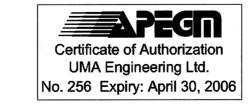
		BILL	OF MATERIA	LS		
	ITEM	SPAN 1	SPAN 2 & 3	SPAN 4	SPAN 5	TOTAL
ļ	ARRIER RAIL 11 793 mm	-	1	-	-	1
	ARRIER RAIL 11 713 mm	-	-	1	-	1
	ARRIER RAIL 11 712 mm	2	-	1	-	2
	ARRIER RAIL 11 550 mm ARRIER RAIL 11 540 mm	2			-	2
	ARRIER RAIL 11 513 mm	-	-	1	-	1
	ARRIER RAIL 11 289 mm	-	-	1	-	1
В.	ARRIER RAIL 11 250 mm	2	-	-	-	2
В	ARRIER RAIL 11 130 mm	-	-	-	. 1	1
B.	ARRIER RAIL 11 044 mm	-	-	-	1	1
	ARRIER RAIL 11 000 mm	2	-	-	2	4
	ARRIER RAIL 10 820 mm	2	-	-	2	4
	ARRIER RAIL 10 690 mm  ARRIER RAIL 10 646 mm	<u>-</u> 1	2	-	-	1
	ARRIER RAIL 10 646 IIIIII	_	-	-	1	1
	ARRIER RAIL 10 610 mm	-	4	-	-	4
	ARRIER RAIL 10 609 mm	-	2	-	-	2
В	ARRIER RAIL 10 556 mm	2	-	-	1	3
В	ARRIER RAIL 10 501 mm	-		<u>-</u>	1	1
B	ARRIER RAIL 10 393 mm	-	1	-	-	1
	ARRIER RAIL 10 364 mm	-	1	-	-	1 1
	ARRIER RAIL 10 325 mm	-	2	-	-	2
	ARRIER RAIL 10 289 mm  ARRIER RAIL 10 260 mm	-	2 2	-	<u>-</u>	2
	ARRIER RAIL 10 260 mm ARRIER RAIL 10 248 mm	-	2		-	2
	ARRIER RAIL 10 147 mm	2	-	-	2	4
	ARRIER RAIL 10 120 mm	-	1	-	-	1
В	ARRIER RAIL 10 117 mm	-	2	-	-	2
В	ARRIER RAIL 10 091 mm	-	2	-	•	2
В	ARRIER RAIL 10 078 mm	-	2	-	-	2
В	ARRIER RAIL 9987 mm	2	-	-	1	3
	ARRIER RAIL 9947 mm	2	-	-	2	4
	ARRIER RAIL 9830 mm	-	2	-	-	2
	ARRIER RAIL 9816 mm	-	2 2		<u>-</u>	2
	ARRIER RAIL 9814 mm  ARRIER RAIL 9812 mm		2	_	-	2
	ARRIER RAIL 9808 mm	_	2	-	-	2
	ARRIER RAIL 9792 mm	-	-	4	-	4
	ARRIER RAIL 9727 mm	-	-	1	-	1
В	ARRIER RAIL 9606 mm	-	-	·-	1	1
В	ARRIER RAIL 9533 mm	-	-	1	-	1
В	ARRIER RAIL 9476 mm	-	-	2	-	2
	ARRIER RAIL 9450 mm	-	-	-	2	2
	ARRIER RAIL 9425 mm ARRIER RAIL 9380 mm		2	1	-	2
	ARRIER RAIL 9380 mm  ARRIER RAIL 9226 mm		-	1	_	1
	ARRIER RAIL 9170 mm	-	-	-	1	1
	ARRIER RAIL 9150 mm	-		-	2	2
	ARRIER RAIL 8900 mm	-	-	-	1	1
B	ARRIER RAIL 8618 mm	-	-	-	1	1
	ARRIER RAIL 8479 mm	-	-	-	1	1
	ARRIER RAIL 8456 mm	-	1	-	-	1
	ARRIER RAIL 8411 mm	1	-	-	- 1	2
	ARRIER RAIL 8326 mm ARRIER RAIL 8302 mm	1 -	<u>-</u> 1	-		1
	ARRIER RAIL 8302 mm  ARRIER RAIL 8296 mm	-	1	-,	-	1
	ARRIER RAIL 8215 mm	1	-	-:	-	1
	ARRIER RAIL 8090 mm	<u>-</u>	1	-	-	1
	ARRIER RAIL 7706 mm	1	-	-	1	2
В	ARRIER RAIL 7650 mm	-	-	1	-	1
B	ARRIER RAIL 7553 mm	-	-	1	-	1
	ARRIER RAIL 7529 mm	-	-	1	-	1
	ARRIER RAIL 7452 mm	-	-	1	-	1 1
	ARRIER RAIL 6432 mm	1	1 -	-	1	2
	ARRIER RAIL 6426 mm ARRIER RAIL 6397 mm	1	<del>-</del>	-	-	1
	ARRIER RAIL 6397 mm  ARRIER RAIL 6256 mm	-	-	-	1	1
	ARRIER RAIL 6227 mm	-	1 .	-	-	1
	ARRIER RAIL 6220 mm	-	1	-	-	1
	ARRIER RAIL 6191 mm	-	-	-	1	1
,B,			-	-	-	1
	ARRIER RAIL 6177 mm	1			1	1
В	ARRIER RAIL 6177 mm ARRIER RAIL 5806 mm	1	-	-	1	2
B/ B/	ARRIER RAIL 5806 mm ARRIER RAIL 4777 mm	1	-	-	-	1
B/ B/ B/	ARRIER RAIL 5806 mm	1	- - 1	-	1 - - 1	

BILL OF MATERIALS									
ITEM	SPAN 1	SPAN 2 & 3	SPAN 4	SPAN 5	TOTAL				
BARRIER POST 'P1' 700 mm	42	76	30	42	190				
BASE PLATE	42	76	30	42	190				
STANDARD SPLICE BAR	24	42	12	24	102				
EXPANSION SPLICE BAR	-	6	6	6	18				
RAIL CLAMP BAR	252	456	180	252	1140				
13-13X25 STAINLESS STEEL HEX. HEAD CAP SCREW	552	1002	390	558	2502				
13-13X50 STAINLESS STEEL HEX. HEAD CAP SCREW	24	24	24	24	96				
27 O.D. x 14 I.D. x 2 THICK STAINLESS STEEL WASHER	576	1050	438	582	2646				
RAIL CONNECTION PLATE	6	6	6	6	24				
13x50mm STAINLESS STEEL BOLT	12	12	12	12	48				
STAINLESS STEEL NUT	12	12	12	12	48				
ONE STAINLESS STEEL LOCK WASHER	12	12	12	12	48				
TWO STAINLESS STEEL PLATE WASHERS	24	24	24	24	96				
RAIL END CAP	3	-	-	3	6				
ALUMINUM SHIMS	AS REQUIRED	AS REQUIRED	AS REQUIRED	AS REQUIRED					



0 ISSUED FOR CONSTRUCTION

NO. REVISIONS

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

UMA Engineering Ltd.

CHECKED BY

APPROVED BY

ACCEPTED BY

/DATE 2050207

• Consulting • Engineering • Construction • Management Services

uma

DESIGNED BY

05/07/05 MP

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HOR. SCALE AS SHOWN

VERT. SCALE AS SHOWN

**GENERAL NOTES** 

- 1. EXTRUDED ALUMINUM SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM B221, ALLOY 6061-T6 OR ALLOY 6351-T6.
- 2. WELDING SHALL CONFORM TO THE REQUIREMENTS OF CSA STANDARDS W59.2-1991 WELDED ALUMINUM AND W47.2-1987, CERTIFICATION OF COMPANIES FOR FUSION WELDING OF ALUMINUM. ALUMINUM FILLER ALLOY SHALL BE ER5556.
- 3. ANTI-SEIZE COATING TO BE APPLIED TO ALL THREADED COMPONENTS WHEN BEING ASSEMBLED. 4. A COMBINATION OF 1.5, 3.0 AND/OR 6.0mm THICK ALUMINUM RAIL POST OR PLATE SHIMS
- ARE TO BE USED AS REQUIRED TO SET THE BARRIER RAIL TO THE SPECIFIED HEIGHT. (MINIMUM 3.0mm SHIM REQUIRED AT EACH POST OR PLATE) REMOVE ALL BURRS AND SHARP EDGES IN THE SHOP. AFTER INSTALLATION OF THE BARRIER HAS BEEN COMPLETED, THE TOP EDGES AND CORNERS OF THE BARRIER RAIL POST SHALL BE
- ROUNDED SMOOTH TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR. 6. BOTTOM SURFACE OF SHIM (SURFACE IN CONTACT WITH CONCRETE) IS TO BE PAINTED WITH
- TWO COATS OF ALKALI RESISTANT BITUMINOUS PAINT, EACH COAT BEING 1mm IN THICKNESS. 7. THE STAINLESS STEEL HEX HEAD AND THE SOCKET HEAD CAP SCREWS SHALL MEET THE
- REQUIREMENTS OF ASTM A276, TYPE 316 AND THE DIMENSIONAL REQUIREMENTS OF ANSI B18.3 8. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW AT LEAST FOURTEEN (14) WORKING DAYS PRIOR TO FABRICATION.

ENGINEER'S SEAL CONSULTANT DRAWING NO. 53

0265-376-00



Winnipeg

THE CITY OF WINNIPEG **PUBLIC WORKS DEPARTMENT** 

**REDWOOD BRIDGE** REHABILITATIVE MAINTENANCE AND

CITY DRAWING NUMBER B113-05-53 53 OF 74 53

Bid Opportunity No. 257-2005

**RELATED WORKS ALUMINUM BRIDGE SHOULDER BARRIER BILL OF MATERIALS AND GENERAL NOTES**