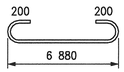
BILL OF REINFORCING STEEL
FOR APPROACH AND TRANSITION SLABS - STAGE 2

Site No. 2924-00

MARK	TYPE	PIN DIAMETER	LENGTH	No.	MASS	BENDING DIAGRAM
A 1503	STR		6 880	52	561.68	
A 1507	STR		12 030	19	358.85	
A 1508	STR		12 540	15	295.32	
A 2003	BENT	100	7 280	182	3120.28	
A 2006	STR		12 030	27	764.93	
A 2007	STR		12 540	21	620.17	
A 2008-1	STR		3 240	1	7.63	
A 2008-2	STR		3 210	1	7.56	
A 2008-3	STR		3 180	1	7.49	
A 2008-4	STR		3 140	1	7.39	
A 2008-5	STR		3 110	1	7.32	
A 2008-6	STR		3 080	1	7.25	
A 2009-1	STR		2 860	1	6.74	
A 2009-2	STR		2 830	1	6.66	
A 2009-3	STR		2 800	1	6.59	
A 2009-4	STR		2 760	1	6.50	
A 2009-5	STR		2 730	1	6.43	
A 2009-6	STR		2 700	1	6.36	
A 2501P	STR		810	52	165.32	
T 1508	STR		11 400	54	966.49	
T 1509-1	STR		530	2	1.66	
T 1509-2	STR		1 420	2	4.46	
T 1509-3	STR		2 320	2	7.28	
T 1509-4	STR		3 220	2	10.11	
T 1509-5	STR		4 120	2	12.94	
T 1509-6	STR		5 020	2	15.76	
T 1509-7	STR		5 920	2	18.59	
T 1509-8	STR		6 810	2	21.38	
T 1509-9	STR		7 710	2	24.21	
T 1509-10	STR		8 610	2	27.04	
T 1509-11	STR		9 510	2	29.86	
T 1509-12	STR		10 410	2	32.69	
T 1511-1	STR		7 510	2	23.58	
T 1511-2	STR		7 690	2	24.15	
T 1511-3	STR		7 870	2	24.71	
T 1512-1	STR		9 860	2	30.96	
T 1512-2	STR		8 970	2	28.17	
T 1512-3	STR		8 070	2	25.34	
T 1512-4	STR		7 170	2	22.51	
T 1512-5	STR		6 270	2	19.69	
T 1512-6	STR		5 370	2	16.86	
T 1512-7	STR		4 470	2	14.04	
T 1512-8	STR		3 580	2	11.24	
T 1512-9	STR		2 680	2	8.42	
T 1512-10	STR		1 780	2	5.59	

BILL OF REINFORCING STEEL
FOR APPROACH AND TRANSITION SLABS - STAGE 2

Site No. 2924-00

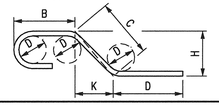
MARK	TYPE	PIN DIAMETER	LENGTH	No.	MASS	BENDING DIAGRAM
T 1512-11	STR		880	2	2.76	
T 1513-1	STR		12 010	2	37.71	
T 1513-2	STR		11 830	2	37.15	
T 1513-3	STR		11 650	2	36.58	
T 1513-4	STR		11 470	2	36.02	
T 1513-5	STR		11 290	2	35.45	
T 1513-6	STR		11 120	2	34.92	
T 1513-7	STR		10 940	2	34.35	
T 1513-8	STR		10 760	2	33.79	
T 1513-9	STR		10 580	2	33.22	
T 1513-10	STR		10 400	2	32.66	
T 1513-11	STR		10 220	2	32.09	
T 1513-12	STR		10 050	2	31.56	
T 1513-13	STR		9 870	2	30.99	
T 1513-14	STR		9 690	2	30.43	
T 1513-15	STR		9 510	2	29.86	
T 1513-16	STR		9 330	2	29.30	
T 1513-17	STR		9 160	2	28.76	
T 1513-18	STR		8 980	2	28.20	
T 1513-19	STR		8 800	2	27.63	
T 1513-20	STR		8 620	2	27.07	
T 1513-21	STR		8 440	2	26.50	
T 1513-22	STR		8 270	2	25.97	
T 1513-23	STR		8 090	2	25.40	
T 1513-24	STR		7 910	2	24.84	
T 1513-25	STR		7 730	2	24.27	
T 1513-26	STR		7 550	2	23.71	
T 1513-27	STR		7 380	2	23.17	
T 3001P	STR		800	52	228.59	

Total mass of reinforcing steel 8451.15 kg

Total volume of structural concrete 84.52 m³

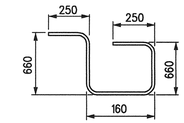
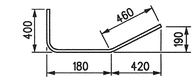
NOTES:

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 "C" 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 and Site 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 STEEL (MMFX 2)
FOR APPROACH SLABS - STAGE 2

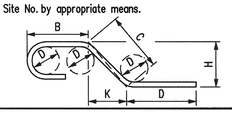
Site No. 2924-00

MARK	TYPE	PIN DIAMETER	LENGTH	No.	MASS	BENDING DIAGRAM
M1604	BENT	90	1 980	18	55.31	
M1609	BENT	90	1 040	104	167.86	

Total mass of reinforcing steel 223.18 kg

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 "C" dimensions for standard 90°, 135° & 180° hooks referenced from the RSIC "Manual of Standard Practice". Radii are inside dimensions. All reinforcing steel bends and hooks for low carbon chromium steel bars shall conform to the same requirements listed for C.S.A. G30.18 Grade 400W in Clause 6.6.2 of C.S.A. A23.1-04, unless noted otherwise in the BILL OF REINFORCING STEEL (MMFX - 2).
2. All reinforcing steel shall be deformed steel, unless noted otherwise in the BILL OF REINFORCING STEEL (MMFX - 2)
3. All reinforcing steel shall be low carbon chromium steel bars conforming to ASTM A615 Grade 75 and ASTM A1035 unless noted otherwise in the BILL OF REINFORCING STEEL (MMFX - 2)
4. Like bars shall be bundled, securely tied and identified as to Mark and Site No. by appropriate means. All other items to be identified in a similar fashion.
5. All bars shall be bent in accordance with the following detail:



REVISIONS		
DATE	BY	DESCRIPTION

PROVINCE OF MANITOBA
Mar. 15/10
S.S
RIHAL
REGISTERED PROFESSIONAL ENGINEER

APPROACH SLABS AND TRANSITION SLABS - STAGE 2 - REINFORCING DETAILS

RECONSTRUCTION AND STRENGTHENING OF EXISTING BRIDGE
OVER ASSINIBOINE RIVER - CONTRACT THREE
ON P.T.H. No. 100 IN R.L.'S 72, 73 & 94
PARISH OF ST. CHARLES

CITY OF WINNIPEG

Manitoba
Infrastructure and Transportation
Water Control & Structures

RELEASED FOR CONSTRUCTION BY:
Ruth Soden March 15/10
DIRECTOR — DATE
STRUCTURES DESIGN AND CONSTRUCTION BRANCH

DESIGN	BY: M.B.C.	
	CHECKED: S.S.R.	
DETAILS	BY: G.S. & K.P.	
	CHECKED: S.S.R./J.J.	

SCALE: Not to Scale
SHEET No. 138
SITE No. 2924-00