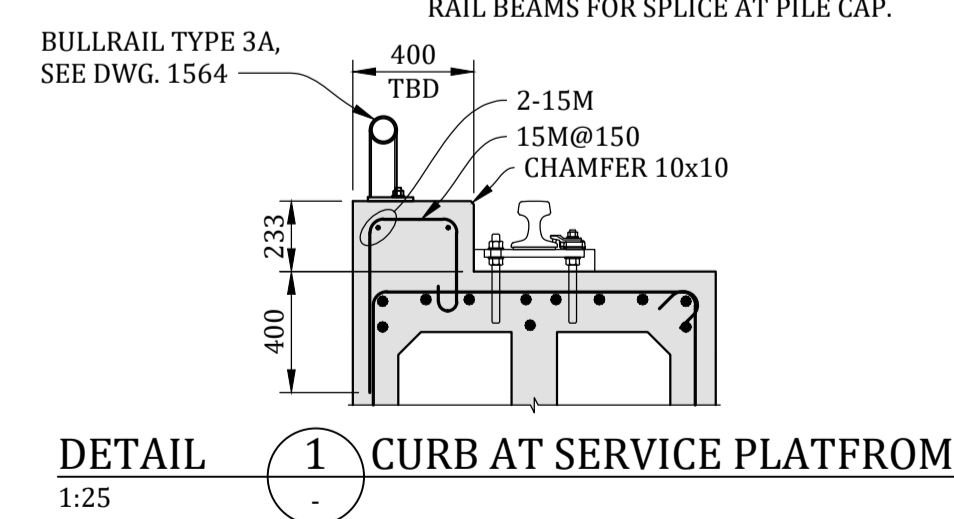
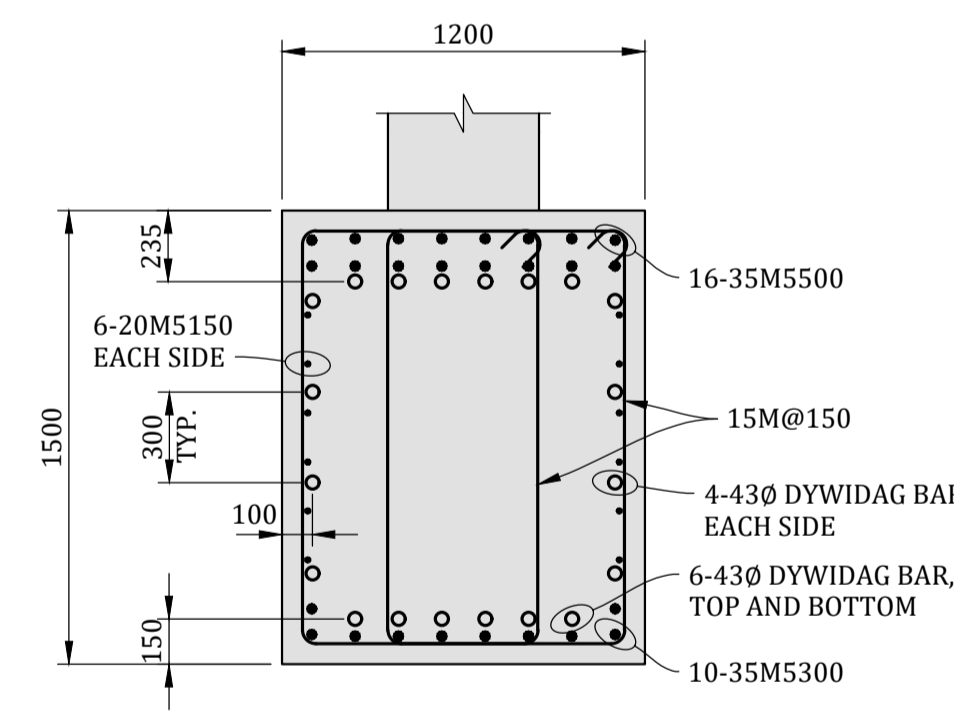
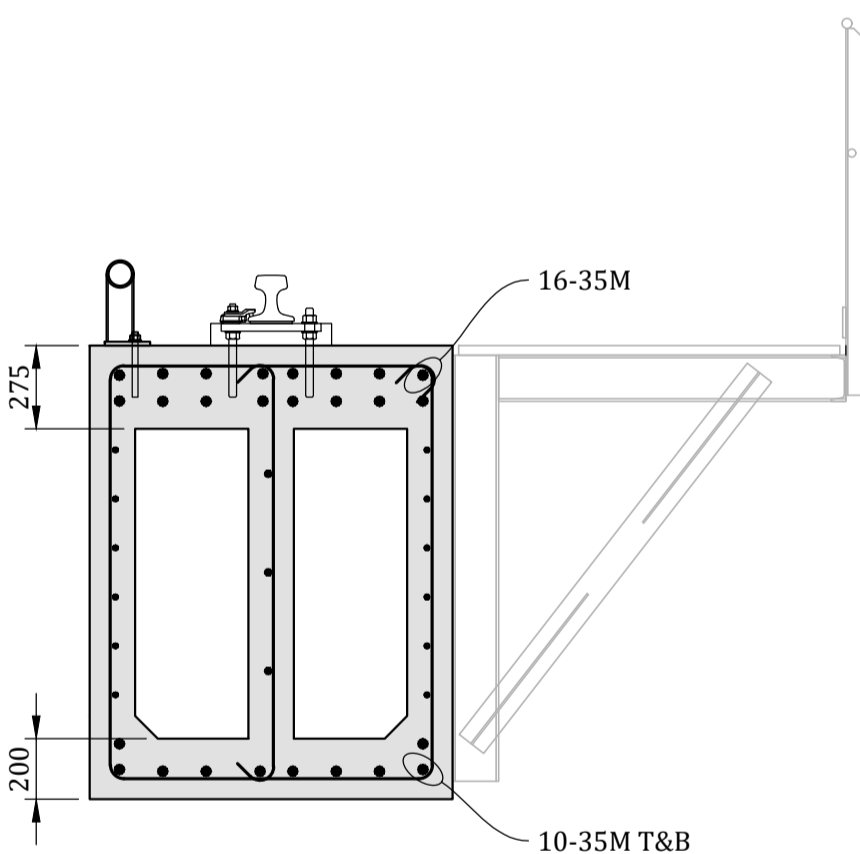
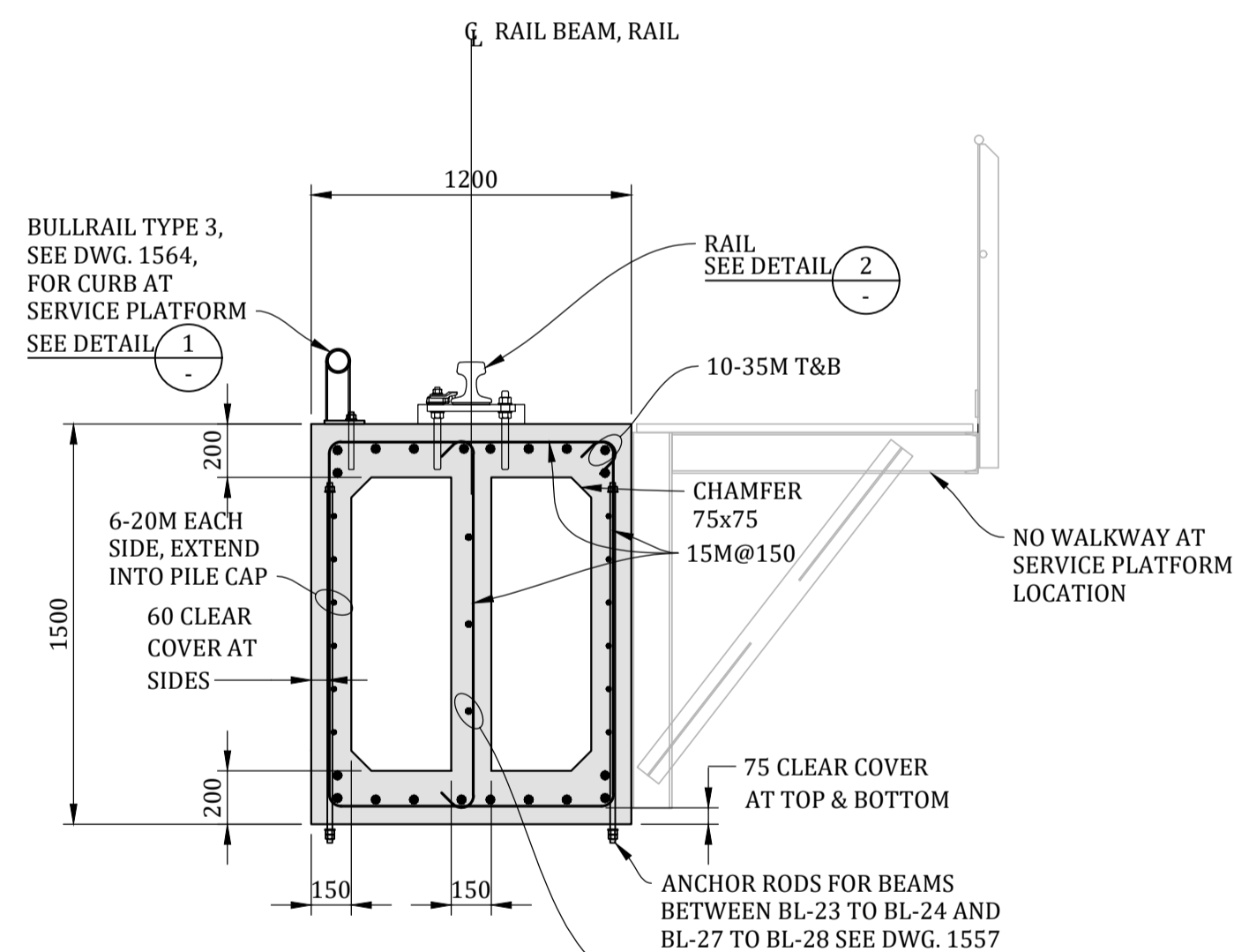
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NOTES:
1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

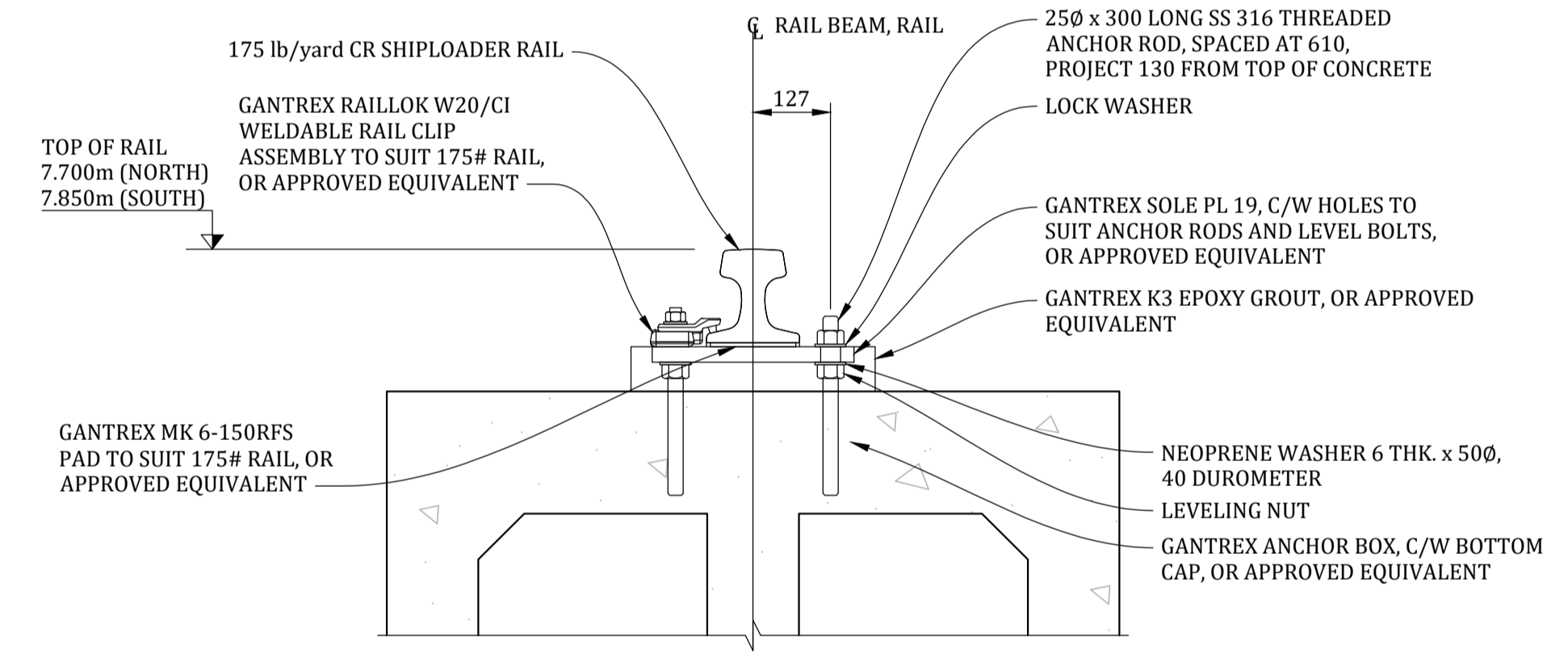
PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SHIPLOADER FOUNDATION PILE CAPS - SECTIONS							
SYSTEM: POTASH															
ASSET: 251															
DISCIPLINE: STRUCTURAL		REV: A 2023-02-16 ISSUED FOR CLIENT REVIEW		GL		AMT									
DRAWING NO. REFERENCE DRAWINGS / DESIGN STANDARDS		DESCRIPTION		DRAWN		APPROVED									
		ISSUES / REVISIONS		VENDOR P2P:											
								SCALE: SHOWN		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1519		REV: A	



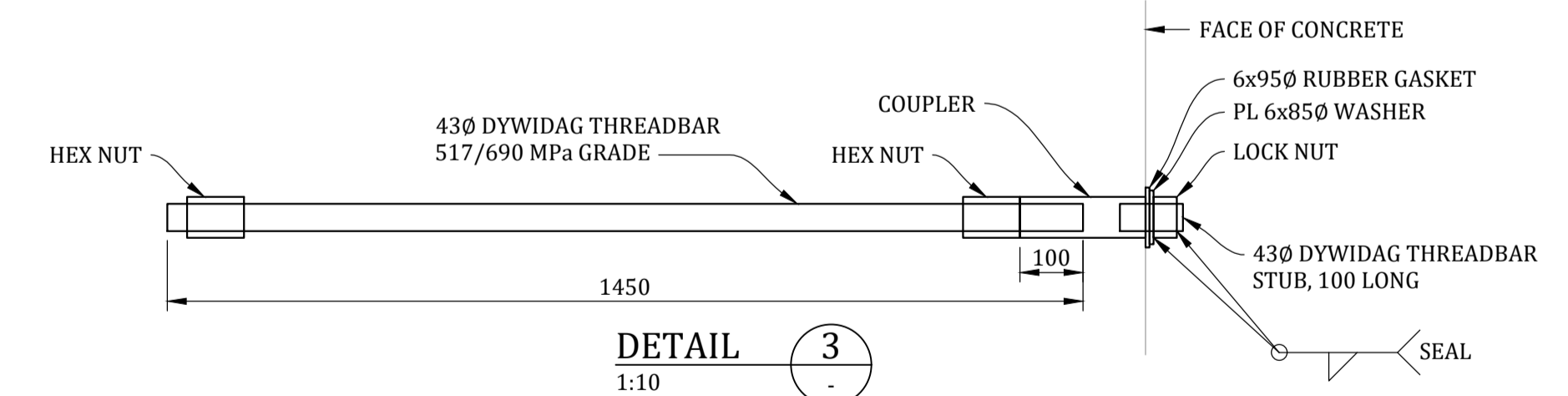
ELEVATION - SOUTH RAIL BEAM
1:25
NOTE: BULLRAIL AND SHIPLOADER RAIL NOT SHOWN FOR CLARITY.



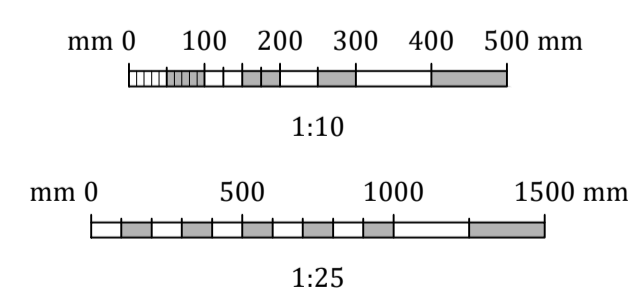
DETAIL 1 - CURB AT SERVICE PLATFORM
1:25



DETAIL 2 - RAIL BEAM RAIL
1:10
ENTIRE ASSEMBLY TO BE DETERMINED BY THE SELECTED RAIL ASSEMBLY SUPPLIER



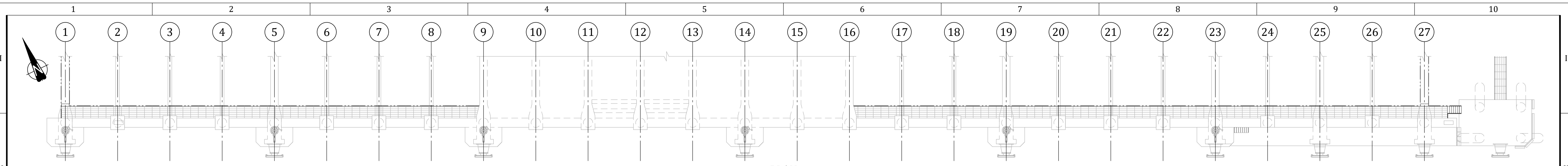
DETAIL 3 - COUPLER
1:10
ENTIRE ASSEMBLY TO BE HOT DIP GALVANIZED



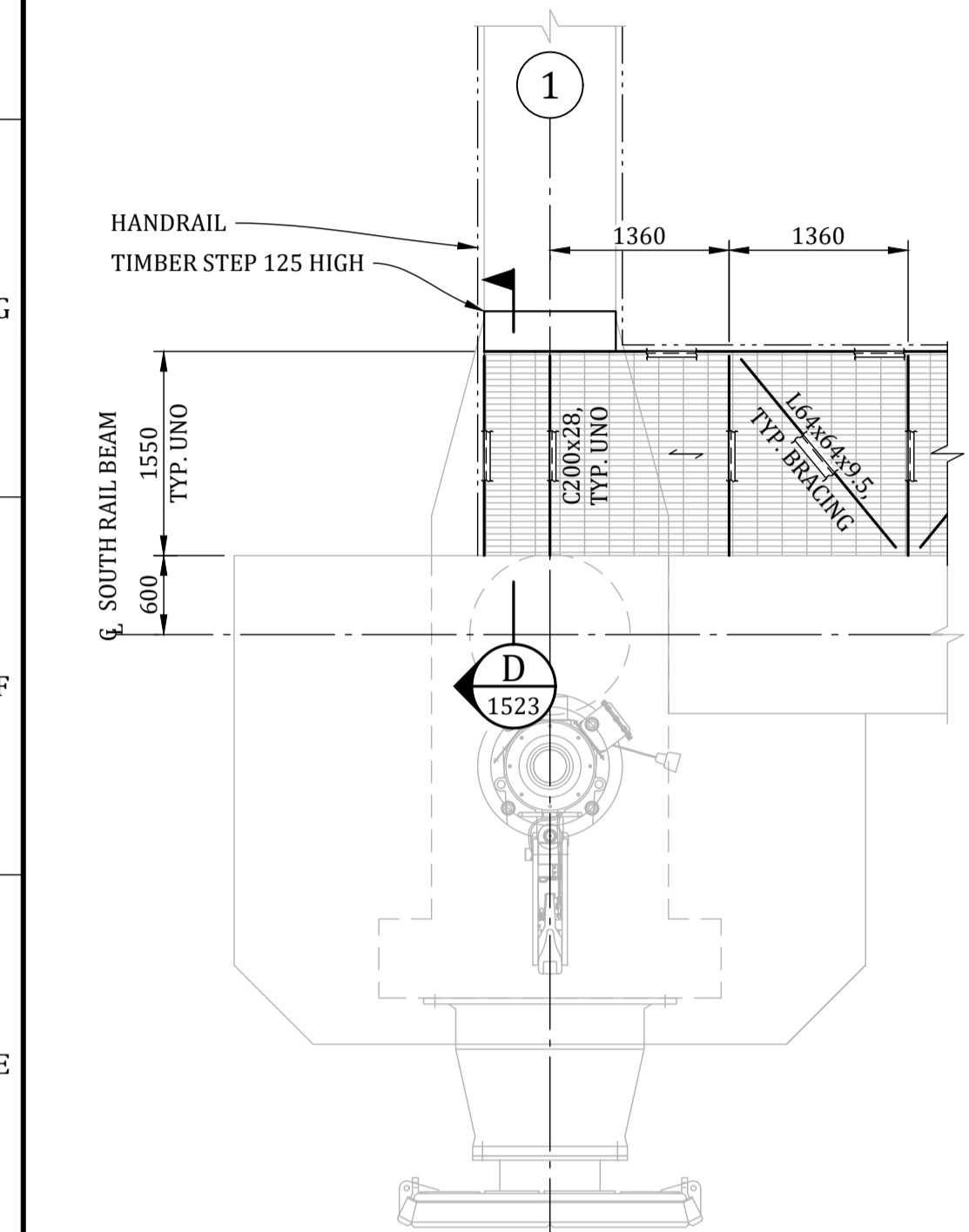
PRELIMINARY
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Last Saved: Feb. 16/23 3:34pm

NOTES:
1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

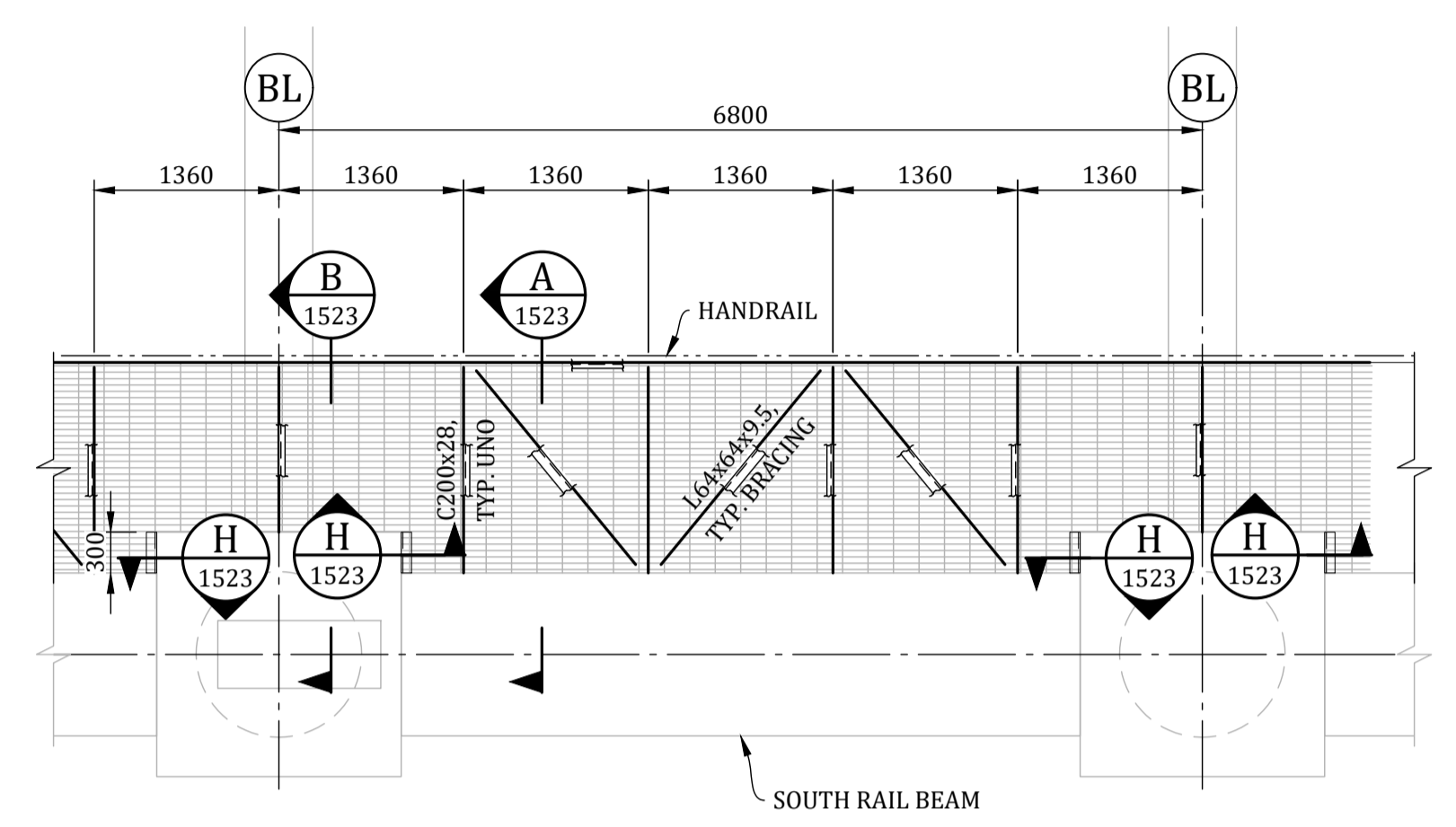
PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL SHIPLOADER FOUNDATION - RAIL BEAMS DETAILS			
SYSTEM: POTASH											
ASSET: 251											
DISCIPLINE: STRUCTURAL											
DRAWING NO.	DRAWING DESCRIPTION / TITLE	REV	YYYY-MM-DD	DESCRIPTION	DRAWN	APPROVED					
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS		VENDOR P2P:							
1	2	3	4	5	6	7	8	9	10		



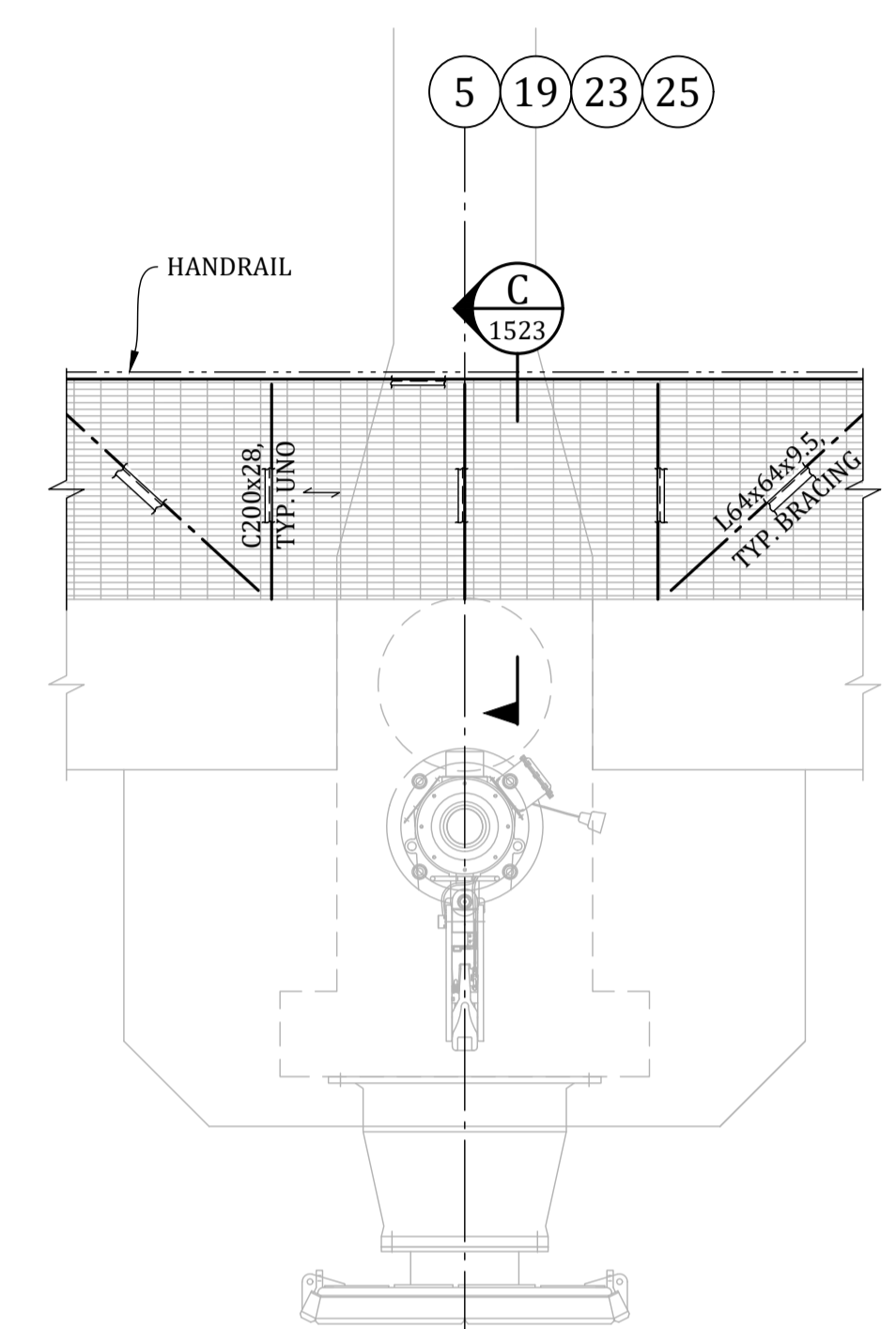
PLAN
1:250



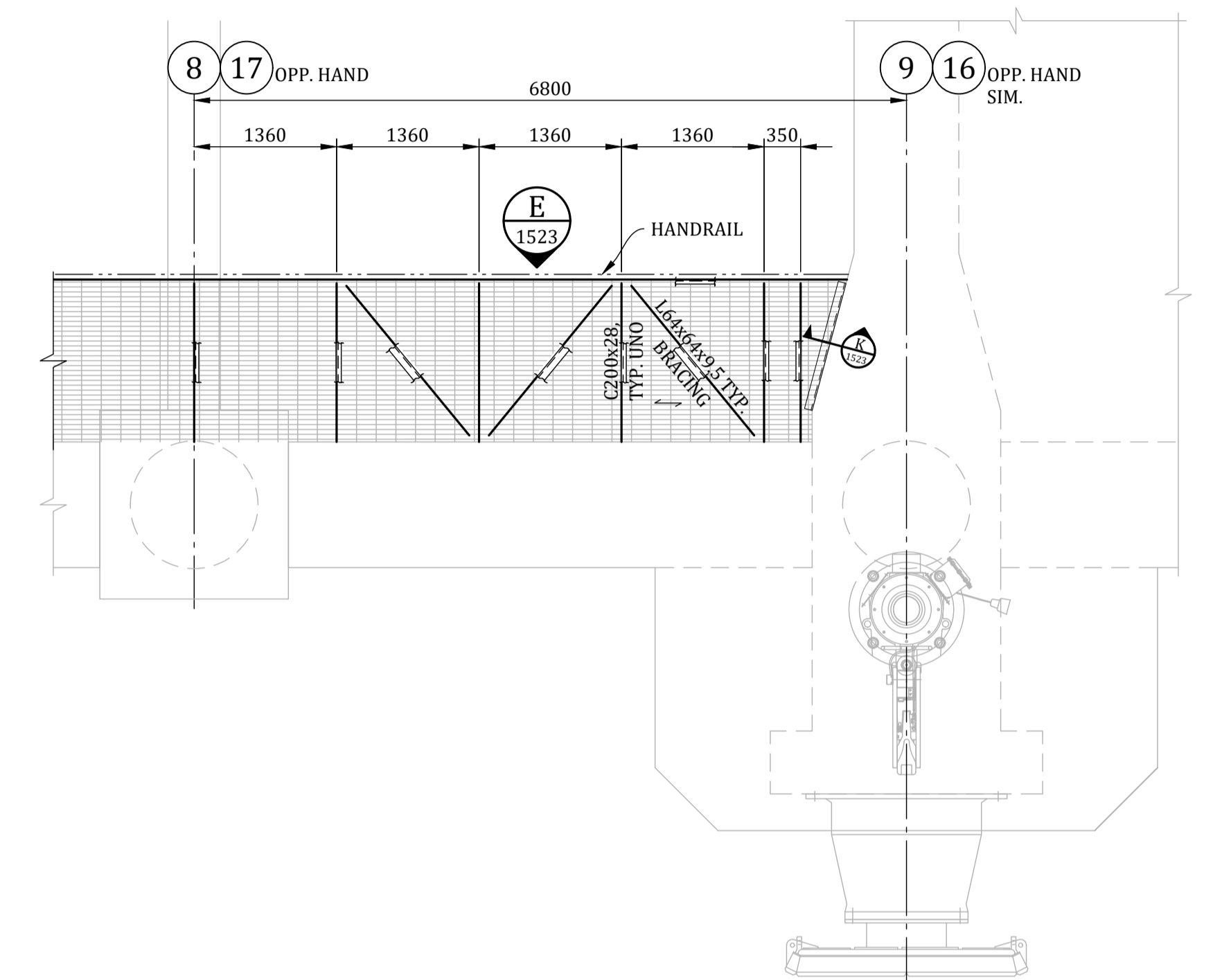
PLAN - WALKWAY AT BENT 1
1:50
NOTE: TOS @ EL. 7.585m



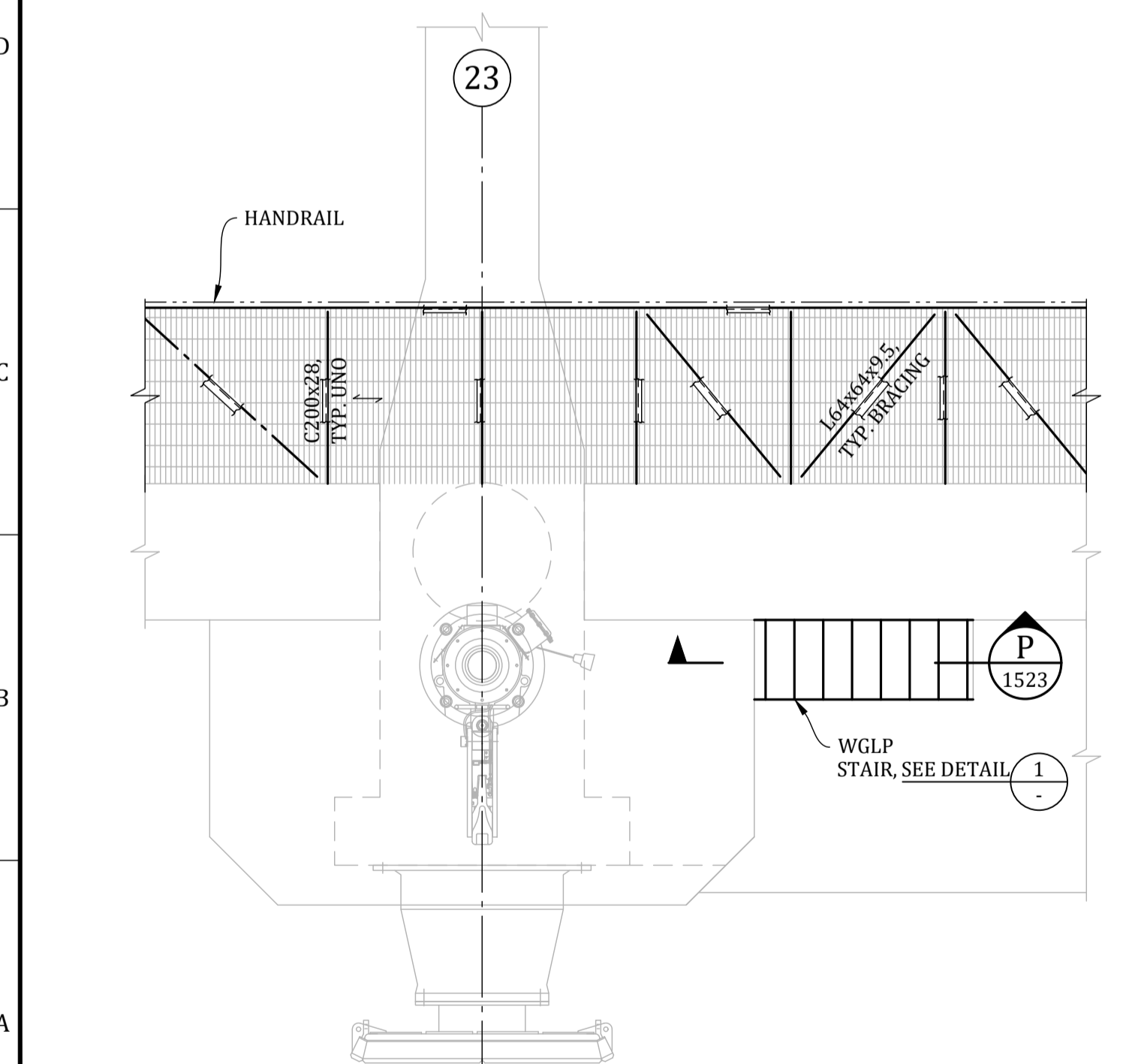
PLAN - TYPICAL SOUTH RAIL BEAM WALKWAY
1:50
NOTE: TOS @ EL. 7.585m



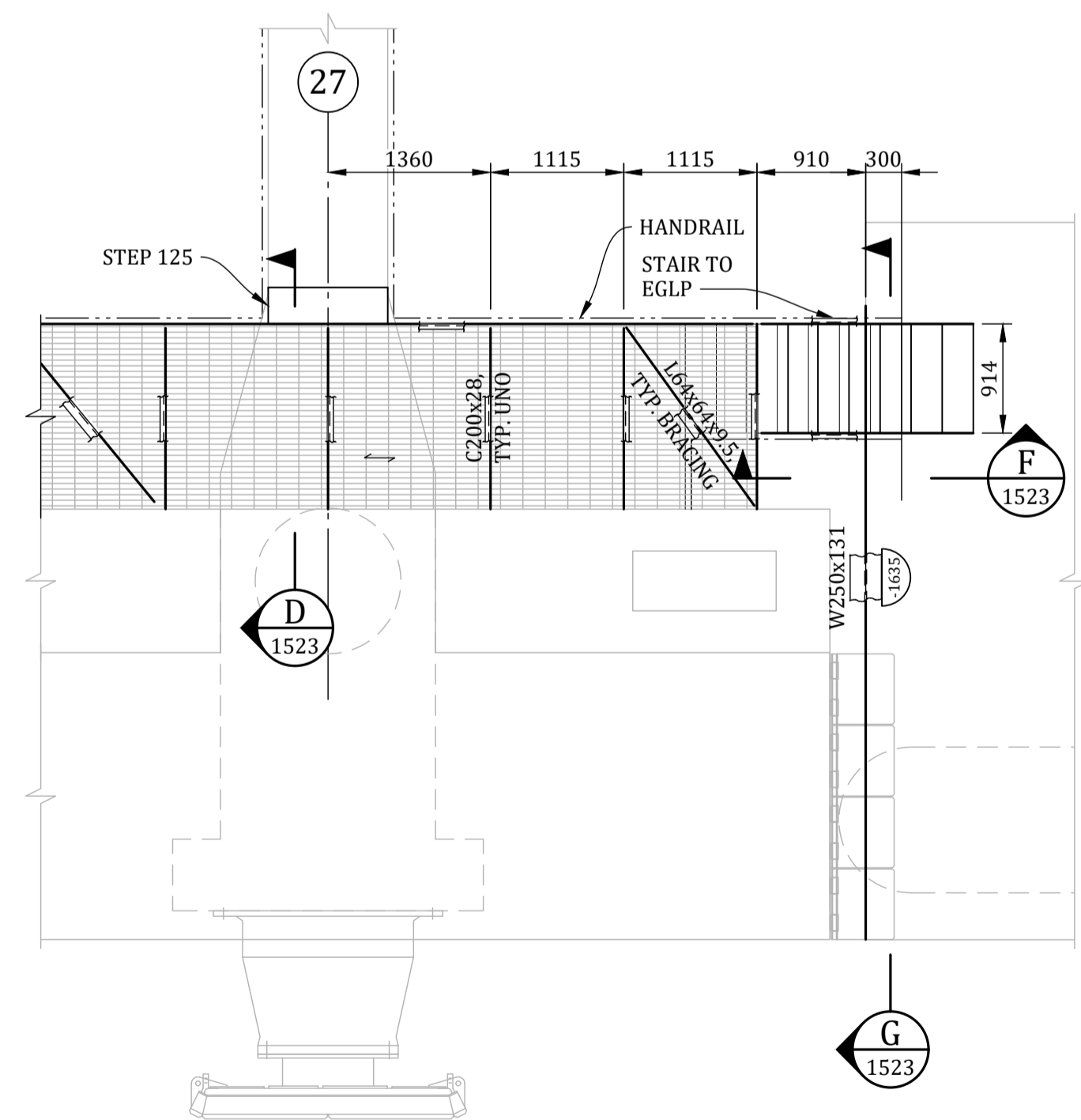
PLAN - WALKWAY AT BENTS 5, 19, 23, AND 25
1:50
NOTE: TOS @ EL. 7.585m



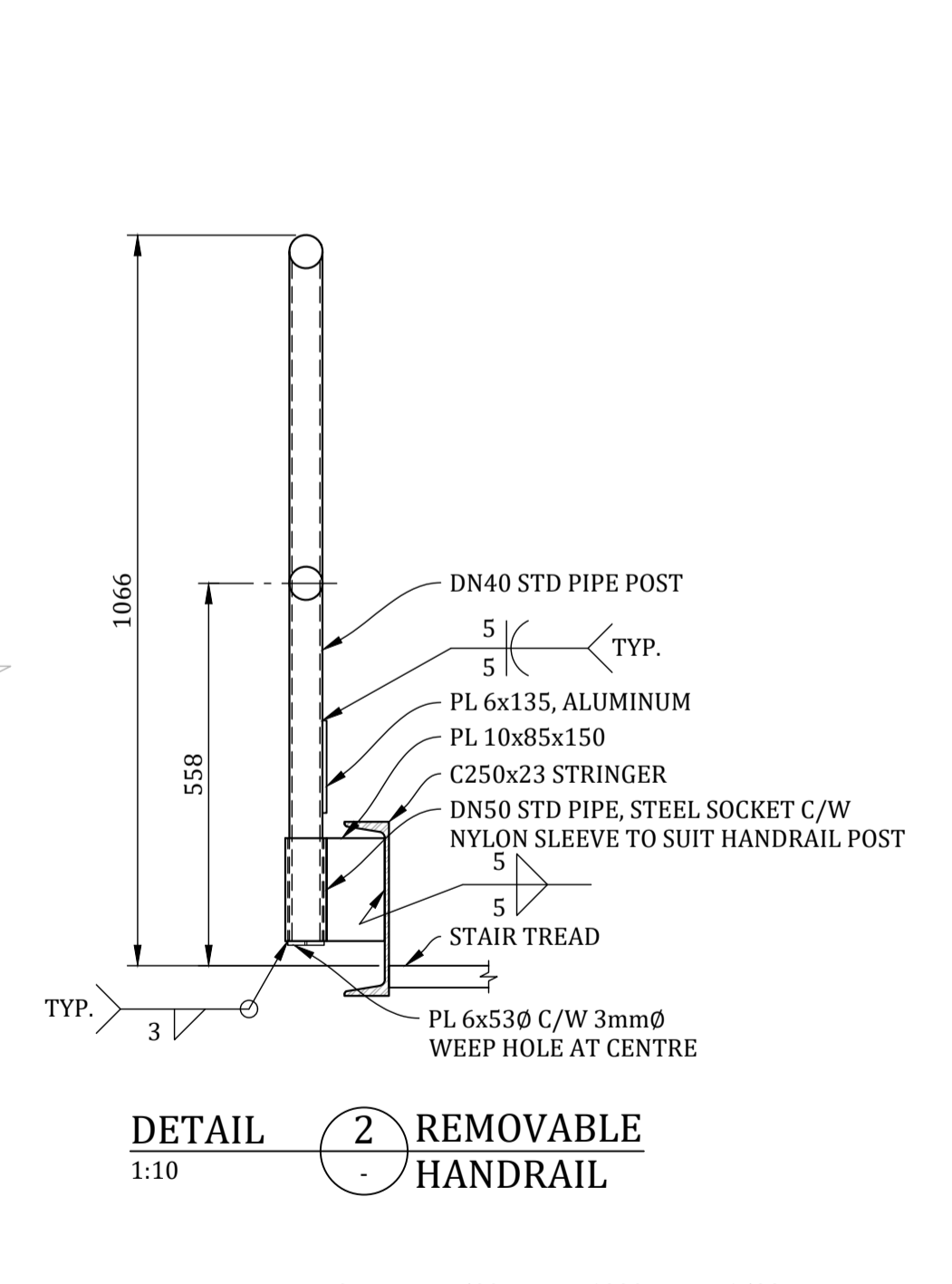
PLAN - WALKWAY AT SERVICE PLATFORM
1:50
NOTE: TOS @ EL. 7.585m



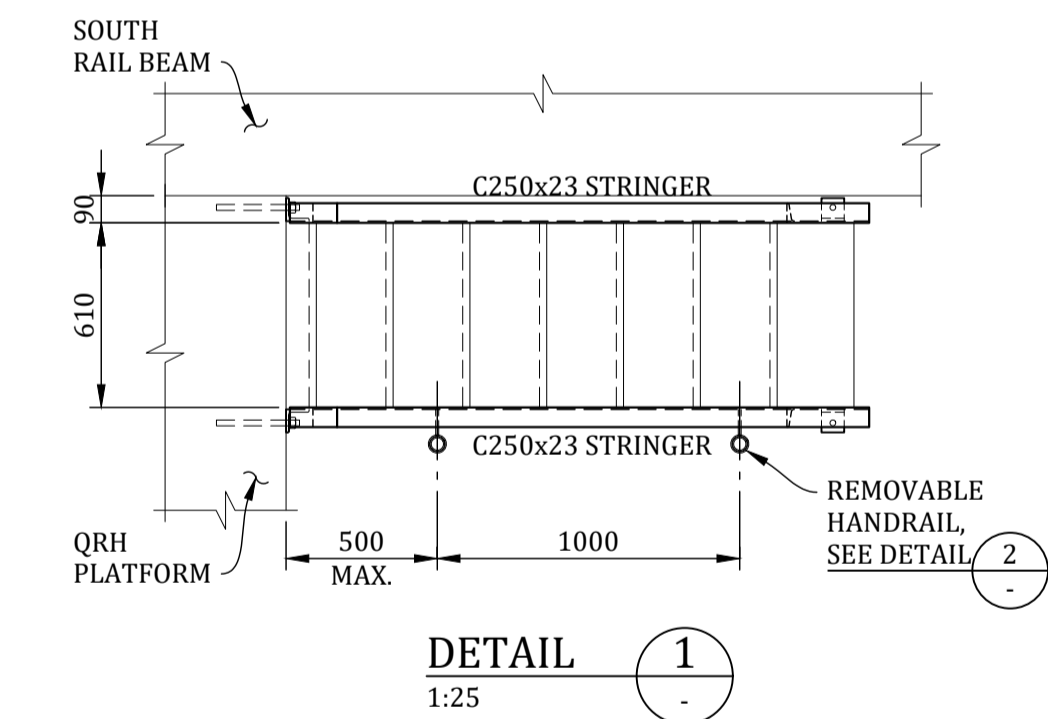
PLAN - STAIR TO WGLP
1:50
NOTE: TOS @ EL. 7.585m



PLAN - WALKWAY TO EGLP
1:50
NOTE: TOS @ EL. 7.585m



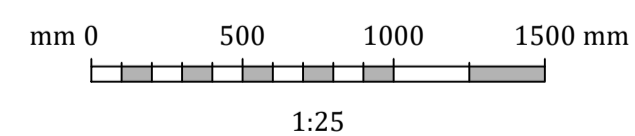
DETAIL 2 REMOVABLE HANDRAIL
1:10



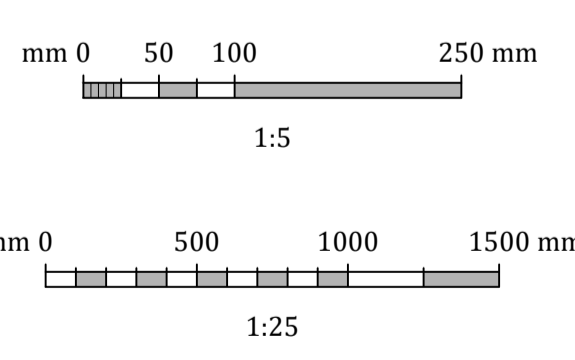
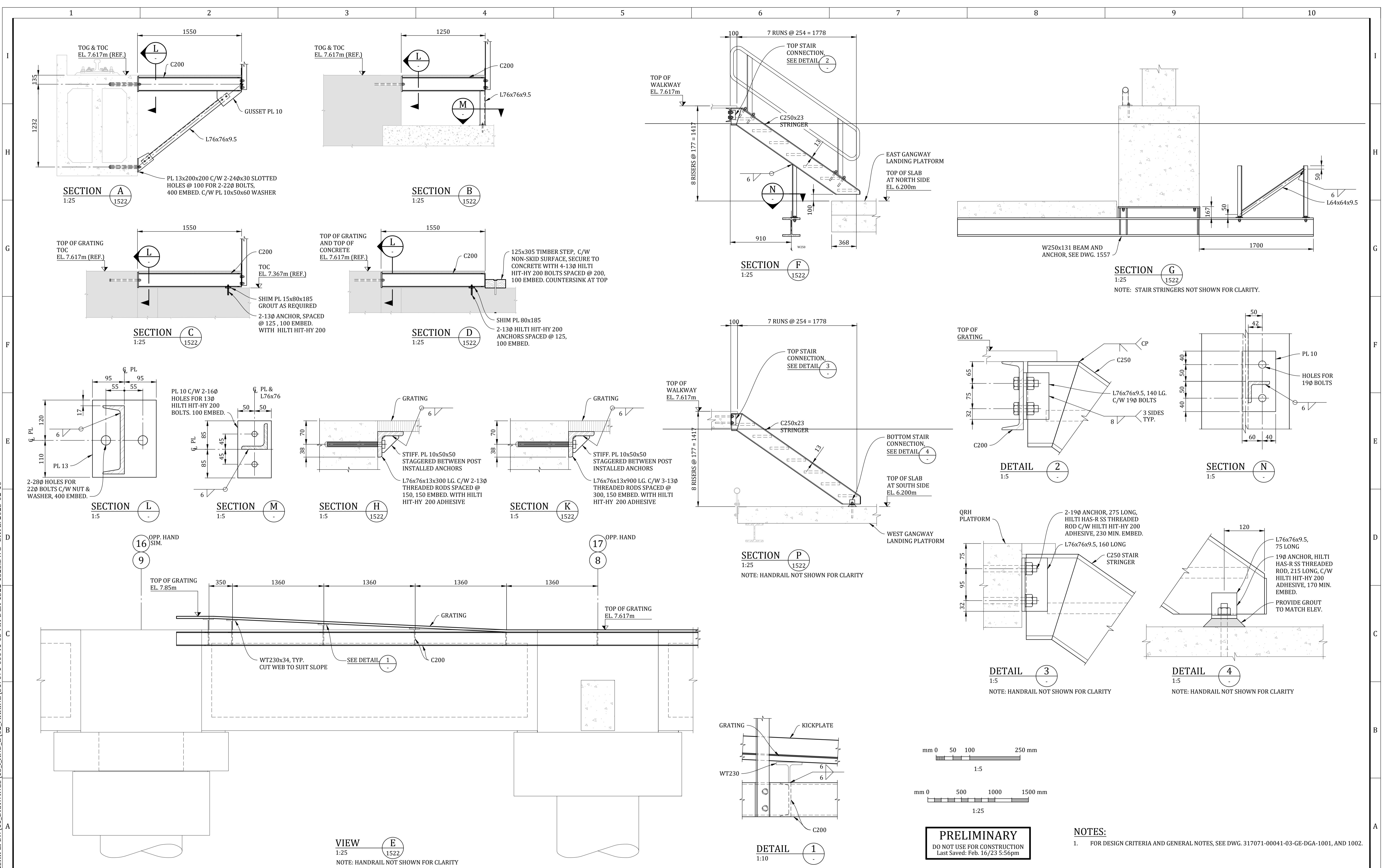
DETAIL 1
1:25

- NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-MA-DGA-1001, AND 1002.
 - WALKWAY GRATING AND ATTACHMENT CLIPS SHALL BE FISHER AND LUDLOW SERRATED GRATING TYPE 30-102 BEARING BAR SIZE 32X5 SS 304/304L.
 - FOR HANDRAIL DETAILS AND CONNECTIONS, SEE DWG. 317071-00041-03-MA-DGA-1565.
 - ALL HANDRAILS AND GRATING SHALL BE ISOLATED FROM THE METAL STRUCTURE USING A MINIMUM OF TWO COATS OF EPOXY PAINT WHERE HANDRAILS TOUCH THE METAL STRUCTURES.
 - ALL HANDRAIL BOLTS AND NUTS SHALL HAVE PLASTIC FLANGED SLEEVES.
 - ISOLATION PRODUCTS USED MUST NOT AFFECT STRUCTURAL STABILITY OF THE CONNECTIONS, AND MUST NOT SHRINK OR DETERIORATE OVER THE SERVICE LIFE OF THE STRUCTURE.
 - GRATING PANELS SHALL BE CONNECTED WITH A MINIMUM OF FOUR FASTENERS FOR SINGLE PANEL (OR EVERY 1.0m²).
 - LATERAL RESTRAINT OF THE GRATING PANELS SHALL BE PROVIDED BY STRUCTURAL STEEL KICK PLATES (OR OTHER STRUCTURAL STEEL) LOCATED AROUND THE GRATING, OR BY STAINLESS STEEL TIES; TYING THE GRATING PANELS TOGETHER WITH CABLE SEALS WITH A BREAKING STRENGTH OF 10.67 kN.

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PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL RAIL BEAM WALKWAYS PLAN			
SYSTEM: POTASH								SCALE: SHEET OF DRAWING NO. REV: SHOWN 1 1 317071-00041-03-MA-DGA-1522 A			
ASSET: 251		DISCIPLINE: STRUCTURAL		REV: 2023-02-16 ISSUED FOR CLIENT REVIEW AAL AMT		OEM:					
DRAWING NO. DRAWING DESCRIPTION / TITLE		DISCIPLINE: STRUCTURAL		REV: YYYY-MM-DD DESCRIPTION DRAWN APPROVED		VENDOR P2P:					
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS									

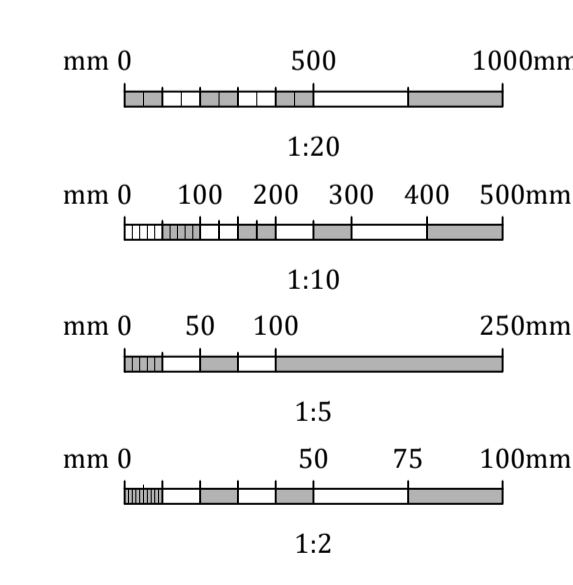
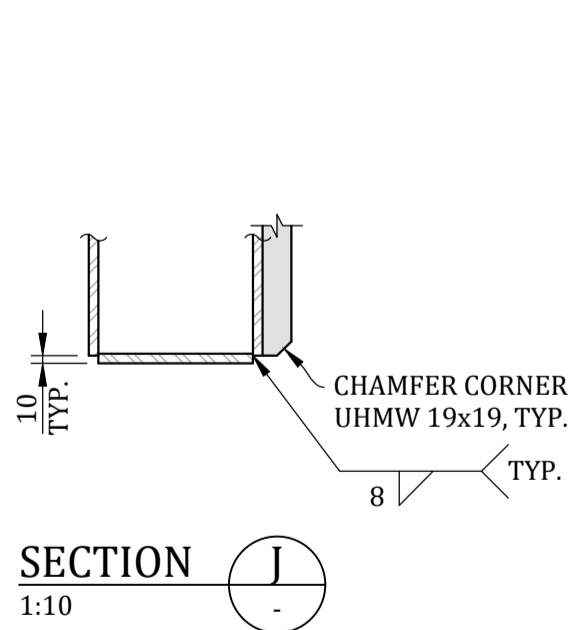
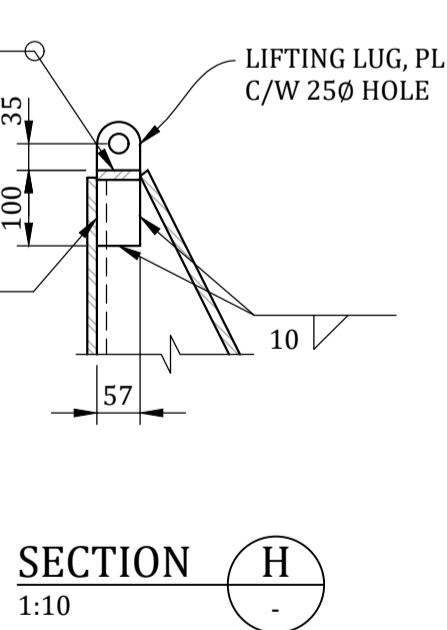
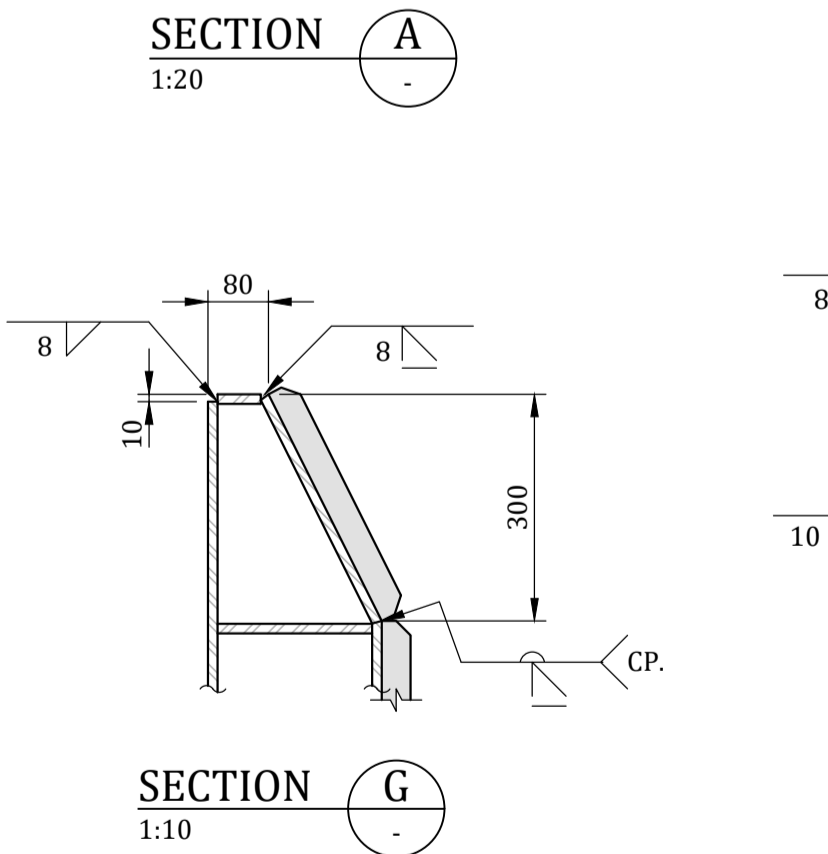
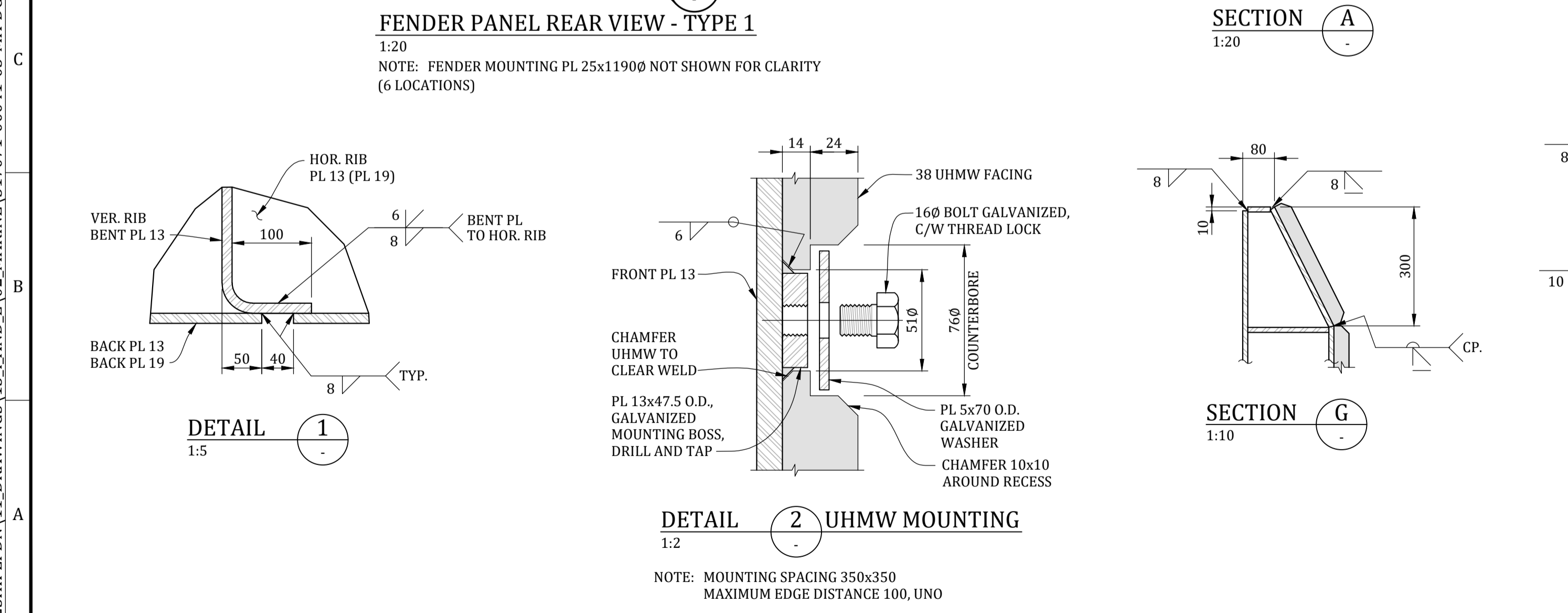
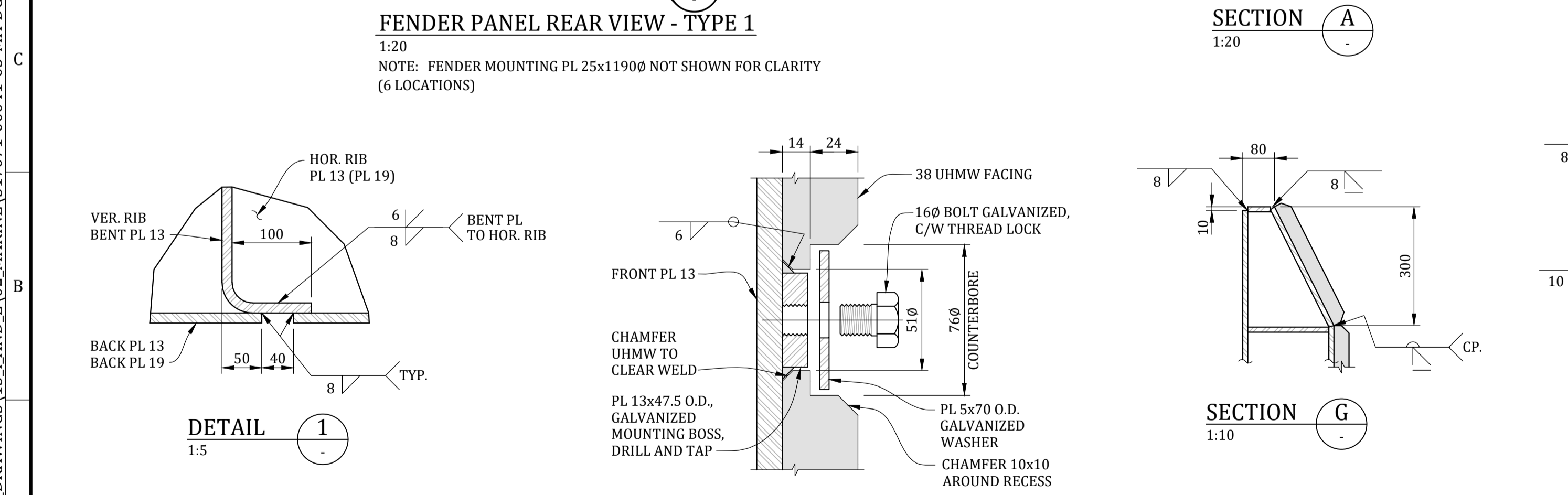
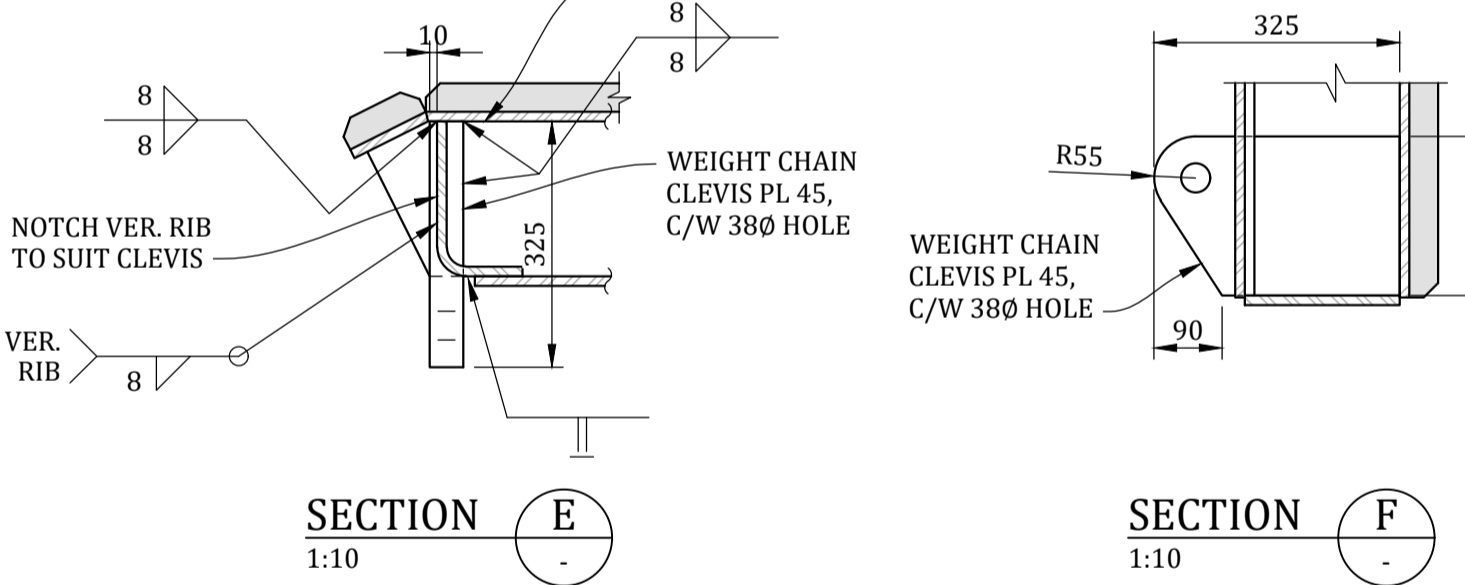
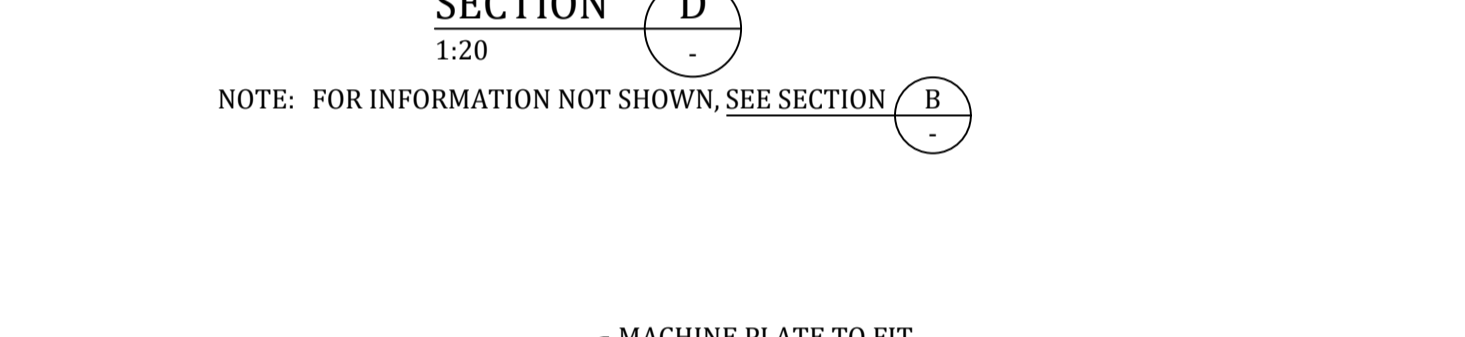
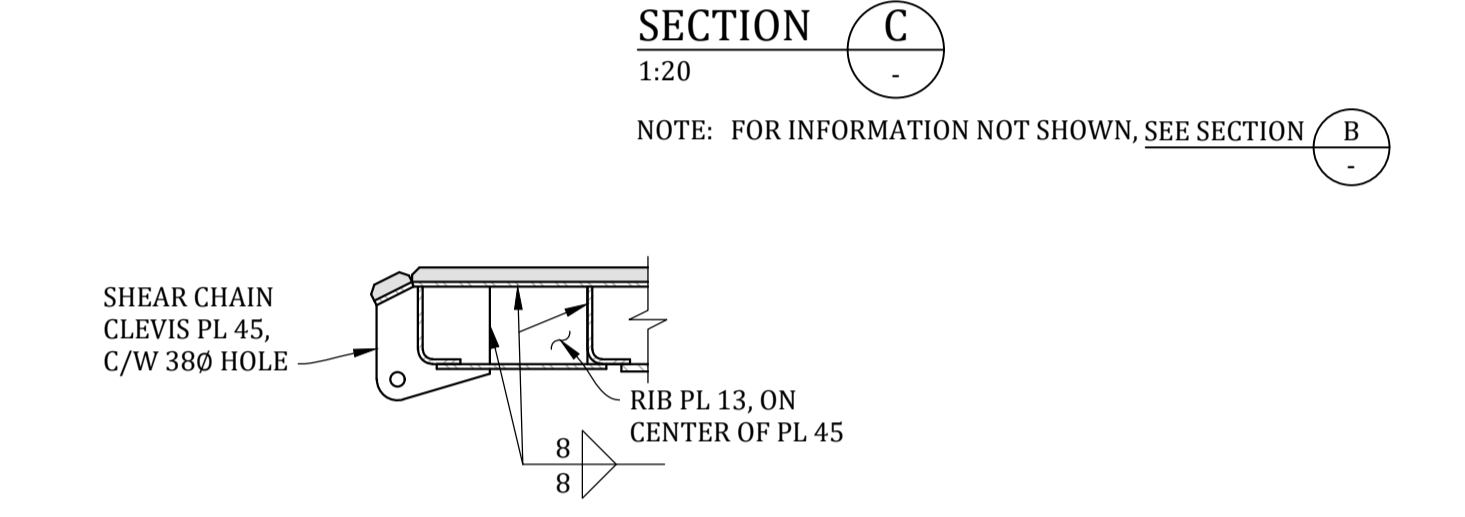
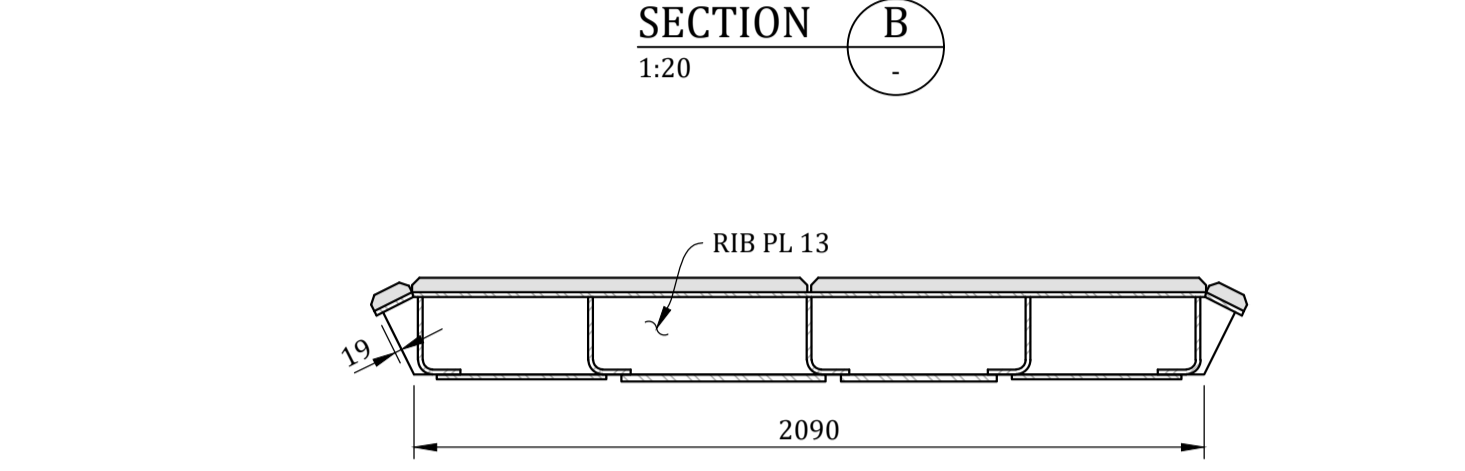
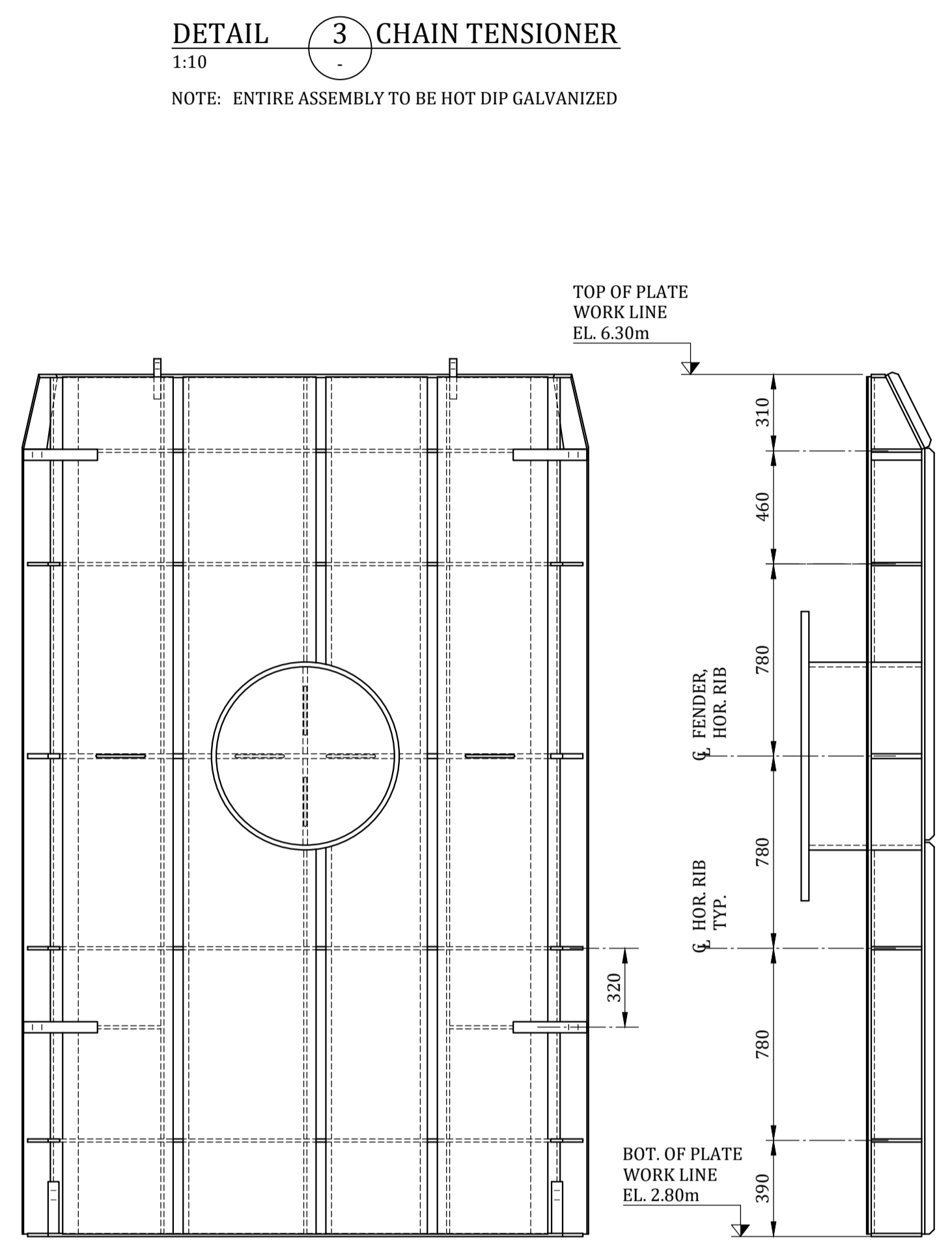
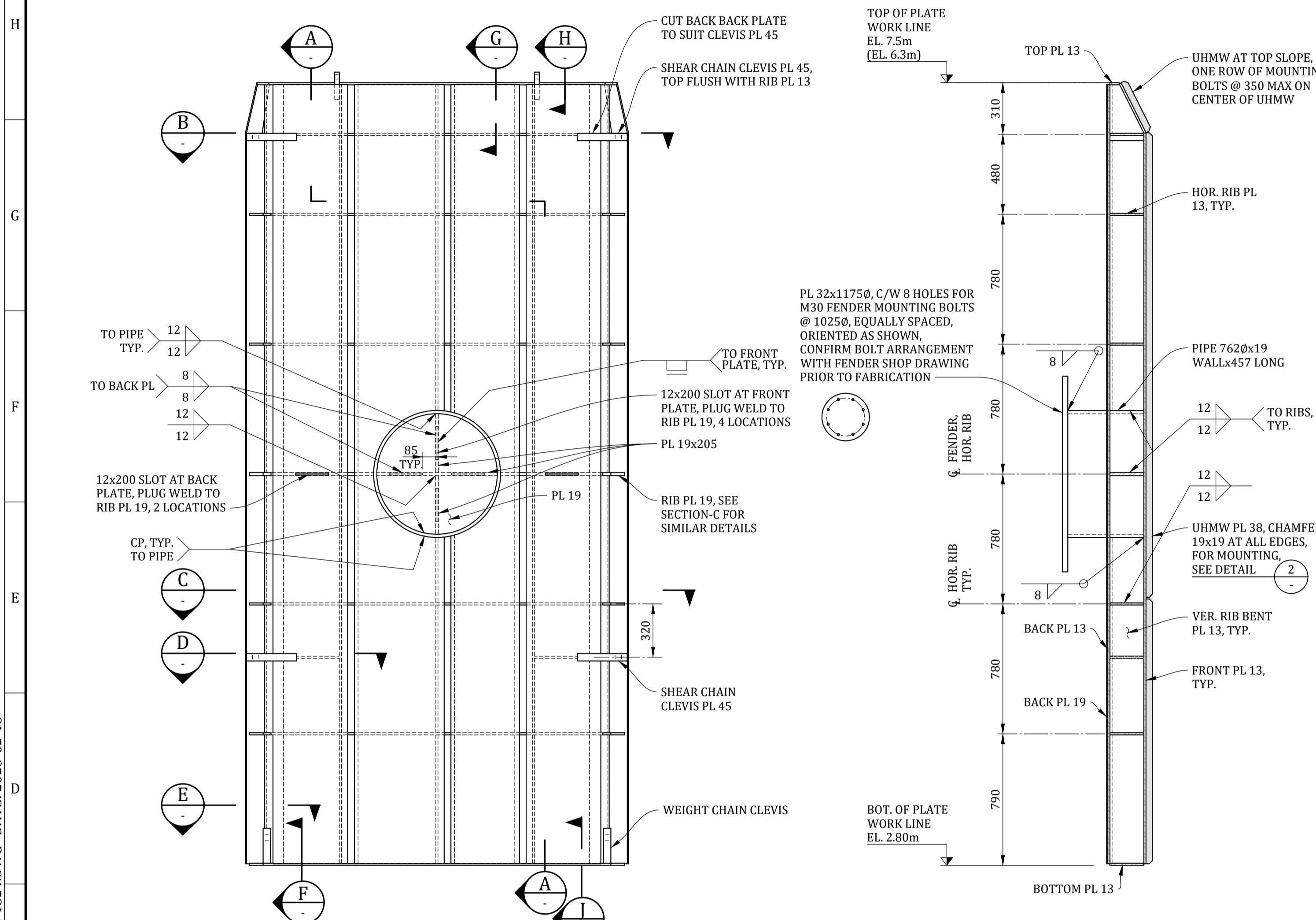
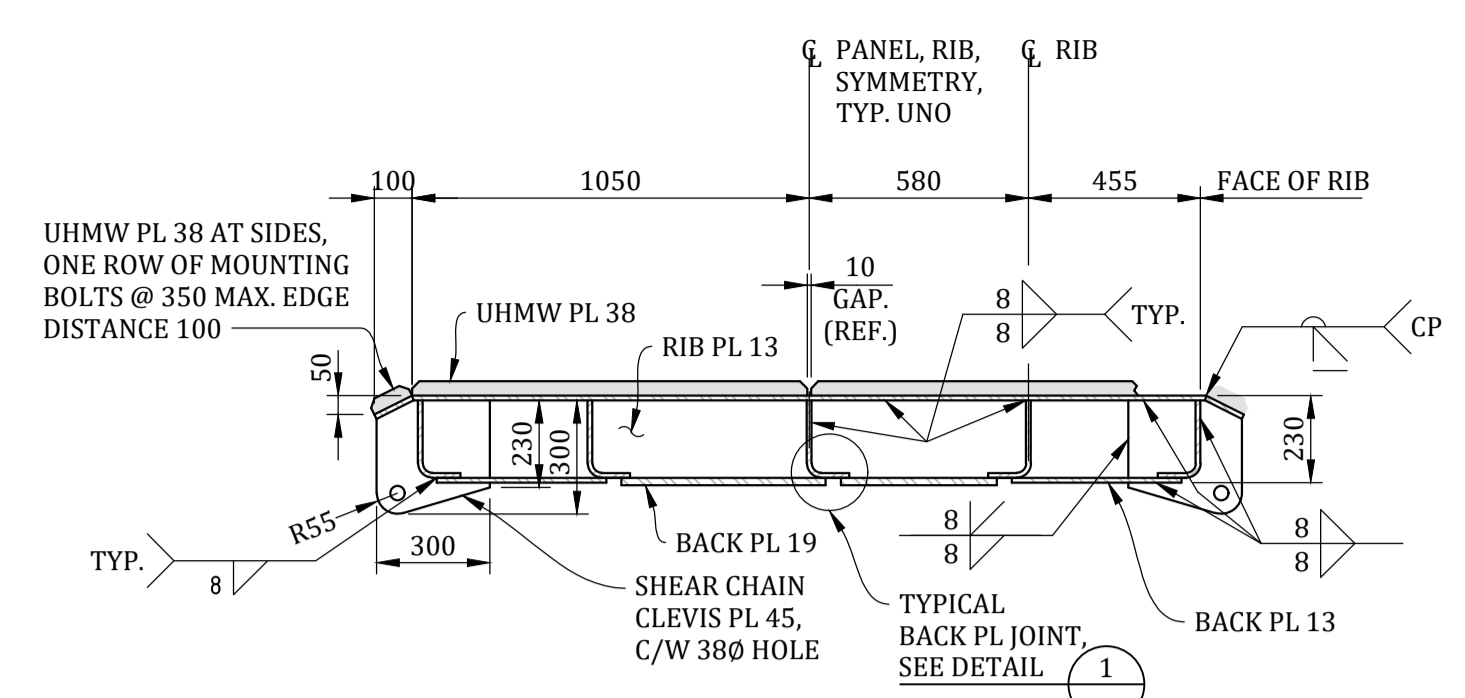
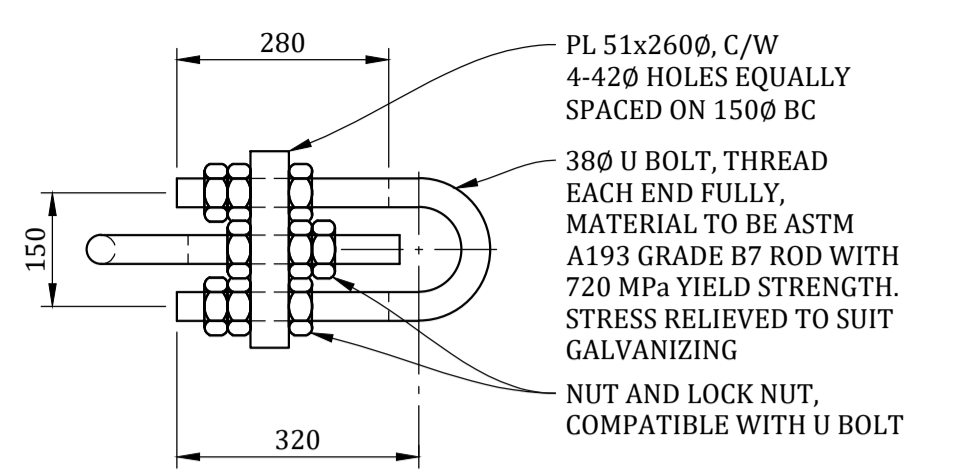
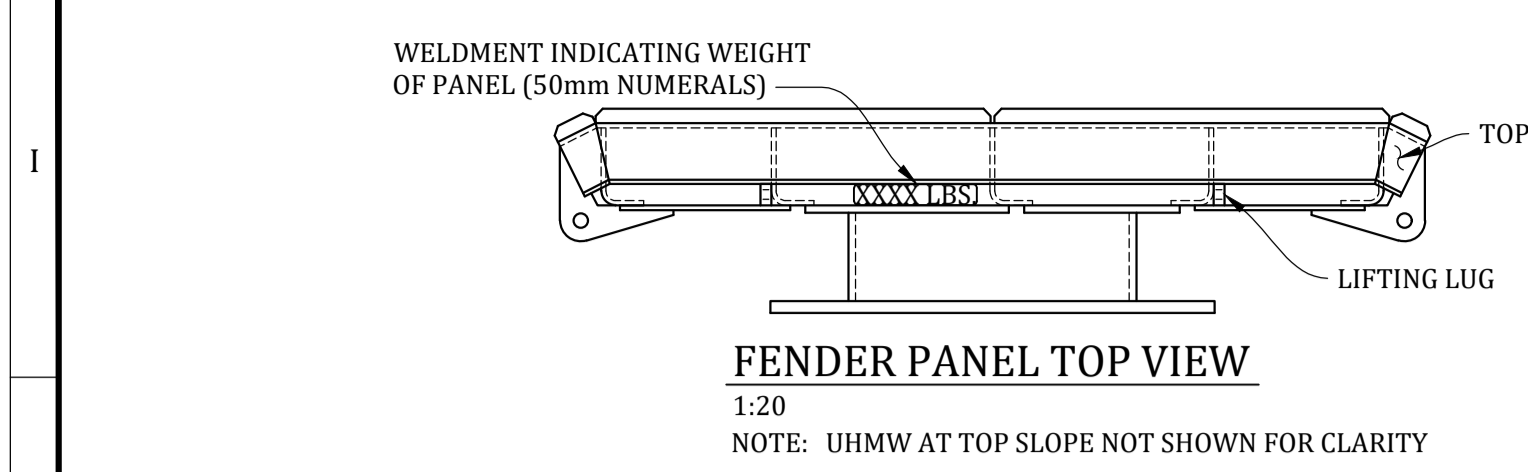


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NOTES:
1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL RAIL BEAM WALKWAYS DETAILS							
SYSTEM: POTASH		ASSET: 251		DISCIPLINE: STRUCTURAL		DRAWING NO. 317071-00041-03-MA-DGA-1523		SCALE: SHOWN		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1523		REV: A	
DRAWING NO. DS-000-5-403-13		DRAWING DESCRIPTION / TITLE HANDRAIL DETAILS		DISCIPLINE: STRUCTURAL		DRAWING NO. 317071-00041-03-MA-DGA-1523		SCALE: SHOWN		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1523		REV: A	
...03-MA-DGA-1516 SHIPLOADER FOUNDATION - PILE CAPS SHEET 1		...03-MA-DGA-1550 GANGWAY LANDING PLATFORM - PLAN & SECTIONS		DISCIPLINE: STRUCTURAL		DRAWING NO. 317071-00041-03-MA-DGA-1523		SCALE: SHOWN		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1523		REV: A	
DRAWING NO. DS-000-5-403-13		DRAWING DESCRIPTION / TITLE HANDRAIL DETAILS		DISCIPLINE: STRUCTURAL		DRAWING NO. 317071-00041-03-MA-DGA-1523		SCALE: SHOWN		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1523		REV: A	
REFERENCE DRAWINGS / DESIGN STANDARDS		DISCIPLINE: STRUCTURAL		DISCIPLINE: STRUCTURAL		DRAWING NO. 317071-00041-03-MA-DGA-1523		SCALE: SHOWN		SHEET OF 1 1		DRAWING NO. 317071-00041-03-MA-DGA-1523		REV: A	
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1		2		3		4		5		6		7		8	

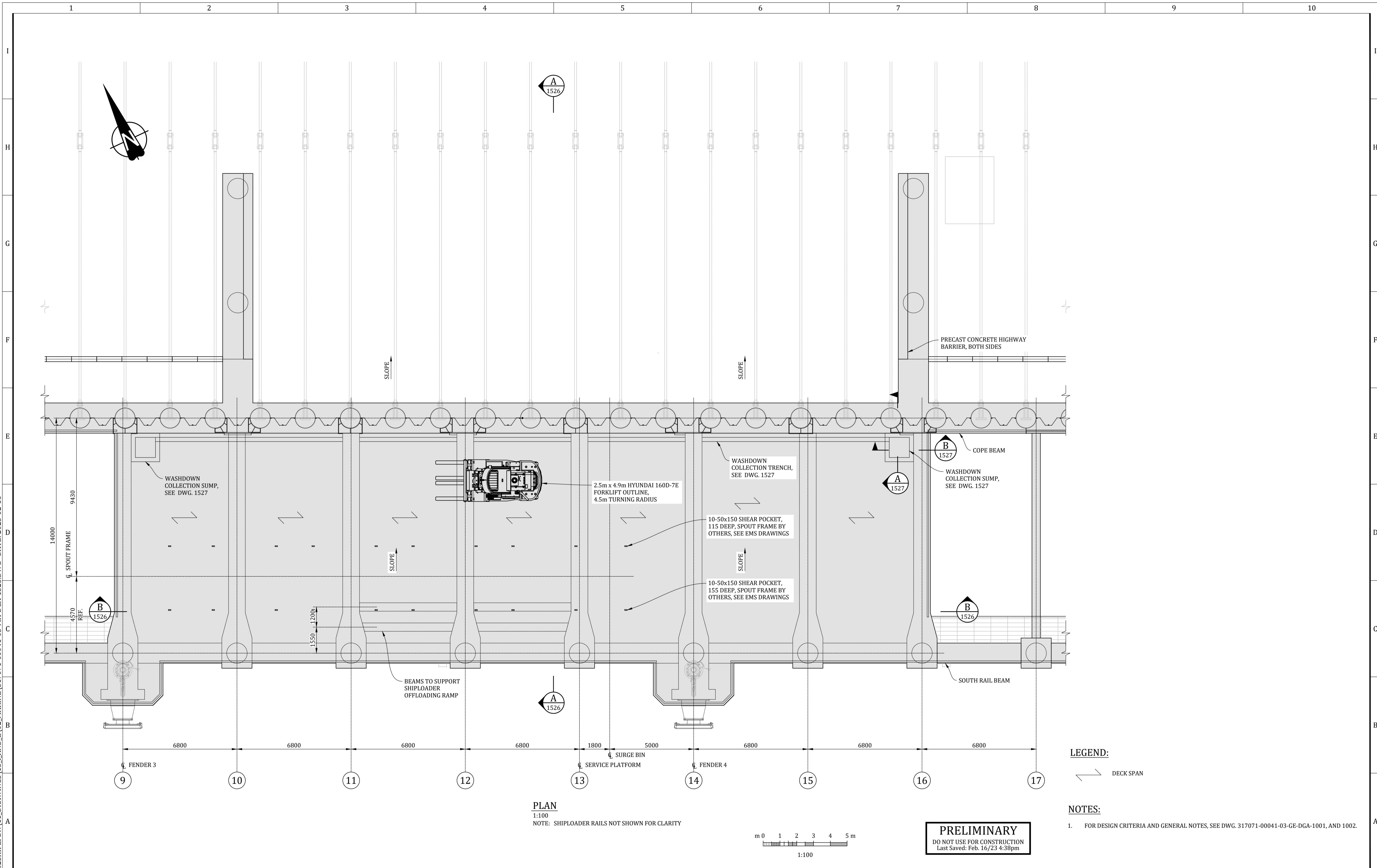
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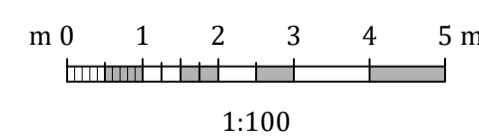
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- NOTES:**
- FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.
 - PROVIDE 4 SHEAR CHAINS AND 2 WEIGHT CHAINS. CHAINS SHALL BE 25 DIA. (1") STUD LINK CHAIN, GRADE 3 WITH A MINIMUM PROOF LOAD OF 37.9 TONNES. SHACKLES SHALL BE 32 DIA. (1 1/4") GALVANIZED ANCHOR ALLOY SHACKLES WITH BOLT, NUT AND S.S. COTTER PIN ARRANGEMENT WITH A WORKING LOAD LIMIT OF 18 TONNES. FOR EACH CHAIN, PROVIDE 2 SHACKLES (ONE AT EACH END). REMOVE STUD OF LAST LINK FOR INSTALLATION IF NECESSARY, PROVIDE ONE 38 DIA. DOUBLE U-BOLT TENSIONER, SEE DETAIL-3.
 - CONTRACTOR TO ENSURE FIT COMPATIBILITY OF CHAINS, SHACKLES AND FITTINGS.

PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL	
SYSTEM: POTASH								FENDER PANEL	
ASSET: 251								SECTIONS AND DETAILS	
DISCIPLINE: STRUCTURAL		REV: A 2023-02-16		ISSUED FOR CLIENT REVIEW		GL AMT		SCALE: SHOWN	
REFERENCE DRAWINGS / DESIGN STANDARDS		REV: YYYY-MM-DD		DESCRIPTION		DRAWN APPROVED		SHEET 1 OF 1	
		ISSUES / REVISIONS		VENDOR P2P:				DRAWING NO. 317071-00041-03-MA-DGA-1524	
								REV: A	



PLAN
1:100
NOTE: SHIPLOADER RAILS NOT SHOWN FOR CLARITY

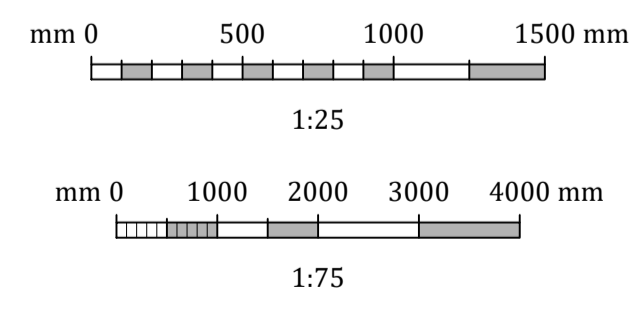
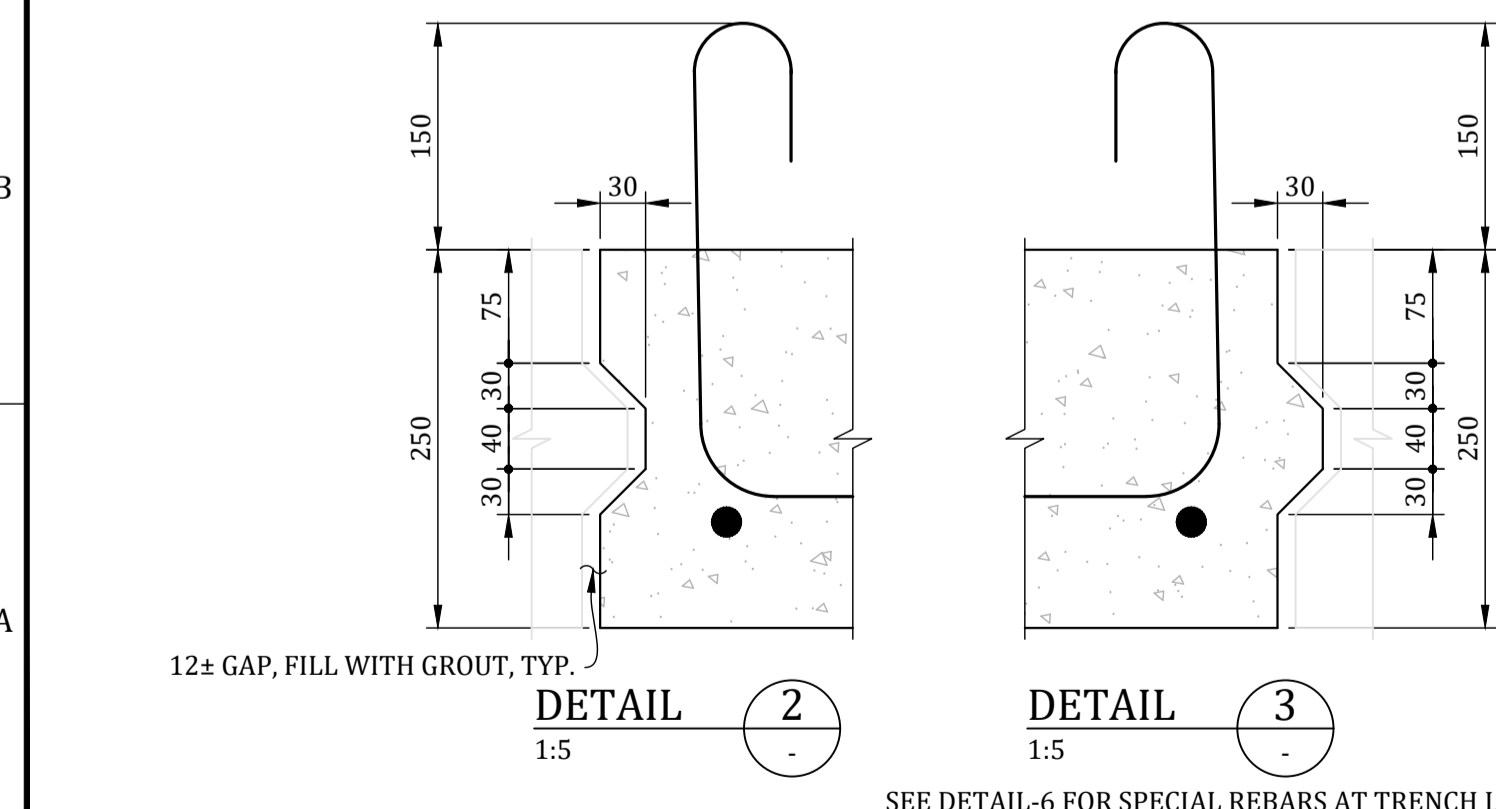
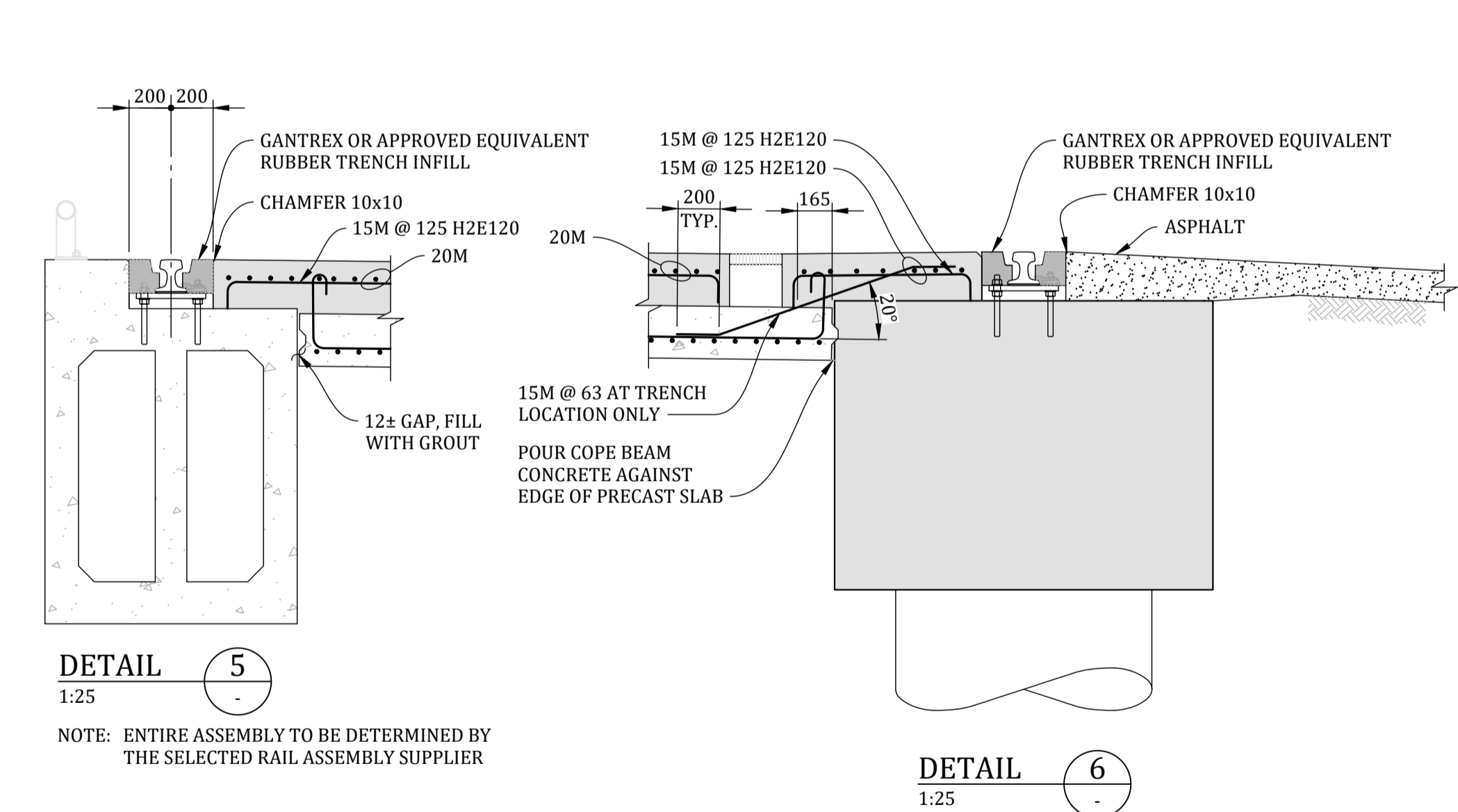
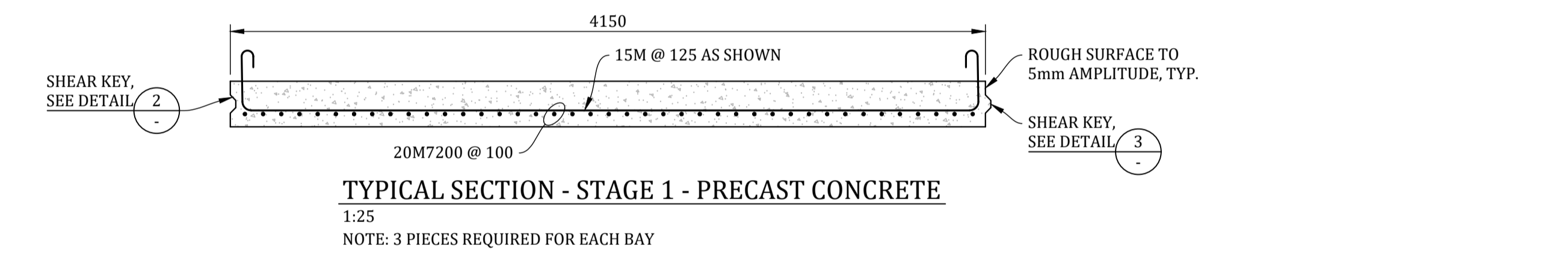
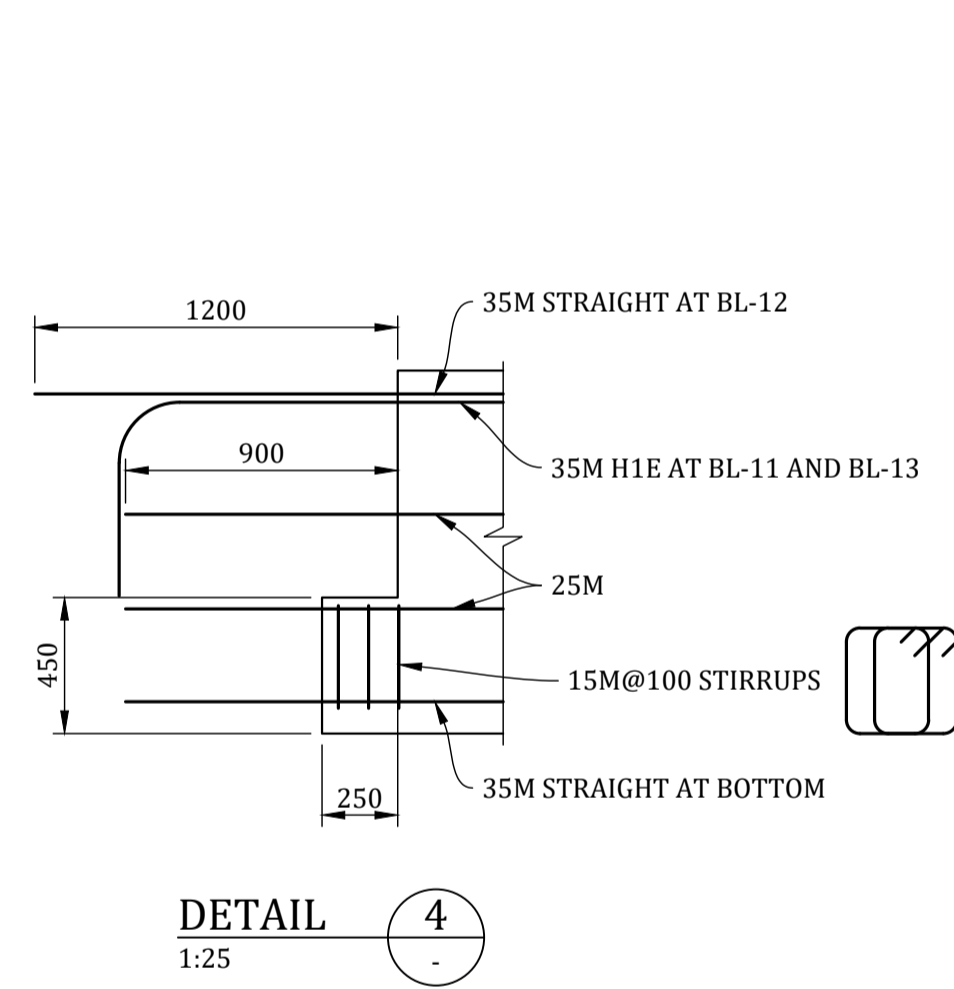
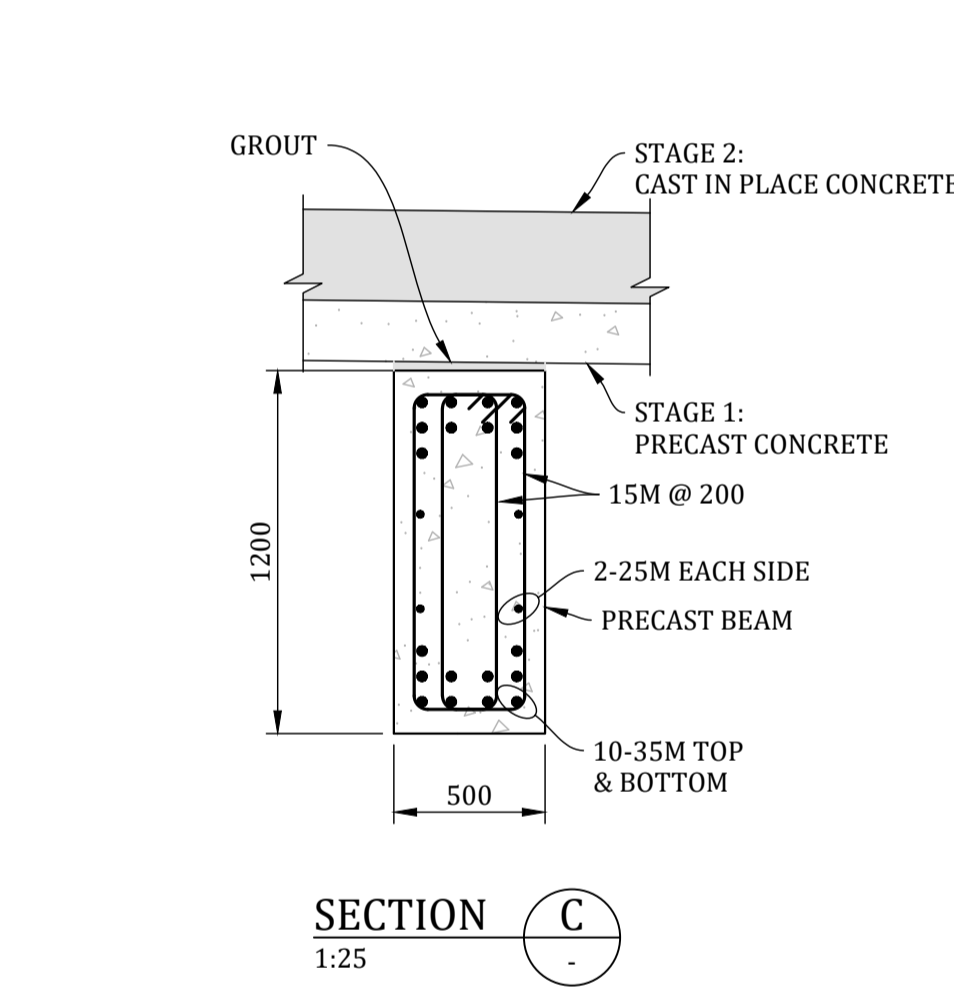
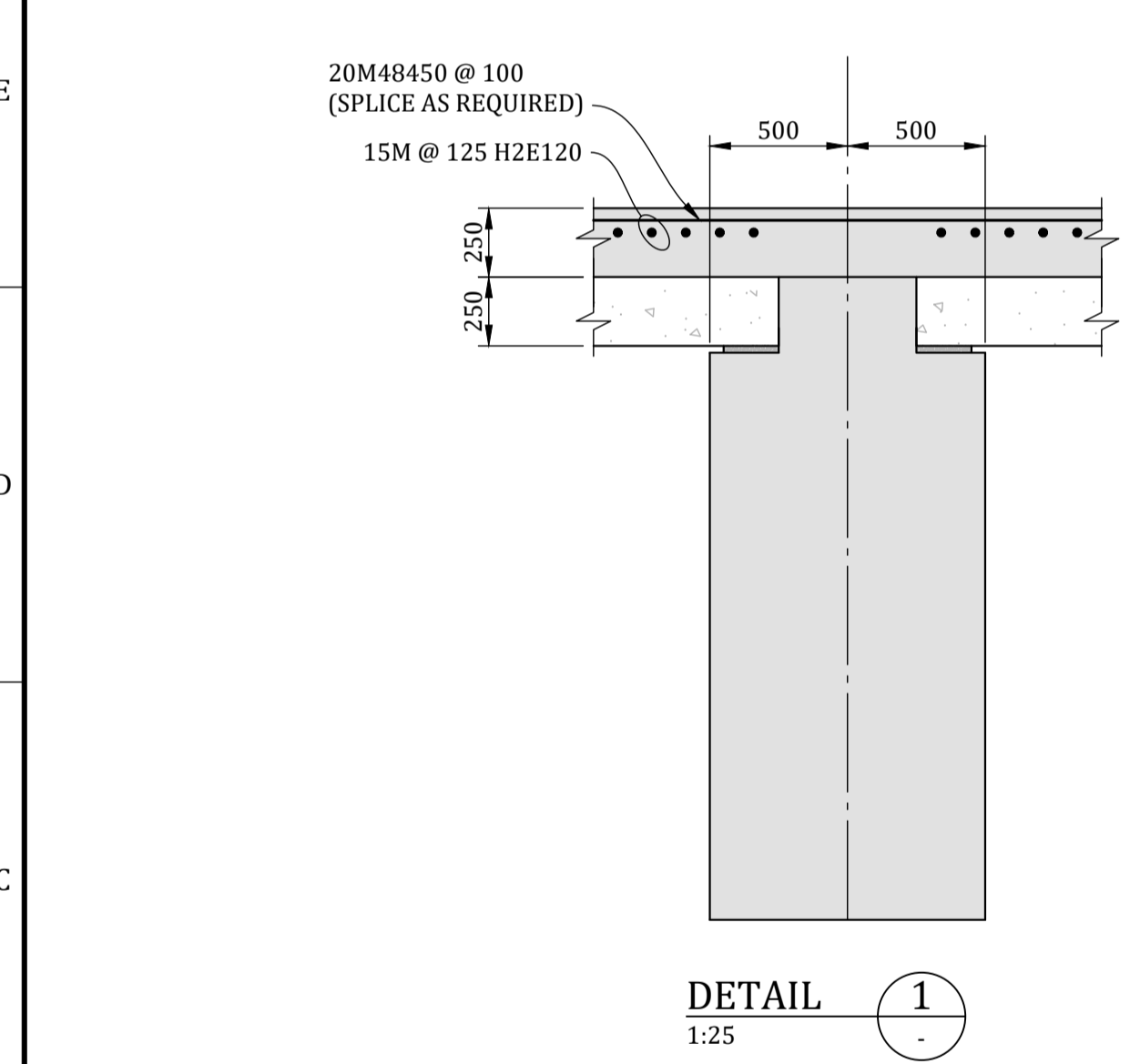
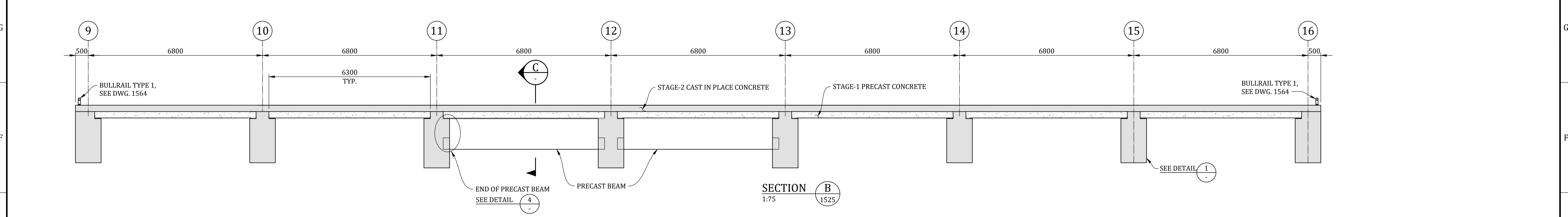
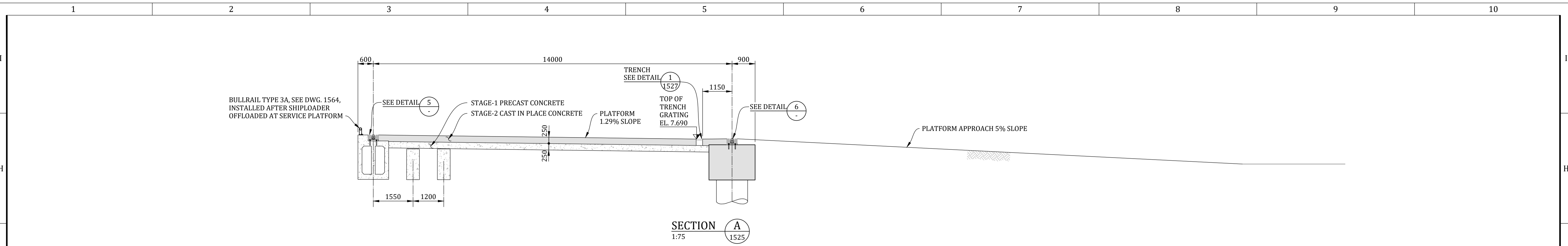


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LEGEND:
↔ DECK SPAN

NOTES:
1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

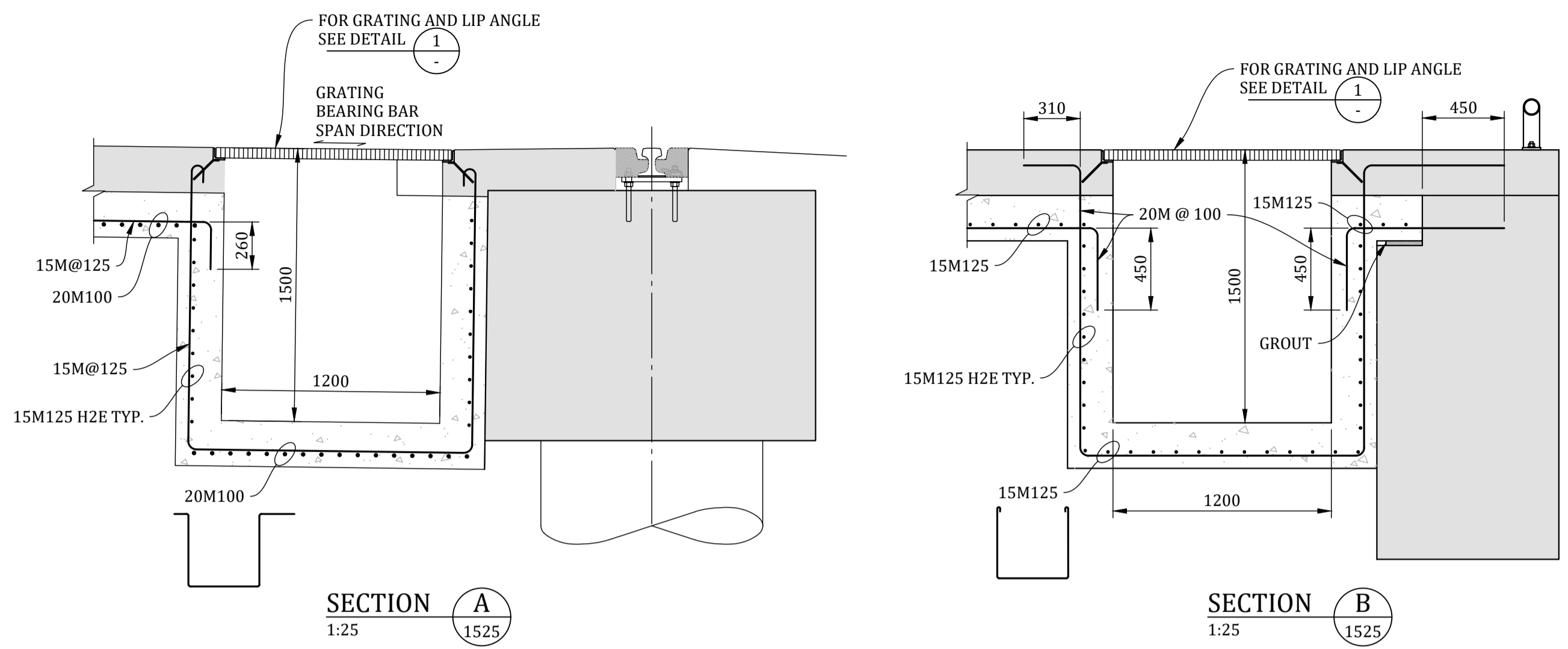
PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>*This drawing is prepared for the use of the contractual customer of Worley Canada Services Ltd. and Worley Canada Services Ltd. assumes no liability to any other party for any representations contained in this drawing.*</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL				
SYSTEM: POTASH		REV: B 2023-02-16 ISSUED FOR CLIENT REVIEW AAL AMT		OEM:				SERVICE PLATFORM				
ASSET: 251		REV: A 2022-11-30 ISSUED FOR PERMITTING AAL AMT		DRAWN APPROVED				PLAN				
DISCIPLINE: STRUCTURAL		REV: YYYY-MM-DD DESCRIPTION DRAWN APPROVED		VENDOR P2P:		THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.		SCALE: SHOWN	SHEET 1	OF 1	DRAWING NO. 317071-00041-03-MA-DGA-1525	REV: B
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS										



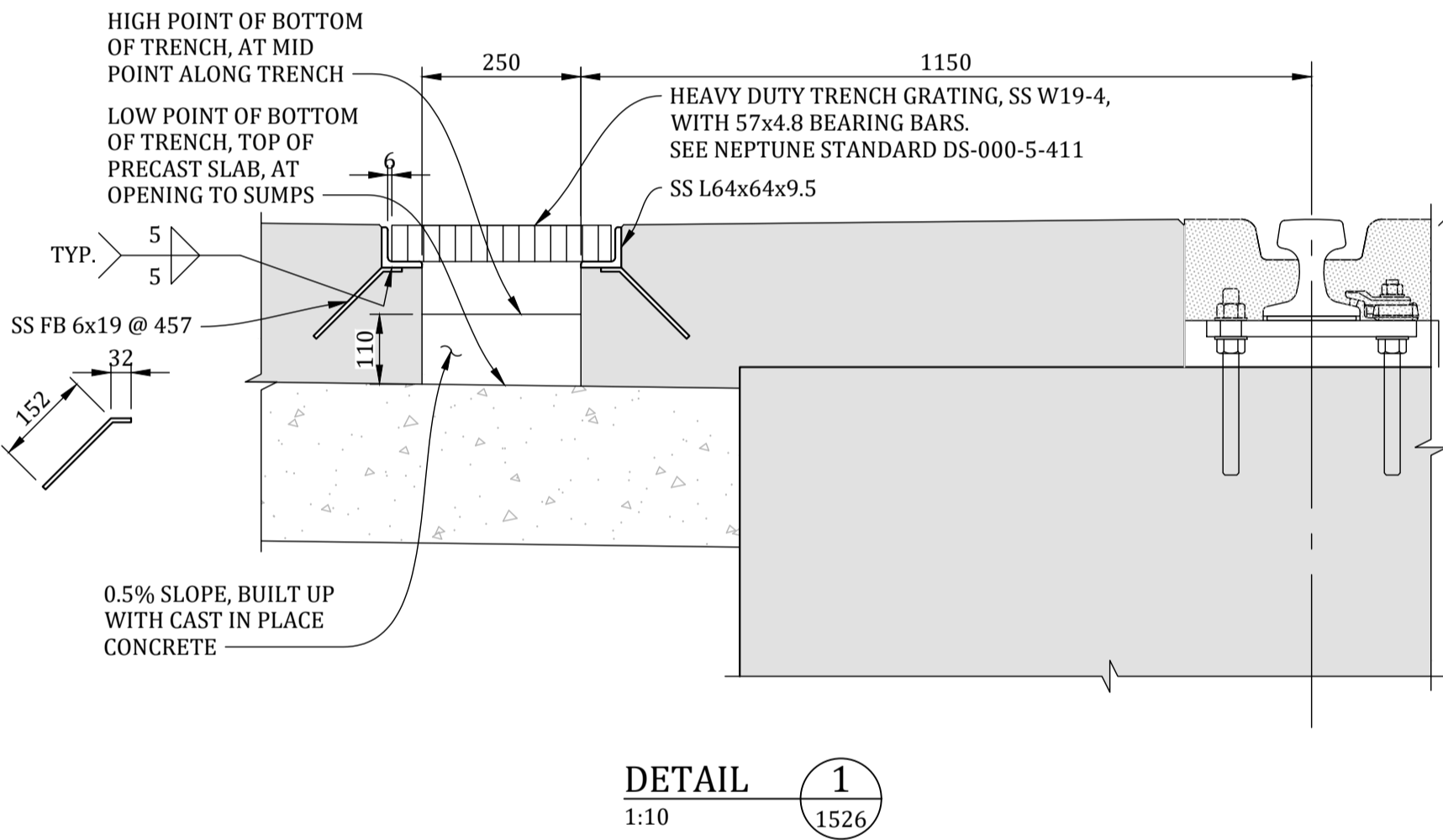
PRELIMINARY
DO NOT USE FOR CONSTRUCTION
Last Saved: Feb. 16/23 6:08pm

NOTES:
1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

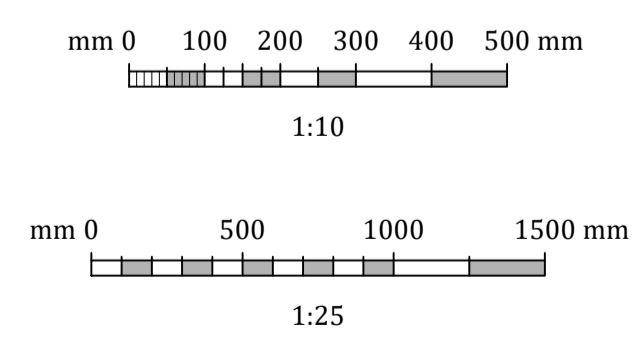
PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL			
SYSTEM: POTASH								SERVICE PLATFORM			
ASSET: 251		REV: B 2023-02-16 ISSUED FOR CLIENT REVIEW AAL AMT						SHEET 1			
DISCIPLINE: STRUCTURAL		REV: A 2022-11-30 ISSUED FOR PERMITTING AAL AMT						SCALE: SHOWN SHEET 1 OF 1 DRAWING NO. 317071-00041-03-MA-DGA-1526 REV: B			
REFERENCE DRAWINGS / DESIGN STANDARDS		ISSUES / REVISIONS		VENDOR P2P:		Neptune TERMINALS		THIS DRAWING IS THE PROPERTY OF NEPTUNE BULK TERMINALS (CANADA) LTD. NEITHER THIS DRAWING NOR ANY PORTION THEREOF SHALL BE REPRODUCED WITHOUT WRITTEN PERMISSION FROM NEPTUNE BULK TERMINALS (CANADA) LTD.			



NOTE: SUMP COVER GRATING IS NOT DESIGNED FOR SHIPLOADER OFFLOADING SPMT WHEEL LOAD. CONTRACTOR SHALL BLOCK SUMP FROM SPMT WHEELS, OR PROVIDE TEMPORARY RAMP OVER SUMP DURING SHIPLOADER OFFLOADING.



NOTE: TRENCH GRATING IS NOT DESIGNED FOR SHIPLOADER OFFLOADING SPMT WHEEL LOAD, REMOVE GRATING AND FILL TRENCH WITH GRAVEL DURING SHIPLOADER OFFLOADING, OR PROVIDE TEMPORARY RAMP OVER TRENCH BY CONTRACTOR.



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NOTES:
1. FOR DESIGN CRITERIA AND GENERAL NOTES, SEE DWG. 317071-00041-03-GE-DGA-1001, AND 1002.

PROJECT / W.O.: B2 MARINE WORKS		ENGINEERING SEAL:		VENDOR: Advisian 317071-00041 <small>Worley Group</small>		ISSUED AS RECORD COPY? (YES/NO) NO		TITLE: BERTH 2 SHIPLOADER PROJECT - MARINE AND CIVIL			
SYSTEM: POTASH								SERVICE PLATFORM			
ASSET: 251								SHEET 2			
DISCIPLINE: STRUCTURAL		REV: A		2023-02-16		ISSUED FOR CLIENT REVIEW		DRAWN: AAL		REV: AMT	
REFERENCE DRAWINGS / DESIGN STANDARDS		REV: YYYY-MM-DD		DESCRIPTION		DRAWN		APPROVED		VENDOR P2P:	
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										SHEET OF: 1 1	
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