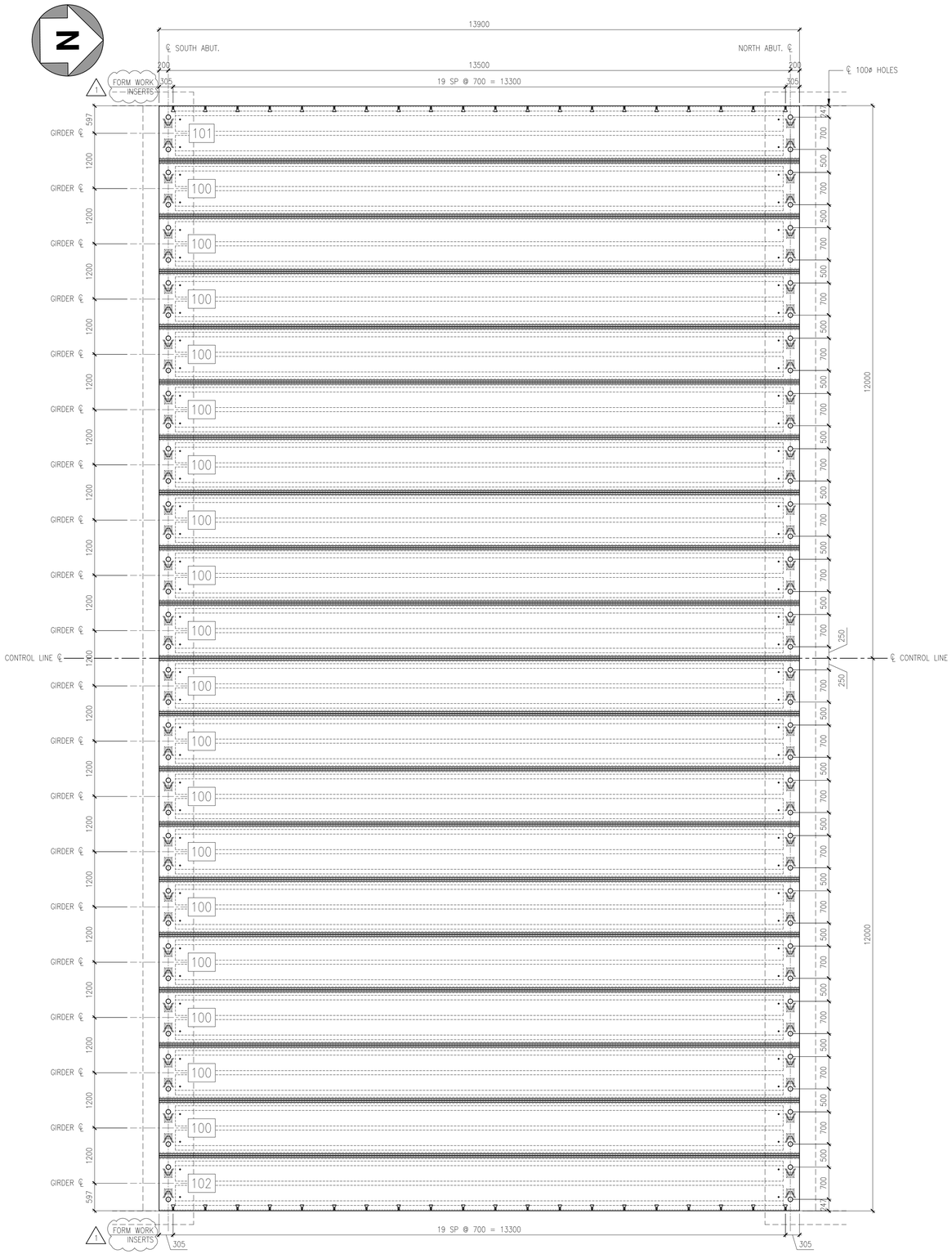


BOX GIRDER LAYOUT

INSTALL PRECAST UNITS ORIENTED TO MARK NUMBERS AS SHOWN

SHIPPING LIST			
MARK No.	QUANTITY	MASS KG	MASS LB
100	18	13287	29293
101	1	13543	29857
102	1	13543	29857
TOTAL	**20**		

GENERAL NOTES

BOX GIRDERS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE 2020 BC MOTI STANDARD SPECIFICATIONS 415: MANUFACTURE AND ERECTION OF PRECAST AND PRESTRESSED CONCRETE MEMBERS

CONCRETE:

STANDARD GREY 2565 kg/m³

MINIMUM COMPRESSIVE STRENGTH
@ RELEASE = 35 MPa
@ 28 DAYS = 55 MPa

REINFORCING STEEL:

CONFORMS TO CAN/CSA G30.18-M GRADE 400W

MINIMUM CONCRETE COVER:
- VERTICAL SURFACE 40mm
- SOFFITS 30mm
- INSIDE SURFACE 30mm

MINIMUM BAR LAPS FOR SPLICE:

BAR SIZE	TYPICAL BARS
10M	450
15M	620

SPLICES TO BE STAGGERED SO THAT NO MORE THAN EVERY SECOND BAR IS SPLICED AT ANY CROSS SECTION.

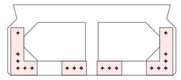
STRANDS:

ø15.2mm – 7 WIRE, UNCOATED, LOW RELAXATION SHALL CONFORM TO ASTM A416-M, GRADE 1860 OR EQUIVALENT

MINIMUM ULTIMATE TENSILE STRENGTH = 260 kN PER STRAND

TENSILE FORCE IMMEDIATELY AFTER RELEASE OF JACK = 195 kN PER STRAND (75% fpu)

GRIND ENDS OF STRANDS FLUSH WITH END OF GIRDER AND COVER WITH THIXOTROPIC EPOXY TO PROVIDE AT LEAST 3mm COVER FOR A BAND WIDTH OF 50mm (MIN.) ON EACH SIDE OF ALL STRANDS. SEE ATTACHED SKETCH.



FINISH:

TOP SURFACES SHALL HAVE A ROUGHENED SURFACE WITH AN AMPLITUDE OF 5mm IN ACCORDANCE WITH BC MOTI STANDARD SPECIFICATIONS 415.41

SHEAR KEYS SURFACES TO BE ROUGHENED TO 1mm AMPLITUDE

EXPOSED VERTICAL SURFACES OF EXTERIOR GIRDERS SHALL RECEIVE A CLASS 2 HAND-RUBBED FINISH TO SS 211.17.

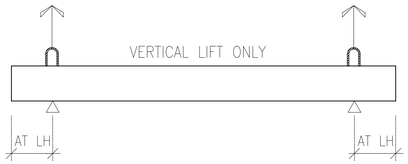
ALL OTHER VERTICAL SURFACES AND SOFFIT SHALL RECEIVE A SMOOTH-FORMED FINISH.

TOLERANCE:

PER PCI MNL 116 EXCEPT AS AMENDED BY BC MOTI STANDARD SPECIFICATIONS 415.46

HANDLING & DUNNAGE:

USING LIFT HOOKS PROVIDED. SEE DIAGRAMS



STRIPPING, HANDLING, SHIPPING & DUNNAGE

INSTALLATION

NO.	REVISION	BY	CHKD	DATE
1	NEW ISSUE	HB	JS	20231020
0	PRODUCTION	HB	AY	20231005
A	APPROVAL	HB	AY	20231003

LAYOUT & GENERAL NOTES

CRRP CACHE CREEK CULVERT REPLACEMENT

NEW ISSUE

CON-FORCE

DATE	CHKD
20230927	AY
DRAWN	ENG
HB	AY

DWG. NO: 128 - 00 - L1.0

Oct 20, 2023 - 10:48am horatiu
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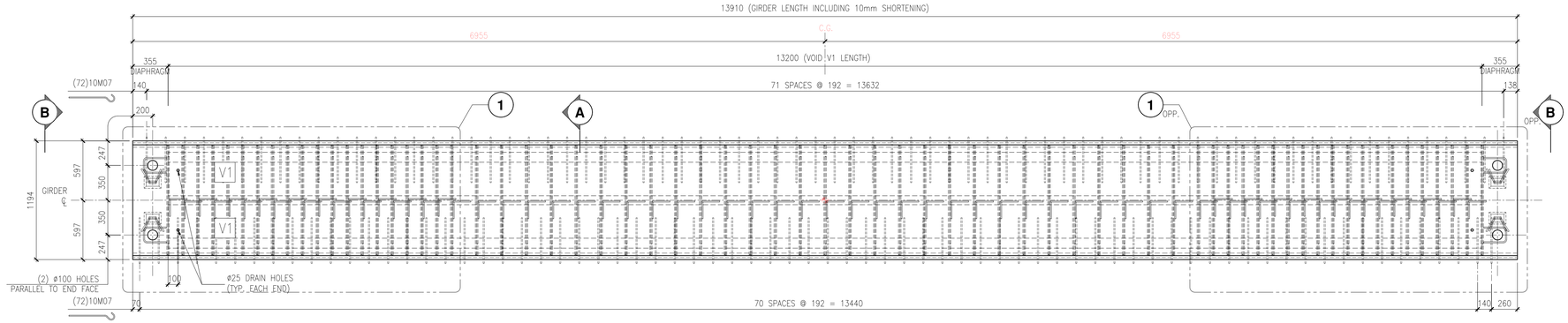
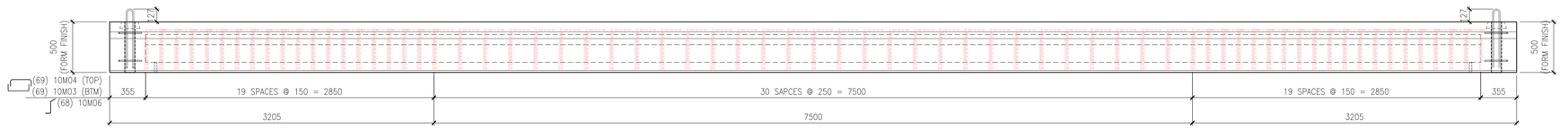
Xrefs:

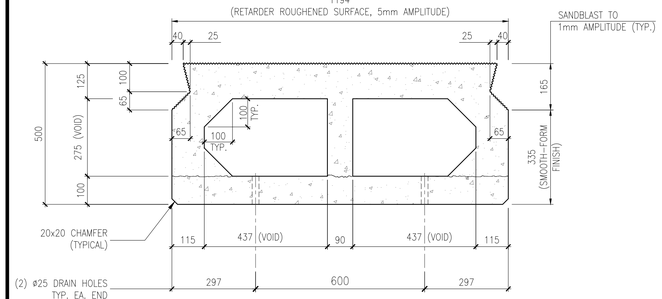


PLAN - MK100

MK NO. THIS END

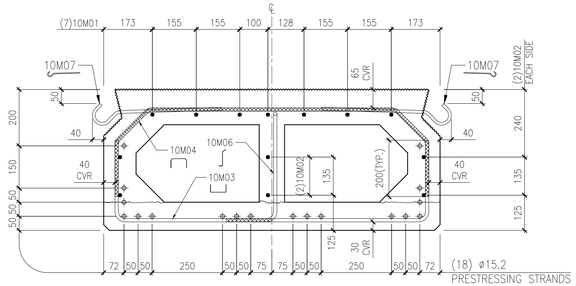


ELEVATION



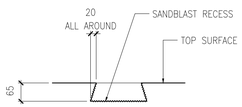
SECTION A

CONC. OUTLINE



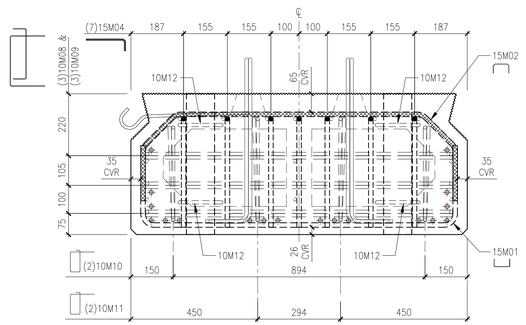
SECTION A

REINFORCING

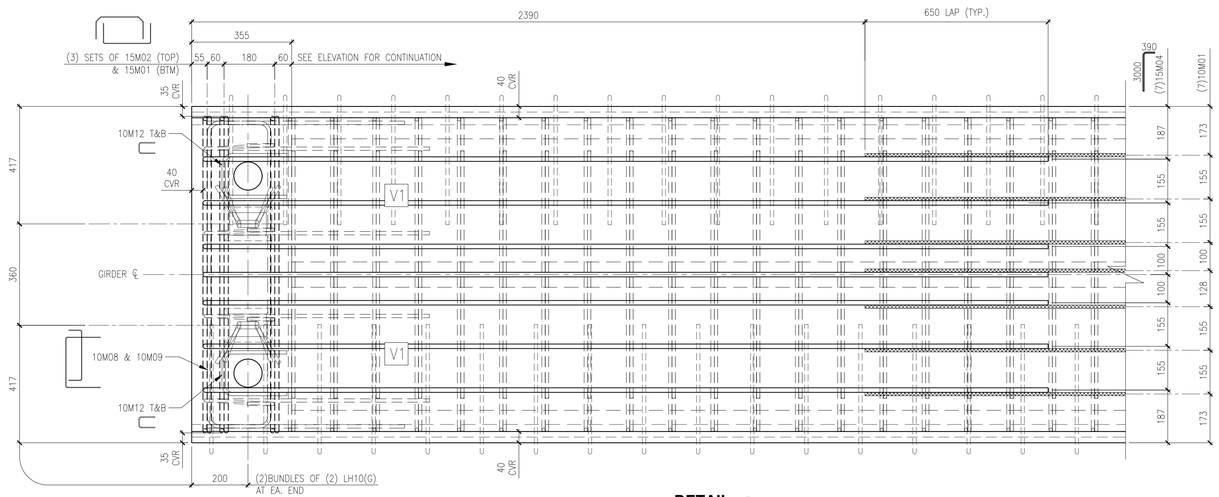


TYP. LIFTHOOKS RECESS DETAIL

NTS



VIEW B



DETAIL 1

REINFORCING

MARK	SIZE	MK	REQ'D	SKETCH	DIM "A"	DIM "B"	CUT LENGTH	MASS (kg)
100	10M	01	7	STRAIGHT			9130	50.2
	10M	02	6	STRAIGHT			13810	65.0
	10M	03	69	290 / 290 / 1114			1644	89.0
	10M	04	69	118 / 879 / 118 / 80 / 315 / 197 / 118 / 1114			1585	85.9
	10M	06	68	380 / 180 / 180			700	37.4
	10M	07	144	360 / 80 / 40 / 145°			500	56.5
	10M	08	6	B / B / 1090		700	2440	11.5
	10M	09	6			230	1500	7.1
	10M	10	4	800 / 100 / B / 250		340	1730	5.4
	10M	11	4			370	1790	5.6
	10M	12	8	230 / 50			560	3.5
	15M	01	6	290 / 290 / 1124			1624	15.3
	15M	02	6	123 / 878 / 123 / 80 / 315 / 192 / 123 / 1124			1580	14.9
	15M	04	14	3000 / 390			3350	73.6

TOTAL REBAR CONSUMPTION

10M		417
15M		104
TOTAL		521

QUANTITIES		AREA	CONCRETE VOLUME (m^3)			MASS	
MARK	REQ'D	(m^2)	–	–	–	(kg)	(lb)
100	18	16.60			5.18	13287	29292

MISCELLANEOUS MATERIALS

MARK	ø15.2mm STRAND (m)	V1	–	–	–	–	–	–
100	250	2						

MISCELLANEOUS IRON

MARK	LH10(G)	–	–	–	–	–	–	–	–	–
100	8									

NOTES:

FOR GENERAL NOTES SEE DWG NO. 128-00-L1.0

NO.	REVISION	BY	CHKD	DATE
A	APPROVAL	HB	AY	20231003

1194x500 TWIN CELL INTERIOR BOX GIRDER

CRRP CACHE CREEK CULVERT REPLACEMENT

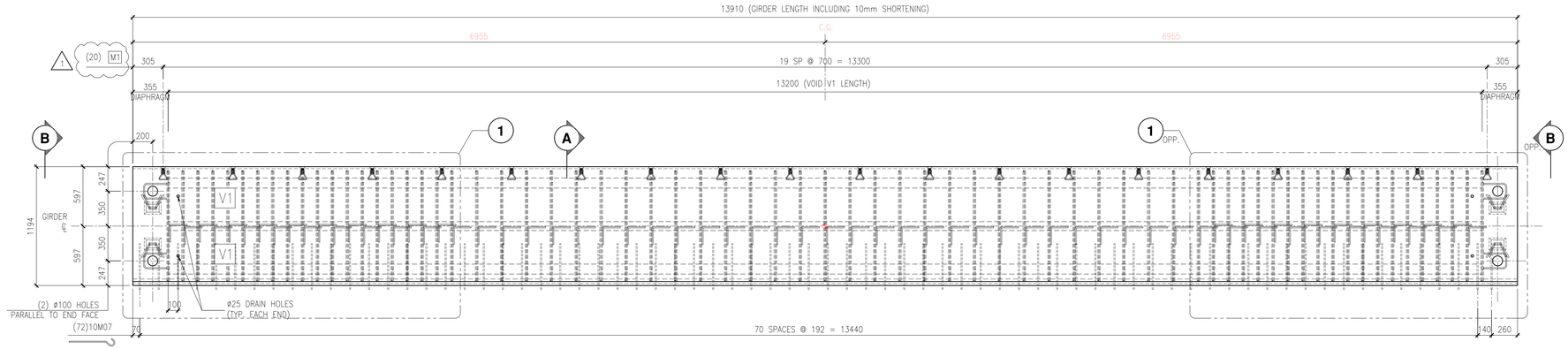
APPROVAL

CON-FORCE

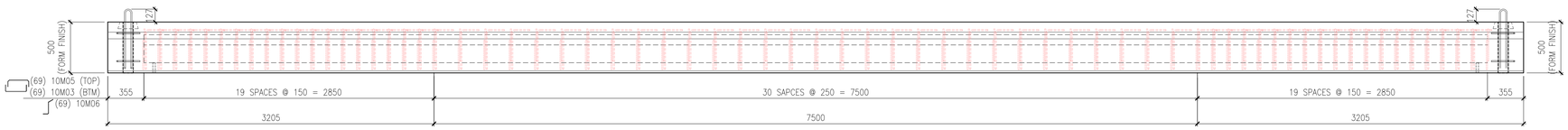
DATE	20230927	CHKD	AY
DRAWN	HB	ENG	AY

DWG. NO: 128 - 06 - 100

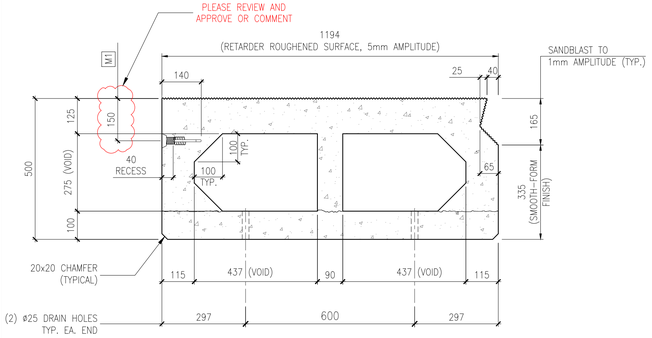
Oct 03, 2023 - 10:58am horatiu
S:\Engineering\000 Projects\128 - Cache Creek\7 Drawings\2 Drawings (CAD)\Shop & Hardware Drawings\06 - Product Name\128-06-MK100.dwg
Xrefs:



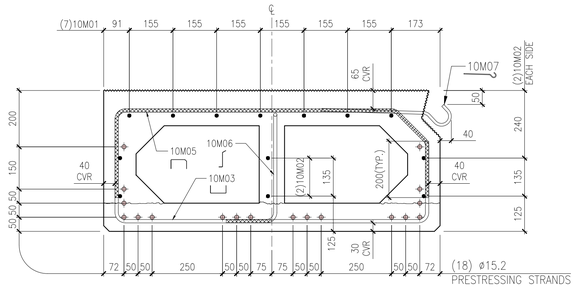
PLAN - MK101
MK NO. THIS END



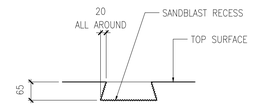
ELEVATION



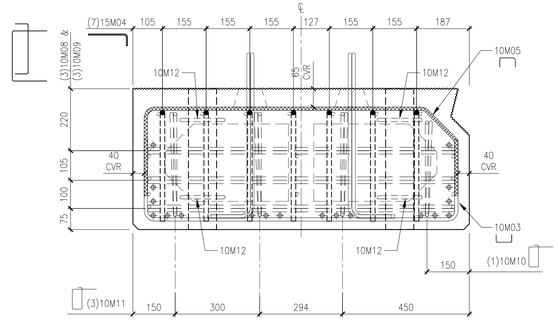
SECTION (A)
CONC. OUTLINE



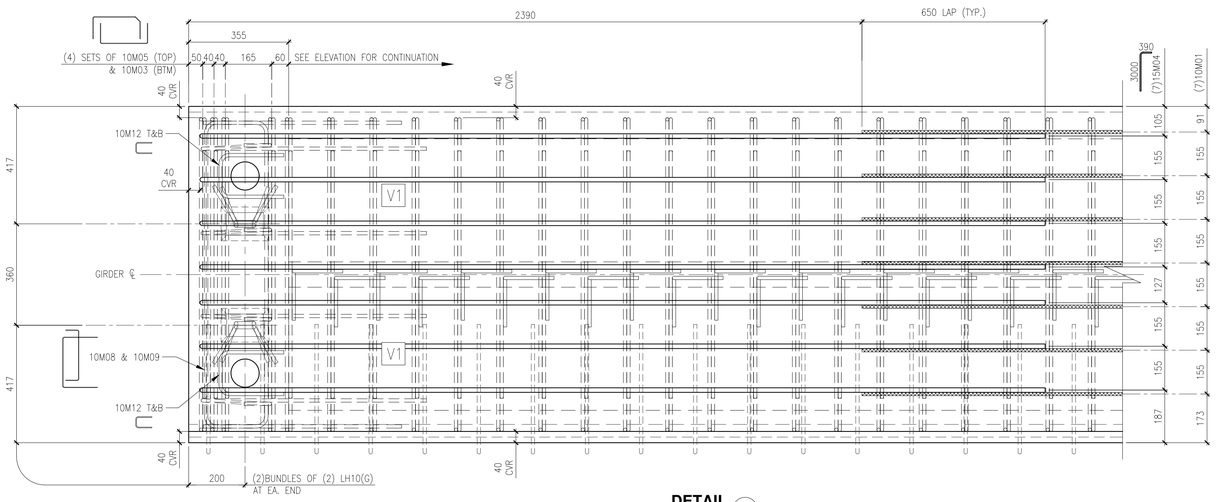
SECTION (A)
REINFORCING



TYP. LIFTHOOKS RECESS DETAIL
NTS



VIEW (B)



DETAIL (1)

REINFORCING

MARK	SIZE	MK	REQ'D	SKETCH	DIM "A"	DIM "B"	CUT LENGTH	MASS (kg)
101	10M	01	7	STRAIGHT			9130	50.2
	10M	02	6	STRAIGHT			13810	65.0
	10M	03	77	290 / 1114 / 290			1644	99.4
	10M	05	77	996 / 315 / 1114 / 118 / 43 / 117 / 197			1638	99.0
	10M	06	69	380 / 180 / 180			700	37.9
	10M	07	72	360 / 40 / 145° / 80			500	28.3
	10M	08	6	B / 1090 / B		700	2440	11.5
	10M	09	6			230	1500	7.1
	10M	10	2	800 / 100 / B / 250		350	1750	2.7
	10M	11	6			380	1810	8.5
	10M	12	8	230 / 50			560	3.5
	15M	04	14	3000 / 390			3350	73.6

TOTAL REBAR CONSUMPTION

10M		413
15M		74
TOTAL		487

QUANTITIES	AREA	CONCRETE VOLUME (m^3)			MASS	
MARK	REQ'D	(m^2)	–	–	–	(kg)	(lb)
101	1	16.60			5.28	13543	29858

MISCELLANEOUS MATERIALS

MARK	ø15.2mm STRAND (m)	V1	–	–	–	–	–	–
101	250	2						

MISCELLANEOUS IRON

MARK	LH10(G)	M1	–	–	–	–	–	–	–
101	8	20							

NOTES:

FOR GENERAL NOTES SEE DWG NO. 128-00-L1.0

NO.	REVISION	BY	CHKD	DATE
1	NEW ISSUE	HB	JS	20231020
0	PRODUCTION	HB	AY	20231005
A	APPROVAL	HB	AY	20231003

1194x500 TWIN CELL EXTERIOR BOX GIRDER

CRRP CACHE CREEK CULVERT REPLACEMENT

NEW ISSUE

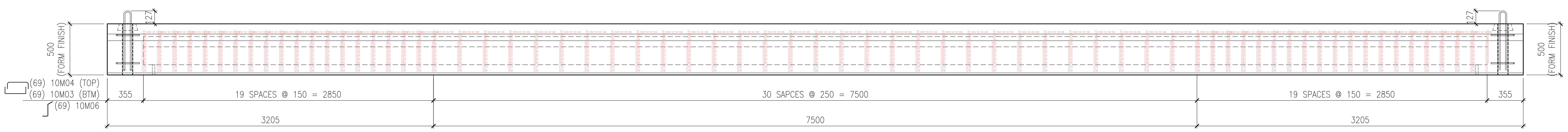
CON-FORCE

DATE	20230927	CHKD	AY
DRAWN	HB	ENG	AY

DWG. NO: 128 - 06 - 101

PLAN - MK100

MK NO. THIS END



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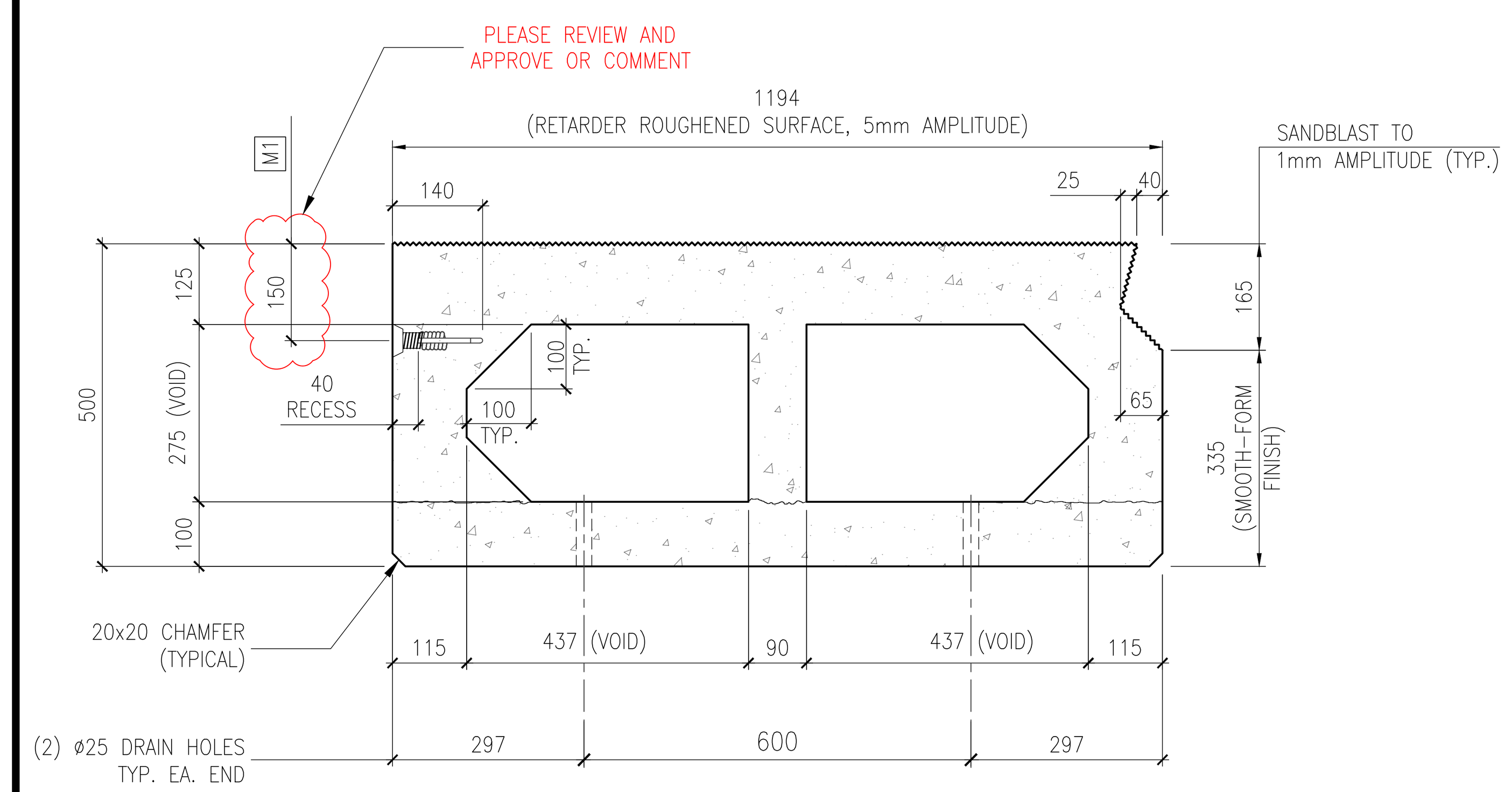
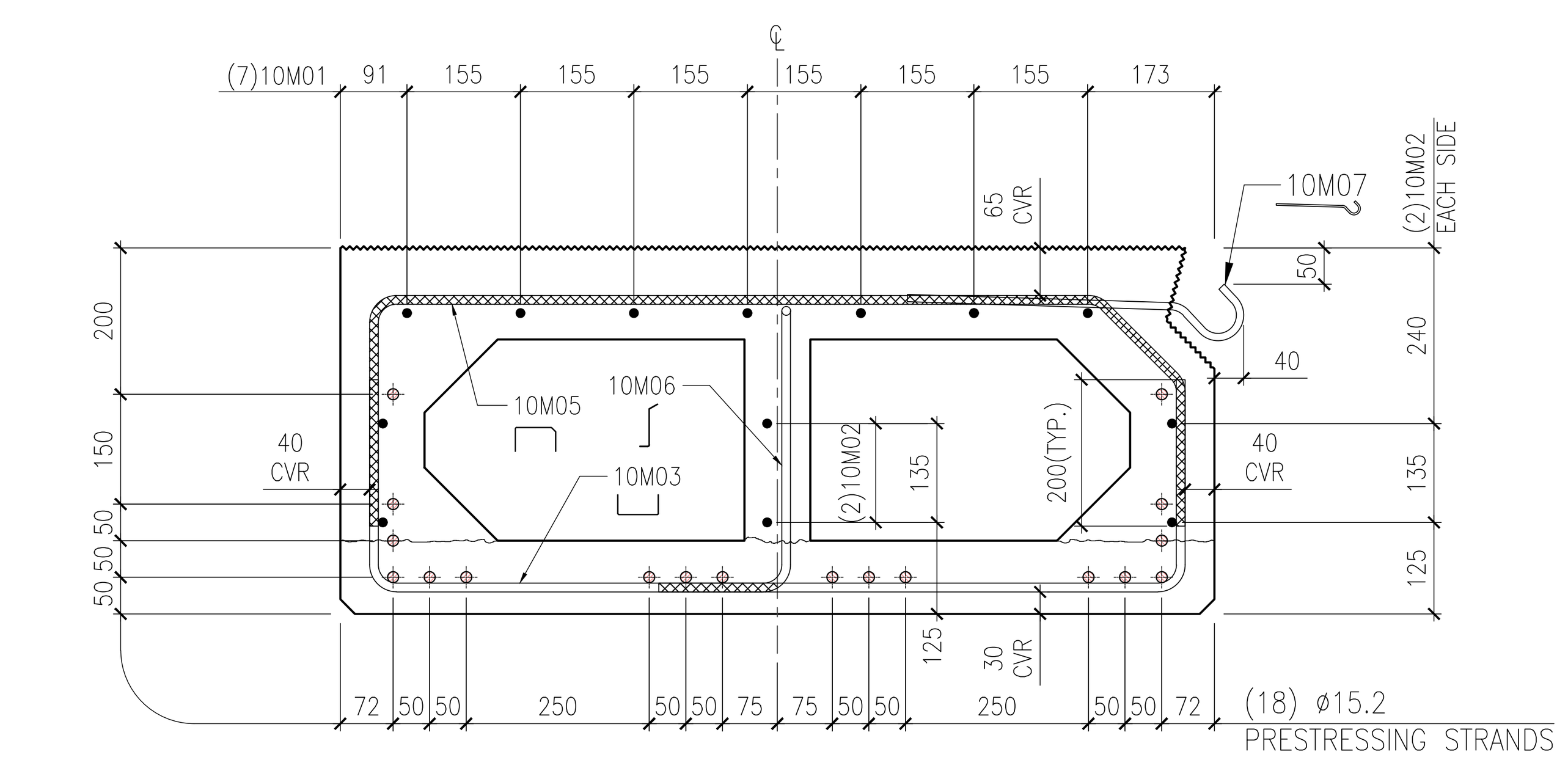


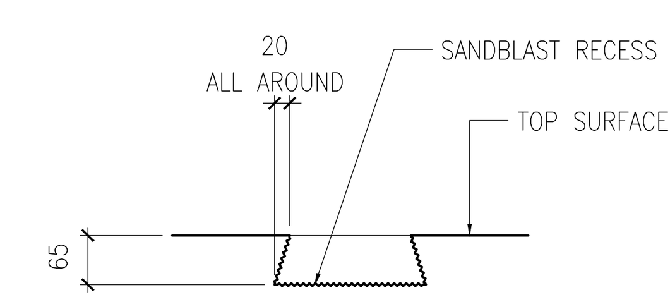
SECTION (A)

CONC. OUTLINE



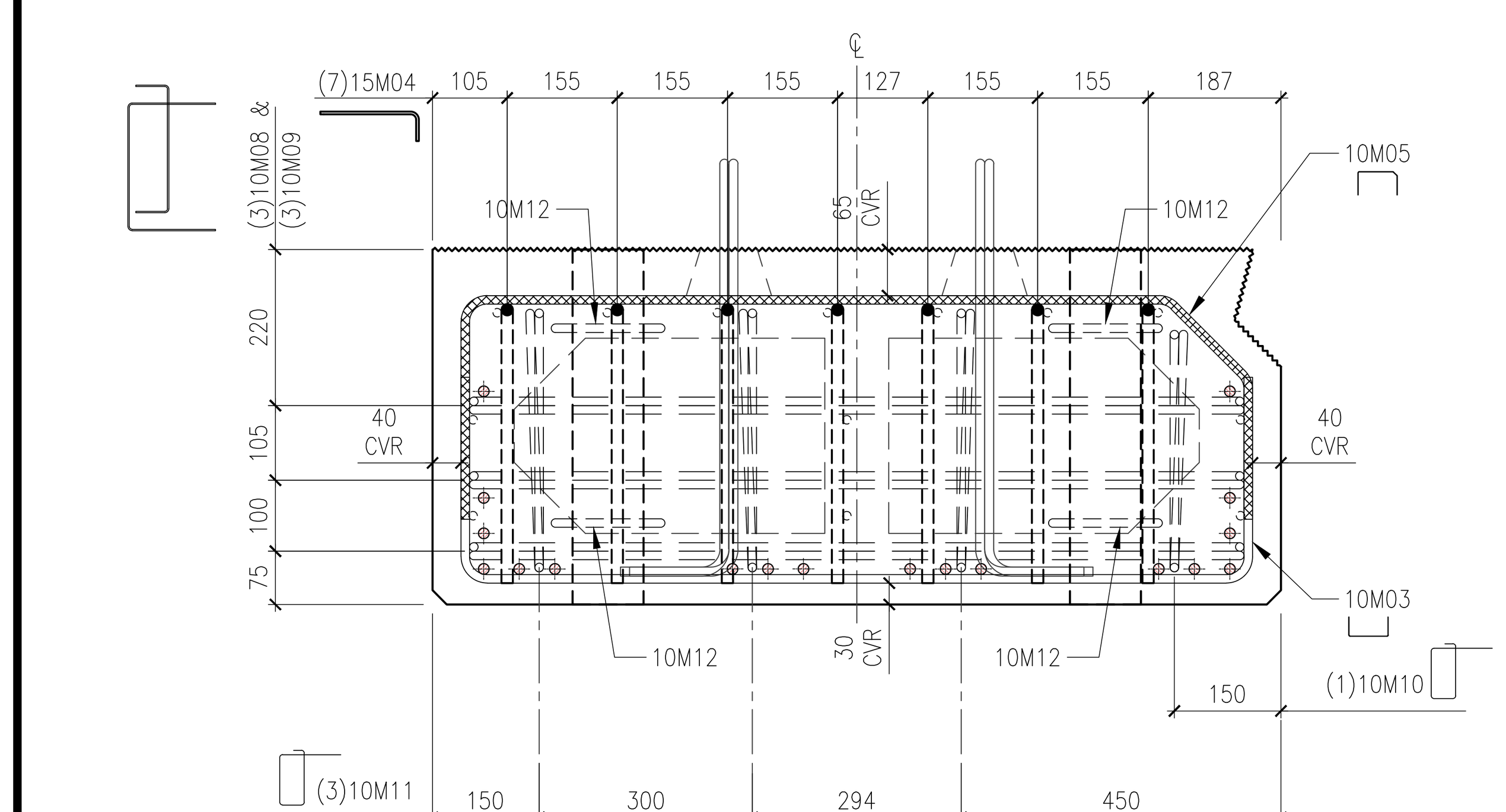
SECTION (A)

REINFORCING

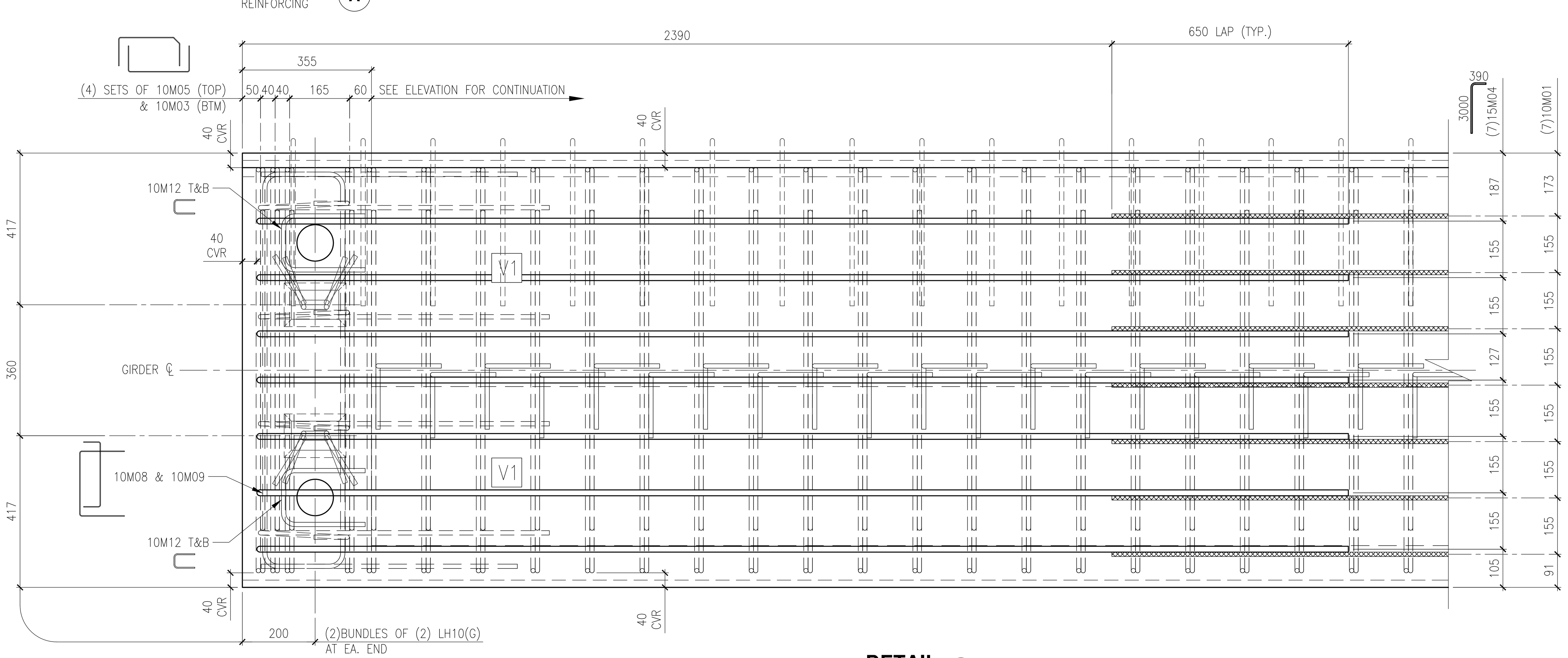


TYP. LIFTHOOKS RECESS DETAIL

NTS



VIEW (B)



DETAIL (1)

REINFORCING

MARK	SIZE	MK	REQ'D	SKETCH	DIM "A"	DIM "B"	CUT LENGTH	MASS (kg)
102	10M	01	7	STRAIGHT			9130	50.2
	10M	02	6	STRAIGHT			13810	65.0
	10M	03	77	290 / 1114 / 290			1644	99.4
	10M	05	77	996, 118, 163, 118, 197, 315, 1114			1638	99.0
	10M	06	69	390, 180, 180			700	37.9
	10M	07	72	360, 60, 40, 145°			500	28.3
	10M	08	6	B / 1090 / B		700	2440	11.5
	10M	09	6			230	1500	7.1
	10M	10	2	800, 100, B, 250		350	1750	2.7
	10M	11	6			380	1810	8.5
	10M	12	8	230, 150			560	3.5
	15M	04	14	3000 / 390			3350	73.6

TOTAL REBAR CONSUMPTION

10M	413
15M	74
TOTAL	487

QUANTITIES		AREA	CONCRETE VOLUME (m^3)			MASS	
MARK	REQ'D	(m^2)	–	–	–	(kg)	(lb)
102	1	16.60			5.28	13543	29858

MISCELLANEOUS MATERIALS

MARK	ø15.2mm STRAND (m)	V1	–	–	–	–	–	–
102	250	2						

MISCELLANEOUS IRON

MARK	LH10(G)	M1	–	–	–	–	–	–	–	–
102	8	20 (1)								

NOTES:

FOR GENERAL NOTES SEE DWG NO. 128-00-L1.0

NO.	REVISION	BY	CHKD	DATE
1	NEW ISSUE	HB	JS	20231020
0	PRODUCTION	HB	AY	20231005
A	APPROVAL	HB	AY	20231003

1194x500 TWIN CELL EXTERIOR BOX GIRDER

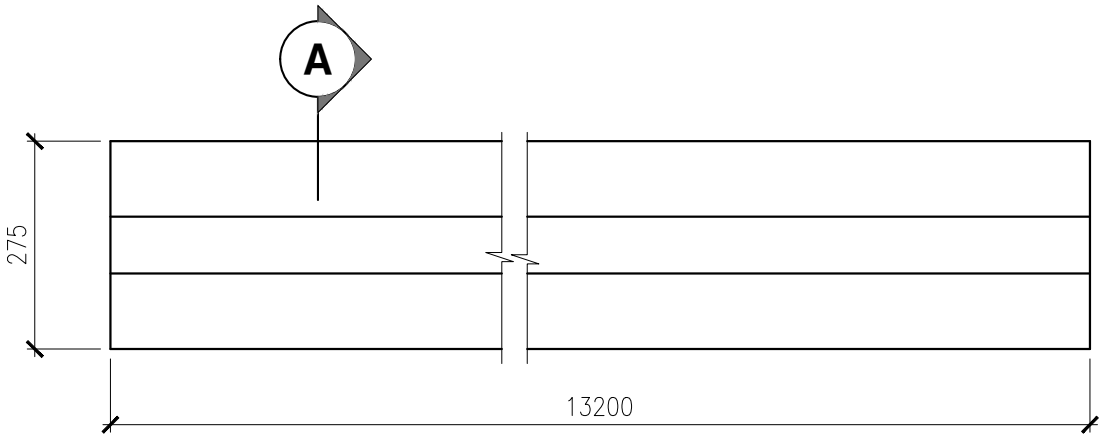
CRRP CACHE CREEK CULVERT REPLACEMENT

NEW ISSUE

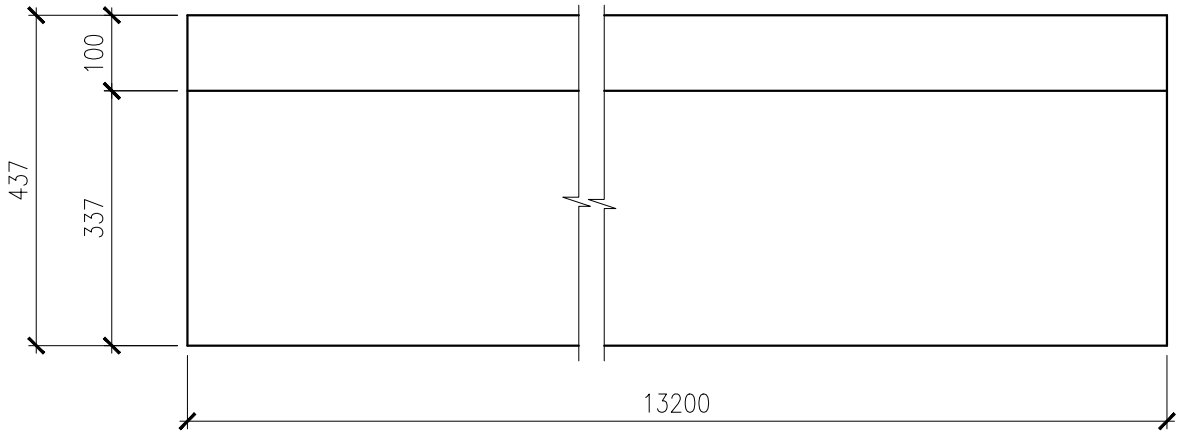
CON-FORCE

DATE	CHKD	DRAWN	ENG	DWG. NO:
20230927	AY	HB	AY	128 - 06 - 102

Oct 20, 2023 – 10:48am horatiu
S:\Engineering\(00) Projects\128 – Cache Creek\7 Drawings\2 Drawings (CAD)\Shop & Hardware Drawings\06 – Product Name\128-06-MK100.dwg
Xrefs:



PLAN



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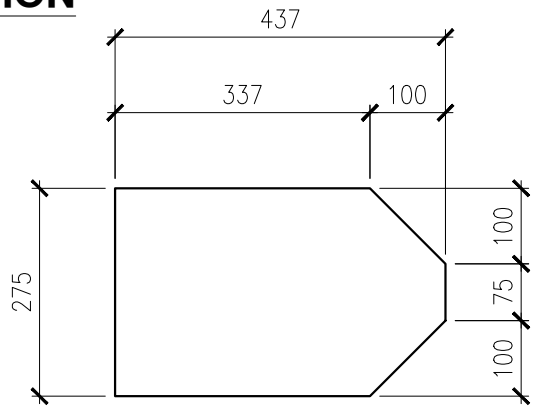

SECTION A

FINISH: -

TOTAL MASS PER UNIT (kg): -

MARK	QTY	DESCRIPTION	C.L.	MASS

MATERIAL SPECIFICATIONS

REBAR:	CSA G30.18 400W/ASTM A706 GR. 60W	STUDS:	ASTM A108
WELDED WIRE MESH:	CSA G30.5/ASTM A185	DEFORMED BAR ANCHOR:	ASTM A496
PLATE, ANGLE, ETC:	CSA G40.21 300W	PIPE:	ASTM A53
GALVANIZING:	CSA G164/ASTM A153	H.S.S.:	CSA G40.21 350W/ASTM A500 GR. B

NO.	REVISION	BY	CHKD	DATE
A	APPROVAL	HB	AY	20231003

VOID

CRRP CACHE CREEK CULVERT REPLACEMENT

APPROVAL

BRANCH NO:

CONFORCE STRUCTURES ASSUMES NO RESPONSIBILTY FOR DATA FILES SUPPLIED IN ELECTRONIC FORMAT. FOR ADDITIONAL INFORMATION, SEE ELECTRONIC DOCUMENT TRANSFER AGREEMENT.

con-force structures

DATE	CHKD
20230927	AY
DRAWN HB	ENG AY

DWG No. 128-06-V1

Oct 03, 2023 - 10:58am horatiu
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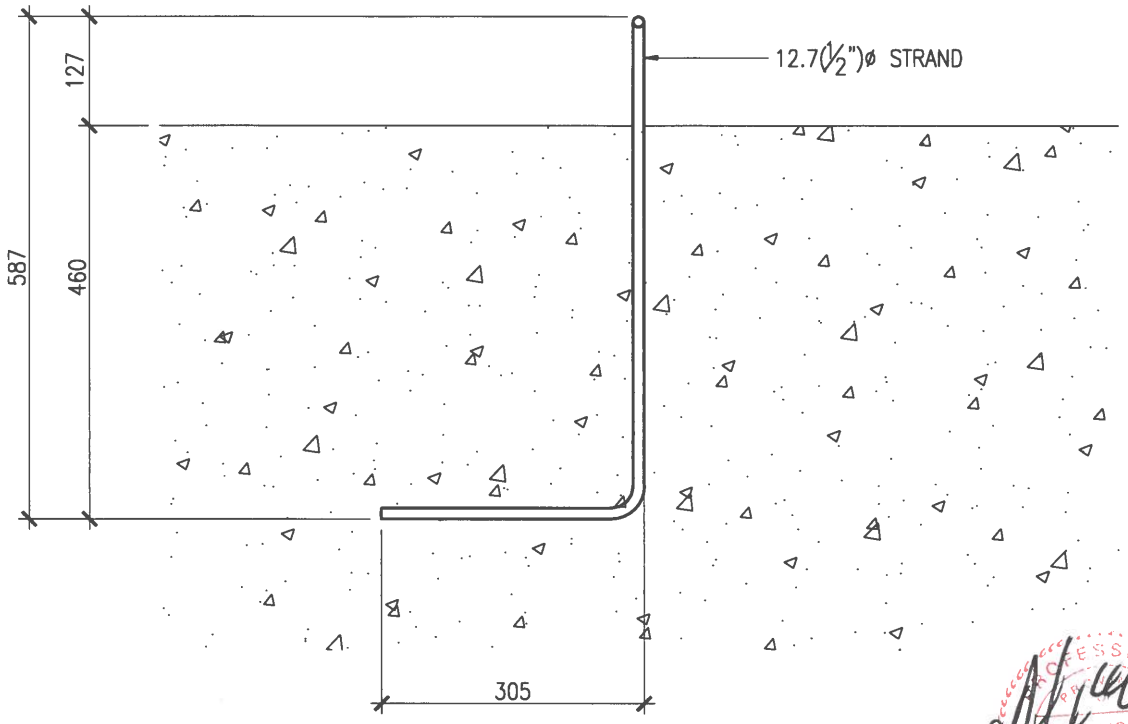
Xrefs:



NOTES:

1. USE 50ø PIN TO BEND STRAND.
2. USE THIS LIFTHOOK IN BOX GIRDERS AND AT LOCATIONS NEAR THE EDGE OF BEAMS & COLUMNS.
3. WORKING LOAD = 3850 kg
4. DIMENSIONS SHOWN ARE HARD CONVERSIONS OF IMPERIAL MEASUREMENTS.

FINISH: **GALVANIZED** | TOTAL MASS PER UNIT (kg): -

MARK	QTY	DESCRIPTION	C.L.	MASS
12.7ø	1	STRAND: BEND AS SHOWN	1780	

NO.	REVISION	BY	CHKD	DATE
0	STANDARD	SY	JSJ	20180929

MATERIAL SPECIFICATIONS

REBAR:	CSA G30.18 400W/ASTM A706 GR. 60W	STRAND:	ASTM A416 GR. 1860
WELDED WIRE MESH:	CSA G30.5/ASTM A185	DEFORMED BAR ANCHOR:	ASTM A496
PLATE, ANGLE, ETC:	CSA G40.21 300W	PIPE:	ASTM A53
GALVANIZING:	ASTM A123/ASTM A153	H.S.S.:	CSA G40.21 350W/ASTM A500 GR. B

13Ø(½") STRAND LIFTHOOK

STANDARD LIFTING DEVICE

STANDARD

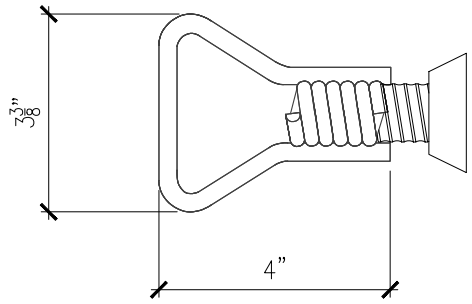
CON-FORCE

DATE	CHKD
20180802	JSJ
DRAWN: SY	ENG: AY

DWG No. 000 - 00 - LH10(G)

(¾")20mm Ø DAYTON SUPERIOR F65 TYPE L COIL INSERT ELECTRO-GALVANIZED FINISH

C/W P25 PLASTIC SETTING BOLT, ¾"Ø (40mm RECESS)



FINISH: **GALVANIZED**	TOTAL MASS PER UNIT (kg): -

MARK	QTY	DESCRIPTION	C.L.	MASS

NO.	REVISION	BY	CHKD	DATE
0	PRODUCTION	HB	JS	20231020

MATERIAL SPECIFICATIONS

REBAR:	CSA G30.18 400W/ASTM A706 GR. 60W	STUDS:	ASTM A108
WELDED WIRE MESH:	CSA G30.5/ASTM A185	DEFORMED BAR ANCHOR:	ASTM A496
PLATE, ANGLE, ETC:	CSA G40.21 300W	PIPE:	ASTM A53
GALVANIZING:	CSA G164/ASTM A153	H.S.S.:	CSA G40.21 350W/ASTM A500 GR. B

M-HARDWARE

CRRP CACHE CREEK CULVERT REPLACEMENT

PRODUCTION

BRANCH NO:

con-force structures

DATE	CHKD
20230927	AY
DRAWN: HB	ENG: AY

DWG No. 128-06-M1