

- NOTES:**
- Thrie beam and W beam sections shall be joined so that splices are lapped to flow with the direction of traffic as it approaches the structure, both sides of roadway.
  - This drawing to be read in conjunction with Sheets 2 of 3 and 3 of 3.
  - Low volume < 750 municipal roads.
  - Maximum speed limit 90 km/h.

REVISIONS		MUNICIPAL-PPCC BRIDGE TYPE APPROACH GUARDRAIL LAYOUT	
DATE	DESCRIPTION		
2020-11-09	N.J. Title block revised	<b>Manitoba</b> Infrastructure Bridges and Highway Structures	
		APPROVED BY: Original signed by John Logan Dec. 13, 2020 DIRECTOR OF BRIDGES AND HIGHWAY STRUCTURES	DATE: _____ SCALE: _____ SHEET No. 1 of 3
DESIGN	BY: H.L.	DESIGN BY: H.P. LARSEN Original signed/sealed 2014/06/25	SCALE: 1:75 or As Shown
DETAILS	CHECKED: A.H.P.		BY: D.P.W. CHECKED: H.L.
			STD No. BSTB01

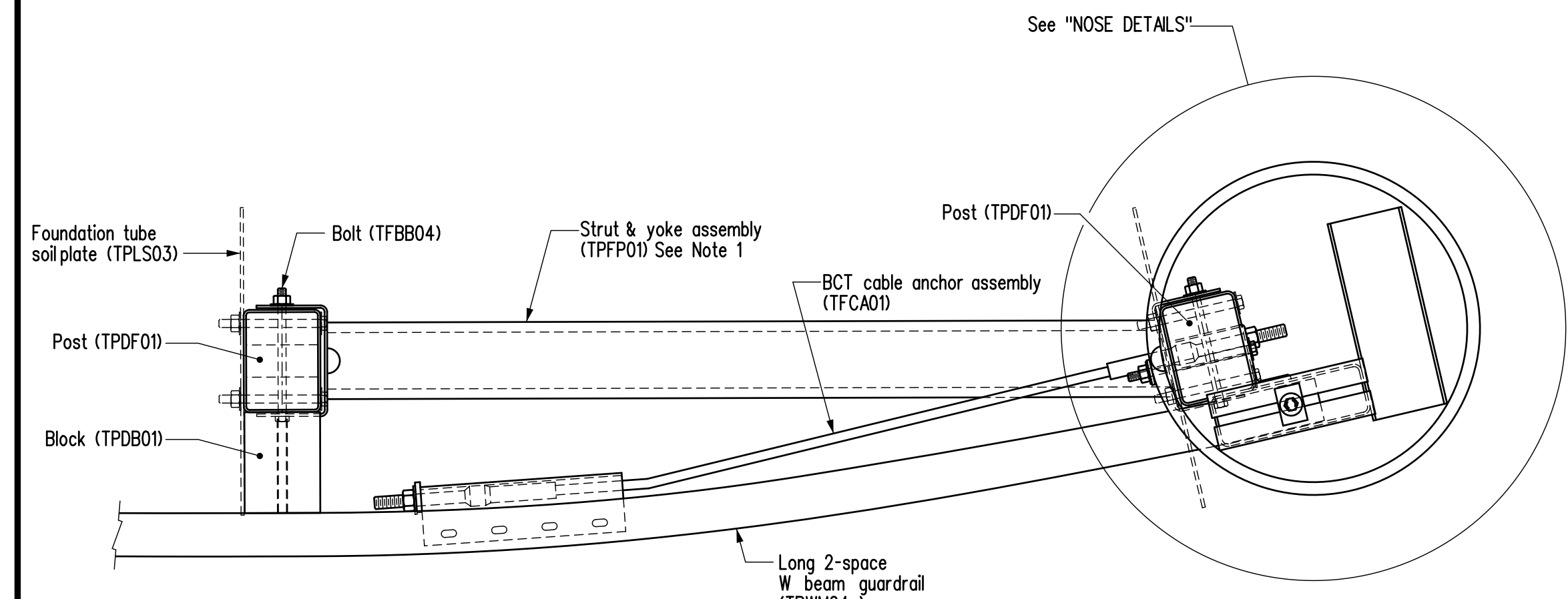


BILL OF TIMBER FOR APPROACH GUARDRAILING						Site No.
PART No.	No.	DESCRIPTION	SIZE	LENGTH	REMARKS	VOLUME (m <sup>3</sup> )
TPDE07	16	Railpost	250 x 250	1 830		1.83
TPDE05	16	Railpost	200 x 200	1 830		1.17
TPDE02	4	Railpost	200 x 150	1 830		0.22
TPDE09	20	CRT Post	200 x 150	1 830		1.10
TPDF01	8	BCT Post	190 x 140	1 080		0.23
TPDB02	24	Block	200 x 150	554		0.40
TPDB01	36	Block	200 x 150	360		0.39

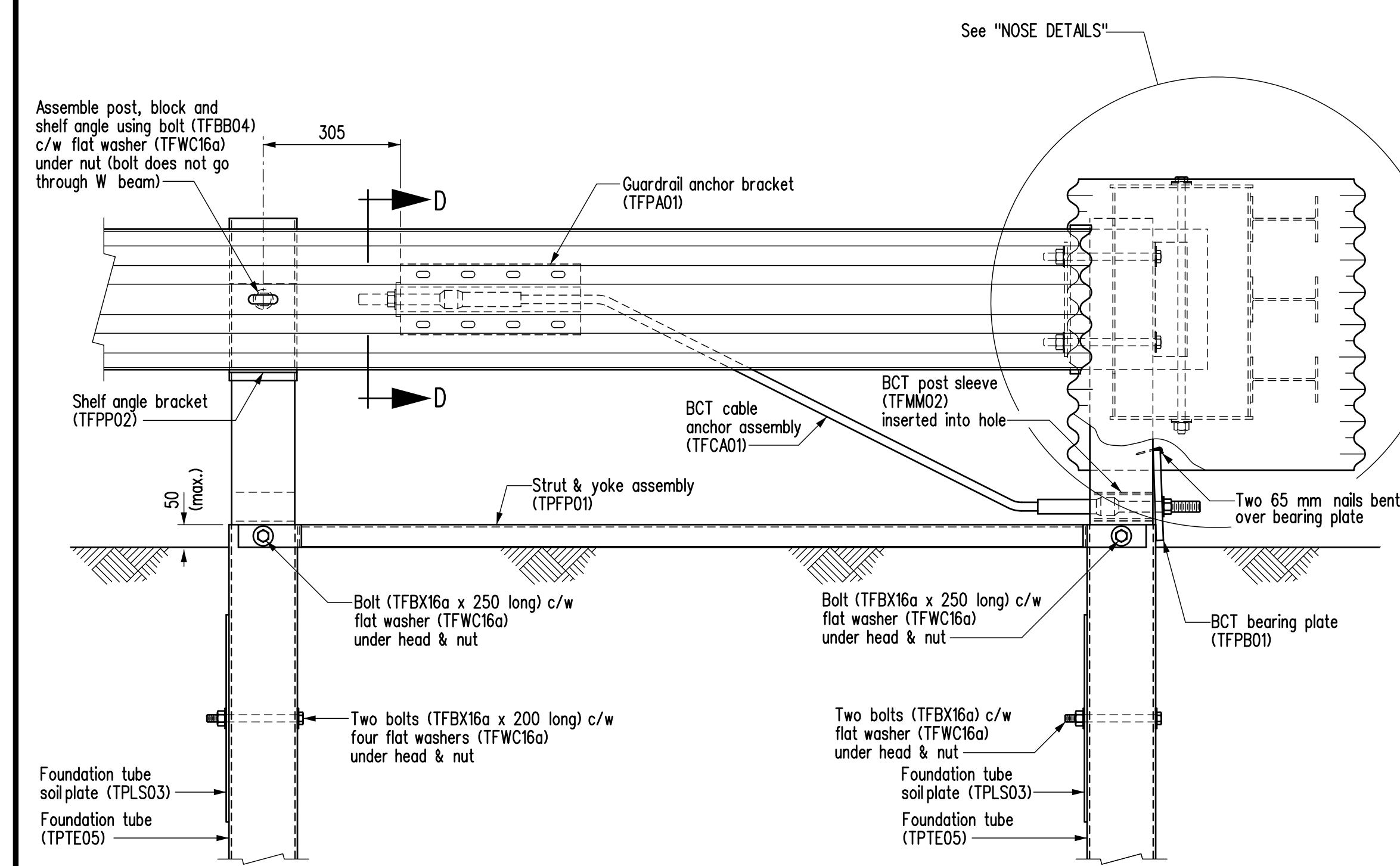
**NOTES:**  
 1. Specifications for Part No.'s listed in Bill shall conform to Specifications found on MIT Traffic website <http://www.gov.mb.ca/mit/traffic/guardrail.html>

BILL OF GUARDRAIL AND HARDWARE							Site No.	
PART No.	No.	DESCRIPTION	SIZE	LENGTH	TOTAL LENGTH (m)	REMARKS	MASS PER UNIT	TOTAL MASS (kg)
TRTM04a	8	Thrie beam guardrail	506	3 810	30.48	2.7 mm thick	67.130	537.04
TRWT01a	4	Transition section	506-312	1 905	7.62	2.7 mm thick	29.030	116.12
TRTE01b	4	Thrie beam terminal connector	506	760	3.04	3.4 mm thick	13.391	53.56
TRWM02a	8	W beam guardrail	312	3 810	30.48	2.7 mm thick	43.091	344.73
TRWM24a	4	Long 2-space W beam guardrail	312	7 620	30.48	2.7 mm thick	86.183	344.73
TFMM99	4	Eccentric loader head					30.000	120.00
TFPP01	4	Strut & yoke assembly	C150 x 12.2	1 675			15.331	61.32
TPTE05	8	Foundation tube	HSS 203 x 152 x 4.8	1 525			41.731	333.85
TPLS03	8	Foundation tube soil plate	PL6 x 460	610			14.674	117.39
TFCA01	4	BCT cable anchor assembly	19 dia.	2 000			6.350	25.40
TFPA01	4	Guardrail anchor bracket	PL5 thick	400			17.237	68.95
TFMM02	4	BCT post sleeve	DN50 - 60.3	140			0.907	3.63
TFPB01	4	BCT bearing plate	PL16 x 200	200			5.443	21.77
TFPP02	4	Shelf angle bracket	PL6 x 150	230			1.089	4.36
TFBB01	224	Butt head bolts c/w recessed hex. nut	16 dia.	32		Rail splice. Guardrail anchor bracket to rail.	0.136	30.46
TFBB04	80	Butt head bolts c/w recessed hex. nut	16 dia.	460		Blocks TPDB02 to posts TPDE05 & TPDE07, blocks TPDB01 to posts TPDE25, TPDE09 & TPDF01	0.744	59.52
TFBX16a	16	Hex. bolt c/w std hex. nut	16 dia.	200		Soil plate to steel tube	0.381	6.10
TFBX16a	16	Hex. bolt c/w std hex. nut	16 dia.	250		Strut & yoke assembly to steel tube, eccentric loader to post	0.458	7.33
TFBX16a	4	Hex. bolt c/w std hex. nut	16 dia.	560		Eccentric loader assembly to W beam	0.939	3.76
TFWR03	8	Rectangular guardrail plate washer	for 16 dia. bolts			Two to bolt TFBX16a, 560 long	0.127	1.02
TFWC16a	156	Flat washer	for 16 dia. bolts			One to bolt TFBB04, Two to bolts TFBX16a	0.036	5.62
							<b>TOTAL MASS (kg) =</b>	<b>2266.65</b>

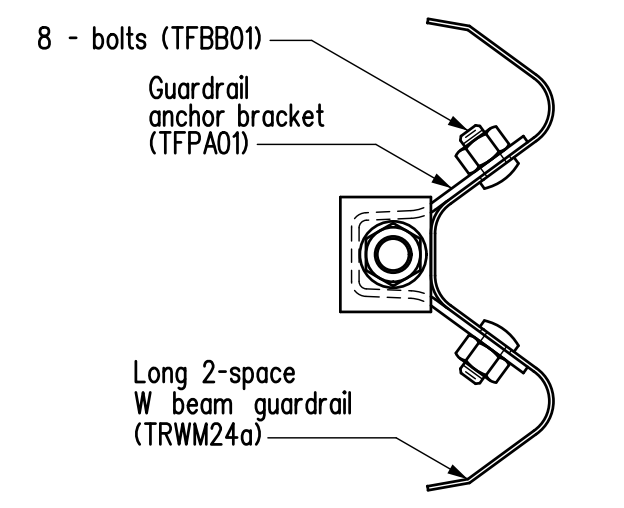
**NOTES:**  
 1. All masses listed in Bill are approximate and are for reference purposes only.  
 2. Specifications for Part No.'s listed in Bill shall conform to Specifications found on MIT Traffic website <http://www.gov.mb.ca/mit/traffic/guardrail.html>



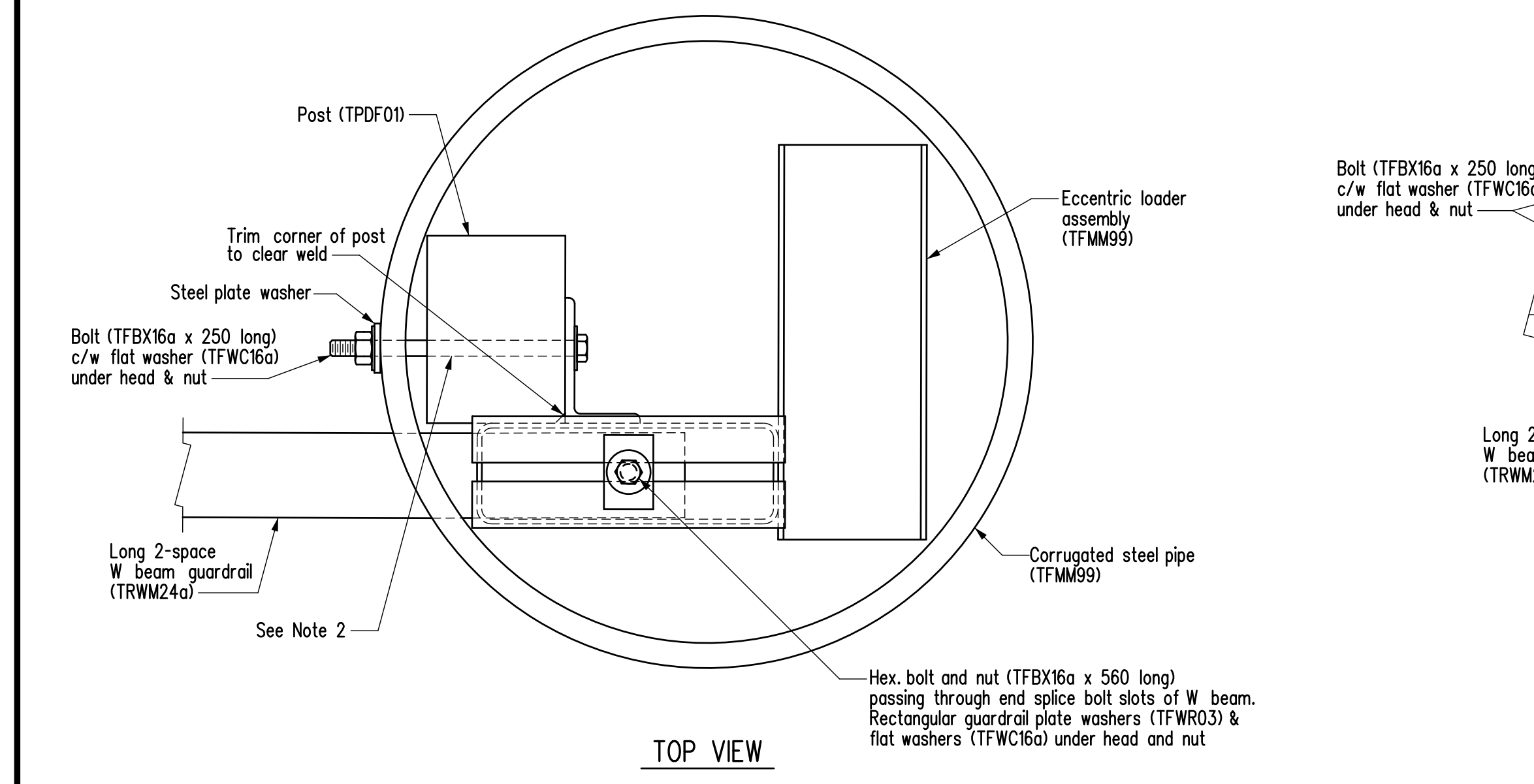
**PLAN - NOSE ASSEMBLY**



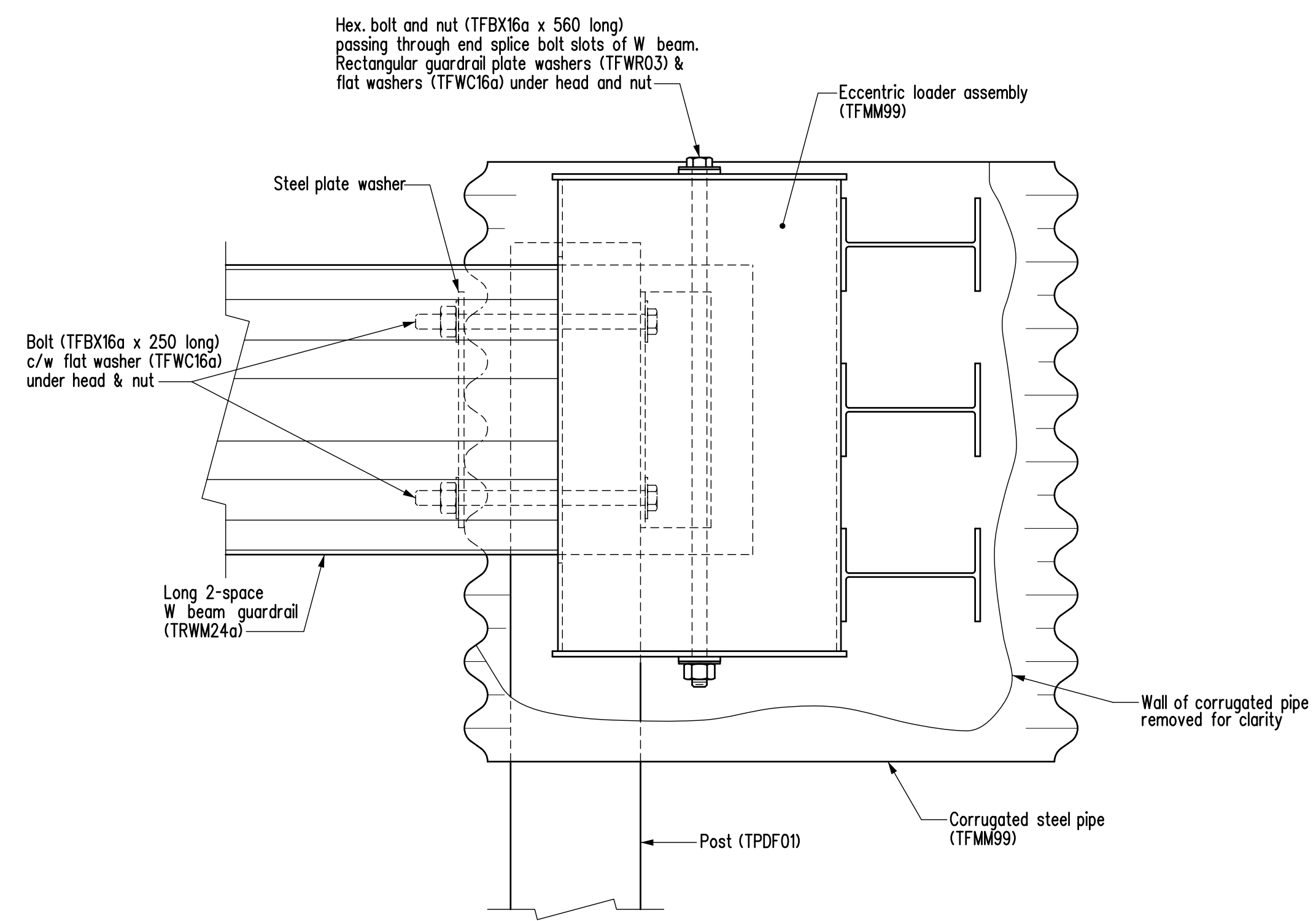
**ELEVATION - NOSE ASSEMBLY**



**SECTION D-D**  
Scale 1:5



**TOP VIEW**



**SIDE VIEW**

**NOSE DETAILS**  
Scale 1:5

**NOTES:**  
 1. Adjustment of the yoke(s) may be required in the field to accommodate assembly.  
 2. Holes in post 1 to be field located and drilled 2 mm larger than bolt.

REVISIONS		MUNICIPAL-PPCC BRIDGE TYPE APPROACH GUARDRAIL DETAILS	
DATE	DESCRIPTION		
2020-11-09	N.J. Title block revised	<b>Manitoba</b> Infrastructure Bridges and Highway Structures	
		DESIGN	APPROVED BY:
		BY: H.L.	Original signed by John Logan Dec. 13, 2020
		CHECKED: A.H.P.	DIRECTOR OF BRIDGES AND HIGHWAY STRUCTURES
		BY: D.P.W.	DATE: _____
		CHECKED: H.L.	SCALE: 1:10 or SHEET No. 3 of 3
			As Shown STD No. BSTB01

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H.P. LARSEN  
Original signed/sealed  
2014/06/25