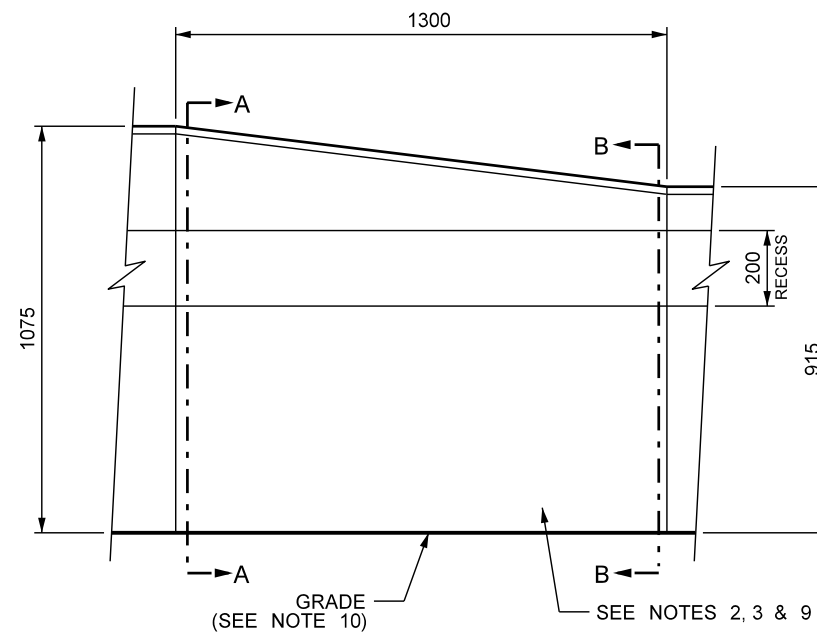
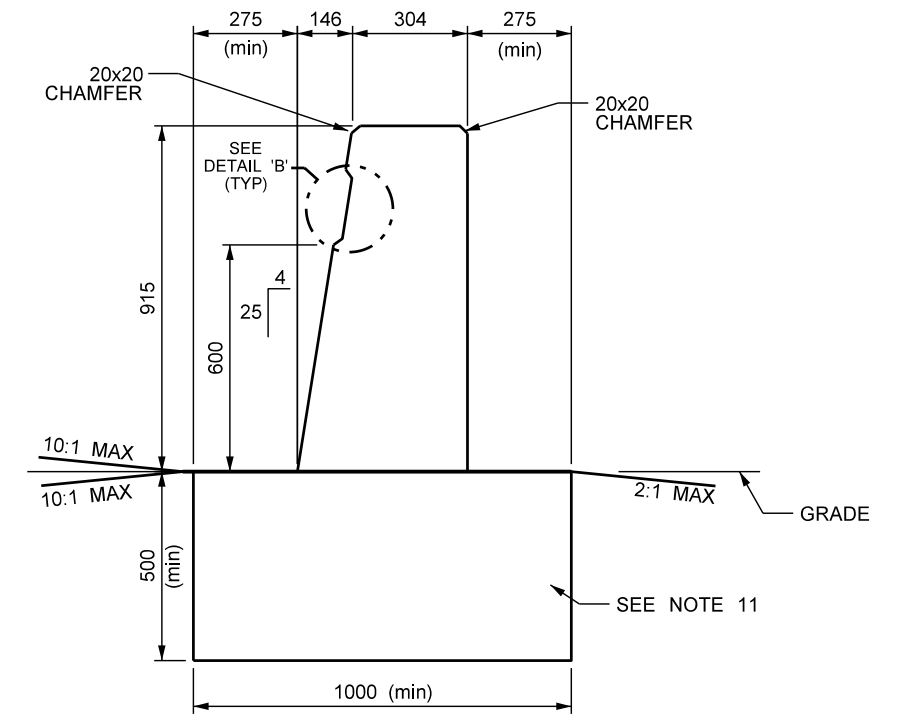


SECTION 'A-A'
INTERIOR SECTION
SCALE 1:20

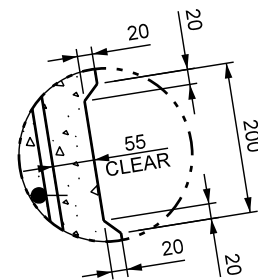


ELEVATION
SCALE 1:20



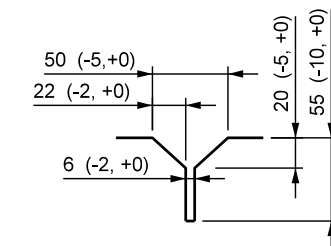
SECTION 'B-B'
INTERIOR SECTION
SCALE 1:20

DETAIL 'B'
SCALE 1:10

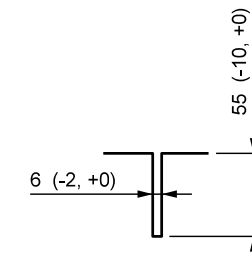


PLAN
SCALE 1:20

INTERIOR SECTION DETAILS



HAND FORMED BARRIER
SCALE 1:5



SLIP FORMED BARRIER (SAW CUT)
SCALE 1:5

CONTRACTION JOINT DETAILS

NOTES:

1. ALL SCALES ARE APPROXIMATE.
2. LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY.
3. FORMED OR CUT CONTRACTION JOINTS SHALL BE CREATED AT EACH PLACE WHERE THE BARRIER SHAPE CHANGES, TO MATCH ADJACENT PAVEMENT JOINT SPACING, OR AT A MAXIMUM SPACING OF 6000 mm.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
5. THE ORIGINAL SEALED AND SIGNED DRAWING IS IN TRAFFIC ENGINEERING.
6. ALL REINFORCING SHALL HAVE MINIMUM 75 mm COVER, UNLESS OTHERWISE NOTED.
7. CONCRETE: CSA A23.1, EXPOSURE CLASS C-1, AIR CONTENT CATEGORY 1, COMPRESSIVE STRENGTH: BARRIER ≥ 45 MPa AND FOOTING ≥ 35 MPa, AT 28 DAYS.
8. SEE SHEET 3 FOR REINFORCING DETAILS.
9. TRANSVERSE REINFORCING NOT SHOWN FOR CLARITY.
10. SEE SECTIONS 'A-A' & 'B-B' FOR BELOW GRADE DESIGN OPTIONS.
11. NEW OR EXISTING REINFORCED CONCRETE FOOTING: CSA A23.1, EXPOSURE CLASS C-1, AIR CONTENT CATEGORY 1, COMPRESSIVE STRENGTH ≥ 35 MPa, AT 28 DAYS.
12. HOLES IN FOOTING SHALL BE DRILLED VERTICALLY 2 mm LARGER THAN REINFORCING.
13. HOLES IN FOOTING SHALL BE PREPARED FOR EPOXY (HILTI HIT RE 500, OR APPROVED ALTERNATIVE) AS DIRECTED BY MANUFACTURER.
14. STIRRUP SHALL BE SECURELY ATTACHED TO REBAR.
15. END SECTION SPACING MUST CONTINUE INTO ADJACENT SECTION(S) OF BARRIER AS NECESSARY.

REVISIONS		
DATE	DESCRIPTION	BY
2020 - 11	ADDED NOTE 15	H.L.

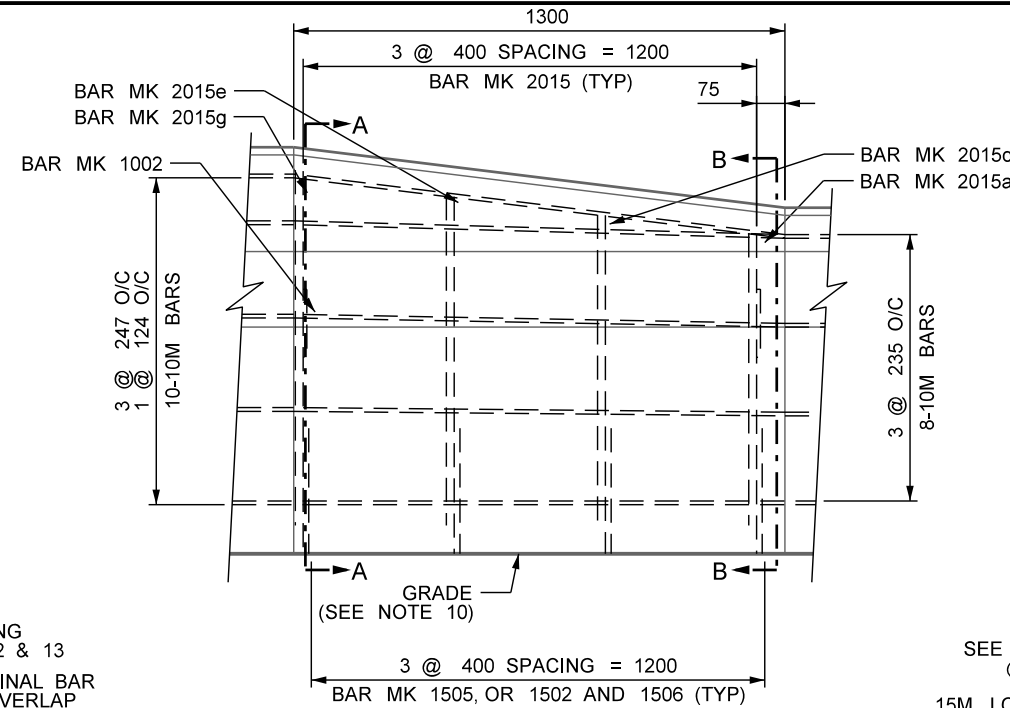
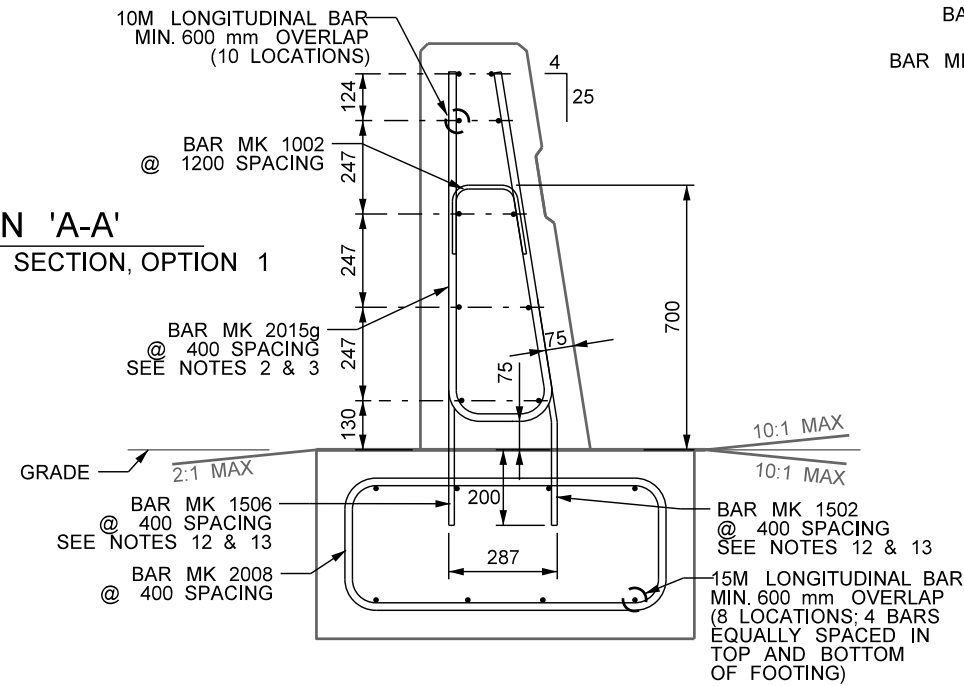


MANITOBA
CONSTRAINED WIDTH
CONSTANT SLOPE
BARRIER - ROADSIDE
TL-5 TO TL-4 TRANSITION
(1075 TO 915)

SHEET NO: 1 OF 5	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL

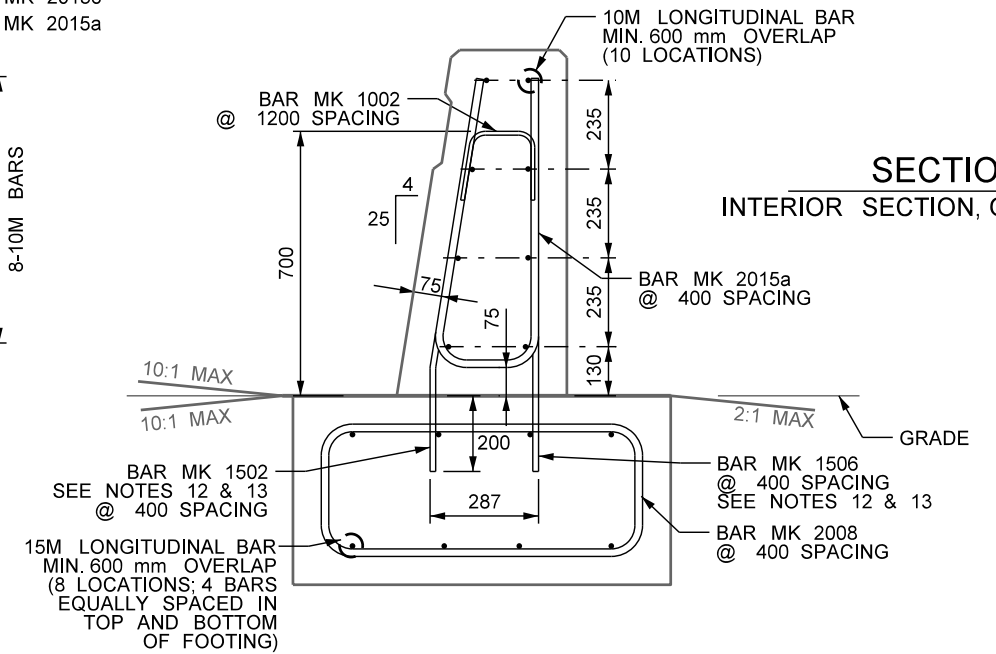
TSTG98d

SECTION 'A-A'
 INTERIOR SECTION, OPTION 1
 SCALE 1:20

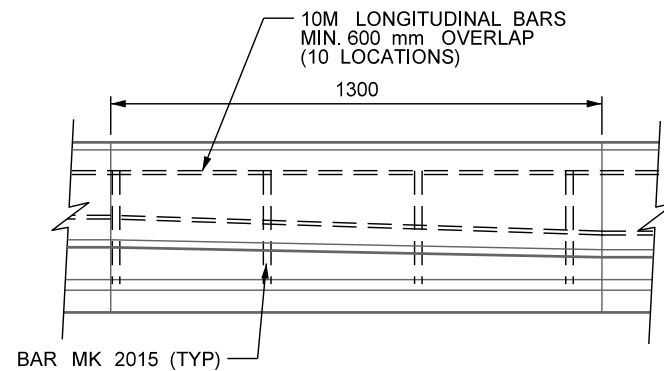
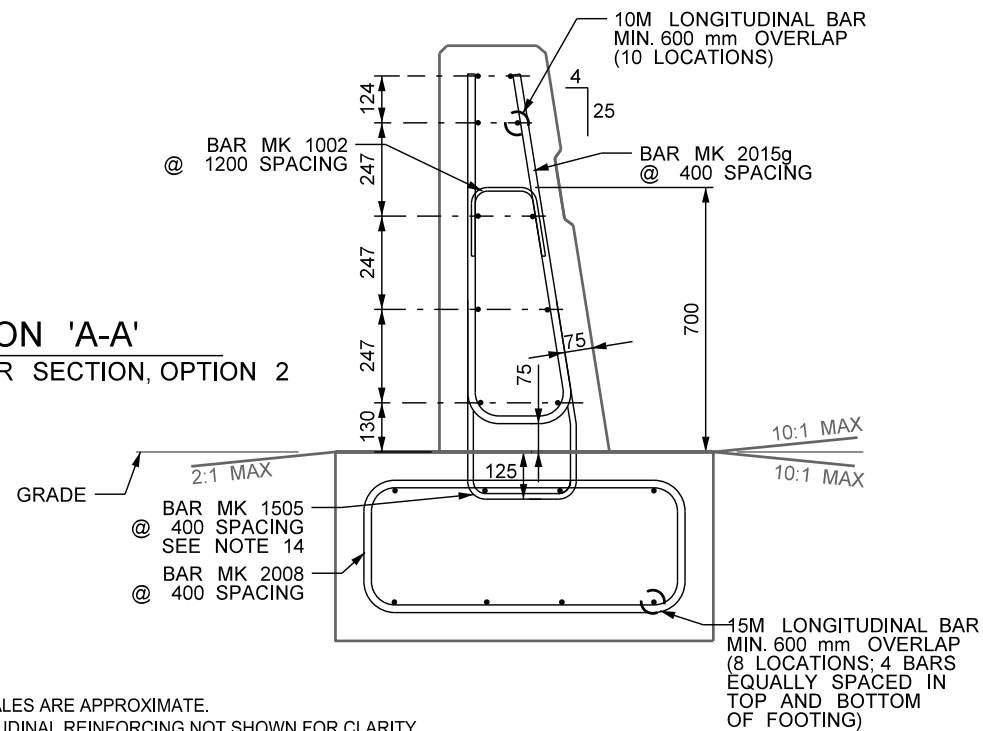


ELEVATION
 SCALE 1:20

SECTION 'B-B'
 INTERIOR SECTION, OPTION 1
 SCALE 1:20

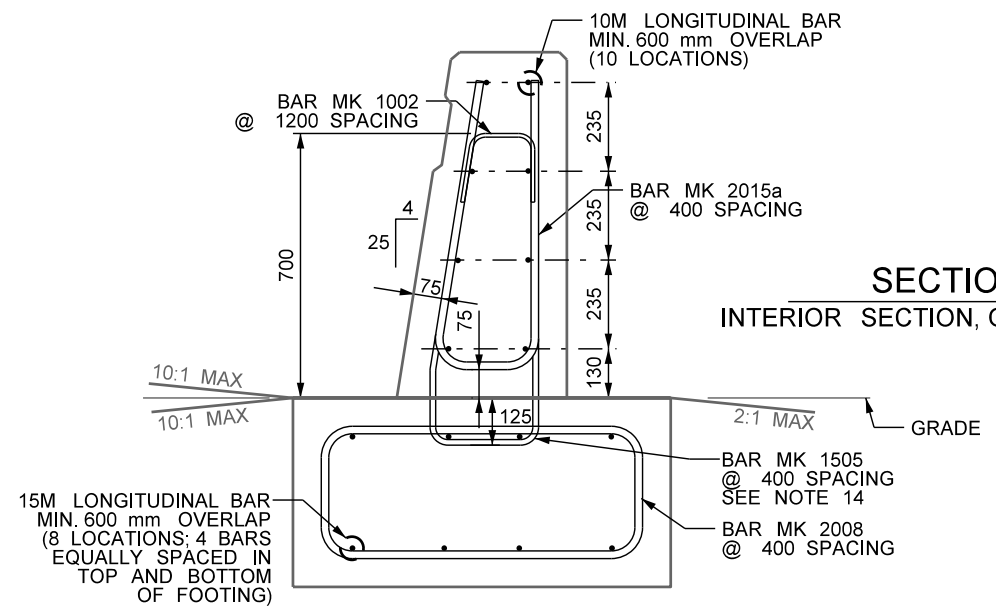


SECTION 'A-A'
 INTERIOR SECTION, OPTION 2
 SCALE 1:20



PLAN
 SCALE 1:20
INTERIOR SECTION DETAILS

SECTION 'B-B'
 INTERIOR SECTION, OPTION 2
 SCALE 1:20



NOTES:

1. ALL SCALES ARE APPROXIMATE.
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3. FORMED OR CUT CONTRACTION JOINTS SHALL BE CREATED AT EACH PLACE WHERE THE BARRIER SHAPE CHANGES, TO MATCH ADJACENT PAVEMENT JOINT SPACING, OR AT A MAXIMUM SPACING OF 6000 mm.
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15. END SECTION SPACING MUST CONTINUE INTO ADJACENT SECTION(S) OF BARRIER AS NECESSARY.

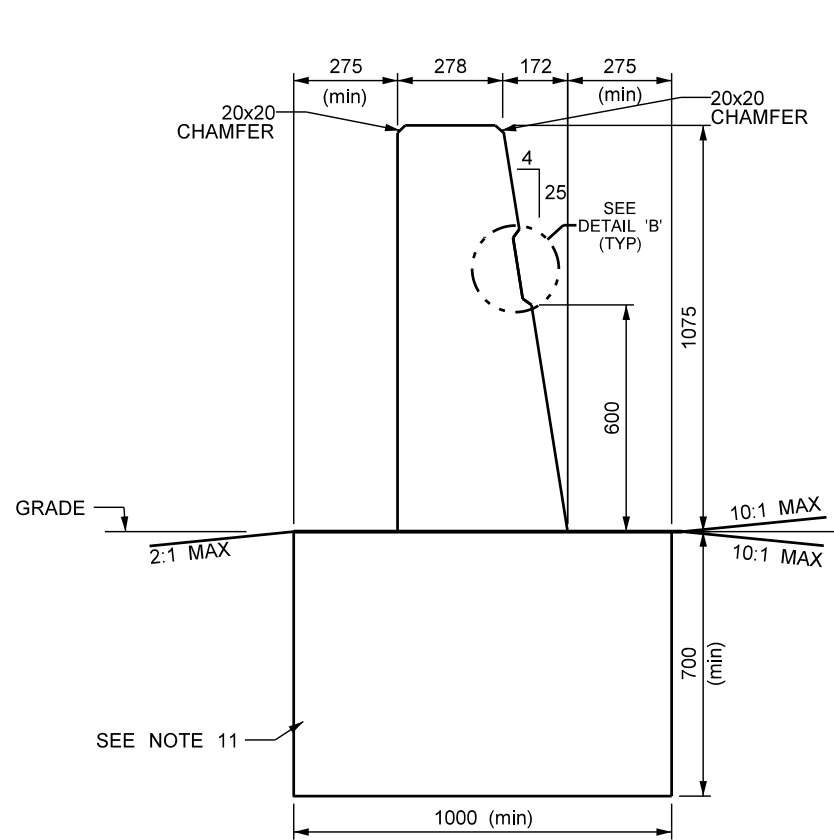
REVISIONS		
DATE	DESCRIPTION	BY
2020 - 11	ADDED NOTE 15	H.L.



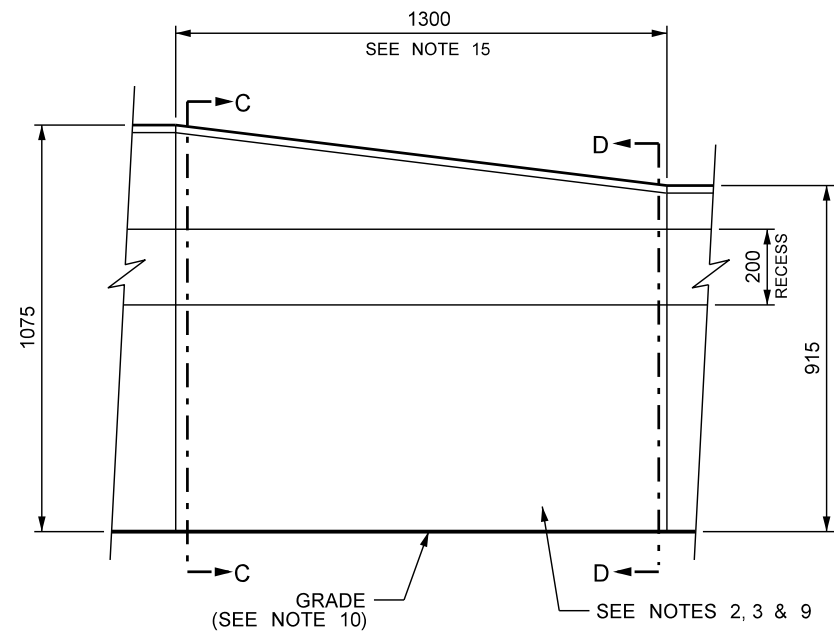
MANITOBA
 CONSTRAINED WIDTH
 CONSTANT SLOPE
 BARRIER - ROADSIDE
 TL-5 TO TL-4 TRANSITION
 (1075 TO 915)

SHEET NO: 2 OF 5	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL

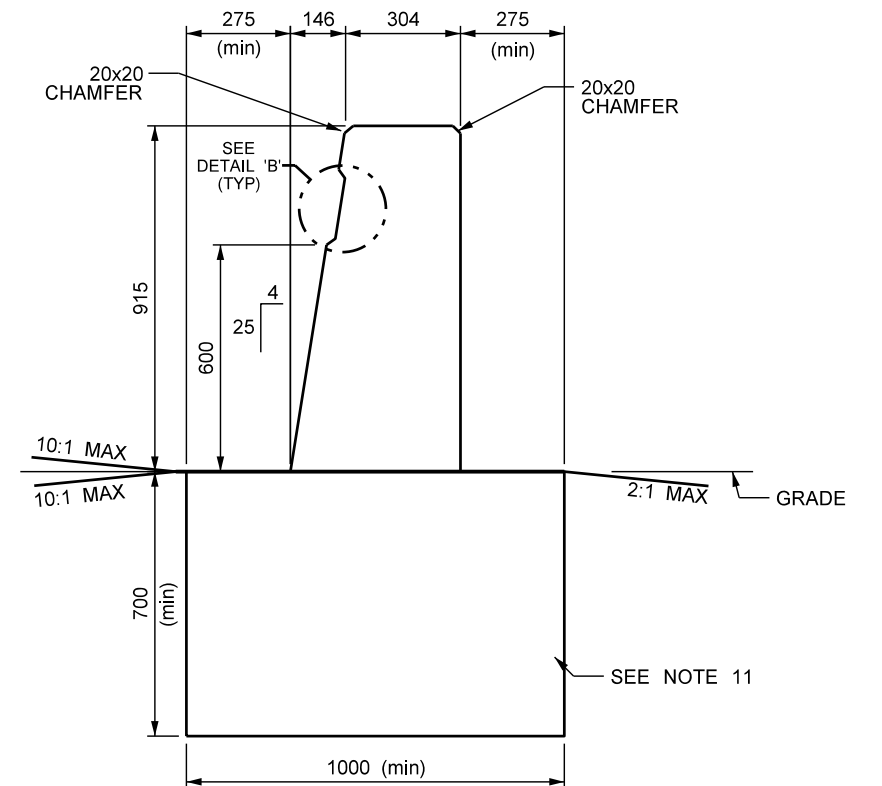
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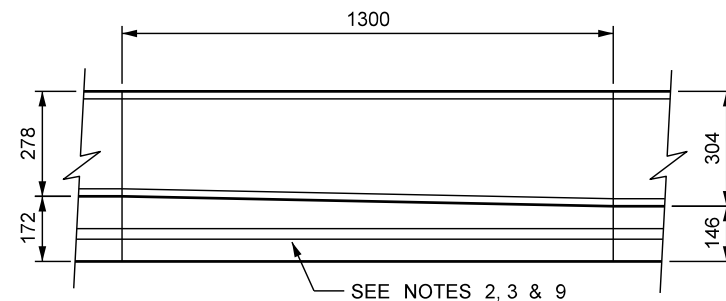
SECTION 'C-C'
END SECTION
SCALE 1:20



ELEVATION
SCALE 1:20



SECTION 'D-D'
END SECTION
SCALE 1:20



PLAN
SCALE 1:20

END SECTION DETAILS

NOTES:

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8. SEE SHEET 3 FOR REINFORCING DETAILS.
9. TRANSVERSE REINFORCING NOT SHOWN FOR CLARITY.
10. SEE SECTIONS 'C-C' & 'D-D' FOR BELOW GRADE DESIGN OPTIONS.
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14. STIRRUP SHALL BE SECURELY ATTACHED TO REBAR.
15. END SECTION SPACING MUST CONTINUE INTO ADJACENT SECTION(S) OF BARRIER AS NECESSARY.

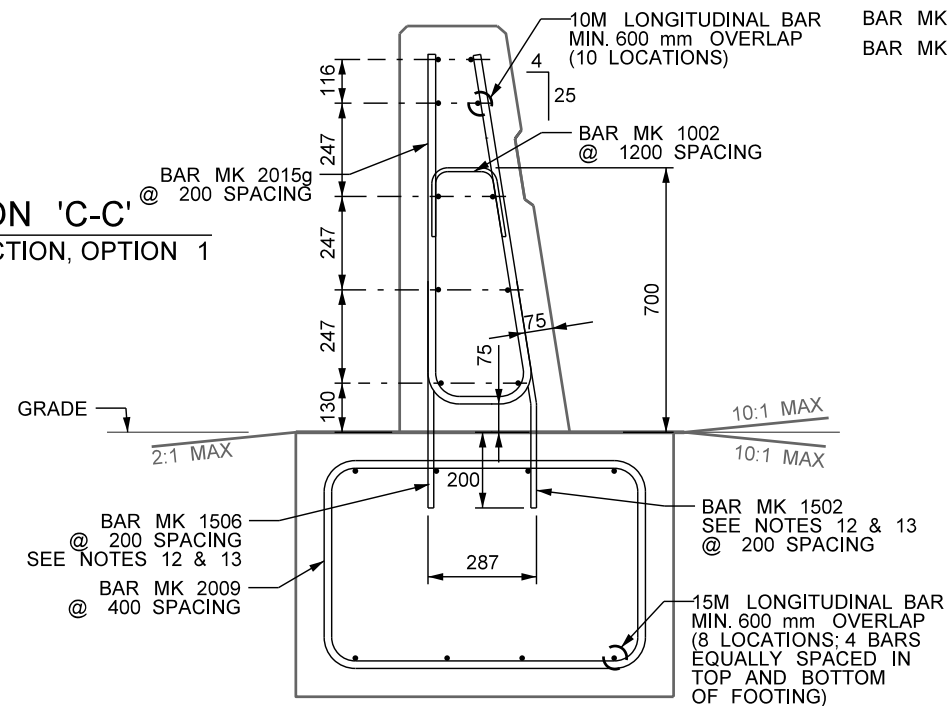
REVISIONS		
DATE	DESCRIPTION	BY
2020 - 11	ADDED NOTE 15	H.L.



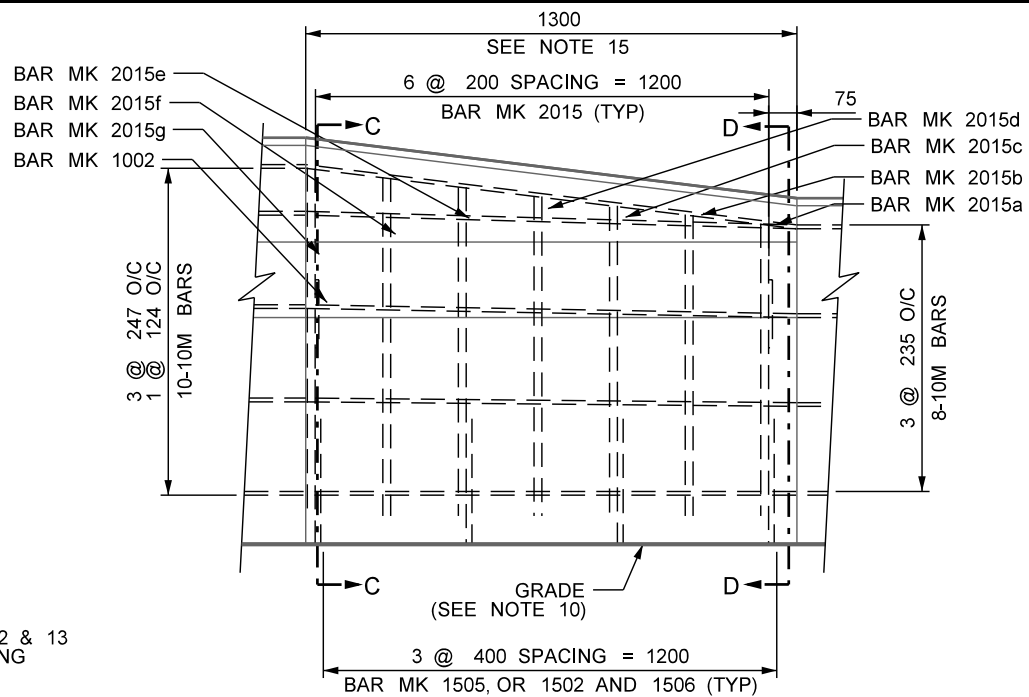
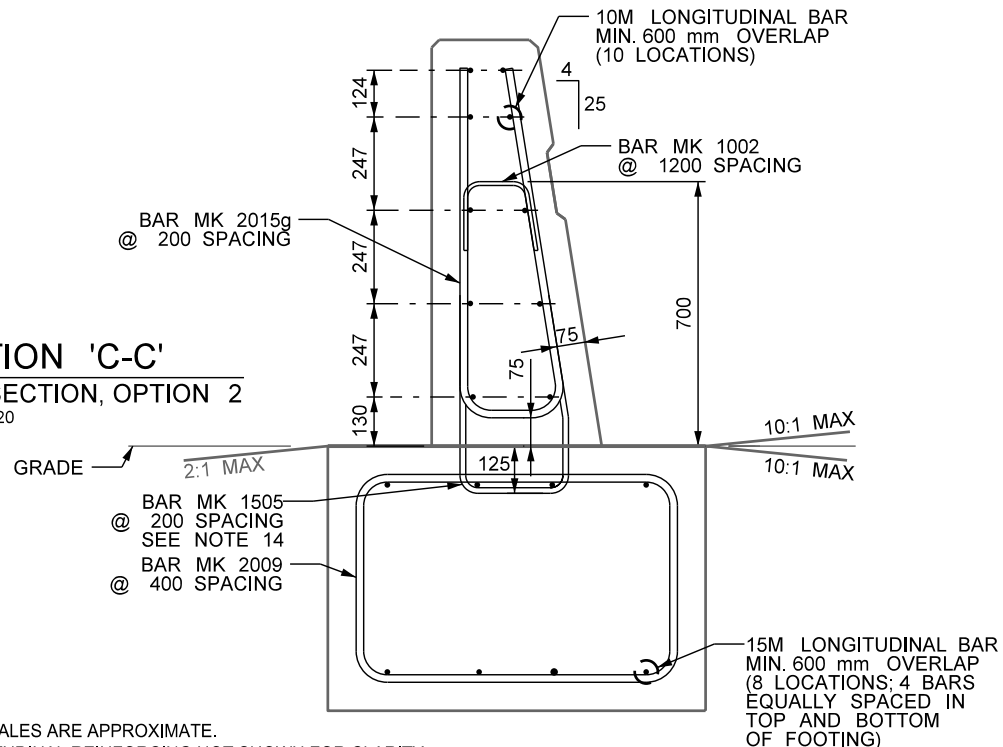
MANITOBA
CONSTRAINED WIDTH
CONSTANT SLOPE
BARRIER - ROADSIDE
TL-5 TO TL-4 TRANSITION
(1075 TO 915)

SHEET NO: 3 OF 5	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL
TSTG98d	

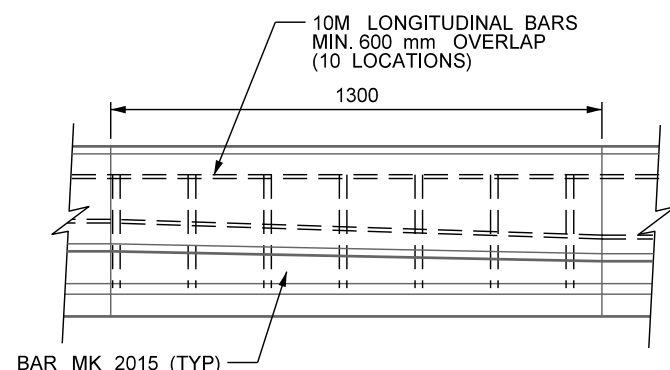
SECTION 'C-C'
END SECTION, OPTION 1
SCALE 1:20



SECTION 'C-C'
END SECTION, OPTION 2
SCALE 1:20



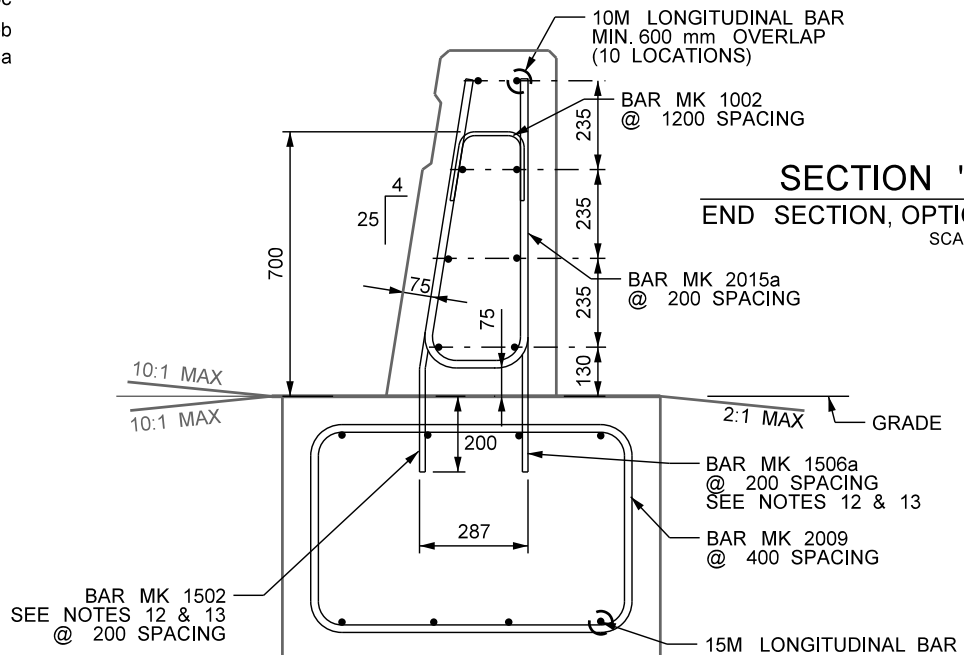
ELEVATION
SCALE 1:20



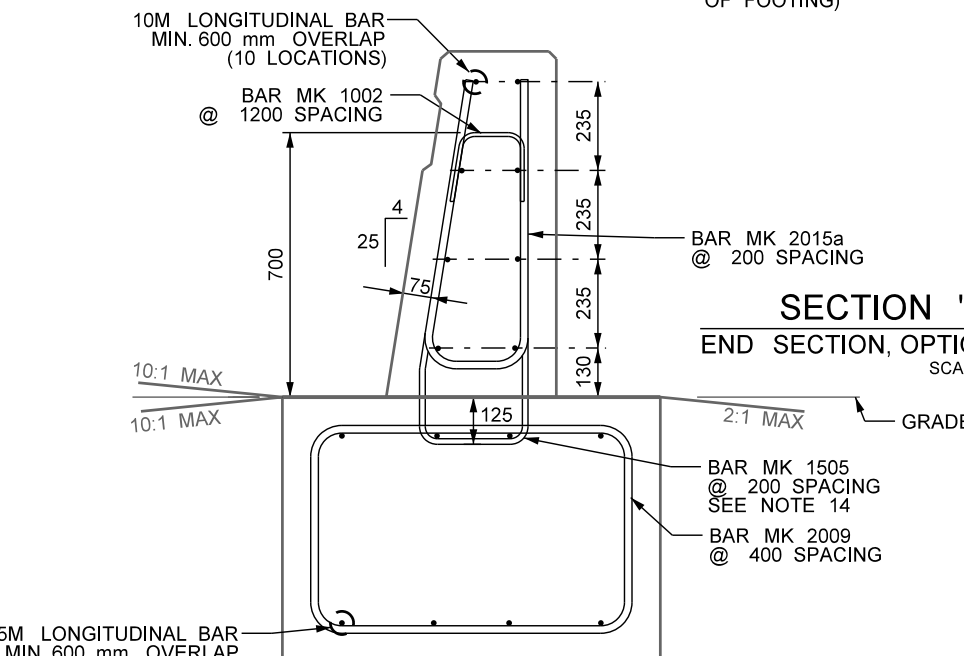
PLAN
SCALE 1:20

END SECTION DETAILS

SECTION 'D-D'
END SECTION, OPTION 1
SCALE 1:20



SECTION 'D-D'
END SECTION, OPTION 2
SCALE 1:20



- NOTES:**
- ALL SCALES ARE APPROXIMATE.
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REVISIONS		
DATE	DESCRIPTION	BY
2020 - 11	ADDED NOTE 15	H.L.



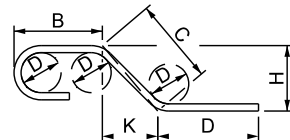
MANITOBA
CONSTRAINED WIDTH
CONSTANT SLOPE
BARRIER - ROADSIDE
TL-5 TO TL-4 TRANSITION
(1075 TO 915)

SHEET NO: 4 OF 5	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL
TSTG98d	

MARK	TYPE	PIN DIAMETER (mm)	TOTAL LENGTH (mm)	MASS			BENDING DIAGRAM																																				
				kg	kg/m																																						
					INTERIOR SEC.	END SEC.																																					
1002	BENT	65	503	0.39	0.33	0.33																																					
1502	BENT	65	604	0.95	2.38	4.75																																					
1505	BENT	65	1300	2.04	5.10	10.20																																					
1506	STR	0	600	0.94	2.35	4.70																																					
2008	BENT	125	2885	6.79	16.98	---																																					
2009	BENT	125	3283	7.73	---	38.65																																					
							<table border="1"> <thead> <tr> <th colspan="4">DIMENSION</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>786</td> <td>776</td> <td>124</td> <td>163</td> </tr> <tr> <td>810</td> <td>800</td> <td>128</td> <td>159</td> </tr> <tr> <td>835</td> <td>825</td> <td>132</td> <td>155</td> </tr> <tr> <td>861</td> <td>850</td> <td>136</td> <td>151</td> </tr> <tr> <td>885</td> <td>874</td> <td>140</td> <td>147</td> </tr> <tr> <td>910</td> <td>899</td> <td>144</td> <td>143</td> </tr> <tr> <td>936</td> <td>924</td> <td>148</td> <td>139</td> </tr> </tbody> </table>	DIMENSION				A	B	C	D	786	776	124	163	810	800	128	159	835	825	132	155	861	850	136	151	885	874	140	147	910	899	144	143	936	924	148	139
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LONGITUDINAL REINFORCING - MASS (kg/m)																																											
BAR	INTERIOR SECTION	END SECTION	FOOTING																																								
			OPTION 1	OPTION 2	OPTION 3																																						
10M	8.24	8.24	---	---	---																																						
15M	---	---	13.19	13.19	---																																						
20M	---	---	---	---	---																																						

NOTES:

- ALL DIMENSIONS GIVEN IN BENDING DIAGRAM ARE OUT TO OUT, EXCEPT RADII AND EXTENSIONS ON 90°, 135° & 180° HOOKS. EXTENSIONS ON 90°, 135° & 180° HOOKS ARE THE "A" OR "G" DIMENSIONS FOR THE STANDARD 90°, 135° & 180° HOOKS REFERENCED FROM THE RSIC "MANUAL OF STANDARD PRACTICE". RADII ARE INSIDE DIMENSIONS. ALL REINFORCING STEEL BENDS AND HOOKS SHALL CONFORM TO CLAUSE 6.6.2 OF CSA A23.1 UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL BE DEFORMED STEEL UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18-M92 "BILLET STEEL BARS FOR CONCRETE REINFORCEMENT" GRADE 400W, UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- LIKE BARS SHALL BE BUNDLED, SECURELY TIED, AND IDENTIFIED AS TO MARK No. BY APPROPRIATE MEANS. ALL OTHER ITEMS TO BE IDENTIFIED IN A SIMILAR FASHION.
- BARS MARKED WITH THE SUFFIX "P" SHALL BE PLAIN UNDEFORMED BARS IN ACCORDANCE WITH CAN/CSA G40.21-M92 GRADE 300W.
- ALL BARS SHALL BE BENT IN ACCORDANCE WITH THE FOLLOWING DETAIL:



REVISIONS		
DATE	DESCRIPTION	BY



MANITOBA
CONSTRAINED WIDTH
CONSTANT SLOPE
BARRIER - ROADSIDE
TL-5 AT 1250

SHEET NO: 5 OF 5	DATE: 2020 - 08
DESIGNED BY:	H. LARSEN
DRAWN BY:	L. LIEBRECHT
REVIEWED BY:	N. JOYAL

TSTG98d