

Notes

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PLAN
1: NTS
ISLAND OF BERMUDA



PLAN
1: NTS
KINGS WHARF LOCATION

DRAWING REGISTER	
DRAWING NUMBER	DRAWING TITLE
RAM-XX-00-DR-CW-100	LOCATION PLAN
RAM-XX-00-DR-CW-101	EXISTING TOPOGRAPHIC AND BATHYMETRIC SURVEYS
RAM-XX-00-DR-CW-200	STRUCTURAL LAYOUT OF PROPOSED DECK
RAM-XX-00-DR-CW-201	STRUCTURAL DETAILS - ELEVATION ON FRONT BEAM AND SECTION THROUGH MIDSPAN
RAM-XX-00-DR-CW-202	SECTIONS THROUGH AND DETAILS
RAM-XX-00-DR-CW-210	ENLARGED PLAN VIEW PRECAST UNITS AND FURNITURE
RAM-XX-00-DR-CW-220	QUAY FURNITURE LAYOUT AND EDGE PROTECTION DETAILS
RAM-XX-00-DR-CW-300	TRANSVERSE BEAMS TYPE 1 - REINFORCEMENT
RAM-XX-00-DR-CW-301	TRANSVERSE BEAMS TYPE 2 - REINFORCEMENT
RAM-XX-00-DR-CW-310	SLAB UNIT TYPE 1 - REINFORCEMENT
RAM-XX-00-DR-CW-311	SLAB UNIT TYPE 2 - REINFORCEMENT
RAM-XX-00-DR-CW-312	SLAB UNIT TYPE 3 - REINFORCEMENT
RAM-XX-00-DR-CW-313	SLAB UNIT TYPE 4 - REINFORCEMENT
RAM-XX-00-DR-CW-320	FRONT CAPPING BEAM TYPE 1 - REINFORCEMENT
RAM-XX-00-DR-CW-321	FRONT CAPPING BEAM TYPE 2 - REINFORCEMENT
RAM-XX-00-DR-CW-322	FRONT CAPPING BEAM TYPE 3 A/B - REINFORCEMENT
RAM-XX-00-DR-CW-323	FRONT PILE CAP - REINFORCEMENT
RAM-XX-00-DR-CW-330	GROUND BEAM - REINFORCEMENT
RAM-XX-00-DR-CW-331	REAR PILE CAP - REINFORCEMENT
RAM-XX-00-DR-CW-340	INSITU REINFORCEMENT FOR BETWEEN SLABS
RAM-XX-00-DR-CW-341	INSITU CONCRETE - FRONT BEAM REINFORCEMENT
RAM-XX-00-DR-CW-342	INSITU CONCRETE - TRANSVERSE BEAM REINFORCEMENT
RAM-XX-00-DR-CW-343	INSITU CONCRETE - GROUND BEAM REINFORCEMENT
RAM-XX-00-DR-CW-400	PILE JACKET DETAIL
RAM-XX-00-DR-CW-401	FURNITURE DETAILS - ACCESS LADDERS
RAM-XX-00-DR-CW-402	FURNITURE DETAILS - FENDERS AND BOLLARDS
RAM-XX-00-DR-CW-500	SERVICES CONTAINMENT LAYOUT
RAM-XX-00-DR-CW-501	SERVICES CONTAINMENT DETAILS
RAM-XX-00-DR-CW-502	SERVICES CONTAINMENT DETAILS - SHEET 2
RAM-XX-00-DR-CW-600	CATHODIC PROTECTION - GENERAL ARRANGEMENT (WHARF)
RAM-XX-00-DR-CW-601	CATHODIC PROTECTION - SECTIONS
RAM-XX-00-DR-CW-602	CATHODIC PROTECTION - GENERAL ARRANGEMENT (DOLPHIN)
RAM-XX-00-DR-CW-603	CATHODIC PROTECTION - GENERAL DETAILS

R01	FOR TENDER	13/07 2018	CDW EL	JC
Rev	Description	Date	By CHK	App

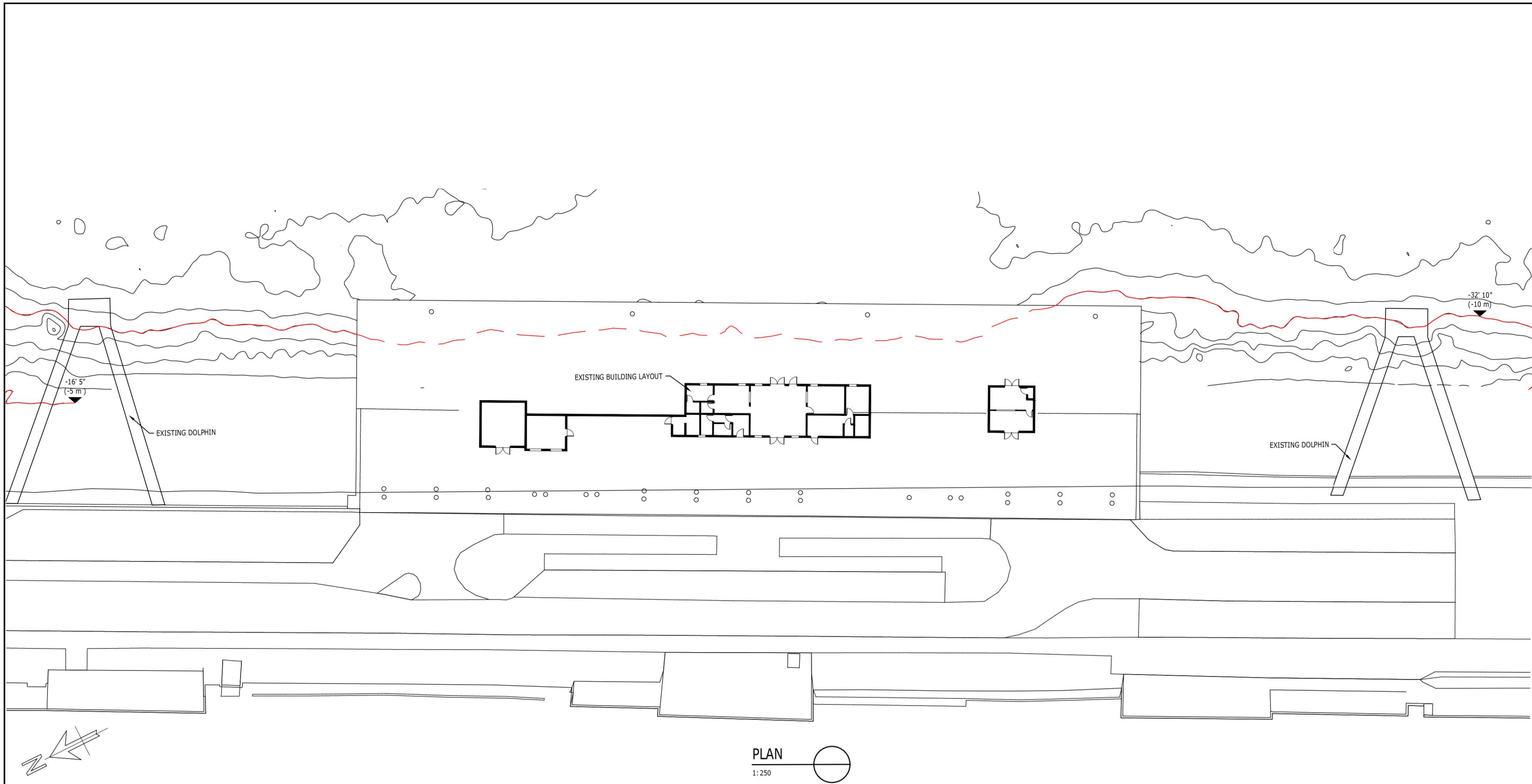
FOR TENDER

KINGS WHARF REHABILITATION
BERMUDA
61-53-79-04



LOCATION PLAN

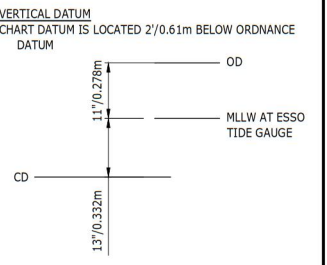
Project No:	Scale (0A1):	Drawn:	Date:
1620004884	NTS	CDW	JULY '18
Drawing No:	Rev:		
-RAM-XX-00-DR-CW-100	R01		



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 - BATHYMETRY SURVEY 2012 BY GOLDER ASSOCIATES - CONTOURS SHOWN AT 1m SPACING AS MARKED, MAJOR CONTOURS AS MARKED. BATHYMETRY SURVEY IS RELATIVE TO MLLW AT ESSO TIDE GAUGE - SEE DIAGRAM
 - TOPOGRAPHIC SURVEY BY GOVT. OF BERMUDA - VARIOUS DATES

TIDE LEVELS			
	ft OD	mOD	mCD
MHWS	1.94	0.59	1.2
MHWN	0.95	0.29	0.9
MLWN	-0.69	-0.21	0.4
MLWS	-1.35	-0.41	0.2



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FOR TENDER

**KINGS WHARF REHABILITATION
BERMUDA
61-53-79-04**



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**EXISTING TOPOGRAPHIC
AND BATHYMETRIC SURVEYS**

Project No:	Scale (0A1):	Drawn:	Date:
1620004884	1:250	CDW	JULY '18
Drawing No:	Rev:		
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TIDE LEVELS

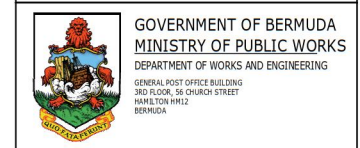
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MHWS	1.94	0.59	1.2
MHWN	0.95	0.29	0.9
MLWN	-0.69	-0.21	0.4
MLWS	-1.35	-0.41	0.2

VERTICAL DATUM
CHART DATUM IS LOCATED 2'/0.61m BELOW ORDANCE DATUM

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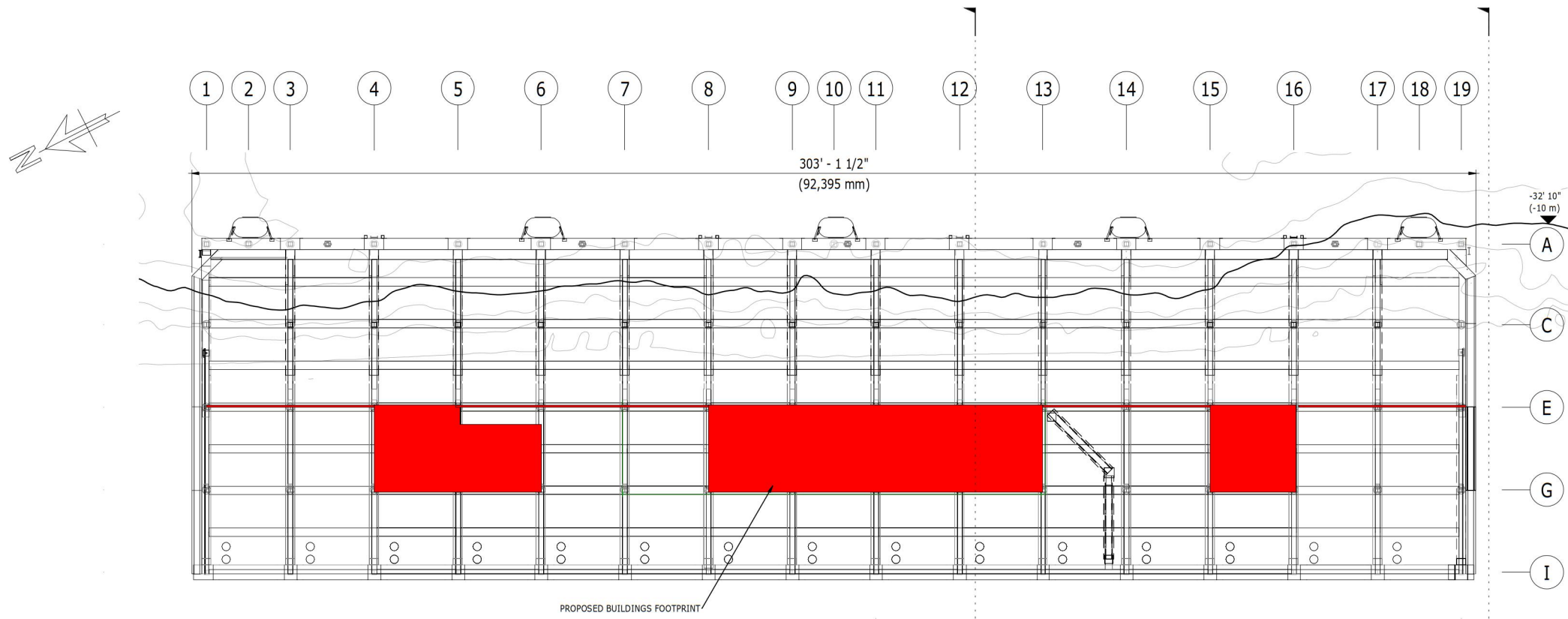
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**KINGS WHARF REHABILITATION
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61-53-79-04**



**STRUCTURAL LAYOUT
OF PROPOSED DECK**

Project No:	Scale (@ A1):	Date:	Drawn:
1620004884	1 : 200	JULY 18	CDW
Drawing No:	Rev:		
-RAM-XX-00-DR-CW-200			R01



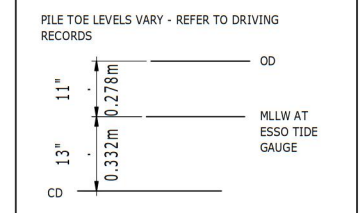
PLAN
1 : 200
PLAN VIEW

1
201

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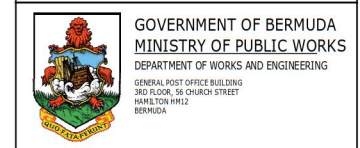
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**KINGS WHARF REHABILITATION
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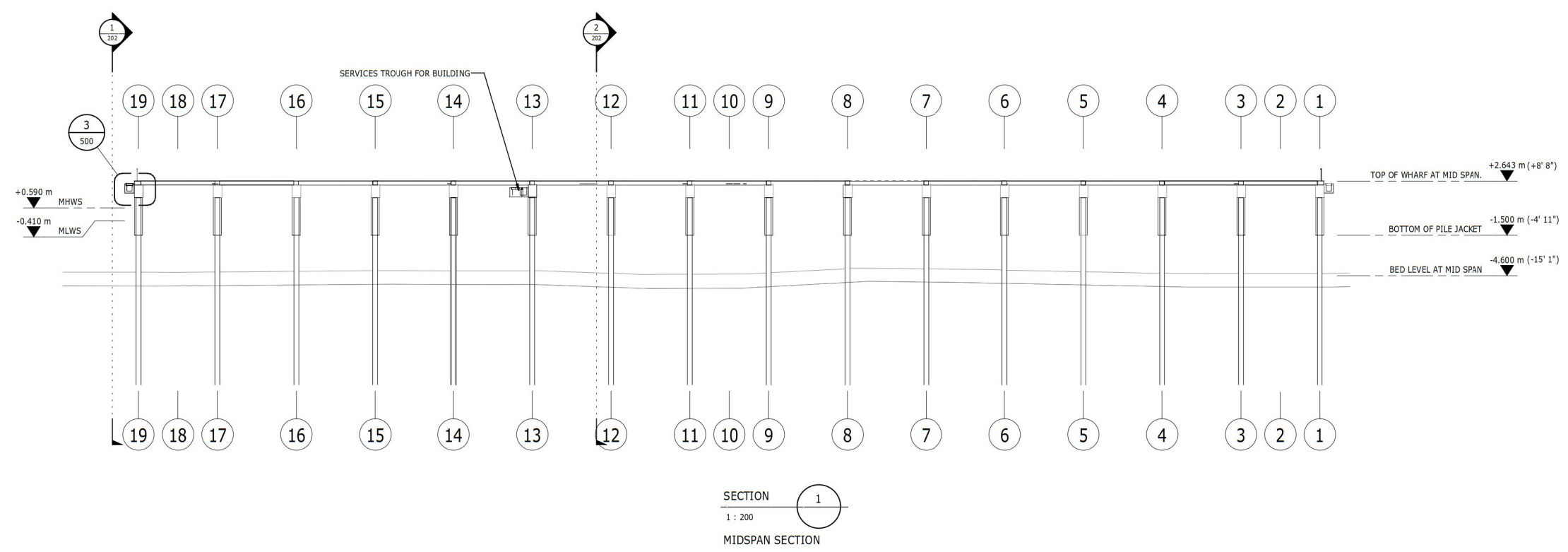
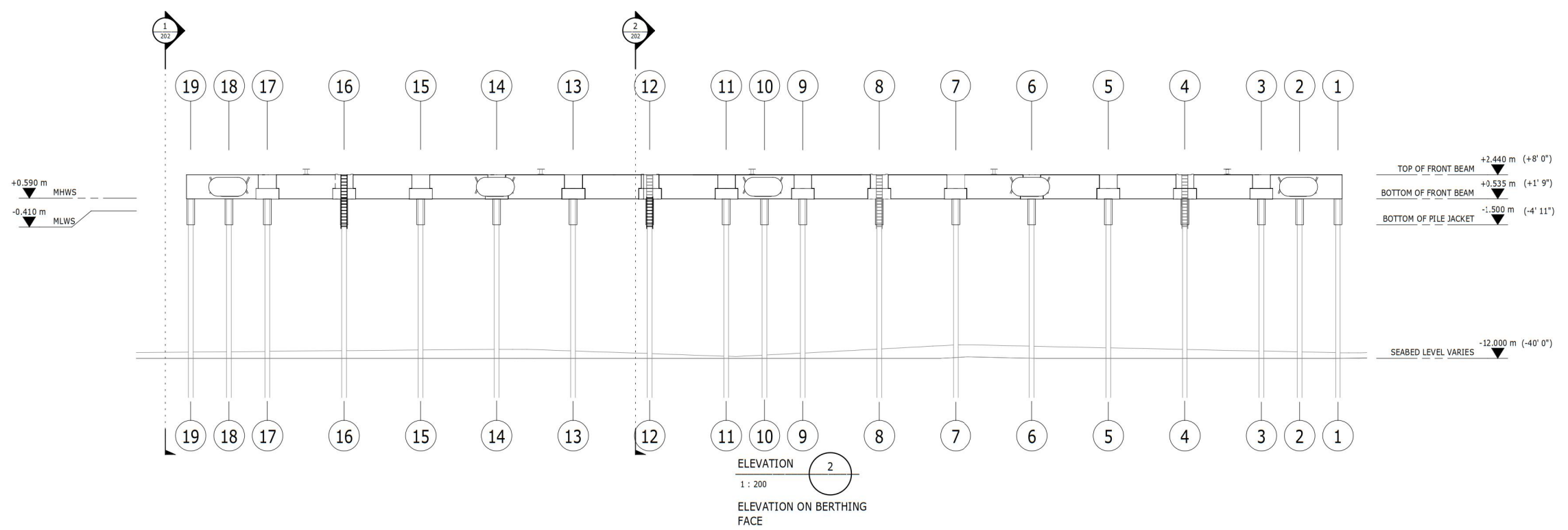


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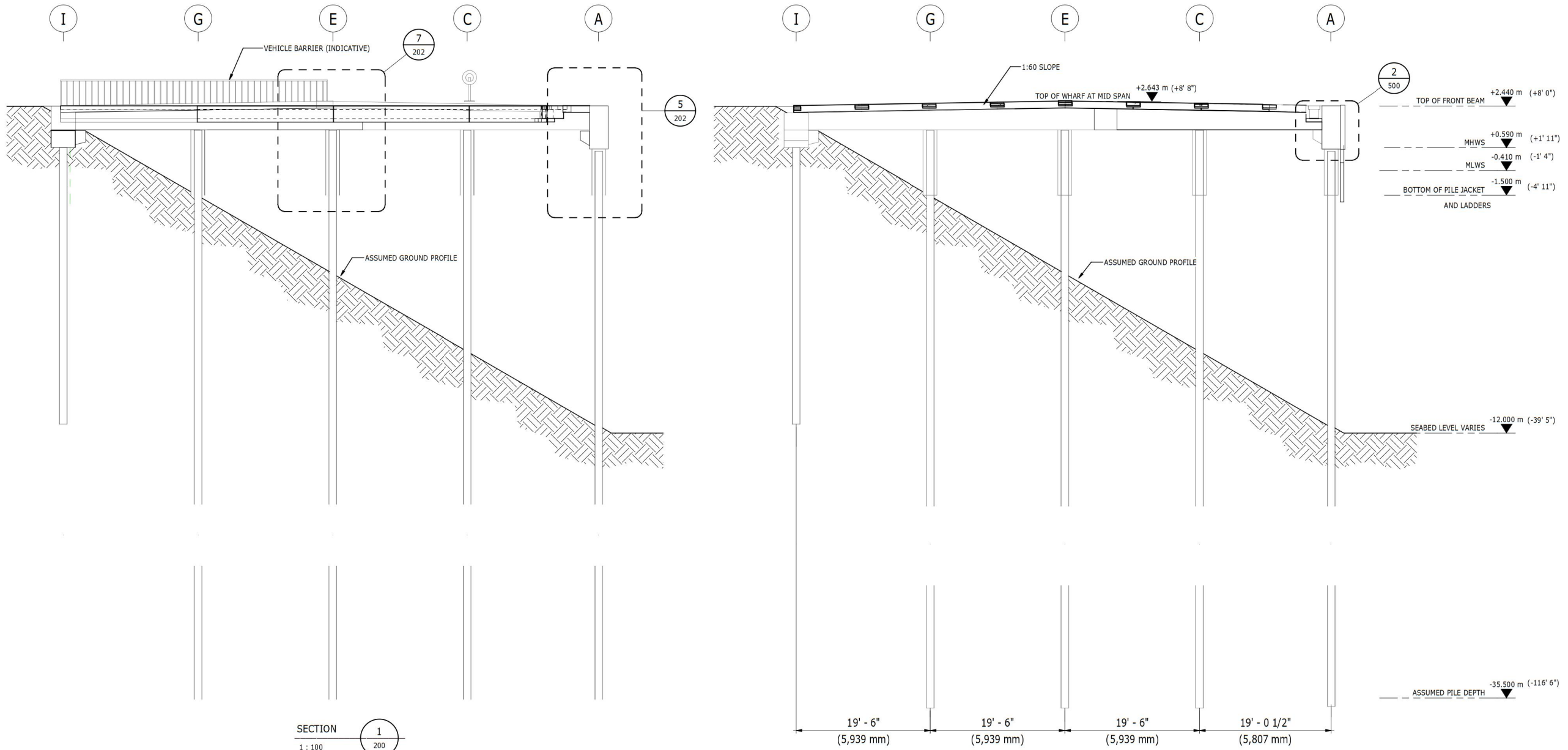
**STRUCTURAL DETAILS
ELEVATION ON FRONT BEAM &
SECTION THROUGH MID SPAN**

Project No:	Scale (@ A1):	Date:	Drawn:
1620004884	1 : 200	JULY 18	CDW

Drawing No:	Rev:
-RAM-XX-00-DR-CW-201	R01



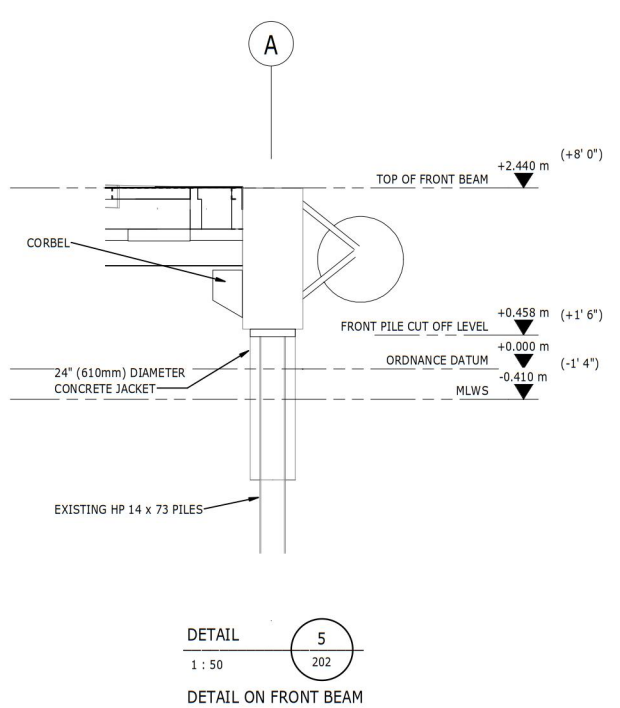
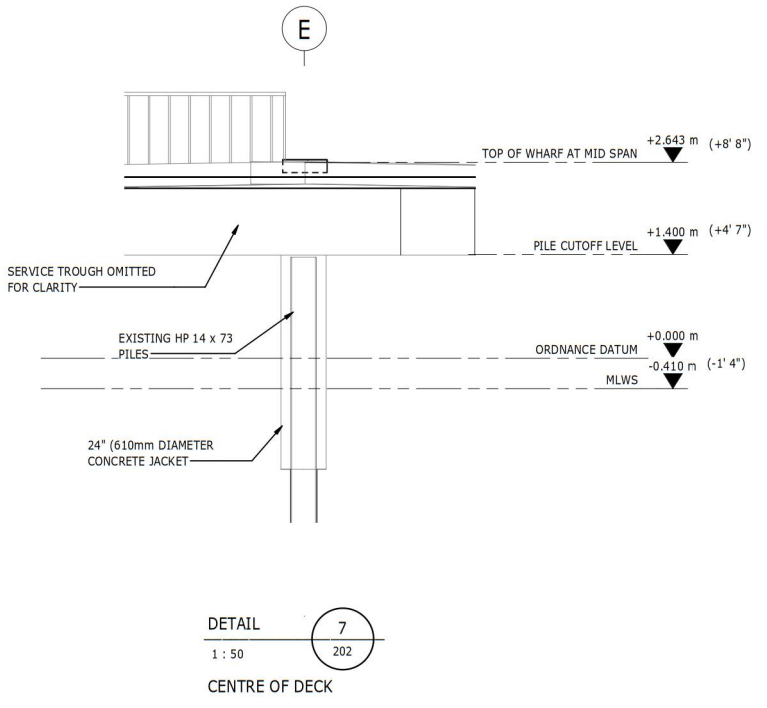
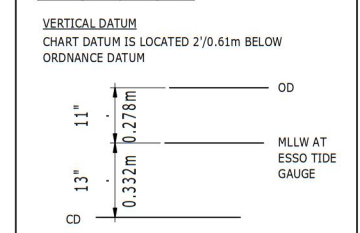
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TIDE LEVELS

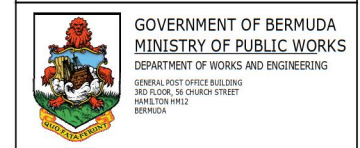
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MLWN	-0.69	-0.21	0.4
MLWS	-1.35	-0.41	0.2



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61-53-79-04



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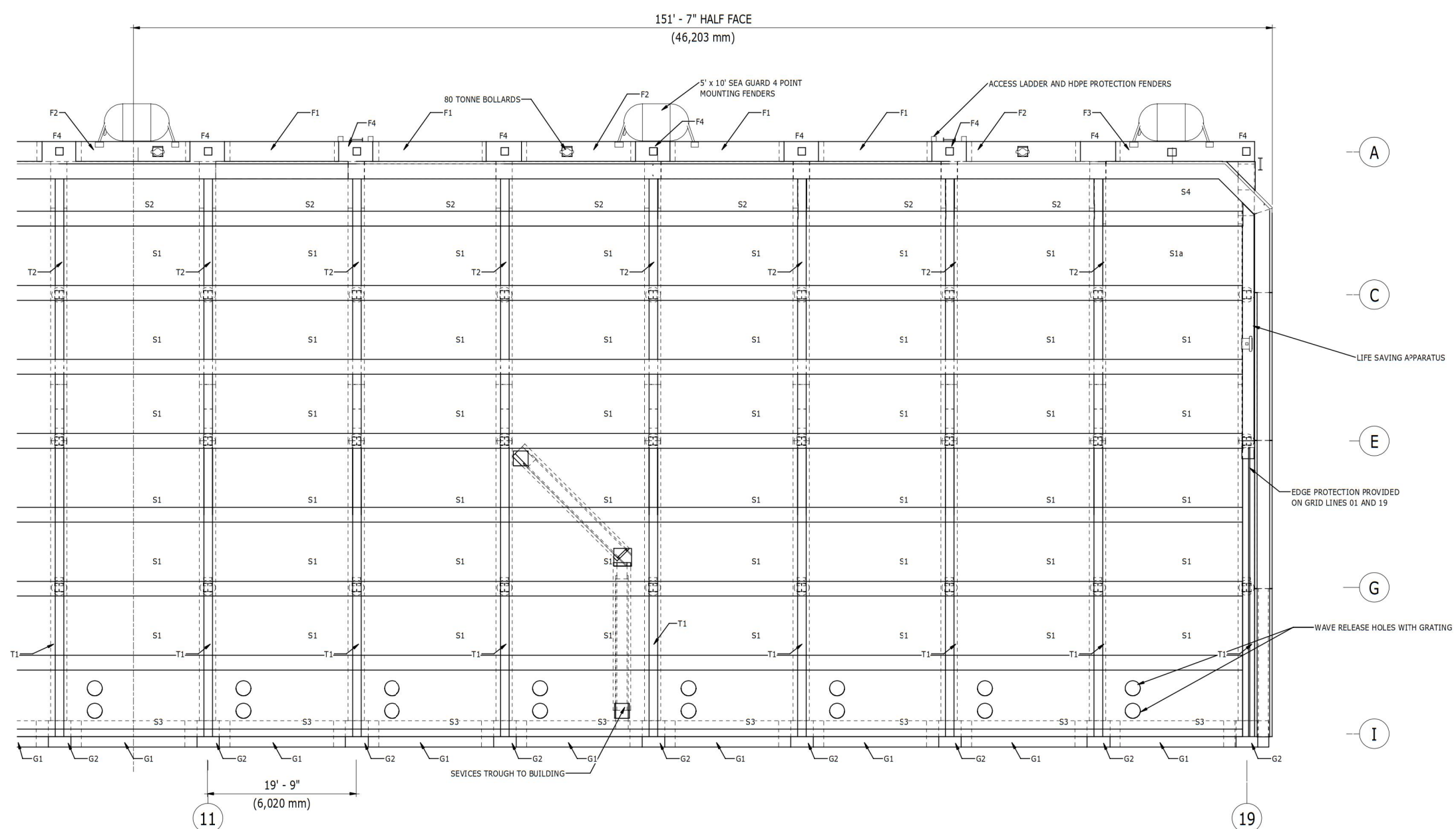
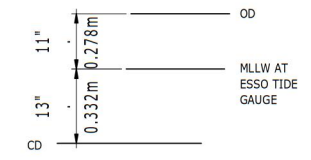
SECTIONS THROUGH AND DETAILS

Project No:	Scale (@A1):	Date:	Drawn:
1620004884	AS indicated	JULY 18	CDW
Drawing No:	Rev:		
-RAM-XX-00-DR-CW-202	R01		

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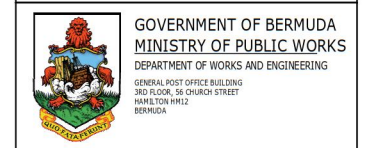
KEY TO STRUCTURAL COMPONENTS			
NOTATION	DESCRIPTION	NO. OFF	DRAWING REF
T1	TRANSVERSE BEAM 1	16	4884-RAM-XX-00-DR-CW-0300
T2	TRANSVERSE BEAM 2	16	4884-RAM-XX-00-DR-CW-0301
S1	SLAB TYPE 1	88	4884-RAM-XX-00-DR-CW-0310
S1a	SLAB TYPE 1a	2	4884-RAM-XX-00-DR-CW-0310
S2	SLAB TYPE 2	13	4884-RAM-XX-00-DR-CW-0311
S3	SLAB TYPE 3	15	4884-RAM-XX-00-DR-CW-0312
S4	SLAB TYPE 4	2	4884-RAM-XX-00-DR-CW-0313
F1	FRONT BEAM 1	3	4884-RAM-XX-00-DR-CW-0320
F2	FRONT BEAM 2	4	4884-RAM-XX-00-DR-CW-0321
F3	FRONT BEAM 3	8	4884-RAM-XX-00-DR-CW-0322
F4	FRONT BEAM PILE CAP	16	4884-RAM-XX-00-DR-CW-0323
G1	GROUND BEAM	15	4884-RAM-XX-00-DR-CW-0330
G2	GROUND BEAM PILE CAP	16	4884-RAM-XX-00-DR-CW-0331

Assumed Construction Sequence (To be developed and undertaken by the Contractor)

- Demolish existing slab formed of steel beams encased in concrete and remove. Suitable demolition method to be proposed by the Contractor. Front piles to be cut-off at +1' 6" OD, all other piles to be left at +4' 7" OD.
- Breakout existing concrete jackets to piles and remove
- Prepare existing pile heads to receive new pile jackets, including any necessary plate repairs to the existing piles
- Design and provide temporary works to ensure stability of pile and part-erected structure at all stages during construction
- Clean and prepare pile heads, then install shear studs to existing piles
- Install cathodic protection brackets and anodes to existing piles
- Place new pile jackets and starter bars (refer to drawing DR-CW-400)
- Cast in-situ concrete fill to pile jacket
- Place pile caps to front and rear piles and cast in-situ joint between pile cap and pile jackets.
- Place transverse beams T1 and T2
- Form and cast in-situ joint between beams T1 and T2
- Place ground beams and cast in-situ joint between ground beams
- Place pre-cast Front beams F1 to F3
- Place pre-cast service trenches around berth perimeter
- Form and cast in-situ joints between front beams and transverse beams
- Place slabs units S1 - S4
- Form and cast in-situ joints between slab units
- Fit quay furniture: fenders, bollards, edge protection etc.

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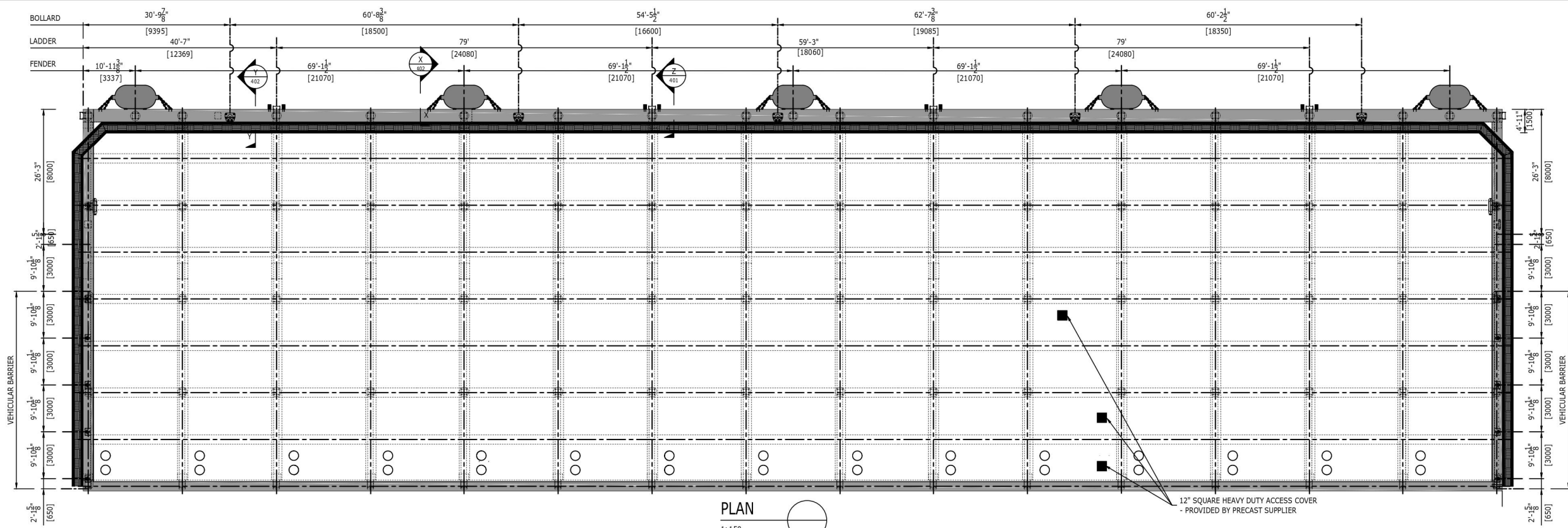


ENLARGED PLAN VIEW
 PRECAST UNITS AND
 FURNITURE

Project No:	Scale (@ A1):	Date:	Drawn:
1620004884	1 : 100	JULY 18	CDW
Drawing No:	Rev:		
-RAM-XX-00-DR-CW-210	R01		

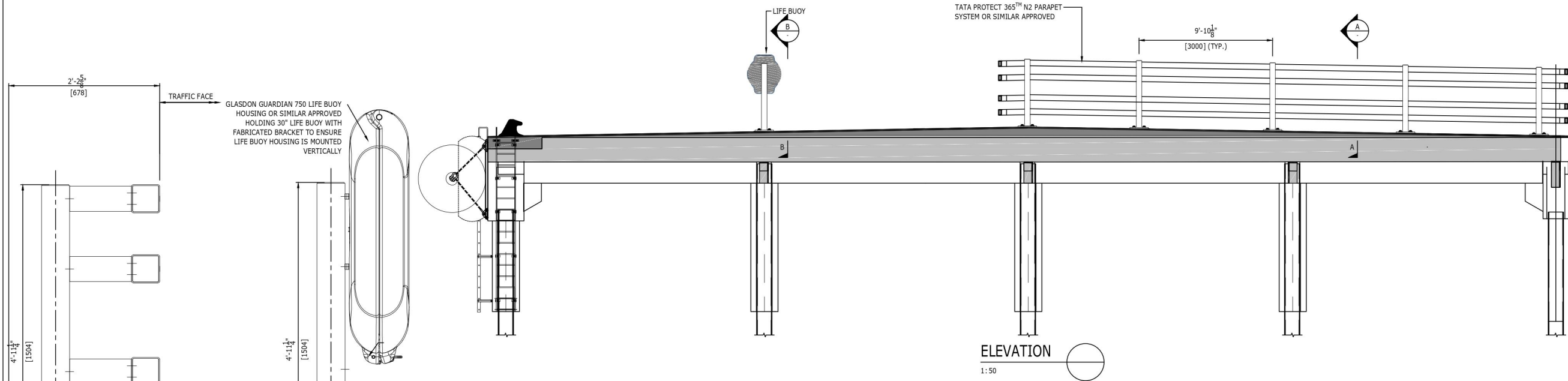
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 - ANCHOR CRADLE TO BE M20 SSR170 OR SIMILAR TO SUIT CHOSEN N2 PARAPET SYSTEM. CRADLE IS TO BE CAST INTO AND SET OUT ALONG THE COPE TO SUIT CHOSEN N2 PARAPET SYSTEM

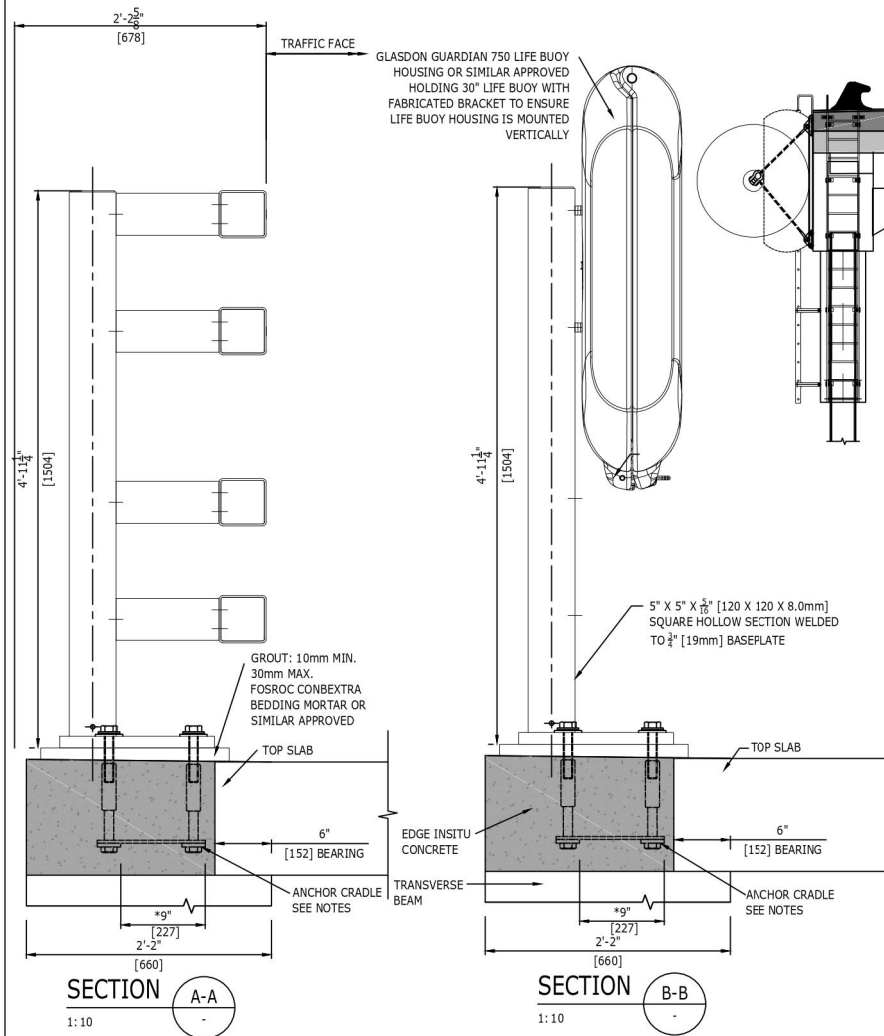


PLAN
1:150
QUAY FURNITURE LAYOUT

12" SQUARE HEAVY DUTY ACCESS COVER
- PROVIDED BY PRECAST SUPPLIER

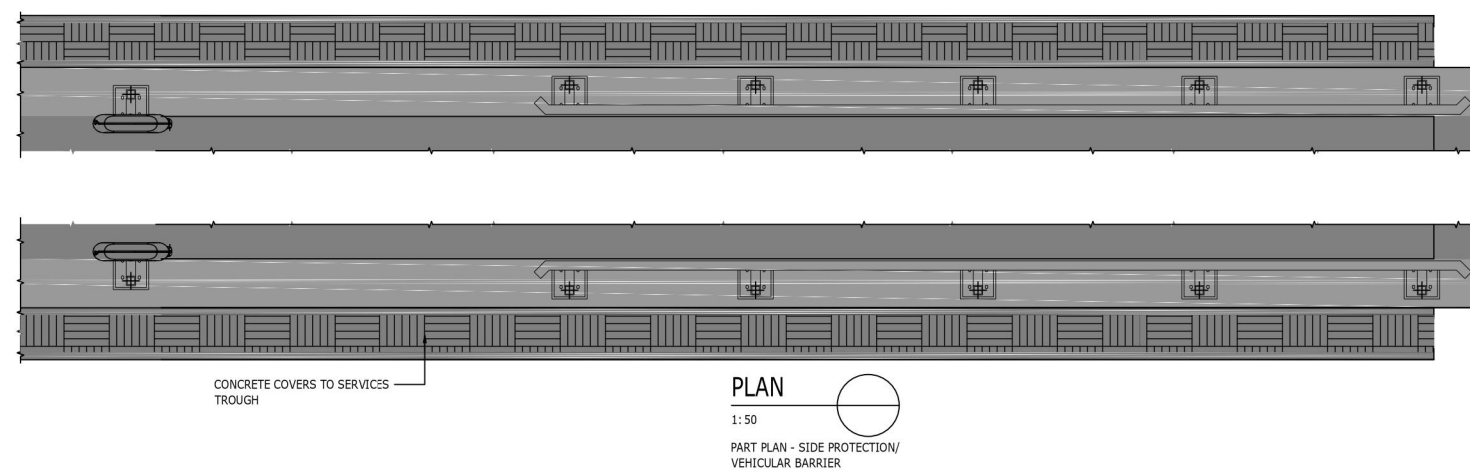


ELEVATION
1:50



SECTION A-A
1:10

SECTION B-B
1:10



PLAN
1:50
PART PLAN - SIDE PROTECTION/
VEHICULAR BARRIER

Rev	Description	Date	By	App
R01	FOR TENDER	13/07/2018	CDW	JC

FOR TENDER

**KINGS WHARF REHABILITATION
BERMUDA
61-53-79-04**



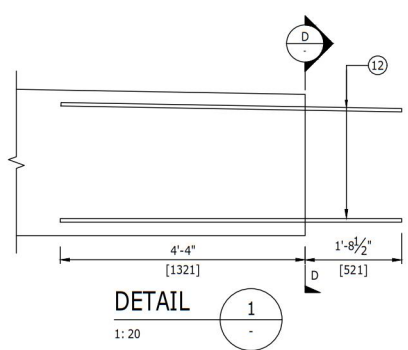
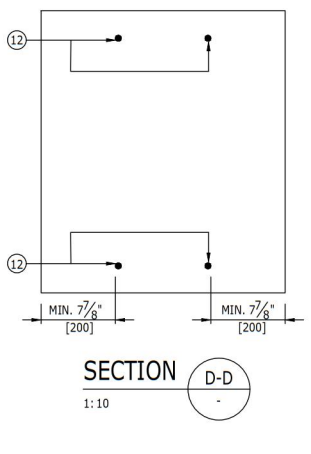
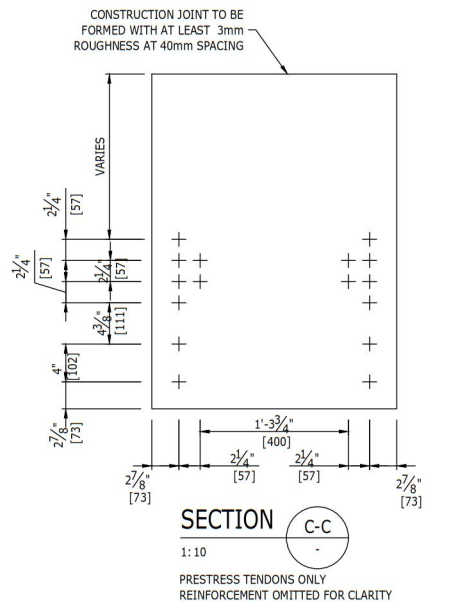
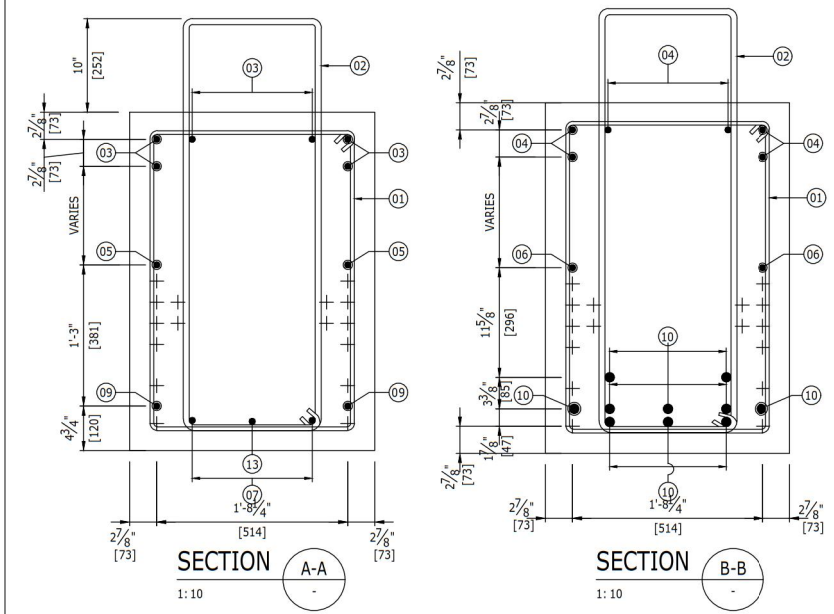
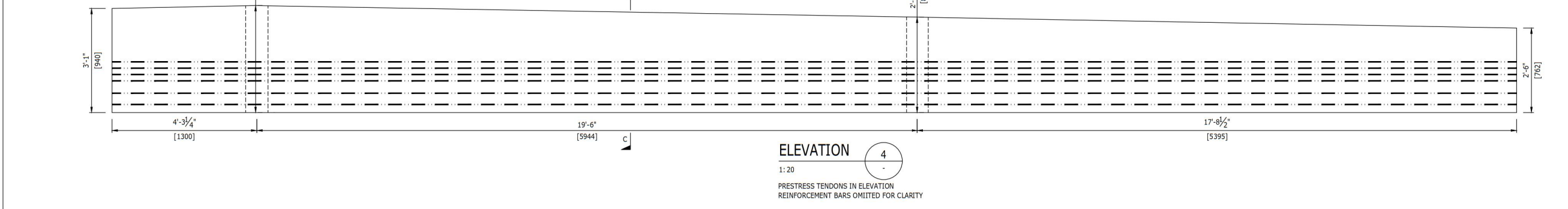
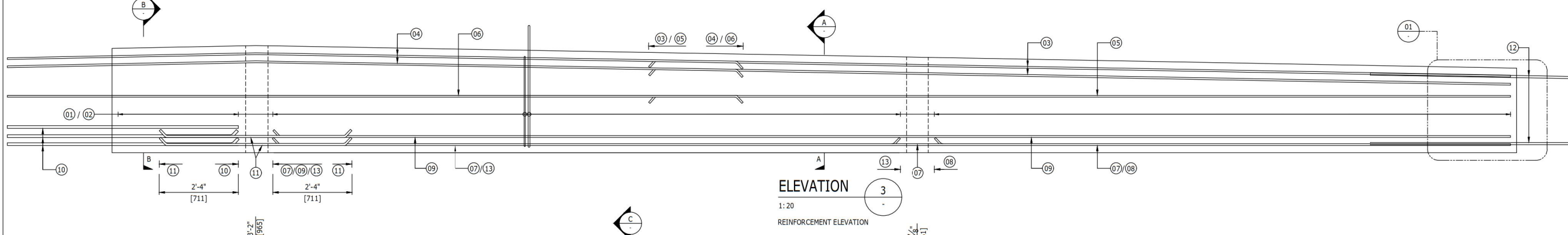
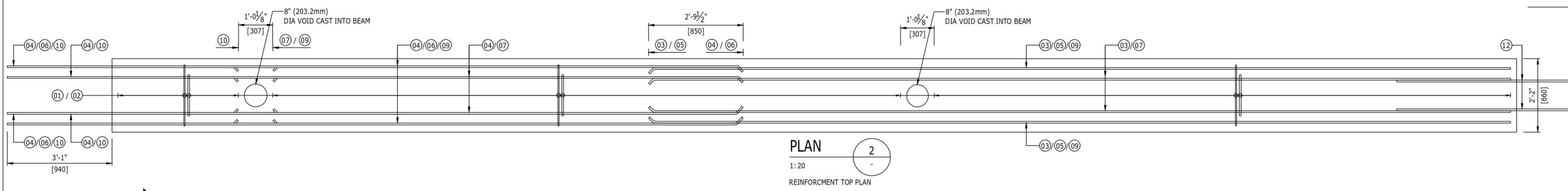
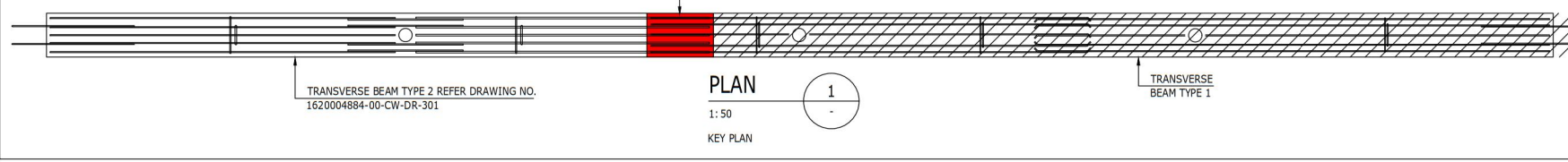
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**QUAY FURNITURE LAYOUT AND
EDGE PROTECTION DETAILS**

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1620004884	1:250	CDW	JULY '18
Drawing No:	Rev:		
-RAM-XX-00-DR-CW-220	R01		

PROVIDED BY PRECAST SUPPLIER - FOR CONTRACTOR INFORMATION ONLY

IN-SITU JOINT DETAILS
REFER TO DRAWING NO.
1620004884-00-CW-DR-342



SCHEDULE OF REINFORCEMENT
(SUBJECT TO SITE CHECK)

BAR MRK.	BAR DIA.	SPACING / NO.	SHAPE	STEEL	REMARKS
01	#3 [10mm]	6" [150mm c/c]	VARIES	GALVANISED	TRANSVERSE BEAM TYPE 1
02	#5 [16mm]	6" [150mm c/c]	VARIES	GALVANISED	
03	#5 [16mm]	6 NOS.	—	GALVANISED	
04	#5 [16mm]	6 NOS.	—	STAINLESS STEEL	
05	#5 [16mm]	2 NOS.	—	GALVANISED	
06	#5 [16mm]	2 NOS.	—	STAINLESS STEEL	
07	#5 [16mm]	2 NOS.	—	GALVANISED	
08	#5 [16mm]	1 NOS.	—	GALVANISED	
09	#5 [16mm]	2 NOS.	—	GALVANISED	
10	#8 [25mm]	10 NOS.	—	STAINLESS STEEL	
11	#6 [19mm]	4 NOS.	—	GALVANISED	
12	#6 [19mm]	4 NOS.	—	STAINLESS STEEL	
13	#5 [16mm]	1 NOS.	—	GALVANISED	

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- Notes
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 - REINFORCEMENT SHALL BE GRADE 60 TO ASTM A615 AND HOT DIP GALVANISED UNLESS NOTED OTHERWISE. STAINLESS STEEL REINFORCEMENT WHERE USED SHALL BE GRADE 75.
 - CONCRETE SHALL BE GRADE M50 TO ACI 318 - REFER TO THE PROJECT SPECIFICATION FOR DETAILS
 - NOMINAL COVER TO TOP FACE OF BEAM : $35+\Delta c = 40\text{mm}$; $1-5/16"+\Delta c=1-1/2"$
NOMINAL COVER TO ALL OTHER FACES OF BEAM : $50+\Delta c = 55\text{mm}$; $2"+\Delta c=2-3/16"$
 - ALL PRESTRESSING STRANDS ARE 0.217 SQUARE INCHES WITH A CHARACTERISTIC TENSILE STRENGTH OF 270ksi/1860MPa. THE INITIAL PRESTRESS FORCE APPLIED IMMEDIATELY AFTER TENSIONING AND ANCHORING SHALL BE LIMITED TO 75% OF THE CHARACTERISTIC TENSILE STRENGTH, OR 44 KIPS. REFER TO SPECIFICATION FOR DETAIL.
 - FOR CONCRETE FINISH PLEASE REFER TO SPECIFICATION FOR HIGHWAYS WORKS SERIES 1700 STRUCTURAL CONCRETE STANDARD SUB CLAUSE 1708-4 FOR FINISHES TYPES:
EXPOSED FACES OF TRANSVERSE BEAM - F4
BOTTOM FACE OF PRECAST SLABS - F2
TOP FACE OF PRECAST SLABS - U4
EXPOSED FACES OF INSITU CONCRETE - U4
 - CONCRETE STRENGTH AT TRANSFER SHALL EXCEED 1.7 KSI
 - PRESTRESS STRANDS SHALL BE LOW RELAXATION STRANDS
 - BEAM MANUFACTURER SHALL MAKE ALLOWANCE FOR ELASTIC SHORTENING AS WELL AS CREEP AND SHRINKAGE
 - DETAILING OF BM02 LINKS IS CRITICAL TO AVOID CLASH WITH SLAB STEEL
 - TOLERANCE ON BEAM LENGTH SHALL BE +/- 1" (25mm) MEASURED AT 28 +/- 2 DAYS AFTER CASTING. REFER TO SPECIFICATION FOR DETAILS

R01	FOR TENDER	13/07/2018	KPSH	JC
Rev	Description	Date	By	App

FOR TENDER

KINGS WHARF REHABILITATION
BERMUDA
61-53-79-04

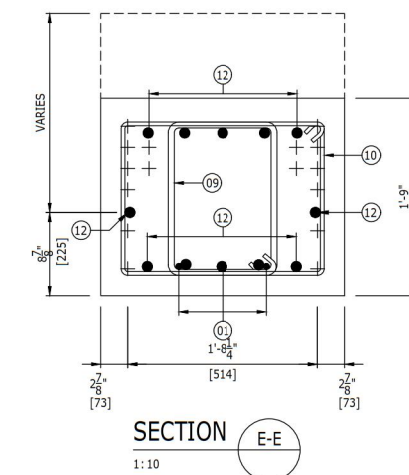
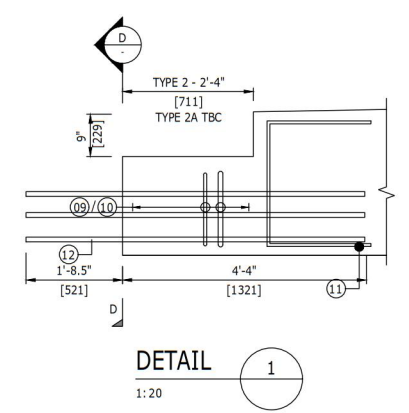
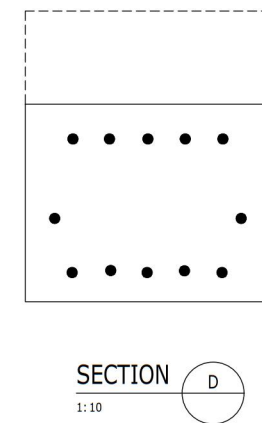
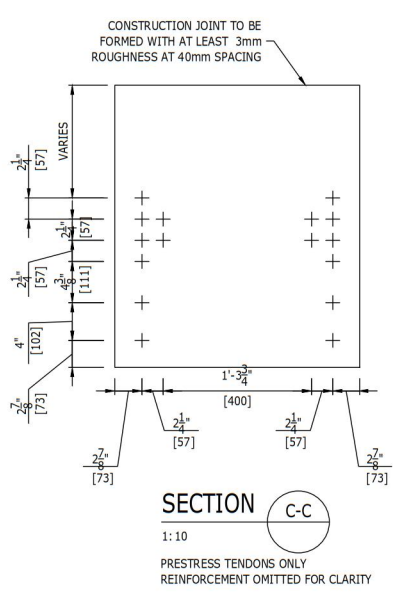
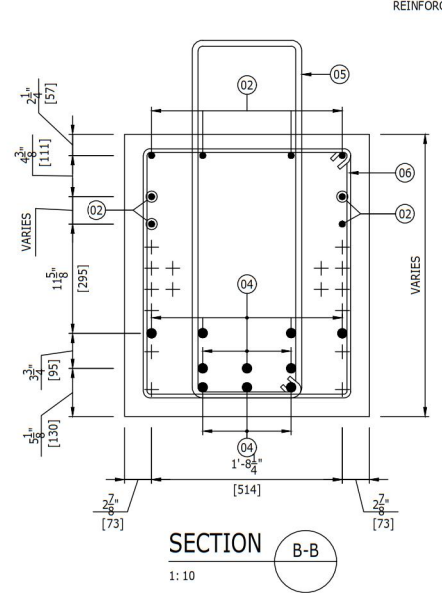
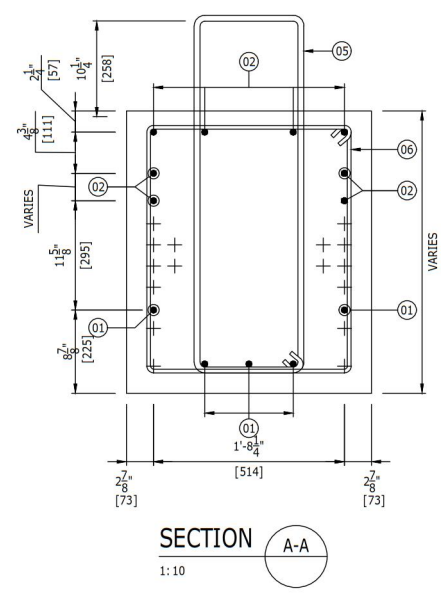
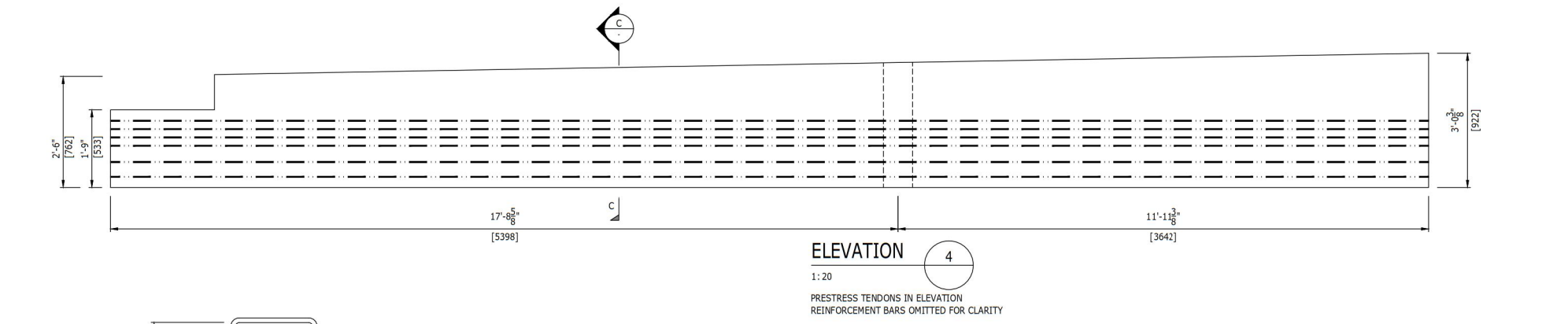
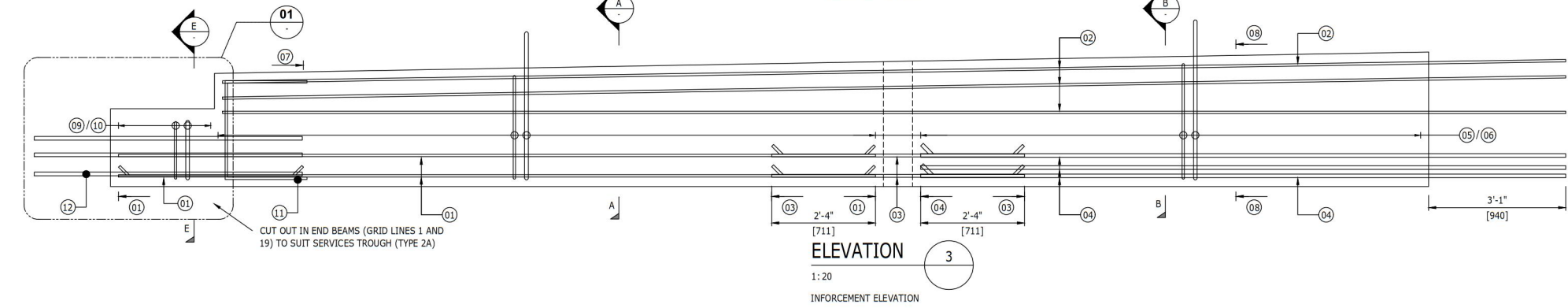
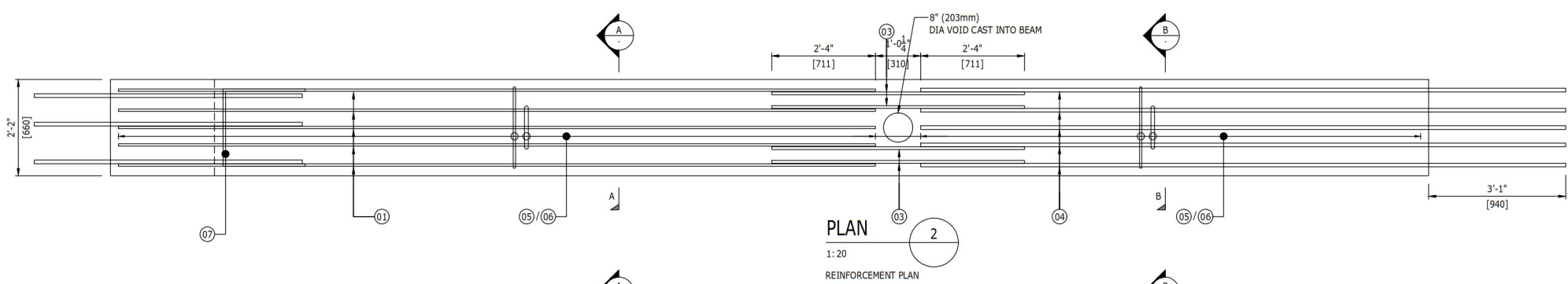
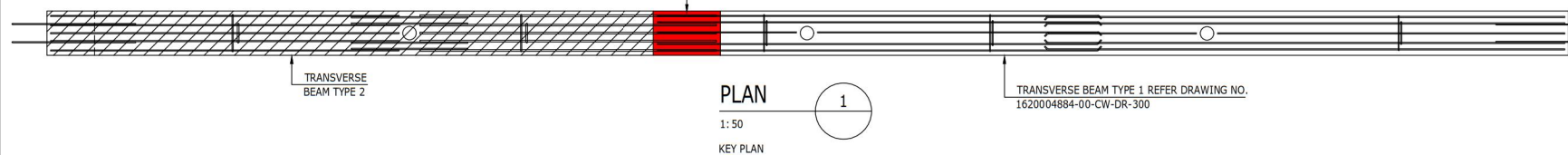
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TRANSVERSE BEAM TYPE 1
REINFORCEMENT

Project No:	Scale (@A1):	Drawn:	Date:
1620004884	AS NOTED	KPSH	JULY 18
Drawing No:	-RAM-XX-00-DR-CW-0300		Rev:
			R01



SCHEDULE OF REINFORCEMENT
(SUBJECT TO SITE CHECK)

BAR MRK.	BAR DIA.	SPACING / NO.	SHAPE	FINISH	REMARKS
01	#5 [16mm]	5 NOS.		GALVANISED	TRANSVERSE BEAM TYPE 2
02	#5 [16mm]	8 NOS.		STAINLESS STEEL	
03	#6 [19mm]	6 NOS.		GALVANISED	
04	#8 [25mm]	10 NOS.		STAINLESS STEEL	
05	#5 [16mm]	6" [150mm c/c]	VARIES	GALVANISED	
06	#3 [10mm]	7" [180mm c/c]	VARIES	GALVANISED	
07	#5 [19mm]	3 NOS.		GALVANISED	
08	#6 [19mm]	2X2 = 4 NOS.		GALVANISED	
09	#5 [16mm]	6" [150mm c/c]	VARIES	GALVANISED	
10	#3 [10mm]	7" [180mm c/c]	VARIES	GALVANISED	
11	#5 [16mm]	5 NOS.		GALVANISED	
12	#8 [25mm]	12 NOS.		STAINLESS STEEL	

LEGEND:
 ——— TOP BARS/NEAR
 - - - - - BOTTOM BARS/FAR

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 - REINFORCEMENT SHALL BE GRADE 60 TO ASTM A615 AND HOT DIP GALVANISED UNLESS NOTED OTHERWISE. STAINLESS STEEL REINFORCEMENT WHERE USED SHALL BE GRADE 75.
 - CONCRETE SHALL BE GRADE M50 TO ACI 318 - REFER TO THE PROJECT SPECIFICATION FOR DETAILS
 - NOMINAL COVER TO TOP FACE OF BEAM : $35+3c = 40mm: 1-5/16"+3c=1-1/2"$
NOMINAL COVER TO ALL OTHER FACES OF BEAM : $50+3c = 55mm: 2"+3c=2-3/16"$
 - ALL PRESTRESSING STRANDS ARE 0.217 SQUARE INCHES WITH A CHARACTERISTIC TENSILE STRENGTH OF 270ksi/1860MPa. THE INITIAL PRESTRESS FORCE APPLIED IMMEDIATELY AFTER TENSIONING AND ANCHORING SHALL BE LIMITED TO 75% OF THE CHARACTERISTIC TENSILE STRENGTH, OR 44 KIPS. REFER TO SPECIFICATION FOR DETAIL.
 - FOR CONCRETE FINISH PLEASE REFER TO SPECIFICATION FOR HIGHWAYS WORKS SERIES 1700 STRUCTURAL CONCRETE STANDARD SUB CLAUSE 1708-4 FOR FINISHES TYPES:
 - EXPOSED FACES OF TRANSVERSE BEAM - F4
BOTTOM FACE OF PRECAST SLABS - F2
TOP FACE OF PRECAST SLABS - U4
EXPOSED FACES OF INSITU CONCRETE - U4
 - CONCRETE STRENGTH AT TRANSFER SHALL EXCEED 1.7 KSI
 - PRESTRESS STRANDS SHALL BE LOW RELAXATION STRANDS
 - BEAM MANUFACTURER SHALL MAKE ALLOWANCE FOR ELASTIC SHORTENING AS WELL AS CREEP AND SHRINKAGE
 - DETAILING OF BM02 LINKS IS CRITICAL TO AVOID CLASH WITH SLAB STEEL
 - TOLERANCE ON BEAM LENGTH SHALL BE +/- 1" (25mm) MEASURED AT 28 +/- 2 DAYS AFTER CASTING. REFER TO SPECIFICATION FOR DETAILS

R01 FOR TENDER	1307 2018	RVSR	JC
Rev Description	Date	By Chk	App

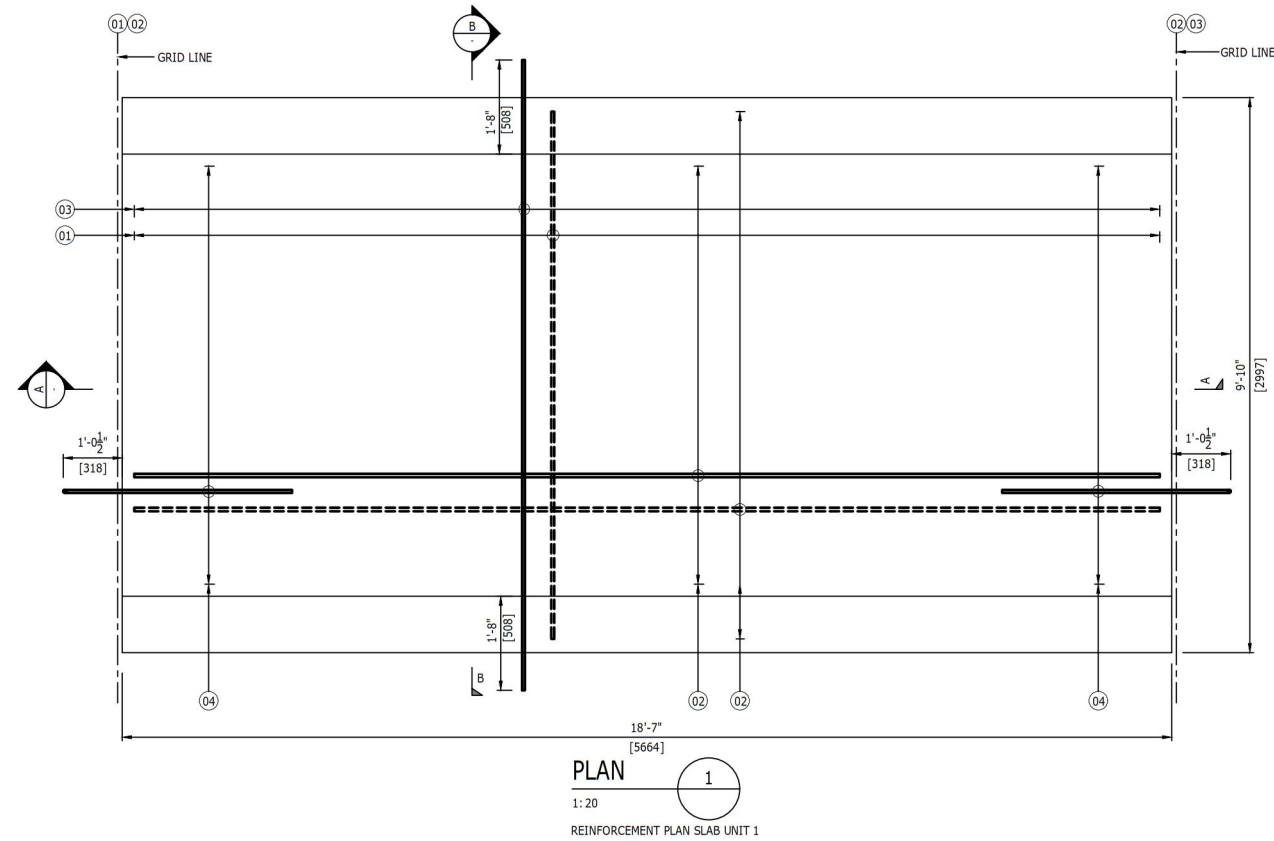
FOR TENDER

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BERMUDA
61-53-79-04



TRANSVERSE BEAM TYPE 2
REINFORCEMENT

Project No: 1620004884	Scale (@A1): AS NOTED	Drawn: RVSR	Date: JULY 18
Drawing No: -RAM-XX-00-DR-CW-0301	Rev: R01		

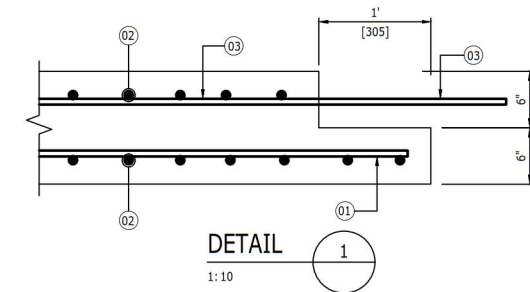
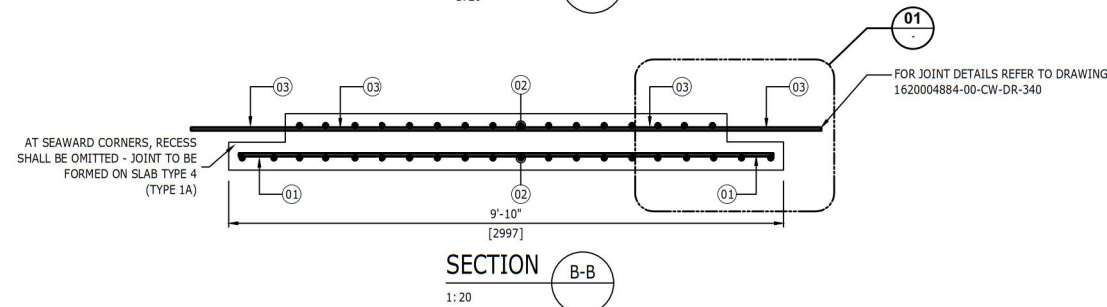
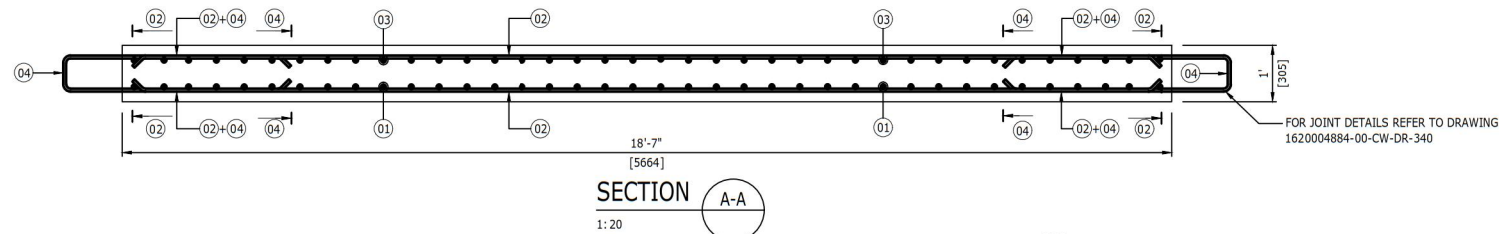


SCHEDULE OF REINFORCEMENT
(SUBJECT TO SITE CHECK)

BAR MRK.	BAR DIA.	SPACING / NO.	SHAPE	STEEL	REMARKS
01	#6 [19mm]	6" [150mm c/c]	—	GALVANISED	SLAB TYPE 1
02	#5 [16mm]	6" [150mm c/c]	—	GALVANISED	
03	#6 [19mm]	6" [150mm c/c]	—	GALVANISED	
04	#5 [16mm]	6" [150mm c/c]	1180 1185	STAINLESS STEEL	

LEGEND:

— TOP BARS
- - - - - BOTTOM BARS



Notes

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- REINFORCEMENT SHALL BE GRADE 60 TO ASTM A615 AND HOT DIP GALVANISED UNLESS NOTED OTHERWISE. STAINLESS STEEL REINFORCEMENT WHERE USED SHALL BE GRADE 75.
- CONCRETE SHALL BE GRADE M50 TO ACI 318 - REFER TO THE PROJECT SPECIFICATION FOR DETAILS
- NOMINAL COVER TO ALL FACES OF SLABS
50 + Δc = 55mm
2" + Δc = 2 - 3/16"
- PROTRUDING U-BARS SHALL BE POSITIONED IN AN ALTERNATING FASHION TO AVOID CLASHES WITH BARS PROTRUDING FROM ADJACENT SLABS AND TRANSVERSE BEAMS.
- FOR CONCRETE FINISH PLEASE REFER TO SPECIFICATION FOR HIGHWAYS WORKS SERIES 1700 STRUCTURAL CONCRETE STANDARD SUB CLAUSE 1708-4 FOR FINISHES TYPES:
EXPOSED FACES OF TRANSVERSE BEAM - F4
BOTTOM FACE OF PRECAST SLABS - F2
TOP FACE OF PRECAST SLABS - U4
EXPOSED FACES OF INSITU CONCRETE - U4

R01	FOR TENDER	13/07 2018	GDW EL	JC
Rev	Description	Date	By Chk	App

FOR TENDER

KINGS WHARF REHABILITATION
BERMUDA
61-53-79-04



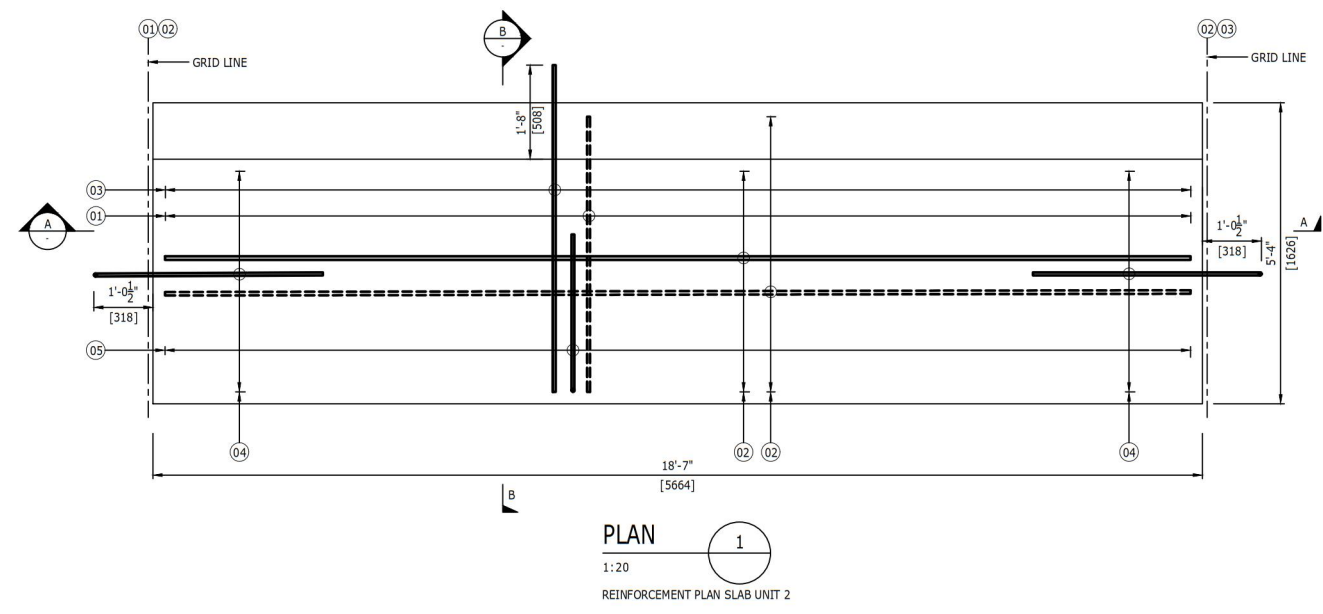
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SLAB UNIT TYPE 1
REINFORCEMENT

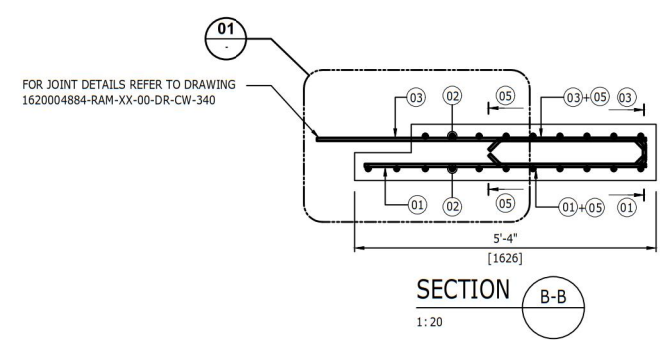
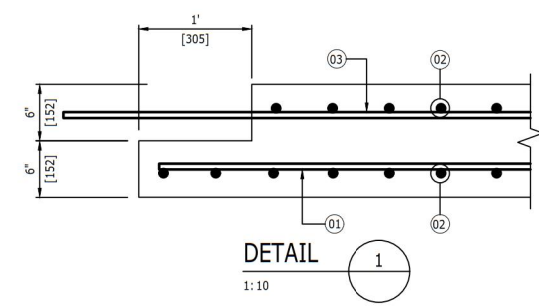
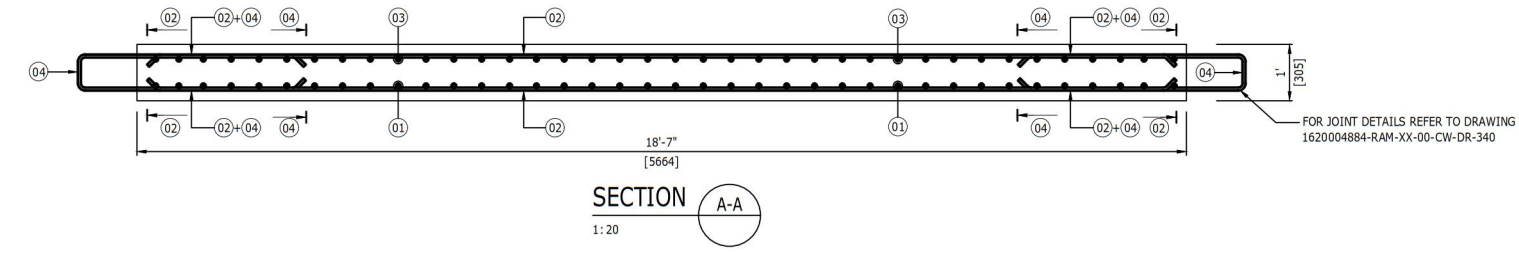
Project No:	Scale (@A1):	Drawn:	Date:
1620004884	AS NOTED	RVSR	JULY 18
Drawing No:	Rev:		
-RAM-XX-00-DR-CW-0310	R01		



SCHEDULE OF REINFORCEMENT
(SUBJECT TO SITE CHECK)

BAR MRK.	BAR DIA.	SPACING / NO.	SHAPE	STEEL	REMARKS
01	#6 [19mm]	6" [150mm c/c]	—	GALVANISED	SLAB TYPE 2
02	#5 [16mm]	6" [150mm c/c]	—	GALVANISED	
03	#6 [19mm]	6" [150mm c/c]	—	STAINLESS STEEL	
04	#5 [16mm]	6" [150mm c/c]	U	STAINLESS STEEL	
05	#4 [13mm]	6" [150mm c/c]	U	GALVANISED	

LEGEND:
 TOP BARS
 BOTTOM BARS



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 - NOMINAL COVER TO ALL FACES OF SLABS
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TOP FACE OF PRECAST SLABS - U4
EXPOSED FACES OF INSITU CONCRETE - U4

R01	FOR TENDER	1307 2018	GDW EL	JC
Rev	Description	Date	By Chk	App

FOR TENDER

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SLAB UNIT TYPE 2 REINFORCEMENT

Project No:	Scale (@A1):	Drawn:	Date:
1620004884	AS NOTED	RVSR	JULY 18
Drawing No:	Rev:		
-RAM-XX-00-DR-CW-0311	R01		