

**RAMSEY COUNTY  
DEPARTMENT OF PUBLIC WORKS**

CONSTRUCTION PLANS FOR EXCAVATION &  
INSTALLATION OF STORM SEWER, FORCEMAIN &  
LIFT STATION, WITH APPURTENANCES, FOR THE:

**COMO LAKE  
STORM SEWER DIVERSION-  
SEDIMENTATION BASINS**

LOCATION: NORTH END OF COMO LAKE IN THE  
CITY OF SAINT PAUL

E.P.A. PROJECT NO. S-005660-02  
RAMSEY CO. PUBLIC WORKS NO. 47346

**ASSULT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DATE: 4-25-88

**INDEX**

SHEET	DESCRIPTION
1	TITLE
2,3	OVERVIEW
4	STATEMENT OF ESTIMATED QUANTITIES, STANDARD DETAIL PLATES
5	TYPICAL SECTIONS, DRAINAGE CHARTS
6-9	DETAILS
10-12	STRUCTURE DETAILS
13-16	PLAN PROFILE
17-23	CROSS SECTIONS

DESIGN SQUAD: *[Signature]* DATE: 4/16/86  
DRAWN BY: *[Signature]* DATE: 4/16/86  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
DATE: 4/16/86 REG. NO. 16159 ENGR. *[Signature]*

HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

RECOMMENDED FOR APPROVAL: *[Signature]* DATE: 4-16-86  
RECOMMENDED FOR APPROVAL: *[Signature]* DATE: 4-17-86  
COUNTY ENGINEER

RECOMMENDED FOR APPROVAL: *[Signature]* DATE: 4/16/86  
APPROVED: *[Signature]* DATE: 5-5-86  
CHAIRMAN OF THE RAMSEY COUNTY BOARD

RECOMMENDED FOR APPROVAL: *[Signature]* DATE: 4/16/86  
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

RECOMMENDED FOR APPROVAL: *[Signature]* DATE: 4/16/86  
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

RECOMMENDED FOR APPROVAL: *[Signature]* DATE: 4-16-86  
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

APPROVED: *[Signature]* DATE: 4-16-86

PLAN REVISIONS		
DATE	SHEET NO.	BY

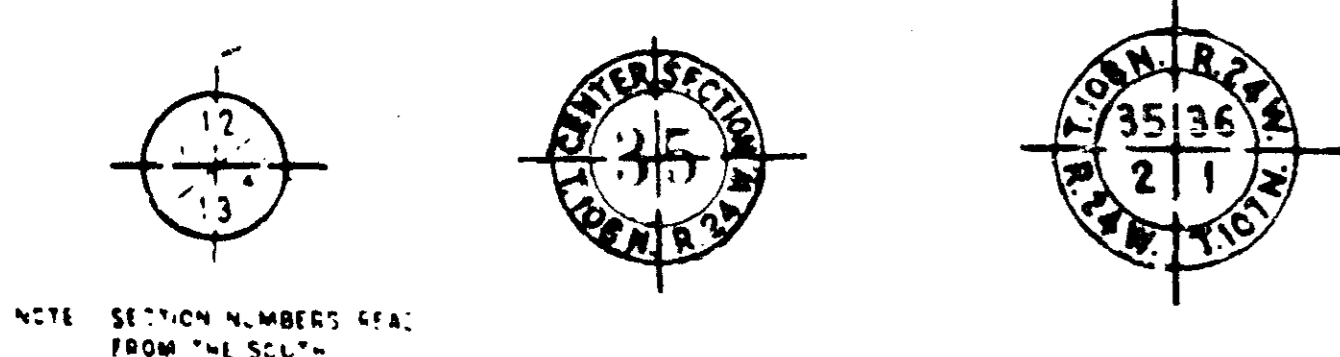
RAMSEY COUNTY PROJECT NO. CON 47346

**PLANS SYMBOLS**

STATE LINE	-----	SPRINGS	(Symbol)
COUNTY LINE	-----	MARSH	(Symbol)
TOWNSHIP OR RANGE LINE	-----	TIMBER	(Symbol)
SECTION LINE	-----	ORCHARD	(Symbol)
QUARTER LINE	-----	BRUSH	(Symbol)
SIXTEENTH LINE	-----	NURSERIES	(Symbol)
RIGHT OF WAY LINE	-----	CATCH BASIN	(Symbol)
PRESENT RIGHT OF WAY LINE	-----	FIRE HYDRANT	(Symbol)
CONTROL OF ACCESS LINE	-----	CATTLE GUARD	(Symbol)
PROPERTY LINE (Except Land Lines)	-----	OVERPASS (Highway Over)	(Symbol)
VACATED PLATED PROPERTY	-----	UNDERPASS (Highway Under)	(Symbol)
CORPORATE OR CITY LIMITS	-----	BRIDGE	(Symbol)
TRUNK HIGHWAY CENTER LINE	-----	BUILDING (One Story Frame)	(Symbol)
RETAINING WALL	(Symbol)	F FRAME   C CONCRETE	
RAILROAD	(Symbol)	S STONE   T TILE	
RAILROAD RIGHT OF WAY LINE	-----	B BRICK   ST STUCCO	
RIVER OR CREEK	(Symbol)	IRON PIPE OR ROD	(Symbol)
DRY RUN	(Symbol)	MONUMENT (STONE, CONCRETE, OR METAL)	(Symbol)
DRAINAGE DITCH	(Symbol)	WOODEN HUB	(Symbol)
DRAIN TILE	(Symbol)	GRAVEL PIT	(Symbol)
CULVERT	(Symbol)	SAND PIT	(Symbol)
DROP INLET	(Symbol)	BORROW PIT	(Symbol)
GUARD RAIL	(Symbol)	ROCK QUARRY	(Symbol)
B-ARBED WIRE FENCE	(Symbol)		
WOVEN WIRE FENCE	(Symbol)		
CHAIN LINK FENCE	(Symbol)		
RAILROAD SNOW FENCE	(Symbol)		
STONE WALL OR FENCE	(Symbol)		
HEDGE	(Symbol)		
RAILROAD CROSSING SIGN	(Symbol)		
RAILROAD CROSSING BELL	(Symbol)		
ELECTRIC WARNING SIGN	(Symbol)		
CROSSING GATE	(Symbol)		
MEANDER CORNER	(Symbol)		
SLOPE EASEMENT (CONST. LIMITS)	(Symbol)		

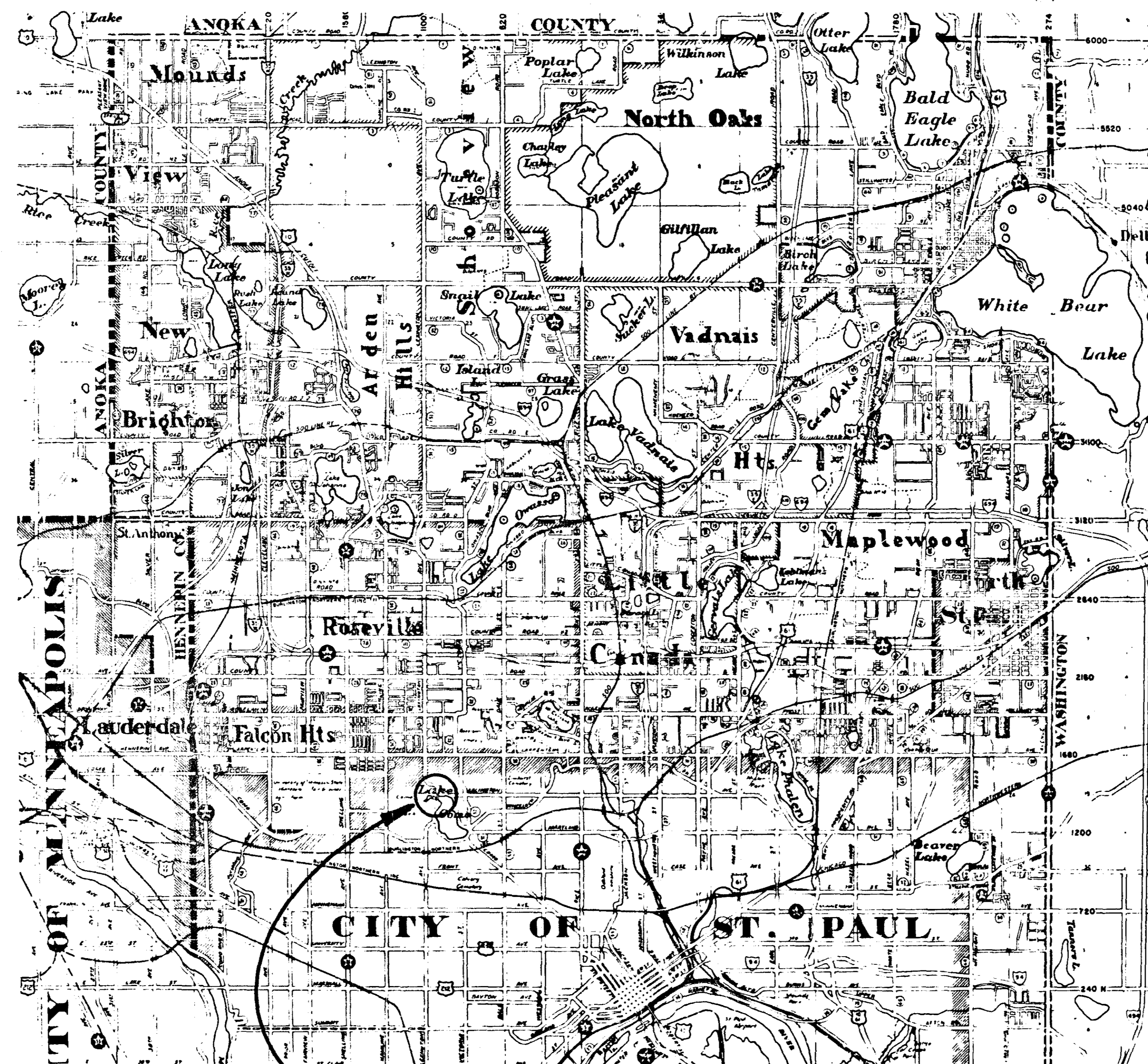
**UTILITIES SYMBOLS**

POWER POLE LINE	(Symbol)	CONDUIT	(Symbol)
TELEPHONE OR TELEGRAPH POLE LINE	(Symbol)	TELEPHONE CABLE IN CONDUIT	(Symbol)
JOINT TELEPHONE AND POWER OR POWER POLES ON TELEPHONE POLES	(Symbol)	ELECTRIC CABLE IN CONDUIT	(Symbol)
ANCHOR	(Symbol)	TELEPHONE MANHOLE	(Symbol)
STEEL TOWER	(Symbol)	ELECTRIC MANHOLE	(Symbol)
STREET LIGHT	(Symbol)	BURIED TELEPHONE CABLE	(Symbol)
PEDESTAL TELEPHONE CABLE TERMINAL	(Symbol)	BURIED ELECTRIC CABLE	(Symbol)
GAS MAIN	(Symbol)	AERIAL TELEPHONE CABLE	(Symbol)
WATER MAIN	(Symbol)	SEWER, (SANITARY OR STORM)	(Symbol)
		SEWER MANHOLE	(Symbol)



**PIT DATA**

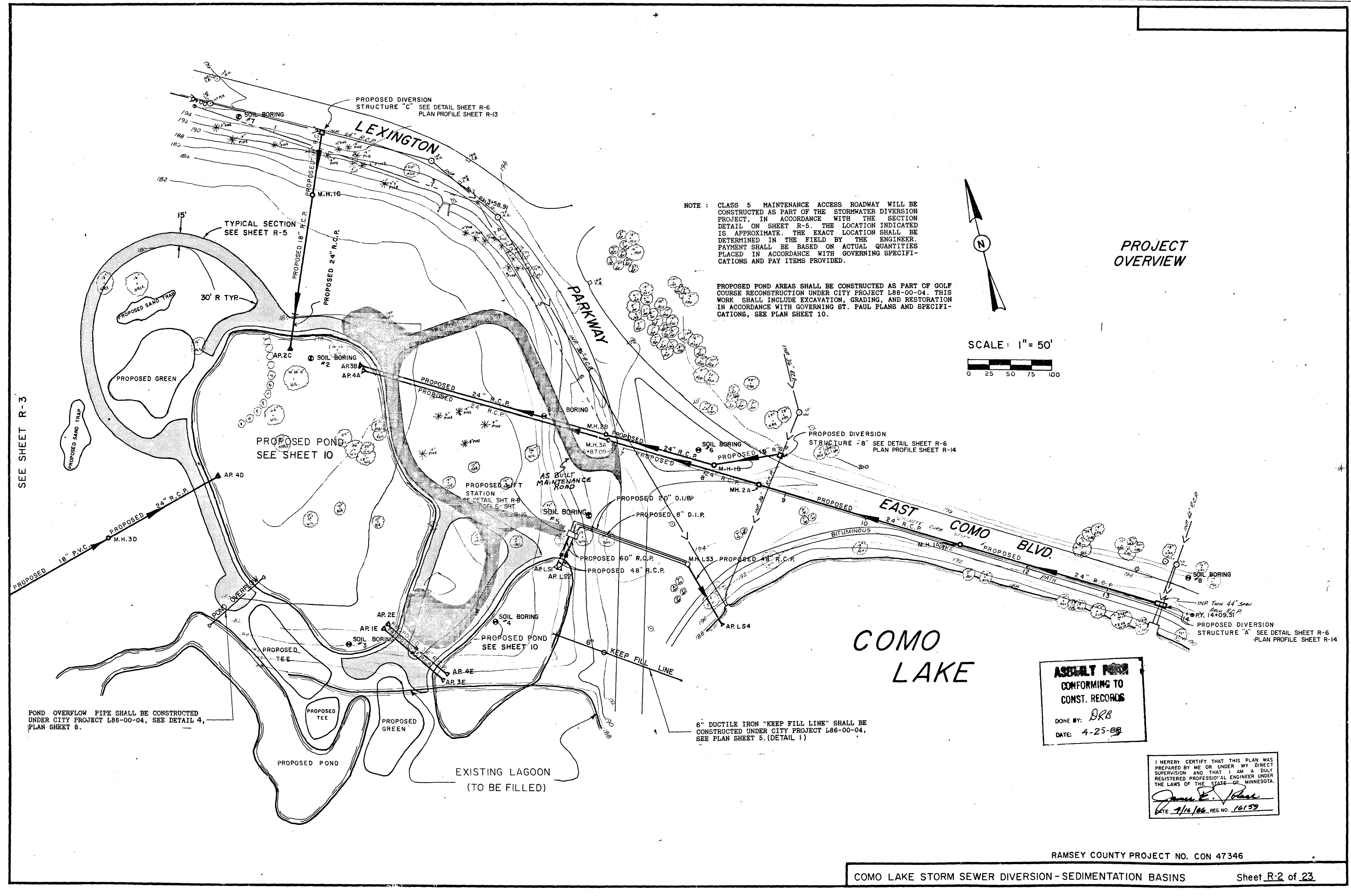
PIT NO. \_\_\_\_\_ Located in Dead Haul  
PIT NO. \_\_\_\_\_ Located in Dead Haul



**PROJECT  
LOCATION**

**GOVERNING SPECIFICATIONS**

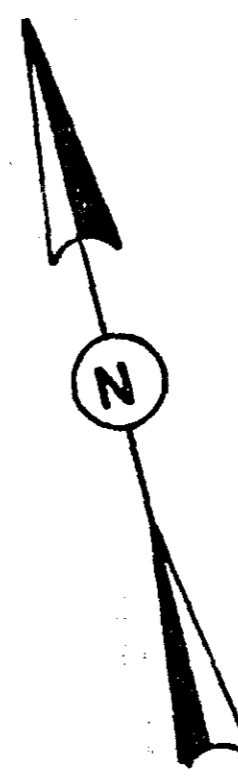
THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.



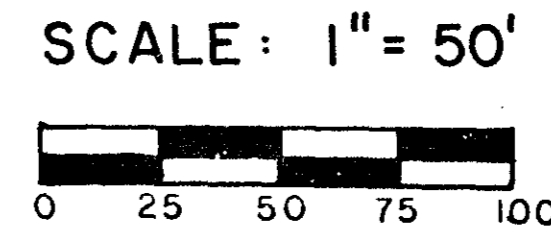
PROPOSED DIVERSION  
STRUCTURE "C" SEE DETAIL SHEET R-6  
PLAN PROFILE SHEET R-13

NOTE : CLASS 5 MAINTENANCE ACCESS ROADWAY WILL BE  
CONSTRUCTED AS PART OF THE STORMWATER DIVERSION  
PROJECT, IN ACCORDANCE WITH THE SECTION  
DETAIL ON SHEET R-5. THE LOCATION INDICATED  
IS APPROXIMATE. THE EXACT LOCATION SHALL BE  
DETERMINED IN THE FIELD BY THE ENGINEER.  
PAYMENT SHALL BE BASED ON ACTUAL QUANTITIES  
PLACED IN ACCORDANCE WITH GOVERNING SPECIFI-  
CATIONS AND PAY ITEMS PROVIDED.

PROPOSED POND AREAS SHALL BE CONSTRUCTED AS PART OF GOLF  
COURSE RECONSTRUCTION UNDER CITY PROJECT L86-00-04. THIS  
WORK SHALL INCLUDE EXCAVATION, GRADING, AND RESTORATION  
IN ACCORDANCE WITH GOVERNING ST. PAUL PLANS AND SPECIFI-  
CATIONS, SEE PLAN SHEET 10.



**PROJECT  
OVERVIEW**



SEE SHEET R-3

POND OVERFLOW PIPE SHALL BE CONSTRUCTED  
UNDER CITY PROJECT L86-00-04, SEE DETAIL 4,  
PLAN SHEET 8.

6" DUCTILE IRON "KEEP FILL LINE" SHALL BE  
CONSTRUCTED UNDER CITY PROJECT L86-00-04,  
SEE PLAN SHEET 5.(DETAIL 1)

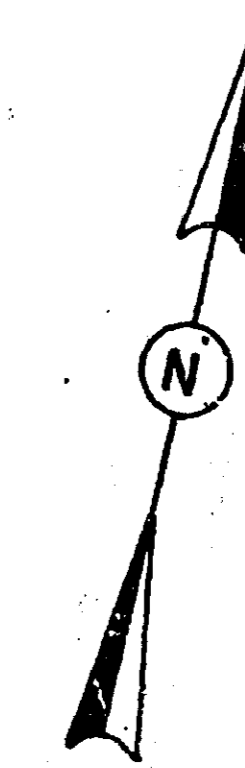
**ASBUILT FROM**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: DRB  
DATE: 4-25-88

I HEREBY CERTIFY THAT THIS PLAN WAS  
PREPARED BY ME OR UNDER MY DIRECT  
SUPERVISION AND THAT I AM A DULY  
REGISTERED PROFESSIONAL ENGINEER UNDER  
THE LAWS OF THE STATE OF MINNESOTA.  
*James E. Paus*  
DATE 4/12/88 REG. NO. 16159

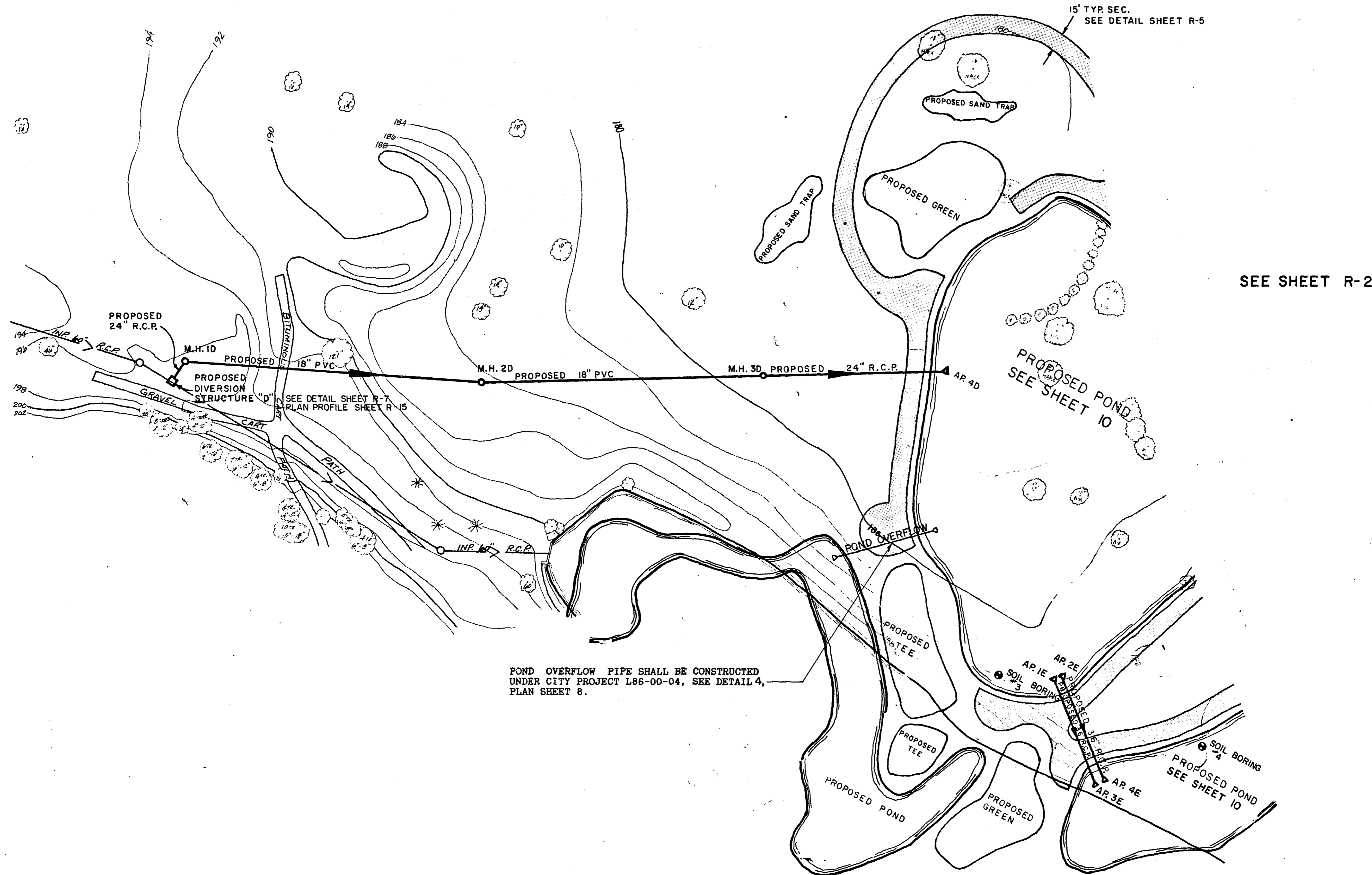
PROJECT OVERVIEW

NOTE: CLASS 5 MAINTENANCE ACCESS ROADWAY WILL BE CONSTRUCTED AS PART OF THE STORMWATER DIVERSION PROJECT, IN ACCORDANCE WITH THE SECTION DETAIL ON SHEET R-5. THE LOCATION INDICATED IS APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. PAYMENT SHALL BE BASED ON ACTUAL QUANTITIES PLACED IN ACCORDANCE WITH GOVERNING SPECIFICATIONS AND PAY ITEMS PROVIDED.

PROPOSED POND AREAS SHALL BE CONSTRUCTED AS PART OF GOLF COURSE RECONSTRUCTION UNDER CITY PROJECT L86-00-04. THIS WORK SHALL INCLUDE EXCAVATION, GRADING, AND RESTORATION IN ACCORDANCE WITH GOVERNING ST. PAUL PLANS AND SPECIFICATIONS, SEE PLAN SHEET 10.



SCALE: 1" = 50'



SEE SHEET R-2

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: *DRB*  
 DATE: 4-25-88

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*James F. Johnson*  
 DATE 4/18/88 REG. NO. 14152

***** *STATEMENT OF ESTIMATED QUANTITIES* *****				
ITEM NBR	ITEM	UNIT	QUANTITIES	FINAL QUANTITIES
2104.501	REMOVE CURB & GUTTER	LF	32	31
2104.501	REMOVE RC SEWER PIPE (24")	LF	16	12
2104.501	REMOVE RC SEWER PIPE (36")	LF	16	12
2104.501	REMOVE RC SEWER PIPE (44" SPAN ARCH)	LF	32	20
2104.501	REMOVE RC SEWER PIPE (60")	LF	16	12
2104.505	REMOVE TRENCH PAVEMENT	SY	55	0
2105.505	MUCK EXCAVATION	CY	800	0
2105.525	TOPSOIL BORROW (L.V.)	CY	130	142.4
2130.501	WATER	M GAL	6	0
2211.501	AGGREGATE BASE CLASS 5A	TON	2800	1091.3
2301.501	CONCRETE PAVEMENT	SQ YD	55	0
2301.513	STRUCTURAL CONCRETE, (HIGH EARLY STRENGTH)	CU YD	11	0
2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	1.45	2.14
2331.508	WEARING COURSE MIXTURE	TON	14.5	21.4
2331.510	BINDER COURSE MIXTURE	TON	14.5	21.4
2357.502	BITUMINOUS MAT. FOR TACK COAT	GAL	9	2
2411.507	CONCRETE DIVERSION STRUCTURE DES. A	EACH	1	1
2411.507	CONCRETE DIVERSION STRUCTURE DES. B	EACH	1	1
2411.507	CONCRETE DIVERSION STRUCTURE DES. C	EACH	1	1
2411.507	CONCRETE DIVERSION STRUCTURE DES. D	EACH	1	1
2411.507	CONCRETE LIFT STATION SUMP STRUCTURE	EACH	1	1
411.602	ALUMINUM ACCESS DOORS (24" x 30")	EACH	4	4
411.602	SLIDE GATES	EACH	4	4
411.602	F&I DIV. STRUCT. 'A' ENERGY PLATE	EACH	1	1
411.602	F&I DIV. STRUCT. 'B' ENERGY PLATE	EACH	1	1
411.602	F&I DIV. STRUCT. 'C' ENERGY PLATE	EACH	1	1
2451.501	STRUCTURE EXCAVATION, CLASS U	CY	354	354
2451.507	GRANULAR BEDDING (L.V.)	CY	195	55.6
2501.515	24" RC PIPE APRON	EACH	4	4
2501.515	36" RC PIPE APRON	EACH	4	4
2501.515	48" RC PIPE APRON	EACH	3	3
501.602	F&I TRASH GUARD FOR 24" RC APRON	EACH	4	4
501.602	F&I TRASH GUARD FOR 36" RC APRON	EACH	4	4
501.602	F&I TRASH GUARD FOR 48" RC APRON	EACH	1	1
501.602	F&I SUMP INLET GRATE FOR 48" RC APRON	EACH	2	2
2503.511	RC PIPE SEWER (12") CL II	LF	16	0
2503.511	RC PIPE SEWER (18") CL II	LF	138	111
2503.511	RC PIPE SEWER (18") CL III	LF	65	63.6
2503.511	RC PIPE SEWER (18") CL IV	LF	100	90.4
2503.511	RC PIPE SEWER (24") CL II	LF	886	797.4
2503.511	RC PIPE SEWER (24") CL III	LF	270	243
2503.511	RC PIPE SEWER (24") CL IV	LF	468	512.5
2503.511	RC PIPE SEWER (24") CL V	LF	16	8
2503.511	RC PIPE SEWER (36") CL II	LF	128	128
2503.511	RC PIPE SEWER (36") CL V	LF	16	8
2503.511	RC PIPE SEWER (48") CL II	LF	80	80
2503.511	RC PIPE SEWER (48") CL IV	LF	32	24
2503.511	RC PIPE SEWER (60") CL IV	LF	48	32

***** *STATEMENT OF ESTIMATED QUANTITIES* *****				
ITEM NBR	ITEM	UNIT	QUANTITIES	FINAL QUANTITIES
2503.521	44" SPAN RCP-A SEWER CLASS V	LF	32	16
2503.571	18"x24" RC PIPE INCREASER CL III (4')	EACH	1	1
2503.571	48"x60" RC PIPE INCREASER CL IV (4')	EACH	2	2
503.602	24" RCP CONSTRUCTION JOINT	EACH	2	1
503.602	36" RCP CONSTRUCTION JOINT	EACH	2	2
503.602	44" SPAN RCP CONSTRUCTION JOINT	EACH	4	4
503.602	60" RCP CONSTRUCTION JOINT	EACH	2	1
503.602	24" RC PIPE CUTOUT	EACH	1	1
503.602	36" RC PIPE CUTOUT	EACH	1	1
503.602	44" SPAN RC PIPE CUTOUT	EACH	2	2
503.603	SEWER PIPE 18" PVC	LF	465	469
503.607	PIPE BEDDING (CA-3)	TON	250	445.8
504.602	F&I DRESSER COUPLING 3" (ROCKWELL #441)	EACH	1	1
504.602	F&I DRESSER COUPLING 20" (ROCKWELL #413)	EACH	2	2
504.603	DUCTILE IRON PIPE, SEWER, 8", CL 50	LF	125	140.5
504.603	8" x 90 DUCTILE IRON BEND	EACH	2	2
504.603	9" x 22 1/2 DUCTILE IRON BEND	EACH	1	1
504.603	DUCTILE IRON PIPE, SEWER, 20", CL 50	LF	250	310.5
504.603	20" x 90 DUCTILE IRON BEND	EACH	4	2
504.603	20" x 22 1/2 DUCTILE IRON BEND	EACH	2	2
504.604	<del>PUMP, MOTOR, AND CONTROLS</del> STORM WATER PUMPING SYSTEM	L.S.	1	1
2506.506	CONSTRUCT MANHOLES DES A OR F (MODIFIED)	LF	11.1	11.0
2506.506	CONSTRUCT MANHOLES DES A OR F	LF	97.9	98.9
2506.508	CONSTRUCT MANHOLES DESIGN 72-4020E	EACH	1	1
2506.516	CASTING (NEENAH R-1916-F)	EACH	2	2
2506.516	CASTING ASSEMBLIES	EACH	7	7
2506.521	INSTALL CASTING (NEENAH R-1916-F)	EACH	2	2
2506.521	INSTALL CASTING ASSEMBLIES	EACH	7	7
<del>506.602</del>	<del>CONNECT INTO EXISTING STORM SEWER</del>	EACH	4	
2511.515	GEOTEXTILE FILTER TYPE IV	SQ YD	5405	2872.9
2521.511	BITUMINOUS WALK 2"	SQ FT	260	1392
2531.501	CONC. CURB & GUTTER DES. B61B	LF	30	31
545.604	<del>ELECTRIC POWER SYSTEM</del> ELECTRIC SERVICE	L.S.	1	1
2573.502	SILT FENCE, HEAVY DUTY	LF	80	50
2575.505	SUDDING	SY	1875	1844
2575.531	COMMERCIAL FERTILIZER 12-12-12	TON	0.38	0

***** STANDARD DETAIL PLATES *****	
PLATE NO.	DESCRIPTION
-----	
MNDOT STANDARD PLATES	
-----	
3000K	REINFORCED CONCRETE SEWER PIPE
3002B	REINFORCED CONCRETE INCREASER PIPE
3006D	GASKET JOINT FOR REINFORCED CONCRETE PIPE
3100F	CONCRETE APRON FOR REINFORCED CONCRETE SEWER PIPE
3145D	CONCRETE PIPE TIES
4005K	MANHOLE OR CATCH BASIN DESIGN F
4010F	CONCRETE SHORT CONE & ADJUSTING RING
4011D	PRECAST CONCRETE BASE
4020E	MANHOLE OR CATCH BASIN
4101C	RING CASTING FOR MANHOLE OR CATCH BASIN NO. 700-7
4110D	COVER CASTING FOR MANHOLE NO. 712
4140D	SPECIAL GRATE CASTING FOR CATCH BASIN NO. 721
4180H	MANHOLE OR CATCH BASIN STEP
7100F	CONCRETE CURB & GUTTERS
8000I	BARRICADES
-----	
ST. PAUL DEPT OF PUBLIC WORKS STD. DETAIL PLATES	
-----	
2308	CONSTRUCTION JOINT
-----	
WATER DEPT. CITY OF ST PAUL, STD. DETAIL PLATES	
-----	
A1-6636,8H1	TIED PIPE REQUIRED FOR BENDS
A1-6636,8H6	TYPICAL THRUST BLOCK DESIGN

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: *DRB*  
DATE: 4-25-88

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*James E. Volant*  
DATE: 4/14/88 REG. NO. 16153

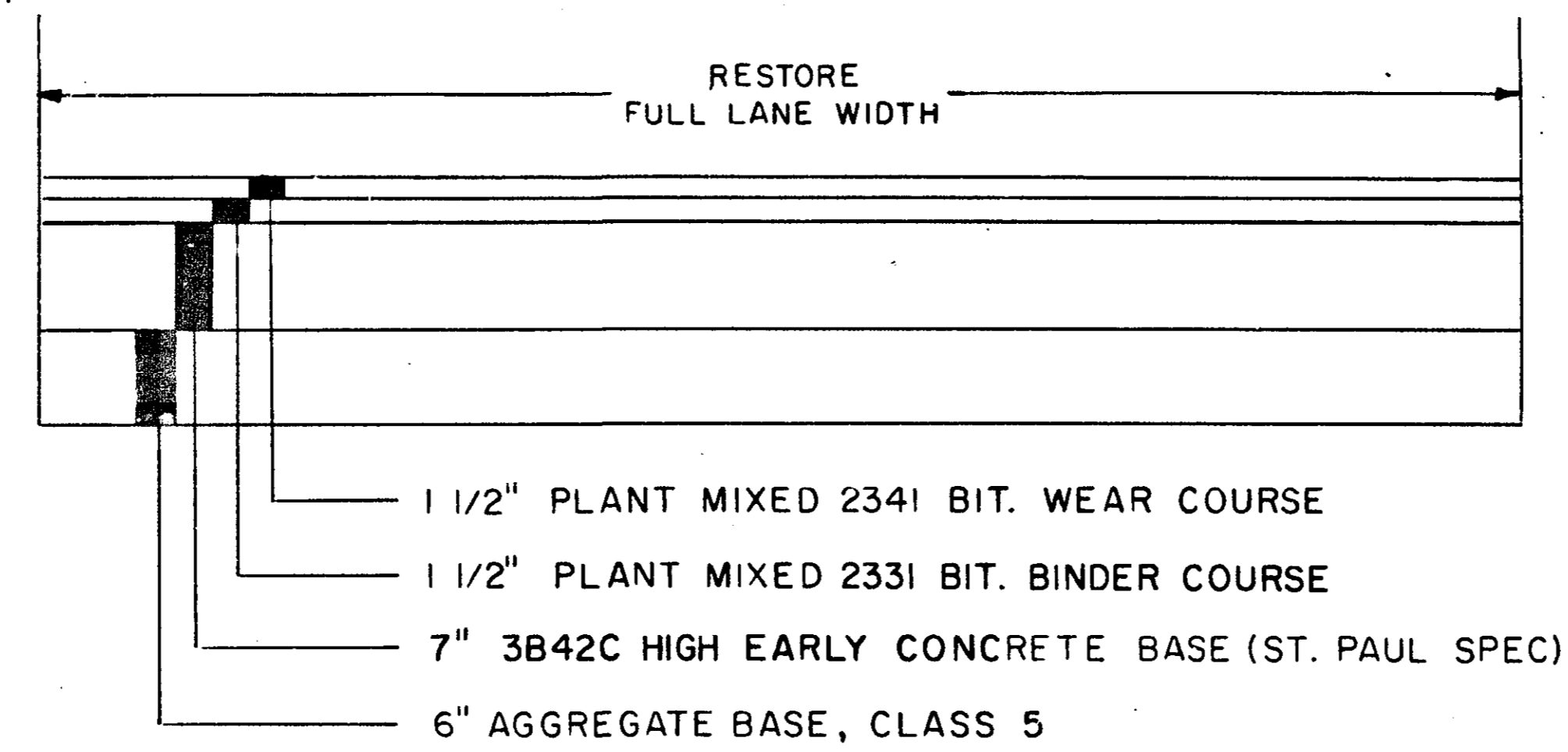
EXISTING DRAINAGE CHART

STATION	LOCATION NO.	TYPE	DESIGN	CONST. HEIGHT CASTING L.F. ASSEMBLY PROFILE GRATE	ELEVATION NEW CB/MH INVERT	FURNISH AND INSTALL PIPE SIZES								DRAINING TO	APRON CLASS STRUCT. & INV. EL. REMARKS	
						18" RCP	24" RCP	36" RCP	48" RCP	60" RCP	18" PVC	24" PVC	30" PVC			DIP
0+07	40LT	IMP	CB												MH AT 0+10-39LT	
0+11	11LT	IMP	CB												MH AT 0+18-9LT	
0+16	39LT	IMP	MH												MH AT 0+16-9LT	
0+18	9LT	IMP	MH		188.70										MH AT 2+89-29LT, 24"RCP	
2+89	29LT	IMP	MH		186.34										MH AT 3+85-12LT, 36"RCP	
3+29	14LT	IMP	CB												MH AT 3+85-12LT	
3+32	45LT	IMP	CB												CB AT 3+29-14LT	
3+85	12LT	IMP	MH		185.94										APRON AT 8+71-147RT 36"RCP	
5+88	66LT	IMP	CB												36"RCP AT APPROX 5+88-15LT	
8+71	147RT	IMP	AP		185.16										COMO LAKE	
7+90	99LT	IMP	MH		189.73										APRON AT 8+71-147RT 36"RCP	
12+85	31LT	IMP	CB		189.92										CB AT 13+57-29LT, 12"RCP	
13+57	29LT	IMP	CB		189.86										CB AT 13+57-29LT, 12"RCP	
13+57	2RT	IMP	CB		188.43										12"RCP AT 13+50-33RT	
13+50	33RT	IMP	12"RCP		184.42										COMO LAKE	
13+71	52LT	IMP	MH		188.24										APRON AT 13+67-23RT	
13+67	23RT	IMP	AP		187.06										COMO LAKE	

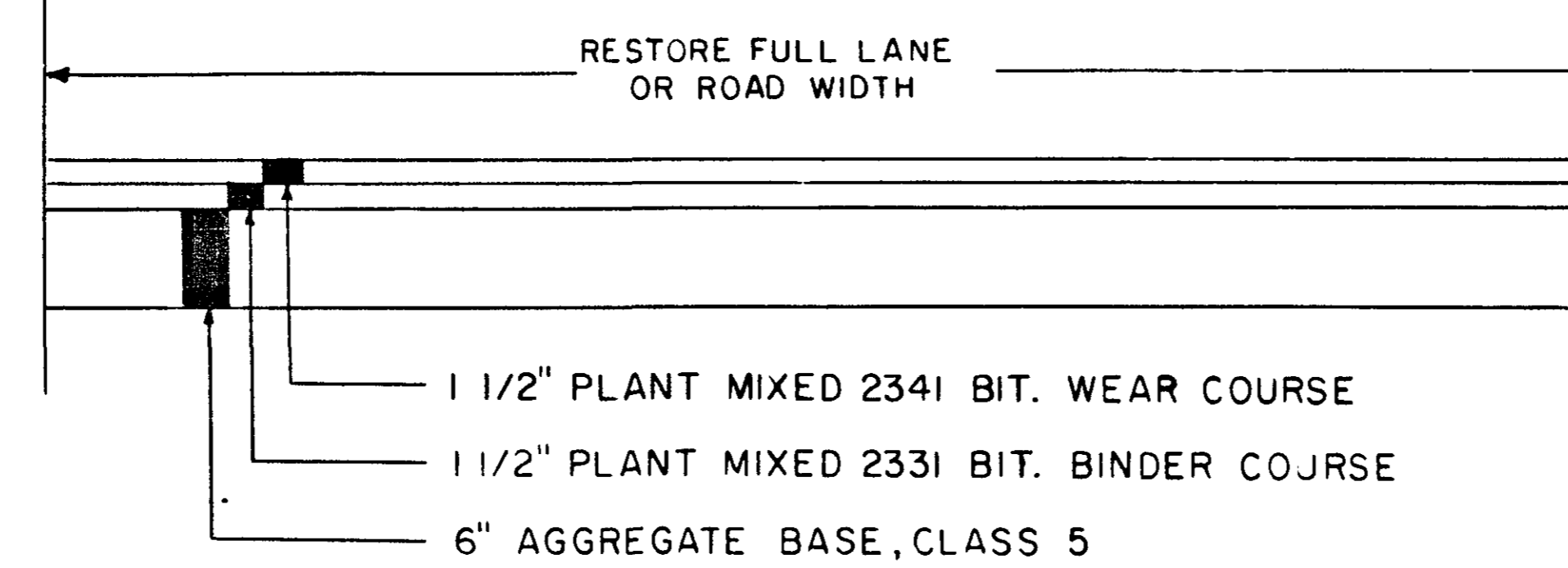
PROPOSED DRAINAGE CHART

STATION	LOCATION NO.	TYPE	DESIGN	CONST. HEIGHT CASTING L.F. ASSEMBLY PROFILE GRATE	ELEVATION NEW CB/MH INVERT	FURNISH AND INSTALL PIPE SIZES								DRAINING TO	APRON CLASS STRUCT. & INV. EL. REMARKS	
						18" RCP	24" RCP	36" RCP	48" RCP	60" RCP	18" PVC	24" PVC	30" PVC			DIP
1+54	18LT	C	SPEC 12	195.5	183.2	185.21	65								MH1C	176.71
1+69	55RT	1C	MH	NOD 5.9	0.58	183.92	178.71	138	54						AP2C	176.25 4' 18"x24"RC INCR
2+02	25BRT	2C	AP			176.25										POND 01
7+81	43LT	B	SPEC 13	197.5	184.4	186.37	100								MH1B	183.00
8+09	10LT	1B	MH	A OR F 13.8	0.58	196.12	183.00	110							MH2B	177.50
6+71	1RT	2B	MH	A OR F 17.9	0.58	194.72	177.50	310							AP3B	176.25
4+61	21BRT	3B	AP			176.25										POND 01
13+69	2LT	A	SPEC 10	193.7	184.0	185.75	242								MH1A	184.78
12+19	2LT	1A	MH	A OR F 9.6	0.58	193.72	184.78	250							MH2A	183.78
8+67	2LT	2A	MH	A OR F 12.3	0.58	195.42	183.78	190							MH3A	177.50
6+79	2RT	3A	MH	A OR F 17.7	0.58	195.12	177.50	306							AP4A	176.25
4+69	217RT	4A	AP			176.25										POND 01
8-RUN	8	SPEC 15		197.0	182.0	183.61	20								MH1D	183.50
8-RUN	10	MH	A OR F 17.1	0.58	197.42	181.00					23B				MH2D	179.19
8-RUN	20	MH	A OR F 9.5	0.58	188.02	179.19					230				MH3D	177.44
8-RUN	30	MH	NOD 5.2	0.58	181.92	177.44	148								AP4D	176.25
8-RUN	40	AP				176.25										POND 01
4+03B	14LT	1E	AP			176.75	64								AP3E	176.50 1984 BASE LINE
5+11B	21RT	3E	AP			176.50									POND 02	1984 BASE LINE
4+05B	21LT	2E	AP			176.75									AP4E	176.50 1984 BASE LINE
5+14B	24RT	4E	AP			176.50									POND 02	1984 BASE LINE
6+40B	104RT	L51	AP			176.50	16	16			4 L.F. 48"x60" INCR				LIFT STA 173.50 1984 BASE LINE	
6+48B	103RT	L52	AP			176.50	16	16			4 L.F. 48"x60" INCR				LIFT STA 173.50 1984 BASE LINE	
6+42B	149LT	L5	SPEC 12		185.5	173.50					160	320			MH-L53	184.44 1984 BASE LINE
8+05	105RT	L53	MH	A OR F 9.2	0.58	192.92	184.44	80							AP-L54	184.00
8+71	167RT	L54	AP			184.00										COMO LAKE

**LEXINGTON PARKWAY RESTORATION  
AT DIVERSION STRUCTURE 'C'  
STA. 1+55**

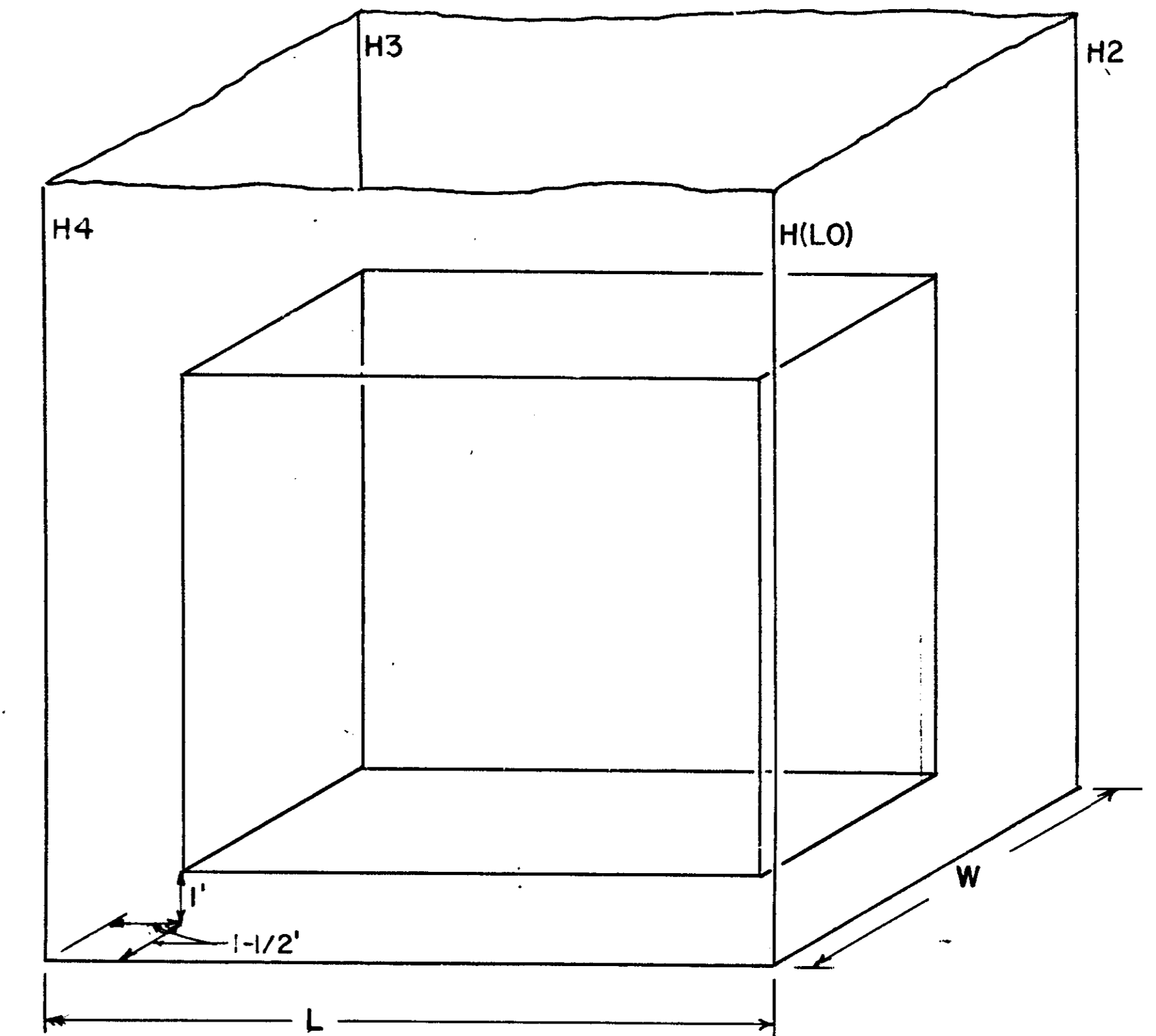
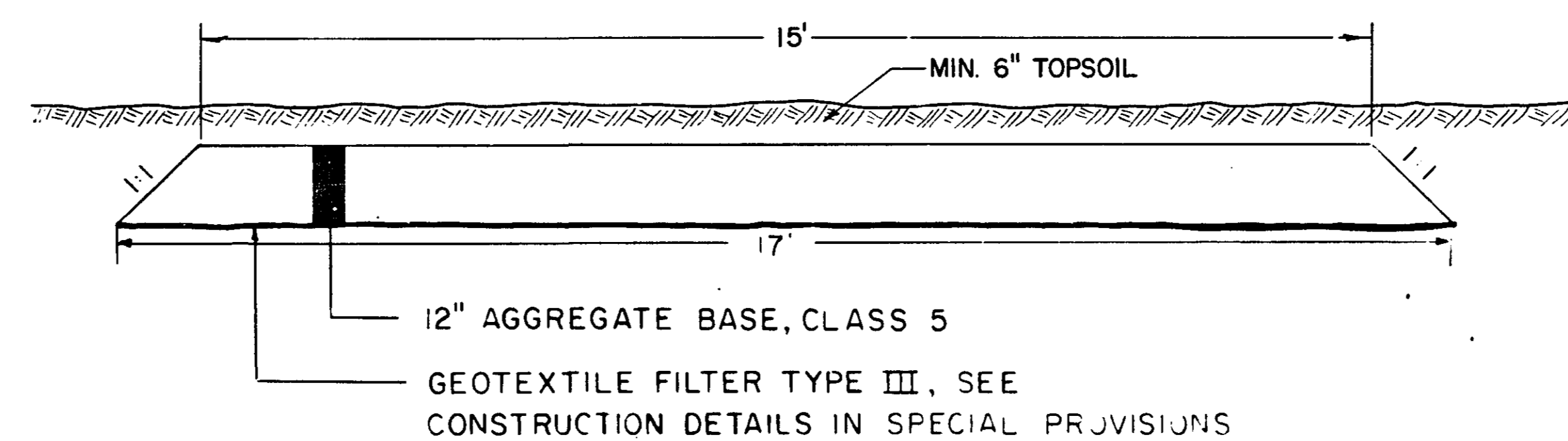


**LEXINGTON PARKWAY RESTORATION  
AT FORCEMAIN CROSSING**



NOTE: HANDFORMED ROLLED BIT. CURB PLACEMENT IS INCIDENTAL TO PAVEMENT RESTORATION

**WORK ACCESS ROAD**



STRUCTURAL EXCAVATION VOLUME DETERMINATION  
MNDOT SPEC 2451.4A

STRUCTURE	LENGTH	WIDTH	H(LO)	H2	H3	H4	VOLUME (C.Y.)
A	18.3'	8.3'	9.4'	9.5'	9.8'	9.9'	56
B	14.3'	8.3'	11.8'	11.9'	12.5'	13.1	55
C	14.3'	8.3'	12.9'	12.9'	12.9'	13.0'	58
D	14.3'	8.3'	16.2'	16.2'	16.4'	16.4'	73
LIFT STATION	18.3'	10.3'	13.9'	14.4'	17.2'	18.2	112

**ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS**

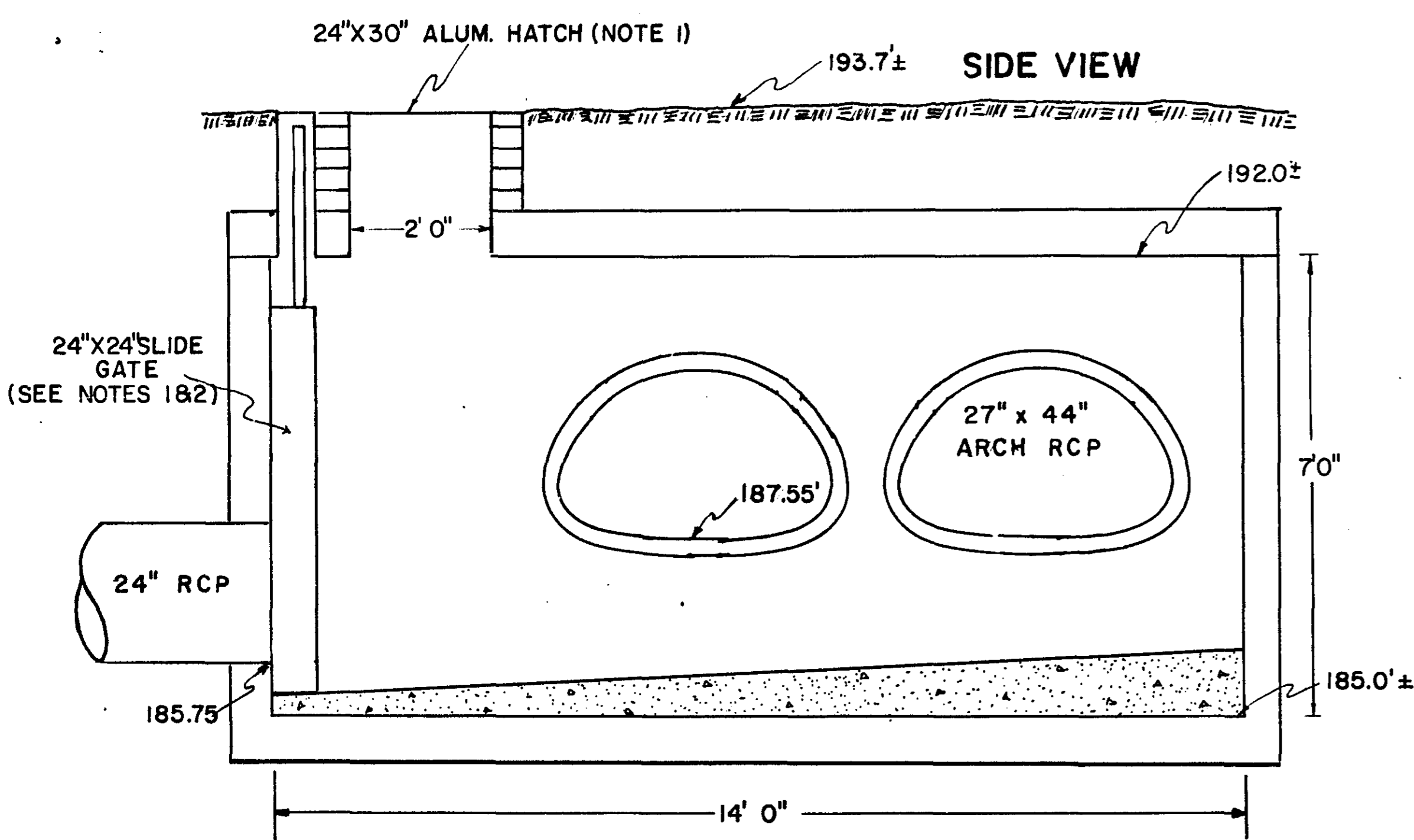
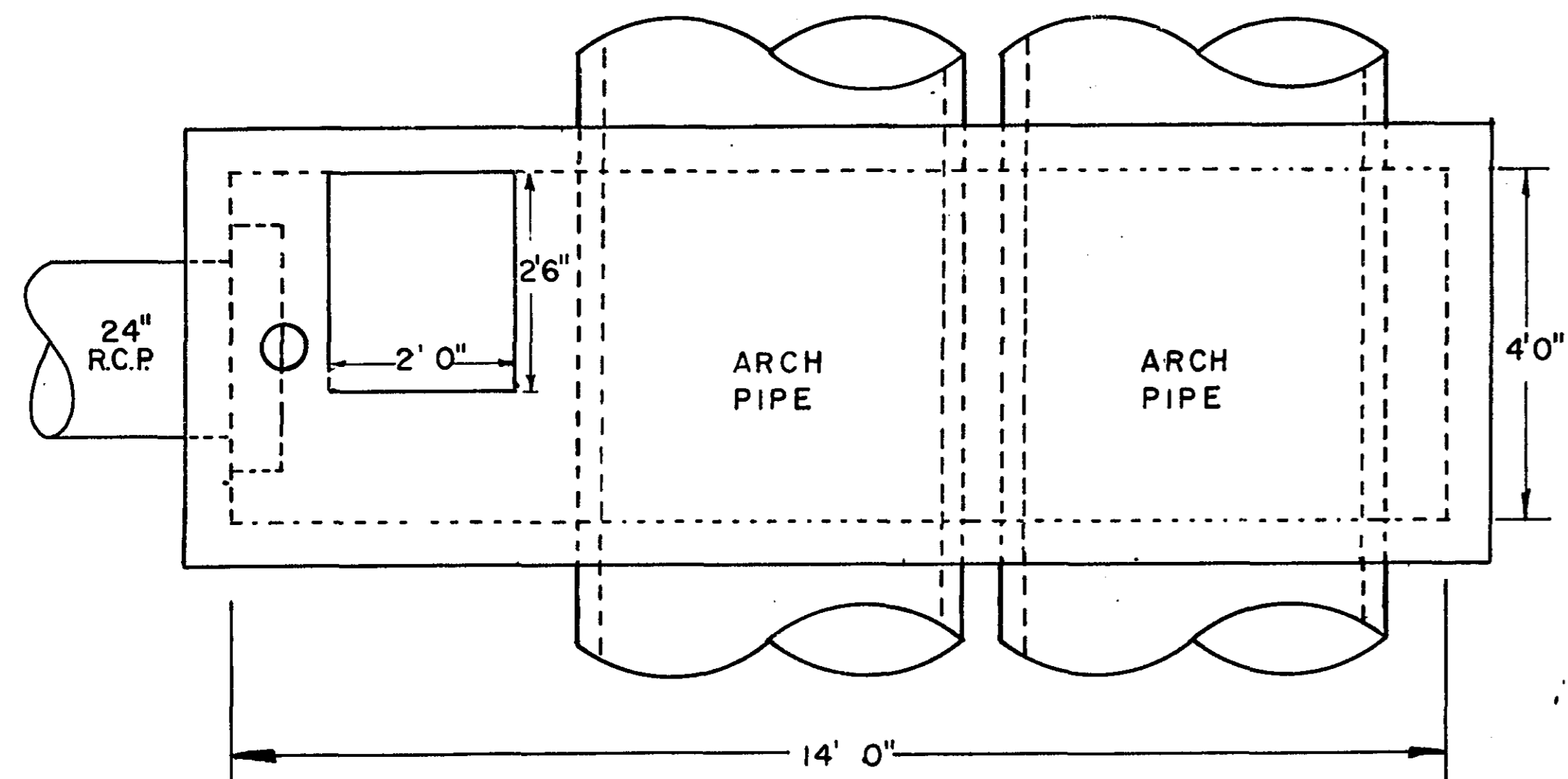
DONE BY: DRB.  
DATE: 4-25-88

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*James E. Jones*  
DATE: 4/16/88 REG. NO. 18159

**DIVERSION STRUCTURE 'A'**

NOTE: SEE STRUCTURE DETAILS, SHEET NO. R-10

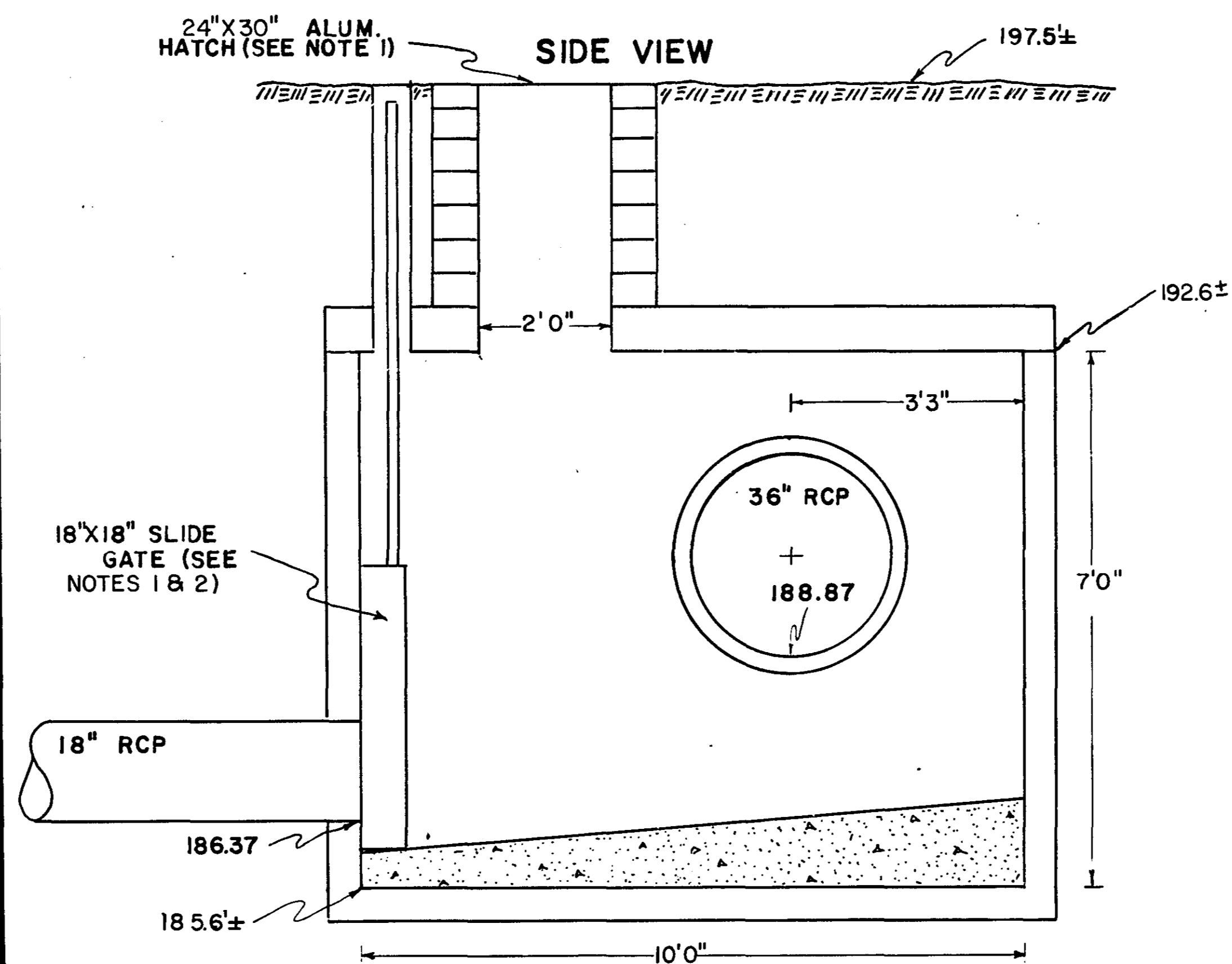
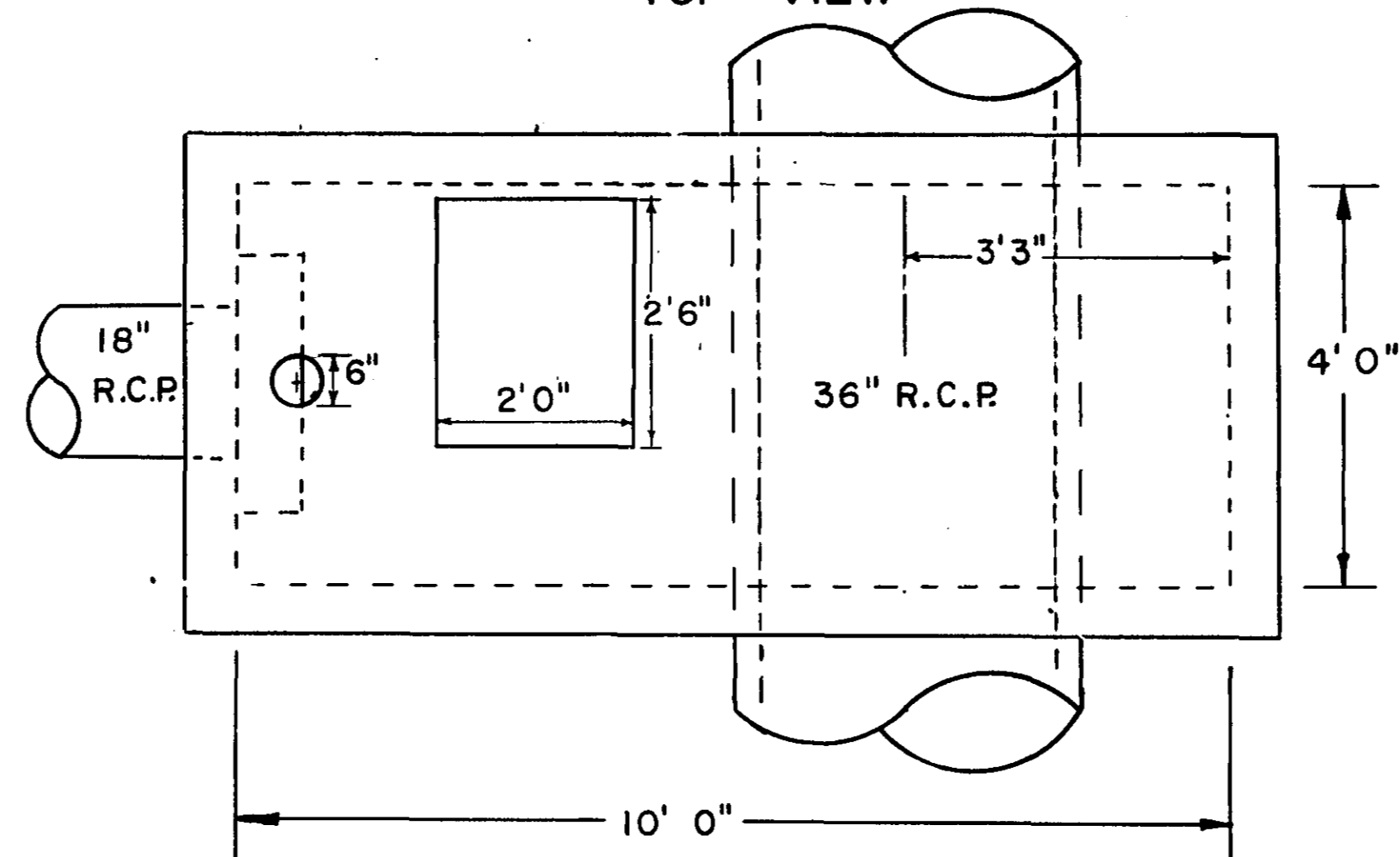
TOP VIEW



**DIVERSION STRUCTURE 'B'**

NOTE: SEE STRUCTURE DETAILS, SHEET NO. R-11

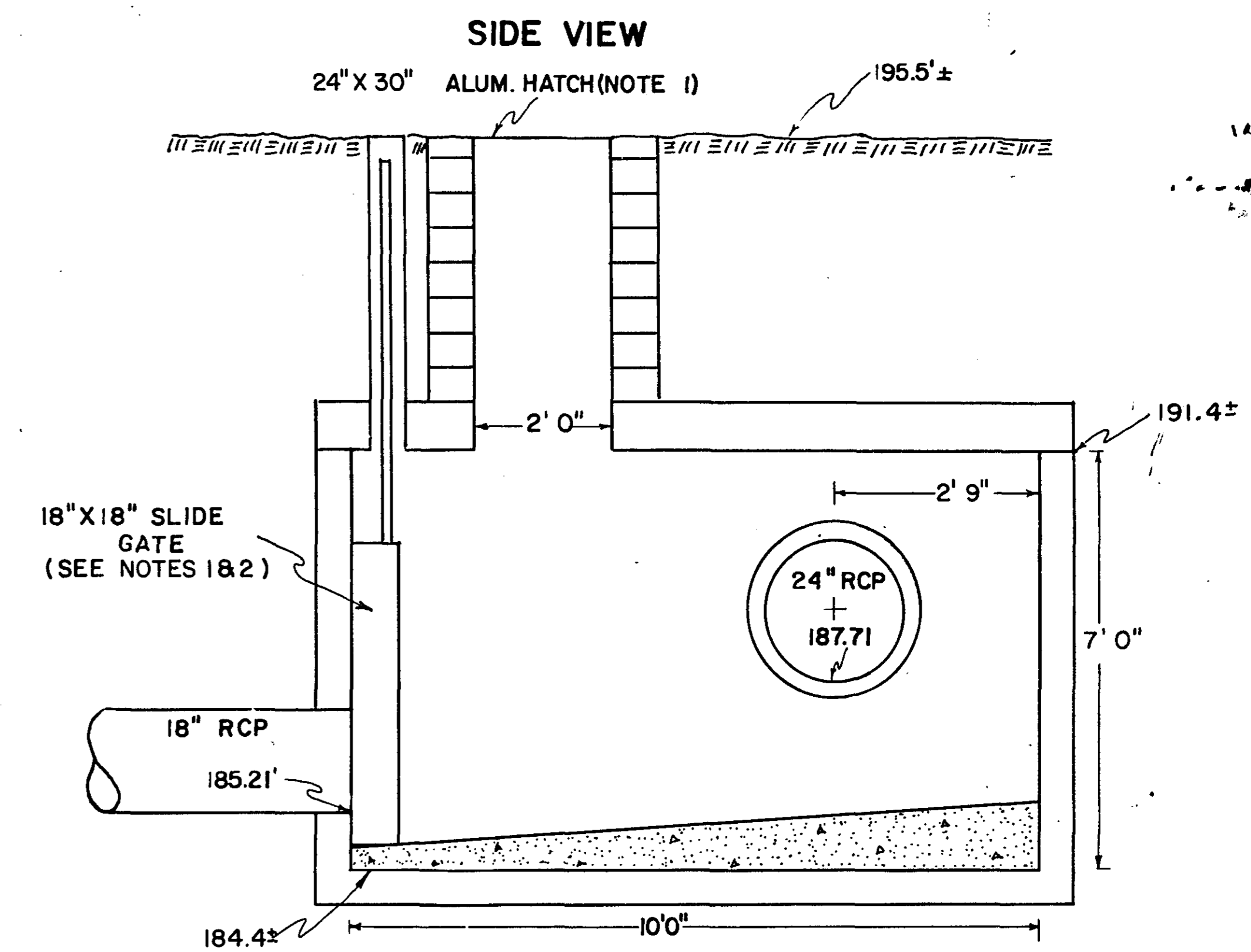
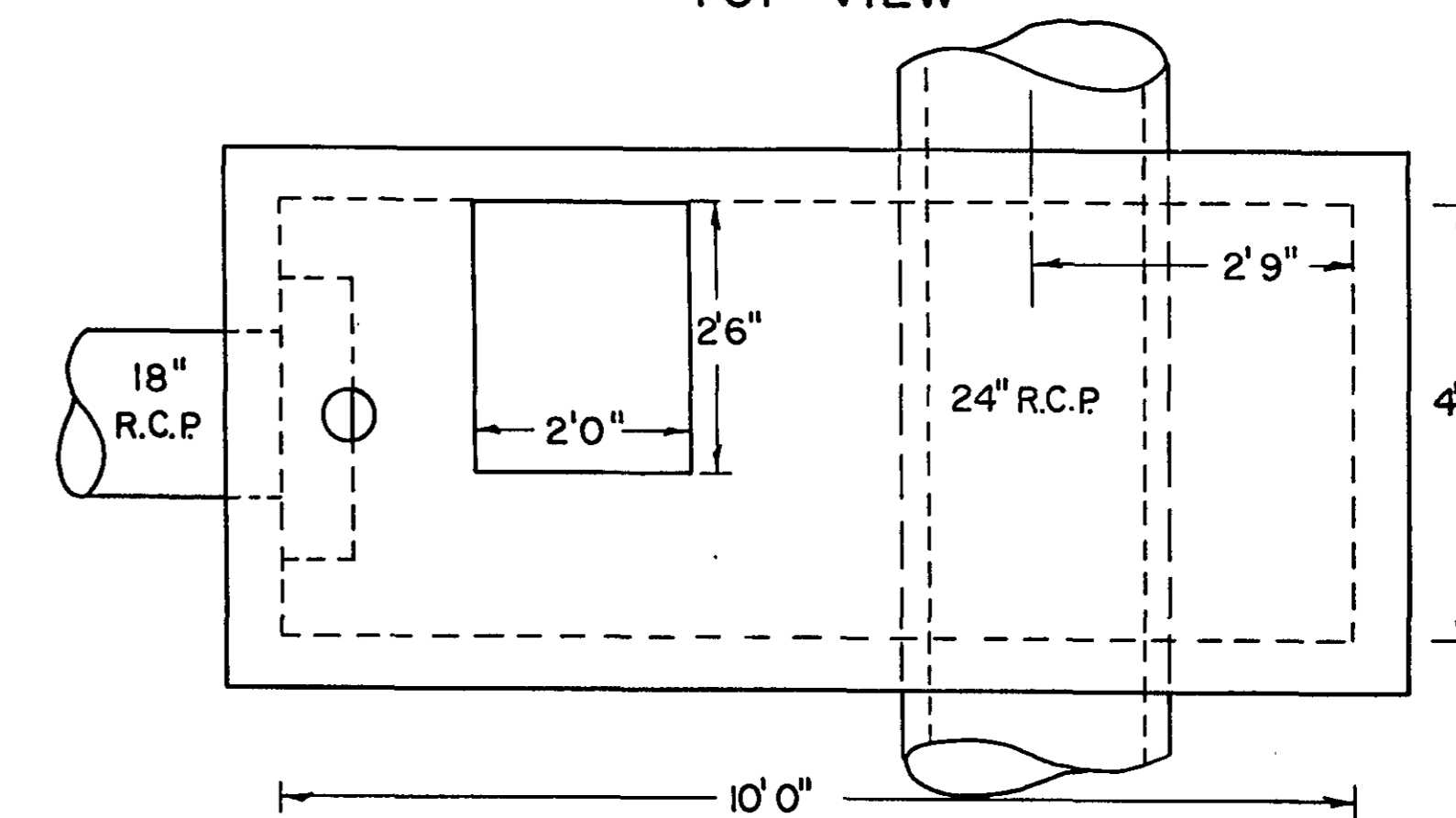
TOP VIEW



**DIVERSION STRUCTURE 'C'**

NOTE: SEE STRUCTURE DETAILS, SHEET NO. R-11

TOP VIEW



\*NOTE 1: ALL POINTS OF CONTACT BETWEEN ALUMINUM (ACCESS FRAMES AND SLIDE GATES) AND SUPPORTING CONCRETE SHALL BE COATED WITH AN APPROVED BITUMASTIC MATERIAL

\*NOTE 2: SLIDE GATES ARE TO BE RODNEY HUNT SERIES 761 OR APPROVED EQUIVALENT, WITH FLOOR BOX AND NON RISING STEM

NOTE: STRUCTURE JOINTS SHALL BE SEALED WITH AN APPROVED JOINT COMPOUND DURING ASSEMBLY

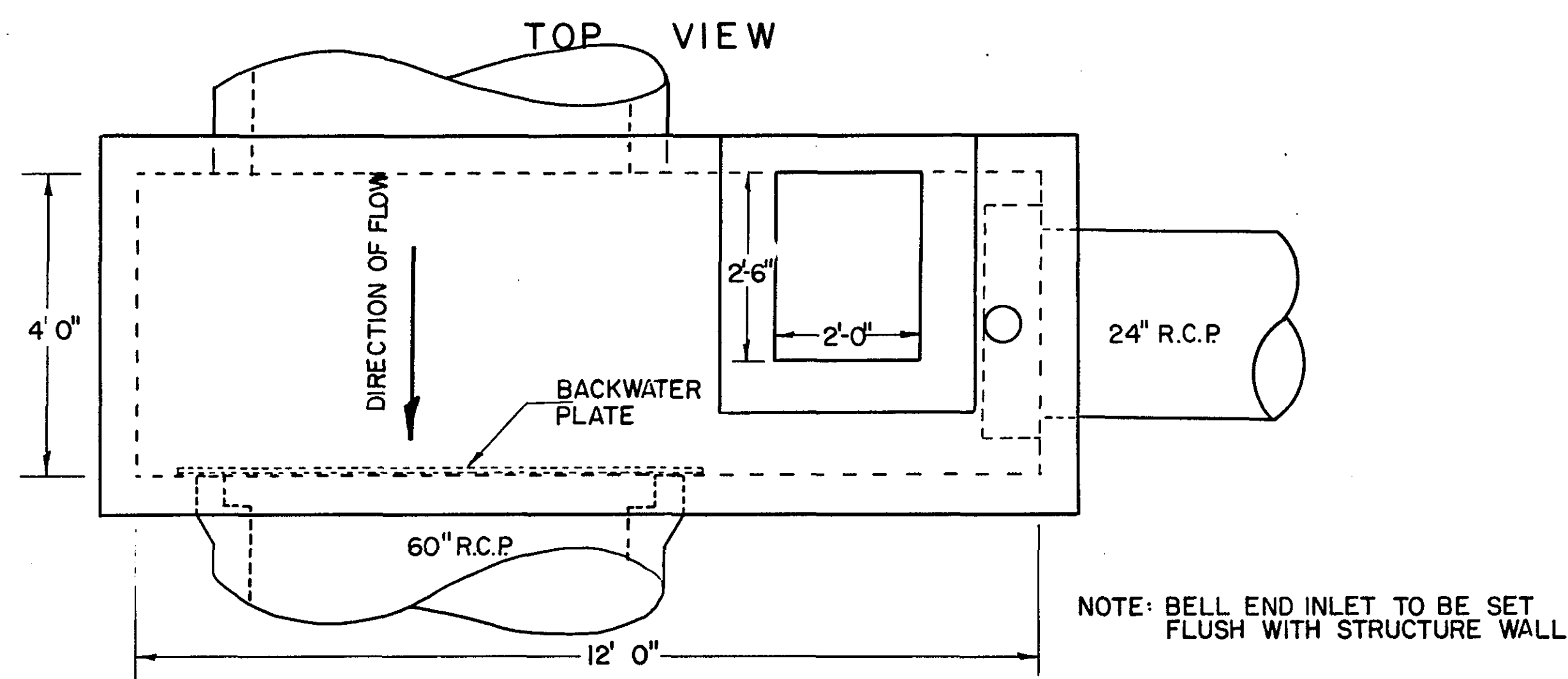
NOTE: DIVERSION STRUCTURE ENTRY APPURTANCES SHALL INCLUDE 24"X30" SPECIAL ALLUMINUM ACCESS COVER AND FRAME W/HINGE HASP LOCK PAYMENT SHALL BE BY THE EACH UNDER ITEM 411.802. MASONRY WORK AND MISC. HARDWARE SHALL BE INCIDENTAL TO FRAME AND COVER INSTALLATION.

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: *GRB*  
DATE: 4-25-88

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

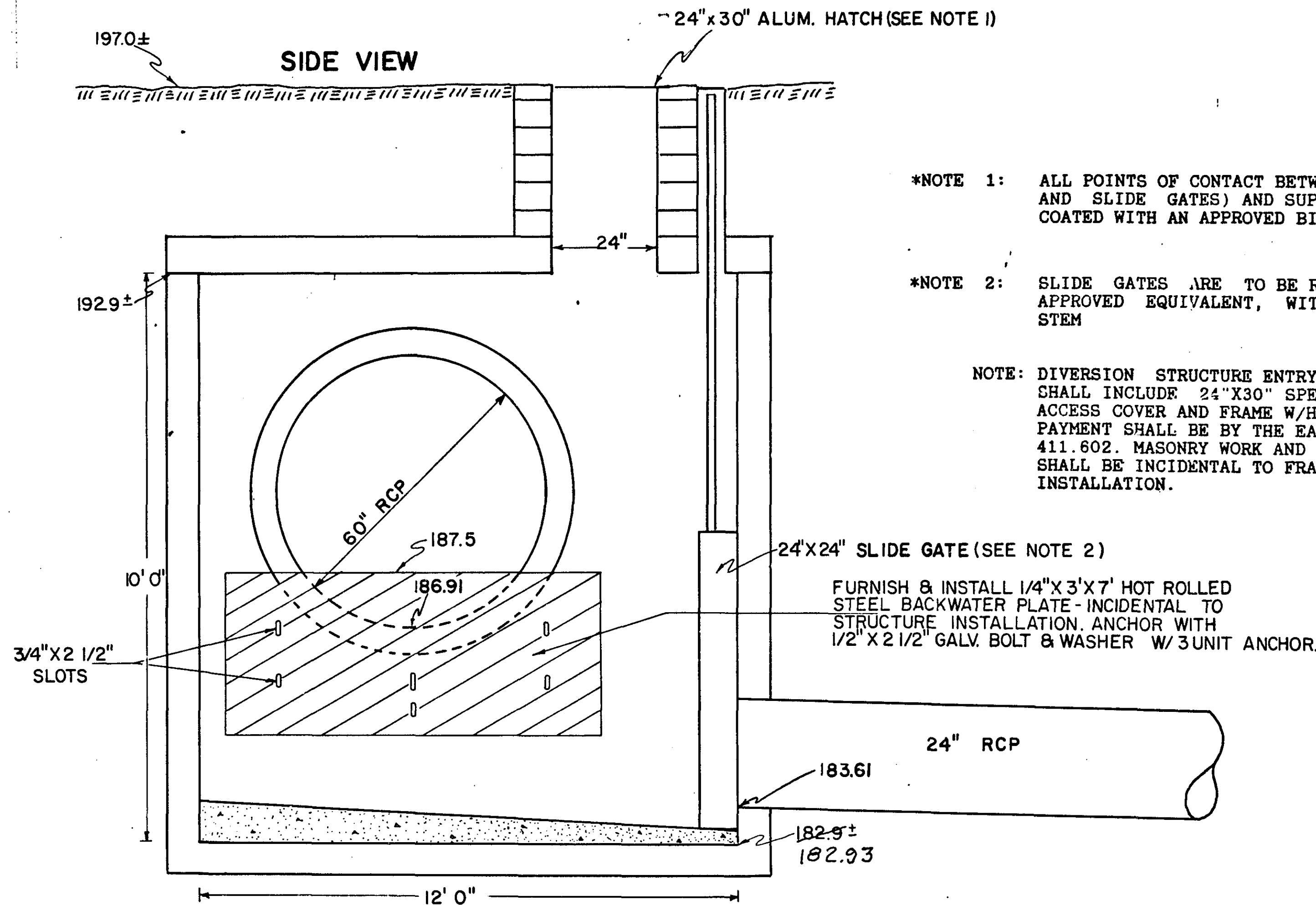
*James E. Polak*  
DATE: 4/14/88 REG. NO. 16152



NOTE: SEE STRUCTURE DETAILS, SHEET NO. R-10

NOTE: STRUCTURE JOINTS SHALL BE SEALED WITH AN APPROVED JOINT COMPOUND DURING ASSEMBLY

**DIVERSION STRUCTURE 'D'**

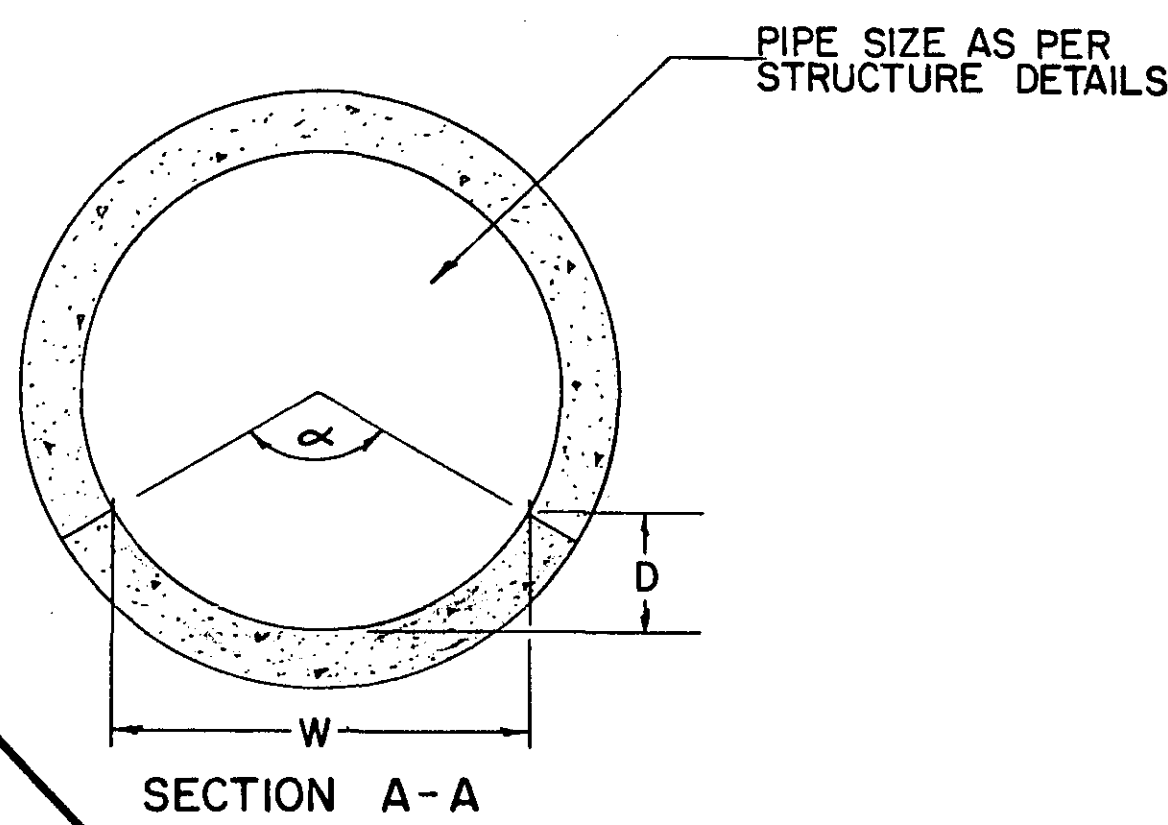


\*NOTE 1: ALL POINTS OF CONTACT BETWEEN ALUMINUM (ACCESS FRAMES AND SLIDE GATES) AND SUPPORTING CONCRETE SHALL BE COATED WITH AN APPROVED BITUMASTIC MATERIAL

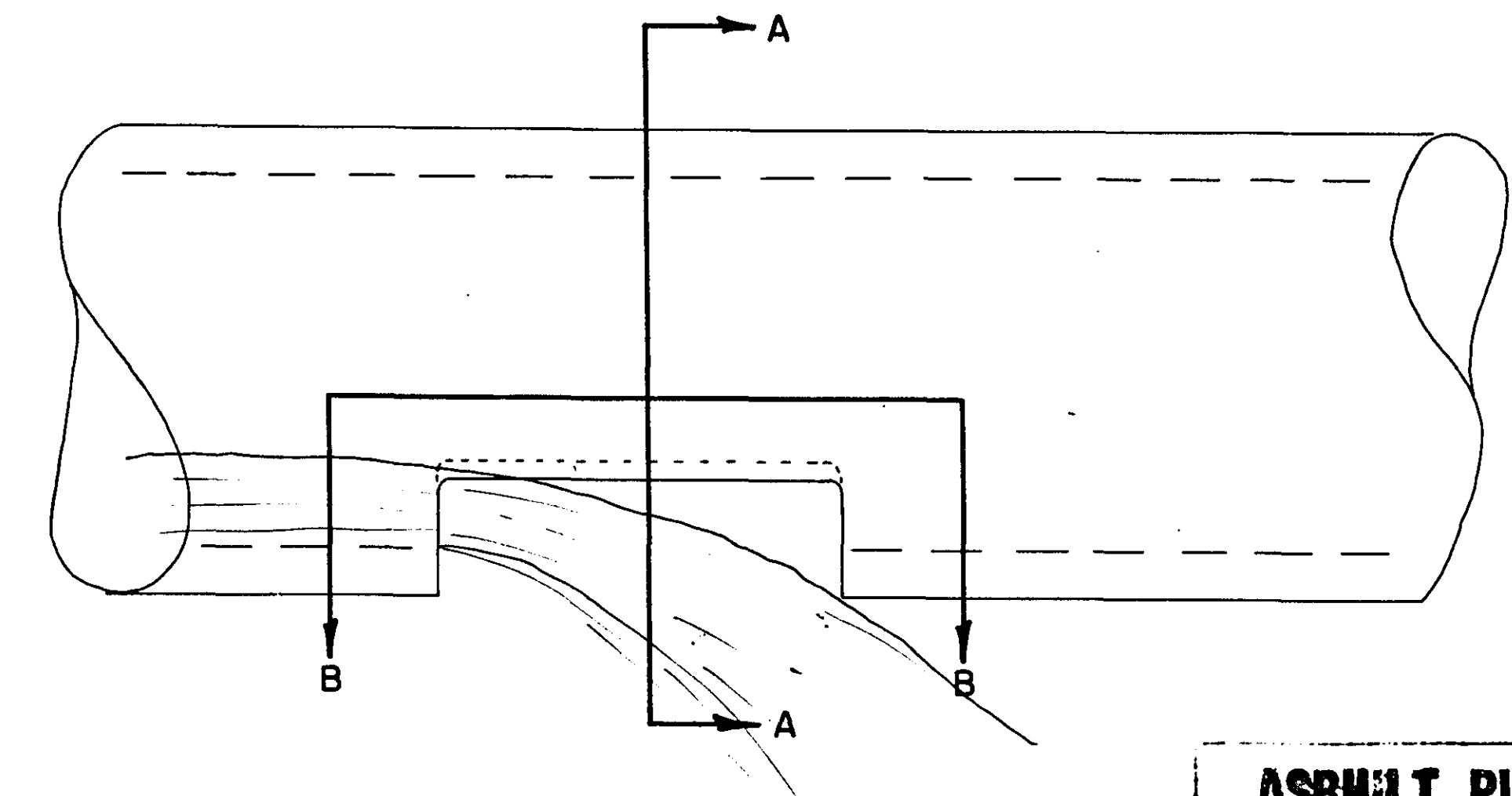
\*NOTE 2: SLIDE GATES ARE TO BE RODNEY HUNT SERIES 761 OR APPROVED EQUIVALENT, WITH FLOOR BOX AND NON RISING STEM

NOTE: DIVERSION STRUCTURE ENTRY APPURTENANCES SHALL INCLUDE 24"X30" SPECIAL ALUMINUM ACCESS COVER AND FRAME W/HINGE HASP LOCK PAYMENT SHALL BE BY THE EACH UNDER ITEM 411.602. MASONRY WORK AND MISC. HARDWARE SHALL BE INCIDENTAL TO FRAME AND COVER INSTALLATION.

FURNISH & INSTALL 1/4"X3'X7' HOT ROLLED STEEL BACKWATER PLATE- INCIDENTAL TO STRUCTURE INSTALLATION. ANCHOR WITH 1/2" X 2 1/2" GALV. BOLT & WASHER W/ 3 UNIT ANCHOR.



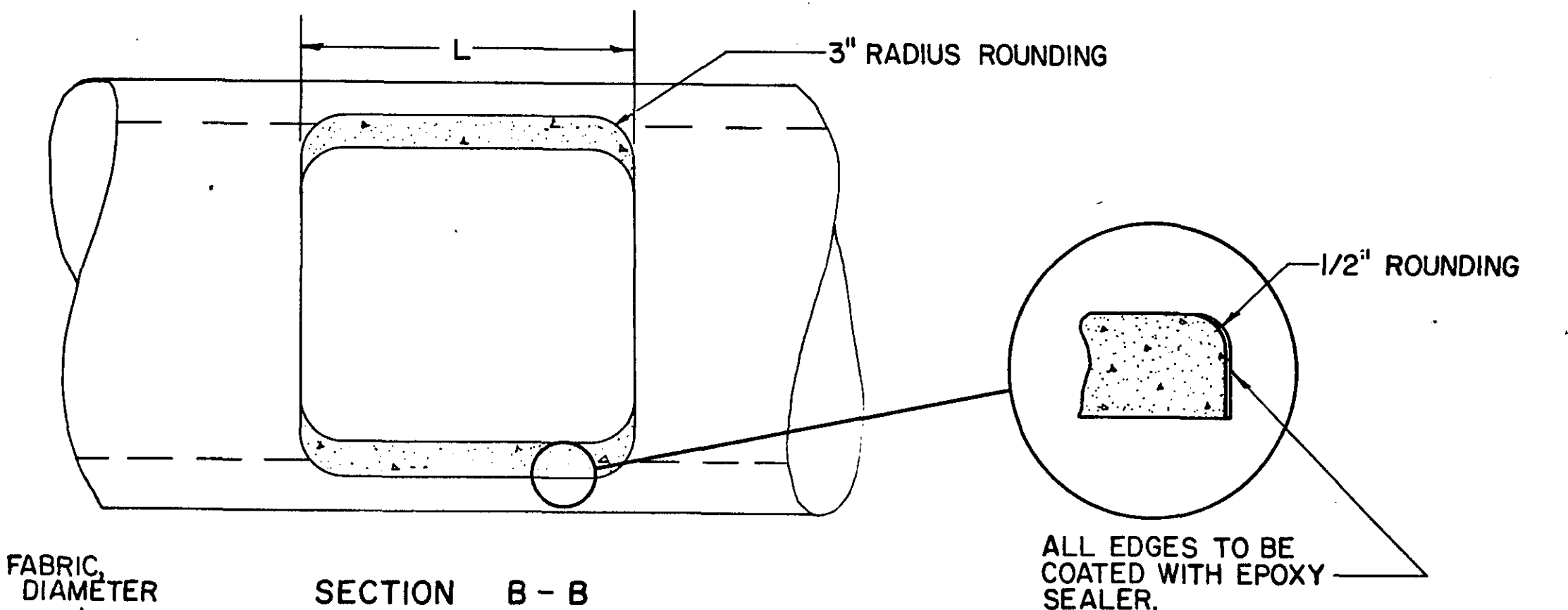
STRUCTURE	PIPE SIZE	D	L	$\alpha$ (or W)
D.S. 'A'	44" SPAN ARCH	5"	1' 6"	W= 3' 8"
D.S. 'B'	36" R.C.P.	9"	2' 8"	120°
D.S. 'C'	24" R.C.P.	1' 0"	2' 3"	180°



R.C. PIPE CUTOUT

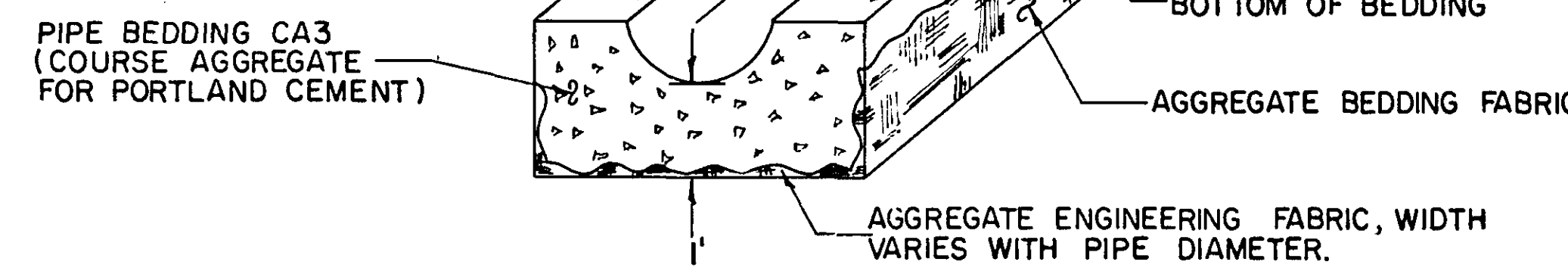
**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: *ARB*  
DATE: 4-25-00

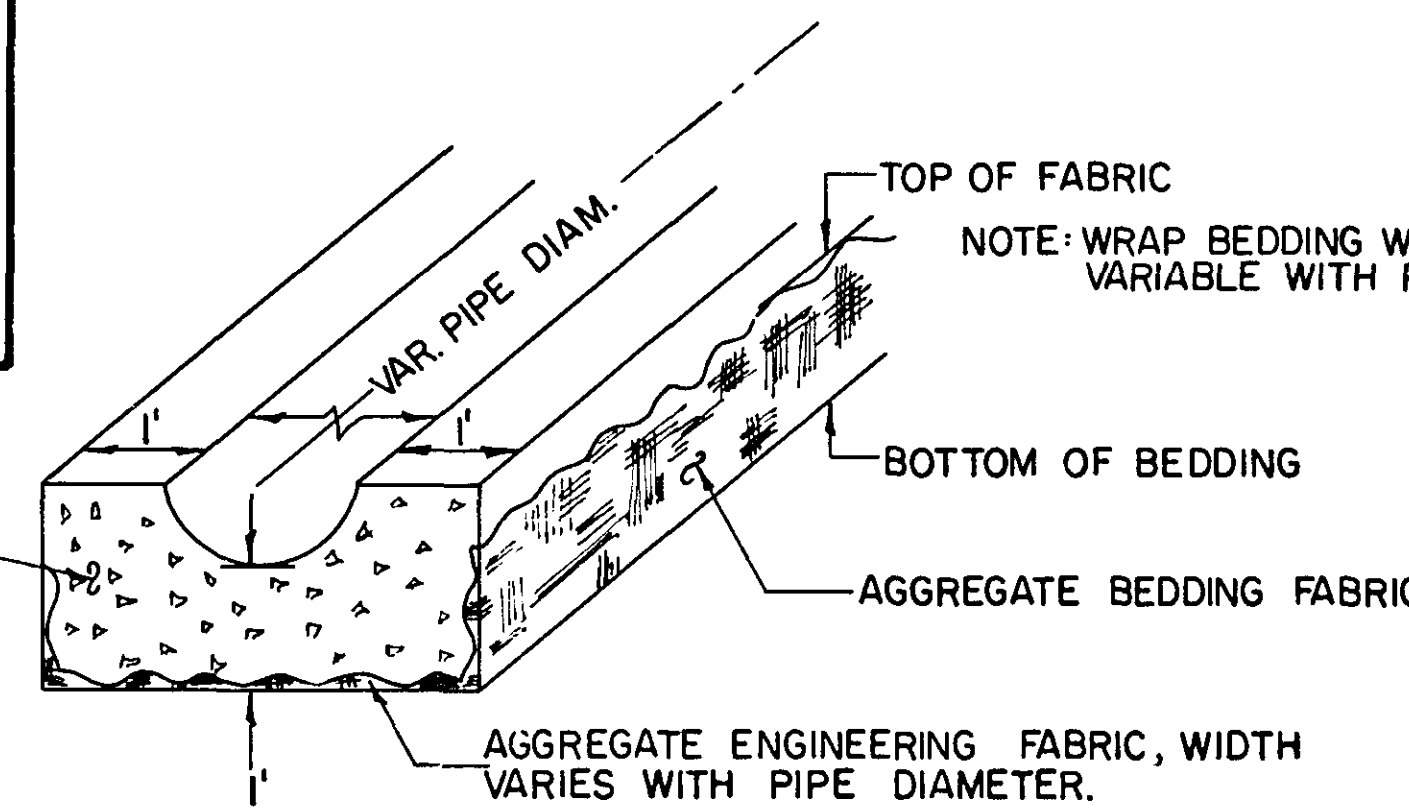


SECTION B-B

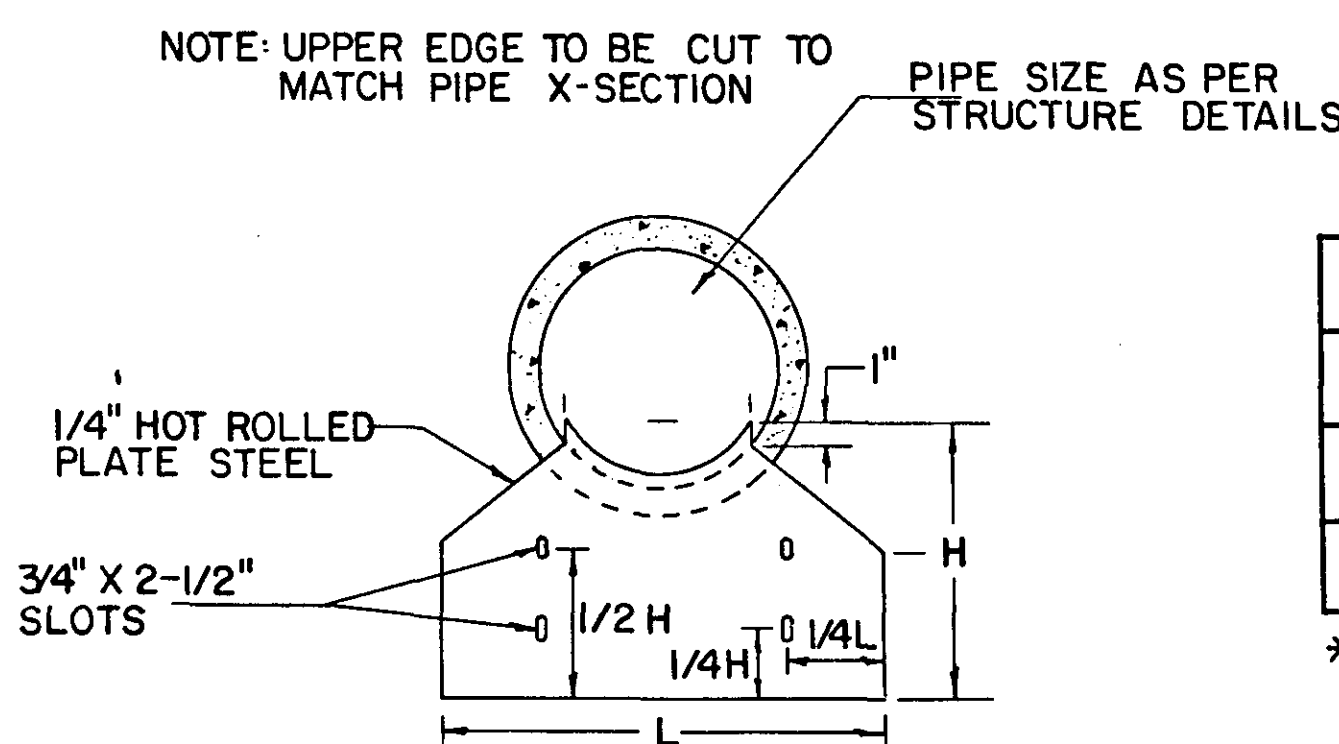
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*James E. [Signature]*  
DATE 4/16/00 REG. NO. 10159



AGGREGATE BEDDING DETAIL  
STORM SEWER AND FORCEMAIN



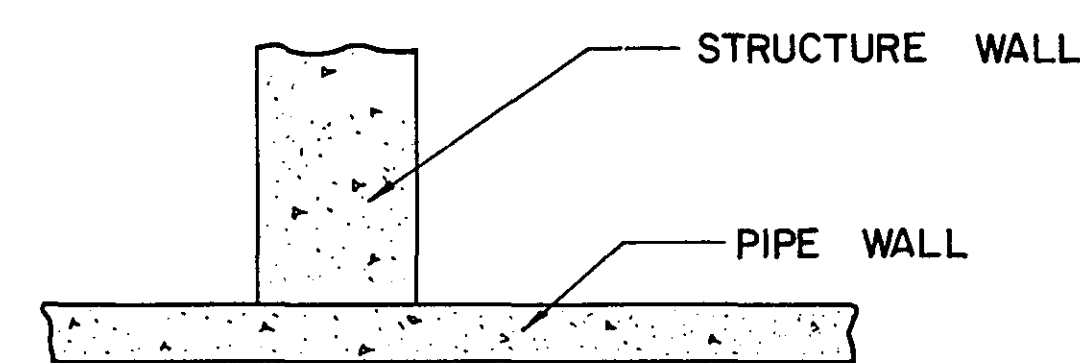
AGGREGATE BEDDING DETAIL  
STORM SEWER AND FORCEMAIN



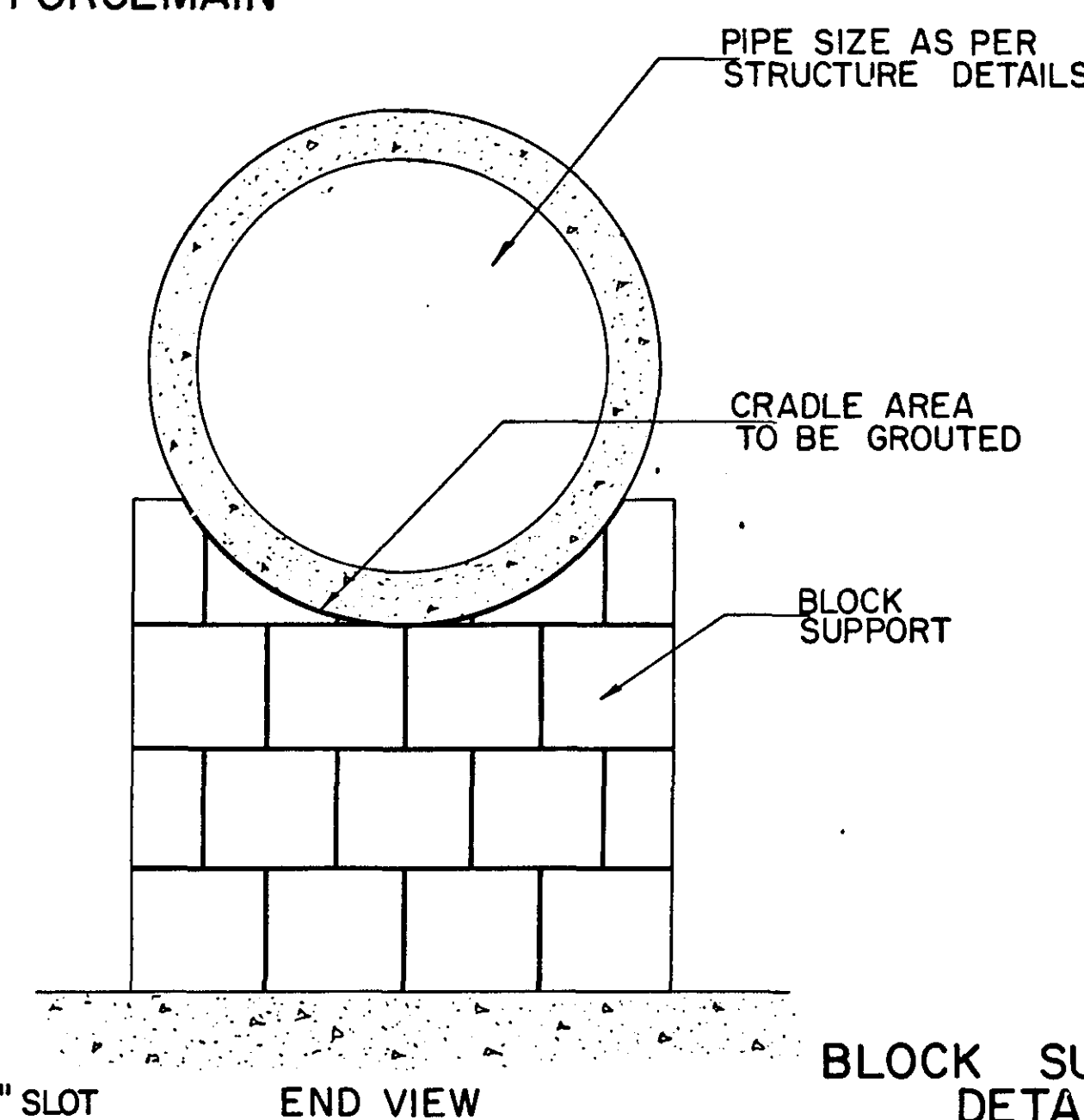
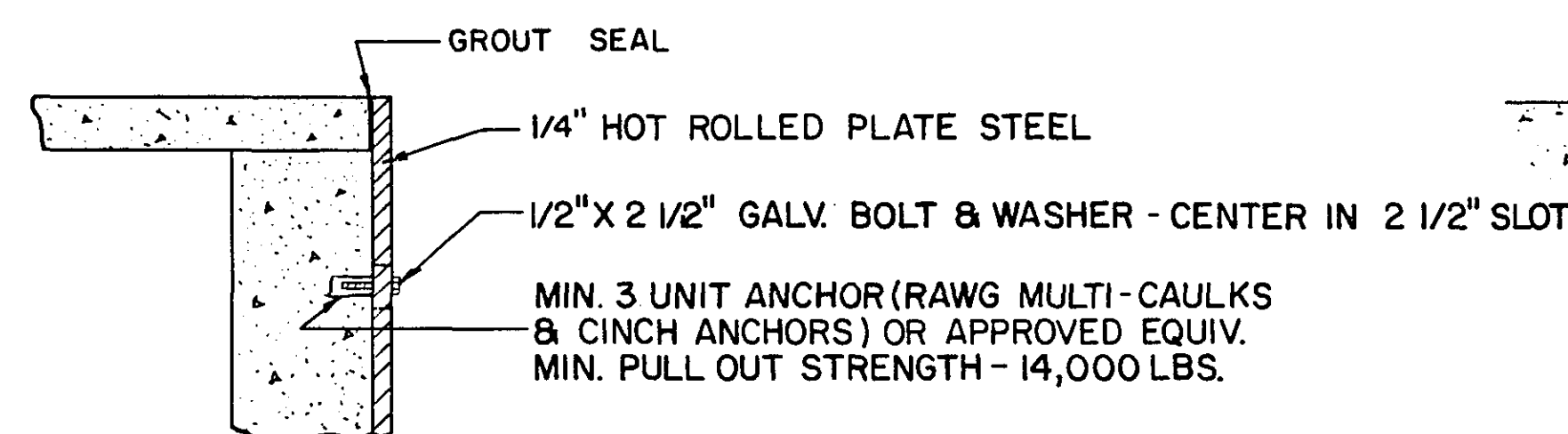
ENERGY PLATE

STRUCTURE	PIPE SIZE	H	L
* D.S. 'A'	44" SPAN ARCH	2' 0"	10' 6"
D.S. 'B'	36" R.C.P.	3' 0"	4' 8"
D.S. 'C'	24" R.C.P.	3' 3"	4' 6"

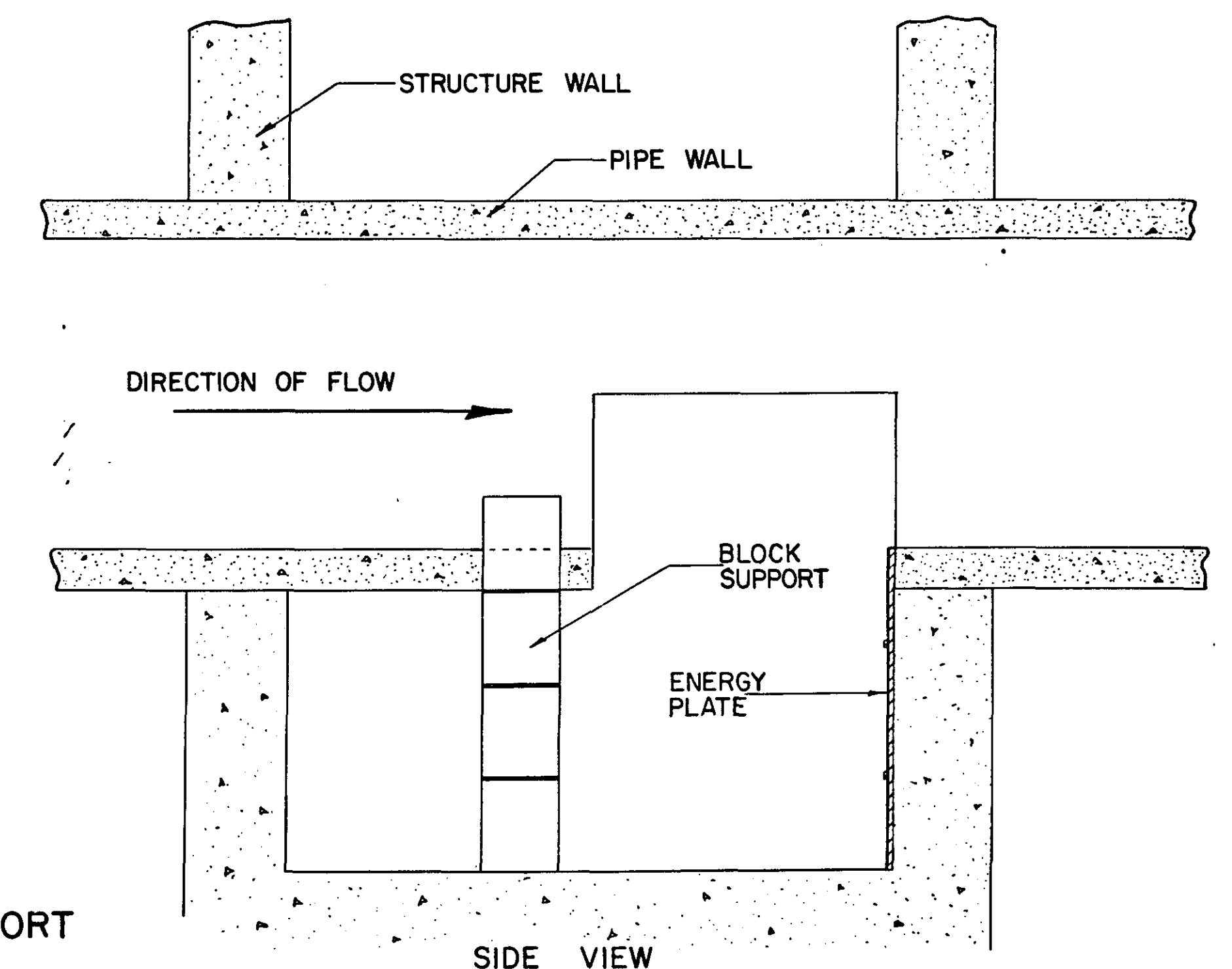
\*A SINGLE PLATE SHALL BE FURNISHED FOR TWIN ARCH PIPES IN D.S. 'A'



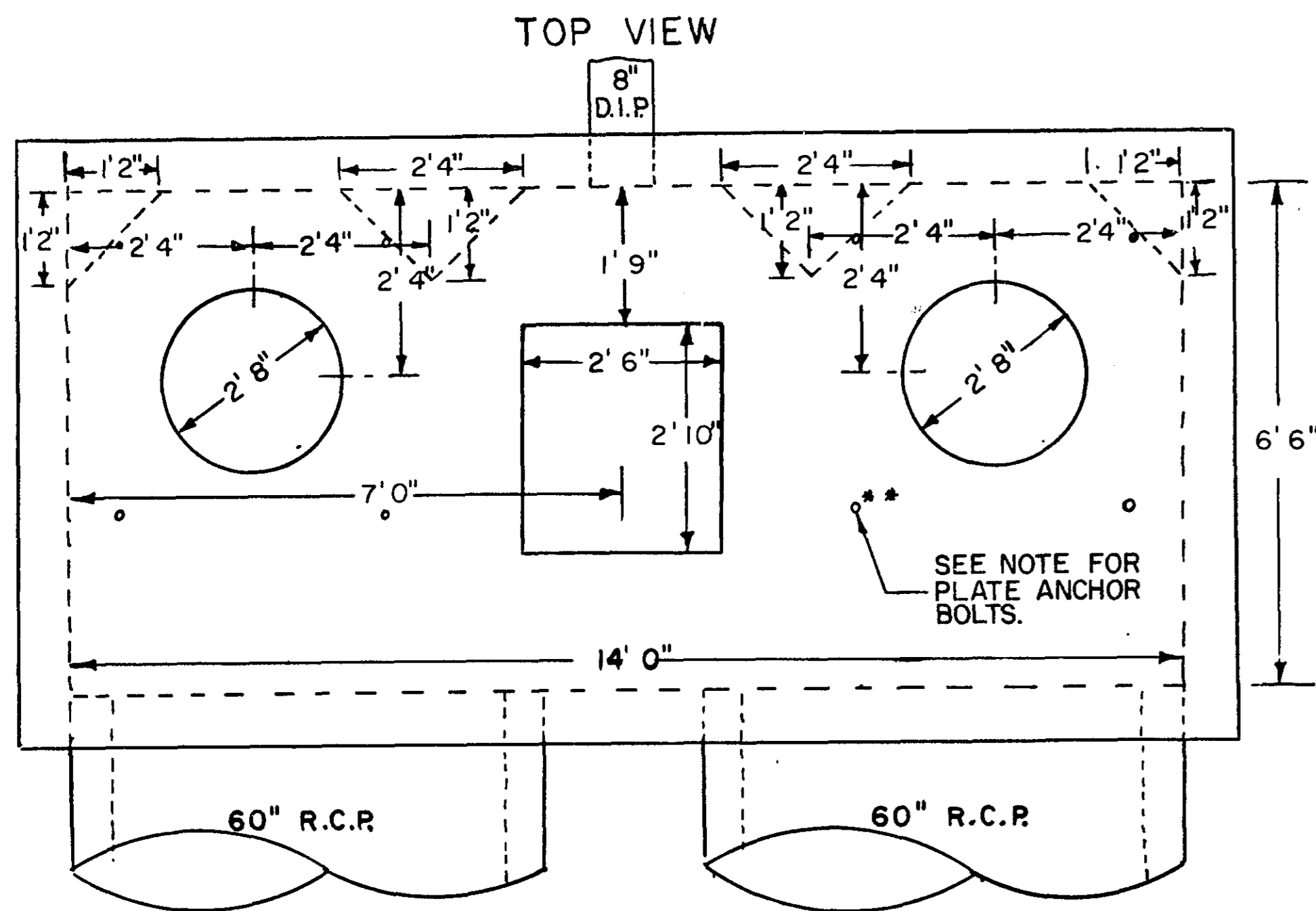
DIRECTION OF FLOW



BLOCK SUPPORT DETAIL

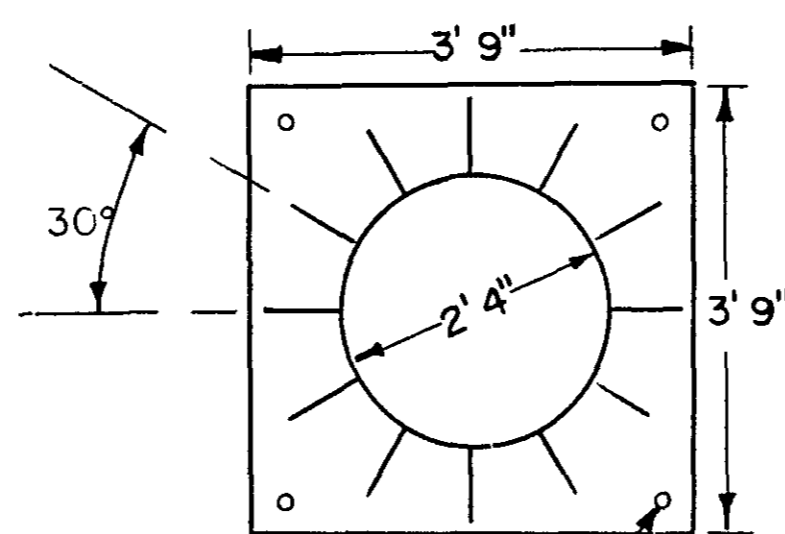


SIDE VIEW



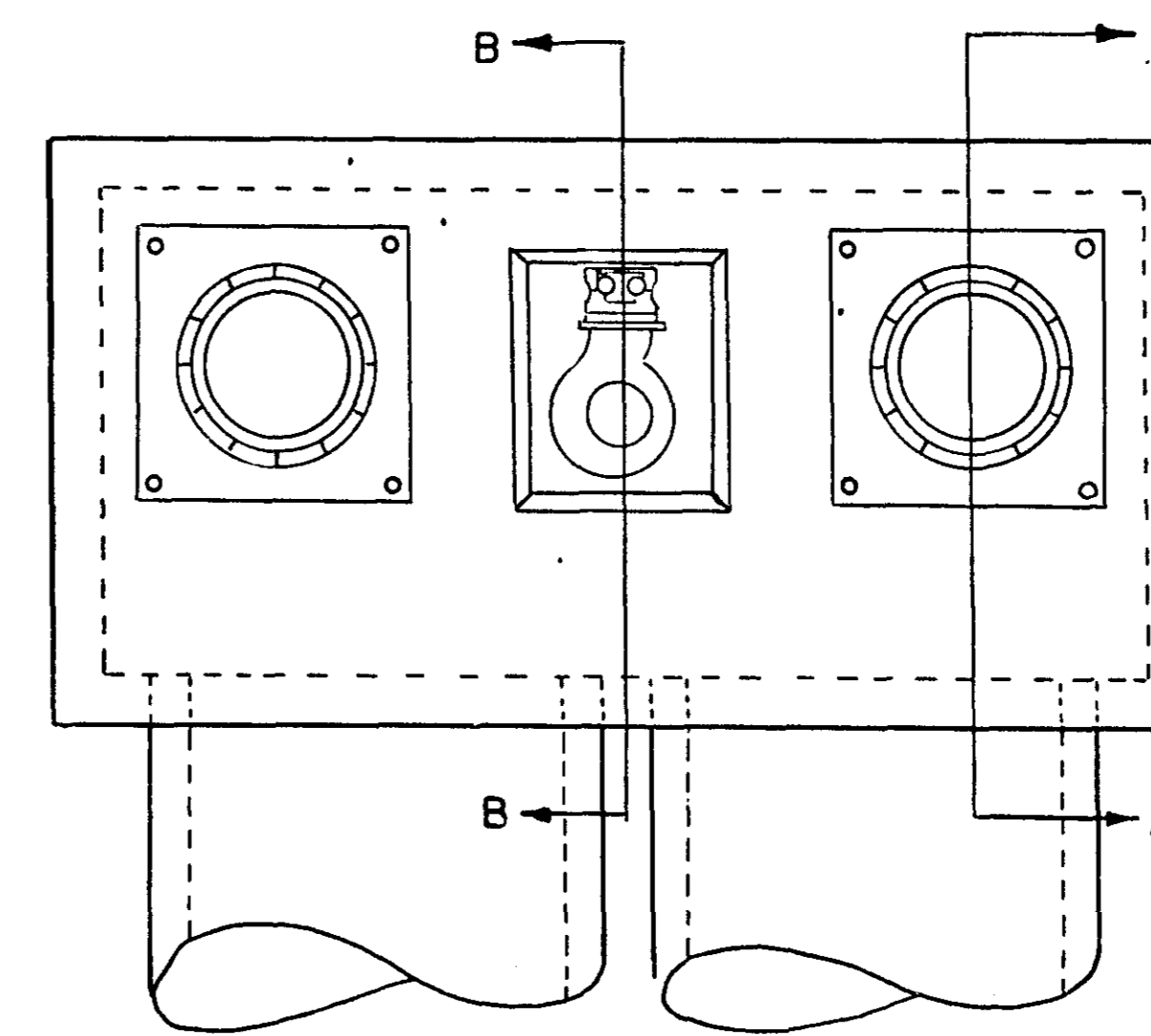
NOTE: STRUCTURE JOINTS SHALL BE SEALED WITH AN APPROVED JOINT COMPOUND DURING ASSEMBLY

\*\*NOTE: 3/4" X 15" BOLTS SHALL BE CAST IN PLACE AND EXTENDED 6" ABOVE TOP SLAB SURFACE. FOR LOCATION OF BOLTS. SEE SUPPORT PLATE DETAIL.



SUPPORT PLATE  
SCALE 1" = 2'

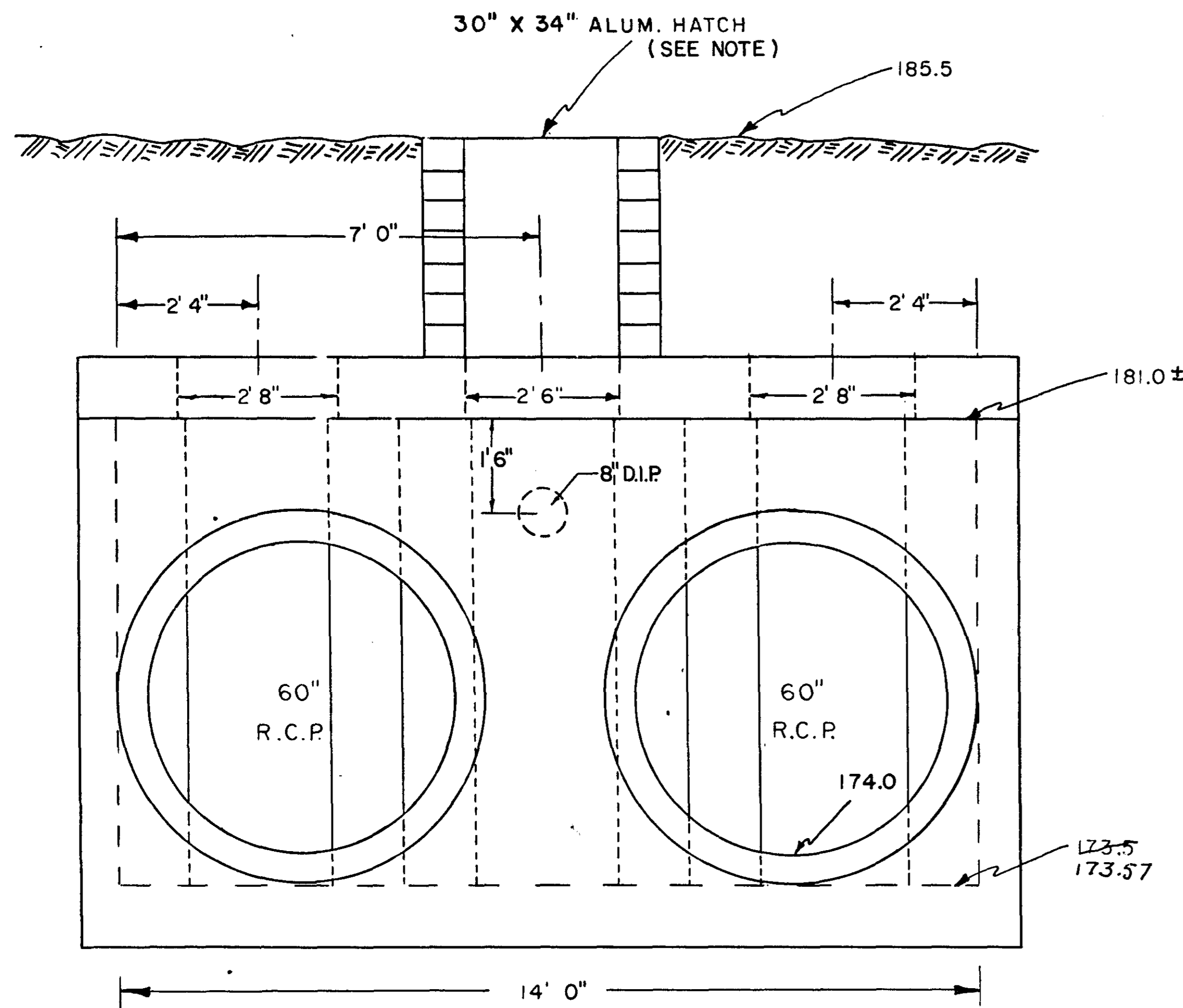
4 - 1 1/2" HOLES EQUALLY SPACED ON A 54" DIA. BOLT CIRCLE



PUMP PLACEMENT

\*\*NOTE: ALL POINTS OF CONTACT BETWEEN ALUMINUM ACCESS FRAME AND CONCRETE SHALL BE COATED WITH AN APPROVED BITUMASTIC COATING.

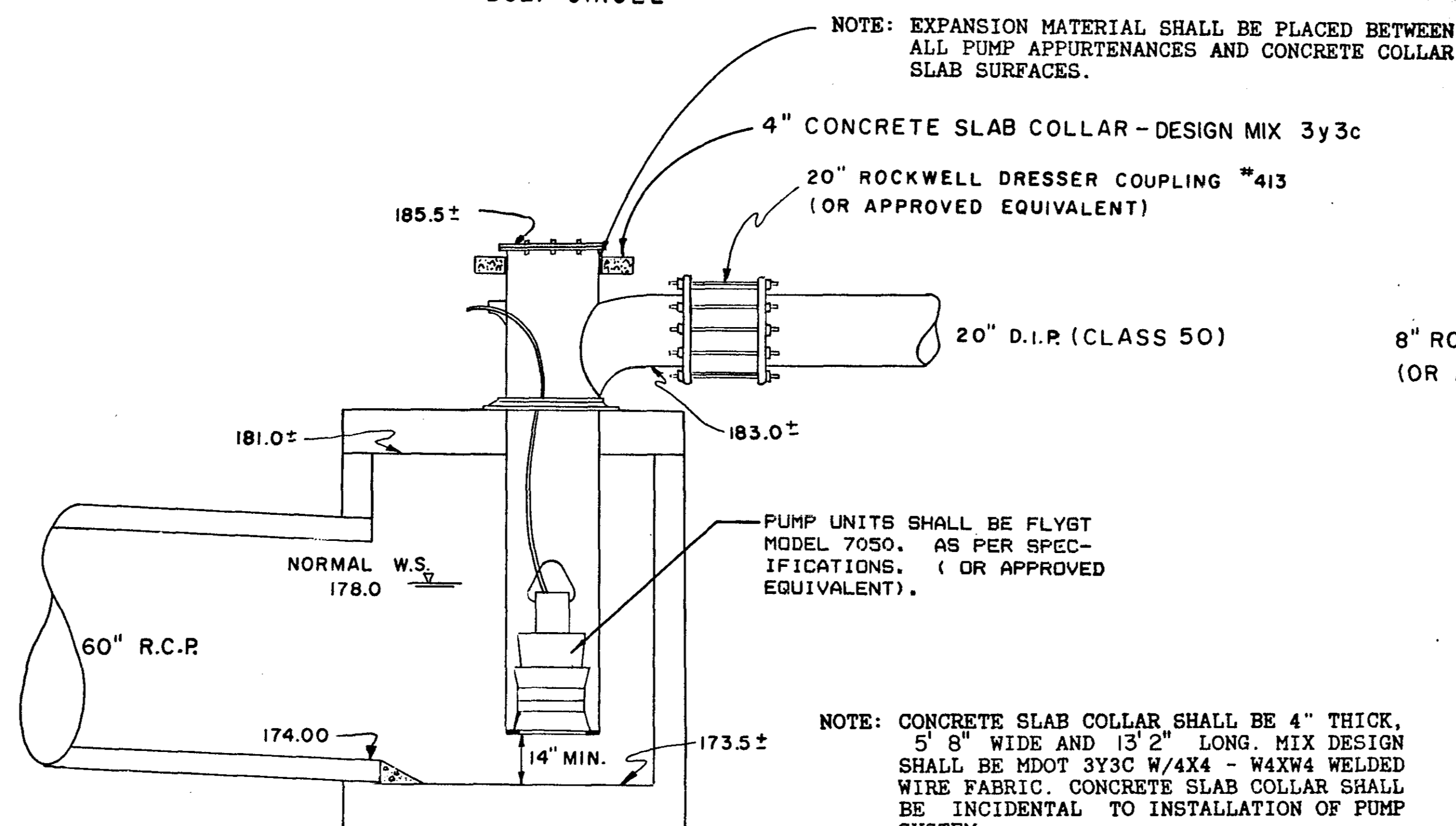
FRONT VIEW



LIFT STATION SUMP STRUCTURE

SCALE 1" = 2'

NOTE: SEE STRUCTURE DETAILS, SHEET NO. R-12

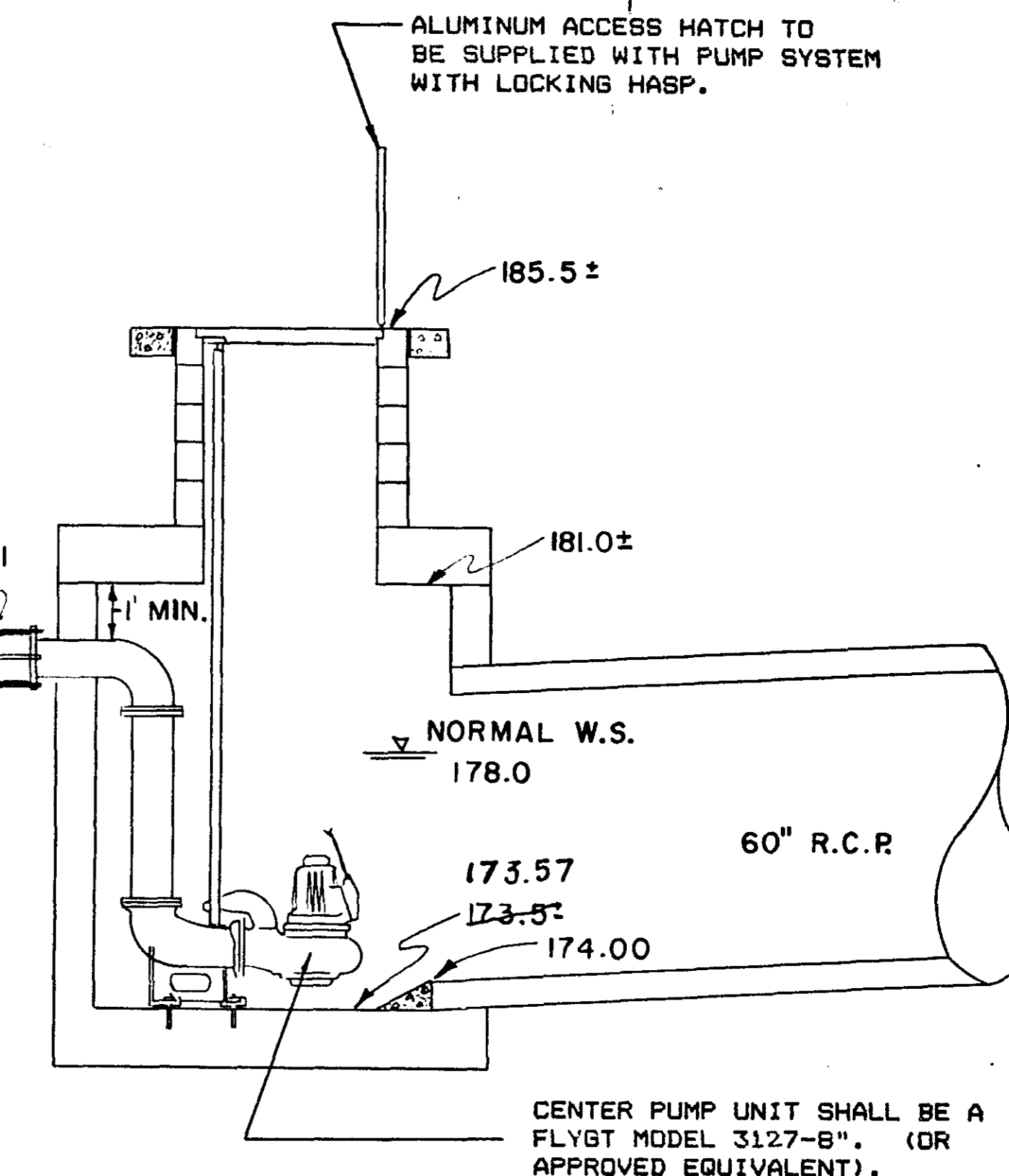


SECTION A-A  
SCALE 1" = 3'

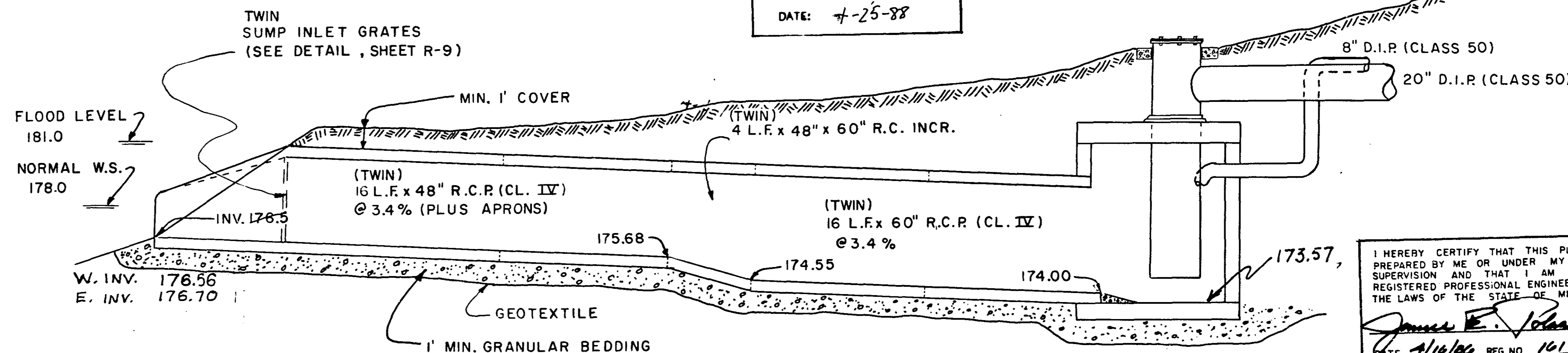
NOTE: CONCRETE SLAB COLLAR SHALL BE 4" THICK, 5' 8" WIDE AND 13' 2" LONG. MIX DESIGN SHALL BE MDOT 3Y3C W/4X4 - W4X4 WELDED WIRE FABRIC. CONCRETE SLAB COLLAR SHALL BE INCIDENTAL TO INSTALLATION OF PUMP SYSTEM.

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: *JRB*  
DATE: 4-25-88



SECTION B-B  
SCALE 1" = 3'

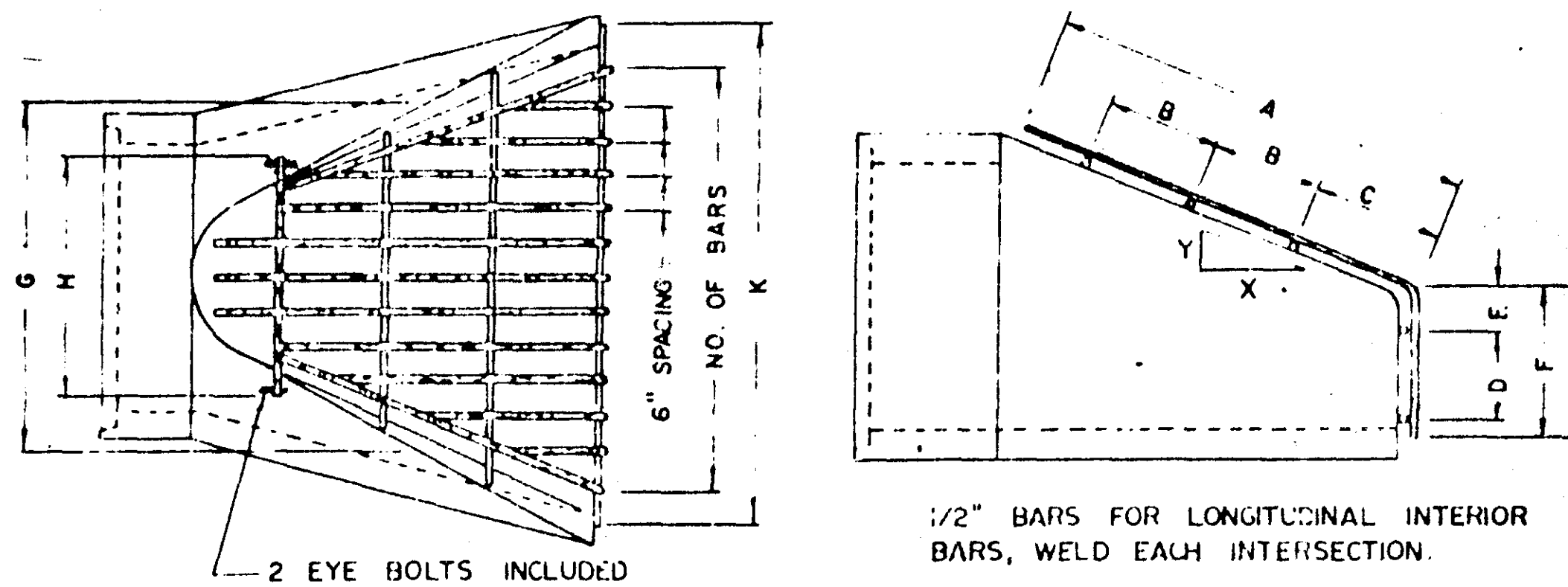


NOTE: ALL PIPE JOINTS TO BE TIED. (SEE STD. PLATE 3145D)

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*James E. [Signature]*  
DATE 4/16/88 REG. NO. 16152



**TRASH GUARD (GALVANIZED)**  
(FOR CONCRETE APRON)



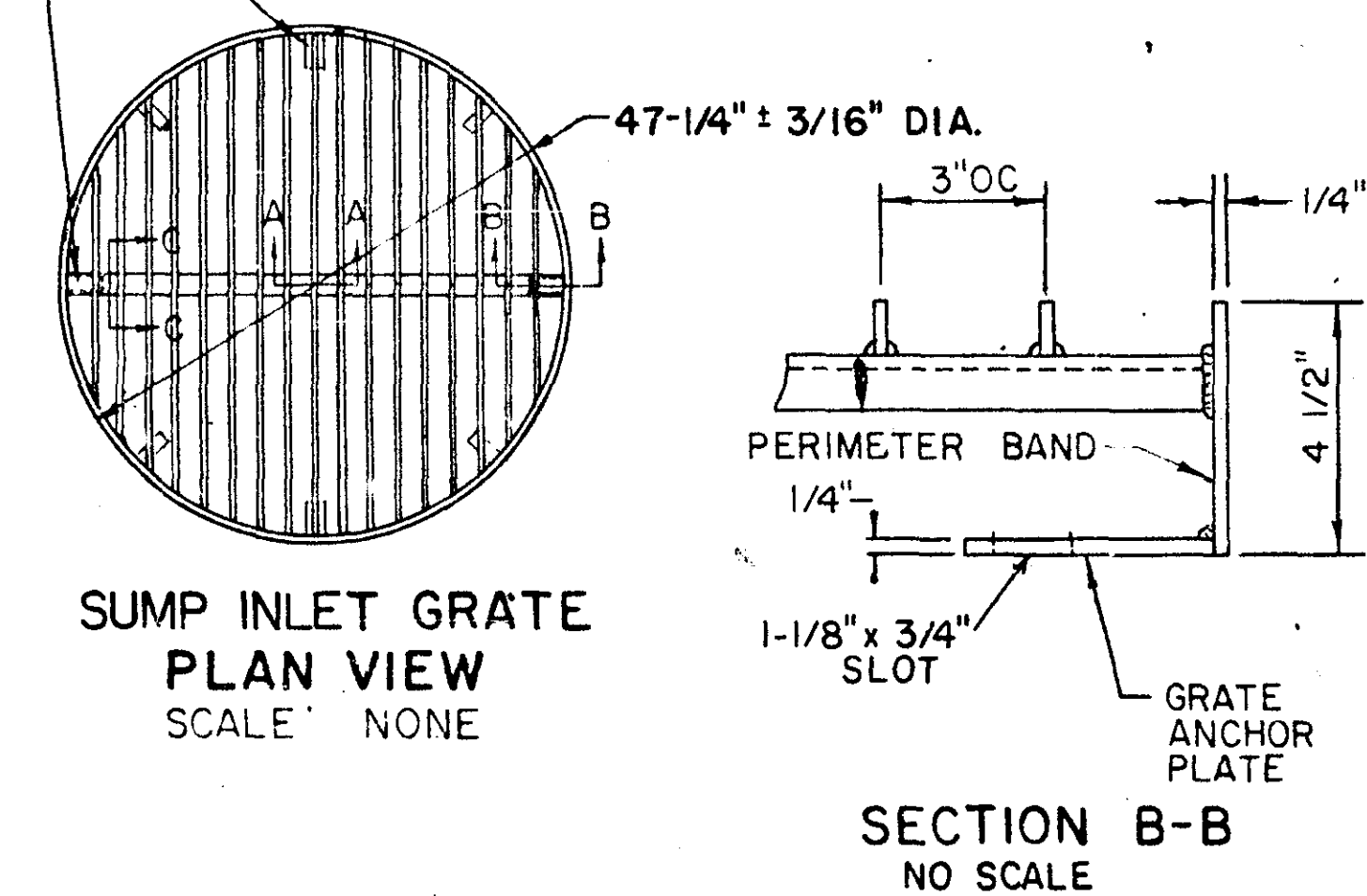
1/2" BARS FOR LONGITUDINAL INTERIOR BARS, WELD EACH INTERSECTION.  
CONTRACTOR SHALL FURNISH SUITABLE LOCKING DEVICE APPROVED BY ENGINEER.

3/4" BARS FOR TRANSVERSE AND EDGE REINFORCEMENT

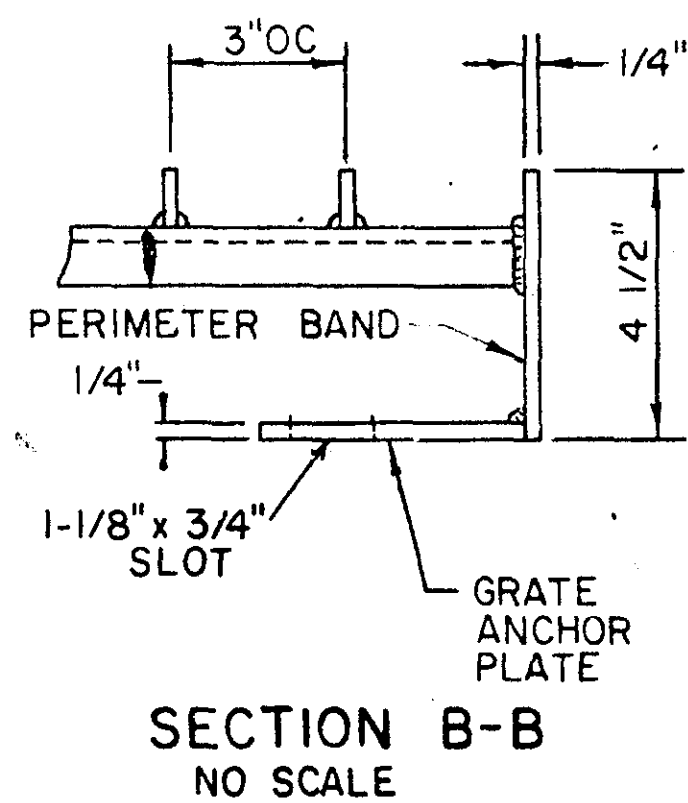
SIZE	NO. OF BARS	SLOPE	A	B	C	D	E	F	G	H	K
12"	5	3:1v1	24	10	10	5	2	8	24		30
15"	6	"	24	10	10	6	2	10	26		34
18"	7	"	24	10	10	6	3	12	28		40
21"	8	"	24	10	10	7	3	14	30		46
24"	9	"	24	10	10	8	4	16	32		52
27"	10	"	24	10	10	9	4	18	34		58
30"	11	"	24	10	10	10	4	20	36		64
33"	12	"	24	10	10	11	4	22	38		70
36"	13	"	24	10	10	12	4	24	40		76
39"	14	"	24	10	10	13	4	26	42		82
42"	15	"	24	10	10	14	4	28	44		88
45"	16	"	24	10	10	15	4	30	46		94
48"	17	2.4:1v1	24	10	10	16	4	32	48		100

\*NOTE : STEEL GRATE AND ALL ASSOCIATED HARDWARE SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A 153, AS PER MDT SPECIFICATION 3392

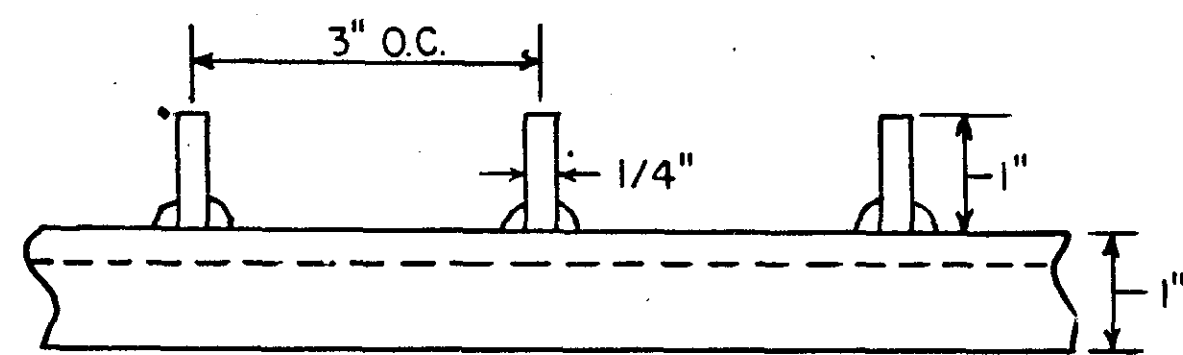
1-3/4" x 2-19/16" x 1/4" ANCHOR PLATES AT EQUAL SPACED ONE-EIGHTH POINTS



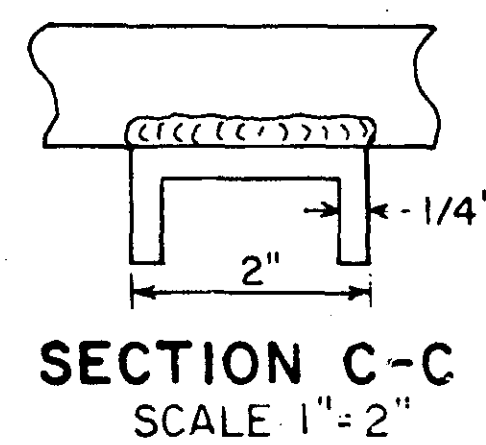
SUMP INLET GRATE  
PLAN VIEW  
SCALE NONE



SECTION B-B  
NO SCALE



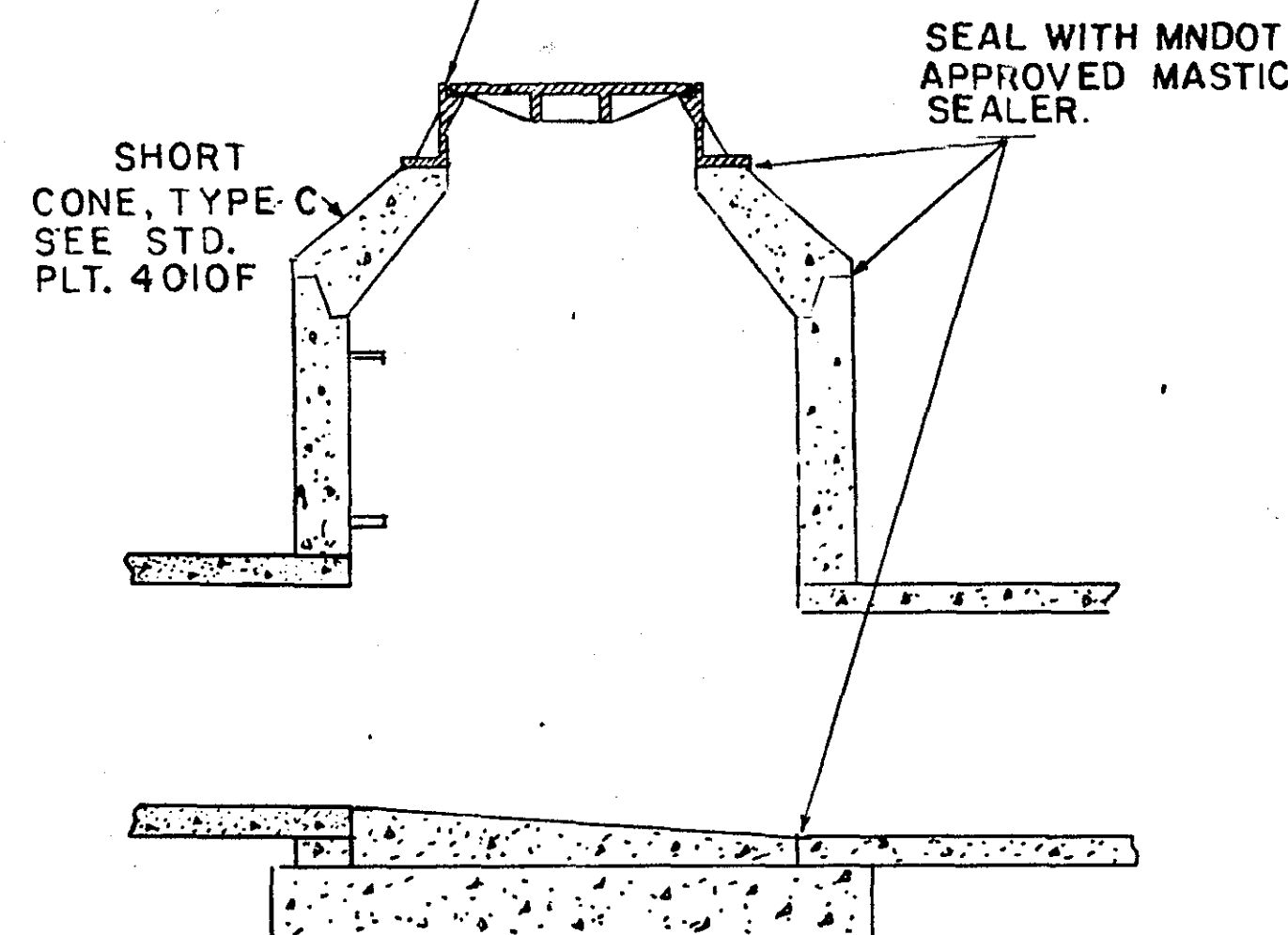
SECTION A-A DETAIL  
SCALE 1" = 2"



SECTION C-C  
SCALE 1" = 2"

**SUMP INLET GRATE**

F & I NEENAH CASTING R-1916F. CASTING TO BE ANCHORED WITH SIX UNIT ANCHORS (RAWG MULTI-CAULKS AND CINCH ANCHORS), OR APPROVED EQUIVALENT. MIN. PULL OUT STRENGTH-14,000 LBS. ANCHOR BOLTS & WASHERS SHALL BE GALVANIZED I.A.W. ASTM A-153. SEE MNDOT SPEC 3392. BOLTS SHALL BE 1/2" x 2-1/2" ANCHORS TO BE SPACED AT 60° INTERVALS.

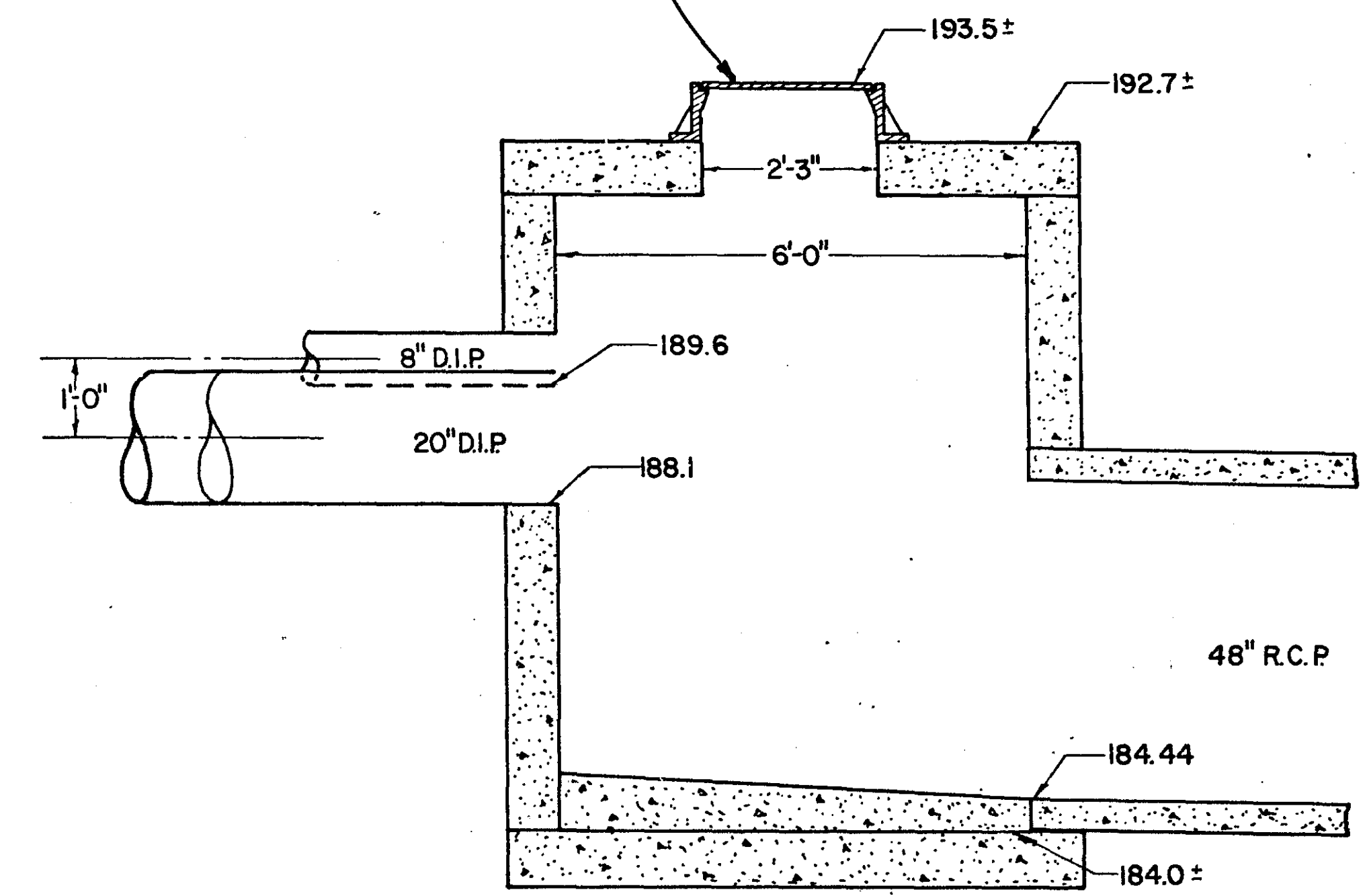


MANHOLES IC & 3D  
A or F MODIFIED  
NO SCALE

PVC AND D.I.P. CONNECTION TO MH.

DOUBLE RUBBER WATERSTOP CEMENTED TO PVC AND D.I.P. AND GROUTED INTO MANHOLE AS SHOWN. PAYMENT SHALL BE INCIDENTAL TO MANHOLE CONSTRUCTION.

CASTING ASSEMBLY 700-9  
STANDARD PLATE NO. 4101C

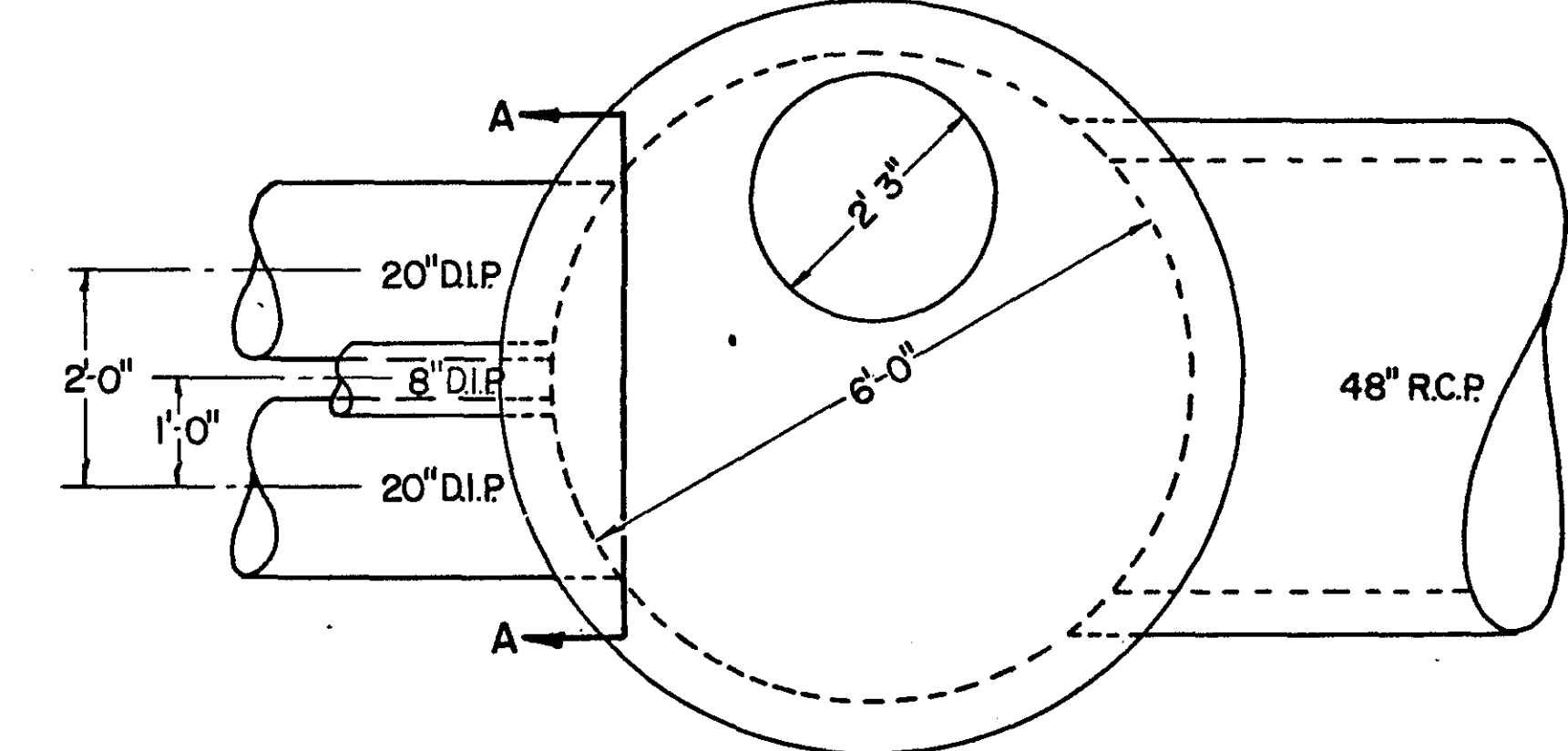


SIDE VIEW

MANHOLE L.S. 3

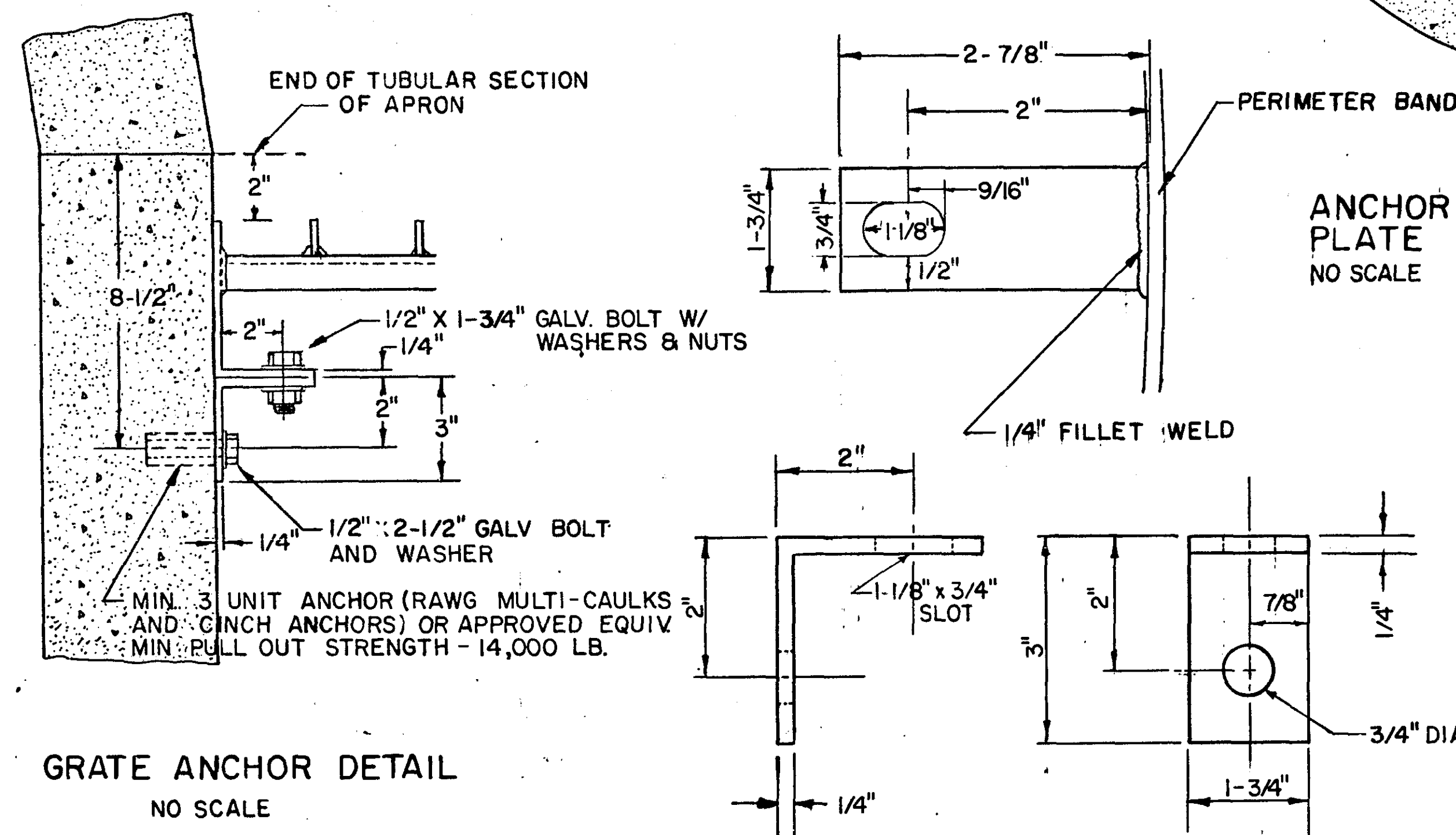
SCALE 1" = 2"

TOP VIEW

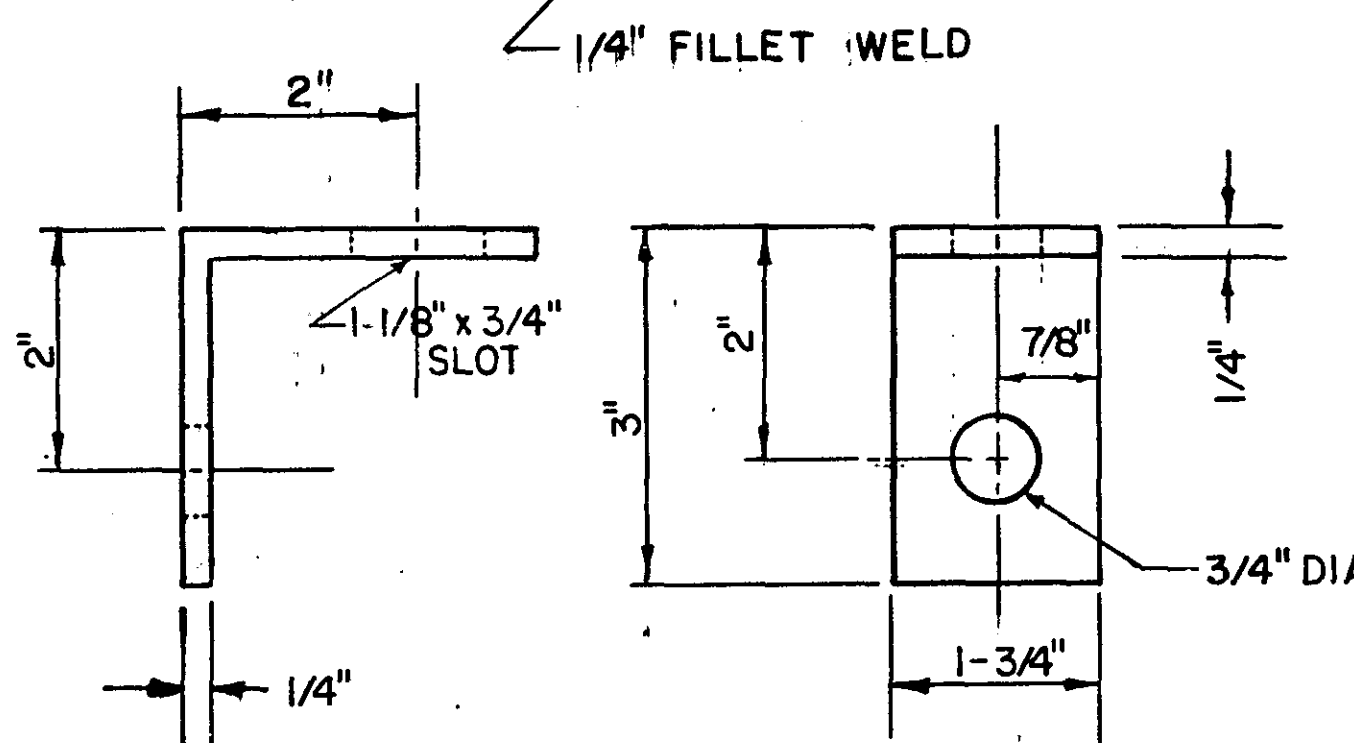


SECTION A-A

NOTE: SEE DETAIL FOR CONNECTING D.I.P. TO MANHOLE



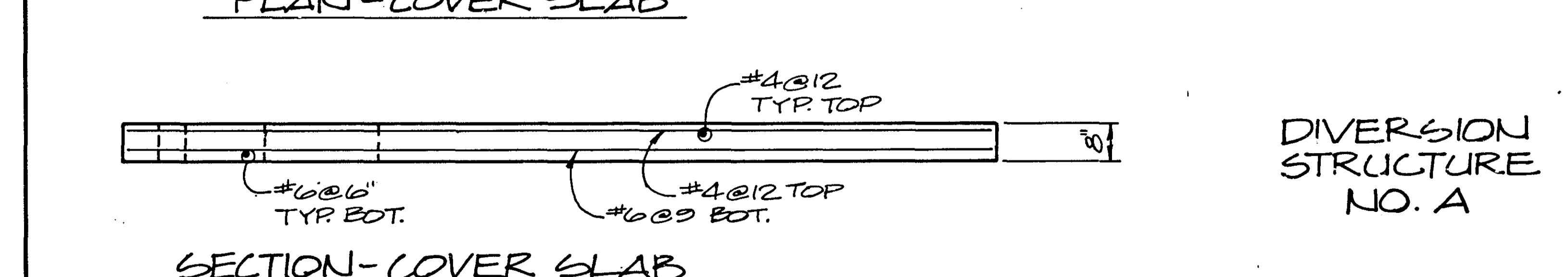
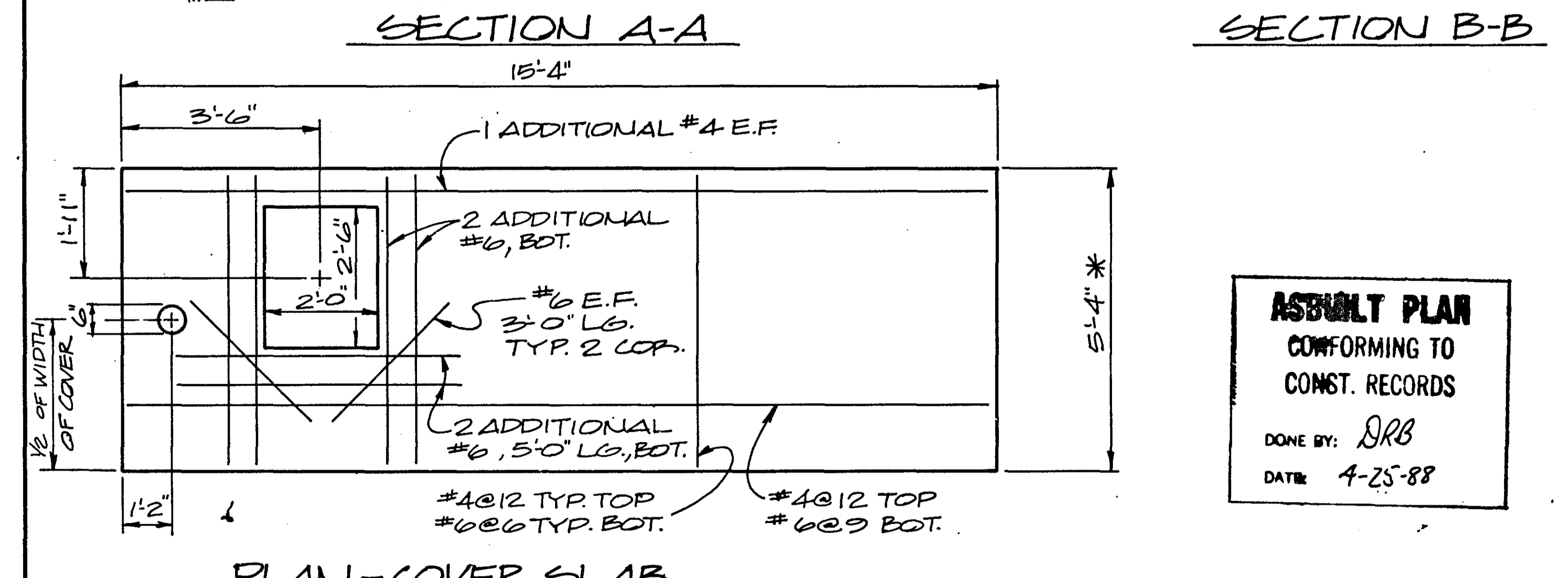
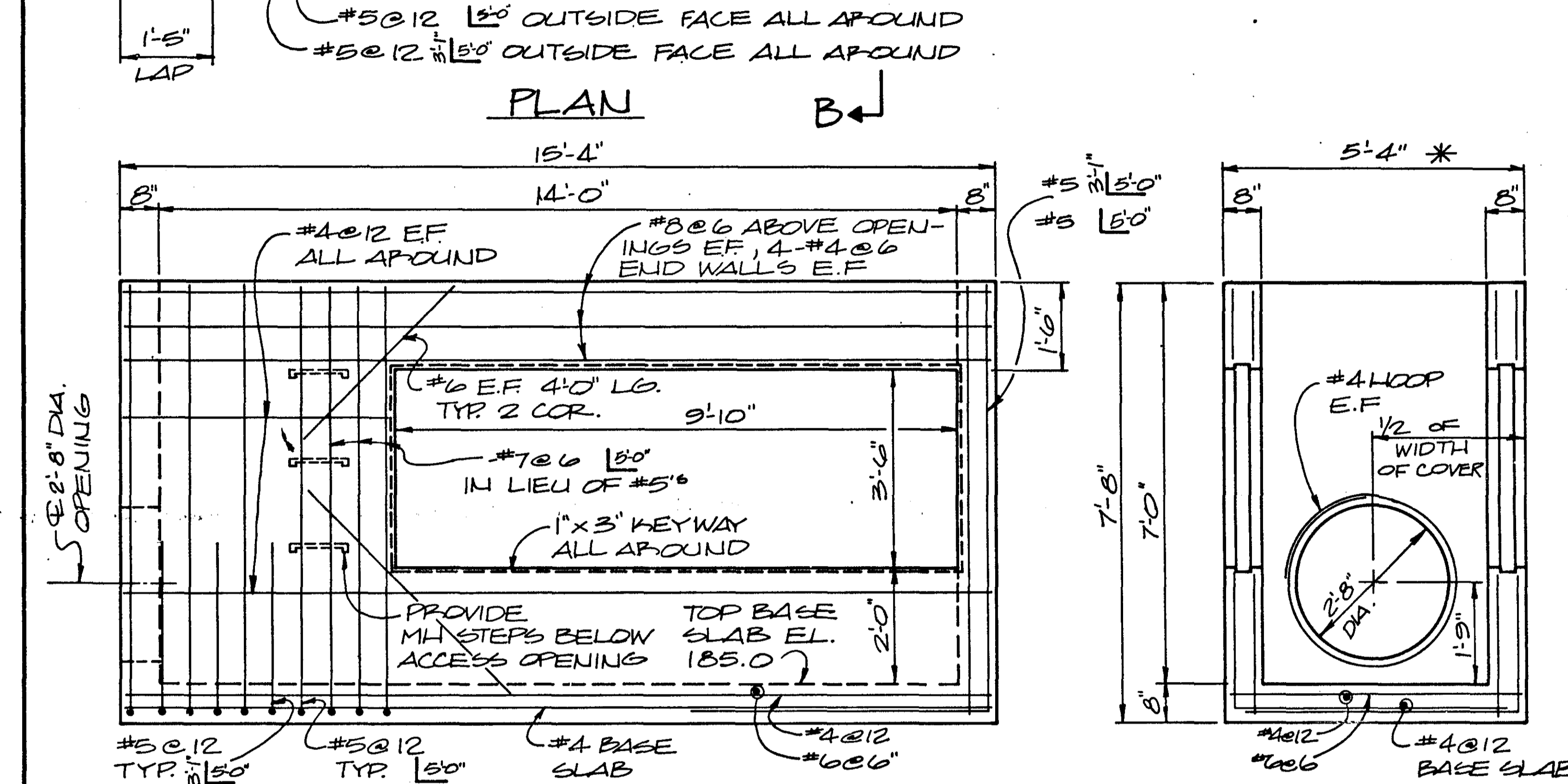
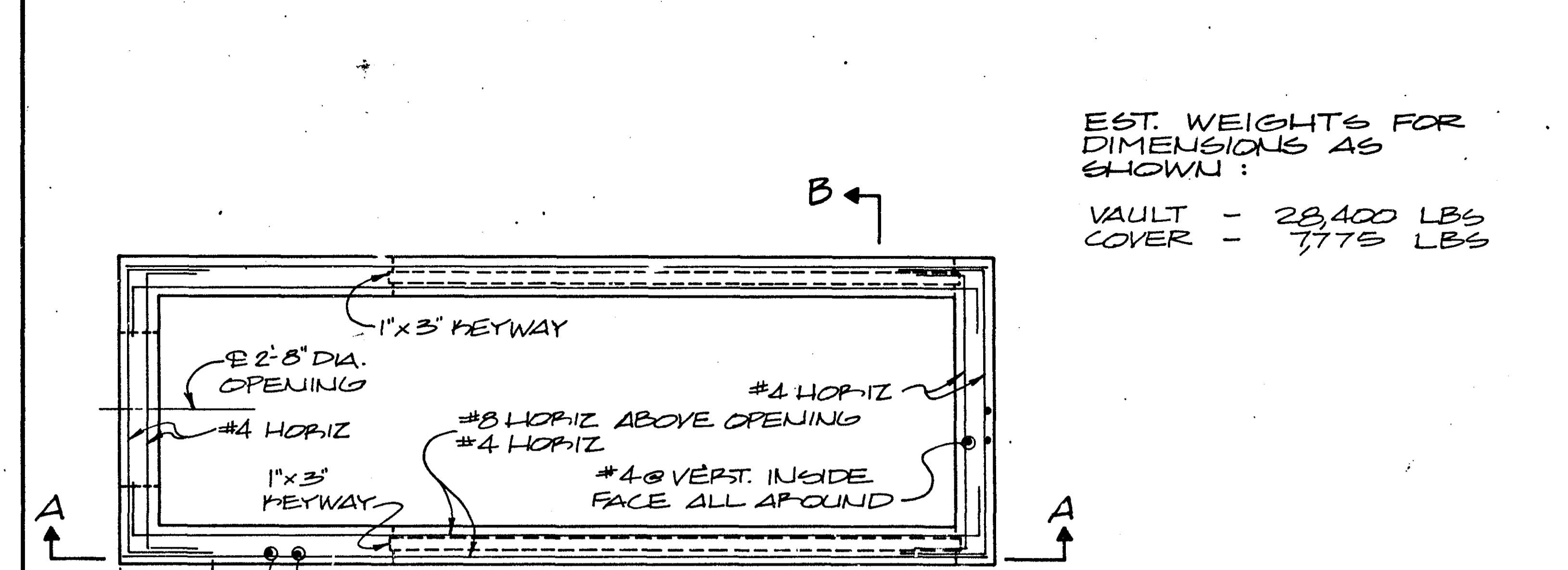
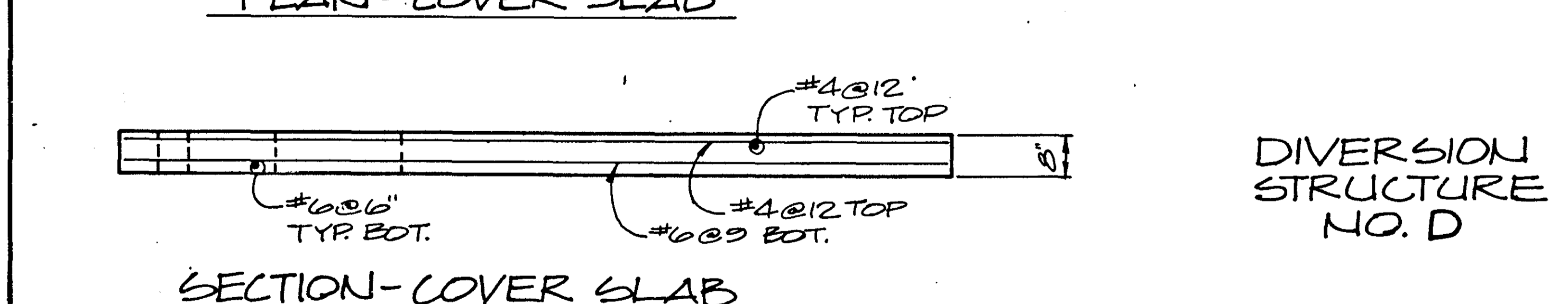
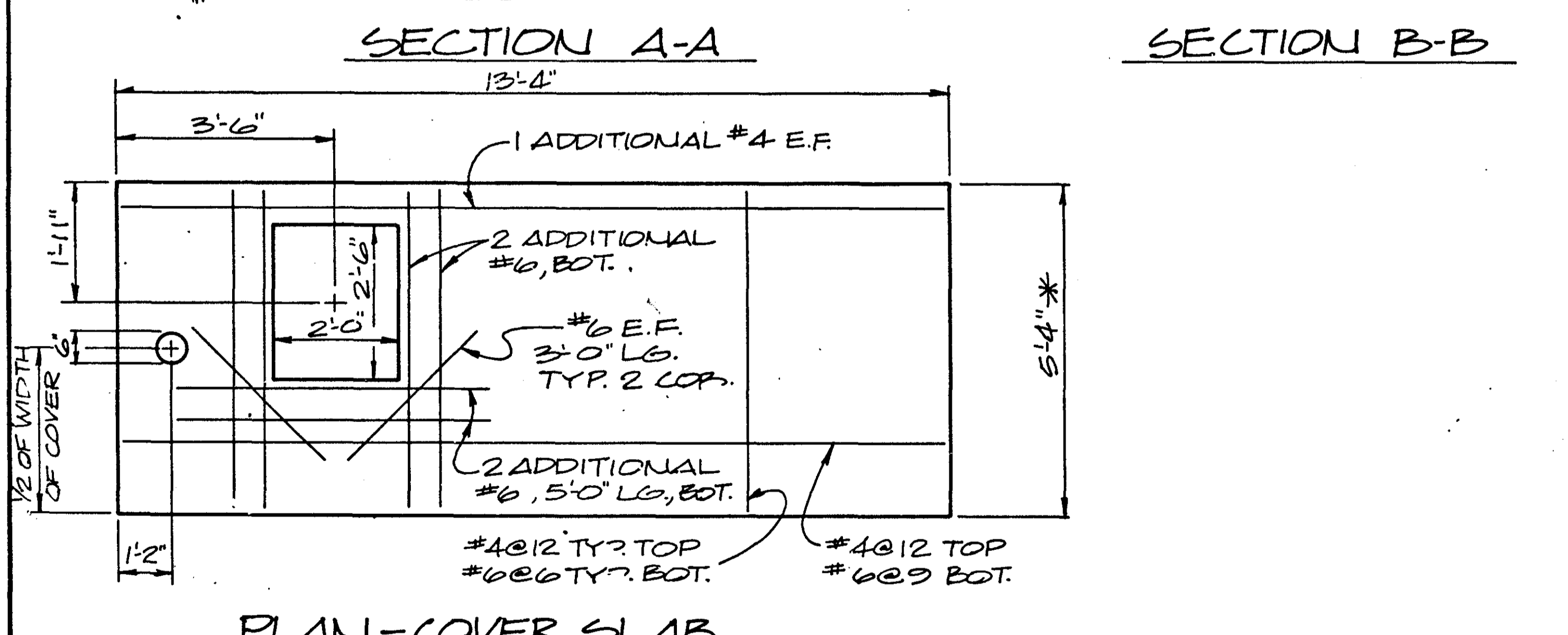
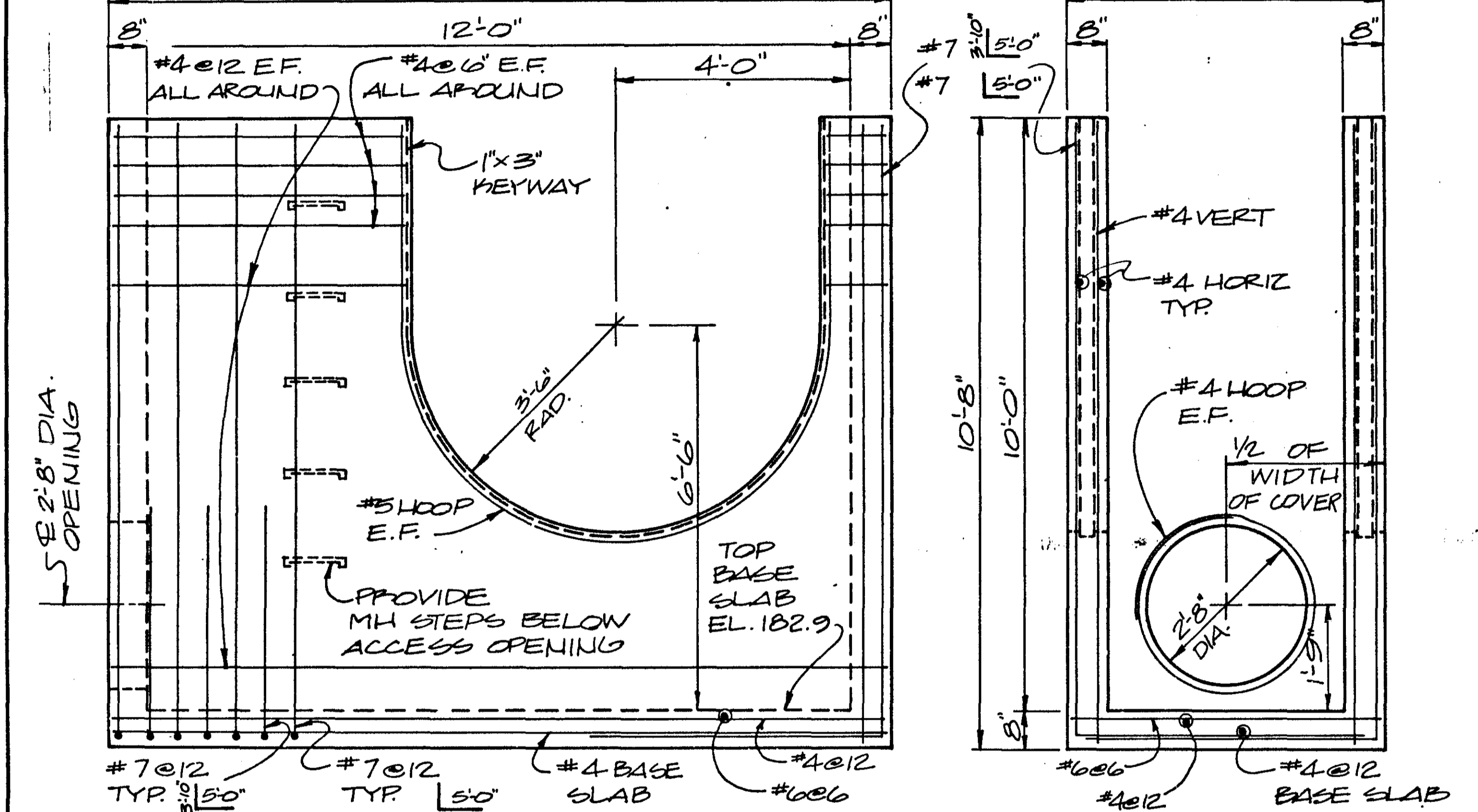
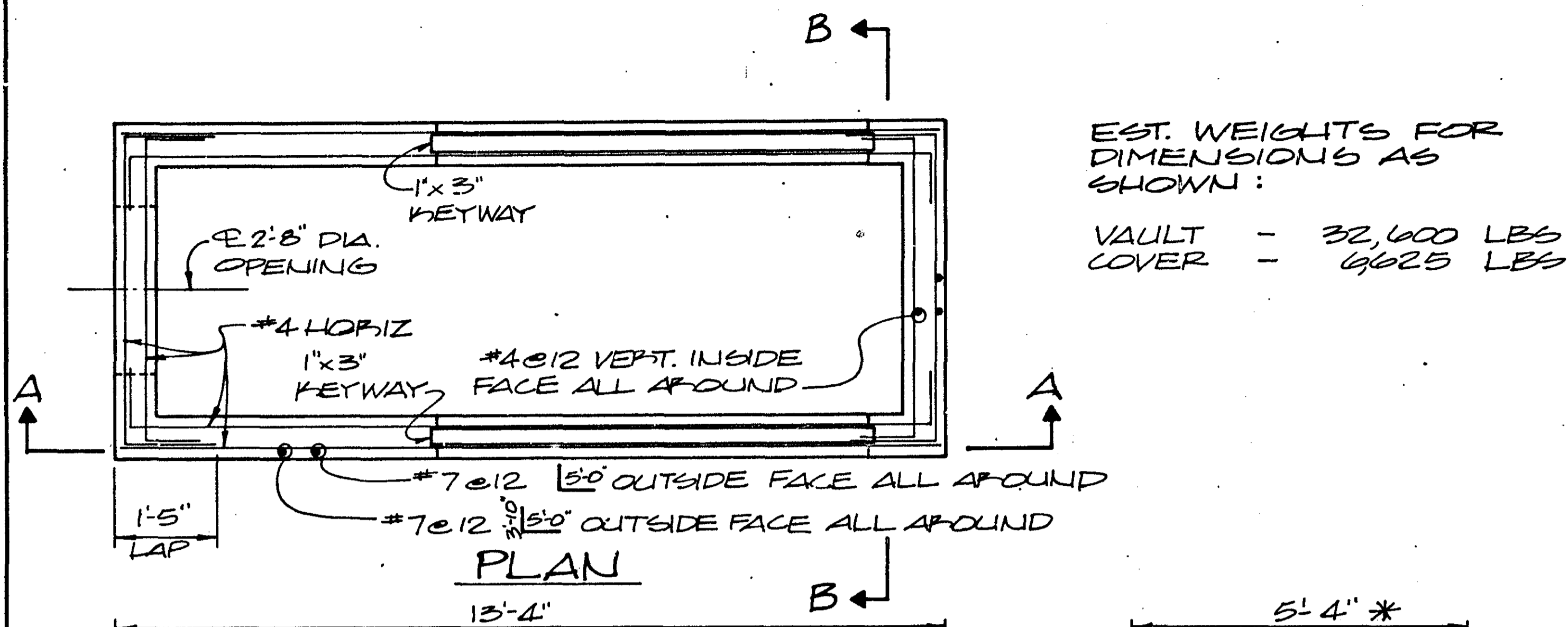
ANCHOR PLATE  
NO SCALE



ANGLE SUPPORT  
NO SCALE

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: *JRB*  
DATE: 4-25-88

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*James E. Johnson*  
DATE 4/14/88 REG. NO. 10159



**AS-BUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: DRB  
 DATE: 4-25-88

**DESIGN CRITERIA**  
 LOAD FACTOR DESIGN METHOD  
 HS20 LIVELOAD  
 DESIGN IN ACCORDANCE WITH "1983 AND INTERIM AASHTO DESIGN SPECIFICATIONS". MATERIALS AND FABRICATION IN ACCORDANCE WITH "MN/DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION".

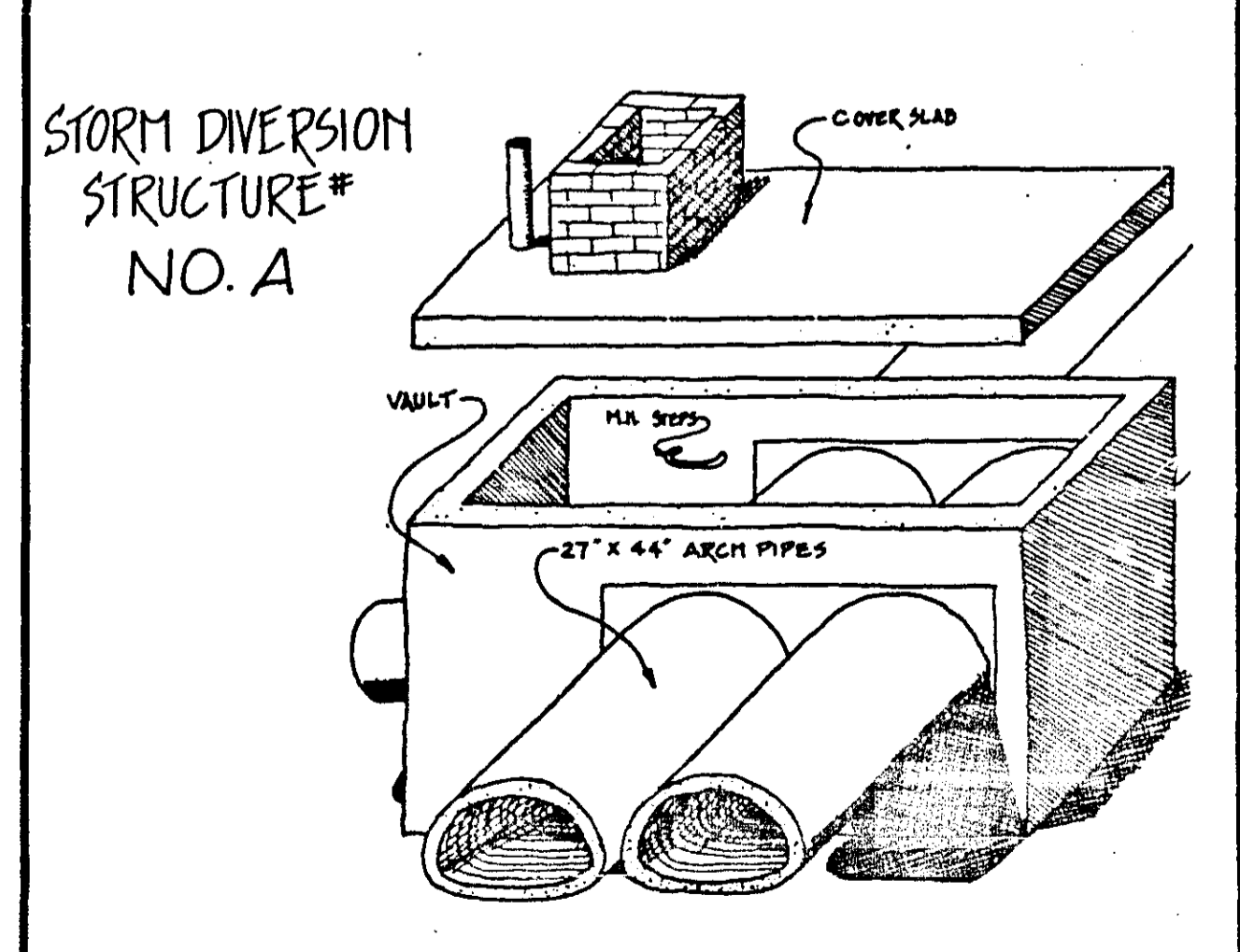
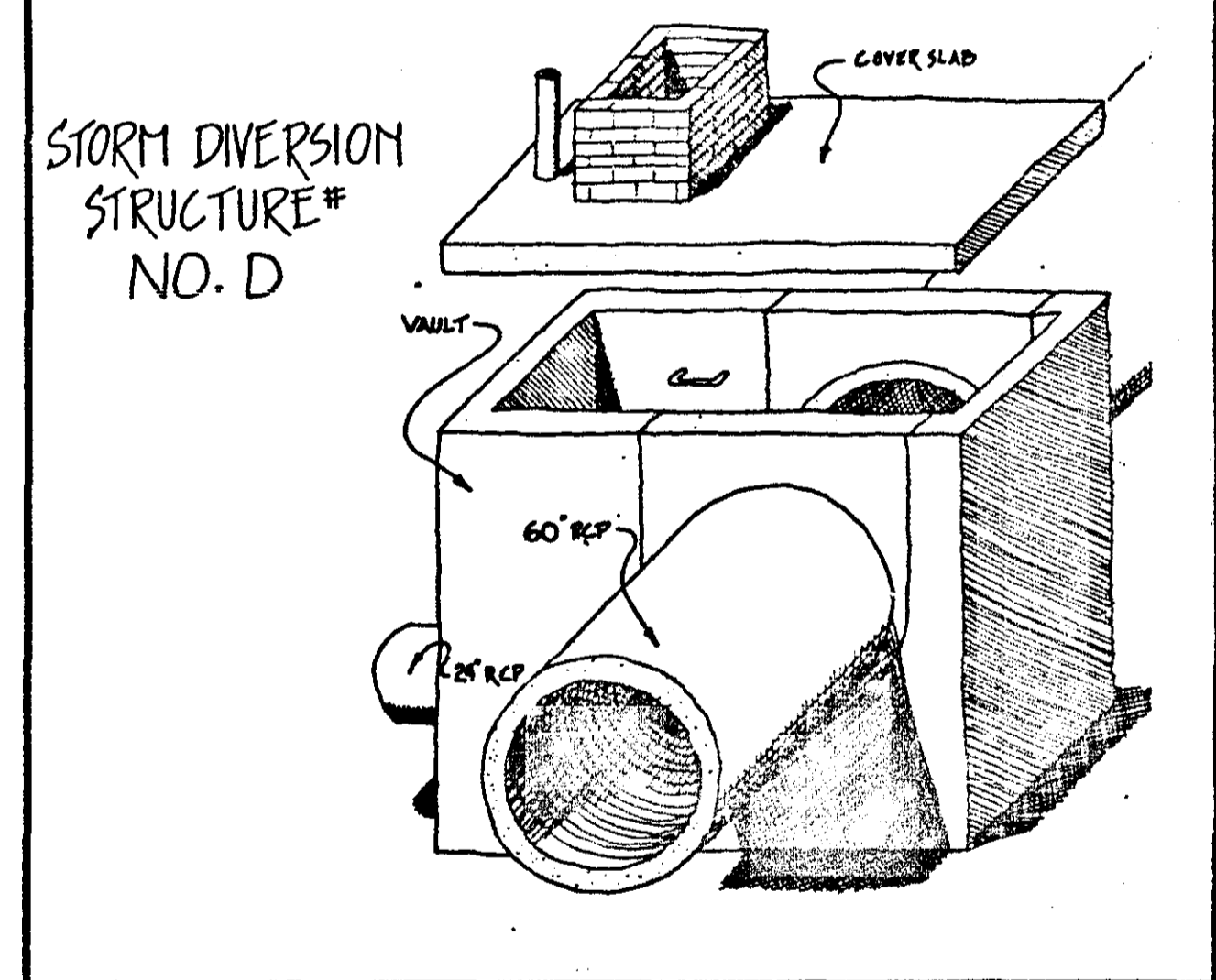
CONCRETE  $F'_c = 5000$  PSI  
 MIX NO. 3W36 W/O CALCIUM CHLORIDE

REINFORCING STEEL  $F_y = 60,000$  PSI GRADE 60  
 3301 EPOXY COATED

**CONSTRUCTION NOTES**  
 CONCRETE COVER OVER REINFORCING STEEL SHALL BE AS FOLLOWS:

INTERIOR FACE 2"  
 EXTERIOR FACE 1 1/2"  
 ALL OPENINGS 2"  
 ALL REINFORCEMENT IS TO BE EPOXY COATED

\* 5'-4" DIMENSION IS MINIMUM STRUCTURE WIDTH. A MAXIMUM WIDTH OF 7'-4" IS PERMITTED TO ALLOW THE CONTRACTOR TO USE AVAILABLE FORMS.



SURVEY:	CHECKED BY:	NO.	DATE	REVISIONS
DESIGN:				
DRAWN:				

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 DATE: 4/15/88 REG. NO. 17280

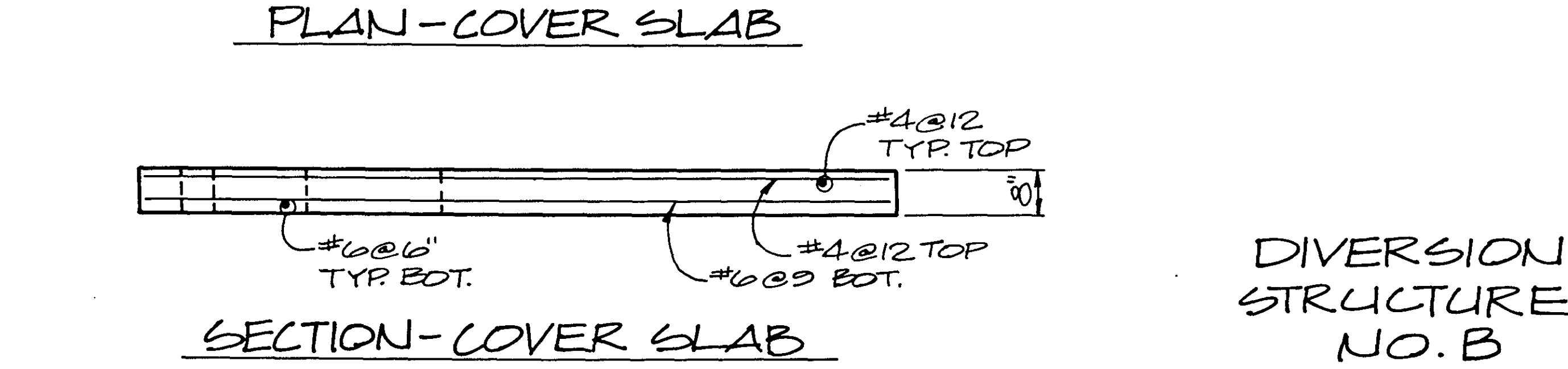
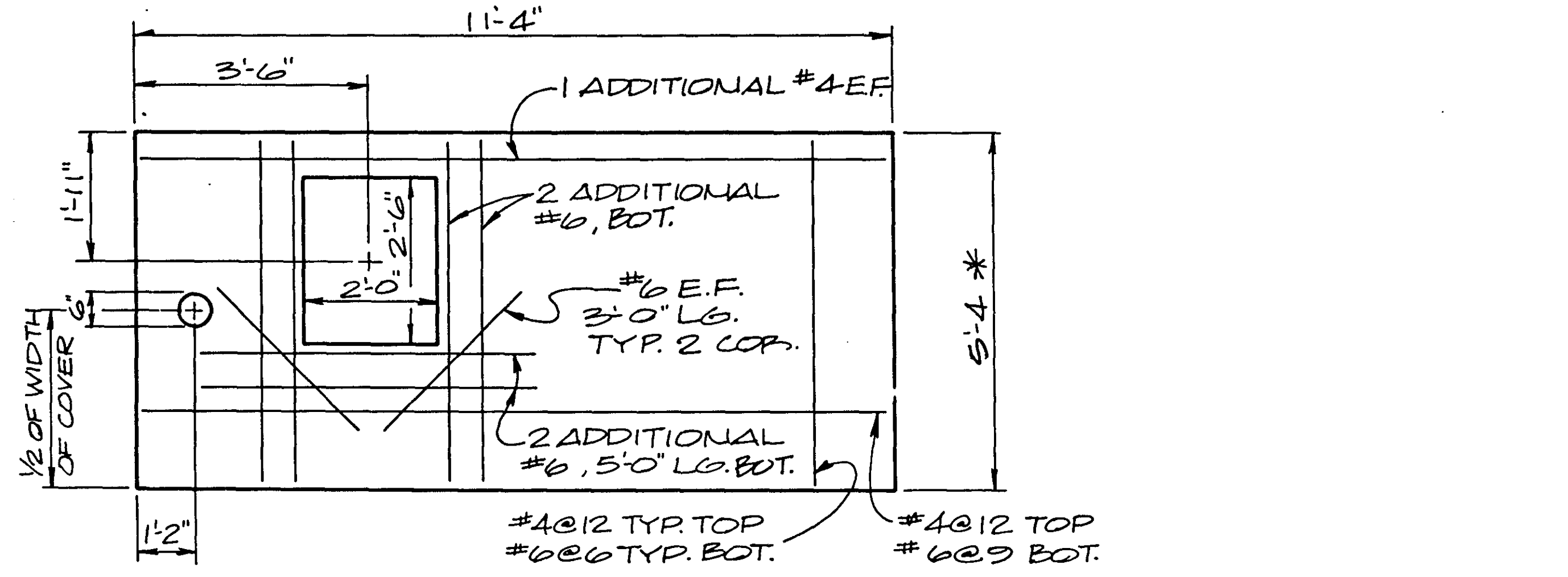
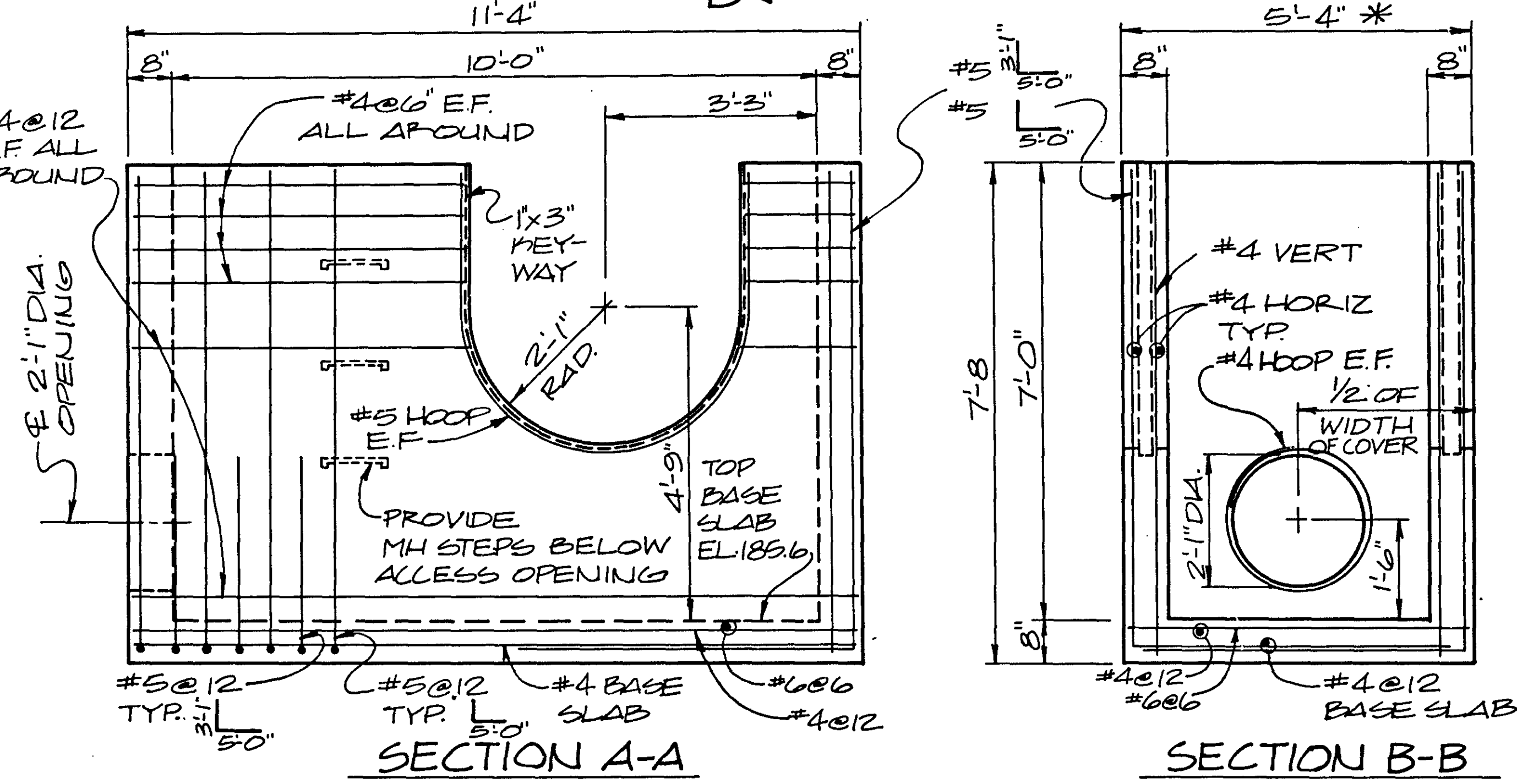
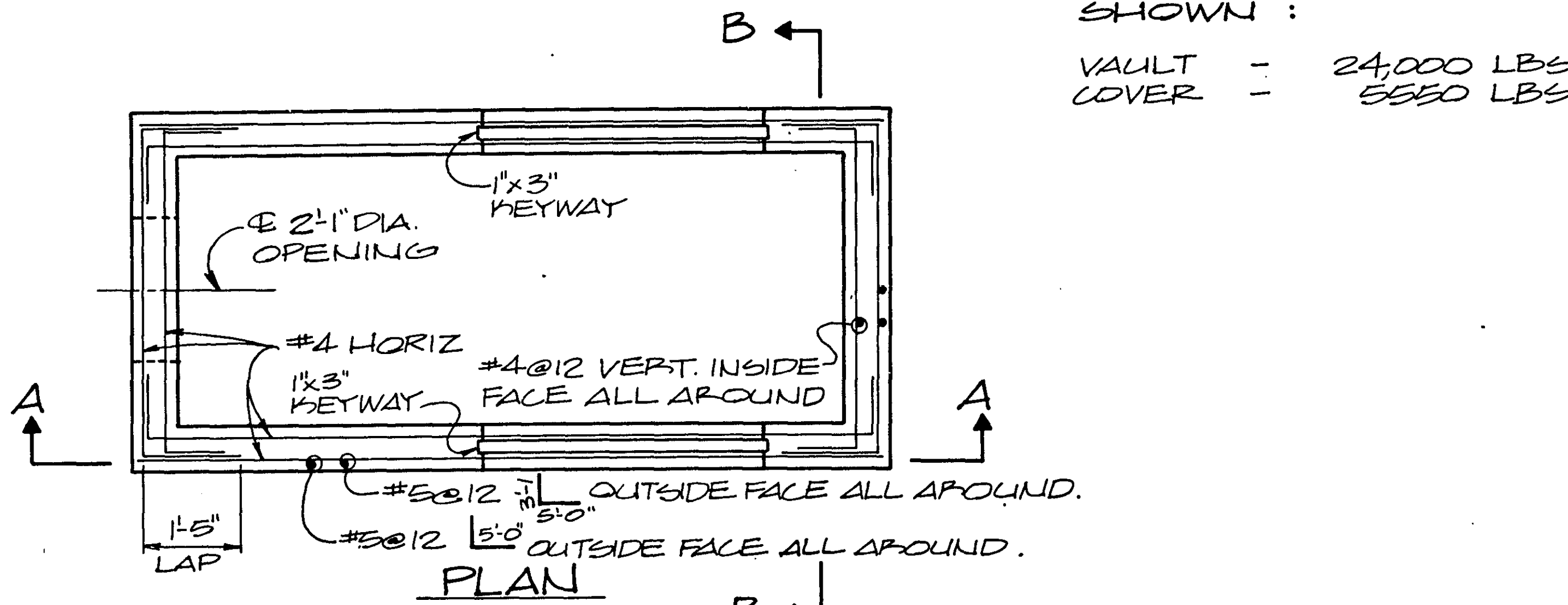
**SEHN** SHORT - ELLIOTT - HENDRICKSON, INC.  
 Saint Paul, Minnesota • Chippewa Falls, Wisconsin

RAMSEY CO., MINNESOTA

LAKE COMO STORM DIVERSION STRUCTURES NO. D & NO. A  
 FILE NO.: 86142 R-10  
 DATE: 23

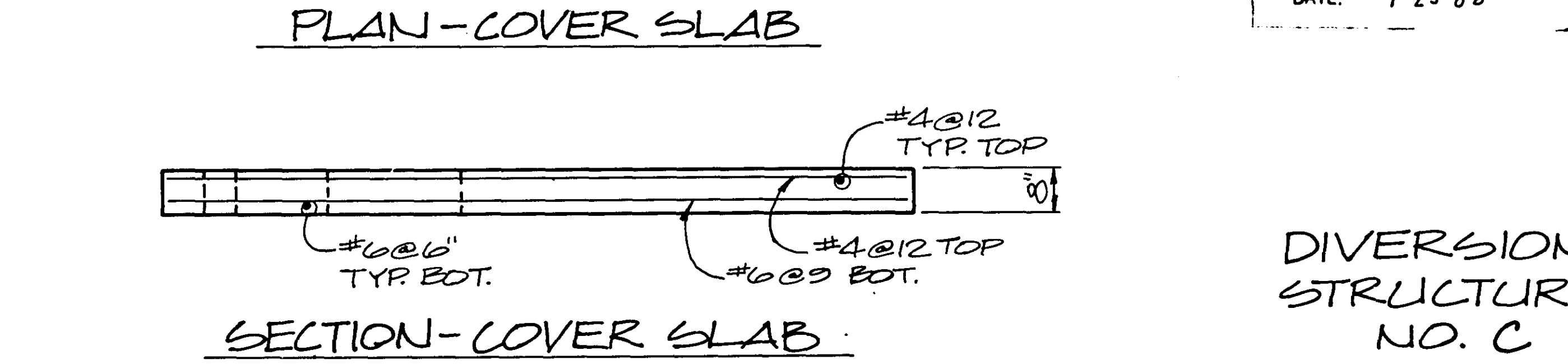
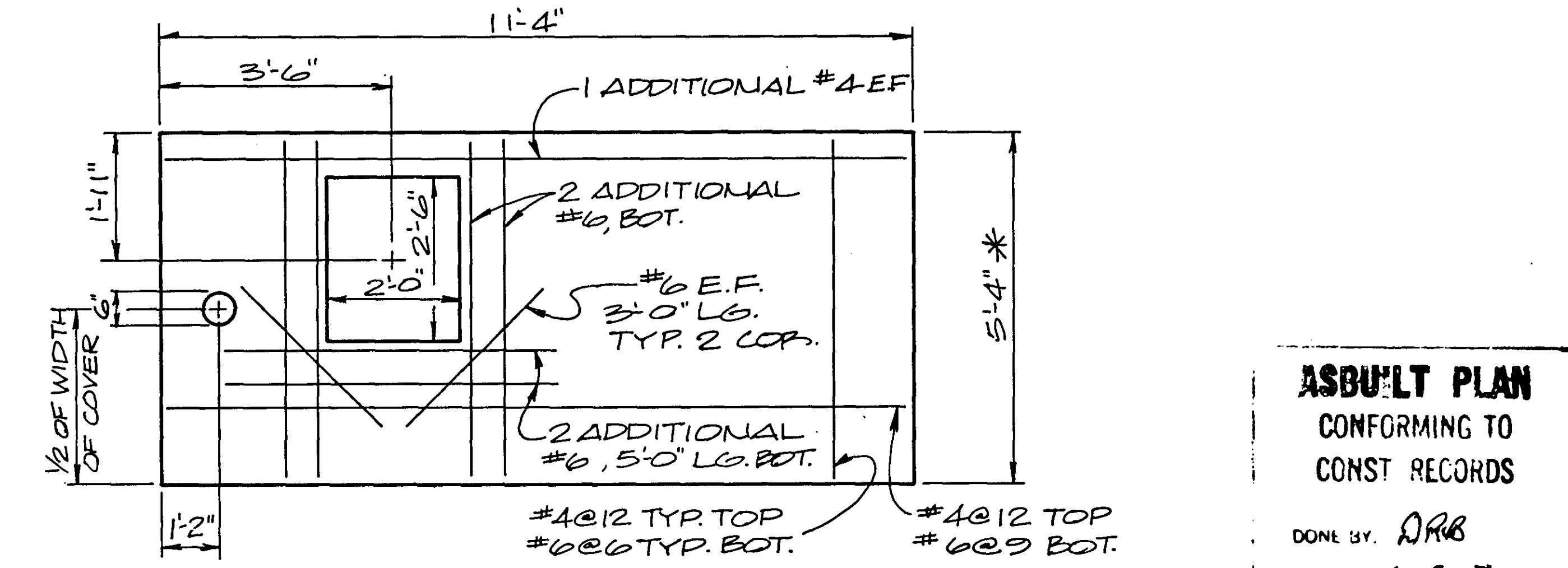
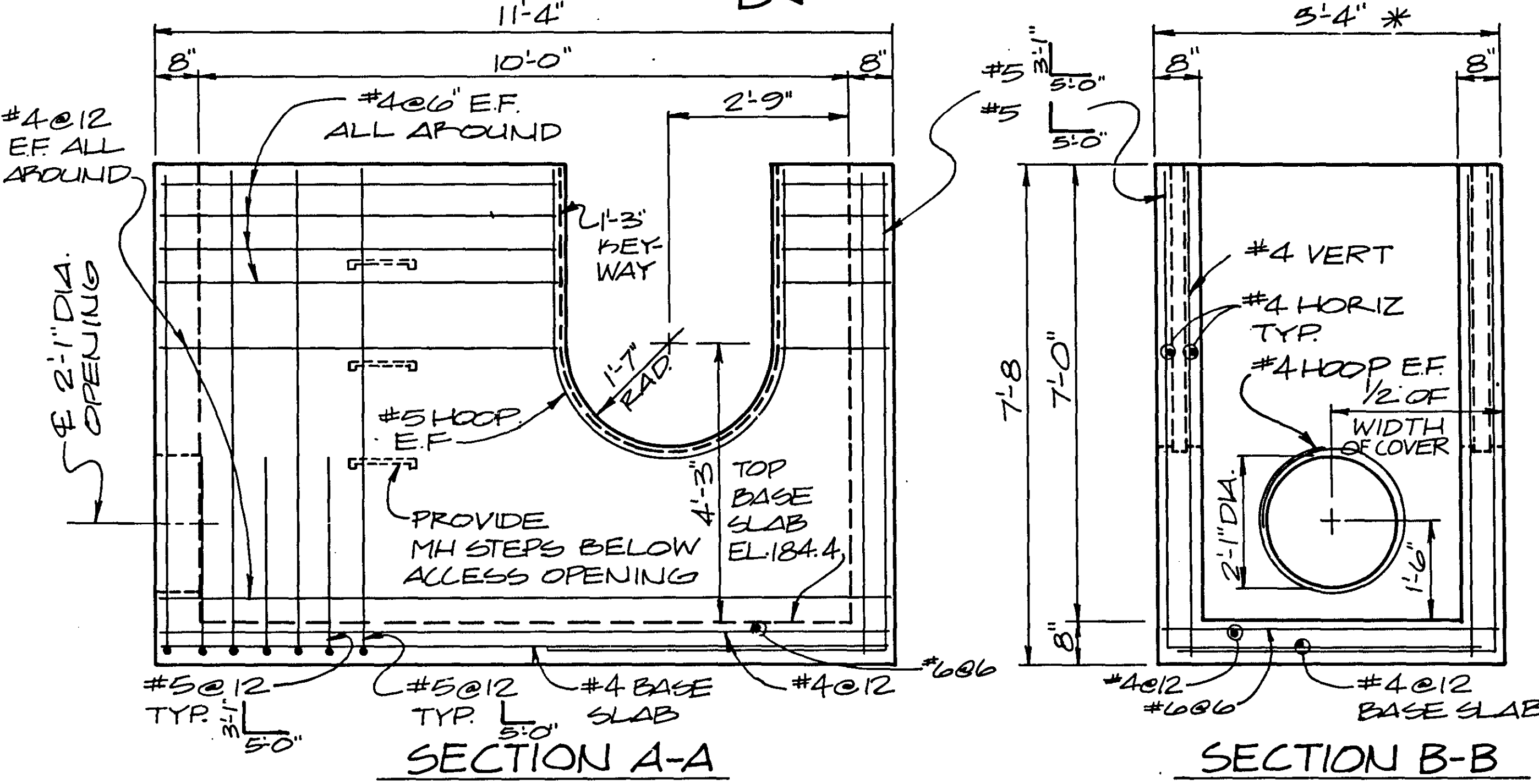
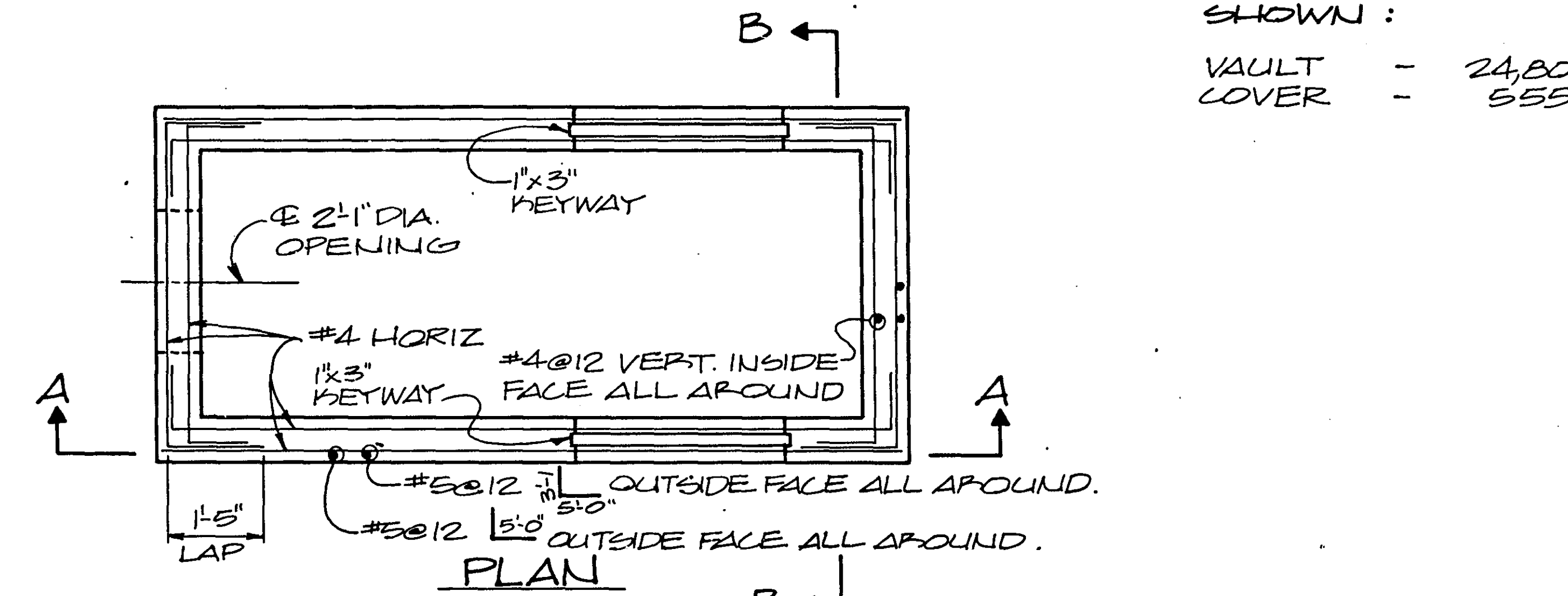
RAMSEY COUNTY PROJECT NO. CON 47346

EST. WEIGHTS FOR DIMENSIONS AS SHOWN:  
 VAULT - 24,000 LBS.  
 COVER - 5550 LBS.



DIVERSION STRUCTURE NO. B

EST. WEIGHTS FOR DIMENSIONS AS SHOWN:  
 VAULT - 24,800 LBS.  
 COVER - 5550 LBS.



DIVERSION STRUCTURE NO. C

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST RECORDS  
 DONE BY: DRB  
 DATE: 4-25-88

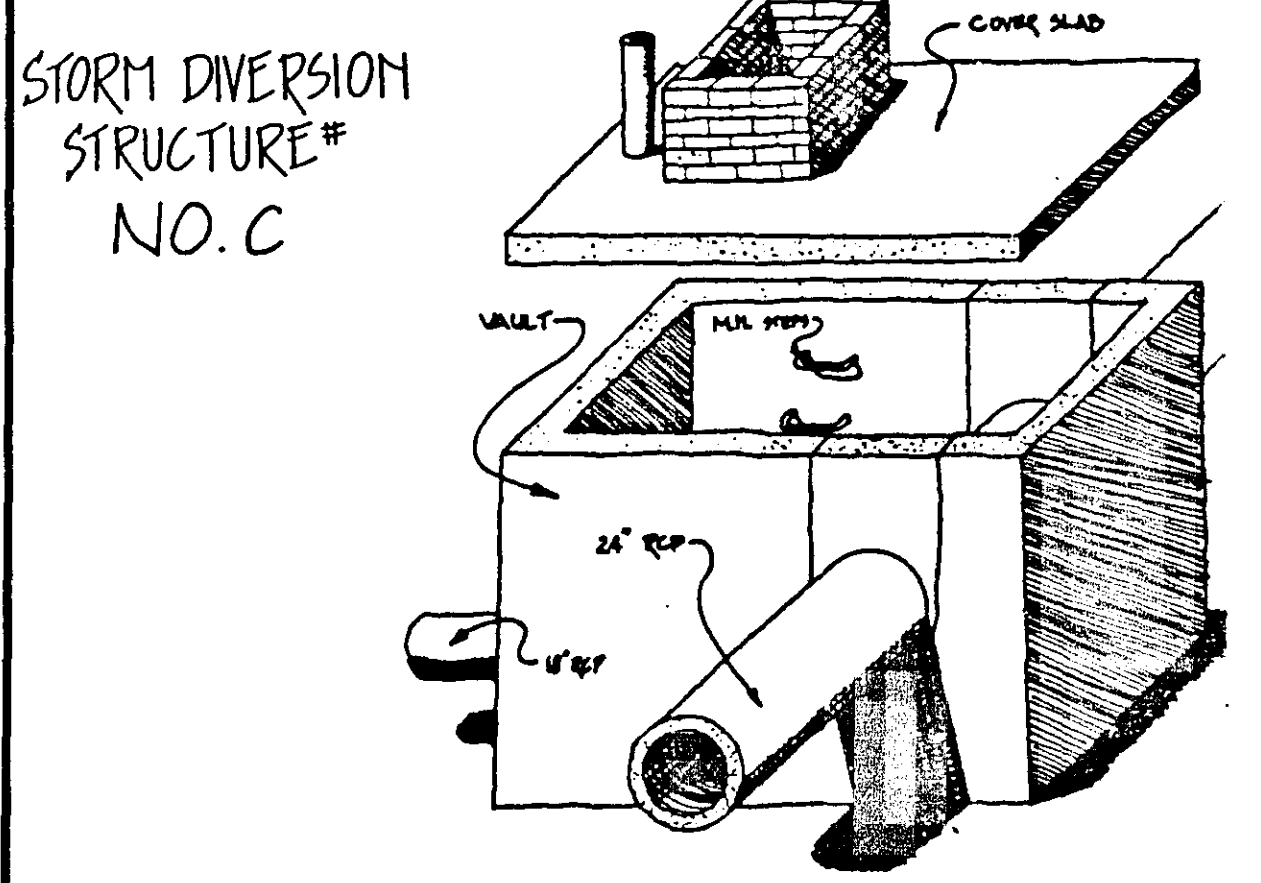
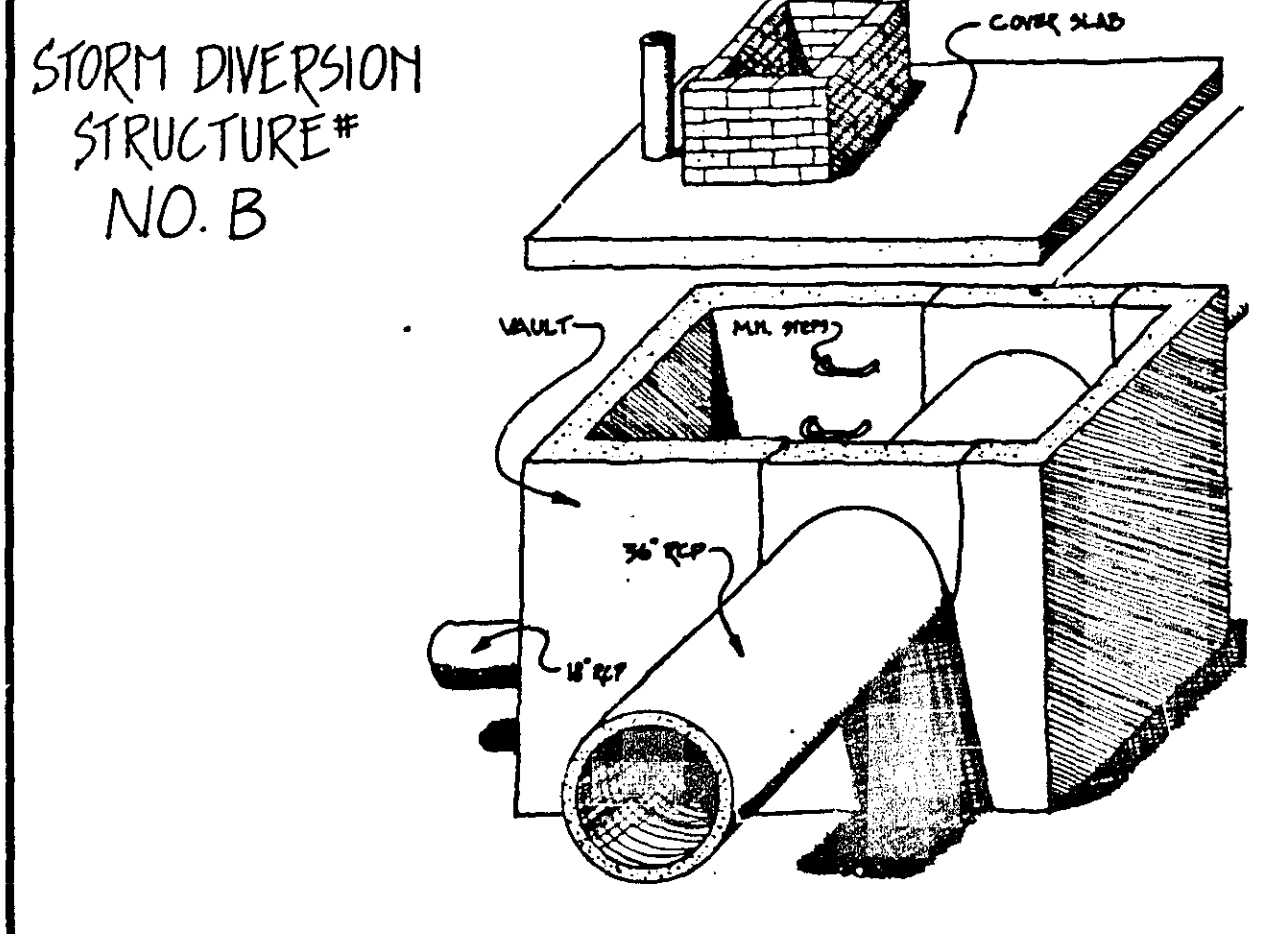
**DESIGN CRITERIA**  
 LOAD FACTOR DESIGN METHOD  
 HS20 LIVELOAD  
 DESIGN IN ACCORDANCE WITH "1983 AND INTERIM AASHTO DESIGN SPECIFICATIONS", MATERIALS AND FABRICATION IN ACCORDANCE WITH "MN/DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION".

CONCRETE  $F'_c = 5000$  PSI  
 MIX NO. 3W36 W/O CALCIUM CHLORIDE  
 REINFORCING STEEL  $F_y = 60,000$  PSI GRADE 60  
 3301 EPOXY COATED

**CONSTRUCTION NOTES**  
 CONCRETE COVER OVER REINFORCING STEEL SHALL BE AS FOLLOWS:

INTERIOR FACE 2"  
 EXTERIOR FACE 1 1/2"  
 AT OPENINGS 2"  
 ALL REINFORCEMENT IS TO BE EPOXY COATED

\* 5'-4" DIMENSION, IS MINIMUM STRUCTURE WIDTH. A MAXIMUM WIDTH OF 7'-4" IS PERMITTED TO ALLOW THE CONTRACTOR TO USE AVAILABLE FORMS.



RAMSEY COUNTY PROJECT NO. CON 47346

SURVEY:	CHECKED BY:	NO.	DATE	REVISIONS
DESIGN:				
DRAWN:				

**SEH** SHORT - ELLIOTT - HENDRICKSON, INC.  
 Saint Paul, Minnesota • Chippewa Falls, Wisconsin

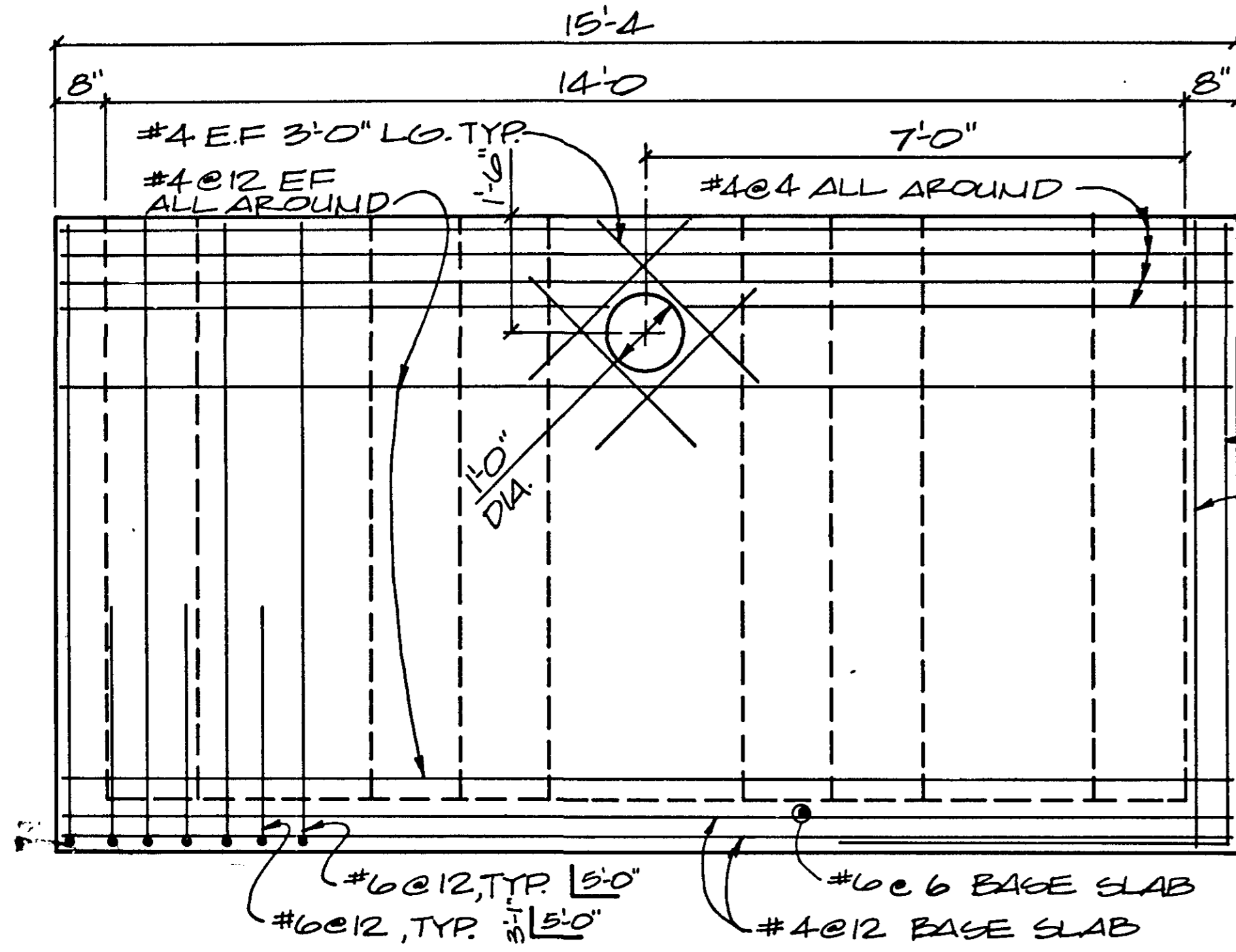
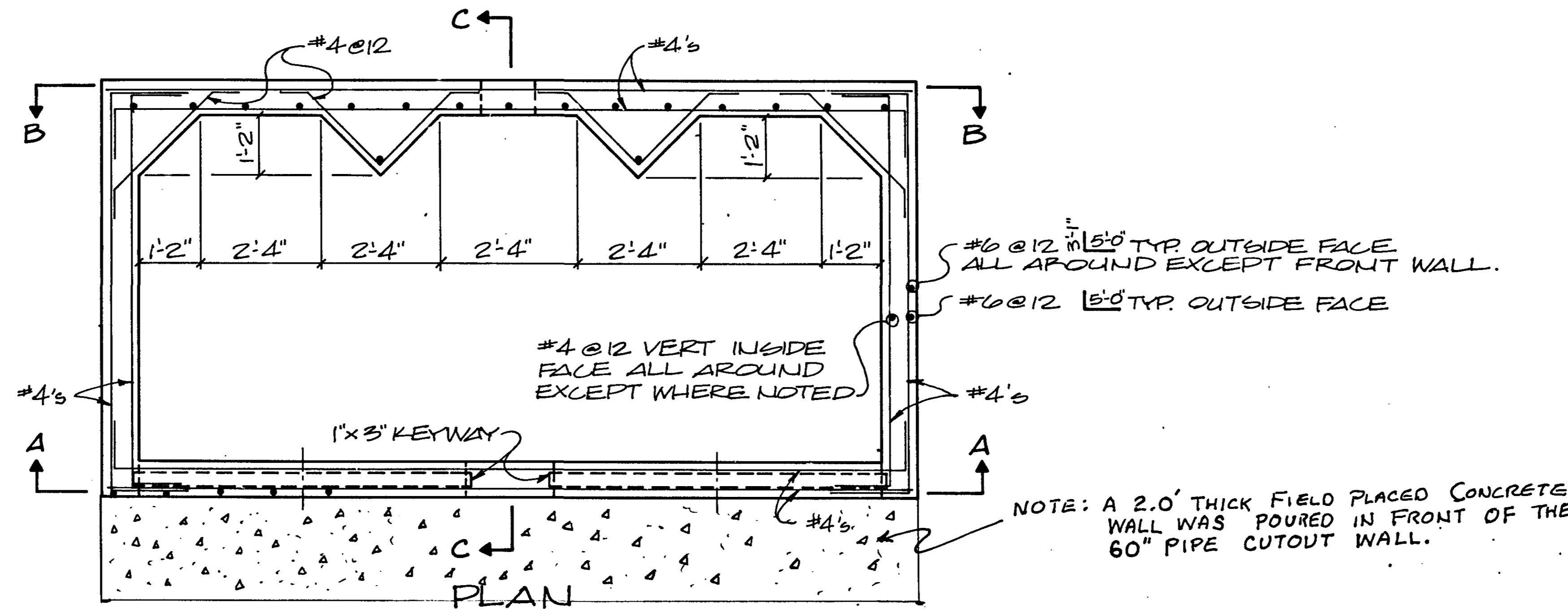
RAMSEY CO., MINNESOTA

LAKE COMO STORM DIVERSION STRUCTURES NO. B & NO. C

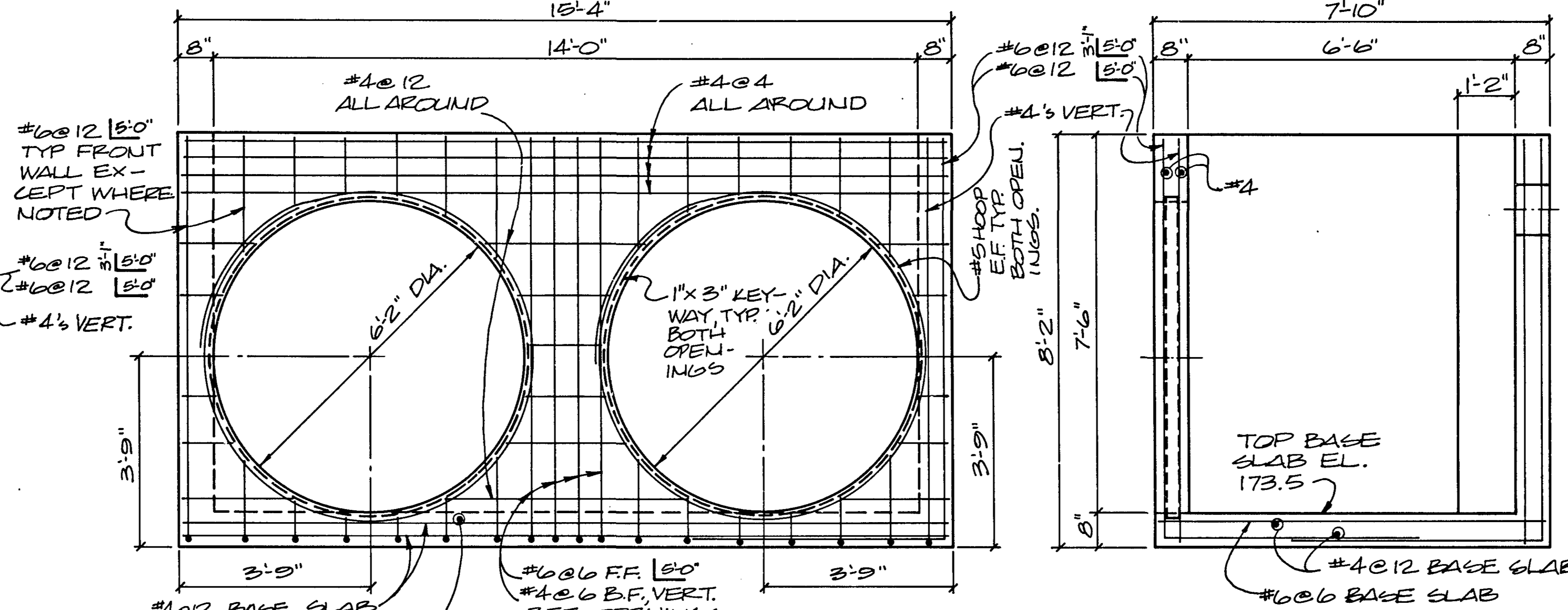
FILE NO.: 86142  
 DATE:  
 R-11  
 23

EST. WEIGHTS FOR DIMENSIONS AS SHOWN:

VAULT - 28,400 LBS.  
COVER - 10,200 LBS.



SECTION B-B  
BACK WALL



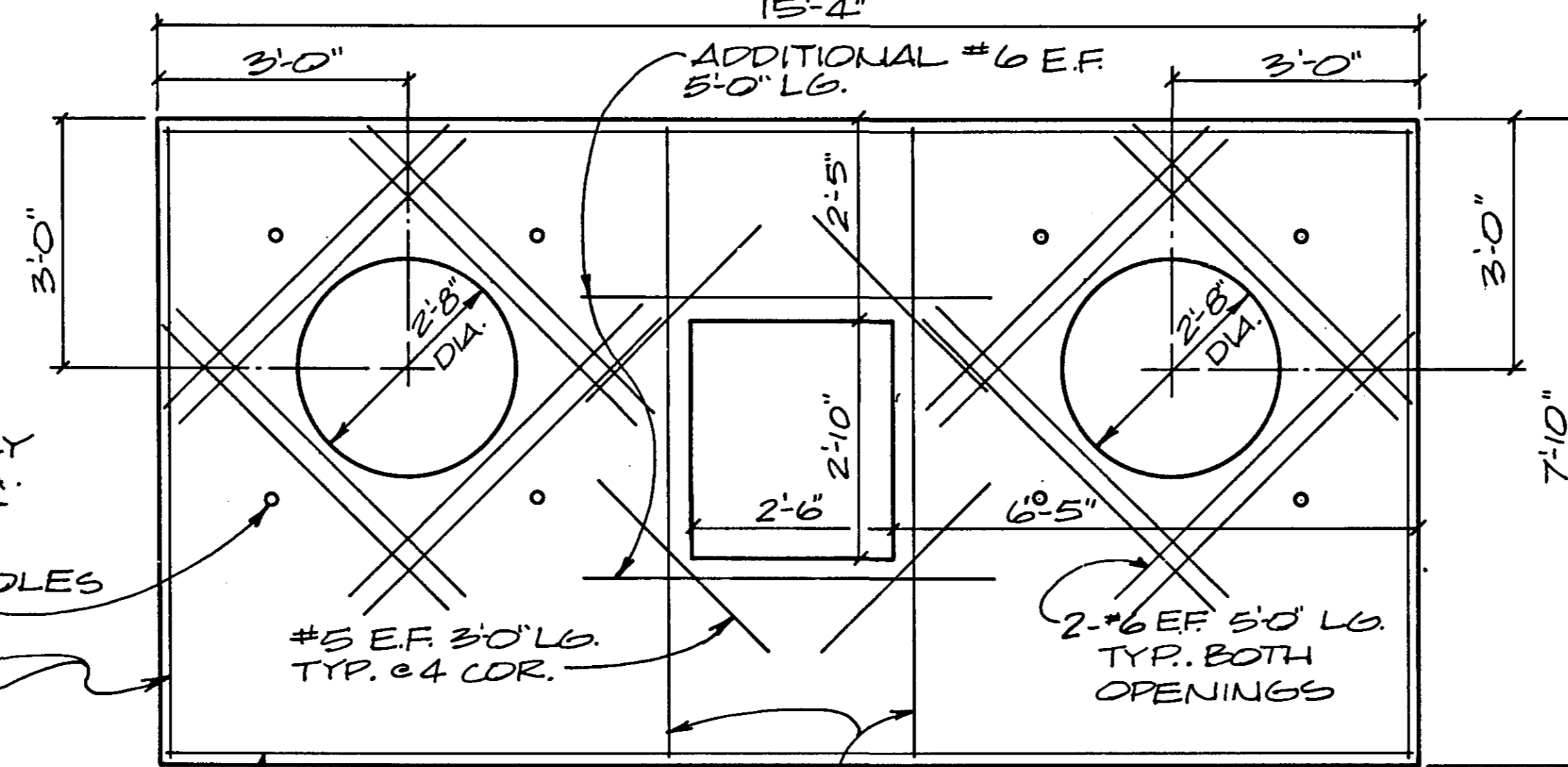
SECTION A-A  
FRONT WALL

SECTION C-C

4-2'0" HOLES EQUALLY SPACED ON A 54" DIA. BOLT CIRCLE, ADJUST REINFORCING STEEL TO CLR. 2" FROM HOLES TYP. @ 2 OPENINGS

#6@6 BOT. TYP.

#4@12 TOP TYP.



PLAN - COVER SLAB



SECTION - COVER SLAB

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: JRB

DATE: 4-25-88

LIFT STATION  
SUMP  
STRUCTURE

**DESIGN CRITERIA**  
LOAD FACTOR DESIGN METHOD  
HS20 LIVELOAD  
DESIGN IN ACCORDANCE WITH "1983 AND INTERIM AASHTO DESIGN SPECIFICATIONS", MATERIALS AND FABRICATION IN ACCORDANCE WITH "MN/DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION".

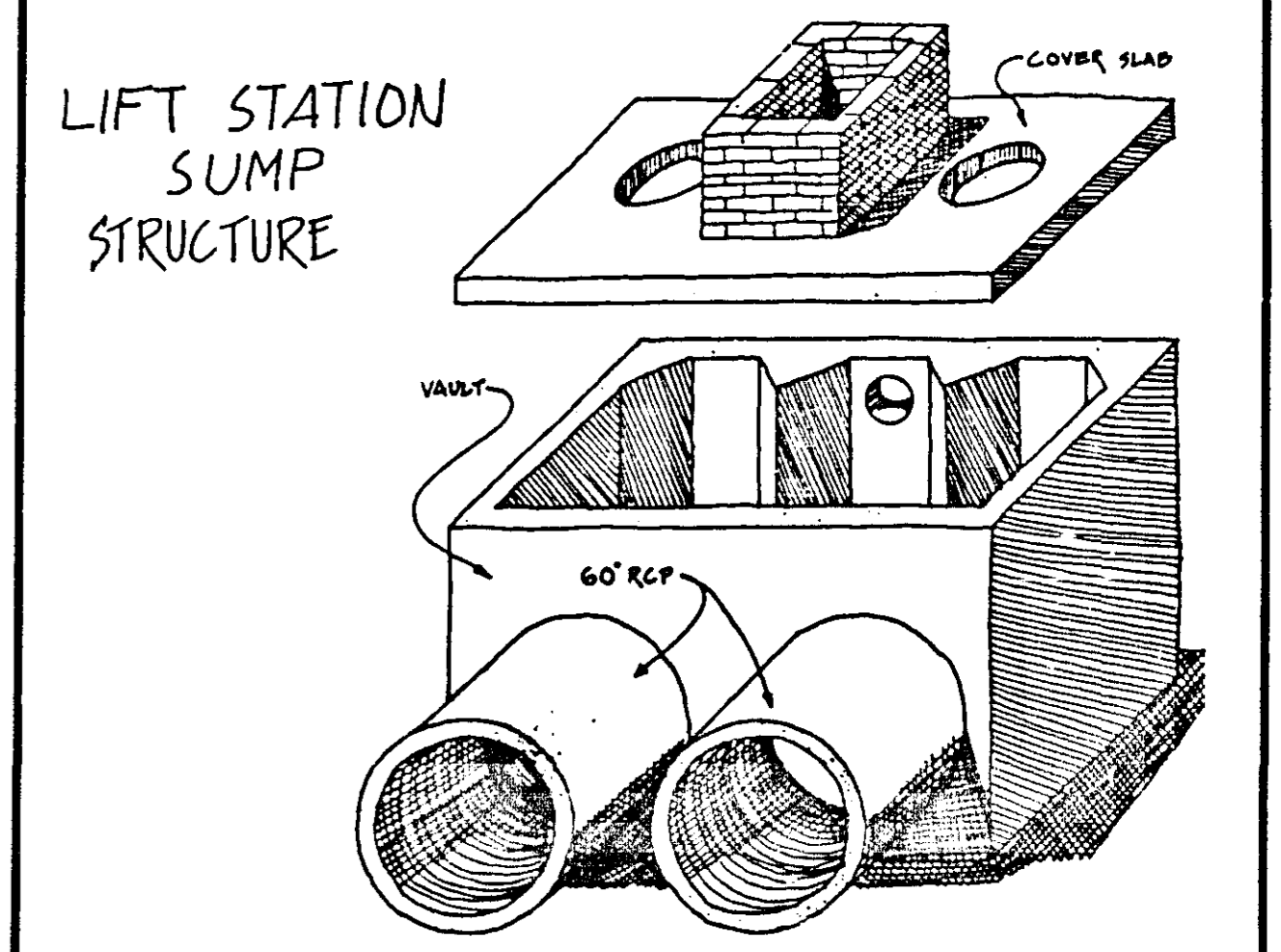
CONCRETE  $F'_c = 5000$  PSI  
MIX NO. 3W36 W/O CALCIUM CHLORIDE

REINFORCING STEEL  $F_y = 60,000$  PSI GRADE 60  
3301 EPOXY COATED

**CONSTRUCTION NOTES**

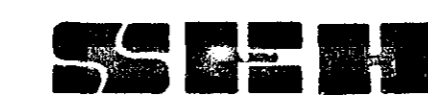
CONCRETE COVER OVER REINFORCING STEEL SHALL BE AS FOLLOWS:

INTERIOR FACE 2"  
EXTERIOR FACE 1 1/2"  
AT OPENINGS 2"  
ALL REINFORCEMENT IS TO BE EPOXY COATED



RAMSEY COUNTY PROJECT NO. CON 47346

SURVEY:	SCALE:	NO.	DATE	REVISIONS	I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.  Date: 4/15/88 Reg. No. 17250
DESIGN:					
DRAWN:					



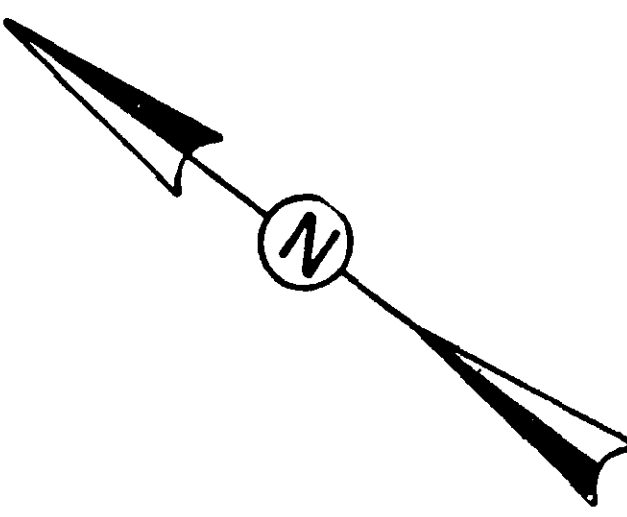
SHORT - ELLIOTT - HENDRICKSON, INC.  
Saint Paul, Minnesota • Chippewa Falls, Wisconsin

RAMSEY CO., MINNESOTA

LAKE COMO STORM  
LIFT STATION  
SUMP STRUCTURE

FILE NO.:	R-12
86142	
DATE:	23

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE



REMOVE 32' CONCRETE CURB  
CURB REPLACEMENT SHALL BE B6-18,  
STANDARD PLATE 7100-F

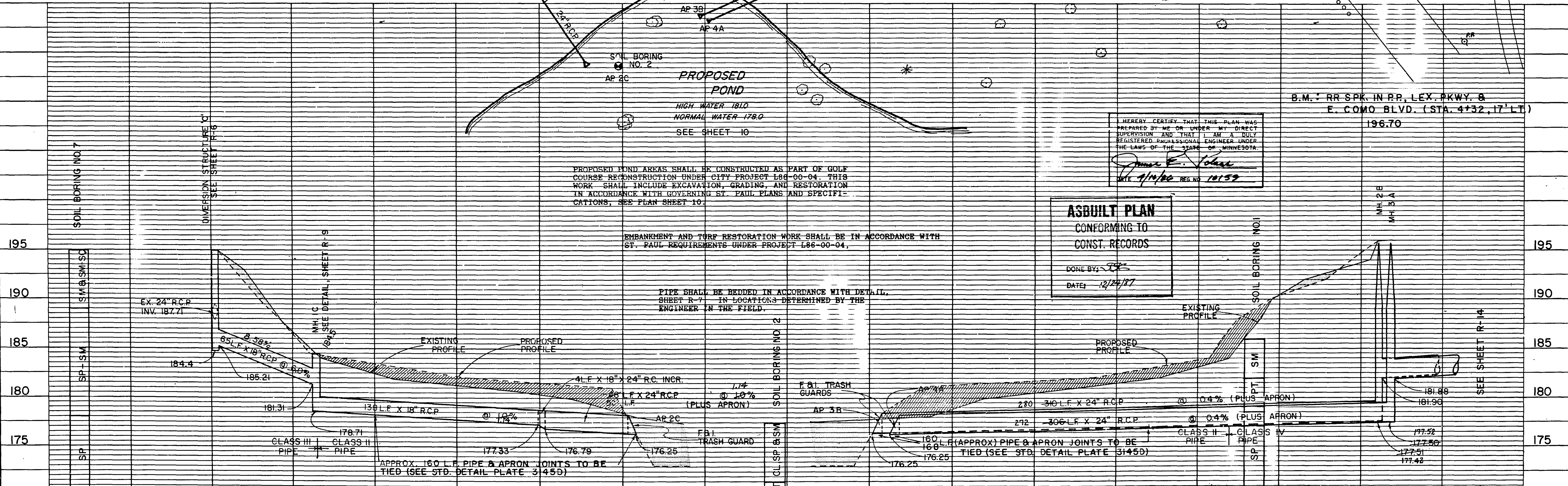
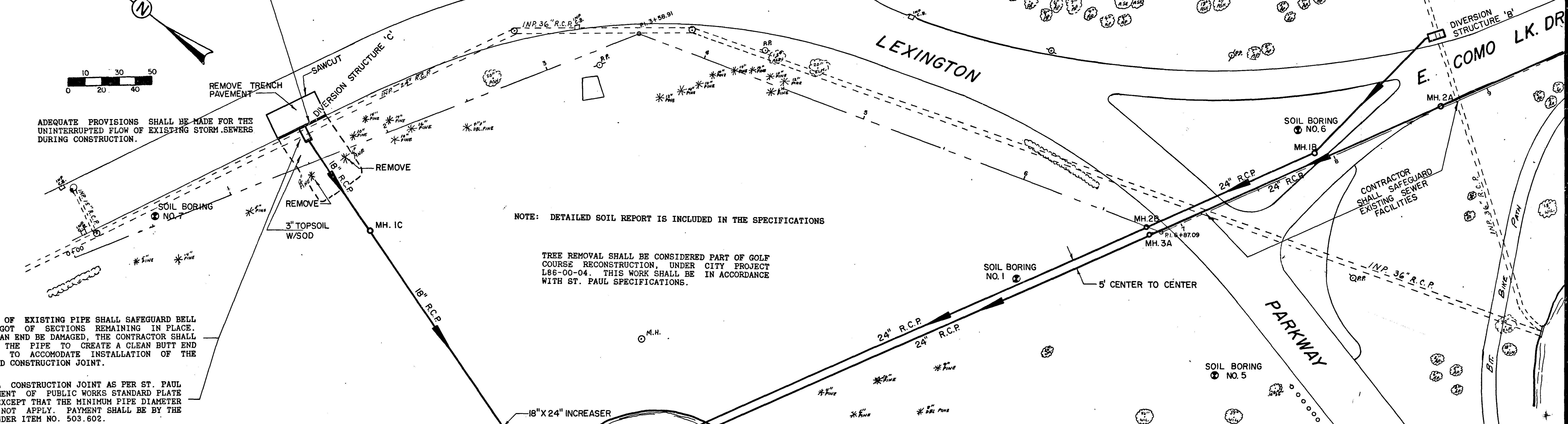
ADEQUATE PROVISIONS SHALL BE MADE FOR THE  
UNINTERRUPTED FLOW OF EXISTING STORM SEWERS  
DURING CONSTRUCTION.

NOTE: DETAILED SOIL REPORT IS INCLUDED IN THE SPECIFICATIONS

TREE REMOVAL SHALL BE CONSIDERED PART OF GOLF  
COURSE RECONSTRUCTION UNDER CITY PROJECT  
L86-00-04. THIS WORK SHALL BE IN ACCORDANCE  
WITH ST. PAUL SPECIFICATIONS.

REMOVAL OF EXISTING PIPE SHALL SAFEGUARD BELL  
AND SPIGOT OF SECTIONS REMAINING IN PLACE.  
SHOULD AN END BE DAMAGED, THE CONTRACTOR SHALL  
SAW CUT THE PIPE TO CREATE A CLEAN BUTT END  
SURFACE TO ACCOMMODATE INSTALLATION OF THE  
REQUIRED CONSTRUCTION JOINT.

INSTALL CONSTRUCTION JOINT AS PER ST. PAUL  
DEPARTMENT OF PUBLIC WORKS STANDARD PLATE  
2308, EXCEPT THAT THE MINIMUM PIPE DIAMETER  
SHALL NOT APPLY. PAYMENT SHALL BE BY THE  
EACH UNDER ITEM NO. 503.602.



I HEREBY CERTIFY THAT THIS PLAN WAS  
PREPARED BY ME OR UNDER MY DIRECT  
SUPERVISION AND THAT I AM A DULY  
REGISTERED PROFESSIONAL ENGINEER UNDER  
THE LAWS OF THE STATE OF MINNESOTA.  
*James E. Volant*  
DATE 7/14/82 REG. NO. 10152

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: *[Signature]*  
DATE: 12/24/87

PROPOSED POND AREAS SHALL BE CONSTRUCTED AS PART OF GOLF  
COURSE RECONSTRUCTION UNDER CITY PROJECT L86-00-04. THIS  
WORK SHALL INCLUDE EXCAVATION, GRADING, AND RESTORATION  
IN ACCORDANCE WITH GOVERNING ST. PAUL PLANS AND SPECIFI-  
CATIONS, SEE PLAN SHEET 10.

EMBANKMENT AND TURF RESTORATION WORK SHALL BE IN ACCORDANCE WITH  
ST. PAUL REQUIREMENTS UNDER PROJECT L86-00-04,

PIPE SHALL BE REDDED IN ACCORDANCE WITH DETAIL,  
SHEET R-7 IN LOCATIONS DETERMINED BY THE  
ENGINEER IN THE FIELD.

APPROX. 160 LF PIPE & APRON JOINTS TO BE  
TIED (SEE STD. DETAIL PLATE 3145D)

B.M. RR SPR. IN RR, LEX. PKWY. &  
E. COMO BLVD. (STA. 4+32.17' LT.)  
196.70

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

ADEQUATE PROVISIONS SHALL BE MADE FOR THE UNINTERRUPTED FLOW OF EXISTING STORM SEWERS DURING CONSTRUCTION.

NOTE: ROAD RESTORATION, BITUMINOUS PATH RESTORATION, AND TURF RESTORATION SHALL BE IN ACCORDANCE WITH ST. PAUL REQUIREMENTS, SEE SHEETS 13 & 14. TRENCH RESTORATION RELATED TO PIPE AND DIVERSION STRUCTURE INSTALLATIONS SHALL BE LIMITED TO BACK-FILLING, COMPACTION AND BRINGING TO GRADE WITH AGGREGATE, CL-5 UNDER LAKE RESTORATION PROJ. NO. CON 47346.

REMOVAL OF EXISTING PIPE SHALL SAFEGUARD BELL AND SPIGOT OF SECTIONS REMAINING IN PLACE. SHOULD AN END BE DAMAGED, THE CONTRACTOR SHALL SAW CUT THE PIPE TO CREATE A CLEAN BUTT END SURFACE TO ACCOMMODATE INSTALLATION OF THE REQUIRED CONSTRUCTION JOINT.

INSTALL CONSTRUCTION JOINT AS PER ST. PAUL DEPARTMENT OF PUBLIC WORKS STANDARD PLATE 2308, EXCEPT THAT THE MINIMUM PIPE DIAMETER SHALL NOT APPLY. PAYMENT SHALL BE BY THE EACH UNDER ITEM NO. 503.602.

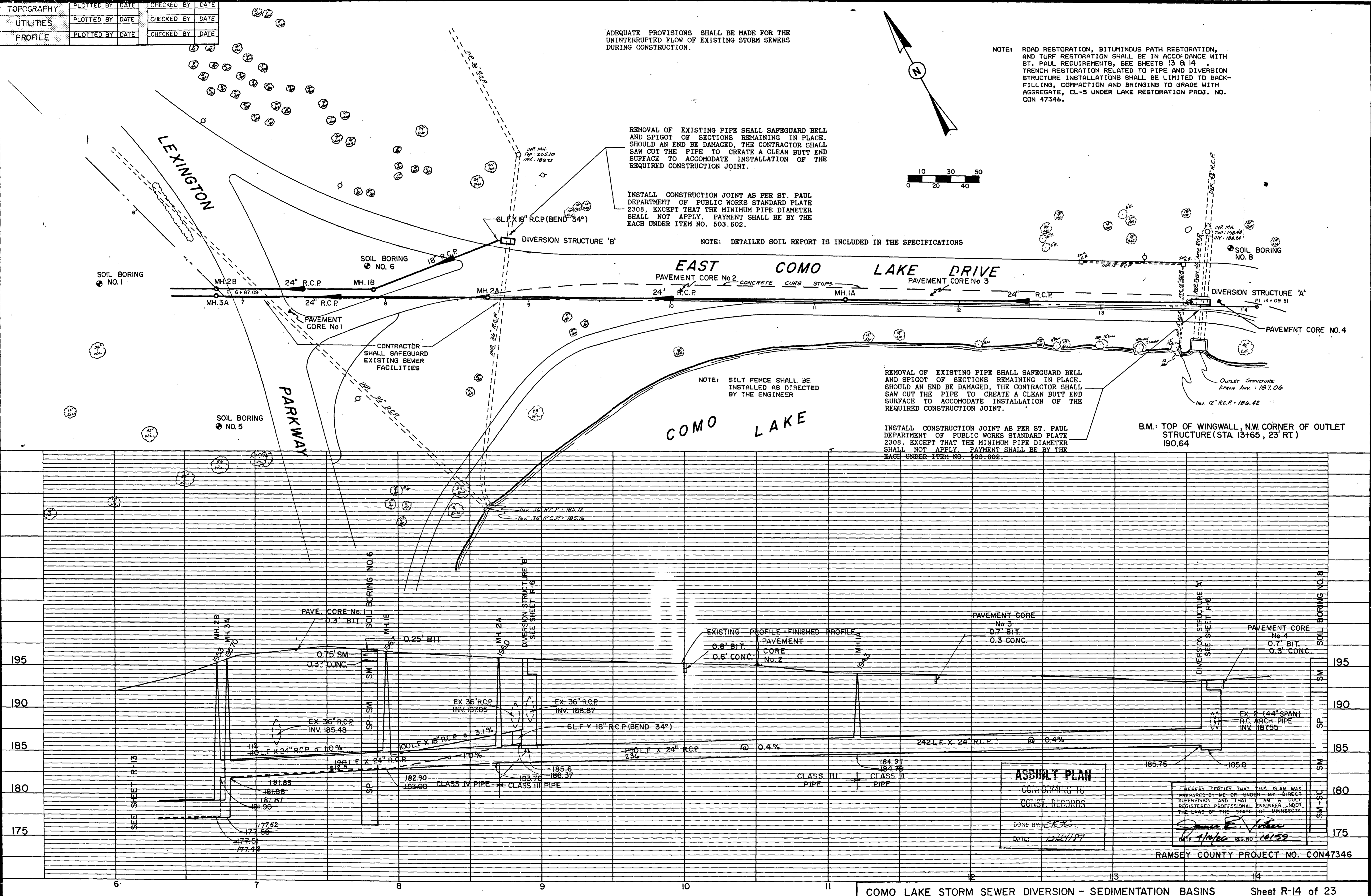
NOTE: DETAILED SOIL REPORT IS INCLUDED IN THE SPECIFICATIONS

NOTE: SILT FENCE SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER

REMOVAL OF EXISTING PIPE SHALL SAFEGUARD BELL AND SPIGOT OF SECTIONS REMAINING IN PLACE. SHOULD AN END BE DAMAGED, THE CONTRACTOR SHALL SAW CUT THE PIPE TO CREATE A CLEAN BUTT END SURFACE TO ACCOMMODATE INSTALLATION OF THE REQUIRED CONSTRUCTION JOINT.

INSTALL CONSTRUCTION JOINT AS PER ST. PAUL DEPARTMENT OF PUBLIC WORKS STANDARD PLATE 2308, EXCEPT THAT THE MINIMUM PIPE DIAMETER SHALL NOT APPLY. PAYMENT SHALL BE BY THE EACH UNDER ITEM NO. 503.602.

B.M.: TOP OF WINGWALL, N.W. CORNER OF OUTLET STRUCTURE (STA. 13+65, 23' RT) 190.64



**ASSEMBLY PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DRAWN BY: STJG  
 DATE: 12/21/87

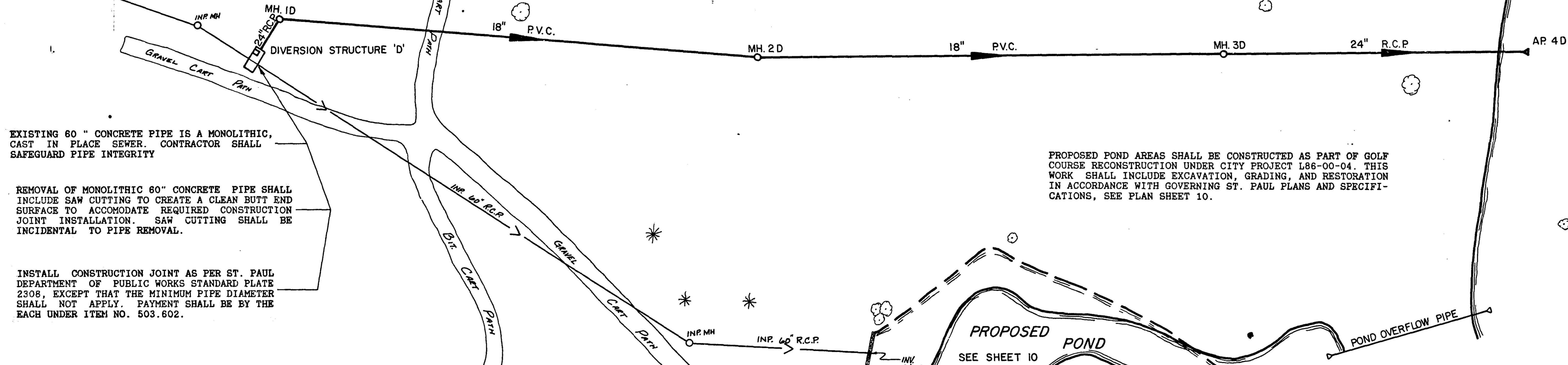
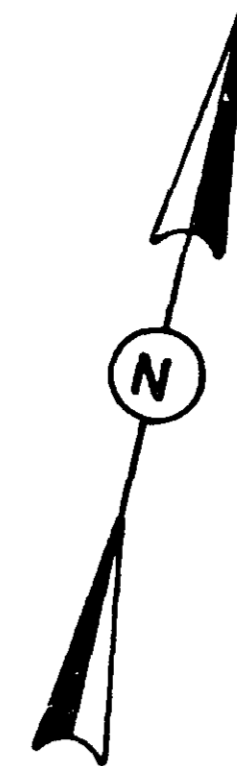
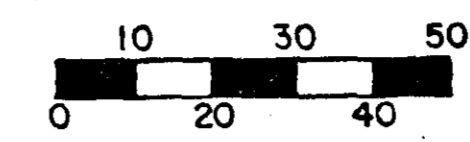
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*James E. Volter*  
 REG. NO. 16152

RAMSEY COUNTY PROJECT NO. CON47346

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

ADEQUATE PROVISIONS SHALL BE MADE FOR THE UNINTERRUPTED FLOW OF EXISTING STORM SEWERS DURING CONSTRUCTION.

NOTE: SEE DETAIL SHEET R-9 FOR CONNECTING P.V.C. TO MANHOLE.



EXISTING 60" CONCRETE PIPE IS A MONOLITHIC, CAST IN PLACE SEWER. CONTRACTOR SHALL SAFEGUARD PIPE INTEGRITY.

REMOVAL OF MONOLITHIC 60" CONCRETE PIPE SHALL INCLUDE SAW CUTTING TO CREATE A CLEAN BUTT END SURFACE TO ACCOMMODATE REQUIRED CONSTRUCTION JOINT INSTALLATION. SAW CUTTING SHALL BE INCIDENTAL TO PIPE REMOVAL.

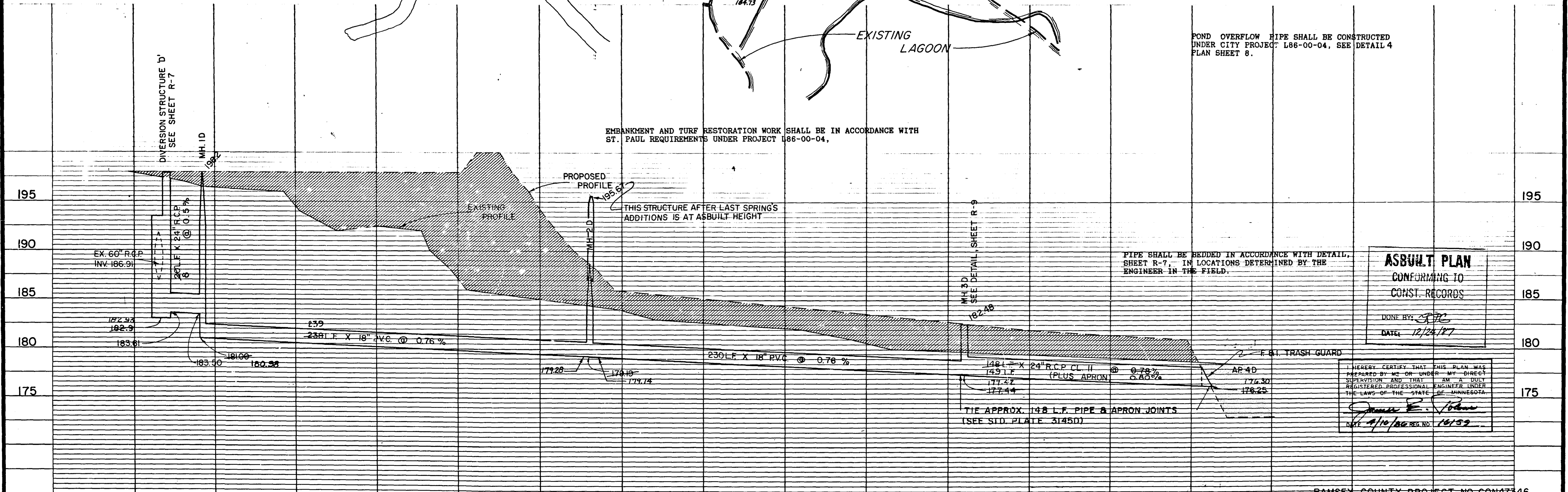
INSTALL CONSTRUCTION JOINT AS PER ST. PAUL DEPARTMENT OF PUBLIC WORKS STANDARD PATE 2308, EXCEPT THAT THE MINIMUM PIPE DIAMETER SHALL NOT APPLY. PAYMENT SHALL BE BY THE EACH UNDER ITEM NO. 503.602.

PROPOSED POND AREAS SHALL BE CONSTRUCTED AS PART OF GOLF COURSE RECONSTRUCTION UNDER CITY PROJECT L86-00-04. THIS WORK SHALL INCLUDE EXCAVATION, GRADING, AND RESTORATION IN ACCORDANCE WITH GOVERNING ST. PAUL PLANS AND SPECIFICATIONS, SEE PLAN SHEET 10.

**PROPOSED POND**  
HIGH WATER 181.0  
NORMAL WATER 178.0  
SEE SHEET 10

POND OVERFLOW PIPE SHALL BE CONSTRUCTED UNDER CITY PROJECT L86-00-04, SEE DETAIL 4 PLAN SHEET 8.

EMBANKMENT AND TURF RESTORATION WORK SHALL BE IN ACCORDANCE WITH ST. PAUL REQUIREMENTS UNDER PROJECT L86-00-04.



THIS STRUCTURE AFTER LAST SPRING'S ADDITIONS IS AT ASBUILT HEIGHT

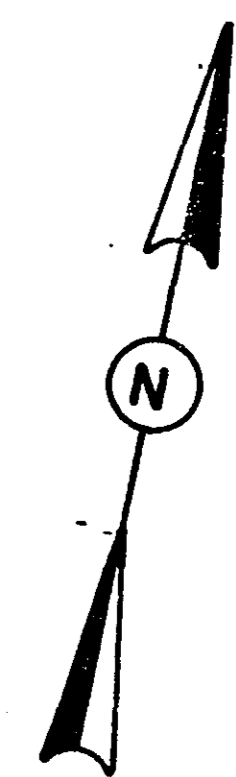
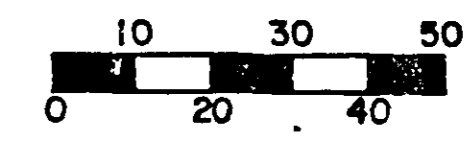
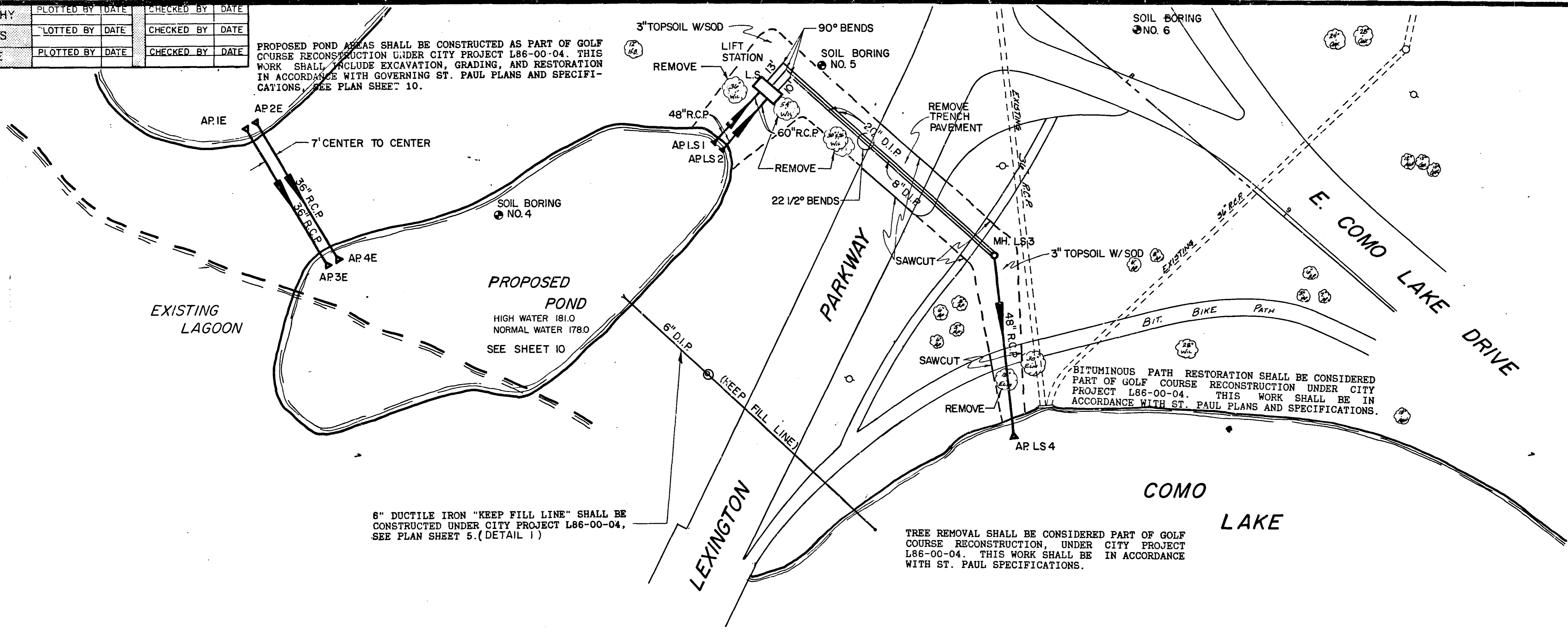
PIPE SHALL BE BEDDED IN ACCORDANCE WITH DETAIL, SHEET R-7, IN LOCATIONS DETERMINED BY THE ENGINEER IN THE FIELD.

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: *[Signature]*  
DATE: 12/24/87

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DUTY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*[Signature]*  
DATE 1/10/88 REG. NO. 16152

TOPOGRAPHY	PLOTTED BY	DATE	CHECKED BY	DATE
UTILITIES	PLOTTED BY	DATE	CHECKED BY	DATE
PROFILE	PLOTTED BY	DATE	CHECKED BY	DATE

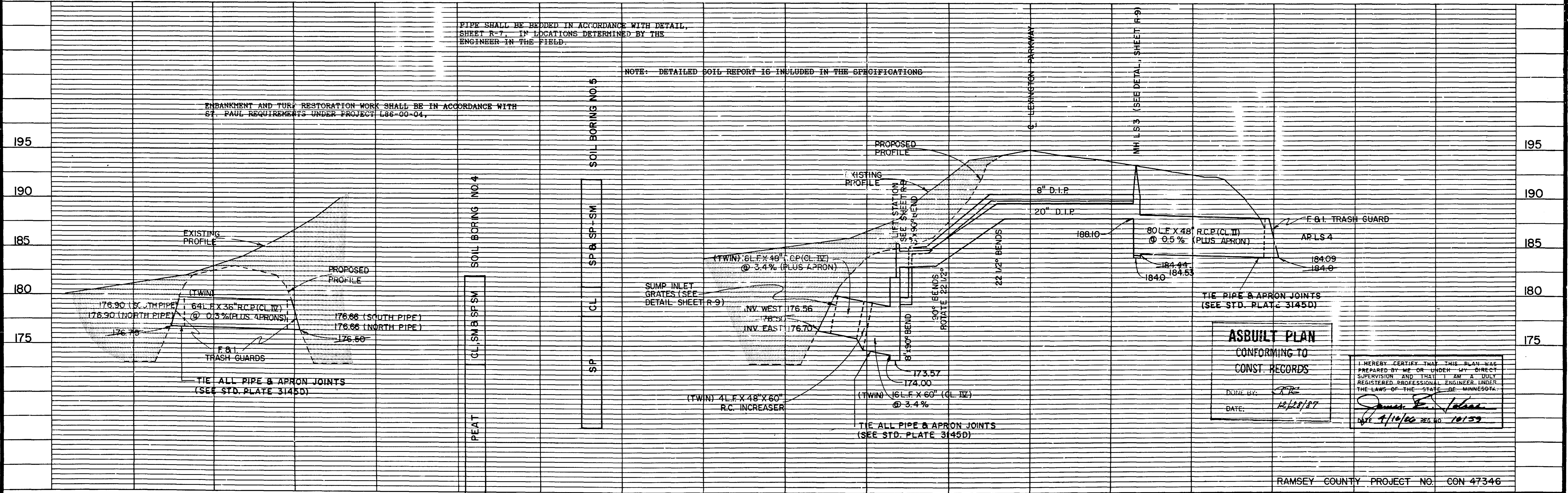
PROPOSED POND AREAS SHALL BE CONSTRUCTED AS PART OF GOLF COURSE RECONSTRUCTION UNDER CITY PROJECT L86-00-04. THIS WORK SHALL INCLUDE EXCAVATION, GRADING, AND RESTORATION IN ACCORDANCE WITH GOVERNING ST. PAUL PLANS AND SPECIFICATIONS. SEE PLAN SHEET 10.



6" DUCTILE IRON "KEEP FILL LINE" SHALL BE CONSTRUCTED UNDER CITY PROJECT L86-00-04, SEE PLAN SHEET 5.(DETAIL 1)

TREE REMOVAL SHALL BE CONSIDERED PART OF GOLF COURSE RECONSTRUCTION, UNDER CITY PROJECT L86-00-04. THIS WORK SHALL BE IN ACCORDANCE WITH ST. PAUL SPECIFICATIONS.

B.M.: TOP N.W. CORNER OF LEX. PKWY. BRIDGE 196.18



EMBANKMENT AND TURF RESTORATION WORK SHALL BE IN ACCORDANCE WITH ST. PAUL REQUIREMENTS UNDER PROJECT L86-00-04.

PIPE SHALL BE BEDDED IN ACCORDANCE WITH DETAIL, SHEET R-7. IN LOCATIONS DETERMINED BY THE ENGINEER IN THE FIELD.

NOTE: DETAILED SOIL REPORT IS INCLUDED IN THE SPECIFICATIONS

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

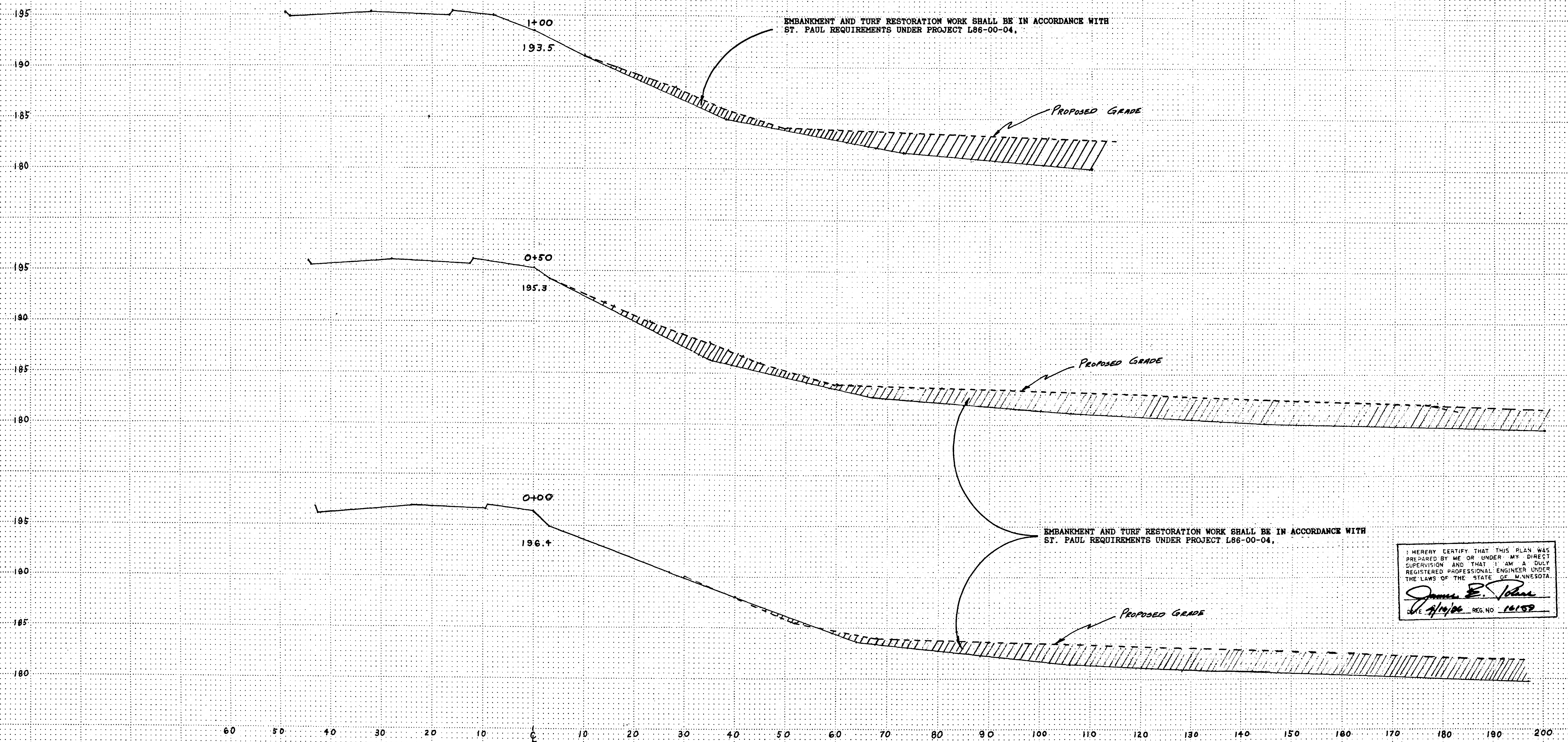
DONE BY: *[Signature]*  
DATE: 12/22/87

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*[Signature]*  
DATE 4/10/88 REG NO. 10139

RAMSEY COUNTY PROJECT NO. CGN 47346



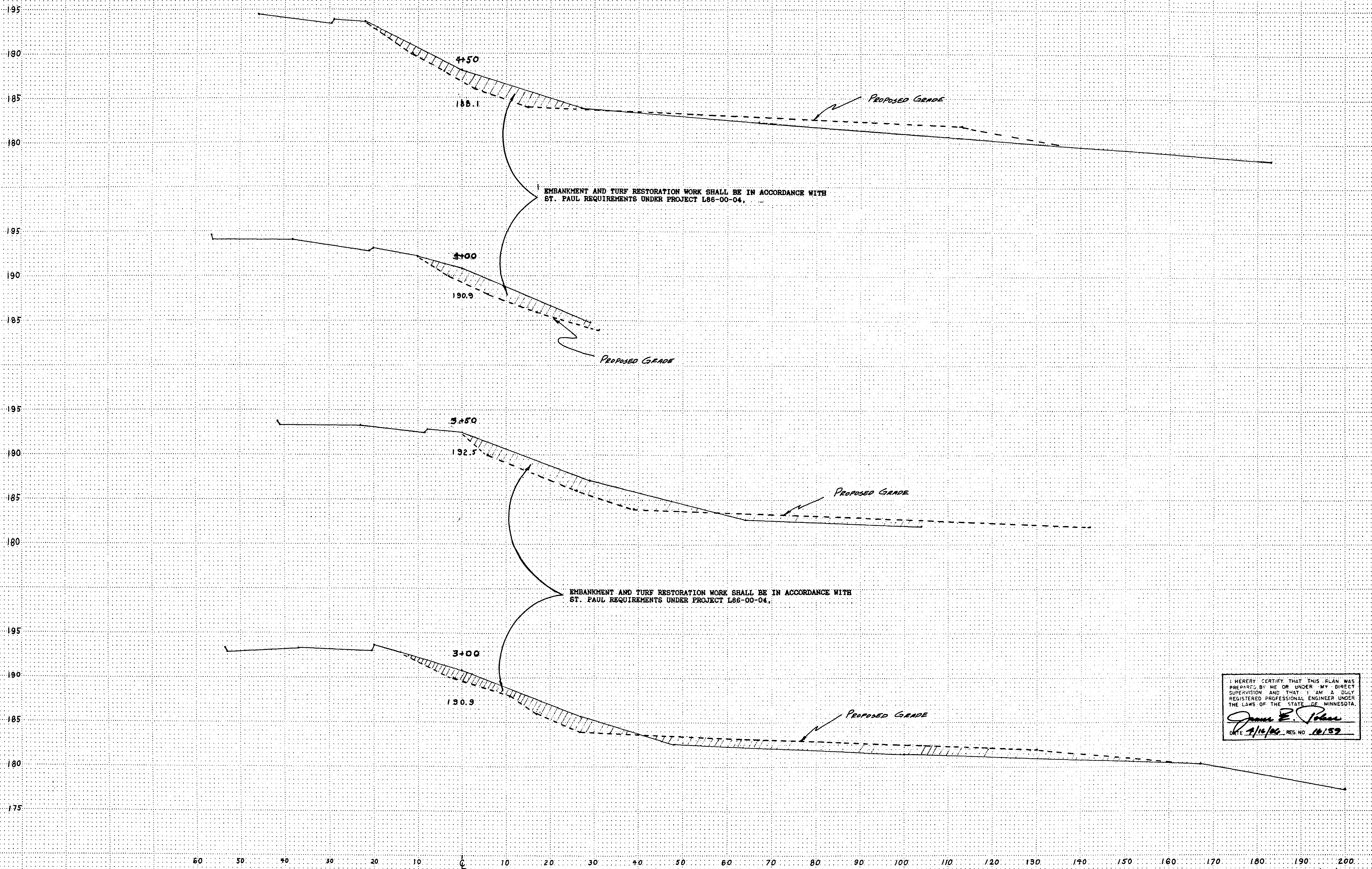




I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*James E. Johnson*  
DATE 7/14/06 REG. NO. 16152

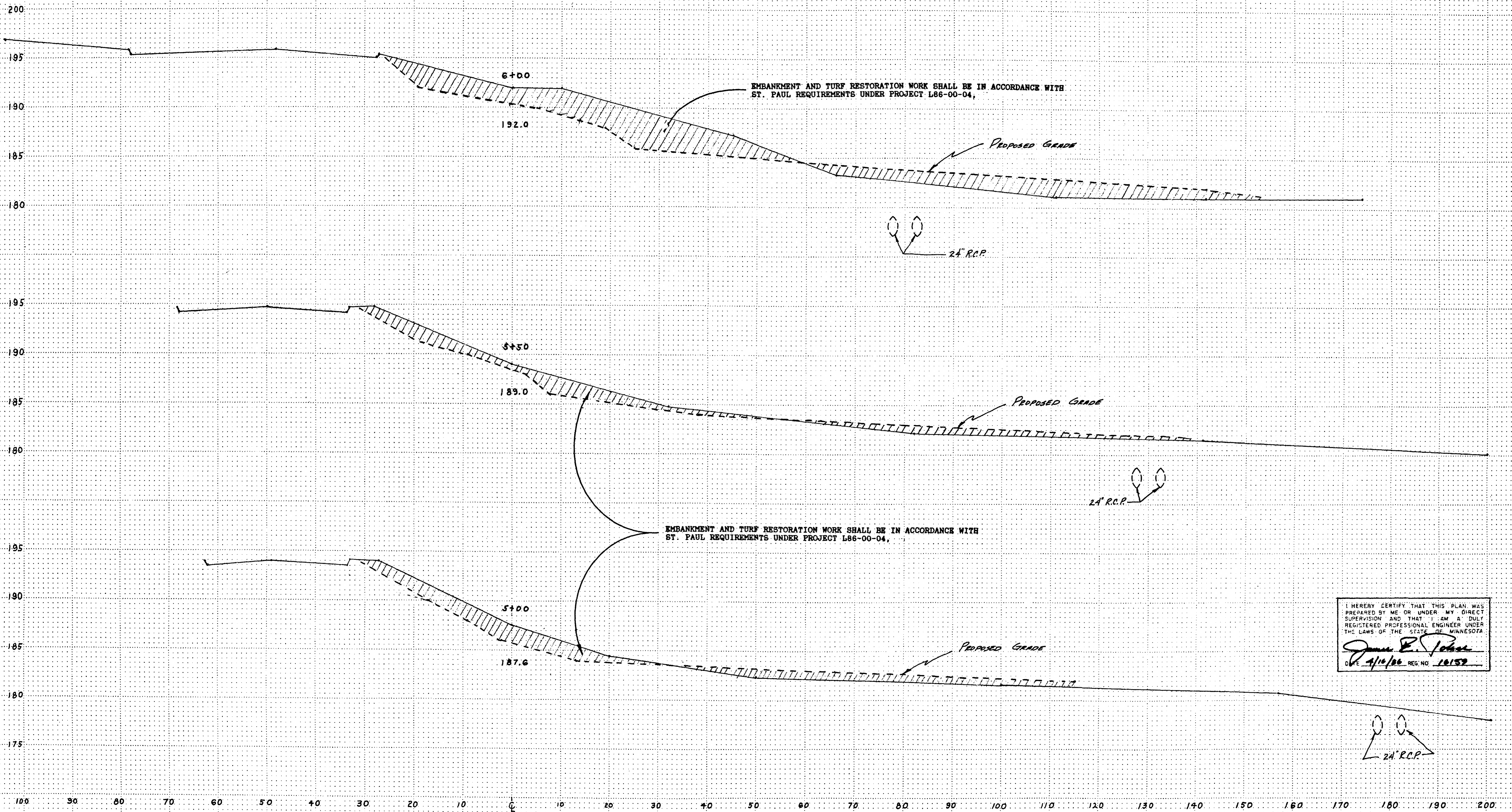
COPY EQUIPMENT FORM # 1258B



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*James E. Pohan*  
 DATE 7/16/66 REG. NO. 16159

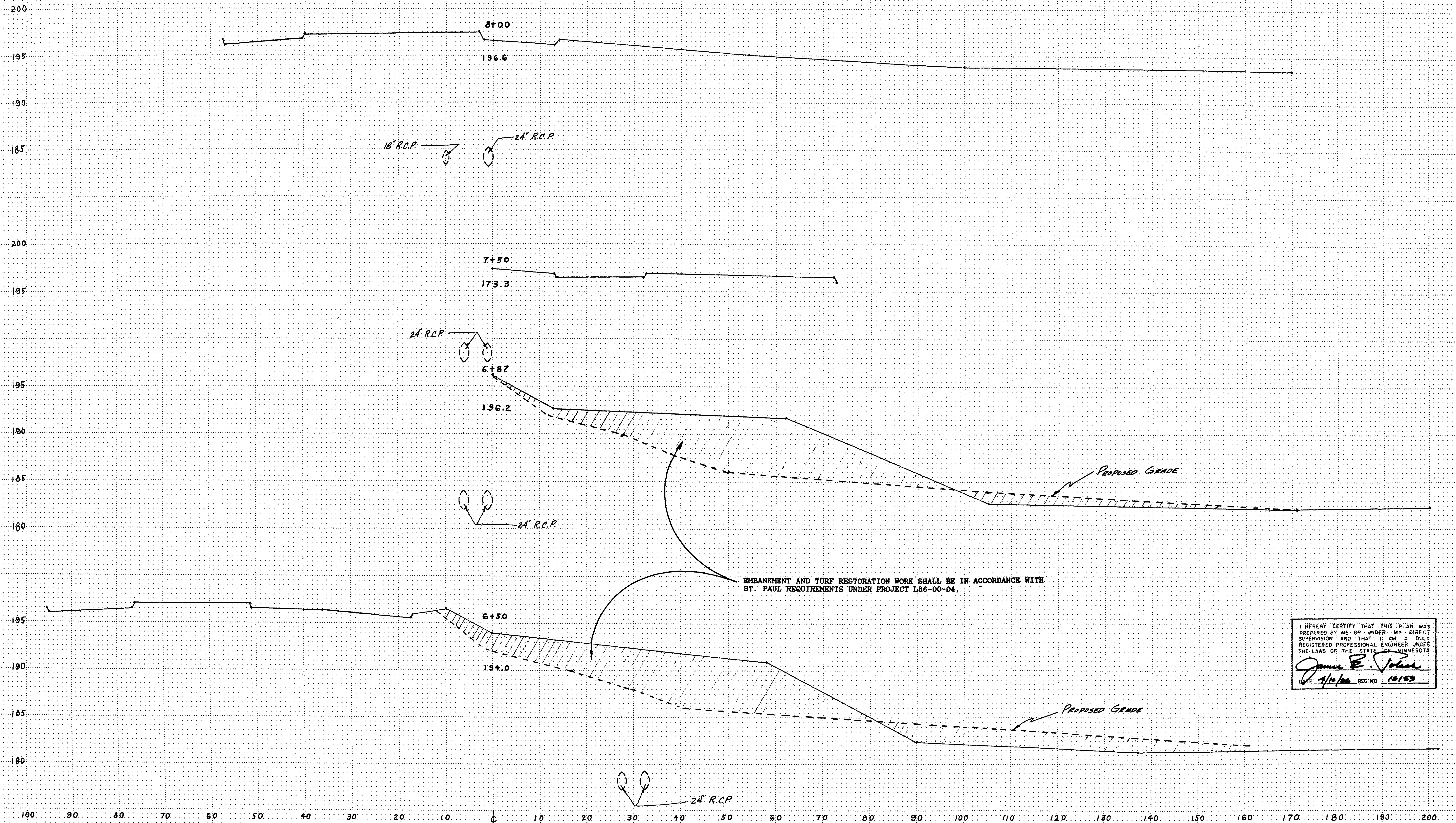
COPY EQUIPMENT FORM # 1588B



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

*James E. Johnson*  
 DATE 4/10/86 REG. NO. 10152

COPY EQUIPMENT FORM #1 15580

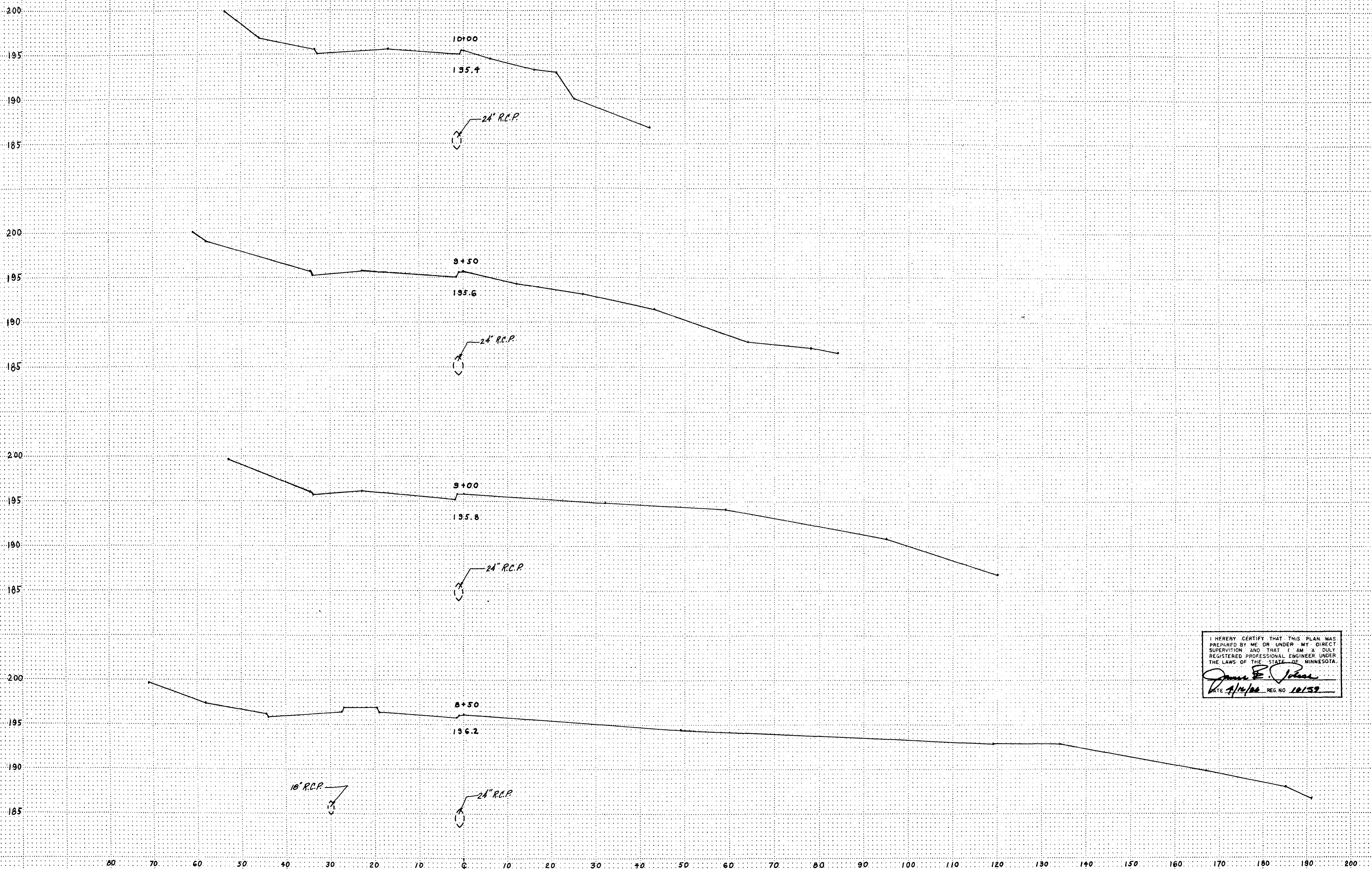


EMBANKMENT AND TURF RESTORATION WORK SHALL BE IN ACCORDANCE WITH ST. PAUL REQUIREMENTS UNDER PROJECT L86-00-04.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*James E. Toland*  
 DATE 4/10/66 REG. NO. 10159

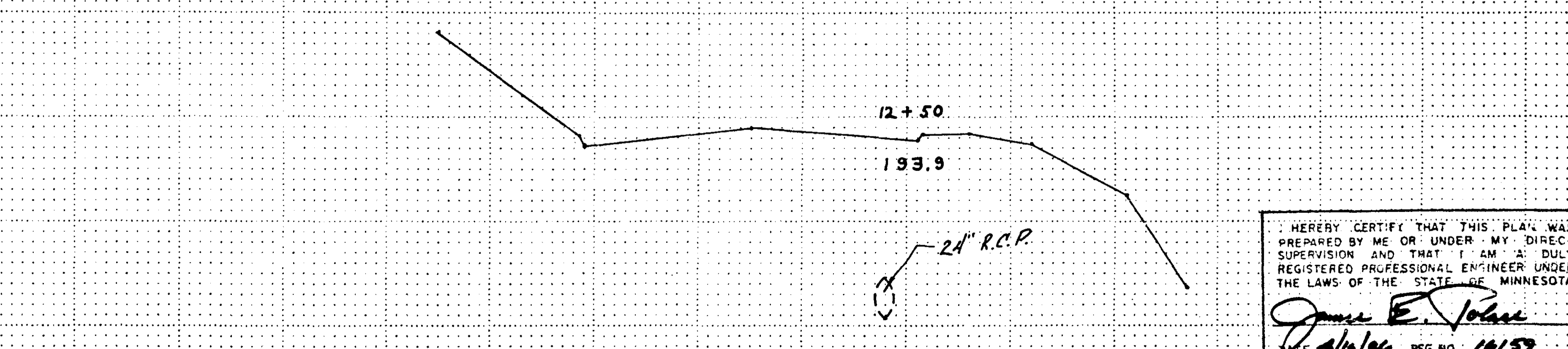
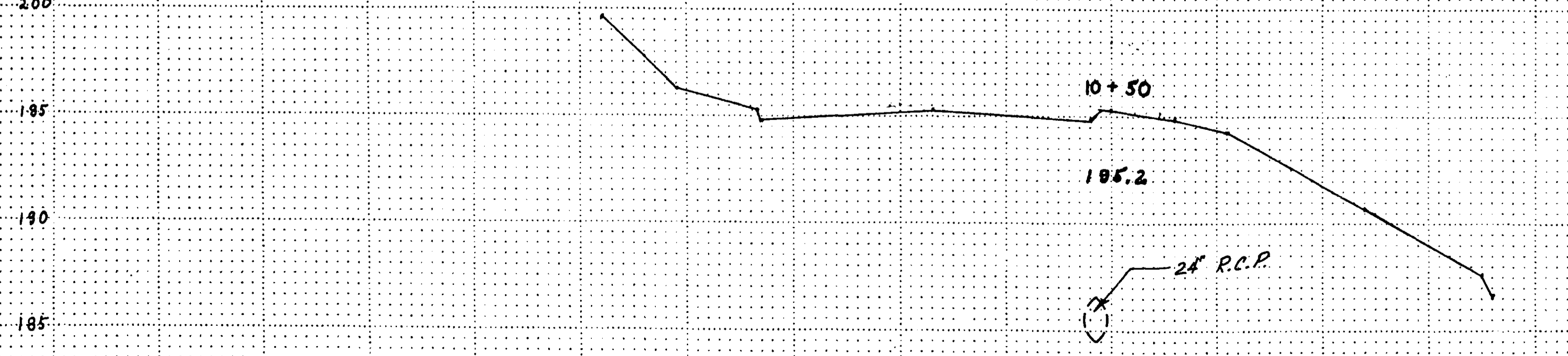
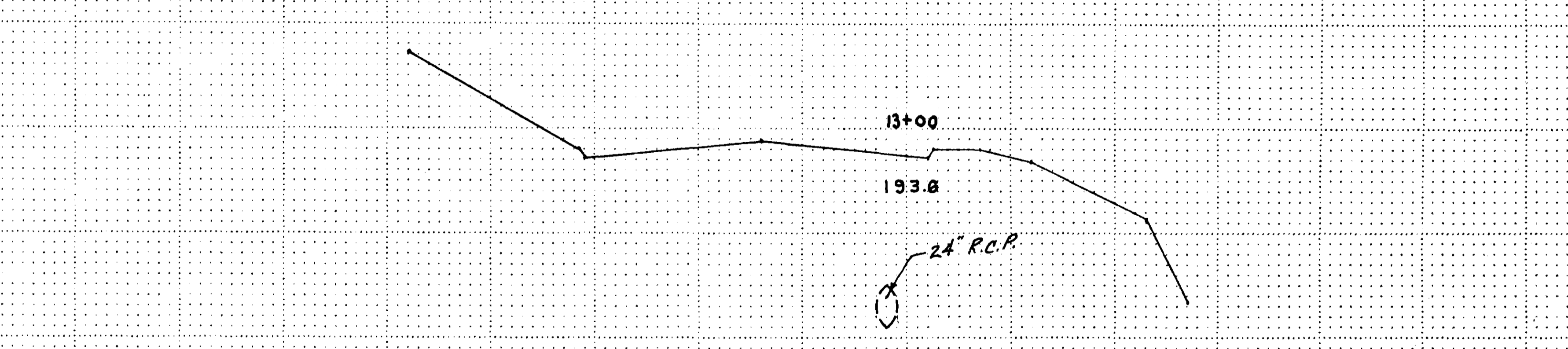
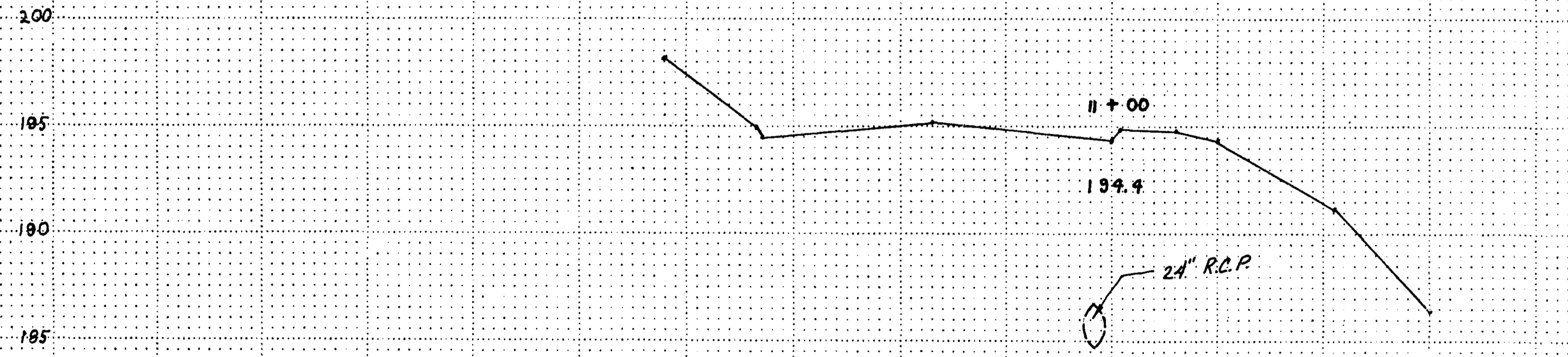
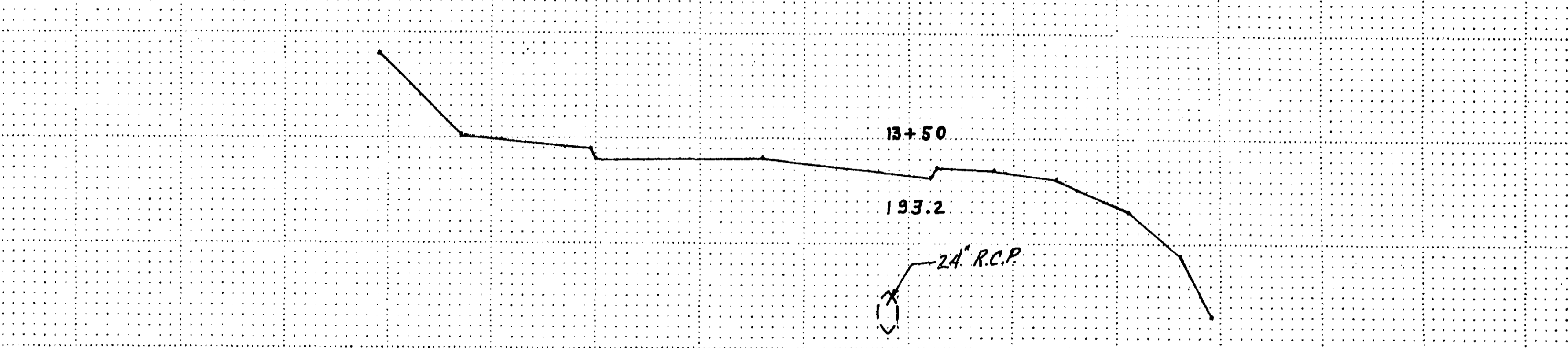
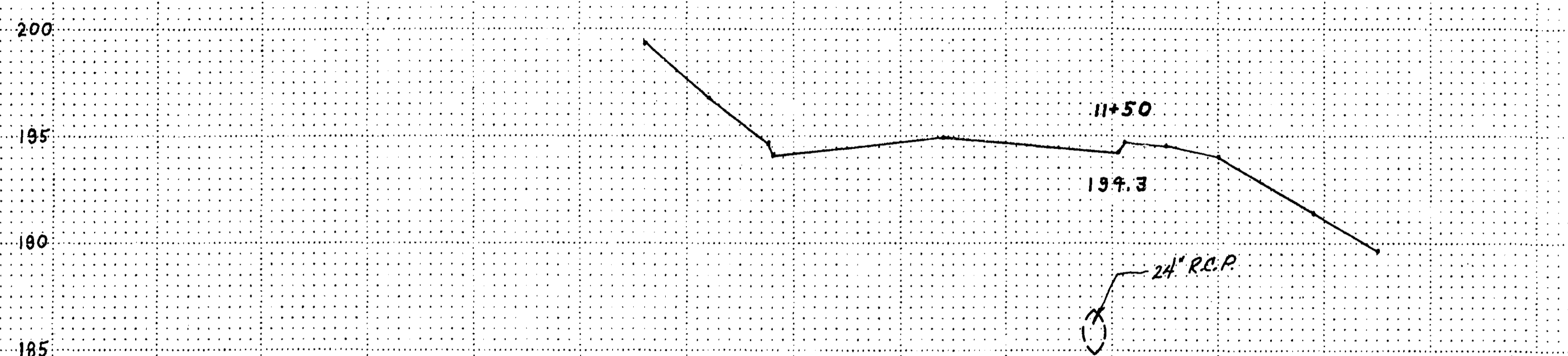
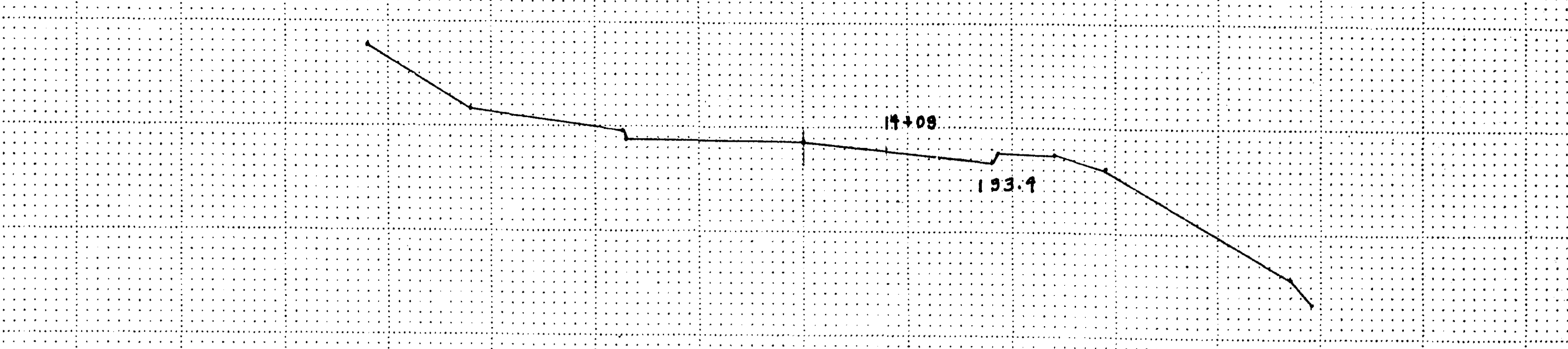
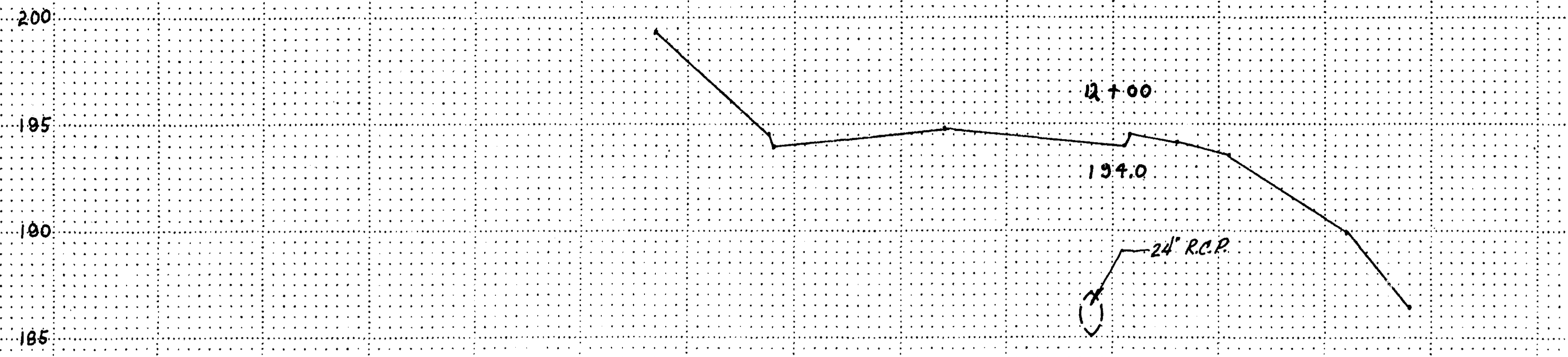
COPY EQUIPMENT FORM #1 7/59



HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*James E. Johnson*  
 DATE 1/14/66 REG. NO. 10152

COPY EQUIPMENT FORM 31 75880



HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*James E. John*  
 REG. NO. 16152

COPY EQUIPMENT FORM # 12880