

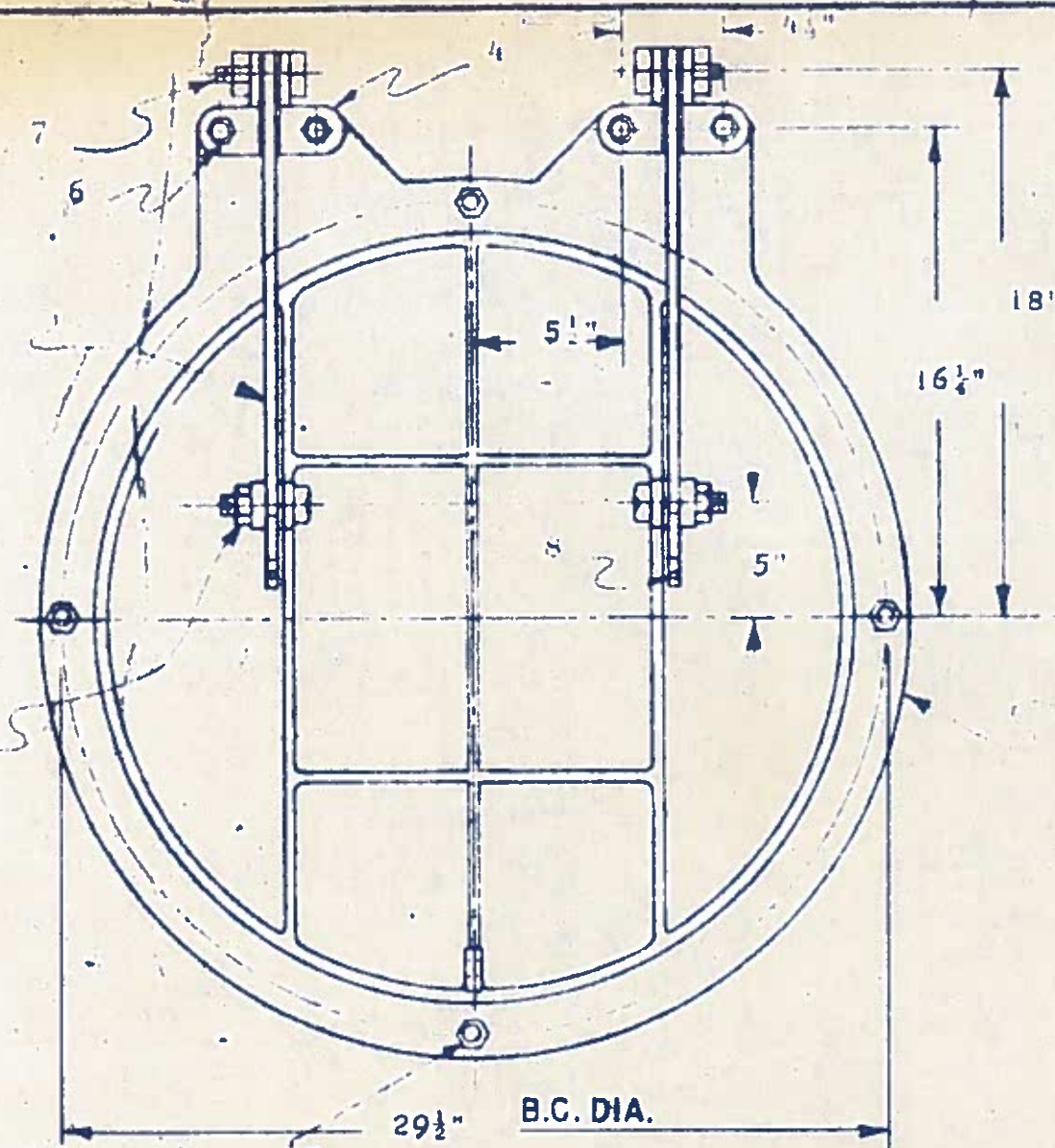
APPENDIX C

NESS & ALCOTT FLAP GATE REPLACEMENT

- C1 - DRAWING OF EXISTING GATE CHAMBER MANHOLE (LD-209)
- C2 - SHOP DRAWING OF EXISTING FLAP GATE
- C3 - FLAP GATE INSPECTION REPORT (8 PAGES)
- C4 - SKETCH SHOWING PROPOSED MANHOLE CONFIGURATION

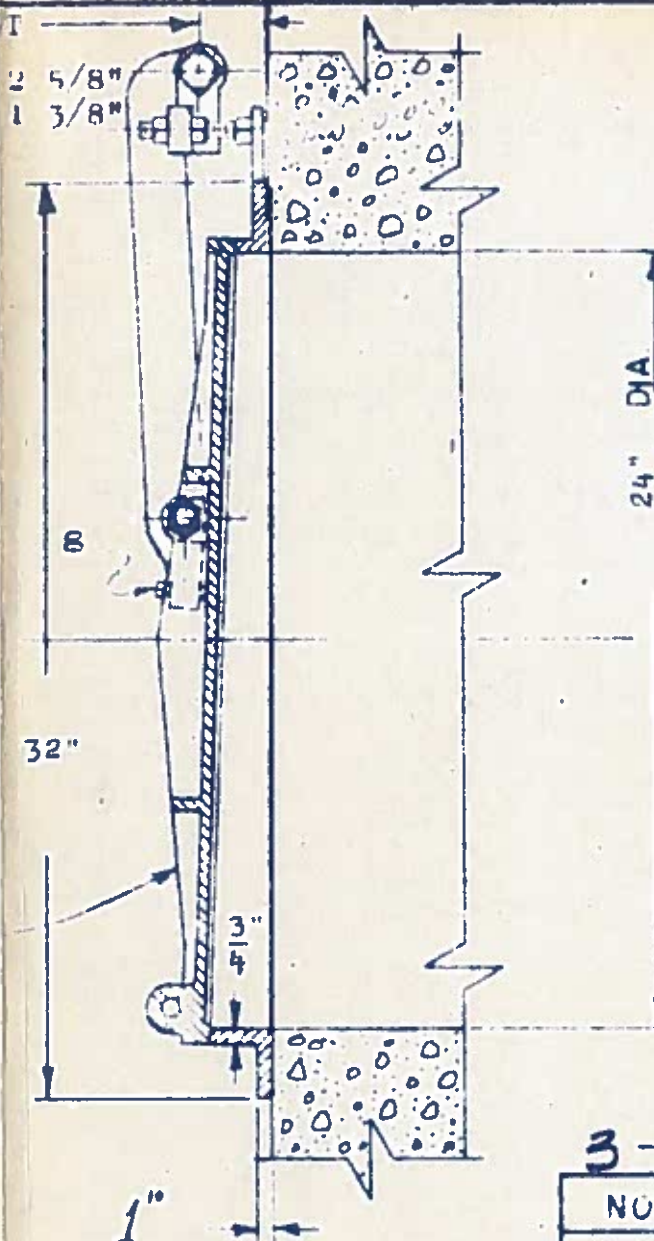
PIVOT ADJUSTMENT

MAX. 2 5/8"
MIN. 1 3/8"



3/4" Ø x 12"
ANCHOR BOLTS
W/2 1/2" PROJ.
(GALV.)

FRONT VIEW



SECTION ON E

NOTES:

- (1) PAINT GATES ONE COAT SHOP STD.
- (2) SEE MANUAL G-1700 FOR INSTALLATION & ADJUSTMENT INSTRUCTIONS

3 - REQ'D.

NOTATIONS BY THE CONTRACTING OFFICER 2 1/2"

GATE PARTS LIST

ITEM NO.	NO. REQ'D	PART NO.	MAT'L	DESCRIPTION
1	1	13A 24	C.I.	SEAT
2	1	13B 24	"	COVER
3	2	GC29	"	LINK
4	2	GC95	"	PIVOT LUG
5	4	LM150	BRONZE	BUSHING 49/64" I.D. x 1" O.D. x 1/2" L.
6	4	F258	GALV.	STUD BOLTS 3/4" x 4 1/2" W/3 JAM NUTS
7	4	F193	"	CAP SCREWS 3/4" x 3 1/2" W/1 LOCK NUT
8	2	F-	"	SCREEN 1" x 2 1/2" x 1 HEX NUT
9	4	F165	"	ANCHOR BOLTS 3/4" x 12" W/2 HEX NUT
10				
11				

NUTS LOCATED WITH SET SCREWS

ARMCO ARMCO CANADA LTD.
GUELPH ONT.

INSTALLATION DRAWING OF CAST IRON FACED
24" DIA. MODEL 20-C GATE WITH ADJ.
UPPER PIVOT AND FLAT BACK

REVISED	DRAWN BY	TRACED BY	SCALE	ORDER NO.
	MG			08-3786
	CHECKED BY	APPROVED	DATE	DWG. NO.
	ESN.		MAY 26/73	2-47 73

**January 28, 2015 Inspection of Flap Gate near Sturgeon Creek at Ness
Inspection by Kyle Sanders, Service Technician, Power & Mine Supply Service Group**





Figure 1 – Close up of the seating face on the back side of the gate disc

This Flap Gate appears to have excessive corrosion on the seating faces. Both the gate frame's seat face and the gate disc's seat face appear to be cast iron. In our experience, the City of Winnipeg prefers that all seating faces of cast iron flap gates are to be constructed of a bronze or brass material that is corrosion resistant to river water. Figure 1 and Figure 2 show the excessive corrosion evident on the seating faces. The corrosion is such that the faces are unable to seat together with a tolerance that is tight enough to provide an acceptable leakage rate. Figure 2 shows that some of the corrosion bumps are between 2 and 5 mm which cause large spaces between the seating faces and will easily allow water to pass. With this corrosion, the flap gate will definitely leak excessively. In addition, small debris and sticks collect on the seating face corrosion as shown in Figures 3 and 4 further increasing leak paths.



Figure 2 – seating face of gate frame



Figure 3 – Small debris stuck on gate frame seating face



Figure 4 – Small stick stuck to corrosion on gate frame seating face



Figure 5 – Gate frame seating face after being wiped down with a work glove

Figures 5 and 6 show that the seating faces still exhibit unacceptable amounts of corrosion even after being wiped down by hand with a work glove.

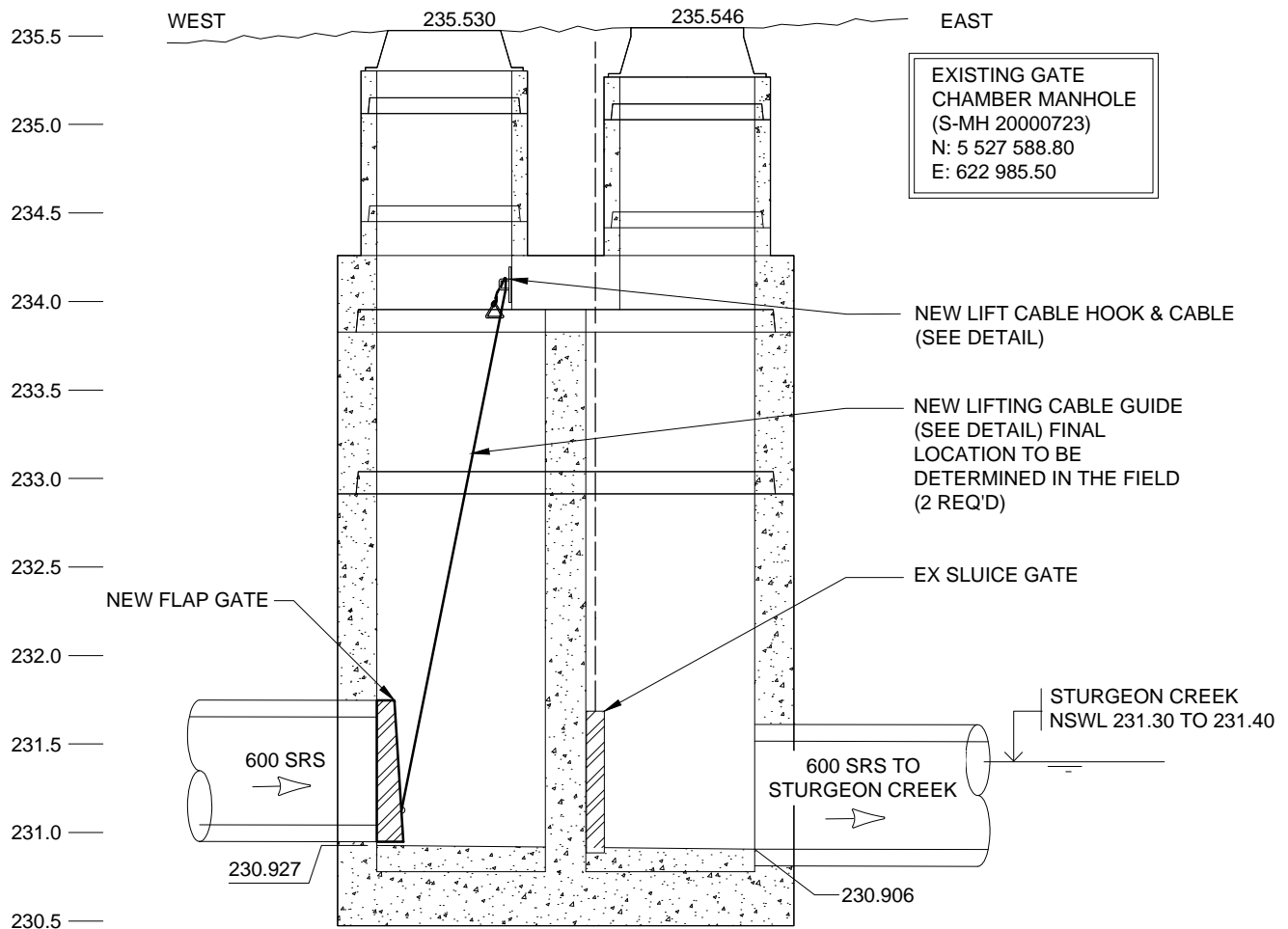


Figure 6 – Gate frame seating face after being wiped down with a work glove

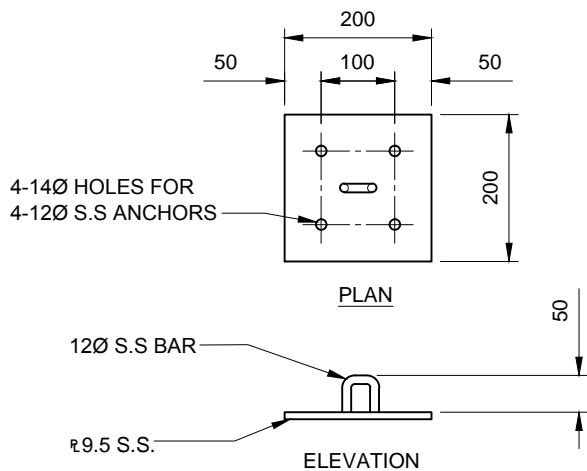


Figure 7 – Seating face on the frame of the sluice gate that is in the same chamber

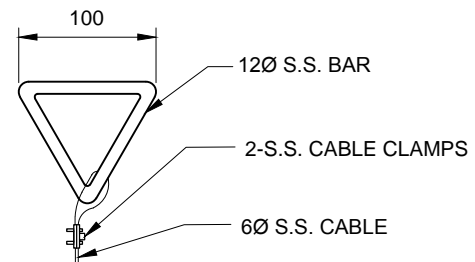
For comparison, the seating faces on the sluice gate that is in the same chamber as shown in Figure 7 appear to be constructed of brass or bronze and exhibit very little corrosion. These seat faces have remained much smoother than the cast iron seating faces found on the flap gate. This suggests that if the flap gate had brass or bronze seating faces, the corrosion would be similarly low and not interfere with the mating of the seating faces thereby providing acceptable leakage rates.



GATE CHAMBER DETAIL



CABLE GUIDE DETAIL



LIFTING HOOK DETAIL



TETRA TECH

AUTHORIZED BY: K.J.M.
DATE: 16.10.28

CLIENT DRAWING NO.

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NO.	DATE	DESCRIPTION	ISSUED BY
REVISIONS/ISSUE			
CLIENT			
THE CITY OF WINNIPEG WATER & WASTE DEPARTMENT			
DRAWING DESCRIPTION			
NESS AVENUE & ALCOTT STREET SRS GATE CHAMBER FLAP GATE REPLACEMENT			
DESIGNED BY:	KJM	DRAWN BY:	GMD
REVIEWED BY:	KJM	SCALE:	NTS
DRAWING NO.			REV.
1400070800-SKT-C0010			00