

NOTE:  
ALL CAST IRON FITTINGS  
TO BE POLY WRAPPED

BREAK OUT EXISTING 6" C.I. PIPE AND  
REPLACE WITH PERMASTRAN PRESSURE  
PIPE CLASS 150 CONNECT WITH  
ROBAR O' CLAMP STYLE (SALVAGE  
CLAMPS FROM EXISTING PIPE)  
(REF DWG. ME-65-A-ME-24)

CONTRACT B.  
RESERVOIR

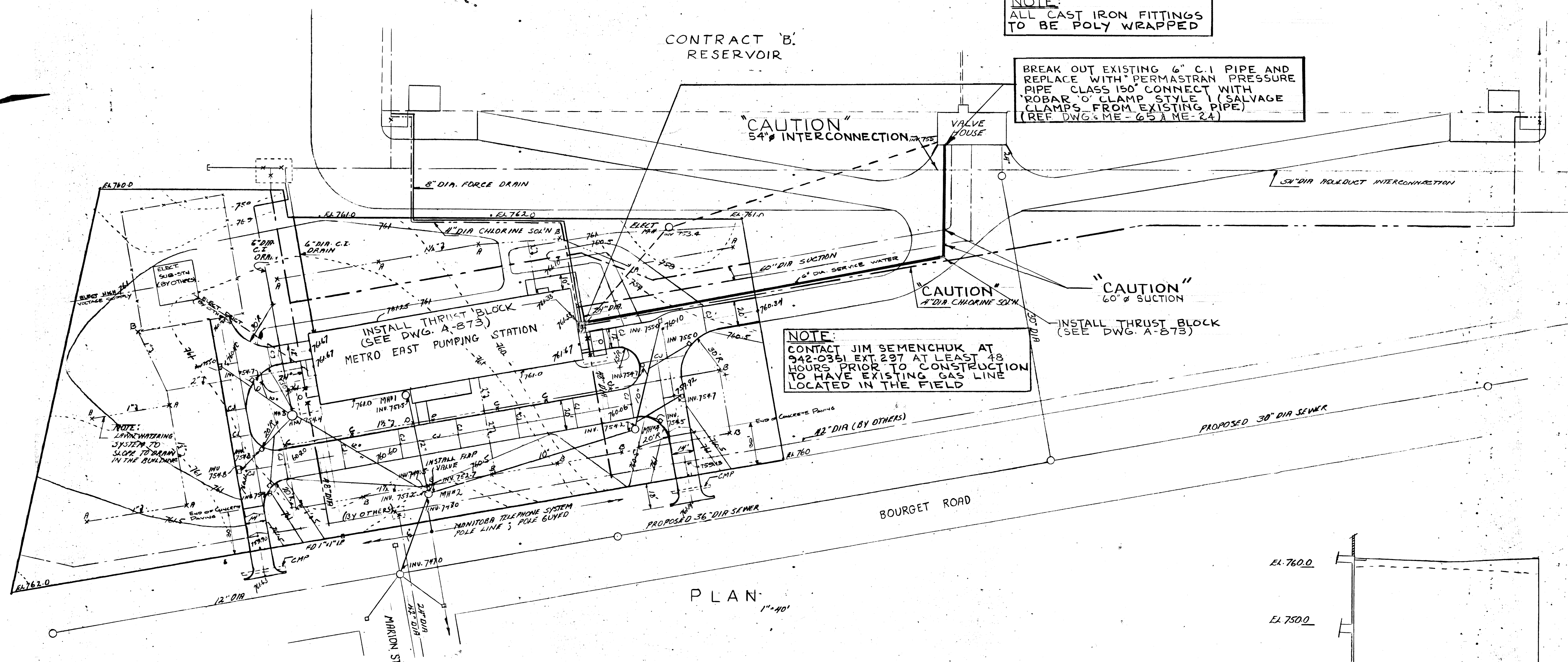
"CAUTION"  
54" INTERCONNECTION

"CAUTION"  
4" DIA. CHLORINE SOLN.

"CAUTION"  
60" SUCTON

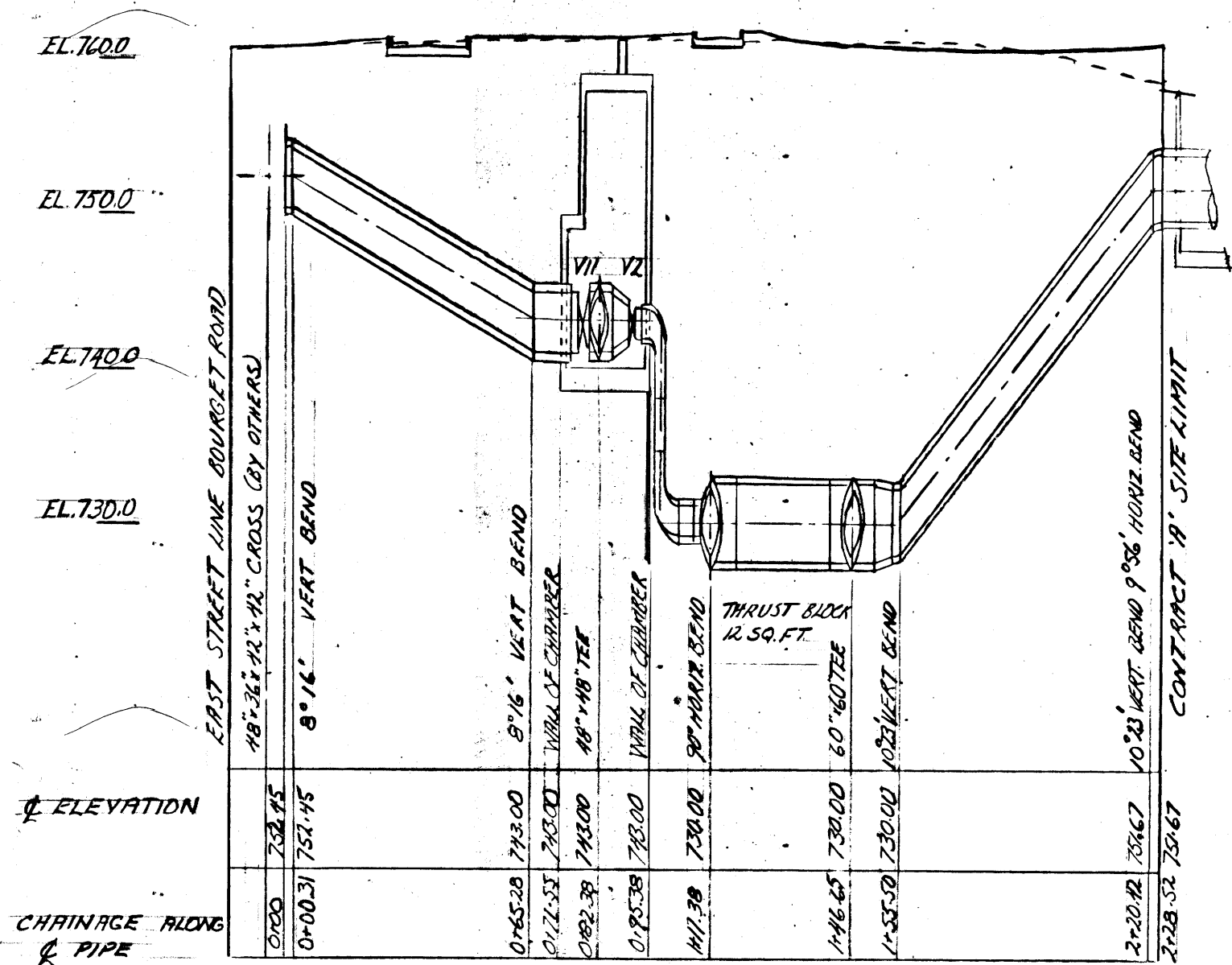
INSTALL THRUST BLOCK  
(SEE DWG. A-D75)

NOTE:  
CONTACT JIM SEMENCHUK AT  
942-0351 EXT 237 AT LEAST 48  
HOURS PRIOR TO CONSTRUCTION  
TO HAVE EXISTING GAS LINE  
LOCATED IN THE FIELD

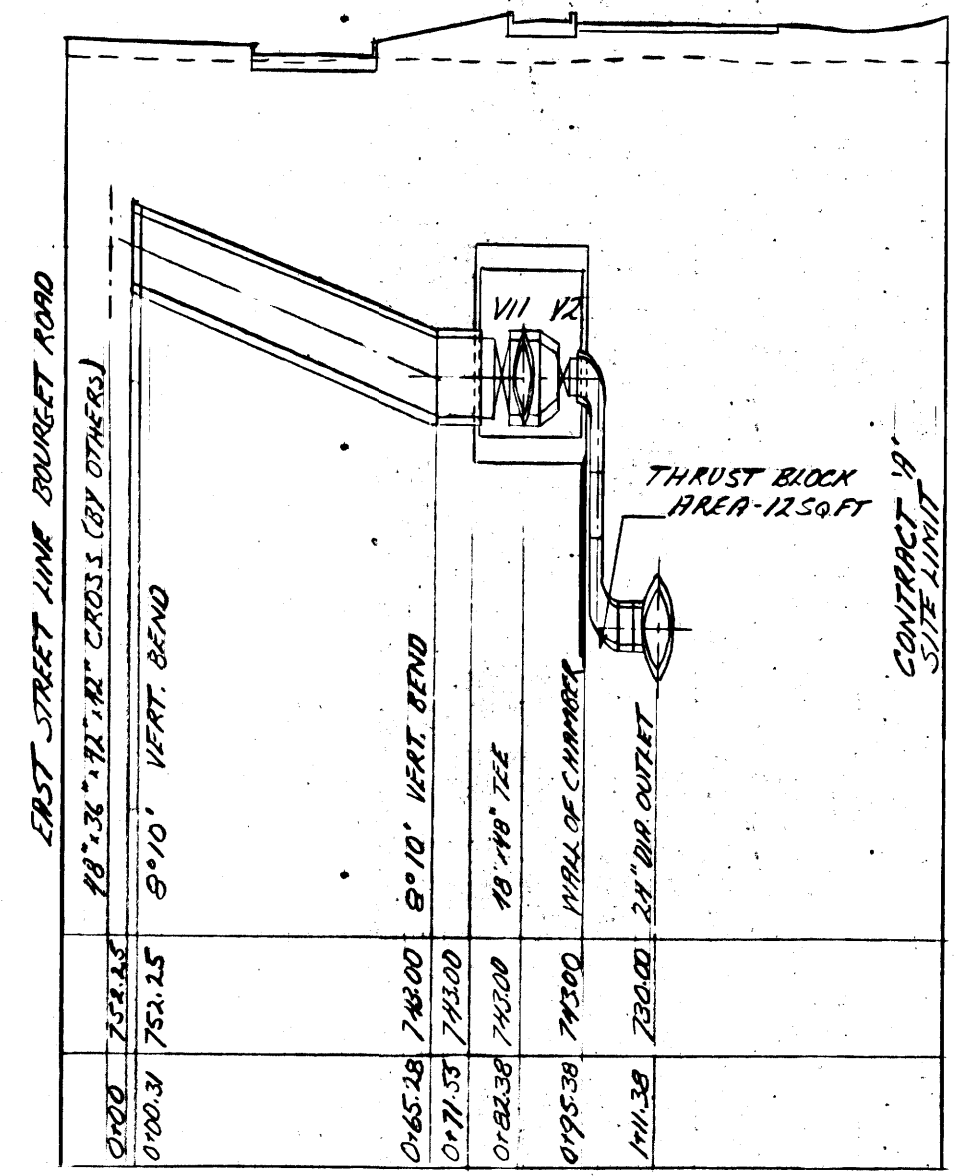


- LEGEND
- ORIGINAL GROUND CONTOURS
  - FINISHED GRADE CONTOURS
  - DRAIN OR SEWER
  - WATER MAIN
  - CHLORINE SOLUTION
  - ELECTRICAL DUCTS
  - LANA WATERING SUPPLY PIPES AND SPRINKLER HEAD
  - BORE HOLE
  - CONSTRUCTION JOINT

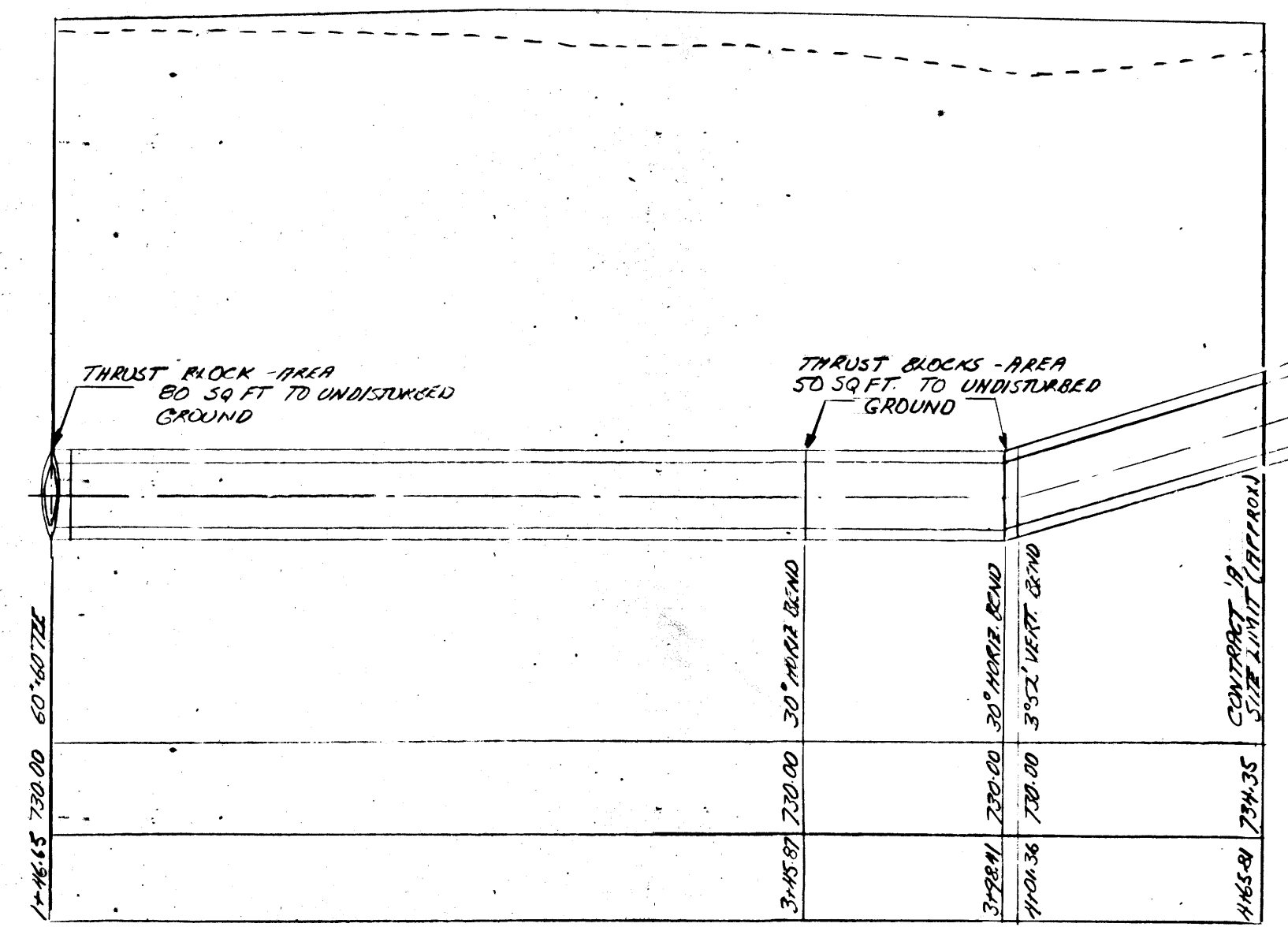
PLAN  
1"=40'



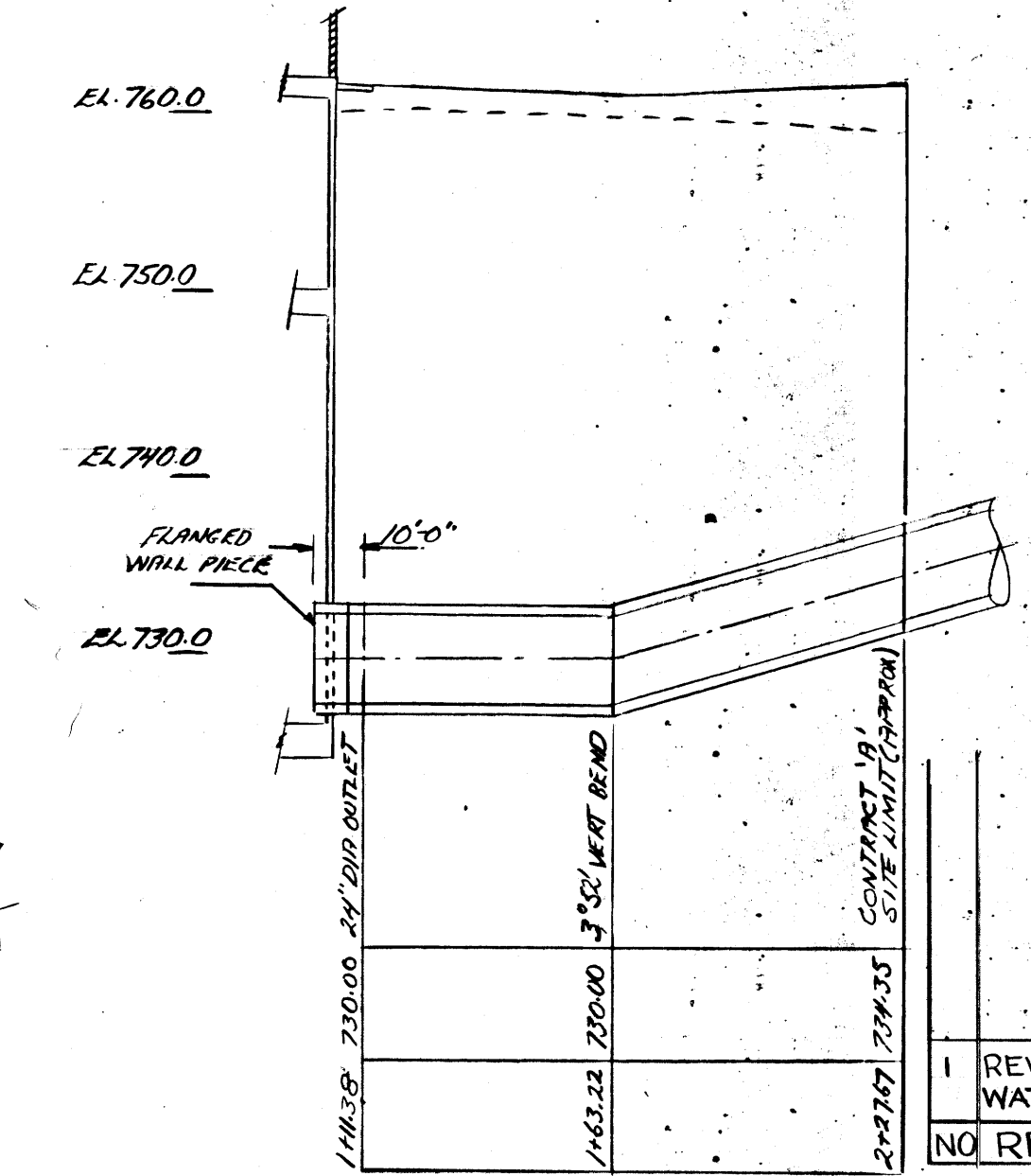
NORTH DISCHARGE - EMERGENCY SUCTON



SOUTH DISCHARGE



EAST SUCTON



WEST SUCTON

NOTE:  
SEE MECHANICAL DUES FOR PIPING  
DETAILS IN VALVE CHAMBERS  
CHAMBER ALONG & TO P.I. OF BENDS

CONCRETE PRESSURE PIPE PROFILES

1"=40' HORIZONTAL  
1"=10' VERTICAL

1	REVISED FOR 6" SERVICE WATER REPLACEMENT	RF: 1 SEPT/77
NO REVISION		BY DATE

REVISED AS BUILT, JUNE-1965

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
WATERWORKS AND WASTE DISPOSAL DIVISION

METRO EAST PUMPING STATION AND RESERVOIR

**CONTRACT A - PUMPING STATION  
YARD PIPING  
PLANS AND PROFILES**

APPROVED  
James F. MacLaren Associates  
ENGINEERS TORONTO

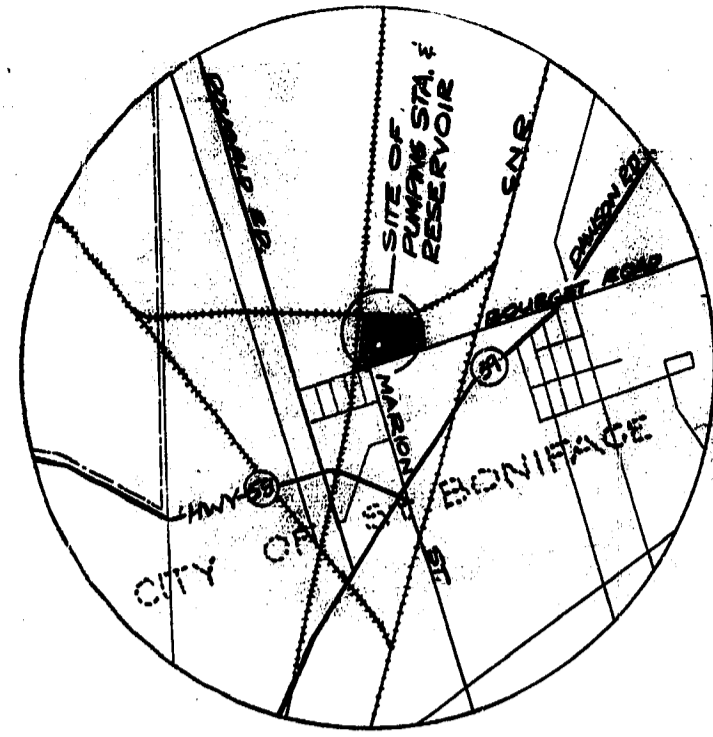
APPROVED  
James F. MacLaren Associates  
ENGINEERS TORONTO

TEMPLETON ENGINEERING COMPANY  
PROFESSIONAL ENGINEERS WINNIPEG

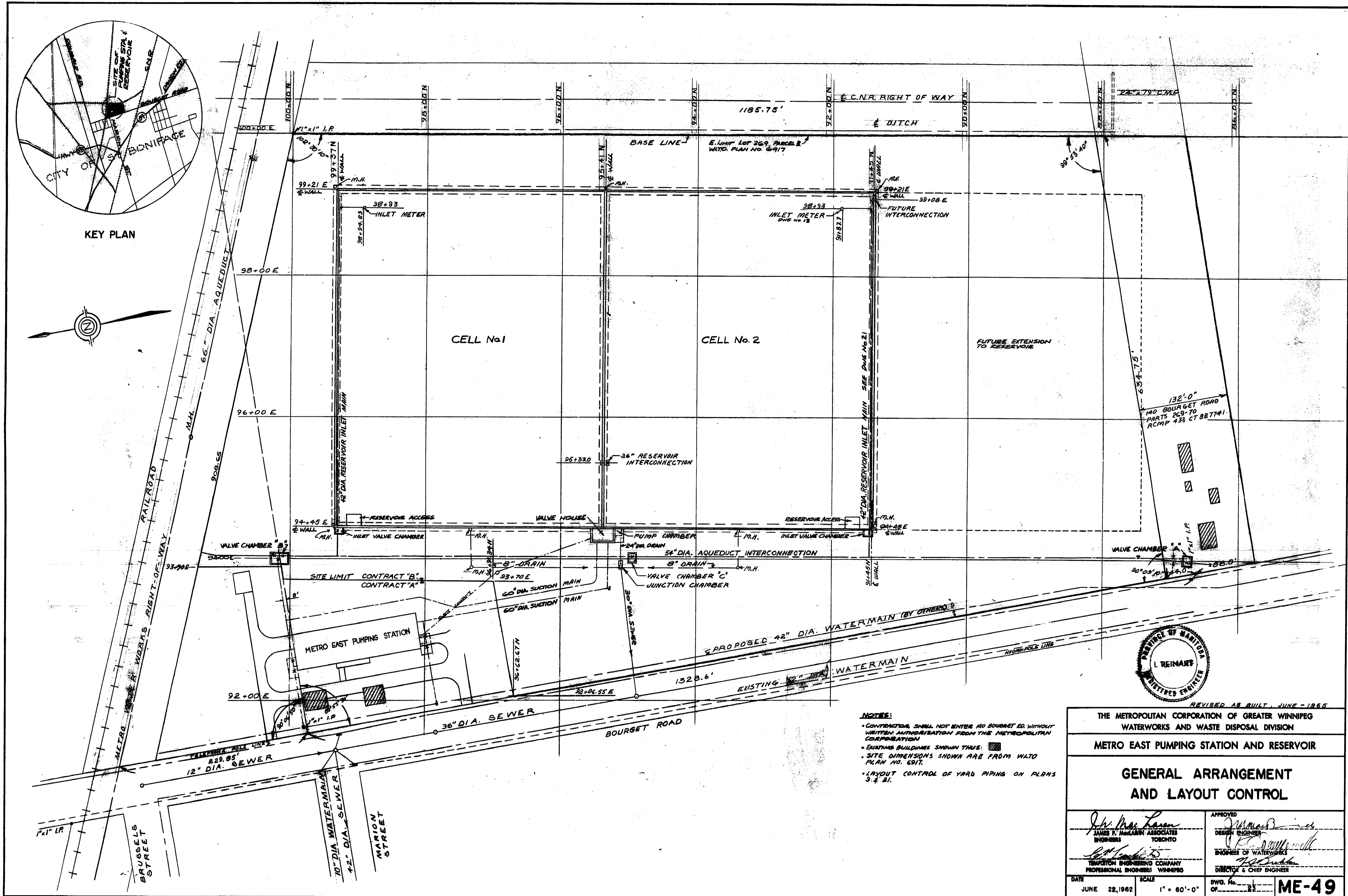
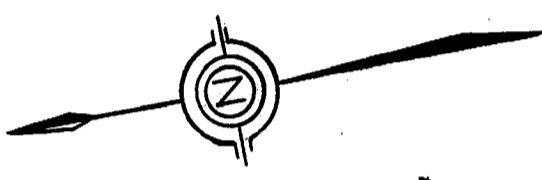
ENGINEER OF WATERWORKS  
DIRECTOR & CHIEF ENGINEER

DATE: JUNE 22, 1962  
SCALE: AS SHOWN  
DWG. No. 39  
OF 41

**ME-46**

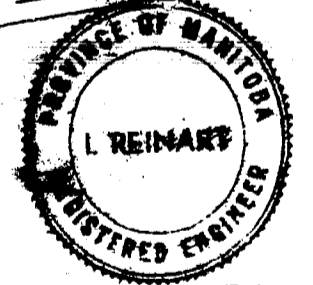


KEY PLAN



**NOTES:**

- CONTRACTOR SHALL NOT ENTER 140 BOURGET RD. WITHOUT WRITTEN AUTHORIZATION FROM THE METROPOLITAN CORPORATION
- EXISTING BUILDINGS SHOWN THIS: [Symbol]
- SITE DIMENSIONS SHOWN ARE FROM WATO PLAN NO. 6917.
- LAYOUT CONTROL OF YARD PIPING ON PLANS 3 & 4.

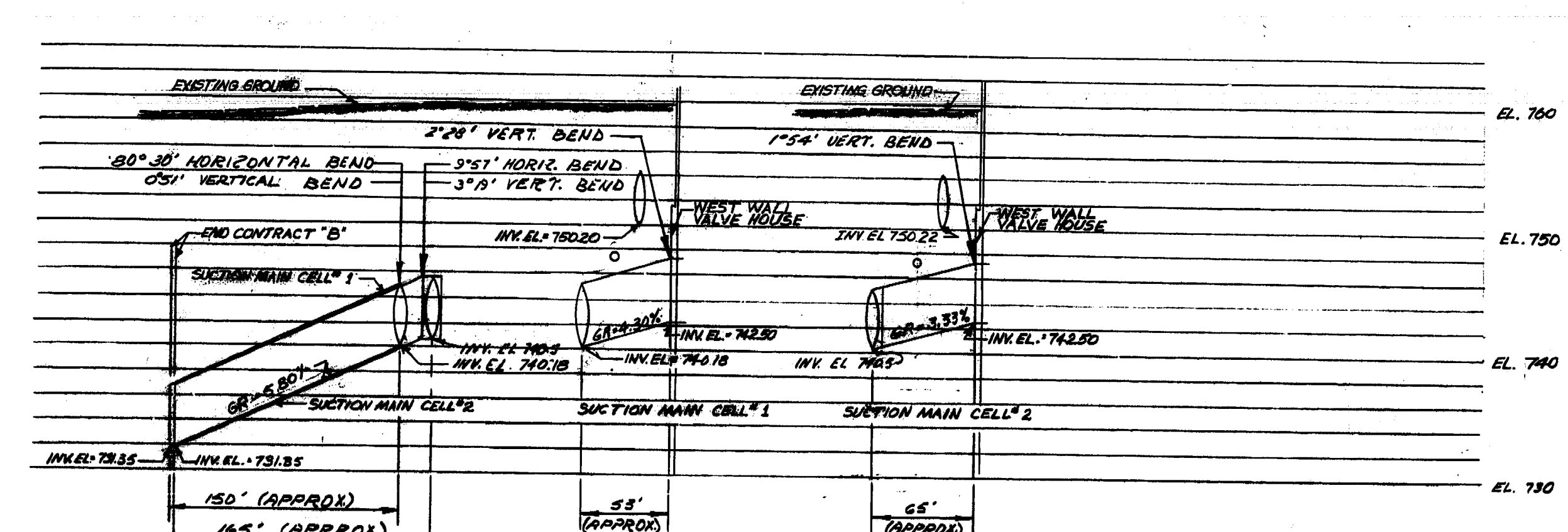
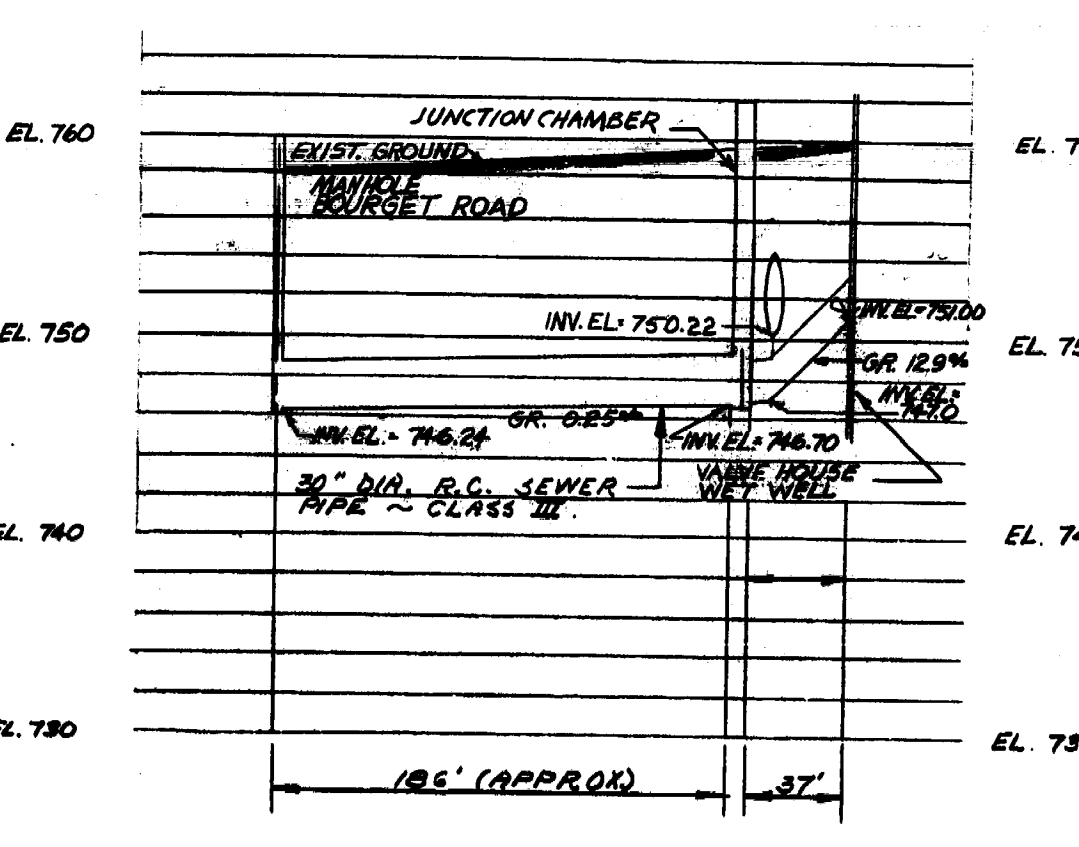
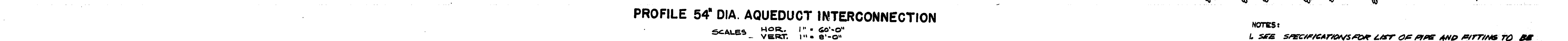
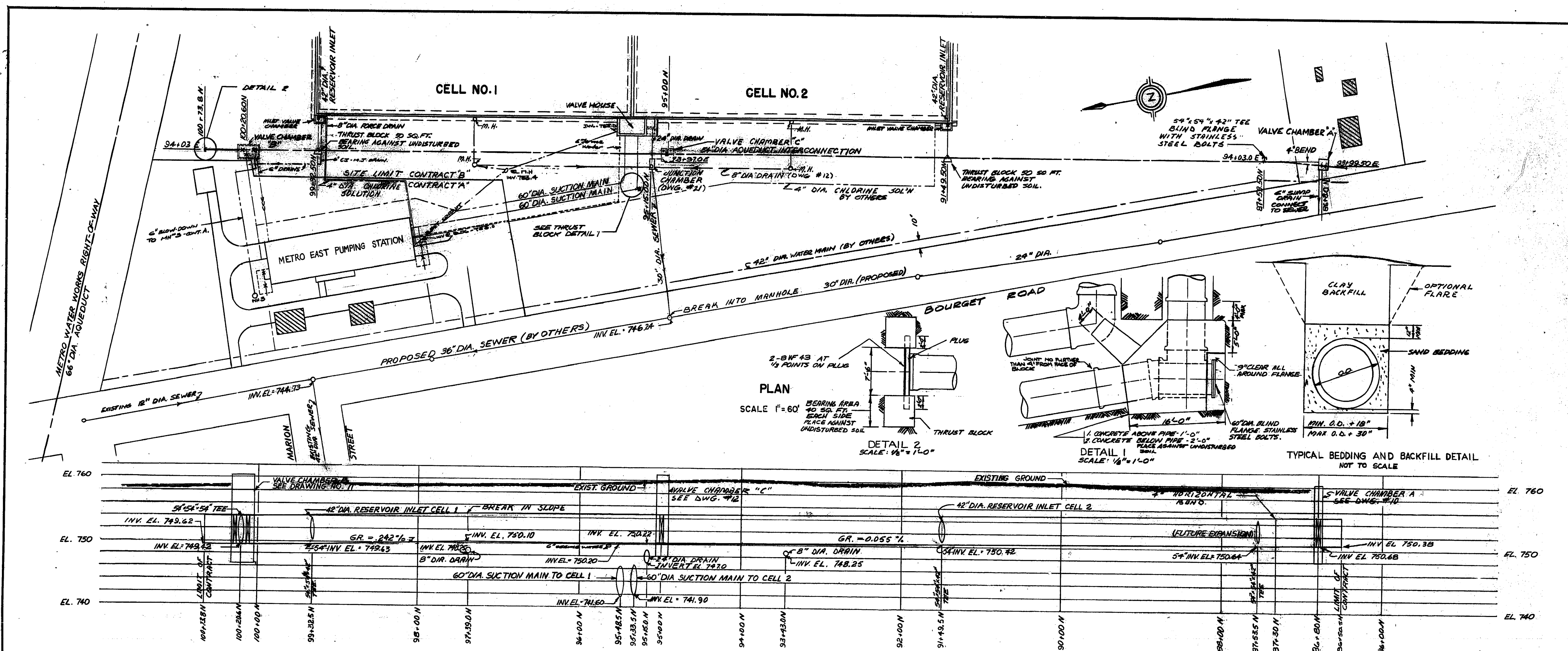


REVISED AS BUILT, JUNE - 1965	
THE METROPOLITAN CORPORATION OF GREATER WINNIPEG WATERWORKS AND WASTE DISPOSAL DIVISION	
METRO EAST PUMPING STATION AND RESERVOIR	
GENERAL ARRANGEMENT AND LAYOUT CONTROL	
APPROVED <i>J. MacLaren</i> JAMES F. MACLAREN ASSOCIATES ENGINEERS TORONTO	DESIGN ENGINEER <i>[Signature]</i> ENGINEER OF WATERWORKS DIRECTOR & CHIEF ENGINEER
DATE JUNE 22, 1962	SCALE 1" = 60'-0"
DWG. No. OF 22	ME-49









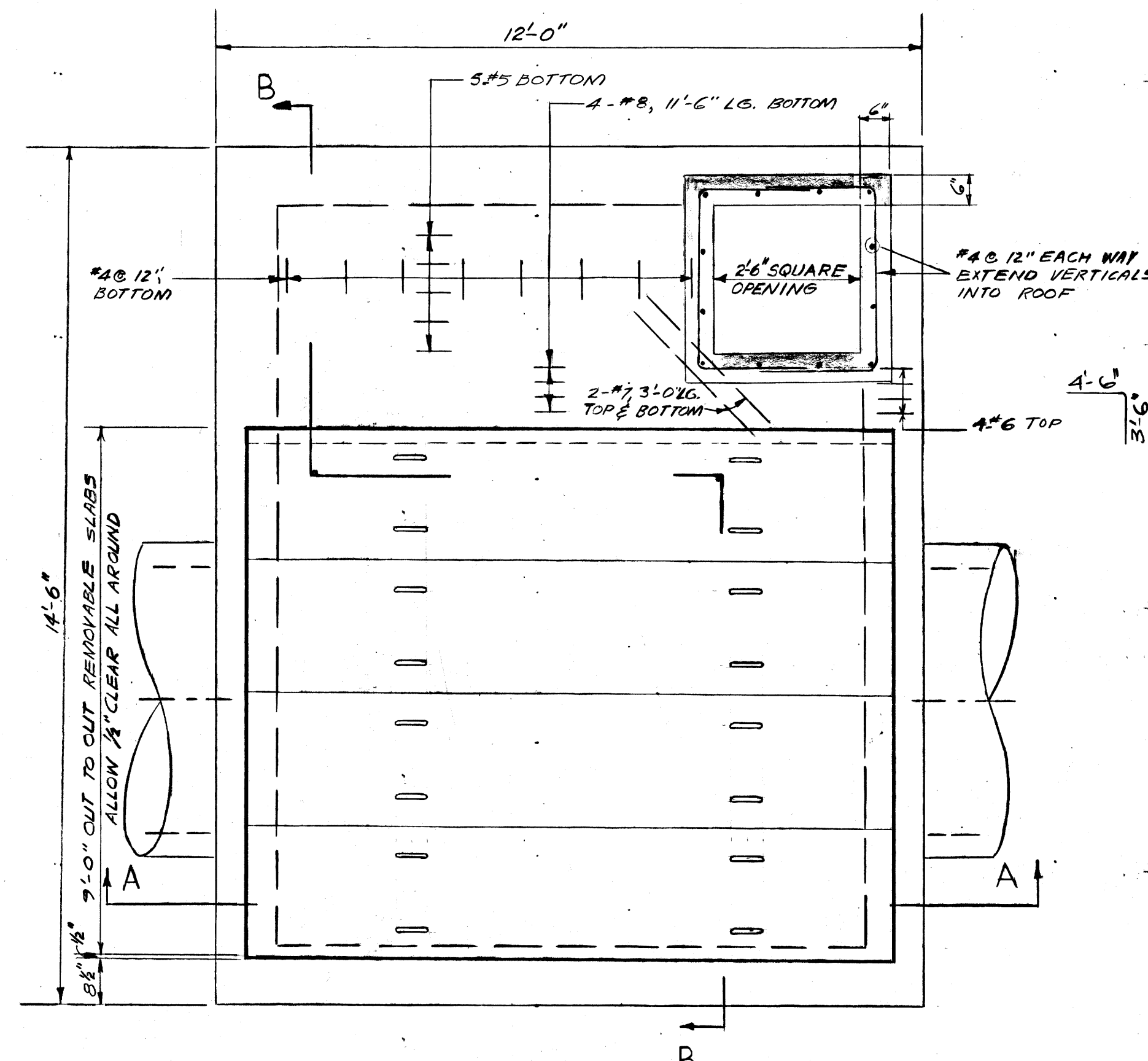
NOTES:  
1. SEE SPECIFICATIONS FOR LIST OF PIPE AND FITTINGS TO BE SUPPLIED BY THE METROPOLITAN CORPORATION.

REVISED AS BUILT, JUNE - 1965  
THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
WATERWORKS AND WASTE DISPOSAL DIVISION  
**METRO EAST PUMPING STATION AND RESERVOIR**

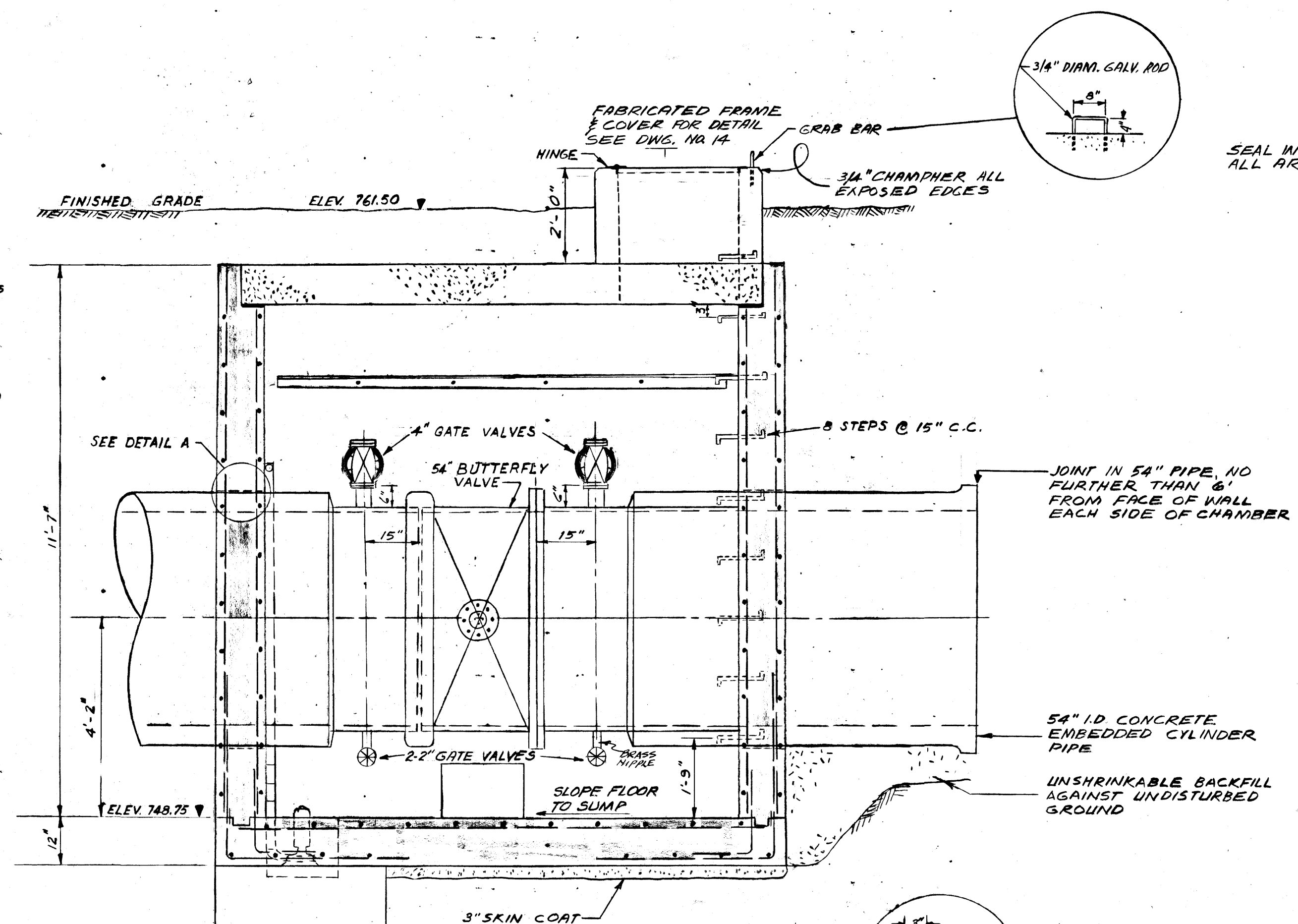
**YARD PIPING PLAN AND PROFILES**

APPROVED <i>J. G. MacLaren</i> JAMES P. MACLAREN ASSOCIATES ENGINEERS TORONTO		APPROVED <i>R. J. Somerville</i> ENGINEER OF WATERWORKS DIRECTOR & CHIEF ENGINEER	
DATE	SCALE	DWG. NO.	OF
JUNE 22, 1962	AS SHOWN	ME-57	1

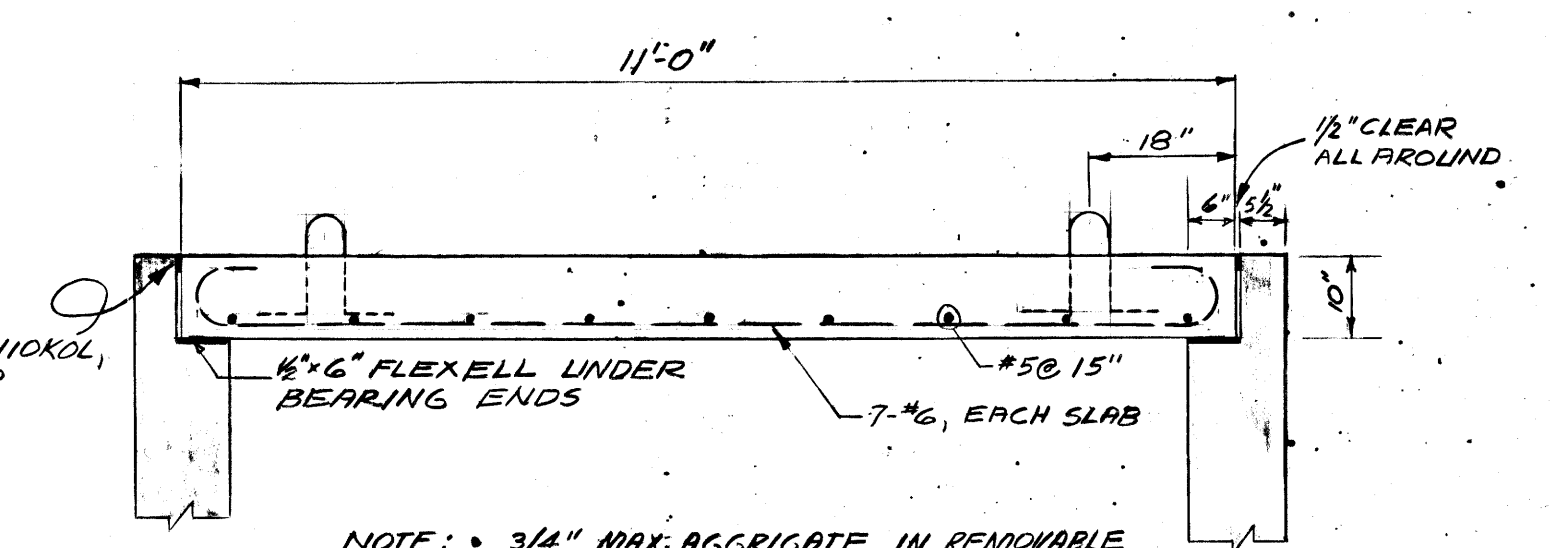




**ROOF PLAN**  
SCALE 1/2" = 1'-0"

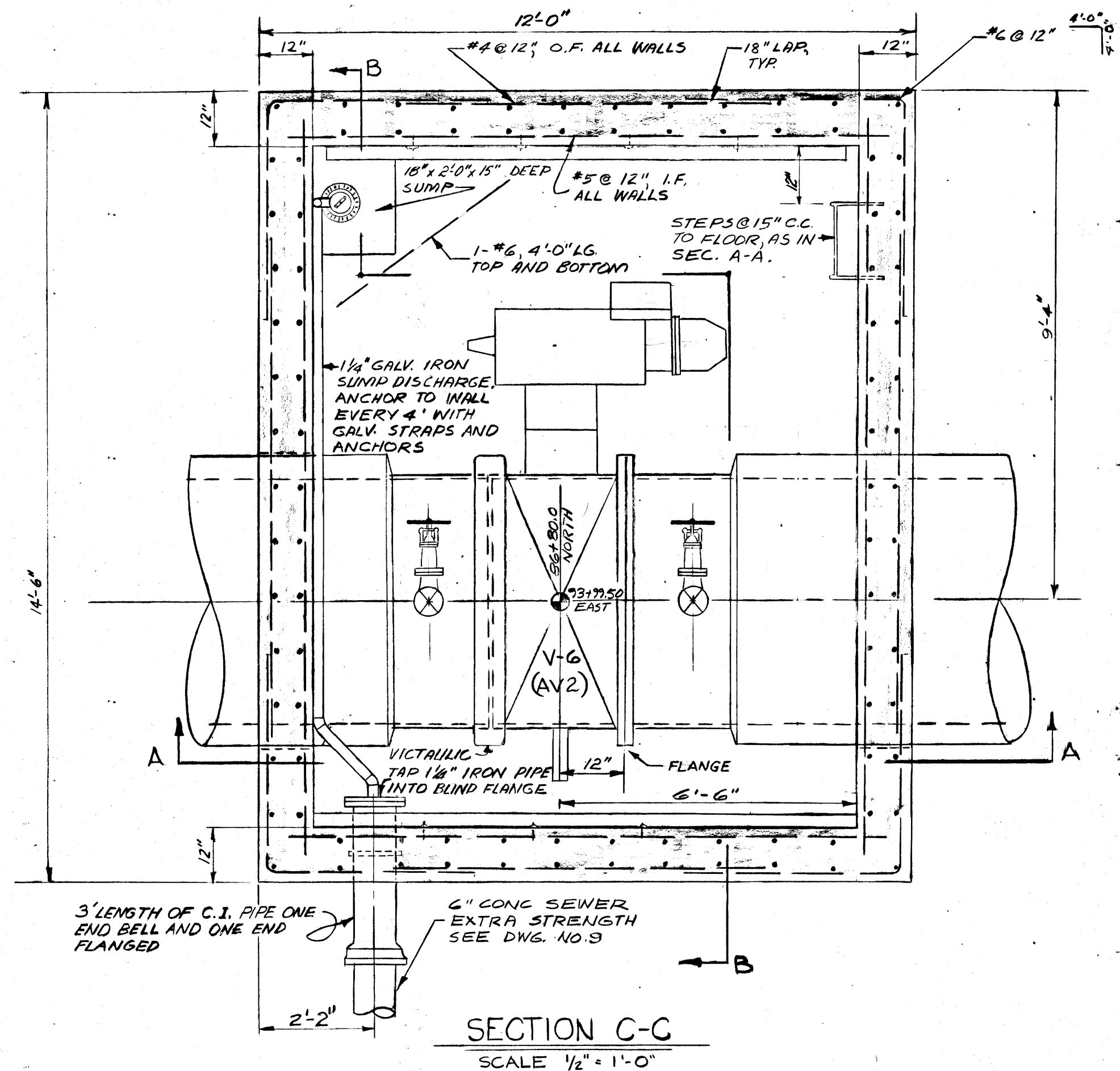


**SECTION A-A**  
SCALE 1/2" = 1'-0"

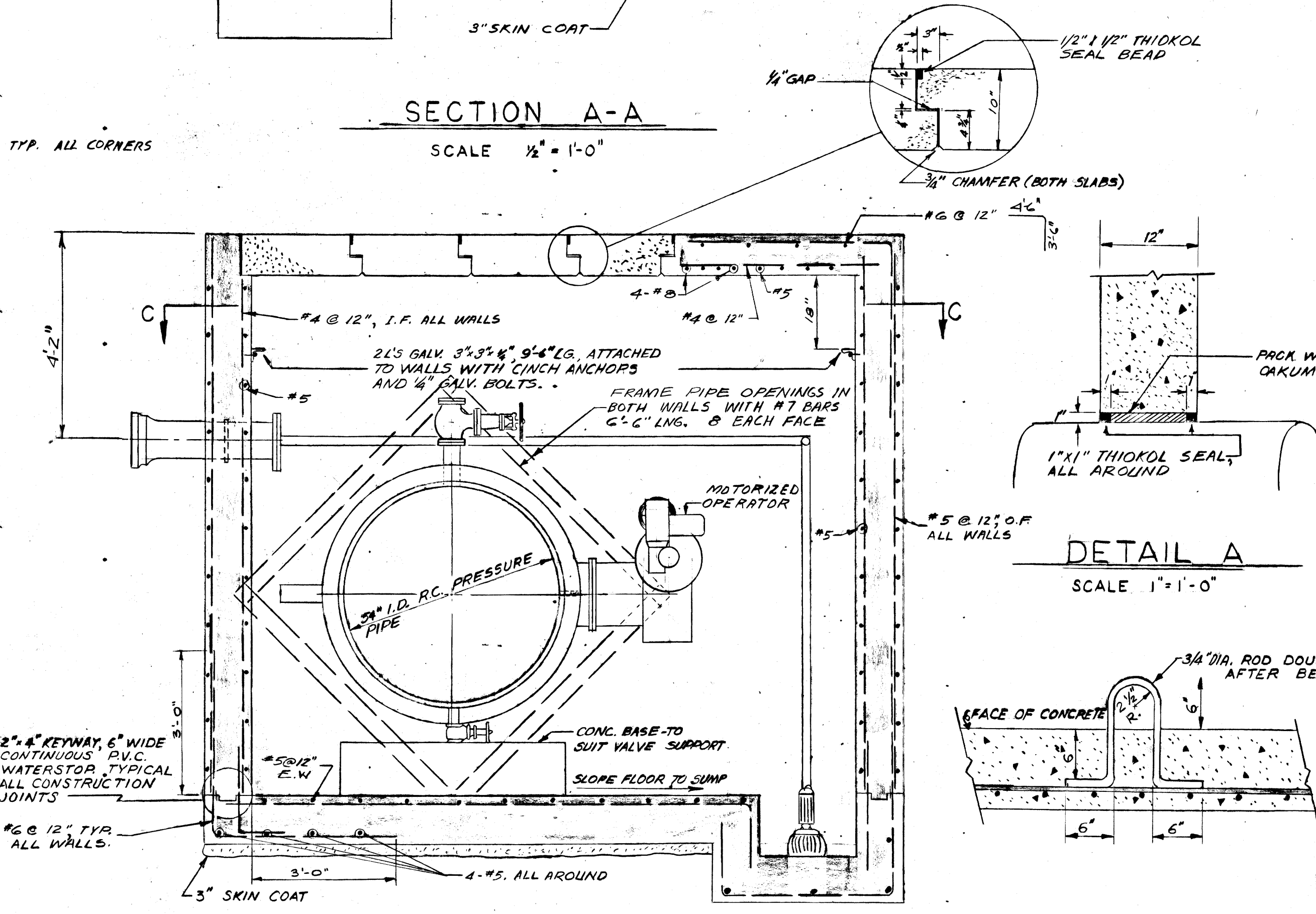


**REMOVABLE SLAB DETAIL**  
SCALE: 1/2" = 1'-0"

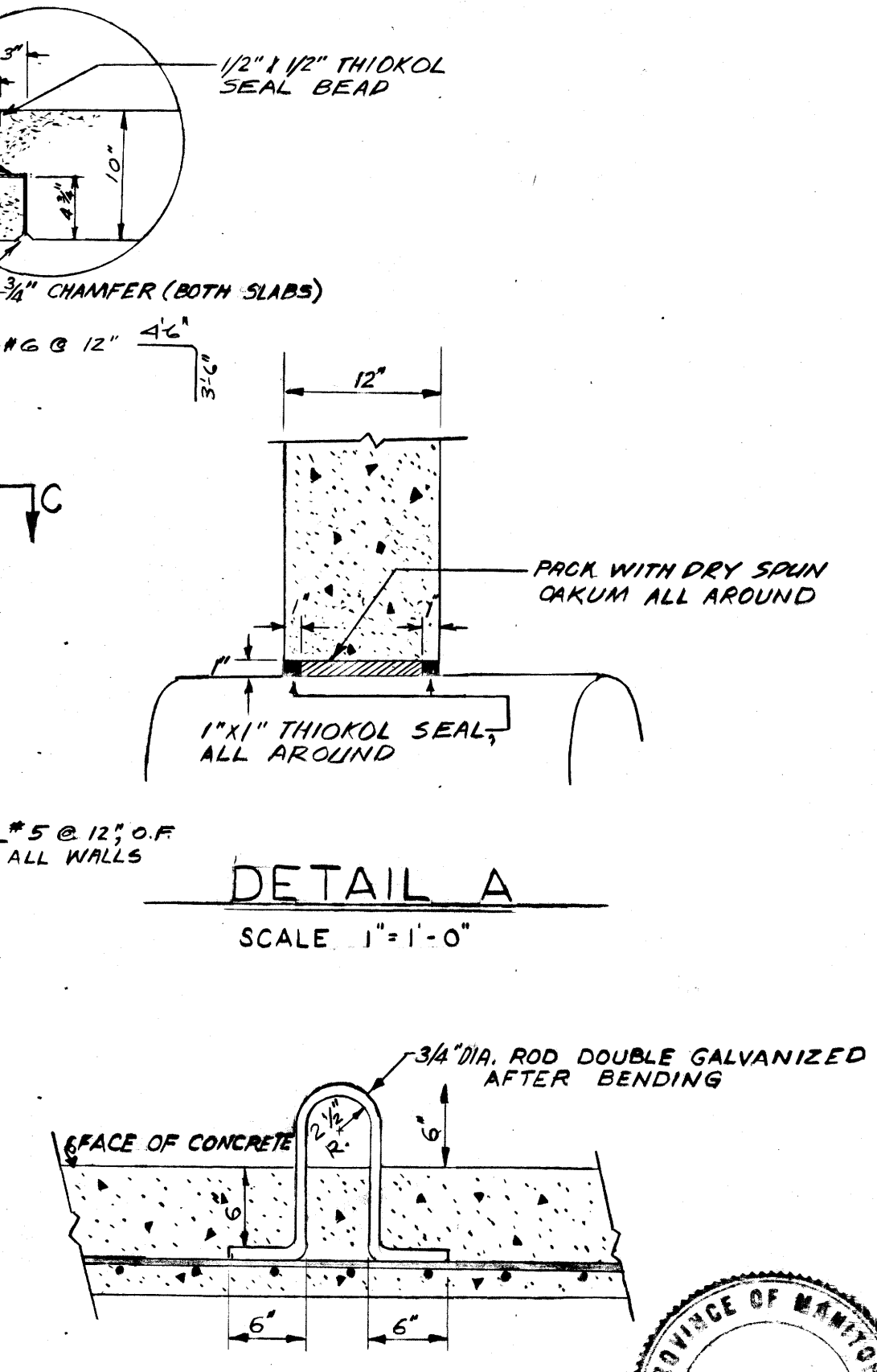
- NOTE:**
1. ALL CONCRETE 3500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
  2. ALL REINFORCING STEEL INTERMEDIATE GRADE DEFORMED,  $F_y = 20000$  PSI.
  3. CONCRETE COVER FOR REINFORCING STEEL - BARS LARGER THAN #5 - 2", BARS #5 OR SMALLER - 1 1/2"
  4. PROVIDE 6" WIDE CONTINUOUS PVC WATERSTOP ACROSS ALL CONSTRUCTION JOINTS IN VALVE CHAMBER.
  5. ALL VICTALIC COUPLINGS STYLE 44 UNLESS OTHERWISE SPECIFIED.
  6. SEE SPECIFICATIONS REGARDING PIPE AND FITTINGS TO BE SUPPLIED BY THE CORPORATION.
  7. KALICRETE CEMENT SHALL BE USED FOR ALL CONCRETE.



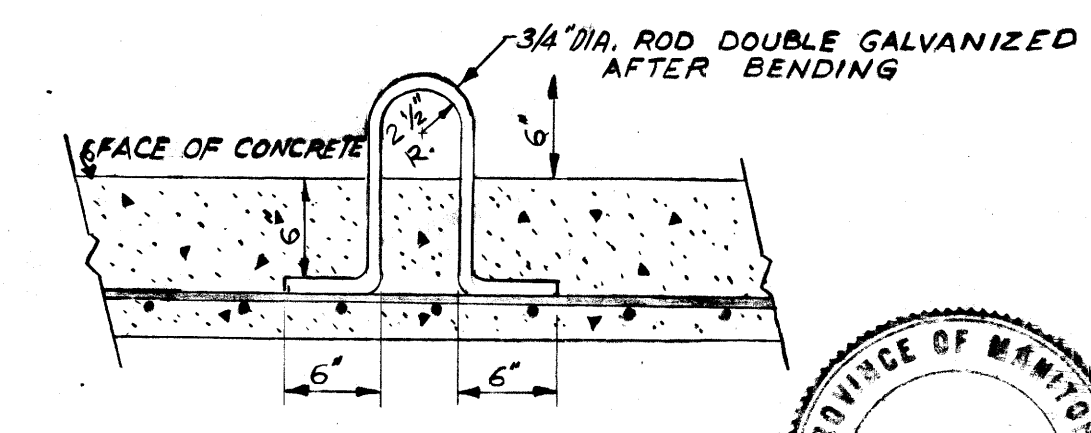
**SECTION C-C**  
SCALE 1/2" = 1'-0"



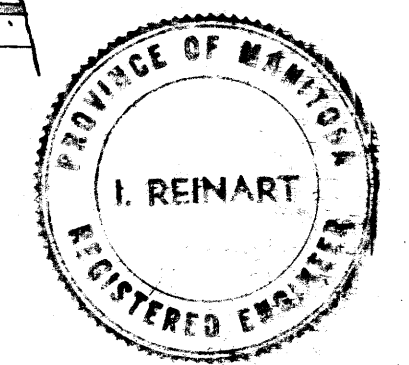
**SECTION B-B**  
SCALE 1/2" = 1'-0"



**DETAIL A**  
SCALE 1" = 1'-0"



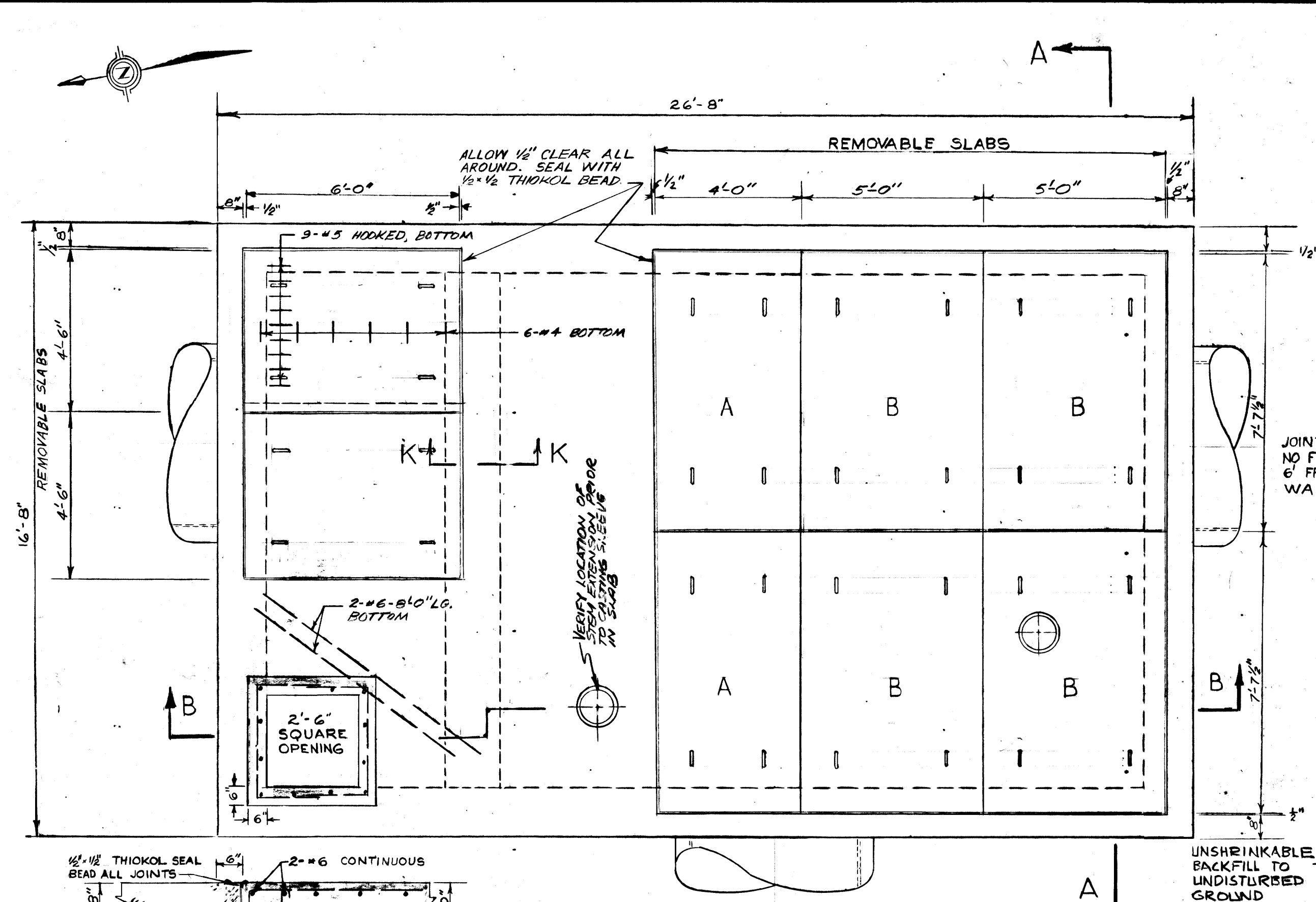
**DETAIL - LIFTING HOOKS**  
SCALE 1" = 1'-0"



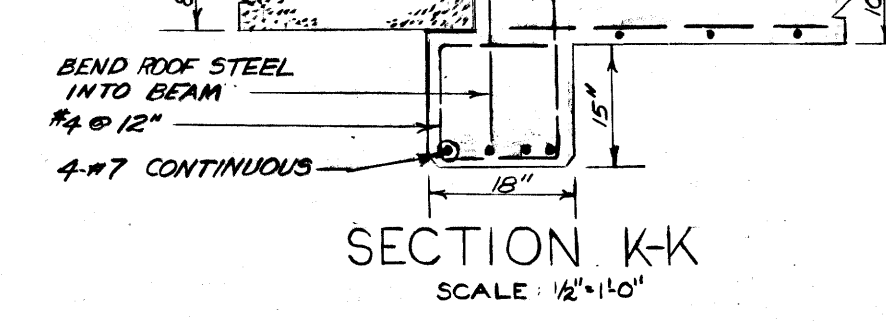
REVISED AS BUILT, JUNE - 1965			
THE METROPOLITAN CORPORATION OF GREATER WINNIPEG WATERWORKS AND WASTE DISPOSAL DIVISION			
METRO EAST PUMPING STATION AND RESERVOIR			
<b>VALVE CHAMBER "A"</b>			
I. Reinart JAMES F. MACLAREN ASSOCIATES ENGINEERS TORONTO	APPROVED  DESIGN ENGINEER  ENGINEER OF WATERWORKS  DIRECTOR & CHIEF ENGINEER		
DATE JUNE 22, 1962	SCALE AS SHOWN	DWG. No. 10 OF 23	<b>ME-58</b>

*File # RE 10499*

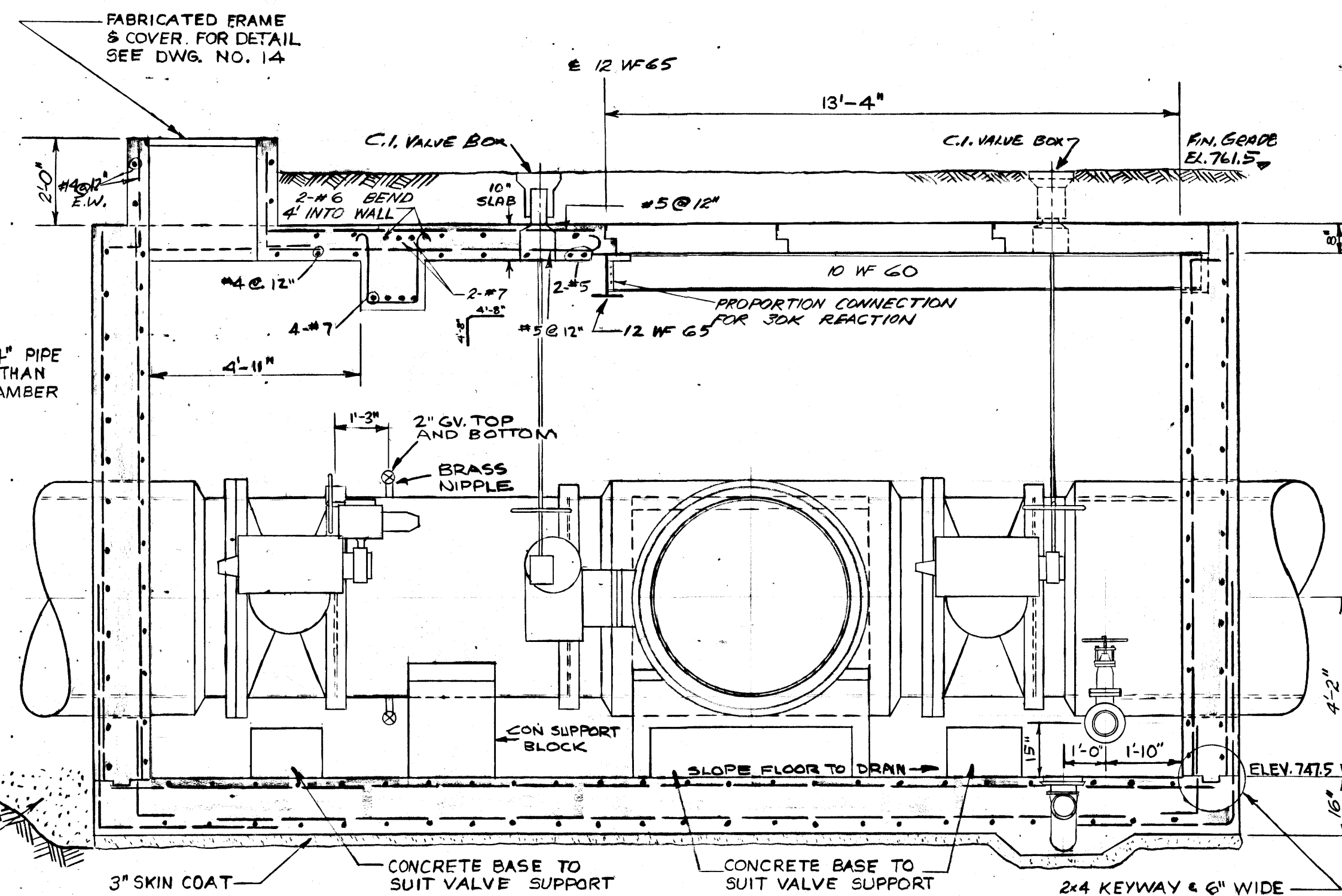




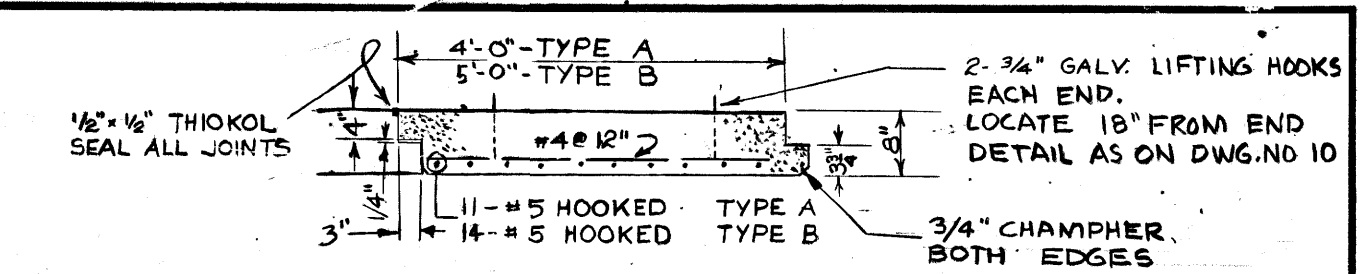
**ROOF PLAN**  
SCALE 3/8" = 1'-0"



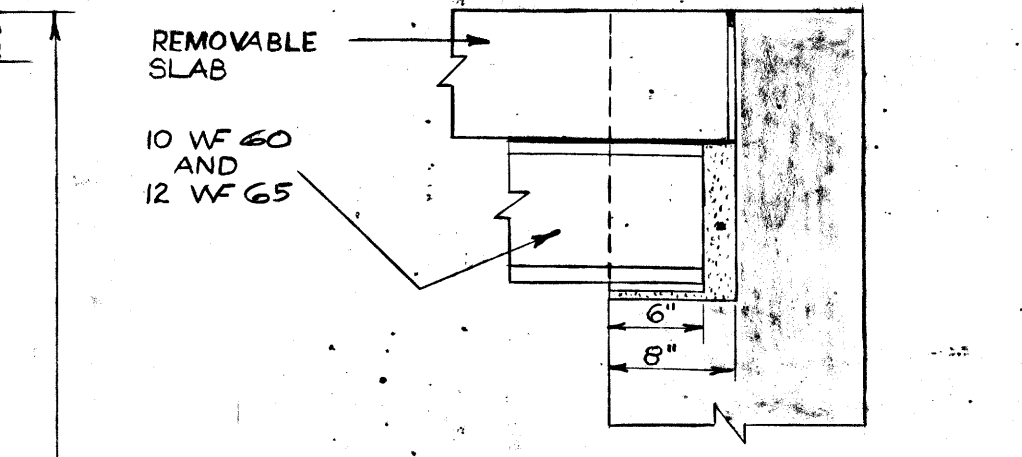
**SECTION K-K**  
SCALE 1/2" = 1'-0"



**SECTION B-B**  
SCALE 3/8" = 1'-0"

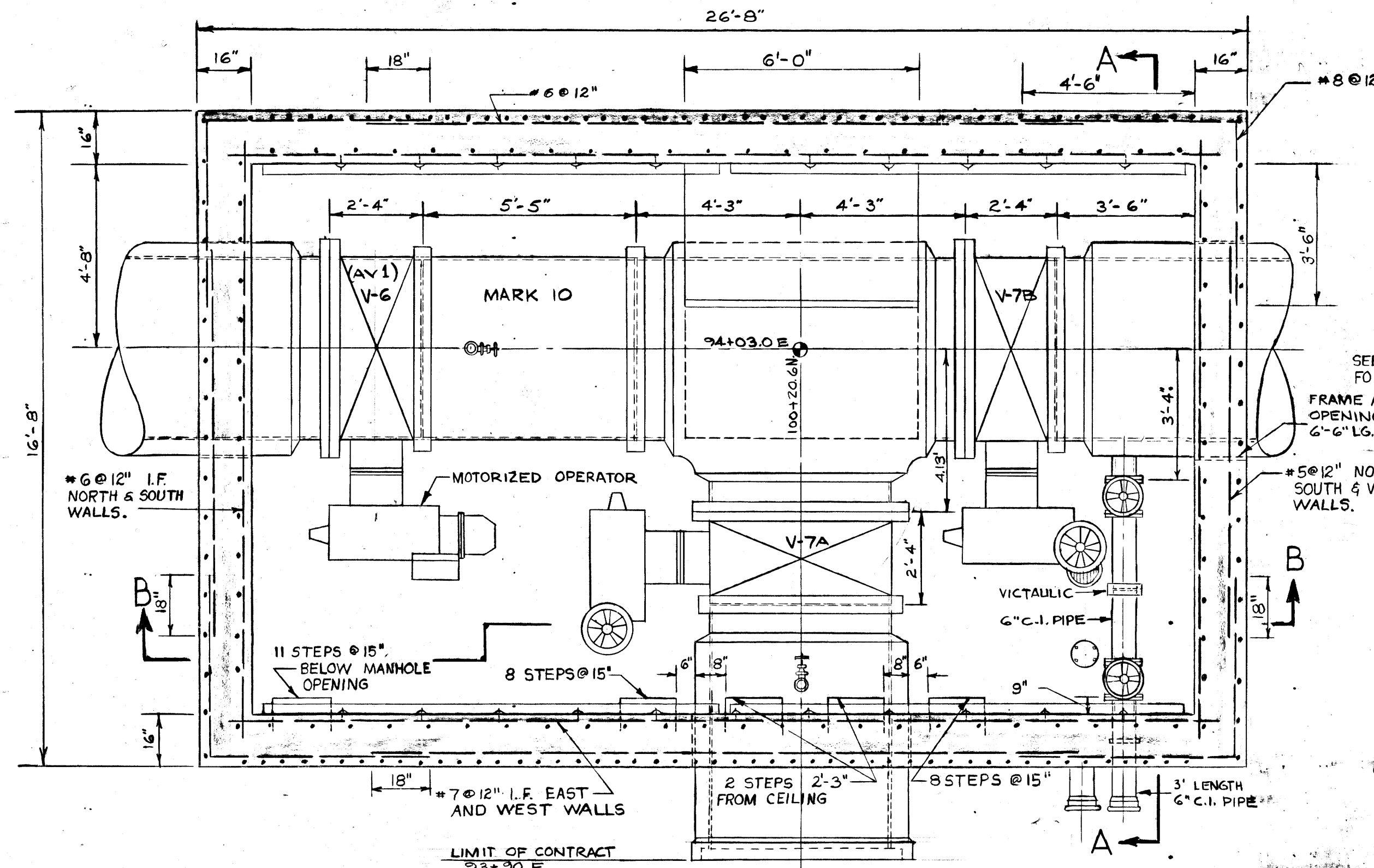


**REMOVABLE SLAB DETAILS**  
SCALE 1/2" = 1'-0"

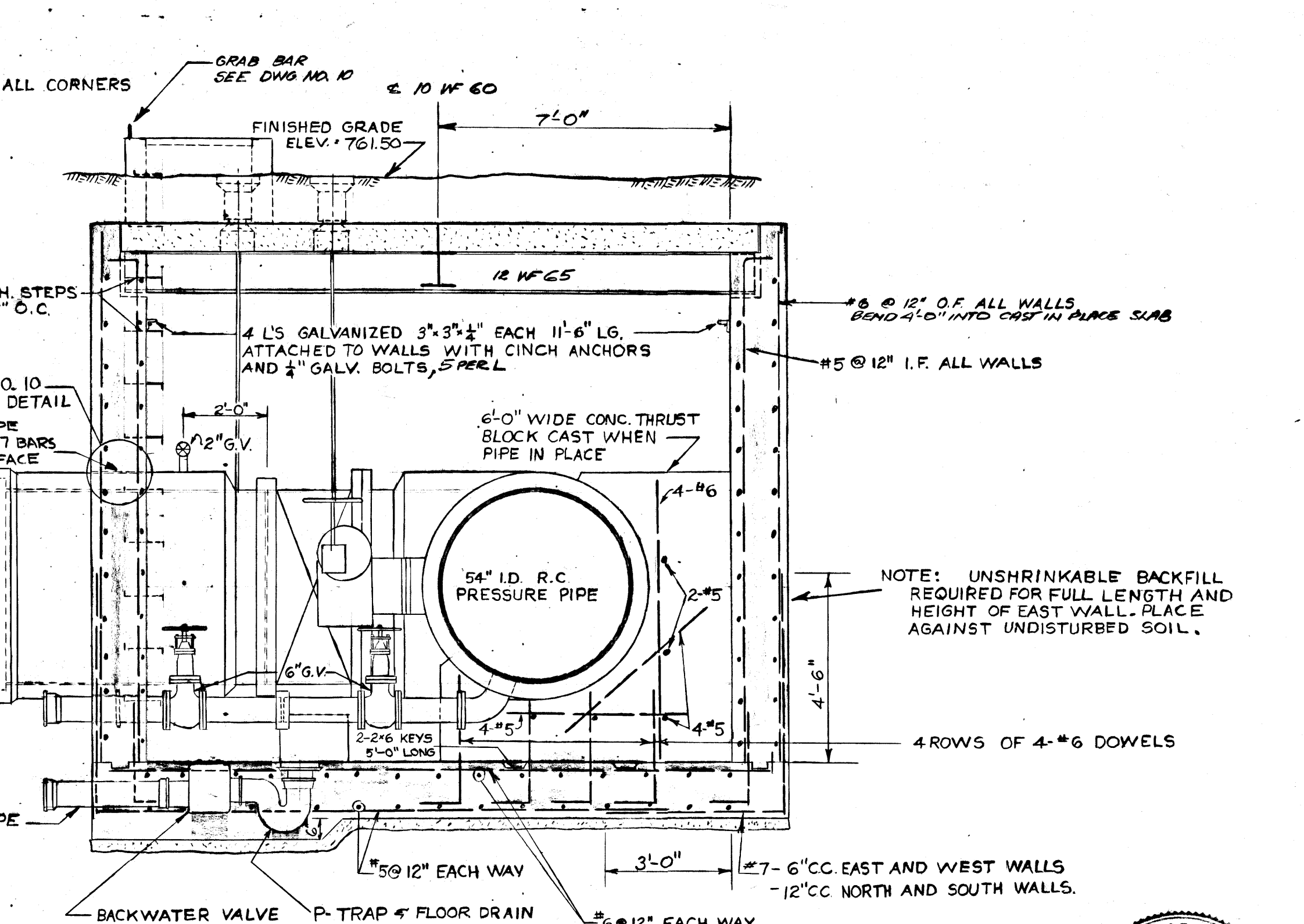


**DETAIL OF BEAM SEAT**  
SCALE 1" = 1'-0"

- NOTES:**
1. ALL CONCRETE 3500 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS
  2. ALL REINFORCING STEEL INTERMEDIATE GRADE DEFORMED F<sub>y</sub> = 20,000 P.S.I.
  3. CONCRETE COVER FOR REINFORCING STEEL - BARS LARGER THAN NO. 5 - 2" BARS NO. 5 OR SMALLER - 1 1/2" PROVIDE 6" WIDE CONTINUOUS PVC WATERSTOP ACROSS ALL CONSTRUCTION JOINTS
  4. PROVIDE 6" WIDE CONTINUOUS PVC WATERSTOP ACROSS ALL CONSTRUCTION JOINTS
  5. FOR DETAIL OF CAST IN PLACE STEPS SEE DWG. NO. 14
  6. ALL VICTAULIC COUPLINGS - STYLE 44 UNLESS OTHERWISE NOTED.



**FLOOR PLAN**  
SCALE 3/8" = 1'-0"



**SECTION A-A**  
SCALE 3/8" = 1'-0"

REVISED AS BUILT, JUNE - 1965

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
WATERWORKS AND WASTE DISPOSAL DIVISION

METRO EAST PUMPING STATION AND RESERVOIR

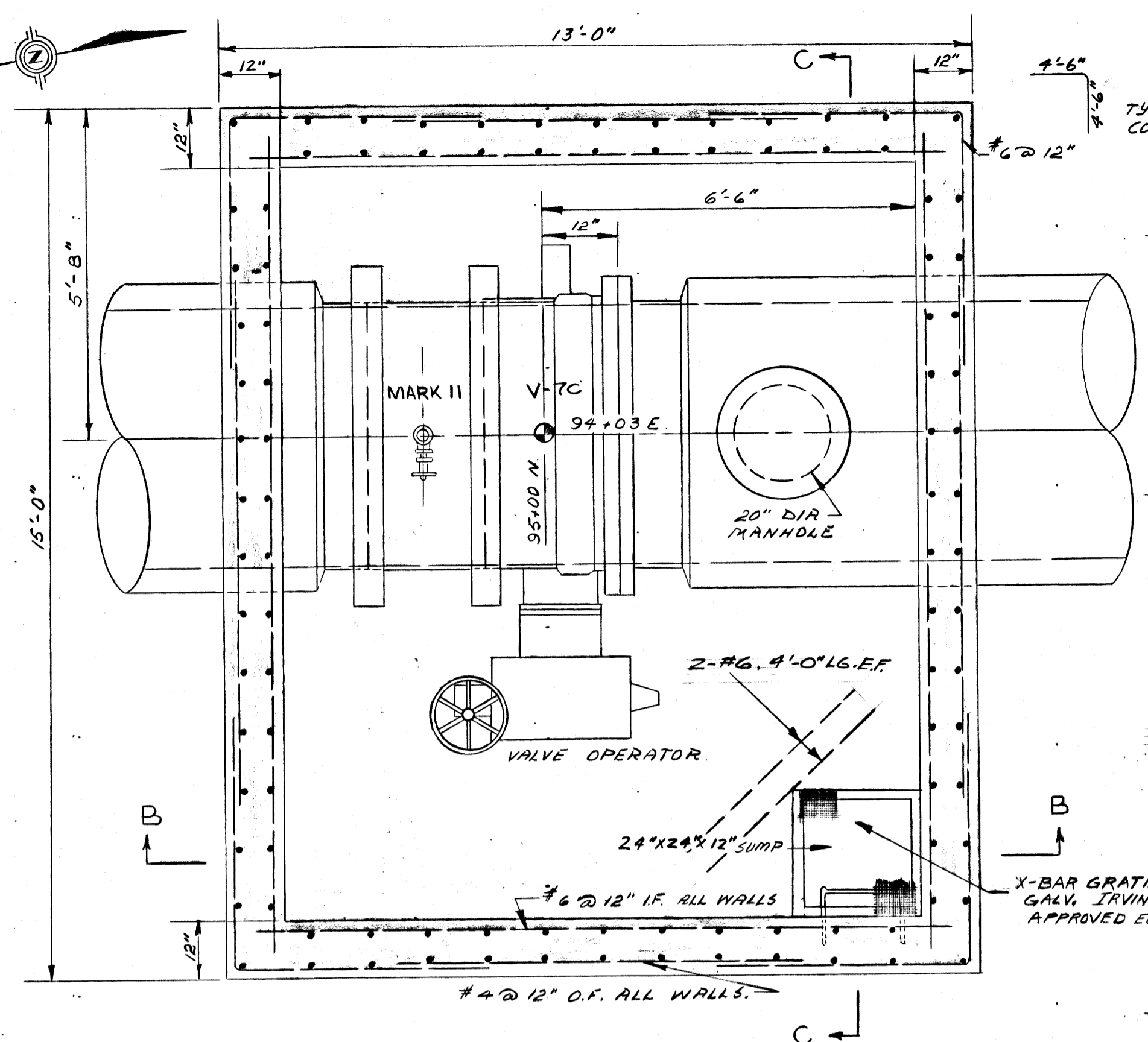
**VALVE CHAMBER "B"**

<p><i>J. H. MacLaren</i> JAMES F. MACLAREN ASSOCIATES ENGINEERS TORONTO</p> <p><i>C. D. Hamilton</i> TEMPLETON ENGINEERING COMPANY PROFESSIONAL ENGINEERS WINNIPEG</p>	<p>APPROVED <i>James R. ...</i> DESIGN ENGINEER</p> <p><i>R. S. ...</i> ENGINEER OF WATERWORKS</p> <p><i>...</i> DIRECTOR &amp; CHIEF ENGINEER</p>
<p>DATE: JUNE 22, 1962</p> <p>SCALE: AS SHOWN</p>	<p>DWG. No. 11 OF 23</p> <p><b>ME-59</b></p>

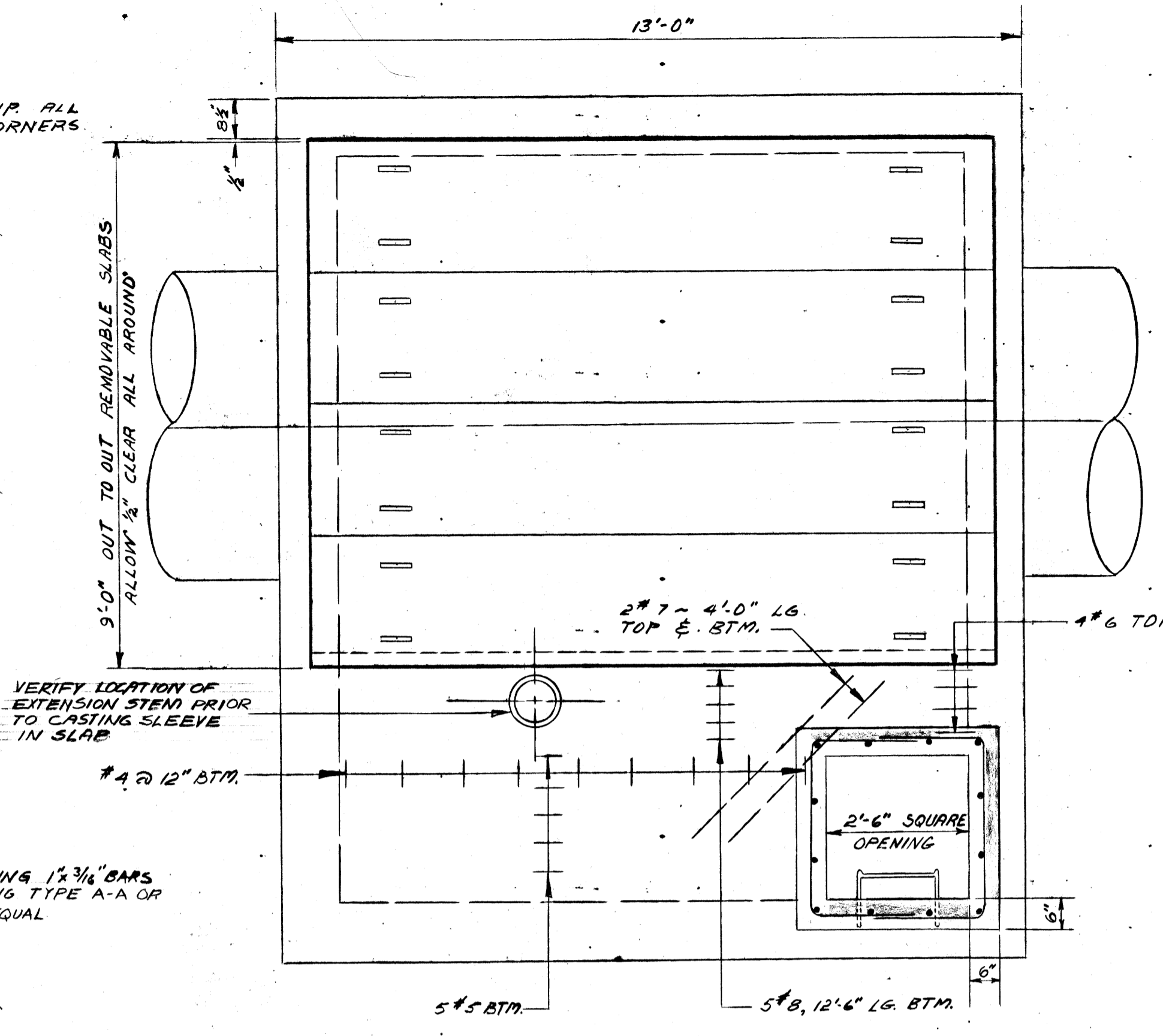
PROVINCE OF MANITOBA REGISTERED ENGINEER

File # RE/0500

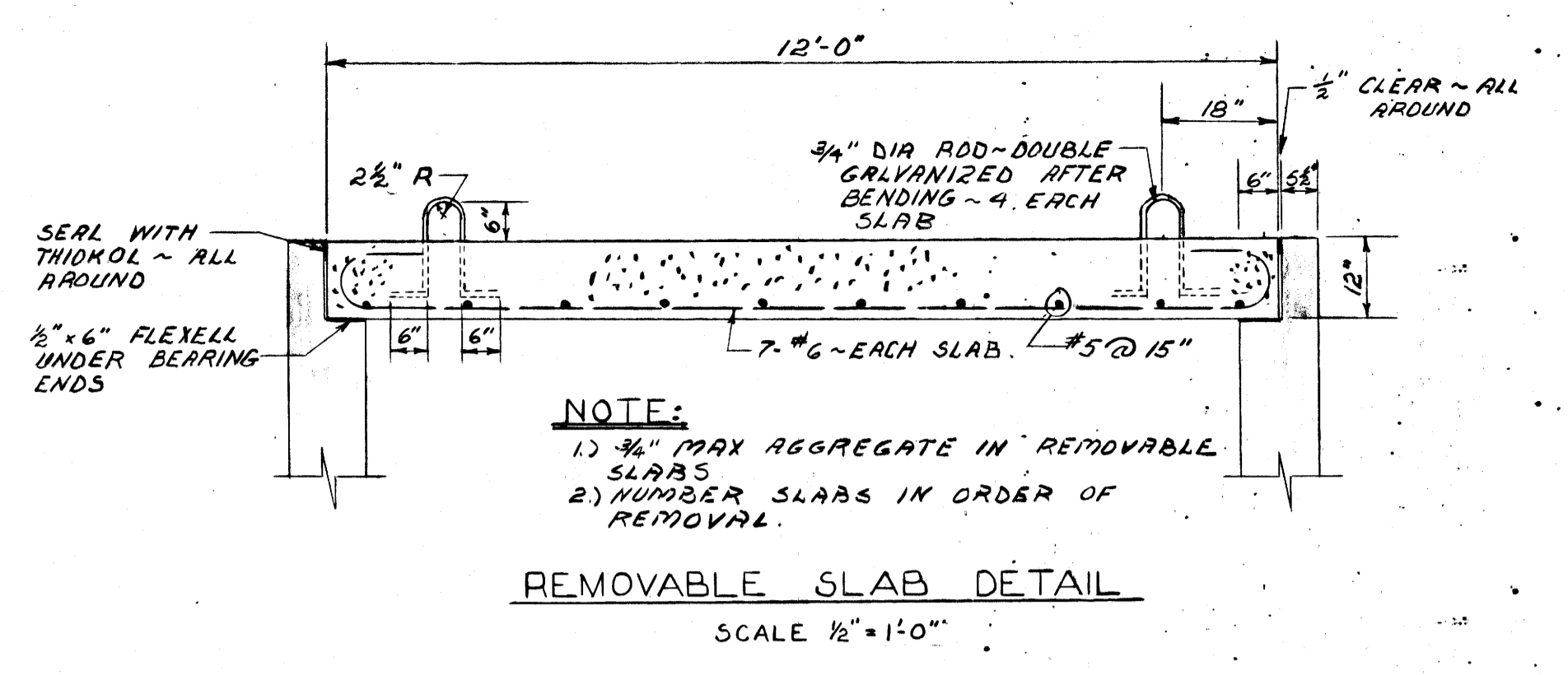




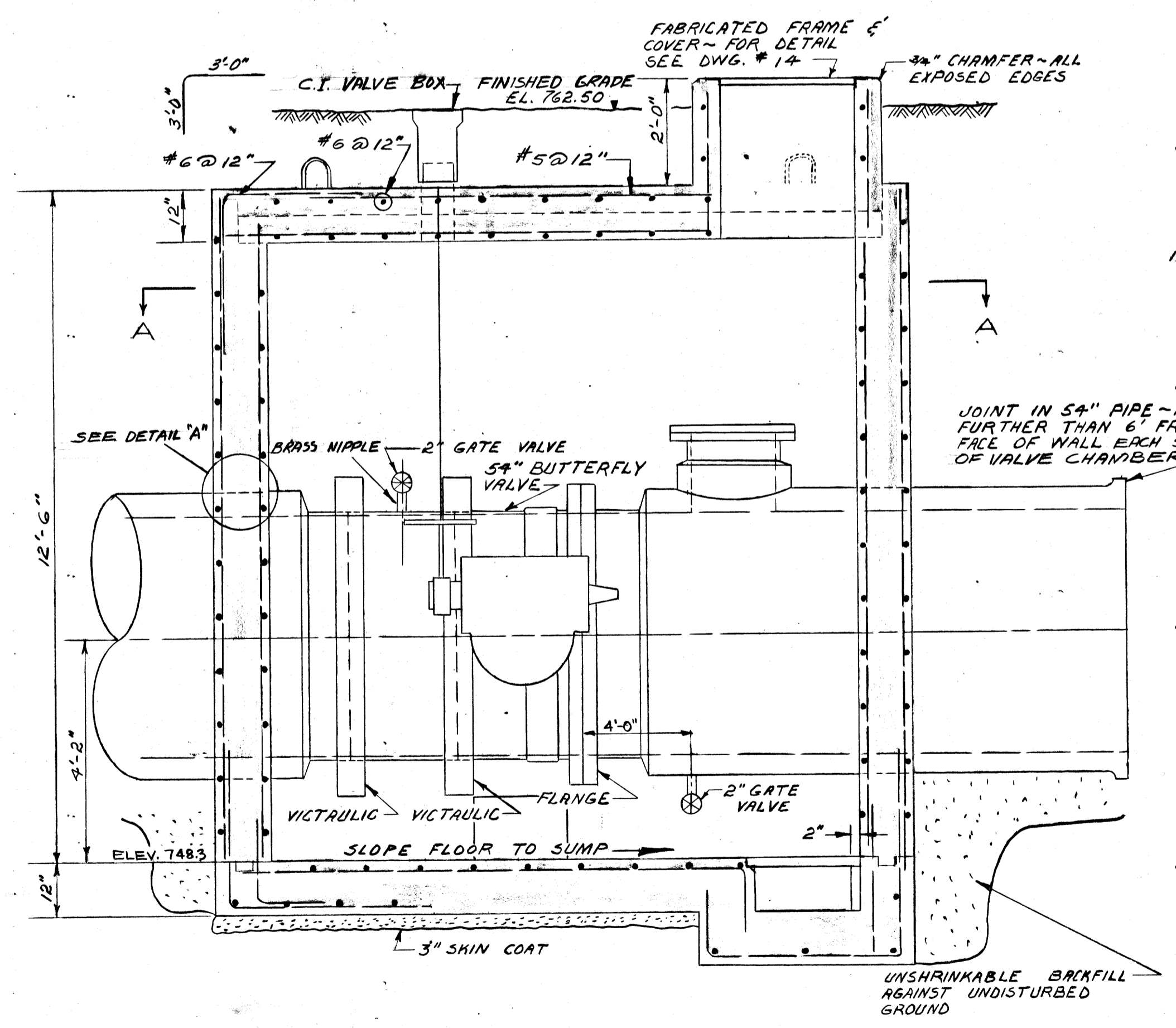
SECTION A-A  
SCALE 1/2" = 1'-0"



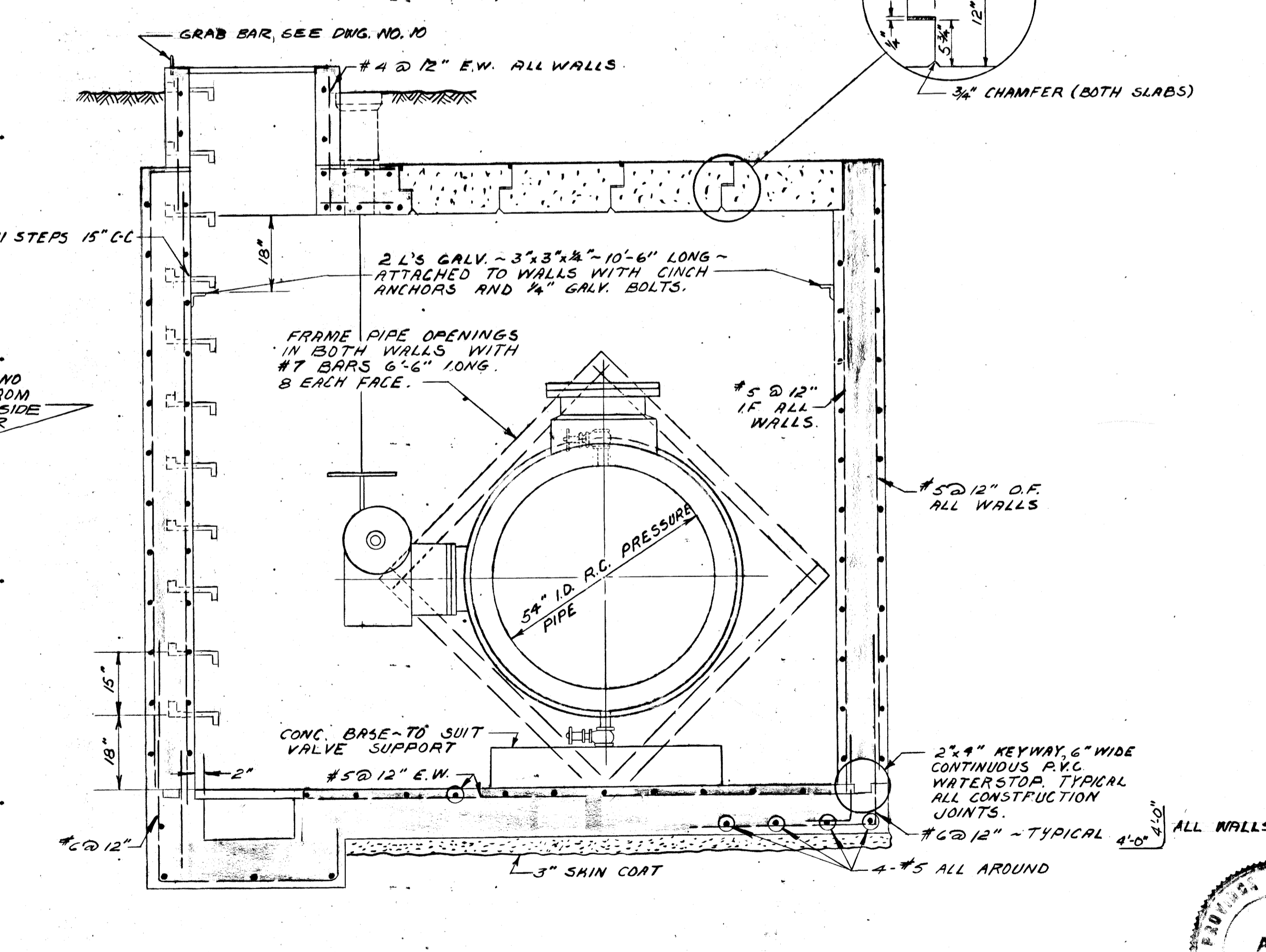
ROOF PLAN  
SCALE 1/2" = 1'-0"



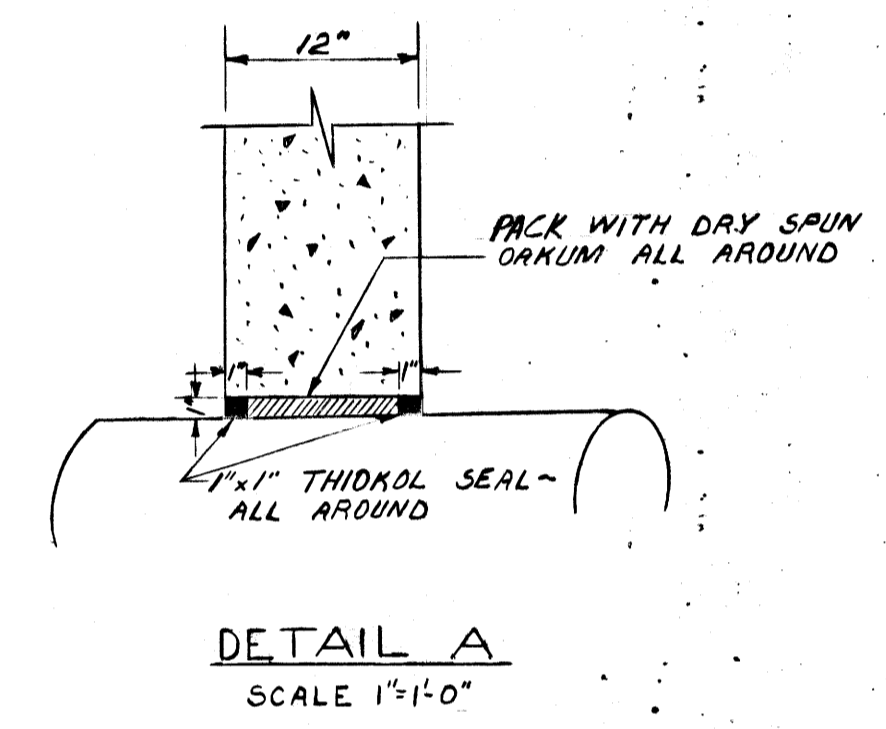
REMOVABLE SLAB DETAIL  
SCALE 1/2" = 1'-0"



SECTION B-B  
SCALE 1/2" = 1'-0"



SECTION C-C  
SCALE 1/2" = 1'-0"



DETAIL A  
SCALE 1" = 1'-0"

- NOTES**
- 1) ALL CONCRETE TO BE MADE WITH MALICRETE CEMENT, 3500 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS.
  - 2) REINFORCING STEEL INTERMEDIATE GRADE DEFORMED  $F_y = 20000$  P.S.I.
  - 3) CONCRETE COVER FOR REINFORCING STEEL - BARS LARGER THAN #5-2" - BARS #5 OR SMALLER - 1 1/2"
  - 4) PROVIDE 6" WIDE CONTINUOUS PVC WATERSTOP ACROSS ALL CONSTRUCTION JOINTS IN VALVE CHAMBER.
  - 5) VICTAULIC COUPLINGS STYLE 44 UNLESS OTHERWISE SPECIFIED.
  - 6) SEE SPECIFICATIONS REGARDING PIPE & FITTINGS TO BE SUPPLIED BY THE CORPORATION.

REVISED AS BUILT JUNE - 1965

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG  
WATERWORKS AND WASTE DISPOSAL DIVISION

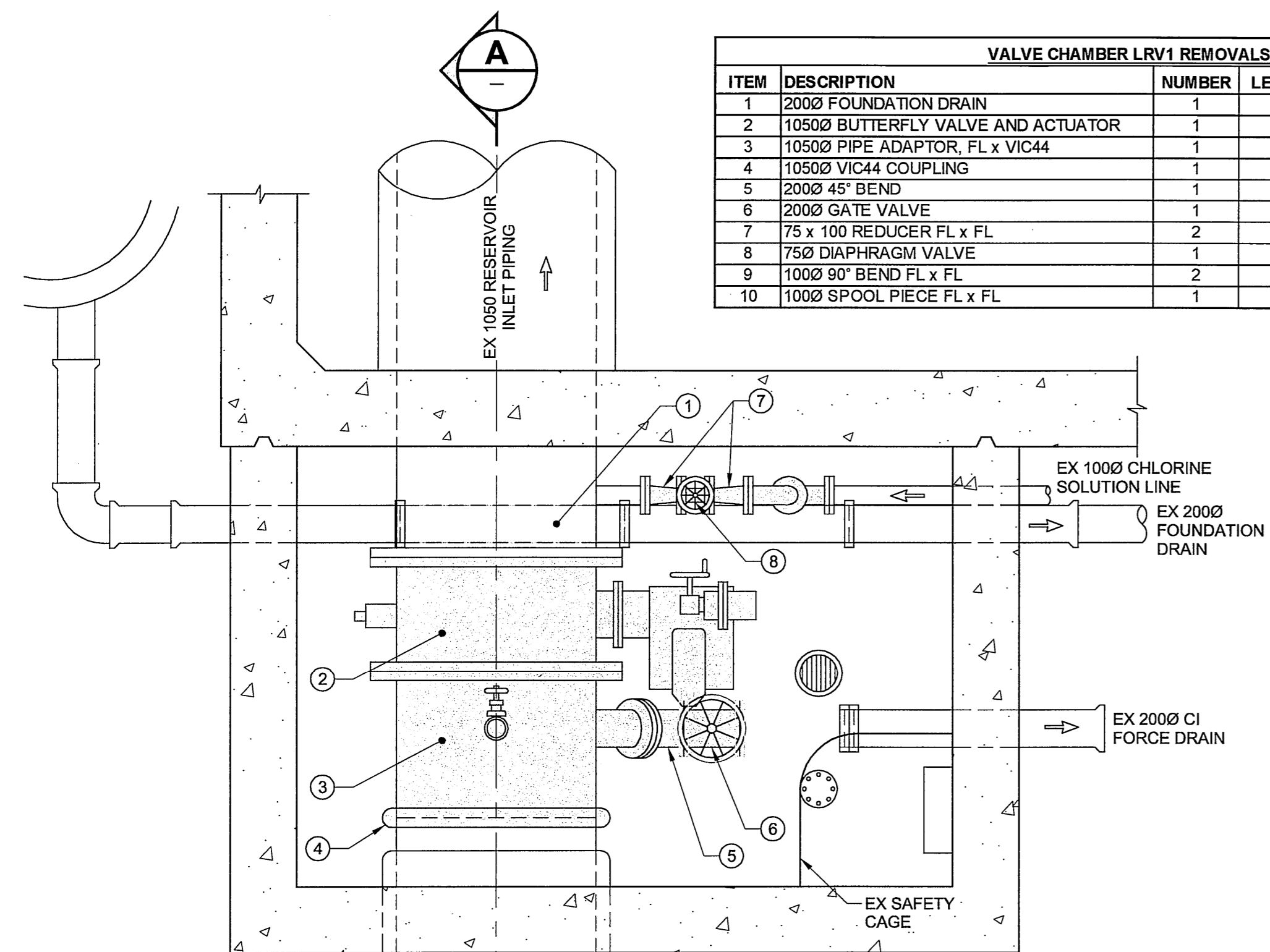
METRO EAST PUMPING STATION AND RESERVOIR

**VALVE CHAMBER "C"**

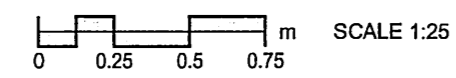
DATE JUNE 22, 1962	SCALE AS SHOWN	DWG. No. 12 OF 23	APPROVED <i>[Signature]</i> DESIGN ENGINEER <i>[Signature]</i> ENGINEER OF WATERWORKS <i>[Signature]</i> DIRECTOR & CHIEF ENGINEER
		<p>ME-60</p>	

File #RE 105201

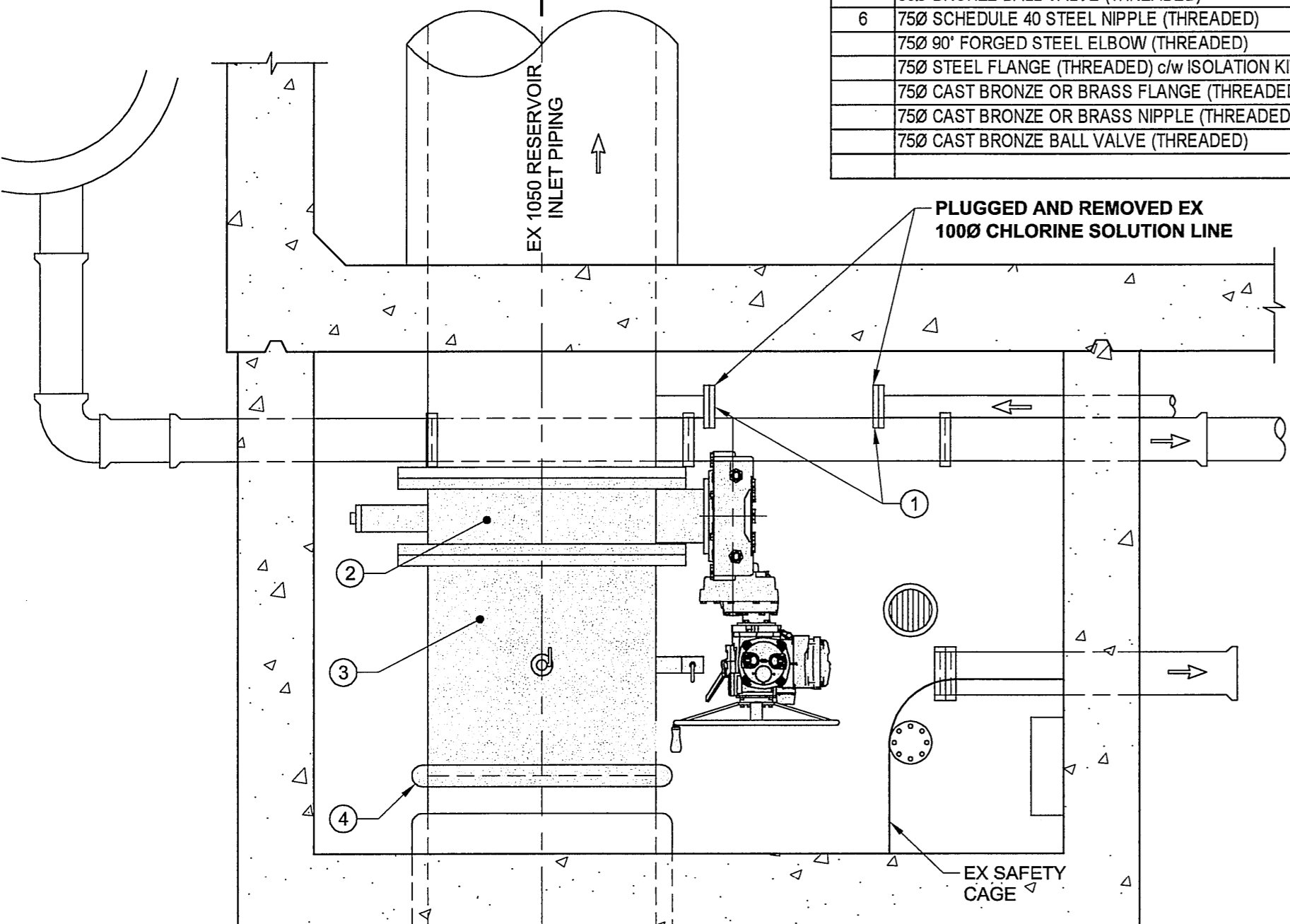
VALVE CHAMBER LRV1 REMOVALS			
ITEM	DESCRIPTION	NUMBER	LENGTH
1	2000 FOUNDATION DRAIN	1	REMAINED IN PLACE
2	10500 BUTTERFLY VALVE AND ACTUATOR	1	REMOVED
3	10500 PIPE ADAPTOR, FL x VIC44	1	REMOVED
4	10500 VIC44 COUPLING	1	REMOVED
5	2000 45° BEND	1	REMOVED
6	2000 GATE VALVE	1	REMOVED
7	75 x 100 REDUCER FL x FL	2	REMOVED
8	750 DIAPHRAGM VALVE	1	REMOVED
9	1000 90° BEND FL x FL	2	REMOVED
10	1000 SPOOL PIECE FL x FL	1	REMOVED



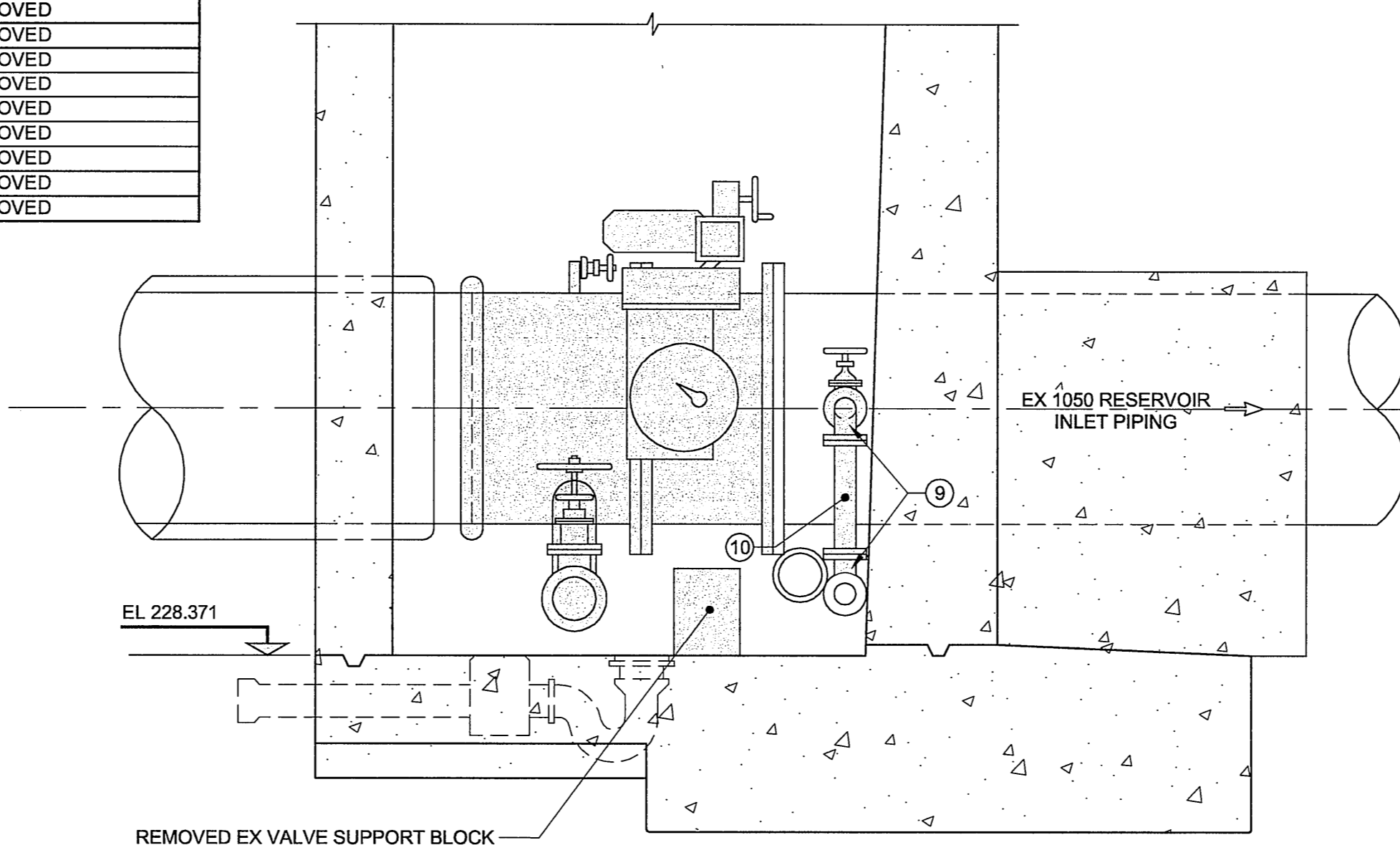
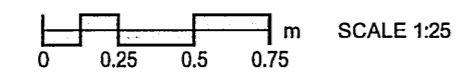
**VALVE CHAMBER LRV1 REMOVALS PLAN**



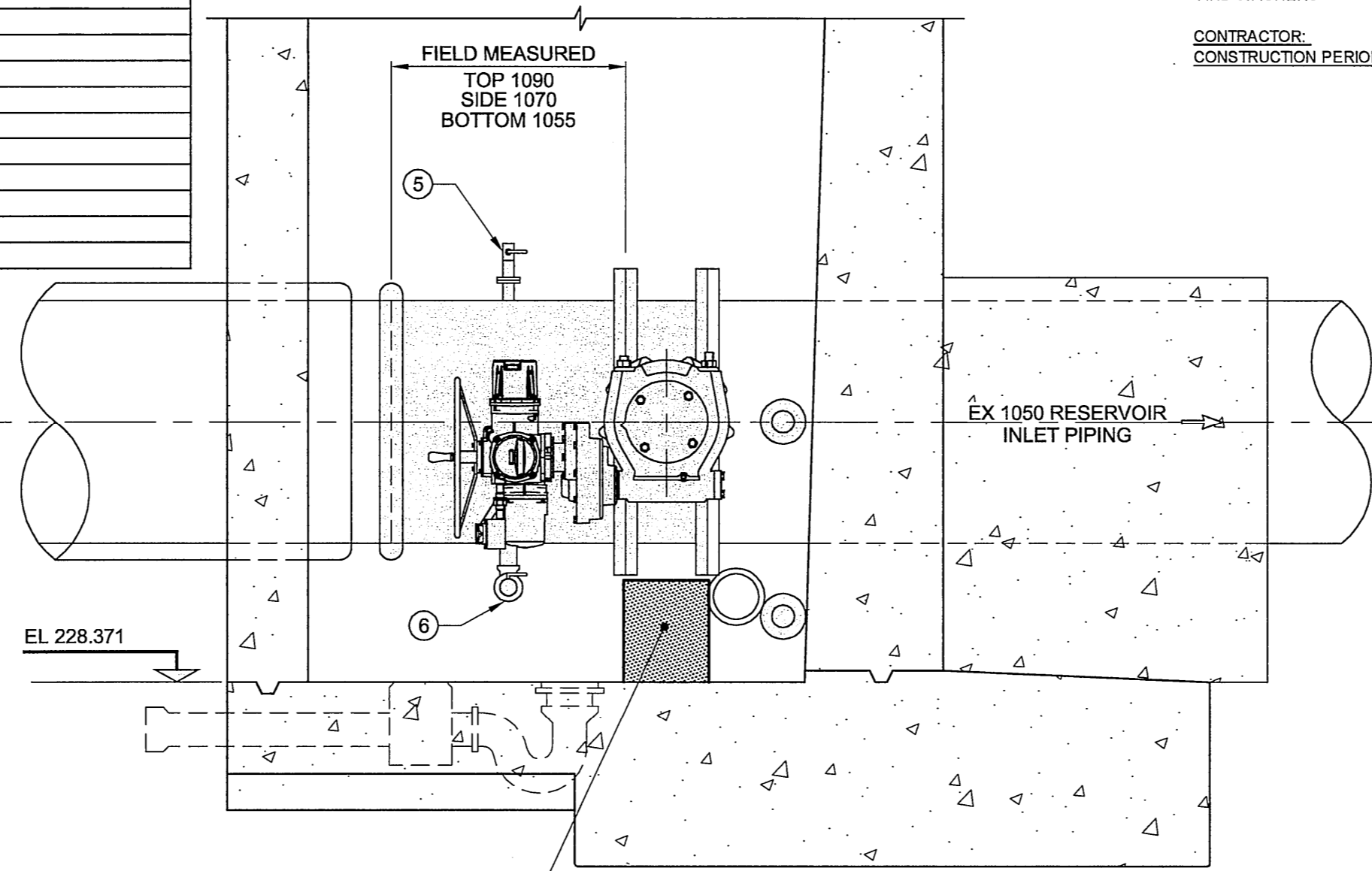
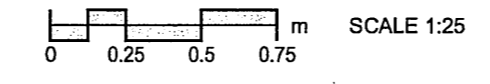
VALVE CHAMBER LRV1 PIPING MODIFICATIONS			
ITEM	DESCRIPTION	NUMBER	LENGTH
1	1000 125# BLIND FLANGE	2	
2	10500 AWWA C504 FLANGED BUTTERFLY VALVE (250# FLANGE / 125# DRILLING) (CITY SUPPLIED)	1	305
3	10500 STEEL SPOOL PIECE FL x VIC44	1	AS NOTED
4	10500 VIC 44 COUPLING	1	
5	500 SCHEDULE 40 STEEL NIPPLE (THREADED)	1	
5	500 STEEL FLANGE (THREADED) c/w ISOLATION KIT	1	
5	500 CAST BRONZE OR BRASS FLANGE (THREADED)	1	
5	500 CAST BRONZE OR BRASS NIPPLE (THREADED)	1	
5	500 BRONZE BALL VALVE (THREADED)	1	
6	750 SCHEDULE 40 STEEL NIPPLE (THREADED)	2	
6	750 90° FORGED STEEL ELBOW (THREADED)	1	
6	750 STEEL FLANGE (THREADED) c/w ISOLATION KIT	1	
6	750 CAST BRONZE OR BRASS FLANGE (THREADED)	1	
6	750 CAST BRONZE OR BRASS NIPPLE (THREADED)	1	
6	750 CAST BRONZE BALL VALVE (THREADED)	1	



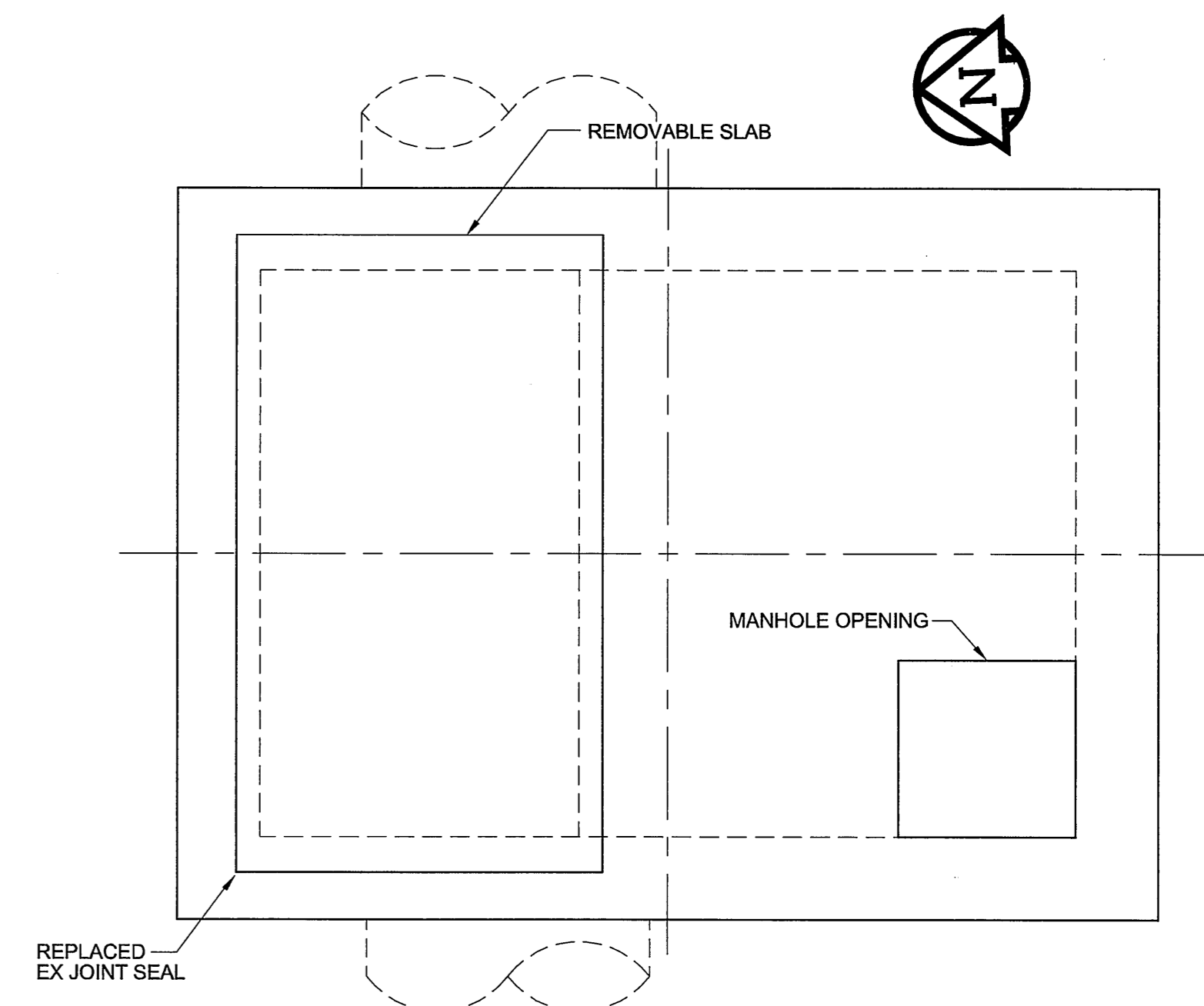
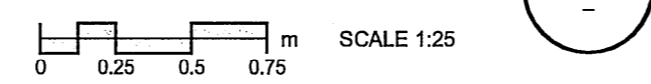
**VALVE CHAMBER LRV1 MODIFICATIONS PLAN**



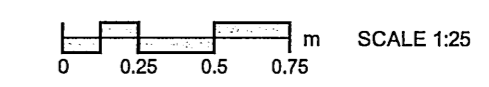
**SECTION A**



**SECTION B**

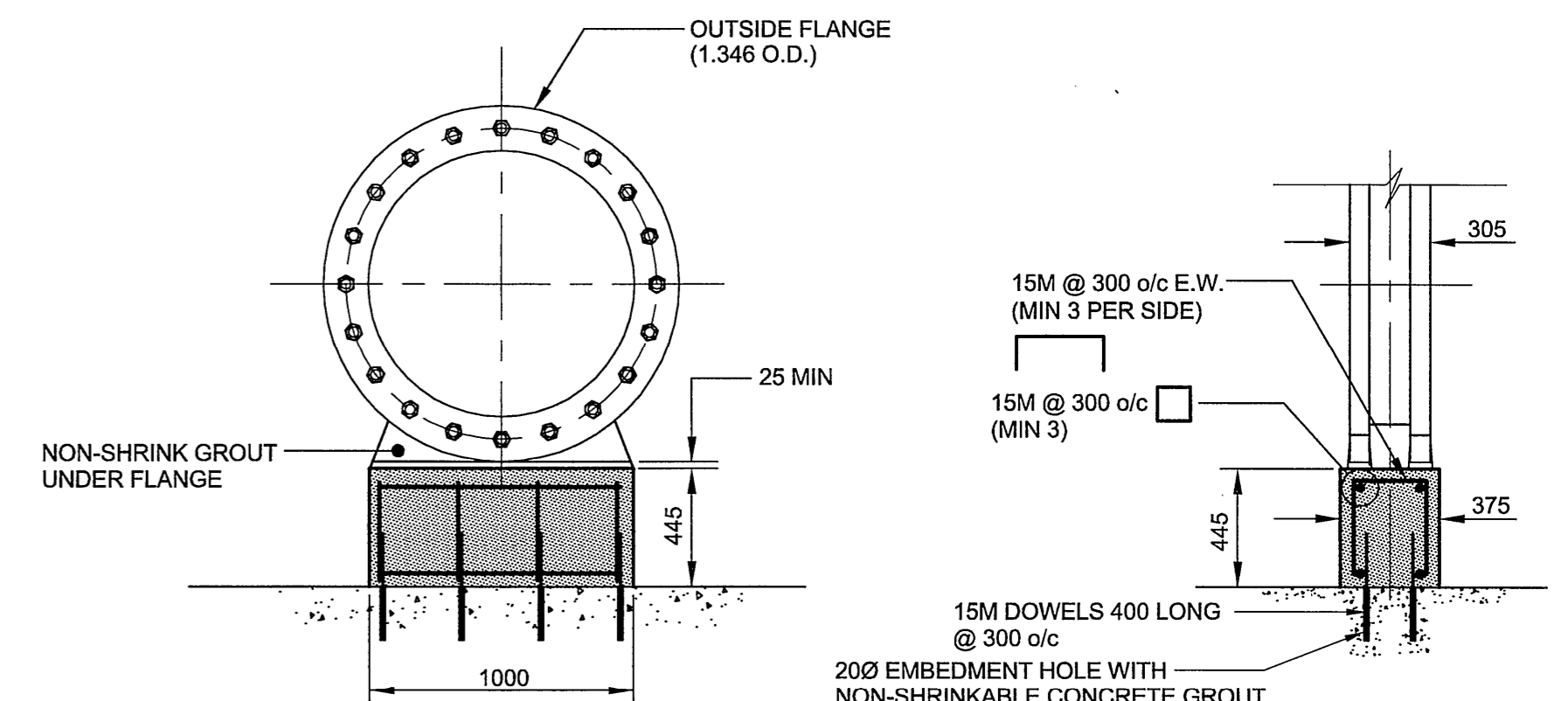


**EXISTING ROOF PLAN**

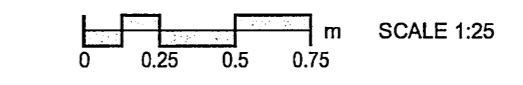


**MATERIAL LIST**

ITEM	MANUFACTURER	MATERIAL SPECIFICATION	SPECIAL FEATURES
1050mm STYLE 44 VIC-RING COUPLING	VICTAULIC	GRADE "T" NITRILE	TYPE 316 SS BOLTS AND NUTS
1650mm VIC-RING COUPLING	VICTAULIC	TYPE "D" FOR STYLE 44 COUPLING	
50mm and 75mm THREADED FLANGES (STEEL)	COMCO		
100mm BLIND FLANGE	COMCO		
1050mm STEEL PIPE	COMCO		
50mm and 75mm STANDARD BRASS THREADED FLANGES	COMCO		
50mm and 75mm BALL VALVES	TOYO VALVE CO. LTD.	RED-WHITE	
1050mm STANDARD STEEL RING FLANGE	HEBEI VMETAL FITTINGS CO. LTD.	AWWA CLASS D 150-175PSI	
GASKETS	BROTHERS INDUSTRIAL SUPPLY LTD.	CLOTH INSERTED NEOPRENE	
INSULATING SLEEVES AND WASHERS	ADVANCED PRODUCTS AND SYSTEMS		
CONTRACTOR: NELSON RIVER CONSTRUCTION			
CONSTRUCTION PERIOD: MAY, 2009			



**CONCRETE VALVE BASE BLOCK DETAIL**



**LOCATION APPROVED UNDERGROUND STRUCTURES**

SUPR. U/G STRUCTURES	DATE	COMMITTEE

**NOTE:**  
 LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

NO.	REVISIONS	DATE	BY
2	ISSUED FOR RECORD	10/04/08	WJd
1	ISSUED FOR ADDENDUM No. 1	09/02/12	WJd
0	ISSUED FOR CONSTRUCTION	09/01/29	KMB

DESIGNED BY		CHECKED BY	
EDT			
DRAWN BY		APPROVED BY	
KMB			
HOR. SCALE		RELEASED FOR CONSTRUCTION	
AS NOTED			
VERT. SCALE		DATE	

**AECOM**  
 Certificate of Authorization  
 AECOM Canada Ltd.  
 No. 4671 Date: 08 April 2010



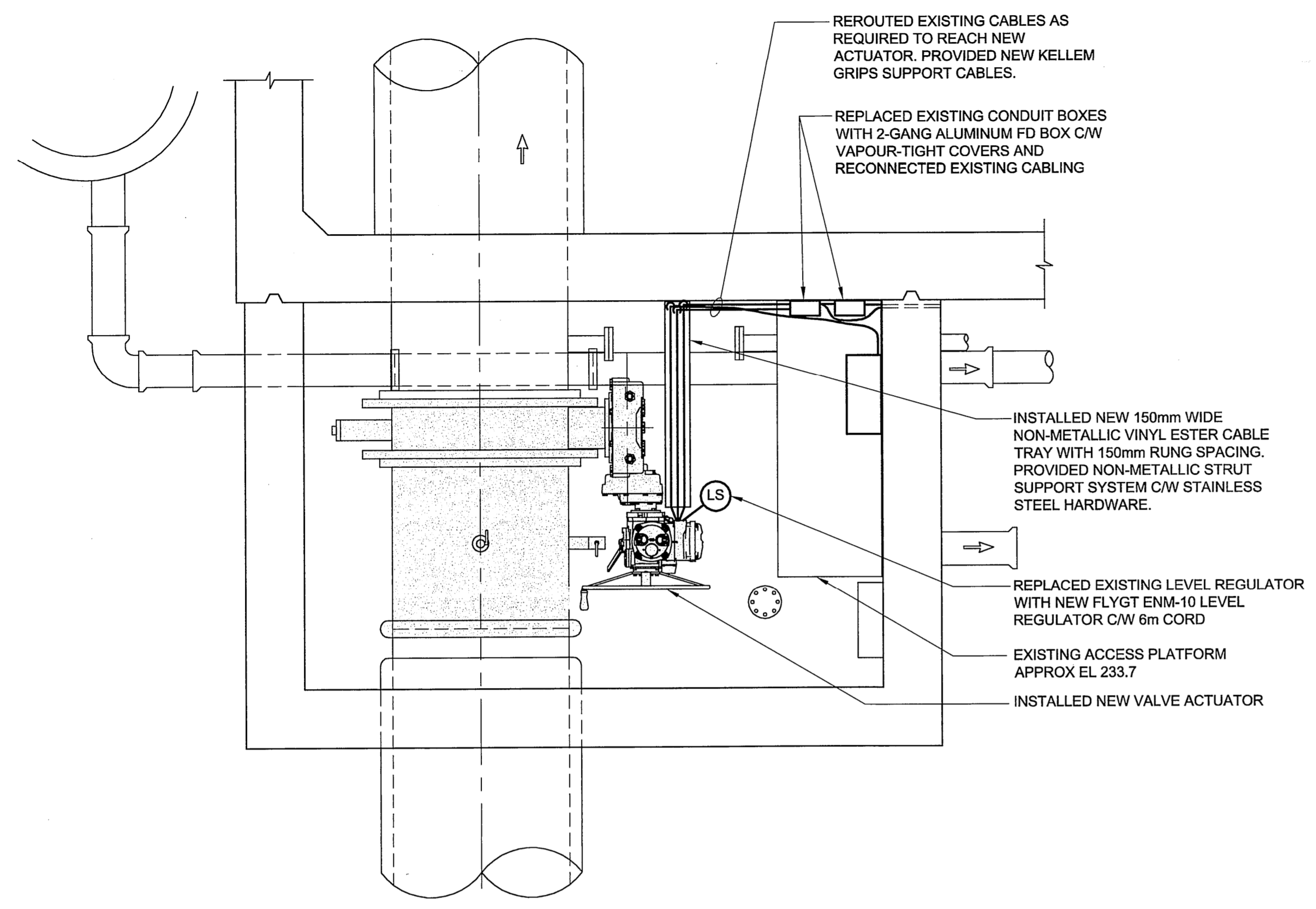
**THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT**  
**REPLACEMENT OF VALVE LRV1 AT MACLEAN PUMPING STATION & RESERVOIR**  
 DETAILS & SECTIONS

CONSTRUCTION COMPLETION DATE: MAY, 2009  
**RECORD DRAWING**  
 BID OPPORTUNITY NO. 90-2009

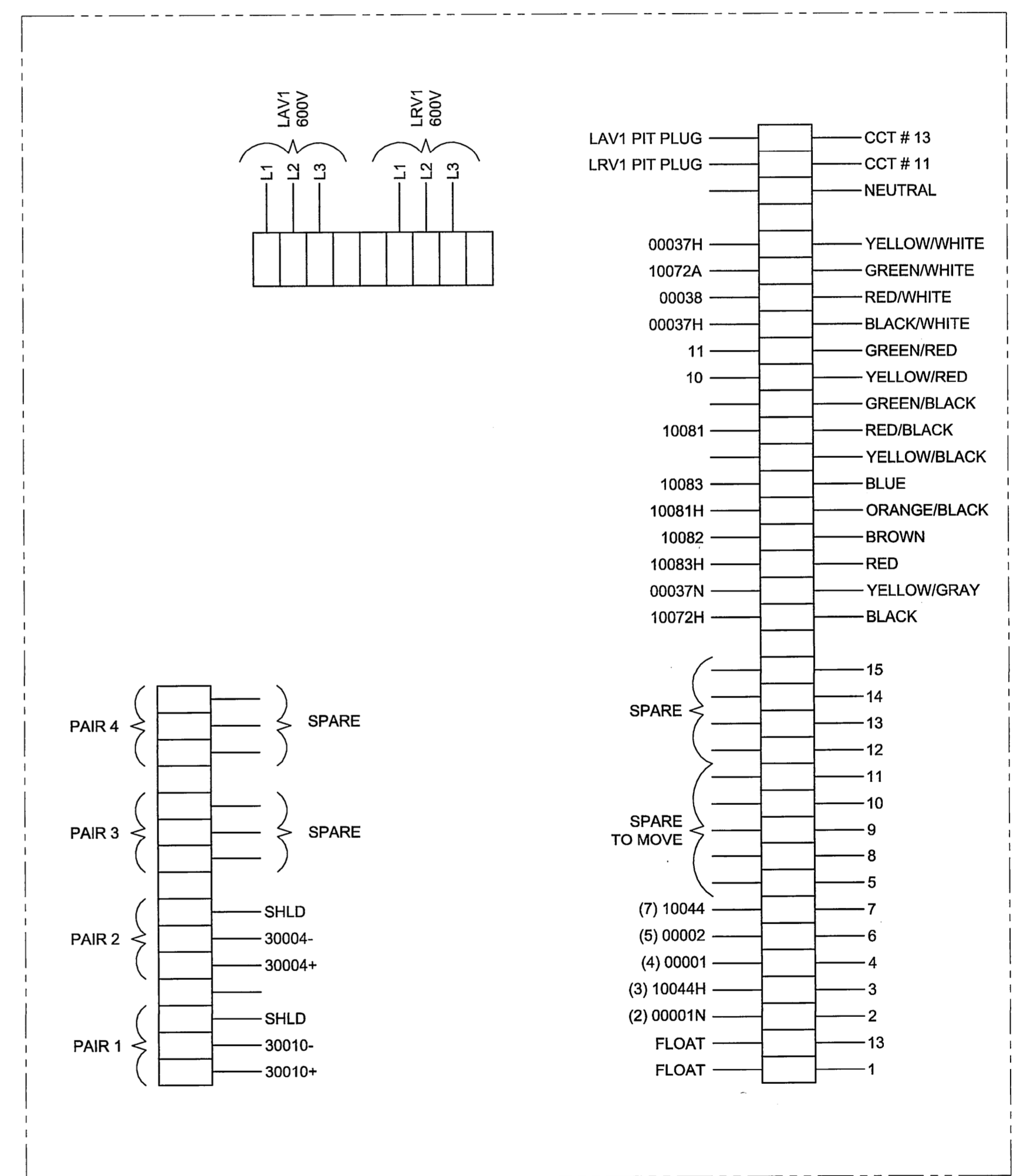
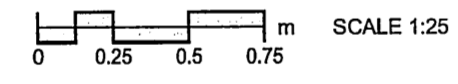
SHEET 2 OF 3  
 CITY DRAWING NUMBER  
**D-11659**  
 REV 2

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**VALVE CHAMBER LRV1**



**WIRING SCHEMATIC**

SCALE: NTS  
LRV-1 MARSHAL CABINET

CONSTRUCTION COMPLETION DATE  
MAY, 2009

**RECORD DRAWING**

BID OPPORTUNITY NO. 90-2009

**NOTICE:**  
AS-CONSTRUCTED DIMENSIONS, MEASUREMENTS AND OTHER DETAILS CONTAINED IN THIS RECORD DRAWING HAVE BEEN OBTAINED BY AECOM CANADA LTD. ("AECOM") FROM VARIOUS SOURCES. SUCH INFORMATION REPRESENTS THE BEST INFORMATION AVAILABLE TO AECOM AT THE TIME OF PREPARATION OF THIS RECORD DRAWING. AECOM DOES NOT IN ANY WAY REPRESENT OR WARRANT THAT SUCH INFORMATION IS ACCURATE AND ASSUMES NO RESPONSIBILITY FOR ANY ERRORS OR OMISSIONS CONTAINED THEREIN.

**LOCATION APPROVED**  
UNDERGROUND STRUCTURES

SUPR. U/G STRUCTURES	DATE	COMMITTEE

**NOTE:**  
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

NO.	REVISIONS	DATE	BY
2	ISSUED FOR RECORD	10/04/08	ALS
1	REVISED SPECIFICATION NOTES	09/02/02	Wjd
0	ISSUED FOR CONSTRUCTION	09/01/29	Wjd
A	ISSUED FOR REVIEW	09/01/16	KMB

<b>AECOM</b>		DESIGNED BY LK		CHECKED BY [Signature]	
DRAWN BY SCK		APPROVED BY [Signature]		RELEASED FOR CONSTRUCTION	
HOR. SCALE AS NOTED		VERT. SCALE		DATE	

PROFESSIONAL'S SEAL  
Revision 0  
Issued for Construction  
WAS SEALED BY  
B. L. MOORE  
AND DATED  
Jan 29/09  
CONSULTANT DRAWING NO.  
D265-234-00\_01-E-4001\_RX.dwg

**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT

**REPLACEMENT OF VALVE LRV1**  
AT MACLEAN PUMPING STATION & RESERVOIR

ELECTRICAL MODIFICATIONS

SHEET 3 OF 3  
CITY DRAWING NUMBER  
D-11660 REV 2



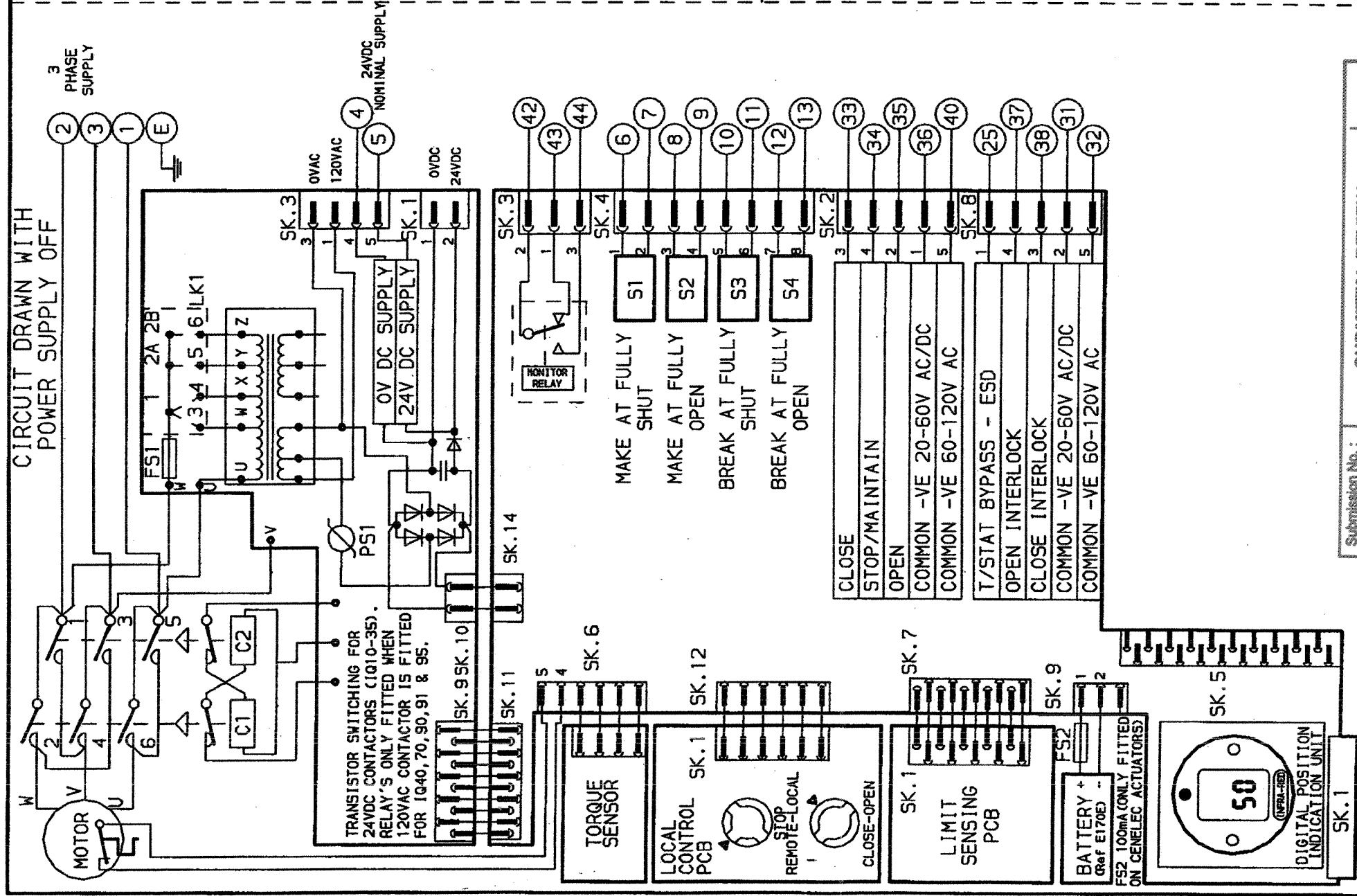
**IQ20B4 WT actuator c/w IW9R960 gearbox  
(ON-OFF service)**

<b>Max. rating</b>	<b>actuator</b>	<b>142 Nm</b>	<b>105 Ft.lbs</b>
	<b>combination</b>	<b>54,065 Nm</b>	<b>39,900 Ft.lbs</b>
<b>Weight</b>	<b>actuator</b>	<b>46 Kg</b>	<b>101 lbs</b>
	<b>combination</b>	<b>342 Kg</b>	<b>752 lbs</b>
<b>Actuator speed</b>		<b>115 RPM</b>	
<b>Operating time (combination)</b>		<b>125 seconds</b>	
<b>Max. bore</b>	<b>actuator</b>	<b>30 mm</b>	<b>1-1/4"</b>
	<b>gearbox</b>	<b>178 mm</b>	<b>7"</b>
<b>Voltage</b>		<b>575 V / 3 ph / 60 Hz</b>	
<b>Wiring diagram</b>		<b>3000-000</b>	
<b>Amperage</b>	<b>rated torque</b>	<b>3.8 Amps</b>	
	<b>locked rotor</b>	<b>15.5 Amps</b>	
<b>Gearbox ratio</b>		<b>960</b>	
<b>mech. advantage</b>		<b>380</b>	
<b>Gearbox paint</b>		<b>two coats polyamide epoxy paint Amerlock 400</b>	

PROVIDE ACTUATOR MOUNTING DETAILS INCL  
ADAPTER PLATES, INPUT & OUTPUT SHAFT DIA'S

Submission No. : 1	<b>SUBMITTAL REVIEW</b>		AECOM
Project No. : D265-234-00	Discipline :		
<input checked="" type="checkbox"/> Reviewed - No Comment	<input type="checkbox"/> Reviewed - Revise and Resubmit		
<input checked="" type="checkbox"/> Reviewed - As Noted	<input type="checkbox"/> Review by Consultant Not Required		
<p><small>Review is solely for general conformity with contract. The Consultant does not warrant or represent that information in this submittal is accurate or complete. Review does not relieve Contractor of responsibility for errors/omissions in designs, including this submittal, that are the Contractor's responsibility, and for conforming/correlating with all quantities/dimensions, performing the Work, selecting performance means/methods, coordinating with other parts of the Work/between trades, and performing the Work safely. Notwithstanding this review, Contractor remains solely responsible for contract compliance.</small></p>			





FOR TYPICAL REMOTE CONTROL DETAILS SEE DOCUMENT RWS300

TRANSFORMER TAPPING OPTIONS

TYPE 1

TAP	NOM	50/60HZ	50HZ	60HZ
W	220/230	176-242	198-259	
X	380/400	304-418	342-446	
Y	415/420	332-457	374-487	
Z	440/460	352-484	396-517	

FUSE FS1 - 250mA ANTI-SURGE

TYPE 2

TAP	NOM	50/60HZ	50HZ	60HZ
W	346/380	285-388	321-419	
X	480/500	406-552	432-564	
Y	240/240	192-261	216-282	
Z	550/575	445-605	501-654	

FUSE FS1 - 250mA ANTI-SURGE

TYPE 3

TAP	NOM	50/60HZ	50HZ	60HZ
X	660/660-690	534-726	600-726	
Y	690/---	558-759		

FUSE FS1 - 150mA ANTI-SURGE

ALL TRANSFORMER TYPES - PS1 SELF RESETTING FUSE

NOTE

REFER TO PUBLICATION E170E FOR APPROVED FUSES FS1 AND FS2.

MAX EXTERNAL LOAD ON TERMINALS 4 & 5 TO BE 5W.

CONTROL SIGNAL THRESHOLD VOLTAGES TO BE MINIMUM 'ON' 20V AC/DC  
MAXIMUM 'OFF' = 3V  
MINIMUM CONTROL SIGNAL DURATION TO BE 300ms.

CURRENT DRAWN FROM EACH REMOTE CONTROL SIGNAL IS 5ma ON 24V DC OR 12ma ON 120V AC

WIRES ARE IDENTIFIED AT EACH END BY TERMINAL No. OR TAG No.

INDICATION CONTACTS S1-S4 ARE SHOWN IN THEIR DEFAULT CONFIGURATION. CONTACTS MAY BE CONFIGURED FOR ANY OF THE FUNCTIONS DESCRIBED IN E170E

Submission No.:	SUBMITTAL REVIEW	AECOM
Project No.:	Discipline:	
✓ D265-234-00		
Reviewed - No Comment	Reviewed - Revise and Resubmit	
Reviewed - As Noted	Review by Consultant Not Required	
<p>Review is solely for general conformity with contract. The Consultant does not warrant or represent that information in this submittal is accurate or complete. Review does not relieve Contractor of responsibility for errors/omissions in designs, including this submittal, that are the Contractor's responsibility, and for conforming/correlating with all quantities/dimensions, performing the Work, selecting performance means/methods, coordinating with other parts of the Work/between trades, and performing the Work safely. Notwithstanding this review, Contractor remains solely responsible for contract compliance.</p>		
By: <i>B. B.</i>	Date: <i>April 24/09</i>	

No. 08  
DATE 300503  
DIAGRAM RE-FORMATTED TO SEPARATE REMOTE CONTROL CIRCUITRY (See 'RWS' Ref)

**www.rotork.com**  
 ROTORK CONTROLS LTD  
 BATH, BA1 3JG  
 ENGLAND  
 Tel: 01225-733200

ROTORC CONTROLS INC  
 ROCHESTER  
 NY 14624, USA  
 Tel: 585-328-1550

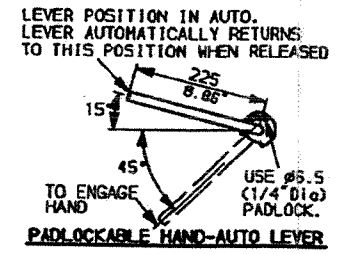
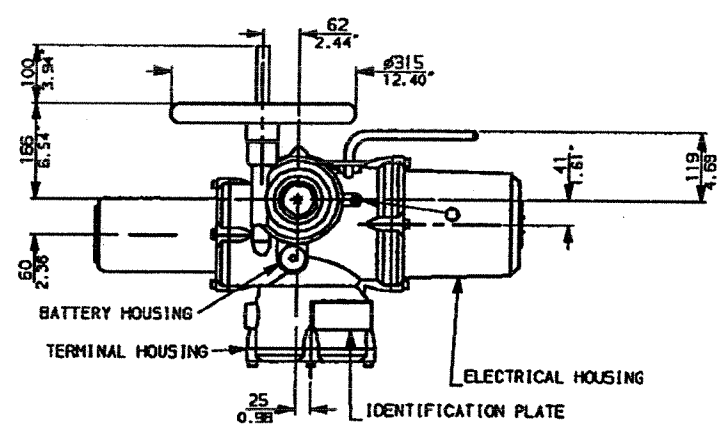
CONFIG BY PRE 240904  
 DATE 240904  
 CHECKED P/JW  
 BASE WD ---  
 JOB No ---  
 M. I. No .

IQ BASIC

CIRCUIT DIAGRAM No -REV 102  
**3000-000-08**  
 B1 C1 B2 C2

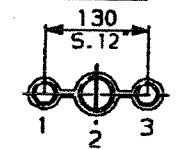


G  
F  
E  
D  
A



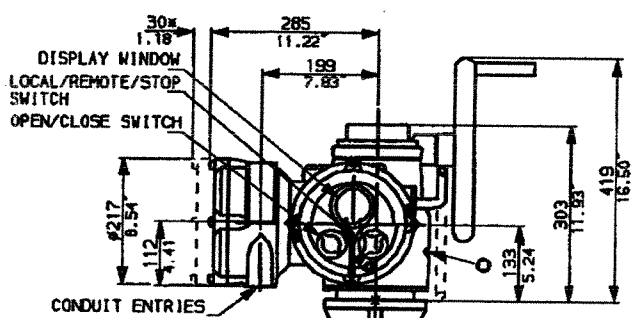
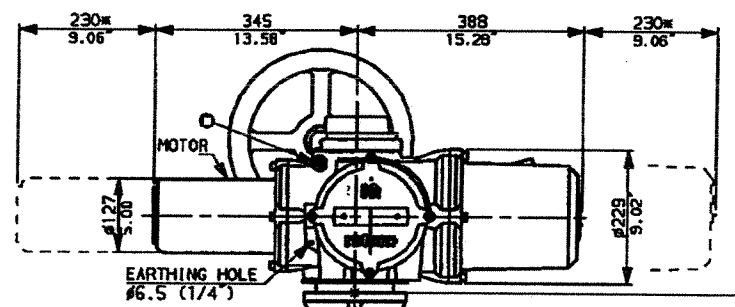
NOTES:  
 DIMENSIONS WITH 'x' INDICATE COVER REMOVAL ALLOWANCE  
 NETT WEIGHT = 342kg (752lbs)  
 O = OIL FILLER/DRAIN PLUG  
 THE INTERFACE PROVIDED FOR MOUNTING THE ACTUATOR OR SECOND STAGE GEARBOX ONTO THE VALVE SHOULD CONFORM TO GOOD ENGINEERING PRACTICES, ENSURING ADEQUATELY TOLERANCED LIMITS FOR PARALLELISM, PERPENDICULARITY AND CONCENTRICITY.

CONDUIT ENTRIES (N.T.S)



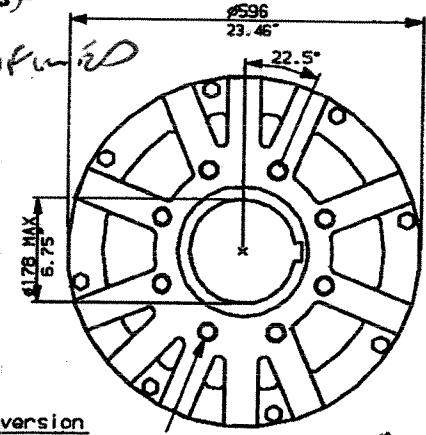
Nos.1 & 3 TAPPED 1" NPT  
 No.2 TAPPED 1 1/2" NPT  
 STD ALTERNATIVES IF SPECIFIED  
 2 X M25, 1 X M40  
 2 X PG16, 1 X PG29

316SS Valve Position Indicator  
 to be fabricated by Mueller Flow Control



*ORIENTATION OF ACTUATOR ON GEARBOX TO BE CONFIRMED*

N.B. KEYWAY POS. CAN BE MOVED IN 45° STEPS BY REMOVING 8 SCREWS MARKED (A) AND ROTATING OUTPUT SLEEVE.



"F" version  
 8 HOLES TAPPED M20 x 30 DP  
 EQUI-SPACED AS SHOWN ON A  
 298 PCD (ISO 5211-F30).

"FA" version  
 8 HOLES TAPPED 3/4"UNCx1.18"dp  
 EQUI-SPACED AS SHOWN ON A  
 11.75" PCD (MSS SP101-FA30).

*CONFIRM  
 EX SHAFT DIA'S +  
 KEY PER TO  
 FAB.*

Submission No.:	SUBMITTAL REVIEW		AECOM
Project No.:	D265-234-00		
Discipline:			
Reviewed - No Comment	<input checked="" type="checkbox"/>	Reviewed - Revise and Resubmit	
Reviewed - As Noted	<input type="checkbox"/>	Review by Consultant Not Required	
Review is solely for general conformity with contract. The Consultant does not warrant or represent that information in this submittal is accurate or complete. Review does not relieve Contractor of responsibility for errors/omissions in design, including this submittal, that are the Contractor's responsibility, and for conforming/complaining with all quantities/dimensions, performing the Work, selecting performance means/methods, coordinating with other parts of the Work/between trades, and performing the Work safely. Notwithstanding this review, Contractor remains solely responsible for contract compliance.			
By:	<i>[Signature]</i>	Date:	<i>April 24/09</i>

**rotork**  
 www.rotork.com  
 Rotork Controls Ltd.  
 Bath England, BA1 3JQ.  
 (Phone 01225-733200)  
 Rotork Controls Inc.  
 Rochester, NY 14624  
 (Phone 585-328-1550)

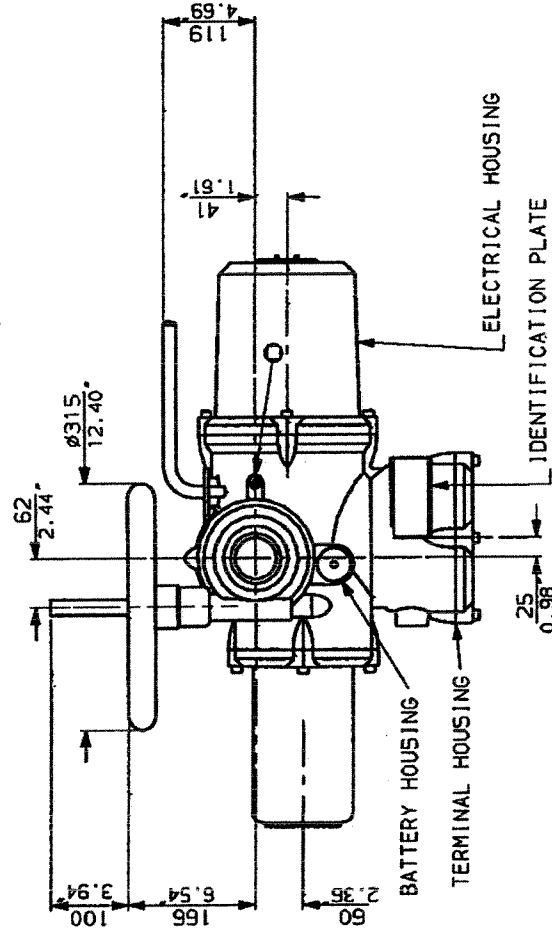
Title IQ20, 25 (+IQ520), SHW, IW (MOW) 9RH,			
STANDARD DIMENSIONAL DATA			
Drawn CAD	Checked PRE	Ref Data Sheet	
Date April 04	Job No IQ2SHW_IW9RH		

NOTE:  
 Gearbox is shown with HIGH Ratio Input Reducer.  
 (ie Ratios 960, 1080, 1440, 2160, 2520, 3000)  
 See Data Sheet with IW9RL for LOW ratio option.

01	First Issue.
Scale	1:8 THIRD ANGLE PROJECTION
Drawing Number	1 IQ2SHW_IW9RH

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

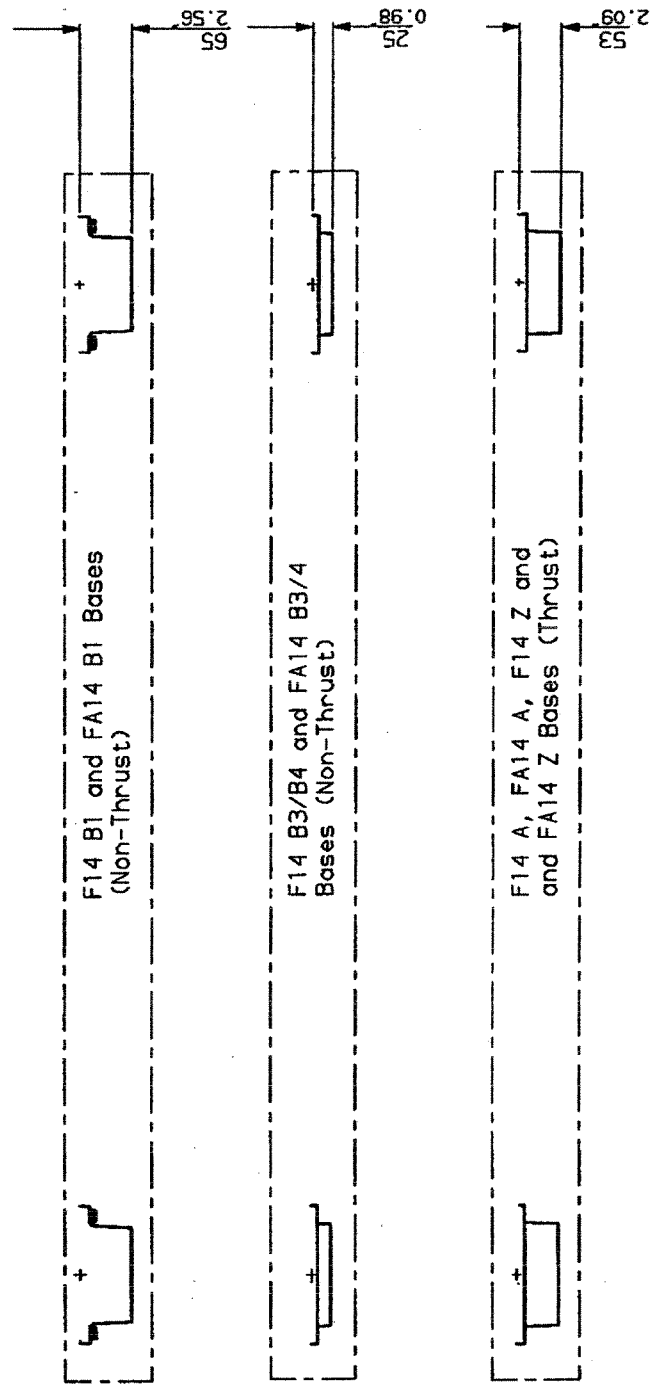
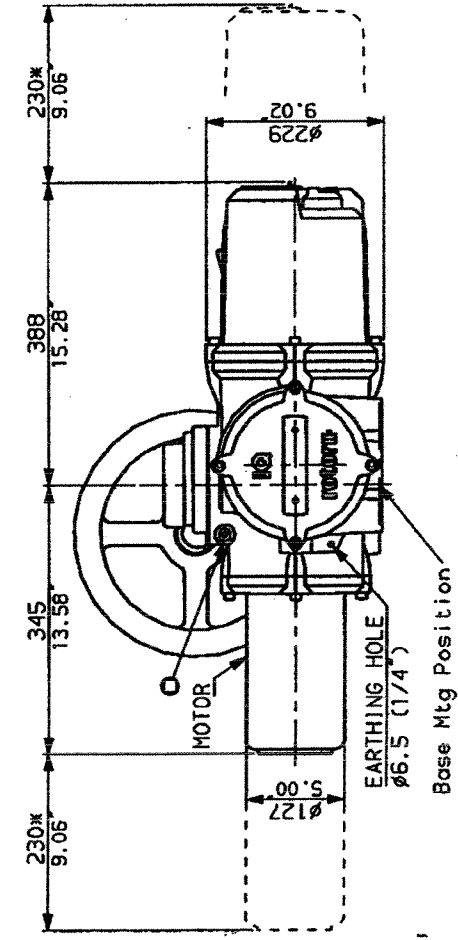
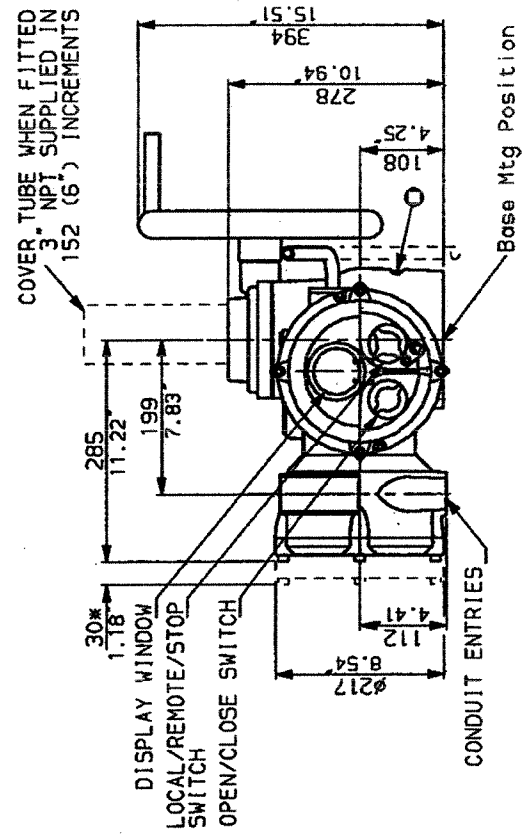
# IQ20-25 WITH OPTIONAL SIDE HANDWHEEL



Submission No.:	SUBMITTAL REVIEW	ACCOM
Project No.:	Discipline:	
D365-234-00		
Reviewed - No Comment	Reviewed - Review and Resubmit	
Reviewed - As Noted	Reviewed by Consultant Not Required	

Review is solely for general conformity with contract. The Consultant does not warrant or represent that information in this submittal is accurate or complete. Review does not relieve Contractor of responsibility for omissions in designs, including this submittal, that are the Contractor's responsibility, and for conforming/complaining with all quantities/dimensions, performing the Work, selecting performance means/methods, coordinating with other parts of the Work/between trades, and performing the Work safely. Notwithstanding this review, Contractor remains solely responsible for contract compliance.

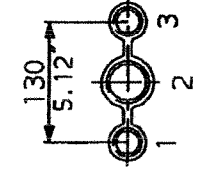
By: *[Signature]* Date: *Apr 2019*



**NOTES**

Three BASE options are detailed to suit the relevant Coupling arrangement. The required BASE for the SIDE & END views should be loaded to position indicated.

**CONDUIT ENTRIES**



Nos. 1 & 3 TAPPED 1" NPT  
 No. 2 TAPPED 1 1/2" NPT  
 STANDARD ALTERNATIVES IF SPECIFIED  
 2 X M25, 1 X M40  
 2 X PG16, 1 X PG29

**rotork**  
 Rotork Controls Ltd.  
 Bath, England BA1 3JG  
 Bath (01225) 733200

**IQ20 (SHW) DATA**

Date 090500 Scale 1:12

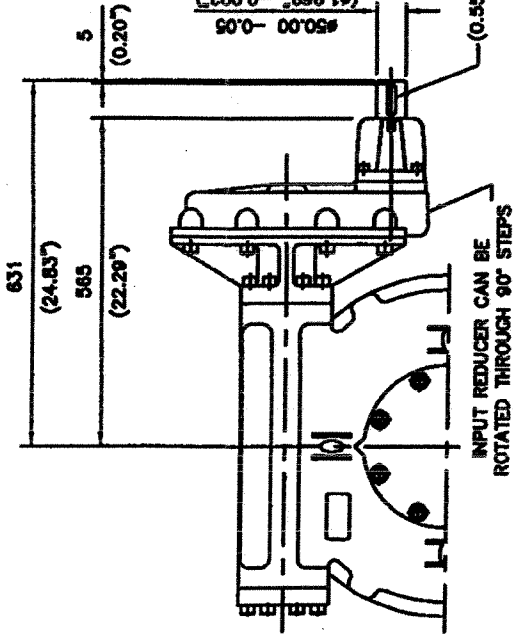
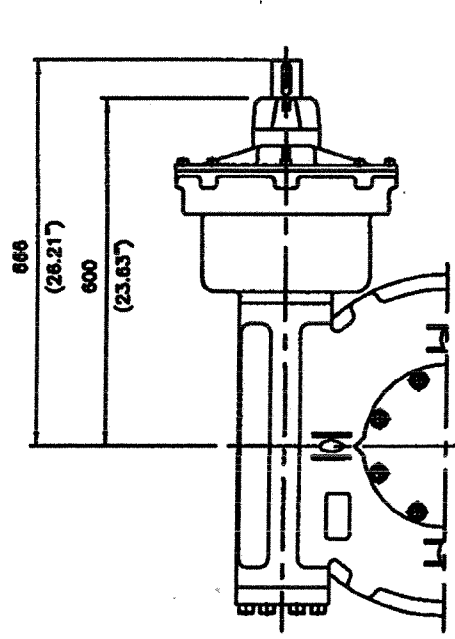
IQ\_205-2



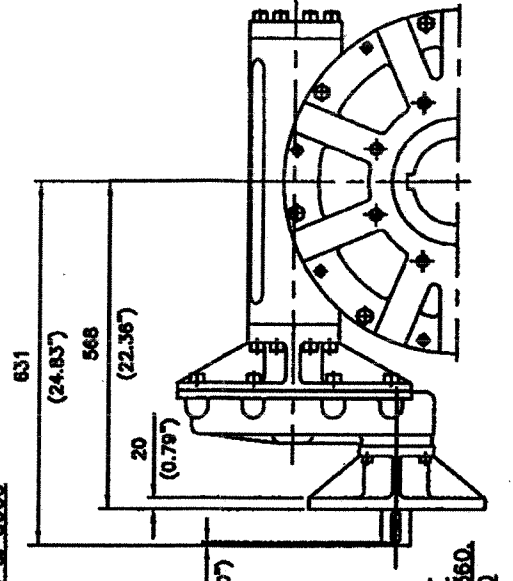
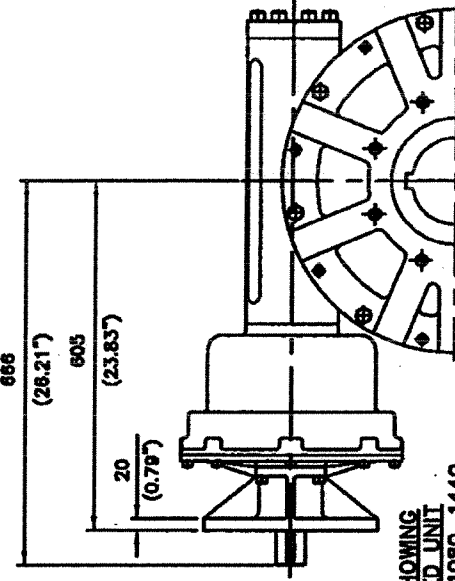
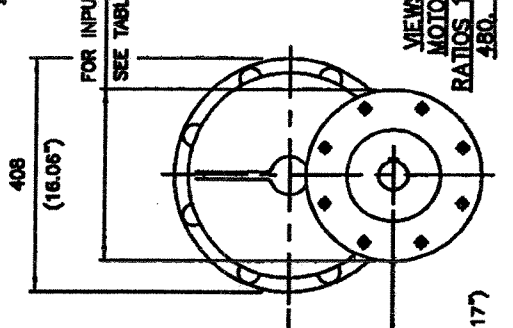
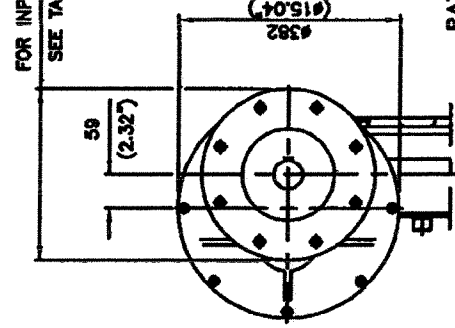
Submission No.:	SUBMITTAL REVIEW		AECOM
Project No.:	Discipline:		
D265-234-00			
Reviewed - No Comment	Reviewed - Revise and Resubmit		
Reviewed - As Noted	Review by Consultant Not Required		
<p>Review is solely for general conformity with contract. The Consultant does not warrant or represent that information in this submittal is accurate or complete. Review does not relieve Contractor of responsibility for errors/omissions in designs, including this submittal, that are the Contractor's responsibility, and for contacting/completing with all quantities/dimensions, performing the Work, selecting performance measurement methods, coordinating with other parts of the Work/between trades, and performing the Work safely. Notwithstanding this review, Contractor remains solely responsible for contract compliance.</p>			
By:	Date: APR 24/09		

INPUT FLANGE DETAILS (RATIOS 180 TO 3000)						
FLANGE O/DIA.	SHAFT DIA.	RECESS DIA.	RECESS DEPTH	HOLE DETAILS (OFF CENTRES)	KEY DETAILS	
ISO F10 #125 (#4.92)	#50.00 (#1.57)	#70.06 (#2.76)	+0.15 -0.005	4 (0.16)	4 HOLES #10.5 (#0.41) ON #102.0 (#4.02) P.C.	6x6x40 (0.24"x0.39"x1.57)
FA10	#50.00 (#1.57)	#68.70 (#2.31)	+0.15 -0.005	4 (0.16)	4 HOLES #10.5 (#0.41) ON #102.0 (#4.02) P.C.	6x6x40 (0.24"x0.39"x1.57)
ISO F14	#63.00 (#1.98)	#83.00 (#2.72)	+0.15 -0.005	5 (0.20)	5 HOLES #16.5 (#0.65) ON #140.0 (#5.51) P.C.	8x7x55 (0.31"x0.39"x2.17)
FA14	#63.00 (#1.98)	#81.25 (#2.67)	+0.15 -0.005	5 (0.20)	5 HOLES #16.5 (#0.65) ON #140.0 (#5.51) P.C.	8x7x55 (0.31"x0.39"x2.17)
ISO F16	#63.00 (#1.98)	#83.00 (#2.72)	+0.15 -0.005	5 (0.20)	5 HOLES #16.5 (#0.65) ON #140.0 (#5.51) P.C.	8x7x55 (0.31"x0.39"x2.17)
FA16	#63.00 (#1.98)	#81.25 (#2.67)	+0.15 -0.005	5 (0.20)	5 HOLES #16.5 (#0.65) ON #140.0 (#5.51) P.C.	8x7x55 (0.31"x0.39"x2.17)
ISO F25	#80.00 (#2.50)	#90.00 (#2.95)	+0.15 -0.005	5 (0.20)	5 HOLES #20.5 (#0.81) ON #165.0 (#6.50) P.C.	12x8x65 (0.47"x0.31"x2.54)
FA25	#80.00 (#2.50)	#88.25 (#2.90)	+0.15 -0.005	5 (0.20)	5 HOLES #20.5 (#0.81) ON #165.0 (#6.50) P.C.	12x8x65 (0.47"x0.31"x2.54)

VIEW SHOWING  
HAND OPERATED UNIT  
RATIOS 950, 1080, 1440,  
2160, 2520 & 3000



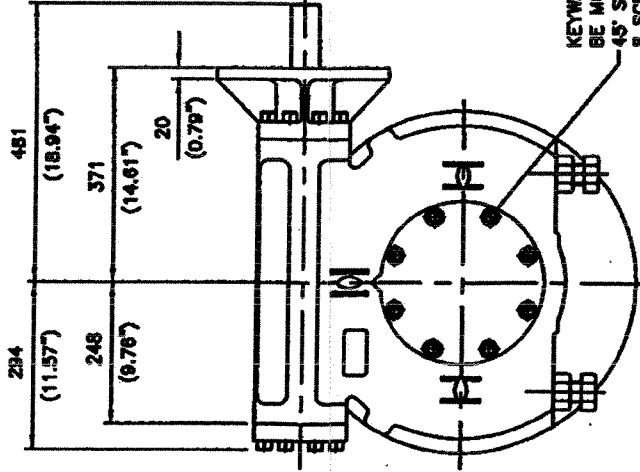
VIEW SHOWING  
HAND OPERATED UNIT  
RATIOS 180, 240, 360, 480, 540 & 720



FOR INPUT OPTIONS  
SEE TABLE ABOVE

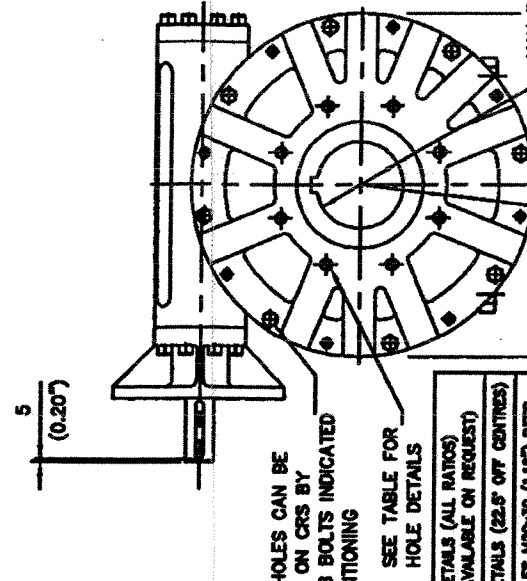
FOR INPUT OPTIONS  
SEE TABLE ABOVE

FOR INPUT OPTIONS  
SEE TABLE ABOVE



VIEW SHOWING MOTORISED UNIT  
RATIO 60 ONLY

INPUT FLANGE DETAILS (RATIO 90)						
FLANGE O/DIA.	SHAFT DIA.	RECESS DIA.	RECESS DEPTH	HOLE DETAILS (OFF CENTRES)	KEY DETAILS	
ISO F16 #125 (#4.92)	#50.00 (#1.57)	#70.06 (#2.76)	+0.15 -0.005	5 (0.20)	5 HOLES #20.5 (#0.81) ON #165.0 (#6.50) P.C.	12x8x100 (0.47"x0.31"x3.94)
FA16	#50.00 (#1.57)	#68.70 (#2.31)	+0.15 -0.005	5 (0.20)	5 HOLES #20.5 (#0.81) ON #165.0 (#6.50) P.C.	12x8x100 (0.47"x0.31"x3.94)
ISO F25	#63.00 (#1.98)	#83.00 (#2.72)	+0.15 -0.005	5 (0.20)	5 HOLES #26.5 (#1.04) ON #195.0 (#7.68) P.C.	14x8x100 (0.55"x0.39"x3.94)
FA25	#63.00 (#1.98)	#81.25 (#2.67)	+0.15 -0.005	5 (0.20)	5 HOLES #26.5 (#1.04) ON #195.0 (#7.68) P.C.	14x8x100 (0.55"x0.39"x3.94)

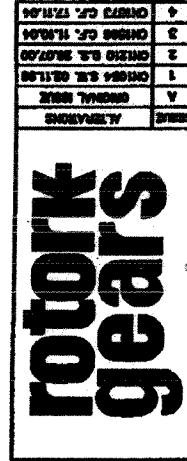


BASEPLATE DETAILS (ALL RATIOS) (ALTERNATIVES AVAILABLE ON REQUEST)	
ISO F30	8 HOLES M20x30 (1.18") DEEP ON #298.0 (#11.75") P.C.
FA30	8 HOLES 3/4"UNCx30 (1.18") DEEP ON #298.0 (#11.75") P.C.
ISO F36	8 HOLES M26x36 (1.42") DEEP ON #358.0 (#14.09") P.C.
FA36	8 HOLES 1"UNCx36 (1.42") DEEP ON #358.0 (#14.09") P.C.
ISO F40	8 HOLES M30x36 (1.42") DEEP ON #408.0 (#16.06") P.C.
FA40	8 HOLES 1.25"UNCx36 (1.42") DEEP ON #408.0 (#16.06") P.C.

MOUNTING HOLES CAN BE  
POSITIONED ON CRS BY  
REMOVING 8 BOLTS INDICATED  
AND REPOSITIONING

SEE TABLE FOR  
HOLE DETAILS

KEYWAY POSITION CAN  
BE MOVED THROUGH  
45° STEPS BY REMOVING  
8 SCREWS INDICATED AND  
ROTATING OUTPUT SLEEVE



MAX BORE SO KEY	MAX BORE RECTANGULAR KEY
ISO F30	ISO F30
FA30	FA30
ISO F36	ISO F36
FA36	FA36
ISO F40	ISO F40
FA40	FA40

DRAWN: S.W. 18.9.98

CHECKED:

OUTLINE DETAILS OF IW9  
ISO & USA STANDARD

PUB\IW9CD

VERIFY  
SHAFT  
ON PLAN  
TO CRASH PLAN