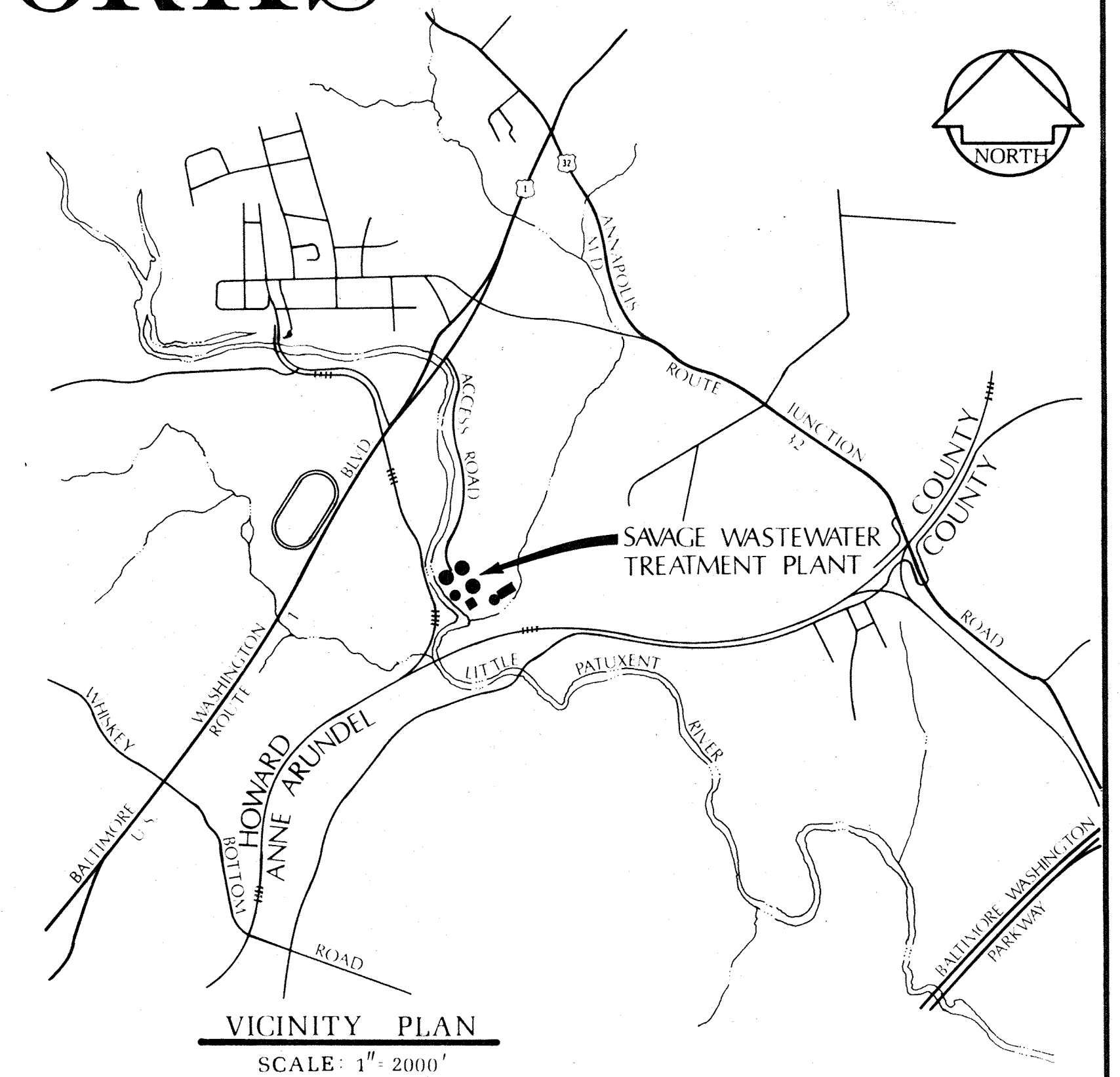
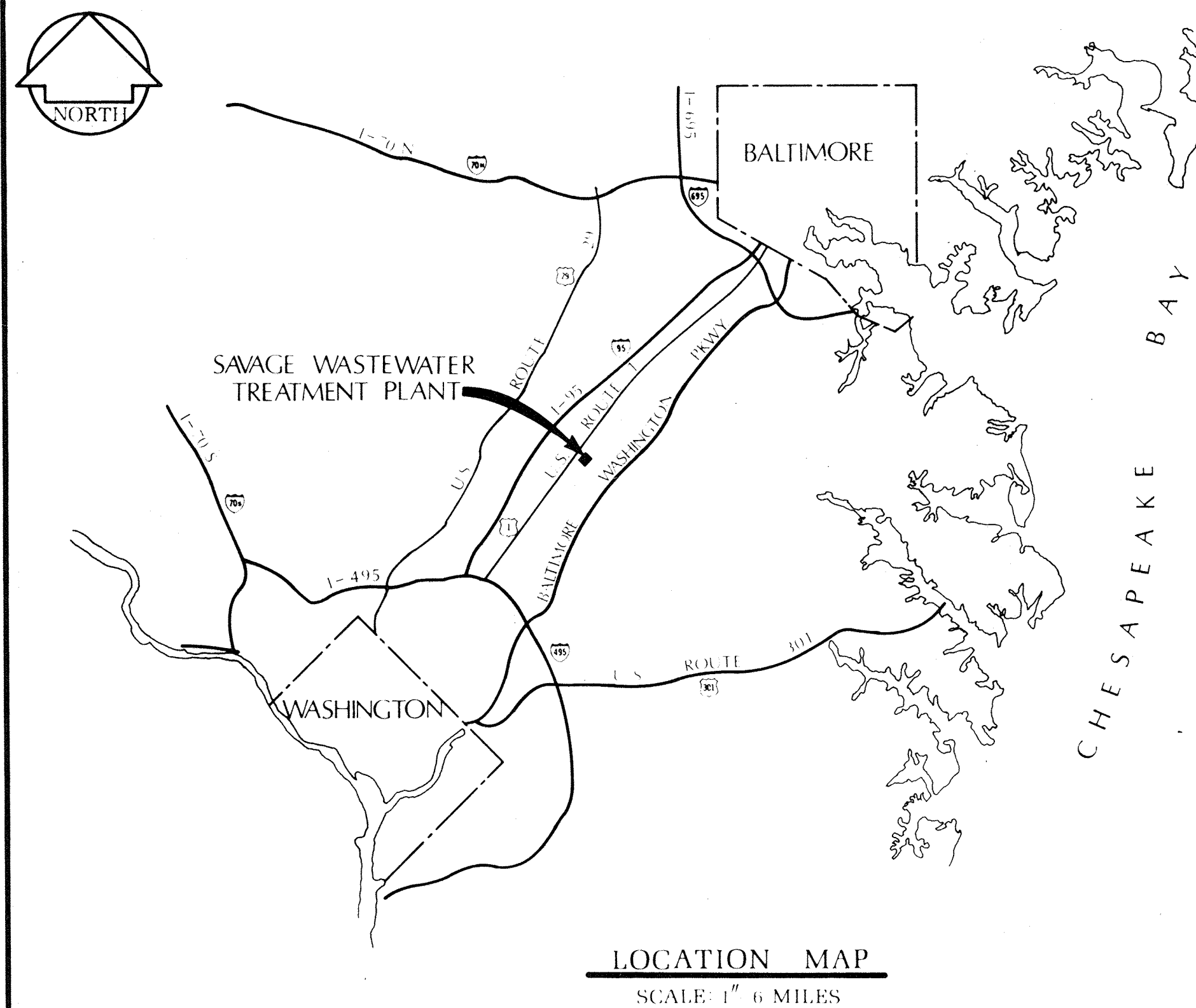


HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS



SAVAGE WASTEWATER TREATMENT PLANT

ADDITION NO. 4
CONTRACT 500-S

HOWARD COUNTY

Thomas J. Regan Jr.
THOMAS J. REGAN JR. - DIRECTOR -
DEPARTMENT OF PUBLIC WORKS

William O. Filbert
WILLIAM O. FILBERT - CHIEF - BUREAU OF ENGINEERING

WHITMAN, REQUARDT & ASSOCIATES - ENGINEERS

Kenneth A. McCord
KENNETH A. McCORD

LEGEND

- ▲ Denotes Changes By Addendum
- △ Denotes Changes By Change Order
- Dimensions shown for visible features only
See Sheets C-2, C-3 & C-4.

GENERAL			STRUCTURAL			MECHANICAL			ELECTRICAL		
DRAWING & SHEET NO.	DESCRIPTION		DRAWING & SHEET NO.	DESCRIPTION		DRAWING & SHEET NO.	DESCRIPTION		DRAWING & SHEET NO.	DESCRIPTION	
1	G-1	TITLE SHEET	35	S-1	STRUCTURAL NOTES AND TYPICAL DETAILS	61	M-1	SCHEMATIC DIAGRAM-PLANT FLOW	88	E-1	POWER MASTER ONE LINE WIRING DIAGRAM
2	G-2	LIST OF DRAWINGS	36	S-2	TYPICAL DETAILS	62	M-2	HYDRAULIC PROFILE	89	E-2	GENERAL ELECTRICAL NOTES AND LEGEND
3	G-3	DESIGN CRITERIA, ABBREVIATIONS AND LEGEND			PRIMARY CLARIFIERS NO. 4 & 5	63	M-3	SYSTEM CURVE	90	E-3	ELECTRICAL SITE PLAN
4	G-4	GENERAL NOTES, REFERENCES AND BASELINE PLAN	37	S-3	PLAN AND SECTIONS			BLOWER BLDG./PUMPING STATION ADDITIONS			BLOWER BUILDING & PUMPING STA. ADDITIONS
			38	S-4	SECTIONS AND DETAILS	64	M-4	PLAN AND SECTIONS	91	E-4	POWER-ONE LINE WIRING DIAGRAM
					AERATION BASIN NO. 5			PRIMARY CLARIFIERS NO. 4 & 5	92	E-5	PLANS AND DETAILS
			39	S-5	PIPE GALLERY WEST-FOUNDATION PLAN AND SECTION	65	M-5	PLAN	93	E-6	ONE LINE WIRING DIAGRAM-CC-2 ADDITIONS AND ELEMENTARY WIRING DIAGRAM
			40	S-6	PIPE GALLERY WEST-TOP PLAN AND SECTIONS	66	M-6	SECTIONS AND DETAILS			CC-2 ADDITIONS AND CC-3 ADDITIONS
5	C-1	LOCATION PLAN	41	S-7	PIPE GALLERY WEST-SECTIONS AND DETAILS	67	M-7	AERATION BASINS AND PIPE GALLERIES-KEY PLAN	94	E-7	AERATION BASINS #4&5-PIPE GALLERY WEST
6	C-2	SITE AND UTILITY PLAN-NITRIFICATION CLARIFIERS	42	S-8	PIPE GALLERY WEST-PLANS AND SECTIONS			AERATION BASIN NO. 5	95	E-8	POWER-ONE LINE WIRING DIAGRAM
7	C-3	SITE AND UTILITY PLAN-AERATION BASINS	43	S-9	PIPE GALLERY WEST-SECTIONS AND DETAILS	68	M-8	PLAN AND SECTION	96	E-9	PLAN-PART I AND DETAILS
8	C-4	SITE AND UTILITY PLAN-PRIMARY AND SECONDARY CLARIFIERS			AERATION BASINS NO. 2 & 3	69	M-9	SECTION AND DETAILS	97	E-10	PLAN-PART II AND DETAILS
9	C-5	GRADING PLAN-NITRIFICATION CLARIFIERS	44	S-10	PIPE GALLERY WEST-FOUNDATION PLAN WEST			PIPE GALLERY WEST	98	E-11	PLAN-PART III AND DETAILS
10	C-6	GRADING PLAN-AERATION BASINS	45	S-11	PIPE GALLERY WEST-TOP PLAN WEST	70	M-10	UPPER PLAN AND SECTIONS			AERATION BASINS #2&3 -PIPE GALLERY WEST
11	C-7	GRADING PLAN-PRIMARY AND SECONDARY CLARIFIERS	46	S-12	TOP PLAN EAST-FOUNDATION PLAN EAST	71	M-11	LOWER PLAN AND SECTIONS	99	E-12	CHEMICAL FEED BUILDING - PLAN AND DETAILS
12	C-8	PROFILES, TYPICAL SECTIONS AND DETAILS	47	S-13	PIPE GALLERY EAST AND WEST-SECTIONS AND DETAILS	72	M-12	SECTIONS AND DETAILS	100	E-13	MOTOR CONTROL CENTER - CC-5 ADDITIONS
13	C-9	PROFILES, TYPICAL SECTIONS AND DETAILS	48	S-14	PIPE GALLERY WEST-SECTIONS AND BEAM ELEVATIONS			AERATION BASINS NO. 2, 3 & 4	101	E-14	ONE LINE WIRING DIAGRAM - CC-5 ADDITIONS
14	C-10	UTILITY PLAN, DETAILS AND TYPICAL SECTIONS	49	S-15	PIPE GALLERY WEST-SECTIONS AND DETAILS	73	M-13	TYPICAL PLAN AND SECTIONS	102	E-15	ELEMENTARY WIRING DIAGRAM - CC-5 ADDITIONS
15	C-11	PROFILES	50	S-16	PIPE GALLERY WEST-SECTIONS AND DETAILS	74	M-14	SECTIONS AND DETAILS			AERATION BASINS #4&5-PIPE GALLERY WEST
16	C-12	PROFILES	51	S-17	PIPE GALLERY EAST-SECTION AND BEAM ELEVATIONS			PIPE GALLERY WEST	103	E-16	PRIMARY SUBSTATION P.S. #3
17	C-13	PROFILES	52	S-18	PIPE GALLERY EAST-SECTION AND DETAILS	75	M-15	UPPER PLAN AND SECTIONS	104	E-17	EXISTING CONTROL BUILDING AND PRIMARY SUBSTATION P.S. #3 AND DETAILS
18	C-14	PROFILES			SECONDARY CLARIFIERS NO. 3 & 5	76	M-16	LOWER PLAN			PRIMARY, SECONDARY & NITRIFICATION CLARIFIERS
19	C-15	PROFILES	53	S-19	PLANS AND SECTIONS	77	M-17	LOWER PLAN			DETAILS
20	C-16	PROFILES	54	S-20	SECTIONS AND DETAILS	78	M-18	SECTIONS			DETAILS
21	C-17	PROFILES	55	S-21	SECTIONS AND DETAILS	79	M-19	CHEMICAL BUILDING	105	E-18	DETAILS
22	C-18	PROFILES			NITRIFICATION CLARIFIERS, NO. 1, 2, 3 & 4	80	M-20	SECTIONS	106	E-19	DETAILS
23	C-19	PROFILES	56	S-22	PLAN, SECTIONS AND DETAILS			PIPE GALLERY EAST			AERATION BASINS #2&3-PIPE GALLERY WEST/EAST
24	C-20	PROFILES	57	S-23	SECTIONS AND DETAILS	81	M-21	CONTROL BUILDING	107	E-20	CHEMICAL FEED BUILDING - ONE LINE WIRING DIAGRAM
25	C-21	PROFILES	58	S-24	FLOW DISTRIBUTION CHAMBER-PLANS AND SECTIONS	82	M-22	UPPER PLAN	108	E-21	CHEMICAL FEED BUILDING - MOTOR CONTROL CENTER, CC-6
26	C-22	PROFILES	59	S-25	FLOW DISTRIBUTION CHAMBER-SECTIONS AND DETAILS	83	M-23	LOWER PLAN	109	E-22	CHEMICAL FEED BUILDING - WIRING DIAGRAMS AND DETAILS
26A	C-23	HEADWALL DETAILS FOR 96" CULVERTS			13.2 K.V. MAIN OUTDOOR SWITCHGEAR	84	M-24	SECTIONS AND DETAILS	110	E-23	METERS AND INSTRUMENTATION WIRING DIAGRAMS
			60	S-26	PLAN AND SECTIONS			SECONDARY CLARIFIERS NO. 3 & 5	111	E-24	PLAN AND DETAILS
					EXISTING SECONDARY CLARIFIER NO. 4	85	M-25	PLAN, SECTIONS AND DETAILS	112	E-25	SECTIONS AND MISCELLANEOUS DETAILS
			60-A	S-27	PLAN, SECTIONS AND DETAILS			NITRIFICATION CLARIFIERS NO. 1, 2, 3, & 4	113	E-26	CONTROL BUILDING PLAN AND DETAILS
					ARCHITECTURAL AERATION BASINS AND PIPE GALLERIES	86	M-26	PLAN	114	E-27	ELEMENTARY WIRING DIAGRAM
27	A-1	PLANS				87	M-27	SECTIONS AND DETAILS	115	E-28	CONTROL BUILDING - MOTOR CONTROL CENTER, CC-7A AND CC-7B
28	A-2	ELEVATIONS				87A	M-28	METERS AND INSTRUMENTATION	116	E-29	CONTROL BUILDING - ONE LINE WIRING DIAGRAM
29	A-3	DETAILS									
30	A-4	PIPE GALLERY WEST-CHEMICAL FEED BLDG. SECTIONS							117	E-30	CONTROL CABLE SCHEDULES
31	A-5	PIPE GALLERY EAST-CONTROL BLDG.-PLANS, SECTIONS AND DETAILS							118	E-31	CONTROL CABLE SCHEDULES
32	A-6	PIPE GALLERY EAST-CONTROL BLDG.-SECTIONS AND DETAILS							119	E-32	NITRIFICATION CLARIFIERS DETAILS
33	A-7	TYPICAL DETAILS									13.2 K.V. MAIN OUTDOOR SWITCHGEAR
34	A-8	SCHEDULES AND DETAILS							120	E-33	DETAILS AND ELEMENTARY WIRING DIAGRAMS
									121	E-34	POWER - ONE LINE WIRING DIAGRAM
									122	E-35	PLAN AND DETAILS
											UNDERGROUND
									123	E-36	MANHOLE AND HANDHOLE PLANS
									124	E-37	MANHOLE AND HANDHOLE DETAILS (UNDERGROUND)
									125	E-38	UNDERGROUND DUCTBANK DETAILS
									126	E-39	UNDERGROUND DUCTBANK AND MANHOLE PROFILES
									127	E-40	AERATION BASINS - PLANS AND DETAILS
									128	E-41	ANNUNCIATOR SCHEDULES AND DETAILS
									129	E-42	ANNUNCIATOR WIRING DIAGRAMS
									130	E-43	EXISTING SECONDARY CLARIFIER NO. 4 SECTIONS AND DETAILS
									131	E-44	NITRIFICATION CLARIFIERS NO. 3 AND NO. 4
									132	E-45	NITRIFICATION CLARIFIERS NO. 3 AND NO. 4 PLAN
									133	E-46	SECONDARY CLARIFIER NO. 3 PLANS AND DETAILS

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: _____
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

LIST OF DRAWINGS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO.

DRAWING NO. 2
OF 133
SCALE NONE

SAVAGE WASTEWATER TREATMENT PLANT

DESIGN CRITERIA

DESIGN YEAR - 1985
 AVERAGE DAILY SEWAGE FLOW: JUNE 1974 - 4.0 MGD
 - MID 1978 - 10.0 MGD (EXISTING CAPACITY)
 - MID 1985 - 15.0 MGD (DESIGN CAPACITY - 4th. ADDITION)
 - YR. 2,000 - 25.0 MGD (ULTIMATE CAPACITY)

	EXISTING	ADDITIONS UNDER CONTRACT 500-S	TOTAL
INSTALLED PUMPING CAPACITY	25 MGD	20 MGD NET	45.0 MGD
SAFE PUMPING CAPACITY	19 MGD	10 MGD NET	35.0 MGD

PRIMARY CLARIFIERS:	ONE 105 FT. DIA.	TWO 90 FT. DIA.	THREE
CAPACITY (AVERAGE DAILY FLOW)	62 MGD	88 MGD	15 MGD
OVERFLOW RATE (W/O RECYCLE)	700 GPD/SF	700 GPD/SF	700 GPD/SF
DETENTION TIME	4.0 Hours	4.0 Hours	4.0 Hours
WEIR RATE	18,800 GPD/LF	15,500 GPD/LF	

ACTIVATED SLUDGE PROCESS:

AERATION BASIN:

CAPACITY (AVERAGE DAILY FLOW)	ONE 90 FT. DIA.	TWO 90 FT. DIA.	THREE
ACTIVATED SLUDGE	5 MGD	7.5 MGD	15 MGD
DETENTION TIME	6 Hours	4 Hours	4 Hours

CLARIFIERS:

SIZE	ONE 90 FT. DIA.	TWO 90 FT. DIA.	THREE
CAPACITY (AVERAGE DAILY FLOW)	5 MGD	10 MGD	15 MGD
DETENTION TIME	3.6 Hours	3.6 Hours	3.6 Hours
OVERFLOW RATE (W/O RECYCLE)	800 GPD/S.F.	800 GPD/S.F.	800 GPD/S.F.
WEIR RATE	12,000 GPD/LF	12,000 GPD/LF	12,000 GPD/LF

NITRIFICATION PROCESS:

AERATION BASINS:

CAPACITY (AVERAGE DAILY FLOW)	FOUR	FOUR
DESIGN TEMPERATURE	10°C	10°C
DETENTION TIME	3.5 Hours	3.5 Hours

CLARIFIERS:

CAPACITY (AVERAGE DAILY FLOW)	FOUR-90' FT. DIA.	FOUR-90' FT. DIA.
OVERFLOW RATE	600 GPD/S.F.	600 GPD/S.F.
DETENTION TIME (W/O RECYCLE)	5 Hours	5 Hours
WEIR RATE	8,600 GPD/LF	8,600 GPD/LF

ABBREVIATIONS

PIPELINE		MISCELLANEOUS	
A	AIR	B	BASELINE
ABI	AERATION BASIN INFLUENT	C	CENTERLINE
CCBI	CHLORINE CONTACT BASIN INFLUENT	EX	EXISTING
CL ₂	CHLORINE	FF	FIRST FLOOR
CS	CONTACT STABILIZATION	MH	MANHOLE
D	DRAIN	INV. ELEV.	INVERT ELEVATION
DB	DUCTBANK	PC	POINT OF CURVATURE
FM	FORCE MAIN	PI	POINT OF INTERSECTION
IS	INCINERATOR SLUDGE	PT	POINT OF TANGENCY
OS	OXIDIZED SLUDGE	R	RADIUS
Pr	PROFILE	N	NORTH
S	SEWER OR INTERCEPTOR	No.	NUMBER
TD	TANK DRAIN	E	EAST
TSE	THICKENED SLUDGE EFFLUENT	S	SOUTH
UD	UNDER DRAIN	W	WEST
PCI	PRIMARY CLARIFIER INFLUENT	WL	WATER LEVEL
W	WATER (POTABLE)	SC	SECONDARY CLARIFIER
SCI	SECONDARY CLARIFIER INFLUENT	PS	PUMPING STATION
SC	SCUM	PC	PRIMARY CLARIFIER
PS	PRIMARY SLUDGE	W/	WITH
FW	FLUSHING WATER	CFM	CUBIC FEET MINUTE
RAS	RETURN ACTIVATED SLUDGE	FD	FLOOR DRAIN
WAS	WASTE ACTIVATED SLUDGE	BDLG.	BUILDING
RNS	RETURN NITROGENOUS SLUDGE	NC	NITRIFICATION CLARIFIER
WNS	WASTE NITROGENOUS SLUDGE	DIP	DUCTILE IRON PIPE
NABI	NITRIFICATION AERATION BASIN INFLUENT	CIP	CAST IRON PIPE
WPS	WASTE PHOSPHOROUS SLUDGE	PVC	POLYVINYL CHLORIDE PIPE
NCI	NITRIFICATION CLARIFIER INFLUENT		
NBP	NITRIFICATION BYPASS		
DRI	DENITRIFICATION REACTOR INFLUENT		
FCP	FLOOD CONTROL PIPE		
POR	PROCESS OVERFLOW RETURN		

APPURTENANCES

C	CROSS	P	PLUG
T	TEE	VB	VERTICAL BEND
V	VALVE	R	REDUCER / INCREASER (CONCENTRIC)
Y	WYE	ER	REDUCER / INCREASER (ECCENTRIC)
HB	HORIZONTAL BEND	CO	CLEANOUT

PLAN LEGEND (EXTERIOR)

	EXISTING	CONSTRUCTION THIS CONTRACT	EXISTING	CONSTRUCTION THIS CONTRACT
PROPERTY LINE	---	---	---	---
RAILROAD				
EMBANKMENT or CHANNEL	Y-Y-Y	Y-Y-Y	Y-Y-Y	Y-Y-Y
SURVEY TRAVERSE or CONSTRUCTION	△	△	△	△
WOODS	~~~~~	~~~~~	~~~~~	~~~~~
STREAM	~~~~~	~~~~~	~~~~~	~~~~~
DITCH	~~~~~	~~~~~	~~~~~	~~~~~
CONTOURS	127	127	127	127
GRADE CONTROL ELEVATION	142.5	142.5	142.5	142.5
BUILDINGS or STRUCTURES	▭	▭	▭	▭
ROADWAYS	====	====	====	====
CURB	====	====	====	====
SIDEWALK	====	====	====	====
STAIRWAY	====	====	====	====
FENCE & GATE	---x---	---x---	---x---	---x---
TELEPHONE W/ GUY	⊗	⊗	⊗	⊗
PIPELINE (6" & SMALLER)	====	====	====	====
(8" & LARGER)	====	====	====	====
MANHOLES & CLEANOUT VALVES	⊙	⊙	⊙	⊙
BEND, WYE, TEE, REDUCER / INCREASER	⊕	⊕	⊕	⊕
CAP or PLUG	⊖	⊖	⊖	⊖
HYDRANT (STANDARD FIRE) (SIAMESE)	⊕	⊕	⊕	⊕
FLARED END SECTION	⊕	⊕	⊕	⊕
ELECTRICAL DUCTBANK	====	====	====	====
CONDUIT	—c—	—c—	—c—	—c—

(CONSTRUCTION BY OTHERS - SO NOTED & IDENTIFIED)

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 3/30/75
 DATE

CONTRACT NO. 500-S

DESIGN CRITERIA,
 ABBREVIATIONS AND LEGEND

SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO.4

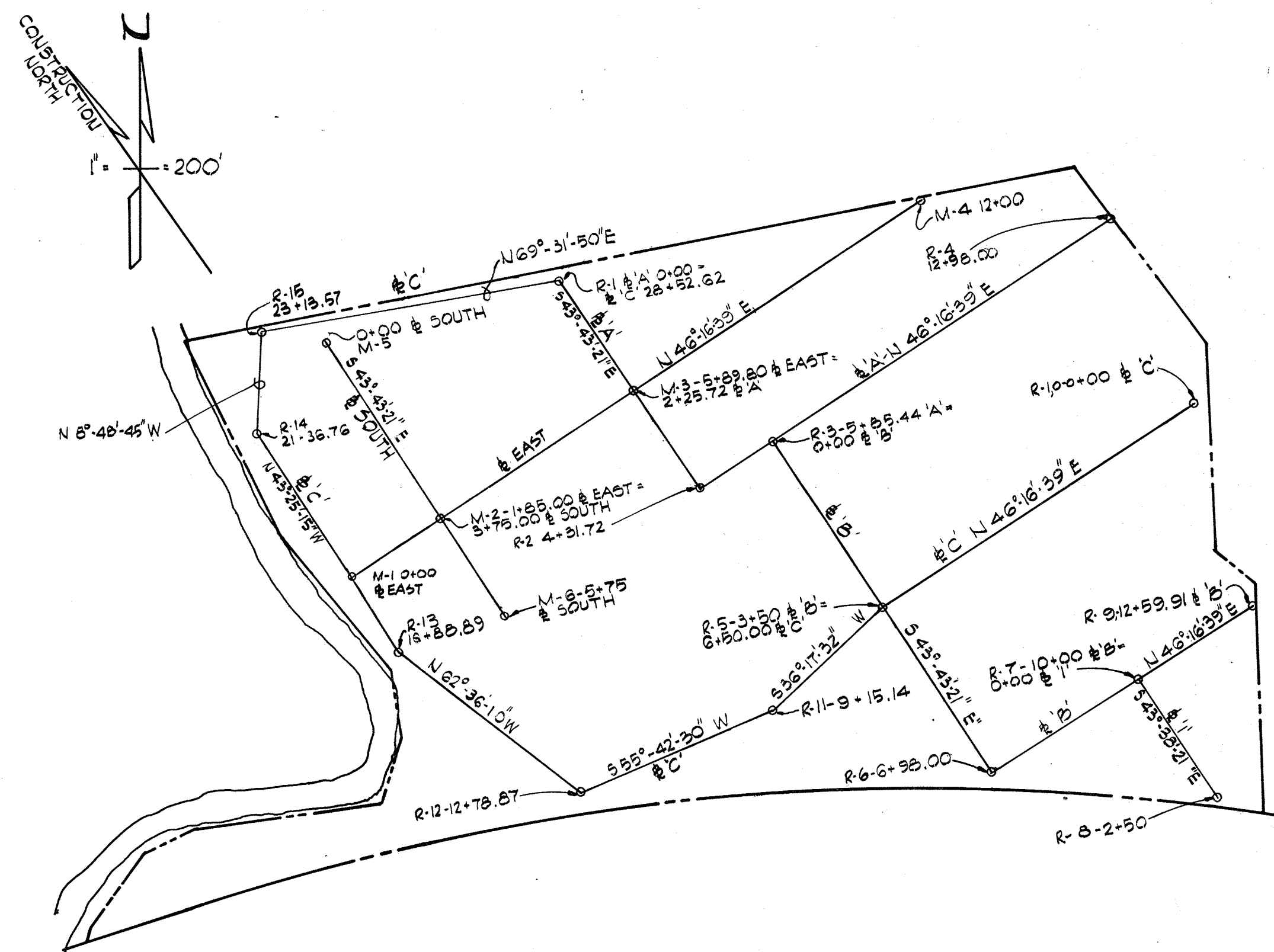
DRAWING
 NO. 3
 OF 133

SCALE
 NONE

SHEET G-3

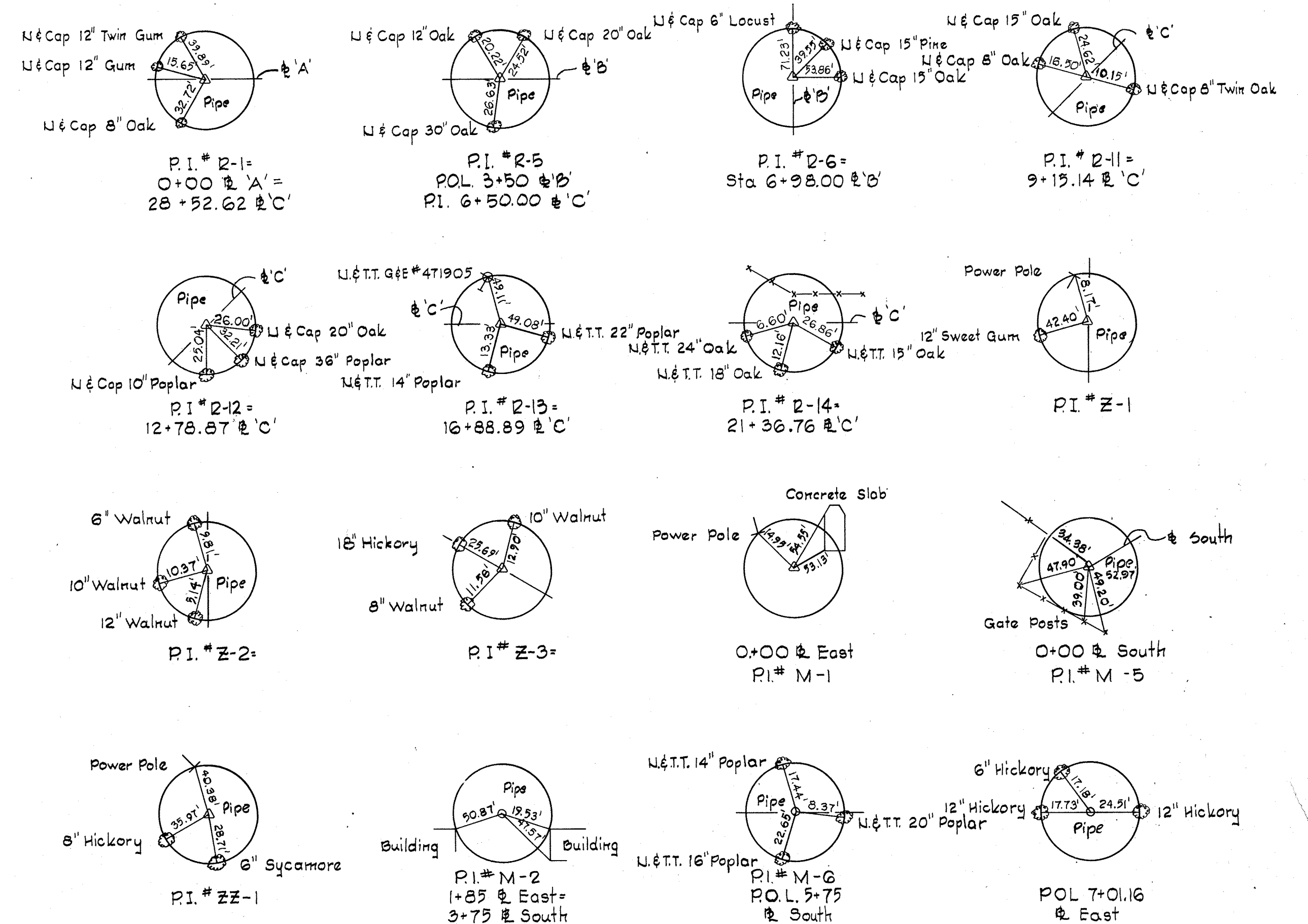
GENERAL NOTES

- The location of existing pipelines and structures are approximate. The Contractor shall take all necessary precautions to protect existing lines and structures and maintain uninterrupted supply. Any damage incurred shall be repaired immediately.
- The Contractor shall locate existing utilities by test pits a minimum of two weeks in advance of construction operations in the vicinity of the utilities.
- All pipeline profile elevations are invert elevations.
- The location of all valve, fittings etc. shall be located where shown on the drawings unless otherwise directed by the Engineer.
- For standard details, see Specifications.
- All fittings shall be buttressed or anchored with concrete or restrained with special approved devices - See Specifications.
- Pipelines shall be of the material listed in the specifications. All pipelines shall have a minimum cover of 2 feet except sewer and water lines shall have a minimum cover of 3 feet unless otherwise shown by profiles or elevations on the plans.
- Clear all utilities by a minimum of 6 inches vertically. All parallel pipe systems shall have 1.5 feet minimum horizontal clearance unless otherwise directed by the Engineer.
- The Contractor shall provide a joint in all exterior loose jointed pipe systems within 2 feet of exterior walls.
- All existing valve boxes, manhole frames and covers and similar appurtenances shall be adjusted to finished grade.
- The repair of the exist. plant access roadway from US Route 1 to the plant property shall be a part of this Contract. In addition, the maintenance of all plant roadways, including exist. and those constructed by others as part of the Fourth addition, shall be a part of this Contract.
- Sediment Control measures as required by the Specifications will be constructed as directed by the Engineer.
- Elevations and grid coordinates are based on the Maryland State System. All structures, buildings, roadways, pipe, centerlines etc. are located by construction coordinates. Zero base for the construction coordinated system is as noted on Sheet C-1 @ the intersection of survey baselines. All building corner coordinates are front face of monolithic concrete.
- For location of utilities entering buildings, see Mechanical & Electrical Drawings.
- Connections to existing pipelines may be made by tapping existing pipelines under pressure or with shut down of System during off peak hours if allowed by the Engineer.
- All pipelines that are capped or plugged shall be flagged with striped 2x4's set 3 feet into ground and 2 feet above grade identified with all weather markings, and maintained throughout construction.
- All existing walkways paved areas that require removal for construction purposes or that are disturbed or damaged by construction activities shall be replaced.
- All pipelines, conduits and utility systems including structures that are designated to be abandoned shall be removed by the Contractor to the degree necessary to complete construction as determined by the Engineer. Voids left by systems removed shall be backfilled with select material and compacted as per the Specifications. Systems that are designated to be abandoned and allowed by the Engineer to be left in place, shall be permanently capped or sealed watertight at each end. Materials and appurtenances removed shall be salvaged and become the property of the County unless otherwise directed by the Engineer then they shall become the property of the Contractor and removed from the site.
- Major cleaning and grubbing of the Construction Area is being completed by Others, however, select clearing and grubbing may be required under this Contract in order to complete certain facilities.
- All outside valves for primary sludge, phosphorous sludge and scum lines shall be resilient wedge gate valves. All other outside Sewer valves up to & including 12" may be resilient wedge gate valves or plug valves. All valves larger than 12" shall be regular gate valves and shall be horizontal or vertical as indicated on profile drawings. All outside valves in water lines (potable and flushing) shall be regular gate valves. All buried valves shall have roadway boxes with concrete slabs in all areas other than paved areas. All valves shall be the same size as the pipeline unless otherwise indicated.



PLAN-CONSTRUCTION & SURVEY BASELINE
Scale 1" = 200'

P.I. REFERENCES



NOTE: All Stationing on Survey Baseline

BENCH MARKS

- W.R. & A. BM "Blaine" Elev. 137.77
- W.R. & A. BM "Rolly-3" Elev. 132.162
- X-Cut on flange bolt of fire hydrant 40± ft of Sta 2+25 ± South
- R.R. Spike in 15" Pine at foot of RR. Fill 35± East of P.I. # R-6
- W.R. & A. BM "Rolly-1" Elev. 130.388
- W.R. & A. BM "Rolly-4" Elev. 137.222
- R.R. Spike in 12" Oak 25± ft. of Sta. 12+50 ± East (not shown on Plan)
- P.I. # R-9. (not shown on Plan)
- W.R. & A. BM "Rolly-2" Elev. 147.087
- W.R. & A. BM "Rolly-5" Elev. 132.996
- R.R. Spike in 8" Locust 4± from P.I. # R-4 (not shown on Plan)
- R.R. Spike in 36" Poplar 30± ft. of P.I. # R-12



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/15
DATE

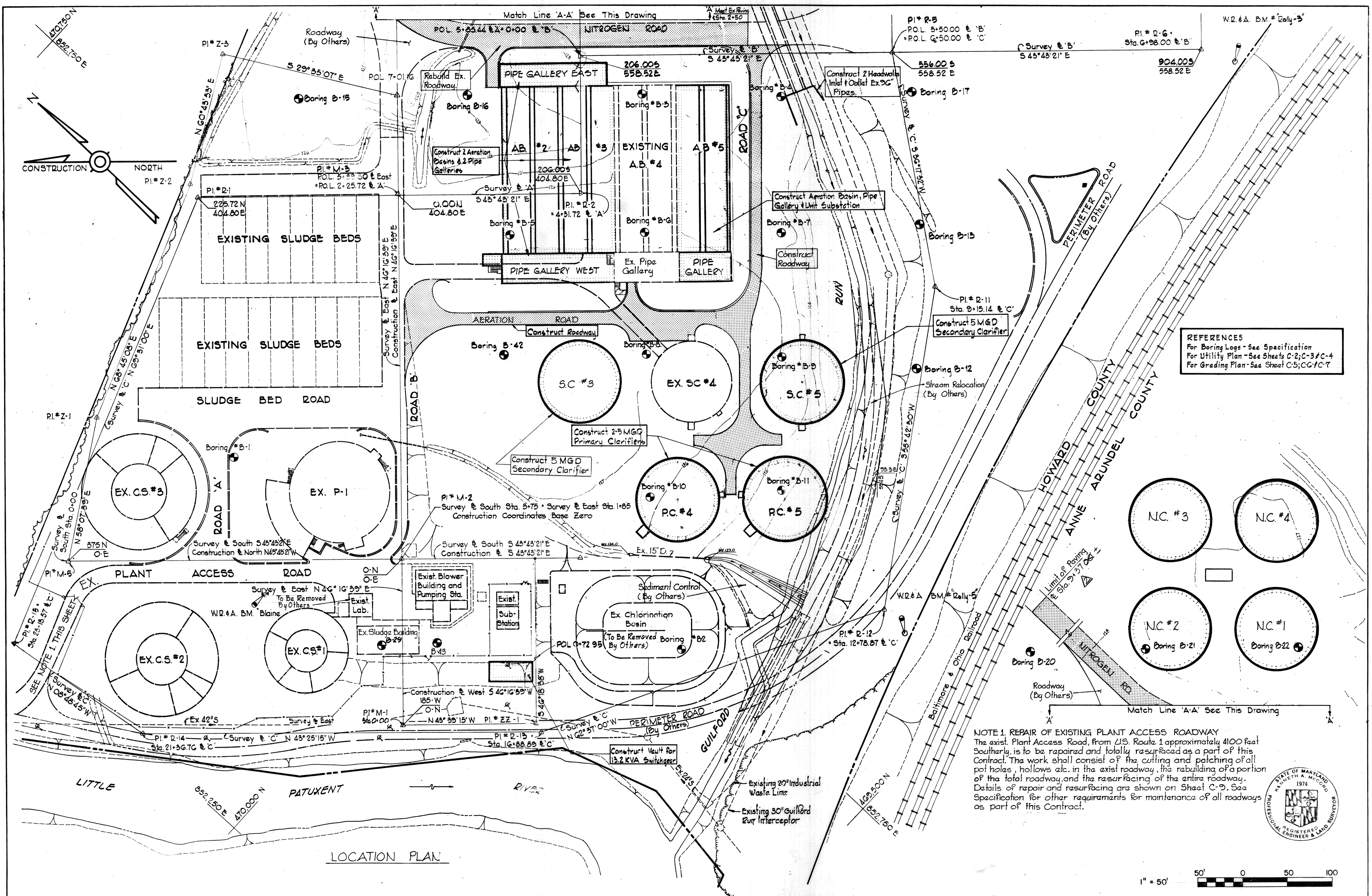
CONTRACT NO. 500-S

GENERAL NOTES, REFERENCES
& BASELINE PLAN

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

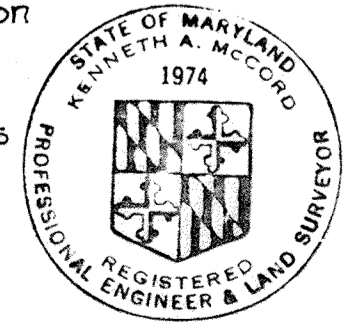
DRAWING NO. 4
OF 133
SCALE NONE

SHEET G-4



REFERENCES
 For Boring Logs - See Specification
 For Utility Plan - See Sheets C-2; C-3; C-4
 For Grading Plan - See Sheet C-5; C-6; C-7

NOTE 1. REPAIR OF EXISTING PLANT ACCESS ROADWAY
 The exist. Plant Access Road, from US. Route 1 approximately 4100 feet Southwaly, is to be repaired and totally resurfaced as a part of this Contract. The work shall consist of the cutting and patching of all pot holes, hollows etc. in the exist roadway, the rebuilding of a portion of the total roadway, and the resurfacing of the entire roadway. Details of repair and resurfacing are shown on Sheet C-9. See Specification for other requirements for maintenance of all roadways as part of this Contract.

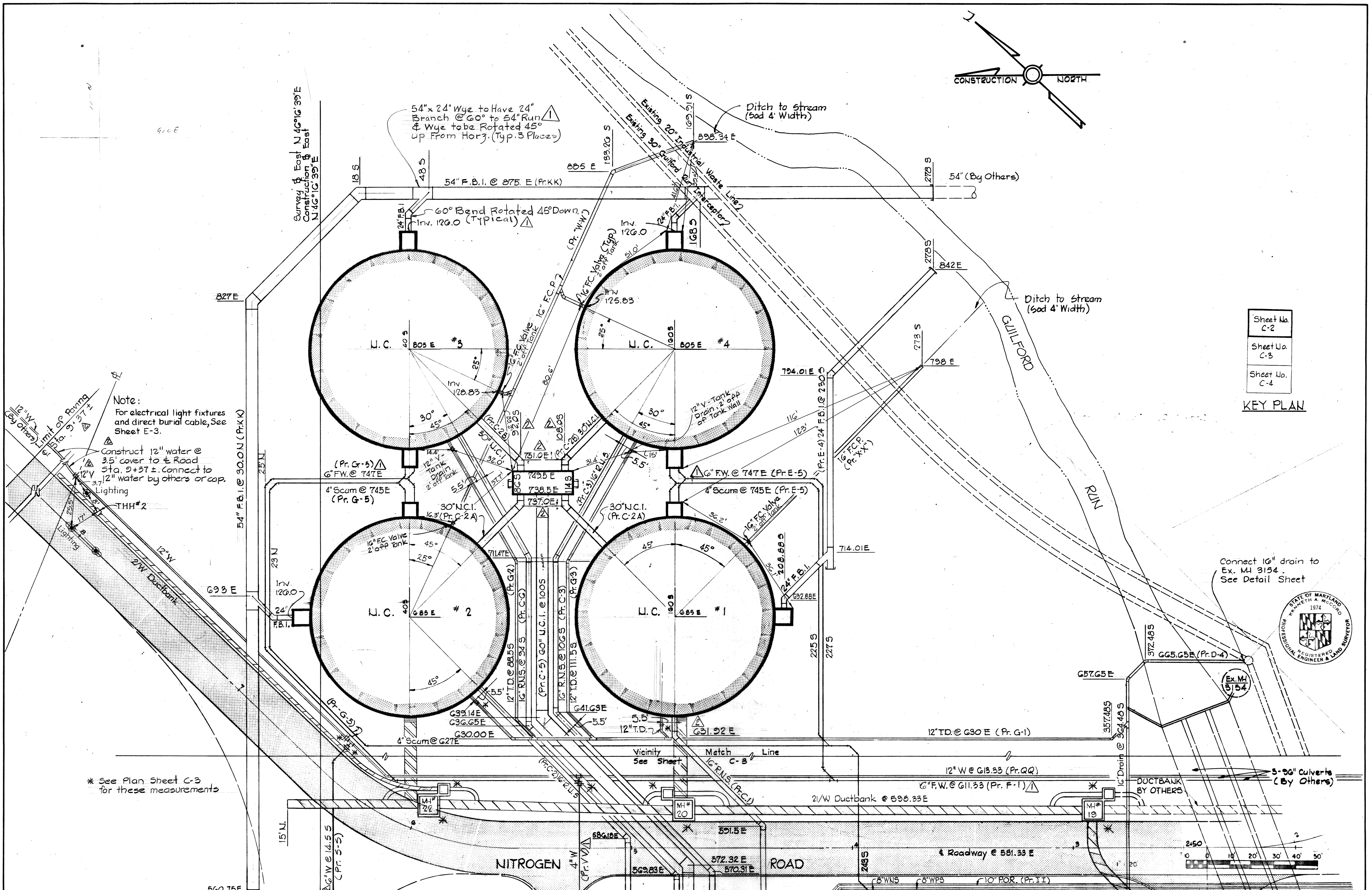
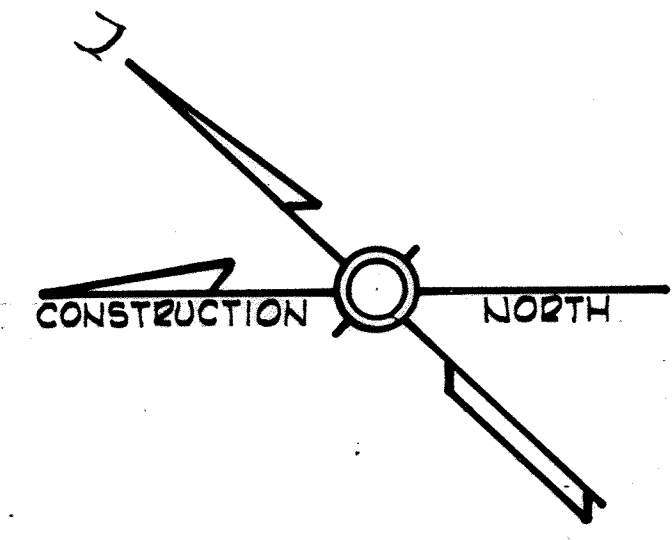


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	LOCATION PLAN	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 5 OF 133 SCALE 1" = 50' 470-(10) 470-(9) 469-(10) 469-(9)
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W. O. 6887-2

SHEET C-1

MODIFIED DRAWING - MAY 6, 1982



Note:
For electrical light fixtures and direct burial cable, See Sheet E-3.

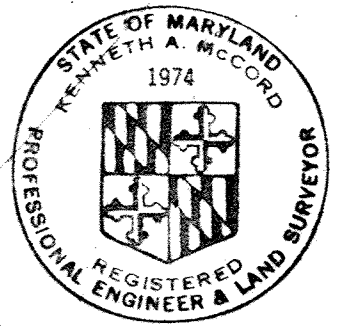
Construct 12" water @ 3.5' cover to E Road Sta. 9+37 ±. Connect to 3.7" water by others or cap.

Lighting
THH#2

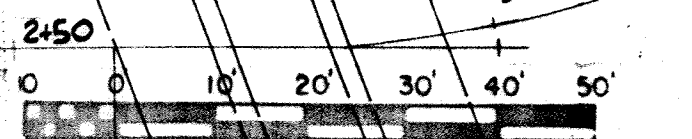
* See Plan Sheet C-3 for these measurements

Sheet No. C-2
Sheet No. C-3
Sheet No. C-4

KEY PLAN



Connect 10" drain to Ex. MI 3154. See Detail Sheet



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 <i>W.O. Gilbert</i>	CONTRACT NO. 500-S	SITE & UTILITY PLAN NITRIFICATION CLARIFIERS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 6	SCALE
					OF 133	1"=20'

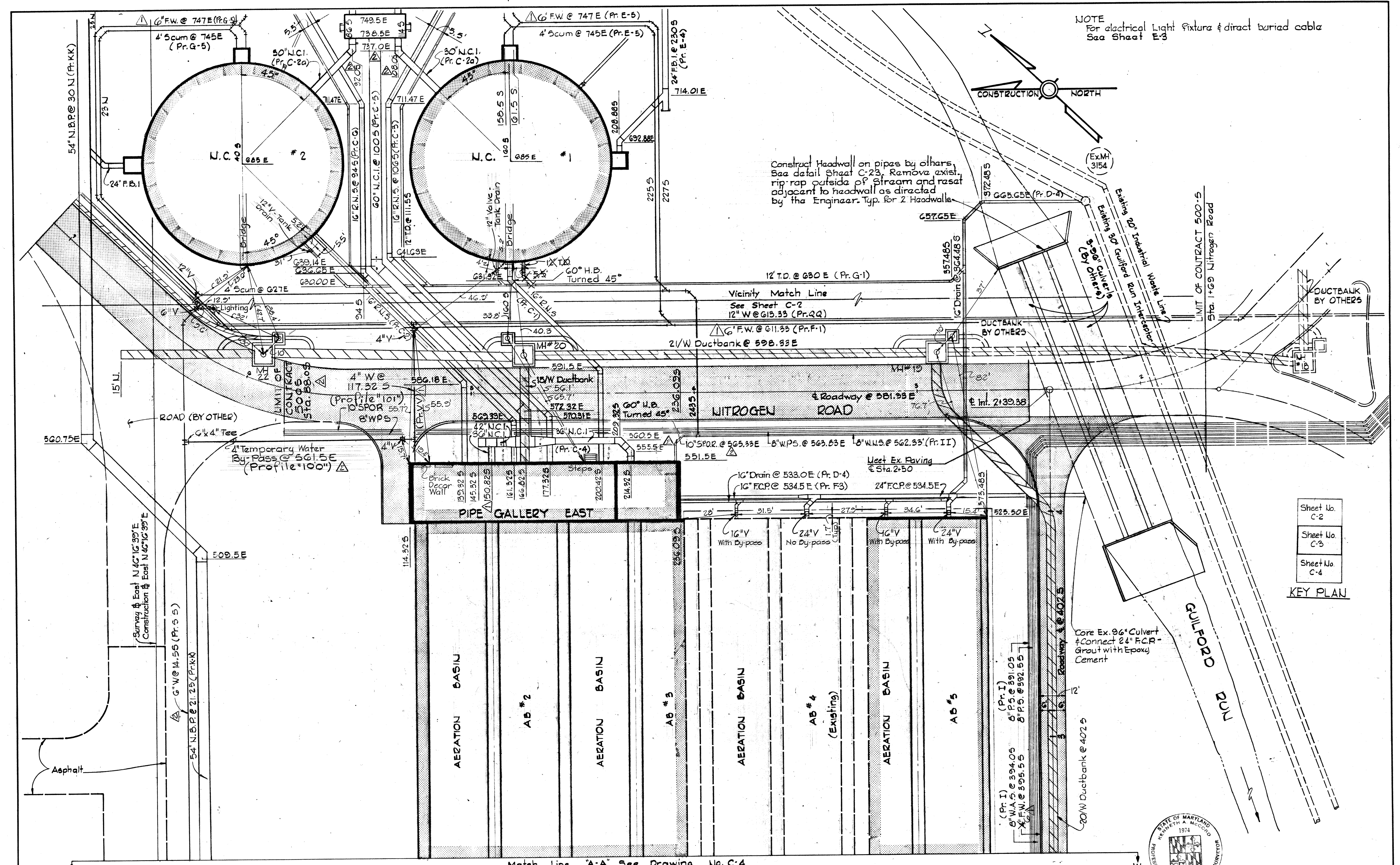
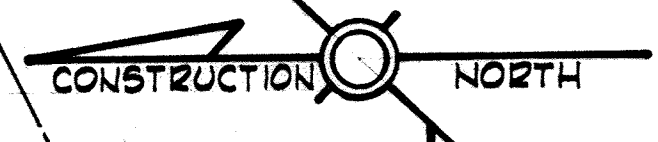
W. O. 7192-2

SHEET C-2

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44510 18322

NOTE
For electrical Light fixture & direct buried cable
See Sheet E-3



Construct Headwall on pipes by others,
See detail Sheet C-23. Remove exist.
rip-rap outside of stream and reset
adjacent to headwall as directed
by the Engineer. Typ. for 2 Headwalls

12" T.D. @ 630 E (Pr. G-1)

Vicinity Match Line
See Sheet C-2
12" W @ 615.33 (Pr. QQ)

21" W Ductbank @ 596.33 E

± Roadway @ 551.55 E

± Int. 2139.36

10" S.P.R. @ 565.33 E 8" W.P. @ 563.63 E 8" W.N.S. @ 562.33 (Pr. II)

16" Drain @ 533.0 E (Pr. D-4)

16" F.C.P. @ 534.5 E (Pr. F3)

24" F.C.P. @ 534.5 E

16" V With By-pass

24" V No By-pass

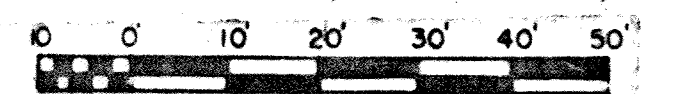
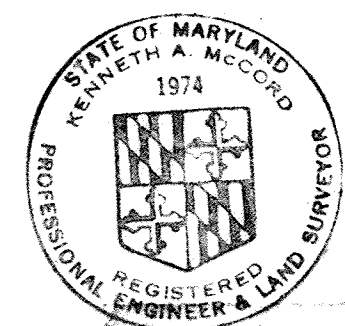
16" V With By-pass

24" V With By-pass

Core Ex. 96" Culvert
Connect 24" F.C.P.
Grout with Epoxy
Cement

Sheet No. C-2
Sheet No. C-3
Sheet No. C-4

KEY PLAN



Match Line 'A-A' See Drawing No. C-4

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
W. O. Filbert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

SITE & UTILITY PLAN
AERATION BASINS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

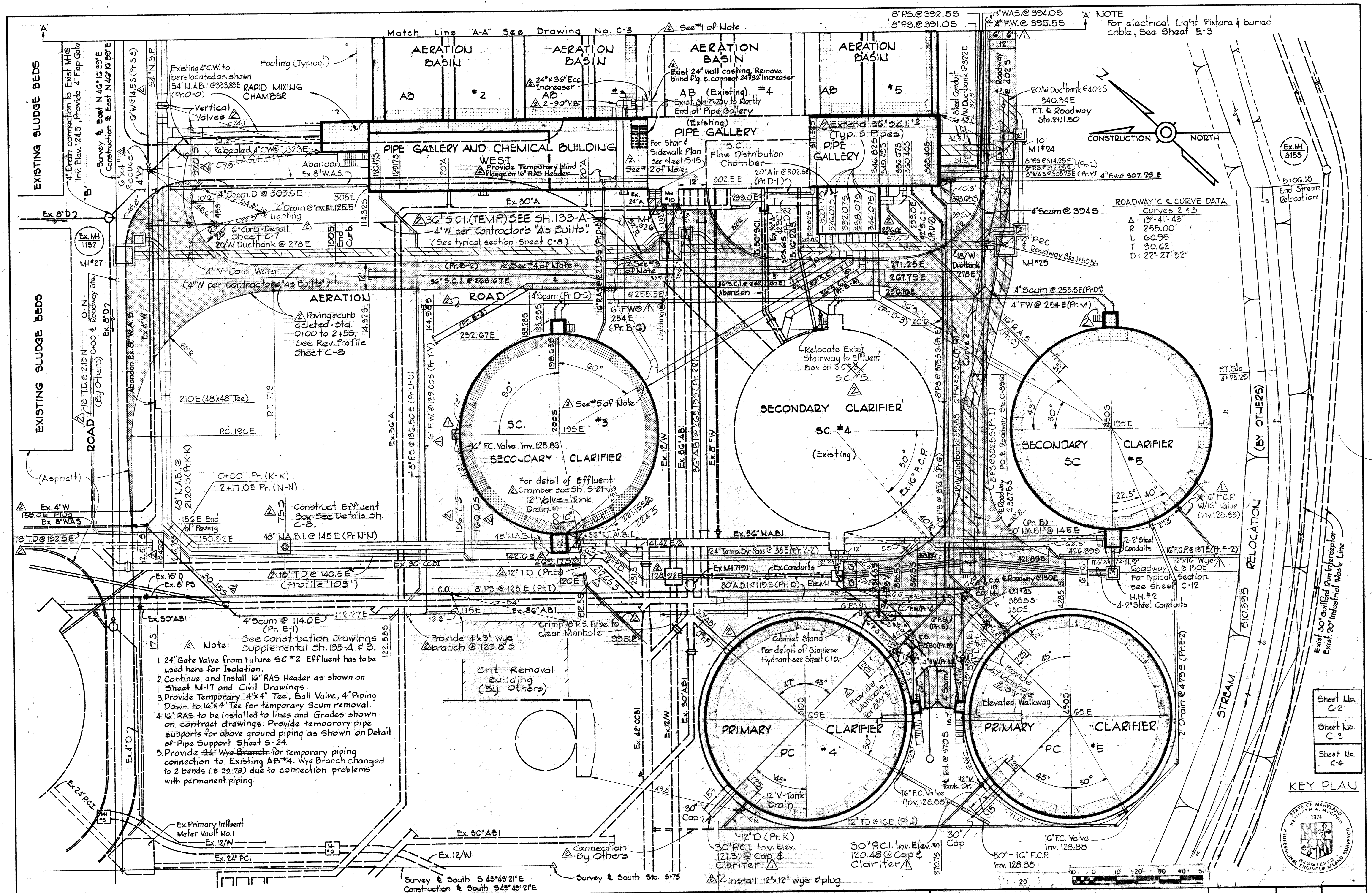
DRAWING NO. 7 OF 133	SCALE 1"=20'
----------------------------	-----------------

SHEET C-3

W. O. 7132-2

MODIFIED DRAWING-MAY 6, 1982

BRUNING 44510 1832



NOTE
For electrical Light Fixture & buried cable, See Sheet E-3

ROADWAY 'C' & CURVE DATA
Curves 2 & 3
Δ 18° 41' 43"
R 255.00'
L 60.95'
T 90.62'
D 22° 27' 32"

- Note:
See Construction Drawings Supplemental Sh. 133-A & B.
- 24" Gate Valve from Future SC #2 Effluent has to be used here for Isolation.
 - Continue and Install 16" RAS Header as shown on Sheet M-17 and Civil Drawings.
 - Provide Temporary 4"x4" Tee, Ball Valve, 4" Piping Down to 16"x4" Tee for temporary Scum removal.
 - 16" RAS to be installed to lines and Grades shown on contract drawings. Provide temporary pipe supports for above ground piping as shown on Detail of Pipe Support Sheet S-24.
 - Provide 3/4" Wye Branch for temporary piping connection to Existing AB #4. Wye Branch changed to 2 bends (8-29-78) due to connection problems with permanent piping.

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3/20/78
W. O. Lambert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

SITE & UTILITY PLAN
PRIMARY AND SECONDARY
CLARIFIERS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING
NO. 8
OF 133

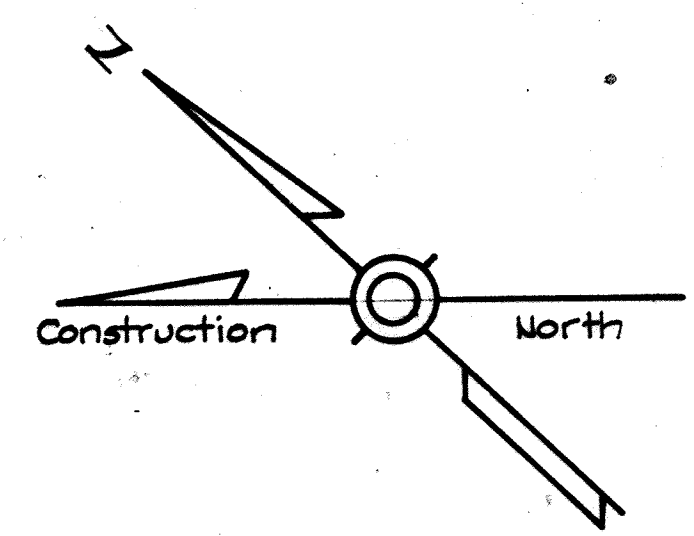
SCALE
1" = 20'

SHEET C-4

MODIFIED DRAWING - MAY 6, 1982

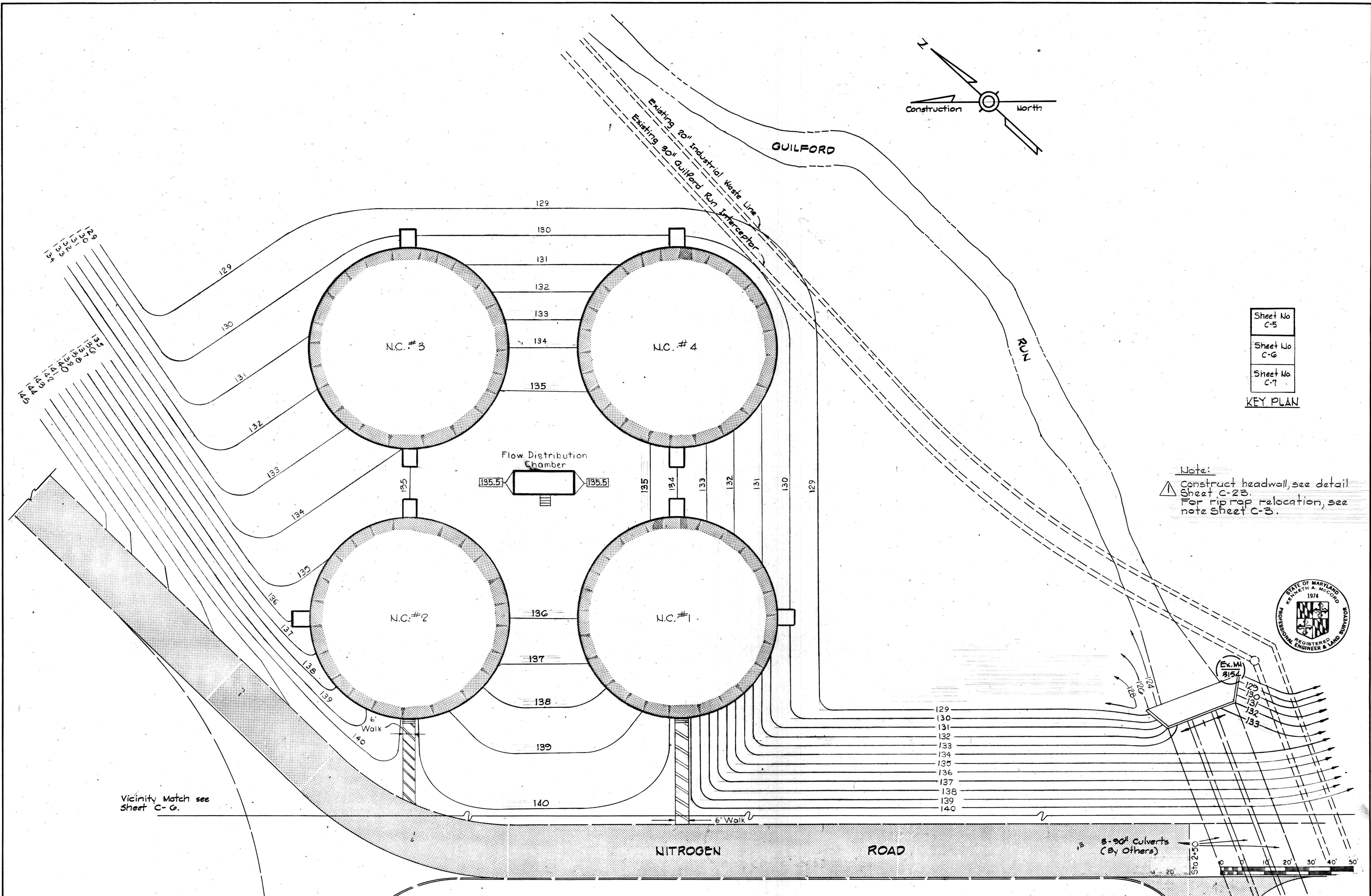
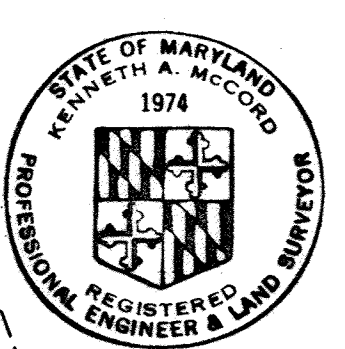
W. O. C887-2

DRAWING 44-510 18392



Sheet No.
C-5
Sheet No.
C-6
Sheet No.
C-7
KEY PLAN

Note:
▲ Construct headwall, see detail Sheet C-23.
For rip rap relocation, see note Sheet C-3.



Vicinity Match see Sheet C-6.

WHITMAN, REQUARDT & ASSOCIATES
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-26-71 DATE
W. O. Filbert
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

GRADING PLAN
NITRIFICATION CLARIFIERS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO.4

DRAWING NO. 9 OF 133

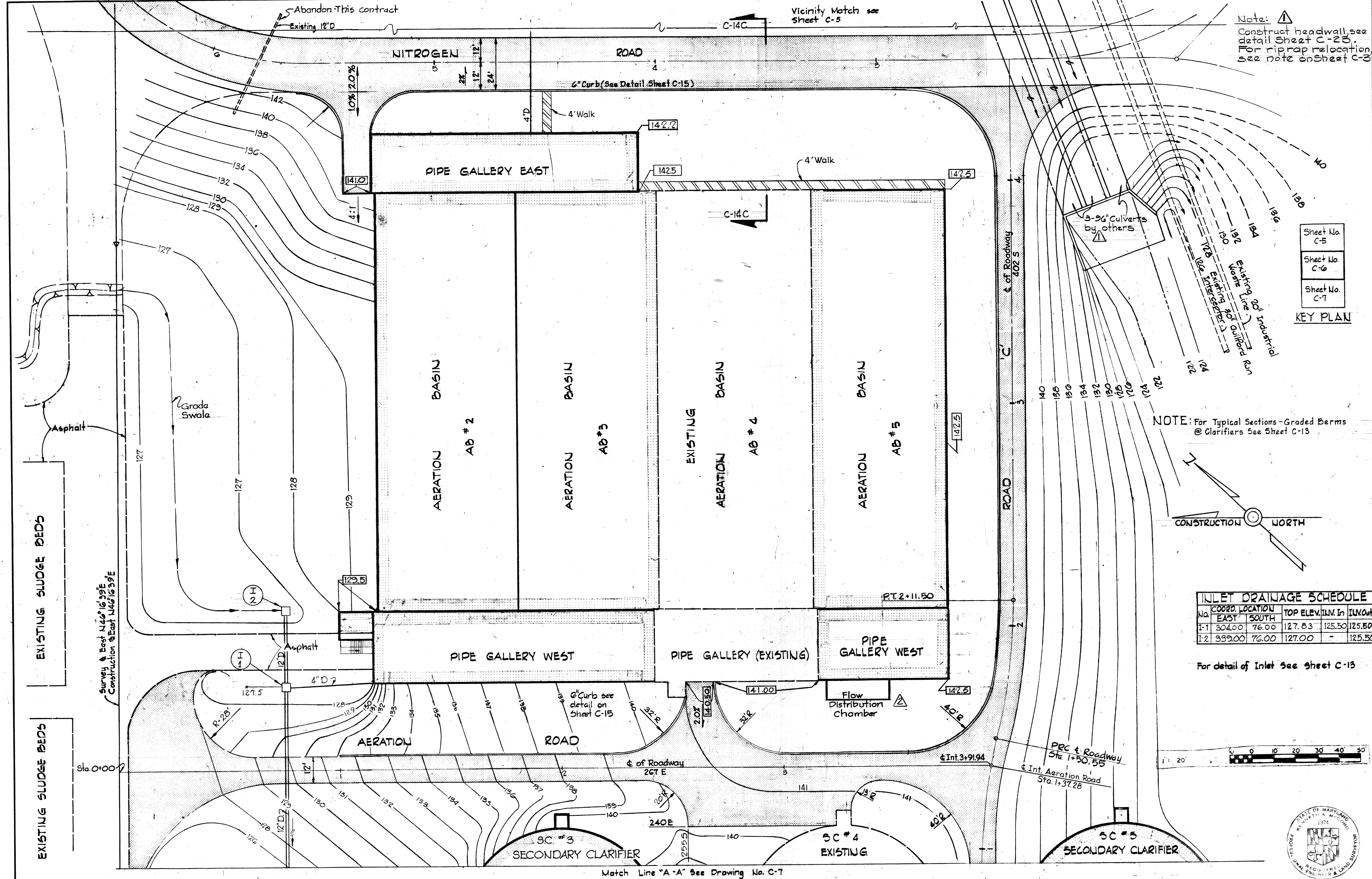
SCALE 1" = 20'

W.O.

SHEET C-5

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 1982

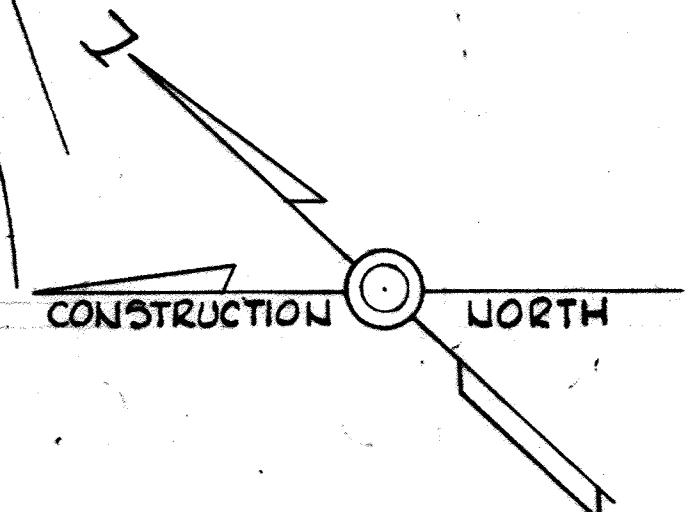


Note: \triangle
 Construct headwall, see detail Sheet C-23.
 For riprap relocation see note on Sheet C-3.

Sheet No. C-5
 Sheet No. C-6
 Sheet No. C-7

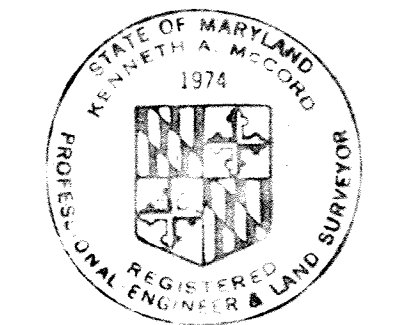
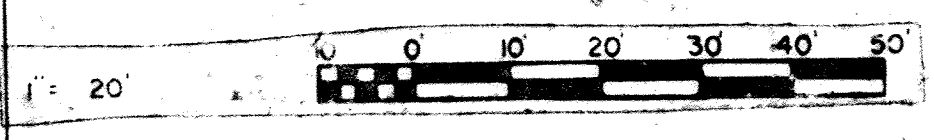
KEY PLAN

NOTE: For Typical Sections - Graded Berms @ Clarifiers See Sheet C-13



INLET DRAINAGE SCHEDULE					
No.	COORD. LOCATION		TOP ELEV.	TLV. In	TLV. Out
	EAST	SOUTH			
I-1	304.00	76.00	127.83	125.50	125.50
I-2	339.00	76.00	127.00	-	125.50

For detail of Inlet see sheet C-13



WHITMAN, REQUARDT & ASSOCIATES
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 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 3/20/85
 W. O. Palbert
 CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

GRADING PLAN
 AERATION BASINS

SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 10 OF 133
 SCALE 1"=20'

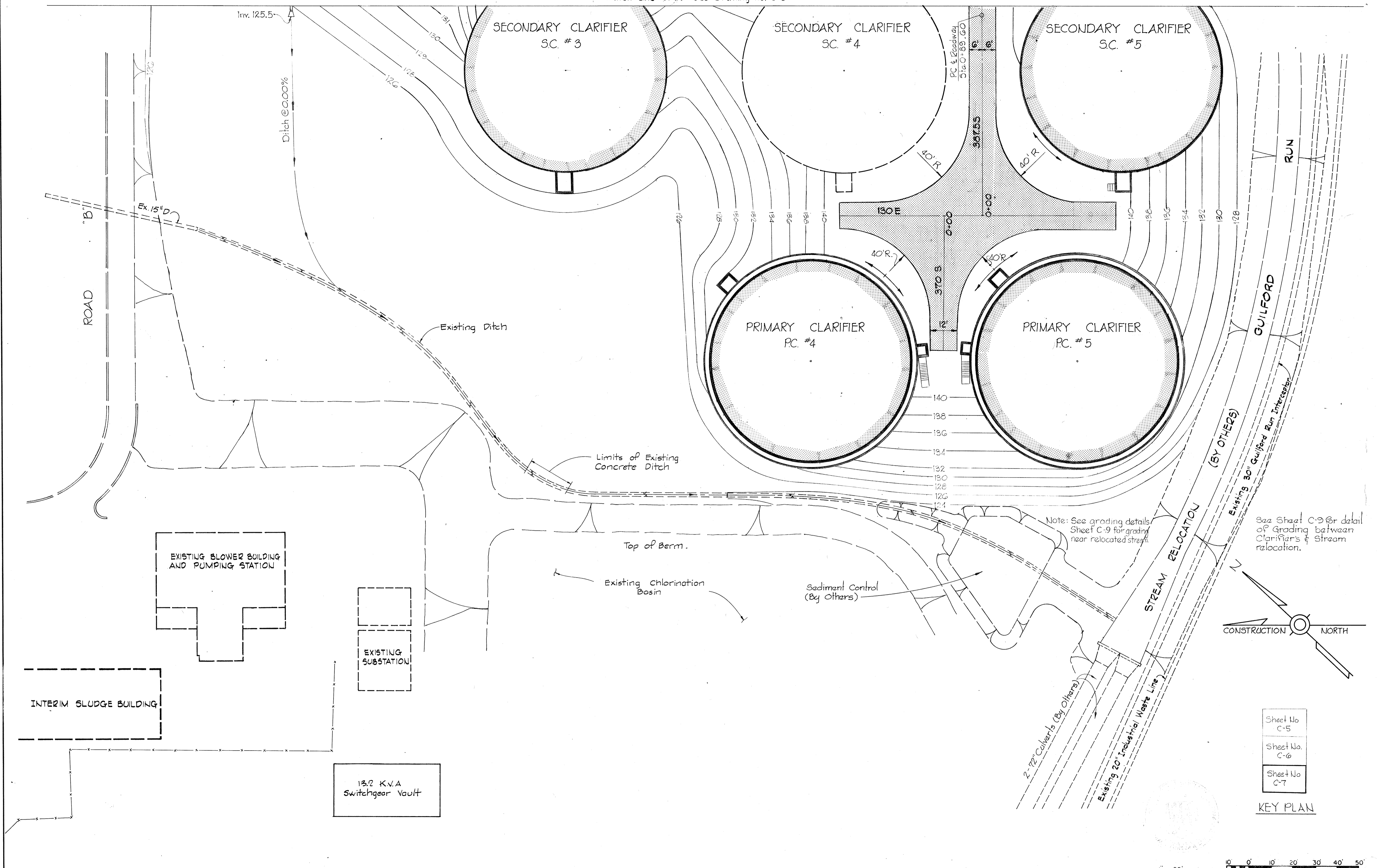
SHEET C-6

W. O. 6287-2

MODIFIED DRAWING - MAY 6, 1982

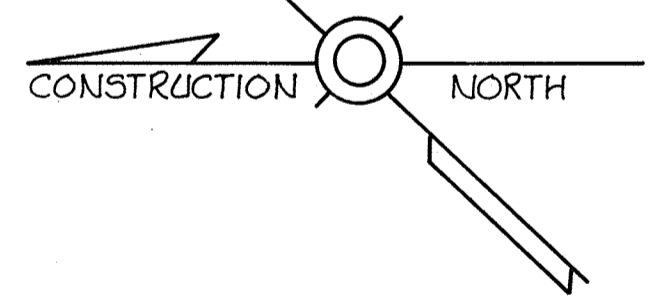
BRUNING 44-510 16392

Match Line "A-A" See Drawing No. C-6



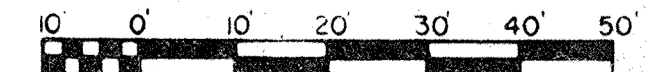
Note: See grading details Sheet C-9 for grading near relocated stream.

See Sheet C-9 for detail of Grading between Clarifiers & Stream relocation.



- Sheet No. C-5
- Sheet No. C-6
- Sheet No. C-7

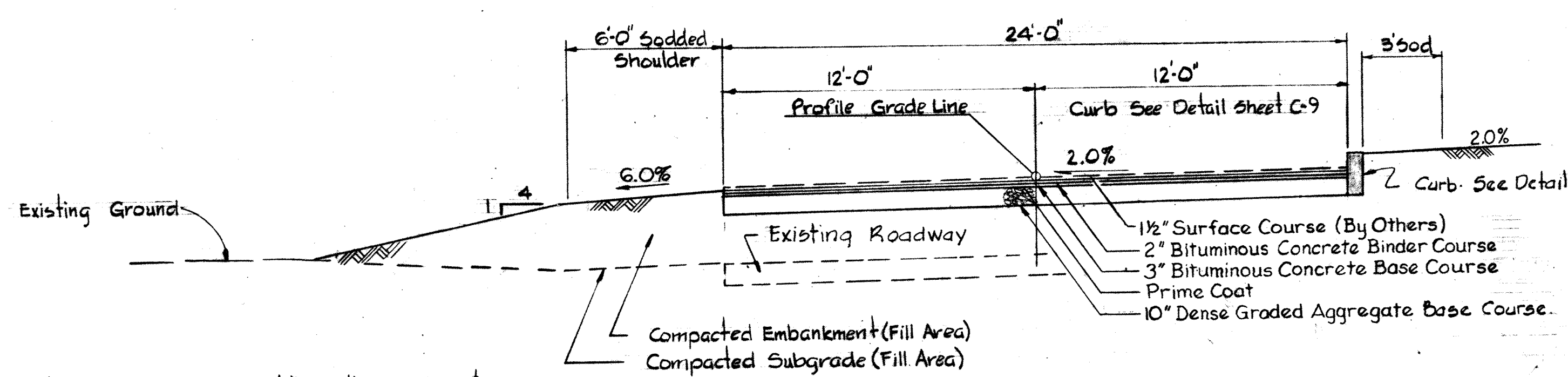
KEY PLAN



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 11-77 W. O. Whitman CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	GRADING PLAN PRIMARY AND SECONDARY CLARIFIERS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 11 OF 133 SCALE 1"=20' SHEET C-7
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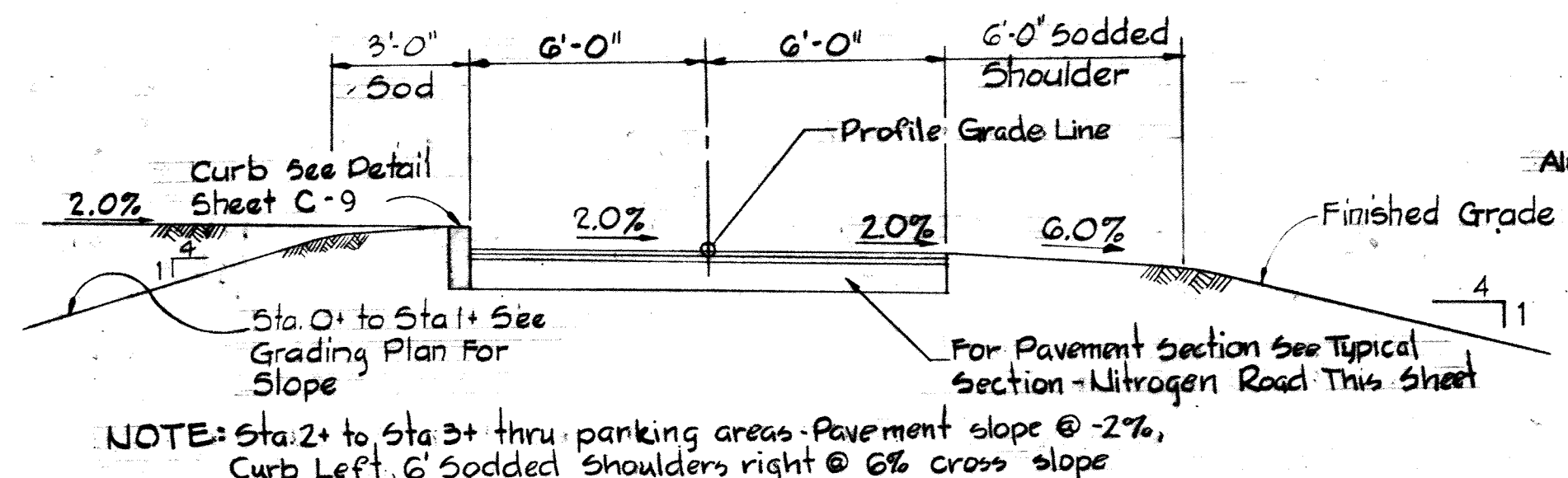
W. O.

BRUNING 44-510 28272



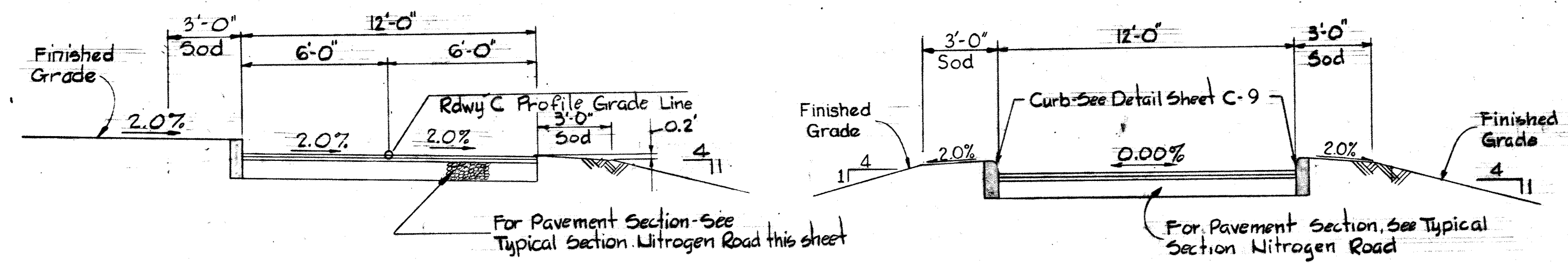
NOTE ALL SECTIONS: All earth areas not paved or sodded shall be topsoiled, seeded, fertilized and mulched.

TYPICAL SECTION NITROGEN ROAD
Scale None
(Direction Reverse of Stationing)



NOTE: Sta. 2+ to Sta. 3+ thru parking areas. Pavement slope @ 2%, Curb Left, 6' sodded shoulders right @ 6% cross slope

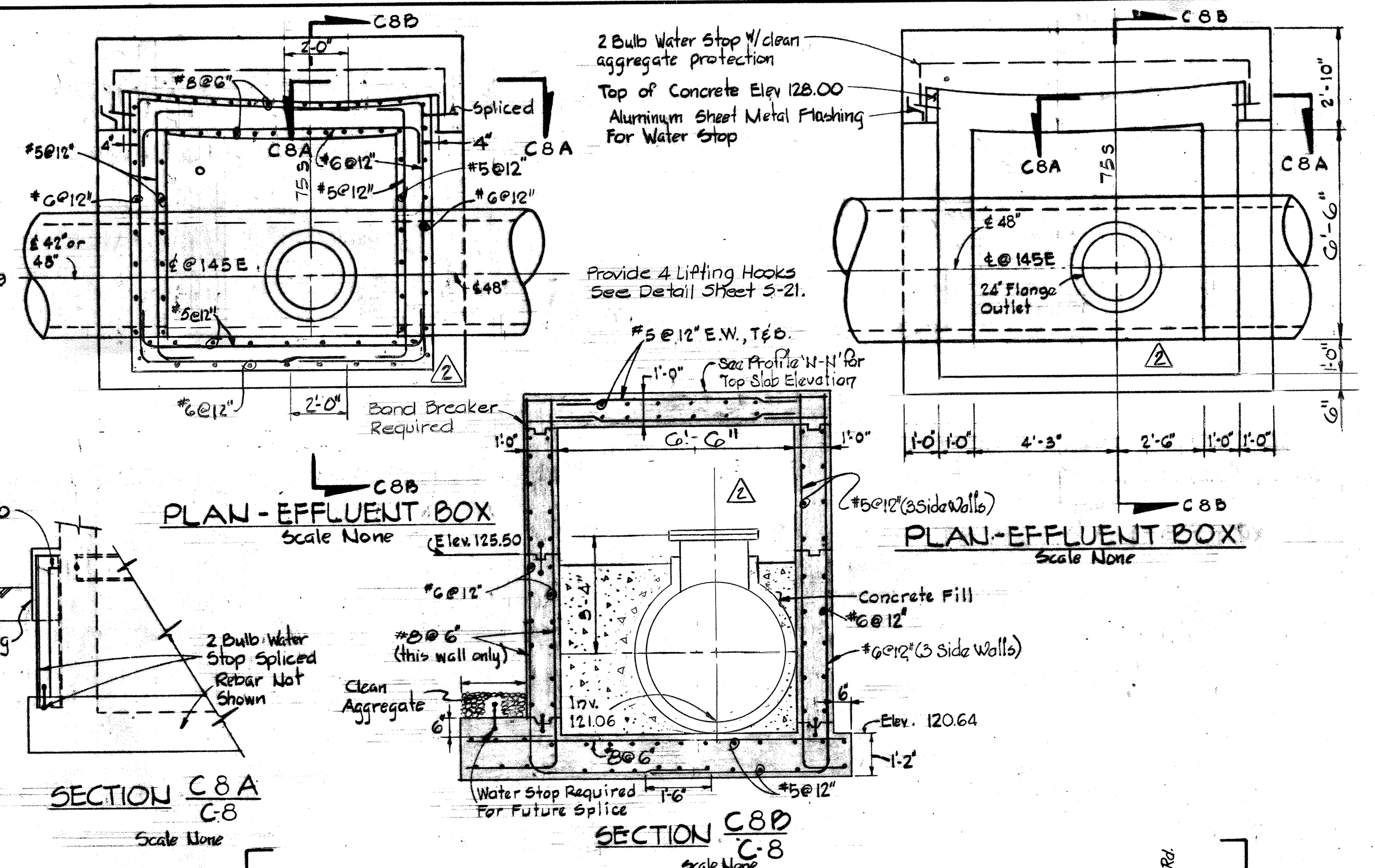
TYPICAL SECTION AERATION ROAD
Scale None



For Pavement widths at Roadway 'C' in vicinity of Primary Clarifiers PC #4 & PC #5 See Plan Sheet C-3

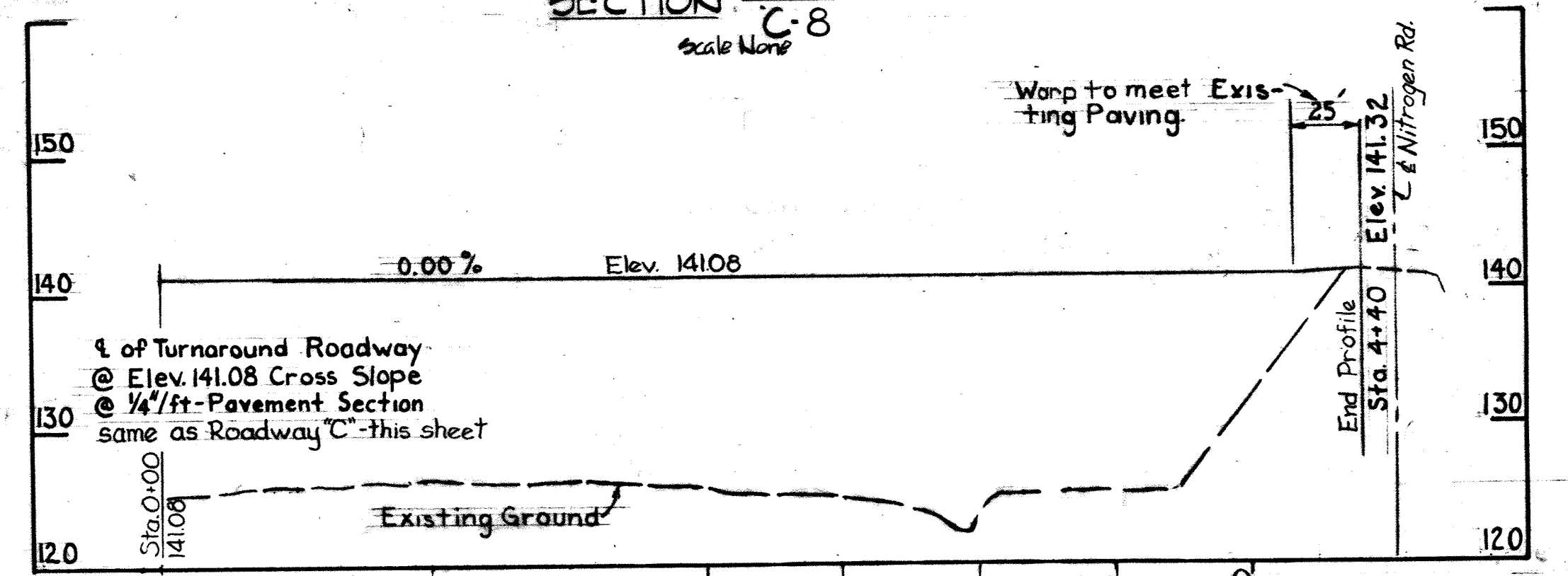
TYPICAL SECTION ROADWAY 'C'
Scale None

TYPICAL SECTION DRIVEWAY
Scale None

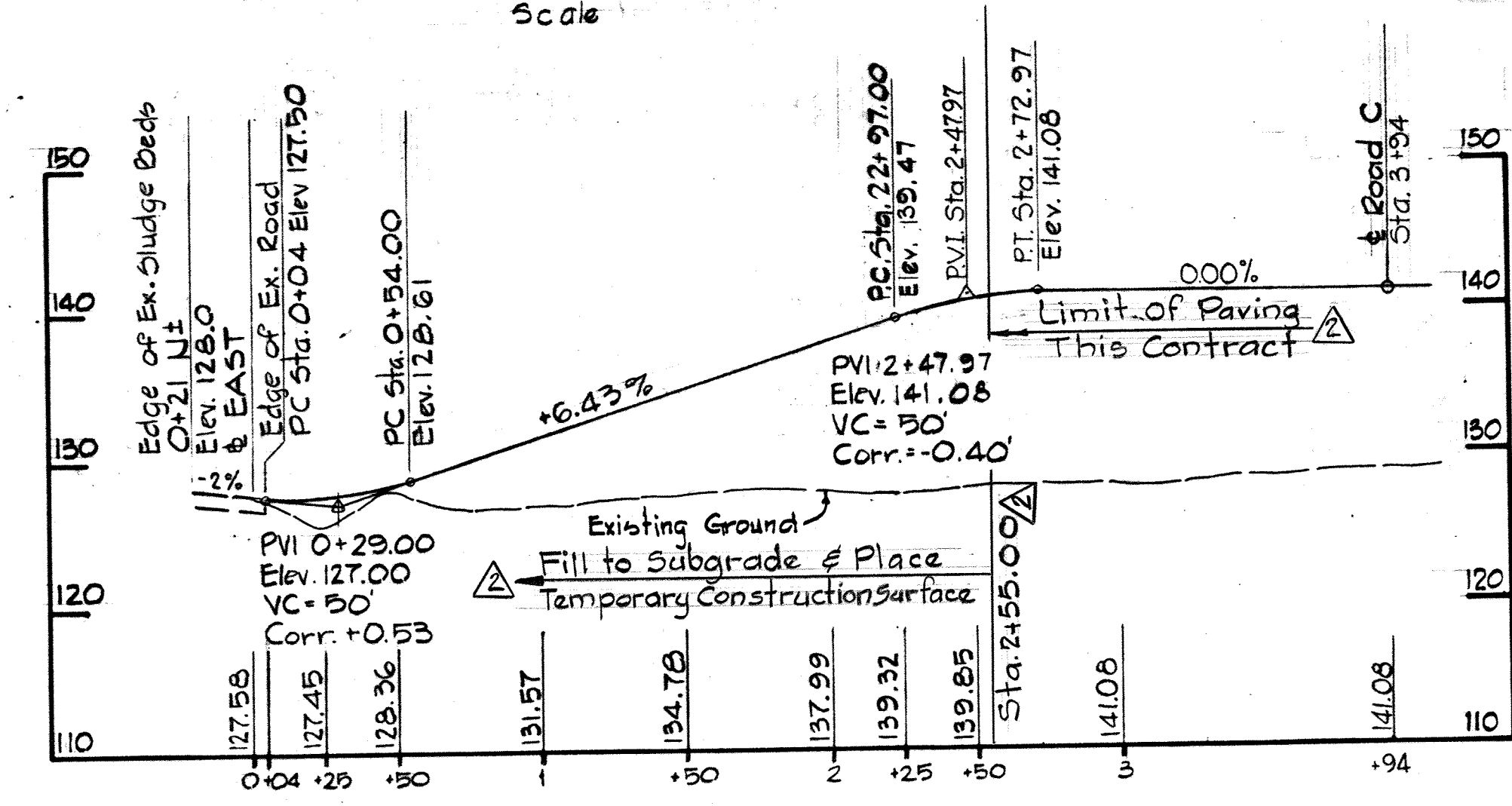


SECTION C8A
Scale None

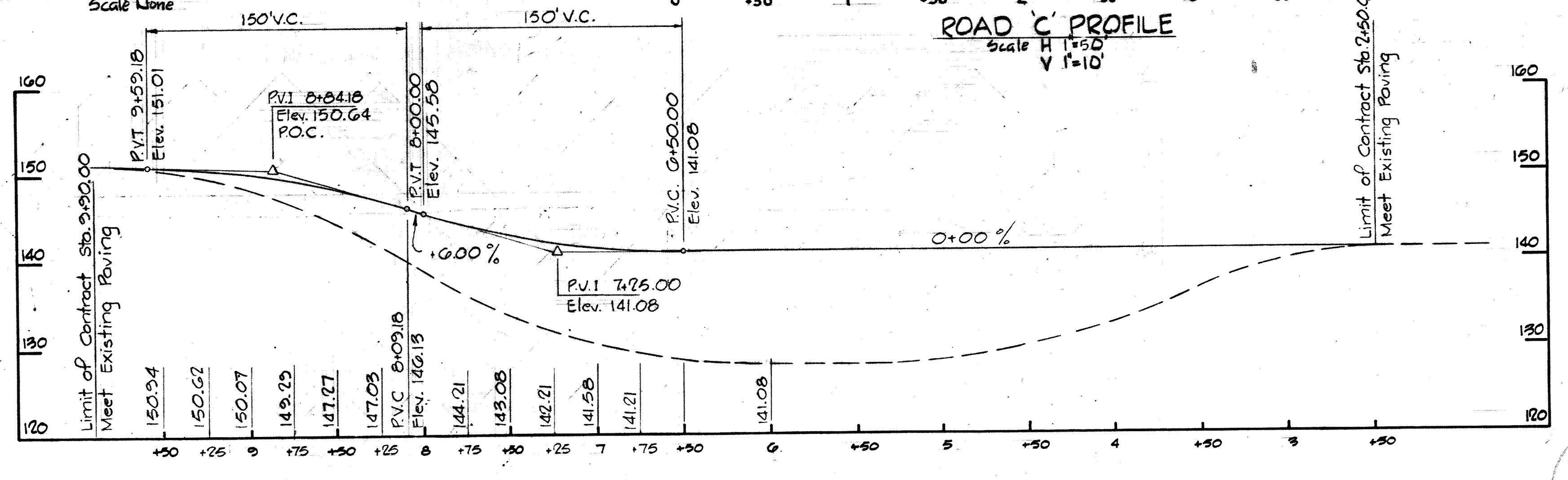
SECTION C8B
Scale None



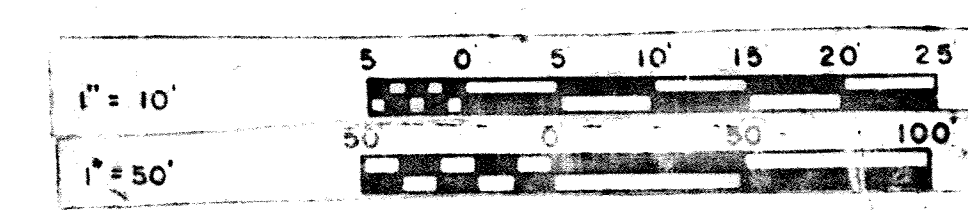
ROAD 'C' PROFILE
Scale H 1"=50'
V 1"=10'



AERATION ROAD PROFILE
Scale H 1"=50'
V 1"=10'



NITROGEN ROAD PROFILE
Scale: Hor: 1"=50'
Vert: 1"=10'



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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 2/20/85
W.O. Libert
CHIEF BUREAU OF ENGINEERING

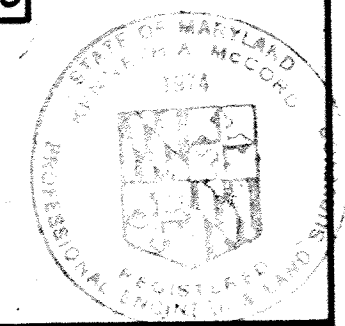
CONTRACT NO. 500-S

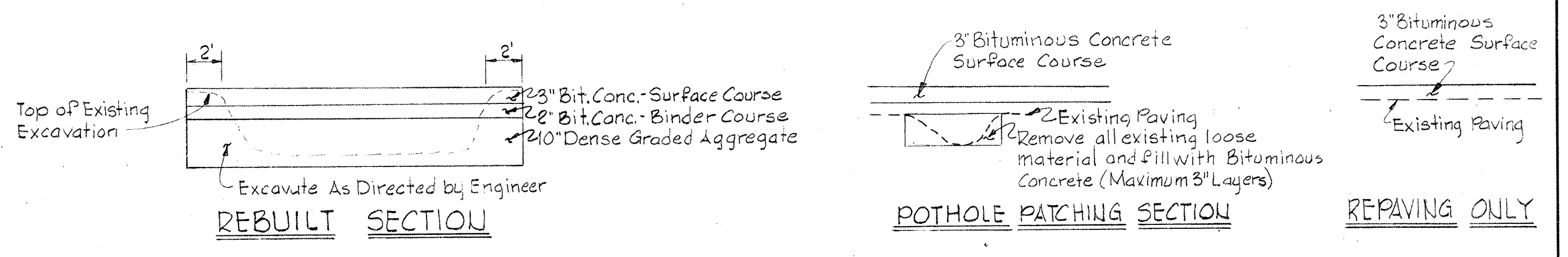
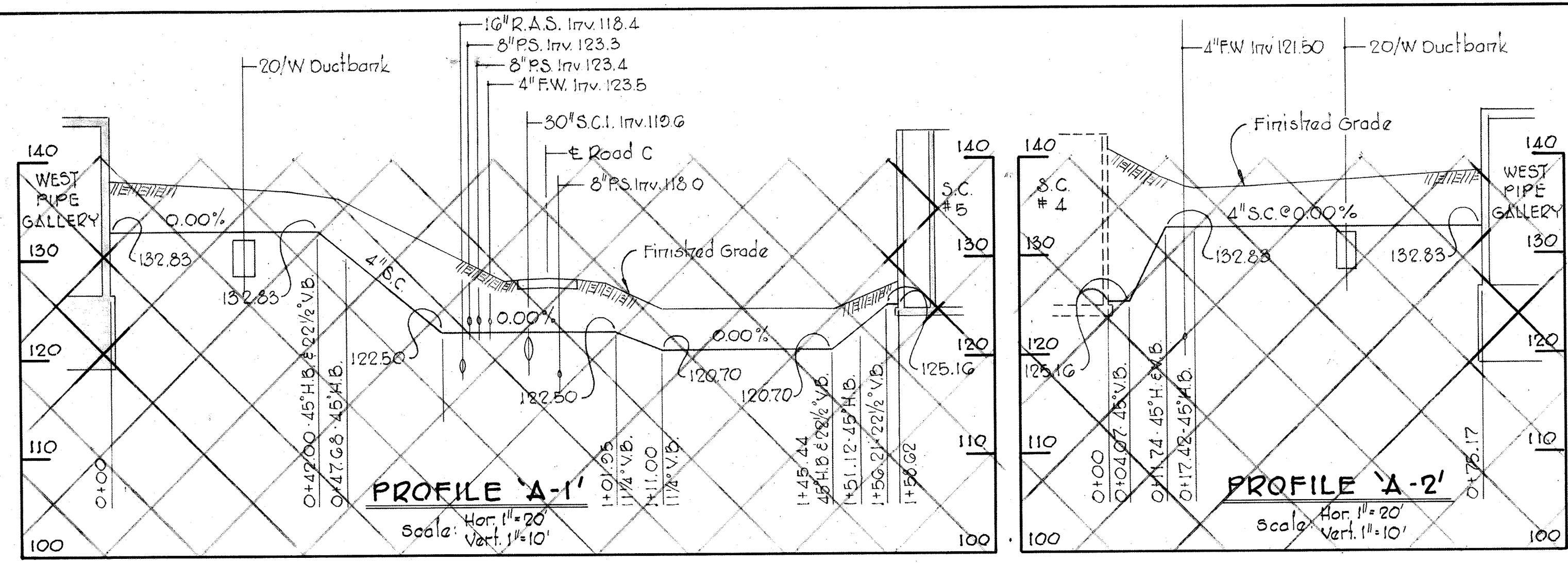
PROFILE, TYPICAL SECTIONS
AND DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

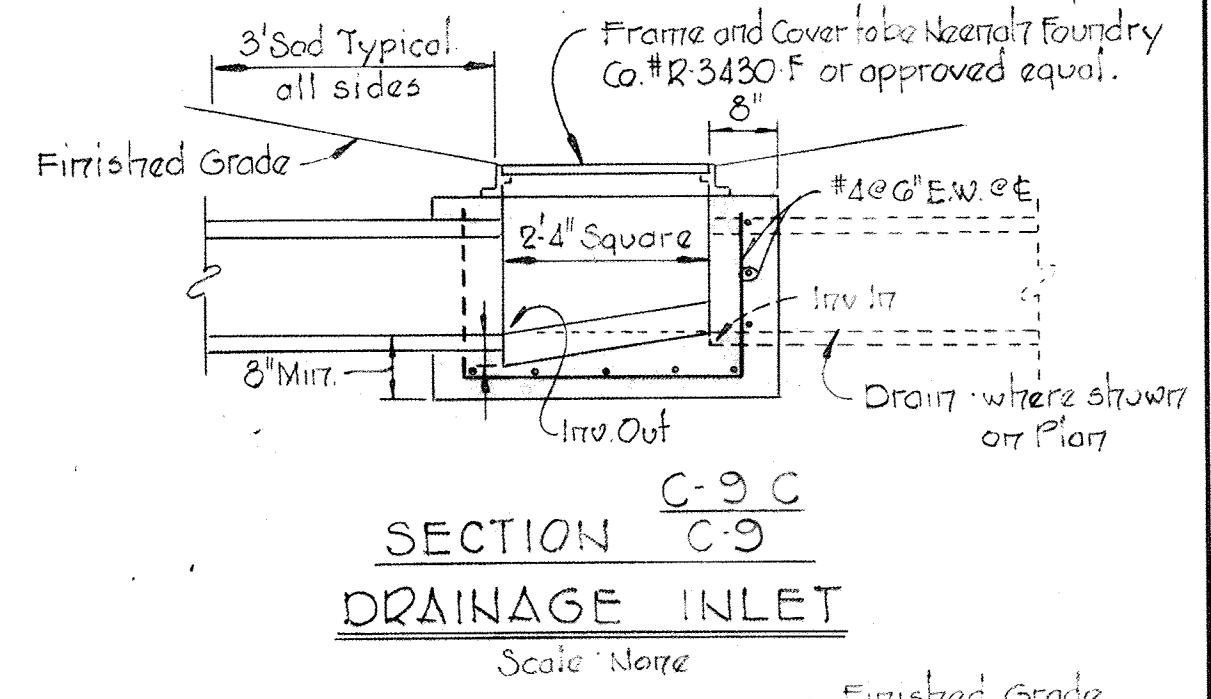
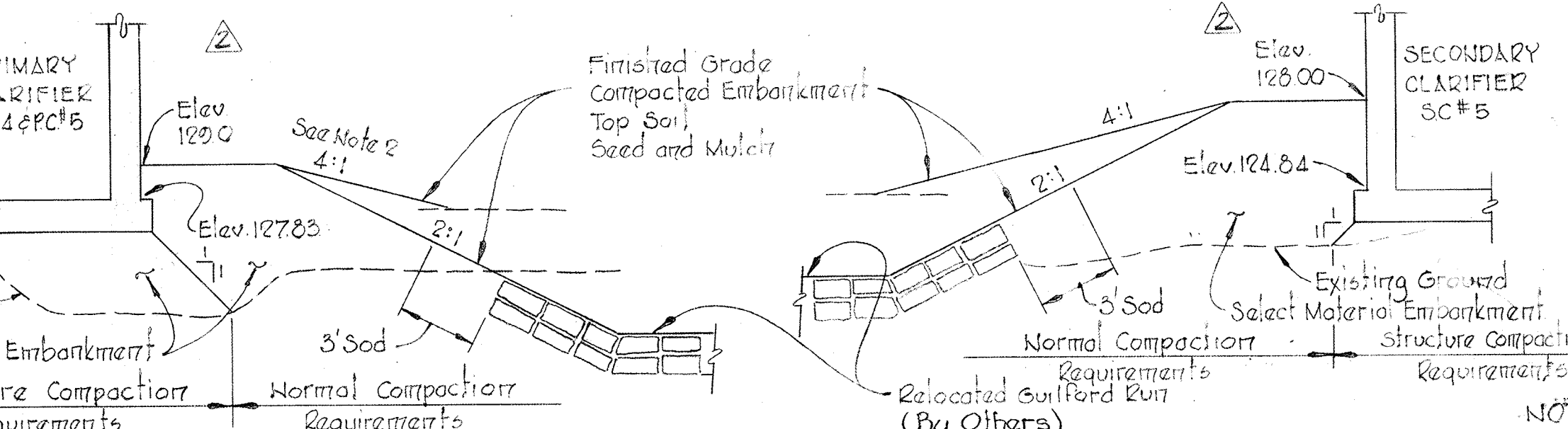
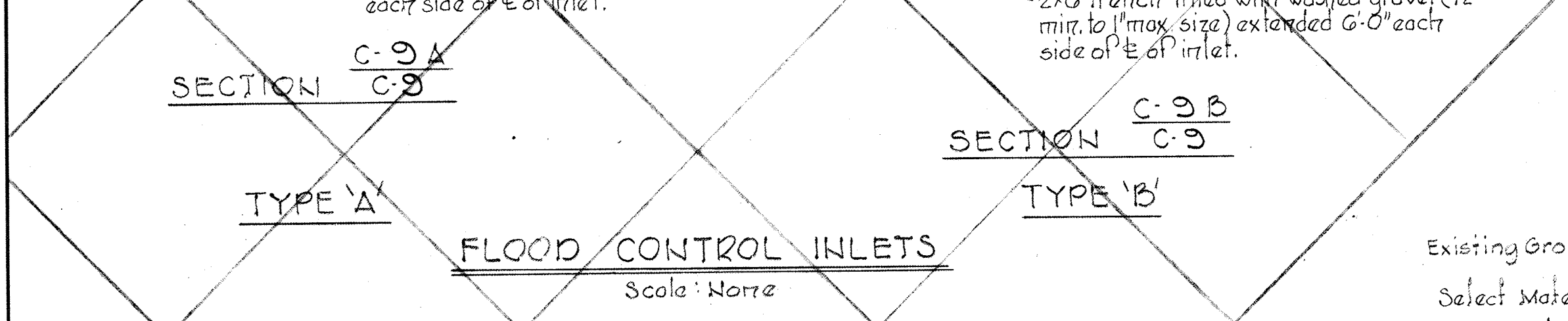
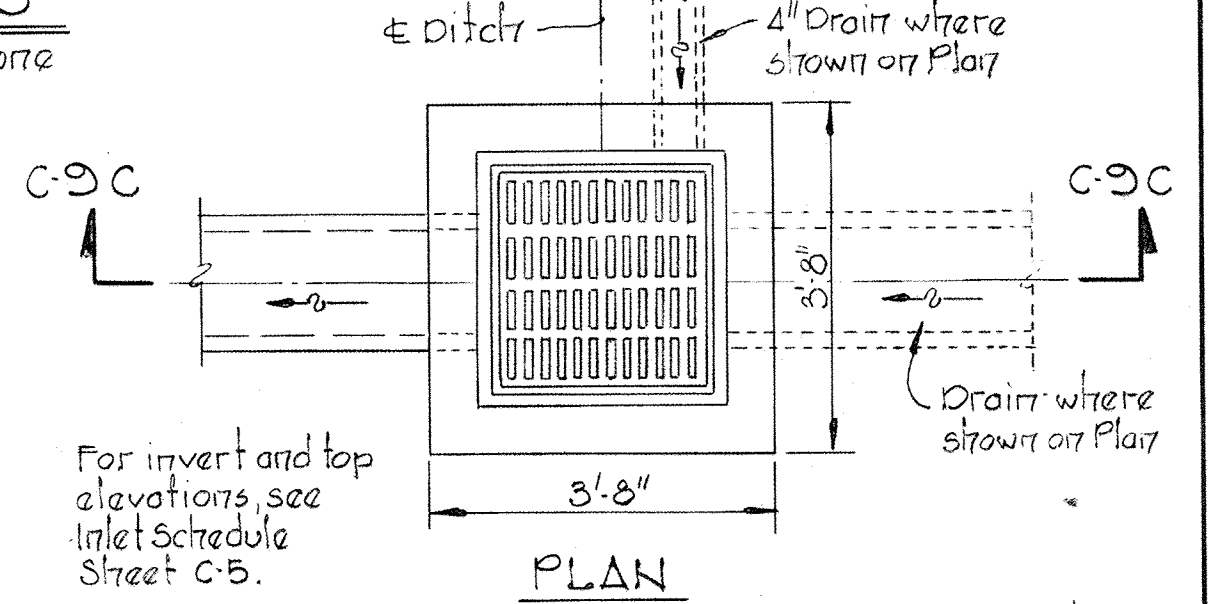
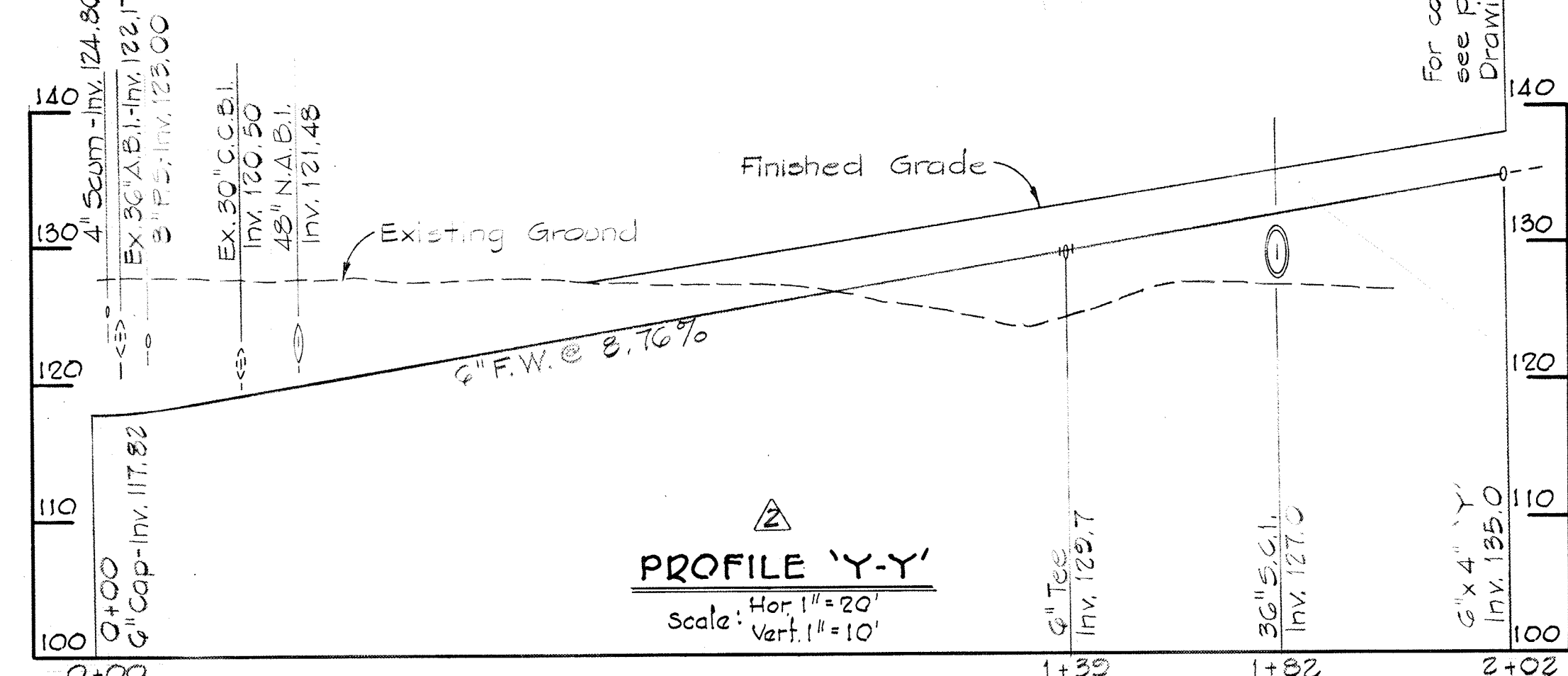
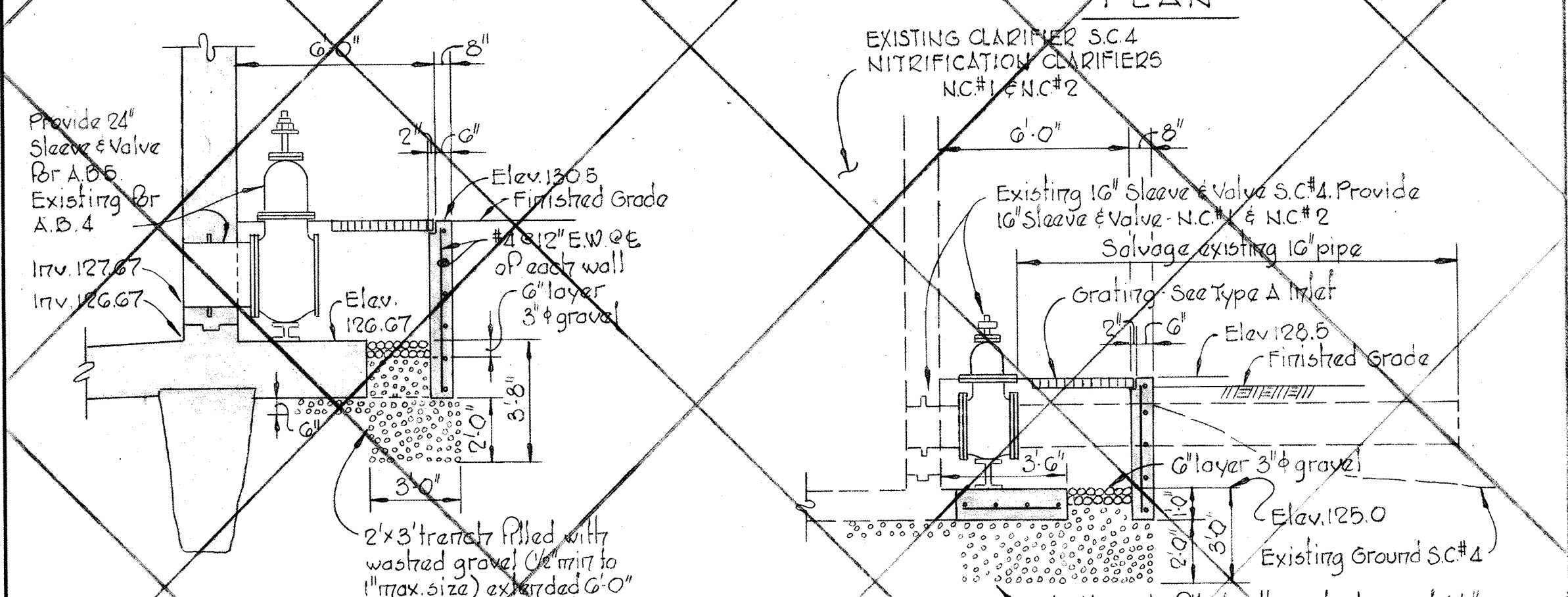
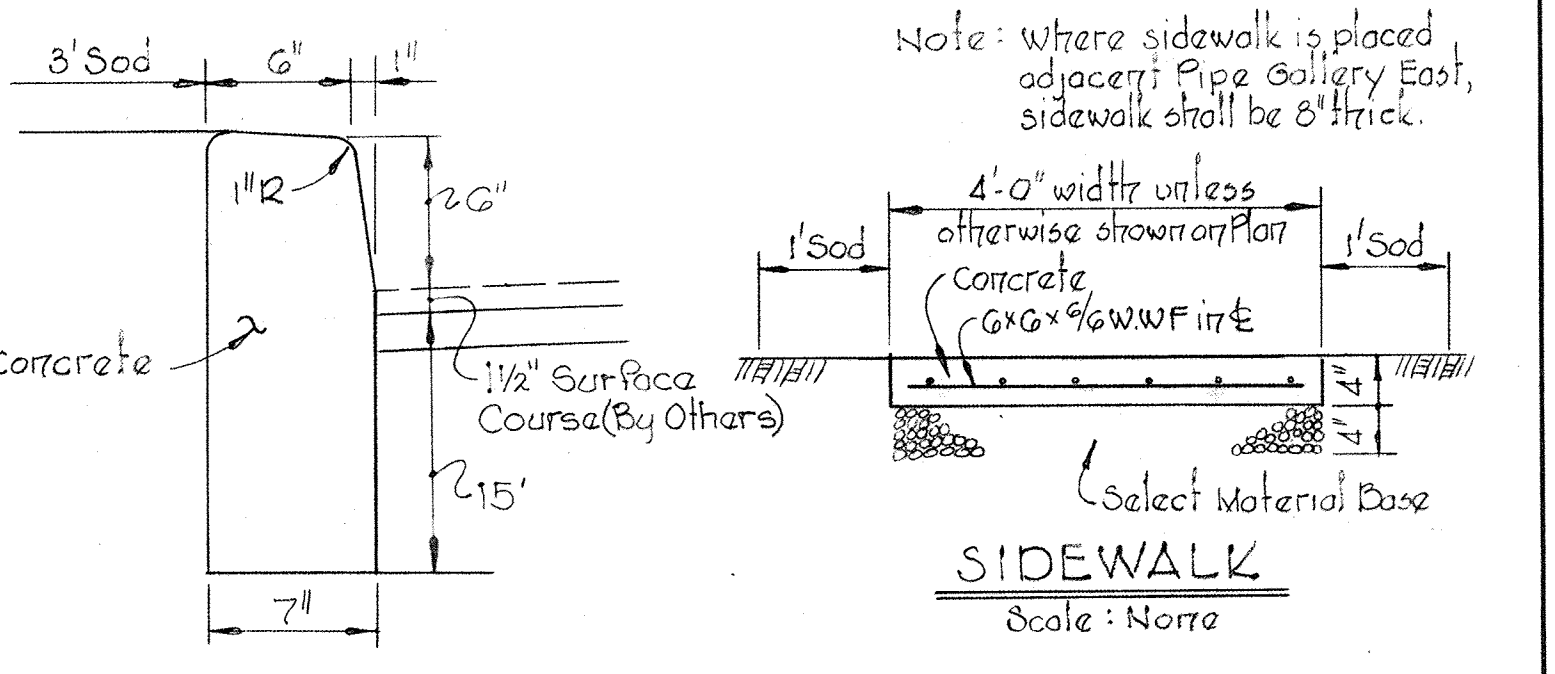
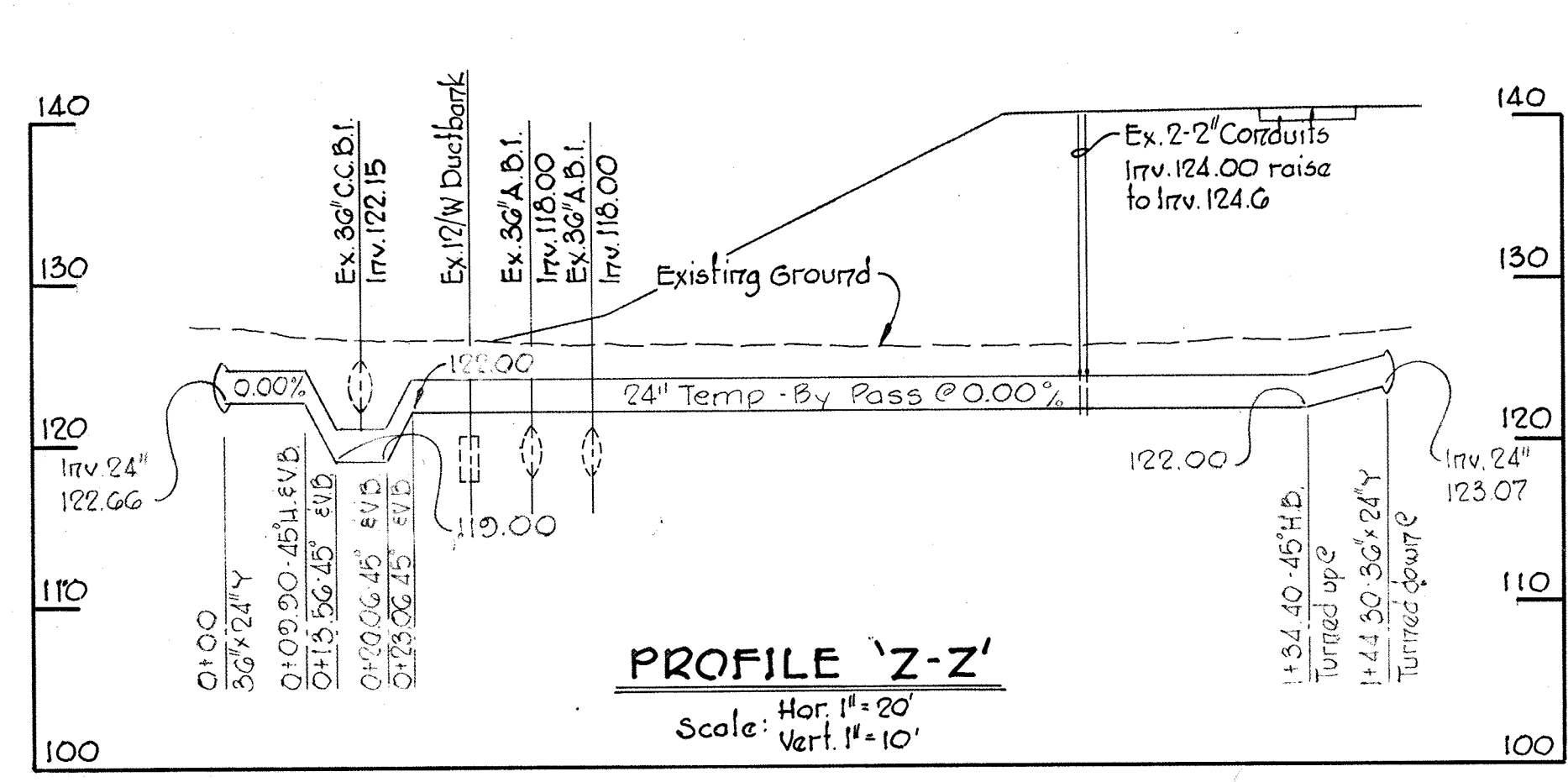
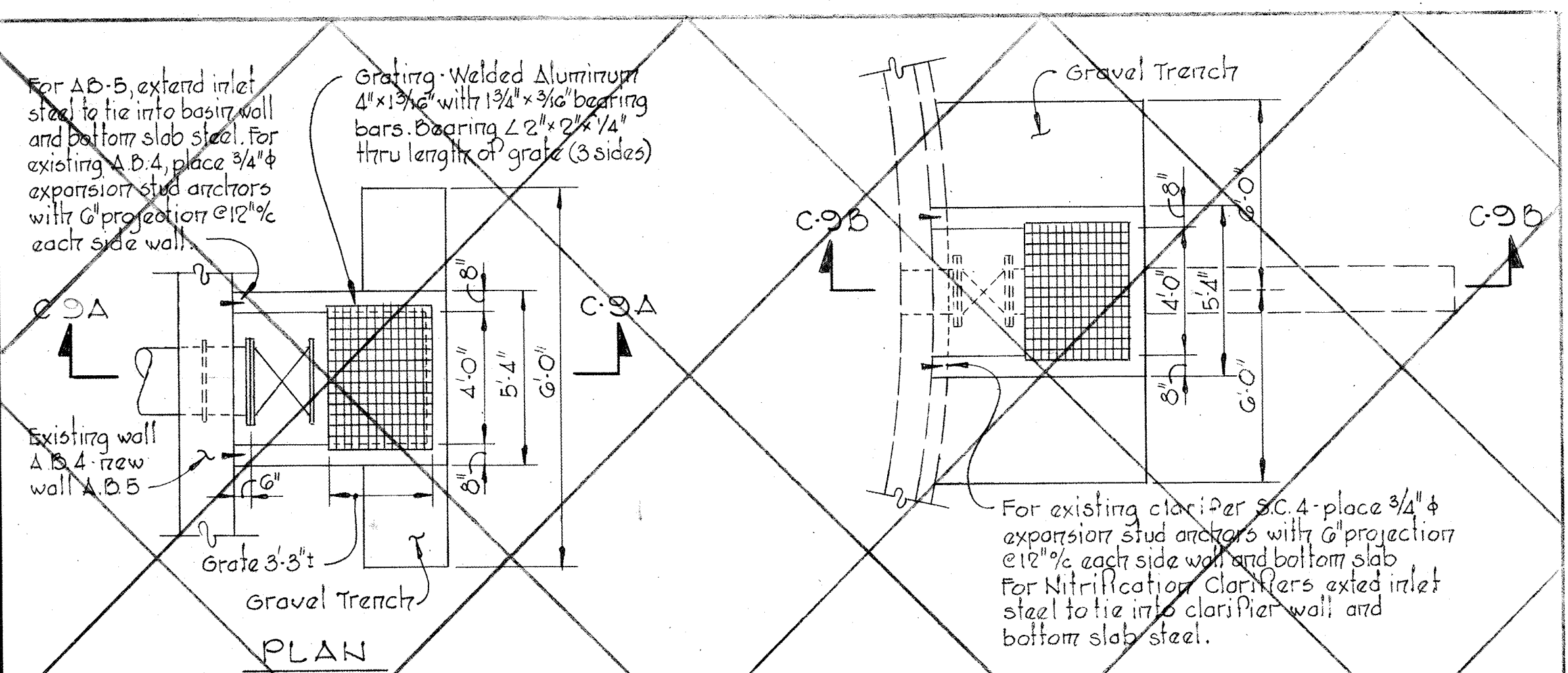
DRAWING NO. 12
OF 133

SCALE AS SHOWN





EXISTING PLANT ACCESS ROAD REPAIR SECTIONS
No Scale



NOTES:
1. Reduce berm width adjacent Road 'C'.
Grade at 4:1 to edge of road.
2. Slope from berm to existing ground to be 4:1 except in vicinity of ditch relocation.

WHITMAN, REQUARDT & ASSOCIATES
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HOWARD COUNTY, MARYLAND
3/20/75
DATE
W. O. Lambert
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

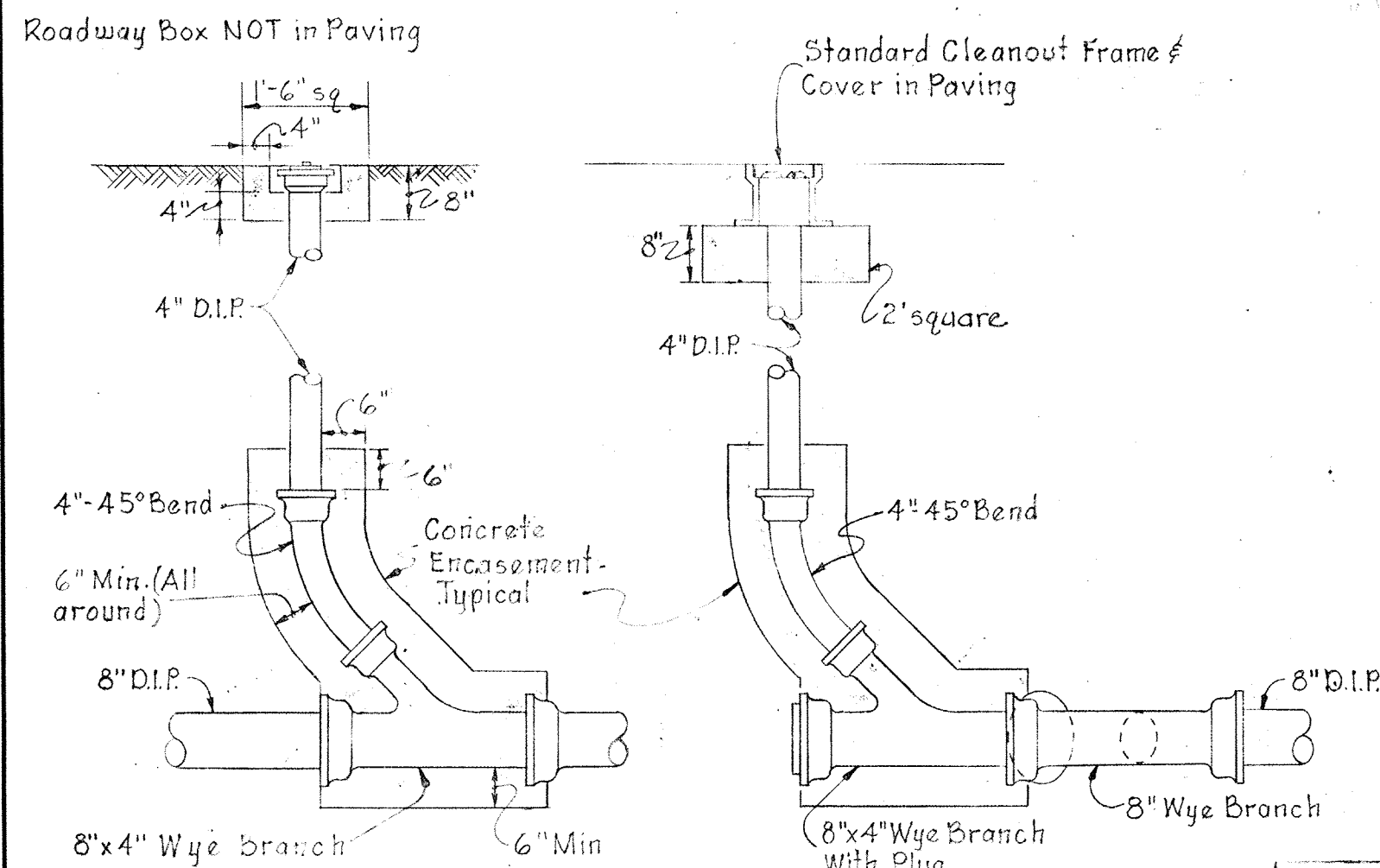
PROFILES - DETAILS
AND TYPICAL SECTIONS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

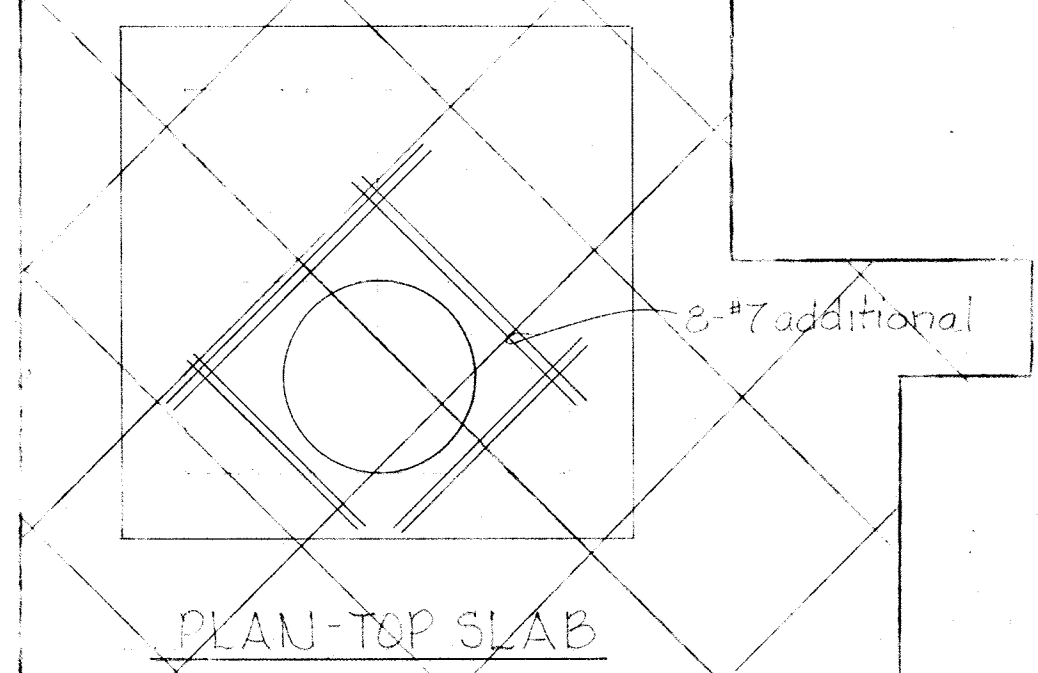
DRAWING NO. 13
OF 133
SCALE AS SHOWN

W. O. 6887-2

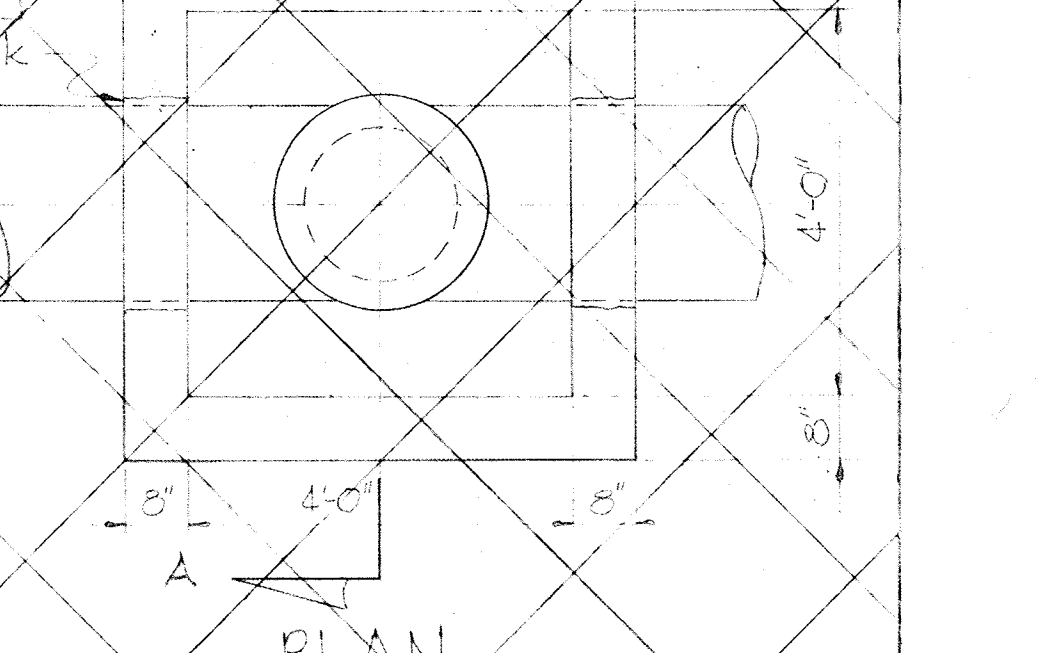
MODIFIED DRAWING - MAY 6, 1982



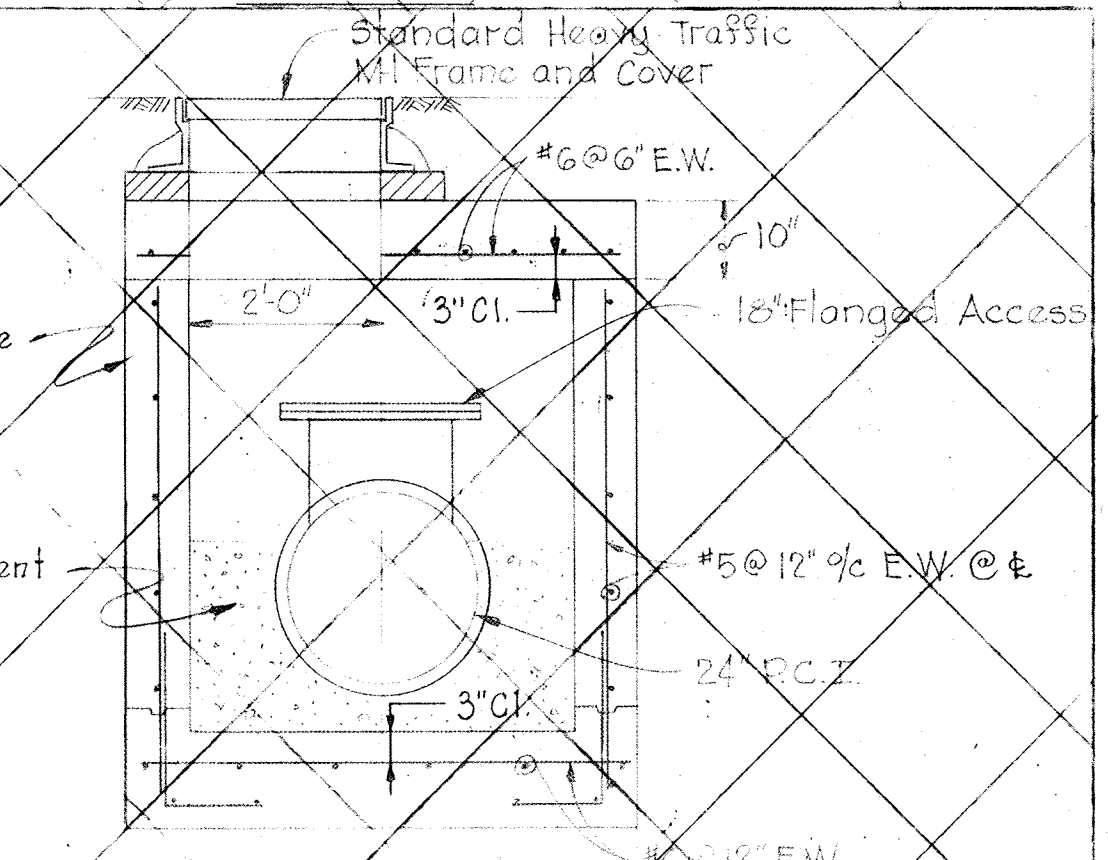
DETAIL - CLEANOUTS
Scale: 1/2"=1'-0"



PLAN - TOP SLAB

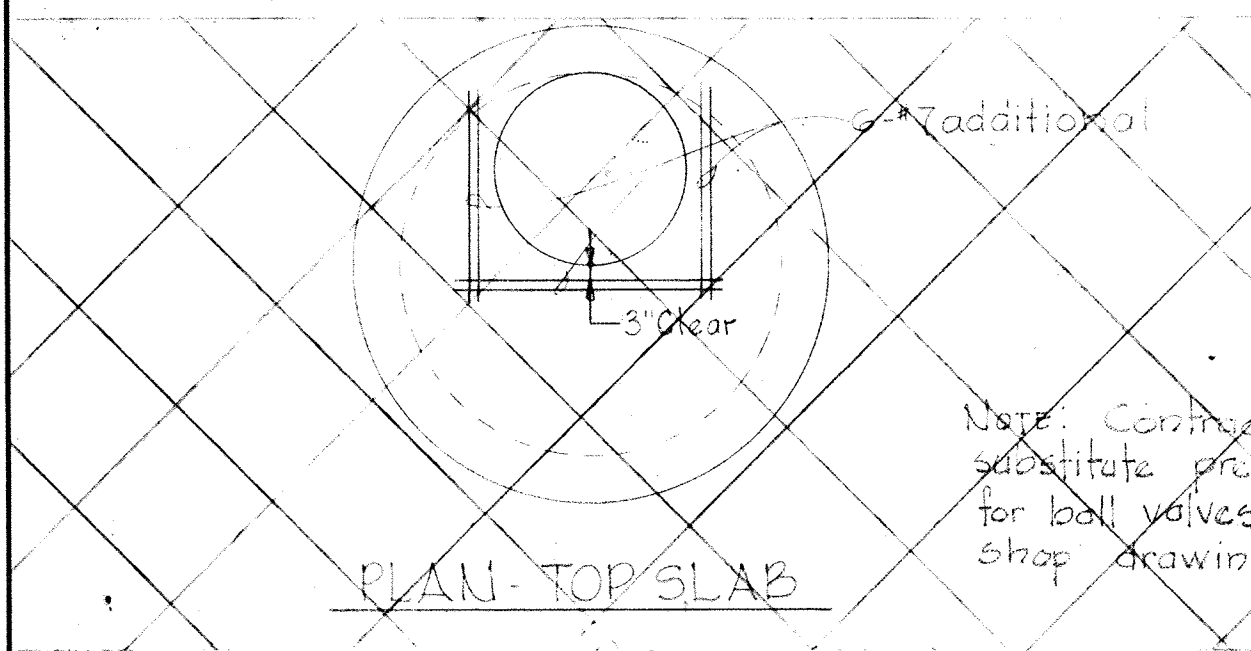


PLAN

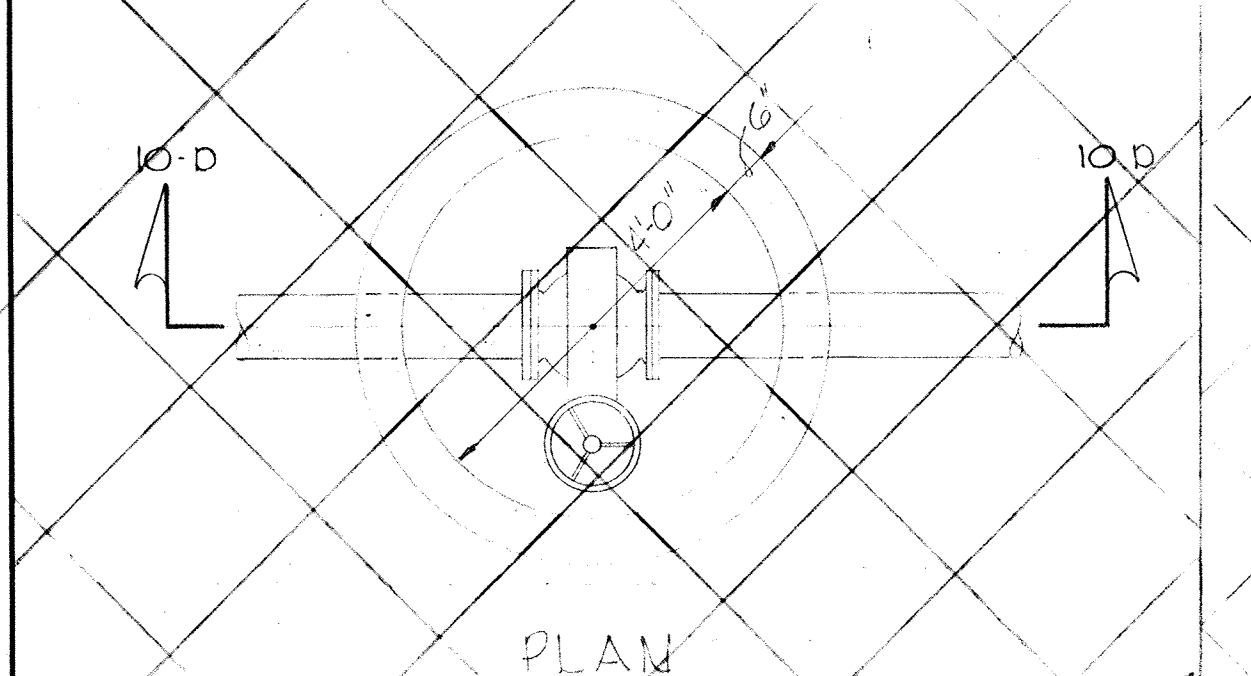


SECTION A-A

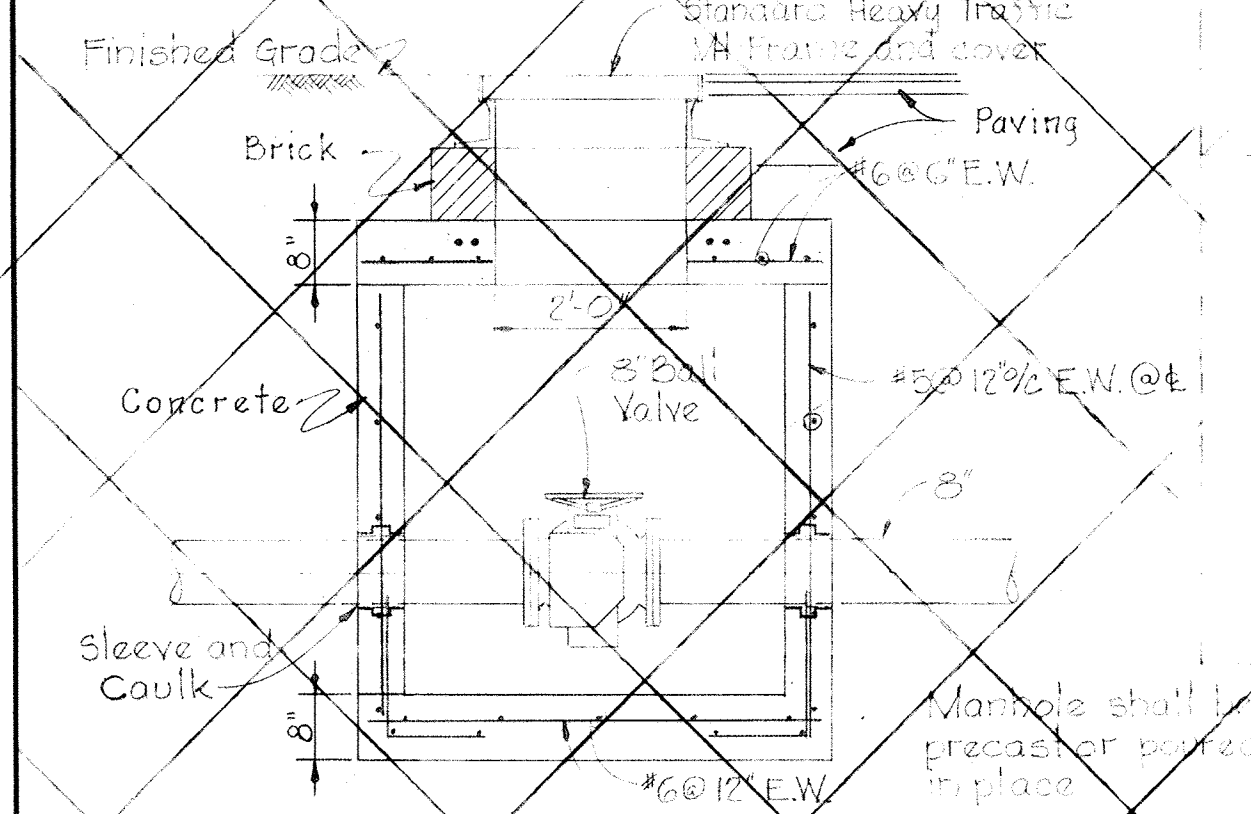
DETAIL INSPECTION MANHOLE
Scale: 1/2"=1'-0"



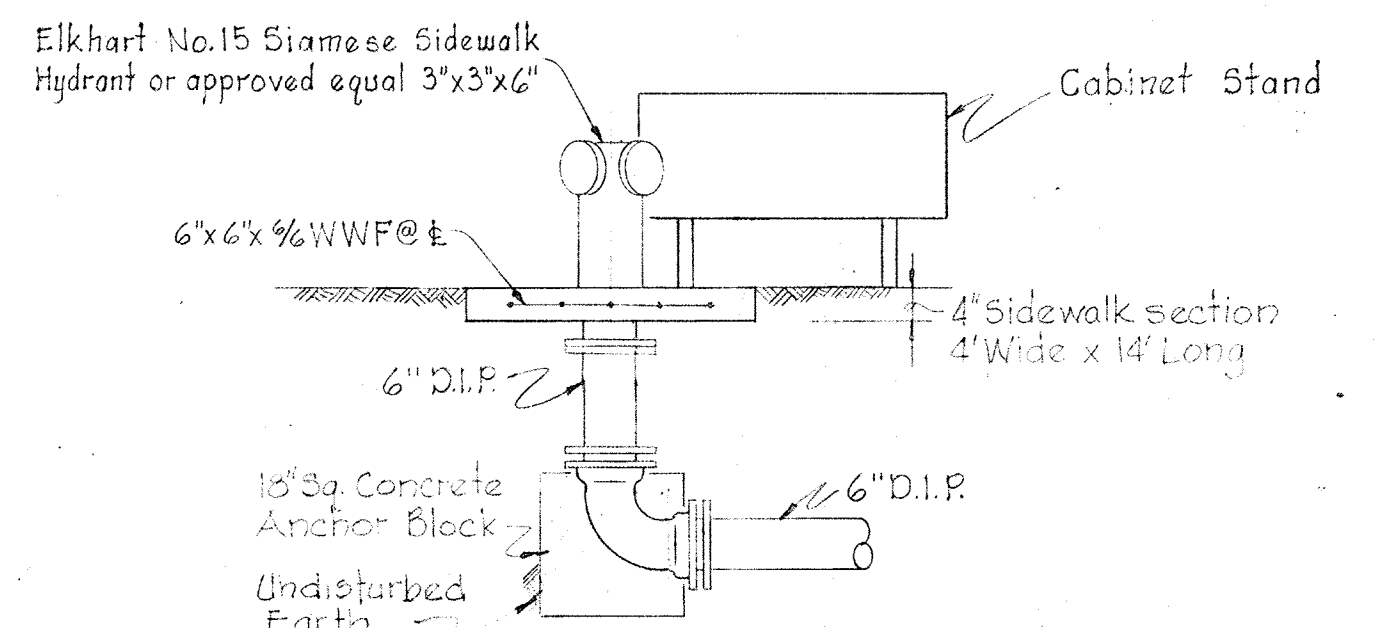
PLAN - TOP SLAB



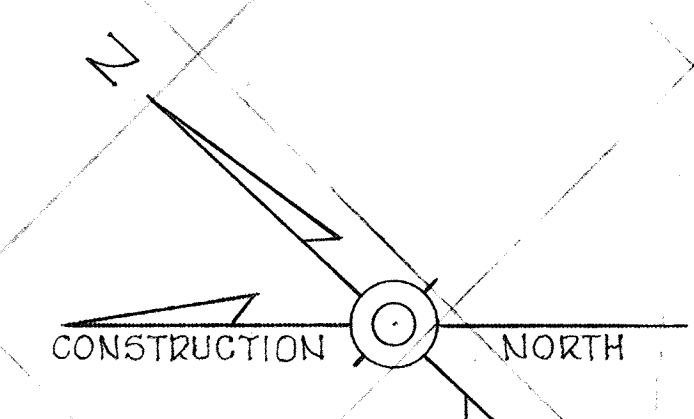
PLAN



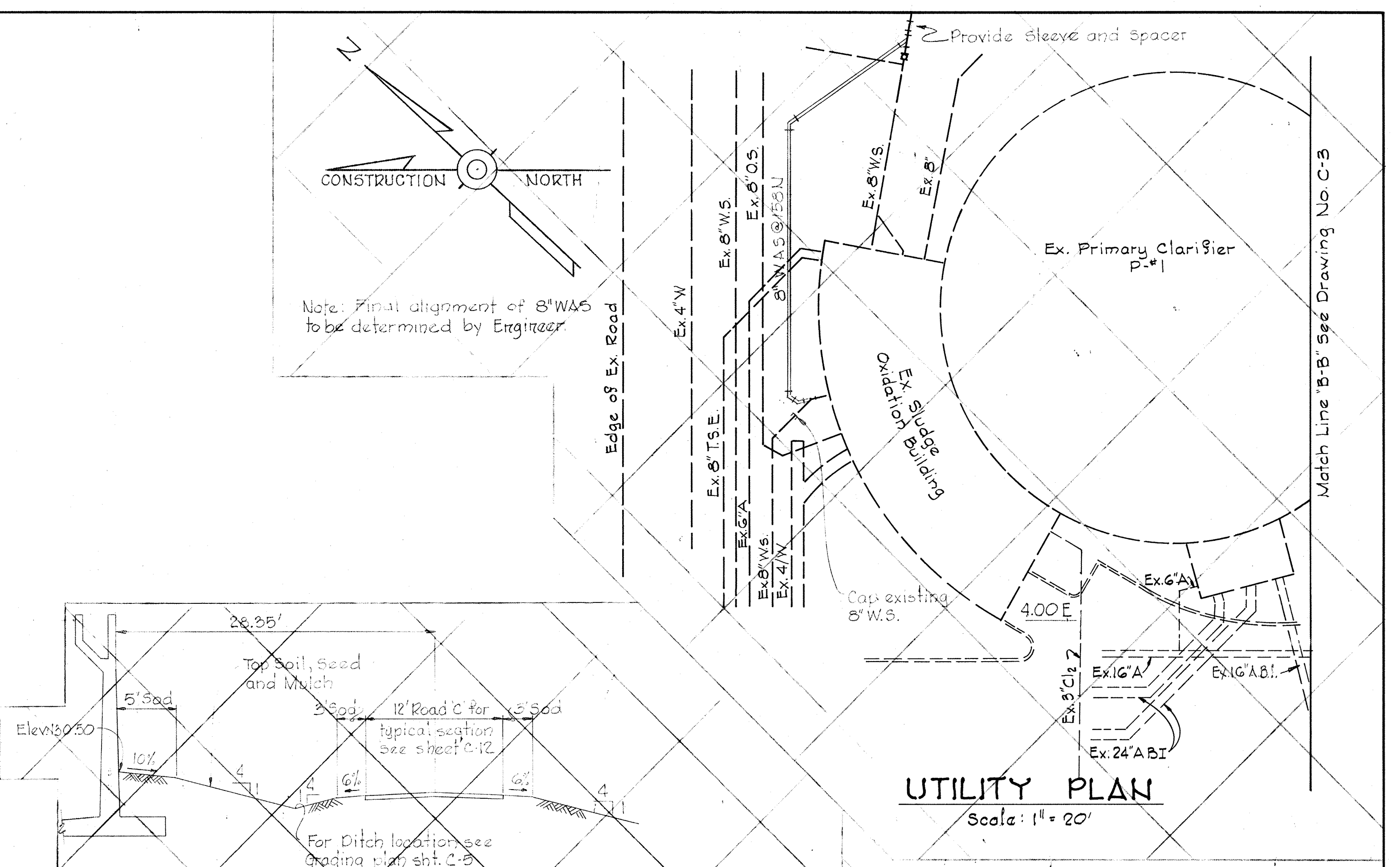
SECTION 10D - BALL VALVE VAULT
Scale: 1/2"=1'-0"



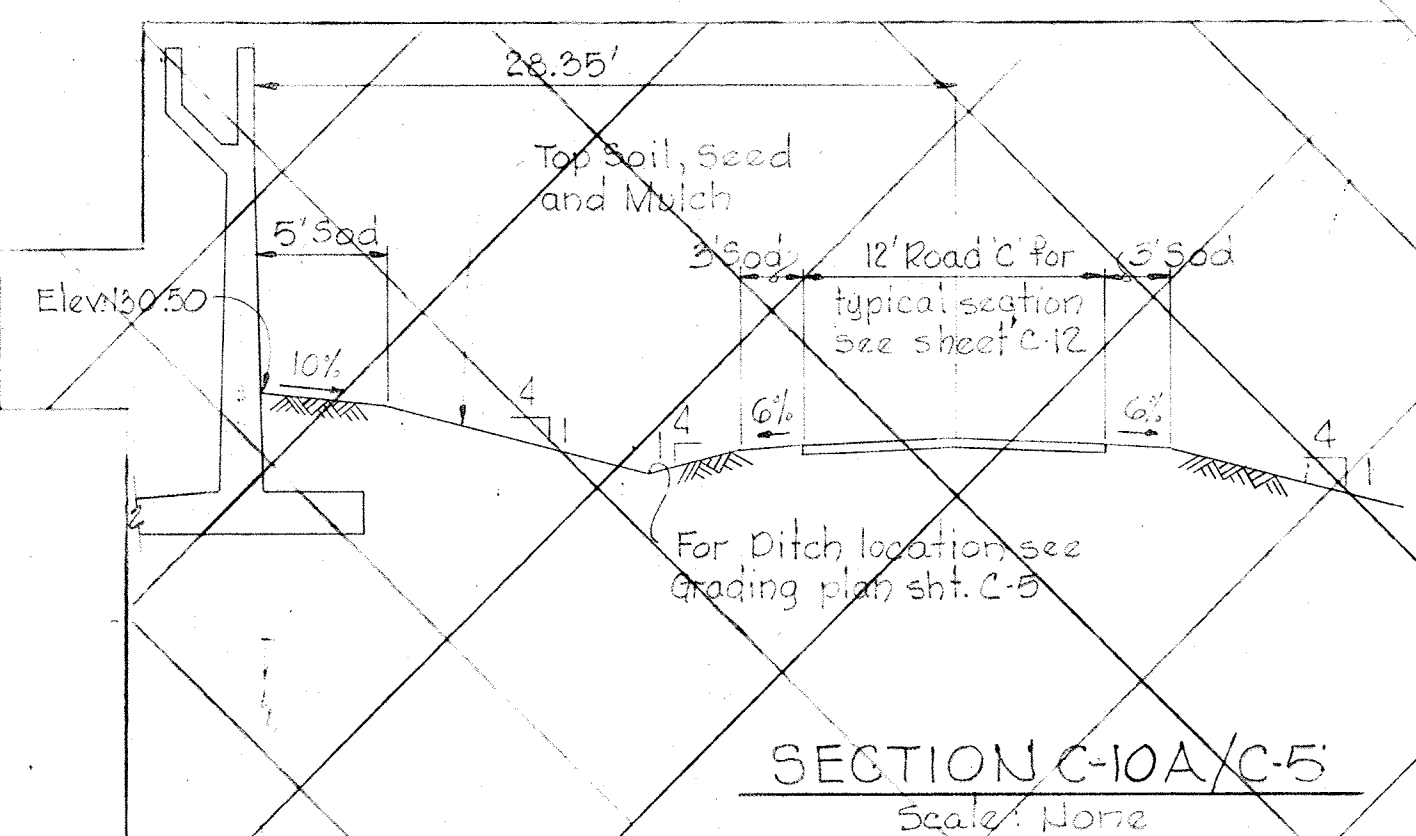
DETAIL - SIAMESE HYDRANT
Scale: 1/2"=1'-0"



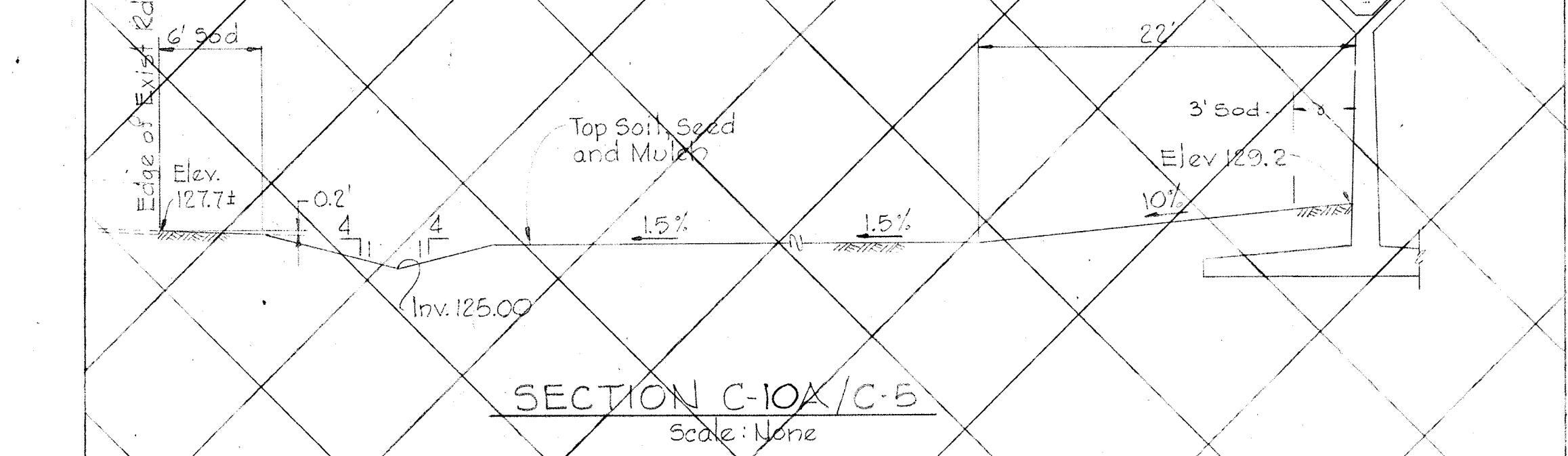
Note: Final alignment of 8" W.A.S. to be determined by Engineer.



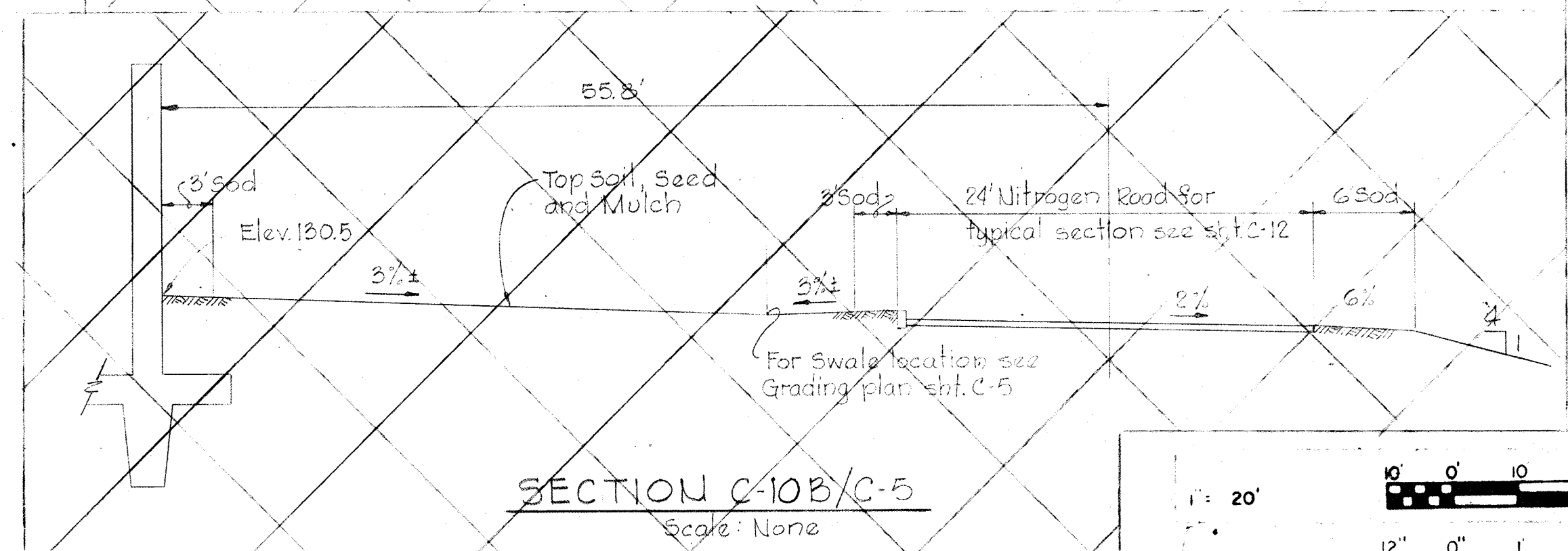
UTILITY PLAN
Scale: 1"=20'



SECTION C-10A/C-5
Scale: None



SECTION C-10A/C-5
Scale: None



SECTION C-10B/C-5
Scale: None

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/15 DATE
W.O. Falbert CHIEF-BUREAU OF ENGINEERING

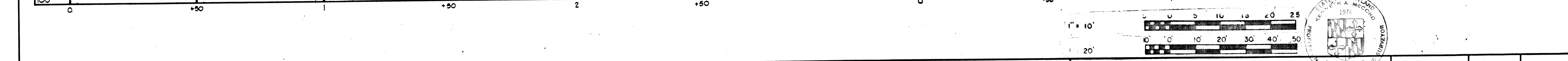
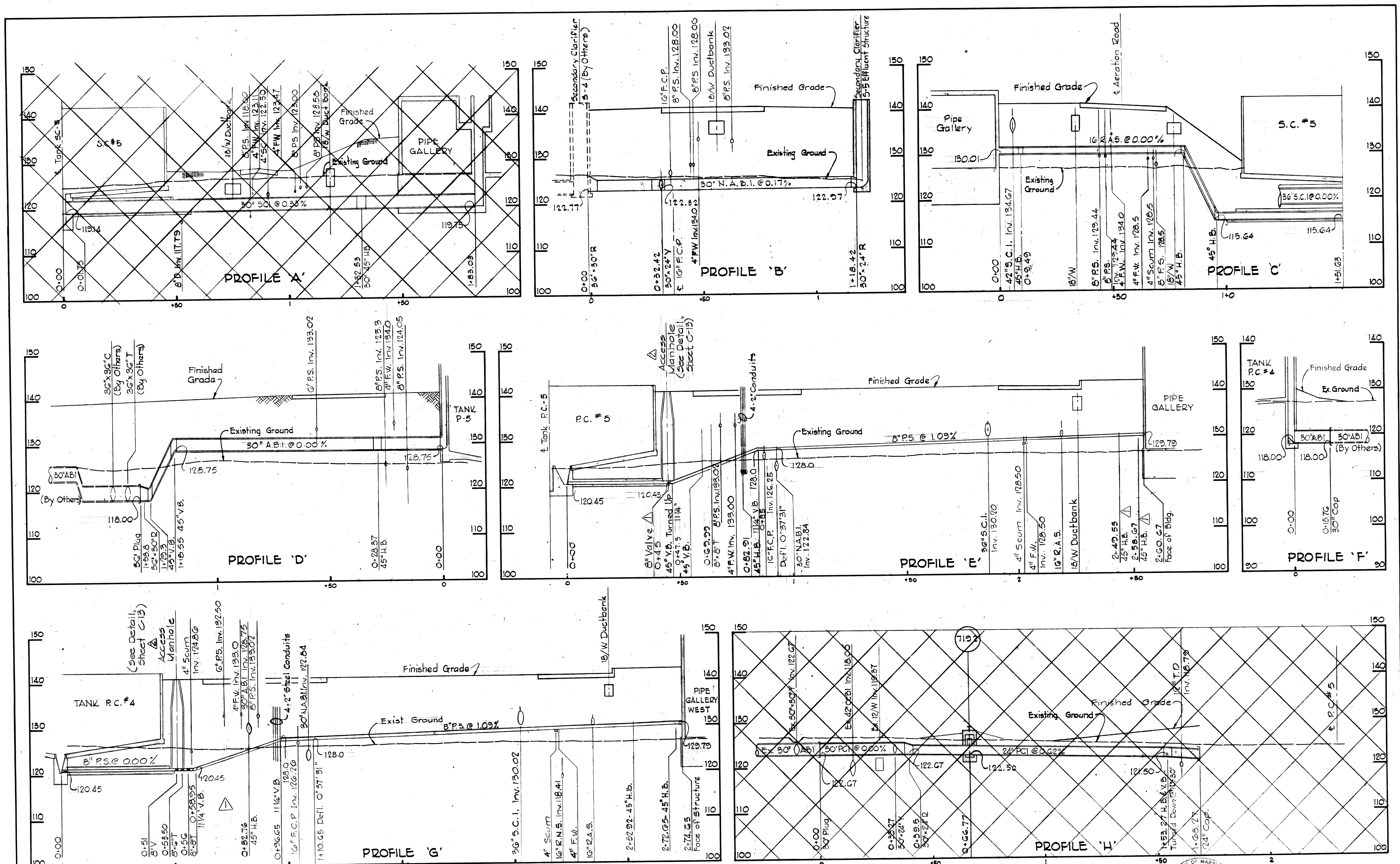
CONTRACT NO. 500-S

UTILITY PLAN, DETAILS & TYPICAL SECTIONS

SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4

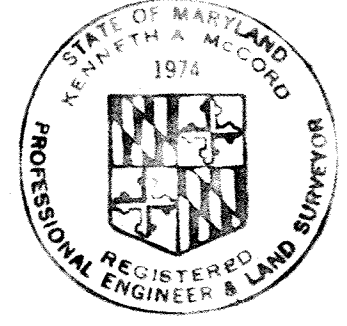
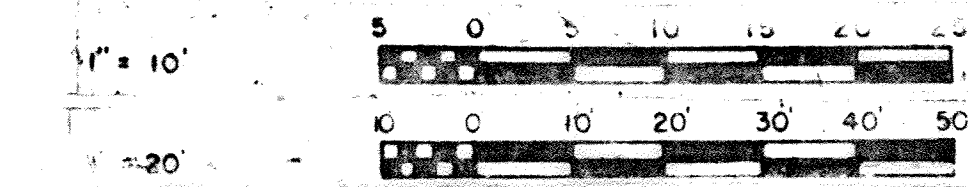
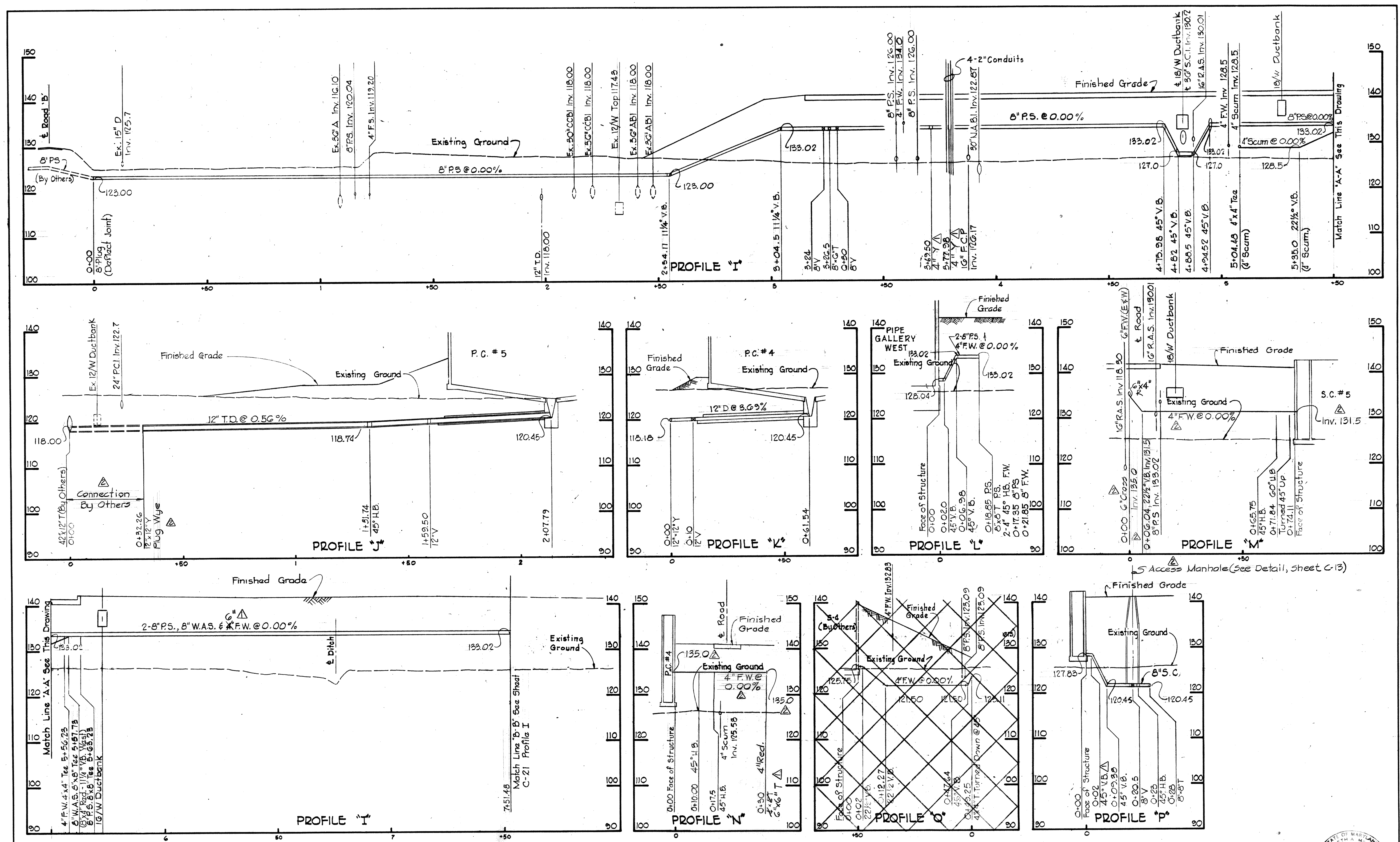
DRAWING NO. 14 OF 133
SCALE AS SHOWN





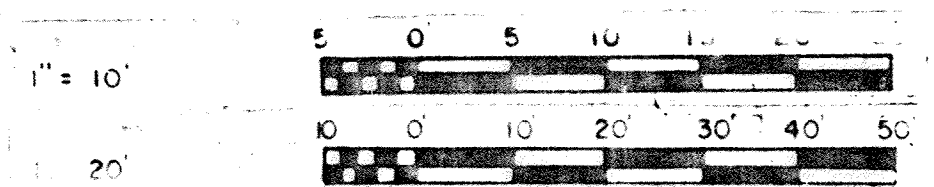
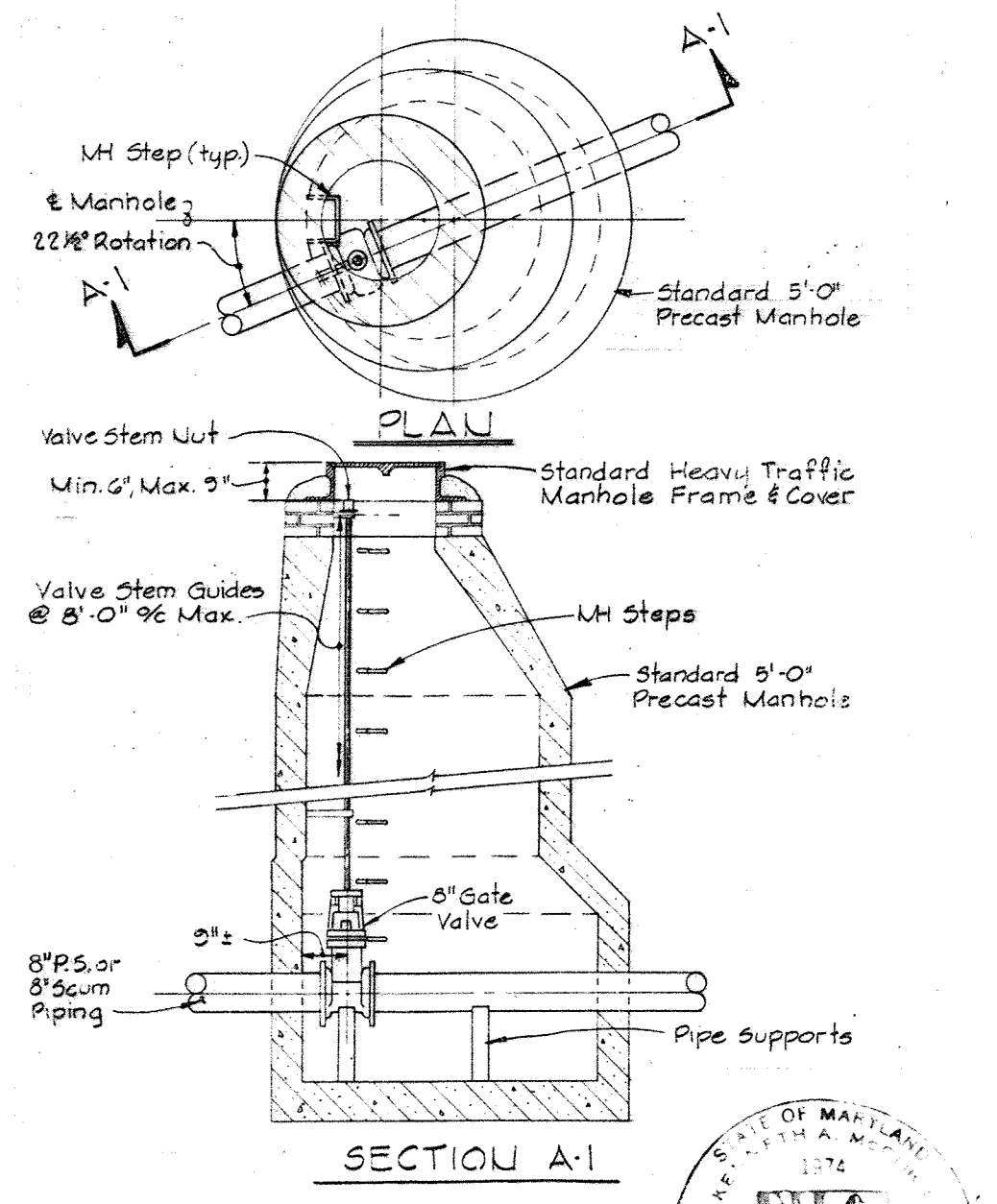
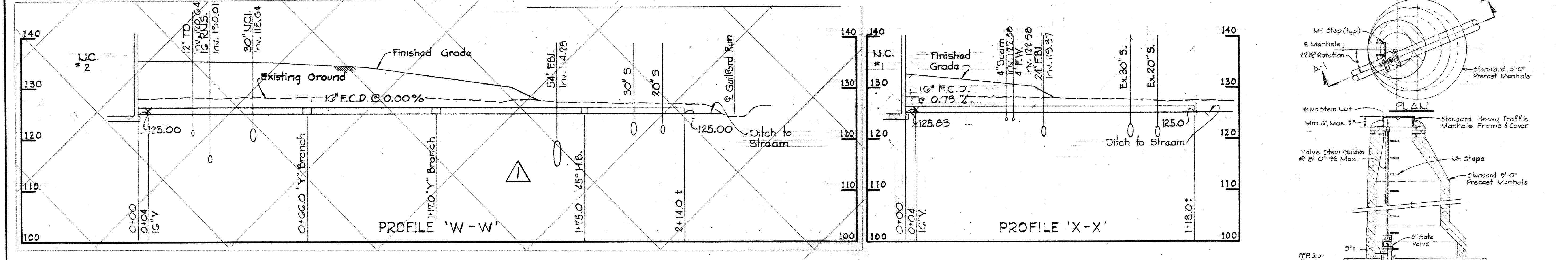
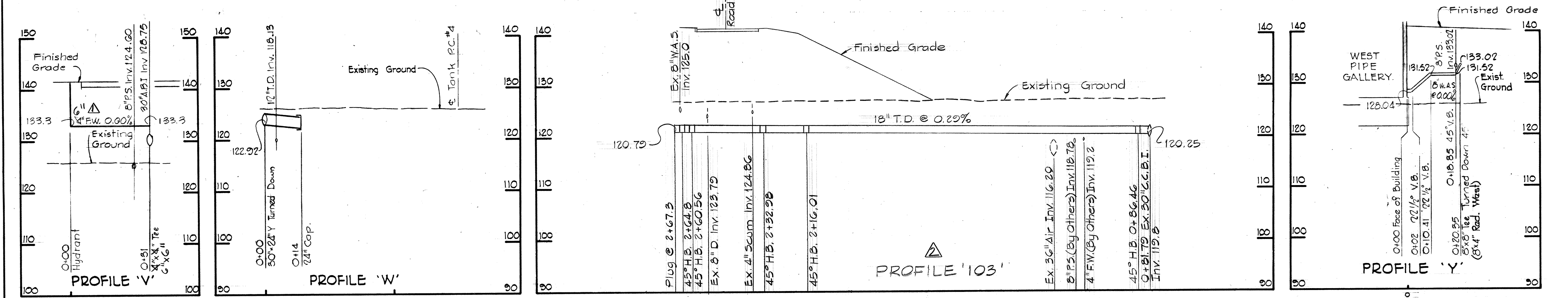
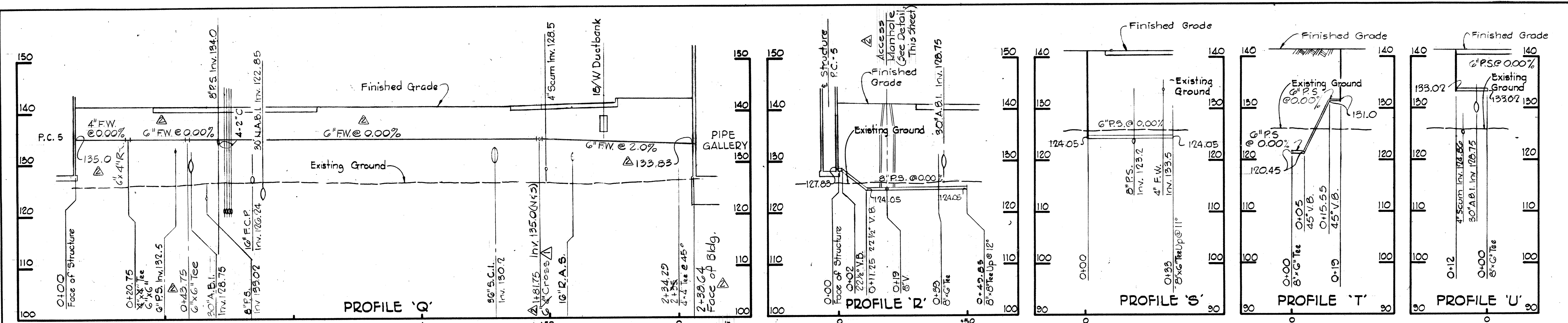
<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 W. O. Gilbert CHIEF-BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>PROFILES</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 15 OF 133 SCALE H:1"=20' V:1"=10'</p>
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BRUNING 44-510 18392



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE <i>W.O. Gilbert</i> CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	PROFILES	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 16 OF 133 SCALE H:1"=20' V:1"=10'
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BRUNING 44310 18322

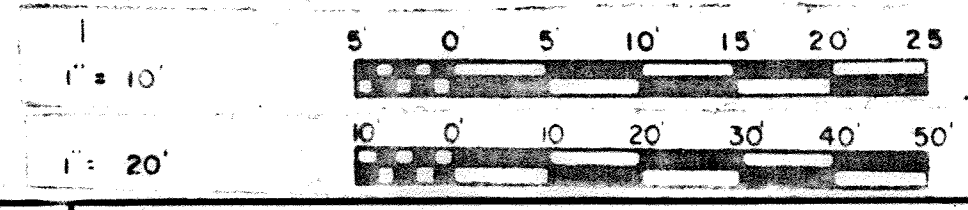
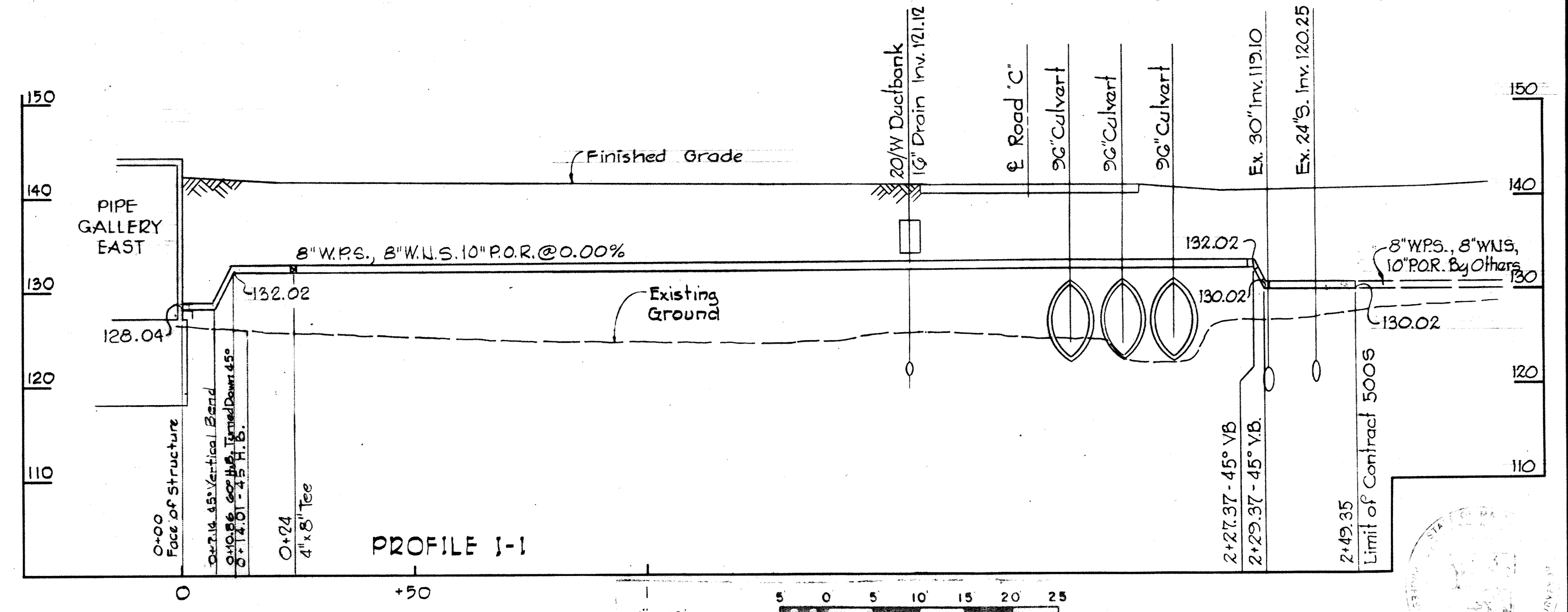
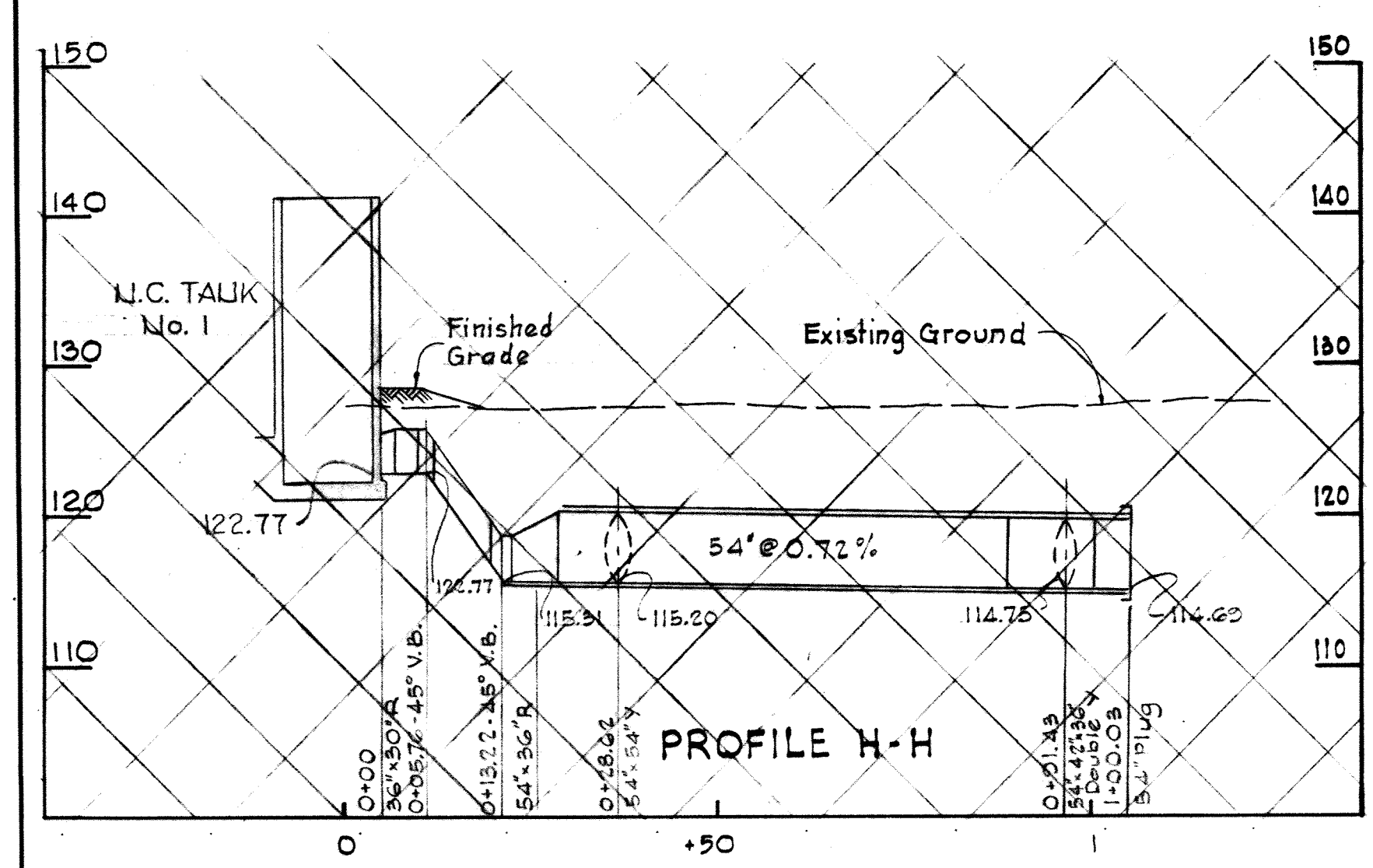
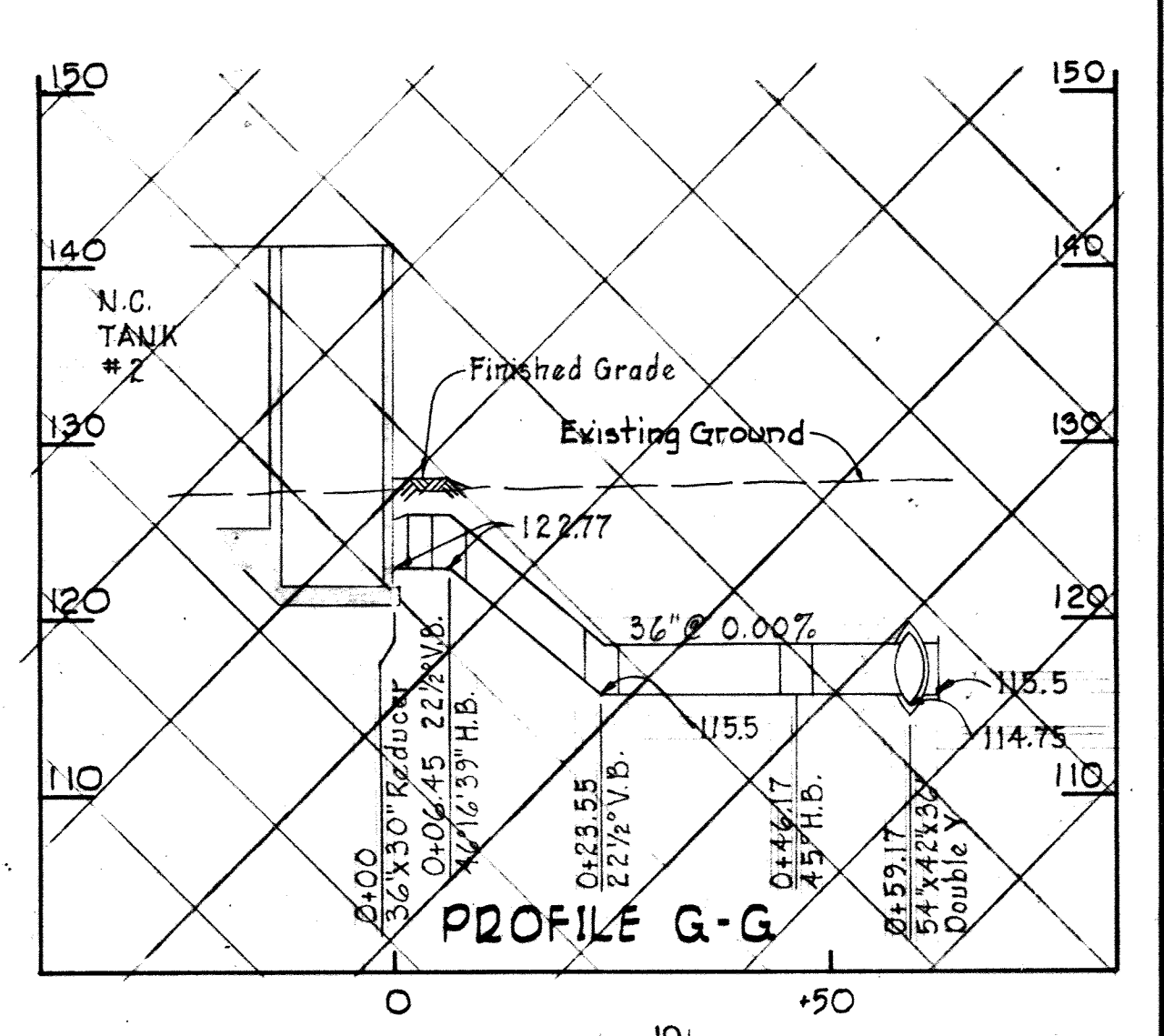
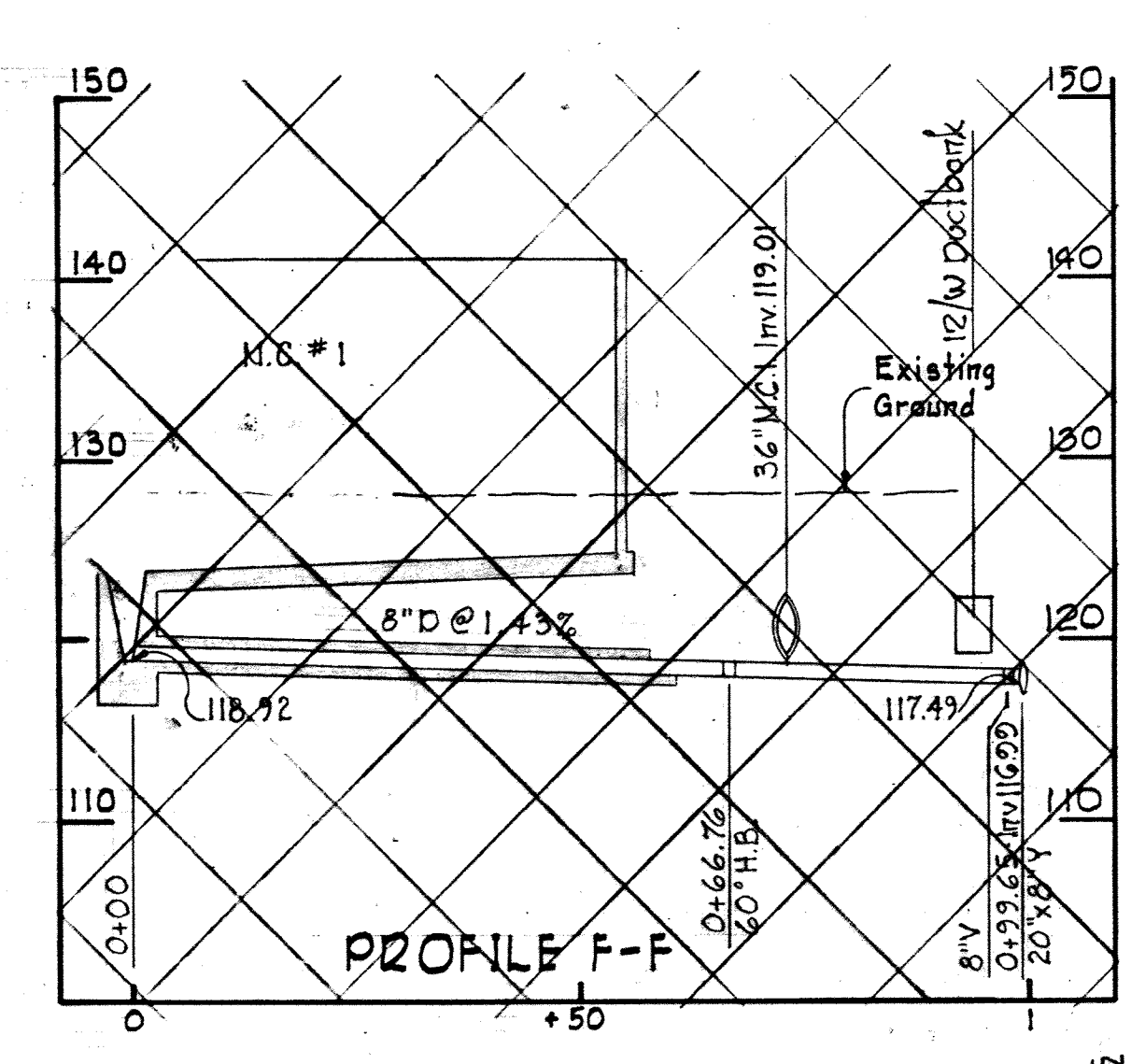
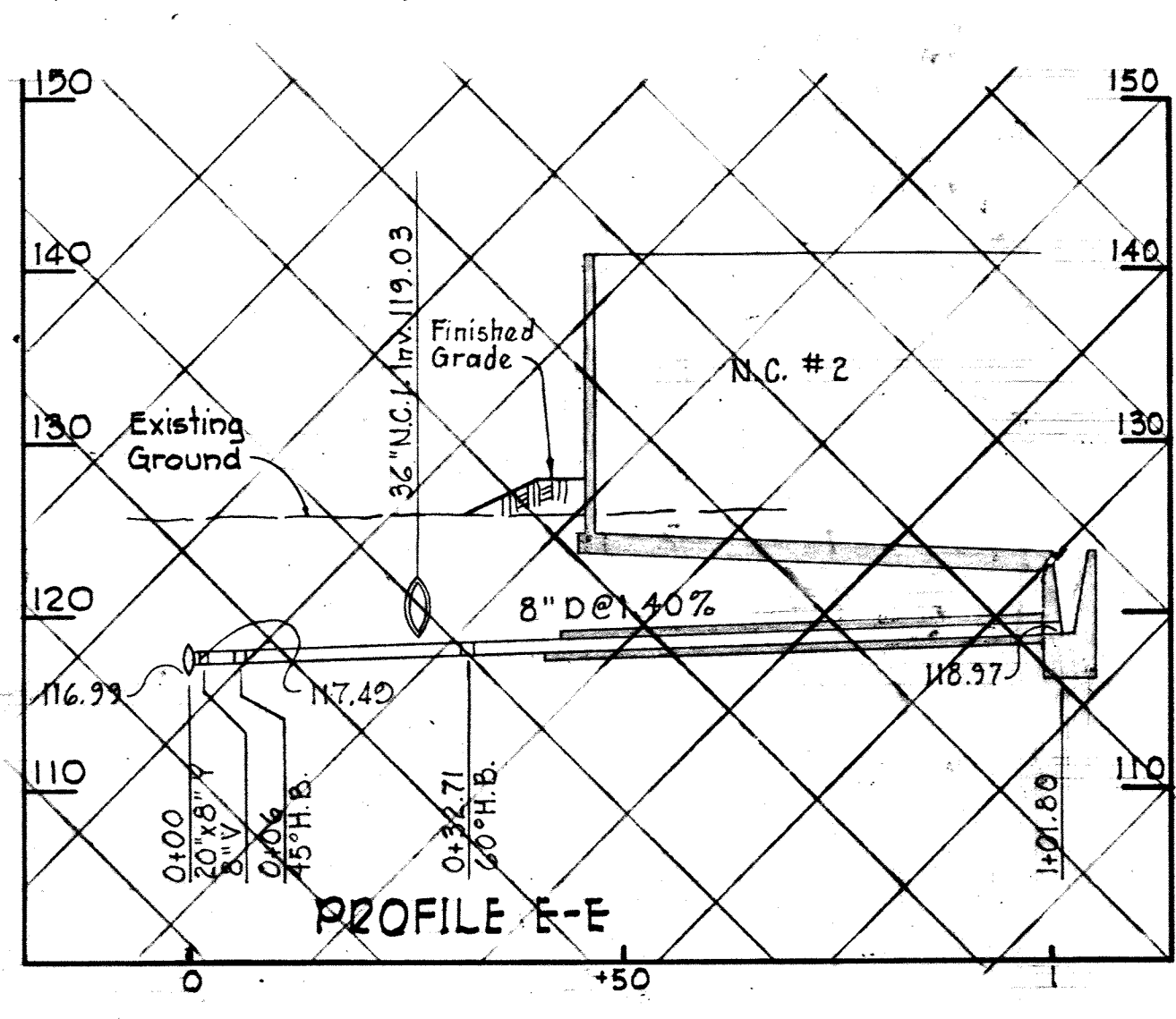
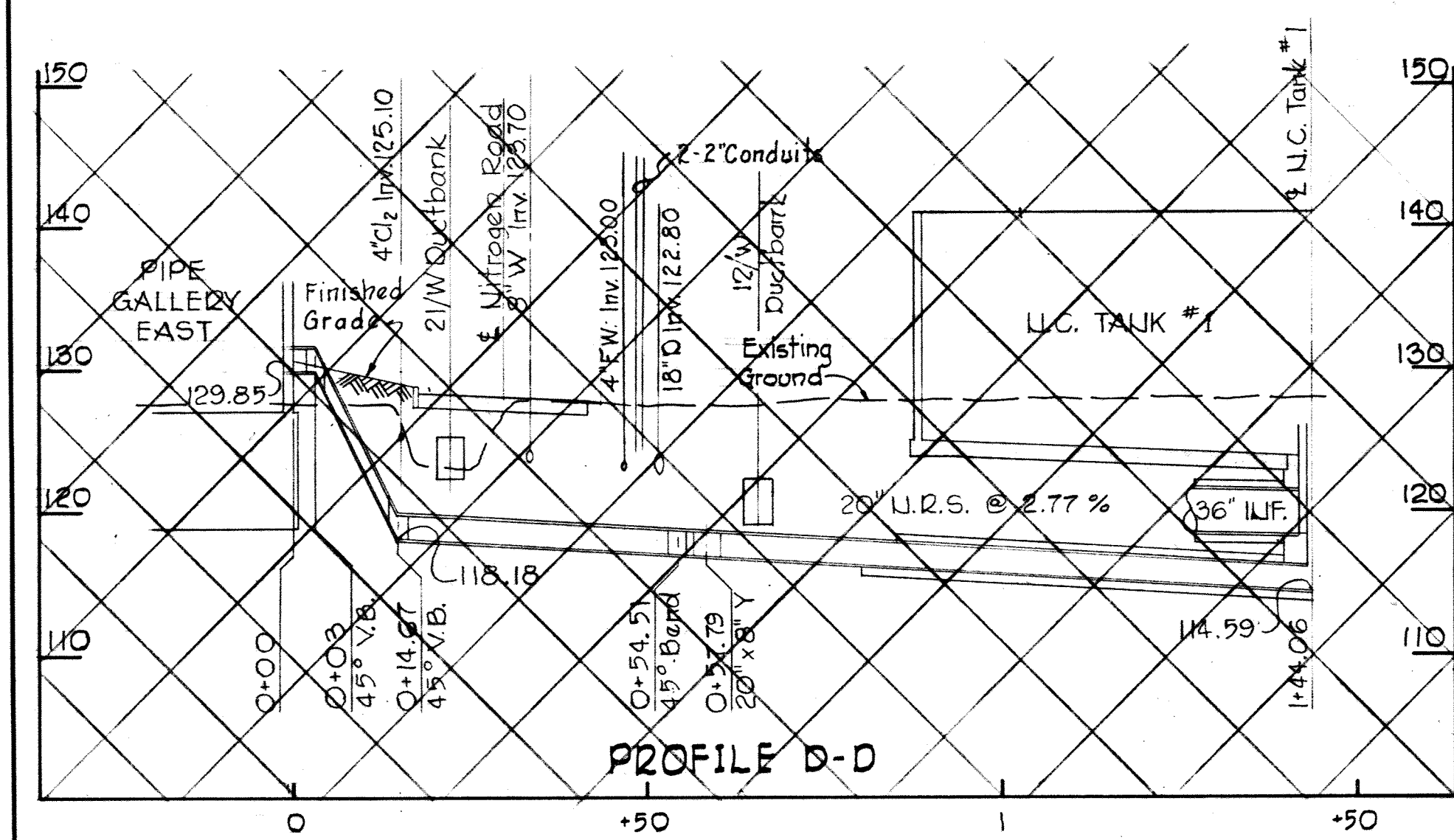
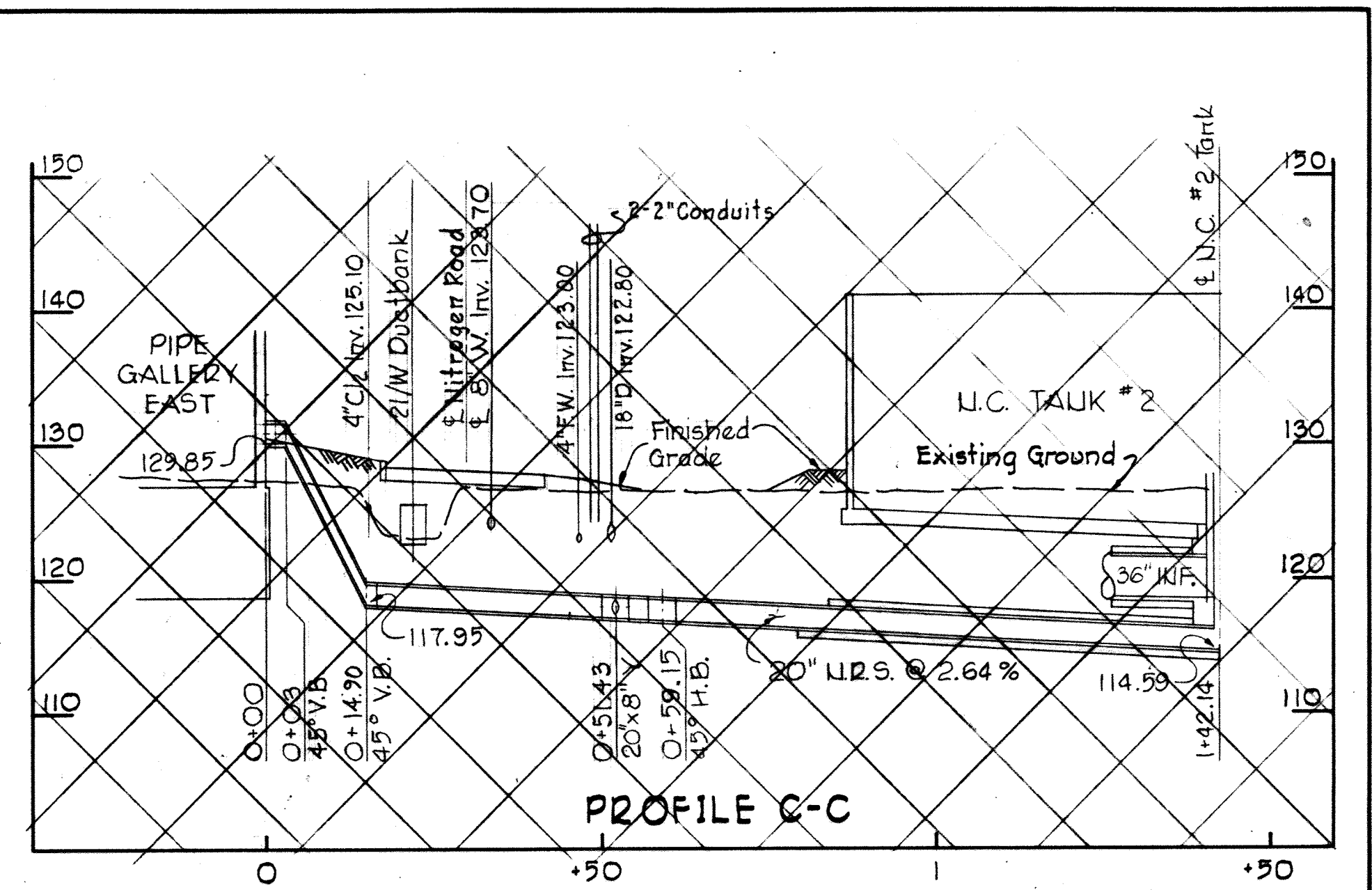
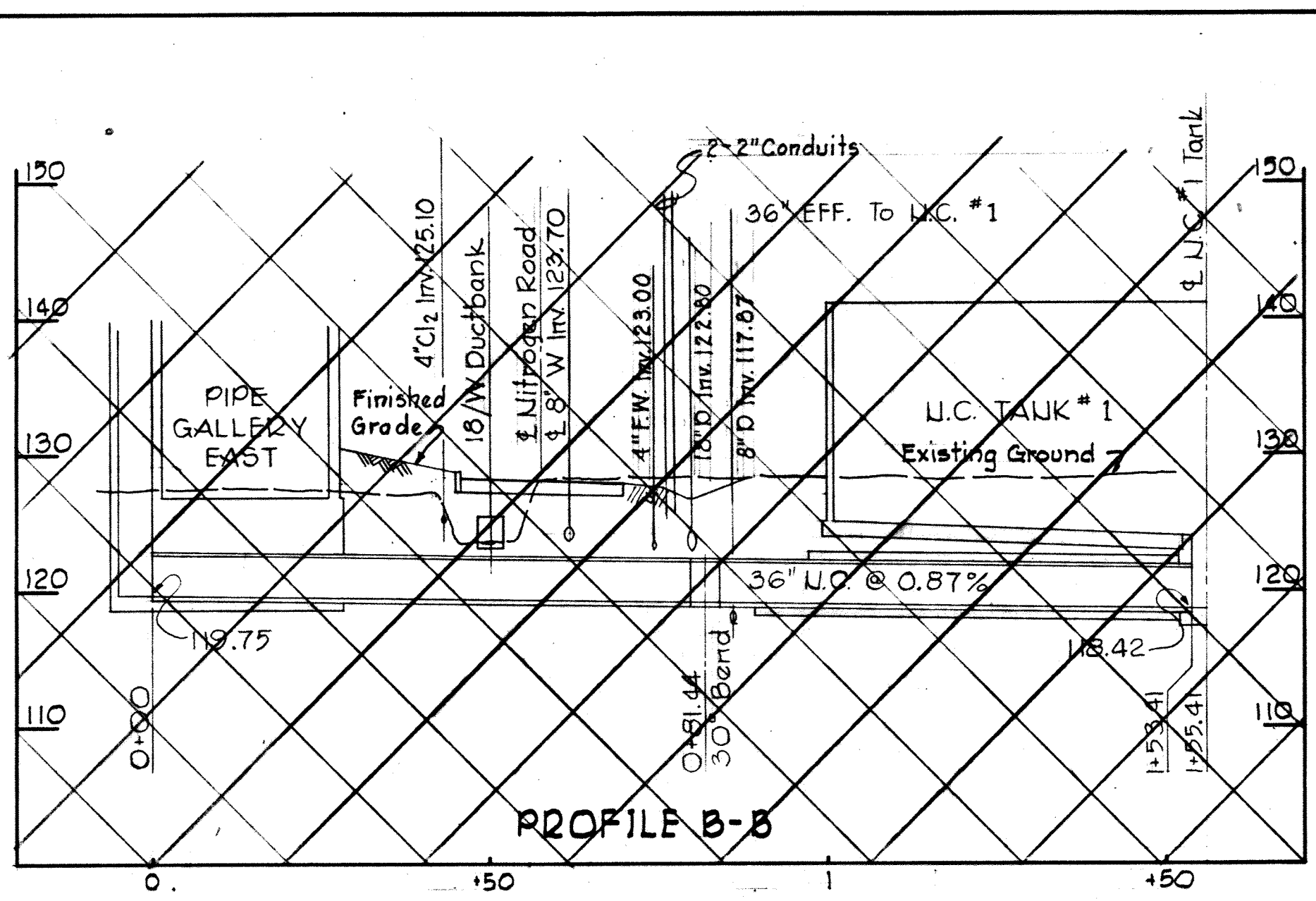
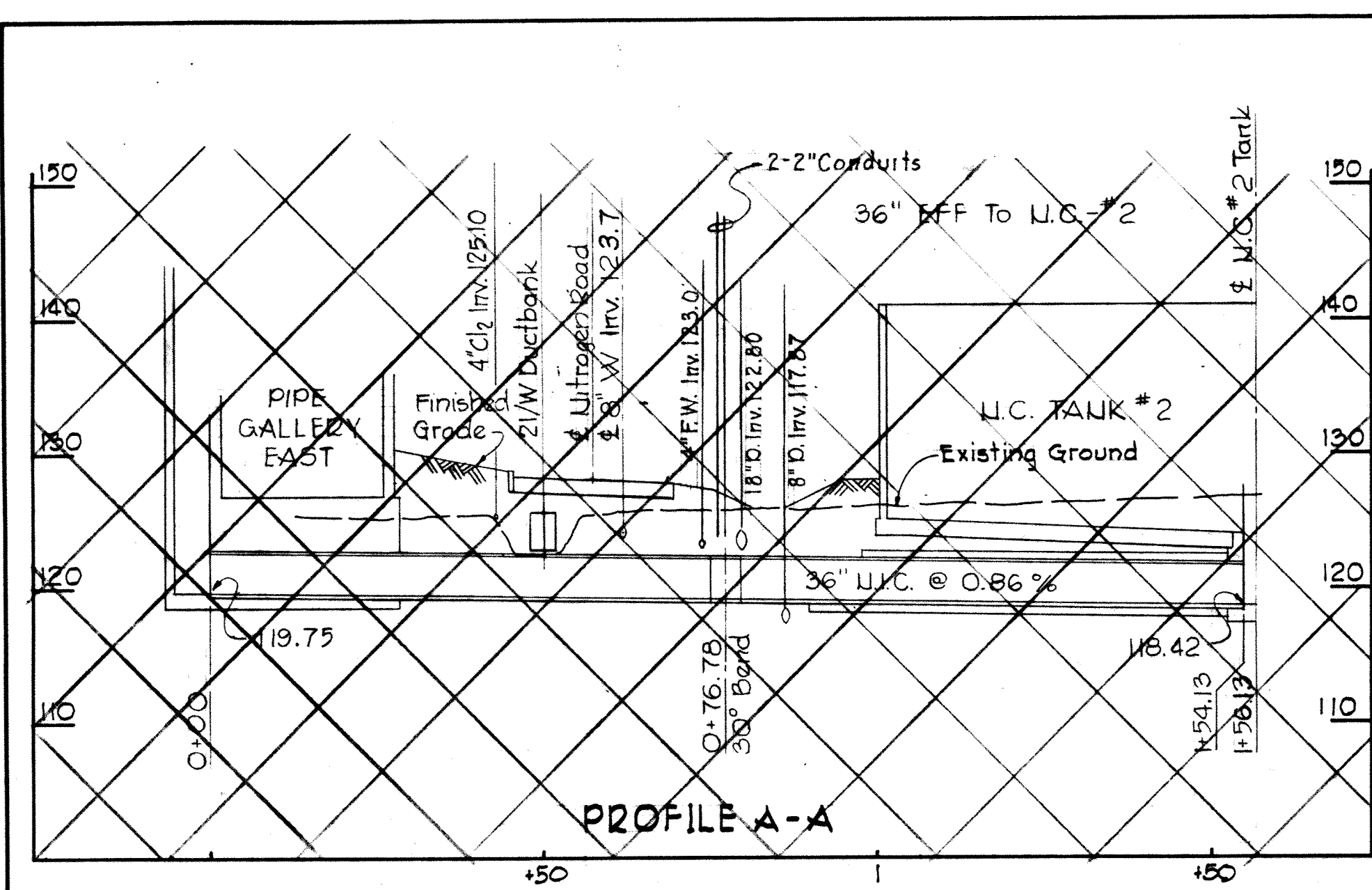


<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/30/75 W. O. Falbert CHIEF BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500 - S</p>	<p>PROFILES</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 17 OF 133 SCALE H:1"=20' V:1"=10'</p>
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W. O. G887-2

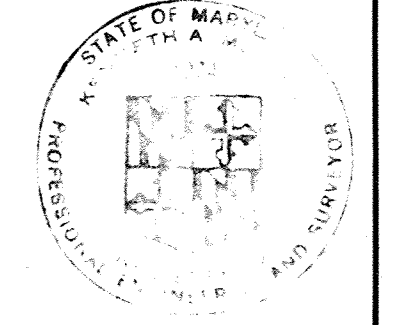
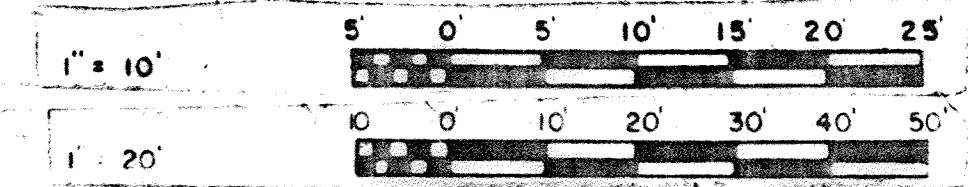
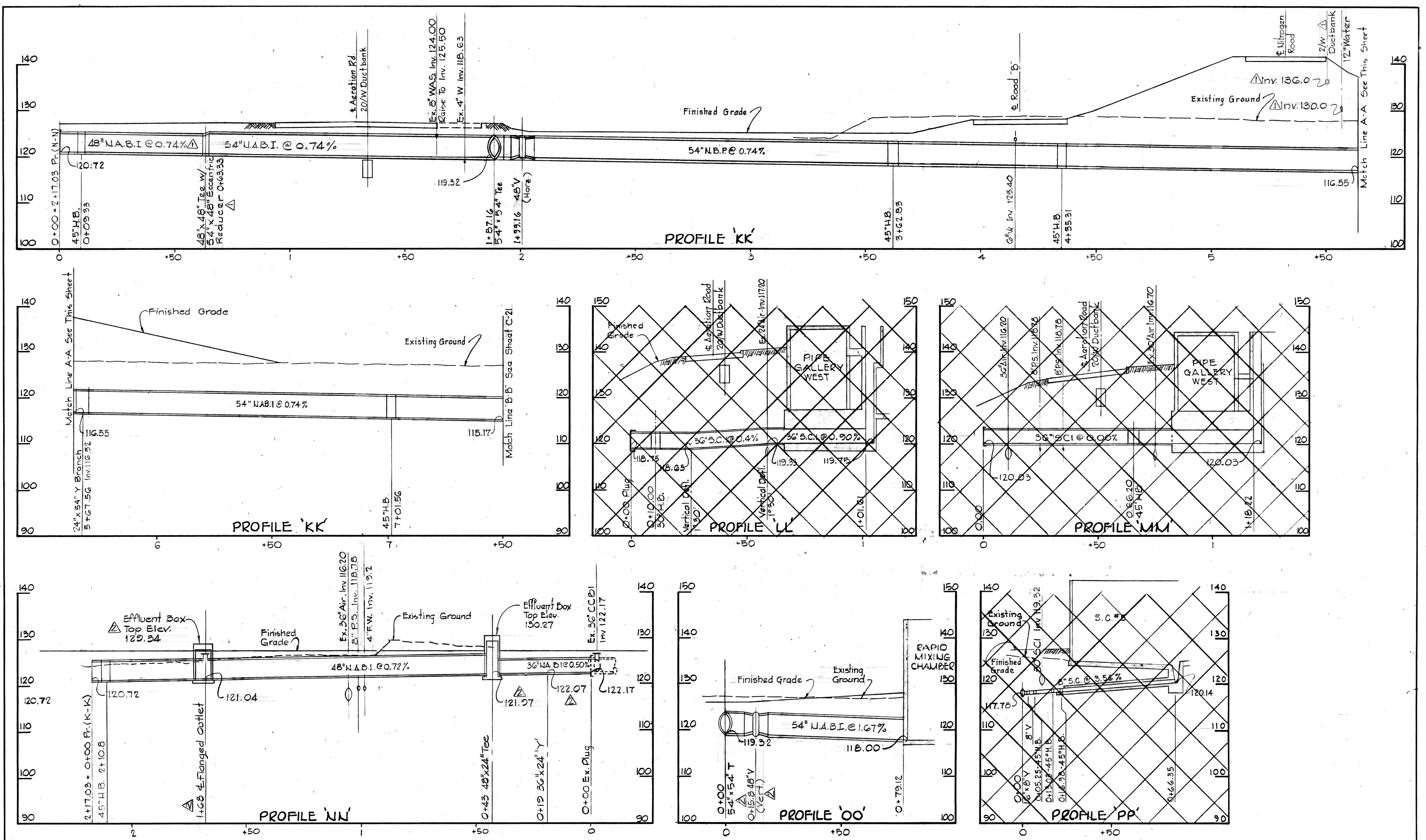
MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 18392



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>3/20/85</i> DATE <i>W. O. Lohrer</i> CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	PROFILES	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 18 OF 133 SCALE H: 1"=20' V: 1"=10'
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W. O. 6887-2



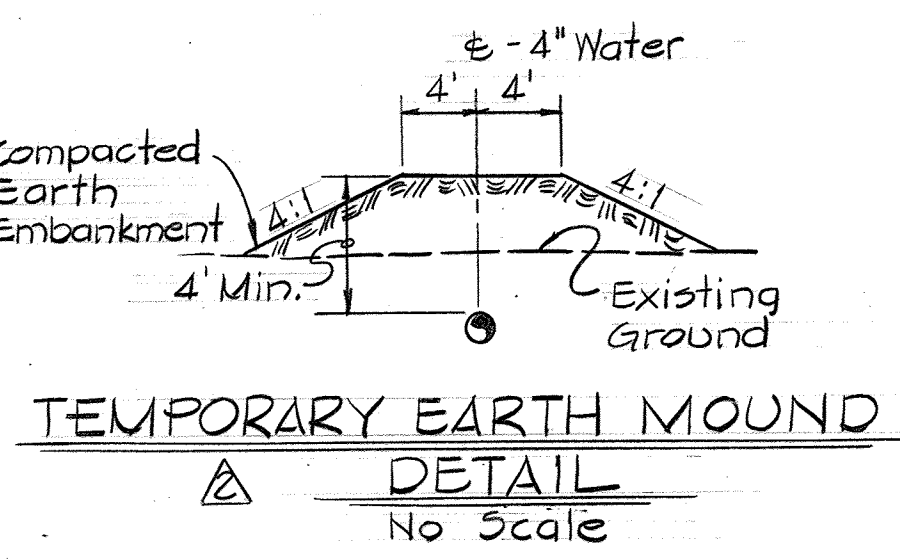
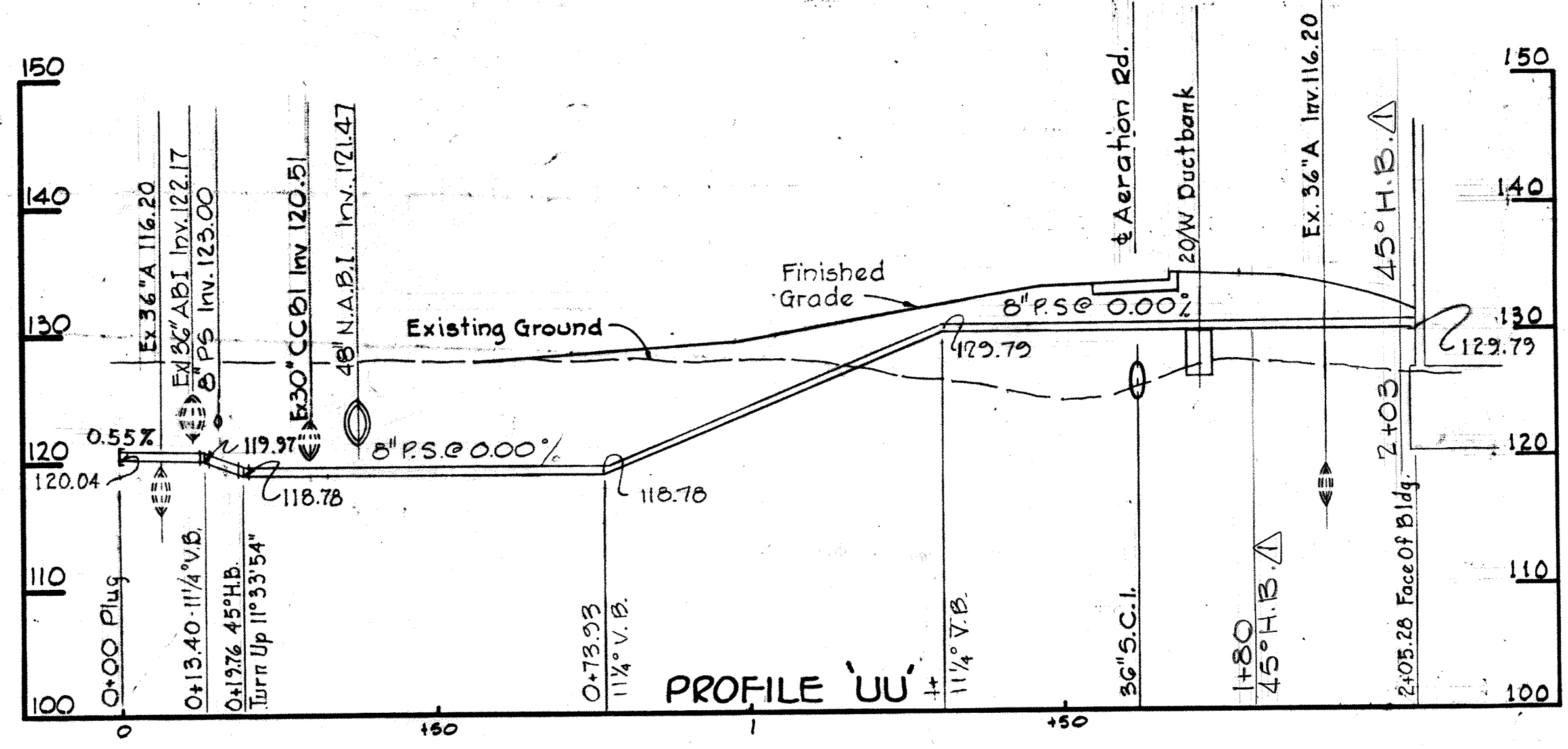
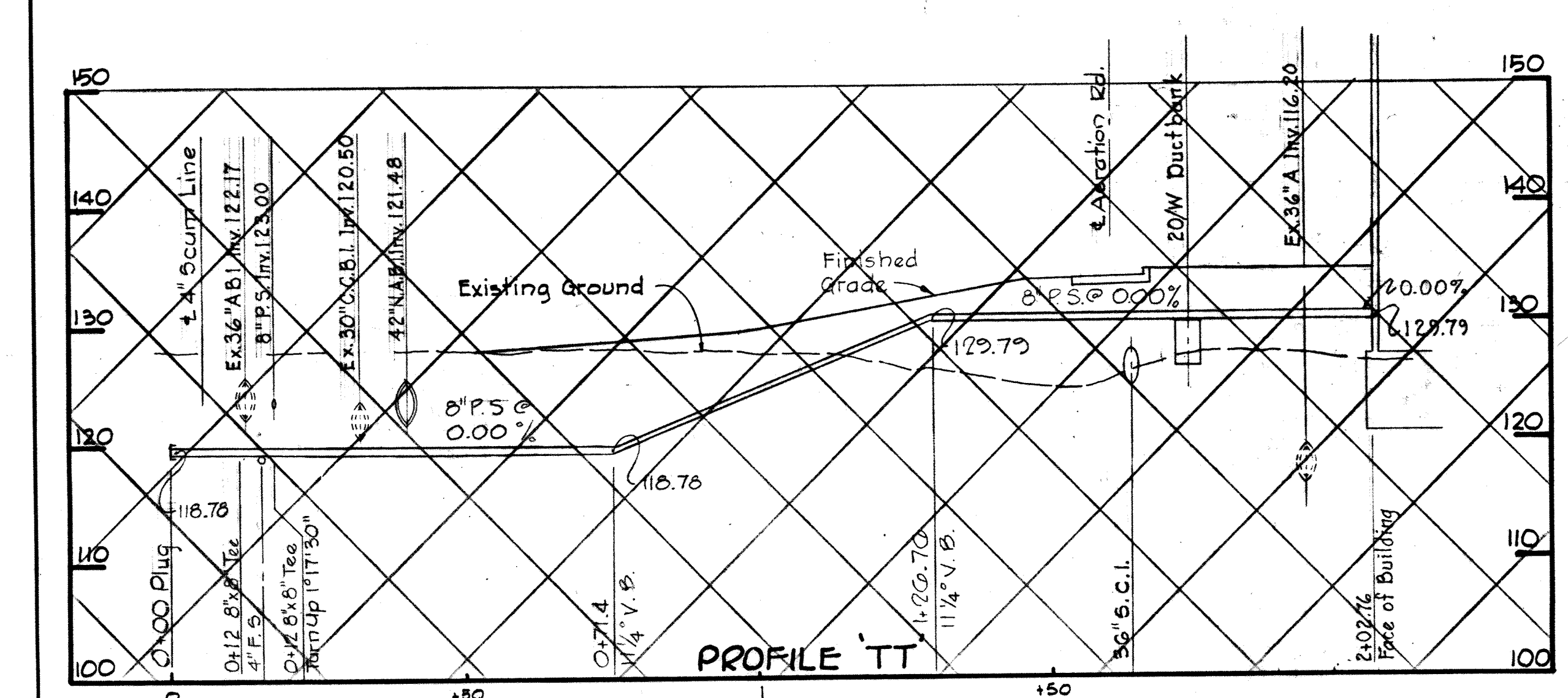
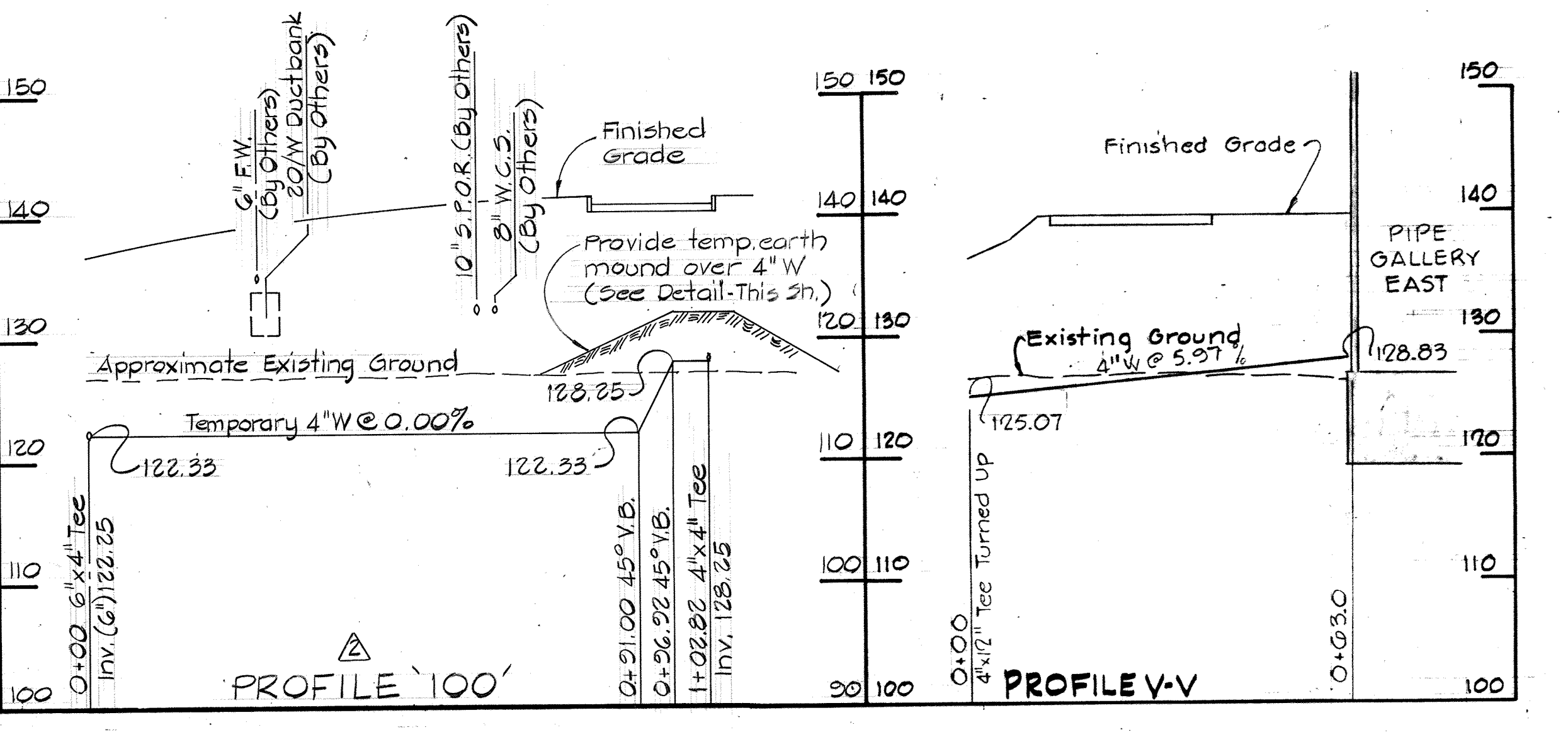
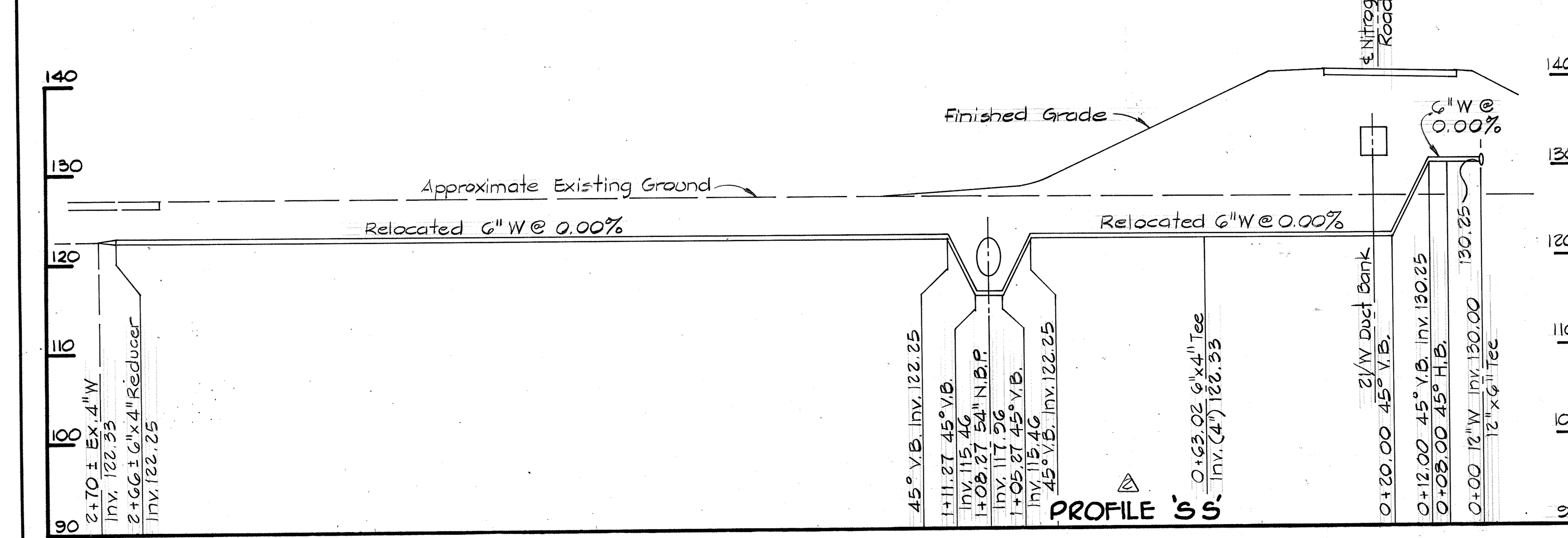
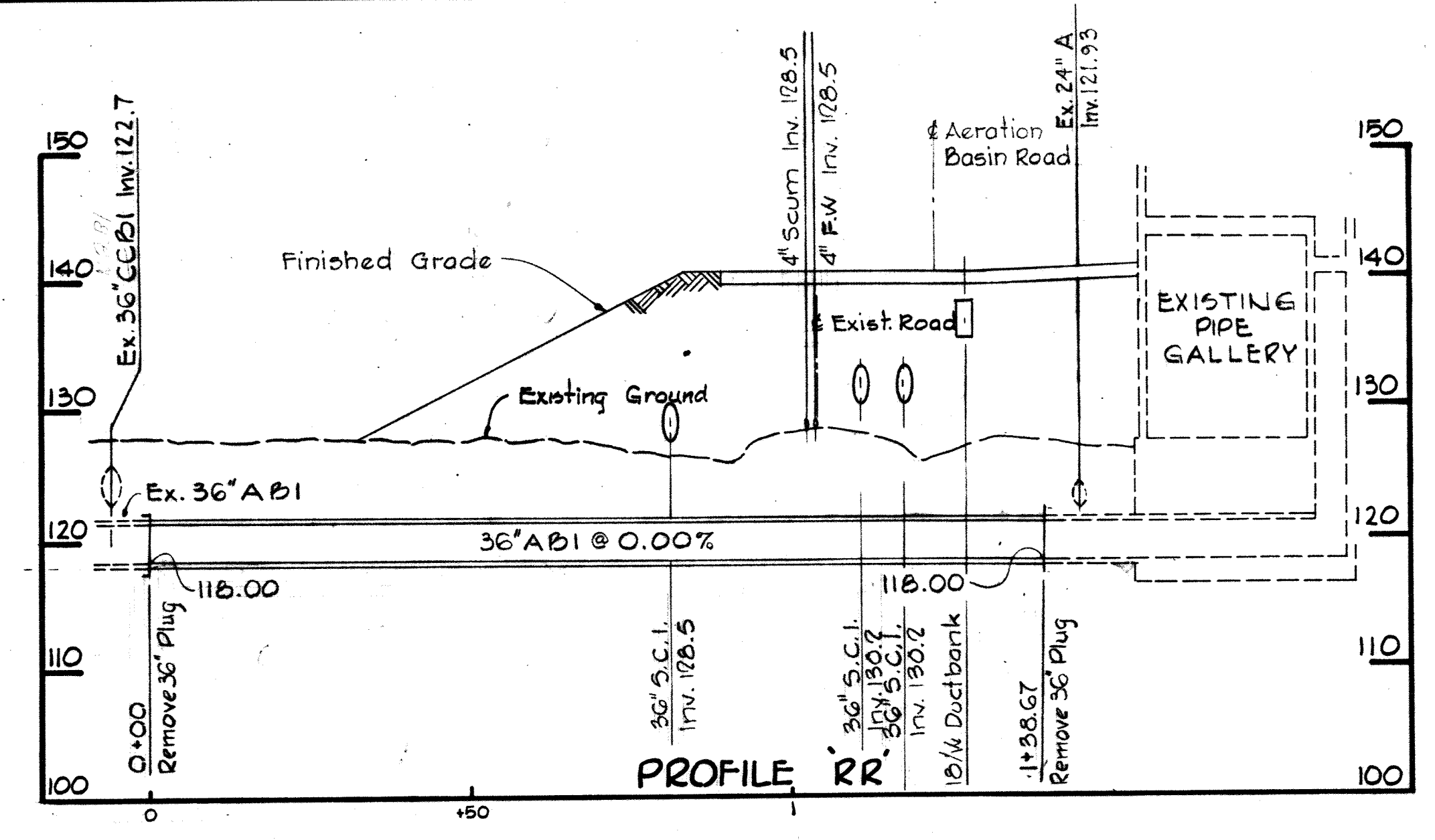
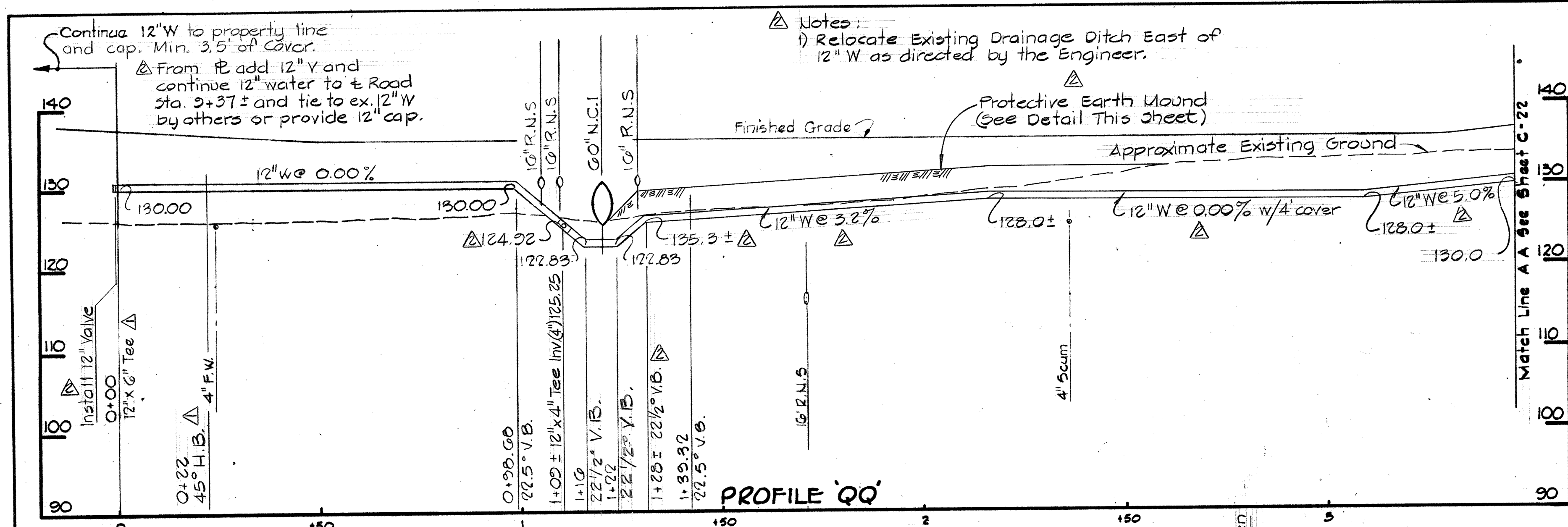
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/30/75 W.O. Fallick CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	PROFILES	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 19 OF 133 SCALE: H:1"=20', V:1"=10'
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W. O. 6887-2

SHEET C-15

MODIFIED DRAWING - MAY 6, 1982

DRAWING 44-510 18392

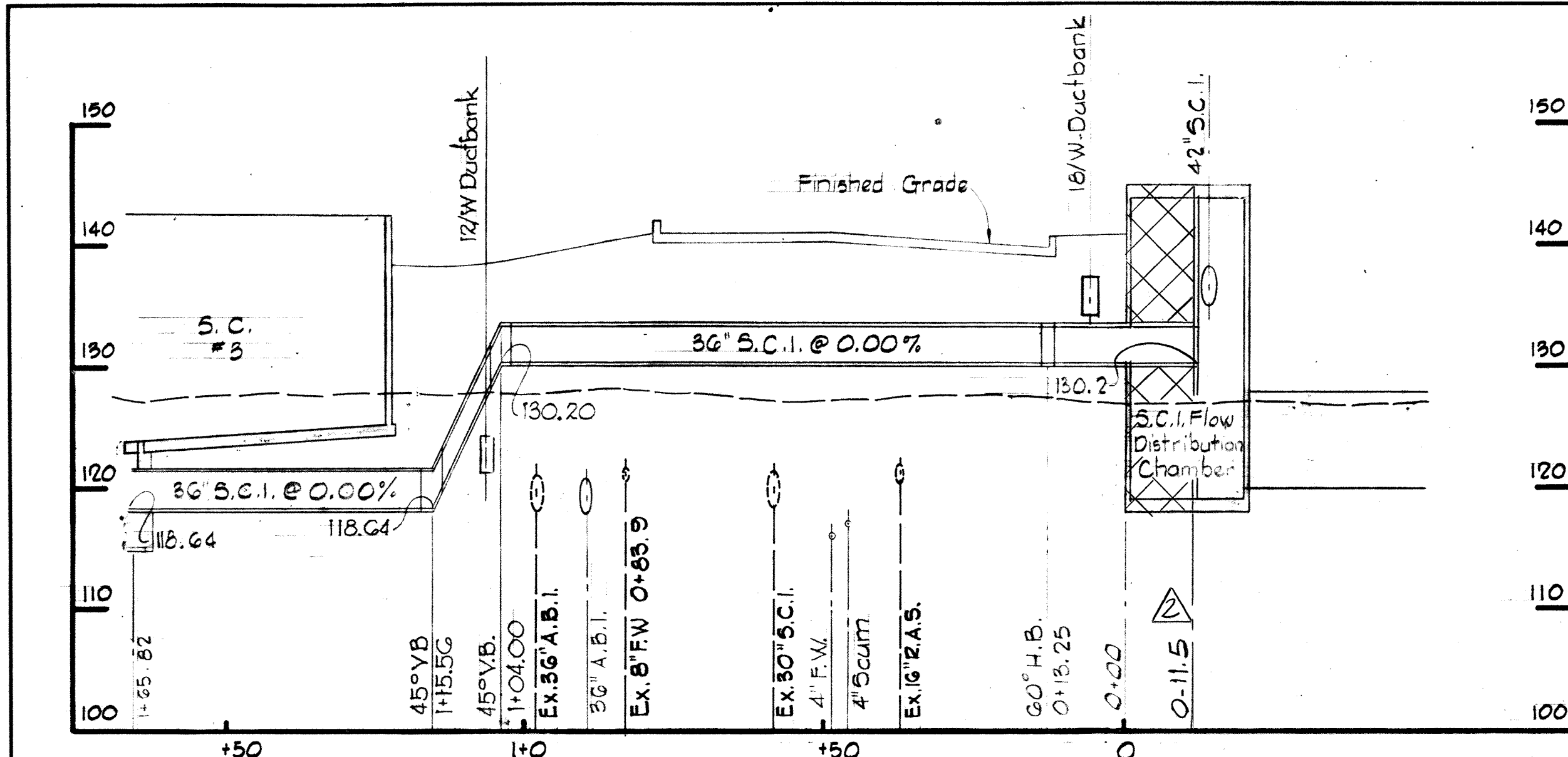


BRUNING 44510 1832

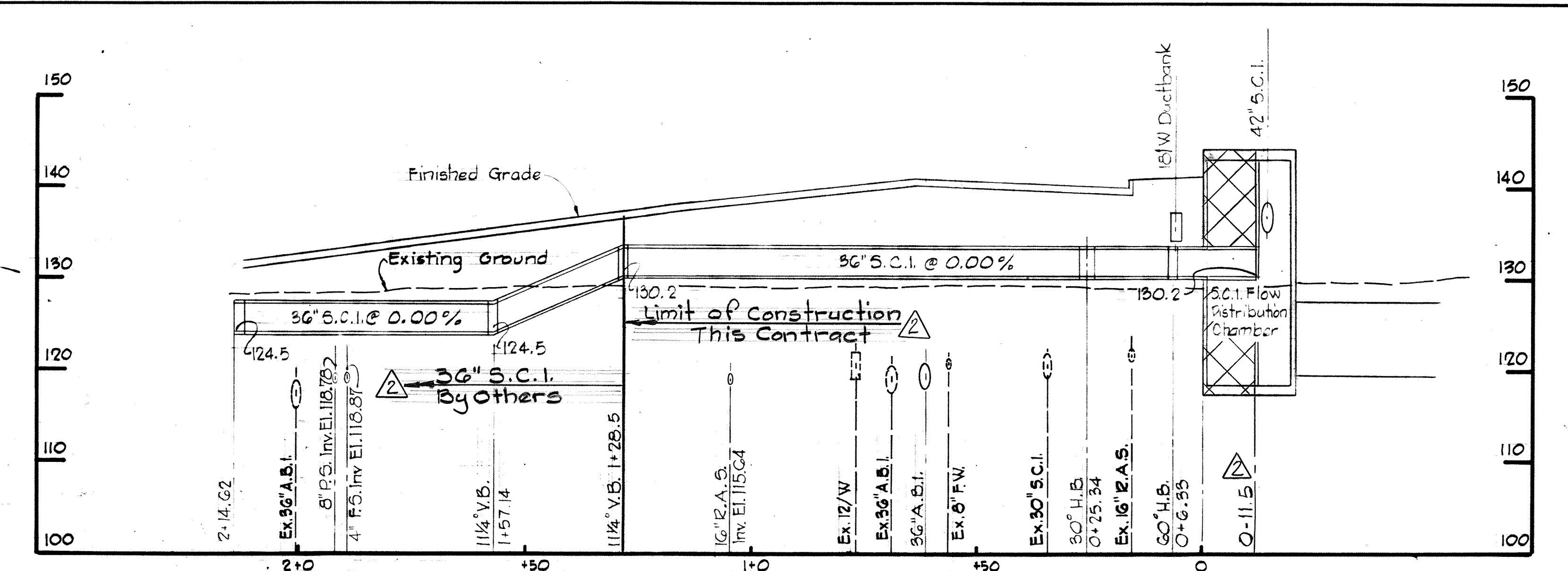
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W. O. Falbert CHIEF, BUREAU OF ENGINEERING	CONTRACT NO. 500-S	PROFILES	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 20 OF 133 SCALE: H:1"=20', V:1"=10' SHEET C-16
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W. O. 6887-2

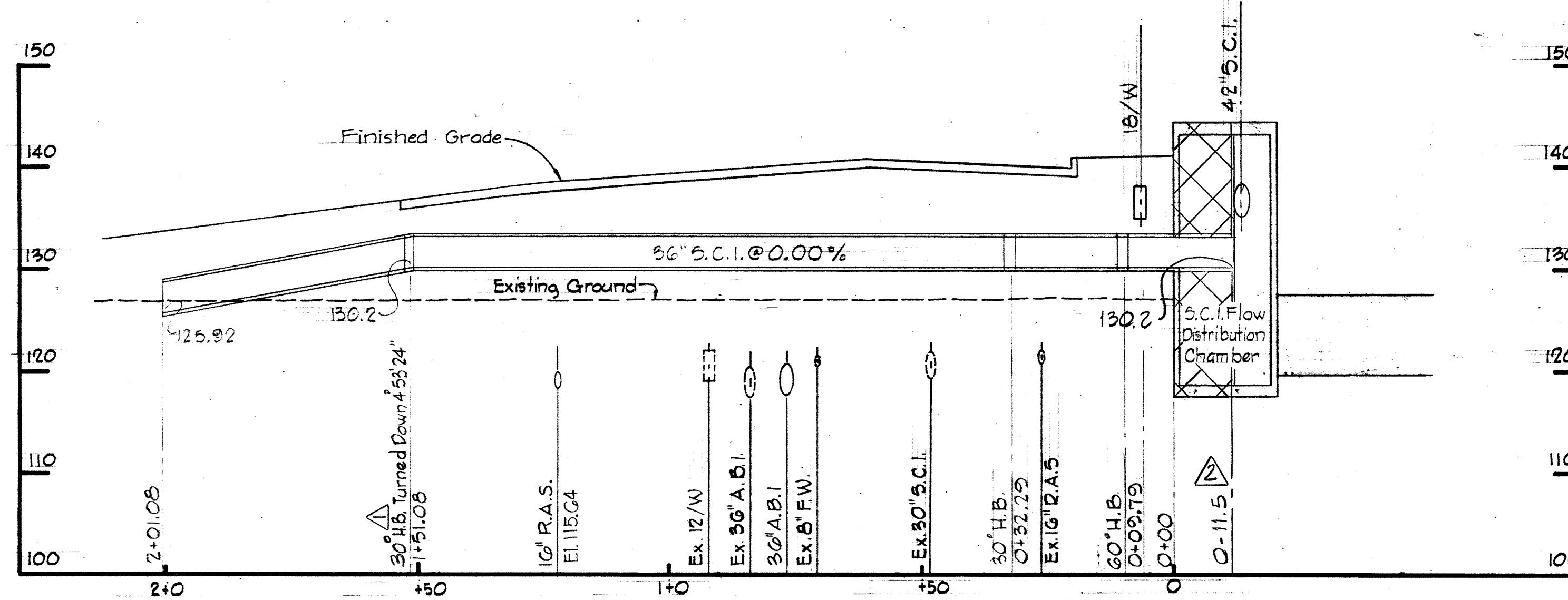
MODIFIED DRAWING - MAY 6, 1982



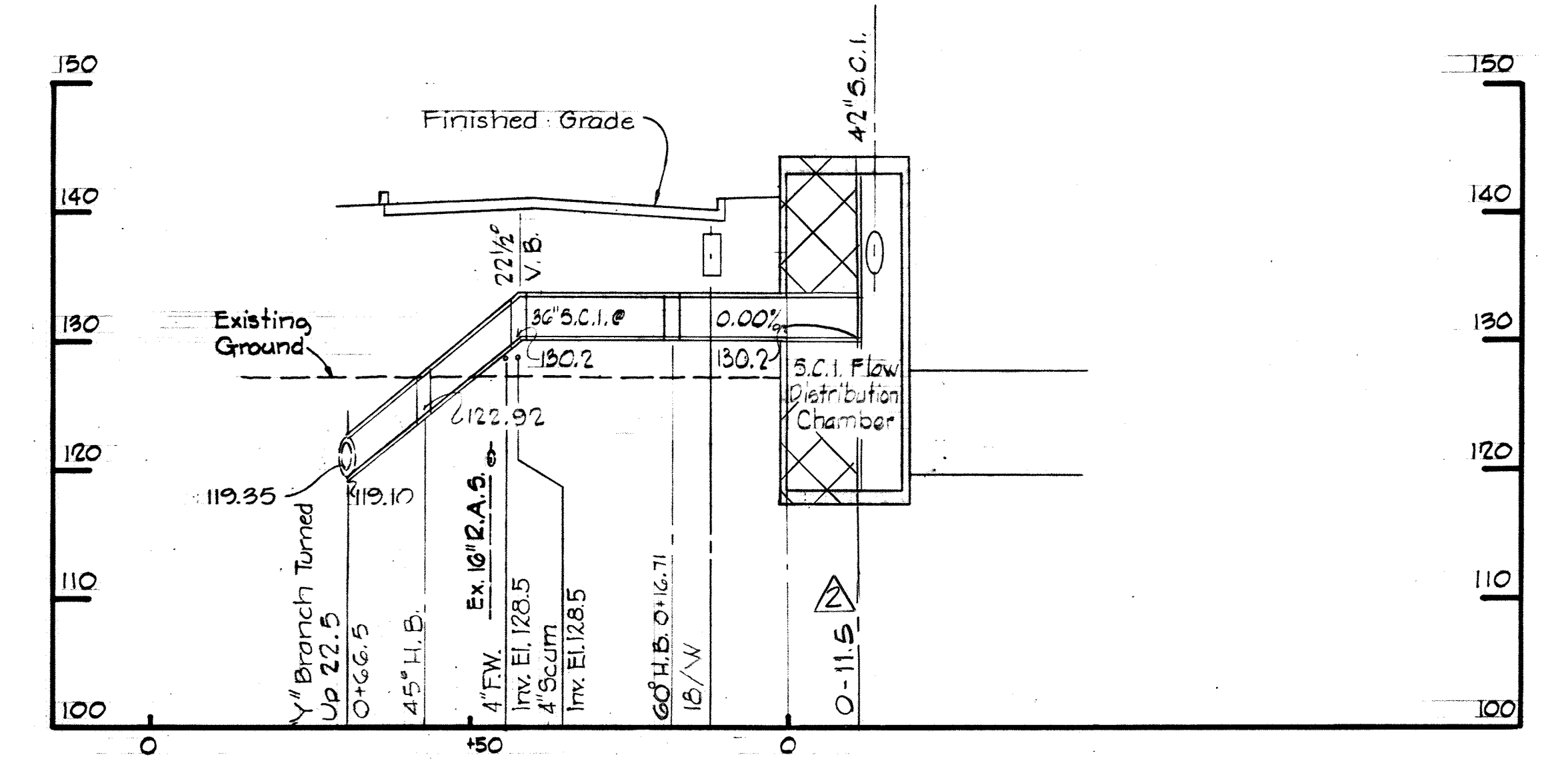
PROFILE B-1



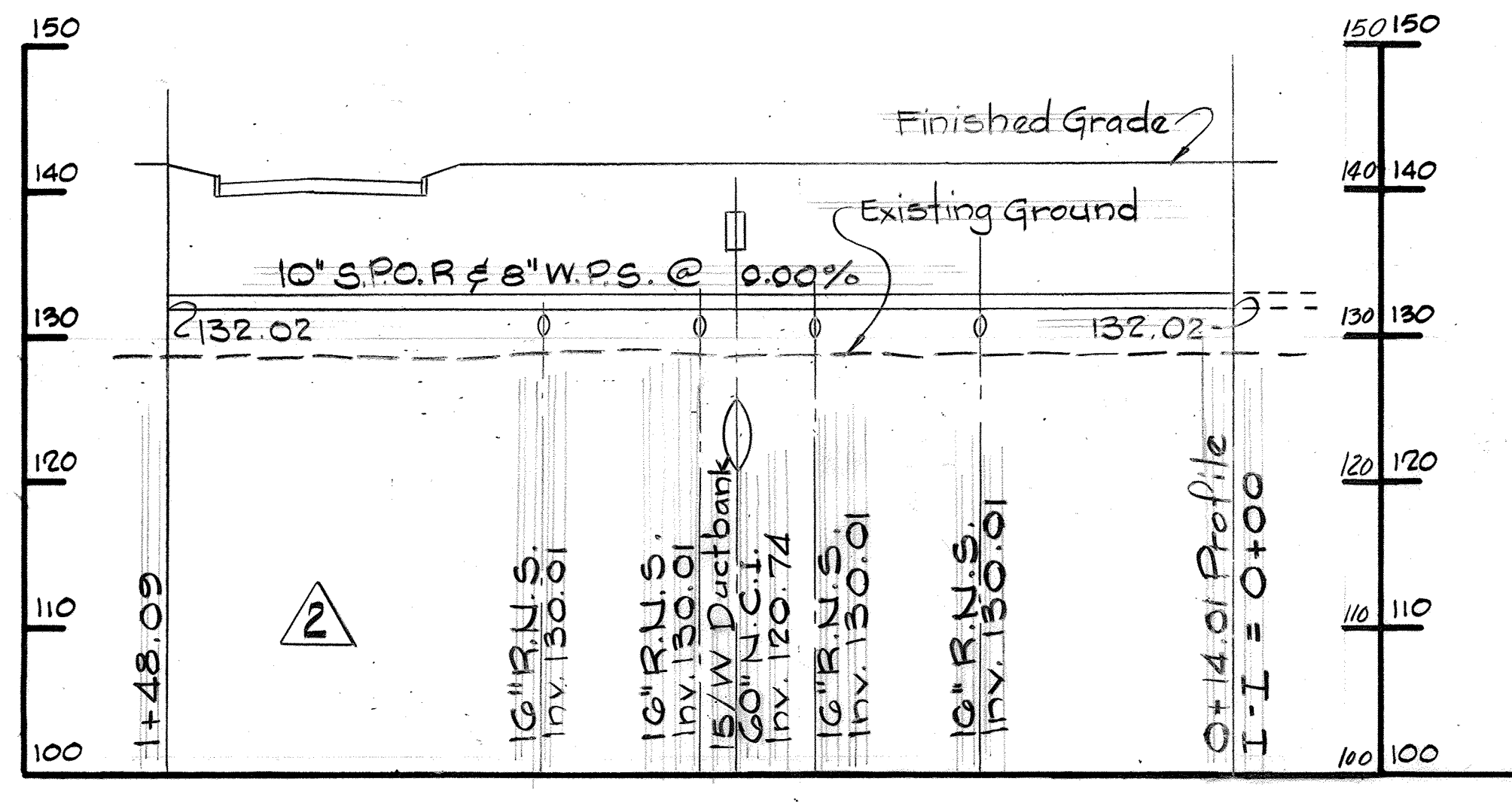
PROFILE B-2



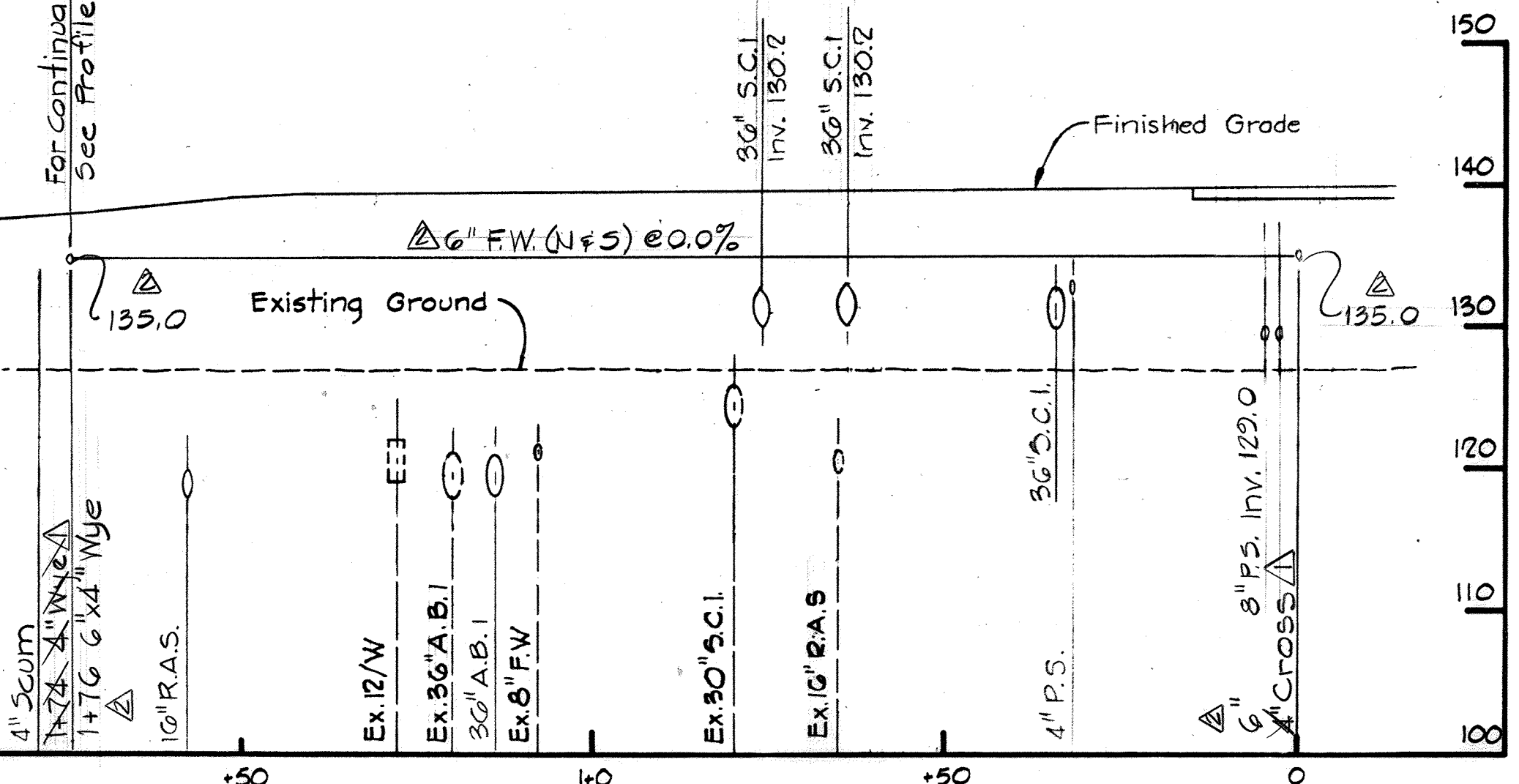
PROFILE B-3



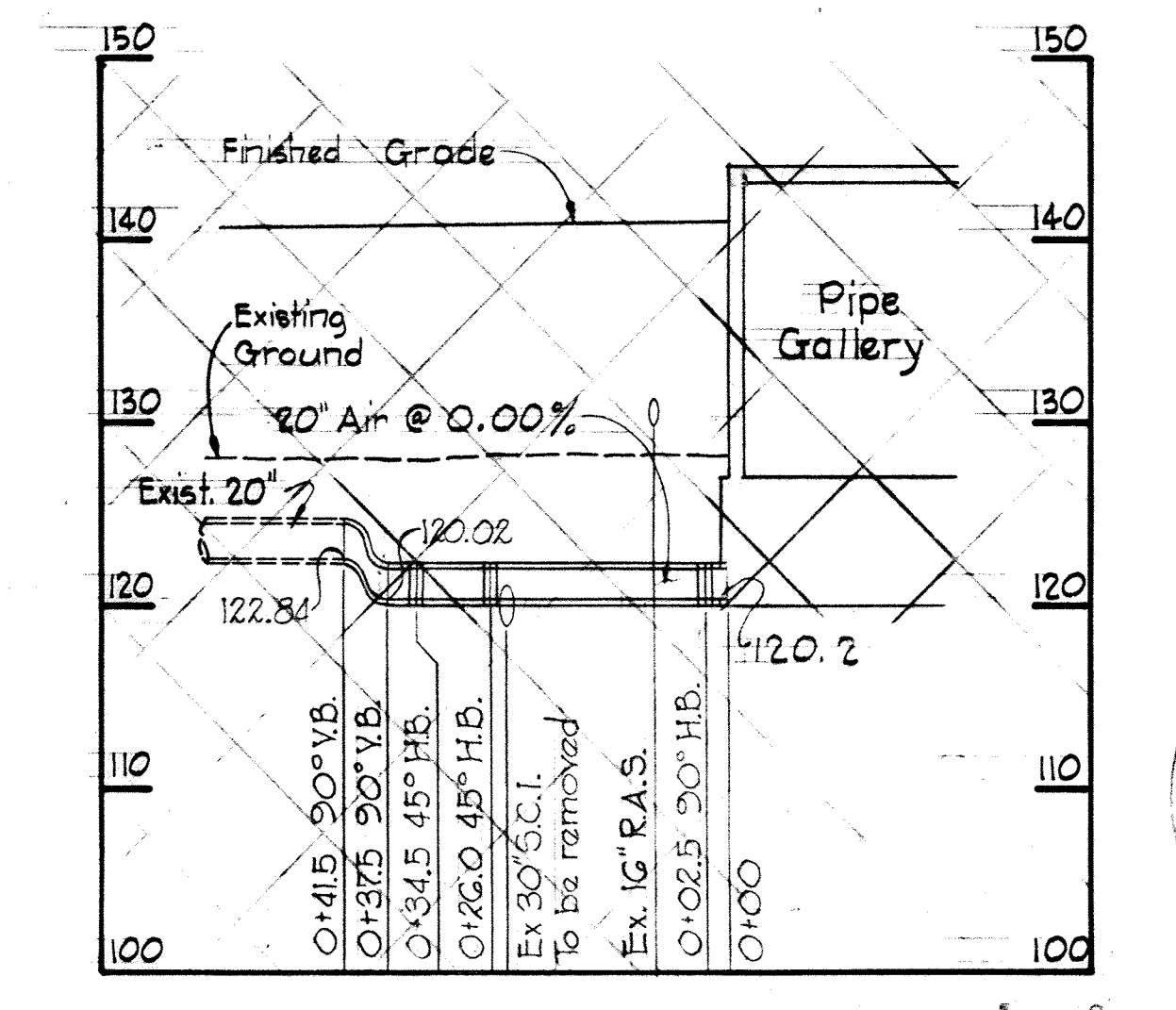
PROFILE B-4



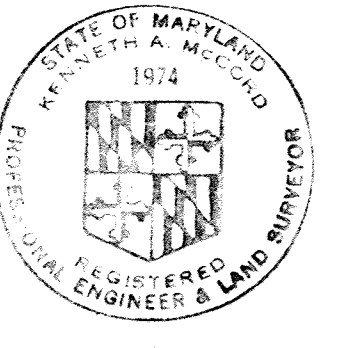
PROFILE "100"



PROFILE B-6



PROFILE B-7



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-26-77 DATE
W.O. Albert CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

PROFILES

SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4

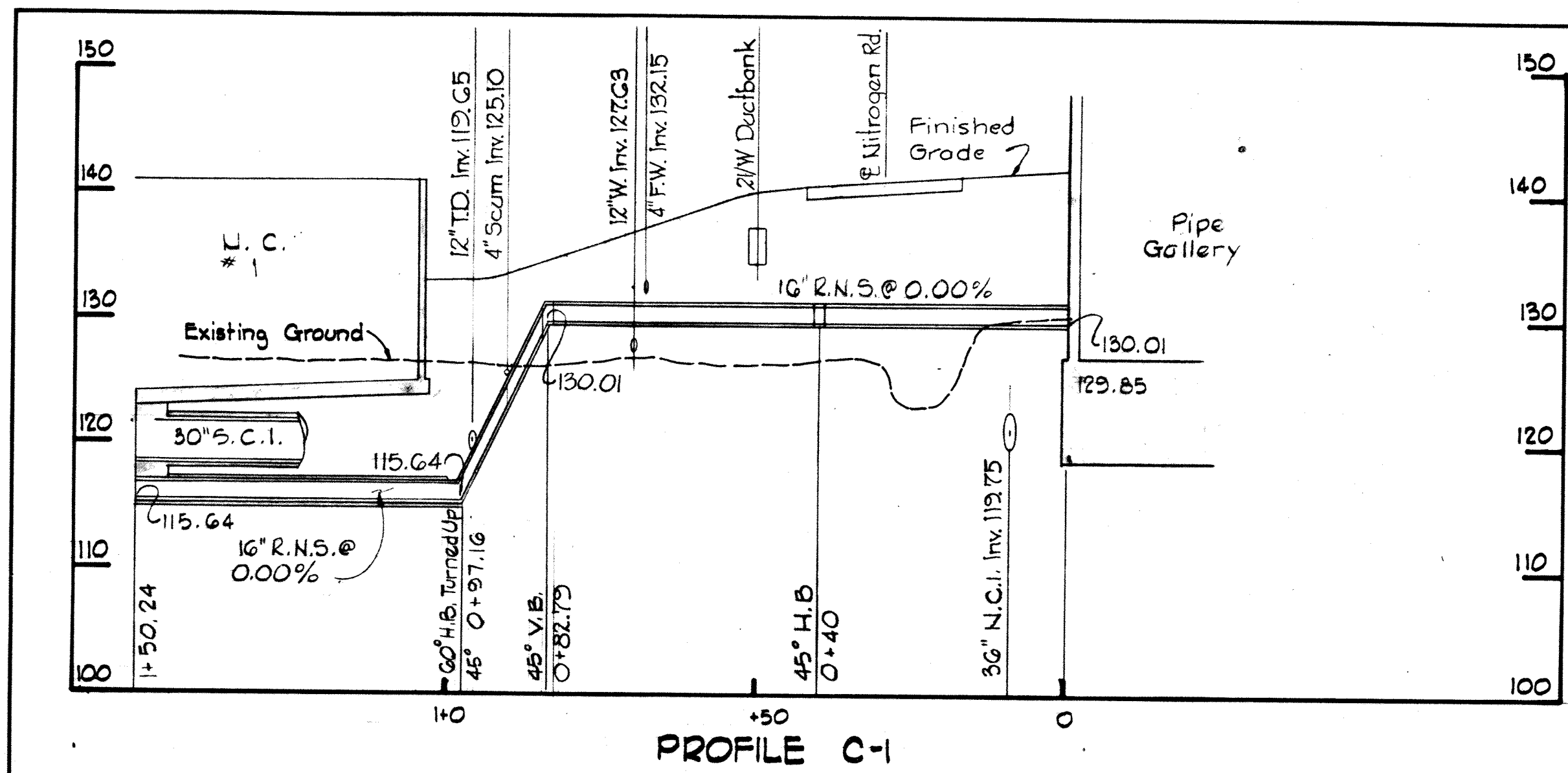
DRAWING NO. 21 OF 133

SCALE H:1"=20' V:1"=10'

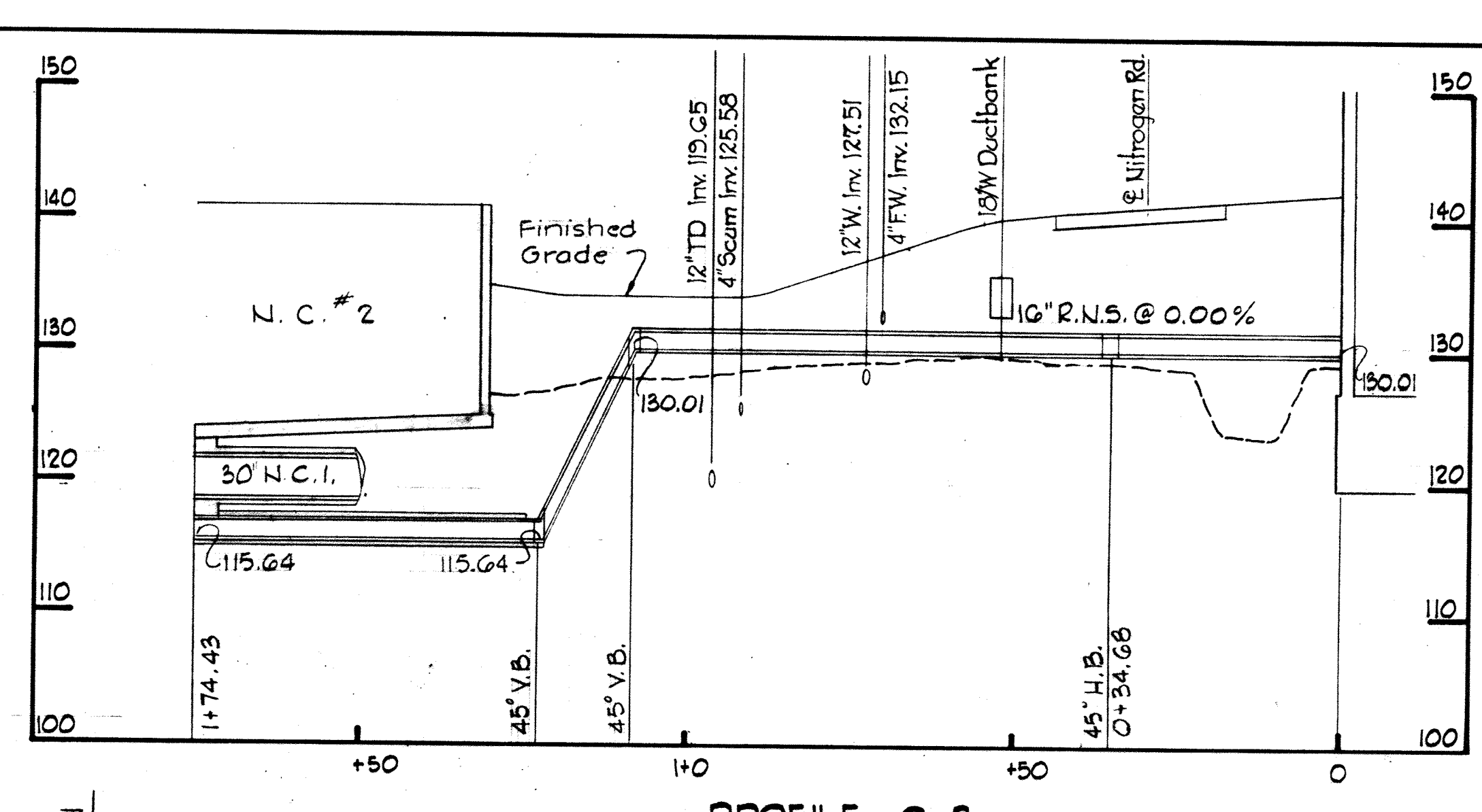
SHEET C-17

MODIFIED DRAWING - MAY 6, 1982

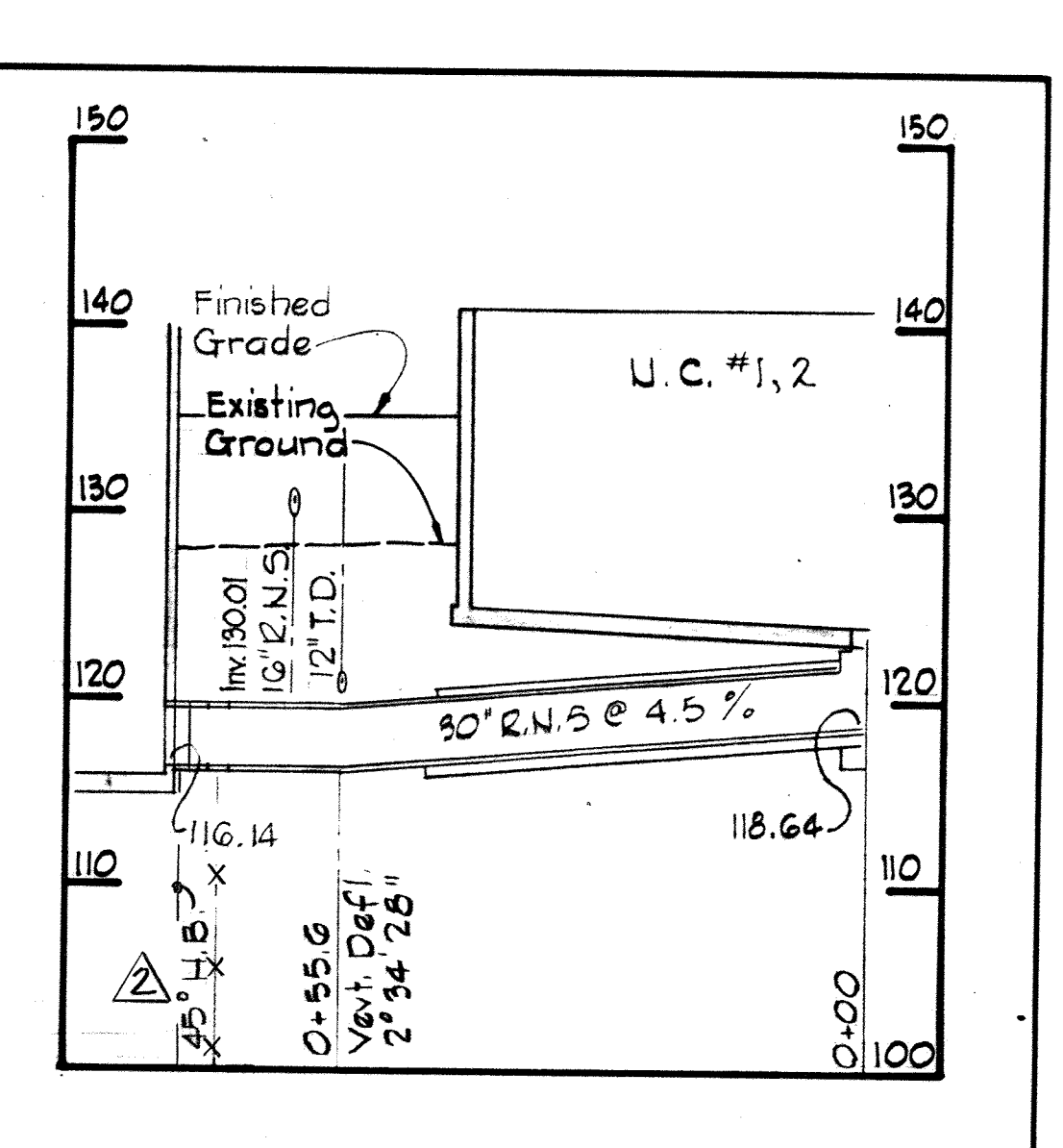
BRUNING 44-510-32872



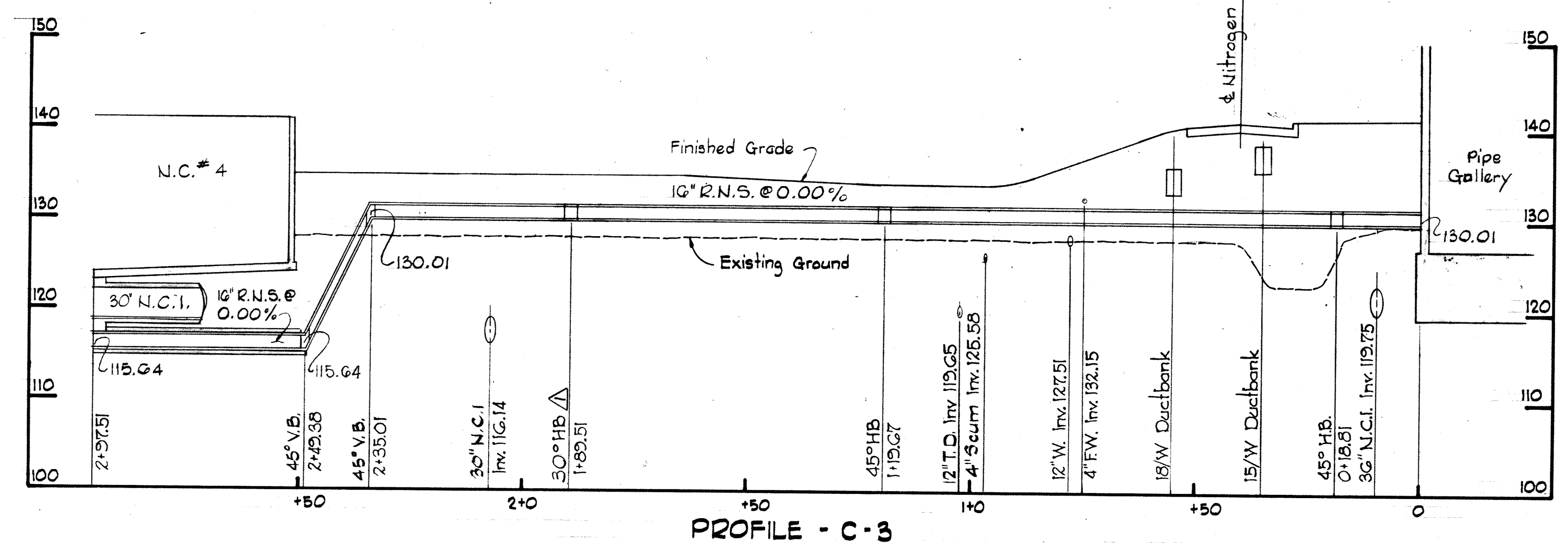
PROFILE C-1



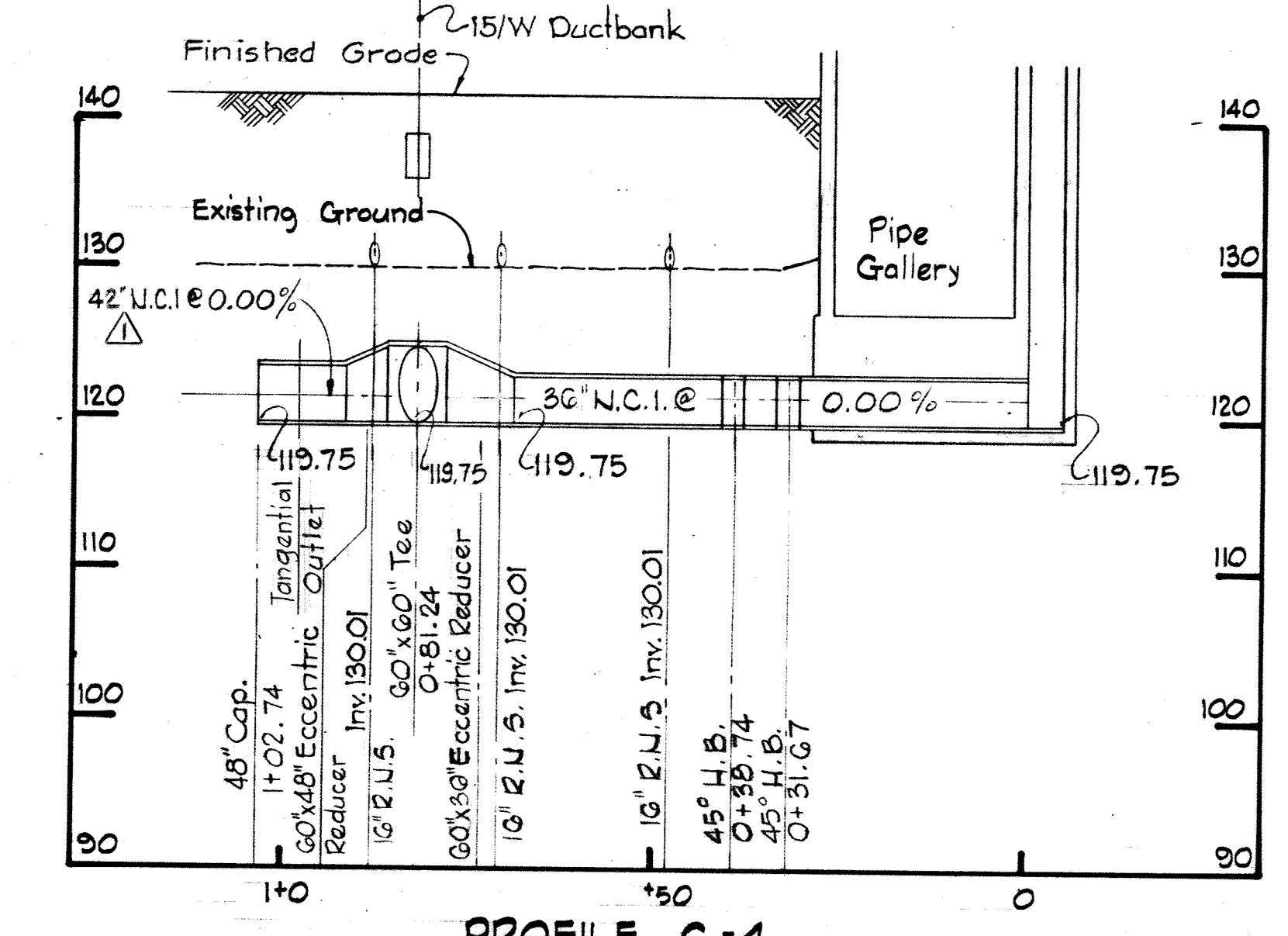
PROFILE C-2



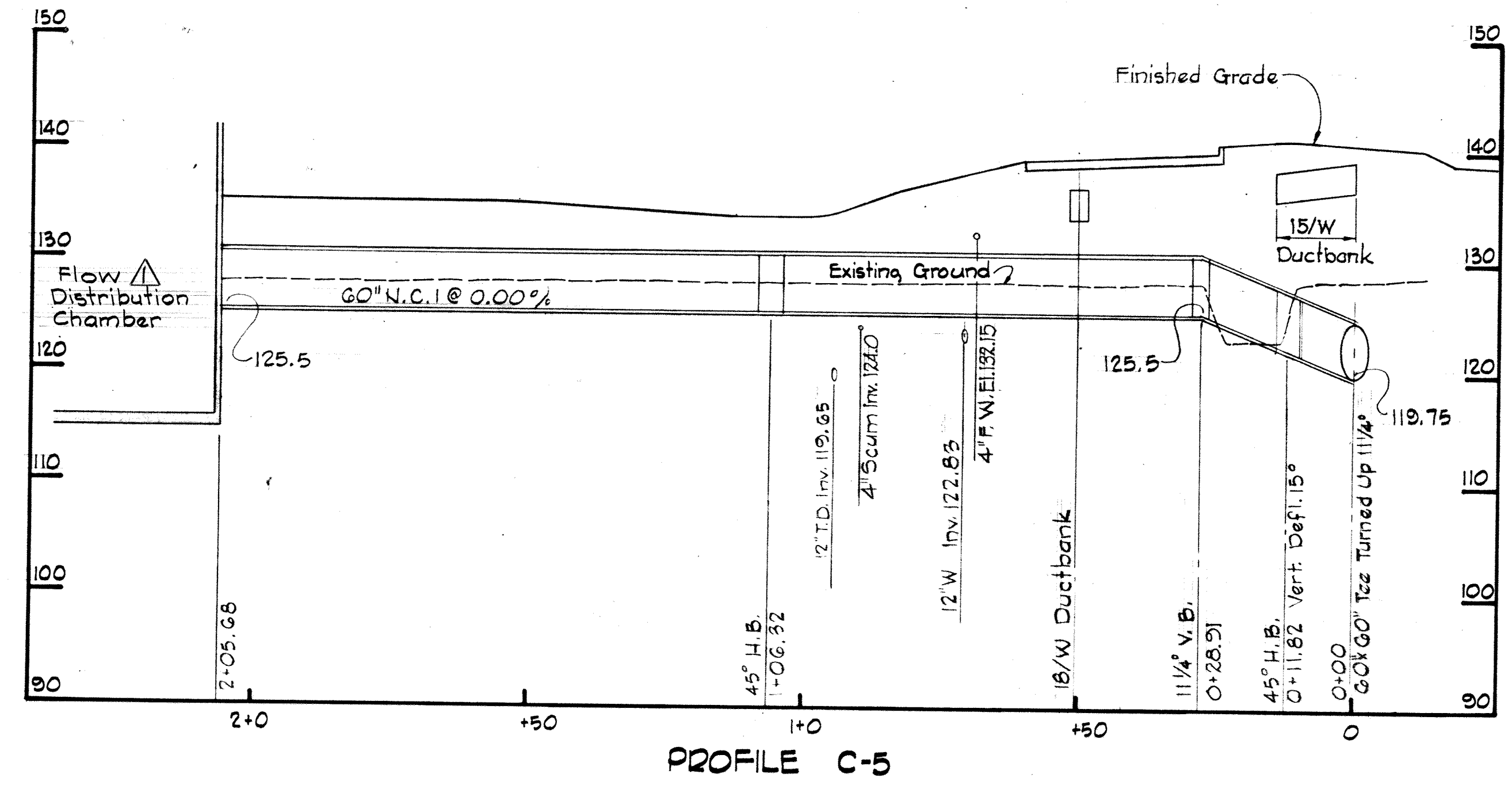
PROFILE C-2A



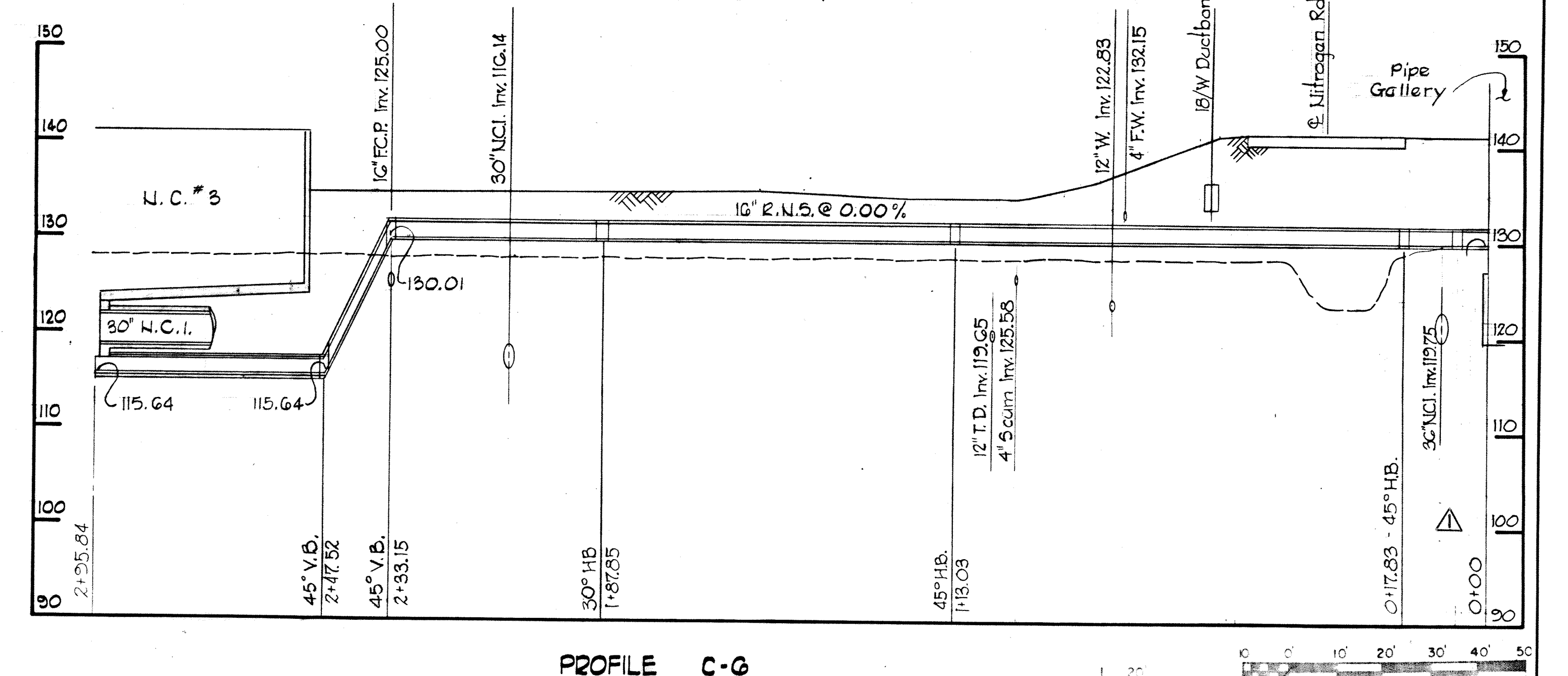
PROFILE C-3



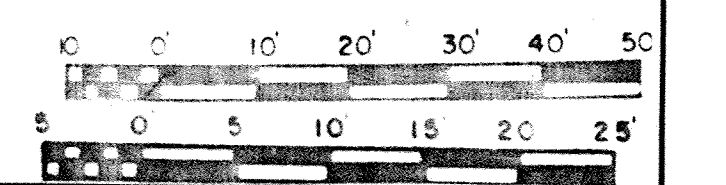
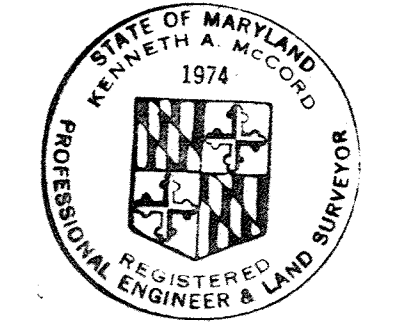
PROFILE C-4



PROFILE C-5



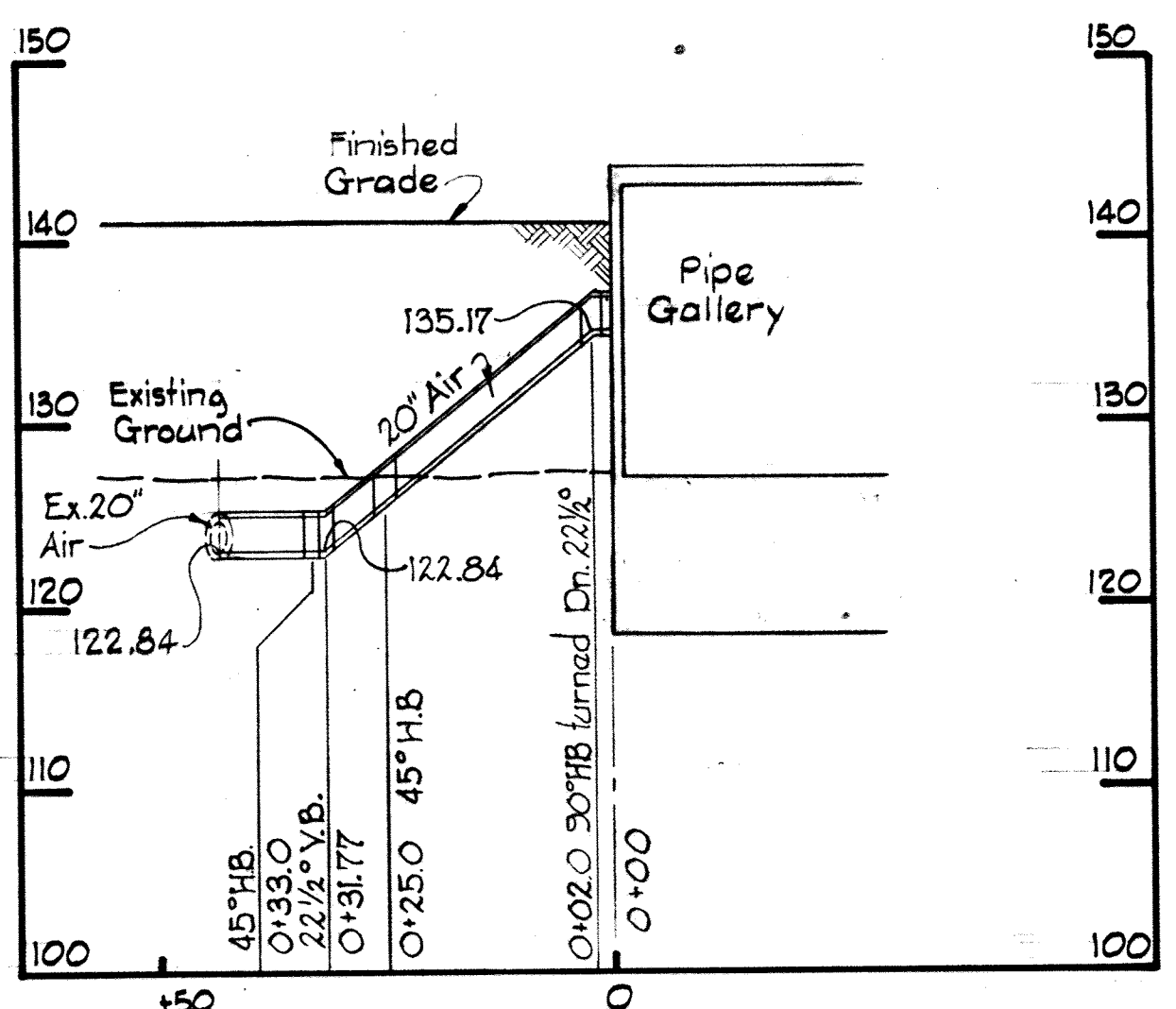
PROFILE C-6



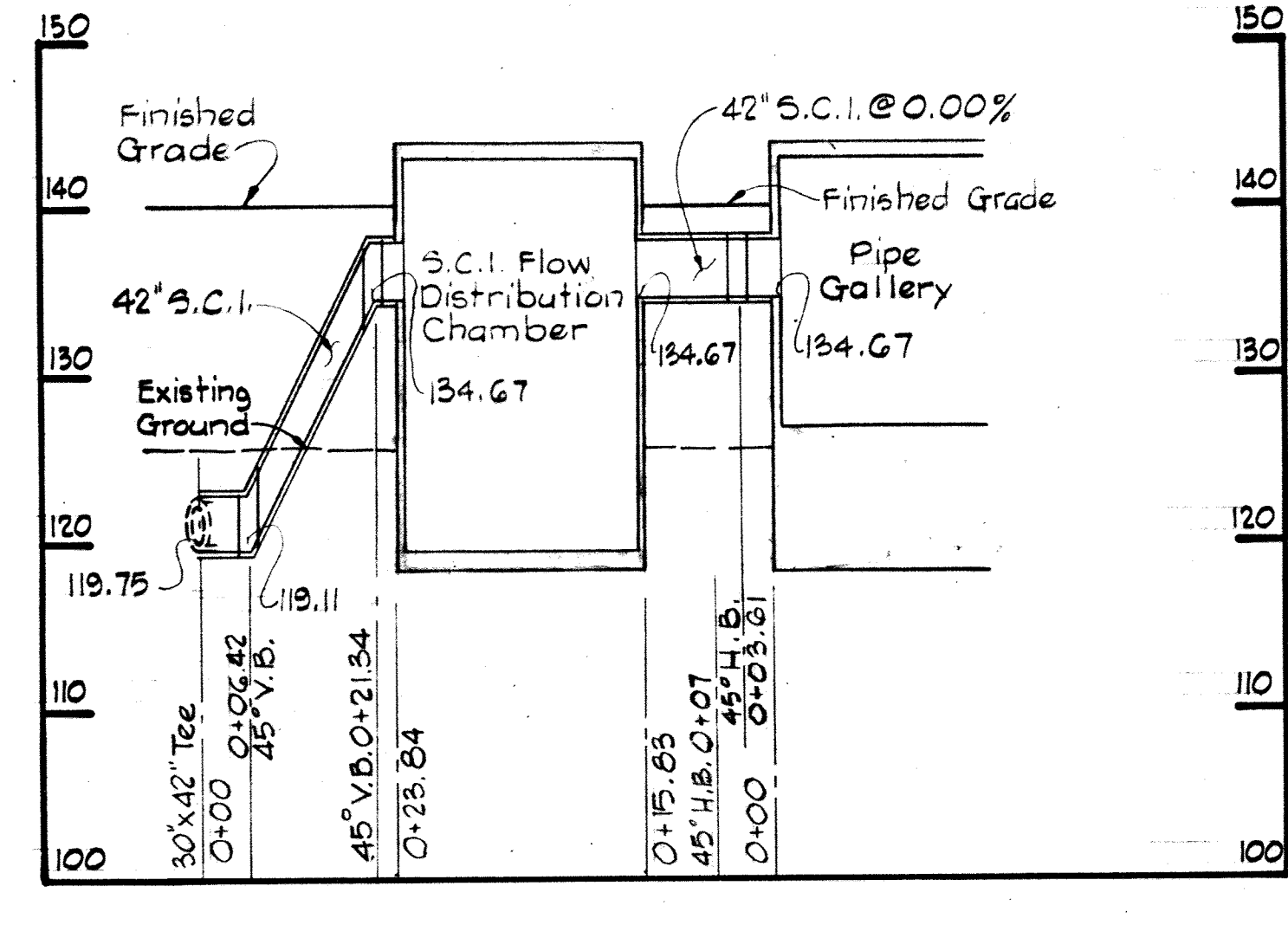
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 <i>WOLBERT</i> DATE CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	PROFILES	SAVAGE WASTE WATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 22	SCALE H: 1"=20' V: 1"=10'
					OF 133	

W. O.

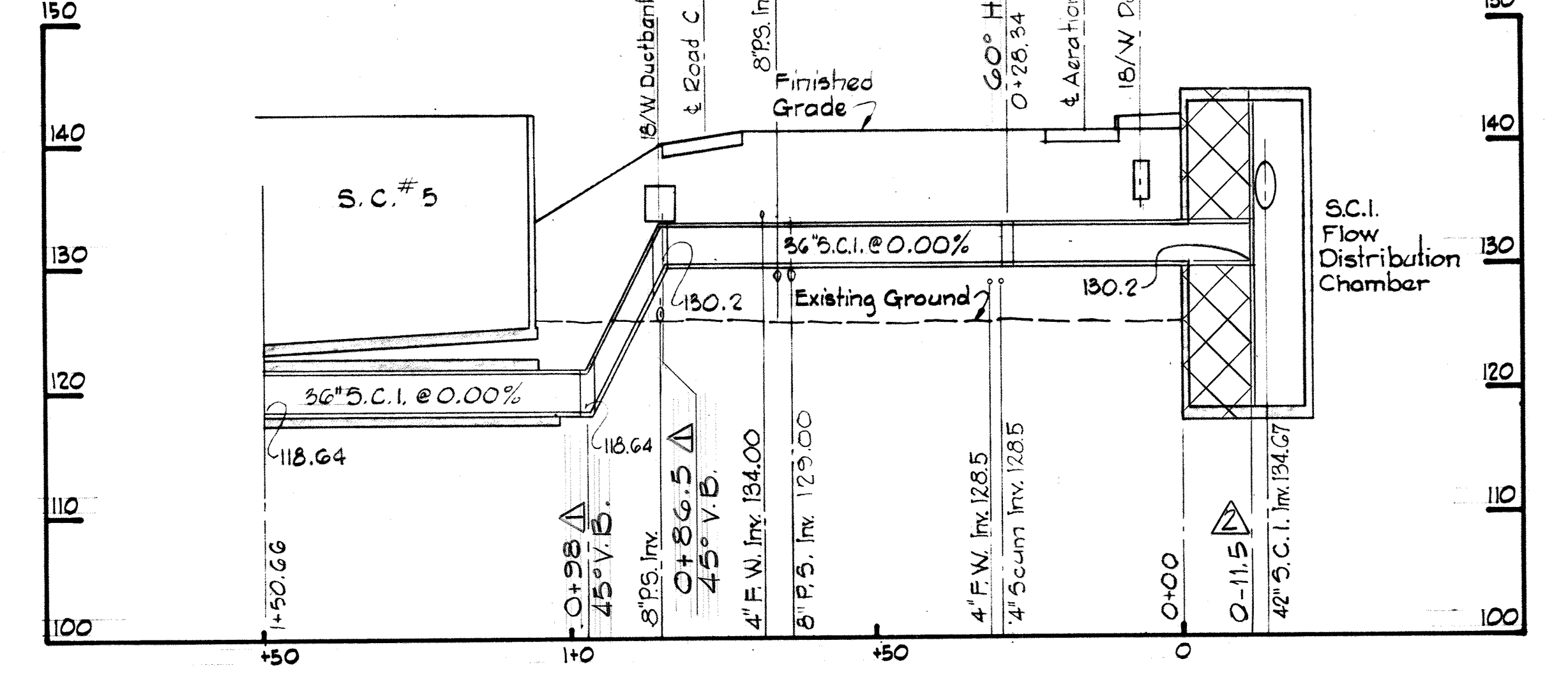
BRUNING 44-510 1892



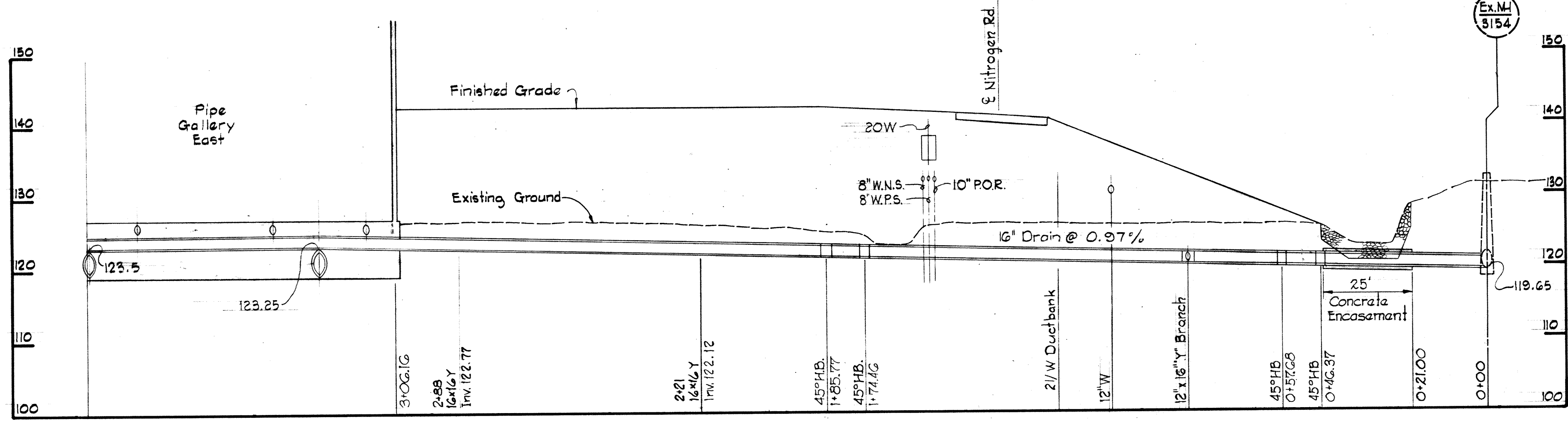
PROFILE D-1



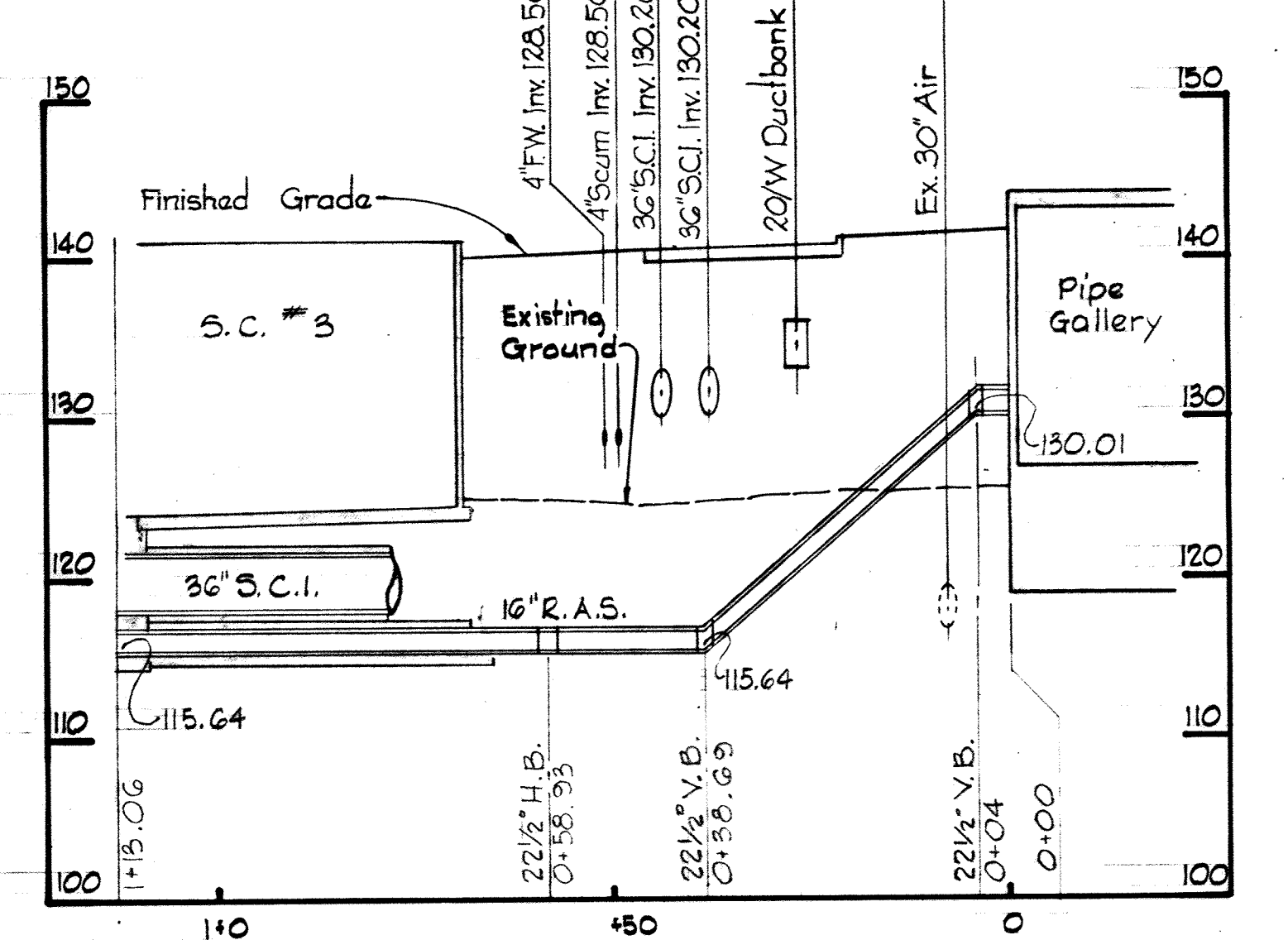
PROFILE D-2



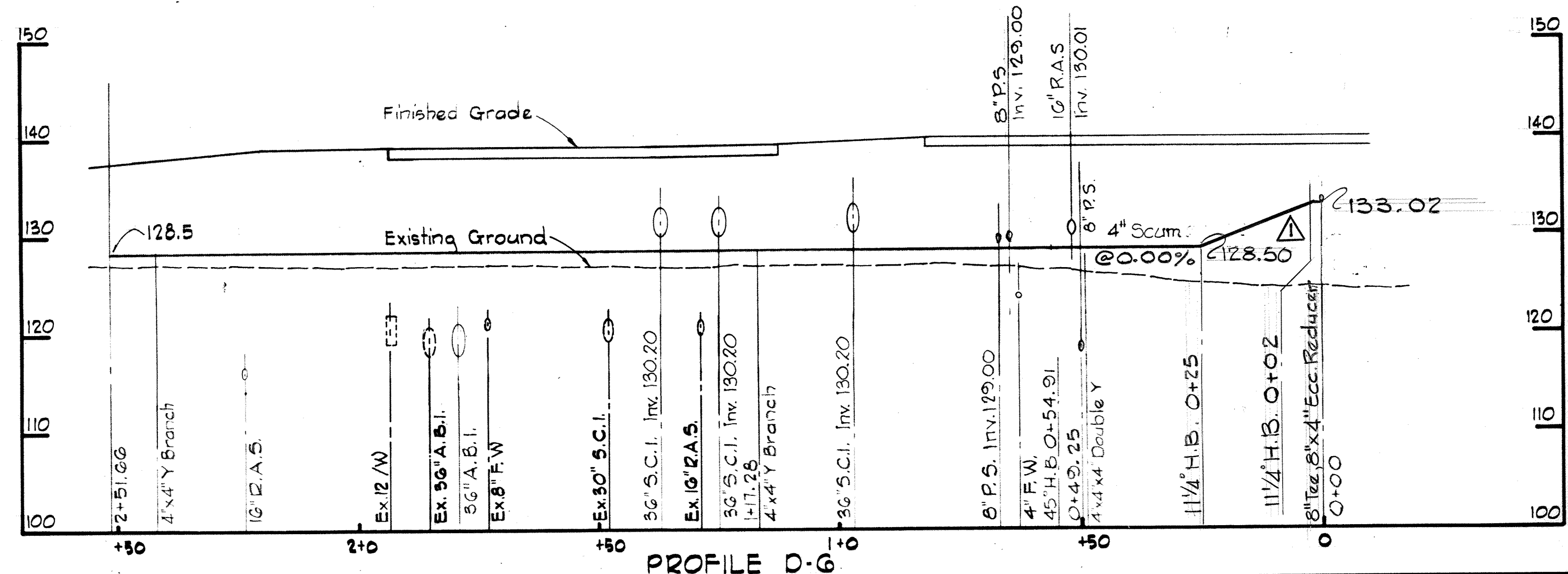
PROFILE D-3



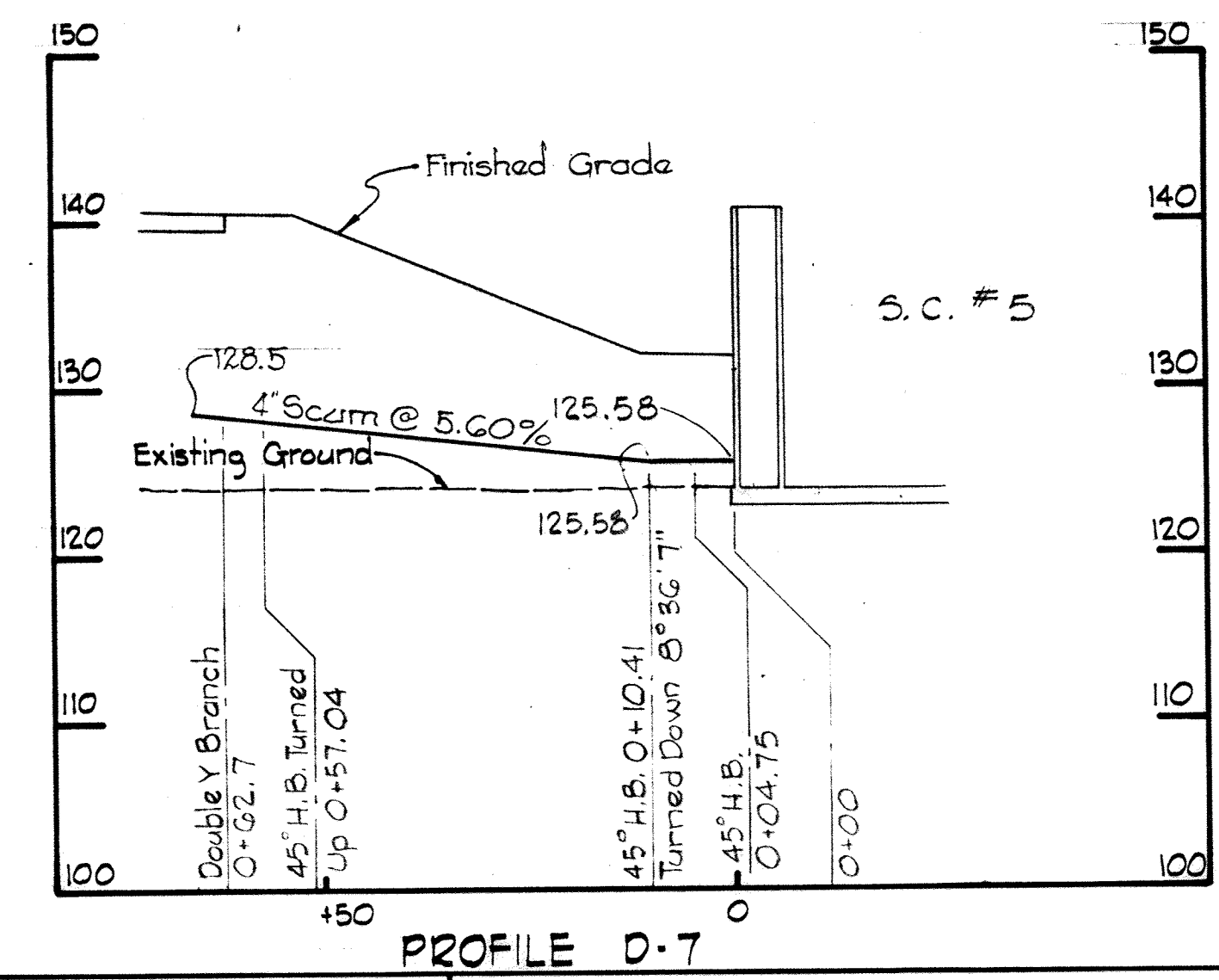
PROFILE D-4



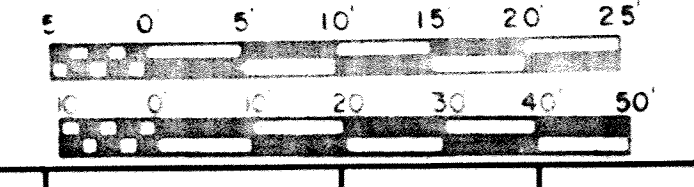
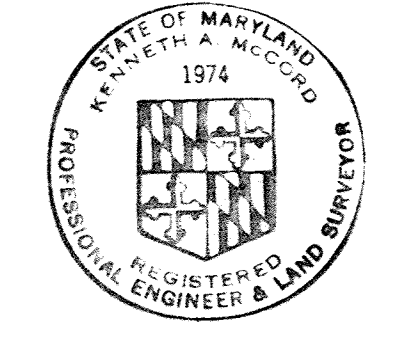
PROFILE D-5



PROFILE D-6



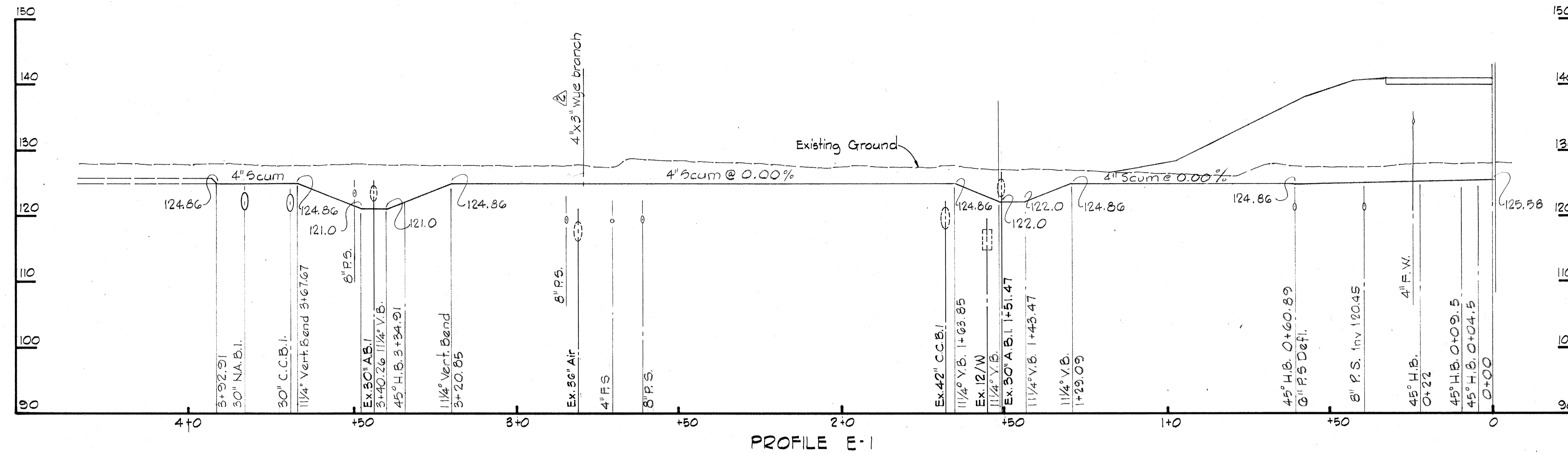
PROFILE D-7



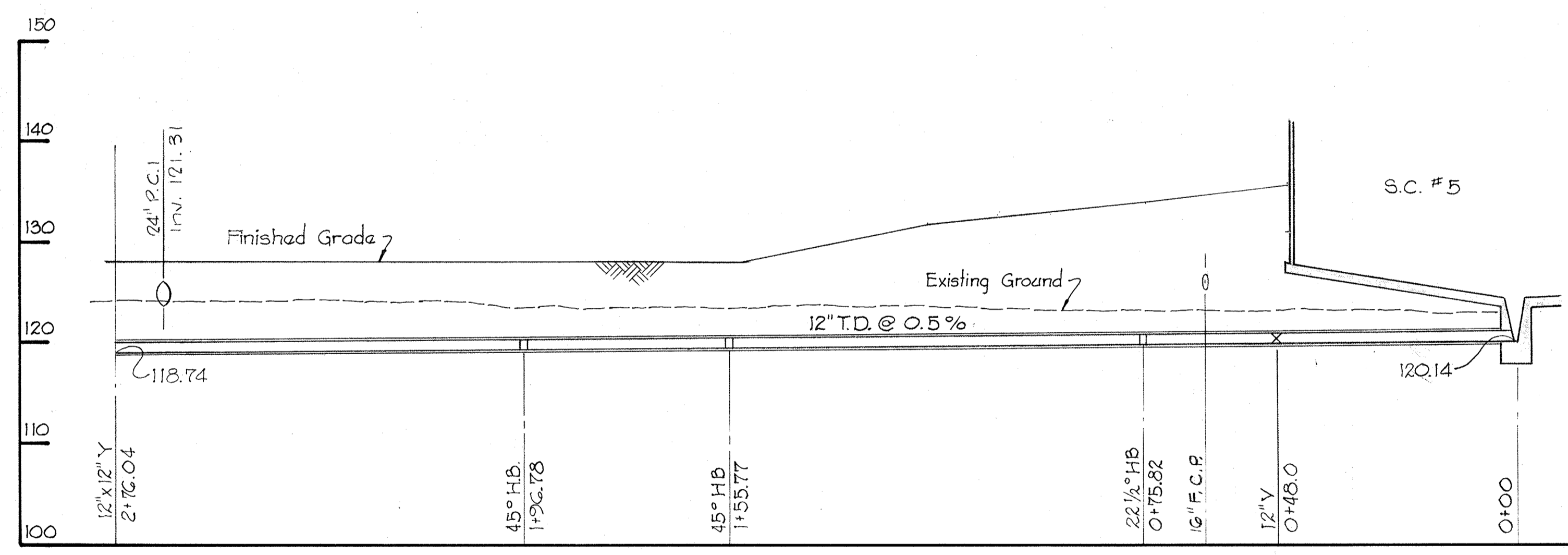
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE	CONTRACT NO. 500-S WOLBERT CHIEF - BUREAU OF ENGINEERING	PROFILES	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 23 OF 133	SCALE H: 1" = 20' V: 1" = 10'
					SHEET C-19 MODIFIED DRAWING - MAY 6, 1982	

BRUNING 44-510 1892

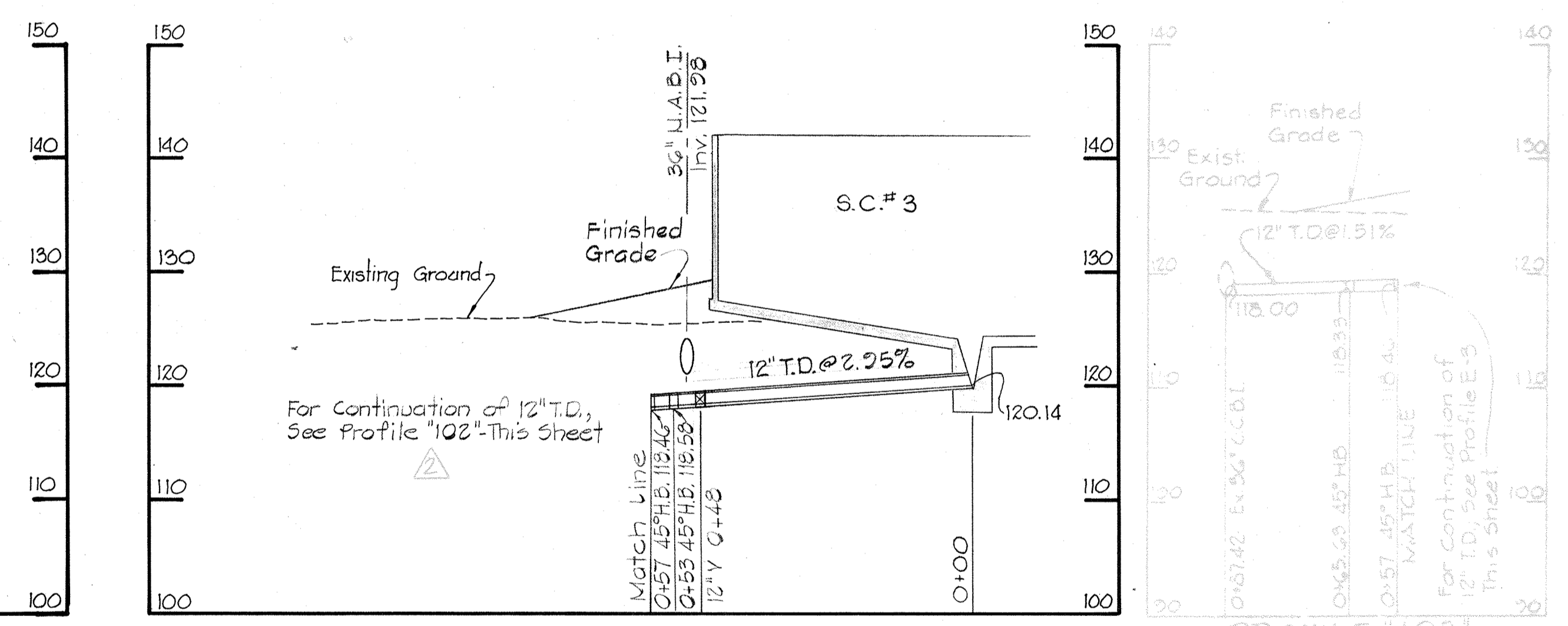
W. O.



PROFILE E-1

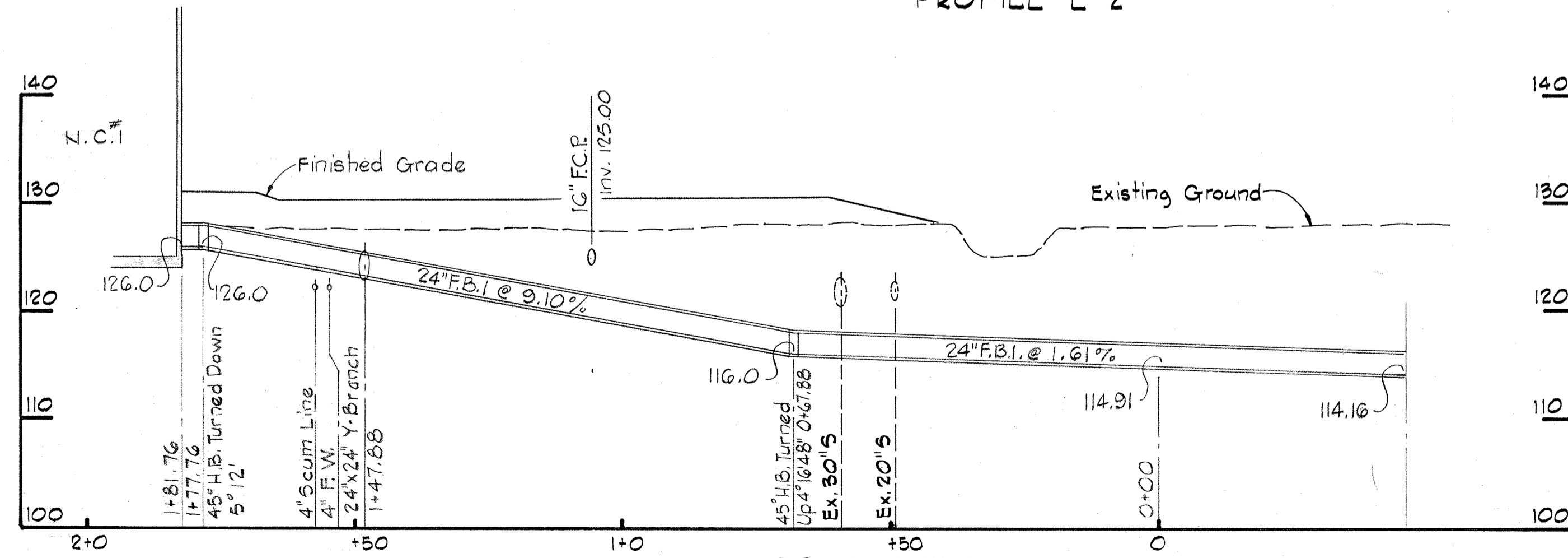


PROFILE E-2

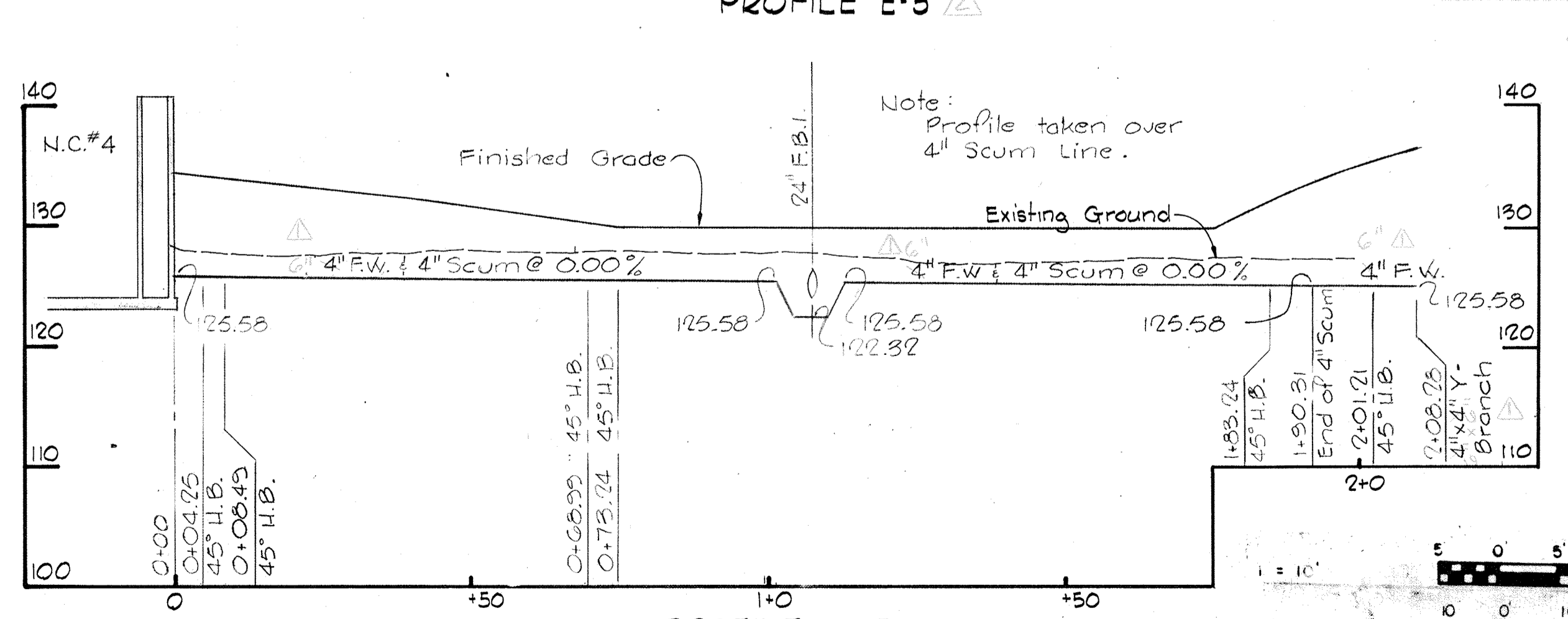


PROFILE E-3

PROFILE 102



PROFILE E-4



PROFILE E-5

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE 10-26-77
WOLBERT
CHIEF - BUREAU OF ENGINEERING

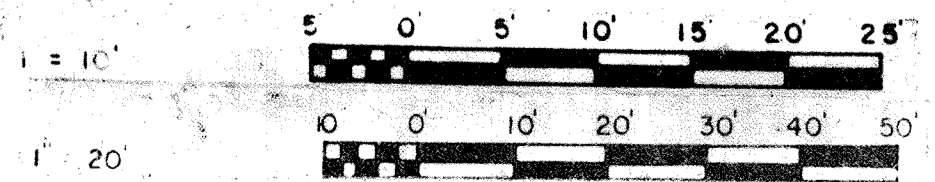
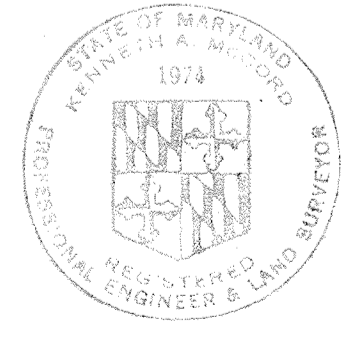
CONTRACT NO. 500-S

PROFILES

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING
NO. 24
OF 133

SCALE
H: 1" = 20'
V: 1" = 10'

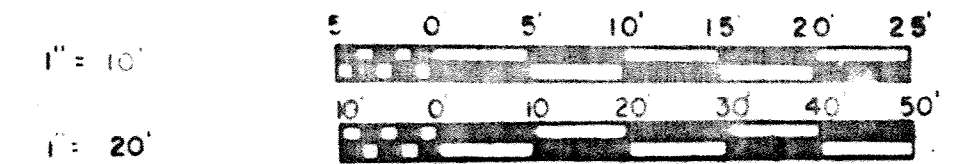
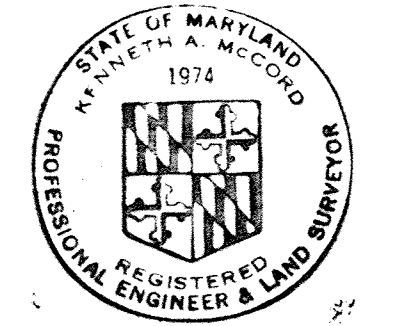
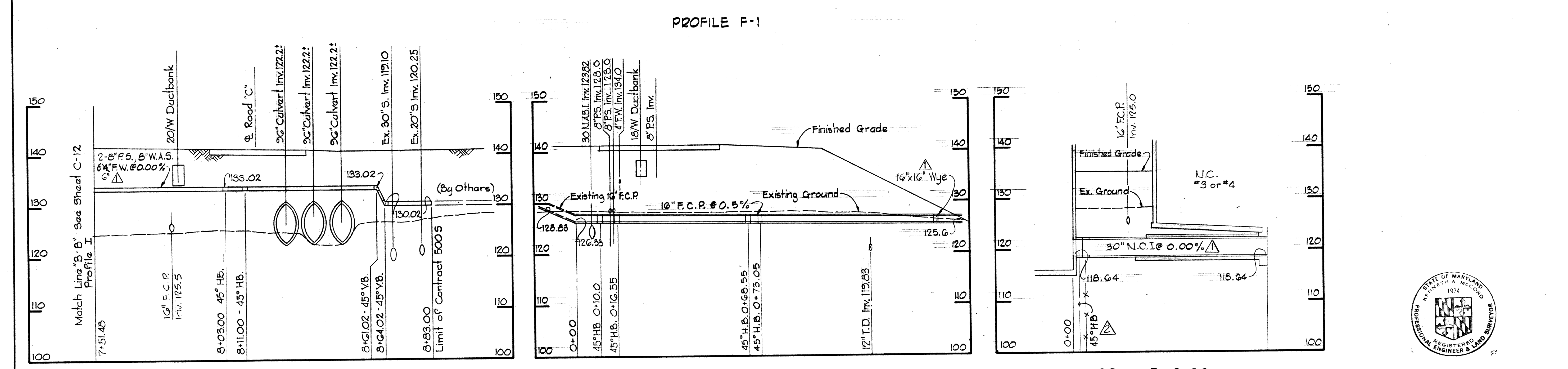
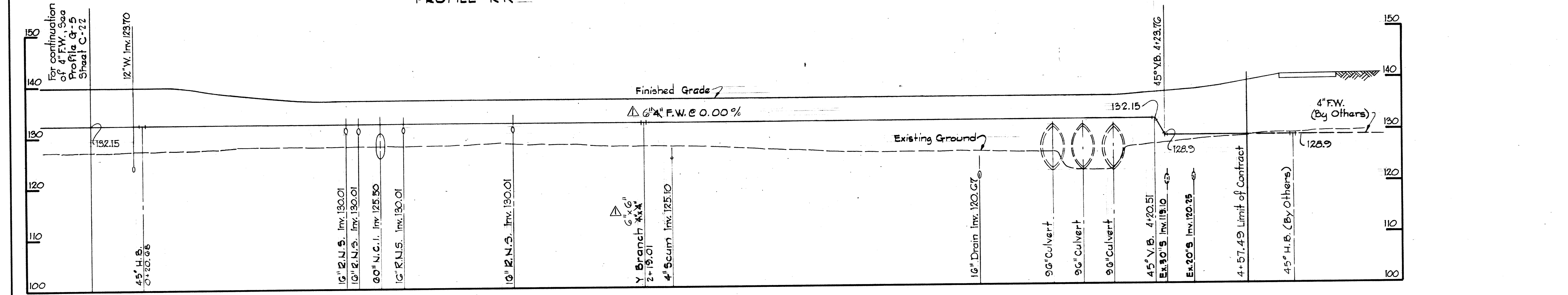
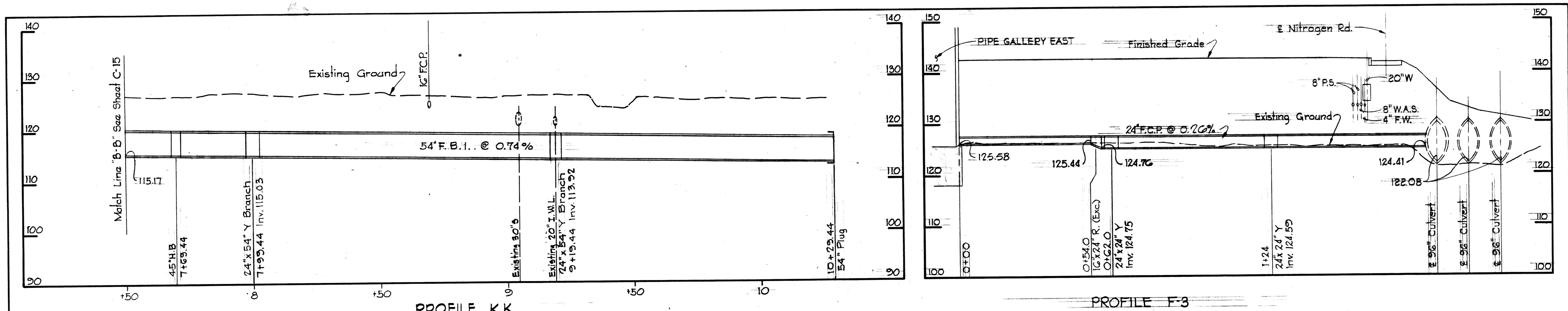


W. O.

SHEET C-20

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44510 1892

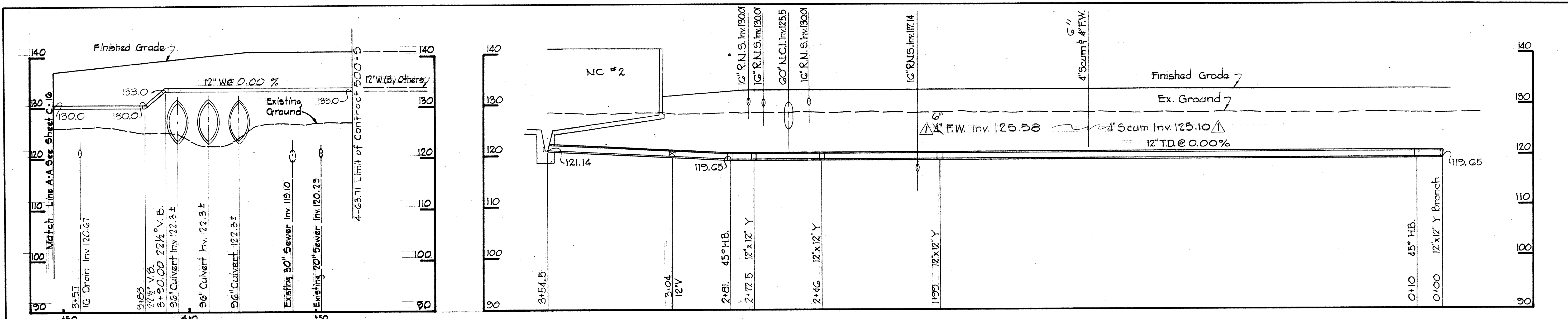


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE	CONTRACT NO. 500-S	PROFILES	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 25	SCALE H:1"=20' V:1"=10'
					OF 133	SHEET C-21

W.O.

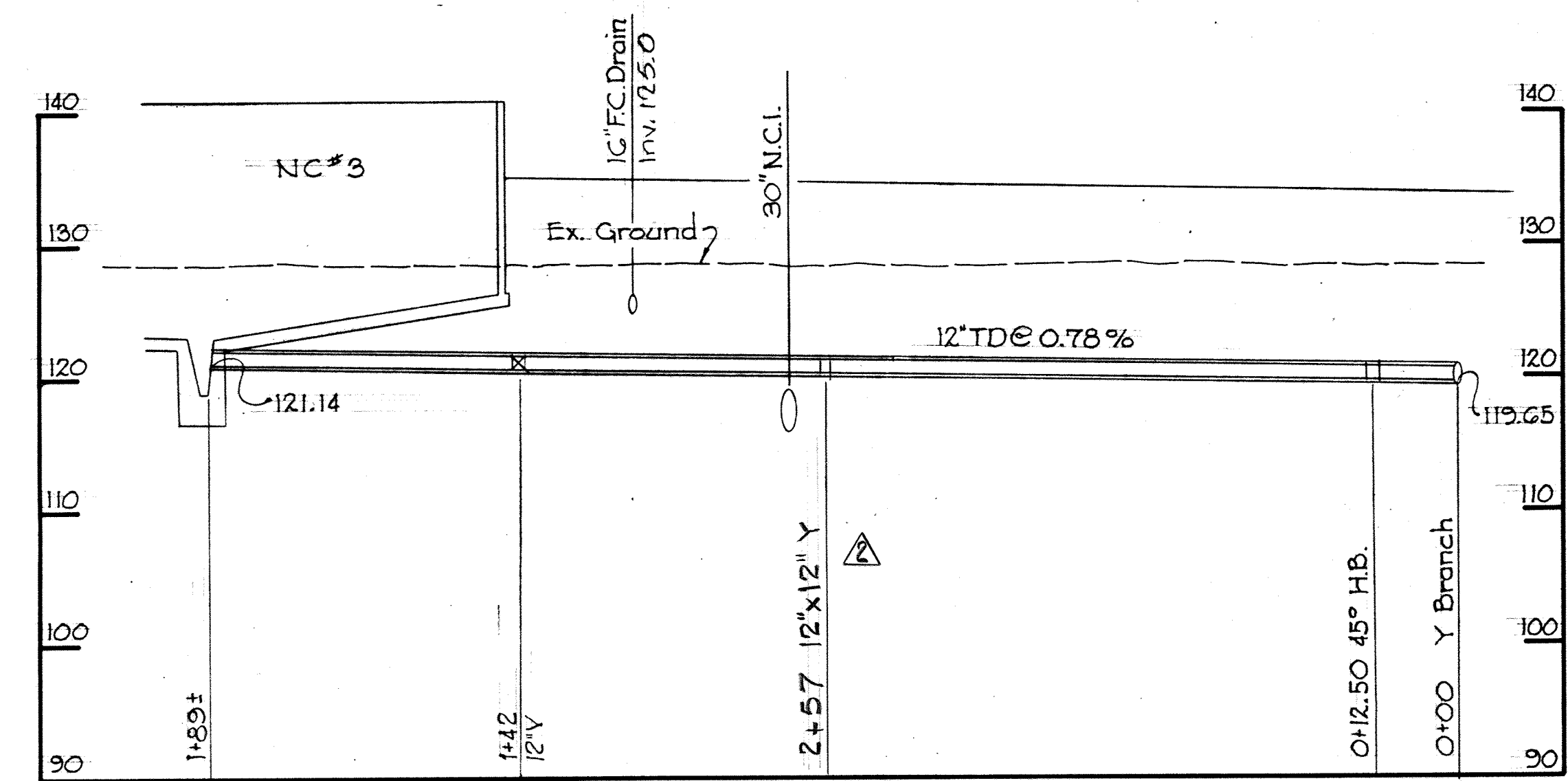
MODIFIED DRAWING - MAY 6, 1982

BRUNING 44510 18392

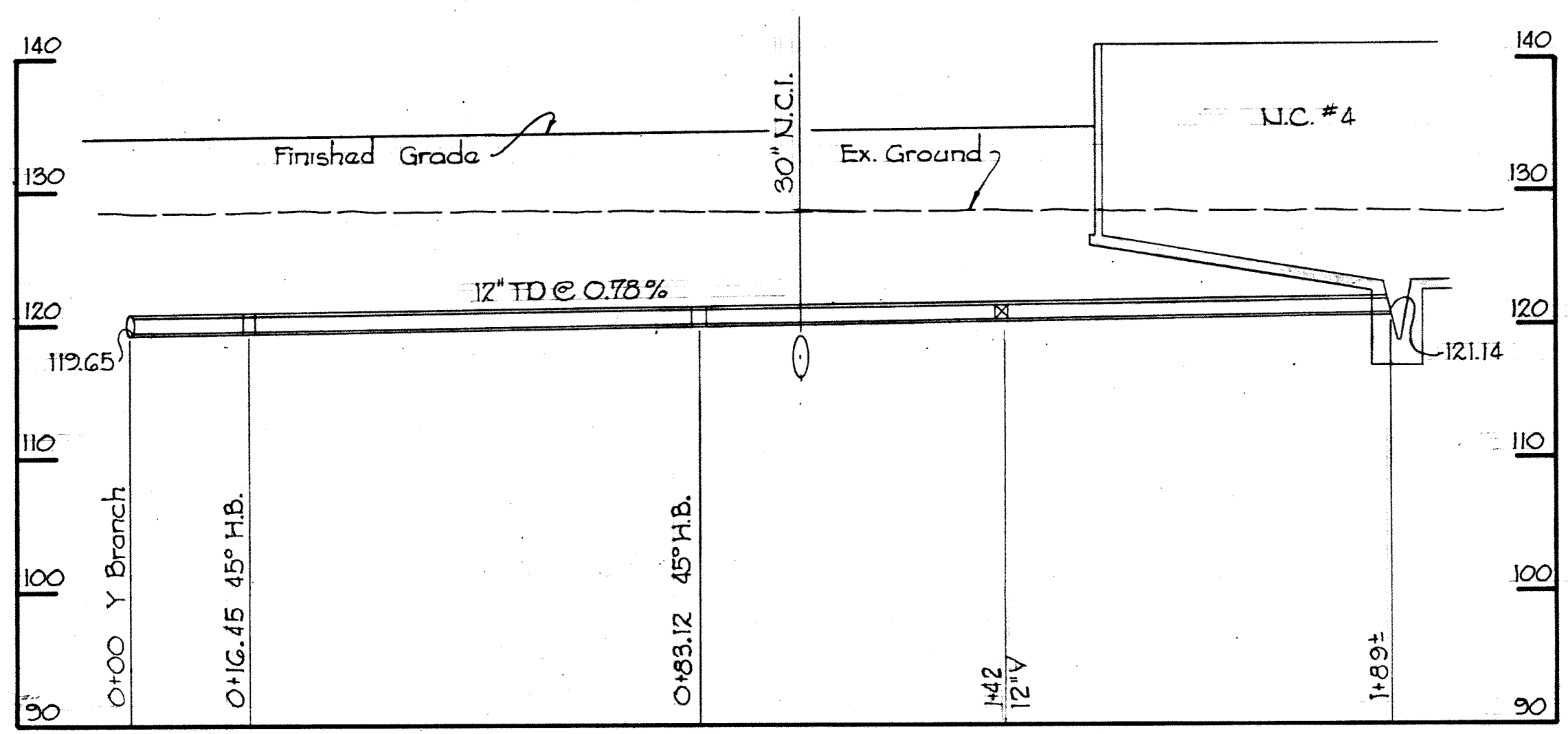


PROFILE QQ

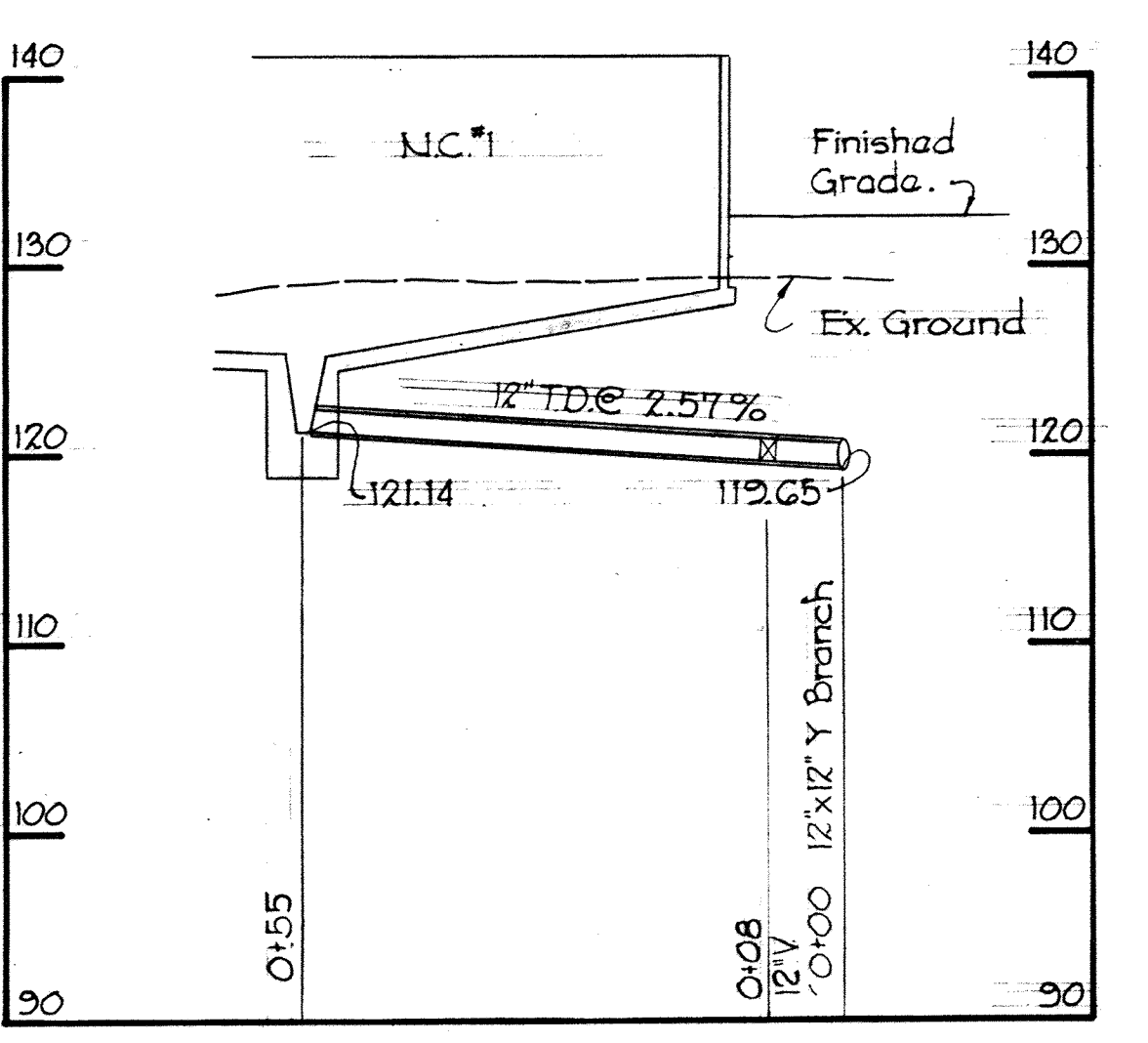
PROFILE G-1



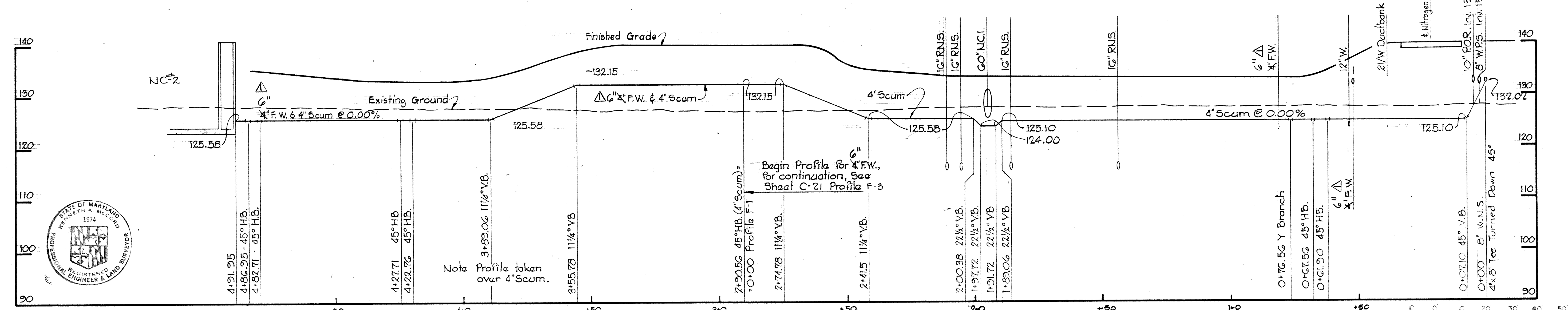
PROFILE G-2



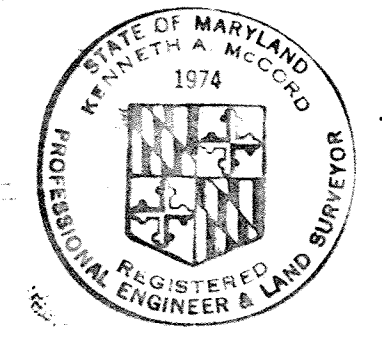
PROFILE G-3



PROFILE G-4



PROFILE G-5



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-26-77
W. O. Libert
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

PROFILES

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

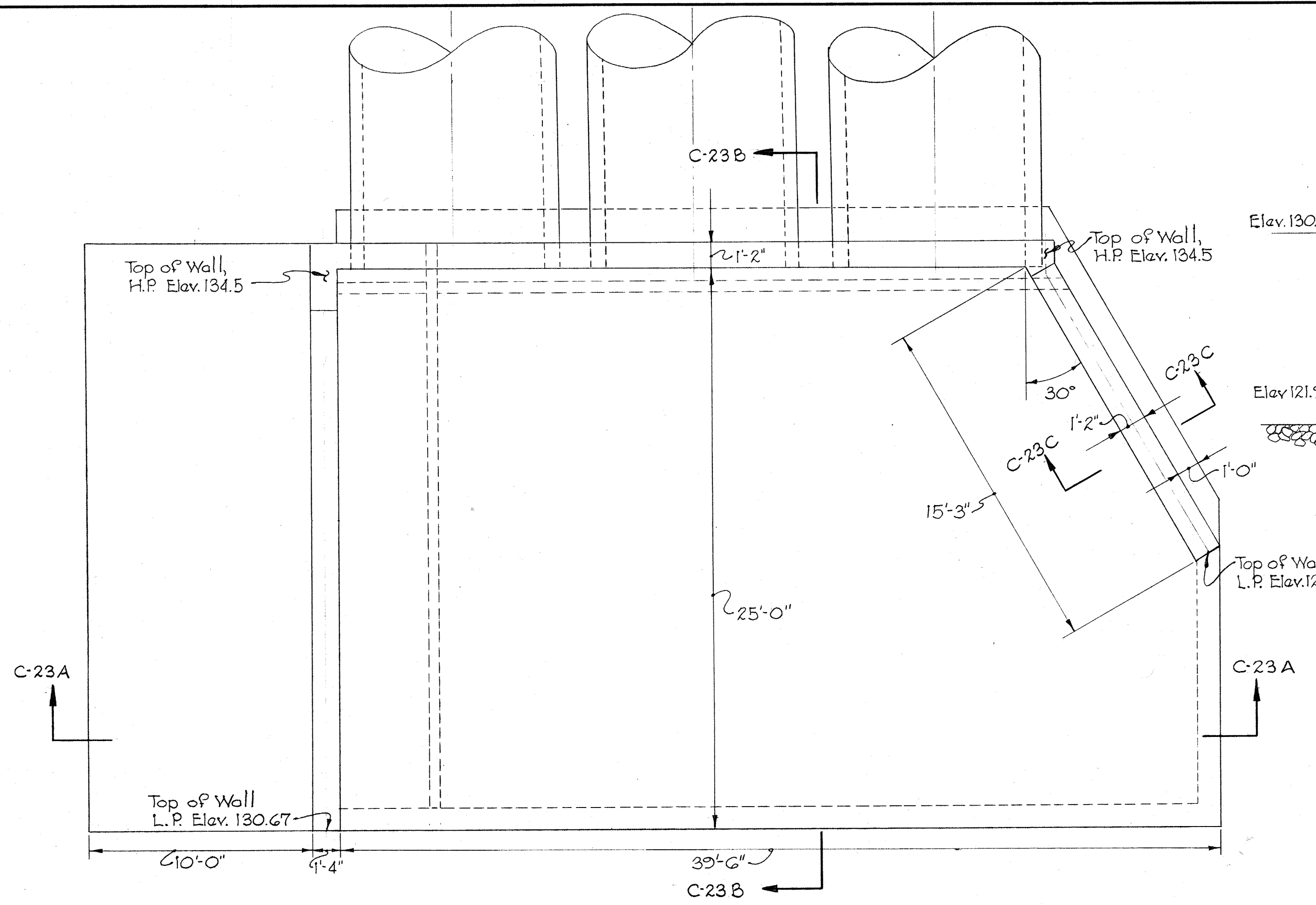
DRAWING
NO. 26
OF 133

SCALE
H: 1"=20'
V: 1"=10'

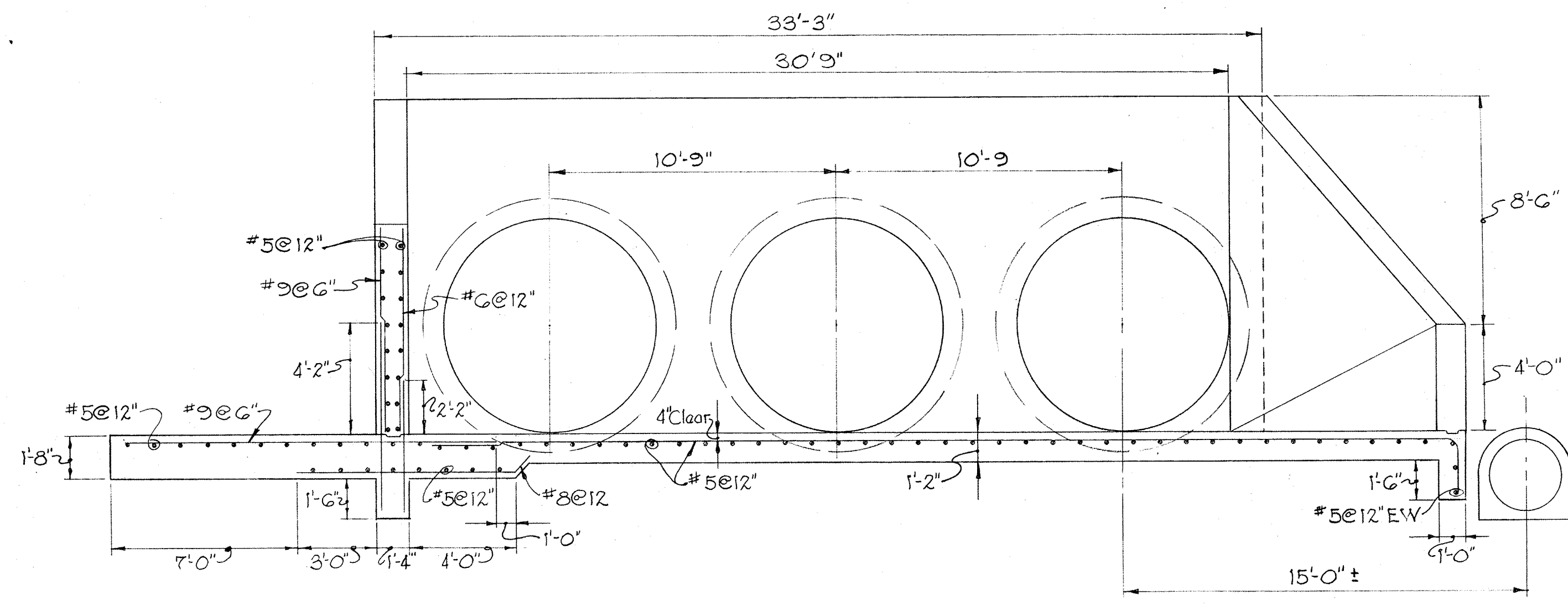
SHEET C-22

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-51032872

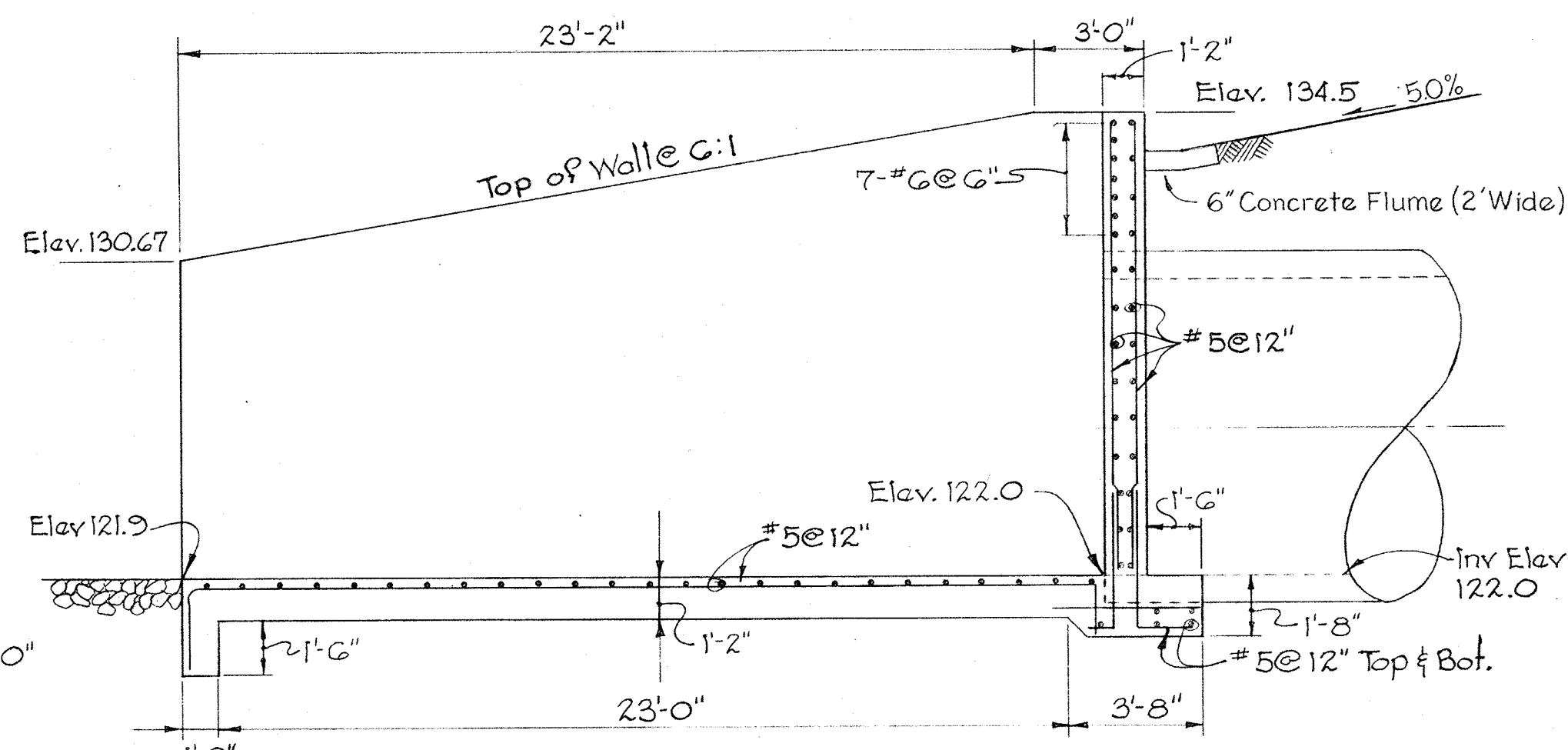


PLAN
Scale: 1/4" = 1'-0"

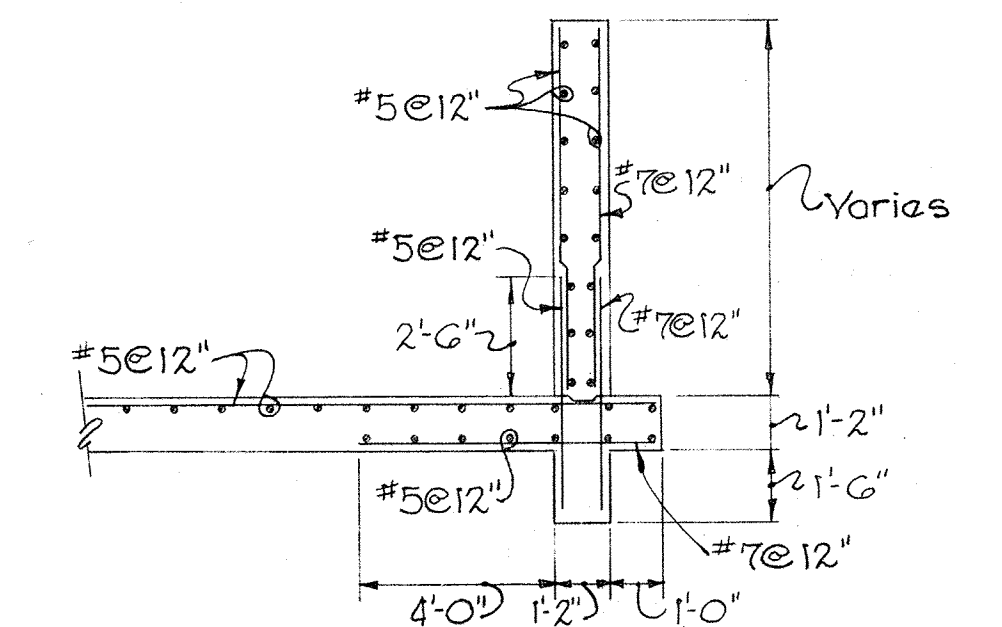


SECTION C-23A / C-23
Scale: 1/4" = 1'-0"

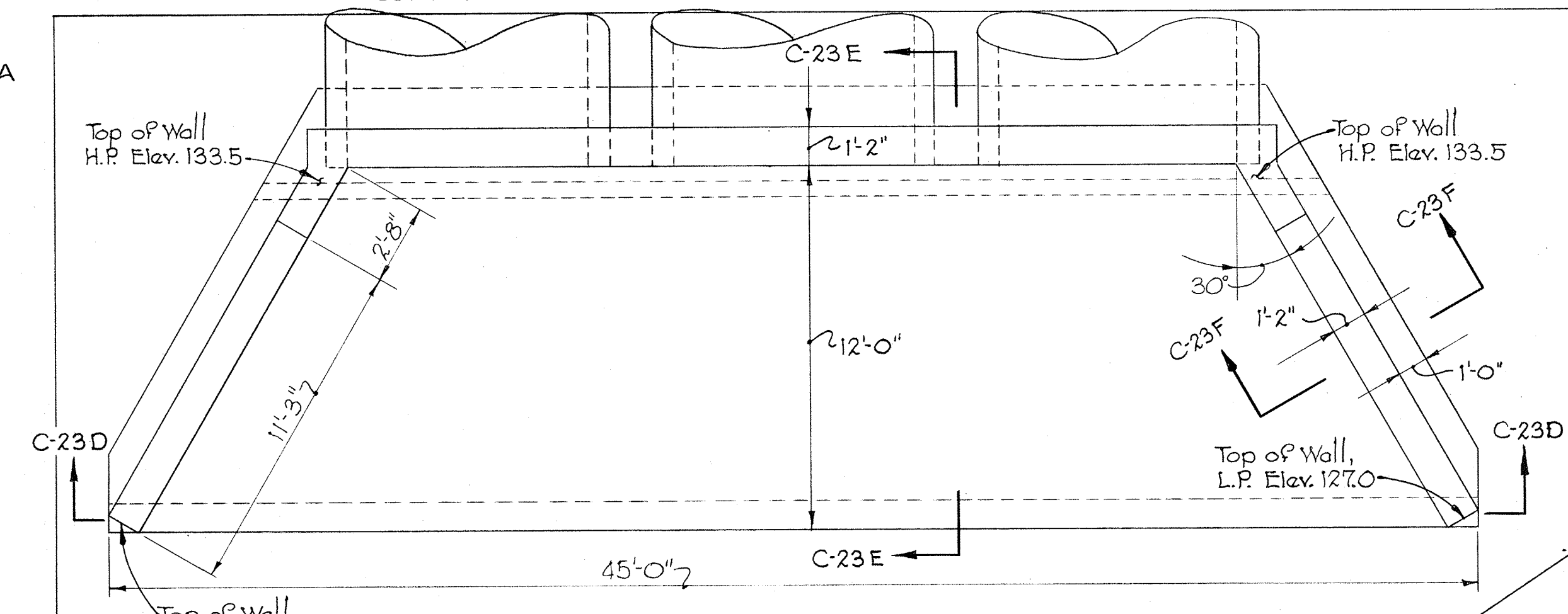
HEADWALL DETAILS - WEST END



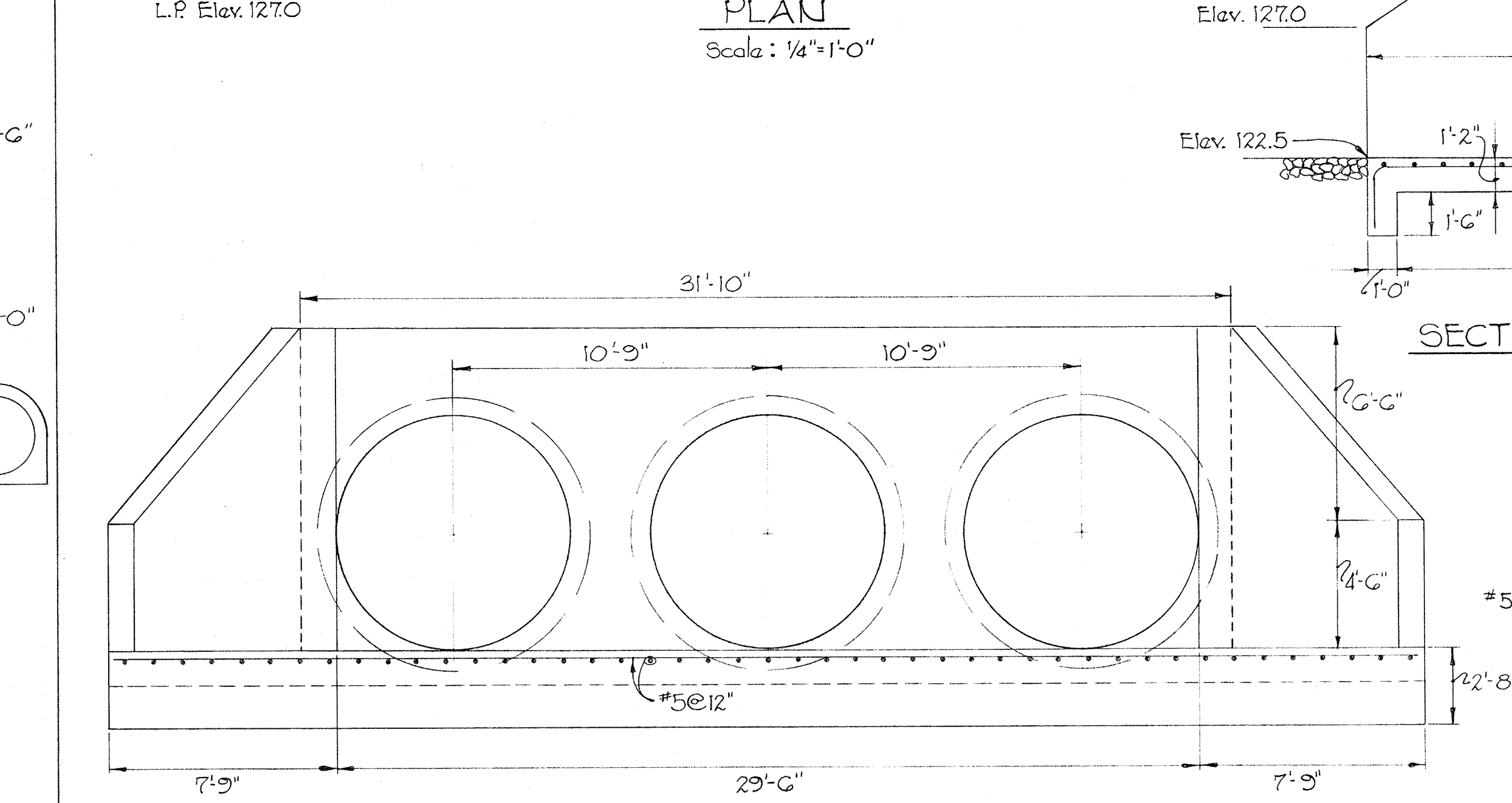
SECTION C-23B / C-23
Scale: 1/4" = 1'-0"



SECTION C-23C / C-23
Scale: 1/4" = 1'-0"

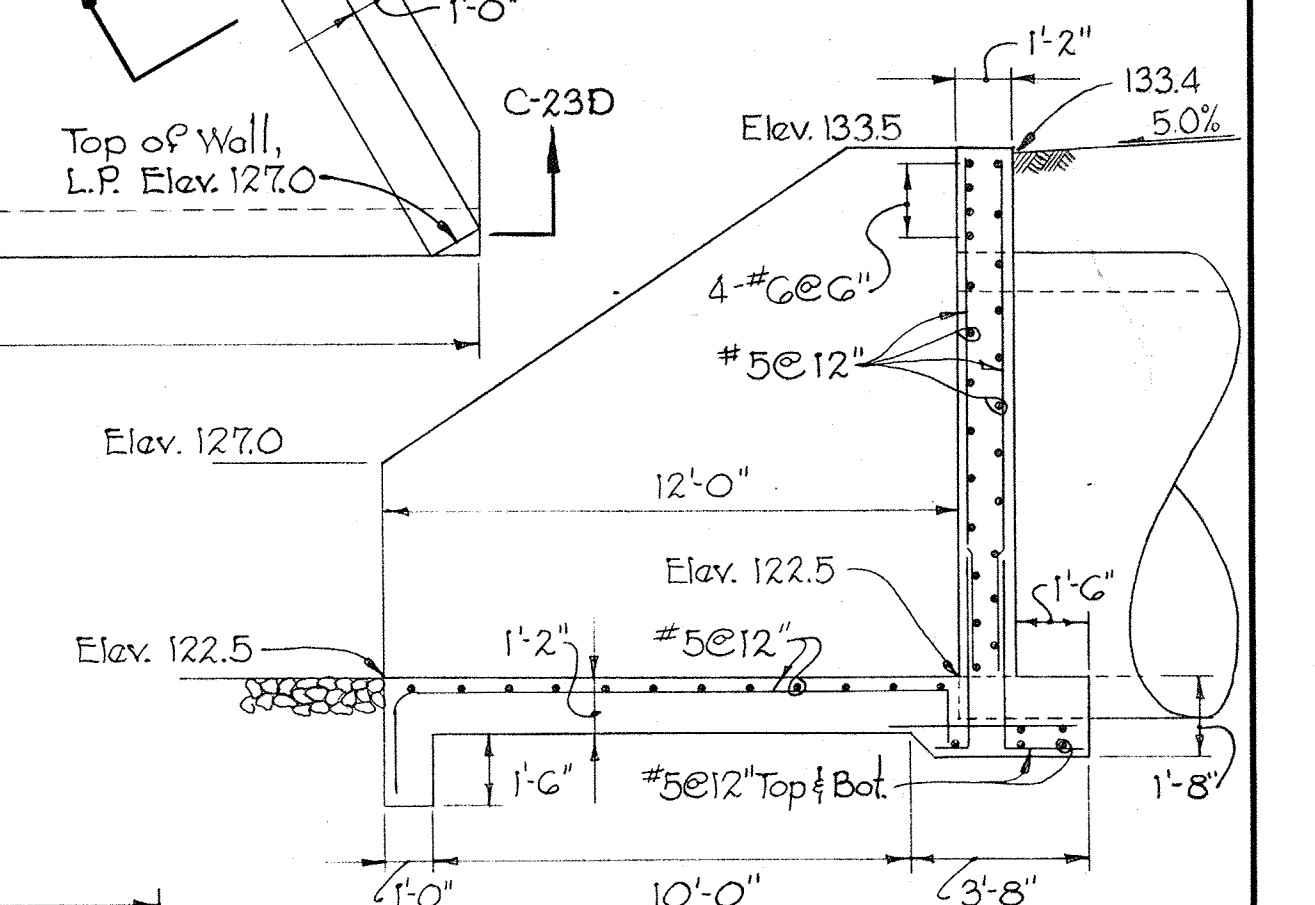


PLAN
Scale: 1/4" = 1'-0"

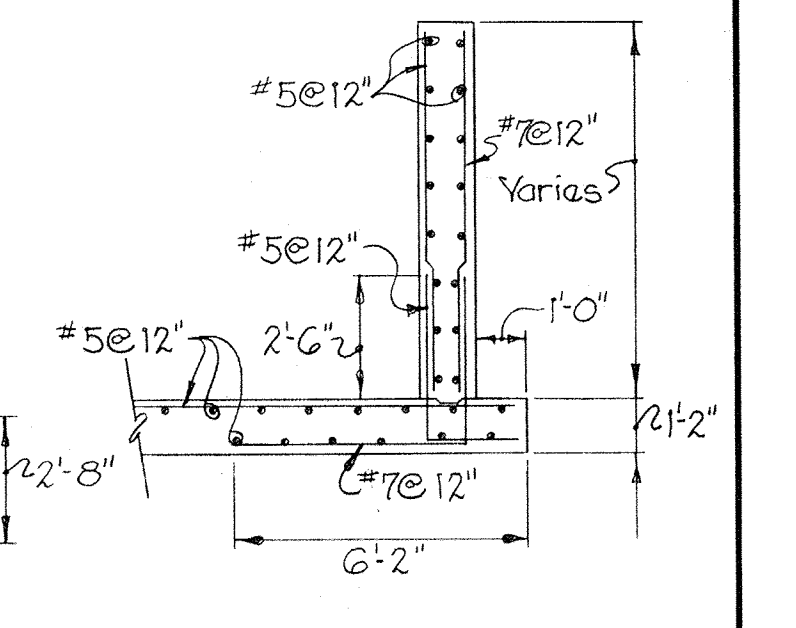


SECTION C-23D / C-23
Scale: 1/4" = 1'-0"

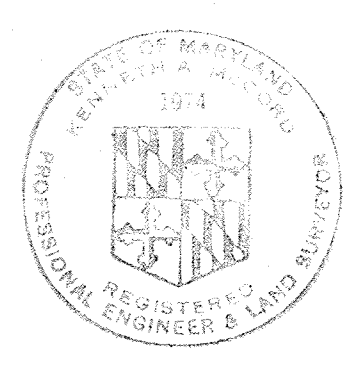
HEADWALL DETAILS - EAST END



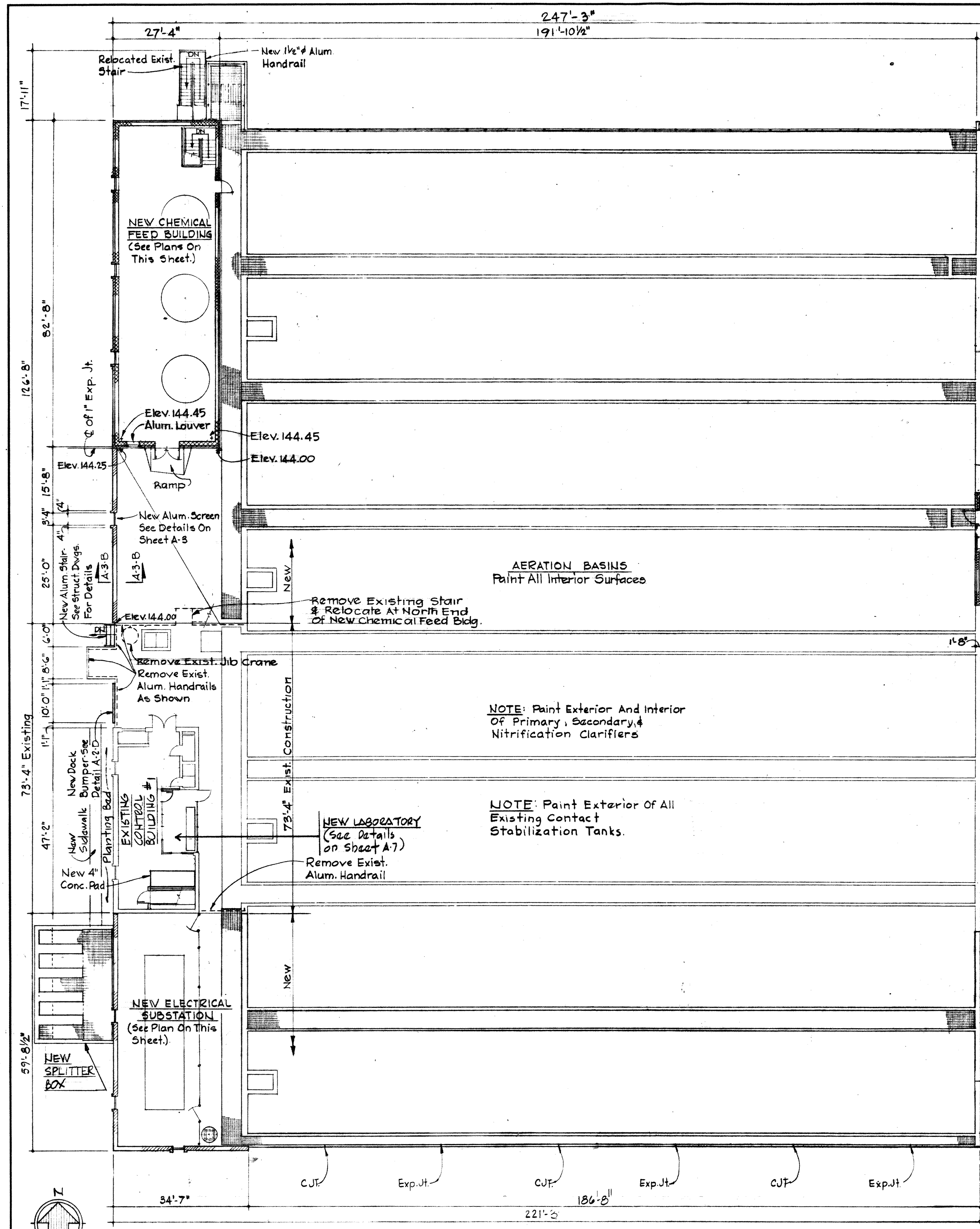
SECTION C-23E / C-23
Scale: 1/4" = 1'-0"



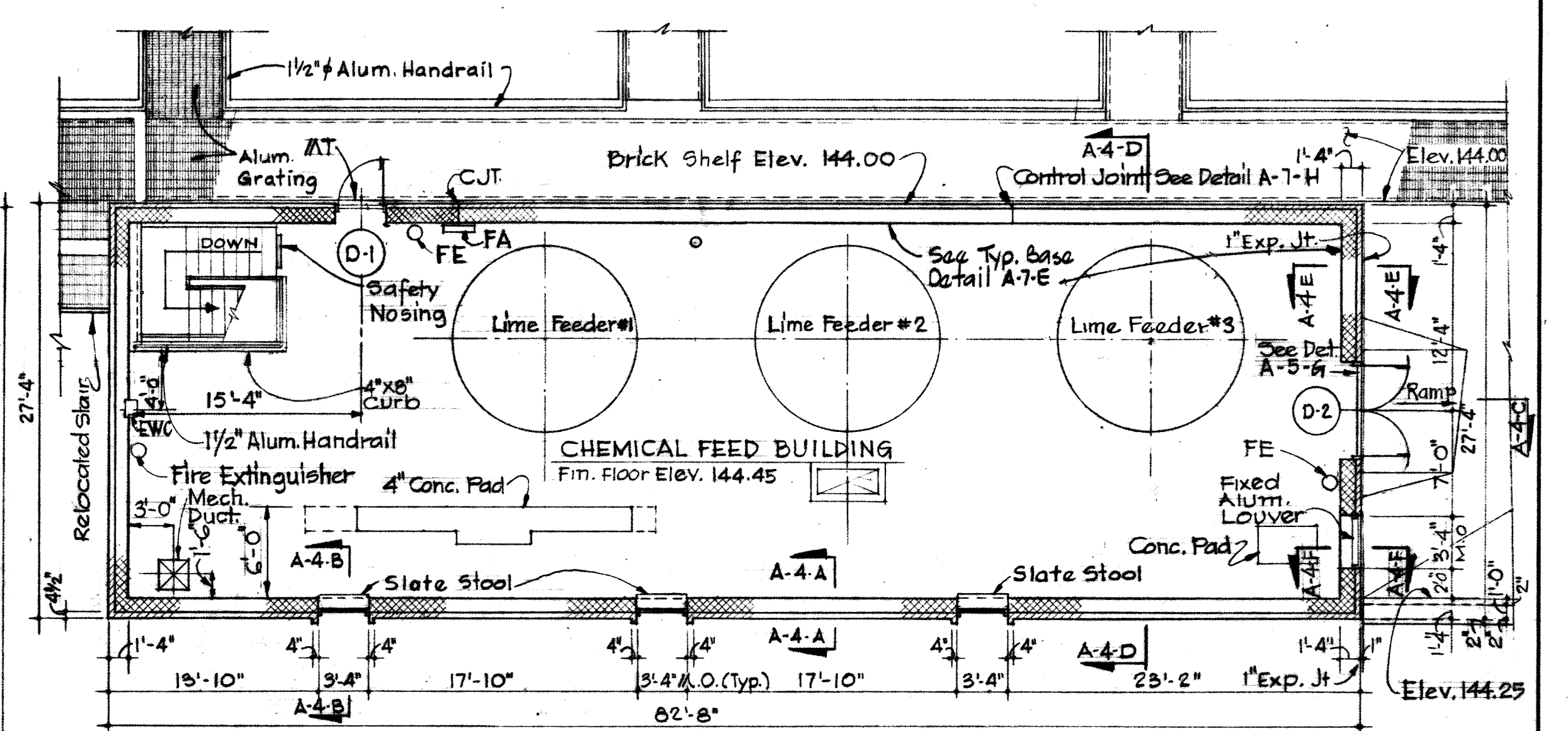
SECTION C-23F / C-23
Scale: 1/4" = 1'-0"



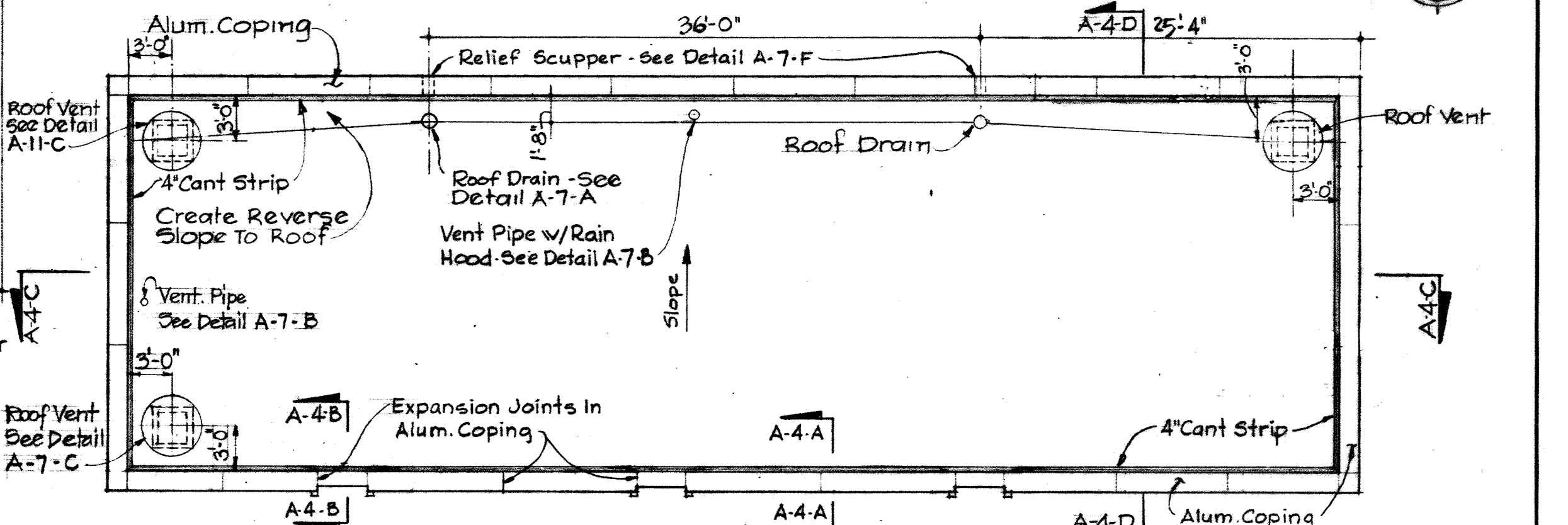
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND W.O. Libbert 10-26-77 DATE CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	HEADWALL DETAILS FOR 96" CULVERTS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 26A OF 133 SCALE AS SHOWN
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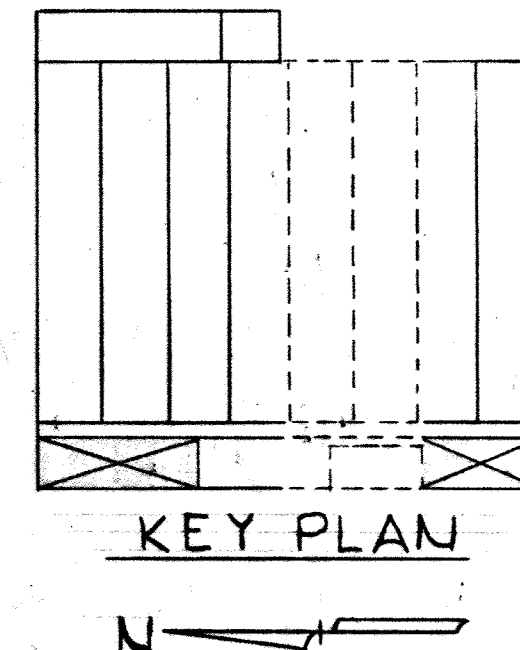
PLAN - AERATION BASINS & PIPE GALLERIES
Scale: 1/16" = 1'-0"



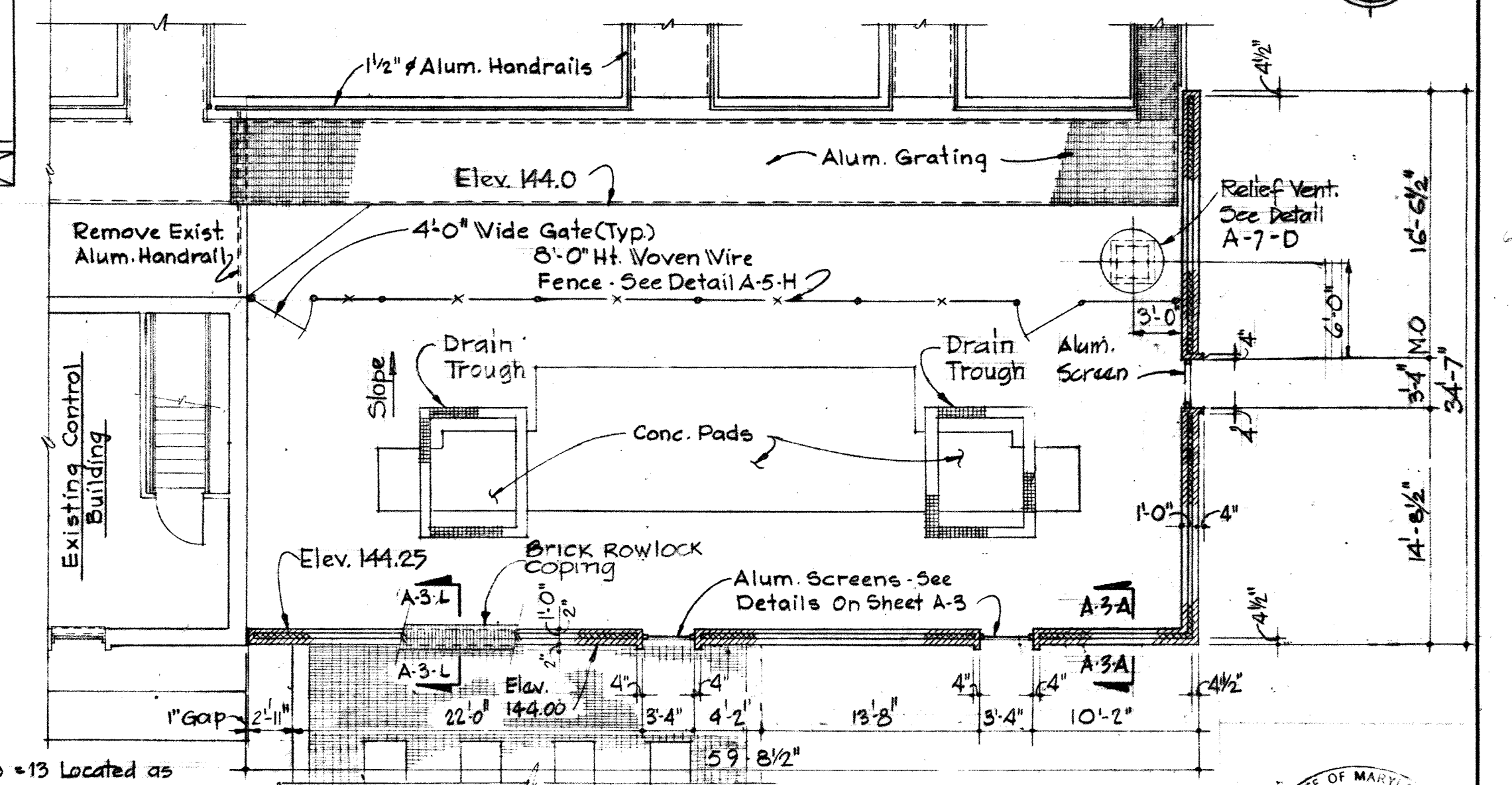
PLAN CHEMICAL FEED BUILDING
Scale: 1/8" = 1'-0"



ROOF PLAN - CHEMICAL FEED BUILDING
Scale: 1/8" = 1'-0"

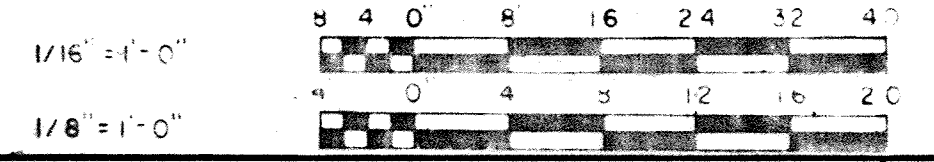


KEY PLAN



PLAN - ELECTRICAL SUBSTATION
Scale: 1/8" = 1'-0"

NOTE: Total Fire Extinguishers = 13 Located as follows: Pipe Gallery - West - 5 - See Sheets M-11, M-16 & M-17
Pipe Gallery East - 5 - See Sheet M-22
New Chemical Feed Building - 3, See Sheet A-1
New Control Building - 2, See Sheet A-5
Mount Top of Fire Extinguishers 3'-6" Max. above Floor.



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 3/30/75
W. O. Gilbert
CHIEF - BUREAU OF ENGINEERING

CONTRACT NO. 500-S

AERATION BASINS & PIPE GALLERIES
PLANS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

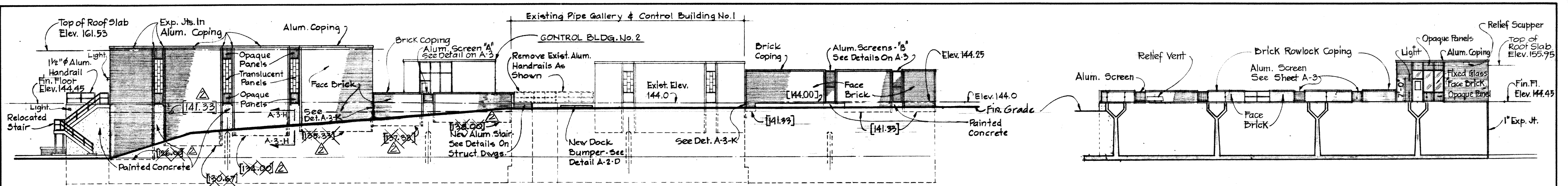
DRAWING NO. 27 OF 133
SCALE AS SHOWN

W. O. 6887-2

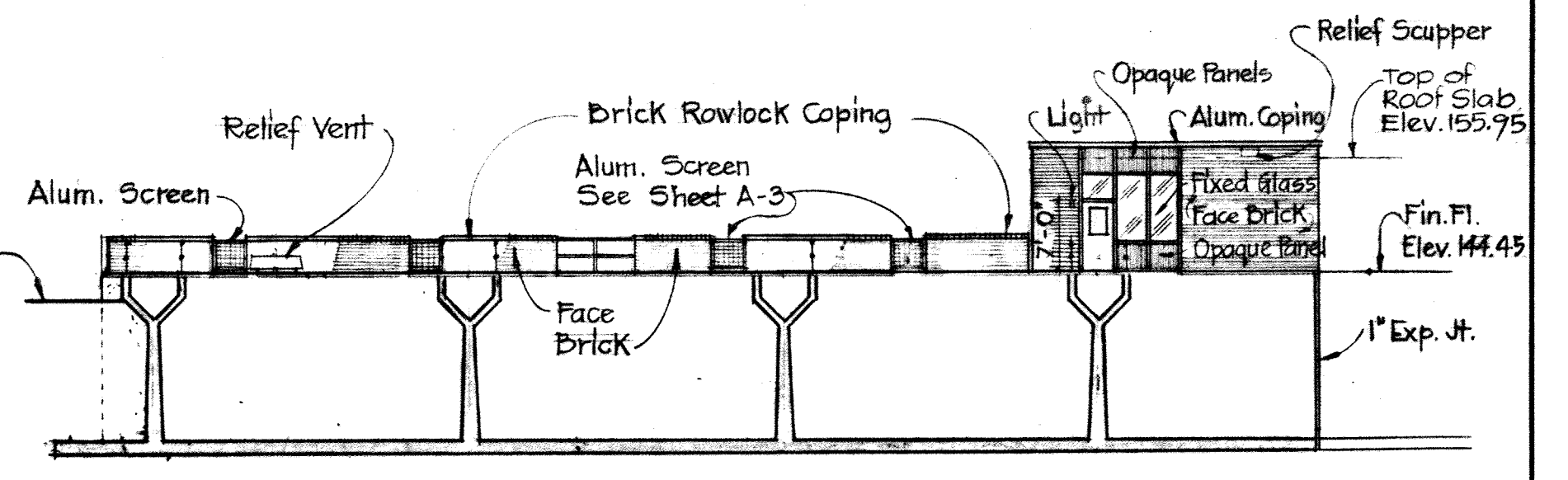
SHEET A-1

MODIFIED DRAWING - MAY 6, 1982

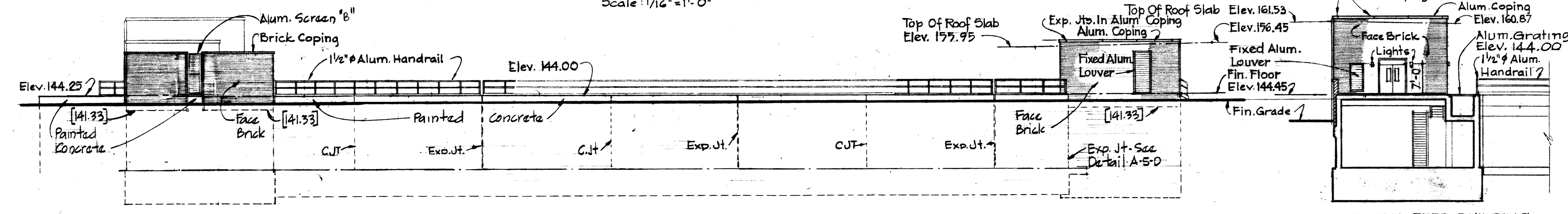
BRUNING 44510 1832Z



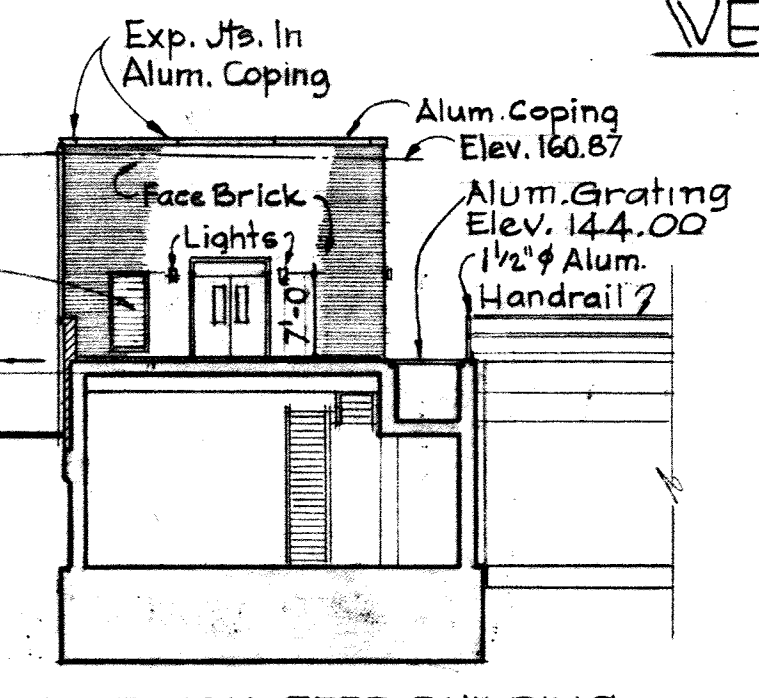
WEST ELEVATION
Scale: 1/16" = 1'-0"



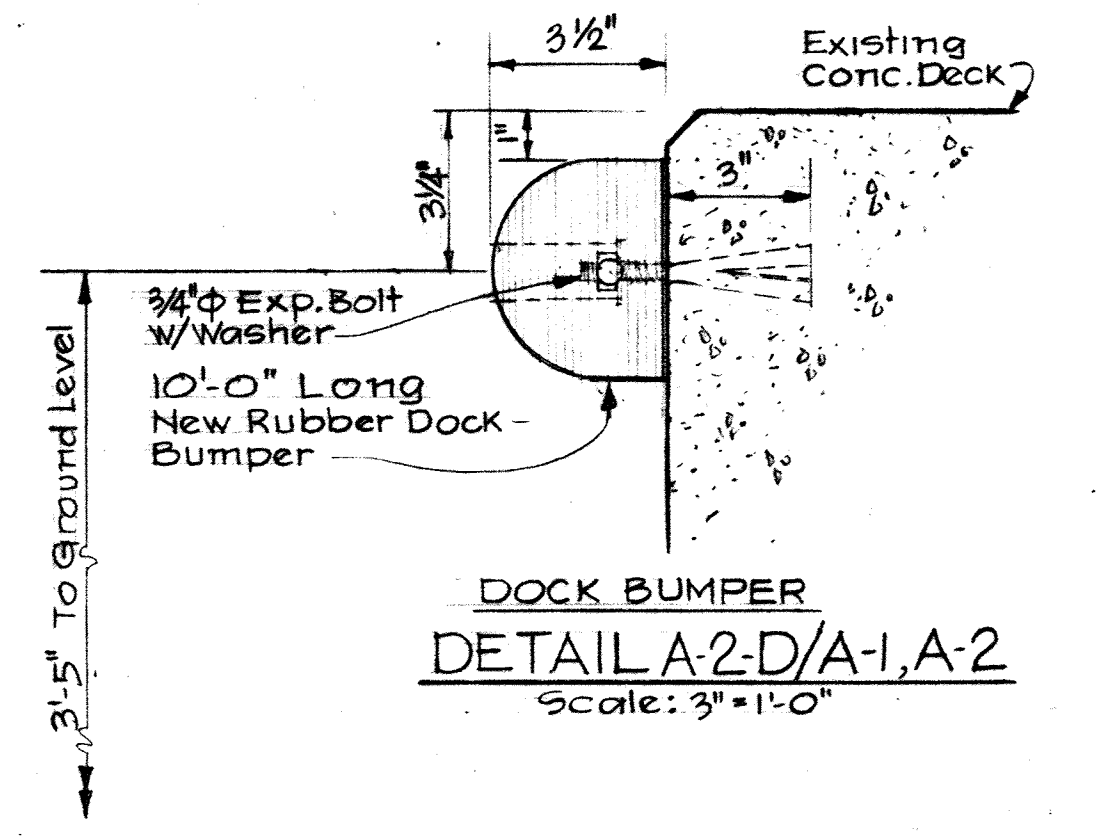
WEST ELEVATION-CONTROL BUILDING
Scale: 1/16" = 1'-0"



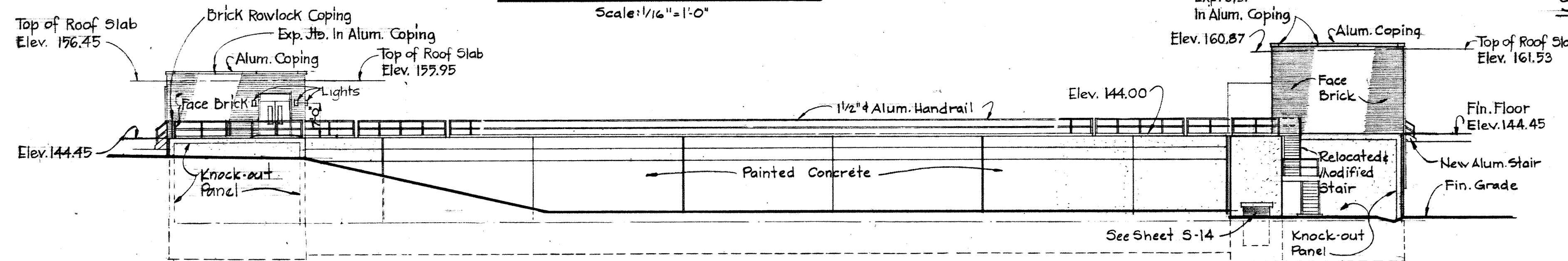
SOUTH ELEVATION
Scale: 1/16" = 1'-0"



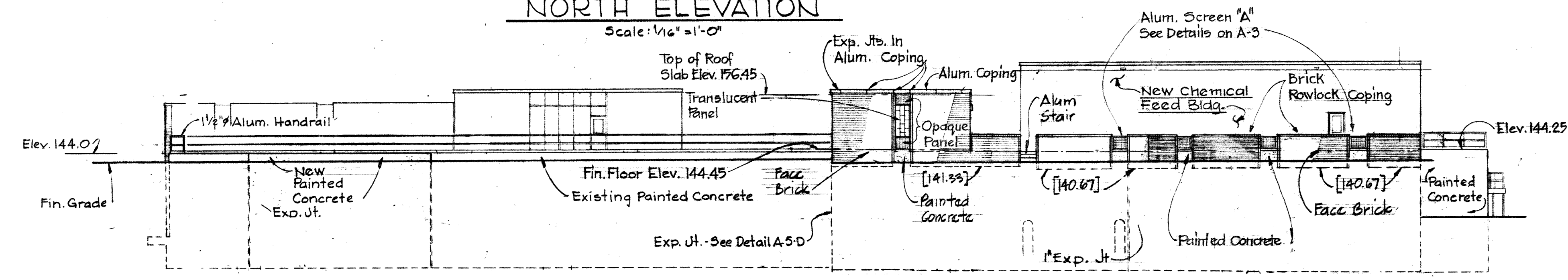
CHEMICAL FEED BUILDING SOUTH ELEVATION
Scale: 1/16" = 1'-0"



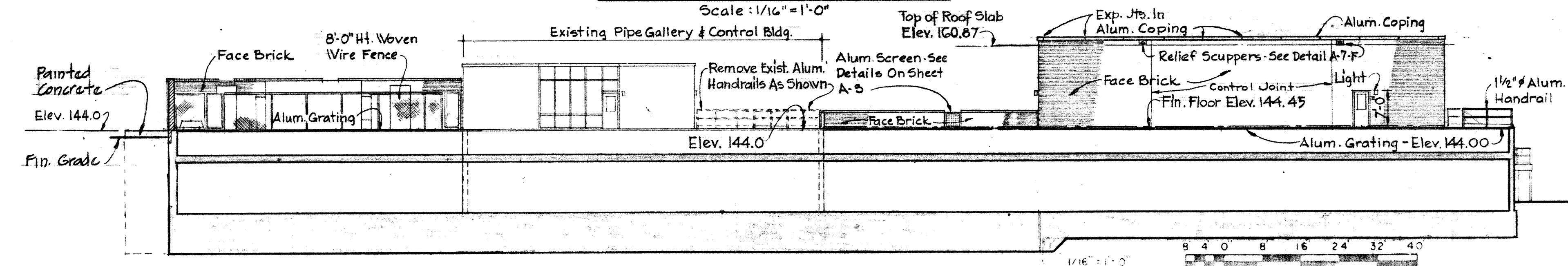
DOCK BUMPER
DETAIL A-2-D/A-1, A-2
Scale: 3" = 1'-0"



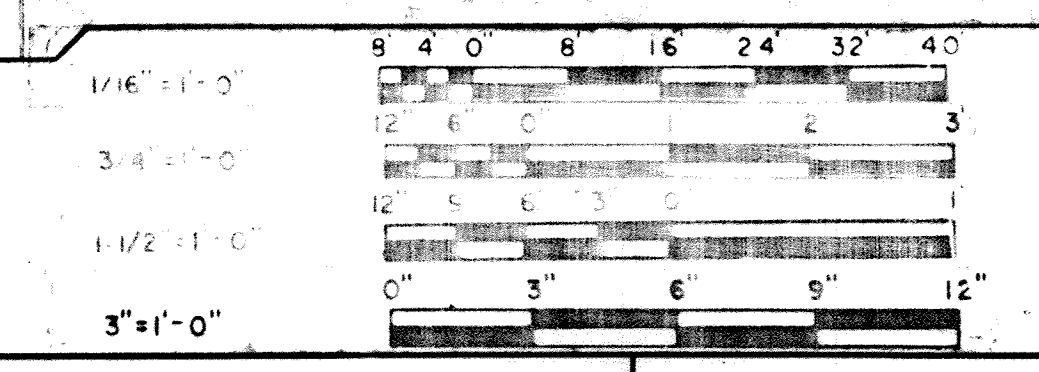
NORTH ELEVATION
Scale: 1/16" = 1'-0"



EAST ELEVATION
Scale: 1/16" = 1'-0"



CHEMICAL FEED BUILDING EAST ELEVATION
Scale: 1/16" = 1'-0"

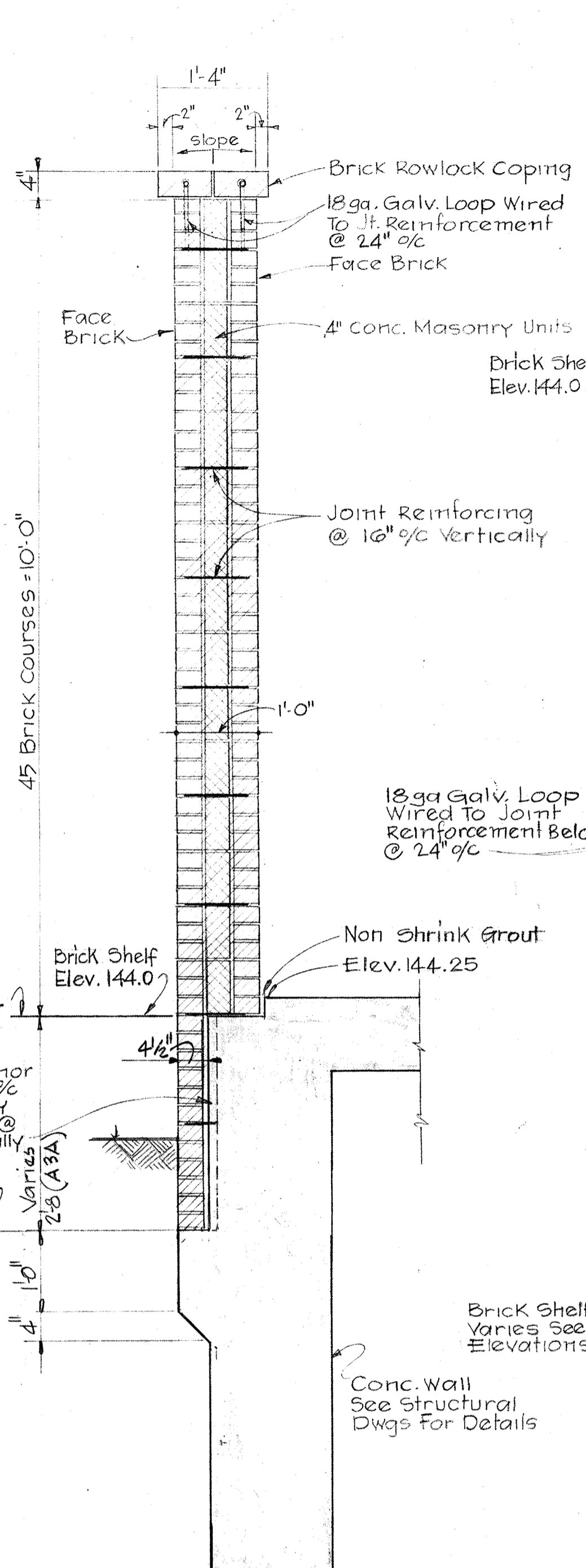


<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE W. O. Libert CHIEF BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>AERATION BASINS & PIPE GALLERIES ELEVATIONS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 28 OF 133 SCALE AS SHOWN</p>
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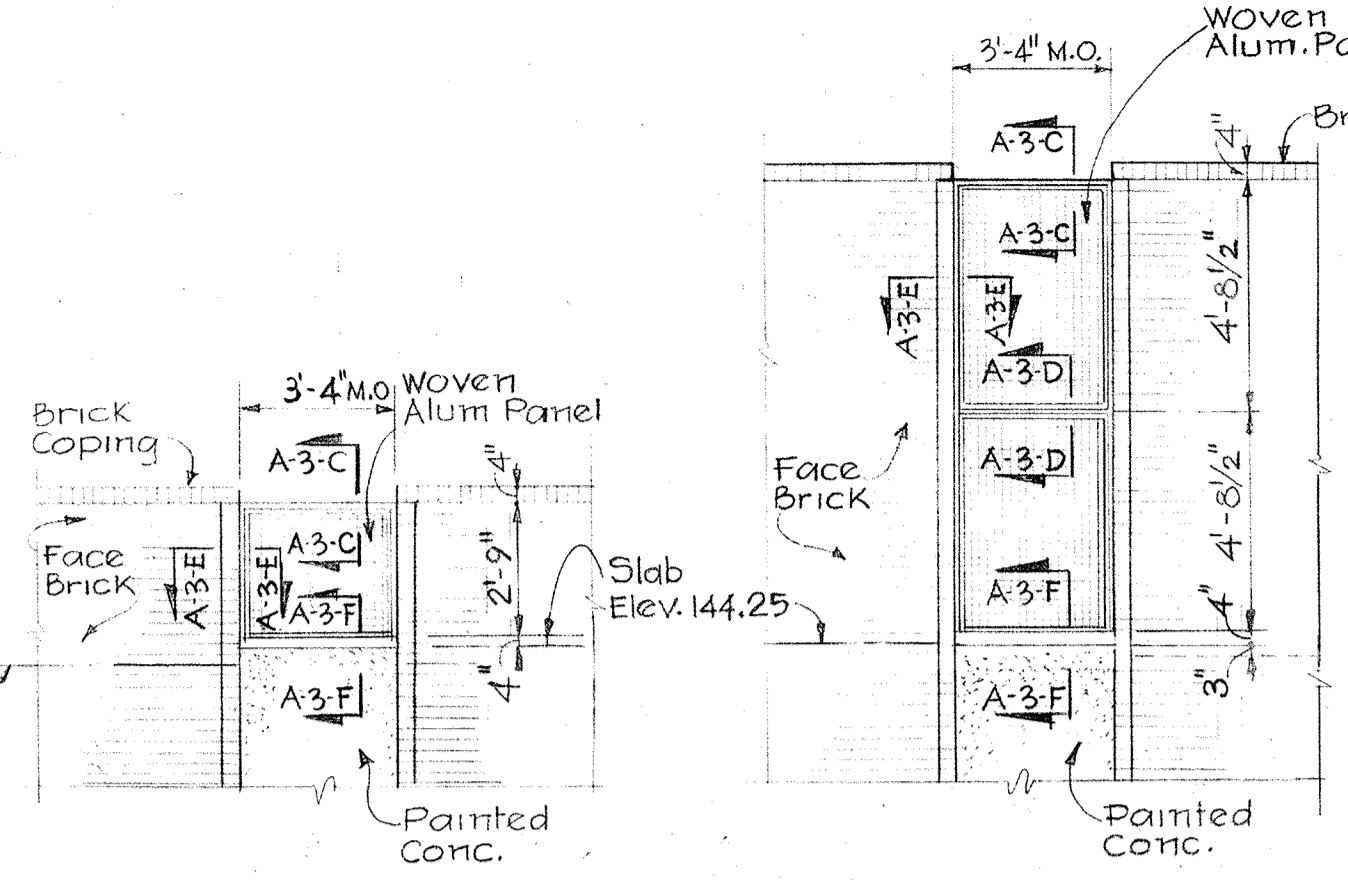
W. O. 6887-2

SHEET A-2
MODIFIED DRAWING - MAY 6, 1982

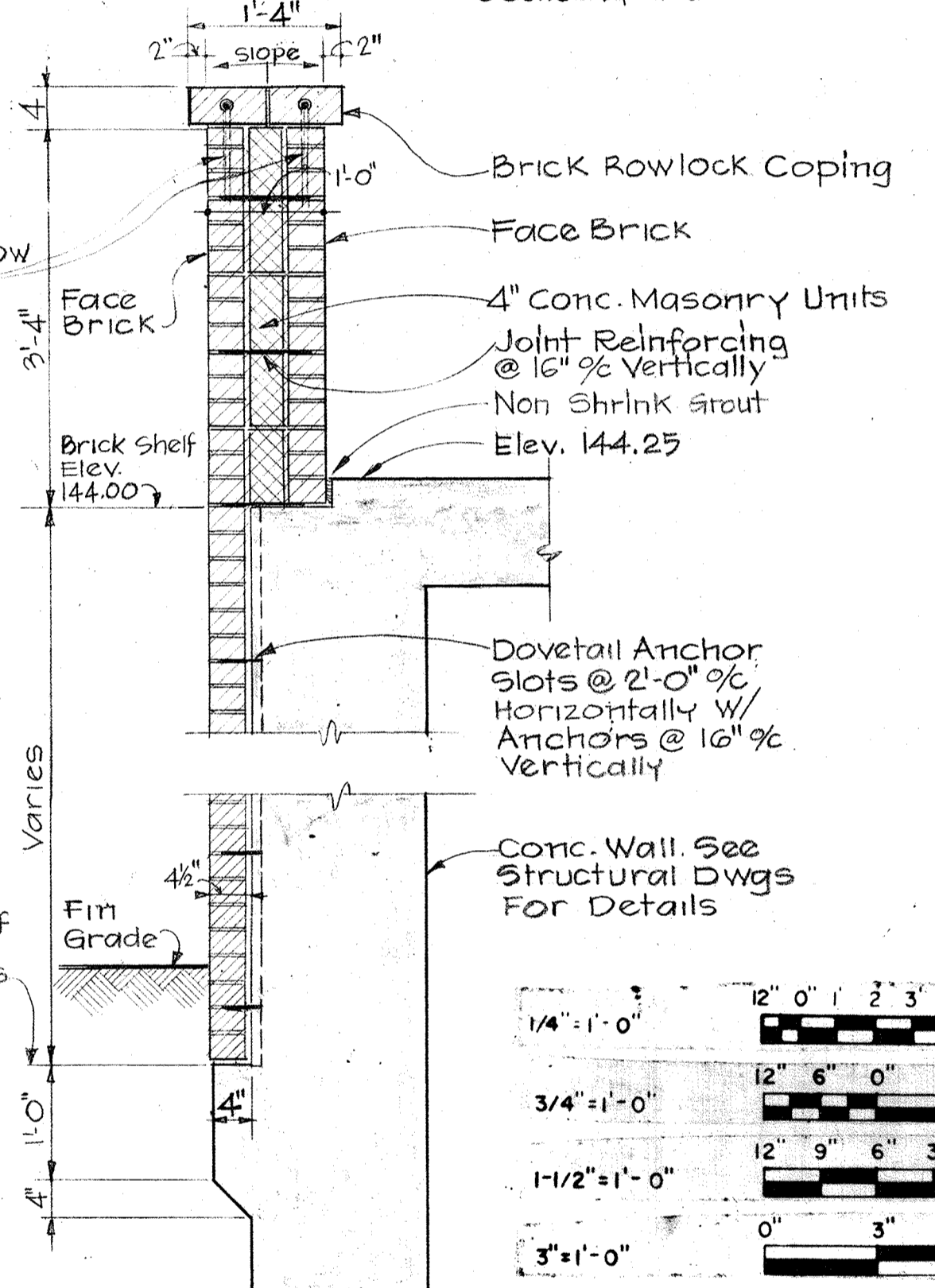
BRUNING 44-510 18392



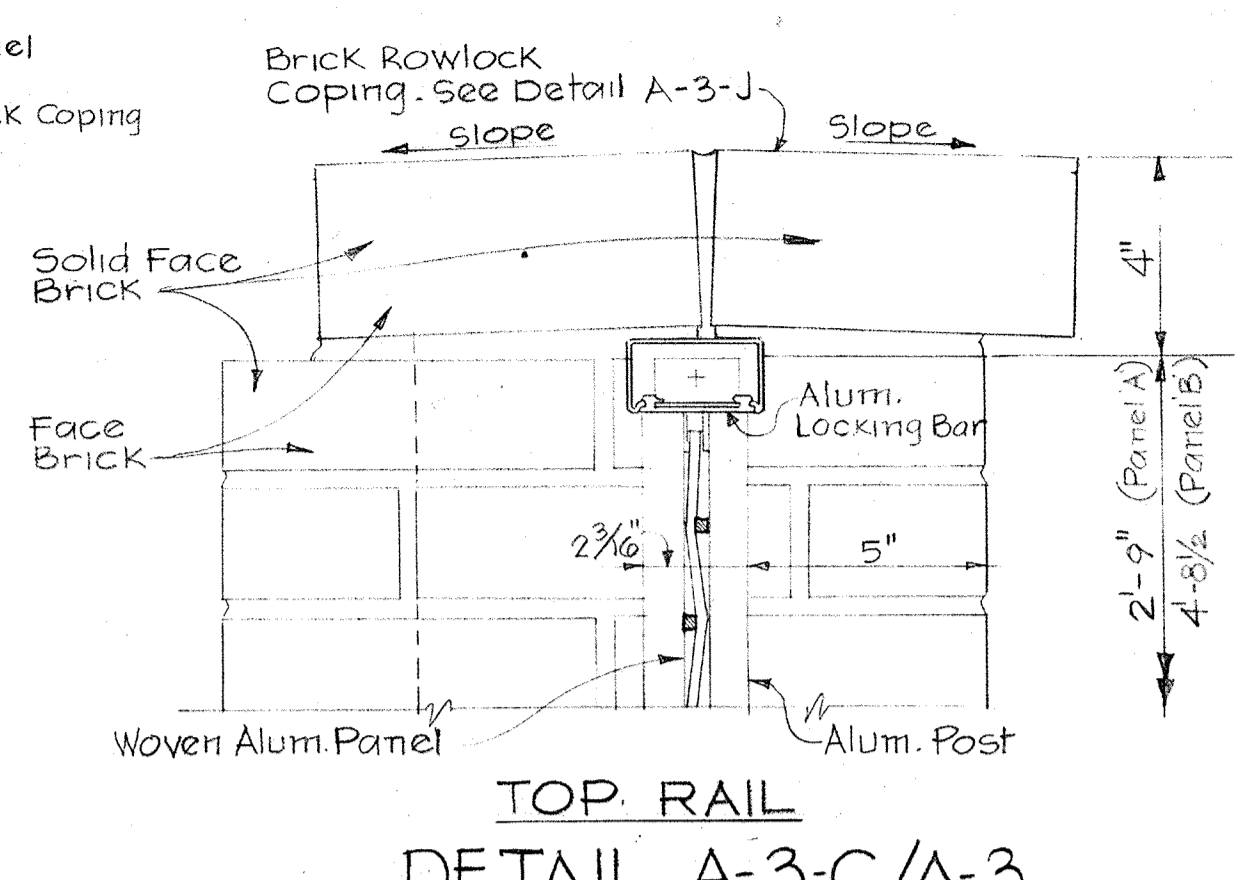
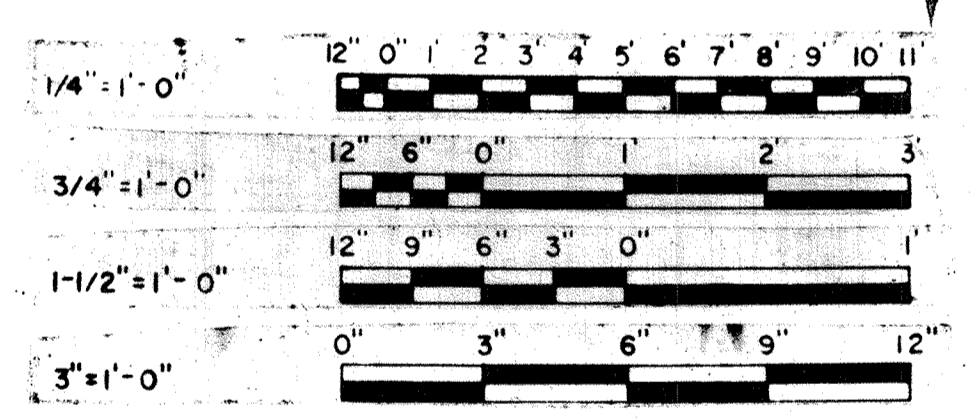
SECTION A-3-L/A-1
SECTION A-3-A/A-1
Scale: 3/4" = 1'-0"



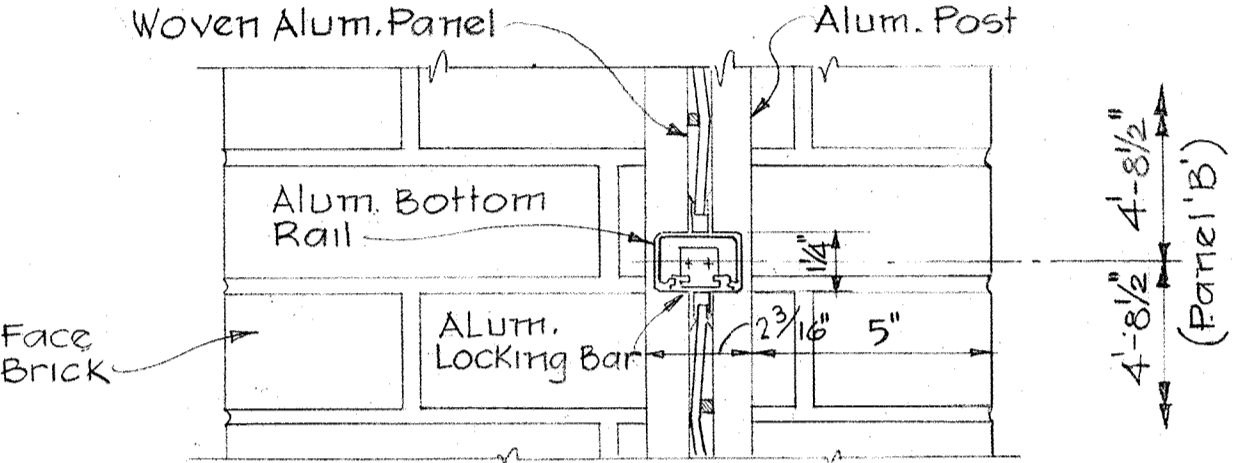
PANEL A' PANEL B'
ALUMINUM SCREEN TYPES
Scale: 1/4" = 1'-0"



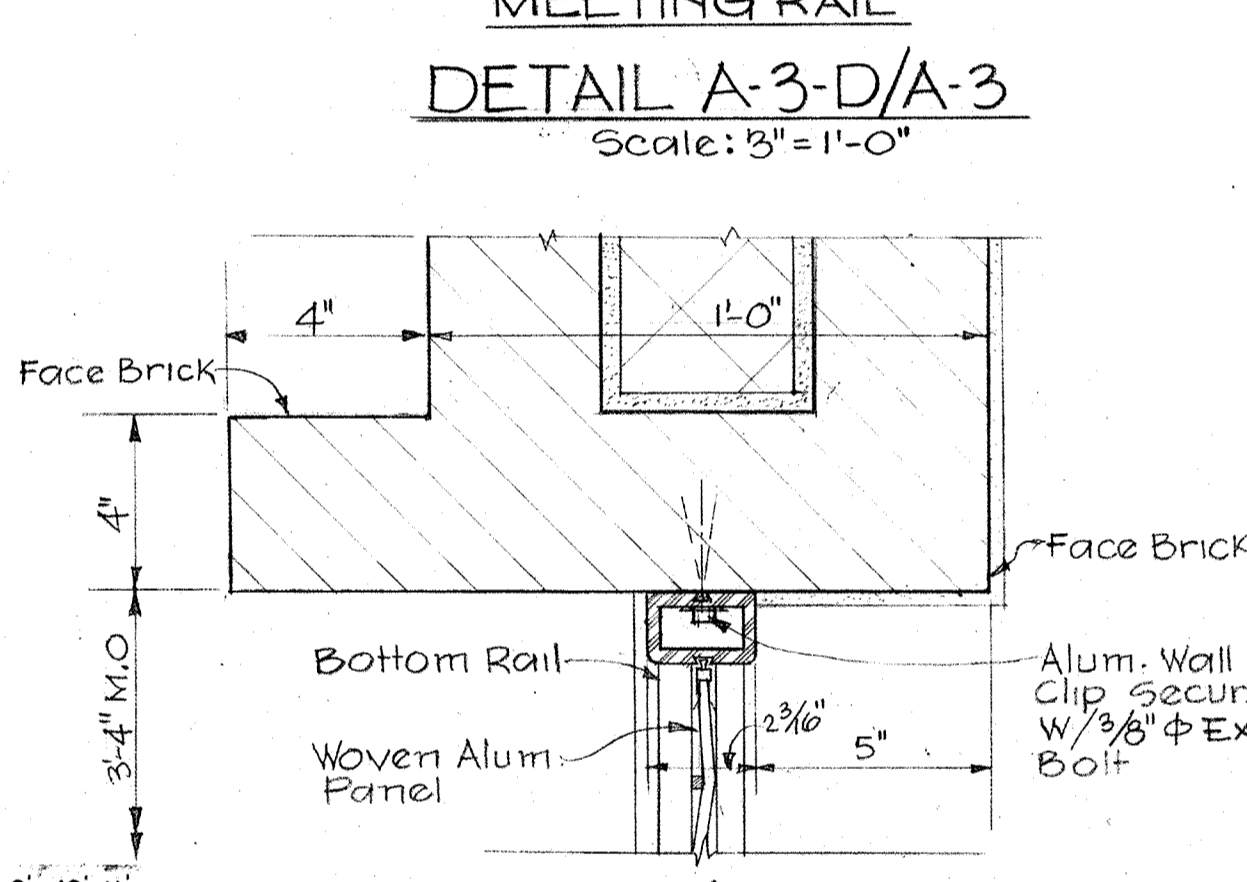
SECTION A-3-B/A-1, A-5
Scale: 3/4" = 1'-0"



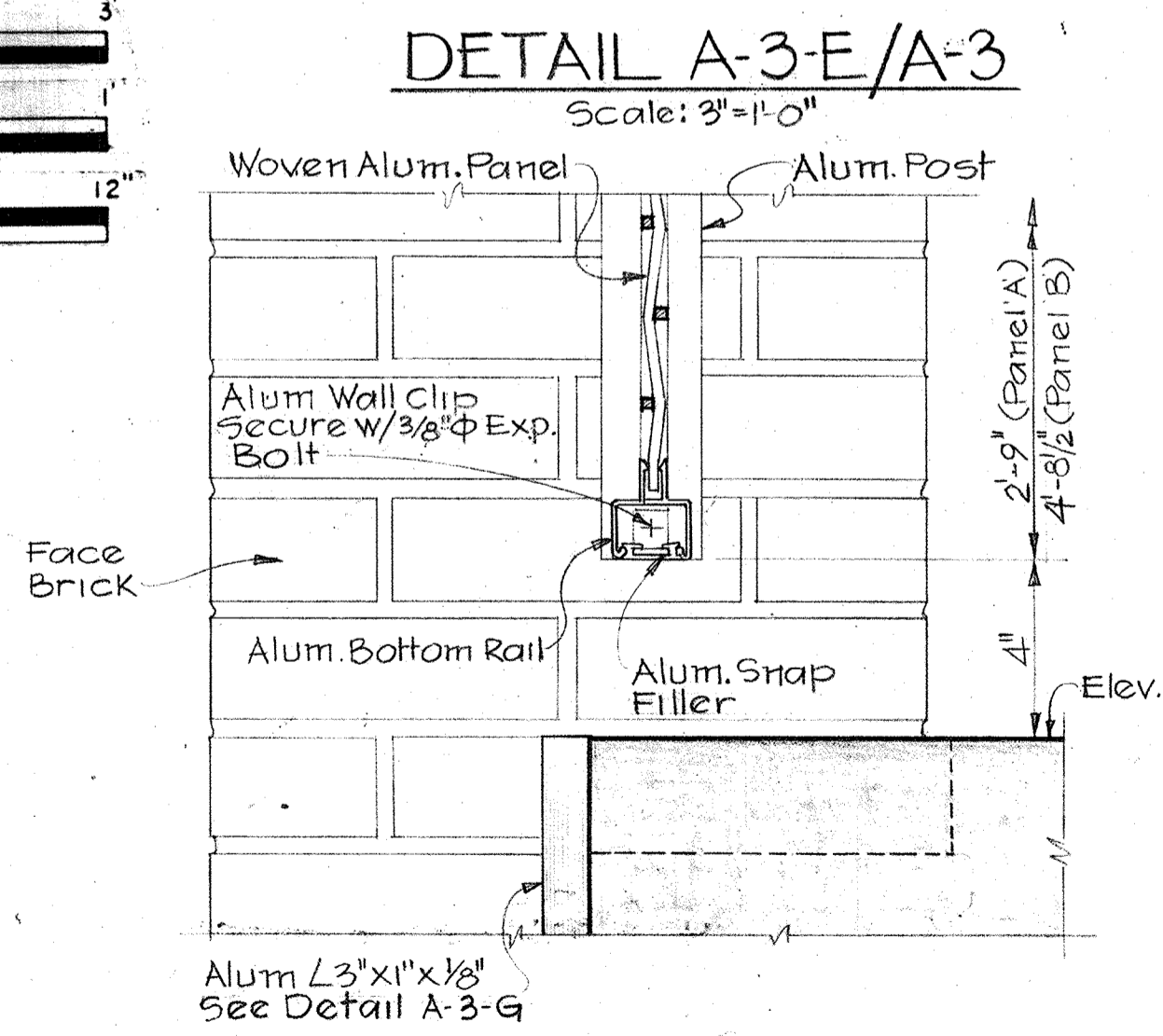
TOP RAIL
DETAIL A-3-C/A-3
Scale: 3/8" = 1'-0"



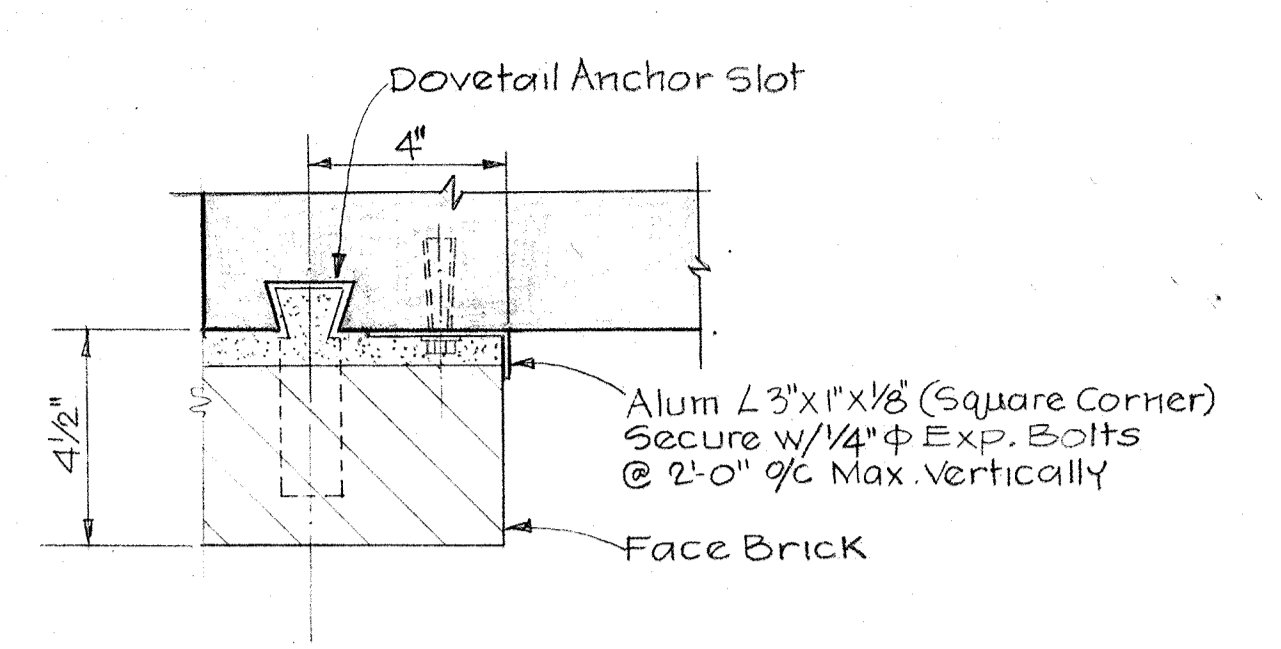
MEETING RAIL
DETAIL A-3-D/A-3
Scale: 3/8" = 1'-0"



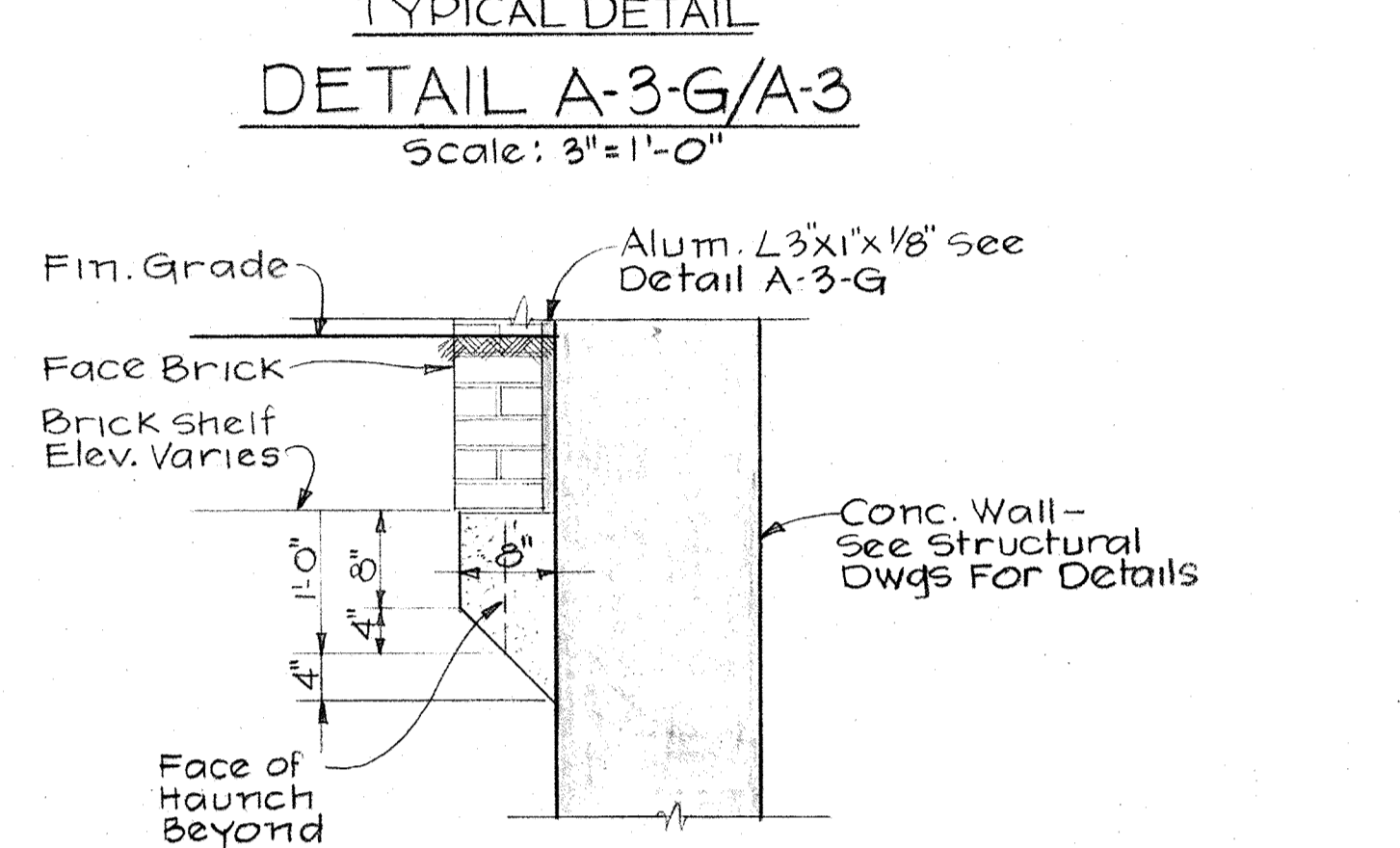
JAMB
DETAIL A-3-E/A-3
Scale: 3/8" = 1'-0"



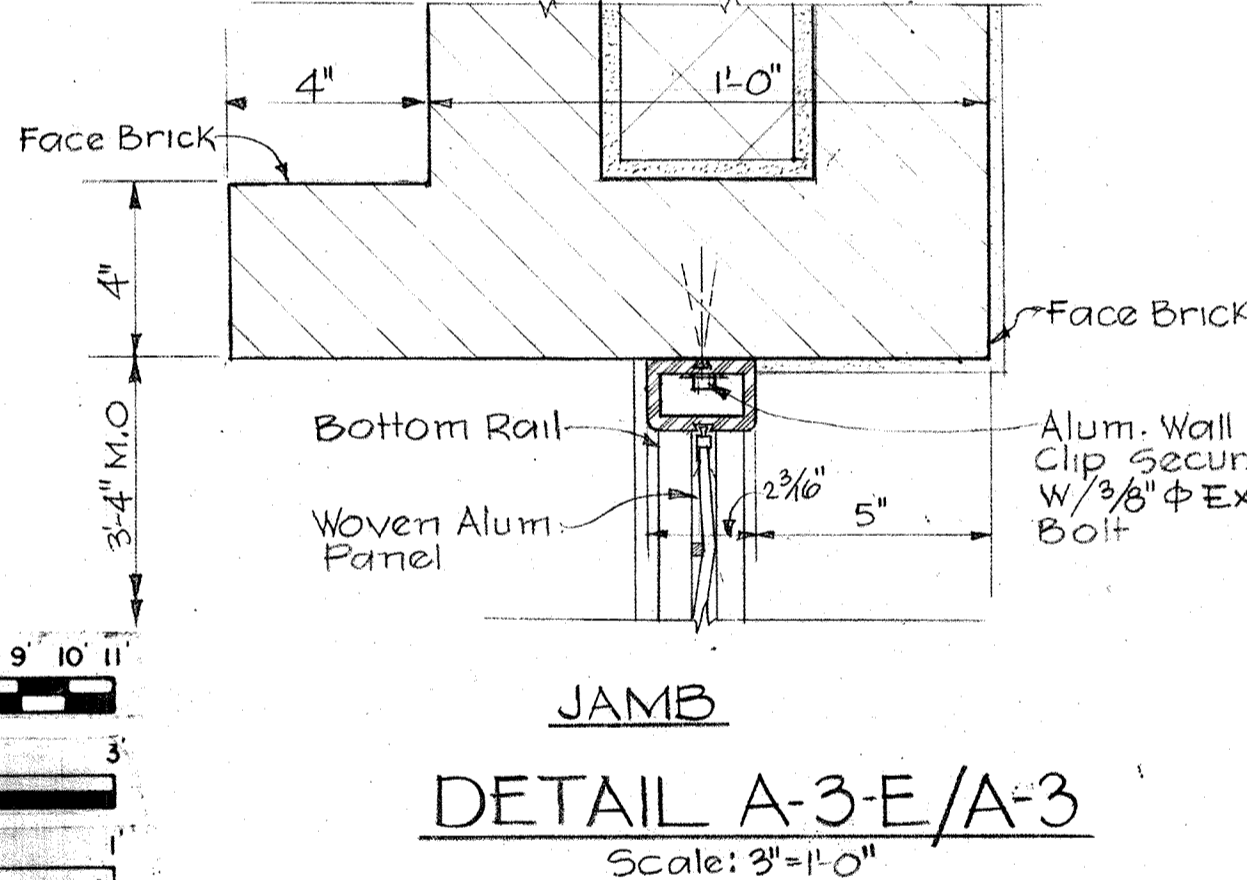
BOTTOM RAIL
DETAIL A-3-F/A-3
Scale: 3/8" = 1'-0"



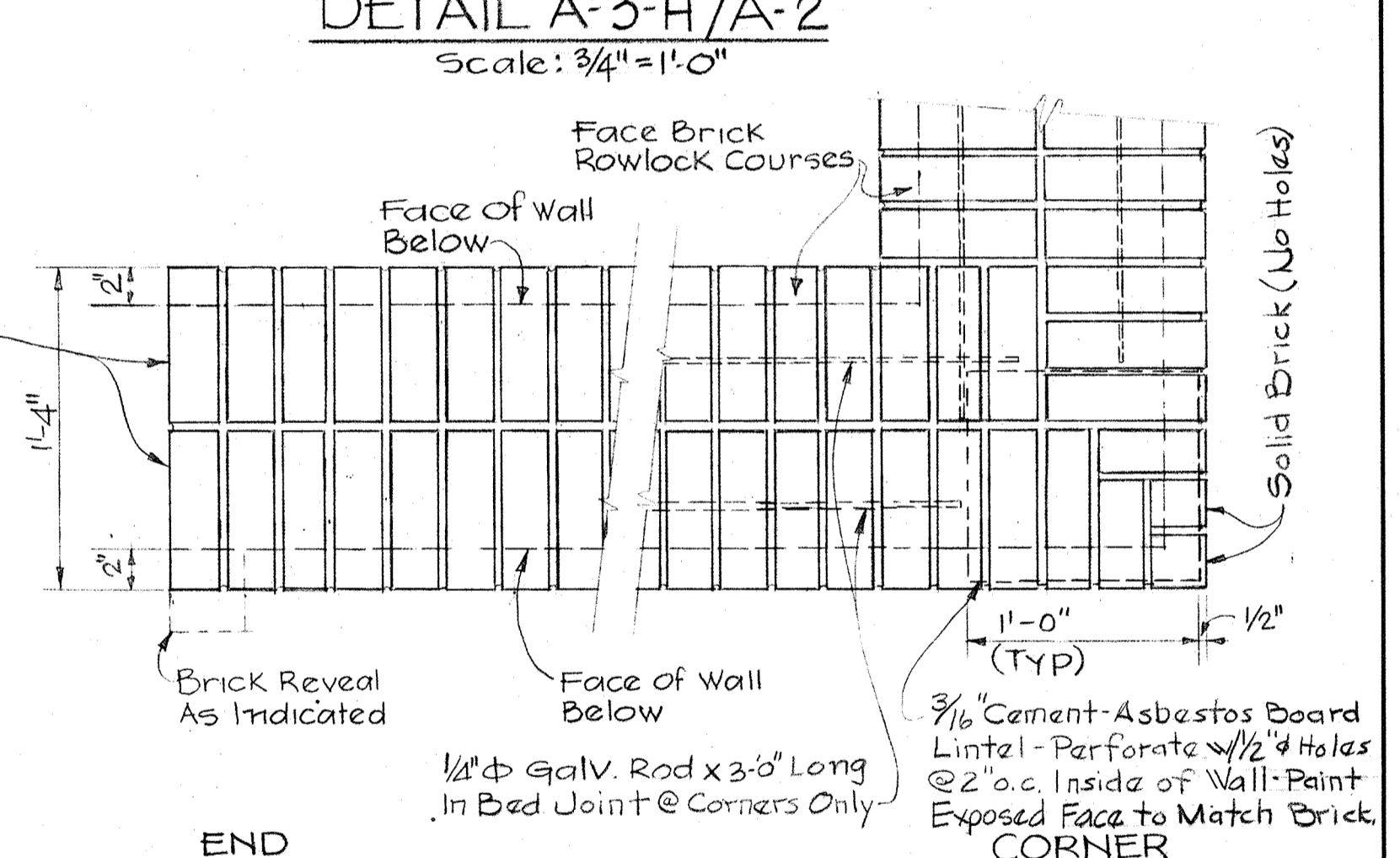
TYPICAL DETAIL
DETAIL A-3-G/A-3
Scale: 3/8" = 1'-0"



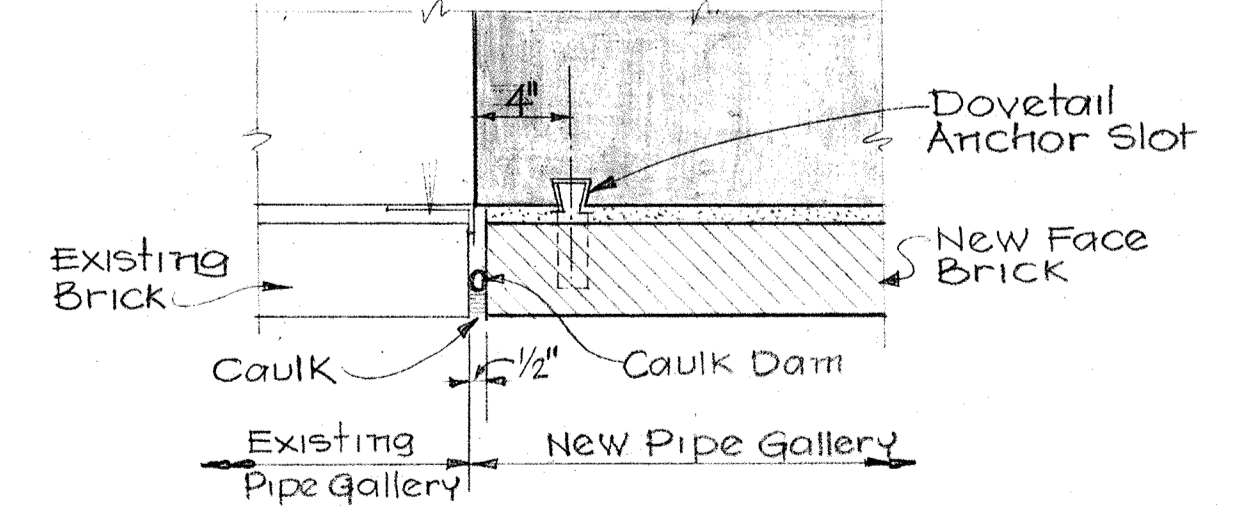
TYPICAL DETAIL
DETAIL A-3-H/A-2
Scale: 3/4" = 1'-0"



JAMB
DETAIL A-3-E/A-3
Scale: 3/8" = 1'-0"



BRICK COPING
DETAIL A-3-J/A-1, A-2, A-3
Scale: 1/2" = 1'-0"



DETAIL A-3-K/A-2
Scale: 1/2" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

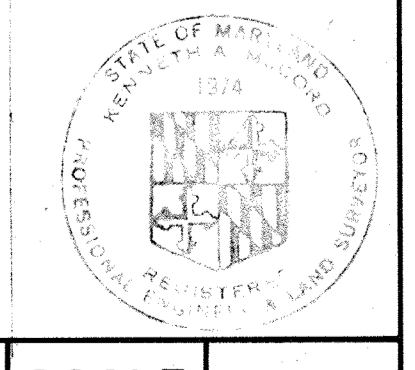
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
DATE
W. O. L. Chief-Bureau of Engineering

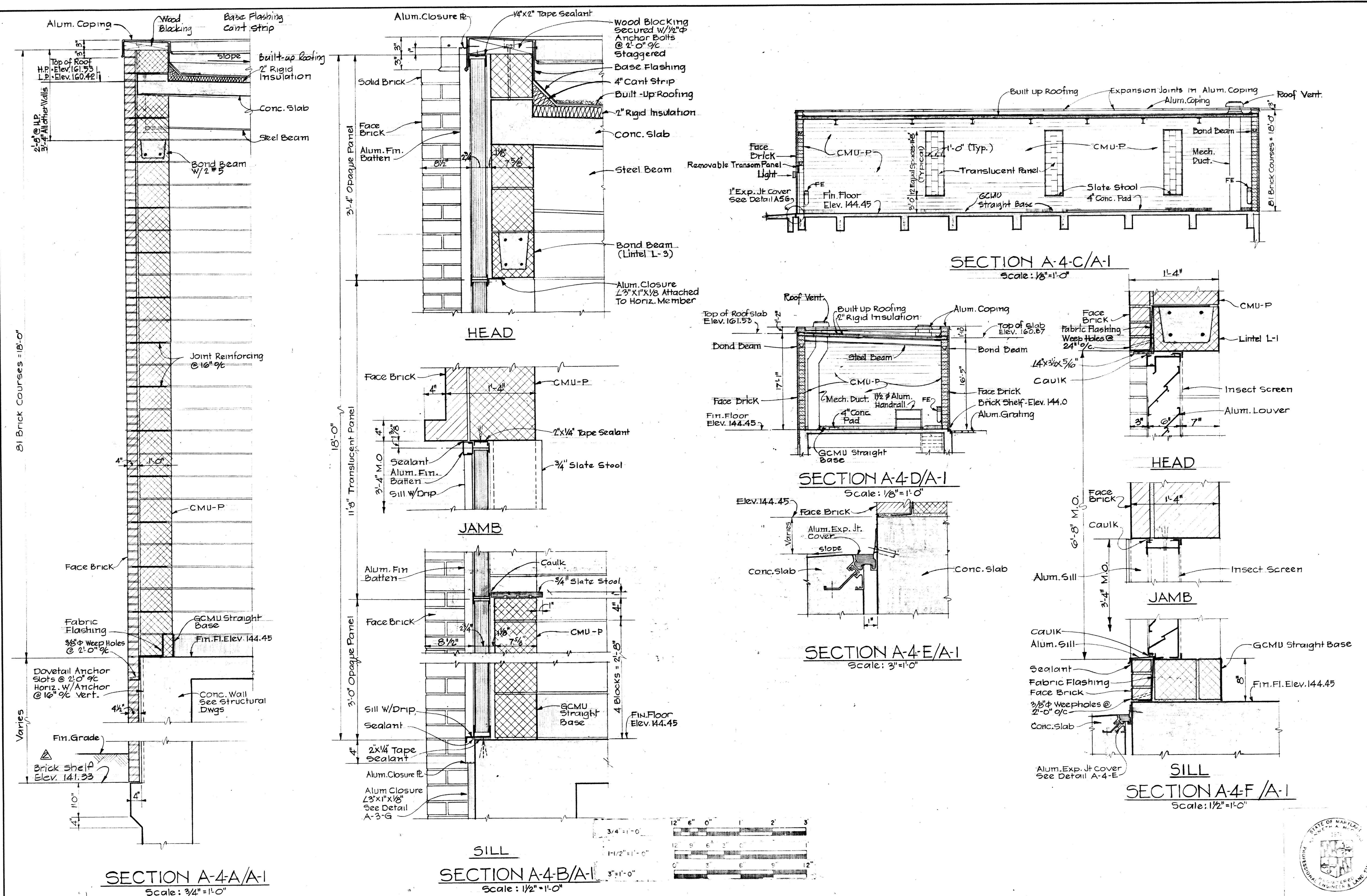
CONTRACT NO. 500-S

AERATION BASINS & PIPE GALLERIES
DETAILS

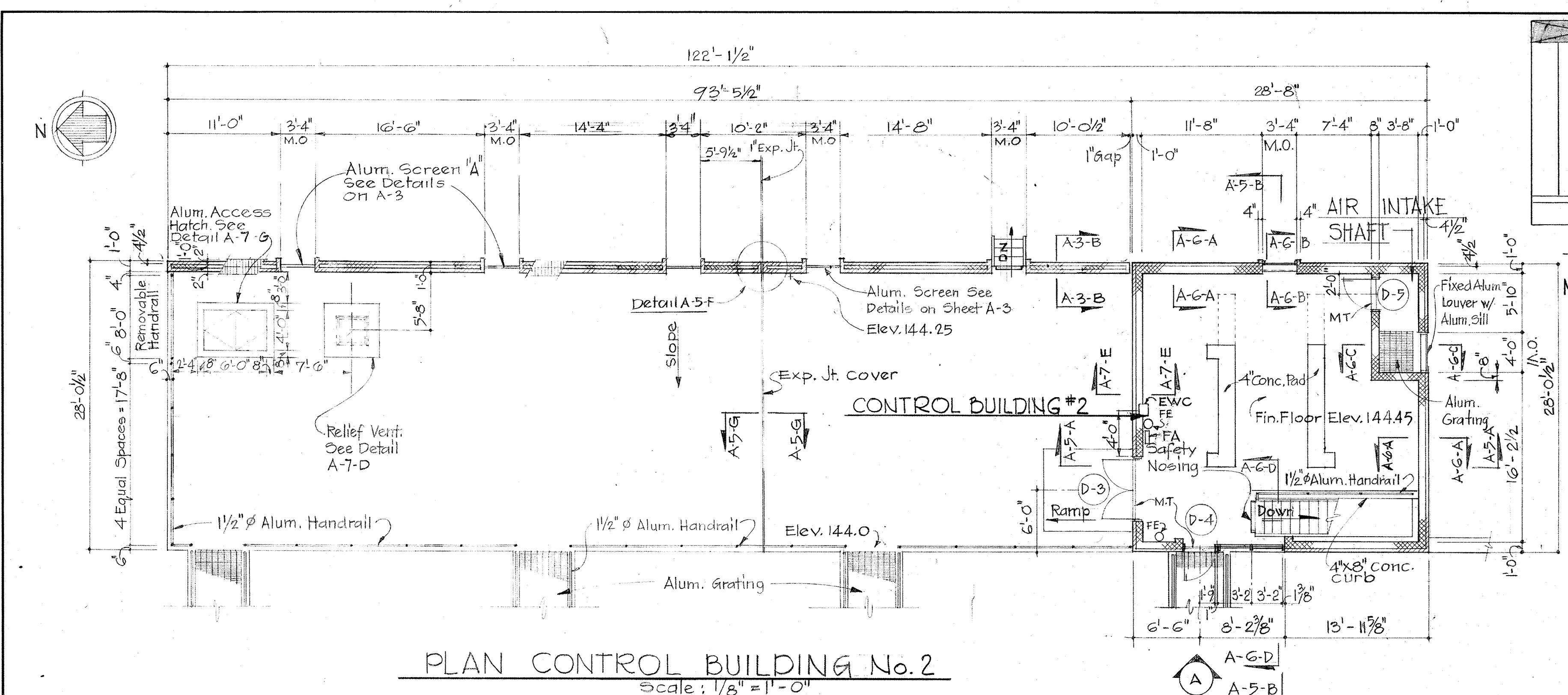
SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 29 OF 133
SCALE AS SHOWN

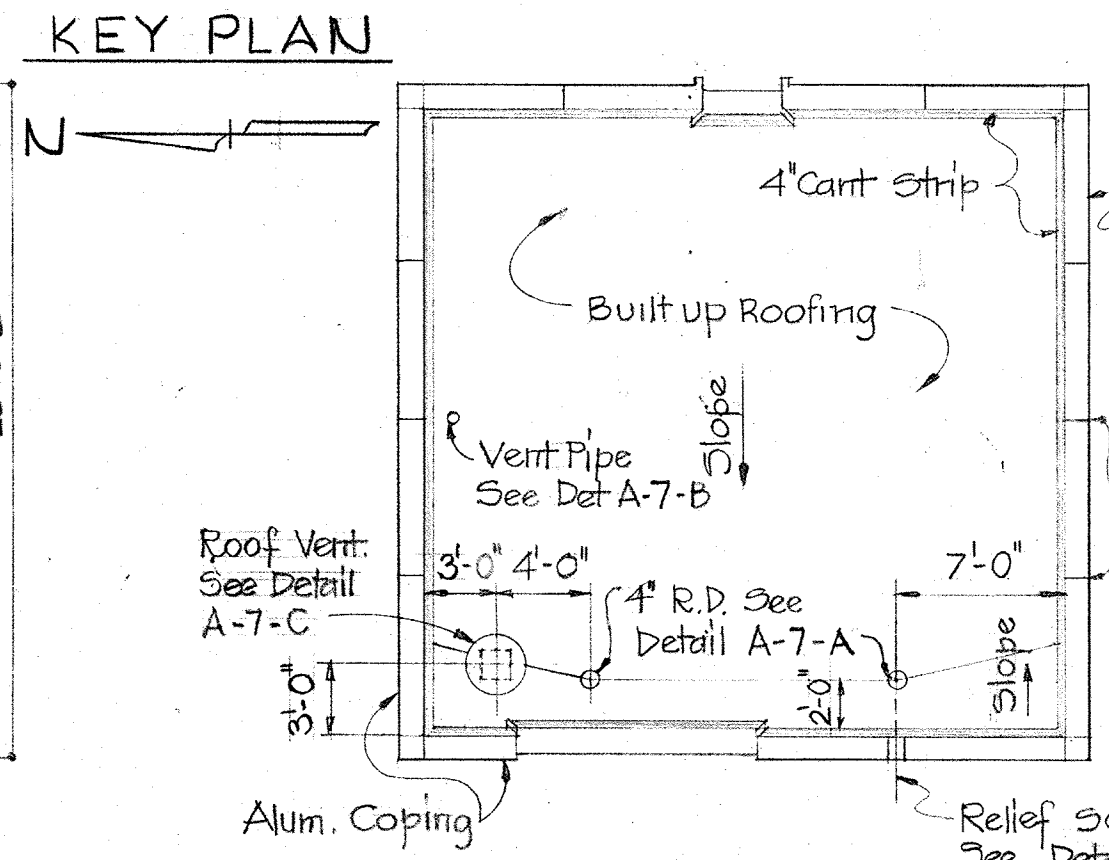
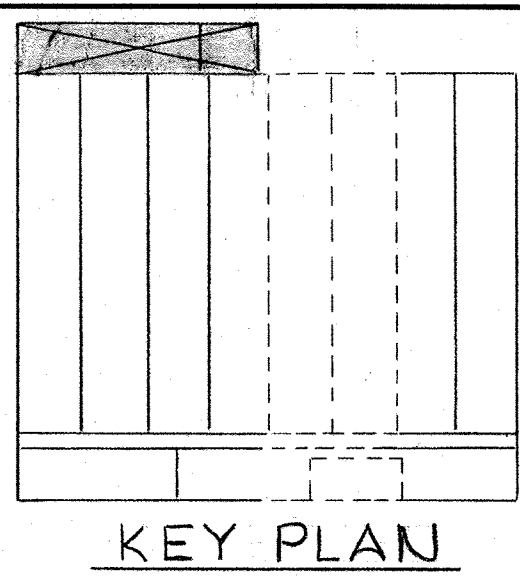




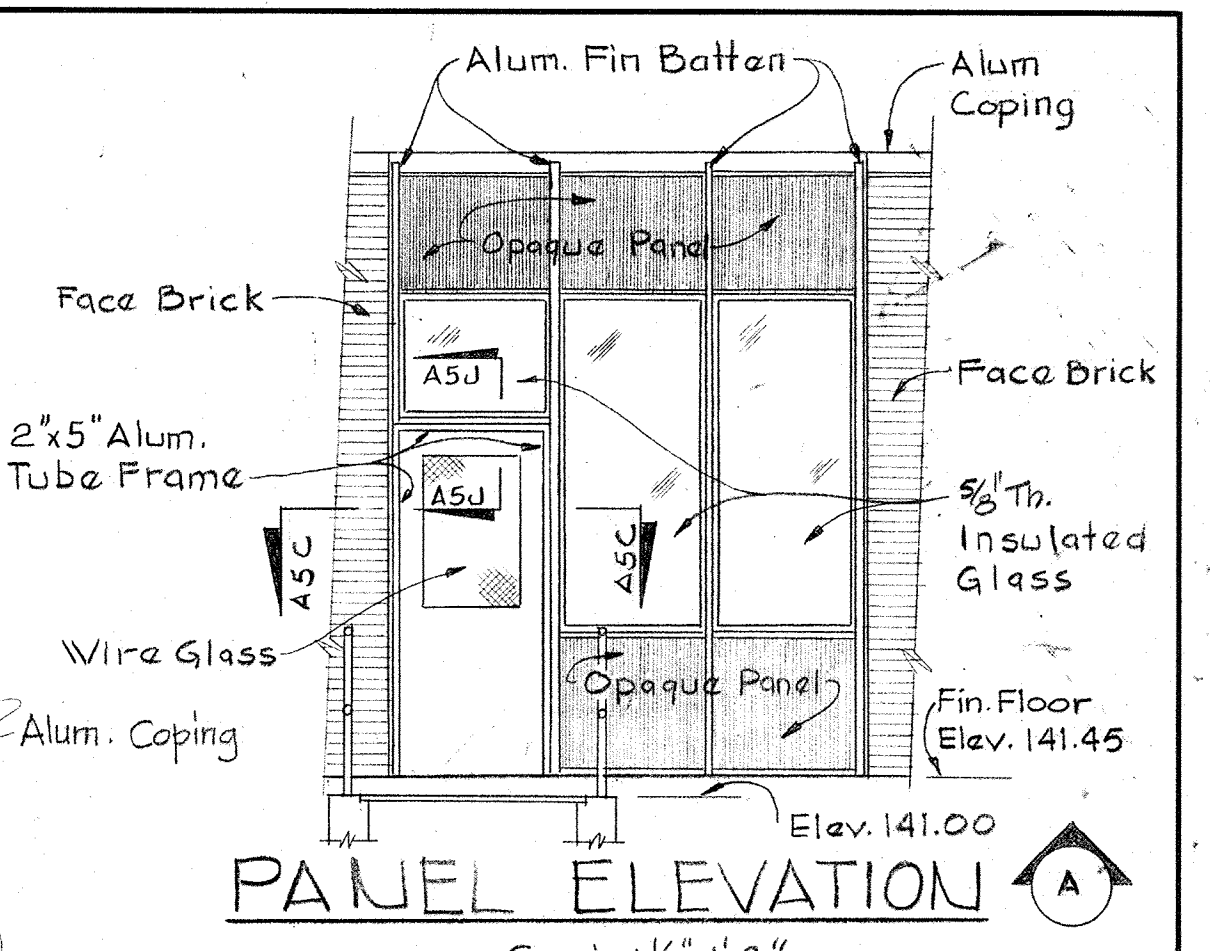
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE	CONTRACT NO. 500-S W.O. Fallick CHIEF-BUREAU OF ENGINEERING	AERATION BASINS NO. 2 & 3 PIPE GALLERY WEST CHEMICAL FEED BUILDING SECTIONS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 30 OF 133 SCALE AS SHOWN
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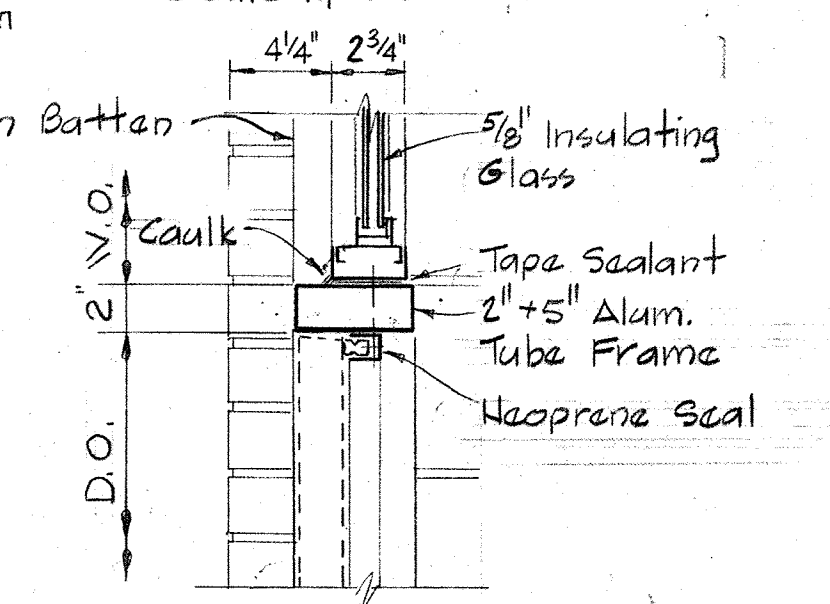
PLAN CONTROL BUILDING No. 2
Scale: 1/8" = 1'-0"



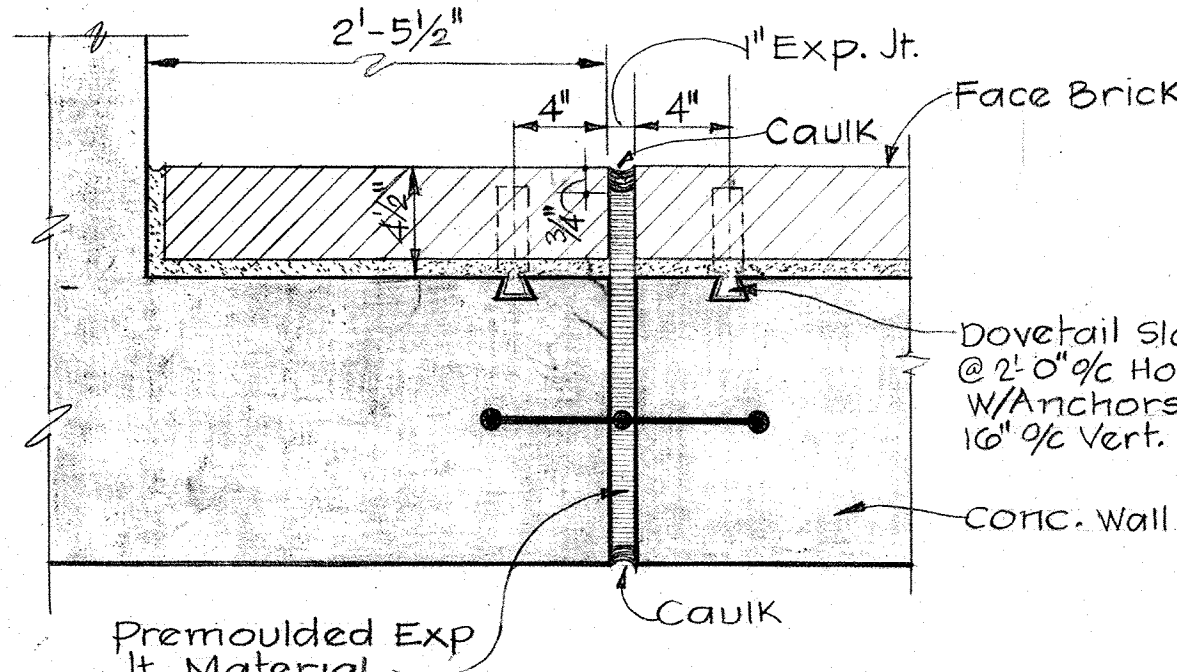
ROOF PLAN
Scale: 1/8" = 1'-0"



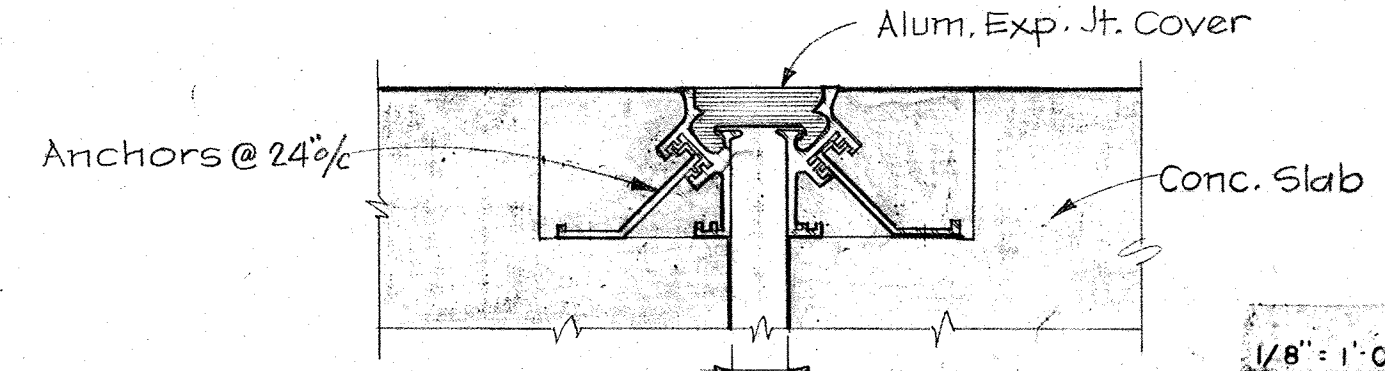
PANEL ELEVATION A
Scale: 1/4" = 1'-0"



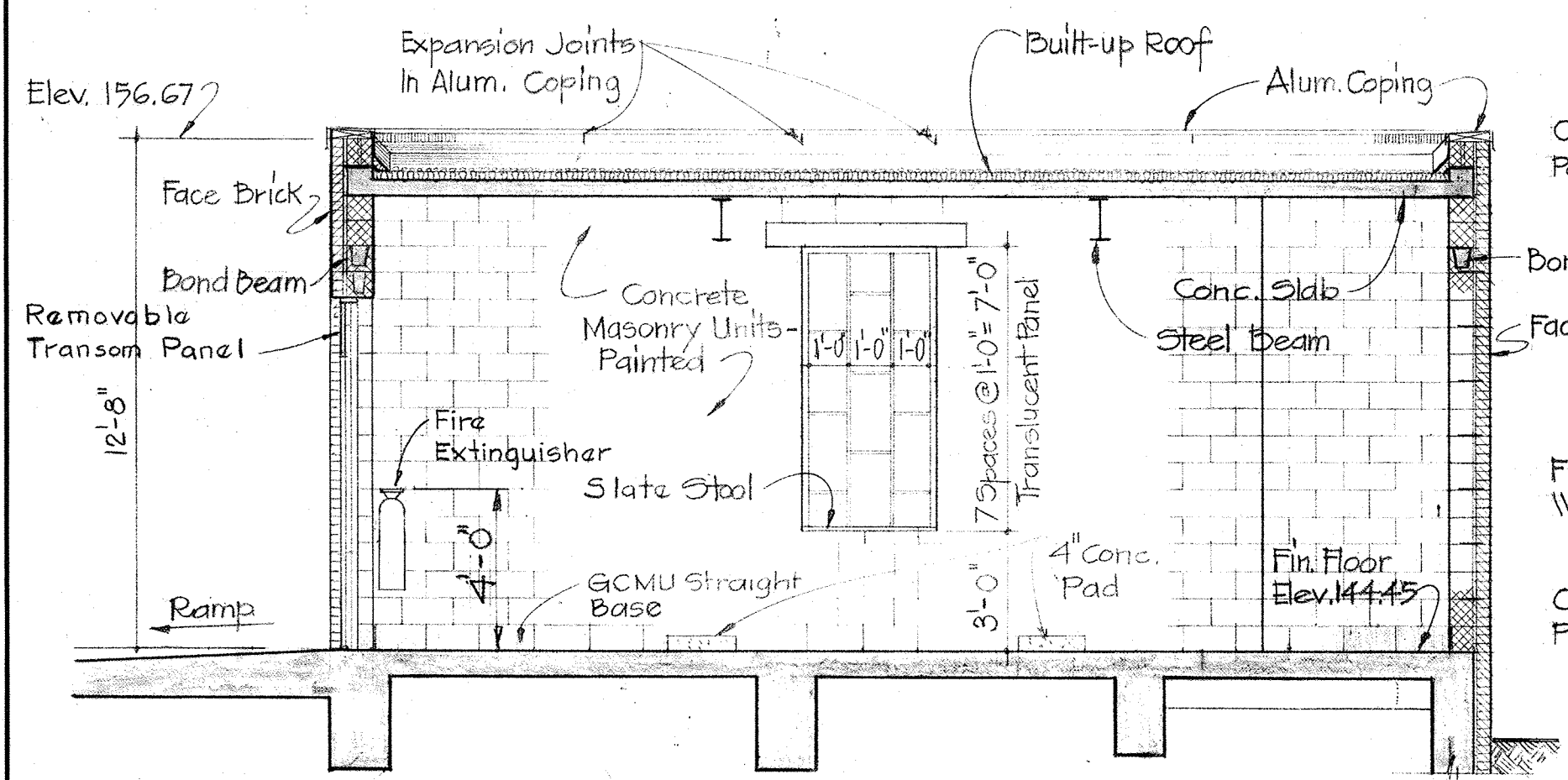
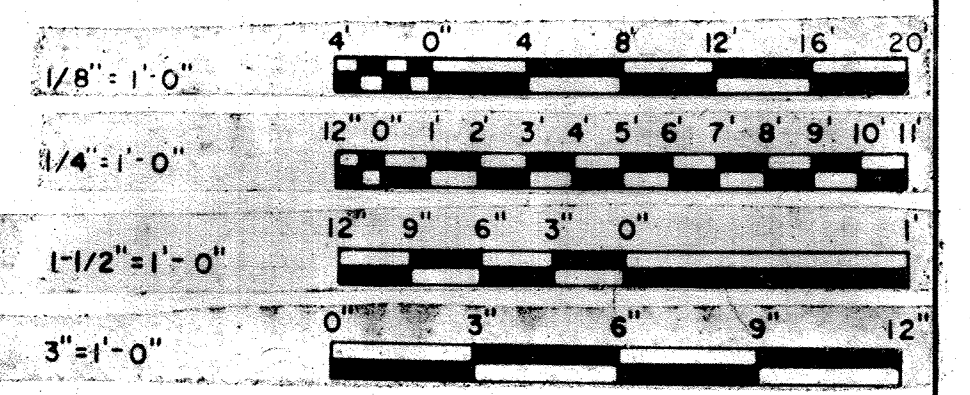
SECTION A-5-J/A-5
Scale: 1 1/2" = 1'-0"



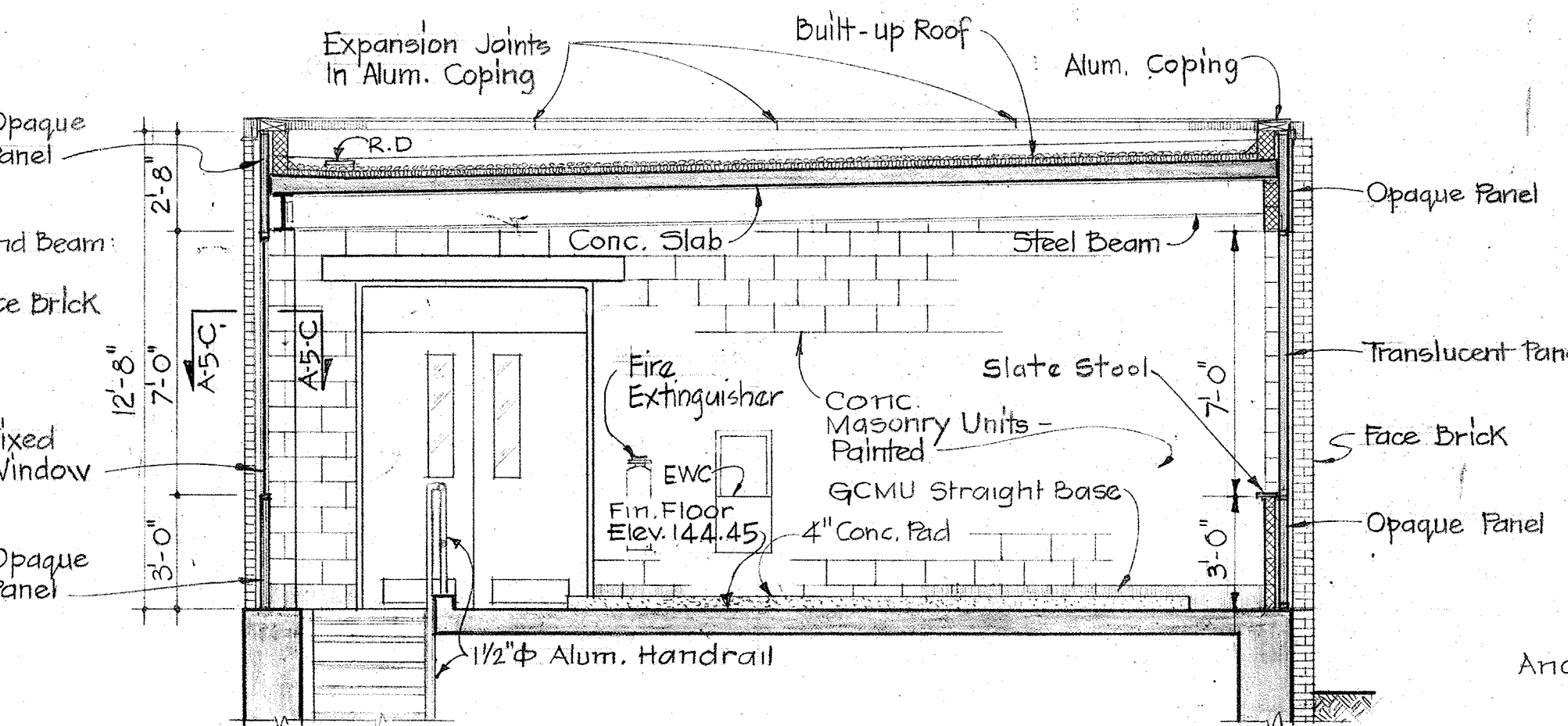
DETAIL A-5-F/A-5
Scale: 1 1/2" = 1'-0"



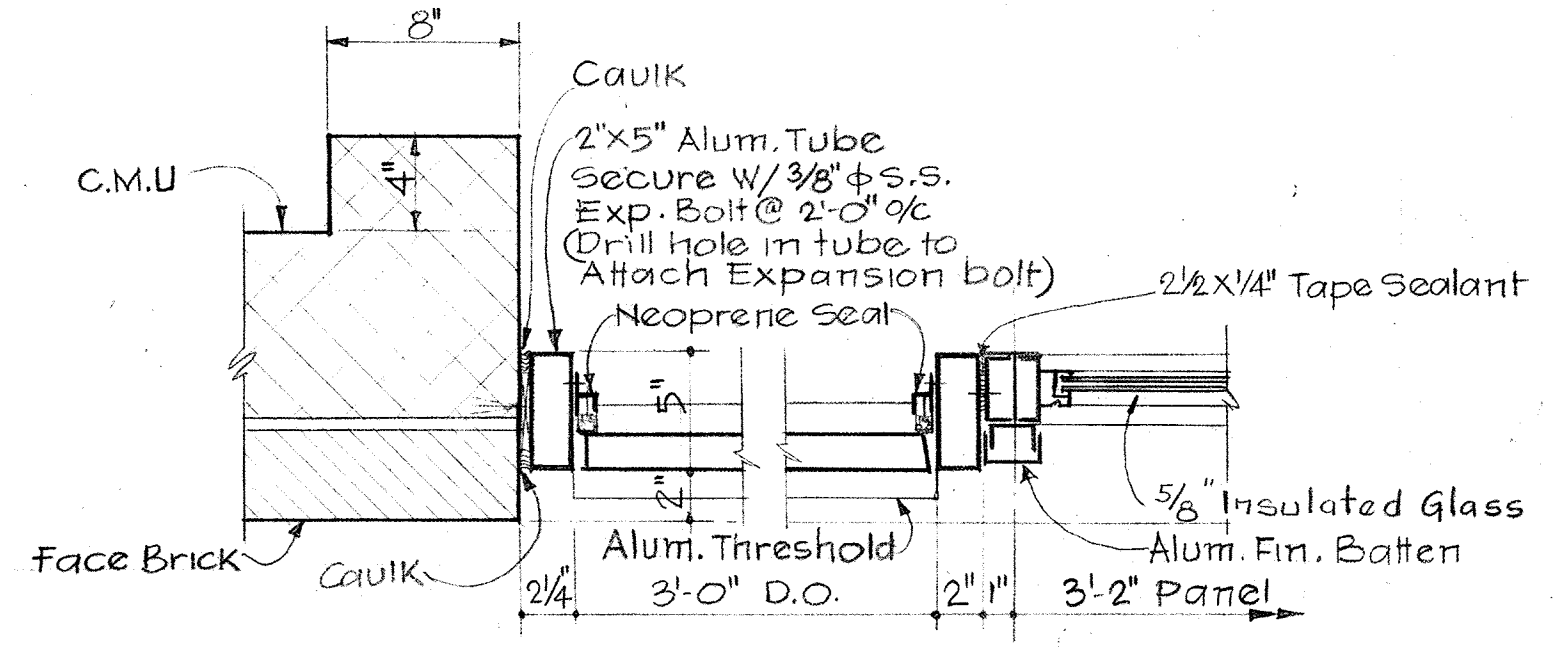
DETAIL A-5-G/A-1, A-5
Scale: 3" = 1'-0"



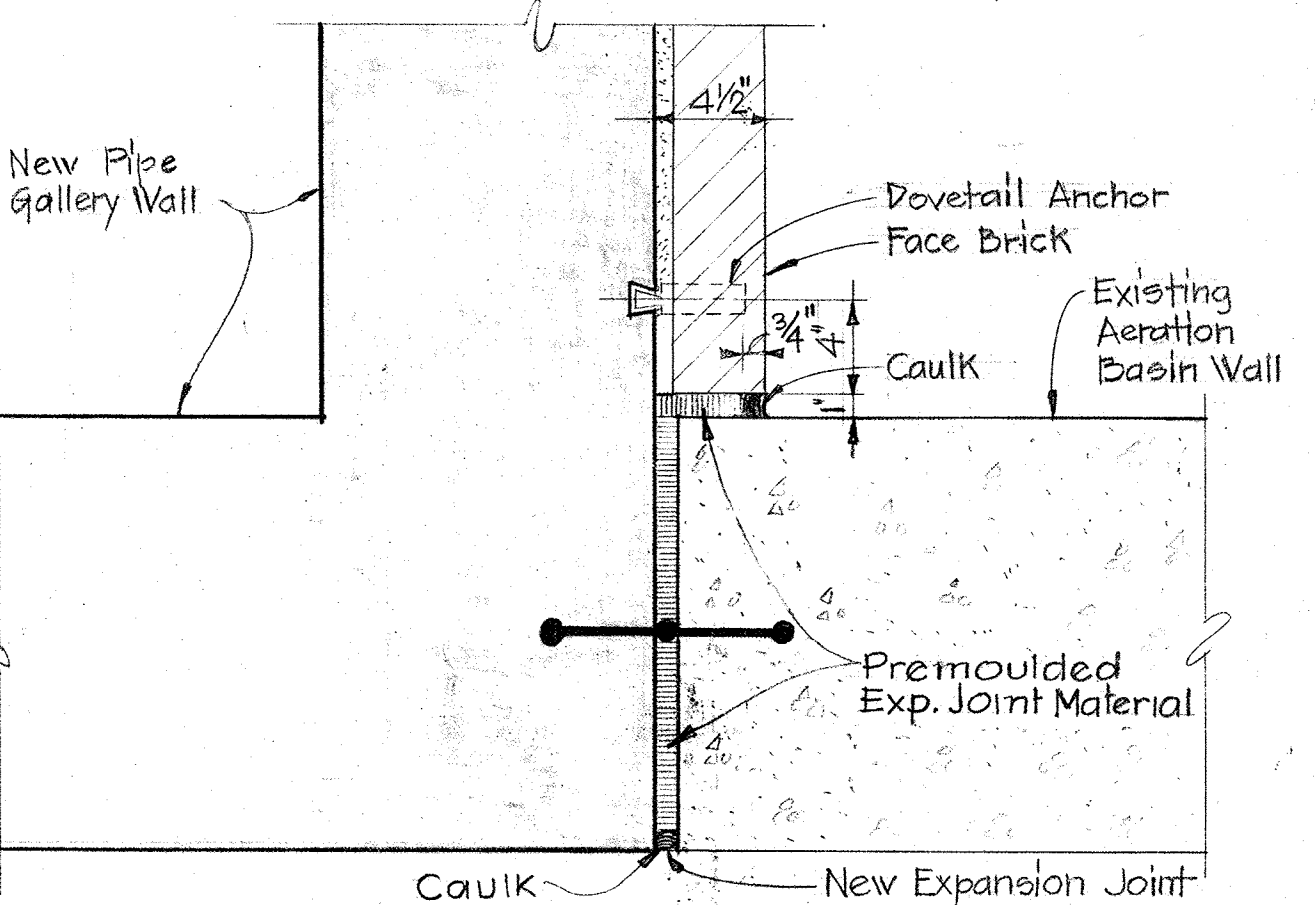
SECTION A-5-A/A-5
Scale: 1/4" = 1'-0"



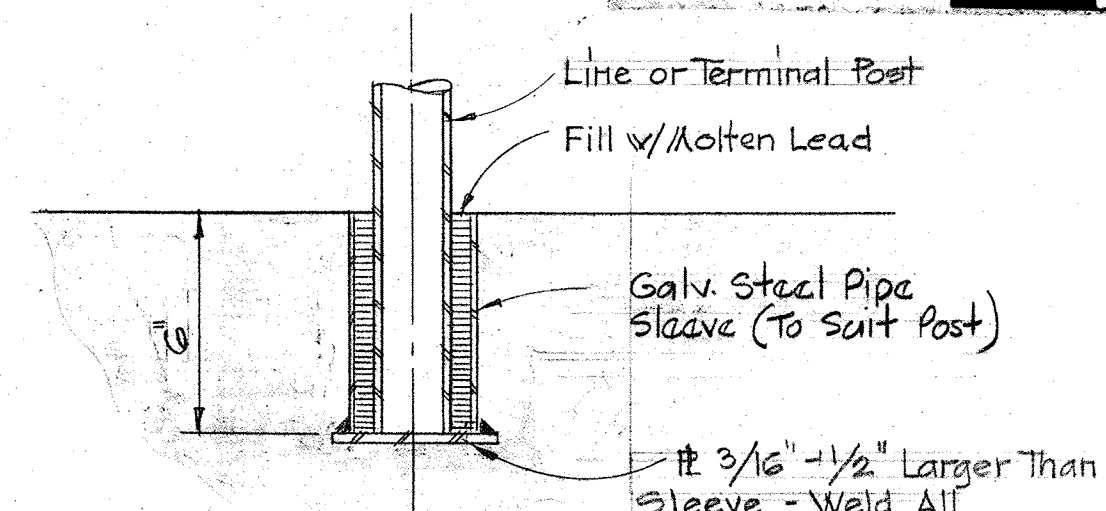
SECTION A-5-B/A-5
Scale: 1/4" = 1'-0"



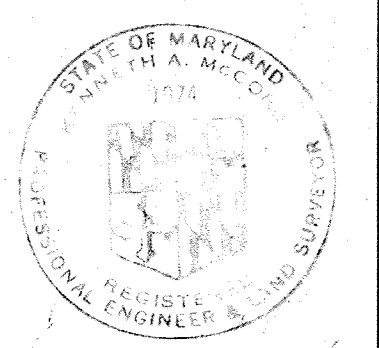
SECTION A-5-C/A-5
Scale: 1 1/2" = 1'-0"



DETAIL A-5-D/A-2
Scale: 1 1/2" = 1'-0"

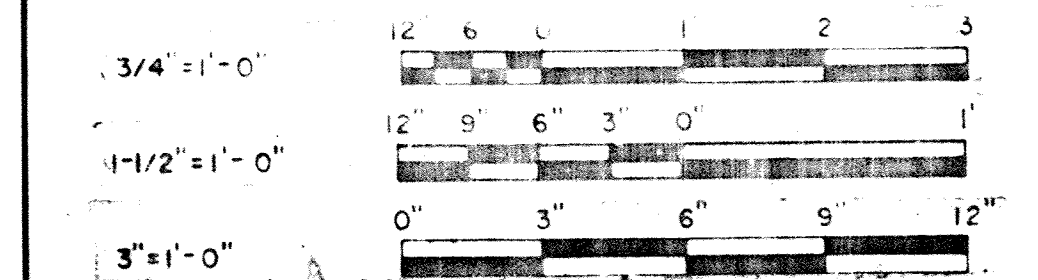
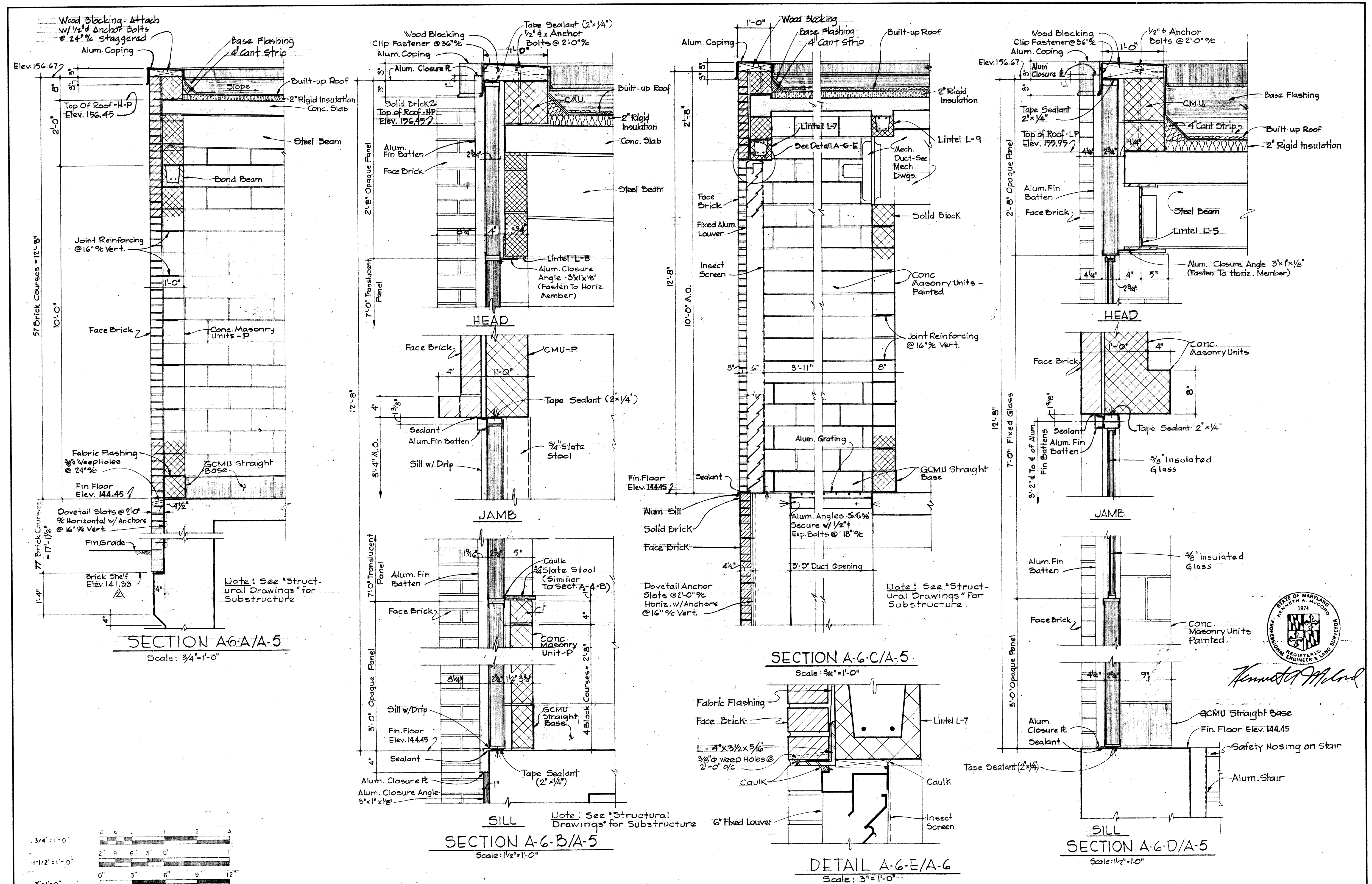


TYPICAL POST ANCHORING DETAIL A-5-H/A-1
No Scale

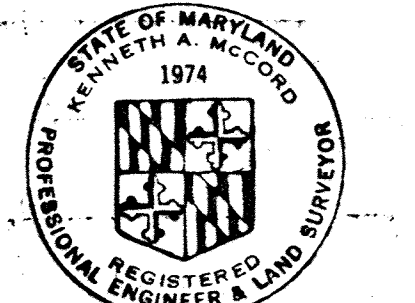


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/30/85 W. O. Lubert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS NO. 2 & 3 PIPE GALLERY EAST CONTROL BUILDING SECTIONS AND DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 31 OF 133	SCALE AS SHOWN
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BRUNING 44510 1832



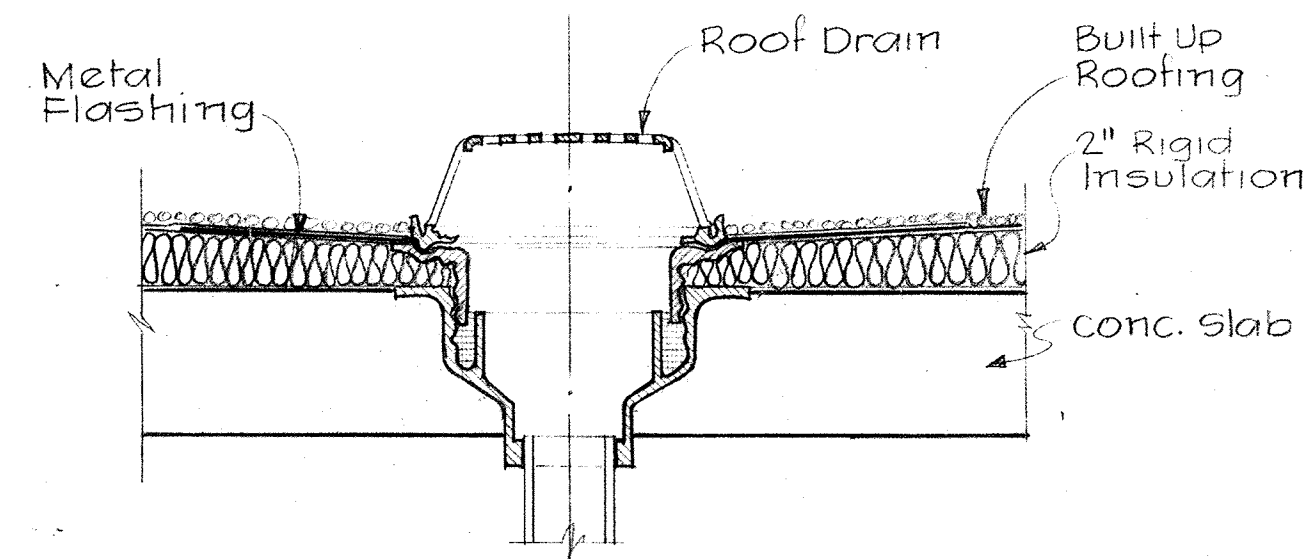
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 W. O. Libert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS NO. 2 & 3 PIPE GALLERY EAST CONTROL BUILDING SECTIONS AND DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 32 OF 133 SCALE AS SHOWN SHEET A-6
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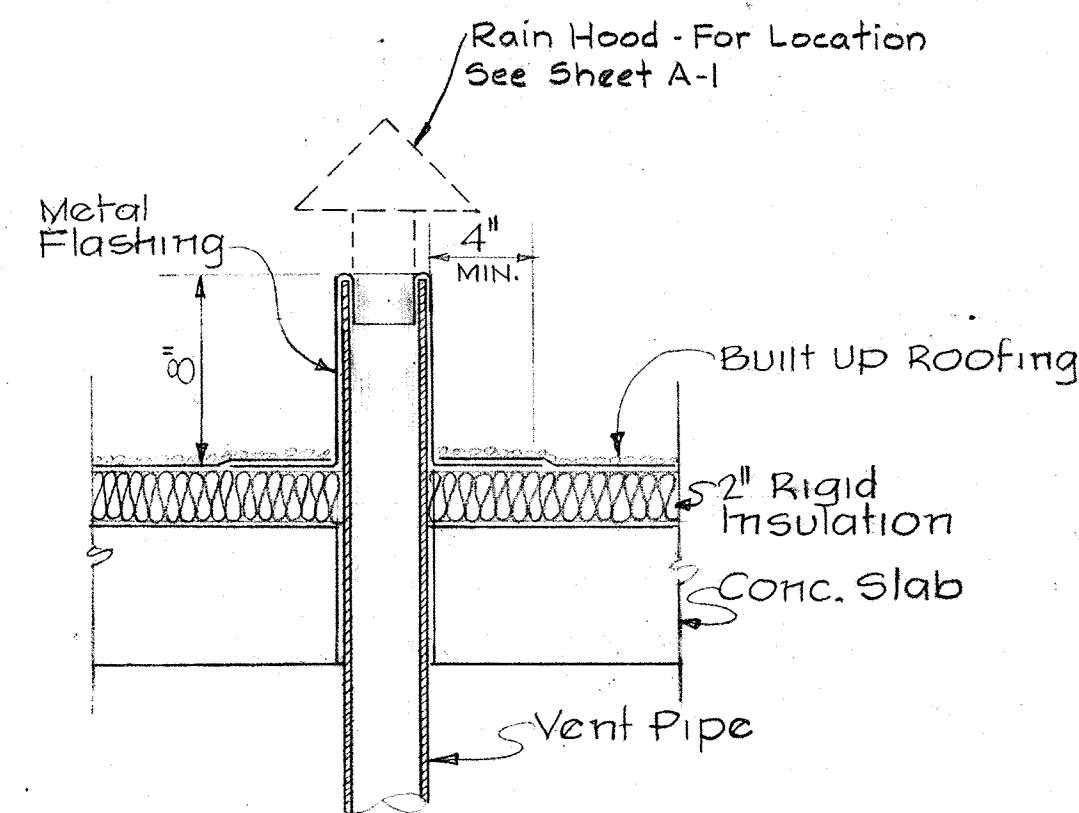
Kenneth A. McCord

W.O. 6887-2

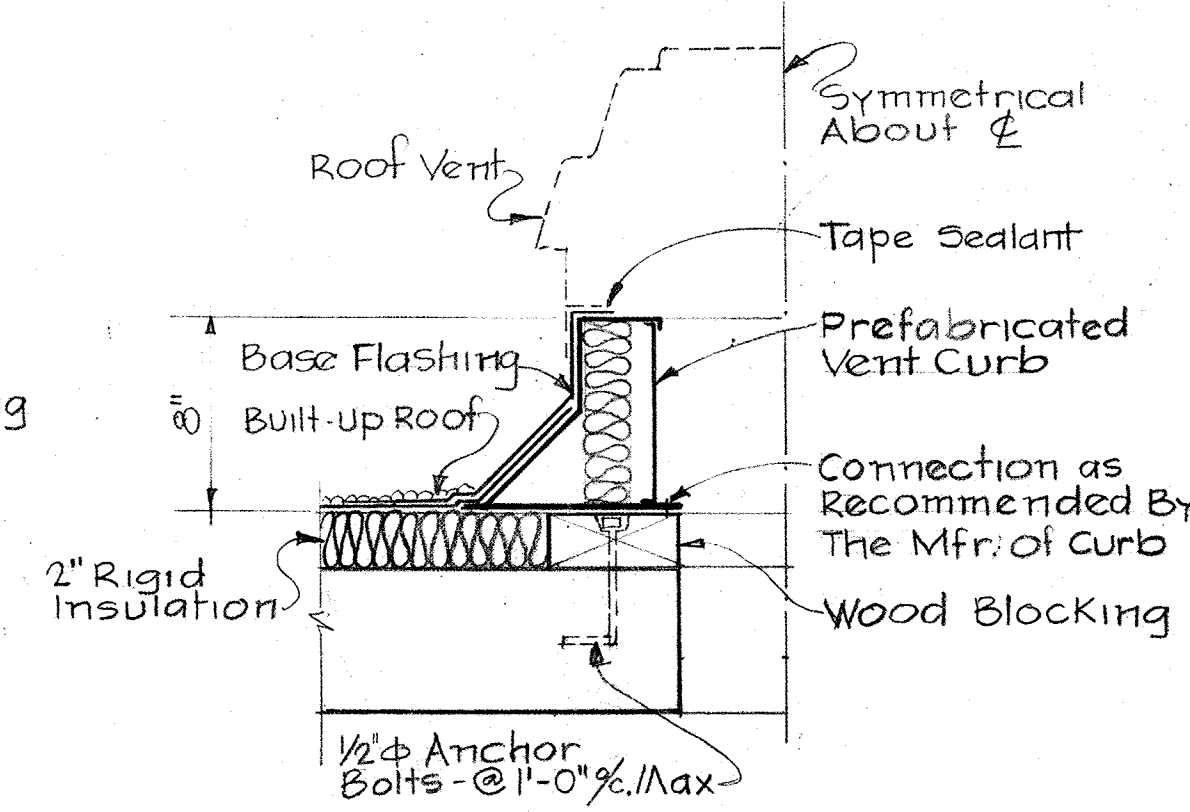
MODIFIED DRAWING-MAY 6, 1982



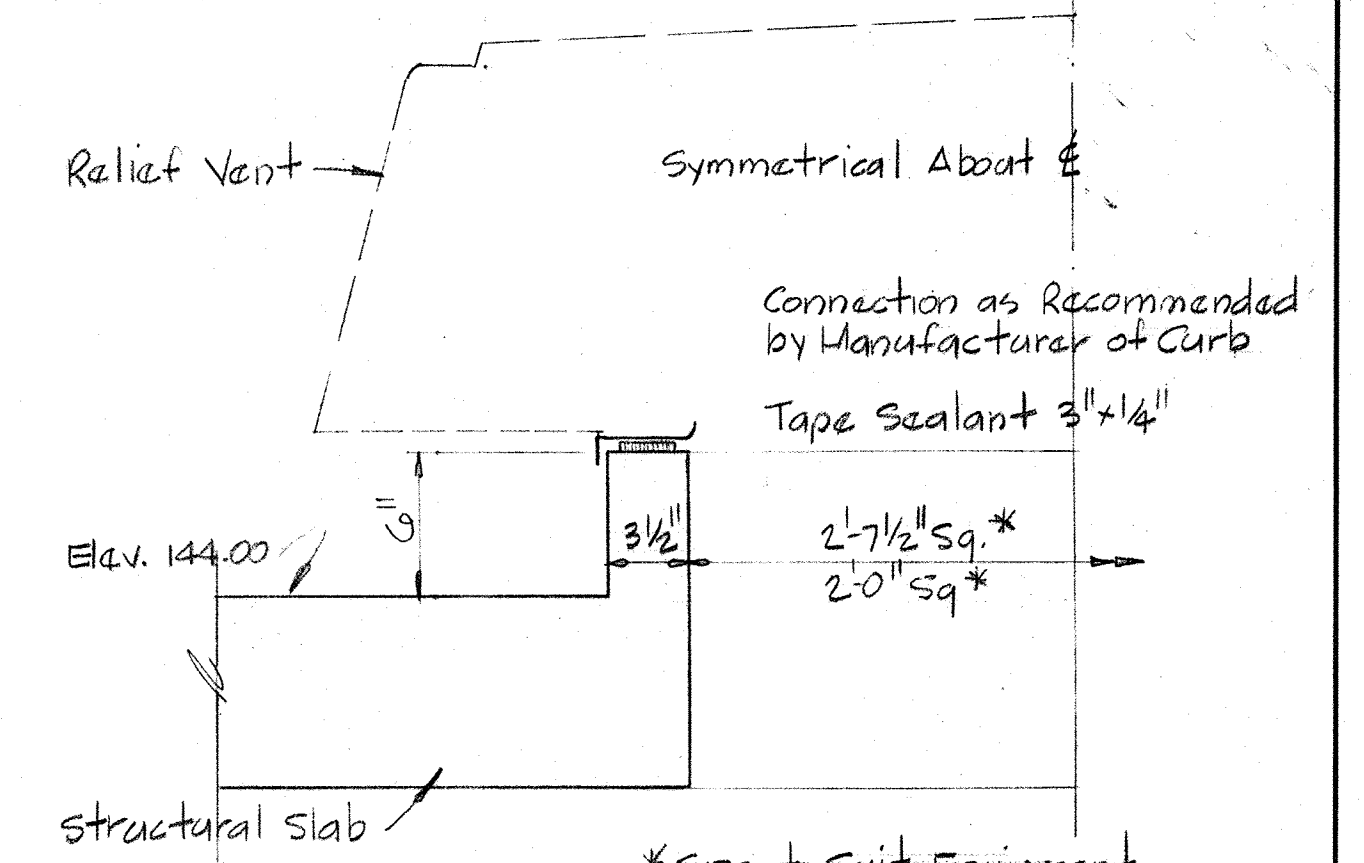
TYPICAL ROOF DRAIN DETAIL A-11-A/A-1,A-5
Scale: 1/2" = 1'-0"



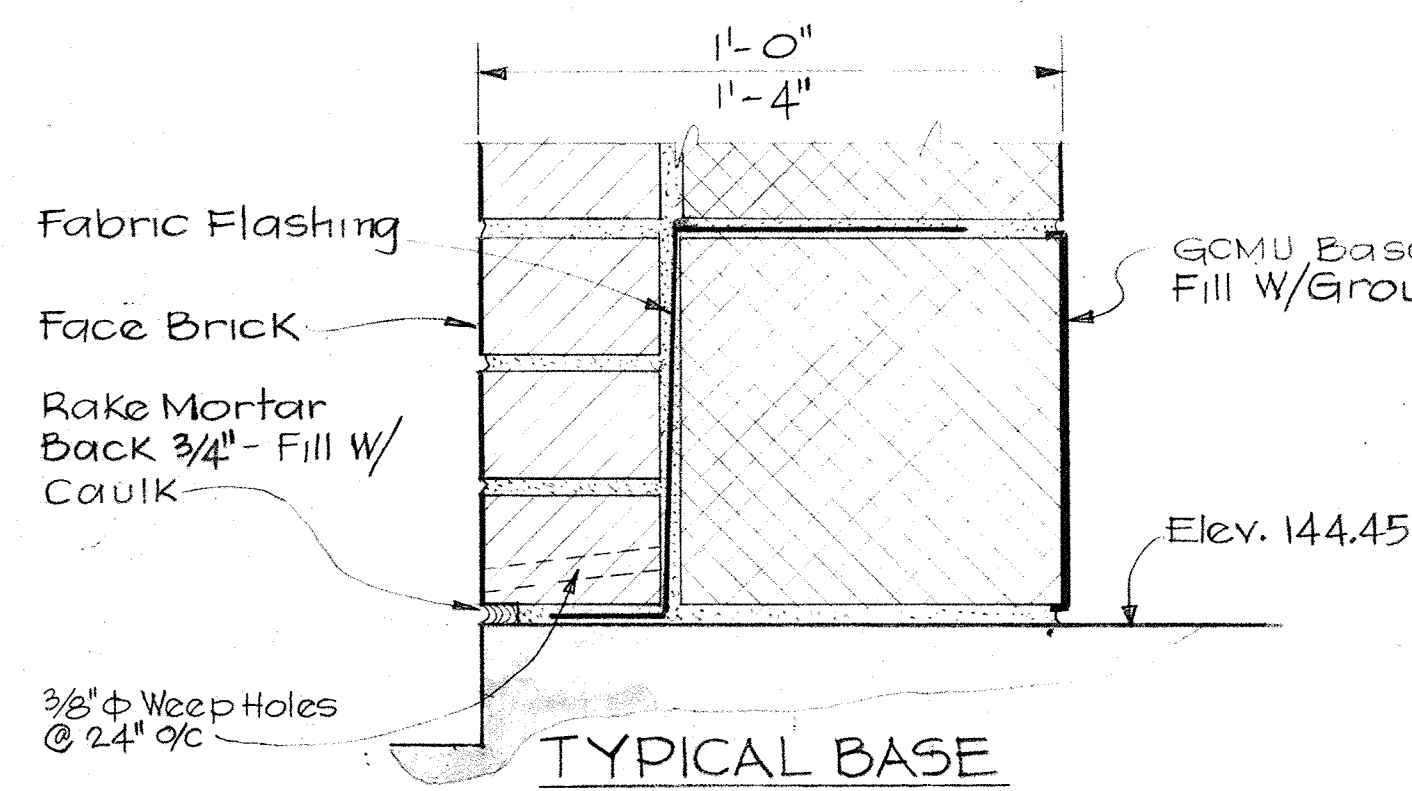
VENT PIPE DETAIL A-7-B/A-1,A-5
Scale: 1/2" = 1'-0"



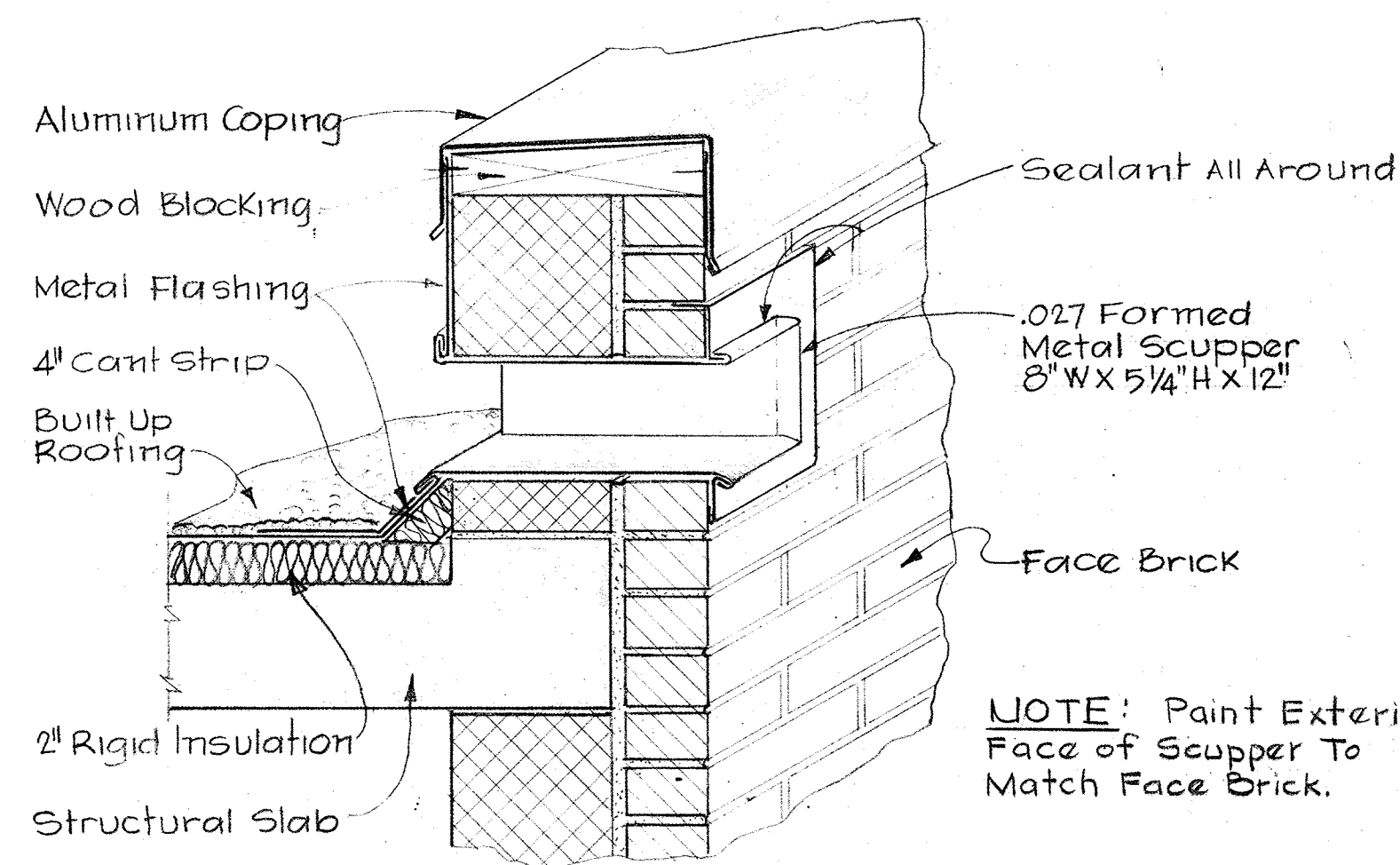
ROOF VENT CURB DETAIL A-7-C/A-1,A-5
Scale: 1/2" = 1'-0"



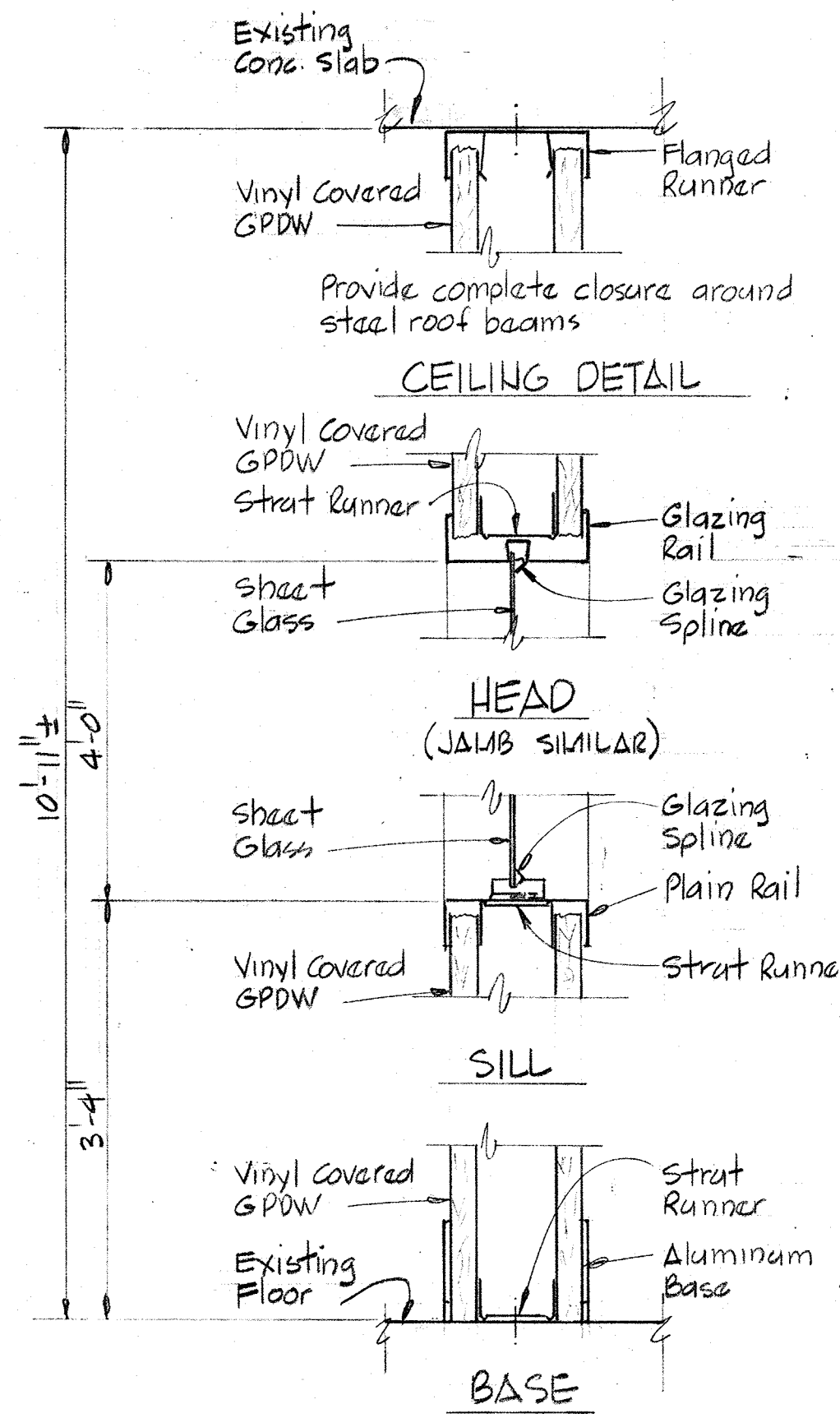
RELIEF VENT CURB DETAIL A-7-D/A-1,A-5
Scale: 1/2" = 1'-0"



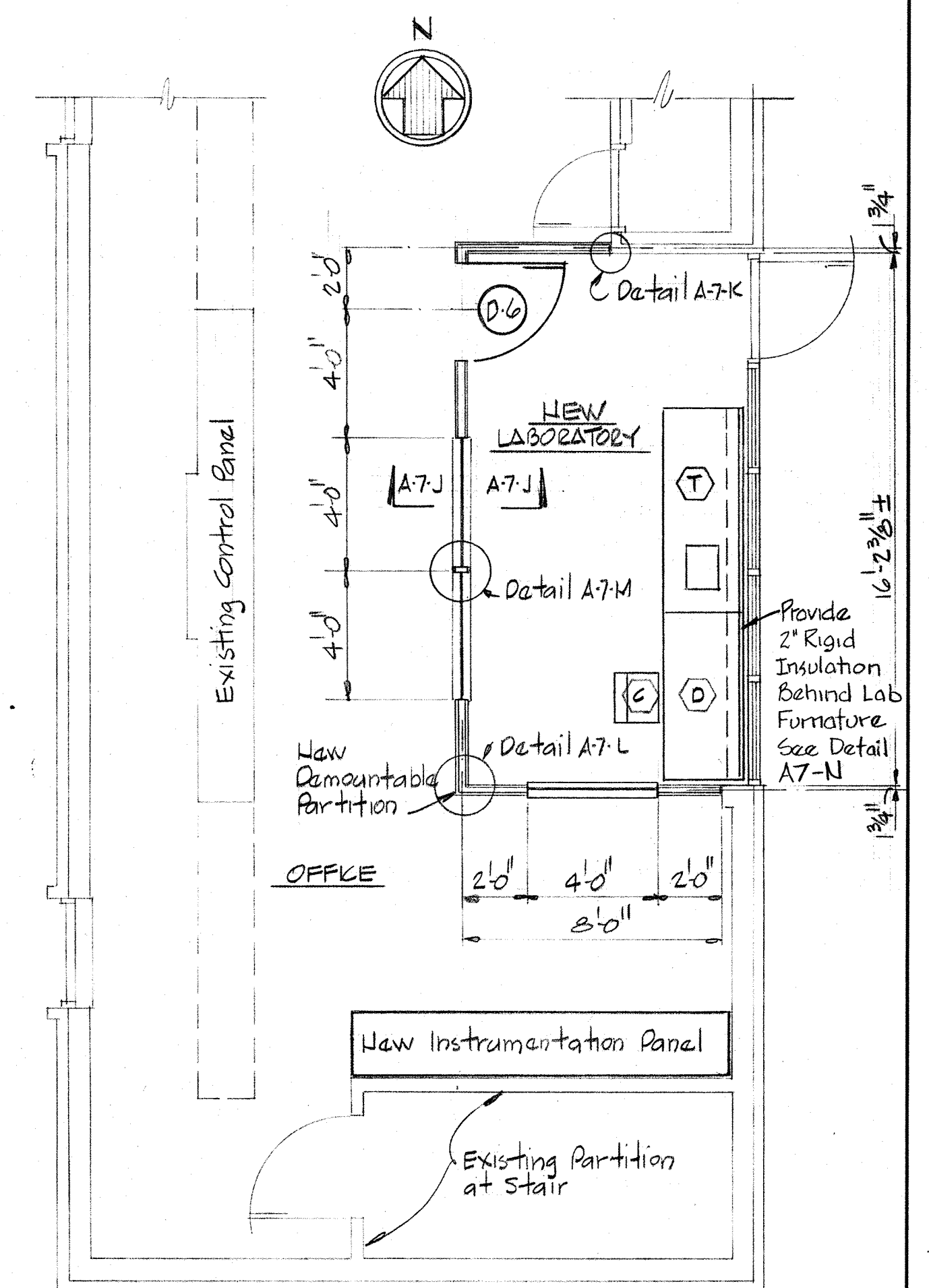
TYPICAL BASE DETAIL A-7-E/A-1,A-5
Scale: 3" = 1'-0"



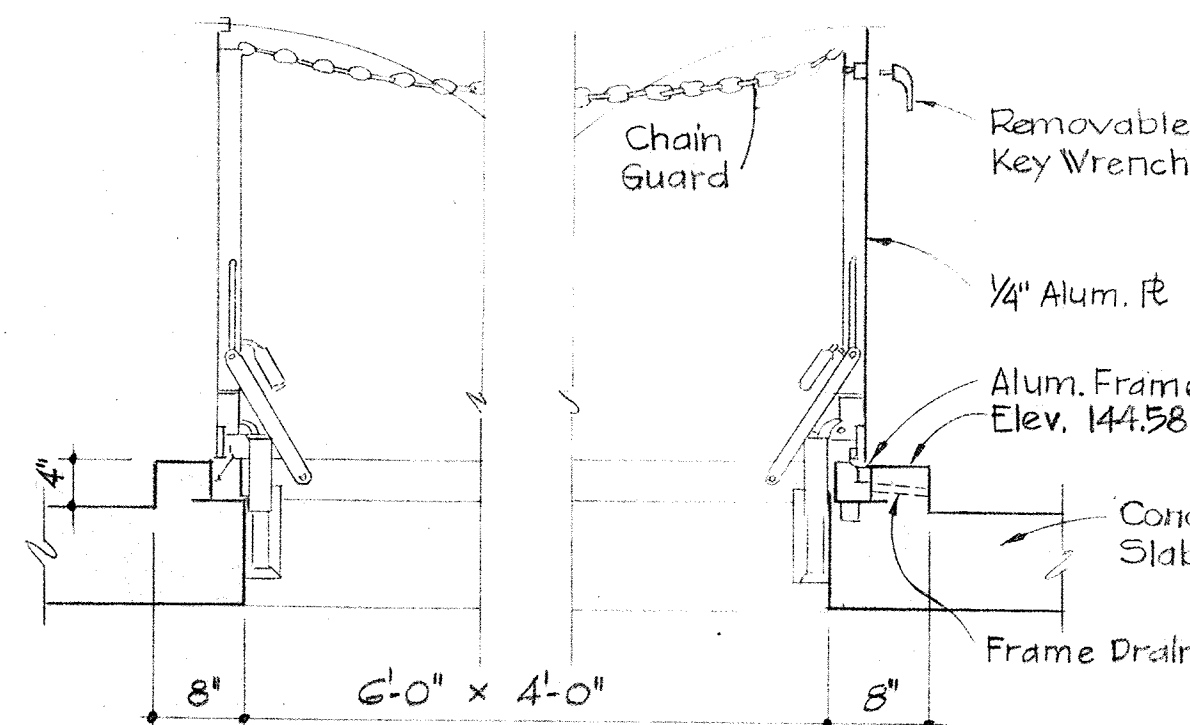
TYPICAL RELIEF SCUPPER DETAIL A-7-F/A-1,A-2,A-5
Scale: 1/2" = 1'-0"



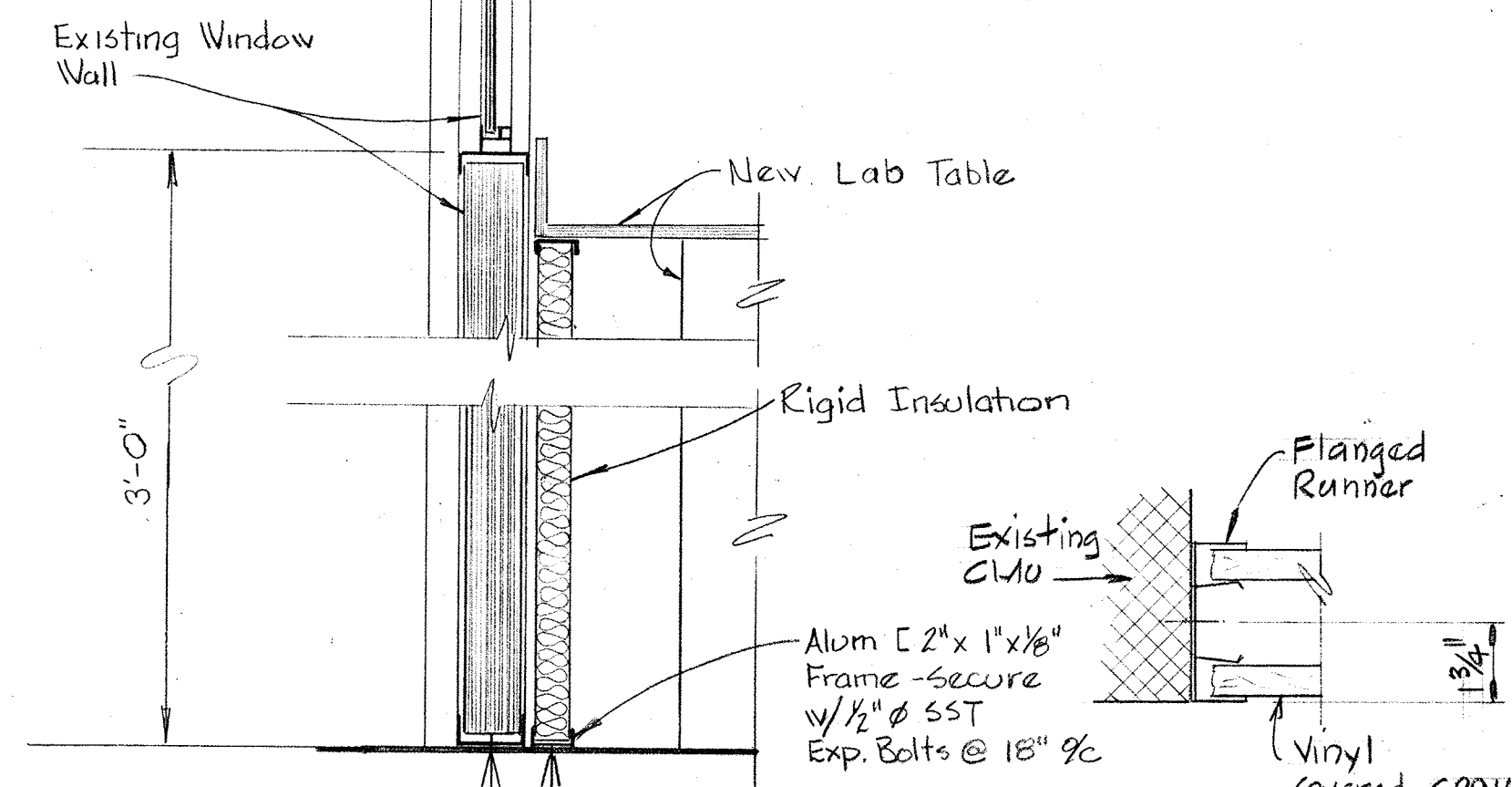
SECTION A-7-J/A-7
Scale: 3/4" = 1'-0"



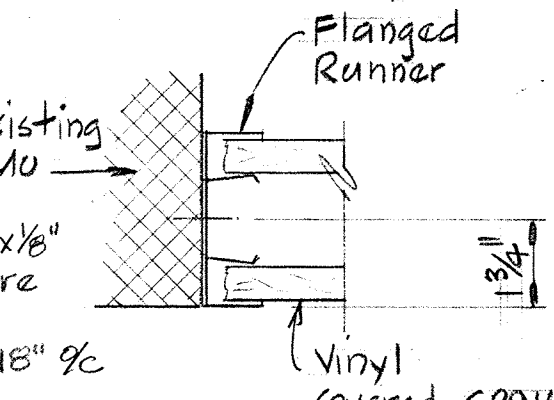
PLAN OF EXISTING CONTROL BUILDING NO. 1 w/ NEW LABORATORY
Scale: 1/4" = 1'-0"



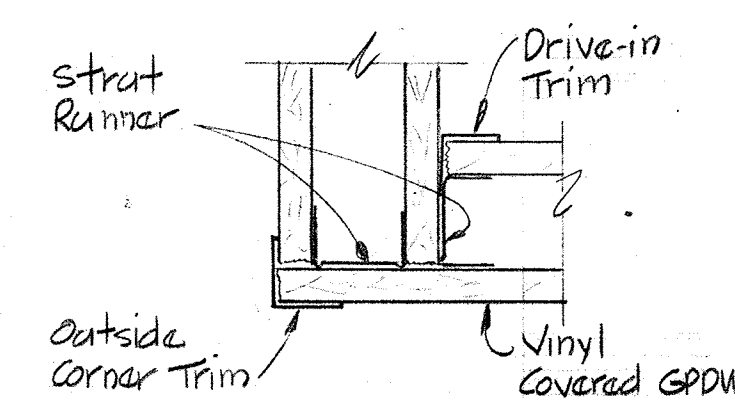
ACCESS HATCH DETAIL A-7-G/A-5
Scale: 3/4" = 1'-0"



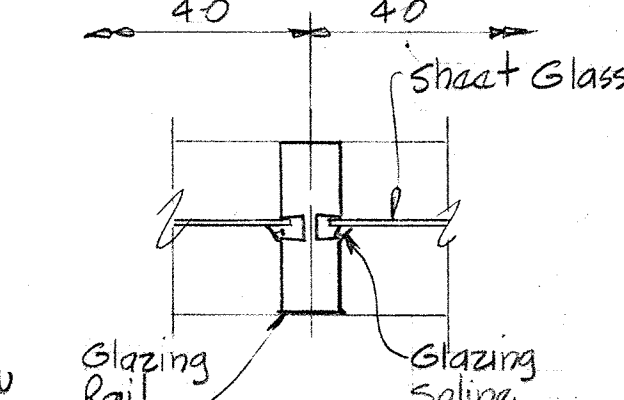
DETAIL A-7-N/A-7
Scale: 1/2" = 1'-0"



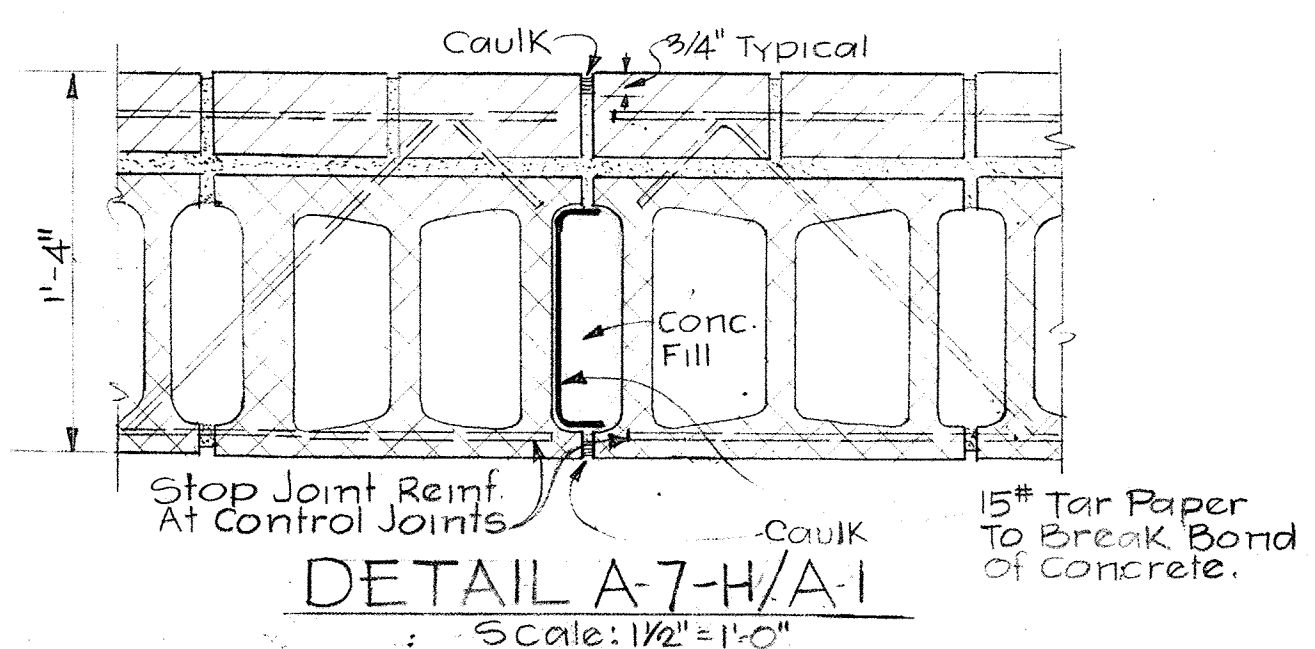
DETAIL A-7-K/A-7
Scale: 3/4" = 1'-0"



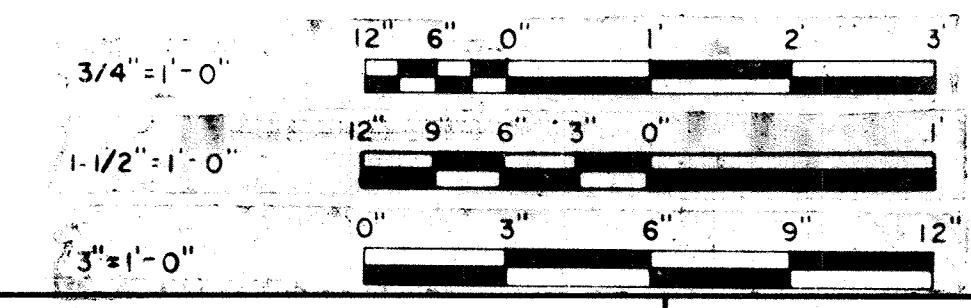
DETAIL A-7-L/A-7
Scale: 3/4" = 1'-0"



DETAIL A-7-M/A-7
Scale: 3/4" = 1'-0"



DETAIL A-7-H/A-1
Scale: 1/2" = 1'-0"



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HOWARD COUNTY, MARYLAND
DATE: 3/20/75
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

TYPICAL DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 33 OF 133

SCALE AS SHOWN

SHEET A-7

W.O. 6887-2

BRUNING 44-510 10392

FINISH SCHEDULE

ABBREVIATIONS USED IN FINISH SCHEDULE AND DRAWINGS

ACT	ACOUSTICAL TILE	HM	HOLLOW METAL	FA	FIRST AID KIT-INDUSTRIAL SIZE
ALUM	ALUMINUM	HT	HEIGHT		
CARP	CARPETING	KCPL	KEENE'S CEMENT PLASTER		
CFH	CONCRETE FLOOR HARDENER	MT	METAL THRESHOLD		
CJT	CONTROL JOINT	PLAS-P	PLASTER-(P-PAINTED)		
CMU-P	CONCRETE MASONRY UNITS-(P-PAINTED)	PTD	PAPER TOWEL DISPENSER		
CONC-P	CONCRETE (PAINTED)	PTR	PAPER TOWEL RECEPTOR		
ES-P	EXPOSED STRUCTURE-(P-PAINTED)	RD	ROOF DRAIN		
EXP. JT.	EXPANSION JOINT	SAT	SUSPENDED ACOUSTICAL TILE		
FD	FLOOR DRAIN	SST	STAINLESS STEEL		
GA	GAUGE	TPD	TOILET PAPER DISPENSER		
GCMU	GLAZED CONCRETE MASONRY UNITS	VAT	VINYL ASBESTOS TILE		
GPDW-P	GYPSUM DRY WALL-(P-PAINTED)	VCB	VINYL COVE BASE		
HDW	HARDWARE	VCGB	VINYL COVERED GYPSUM BOARD		

ROOM OR AREA	FLOOR		BASE		WALL		CEILING		REMARKS
	MAT'L	COLOR	MAT'L	COLOR	MAT'L	COLOR	MAT'L	COLOR	
AERATION BASINS									
PIPE GALLERY- WEST #5	CFH	Clear	Conc-P		Conc-P		Conc-P		
PIPE GALLERY- WEST #2&3	CFH	Clear	Conc-P		Conc-P		Conc-P		
CHEMICAL FEED BLDG	CFH	Clear	GCMU		CMU-P		ES-P		
PIPE GALLERY-EAST #2&3	CFH	Clear	Conc-P		Conc-P		Conc-P		
CONTROL BUILDING #2	CFH	Clear	GCMU		CMU-P		ES-P		
AIR INTAKE SHAFT	CFH	Clear	GCMU		CMU-P		ES-P		
EXISTING CONTROL BUILDING #1									
LABORATORY	EXISTING		ALUM		VCGB		EXISTING		

DOOR SCHEDULE

DOOR NO.	SIZE (D.O)	MAT'L	TYPE	HEAD	JAMB	LOUVER	LINTEL	HDW	KICK PL.
D-1	3'-0" x 7'-2" x 1 3/4"	Alum	B	H-1	J-1		L-1	HW-1	8 1/2 x 30"
D-2	2'-3'-0" x 7'-2" x 1 3/4"	Alum	C	H-1	J-1		L-2	HW-2	2-12 x 30"
D-3	2'-3'-0" x 7'-2" x 1 3/4"	Alum	C	H-2	J-2		L-4	HW-2	2-12 x 30"
D-4	3'-0" x 7'-2" x 1 3/4"	Alum	B	H-3	Note 1		L-5	HW-3	8 x 30"
D-5	3'-0" x 7'-2" x 1 3/4"	Alum	A	H-7	J-4		L-6	HW-4	
EXISTING CONTROL BUILDING #1									
D-6	3'-0" x 7'-2" x 1 3/4"	ALUM	B	H-5	J-4			HW-5	8 x 30"

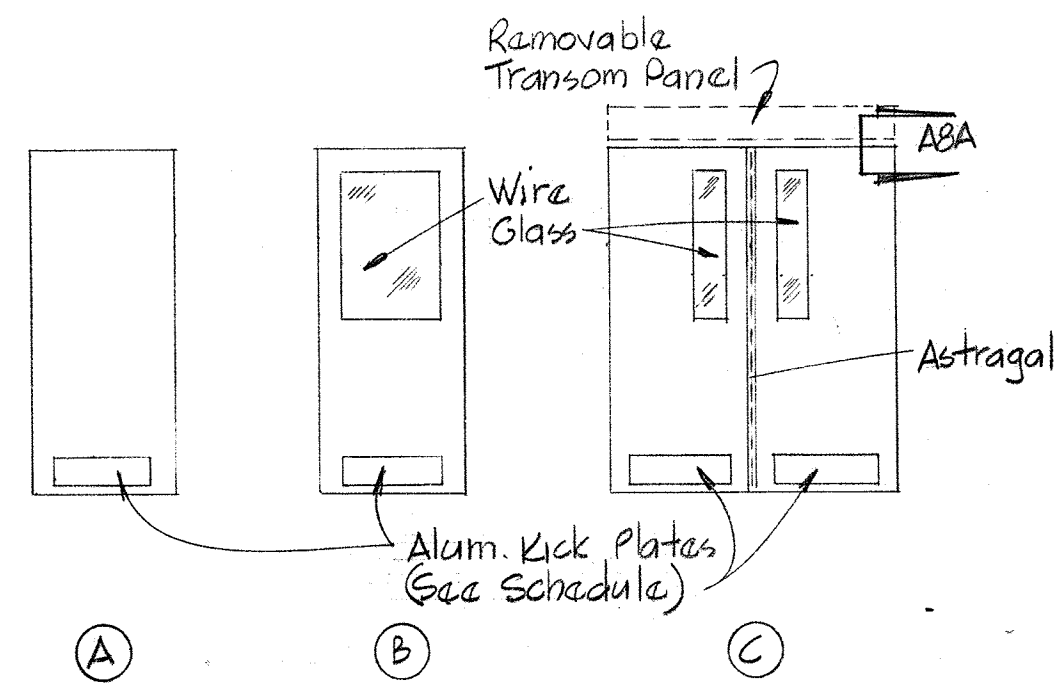
NOTES:

- See Detail A-5-C for Jamb.
- 1 1/4" Removable Transom Panel.
- Kick Plates to be installed on inside face of exterior doors and outside face of doors swinging into rooms or corridors.
- Finish all aluminum hardware except thresholds and threshold anchors shall be Duranodic-Dark Bronze-313.

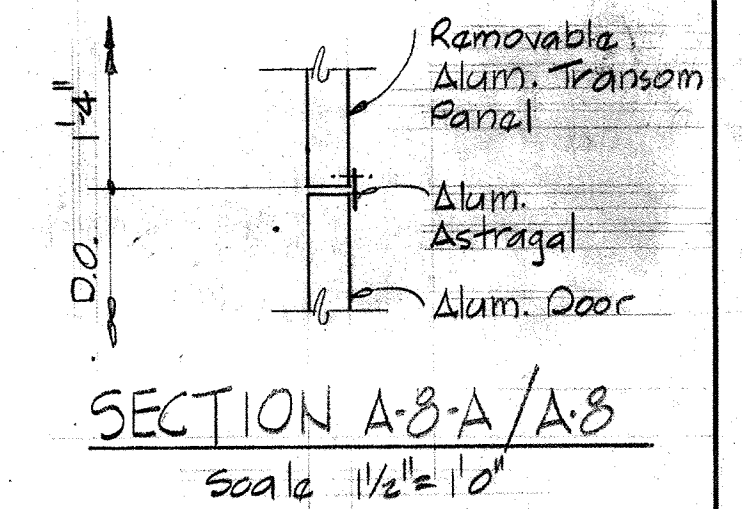
LINTEL SCHEDULE

TYPES	NO.	TYPE	M.O.	REINFORCING	STEEL ANGLES	REMARKS
Type 'A' - Concrete Masonry Units	L-1	B	3'-4"	2-#5 T&B	L 4" x 3 1/2" x 5/16"	LI, D1, D11, 19, A4F
	L-2	B	6'-4"	2-#5 T&B	L 4" x 3 1/2" x 5/16"	LI, D2
	L-3	A	3'-4"	2-#5 T&B		Trans. Panel, A4B
Type 'B' - Concrete Masonry Units	L-4	A	6'-4"	2-#5 T&B	L 4" x 3 1/2" x 5/16"	LI, D3
	L-5	C	9'-10 1/2"		W 12 x 27	See Sect A-6-D & H-3
	L-6	A	3'-4"	2-#5 T&B		D5, 9, 13, 14, 15, 18
Type 'C' - Steel Beam	L-7	A	4'-0"	2-#5 T&B	L 4" x 3 1/2" x 5/16"	LI, See A6E
	L-8	D	3'-4"		L 4" x 4" x 3/8"	Trans. Panel A6B
	L-9	A	2'-0"	2-#5 T&B		See Section A6C

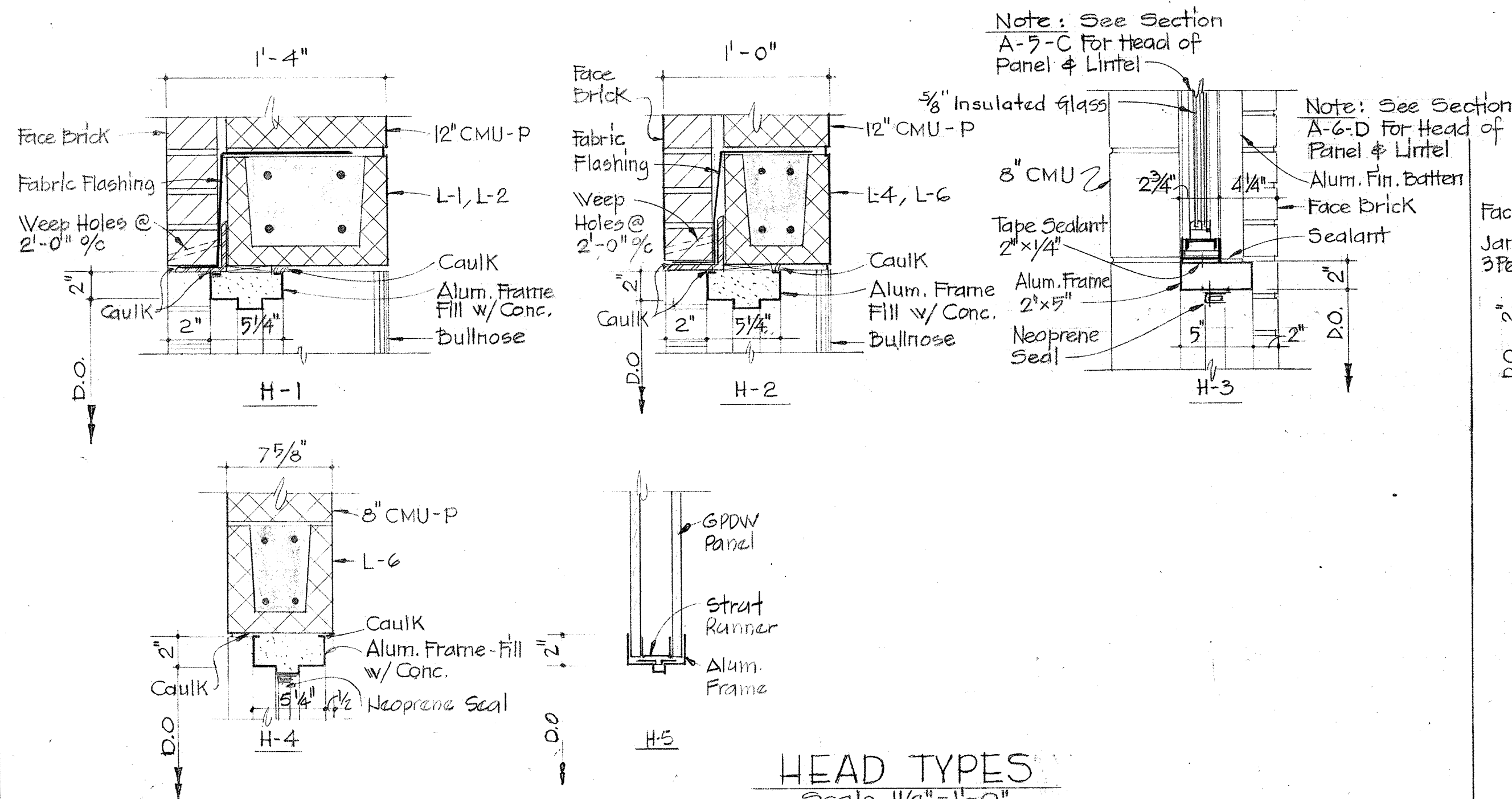
LINTEL NOTE:
All lintels to have 8" Min. bearing on each end



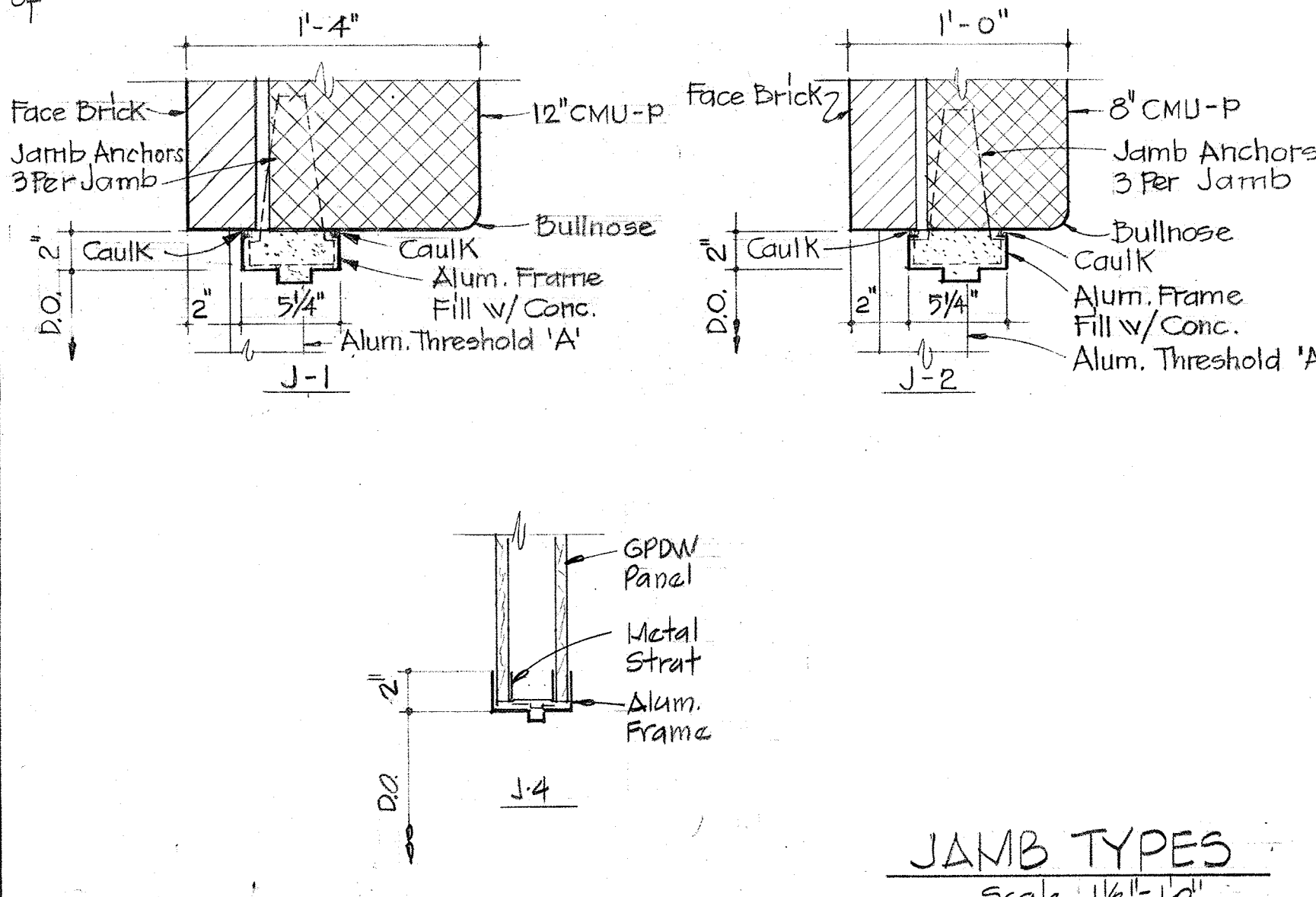
DOOR TYPES



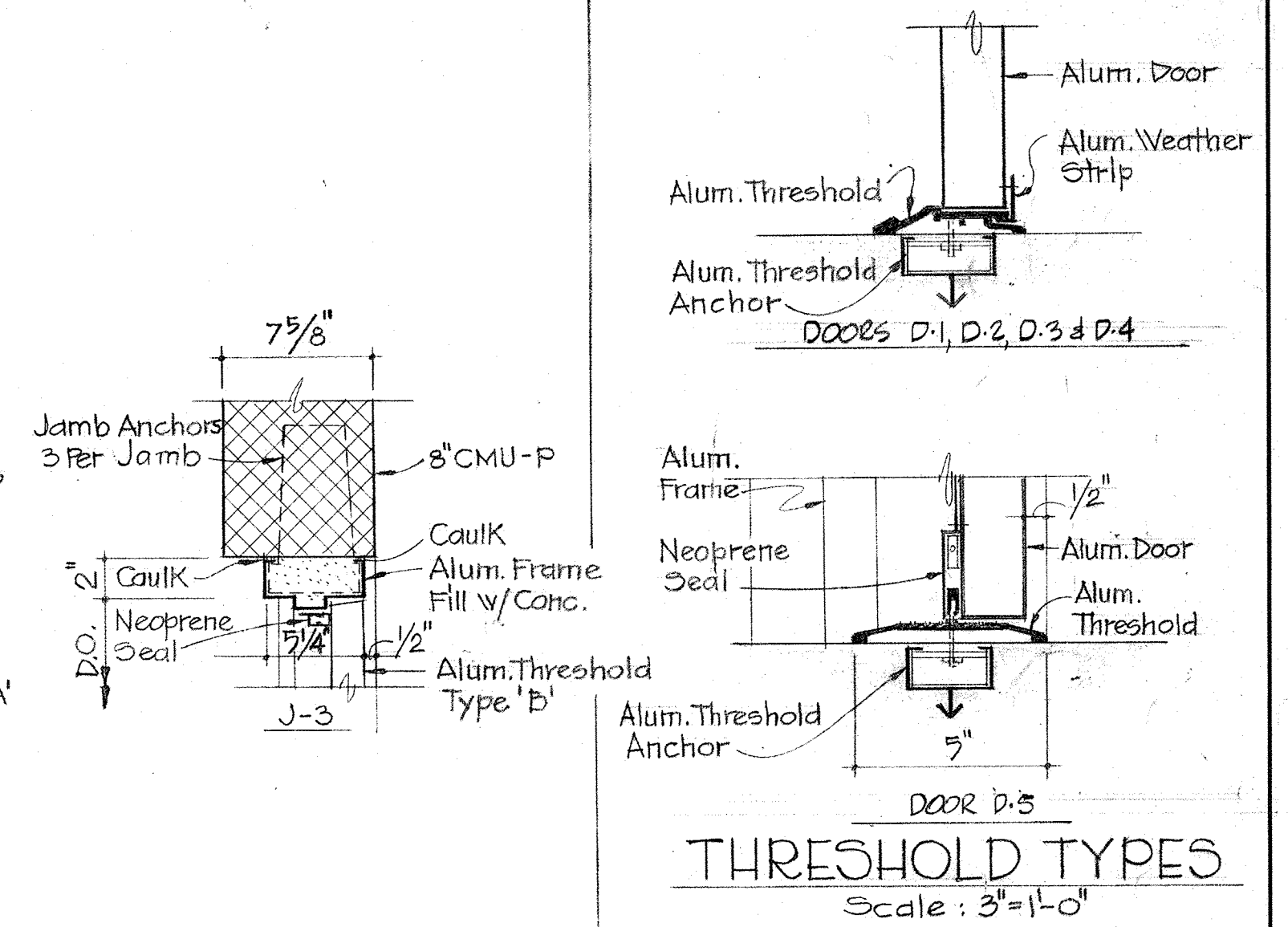
SECTION A-8-A/A-8
Scale: 1/2" = 1'-0"



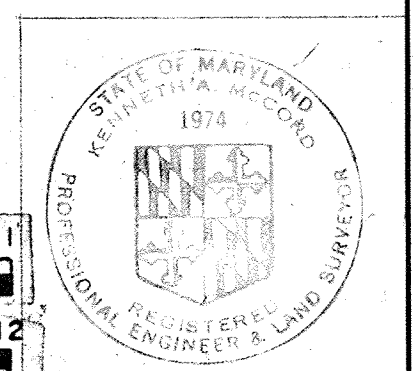
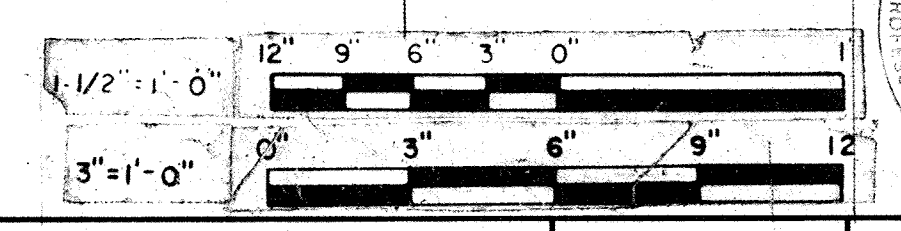
HEAD TYPES
Scale: 1/2" = 1'-0"



JAMB TYPES
Scale: 1/2" = 1'-0"



THRESHOLD TYPES
Scale: 3" = 1'-0"



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DATE
W.O. Gilbert
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CONTRACT NO. 500-S

SCHEDULES AND DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 34
OF 133

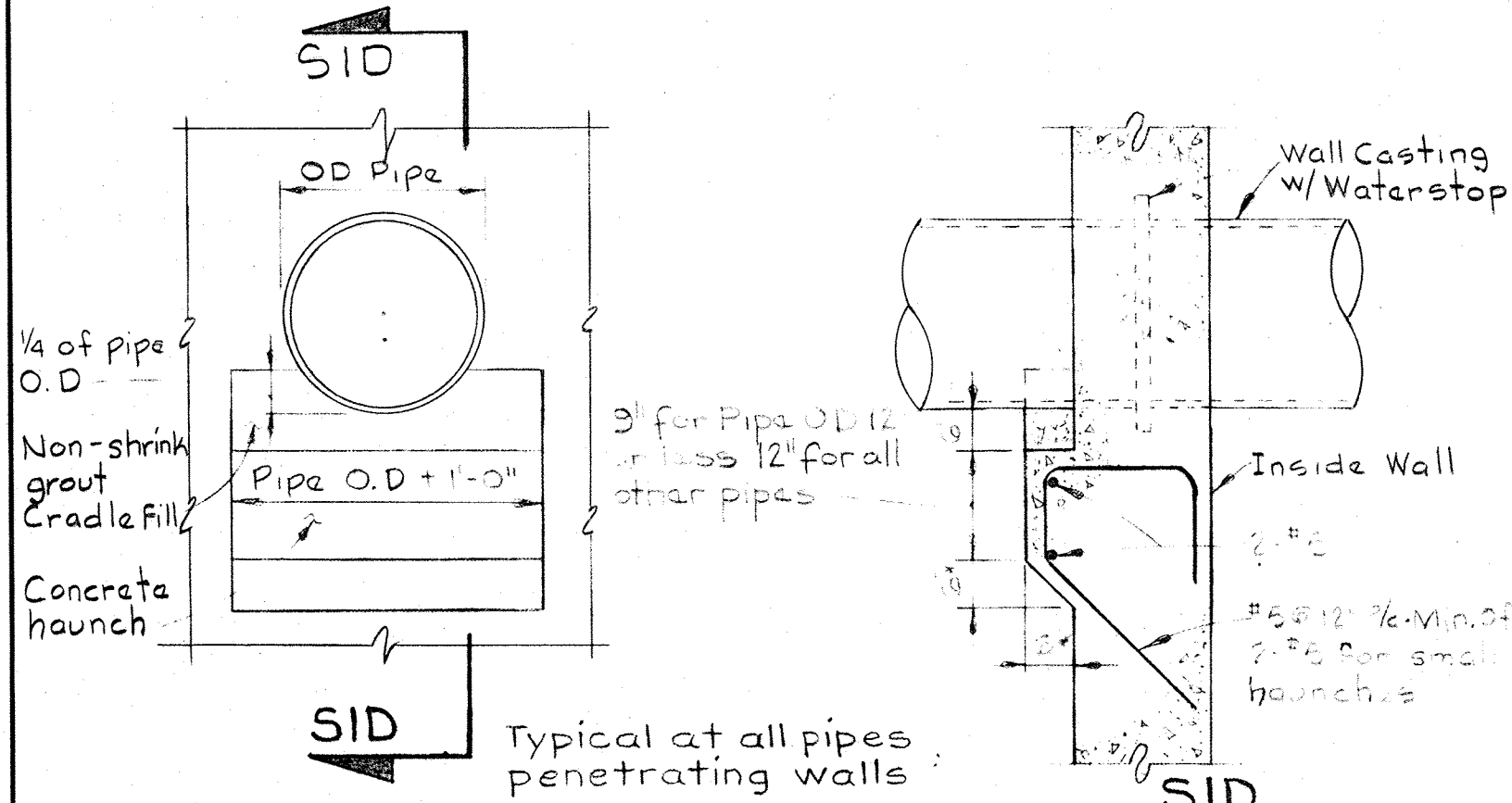
SCALE AS SHOWN

CONCRETE NOTES

- All concrete shall have a minimum compressive strength of 3,500 p.s.i. at 28 days.
- Reinforced concrete shall be detailed and constructed in accordance with current A.C.I. specification 318-71. Concrete has been designed by the alternate design method.
- All reinforcing steel shall conform to ASTM A615-74 Grade 40.
- Concrete cover for reinf. shall be as follows, unless otherwise noted on the drwgs:
 - Unformed concrete, bottom bars in footings and slabs on earth, rock, gravel or crushed stone 3".
 - Beams, columns, walls, slabs, piers exposed to ground, weather or process liquid after the removal of forms, 2".
 - Beams, columns, walls, piers not exposed to weather 1 1/2".
 - Structural slabs not exposed to ground, weather, process liquid 1/4".
- Exposed concrete edges shall be chamfered 3/4" unless noted otherwise.
- Slabs & walls shall be poured between indicated joints allowing a minimum period of 3 days to elapse between adjacent pours.
- Construction, expansion, and contraction joints shall be as shown on the drawings and no additional joints will be used, nor any omitted except by written authorization of the engineer.
- Reinf. bar laps shall be as follows, unless shown otherwise on the drwgs:
 - Sizes #3 to #5 - 24 bar diameters
 - Sizes #6 to #8 - 32 bar diameters
 - Sizes #9 to #11 - 44 bar diameters
- Anchor bolts and equipment pedestals shall be sized & located as required to suit equipment furnished by manufacturer.
- See civil, architectural, mechanical, electrical drawings for all embedded items, such as pipe sleeves, anchors, electrical conduit openings, chases etc. which interfere with concrete construction.
- Reinforcing bar laps for all horizontal bars in walls shall be increased 40% over those laps indicated in note 8.

FOUNDATION NOTES

- All backfill shall be compacted to 90% of max. density in maximum increments of 6", except top 12" shall be compacted to 95% of max. density.
- Maximum density and optimum moisture shall be in accordance with AA5-40 test designation "T180-74 method D".
- All foundations have been designed for a maximum allowable soil bearing pressure of 3,000 p.s.f.



TYPICAL PIPE HAUNCH DETAIL
Scale: 1/2"=1'-0"

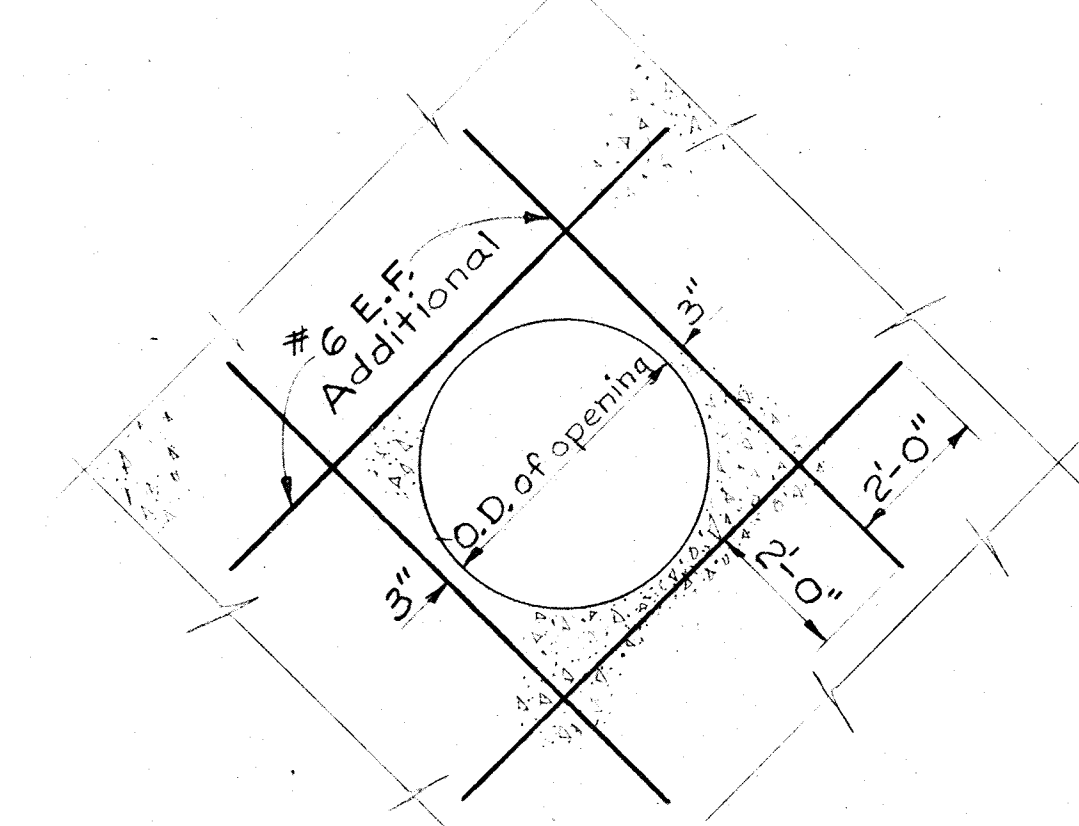
- NOTES:
- Where insert of pipe is 2'-0" or less above footing, omit haunch and build cradle on exterior of footing.
 - Concrete haunch as shown and apply for 12" and smaller pipes. For larger pipes, notes will indicate otherwise.
 - All exposed steel parts shall be bituminous coated to a minimum thickness of 12 Mills.

STRUCTURAL STEEL NOTES

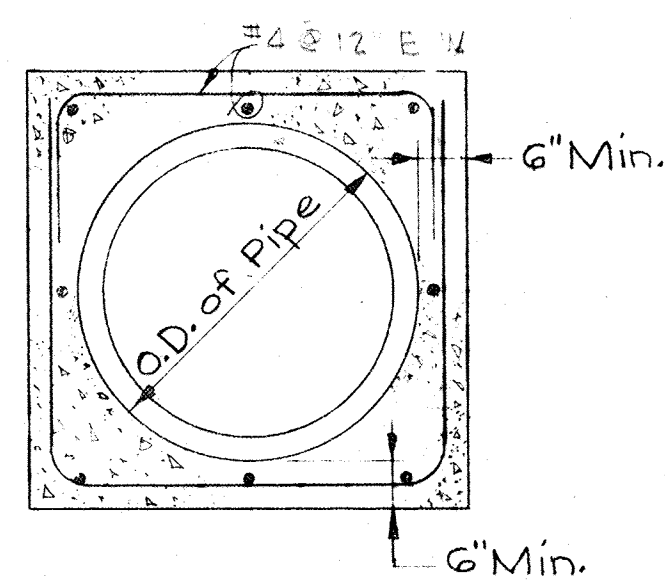
- All structural steel shall conform to ASTM A-36-75a.
- All shop connections shall be welded with AWS A5.5 class E70 series electrodes.
- All field connections shall be high strength bolted using ASTM-A325 bolts except where otherwise shown or noted on drawings.
- All structural steel is designed by elastic analysis and shall be fabricated in accordance with current A.I.S.C. specs for buildings.
- All structural steel shall be given one shop coat of paint.
- Anchor bolts to be stainless steel unless otherwise noted on drawings.

STRUCTURAL ALUMINUM NOTES

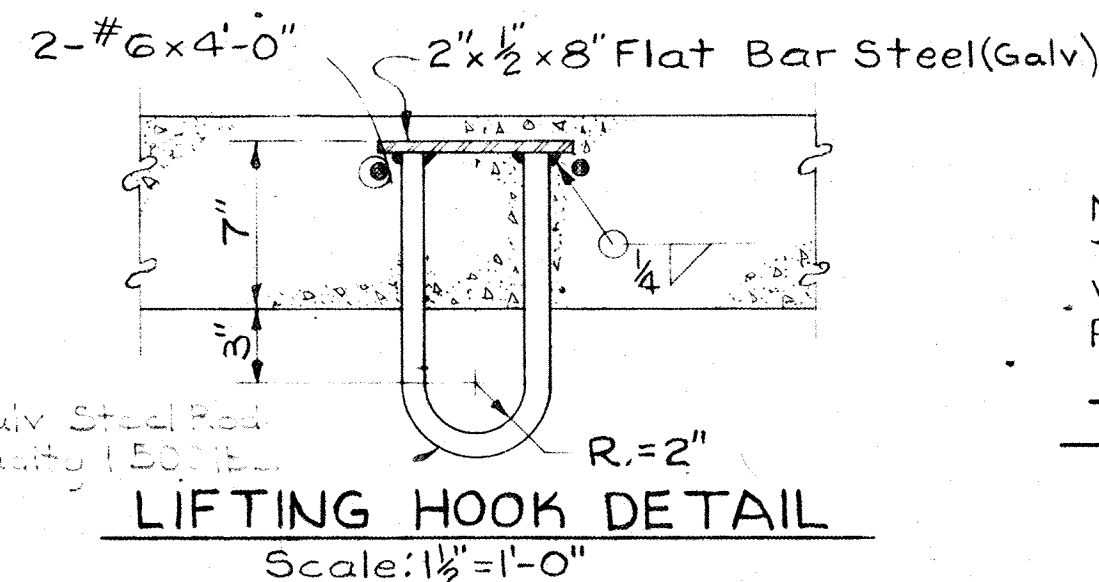
- All aluminum in contact with concrete shall, before erection be heavily coated as specified.
- All structural aluminum shall be alloy 6061-T6, except aluminum handrails and posts which shall be alloy 6063-T6.
- All structural aluminum is designed and shall be fabricated in accordance with the current specifications of the aluminum association.
- All grating sections shall be capable of supporting a live load of 150 P.S.F. with a maximum deflection of 1/4" at 100 P.S.F. Bearing bars shall be a minimum of 1/2" deep x 3/8" wide unless noted otherwise on the drawings.
- Grating to be mechanically fastened to supports as recommended by the manufacturer.



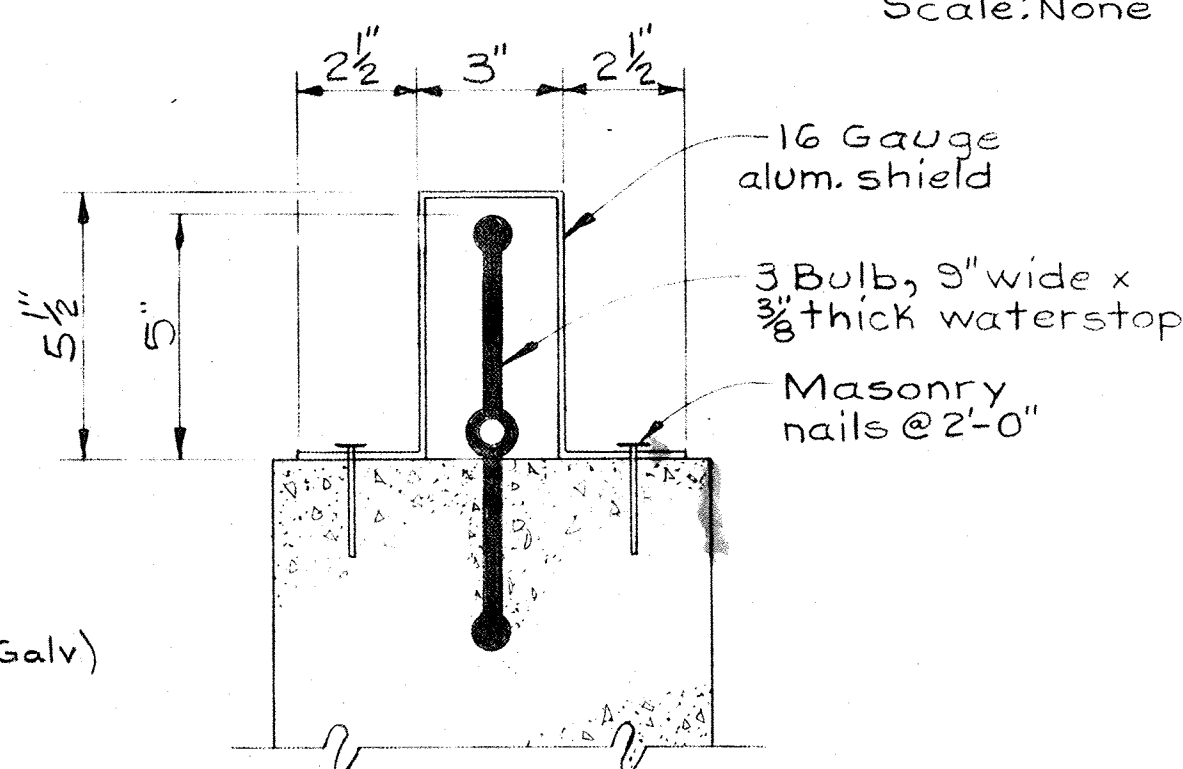
REINFORCING DETAIL IN SLAB OR WALL FOR PIPE OR MANHOLE
Scale: 3/8"=1'-0"



TYPICAL CONCRETE ENCASUREMENT OF PIPE
Scale: None

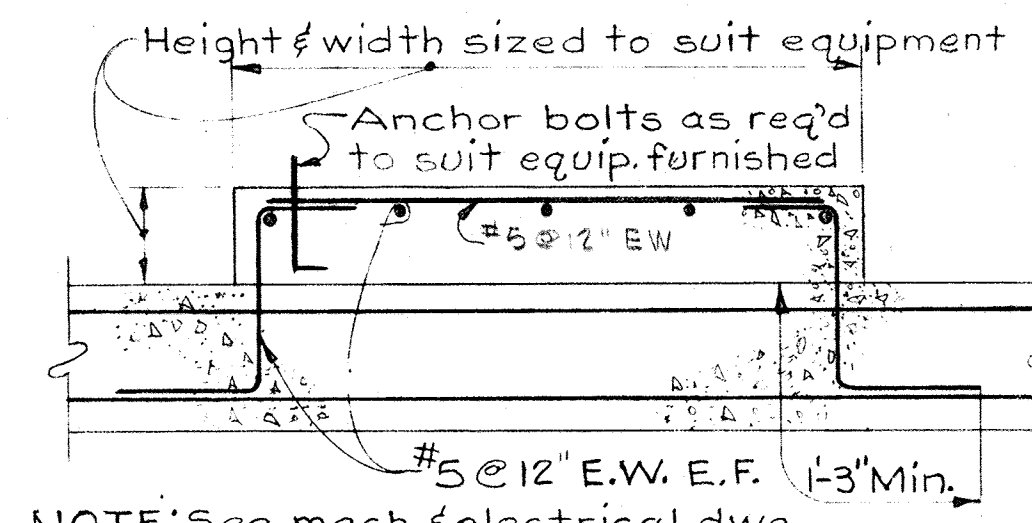


LIFTING HOOK DETAIL
Scale: 1/2"=1'-0"

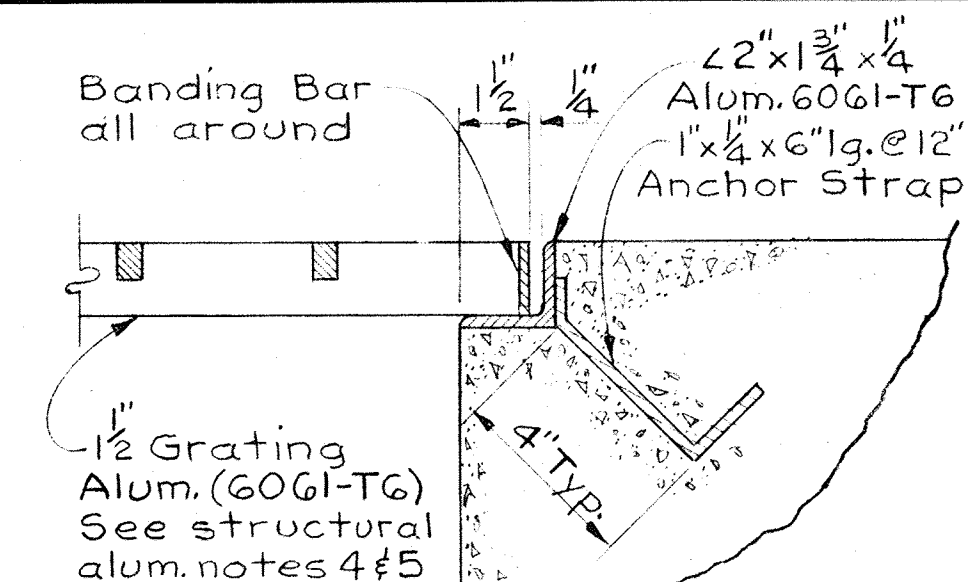


NOTE: Alum. flashing shall be used to 2'-0" below grade where the waterstop is exposed for possible future extension.

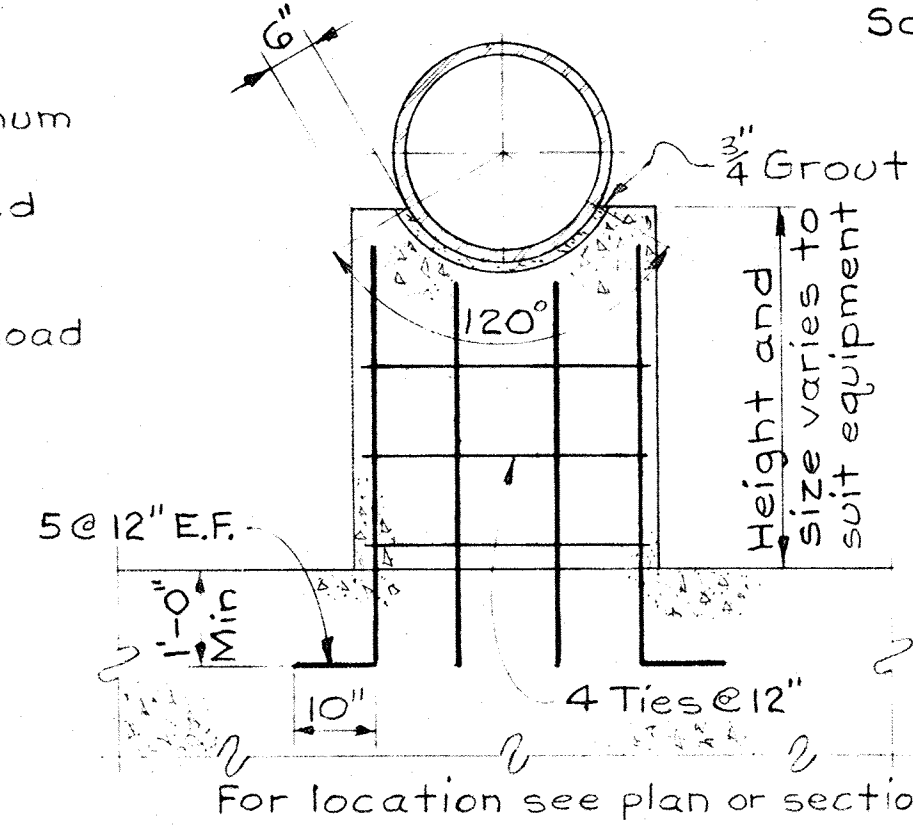
TYP. DETAIL OF FLASHING FOR WATERSTOP
Scale: 3"=1'-0"



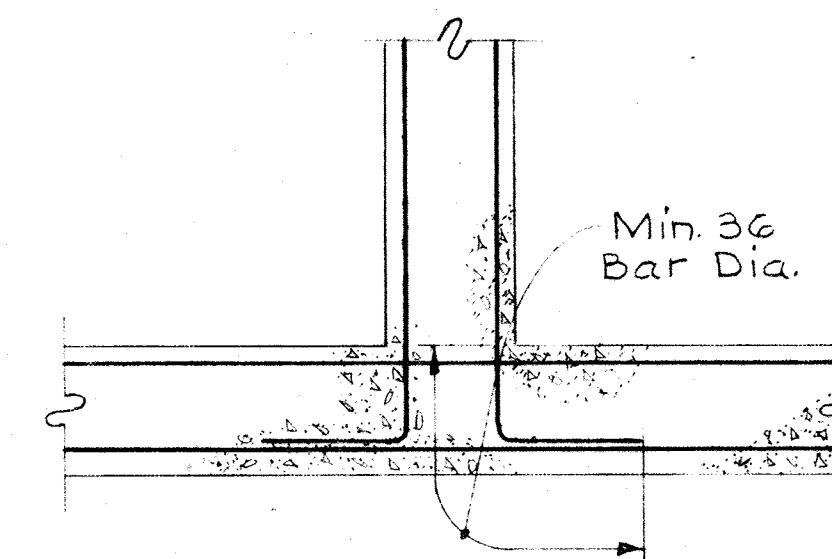
TYPICAL EQUIPMENT SUPPORT
Scale: 3/4"=1'-0"



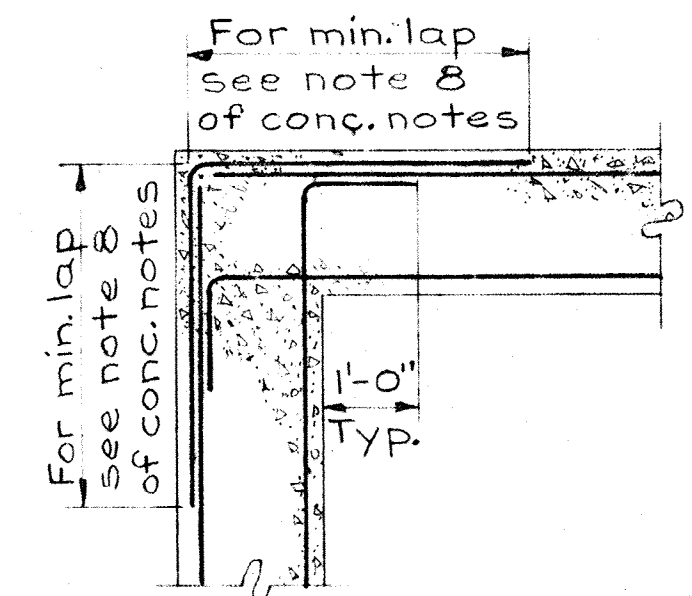
TYP. GRATING BEARING DETAIL
Scale: 3"=1'-0"



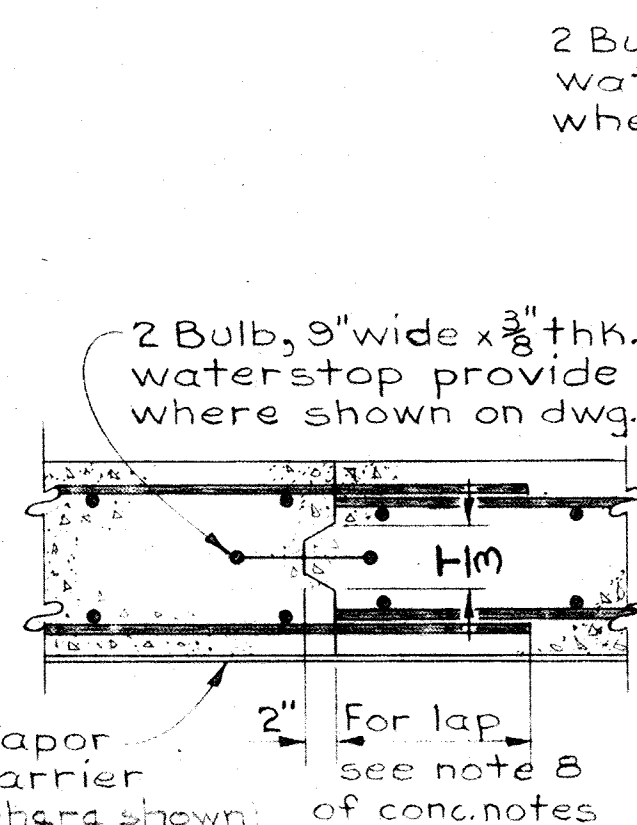
TYP PIPE SUPPORT
Scale: 1/2"=1'-0"



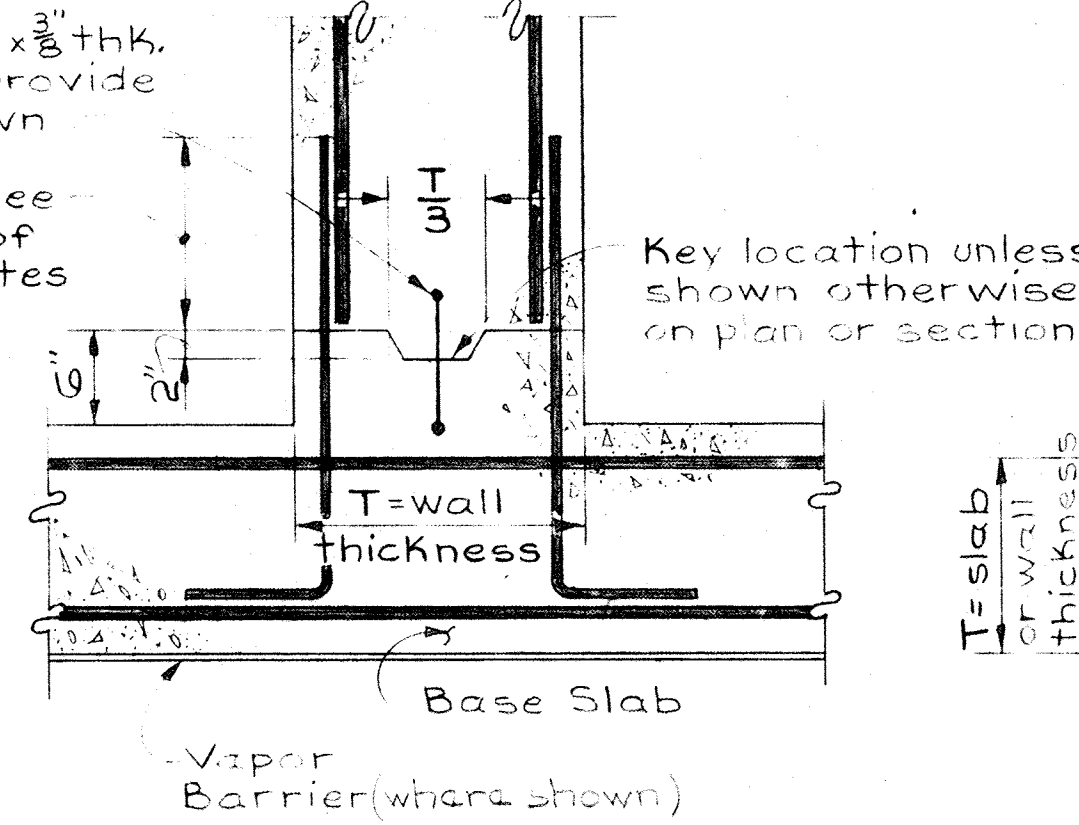
REINFORCING DETAIL AT WALL INTERSECTION
Scale: 1/2"=1'-0"



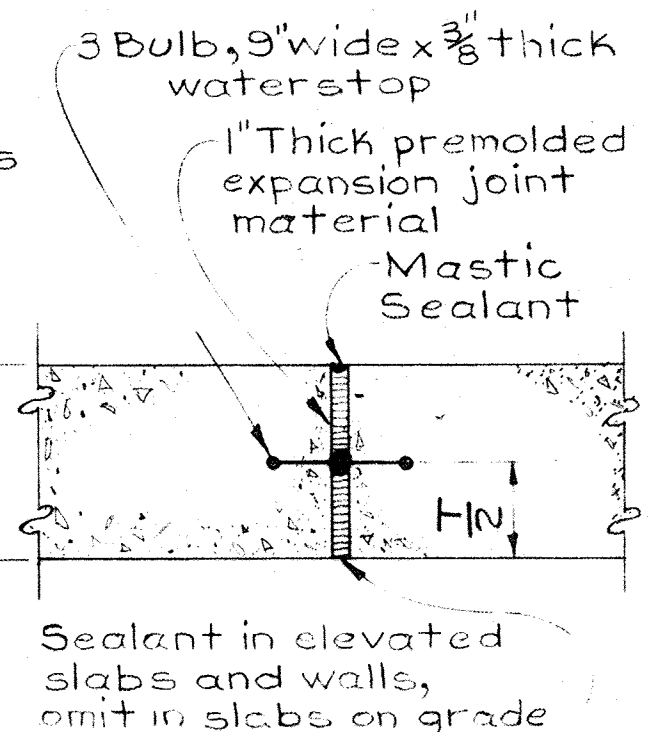
REINFORCING DETAIL AT WALL CORNER
Scale: 1/2"=1'-0"



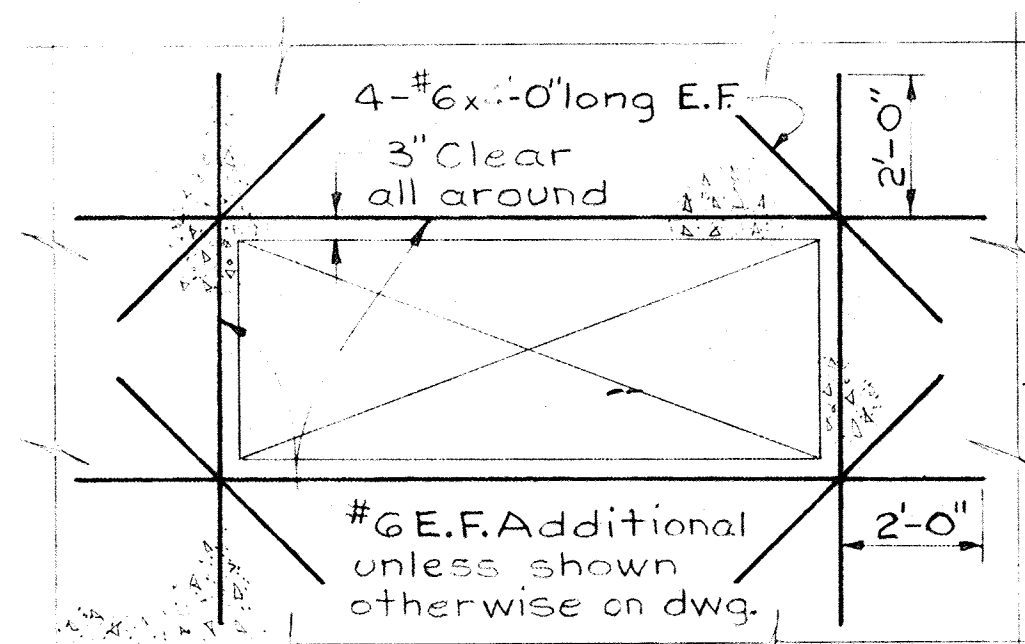
CONSTRUCTION JOINT IN SLABS ON GRADE & WALLS
Scale: None



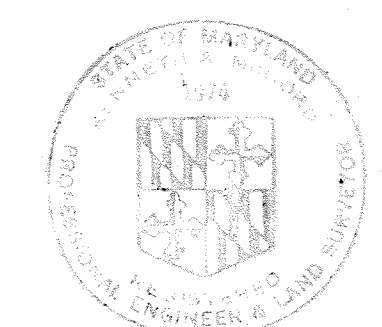
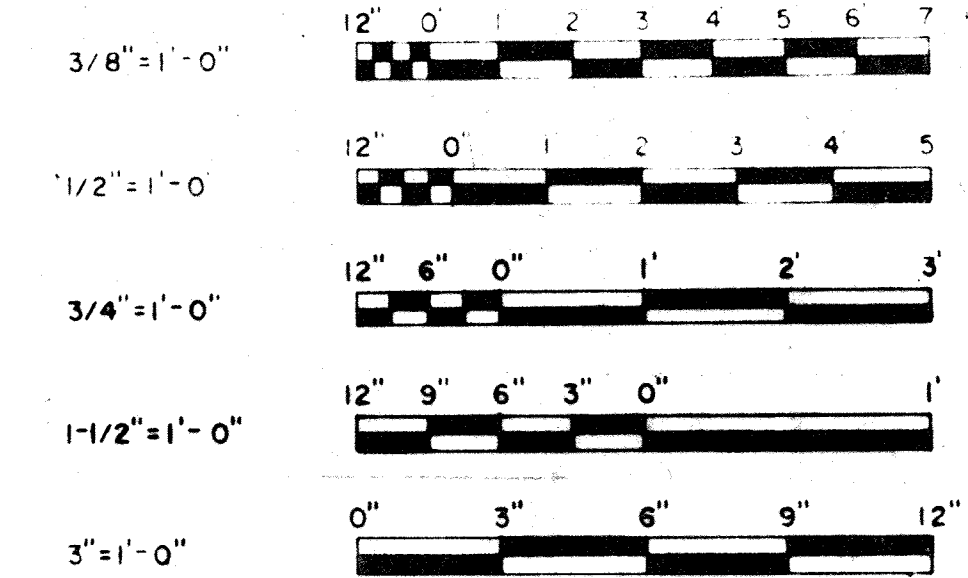
HORIZONTAL CONSTRUCTION JOINT IN WALLS & BASE SLAB
Scale: None



TYP. SLAB & WALL EXPANSION JOINT
Scale: None



REINFORCING AT OPENINGS IN WALLS OR SLABS
Scale: 3/8"=1'-0"



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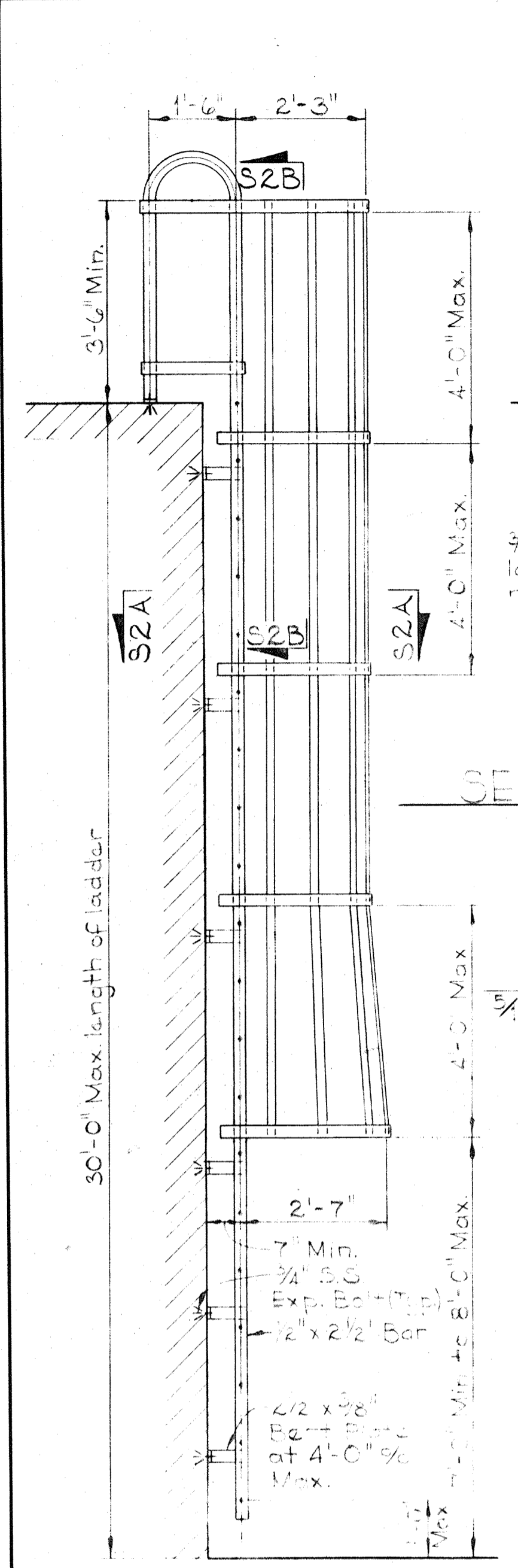
CONTRACT NO. 500-S

STRUCTURAL NOTES & TYPICAL DETAILS

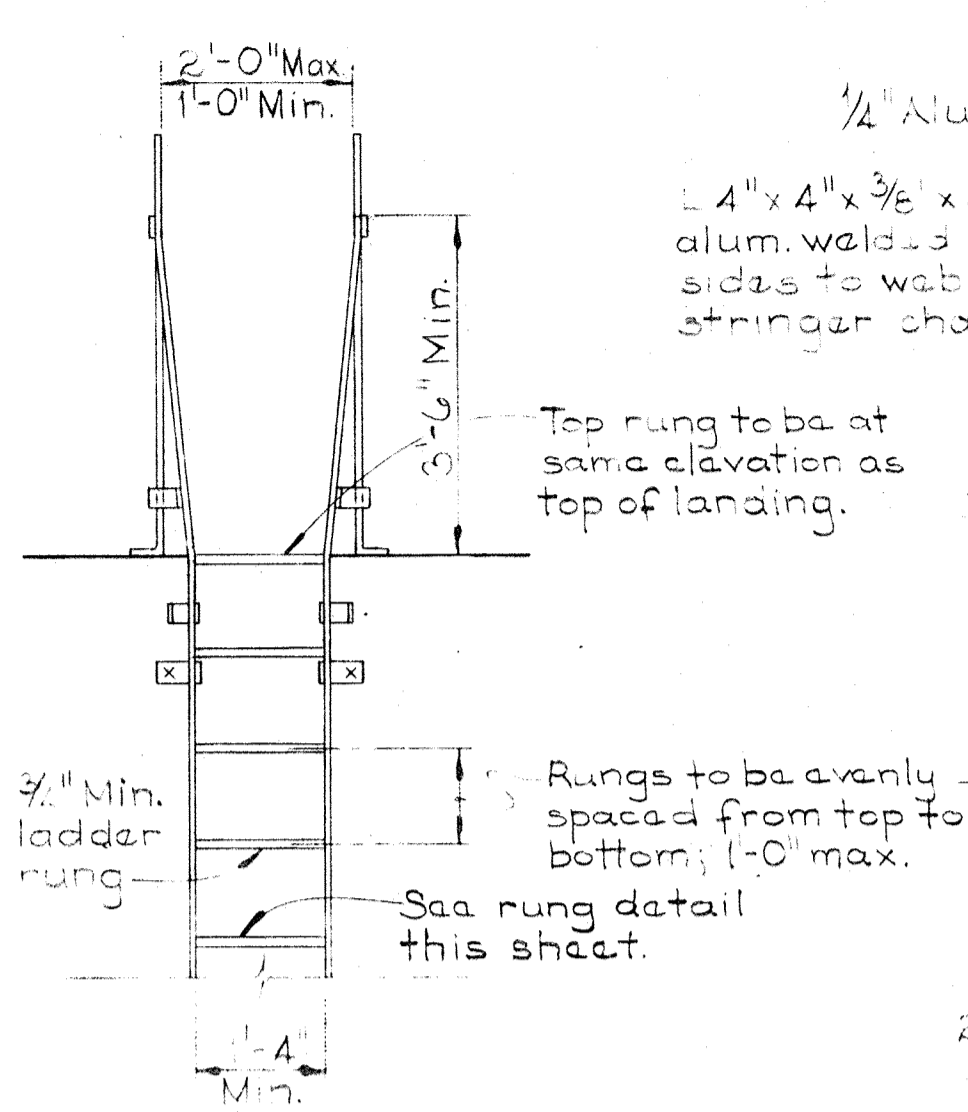
SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 35 OF 133

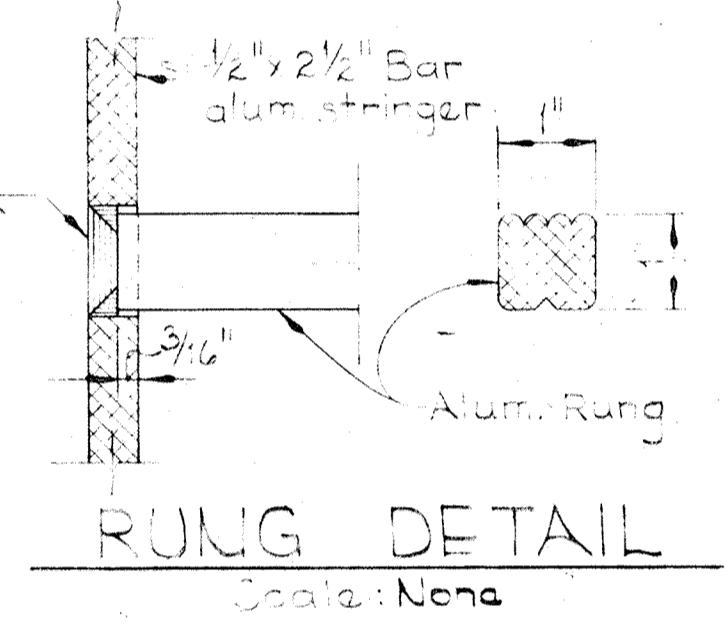
SCALE AS SHOWN



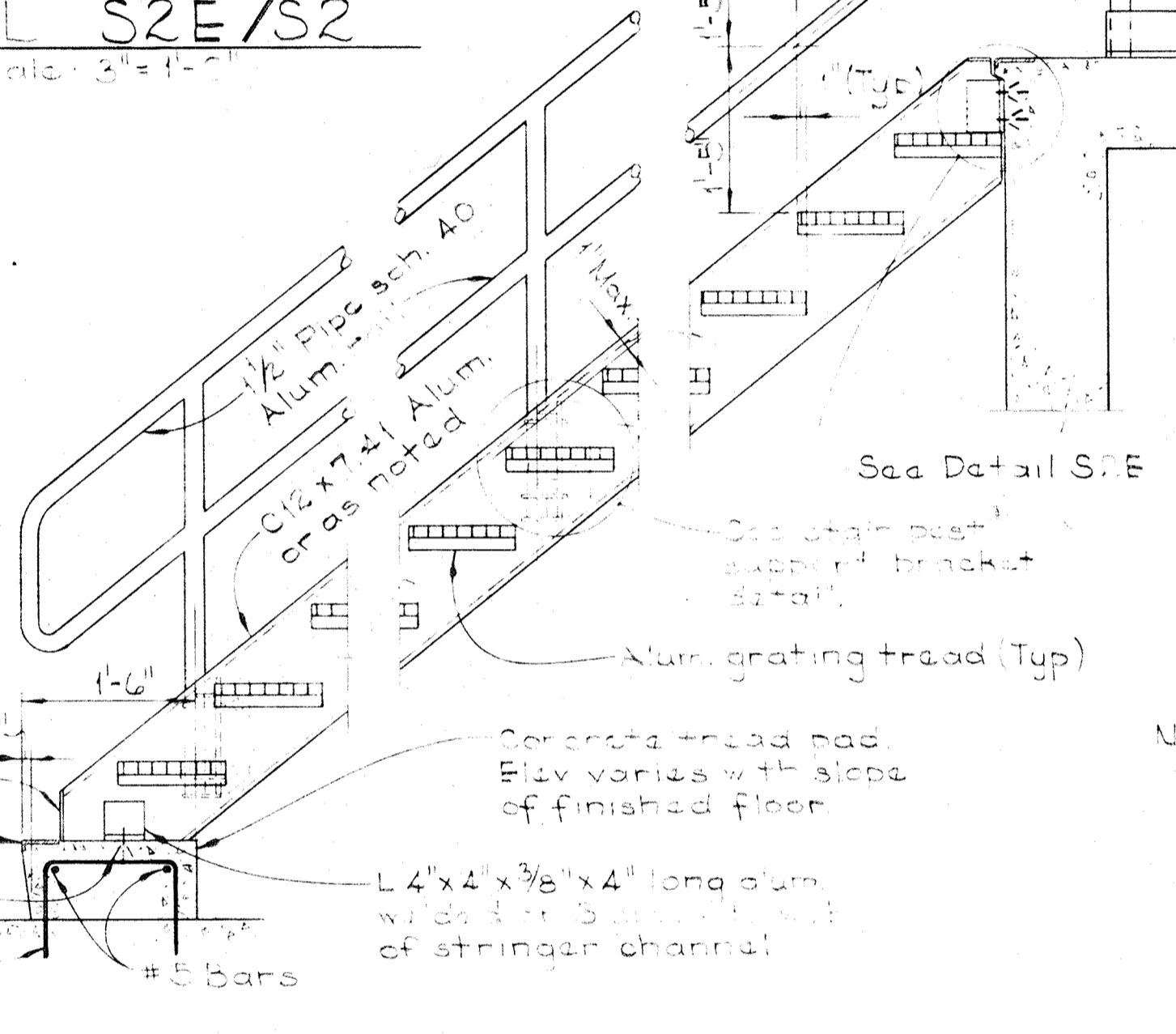
SECTION S2B/S2
Scale: 1/2" = 1'-0"



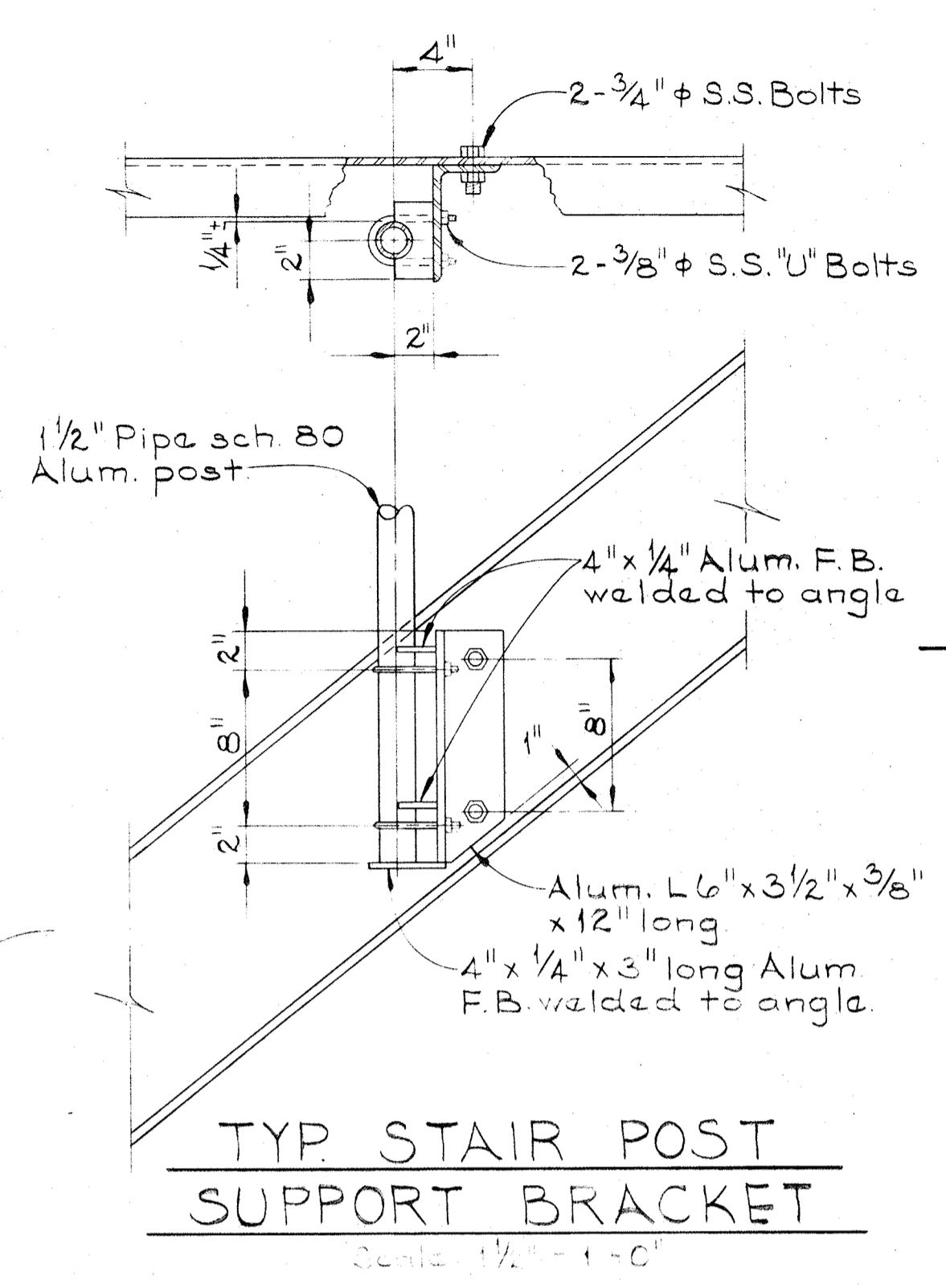
DETAIL S2E/S2
Scale: 3/4" = 1'-0"



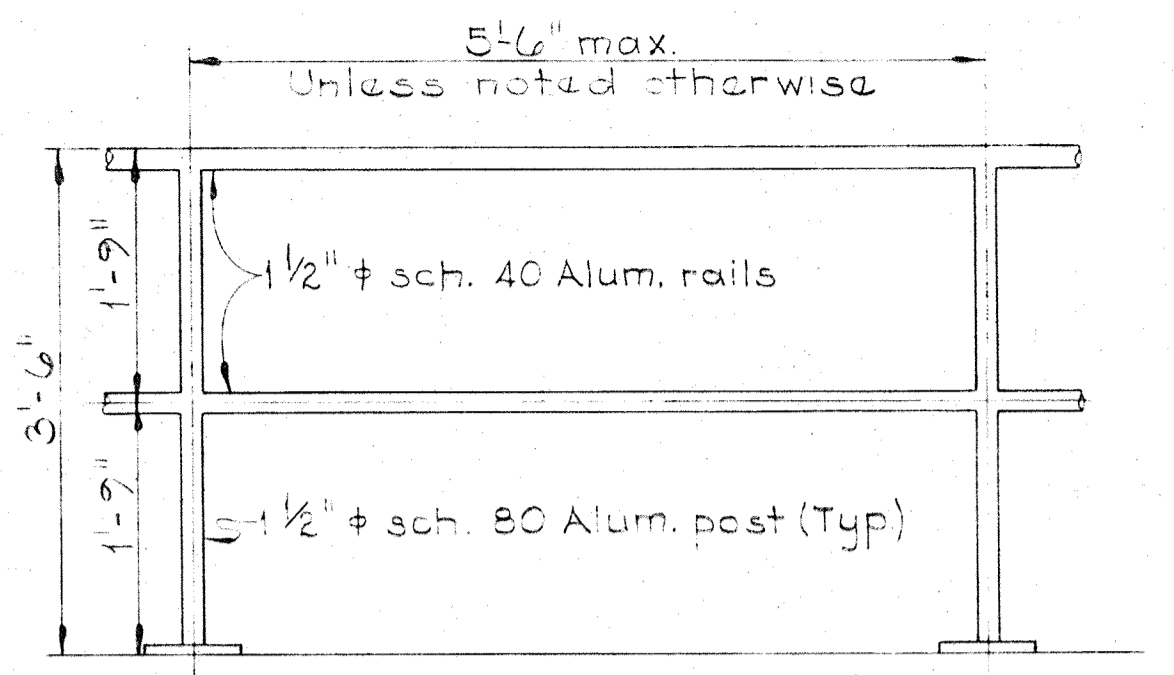
RUNG DETAIL
Scale: None



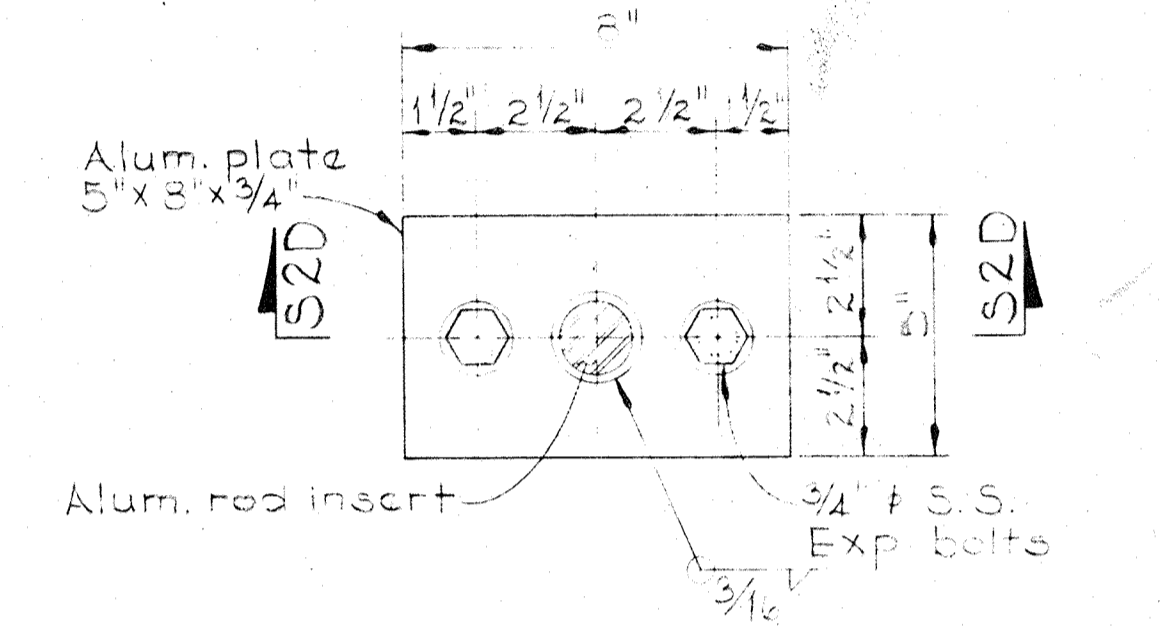
TYP. STAIR & RAILING SECTION
Scale: 3/4" = 1'-0"



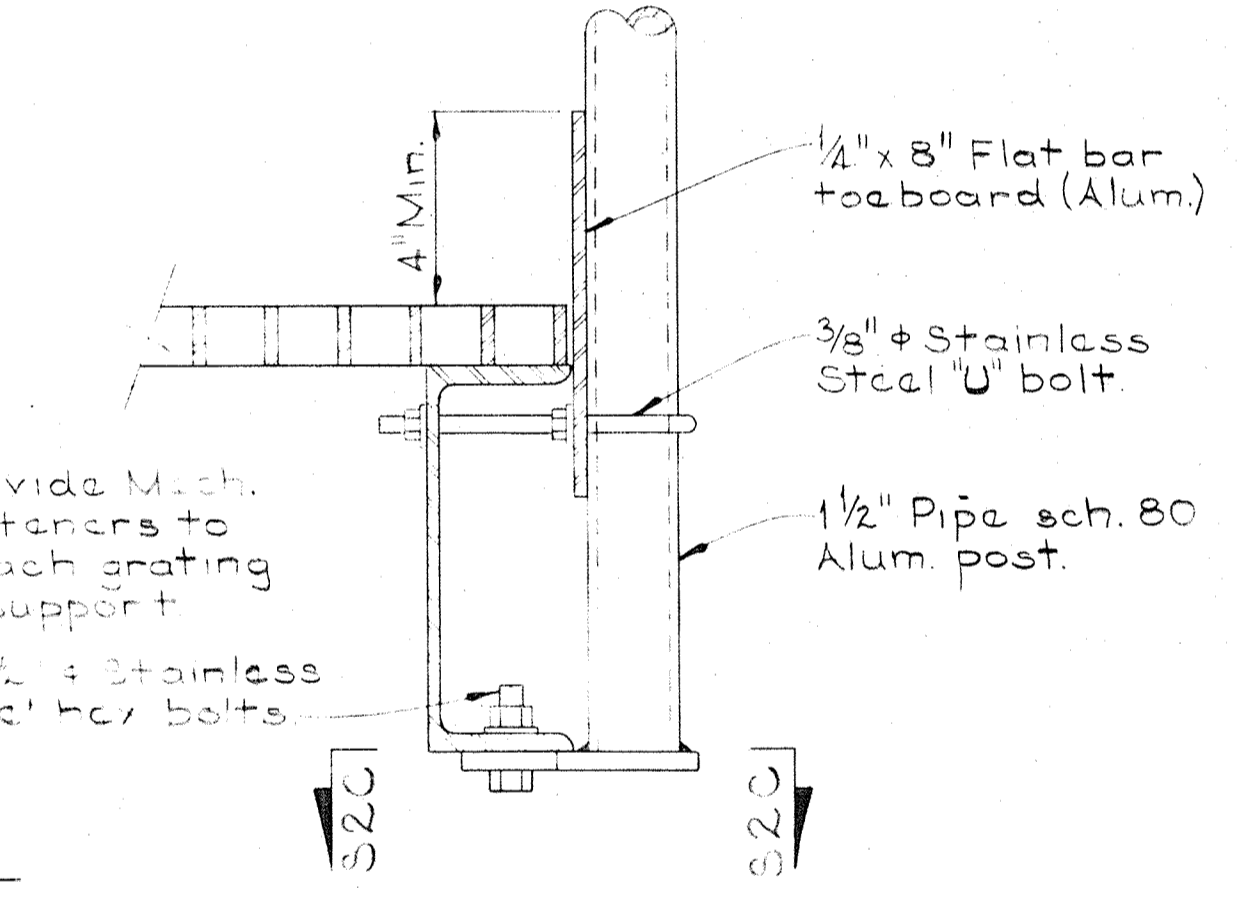
TYP. STAIR POST SUPPORT BRACKET
Scale: 1/2" = 1'-0"



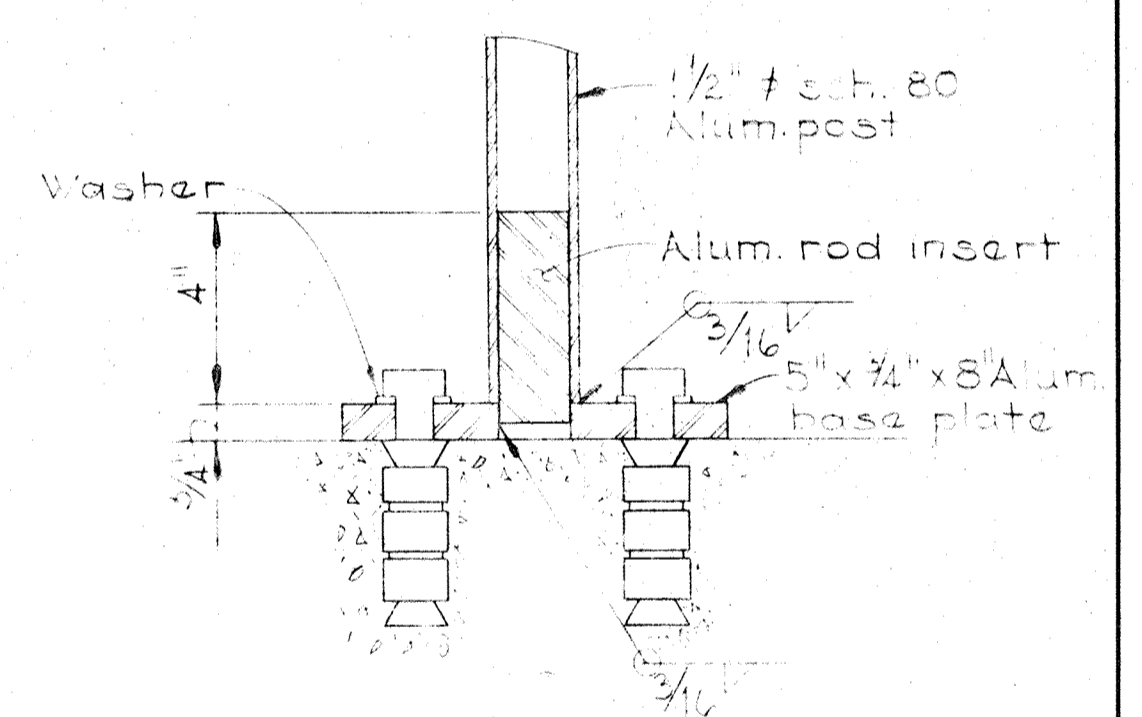
TYP. ALUMINUM HANDRAIL ELEVATION
Scale: 3/4" = 1'-0"



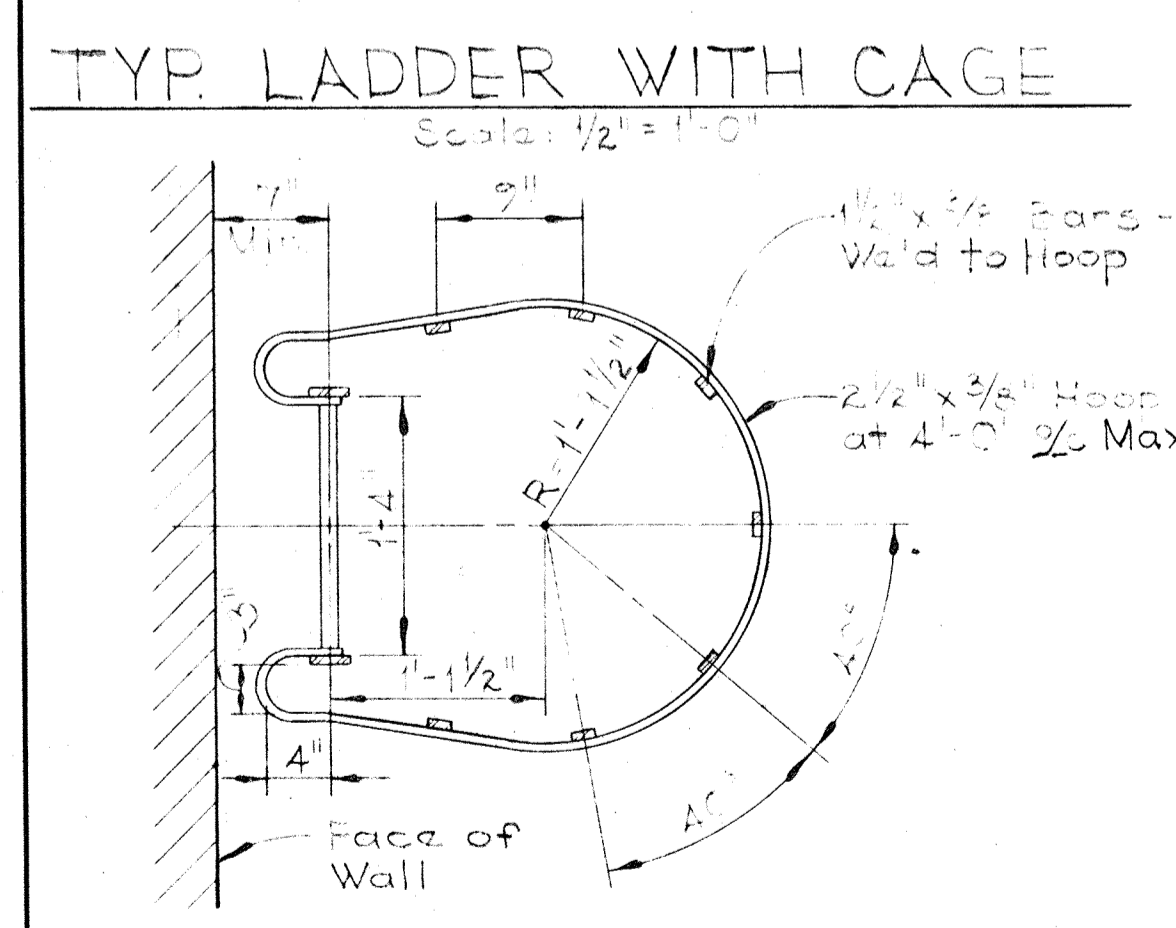
PLAN
Scale: 3" = 1'-0"



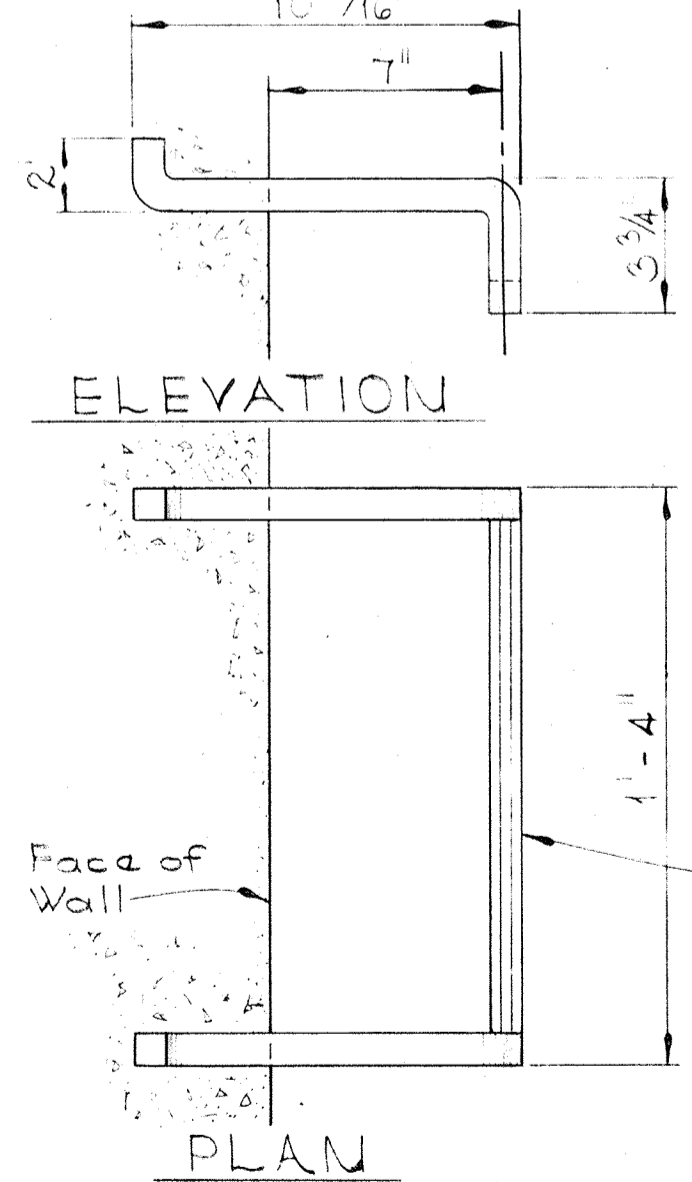
TYPICAL HANDRAIL POST CONNECTION AT PLATFORMS
Scale: 3" = 1'-0"



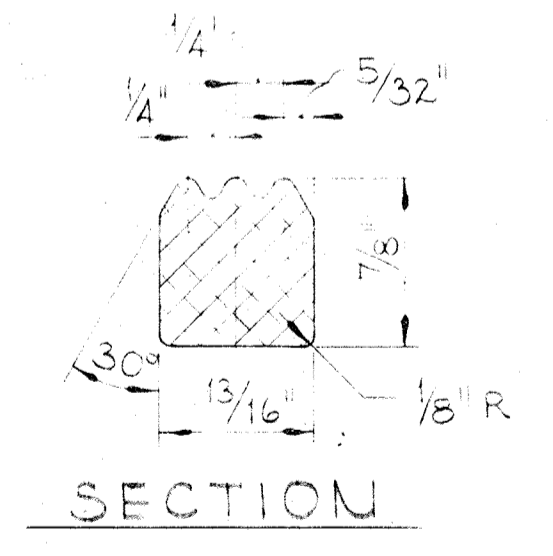
SECTION S2D/S2
ALUMINUM HANDRAIL BASE DETAIL
Scale: 3" = 1'-0"



SECTION S2A/S2
Scale: 1" = 1'-0"

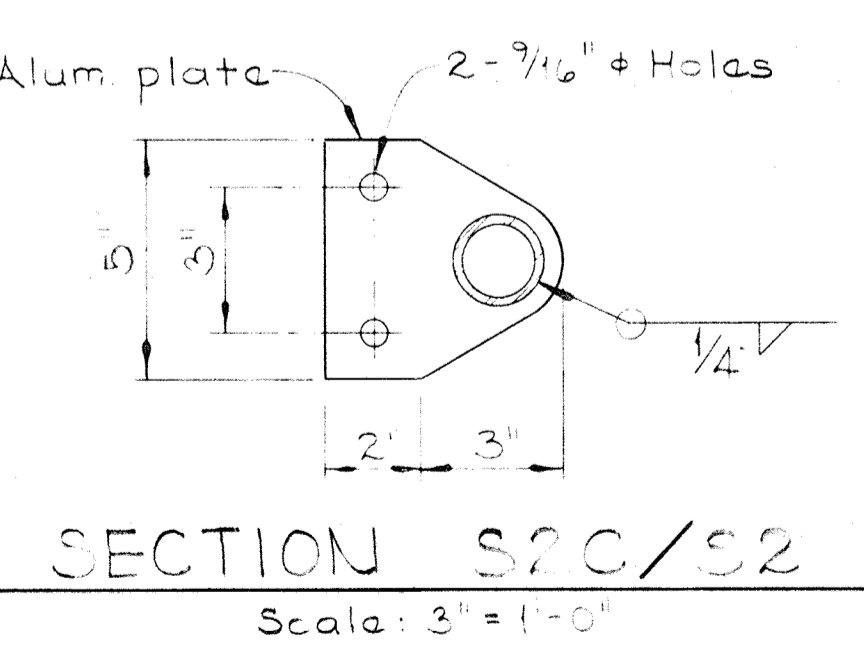
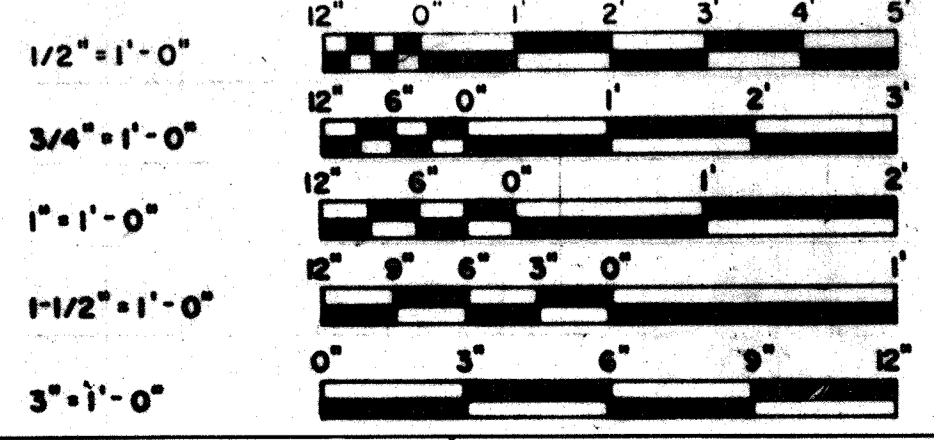


ALUMINUM MANHOLE STEP
Scale: None

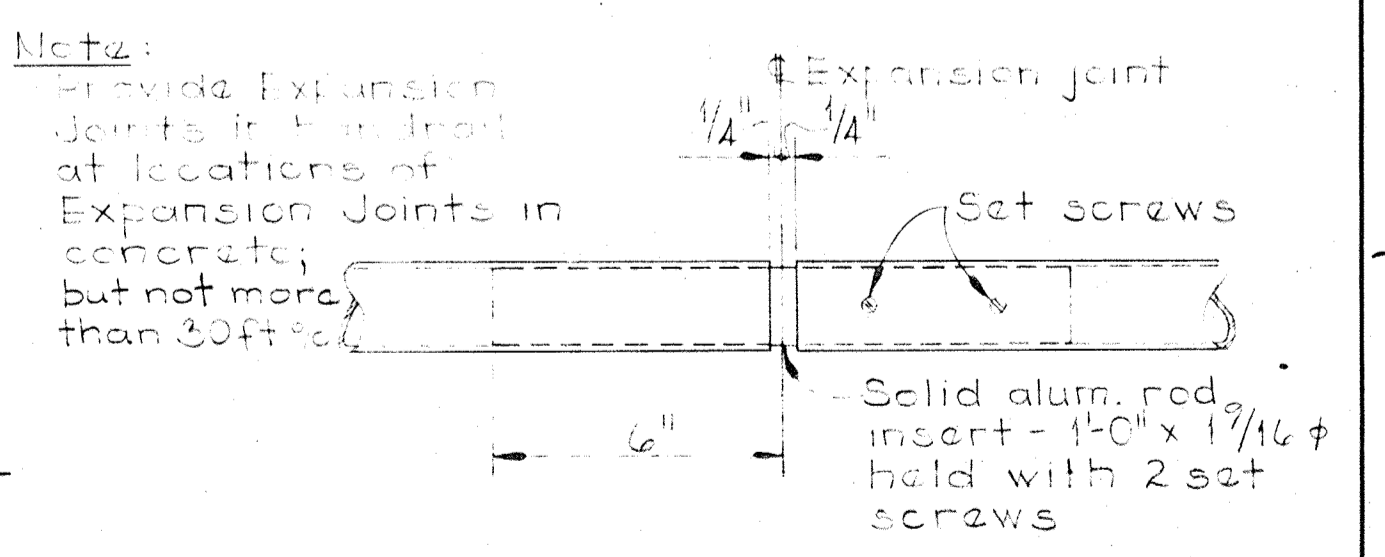


SECTION

Note: Vertical spacing of manhole steps shall not exceed 1'-0"



SECTION S2C/S2
Scale: 3" = 1'-0"



TYP. EXPANSION JOINT ALUMINUM HANDRAIL
Scale: 3" = 1'-0"

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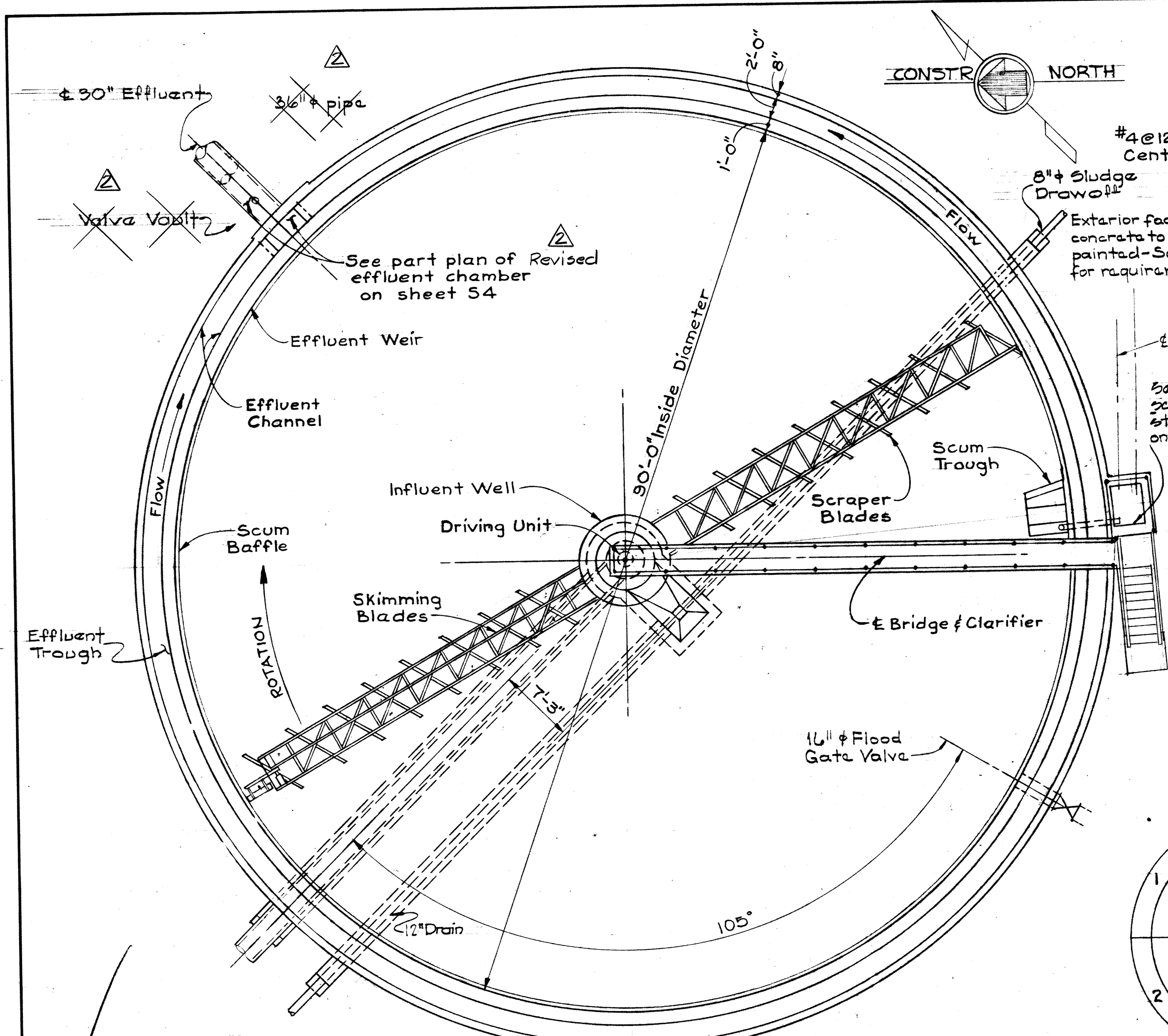
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HOWARD COUNTY, MARYLAND
10-26-77
DATE
W.O. Miller
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

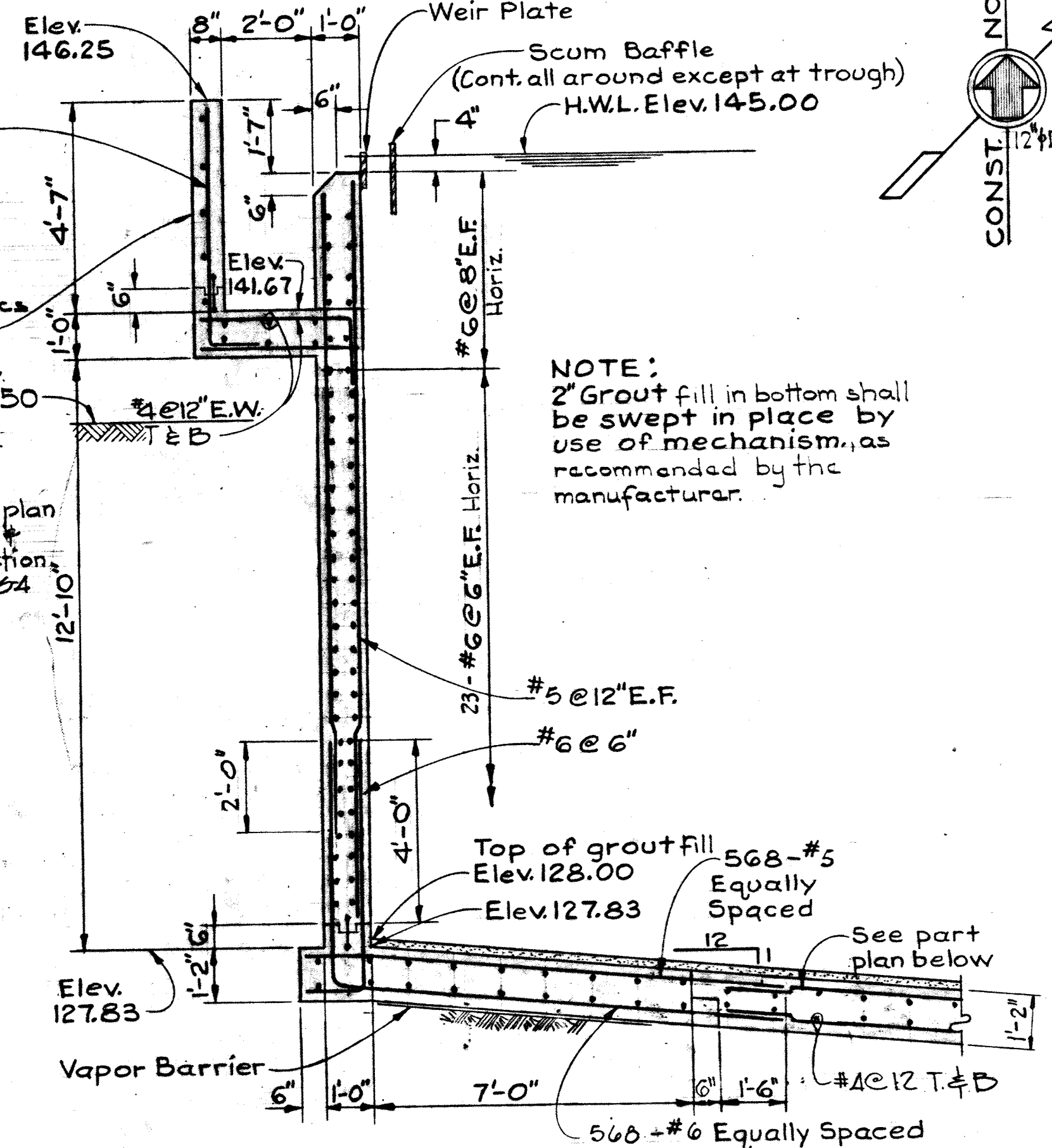
TYPICAL DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

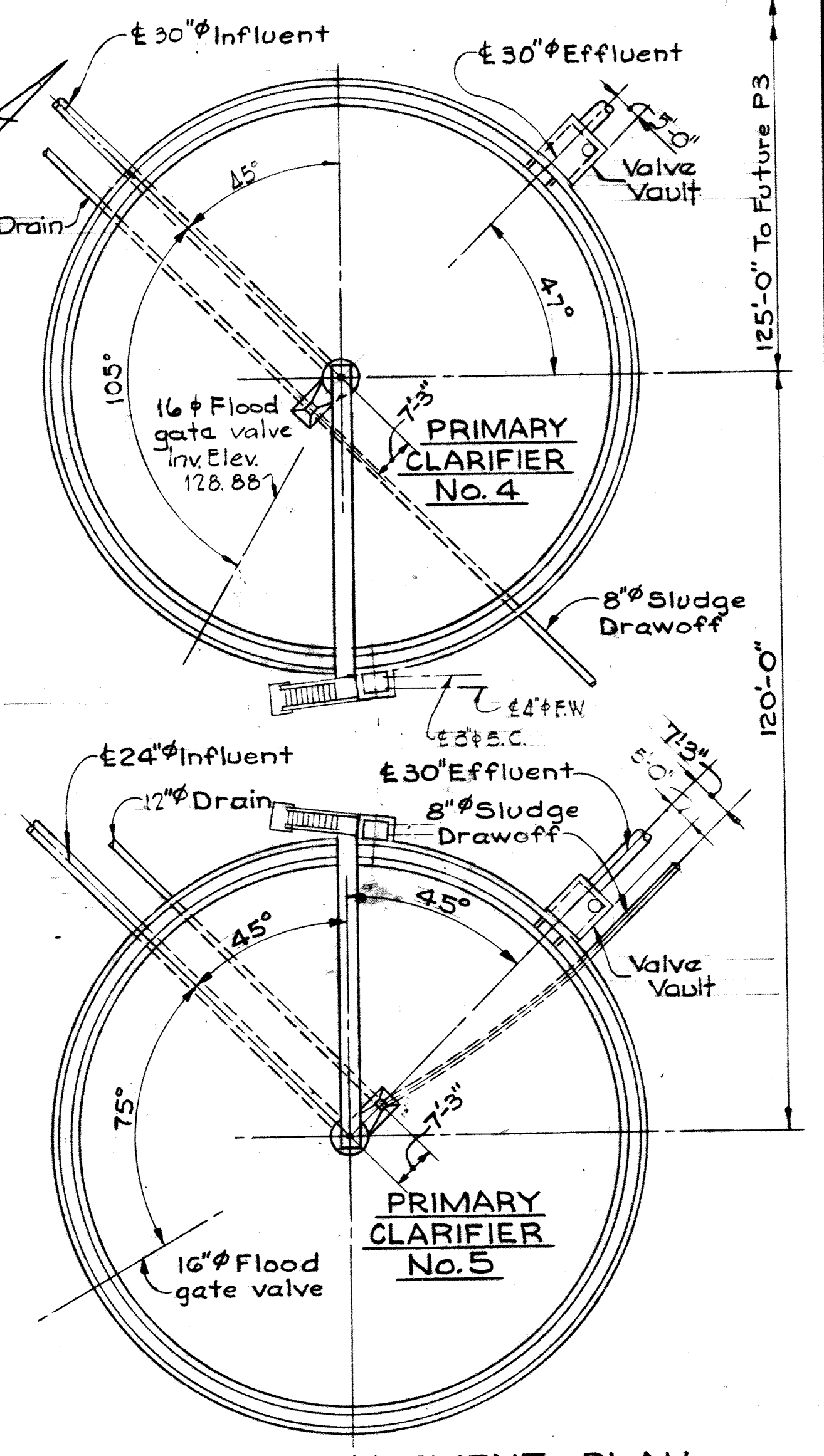
DRAWING NO. 36 OF 133
SCALE AS NOTED



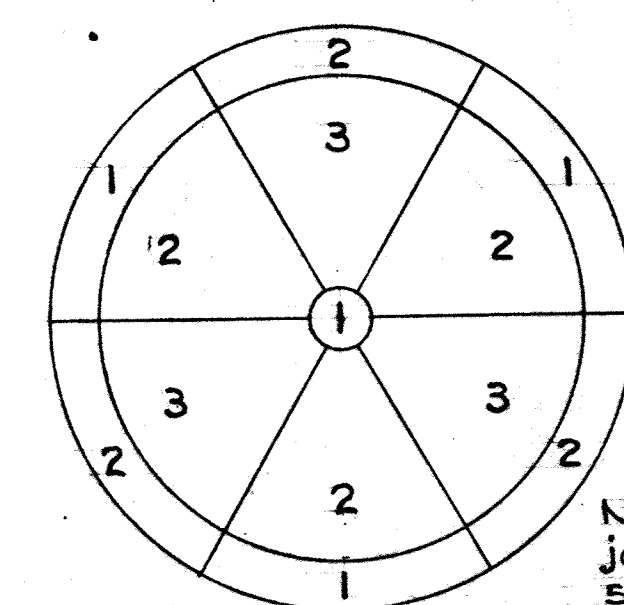
(PRIMARY CLARIFIER No.5 SIMILAR)
PLAN OF PRIMARY CLARIFIER No.4
 Scale: 1/8" = 1'-0"



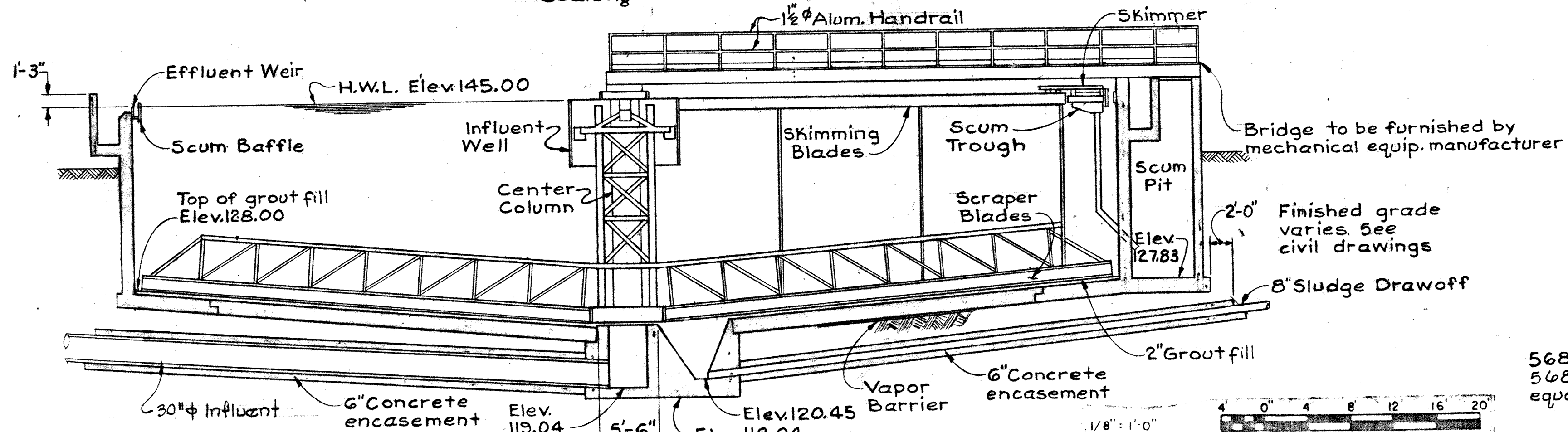
TYPICAL WALL SECTION
 Scale: 3/8" = 1'-0"



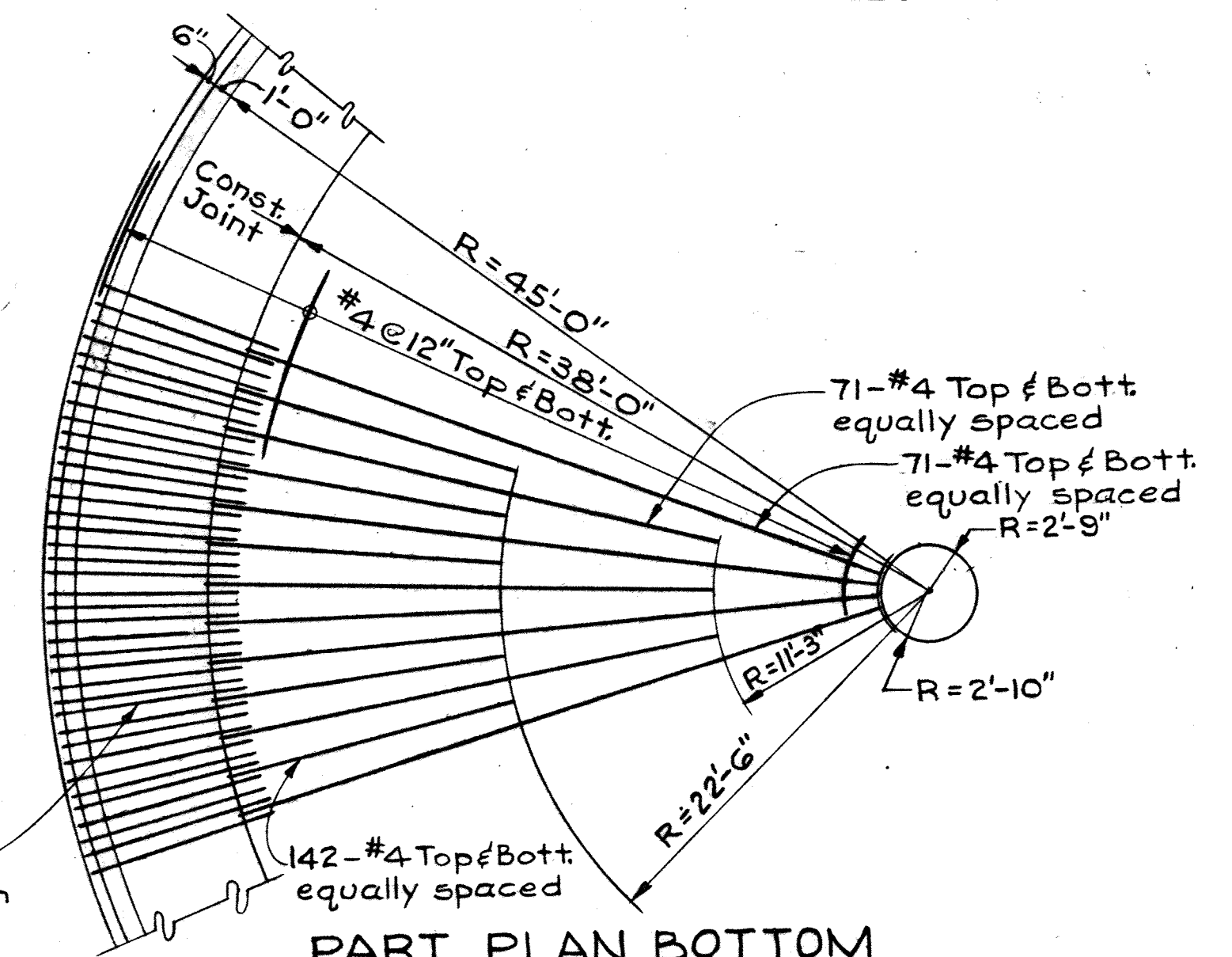
GENERAL ARRANGEMENT PLAN
 Scale: 1" = 20'-0"



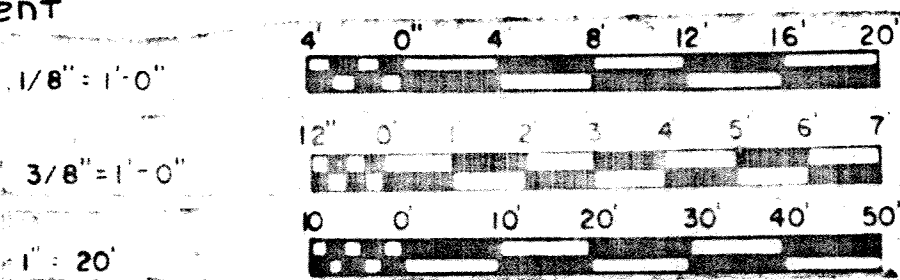
POURING SEQUENCE PLAN
 No Scale



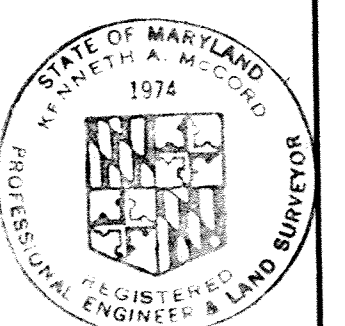
TYP. SECTION OF PRIMARY CLARIFIER No.4
 Scale: 1/8" = 1'-0"

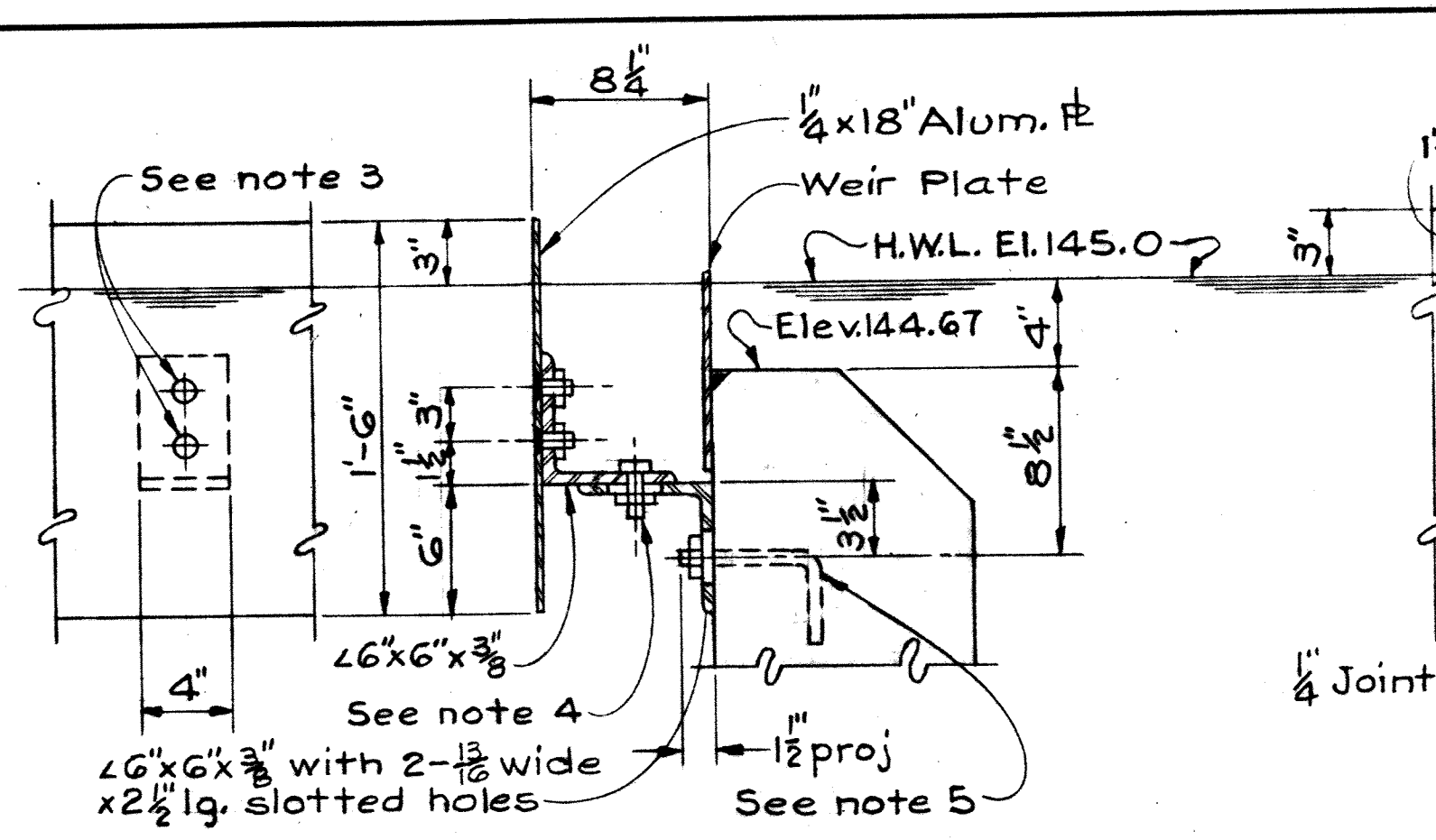


PART PLAN BOTTOM SLAB REINFORCEMENT
 Scale: 1/8" = 1'-0"

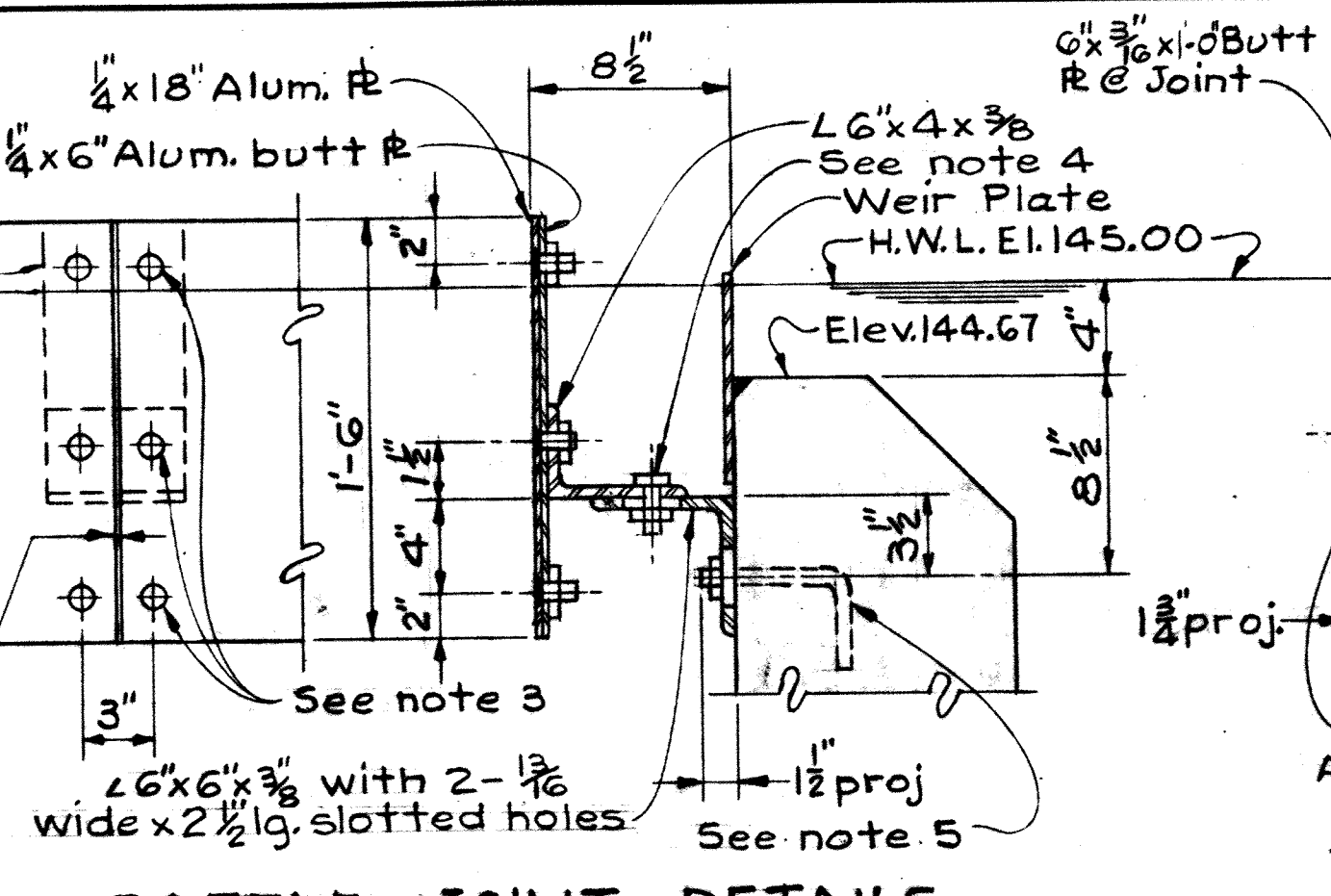


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/30/75 DATE W.O. Albert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	PRIMARY CLARIFIERS NO. 4 & 5 PLAN AND SECTIONS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 37 OF 133 SCALE AS SHOWN
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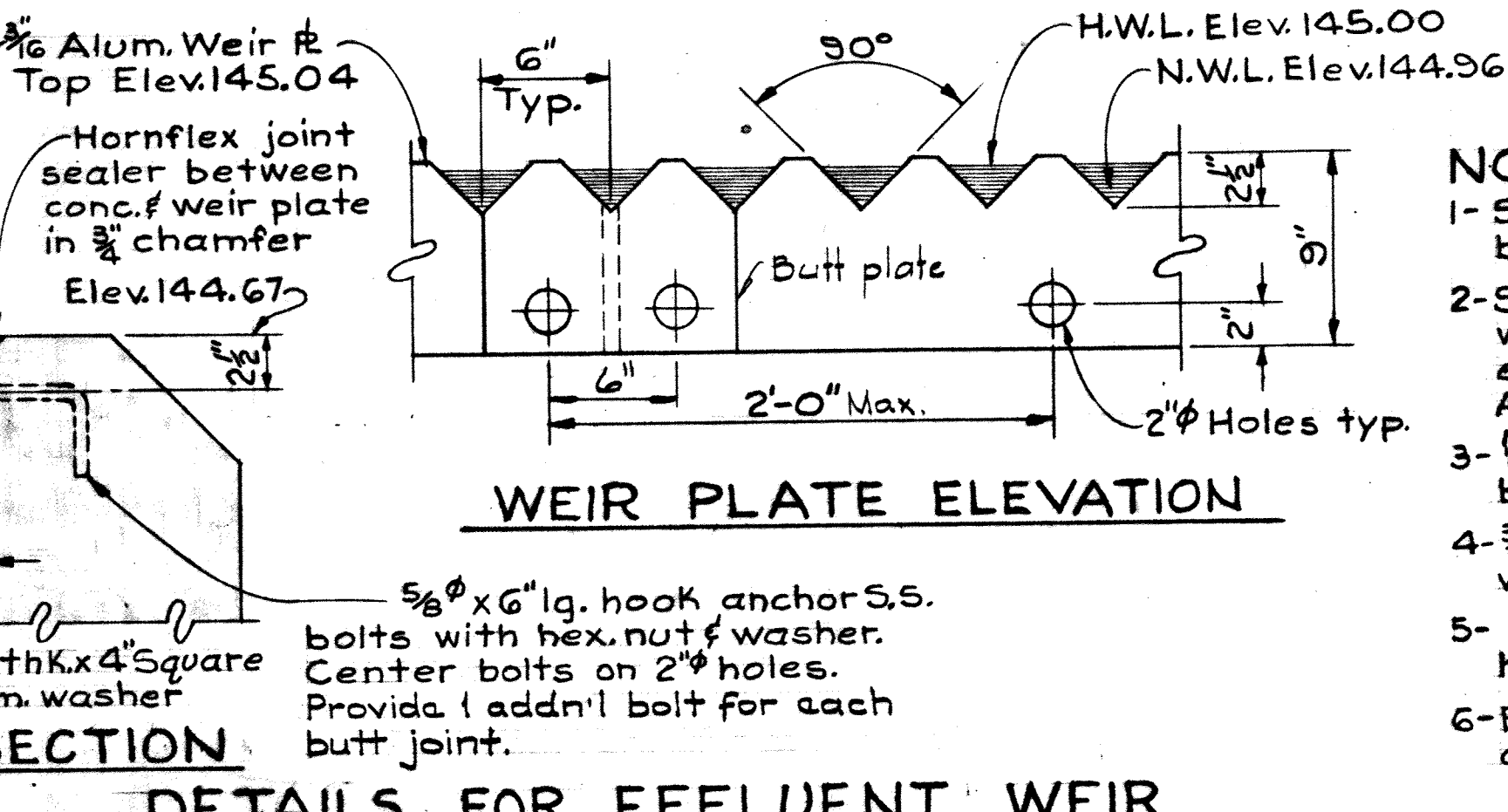




SCUM BAFFLE DETAILS
Scale: 1 1/2" = 1'-0"

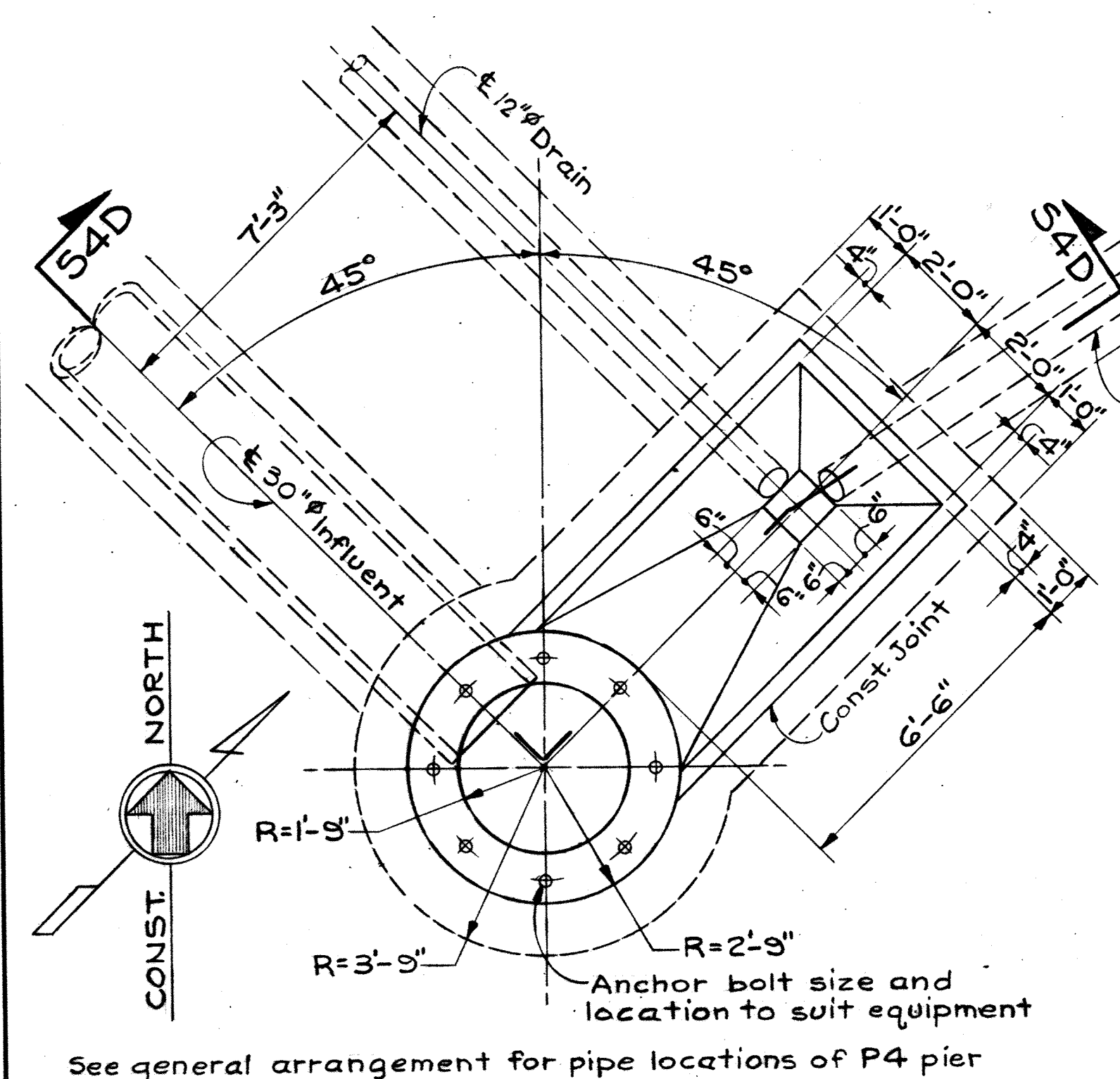


BAFFLE JOINT DETAILS
Scale: 1 1/2" = 1'-0"

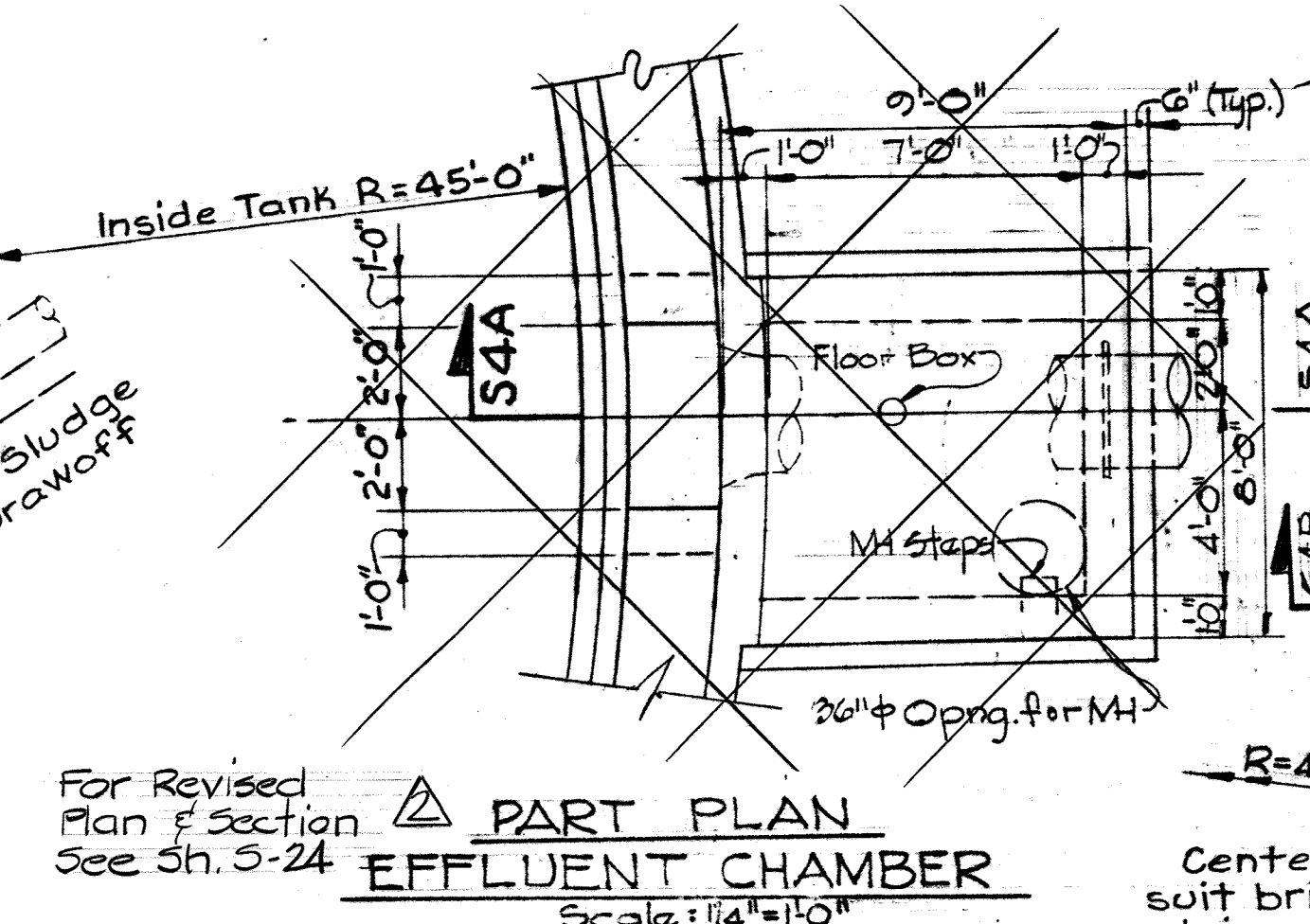


WEIR PLATE ELEVATION

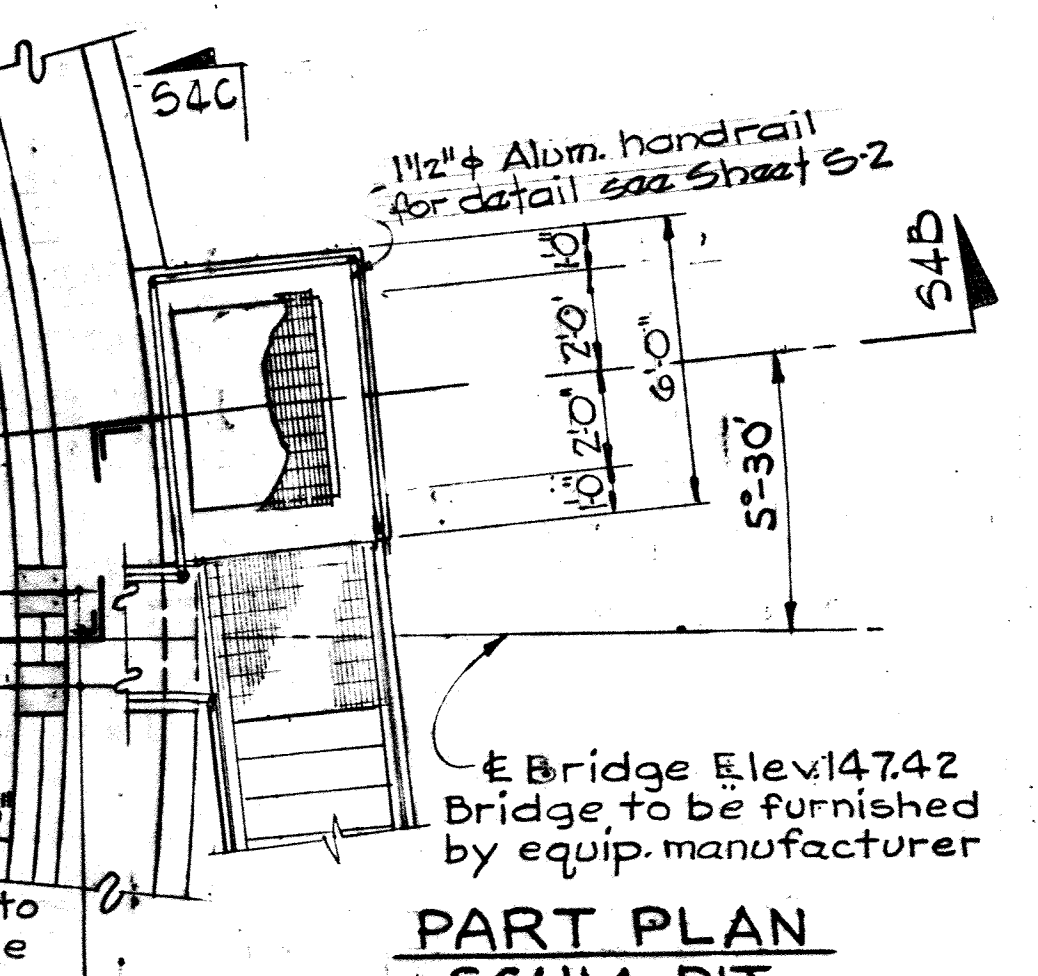
- NOTES FOR BAFFLE & WEIR**
- 1- Scum baffle angle & plates shall be aluminum alloy 6061-T6
 - 2- Setting of anchor bolts to be exact with bolts fixed firmly in place to eliminate movement during concrete pour. All anchor bolts shall be stainless steel.
 - 3- 1/2" x 1 1/4" lg. cts/k flathead stainless steel bolts with hex nut & round flat washer.
 - 4- 3/8" x 2" lg. stainless steel machine bolts with hex. nut & washer for 1 1/8" wide x 2 1/2" lg. slot.
 - 5- 5/8" x 6" lg. hook anchor bolts S.S. with hex. nut & square flat washer. @ 4'-0" c/c max.
 - 6- Earth to be compacted in strict accordance with specs.



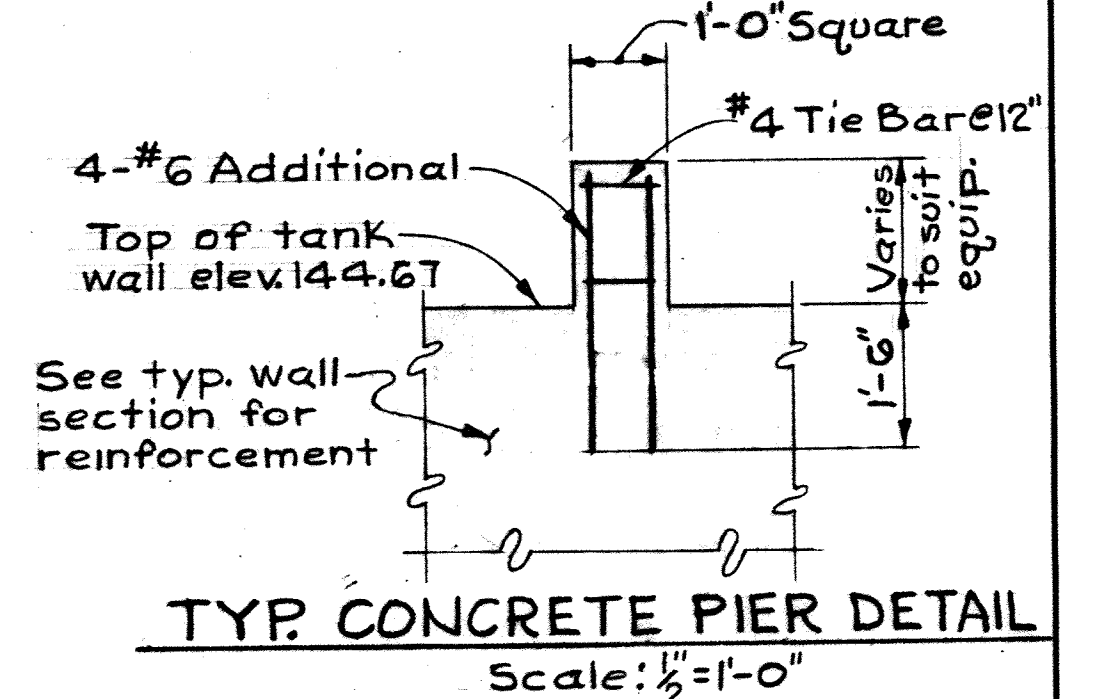
PART PLAN FOR P5 CENTER PIER
Scale: 3/8" = 1'-0"



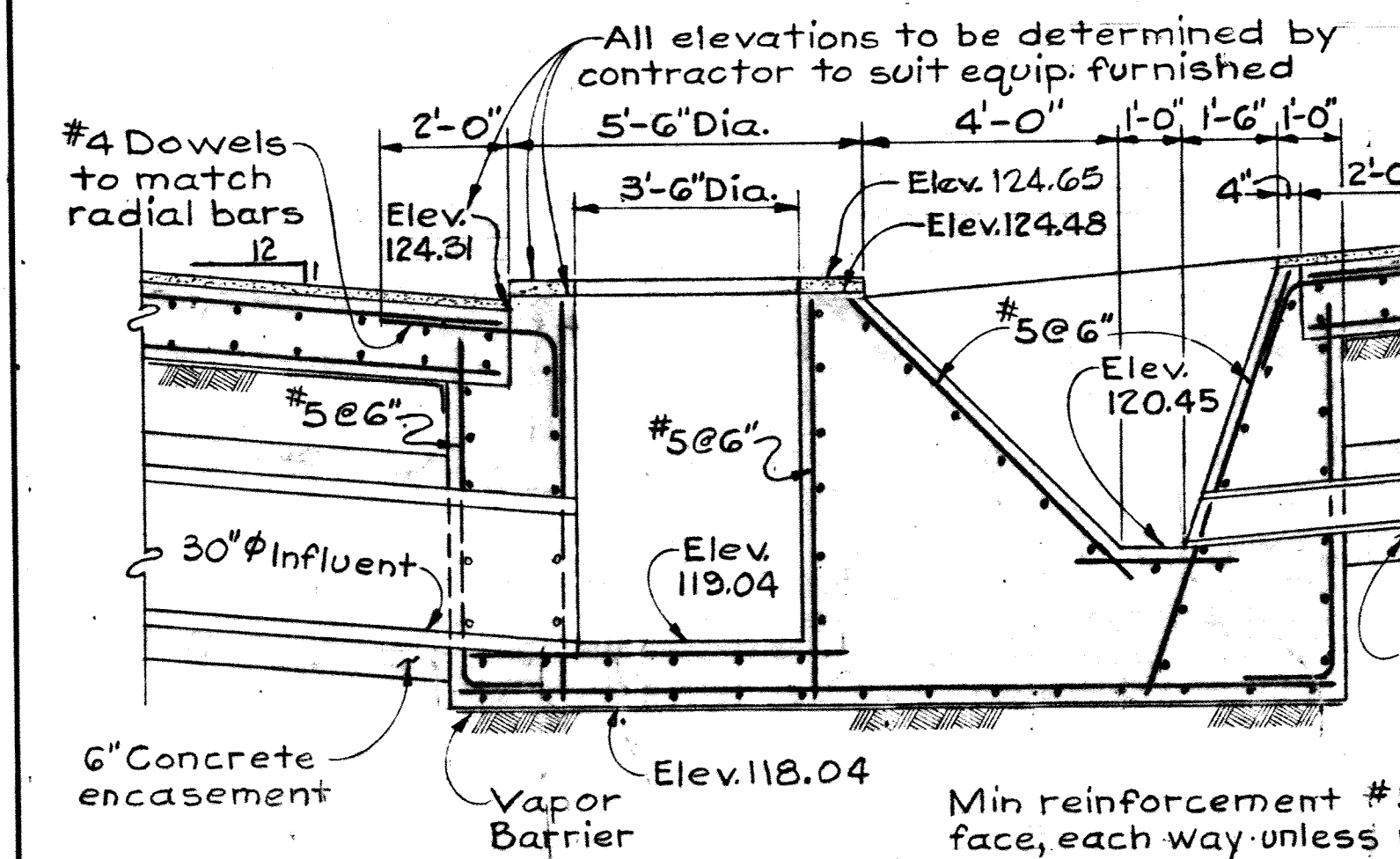
PART PLAN EFFLUENT CHAMBER
Scale: 1/4" = 1'-0"



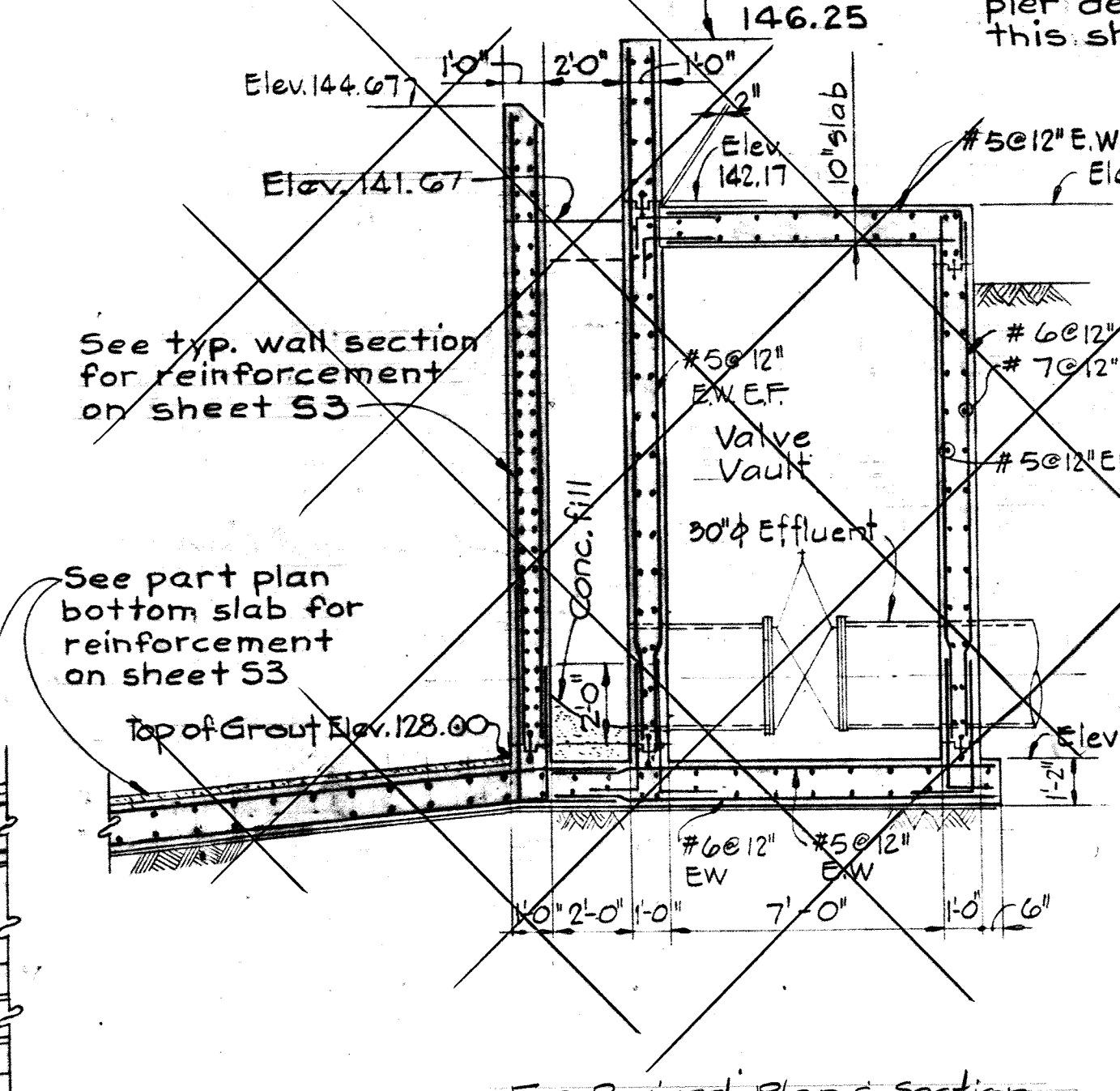
PART PLAN SCUM PIT
Scale: 1/4" = 1'-0"



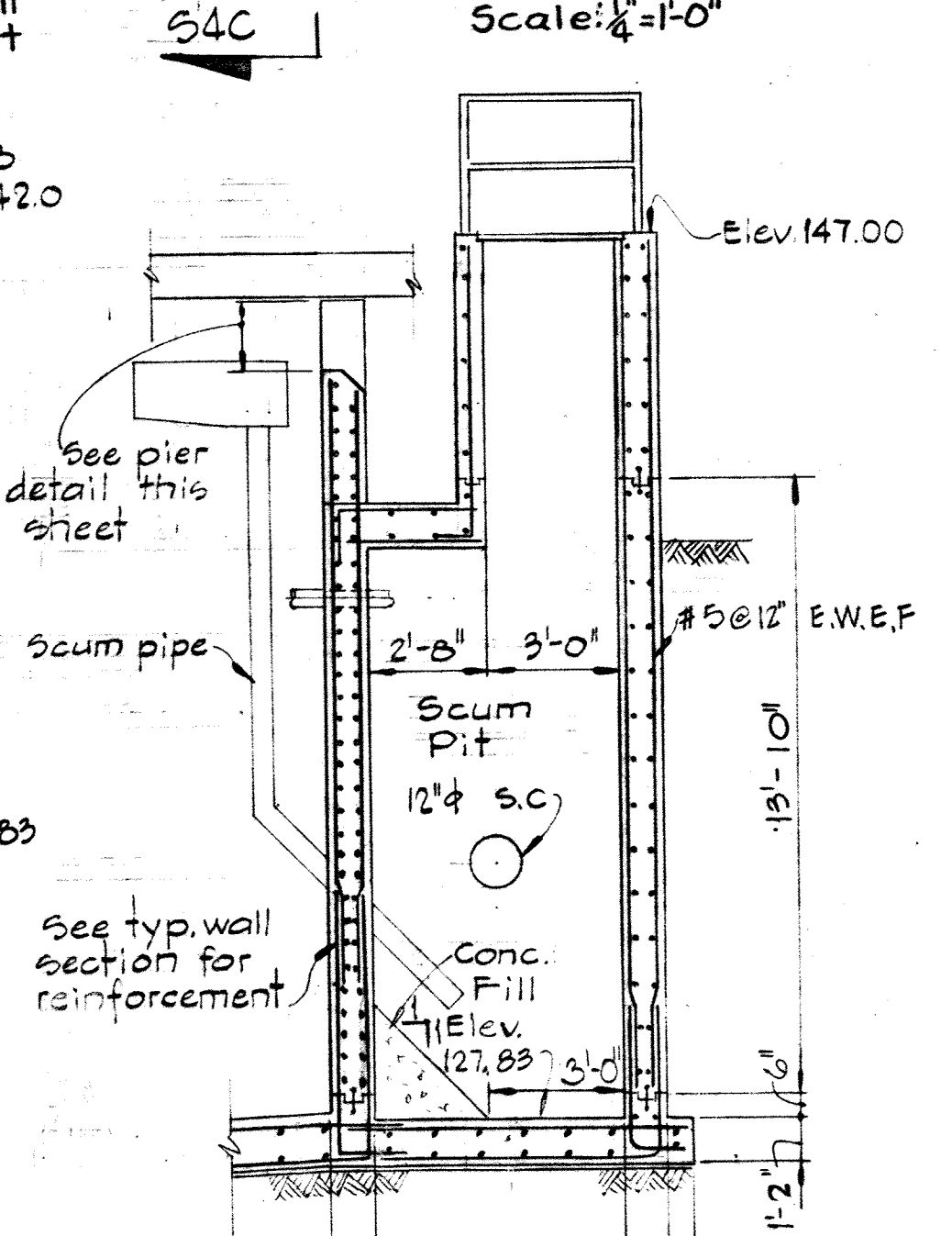
TYP. CONCRETE PIER DETAIL
Scale: 1/2" = 1'-0"



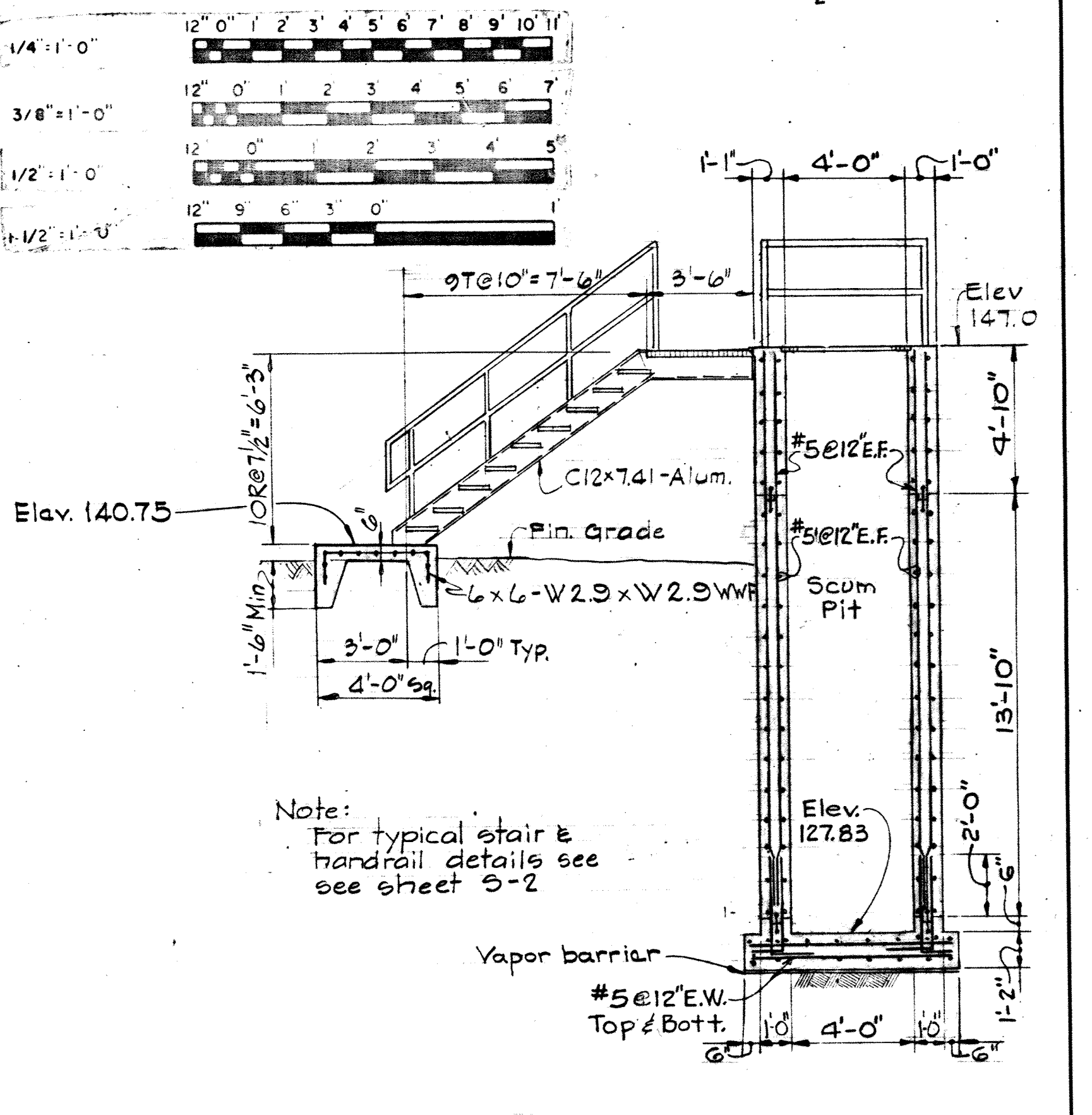
SECTION S4D/S4
Scale: 3/8" = 1'-0"



SECTION S4A/S4
Scale: 1/4" = 1'-0"

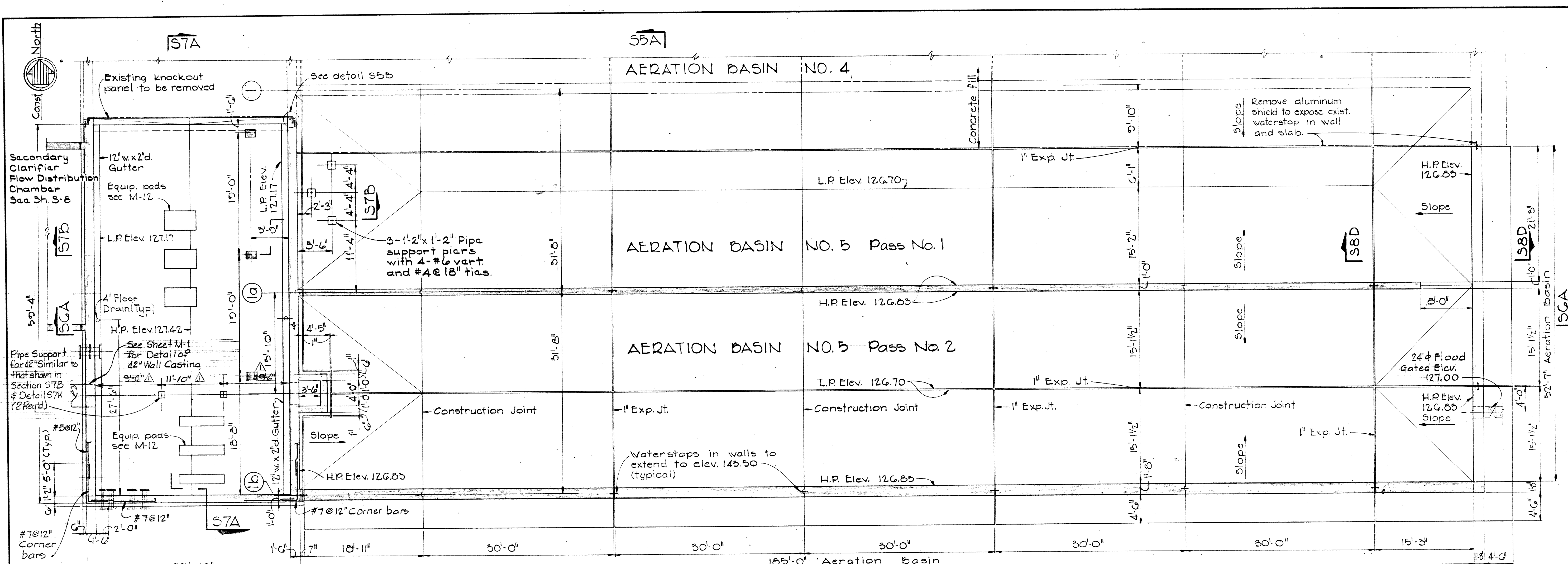


SECTION S4B/S4
Scale: 1/4" = 1'-0"

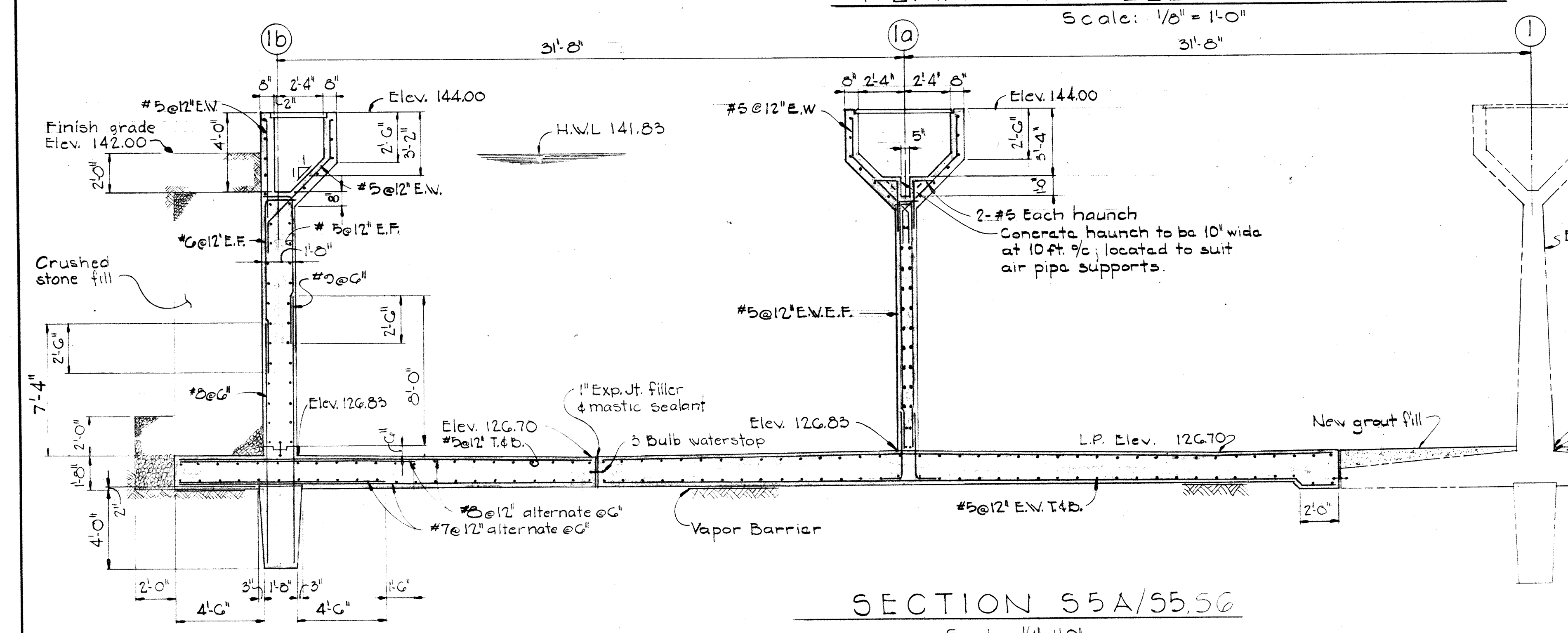


SECTION S4C/S4
Scale: 1/4" = 1'-0"

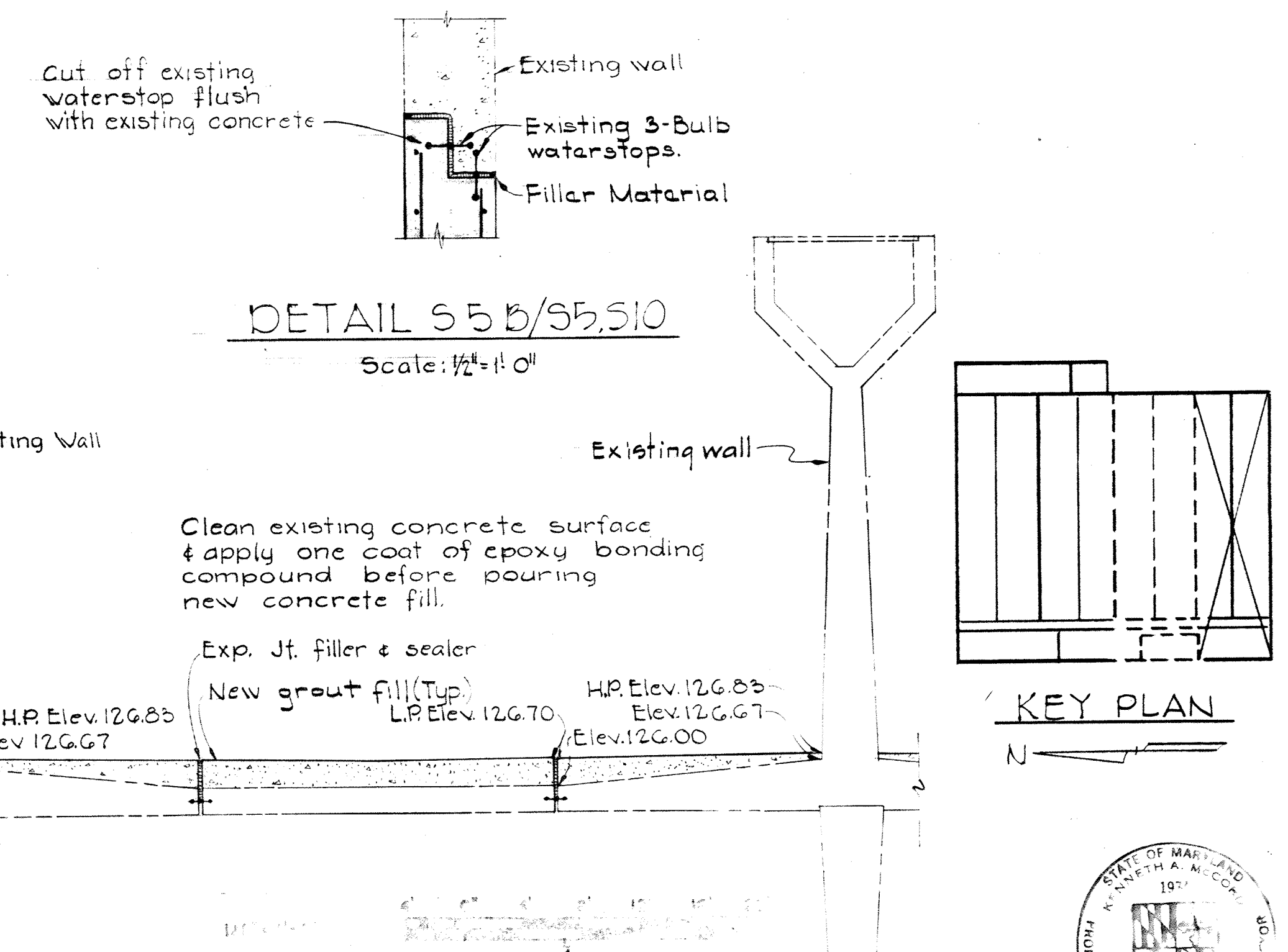
<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 W.O. Libert CHIEF-BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>PRIMARY CLARIFIERS NO.4&5 SECTIONS AND DETAILS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO.4</p>	<p>DRAWING NO.38 OF 133 SCALE AS SHOWN</p>
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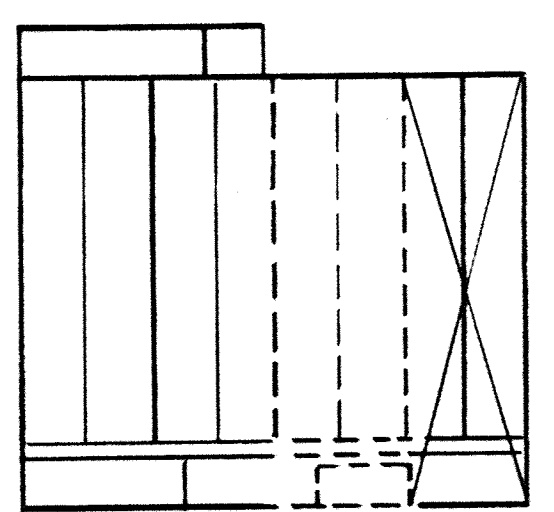
55A
PLAN AT ELEVATION 131.00
 Scale: 1/8" = 1'-0"



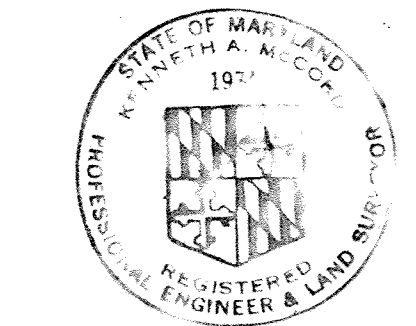
55A/55.56
SECTION 55A/55.56
 Scale: 1/4" = 1'-0"



55B/55.510
DETAIL 55B/55.510
 Scale: 1/2" = 1'-0"



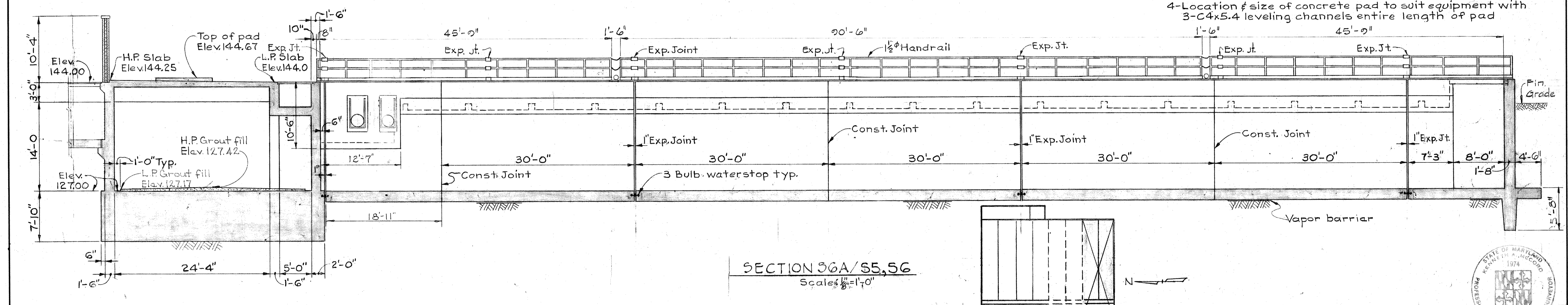
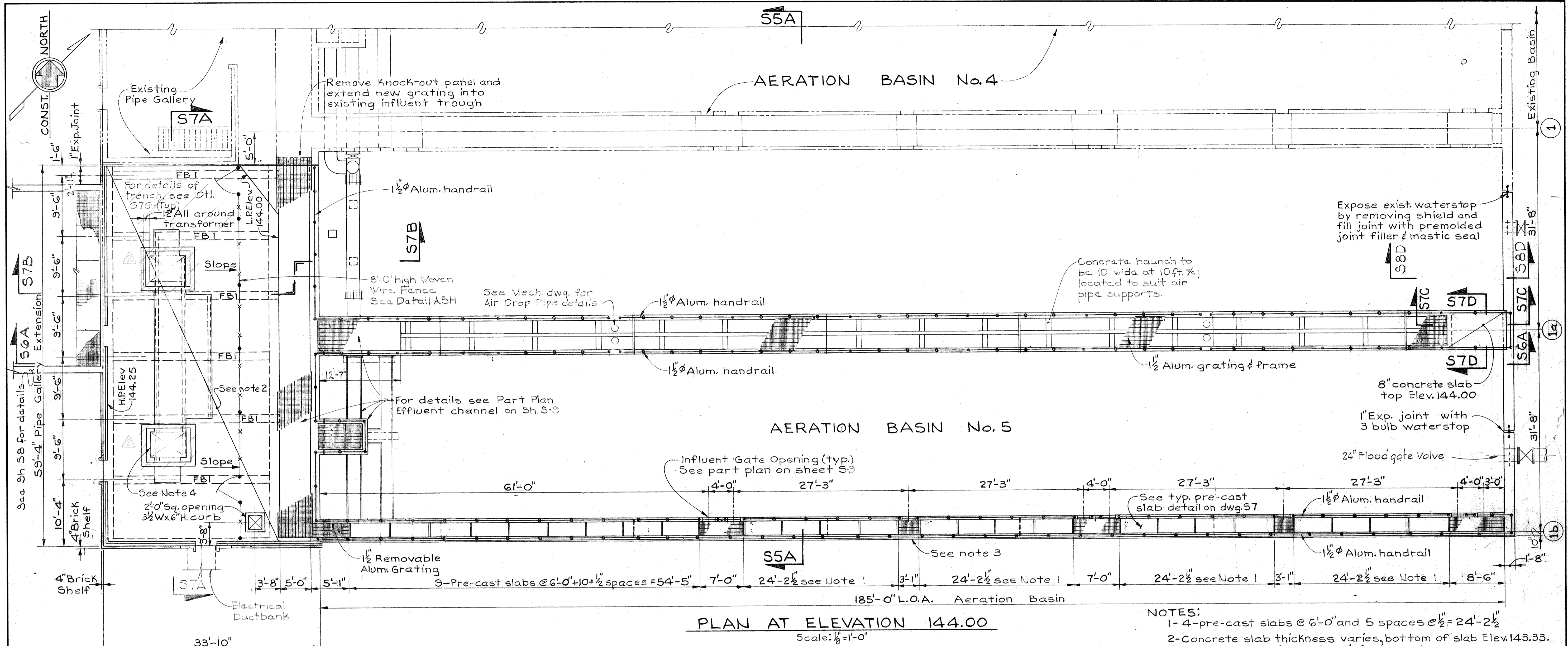
KEY PLAN



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE <i>W. O. Albert</i> CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 5 PIPE GALLERY WEST FOUNDATION PLAN & SECTION	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 39 OF 133	SCALE AS SHOWN
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W. O. 6887-2

SHEET S-5
 MODIFIED DRAWING-MAY 6, 1982



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W. O. Libbert CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 5 PIPE GALLERY WEST - TOP PLAN & SECTION	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 40 OF 133 SCALE AS SHOWN
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W.O. 6887-2

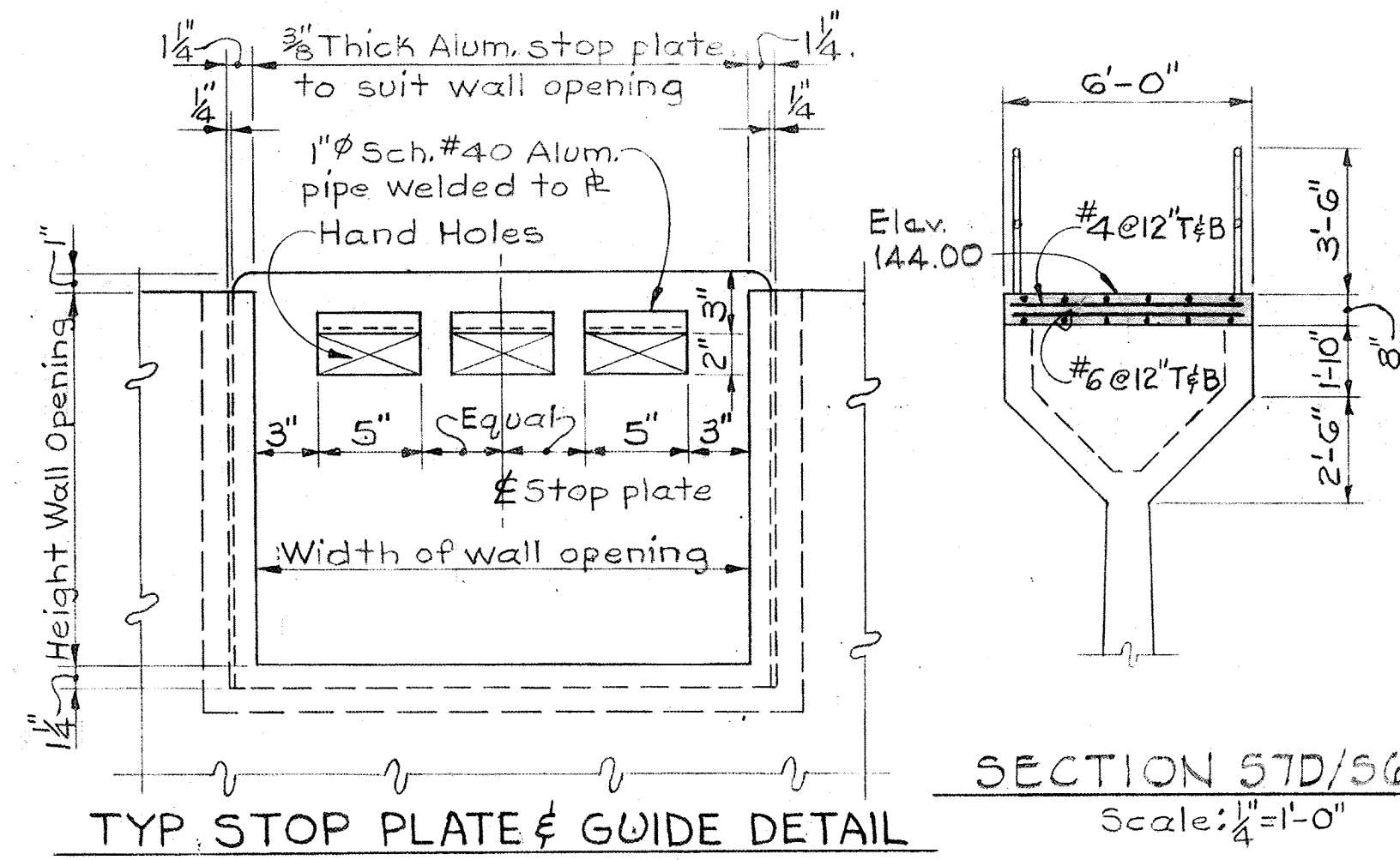
MODIFIED DRAWING-MAY 6, 1982

BRUNING 44-510 18392

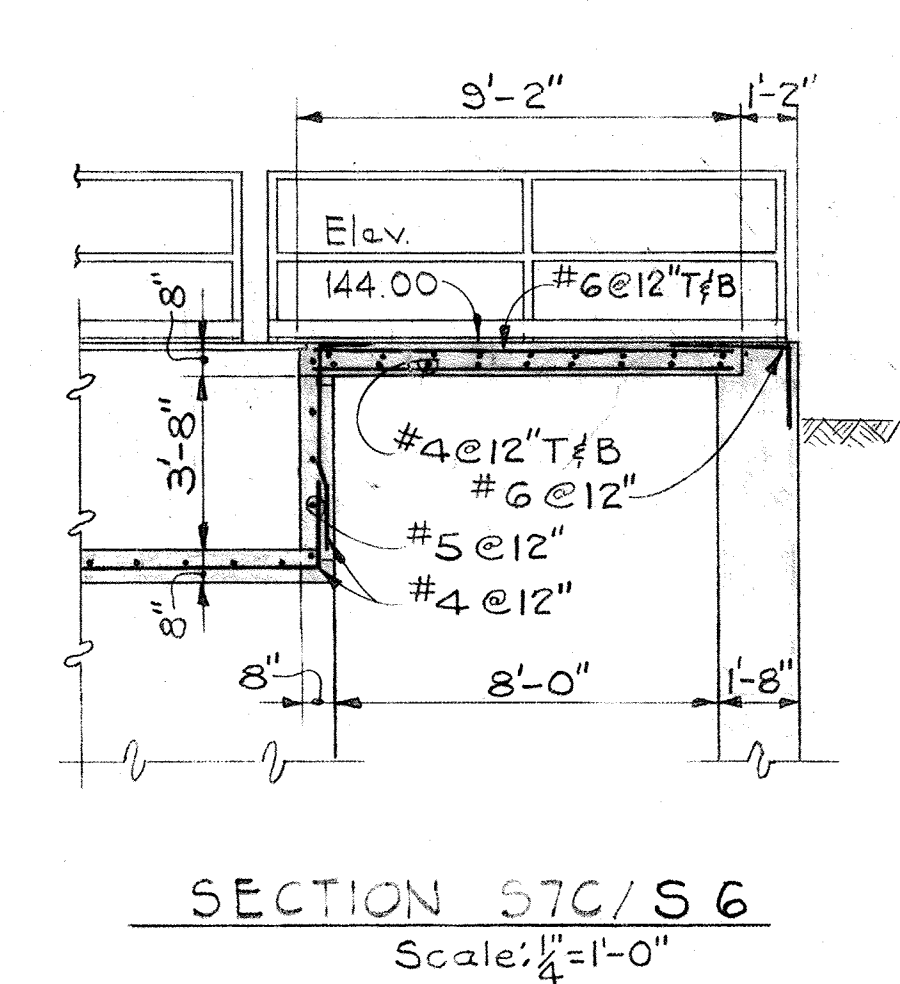
MARK	WALL OPENING	SIZE STOP PLATE
Ⓐ	2'-1" x 2'-0" wide	2'-3 1/4" x 2'-2" wide
Ⓑ	4'-0" x 2'-2" wide	3'-11 1/4" x 2'-4" wide

See 3h, 39 for location

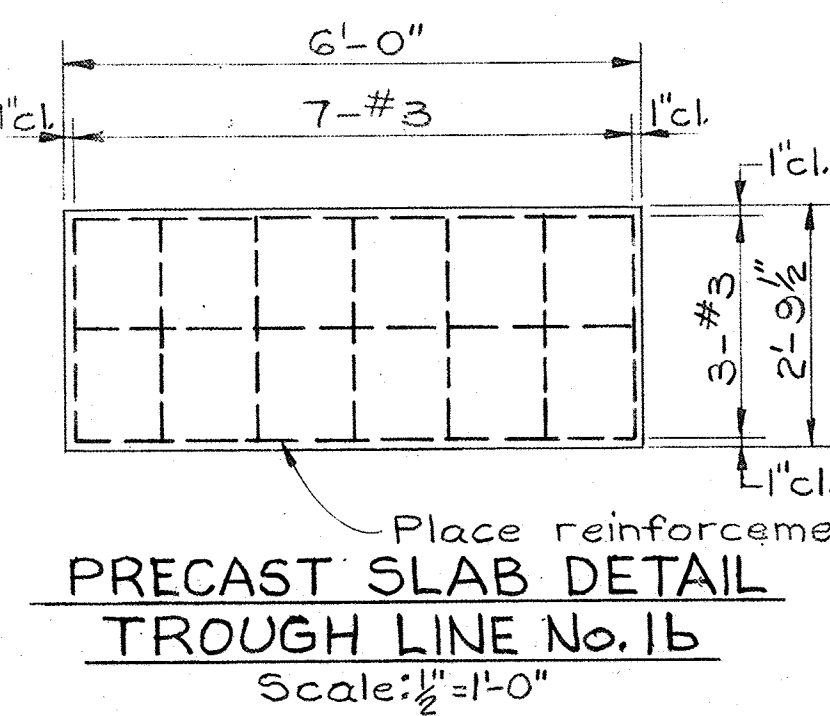
STOP PLATE SCHEDULE



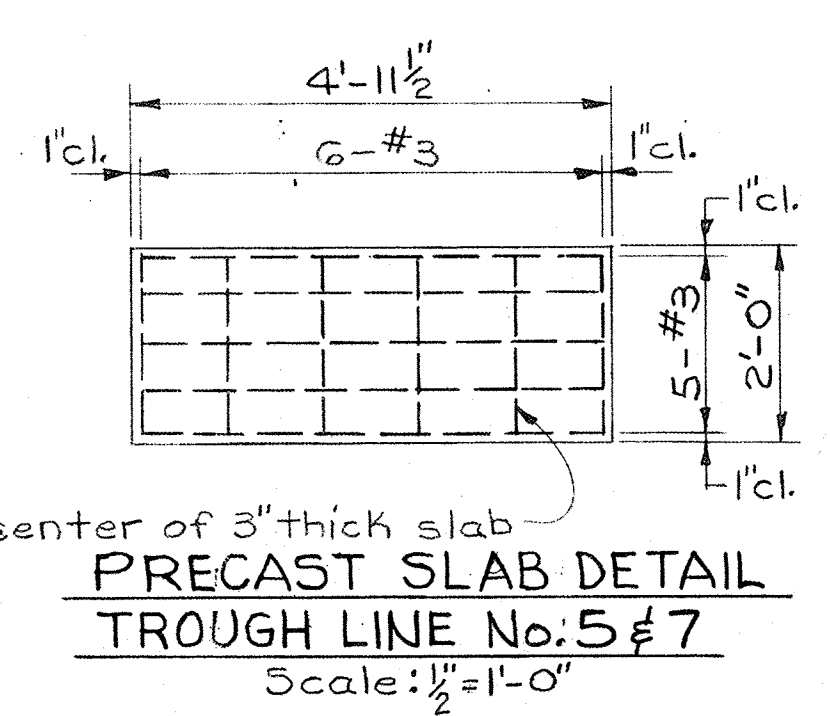
SECTION 57D/56
Scale: 1/4" = 1'-0"



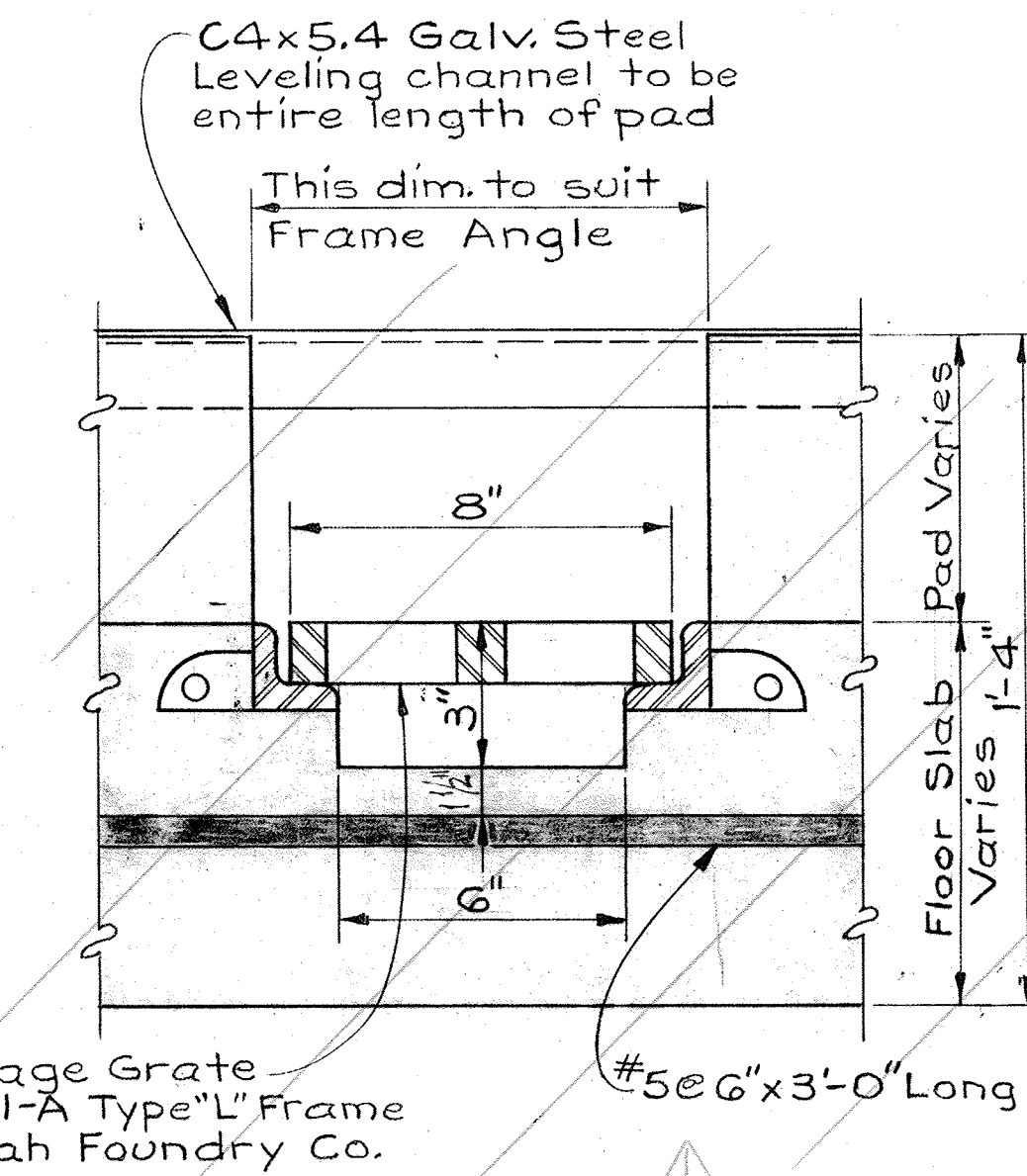
SECTION 57C/56
Scale: 1/4" = 1'-0"



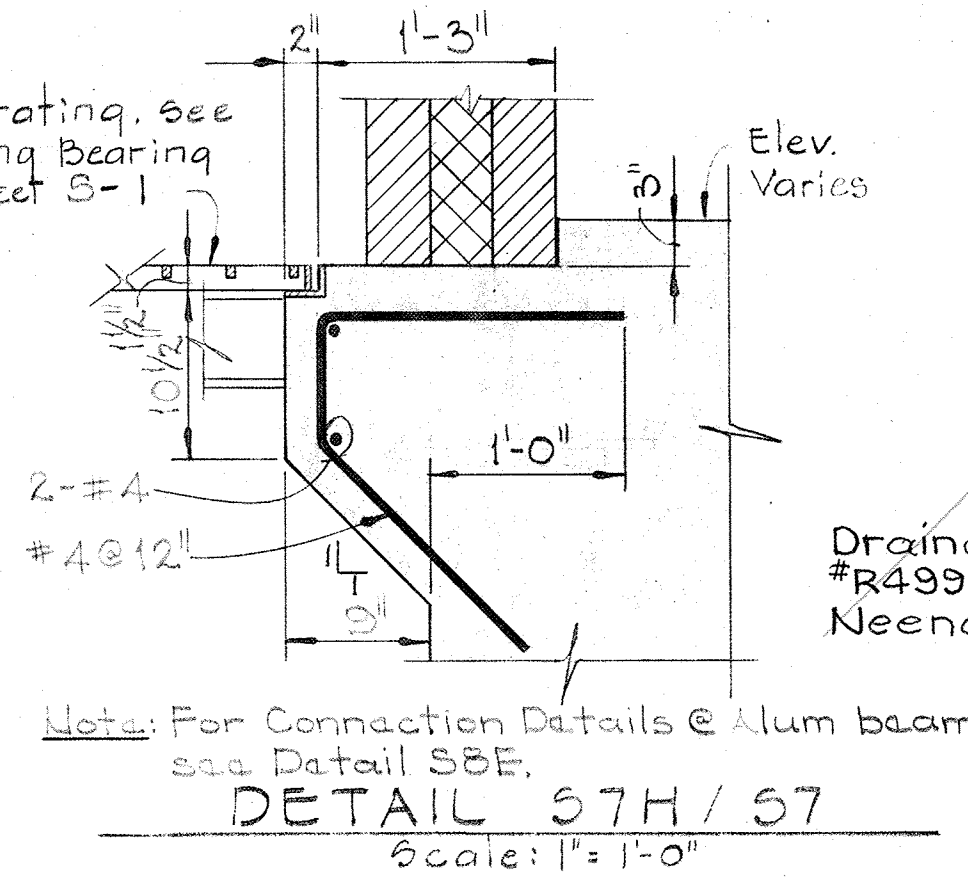
PRECAST SLAB DETAIL
TROUGH LINE No. 16
Scale: 1/2" = 1'-0"



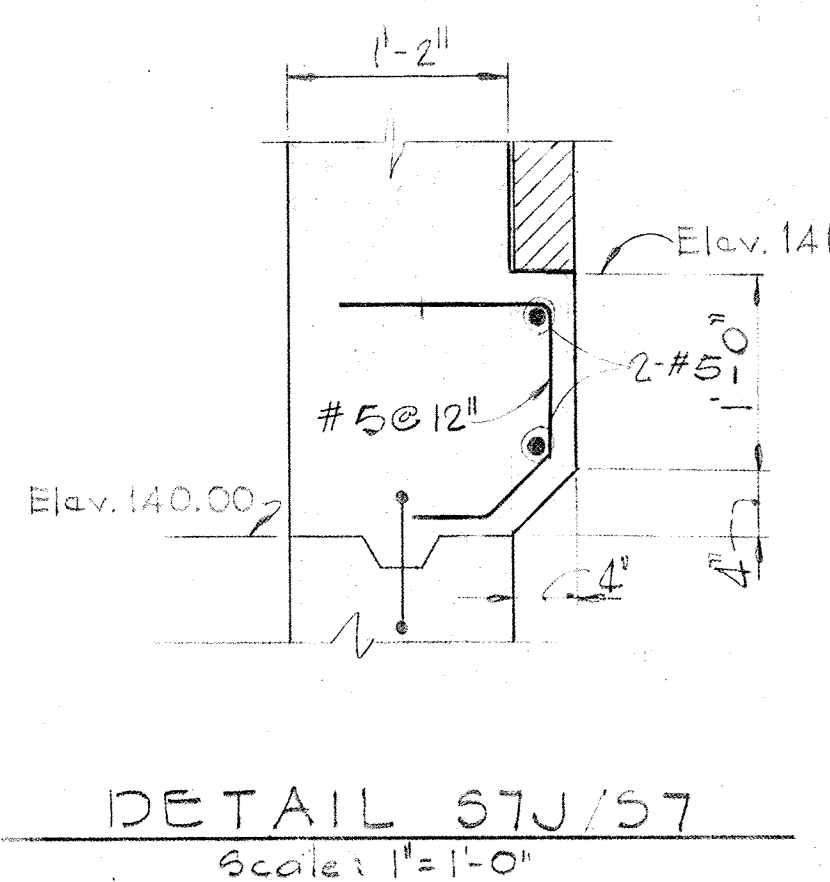
PRECAST SLAB DETAIL
TROUGH LINE No. 5 & 7
Scale: 1/2" = 1'-0"



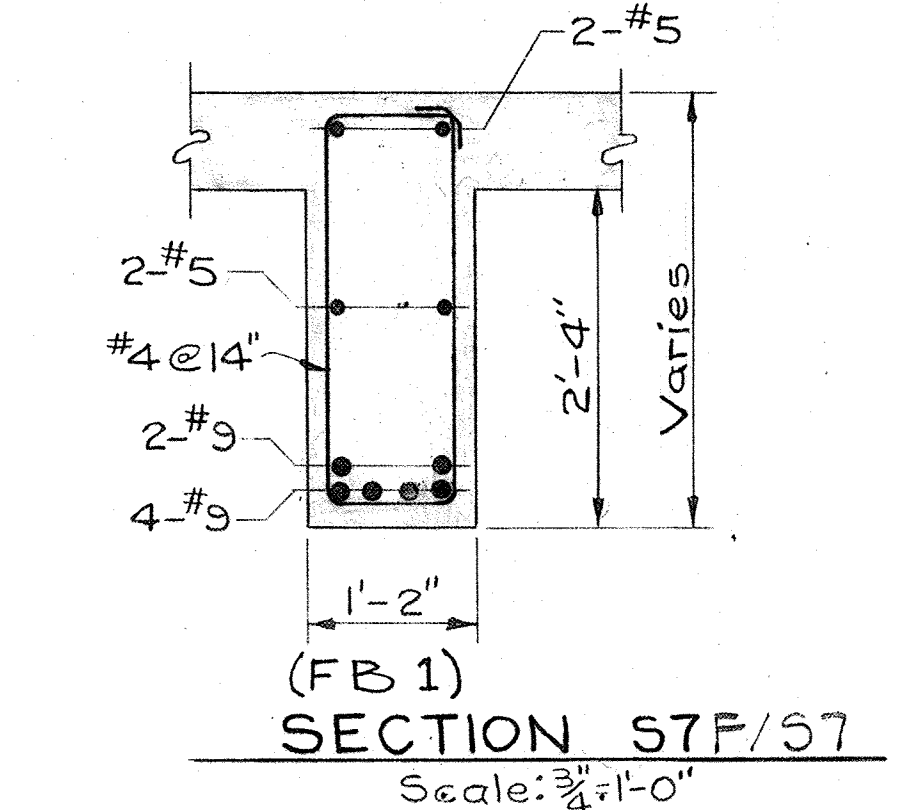
TRENCH DETAIL 57G/56,57
Scale: 3/4" = 1'-0"



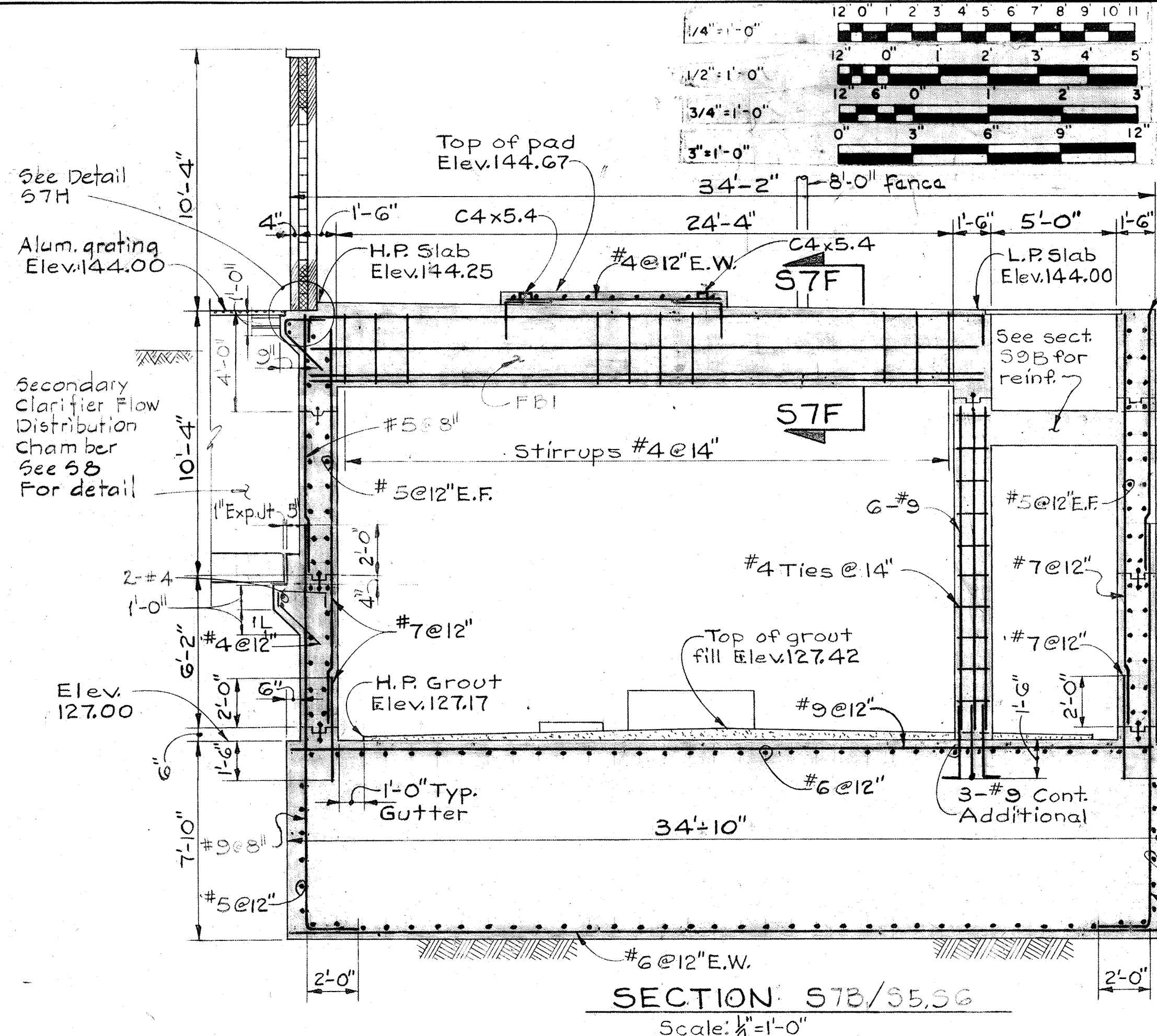
DETAIL 57H/57
Scale: 1" = 1'-0"



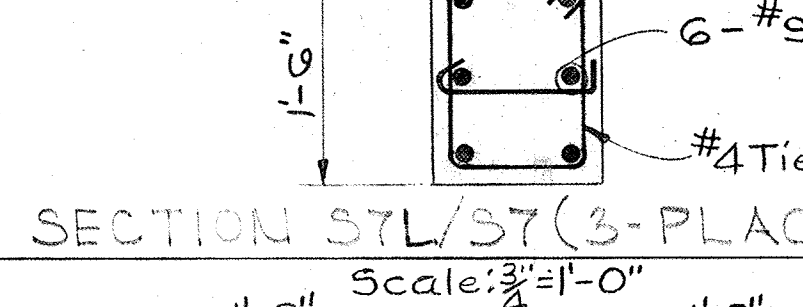
DETAIL 57J/57
Scale: 1" = 1'-0"



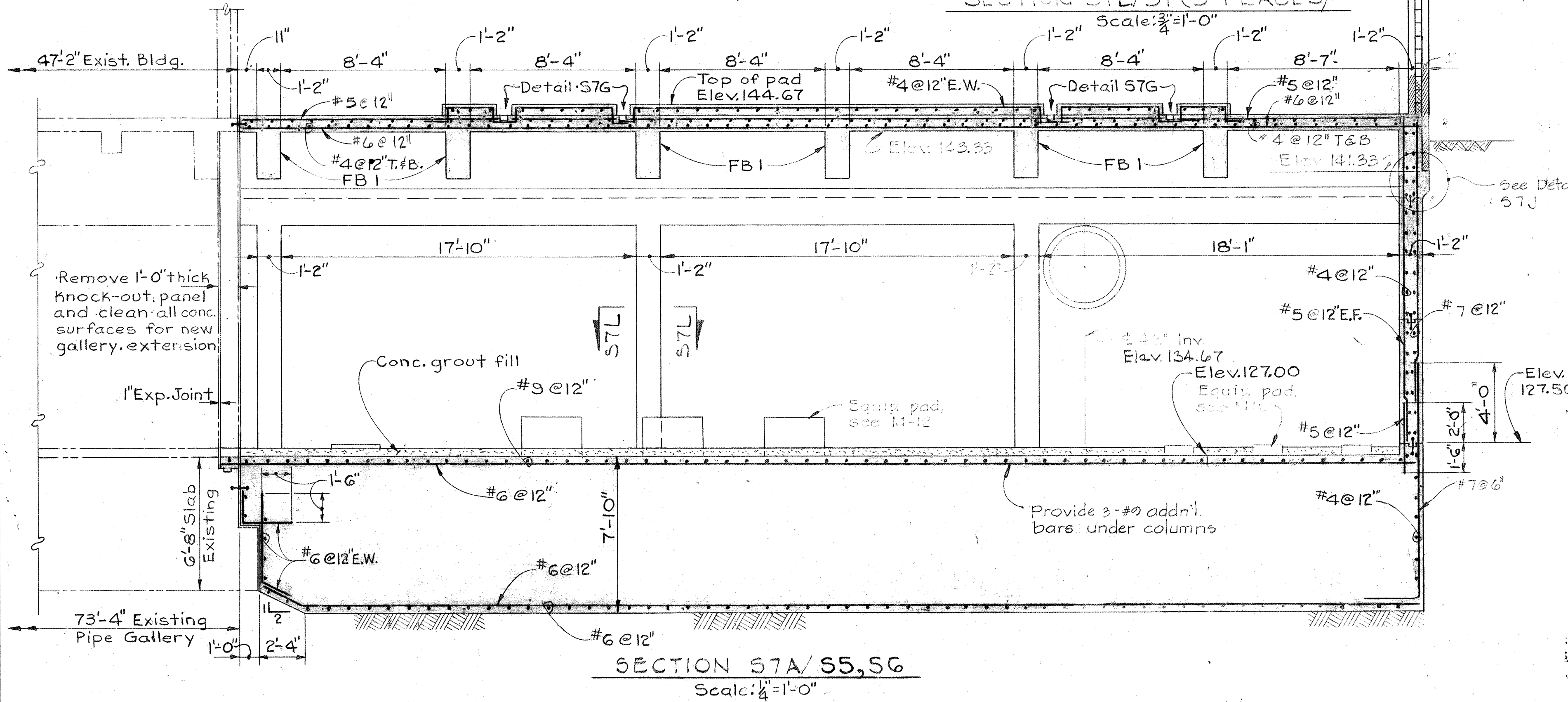
SECTION 57F/57
Scale: 3/4" = 1'-0"



SECTION 57B/55,56
Scale: 1/4" = 1'-0"



SECTION 57L/57 (3-PLACES)
Scale: 3/4" = 1'-0"



SECTION 57A/55,56
Scale: 1/4" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

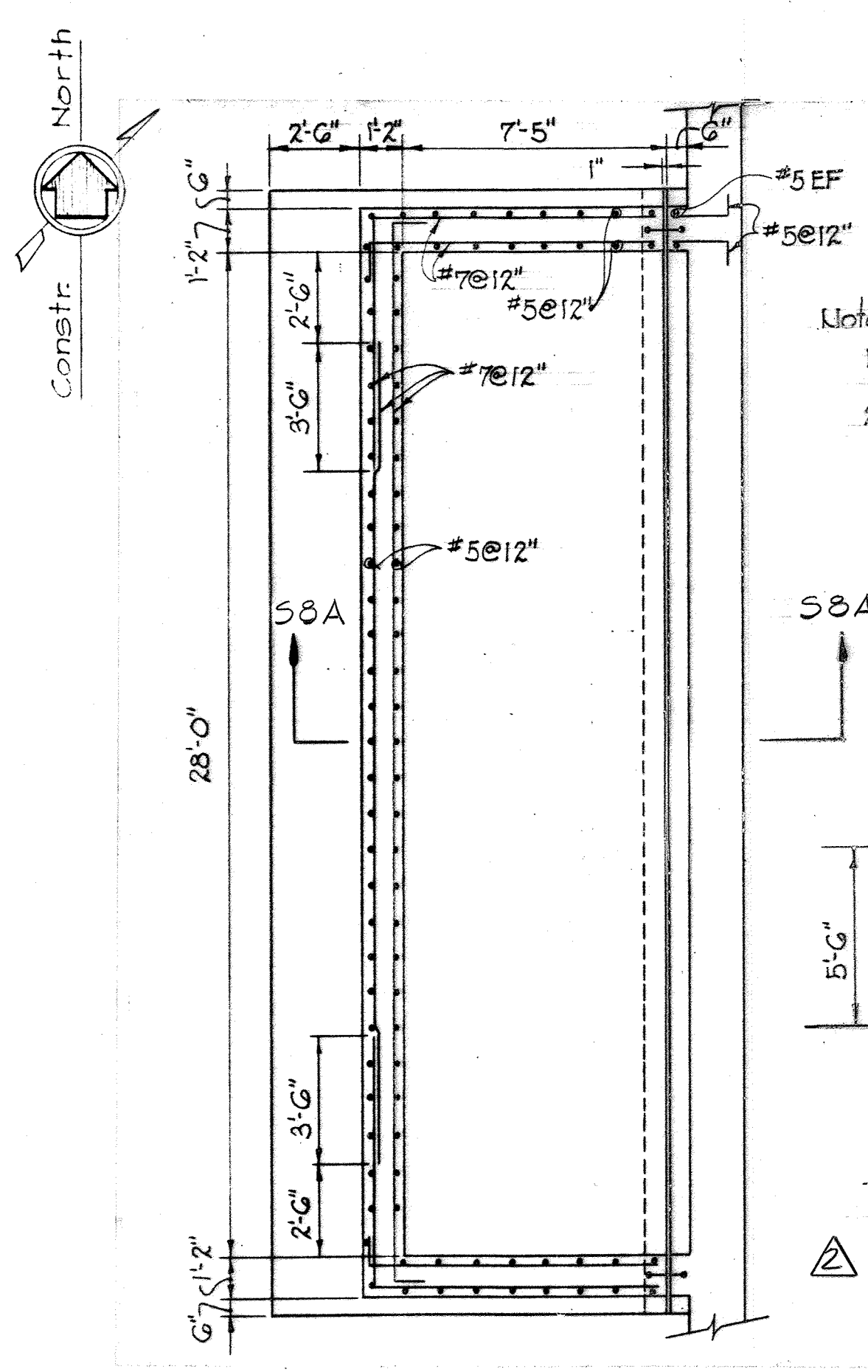
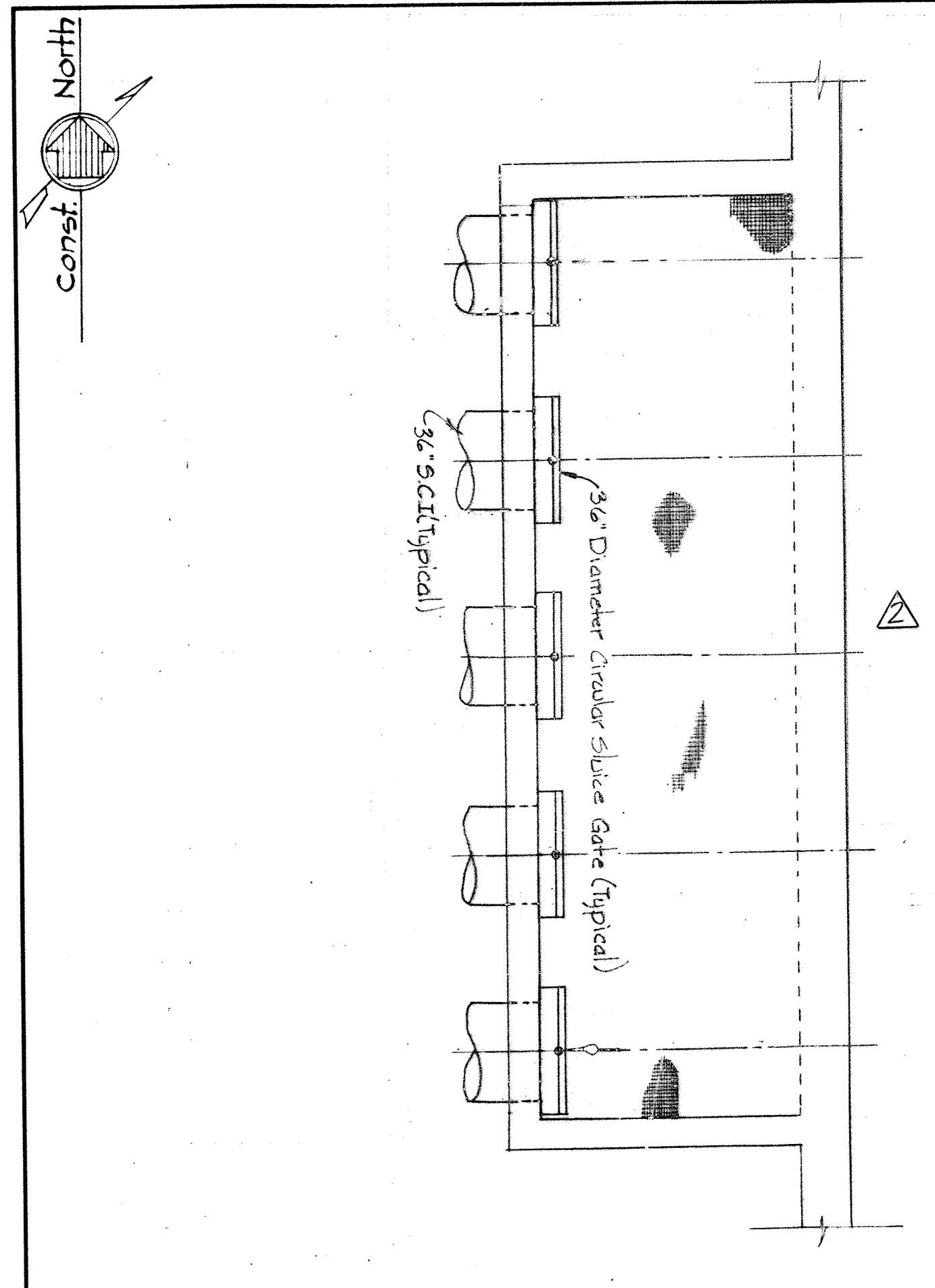
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/15
W.O. Libert
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

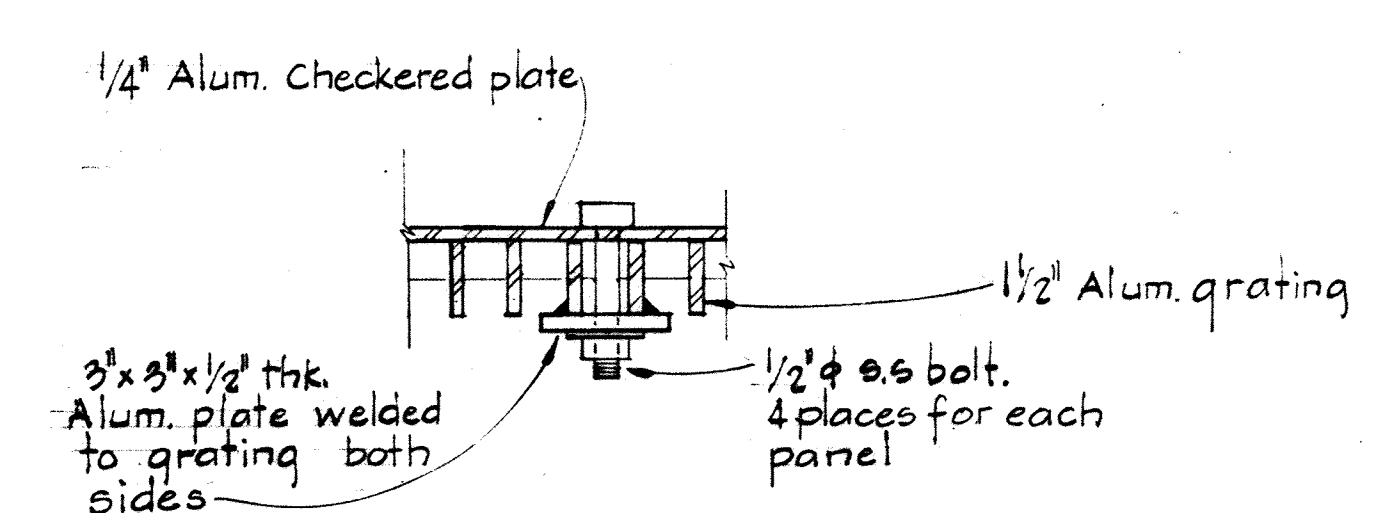
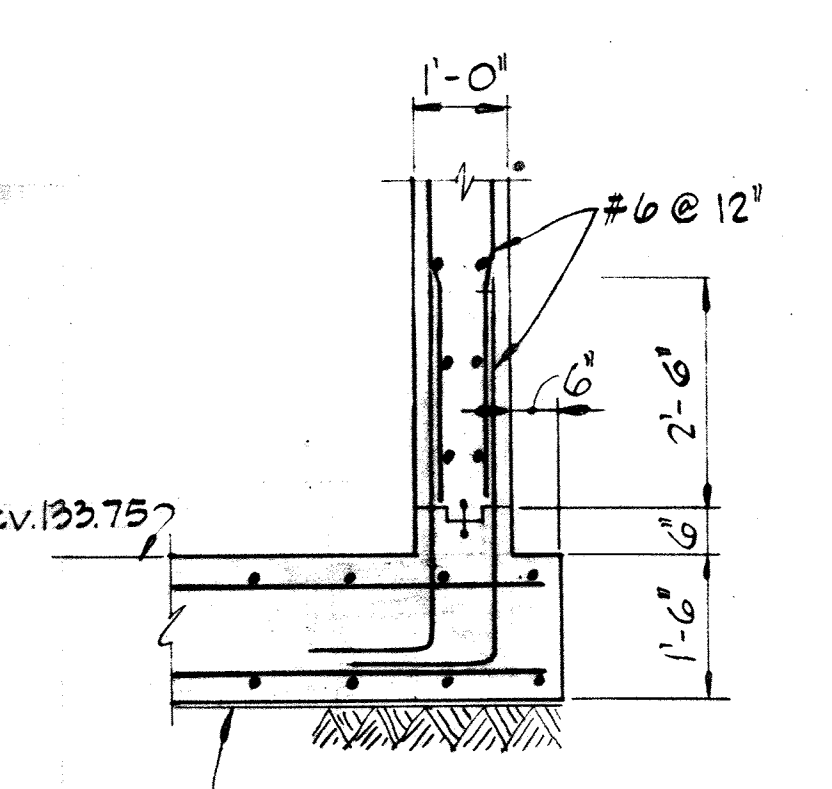
AERATION BASIN NO.5
PIPE GALLERY WEST
SECTIONS AND DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

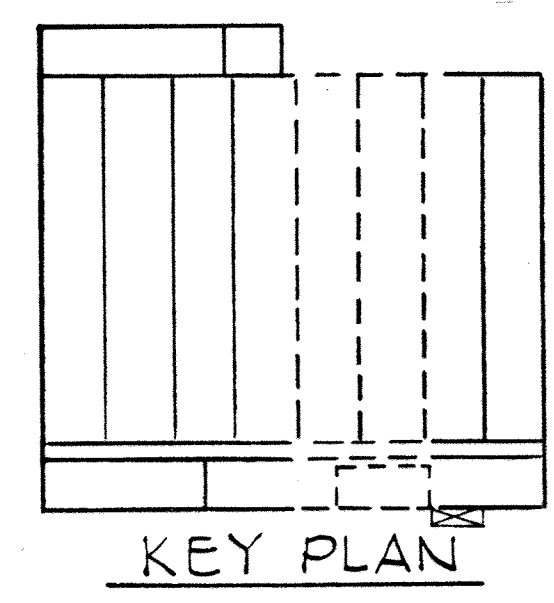
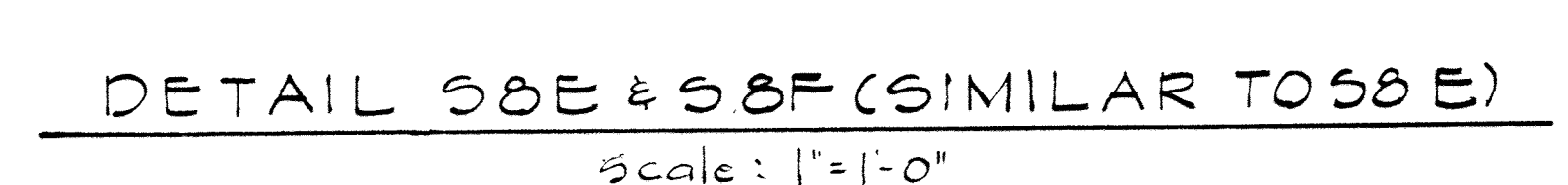
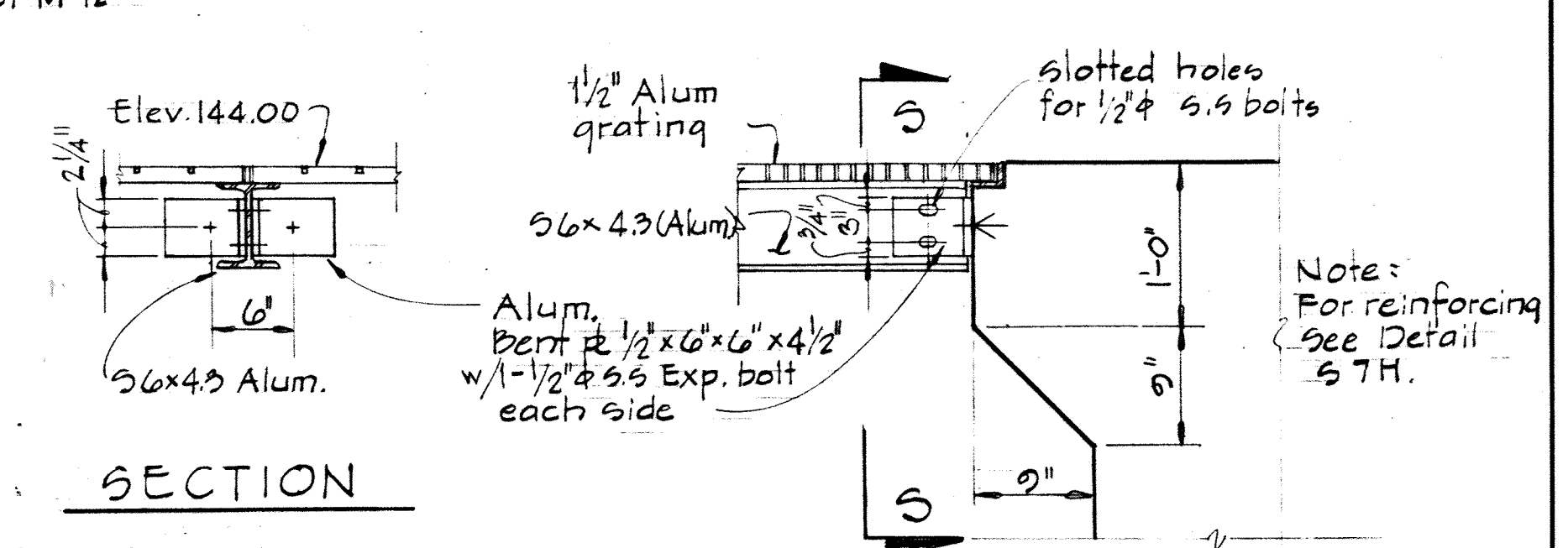
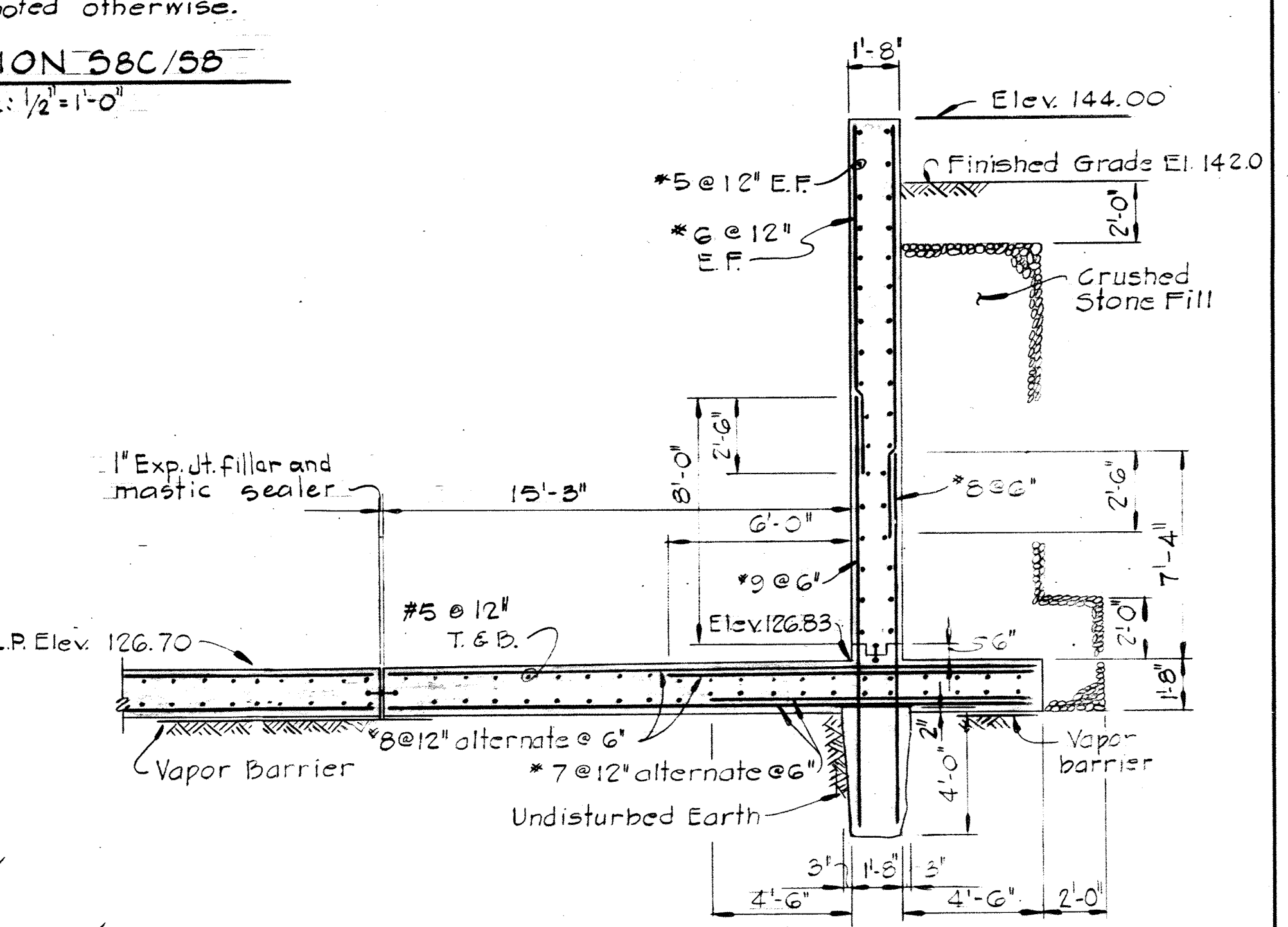
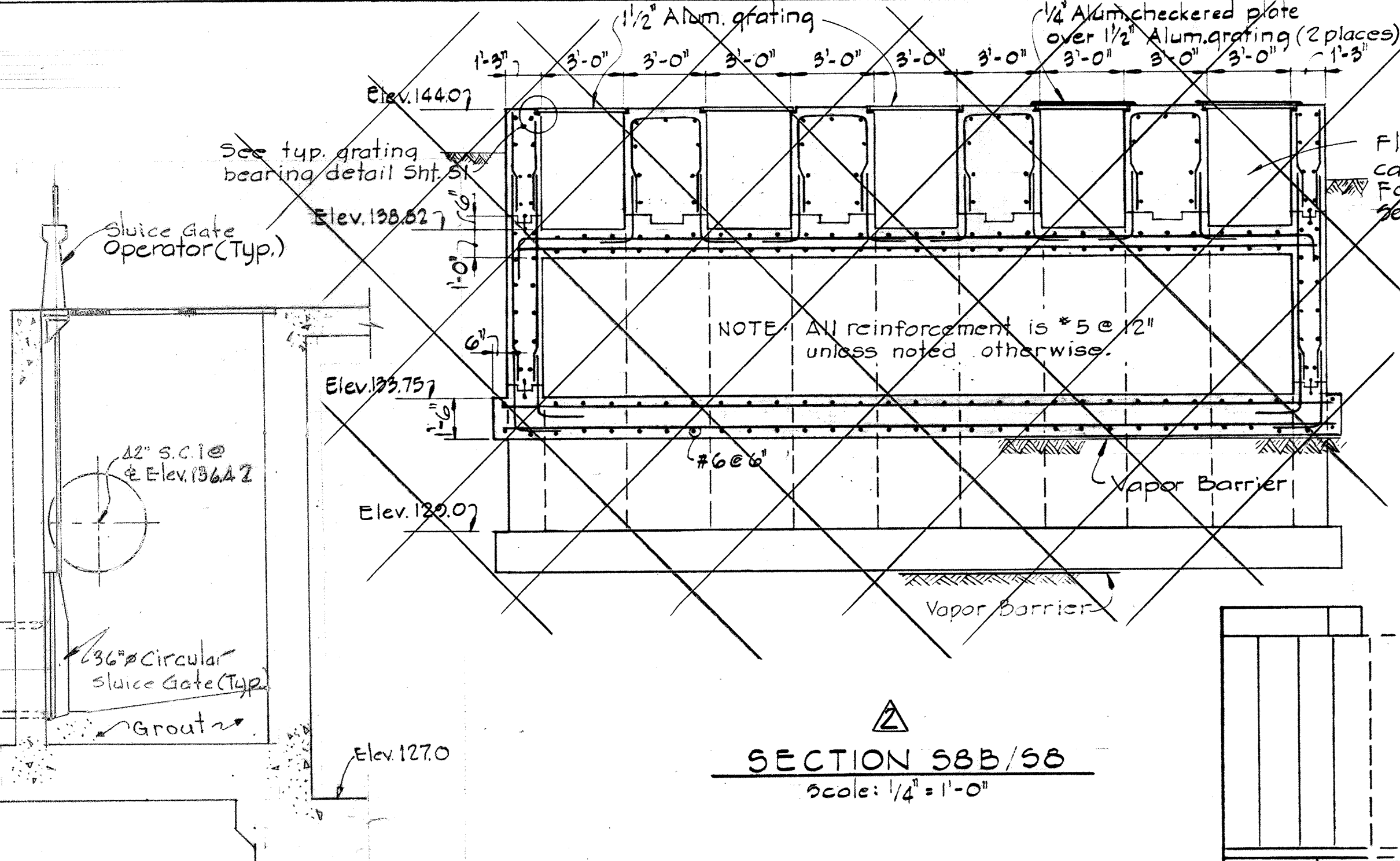
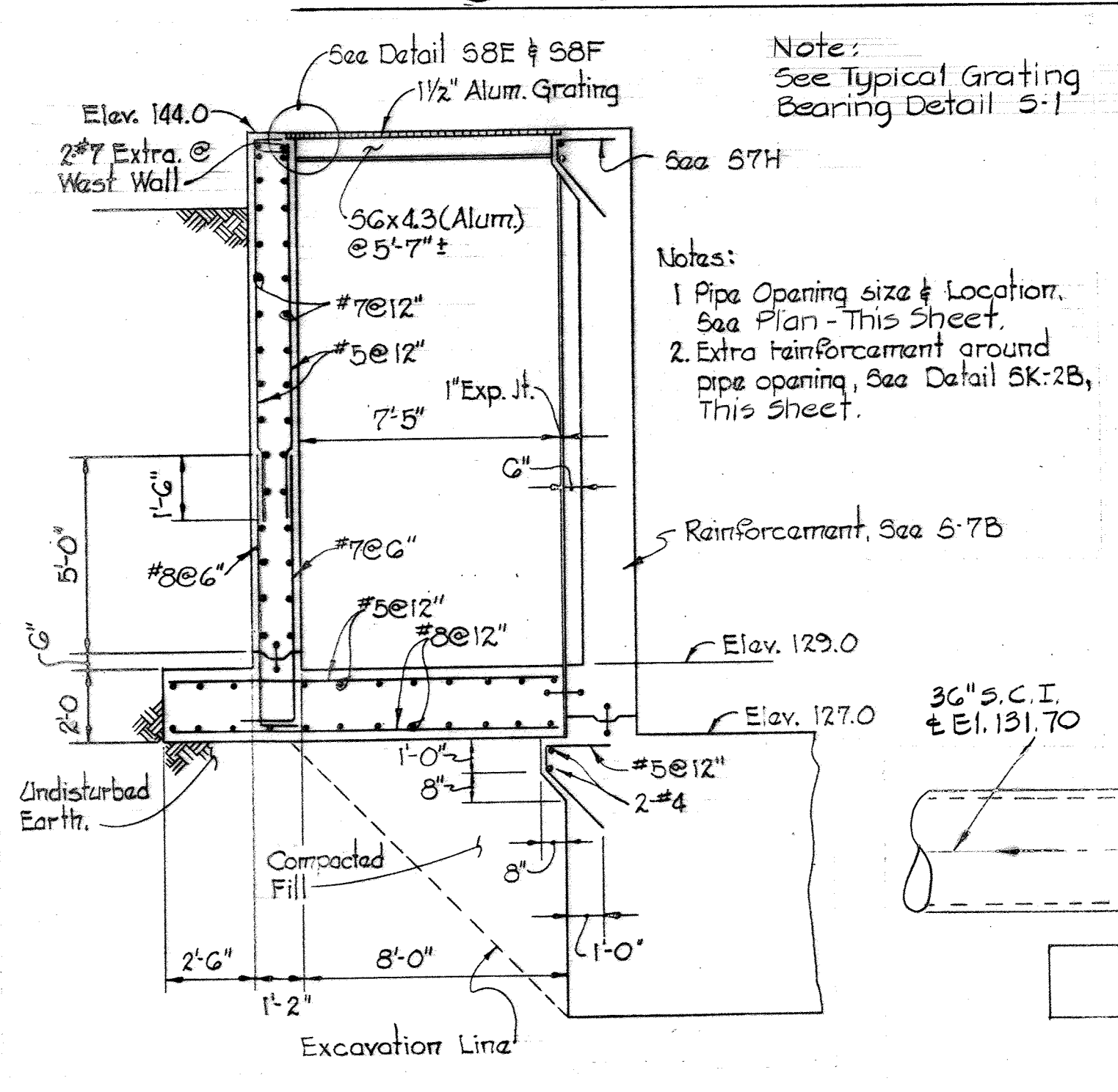
DRAWING NO. 41
OF 133
SCALE AS SHOWN



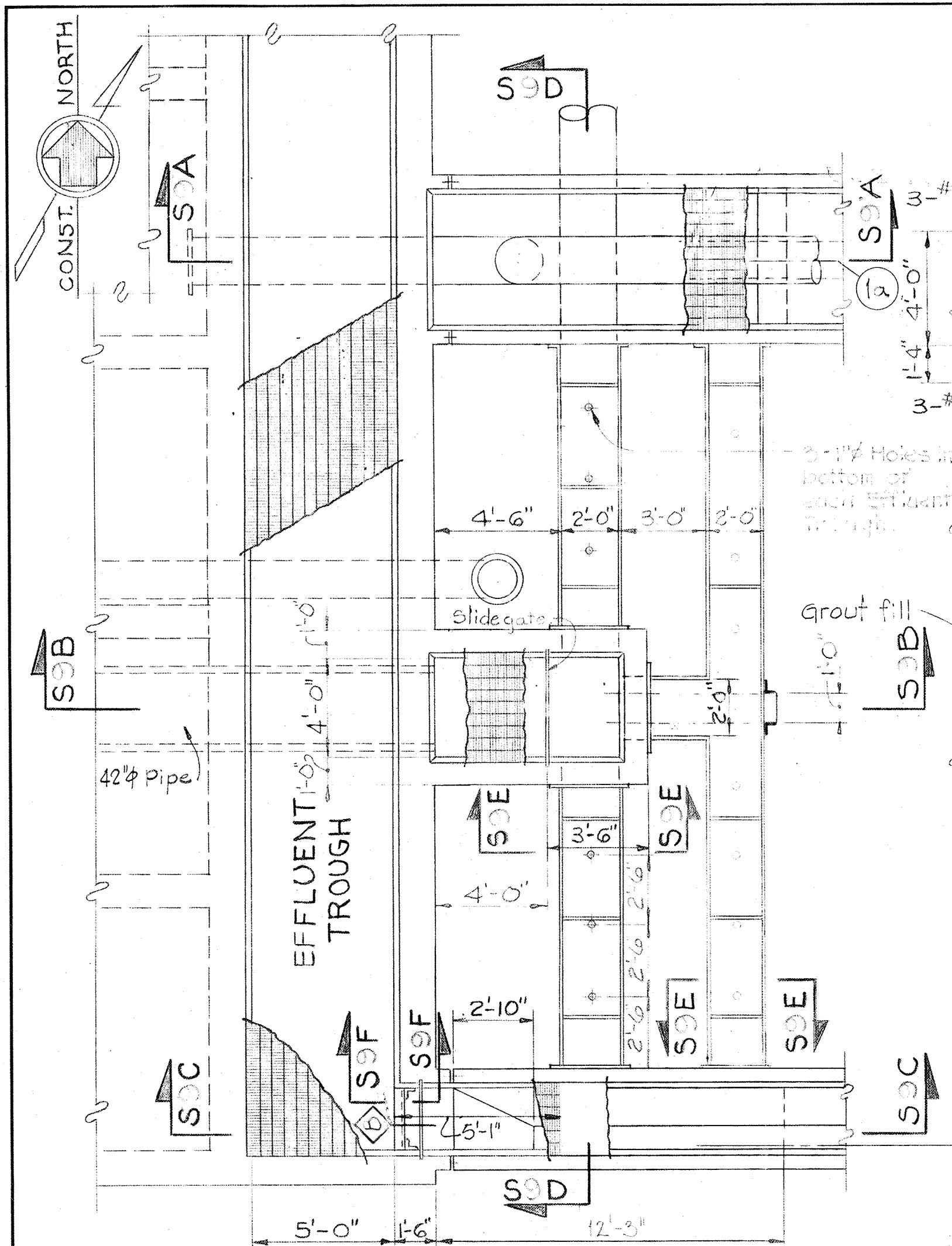
- Notes:
1. Pipe opening Size & Loc. See Plan - This Sheet.
 2. Extra reinforcement around pipe opening; See Detail 5K-2B This Sheet



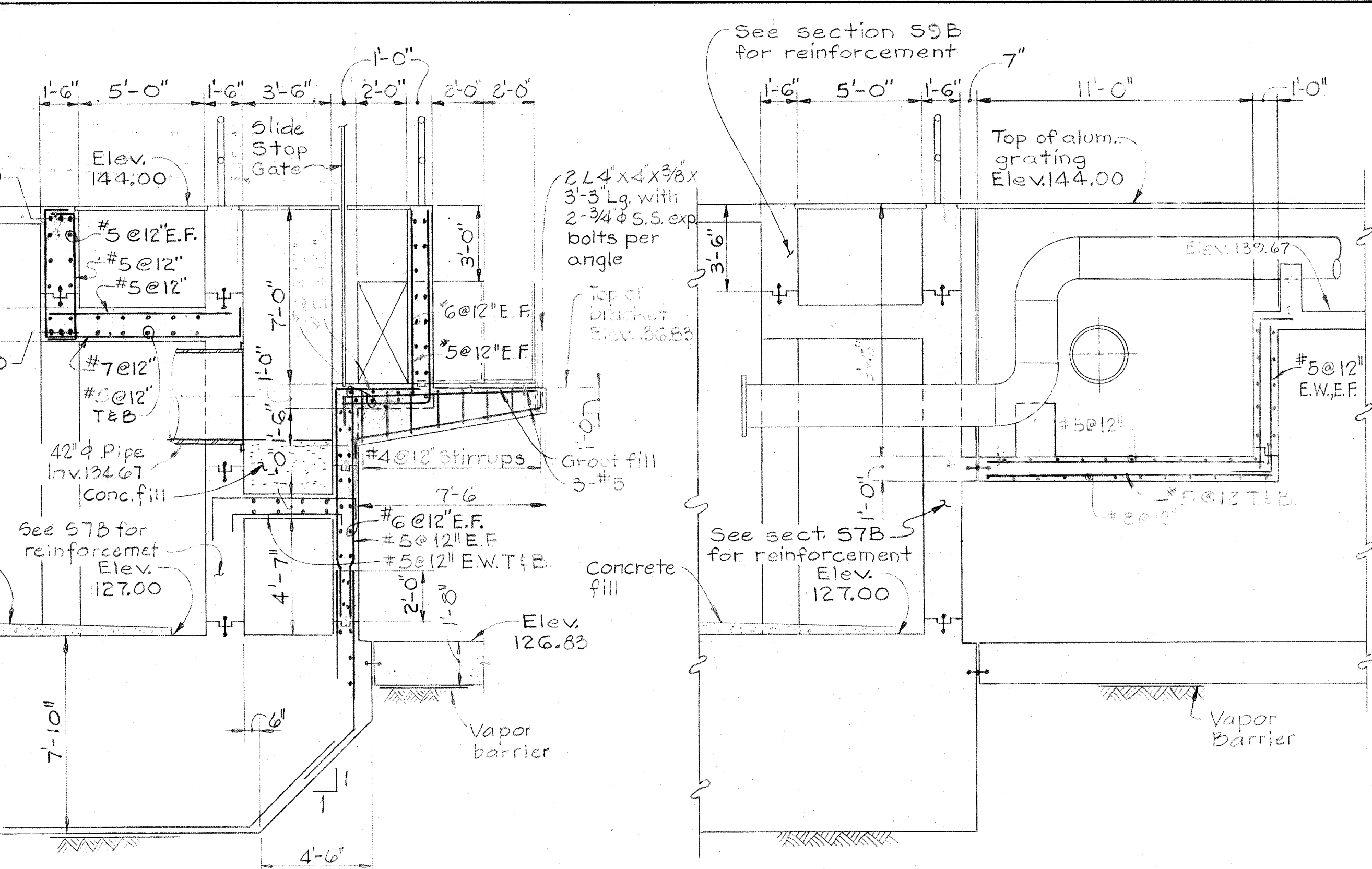
SECONDARY CLARIFIER FLOW DISTRIBUTION CHAMBER



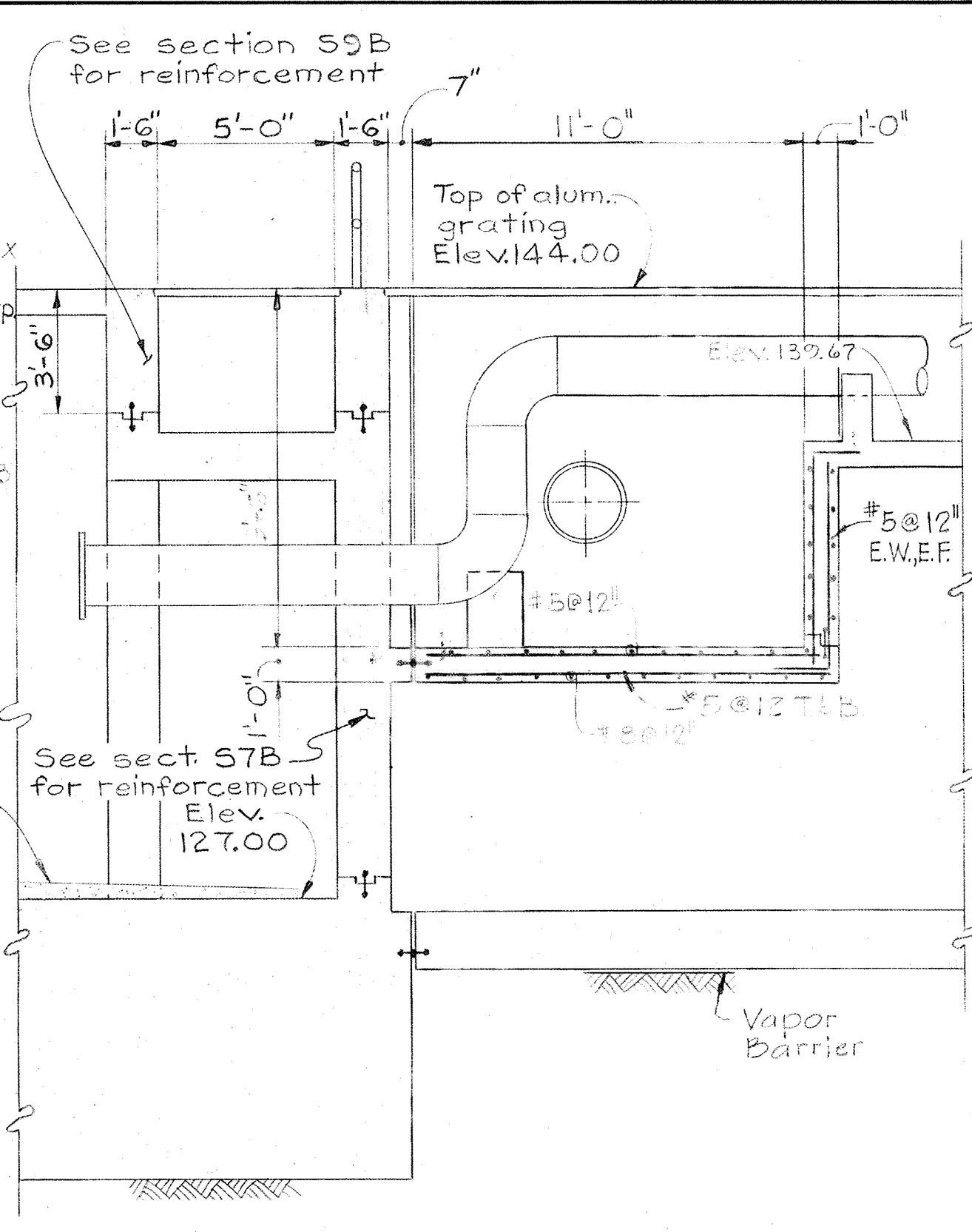
<p>WHITMAN, REARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE W.O. Gilbert CHIEF BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>AERATION BASIN NO. 5 PIPE GALLERY WEST PLANS & SECTIONS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 42 OF 133 SCALE AS SHOWN</p>
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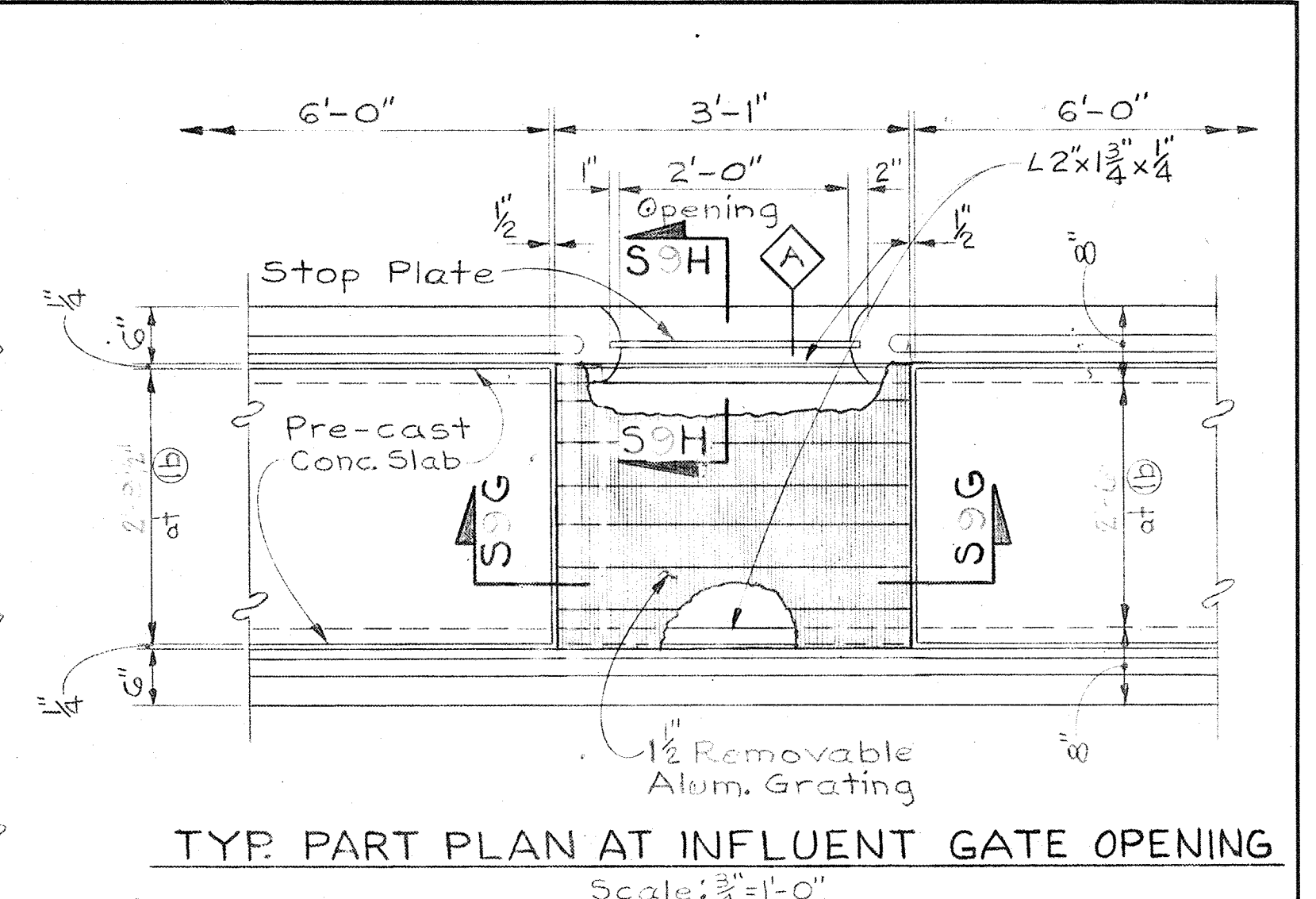
PART PLAN-EFFLUENT TROUGH
Scale: 1/4"=1'-0"



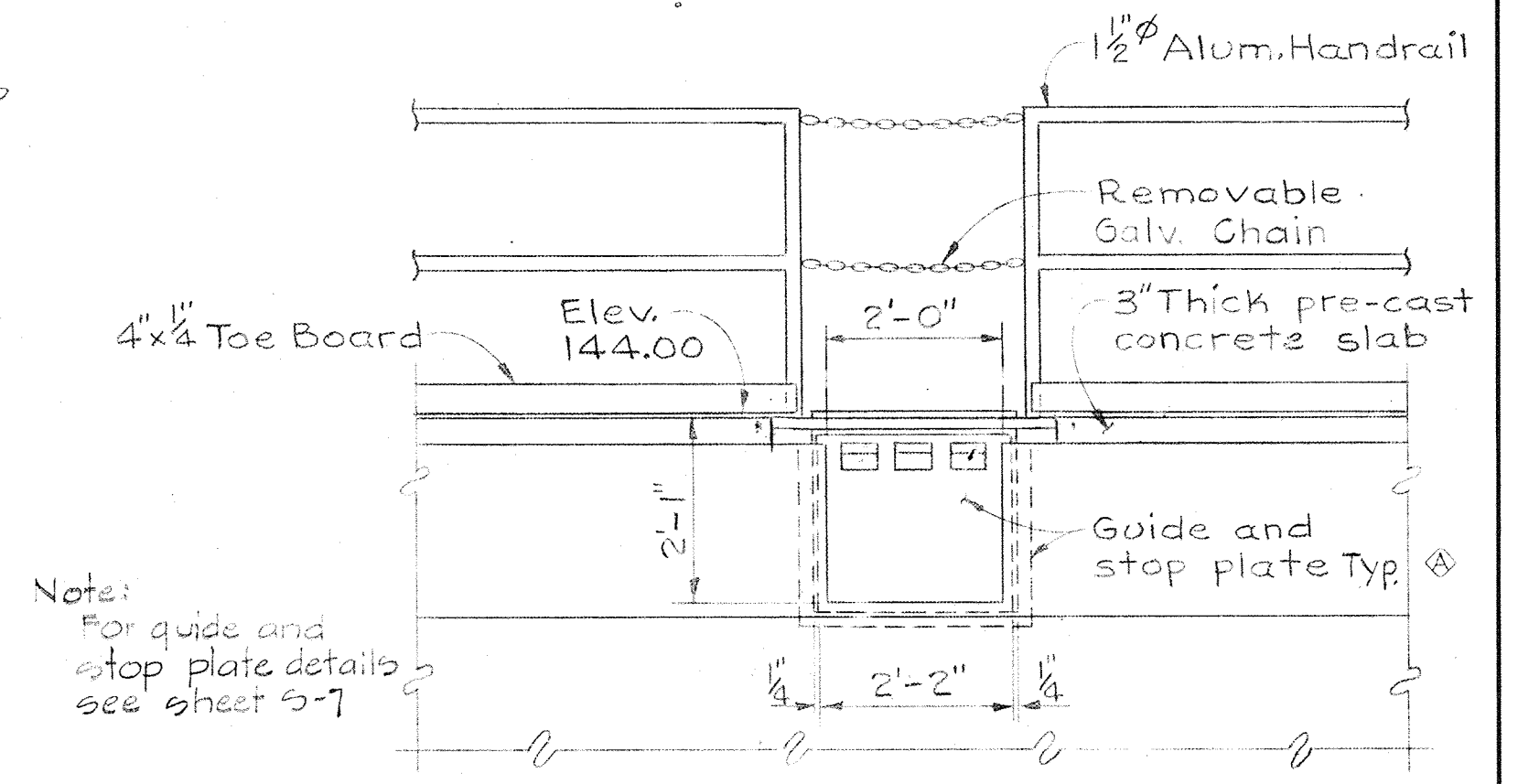
SECTION S9B/S9
Scale: 1/4"=1'-0"



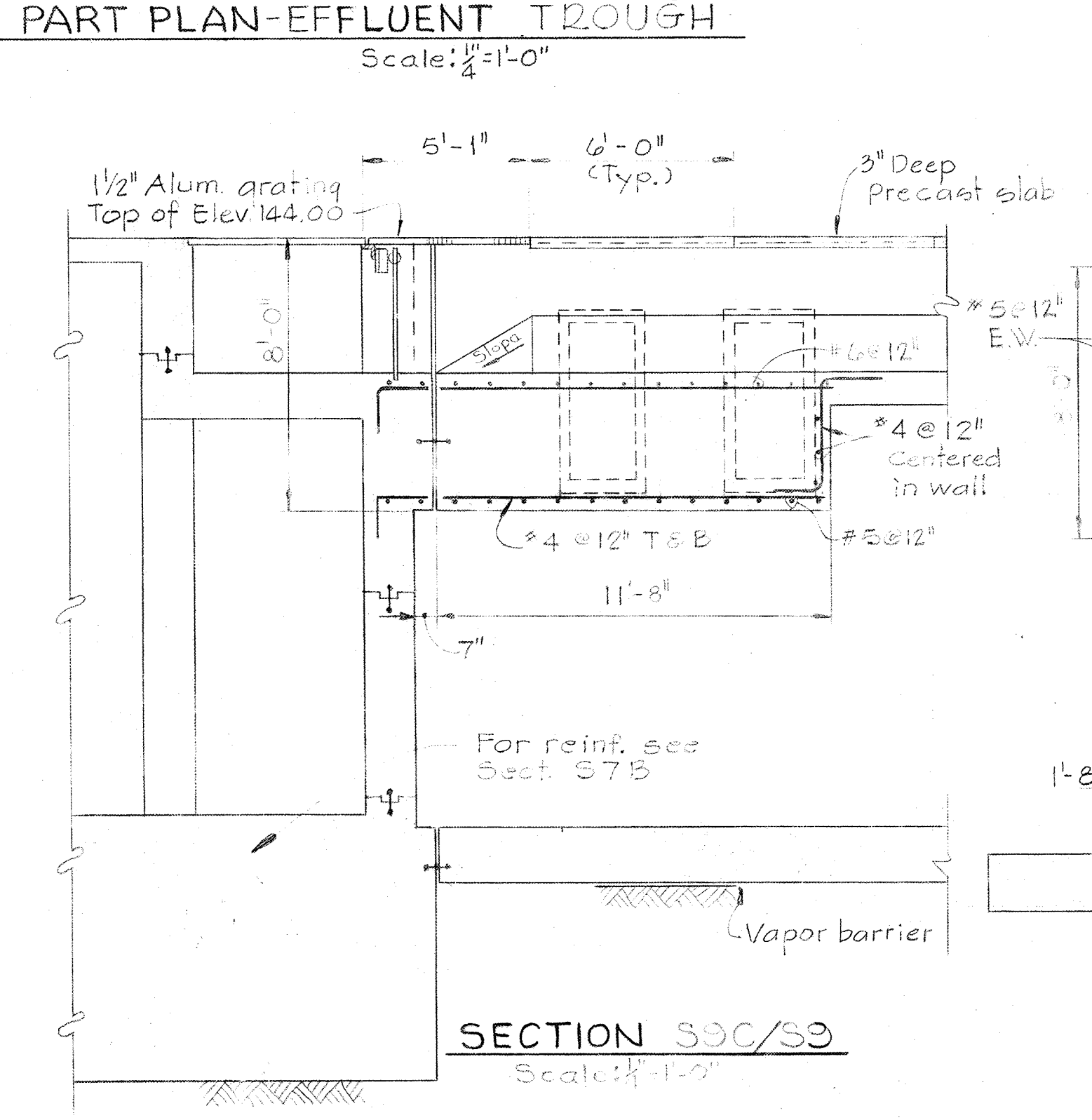
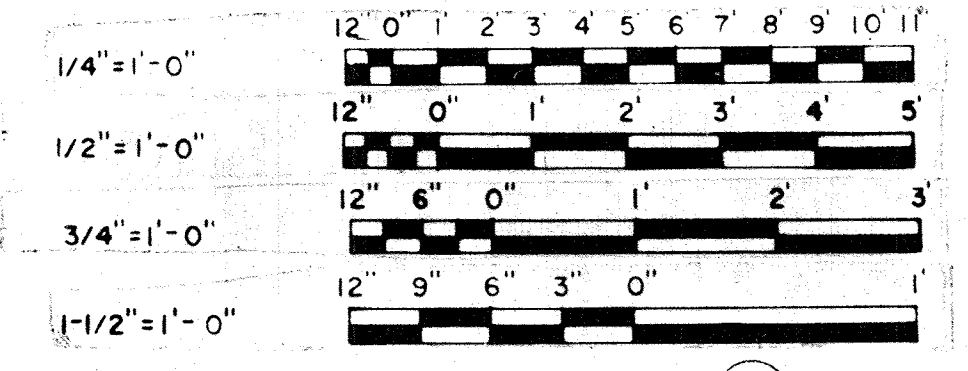
SECTION S9A/S9
Scale: 1/4"=1'-0"



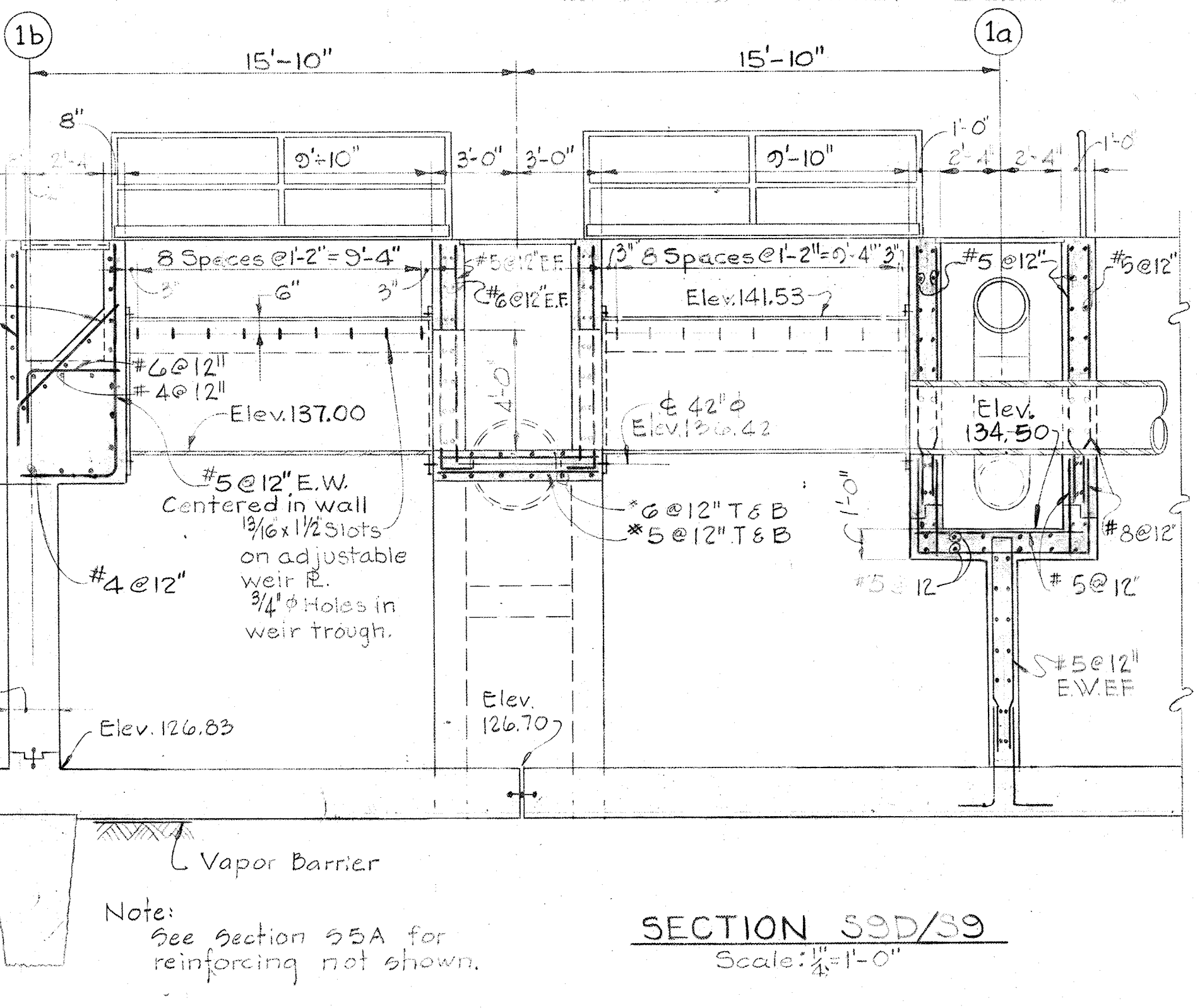
TYP. PART PLAN AT INFLUENT GATE OPENING
Scale: 3/8"=1'-0"



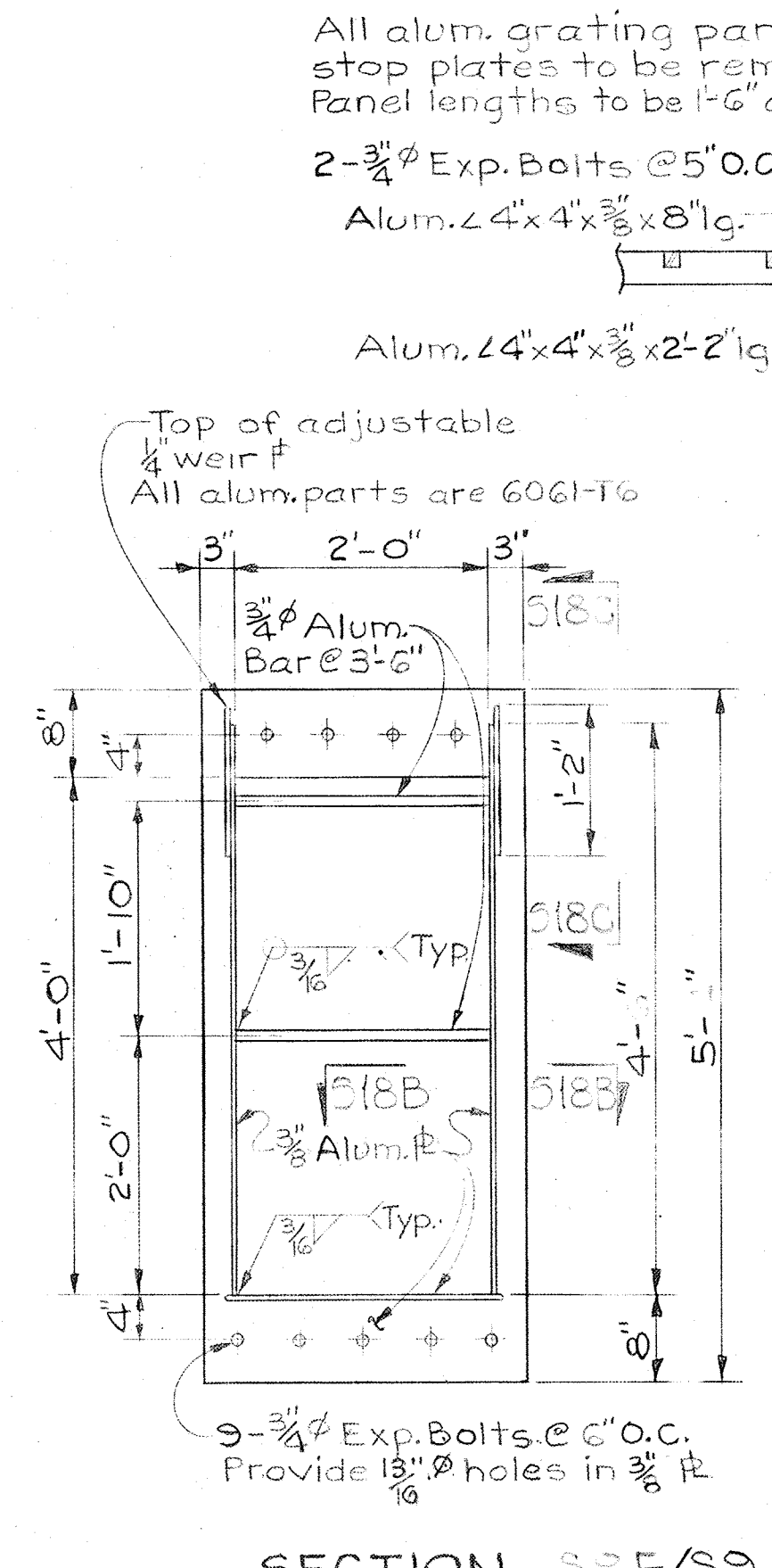
SECTION S9G/S9
Scale: 1/2"=1'-0"



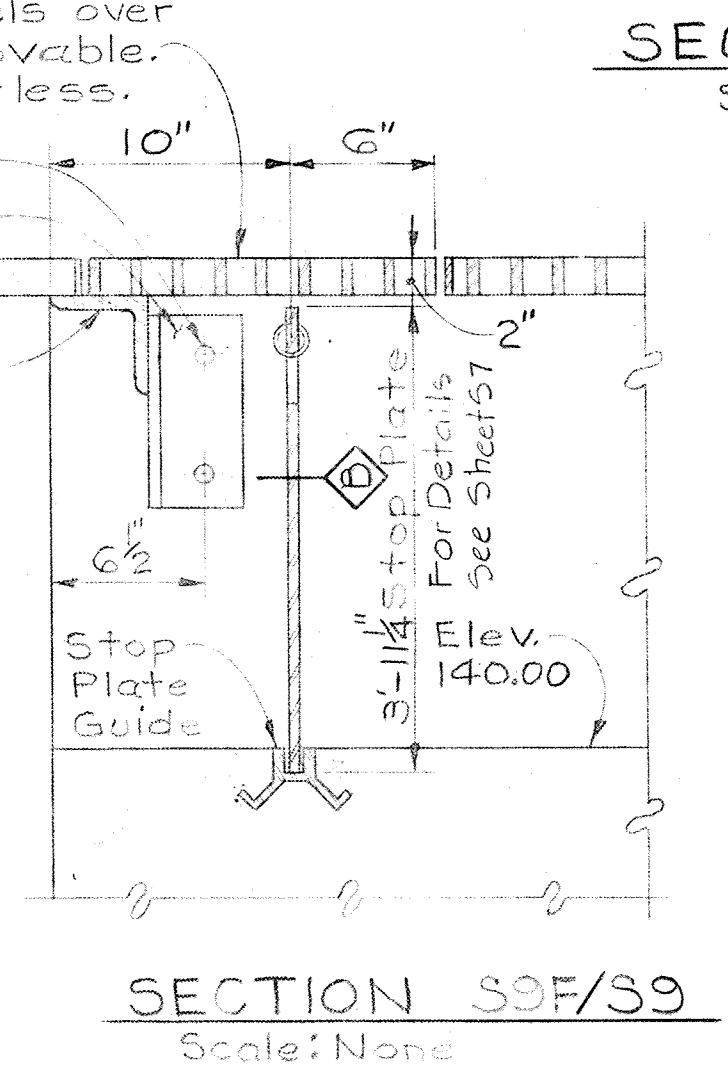
SECTION S9C/S9
Scale: 1/4"=1'-0"



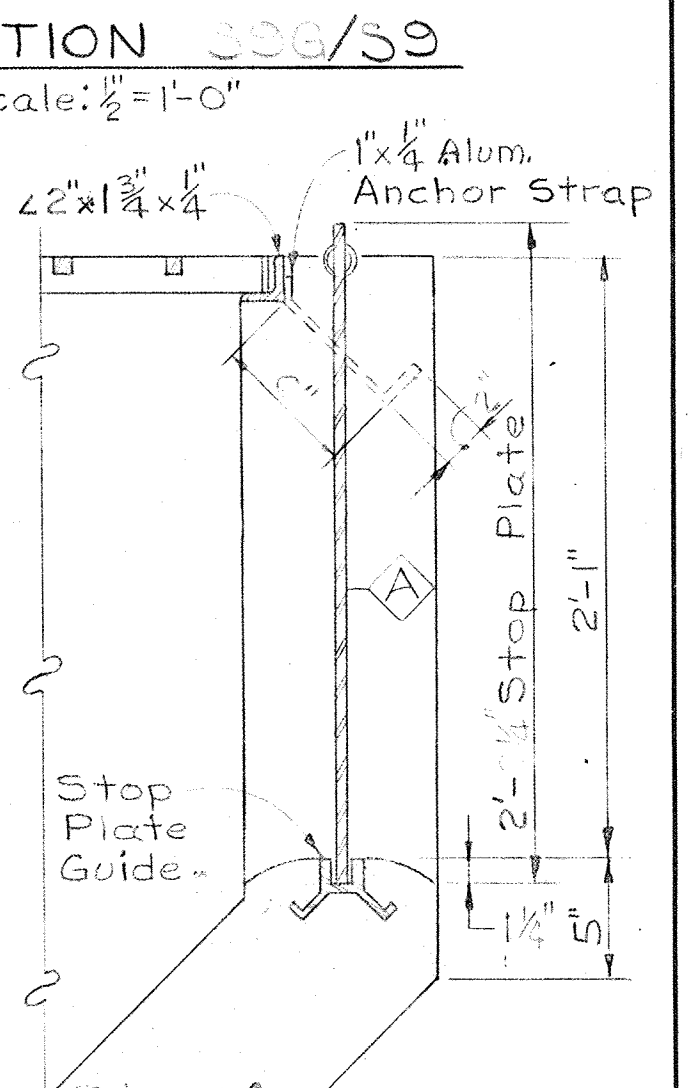
SECTION S9D/S9
Scale: 1/4"=1'-0"



SECTION S9E/S9
Scale: 3/8"=1'-0"



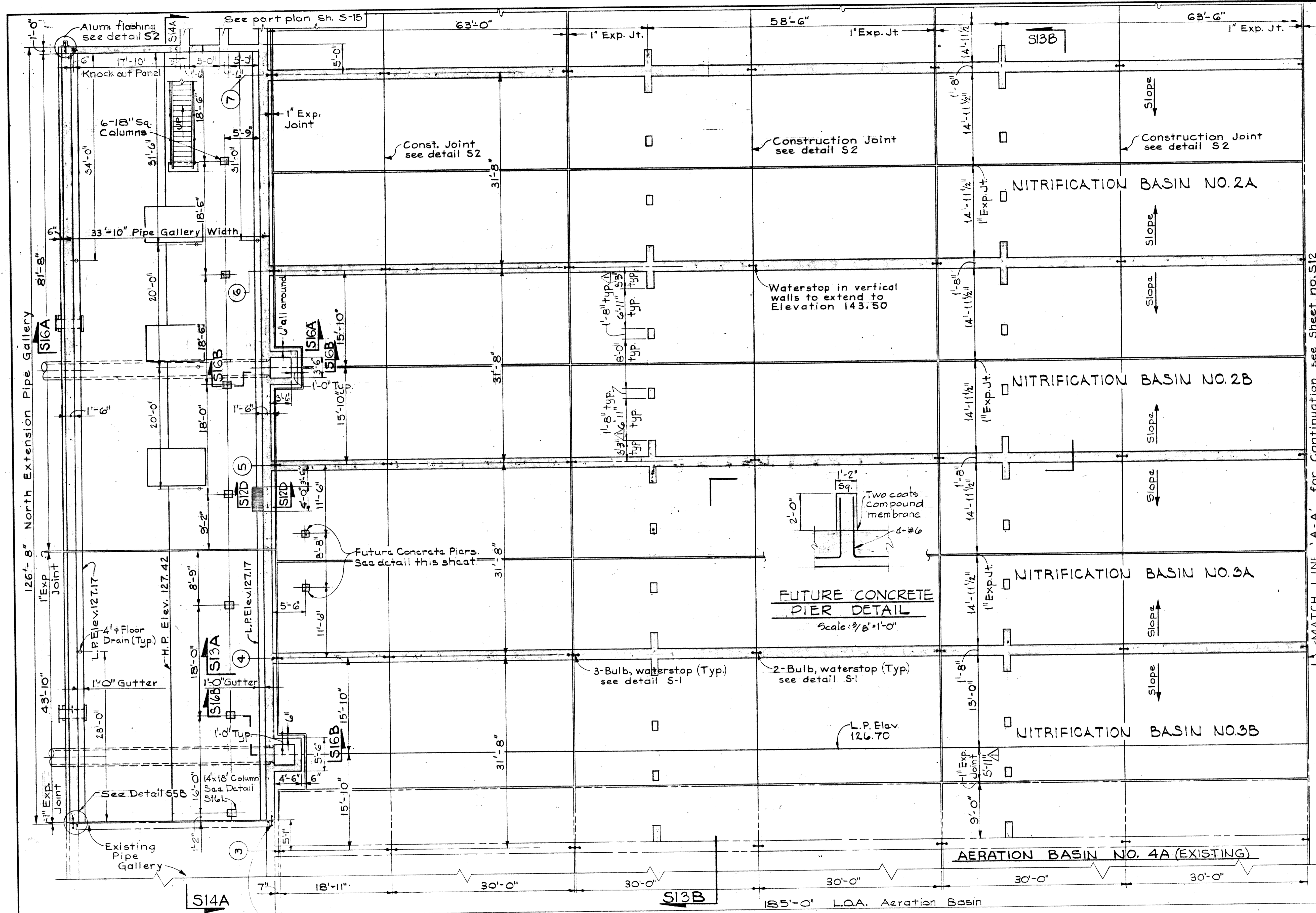
SECTION S9F/S9
Scale: None



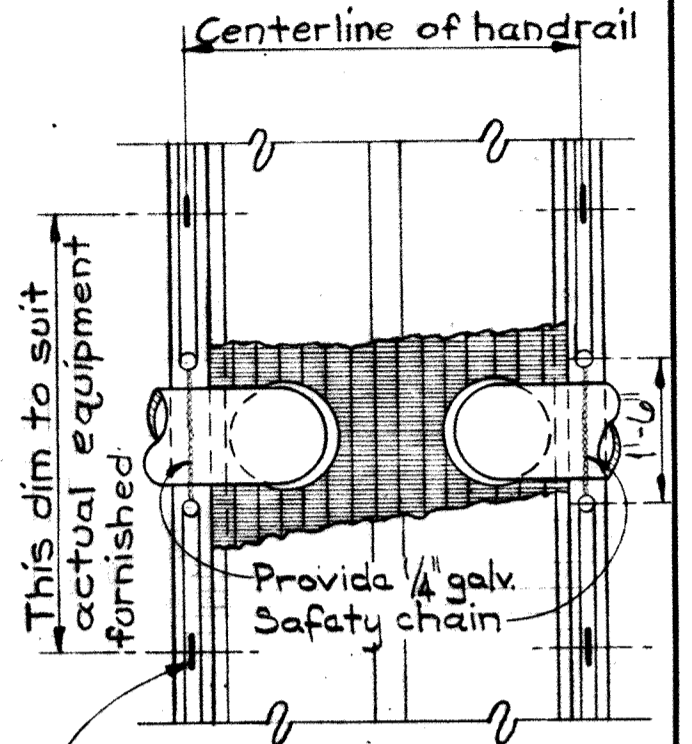
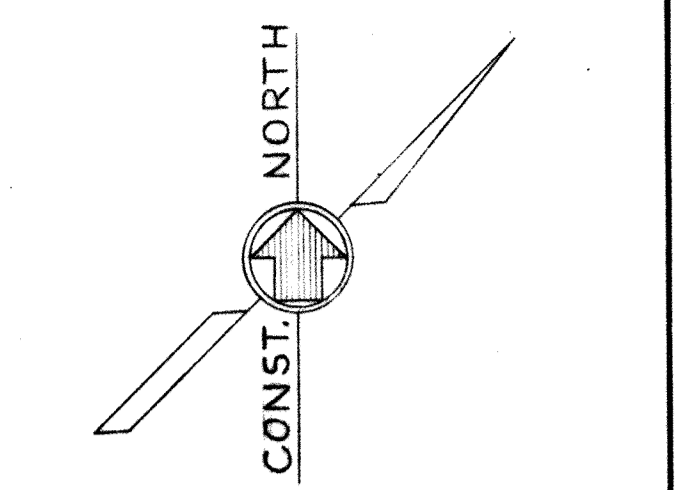
SECTION S9H/S9
Scale: 1 1/2"=1'-0"

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 5/20/75 CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 5 PIPE GALLERY WEST SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 43 OF 133 SCALE AS SHOWN
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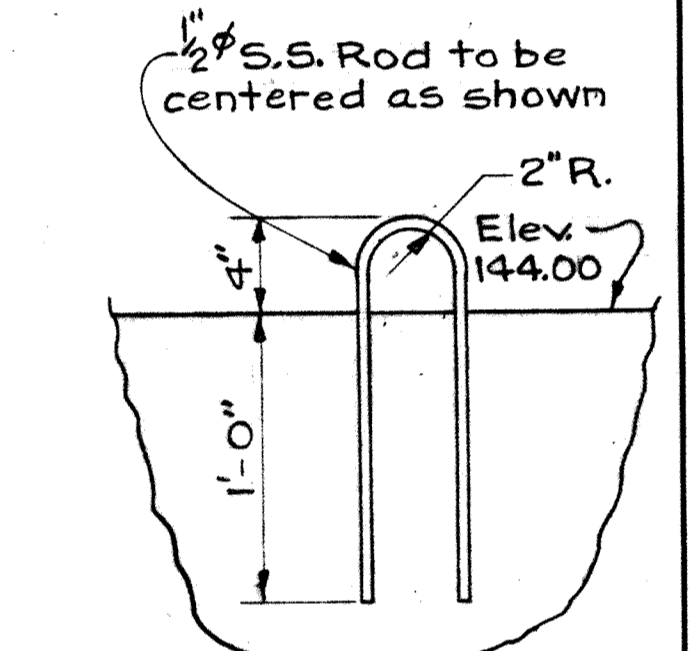
BRUNING 44510 18392



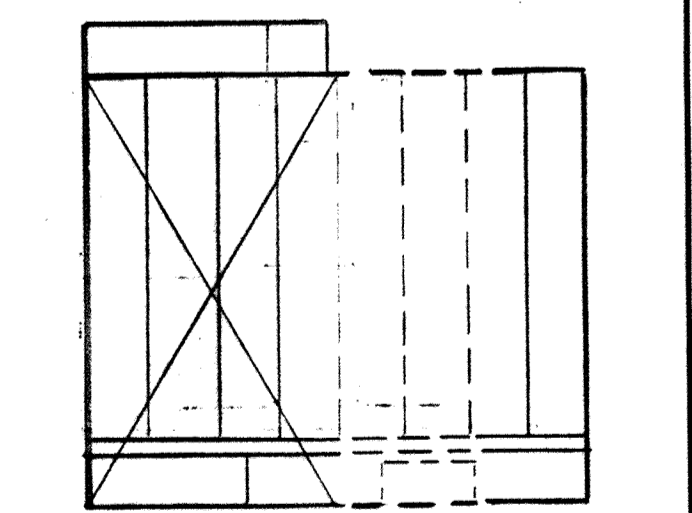
FOUNDATION PLAN AT ELEVATION 126.67
Scale: 1/8" = 1'-0"



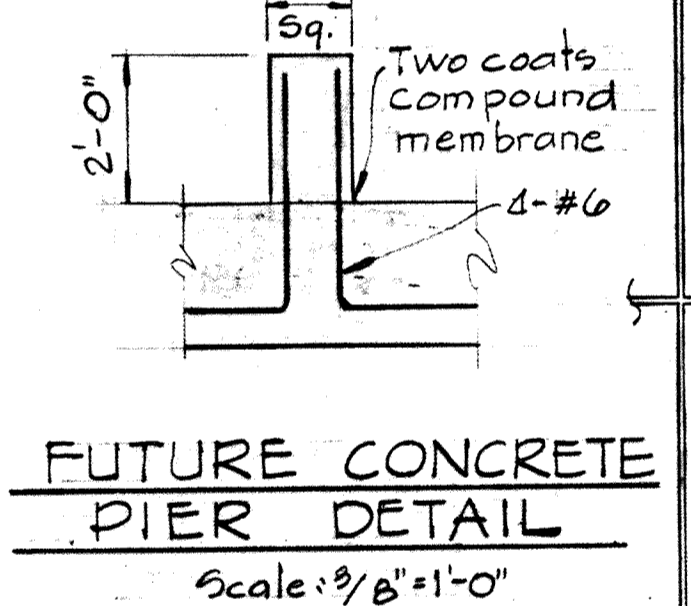
PART PLAN AT EL. 144.00
WALL LINE 1a, 4, 6
Scale: None



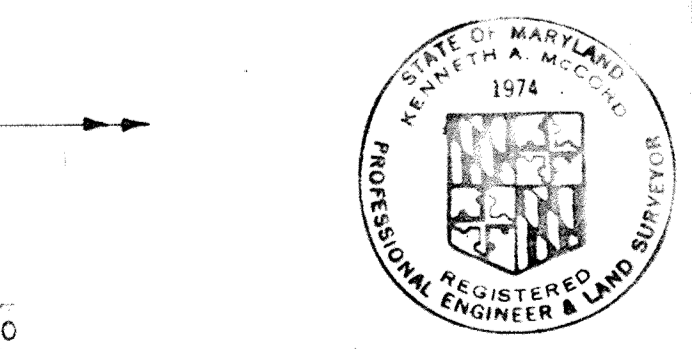
"U" BOLT DETAIL
Scale: None



KEY PLAN



FUTURE CONCRETE PIER DETAIL
Scale: 3/8" = 1'-0"



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
DATE
W.O. Libert
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

AERATION BASIN NOS. 2 & 3
PIPE GALLERY WEST
FOUNDATION PLAN - WEST

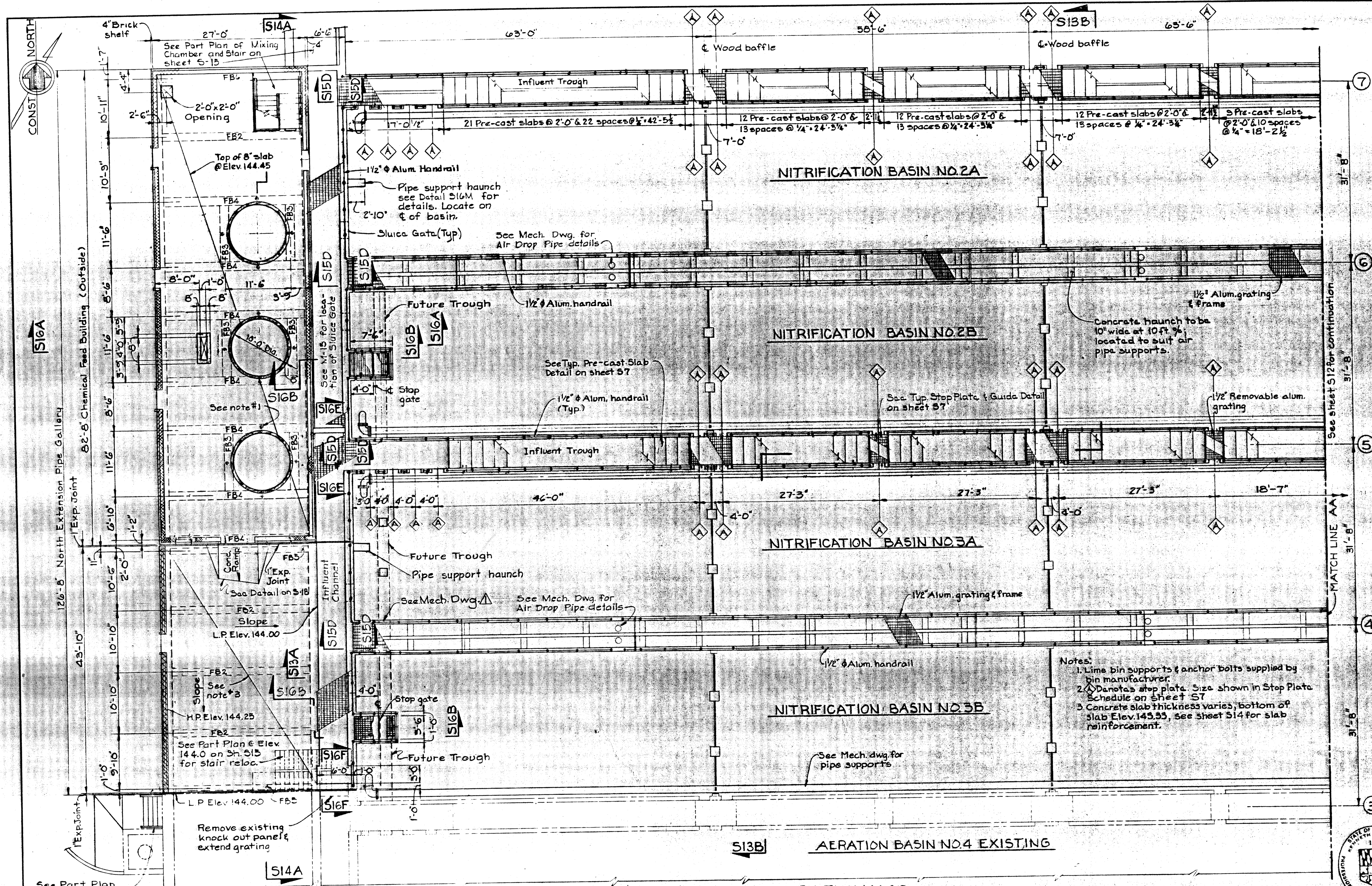
SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 44
OF 133
SCALE AS SHOWN

W.O. 6887-2

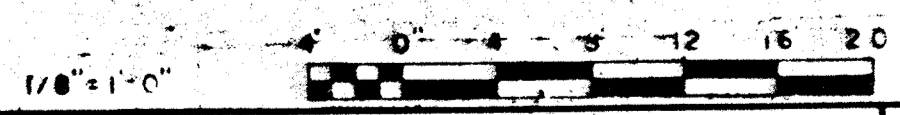
SHEET S-10
MODIFIED DRAWING-MAY 6, 1982

BRUNING 44-510 18392



- Notes:
1. Lime bin supports & anchor bolts supplied by bin manufacturer.
 2. Δ denotes stop plate. Size shown in Stop Plate Schedule on sheet S7.
 3. Concrete slab thickness varies, bottom of slab Elev. 143.55, see sheet S14 for slab reinforcement.

TOP PLAN AT ELEVATION 144.00
Scale: 1/8" = 1'-0"



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
W.O. Falbert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

AERATION BASIN NOS. 2 & 3
PIPE GALLERY WEST
TOP PLAN - WEST

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

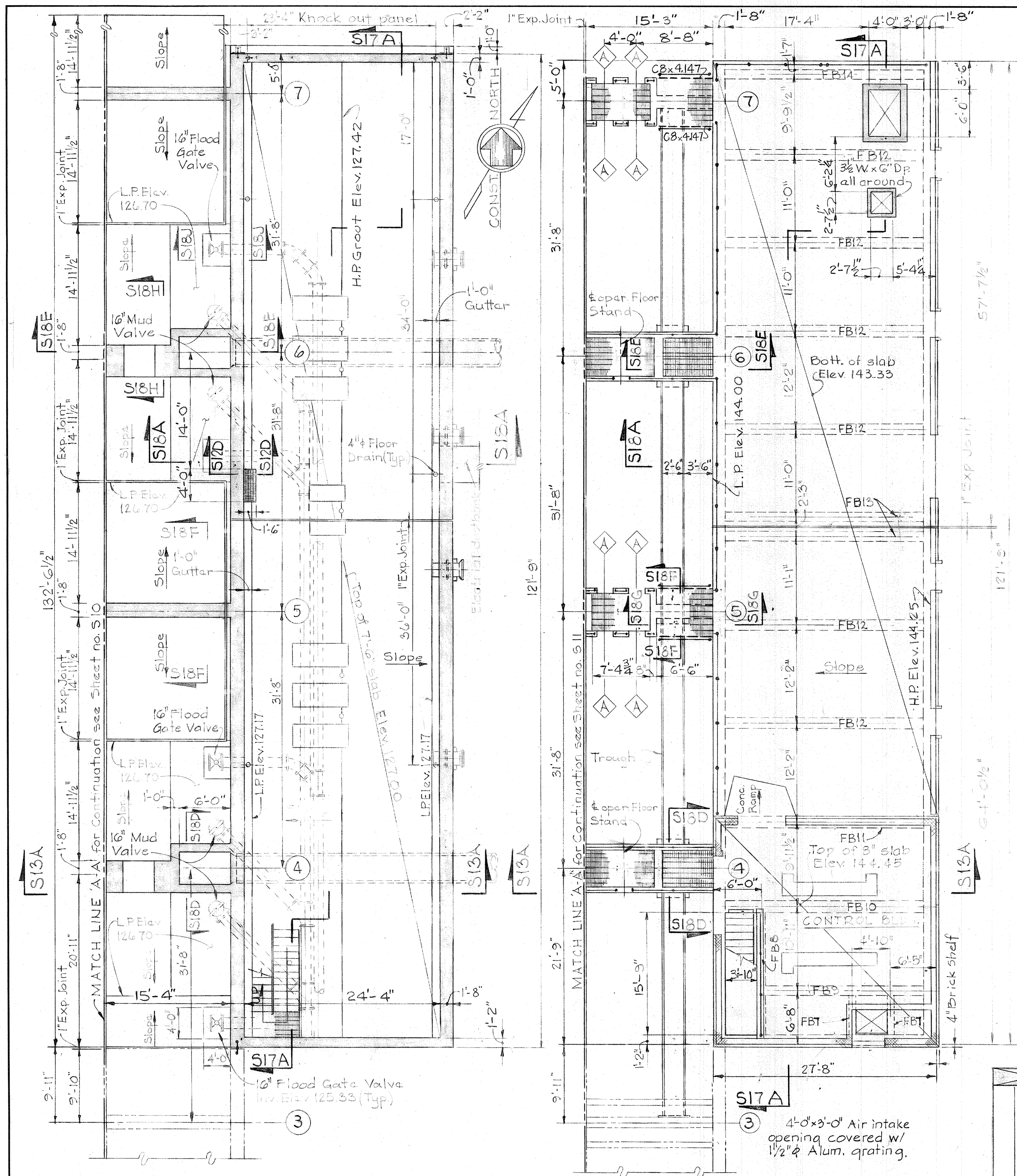
DRAWING NO. 45 OF 133

SCALE AS SHOWN

W.O. 6887-2

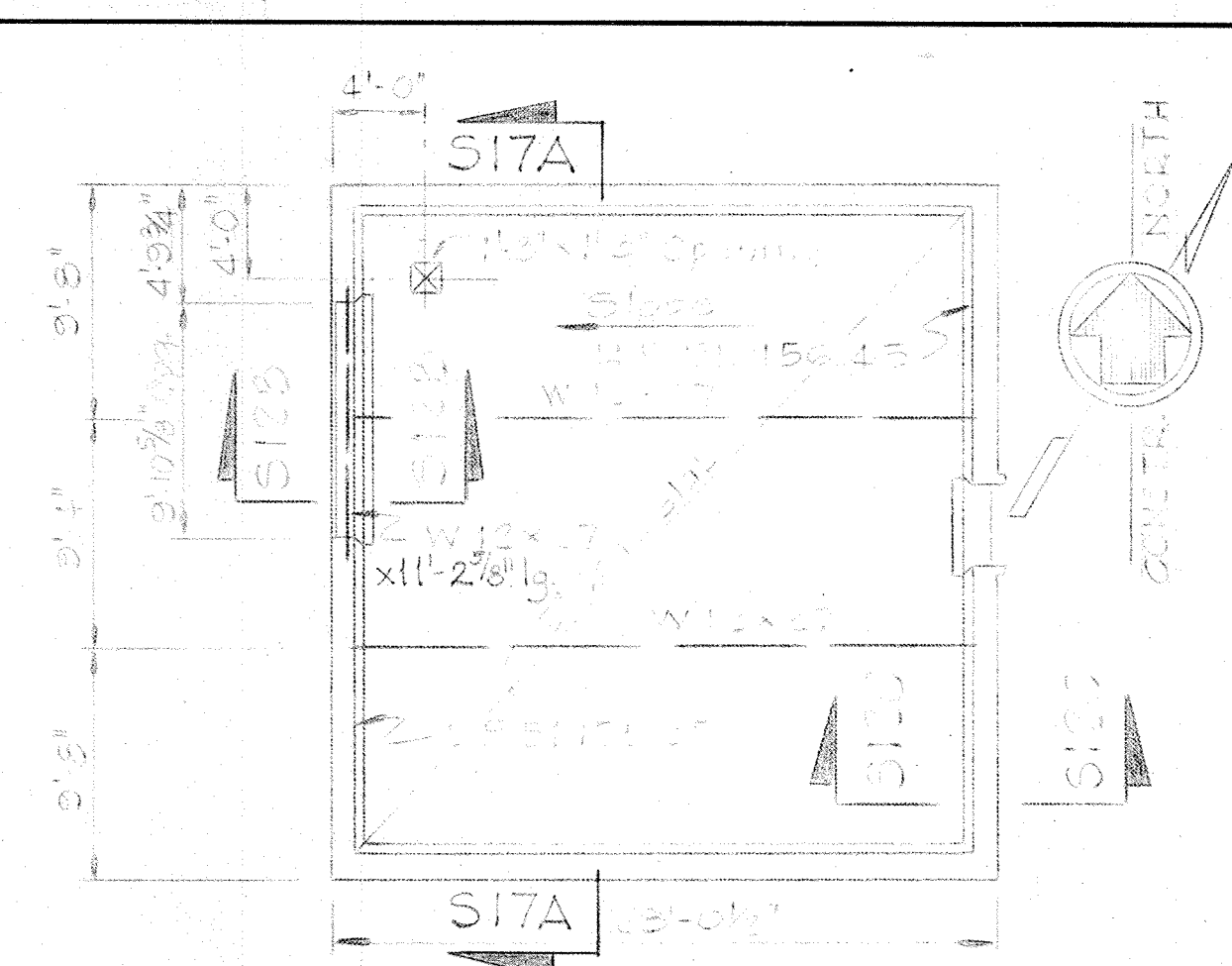
SHEET S-11
MODIFIED DRAWING - MAY 6, 1982

BRUNING 24510 18322

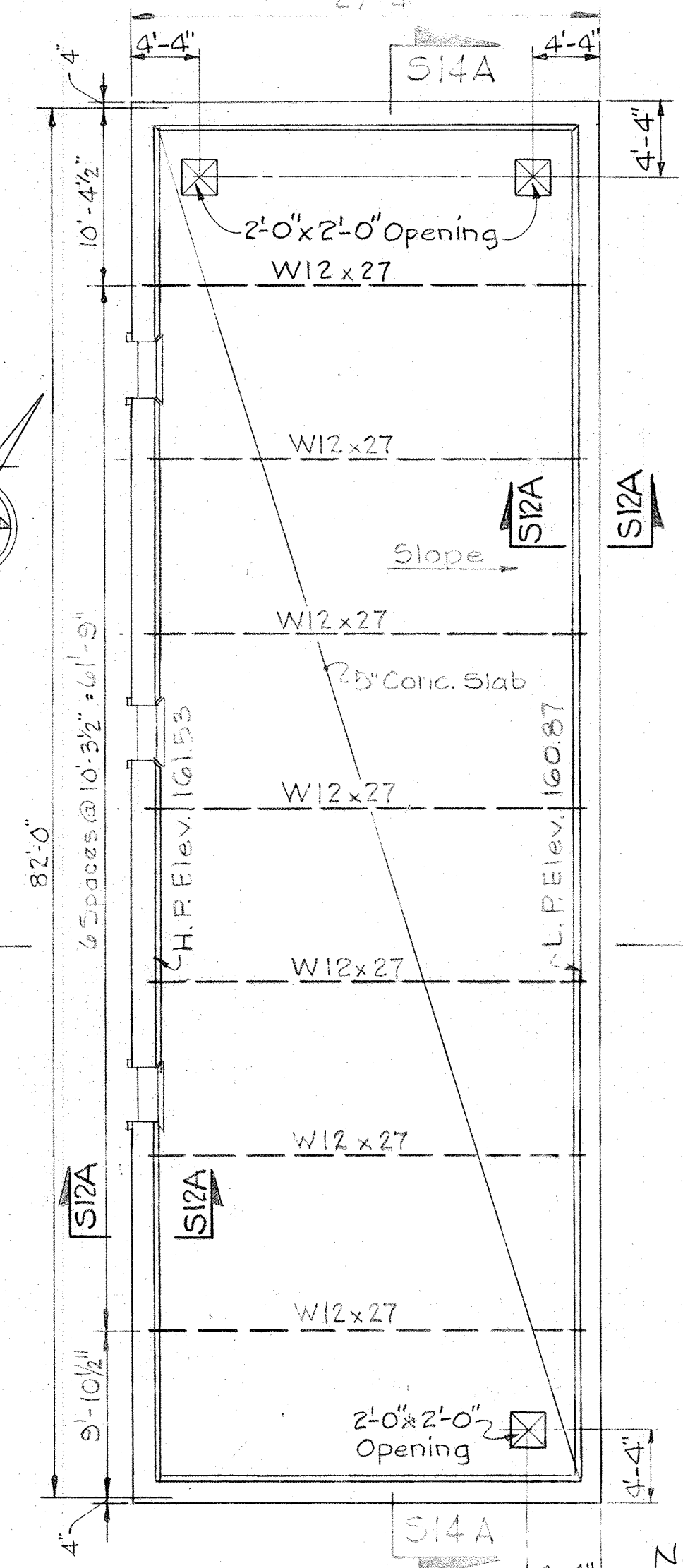


FOUNDATION PLAN-EAST ELEV. 126.67
Scale: 1/8"=1'-0"

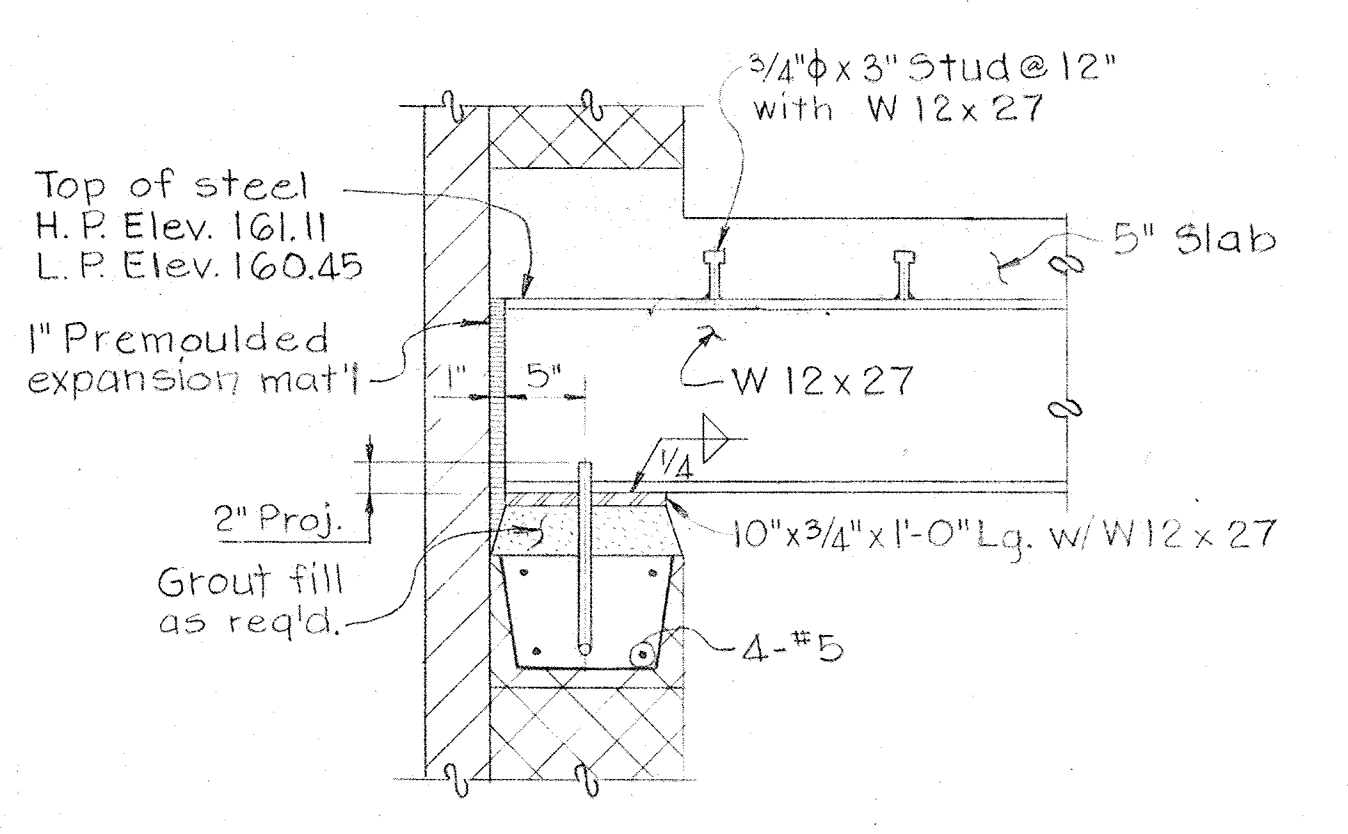
TOP PLAN-EAST ELEV. 144.00
Scale: 1/8"=1'-0"



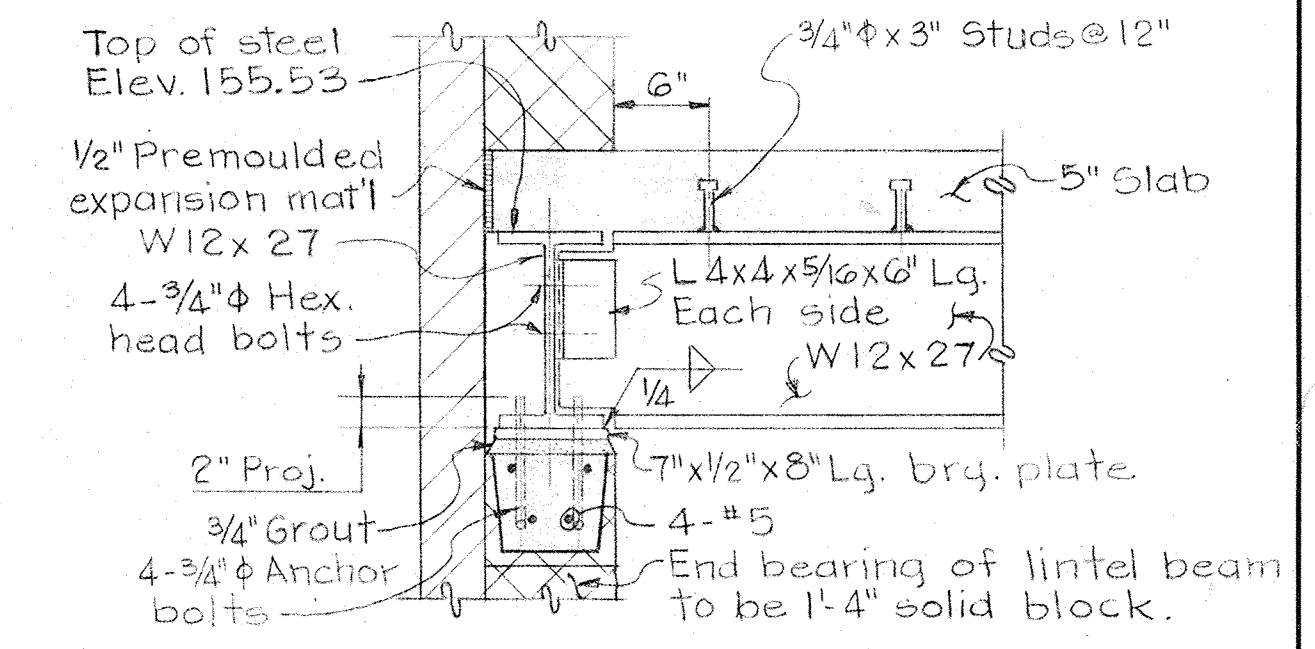
ROOF FRAMING PLAN
CONTROL BUILDING
Scale: 1/2"=1'-0"



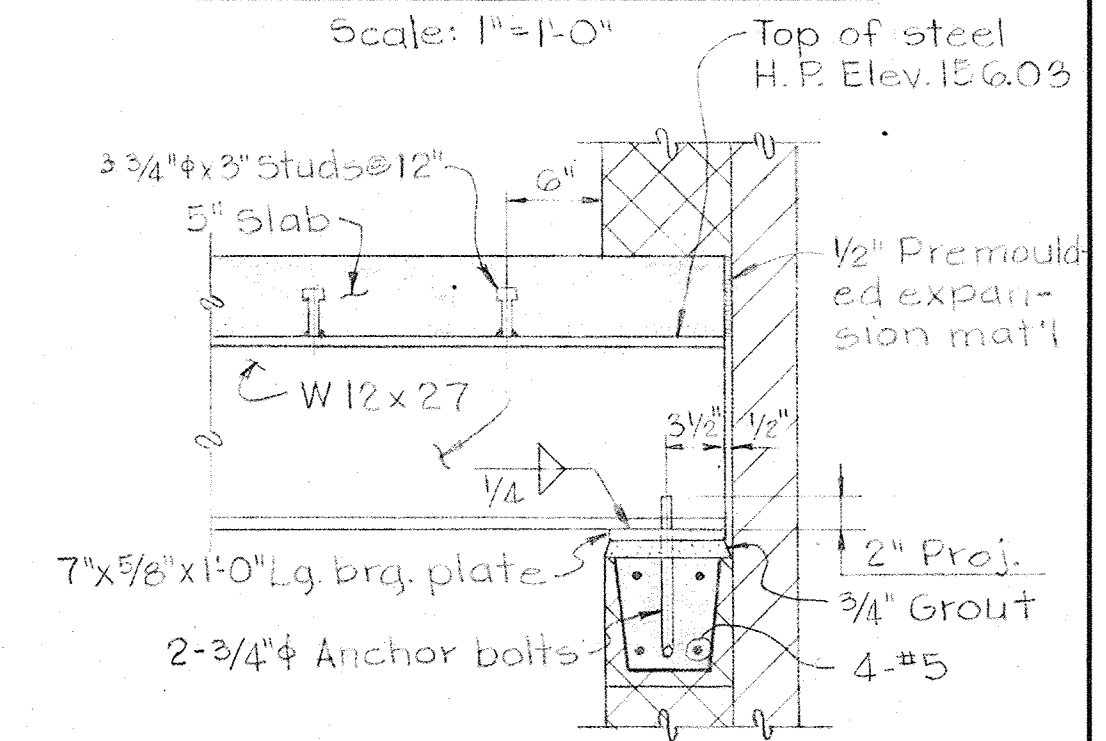
ROOF FRAMING PLAN
CHEMICAL FEED BLDG
Scale: 1/8"=1'-0"



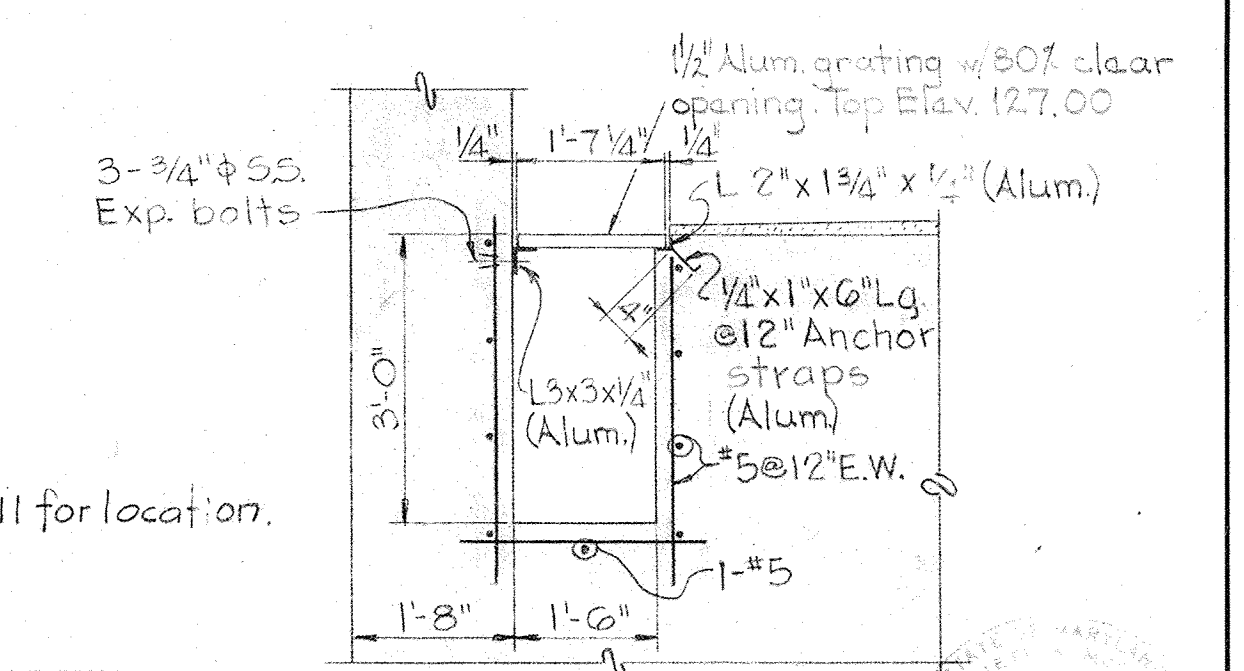
SECTION S12A/S12
Scale: 1"=1'-0"



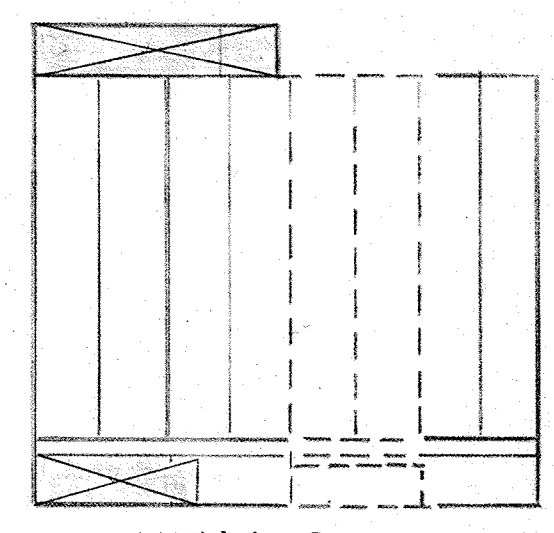
SECTION S12B/S12
Scale: 1"=1'-0"



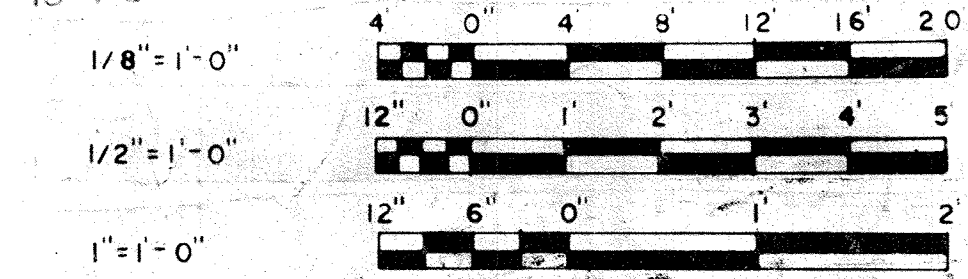
SECTION S12C/S12
Scale: 1"=1'-0"



SECTION S12D/S10/S12
Scale: 1/2"=1'-0"



KEY PLAN



Note: See sh. S11 for location.

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BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/30/15
W. O. Gilbert
CHIEF BUREAU OF ENGINEERING

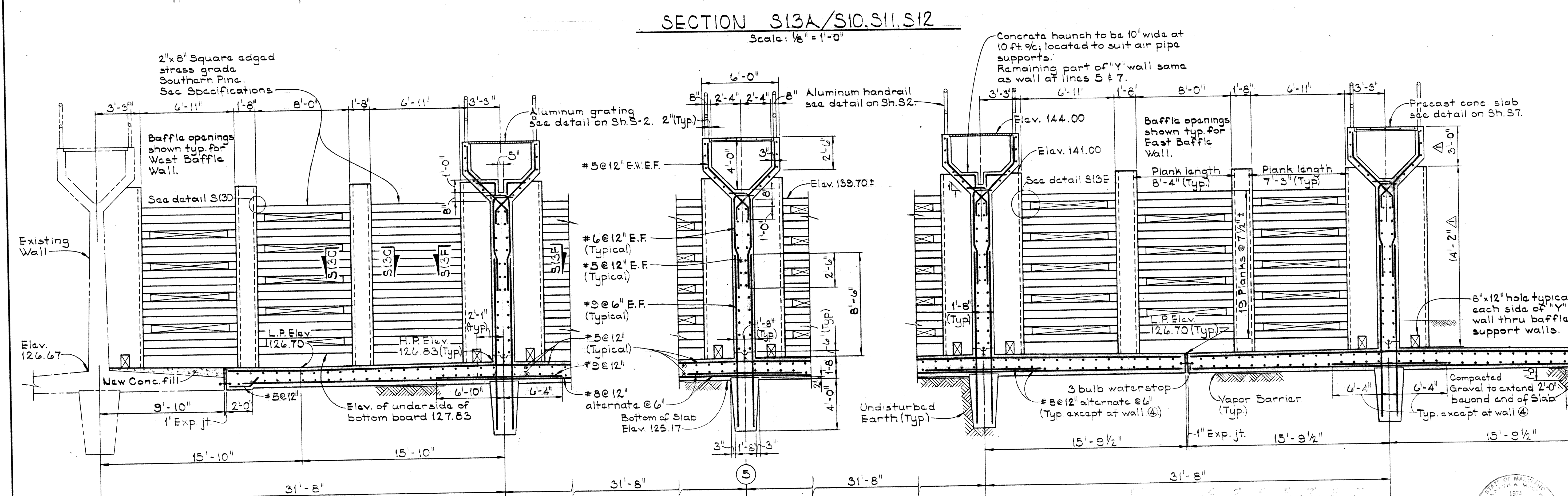
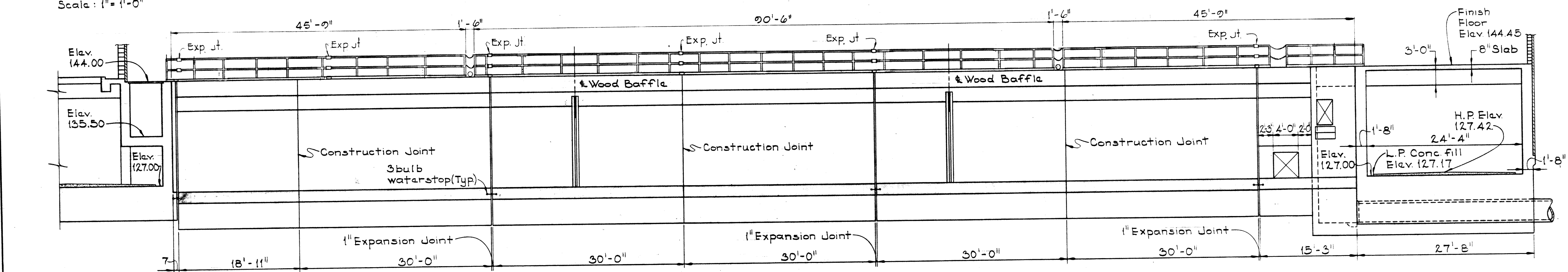
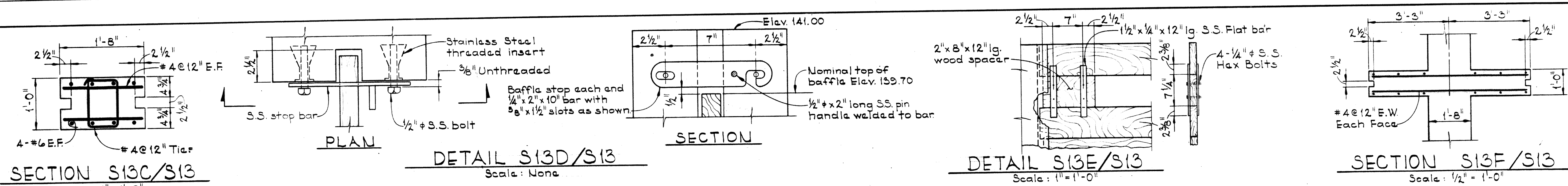
CONTRACT NO. 500-S

AERATION BASIN NOS. 2 & 3
TOP PLAN - EAST
FOUNDATION PLAN - EAST

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING
NO. 46
OF 133

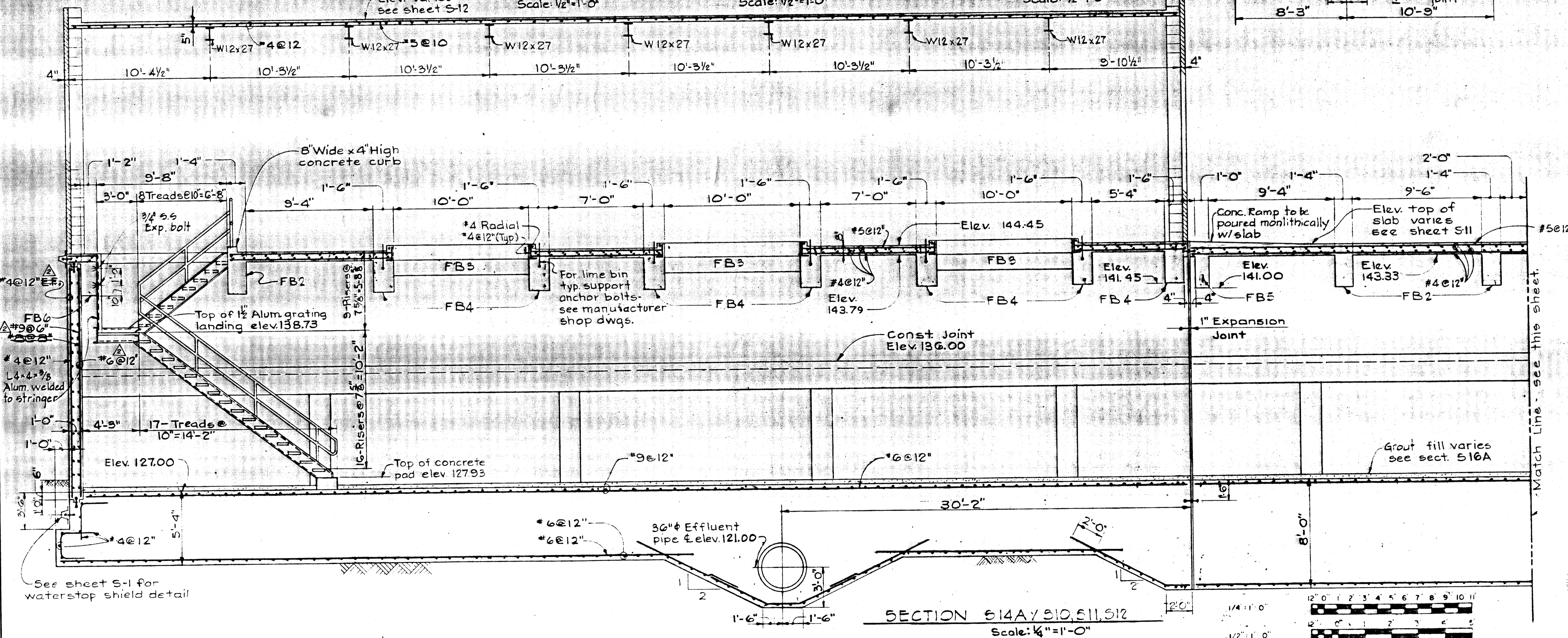
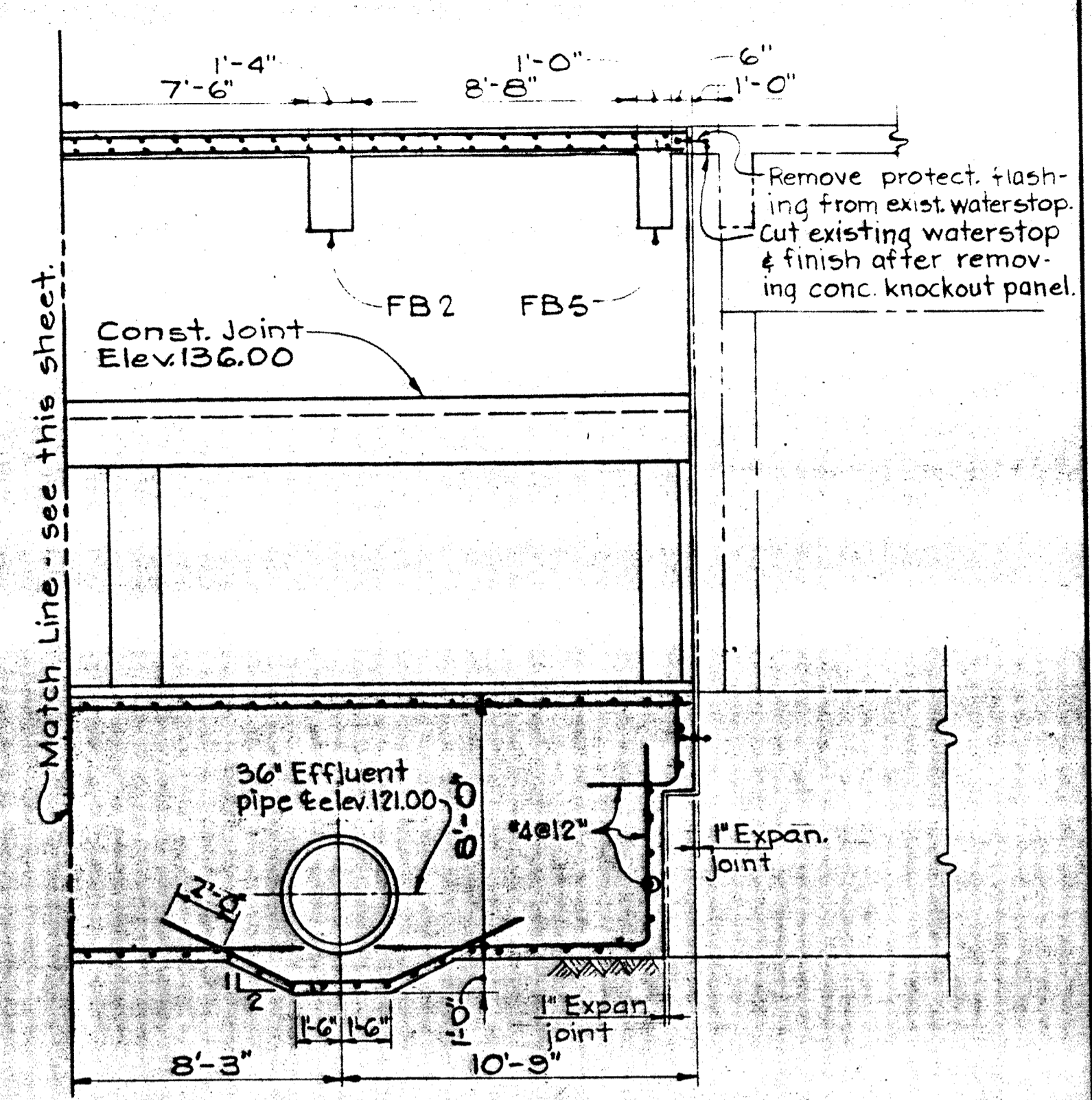
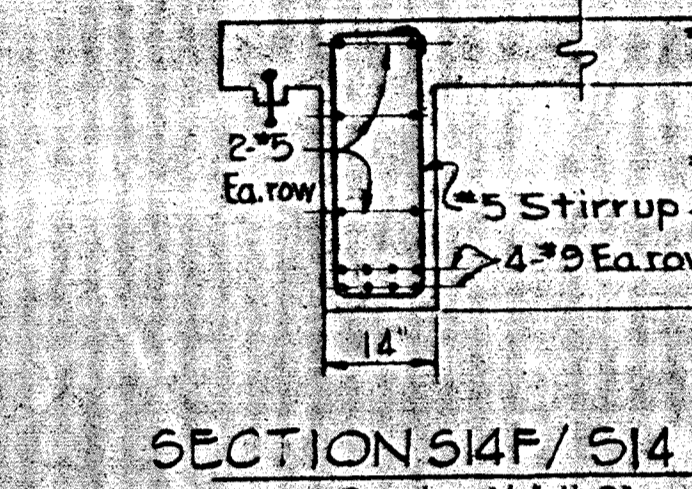
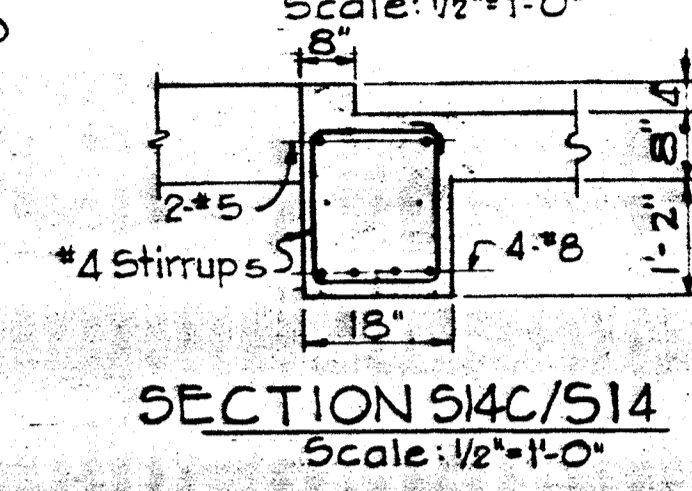
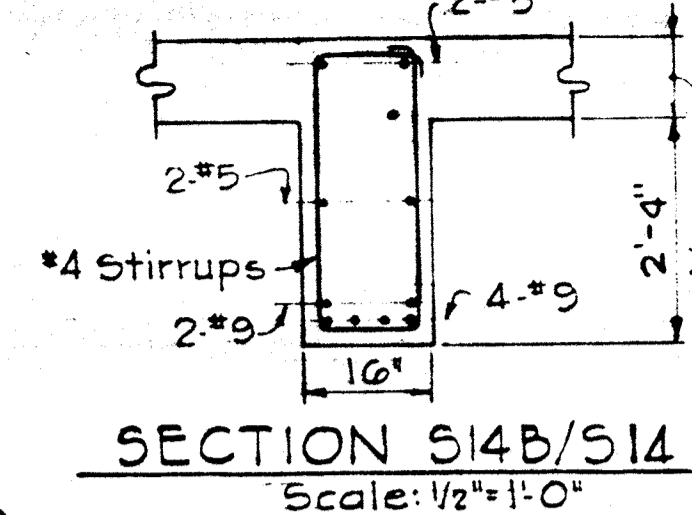
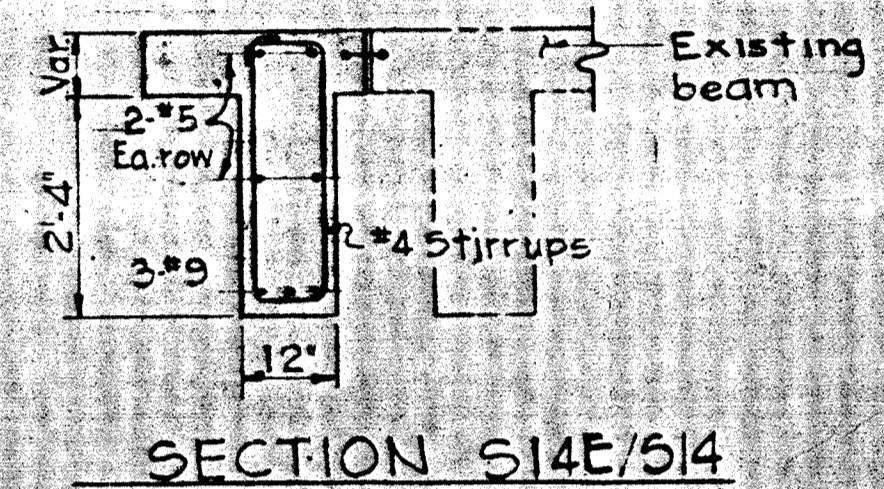
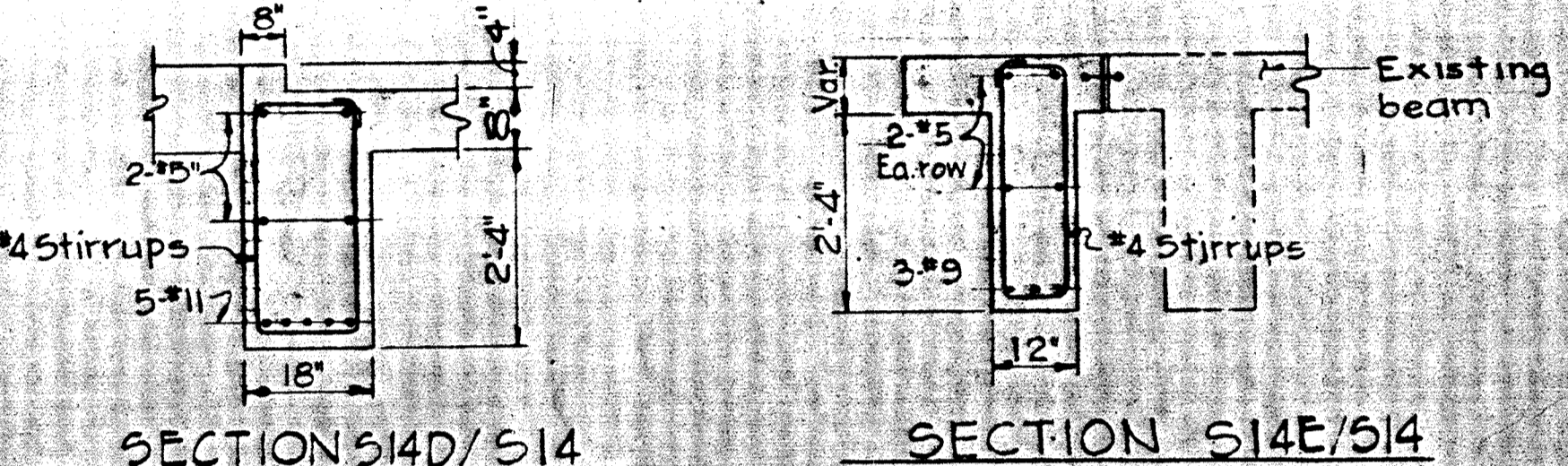
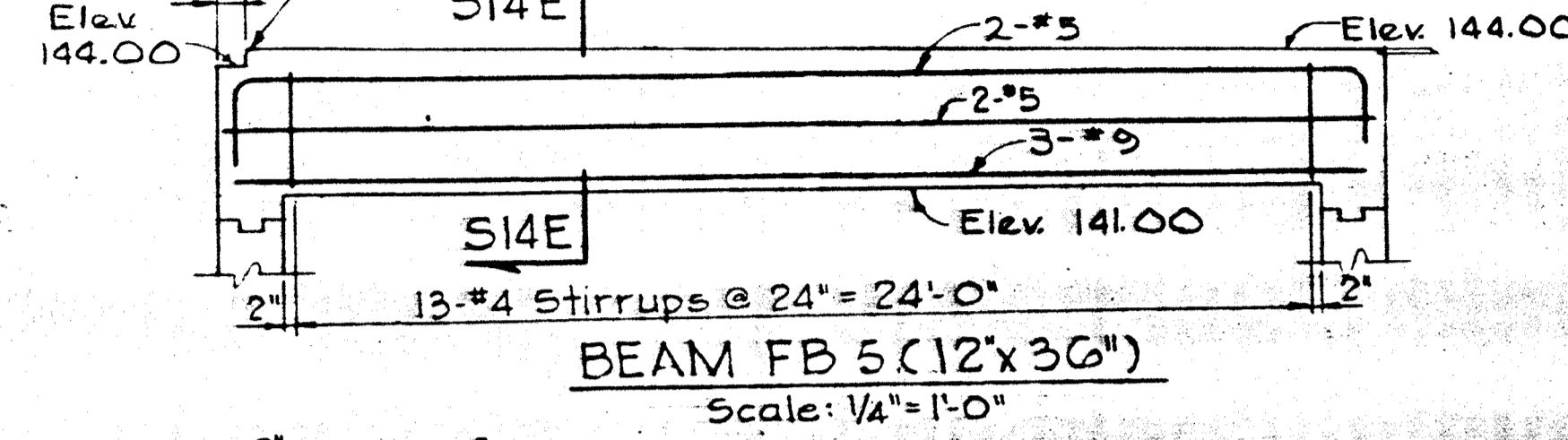
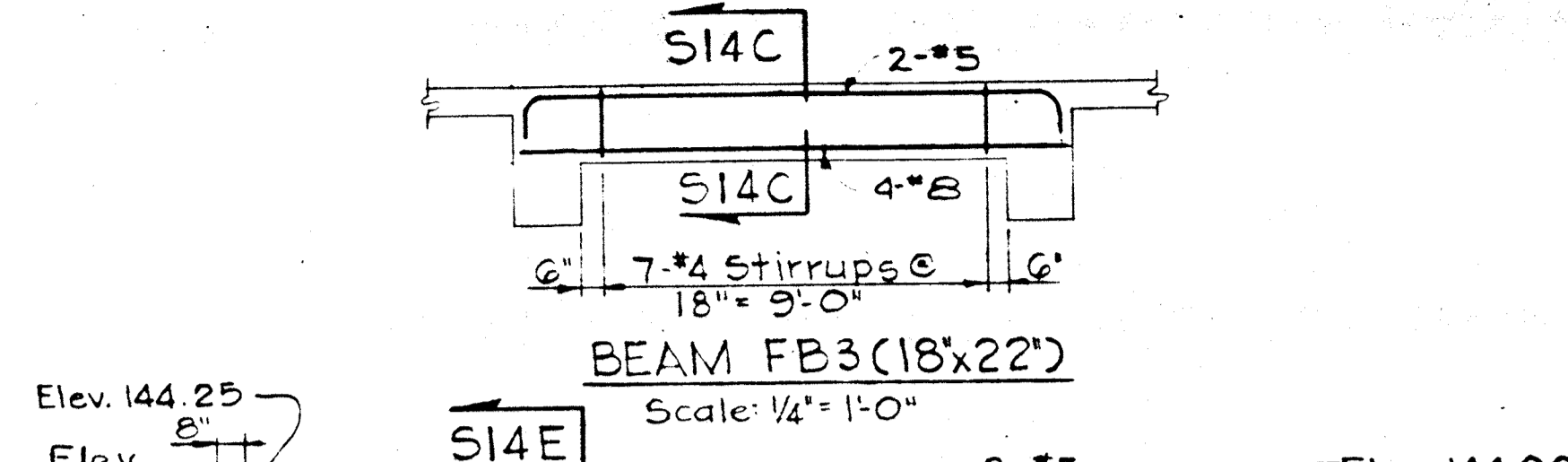
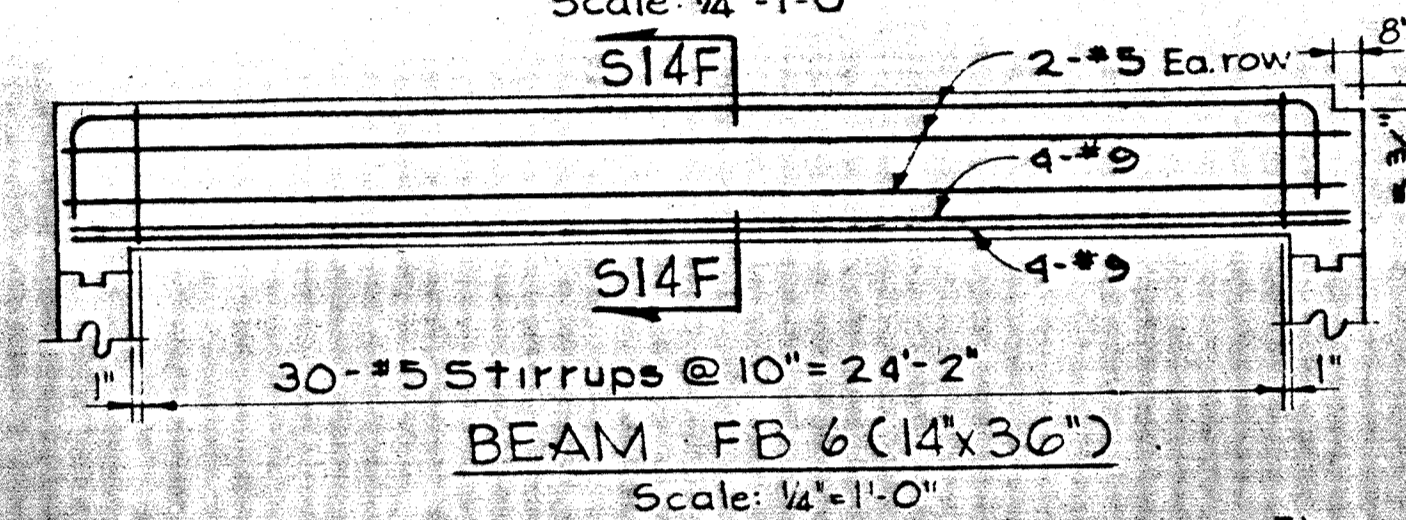
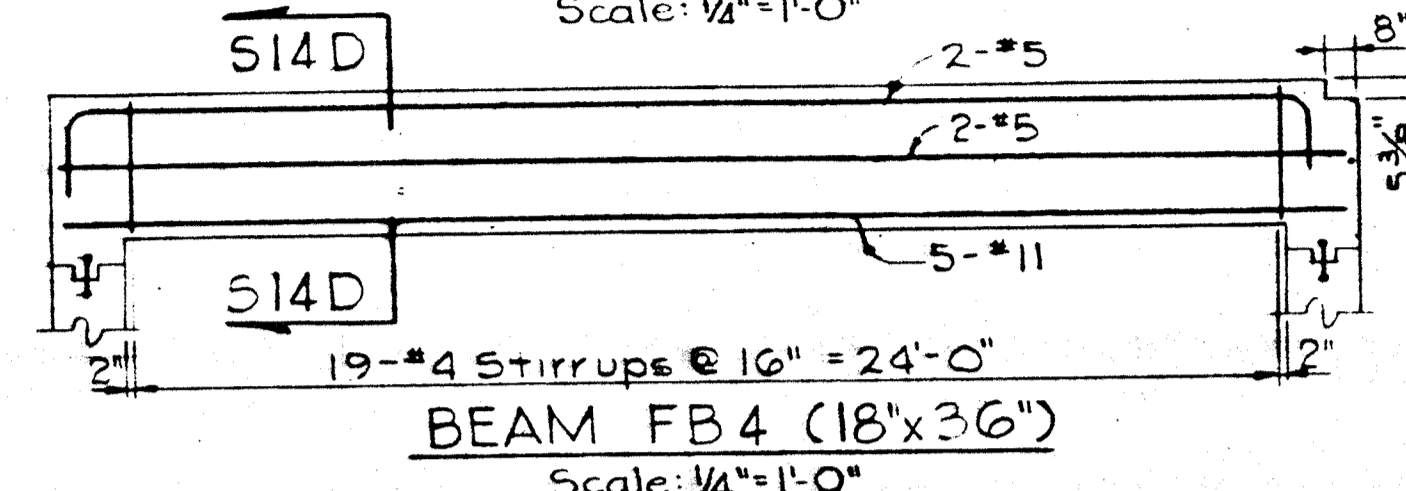
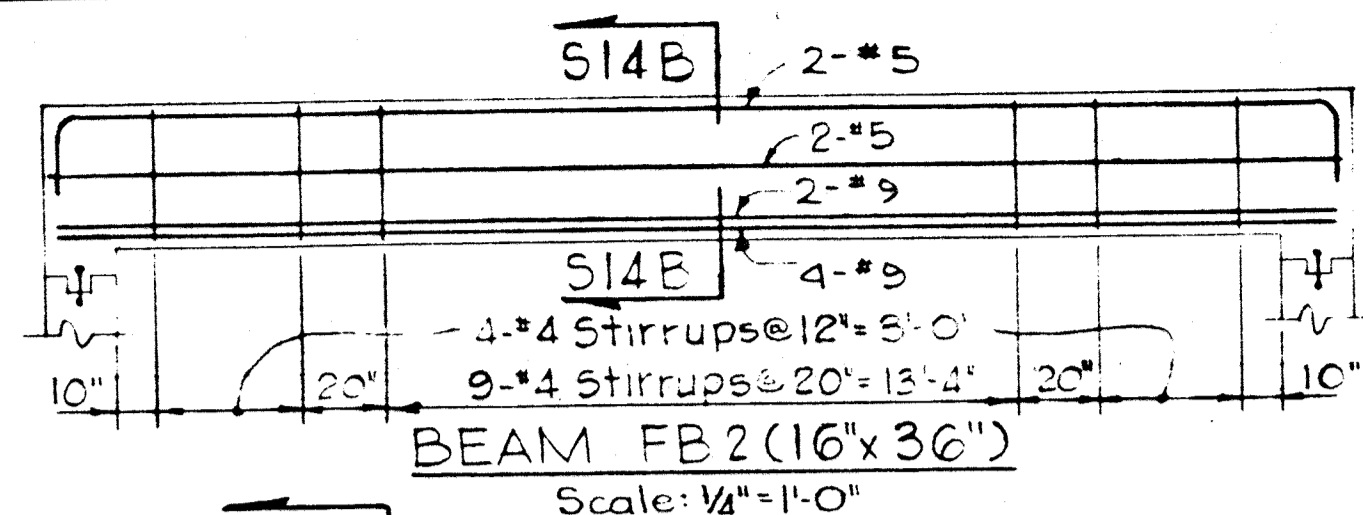
SCALE
AS
SHOWN



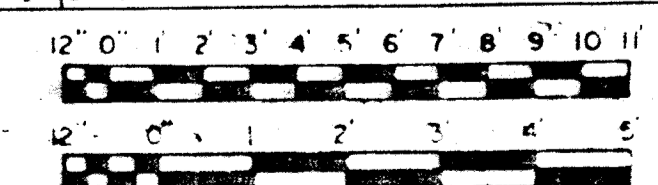
Notes: 1. Reinforcing is symmetrical about the center of the wall as shown
 2. Provide 12 spare baffle boards - 4'-8'-4" & 8'-7'-3"

SECTION S13B/S10,S11
 Scale: 1/4" = 1'-0"

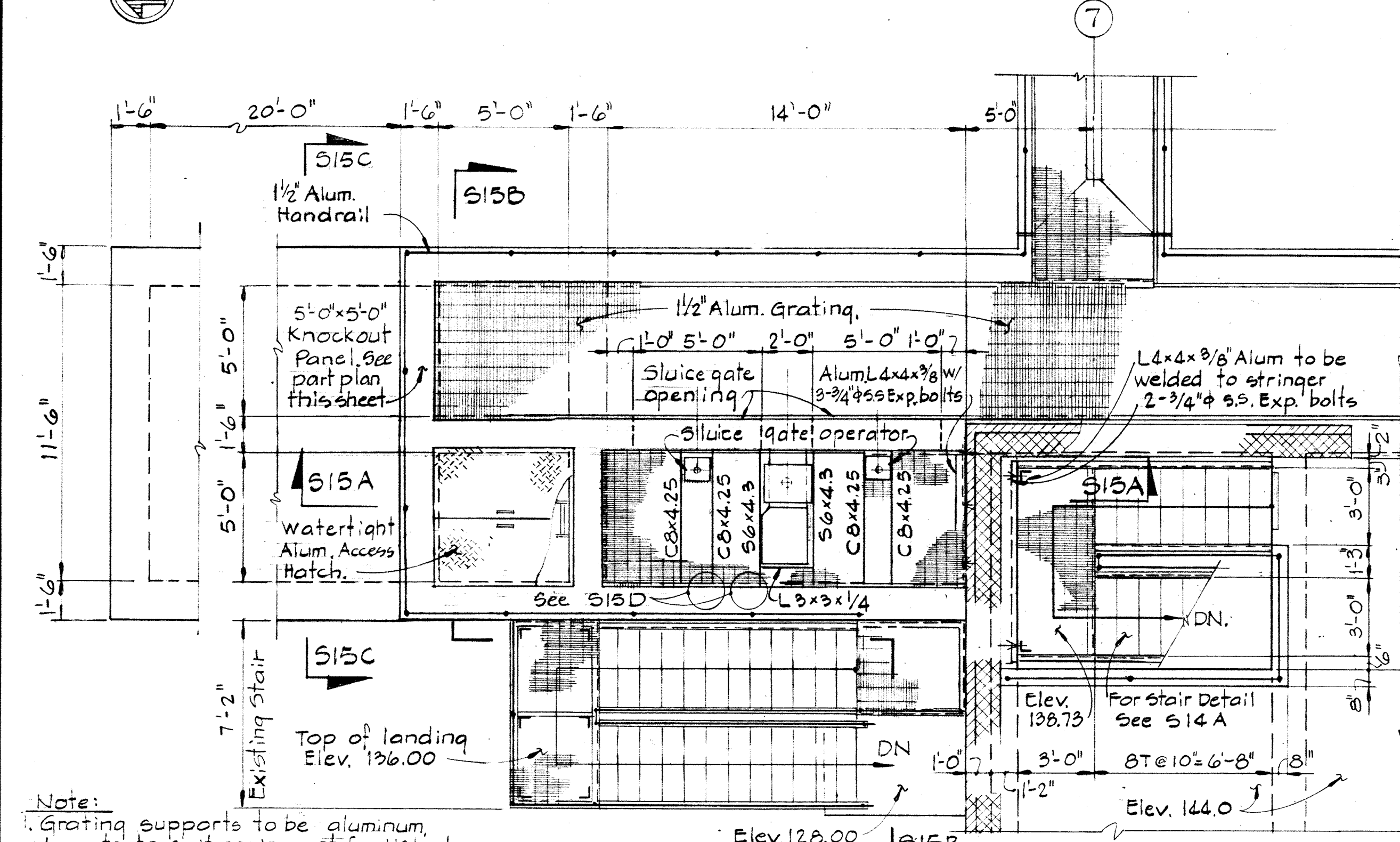
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE W.O. Fallert CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NOS. 2 & 3 PIPE GALLERY EAST & WEST SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 47 OF 133 SCALE AS SHOWN SHEET S-13
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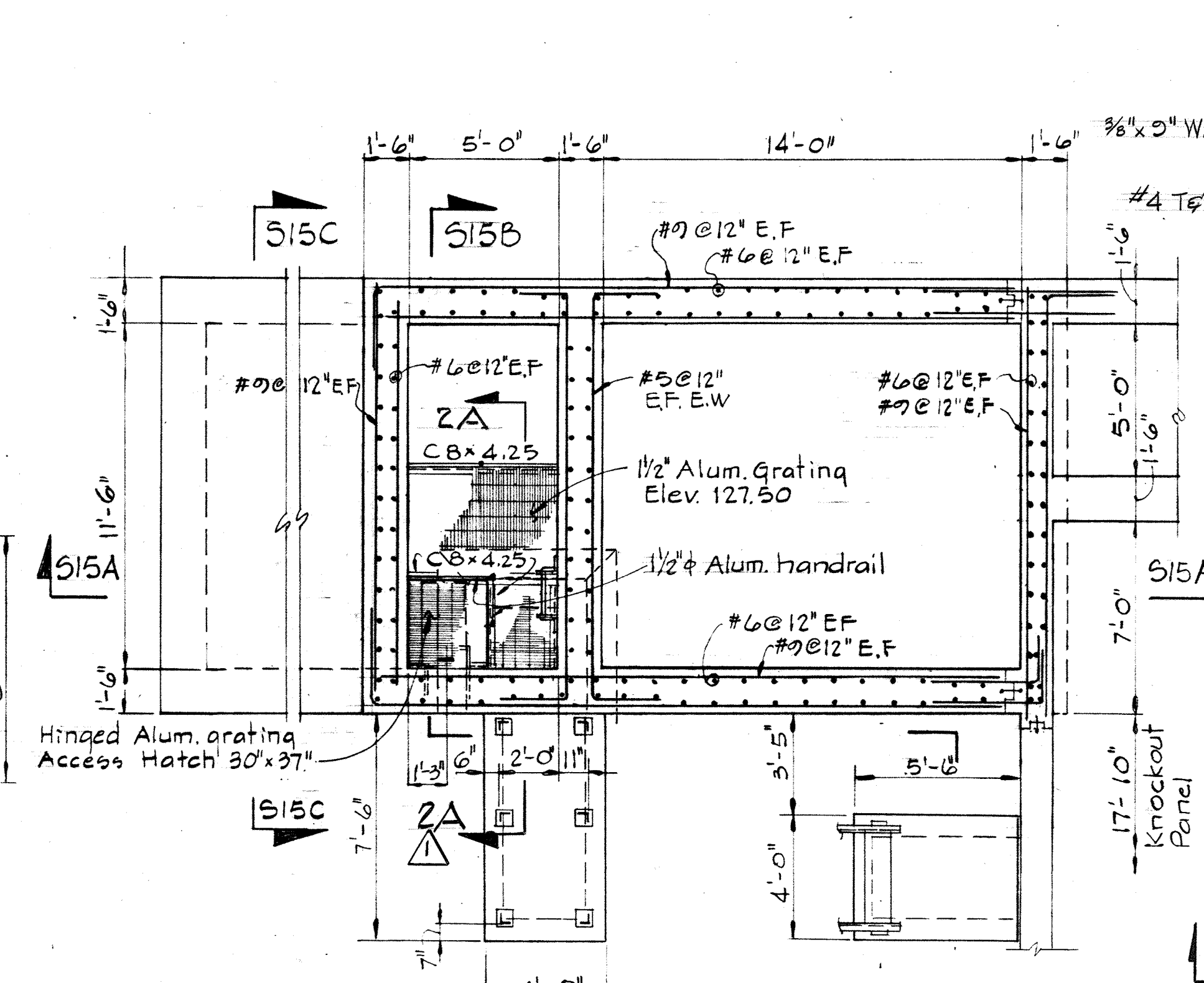
SECTION 514A, 510, 511, 512
Scale: 1/4" = 1'-0"



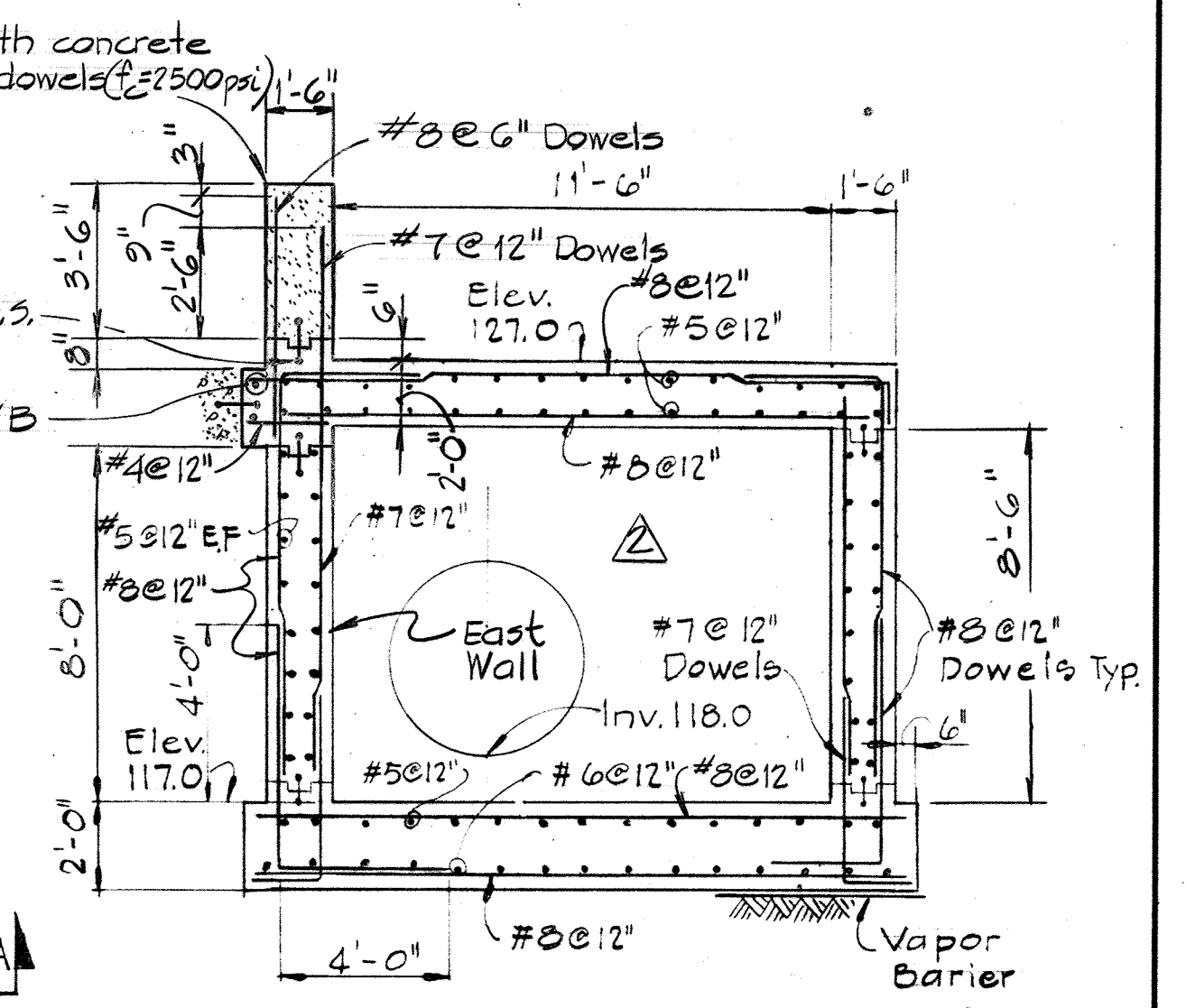
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/15 <i>W.C. Gilbert</i> CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NOS. 2 & 3 PIPE GALLERY-WEST SECTIONS & BEAM ELEVATIONS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 48 OF 133 SCALE AS SHOWN
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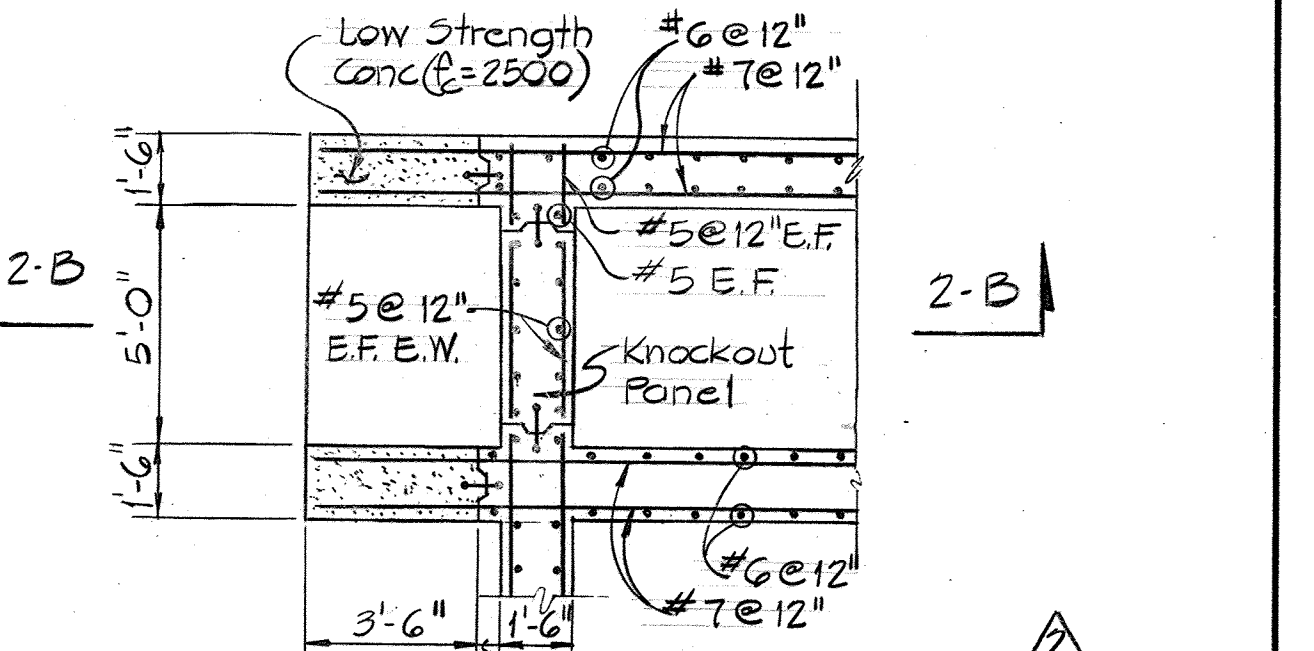
PART PLAN - MIXING CHAMBER AND STAIRS AT ELEV. 144.00
Scale: 1/4" = 1'-0"



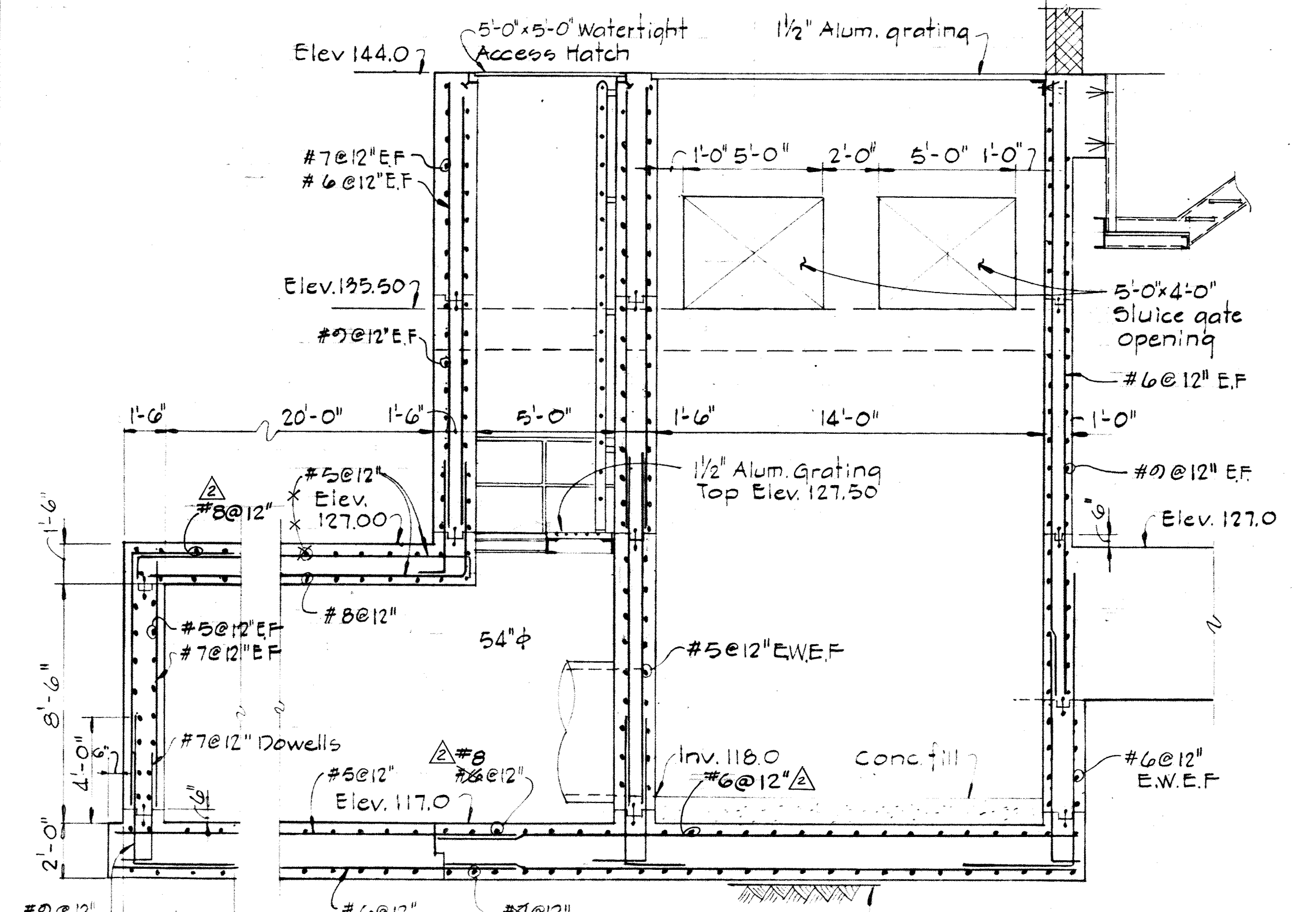
PART PLAN - MIXING CHAMBER AND STAIR AT ELEV. 132.00
Scale: 1/4" = 1'-0"



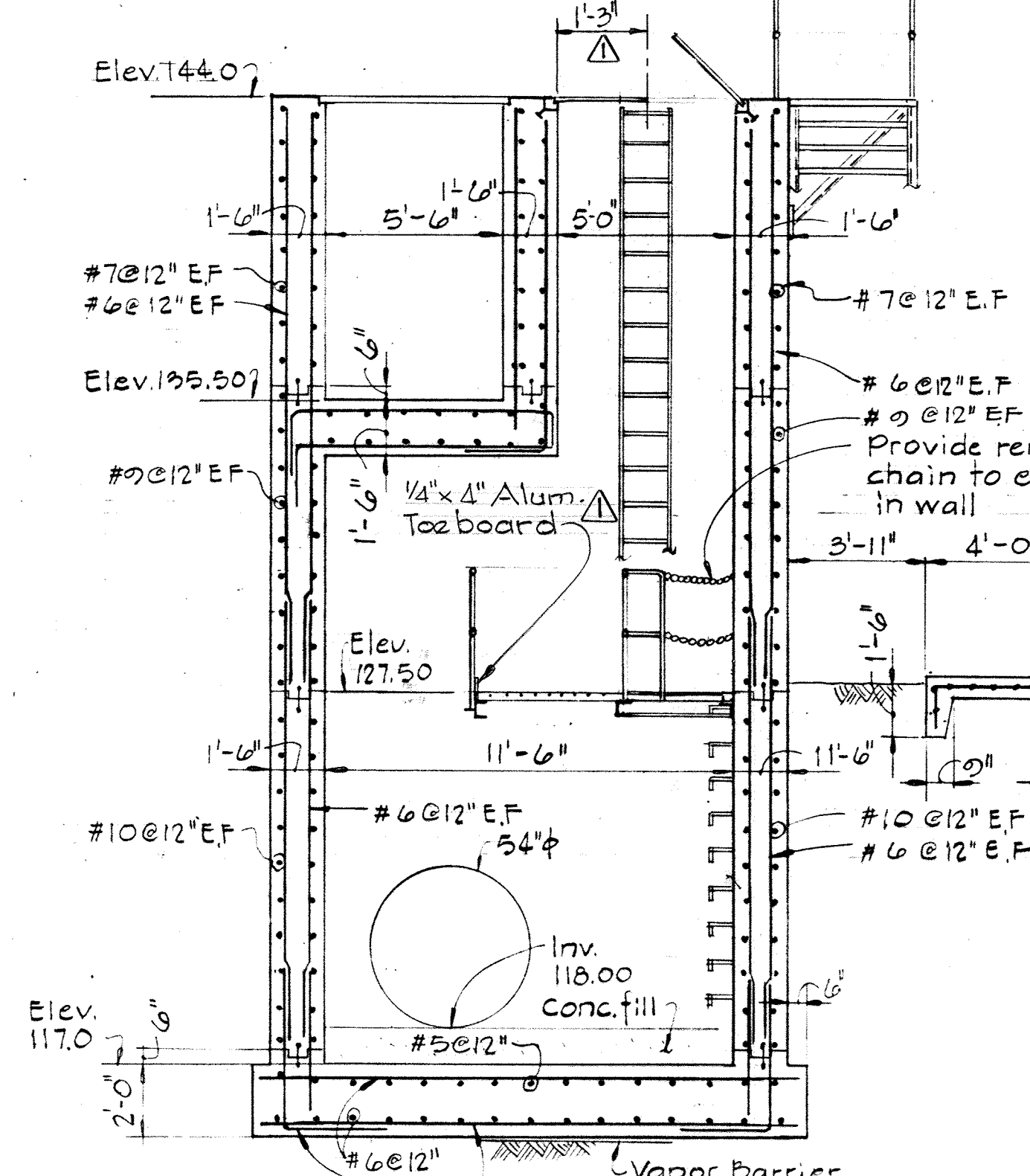
SECTION 515C/515
Scale: 1/4" = 1'-0"



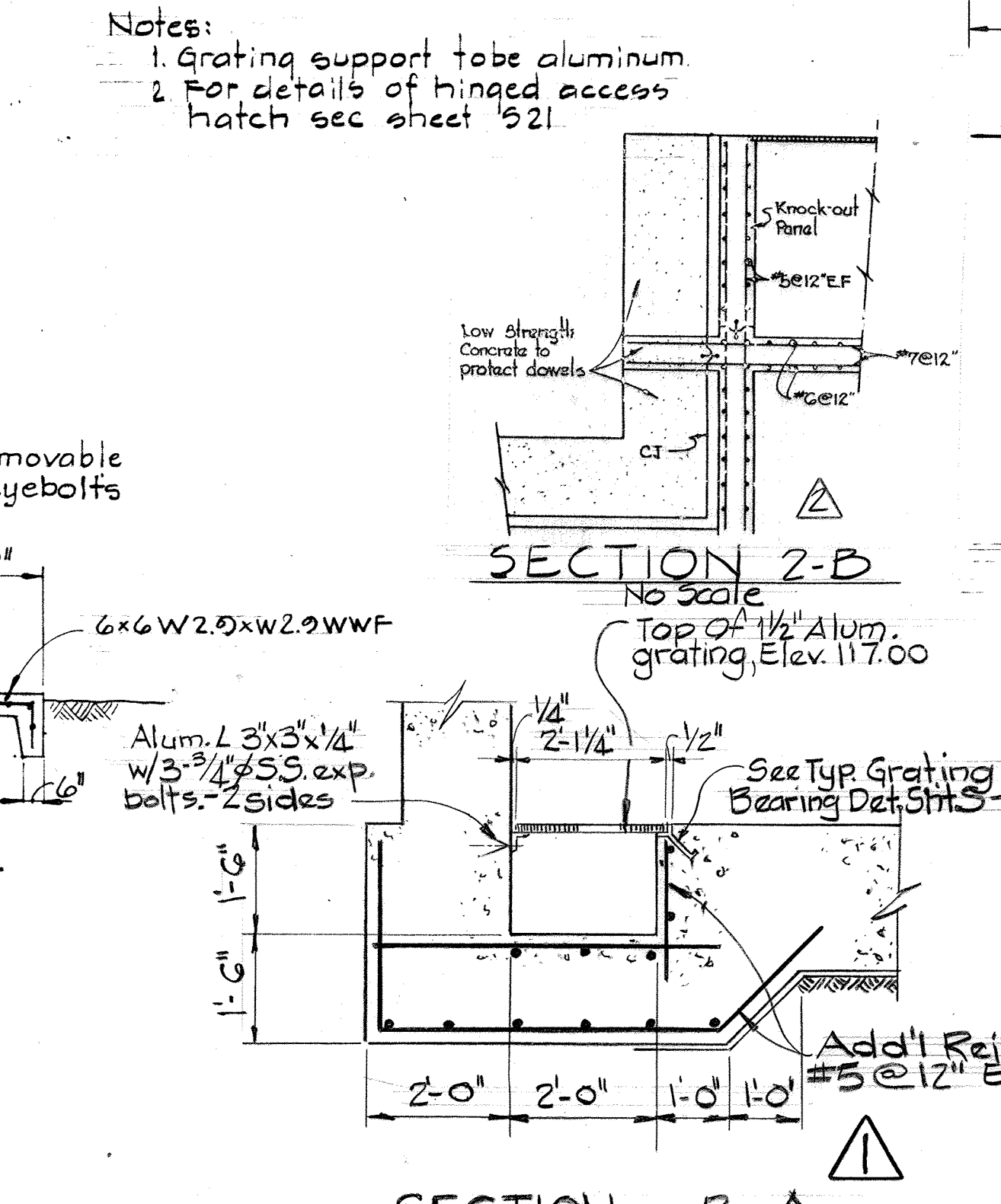
PART PLAN - MODIFIED KNOCK-OUT PANEL
Scale: 1/4" = 1'-0"



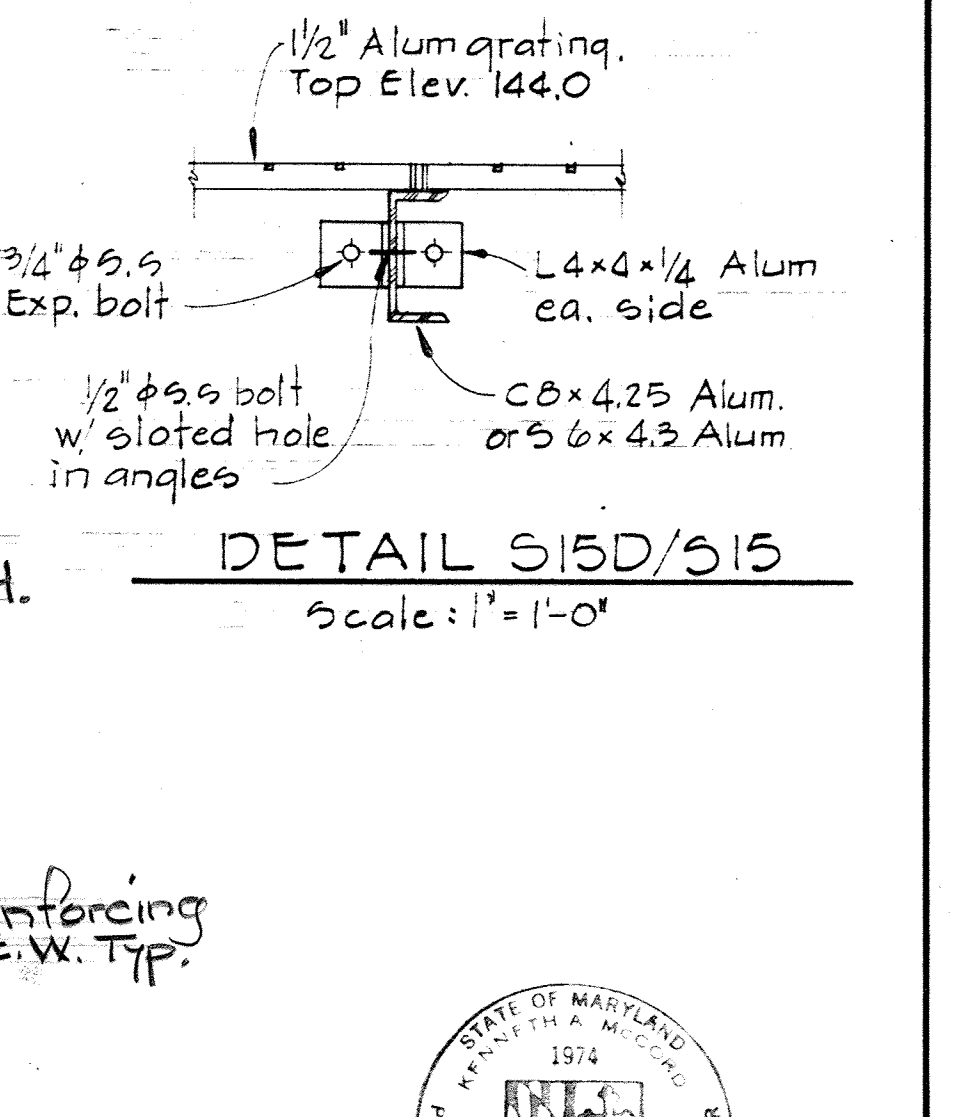
SECTION 515A/515
Scale: 1/4" = 1'-0"



SECTION 515B/515
Scale: 1/4" = 1'-0"



SECTION 2-B
Scale: 1/2" = 1'-0"



DETAIL 515D/515
Scale: 1" = 1'-0"

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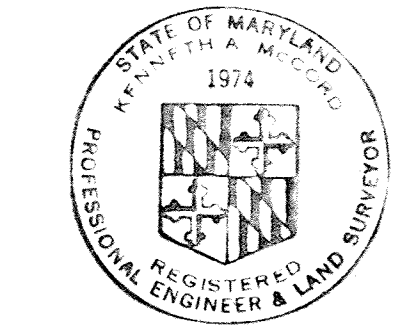
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-26-77
DATE
W.O. Libert
CHIEF-BUREAU OF ENGINEERING

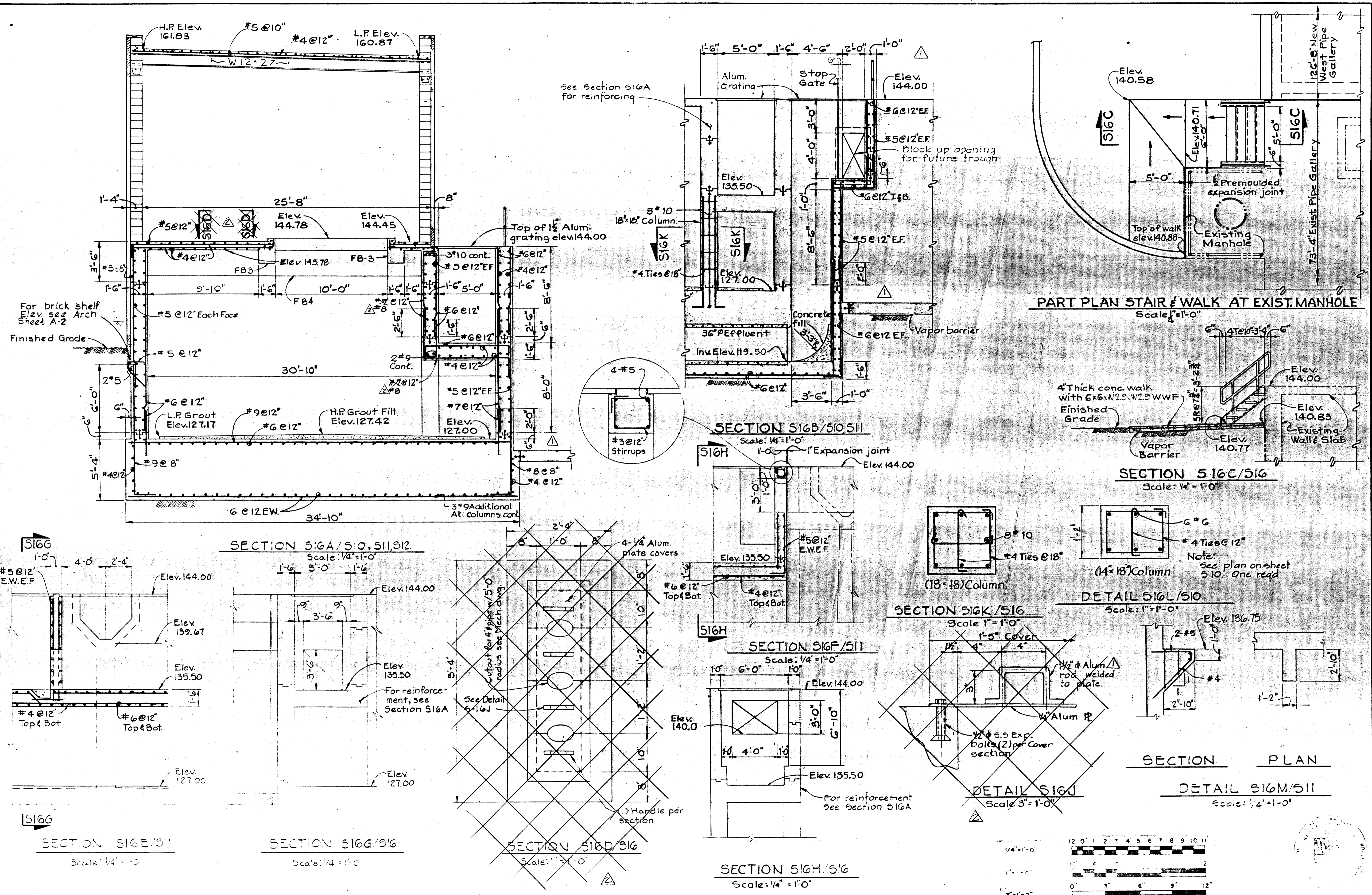
CONTRACT NO. 500-S

AERATION BASIN NOS. 2 & 3
PIPE GALLERY-WEST
SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 49
OF 133
SCALE AS SHOWN





WHITMAN, REQUARDT & ASSOCIATES
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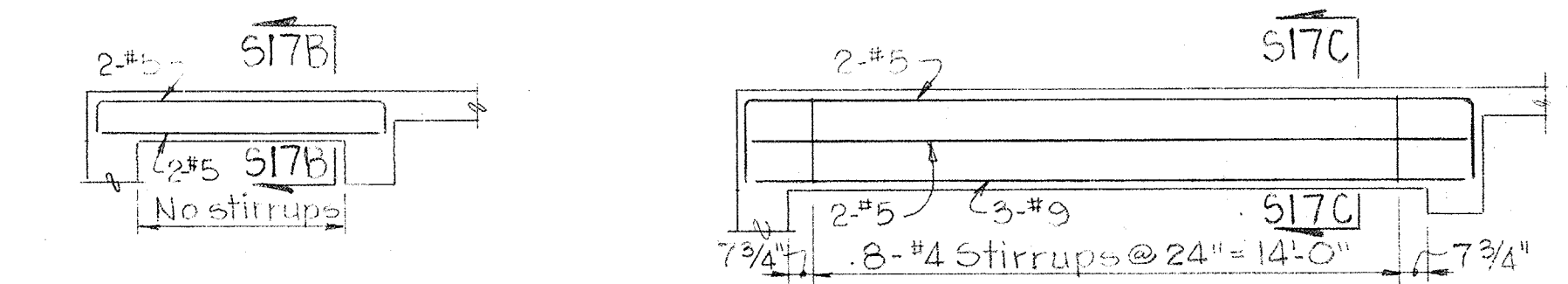
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 3/20/75
 W.O. Albert
 CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

AERATION BASIN NOS. 2 & 3
 PIPE GALLERY WEST
 SECTIONS & DETAILS

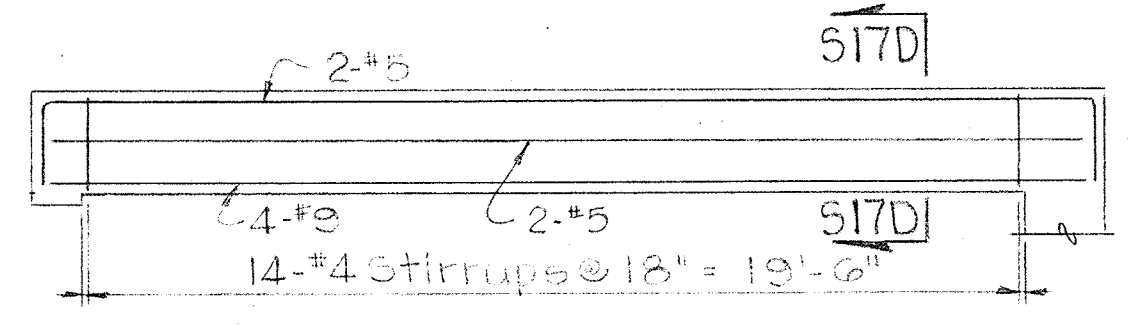
SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 50
 OF 133
 SCALE AS SHOWN

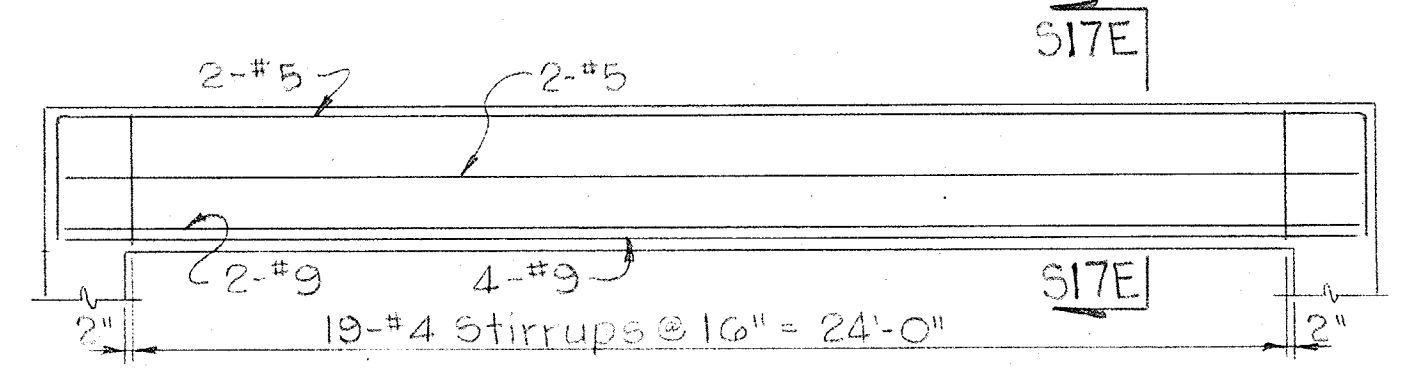


BEAM FB7 (10"x14")
Scale: 1/4"=1'-0"

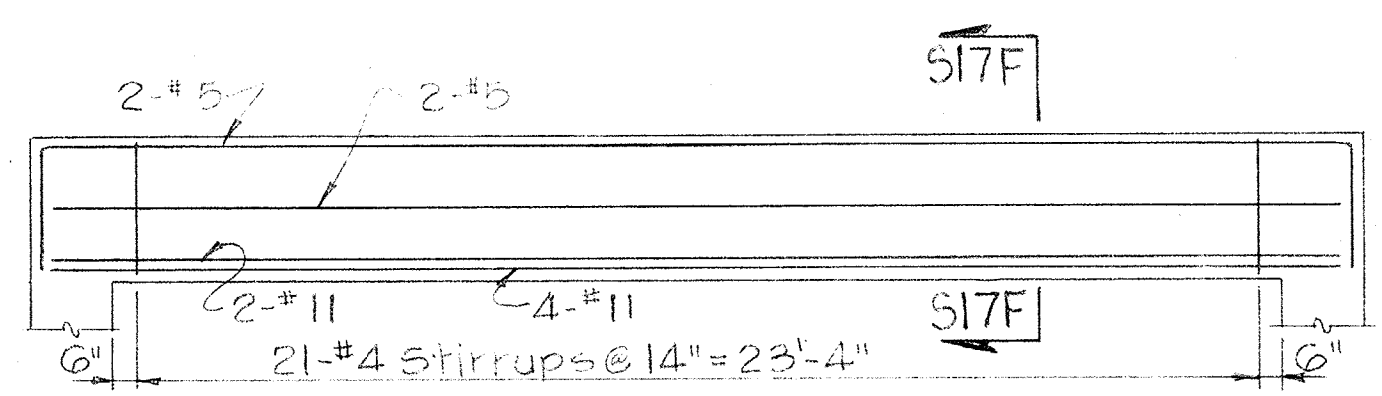
BEAM FB8 (12"x28")
Scale: 1/4"=1'-0"



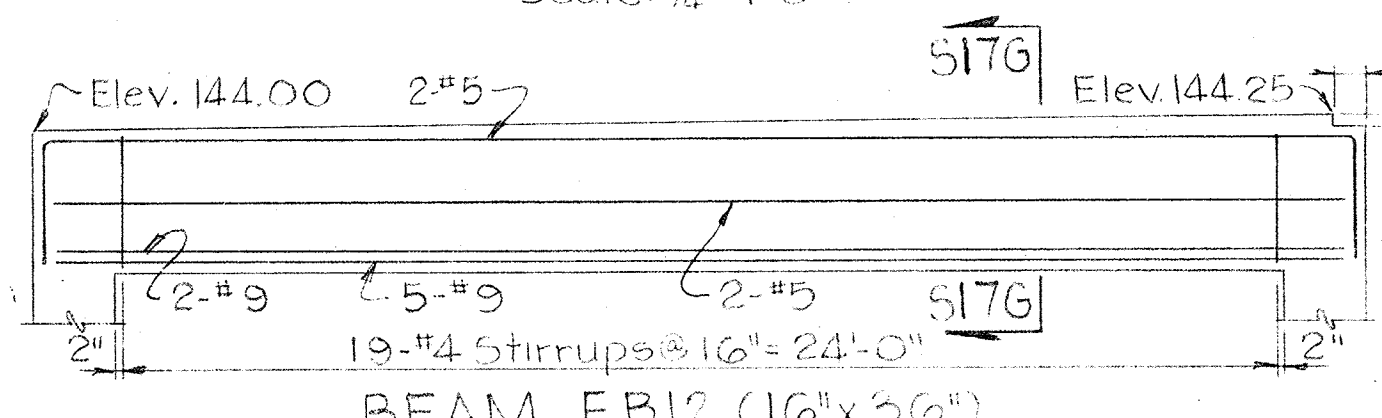
BEAM FB9 (14"x26")
Scale: 1/4"=1'-0"



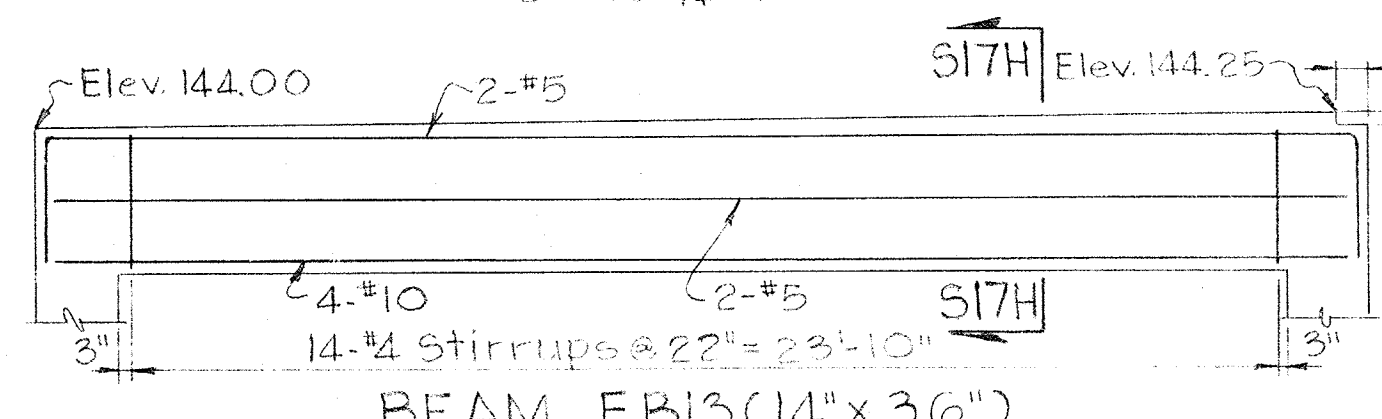
BEAM FB10 (16"x36")
Scale: 1/4"=1'-0"



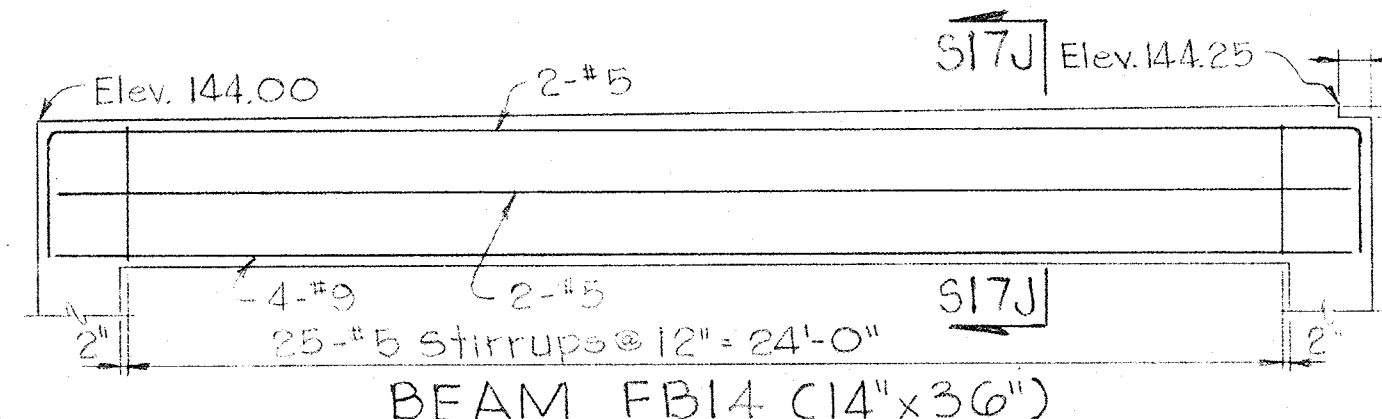
BEAM FB11 (18"x36")
Scale: 1/4"=1'-0"



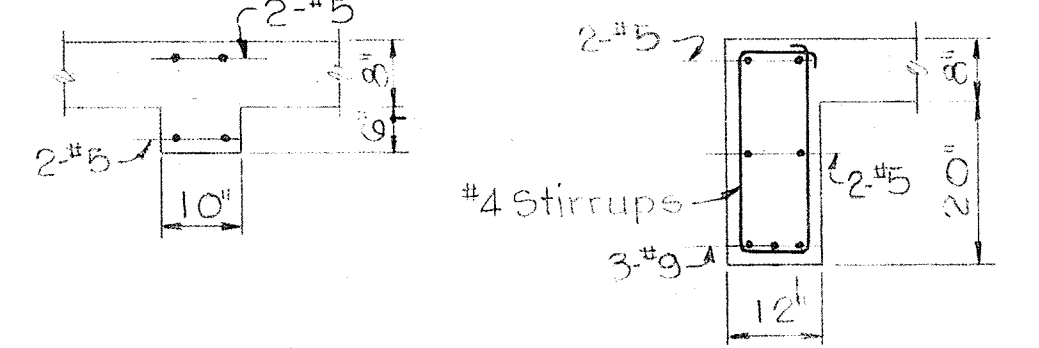
BEAM FB12 (16"x36")
Scale: 1/4"=1'-0"



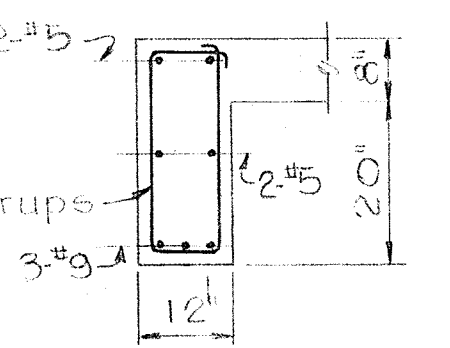
BEAM FB13 (14"x36")
Scale: 1/4"=1'-0"



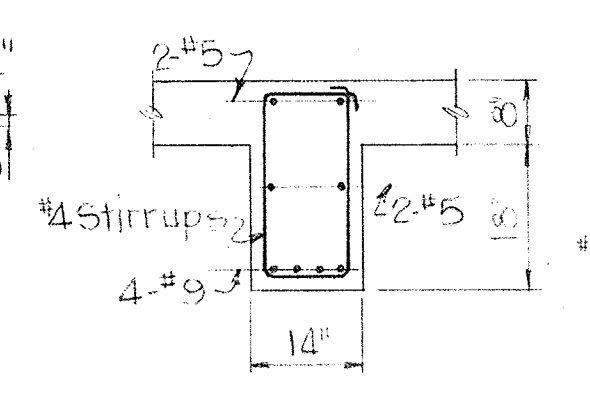
BEAM FB14 (14"x36")
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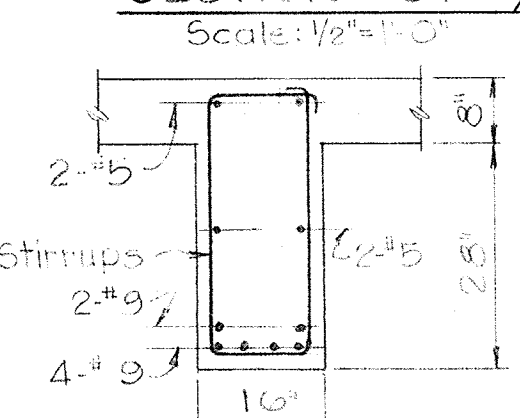
SECTION S17B/S17
Scale: 1/2"=1'-0"



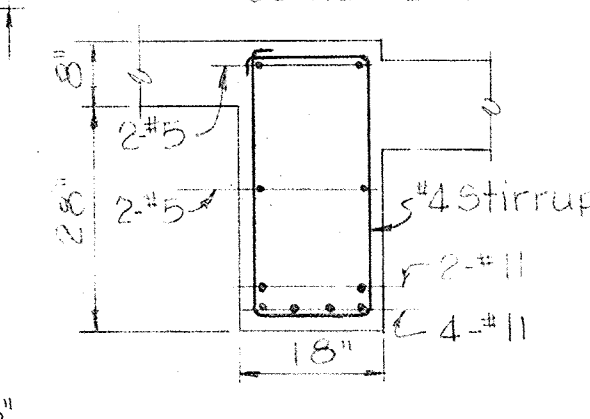
SECTION S17C/S17
Scale: 1/2"=1'-0"



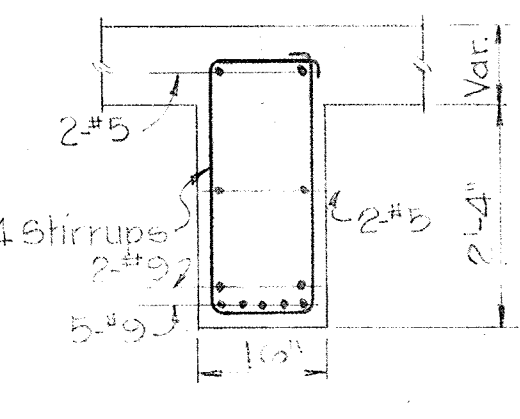
SECTION S17D/S17
Scale: 1/2"=1'-0"



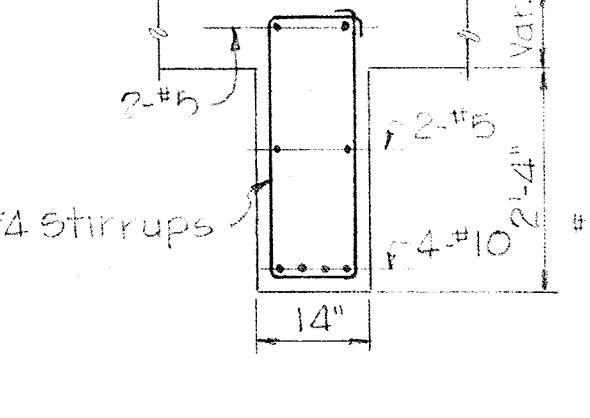
SECTION S17E/S17
Scale: 1/2"=1'-0"



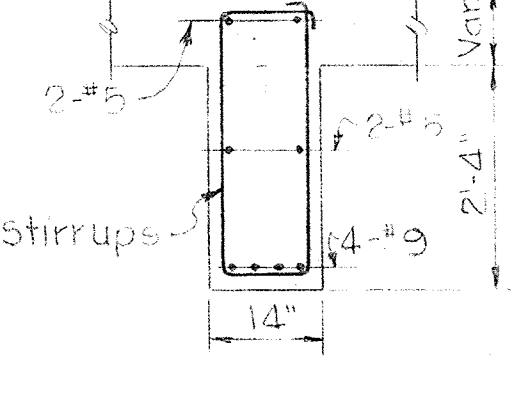
SECTION S17F/S17
Scale: 1/2"=1'-0"



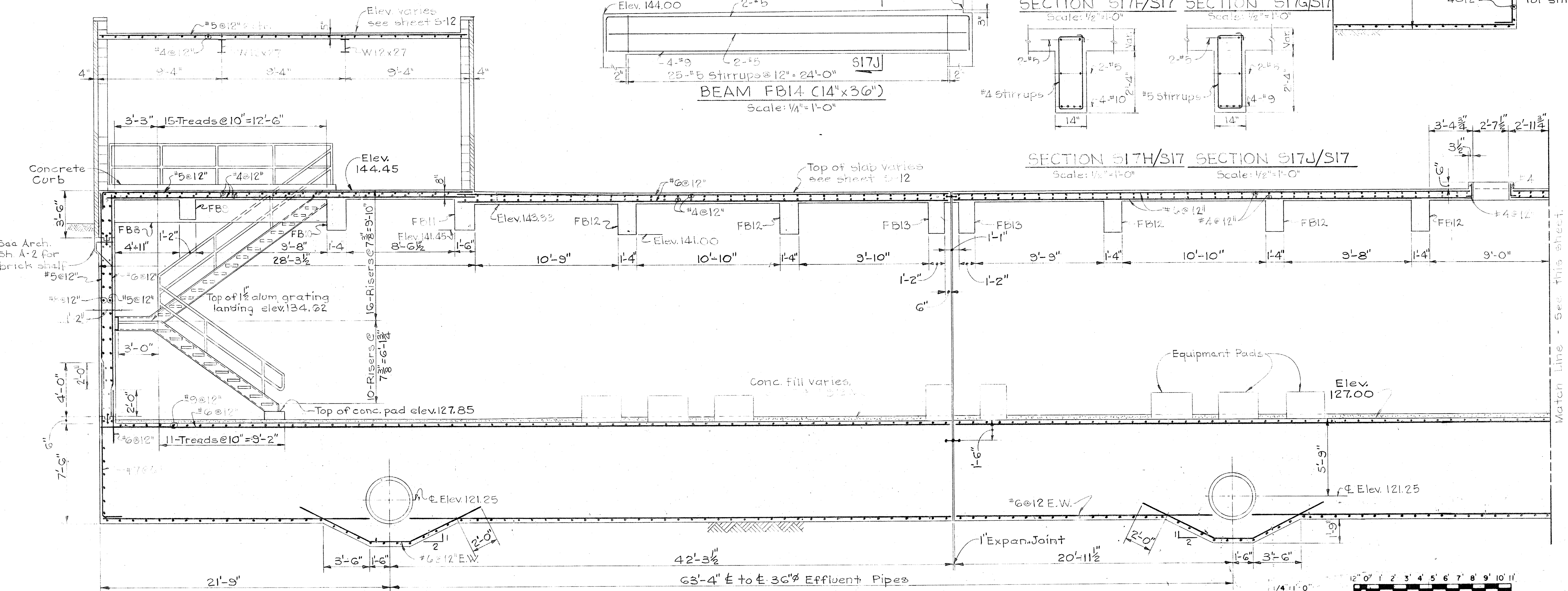
SECTION S17G/S17
Scale: 1/2"=1'-0"



SECTION S17H/S17
Scale: 1/2"=1'-0"



SECTION S17J/S17
Scale: 1/2"=1'-0"



SECTION S17A/S12
Scale: 1/4"=1'-0"

WHITMAN, REQUARDT & ASSOCIATES
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BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 3/20/85
CHIEF-BUREAU OF ENGINEERING

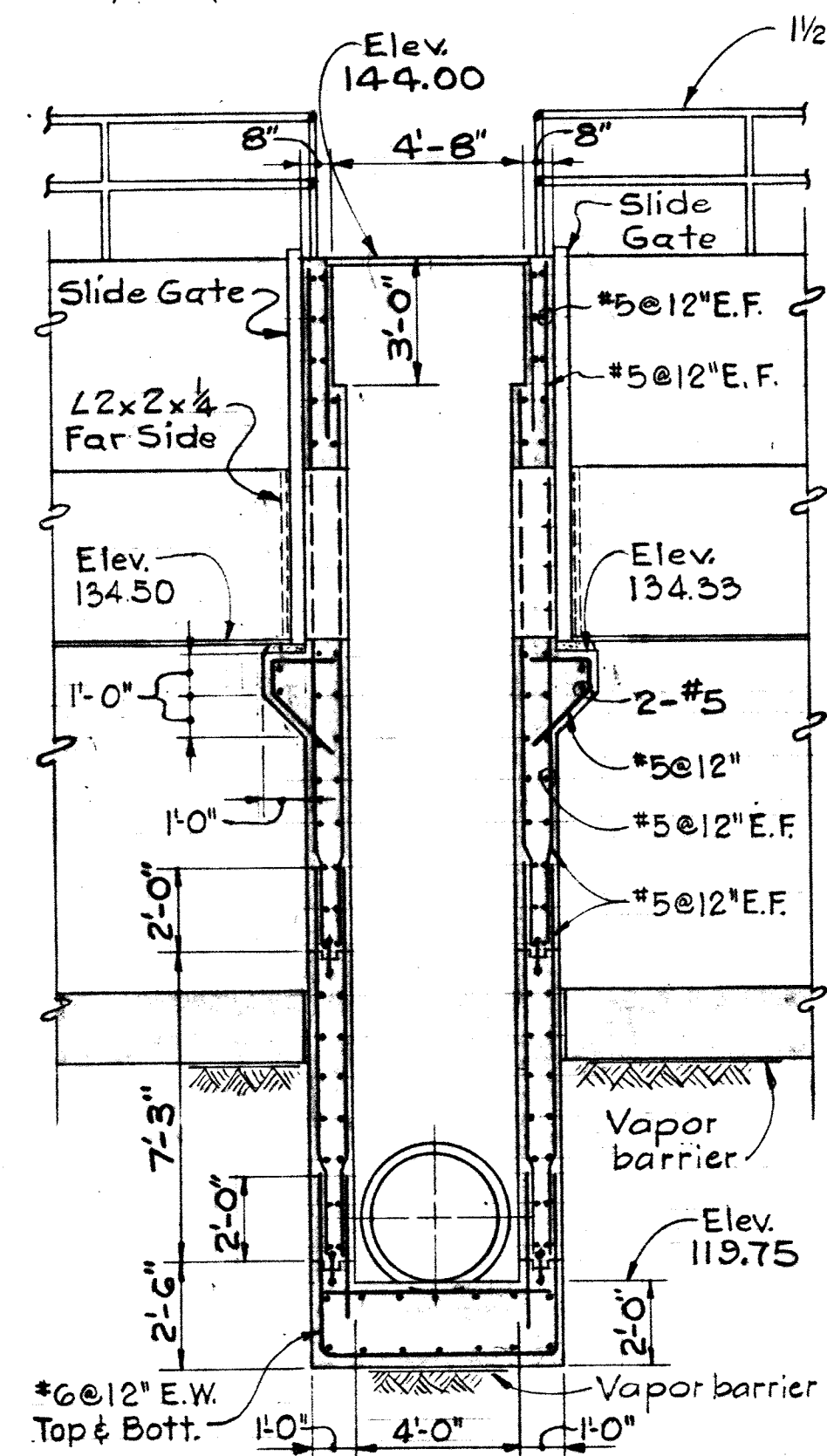
CONTRACT NO. 500-S

AERATION BASIN NOS. 2 & 3
PIPE GALLERY EAST
SECTIONS & BEAM ELEVATIONS

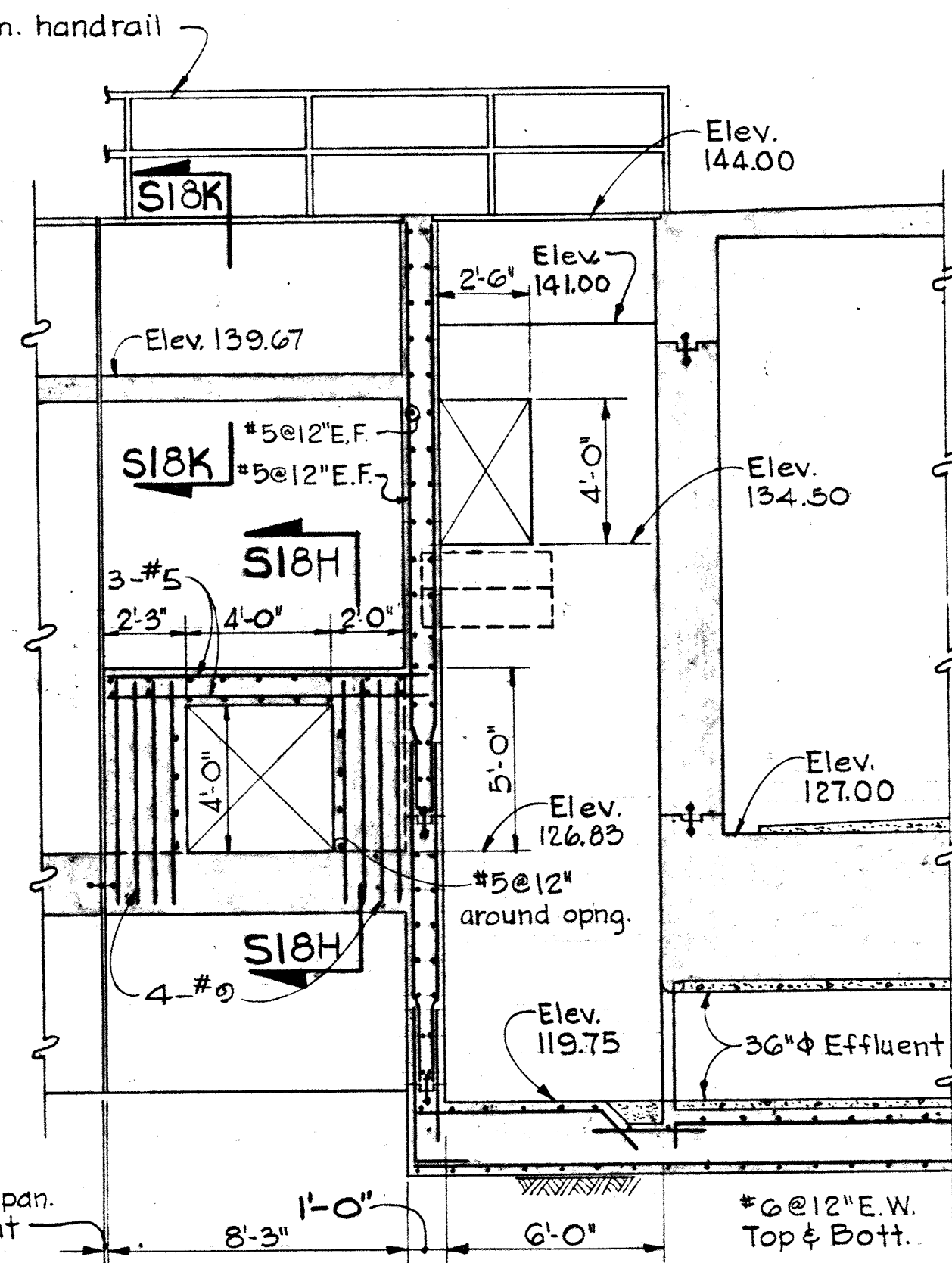
SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 51
OF 133

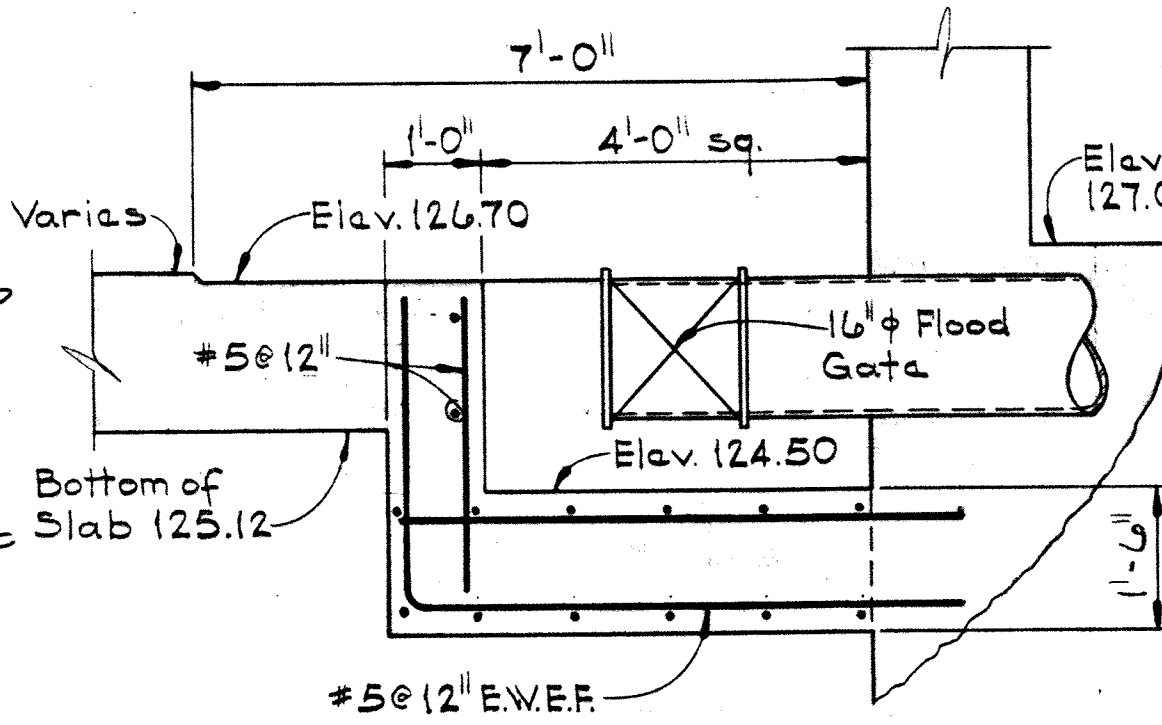
SCALE AS SHOWN



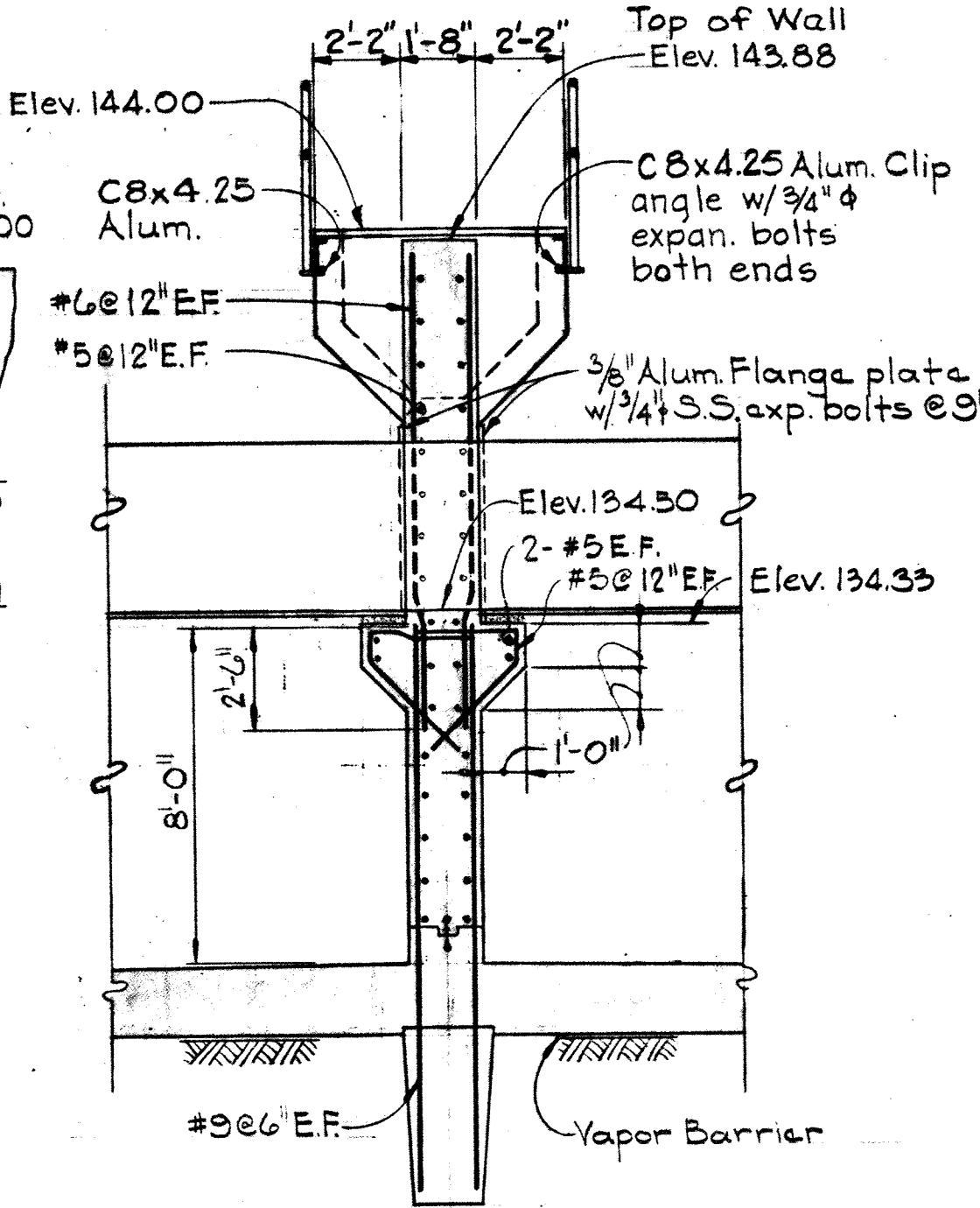
SECTION S18D/S12
Scale: 1/4" = 1'-0"



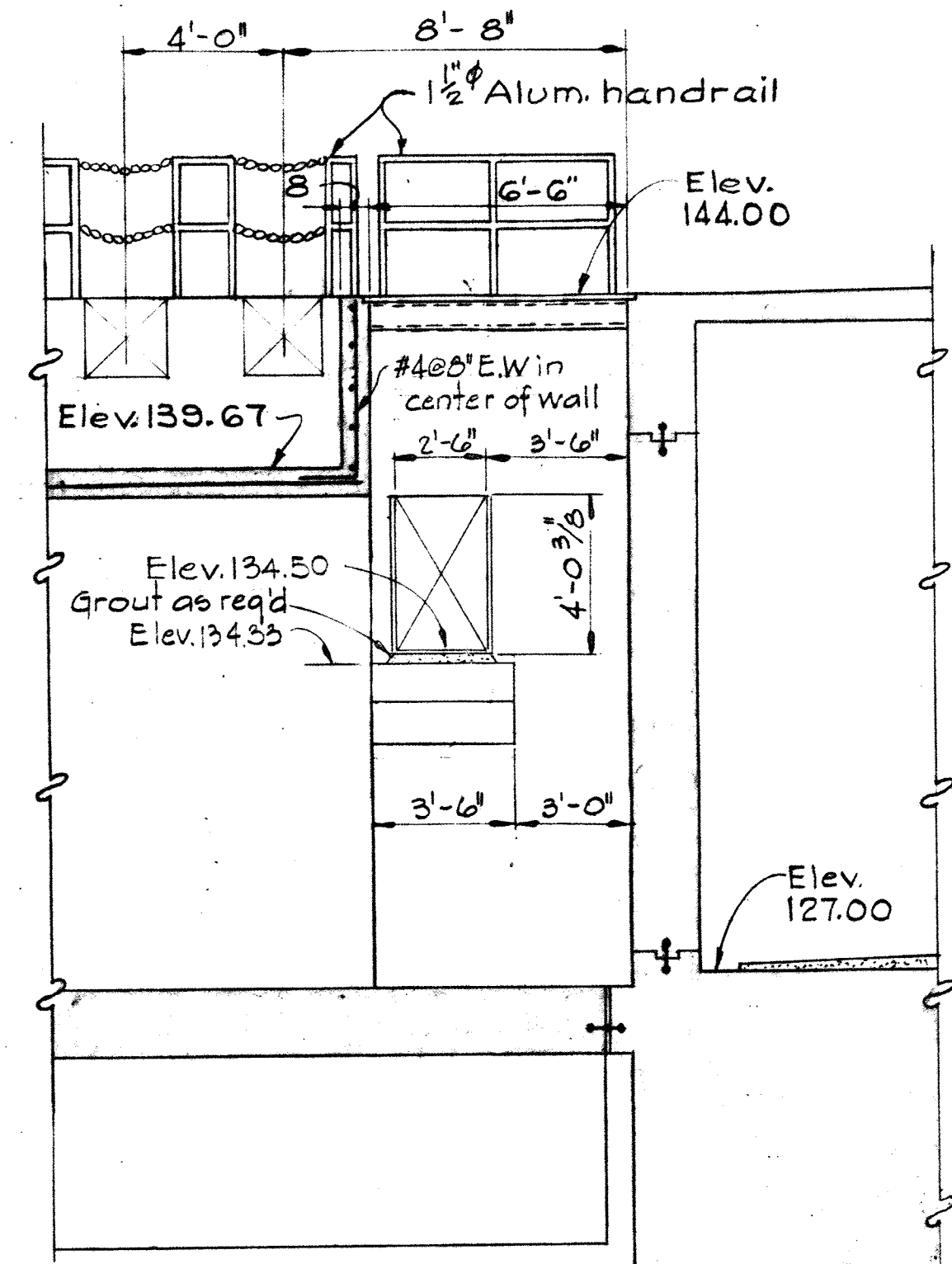
SECTION S18E/S12
Scale: 1/4" = 1'-0"



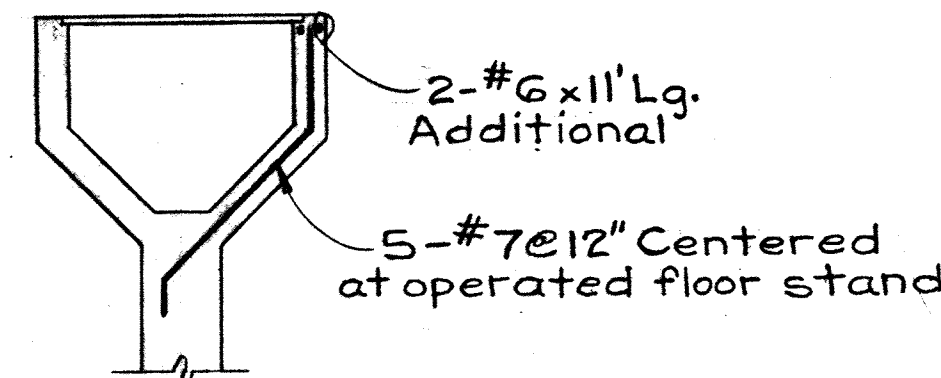
SECTION S18J/S12
Scale: 1/4" = 1'-0"



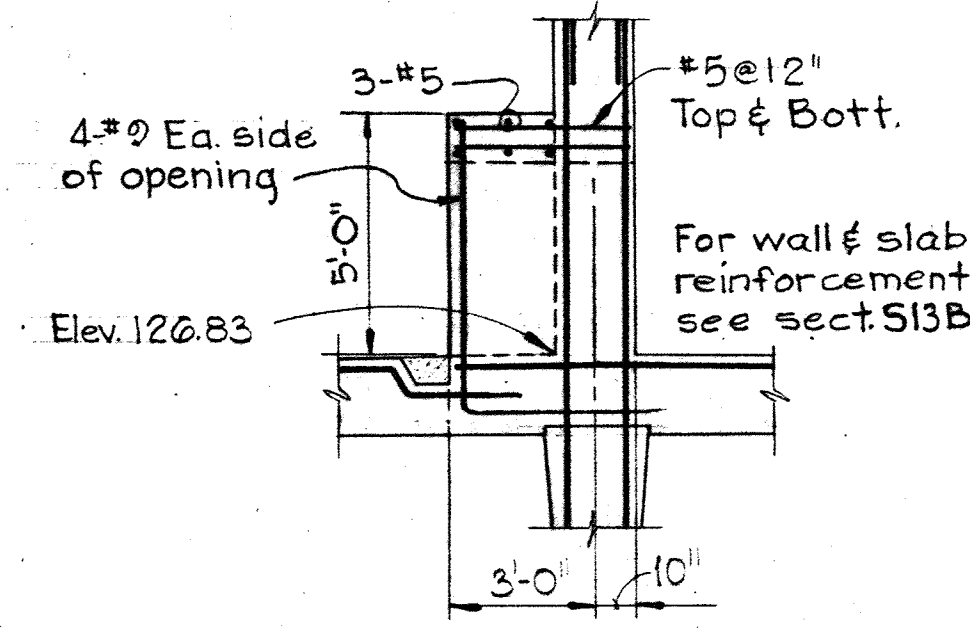
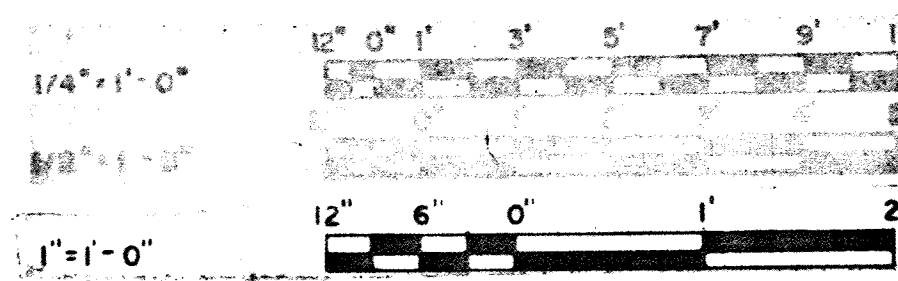
SECTION S18F/S12
Scale: 1/4" = 1'-0"



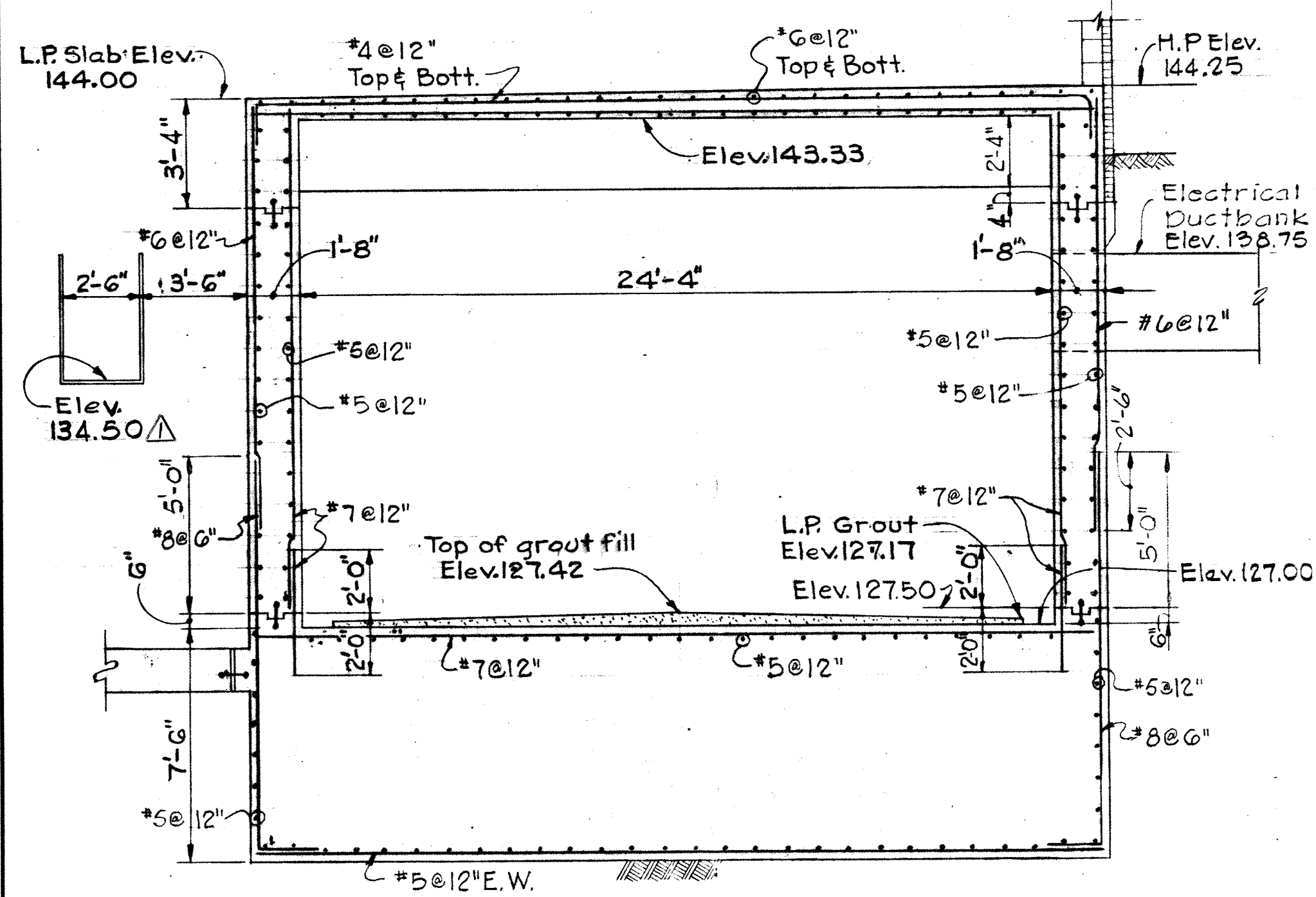
SECTION S18G/S12
Scale: 1/4" = 1'-0"



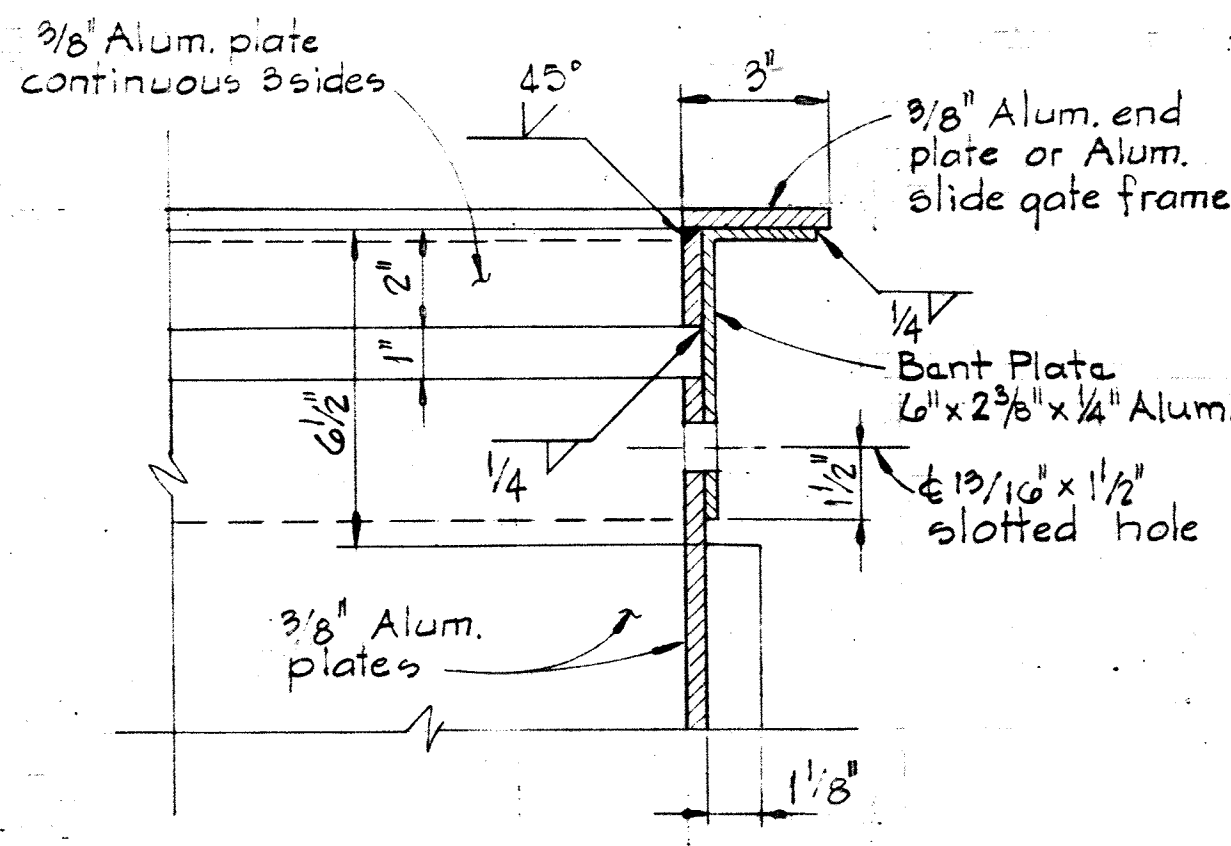
SECTION S18K/S18
Scale: 1/4" = 1'-0"



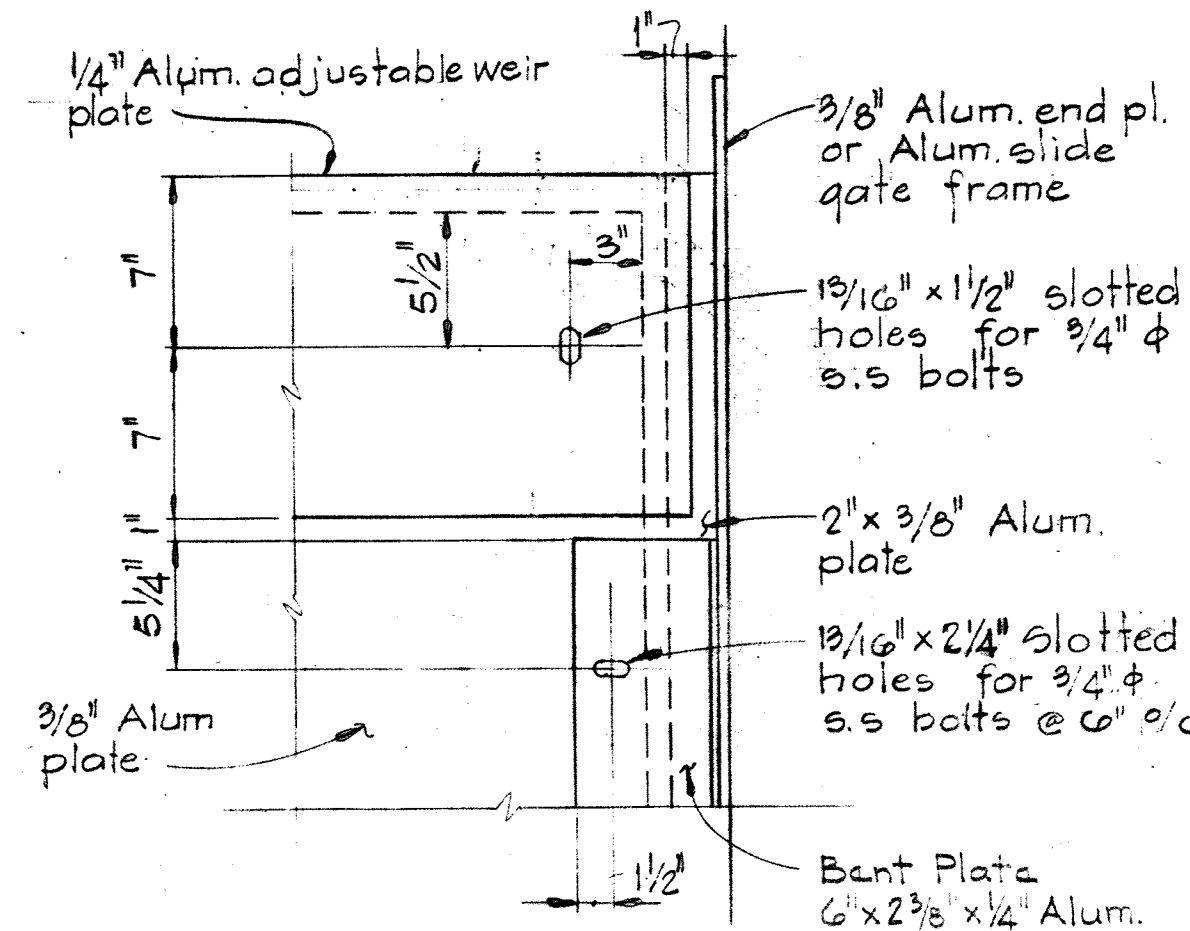
SECTION S18H/S12, S18
Scale: 1/4" = 1'-0"



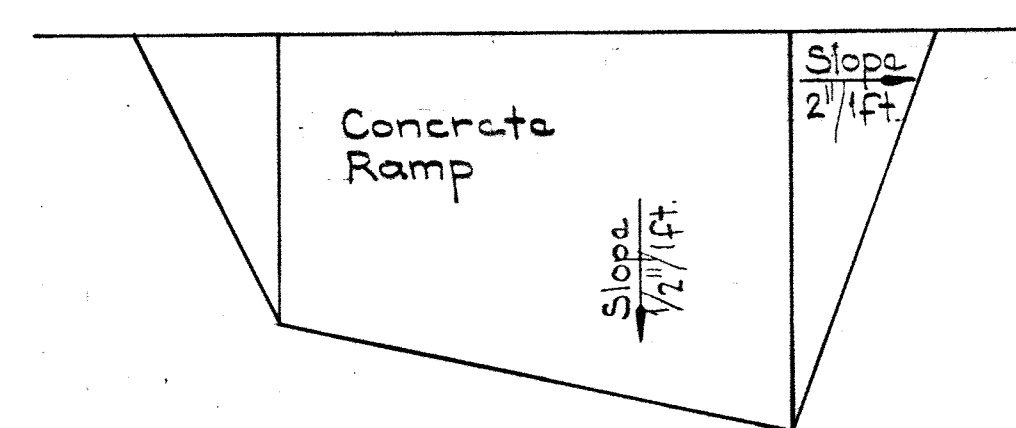
SECTION S18A/S12
Scale: 1/4" = 1'-0"



SECTION S18B/S9
Scale: 3/8" = 1'-0"



SECTION S18C/S9
Scale: 1/2" = 1'-0"



Notes:
1. Slope to match proposed floor elevations.
2. Ramp to be poured monolithically with the slab.

CONCRETE RAMP DETAIL
No Scale

WHITMAN, REQUARDT & ASSOCIATES
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1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/25/15
W.O. Libert
DATE
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

AERATION BASIN NOS. 2 & 3
PIPE GALLERY EAST
SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

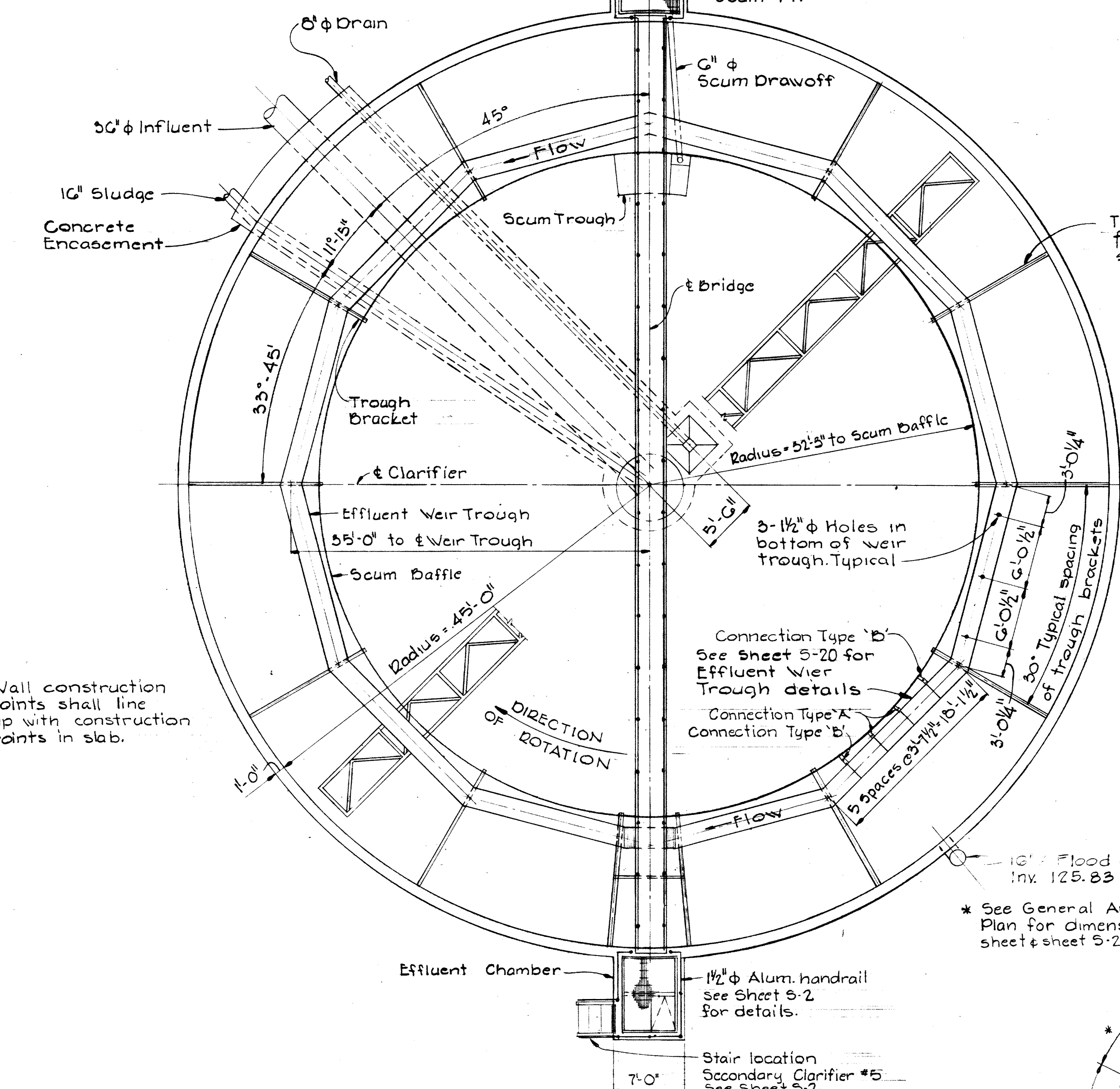
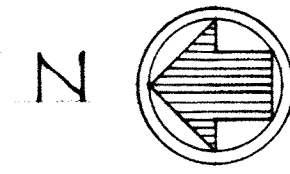
DRAWING
NO. 52
OF 133

SCALE
AS
SHOWN

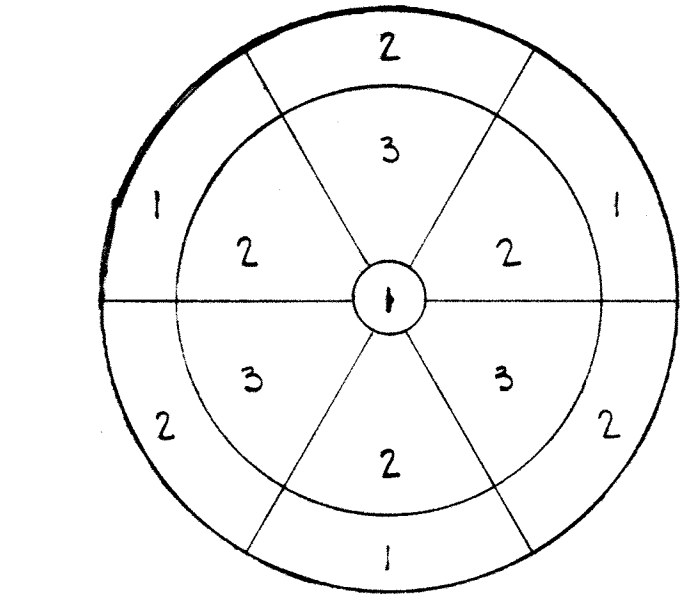
W.O. 6887-2

SHEET S-18

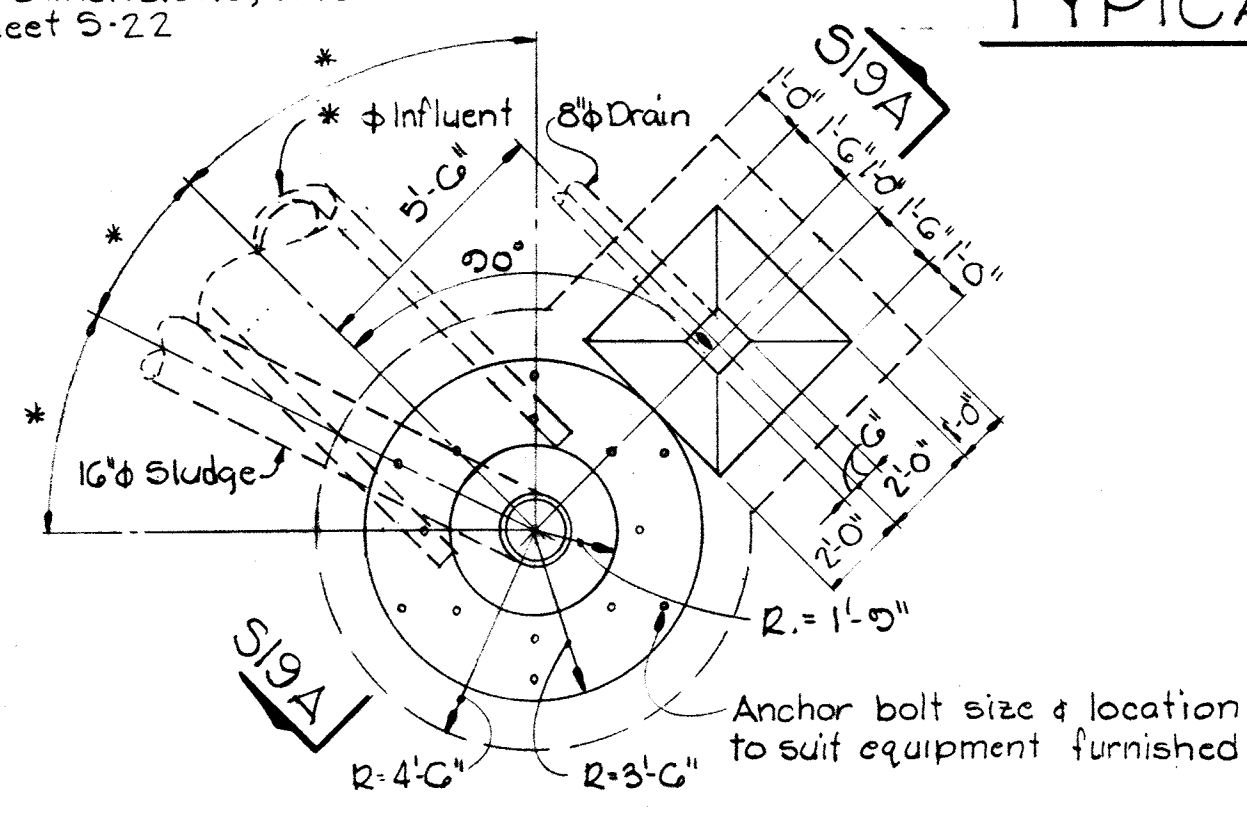
MODIFIED DRAWING-MAY 6, 1982



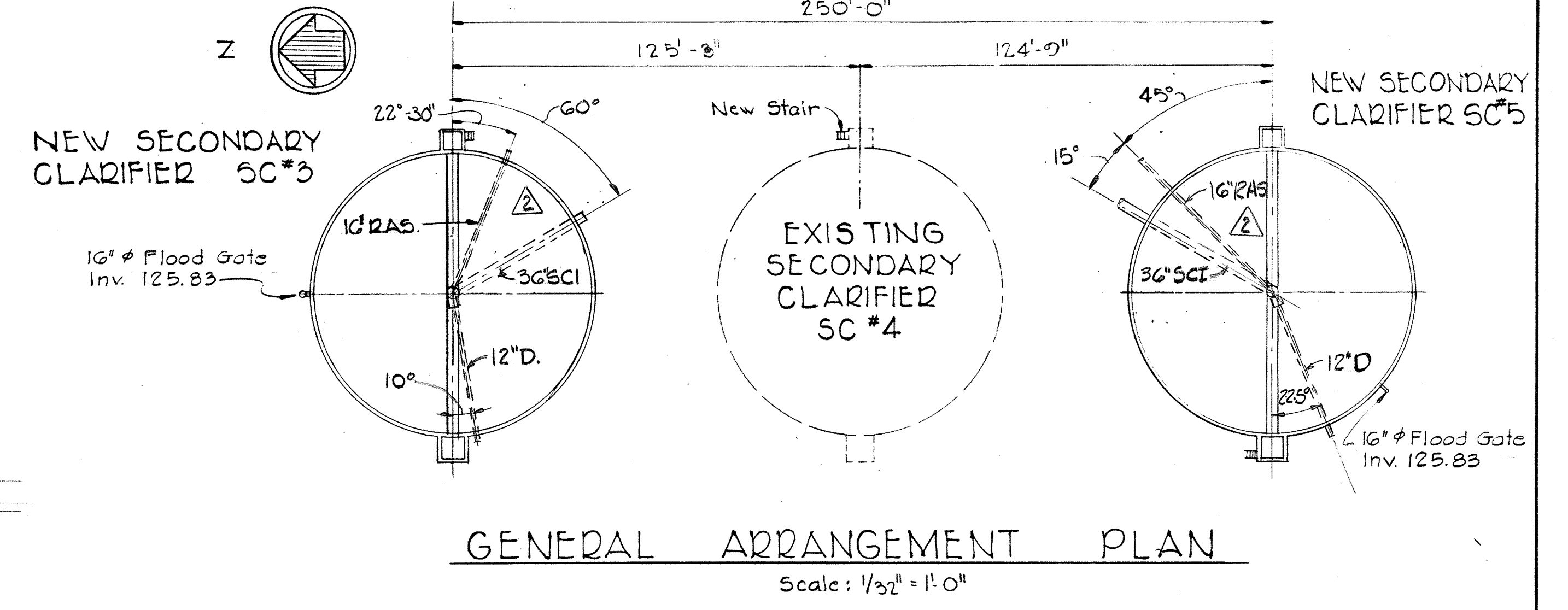
PLAN SECONDARY CLARIFIER
Scale: 1/8" = 1'-0"



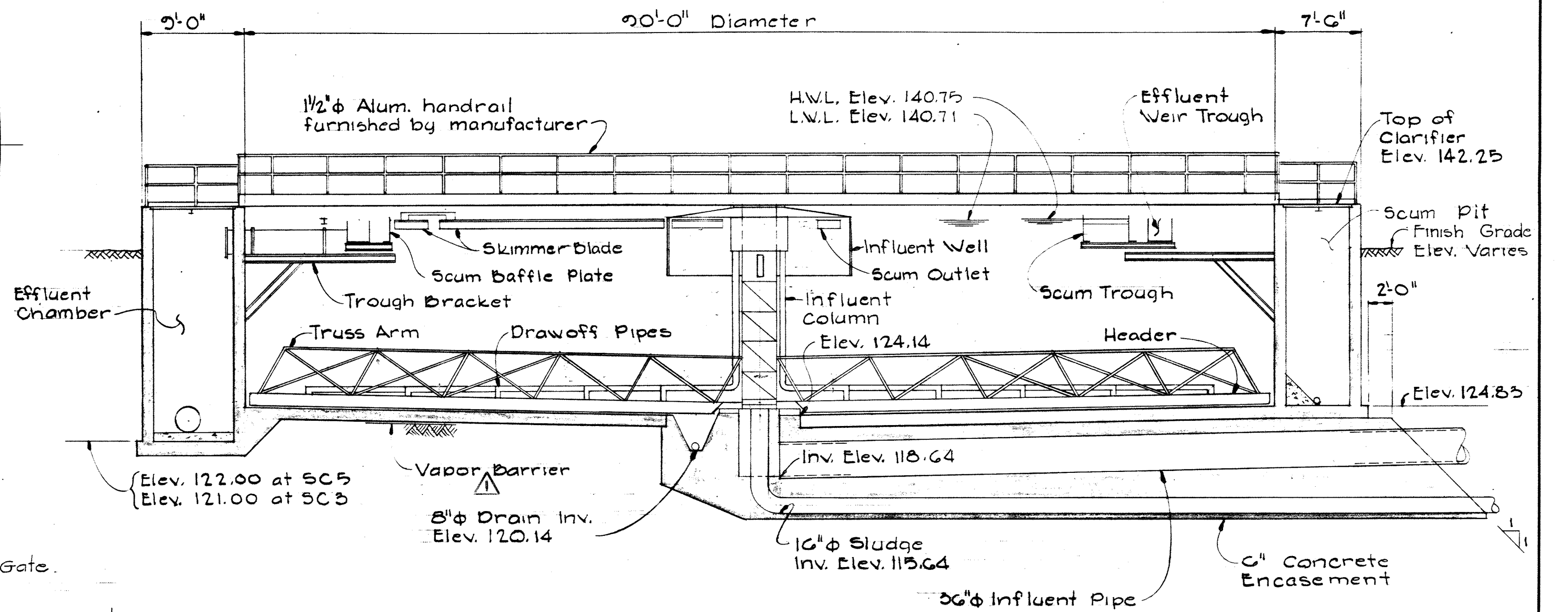
POURING SEQUENCE PLAN
No Scale



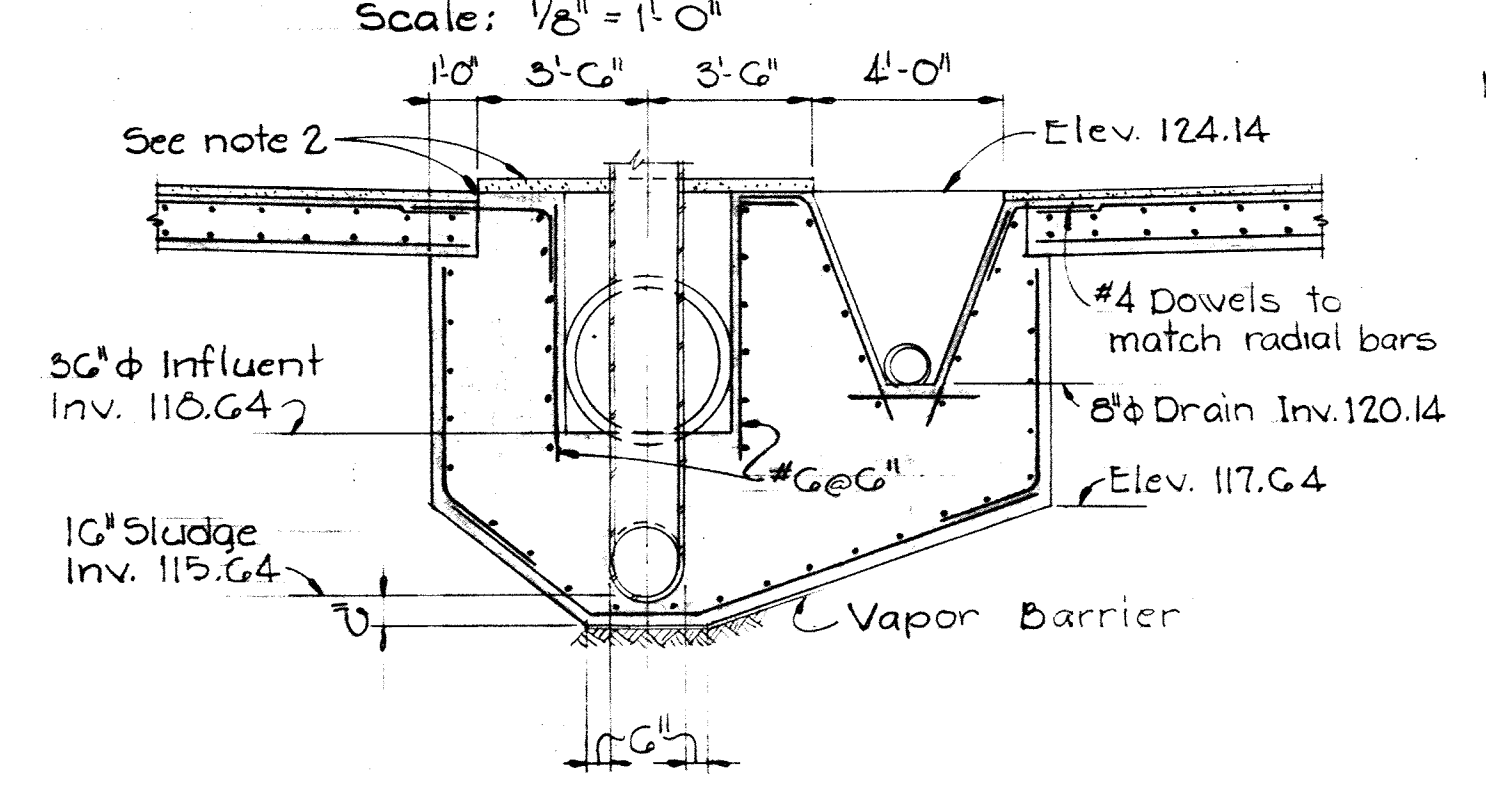
PART PLAN - CENTER PIER
SECONDARY CLARIFIERS #3 & #5
NITRIFICATION CLARIFIERS #1, #2, #3 & #4
Scale: 1/4" = 1'-0"



GENERAL ARRANGEMENT PLAN
Scale: 1/32" = 1'-0"

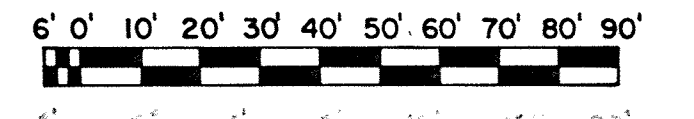
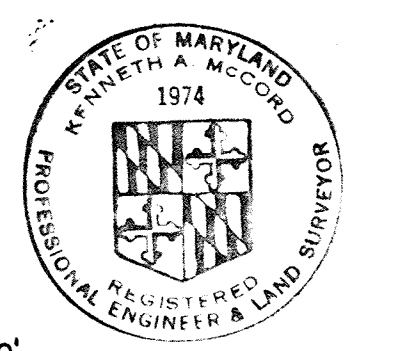


TYPICAL SECTION THRU CLARIFIER
Scale: 1/8" = 1'-0"



SECTION 519A/519
Scale: 1/4" = 1'-0"

- NOTES**
1. All reinforcement to be #5@12" each way each face unless otherwise noted.
 2. All elevations to be determined by contractor to suit equipment furnished.



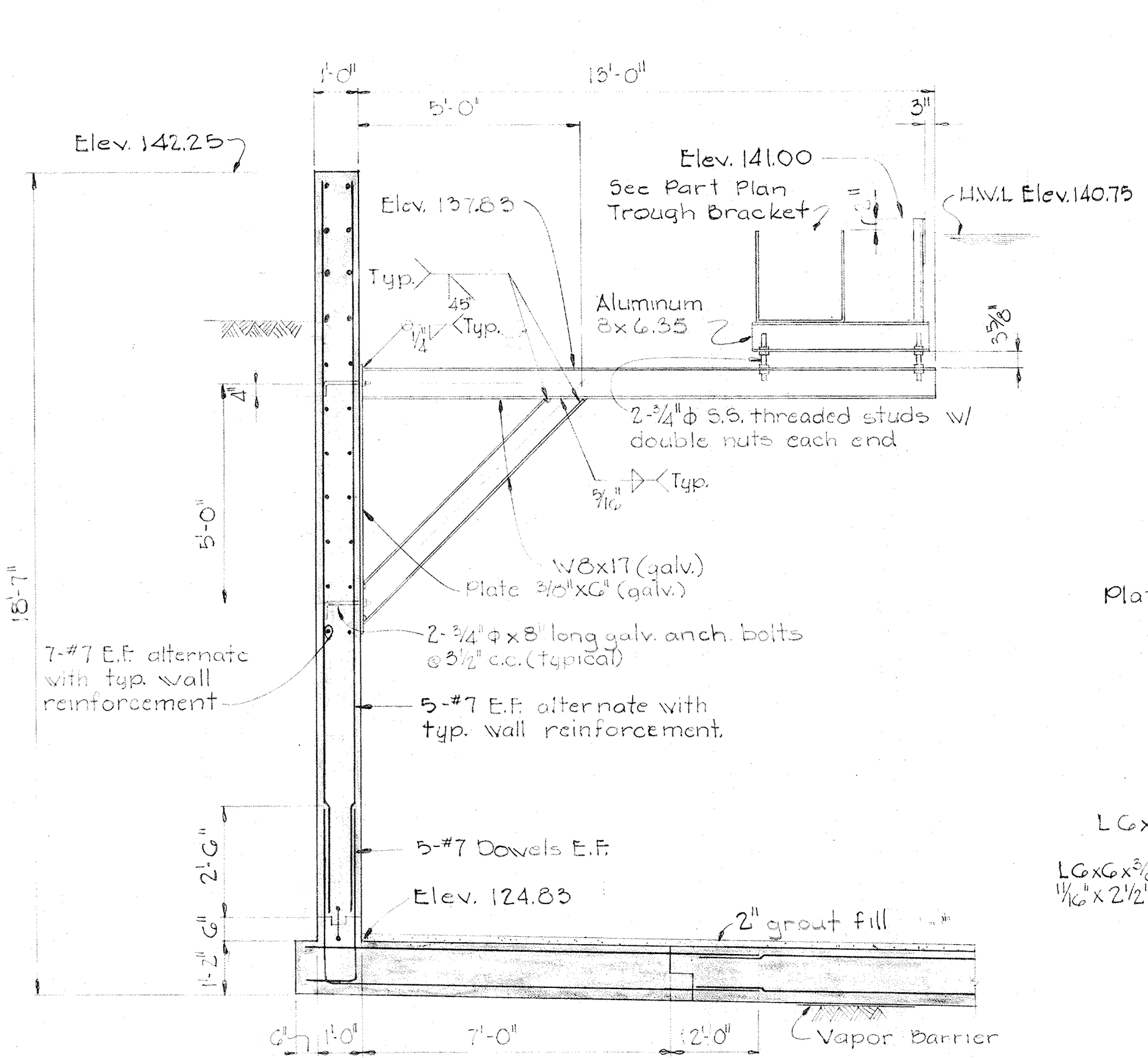
WHITMAN, REQUARD & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE <i>W.O. Albert</i> CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	SECONDARY CLARIFIERS NOS. 3 & 5 PLANS & SECTIONS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 53 OF 133 SCALE AS SHOWN
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W. O. 6887-2

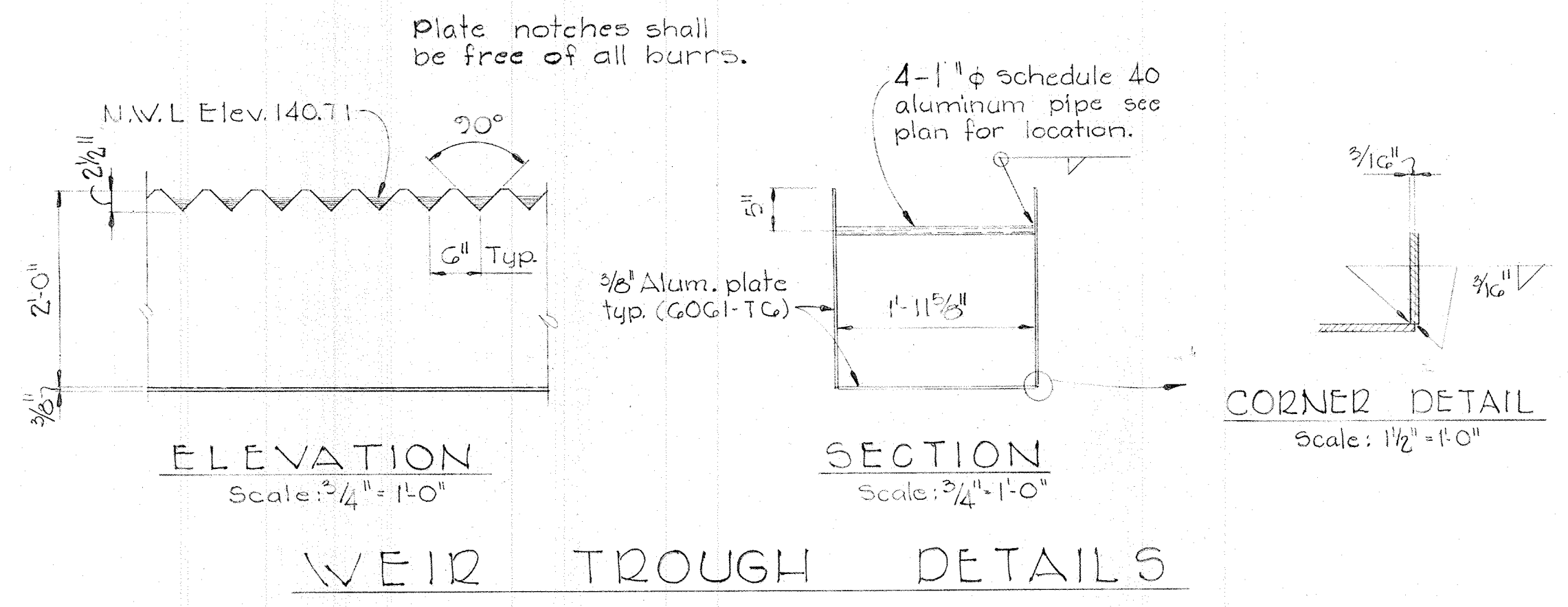
SHEET S-19
MODIFIED DRAWING - MAY 6, 1982

BRUNING 44510 32872

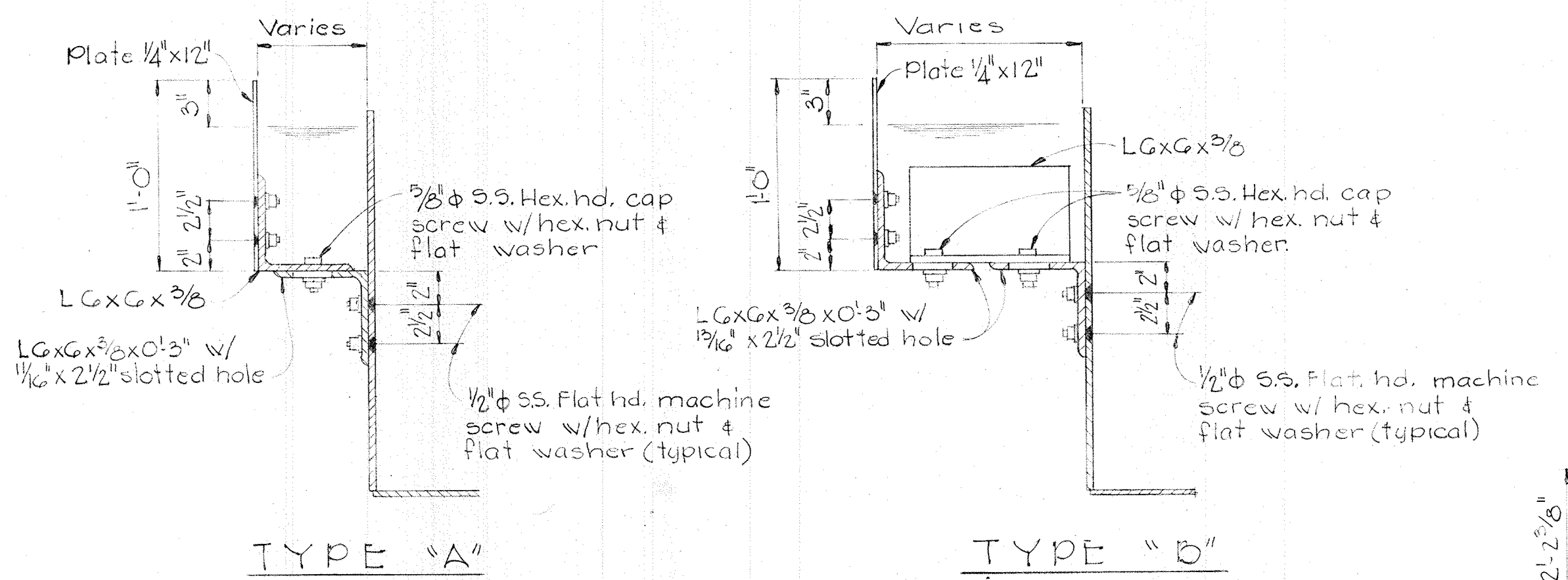
Note:
At Nitrification Clarifiers
#1, #2, #3 & #4 provide alum. scum
baffle plate extra. Bend on
36" radius. Provide connection
detail similar to Section S20B.



TYPICAL TROUGH BRACKET
Scale: 3/8" = 1'-0"

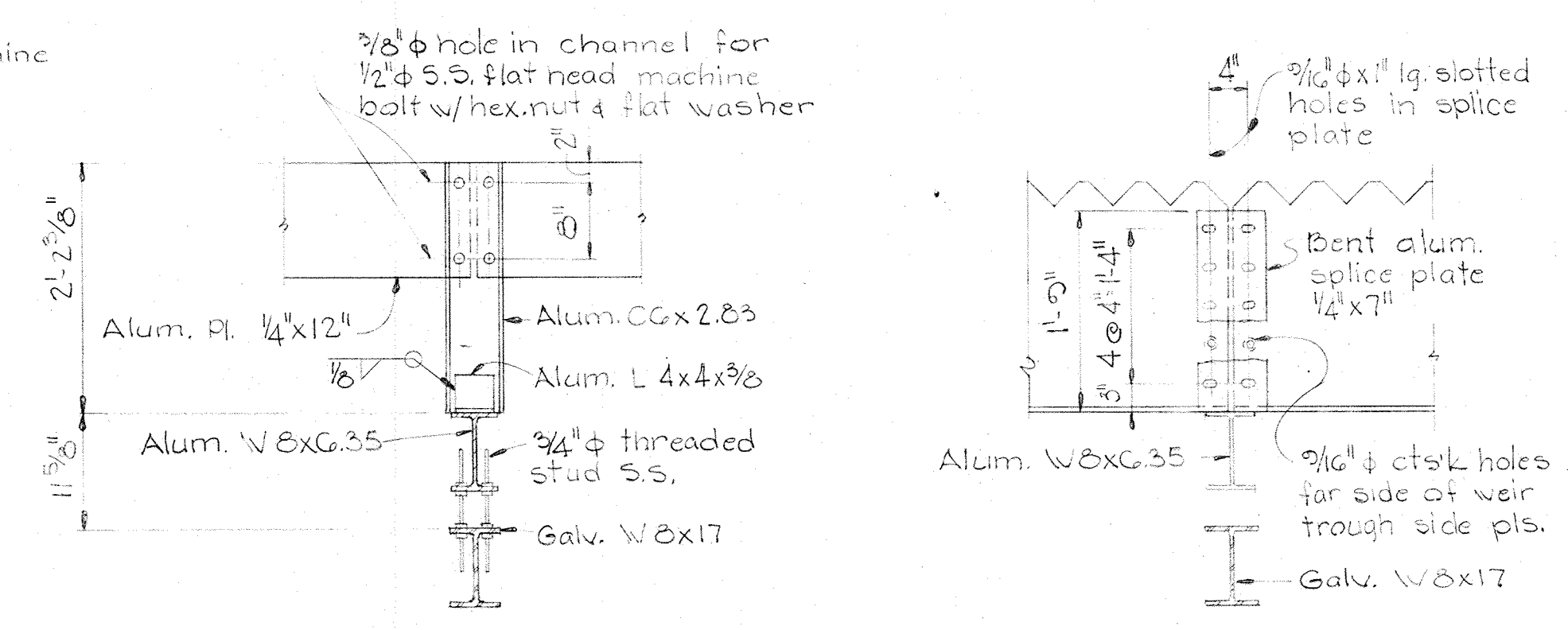


WEIR TROUGH DETAILS

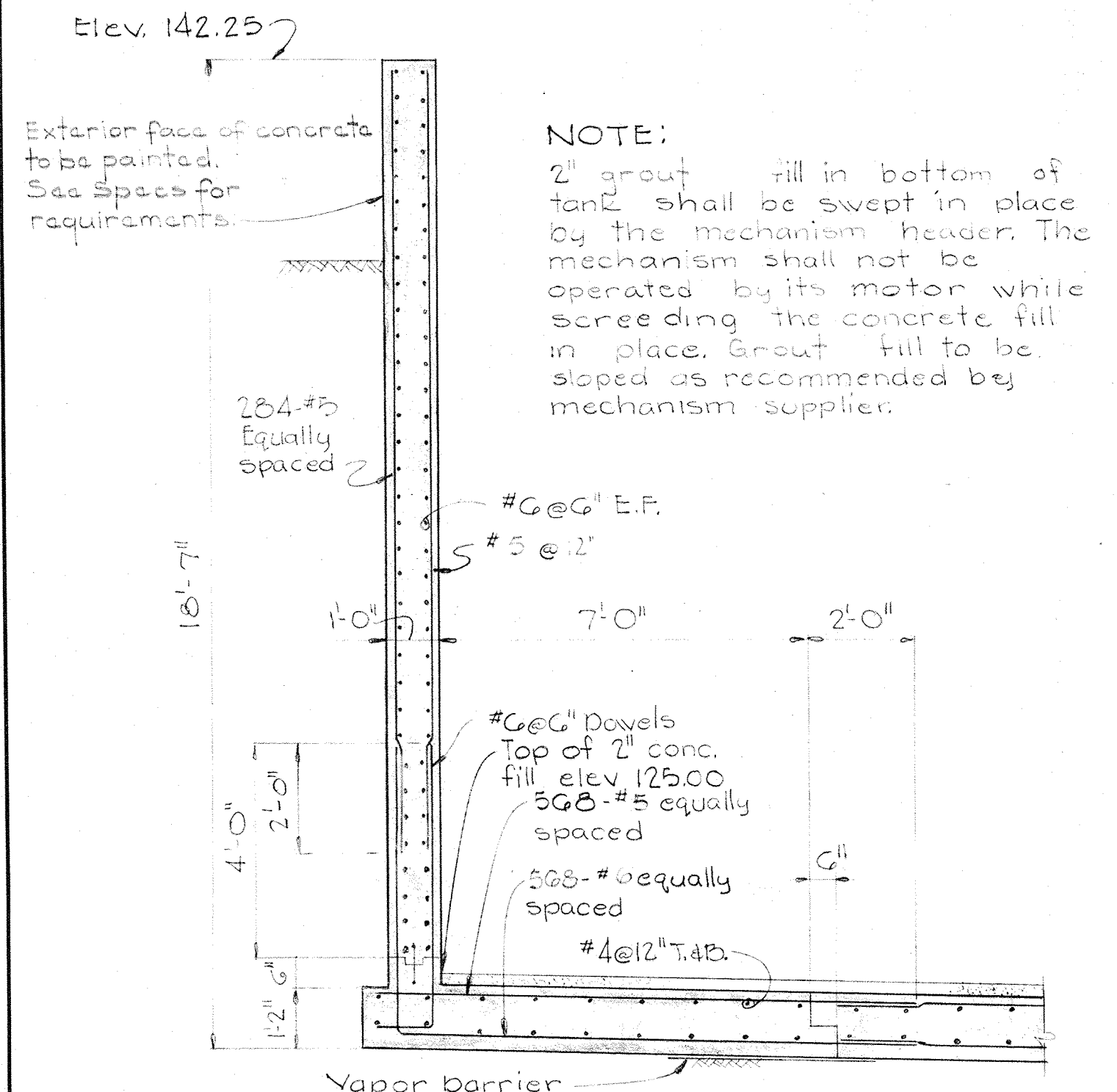


SCUM BAFFLE CONNECTION DETAILS
Scale: 1/2" = 1'-0"
All angles & plate sections to be aluminum alloy 6061-T6

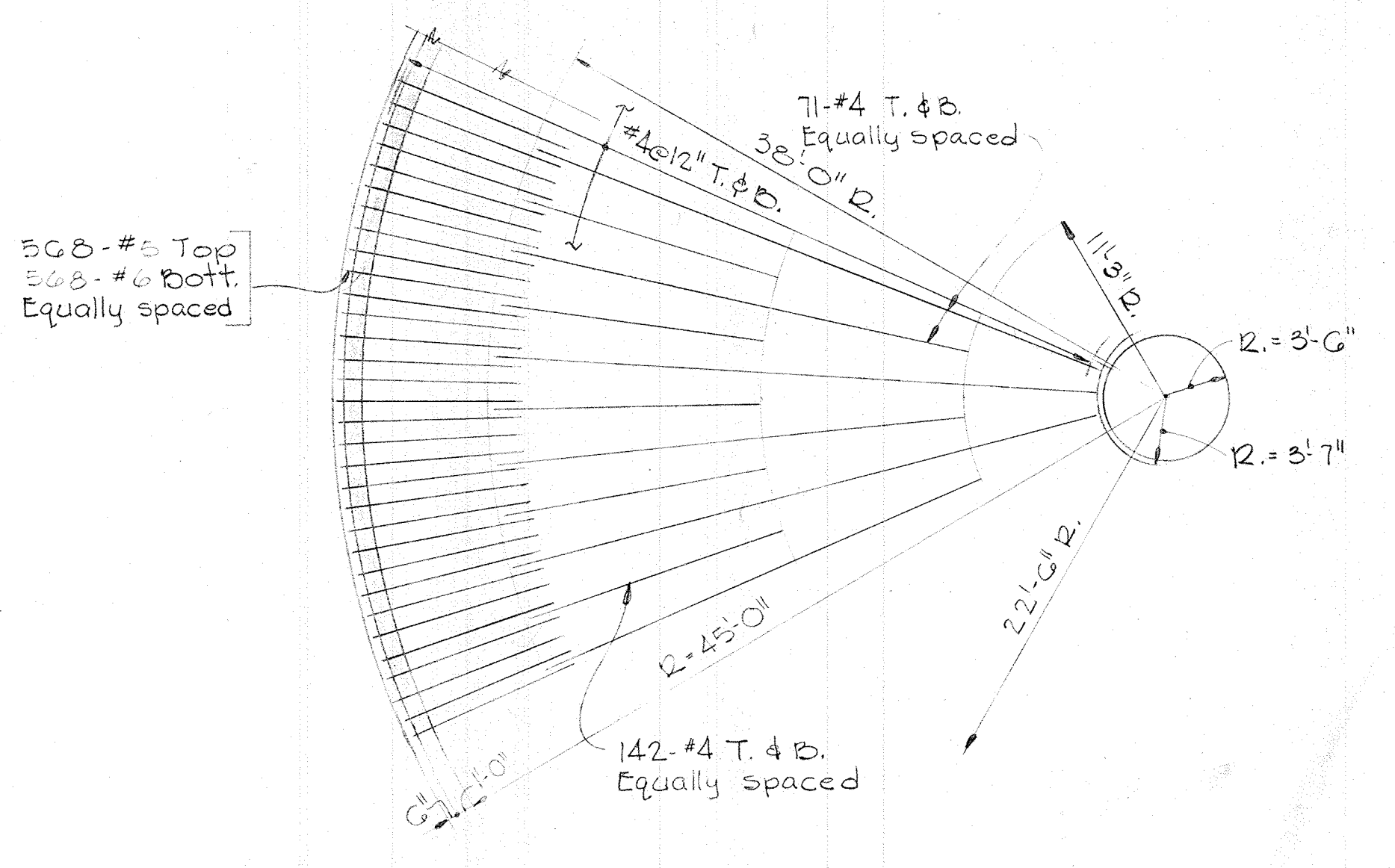
PART PLAN TROUGH BRACKET
Scale: 3/4" = 1'-0"



SECTION S20A/S20 Scale: 3/4" = 1'-0"
SECTION S20B/S20 Scale: 3/4" = 1'-0"

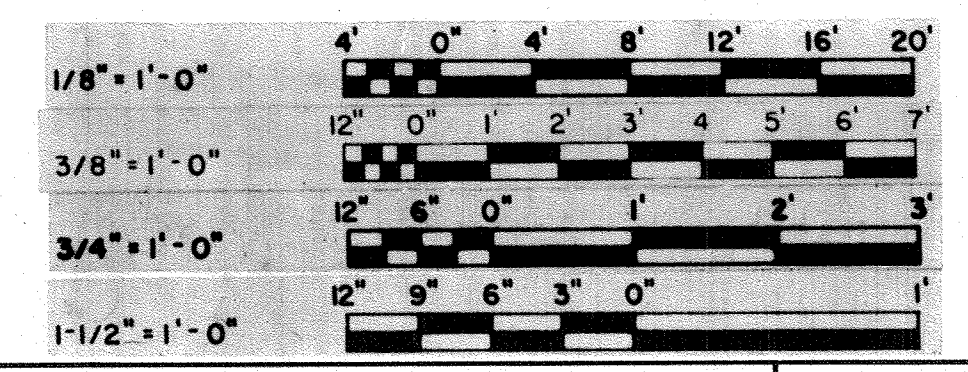


TYPICAL WALL SECTION
Scale: 3/8" = 1'-0"

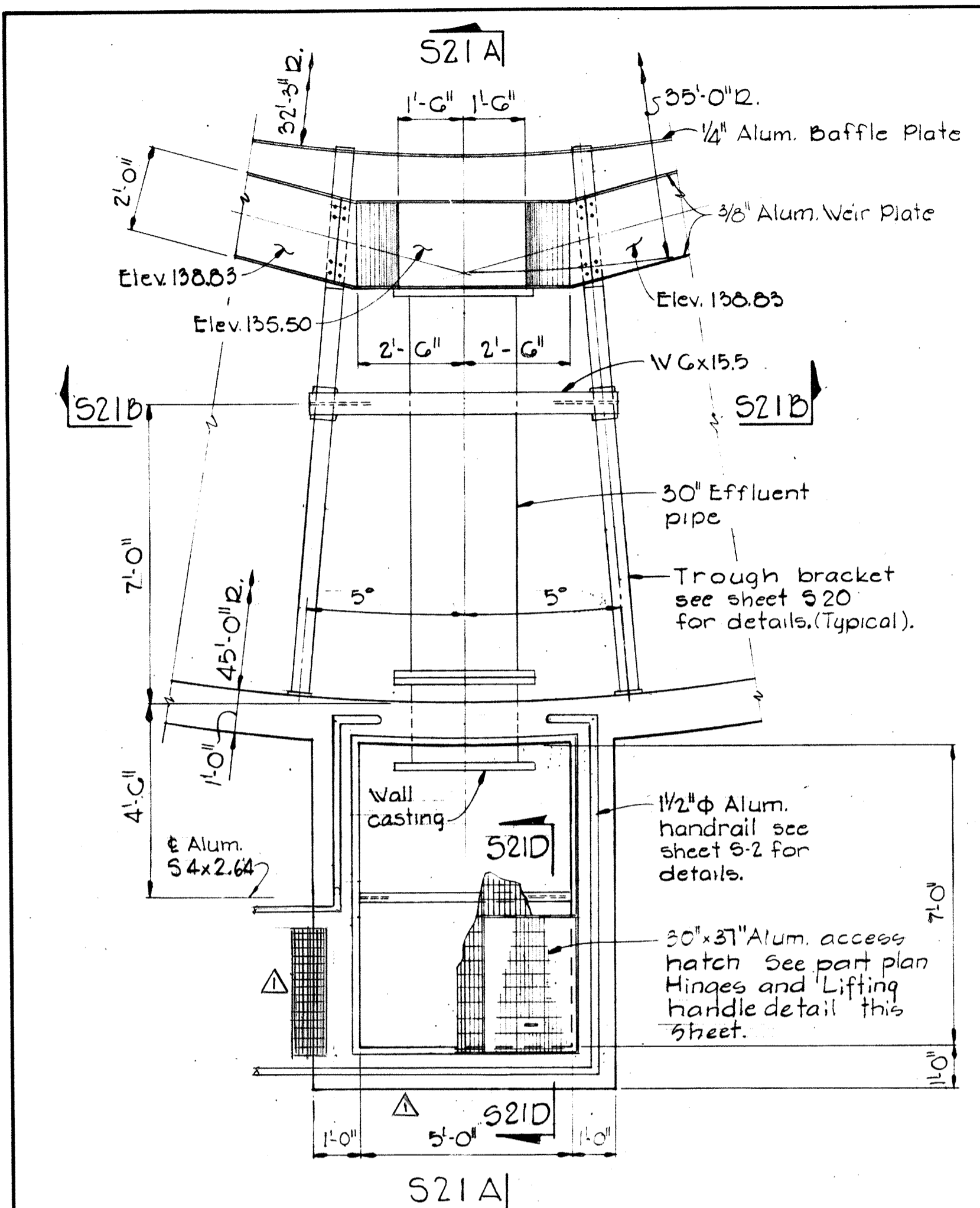


PART PLAN BOTTOM SLAB REINFORCEMENT
Scale: 1/8" = 1'-0"

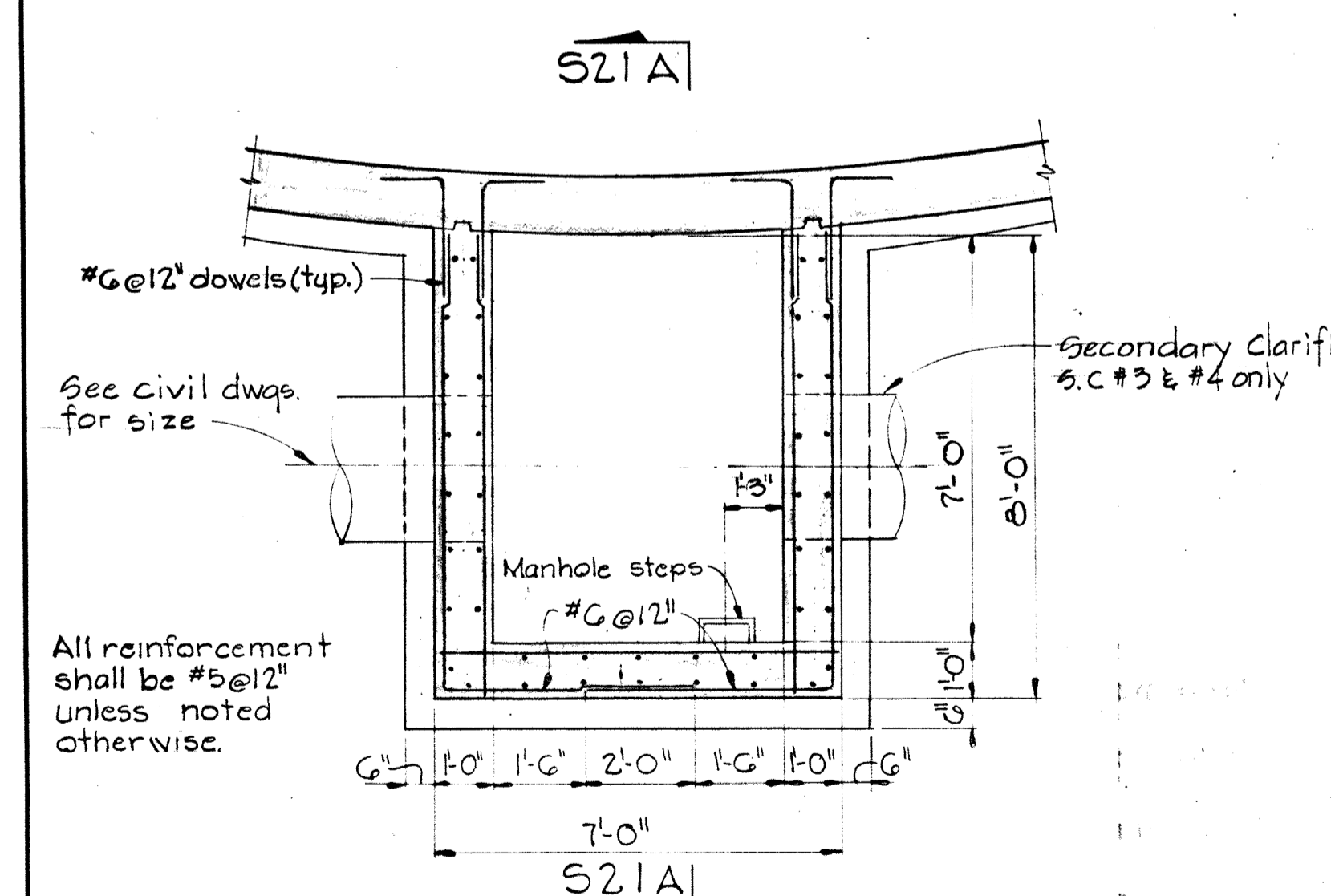
Note: Bottom slab reinf. typical for secondary clarifiers & nitrification clarifiers.



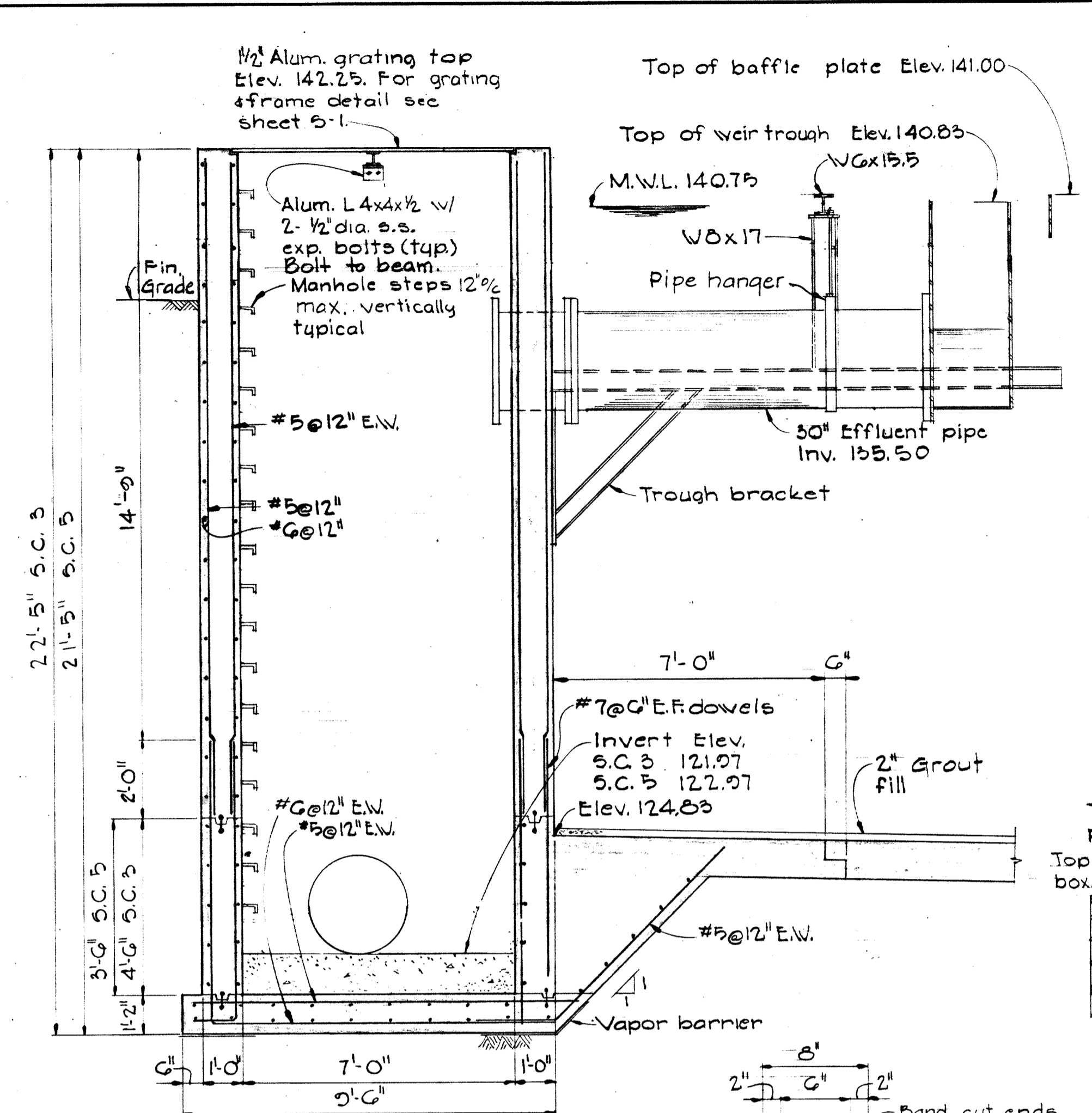
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE	CONTRACT NO. 500-S	SECONDARY CLARIFIERS NOS. 3 & 5 SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 54 OF 133	SCALE AS SHOWN
					SHEET S-20	



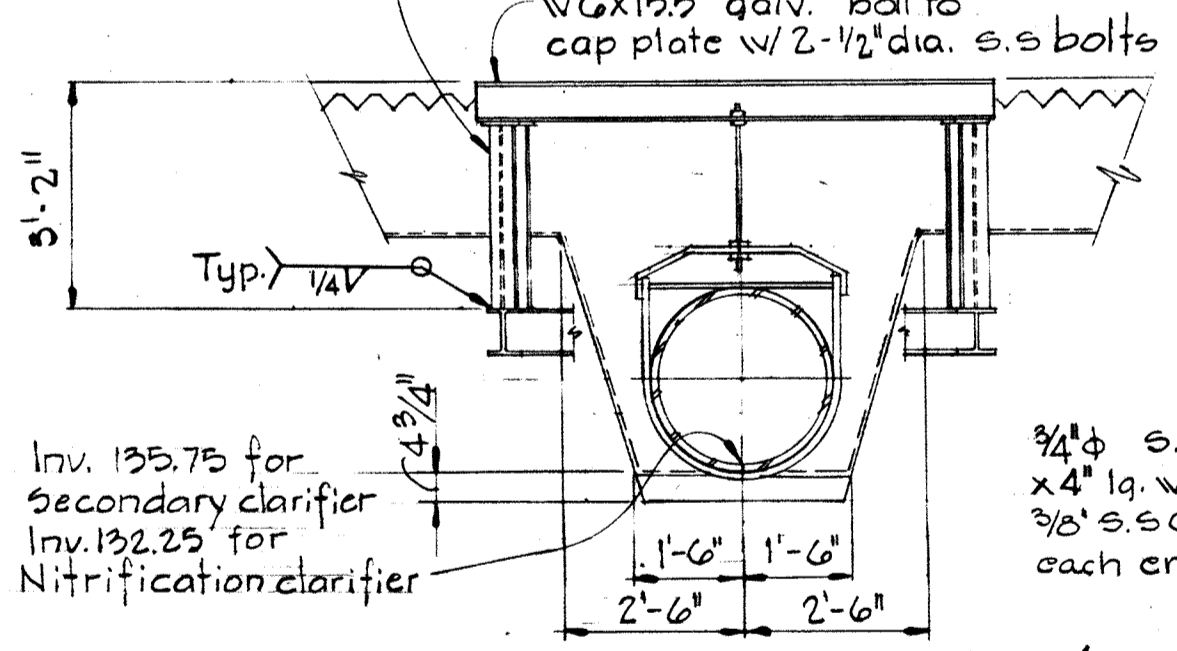
TOP PLAN EFFLUENT CHAMBER
Scale: 3/8" = 1'-0"



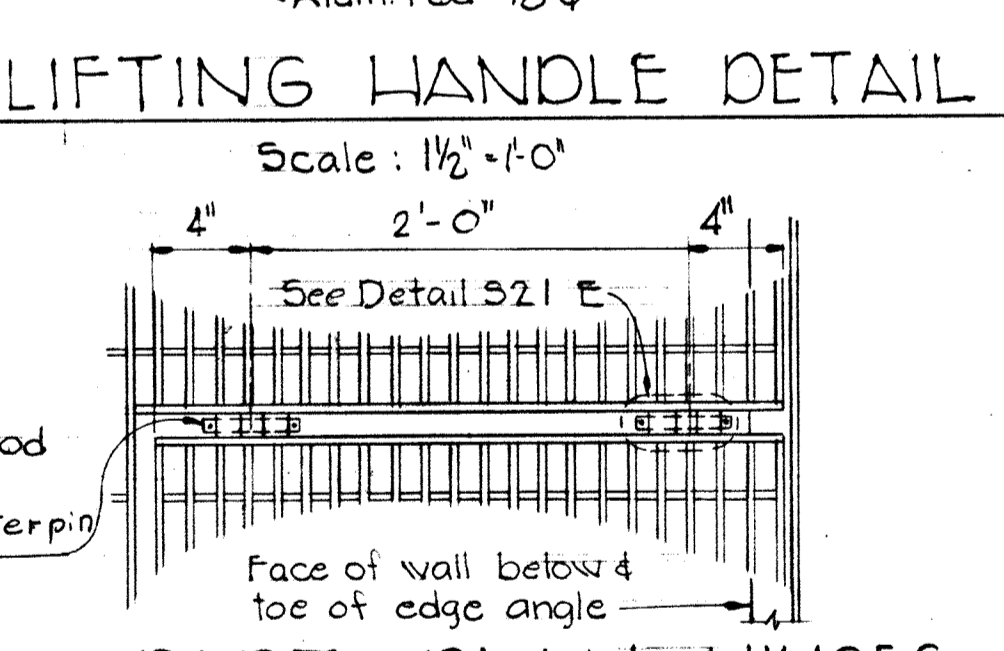
LOWER PLAN EFFLUENT CHAMBER
Scale: 3/8" = 1'-0"



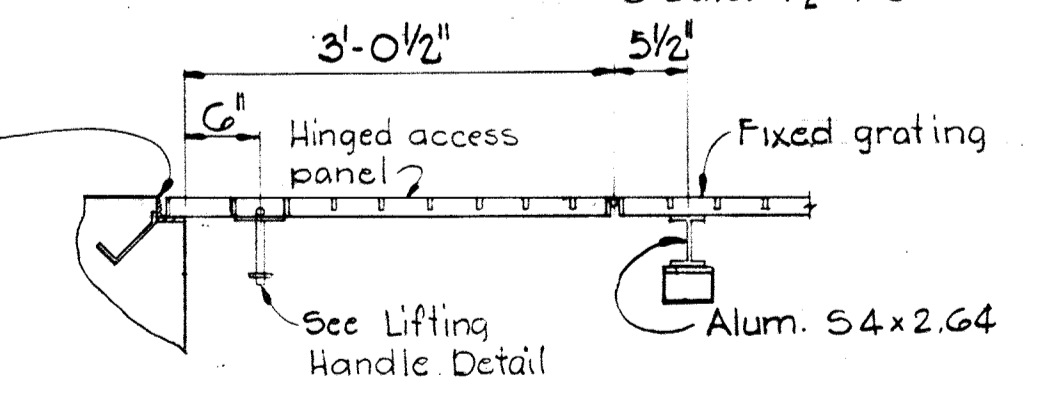
SECTION S21A/S21
Scale: 3/8" = 1'-0"



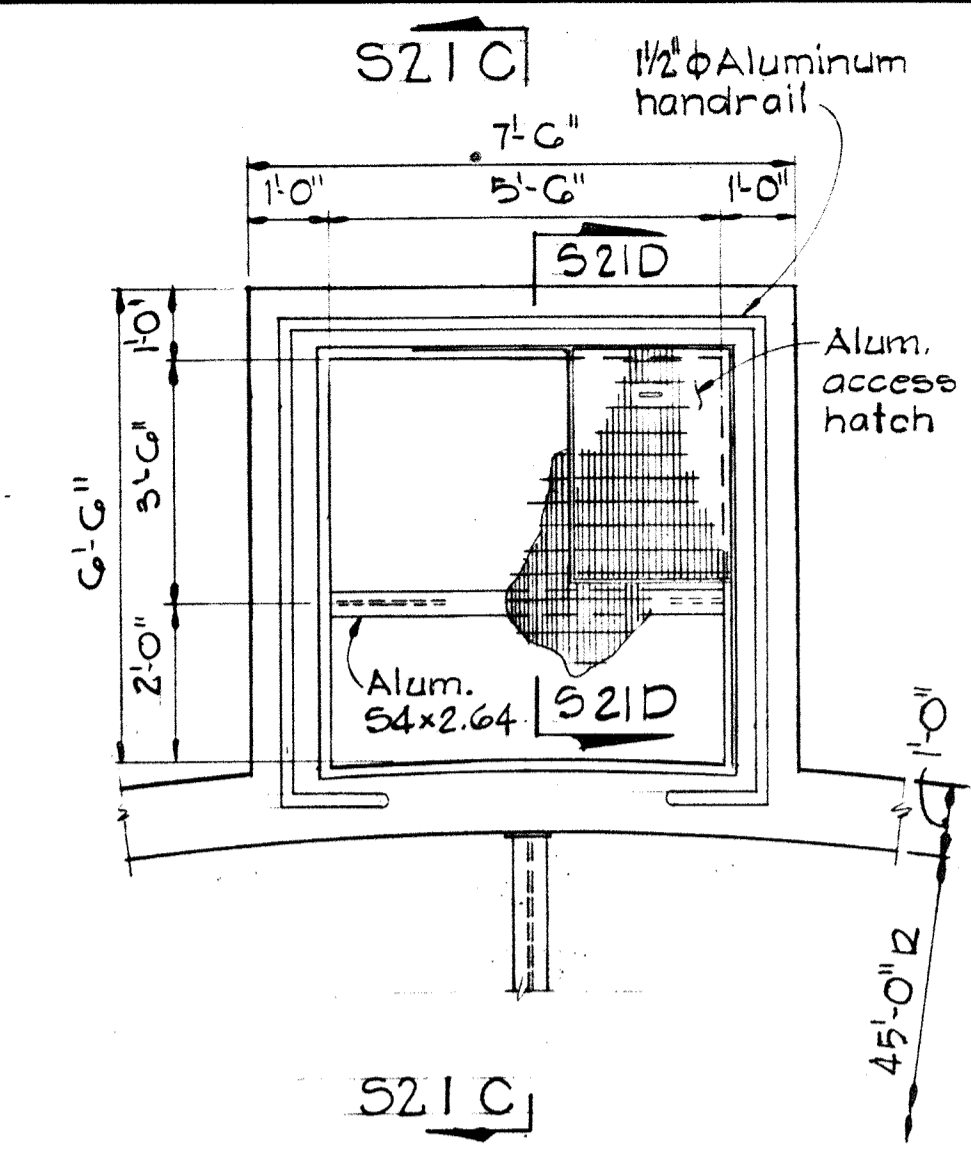
SECTION S21B/S21
Scale: 3/8" = 1'-0"



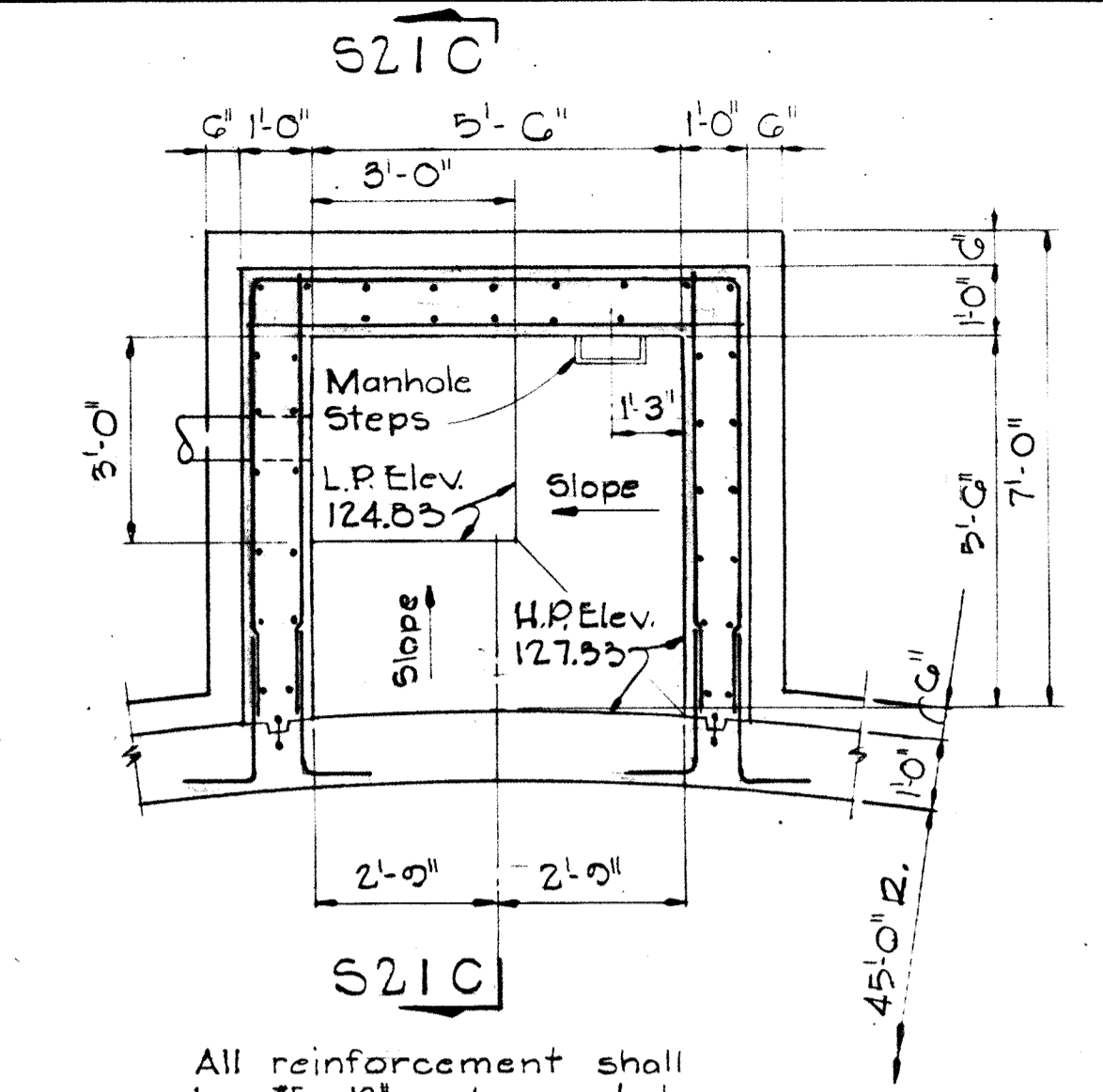
PART PLAN HINGES
Scale: 1/2" = 1'-0"



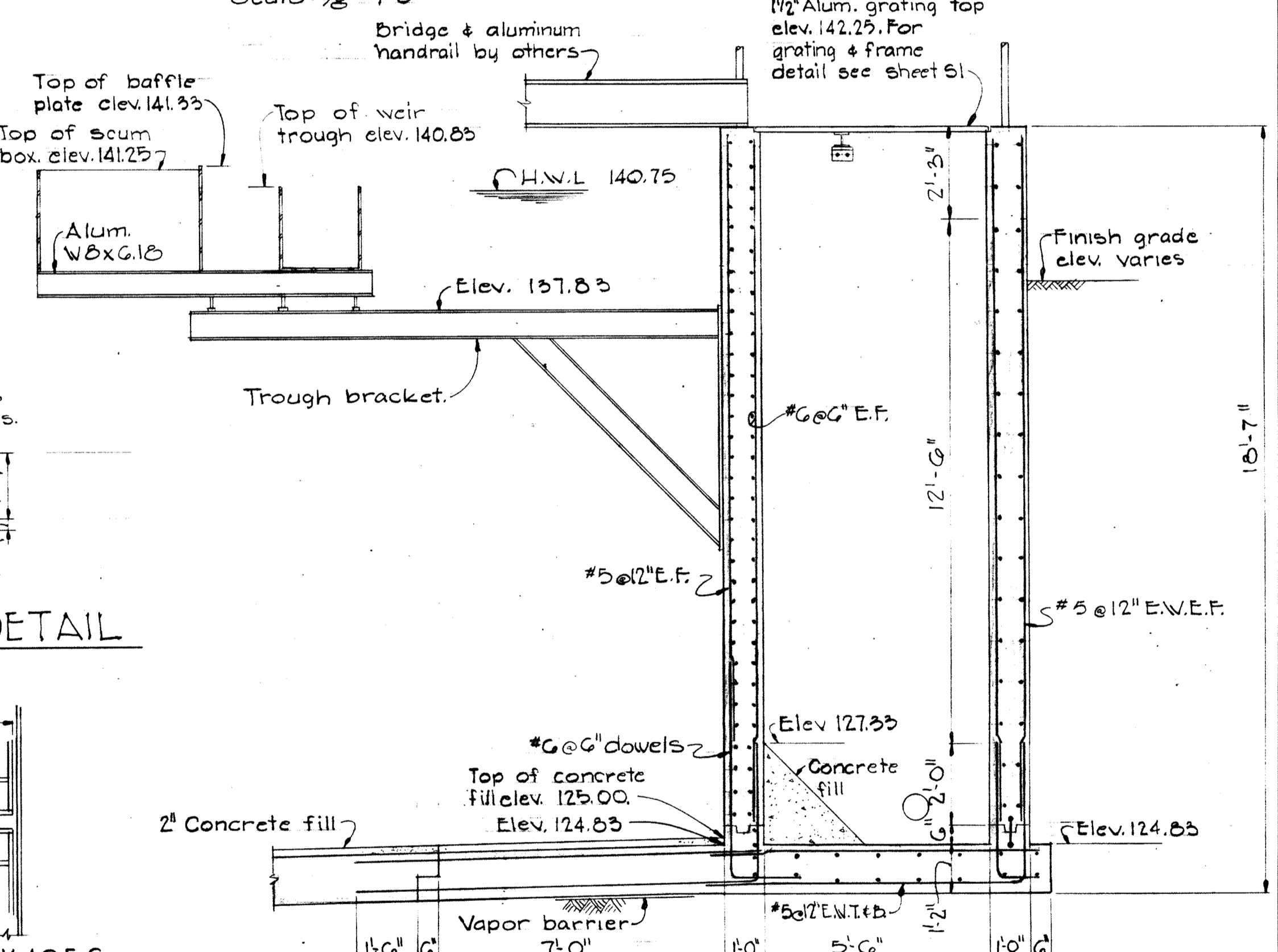
SECTION S21D/S21
Scale: 3/4" = 1'-0"



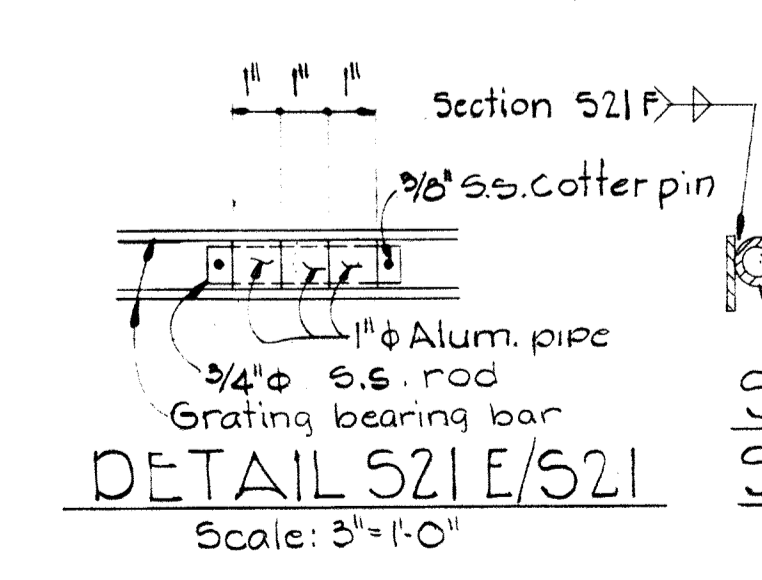
TOP PLAN SCUM PIT
Scale: 3/8" = 1'-0"



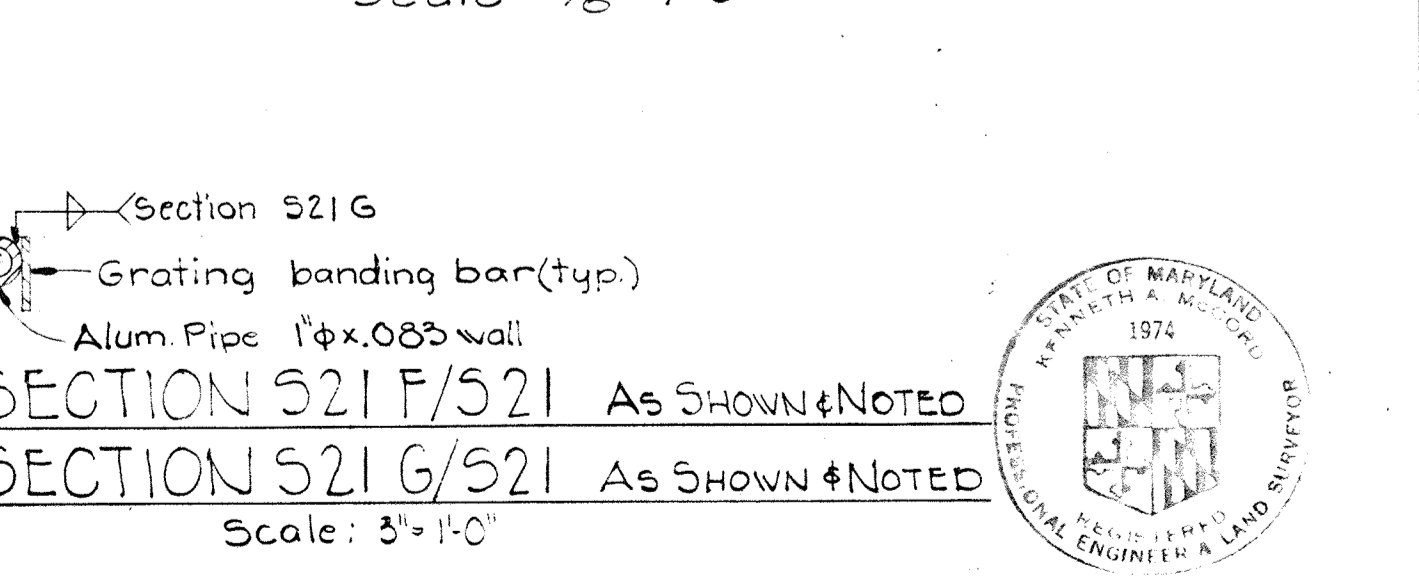
LOWER PLAN-SCUM PIT
Scale: 3/8" = 1'-0"



SECTION S21C/S21
Scale: 3/8" = 1'-0"



DETAIL S21E/S21
Scale: 3/4" = 1'-0"

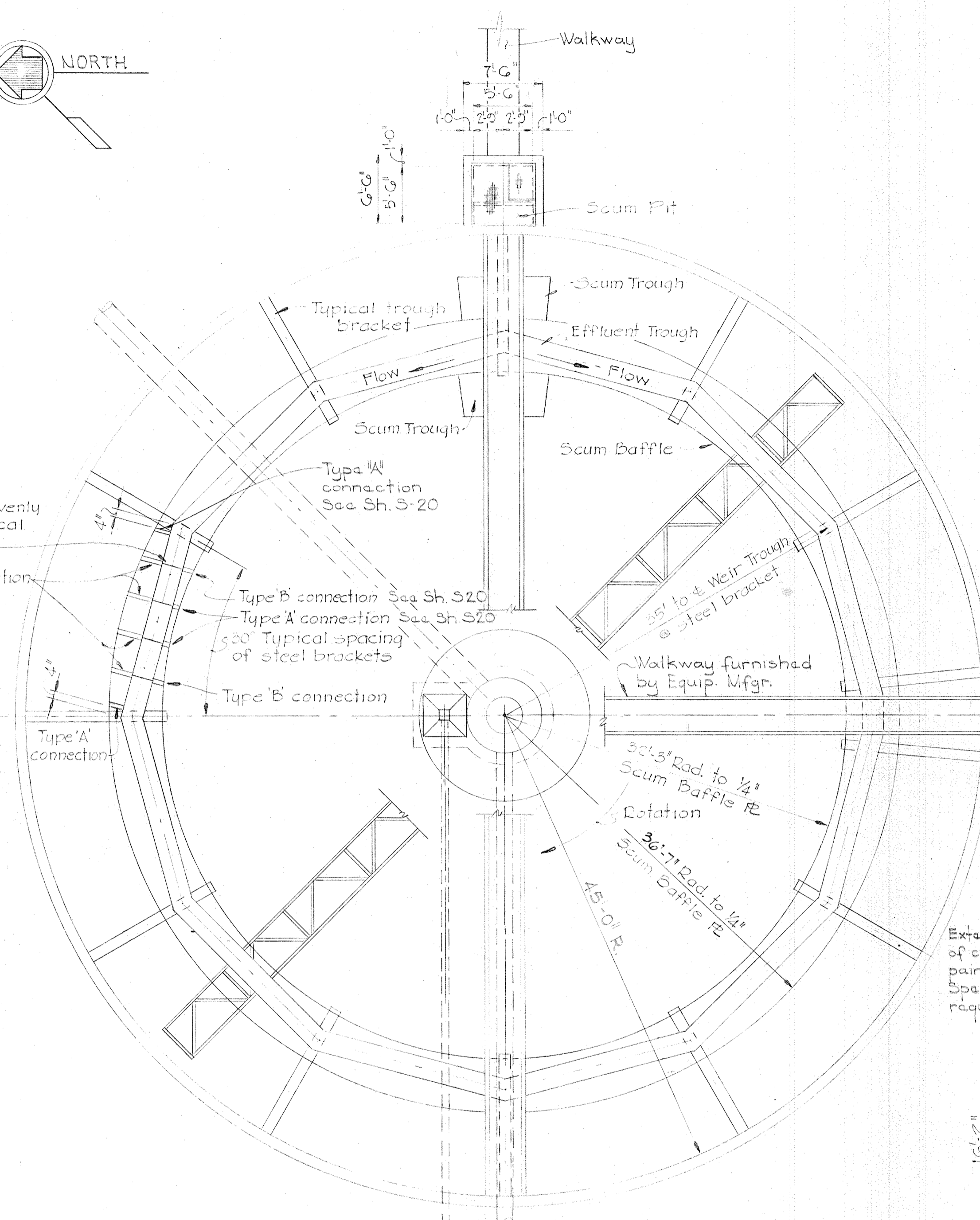


SECTION S21F/S21 AS SHOWN & NOTED
SECTION S21G/S21 AS SHOWN & NOTED
Scale: 3/4" = 1'-0"

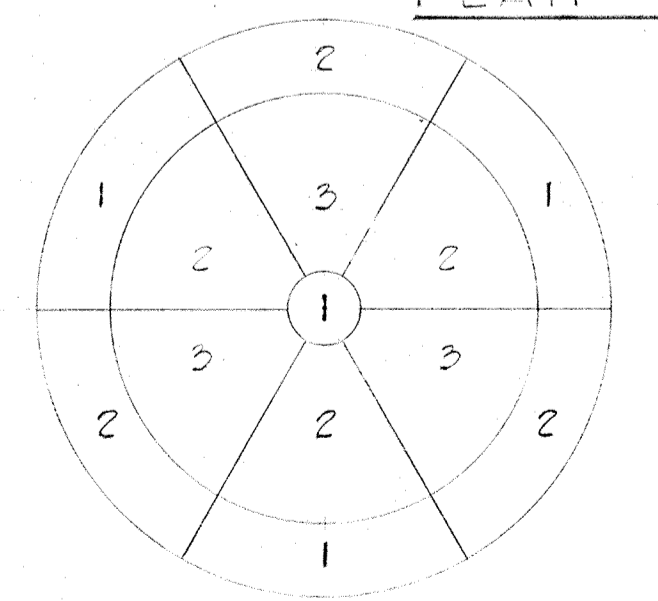
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE W.O. Gilbert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	SECONDARY CLARIFIERS NOS. 3 & 5 SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 55 OF 133 SCALE AS SHOWN
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Const. North

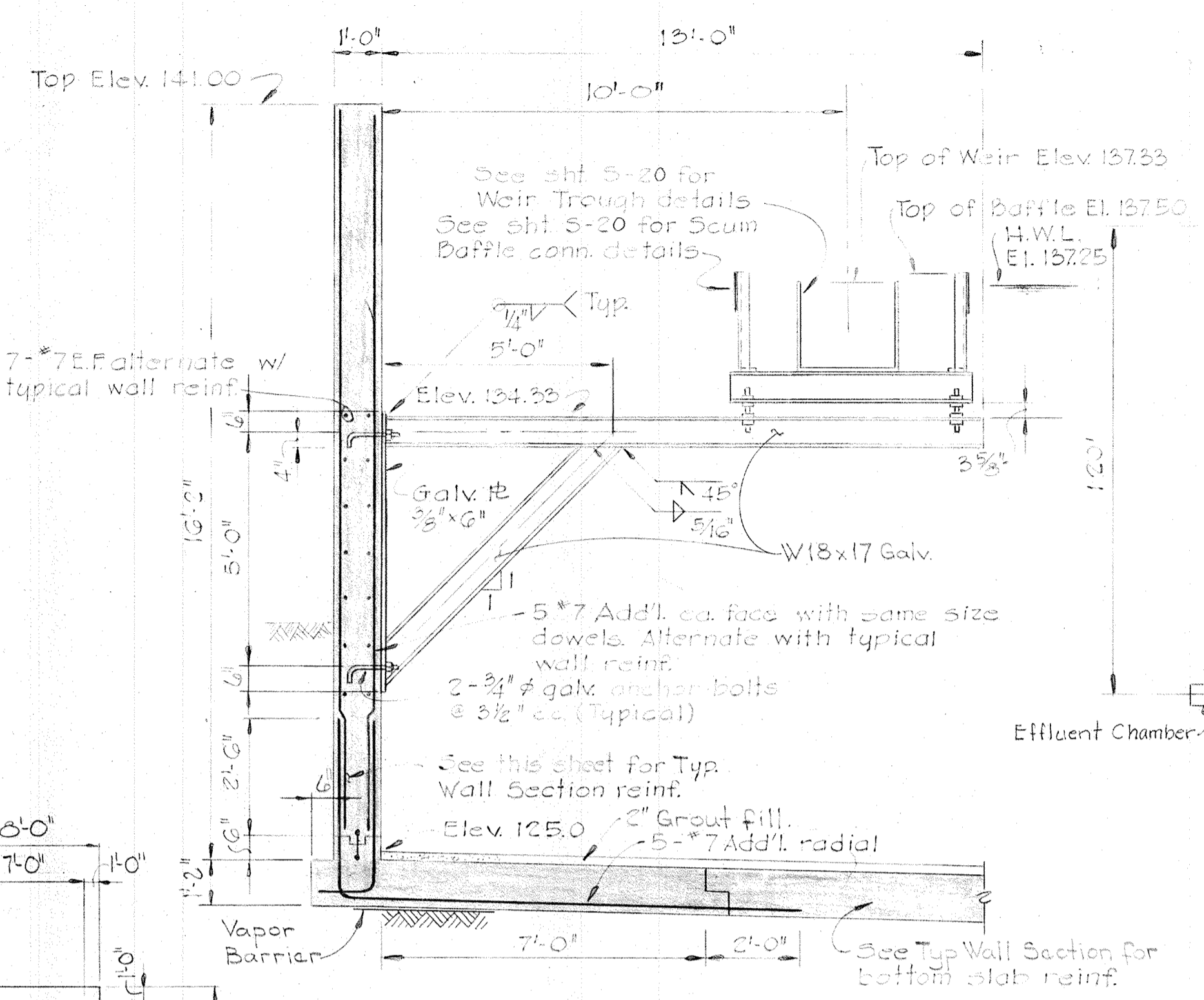
CONST. NORTH



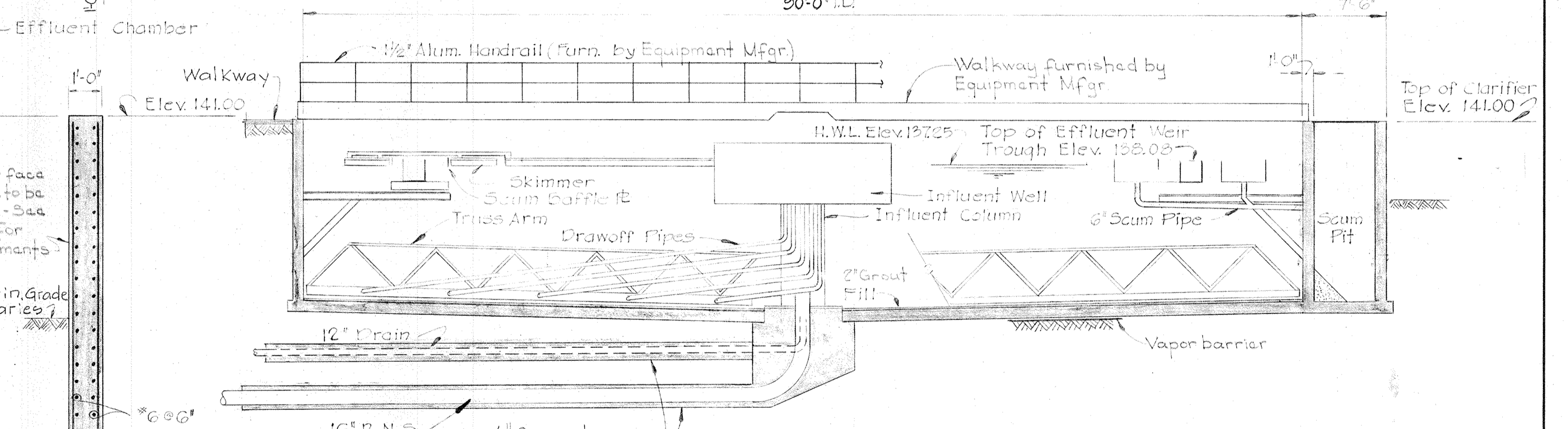
PLAN - NITRIFICATION CLARIFIER NO. 1
Scale: 1/8" = 1'-0"



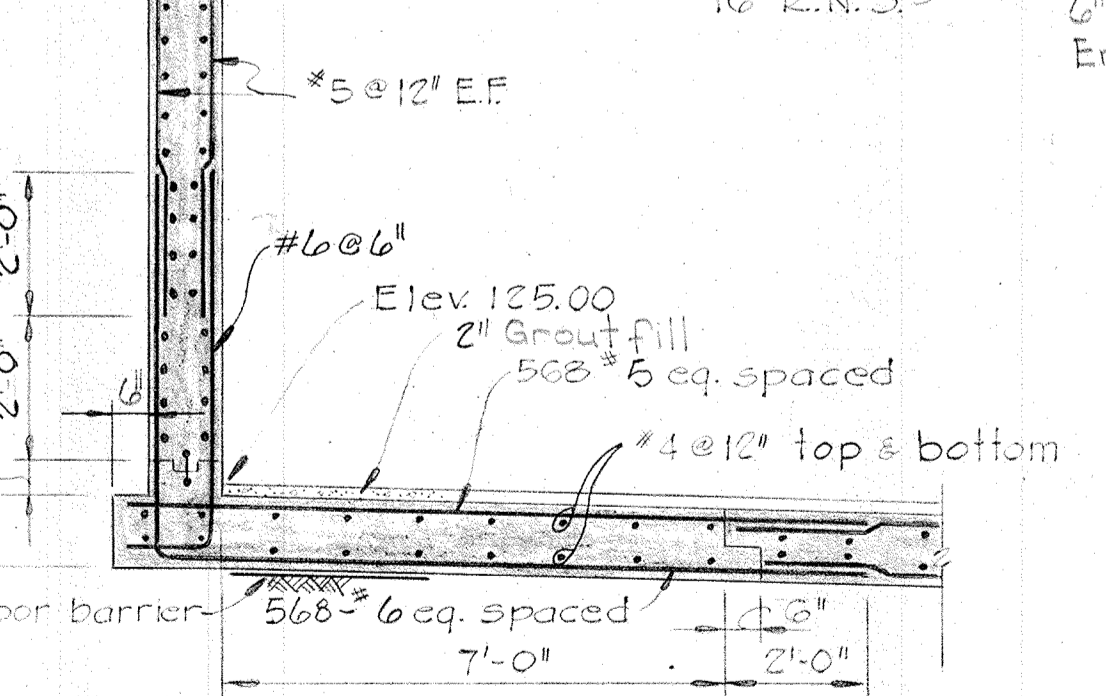
POURING SEQUENCE PLAN
No Scale



TYPICAL STEEL BRACKET DETAIL
Scale: 3/8" = 1'-0"

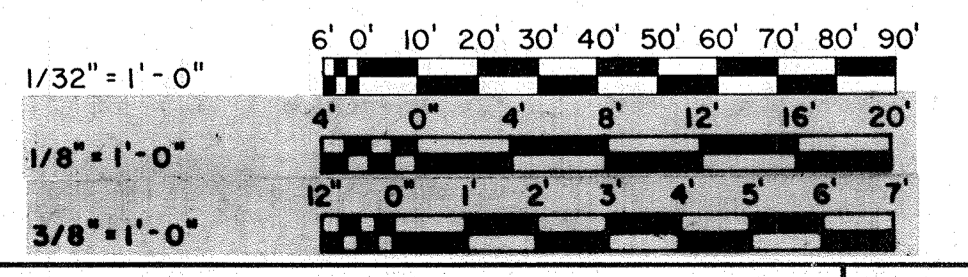


TYPICAL SECTION
Scale: 1/2" = 1'-0"



TYPICAL WALL SECTION
Scale: 3/8" = 1'-0"

- NOTES**
1. For Part Plan - Center Pier see sheet S-19
 2. For Part Plan - Bottom Slab Reinforcement see sheet S-20
 3. For Scum Pit details see sheet S-23



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

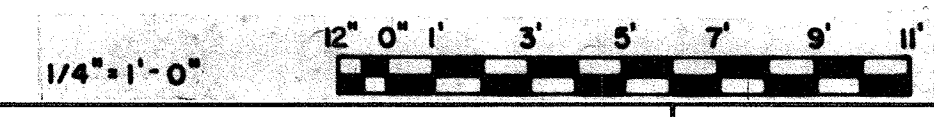
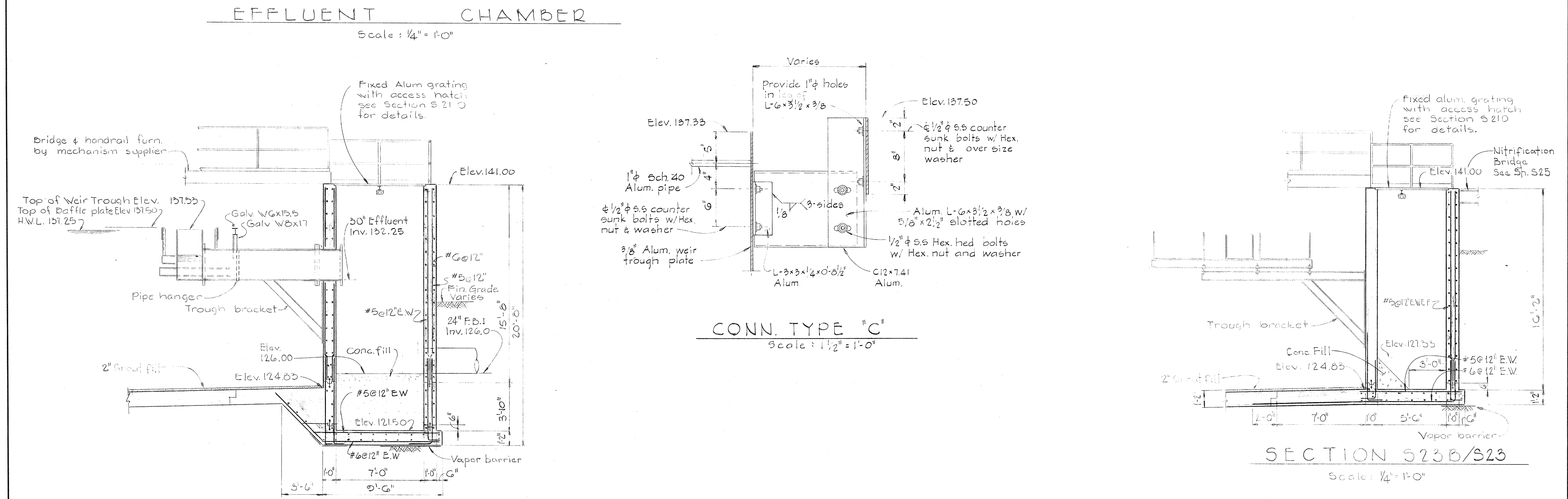
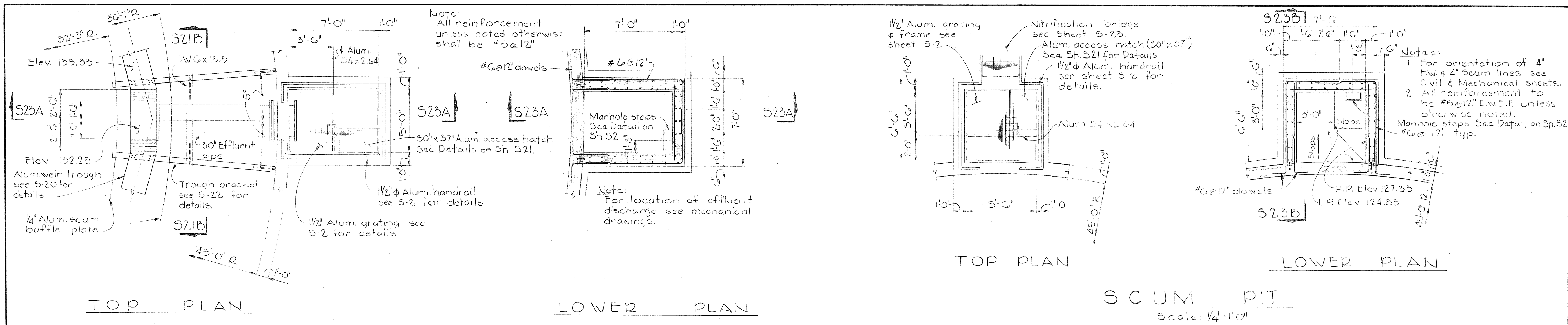
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-26-77
DATE
W. O. Requardt
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

NITRIFICATION CLARIFIERS
NOS. 1, 2, 3, & 4
PLAN, SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 56 OF 133
SCALE AS SHOWN

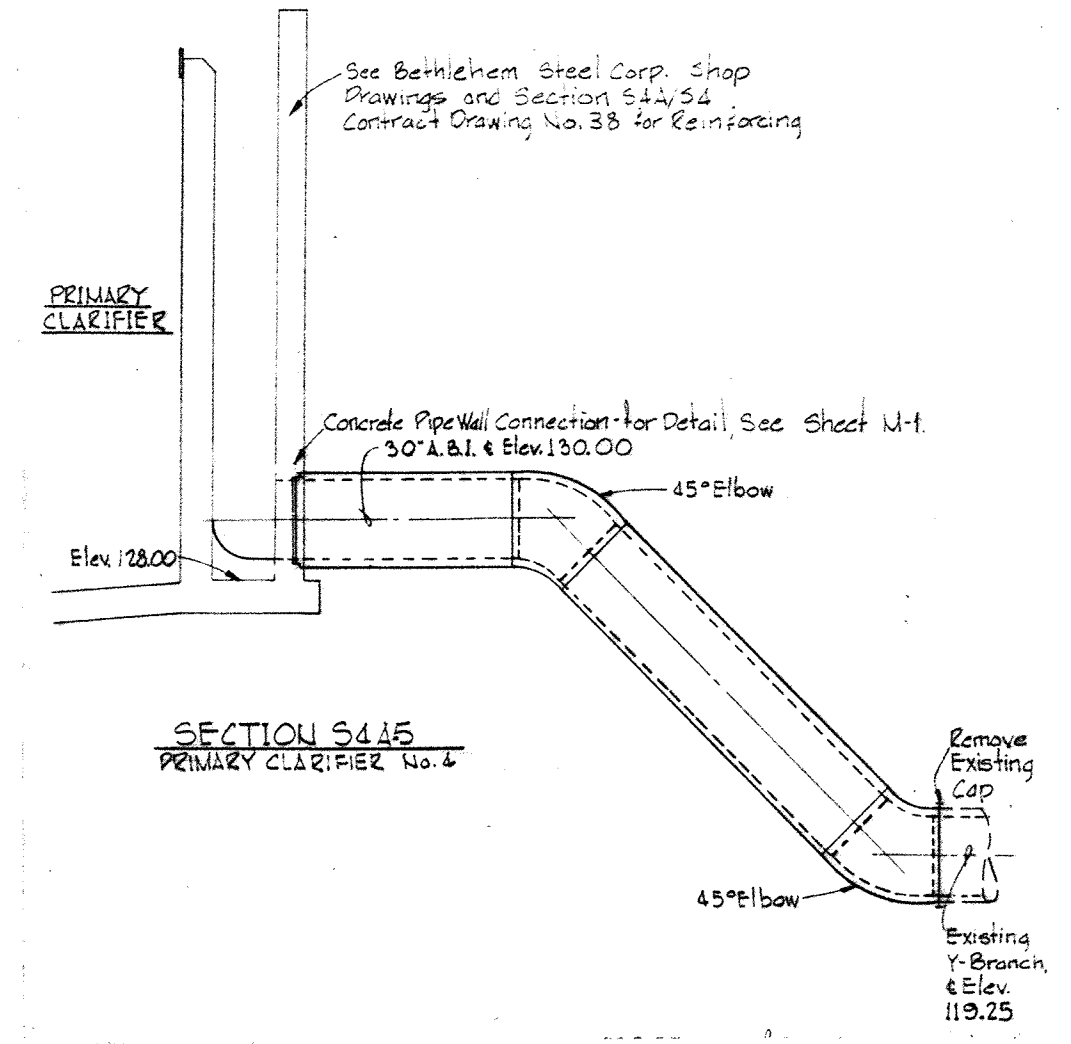
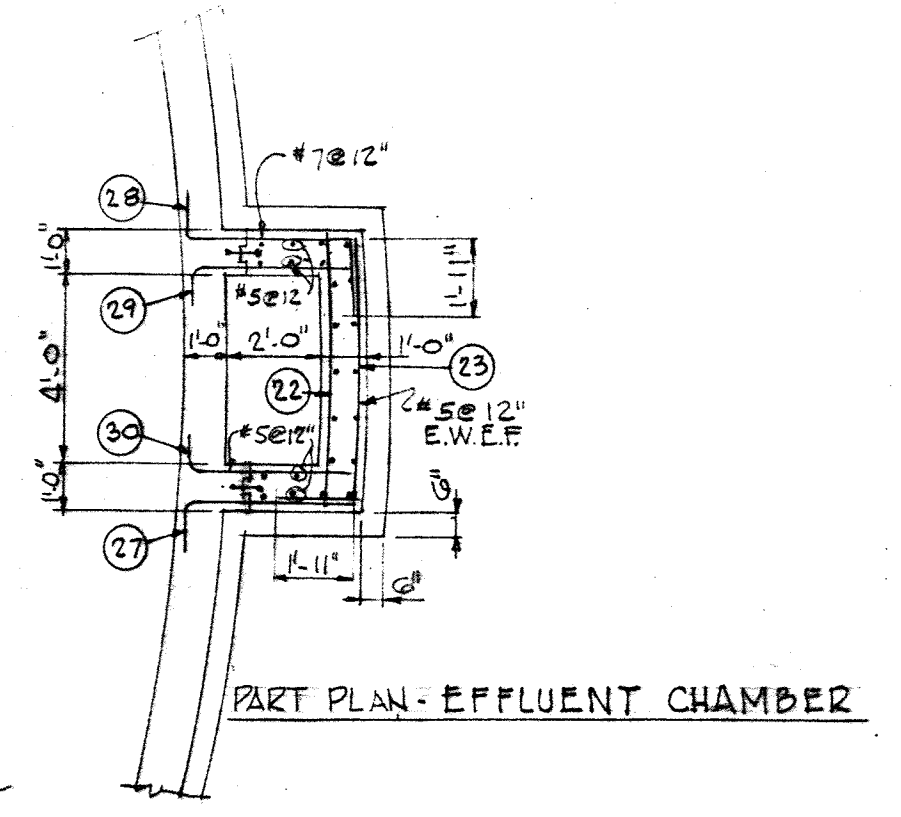
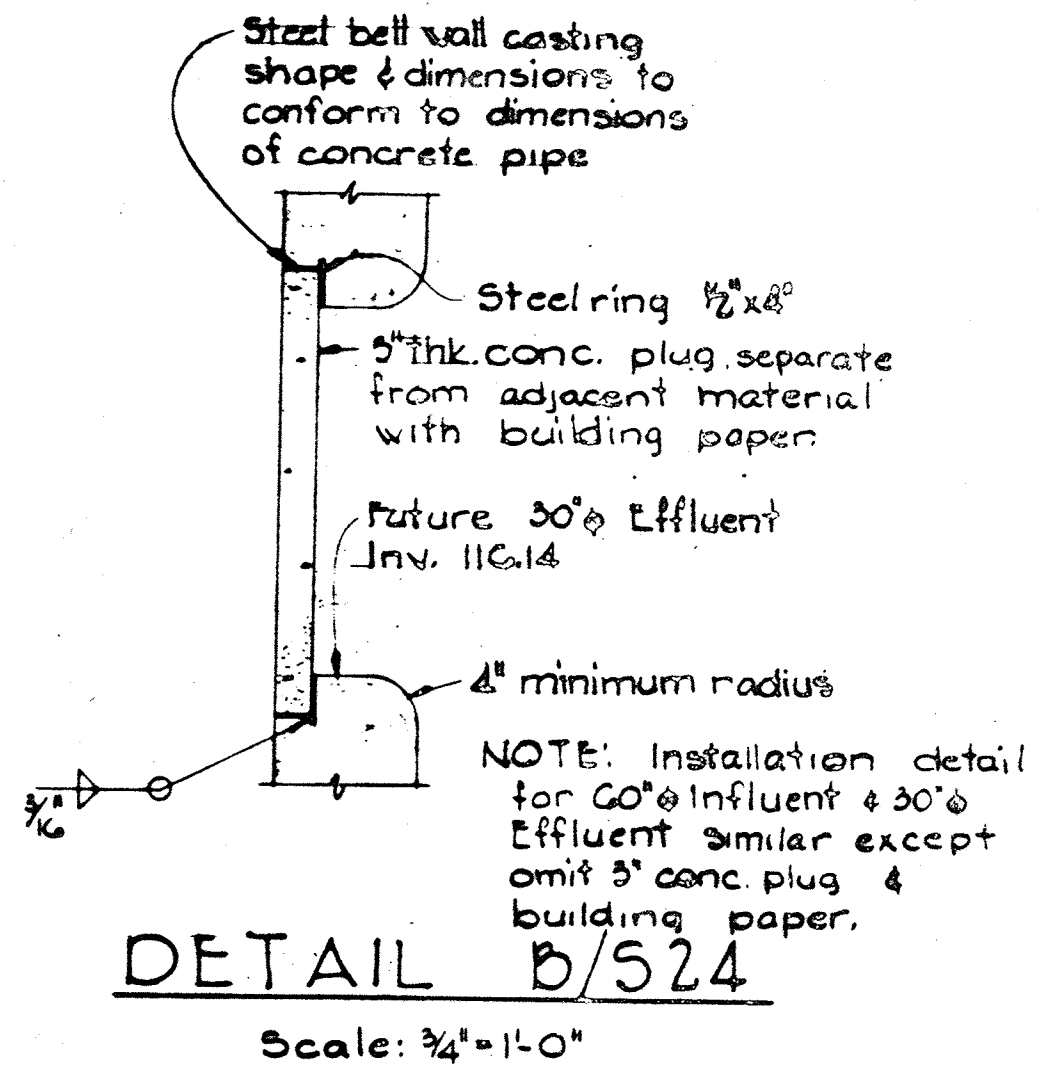
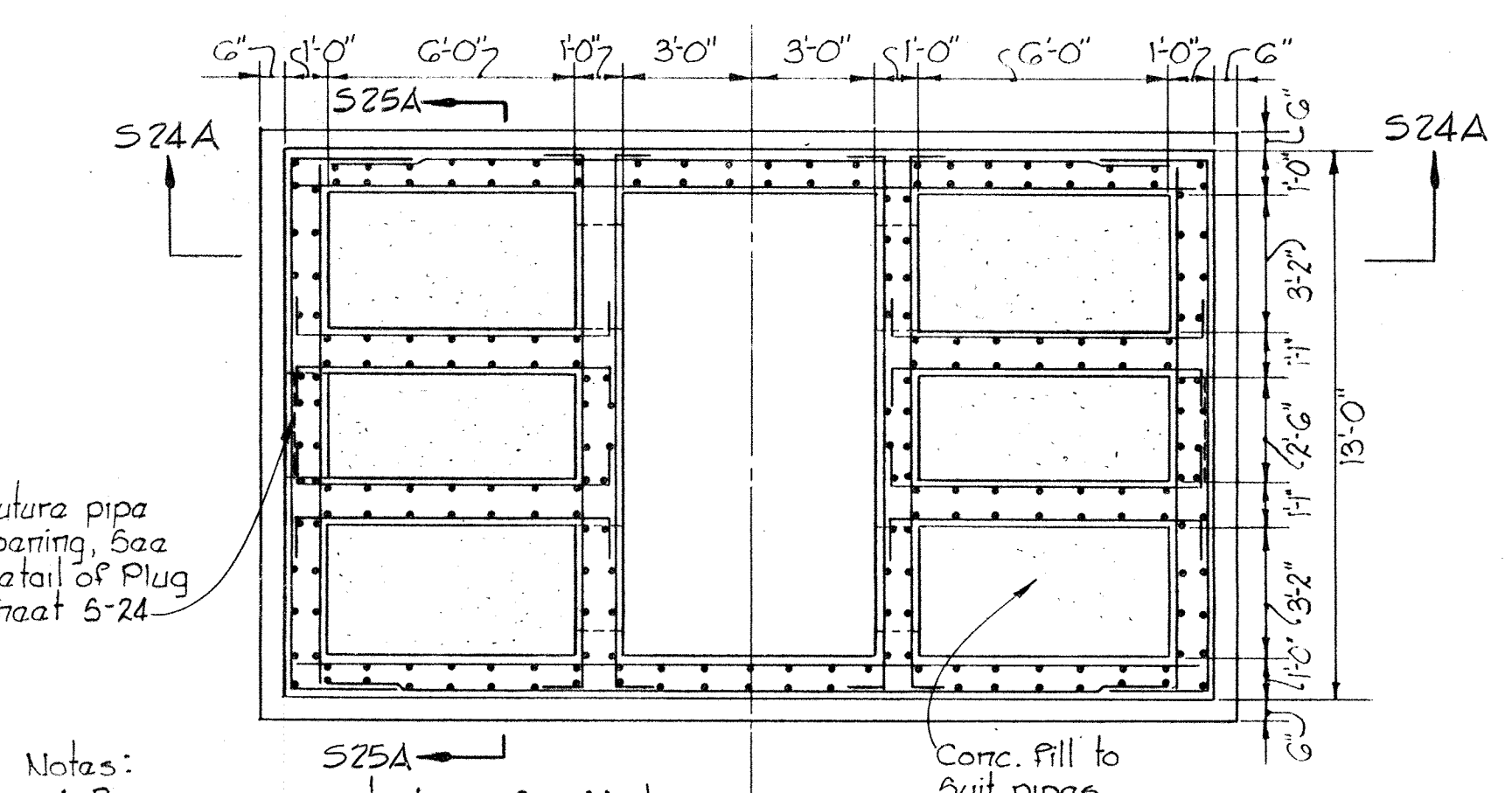
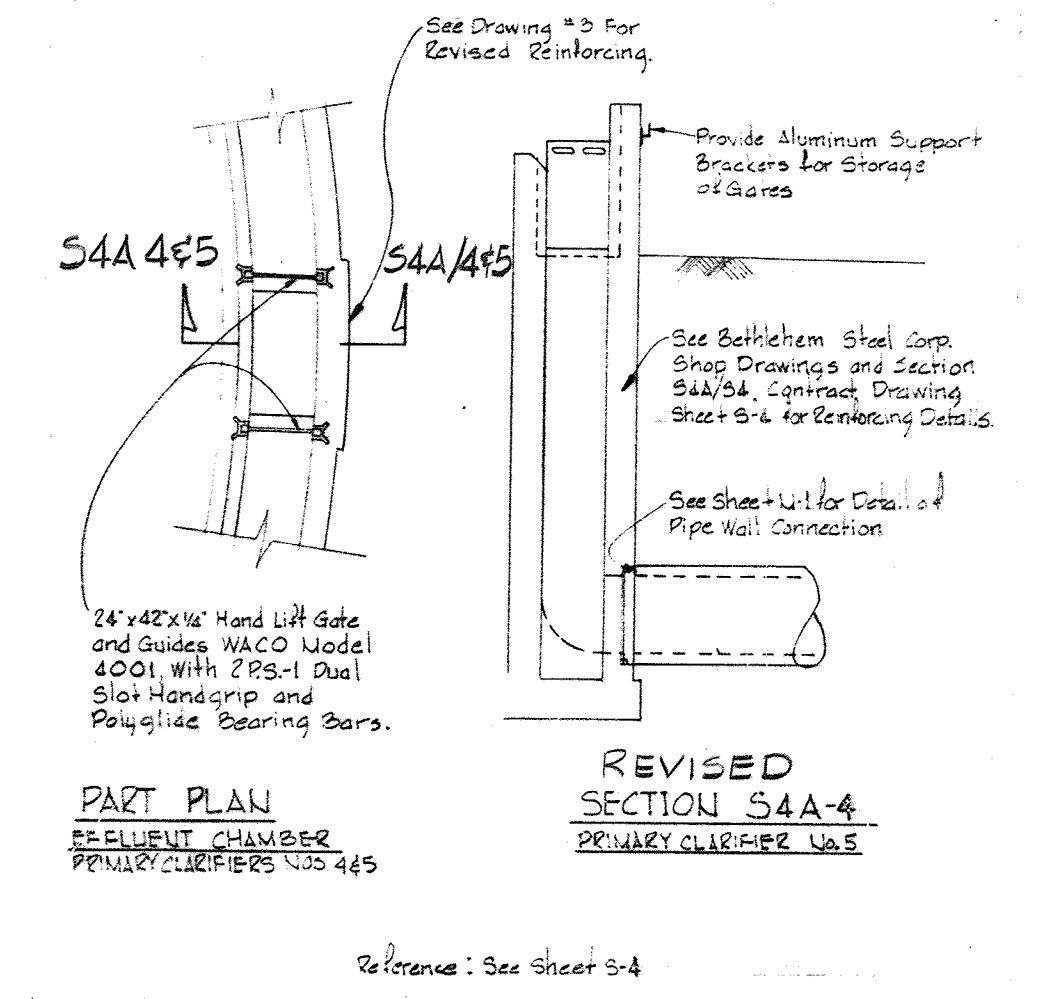
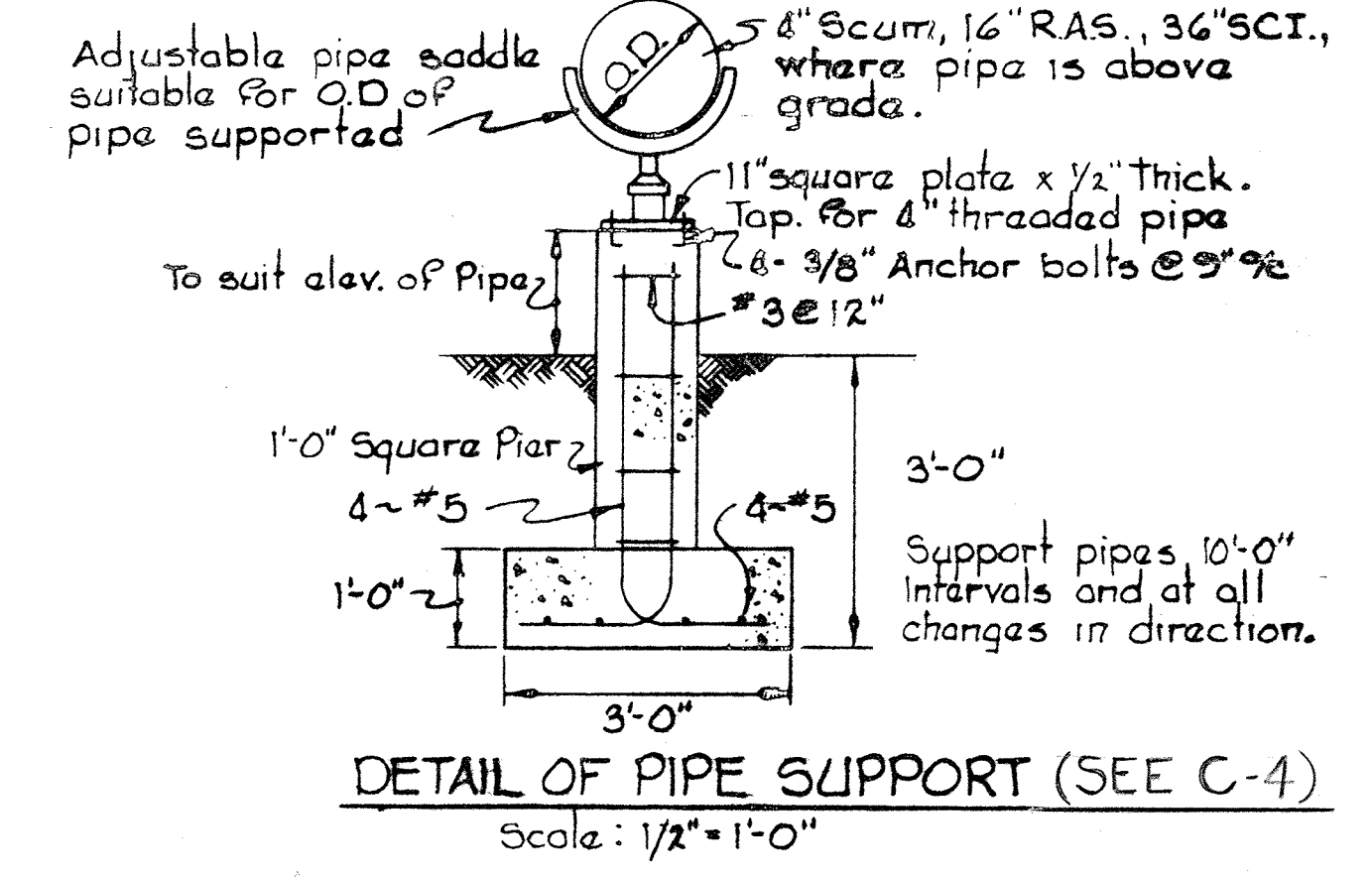
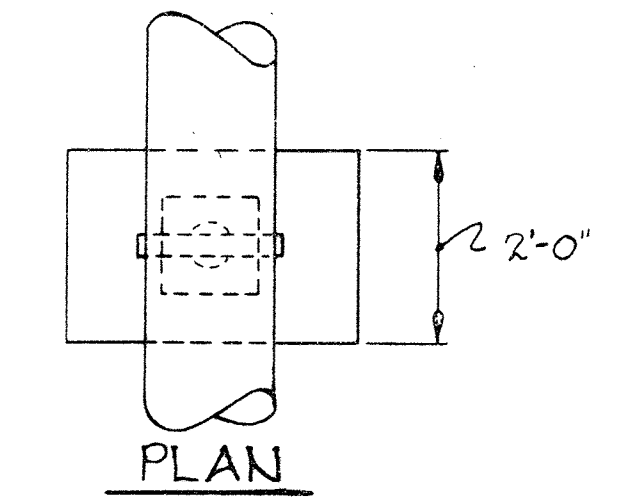
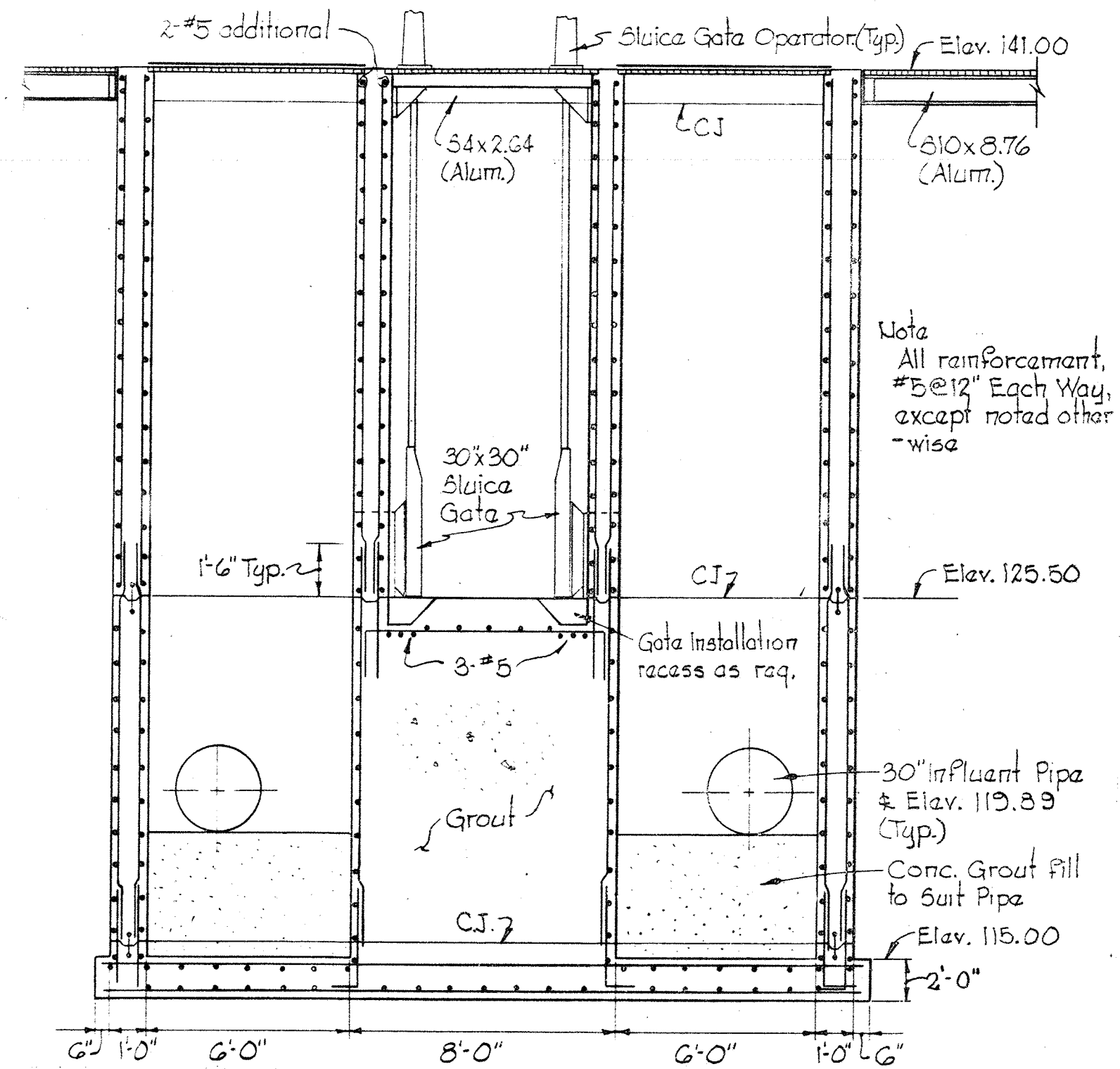
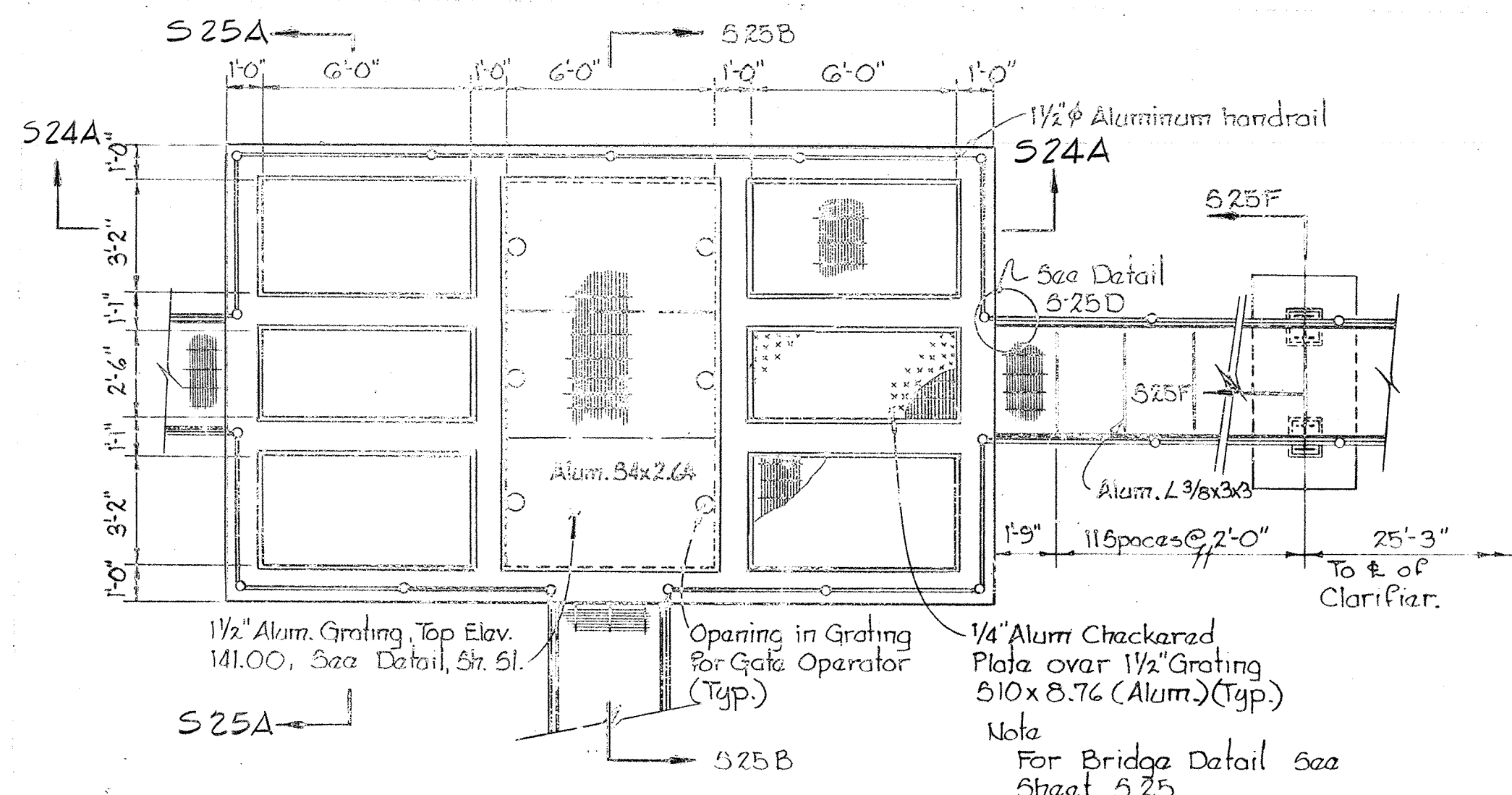


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 11-27-77 CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	NITRIFICATION CLARIFIERS NOS. 1, 2, 3, & 4 SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 57 OF 133 SCALE AS SHOWN
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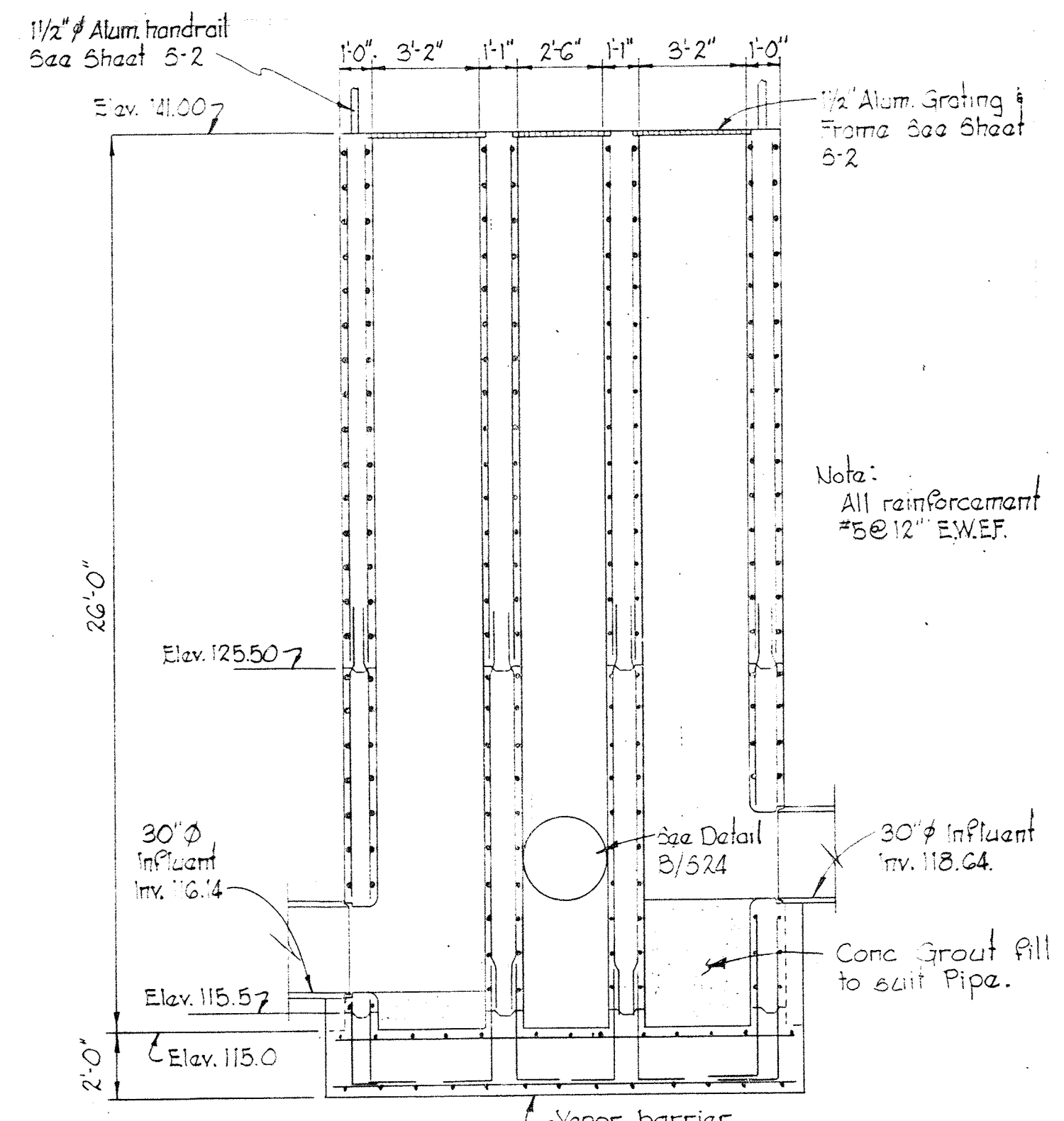
W. O. 6887-2

SHEET S-23

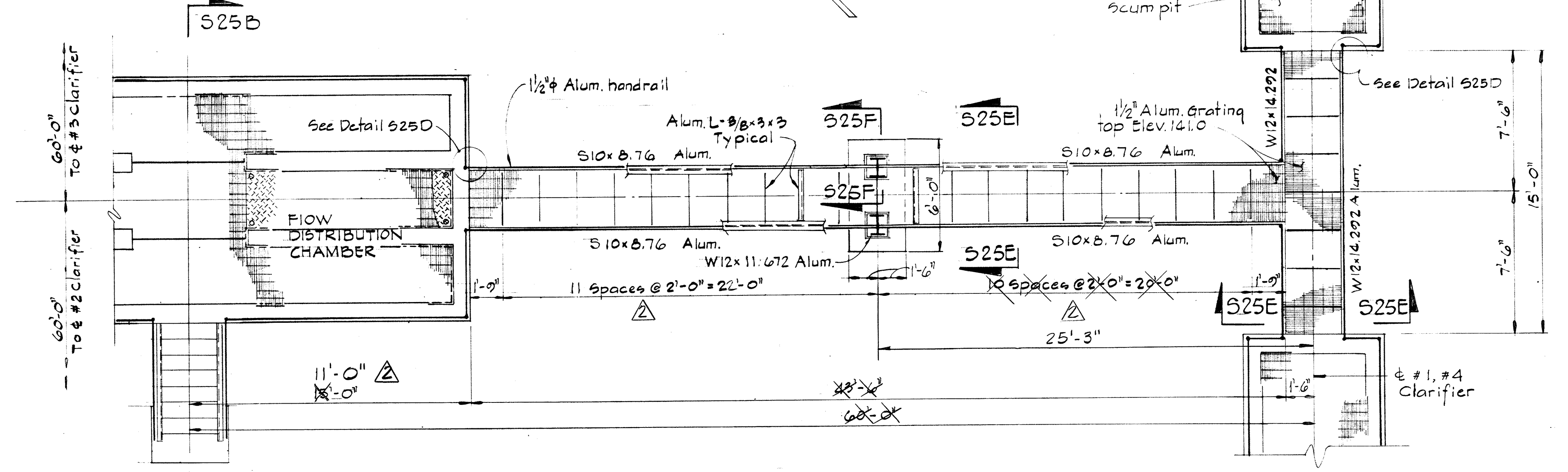
BRUNING 44-510 32872



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE 10-26-77 W.O. Libert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	NITRIFICATION CLARIFIERS NOS. 1, 2, 3, & 4 FLOW DISTRIBUTION CHAMBER PLANS & SECTIONS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 58 OF 133 SCALE AS SHOWN	SHEET S-24 MODIFIED DRAWING - MAY 6, 1982
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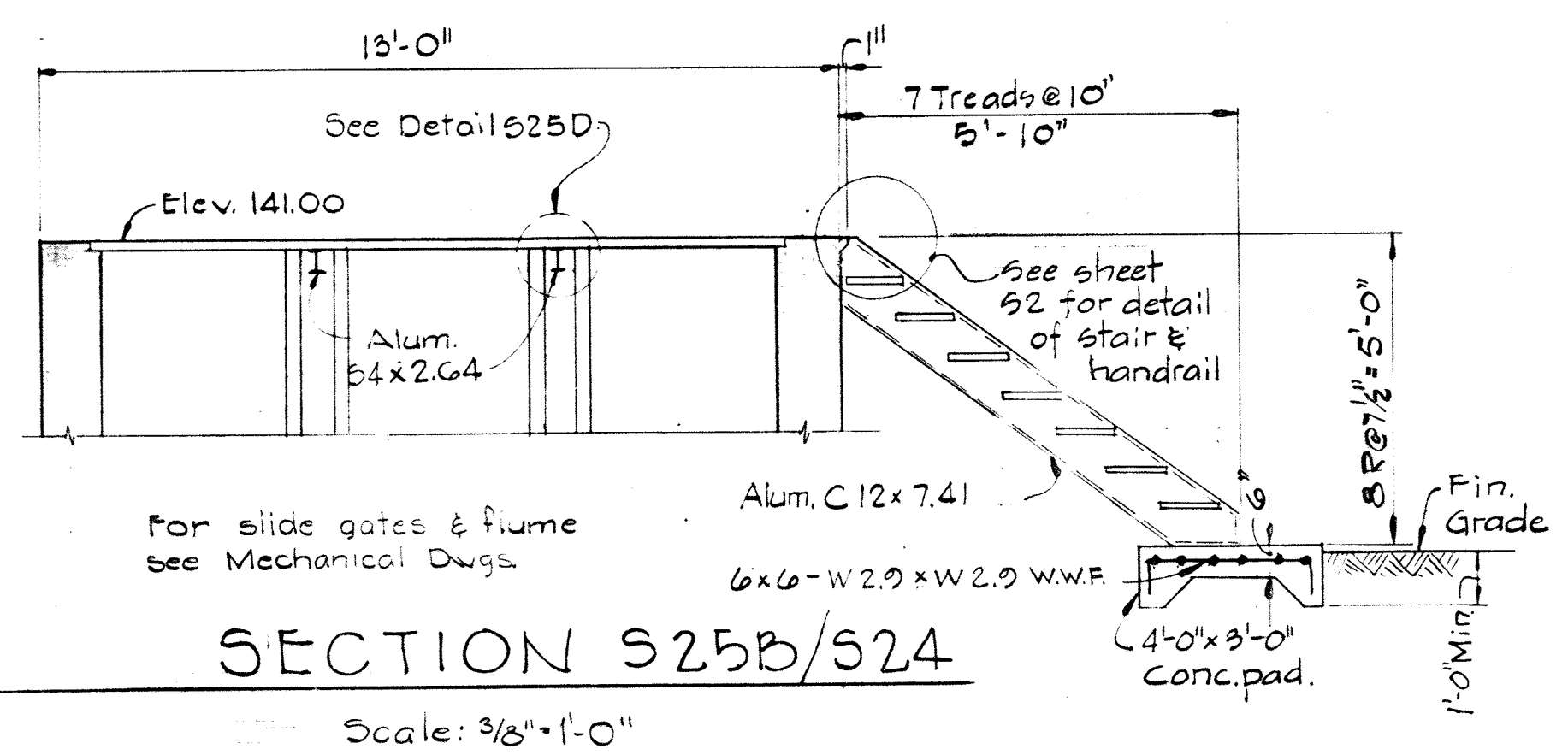


SECTION S25A/S24
Scale: 1/4" = 1'-0"

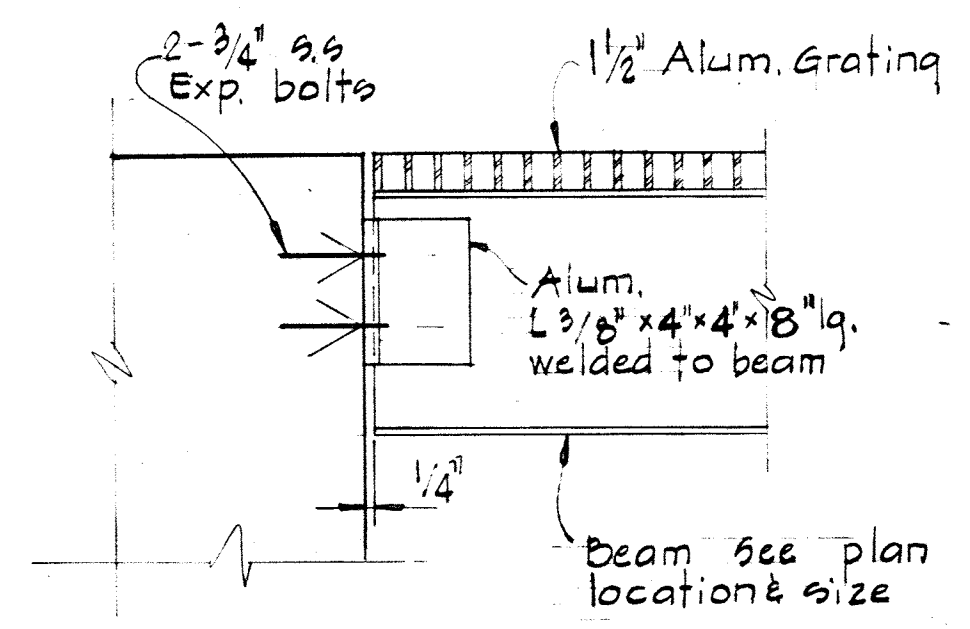


NITRIFICATION BRIDGE PLAN
Scale: 1/4" = 1'-0"

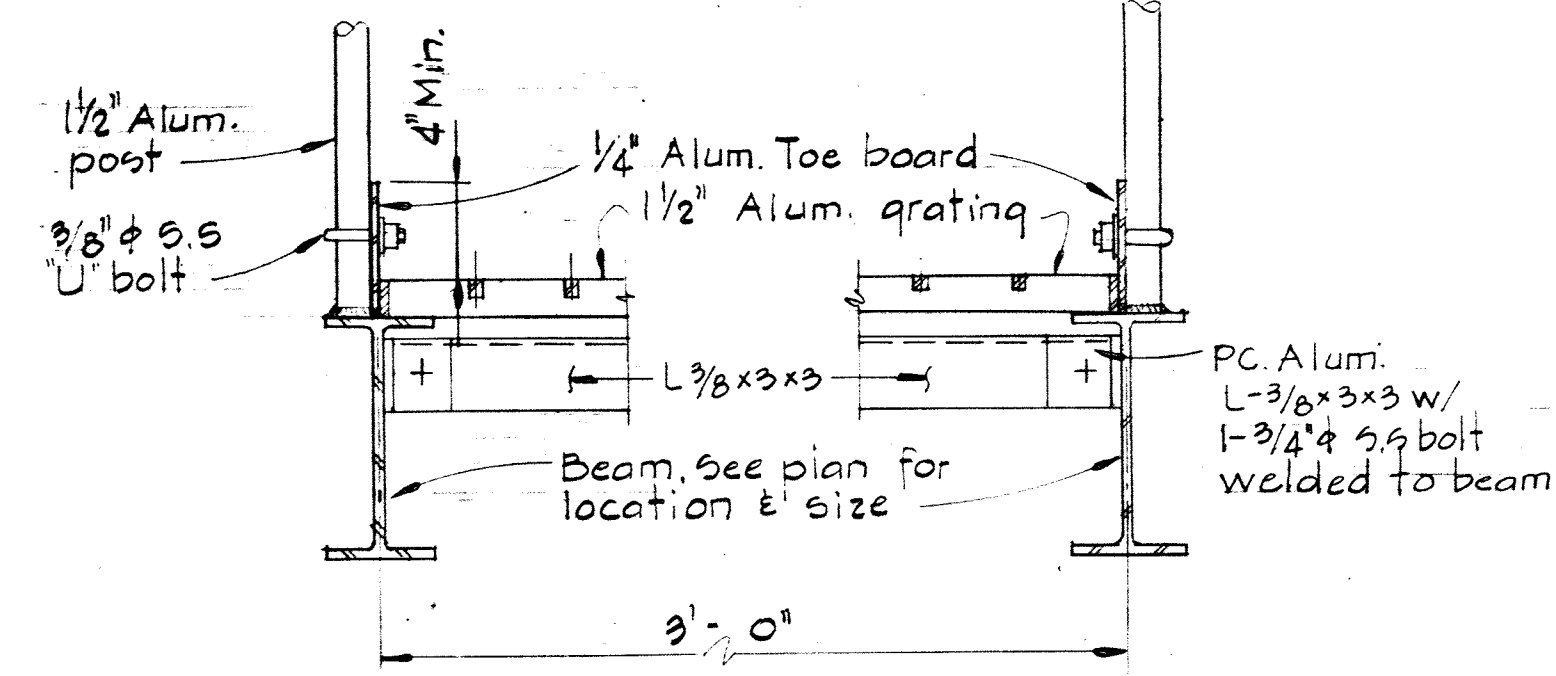
SECTION S25A/S24
Scale: 3/8" = 1'-0"



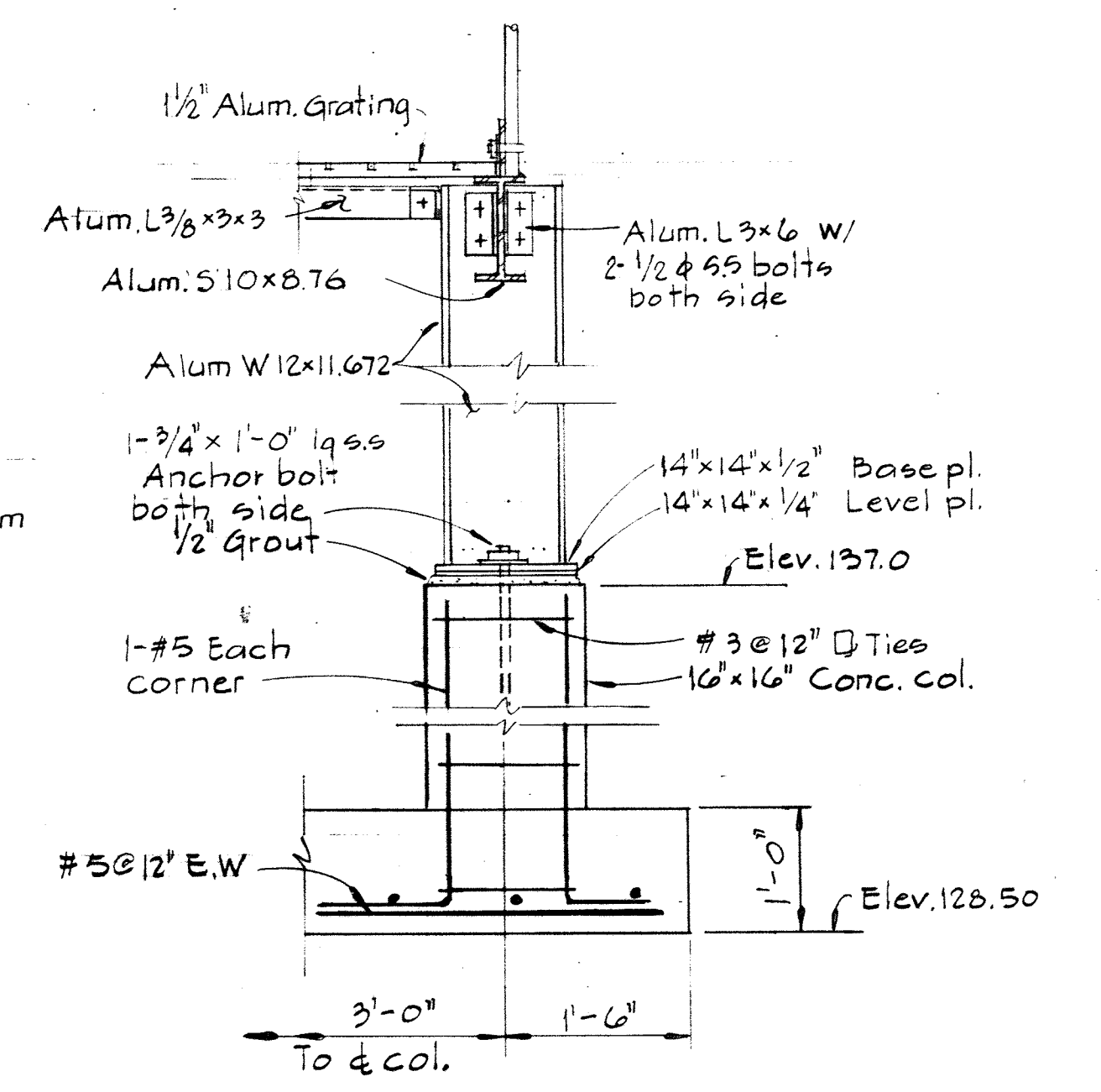
SECTION S25B/S24
Scale: 3/8" = 1'-0"



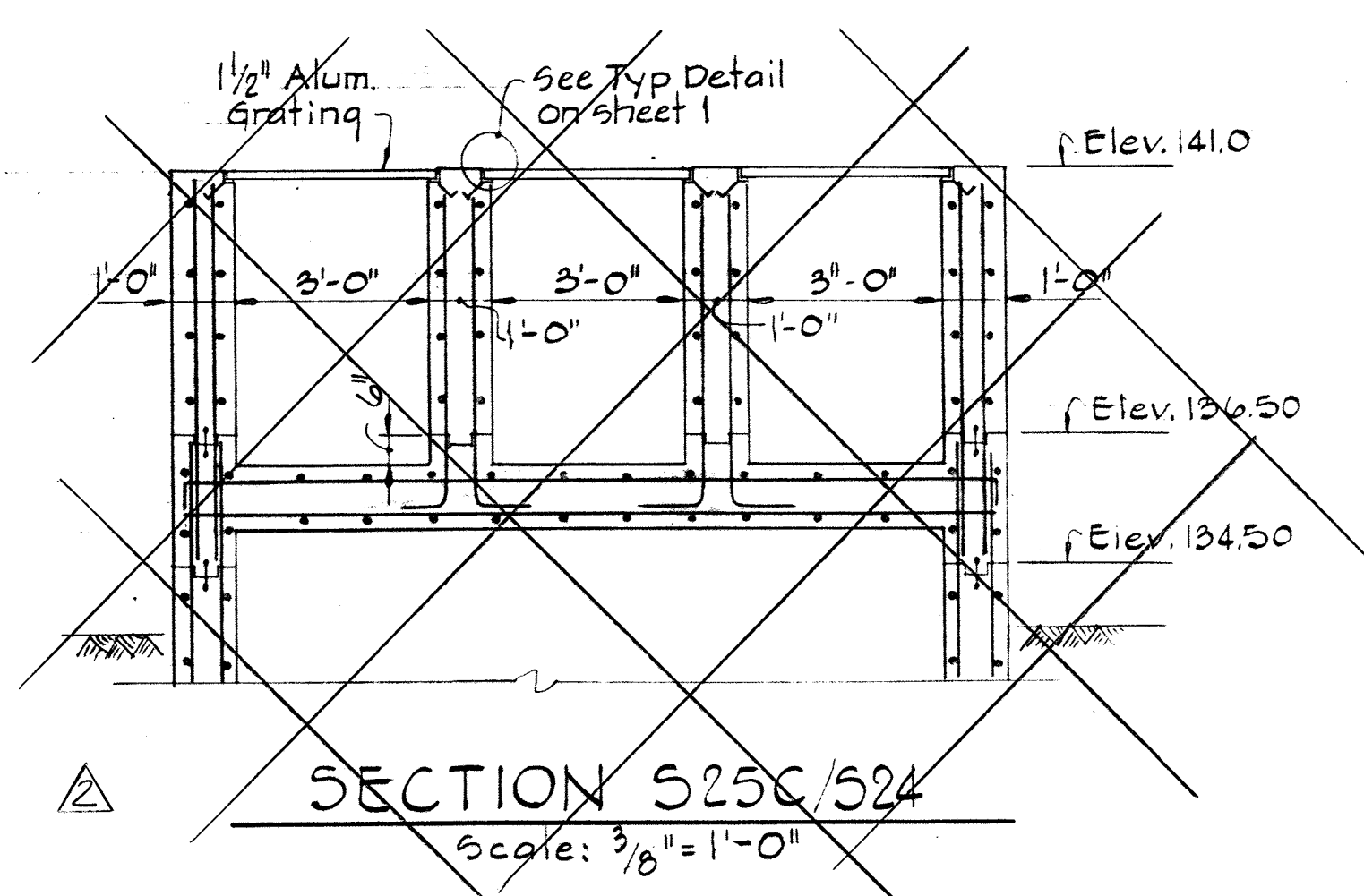
TYPICAL BEAM CONNECTION DETAIL
S 25 D / S 25
Scale: 1 1/2" = 1'-0"



TYP. BRIDGE SECTION
S 25 E / S 25
Scale: 1 1/2" = 1'-0"



SECTION S25F/S25
Scale: 3/4" = 1'-0"



SECTION S25C/S24
Scale: 3/8" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-26-77
W. O. Lambert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

NITRIFICATION CLARIFIERS
NOS. 1, 2, 3, & 4
FLOW DISTRIBUTION CHAMBER
SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING
NO. 59
OF 133

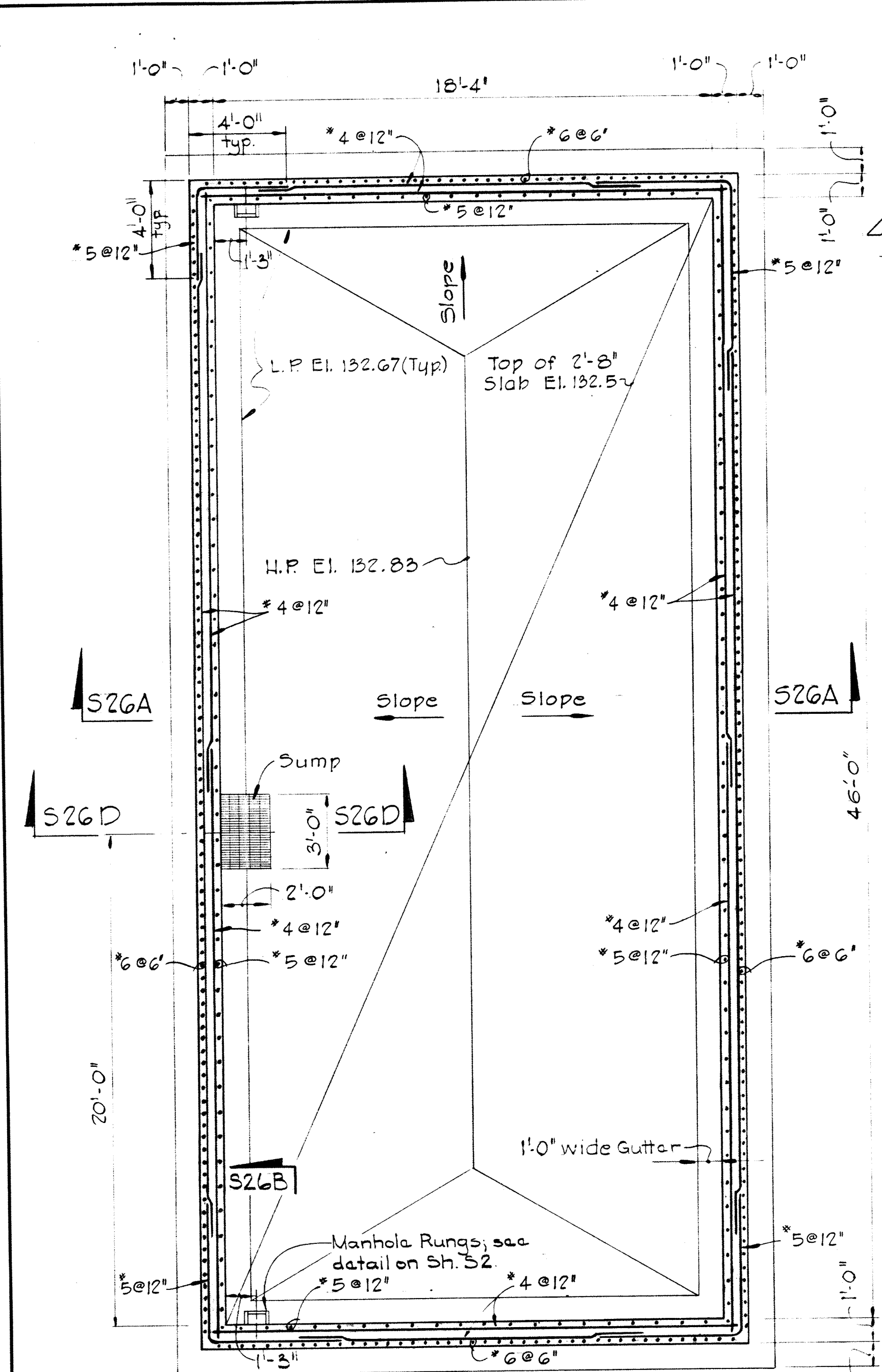
SCALE
AS
SHOWN

W. O. 6887-2

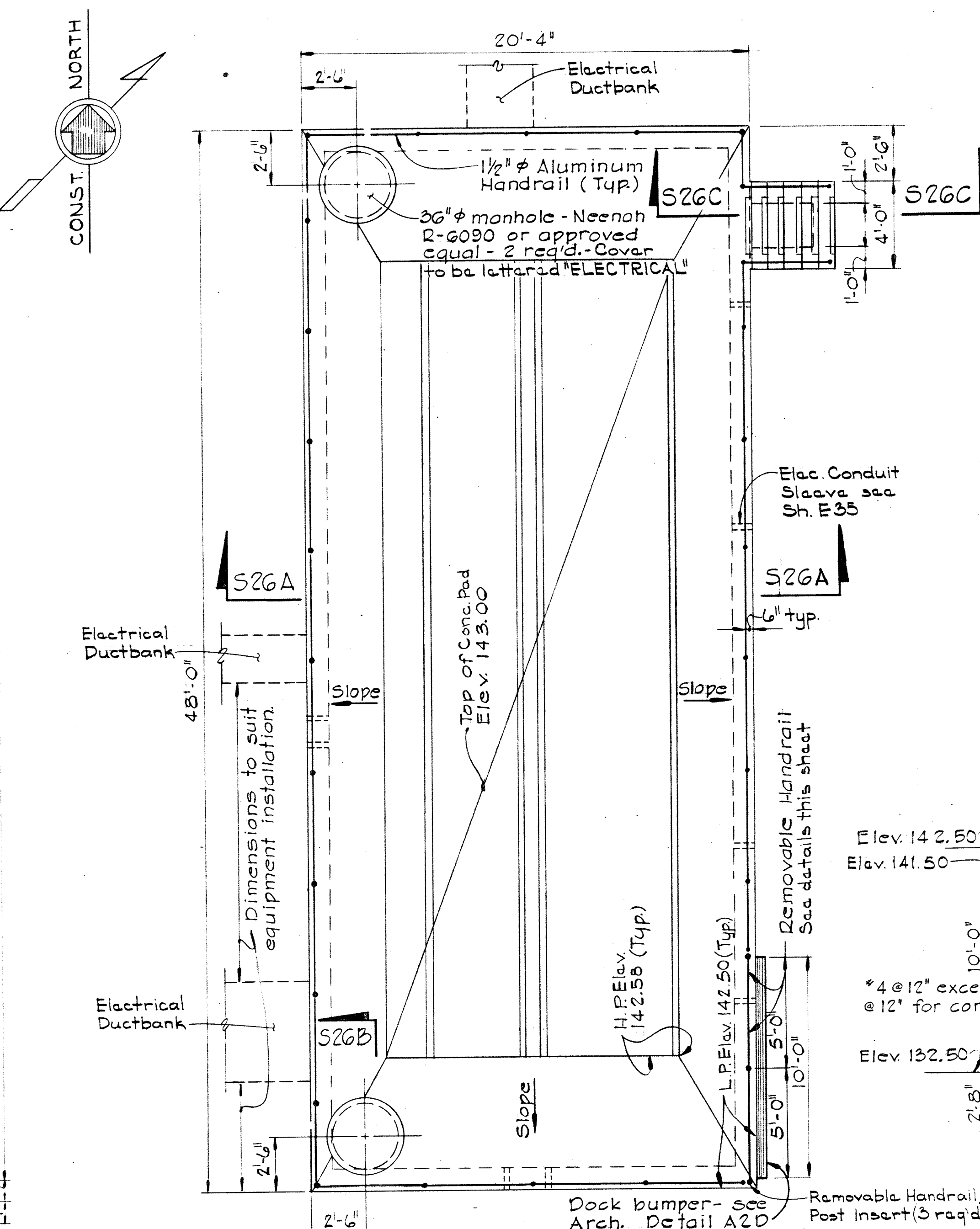
SHEET S-25
MODIFIED DRAWING - MAY 6, 1982



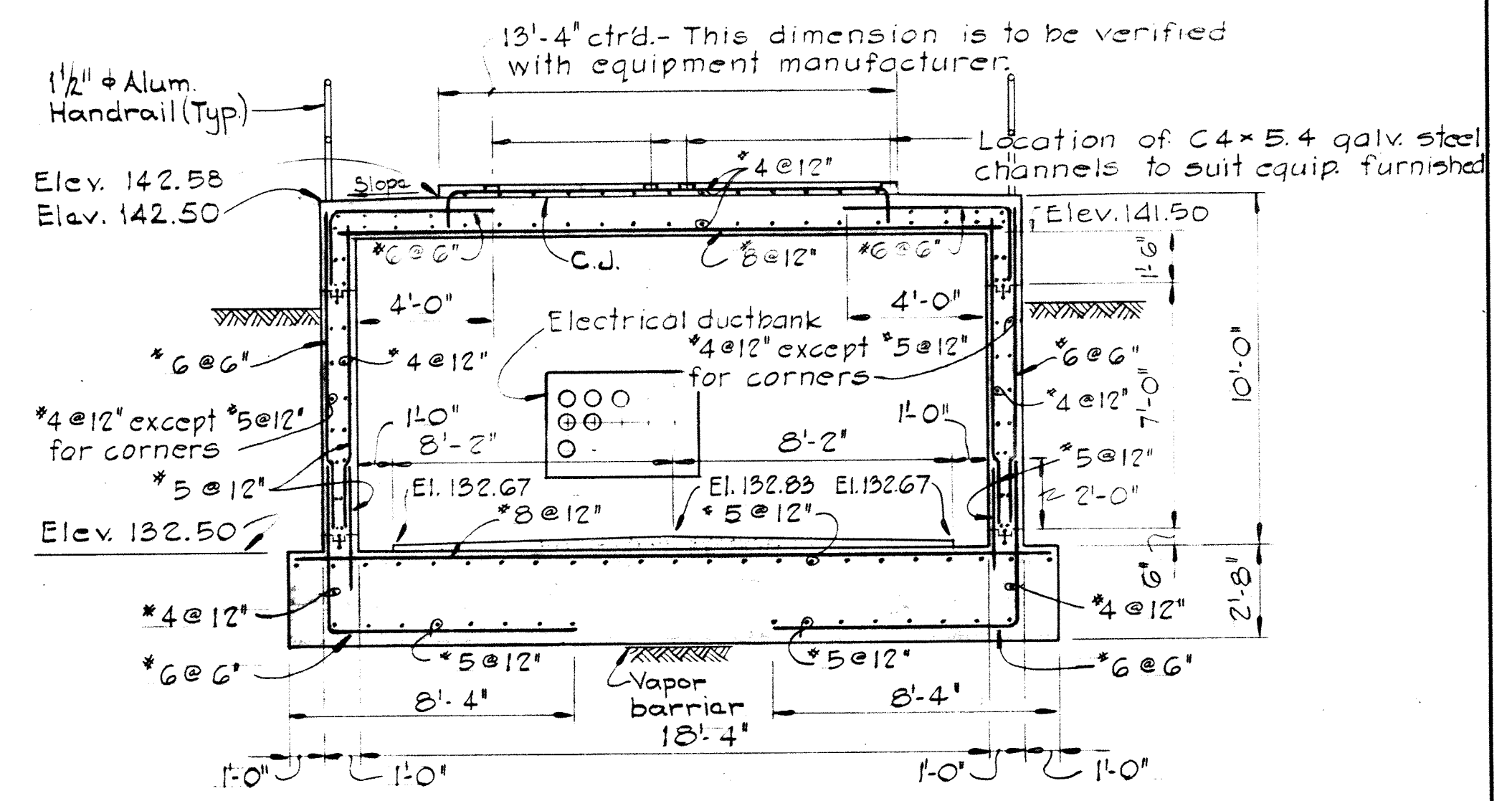
BRUNING 44-510 28272



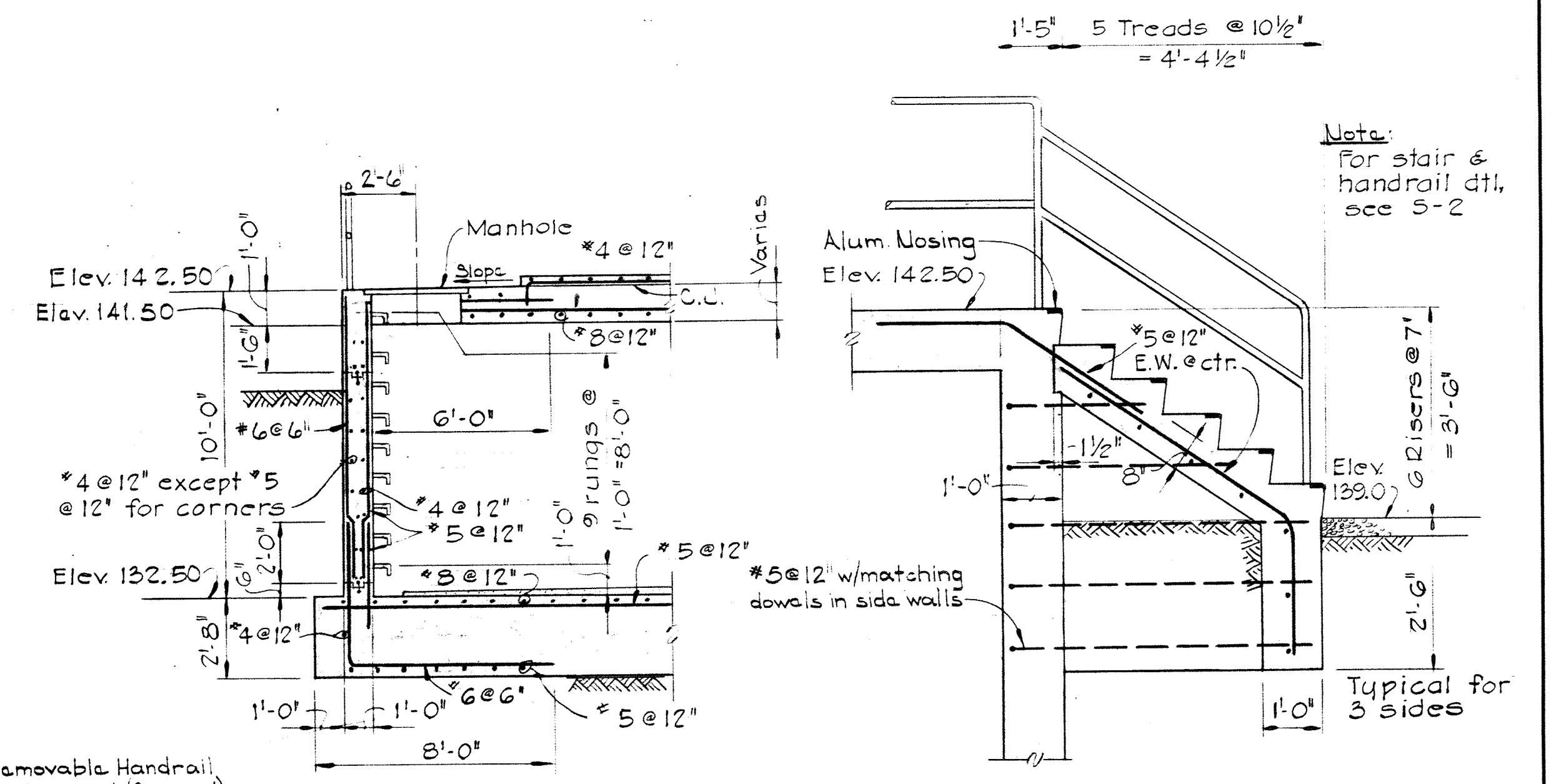
PLAN AT ELEVATION 133.00
Scale: 1/4" = 1'-0"



PLAN AT ELEVATION 143.00
Scale: 1/4" = 1'-0"

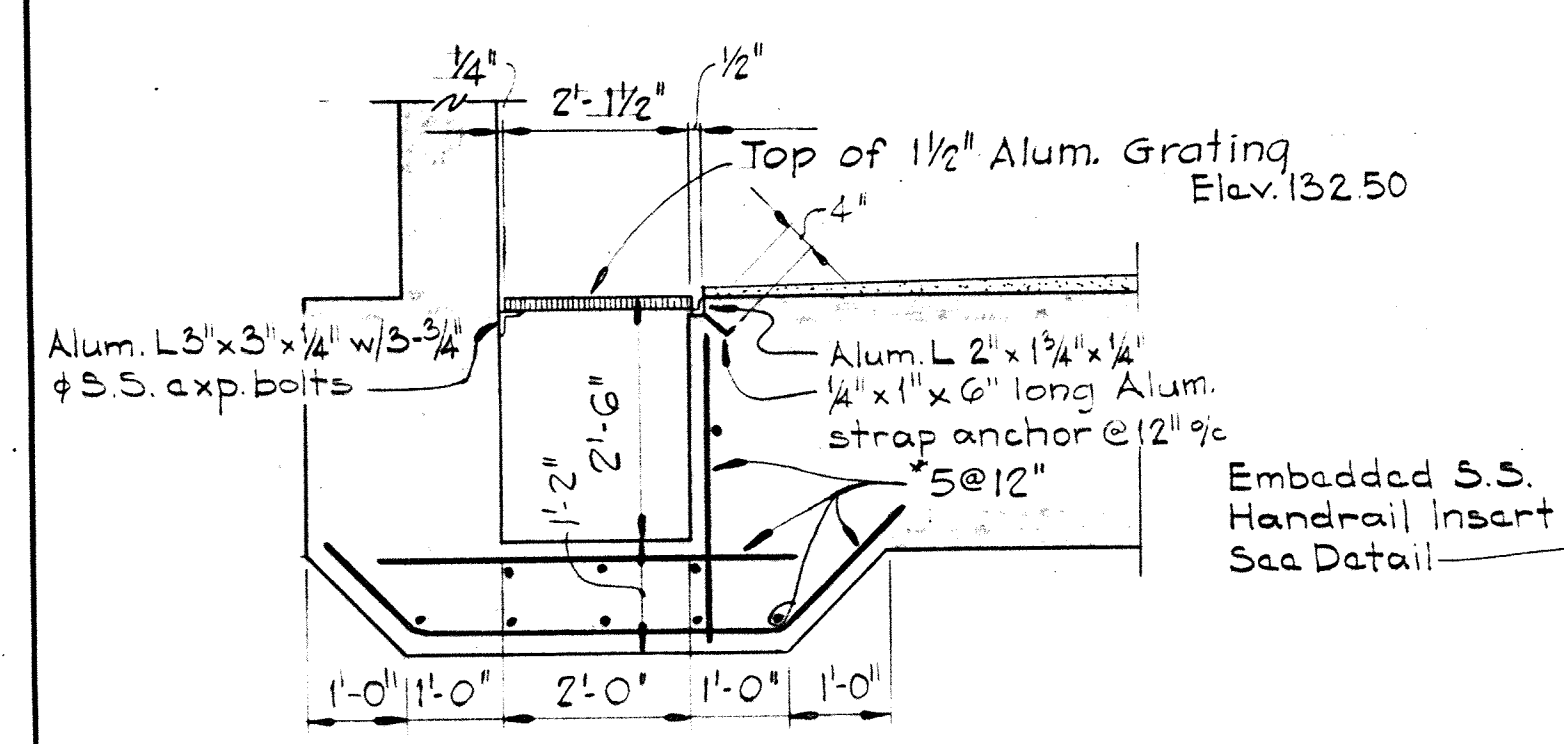


SECTION S26A/S26
Scale: 1/4" = 1'-0"

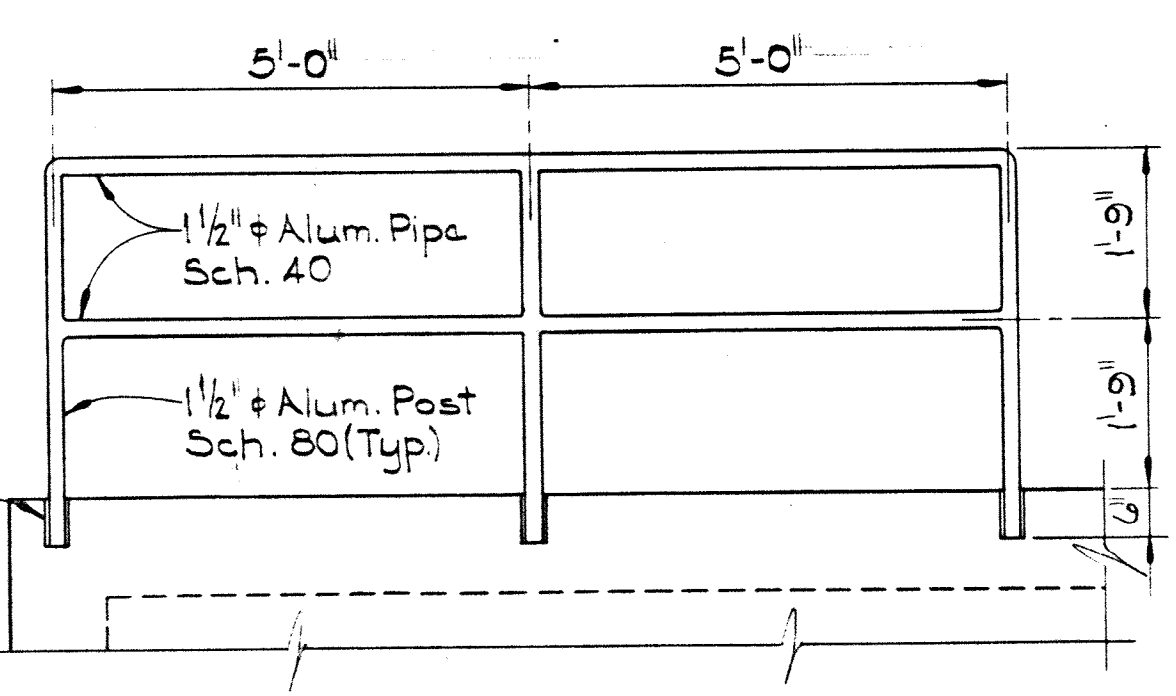


SECTION S26B/S26
Scale: 1/4" = 1'-0"

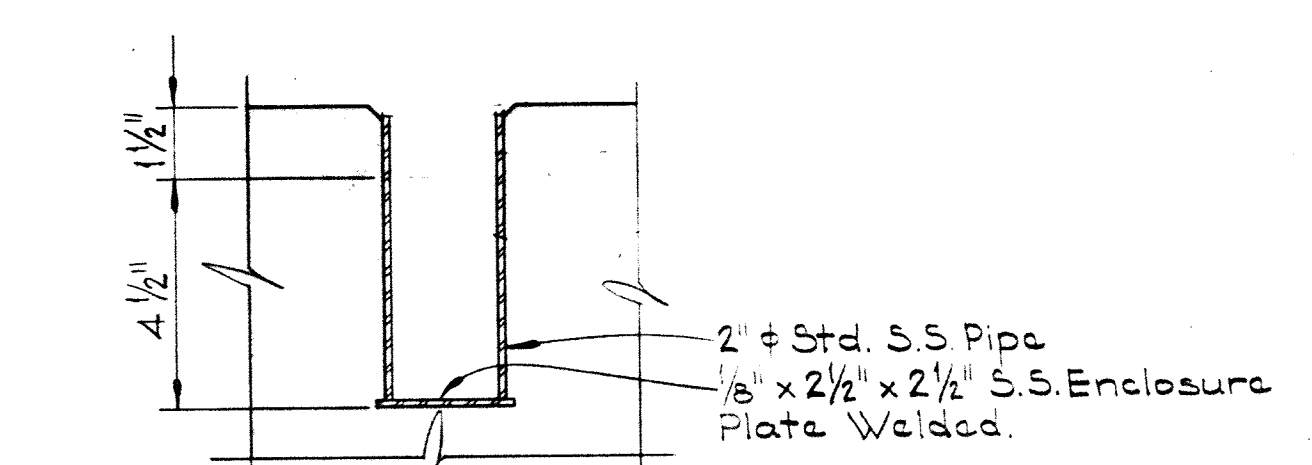
SECTION S26C/S26
Scale: 1/2" = 1'-0"



SECTION S26D/S26
Scale: 1/2" = 1'-0"

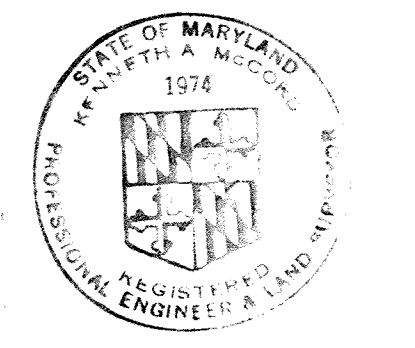


REMOVABLE HANDRAIL
DETAIL
Scale: 1/2" = 1'-0"

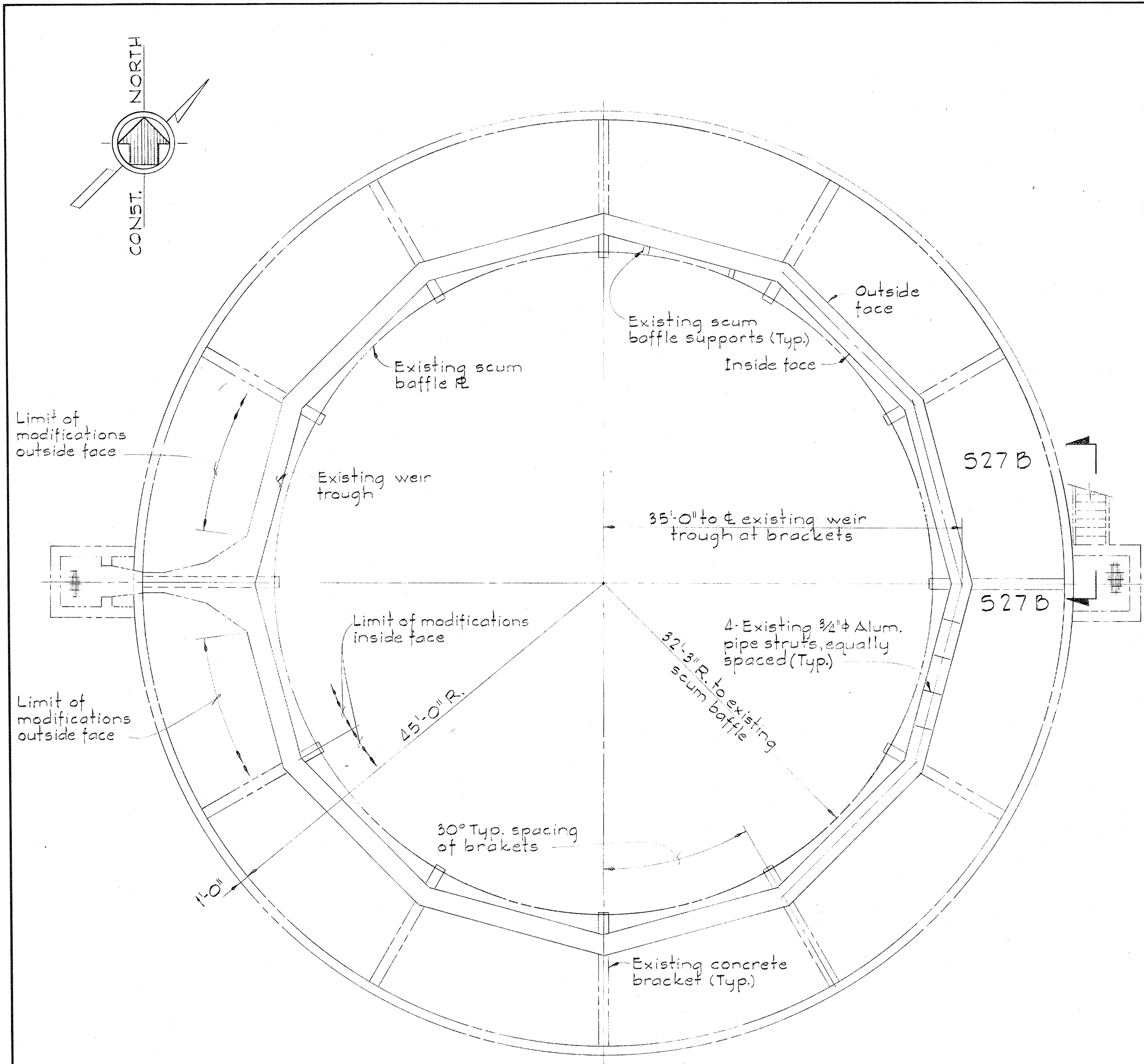


DETAIL REMOVABLE
HANDRAIL INSERT
No Scale

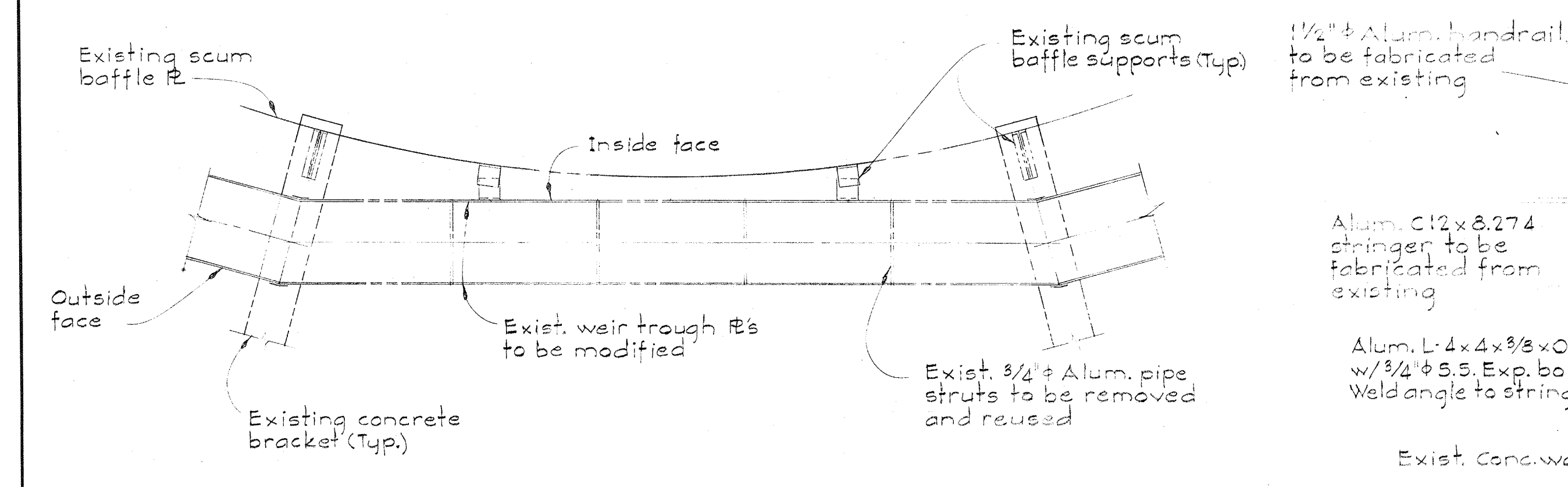
- Notes:
1. For location of post inserts see Plan at Elev. 143.00 this sheet.
 2. S.S. Cover Plate to be placed when handrail is removed.



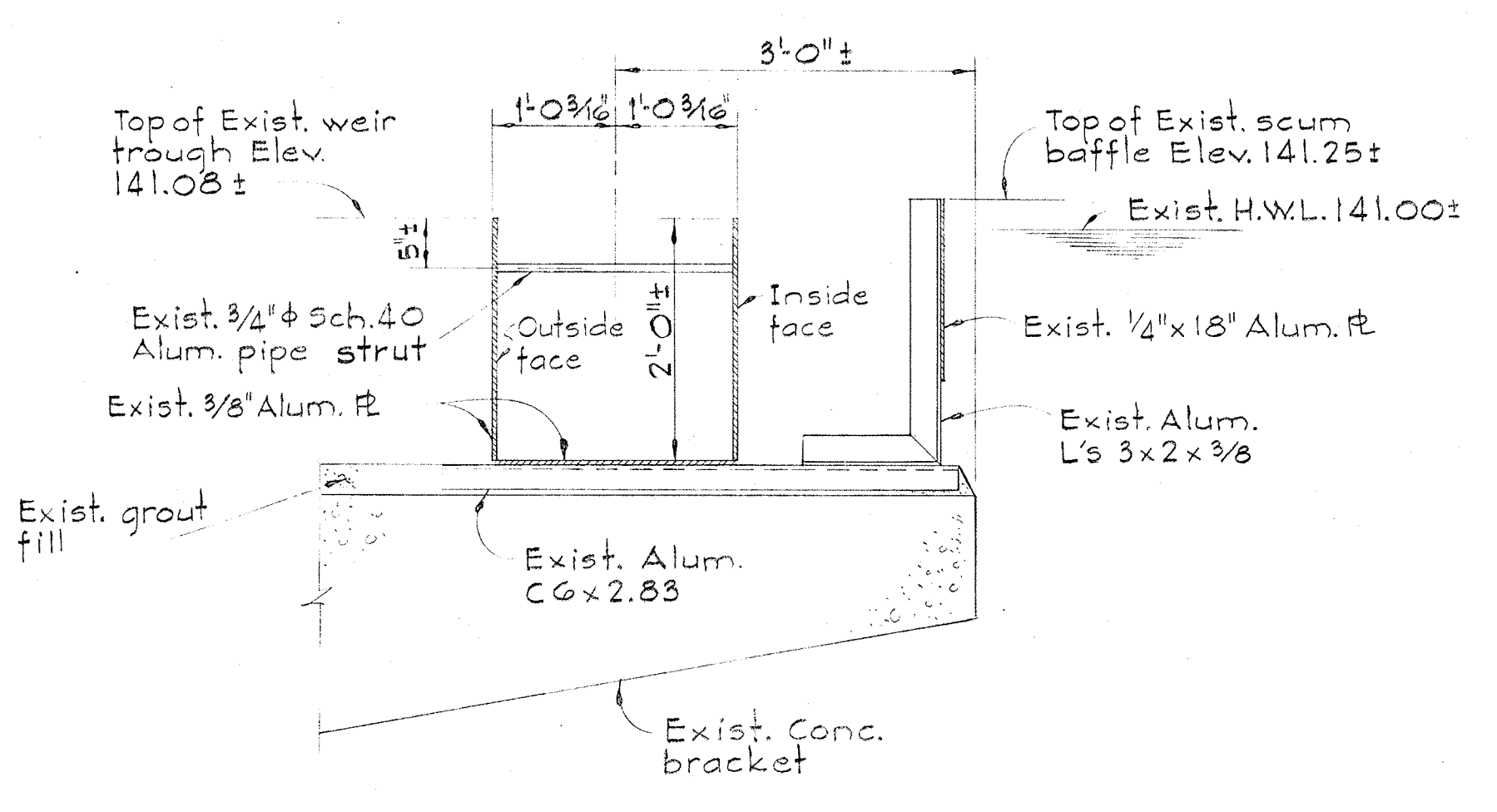
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE	CONTRACT NO. 500-S W. O. Falbert CHIEF BUREAU OF ENGINEERING	13.2 KV MAIN OUTDOOR SWITCHGEAR PLANS & SECTIONS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 60 OF 133	SCALE AS SHOWN
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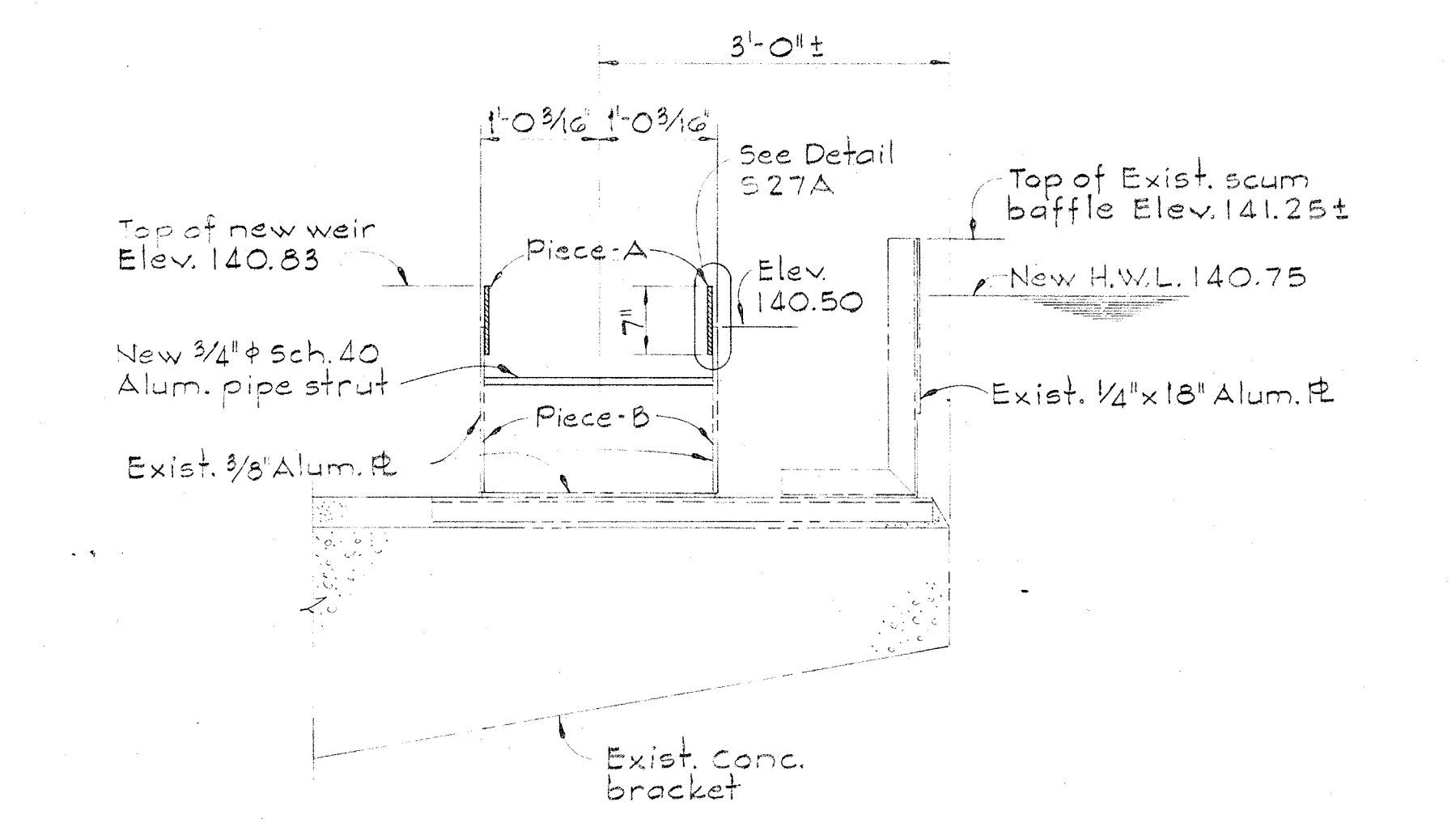
PLAN EXISTING SECONDARY CLARIFIER NO. 4
Scale: 1/8" = 1'-0"



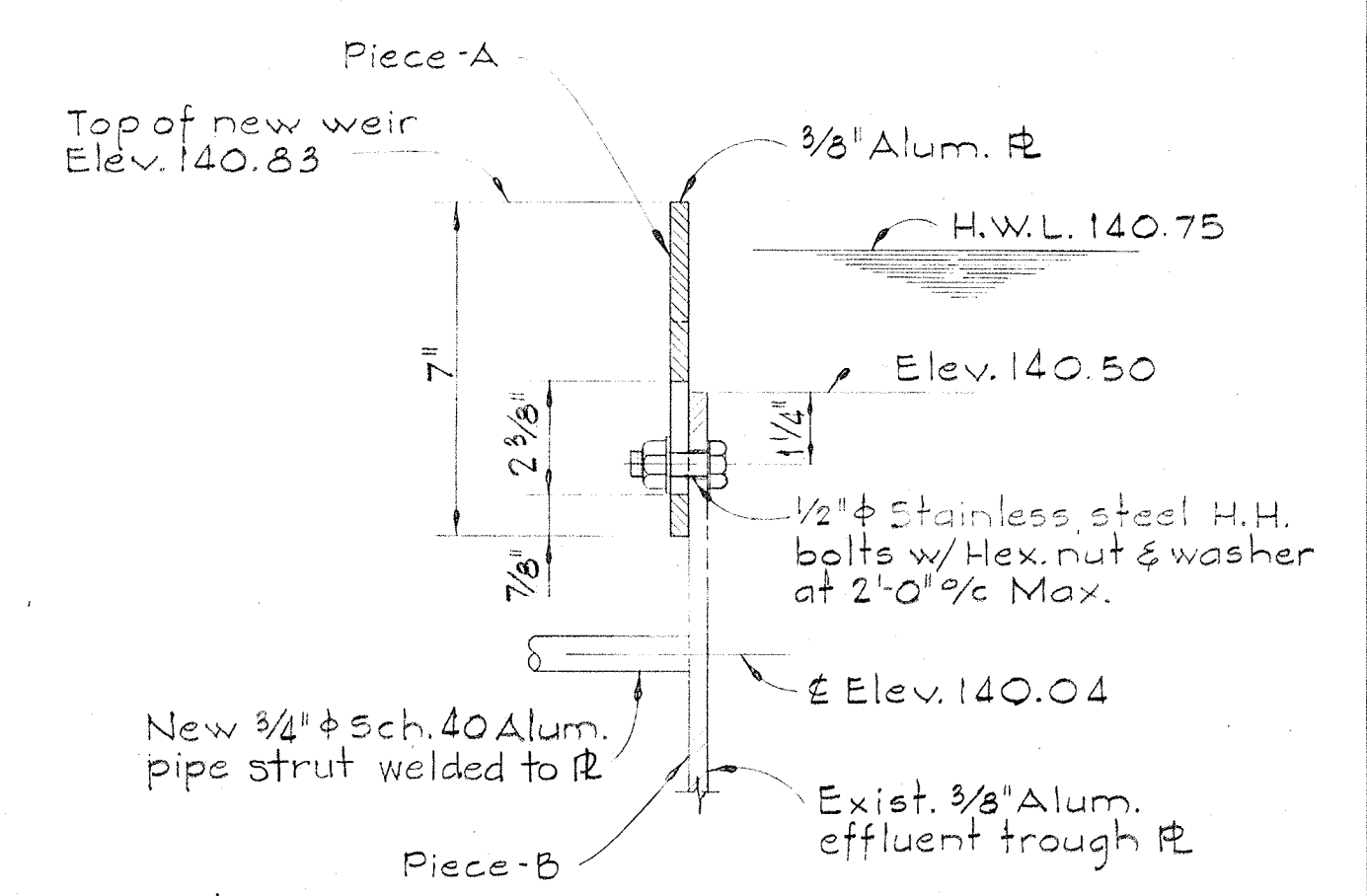
PART PLAN
Scale: 3/8" = 1'-0"



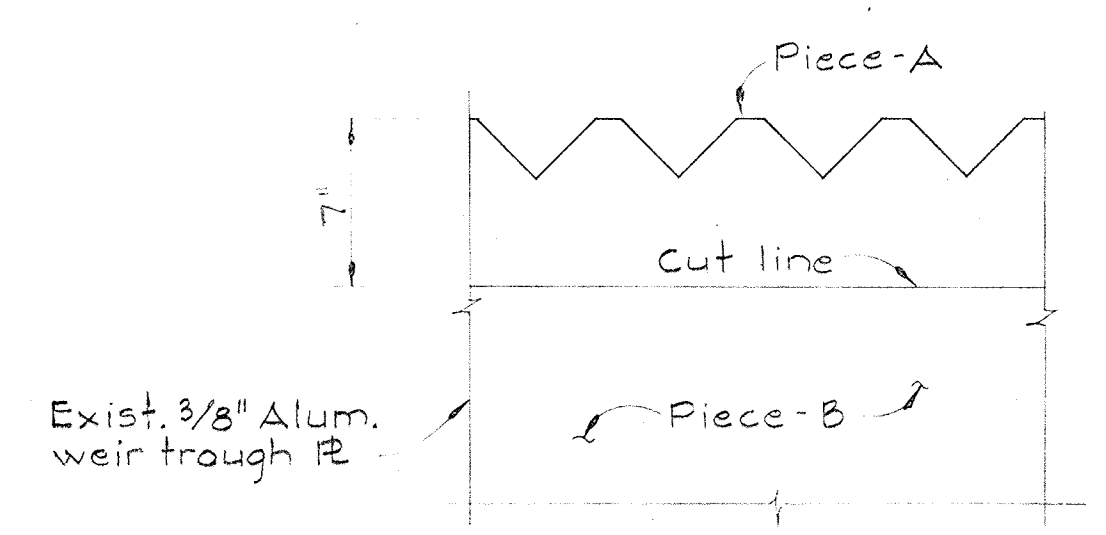
SECTION THRU EXIST. TROUGH
Scale: 3/4" = 1'-0"



SECTION THRU MODIFIED TROUGH
Scale: 3/4" = 1'-0"



Note: Inside face shown, Outside face opposite hand.
DETAIL 527A/527
Scale: 3" = 1'-0"



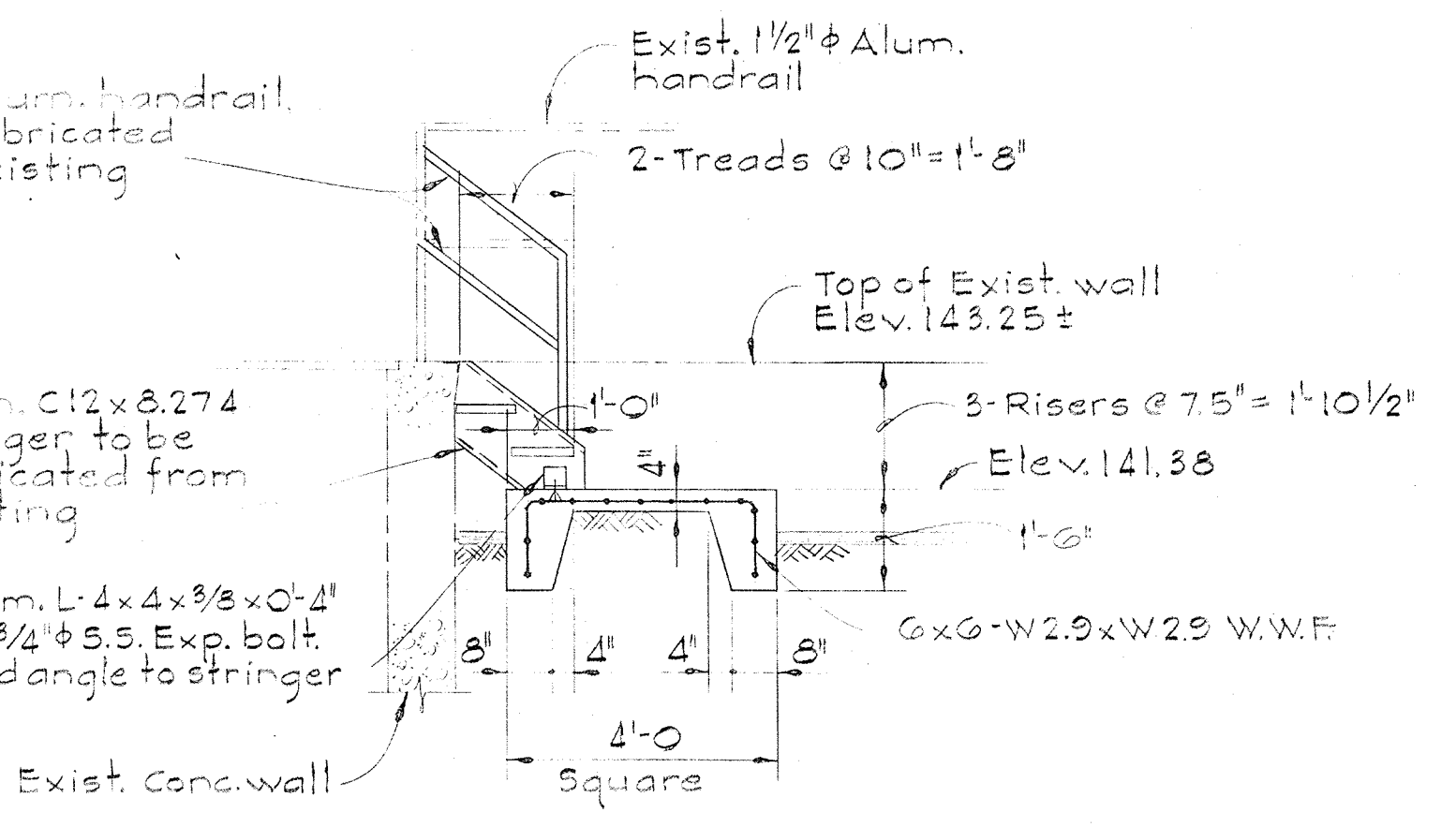
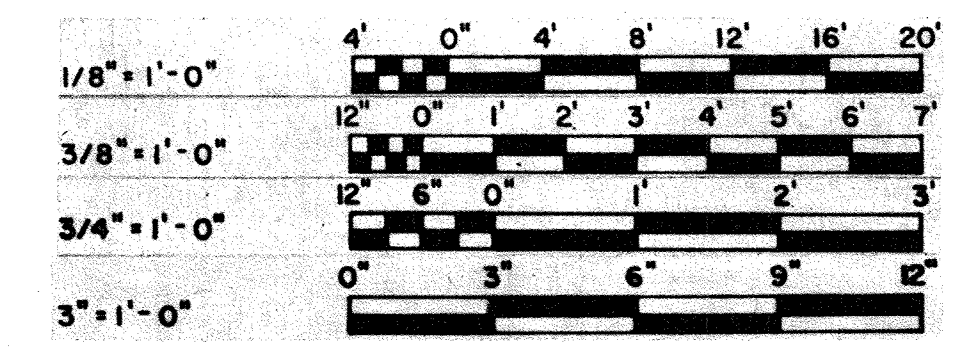
ELEVATION
Not to Scale

TROUGH MODIFICATION SEQUENCE

1. Remove existing 3/4" Sch. 40 Alum. pipe strut. Reuse if possible in step 5.
2. Cut inside face and outside face of trough 7" below top. Limit of modifications shown on Plan.
3. Cut 2 3/8" long slotted hole for 1/2" S.S. bolt in 7" piece of trough (Piece-A). Space holes at 2'-0" Max.
4. Provide holes for 1/2" S.S. bolts in Piece-B spaced to match holes in Piece-A.
5. Weld new or reused 3/4" Sch. 40 aluminum pipe strut as shown in Detail 527A.

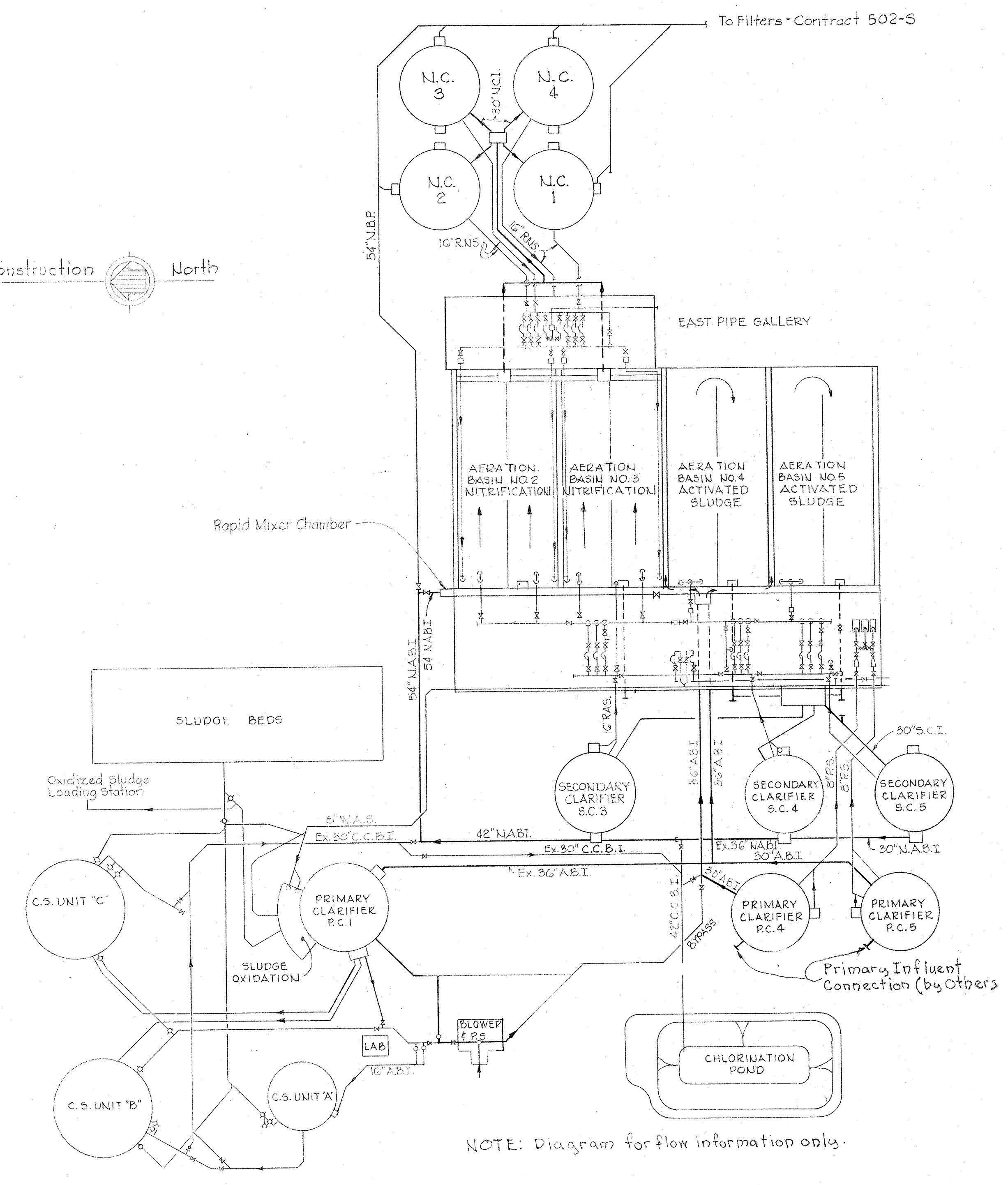
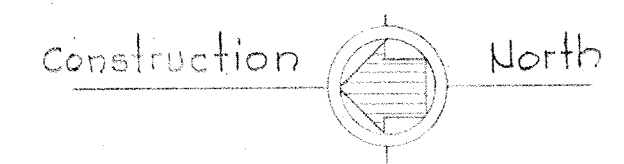
GENERAL NOTES

1. Prior to start of modification work the Contractor shall visit the site to verify all existing dimensions and conditions.
2. Existing Parshall flume to be left in place.

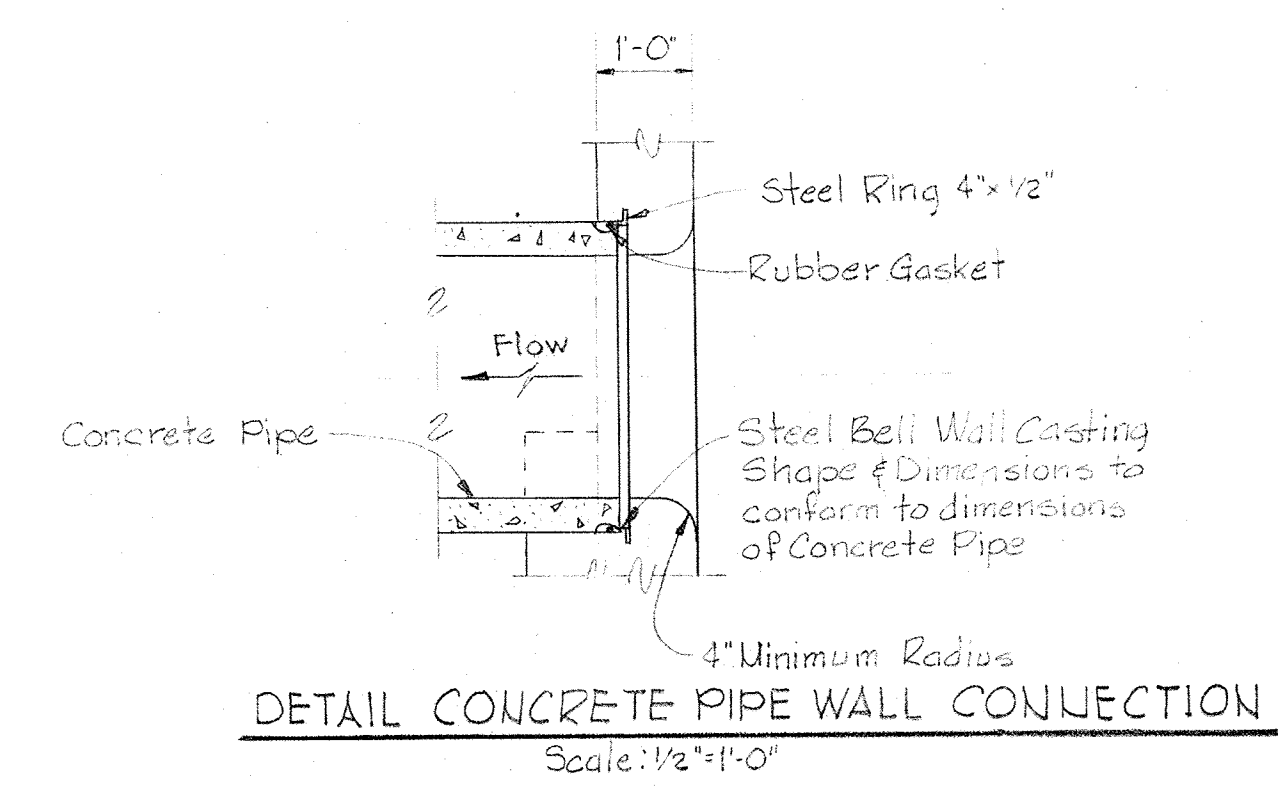


SECTION 527B/527
Scale: 3/8" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: _____ CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	EXISTING SECONDARY CLARIFIER NO. 4 PLAN, SECTIONS, & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 60A OF 133	SCALE AS SHOWN
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NOTE: Diagram for flow information only.



PROCESS LEGEND

- See Sheet G-3 for Additional
- P.C.I. Primary Clarifier Influent
 - A.B.I. Aeration Basin Influent
 - S.C.I. Secondary Clarifier Influent
 - N.A.B.I. Nitrification Aeration Basin Influent
 - N.C.I. Nitrification Clarifier Influent
 - W.A.S. Waste Activated Sludge
 - R.A.S. Return Activated Sludge
 - R.N.S. Return Nitrified Sludge
 - R.W. Flushing Water (Process Water)

MECHANICAL LEGEND

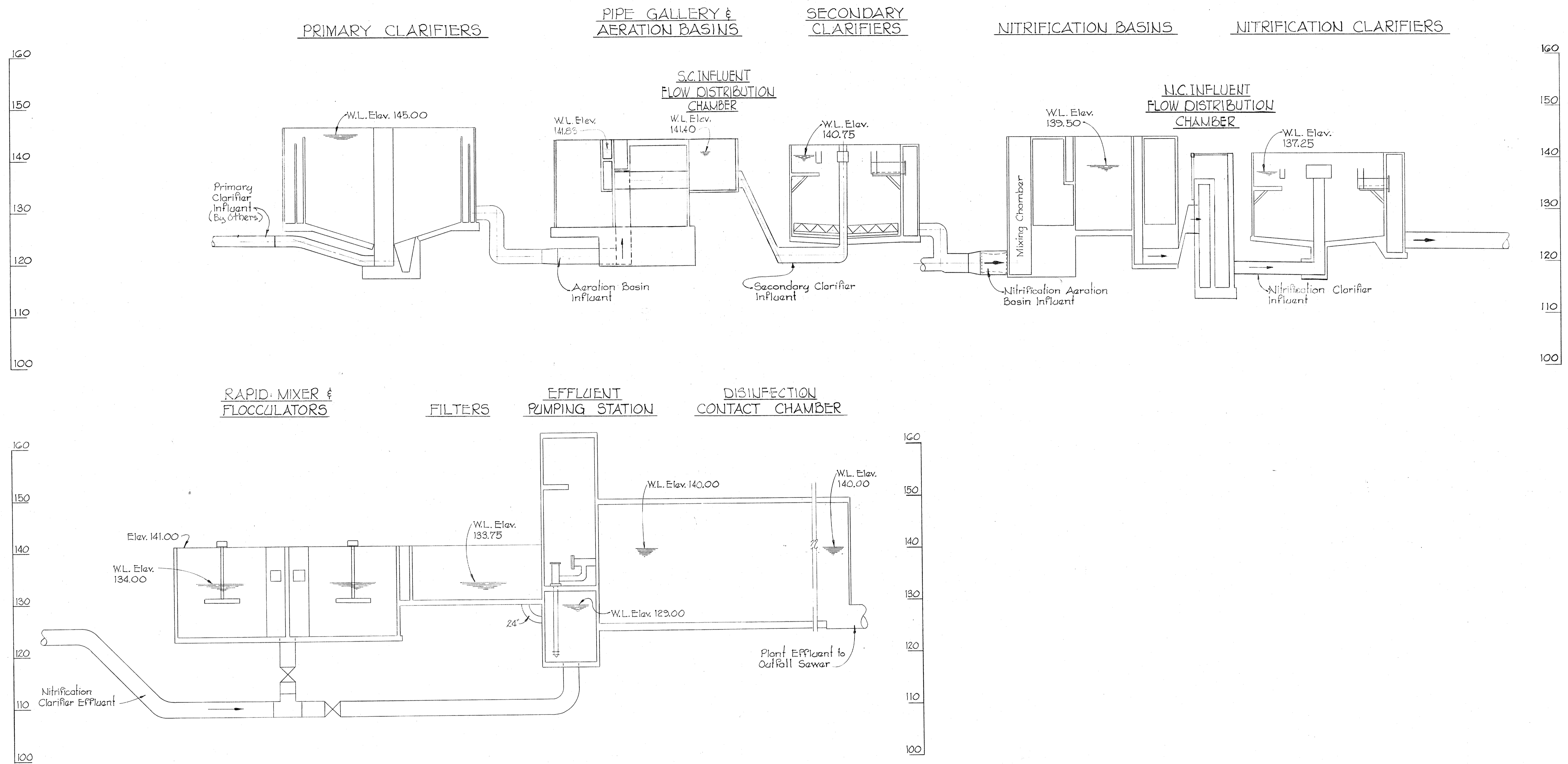
- HW Hot Water
- C.W. Cold Water
- W.L. Water Level
- A Control Air
- GV Gate Valve
- PLV Plug Valve
- BT Ball Valve (Chlorine Service)
- P.V.C. Polyvinyl Chloride Pipe
- C.I.P. Cast Iron or Ductile Iron Pipe
- N.S. Nitritified Sludge
- PG Pressure Gage
- CA Compressed Air
- E.S.H. Electric Baseboard Heat
- H.B. Hose Bibb
- PRV Pressure Reducing Valve
- H.E. Hub End
- C.O. Clean Out
- F.E. Fire Extinguisher
- H.W.L. High Water Level
- F.W. Flushing Water
- V.T.R. Vent Thru Roof
- DR Drain Piping
- G.V. Globe Valve
- R.W.G.V. Resilient Wedge Gate Valve
- B.V. Butterfly Valve
- D.O.P. Dissolved Oxygen Probe

Note: see Drawing M-28
Meters and
Instrumentation
Sheet G-3 For
additional LEGEND
information.

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/10/68 CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	SCHEMATIC DIAGRAM PLANT FLOW	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO.4	DRAWING NO. 61 OF 133	SCALE AS SHOWN SHEET M-1
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W.O. 6887-2

BRUNING 44-510 16392



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-20-77
DATE

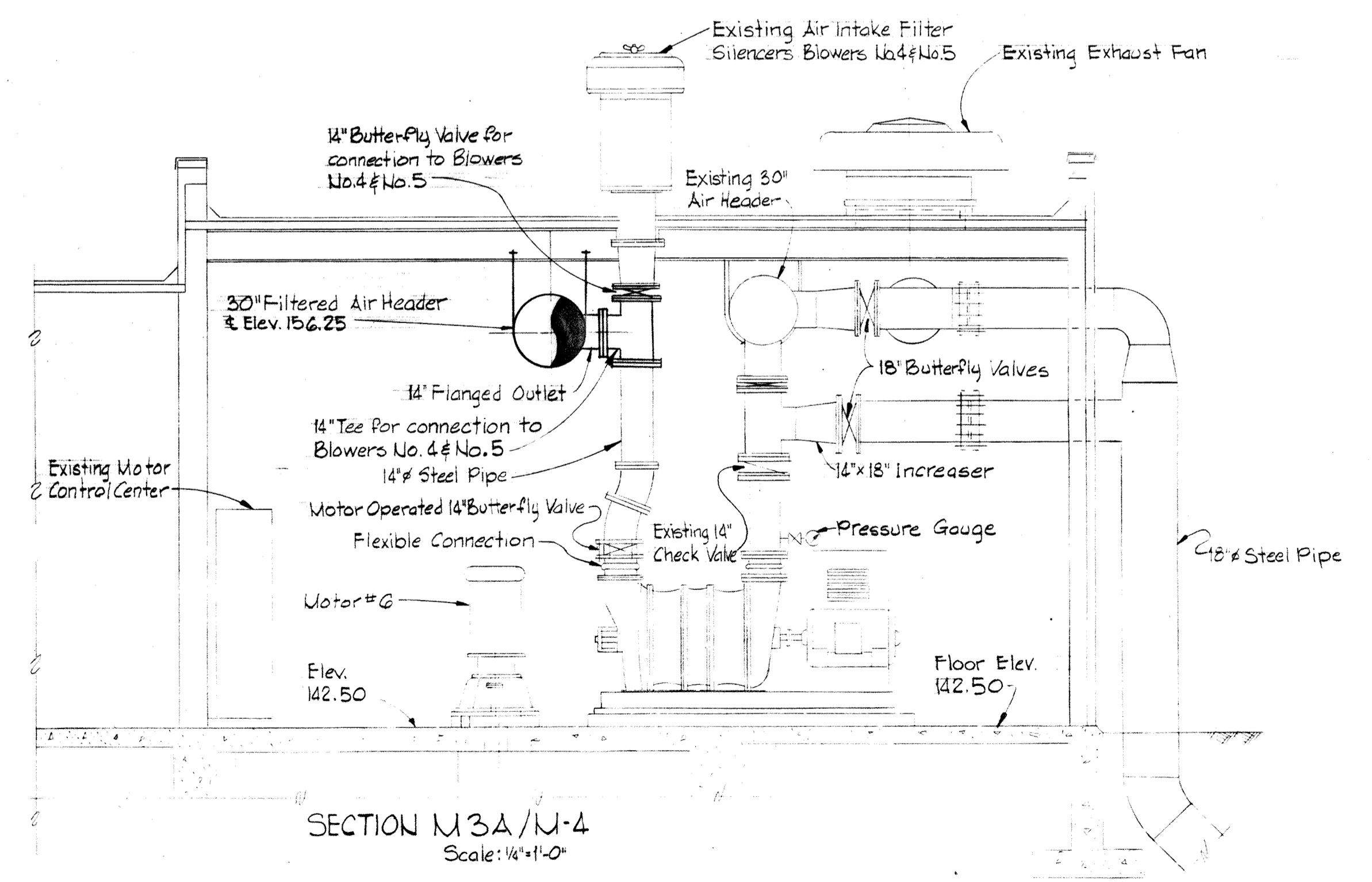
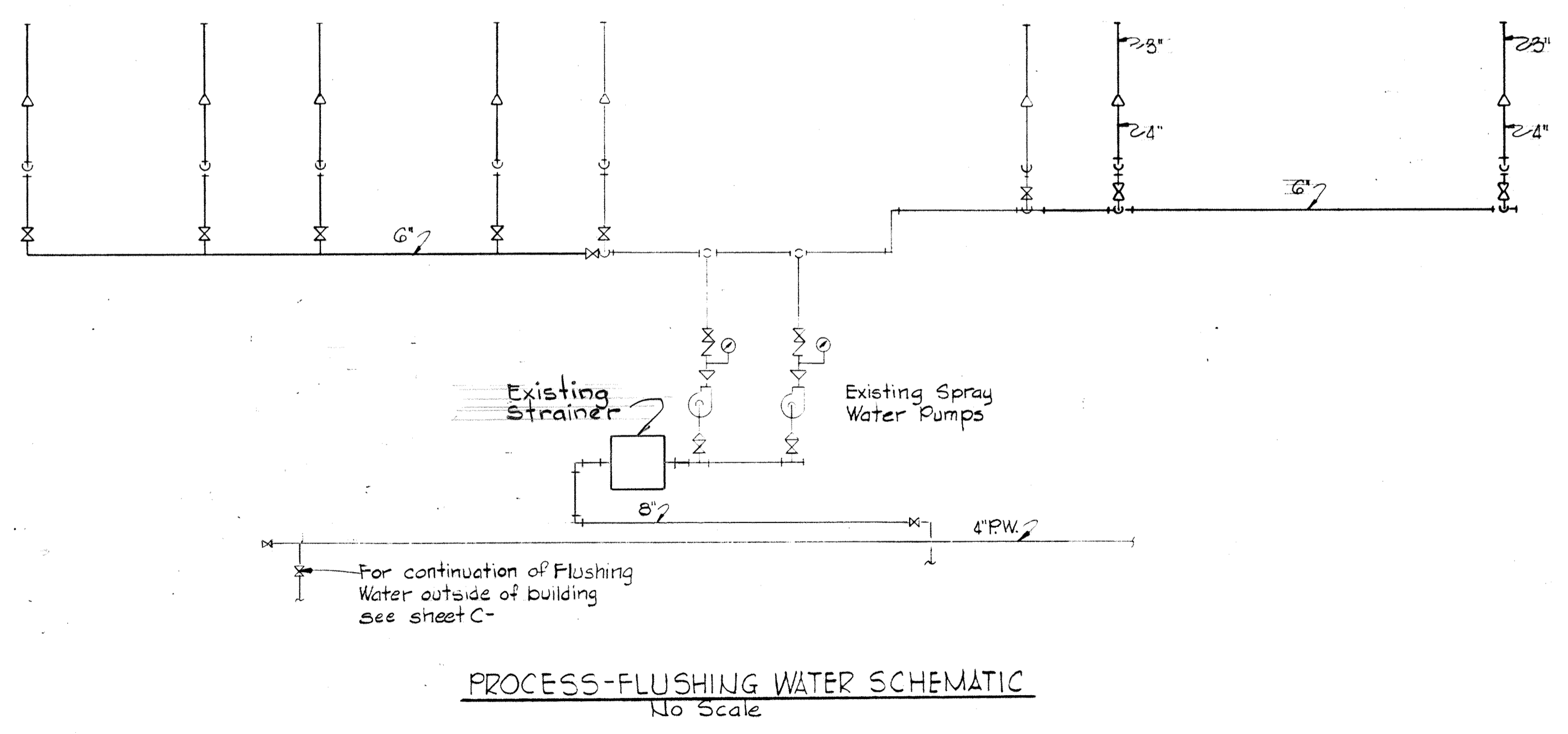
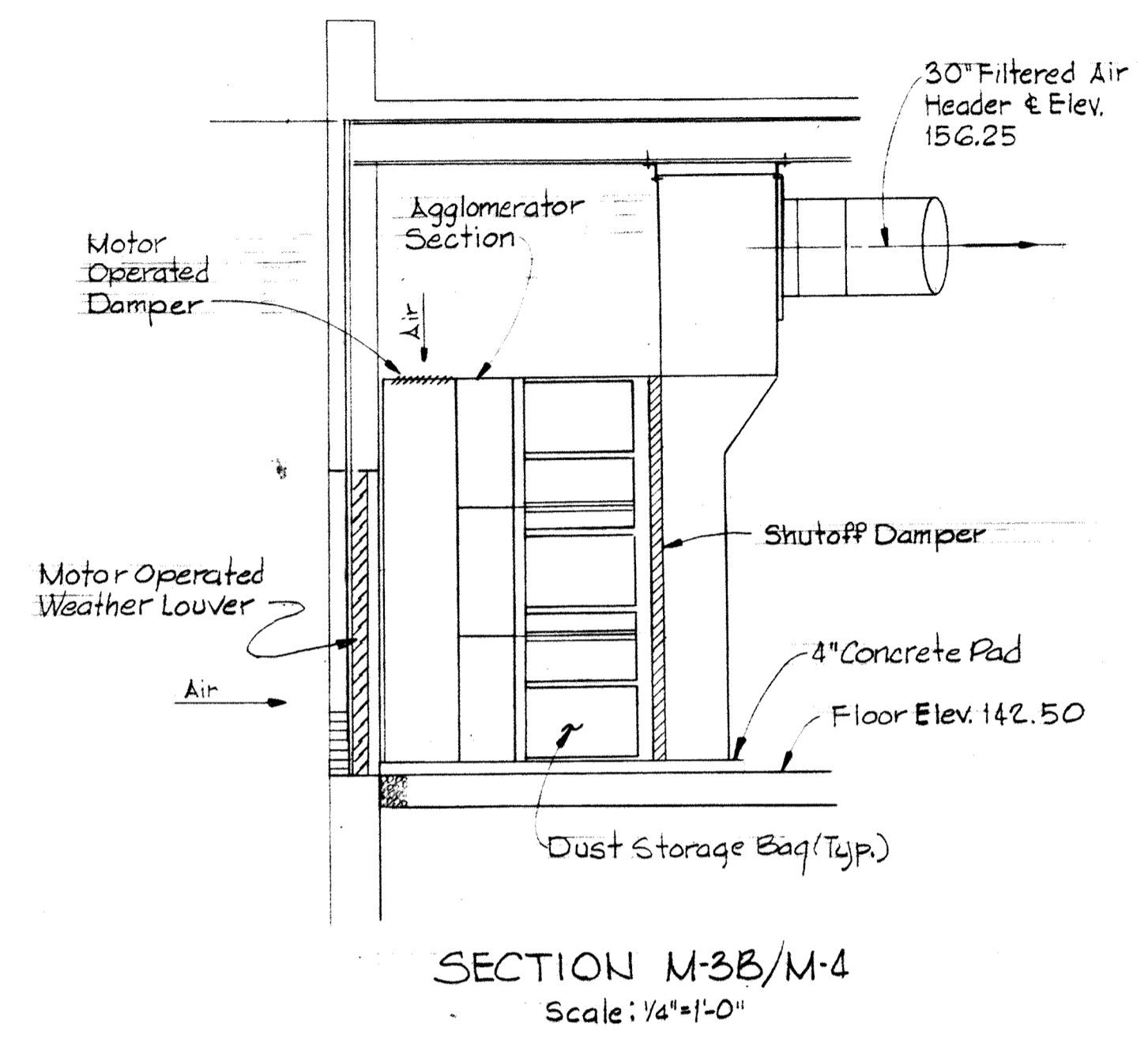
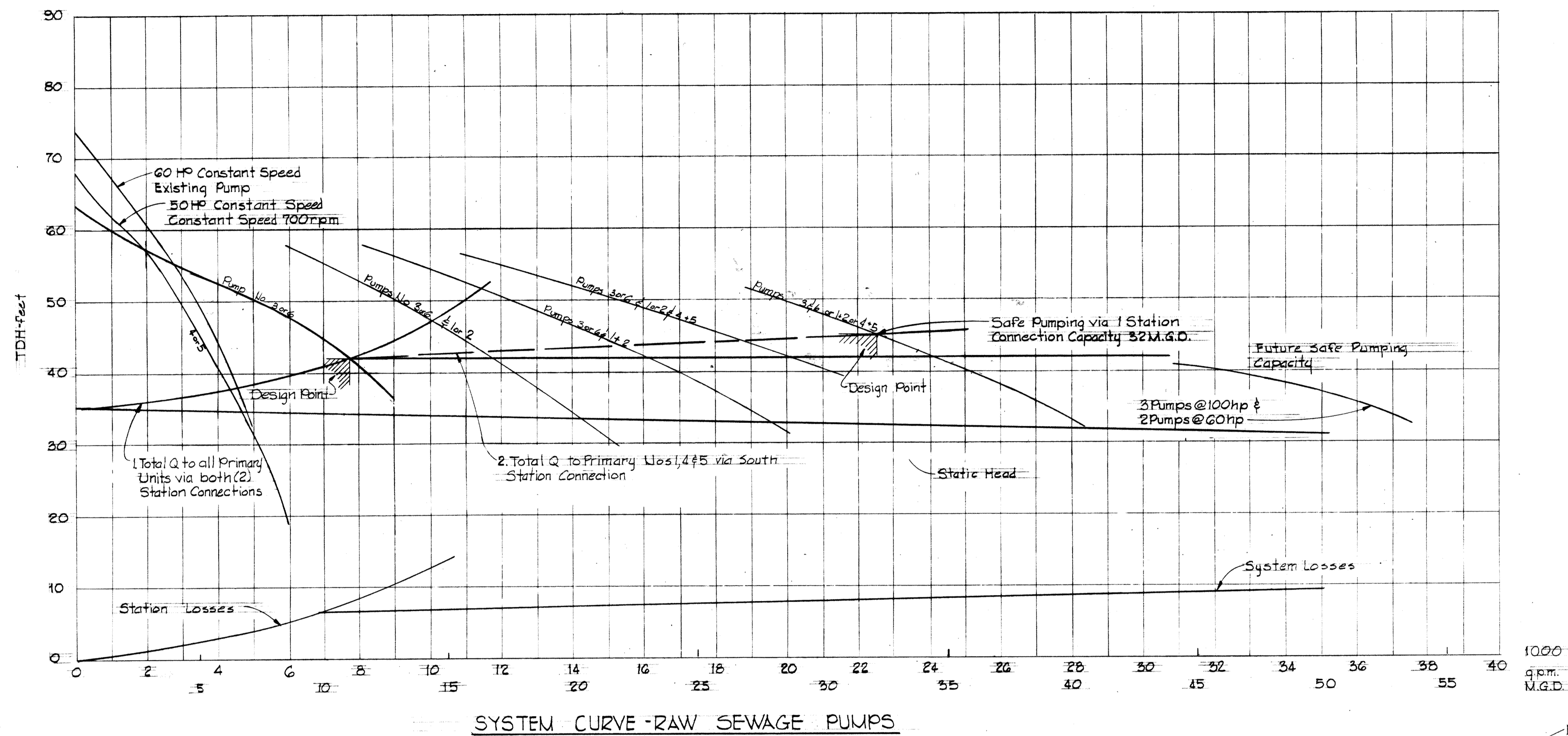
CONTRACT NO. 500-S

HYDRAULIC PROFILE

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

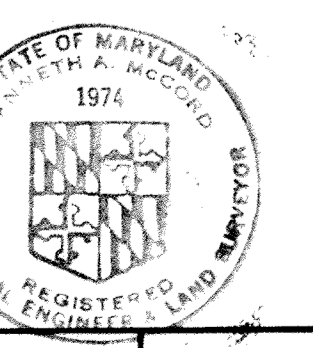
DRAWING
NO. 62
OF 133

SCALE
AS
SHOWN

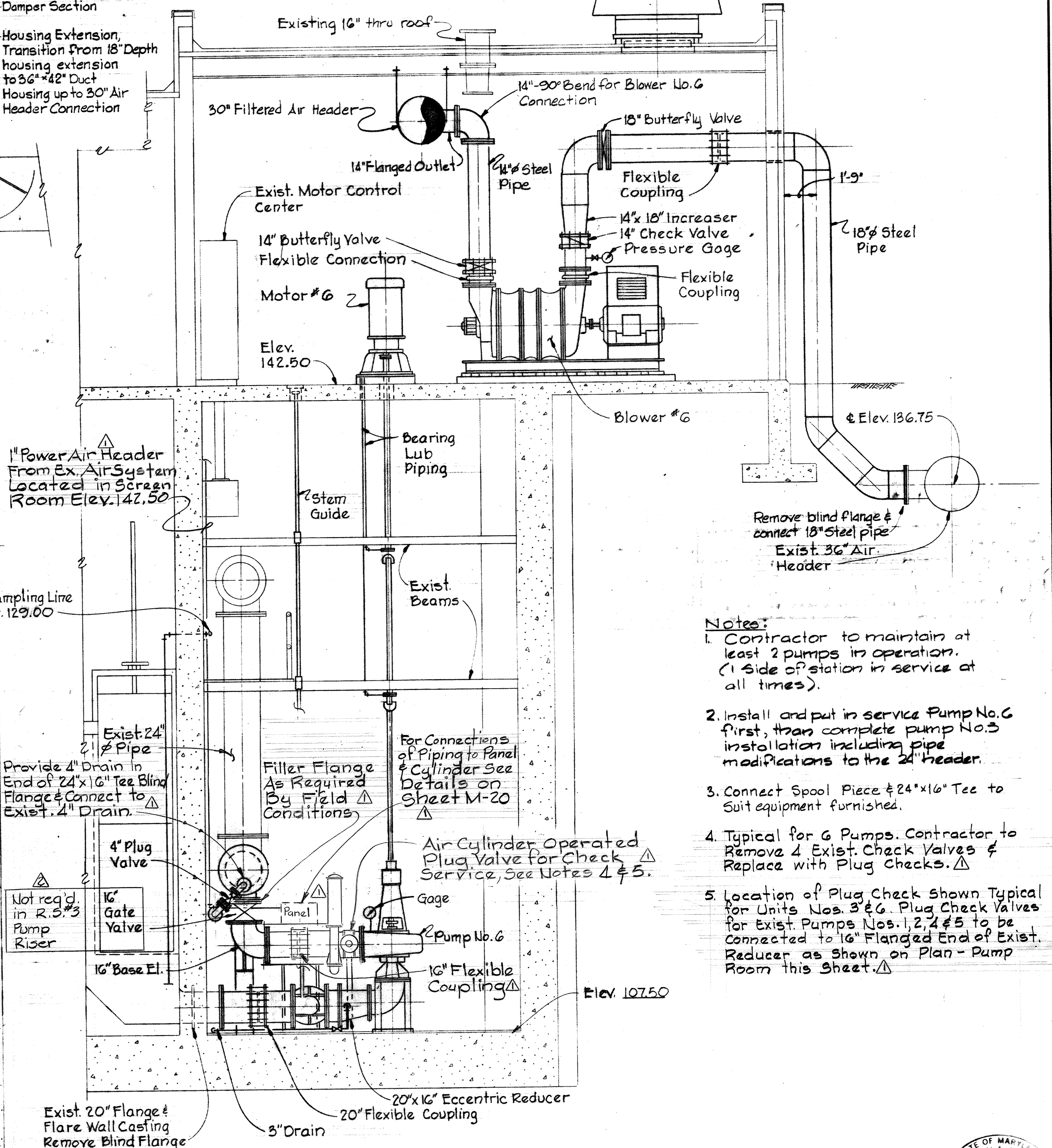
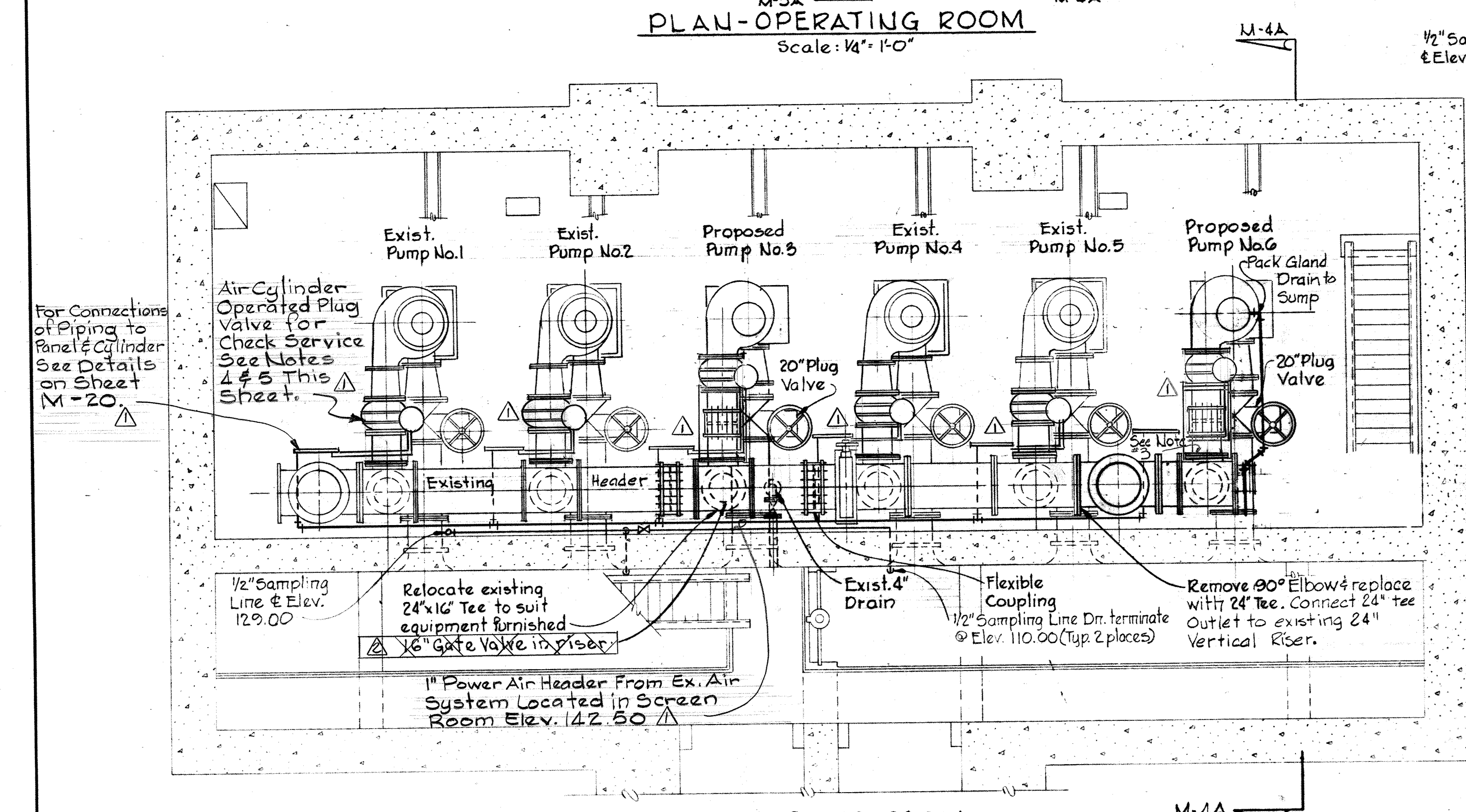
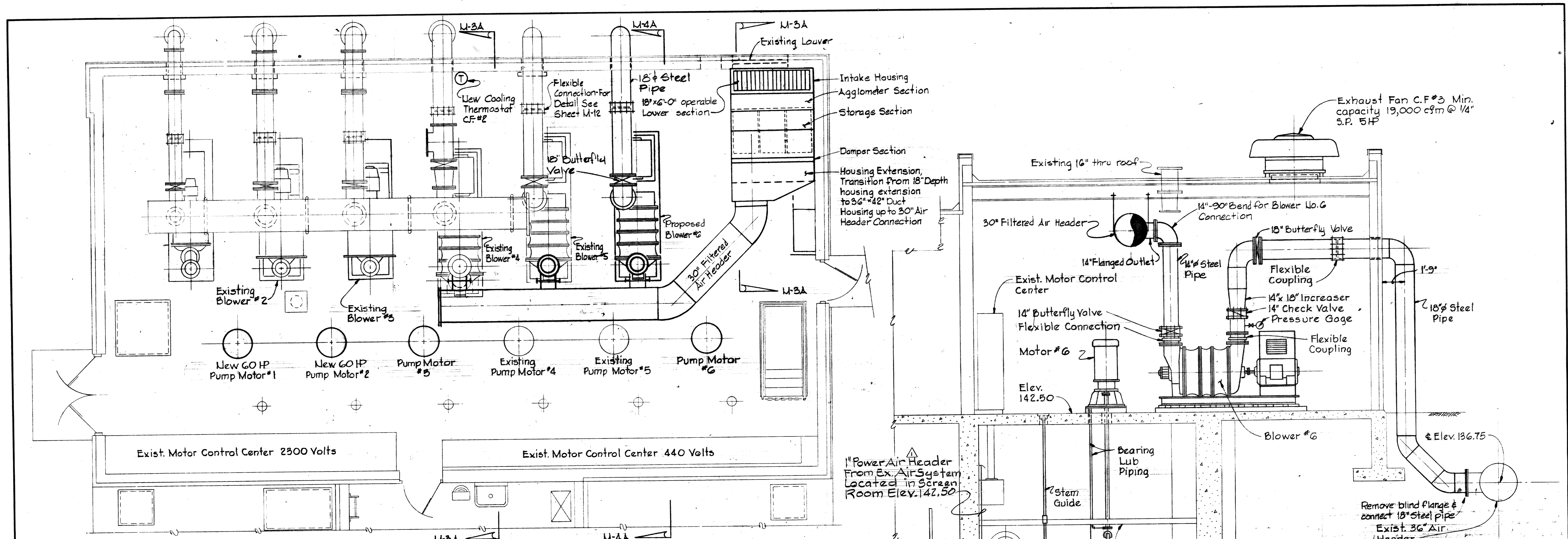


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: _____ CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	SYSTEM CURVE	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 63 OF 133	SCALE AS SHOWN
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W. O. 6887-2

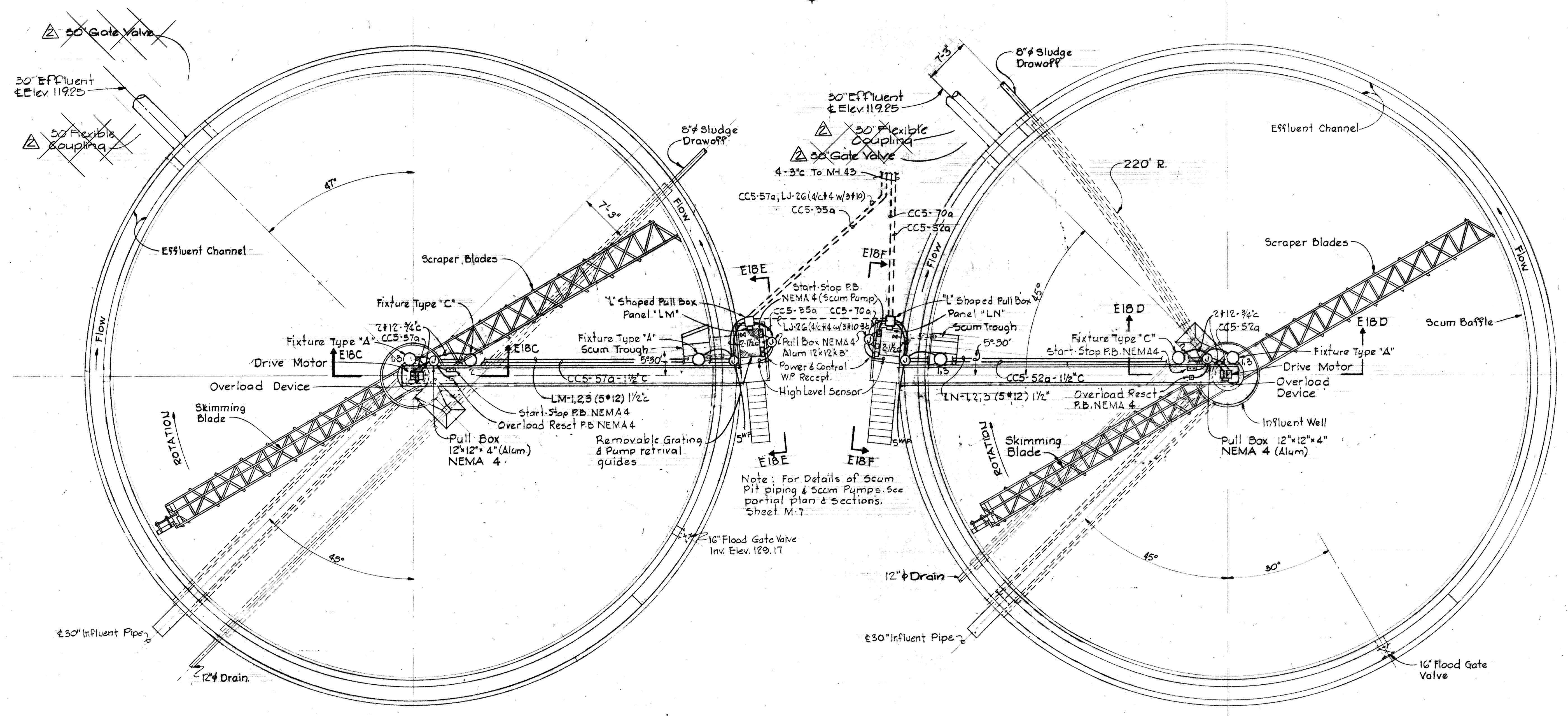
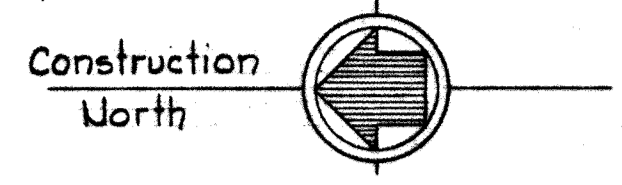


SHEET M-3



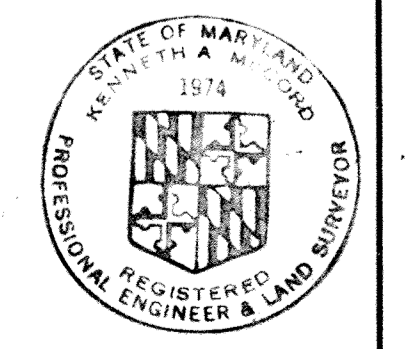
- Notes:**
- Contractor to maintain at least 2 pumps in operation. (1 side of station in service at all times).
 - Install and put in service Pump No. 6 first, then complete pump No. 3 installation including pipe modifications to the 24" header.
 - Connect Spool Piece & 24"x16" Tee to Suit equipment furnished.
 - Typical for 6 Pumps. Contractor to Remove 4 Exist. Check Valves & Replace with Plug Checks.
 - Location of Plug Check Shown Typical for Units Nos. 3 & 6. Plug Check Valves for Exist. Pumps Nos. 1, 2, 4 & 5 to be connected to 16" Flanged End of Exist. Reducer as shown on Plan - Pump Room this Sheet.

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE 3/21/75 W. O. Gilbert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	BLOWER BUILDING PUMPING STATION ADDITIONS PLANS AND SECTIONS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 64 OF 133 SCALE AS SHOWN SHEET M-4
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PLAN OF PRIMARY CLARIFIER NO. 4
Scale: 1/8" = 1'-0"

PLAN OF PRIMARY CLARIFIER NO. 5
Scale: 1/8" = 1'-0"



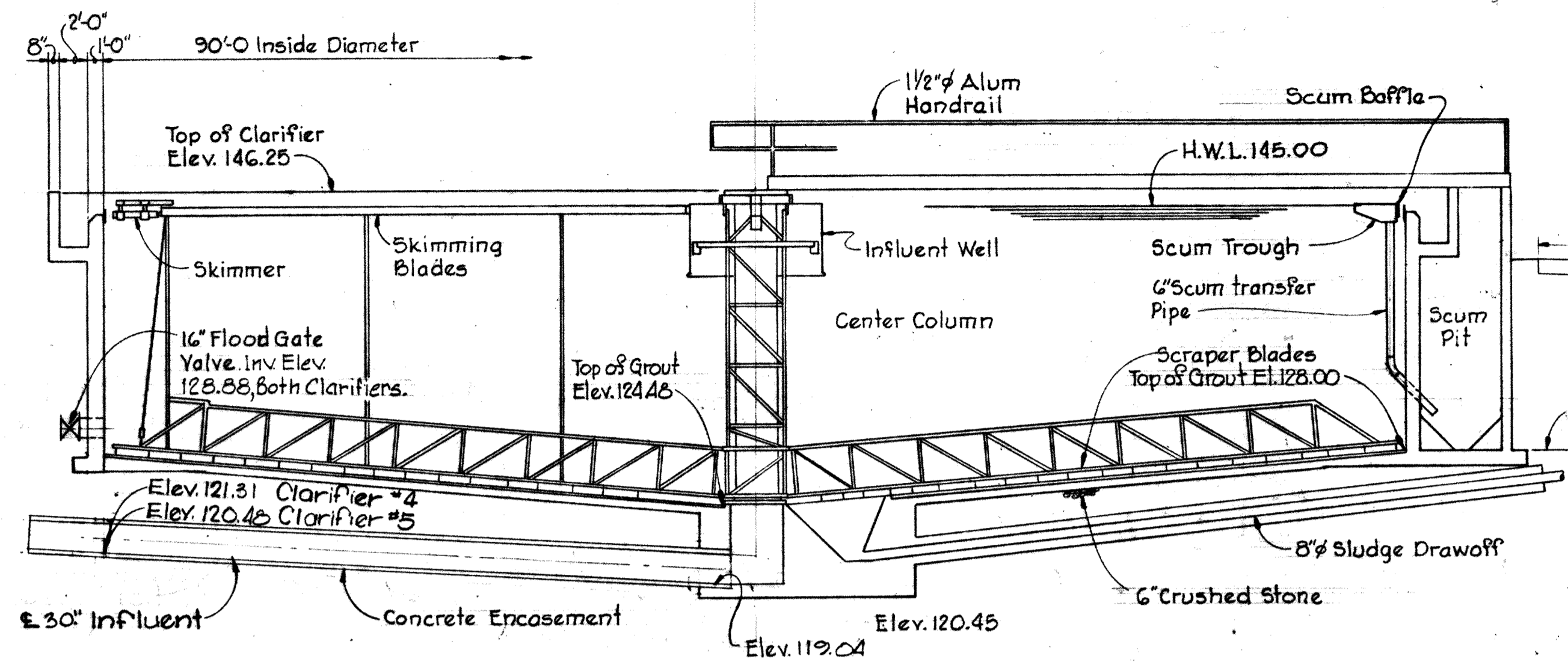
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/78 W.O. Lambert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	PRIMARY CLARIFIERS NO. 4 & 5 PLAN	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 65 OF 133	SCALE AS SHOWN
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W.O. 6887-2

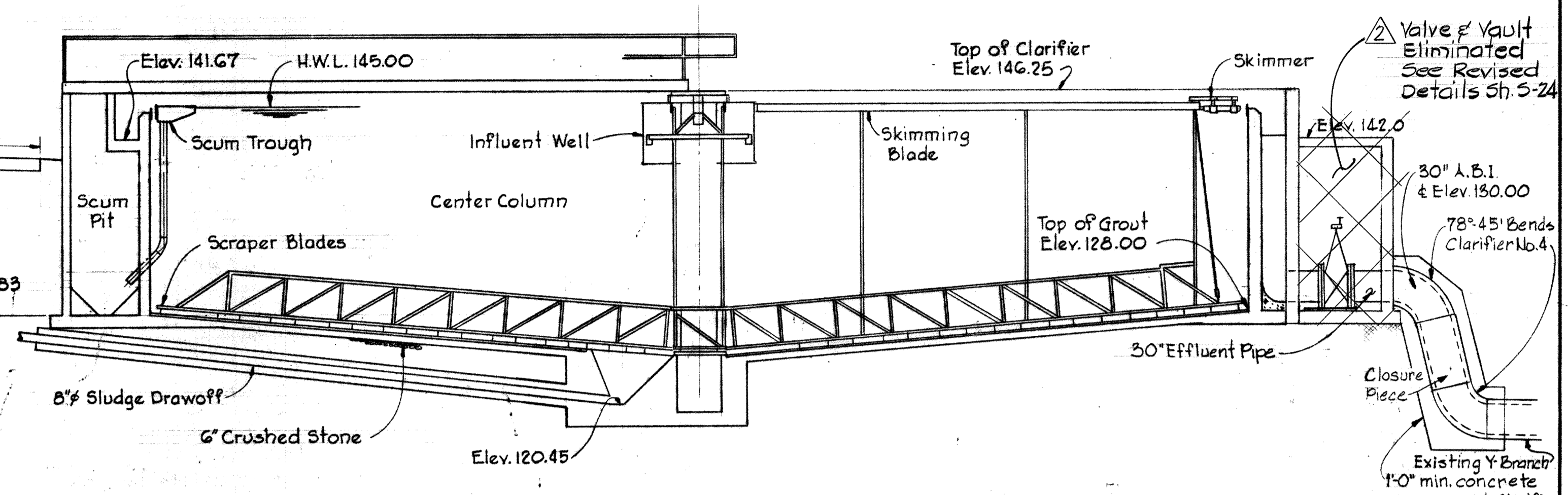
SHEET M-5

MODIFIED DRAWING - MAY 6, 1982

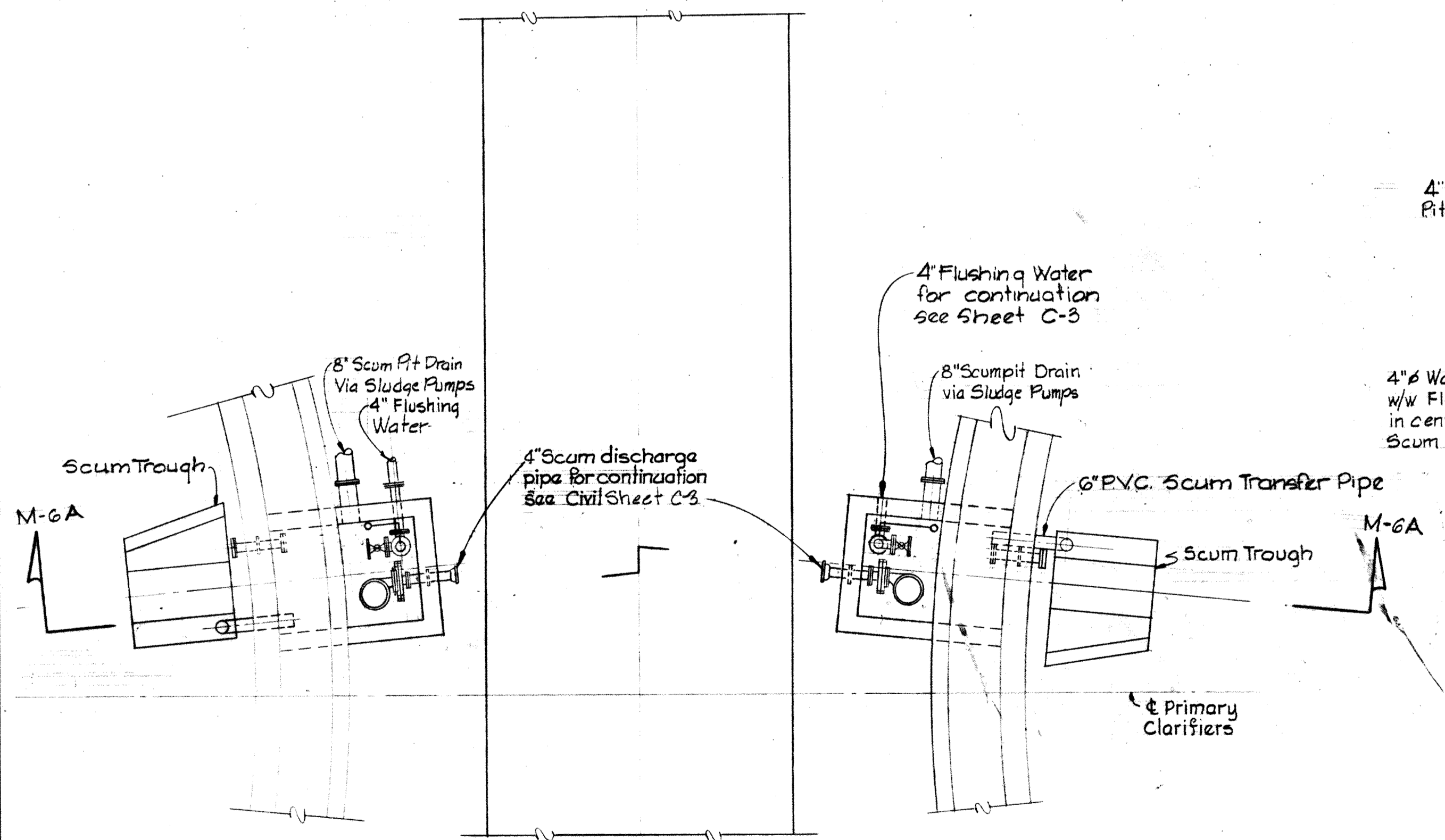
BRUNING 44-510 18392



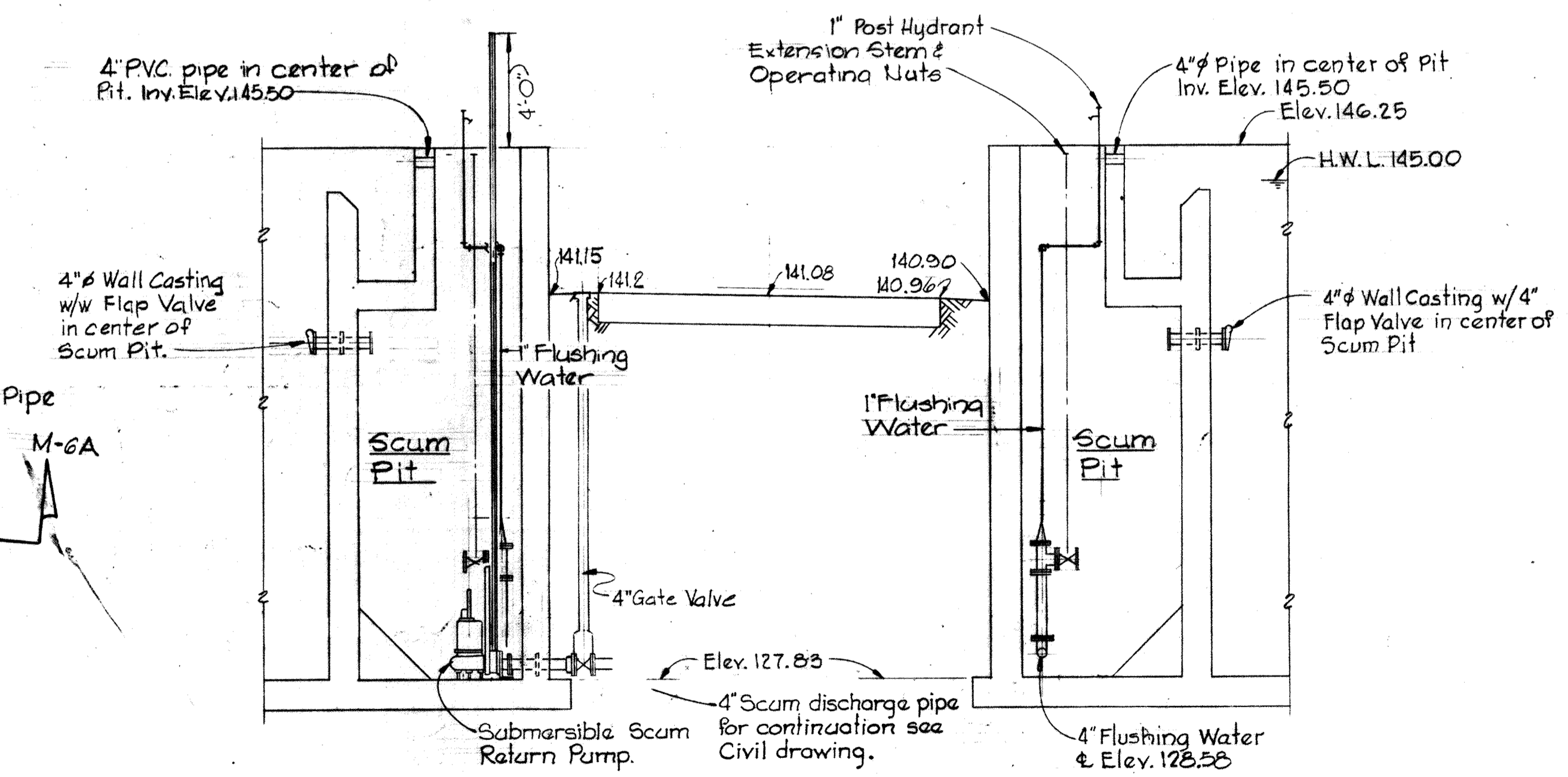
TYPICAL SECTION PRIMARY CLARIFIER
Scale: 1/8"=1'-0"



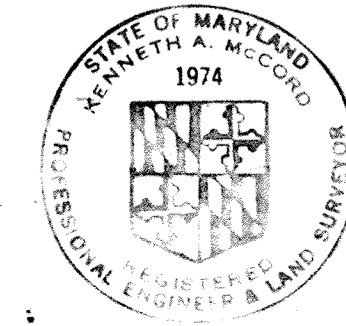
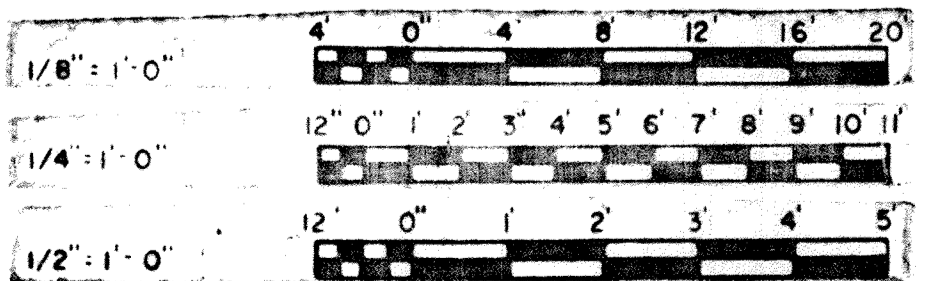
TYPICAL SECTION PRIMARY CLARIFIER
Scale: 1/8"=1'-0"



PARTIAL PLAN
Scale: 1/4"=1'-0"



SECTION M-6A/M-6
Scale: 1/4"=1'-0"



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BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
DATE
W.O. Gilbert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

PRIMARY CLARIFIERS NO. 4 & 5
SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

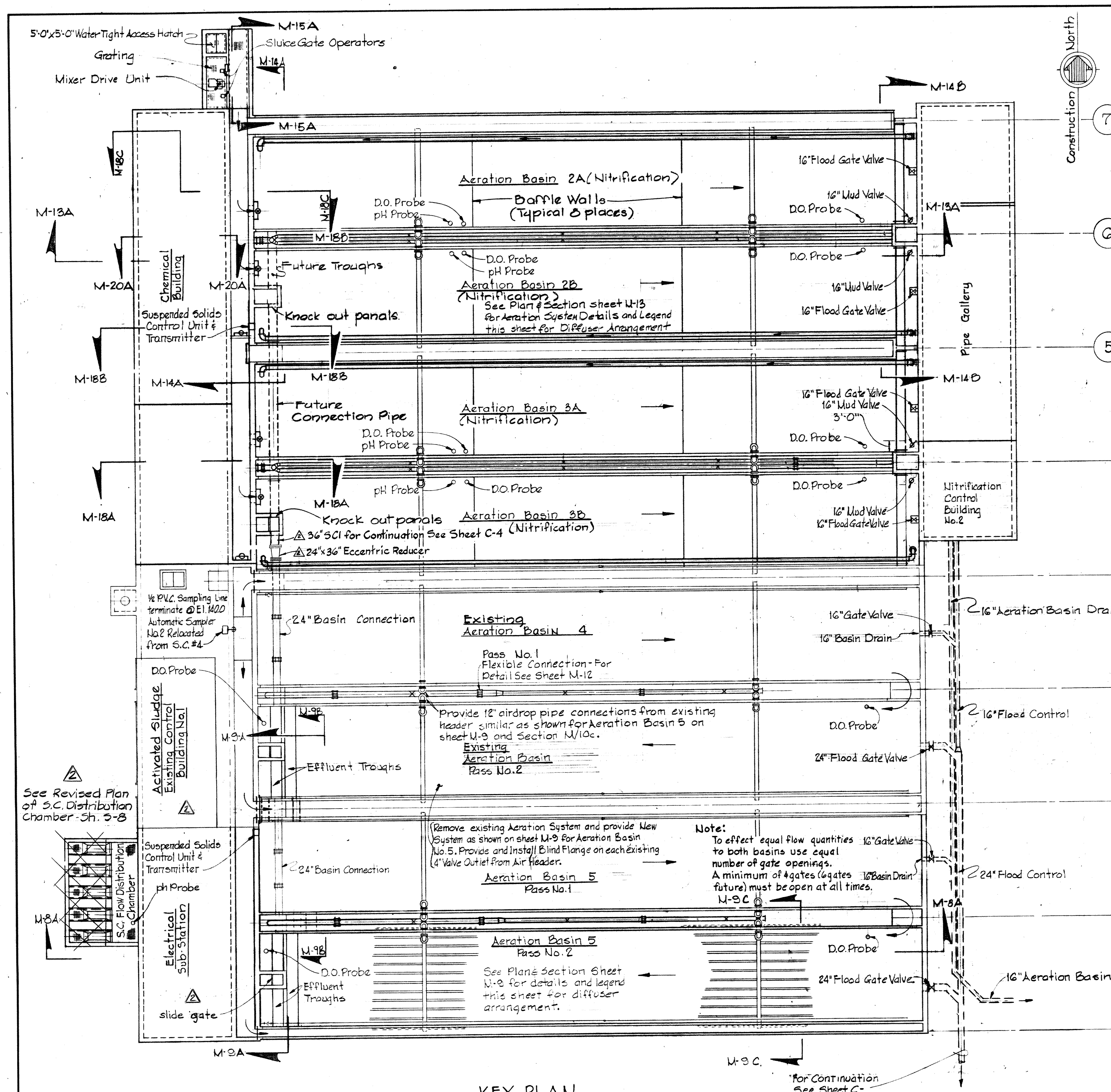
DRAWING NO. 66
OF 133

SCALE AS SHOWN

W.O. 6887-2

SHEET M-6

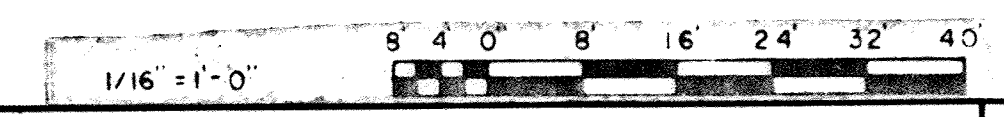
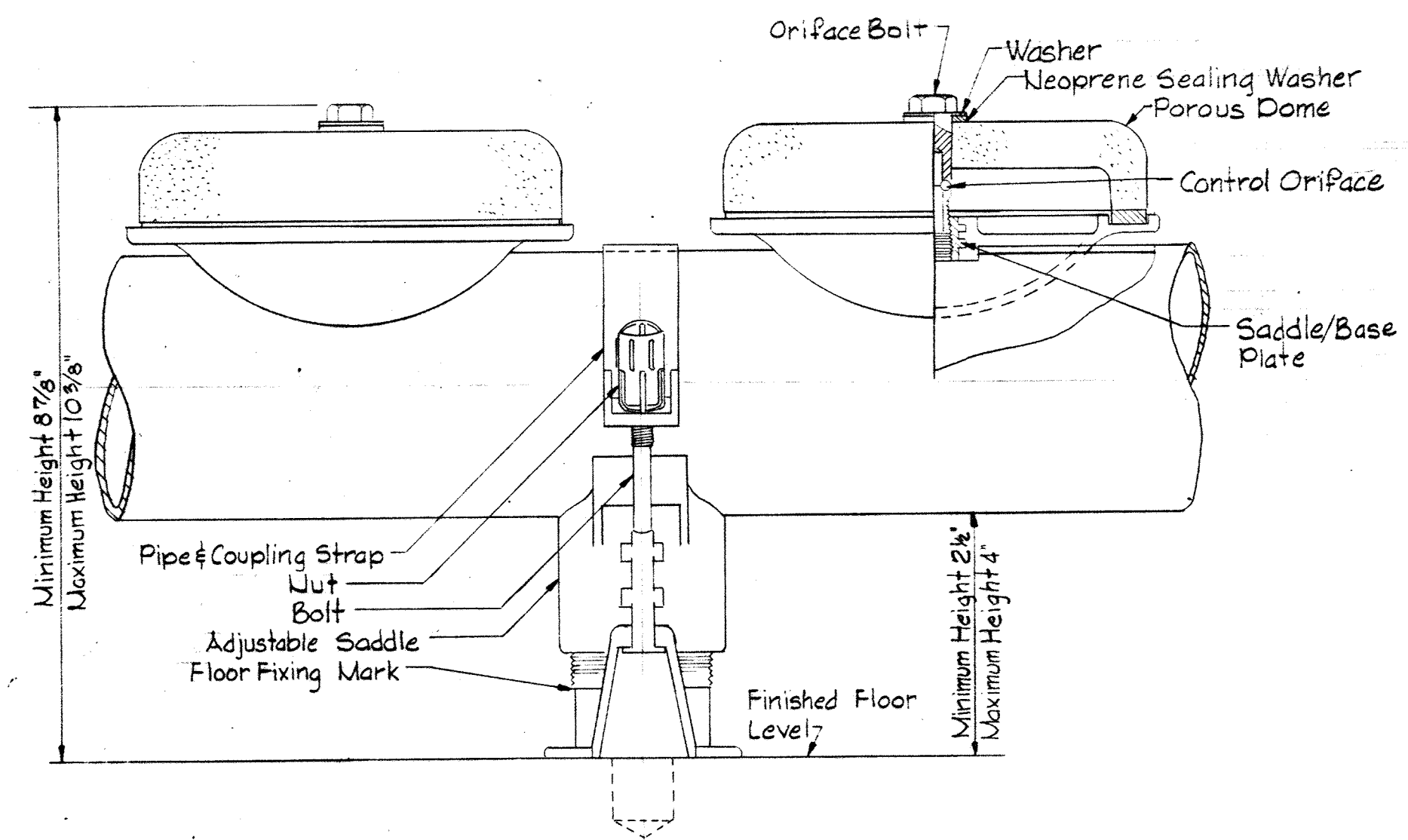
MODIFIED DRAWING - MAY 6, 1982



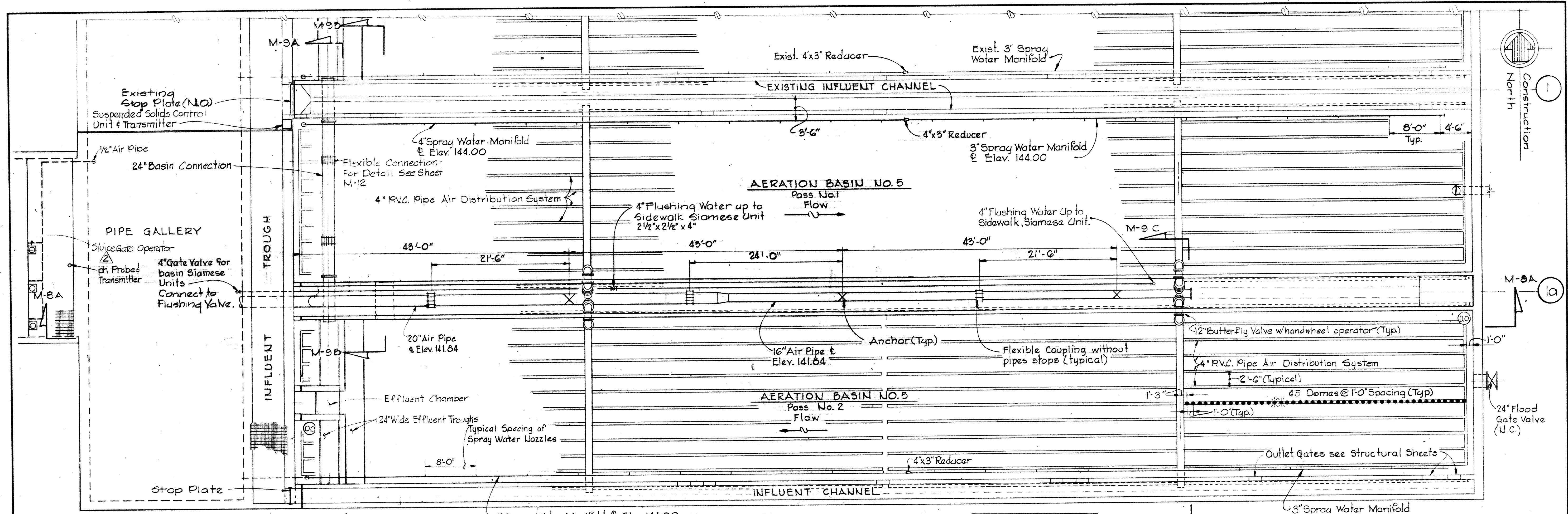
BASIN No.	PASS & AERATION METHOD	SEWAGE FLOW MGD.	AIR FLOW cfm	DIFFUSER ARRANGEMENT		DOMES PER RUN	NOTES		
				INITIAL DESIGN	FUTURE MODIFICATIONS				
				No. of DOMES	c.f.m./DOME	No. of DOMES			
4 or 5	1st Pass Plug	12.5	2820	-	-	2160	1.29	180	II B II A I B I A III
		7.5	1692	-	-	2160	.775	180	
	12.5	2170	2160	.603	2160	1.0	180		
	7.5	1302	-	-	1104	.98	1056		
4 or 5	2nd Pass Plug	12.5	1518	-	-	1200	1.29	960	II B II A I B I A III
		7.5	911	-	-	1200	.775	960	
	12.5	2170	2160	.603	2160	1.0	180		
	7.5	1302	-	-	1104	.98	1056		
2 or 3	NH ₃ as NH ₃ as Step	3.75	1445	1104	1.30	-	-	92	I III
		6.25	1085	-	-	1104	.98	1056	

NOTES:

- IA. Initial installation arrangement. Number of domes in each pass is 2160 based on 1'-0" spacing. Air to NH₃ tanks will be throttled due differences in W.L. & Flow.
- IB. Step flow at future plant capacity.
- IIA. Plug flow modification will require increase of air flow to 1st pass and decrease to 2nd pass. Remove 960 Domes from 2nd pass for plug flow.
- IIB. Plug flow modification at future plant capacity.
- III. Step flow for all basins eliminating separate nitrification. leave NH₃ as is and remove 1056 domes each in AB #4 & #5.



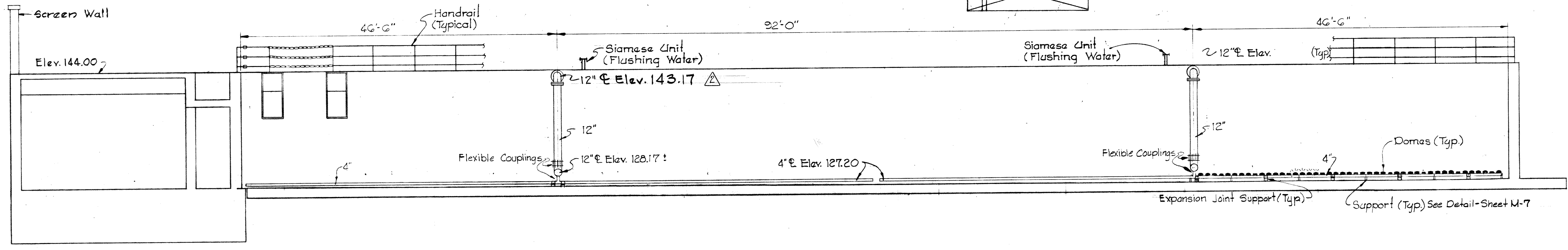
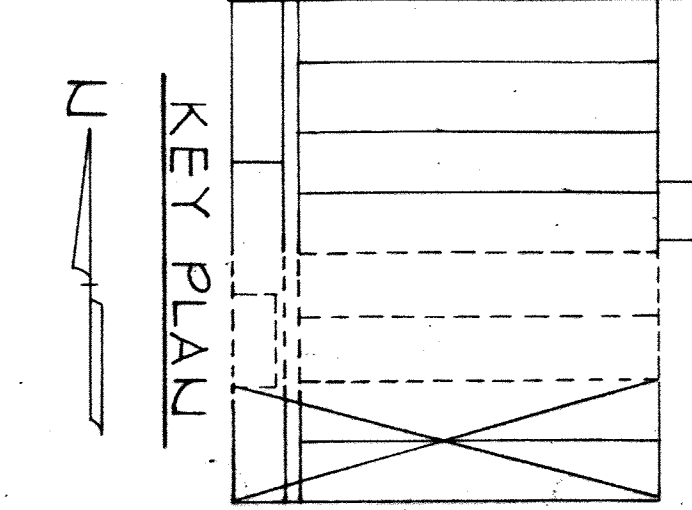
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/30/75 <i>W. O. Lambert</i> CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS AND PIPE GALLERIES KEY PLAN	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 67 OF 133	SCALE AS SHOWN
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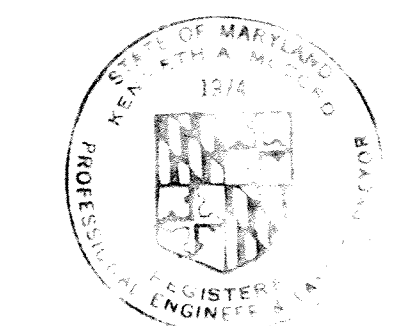
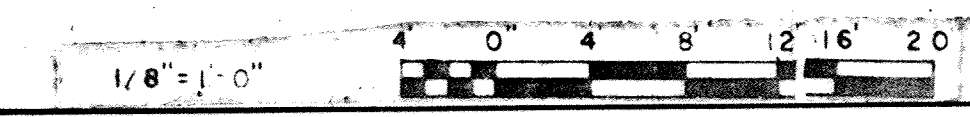
M-9A

- Notes:
1. pH and probes location in Aeration Basin No. 4 same as Aeration Basin No. 5
 2. For Diffuser Arrangement, See Sheet M-8

PLAN
Scale: 1/8"=1'-0"



SECTION M-8A/M-8
Scale: 1/8"=1'-0"

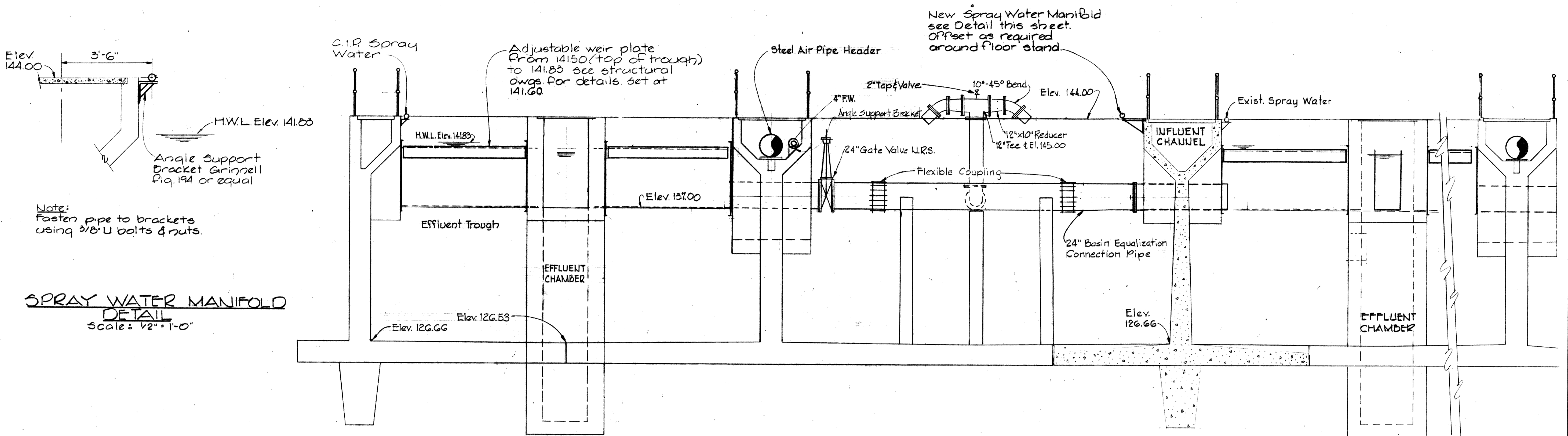


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE W.O. Leibel CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 5 PLAN & SECTION	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 68 OF 133 SCALE AS SHOWN SHEET M-8
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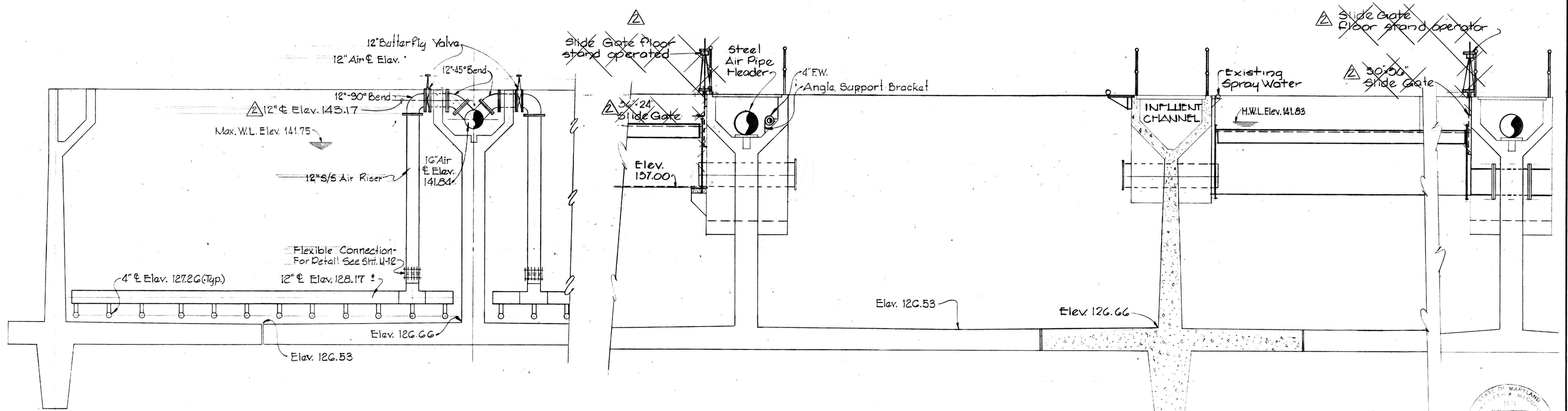
W.O. 6887-2

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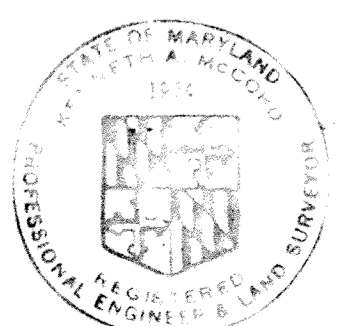
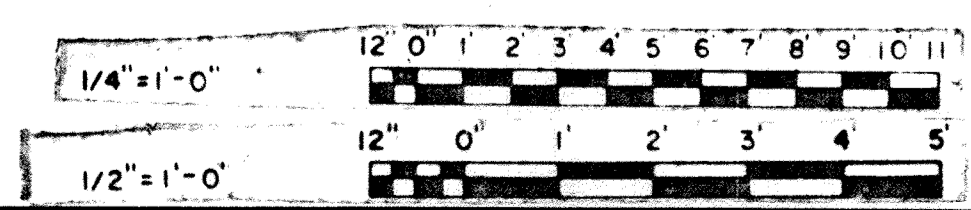


SECTION M-9A/M-8
Scale: 1/4" = 1'-0"



SECTION M-9C/M-8
Scale: 1/4" = 1'-0"

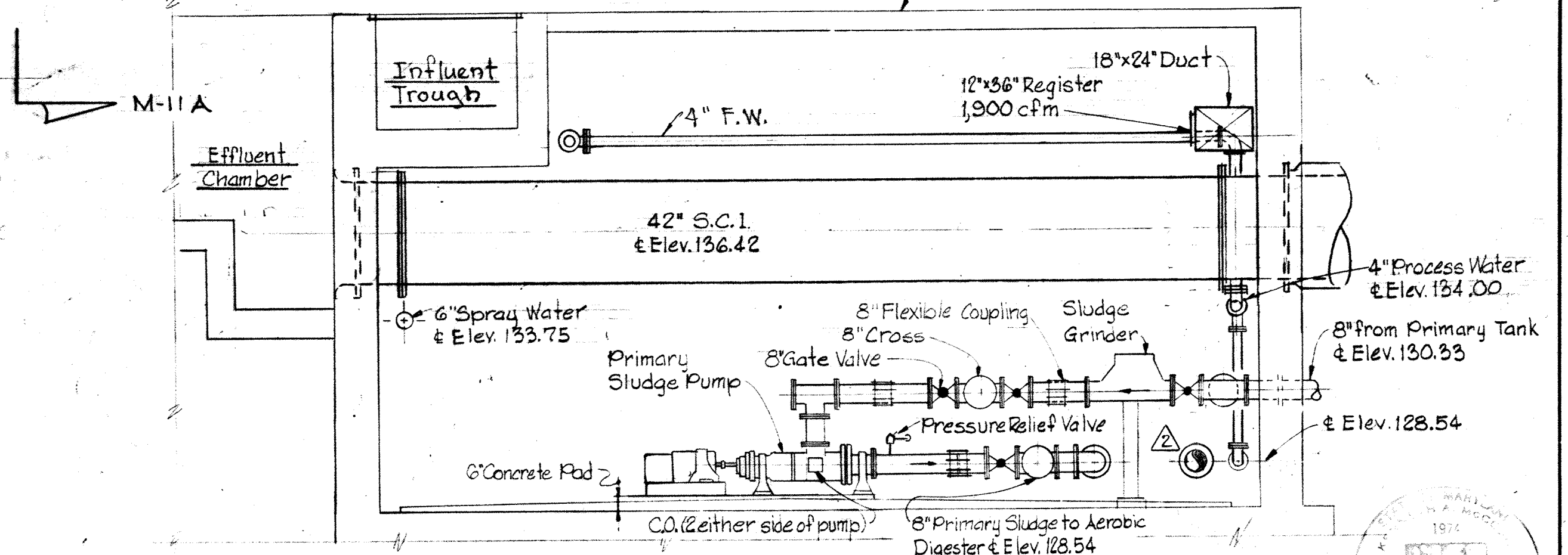
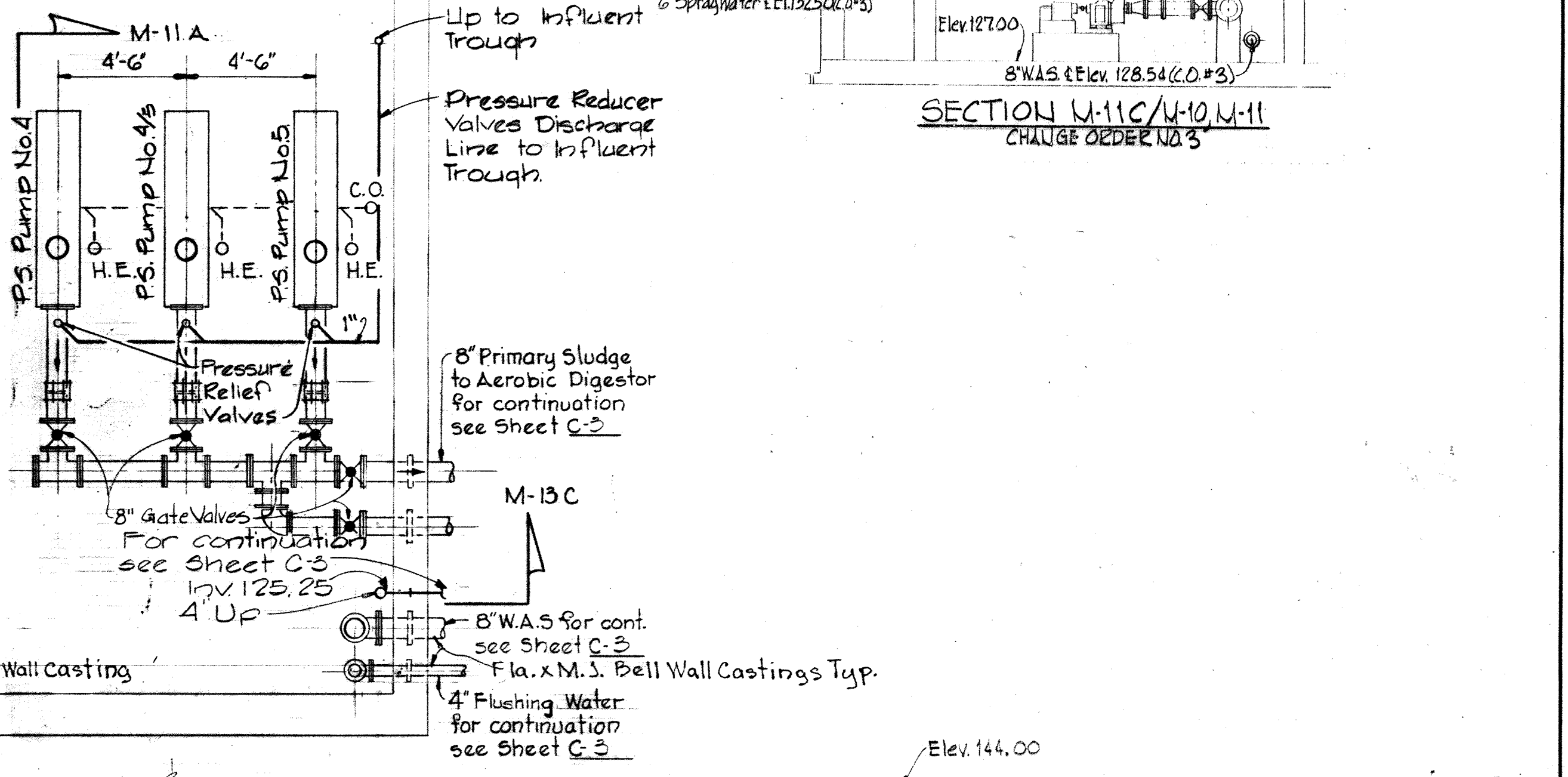
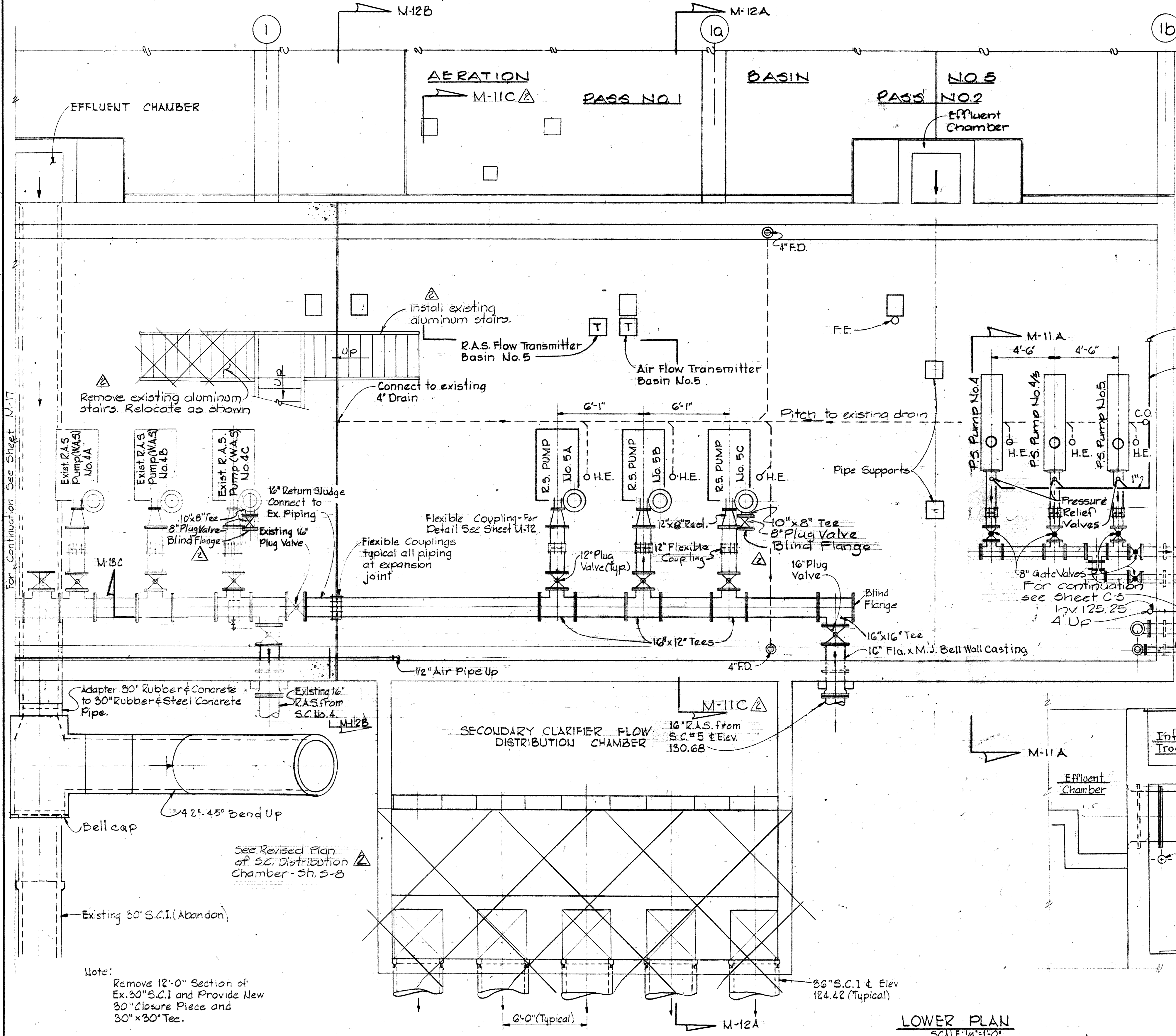
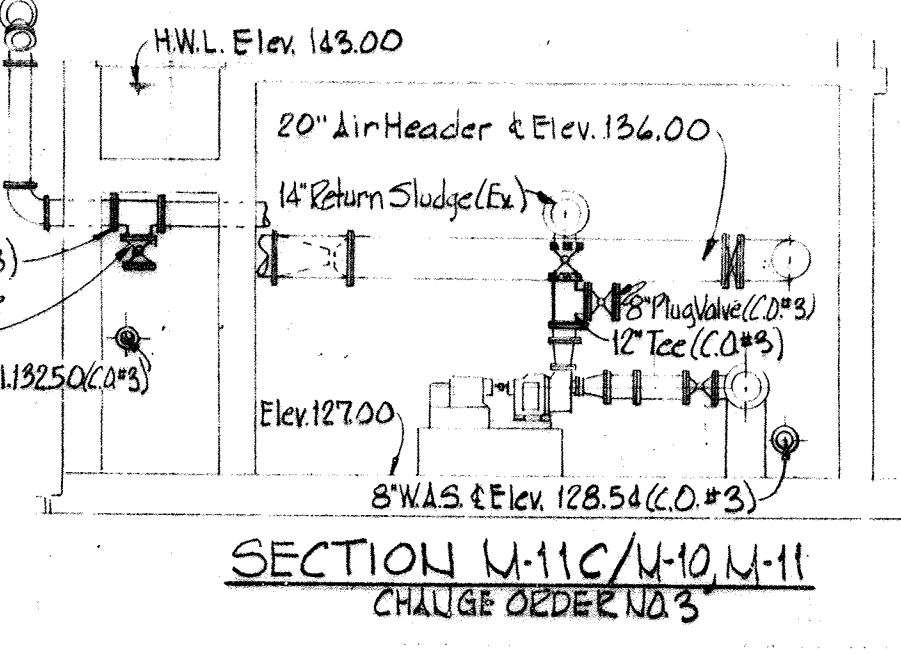
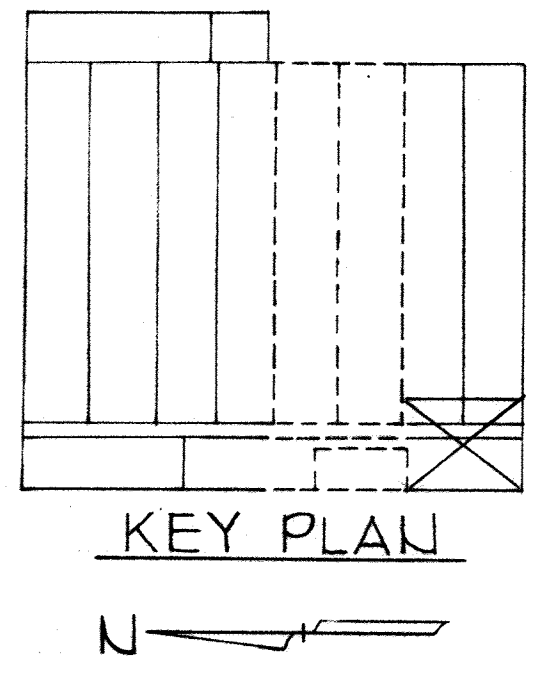
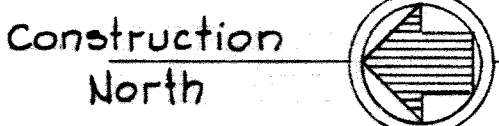
SECTION M-9B/M-8
Scale: 1/4" = 1'-0"



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE 3/30/75 W.O. Falbert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 5 SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 69 OF 133	SCALE AS SHOWN SHEET M-9
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W.O. 6887-2

MODIFIED DRAWING - MAY 6, 1982



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1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
W.O. Falbert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

AERATION BASIN NO. 5
PIPE GALLERY WEST
LOWER PLAN & SECTIONS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

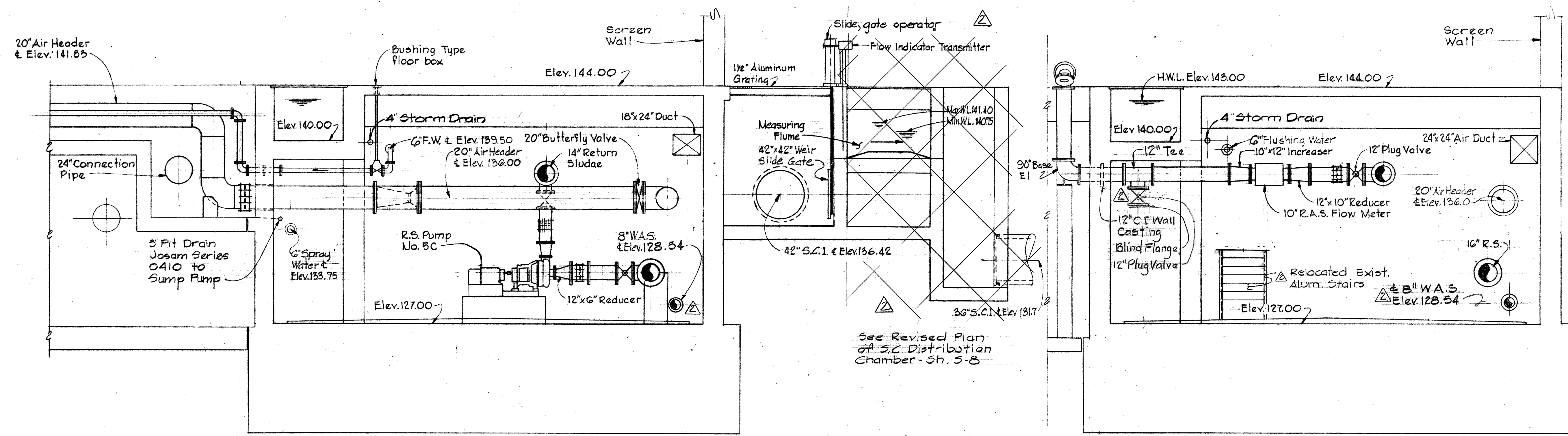
DRAWING NO. 71 OF 133
SCALE AS SHOWN

SHEET M-II

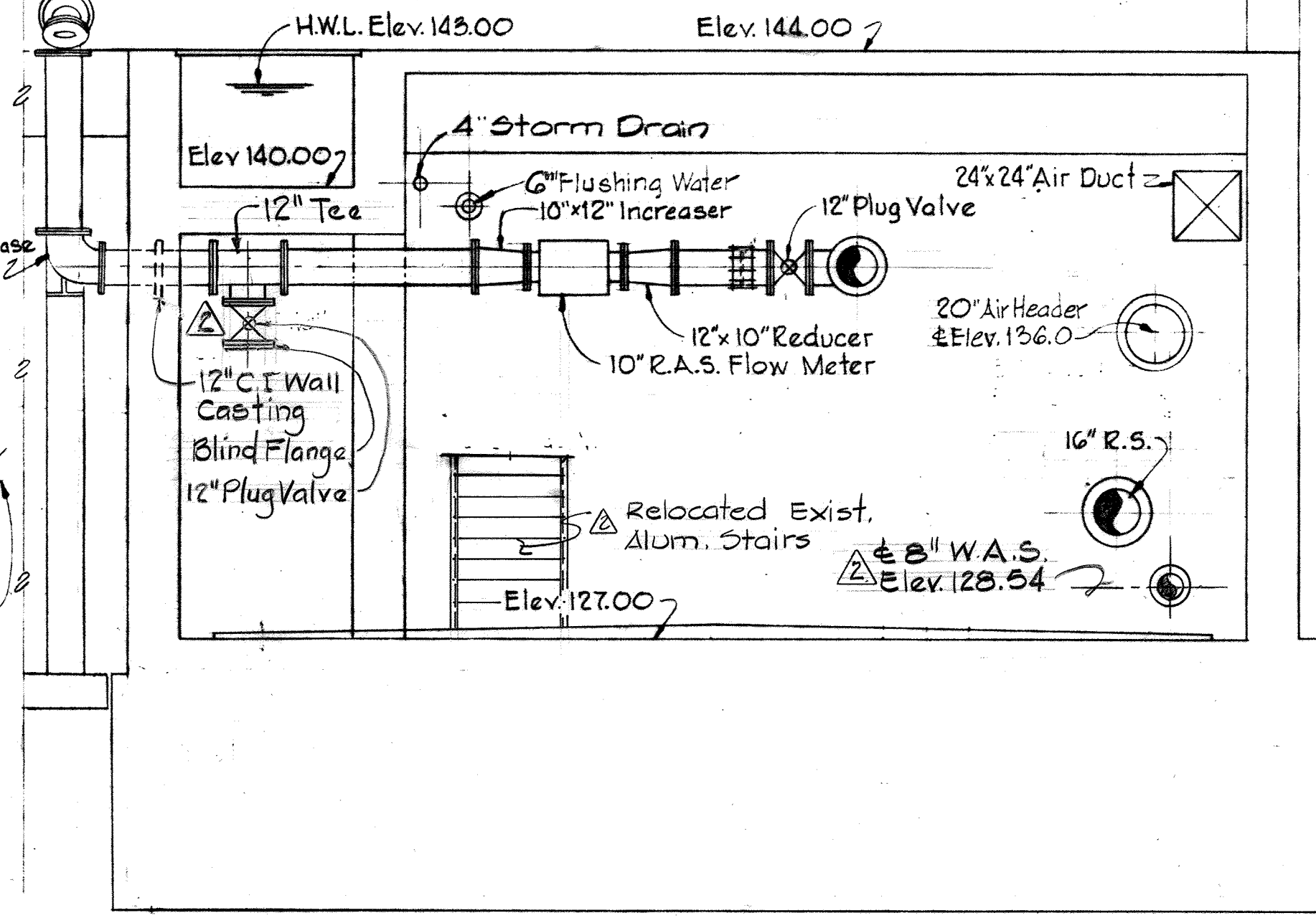
W.O. 6887-2

MODIFIED DRAWING - MAY 6, 1982

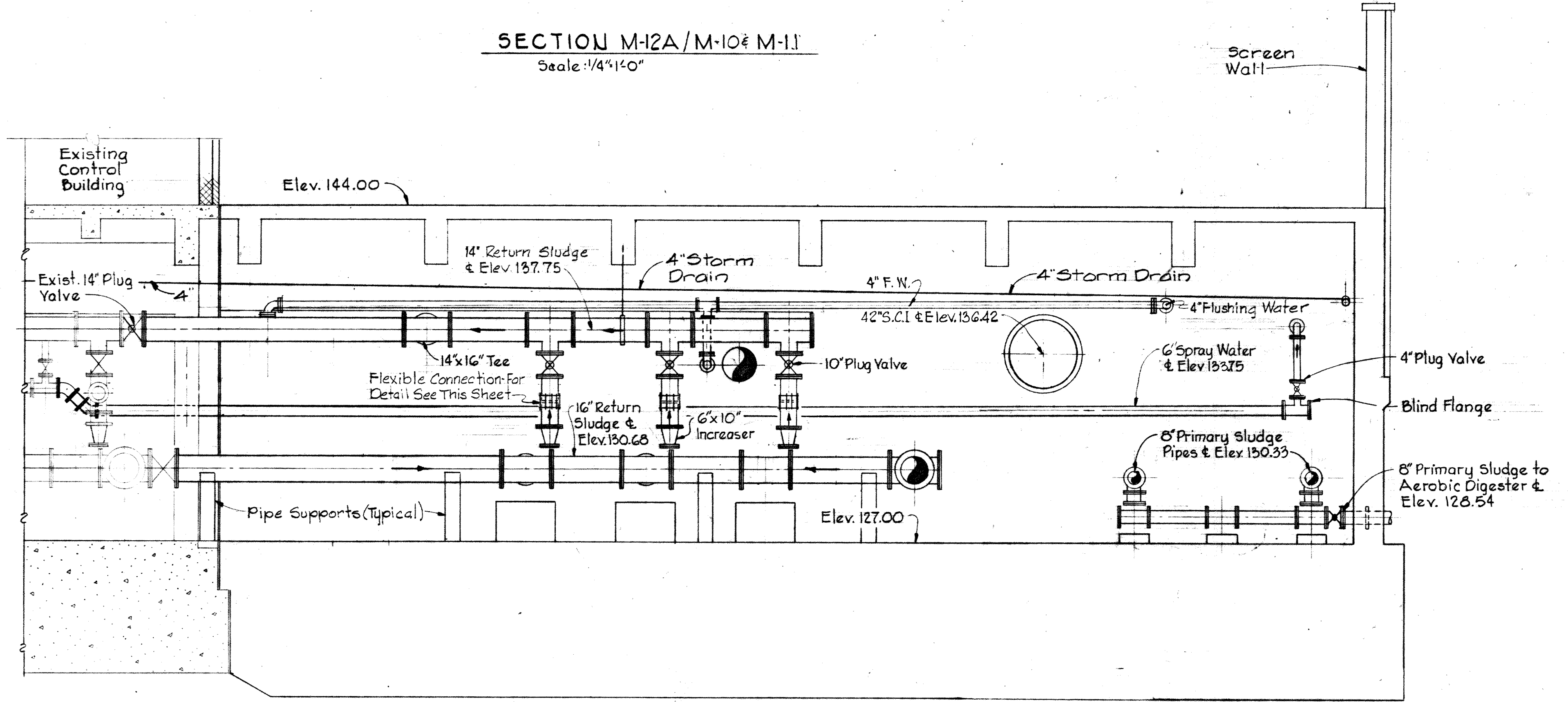
BRUNING 44510 10392



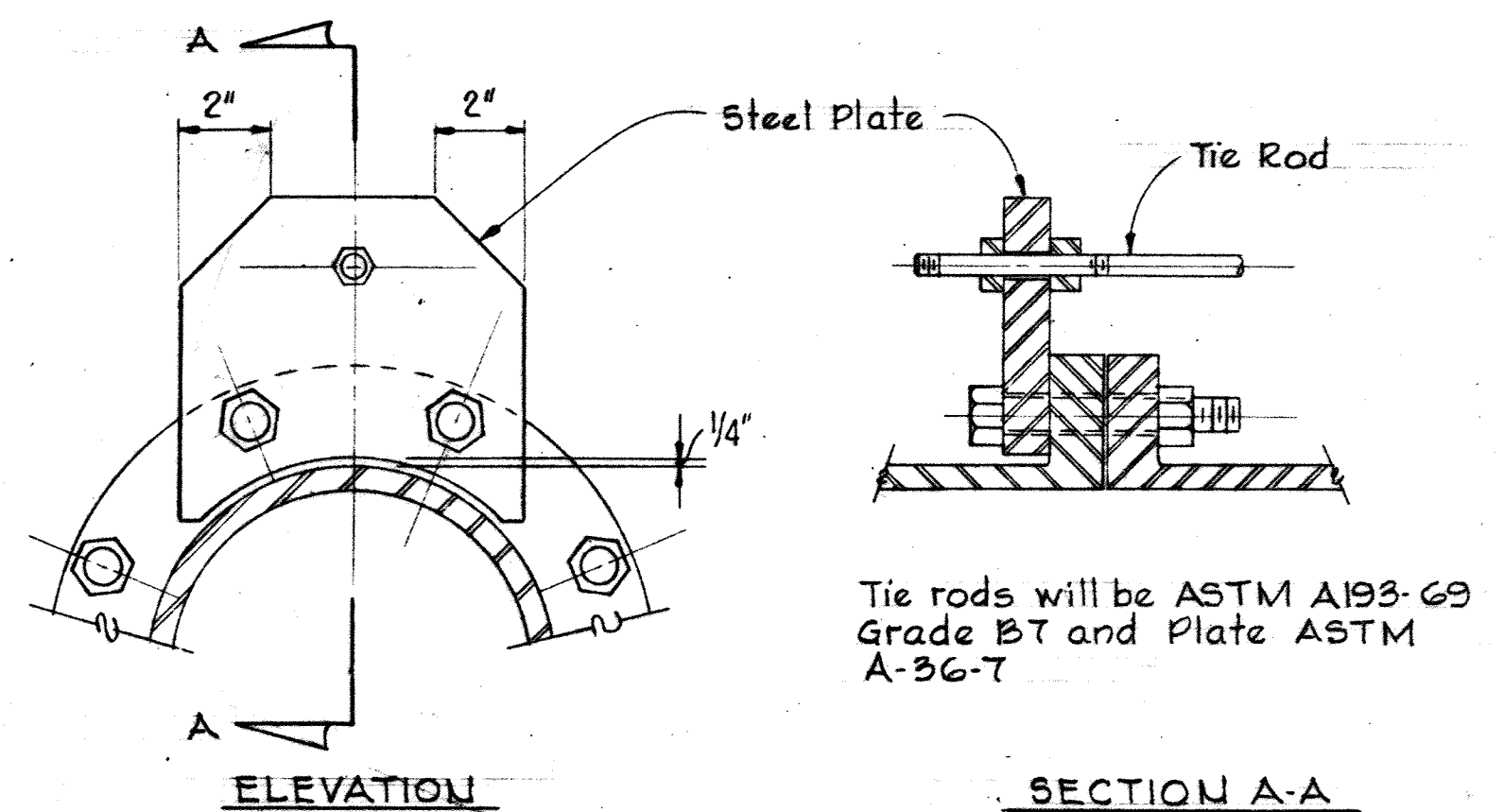
SECTION M-12A/M-10 & M-11
Scale: 1/4"=1'-0"



SECTION M-12B/M-10 & M-11
Scale: 1/4"=1'-0"



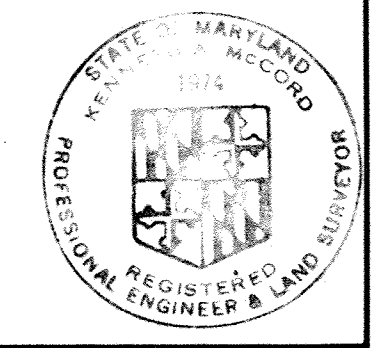
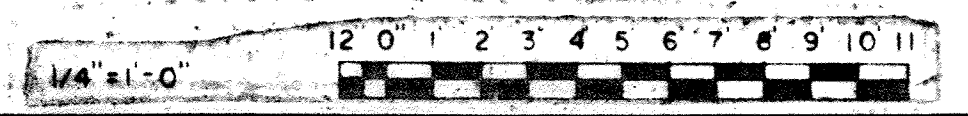
SECTION M-12C/M-10 & M-11
Scale: 1/4"=1'-0"



TIE ROD TABLE

Pipe Size	Press. (PSI)	No and Size of Tie Rods	Plate Width	Plate Thk.
4"	220	2 - 3/8" φ	6"	3/4"
6"	220	2 - 3/4" φ	7"	3/4"
8"	220	2 - 7/8" φ	7"	7/8"
10"	220	4 - 1" φ	7"	1"
12"	210	4 - 1 1/8" φ	7"	1 1/8"
14"	210	4 - 1" φ	8"	1"
16"	200	4 - 1" φ	7"	1 1/8"
18 & 20"		4 - 1 1/8" φ	8"	1 1/8"
24, 30 & 36"		4 - 1 1/4" φ	8"	1 1/8"

Note:
Tie Rods Required Across
All Flexible Connections



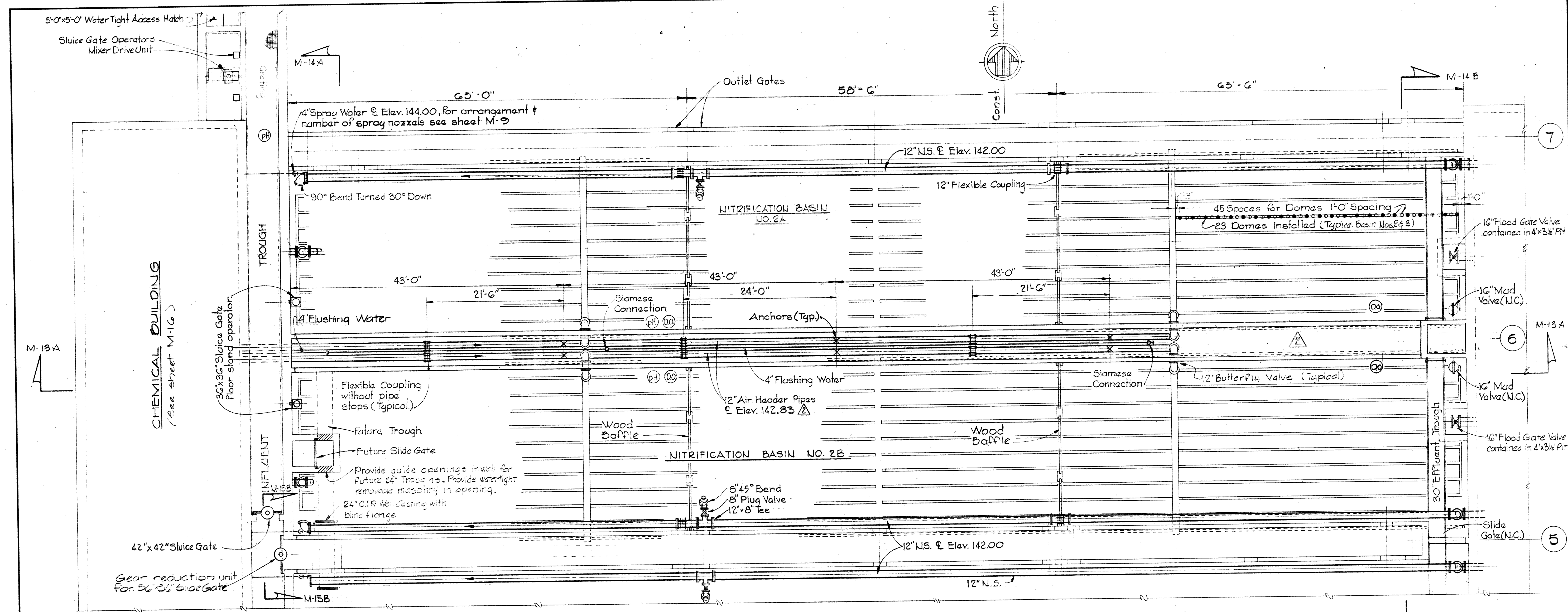
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/21/78 W. O. Libbert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 5 PIPE GALLERY WEST SECTIONS AND DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 72 OF 133	SCALE AS SHOWN
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W.O. 6887-2

SHEET M-12

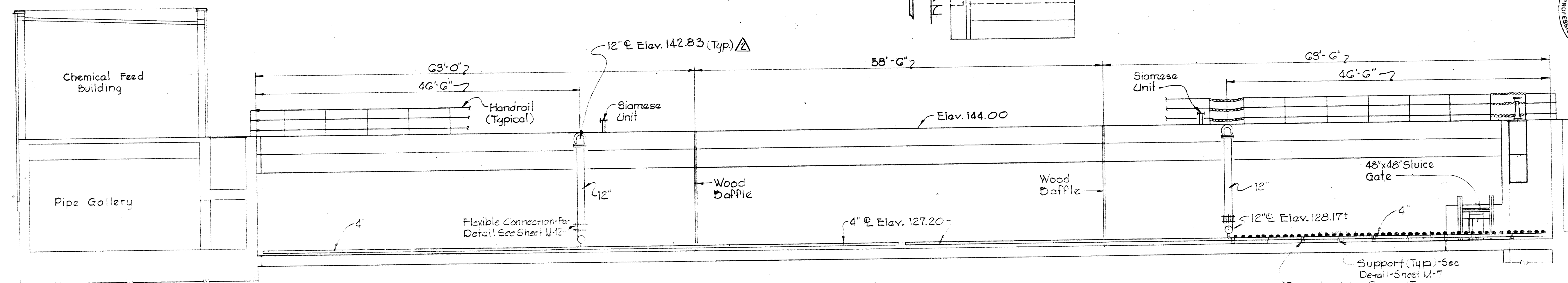
MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 18392



TYPICAL PLAN BASIN NOS. 2 & 3
Scale: 1/8" = 1'-0"

- Notes:
 1. Aeration Basin No. 3 similar
 2. For Diffuser Arrangement Legend
 See Sheet M-7.



SECTION M-13A/M-13
Scale: 1/8" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 DATE 3/20/75
 W.O. Lambert
 CHIEF-BUREAU OF ENGINEERING

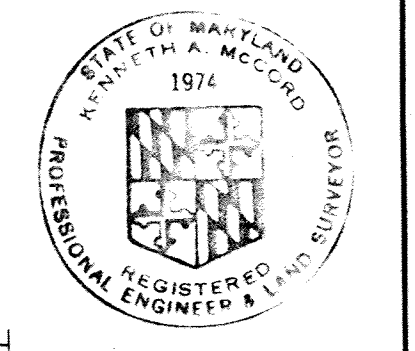
CONTRACT NO. 500-S

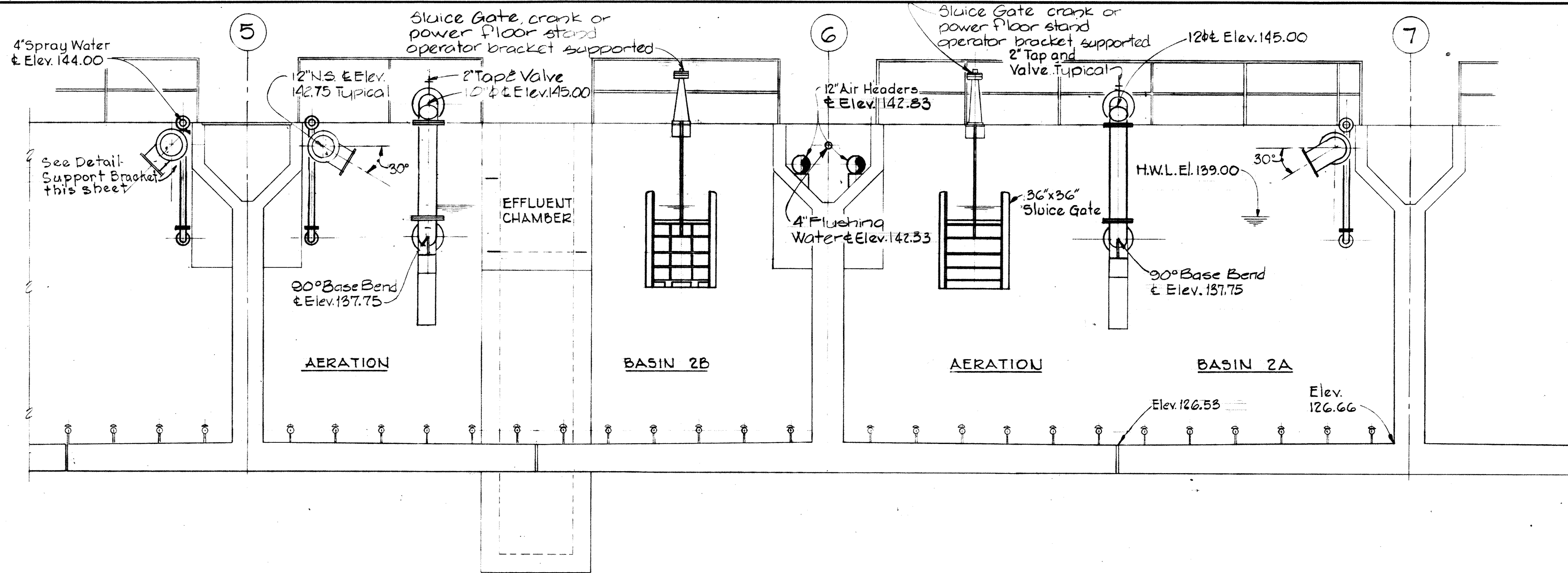
AERATION BASINS NO. 2 & 3
 TYPICAL PLAN & SECTIONS

SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO. 4

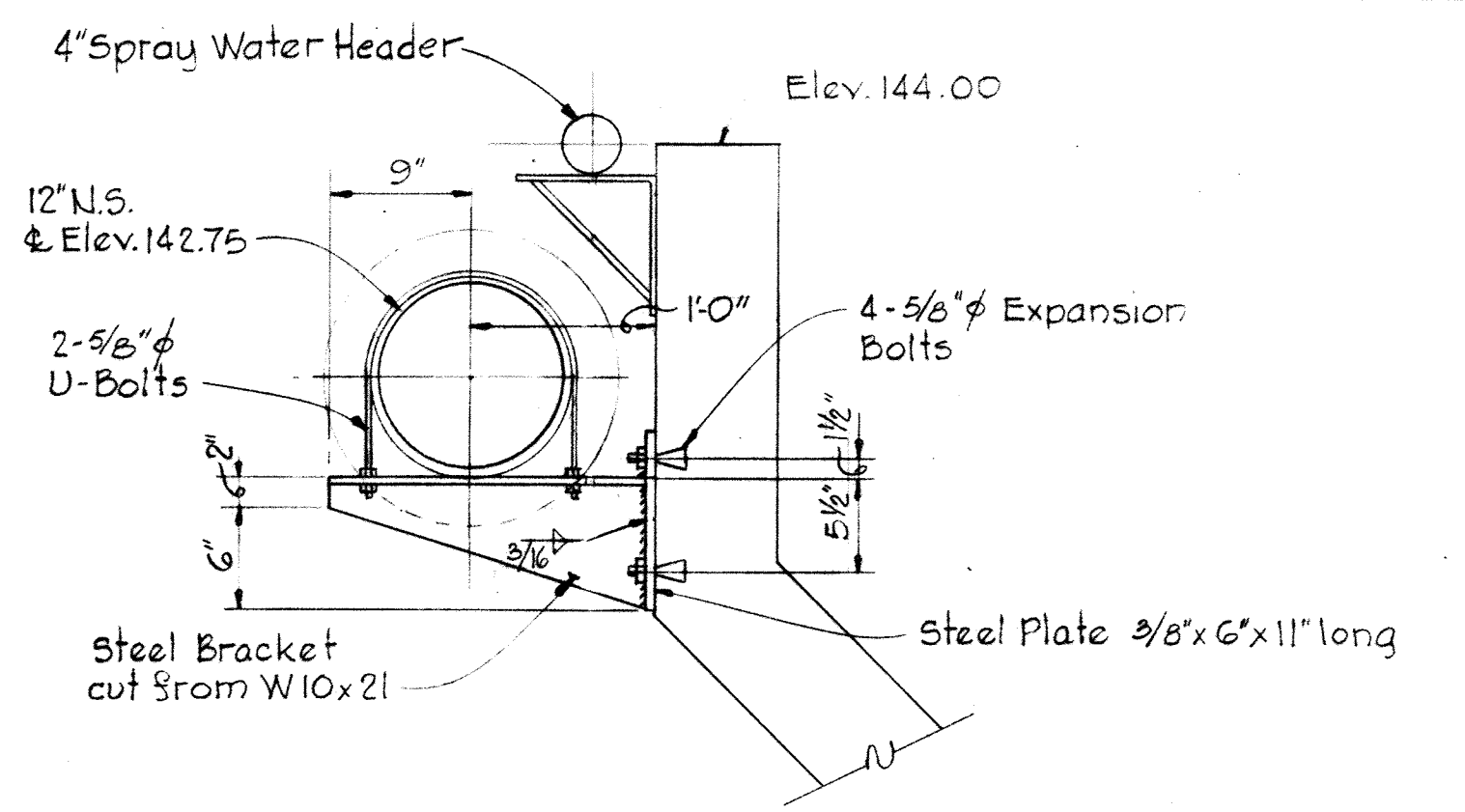
DRAWING NO. 73 OF 133
 SCALE AS SHOWN

SHEET M-13

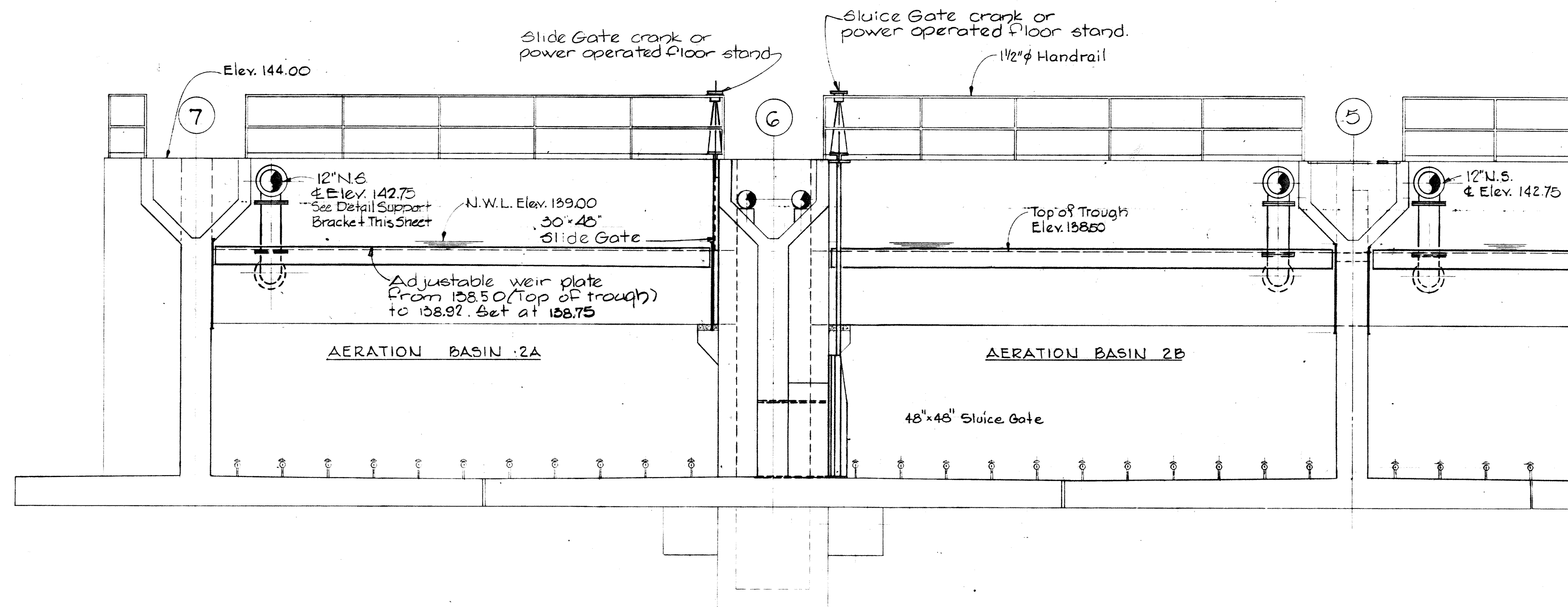




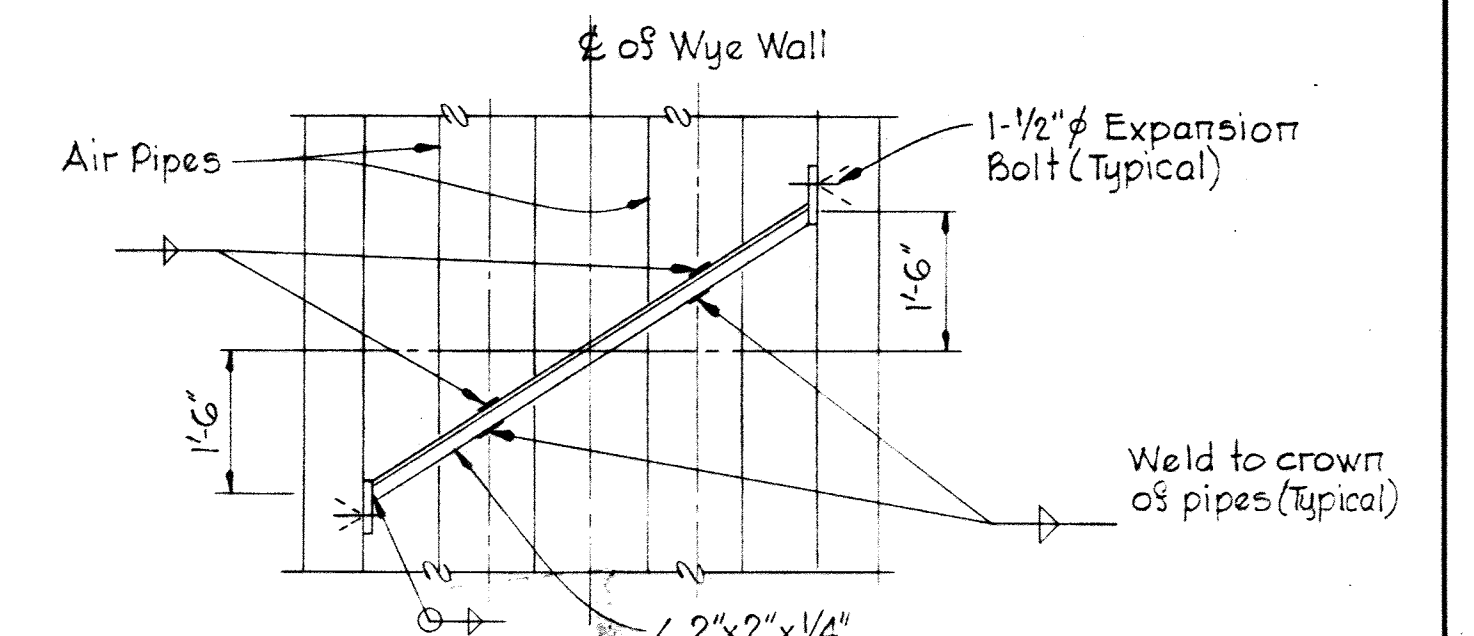
SECTION M-14A/M-13
Scale: 1/4"=1'-0"



DETAIL - SUPPORT BRACKET
Scale: 1"=1'-0"

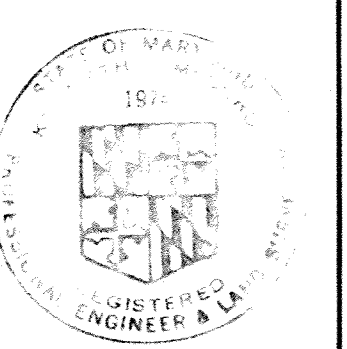
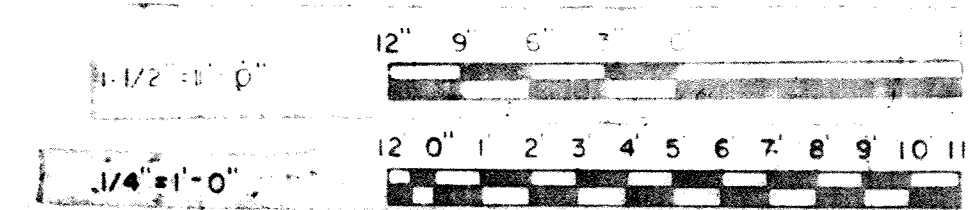


SECTION M-14B/M-13
Scale: 1/4"=1'-0"



DETAIL - AIR PIPING ANCHORING
Scale: 1/2"=1'-0"

Typical for Basins No. 2 & No. 3.
Similar for Basin No. 5 anchoring one pipe.



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HOWARD COUNTY, MARYLAND
DATE: 3/20/75
W.O. Albert
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

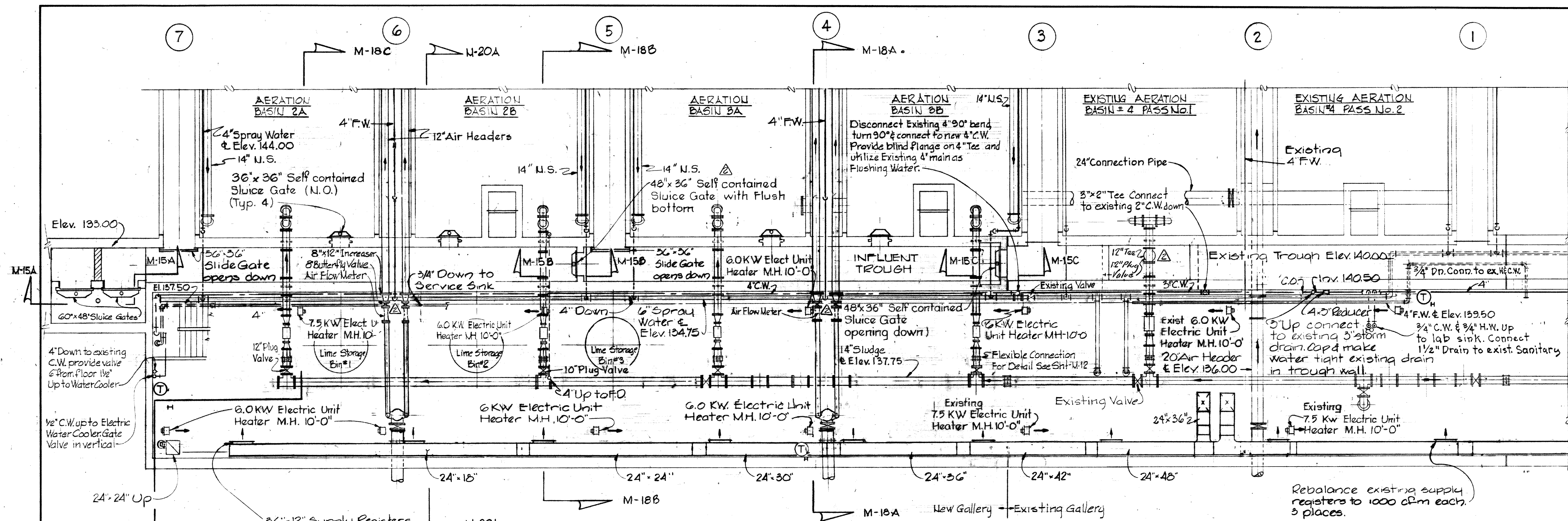
AERATION BASINS NO. 2 & 3
SECTIONS & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

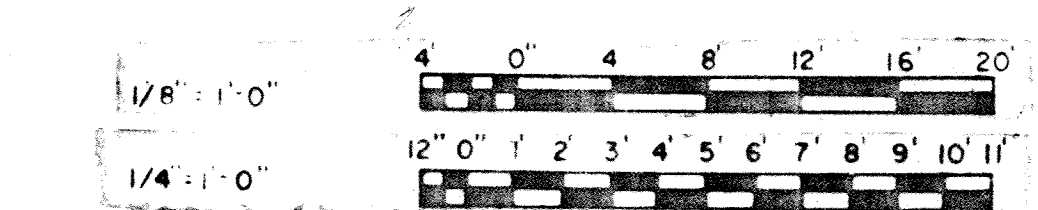
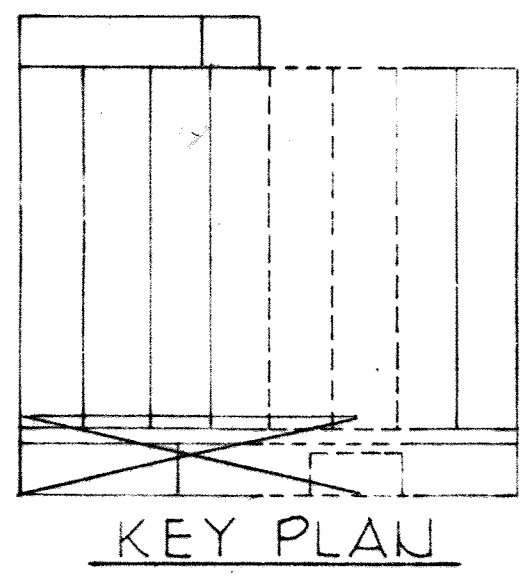
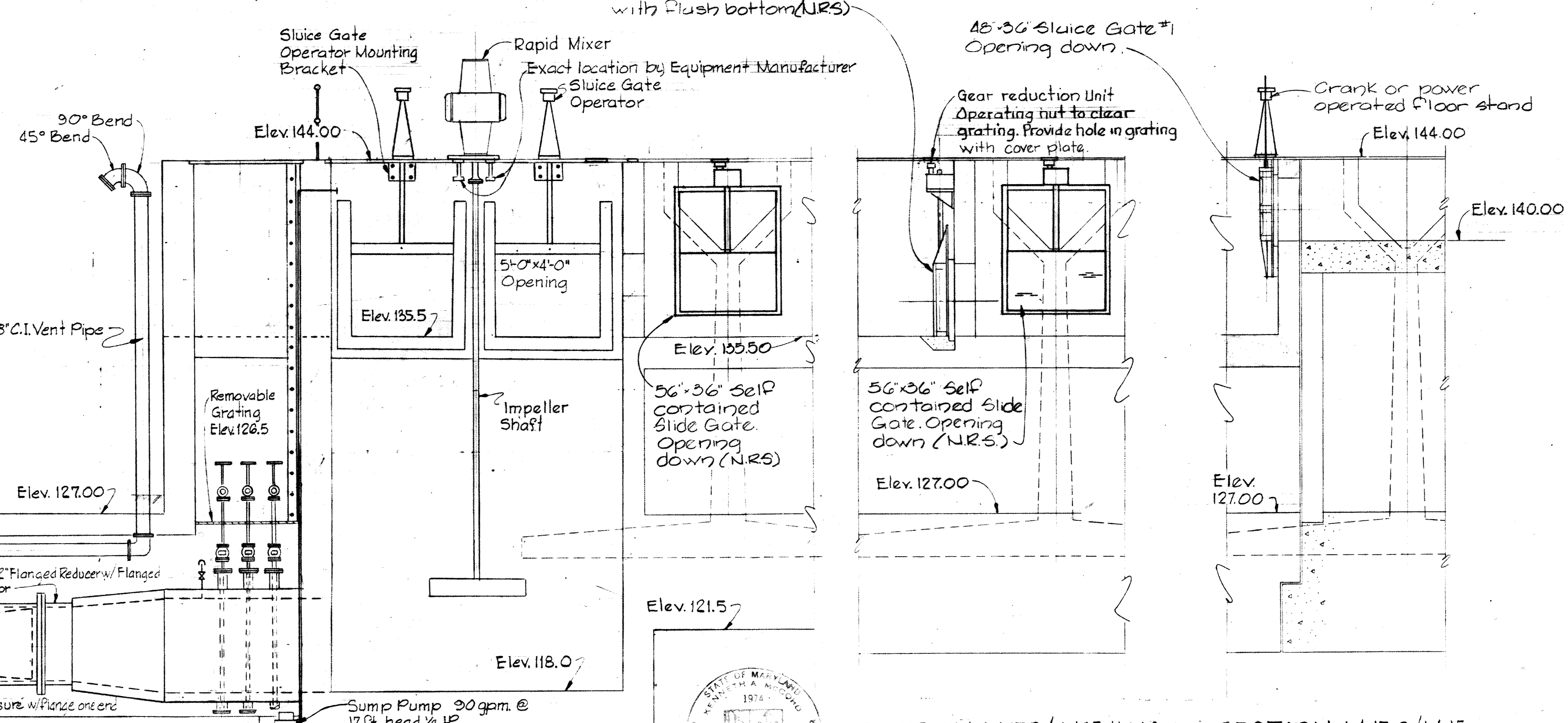
DRAWING
NO. 74
OF 133

SCALE
AS
SHOWN

BRUNING 44-510 18392



PLAN ELEV. 143.00
Scale: 1/8" = 1'-0"

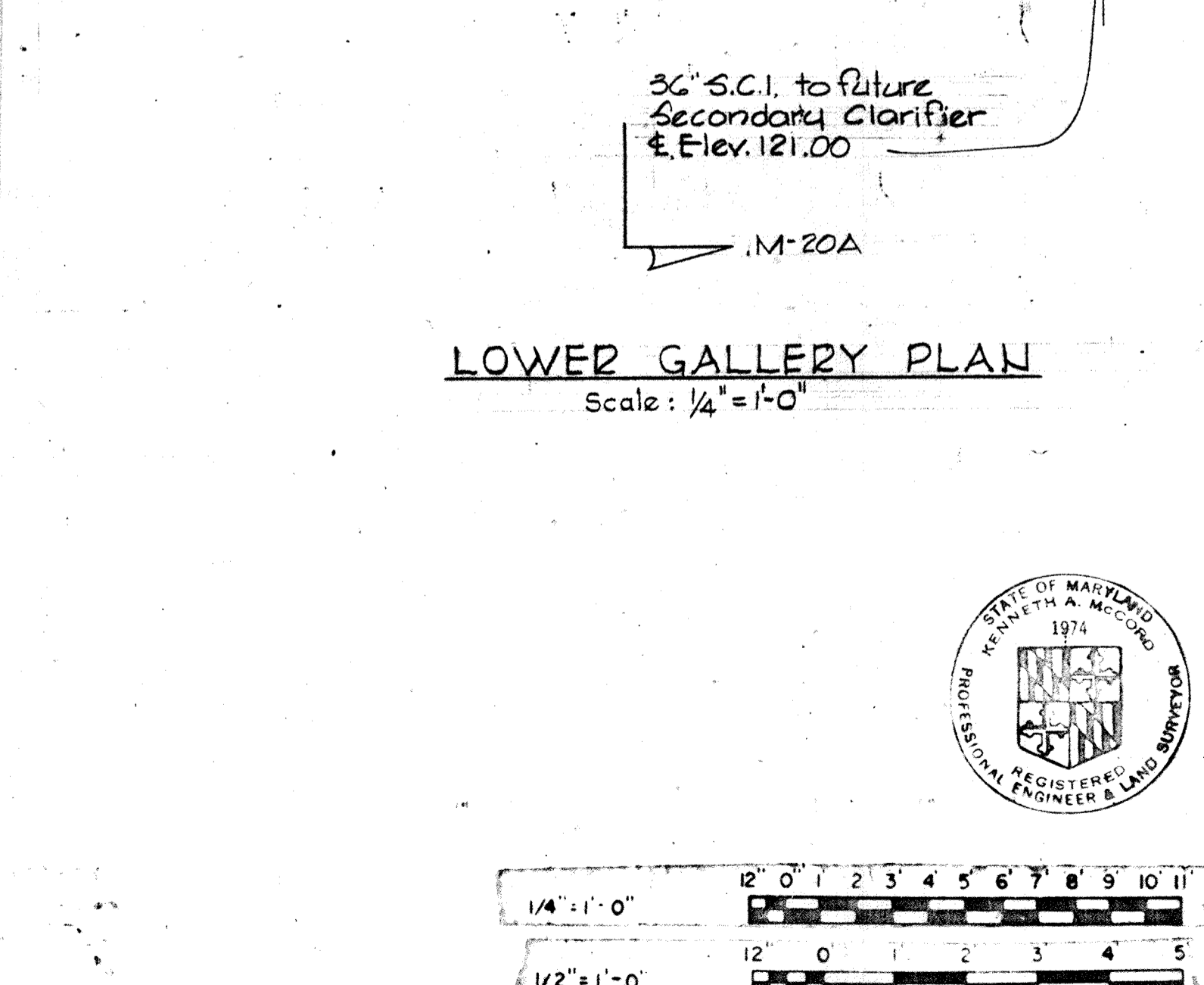
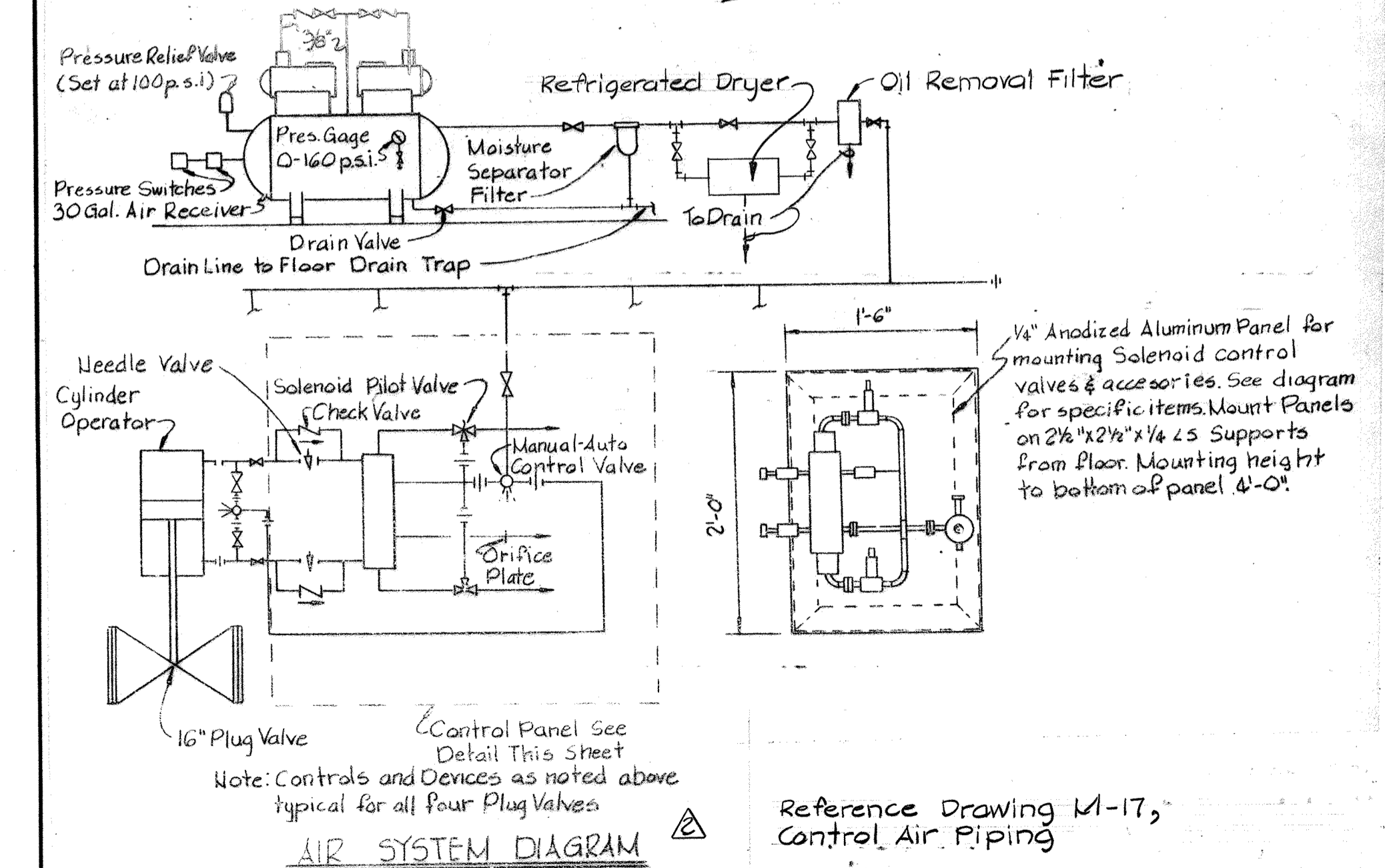
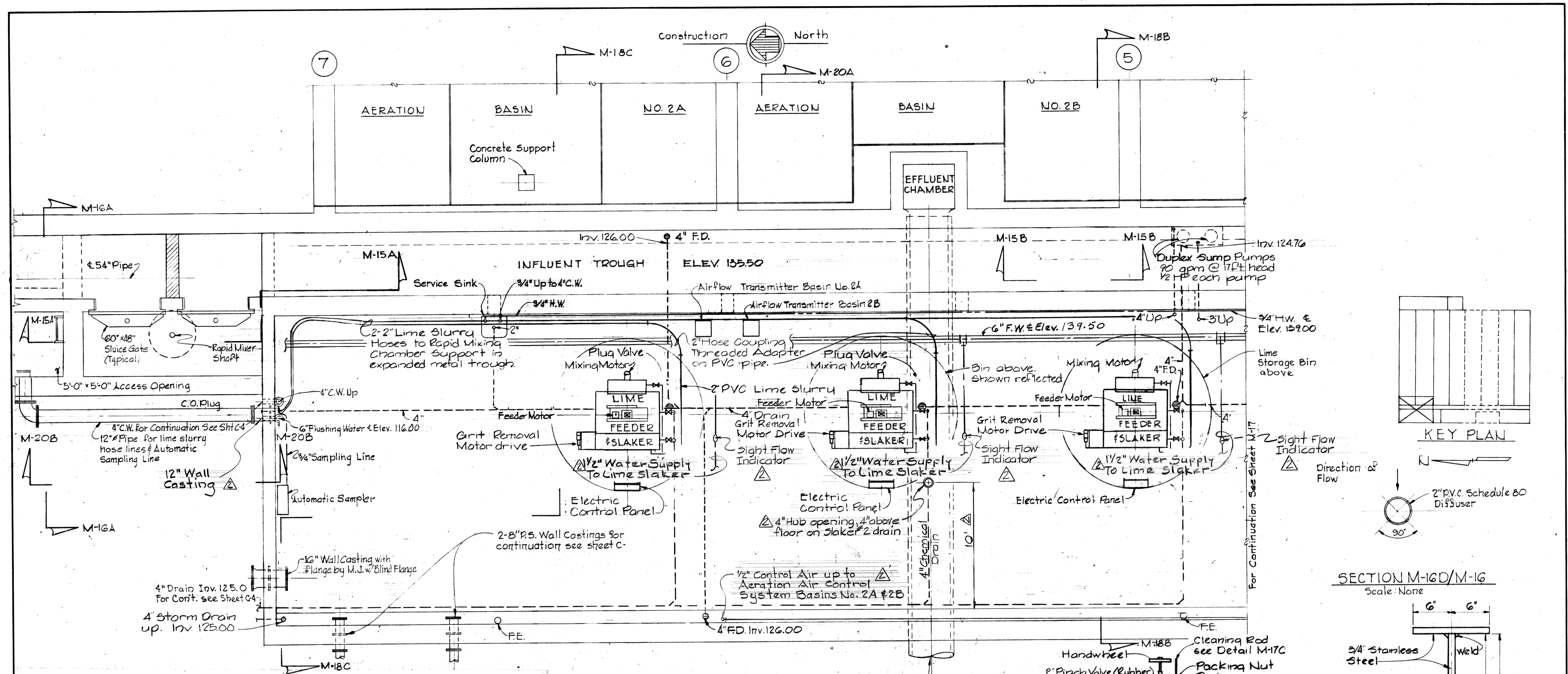


<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE <i>W. O. Robert</i> CHIEF BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>AERATION BASINS NO. 2 & 3 PIPE GALLERY WEST UPPER PLAN & SECTIONS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 75 OF 133</p> <p>SCALE AS SHOWN</p>
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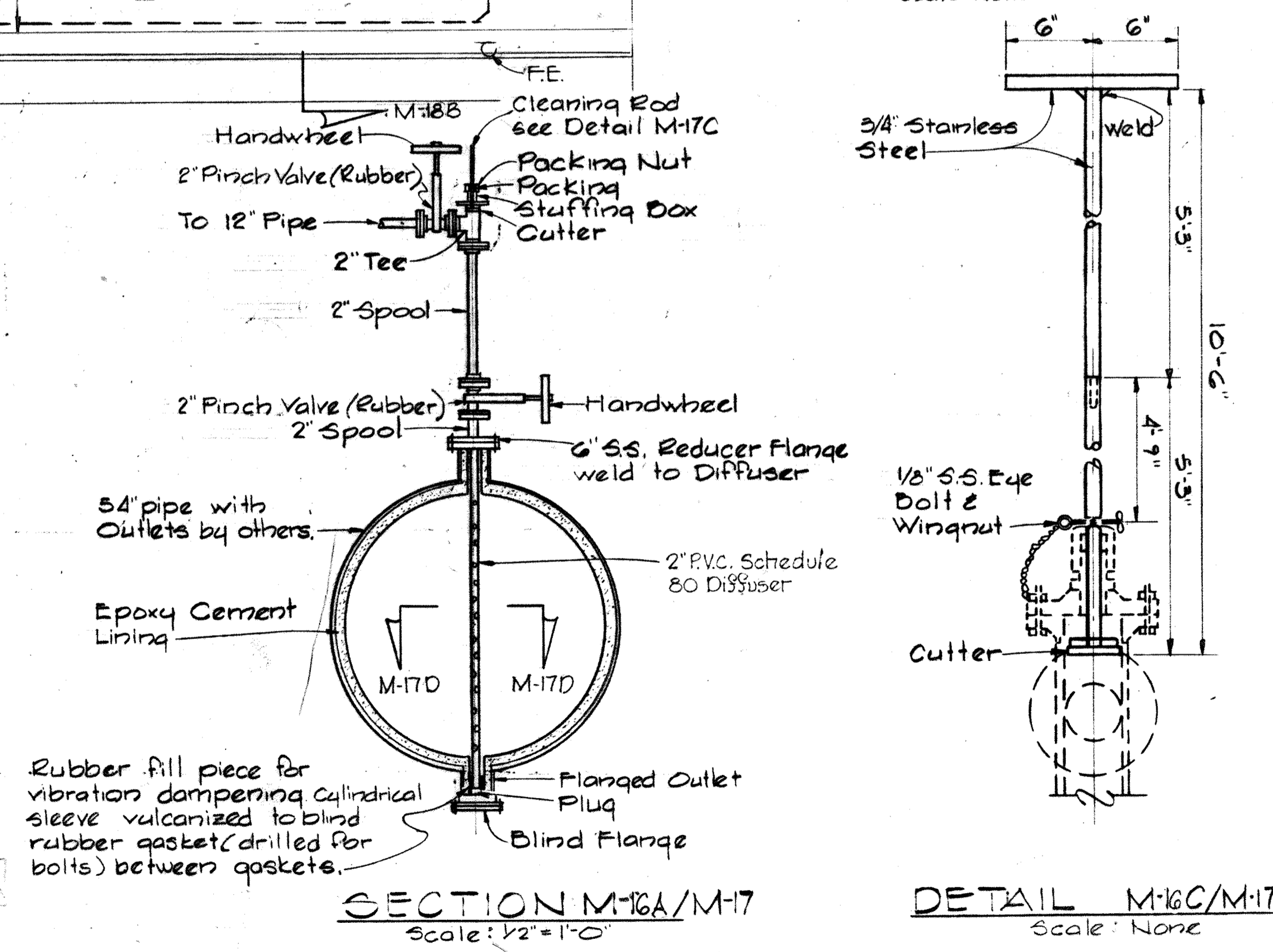
W. O. 6887-2

SHEET M-15

MODIFIED DRAWING - MAY 6, 1982



LOWER GALLERY PLAN
Scale: 1/4" = 1'-0"



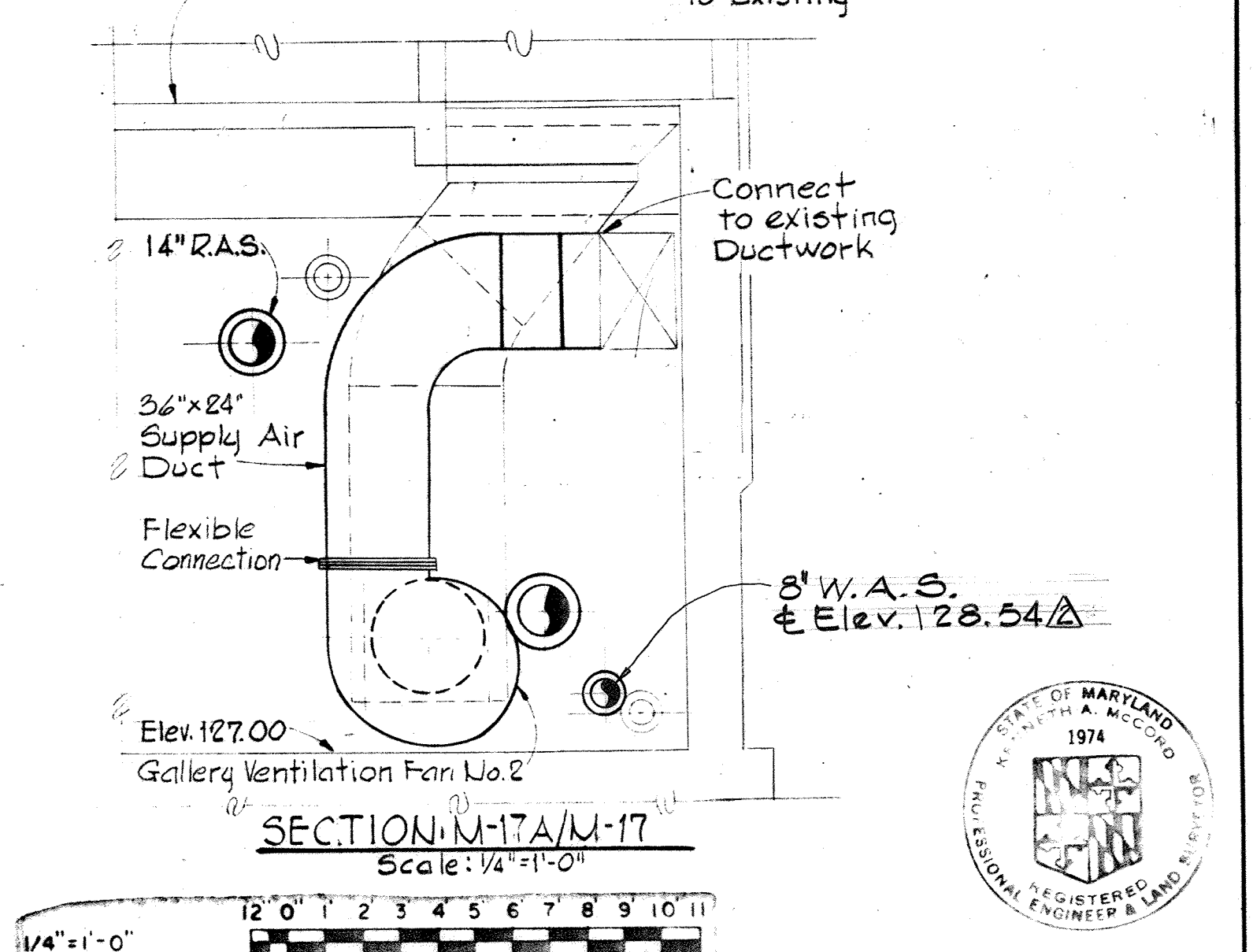
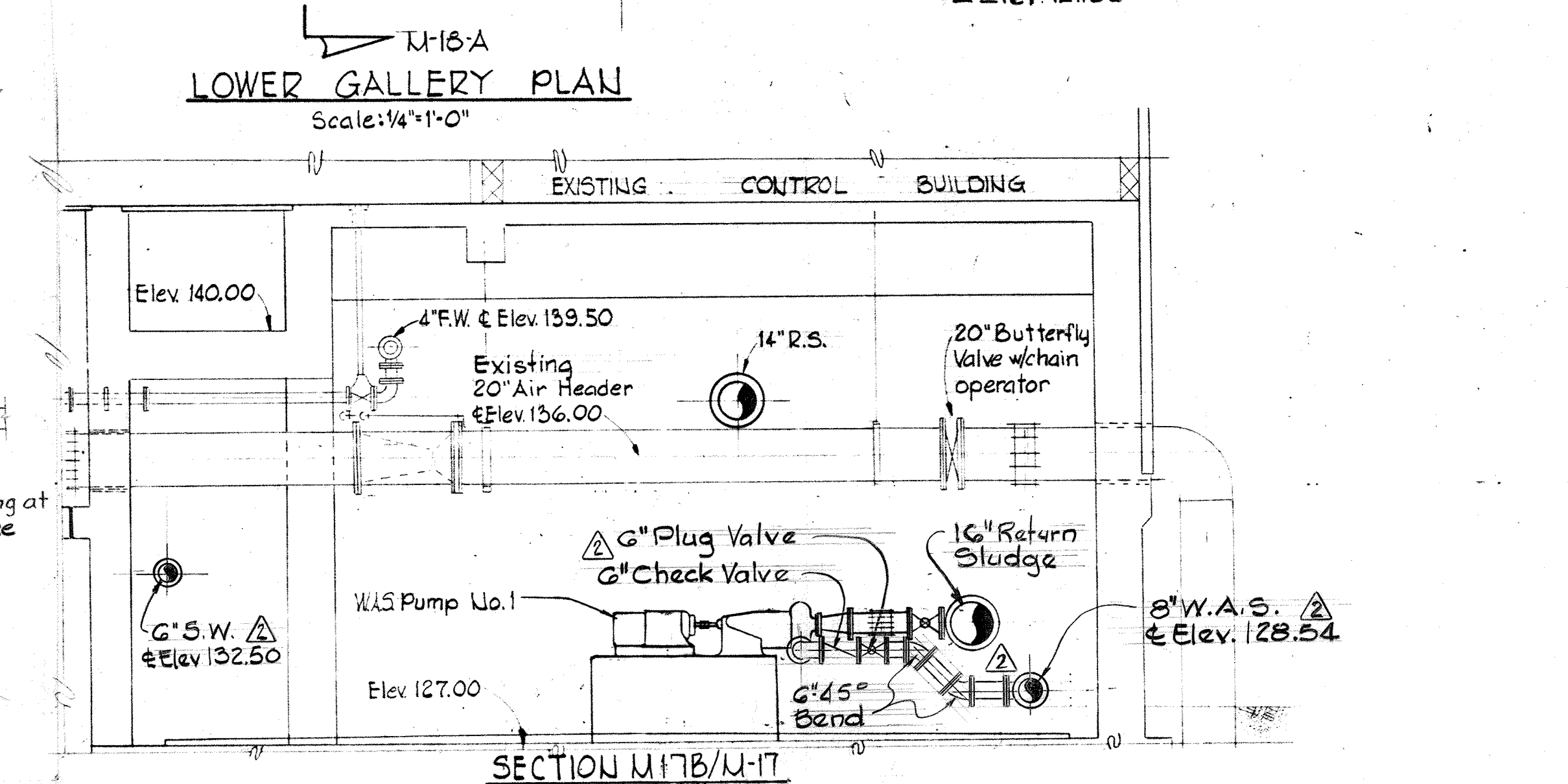
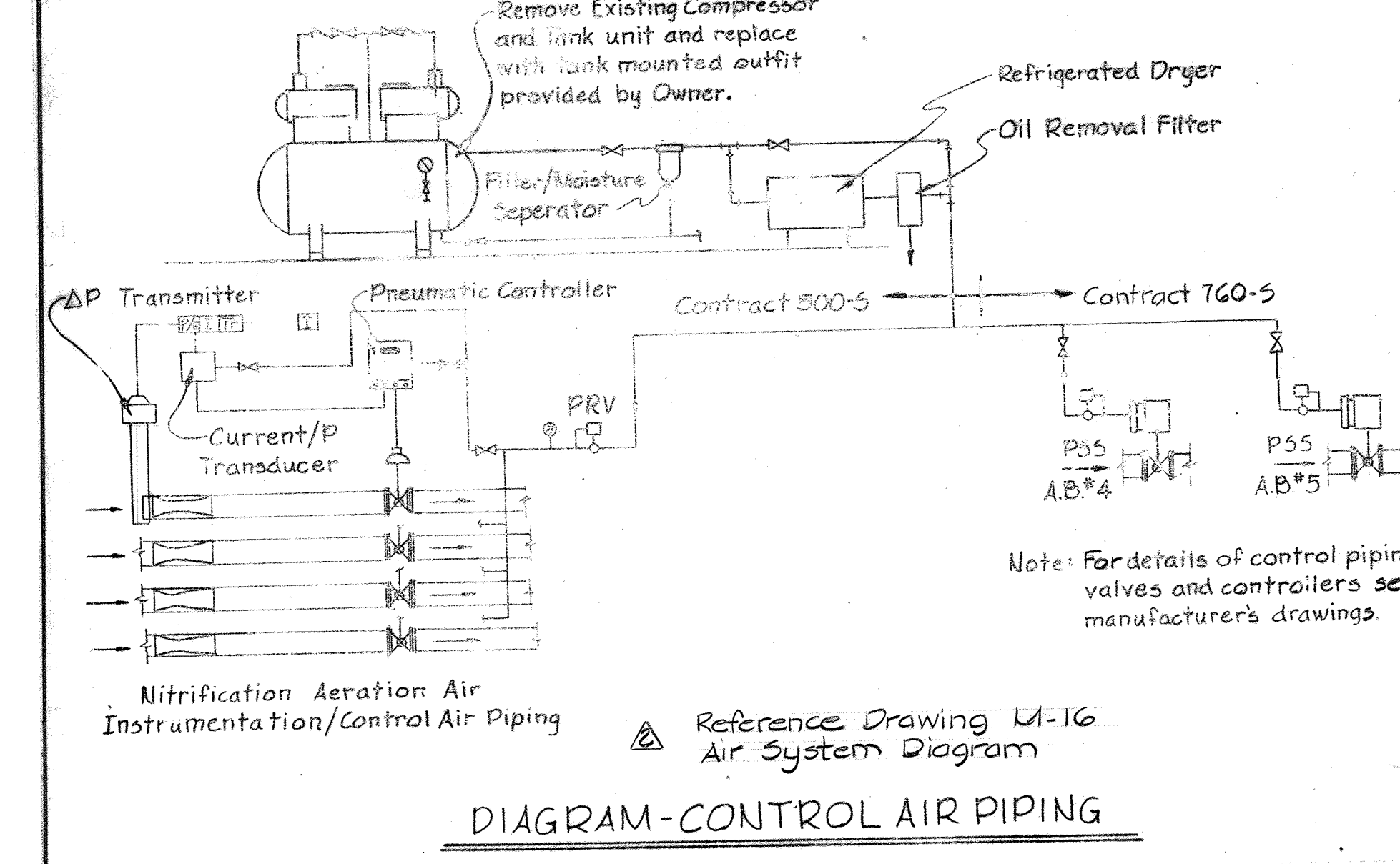
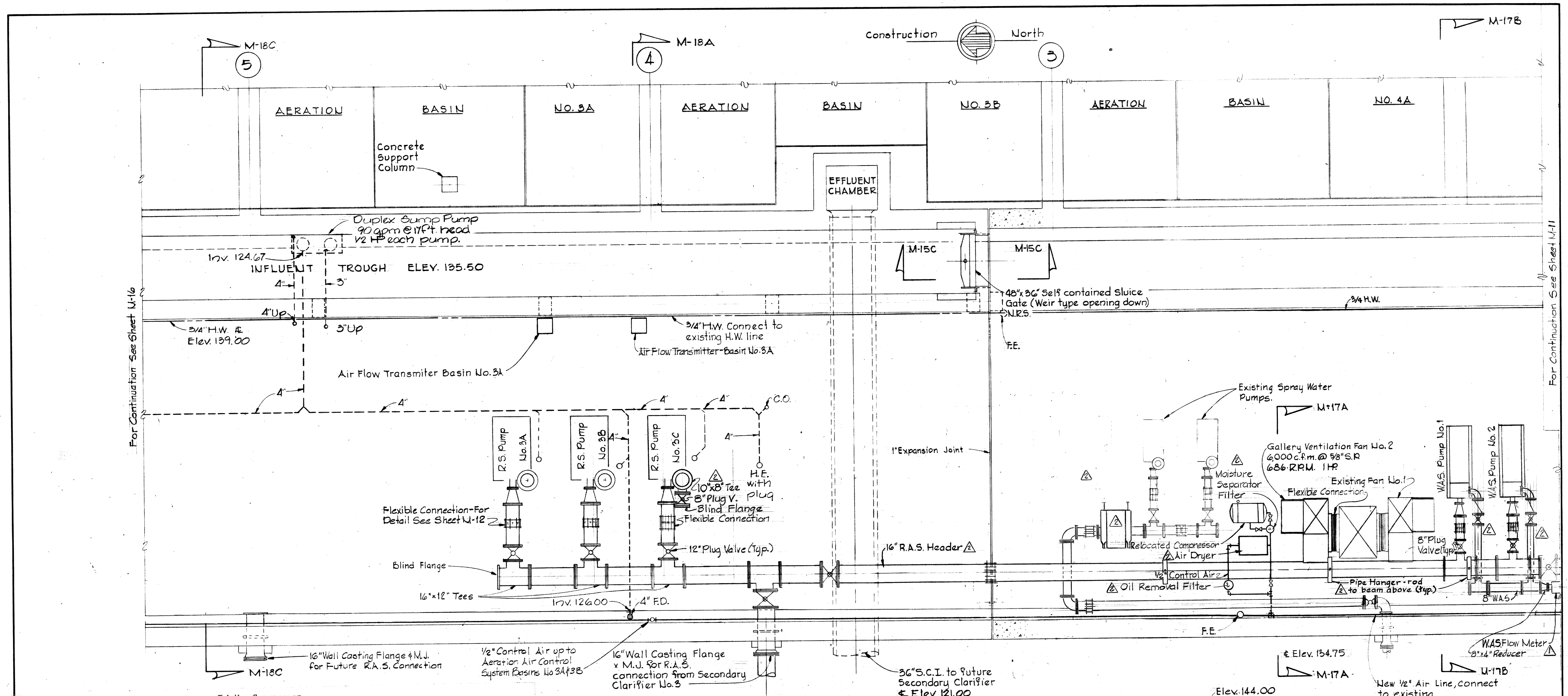
SECTION M-16A/M-17
Scale: 1/2" = 1'-0"

DETAIL M-16C/M-17
Scale: None

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W.O. Fisher CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS NO. 2 & 3 PIPE GALLERY WEST LOWER PLAN	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 76 OF 133 SCALE AS SHOWN SHEET M-16
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W. O. 6887-2

MODIFIED DRAWING - MAY 6, 1982

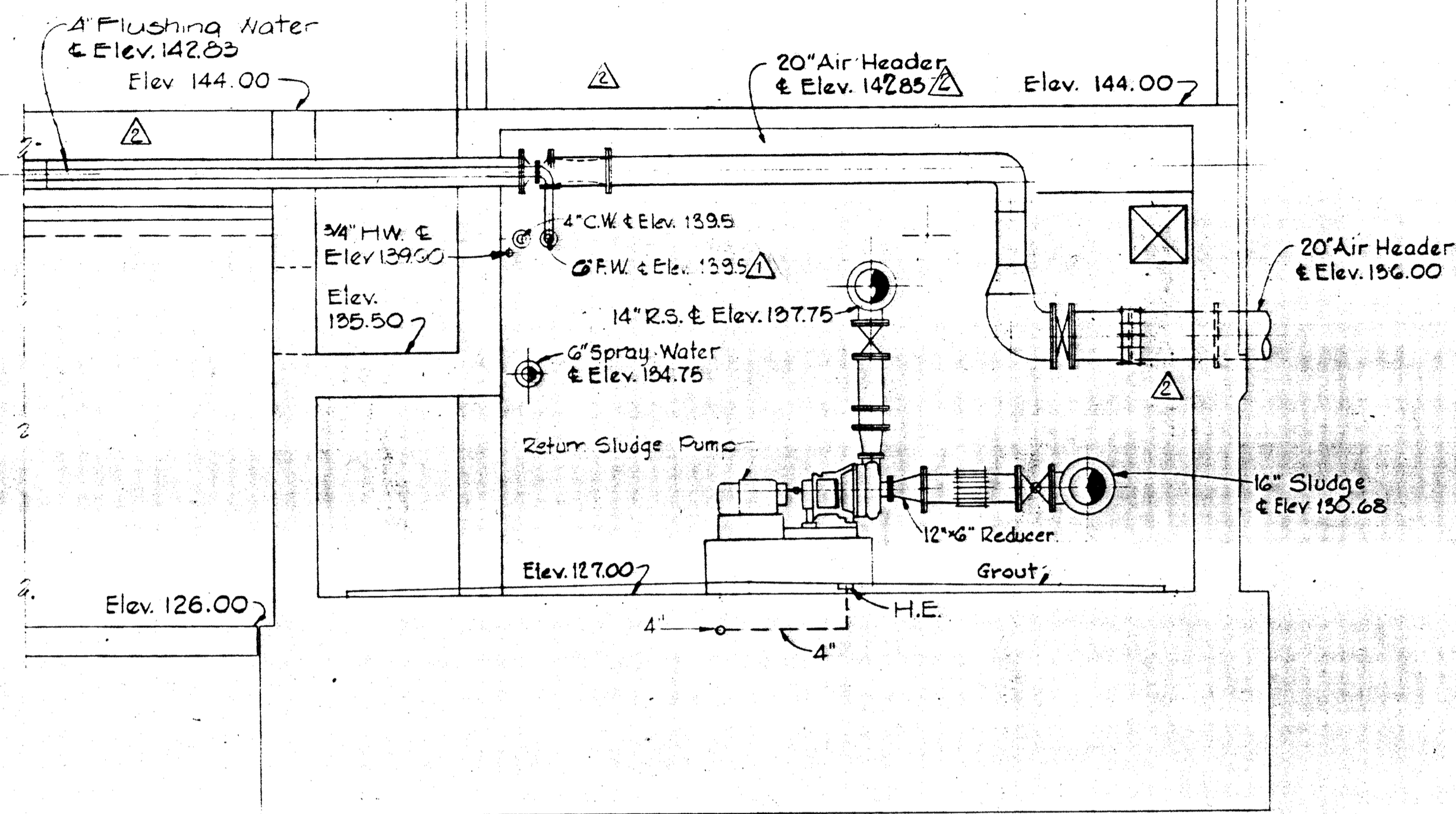


<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/30/75 DATE</p> <p><i>W.O. Libert</i> CHIEF-BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>AERATION BASINS NO. 2 & 3 PIPE GALLERY WEST LOWER PLAN</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 77 OF 133 SCALE AS SHOWN SHEET M-17</p>
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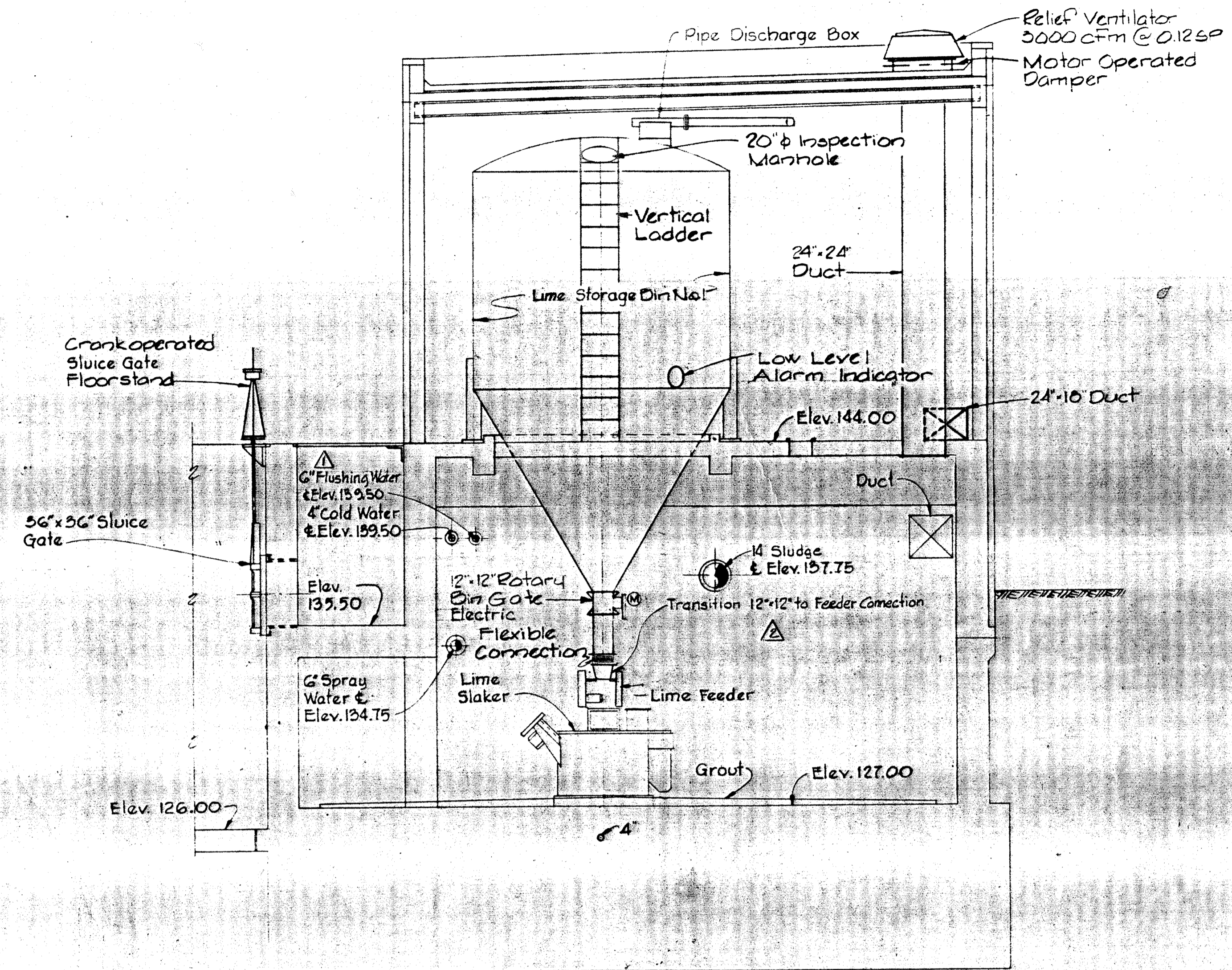
W.O. 6887-2

MODIFIED DRAWING- MAY 6, 1982

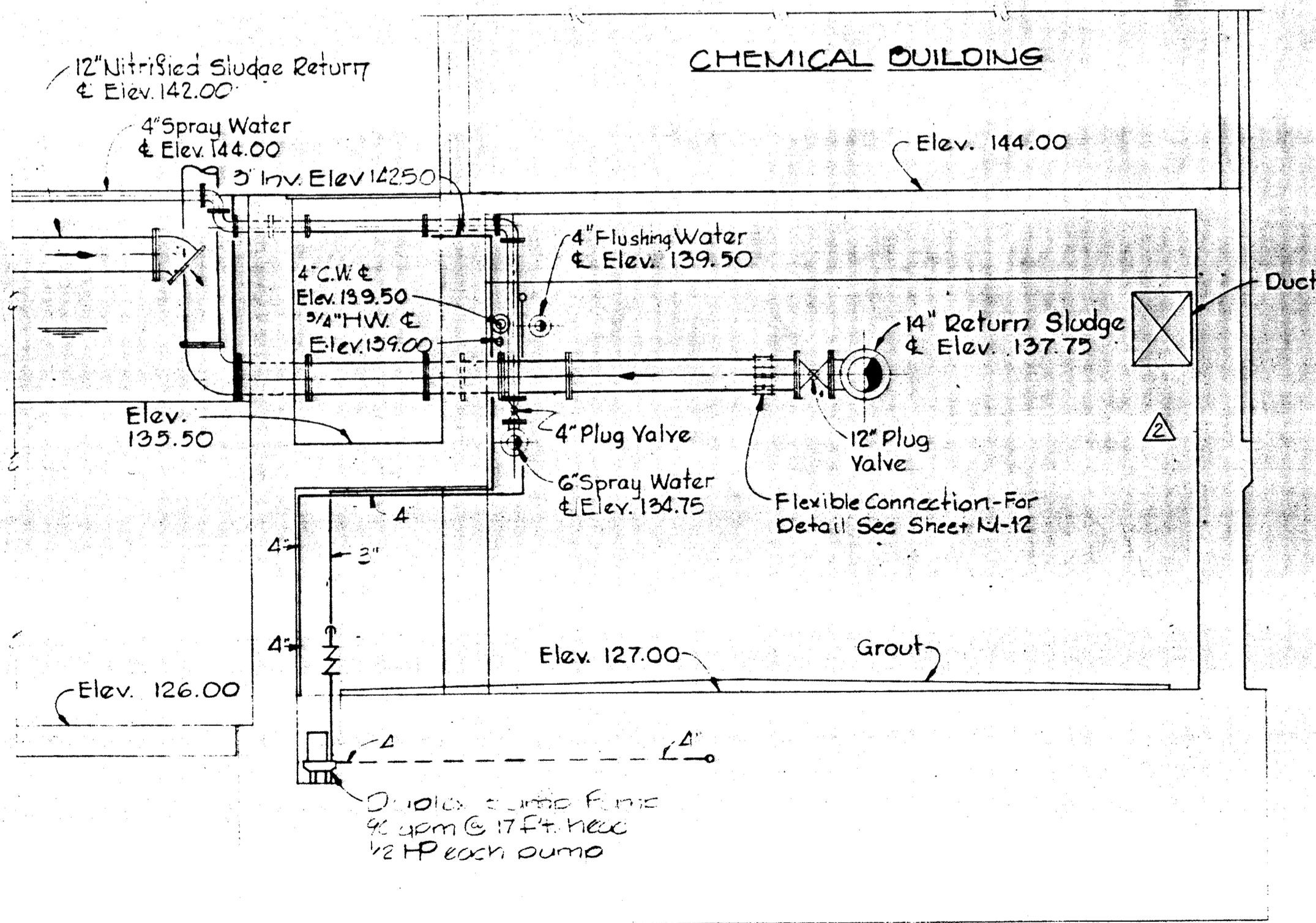
BRUNING 44510 1832



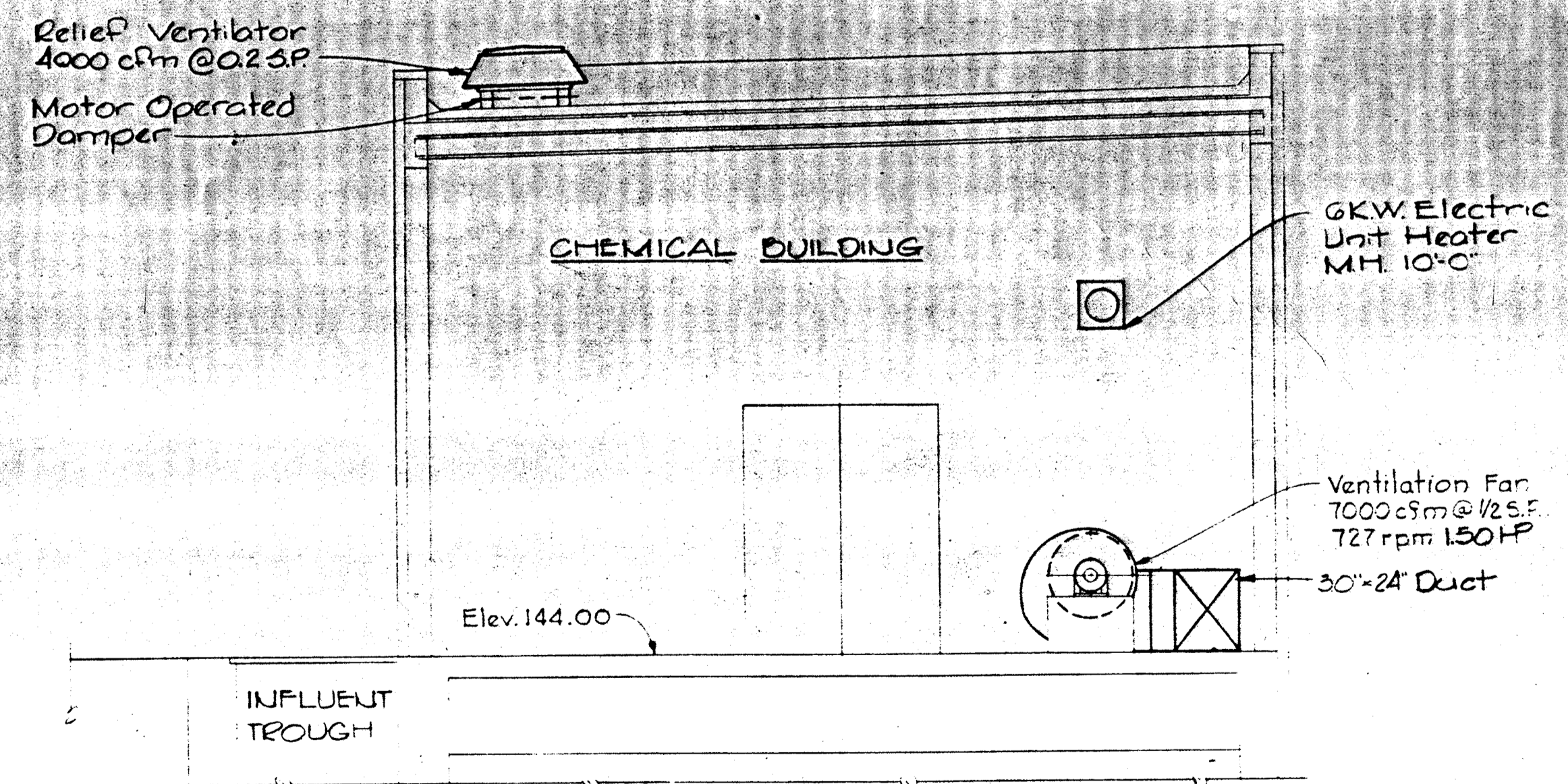
SECTION M-18A/M-15, U-17, M-7
Scale: 1/4" = 1'-0"



SECTION M-18C/M-15, U-16, M-7
Scale: 1/4" = 1'-0"



SECTION M-18B/M-15, U-16, M-7
Scale: 1/4" = 1'-0"



SECTION M-18D/M-15
Scale: 1/4" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES
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1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/78
DATE

CONTRACT NO. 500-S

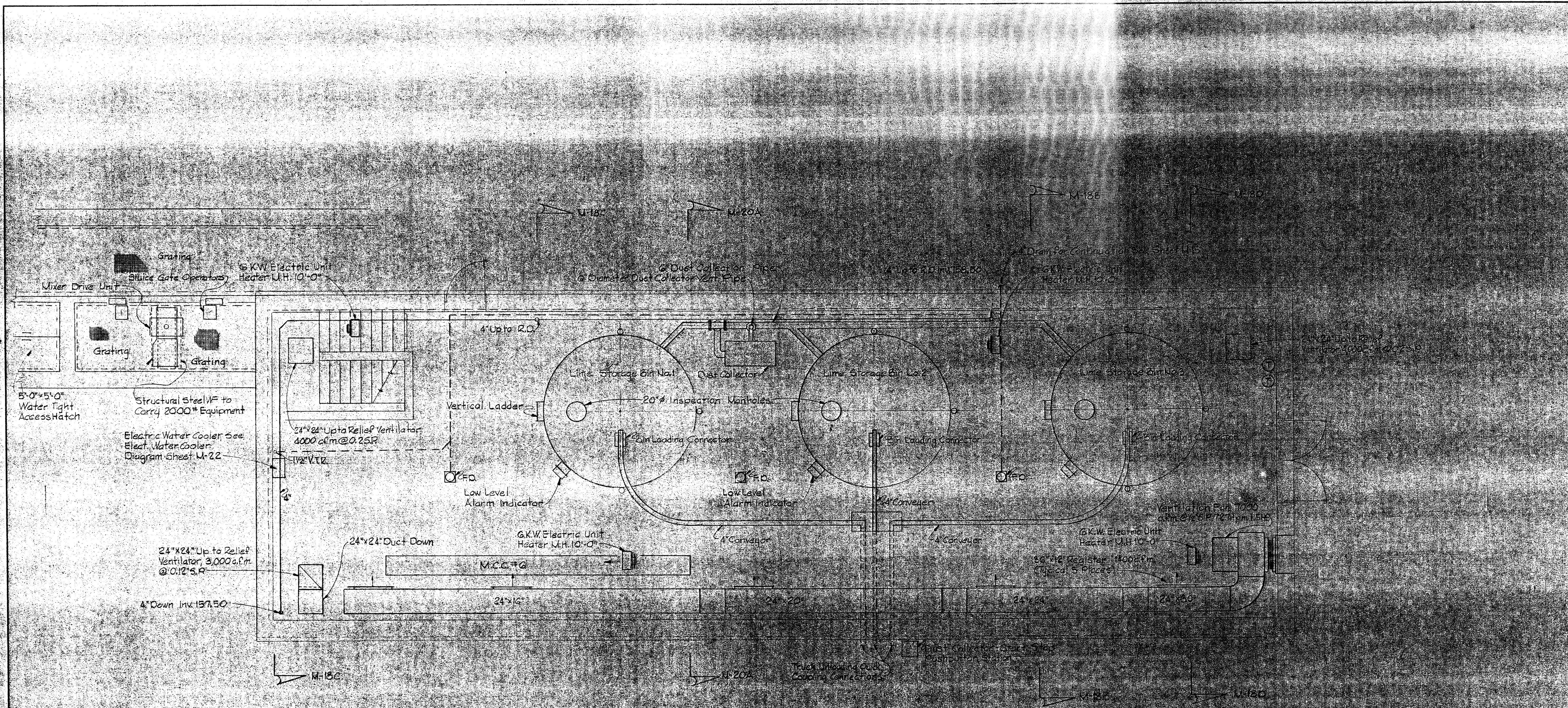
AERATION BASINS NO. 2 & 3
PIPE GALLERY WEST
SECTIONS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING
NO. 78
OF 133

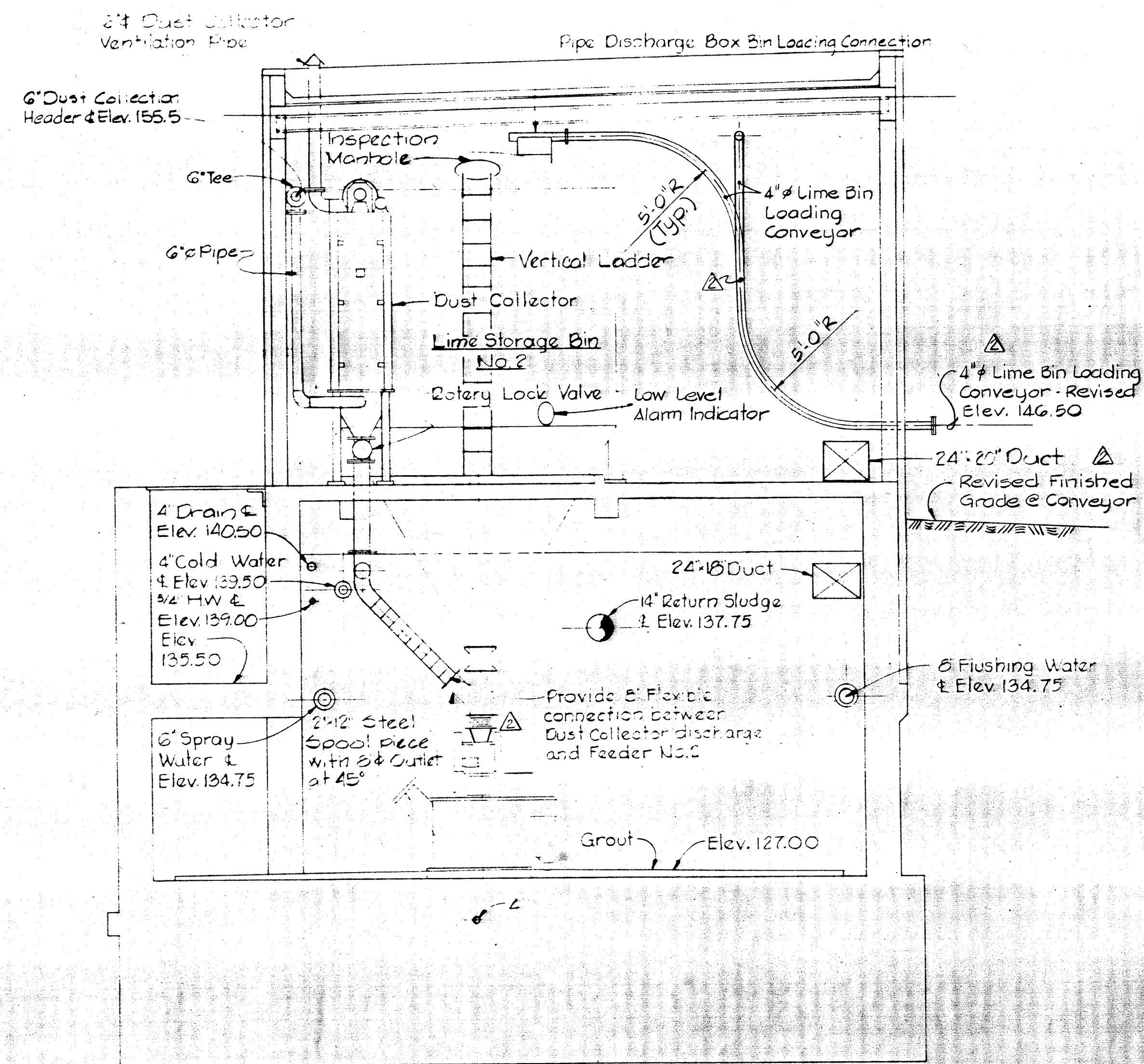
SCALE
AS
SHOWN

SHEET M-18

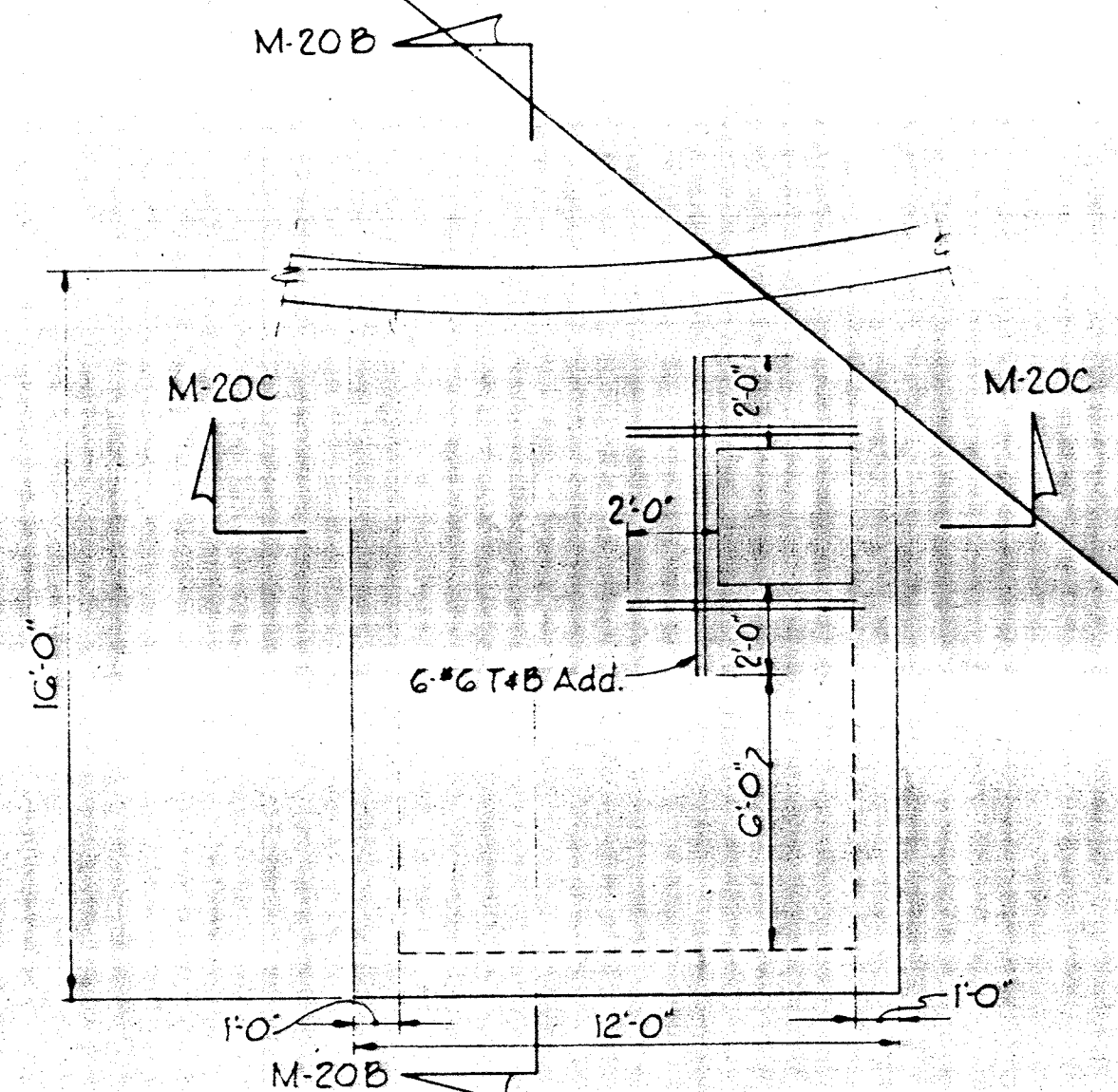


PLAN CHEMICAL BUILDING
Scale 1/4" = 1'-0"

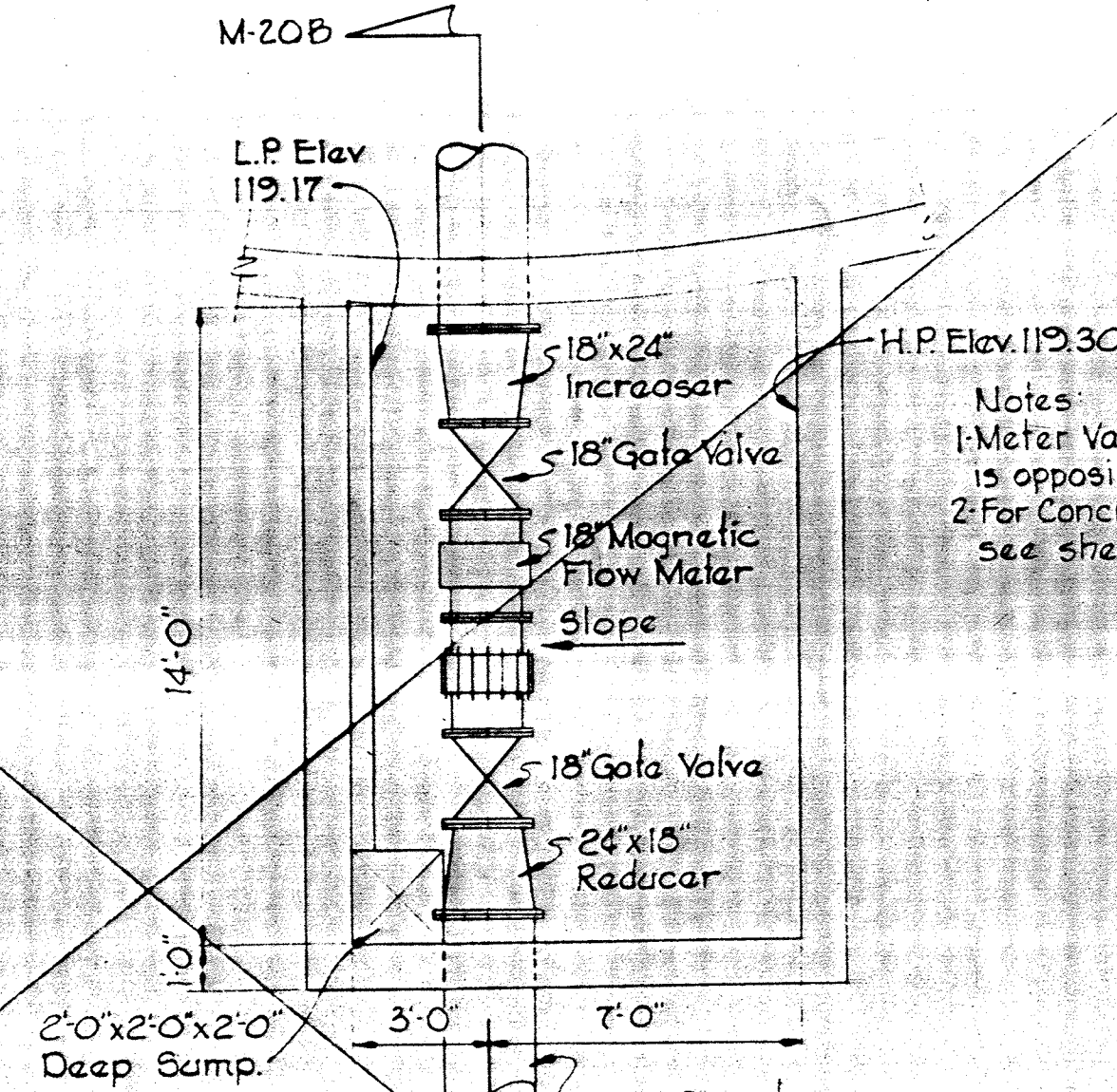
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE _____ CHIEF BUREAU OF ENGINEERING	CONTRACT NO. <u>500-S</u>	AERATION BASINS NOS. 2, 3 & 4 PIPE GALLERY WEST CHEMICAL BUILDING	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. <u>79</u> OF <u>133</u> SCALE <u>AS SHOWN</u>
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SECTION M-20A/M-15, M-16, M-7
Scale: 1/4"=1'-0"

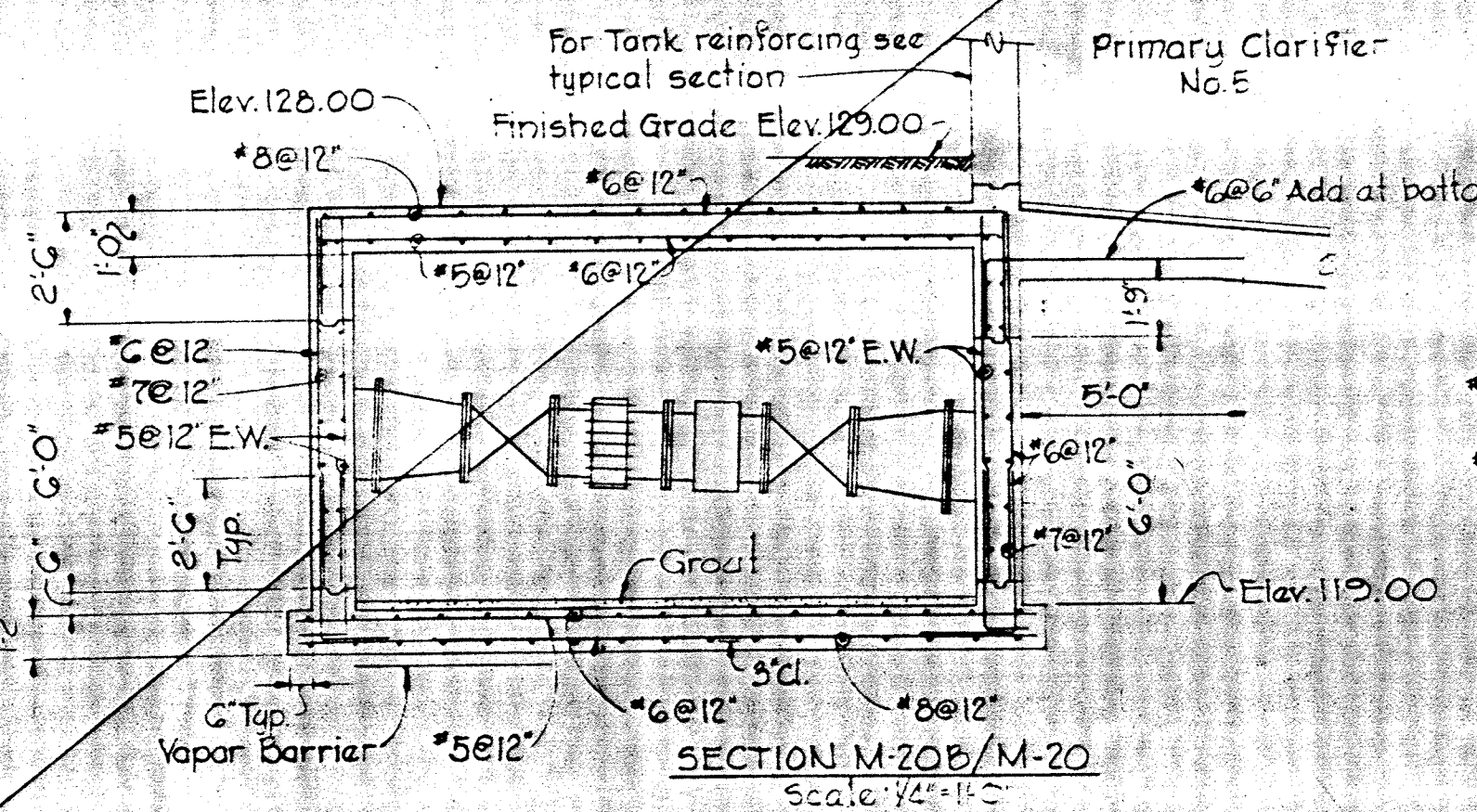


PLAN - TOP SLAB
Scale: 1/4"=1'-0"

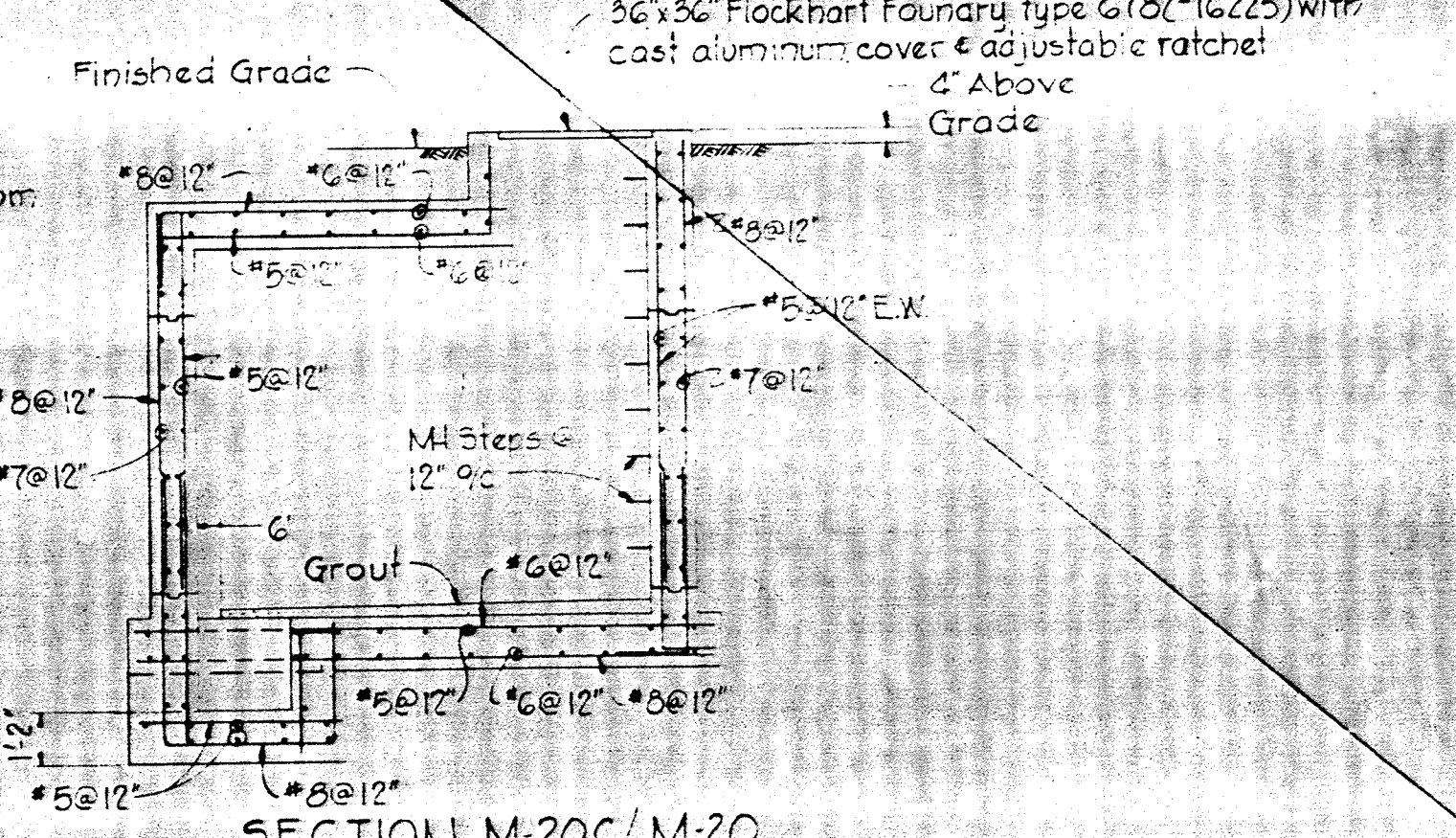


PLAN - INFLUENT
Scale: 1/4"=1'-0"

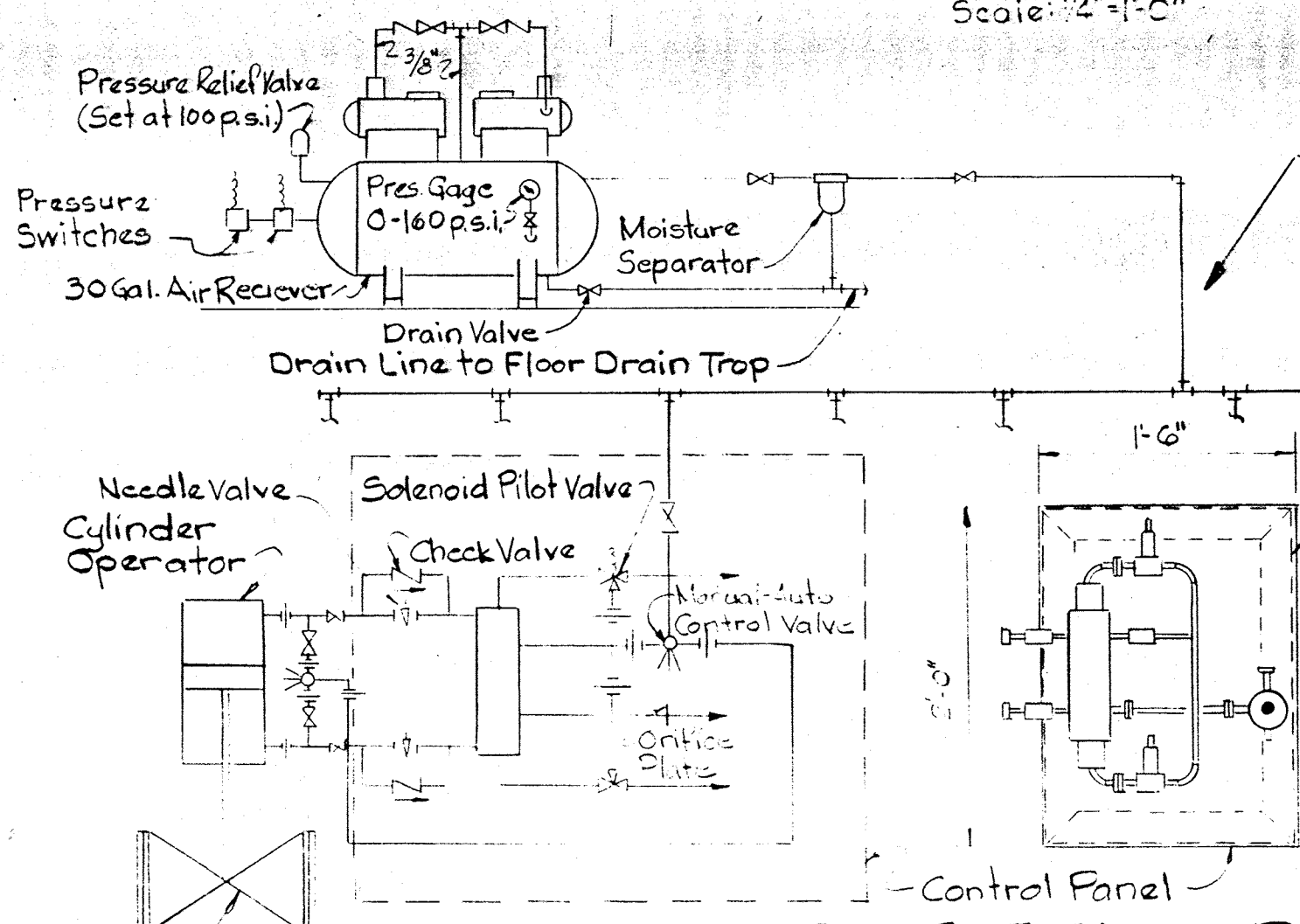
Notes:
1. Meter Vault for Primary Clarifier No. 4 is opposite hand. See plan sheet M-6
2. For concrete notes and typical details see sheets S-1 and S-2



SECTION M-20B/M-20
Scale: 1/4"=1'-0"

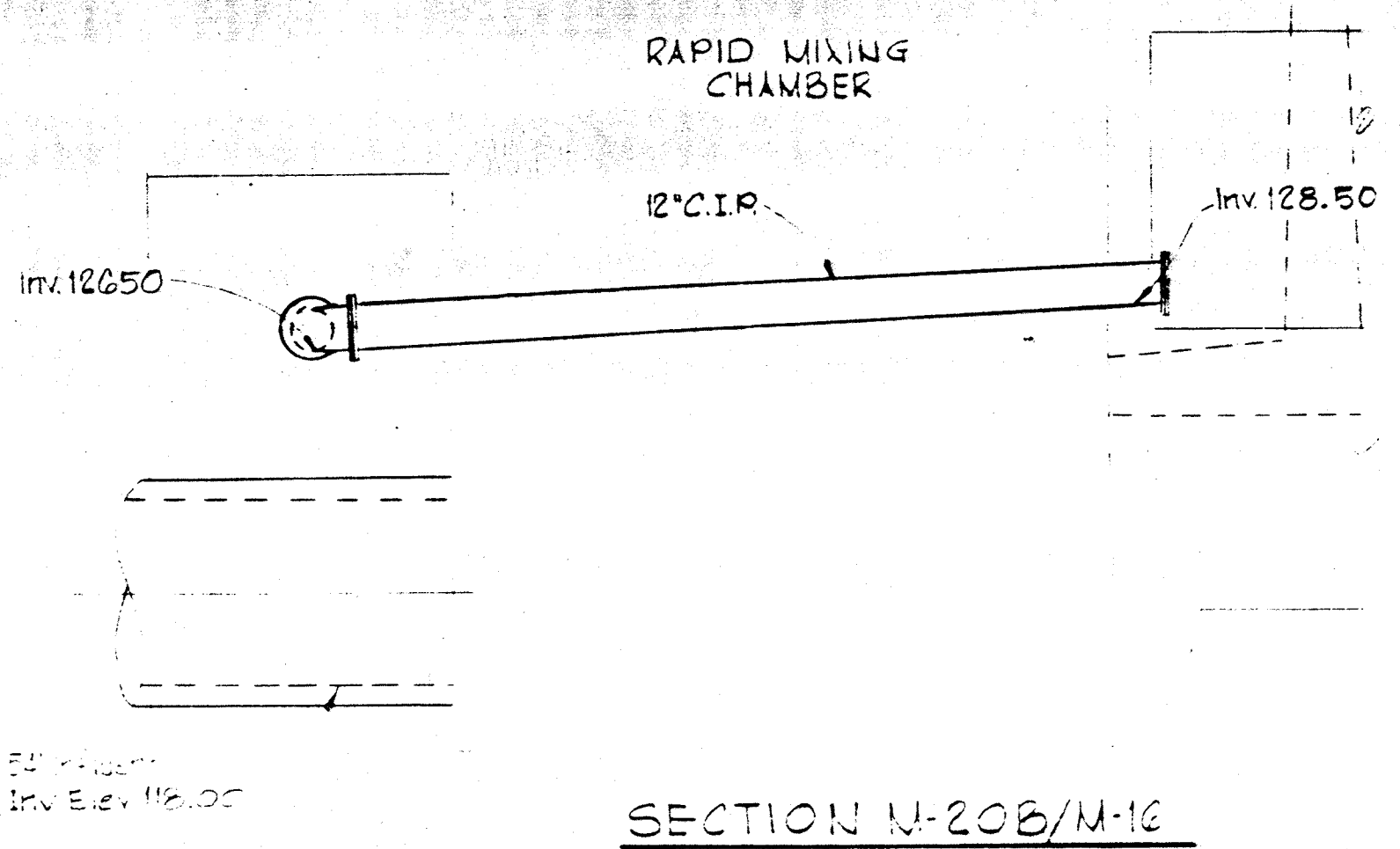


SECTION M-20C/M-20
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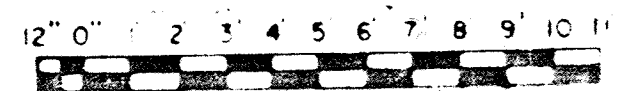


AIR SYSTEM DIAGRAM
No Scale

Notes:
1. Controls and Devices as Noted Typical for all six Plug Valves
2. For Location of Control Panels See Blower Building Flag - Pump Room and Section M-4A/M-4 on Sheet M-4.
1/2" Anodized Aluminum Panel for mounting Solenoid Control Valves & Accessories. Mount Panels on 2 1/2" x 2 1/2" x 1/2" Ls Supports from floor. Mounting height to bottom of Panel 4'-0"

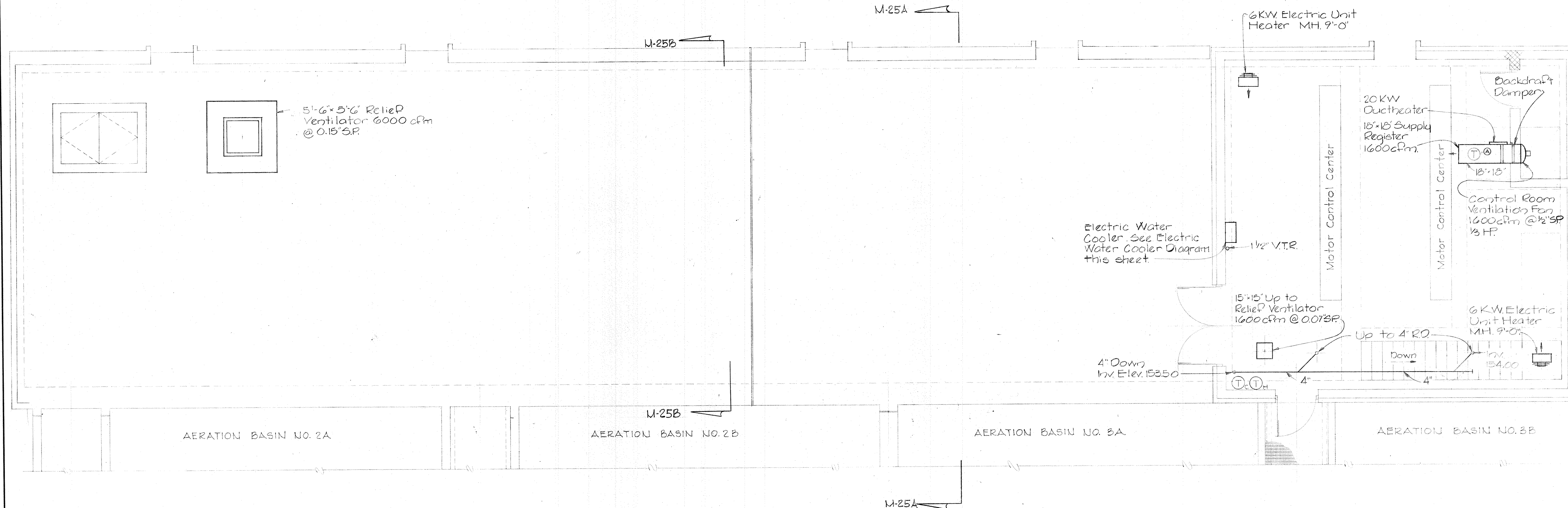


SECTION M-20B/M-16
Scale: 1/4"=1'-0"

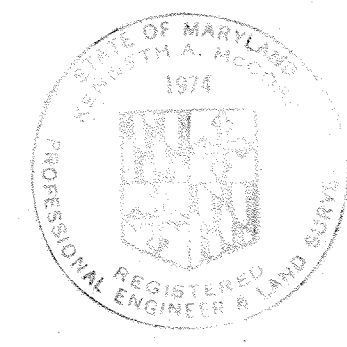
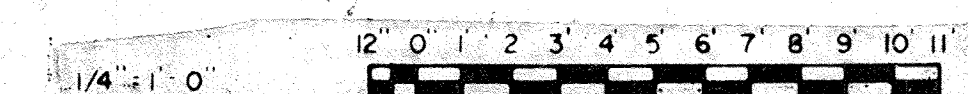
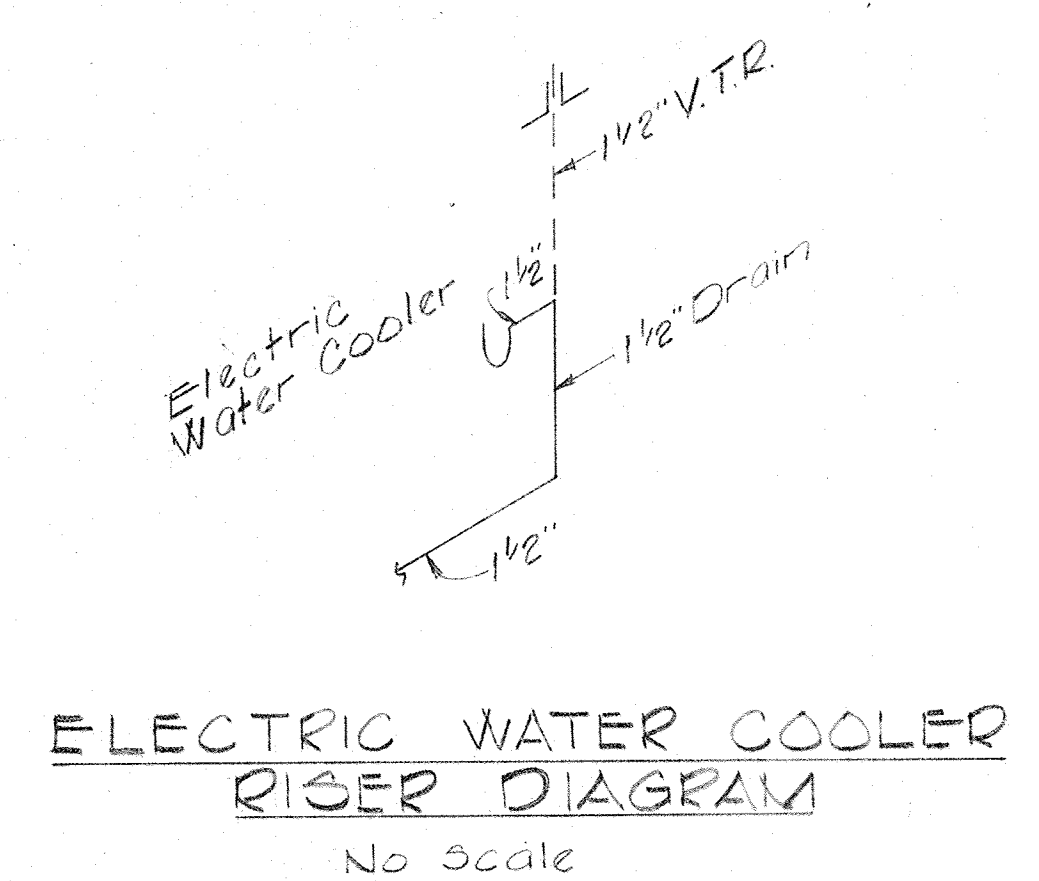
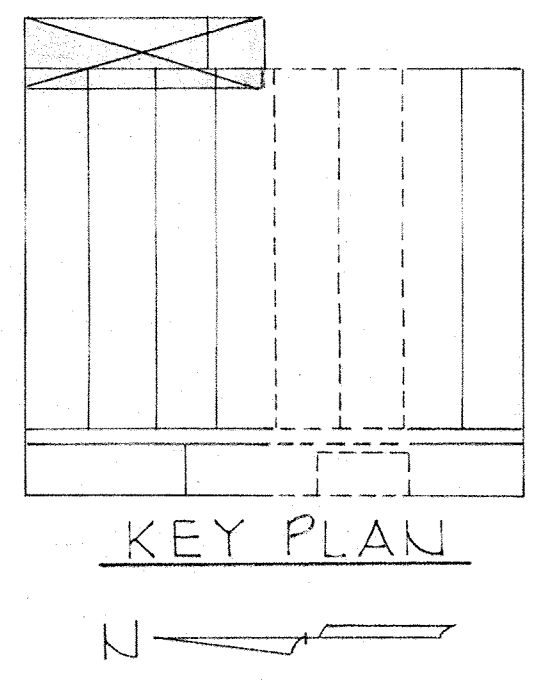


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 W. O. Libert CHIEF BUREAU OF ENGINEERS	CONTRACT NO. 500-S	AERATION BASINS NO. 2 & 3 PIPE GALLERY WEST SECTIONS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 80 OF 133 SCALE AS SHOWN SHEET M-20
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Construction North



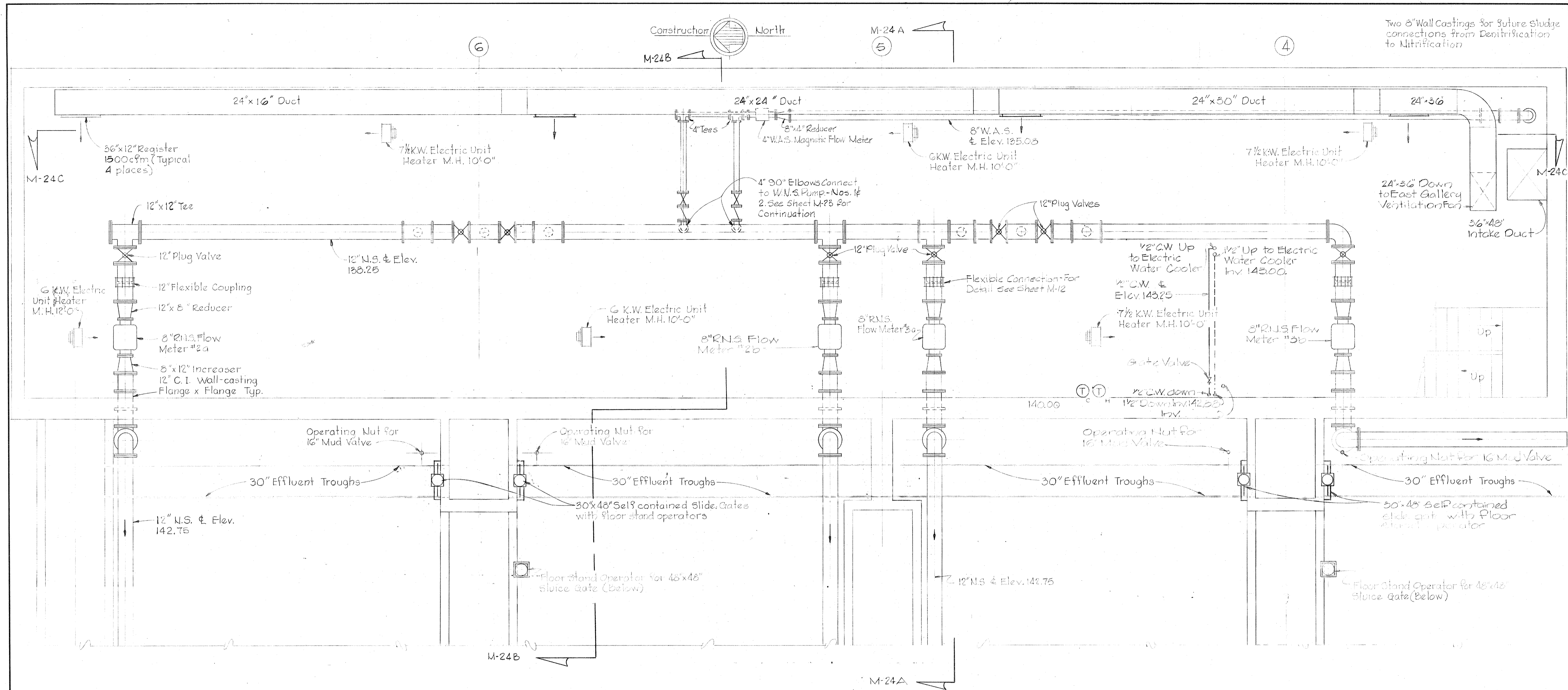
PLAN-CONTROL BUILDING NO. 2
Scale: 1/4" = 1'-0"



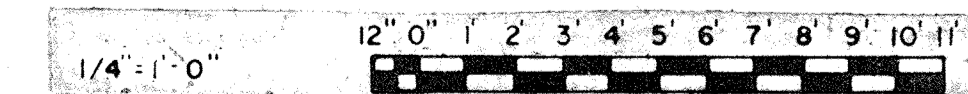
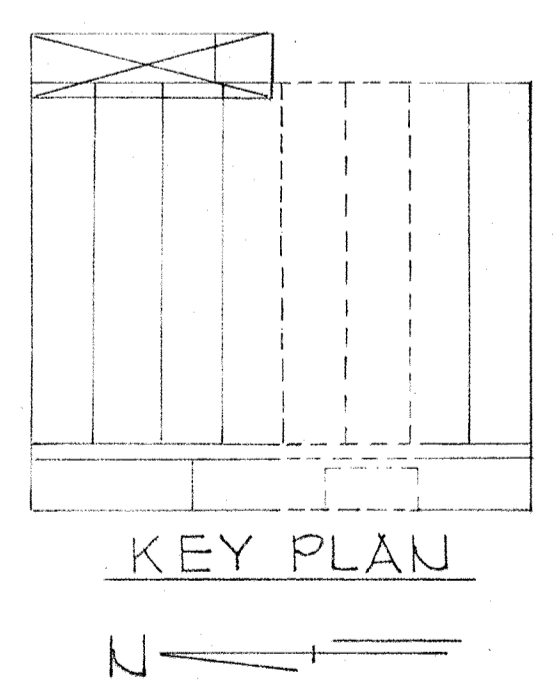
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE W. O. Luffert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS NO. 2 & 3 PIPE GALLERY EAST CONTROL BUILDING	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 81 OF 133 SCALE AS SHOWN SHEET M-21
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W.O. 6887-2

BRUNING 44510 18392



UPPER NITRIFICATION PIPE GALLERY PLAN
Scale: 1/4" = 1'-0"

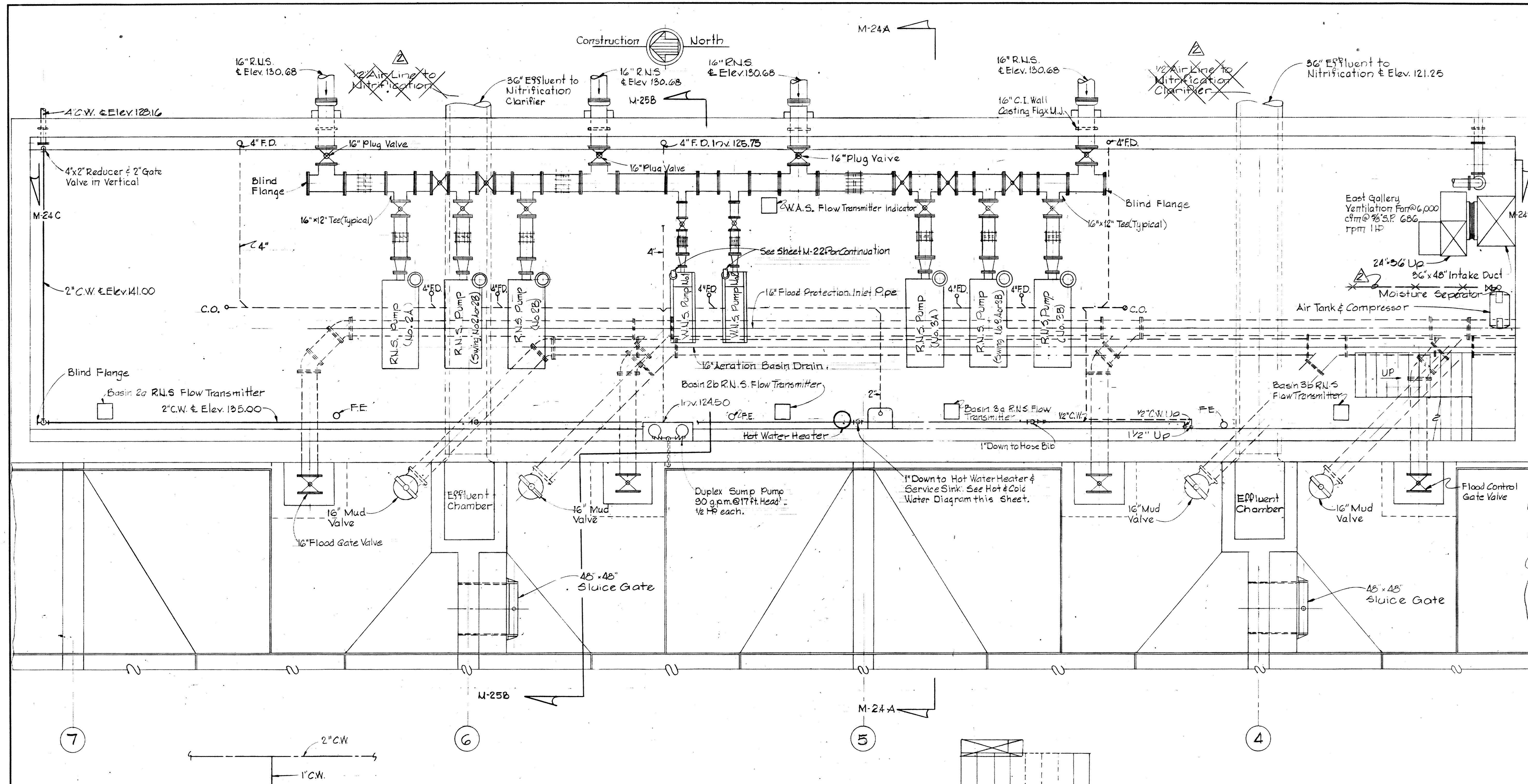


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 2/20/15 W.O. 6887-2 CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS NO. 2 & 3 PIPE GALLERY EAST UPPER PLAN	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO.4	DRAWING NO. 82 OF 133 SCALE AS SHOWN
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W.O. 6887-2

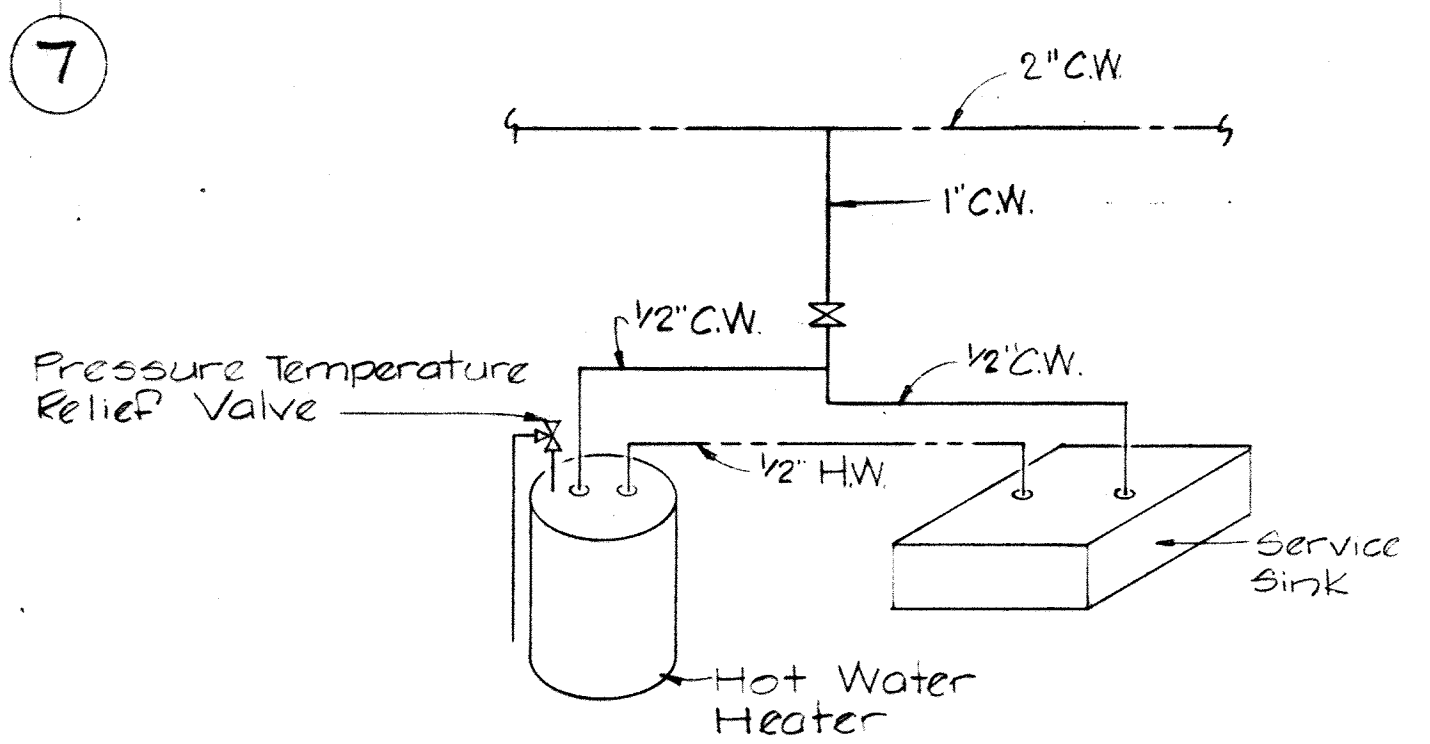
SHEET M-22

BRUNING 44-510 10392

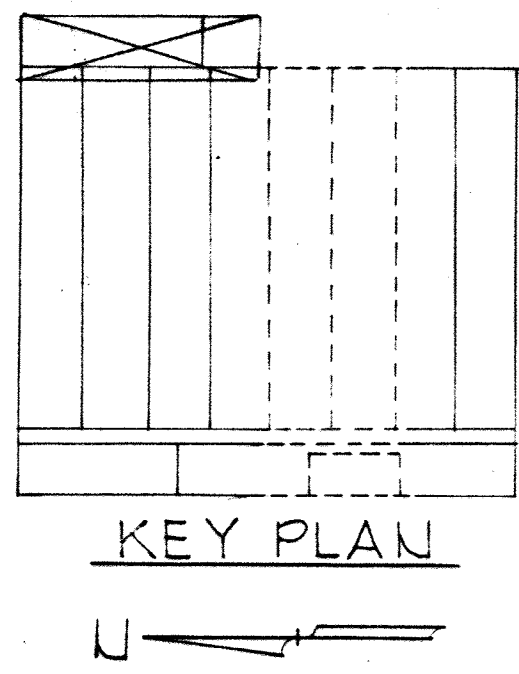


LOWER NITRIFICATION PIPE GALLERY PLAN

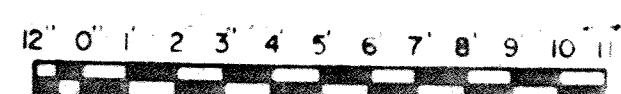
Scale: 1/4" = 1'-0"



HOT & COLD WATER RISER DIAGRAM
No Scale



KEY PLAN



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

3/20/82 DATE
W. O. Falbert CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

AERATION BASINS NO. 2 & 3
PIPE GALLERY EAST
LOWER PLAN

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 83
OF 133

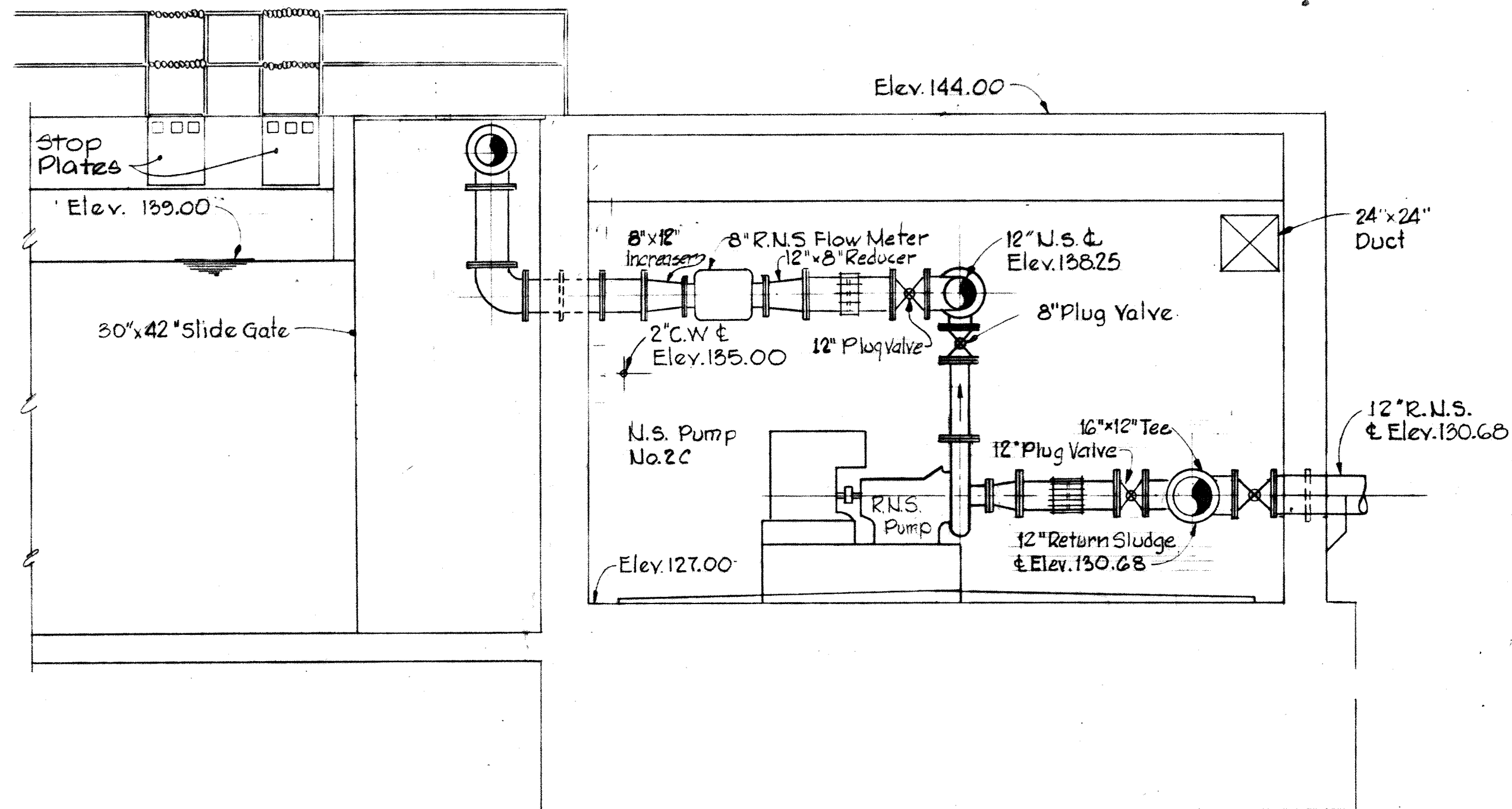
SCALE AS SHOWN

W.O. 6887-2

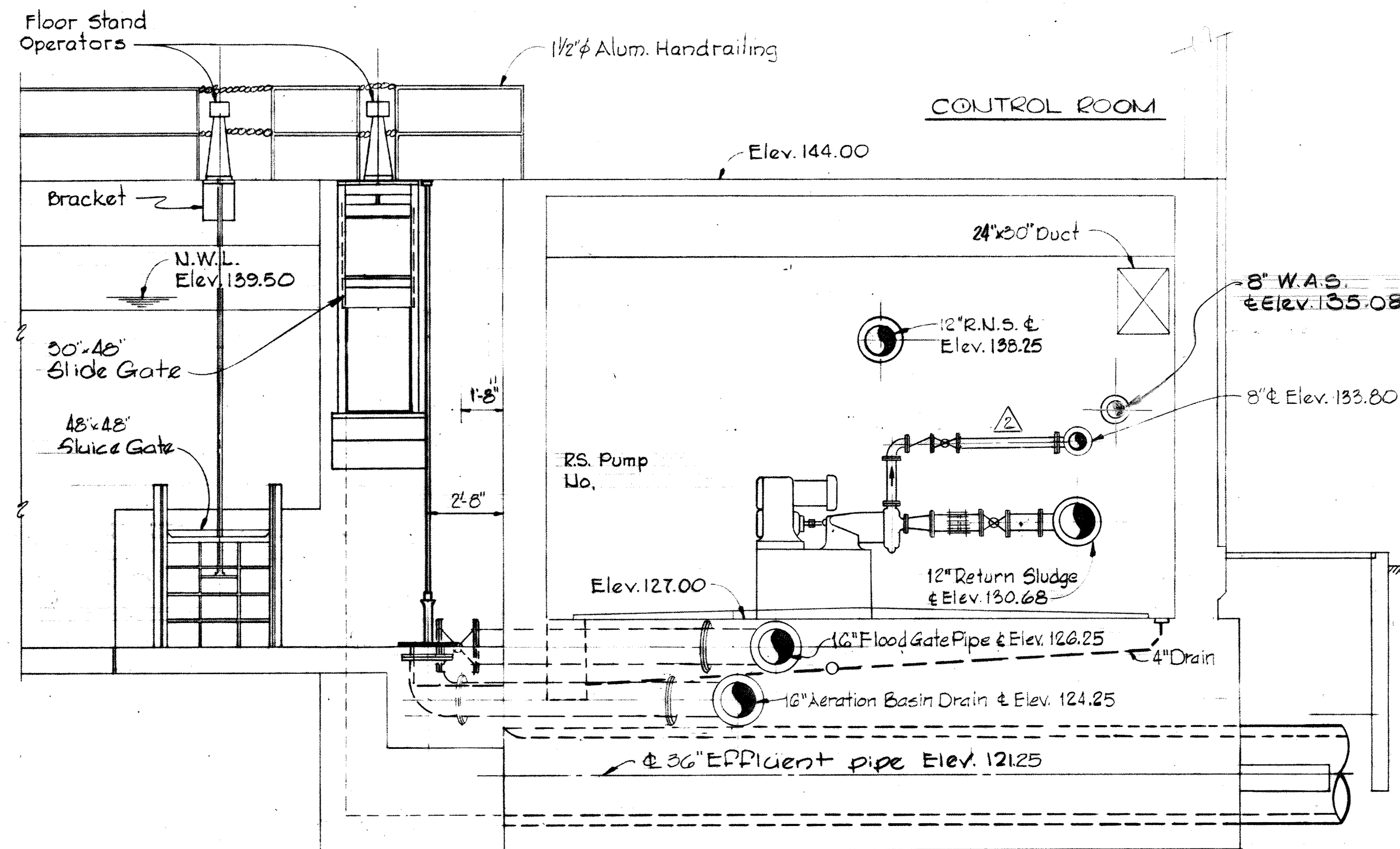
SHEET M-23

MODIFIED DRAWING - MAY 6, 1982

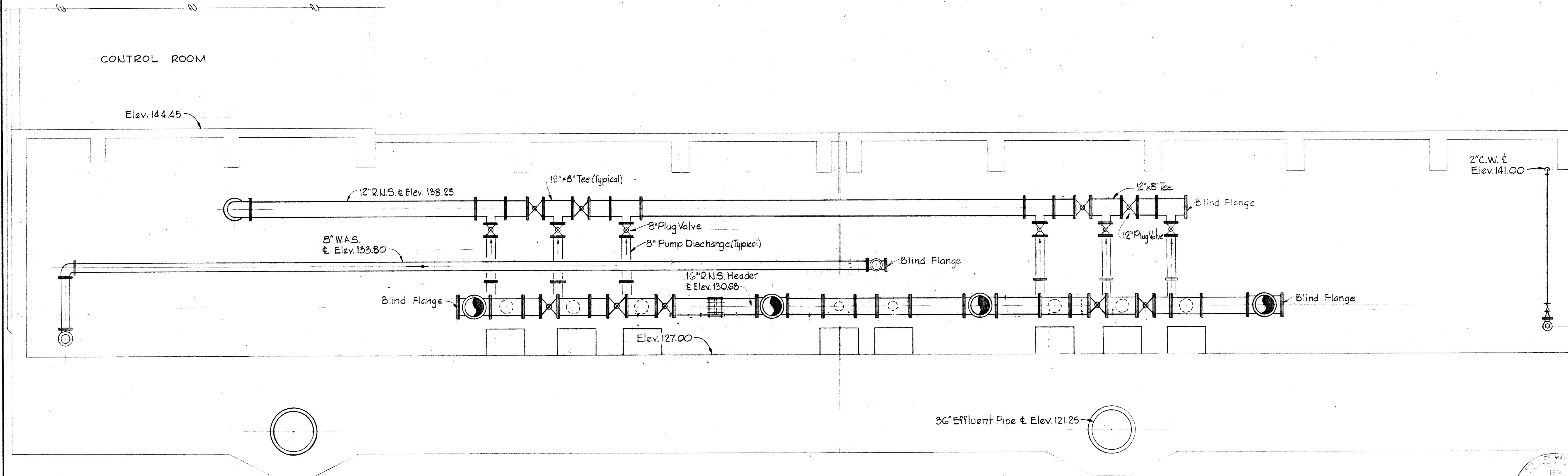
DRAWING 44-510 18392



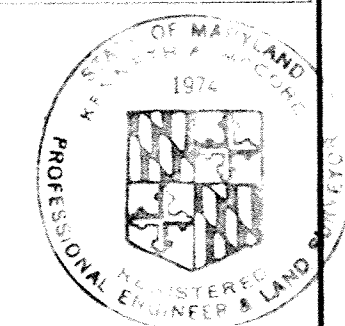
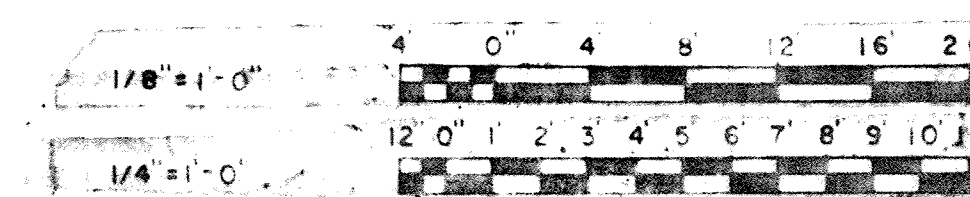
SECTION M-24A/M-22 & M-23
Scale: 1/4" = 1'-0"



SECTION M-25B/M-22 & M-23
Scale: 1/4" = 1'-0"



SECTION M-24C/M-22 & M-23
Scale: 1/4" = 1'-0"



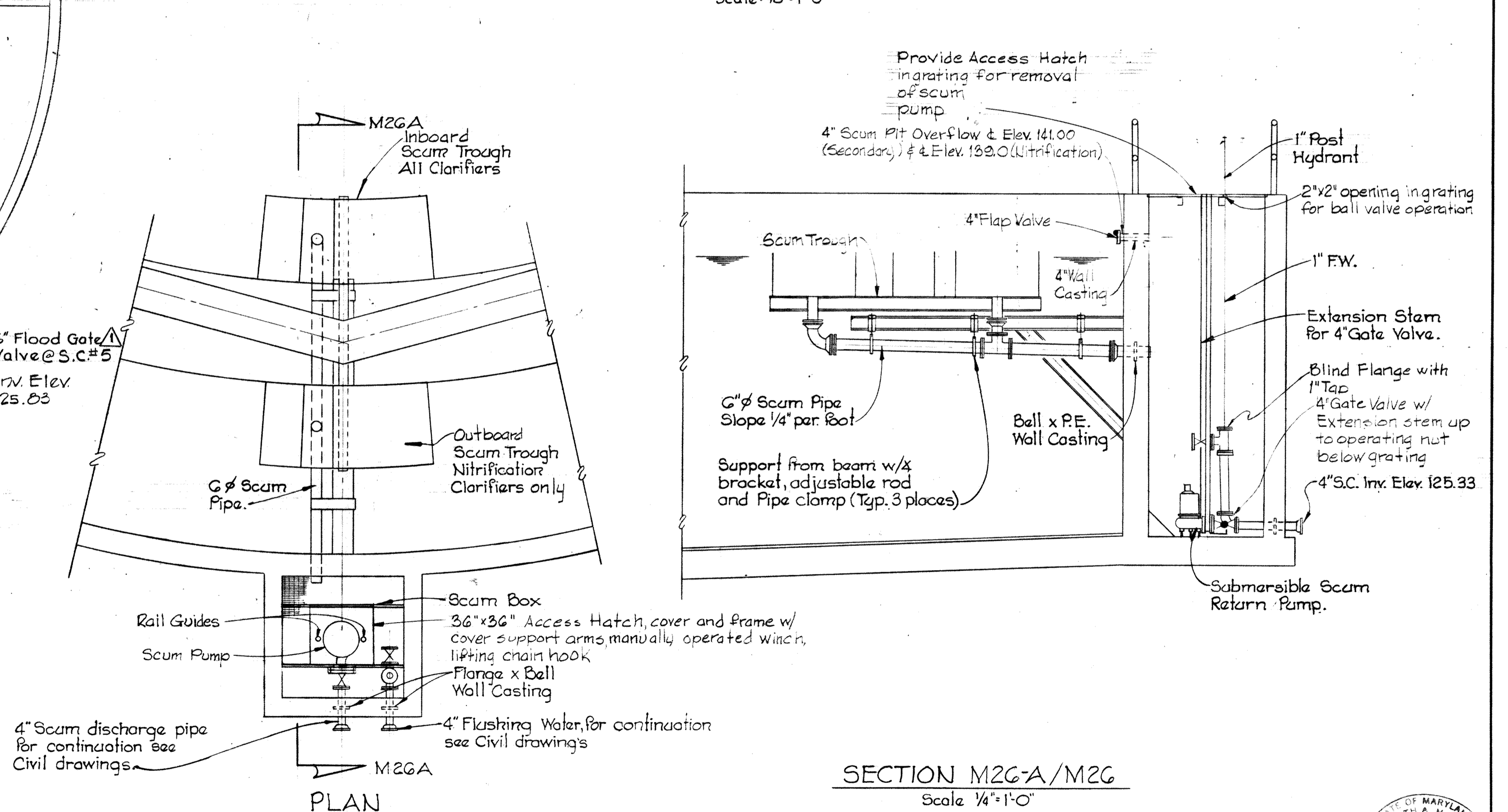
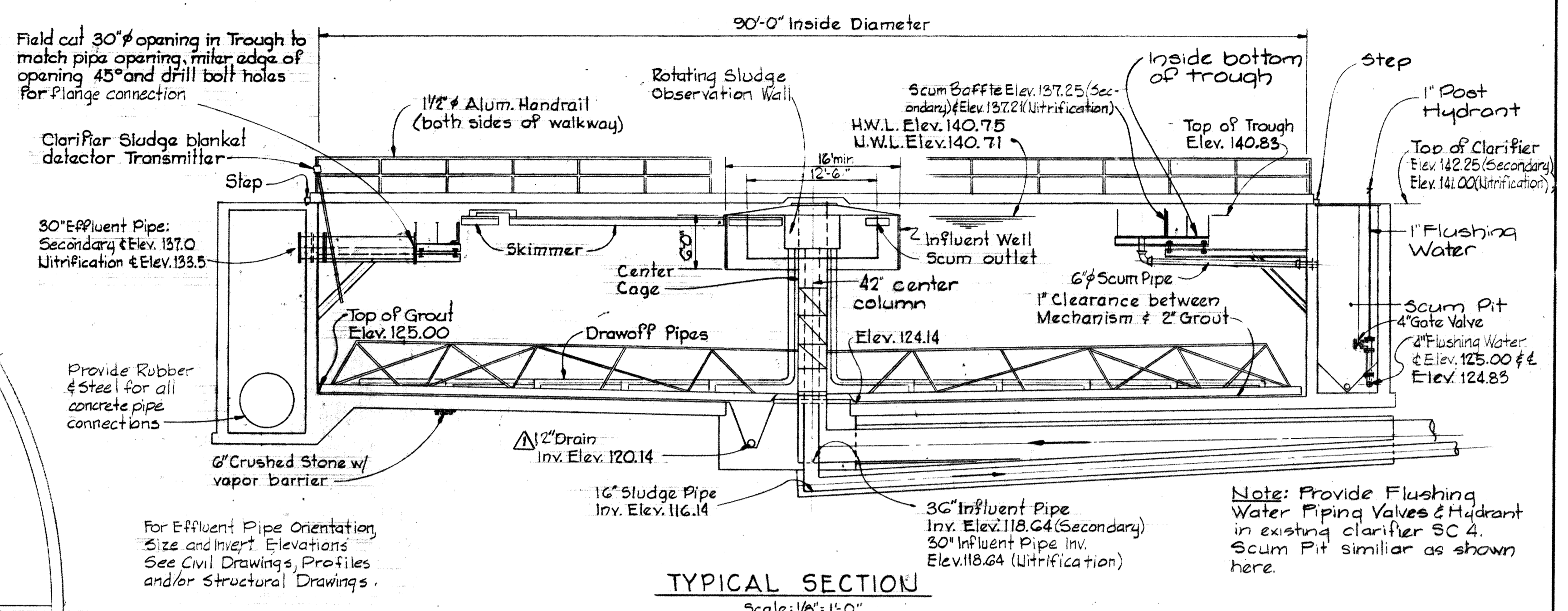
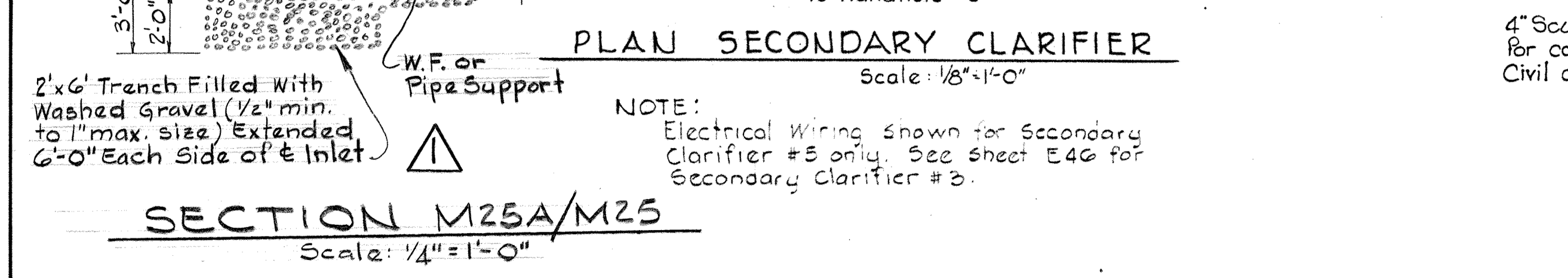
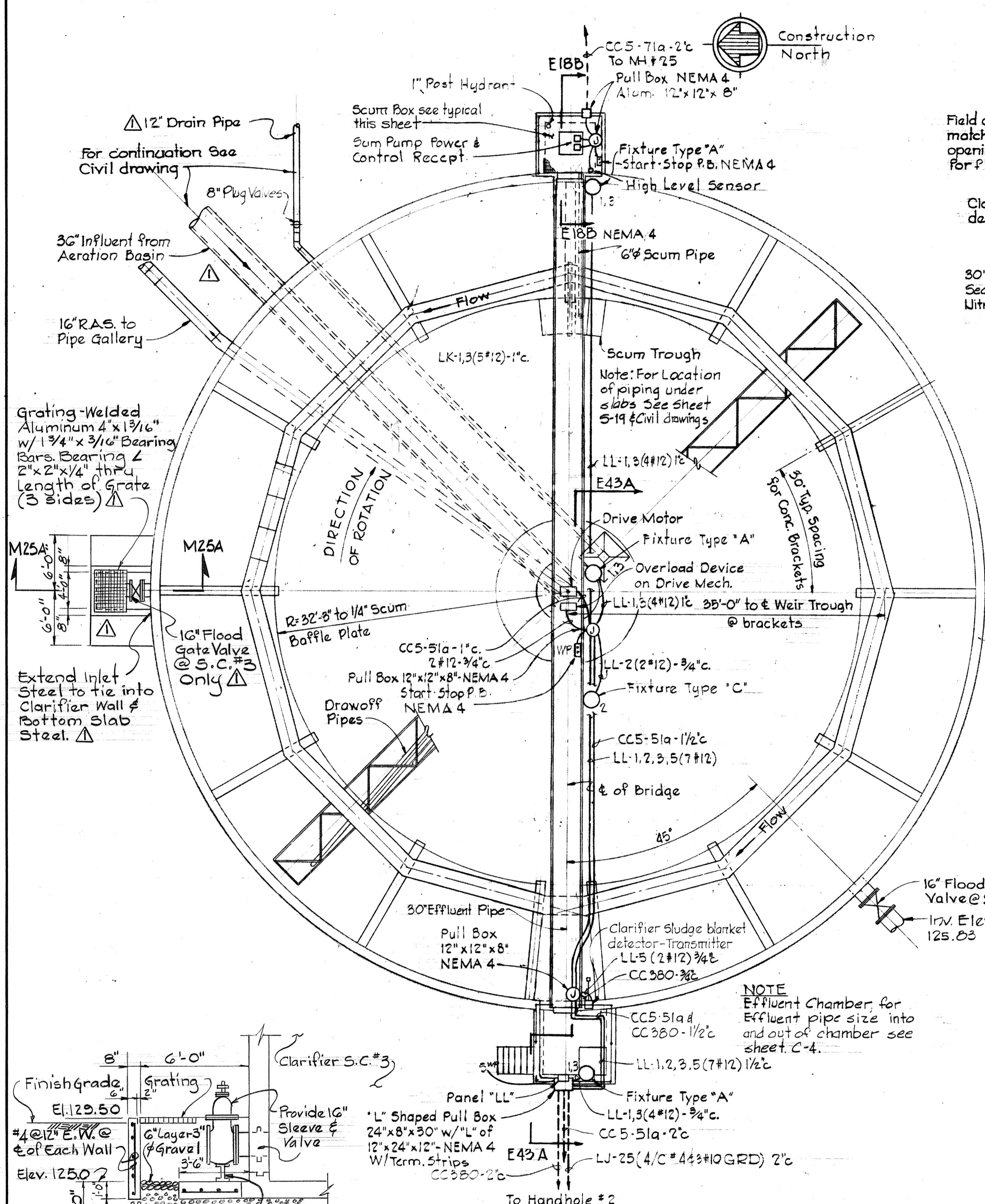
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>3/26/75</i> DATE <i>W.O. Albert</i> CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS NO. 2 & 3 PIPE GALLERY EAST SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 84 OF 133	SCALE AS SHOWN
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W. O. 6887-2

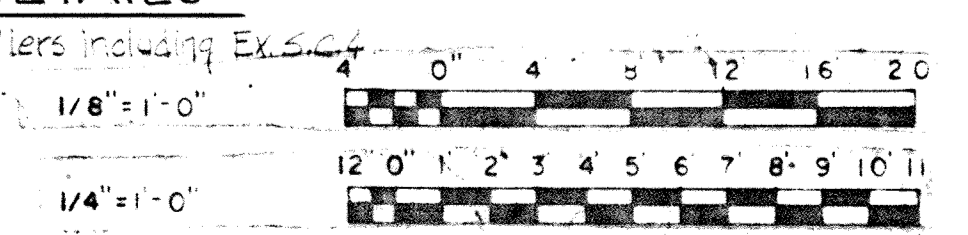
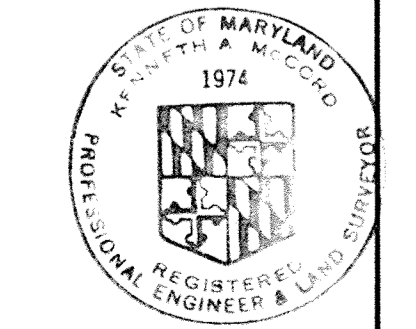
SHEET M-24

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 18392

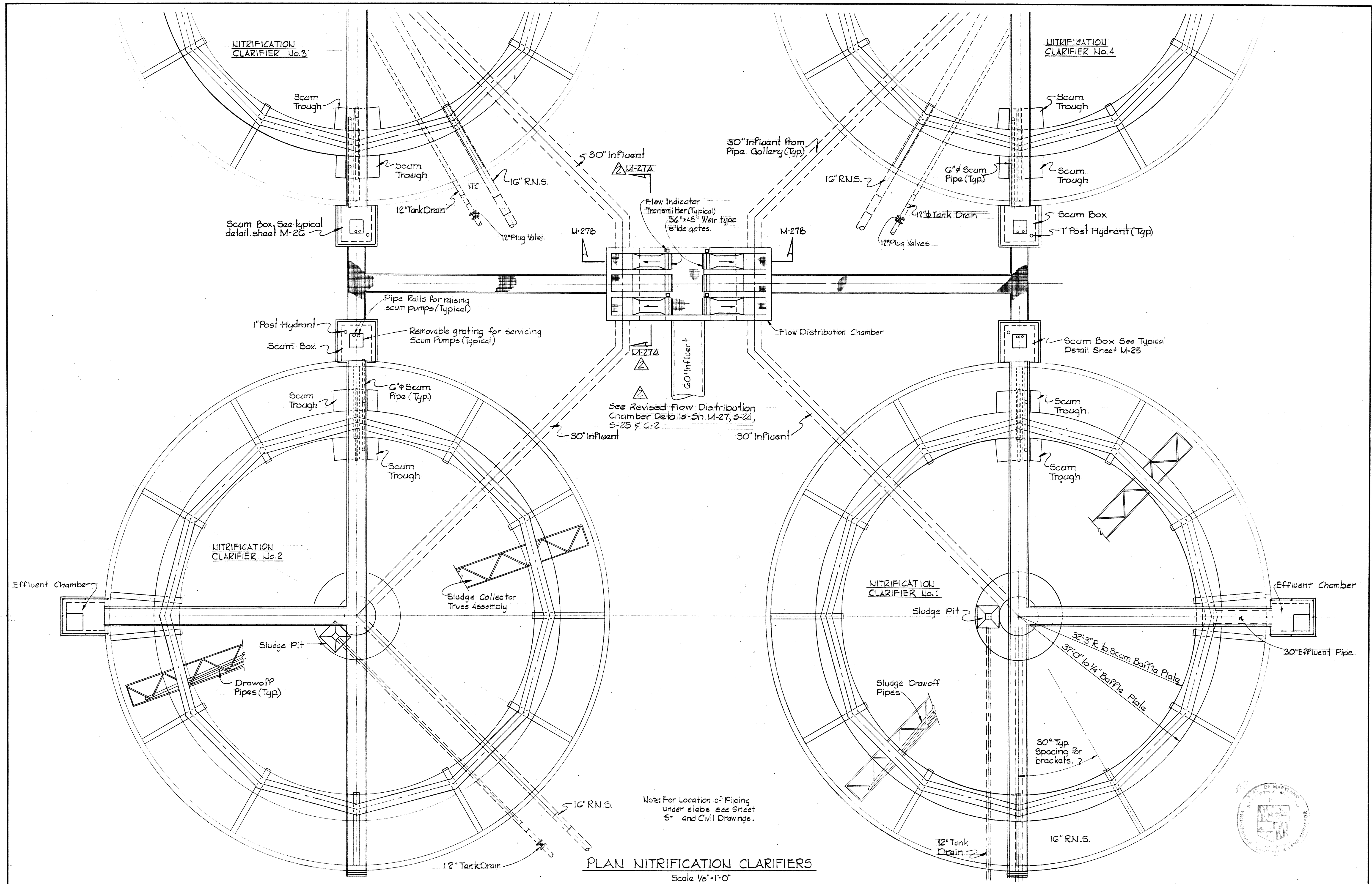


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/85 W.O. Libert CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	SECONDARY CLARIFIER NO. 38-5 PLAN, SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 85 OF 133 SCALE AS SHOWN SHEET M-25
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BRUNING 44-510 1839Z

MODIFIED DRAWING - MAY 6, 1982



PLAN NITRIFICATION CLARIFIERS
Scale 1/8"=1'-0"

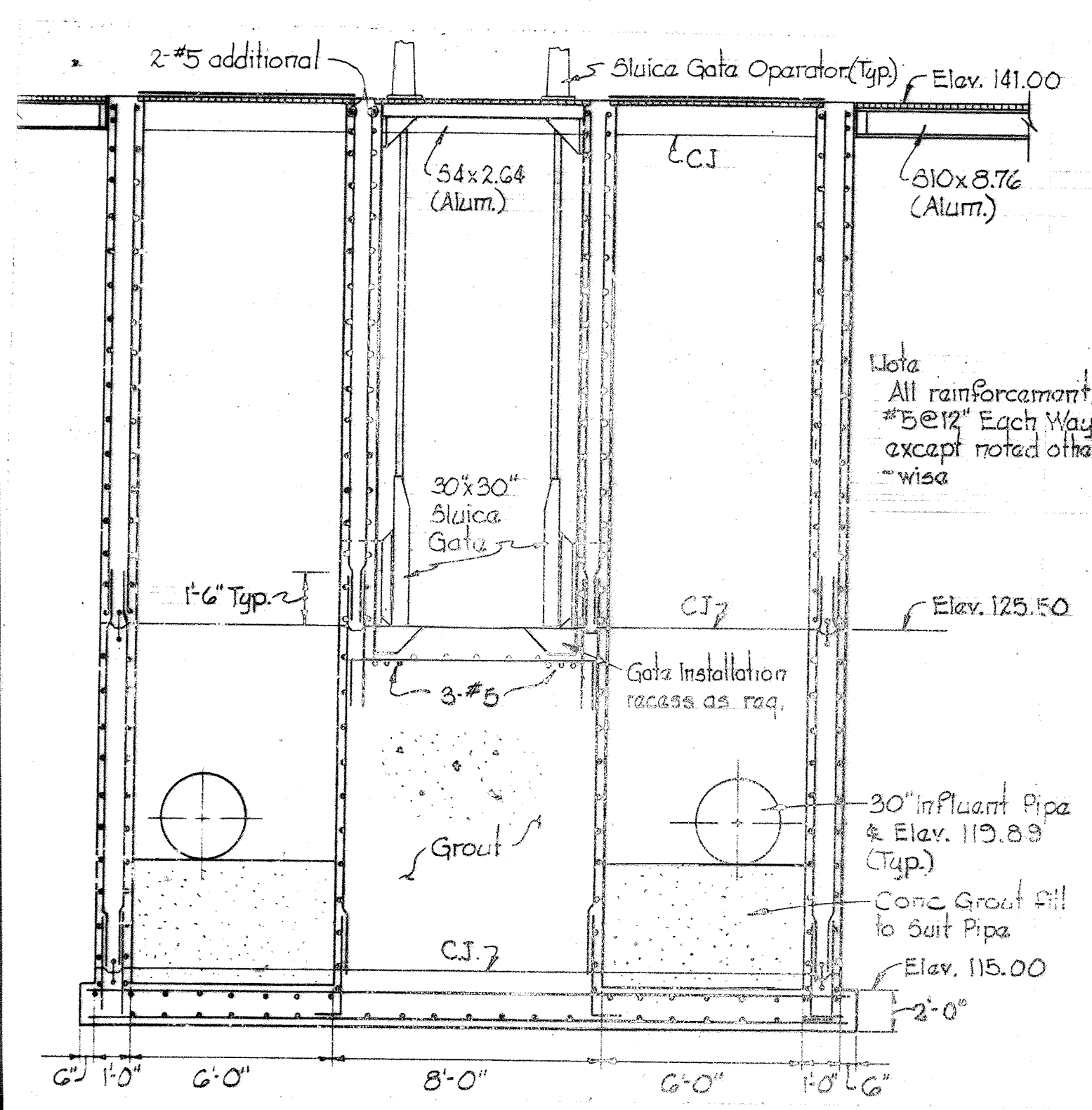
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE <i>W.O. Gilbert</i> CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	NITRIFICATION CLARIFIERS PLAN	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 86 OF 133	SCALE AS SHOWN
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W.O.

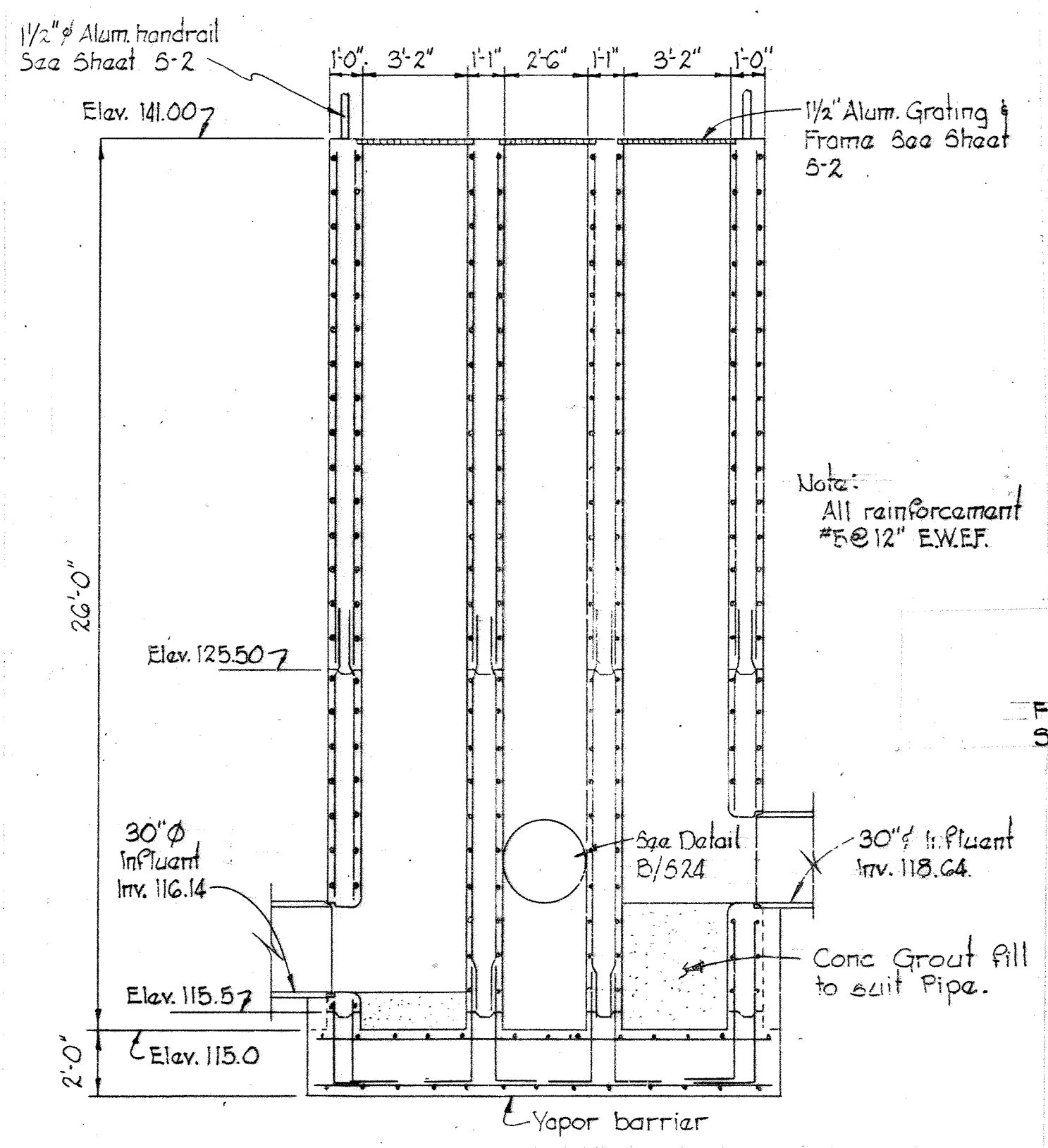
SHEET M-26

MODIFIED DRAWING - MAY 6, 1982

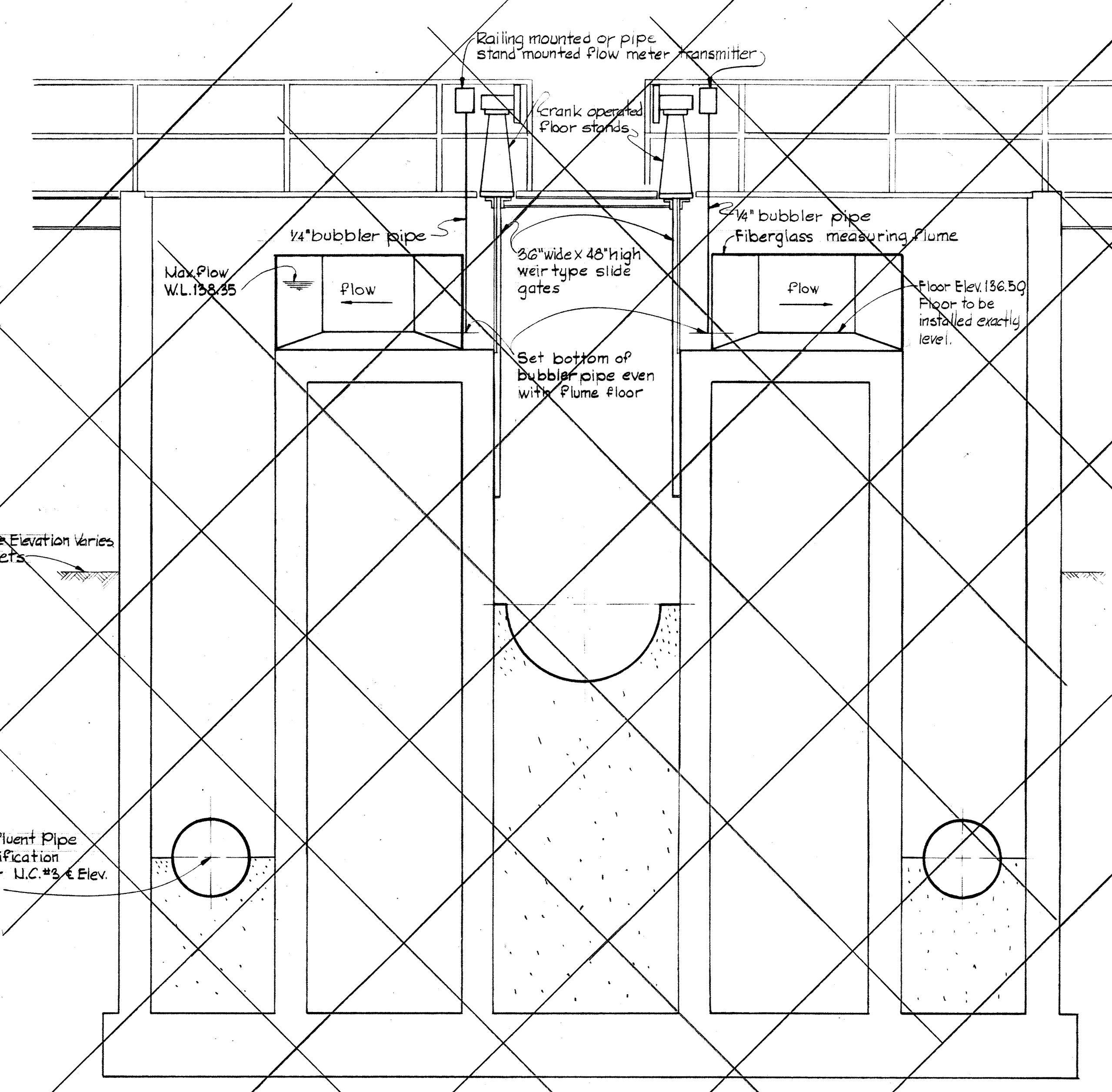
BRUNING 44 510 32872



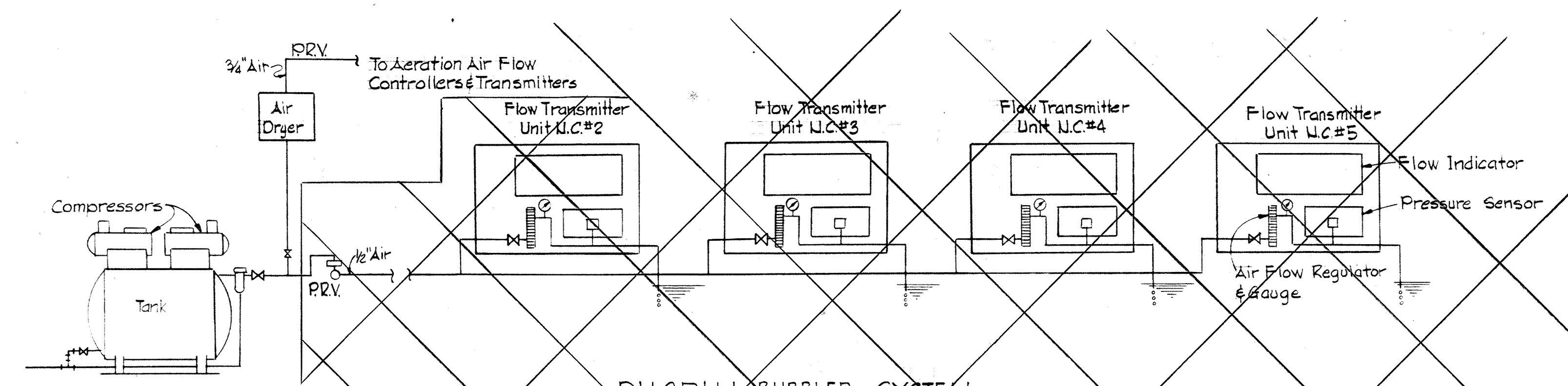
SECTION M-27B/M-26
No Scale



SECTION M-27A/M-26
No Scale

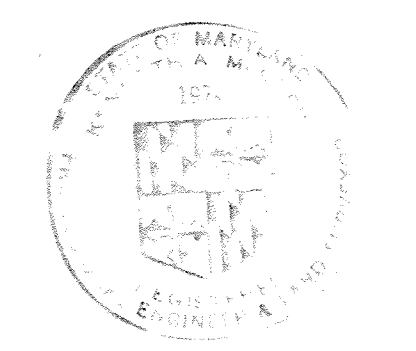


SECTION M-27B/M-26
Scale: 3/8"=1'-0"



Note:
The air compressor and dryer shall be installed as shown in plan on sheet M-23.

DIAGRAM BUBBLER SYSTEM
No Scale



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-26-77
DATE
W. O. Libert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

NITRIFICATION CLARIFIERS
SECTIONS AND DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

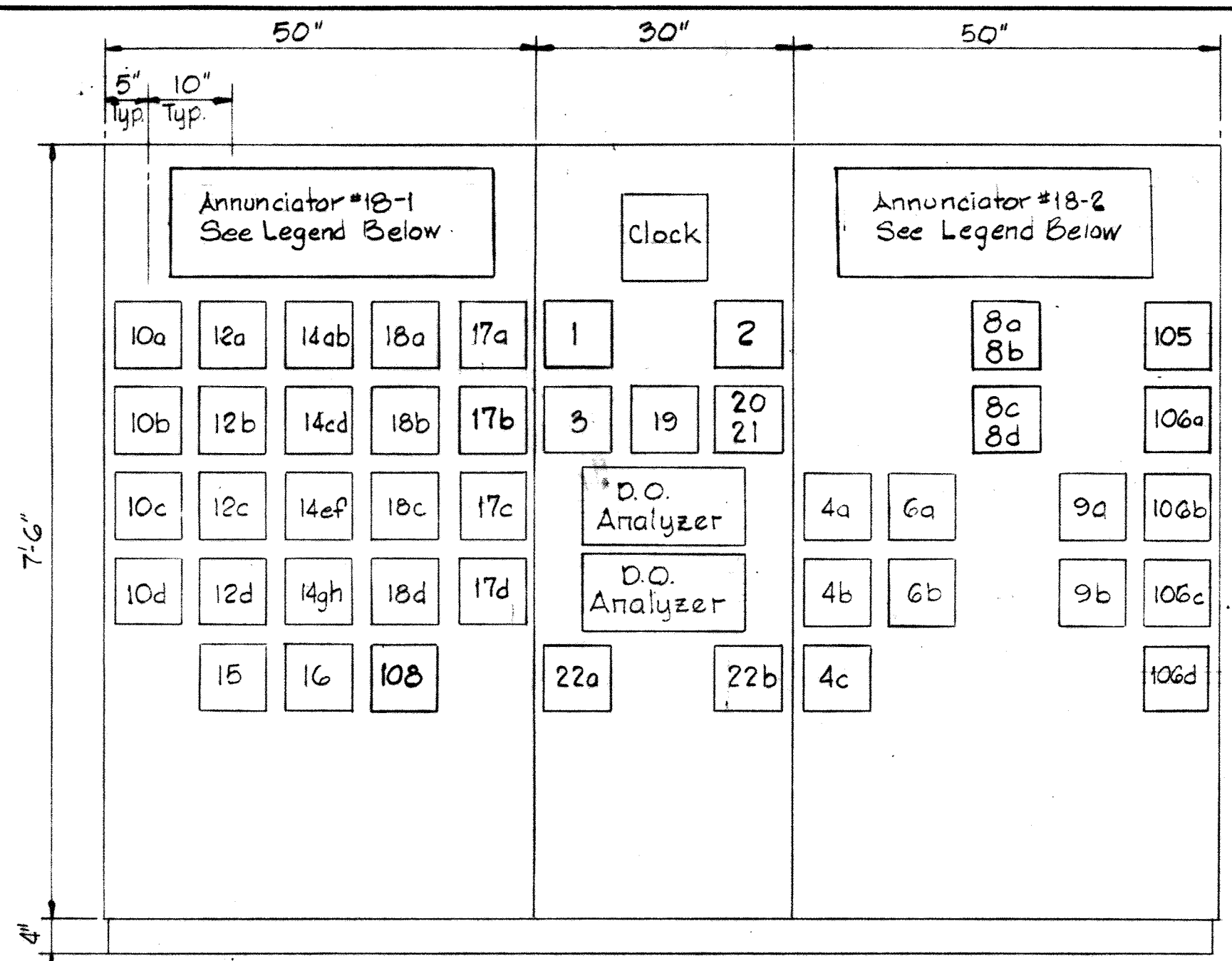
DRAWING NO. 87
OF 133
SCALE AS SHOWN

SHEET M-27

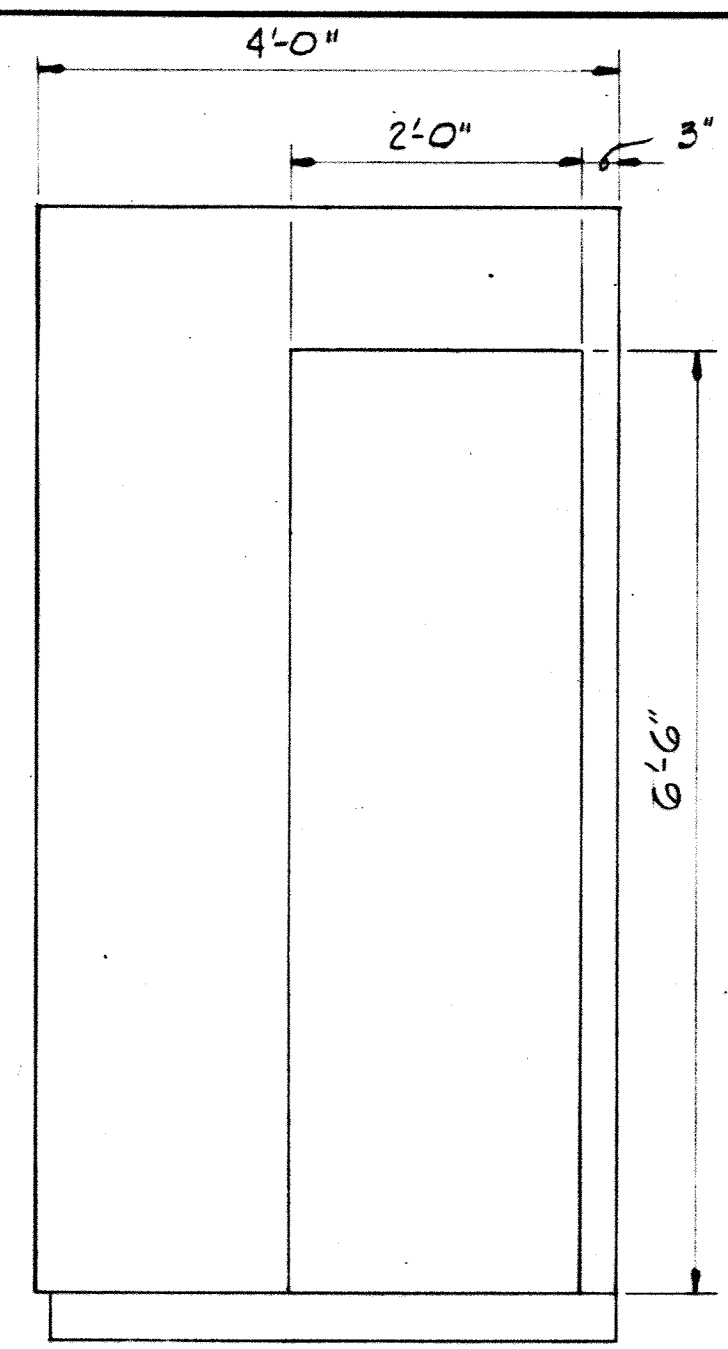
MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 32872

W. O.



INSTRUMENTATION PANEL
Scale: 3/4" = 1'-0"



SIDE ELEVATION
Scale: 3/4" = 1'-0"

INDEX	NAMEPLATE DESCRIPTION	FUNCTION	RANGE
1	Total Influent Flow	I	0-30 MGD
2	Total Nitrification Influent Flow	I	0-30 MGD
3	Settled Sewage Temperature	I	0-50°C
4a	Secondary Influent Flow Clarifier No. 3	I	0-10 MGD
4b	Secondary Influent Flow Clarifier No. 4	I	0-10 MGD
4c	Secondary Influent Flow Clarifier No. 5	I	0-10 MGD
6a	Air Flow Aeration Basin No. 4	I	0-4,000 cfm
6b	Air Flow Aeration Basin No. 5	I	0-4,000 cfm
8a	Dissolved Oxygen Aeration Basin No. 4	I (2 Dial)	0-3 ppm
8b	Dissolved Oxygen Aeration Basin No. 4 Eff.	I (2 Dial)	0-3 ppm
8c	Dissolved Oxygen Aeration Basin No. 5	I (2 Dial)	0-3 ppm
8d	Dissolved Oxygen Aeration Basin No. 5 Eff.	I (2 Dial)	0-3 ppm
9a	R.A.S. Aeration Basin No. 4	I	0-3500 gpm
9b	R.A.S. Aeration Basin No. 5	I	0-3500 gpm
10a	Nitrification Influent Flow Clarifier No. 2	I	0-7.5 MGD
10b	Nitrification Influent Flow Clarifier No. 3	I	0-7.5 MGD
10c	Nitrification Influent Flow Clarifier No. 4	I	0-7.5 MGD
10d	Nitrification Influent Flow Clarifier No. 5	I	0-7.5 MGD
12a	Air Flow Aeration Basin No. 2a	I	0-1500 cfm
12b	Air Flow Aeration Basin No. 2b	I	0-1500 cfm
12c	Air Flow Aeration Basin No. 3a	I	0-1500 cfm
12d	Air Flow Aeration Basin No. 3b	I	0-1500 cfm
14ab	Dissolved Oxygen Aeration Basin No. 2A	I (2 Dial)	0-5
14cd	Dissolved Oxygen Aeration Basin No. 2B	I (2 Dial)	0-5
14ef	Dissolved Oxygen Aeration Basin No. 3A	I (2 Dial)	0-5
14gh	Dissolved Oxygen Aeration Basin No. 3B	I (2 Dial)	0-5
15	pH Secondary Aeration Basin Effluent	I	0-14
16	pH Rapid Mixer Chamber Effluent	I	0-14
17a	pH Aeration Basin No. 2A	I	0-14
17b	pH Aeration Basin No. 2B	I	0-14
17c	pH Aeration Basin No. 3A	I	0-14
17d	pH Aeration Basin No. 3B	I	0-14
18a	R.N.S. Aeration Basin No. 2A	I	0-3500 gpm
18b	R.N.S. Aeration Basin No. 2B	I	0-3500 gpm
18c	R.N.S. Aeration Basin No. 3A	I	0-3500 gpm
18d	R.N.S. Aeration Basin No. 3B	I	0-3500 gpm
19	Outside Air Temperature	I	0-100°F
20	Aeration Air Temperature	I	0-50°C
21	Aeration Air Pressure	I	0-10 psig

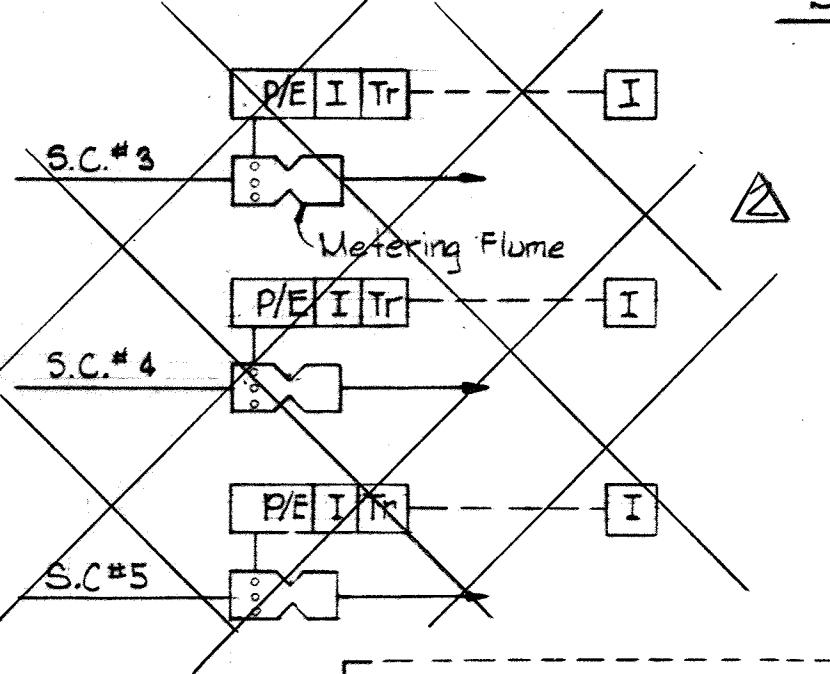
LEGEND

INDEX	NAMEPLATE DESCRIPTION	FUNCTION	RANGE
22a	Suspended Solids Activated Sludge	I	0-10,000 mg/l
22b	Suspended Solids Nitrification	I	0-10,000 mg/l
105	W.A.S. to Nitrification Basins	I	0-1,000 gpm
106a	W.A.S. to Nitrification Basins	I	0-1,750 gpm
106b	W.A.S. to Nitrification Basins	I	0-1,750 gpm
106c	W.A.S. to Nitrification Basins	I	0-1,750 gpm
106d	W.A.S. to Nitrification Basins	I	0-1,750 gpm
108	W.N.S.	I	0-1000 gpm

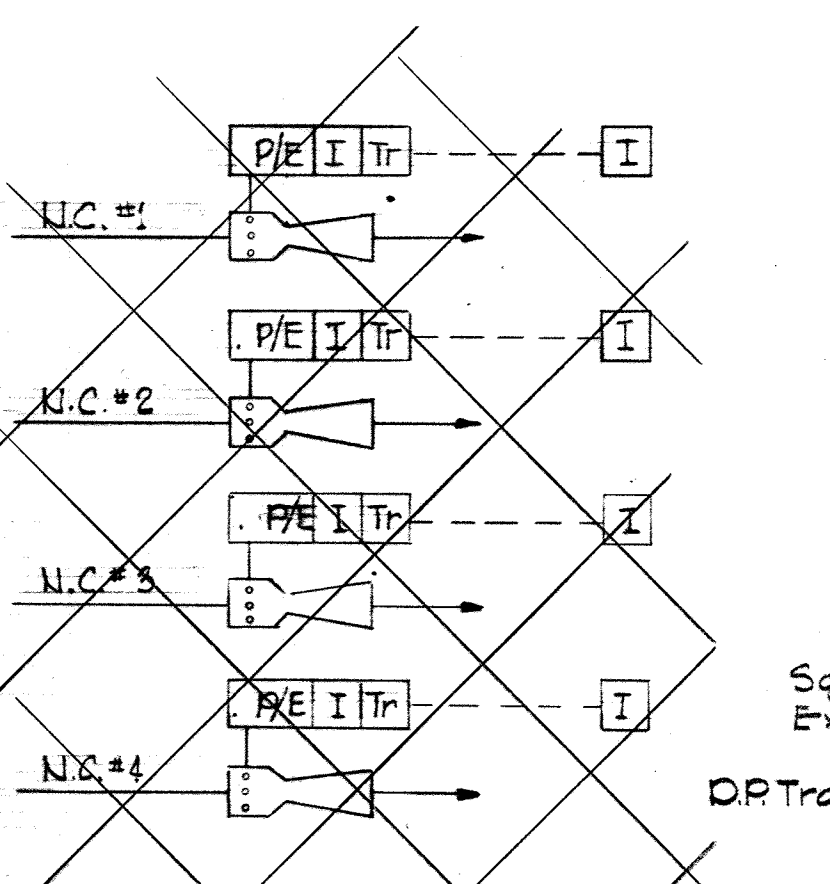
ANNUNCIATOR ALARM LEGEND
Activated Sludge 18-2 Nitrification 18-1
See Sheet E-42 for Legend and Window Description

SFM	Sludge Flow Meter	P	Pressure Sensor
I	Indicator	DOA	Dissolved Oxygen Analyzer
R	Recorder	pH	pH Electrode
T	Totalizer	DO	Dissolved Oxygen Probe
S	Summator	RC	Remote Readout & Calibration Unit
C	Controller	S.C.	Signal Converter
A	Alarm	T	Temperature Sensor
Tr	Transmitter	ST	Sewage Temperature
AT	Air Temperature	CU	Control Unit
ST	Sewage Temperature		
CU	Control Unit		
I.C.	Indicating Controller w/ pH Ratio Correction		

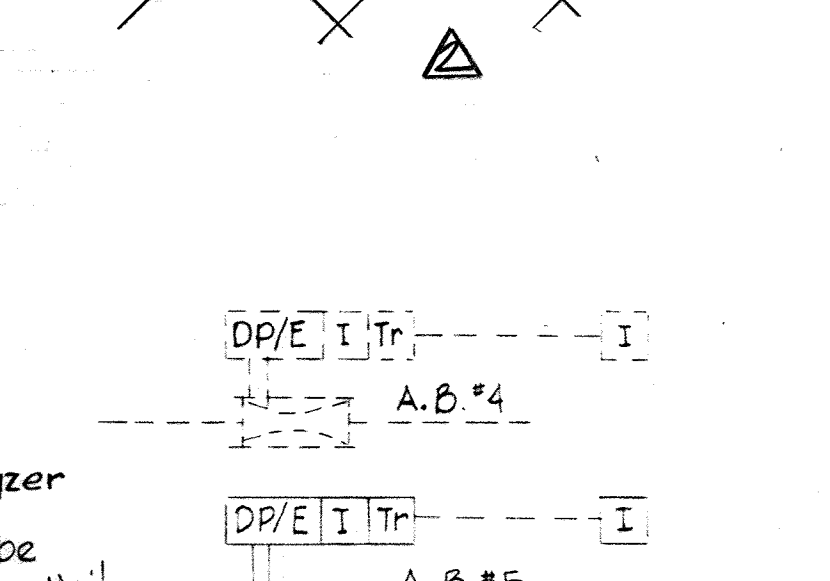
SUSPENDED SOLIDS
No Scale



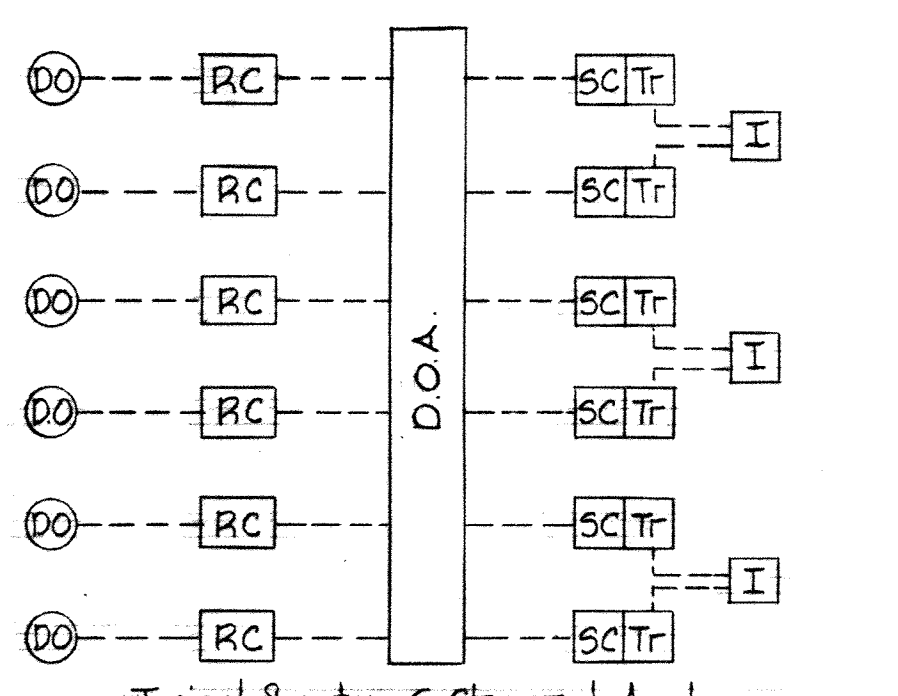
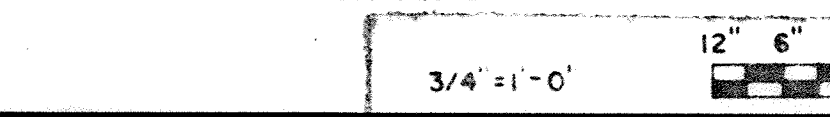
SECONDARY FLOW
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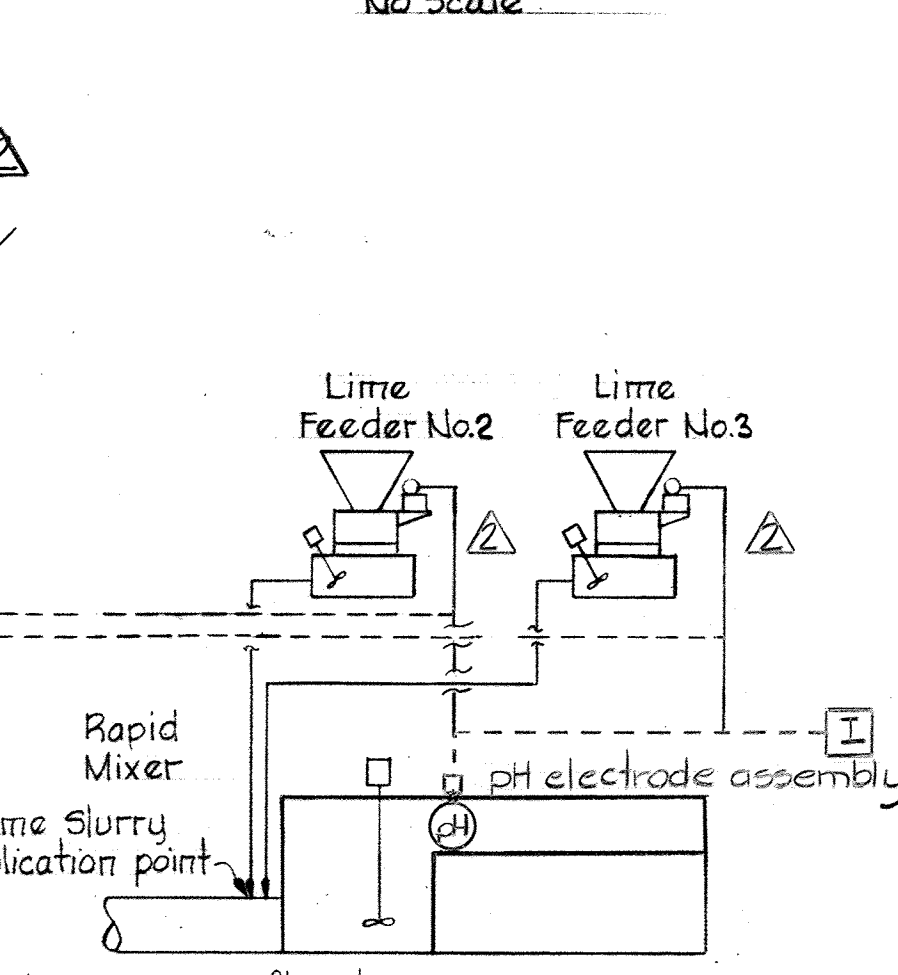
NITRIFICATION FLOW
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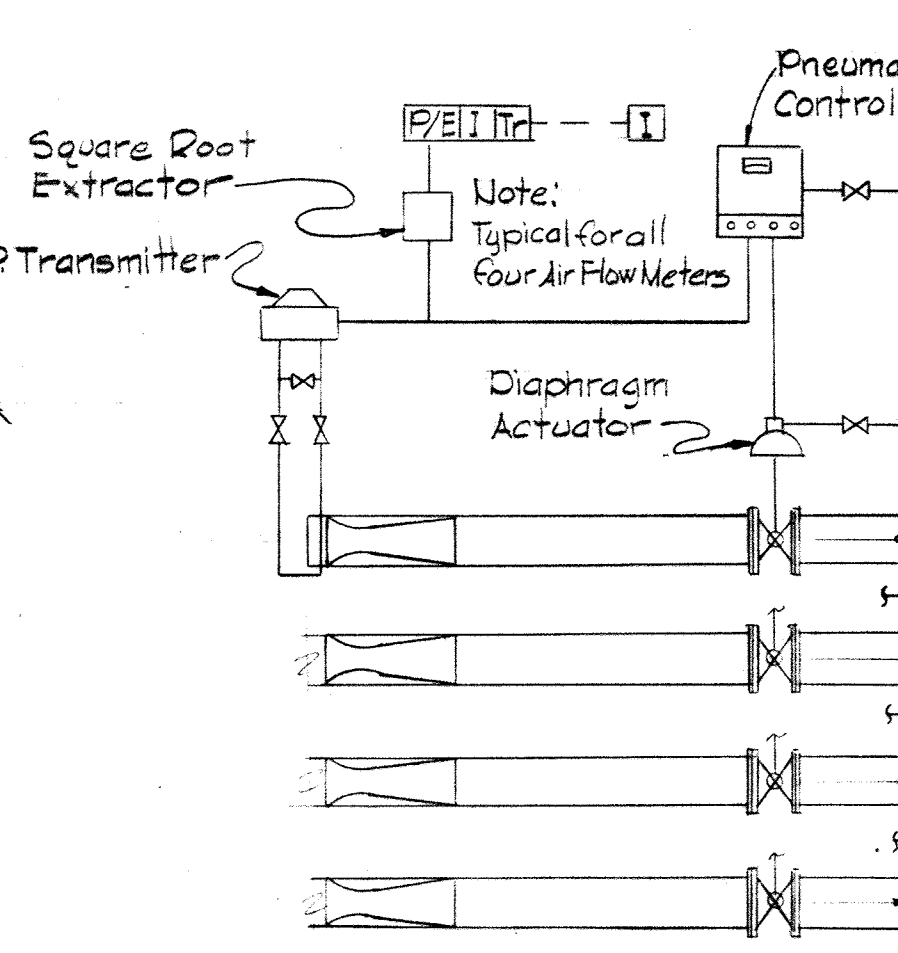
SECONDARY AIR FLOW
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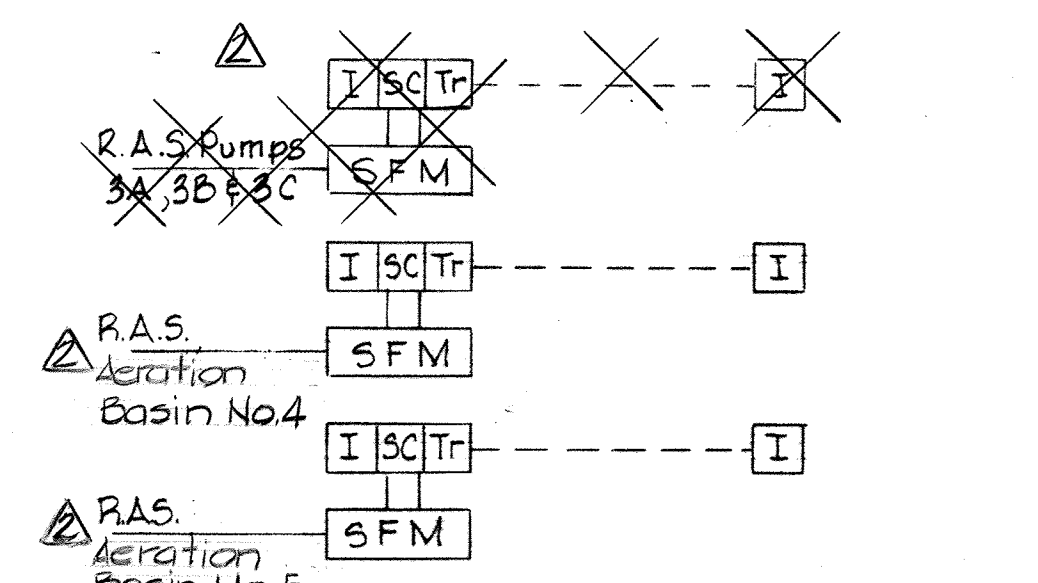
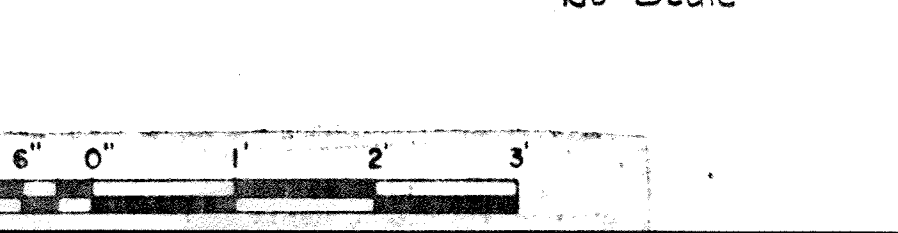
DISSOLVED OXYGEN
No Scale



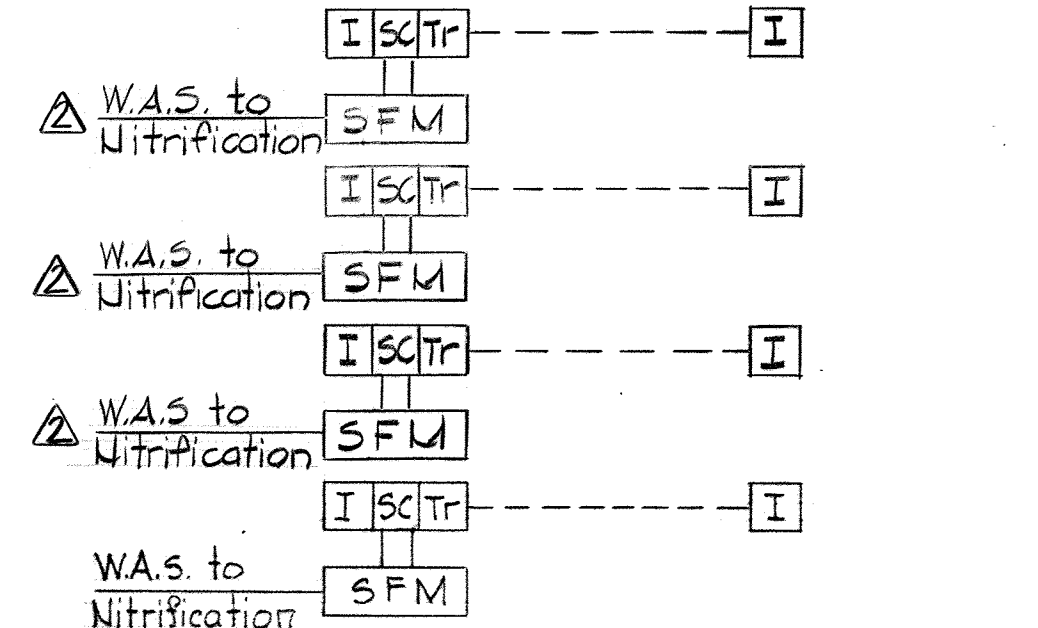
pH INSTRUMENTATION
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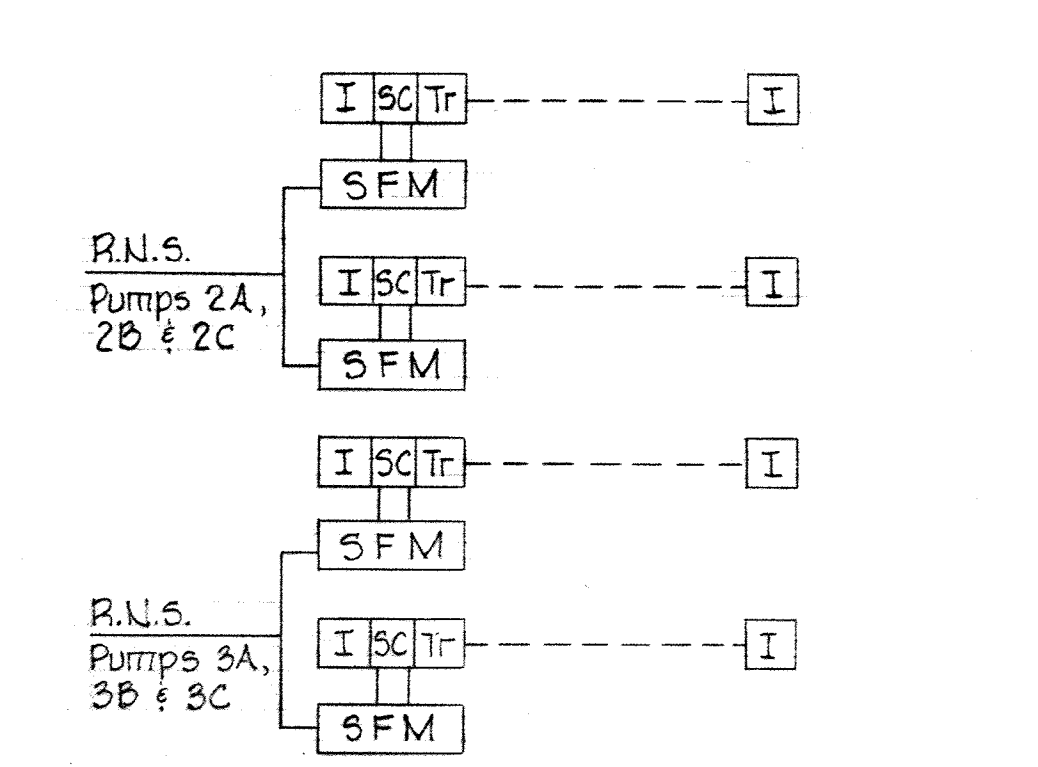
NITRIFICATION AIR FLOW
No Scale



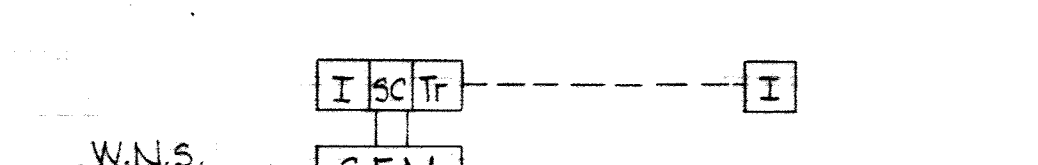
RETURN ACTIVATED SLUDGE FLOW
No Scale



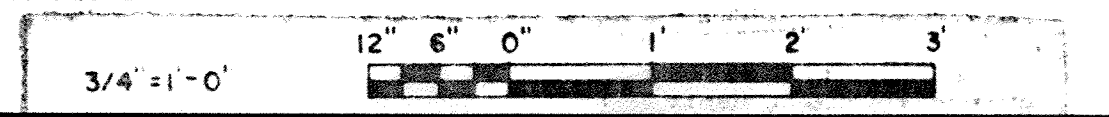
WASTE ACTIVATED SLUDGE FLOW
No Scale



RETURN NITRIFIED SLUDGE FLOW
No Scale



WASTE NITRIFIED SLUDGE FLOW
No Scale



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 W. O. Falbert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	METERS AND INSTRUMENTATION	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 87-A OF 133	SCALE AS SHOWN
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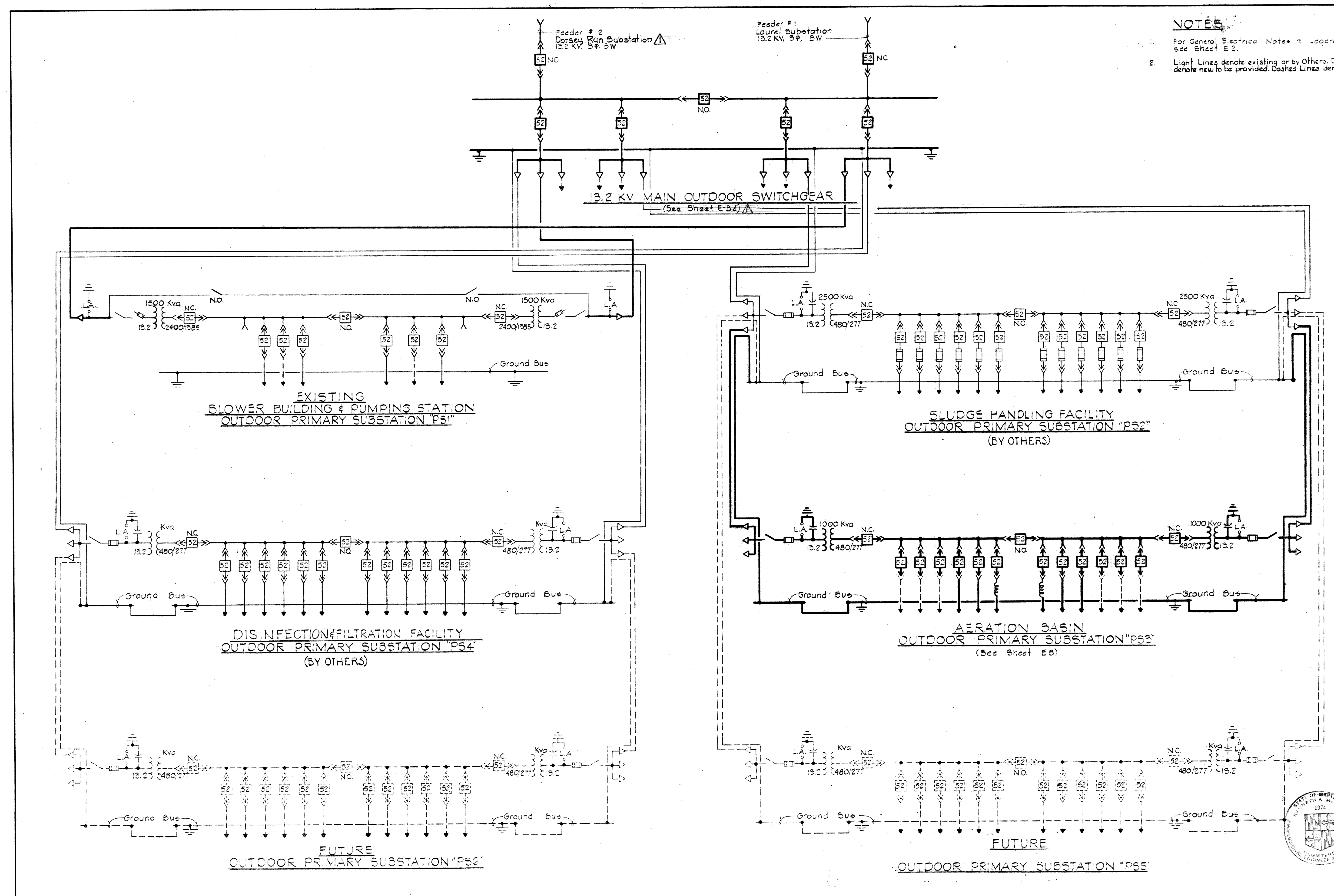
W. O. 6887-2

SHEET M-28

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44510 1892

- NOTES**
1. For General Electrical Notes & Legend see Sheet E 2.
 2. Light Lines denote existing or by Others. Dark Lines denote new to be provided. Dashed Lines denote Future.

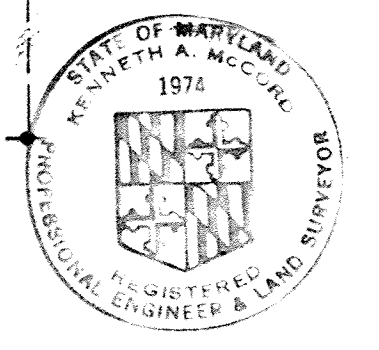


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 <i>W.O. Lambert</i> CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	POWER MASTER ONE LINE WIRING DIAGRAM	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 88 OF 133 SCALE NONE
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W.O. 6887-2

SHEET E-1
 MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 18392



- INTERIOR**
- □ ○ Outlet Incandescent Ceiling Recessed Wall
 - ⊙ ⊙ Outlet Incandescent Emergency Ceiling Wall
 - ⊙ ⊙ Outlet Clock Single Face Ceiling Wall
 - ⊙ ⊙ Outlet Clock Double Face Ceiling Wall
 - ⊙ ⊙ Outlet Fluorescent 4 Foot
 - ⊙ ⊙ Outlet Fluorescent 4 Foot With Kindorf Wiring Channel
 - ⊙ ⊙ Outlet Fluorescent 4 Foot With Kindorf Support & Conduit
 - ⊙ ⊙ Outlet Fluorescent 2 Foot
 - ⊙ ⊙ Outlet Exit Light Ceiling Wall With Or Without Directional Arrows
 - ⊙ ⊙ Outlet Mercury Ceiling Wall
 - ⊙ ⊙ Outlet Duplex Convenience
 - ⊙ ⊙ Outlet Special Purpose Floor
 - ⊙ ⊙ Outlet 20A 250V Receptacle Polarized
 - ⊙ ⊙ Outlet 30A 250V Receptacle & Plug Polarized
 - ⊙ ⊙ Outlet Telephone Wall Desc. Extension
 - ⊙ ⊙ Outlet Intercommunication
 - ⊙ ⊙ Junction Box
 - EXP WP Explosion proof Weatherproof Where Indicated
 - S S₁ S₂ Switch Single Pole Double Pole With Pilot Light
 - S₃ S₄ Switch Three Way Four Way
 - S_k S_o Switch Key Operated Door Operated
 - SMC SRC Switch Momentary Contact Remote Control
 - C Contactor Letting As Indicated
 - ⊙ ⊙ ⊙ Thermostat Heating Cooling Freeze Stop
 - A Aquastat
 - U Unit Heater
 - G Generator
 - ⊙ ⊙ Motor Constant Speed Variable Speed
 - M X Starter Manual Combination
 - S M Starter Magnetic (FVNR) Magnetic (FVR)
 - S S Starter Magnetic (FVNR-2S (Two Speed))
 - F □ Disconnect Switch Fused Unfused
 - 7 Selector Switch Two Position
 - Secondary Motor Controls
 - GF Ground Fault Protected
 - Telemetering Transmitter
 - Lighting Panel
 - Power Panel
 - Telephone Or Control Wiring Cabinet as noted
 - Contactor Cabinet
 - Home run To Panelboard Number Of Arrows Indicates Number Of Circuits Number Of Cross Lines Indicates Number Of Wires Where No Cross Lines Appear Two Conductors Are Implied.
 - Conduit On Ceiling or Wall
 - Conduit Under Floor
 - T— Conduit Telephone
 - PT— Conduit Private Telephone
 - FA— Conduit Fire Alarm
 - C— Conduit Communication
 - Conduit In Slab Wall or Ceiling
 - Conduit Stub-Up Stub-Down
 - *— Conduit Seal
 - ⊙ ⊙ Disconnect Circuit Breaker
 - ⊙ Outlet Floodlight
 - ⊙ ⊙ Pushbutton Station One Two & Three Pushbutton
 - ⊙ Horn
 - ⊙ ⊙ Bell
 - CSA-G Motor Control Center Wire & Cable Run Number
 - SM Switchgear Wire & Cable Run Number
 - SS Unit Substation Wire & Cable Run Number
 - CSB Control Cable Number

- UNDERGROUND**
- 4/w Ductbank Number Of Ducts As Indicated
 - 2" Existing Conduit Size As Indicated
 - DB-2#4 Existing Direct Buried Cable Number & Size As Indicated
 - DB-2#4 Direct Buried Cable Number & Size As Indicated
 - C Conduit Size As Indicated
 - □ Shaded Duct in Ductbank Sections Denote Existing Cables

CIRCUIT BREAKER S.I.C. LEGEND

10	10,000 Amperes At Operating Voltage
14	14,000 Amperes At Operating Voltage
22	22,000 Amperes At Operating Voltage
30	30,000 Amperes At Operating Voltage
50	50,000 Amperes At Operating Voltage
60	60,000 Amperes At Operating Voltage
65	65,000 Amperes At Operating Voltage

LOCATION SYMBOLS FOR ELEMENTARY CONTROL DIAGRAMS

- ⊙ Device located in designated Motor Control Center
- ⊙ Device located at respective unit
- ▲ Device located at respective motor
- Device located in Starter
- ⊙ Device located in Instrument Panelboard (Lab Building)
- ⊙ Device located in Motor Control Center "CC1"
- ⊙ Device located in Blower Control Panel
- ⊙ Device located in Existing Motor Control Center "CC3"
- Device located in Existing Motor Control Center "CC2"
- △ Device located in Existing Pump Control Section
- ⊙ Device located in Instrument Panelboard - AB Control Bldg. #1
- Device located in Pump Speed Controller Cabinet

MOTOR CONTROL CENTERS & UNIT SUBSTATIONS AUXILIARY DESCRIPTION

- a - Red & Green Indicating Lights
- b - Open Close Control Switch
- c - Running Time Meter
- d - Hand-Off-Automatic Selector Switch
- e - Start-Stop Pushbutton Station
- f - Key Interlock
- g - 480-120 Volt Control Transformer
- h - 2400-120 Volt Control Transformer
- j - Forward-Reverse-Stop Pushbutton Station
- △ k - Dry, normally-open auxiliary contacts

- ONE LINE/ELEMENTARY**
- ⊙ Molded Case Circuit Breaker
 - ⊙ Oil Circuit Breaker
 - ⊙ Selector Switch
 - ⊙ Disconnecting Switch
 - ⊙ Interrupter Switch
 - ⊙ Selector Interrupter Switch
 - ⊙ Knife Switch
 - ⊙ Contacts-Normally Open
 - ⊙ Contacts-Normally Closed
 - ⊙ Current Transformer
 - ⊙ Potential Transformer
 - ⊙ Power Transformer
 - ⊙ Ground
 - ⊙ Resistor
 - ⊙ Fuse
 - ⊙ Pothead
 - ⊙ Pushbutton
 - ⊙ Pressure Switch
 - ⊙ Float Switch
 - ⊙ Flow Switch
 - ⊙ Limit Switch
 - ⊙ Thermostat
 - ⊙ Disconnect Link
 - ⊙ Lightning Arrestor
 - ⊙ Incoming Line
 - ⊙ Outgoing Line
 - ⊙ Tie Line
 - ⊙ Capacitor
 - ⊙ Rectifier
 - ⊙ Mechanical Interlock
 - ⊙ Electrical Interlock
 - ⊙ Key Interlock
 - ⊙ Overcurrent Trip Thermal Type
 - ⊙ Relay-Instantaneous Overcurrent
 - ⊙ Relay Time Overcurrent
 - ⊙ A.C. Power Circuit Breaker
 - ⊙ Motor (Three Phase) Constant Speed Variable Speed
 - ⊙ Starter Magnetic (FVNR) Magnetic (FVR)
 - ⊙ Starter Magnetic (FVNR-2S (Two Speed))
 - ⊙ Running Time Meter
 - ⊙ Indicating Light Color As Indicated By Letter
 - ⊙ Solenoid Motor (Single Phase)
 - ⊙ Contactor Coil Starter Coil Number As Indicated
 - ⊙ Ammeter Ammeter Switch
 - ⊙ Voltmeter Voltmeter Switch
 - ⊙ Wattmeter Kilowatt Meter
 - ⊙ Test Block Test Switch
 - ⊙ Recording Recording Demand Meter
 - ⊙ Relay Number As Indicated
 - ⊙ Instrument Switch Control Switch
 - ⊙ Ground Lamps
 - ⊙ Power Factor Meter
 - ⊙ Timer Number As Indicated
 - ⊙ Watthour Meter Watthour Meter
 - ⊙ Phase Sequence Voltage Relay
 - ⊙ Tripping Relay Lockout Type Differential Relay
 - ⊙ Automatic Transfer Switch
 - ⊙ Electric Radiant Heaters
 - ⊙ Contactor
 - ⊙ Relay Time Overcurrent with Instantaneous Trip
 - ⊙ Ground Overcurrent Relay
 - ⊙ Tripping Relay

- ⊙ Demand Meter
- ⊙ Frequency Meter
- ⊙ Phase Meter
- ⊙ Position Indicator
- ⊙ Ground Sensing Relay
- ⊙ A.C. Power Circuit Breaker With Solid State Trip & Ground Device
- ⊙ Receptacle & Plug Polarized
- ⊙ Horsepower Meter
- ⊙ Permissive Control Switch
- ⊙ Reverse-Phase, Or Phase-Balance Current Relay
- ⊙ Time Delay Relay
- ⊙ Voltage Unbalance Relay
- ⊙ Liquid or Gas Pressure Relay
- ⊙ Pushbutton Maintain Type
- ⊙ Reverse Phase & Undervoltage Relay with Time Delay
- ⊙ Time Delay Relay

INTERIOR

- ⊙ Fire Detector
- ⊙ Fire Alarm Striking Station
- ⊙ Fire Alarm Bell
- ⊙ End of Line Resistor

EXTERIOR

- ⊙ Mercury Area Light
- ⊙ Incandescent Area Light
- ⊙ Existing Pole
- ⊙ Pole Length & Class As Indicated
- ⊙ Pole With Down Guy & Anchor Length, Class & Lead As Indicated
- ⊙ Pole With Street Light Length & Class As Indicated
- ⊙ Primary Distribution Line KV Number & Size Of Wires As Indicated
- ⊙ Secondary Distribution Line 3Φ Number & Size Of Wires As Indicated
- ⊙ Service Drop Number & Size Of Wires As Indicated
- ⊙ Weatherhead & Rock

GENERAL ELECTRICAL NOTES

1. For PANELBOARD SCHEDULES see Specifications DETAILED ELECTRICAL REQUIREMENTS.
2. For explanation of Lighting Fixture Types shown on Dwg. See Specifications DETAILED ELECTRICAL REQUIREMENTS.
3. Mounting heights for interior lighting fixtures shall be from finished floor to bottom of fixture unless otherwise noted.
4. Mounting heights for lighting fixtures mounted on exterior walls of buildings shall be from finished floor to center line of recessed junction box unless otherwise noted.
5. Verify all door swings before installing switch boxes.
6. Receptacles shall be mounted 2'-0" above finished floor unless otherwise noted.
7. All Elementary Control Diagrams are shown in the de-energized.
8. For Electrical Work on Secondary Clarifier #5 see Sheet M-#E-.
9. For Control Cable Schedule see Dwg. E-.
10. For Electrical Work on Primary Clarifiers #4 & #5 see Sheets M-#E-.
11. For Electrical Work on Nitrification Clarifiers, see Sheet M-27 and E-18, E-19.

General Notes and/or Specifications

1. In existing ECD Diagrams, light line work indicates existing and heavy line work indicates New to be provided.
2. Conduit and Fittings shall be as specified in Section 16C, paragraph 2.
3. Wire and Cable shall be as specified in Section 16C, paragraph 3.
4. NEMA 4 Terminal Panels shall be provided at each Pneumatic Plug Valve unit and shall be as specified in section 16C, paragraph 10.
5. Wiring (cables and conduit) shall be extended from limit switches and solenoid valves (associated with the Plug valves) to the Terminal Panels and then wiring (cables and conduit) shall be extended from the Panels to the Motor Control Center.
6. Control wiring shall be wired to and/or through the Speed Control Cabinets as shown in the ECD Diagrams and/or as required by the equipment manufacturer.
7. The contacts of the H-O-A selector switches (S1) shall operate as follows: (1) all contacts open when switch is in off position; (2) contacts No. 1 and No. 3 closed and contacts No. 2 and No. 4 open when switch is in Run position; (3) contacts No. 2 and No. 4 closed and contacts No. 1 and No. 3 open when switch is in Auto position.



Hermit M. Lord

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>W. O. Libbert</i> DATE: 3/20/75 CHIEF - BUREAU OF ENGINEERING	CONTRACT NO. 500-S	GENERAL ELECTRICAL NOTES & LEGEND	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 89 OF 133	SCALE AS SHOWN
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W. O. 6387-2

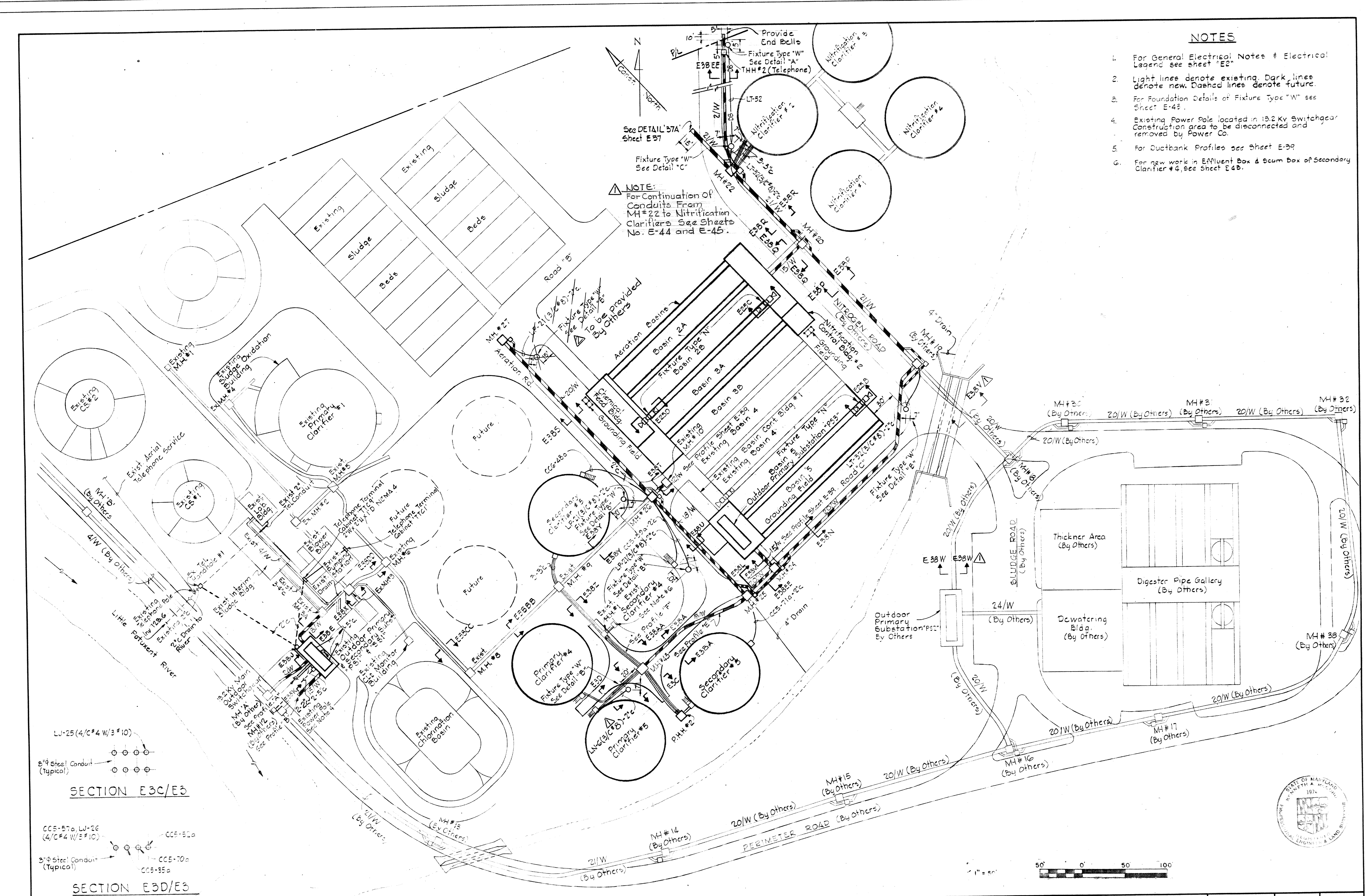
MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 14778

NOTES

1. For General Electrical Notes & Electrical Legend see sheet "E2"
2. Light lines denote existing. Dark lines denote new. Dashed lines denote future.
3. For Foundation Details of Fixture Type "W" see Sheet E-43.
4. Existing Power Pole located in 13.2 Kv Switchgear Construction area to be disconnected and removed by Power Co.
5. For Ductbank Profiles see Sheet E-39.
6. For new work in Effluent Box & Scum Box of Secondary Clarifier #4, see Sheet E-45.

NOTE:
For Continuation of Conduits From MH#22 to Nitrification Clarifiers See Sheets No. E-44 and E-45.



LU-25 (4/C#4 W/3#10)
8" Steel Conduit (Typical)

SECTION E3C/E3

CCS-57a, LW-26 (4/C#4 W/5#10)
3" Steel Conduit (Typical)

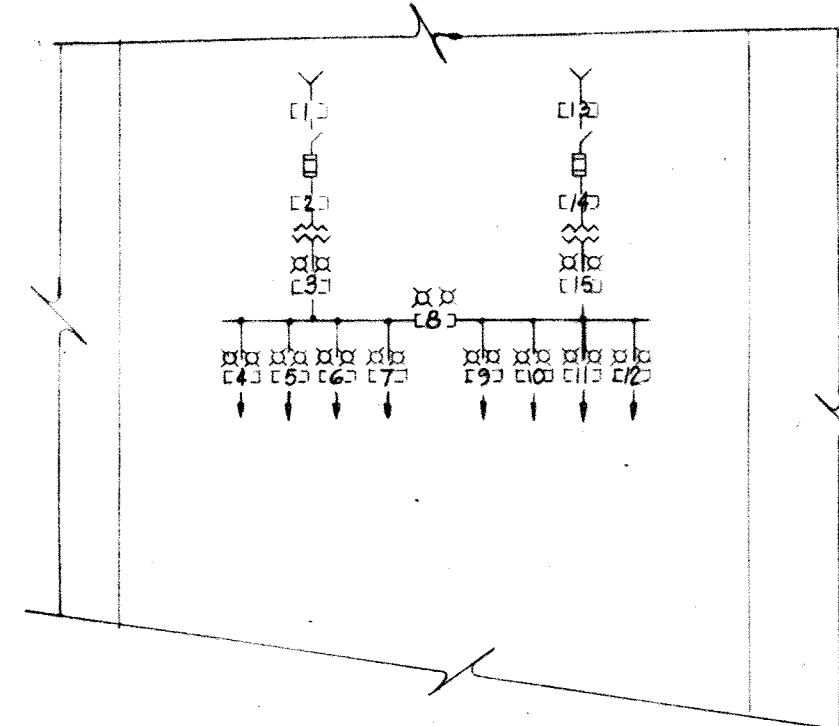
SECTION E3D/E3

<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 2/20/75 W. O. Lambert CHIEF-BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. <u>500-S</u></p>	<p>ELECTRICAL SITE PLAN</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. <u>90</u> OF <u>133</u> SCALE: 1" = 50'</p>
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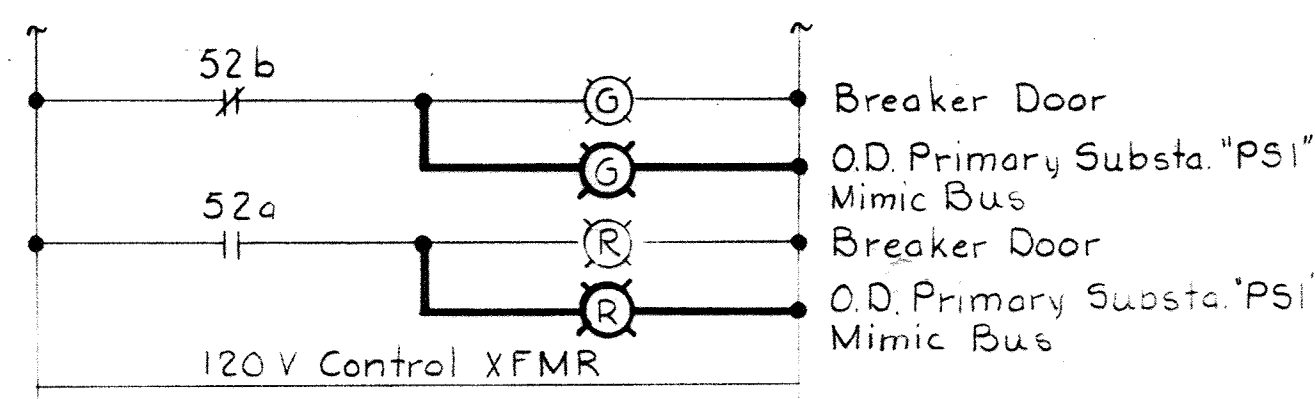
W. O. 6887-2

SHEET E-3
MODIFIED DRAWING - MAY 6, 1982

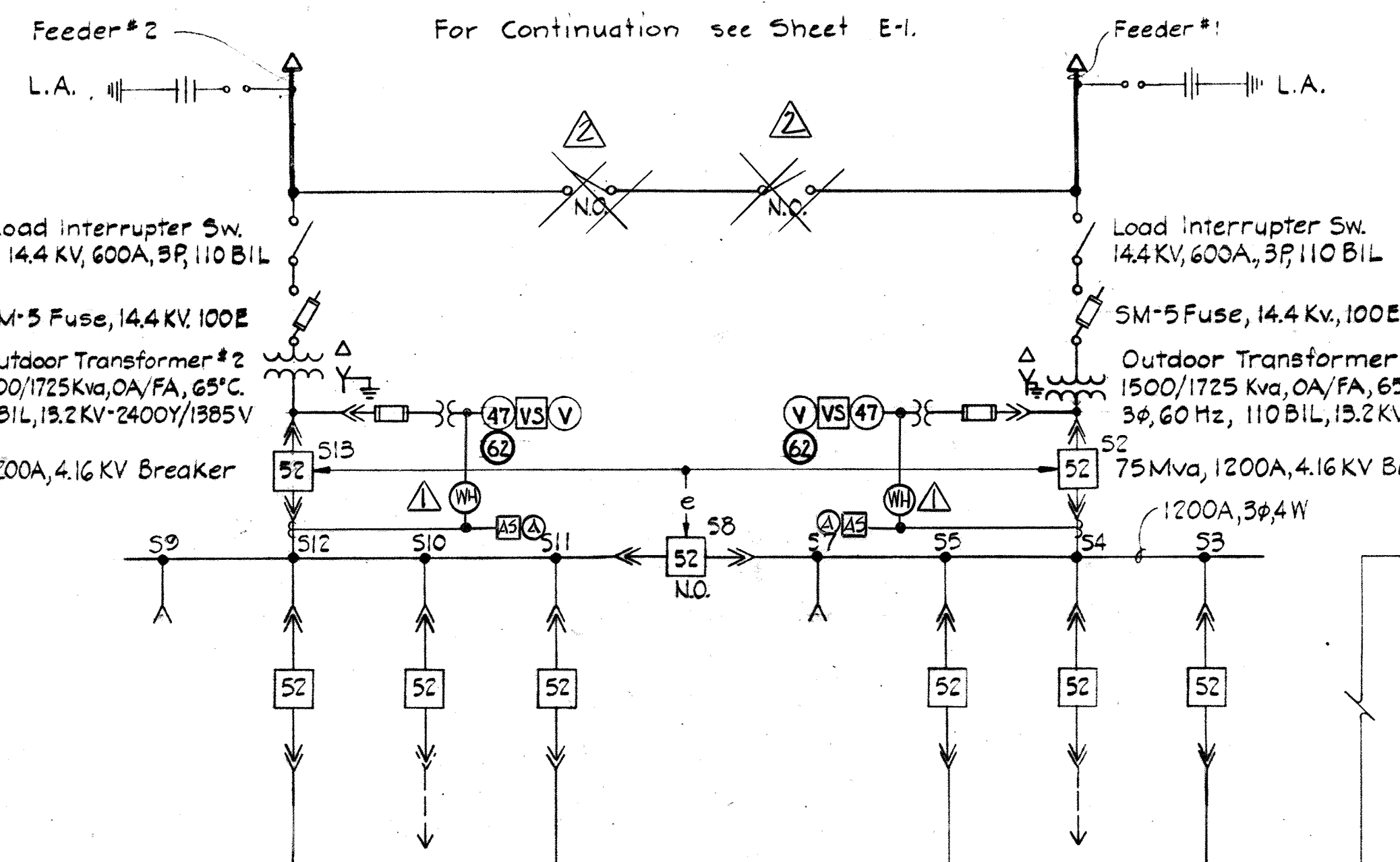
BRUNING 44510 18392



- NAMEPLATE LEGEND**
- 1 FEEDER #1
 - 2 MAIN SWITCH FEEDER #1
 - 3 MAIN BREAKER FEEDER #1
 - 4 MCC "CC3" FEEDER #1
 - 5 BLANK (Spare)
 - 6 SSI FEEDER #1
 - 7 BLANK (Spare)
 - 8 TIE BREAKER
 - 9 BLANK (Spare)
 - 10 BLANK (Spare)
 - 11 SSI FEEDER #2
 - 12 MCC "CC3" FEEDER #2
 - 13 FEEDER #2
 - 14 MAIN SWITCH FEEDER #2
 - 15 MAIN BREAKER FEEDER #2

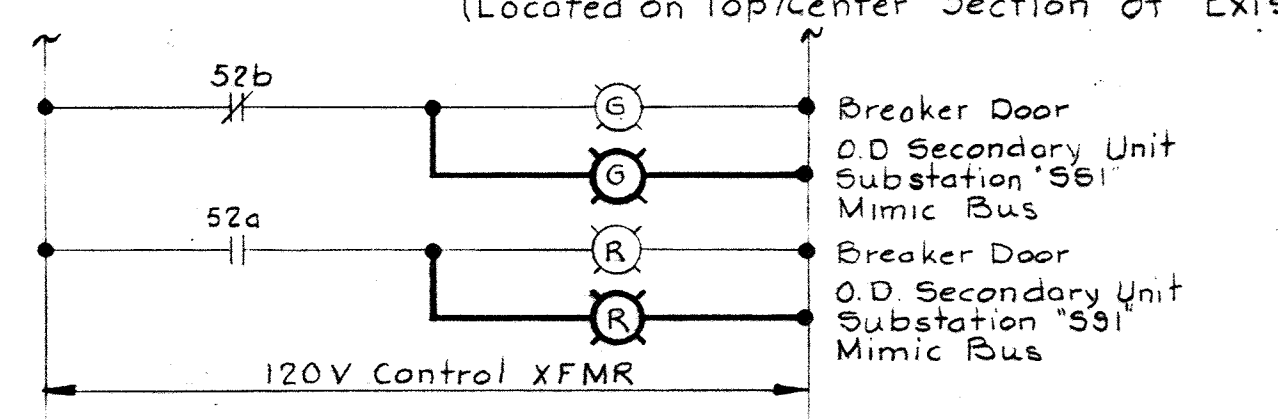
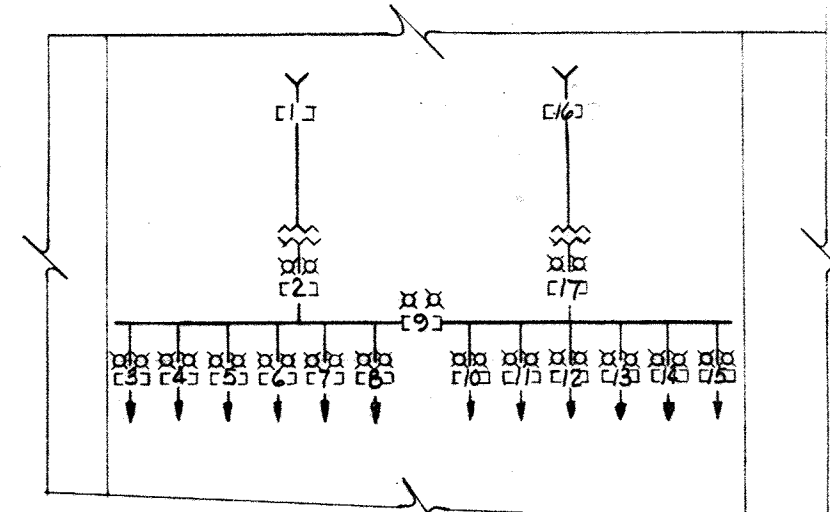


EXIST. MAIN BREAKER FEEDER #1 IND. LIGHTS-"PS1"
Typical for 8 Breakers

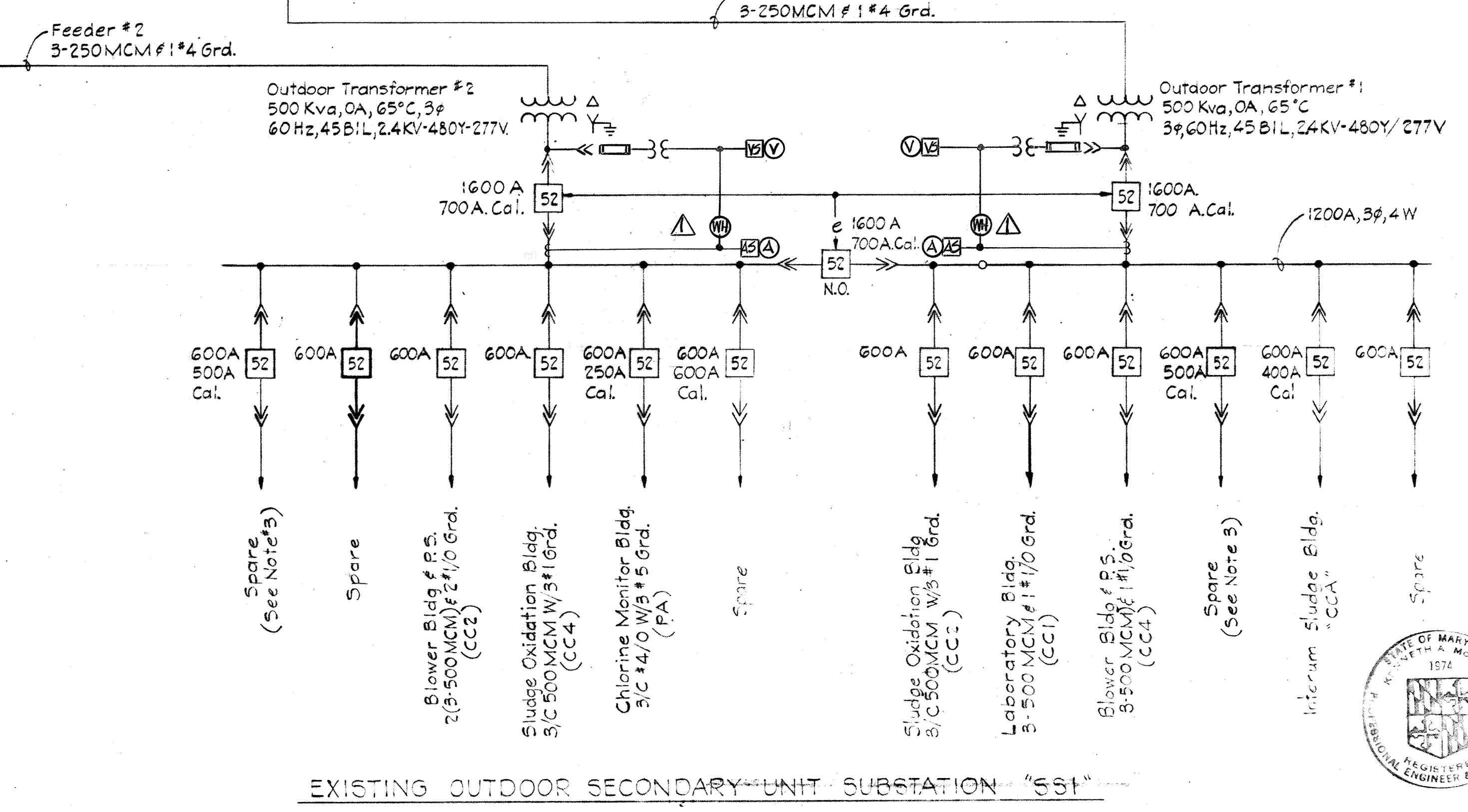
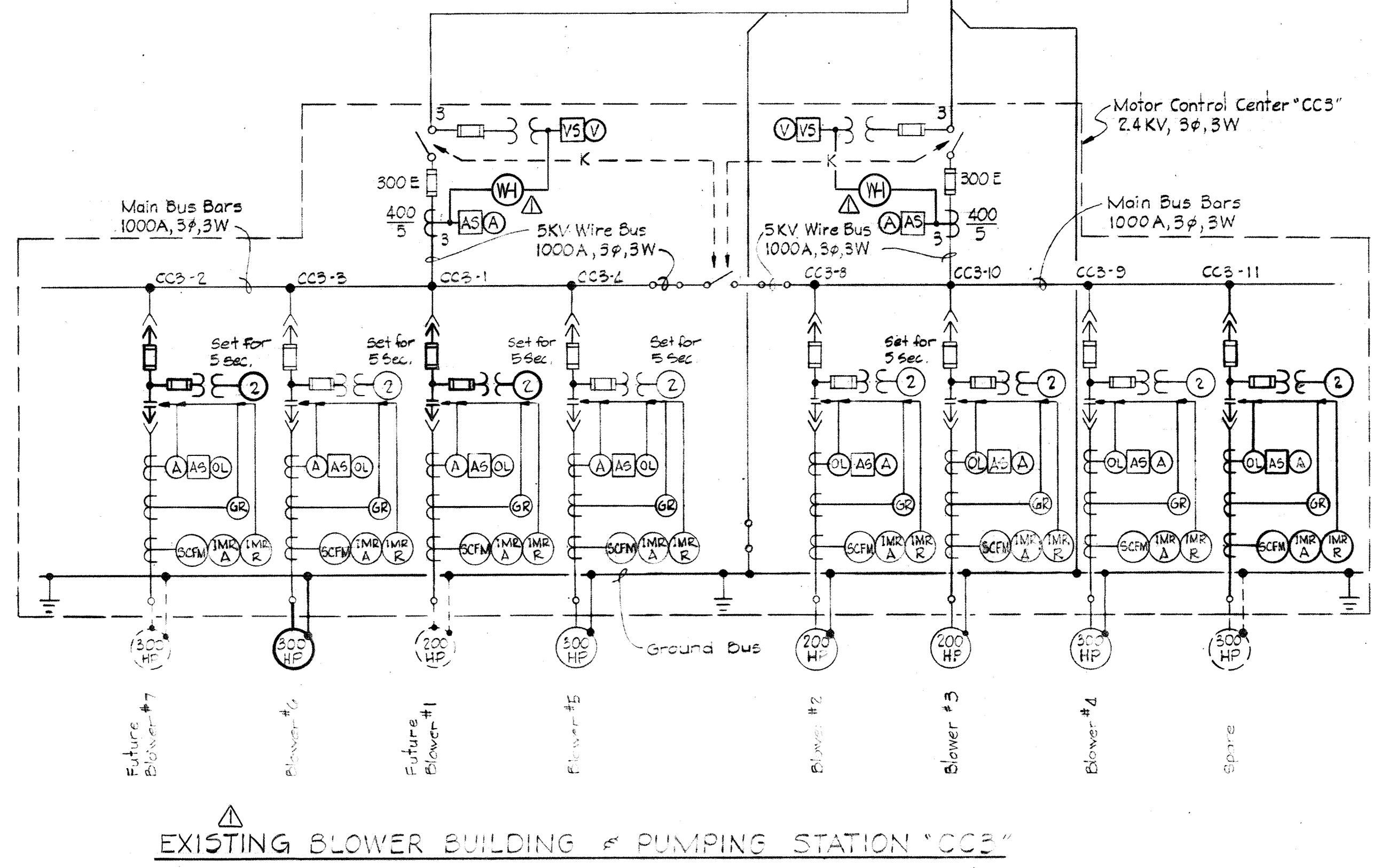


- NOTES:**
- For General Electrical Notes & Electrical Legend See Sheet E-2
 - In One Line Diagrams & Mimic Bus elementary diagrams, light lines denote existing. Dark lines denote new.
 - Disconnect & remove Aeration Basin Feeder after feeder from Primary Substation "PS1" is installed and ready for service.
 - For Aeration Basin One Line see Sheet E-14.
 - For Blower Bldg. & Pumping Station One Line Additions see Sheet E-6.

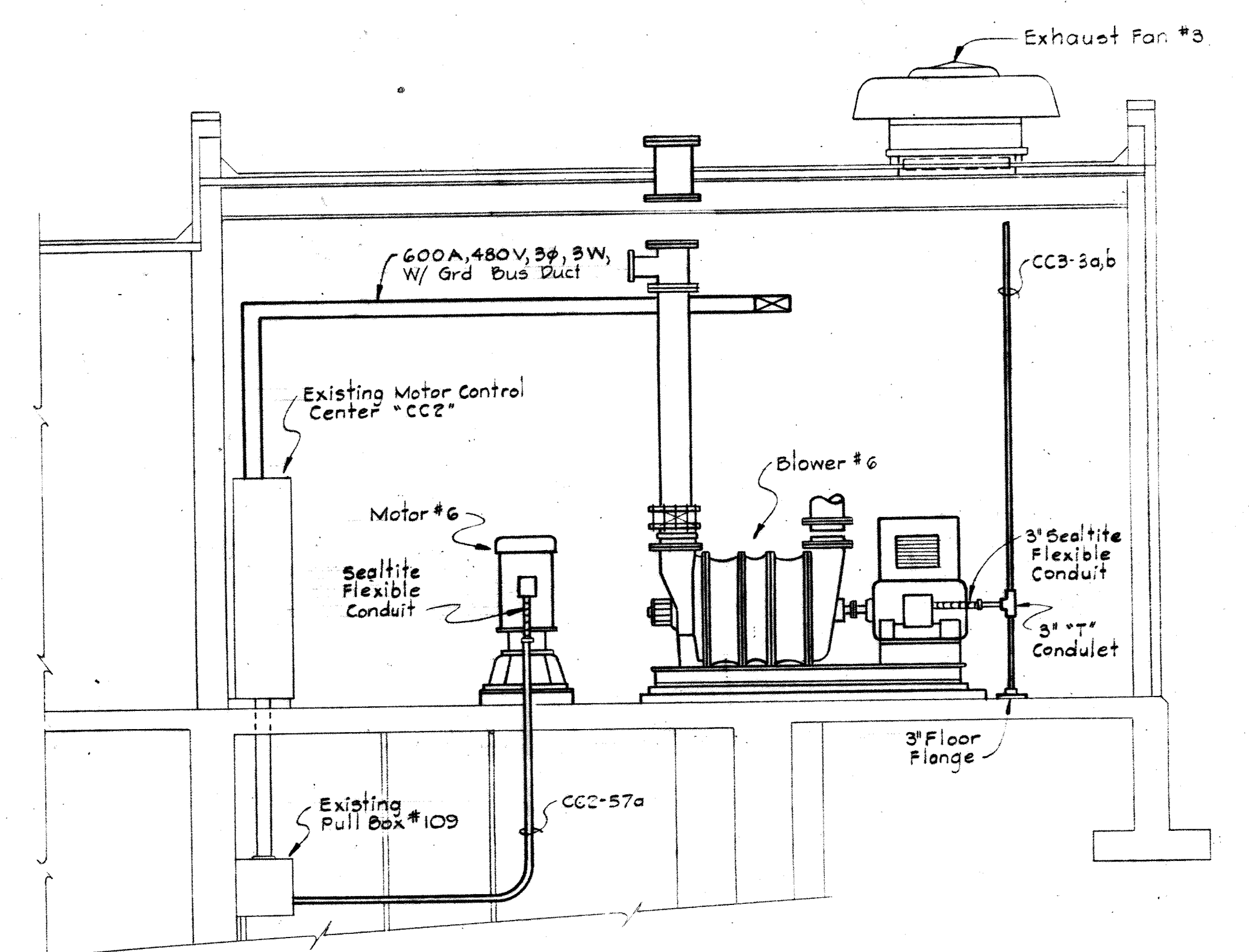
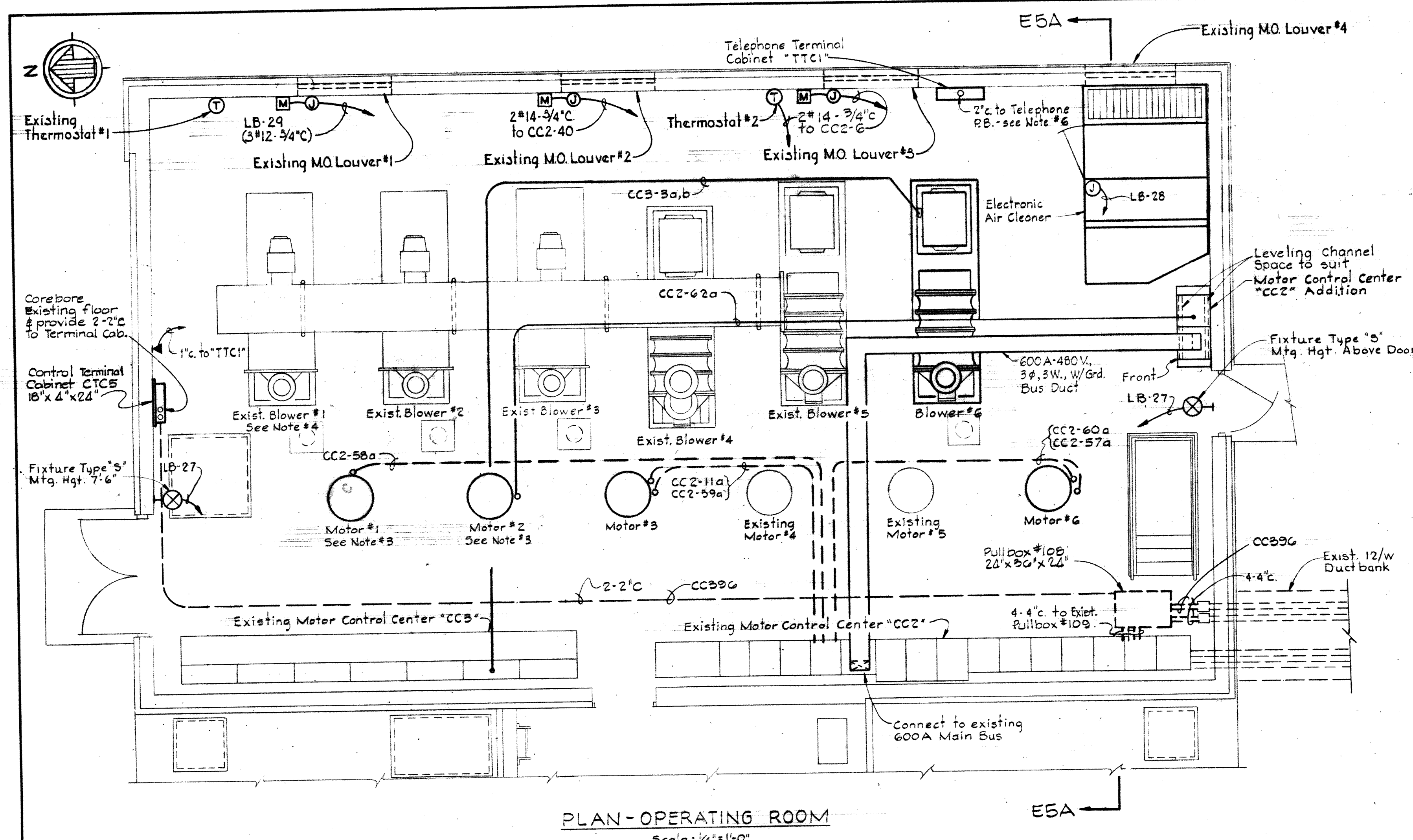
- NAMEPLATE LEGEND**
- 1 FEEDER #1
 - 2 MAIN BREAKER FEEDER #1
 - 3 MCC "CC1" FEEDER #1
 - 4 BLANK (Spare)
 - 5 BLANK (Spare)
 - 6 BLANK (Spare)
 - 7 MCC "CC2" FEEDER #1
 - 8 MCC "CC4" FEEDER #1
 - 9 TIE BREAKER
 - 10 MCC "CC4" FEEDER #2
 - 11 BLANK (Spare)
 - 12 MCC "CC2" FEEDER #2
 - 13 PANEL "PA" FEEDER
 - 14 MCC "CC8" FEEDER
 - 15 BLANK (Spare)
 - 16 FEEDER #2
 - 17 MAIN BREAKER FEEDER #2



EXIST. MAIN BREAKER FEEDER #1 IND. LIGHTS-"SS1"
Typical for 15 Breakers



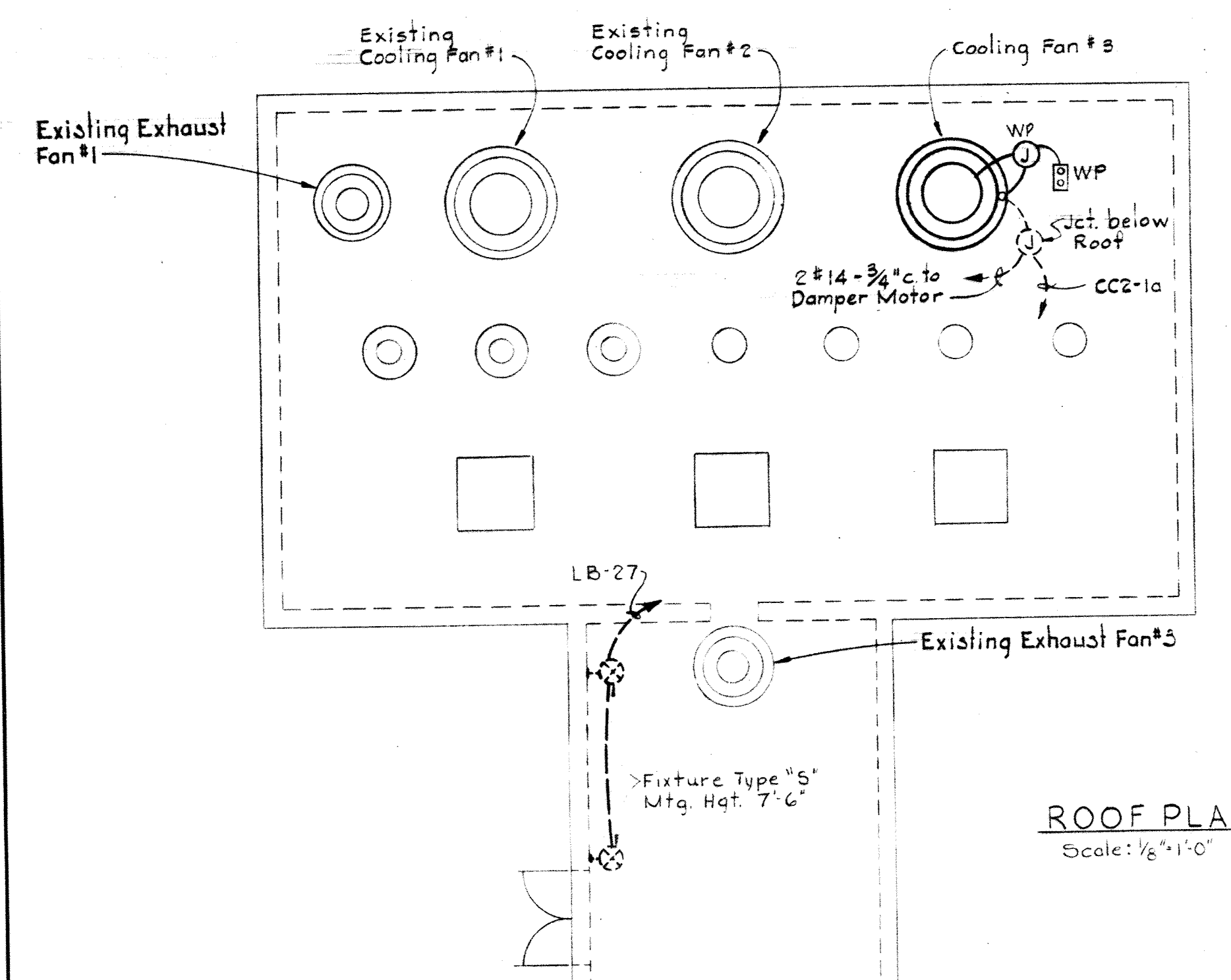
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE	CONTRACT NO. 500-S W. O. Lambert CHIEF-BUREAU OF ENGINEERING	BLOWER BLDG./PUMPING STAT. ADD. POWER - ONE LINE WIRING DIAG.	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 91 OF 133	SCALE NONE
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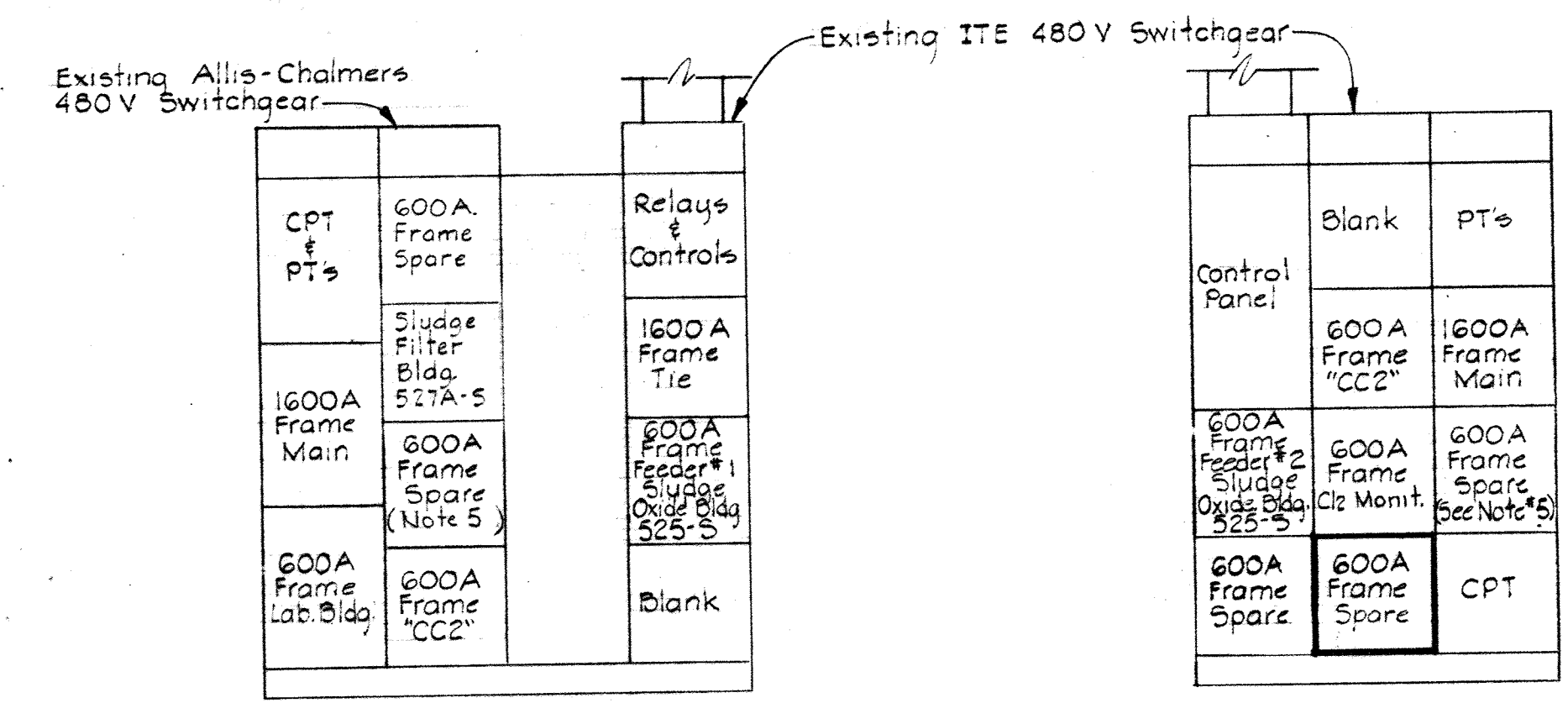
SECTION E5A/E5
Scale: 1/4"=1'-0"

NOTES

1. For General Electrical Notes & Electrical Legend see Sheet E-2
2. Light lines indicate existing. Dark lines denote new.
3. Remove existing motor completely and install new motor as indicated.
4. Disconnect & remove existing Blower #1 as directed in field.
5. Disconnect & remove Aeration Basin Feeder #1 & #2 after Feeder from Primary Substation "PSB" is installed and ready for service.
6. Provide 2" conduit for telephone service from "TTC1" to Telephone Pull Box on exterior wall on Screen Room - see Sheet E-3.



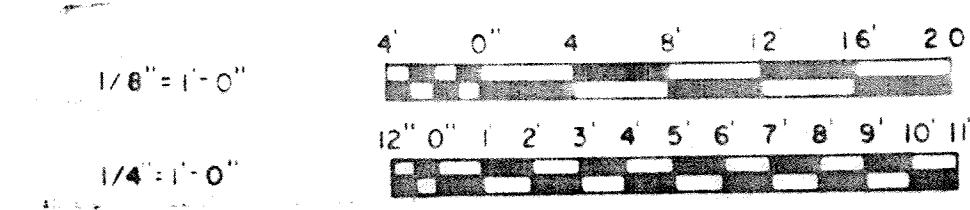
ROOF PLAN
Scale: 1/8"=1'-0"



FRONT ELEVATION
PARTIAL EXISTING OUTDOOR SECONDARY SUBSTATION "SS"
No Scale

Control Panel	Blank	PT's
600A Frame Feeder #2 Sludge Over Bldg 325-5	600A Frame Clz. Monit.	600A Frame Spare (See Note #5)
600A Frame Spare	600A Frame Spare	CPT

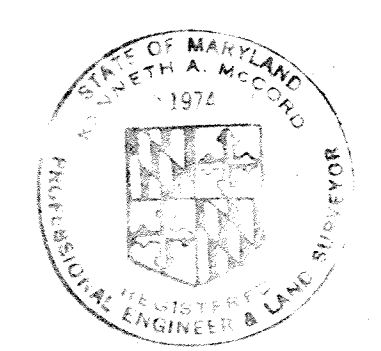
CPT & PT's	600A Frame Spare	Relays & Controls
1600A Frame Main	600A Frame Spare (Note 5)	1600A Frame Tie
600A Frame Lab. Bldg.	600A Frame "CC2"	Blank

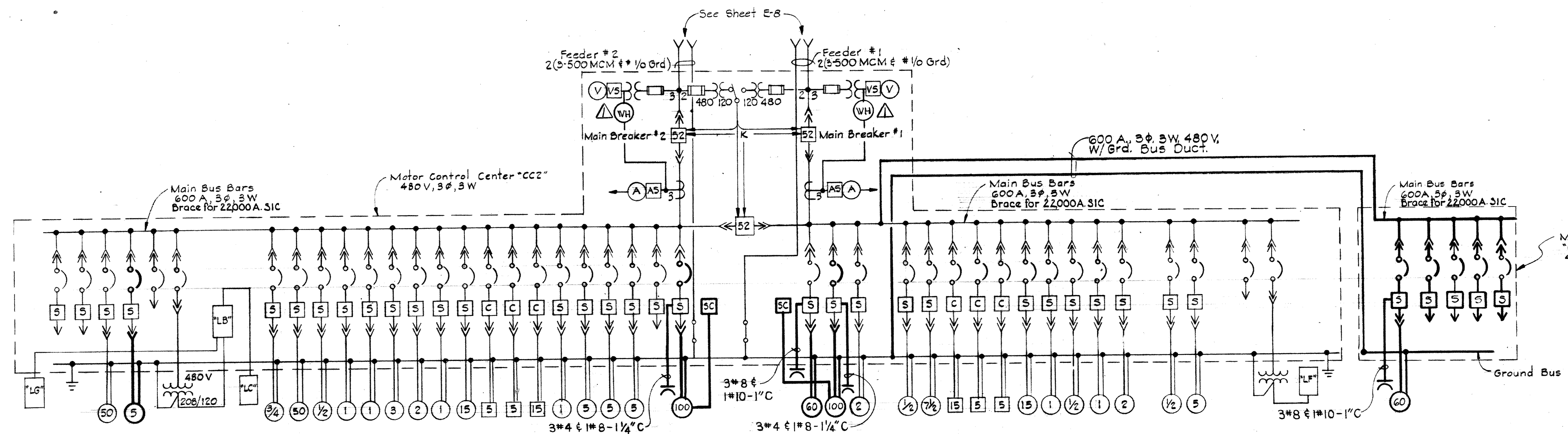


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE	CONTRACT NO. 500-S	BLOWER BLDG./PUMPING STA. ADD. PLANS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 92 OF 133	SCALE AS SHOWN
					SHEET E-5	

W. O. 6887-2

BRUNING 44-510 18392

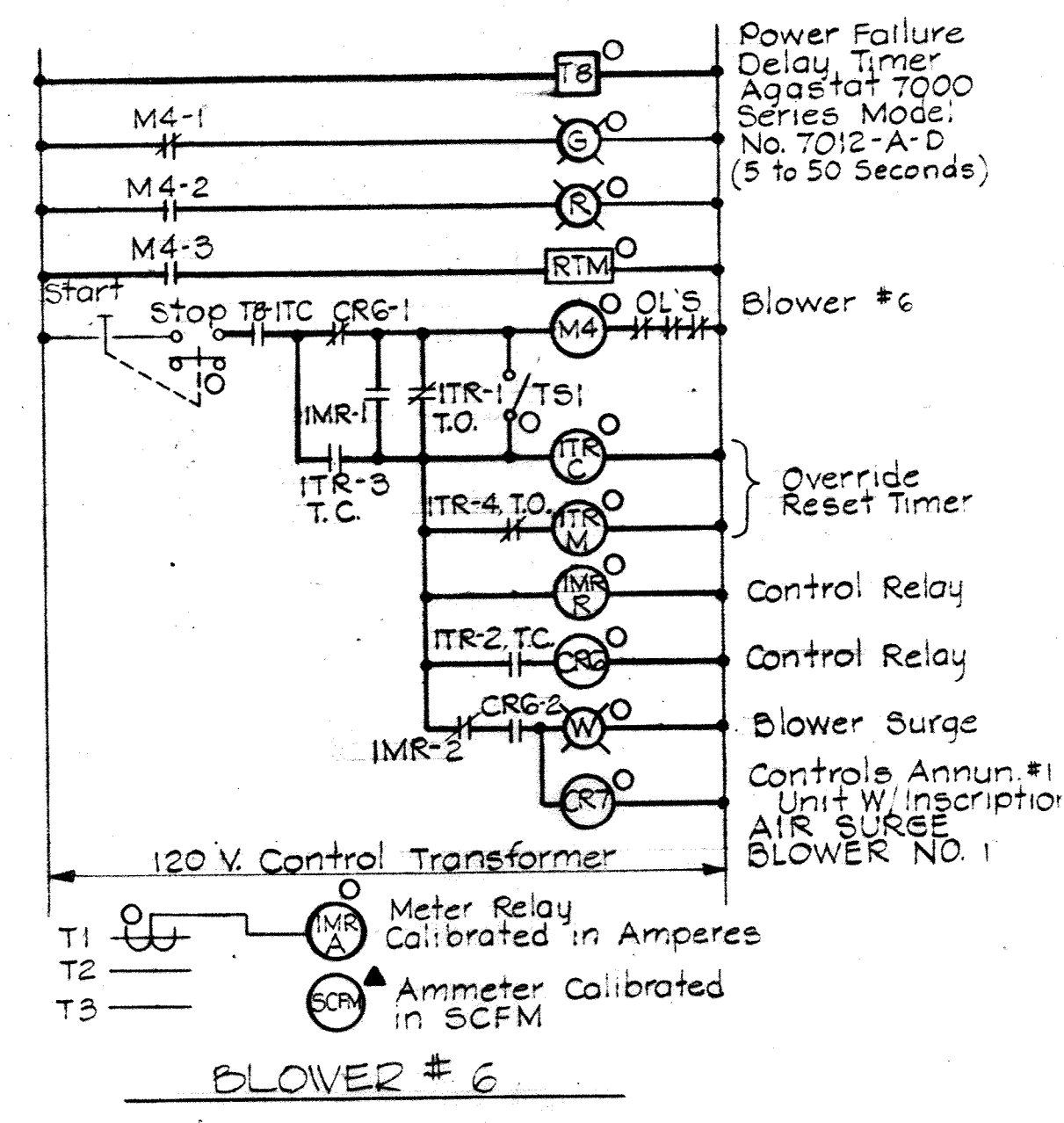
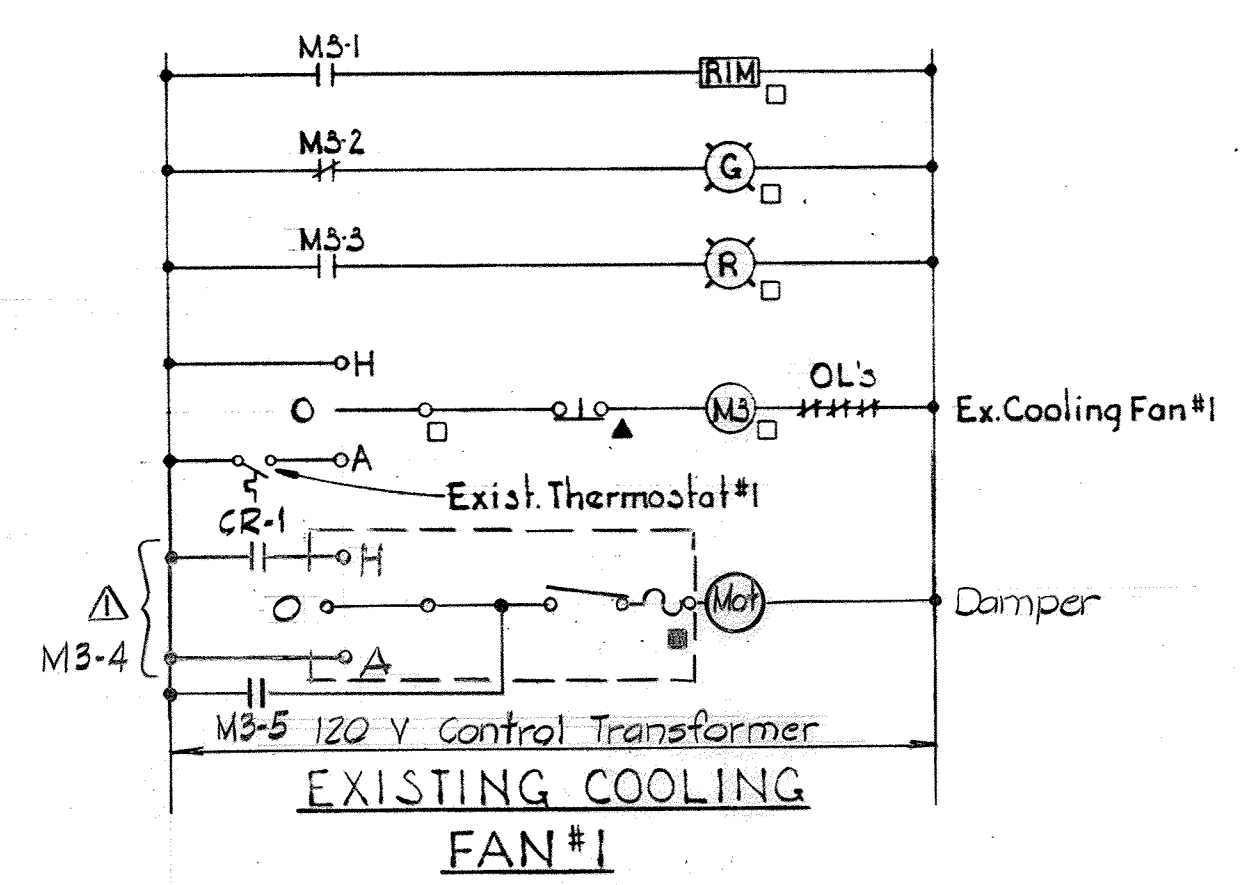
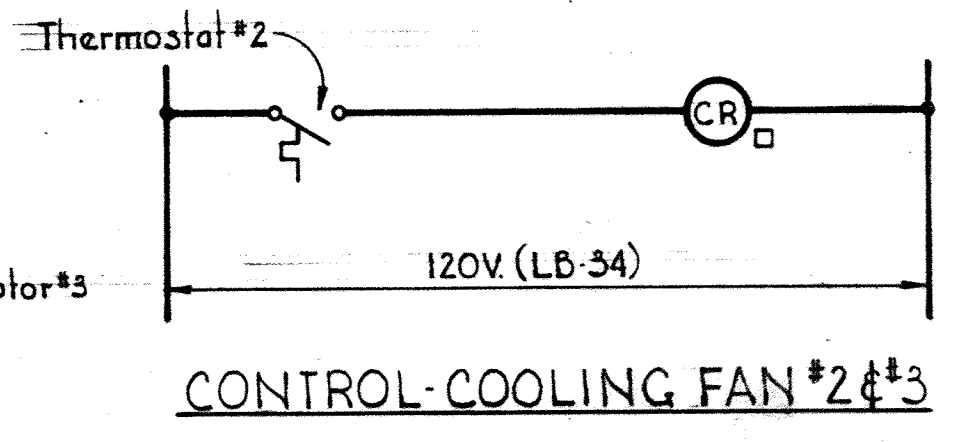
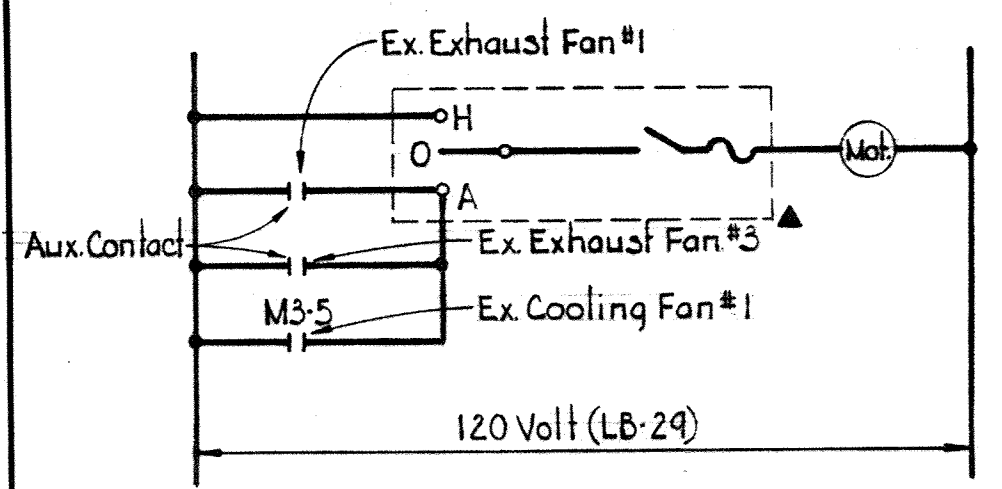
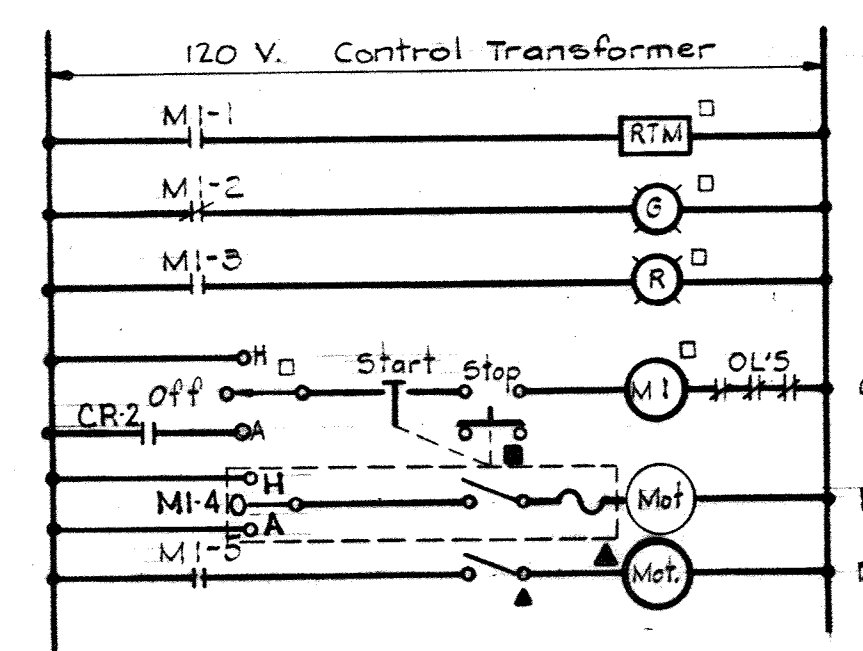
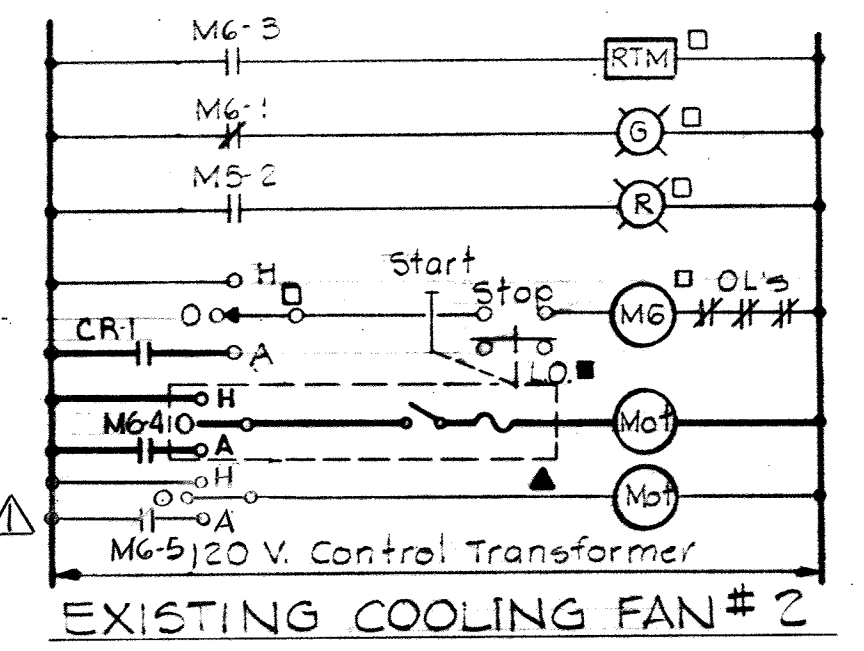




- Panel "LC"
- Spare
- Spare
- Sewage Pump #4
- Cooling Fan #3
- Spare
- 45 Kva Transformer
- Panel "LB"
- Panel "LC"
- Primary Clarifier #1 Drive
- Sewer Pump #5
- P.F. Time Setting
- Air Compressor #2
- Exhaust Fan #1
- Exhaust Fan #3
- Screen #2
- S.W. Pump #2
- Existing C.S. Unit #2
- * Collector Dr. #2
- Grinder #2
- Unit Heater #2
- Unit Heater #6
- Unit Heater #4
- Wet Well Exhaust Fan
- S.W. Pump #6
- Cooling Fan #2
- S.W. Pump #4
- Spare
- Sewage Pump #5
- P.F. Time Setting
- S.W. Pump #3
- Sewage Pump #1
- P.F. Time Setting
- Sewer Pump #3
- P.F. Time Setting
- S.W. Pump #3
- Screen Room Fan
- Cooling Fan #1
- Unit Heater #3
- Unit Heater #1
- Unit Heater #5
- Grinder #1
- Existing C.S. Unit #3
- Collector Drive #3
- Existing C.S. Unit #1
- Collector Drive #1
- Screen #1
- S.W. Pump #1
- Air Compressor #1
- S.W. Pump #5
- Spare
- 15 Kva Transformer
- Panel "LF"
- Sewage Pump #2
- P.F. Time Setting
- Spare
- Spare
- Spare
- Spare

ONE LINE DIAGRAM
MOTOR CONTROL CENTER "CC2"

- NOTES:
- For General Electrical Notes & Electrical Legend, see Sheet E-2.
 - Light lines denote existing. Dark lines denote new.
 - For Blower No.6 the 400 HP Controller is existing as a spare.



FOR REVISED E.C.D. DIAGRAMS FOR C.S. PUMP UNIT NO. 1, 2, 4 & 5 AND V.S. PUMP UNIT NO. 3 & 6 SEE SHEET E-16

ELEMENTARY WIRING DIAGRAMS

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

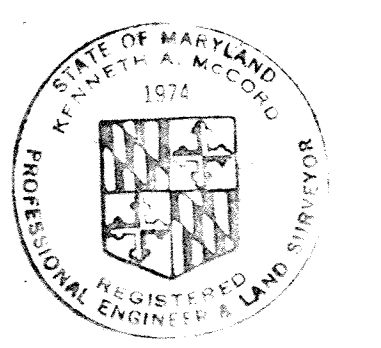
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
DATE
W.D. Lambert
CHIEF-BUREAU OF ENGINEERING

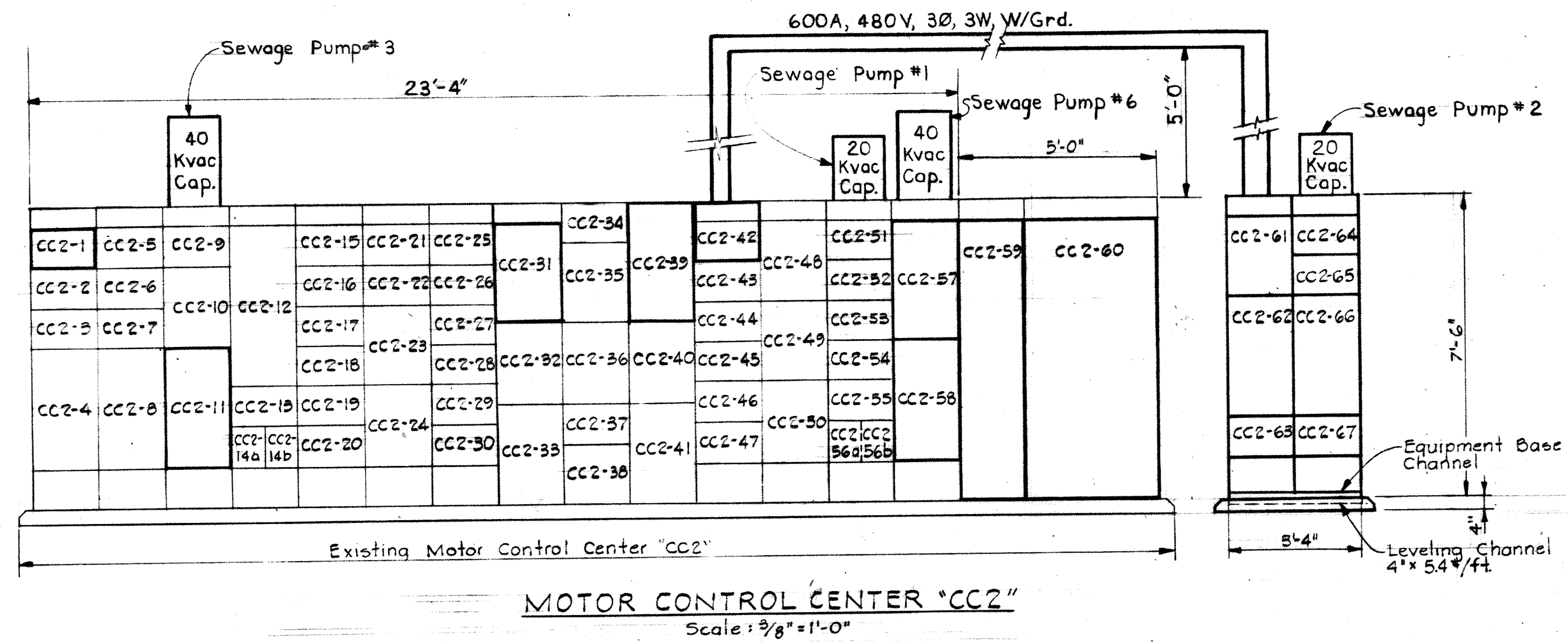
CONTRACT NO. 500-S

BLOWER BLDG. / PUMPING STA.
ADDN. ONE LINE WIRING DIAG.
CC2 ADDN. & ELEM. WIRING DIAGS.

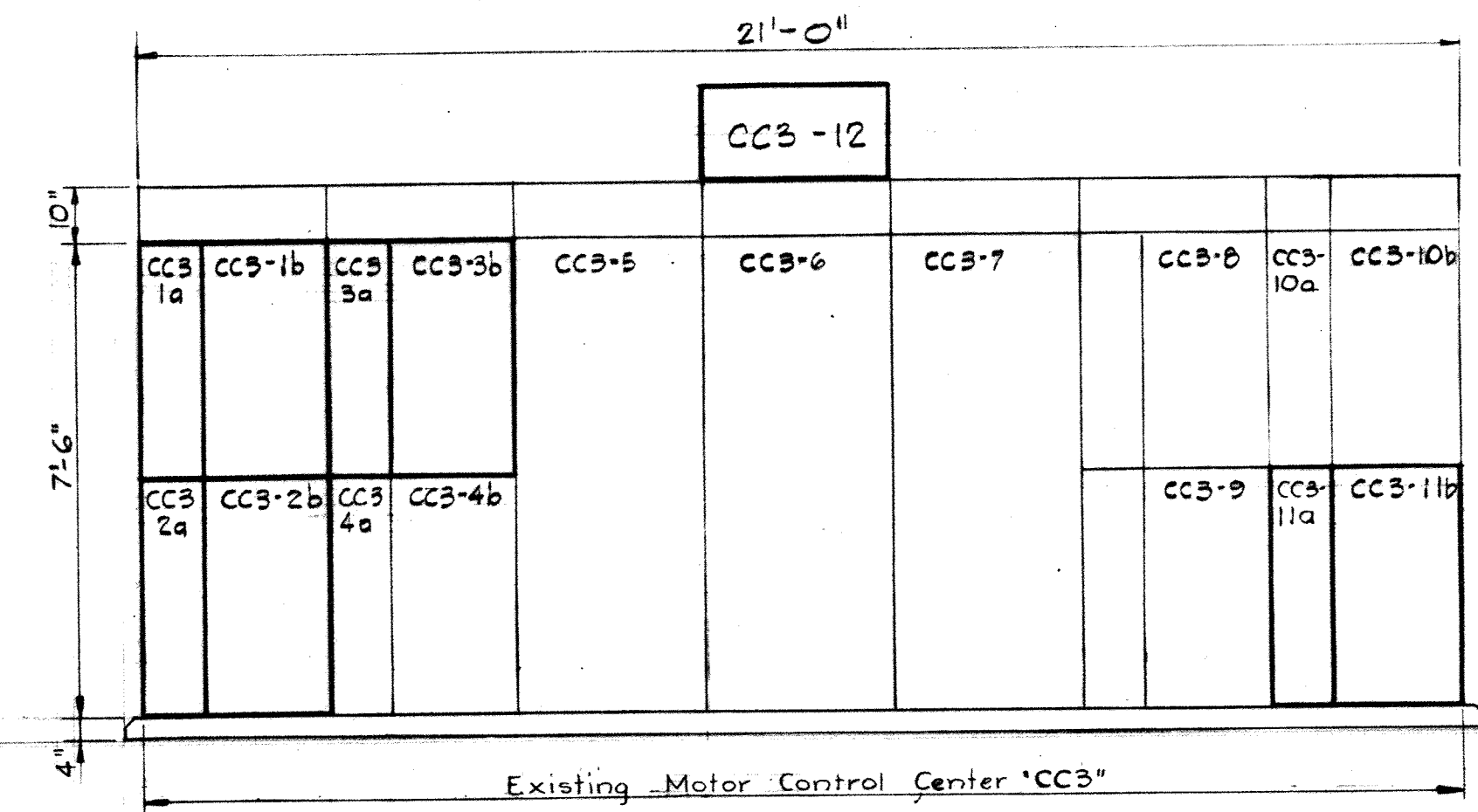
SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 93 OF 133
SCALE NONE





MOTOR CONTROL CENTER "CC2"
Scale: 3/8" = 1'-0"



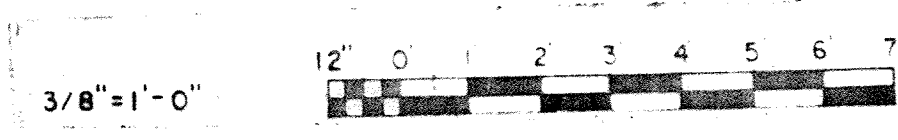
FRONT ELEVATION
2400 VOLT MOTOR CONTROL CENTER "CC3"
Scale: 3/8" = 1'-0"

MOTOR CONTROL CENTER ADDITION SCHEDULE "CC2" 480V-3Ø-3W-60HZ																	
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	HP or KVA	AUX. DESC.	BREAKER OR MCP			RUN NUMBER	WIRE-POWER			WIRE-CONTROL		GRD. WIRE	COND. WIRE		
					FRAME	POLE	CA/SEC		S.I.C.	NO.	SIZE	TYPE	NO.			SIZE	TYPE
CC2-1	COOLING FAN # 3	Existing Starter NEMA Size 1, FVNR	5	Existing a,d,g,k	100	3	20	22	CC2-1a	3	12	THW	6	14	THW	12	1"
CC2-11	SEWAGE PUMP # 3	Existing Starter NEMA Size 4, FVNR	100	Existing a,d,g,k	225	3	225	22	CC2-11a	3	2/0	THW	4	14	THW	6	2 1/2"
CC2-42		Space for Outgoing Bus Connection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC2-37	SEWAGE PUMP # 6	Existing Starter NEMA Size 4, FVNR	100	Existing a,d,g,k	225	3	225	22	CC2-37a	3	2/0	THW	4	14	THW	6	2 1/2"
CC2-58	SEWAGE PUMP # 1	Exist. Combination Starter NEMA Size 4, FVNR	60	Existing a,d,g,k	225	3	150	22	CC2-58a	3	2	THW	4	14	THW	8	Exist. 2"
CC2-59	SEWAGE PUMP # 3 SECONDARY CONTROLS	See Mechanical Specification Section	-	-	-	-	-	-	CC2-59a	3	2/0	THW	-	-	-	-	2 1/2"
CC2-60	SEWAGE PUMP # 6 SECONDARY CONTROLS	See Mechanical Specification Section	-	-	-	-	-	-	CC2-60a	3	2/0	THW	-	-	-	-	2 1/2"
CC2-61		Space for Incoming Bus Connection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC2-62	SEWAGE PUMP # 2	Combination Starter NEMA Size 4, FVNR	60	a,c, d,g,k	225	3	10X	22	CC2-62a	3	2	THW	4	14	THW	8	2"
CC2-63	BLANK (Spare)	Space f Bus	-	-	100	3	-	-	-	-	-	-	-	-	-	-	-
CC2-64	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a,c, d,g,k	100	3	10X	22	-	-	-	-	-	-	-	-	-
CC2-65	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a,c, d,g,k	100	3	10X	22	-	-	-	-	-	-	-	-	-
CC2-66	BLANK (Spare)	Combination Starter NEMA Size 4, FVNR	-	a,c, d,g,k	225	3	10X	22	-	-	-	-	-	-	-	-	-
CC2-67	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a,c, d,g,k	100	3	10X	22	-	-	-	-	-	-	-	-	-
CC2-31	Standard Nameplates	Watt-hour Meter	-	See Specs	-	-	-	-	-	-	-	-	-	-	-	-	-
CC2-39	Standard Nameplates	Watt-hour Meter	-	See Specs	-	-	-	-	-	-	-	-	-	-	-	-	-

MOTOR CONTROL CENTER ADDITION SCHEDULE "CC3" 2400V-3Ø-3W-60HZ																
UNIT # RUN NO.	NAMEPLATE DATA	DEVICE DESCRIPTION	HP or KVA	AUX. DESC.	SWITCH			FUSE			WIRE			GRD. WIRE	COND. WIRE	
					FRAME	POLES	RATING	TYPE	NO.	SIZE	TYPE	FOR				
CC3-1a	BLOWER #1 (Future)	CFM Meter, C.T.'s, etc. Timers, Control Relays	-	See Specs	-	-	-	-	-	-	-	-	-	-	-	-
CC3-1b	BLOWER #1 (Future)	Combination Controller 400 HP Size, FVNR	200	a,c,e, f, h,k	-	-	-	-	-	-	-	-	-	-	-	-
CC3-2a	BLOWER #7 (Future)	CFM Meter, C.T.'s, etc. Timers, Control Relays	-	See Specs	-	-	-	-	-	-	-	-	-	-	-	-
CC3-2b	BLOWER #7 (Future)	Combination Controller 400 HP Size, FVNR	300	a,c,e, f, h,k	-	-	-	-	-	-	-	-	-	-	-	-
CC3-3a	BLOWER #6	CFM Meter, C.T.'s, etc. Timers, Control Relays	-	See Specs	-	-	-	-	-	-	-	-	-	-	-	-
CC3-3b	BLOWER #6	Exist. Combination Controller 400 HP Size, FVNR	300	a,c,e, f, h,k	-	-	-	-	-	-	-	-	-	-	-	-
CC3-11a	BLANK (Spare)	CFM Meter, C.T.'s, etc. Timers, Control Relays	-	See Specs	-	-	-	-	-	-	-	-	-	-	-	-
CC3-11b	BLANK (Spare)	Combination Controller 400 HP Size, FVNR	-	a,c,e, f, h,k	-	-	-	-	-	-	-	-	-	-	-	-
CC3-12	SEE DRAWINGS	Annunciator #17 (12 Points)	-	See Specs	-	-	-	-	-	-	-	-	-	-	-	-

NOTES

- For General Electrical Notes and Legend see Sheet E-2
- Light lines denote existing. Dark lines denote new in MCC "CC2" & "CC3" front elevations.

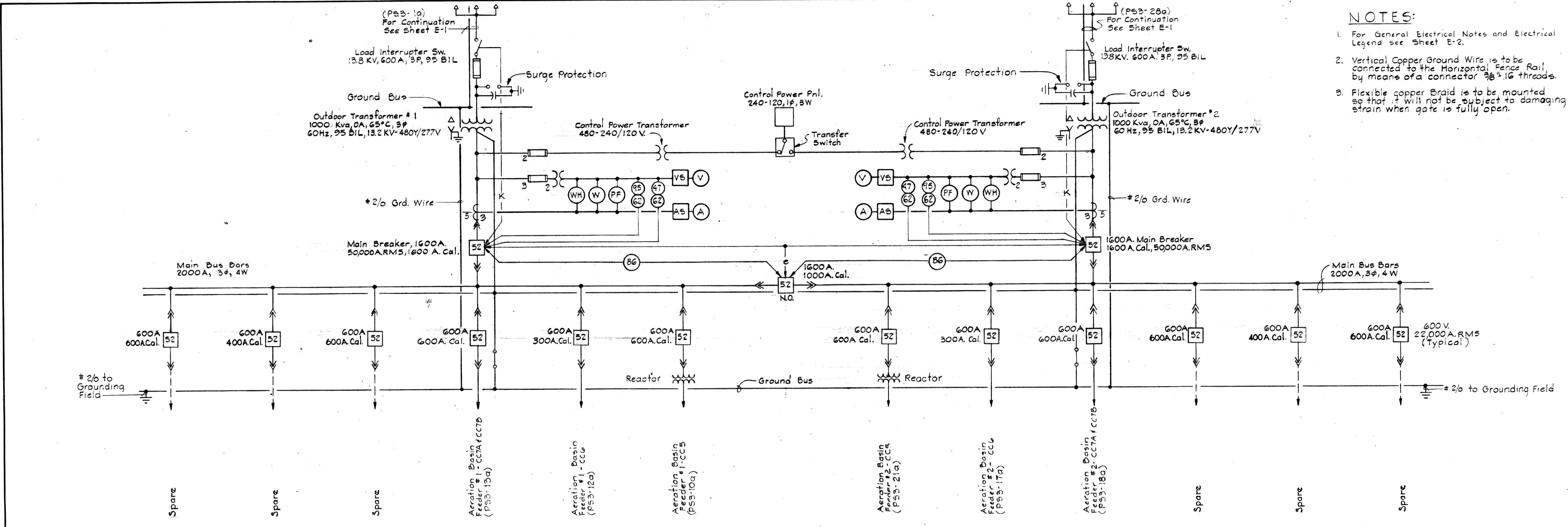


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/85 W. O. Libbert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	BLOWER BLDG./PUMPING STA. ADDITION CC2 ADDITION & CC3 ADDITION	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 94 OF 133	SCALE AS SHOWN
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W. O. 6887-2

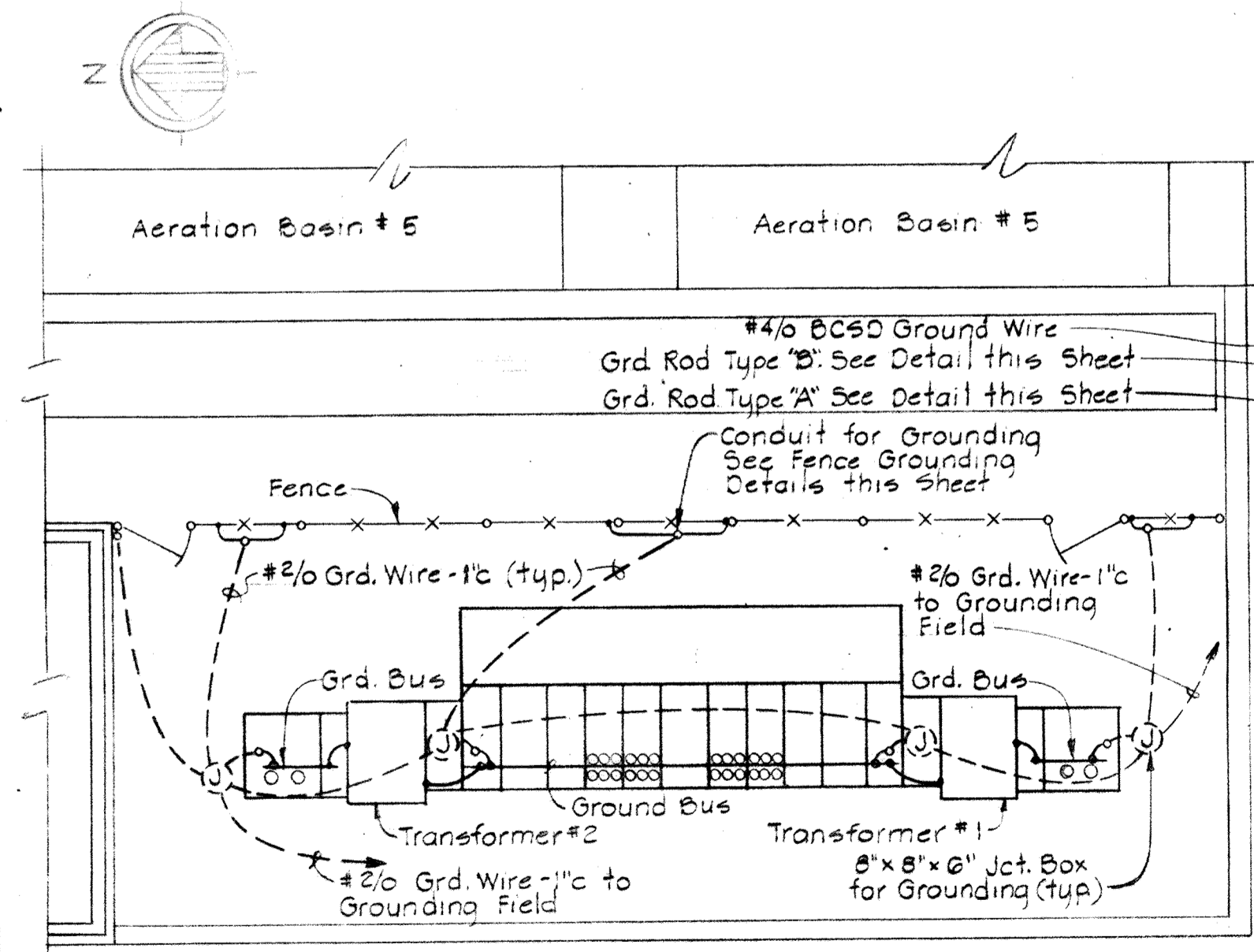
SHEET E-7
MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 18392

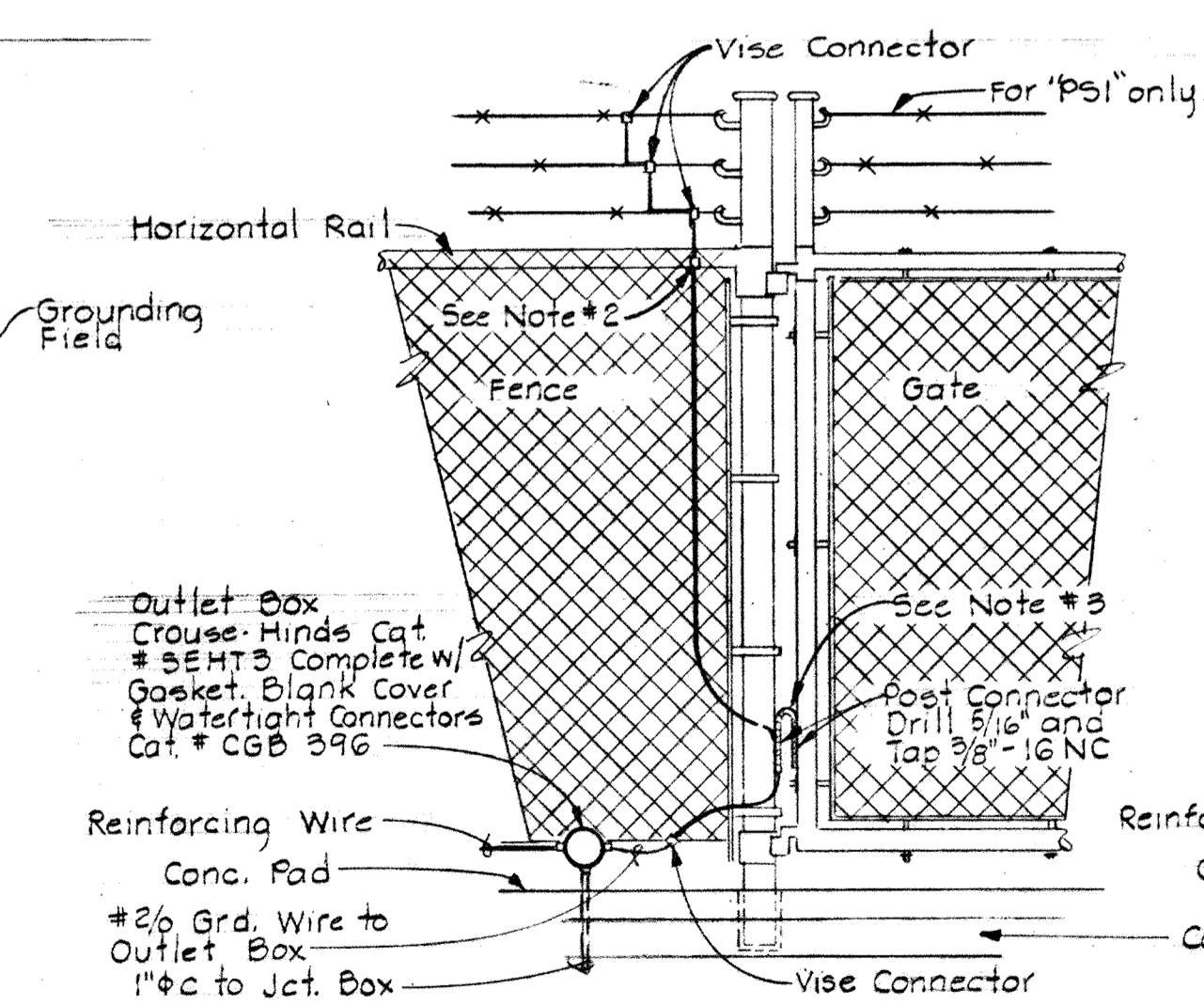


- NOTES:**
1. For General Electrical Notes and Electrical Legend see Sheet E-2.
 2. Vertical Copper Ground Wire is to be connected to the Horizontal Fence Rail by means of a connector $\frac{3}{8}$ " 16 threads.
 3. Flexible copper Braid is to be mounted so that it will not be subject to damaging strain when gate is fully open.

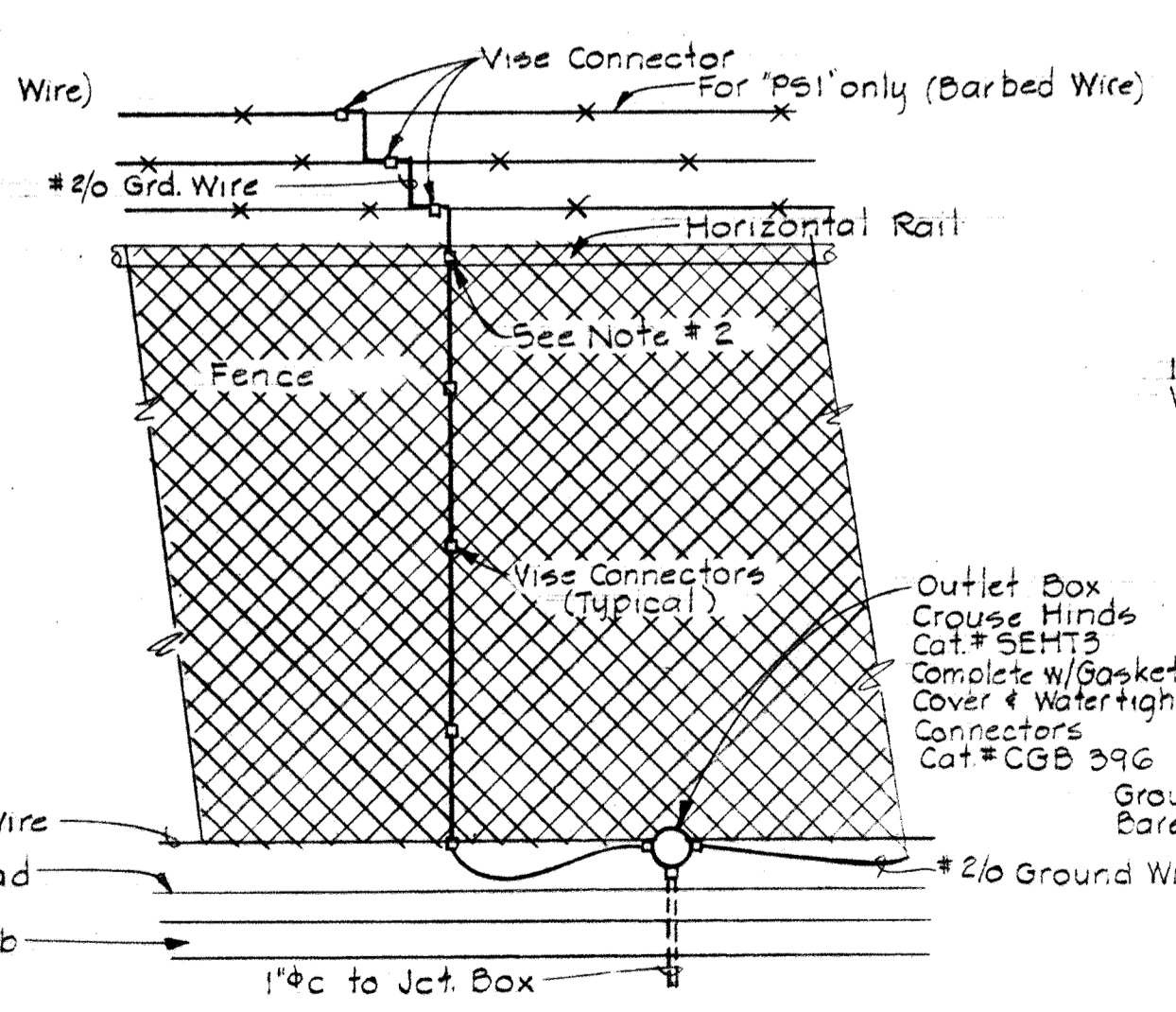
OUTDOOR PRIMARY SUBSTATION "PS3"



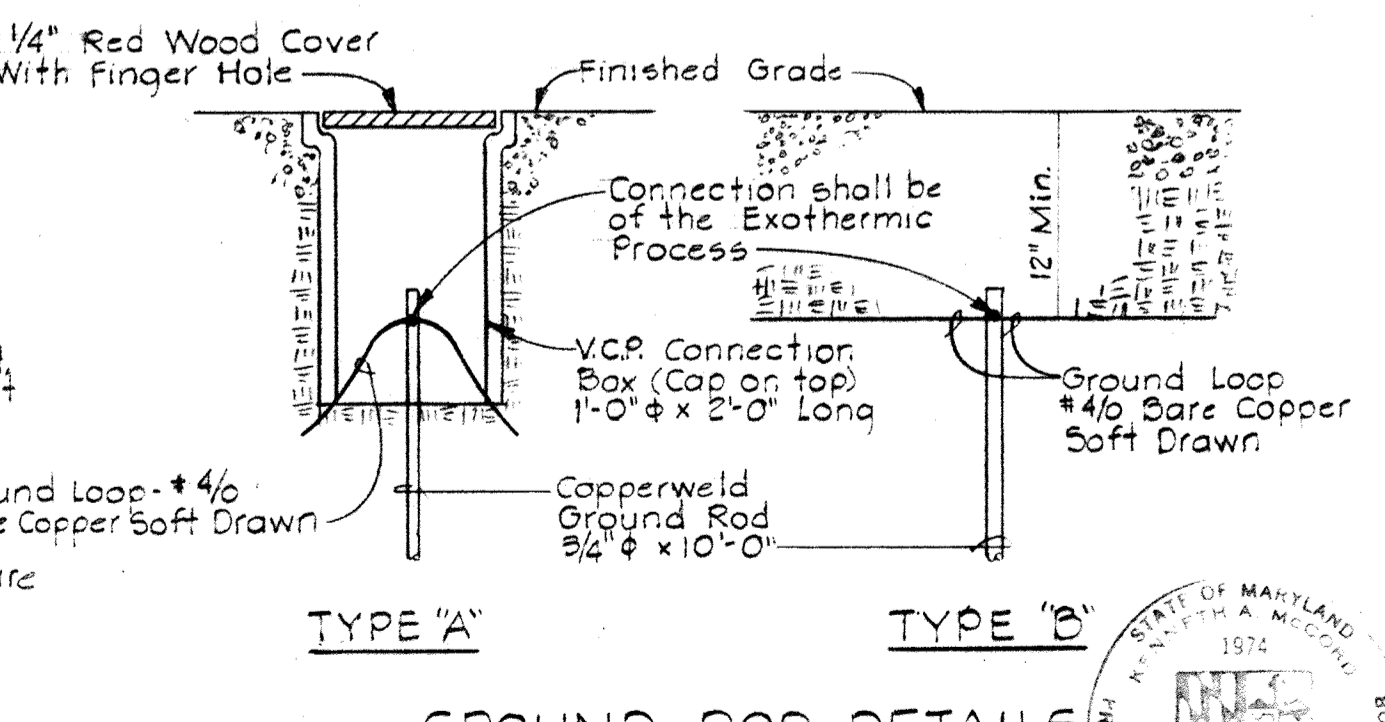
GROUNDING PLAN FOR OUTDOOR PRIMARY SUBSTATION "PS3"
Scale: 1/8" = 1'-0"



FENCE AND GATE GROUNDING DETAIL FOR OUTDOOR PRIMARY SUBSTATION "PS1"
(Similar for Outdoor Primary Subst. "PS3")
No Scale



FENCE GROUNDING DETAIL FOR OUTDOOR PRIMARY SUBSTATION "PS1"
(Similar for Outdoor Primary Subst. "PS3")
No Scale



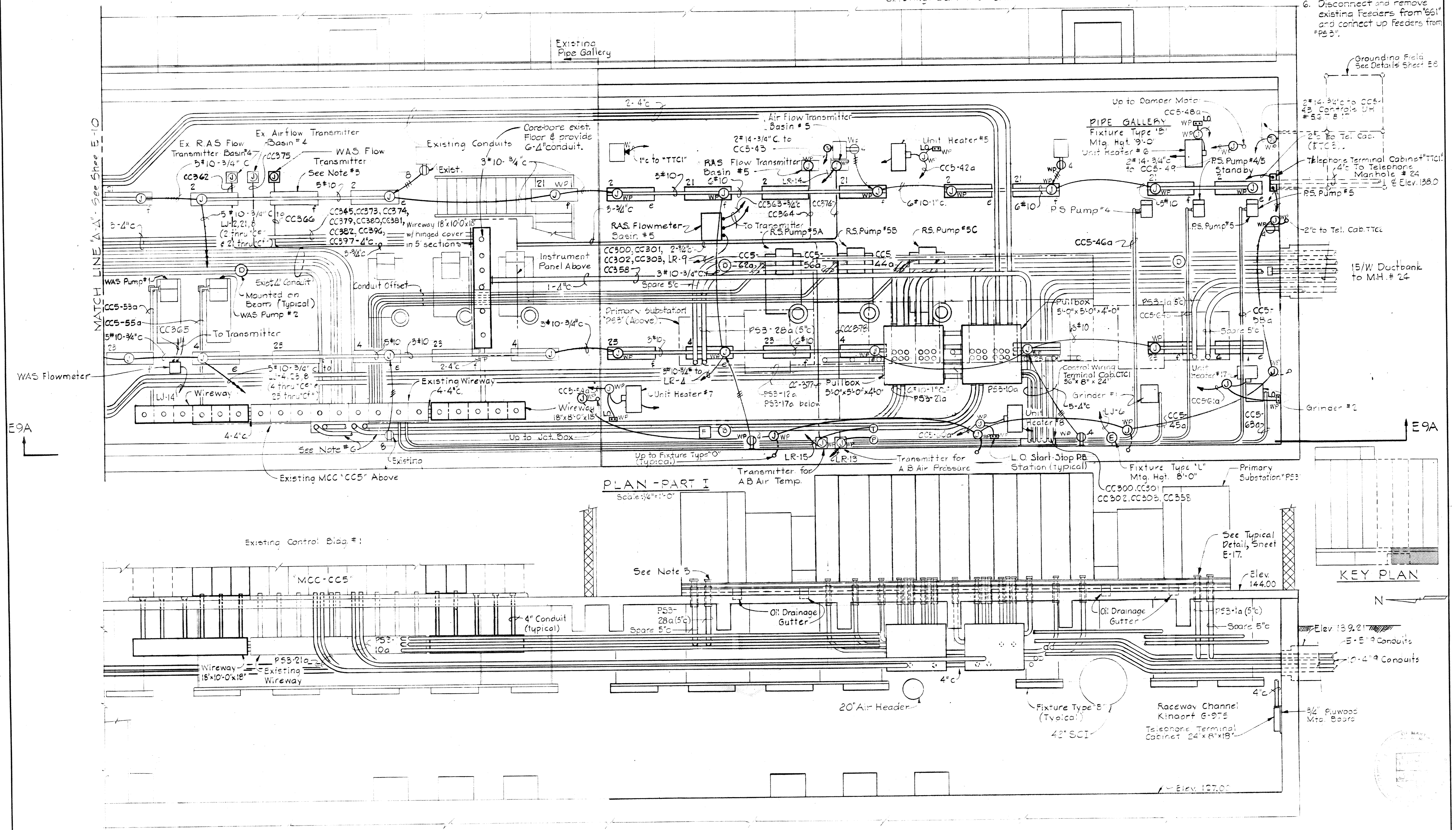
GROUND ROD DETAILS
No Scale



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE <i>W. O. Labat</i> CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. <u>500-S</u>	AERATION BASINS NO. 4 & 5 PIPE GALLERY WEST POWER - ONE LINE WIRING DIAG.	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. <u>95</u> OF <u>133</u>	SCALE NONE
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NOTES:

1. For General Electrical Notes & Electrical Legend see Sheet E2.
2. In existing Pipe Gallery light lines denote existing. Dark lines denote new.
3. Rewire existing lighting fixtures as shown.
4. Run #10 AWG wire throughout raceway channel.
5. Conduit entrances to Substation #PS3 to be coordinated with equipment Mfg.
6. Disconnect and remove existing feeders from #661 and connect up feeders from #PS3.



PLAN - PART I
Scale: 1/4" = 1'-0"

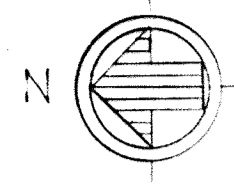
SECTION E9A/E9
Scale: 1/4" = 1'-0"

<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE</p> <p><i>W. O. Albert</i> CHIEF BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>AERATION BASINS NO. 4 & 5 PIPE GALLERY WEST PLAN - PART I & DETAILS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 96 OF 133 SCALE AS SHOWN</p>
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W.O. 6887-2

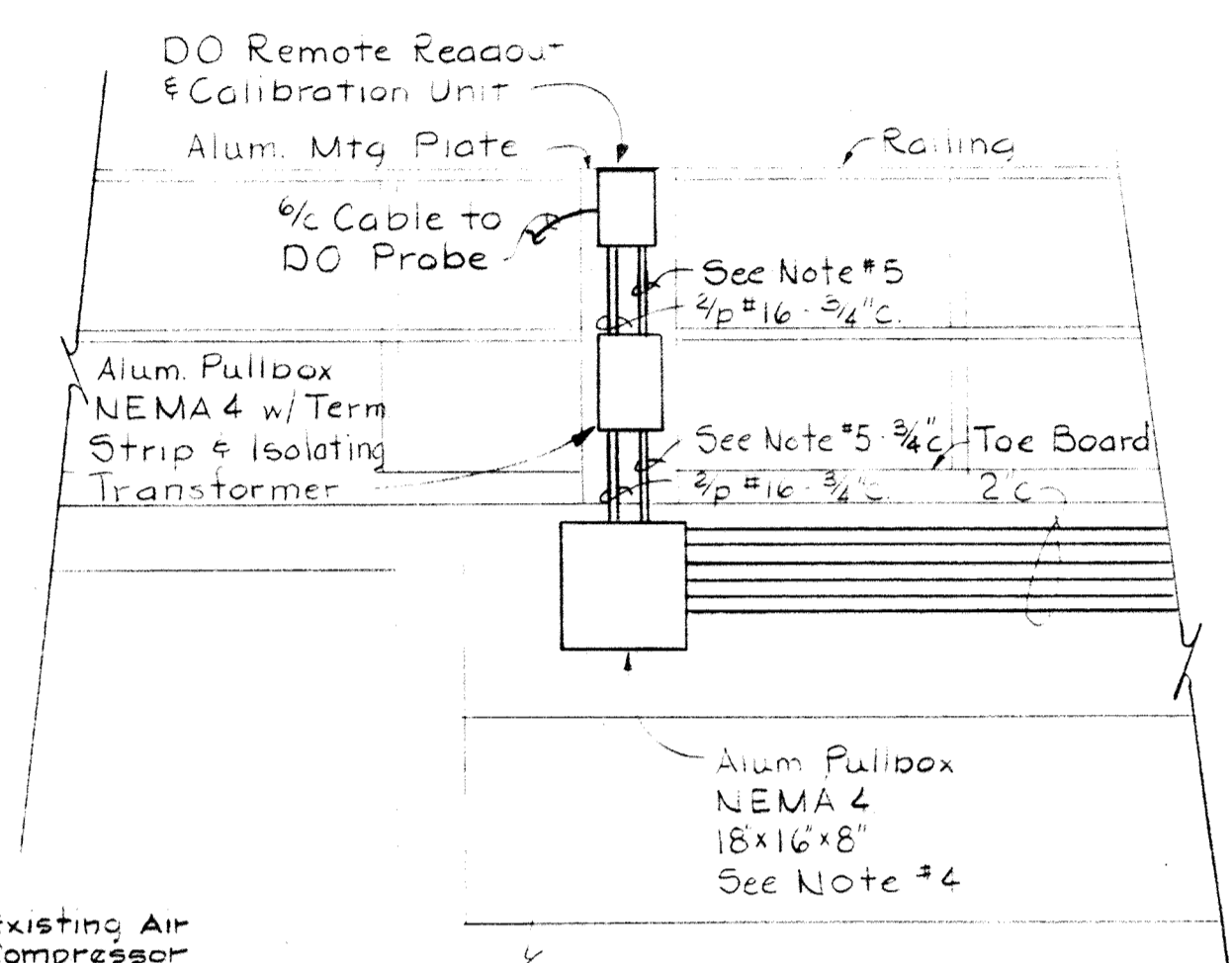
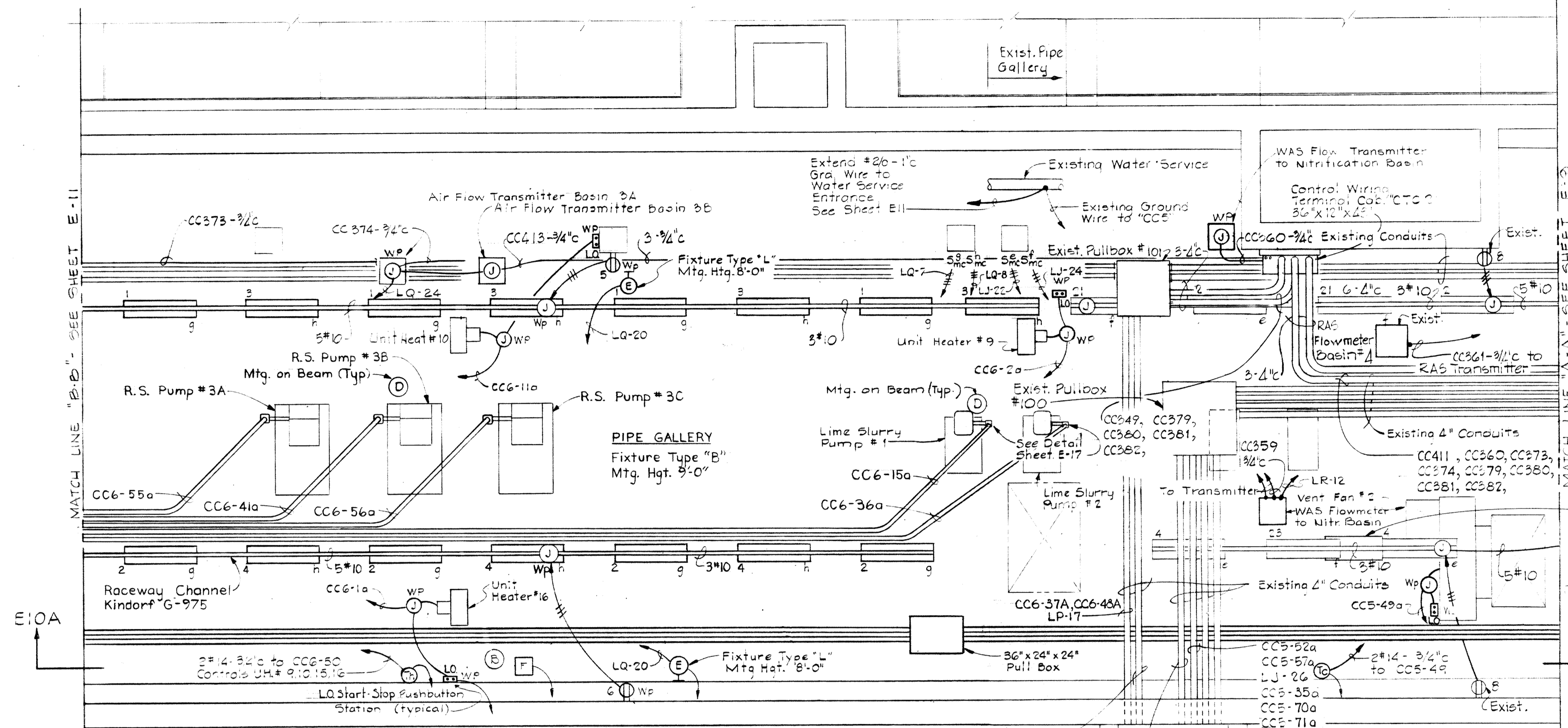
SHEET E-9

BRUNING 44510 1852



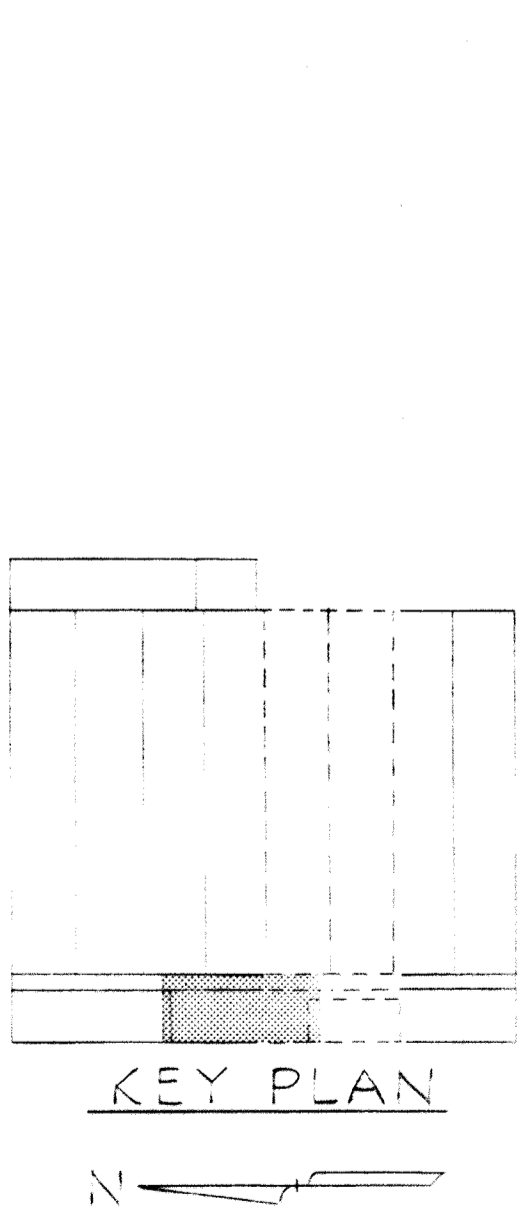
NOTES:

- 1. For General Electrical Notes & Electrical Legend see Sheet E-2.
- 2. In existing Pipe Gallery light lines denote existing. Dark lines denote new.
- 3. Run #10 AWG wire thru out in Raceway Channel.
- 4. For Pullbox numbering see sheet E-40.
- 5. For Power circuit see Panel Schedule "LR"



PLAN PART II
Scale: 1/4" = 1'-0"

TYPICAL SECTION E10B/E40
Scale: 1/2" = 1'-0"



SECTION E10A/E10
Scale: 1/4" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>3/20/85</i> <i>W.O. Lambert</i> DATE CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS NO. 4 & 5 PIPE GALLERY WEST PLAN - PART II & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 97 OF 133 SCALE AS SHOWN
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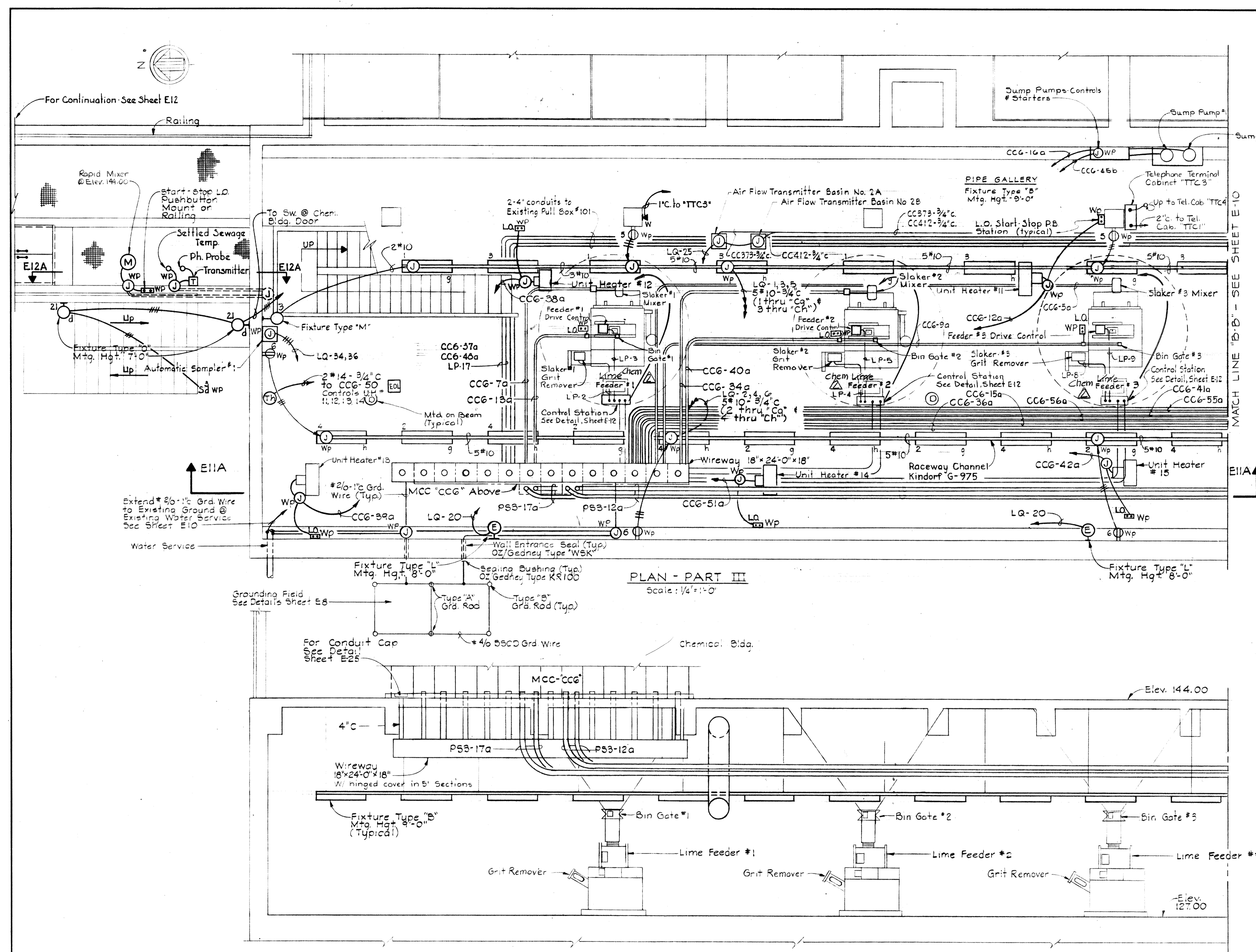
W. O. 6887-2

SHEET E-10

BRUNING 44-510 18392

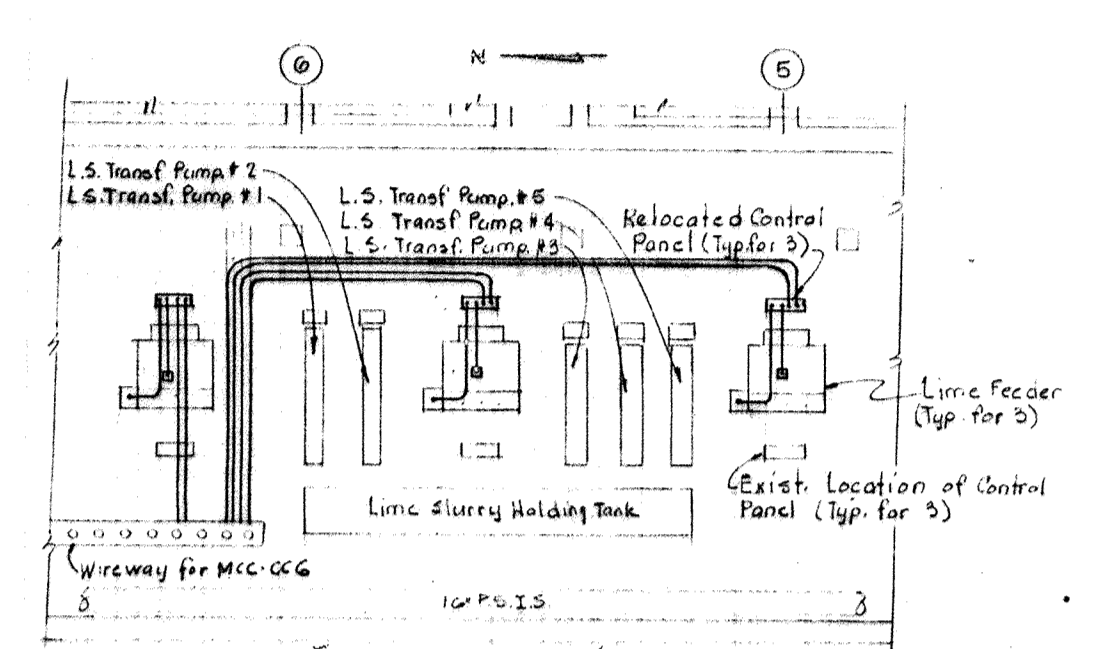
NOTES

1. For General Electrical Notes and Electrical Legend see sheet E-2
2. Run #10 AWG wire throughout in Raceway Channel.



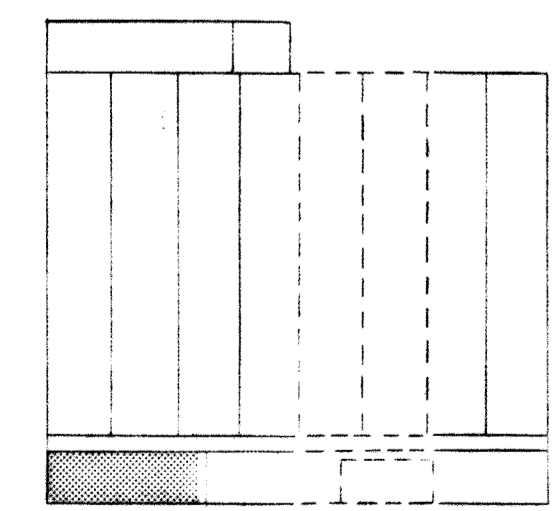
PLAN - PART III
Scale: 1/4" = 1'-0"

SECTION E11A/E11
Scale: 1/4" = 1'-0"

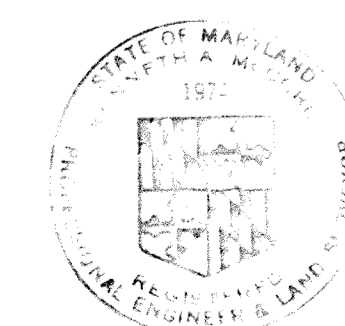


PART PLAN - AERATION BASIN PIPE GALLERY WEST

RELOCATION OF CONTROL PANELS FOR LIME FEEDERS



KEY PLAN

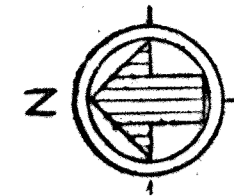


<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W. O. Lambert CHIEF - BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>AERATION BASINS NO. 4 & 5 PIPE GALLERY WEST PLAN - PART III & DETAILS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 98 OF 133 SCALE AS SHOWN</p>
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W. O. 6887-2

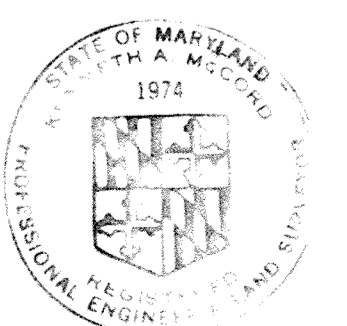
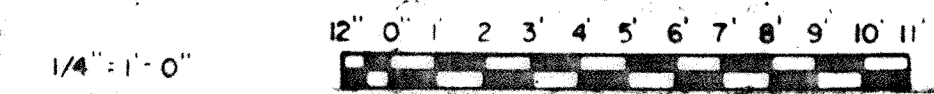
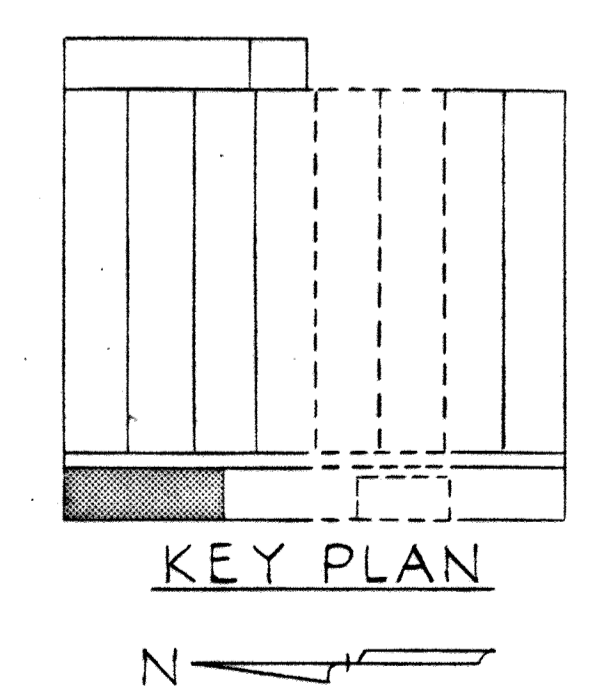
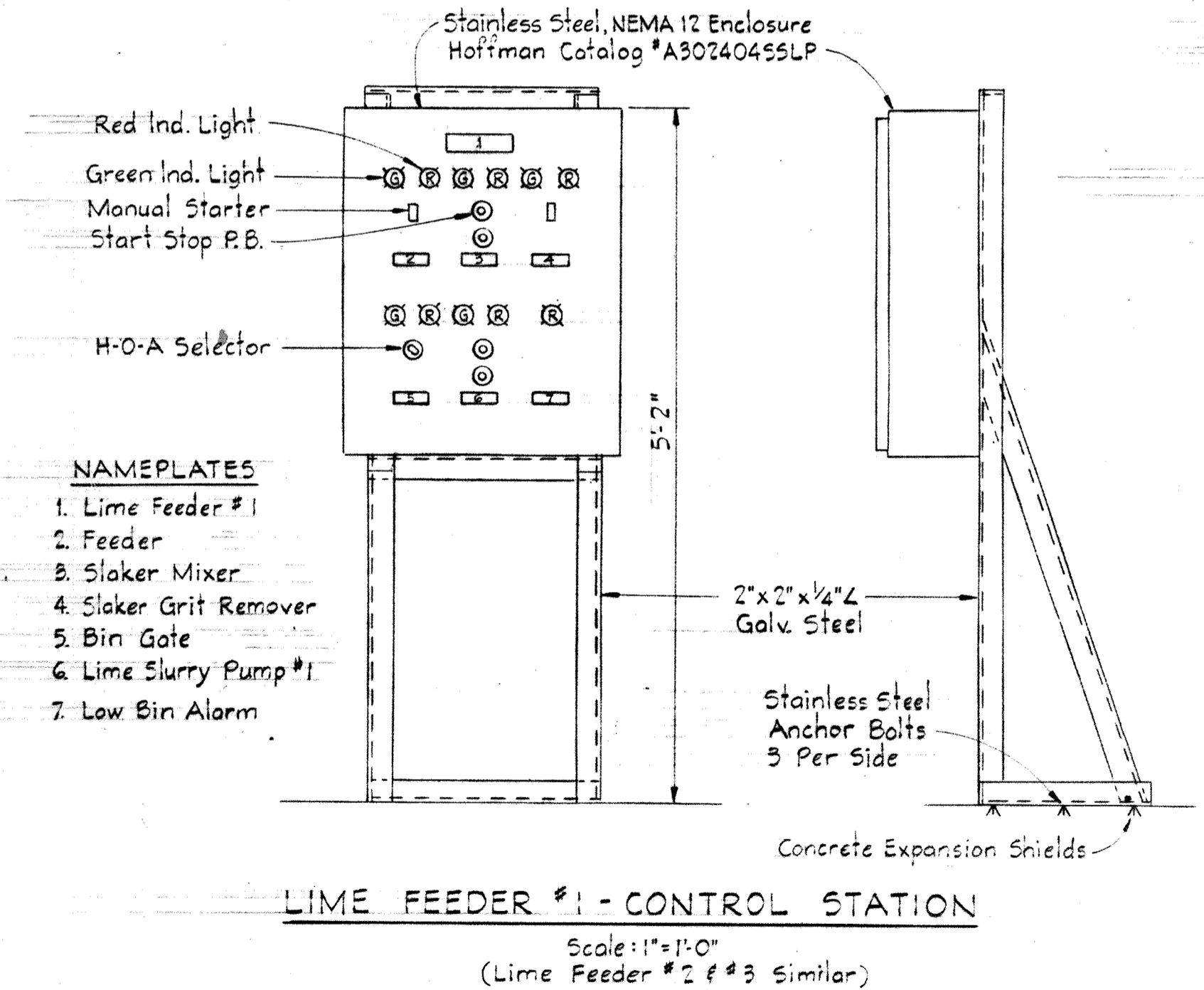
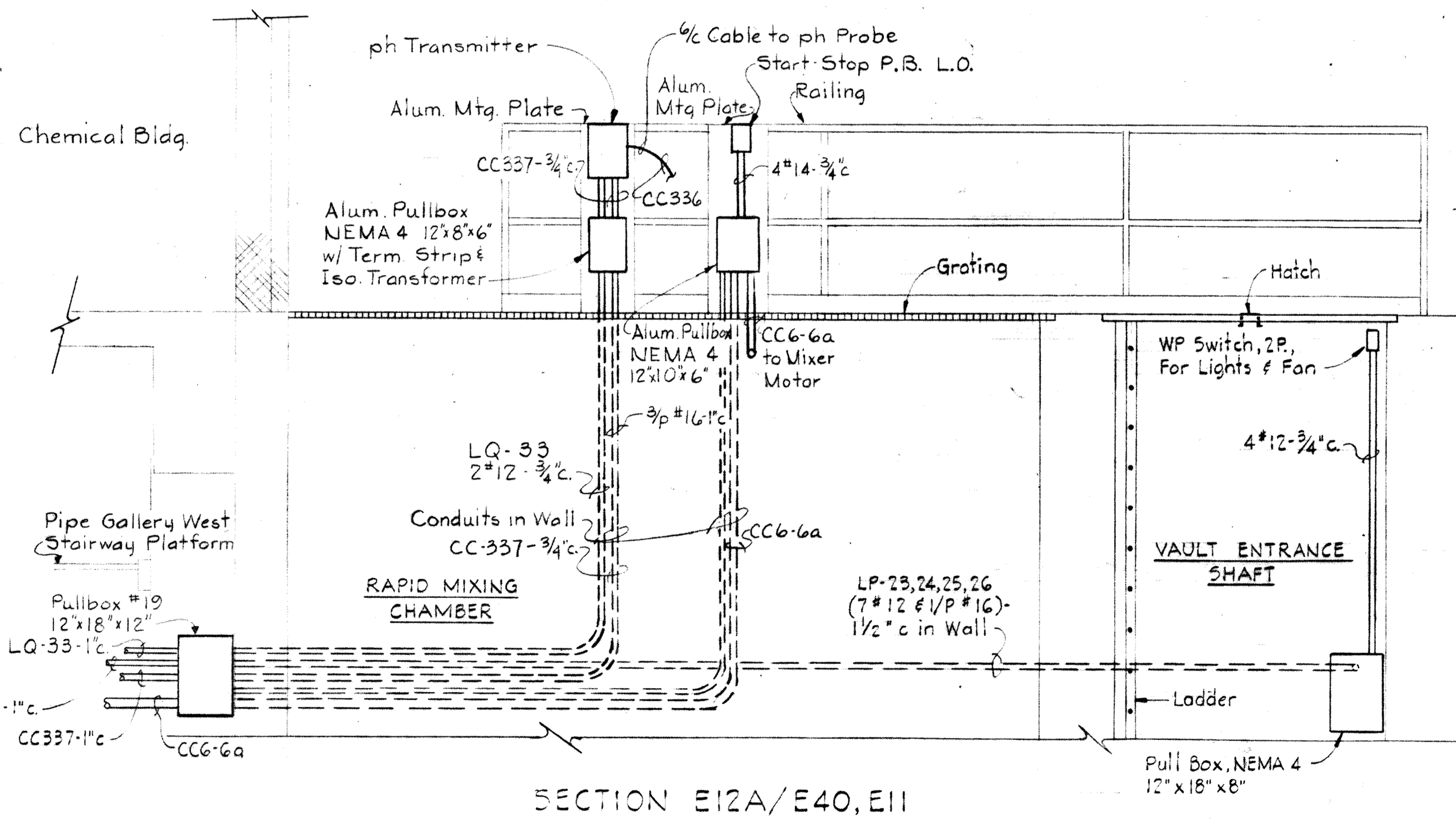
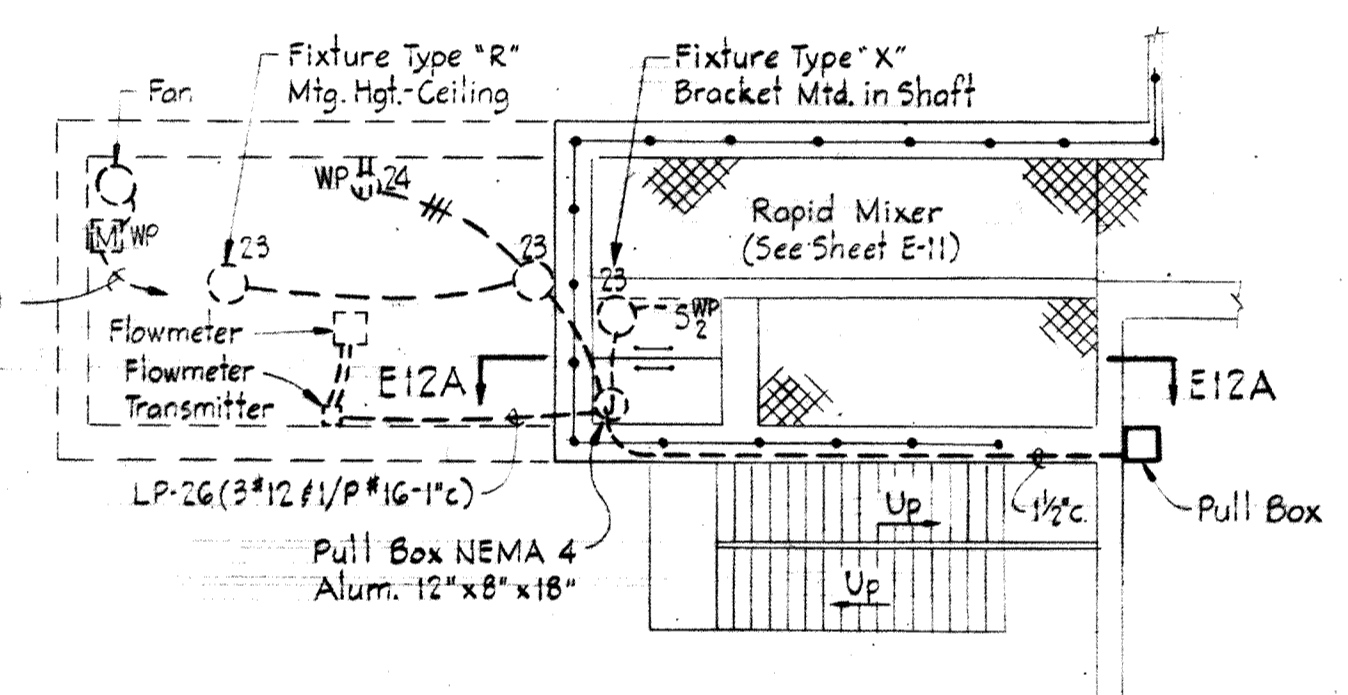
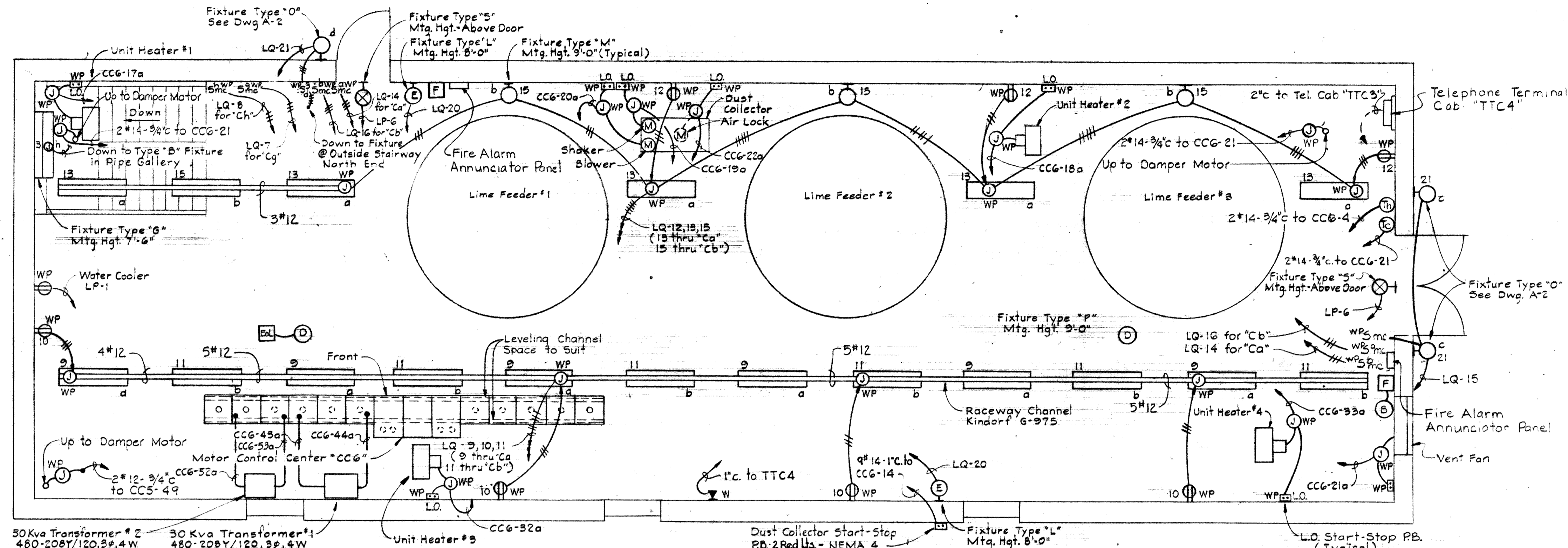
SHEET E-11
MODIFIED DRAWING - MAY 6, 1982

BRUNING 44510 1832



NOTES:

1. For General Electrical Notes & Electrical Legend see Sheet E-2.



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 3/20/75
W. O. Lubert
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

AERATION BASINS NO. 2 & 4
PIPE GALLERY WEST
CHEMICAL FEED BUILDING
PLAN & DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

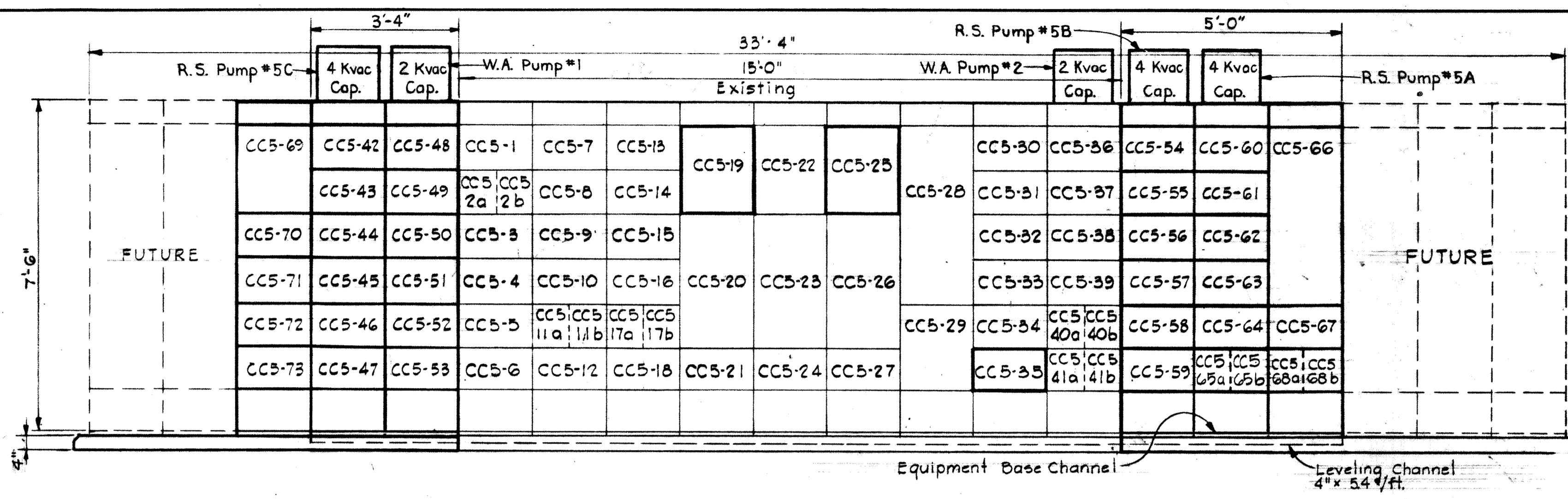
DRAWING NO. 99
OF 133

SCALE AS SHOWN

W. O. 6887-2

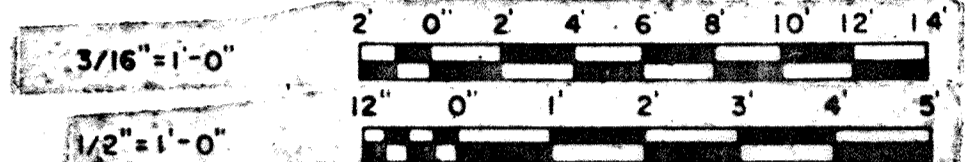
SHEET E-12

BRUNING 44-510 18392



MOTOR CONTROL CENTER "CC5"
Scale: 1/2" = 1'-0"

- NOTES**
- For GENERAL ELECTRICAL NOTES & LEGEND See Sheet E-2.
 - Light lines denote existing. Dark lines denote new. Dashed lines denote future.
 - Existing Lighting Contactor "C7" is redesignated "Ce".
 - Motor Control Center Schedule "CC5" is continued on Sheet E-14.

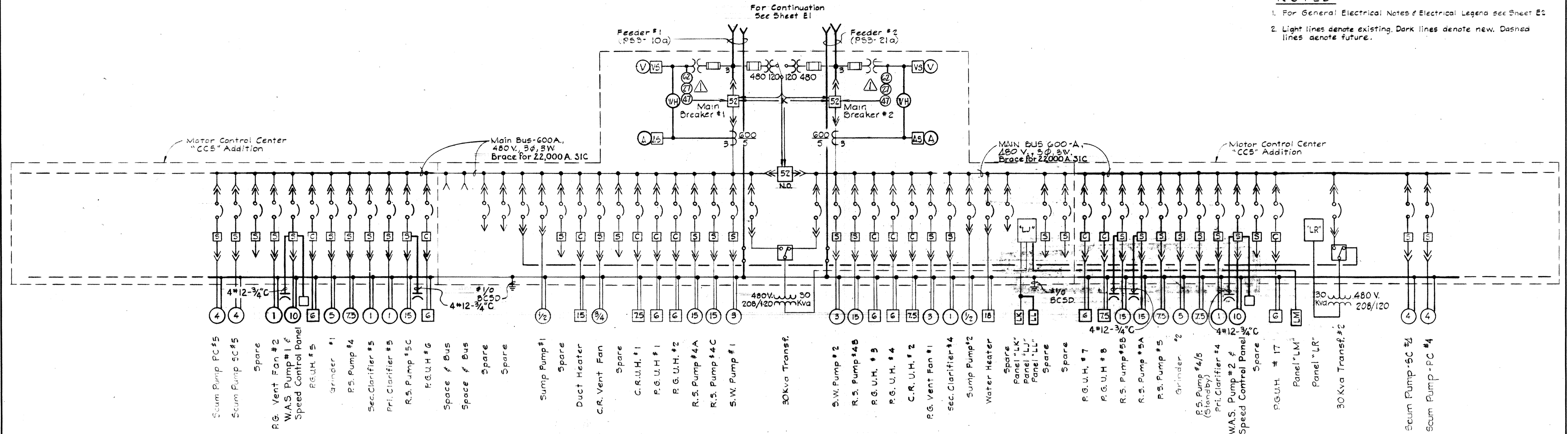


MOTOR CONTROL CENTER SCHEDULE "CC5" 480V-3Ø-31V-60Hz																	
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	HPor KVA	AUX. DESC.	BREAKER OR MCP			RUN NUMBER	WIRE - POWER			WIRE - CONTROL			GRD. WIRE	COND. SIZE	
					FRAME	POLE	AMP		Nº	SIZE	TYPE	Nº	SIZE	TYPE			
CC5-1		Control Relays	-	See Dwg.	-	-	-	-	-	-	-	-	-	-	-		
CC5-2a	30KVA TRANSFORMER	Circuit Breaker	-	-	100	3	50	14	-	3	#8	THW	-	-	-		
CC5-2b	BLANK (Spare)	Circuit Breaker	-	-	100	3	50	14	-	-	-	-	-	-	-		
CC5-3	LIGHTING CONTACTOR "C7" PIPE GALLERY	Contactor 1-2P-30A	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-		
CC5-4	CONTROL ROOM DUCT HEATER	Combination Contactor NEMA Size 2, FVNR	20	a, c, d, g, k	100	3	50	14	CC5-4a	3	#8	THW	4	#14	THW	#10	1 1/2"
CC5-5	TRANSFER SWITCH	Automatic Transfer Switch ASCO Bulletin 940	-	See Specs.	-	-	-	-	CC5-5a	3	#6	THW	-	-	-	#6	1 1/2"
CC5-6	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, b, c, d, g, k	100	3	50	14	-	-	-	-	-	-	-	-	-
CC5-7	PIPE GALLERY UNIT HEATER #1	Combination Contactor NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	14	CC5-7a	3	#12	THW	4	#14	THW	#12	1"
CC5-8	CONTROL ROOM UNIT HEATER #1	Combination Contactor NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	15	14	CC5-8a	3	#12	THW	4	#14	THW	#12	1"
CC5-9	RETURN SLUDGE PUMP #4A	Combination Starter NEMA Size 2, FVNR	15	a, b, c, d, e, g, k	100	3	40	14	CC5-9a	3	#10	THW	4	#14	THW	#10	1 1/2"
CC5-10	SPRAY WATER PUMP #1	Combination Starter NEMA Size 1, FVNR	3	a, b, c, d, e, g, k	100	3	15	14	CC5-10a	3	#12	THW	3	#14	THW	#12	1 1/2"
CC5-11a	Sump Pump #1	Circuit Breaker	1/2	-	100	3	15	14	CC5-11a	3	#12	THW	-	-	-	#12	1"
CC5-11b	BLANK (Spare)	Circuit Breaker	-	-	100	3	15	14	-	-	-	-	-	-	-	-	-
CC5-12	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, b, c, d, g, k	100	3	15	14	-	-	-	-	-	-	-	-	-
CC5-13	PIPE GALLERY UNIT HEATER #2	Combination Contactor NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	15	14	CC5-13a	3	#12	THW	4	#14	THW	#12	1"
CC5-14	UNIT HEATERS CONTROL RELAYS	Control Relays	-	See Dwg.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-15	RETURN SLUDGE PUMP #4C	Combination Starter NEMA Size 2, FVNR	15	a, b, c, d, e, g, k	100	3	40	14	CC5-15a	3	#10	THW	4	#14	THW	#10	1 1/2"
CC5-16	CONTROL ROOM VENT FAN	Combination Starter NEMA Size 1, FVNR	3/4	a, b, c, d, g, k	100	3	15	14	CC5-16a	3	#12	THW	4	#14	THW	#12	1"
CC5-17a	30KVA TRANSFORMER	Circuit Breaker	-	-	100	3	50	14	-	-	-	-	-	-	-	-	-
CC5-17b	BLANK (Spare)	Circuit Breaker	-	-	100	3	50	14	-	-	-	-	-	-	-	-	-
CC5-18	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, b, c, d, g, k	100	3	15	14	-	-	-	-	-	-	-	-	-
CC5-19	Standard Nameplates	Ammeter Voltmeter Switches, C.T.'s WATT HOUR	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-20	MAIN BREAKER FEEDER #1	Power Circuit Breaker Draw-out Type	-	See Specs.	600	3	600	30	PSS-10a	2(3)	350MCM	THW	-	-	-	2(2)	2(4)"
CC5-21	-	Space for Incoming Feeder #1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-22	See Detail, this sheet	Annunciator #1 20 Circuits	-	See Dwg.	-	-	-	-	See Dwg.	-	-	See Dwg.	14	THW	-	See Dwg.	-
CC5-23	TIE BREAKER	Power Circuit Breaker Draw-out Type	-	See Specs.	600	3	600	30	-	-	-	-	-	-	-	-	-
CC5-24	-	Space for Outgoing Cables	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-25	Standard Nameplates	Ammeter Voltmeter Switches, C.T.'s WATT HOUR	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-26	MAIN BREAKER FEEDER #2	Power Circuit Breaker Draw-out Type	-	See Specs.	600	3	600	30	PSS-21a	2(3)	350MCM	THW	-	-	-	2(2)	2(4)"
CC5-27	-	Space for Incoming Feeder #2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-28	PANEL BOARD "LJ" 208Y/120-3Ø-4W	Circuit Breaker Panelboard	-	See Specs.	-	-	-	-	CC5-28a	4	#2	THW	-	-	-	#6	2"
CC5-29	BLANK (Spare)	Combination Starter NEMA Size 2, FVNR	-	a, b, c, d, g, k	100	3	50	14	-	-	-	-	-	-	-	-	-
CC5-30	PIPE GALLERY UNIT HEATER #3	Combination Contactor NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	14	CC5-30a	3	#12	THW	4	#14	THW	#12	1"
CC5-31	CONTROL ROOM UNIT HEATER #2	Combination Contactor NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	15	14	CC5-31a	3	#12	THW	4	#14	THW	#12	1"
CC5-32	RETURN SLUDGE PUMP #4B	Combination Starter NEMA Size 2, FVNR	15	a, b, c, d, e, g, k	100	3	40	14	CC5-32a	3	#10	THW	4	#14	THW	#10	1 1/2"

MOTOR CONTROL CENTER SCHEDULE "CC5" 480V-3Ø-31V-60Hz																	
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	HPor KVA	AUX. DESC.	BREAKER OR MCP			RUN NUMBER	WIRE - POWER			WIRE - CONTROL			GRD. WIRE	COND. SIZE	
					FRAME	POLE	AMP		Nº	SIZE	TYPE	Nº	SIZE	TYPE			
CC5-33	SPRAY WATER PUMP #2	Combination Starter NEMA Size 1, FVNR	3	a, b, c, d, e, g, k	100	3	15	14	CC5-33a	3	#12	THW	3	#14	THW	#12	1 1/2"
CC5-34	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	1/2	a, b, c, d, g, k	100	3	15	14	-	-	-	-	-	-	-	-	-
CC5-35	SCUM PUMP PRIMARY CLARIFIER #4	Combination Starter NEMA Size 1, FVNR	4	a, c, g, k	100	3	10X	22	CC5-35a	4/C	#10	See Spec.	8/C	#12	See Spec.	#10	See Dwg.
CC5-36	PIPE GALLERY UNIT HEATER #4	Combination Contactor NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	15	14	CC5-36a	3	#12	THW	4	#14	THW	#12	1"
CC5-37	CONTROL RELAYS	Control Relays	-	See Dwg.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-38	PIPE GALLERY VENT FAN #1	Combination Starter NEMA Size 1, FVNR	3	a, b, c, d, g, k	100	3	15	14	CC5-38a	3	#12	THW	4	#14	THW	#12	1"
CC5-39	SECONDARY CLARIFIER #4	Combination Starter NEMA Size 1, FVNR	1	a, b, c, d, g, k	100	3	15	14	CC5-39a	3	#10	THW	4/C	#12	THW	#10	See Dwg.
CC5-40a	30KVA TRANSFORMER	Circuit Breaker	-	-	100	3	50	14	-	-	-	-	-	-	-	-	-
CC5-40b	BLANK (Spare)	Circuit Breaker	-	-	100	3	50	14	-	-	-	-	-	-	-	-	-
CC5-41a	WATER HEATER	Circuit Breaker	18	-	100	3	15	14	CC5-41a	3	#8	THW	-	-	-	#10	1 1/2"
CC5-41b	SLUDGE PUMP #2	Circuit Breaker	1/2	-	100	3	15	14	CC5-41b	3	#12	THW	-	-	-	#12	1"
CC5-42	PIPE GALLERY UNIT HEATER #5	Combination Contactor NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC5-42a	3	#12	THW	4	#14	THW	#12	1"
CC5-43	UNIT HEATERS CONTROL	Control Relays	-	See Dwg.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-44	RETURN SLUDGE PUMP #5C	Combination Starter NEMA Size 2, FVNR	15	a, c, k, g	100	3	10X	22	CC5-44a	3	#10	THW	4	#14	THW	#10	1 1/2"
CC5-45	GRINDER #1	Combination Starter NEMA Size 1, FVNR	5	a, c, k, g	100	3	10X	22	CC5-45a	3	#12	THW	-	-	-	#12	1 1/2"
CC5-46	PRIMARY SLUDGE PUMP #4	Combination Starter NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	10X	22	CC5-46a	3	#12	THW	-	-	-	#12	1 1/2"
CC5-47	BLANK (Spare)	Combination Starter NEMA Size 2, FVNR	15	a, c, d, g, k	100	3	10X	22	-	-	-	-	-	-	-	-	-
CC5-48	PIPE GALLERY UNIT HEATER #6	Combination Contactor NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC5-48a	3	#12	THW	4	#14	THW	#12	1"
CC5-49	PIPE GALLERY VENT FAN #2	Combination Starter NEMA Size 1, FVNR	1	a, c, d, g, k	100	3	10X	22	CC5-49a	3	#12	THW	4	#14	THW	#12	1"
CC5-50	LIGHTING CONTACTOR "C7" PIPE GALLERY	Contactor, 2P, 30A	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC5-51	SECONDARY CLARIFIER #5	Combination Starter NEMA Size 1, FVNR	1	a, c, k, g	100	3	10X	22	CC5-51a	4/C	#10	See Spec.	8/C	#12	See Spec.	#10	See Dwg.
CC5-52	PRIMARY CLARIFIER #5	Combination Starter NEMA Size 1, FVNR	1	a, c, k, g	100	3	10X	22	CC5-52a	4/C	#10	See Spec.	8/C	#12	See Spec.	#10	See Dwg.
CC5-53	WAS PUMP #1	Combination Starter NEMA Size 1, FVNR	10	a, c, g, k	100	3	10X	22	CC5-53a	3	#10	THW	3	#14	THW	#12	1 1/2"
CC5-54	PIPE GALLERY UNIT HEATER #7	Combination Contactor NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC5-54a	3	#12	THW	4	#14	THW	#12	1"
CC5-55	WAS PUMP #2	Combination Starter NEMA Size 1, FVNR	10	a, c, g, k	100	3	10X	22	CC5-55a	3	#10	THW	3	#14	THW	#12	1 1/2"
CC5-56	RETURN SLUDGE PUMP #5B	Combination Starter NEMA Size 2, FVNR	15	a, c, g, k	100	3	10X	22	CC5-56a	3	#10	THW	4	#14	THW	#10	1 1/2"
CC5-57	PRIMARY CLARIFIER #4	Combination Starter NEMA Size 1, FVNR	1	a, c, g, k	100	3	10X	22	CC5-57a	4/C	#10	See Spec.	8/C	#12	See Spec.	#10	See Dwg.
CC5-58	PRIMARY SLUDGE PUMP #5	Combination Starter NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	10X	22	CC5-58a	3	#12	THW	-	-	-	#12	1 1/2"
CC5-59	SCUM PUMP SECONDARY CLARIFIER #4	Combination Starter NEMA Size 1, FVNR	4	a, c, d, g, k	100	3	10X	22	CC5-59a	4/C	#10	See Spec.	8/C	#12	See Spec.	#10	See Dwg.
CC5-60	PIPE GALLERY UNIT HEATER #8	Combination Contactor NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC5-60a	3	#12	THW	4	#14	THW	#12	1"
CC5-61	PIPE GALLERY UNIT HEATER #17	Combination Contactor NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC5-61a	3	#12	THW	4	#14	THW	#12	1"
CC5-62	RETURN SLUDGE PUMP #5A	Combination Starter NEMA Size 2, FVNR	15	a, c, d, g, k	100	3	10X	22	CC5-62a	3	#10	THW	4	#14	THW	#10	1 1/2"
CC5-63	GRINDER #2	Combination Starter NEMA Size 1, FVNR	5	a, c, d, g, k	100	3	10X	22	CC5-63a	3	#12	THW	-	-	-	#12	1 1/2"
CC5-64	PRIMARY SLUDGE PUMP #4/B - STANDBY	Combination Starter NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	10X	22	CC5-64a	3	#12	THW	-	-	-	#12	1 1/2"
CC5-65a	BLANK (Spare)	Circuit Breaker	3	-	100	3	15	22									

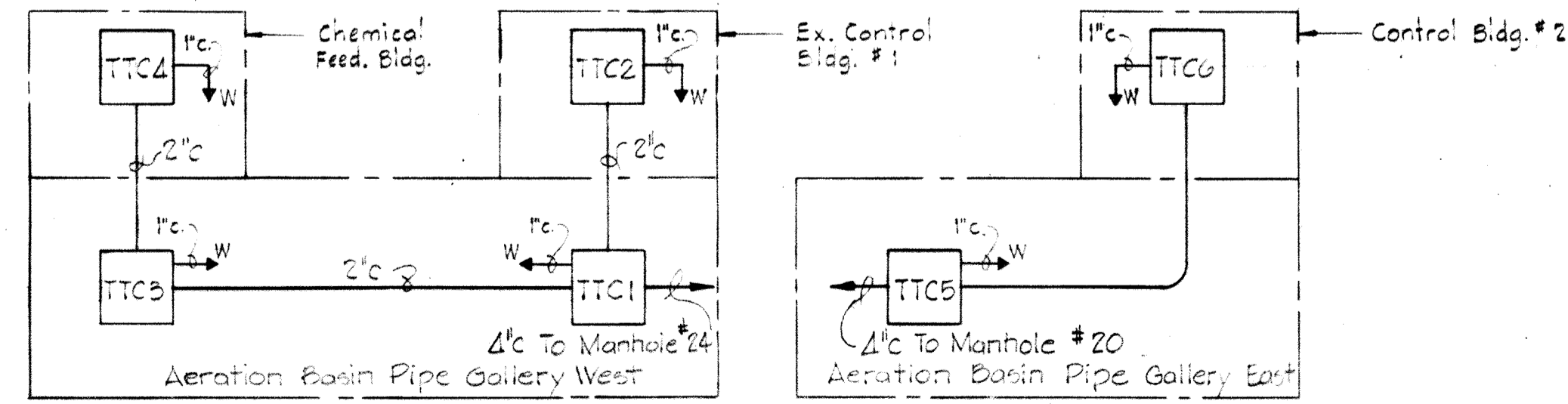
NOTES:

- For General Electrical Notes & Electrical Legend see Sheet E-2
- Light lines denote existing. Dark lines denote new. Dashed lines denote future.

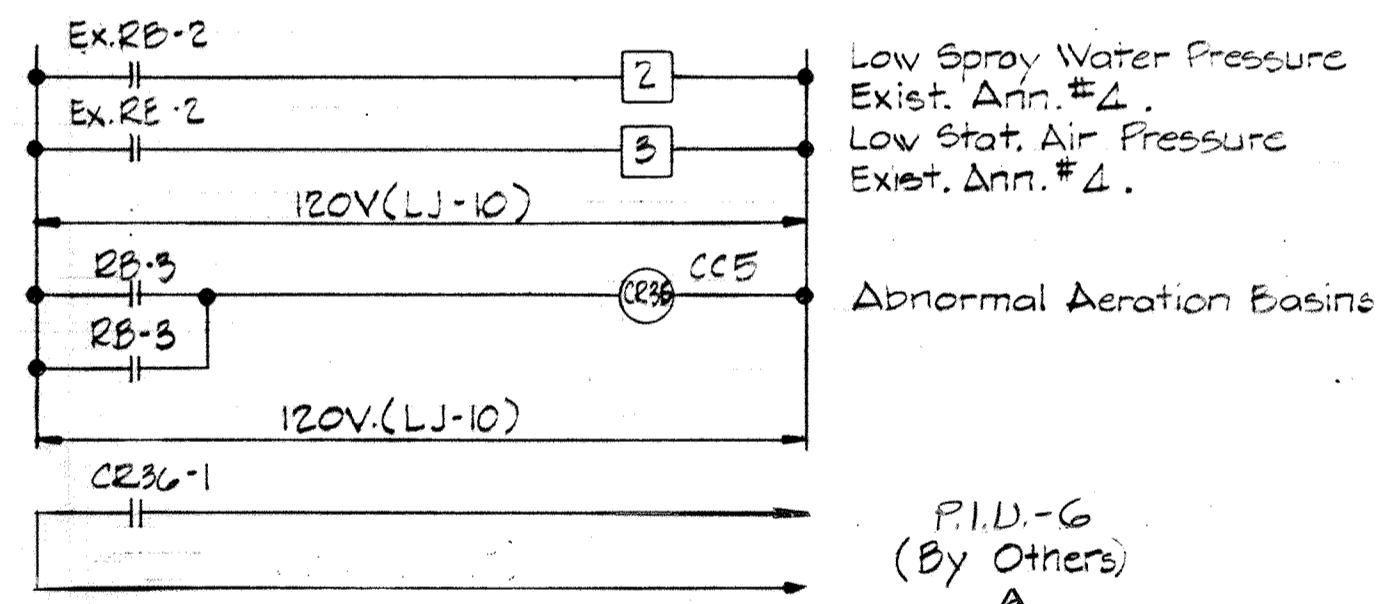


**ONE LINE DIAGRAM
MOTOR CONTROL CENTER "CC5"**

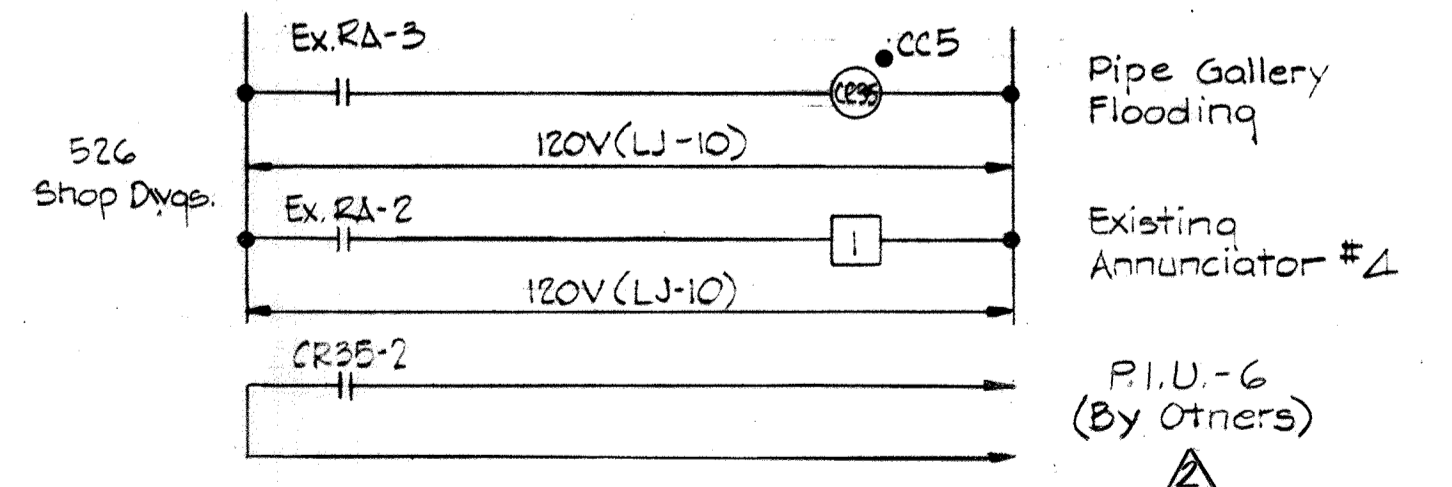
MOTOR CONTROL CENTER SCHEDULE "CC5" 480V-3φ-3W-60HZ (CONT.)												
UNIT NO.	NAMEPLATE DATA	DEVICE DESCRIPTION	HP or KVA	AUX. DESC.	BREAKER OR MCP FRAME/ROLE	FA/SET	SIC	RUN NUMBER	WIRE-POWER NO. SIZE TYPE	WIRE-CONTROL NO. SIZE TYPE	GRD. WIRE SIZE	COND. SIZE
CC5-66	PANELBOARD "LR" 208Y/120-3φ-4W	Circuit Breaker Panelboard	-	See Specs.	-	-	-	CC5-66a	4 #2 THW	-	-	#6 2"
CC5-67	TRANSFER SWITCH PANEL "LR"	Automatic Transfer Switch 4500 Bulletin #40 2 pole, 480 volt, 100A	-	See Specs.	-	-	-	CC5-67a	3 #6 THW	-	-	#6 1 1/2"
CC5-68a CC5-68b	30 KVA TRANSFORMER #2 BLANK (Spare)	Circuit Breaker	-	-	100	3	50	-	By Manufacturer			-
CC5-69	CLARIFIERS CONTROL RELAYS	Control Relays	-	See Specs.	-	-	-	-	By Manufacturer			-
CC5-70	SCUM PUMP PRIMARY CLARIFIER #5	Combination Starter NEMA Size 1, FVNR	4	a.c. 0.1k	100	3	10X 22	CC5-70a	4/C #10	See Spec. 8/C 12	See Spec. #10	See Dwg
CC5-71	SCUM PUMP SECONDARY CLARIFIER #5	Combination Starter NEMA Size 1, FVNR	4	a.c. 0.1k	100	3	10X 22	CC5-71a	4/C #10	See Spec. 8/C 12	See Spec. #10	See Dwg
CC5-72	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	4	a.c. 0.1k	100	3	10X 22	-	-	-	-	-
CC5-73	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	4	a.c. 0.1k	100	3	10X 22	-	-	-	-	-



TELEPHONE RISER DIAGRAMS
No Scale

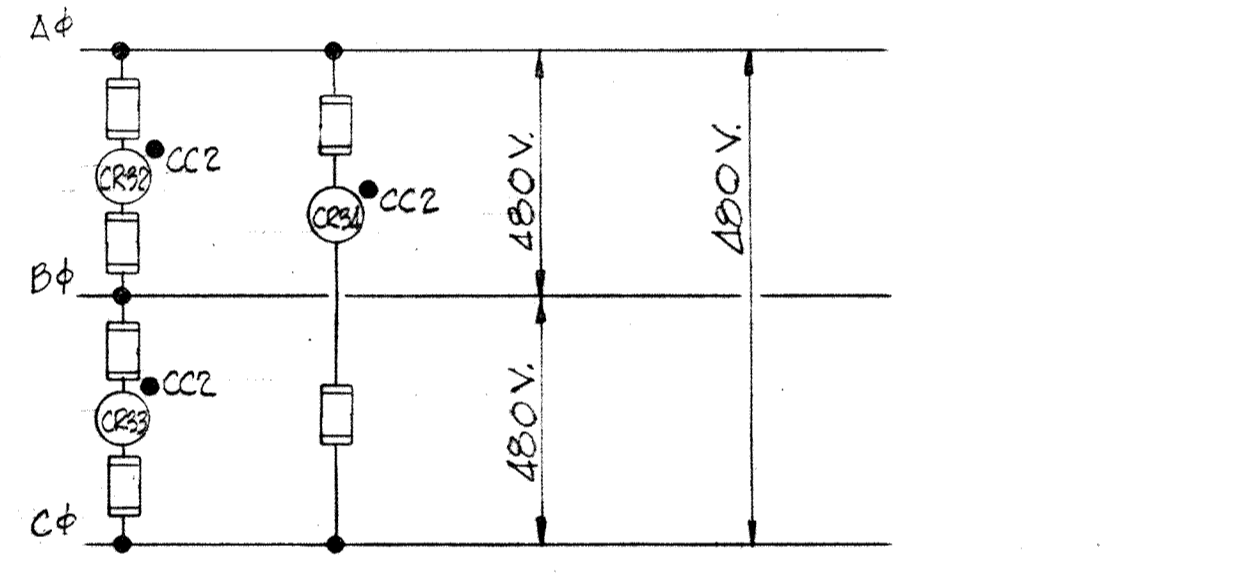


**ECD #17
ABNORMAL AERATION BASIN - AERATION STRUCTURE**



**ECD #16
ABNORMAL PIPE GALLERY WEST - AERATION STRUCTURE**

- Typical for following units:
- Abnormal Pipe Gallery - Chemical Bldg. - Ann. 6 & P.I.U.-6
 - Abnormal Pipe Gallery - A.B. East - Ann. 7 & P.I.U.-4



**ECD #15
NO VOLTAGE ALARM - SER. #1 - 480 MCC-CC2**

- Typical for following units:
- No Voltage Alarm - Ser. #2 - 480 V. MCC-CC2 Ann. #1 & P.I.U.-6
 - No Voltage Alarm - Ser. #1 - 480 V. MCC-CC5 Ann. #4 & P.I.U.-6
 - No Voltage Alarm - Ser. #2 - 480 V. MCC-CC5 Ann. #4 & P.I.U.-6
 - No Voltage Alarm - Ser. #1 - 480 V. MCC-CC6 Ann. #6 & P.I.U.-6
 - No Voltage Alarm - Ser. #2 - 480 V. MCC-CC6 Ann. #6 & P.I.U.-6
 - No Voltage Alarm - Ser. #1 - 480 V. MCC-CC7A Ann. #7 & P.I.U.-4
 - No Voltage Alarm - Ser. #2 - 480 V. MCC-CC7A Ann. #7 & P.I.U.-4

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

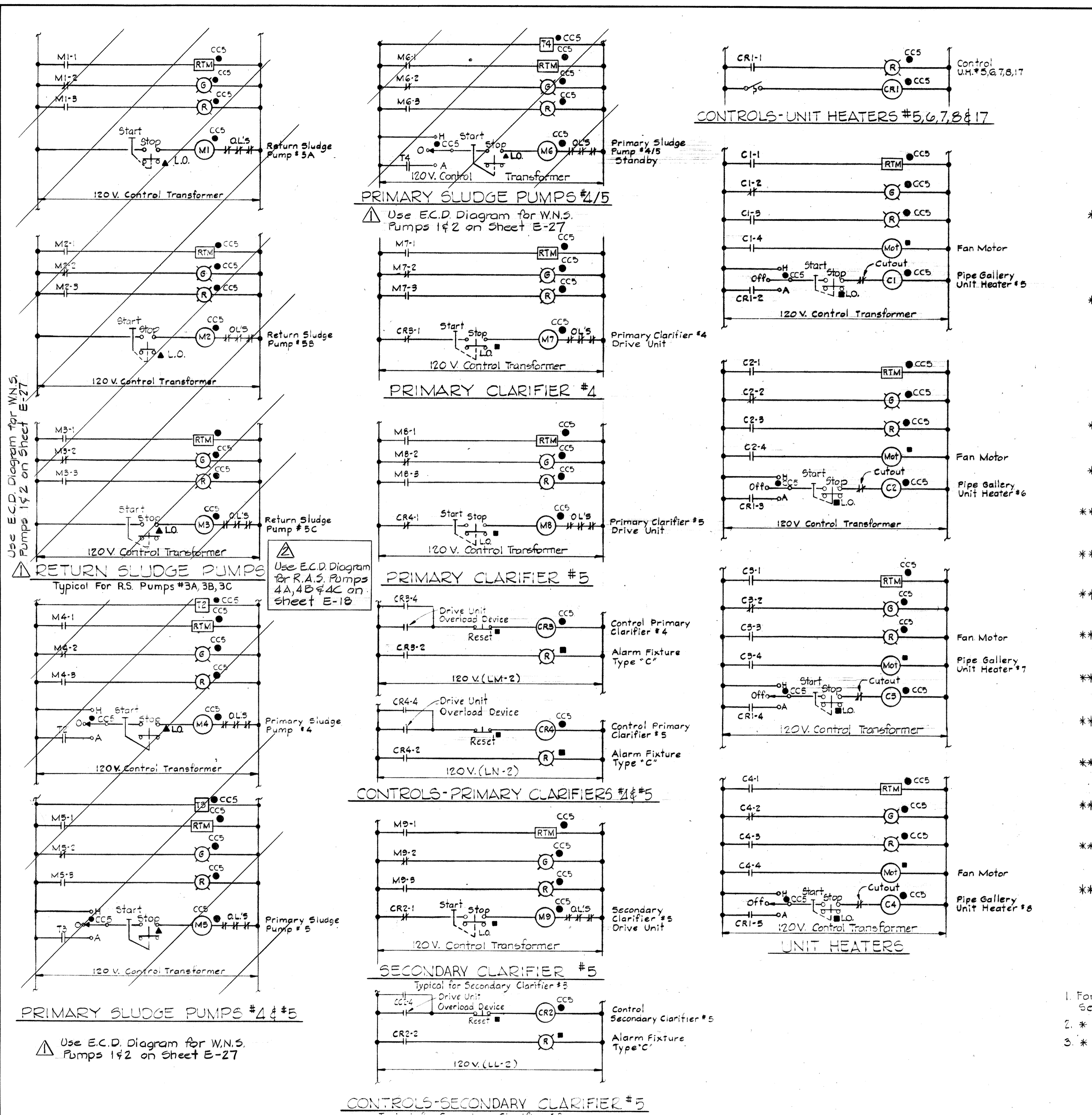
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
DATE
W. O. Lambert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

**EXISTING AERATION BASIN NO. 4
EXISTING PIPE GALLERY WEST
ONE LINE WIRING DIAGRAM
CC-5 ADDITIONS**

**SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4**

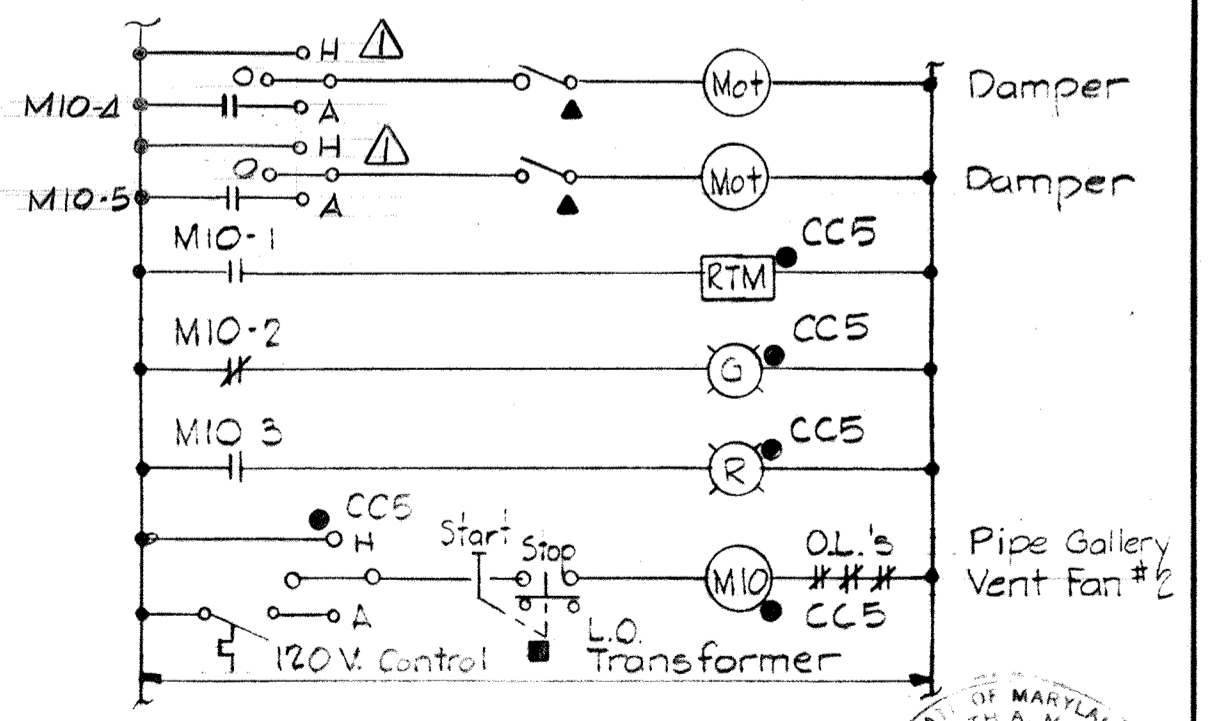
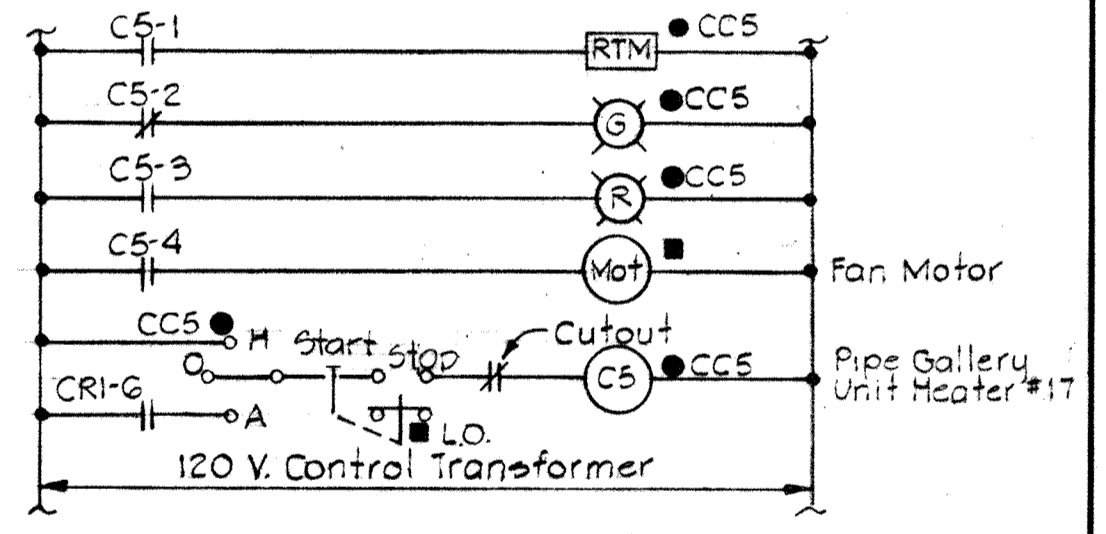
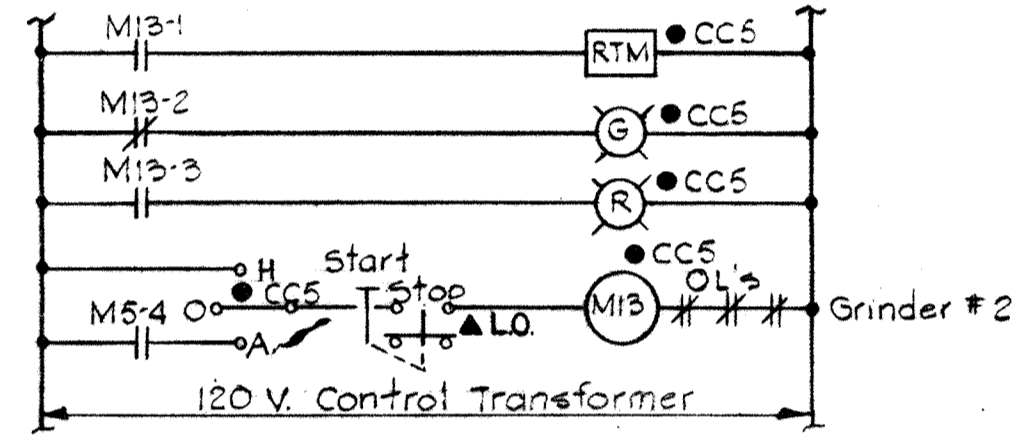
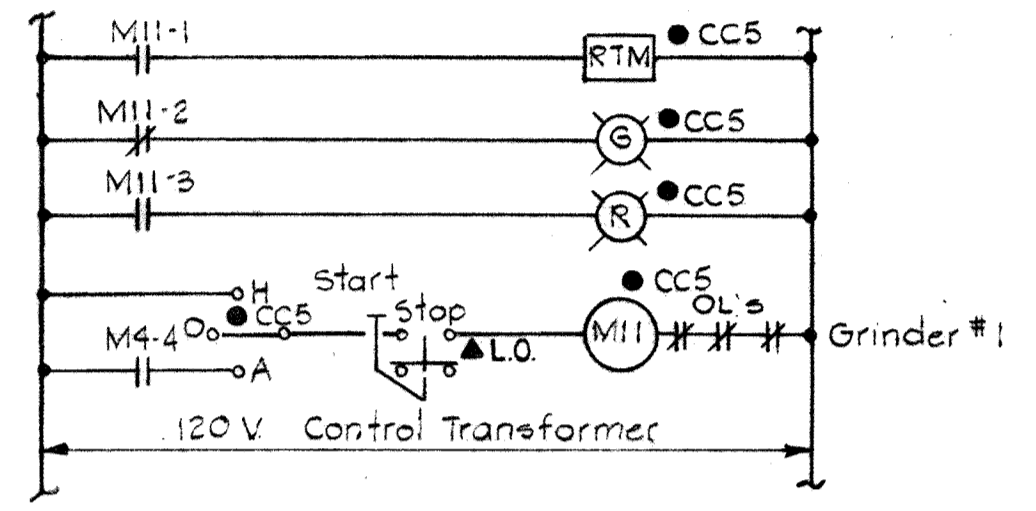
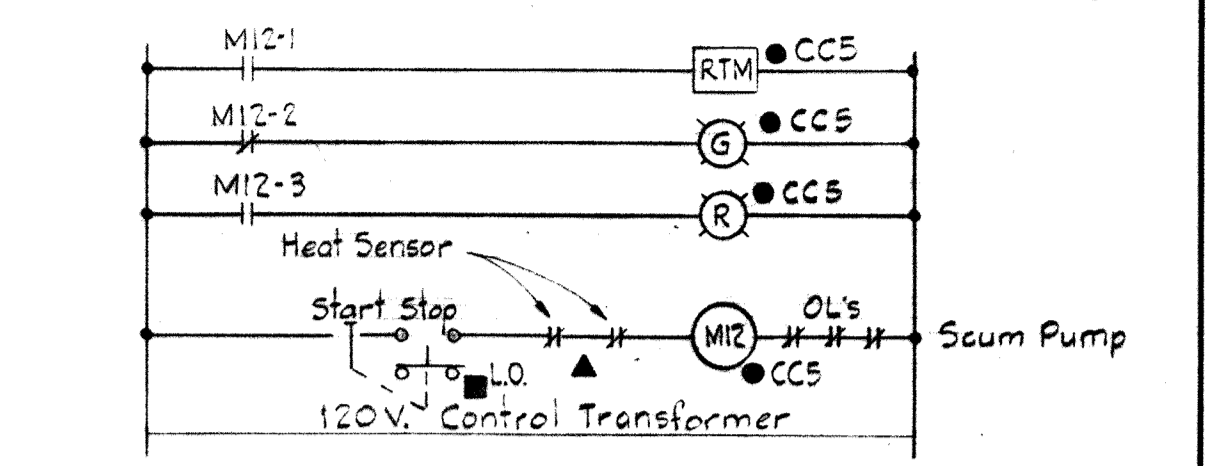
**DRAWING NO. 101
OF 133**
SCALE NONE



EXISTING ANNUNCIATOR #4

POINT NO.	WINDOW INSCRIPTION	ECO NO.
1	FLOODED PIPE GALLERY AERATION BASIN - WEST AERATION STRUCTURE	16 E14
2	LOW SPRAY WATER PRESSURE AERATION BASINS	17 E14
3	LOW STATION AIR PRESSURE AERATION BASINS	17 E14
* 4	OVERLOAD CENTER DRIVE SECONDARY CLARIFIER #3	18 E20
5	OVERLOAD CENTER DRIVE SECONDARY CLARIFIER #4	18 E20
* 6	OVERLOAD CENTER DRIVE SECONDARY CLARIFIER #5	18 E20
7		
8		
* 9	OVERLOAD CENTER DRIVE PRIMARY CLARIFIER #4	18 E20
* 10	OVERLOAD CENTER DRIVE PRIMARY CLARIFIER #5	18 E20
** 11	MAIN BREAKER-1- OPEN 480V.-MCC-CC5 A.B CONTROL BLDG.-1	13 E21
** 12	TIE BREAKER- CLOSED 480V.-MCC-CC5 A.B CONTROL BLDG.-1	14 E20
** 13	MAIN BREAKER-2- OPEN 480V.-MCC-CC5 A.B CONTROL BLDG.-1	13 E21
** 14	NO VOLTAGE SER. FOR-1 480V.-MCC-CC5 A.B CONTROL BLDG.-1	15 E14
** 15	NO VOLTAGE SER. FOR-2 480V.-MCC-CC5 A.B CONTROL BLDG.-1	15 E14
** 16	BLANK (Spare)	
** 17	BLANK (Spare)	
** 18	BLANK (Spare)	
** 19	BLANK (Spare)	
** 20	BLANK (Spare)	

- NOTES**
1. For General Electrical Notes and Electrical Legends See Sheet E-2.
 2. * New Window inscription
 3. ** New Modules and Window Inscription



WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 DATE: 3/20/75
 W.O. Libbert
 CHIEF BUREAU OF ENGINEERING

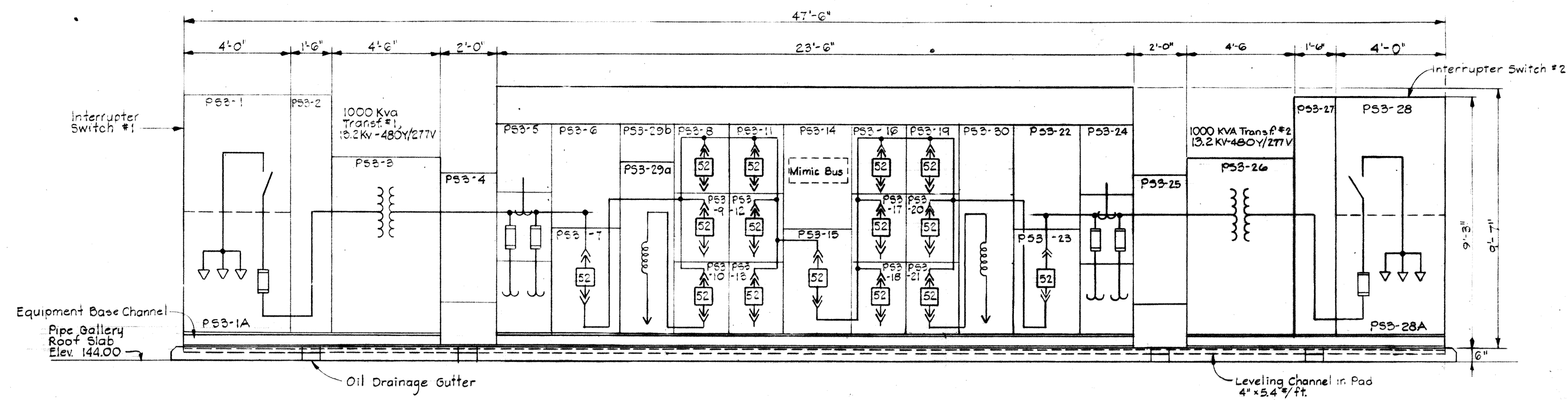
CONTRACT NO. 500-S

**EXISTING AERATION BASIN NO. 4
 EXISTING PIPE GALLERY WEST
 ELEMENTARY WIRING DIAGRAM
 CC-5 ADDITIONS**

**SAVAGE WASTEWATER
 TREATMENT PLANT ADDITION NO. 4**

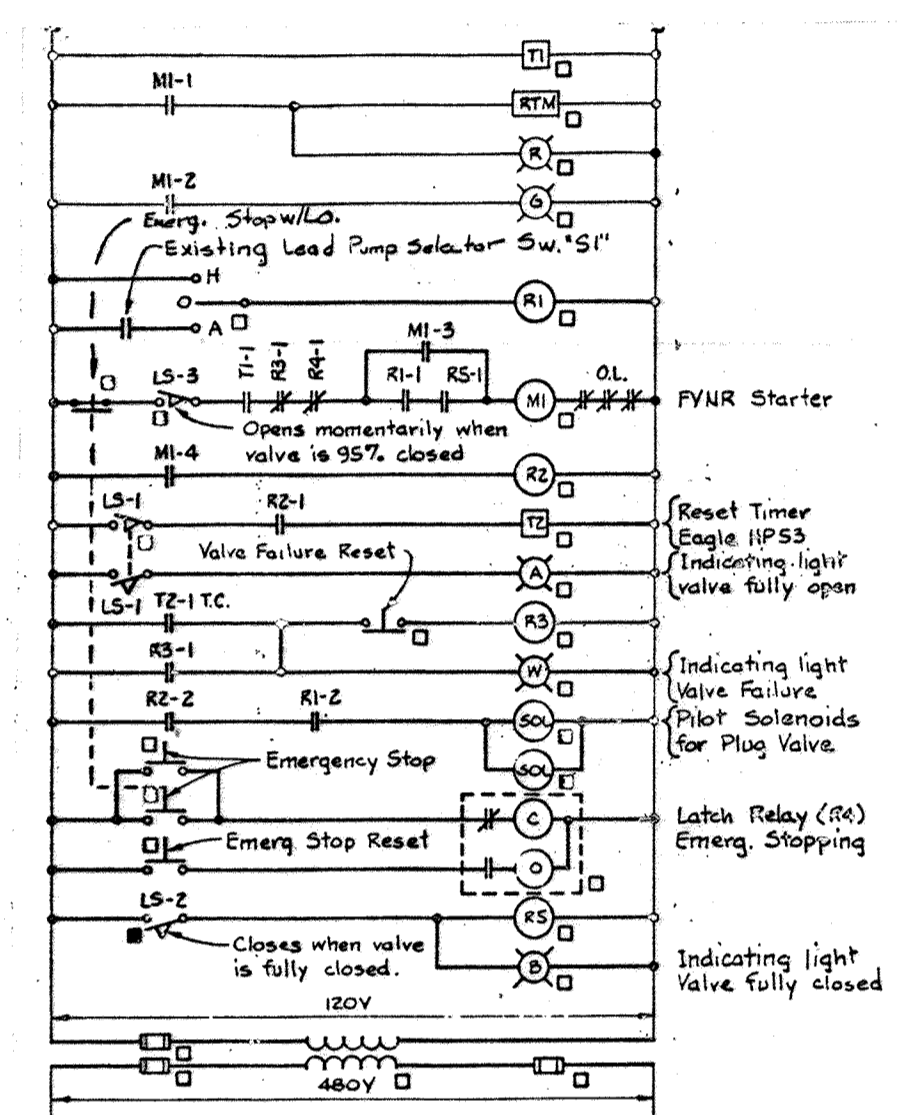
DRAWING NO. 102 OF 133
SCALE NONE

BRUNING 44510 18392

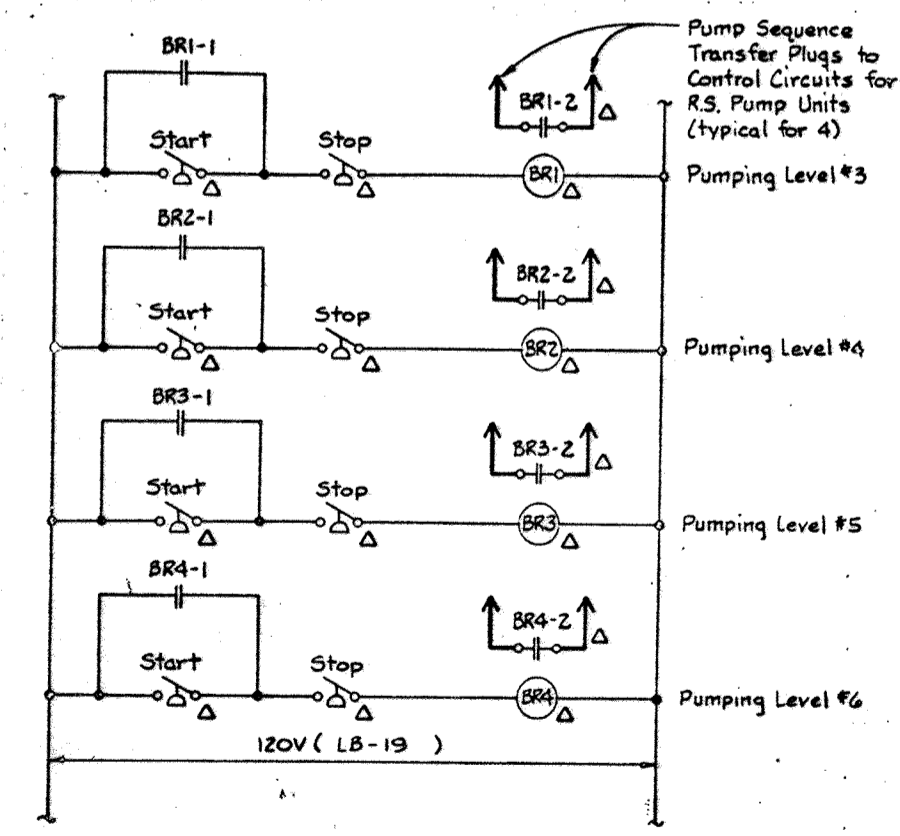


ELEVATION - OUTDOOR PRIMARY SUBSTATION "PS3"
Scale: 3/8" = 1'-0"

- NOTES:
- For General Electrical Notes and Electrical Legend see Sheet E-2.
 - * Indicates interrupting capacity in thousands.

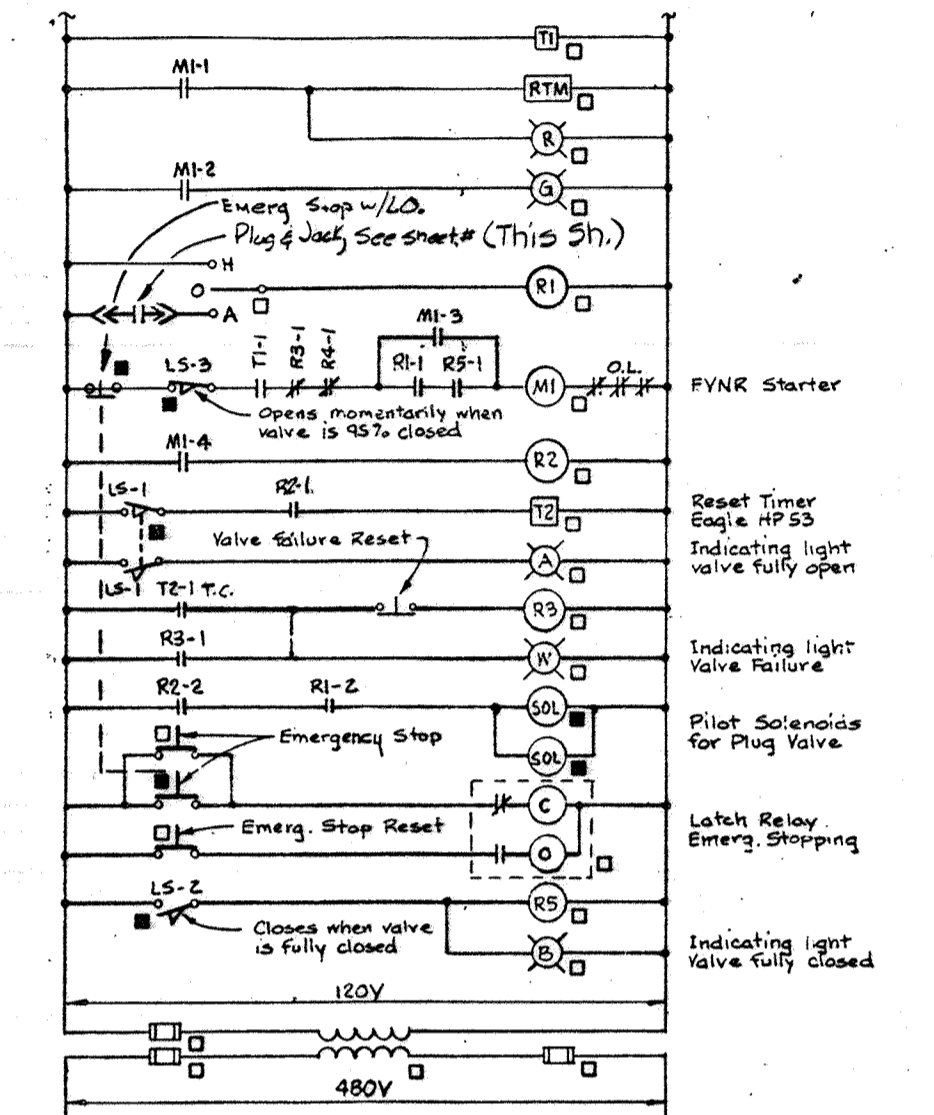


REVISED ECD DIAGRAM FOR V.S. PUMPING UNIT No. 3 (E-6/CC2)
(Typical for existing V.S. Pumping Units No. 4 & 5)

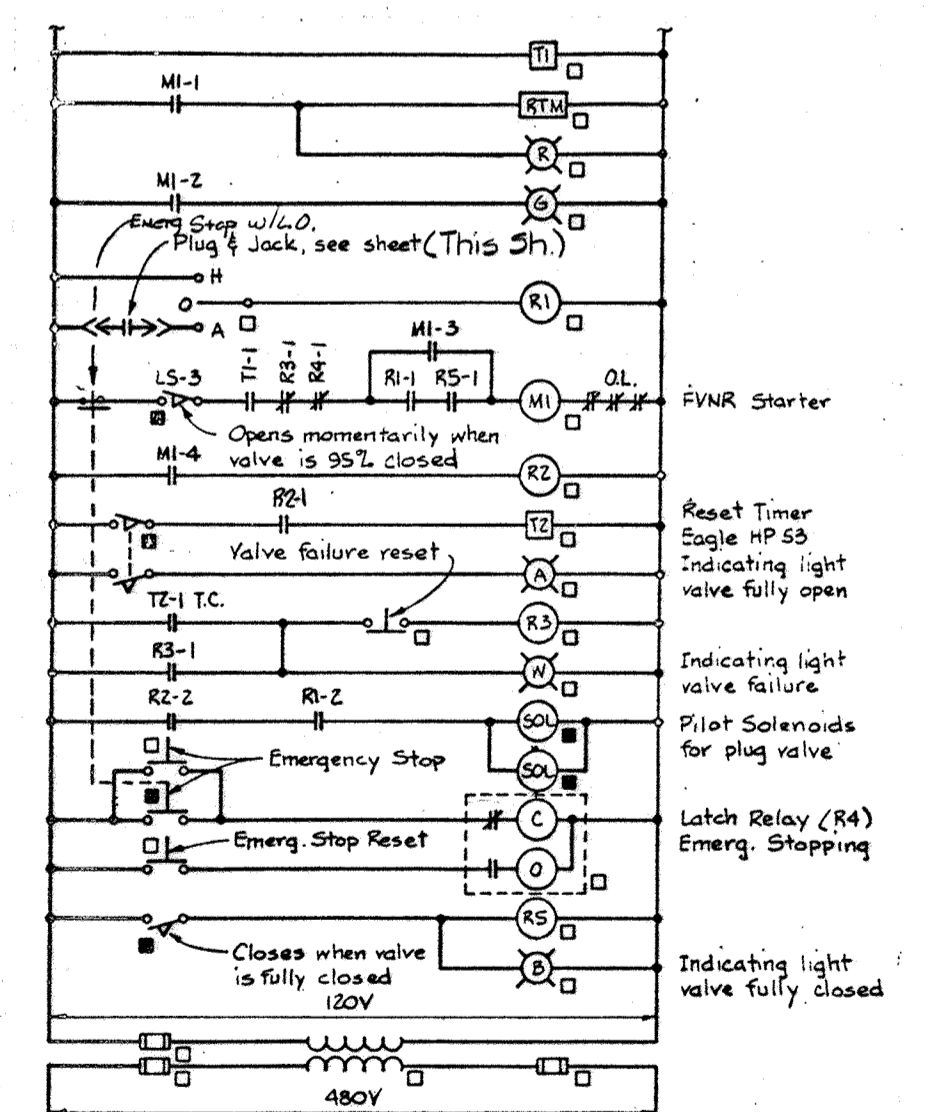


REVISED ECD DIAGRAM FOR EXIST. BUBBLER CONTROLS FOR RAW SEWAGE PUMPING UNITS #1, 4, 5 & 2

OUTDOOR SUBSTATION "PS3" SCHEDULE 13.2 KV - 480Y/277V													
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	AUX. DESCRIB.	BREAKER OR FUSED SWITCH FRAME	POLE	CALIB.	SIC	RATING	TYPE	RUN NUMBER	WIRE OR BUS NO. SIZE TYPE	COND. SIZE	REMARKS
P53-1	Main Switch Feeder No. 1	Interrupter Switch, single throw, gang operated	See Spec.	600A	3	-	60	15KV	Load Break	P53-1a	3 500 MCM	15KV 1/0	See Dwg's
P53-1A	Main Switch Feeder No. 1	Fuses (3)	See Spec.	-	-	100A	-	15KV	C.L.	-	By Manufacturer	-	3 spare fuses required
P53-2	-	Transition Section	-	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-3	Standard Nameplates	1000 KVA Transformer #1 13.2 KV-480V/277V	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-4	-	Transition Section	-	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-5	Standard Nameplates	Control Power Transf. Potential Transf., Curr. Transf.	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-6	Standard Nameplates	Meters, Switches, Protective Relays	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-7	Main Breaker Feeder No. 1	Power Circuit Breaker Drawout Mounting	See Spec.	1600A	3	1600A	50	-	-	-	By Manufacturer	-	-
P53-8	Blank (Spare)	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	600A	22	-	-	-	-	-	-
P53-9	Blank (Spare)	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	400A	22	-	-	-	-	-	-
P53-10	MCC-CC5 Feeder No. 1	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	600A	22	-	-	P53-10a	2(3) 350 MCM	THW 2(2) 2(4)	-
P53-11	Blank (Spare)	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	600A	22	-	-	-	-	-	-
P53-12	MCC-CC6 Feeder #1	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	300A	22	-	-	P53-12a	3 350 MCM	THW 2 2(4)	Second 4" Spare
P53-13	MCC-CCTA & CCTB Feeder #1	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	600A	22	-	-	P53-13a	2(3/C) 350 MCM	See Spec. 2(3S) See Dwg's	-
P53-14	See Drawing E20	Mimic Bus, Indicating Lights	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-15	Tie Breaker	Power Circuit Breaker Drawout Mounting	See Spec.	1600A	3	1600A	50	-	-	-	By Manufacturer	-	-
P53-16	Blank (Spare)	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	600A	22	-	-	-	-	-	-
P53-17	MCC-CC6 Feeder #2	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	300A	22	-	-	P53-17a	3 350 MCM	THW 2 2(4)	Second 4" Spare
P53-18	MCC-CCTA & CCTB Feeder #2	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	600A	22	-	-	P53-18a	2(3/C) 350 MCM	See Spec. 2(3S) See Dwg's	-
P53-19	Blank (Spare)	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	400A	22	-	-	-	-	-	-
P53-20	Blank (Spare)	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	600A	22	-	-	-	-	-	-
P53-21	MCC-CC5 Feeder No. 2	Power Circuit Breaker Drawout Mounting	See Spec.	600A	3	600A	22	-	-	P53-21a	2(3) 350 MCM	THW 2(2) 2(4)	-
P53-22	Standard Nameplates	Meters, Switches, Protective Relays	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-23	Main Breaker Feeder No. 2	Power Circuit Breaker Drawout Mounting	See Spec.	1600A	3	1600	50	-	-	-	By Manufacturer	-	-
P53-24	Standard Nameplates	Control Power Transf. Potential Transf., Current Transf.	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-25	-	Transition Section	-	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-26	Standard Nameplates	1000 KVA Transformer #2 13.2KV-480V/277V	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-27	-	Transition Section	-	-	-	-	-	-	-	-	By Manufacturer	-	-
P53-28	Main Switch Feeder No. 2	Interrupter Switch, single throw, gang operated	See Spec.	600A	3	-	60	15KV	Load Break	P53-28a	3 500 MCM	15KV 1/0	See Dwg's
P53-28A	Main Switch Feeder No. 2	Fuses (3)	See Spec.	-	-	100A	-	15KV	C.L.	-	By Manufacturer	-	3 spare fuses required
P53-29a	Reactor for MCC-CC5-Feeder #1	600A Current Limiting Reactor	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	See Drawings
P53-29b	Reactor for MCC-CC5-Feeder #1	600A Current Limiting Reactor	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	See Drawings
P53-30	Reactor for MCC-CC6 Feeder No. 2	600A Current Limiting Reactor	See Spec.	-	-	-	-	-	-	-	By Manufacturer	-	See Drawings



REVISED ECD DIAGRAM FOR EXISTING C.S. PUMPING UNIT No. 1 (E-6/CC2)
(Typical for existing C.S. Pumping Units No. 4 & 5)



REVISED ECD DIAGRAM FOR CONSTANT SPEED PUMPING UNIT No. 2 (E-6/CC2)

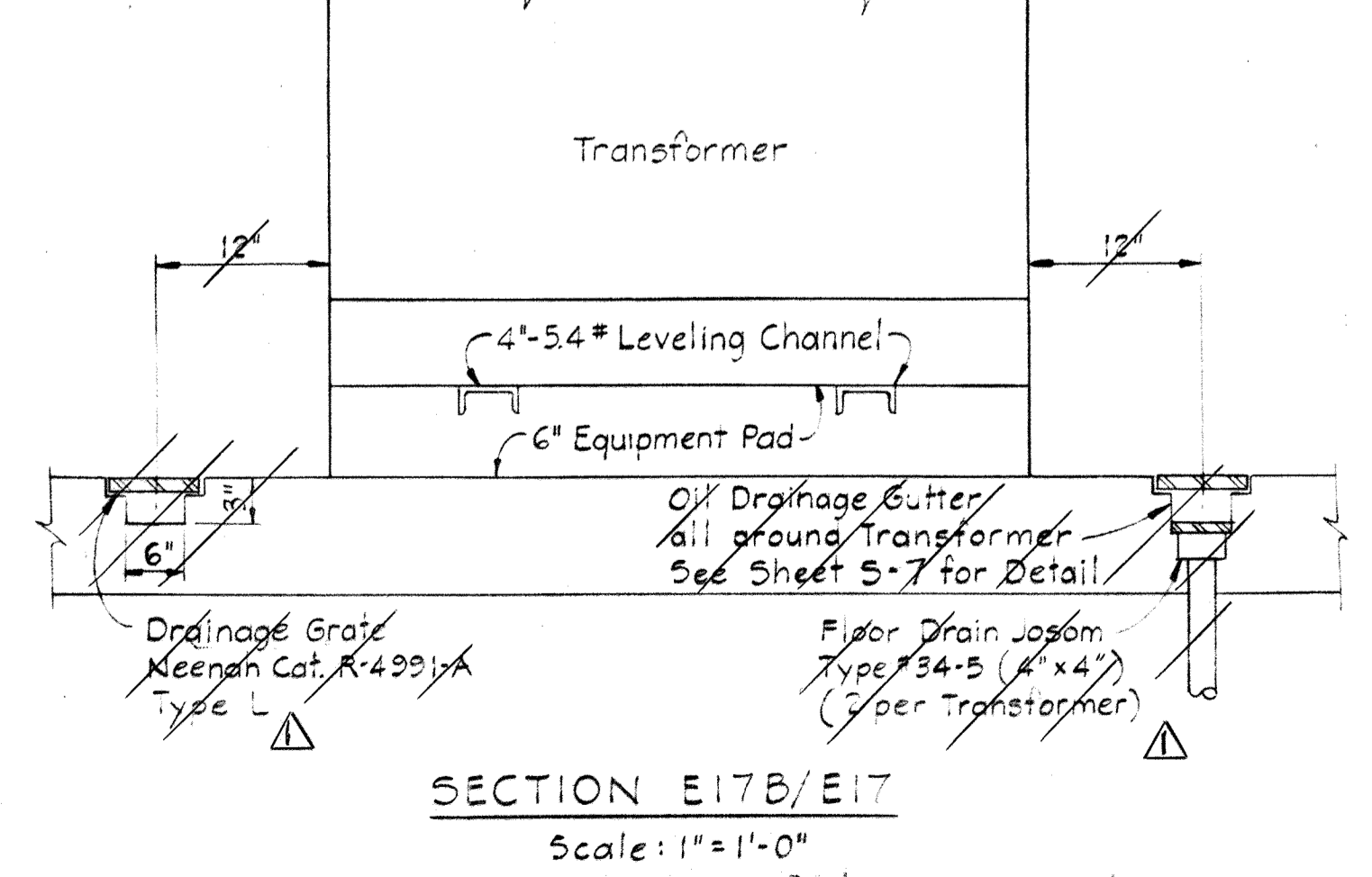
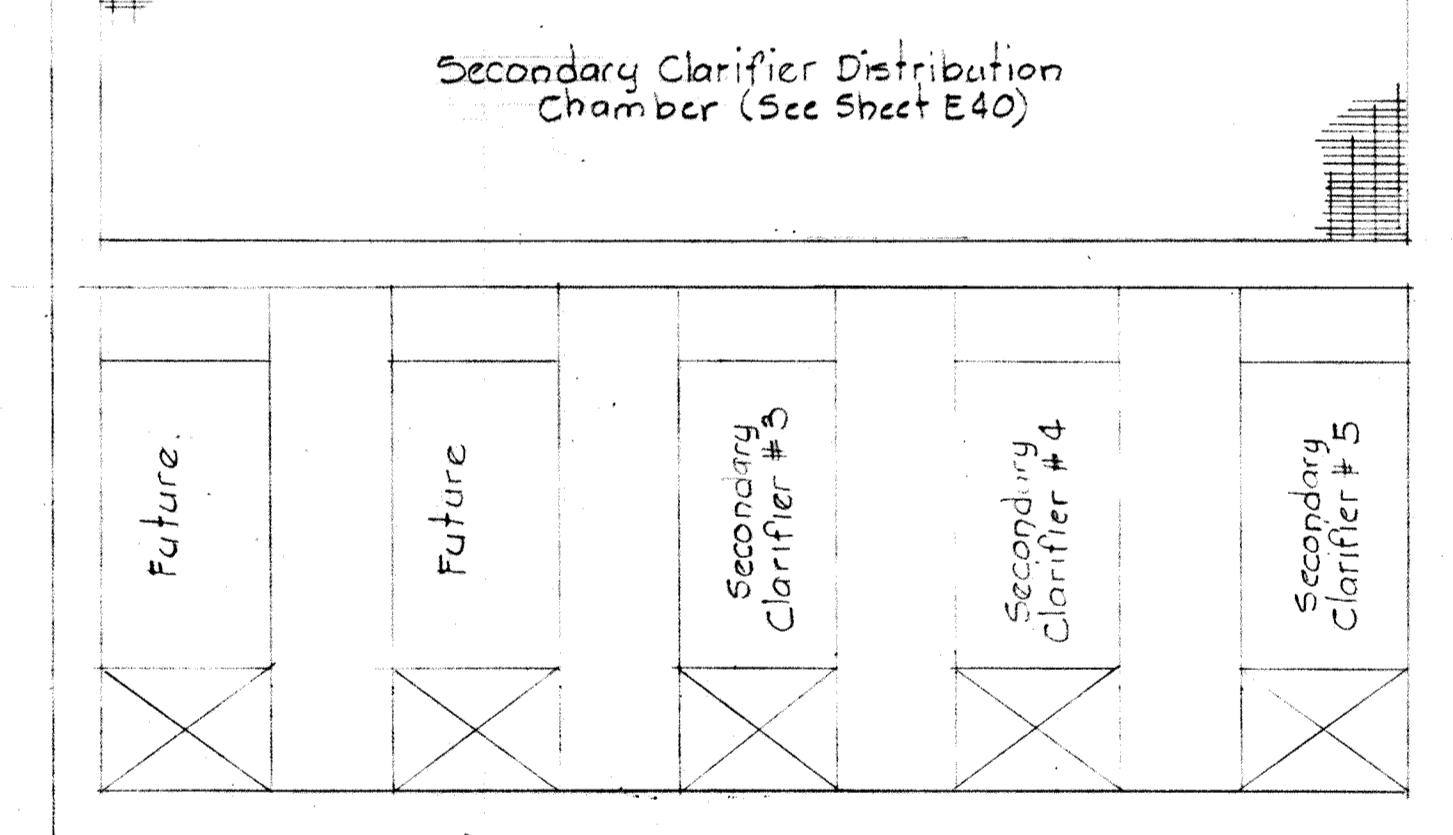
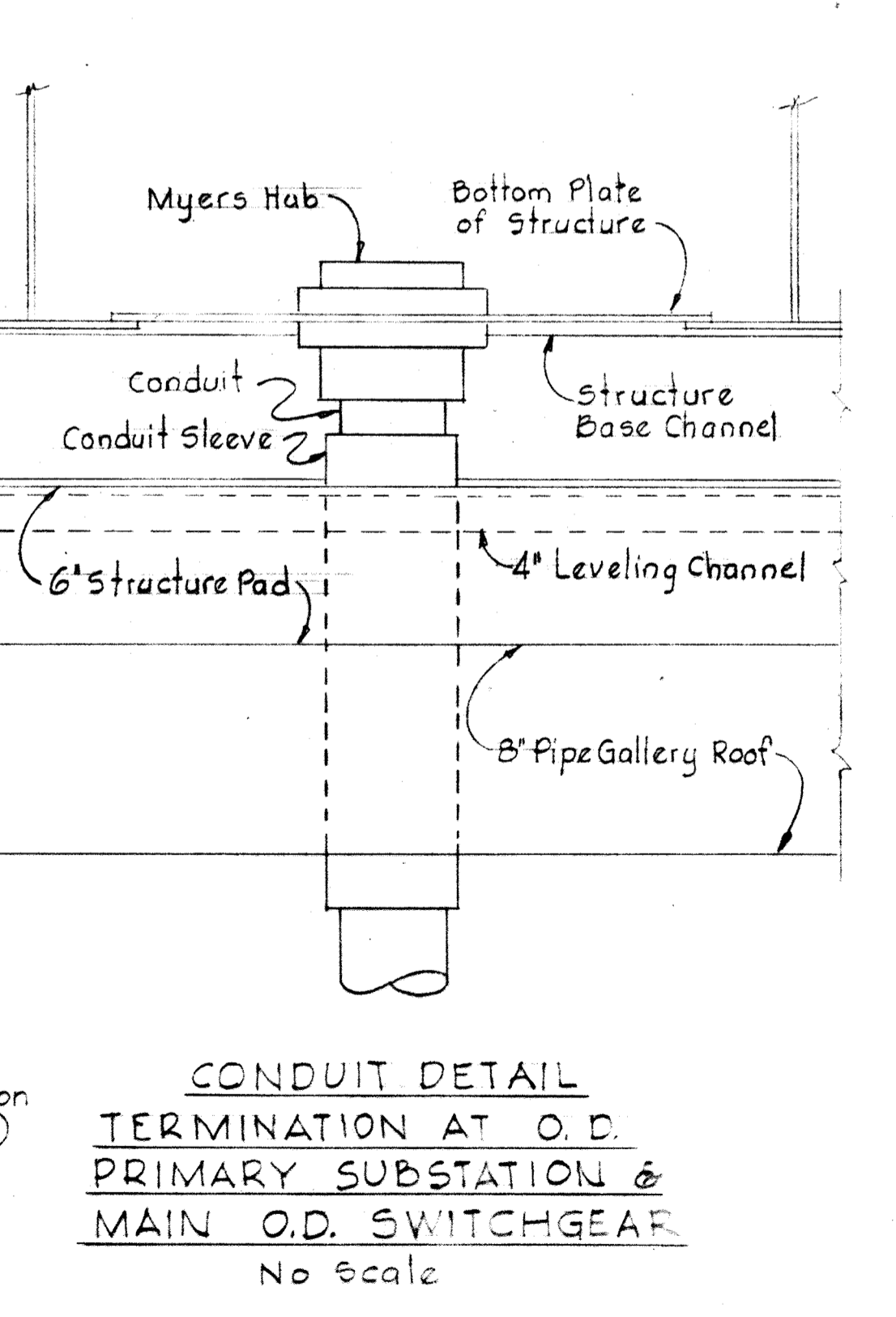
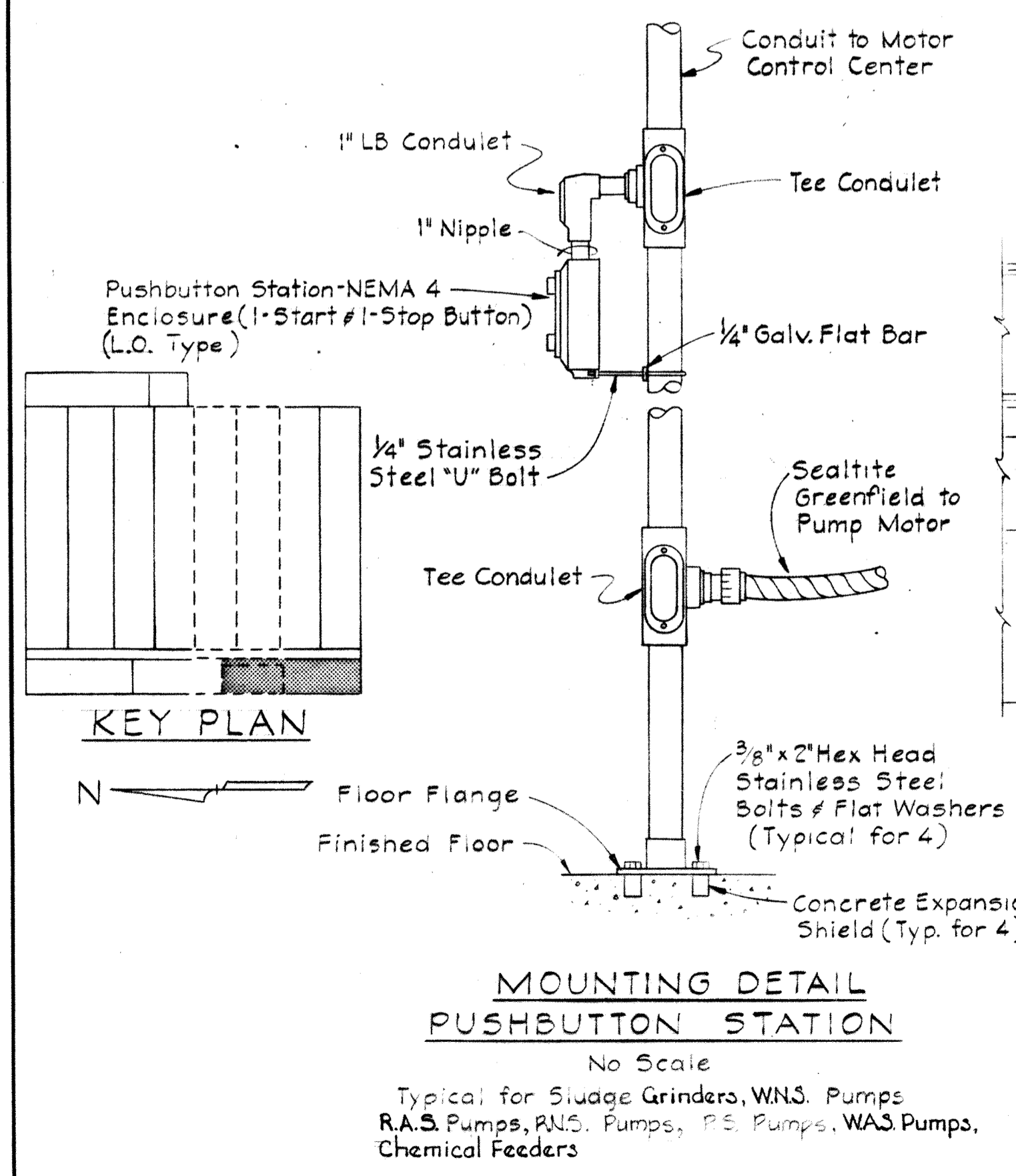
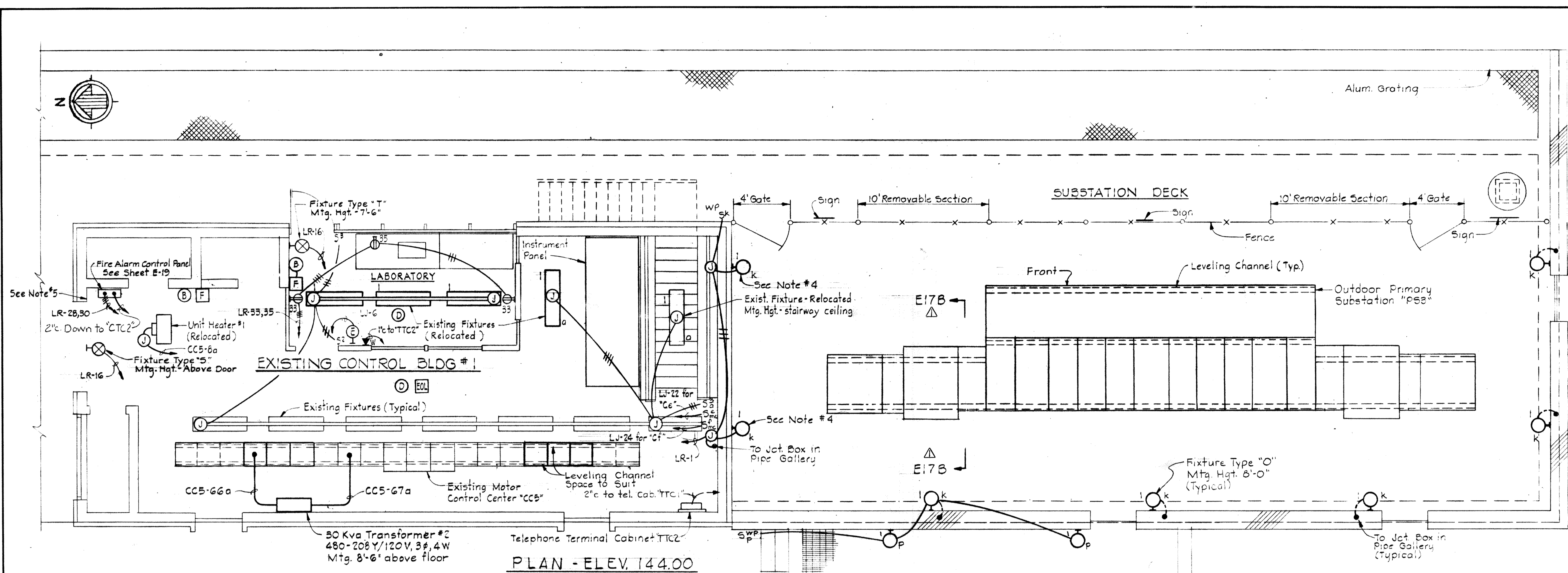
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 5/20/75 W. O. Libert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 5 PIPE GALLERY WEST PRIMARY SUBSTATION PS-3	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 103 OF 133	SCALE AS SHOWN
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W. O. 6887-2

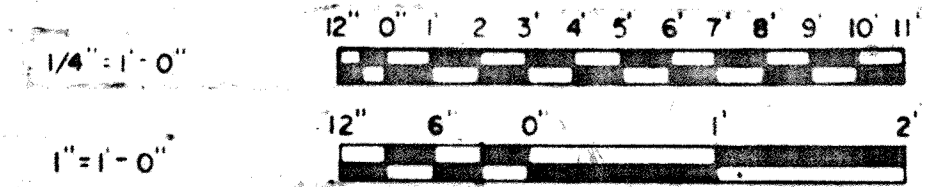
SHEET E-16

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44510 18302



- NOTES:**
1. For General Electrical Notes and Electrical Legend see Sheet E2.
 2. Light lines denote existing. Dark lines denote new in "PLAN-ELEV. 144.00", Existing Control Bldg. #1
 3. Exact size & location to be coordinated with equipment furnished.
 4. Fixture junction box to be surface mounted on existing control building wall.
 5. Replace existing three way switch for entrance lights with SPST switch. Disconnect and remove light fixture and wiring at outside stairway to structure.

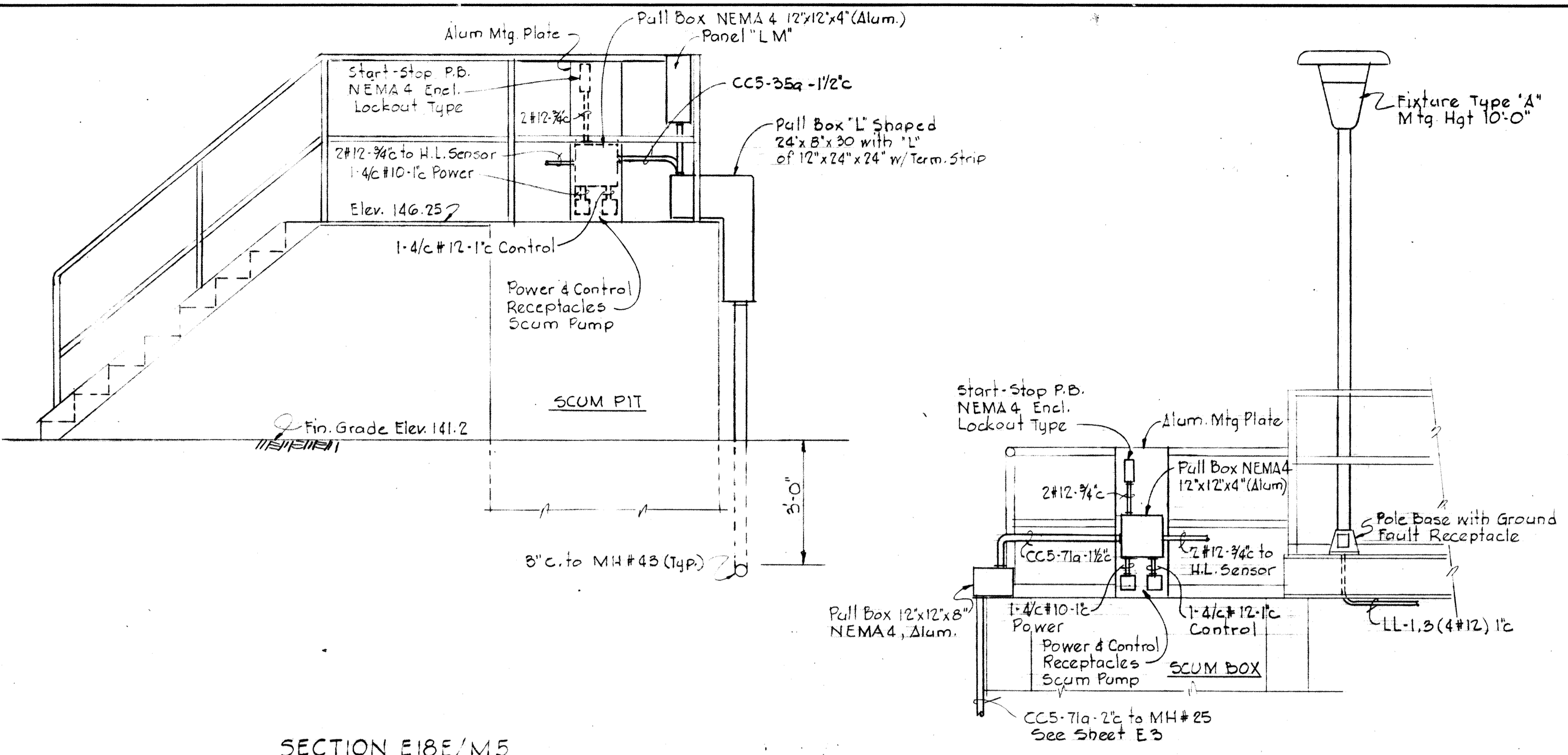


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>3/20/82</i> DATE <i>W. O. Libbert</i> CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. <u>500-1S</u>	AERATION BASINS NO. 4 & 5 EXIST. CONTROL BLDG. & PRIMARY SUBSTATION P S-3 PLAN & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. <u>104</u> OF <u>133</u>	SCALE AS SHOWN
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W. O. 6887-2

SHEET E-17

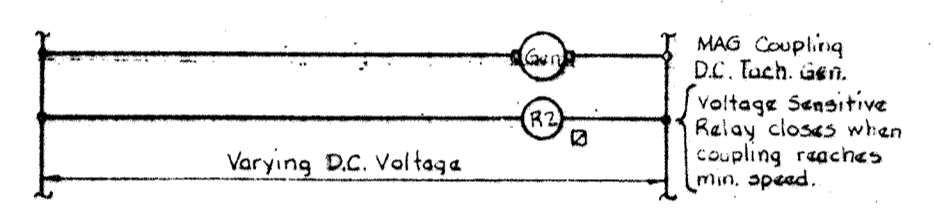
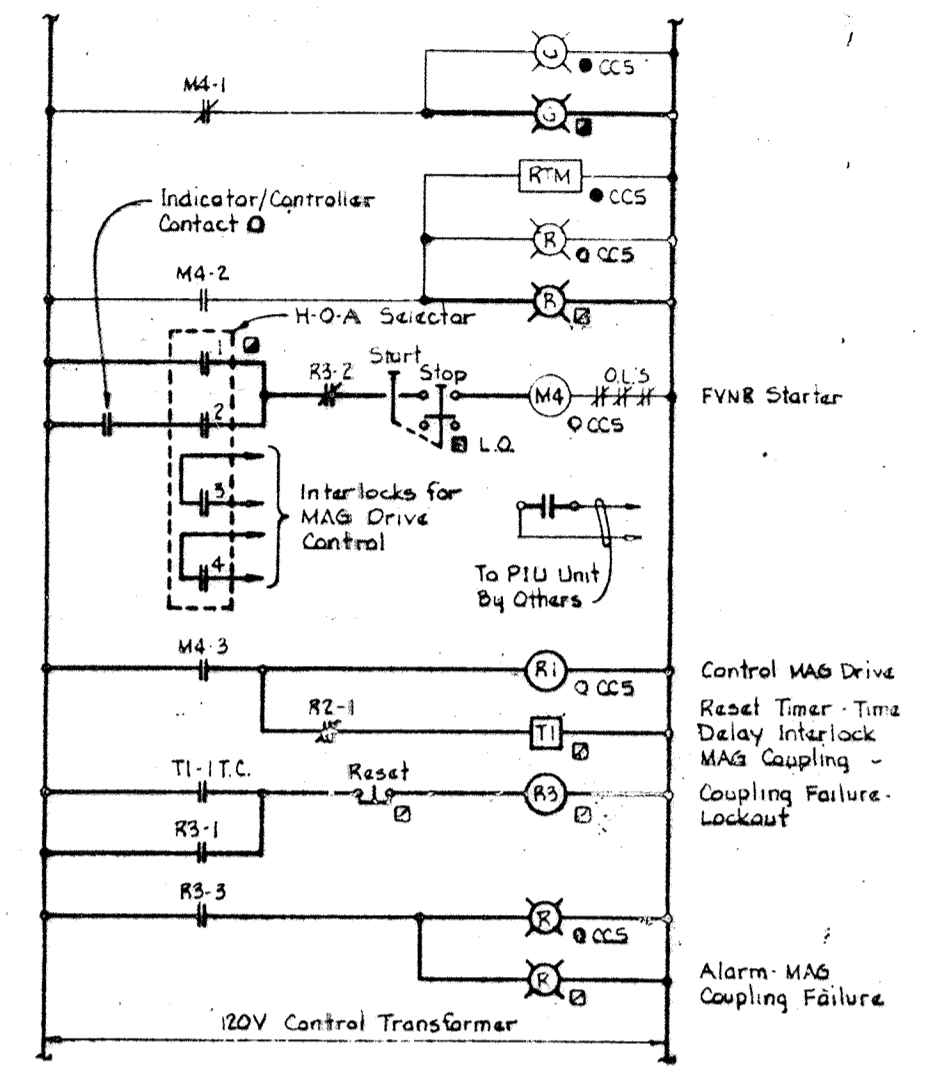
MODIFIED DRAWING - MAY 6, 1982



SECTION E18E/M5
Scale: 1/2"=1'-0"
Section E18F/M5 Similar

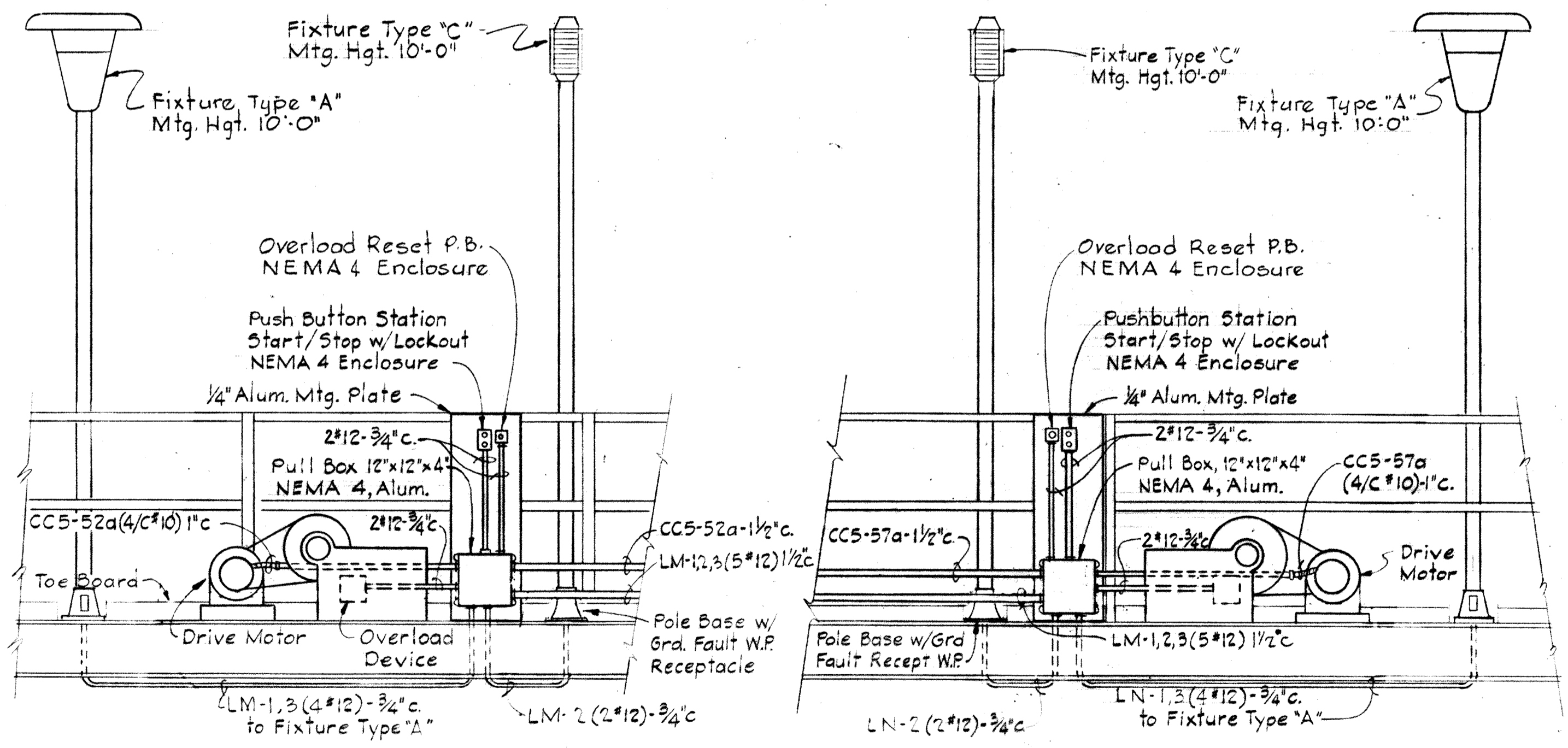
SECTION E18B/M25 & E46
Scale 1/2"=1'-0"
Section E18F/E43 Similar

NOTES:
1. For General Electrical Notes & Legend, see Sheet E-2.



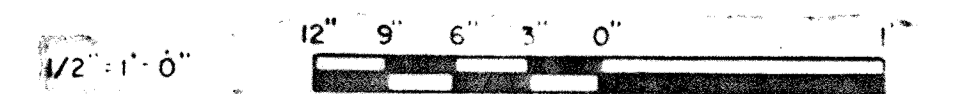
REVISÉ E.C.D. DIAGRAM (E-15)
FOR RETURN (ACTIVATED) SLUDGE PUMPS 4A, 4B, 4C

Reference Sh. E-15



SECTION E18C/M5
Scale: 1/2"=1'-0"

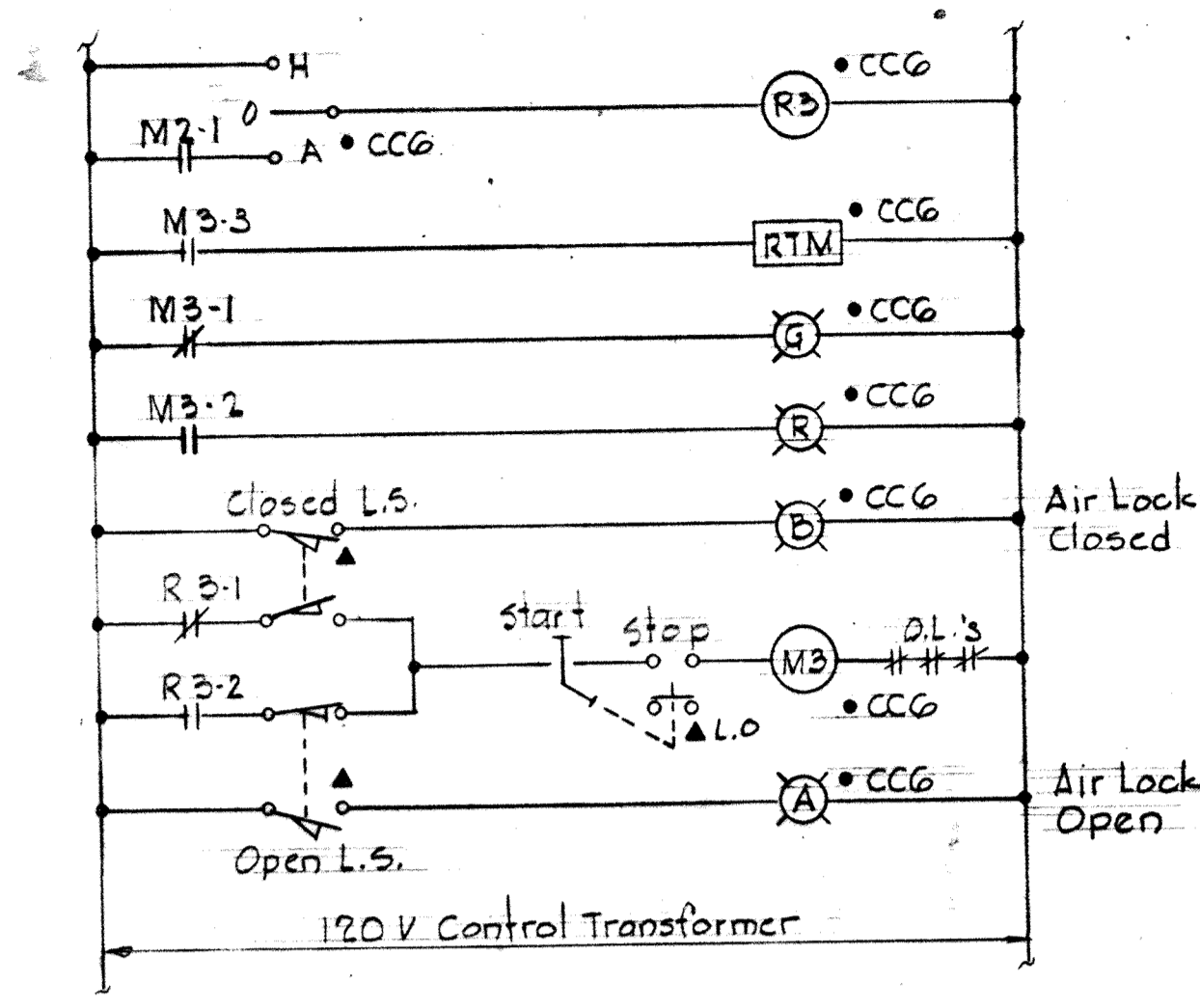
SECTION E18D/M5
Scale: 1/2"=1'-0"



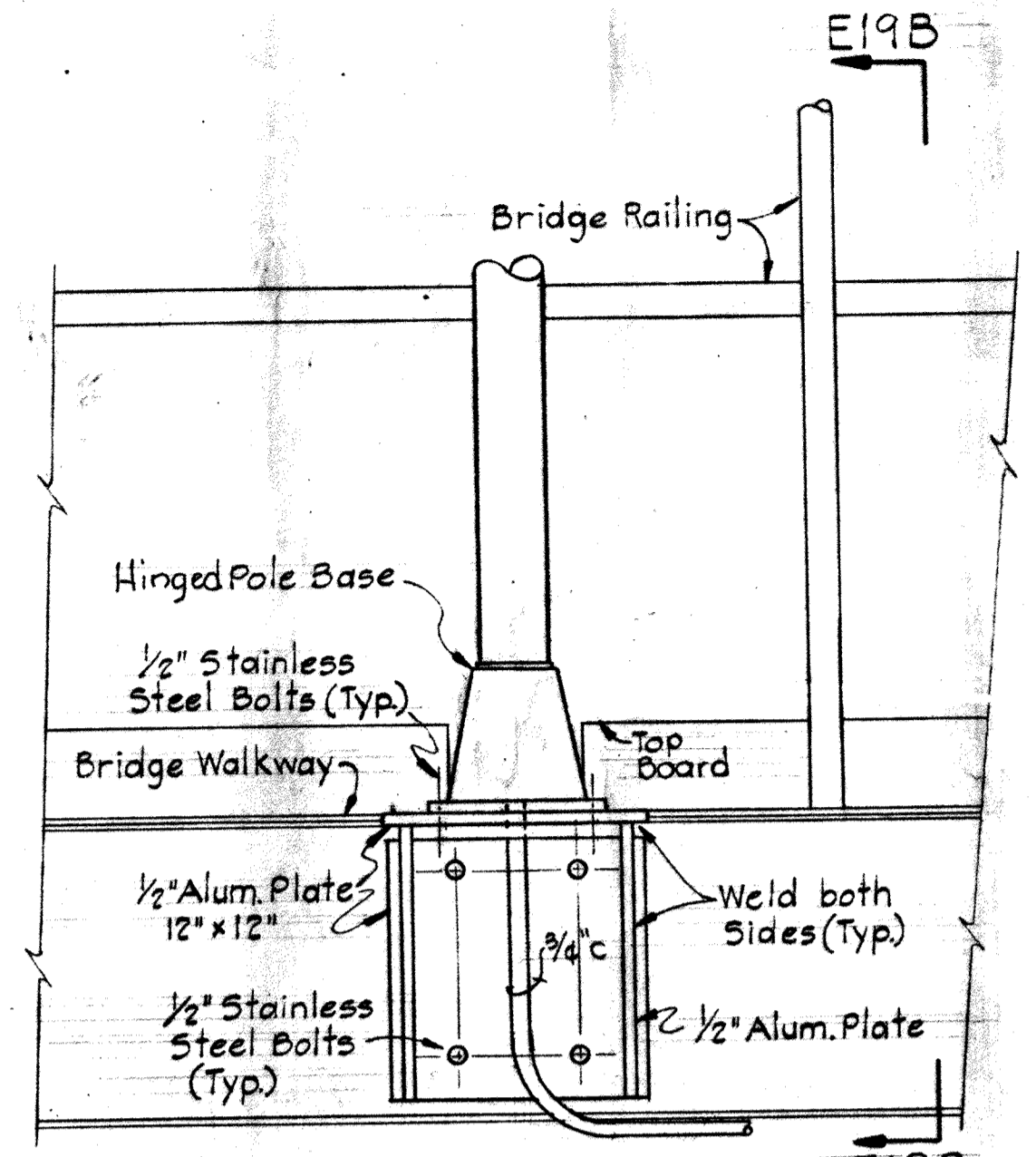
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE	CONTRACT NO. 500-S	PRIMARY & SECONDARY CLARIFIERS DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 105 OF 133	SCALE AS SHOWN
					W.O. 6887-2	

MODIFIED DRAWING - MAY 6, 1982

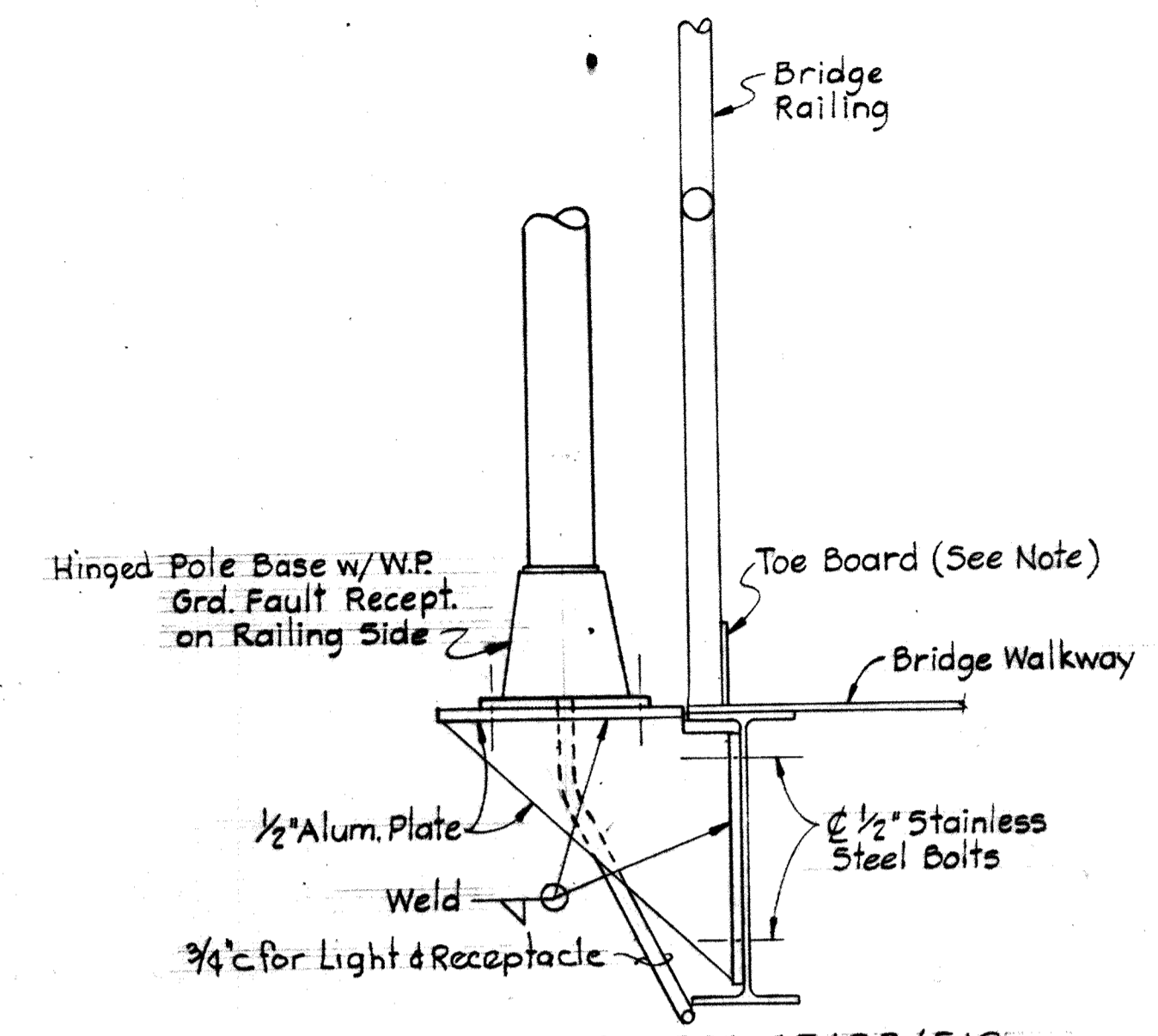
BRUNING 44-510 18392



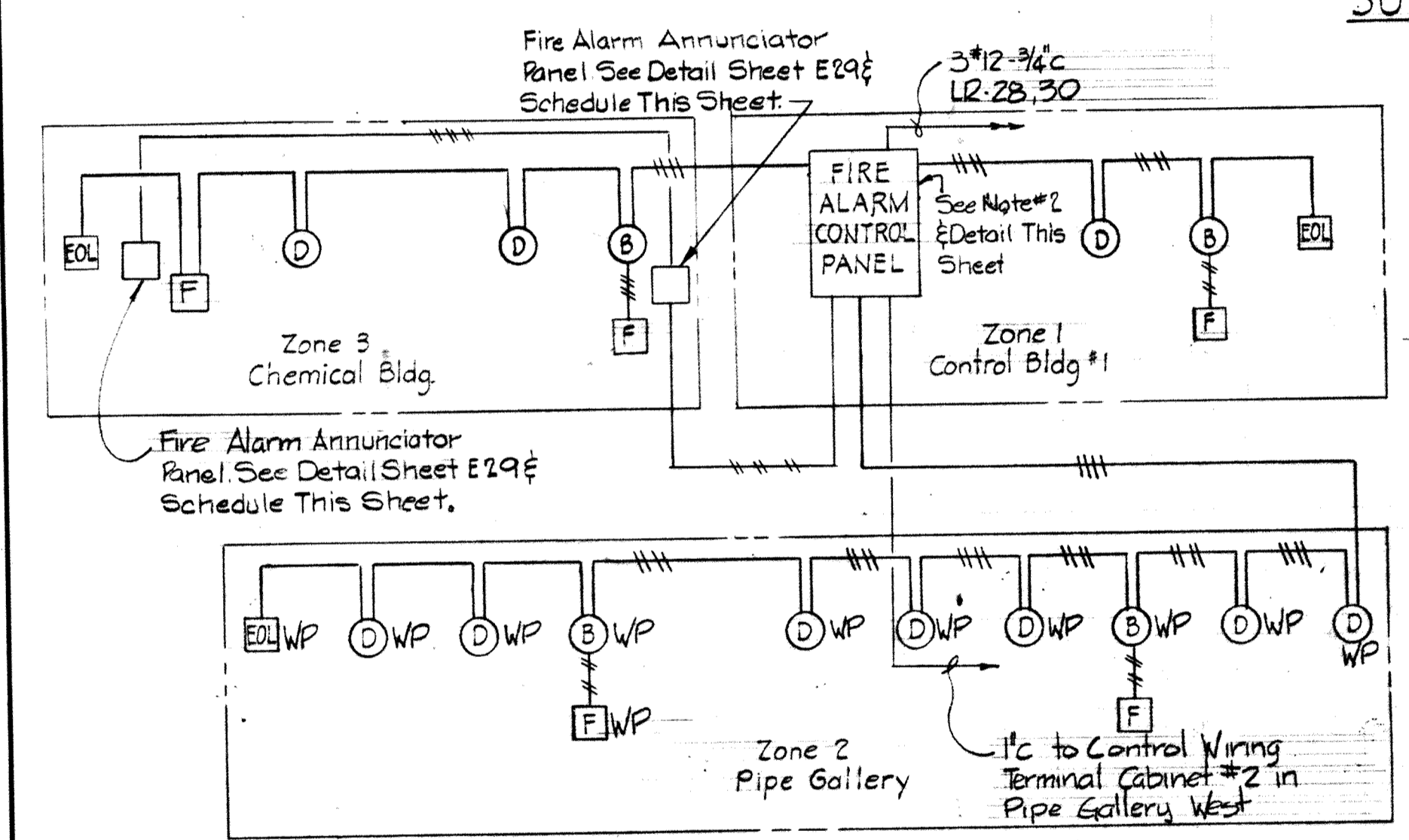
ELEMENTARY CONTROL DIAGRAM FOR DUST COLLECTOR AIR LOCK



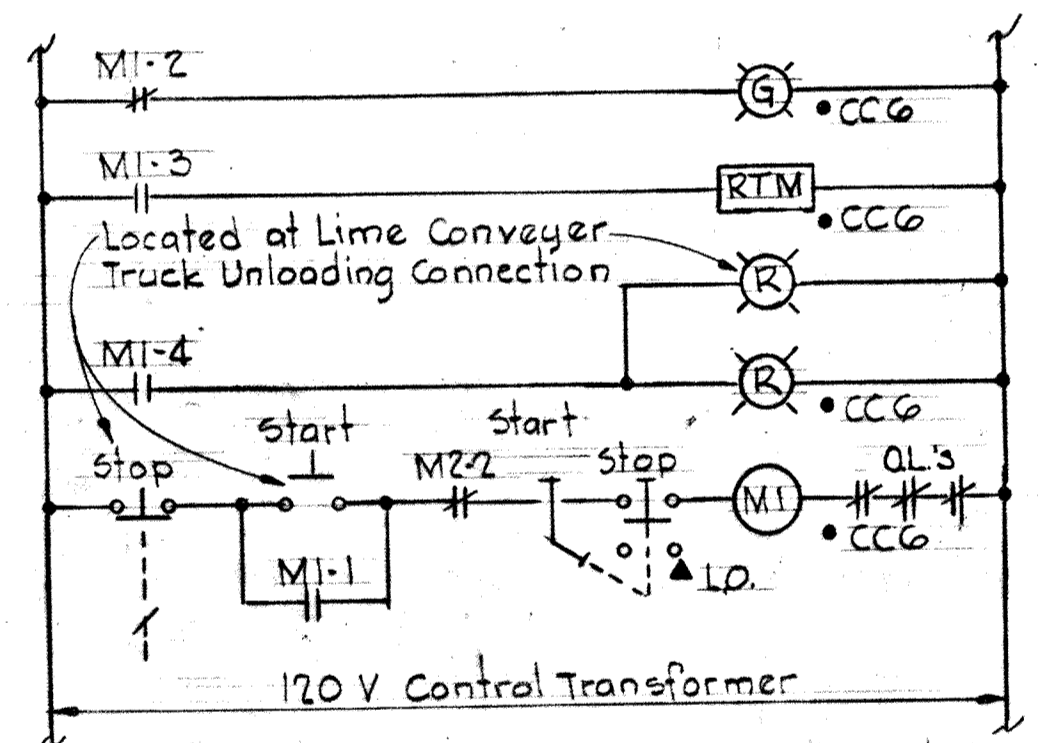
ELEVATION SUPPORT BRACKET FOR FIXTURE TYPE "A" & "C"
Scale: 1/2" = 1'-0"
Note: Pole base hinge to be perpendicular to railing.



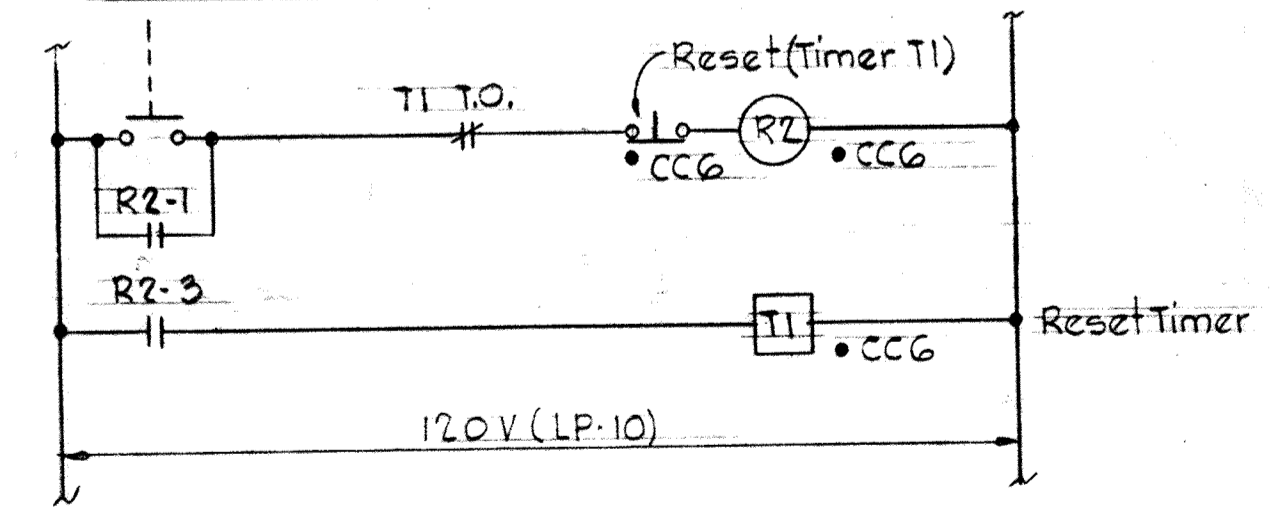
SECTION "E19B/E19"
Scale: 1/2" = 1'-0"
Note: Allow 6" opening in Toe Board for access to receptacle.



ONE LINE DIAGRAM FIRE ALARM SYSTEM PIPE GALLERY WEST
No Scale
Note: #14 Wire



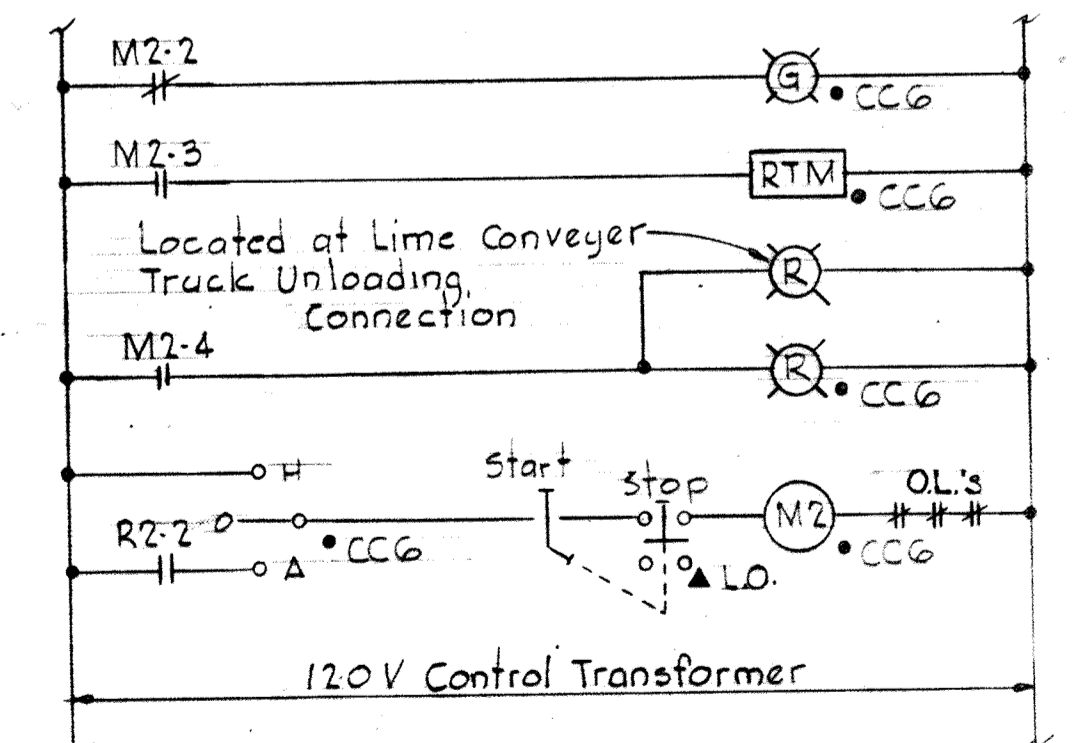
ELEMENTARY CONTROL DIAGRAM FOR DUST COLLECTOR FAN



ELEMENTARY CONTROL DIAGRAM FOR DUST COLLECTOR

POINT NO.	W/IDOW/INSCRIPTION	ECD NO.
1	CONTROL BUILDING WQ.1	
2	PIPE GALLERY WEST	
3	CHEMICAL BUILDING	
4	BLANK	

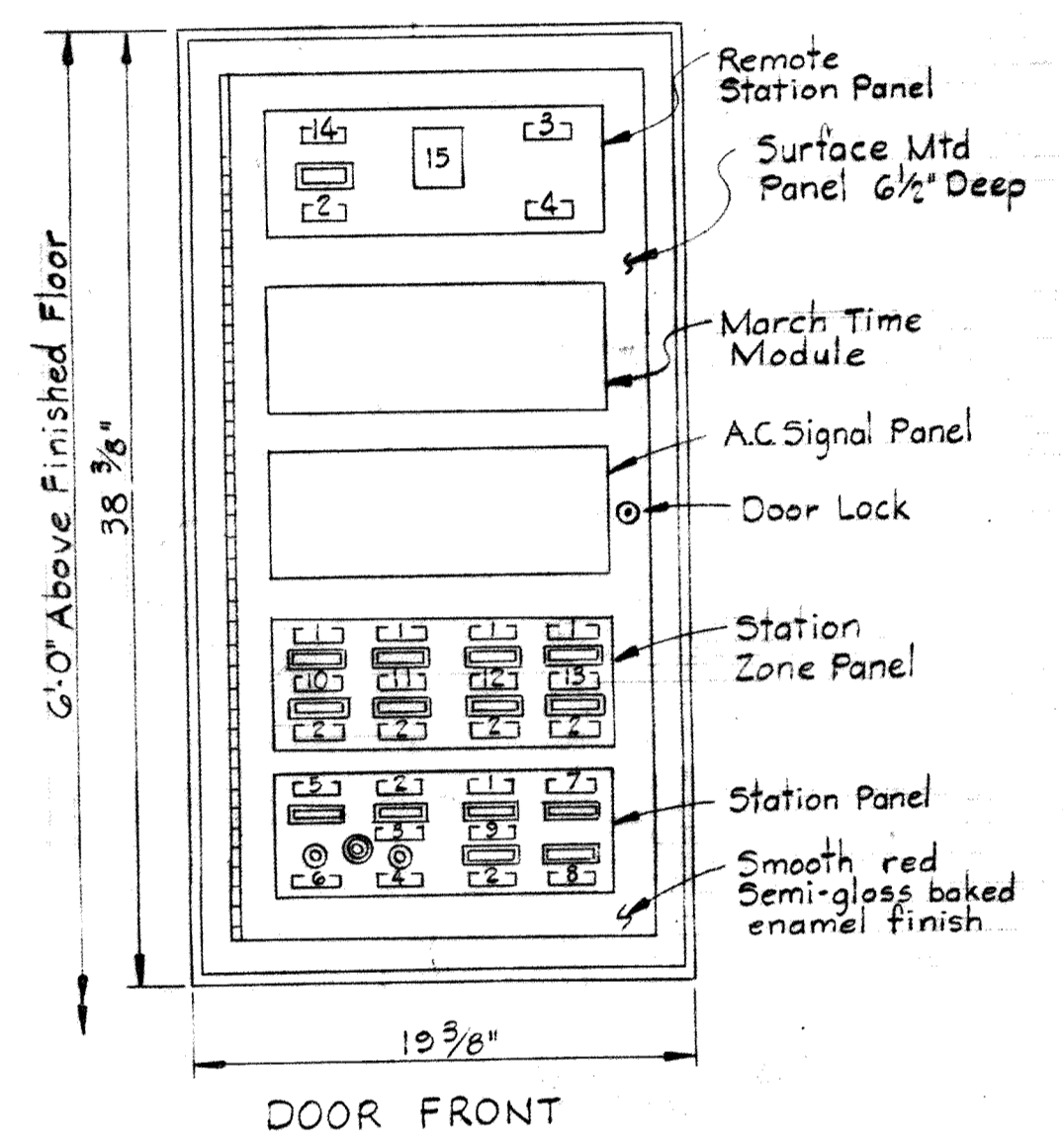
FIRE ALARM ANNUNCIATOR SCHEDULE
(2 Required) See Sheet E-29 for Annunciator Panel Detail



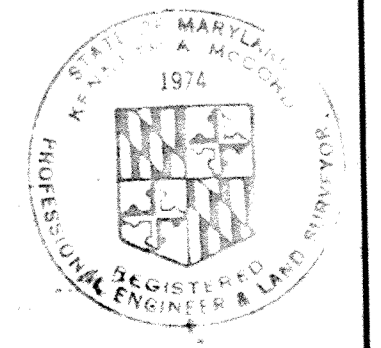
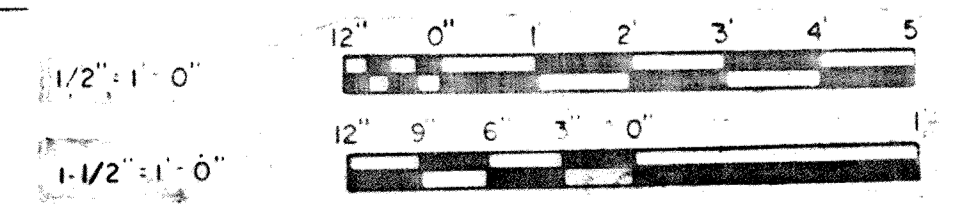
ELEMENTARY CONTROL DIAGRAM FOR DUST COLLECTOR SHAKER

- NOTES**
- For General Electrical Notes and Electrical Legend see Sheet E2.
 - Five Zone Fire Alarm Control Panel Shall be Connected as Shown in One Line Diagram.
 - All Wiring in Fire Alarm System Shall be #12 AWG Unless Otherwise Noted.

- LEGEND**
- 1-14 Nameplates
 - 15 Millimeter
 - Indicating Light
 - Switch
- NAMEPLATES**
- ALARM
 - TROUBLE
 - NORMAL
 - SILENCE
 - NORMAL POWER
 - RESET
 - SUPVY POWER TROUBLE
 - OPER. POWER TROUBLE
 - CONTROL BLDG #1
 - PIPE GALLERY
 - CHEMICAL BLDG.
 - SPARE (Blank Nameplate)
 - SPARE (Blank Nameplate)
 - REMOTE LINE

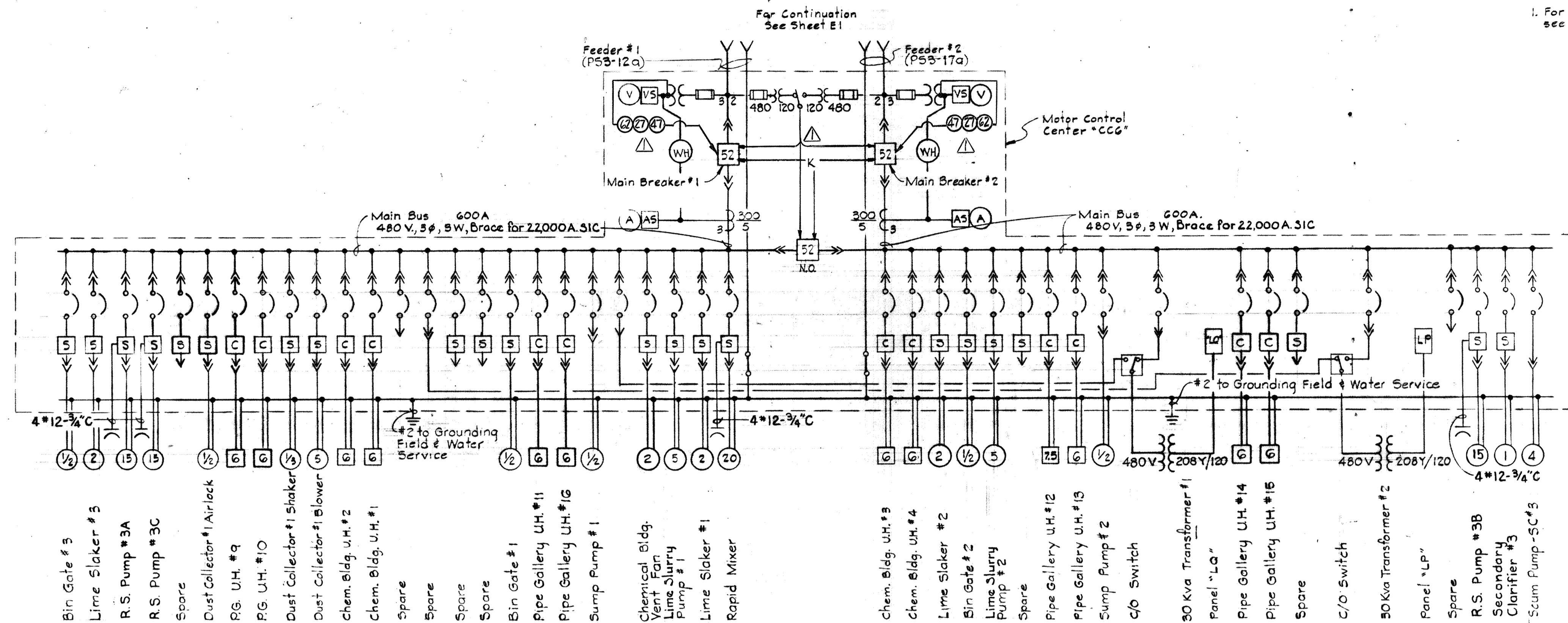


FIRE ALARM CONTROL PANEL PIPE GALLERY WEST
Scale: 1/2" = 1'-0"

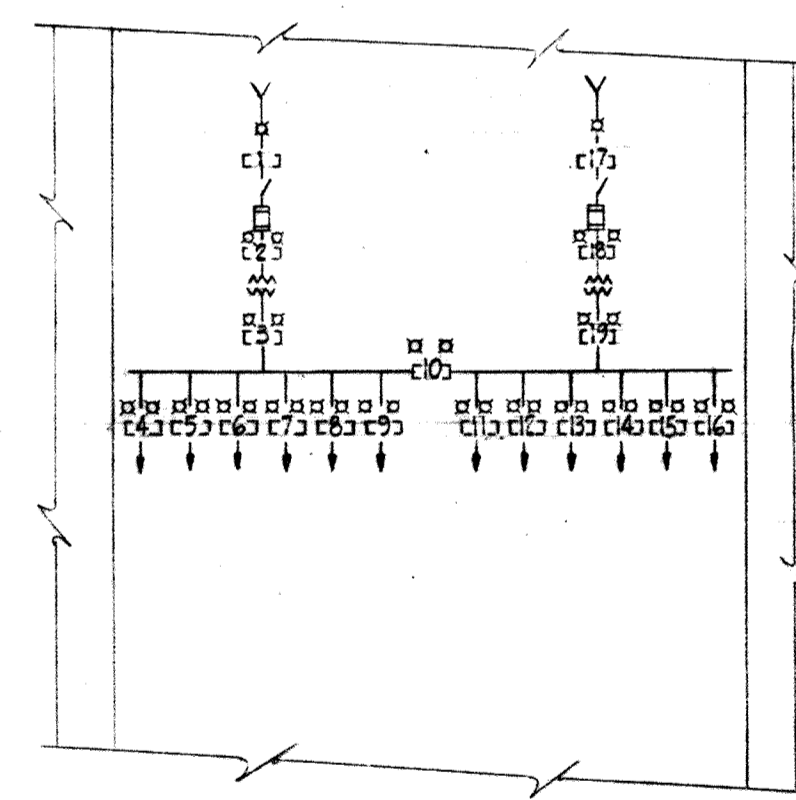


NOTES:

1. For General Electrical Notes & Electrical Legend see Sheet E2



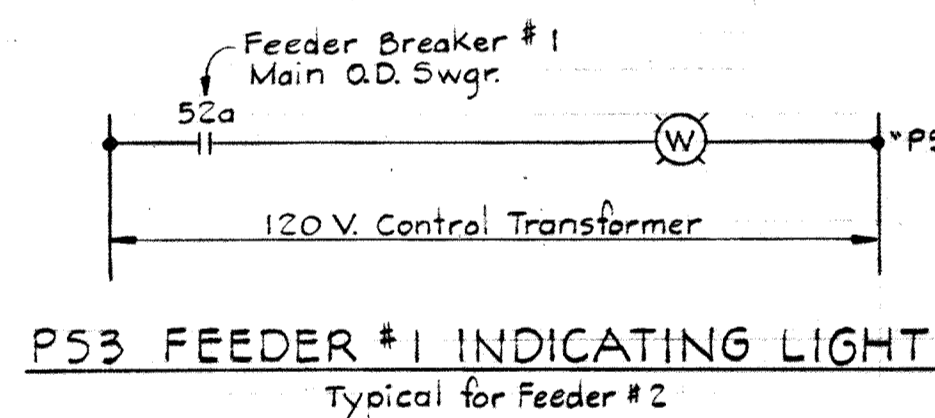
**ONE LINE DIAGRAM
MOTOR CONTROL CENTER "CC6"**



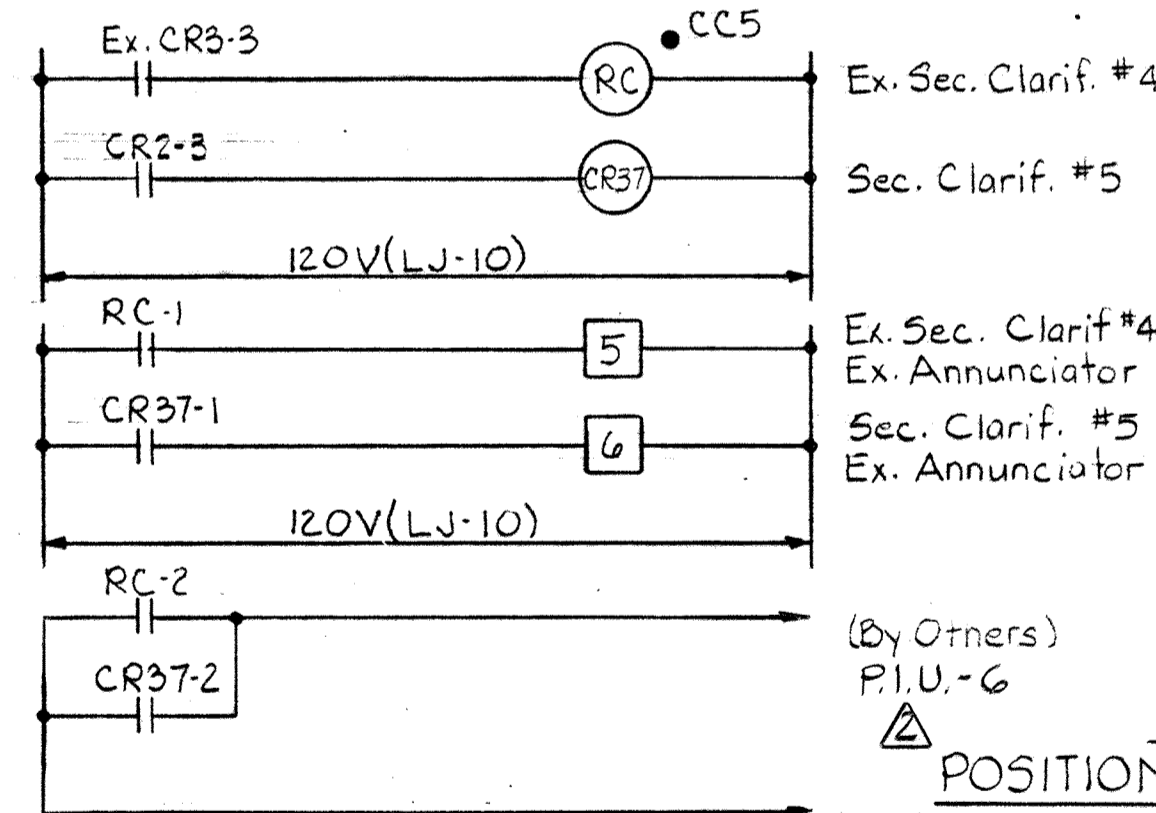
MIMIC BUS O.D. PRIMARY SUBSTATION "P53"
See Sheet E-16

NAMEPLATES

- | | |
|----------------------------------|-----------------------------------|
| 1. FEEDER #1 | 10. TIE BREAKER |
| 2. MAIN SWITCH FEEDER #1 | 11. MCC "CC5" FEEDER #2 |
| 3. MAIN BREAKER FEEDER #1 | 12. MCC "CC6" FEEDER #2 |
| 4. BLANK (Spare) | 13. MCC "CC7A" & "CC7B" FEEDER #2 |
| 5. BLANK (Spare) | 14. BLANK (Spare) |
| 6. BLANK (Spare) | 15. BLANK (Spare) |
| 7. MCC "CC7A" & "CC7B" FEEDER #1 | 16. BLANK (Spare) |
| 8. MCC "CC6" FEEDER #1 | 17. FEEDER #2 |
| 9. MCC "CC5" FEEDER #1 | 18. MAIN SWITCH FEEDER #2 |
| | 19. MAIN BREAKER FEEDER #2 |

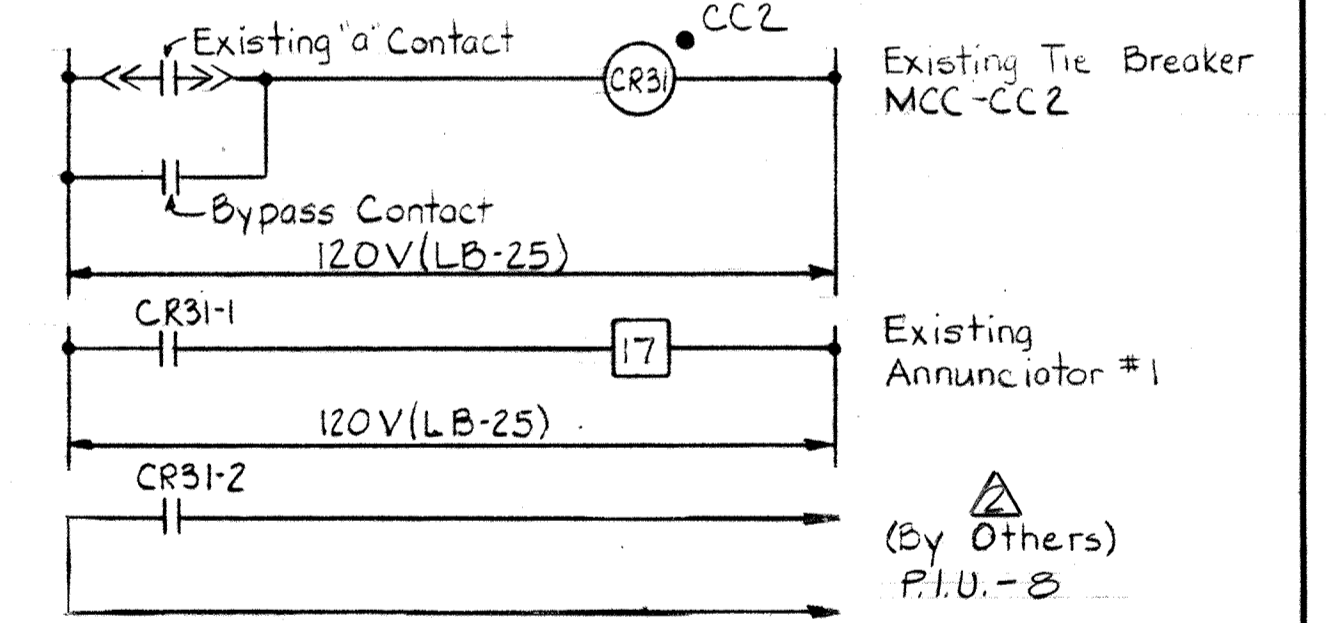


MAIN BKR. FDR. #1 IN "P53" IND. LGTS.
Typical for 15 Breakers



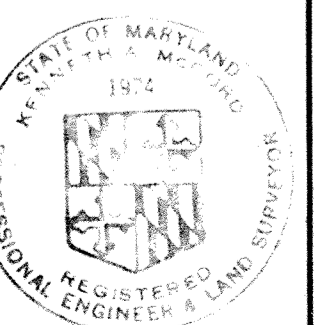
**ELEMENTARY CONTROL DIAGRAM NO. 18
CENTER DRIVE OVERLOAD-
SECONDARY CLARIFIERS #4 & #5**

- Typical For The Following Units:
1. Nitrification Clarifiers #1, 2, 3 & 4 - Annunciator #7 & PIU-4
 2. Primary Clarifiers #4 & #5 - Annunciator #4 & PIU-6
 3. Secondary Clarifier #3 - Annunciator #6 & PIU-6



**ELEMENTARY CONTROL DIAGRAM NO. 14
POSITION INDICATION FOR EXISTING TIE BREAKER
EXISTING MCC-CC2**

- Typical For The Following Units:
1. Existing Tie Breaker - MCC-CC5 - Annunciator #4 & PIU-6
 2. Tie Breaker - MCC-CC6 - Annunciator #6 & PIU-6
 3. Tie Breaker - MCC-CCTA47B - Annunciator #7 & PIU-4



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
3/20/75
W.O. Gilbert
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

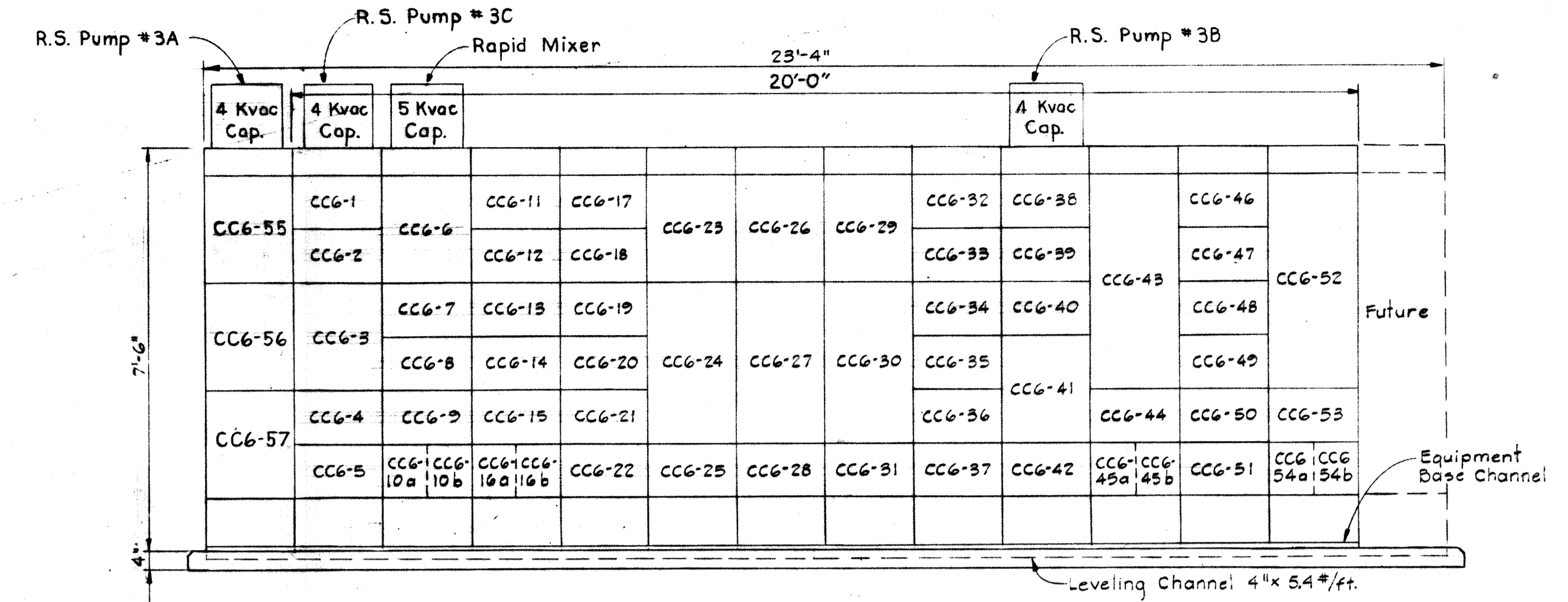
**AERATION BASIN NO. 2 & 3
PIPE GALLERY WEST
CHEMICAL FEED BUILDING
ONE LINE WIRING DIAGRAM**

**SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4**

**DRAWING
NO. 107
OF 133**

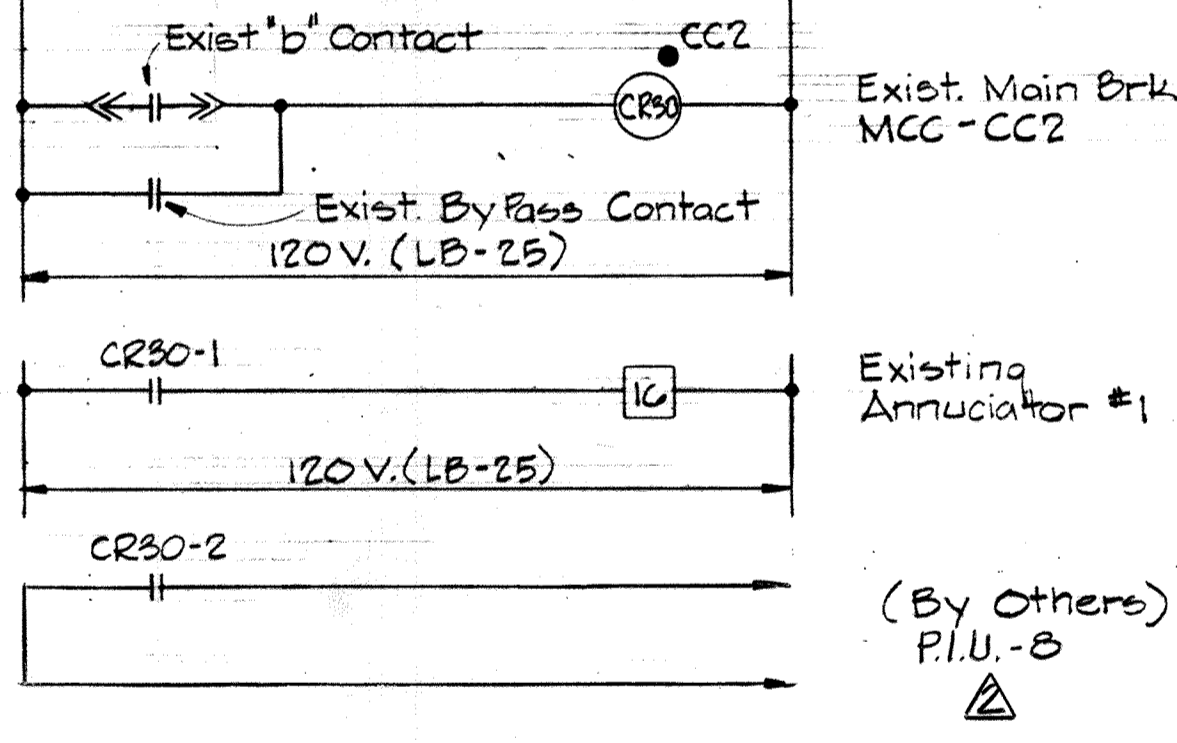
**SCALE
AS
SHOWN**

MOTOR CONTROL CENTER "CC6" SCHEDULE 480V-3φ-3W-60HZ																	
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	HP or KVA	AUX DESC.	BREAKER OR MCP			RUN NUMBER	WIRE - POWER			WIRE - CONTROL			GRD WIRE	COND SIZE	
					FRAME	POLE	TRIP		NO.	SIZE	TYPE	NO.	SIZE	TYPE			
CC6-1	PIPE GALLERY UNIT HEATER #16	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-1a	3	12	THW	4	14	THW	12	1"
CC6-2	PIPE GALLERY UNIT HEATER #9	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-2a	3	12	THW	4	14	THW	12	1"
CC6-3	BLANK (Spare)	Combination Starter NEMA Size 2, FVNR	-	a,c,d,g,k	100	3	10X	22	-	-	-	-	-	-	-	-	-
CC6-4	CHEMICAL BLDG. UNIT HEATERS CONTROL	Control Relay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-5	LIME SLAKER #3	Combination Starter NEMA Size 1, FVNR	2	a,c,d,g,k	100	3	10X	22	CC6-5a	3	12	THW	4	14	THW	12	1 1/2"
CC6-6	RAPID MIXER	Combination Starter NEMA Size 2, FVNR	20	a,c,e,g,k	100	3	10X	22	CC6-6a	3	8	THW	4	14	THW	10	1 1/2"
CC6-7	LIME SLAKER #1	Combination Starter NEMA Size 1, FVNR	2	a,c,d,g,k	100	3	10X	22	CC6-7a	3	12	THW	4	14	THW	12	1 1/2"
CC6-8	LIME FEEDER #1 CONTROL	Control Relay	-	See Dwg.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-9	BIN GATE #3	Combination Starter NEMA Size 1, FVNR	1/2	a,c,d,g,k	100	3	10X	22	CC6-9a	3	12	THW	4	14	THW	12	1 1/2"
CC6-10a	30KVA TRANSFORMER #1	Circuit Breaker	-	-	100	3	50	22	-	-	-	-	-	-	-	-	-
CC6-10b	BLANK (Spare)	Circuit Breaker	-	-	100	3	50	22	-	-	-	-	-	-	-	-	-
CC6-11	PIPE GALLERY UNIT HEATER #10	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-11a	3	12	THW	4	14	THW	12	1"
CC6-12	PIPE GALLERY UNIT HEATER #11	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-12a	3	12	THW	4	14	THW	12	1"
CC6-13	BIN GATE #1	Combination Starter NEMA Size 1, FVNR	1/2	a,c,d,g,k	100	3	10X	22	CC6-13a	3	12	THW	4	14	THW	12	1 1/2"
CC6-14	DUST COLLECTOR CONTROL	Control Relay, Timer	-	See Dwg.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-15	LIME SLURRY PUMP #1	Combination Starter NEMA Size 1, FVNR	5	a,c,e,g,k	100	3	10X	22	CC6-15a	3	12	THW	6	14	THW	12	1 1/2"
CC6-16a	SUMP PUMP #1	Circuit Breaker	1/2	-	100	3	15	22	CC6-16a	3	12	THW	-	-	-	12	1"
CC6-16b	30KVA TRANSFORMER #2	Circuit Breaker	-	-	100	3	20	22	-	-	-	-	-	-	-	-	-
CC6-17	CHEMICAL BLDG. UNIT HEATER #1	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-17a	3	12	THW	4	14	THW	12	1"
CC6-18	CHEMICAL BLDG. UNIT HEATER #2	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-18a	3	12	THW	4	14	THW	12	1"
CC6-19	DUST COLLECTOR #1 BLOWER	Combination Starter NEMA Size 1, FVNR	2	a,c,d,g,k	100	3	10X	22	CC6-19a	3	12	THW	4	14	THW	12	1"
CC6-20	DUST COLLECTOR #1 SHAKER	Combination Starter NEMA Size 1, FVNR	1/3	a,c,d,g,k	100	3	10X	22	CC6-20a	3	12	THW	4	14	THW	12	1"
CC6-21	CHEMICAL BLDG VENTILATION FAN	Combination Starter NEMA Size 1, FVNR	2	a,c,d,g,k	100	3	10X	22	CC6-21a	3	12	THW	4	14	THW	12	1"
CC6-22	DUST COLLECTOR #1 AIR LOCK	Combination Starter NEMA Size 1, FVNR	1/2	a,c,d,g,k	100	3	10X	22	CC6-22a	3	12	THW	-	-	-	12	1"
CC6-23	Standard Nameplates	Ammeter, Voltmeter Switches, C.T.'s, Watthour	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-24	MAIN BREAKER FEEDER #1	Power Circuit Breaker Drawout Type	-	See Specs.	600	3	300	30	P53-12a	3	350MCM	THW	-	-	-	2	2(4)
CC6-25	-	Space for Incoming Feeder #1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-26	See DWG.	Annunciator #2 (20 Points)	-	See Dwg.	-	-	-	See Dwg.	-	-	-	See Dwg.	14	THW	-	See Dwg.	-
CC6-27	TIE BREAKER	Power Circuit Breaker Drawout Type	-	See Specs.	600	3	300	30	-	-	-	-	-	-	-	-	-
CC6-28	-	Space for outgoing Cables	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-29	Standard Nameplates	Ammeter, Voltmeter Switches, C.T.'s, Watthour	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-30	MAIN BREAKER FEEDER #2	Power Circuit Breaker Drawout Type	-	See Specs.	600	3	300	30	P53-17a	3	350MCM	THW	-	-	-	2	2(4)
CC6-31	-	Space for Incoming Feeder #2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-32	CHEMICAL BLDG UNIT HEATER #3	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-32a	3	12	THW	4	14	THW	12	1"
CC6-33	CHEMICAL BLDG. UNIT HEATER #4	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-33a	3	12	THW	4	14	THW	12	1"
CC6-34	LIME SLAKER #2	Combination Starter NEMA Size 1, FVNR	2	a,c,d,g,k	100	3	10	22	CC6-34a	3	12	THW	4	14	THW	12	1 1/2"
CC6-35	LIME FEEDER #2 CONTROL	Control Relay	-	See Dwg.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-36	LIME SLURRY PUMP #2	Combination Starter NEMA Size 1, FVNR	5	a,c,e,g,k	100	3	10X	22	CC6-36a	3	12	THW	6	14	THW	12	1 1/2"
CC6-37	SECONDARY CLARIFIER #3	Combination Starter NEMA Size 1, FVNR	1	a,c,g,k	100	3	10X	22	CC6-37a	4/C	10	See Spec.	8/C	12	See Spec.	10	See Dwg.
CC6-38	PIPE GALLERY UNIT HEATER #12	Combination Contactor NEMA Size 1, FVNR	7.5	a,c,d,g,k	100	3	15	22	CC6-38a	3	12	THW	4	14	THW	12	1"
CC6-39	PIPE GALLERY UNIT HEATER #13	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-39a	3	12	THW	4	14	THW	12	1"
CC6-40	BIN GATE #2	Combination Starter NEMA Size 1, FVNR	1/2	a,c,d,g,k	100	3	10X	22	CC6-40a	3	12	THW	4	14	THW	12	1 1/2"
CC6-41	RETURN SLUDGE PUMP #3B	Combination Starter NEMA Size 2, FVNR	15	a,c,e,g,k	100	3	10X	22	CC6-41a	3	10	THW	-	14	THW	12	1"
CC6-42	PIPE GALLERY UNIT HEATER #15	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-42a	3	12	THW	4	14	THW	12	1"
CC6-43	PANELBOARD "LQ" 20BY/120-3φ-4W	Circuit Breaker Panelboard	-	See Specs.	-	-	-	-	CC6-43a	4	2	THW	-	-	-	6	2"
CC6-44	TRANSFER SWITCH PANEL "LQ"	Automatic Transfer Switch 4500 Bulletin #40, 3 pole, 480V, 100A, Δ	-	See Specs.	-	-	-	-	CC6-44a	3	6	THW	-	-	-	6	1 1/2"
CC6-45a	30KVA TRANSFORMER #1	Circuit Breaker	-	-	100	3	50	22	-	-	-	-	-	-	-	-	-
CC6-45b	SUMP PUMP #2	Circuit Breaker	-	-	100	3	15	22	CC6-45a	3	12	THW	-	-	-	12	1"
CC6-46	LIGHTING CONTACTOR CHEMICAL BLDG.	Contactor 2-2P-30A	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-47	LIGHTING CONTACTOR CHEMICAL BLDG.	Contactor 2-1P-30A	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-48	SCUM PUMP SECONDARY CLARIFIER #3	Combination Starter NEMA Size 1, FVNR	4	a,c,g,k	100	3	10X	22	CC6-48a	4/C	10	See Spec.	8/C	12	See Spec.	10	See Dwg.
CC6-49	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	4	a,c,g,k	100	3	10X	22	-	-	-	-	-	-	-	-	-
CC6-50	PIPE GALLERY UNIT HEATERS CONTROL	Control Relays	-	See Dwg.	-	-	-	-	-	-	-	-	-	-	-	-	-
CC6-51	PIPE GALLERY UNIT HEATER #14	Combination Contactor NEMA Size 1, FVNR	6	a,c,d,g,k	100	3	15	22	CC6-51a	3	12	THW	4	14	THW	12	1"



MOTOR CONTROL CENTER "CC6"
Scale: 1/2" = 1'-0"

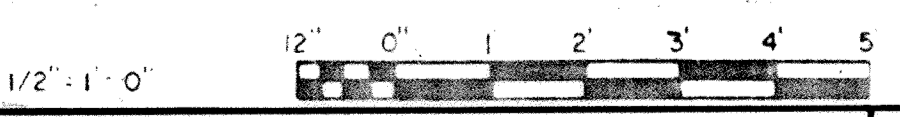
MOTOR CONTROL CENTER "CC6" SCHEDULE 480V-3φ-3W-60HZ (CONT.)																	
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	HP or KVA	AUX DESC.	BREAKER			RUN NUMBER	WIRE - POWER			WIRE - CONTROL			GRD WIRE	COND SIZE	
					FRAME	POLE	TRIP		NO.	SIZE	TYPE	NO.	SIZE	TYPE			
CC6-52	PANELBOARD "LP" 20BY/120-3φ-4W	Circuit Breaker Panelboard	-	See Specs.	-	-	-	-	CC6-52a	4	#2	THW	-	-	-	6	2"
CC6-53	TRANSFER SWITCH PANEL "LP"	Automatic Transfer Switch 4500 Bulletin #40, 3 pole, 480V, 100A, Δ	-	See Specs.	-	-	-	-	CC6-53a	3	#6	THW	-	-	-	6	1 1/2"
CC6-54a	30KVA TRANSFORMER #2	Circuit Breaker	-	-	100	3	50	22	-	-	-	-	-	-	-	-	-
CC6-54b	BLANK (Spare)	Circuit Breaker	-	-	100	3	50	22	-	-	-	-	-	-	-	-	-
CC6-55	RETURN SLUDGE PUMP #3A	Combination Starter NEMA Size 2, FVNR	15	a,c,g,k	100	3	10X	22	CC6-55a	3	#10	THW	2	14	THW	12	1"
CC6-56	RETURN SLUDGE PUMP #3C	Combination Starter NEMA Size 2, FVNR	15	a,c,g,k	100	3	10X	22	CC6-56a	3	#10	THW	2	14	THW	12	1"
CC6-57	BLANK (Spare)	Combination Starter NEMA Size 2, FVNR	15	a,c,g,k	100	3	10X	22	-	-	-	-	-	-	-	-	-



NOTES:
1. For General Electrical Notes & Electrical Legend see Sheet E-2
* 2. Indicates P.I.U. (Computer) by others.

POSITION INDICATION FOR EXIST.
MAIN BRK-1 EXIST. MCC-CC2

- Typical for the follow unit
- Exist. Main Brk-2-MCC-CC2-Ann.#1 & P.I.U.-B
 - Exist. Main Brk-1-MCC-CC5-Ann.#2 & P.I.U.-G
 - Exist. Main Brk-2-MCC-CC5-Ann.#4 & P.I.U.-G
 - Main Brk.-1-MCC-CC6-Ann.#6 & P.I.U.-G
 - Main Brk.-2-MCC-CC6-Ann.#6 & P.I.U.-G
 - Main Brk.-1-MCC-CC7A & 7B-Ann.#7 & P.I.U.-4
 - Main Brk.-2-MCC-CC7A & 7B-Ann.#7 & P.I.U.-4

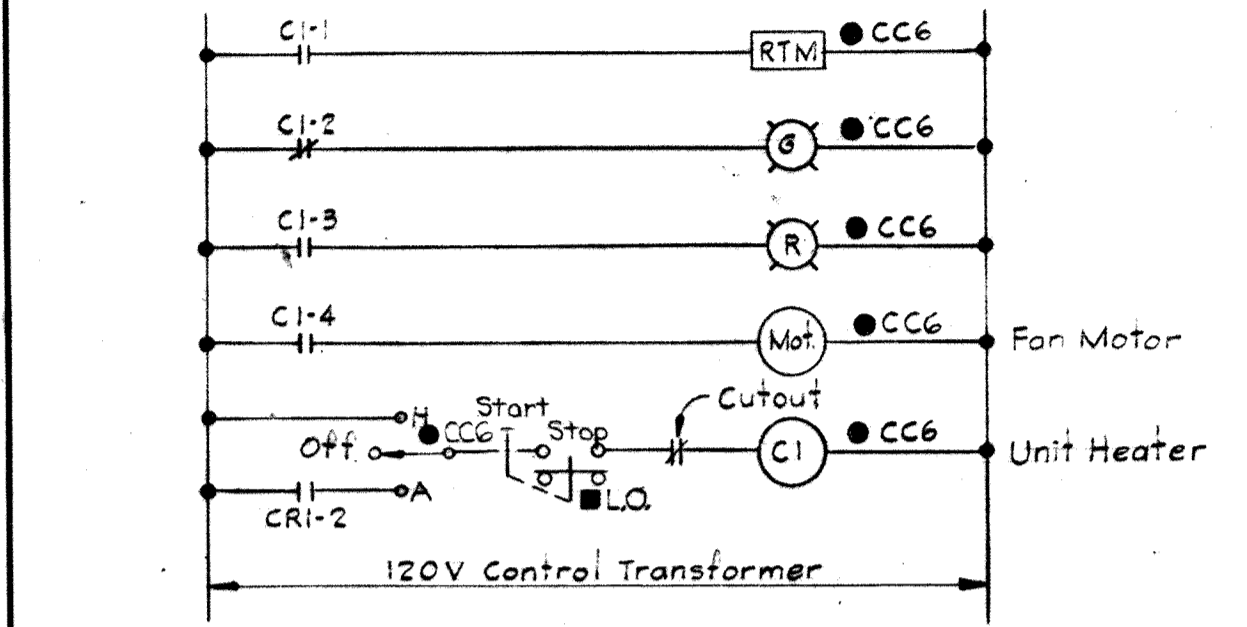
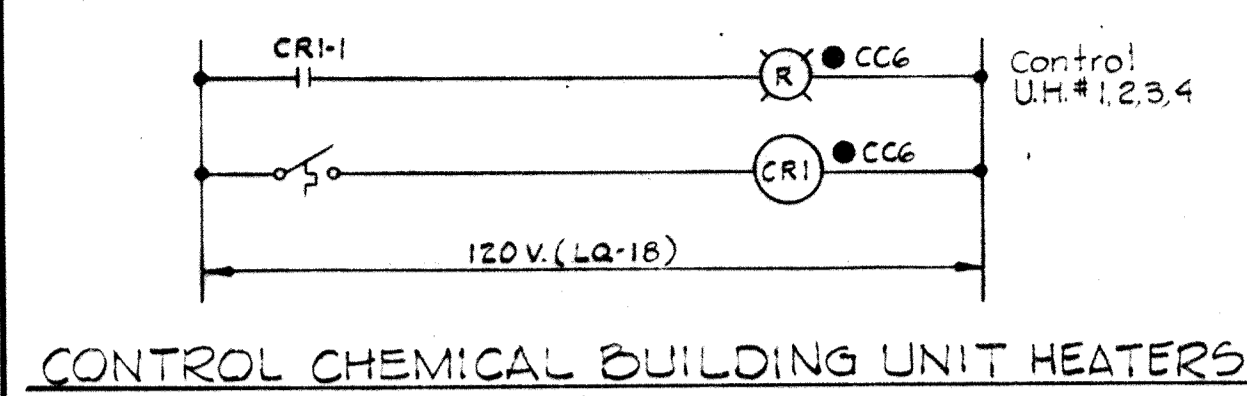


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/30/75 W.O. Libert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 2 & 3 PIPE GALLERY WEST CHEMICAL FEED BUILDING MOTOR CONTROL CENTER CC6	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 108 OF 133	SCALE AS SHOWN
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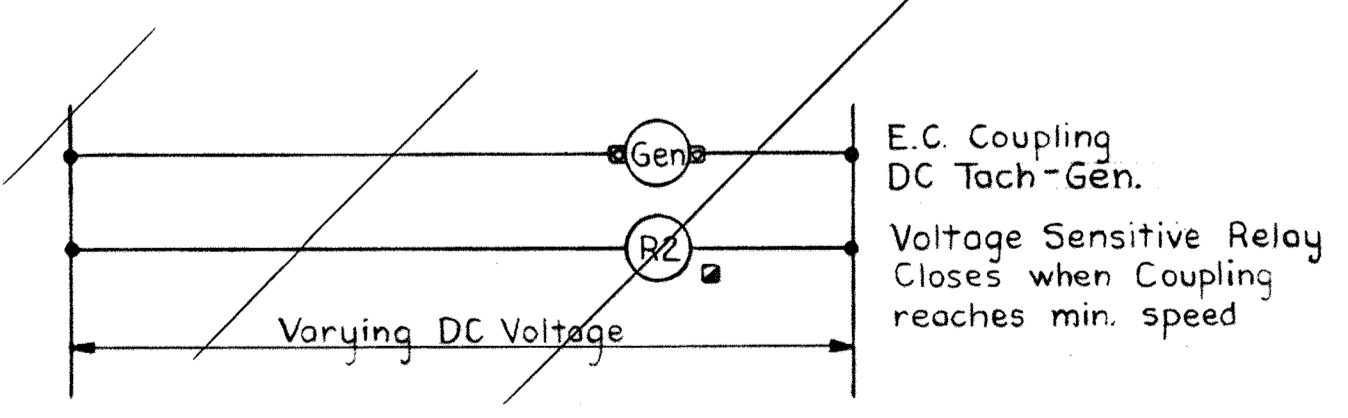
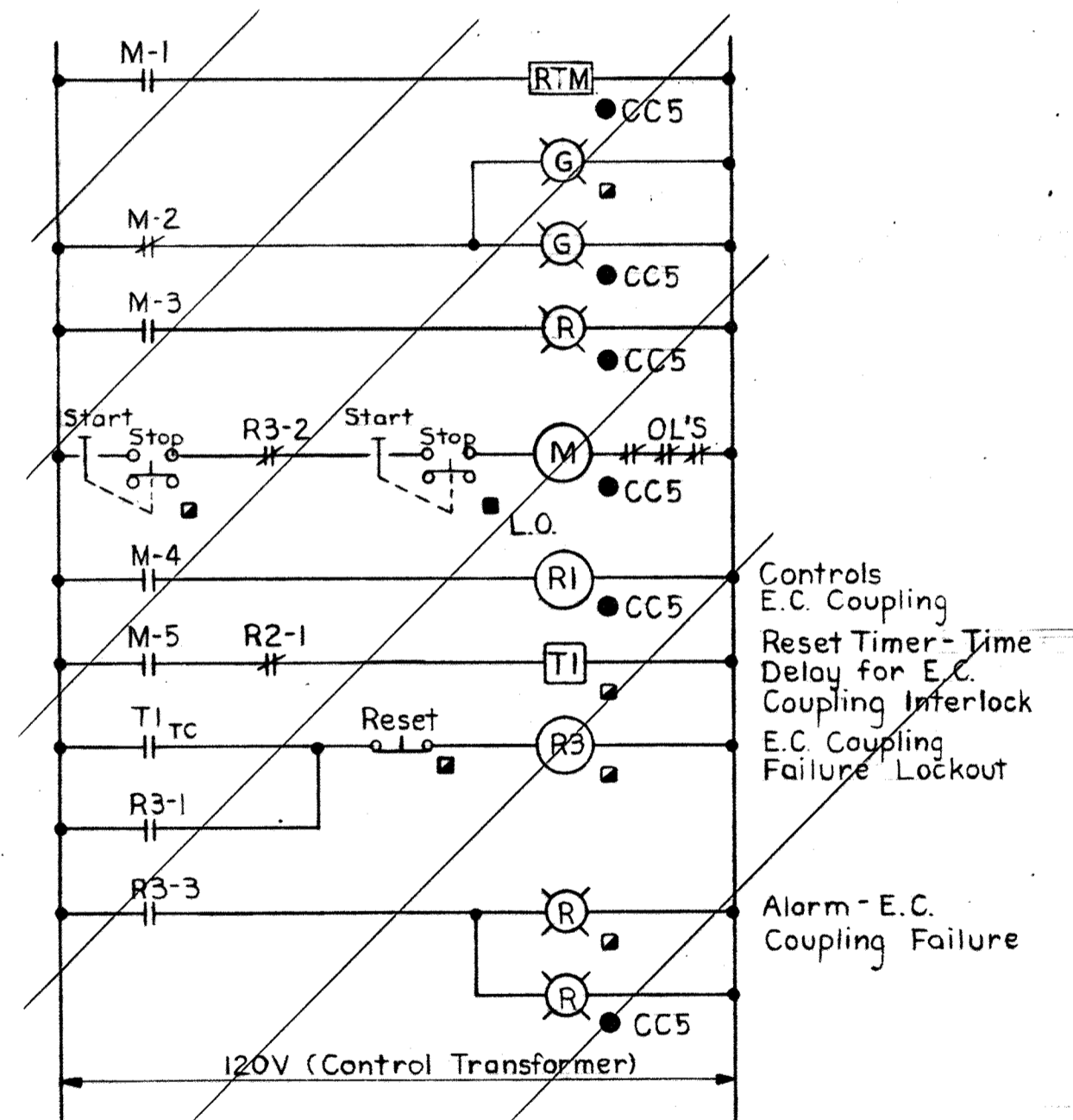
W.O. 6887-2

SHEET E-21

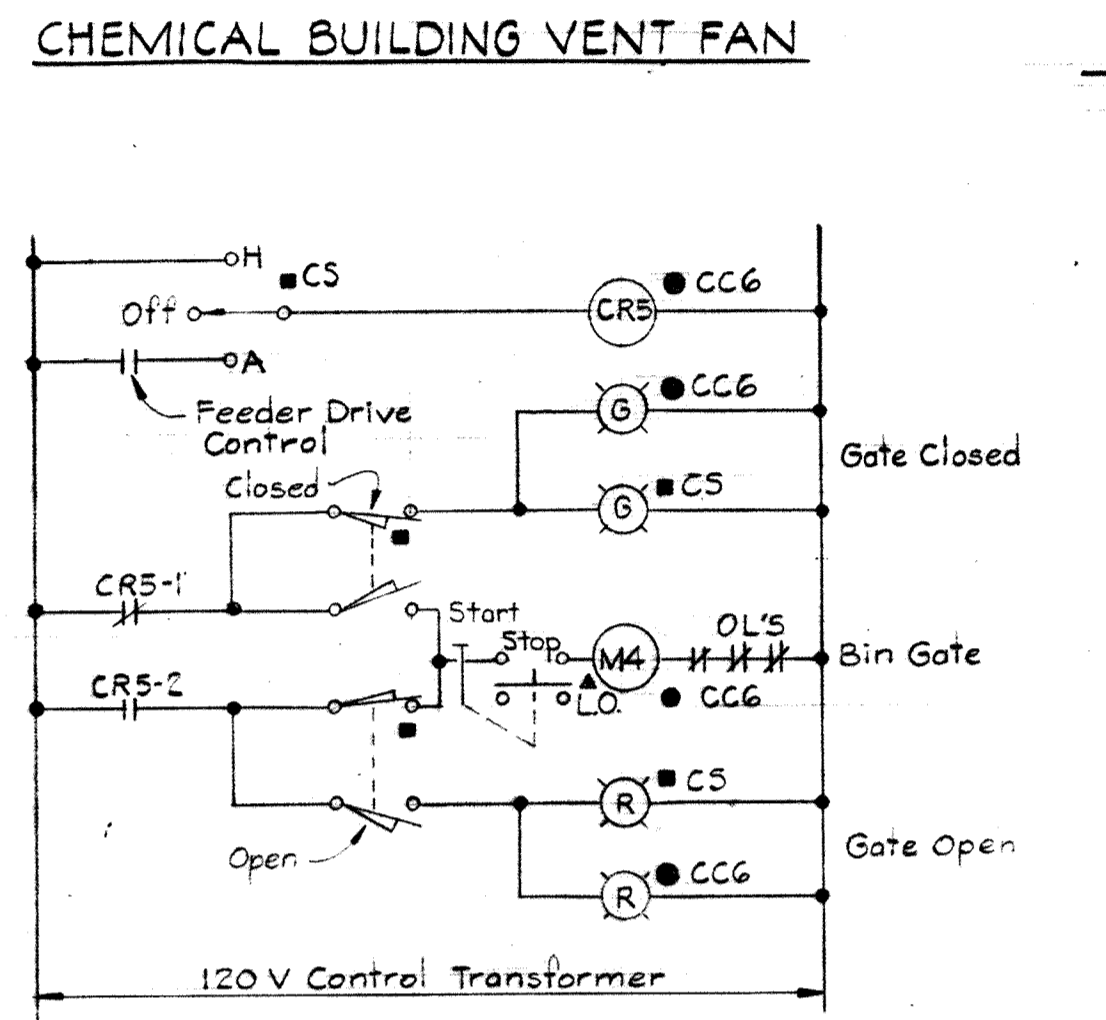
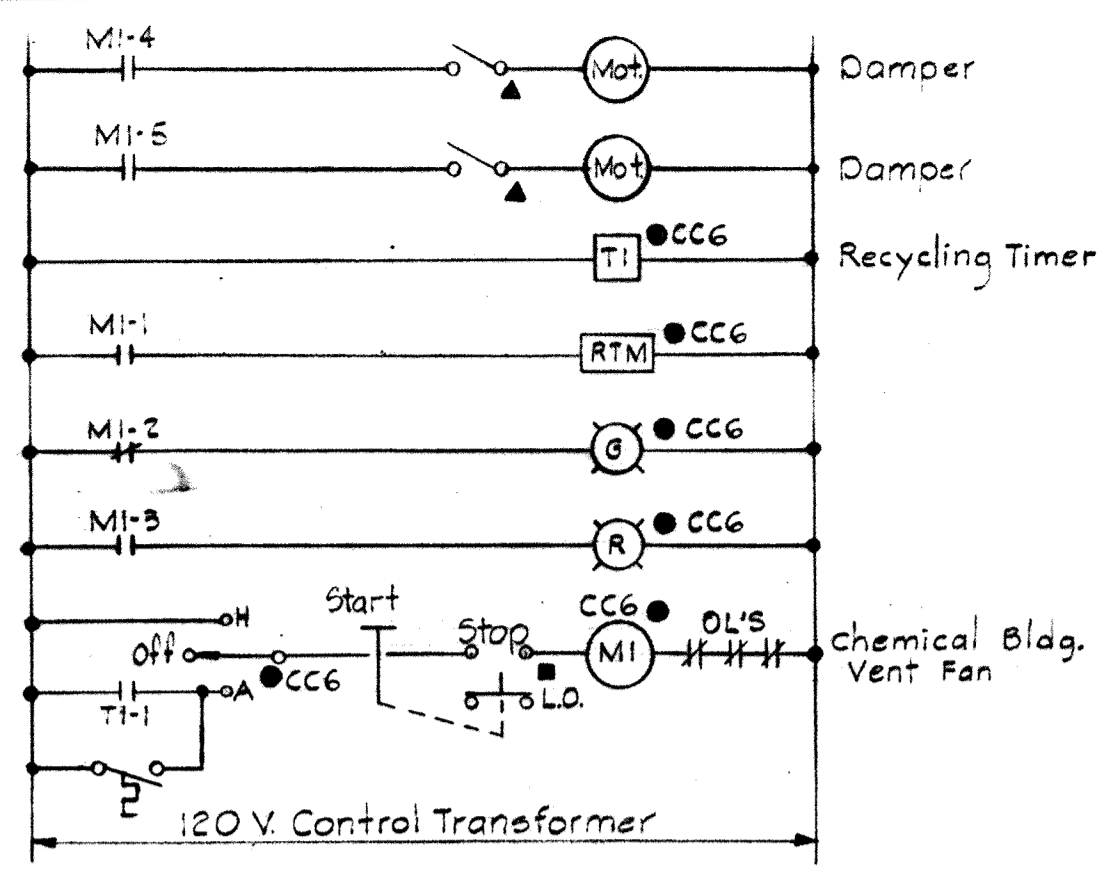
MODIFIED DRAWING-MAY 6, 1982



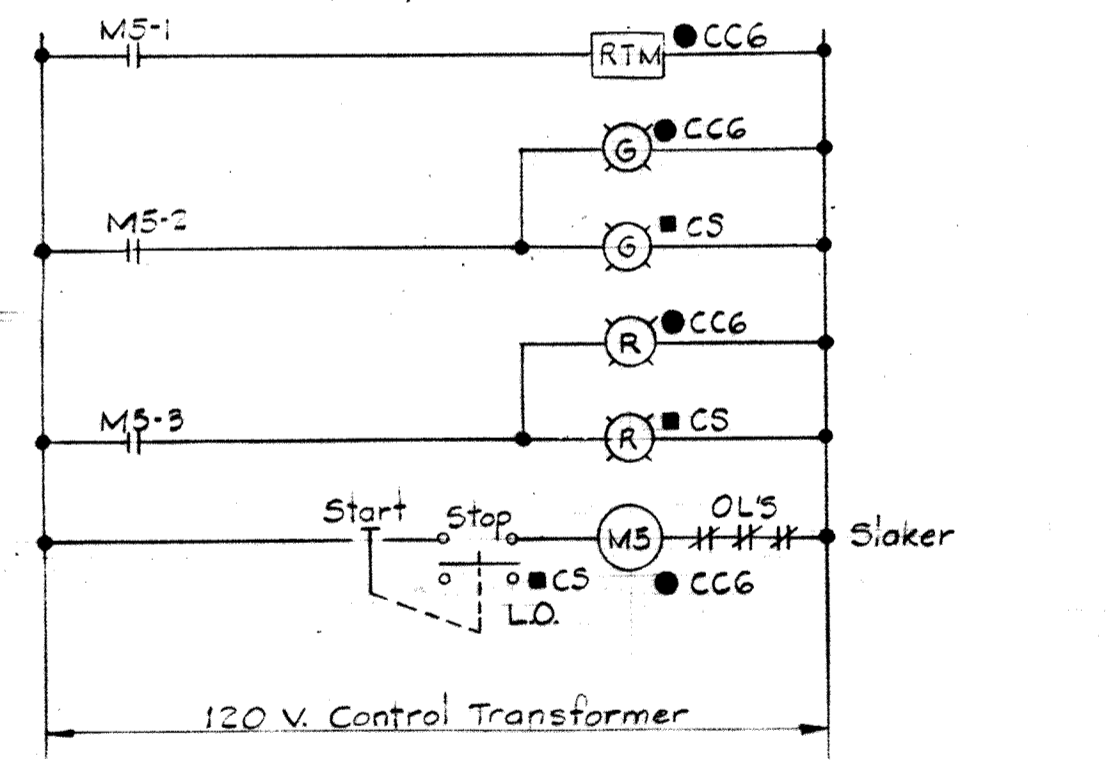
CHEMICAL BLDG UNIT HEATER #1
 Typical for the following units
 1. Chemical Bldg. Unit Heaters # 2, 3, 4
 2. Pipe Gallery Unit Heaters # 9, 10, 11, 12, 13, 14, 15, 16



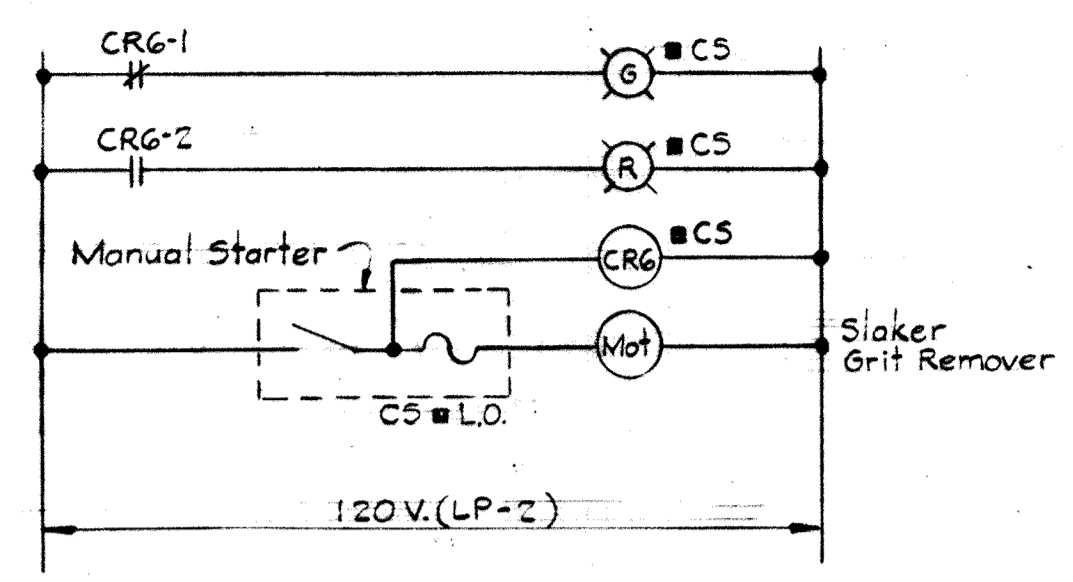
W.A.S. PUMP #1
 Typical for W.A.S. Pump #2
 Use E.C.D. Diagram for W.N.S. Pumps 1 & 2 on Sheet E-27



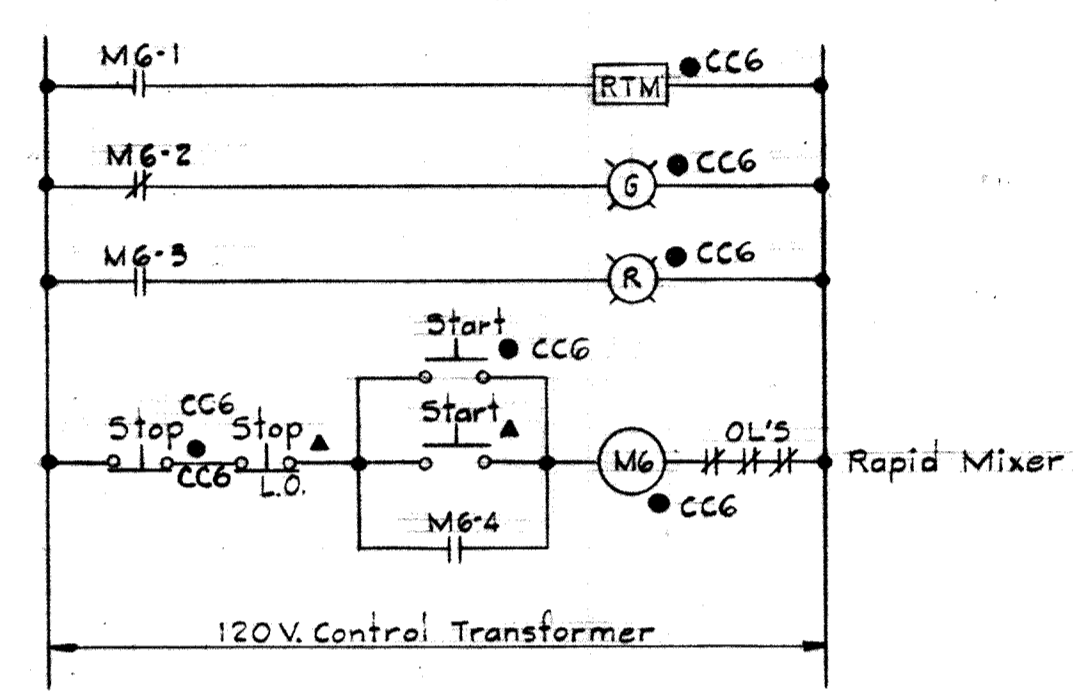
LIME FEEDER #1 BIN GATE
 Typical for Lime Feeder #2 & #3 Bin Gate



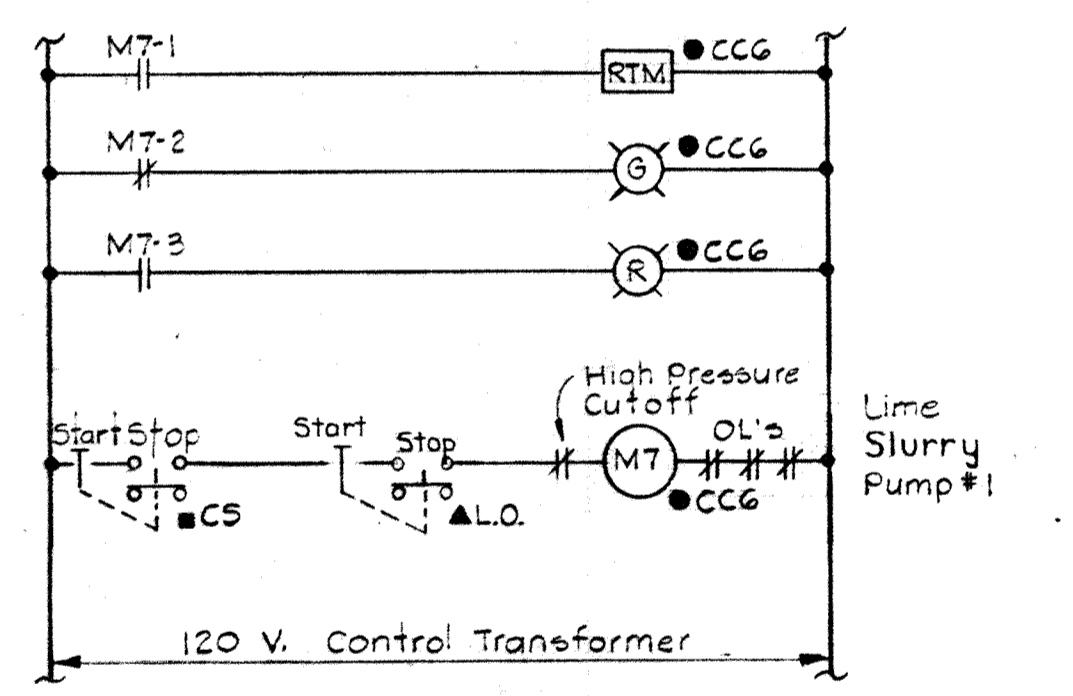
LIME FEEDER #1 SLAKER
 Typical for Lime Feeder #2 & #3 Slaker



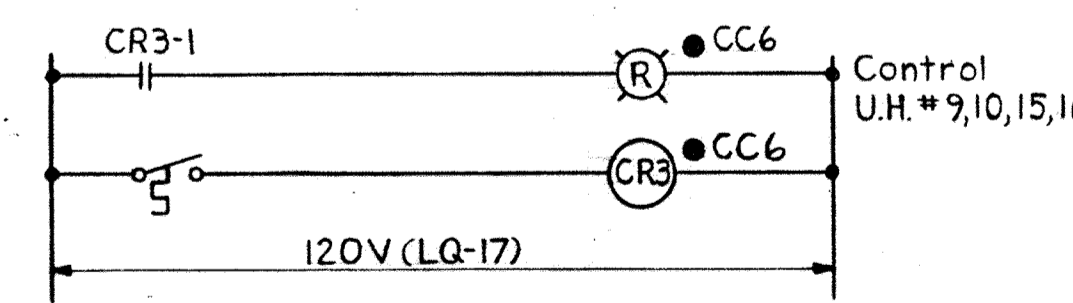
LIME FEEDER #1 SLAKER GRIT REMOVER
 Typical for Lime Feeder #2 & #3 Slaker Grit Remover



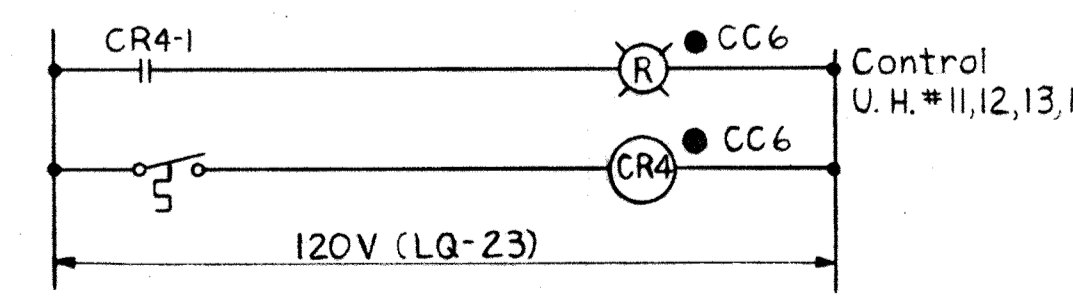
RAPID MIXER



LIME SLURRY PUMP #1
 Typical for Lime Slurry Pump #2

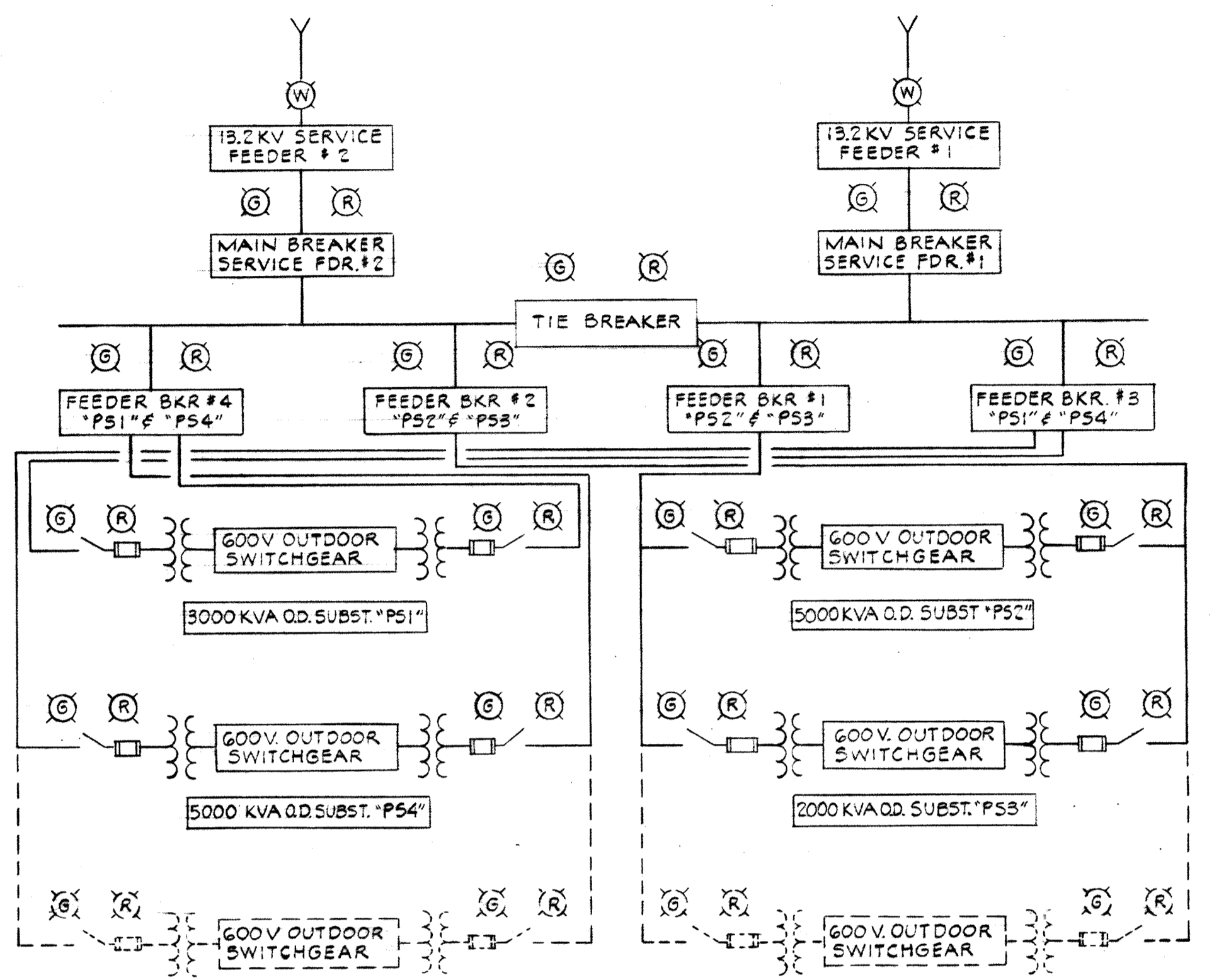


CONTROL PIPE GALLERY UNIT HEATERS

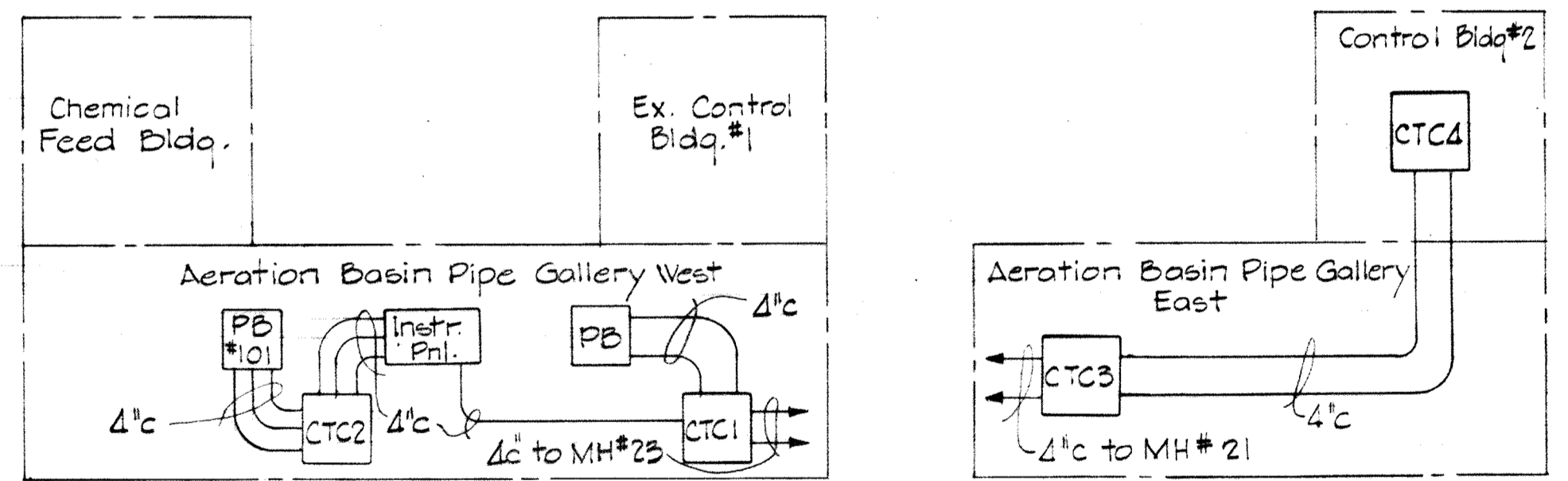


CONTROL PIPE GALLERY UNIT HEATERS

NOTES:
 1. For General Electrical Notes and Electrical Legend see Sheet E-2.



MIMIC BUS FOR MAIN O.D. SWITCHGEAR
 See Sheet E-33

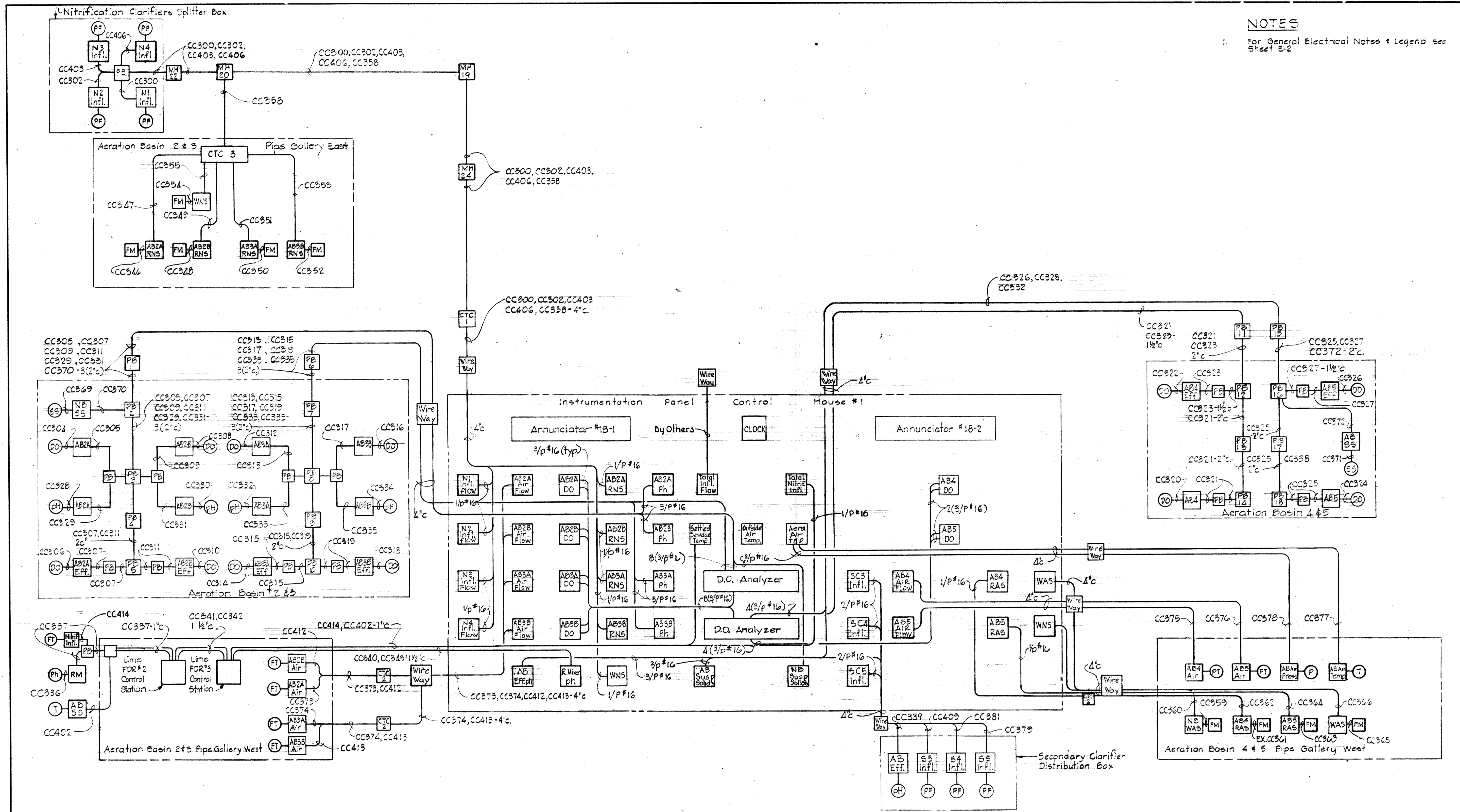


RISER DIAGRAM
 CONTROL WIRING TERMINAL CABINETS
 No Scale

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE W.D. Lubert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 2 & 3 PIPE GALLERY WEST CHEMICAL FEED BUILDING WIRING DIAGRAMS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 109 OF 133 SCALE AS SHOWN
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W.O. 6887-2

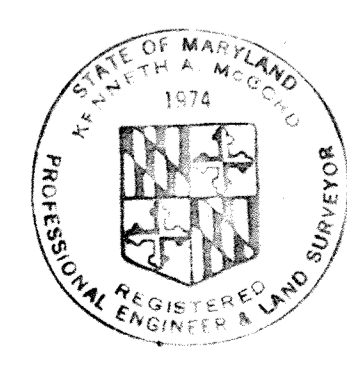
SHEET E-22
 MODIFIED DRAWING - MAY 6, 1982



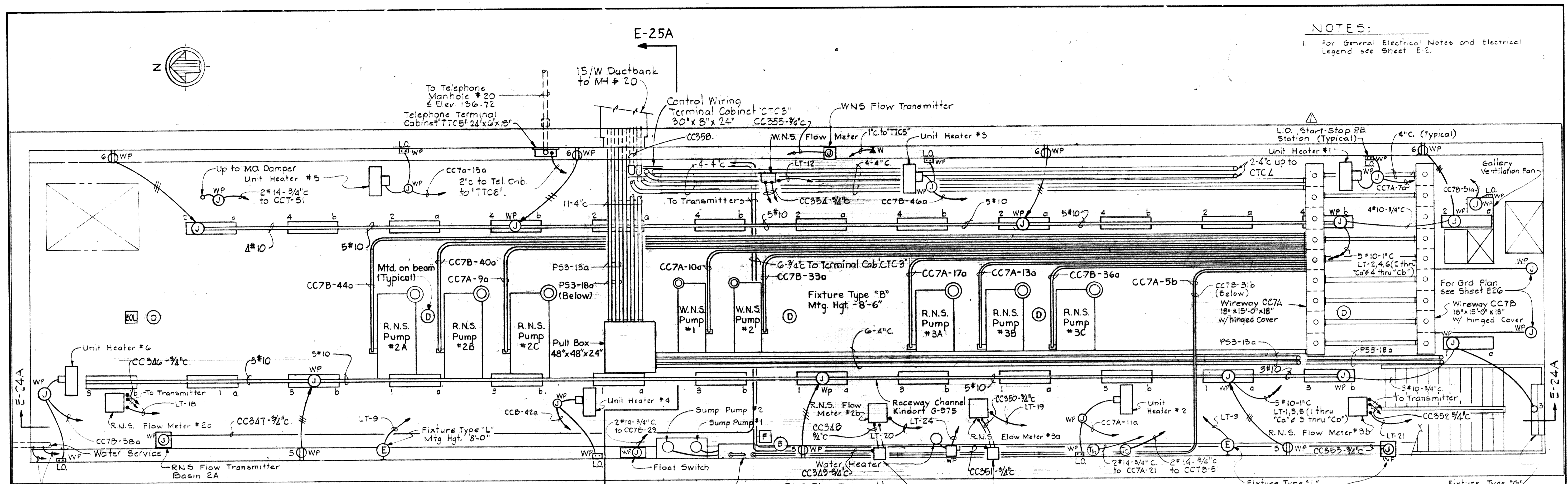
NOTES

1. For General Electrical Notes & Legend see Sheet E-2

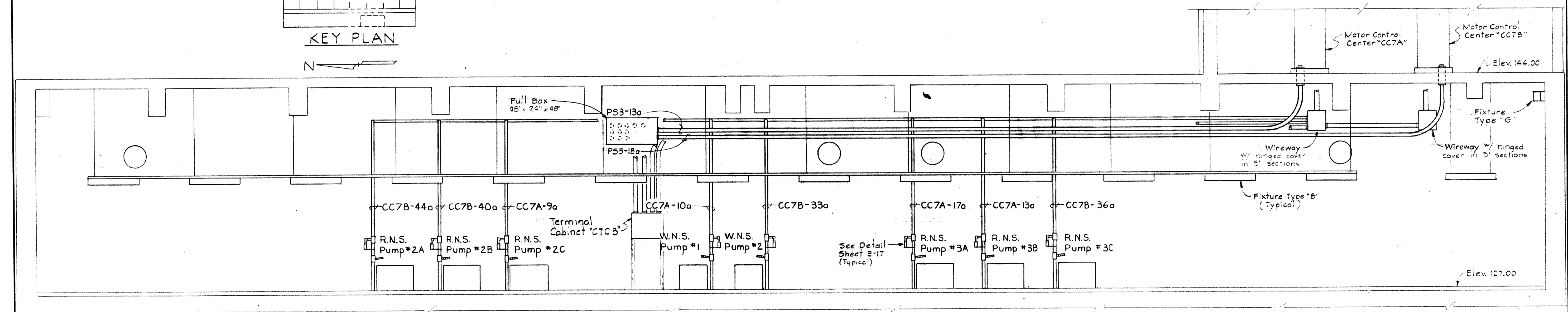
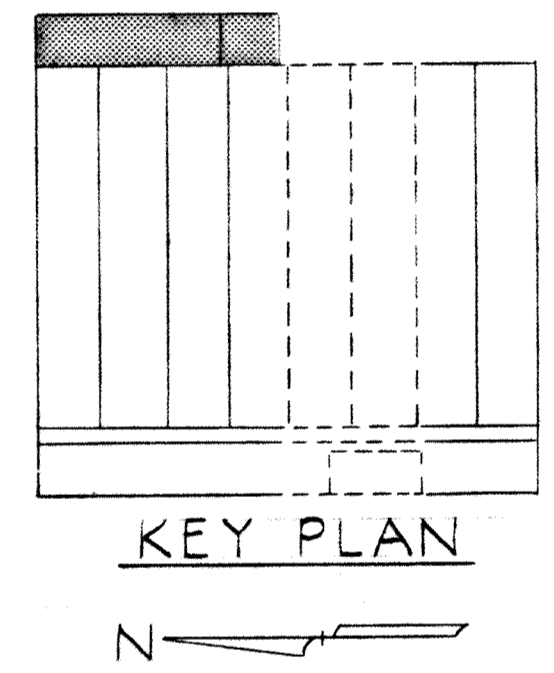
<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 <i>W.D. Lambert</i> CHIEF BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>METERS & INSTRUMENTATION WIRING DIAGRAMS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 110 OF 133</p>	<p>SCALE NONE</p>
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BRUNING 44-510 18392



PIPE GALLERY EAST PLAN
Scale: 1/4" = 1'-0"



SECTION E-24A/E-24
Scale: 1/4" = 1'-0"

NOTES:
1. For General Electrical Notes and Electrical Legend see Sheet E-2.

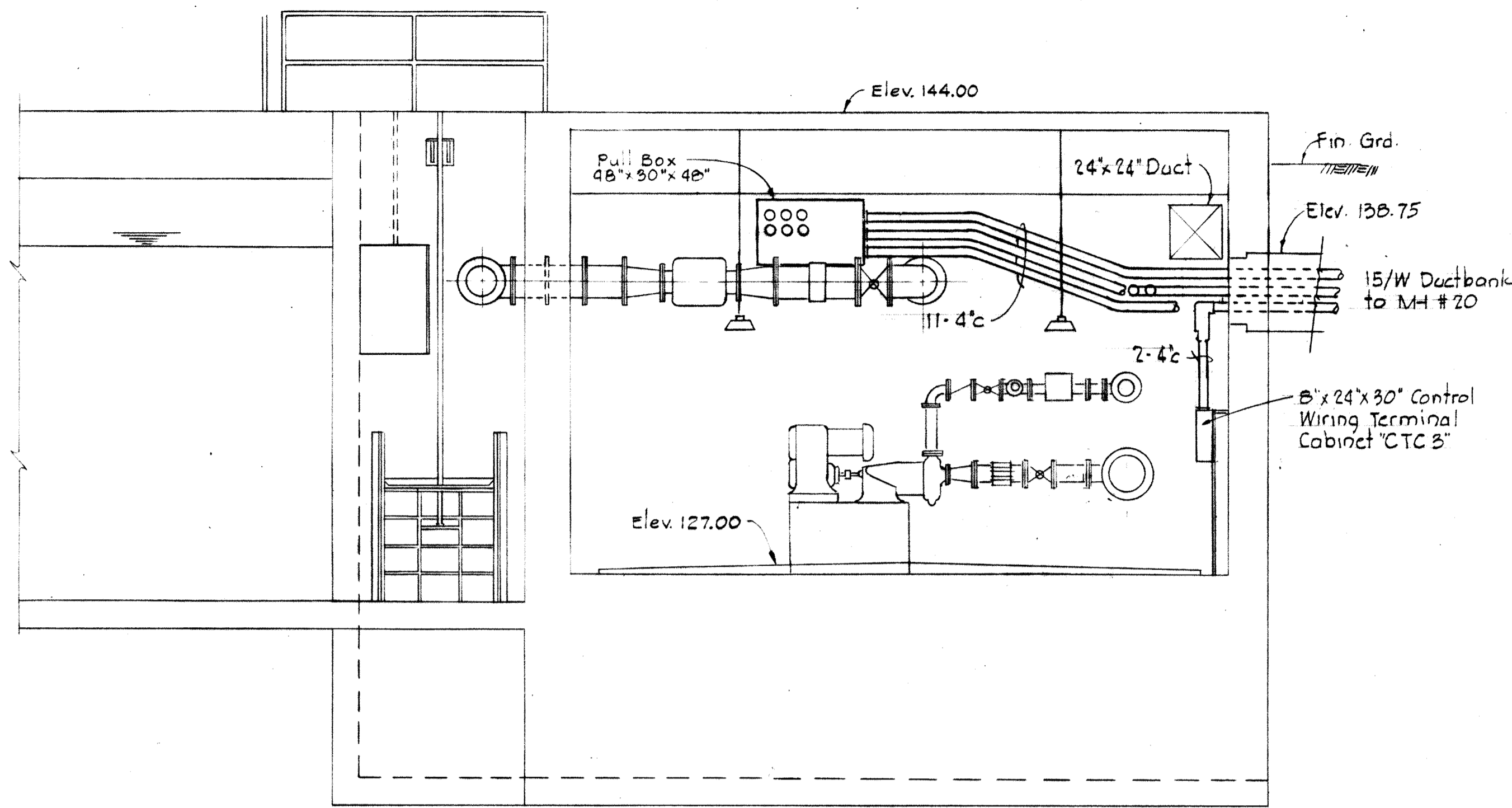
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W. O. Lubert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 2 & 3 PIPE GALLERY EAST PLAN & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. III OF 133 SCALE AS SHOWN
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W.O. 6887-2

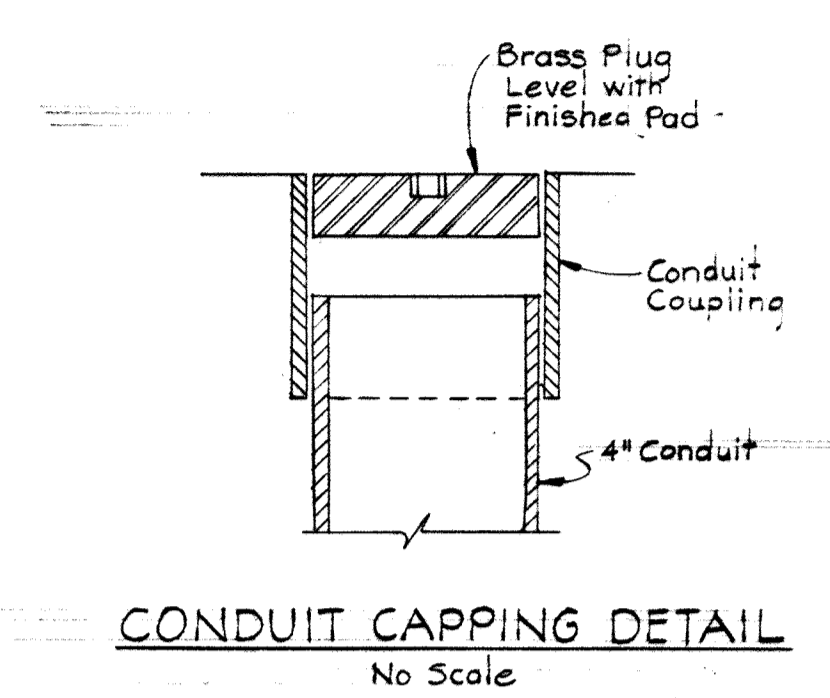
SHEET E-24

MODIFIED DRAWING-MAY 6, 1982

BRUNING 44-510 18392

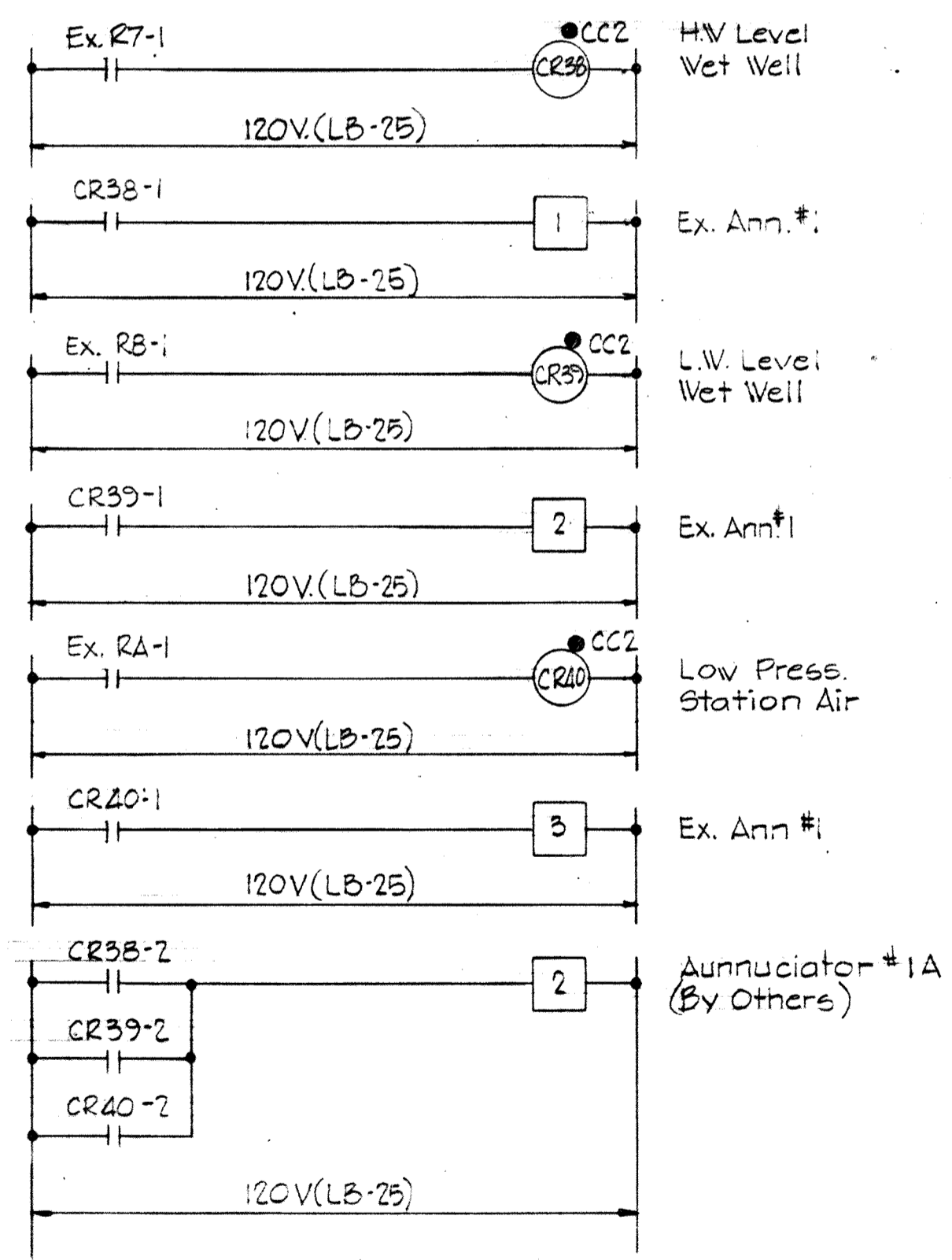


SECTION E25A/E24
Scale: 1/4" = 1'-0"

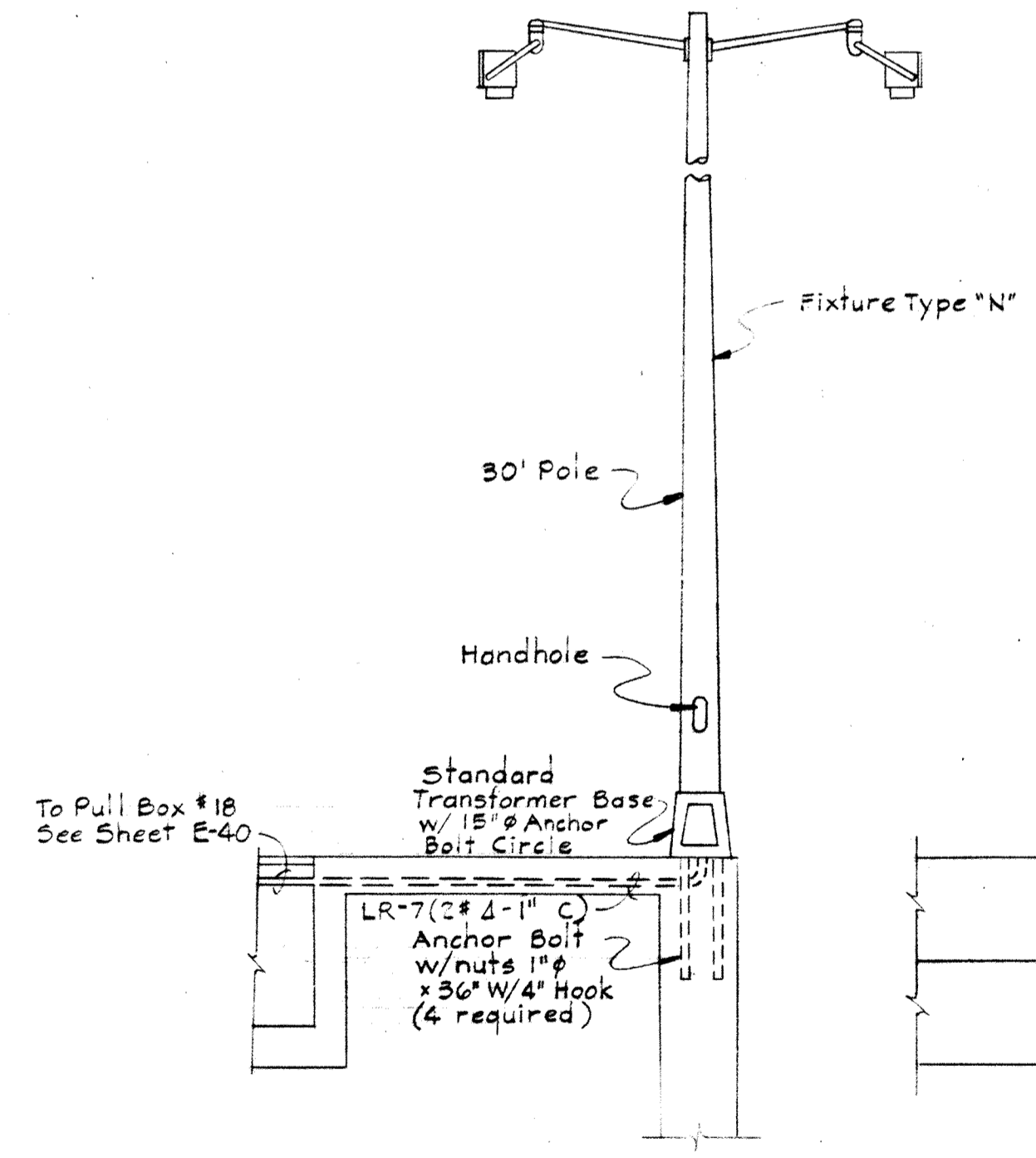


CONDUIT CAPPING DETAIL
No Scale

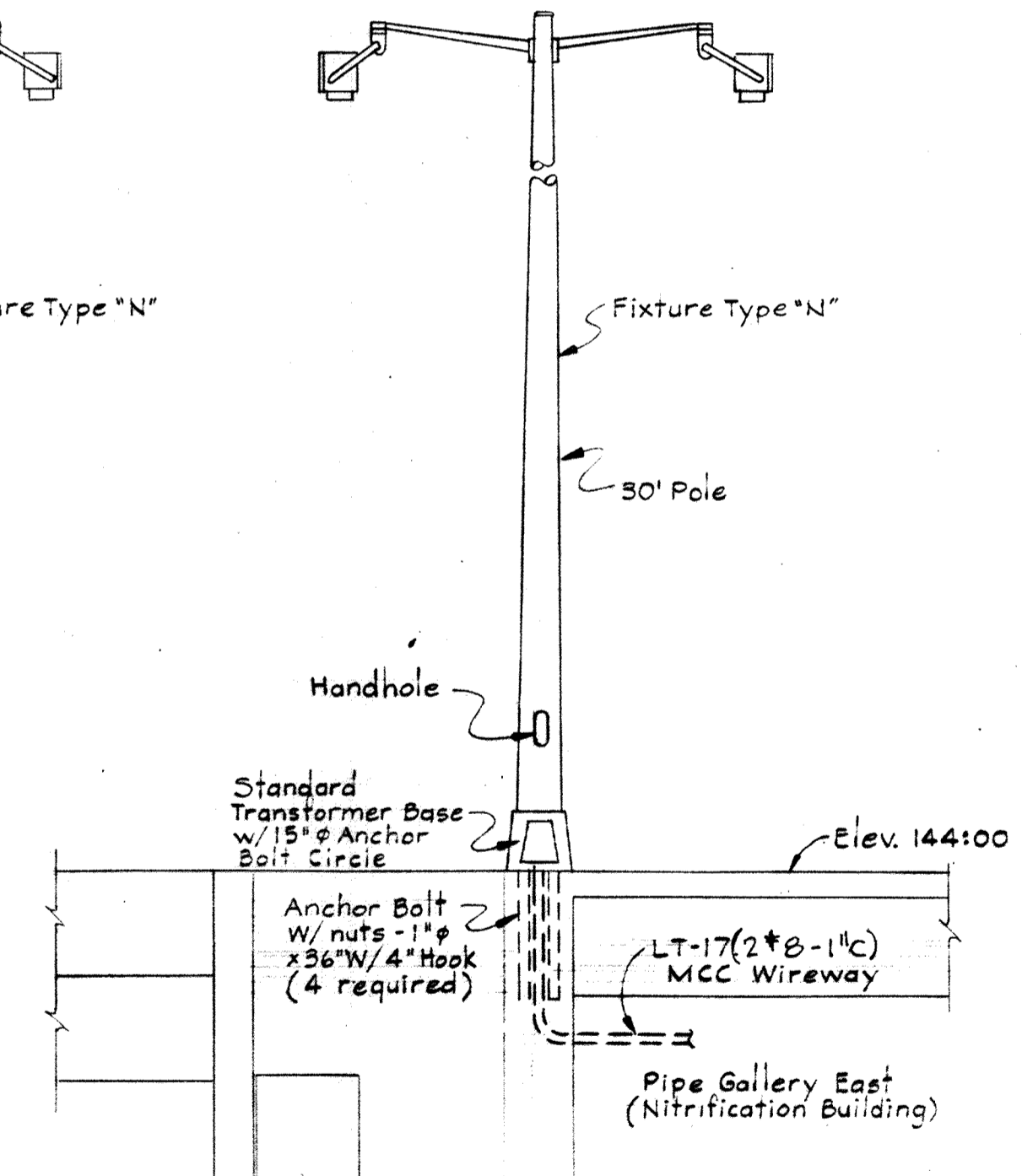
NOTE:
1. For General Electrical Notes and Electrical Legend see Sheet E-2.



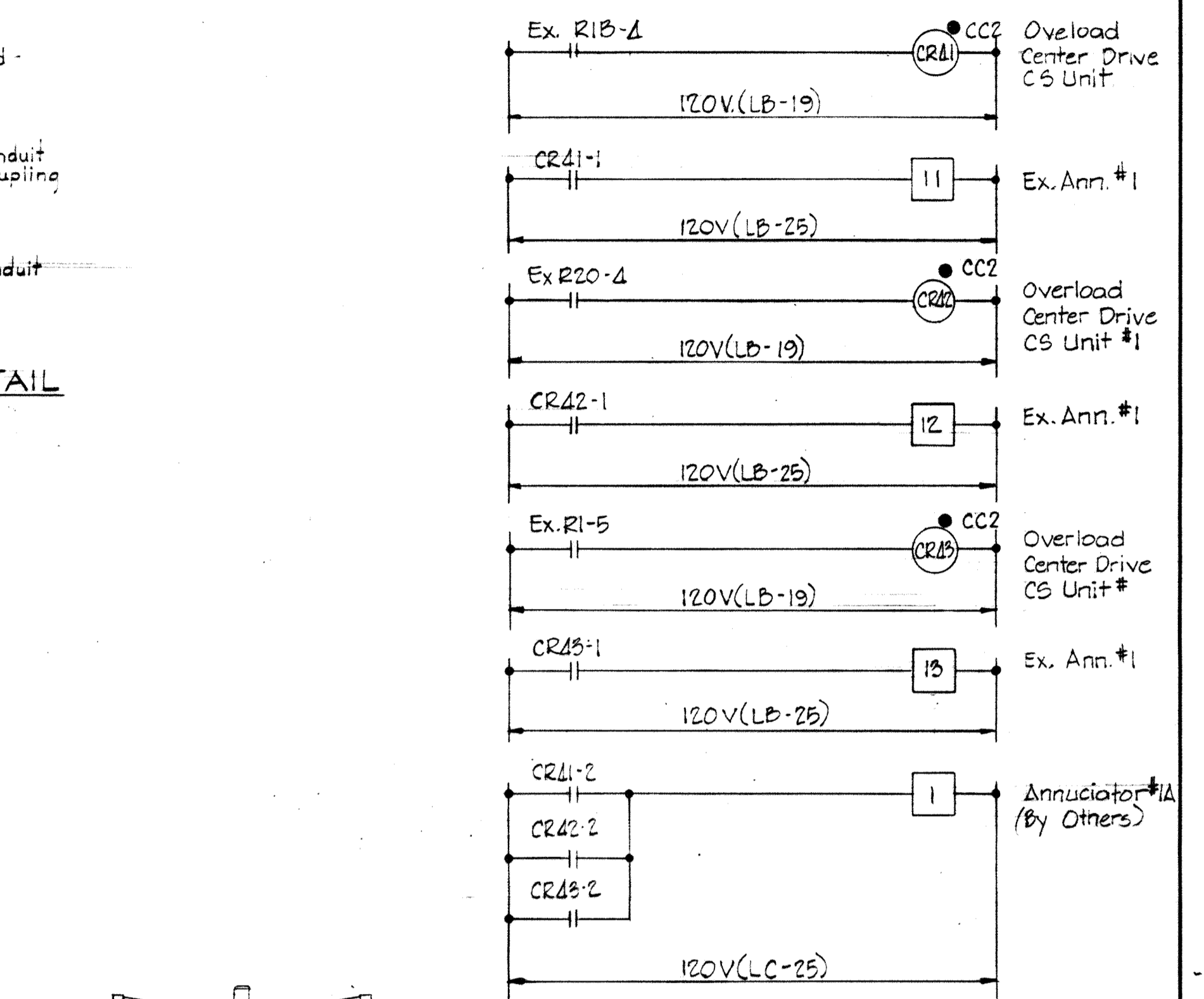
ECD #19
ABNORMAL WET WELL ALARM
BLOWER BLDG & P.S.



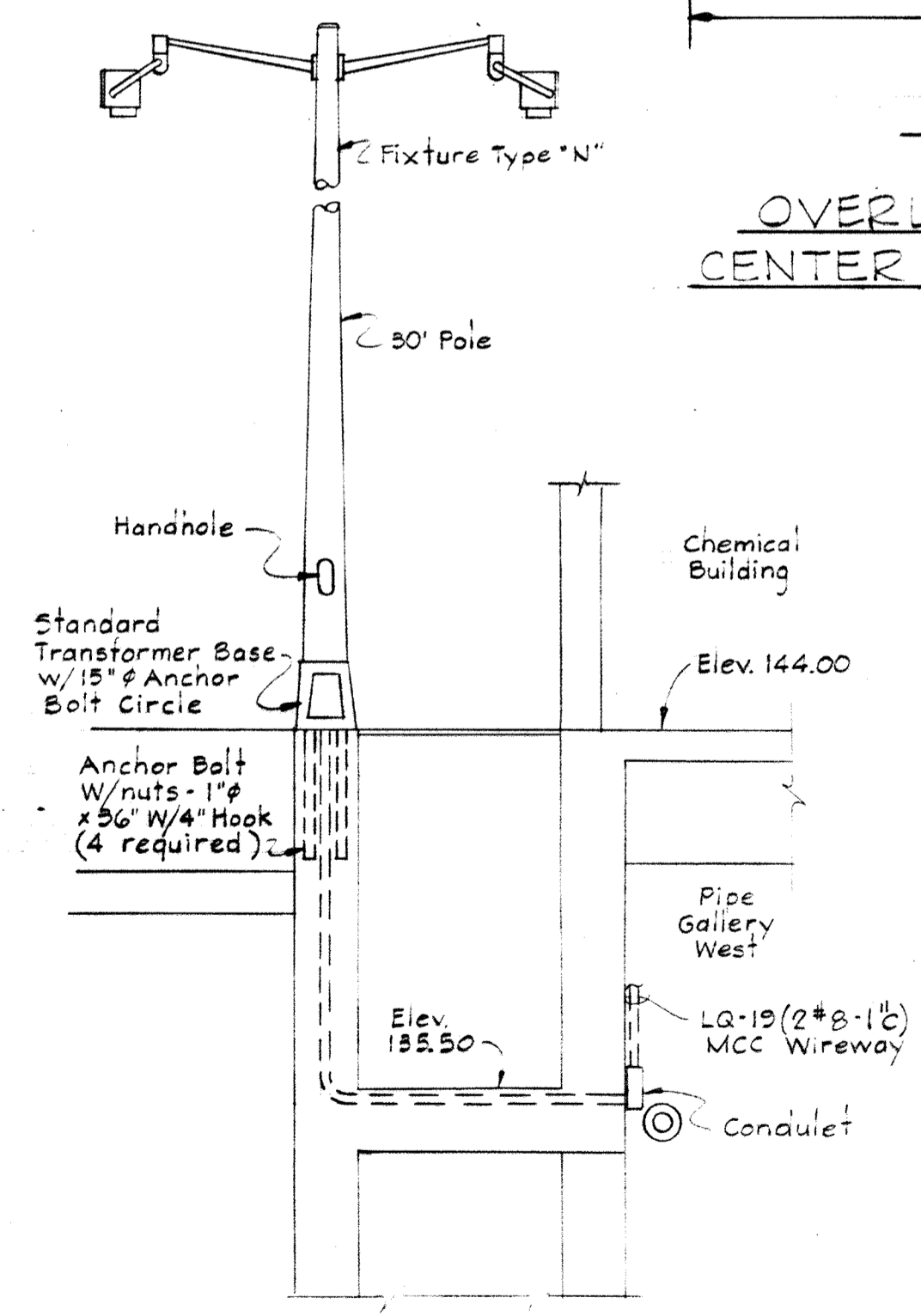
SECTION E25B/E3, E40
Scale: 1/4" = 1'-0"



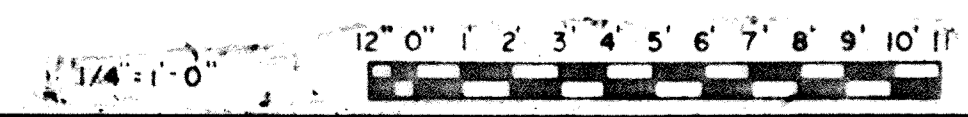
SECTION E25C/E3
Scale: 1/4" = 1'-0"



ECD #20
OVERLOAD ALARM
CENTER DRIVES C.S. UNITS



SECTION E25D/E3
Scale: 1/4" = 1'-0"

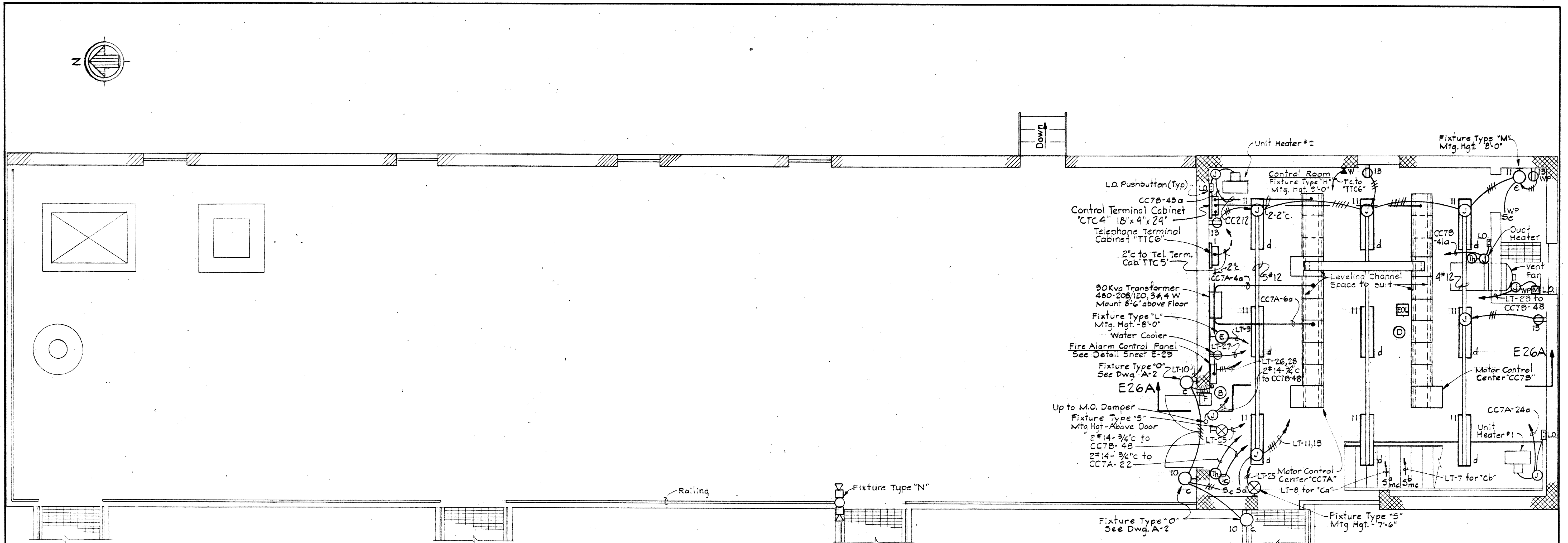


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W. O. Libert CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS SECTIONS & MISC. DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 112 OF 133 SCALE AS SHOWN
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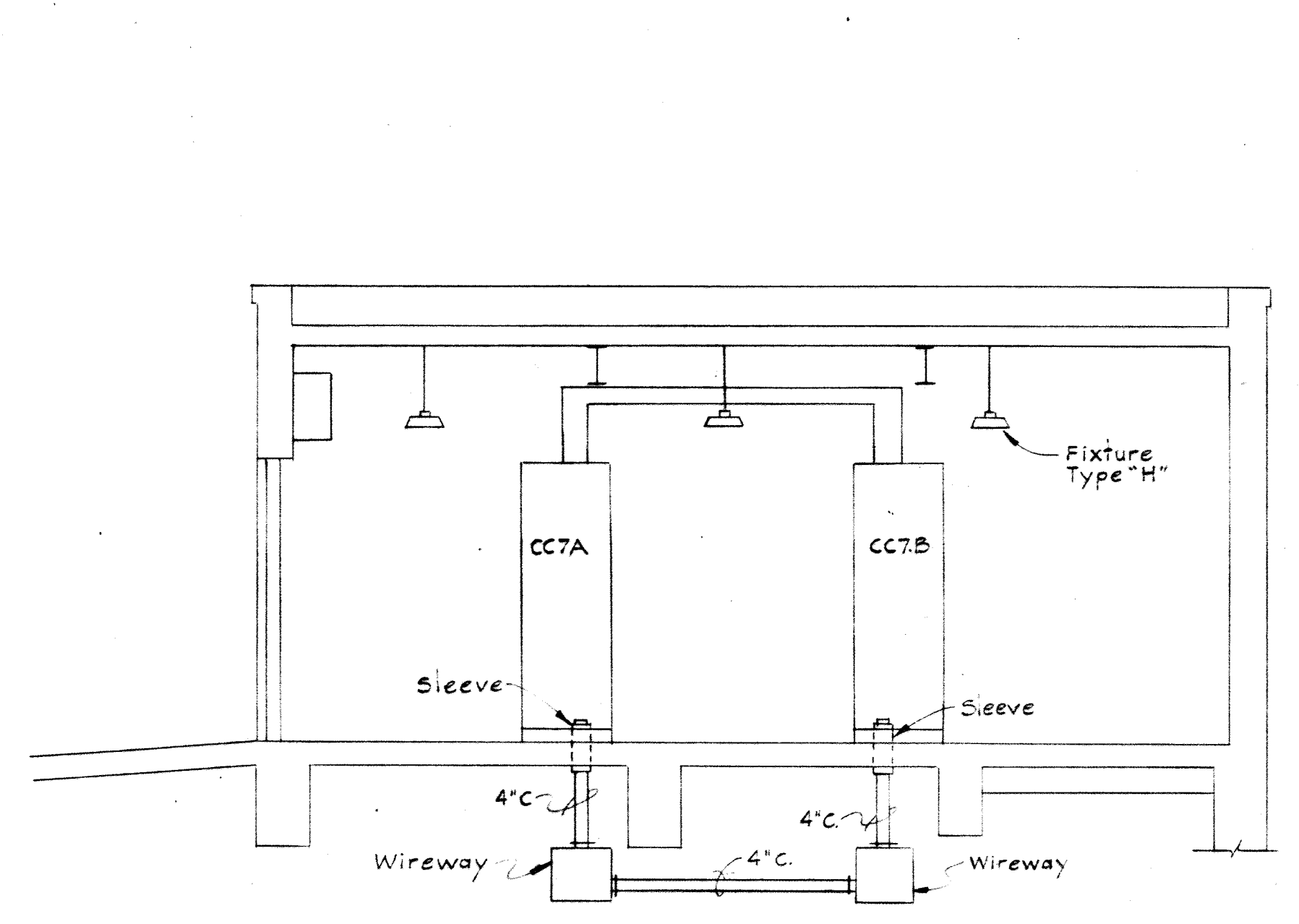
W. O. 6887-2

SHEET E-25

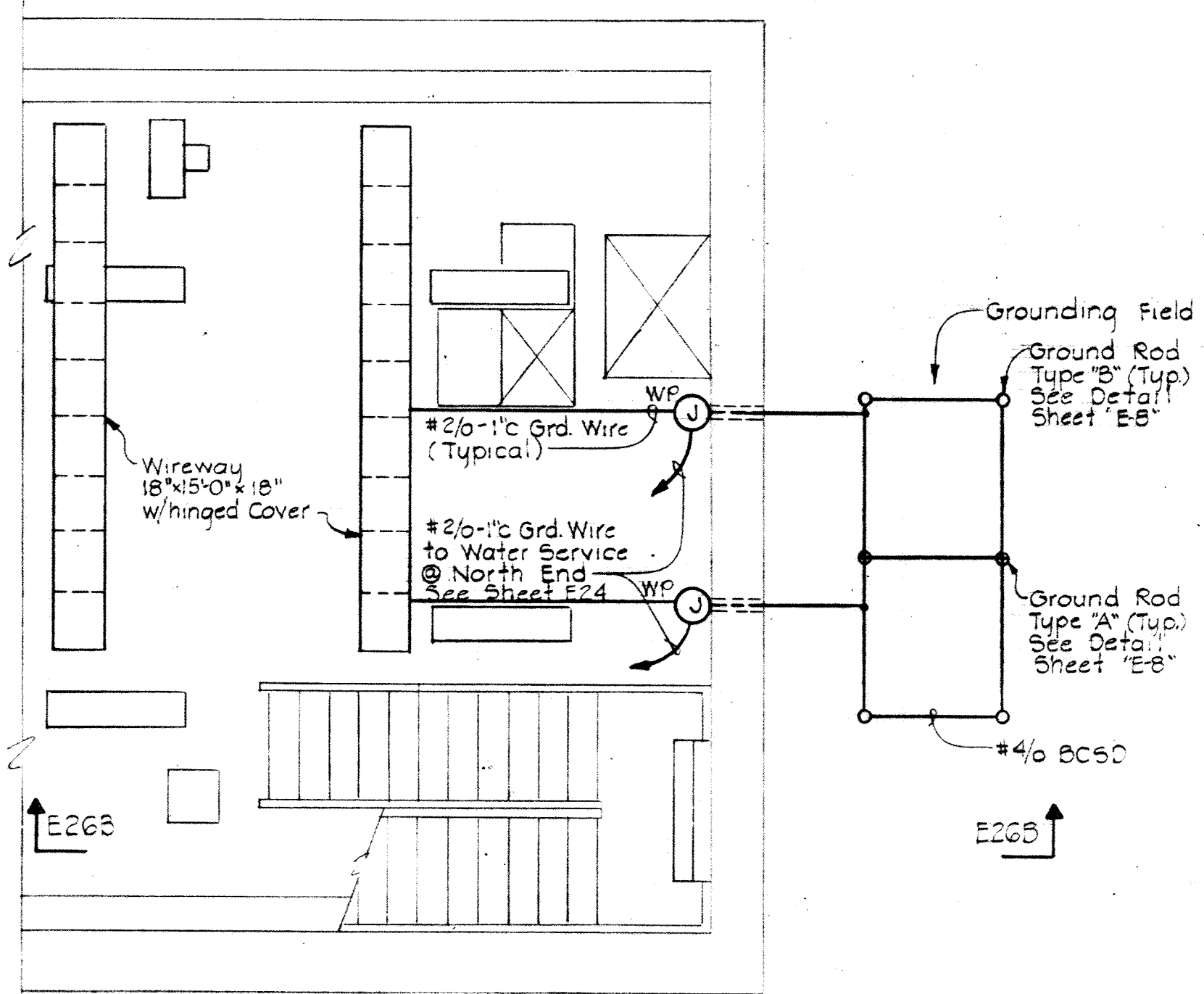
BRUNING 44-510 18392



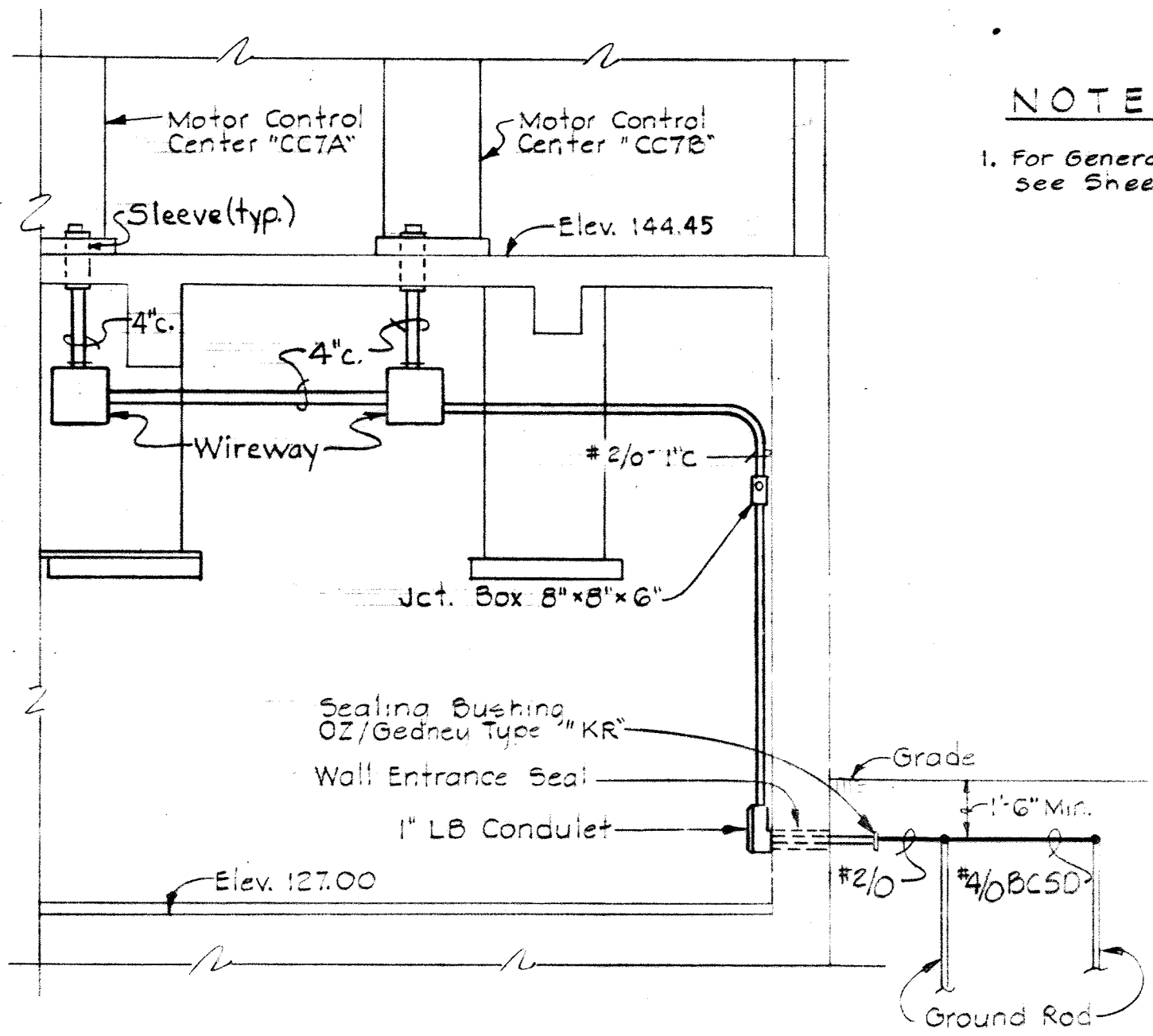
CONTROL BUILDING #2-PLAN
Scale: 1/4"=1'-0"



SECTION E26A/E26
Scale: 1/4"=1'-0"



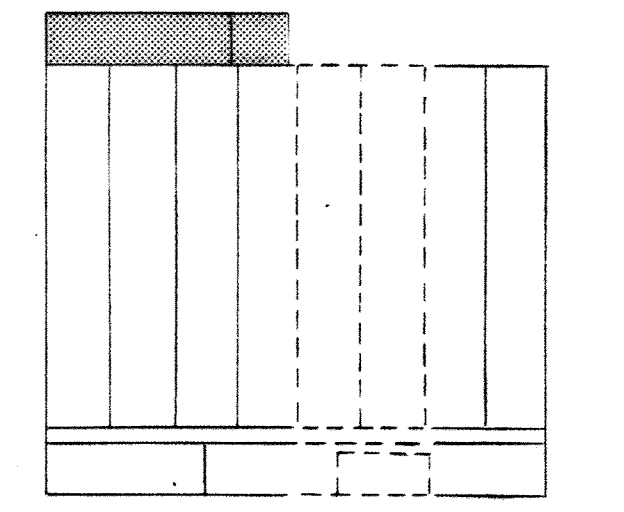
PLAN



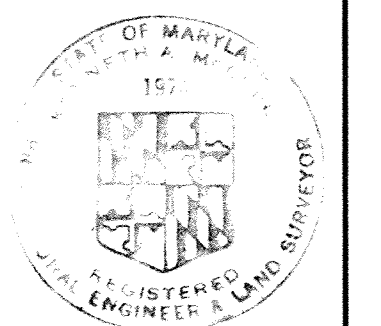
SECTION E26B/E26

GROUNDING FOR MOTOR CONTROL CENTERS CC7A & CC7B
Scale: 1/4"=1'-0"

NOTES:
1. For General Electrical Notes & Electrical Legend see Sheet E-2.



KEY PLAN

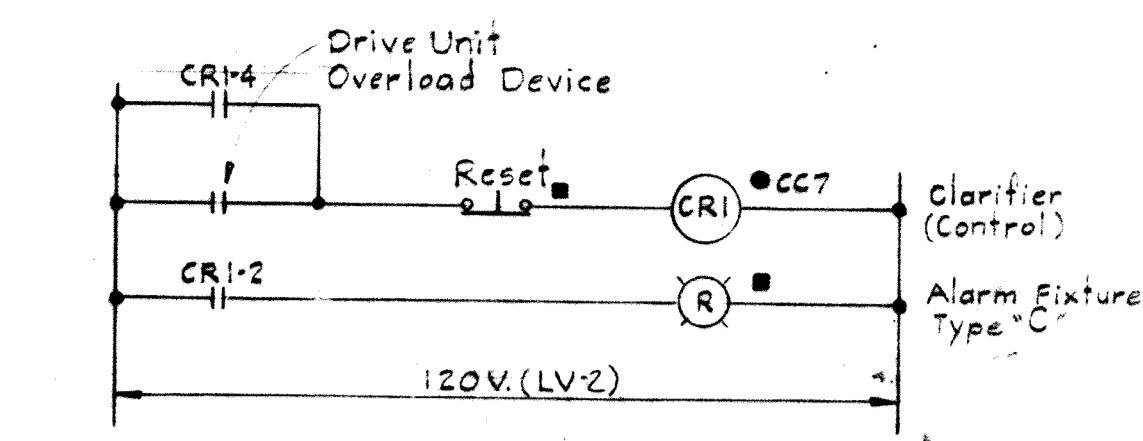


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W.O. Libert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 2 & 3 PIPE GALLERY EAST CONTROL BLDG. PLAN & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 113 OF 133 SCALE AS SHOWN
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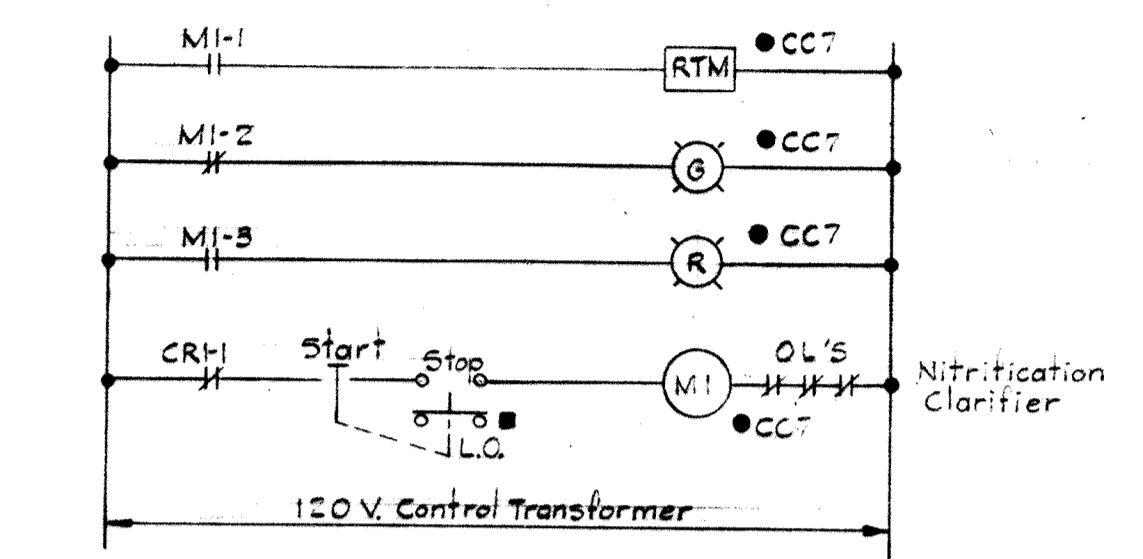
W.O. 6887-2

SHEET E-26

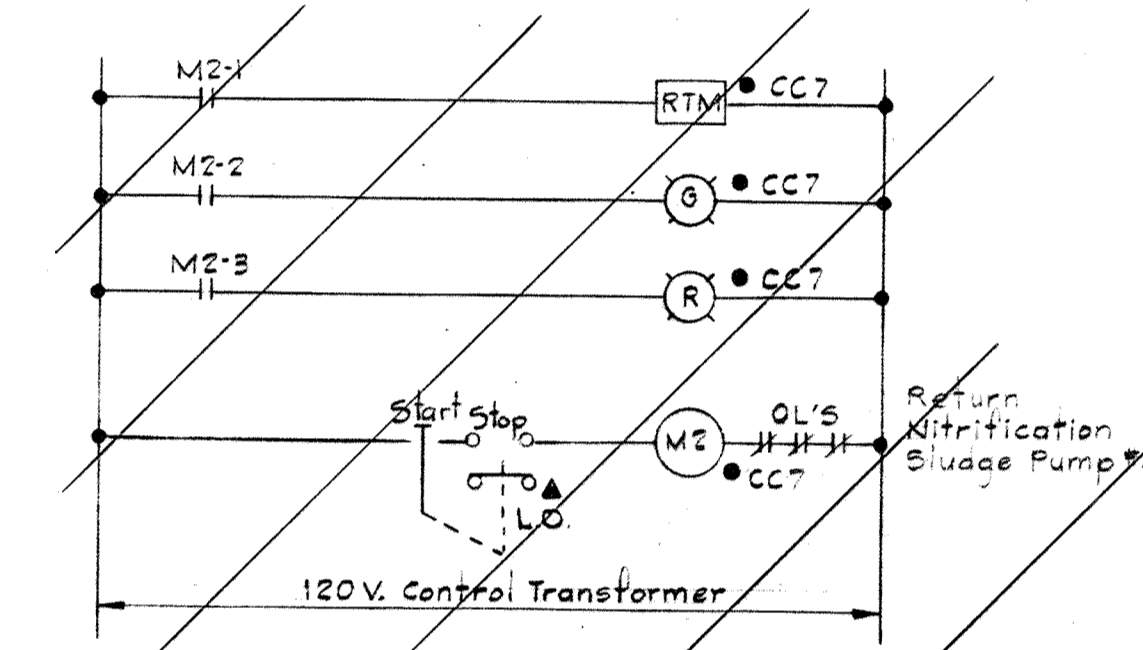
DRAWING 44-510 1B-92



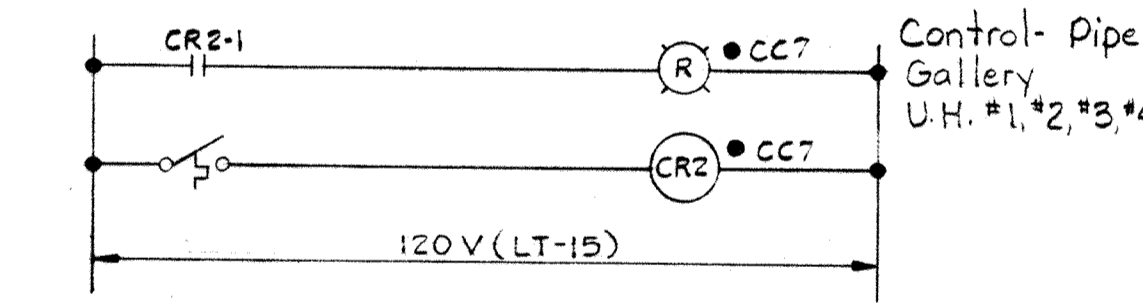
CONTROL - NITRIFICATION CLARIFIER #1
 Typical for Nitrification Clarifier #2, #3, #4
 See Panels "LU", "LX", "LY" for Circuit



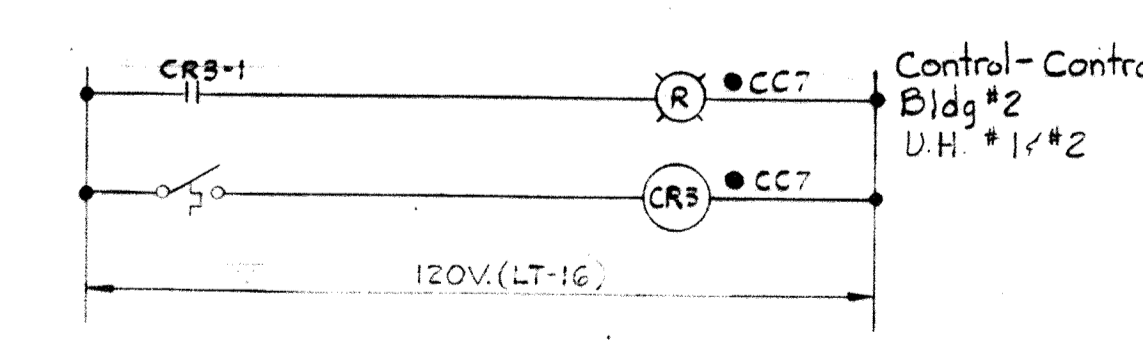
NITRIFICATION CLARIFIER #1
 Typical for Nitrification Clarifier #2, #3, #4



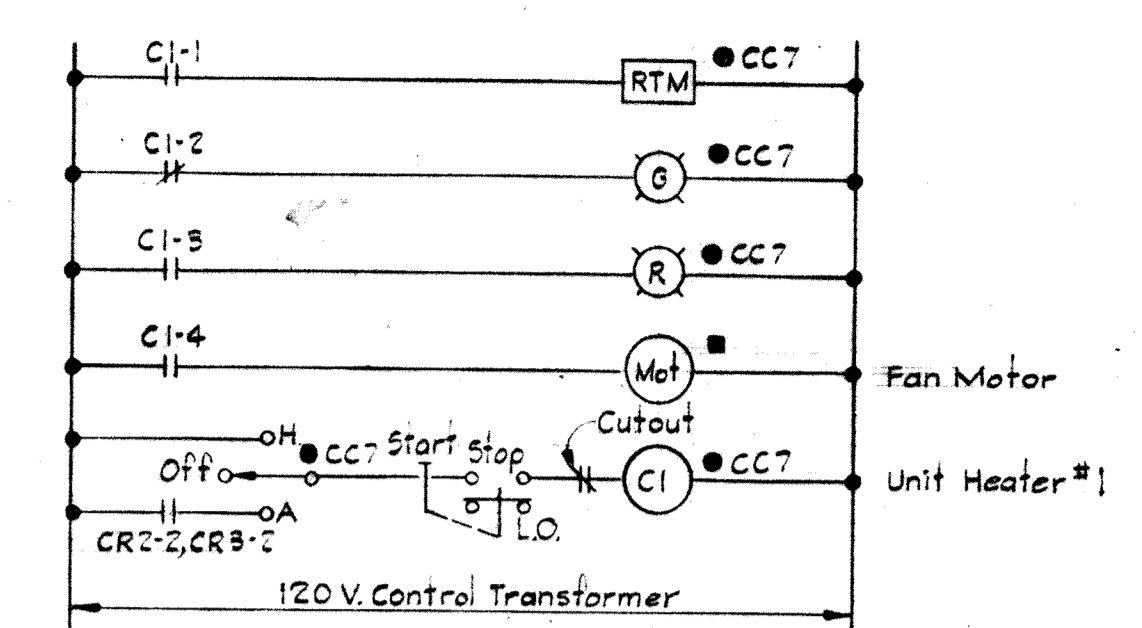
RETURN NITRIFICATION SLUDGE PUMP
 Typical for RNS Pumps #2B, #3A, #3B
 Use E.C.D. Diagram for W.N.S. Pumps 1 & 2 on this sheet



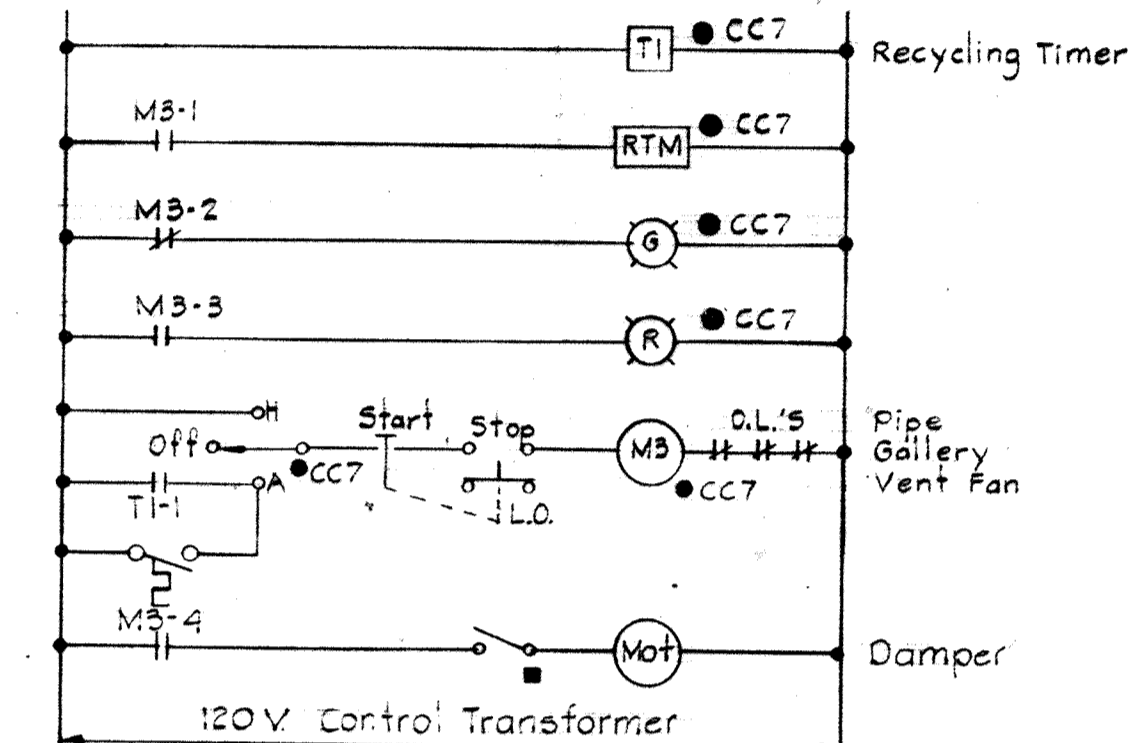
CONTROL-PIPE GALLERY UNIT HTR.



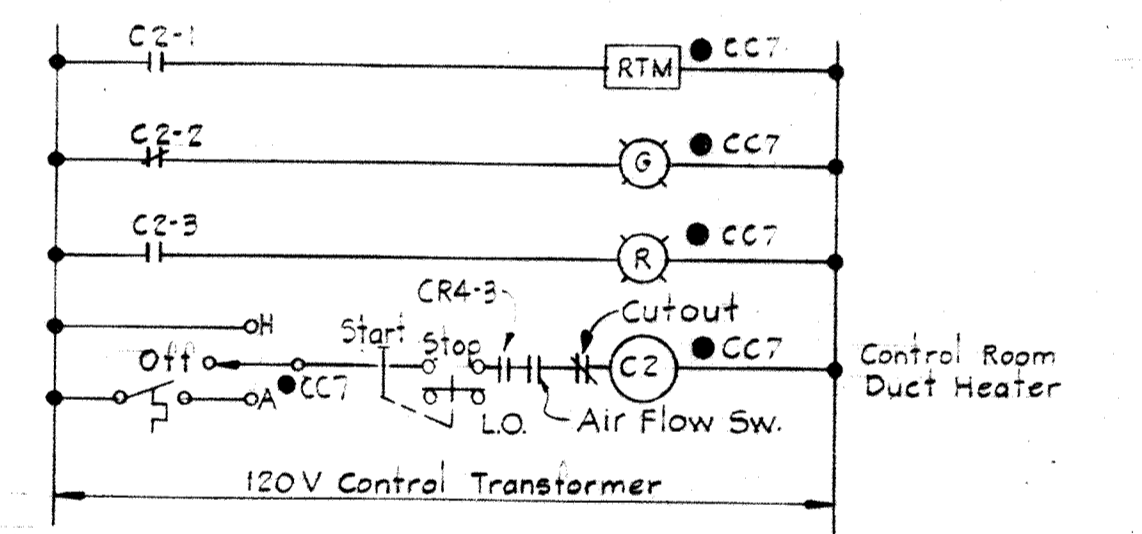
CONTROL-CONTROL ROOM UNIT HEATER



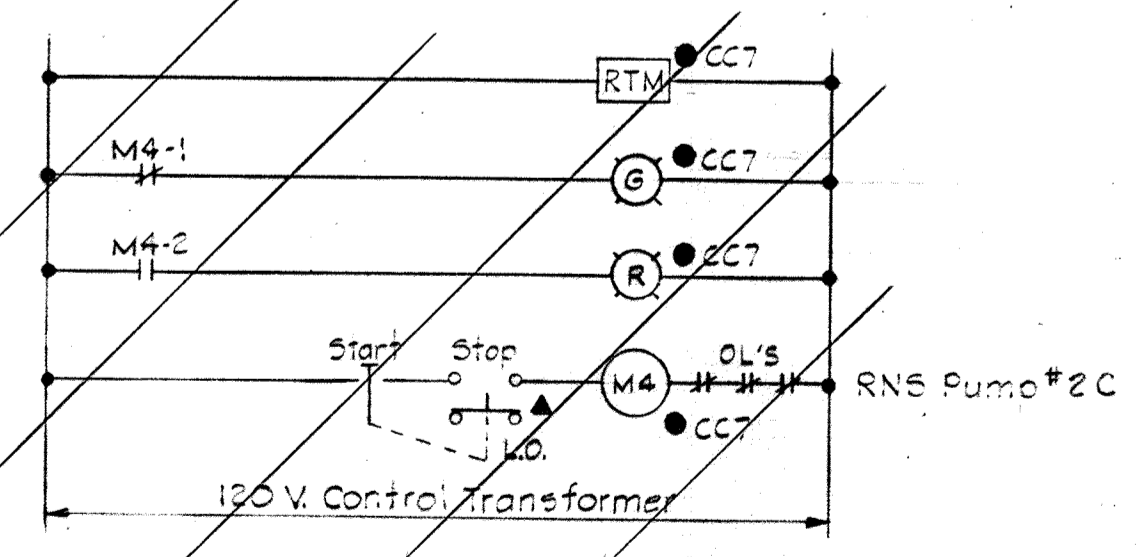
CONTROL BUILDING UNIT HEATER #1
 Typical for the following units:
 1. Control Building Unit Heater #2
 2. Pipe Gallery Unit Heater #1, #2, #3, #4, #5, #6



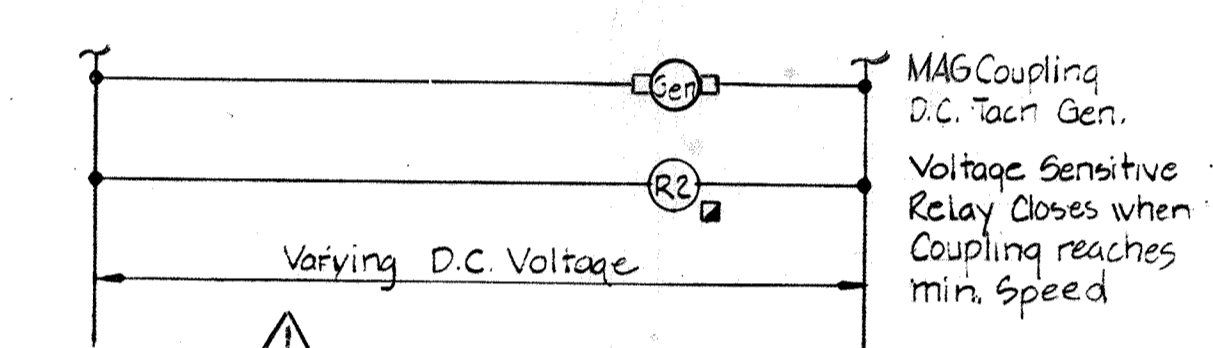
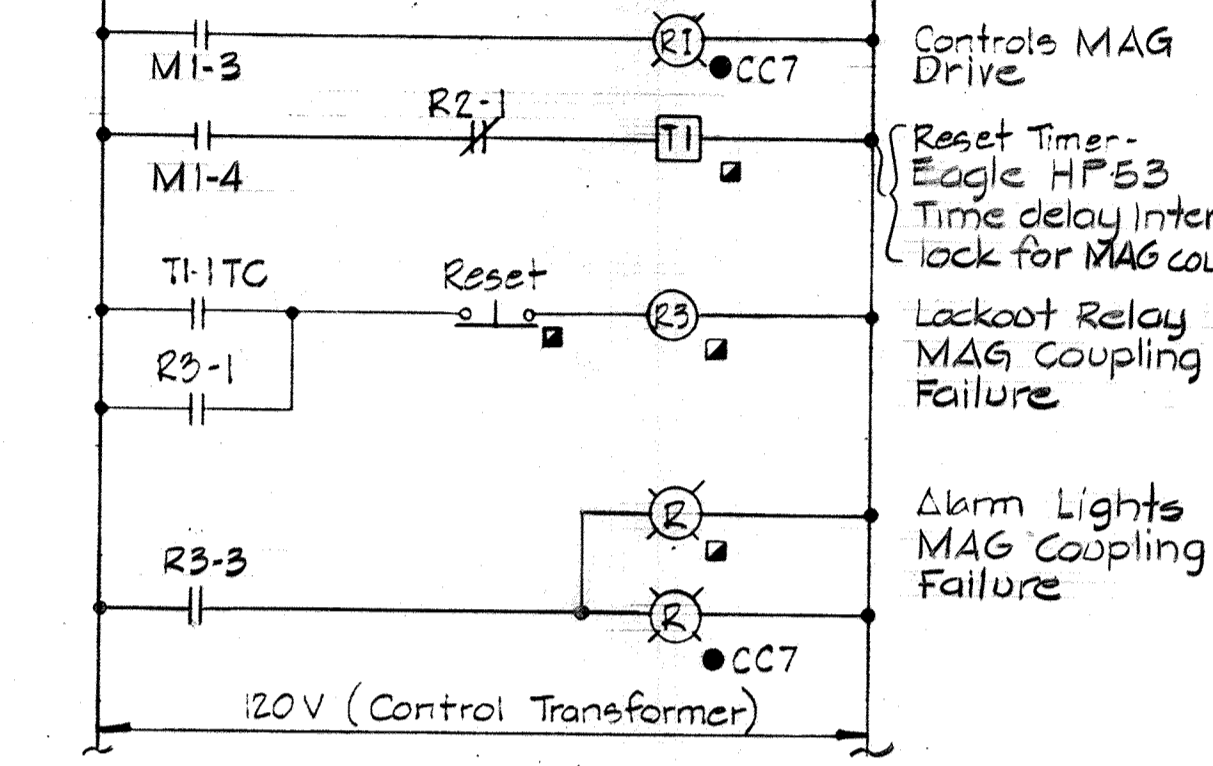
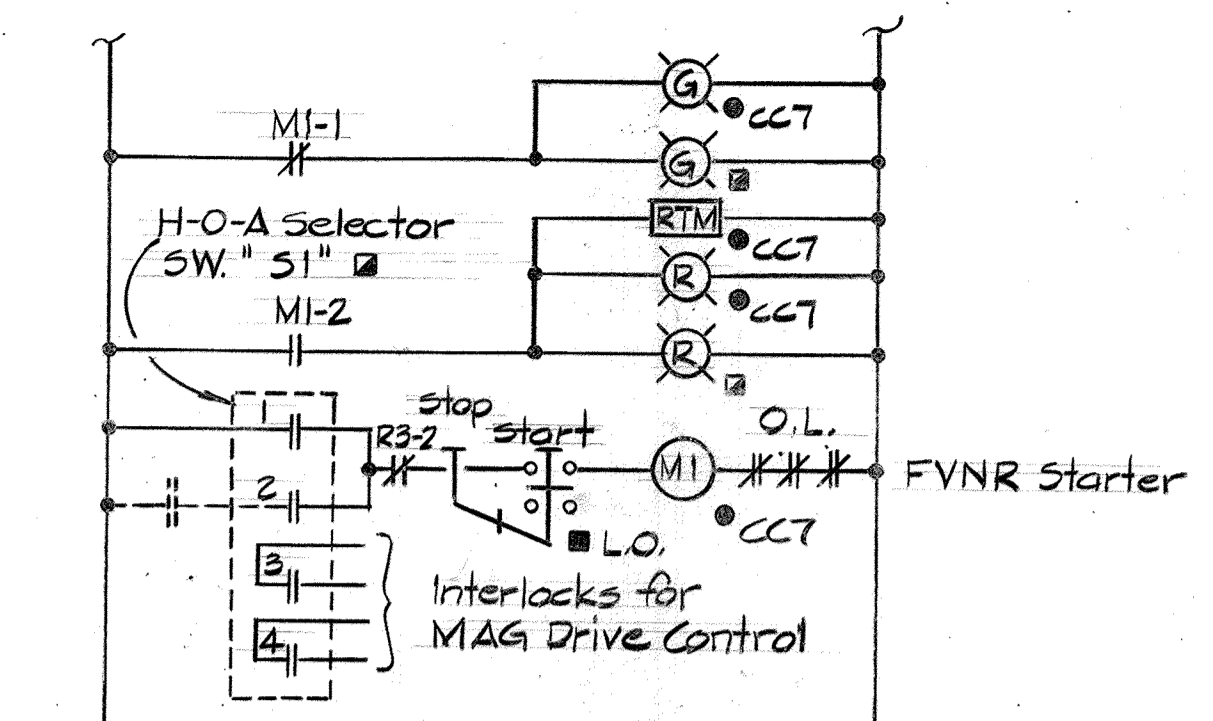
PIPE GALLERY VENTILATION FAN



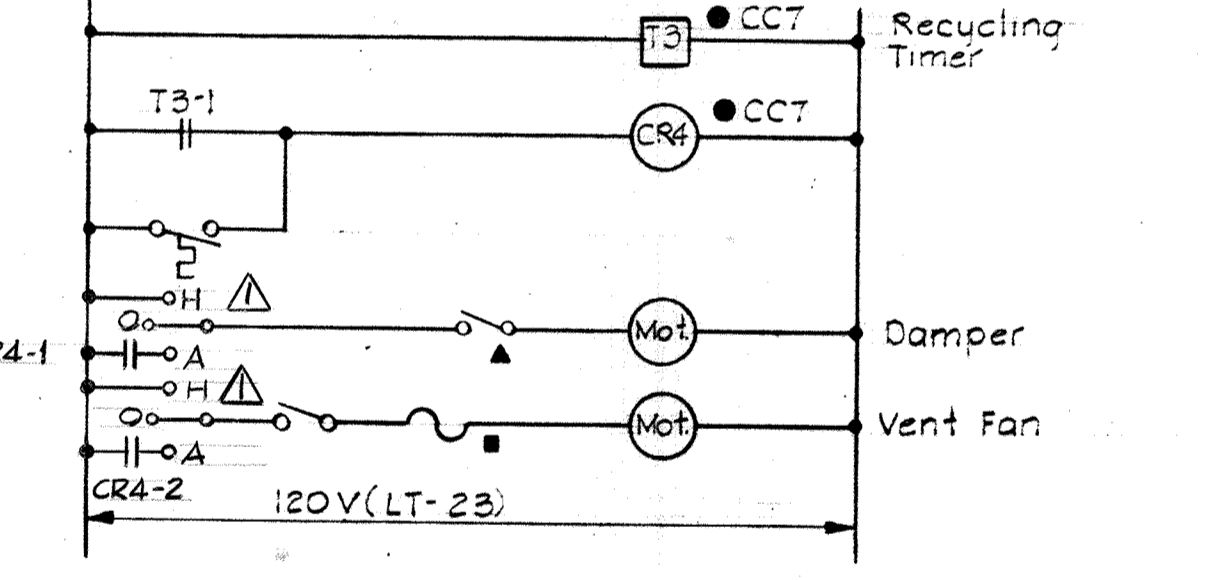
CONTROL ROOM DUCT HEATER



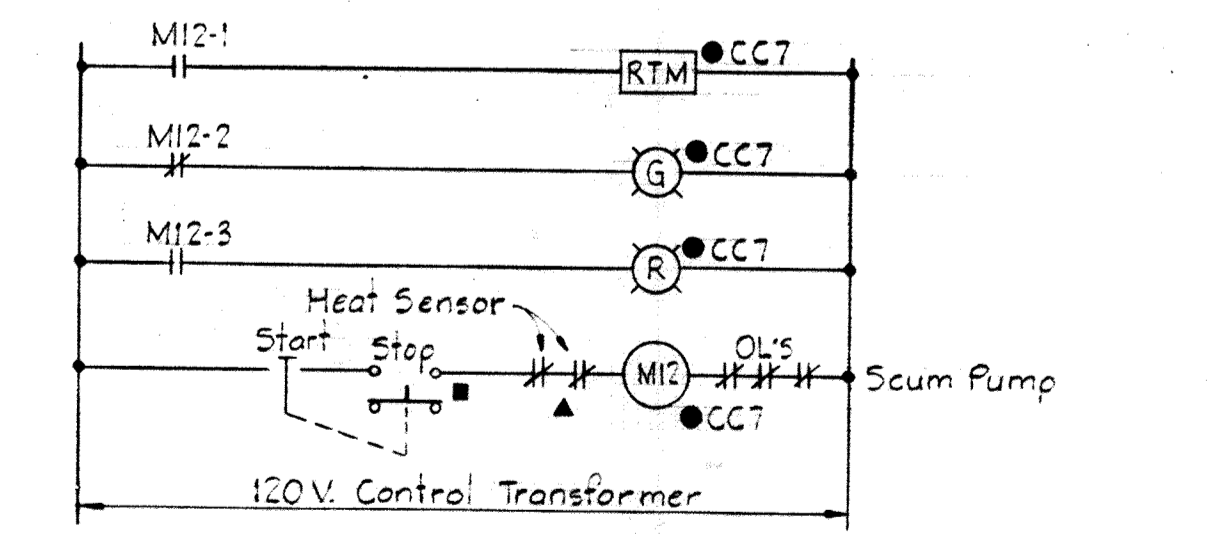
RNS PUMP #2C
 Typical for RNS Pump #3C
 Use E.C.D. Diagram for W.N.S. Pumps 1 & 2 this sheet



REV. W.N.S. PUMP #1
 Typical for W.N.S. PUMP #2
 THIS E.C.D. TYPICAL FOR PUMPS LISTED BELOW



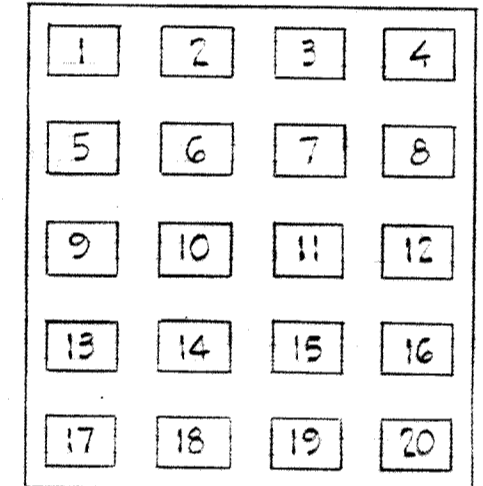
CONTROL ROOM VENTILATION FAN



SCUM PUMP - NITRIFICATION CLARIFIER #1
 Typical for Nitrification Clarifier #2, #3, #4

POINT NO.	WINDOW INSCRIPTION	E.C.D. NO. SHT. NO.
1	HIGH WATER LEVEL WET WELL BLOWER BLDG. # P.S.	19 E-25
2	LOW WATER LEVEL WET WELL BLOWER BLDG. # P.S.	19 E-25
3	LOW AIR PRESSURE STATION AIR BLOWER BLDG. # P.S.	19 E-25
4		
5		
6		
7		
8		
9		
10		
11	CENTER DRIVE OVERLOAD CONTACT STABILIZATION UNIT NO.1	20 E-25
12	CENTER DRIVE OVERLOAD CONTACT STABILIZATION UNIT NO.2	20 E-25
13	CENTER DRIVE OVERLOAD CONTACT STABILIZATION UNIT NO.3	20 E-25
14		
15		
16	MAIN BREAKER #1 - OPEN 480V MCC-CC2 BLOWER BLDG. # P.S.	13 E-21
17	TIE BREAKER CLOSED 480V MCC-CC2 BLOWER BLDG. # P.S.	14 E-20
18	MAIN BREAKER #2 - OPEN 480V MCC-CC2 BLOWER BLDG. # P.S.	13 E-21
19	NO VOLTAGE SERVICE #1 480V MCC-CC2 BLOWER BLDG. # P.S.	15 E-14
20	NO VOLTAGE SERVICE #2 480V MCC-CC2 BLOWER BLDG. # P.S.	15 E-14

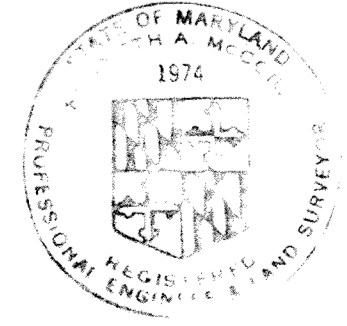
NOTES:
 1. For General Electrical Notes & Electrical Legend, see Sheet E-2.



EXISTING ANNUNCIATOR #1 MOTOR CONTROL CENTER "CC2"

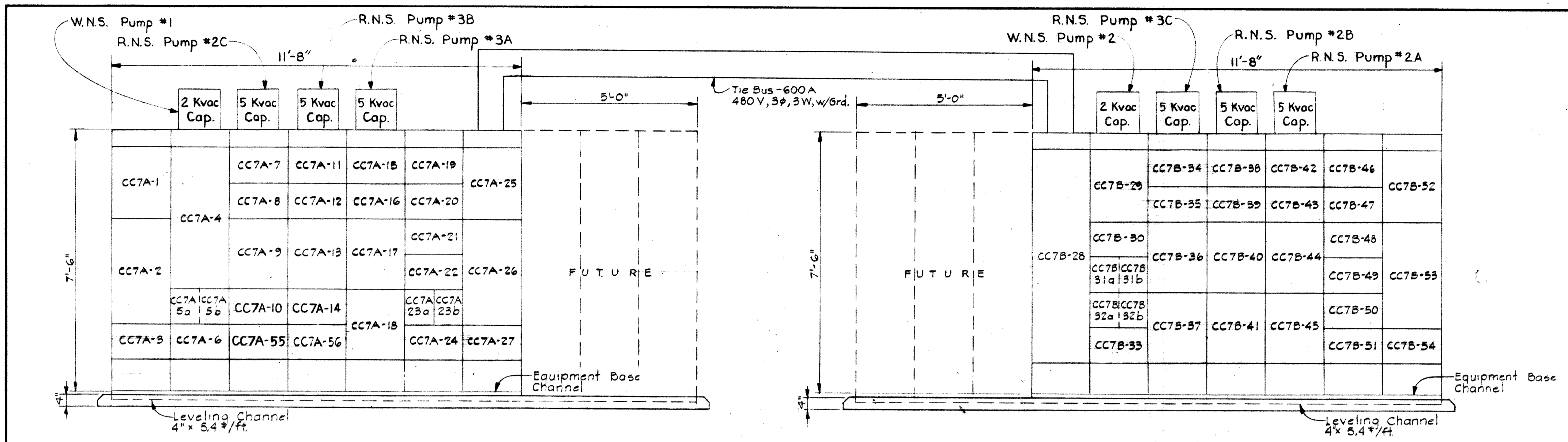
New Window Inscriptions

REVISOR: E.C.D. DIAGRAM FOR W.N.S. PUMP #1 & 2 TYPICAL FOR:
 Return Activated Sludge Pumps # 5A, 5B, 5C (E-15/CC5)
 Primary Sludge Pumps # 4 & 5, 4/5 (E-15/CC5)
 Waste Activated Sludge Pumps # 1, 2 (E-22/CC5)
 Return Nitrified Sludge Pumps # 2A, 2B, 2C, 3A, 3B, 3C (E-27/CC7)
 * Return Activated Sludge Pumps # 3A, 3B, 3C (E-15/CC6)



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 2 & 3 PIPE GALLERY EAST ELEMENTARY WIRING DIAG.	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 114 OF 133	SCALE AS SHOWN
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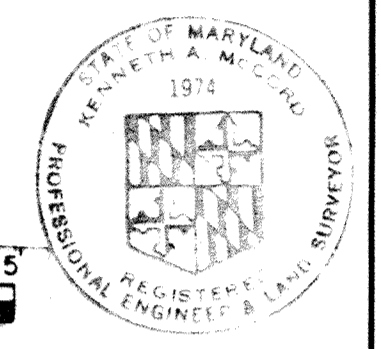
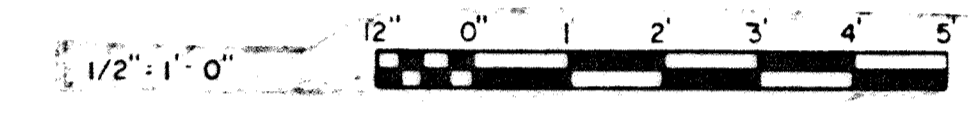
W. O. 6887-2



NOTES:
 1. For GENERAL ELECTRICAL NOTES & ELECTRICAL LEGEND, see Sheet E-2.

MOTOR CONTROL CENTER 'CC7A'
 Scale: 1/2" = 1'-0"

MOTOR CONTROL CENTER 'CC7B'
 Scale: 1/2" = 1'-0"



MOTOR CONTROL CENTER 'CC7A' SCHEDULE													480V-3φ-3W-60HZ						
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	HP or KVA	AUX DESC.	BREAKER OR MCP				RUN NUMBER	WIRE - POWER			WIRE CONTROL			GRD WIRE	COND SIZE		
					FRAME	POLE	CU/SET	S.I.C.		NO.	SIZE	TYPE	NO.	SIZE	TYPE				
CC7A-1	Standard Nameplates	Ammeter, Voltmeter Switches, C.T.'s, Watt-hour	-	See Specs.	-	-	-	-	-	By Manufacturer								-	-
CC7A-2	MAIN BREAKER FEEDER #1	Power Circuit Breaker Drawout Type	-	See Specs.	600	5	600	30	P53-15a	2(3C)	350MCM	See Spec.	-	-	-	2(3#3)	See Dwg.		
CC7A-3	-	Space for Incoming Feeder #1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
CC7A-4	PANELBOARD 'LT' 208Y/120-3φ-4W	Circuit Breaker Panelboard	-	See Specs.	-	-	-	-	CC7A-4a	4	2	THW	-	-	-	6	2"		
CC7A-5a	30KVA TRANSFORMER 'TR' SUMP PUMP #1	Circuit Breaker	-	-	100	3	50	22	By Manufacturer								-	-	
CC7A-5b	-	-	1	-	100	3	15	22	CC7A-5b	3	12	THW	-	-	-	12	3/4"		
CC7A-6	TRANSFER SWITCH	Automatic Transfer Switch 400V Bulletin 240 3 Pole 480V/100A	-	See Specs.	-	-	-	-	CC7A-6a	3	6	THW	-	-	-	6	1 1/2"		
CC7A-7	PIPE GALLERY UNIT HEATER #1	Combination Starter NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	15	22	CC7A-7a	3	12	THW	4	14	THW	12	1"		
CC7A-8	NITRIFICATION CLARIFIER #1	Combination Starter NEMA Size 1, FVNR	1	a, c, g, k	100	3	10X	22	CC7A-8a	4/C	10	-	8/C	12	-	-	See Dwg.		
CC7A-9	RN SLUDGE PUMP #2C	Combination Starter NEMA Size 2, FVNR	20	a, c, g, k	100	3	10X	22	CC7A-9a	3	8	THW	4	14	THW	10	1 1/2"		
CC7A-10	W.N. SLUDGE PUMP #1	Combination Starter NEMA Size 1, FVNR	10	a, c, g, k	100	3	10X	22	CC7A-10a	3	10	THW	8	14	THW	12	1 1/2"		
CC7A-11	PIPE GALLERY UNIT HEATER #2	Combination Starter NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	15	22	CC7A-11a	3	12	THW	4	14	THW	12	1"		
CC7A-12	NITRIFICATION CLARIFIER #13 CONTROL RELAY	Control Relays	-	See Dwg.	-	-	-	-	By Manufacturer								-	-	
CC7A-13	RN SLUDGE PUMP #3B	Combination Starter NEMA Size 2, FVNR	20	a, c, d, g, k	100	3	10X	22	CC7A-13a	3	8	THW	4	14	THW	10	1 1/2"		
CC7A-14	SCUM PUMP NITRIFICATION CLARIFIER #1	Combination Starter NEMA Size 1, FVNR	4	a, c, g, k	100	3	10X	22	CC7A-14a	4/C	10	See Spec.	8/C	12	See Spec.	10	See Dwg.		
CC7A-15	PIPE GALLERY UNIT HEATER #3	Combination Starter NEMA Size 1, FVNR	7.5	a, c, d, g, k	100	3	15	22	CC7A-15a	3	12	THW	4	14	THW	12	1"		
CC7A-16	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, c, d, e, g, k	100	3	10X	22	-	-	-	-	-	-	-	-	-		
CC7A-17	RN SLUDGE PUMP #3A	Combination Starter NEMA Size 2, FVNR	20	a, c, d, e, g, k	100	3	10X	22	CC7A-17a	3	8	THW	4	14	THW	10	1 1/2"		
CC7A-18	BLANK (Spare)	Combination Starter NEMA Size 2, FVNR	-	a, c, d, e, g, k	100	3	10X	22	-	-	-	-	-	-	-	-	-		
CC7A-19	LIGHTING CONTACTOR 'Ca' NITRIFICATION GALLERY	Contactor 1-2P-30A	-	See Specs.	-	-	-	-	By Manufacturer								-	-	
CC7A-20	LIGHTING CONTACTOR 'Cb' NITRIFICATION GALLERY	Contactor 1-2P-30A	-	See Specs.	-	-	-	-	By Manufacturer								-	-	
CC7A-21	GALLERY UNIT HEATERS CONTROL RELAY	Control Relays	-	See Dwg.	-	-	-	-	By Manufacturer								-	-	
CC7A-22	GALLERY ROOM UNIT HTR CONTROL RELAY	Control Relays	-	See Dwg.	-	-	-	-	By Manufacturer								-	-	
CC7A-23a	BLANK (Spare)	Circuit Breaker	2	-	100	2	15	22	-	-	-	-	-	-	-	-	-		
CC7A-23b	BLANK (Spare)	Circuit Breaker	3	-	100	3	15	22	-	-	-	-	-	-	-	-	-		
CC7A-24	CONTROL ROOM #2 UNIT HEATER #1	Combination Starter NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC7A-24a	3	12	THW	4	14	THW	12	1"		
CC7A-25	-	Space for Tie Bus Connection CC7A to CC7B	-	-	-	-	-	-	By Manufacturer								-	-	
CC7A-26	TIE BREAKER	Power Circuit Breaker Drawout Type	-	See Specs.	600	5	600	30	By Manufacturer								-	-	
CC7A-27	BLANK (Spare)	Space & Bus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
CC7A-55	NITRIFICATION CLARIFIER #3	Combination Starter NEMA Size 1, FVNR	1	a, c, g, k	100	3	10X	22	CC7A-55a	4/C	10	See Spec.	8/C	12	See Spec.	-	See Dwg.		
CC7A-56	SCUM PUMP NITRIFICATION CLARIFIER #3	Combination Starter NEMA Size 1, FVNR	4	a, c, d, g, k	100	3	10X	22	CC7A-56a	4/C	10	See Spec.	8/C	12	See Spec.	10	See Dwg.		

MOTOR CONTROL CENTER 'CC7B' SCHEDULE													480V-3φ-3W-60HZ					
UNIT NUMBER	NAMEPLATE DATA	DEVICE DESCRIPTION	HP or KVA	AUX DESC.	BREAKER OR MCP				RUN NUMBER	WIRE - POWER			WIRE CONTROL			GRD WIRE	COND SIZE	
					FRAME	POLE	CU/SET	S.I.C.		NO.	SIZE	TYPE	NO.	SIZE	TYPE			
CC7B-28	-	Space for Tie Bus between CC7A & CC7B	-	-	-	-	-	-	By Manufacturer								-	-
CC7B-29	See Dwg.	Annunciator #7 (20 Points)	-	See Specs.	-	-	-	-	-	-	-	-	-	-	-	-	-	
CC7B-30	NITRIFICATION CLARIFIER #4	Combination Starter NEMA Size 1, FVNR	1	a, c, g, k	100	3	10X	22	CC7B-30a	4/C	10	-	-	-	-	-	See Dwg.	
CC7B-31a	30KVA TRANSFORMER SUMP PUMP #2	Circuit Breaker	1	-	100	3	15	22	-	-	-	-	-	-	-	-	-	
CC7B-31b	-	-	1	-	100	3	15	22	CC7B-31b	5	12	THW	5	12	THW	12	3/4"	
CC7B-32a	BLANK (Spare)	Circuit Breaker	-	-	100	3	25	22	-	-	-	-	-	-	-	-	-	
CC7B-32b	BLANK (Spare)	Circuit Breaker	-	-	100	3	15	22	-	-	-	-	-	-	-	-	-	
CC7B-33	W.N. SLUDGE PUMP #2	Combination Starter NEMA Size 1, FVNR	10	a, c, g, k	100	3	10X	22	CC7B-33a	3	10	THW	8	14	THW	12	1 1/2"	
CC7B-34	SCUM PUMP NITRIFICATION CLARIFIER #2	Combination Starter NEMA Size 1, FVNR	4	a, c, g, k	100	3	10X	22	CC7B-34a	4/C	10	See Spec.	8/C	12	See Spec.	10	See Dwg.	
CC7B-35	SCUM PUMP NITRIFICATION CLARIFIER #4	Combination Starter NEMA Size 1, FVNR	4	a, c, g, k	100	3	10X	22	CC7B-35a	4/C	10	See Spec.	8/C	12	See Spec.	10	See Dwg.	
CC7B-36	RN SLUDGE PUMP #3C	Combination Starter NEMA Size 2, FVNR	20	a, c, g, k	100	3	10X	22	CC7B-36a	3	8	THW	4	14	THW	10	1 1/2"	
CC7B-37	BLANK (Spare)	Combination Starter NEMA Size 2, FVNR	-	a, c, d, g, k	100	3	10X	22	-	-	-	-	-	-	-	-	-	
CC7B-38	PIPE GALLERY UNIT HEATER #6	Combination Starter NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC7B-38a	3	12	THW	4	14	THW	12	1"	
CC7B-39	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, c, d, g, k	100	3	10X	22	-	-	-	-	-	-	-	-	-	
CC7B-40	RN SLUDGE PUMP #2B	Combination Starter NEMA Size 2, FVNR	20	a, c, d, g, k	100	3	10X	22	CC7B-40a	3	8	THW	4	14	THW	10	1 1/2"	
CC7B-41	CONTROL ROOM #2 DUCT HEATER	Combination Starter NEMA Size 2, FVNR	20	a, c, d, g, k	100	3	40	22	CC7B-41a	3	8	THW	4	14	THW	10	1 1/2"	
CC7B-42	PIPE GALLERY UNIT HEATER #4	Combination Starter NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC7B-42a	3	12	THW	4	14	THW	12	1"	
CC7B-43	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, c, d, g, k	100	3	10X	22	-	-	-	-	-	-	-	-	-	
CC7B-44	RN SLUDGE PUMP #2A	Combination Starter NEMA Size 2, FVNR	20	a, c, d, g, k	100	3	10X	22	CC7B-44a	3	8	THW	4	14	THW	10	1 1/2"	
CC7B-45	CONTROL ROOM #2 UNIT HEATER #2	Combination Starter NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC7B-45a	3	12	THW	4	14	THW	12	1"	
CC7B-46	PIPE GALLERY UNIT HEATER #3	Combination Starter NEMA Size 1, FVNR	6	a, c, d, g, k	100	3	15	22	CC7B-46a	3	12	THW	4	14	THW	12	1"	
CC7B-47	NITRIFICATION CLARIFIER #2	Combination Starter NEMA Size 1, FVNR	1	a, c, g, k	100	3	10X	22	CC7B-47a	4/C	10	See Spec.	8/C	12	See Spec.	-	See Dwg.	
CC7B-48	CONTROL ROOM #2 VENTILATION FAN CONTROLS	Timer, Relay	-	-	-	-	-	-	By Manufacturer								-	-
CC7B-49	NITRIFICATION CLARIFIER #244 CONTROL RELAY	Control Relay	-	See Dwg.	-	-	-	-	By Manufacturer								-	-
CC7B-50	BLANK (Spare)	Combination Starter NEMA Size 1, FVNR	-	a, c, d, g, k	100	3	10X	22	-	-	-	-	-	-	-	-	-	
CC7B-51	PIPE GALLERY VENTILATION FAN	Combination Starter NEMA Size 1, FVNR	1	a, c, d, g, k	100	3	10X	22	CC7B-51a	3	12	THW	4	14	THW	12	1"	
CC7B-52	Standard Nameplates	Ammeter, Voltmeter, Switches, C.T.'s, Watt-hour	-	See Specs.	-	-	-	-	By Manufacturer								-	-
CC7B-53	MAIN BREAKER FEEDER #2	Power Circuit Breaker Drawout Type	-	See Specs.	600	5	600	30	P53-18a	2(3C)	350MCM	See Spec.	-	-	-	2(3#3)	See Specs.	
CC7B-54	-	Space for Incoming Feeder #2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

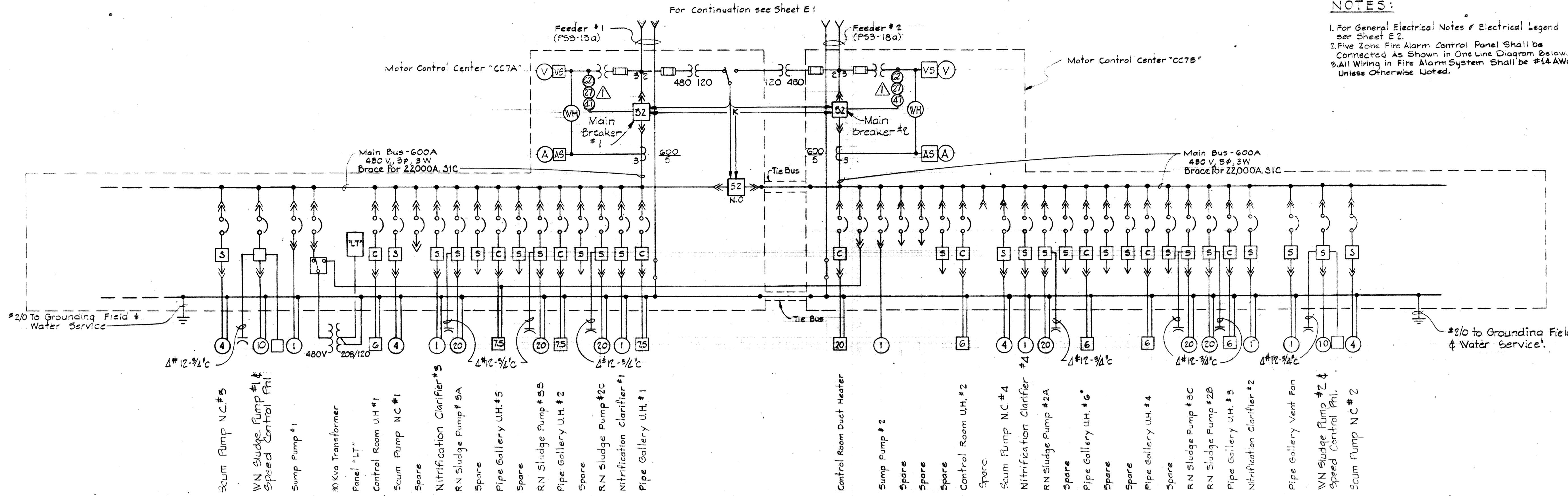
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W. O. Libbe CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 2 & 3 PIPE GALLERY EAST CONTROL BUILDING MOTOR CONT. CENT. CC7A & CC7B	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 115 OF 133	SCALE AS SHOWN
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W. O. 6887-2

SHEET E-28

MODIFIED DRAWING - MAY 6, 1982

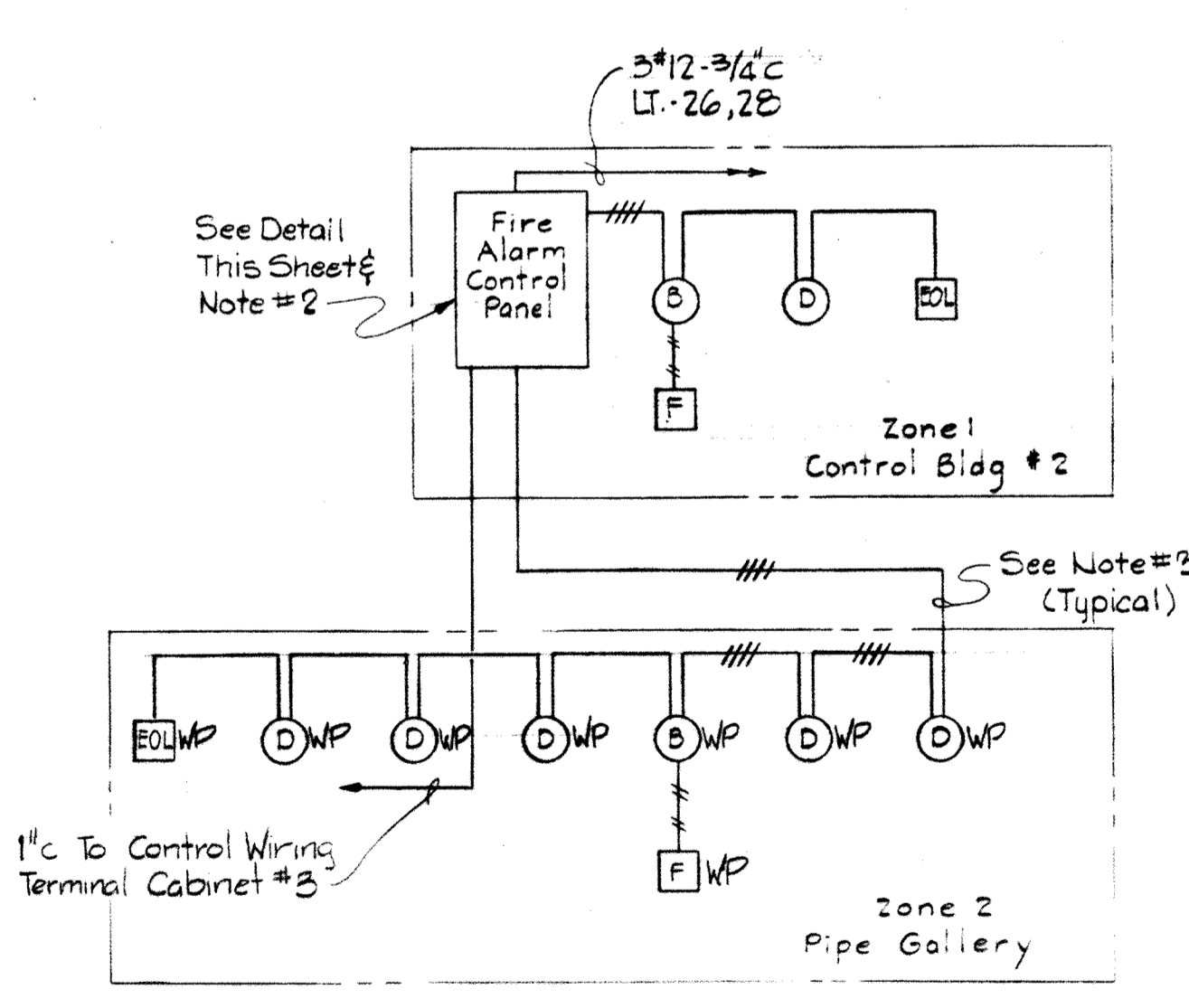
BRUNING 44510 1832



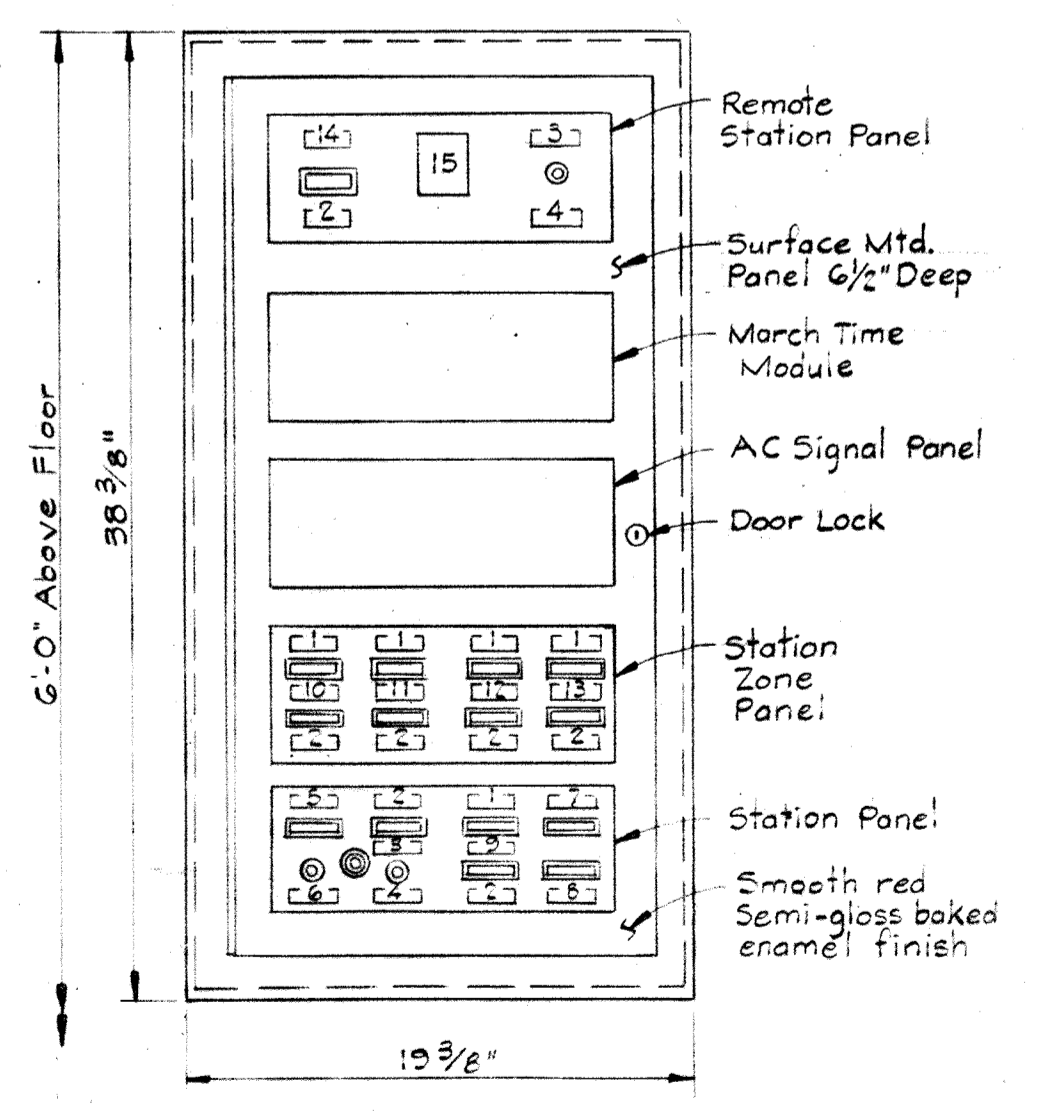
NOTES:

1. For General Electrical Notes & Electrical Legend see Sheet E2.
2. Five Zone Fire Alarm Control Panel shall be Connected As Shown in One Line Diagram Below.
3. All Wiring in Fire Alarm System shall be #14 AWG unless otherwise noted.

**ONE LINE DIAGRAM
MOTOR CONTROL CENTER CCTA & CC7B**
No Scale

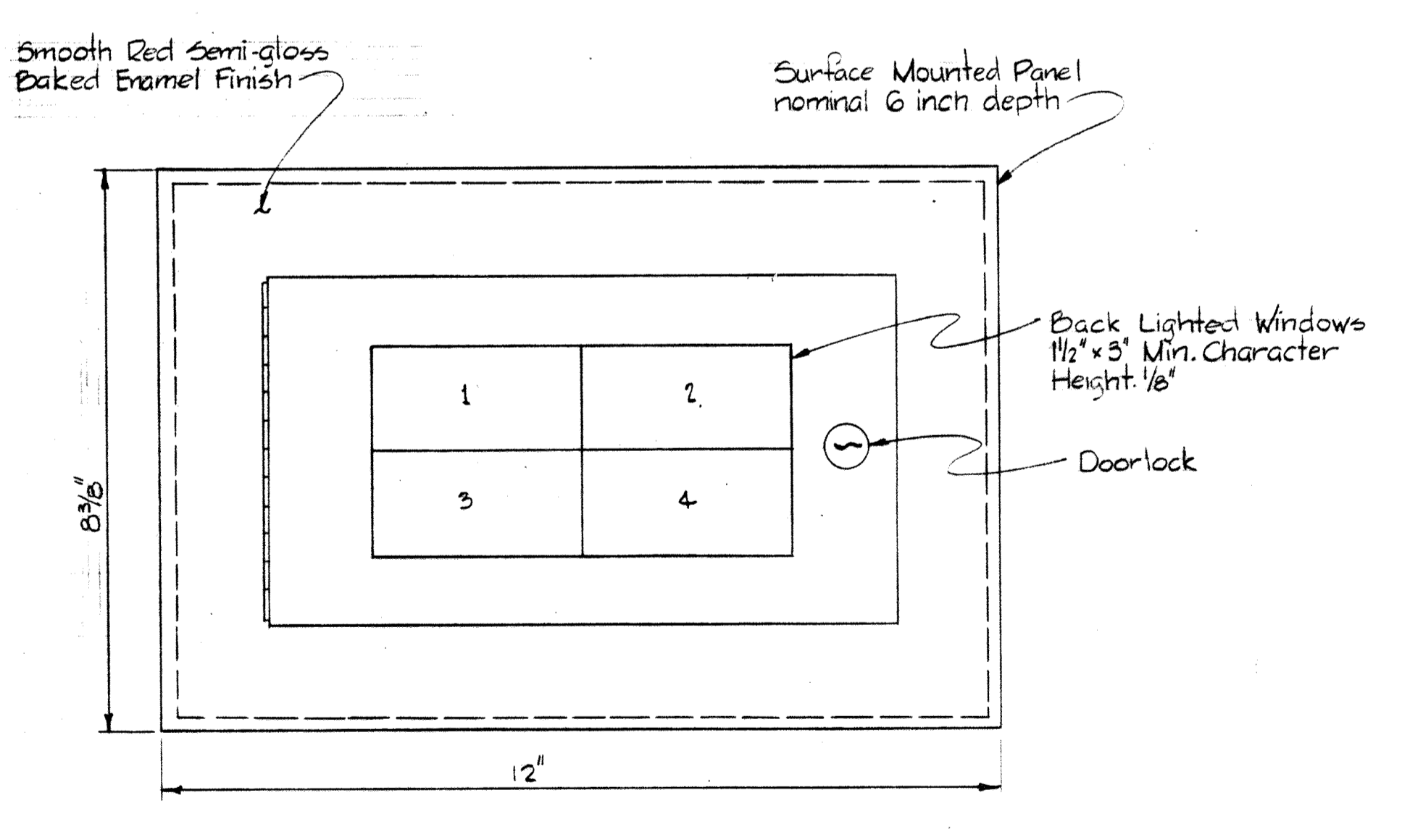


**ONE LINE DIAGRAM
FIRE ALARM SYSTEM
PIPE GALLERY EAST**
No Scale
Note: #14 Wire unless otherwise noted



**DOOR FRONT
FIRE ALARM CONTROL PANEL
PIPE GALLERY EAST**
Scale: 1/2"=1'-0"

- LEGEND**
- 1-14 Nameplates
 - 15 Millimeter Indicating Light
 - ⊙ Switch
- NAMEPLATES**
1. ALARM
 2. TROUBLE
 3. NORMAL
 4. SILENCE
 5. NORMAL POWER
 6. RESET
 7. SUPVY POWER TROUBLE
 8. OPER. POWER TROUBLE
 9. CONTROL BLDG. #2
 10. PIPE GALLERY
 11. SPARE (Blank)
 12. SPARE (Blank)
 13. SPARE (Blank)
 14. REMOTE LINE



**DOOR FRONT
FIRE ALARM ANNUNCIATOR PANEL
MAINTENANCE BUILDING & PIPE GALLERY WEST**
(2 Required)

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 <i>W.O. Libert</i> CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASIN NO. 2 & 3 PIPE GALLERY EAST CONT. BLDG. ONE LINE WIRING DIAGRAM	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 116 OF 133 SCALE NONE
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CONTROL CABLE SCHEDULE									
RUN NO	FROM	TO	FOR	WIRE			CONDUIT RACEWAY	REMARKS	
				NO	SIZE	TYPE			
CC300	Influent Flowmeter Transmitter Nitrification Clarifier #1	Instrument Panel A.B. Control Bldg. #1	Influent Flow Indication	2/p	#16	Shielded	See Dwgs.		
CC301	Sludge Blanket Detector-Transmitter Nitrification Clarifier #1	Annunciator #1B-1 A.B. Control Bldg. #1	High Sludge Blanket Alarm Annunciator #1B-1	3/p	#16	Shielded	See Dwgs.		
CC302	Influent Flowmeter Transmitter Nitrification Clarifier #2	Instrument Panel A.B. Control Bldg. #1	Influent Flow Indication	2/p	#16	Shielded	See Dwgs.		
CC303	Sludge Blanket Detector-Transmitter Nitrification Clarifier #2	Annunciator #1B-1 A.B. Control Bldg. #1	High Sludge Blanket Alarm Annunciator #1B-1	3/p	#16	Shielded	See Dwgs.		
CC304	D.O. Probe A.B. 2A	D.O. Readout & Calib. Unit A.B. 2A	D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC305	D.O. Readout & Calib. Unit A.B. 2A	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC306	Effluent D.O. Probe A.B. 2A	D.O. Readout & Calib. Unit A.B. 2A	Effluent D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC307	D.O. Readout & Calib. Unit A.B. 2A	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC308	D.O. Probe A.B. 2B	D.O. Readout & Calib. Unit A.B. 2B	D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC309	D.O. Readout & Calib. Unit A.B. 2B	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC310	Effluent D.O. Probe A.B. 2B	D.O. Readout & Calib. Unit A.B. 2B	Effluent D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC311	D.O. Readout & Calib. Unit A.B. 2B	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC312	D.O. Probe A.B. 3A	D.O. Readout & Calib. Unit A.B. 3A	D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC313	D.O. Readout & Calib. Unit A.B. 3A	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC314	Effluent D.O. Probe A.B. 3A	D.O. Readout & Calib. Unit A.B. 3A	Effluent D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC315	D.O. Readout & Calib. Unit A.B. 3A	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC316	D.O. Probe A.B. 3B	D.O. Readout & Calib. Unit A.B. 3B	D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC317	D.O. Readout & Calib. Unit A.B. 3B	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC318	Effluent D.O. Probe A.B. 3B	D.O. Readout & Calib. Unit A.B. 3B	Effluent D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC319	D.O. Readout & Calib. Unit A.B. 3B	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC320	D.O. Probe A.B. 4	D.O. Readout & Calib. Unit A.B. 4	D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC321	D.O. Readout & Calib. Unit A.B. 4	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC322	Effluent D.O. Probe A.B. 4	D.O. Readout & Calib. Unit A.B. 4	D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC323	D.O. Readout & Calib. Unit A.B. 4	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC324	D.O. Probe A.B. 5	D.O. Readout & Calib. Unit A.B. 5	D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC325	D.O. Readout & Calib. Unit A.B. 5	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC326	Effluent D.O. Probe A.B. 5	D.O. Readout & Calib. Unit A.B. 5	D.O. Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC327	D.O. Readout & Calib. Unit A.B. 5	Instrument Panel A.B. Control Bldg. #1	D.O. Analysis & Indication	3/p	#16	Shielded	See Dwgs.		
CC328	pH Probe A.B. 2A	pH Transmitter A.B. 2A	pH Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC329	pH Transmitter A.B. 2A	Instrument Panel A.B. Control Bldg. #1	pH Indication	3/p	#16	Shielded	See Dwgs.		
CC330	pH Probe A.B. 2B	pH Transmitter A.B. 2B	pH Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC331	pH Transmitter A.B. 2B	Instrument Panel A.B. Control Bldg. #1	pH Indication	3/p	#16	Shielded	See Dwgs.		
CC332	pH Probe A.B. 3A	pH Transmitter A.B. 3A	pH Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC333	pH Transmitter A.B. 3A	Instrument Panel A.B. Control Bldg. #1	pH Indication	3/p	#16	Shielded	See Dwgs.		
CC334	pH Probe A.B. 3B	pH Transmitter A.B. 3B	pH Indication	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC335	pH Transmitter A.B. 3B	Instrument Panel A.B. Control Bldg. #1	pH Indication	3/p	#16	Shielded	See Dwgs.		

CONTROL CABLE SCHEDULE									
RUN NO	FROM	TO	FOR	WIRE			CONDUIT RACEWAY	REMARKS	
				NO	SIZE	TYPE			
CC336	pH Probe Rapid Mixer	pH Transmitter Rapid Mixer	pH Indication & Control	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC337	pH Transmitter Rapid Mixer	Lime FDR #1 Control Station A.B. Pipe Gallery West	pH Indication & Control	3/p	#16	Shielded	See Dwgs.		
CC338	pH Probe Effluent Box AB5	pH Transmitter Effluent Box AB5	pH Indication & Control	4/c	-	-	Submersible Cable	Cable by Mfg.	
CC339	pH Transmitter Effluent Box AB5	Instrument Panel A.B. Control Bldg. #1	pH Indication & Control	3/p	#16	Shielded	See Dwgs.		
CC340	Instrument Panel A.B. Control Bldg. #1	Lime FDR #2 Control Bldg. A.B. Pipe Gallery West	pH Indication & Control	3/p	#16	Shielded	See Dwgs.		
CC341	Lime FDR #3 Control Station A.B. Pipe Gallery West	Lime FDR #2 Control Bldg. A.B. Pipe Gallery West	pH Indication & Control	3/p	#16	Shielded	See Dwgs.		
CC342	Lime FDR #2 Control Station A.B. Pipe Gallery West	Lime FDR #3 Control Bldg. A.B. Pipe Gallery West	pH Indication & Control	3/p	#16	Shielded	See Dwgs.		
CC343	Lime FDR #3 Control Station A.B. Pipe Gallery West	Instrument Panel A.B. Control Bldg. #1	pH Indication & Control	3/p	#16	Shielded	See Dwgs.		
CC346	RNS Flowmeter #2A A.B. Pipe Gallery East	RNS Transmitter #2A A.B. Pipe Gallery East	RNS Indication AB2A	2/p	#16	Shielded	3/4" c	Cable by Mfg.	
CC347	RNS Transmitter #2A A.B. Pipe Gallery East	Control Term. Cab. CTC3 A.B. Pipe Gallery East	RNS Indication AB2A	1/p	#16	Shielded	3/4" c		
CC348	RNS Flowmeter #2B A.B. Pipe Gallery East	RNS Transmitter #2B A.B. Pipe Gallery East	RNS Indication AB2B	2/p	#16	Shielded	1" c	Cable by Mfg.	
CC349	RNS Flowmeter #2B A.B. Pipe Gallery East	Control Term. Cab. CTC3 A.B. Pipe Gallery East	RNS Indication AB2B	1/p	#16	Shielded	3/4" c		
CC350	RNS Flowmeter #3A A.B. Pipe Gallery East	RNS Transmitter #3A A.B. Pipe Gallery East	RNS Indication AB3A	2/p	#16	Shielded	1" c	Cable by Mfg.	
CC351	RNS Transmitter #3A A.B. Pipe Gallery East	Control Term. Cab. CTC3 A.B. Pipe Gallery East	RNS Indication AB3A	1/p	#16	Shielded	3/4" c		
CC352	RNS Flowmeter #3B A.B. Pipe Gallery East	RNS Transmitter #3B A.B. Pipe Gallery East	RNS Indication AB3B	2/p	#16	Shielded	1" c	Cable by Mfg.	
CC353	RNS Transmitter #3B A.B. Pipe Gallery East	Control Term. Cab. CTC3 A.B. Pipe Gallery East	RNS Indication AB3B	1/p	#16	Shielded	3/4" c		
CC354	WNS Flowmeter A.B. Pipe Gallery East	WNS Transmitter A.B. Pipe Gallery East	WNS Indication	2/p	#16	Shielded	1" c	Cable by Mfg.	
CC355	WNS Transmitter A.B. Pipe Gallery East	Control Term. Cab. CTC3 A.B. Pipe Gallery East	WNS Indication	1/p	#16	Shielded	3/4" c		
CC358	Control Term. Cab. CTC3 A.B. Pipe Gallery East	Instrument Panel A.B. Control Bldg. #1	RNS & WNS Indication	2/p	#16	Shielded	See Dwgs.		
CC359	WAS Flowmeter-Nit. Basin A.B. Pipe Gallery West	WAS Transmitter-Nit. Basin A.B. Pipe Gallery West	WAS Indication-Nit. Basin	2/p	#16	Shielded	1" c	Cable by Mfg.	
CC360	WAS Transmitter-Nit. Basin A.B. Pipe Gallery West	Instrument Panel A.B. Control Bldg. #1	WAS Indication-Nit. Basin	1/p	#16	Shielded	See Dwgs.		
CC361	Ex. RAS Flowmeter-AB4 A.B. Pipe Gallery West	Ex. RAS Transmitter AB4 A.B. Pipe Gallery West	RAS Indication AB4	2/p	#16	Shielded	1" c		
CC362	Ex. RAS Transmitter AB4 A.B. Pipe Gallery West	Instrument Panel A.B. Control Bldg. #1	RAS Indication AB4	1/p	#16	Shielded	3/4" c		
CC363	RAS Flowmeter AB5 A.B. Pipe Gallery West	RAS Transmitter AB5 A.B. Pipe Gallery West	RAS Indication AB5	2/p	#16	Shielded	1" c	Cable by Mfg.	
CC364	RAS Transmitter AB5 A.B. Pipe Gallery West	Instrument Panel A.B. Pipe Gallery West	RAS Indication AB5	1/p	#16	Shielded	3/4" c		
CC365	WAS Flowmeter A.B. Pipe Gallery West	Ex. WAS Transmitter A.B. Pipe Gallery West	WAS Indication	2/p	#16	Shielded	1" c	Cable by Mfg.	
CC366	Ex. WAS Flowmeter A.B. Pipe Gallery West	Instrument Panel A.B. Control Bldg. #1	WAS Indication	1/p	#16	Shielded	3/4" c		
CC369	Suspended Solids Probe A.B. 2B	Suspended Solids Control Unit AB2B	Suspended Solids Indication A.B. 2	-	-	Multicond.	-	Cable by Mfg.	
CC370	Suspended Solids Control Unit AB2B	Instrument Panel A.B. Control Bldg. #1	Suspended Solids Indication A.B. 2	1/p	#16	Shielded	See Dwgs.		
CC371	Suspended Solids Probe A.B. 5	Suspended Solids Control Unit AB5	Suspended Solids Indication A.B. 5	-	-	Multicond.	-	Cable by Mfg.	

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
10-26-77
DATE
W.O. Gilbert
CHIEF-BUREAU OF ENGINEERING

CONTRACT NO. 500-S

CONTROL CABLE SCHEDULES

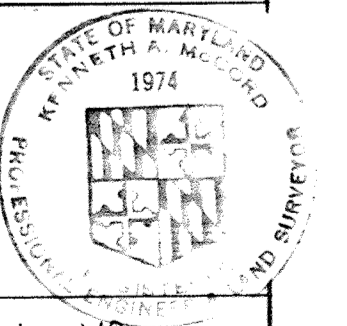
SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

DRAWING NO. 117
OF 133

SCALE AS SHOWN

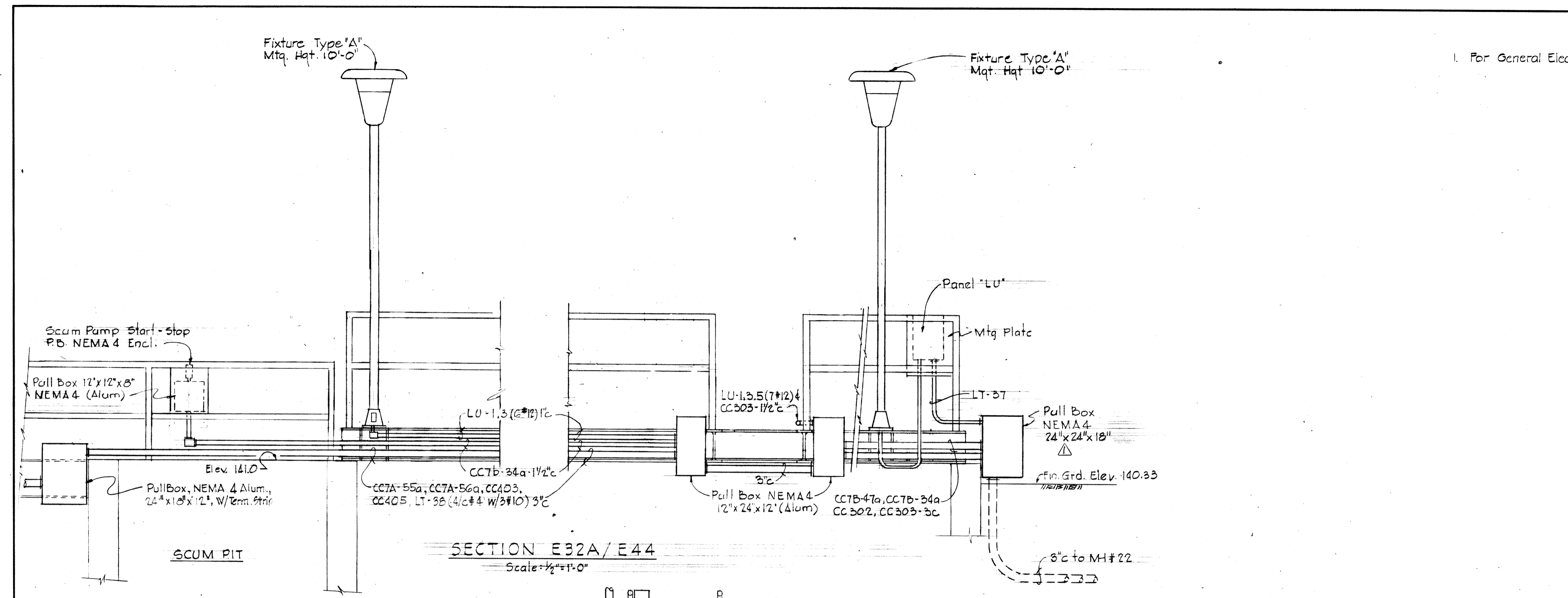
W.O. 6887-2

SHEET E-30

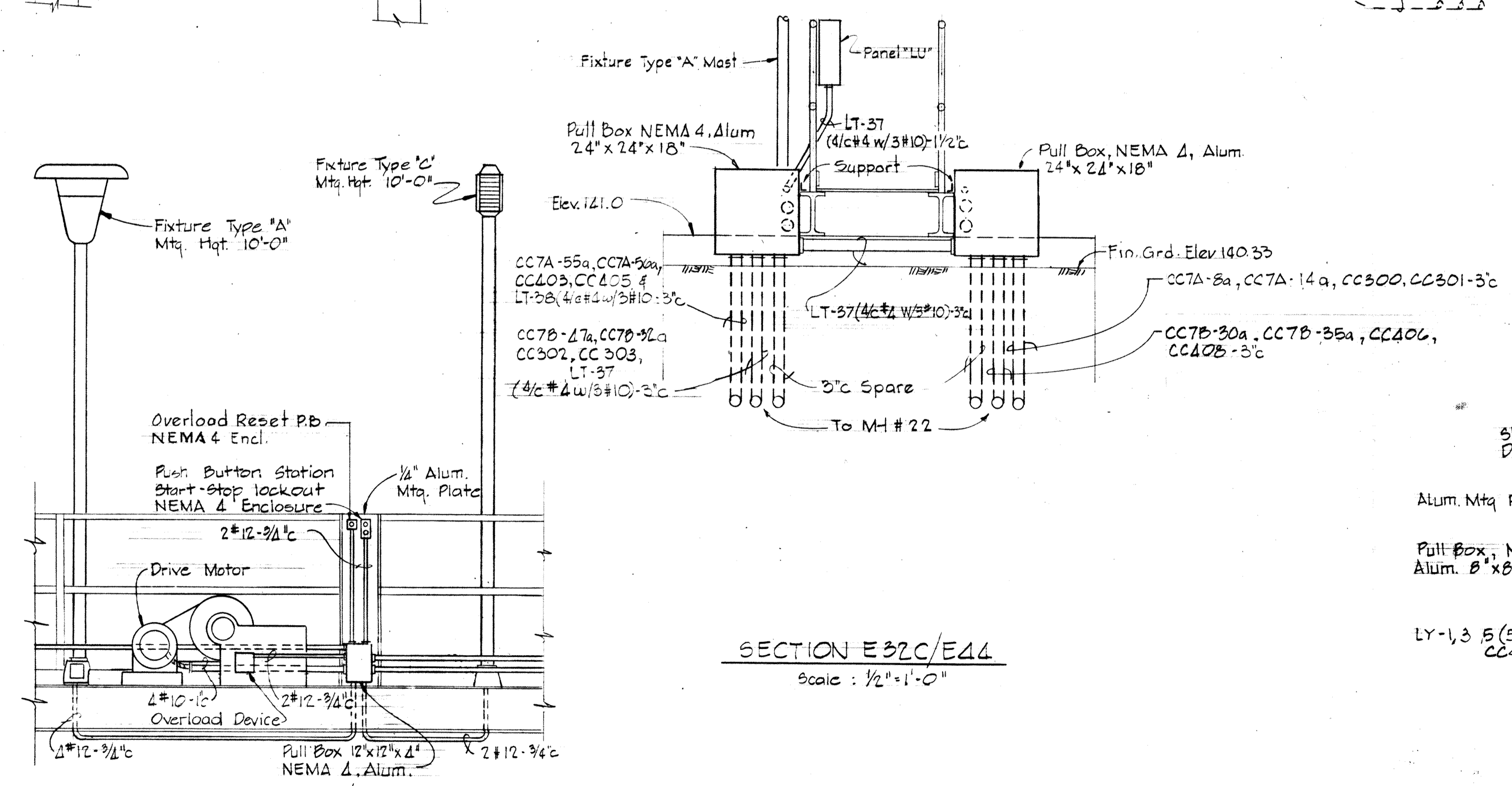


NOTES

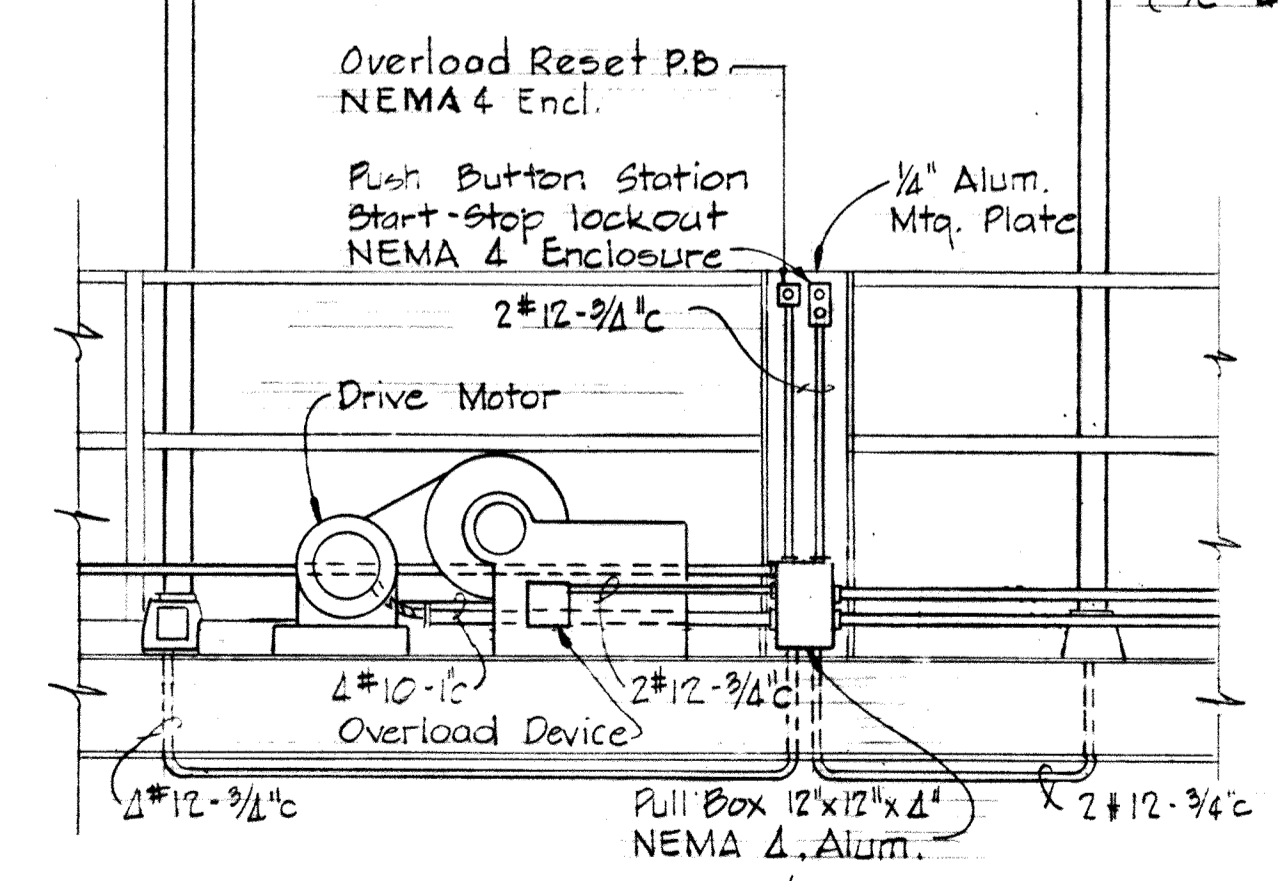
1. For General Electrical Notes & Legend see sheet E-2.



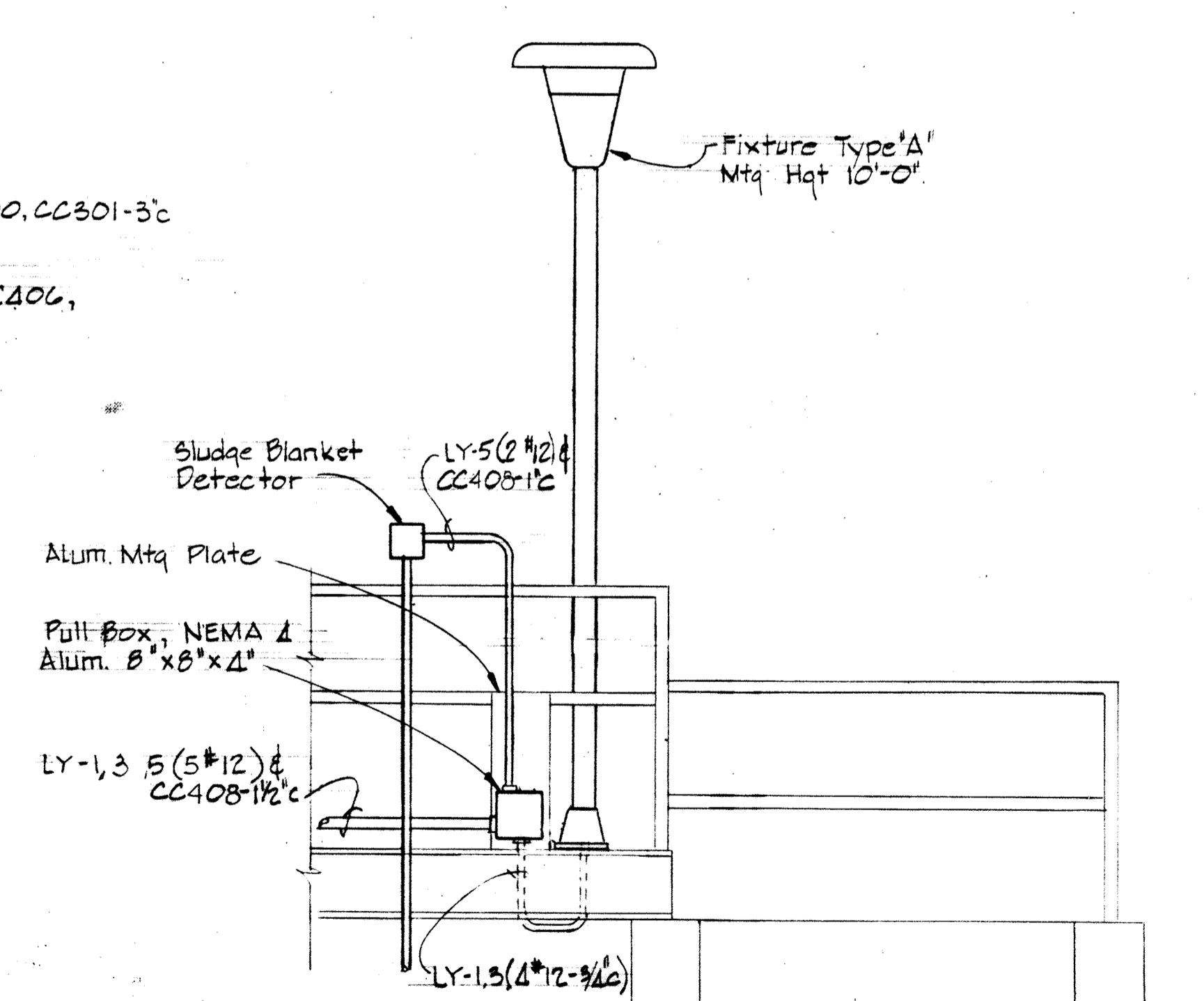
SECTION E32A/E44
Scale: 1/2" = 1'-0"



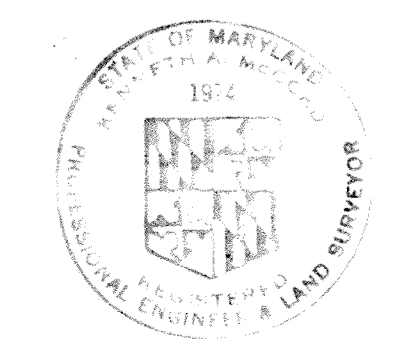
SECTION E32C/E44
Scale: 1/2" = 1'-0"



SECTION E32B/E45A
Scale: 1/2" = 1'-0"



SECTION E32D/E44(NC #4)
Scale: 1/2" = 1'-0"
Similar for N.C. # 1, 2 & 3



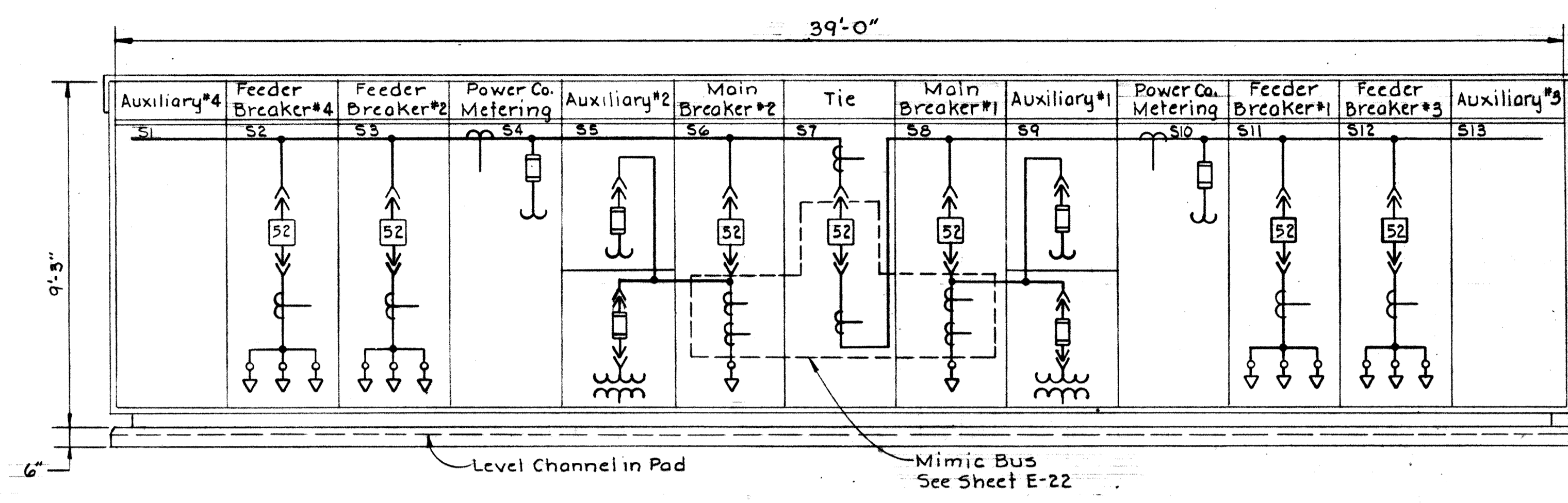
<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE <i>W. O. Albert</i> CHIEF-BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>NITRIFICATION CLARIFIERS DETAILS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 119 OF 133 SCALE AS SHOWN</p>
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W.O. 7132-2

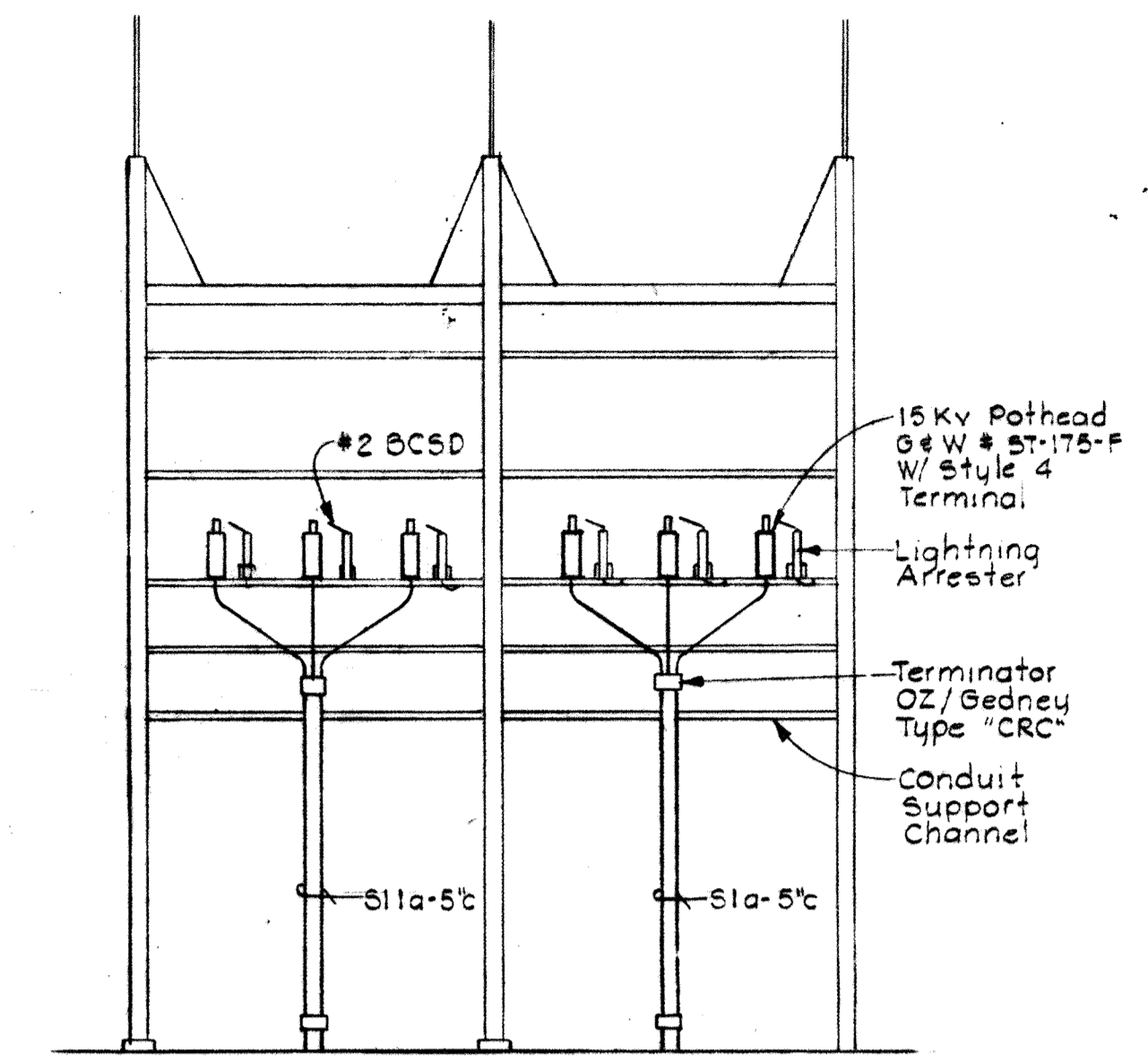
SHEET E-32

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510 32872



13.2 KV MAIN OUTDOOR SWITCHGEAR
Scale: 3/8" = 1'-0"

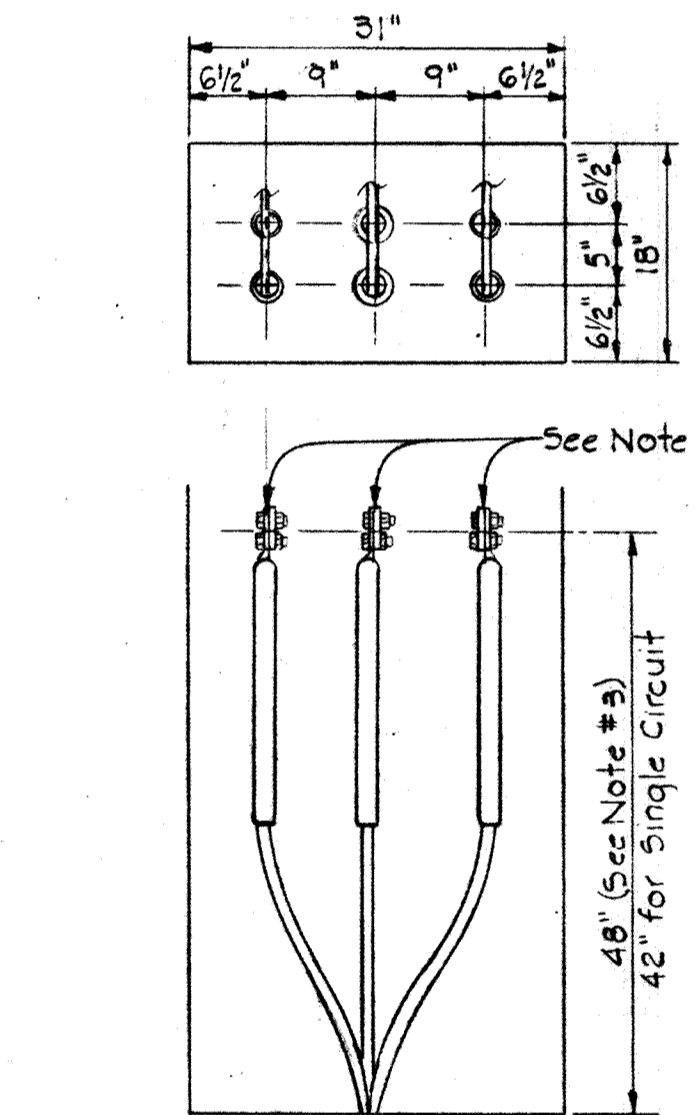


SECTION E33A/E35
Scale: 3/16" = 1'-0"

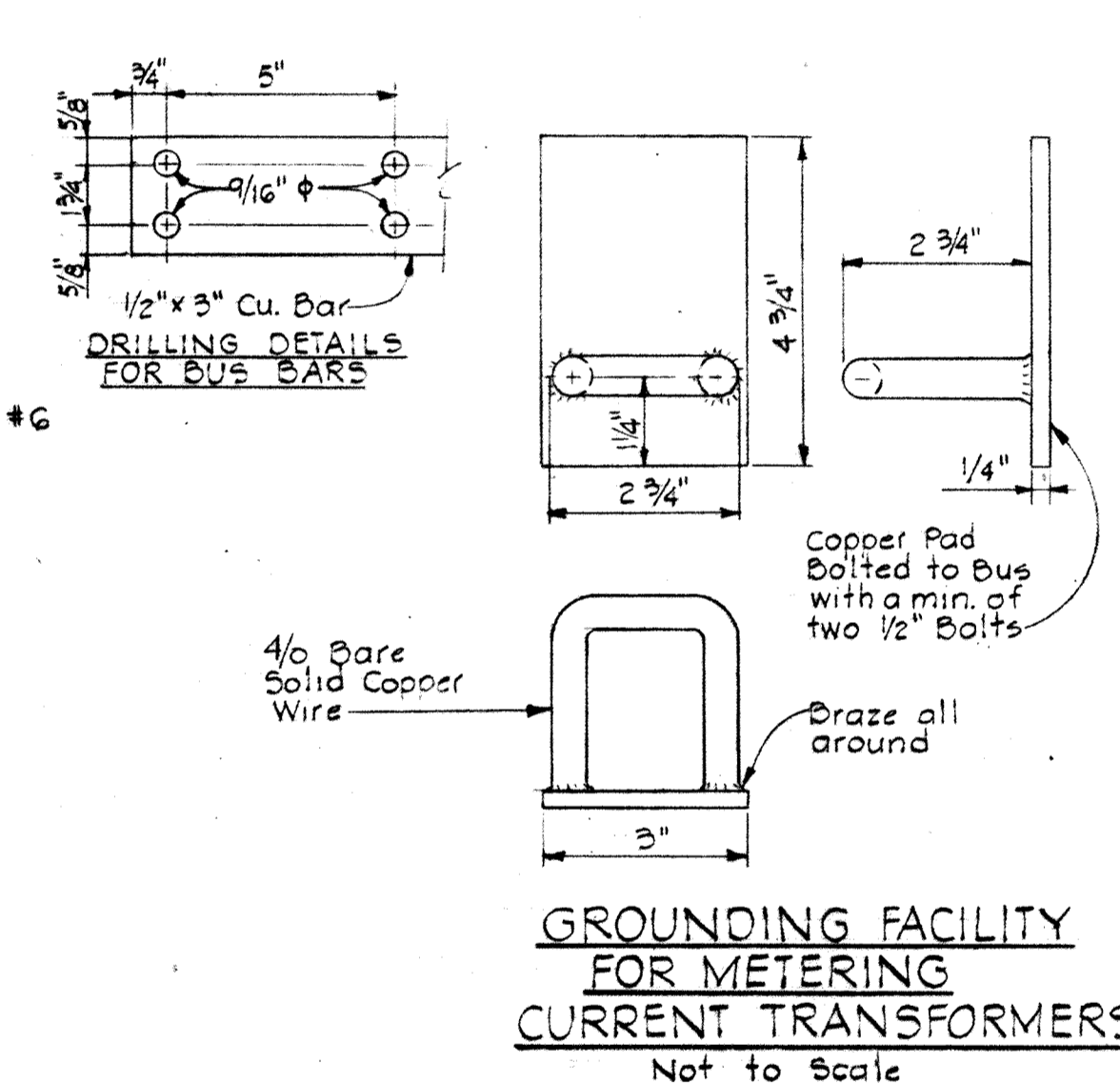
- NOTES**
- For General Electrical Notes & Electrical Legend. See Sheet E-2.
 - All dimensions are minimum.
 - This dimension applies only when ducts are centered under middle phase with phase spacing as indicated.
 - 6" and 7" are minimum striking distances between phase and ground and phase to phase respectively.
 - See Specification 1G for instructions on cable to be used on these installations.
 - Tap all exposed terminals and Bus Bars in metal clad switchgear. Tape to 3/4" plus the diameter of the Bus Bar. Cover the Butyl Rubber Tape with two layers of Plastic Electrical Tape.

UNIT NO.	NAMEPLATE DATA	DEVICE DESCRIPTION	AUX. DESC.	BREAKER				RUN NO.	WIRE OR BUS NO.	WIRE OR BUS SIZE	GRD. WIRE SIZE	COND. SIZE
				FRAME	POLE	CALIB.	S.I.C.					
S1	Auxiliary Section #4 (Nameplates per Device)	Device B3 Panelboard Battery Battery Charger	See Spec.	1200	3							
S2	Feeder Breaker #4 (PS1 & PS4)	Power Circuit Breaker Drawout Mtg. CT's	See Spec.	1200	3			52a	3	500	15Kv	1/0
S3	Feeder Breaker #2 (PS2 & PS3)	Power Circuit Breaker Drawout Mtg. CT's	See Spec.	1200	3							
S4	Power Co. Metering Service Feeder #2	Current & Pot. Transf., Fuses, Meter Panel	See Spec.									
S5	Auxiliary Section #2 (Nameplates per Device)	Control Power Transformer, Drawout Pot. Transf.	See Spec.							By Manufacturer		
S6	Main Breaker Service Feeder #2	Power Circuit Breaker Drawout Mounting, CT's	See Spec.	1200	3			56a	3		15Kv	
S7	Tie Breaker	Power Circuit Breaker Drawout Mounting, CT's	See Spec.	1200	3					By Manufacturer		
S8	Main Breaker Service Feeder #1	Power Circuit Breaker Drawout Mounting, CT's	See Spec.	1200	3			58a	3		15Kv	
S9	Auxiliary Section #1 (Nameplate per Device)	Control Pwr. Transf., Drawout Pot. Transf., Fuses	See Spec.							By Manufacturer		
S10	Power Co. Metering Service Feeder #1	Current & Pot. Transf., Fuses, Meter Panel	See Spec.									
S11	Feeder Breaker #1 (PS2 & PS3)	Power Circuit Breaker Drawout Mtg. CT's	See Spec.	1200	3							
S12	Feeder Breaker #3 (PS1 & PS4)	Power Circuit Breaker Drawout Mtg. CT's	See Spec.	1200	3			512a	3	500	15Kv	1/0
S13	Auxiliary Section #3 (Nameplates per Device)	Device B3 Panelboard, Batt., Batt. Charger, Annunciator #2	See Spec.									

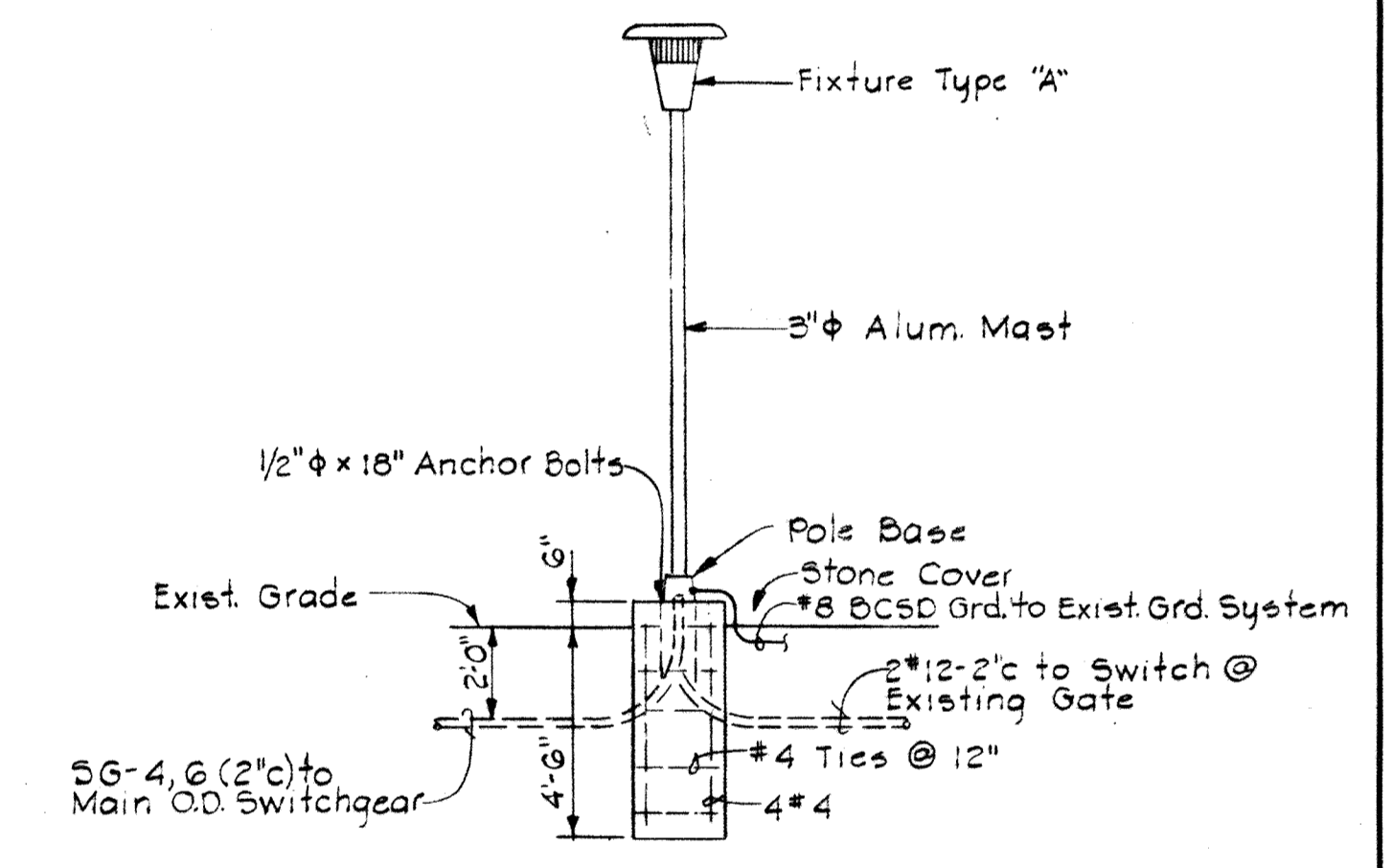
13.2 KV MAIN OUTDOOR SWITCHGEAR SCHEDULE



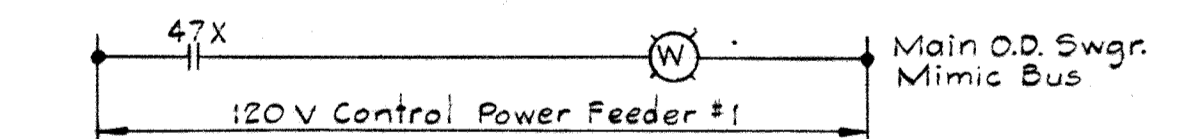
SPACE REQUIREMENTS & PROVISIONS FOR TERMINATING POWER CO. CABLES IN 13.2 KV MAIN OUTDOOR SWITCHGEAR
(See Notes 2, 4, & 5)
Not to Scale



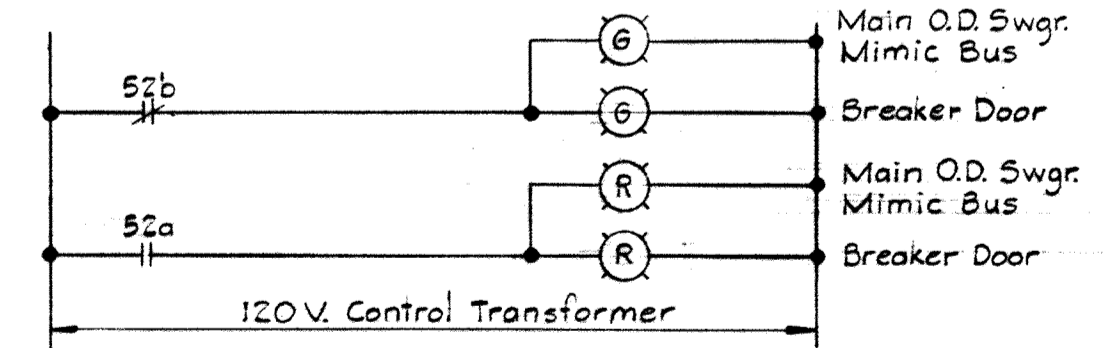
GROUNDING FACILITY FOR METERING CURRENT TRANSFORMERS
Not to Scale



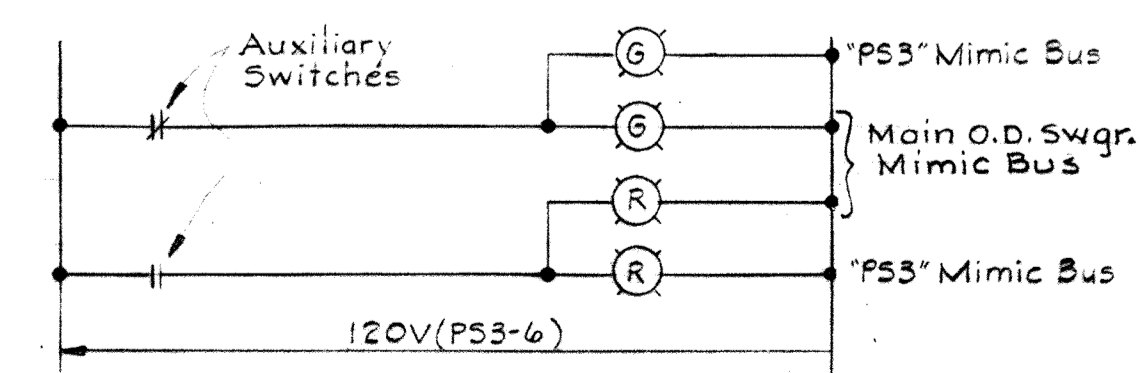
FOUNDATION DETAIL (For Fixture Type 'A' @ Existing 'PS1')
Scale: 1/4" = 1'-0"



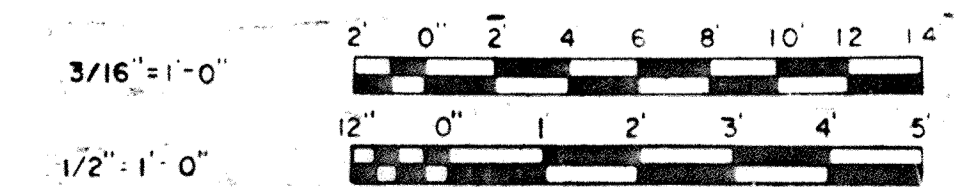
SERVICE FDR. #1 INDICATING LIGHT
Typ. for Service Fdr #2



MAIN BREAKER #1 INDICATING LIGHTS
Typ. for 7 breakers

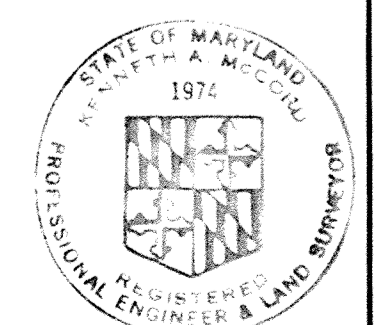


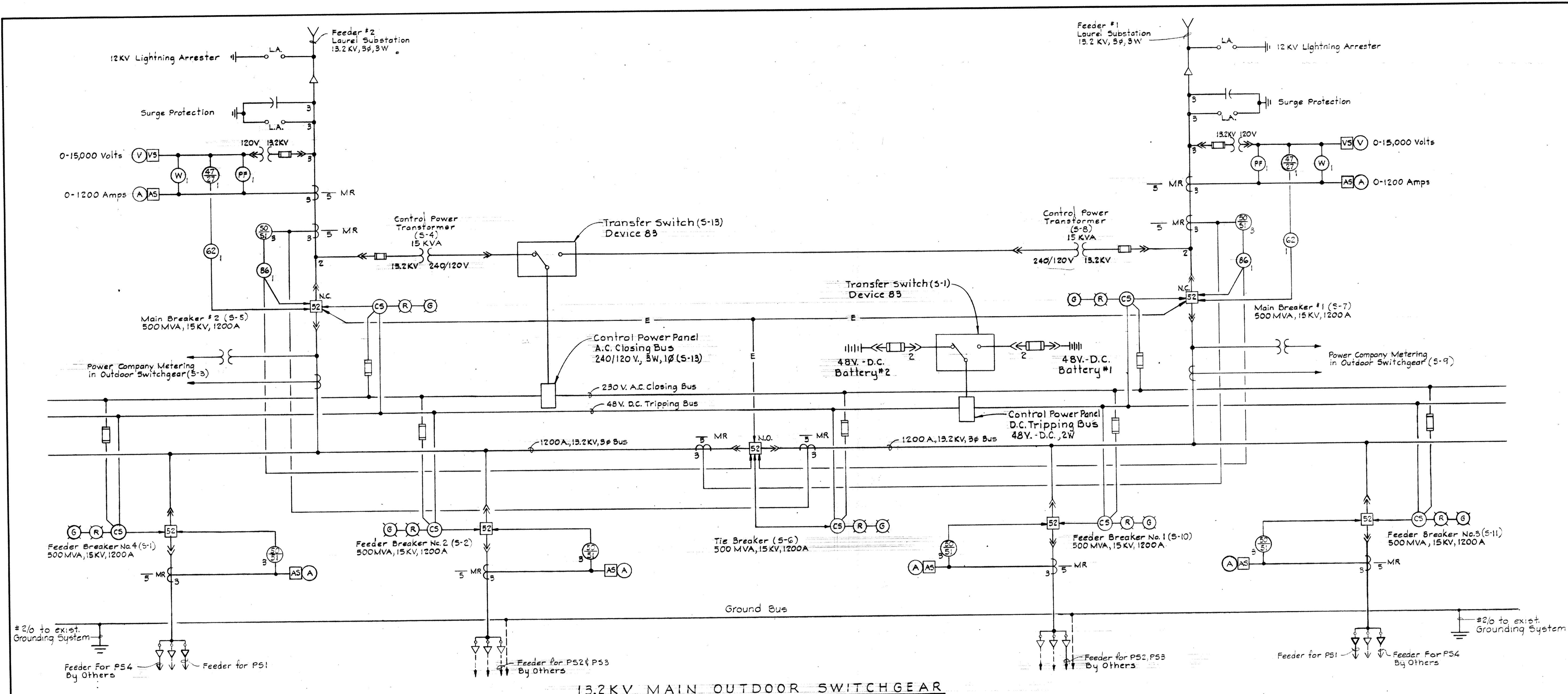
INTERRUPTER SW. FDR. #1 SUBST. 'PS3' IND. LGTS.
Typ. for Interrupter Sw. 'PS1'



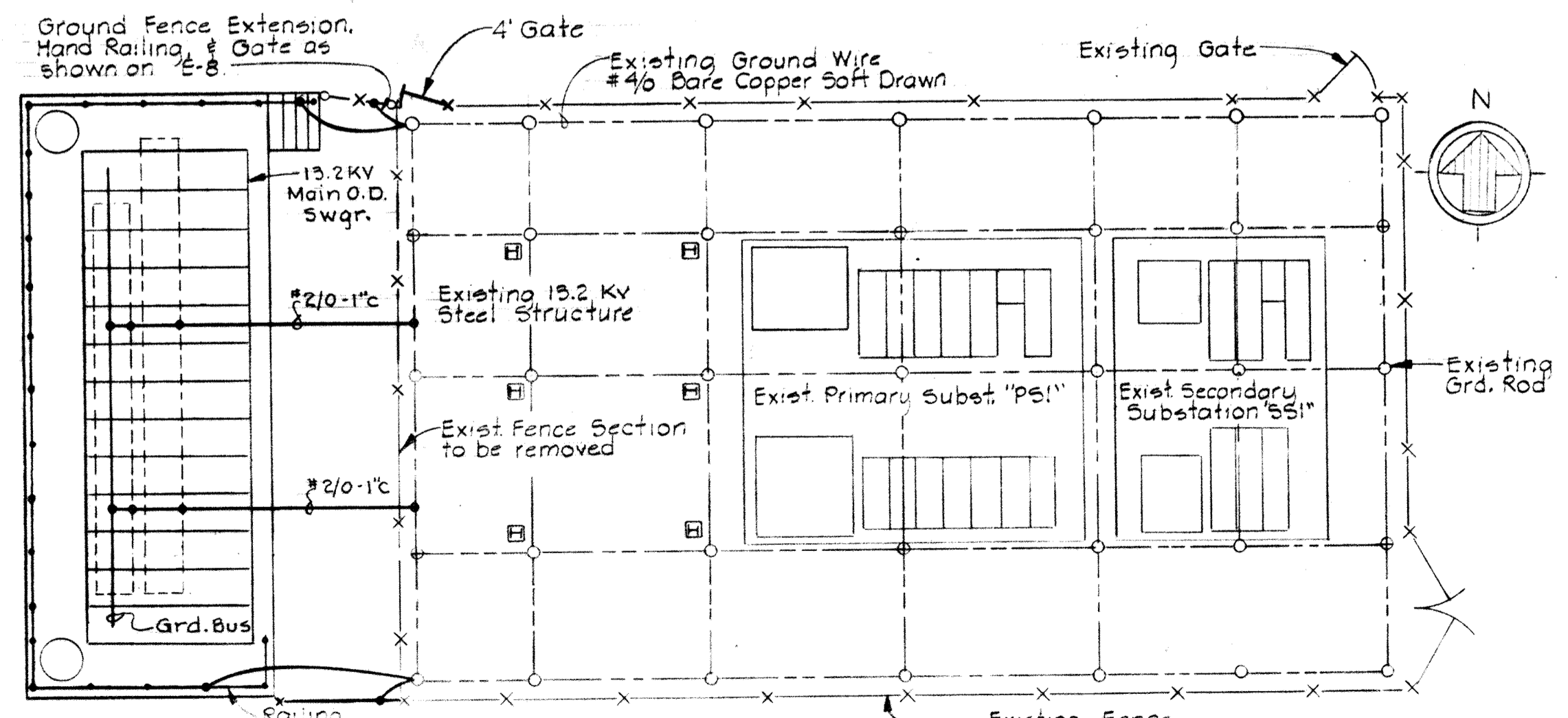
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE <i>W.D. Gilbert</i> CHIEF BUREAU OF ENGINEERING	CONTRACT NO. <u>500-S</u>	13.2 KV MAIN OUTDOOR SWITCHGEAR DETAILS & ELEM. WIRING DIAGRAM	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. <u>120</u> OF <u>133</u>	SCALE AS SHOWN
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W. O. 6887-2



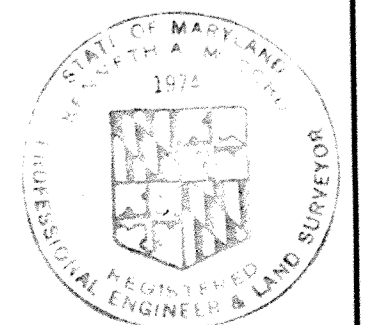


13.2KV MAIN OUTDOOR SWITCHGEAR



ADDITIONS TO EXISTING GROUNDING SYSTEM - O.D. SUBSTATIONS
Scale: 3/32" = 1'-0"

NOTES
1. For General Electrical Note & Legend, See Sheet E-2.

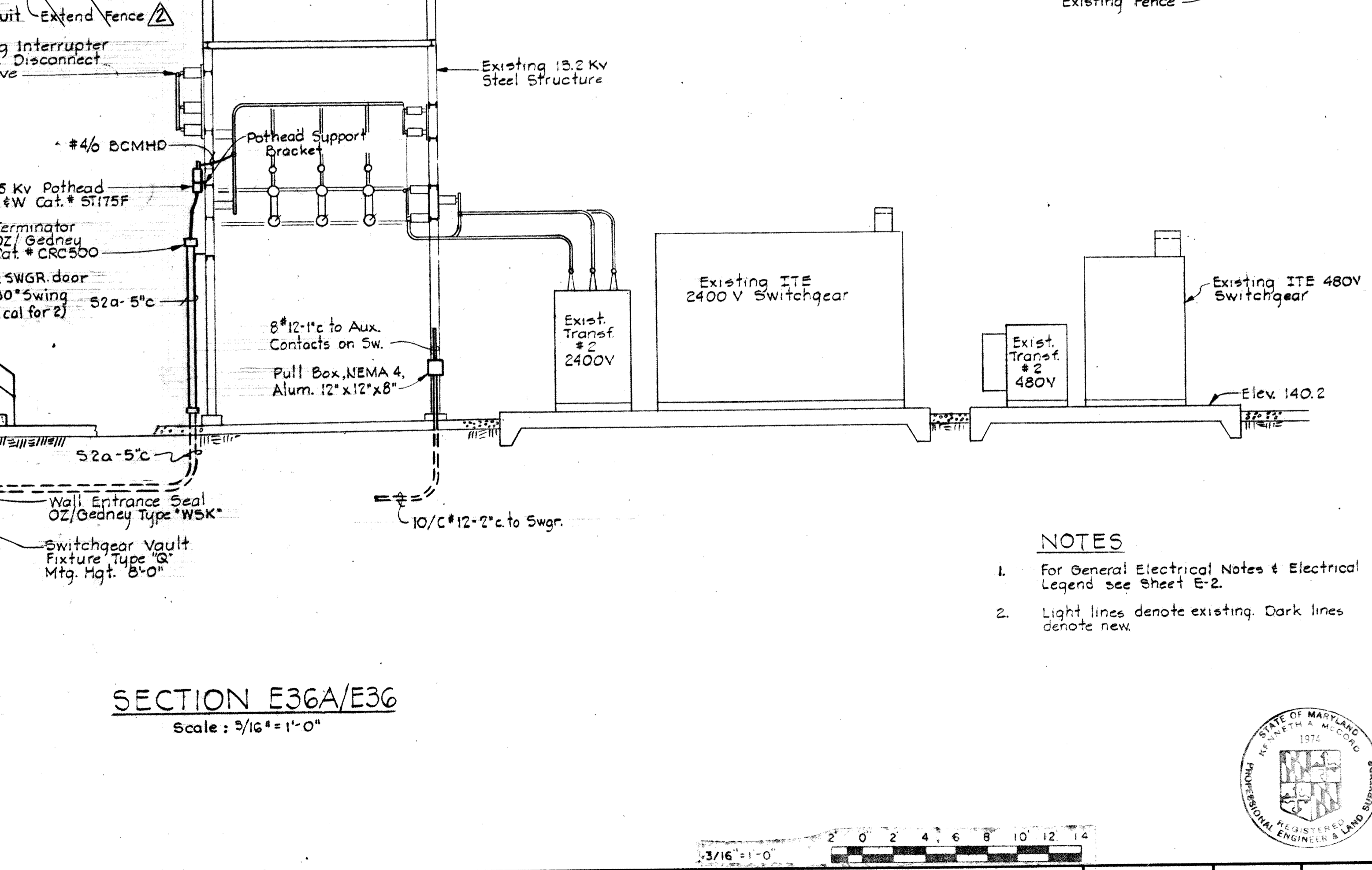
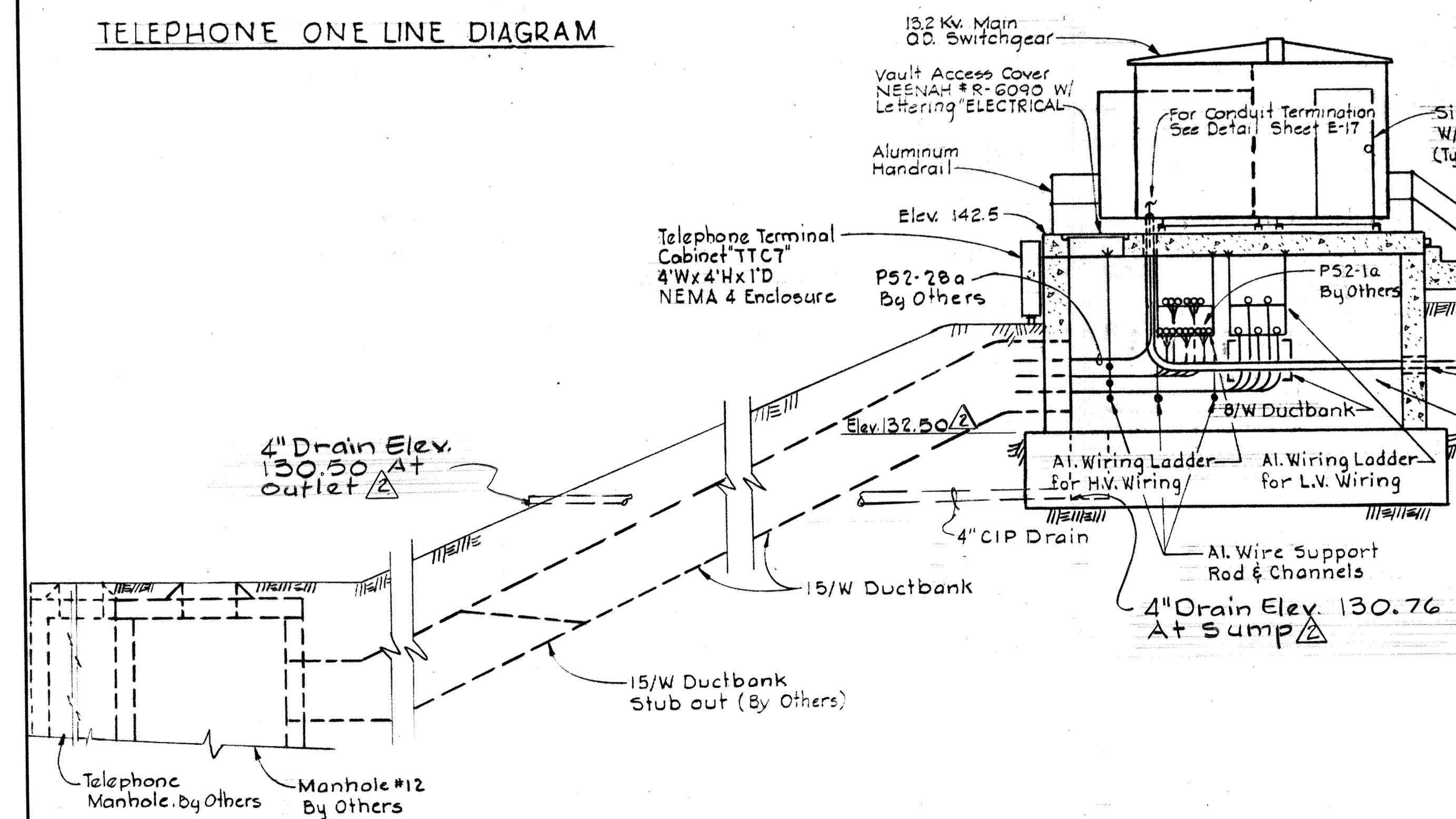
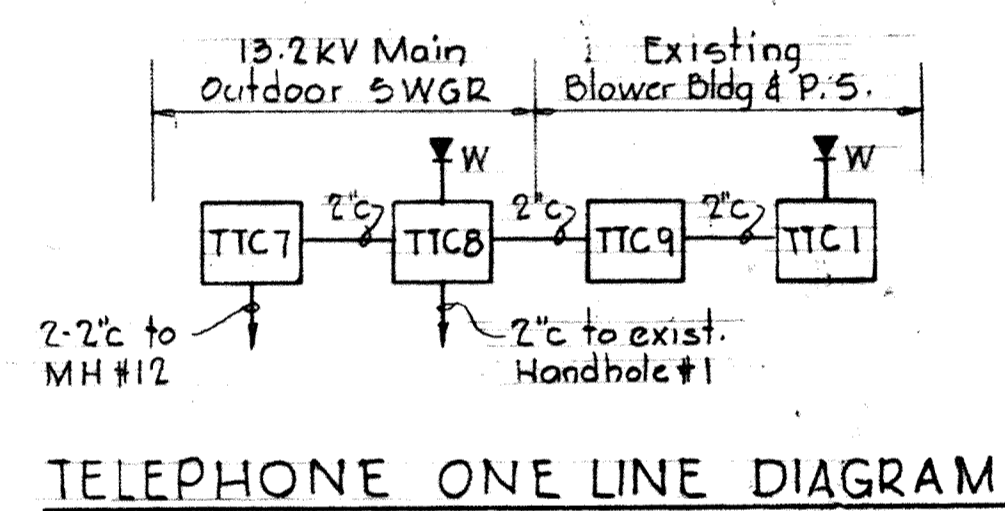
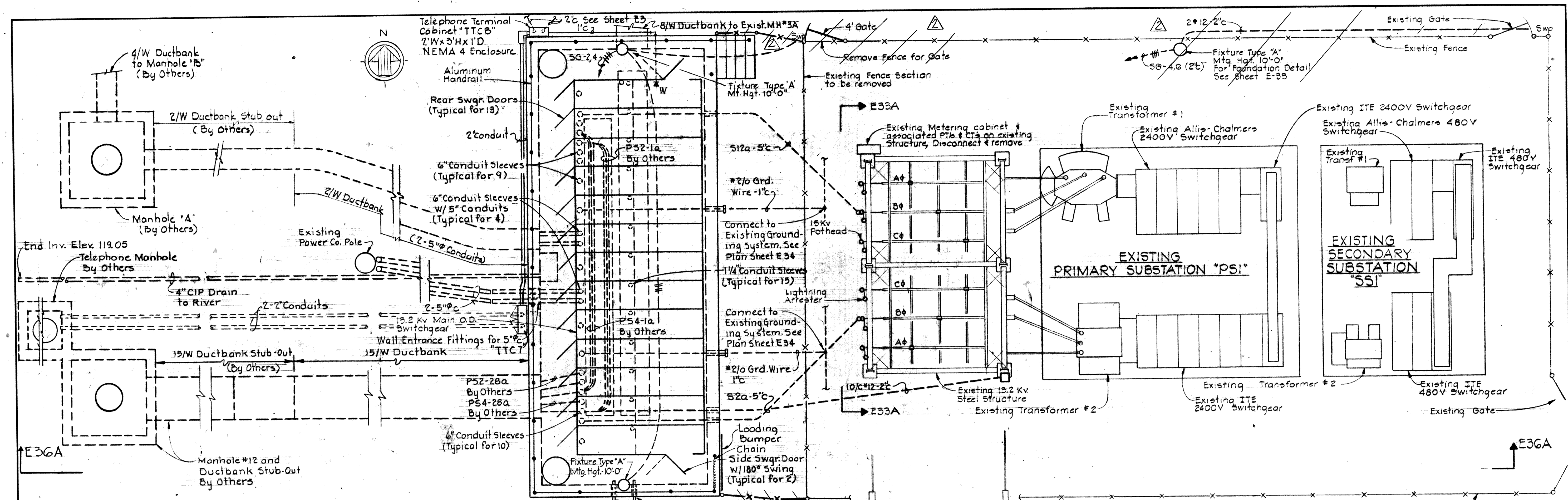


<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE</p> <p><i>W.O. Libat</i> CHIEF-BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>13.2KV MAIN OUTDOOR SWITCHGEAR POWER - ONE LINE WIRING DIAG.</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 121 OF 133</p> <p>SCALE NONE</p>
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W.O. 6887-2

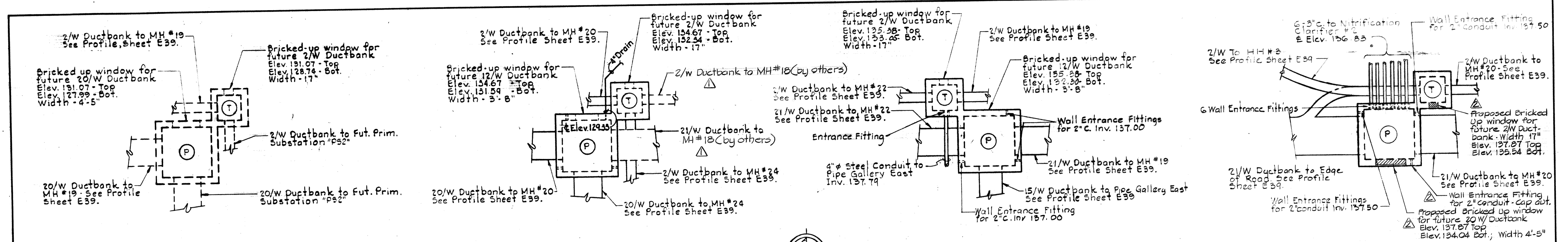
SHEET E-34

BRUNING 44-510 10392



- NOTES**
1. For General Electrical Notes & Electrical Legend see Sheet E-2.
 2. Light lines denote existing. Dark lines denote new.

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 <i>W.O. Libert</i> CHIEF BUREAU OF ENGINEERING	CONTRACT NO. 500-S	13.2 KV MAIN OUTDOOR SWITCHGEAR PLAN & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 122 OF 133	SCALE AS SHOWN
					SHEET E-35	

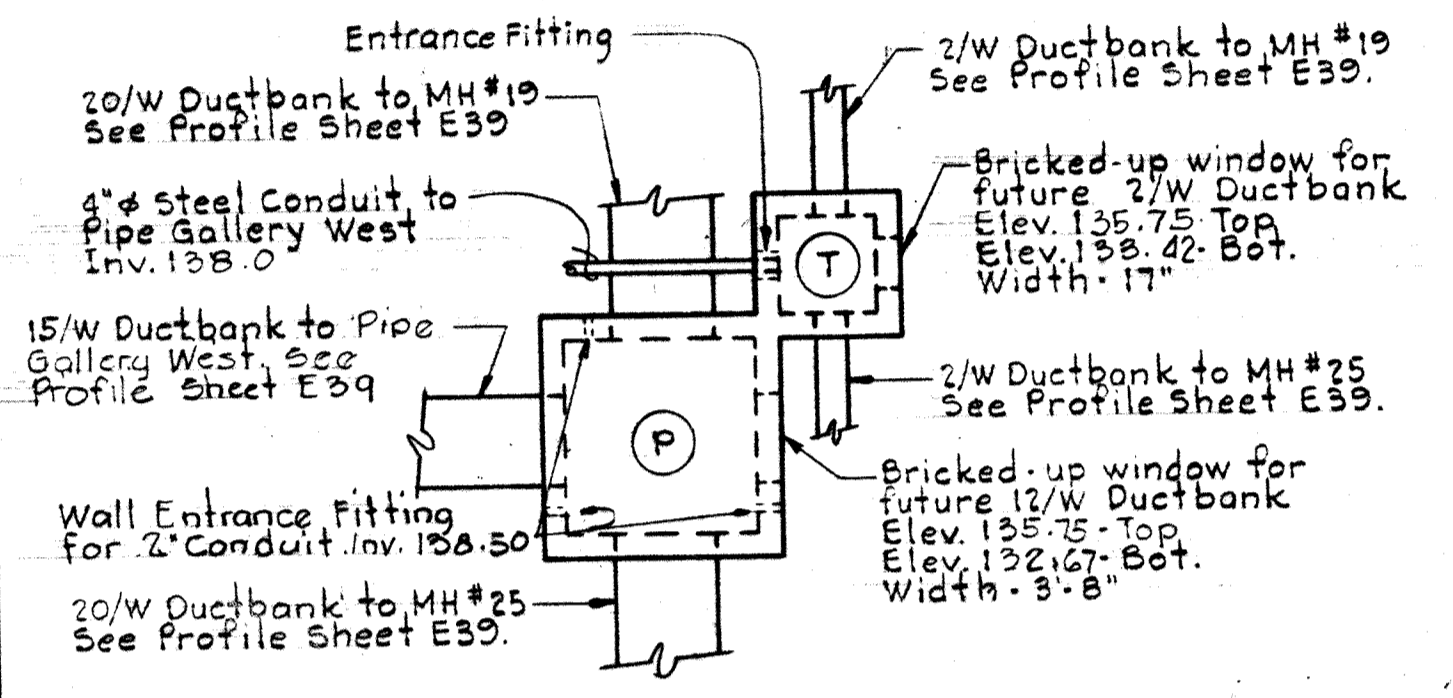


(By Others)
PLAN - FUTURE MANHOLE #18

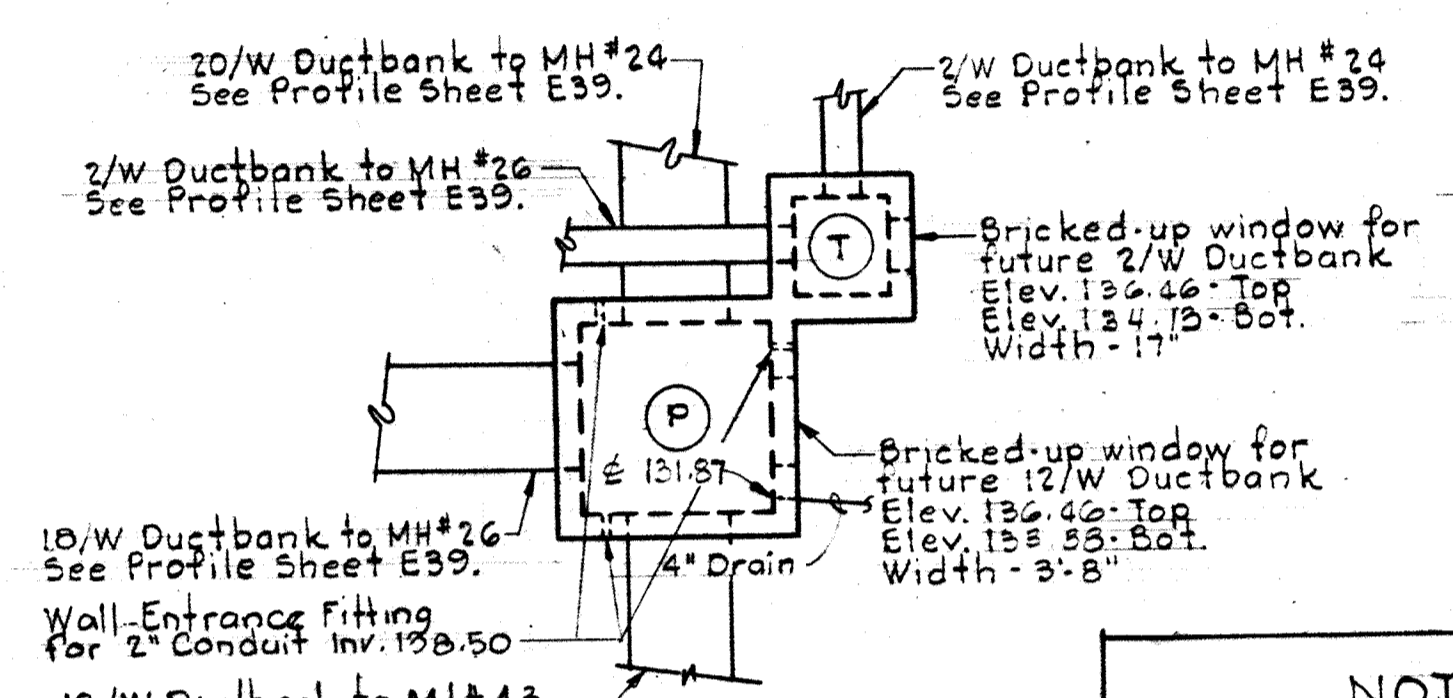
(By Others)
PLAN - MANHOLE #19

PLAN - MANHOLE #20

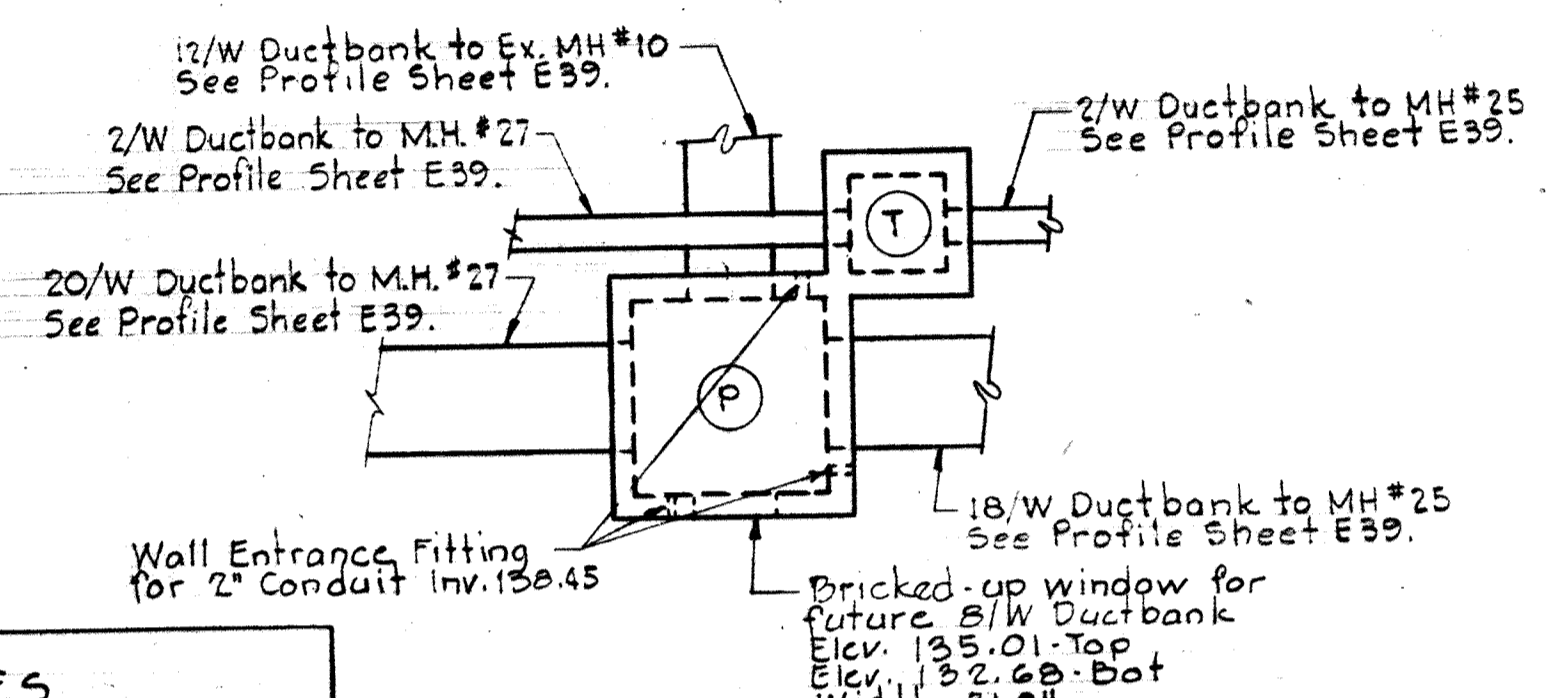
REVISOR PLAN - MANHOLE #22



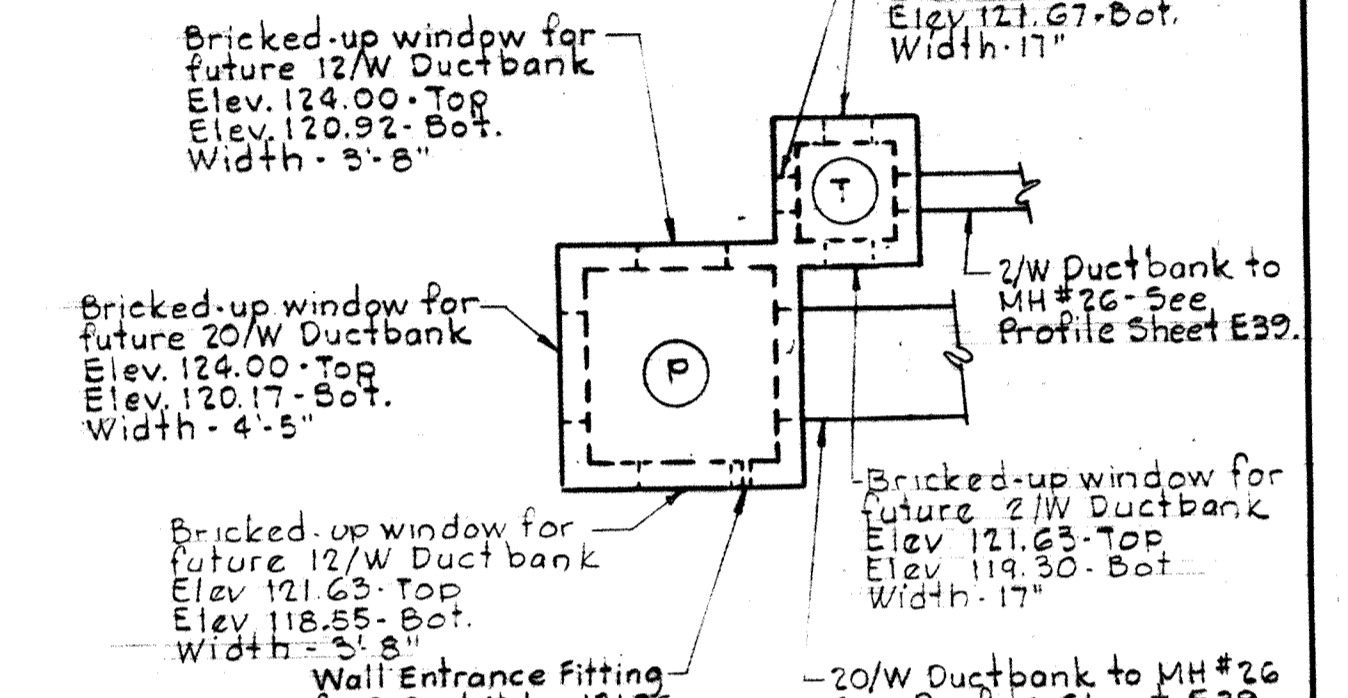
PLAN - MANHOLE #24



PLAN - MANHOLE #25



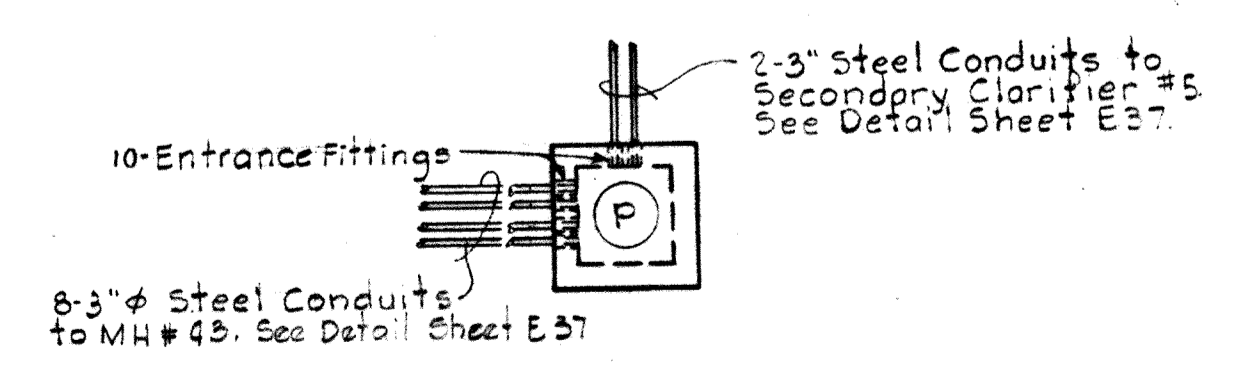
PLAN - MANHOLE #26



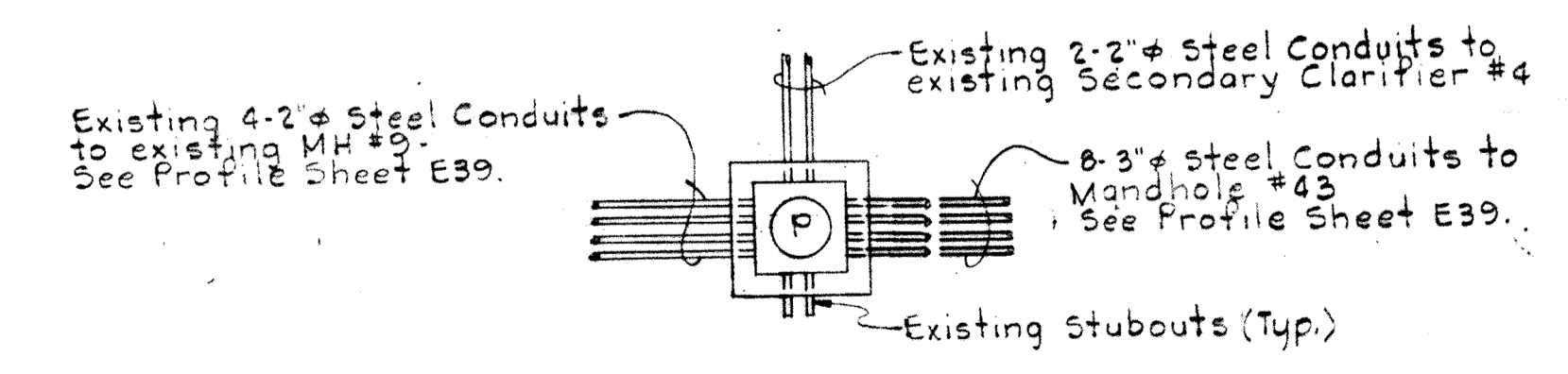
PLAN - MANHOLE #27

NOTES

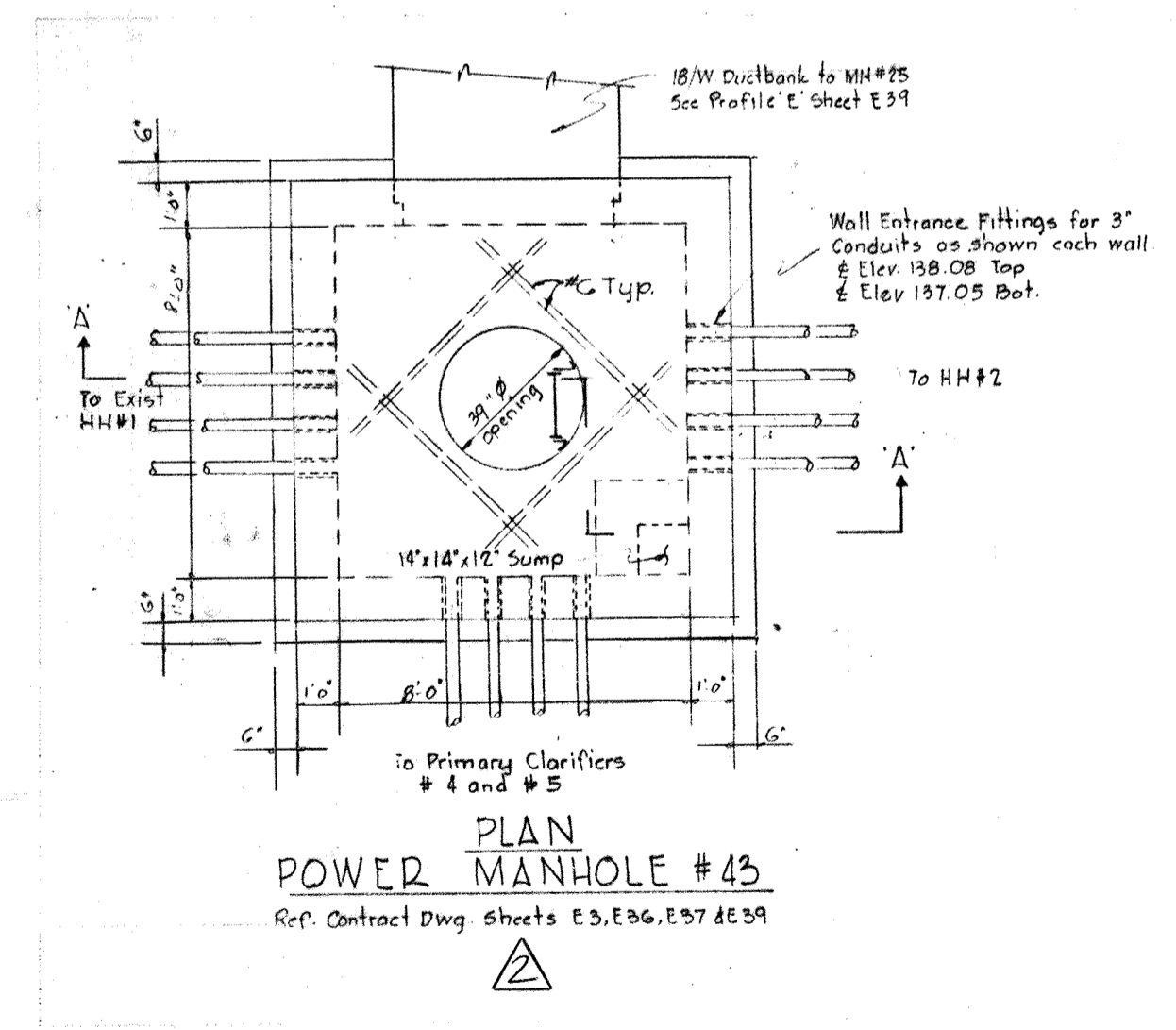
- For General Electrical Notes and Legend see Sheet E 2
- Manholes # 25 to have Floor Drain, see Specification



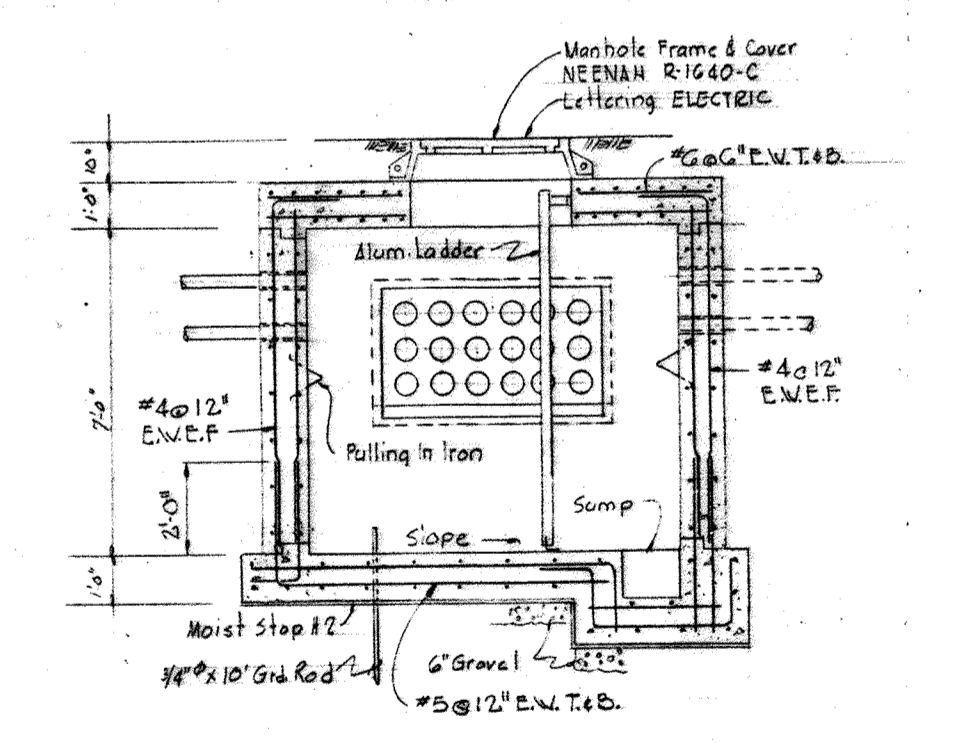
PLAN - HANDHOLE #2



PLAN - EXISTING HANDHOLE #1



PLAN - POWER MANHOLE #43
Ref. Contract Dwg. sheets E3, E36, E37 & E39



SECTION AA
POWER MANHOLE #43
Ref. Contract Dwg. sheets E3, E36, E37 & E39

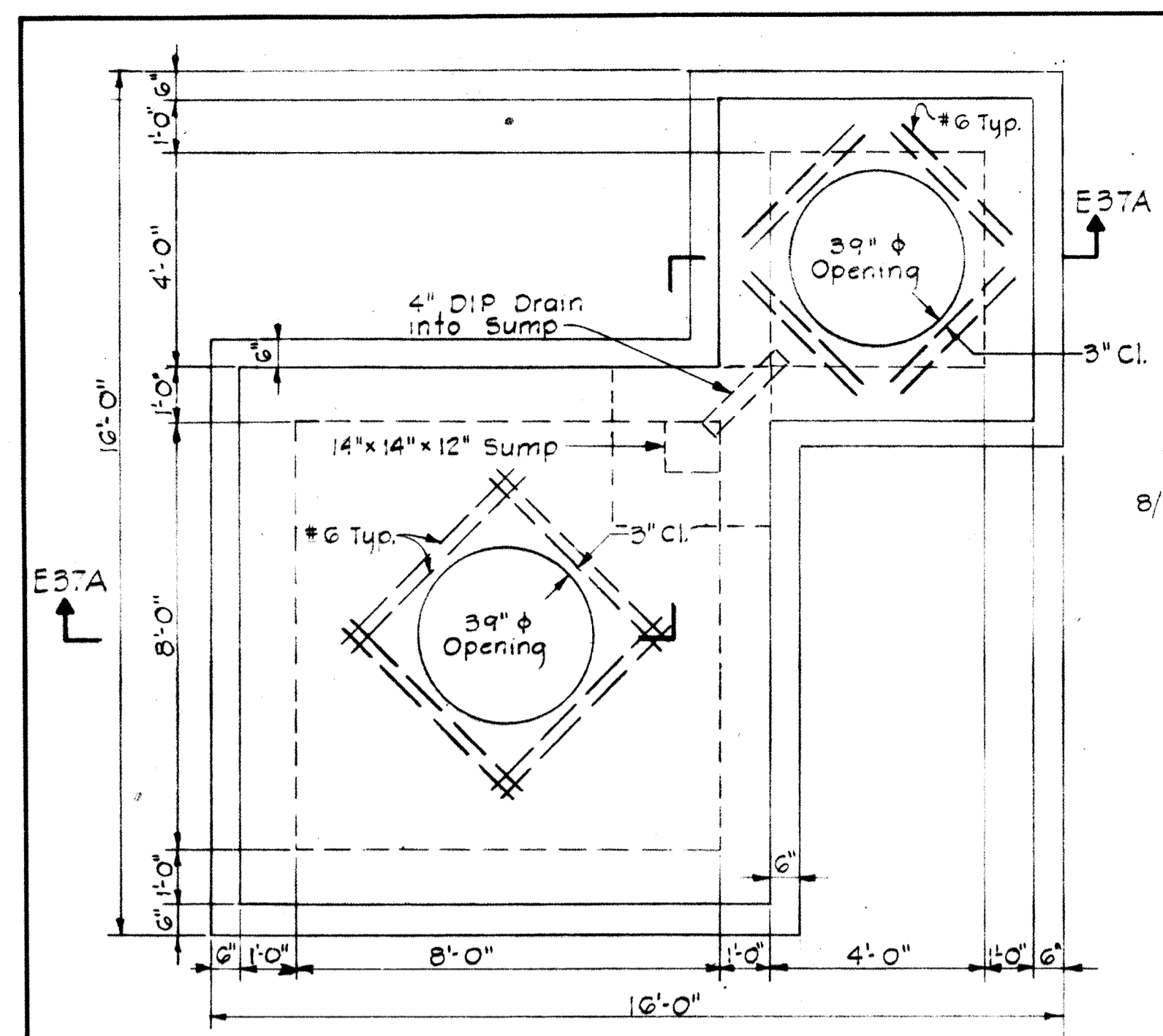
MANHOLE AND HANDHOLE PLANS
Scale: 1/8" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 2/20/75 CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	UNDERGROUND MANHOLE & HANDHOLE DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 123 OF 133	SCALE 1/8"=1'-0"
					SHEET E-36	

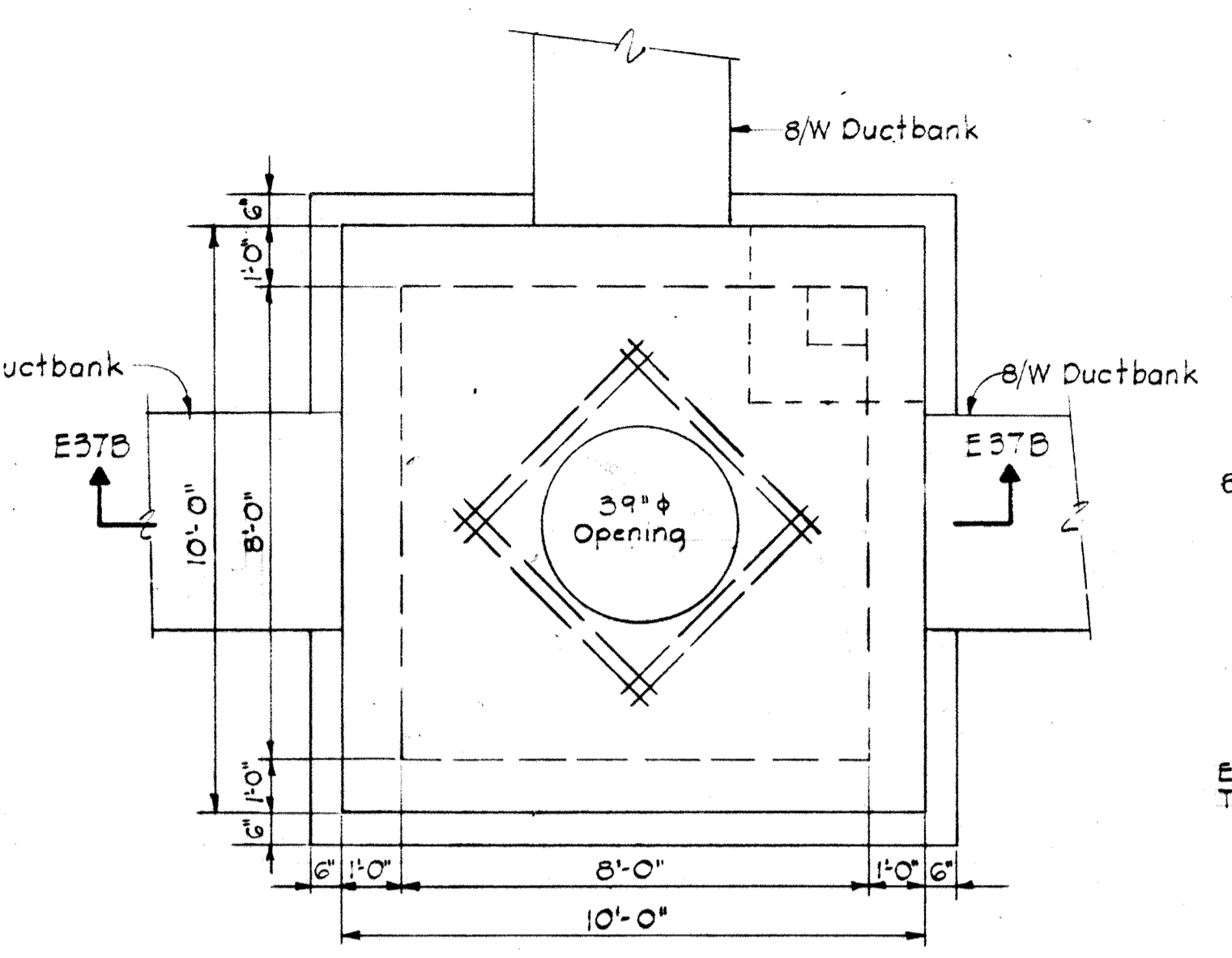
W.O. 6887-2

MODIFIED DRAWING - MAY 6, 1982

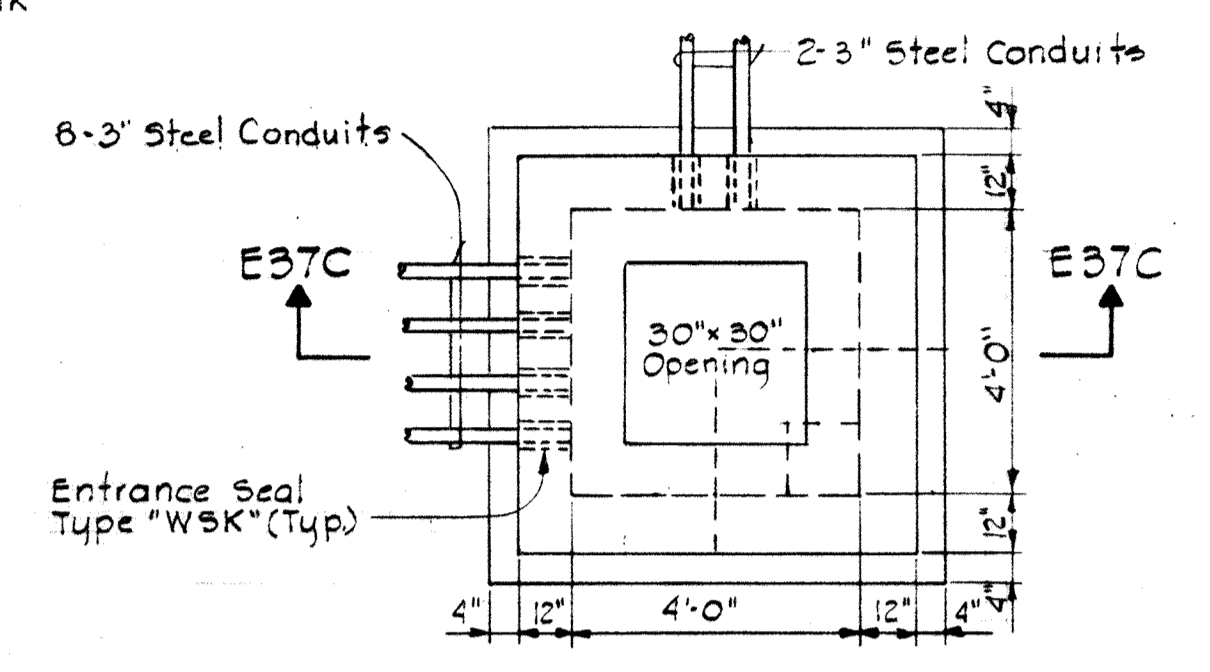
BRUNING 44-510 18392



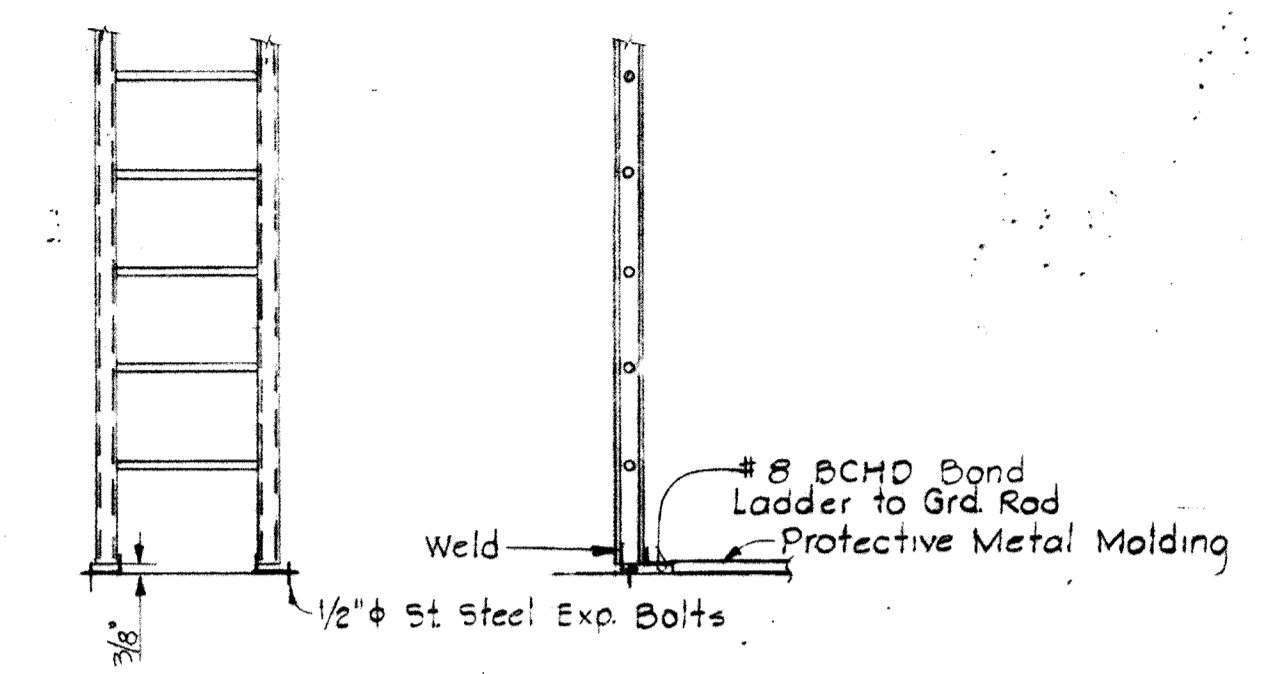
PLAN



PLAN

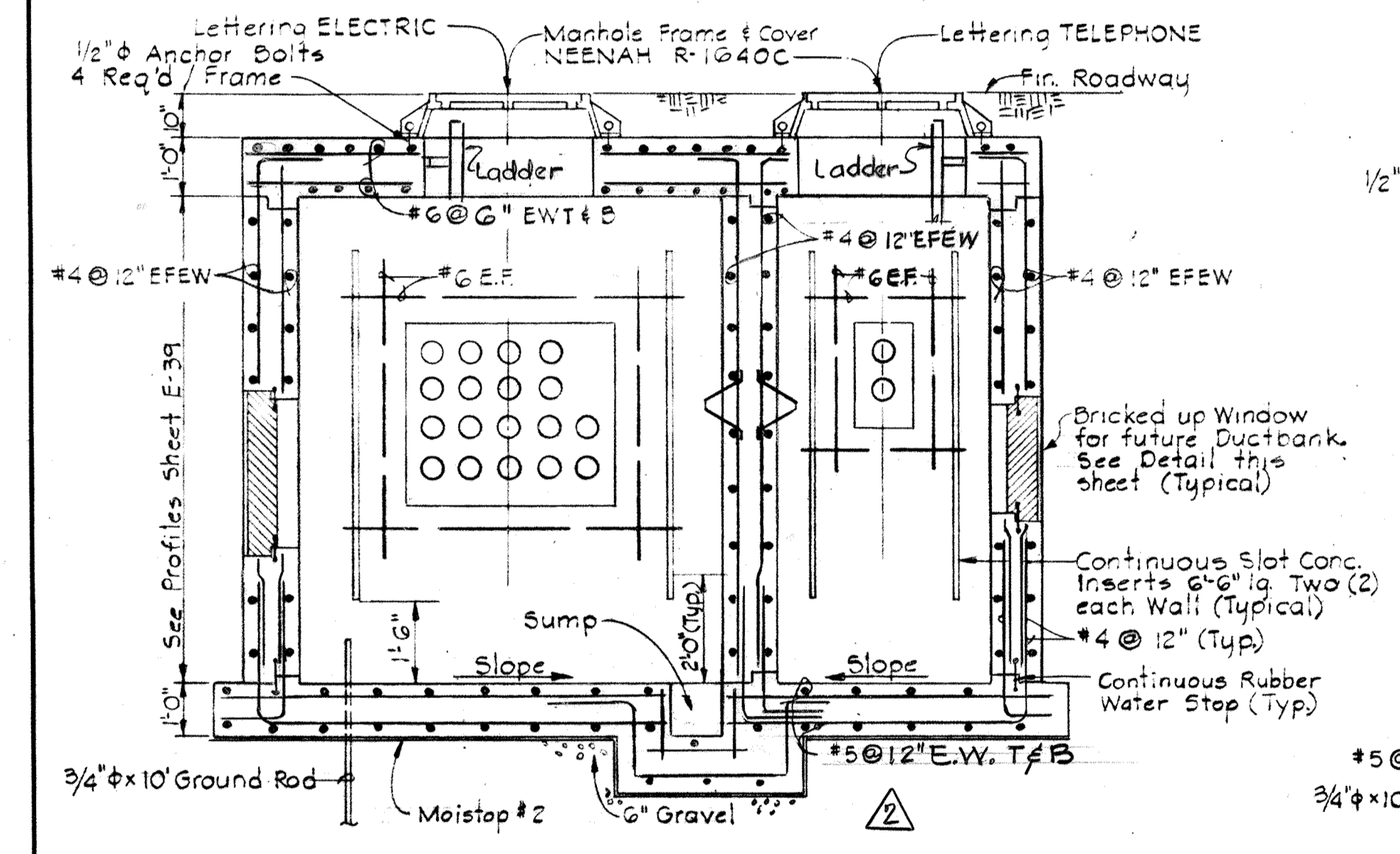


PLAN



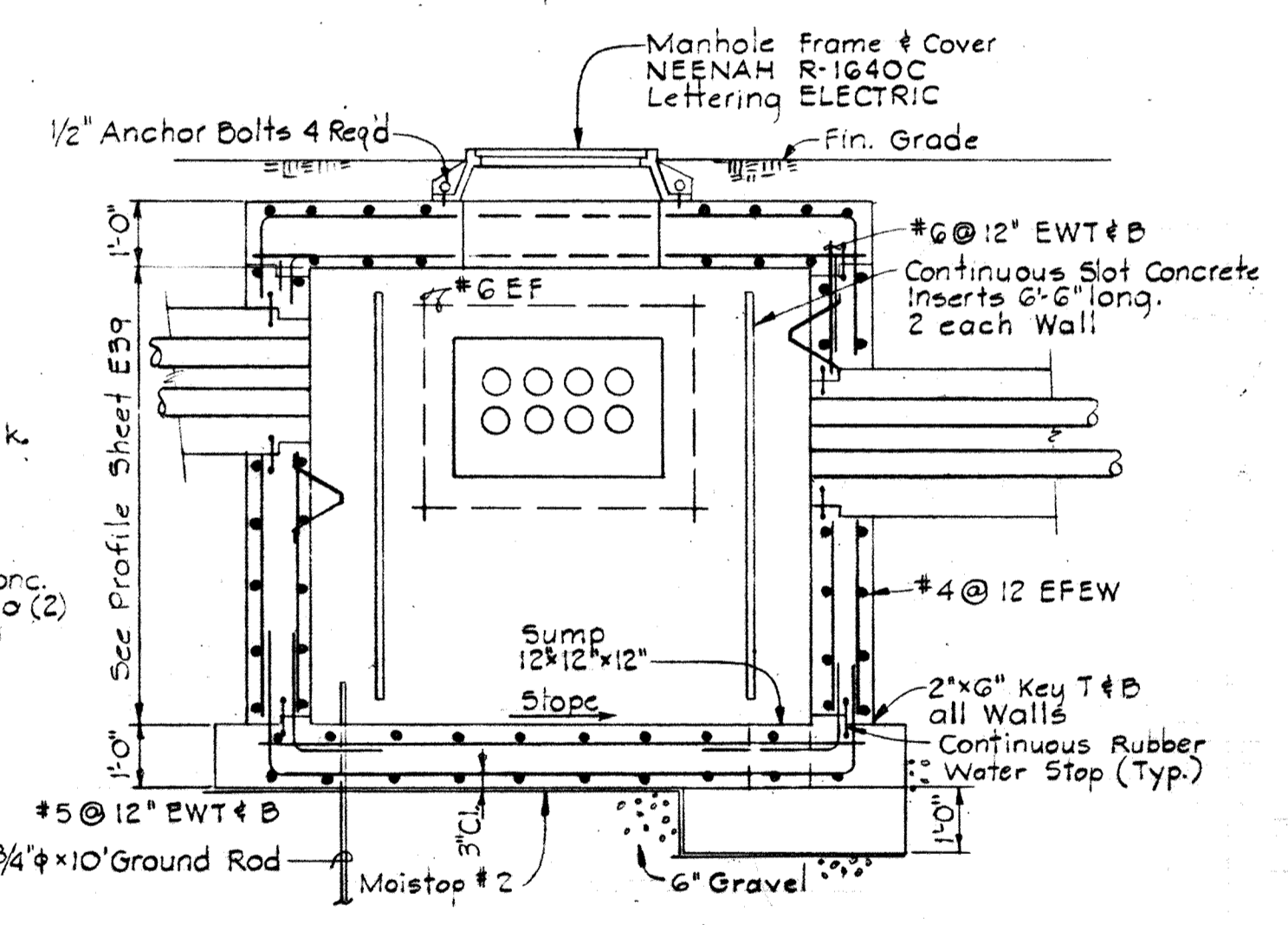
DETAIL OF MANHOLE LADDER GROUNDING
Scale: 1/2" = 1'-0"

Typical for Telephone & Power Manholes
(For Ladder Detail see Sheet E-2)



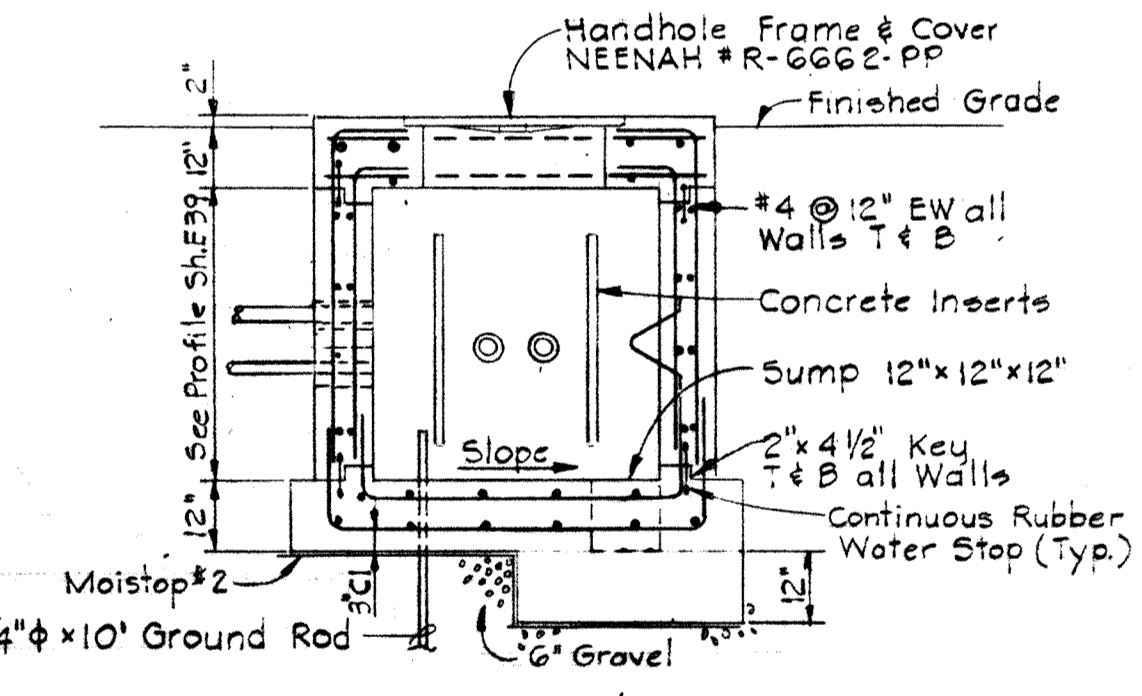
SECTION E37A/E37B
TYPICAL POWER AND TELEPHONE MANHOLE

See Notes 2, 3, 4, & 5
Scale: 3/8" = 1'-0"



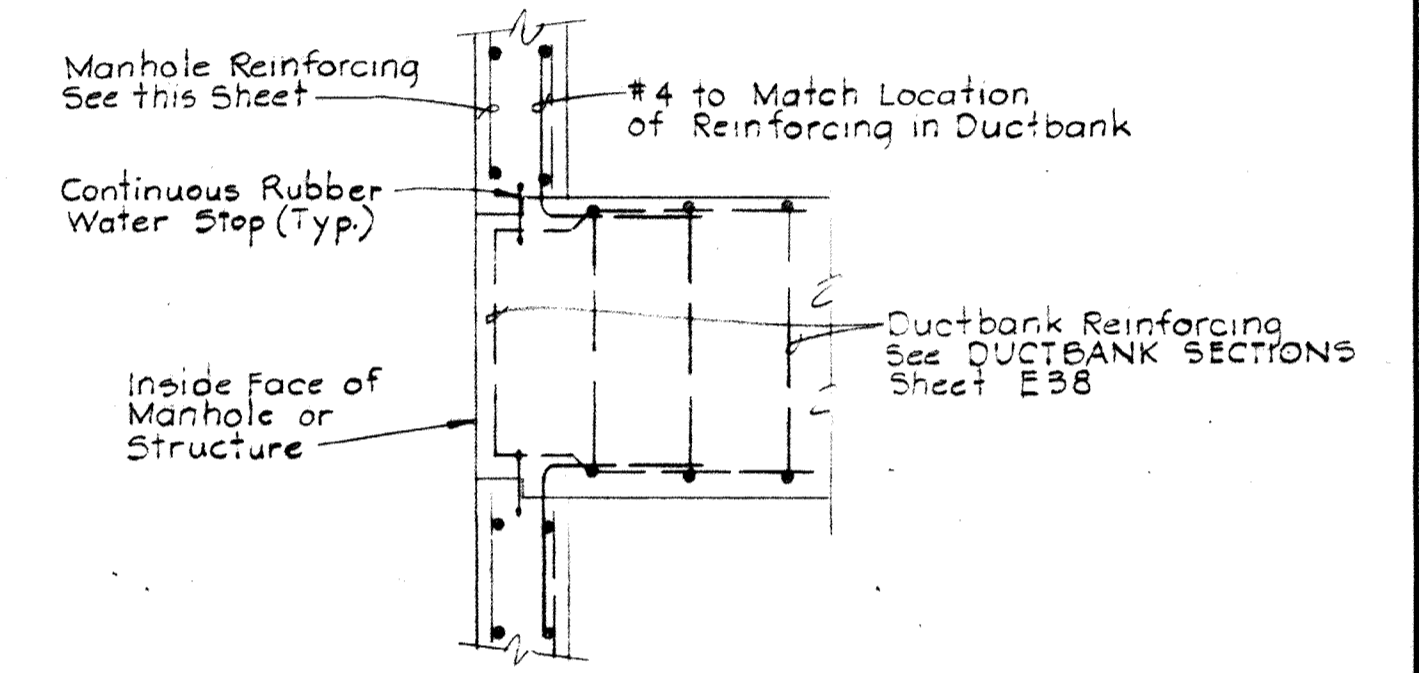
SECTION E37B/E37C
POWER MANHOLE # 28

(See Notes # 2, 3, 4, & 5)
Scale: 3/8" = 1'-0"



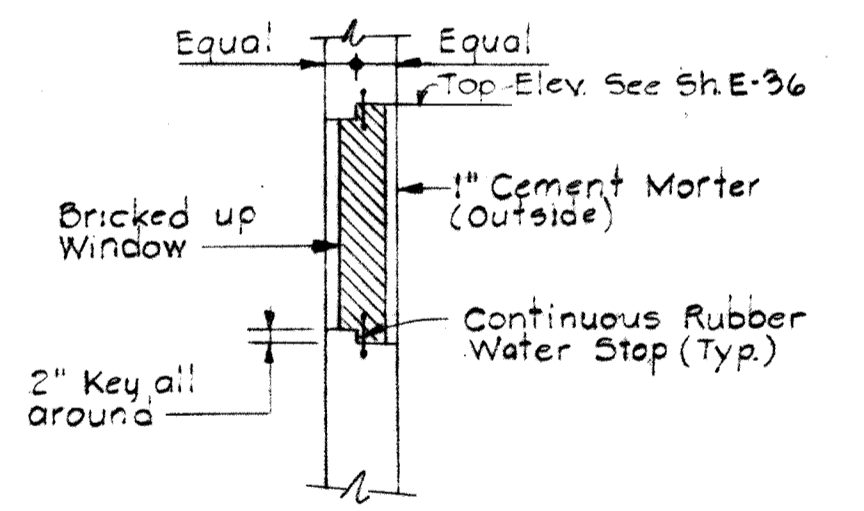
SECTION E37C/E37B
TYPICAL FOR TELEPHONE HANDHOLES THH#2

(See Notes # 2, 3, 4 & 5)
Scale: 3/8" = 1'-0"



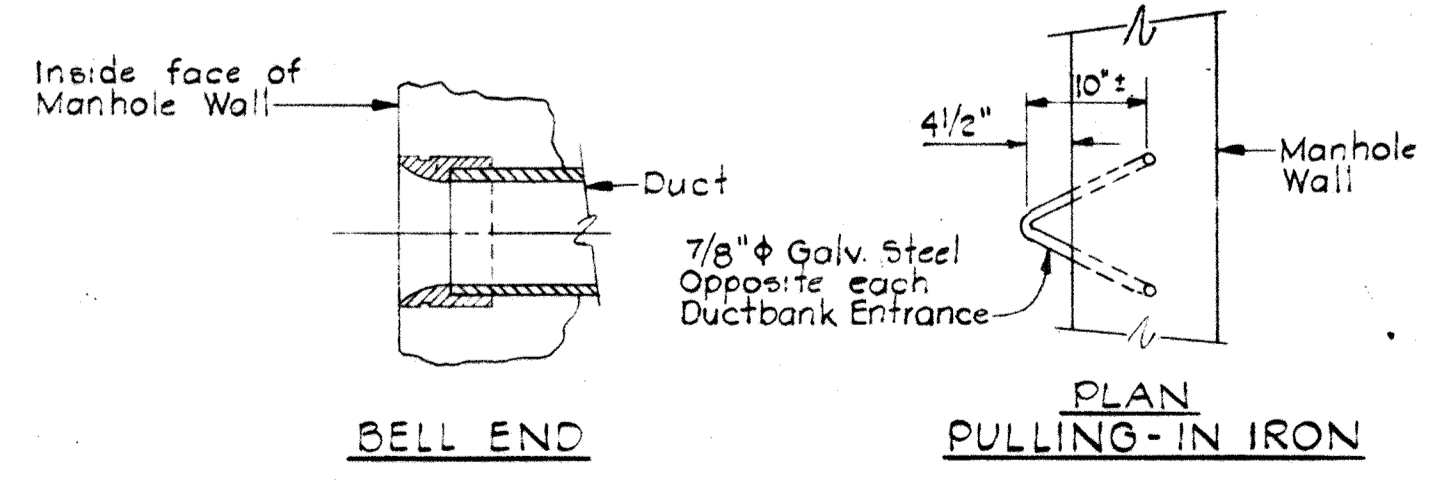
ARRANGEMENT OF DUCTBANK REINFORCEMENT
AT ENTRANCE TO MANHOLES & STRUCTURES

Scale: 1/2" = 1'-0"



DETAIL OF BRICKED UP WINDOW
FOR FUTURE DUCTBANKS

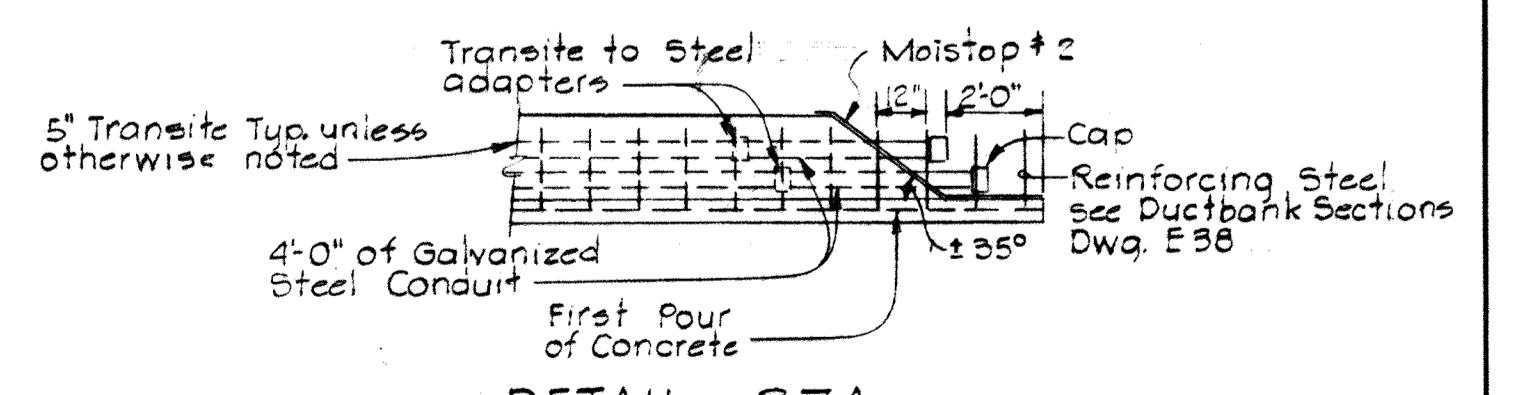
Scale: 3/8" = 1'-0"



MISCELLANEOUS MANHOLE DETAILS

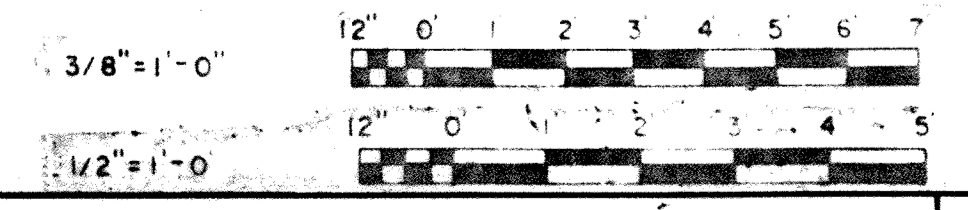
NOTES

1. For General Electrical Notes and Legend see Sheet E-2.
2. For Elevations of Ductbank see Profiles Sheet E-39.
3. For Elevations and size of Bricked up Windows see Sheet E-36.
4. For Plan orientation see Sheet E-36.
5. For Ductbank Sections see Sheet E-38.



DETAIL 37A
TEMPORARY TERMINATION
OF DUCTBANKS

Scale: 1/4" = 1'-0"



WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 3/20/75
W.O. LaBeat
CHIEF BUREAU OF ENGINEERING

CONTRACT NO. 500-S

UNDERGROUND MANHOLE
AND HANDHOLE DETAILS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

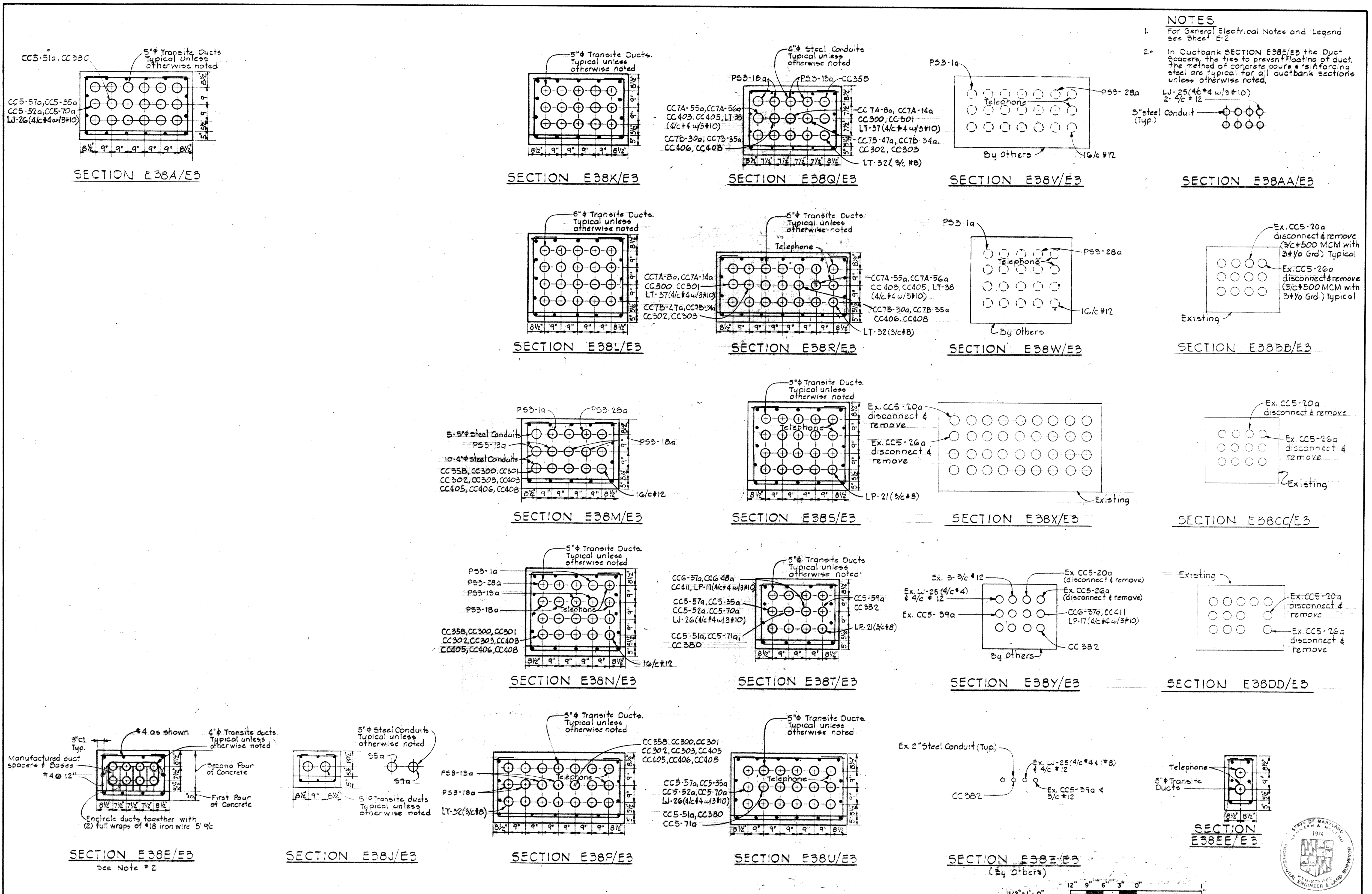
DRAWING NO. 124
OF 133
SCALE AS SHOWN

W.O. 6887-2

SHEET E-37

MODIFIED DRAWING - MAY 6, 1982

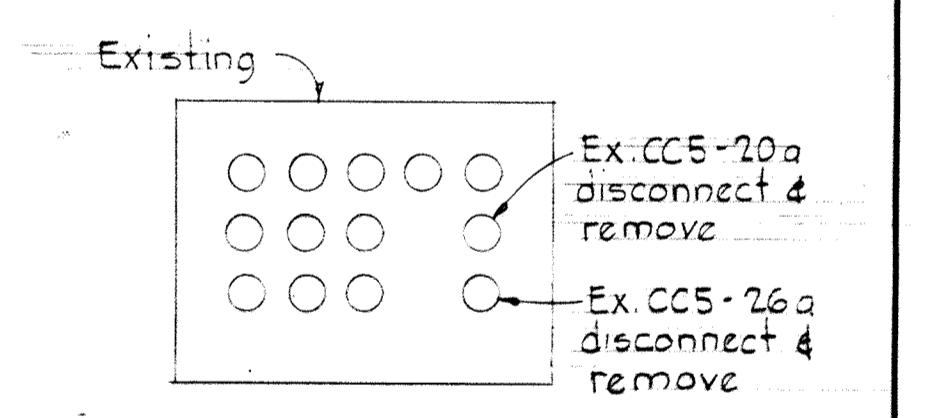
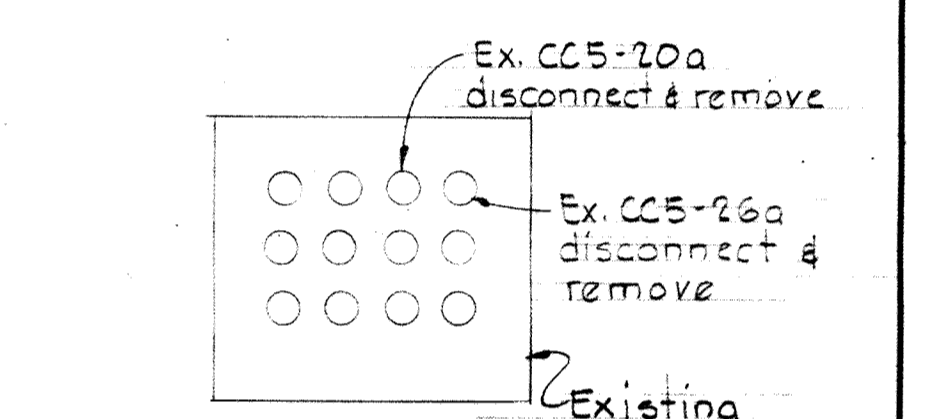
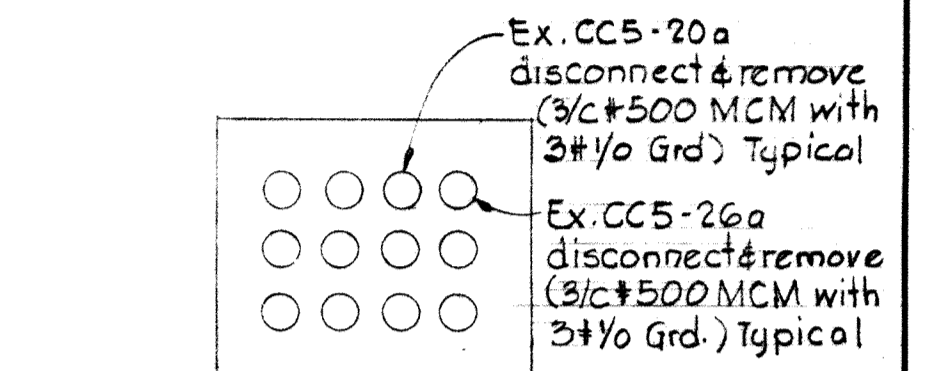
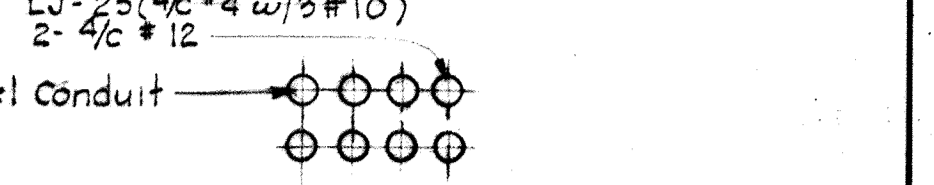
DRAWING 44-510 18-92



NOTES

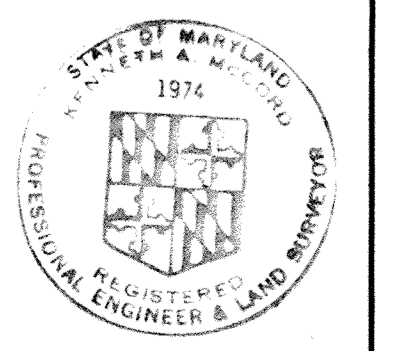
1. For General Electrical Notes and Legend see Sheet E-2

2. In Ductbank SECTION E38E/E3 the Duct Spacers, the ties to prevent floating of duct, the method of concrete curing & reinforcing steel are typical for all ductbank sections unless otherwise noted.

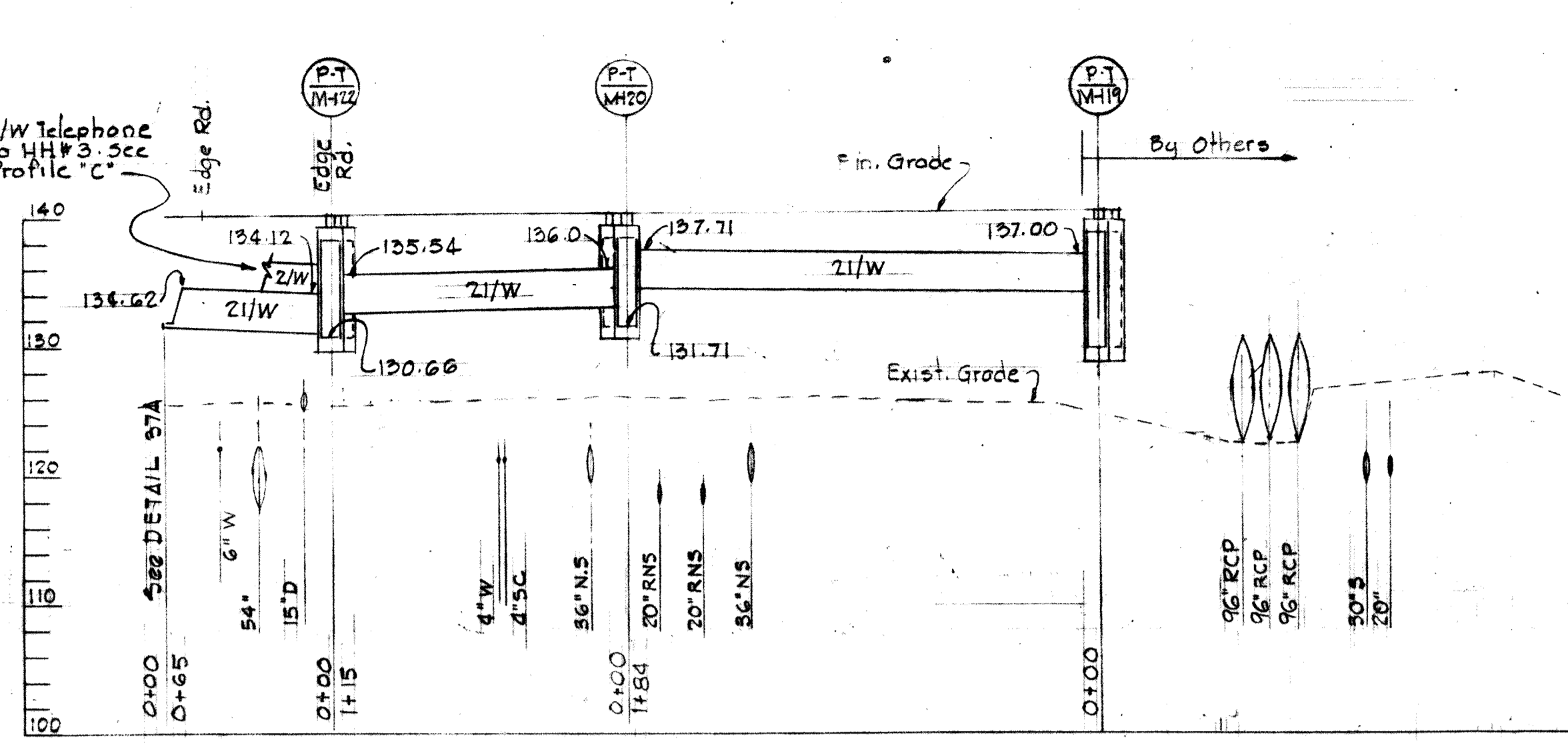


<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 W. O. Libat CHIEF, BUREAU OF ENGINEERING</p>	<p>CONTRACT NO. 500-S</p>	<p>UNDERGROUND DUCTBANK DETAILS</p>	<p>SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4</p>	<p>DRAWING NO. 125 OF 133 SCALE 1/2"=1'-0"</p>
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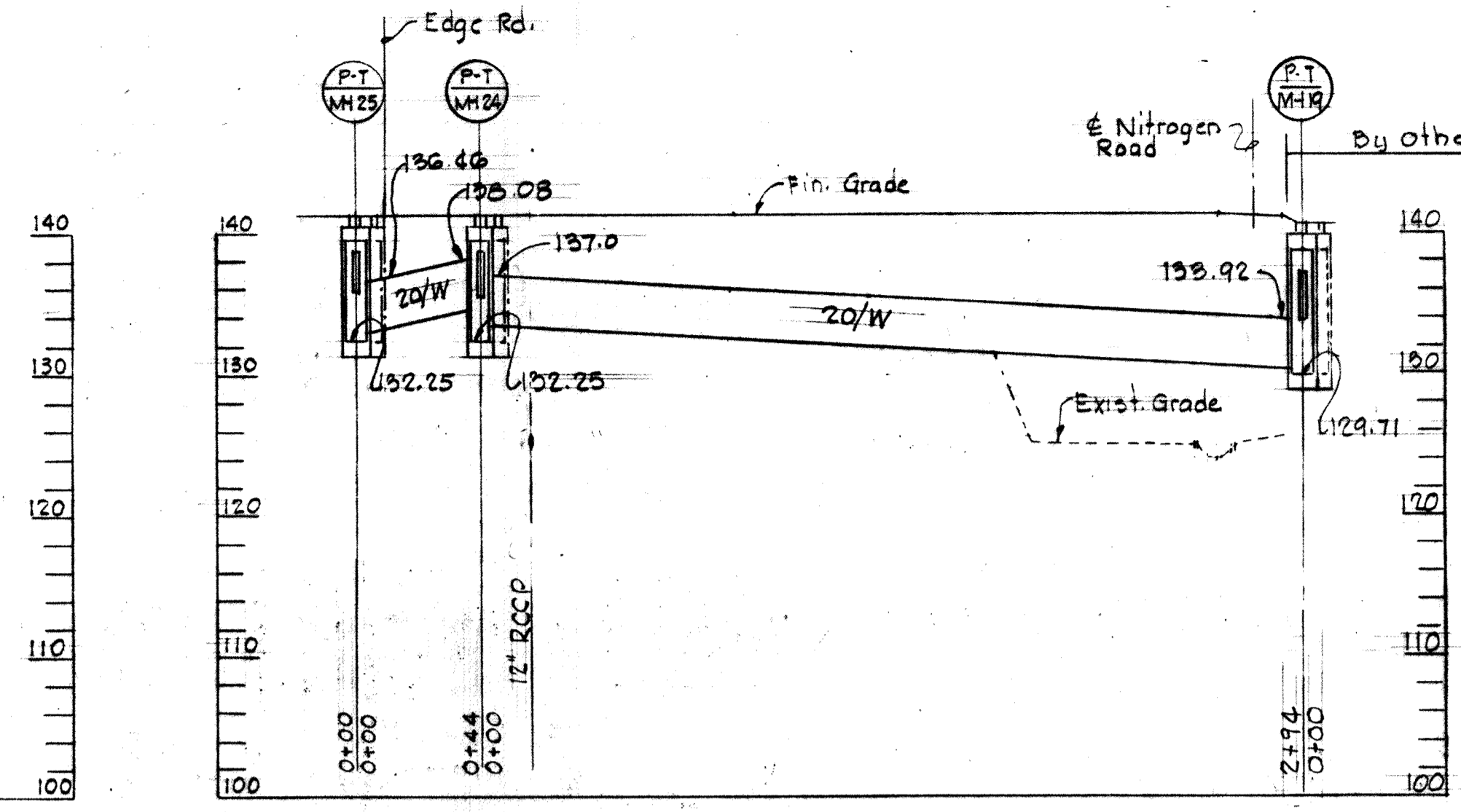
W. O. 6887-2



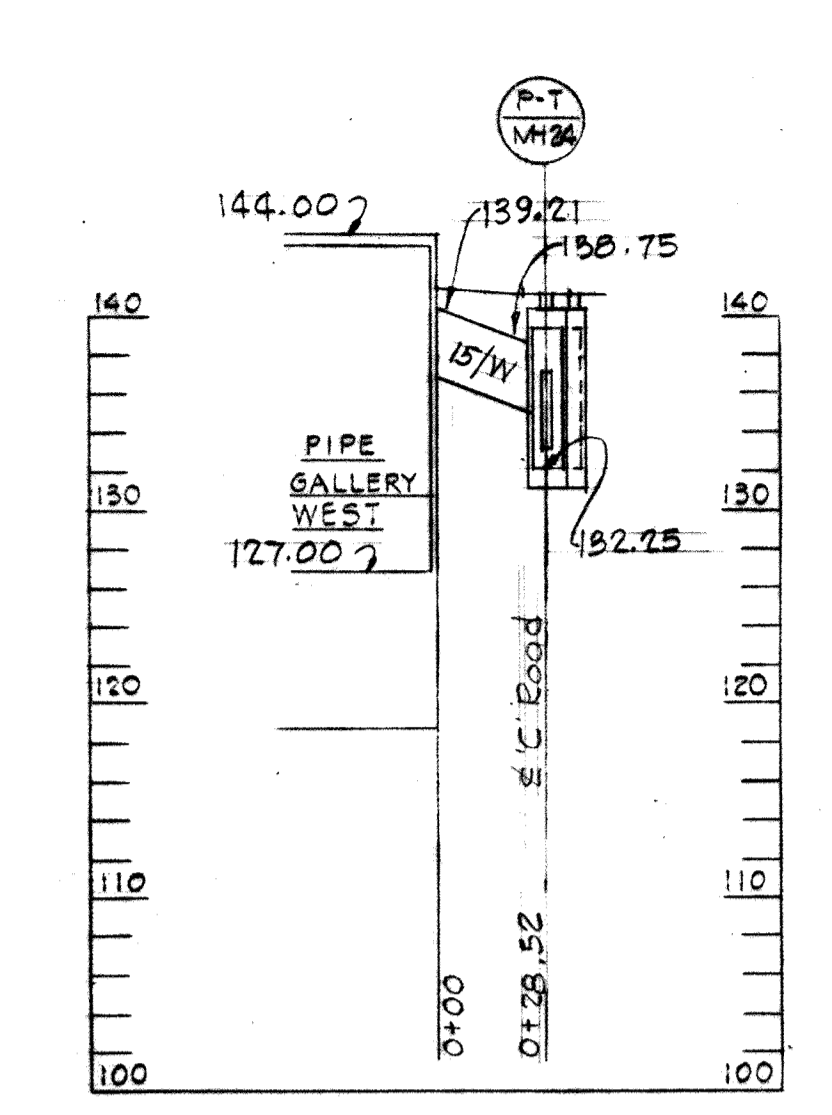
BRUNING 44510 18392



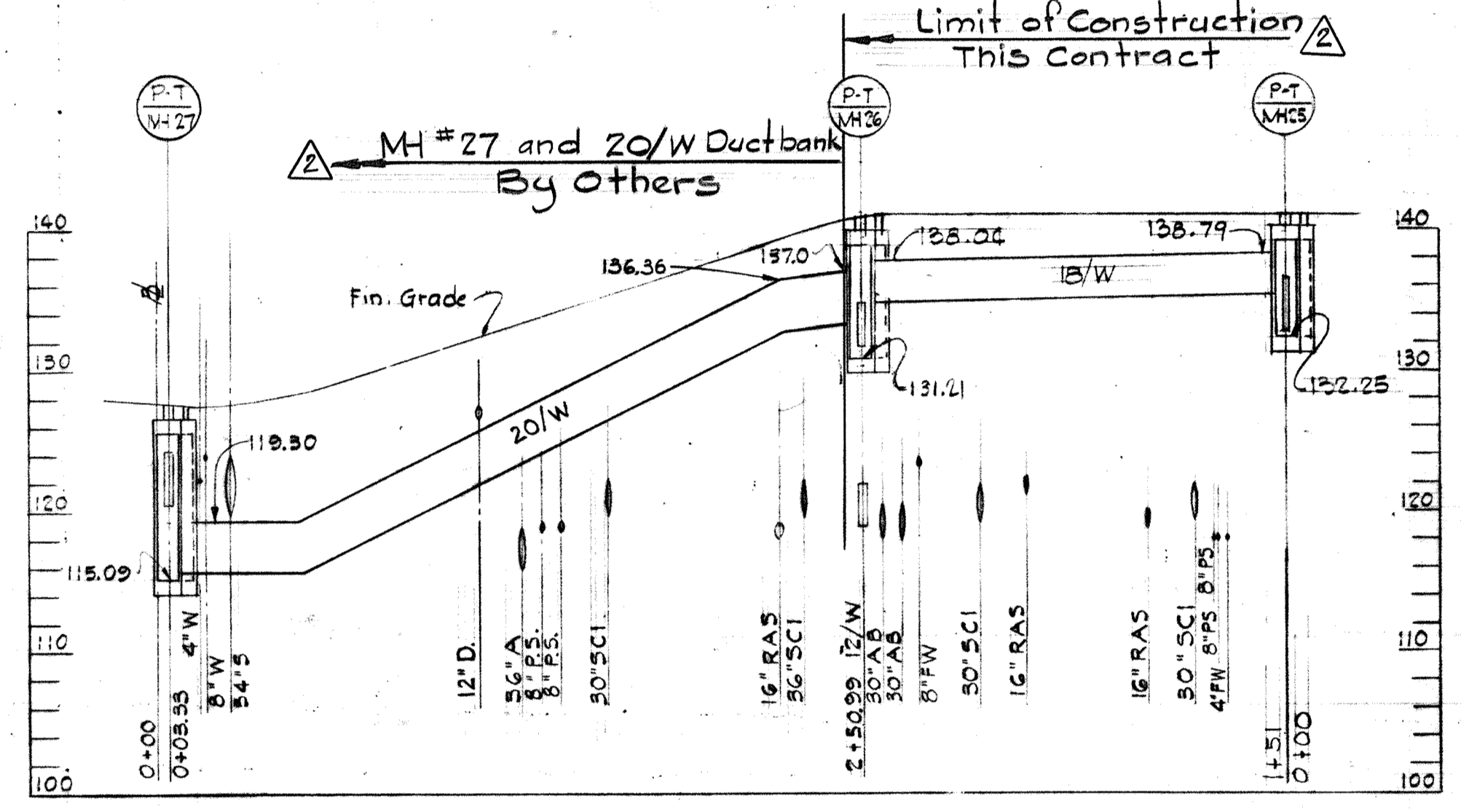
PROFILE - NITROGEN ROAD



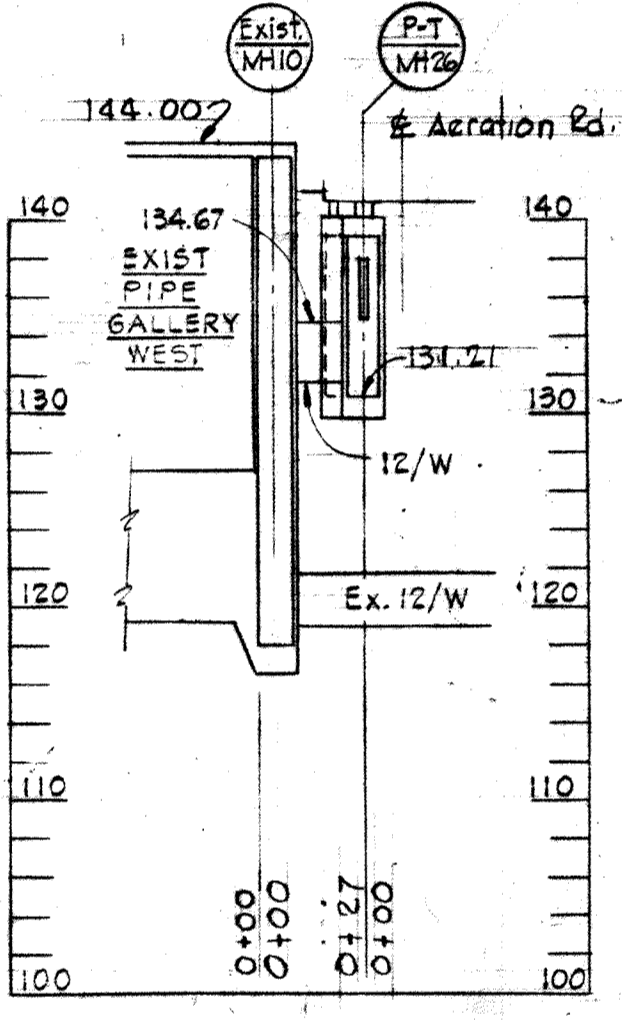
PROFILE - ROAD "C"



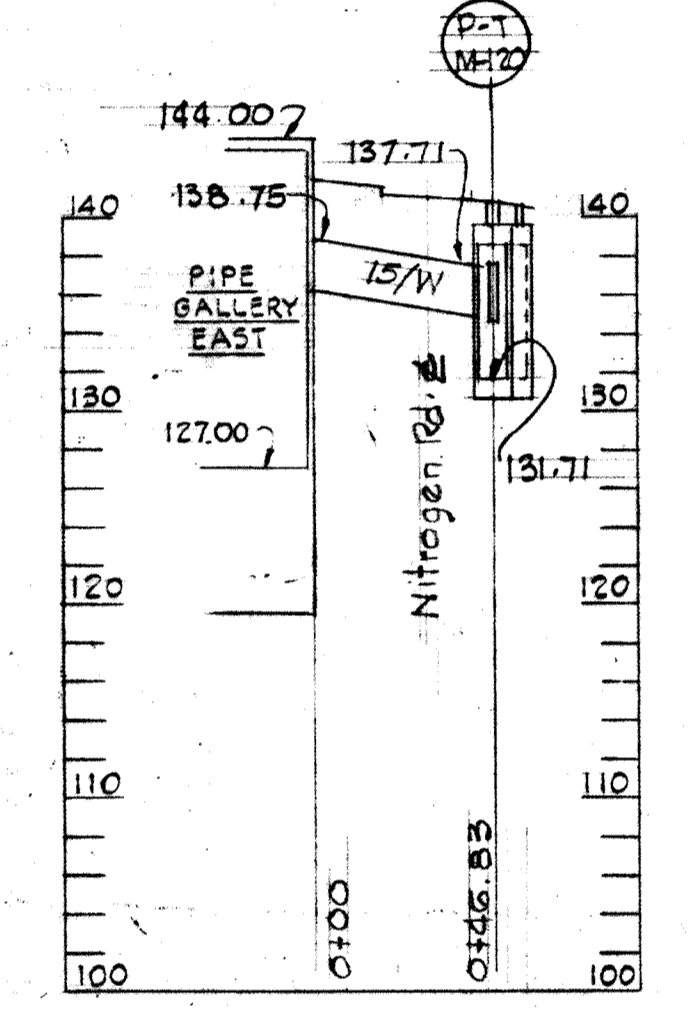
PROFILE - PIPE GALLERY WEST



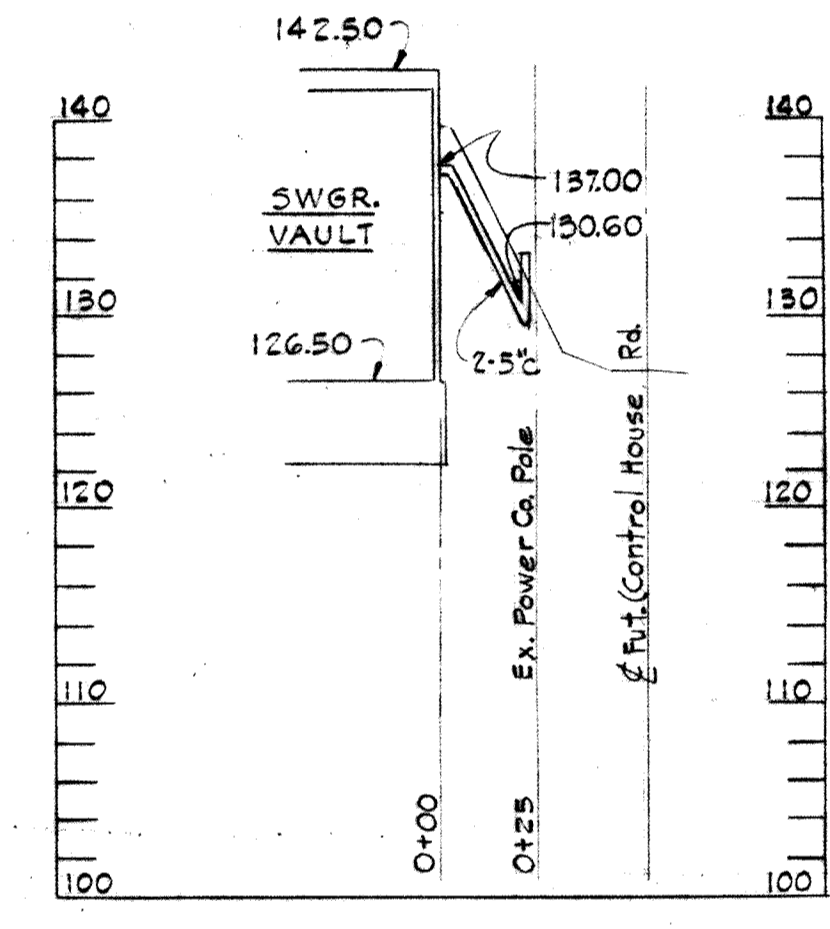
PROFILE - AERATION BASIN ROAD



PROFILE EXIST. PIPE GALLERY WEST

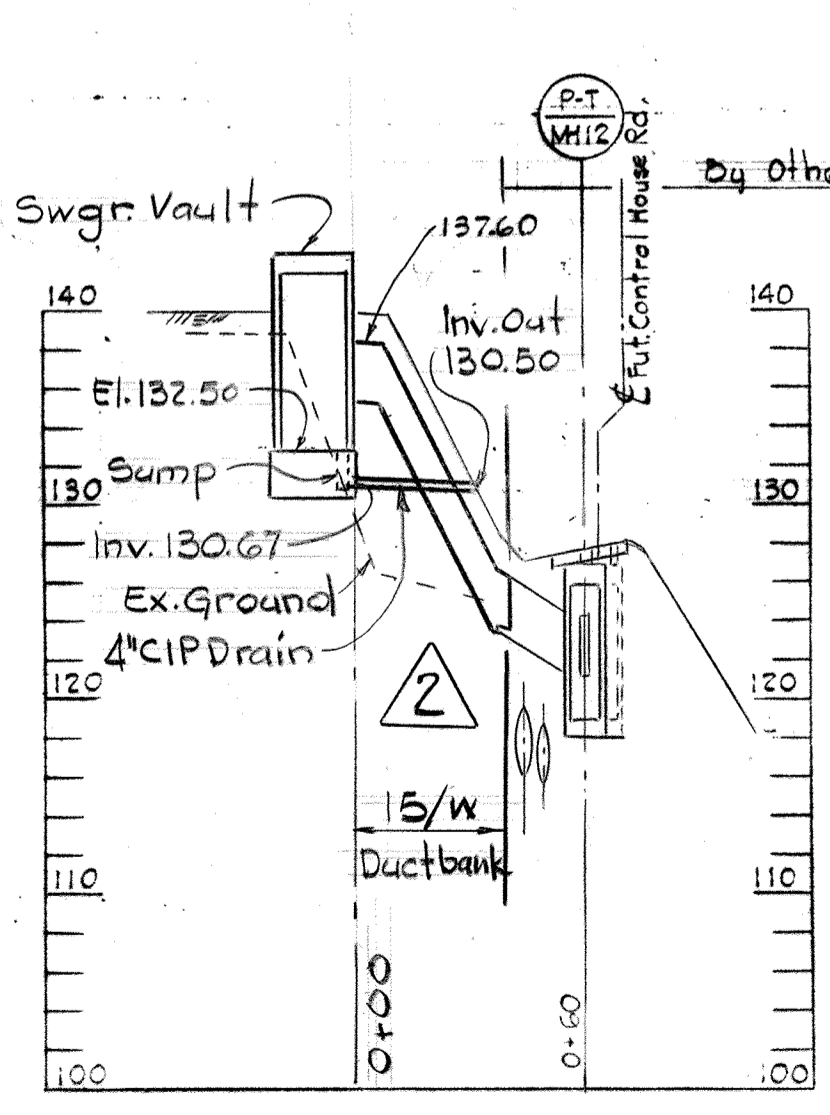


PROFILE PIPE GALLERY EAST

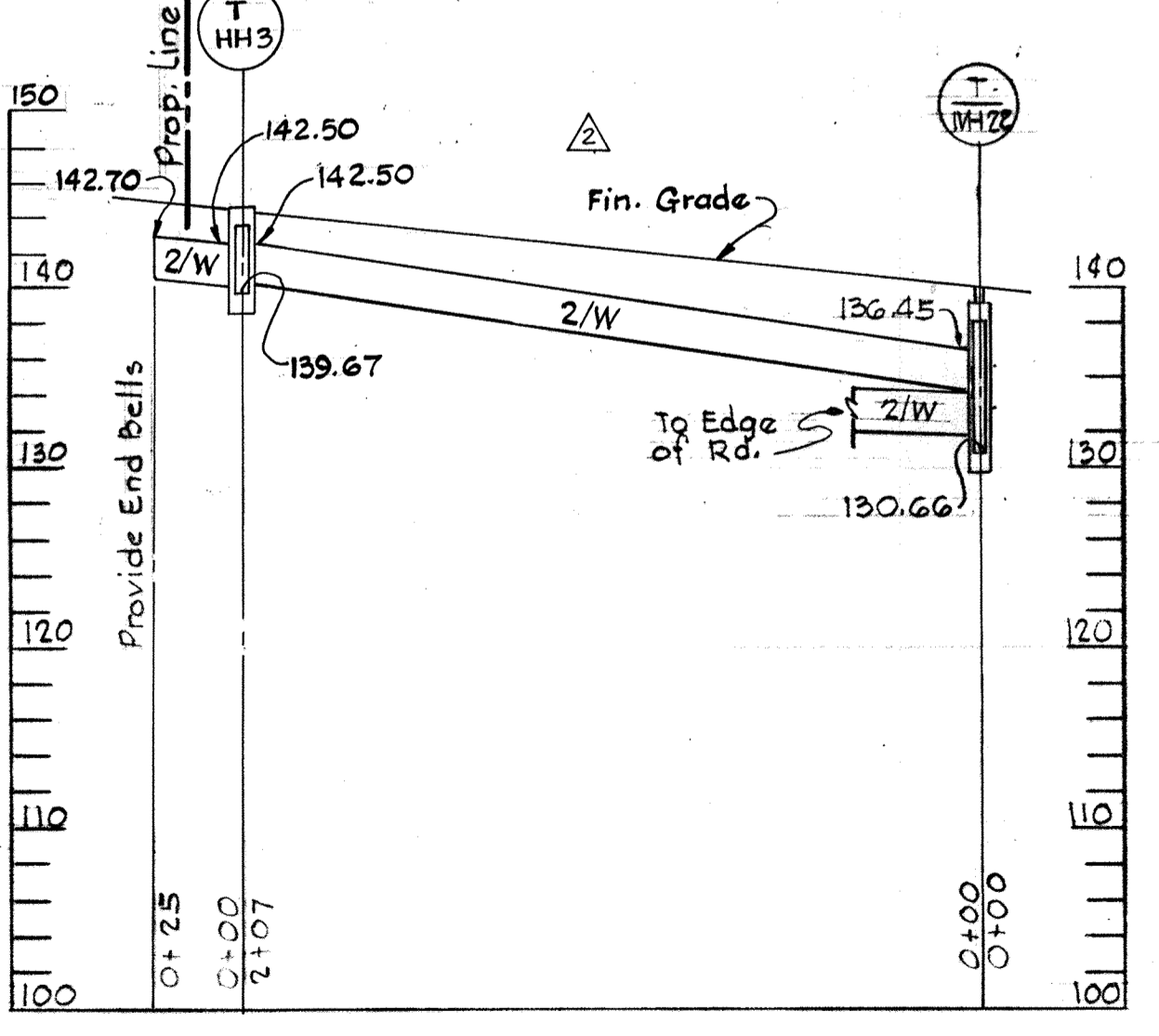


PROFILE "A"

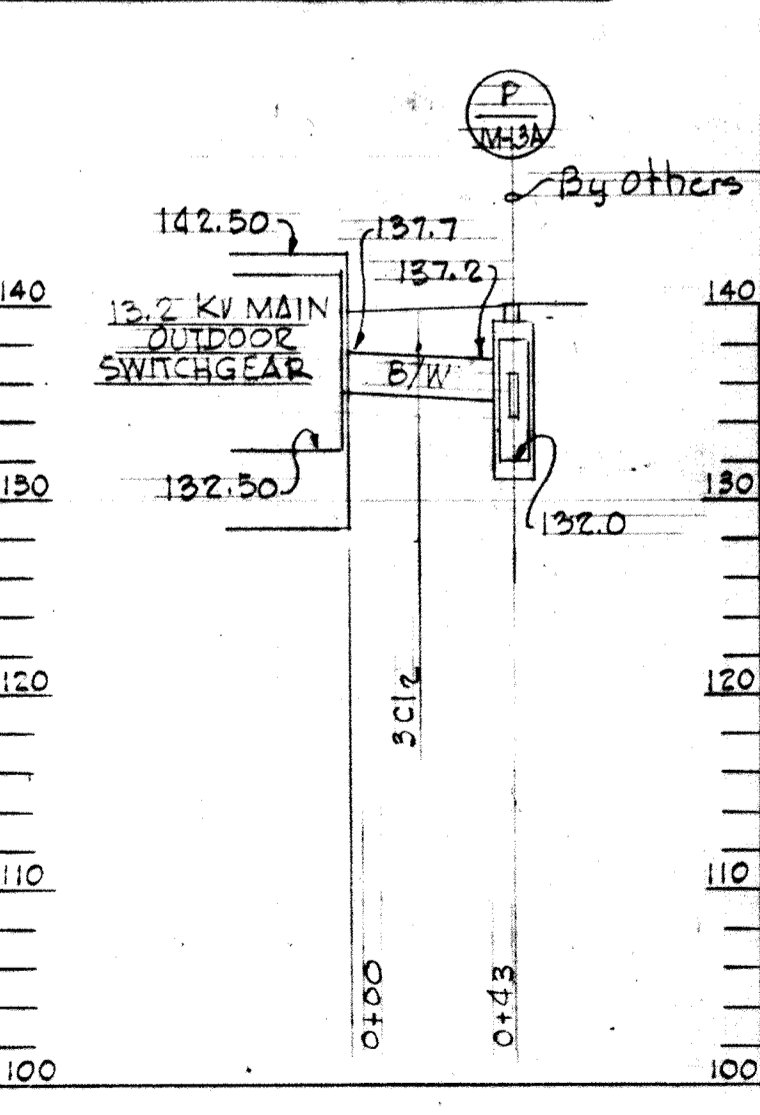
- NOTES
1. For General Electrical Notes and Legend see Sheet E-2.
 2. Remove top slab of exist HH#1 with pneumatic hammer and bend upright reinforcing bars for connection to extension.



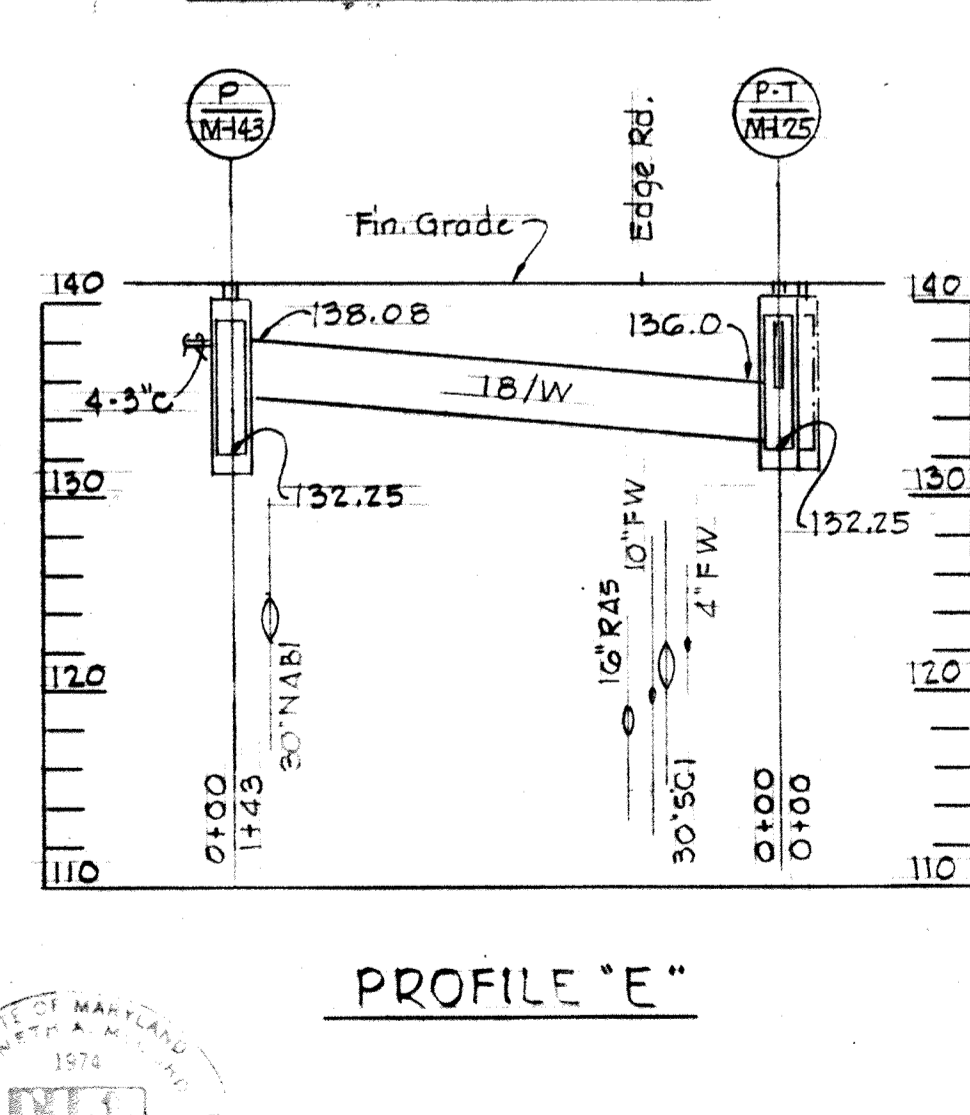
PROFILE "B"



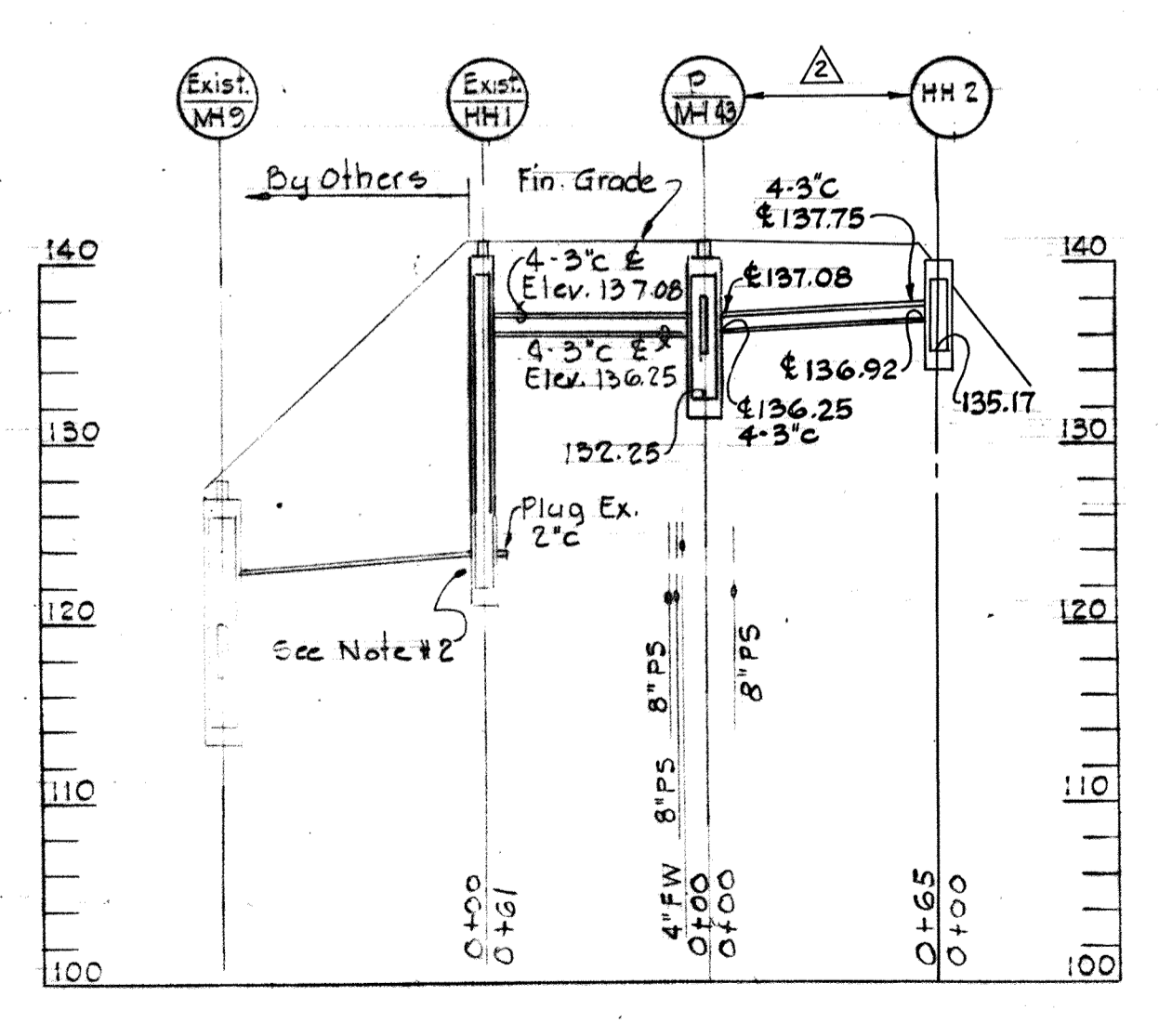
PROFILE "C"



PROFILE "D"



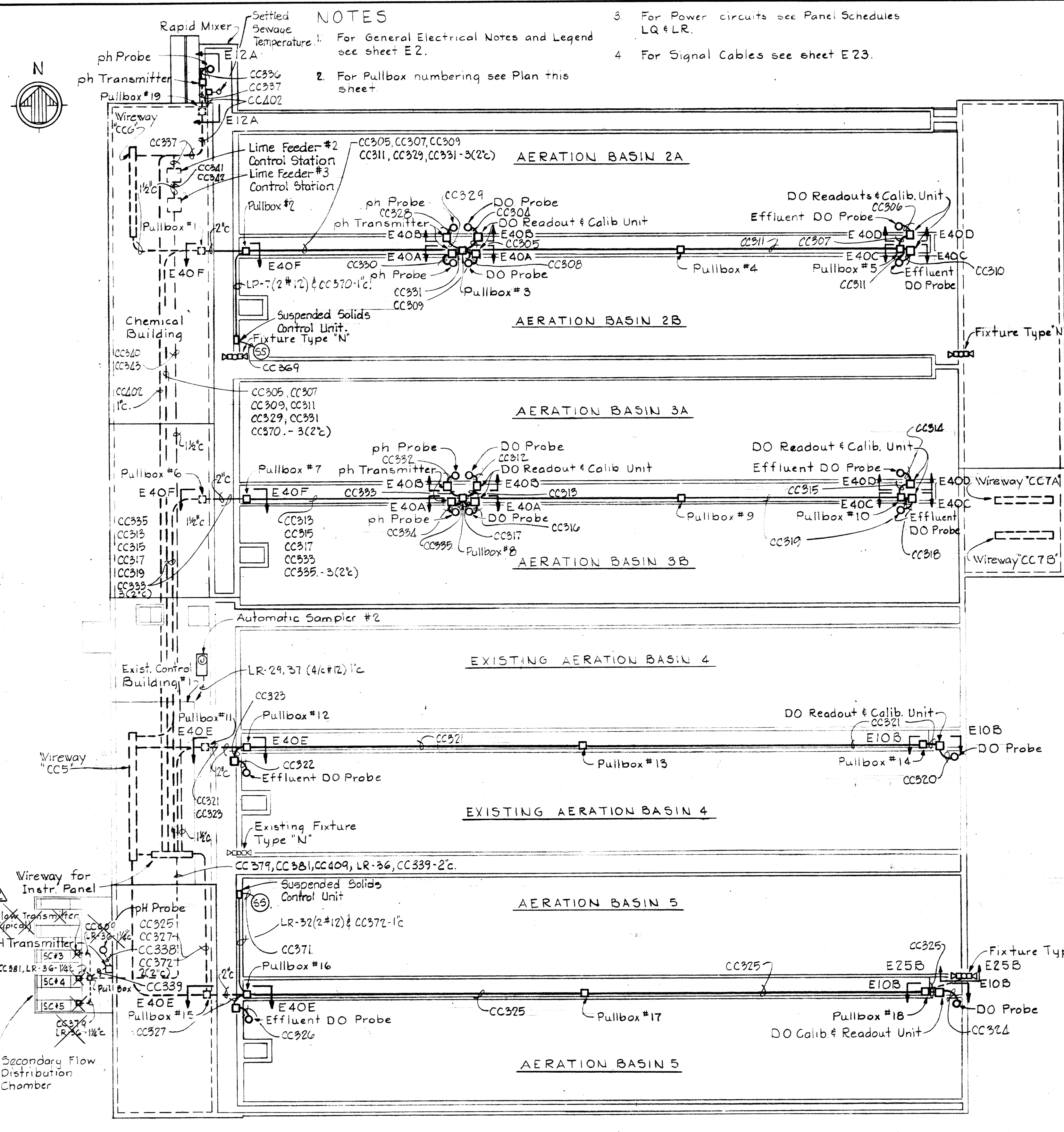
PROFILE "E"



PROFILE "F"

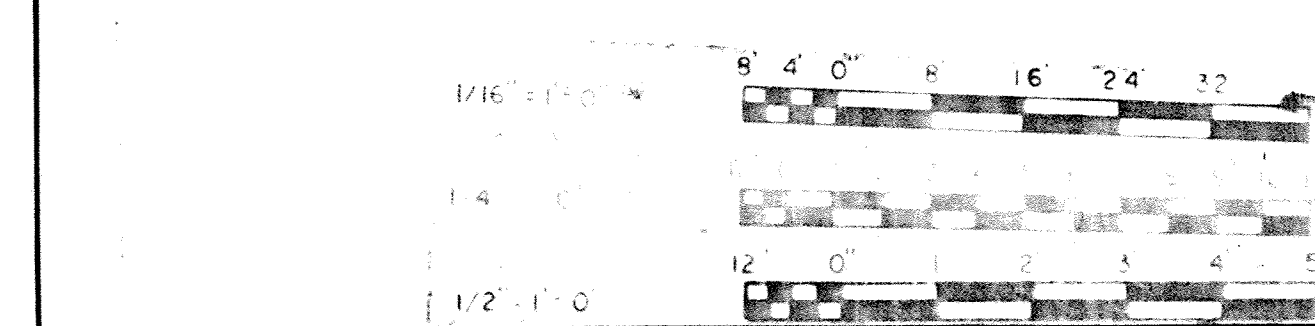
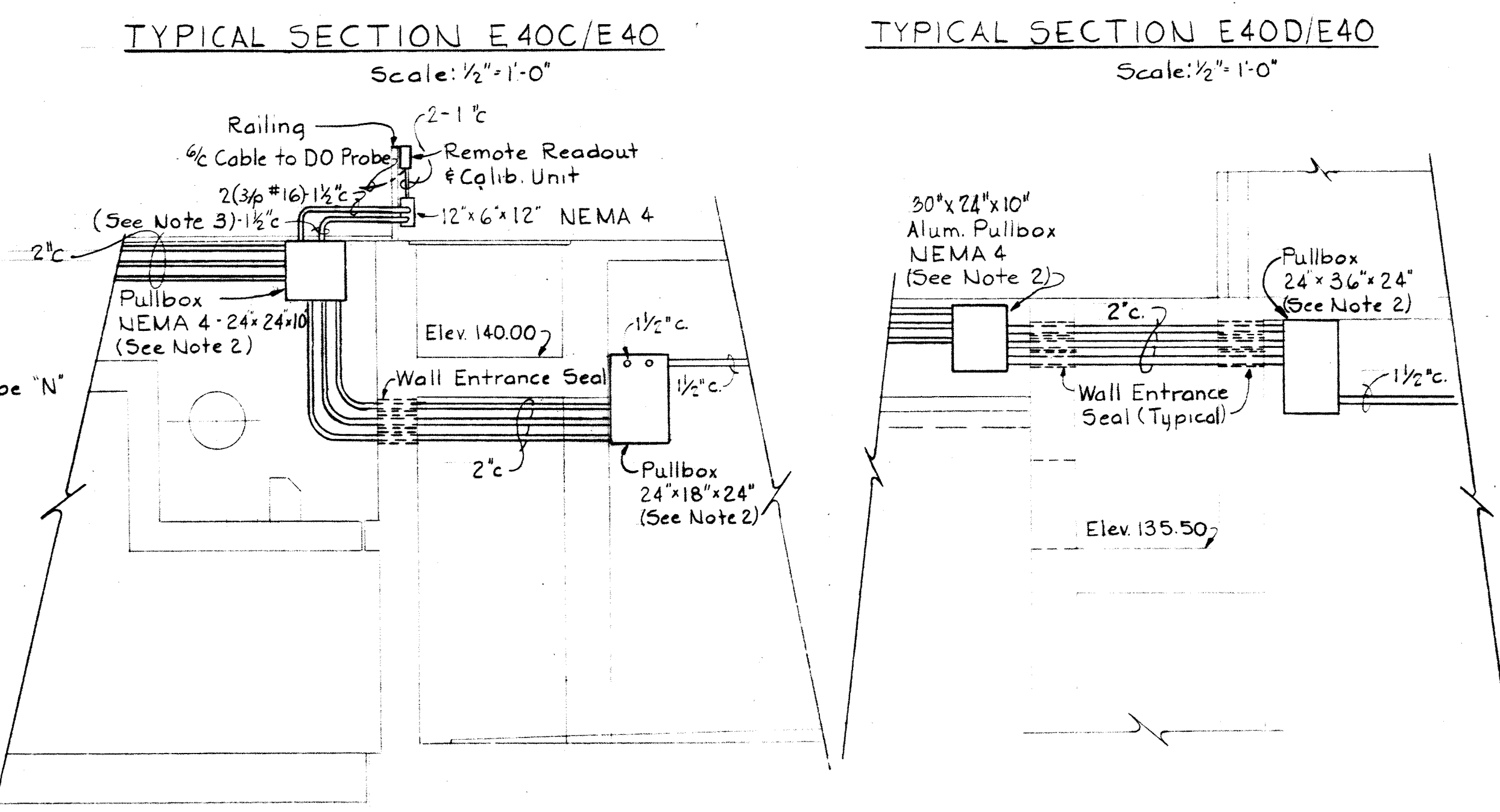
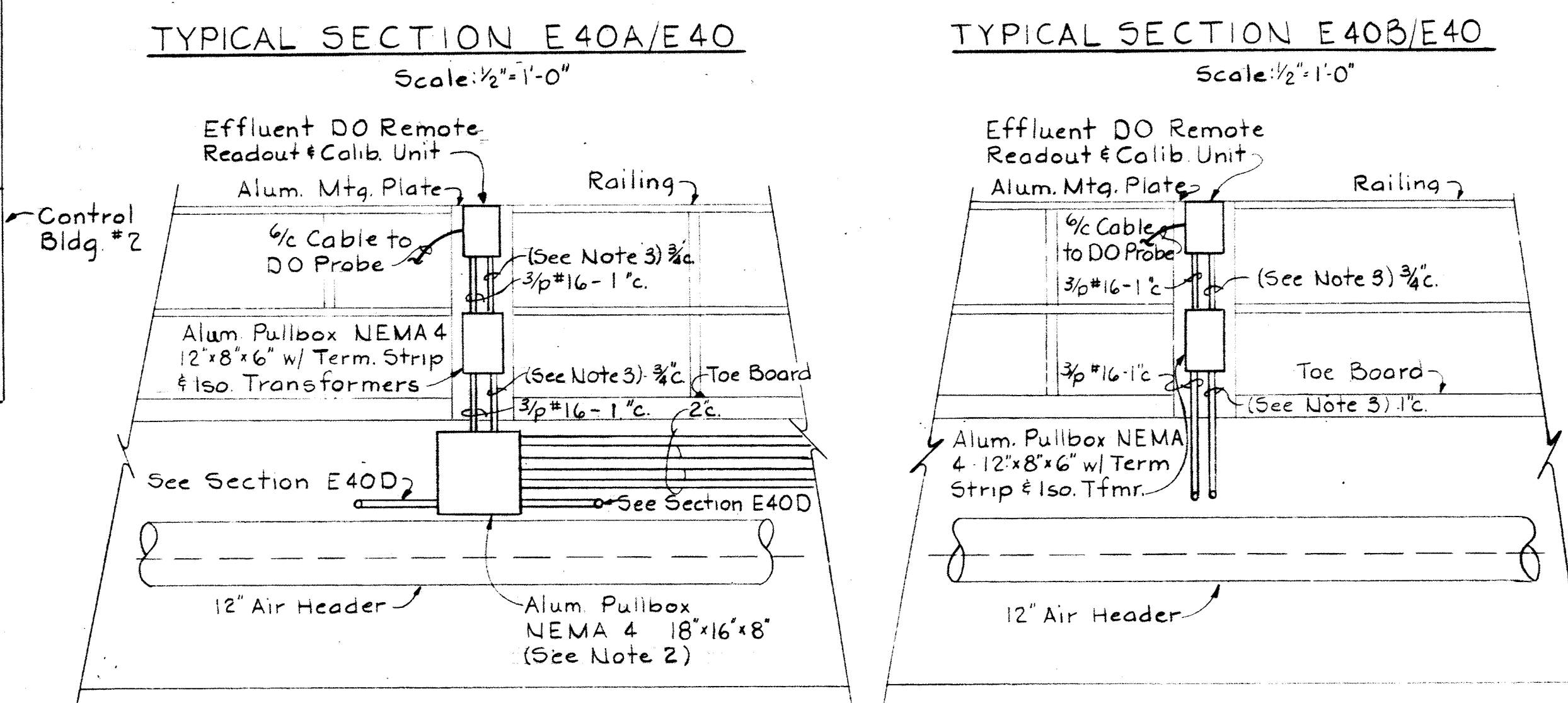
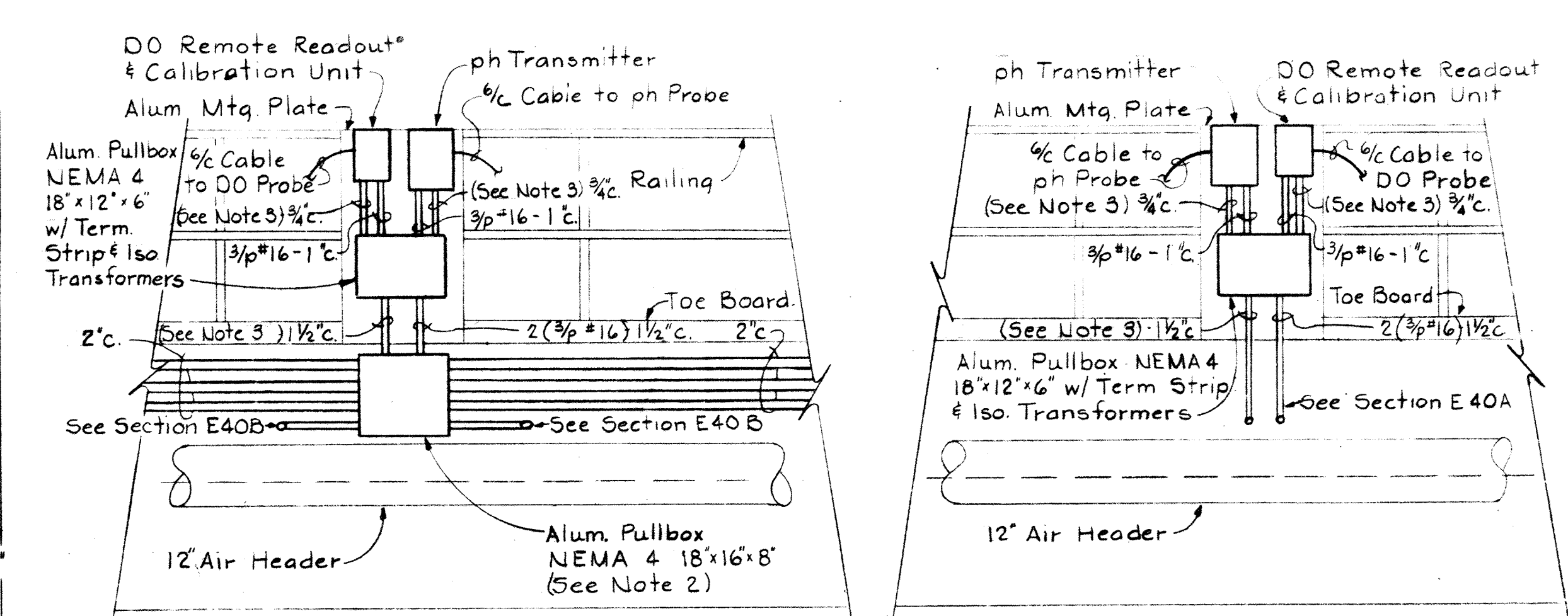


WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE	CONTRACT NO. 500-S W.O. Libert CHIEF, BUREAU OF ENGINEERING	UNDERGROUND DUCTBANK & MANHOLE PROFILES	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 126 OF 133	SCALE HOR. 1"=50' VER. 1"=10'
					W.O. 6887-2	



NOTES

- For General Electrical Notes and Legend see sheet E.2.
- For Pullbox numbering see Plan this sheet.
- For Power circuits see Panel Schedules LQ & LR.
- For Signal Cables see sheet E.23.



PLAN
Scale: 1/4" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DATE: 3/20/75 W.O. Falbert CHIEF, BUREAU OF ENGINEERING	CONTRACT NO. 500-S	AERATION BASINS PLANS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 127 OF 133	SCALE AS NOTED
					SHEET E-40 MODIFIED DRAWING - MAY 4, 1982	

BRUNING 44-510 18392

ANNUNCIATOR # 14			ANNUNCIATOR # 18-1			ANNUNCIATOR # 18-2			ANNUNCIATOR # 2			ANNUNCIATOR # 6			ANNUNCIATOR # 7		
POINT NO.	WINDOW INSCRIPTION	ECD NO SHT. NO.	POINT NO.	WINDOW INSCRIPTION	ECD NO SHT. NO.	POINT NO.	WINDOW INSCRIPTION	ECD NO SHT. NO.	POINT NO.	WINDOW INSCRIPTION	ECD NO SHT. NO.	POINT NO.	WINDOW INSCRIPTION	ECD NO SHT. NO.	POINT NO.	WINDOW INSCRIPTION	ECD NO SHT. NO.
1	MAIN SWITCH #1-OPEN SUBSTATION "P53" PLANT FDR.	4 E-42	1	HIGH SUSPENDED SOLIDS NITRIFICATION AERATION BASIN #21#3	6 E-42	1	HIGH SUSPENDED SOLIDS ACTIVATED SLUDGE AERATION BASIN #41#5	6 E-42	1	MAIN BREAKER #1-OPEN MAIN 13.2KV SWITCHGEAR SERVICE FDR.#	2 E-42	1	SET RATE DEVIATION CHEMICAL FEEDER #1 CHEMICAL BUILDING		1	FLOODED PIPE GALLERY AERATION BASIN-EAST AERATION STRUCTURE	16 E-14
2	HIGH TEMPERATURE 1000 KVA TRANSF.#1 SUBSTATION "P53"	1 E-42	2	LOW D.O.-MIDPOINT NITRIFICATION AERATION BASIN #2A	7 E-42	2	LOW D.O.-MIDPOINT ACTIVATED SLUDGE AERATION BASIN #4	7 E-42	2	TIE BREAKER CLOSED MAIN 13.2KV SWITCHGEAR	3 E-42	2			2	CENTER DRIVE OVERLOAD NITRIFICATION CLARIFIER #1	16 E-20
3	LOW LIQUID LEVEL 1000 KVA TRANSF.#1 SUBSTATION "P53"	1 E-42	3	LOW D.O.-MIDPOINT NITRIFICATION AERATION BASIN #2B	7 E-42	3	LOW D.O.-MIDPOINT ACTIVATED SLUDGE AERATION BASIN #5	7 E-42	3	MAIN BREAKER #2-OPEN MAIN 13.2KV SWITCHGEAR SERVICE FDR.#	2 E-42	3	LOW STORAGE BIN CHEMICAL FEEDER #1 CHEMICAL BUILDING		3	CENTER DRIVE OVERLOAD NITRIFICATION CLARIFIER #2	16 E-20
4	HIGH PRESSURE 1000 KVA TRANSF.#1 SUBSTATION "P53"	1 E-42	4	LOW D.O.-MIDPOINT NITRIFICATION AERATION BASIN #3A	7 E-42	4	LOW PH-EFFLUENT ACTIVATED SLUDGE AERATION BASIN #41#5	8 E-42	4	FDR. BREAKER #1-OPEN MAIN 13.2KV SWITCHGEAR PLANT FDR.#1	2 E-42	4	SET RATE DEVIATION CHEMICAL FEEDER #2 CHEMICAL BUILDING		4	CENTER DRIVE OVERLOAD NITRIFICATION CLARIFIER #3	16 E-20
5	MAIN BREAKER #1-OPEN 480V. SWITCHGEAR SUBSTATION "P53"	2 E-42	5	LOW D.O.-MIDPOINT NITRIFICATION AERATION BASIN #3B	7 E-42	5	HIGH SLUDGE BLANKET SECONDARY CLARIFIER #4	9 E-42	5	FDR. BREAKER #2-OPEN MAIN 13.2KV SWITCHGEAR PLANT FDR.#2	2 E-42	5			5	CENTER DRIVE OVERLOAD NITRIFICATION CLARIFIER #4	16 E-20
6	TIE BREAKER CLOSED 480V. SWITCHGEAR SUBSTATION "P53"	3 E-42	6	LOW PH NITRIFICATION AERATION BASIN #2A	8 E-42	6	HIGH SCUM PIT LEVEL SECONDARY CLARIFIER #4	10 E-42	6	FDR. BREAKER #3-OPEN MAIN 13.2KV SWITCHGEAR PLANT FDR.#3	2 E-42	6	LOW STORAGE BIN CHEMICAL FEEDER #2 CHEMICAL BUILDING		6		
7	MAIN BREAKER #2-OPEN 480V. SWITCHGEAR SUBSTATION "P53"	2 E-42	7	LOW PH NITRIFICATION AERATION BASIN #3A	8 E-42	7	LOW SUSPENDED SOLIDS ACTIVATED SLUDGE AERATION BASIN #41#5	6 E-42	7	FDR. BREAKER #4-OPEN MAIN 13.2KV SWITCHGEAR PLANT FDR.#4	2 E-42	7	LOW STORAGE BIN CHEMICAL FEEDER #3 CHEMICAL BUILDING		7		
8	HIGH PRESSURE 1000KVA TRANSF.#2 SUBSTATION "P53"	1 E-42	8	HIGH SLUDGE BLANKET NITRIFICATION CLARIFIER #1	9 E-42	8	LOW D.O.-EFFLUENT ACTIVATED SLUDGE AERATION BASIN #4	7 E-42	8	NO VOLTAGE MAIN 13.2KV SWITCHGEAR SERVICE FDR.#	5 E-42	8	CENTER DRIVE OVERLOAD SECONDARY CLARIFIER #3		8		
9	LOW LIQUID LEVEL 1000 KVA TRANSF.#2 SUBSTATION "P53"	1 E-42	9	LOW SUSPENDED SOLIDS NITRIFICATION AERATION BASIN #21#3	6 E-42	9	LOW D.O.-EFFLUENT ACTIVATED SLUDGE AERATION BASIN #5	7 E-42	9	NO VOLTAGE MAIN 13.2KV SWITCHGEAR SERVICE FDR.#	5 E-42	9			9		
10	HIGH TEMPERATURE 1000 KVA TRANSF.#2 SUBSTATION "P53"	1 E-42	10	LOW D.O.-EFFLUENT NITRIFICATION AERATION BASIN #2A	7 E-42	10	LOW PH-EFFLUENT RAPID MIXER CHEMICAL BUILDING	11 E-42	10	BLANK (Spare)		10	FLOODED PIPE GALLERY CHEMICAL BUILDING	16 E-14	10		
11	MAIN SWITCH #2-OPEN SUBSTATION "P53" PLANT FDR.	4 E-42	11	LOW D.O.-EFFLUENT NITRIFICATION AERATION BASIN #2B	7 E-42	11	HIGH SLUDGE BLANKET SECONDARY CLARIFIER #5	9 E-42	11	BLANK (Spare)		11	MAIN BREAKER #1-OPEN 480V-MCC-CC6 CHEMICAL BUILDING	13 E-21	11		
12	NO VOLTAGE 480V. SERVICE #1 SUBSTATION "P53"	5 E-42	12	LOW D.O.-EFFLUENT NITRIFICATION AERATION BASIN #3A	7 E-42	12	HIGH SCUM PIT LEVEL SECONDARY CLARIFIER #5	10 E-42	12	BLANK (Spare)		12	TIE BREAKER - CLOSED 480V-MCC-CC6 CHEMICAL BUILDING	14 E-20	12		
13	NO VOLTAGE 480V. SERVICE #2 SUBSTATION "P53"	5 E-42	13	LOW D.O.-EFFLUENT NITRIFICATION AERATION BASIN #3B	7 E-42	13	HIGH SCUM PIT LEVEL SECONDARY CLARIFIER #3	10 E-42	13	BLANK (Spare)		13	MAIN BREAKER #2-OPEN 480V-MCC-CC6 CHEMICAL BUILDING	13 E-21	13		
14	BLANK (Spare)		14	LOW PH NITRIFICATION AERATION BASIN #2B	8 E-42	14	HIGH SLUDGE BLANKET SECONDARY CLARIFIER #3	9 E-42	14	BLANK (Spare)		14	NO VOLTAGE SERVICE FDR.#1 480V-MCC-CC6 CHEMICAL BUILDING	15 E-14	14		
15	BLANK (Spare)		15	LOW PH NITRIFICATION AERATION BASIN #3B	8 E-42	15	HIGH SLAKER TEMP. CHEMICAL FEEDER #1 CHEMICAL BUILDING		15	BLANK (Spare)		15	NO VOLTAGE SERVICE FDR.#2 480V-MCC-CC6 CHEMICAL BUILDING	15 E-14	15		
16	BLANK (Spare)		16	HIGH SLUDGE BLANKET NITRIFICATION CLARIFIER #2	9 E-42	16	HIGH SLAKER WATER LEVEL CHEMICAL FEEDER #1 CHEMICAL BUILDING	12 E-42	16			16			16	MAIN BREAKER #1-OPEN 480V-MCC-CC7A#B A.B. CONTROL BUILDING #2	13 E-21
			17	HIGH SCUM PIT LEVEL NITRIFICATION CLARIFIER #1	10 E-42	17	LOW SLAKER WATER LEVEL CHEMICAL FEEDER #1 CHEMICAL BUILDING	12 E-42	17			17			17	TIE BREAKER - CLOSED 480V-MCC-CC7A#B A.B. CONTROL BUILDING #2	14 E-20
			18	HIGH SCUM PIT LEVEL NITRIFICATION CLARIFIER #2	10 E-42	18	HIGH SLAKER TEMP. CHEMICAL FEEDER #1 CHEMICAL BUILDING		18			18			18	MAIN BREAKER #2-OPEN 480V-MCC-CC7A#B A.B. CONTROL BUILDING #2	13 E-21
			19	HIGH SLUDGE BLANKET NITRIFICATION CLARIFIER #3	9 E-42	19	HIGH SLAKER WATER LEVEL CHEMICAL FEEDER #2 CHEMICAL BUILDING	12 E-42	19			19			19	NO VOLTAGE SERVICE FDR.#1 480V-MCC-CC7A#B A.B. CONTROL BUILDING #2	15 E-14
			20	HIGH SLUDGE BLANKET NITRIFICATION CLARIFIER #4	9 E-42	20	LOW SLAKER WATER LEVEL CHEMICAL FEEDER #2 CHEMICAL BUILDING	12 E-42	20			20			20	NO VOLTAGE SERVICE FDR.#2 480V-MCC-CC7A#B A.B. CONTROL BUILDING #2	15 E-14
			21	HIGH SCUM PIT LEVEL NITRIFICATION CLARIFIER #3	10 E-42	21	HIGH SLAKER TEMP. CHEMICAL FEEDER #3 CHEMICAL BUILDING		21								
			22	HIGH SCUM PIT LEVEL NITRIFICATION CLARIFIER #4	10 E-42	22	HIGH SLAKER WATER LEVEL CHEMICAL FEEDER #3 CHEMICAL BUILDING	12 E-42	22								
			23	BLANK (Spare)		23	LOW SLAKER WATER LEVEL CHEMICAL FEEDER #3 CHEMICAL BUILDING	12 E-42	23								
			24	BLANK (Spare)		24	HIGH SCUM PIT LEVEL PRIMARY CLARIFIER #4	10 E-42	24								
			25	BLANK (Spare)		25	HIGH SCUM PIT LEVEL PRIMARY CLARIFIER #5	10 E-42	25								
			26	BLANK (Spare)		26	BLANK (Spare)		26								
			27	BLANK (Spare)		27	BLANK (Spare)		27								

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

ANNUNCIATOR #14
SUBSTATION "P53"

1	2	11	5	14	8	19	17	21
9	10	4	13	7	16	20	18	22
25	3	12	6	15	26	23	24	27

ANNUNCIATOR #18-1
INSTRUMENTATION PANEL
EXISTING CONTROL BLDG.#1
EXISTING AERATION BASIN #4

1	2	3	4	14	13	15	18	21
7	8	9	10	5	6	16	19	22
24	25	26	27	11	12	17	20	23

ANNUNCIATOR #18-2
INSTRUMENTATION PANEL
EXISTING CONTROL BLDG.#1
EXISTING AERATION BASIN #4

1	2	3	4
5	6	7	8
9	10	11	12

ANNUNCIATOR #2
13.2KV MAIN O.D. SWITCHGEAR

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20

ANNUNCIATOR #6
MOTOR CONTROL
CENTER "CC6"

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20

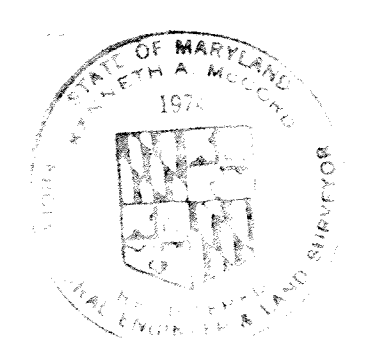
ANNUNCIATOR #7
MOTOR CONTROL
CENTER "CC7"

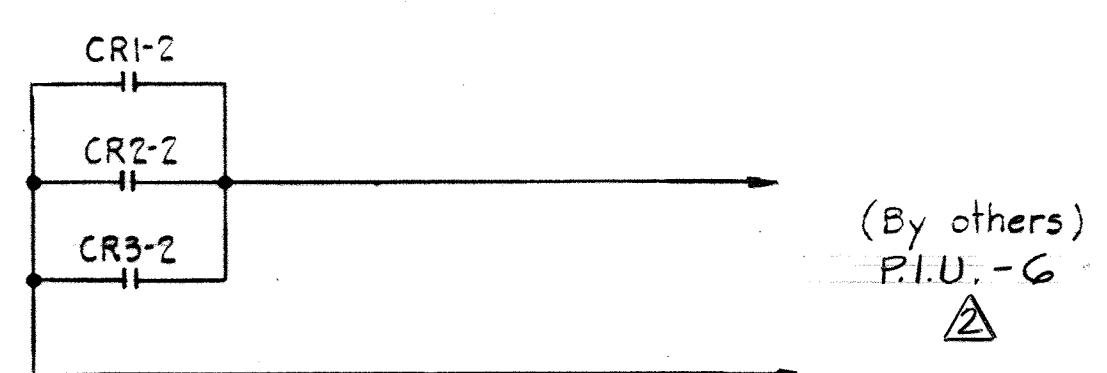
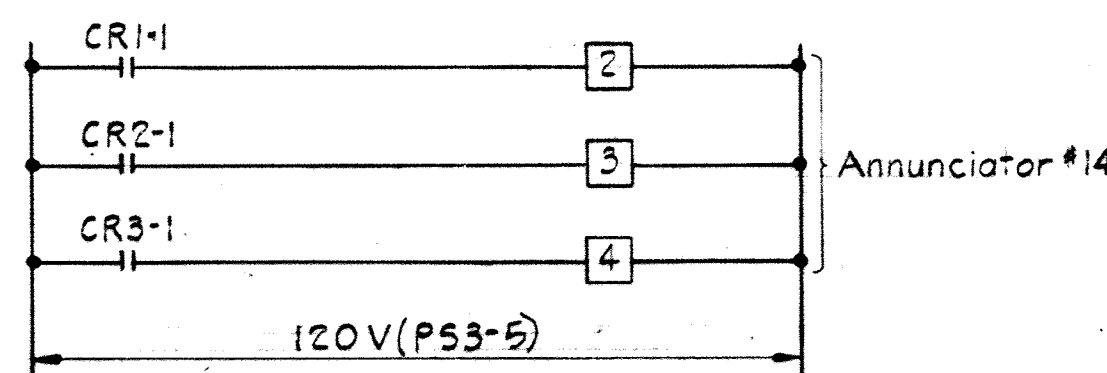
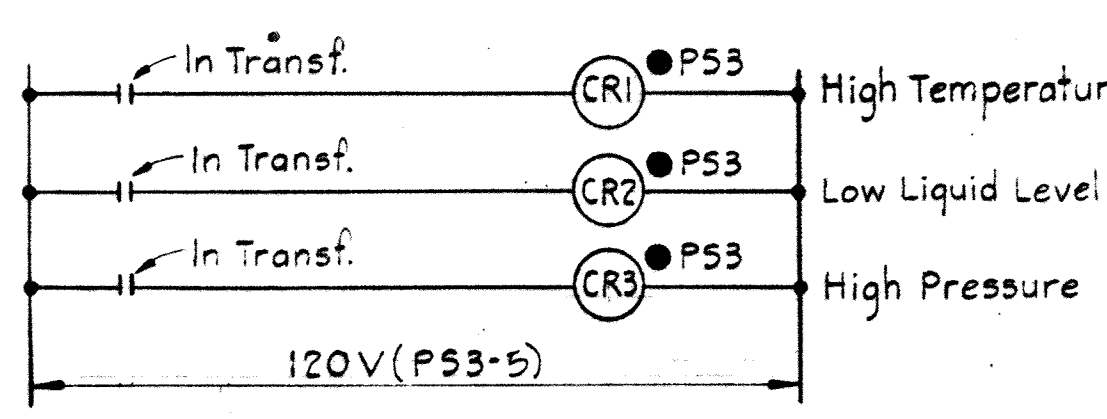
1	2	3	4
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13	14	15	16
17	18	19	20

EXISTING ANNUNCIATOR #4
MOTOR CONTROL CENTER "CC5"

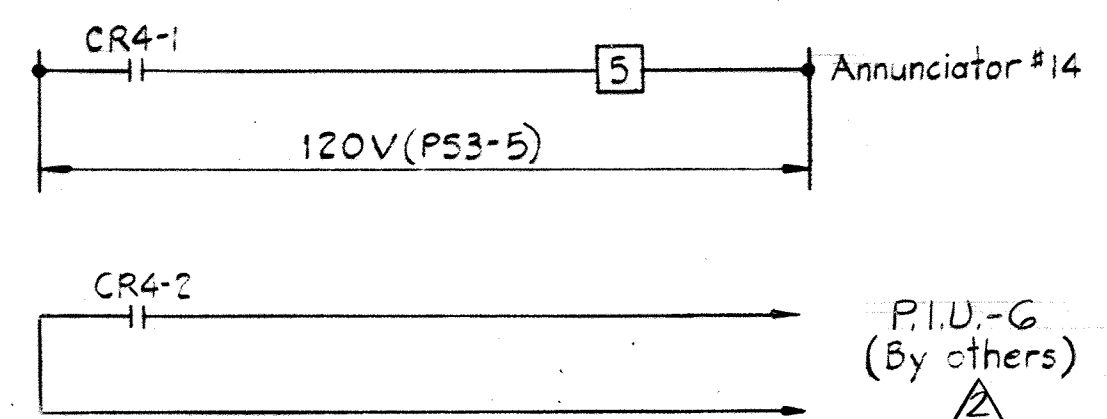
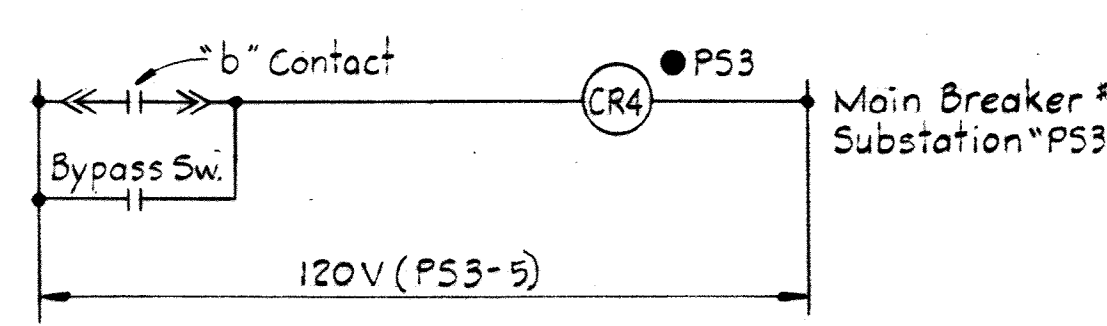
NOTES

- For General Electrical Notes & Legend See Sheet E-2.
- For existing Annunciator #1 Schedule See Sheet E-27.
- For existing Annunciator #4 Schedule See Sheet E-15.



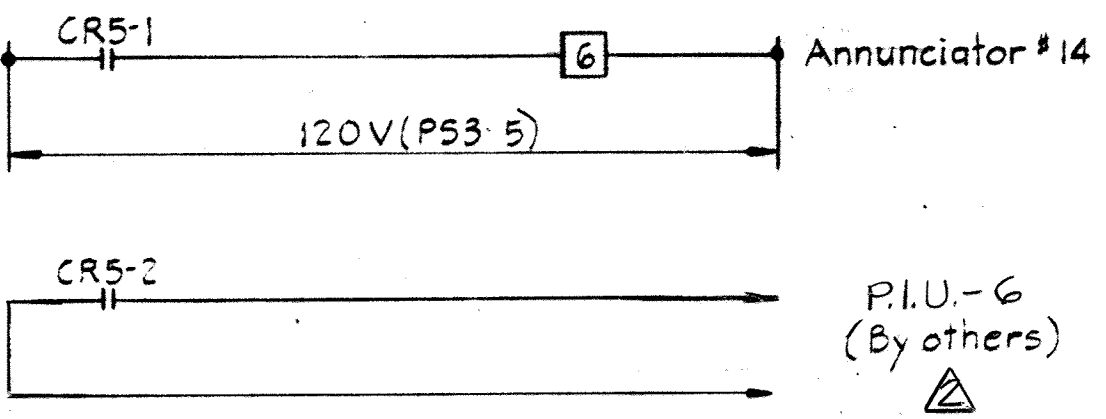
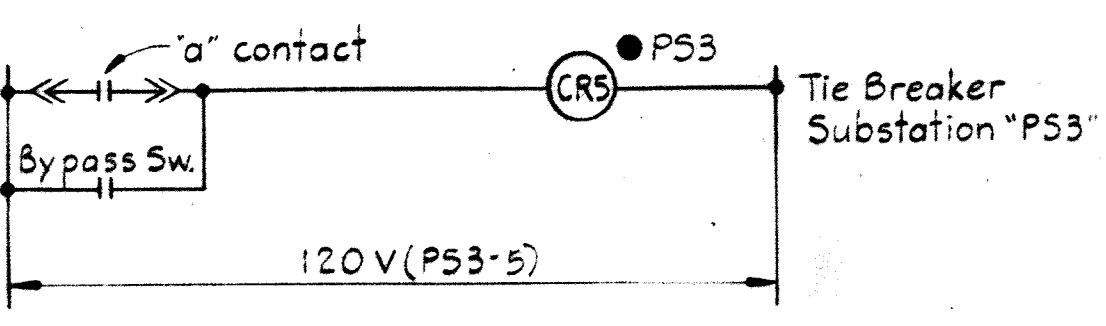


ECD #1
ALARM FOR 1000KVA TRANSF. #1 - "P53"
Typ. for 1000Kva Transf. #2 - "P53" Annun. #14 & P.I.U.-G *

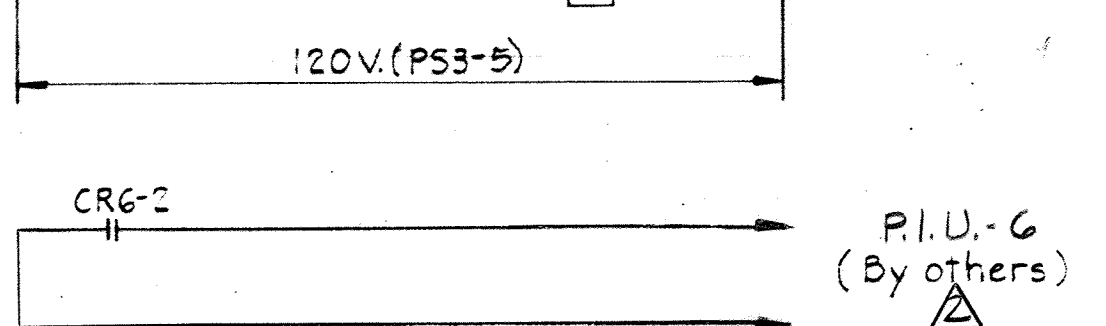
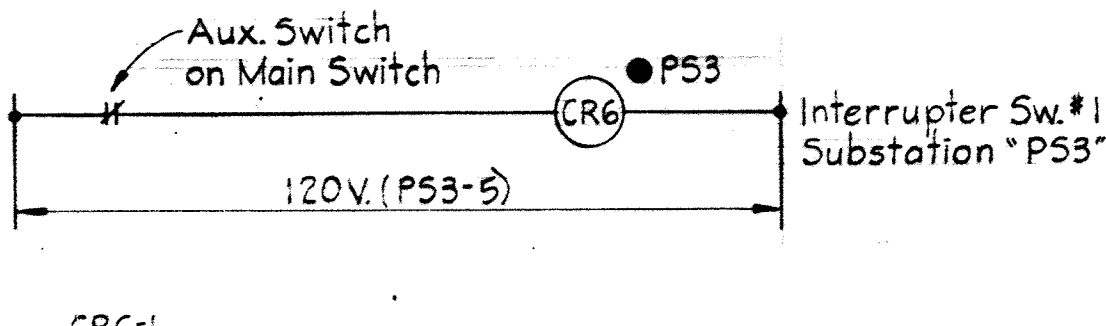


ECD #2
MAIN BREAKER #1 - 480V SUBST. "P53"
Typ. for the following Breakers:
Main Bkr. #2 - 480V. Subst. "P53" - Annun. #14 & P.I.U.-G *
Main Bkr. #1 - 13.2Kv Main O.D. Swgr. - Annun. #2 & P.I.U.-G *
Main Bkr. #2 - 13.2Kv Main O.D. Swgr. - Annun. #2 & P.I.U.-G *
Fdr. Bkr. #1 - 13.2Kv. O.D. Swgr. - Annun. #2 & P.I.U.-G *
Fdr. Bkr. #2 - 13.2Kv. O.D. Swgr. - Annun. #2 & P.I.U.-G *
Fdr. Bkr. #3 - 13.2Kv. O.D. Swgr. - Annun. #2 & P.I.U.-G *
Fdr. Bkr. #4 - 13.2Kv. O.D. Swgr. - Annun. #2 & P.I.U.-G *

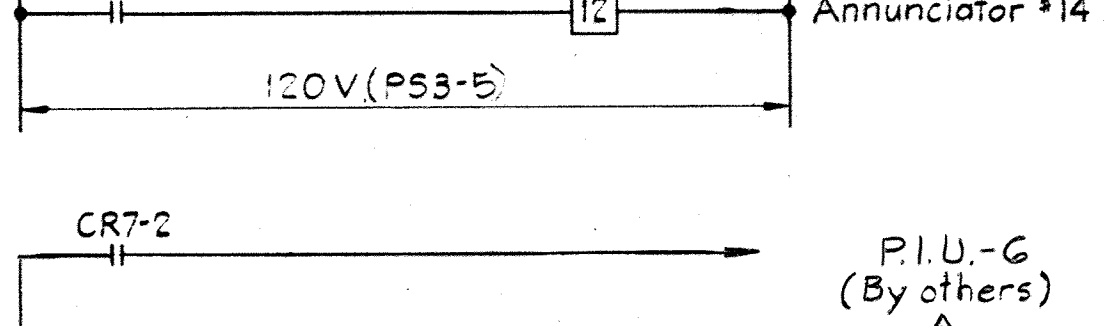
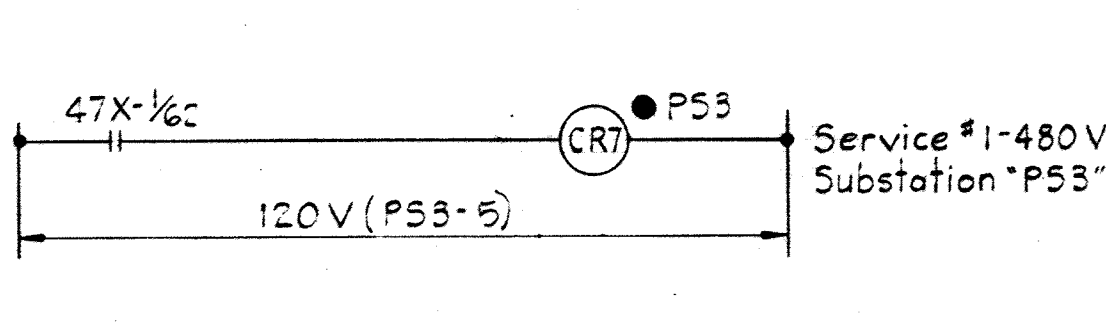
ECD #3
TIE BREAKER - 480V. SUBST. "P53"
Typ. for Tie Breaker - Main 13.2 Swgr. - Annun. #2 & P.I.U.-G *



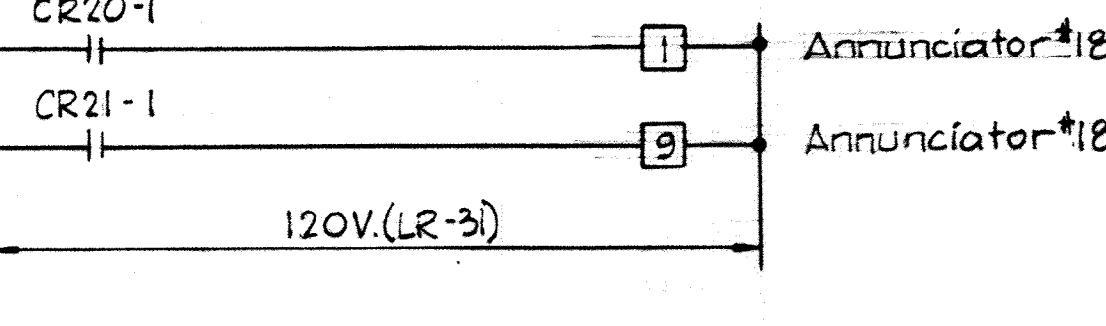
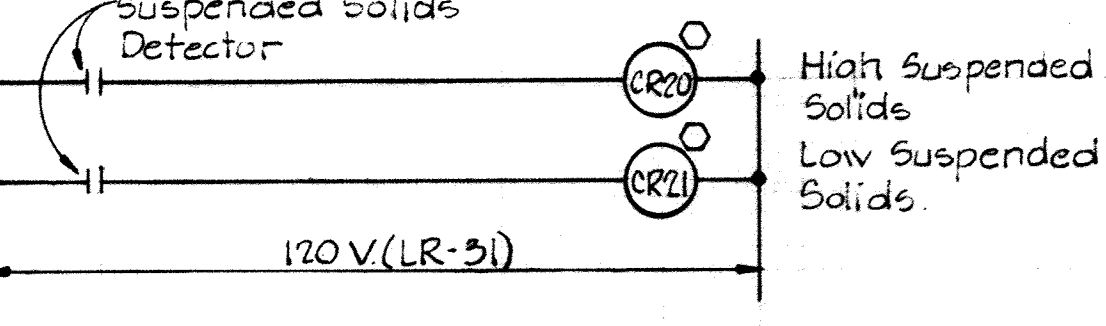
ECD #3
TIE BREAKER - 480V. SUBST. "P53"
Typ. for Tie Breaker - Main 13.2 Swgr. - Annun. #2 & P.I.U.-G *



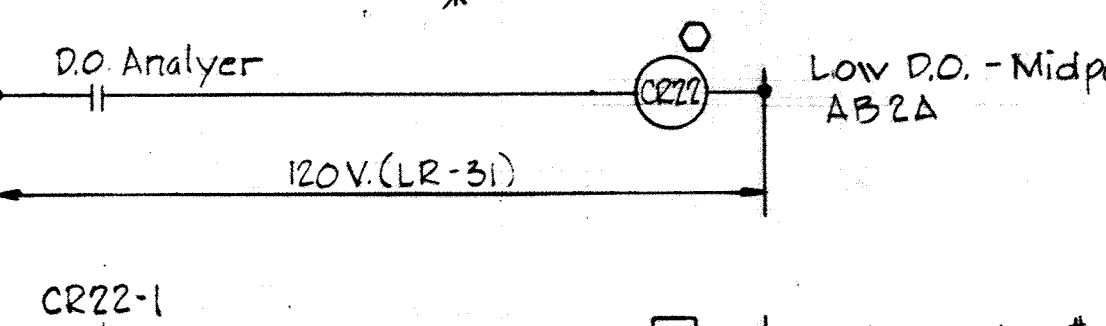
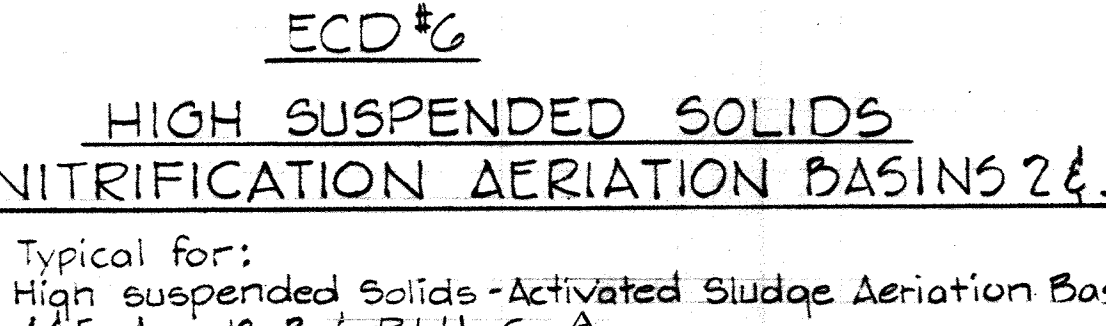
ECD #4
INTERRUPTER SW. #1 - SUBST. "P53"
Typ. for Interrupter Sw. #2 - Subst. "P53"



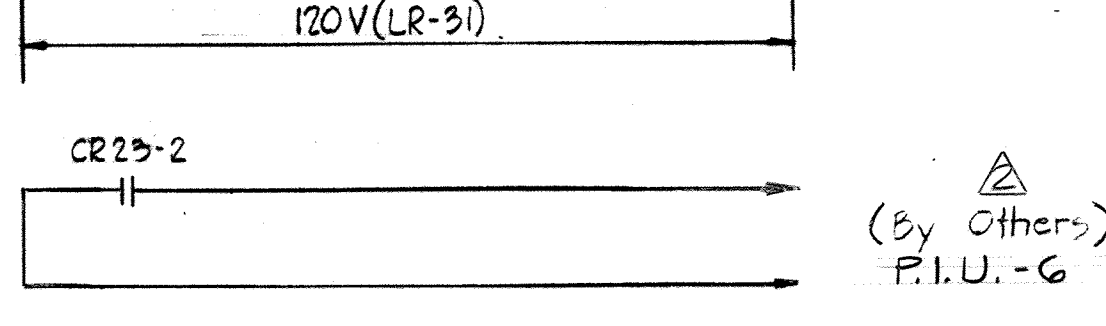
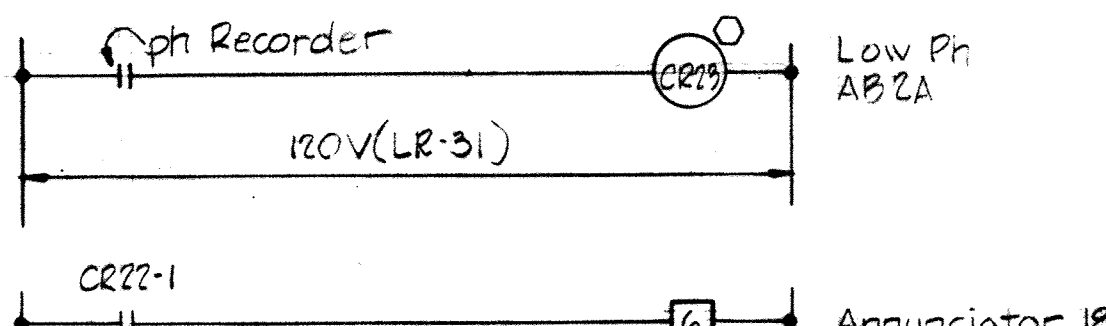
ECD #5
NO VOLTAGE ALARM - SERVICE #1
480V SUBSTATION "P53"
Typ. for the following:
No Voltage Alarm - Serv. #2 - Subst. "P53" *
No Voltage Alarm - Serv. Fdr. #1 - 13.2Kv. Swgr. - Annun. #2 & P.I.U.-G *
No Voltage Alarm - Serv. Fdr. #2 - 13.2Kv. Swgr. - Annun. #2 & P.I.U.-G *



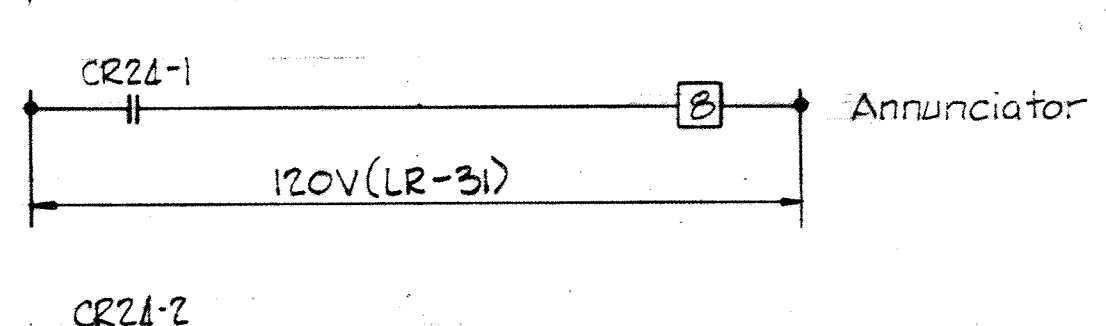
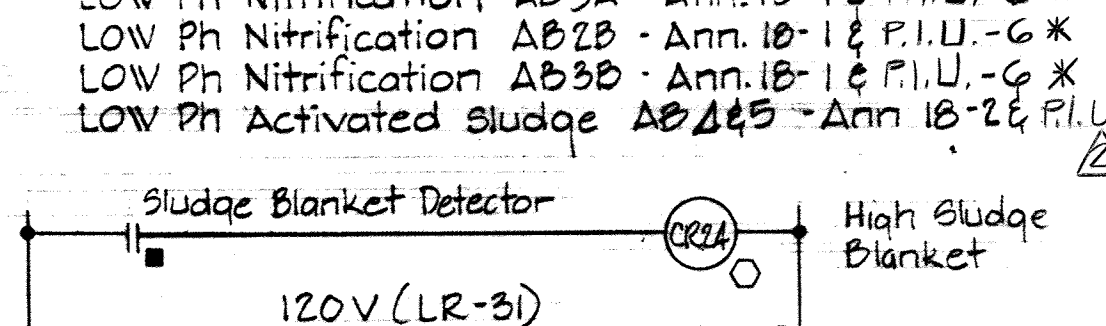
ECD #6
HIGH SUSPENDED SOLIDS
NITRIFICATION AERATION BASINS 2 & 3
Typical for:
High suspended Solids - Activated Sludge Aeration Basin #4 & 5 Ann. 18-2 & P.I.U.-G *



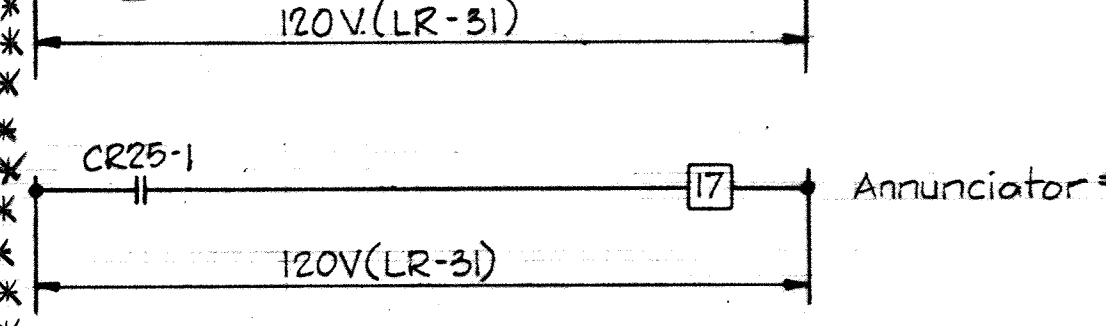
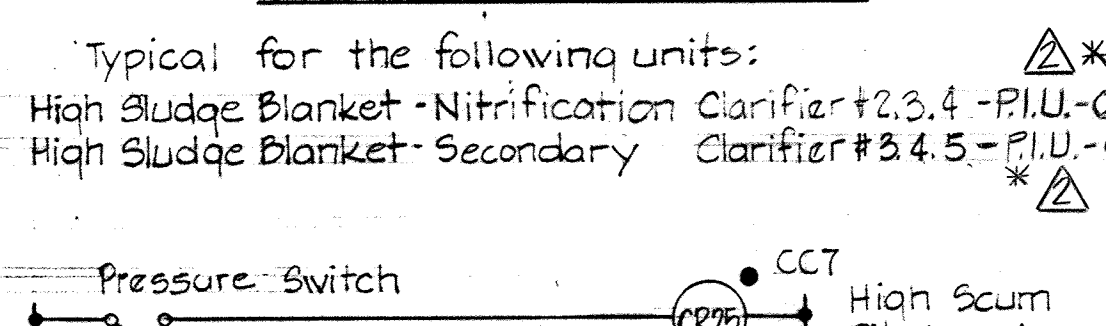
ECD #7
LOW DO - MIDPOINT NITRIFICATION
AERATION BASIN 2A
Typical for the following units:
LOW DO - Midpoint Nitrification AB2B - Ann. 18-1 & P.I.U.-G *
LOW DO - Midpoint Nitrification AB3A - Ann. 18-1 & P.I.U.-G *
LOW DO - Midpoint Nitrification AB3B - Ann. 18-1 & P.I.U.-G *
LOW DO - Effluent Nitrification AB2A - Ann. 18-1 & P.I.U.-G *
LOW DO - Effluent Nitrification AB2B - Ann. 18-1 & P.I.U.-G *
LOW DO - Effluent Nitrification AB3A - Ann. 18-1 & P.I.U.-G *
LOW DO - Effluent Nitrification AB3B - Ann. 18-1 & P.I.U.-G *
LOW DO - Midpoint Activated Sludge AB4 - Ann. 18-2 & P.I.U.-G *
LOW DO - Midpoint Activated Sludge AB5 - Ann. 18-2 & P.I.U.-G *
LOW DO - Effluent Activated Sludge AB4 - Ann. 18-2 & P.I.U.-G *
LOW DO - Effluent Activated Sludge AB5 - Ann. 18-2 & P.I.U.-G *



ECD #8
LOW PH NITRIFICATION AERATION
BASIN 2A
Typical for the following units:
LOW Ph Nitrification AB3A - Ann. 18-1 & P.I.U.-G *
LOW Ph Nitrification AB2B - Ann. 18-1 & P.I.U.-G *
LOW Ph Nitrification AB3B - Ann. 18-1 & P.I.U.-G *
LOW Ph Activated Sludge AB4 & 5 - Ann. 18-2 & P.I.U.-G *

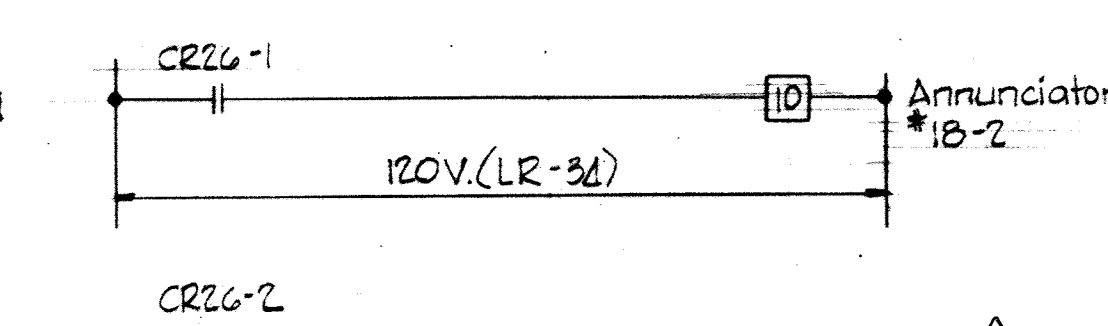
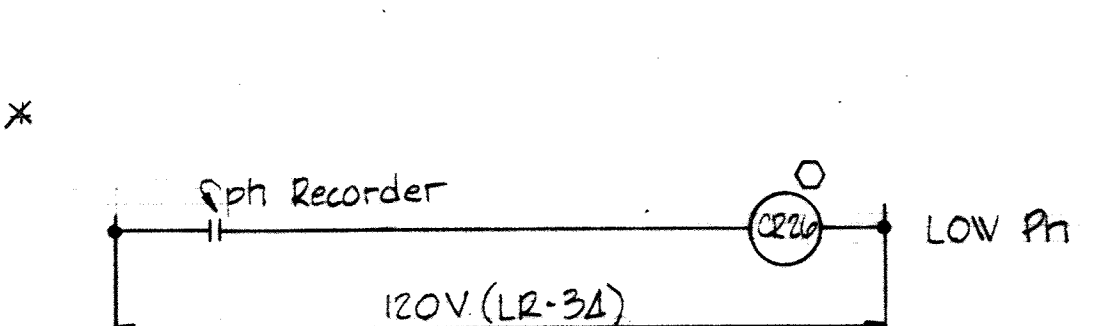


ECD #9
HIGH SLUDGE BLANKET - NITRIFICATION
CLARIFICATION #1
Typical for the following units:
High Sludge Blanket - Nitrification Clarifier #2, 3, 4 - P.I.U.-G #18-1, 2 *
High Sludge Blanket - Secondary Clarifier #3, 4, 5 - P.I.U.-G #18-1, 2 *

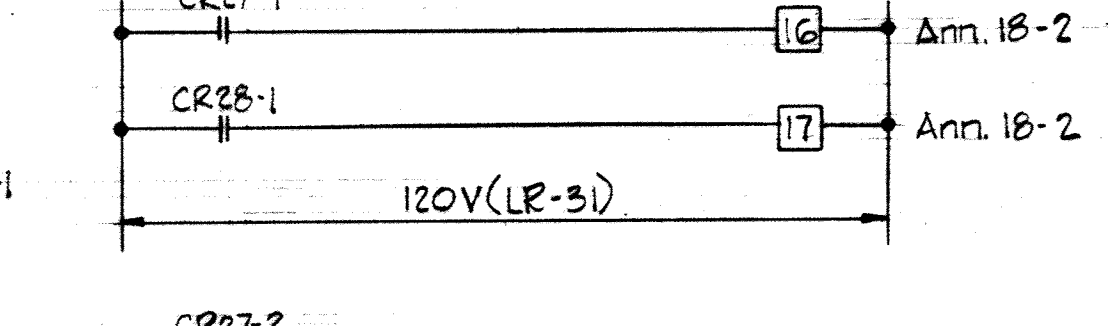
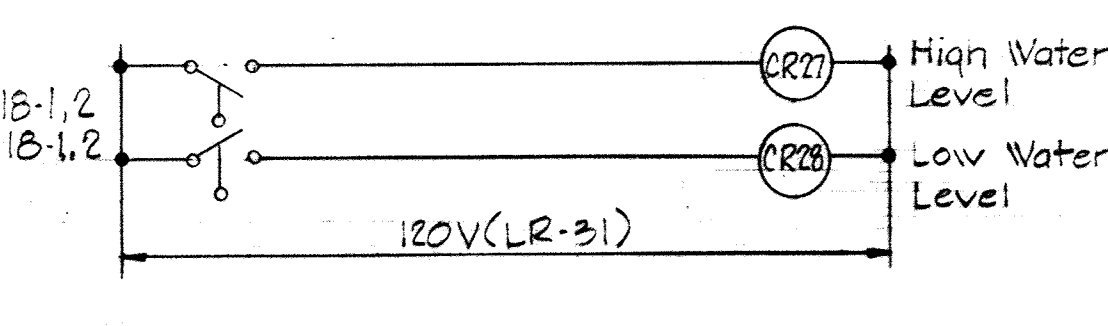


ECD #10
HIGH SCUM PIT LEVEL
NITRIFICATION CLARIFIER #1
Typical for the following units:
High Scum Pit Level - Nitrification Clarifier #2, 3, 4 - P.I.U.-G #18-1, 2 *
High Scum Pit Level - Secondary Clarifier #3, 4, 5 - P.I.U.-G #18-1, 2 *
High Scum Pit Level - Primary Clarifier #4 & 5 - Ann. 18-2 & P.I.U.-G *

Notes:
1. For General Electrical Notes & Legend See Sheet E-2.



ECD #11
LOW PH - EFFLUENT RAPID MIXER
Typical for the following units:
High Water Level - Nitrification Clarifier #2, 3, 4 - P.I.U.-G #18-1, 2 *
Low Water Level - Nitrification Clarifier #2, 3, 4 - P.I.U.-G #18-1, 2 *



ECD #12
SLAKER WATER LEVEL - CHEMICAL
BLDG. FDR #1 CHEMICAL BLDG.
Typical for the following units:
Slaker Water Level - Chemical Fdr. #2 - Ann. 18-2 & P.I.U.-G *
Chemical Fdr. #3 - Ann. 18-2 & P.I.U.-G *

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

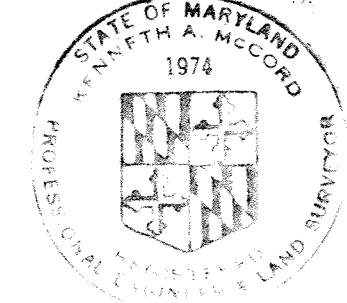
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
DATE: 3/20/75
W.O. Gilbert
CHIEF - BUREAU OF ENGINEERING

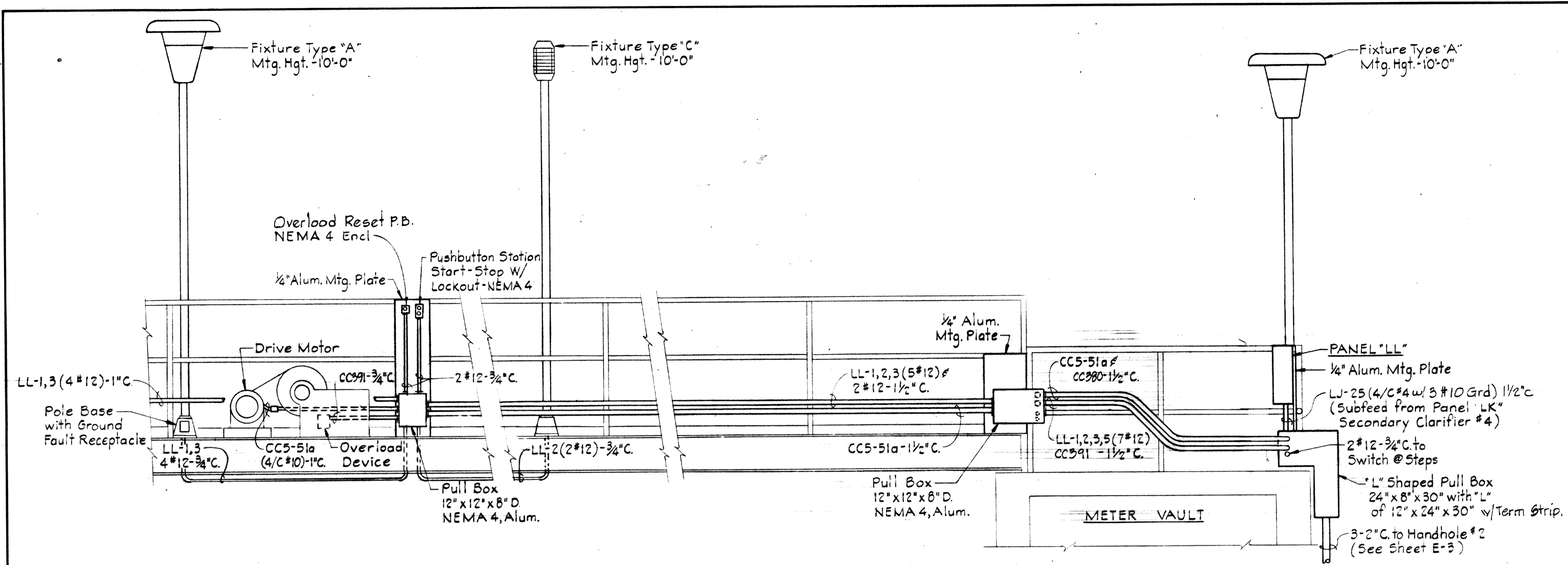
CONTRACT NO. 500-S

ANNUNCIATOR
WIRING DIAGRAMS

SAVAGE WASTEWATER
TREATMENT PLANT ADDITION NO. 4

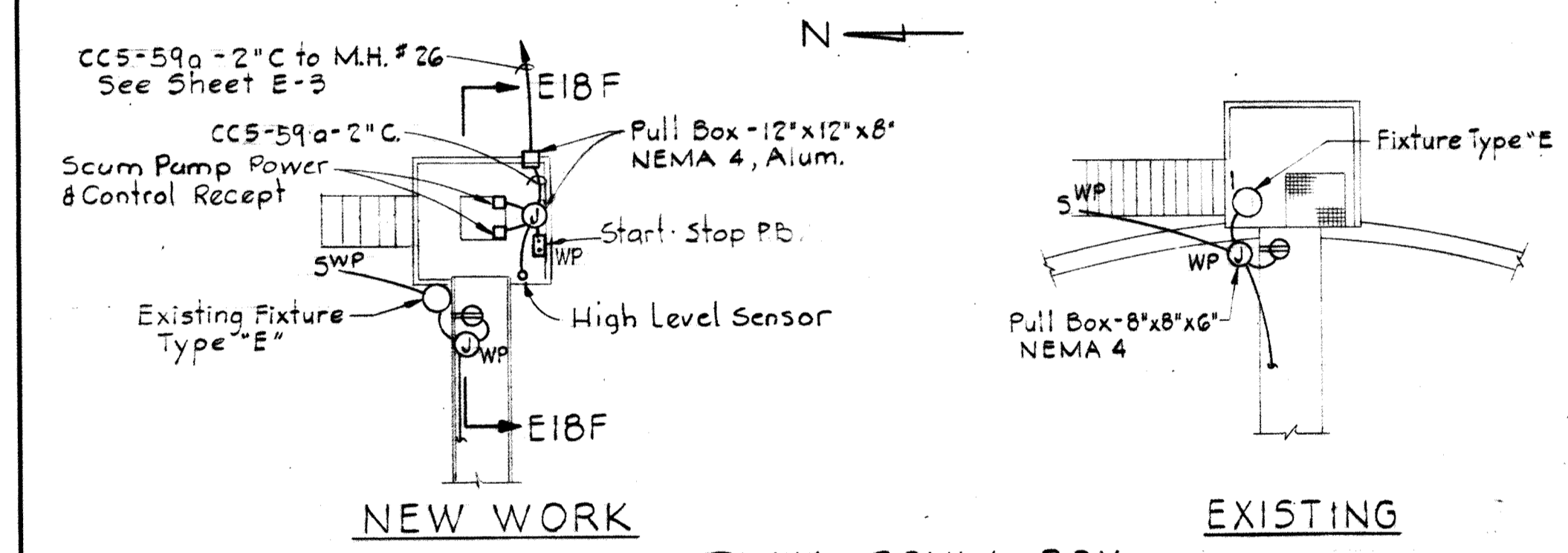
DRAWING NO. 129 OF 133
SCALE NONE



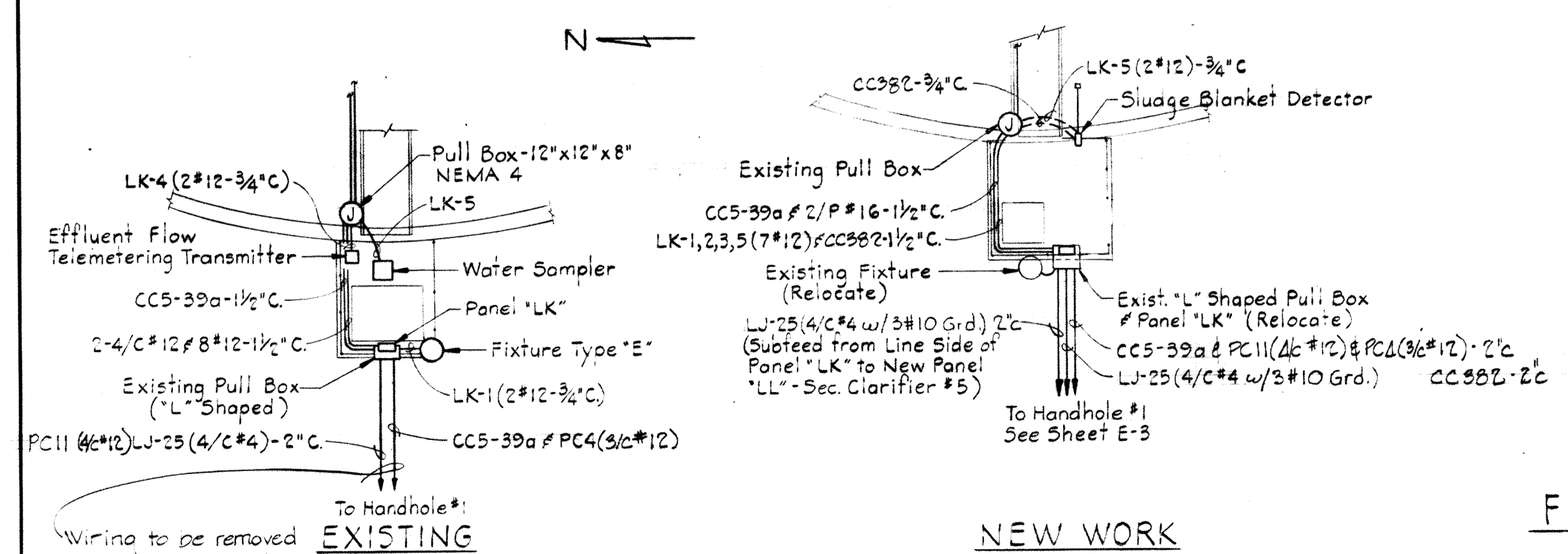


SECTION E43A/M26
Scale: 1/2" = 1'-0"

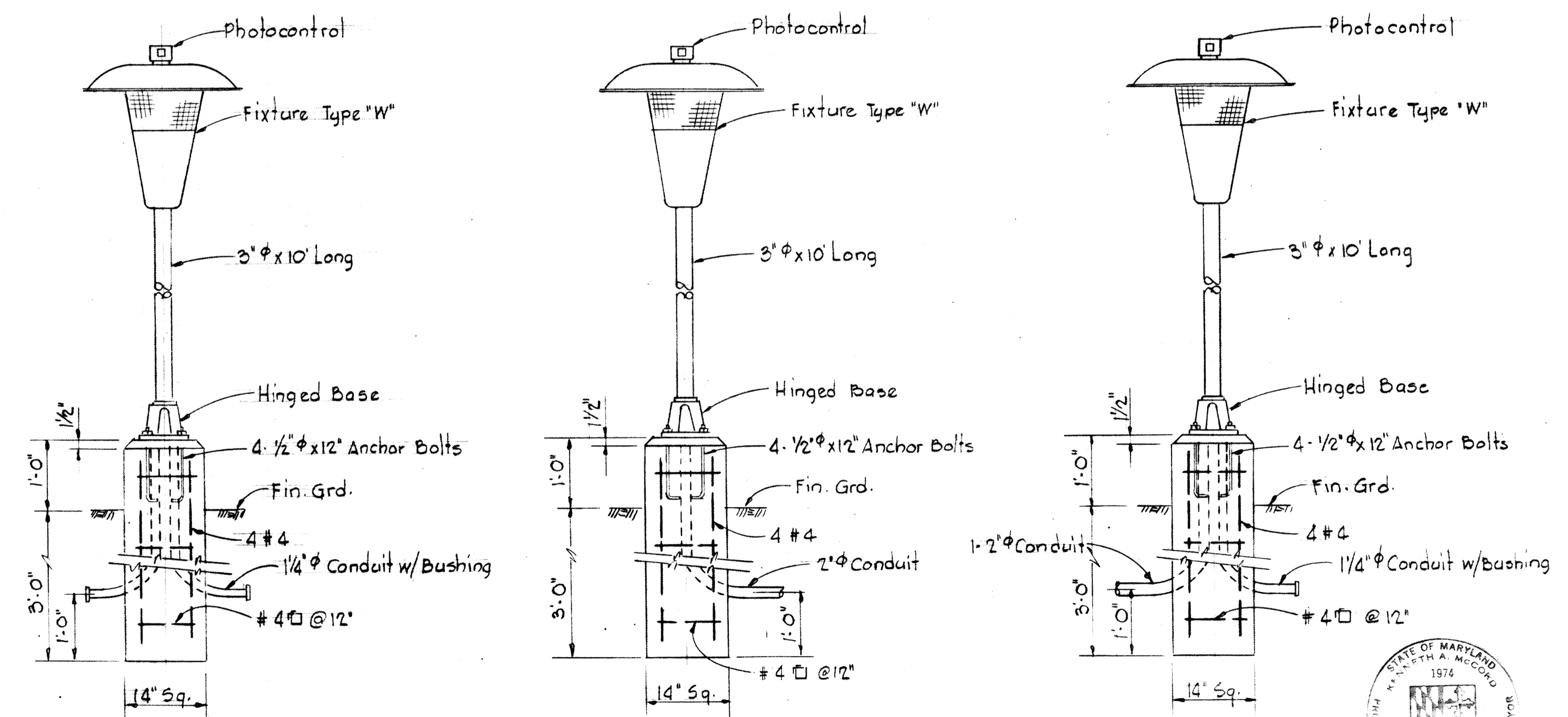
NOTES:
1. For General Electrical Notes & Legend, see Sheet E-2.



PLAN-SCUM BOX
EXISTING SECONDARY CLARIFIER #4
Scale: 1/8" = 1'-0"

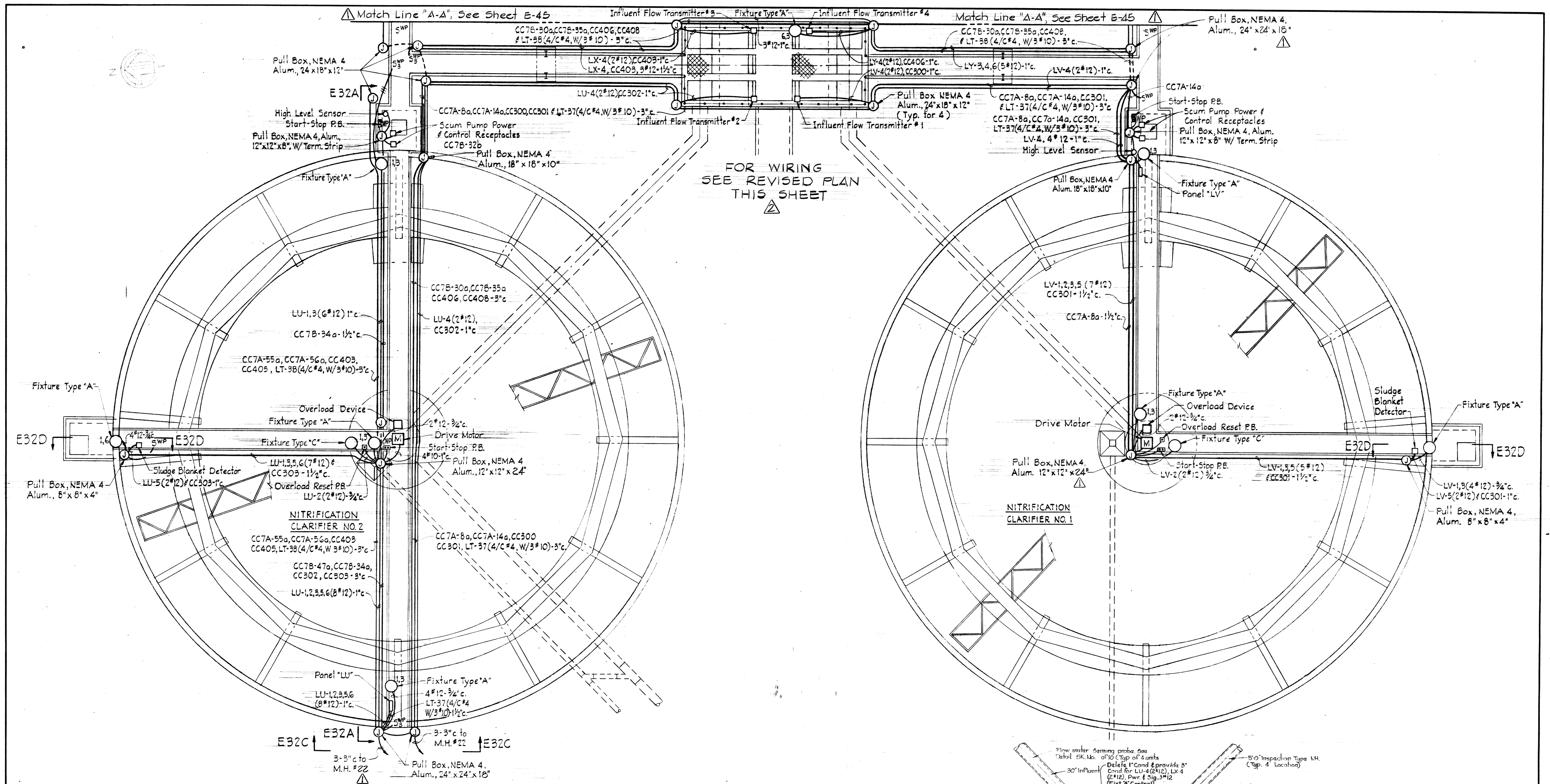


PLAN-EFFLUENT BOX
EXISTING SECONDARY CLARIFIER #4
Scale: 1/8" = 1'-0"



FOUNDATION DETAILS FOR TYPE "W" LIGHTING FIXTURES
Scale: 3/4" = 1'-0"

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 3/20/75 DATE W.O. Lambert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	EXISTING SECONDARY CLARIFIER #4 SECTIONS & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 130 OF 133	SCALE NONE
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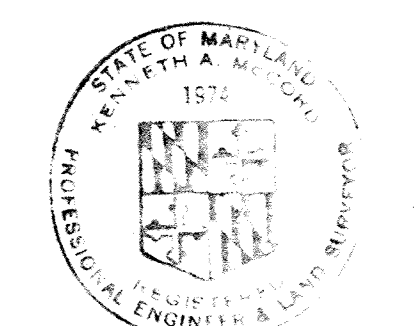
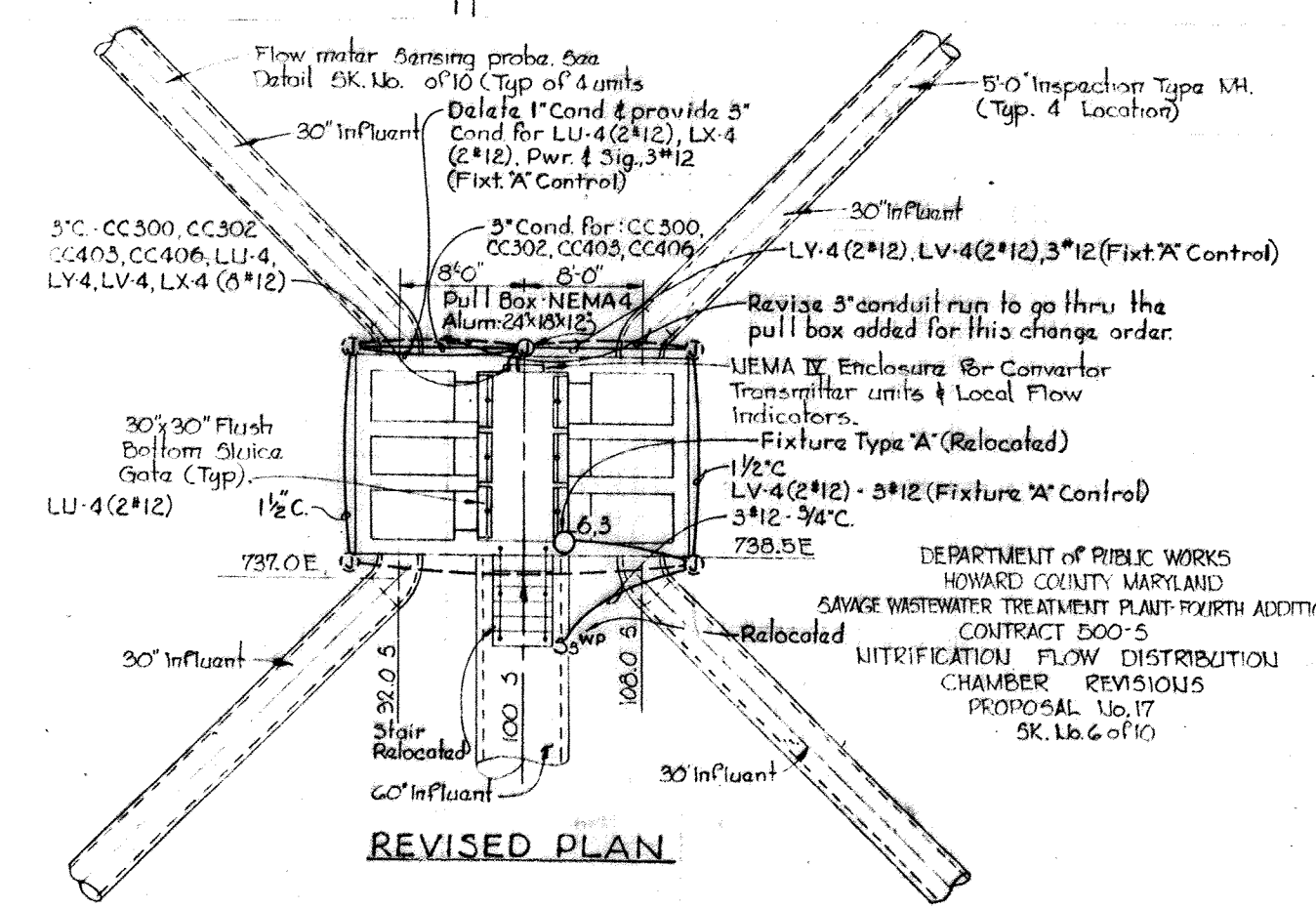


FOR WIRING
SEE REVISED PLAN
THIS SHEET

PLAN - NITRIFICATION CLARIFIERS NOS. 1 & 2
Scale: 1/8"=1'-0"

NOTES

1. For GENERAL ELECTRICAL NOTES & LEGEND see Sheet E-2.



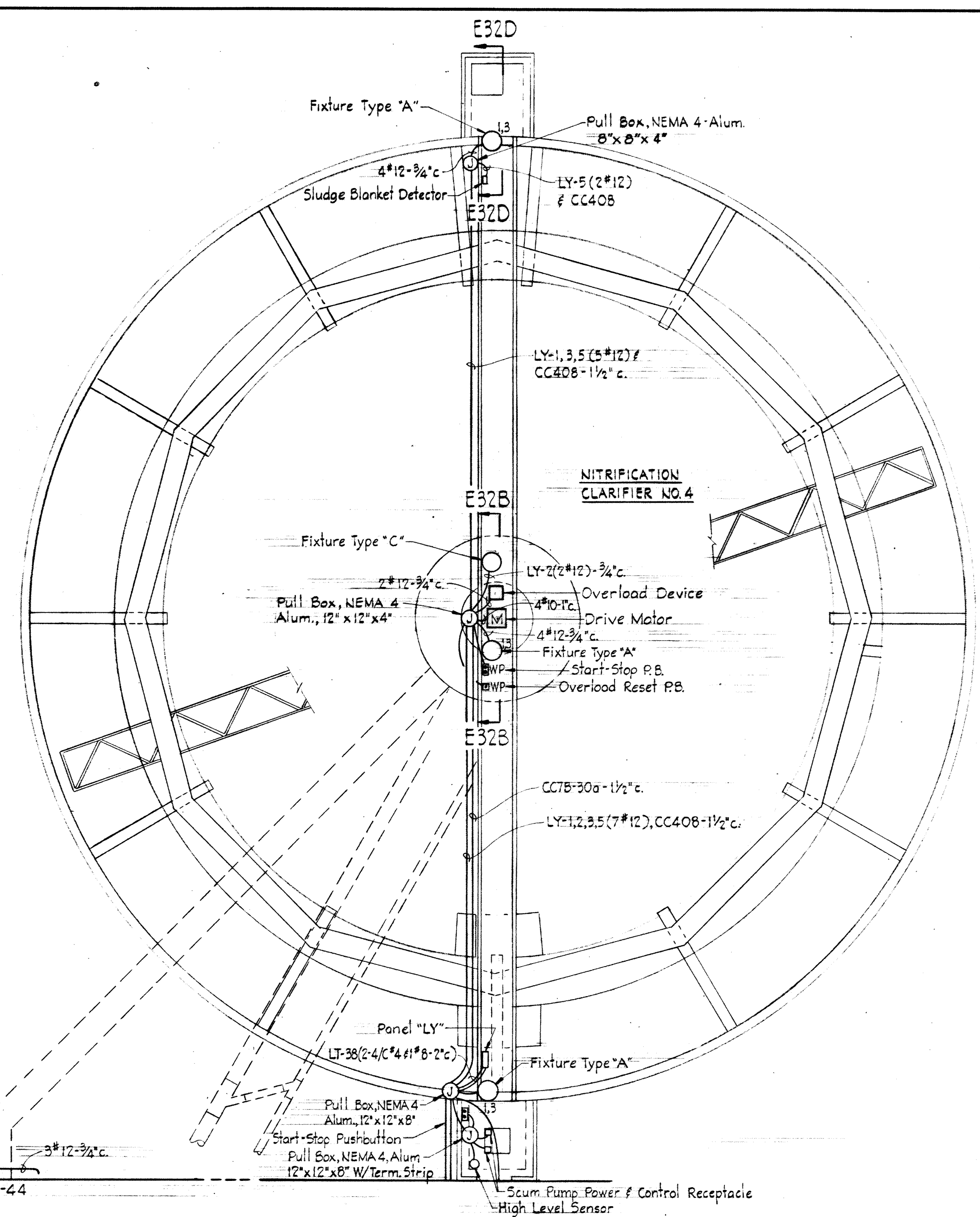
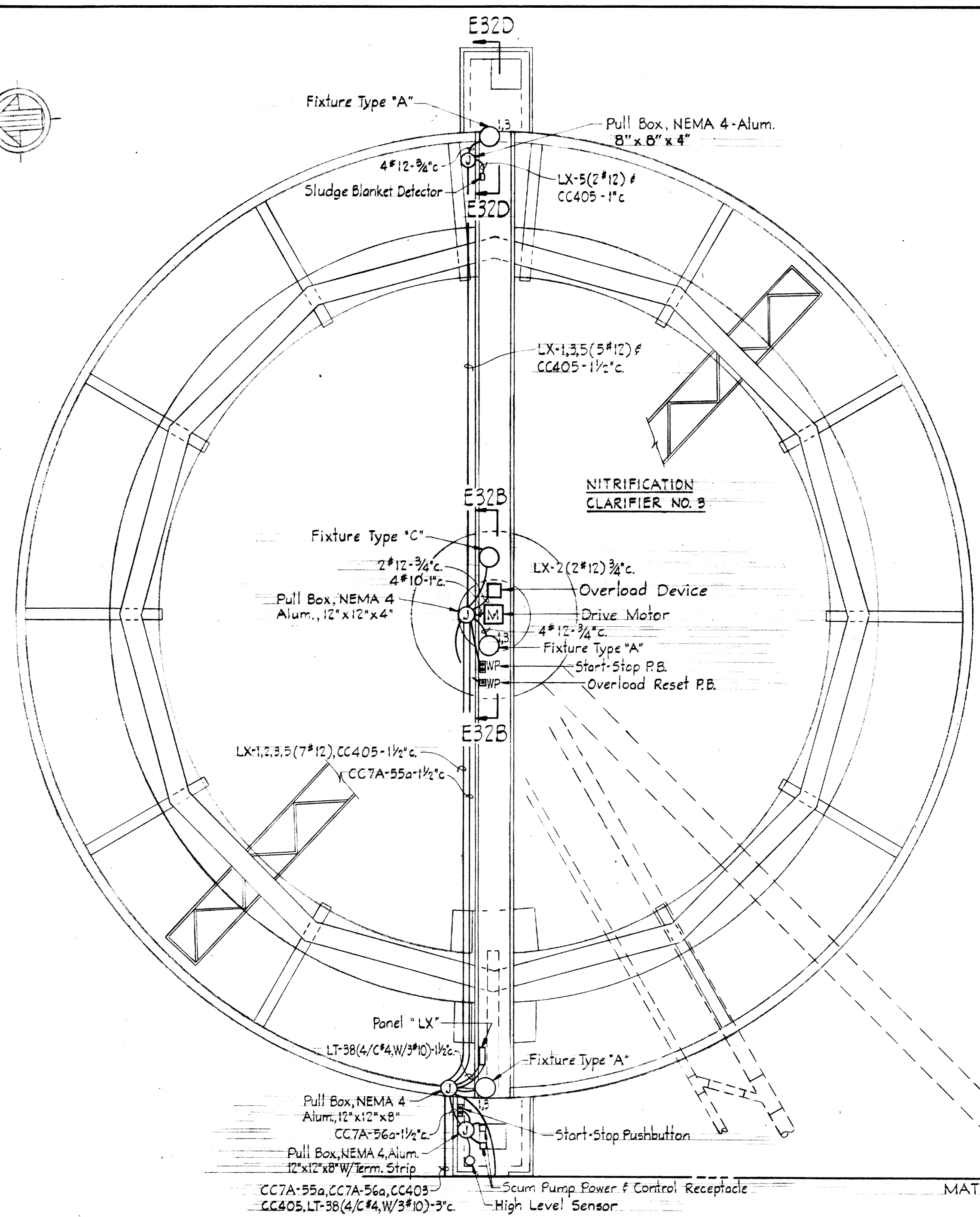
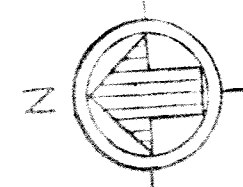
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE	CONTRACT NO. 500-S	NITRIFICATION CLARIFIERS 1&2 PLAN	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 131 OF 133 SCALE AS SHOWN
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W.O. 6887-2

SHEET E-44

MODIFIED DRAWING - MAY 6, 1982

BRUNING 44-510-28872



PLAN - NITRIFICATION CLARIFIERS NOS. 3 & 4
Scale: 1/8" = 1'-0"

NOTES

1. For GENERAL ELECTRICAL NOTES & LEGEND see Sheet E-2.

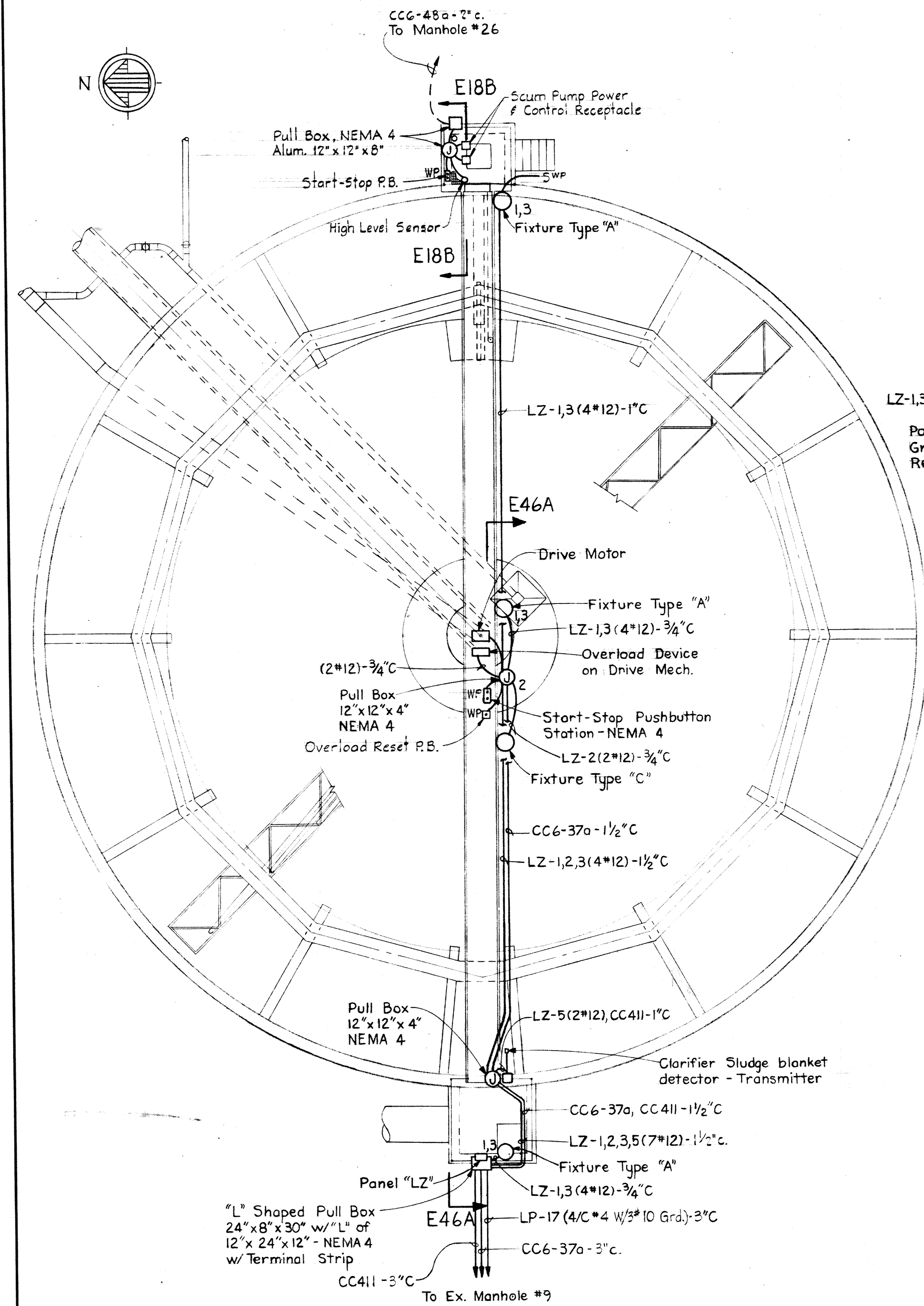
WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 <i>W.O. Gilbert</i> CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	NITRIFICATION CLARIFIERS 3&4 PLAN	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 132 OF 133	SCALE AS SHOWN
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W. O. 7132-2

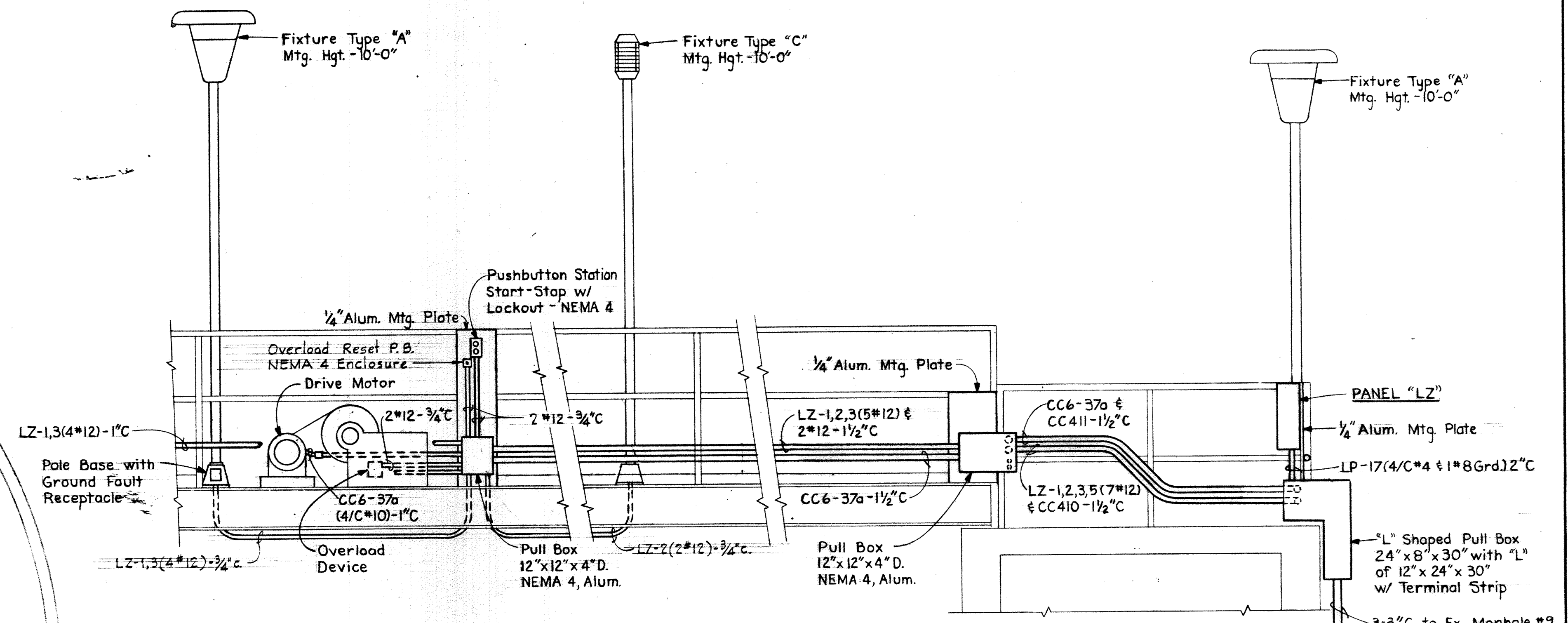
SHEET E-45

BRUNING 44-510 33872

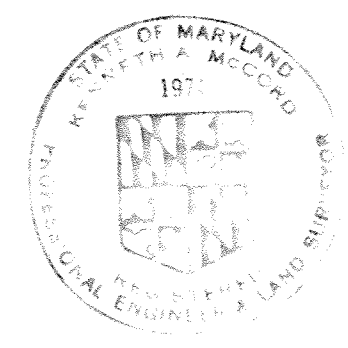




PLAN SECONDARY CLARIFIER NO. 3
Scale: 1/8" = 1'-0"



SECTION E46A/E46
Scale: 1/2" = 1'-0"



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 1304 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 10-26-77 DATE W.O. Filbert CHIEF-BUREAU OF ENGINEERING	CONTRACT NO. 500-S	SECONDARY CLARIFIER 3 PLAN & DETAILS	SAVAGE WASTEWATER TREATMENT PLANT ADDITION NO. 4	DRAWING NO. 133 OF 133 SCALE AS SHOWN
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W.O. 7132-2

SHEET E-46

BRUNING 44-510 32872