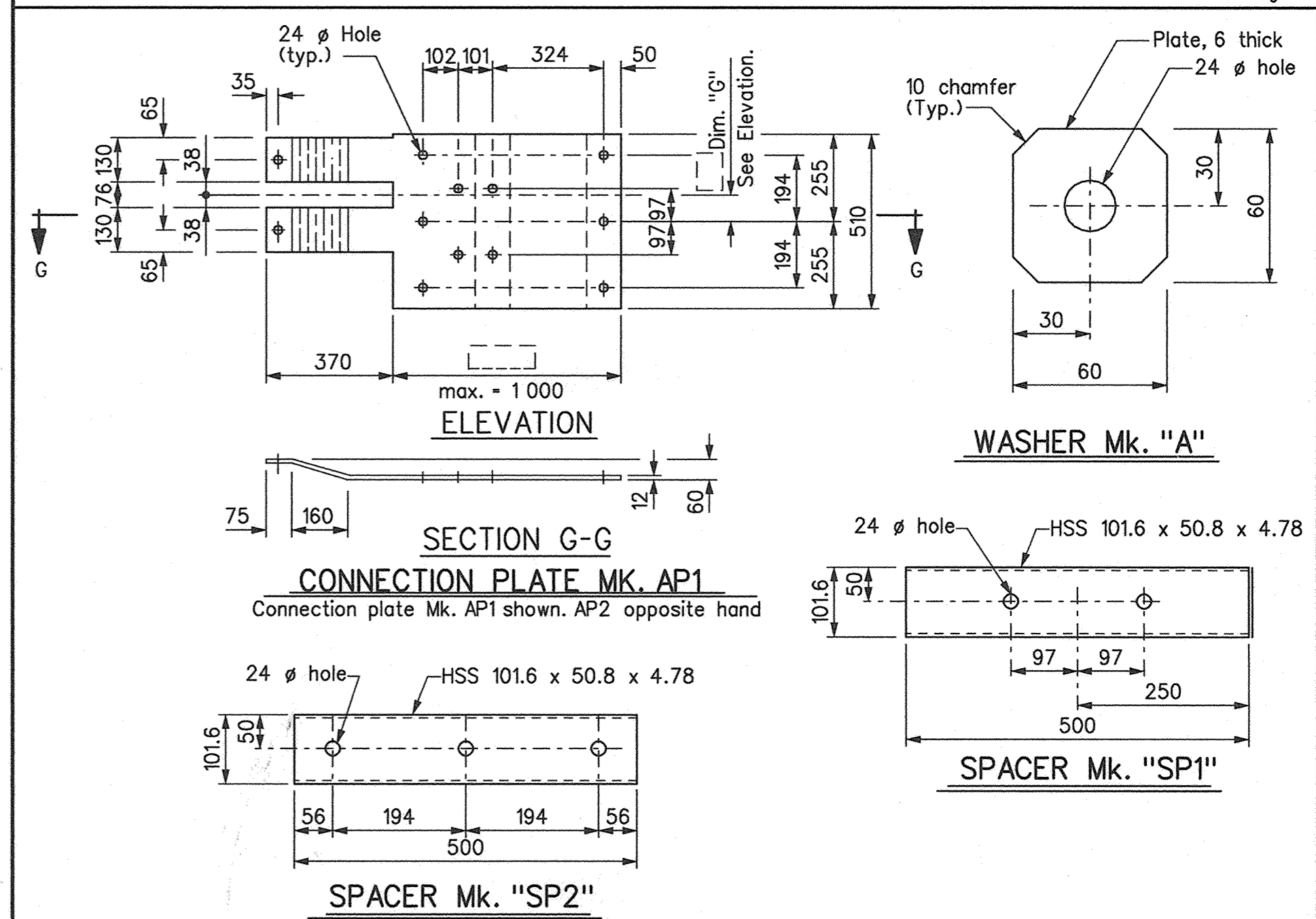


BILL OF MISCELLANEOUS METAL						Site No.
MARK	No.	DESCRIPTION	SIZE	MASS PER UNIT	TOTAL MASS	
AP1		Connection plate	Plate, 12 thick	As detailed		
AP2		Connection plate	Plate, 12 thick	As detailed		
SP1		Spacer	HSS 101.6 x 50.8 x 4.78, 500 long	As detailed	5.497	
SP2		Spacer	HSS 101.8 x 50.8 x 4.78, 500 long	As detailed	5.497	
C1		Hex. Bolts	22 ϕ x --- hex. bolt c/w all metal lock nut			N/A
C2		Hex. Bolts	22 ϕ x --- hex. bolt c/w all metal lock nut			N/A
C3		Hex. Bolts	22 ϕ x 50 hex. bolt c/w all metal lock nut			N/A
A		Washer	Plate 6 thick, one per bolt Mk. C1 & C2 (see Detail below)	0.154		
		Plate washers	For 22 ϕ bolt Mk. C3, one per "C3"	0.052		
Total mass					kg	



NOTES:

- The connection plate shall be used as a template to core holes through the newel post. Care shall be taken to ensure holes are cored accurately with minimal damage to newel post. Use of rotary hammer drills will not be allowed.
- Holes for bolts Mk. "C1" & "C2" shall be cored through the newel post at 2mm larger than the bolt diameter.
- After erection is completed, counterbored holes in the rear face of newel post shall be filled with a non-shrink non-metallic grout matched to the colour of the newel post concrete.
- All steel plates shall conform to the requirements of CAN/CSA-40.21-M92 Grade 300W
- All bolts shall conform to the requirements of ASTM A325 except where noted otherwise.
- All material in the above Bill shall be galvanized after fabrication in accordance with CAN/CSA G164-M92
- Welding shall meet the current requirements of the American Welding Society Structural Welding Code ANSI/AASHTO/AWS D.1.5.
- Supply & installation of all required bolts & lock nuts considered incidental to connection plate.
- Unit mass for connection plate = 7.850 kg/m³
- Dimensions shown thus: [] to be filled in using field measurements.
- Length of hex. bolts Mk. "C1" & "C2" to be filled in based on field measured thickness of newel post.
- Attachment bolt Mk. "C1", length = "F" - 10
- Attachment bolt Mk. "C2", length = "F" + 40

NOTE: Original drawing sealed by J. Lukashenko P.Eng., Feb.23, 2000. It is filed in the Bridges and Structures Branch.

REVISIONS	
DATE	DESCRIPTION

**CONNECTION PLATE DETAILS
THRIE BEAM TO 5 RAIL NEWEL POST**

DATE	BY	DESCRIPTION

Manitoba Highways and Government Services Bridges and Structures Branch		RELEASED FOR CONSTRUCTION BY: Original signed by Greg Hamilton Feb.23, 2000	
DESIGN	BY: J.L.	DIRECTOR OF BRIDGES AND STRUCTURES DATE	
CHECKED:		SCALE:	
DETAILS	BY: E.F.	1:15	SHEET No.
CHECKED:	J.L.		SITE No.