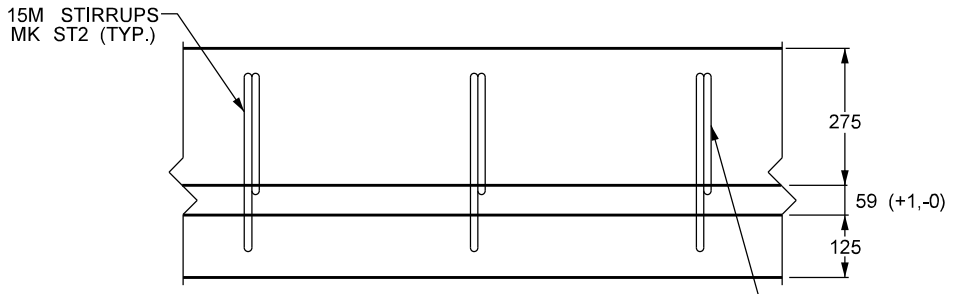
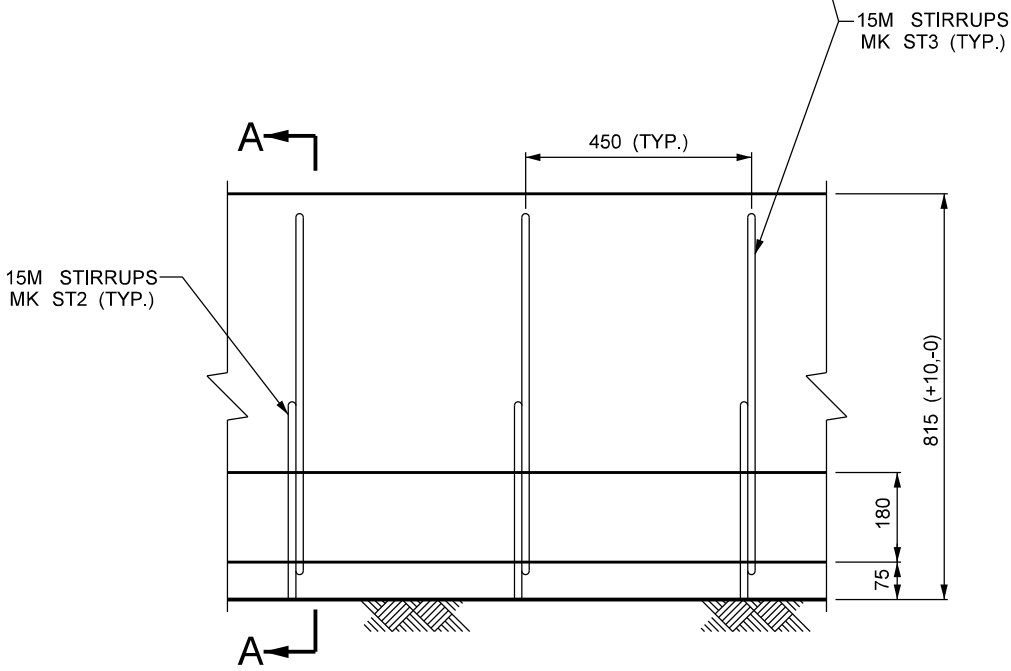


PLAN 1:15



ELEVATION 1:15

NOTES:

1. ALL SCALES ARE APPROXIMATE.
2. LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY.
3. FORMED OR CUT CONTRACTION JOINTS ARE NOT REQUIRED.
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 50 mm COVER, UNLESS OTHERWISE NOTED.
7. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 32 MPa AT 28 DAYS, WITH AIR ENTRAINMENT (4 TO 6%)
8. GRADE = 400W DEFORMED BARS.
9. SEE SECTION 'A-A' FOR REINFORCING AND FOOTING DETAILS.

REVISIONS		
DATE	DESCRIPTION	BY
2012/05	REVISED HEIGHT & ADDED REBAR	HPL
2014/04	ADDED PLAN, REV. ELEVATION & SECTIONS	HPL

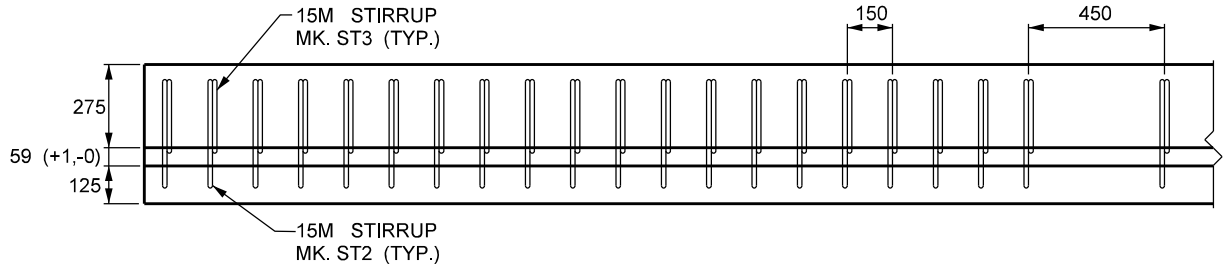
Manitoba Infrastructure and Transportation
TRAFFIC ENGINEERING

PROVINCE OF MANITOBA
H.P. LARSEN
REGISTERED PROFESSIONAL ENGINEER

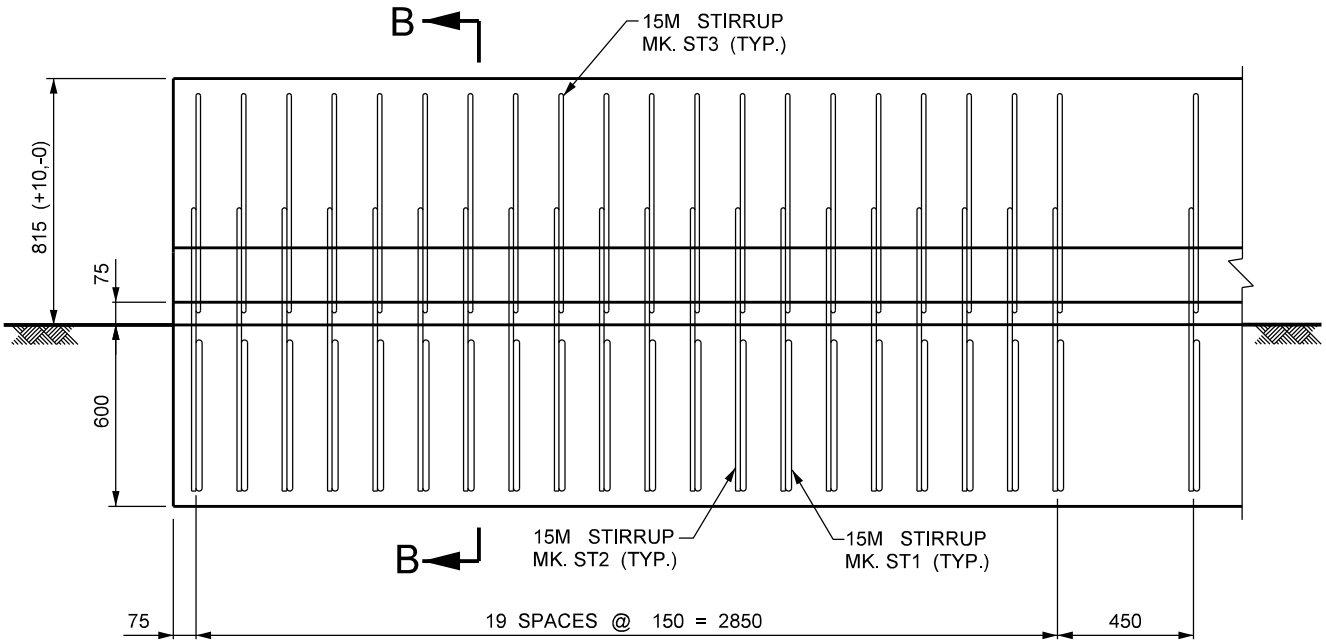
F - SHAPE ROADSIDE BARRIER

SHEET NO	1 OF 4
DATE:	2002 - 09
DRAWN:	D.C.

TSGR10a



PLAN 1:25



ELEVATION 1:25

END ANCHORAGE DETAILS

NOTES:

1. ALL SCALES ARE APPROXIMATE.
2. LONGITUDINAL REINFORCING NOT SHOWN FOR CLARITY.
3. FORMED OR CUT CONTRACTION JOINTS ARE NOT REQUIRED.
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 50 mm COVER, UNLESS OTHERWISE NOTED.
7. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 32 MPa AT 28 DAYS, WITH AIR ENTRAINMENT (4 TO 6%)
8. GRADE = 400W DEFORMED BARS.
9. SEE SECTION 'B-B' FOR REINFORCING AND FOOTING DETAILS.

REVISIONS		
DATE	DESCRIPTION	BY
2012/05	REVISED HEIGHT & ADDED REBAR	HPL
2014/04	ADDED PLAN, REV. ELEVATION & SECTIONS	HPL

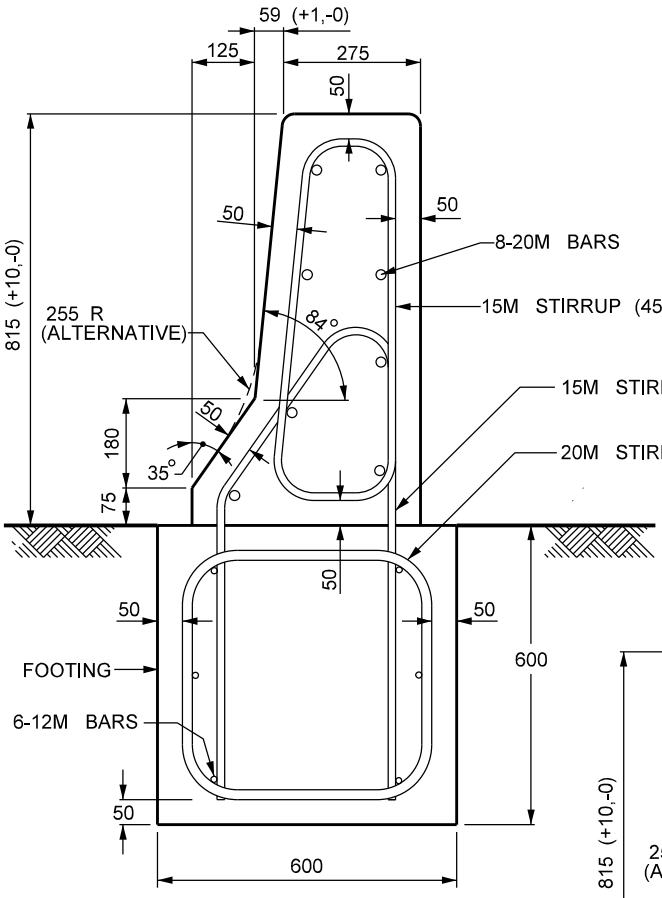
Manitoba
Infrastructure and Transportation
TRAFFIC ENGINEERING

PROVINCE OF MANITOBA
H.P. LARSEN
REGISTERED PROFESSIONAL ENGINEER

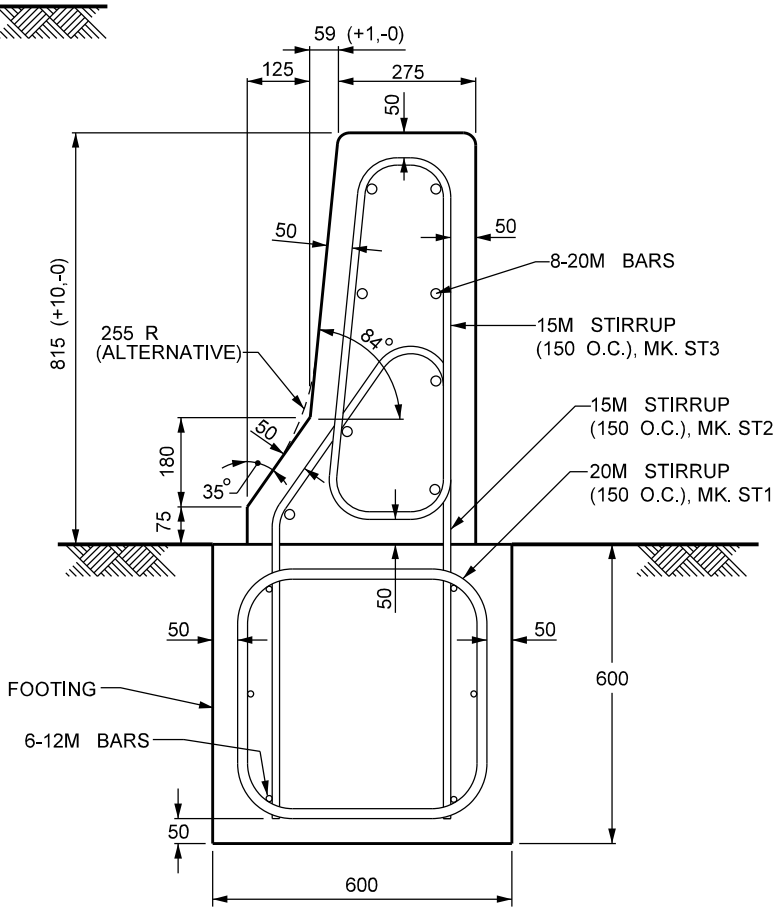
F - SHAPE
ROADSIDE BARRIER

SHEET NO	2 OF 4
DATE:	2002 - 09
DRAWN:	D.C.

TSGR10a



SECTION A-A 1:15



SECTION B-B 1:15

NOTES:

1. ALL SCALES ARE APPROXIMATE.
2. FORMED OR CUT CONTRACTION JOINTS ARE NOT REQUIRED.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
4. THE ORIGINAL SEALED AND SIGNED DRAWING IS IN TRAFFIC ENGINEERING.
5. ALL REINFORCING SHALL HAVE MINIMUM 50 mm COVER, UNLESS OTHERWISE NOTED.
6. MINIMUM CONCRETE COMPRESSIVE STRENGTH = 32 MPa AT 28 DAYS, WITH AIR ENTRAINMENT (4 TO 6%)
7. GRADE = 400W DEFORMED BARS.
8. ALL LONGITUDINAL REINFORCING SHALL BE CONTINUOUS.

REVISIONS		
DATE	DESCRIPTION	BY
2012/05	REVISED HEIGHT & ADDED REBAR	HPL
2014/04	ADDED PLAN, REV. ELEVATION & SECTIONS	HPL

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TRAFFIC ENGINEERING

PROVINCE OF MANITOBA
H.P. LARSEN
REGISTERED PROFESSIONAL ENGINEER

F - SHAPE ROADSIDE BARRIER

SHEET NO	3 OF 4
DATE:	2002 - 09
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NOTES:

1. 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 C.S.A. A23.1-04, unless noted otherwise in the BILL OF REINFORCING STEEL.

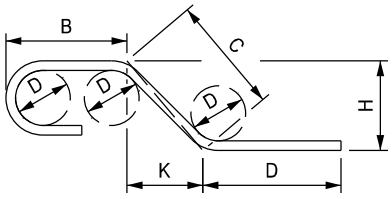
2. All reinforcing steel shall be deformed steel, unless noted otherwise in the BILL OF REINFORCING STEEL.

3. 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.

4. 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.

5. Bars marked with the suffix "P" shall be plain undeformed bars in accordance with CAN/CSA G40.21-M92 Grade 300W.

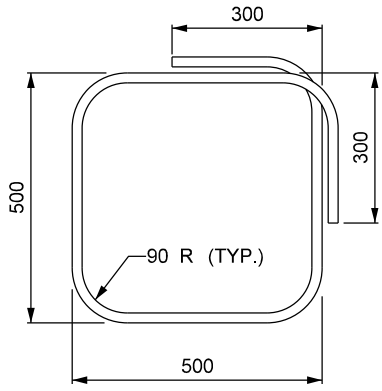
6. All bars shall be bent in accordance with the following detail :



BILL OF REINFORCING

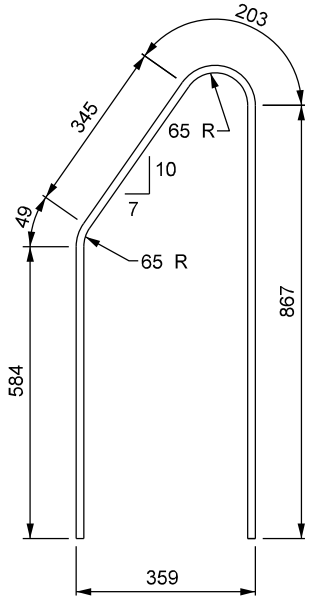
TYPE	PIN DIAMETER D (mm)	LENGTH (mm)	BAR SIZE	MASS (kg)	TYPE	PIN DIAMETER D (mm)	LENGTH (mm)	BAR SIZE	MASS (kg)	TYPE	PIN DIAMETER D (mm)	LENGTH (mm)	BAR SIZE	MASS (kg)
BENT	100	2364	20M	5.56	BENT	90	2048	15M	3.21	BENT	90	1856	15M	2.91

BENDING DIAGRAM



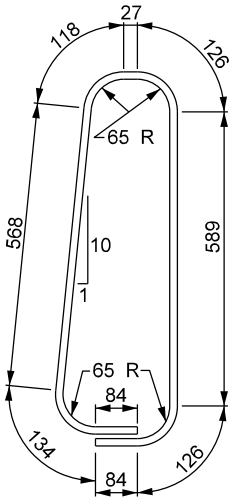
MK. ST1

BENDING DIAGRAM



MK. ST2

BENDING DIAGRAM



MK. ST3

REVISIONS		
DATE	DESCRIPTION	BY

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PROVINCE OF MANITOBA
H.P. LARSEN
REGISTERED PROFESSIONAL ENGINEER

F - SHAPE ROADSIDE BARRIER

SHEET NO	4 OF 4
DATE:	2002 - 09
DRAWN:	D.C.

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