

LOCATION PLAN
1" = 800'

This is it

WASTEWATER TREATMENT PLANT IMPROVEMENTS

OAK HARBOR, OHIO

FINKBEINER, PETTIS AND STROUT, LIMITED — CONSULTING ENGINEERS — TOLEDO, OHIO
1971

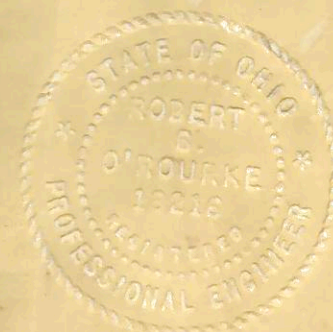
APPROVED: VILLAGE OF OAK HARBOR, OHIO

BY Thomas J. Palmer DATE 6-6-72
THOMAS PALMER
MAYOR

BY Thelma Casey DATE 6-6-72
THELMA CASEY
CLERK - TREASURER

BY William E. Priesman DATE 6-6-72
WILLIAM PRIESMAN
CHAIRMAN, BOARD OF TRUSTEES OF PUBLIC AFFAIRS

1894



GENERAL NOTES

INDEX

MISCELLANEOUS - After excavation is completed, obtain Engineer's approval on soil bearing before placing concrete. Foundation is designed for a soil pressure of 2,000 PSF.
 All loosened earth under footings and slabs shall be thoroughly removed and the spaces backfilled with Class II concrete where shown, or sand or gravel well tamped in place before footings or slabs are poured.
 Suitable pipe supports shall be provided and installed at points shown or as directed by the Engineer.
 Set all sleeves, castings, inserts, bolts, etc. before placing concrete.
 After excavation, before placing concrete, Engineer is to pass on quality of soil, order auger borings or tests needed and, if necessary, deepen or widen footings as provided in the specifications.
 All excavation for pipe, etc. that occurs below a main foundation slab or footing shall be filled with Class II concrete to the bottom of the slab or footing.
 Excessive excavation beyond limits shown on the plans to be filled with Class II concrete unless otherwise approved by the Engineer.

REINFORCING - Allow 1,000 lbs. of reinforcing bars to be used as directed by the Engineer. Extra reinforcing not to be fabricated or delivered to the project until ordered by Engineer. All reinforcing steel, unless noted otherwise, shall be grade 60 as defined by ASTM A615, A616, or A617.

All detailing, fabrication and erection to comply with "Manual of Standard Practices for Detailing Reinforced Concrete Structures" (ACI A-315)
 All bars to be supported and spaced in the forms with accessories meeting the regulations of the above manual. In addition, the cover for wall reinforcement for #5 bars and smaller shall be 1 1/2" and for larger than #5 bars shall be 2" unless otherwise noted.
 All walls when not otherwise reinforced to have #4 @ 12" c/c H. & V. each face.
 At all corners of walls or slab openings, or where sleeves or pipe lines pass through walls or slabs, provide four sets of 2-#4 x 3'-0" longer than opening each face on all four diagonal sides unless otherwise noted.

Submit five copies of shop drawings for all reinforcing steel and secure approval of Engineer before fabrication.
 All reinforcing bars shall be securely wired together in the forms. Two way mats of steel shall be tied sufficiently to hold them securely in place.
 Bars not continuous throughout their length shall be lapped a minimum of 36 bar diameters (unless otherwise noted) but in no event shall lap be less than 12".
 Minimum reinforcement transverse to the direction of main reinforcement shall be #4 @ 12" c/c unless otherwise noted.

Dowels placed in construction joints shall project at least 36 bar diameters each way from the joint, unless otherwise noted, and shall be of the same size and spacing as the bars they lap.
 Where not otherwise noted, hook all outside wall bars at least 24 bar diameters around corners.

When foundation walls span from foundation to first floor, both foundation slab and first floor slab shall be in place before any backfill is placed. All slabs when not otherwise reinforced to have #4 @ 12" c/c each way in bottom.

CONCRETE - All Class I Concrete shall test 3750 psi at 28 days with not less than 6 sacks of cement per cu. yd. of concrete, regardless of strength obtained, and not over 6 1/2 gallons of water per sack of cement and not over 5" slump.
 All exposed concrete corners to be beveled with 3/4" x 3/4" chamfer strips unless otherwise noted.

Construction joints in other than places shown on the plans shall be provided and located only with the approval of the Engineer.
 Provide P.V.C. waterstops for full length of construction joints in walls and slabs which are subject to any water and as called for on the plans.

Dimensions shown for door and window openings are merely nominal and Contractor shall check actual dimensions before pouring concrete or laying up masonry.
 All Class II concrete where called for on the plans or in these General Notes shall contain 4 sacks of cement per cu. yd. of concrete with the remaining volume being made up with approximately equal parts of sand and stone. Not more than 30 gallons of water per cu. yd. shall be added at the mixer.

All dowels to be anchored in place before placing concrete.
 Wall mats shall be securely wired to the forms at intervals of 5'-0" minimum.

STRUCTURAL STEEL:

All structural steel shall conform to the latest issue of A.S.T.M. A36. All fabrication and erection shall meet the latest issue of the steel construction manual of the A.I.S.C.
 All connections of structural steel members must develop the full strength of the members being joined.

All shop and field welding shall conform to the latest issue of "Standard Code for Arc and Gas Welding in Building Construction" of the American Welding Society. All welding operators on this work shall be qualified by tests as prescribed in the American Welding Society's "Standard Qualification Procedure". All welds shall be made only by operators who are qualified to perform the type of work required as evidenced by their passing of the prescribed test.

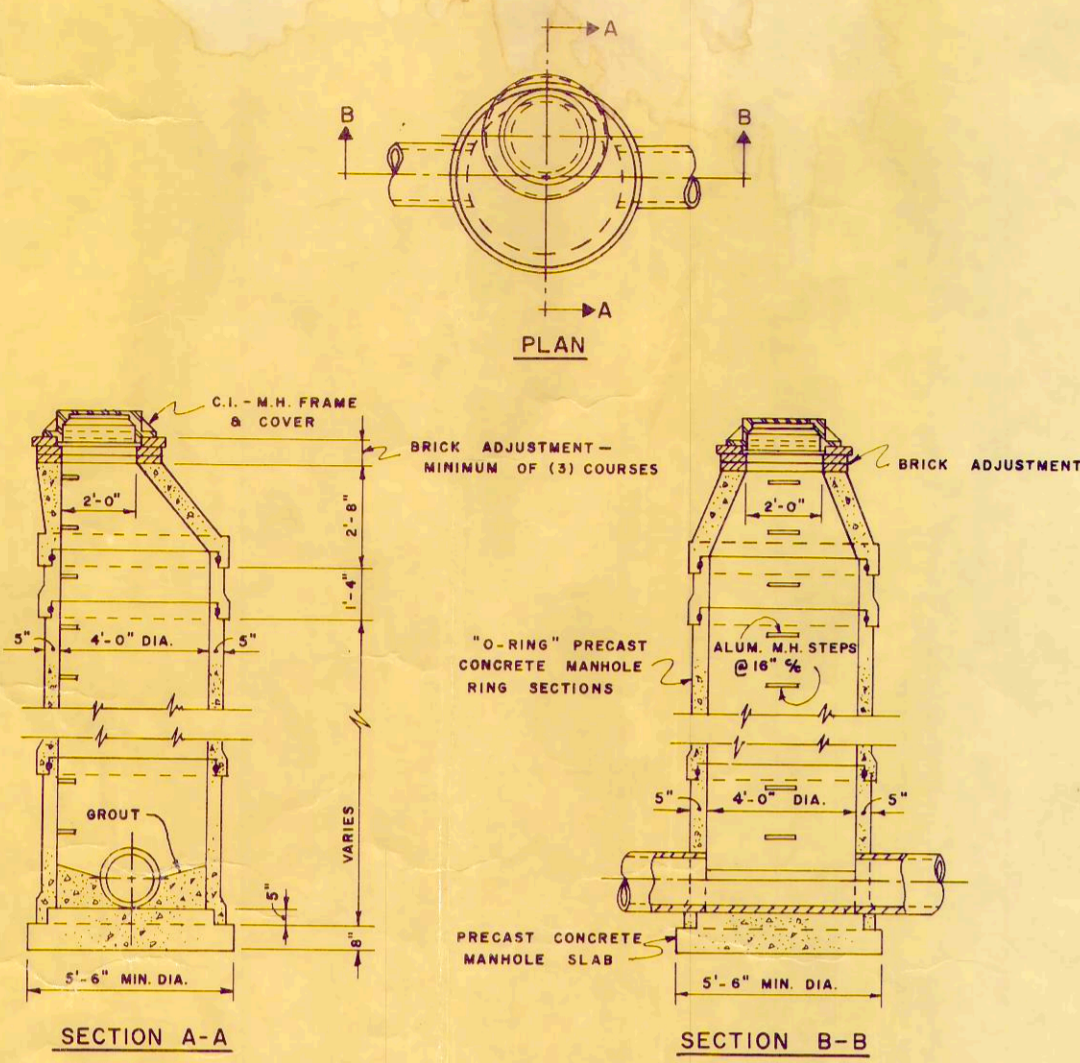
Shop connections may be welded, field connections must be bolted.
 All steelwork before leaving shop to have one good coat of red lead and oil (or iron oxide) paint. All parts inaccessible after erection to have two coats.

Sizes of structural steel members can be varied to suit fabricator's stock, provided strength is approximately equivalent.

All field connections are bolted connections with 3/4"-diameter bolts with shank diameter at least as large as O.D. of threaded portion (no rolled threads). All open holes 13/16" diameter. Shop connections may be riveted or welded.

All welds to have a minimum capacity of 5000 pounds.
 Supply all holes required by other trades.

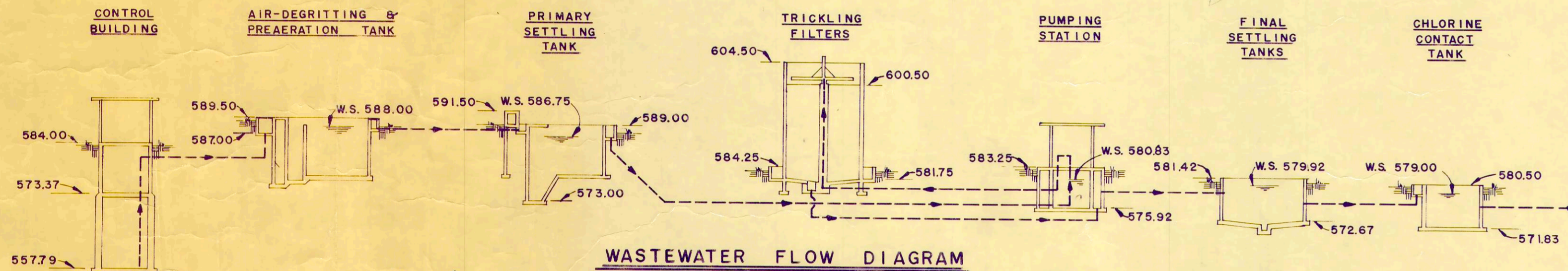
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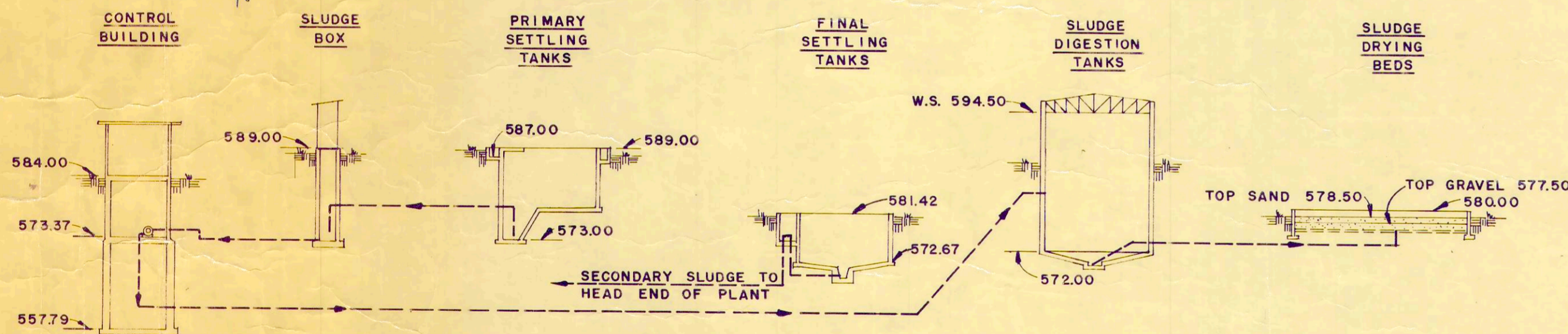
CONCRETE O-RING MANHOLE

STANDARD MANHOLE DETAILS

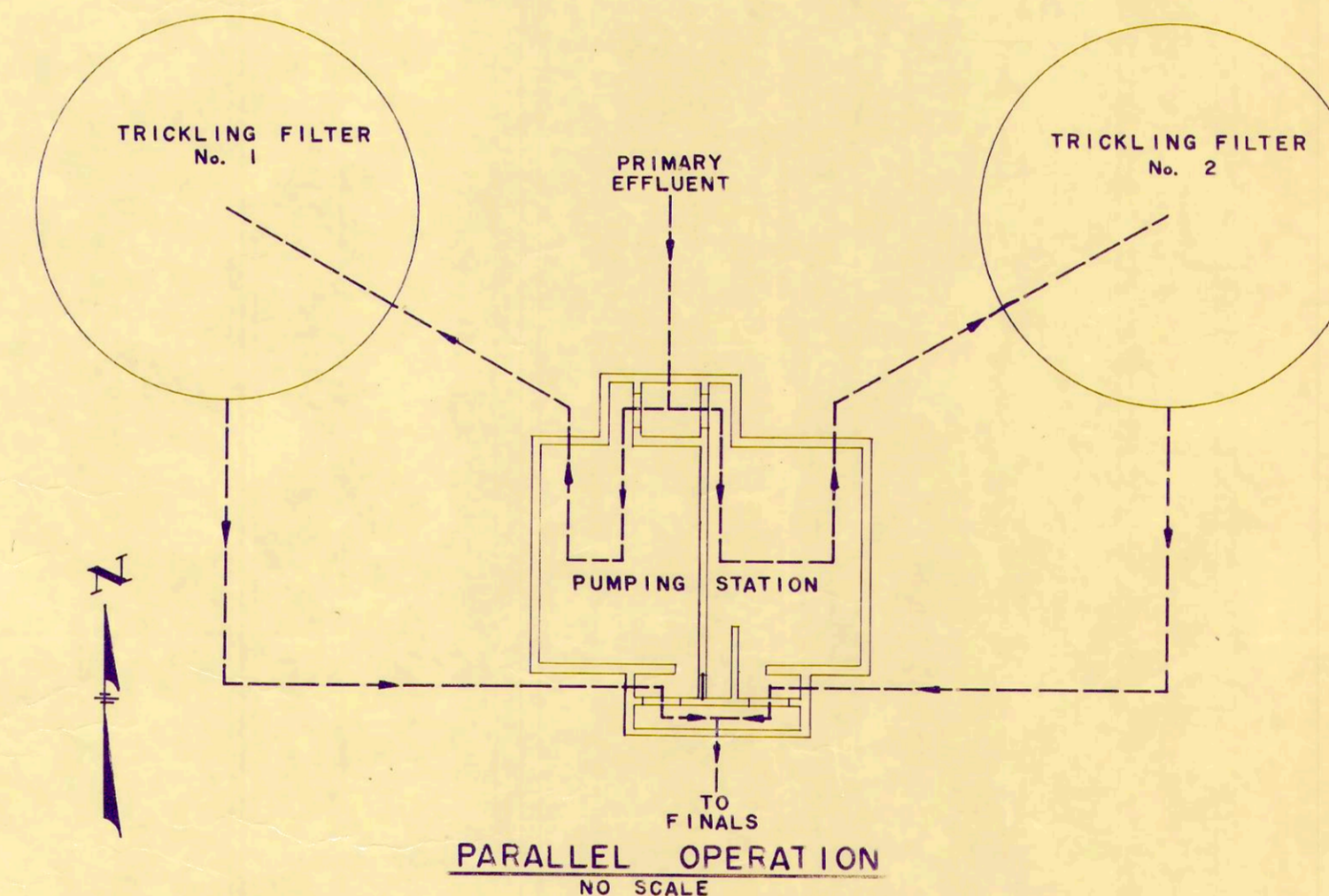
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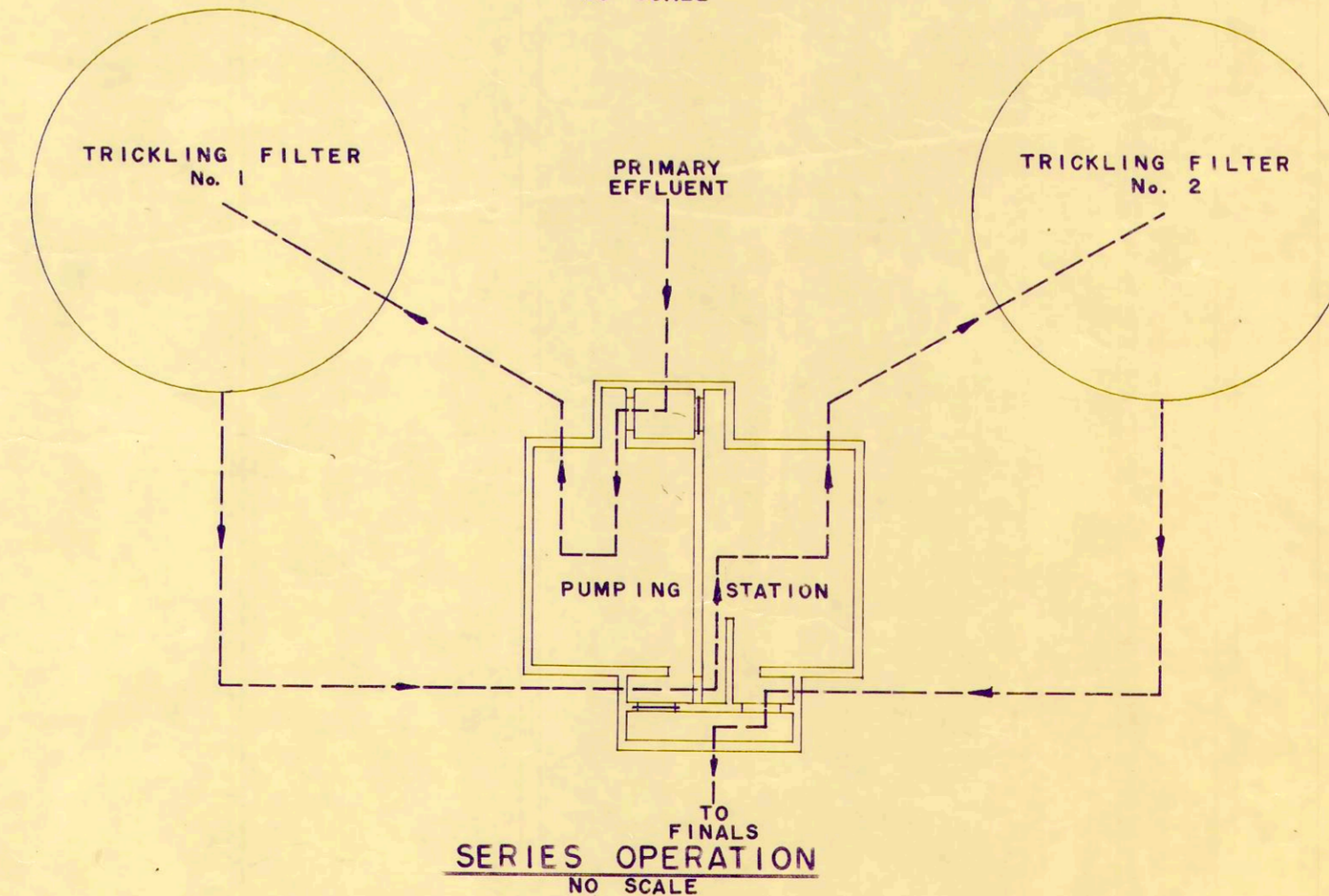
WASTEWATER FLOW DIAGRAM



SLUDGE FLOW DIAGRAM

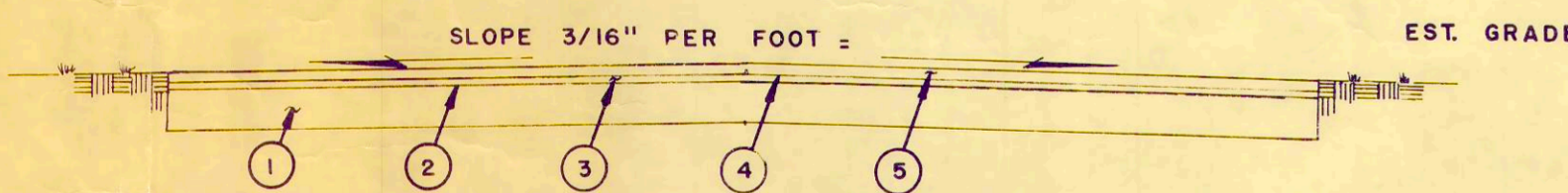


PARALLEL OPERATION



SERIES OPERATION

PUMPING STATION OPERATION



- 1 8" WATER BOUND MACADAM BASE
- 2 BITUMINOUS PRIME COAT
- 3 1" MINIMUM THICKNESS No. 4 STONE WEARING COURSE
- 4 BITUMINOUS SEAL COAT
- 5 No. 6 STONE SURFACE COURSE

TYPICAL ROADWAY SECTION

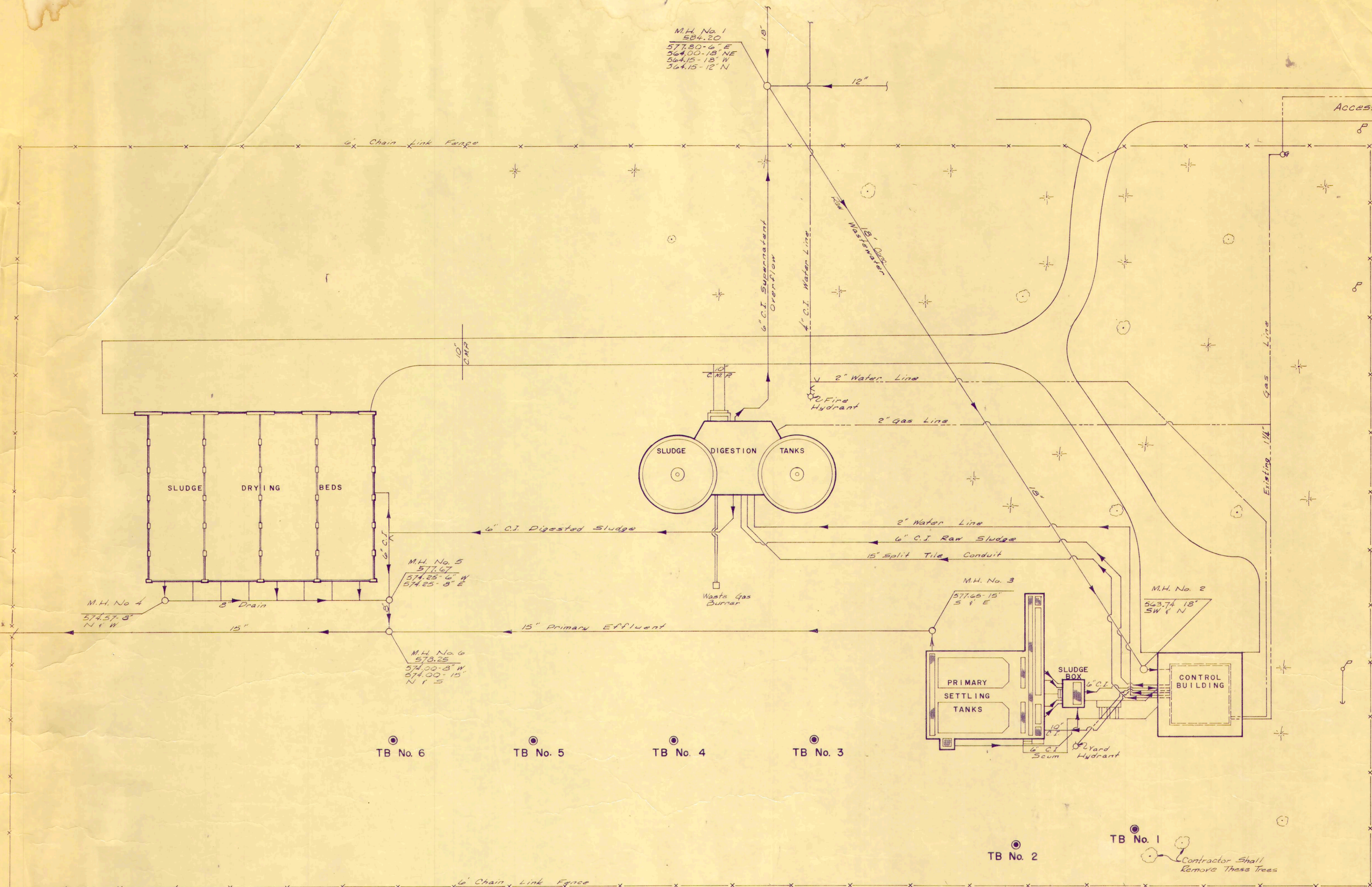
1" = 2' - 0"

REV. NO.	DESCRIPTION	DATE	BY	APP'D	SCALE	PROJECT NUMBER
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					DESIGNED BY R.B.W.	SECTION
					DRAWN BY P.L.C.	DATE
					CHECKED BY W.C.K.	3-71
						OF

FINKBEINER, PETTIS & STROUT
 LIMITED
 CONSULTING ENGINEERS
 TOLEDO, OHIO

INDEX, GENERAL NOTES,
 FLOW DIAGRAMS, ROADWAY SECTION
 WASTEWATER TREATMENT
 PLANT IMPROVEMENTS
 OAK HARBOR, OHIO

PORTAGE RIVER
High Water Level 576.0



EXISTING PLOT PLAN
1" = 20'

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EXISTING PLOT PLAN
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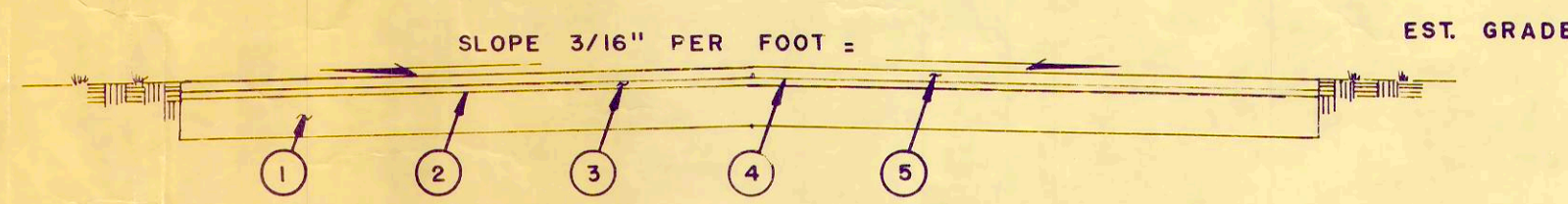
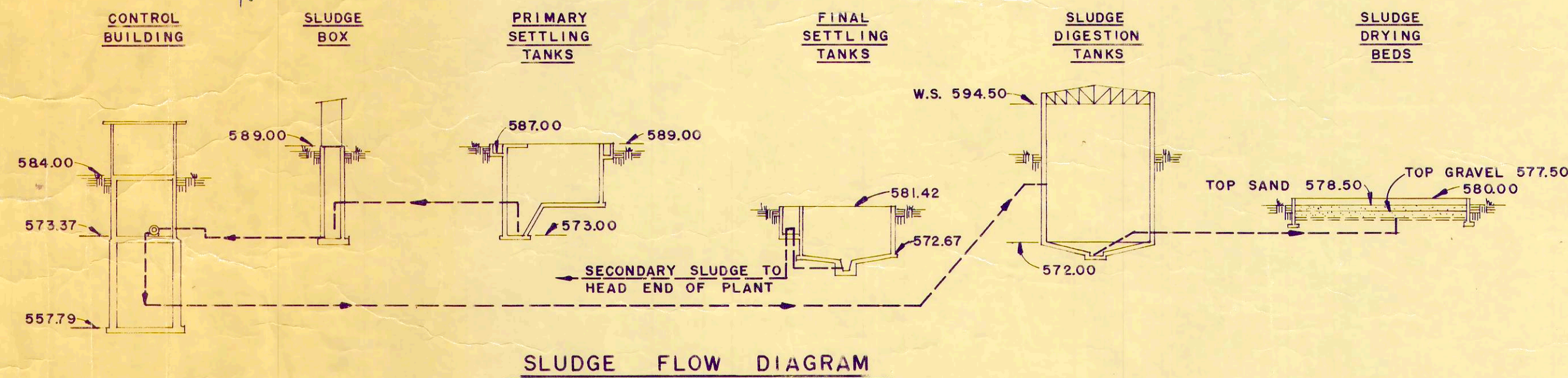
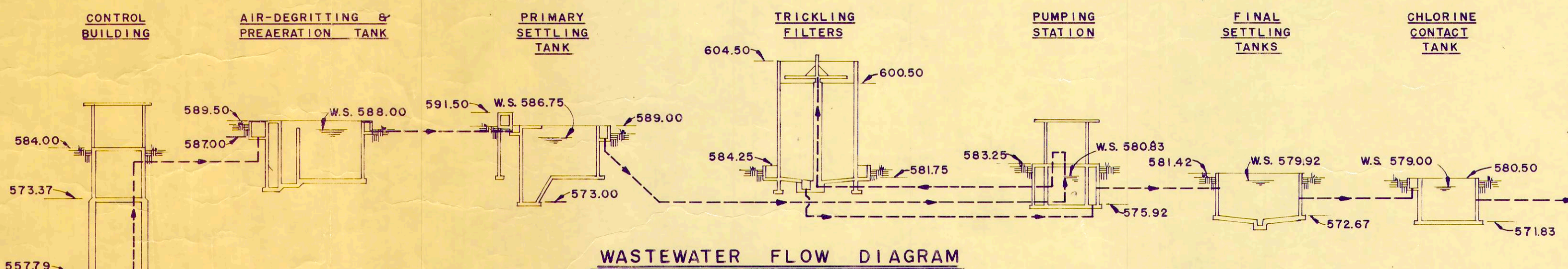
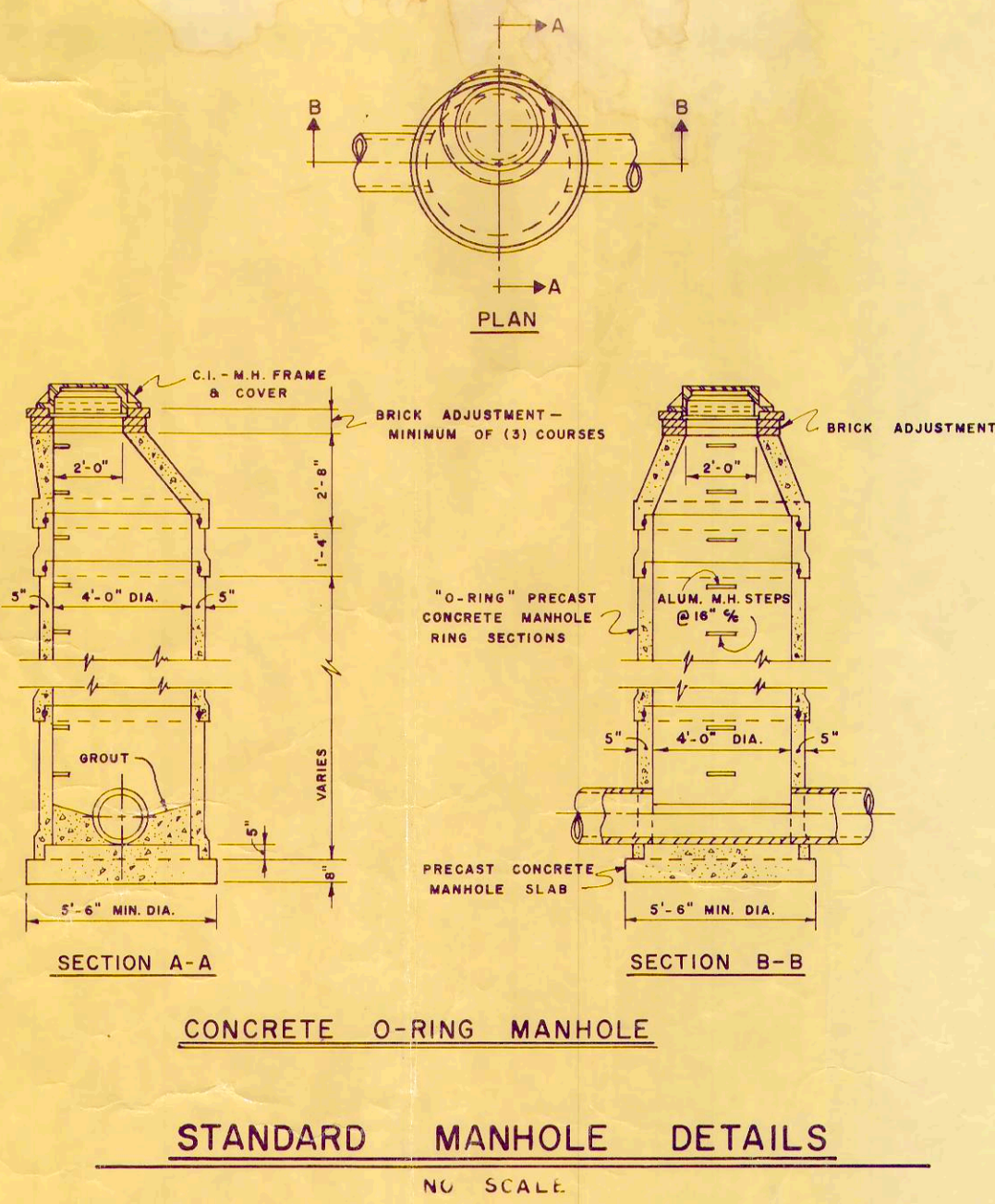
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2 OF 36

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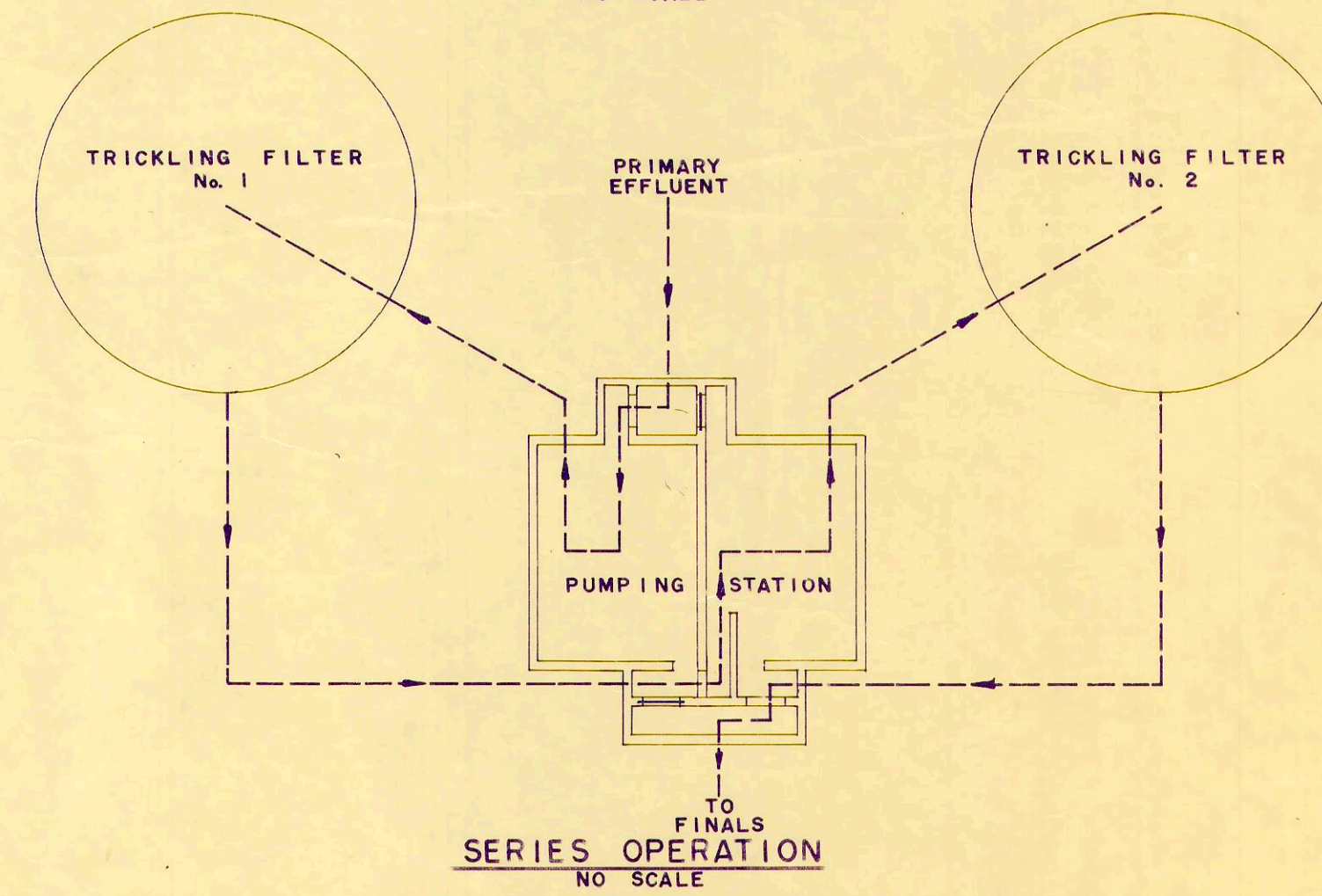
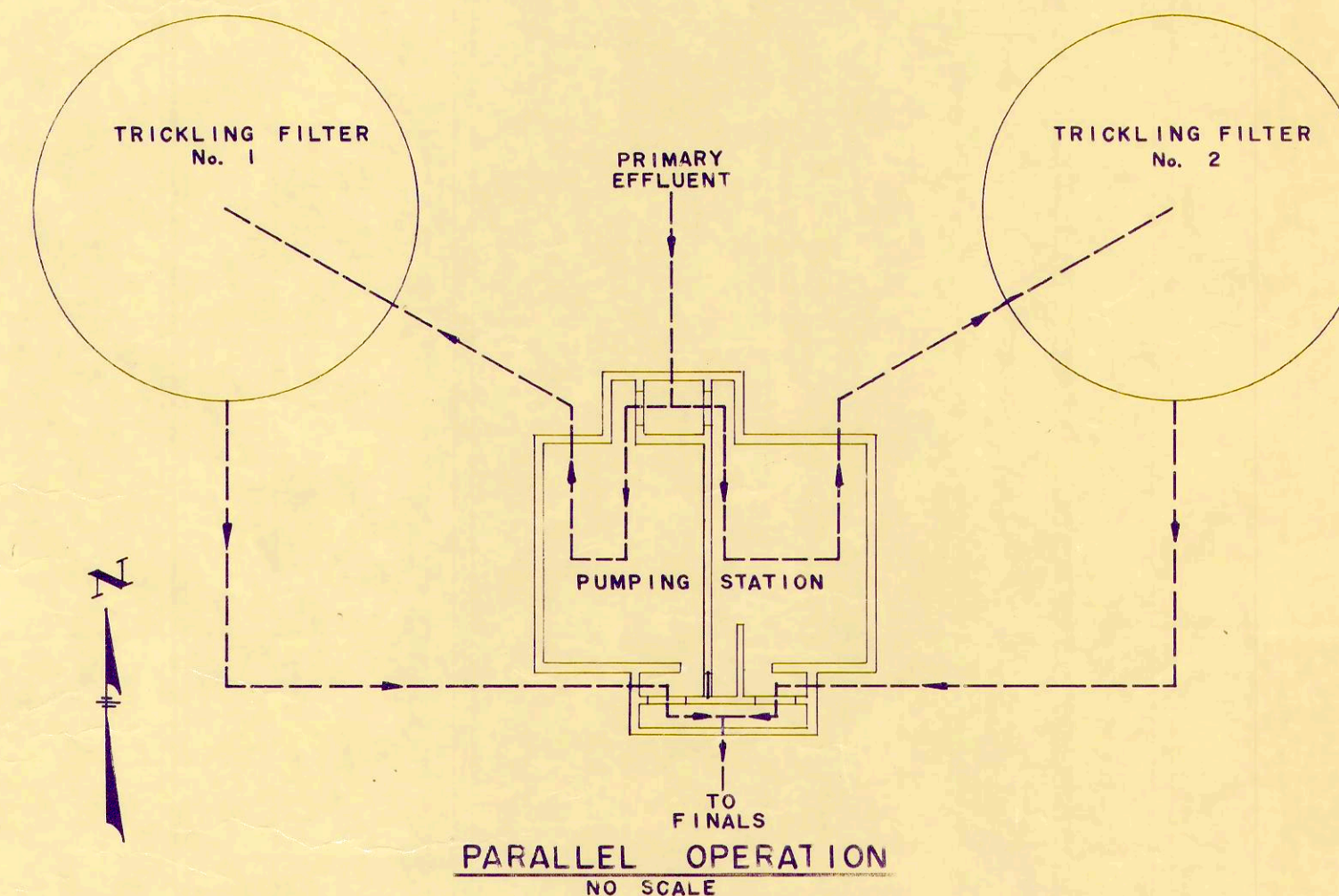
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PUMPING STATION OPERATION

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 TOLEDO, OHIO

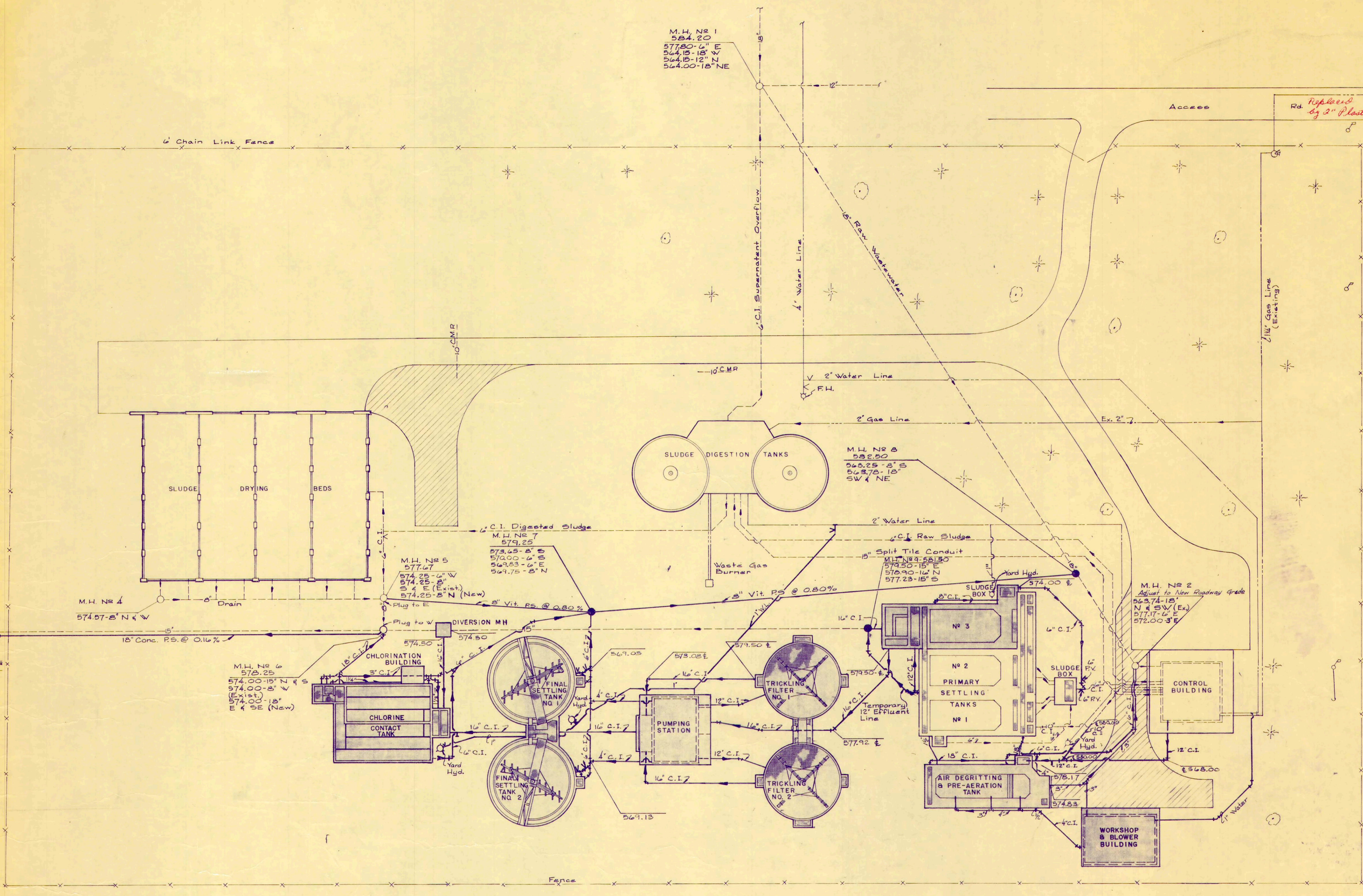
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 As Noted
 DESIGNED BY
 R.B.W.
 DRAWN BY
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INDEX, GENERAL NOTES,
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PORTAGE RIVER
High Water Level 574.00



PIPING PLAN
1" = 20'

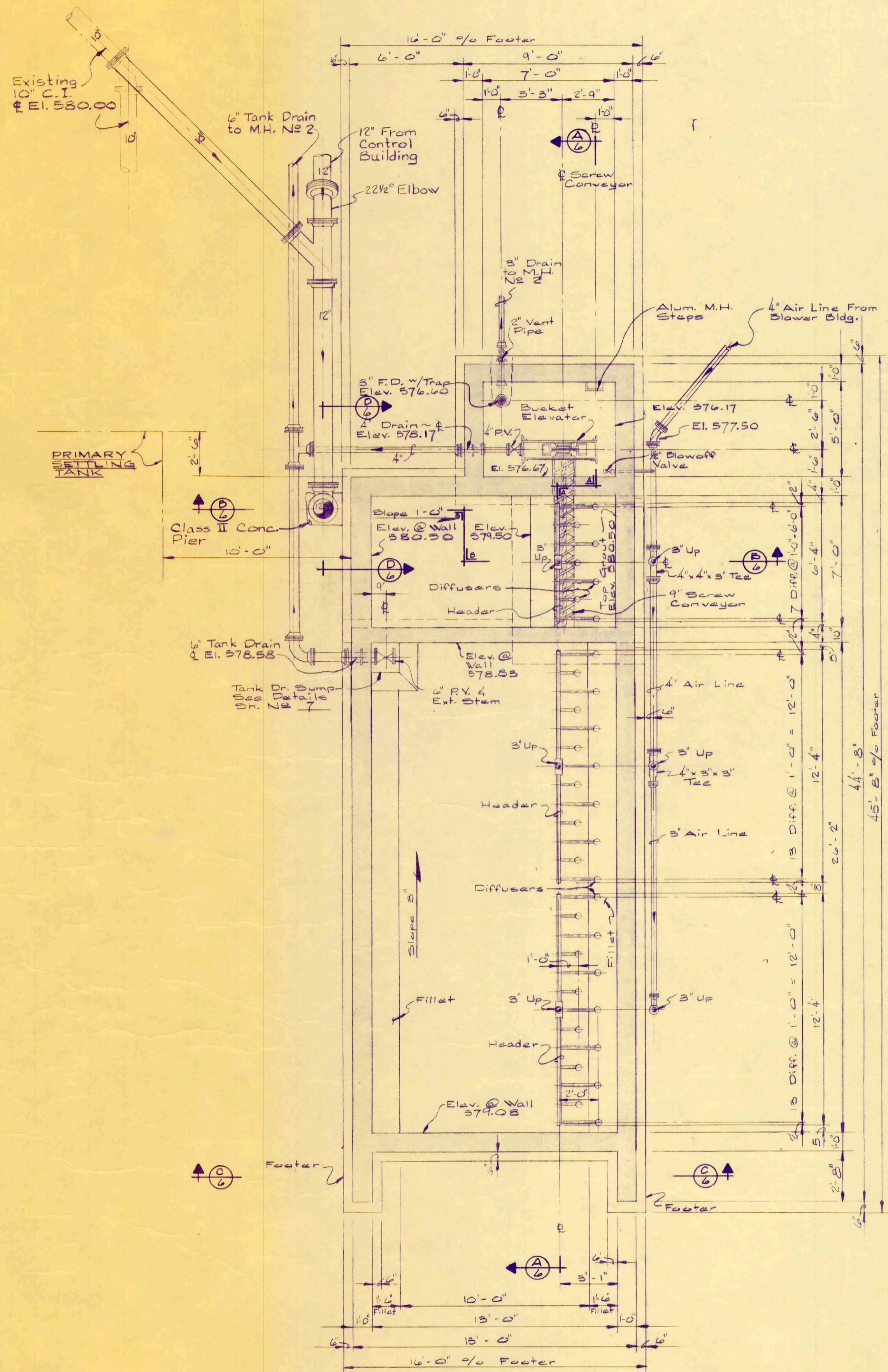
REV. NO.	DESCRIPTION	DATE	BY	APP'D
1	Added 1" V.L. to Workshop Revised Utilities	6-15-72	R.L.C.	R.B.W.

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LIMITED
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TOLEDO, OHIO

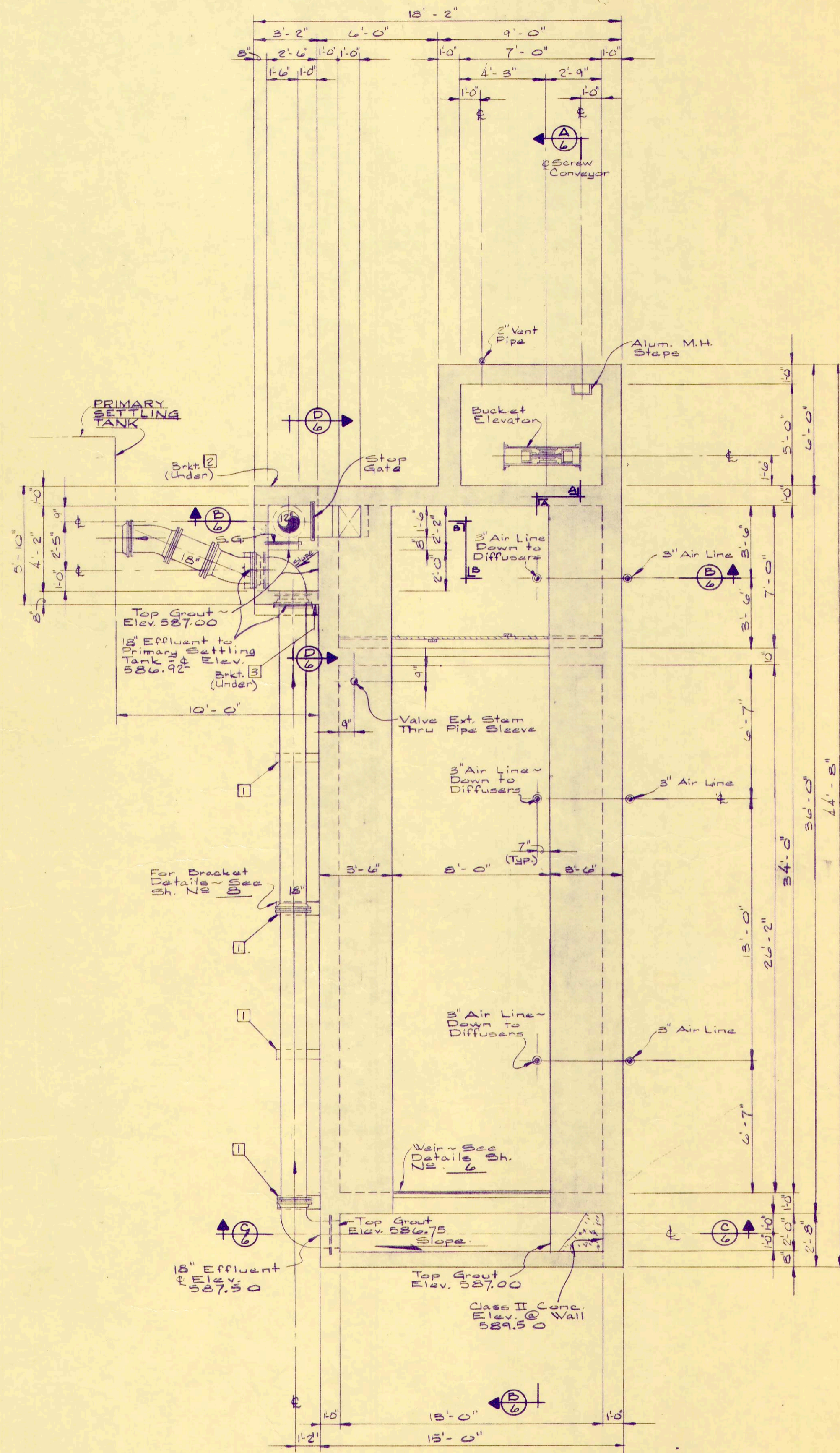
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DESIGNED BY
R.B.W.
DRAWN BY
R.L.C.
CHECKED BY
W.C.K.

PIPING PLAN
**WASTEWATER TREATMENT
PLANT IMPROVEMENTS**
OAK HARBOR, OHIO

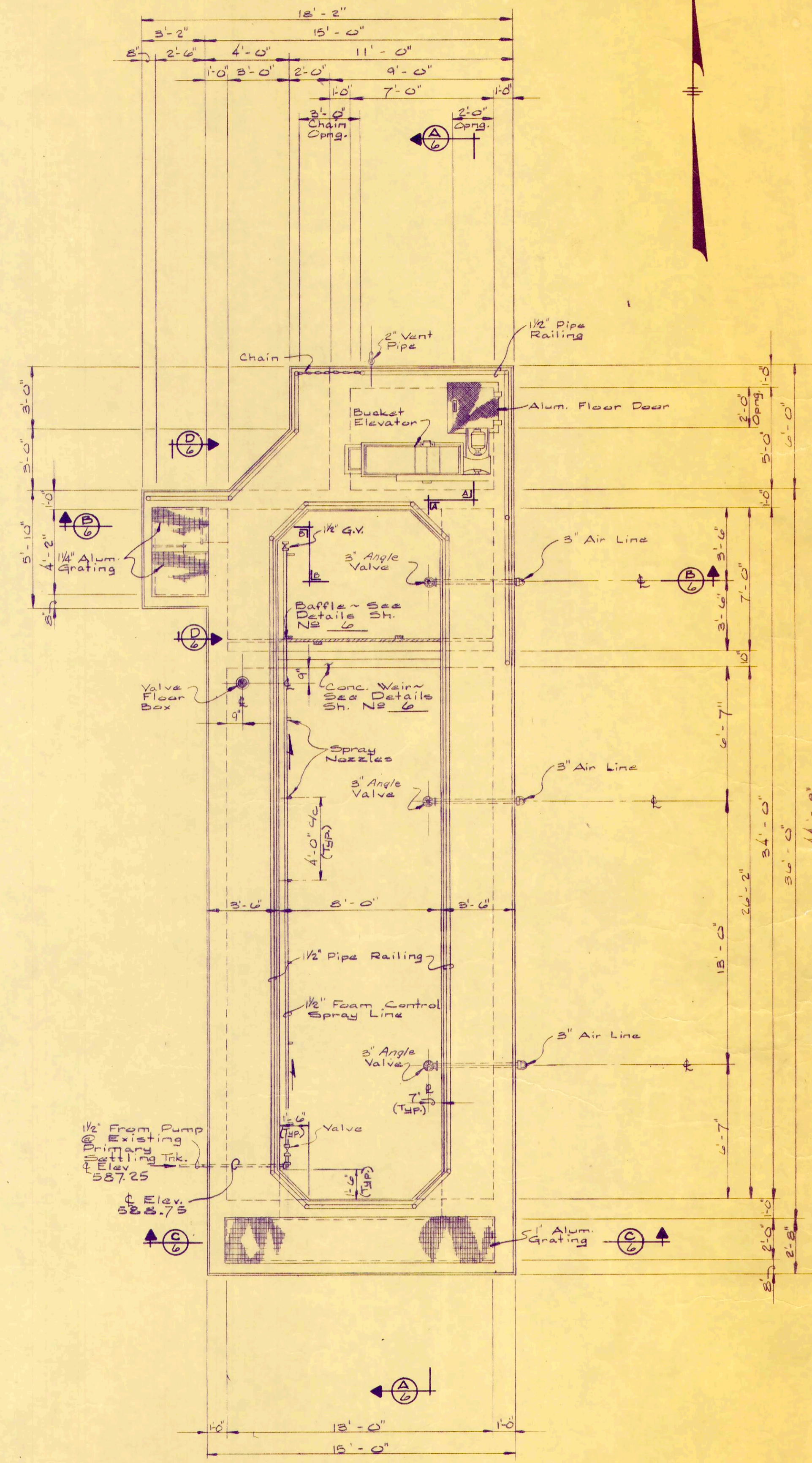
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FOOTER PLAN
1/4" = 1'-0"



SECTIONAL PLAN
1/4" = 1'-0"



PLAN
1/4" = 1'-0"

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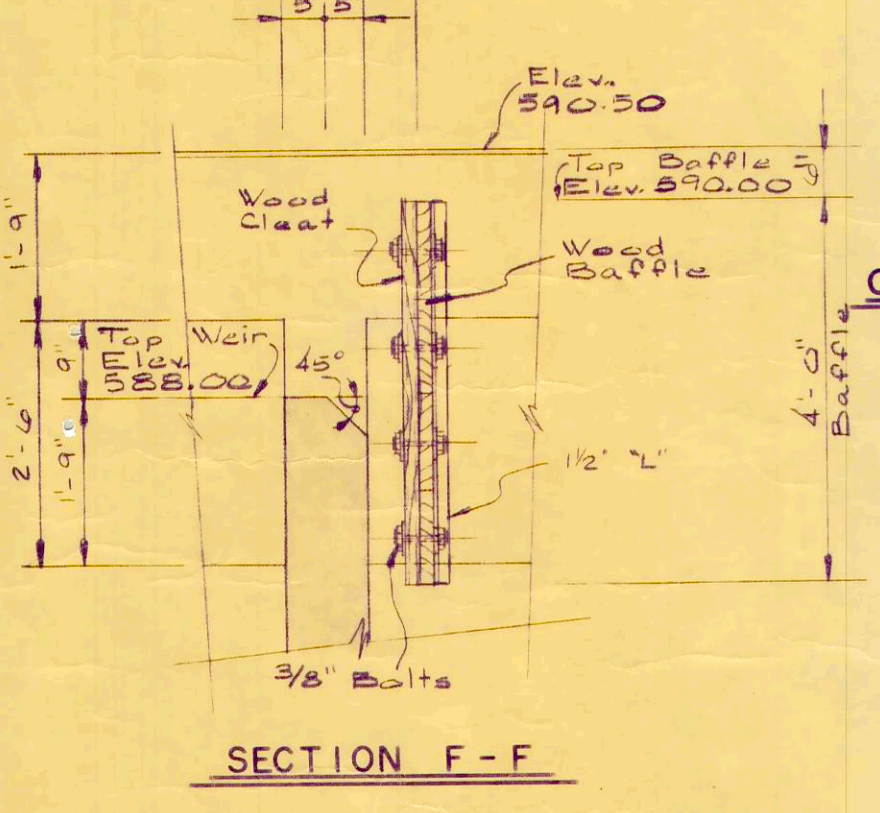
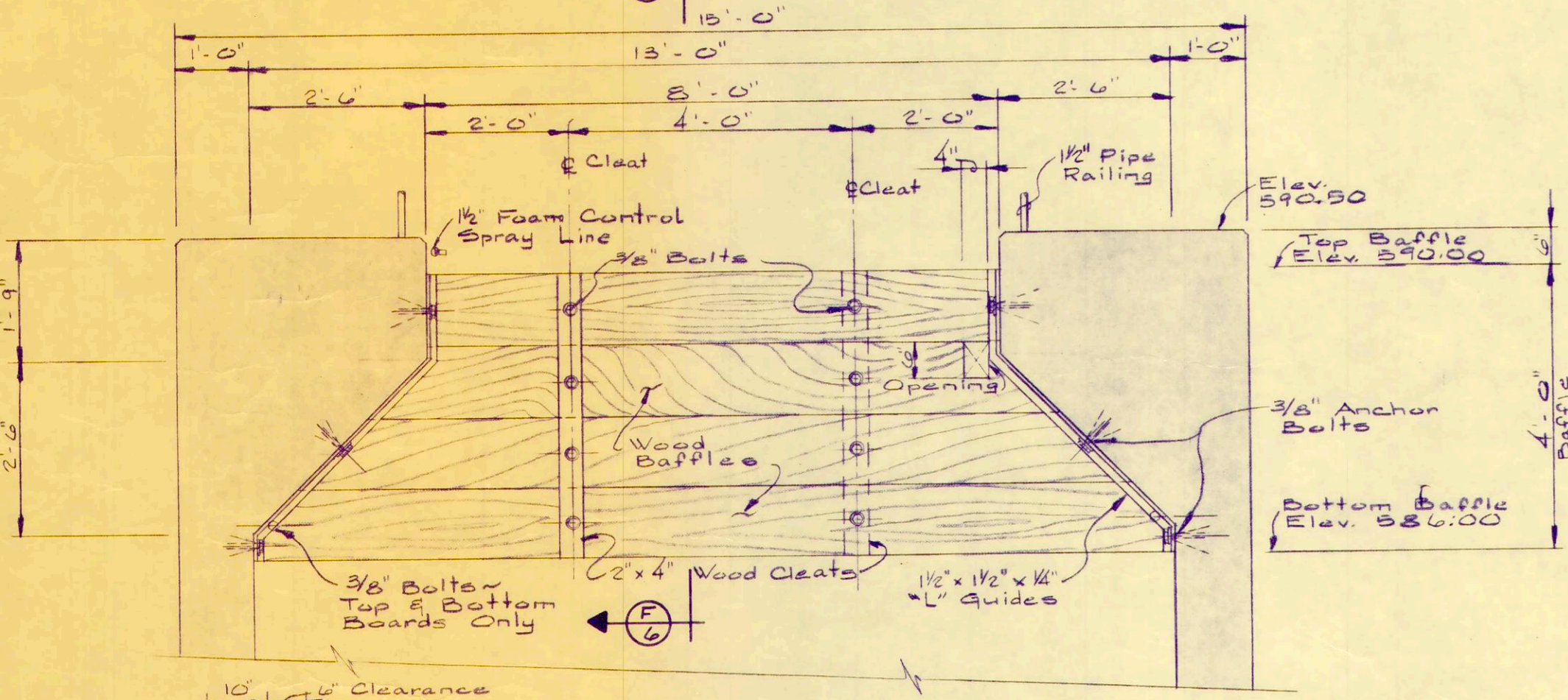
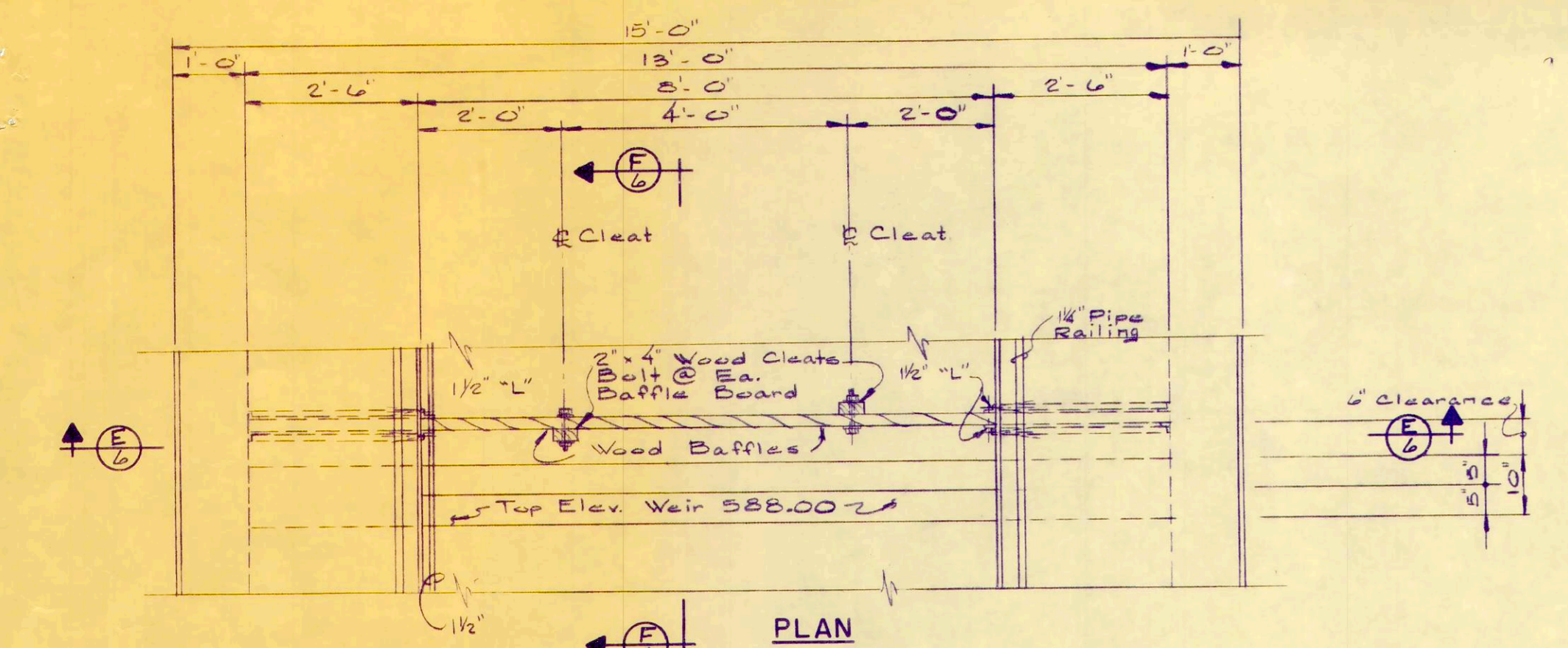
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1/4" = 1'-0"
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R.B.W.
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D.L.C.
CHECKED BY
W.C.K.

AIR DEGRITTING AND
PREAERATION TANK
**WASTEWATER TREATMENT
PLANT IMPROVEMENTS**
OAK HARBOR, OHIO

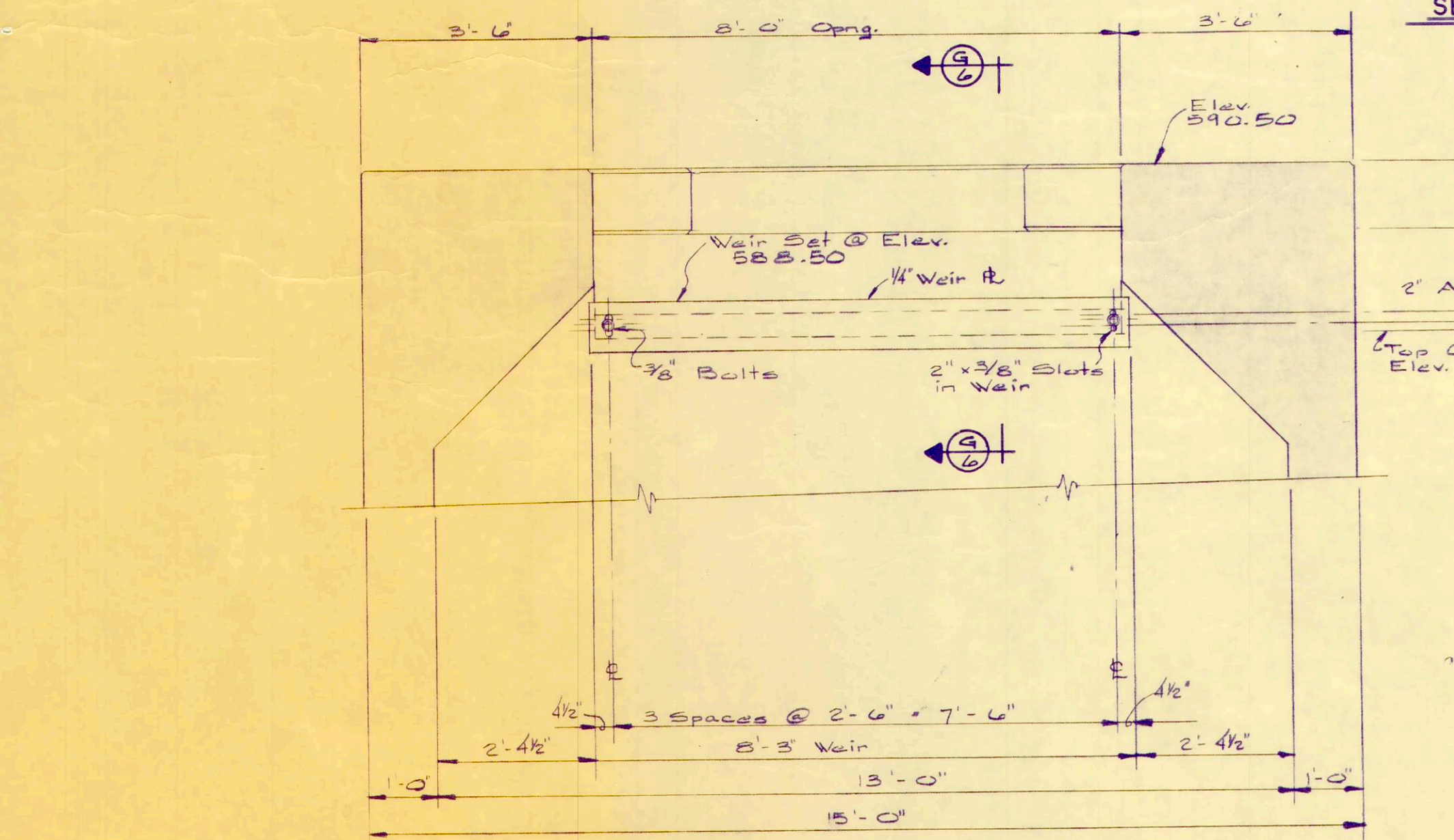
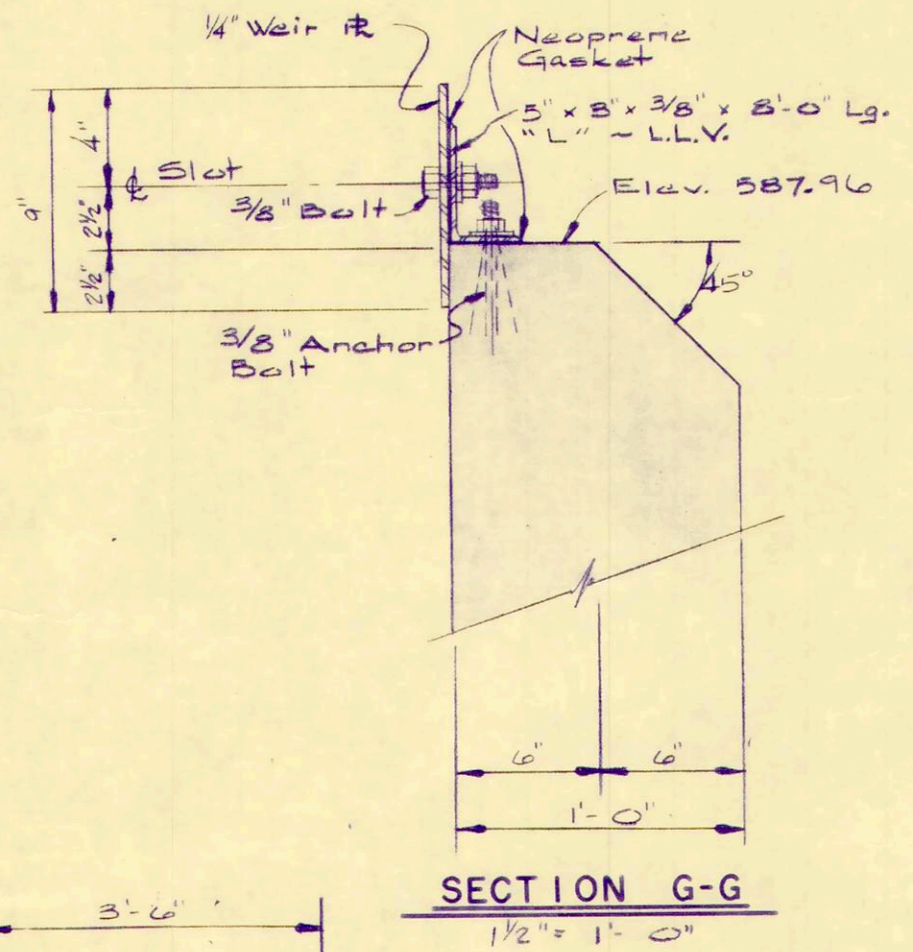
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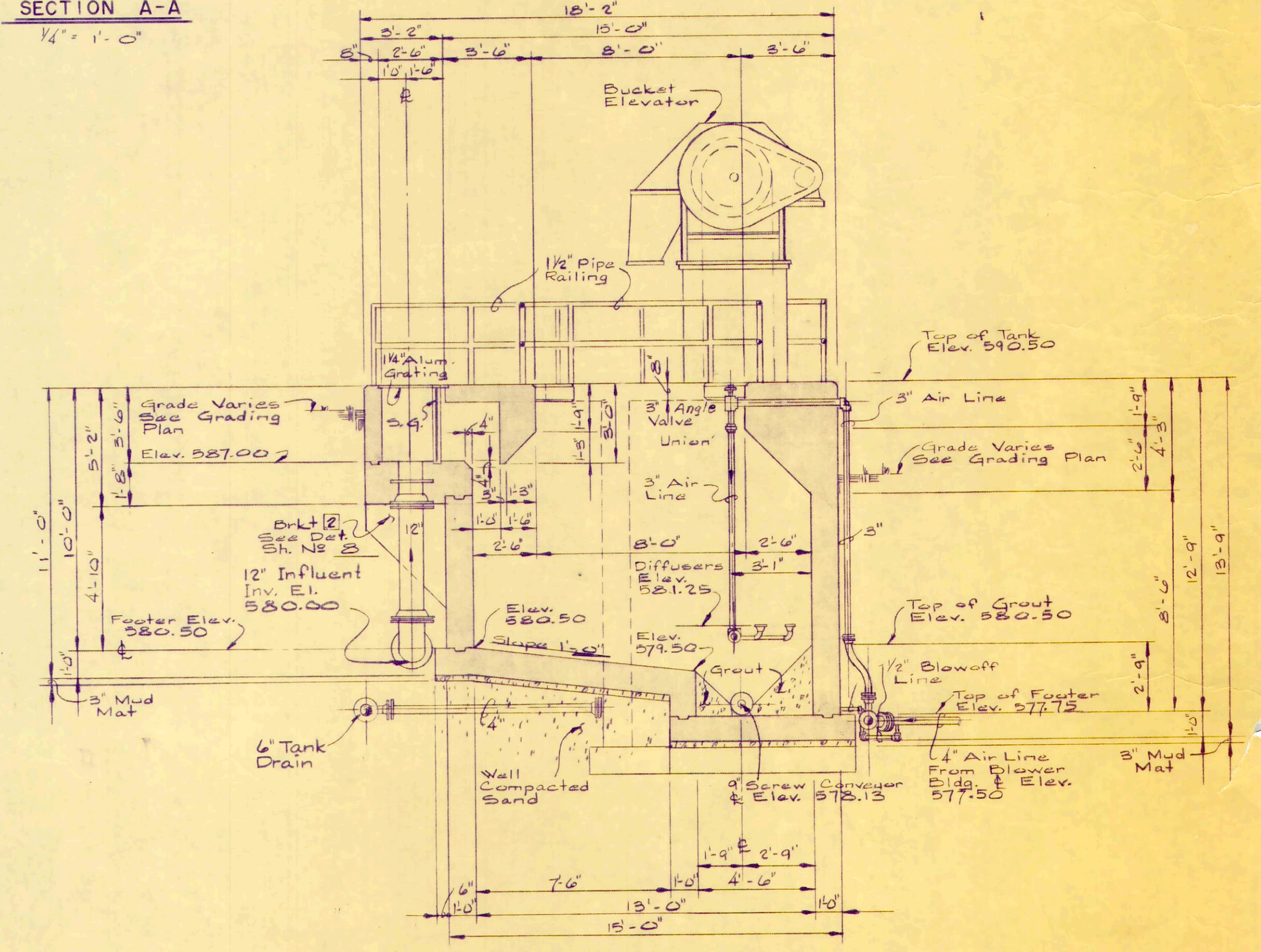
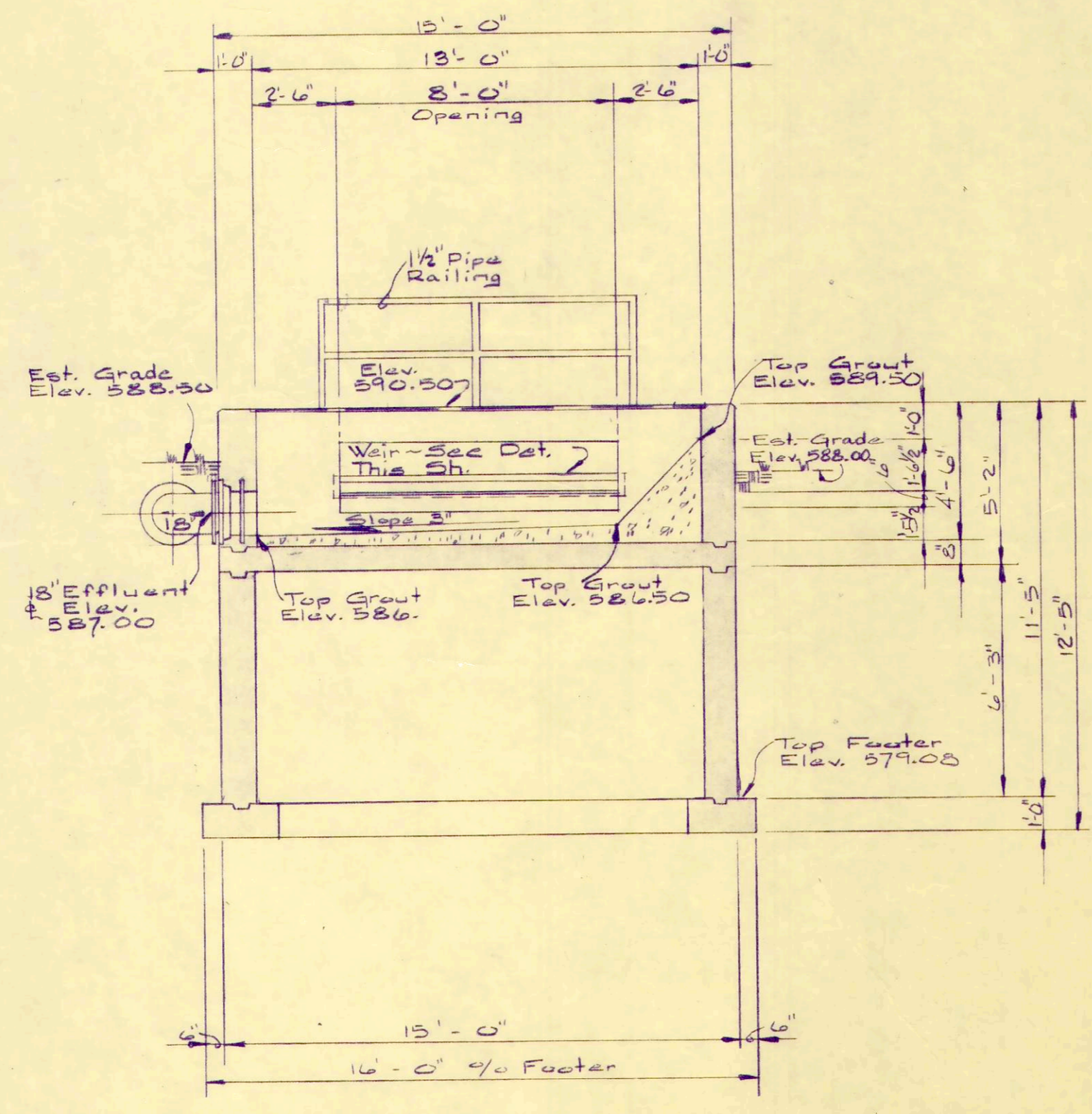
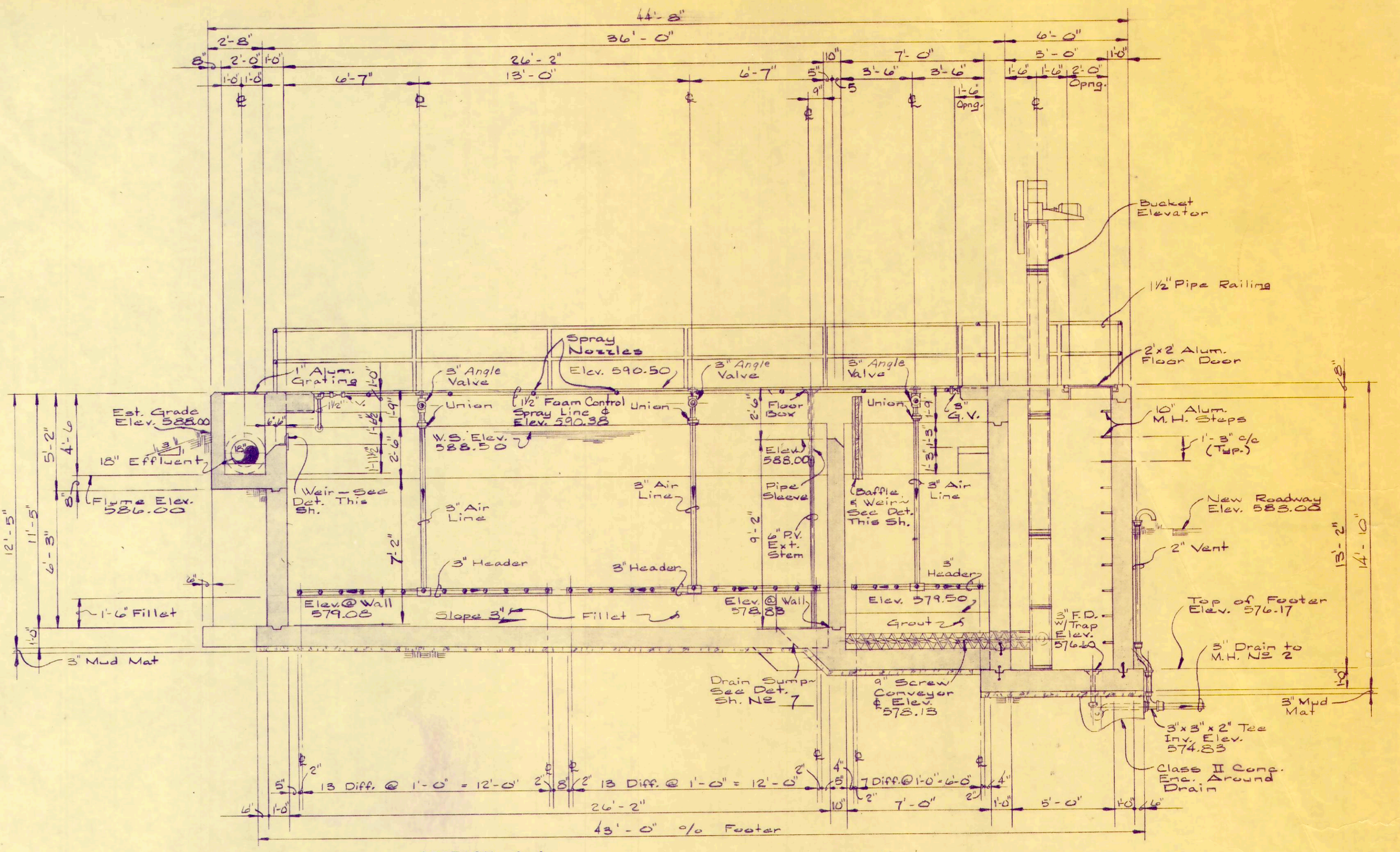
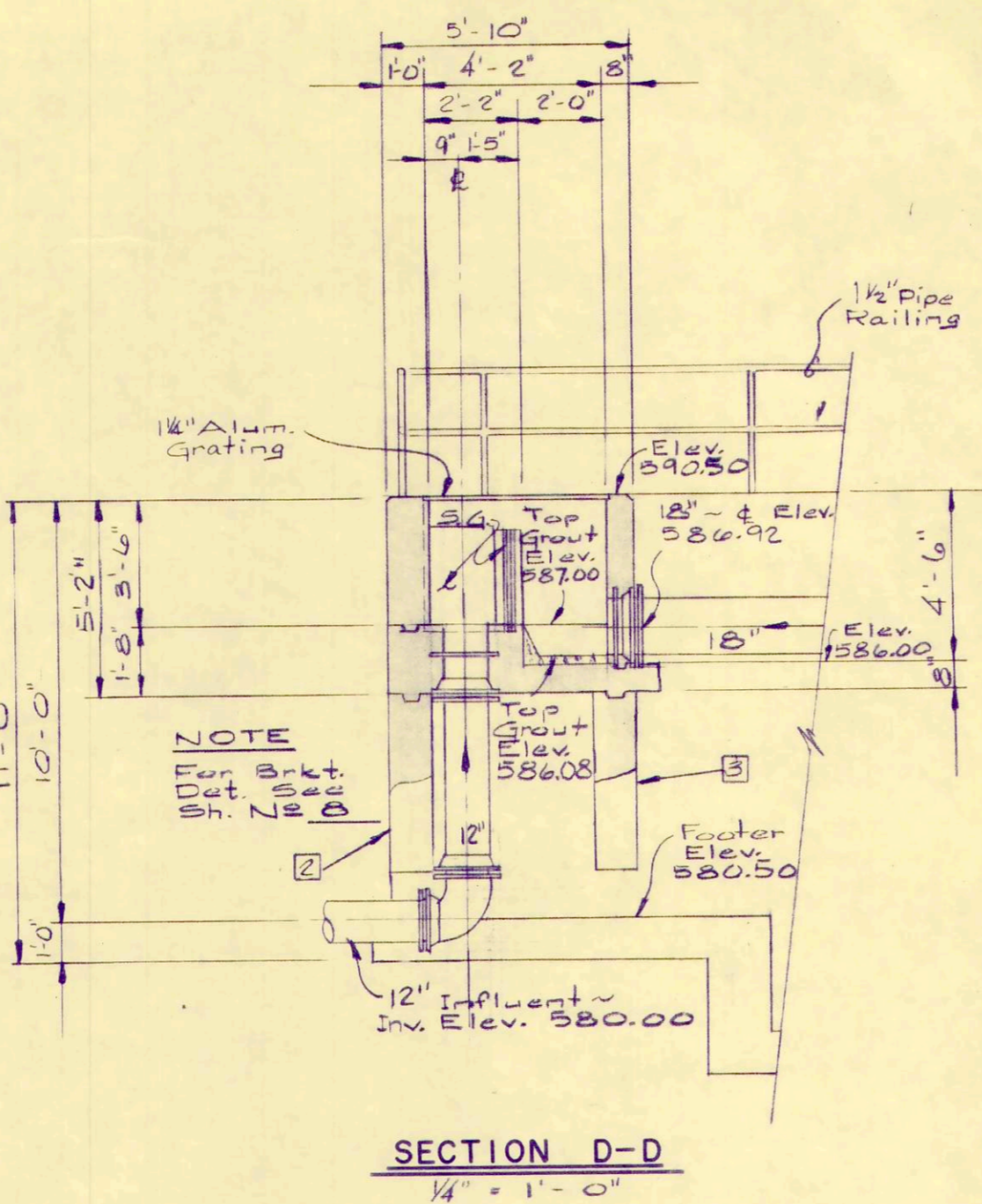
548-1234 • www.usabook.com



WOOD BAFFLE AND CONCRETE WEIR DETAILS
1/2" = 1'-0"



NOTE
All Structural Steel To be Galvanized



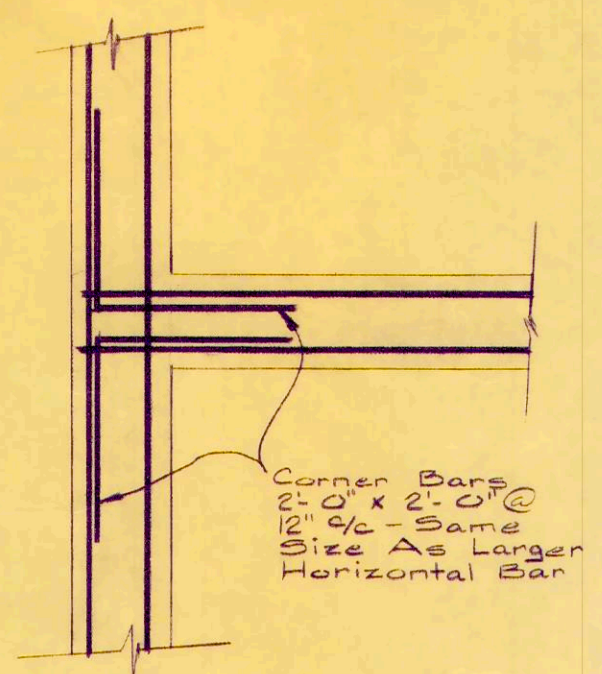
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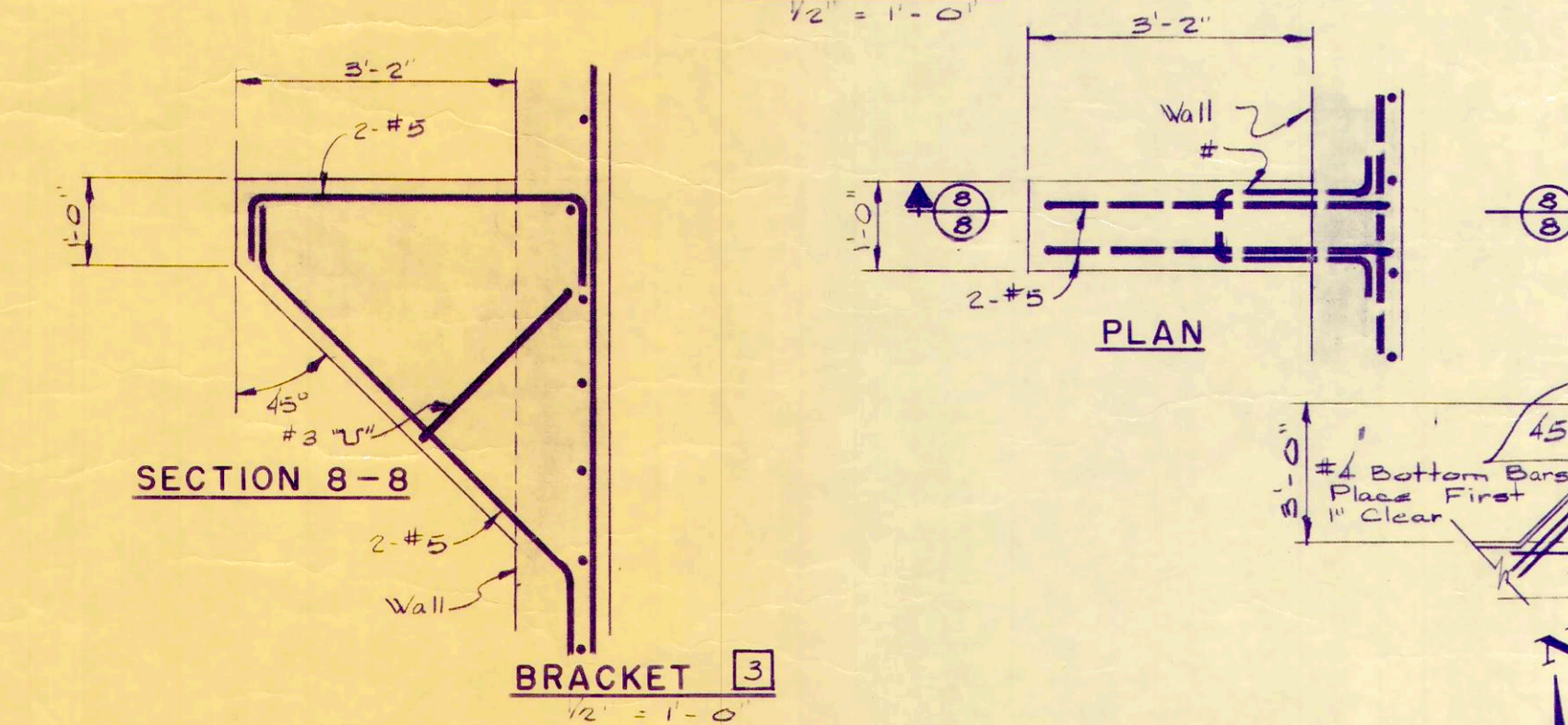
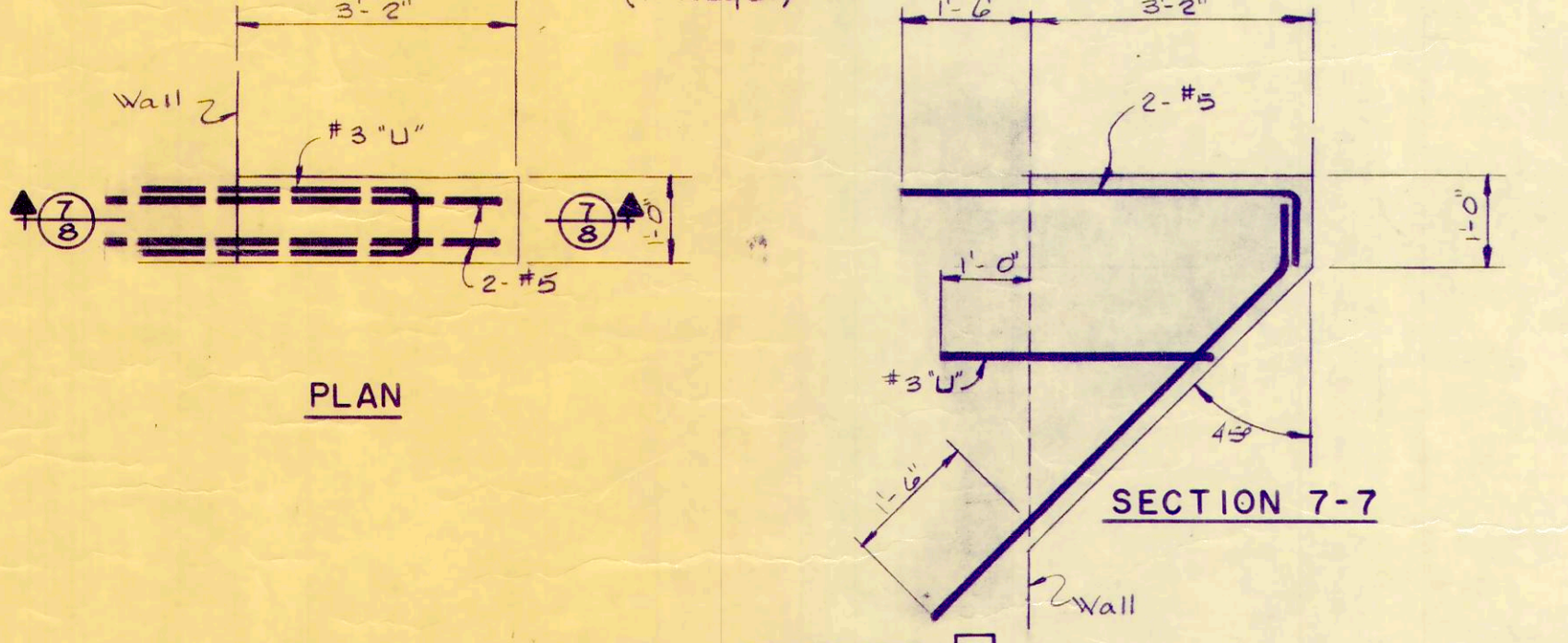
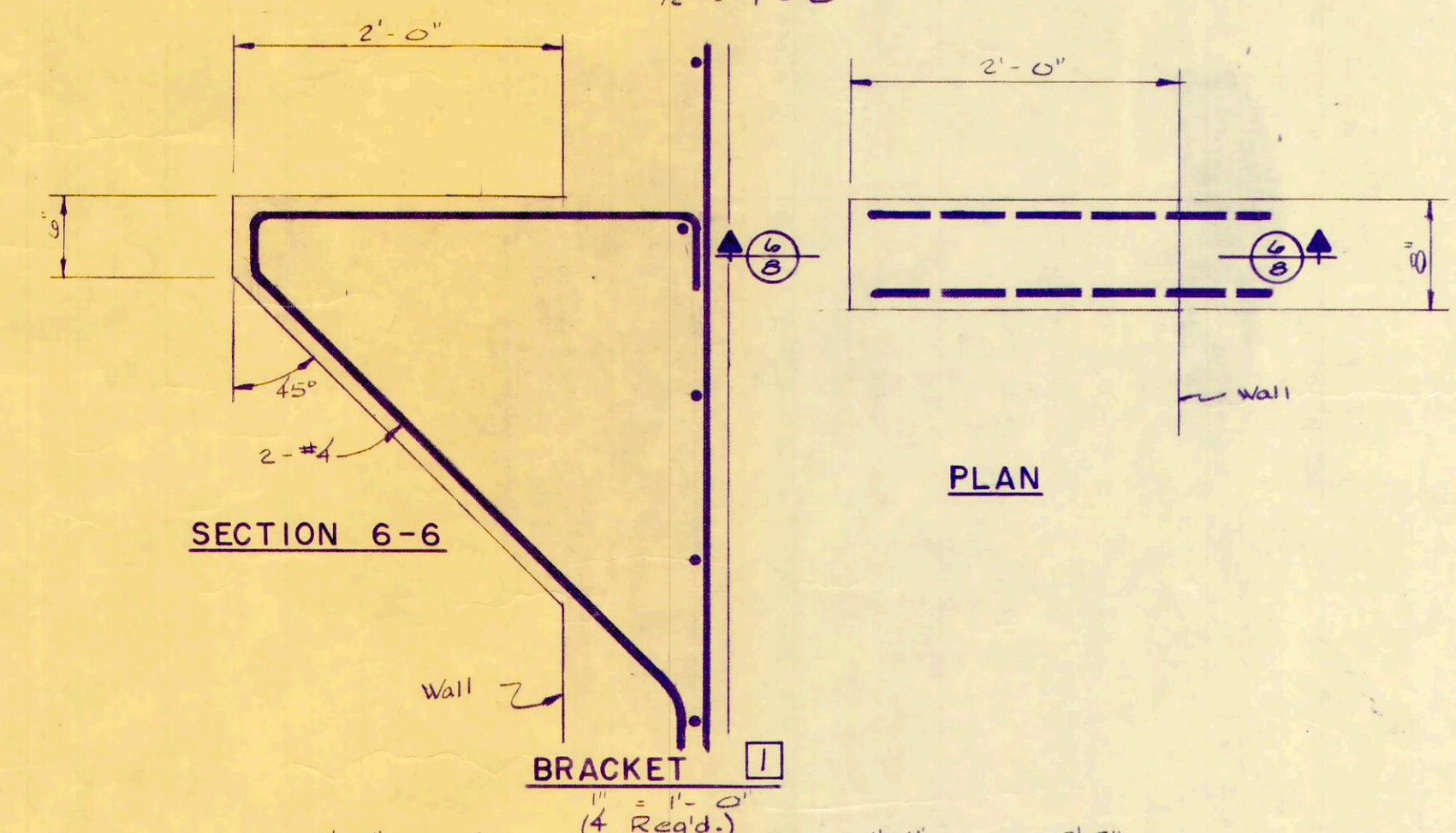
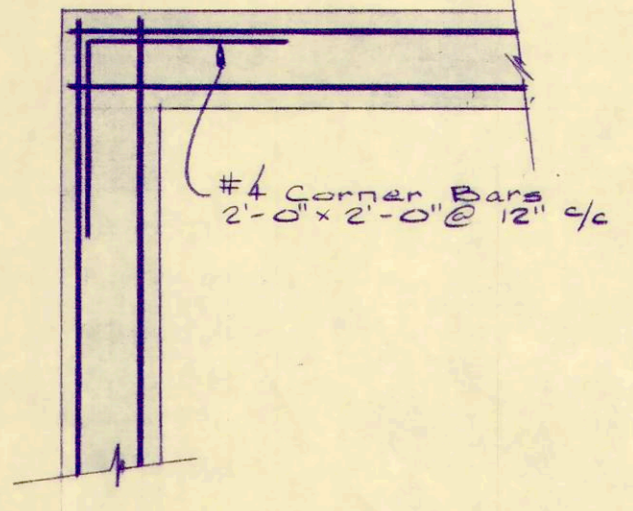
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AIR DEGRITTING AND PREAERATION TANK
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OAK HARBOR, OHIO

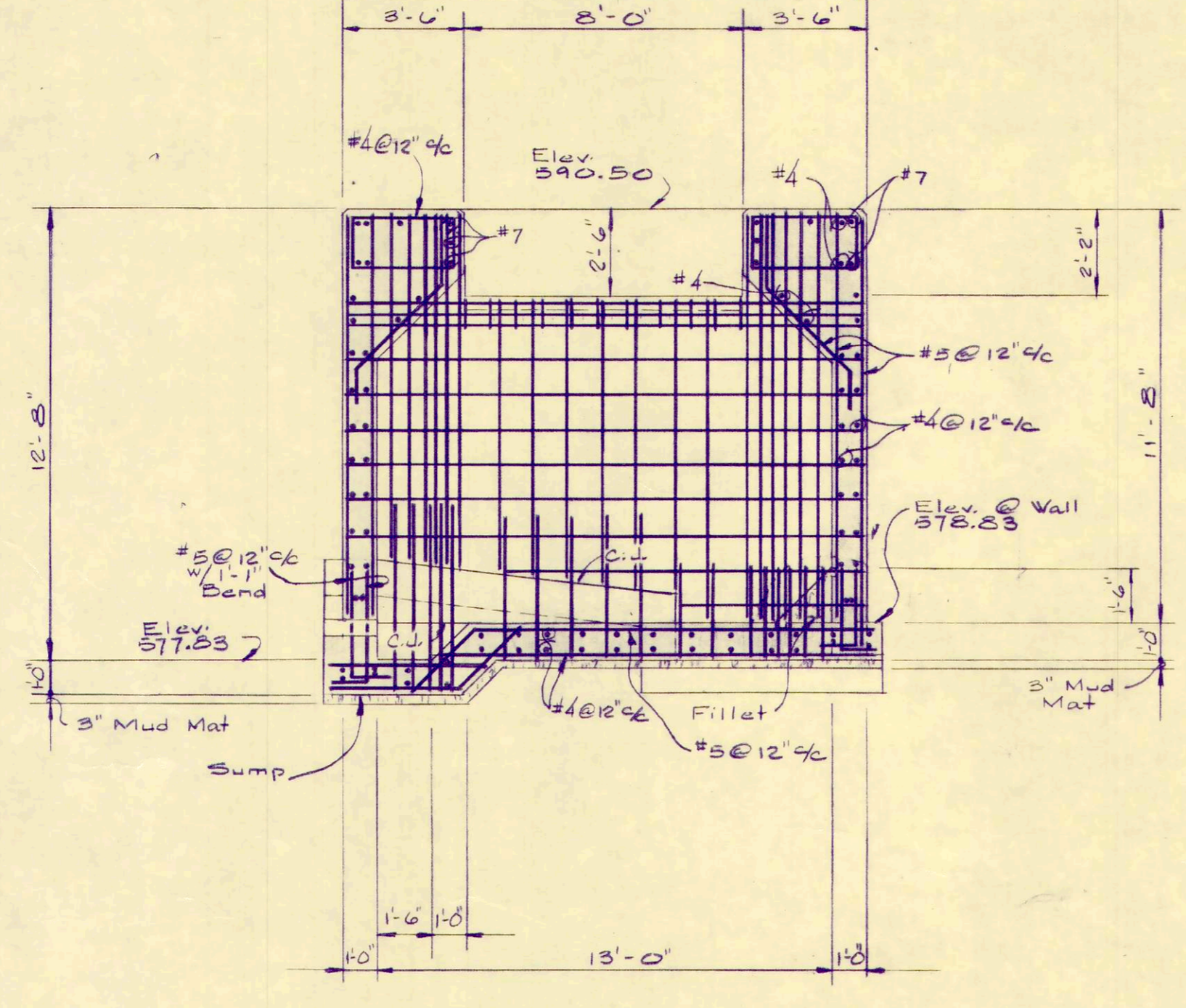
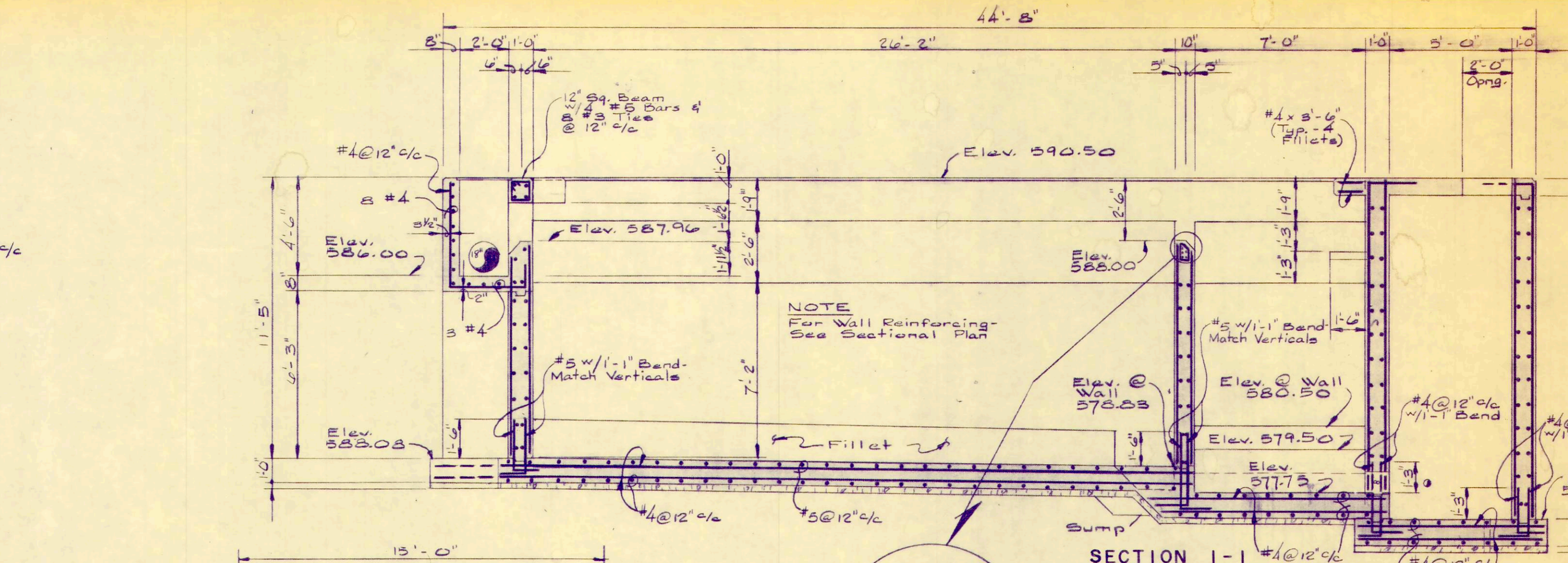
PROJECT
OAKCUT BI
SECTION
DATE
3-71
6 OF 36



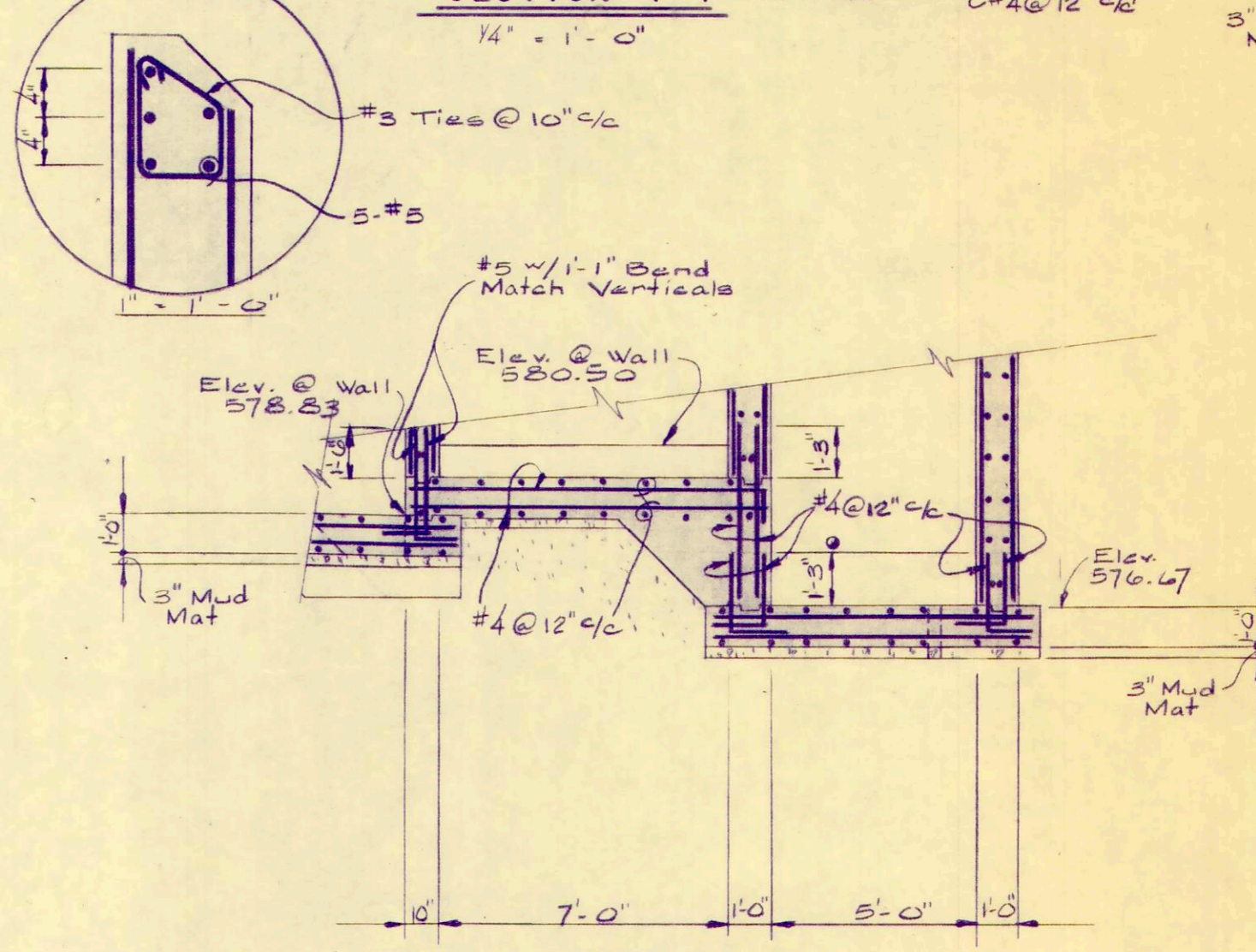
CORNER DETAILS
1/2" = 1'-0"



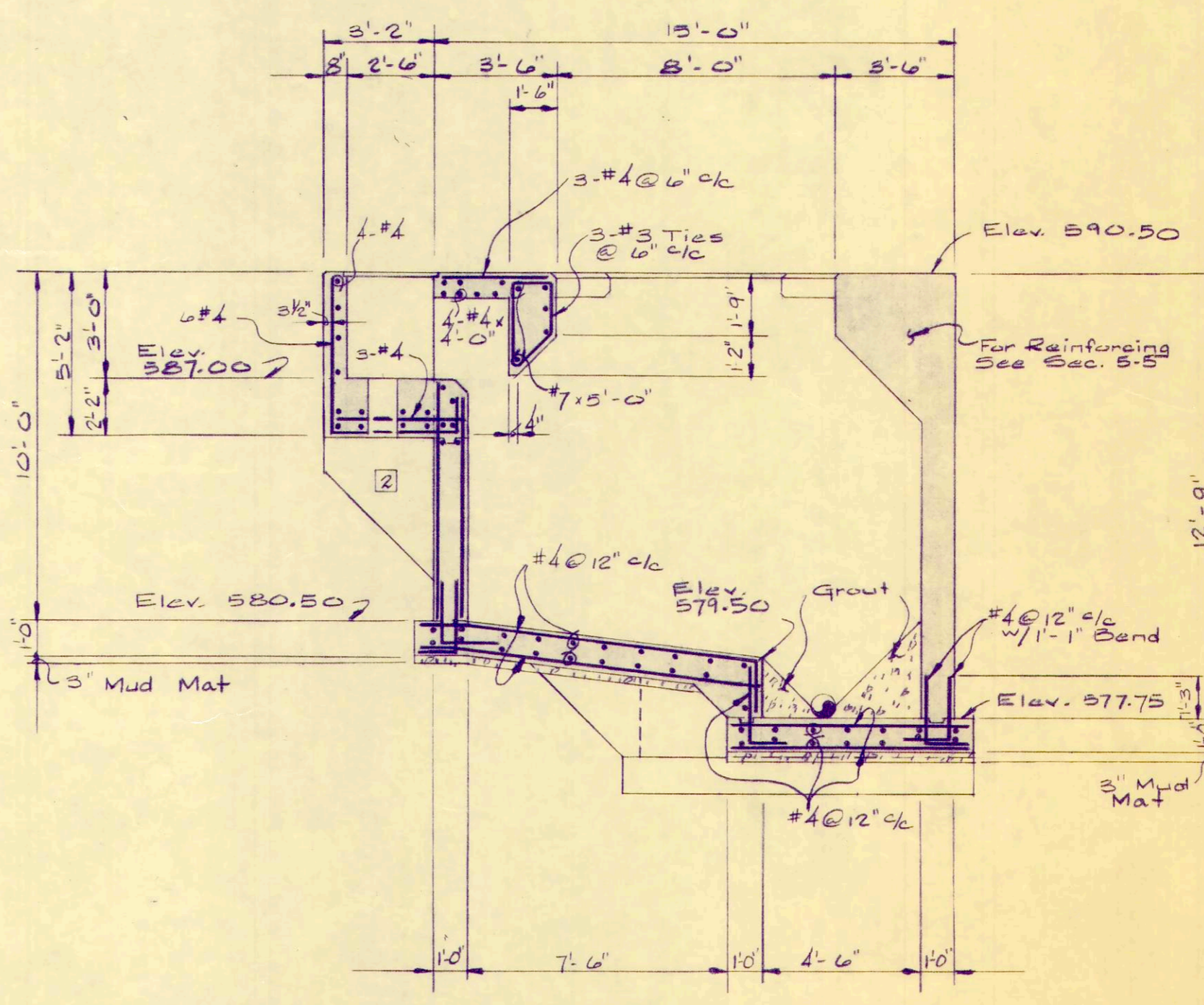
BRACKET DETAILS
As Noted



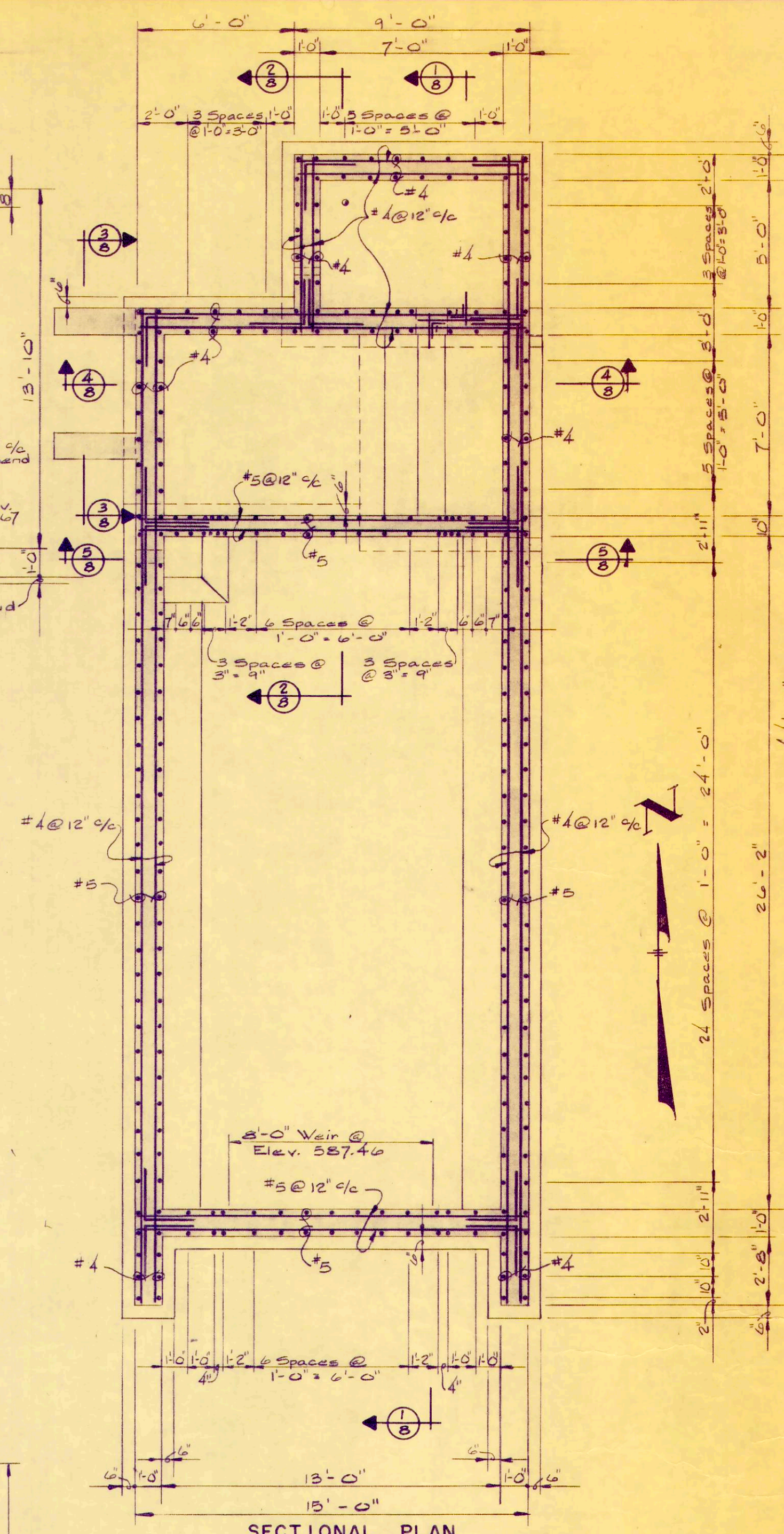
SECTION 5-5
1/4" = 1'-0"



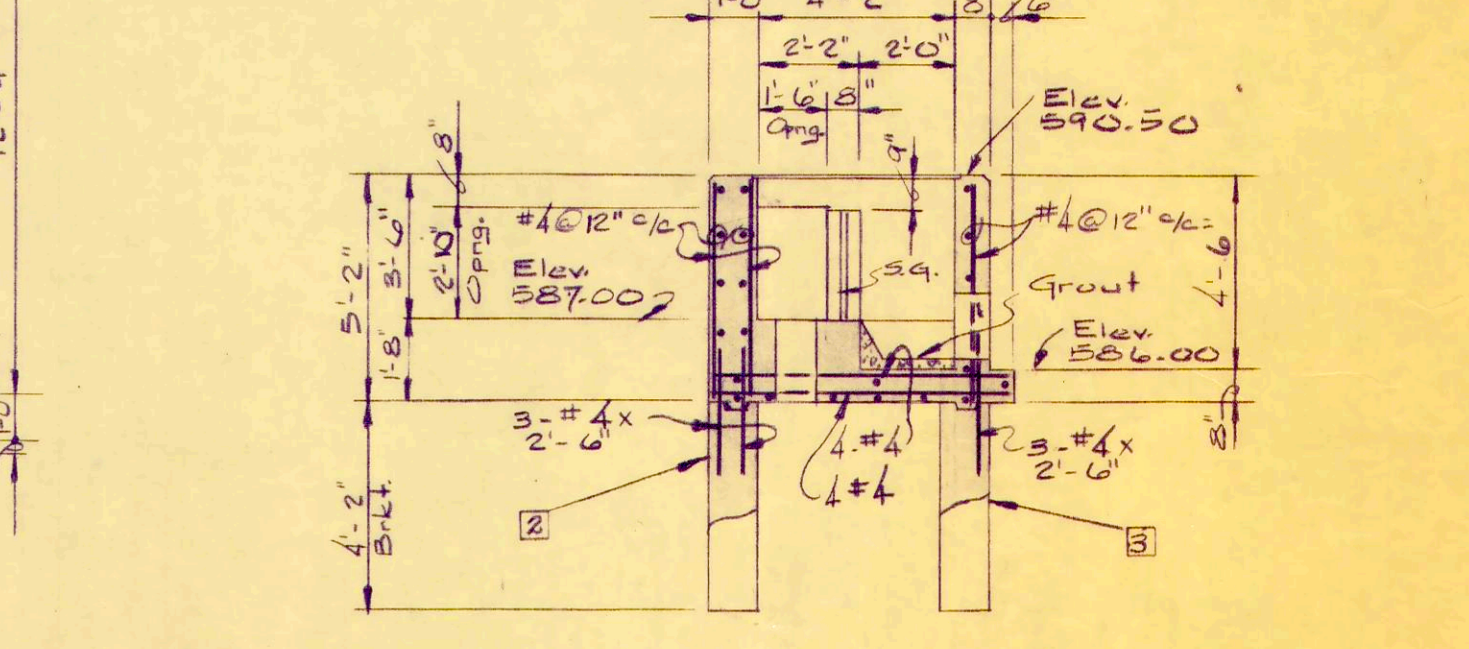
SECTION 2-2
1/4" = 1'-0"



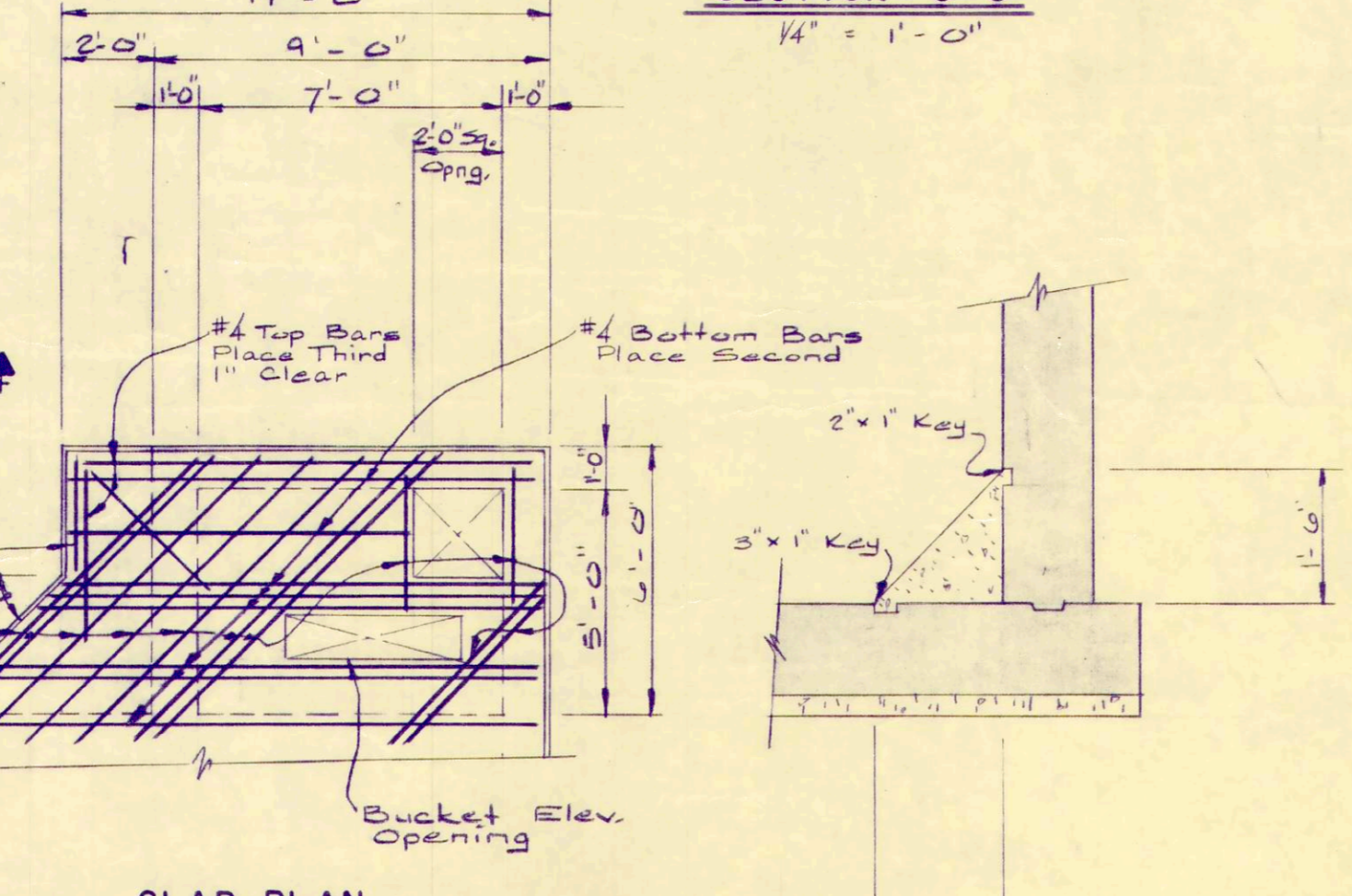
SECTION 4-4
1/4" = 1'-0"



SECTIONAL PLAN
1/4" = 1'-0"



SECTION 3-3
1/4" = 1'-0"



SLAB PLAN AT BUCKET ELEVATOR
1/4" = 1'-0"

FILLET DETAILS
1/2" = 1'-0"

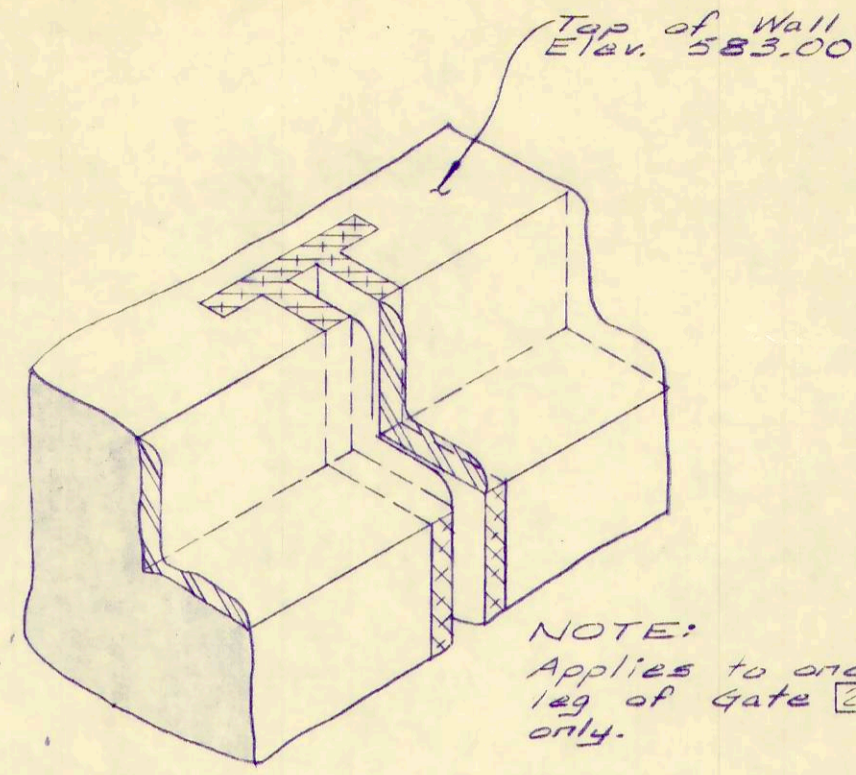
REV. NO.	DESCRIPTION	DATE	BY	APPD

FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO

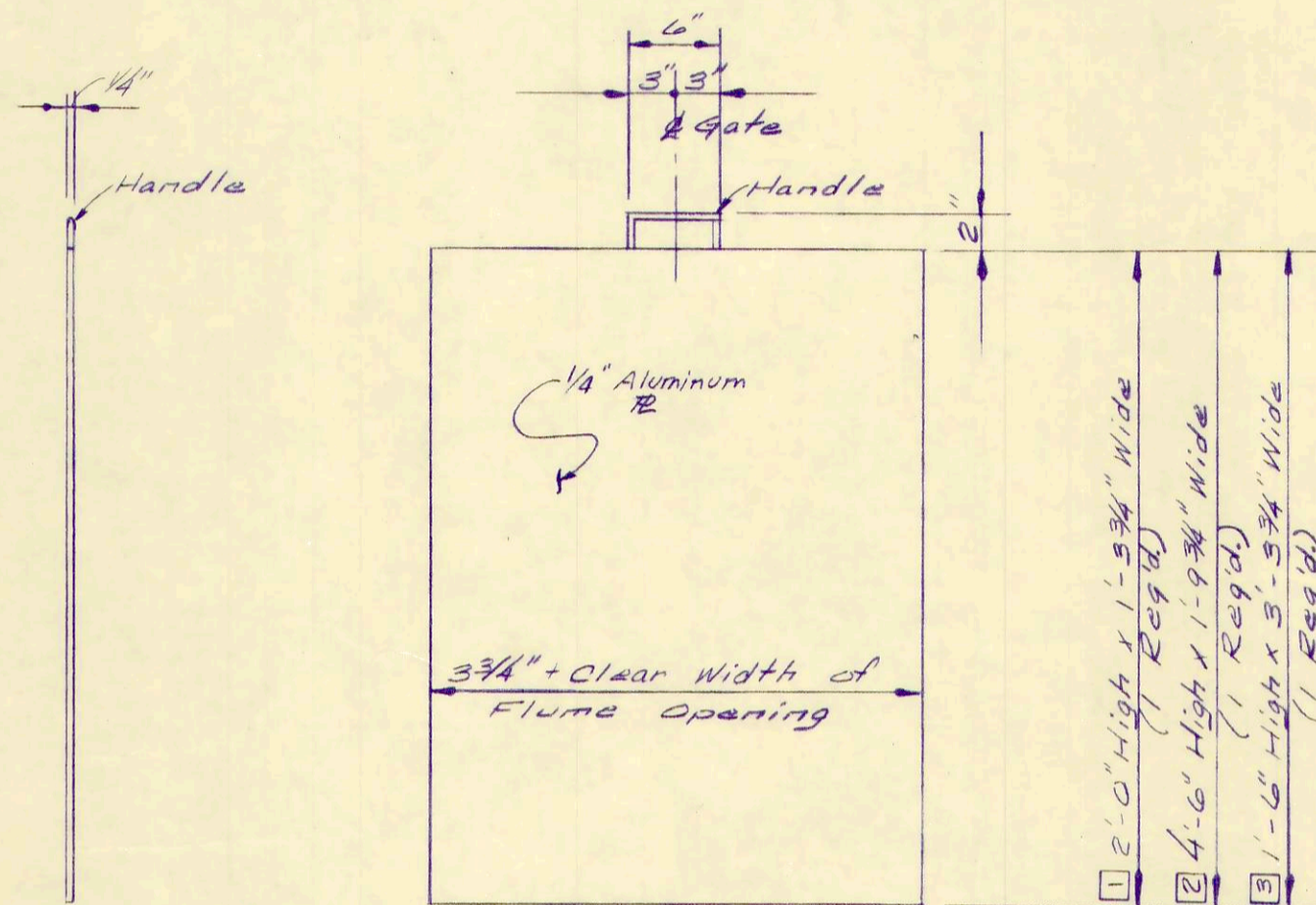
SCALE
As Noted
DESIGNED BY
R.B.W.
DRAWN BY
D.L.C.
CHECKED BY
W.C.K.

AIR DEGRITTING AND
PREAERATION TANK REINFORCING
**WASTEWATER TREATMENT
PLANT IMPROVEMENTS**
OAK HARBOR, OHIO

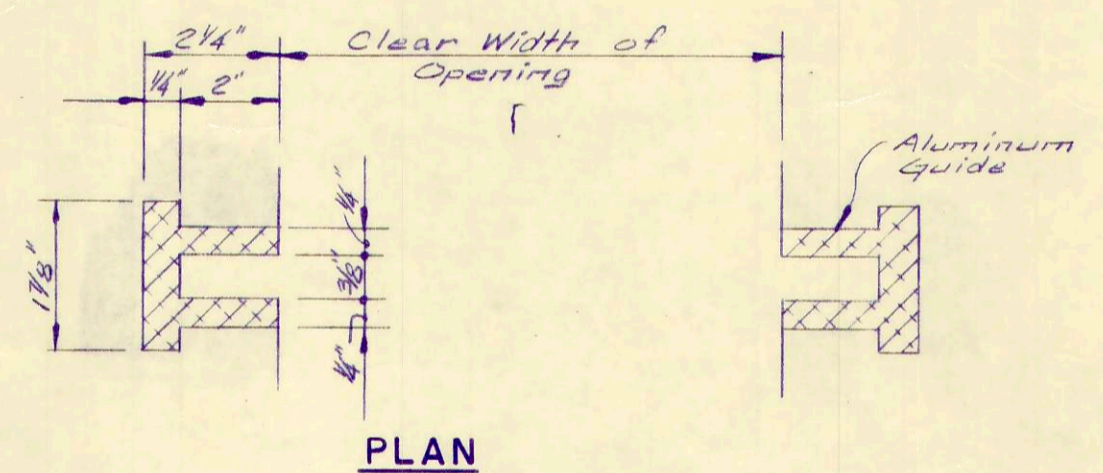
PROJECT NO.
OAKS001
SECTION
DATE
3-71
8 OF



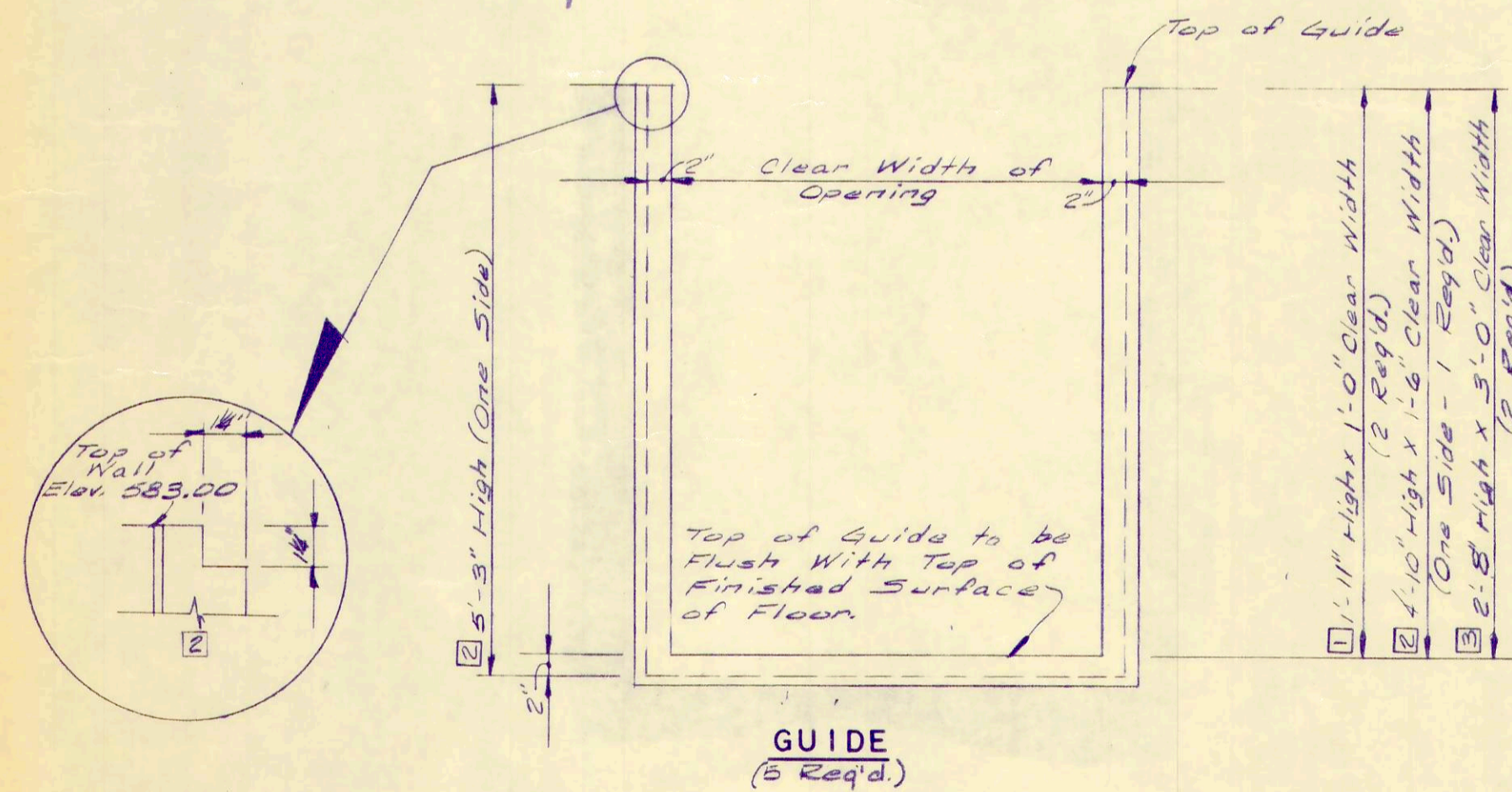
**GRATING ANGLE SUPPORT
DETAIL AT GUIDE**



GATE
(3 Req'd)

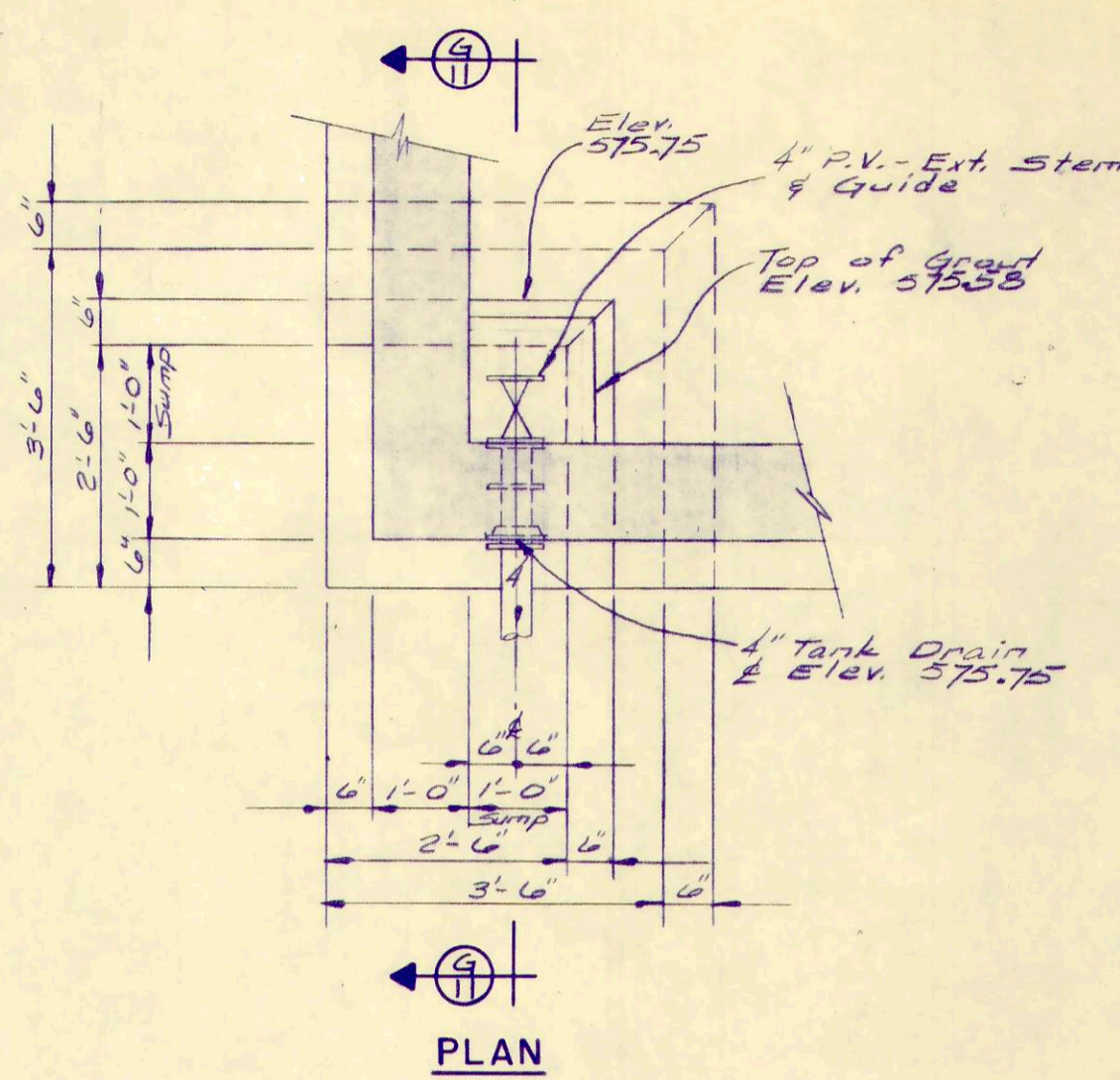


PLAN

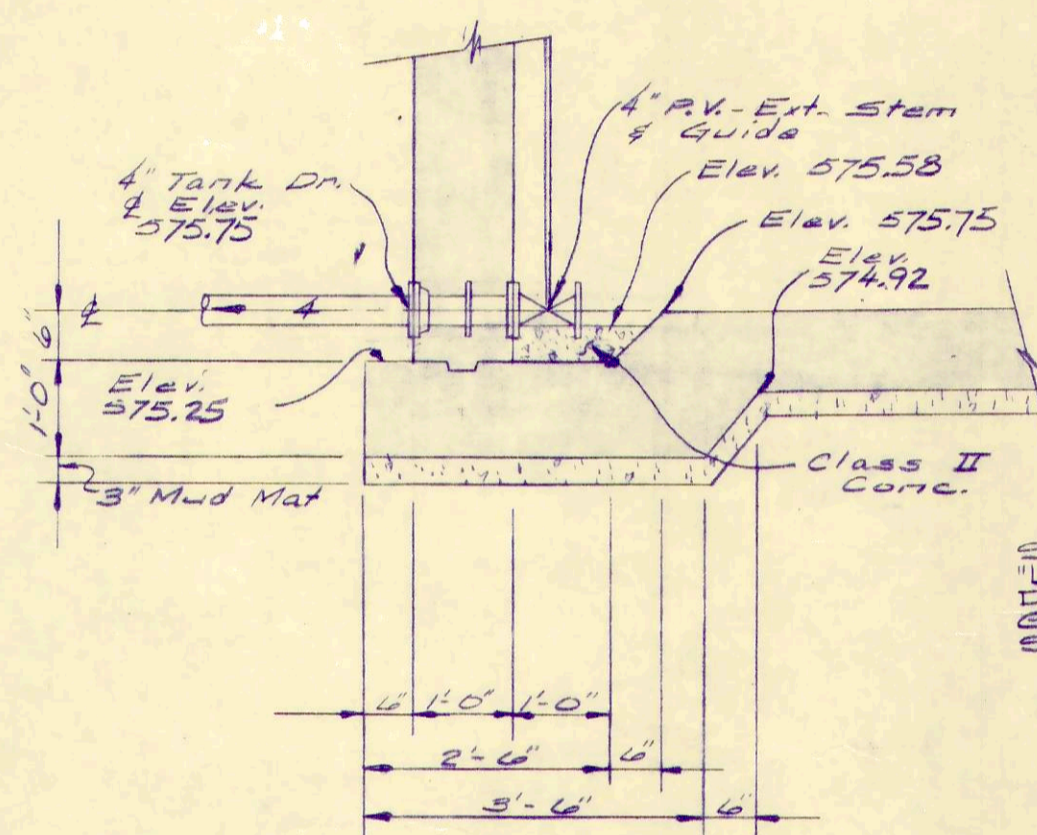


GUIDE
(5 Req'd)

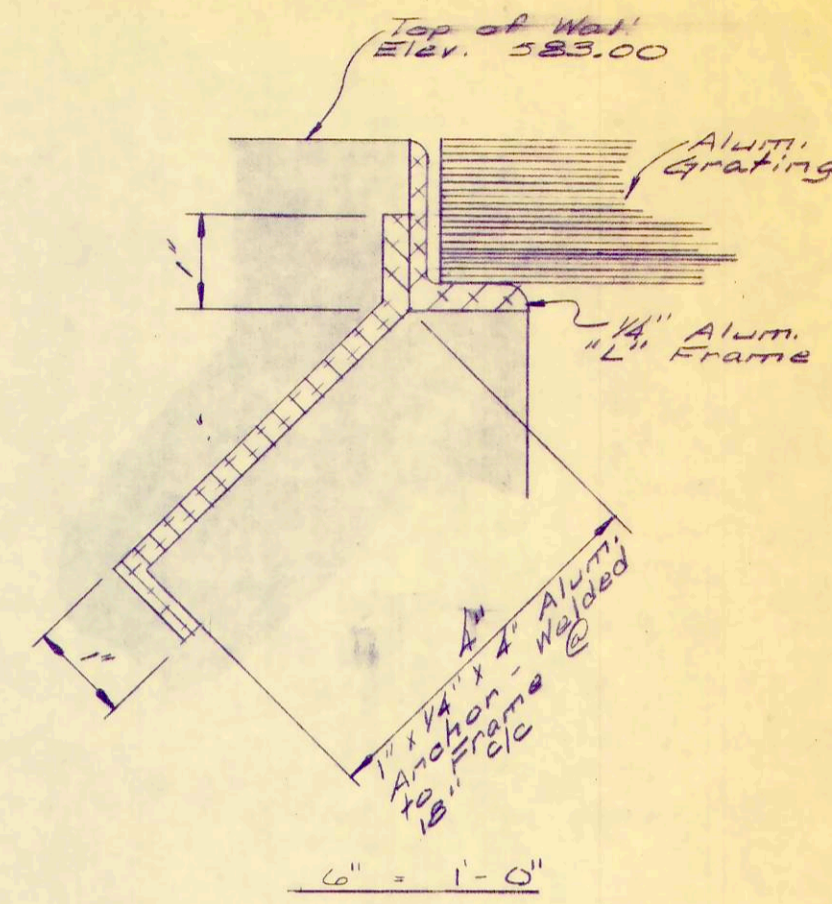
STOP GATE DETAILS
No Scale



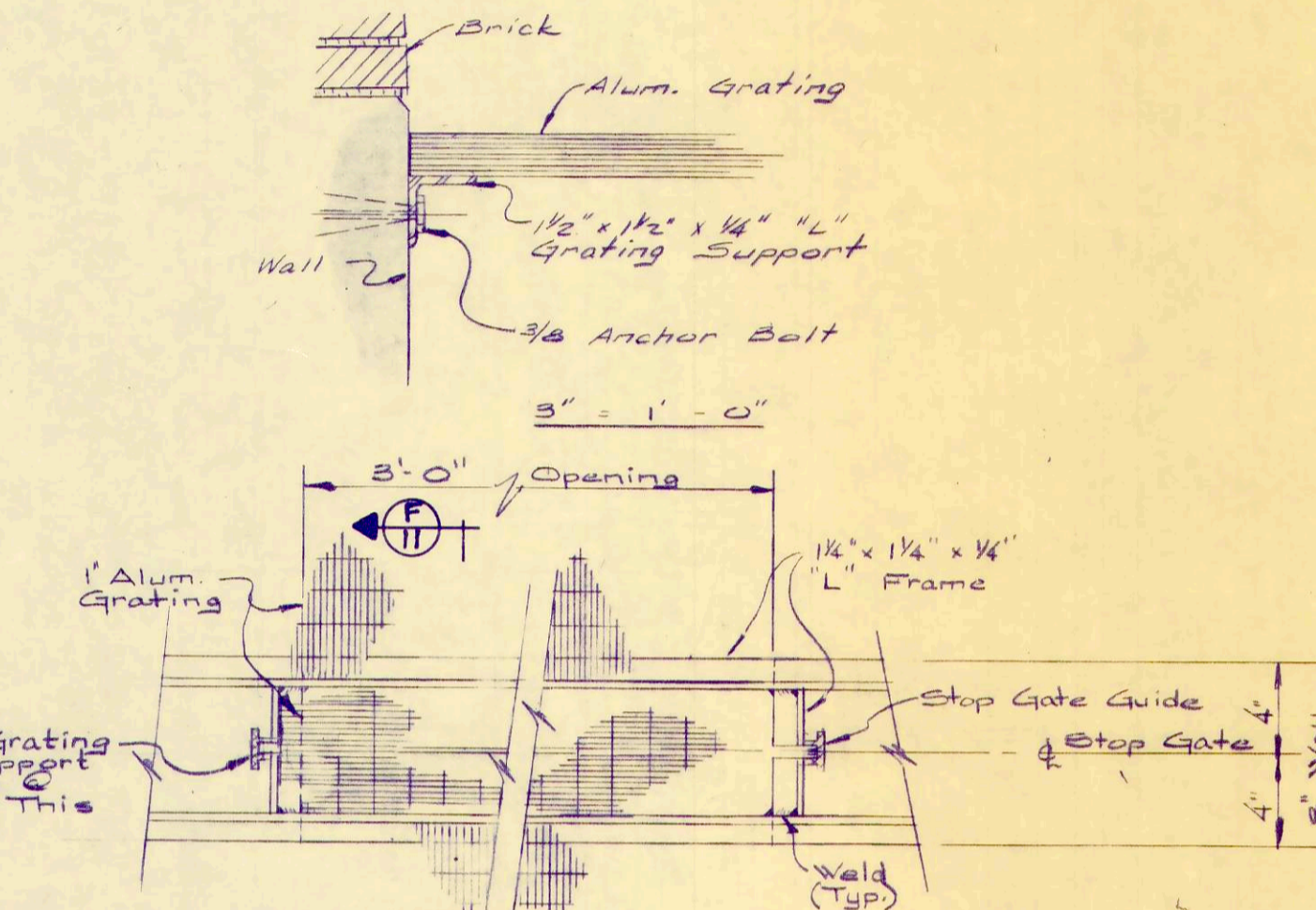
PLAN



SECTION G - G
SUMP DETAILS
1/2" = 1'-0"



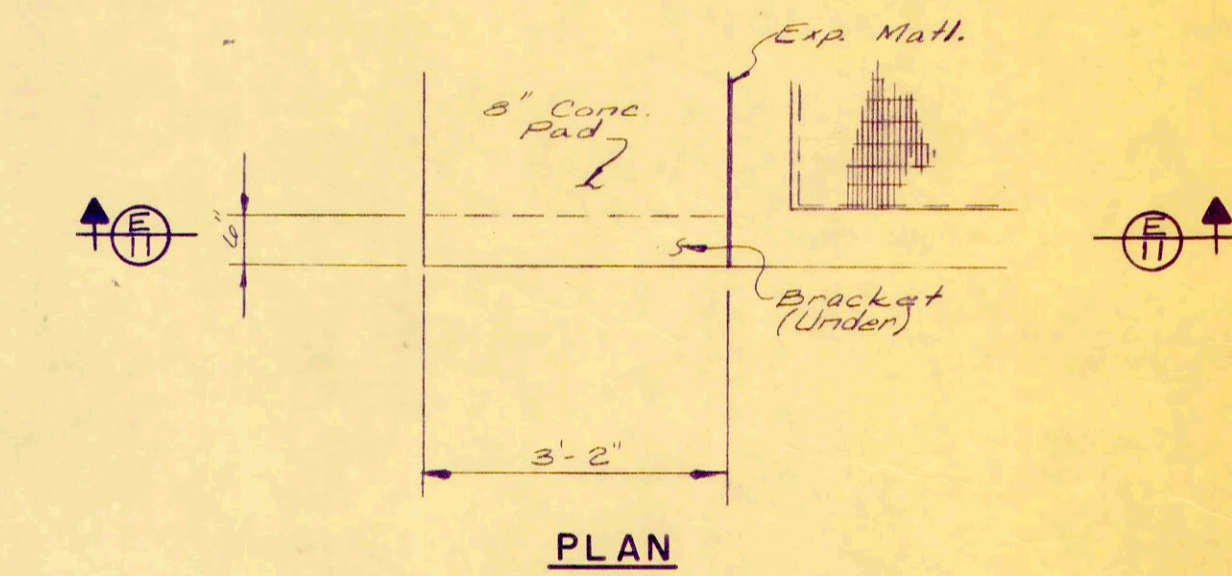
ELEVATION



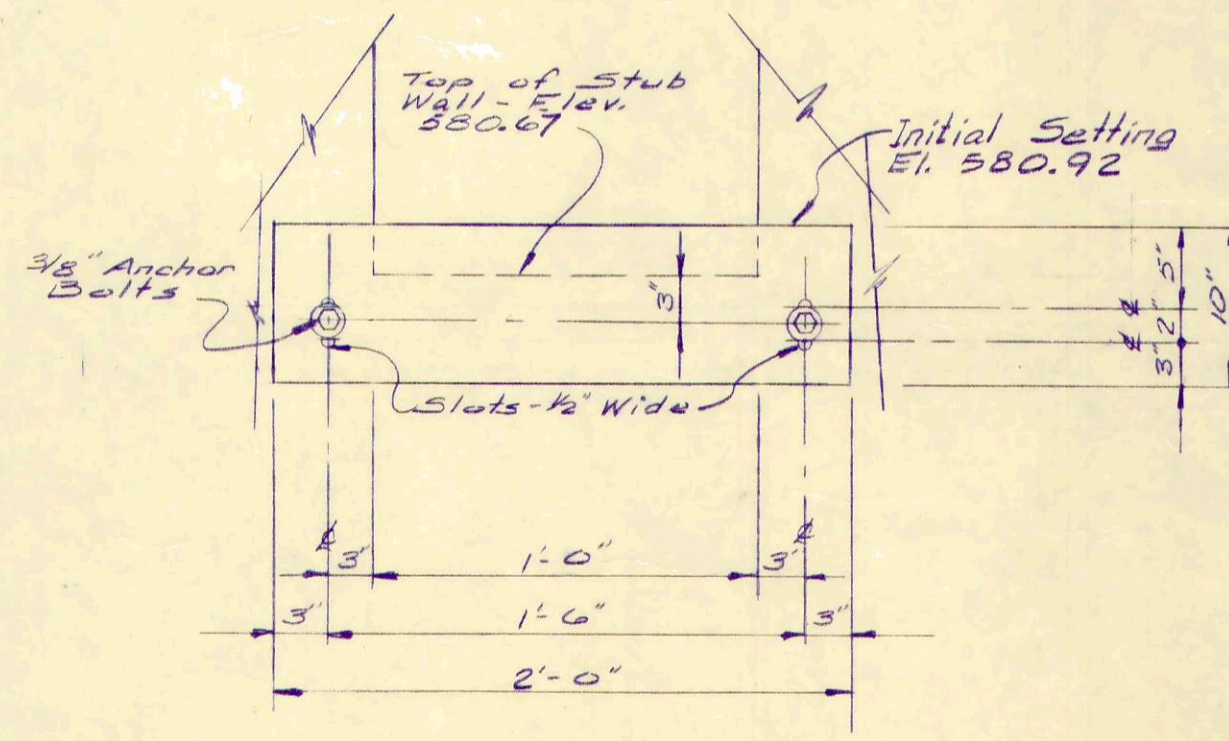
NOTE:
Typ For S.G. 3

PLAN
1/2" = 1'-0"

SECTION F - F
GRATING ANCHORING DETAILS
As Noted

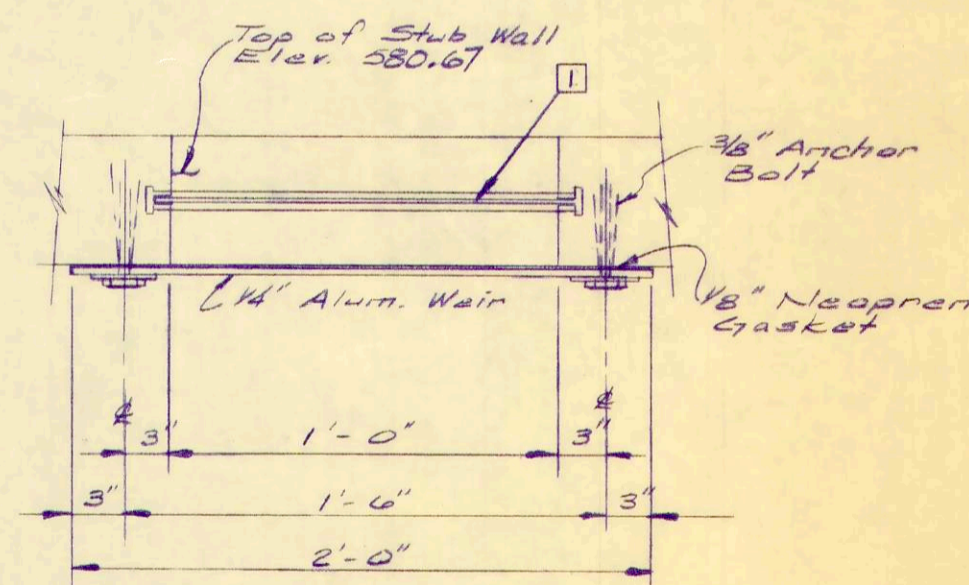


PLAN

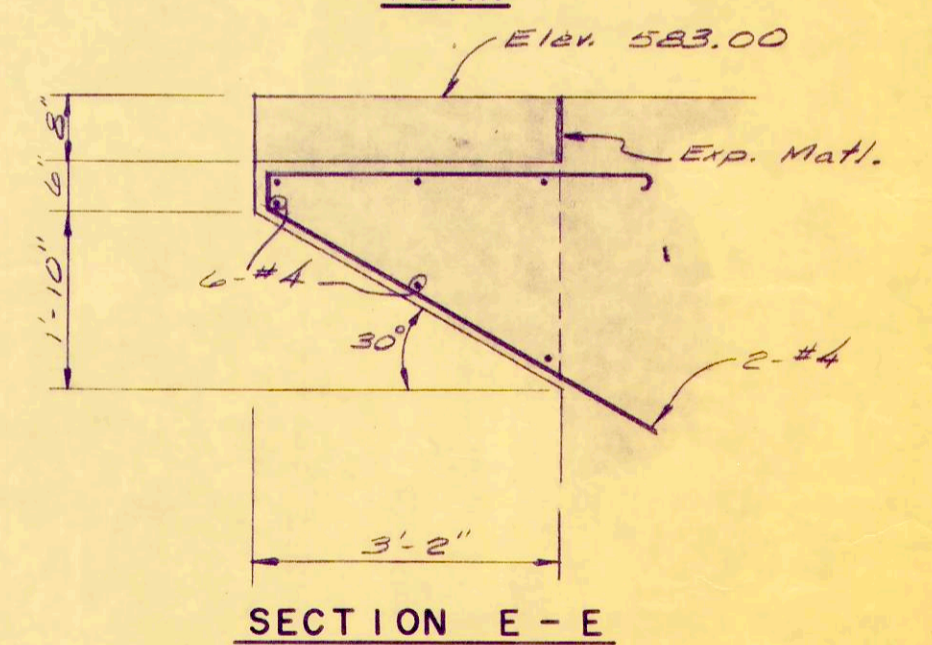


ELEVATION

WEIR DETAILS
(2 Req'd)
No Scale



PLAN



SECTION E - E

BRACKET DETAILS AT ENTRANCE
1/2" = 1'-0"

NOTE:
All Aluminum Surfaces in Contact With Concrete to be Painted With a Bitumastic Paint.

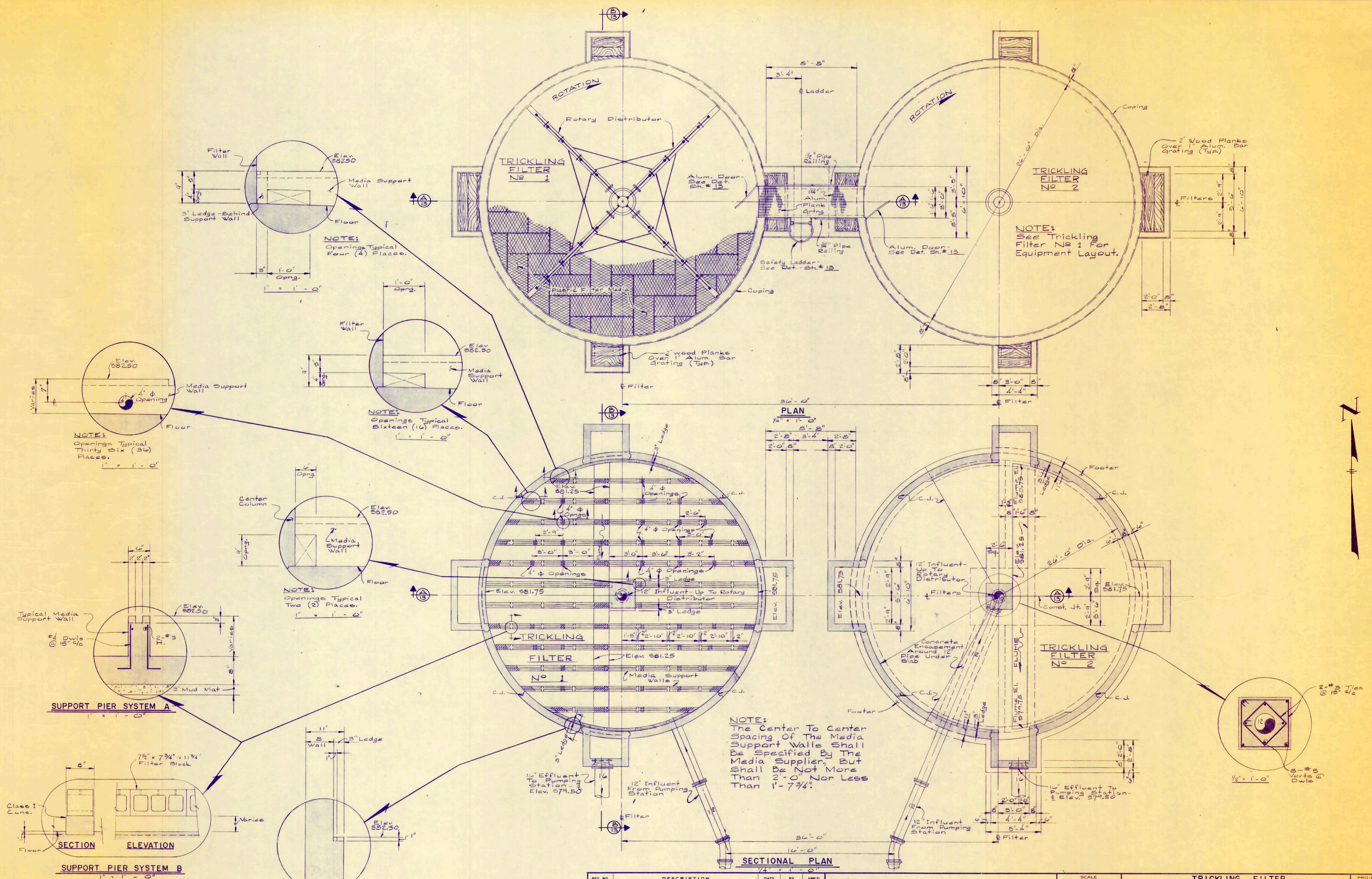
REV. NO.	DESCRIPTION	DATE	BY	APP'D

**FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO**

SCALE
As Noted
DESIGNED BY
R.B.W.
DRAWN BY
P.L.C.
CHECKED BY
W.C.K.

PUMPING STATION
**WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO**

PROJECT NUM
OAKSOOI
SECTION
DATE
3-71
11 OF 3



NOTE: The Center To Center Spacing Of The Media Support Walls Shall Be Specified By The Media Supplier, But Shall Be Not More Than 2'-0" Nor Less Than 1'-7 3/4"

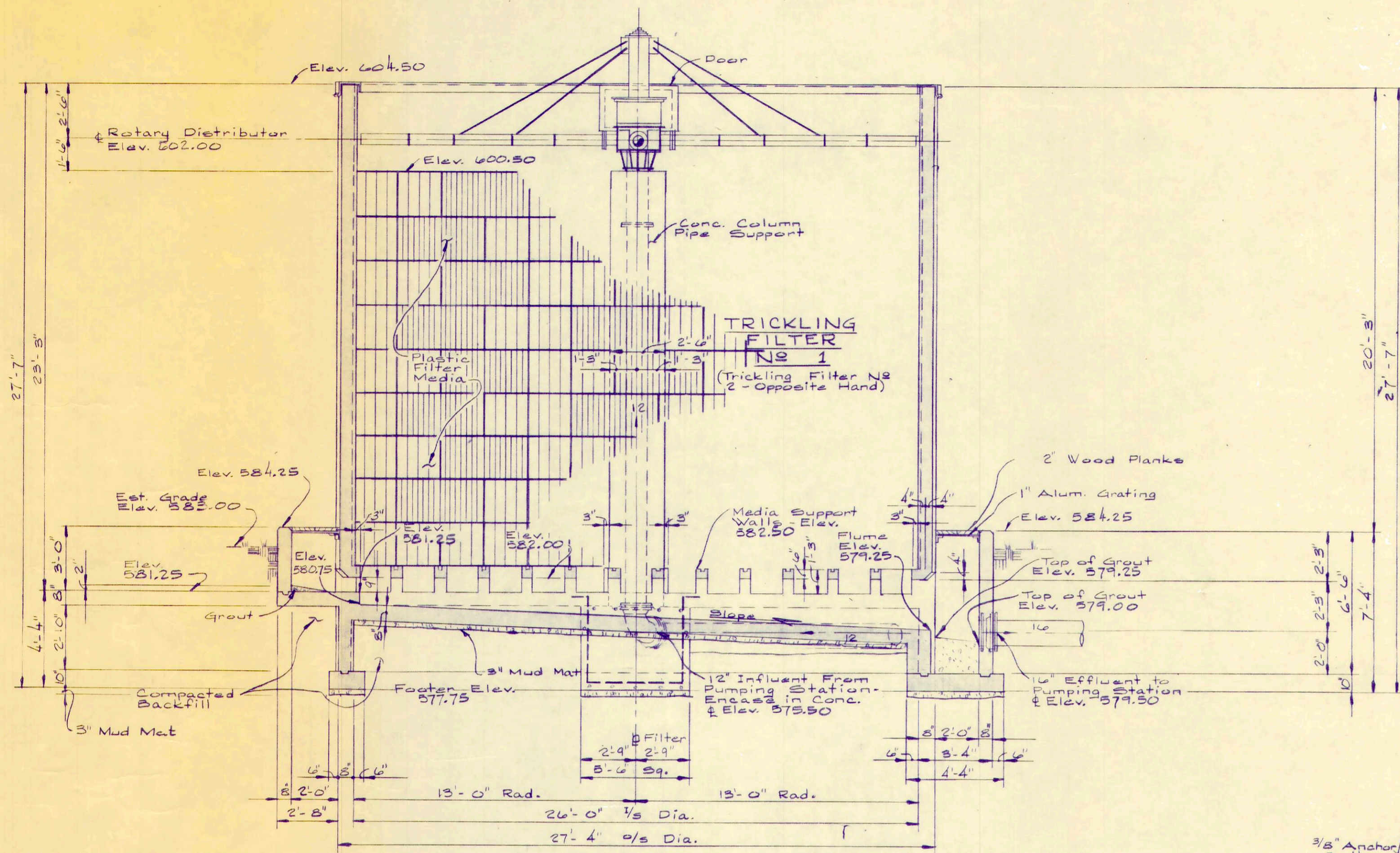
REV. NO.	DESCRIPTION	DATE	BY	APPD

FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO

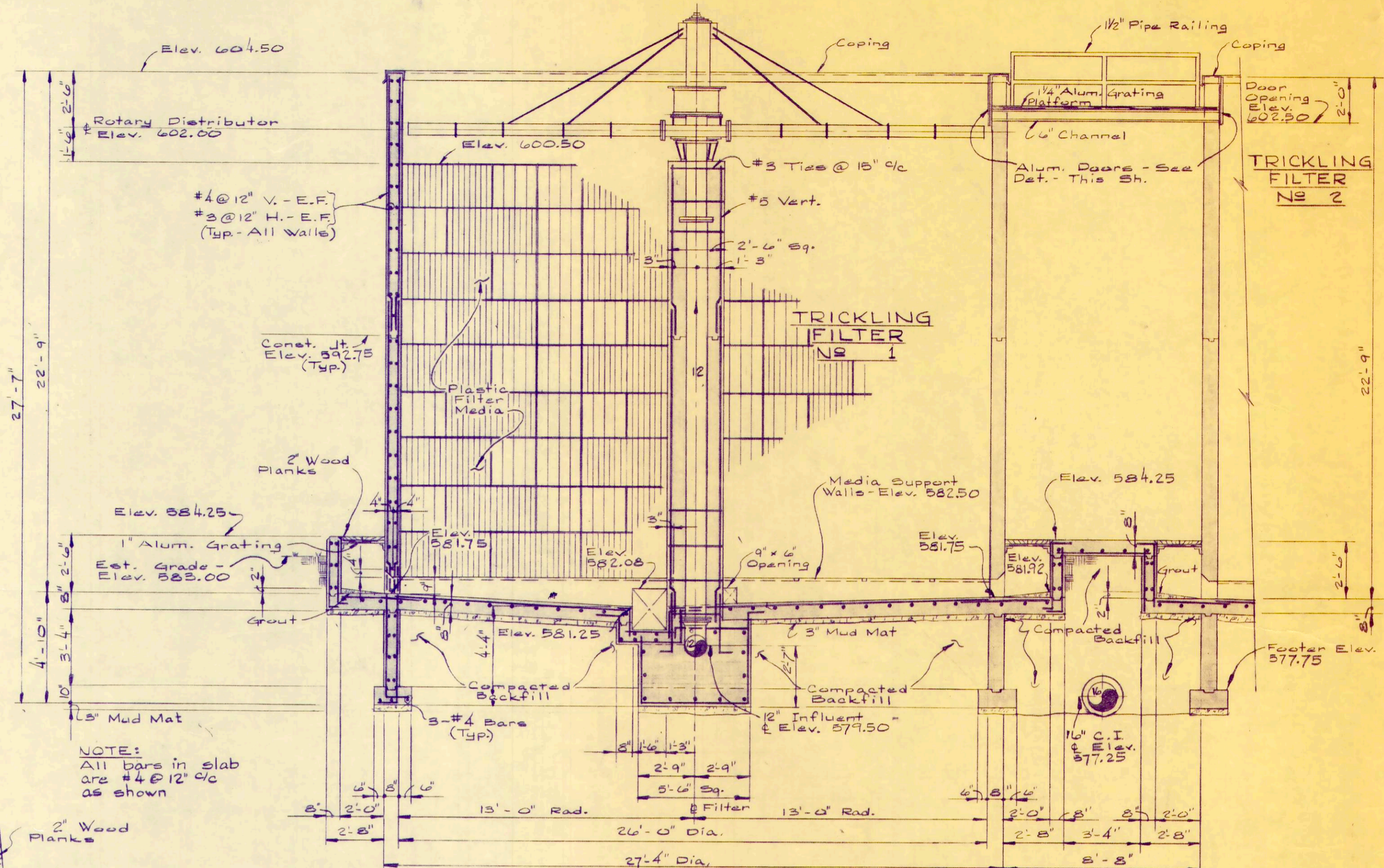
SCALE
 As Noted
 DESIGNED BY
 R.B.W.
 DRAWN BY
 E.L.C.
 CHECKED BY
 W.C.K.

TRICKLING FILTER
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

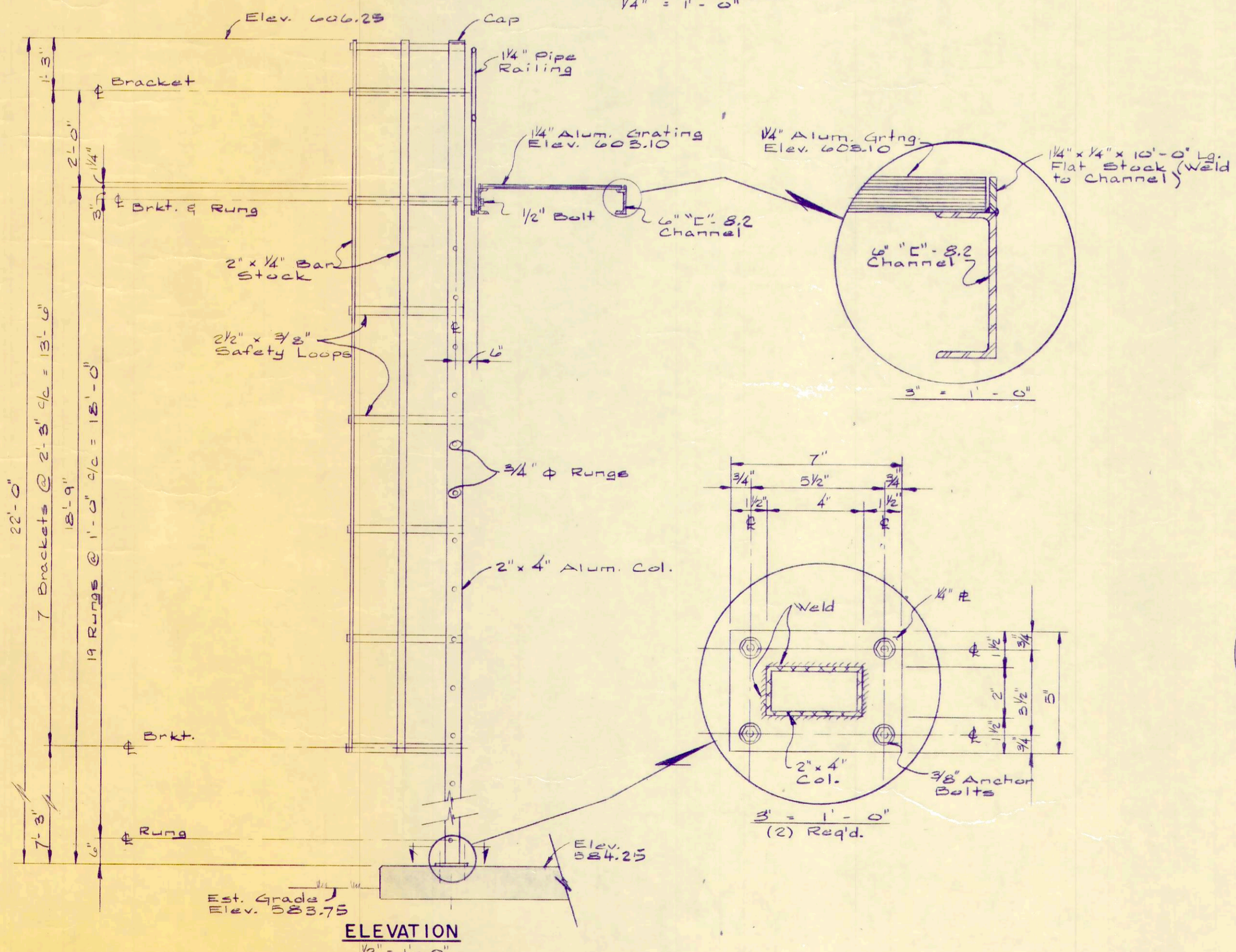
PROJECT NUMBER
 OAKSOO1
 SECTION
 3-71
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 12 OF 36



SECTION B-B
1/4" = 1'-0"

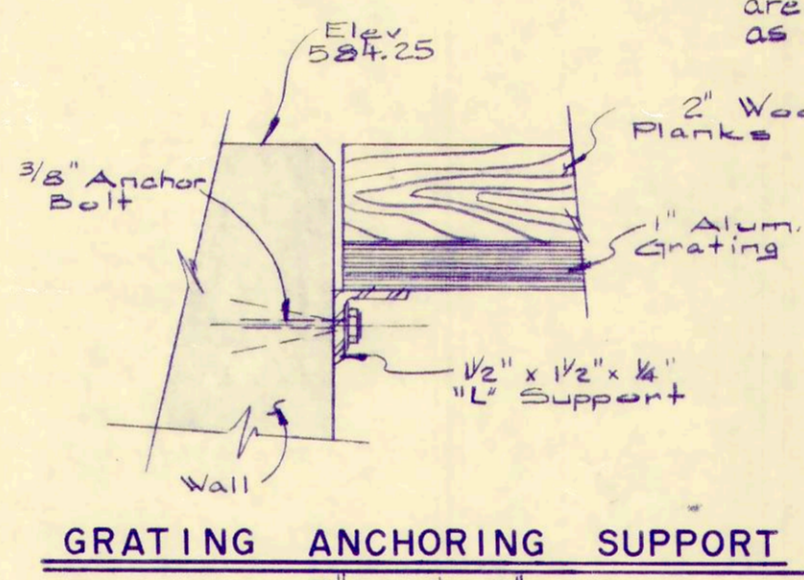


SECTION A-A
1/4" = 1'-0"

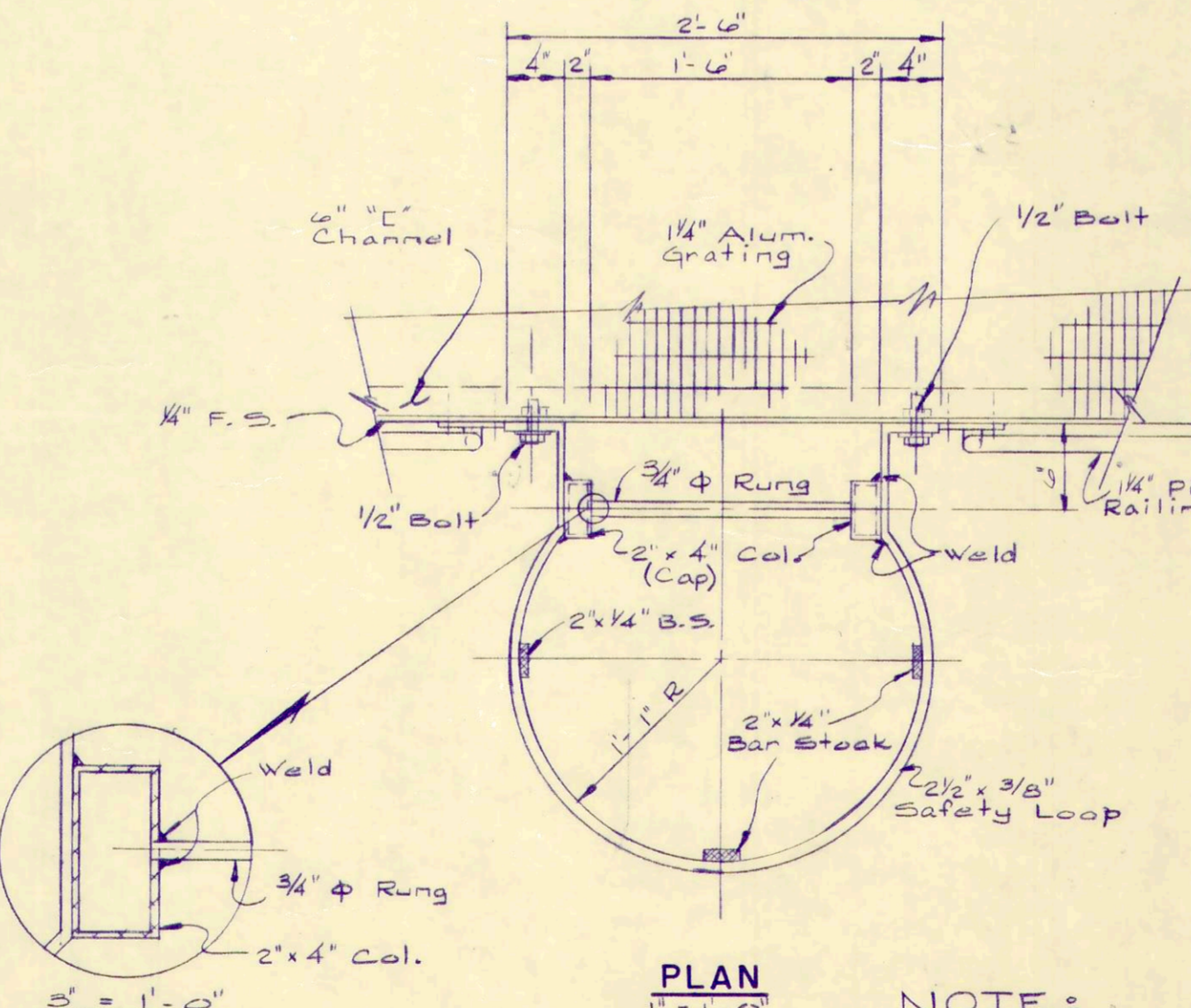


ELEVATION
1/2' - 1'-0"

LOOP LADDER DETAILS
As Noted

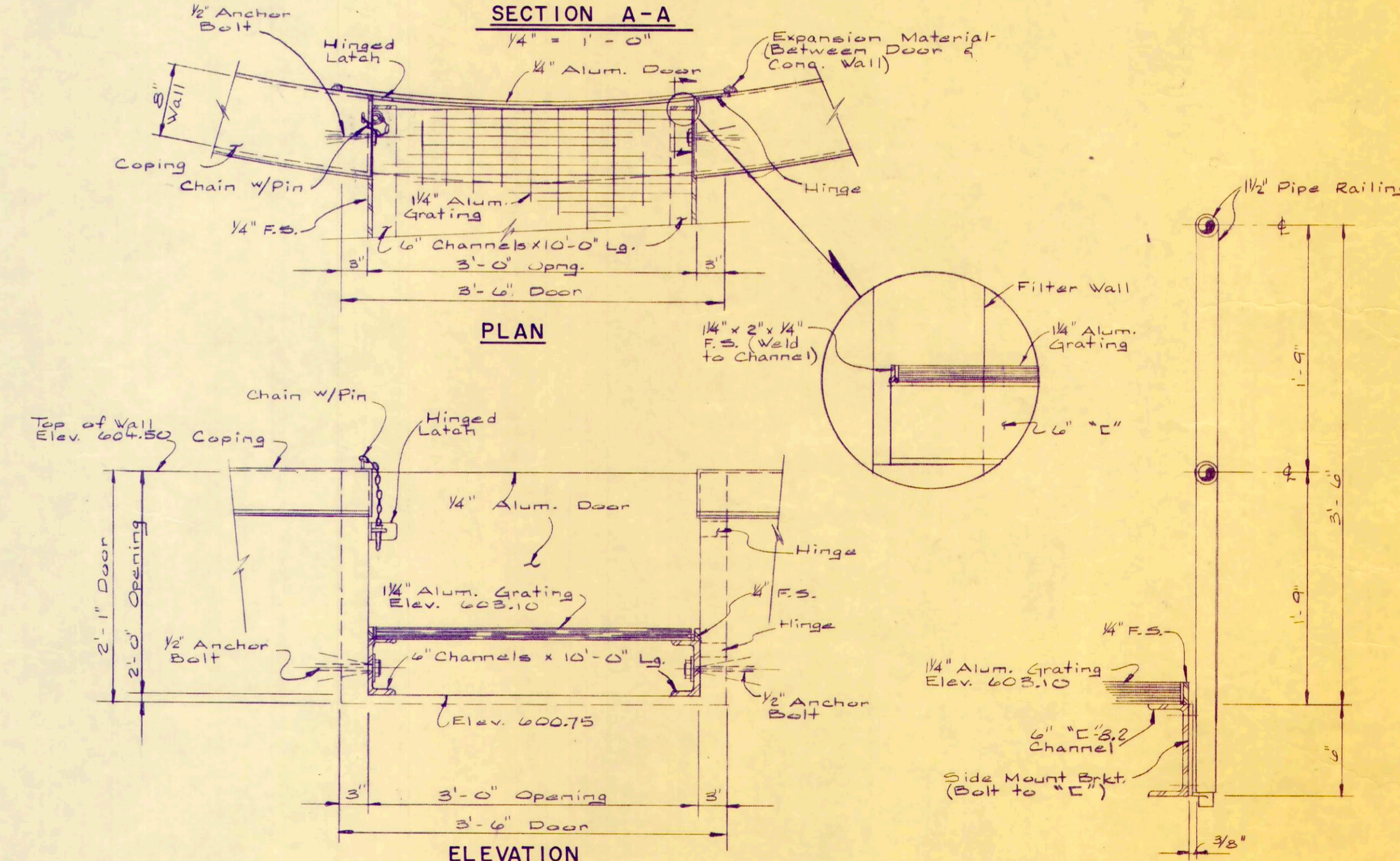


GRATING ANCHORING SUPPORT
1/4" = 1'-0"



PLAN
1/2' - 1'-0"

NOTE: All Aluminum Surfaces in Contact with Concrete to be Painted with a Bitumastic Paint.



ALUMINUM DOOR DETAILS
2 Reqd. ~ 1' - 1'-0"

RAILING DETAILS
1/2" = 1'-0"

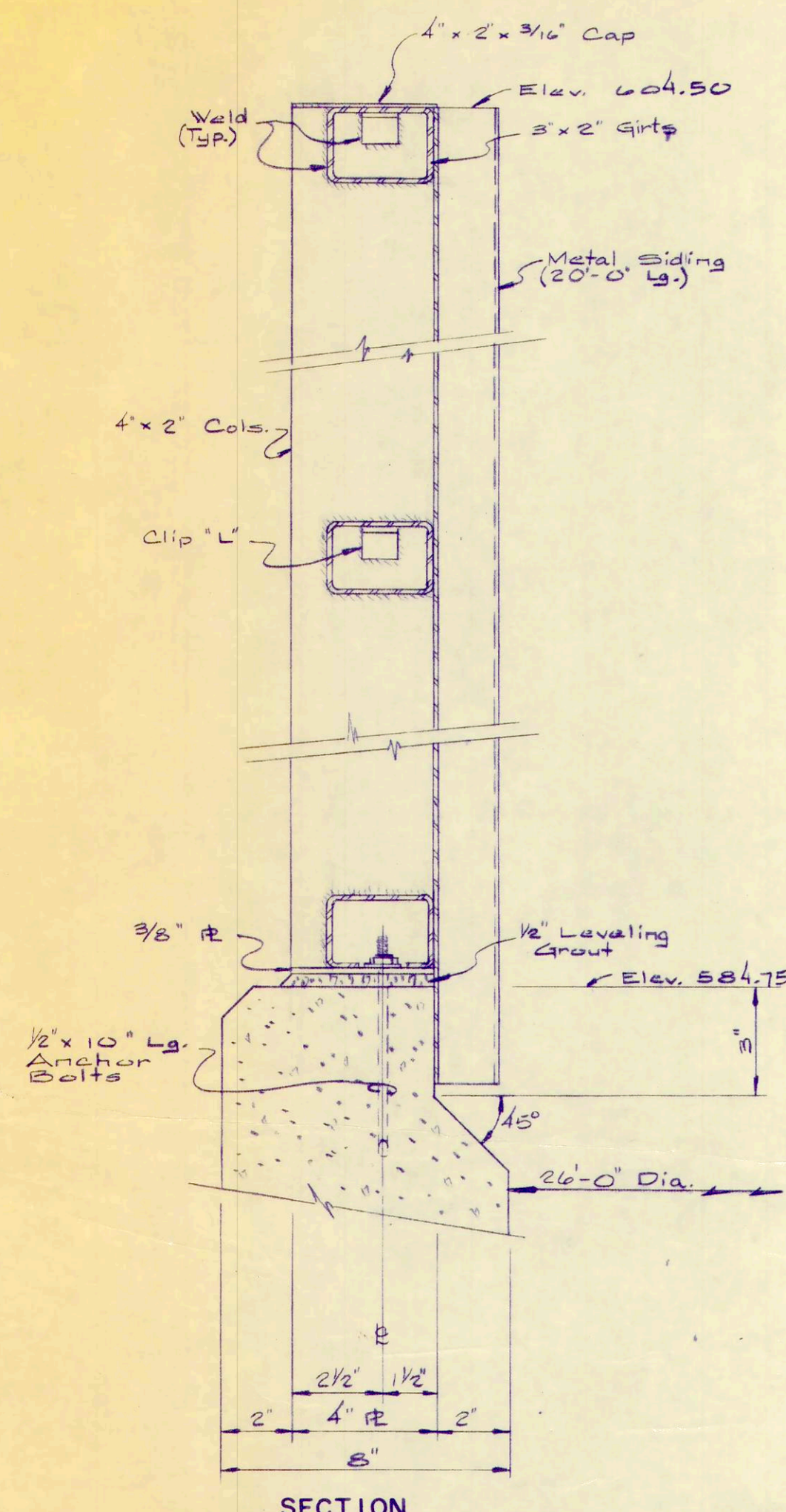
REV. NO.	DESCRIPTION	DATE	BY	APPD

FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO

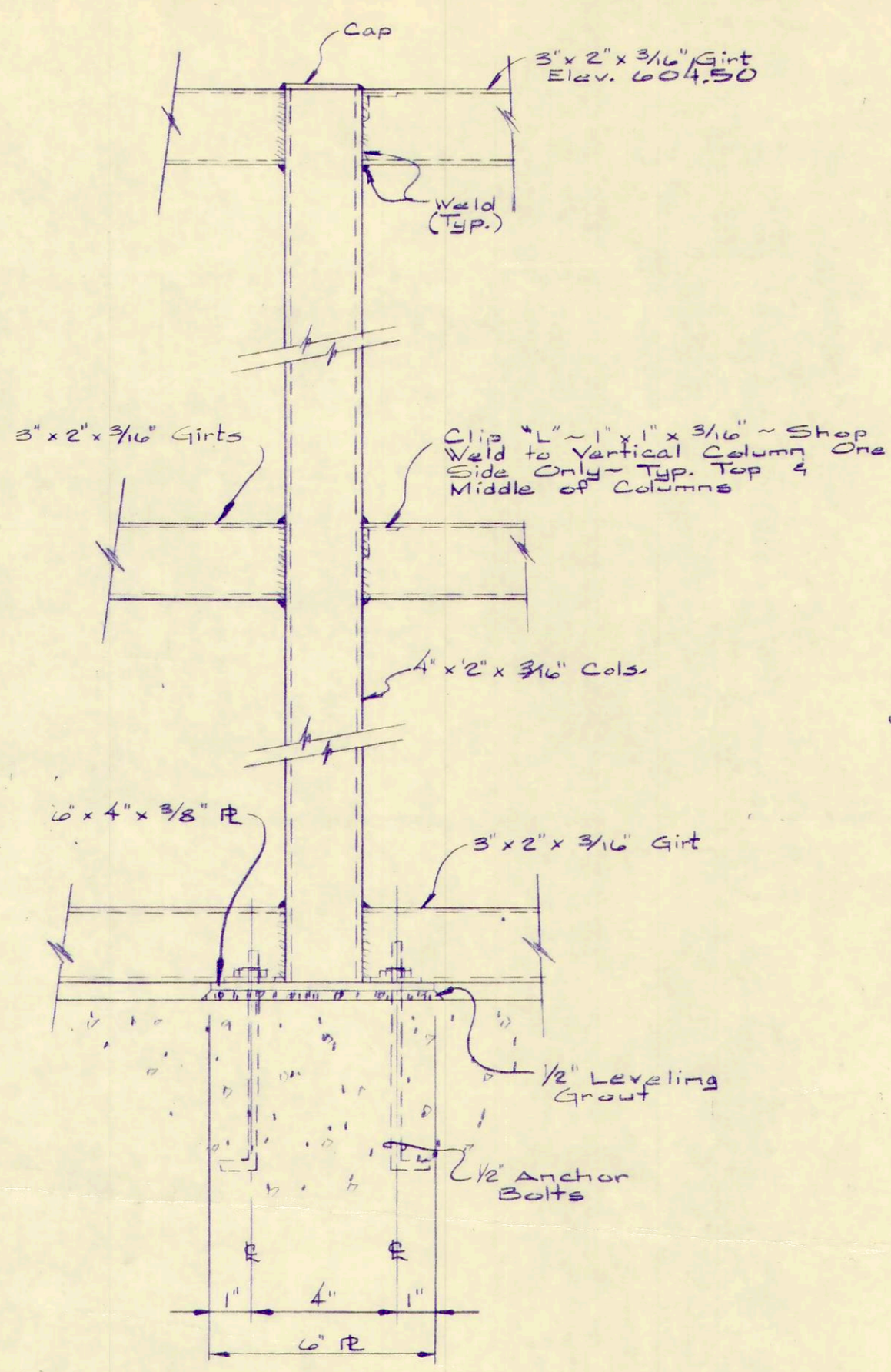
SCALE
As Noted
DESIGNED BY
R.B.W.
DRAWN BY
D.C.
CHECKED BY
W.C.K.

TRICKLING FILTER
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

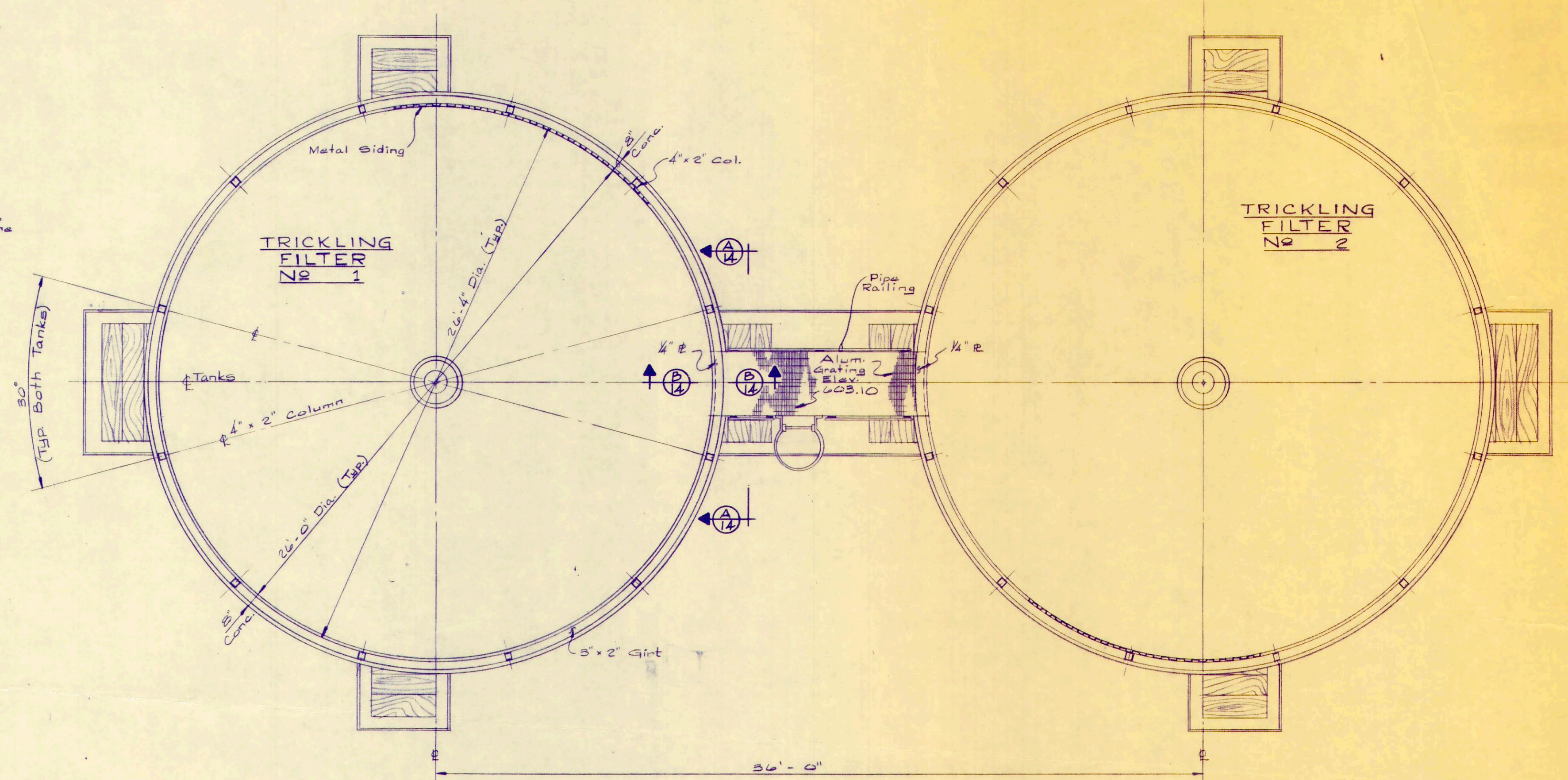
PROJECT NUMBER
OAKSOO1 B
SECTION
3-71
DATE
13 OF 36



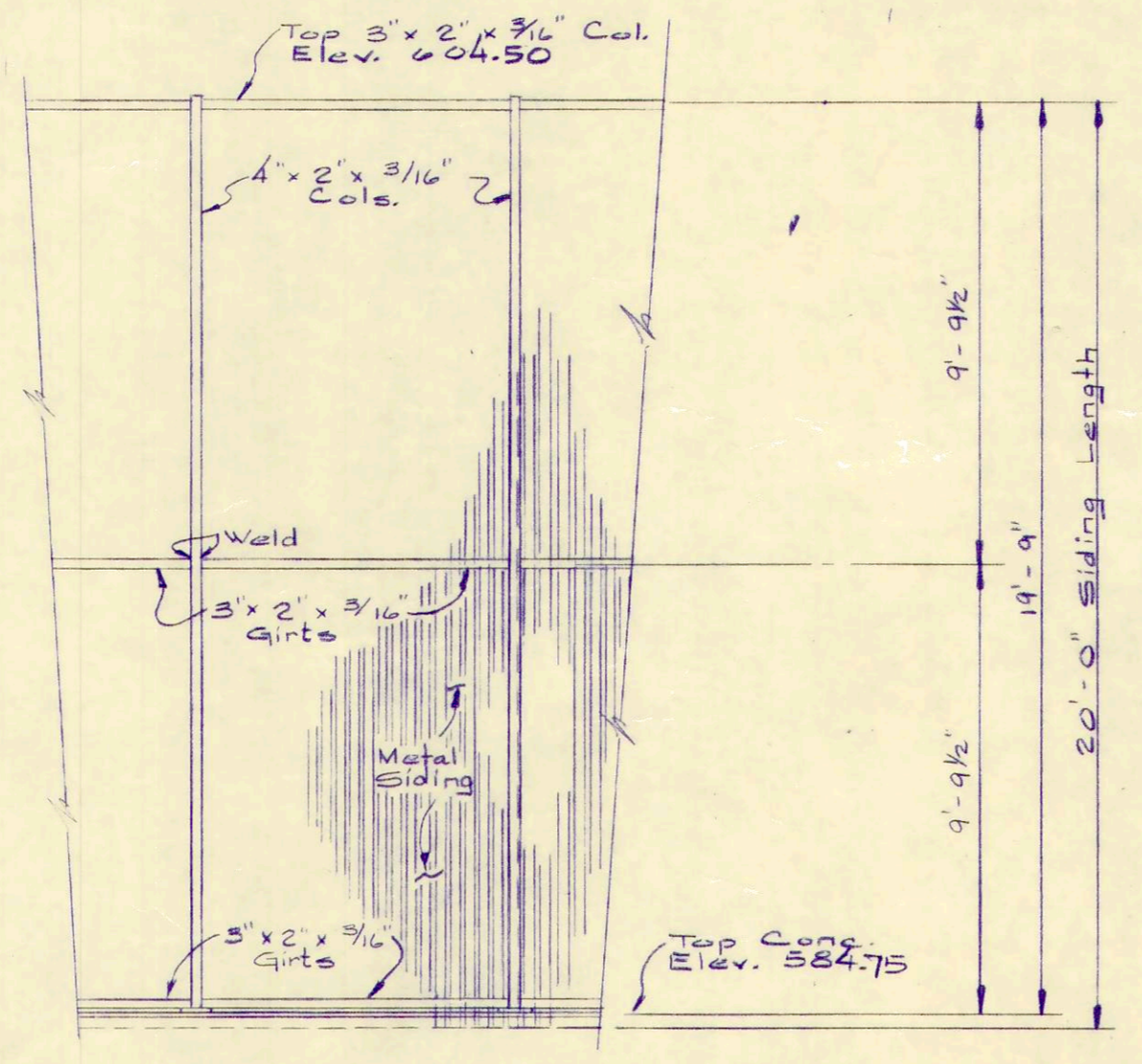
SECTION
TYPICAL WALL COLUMN DETAILS
3" = 1' - 0"



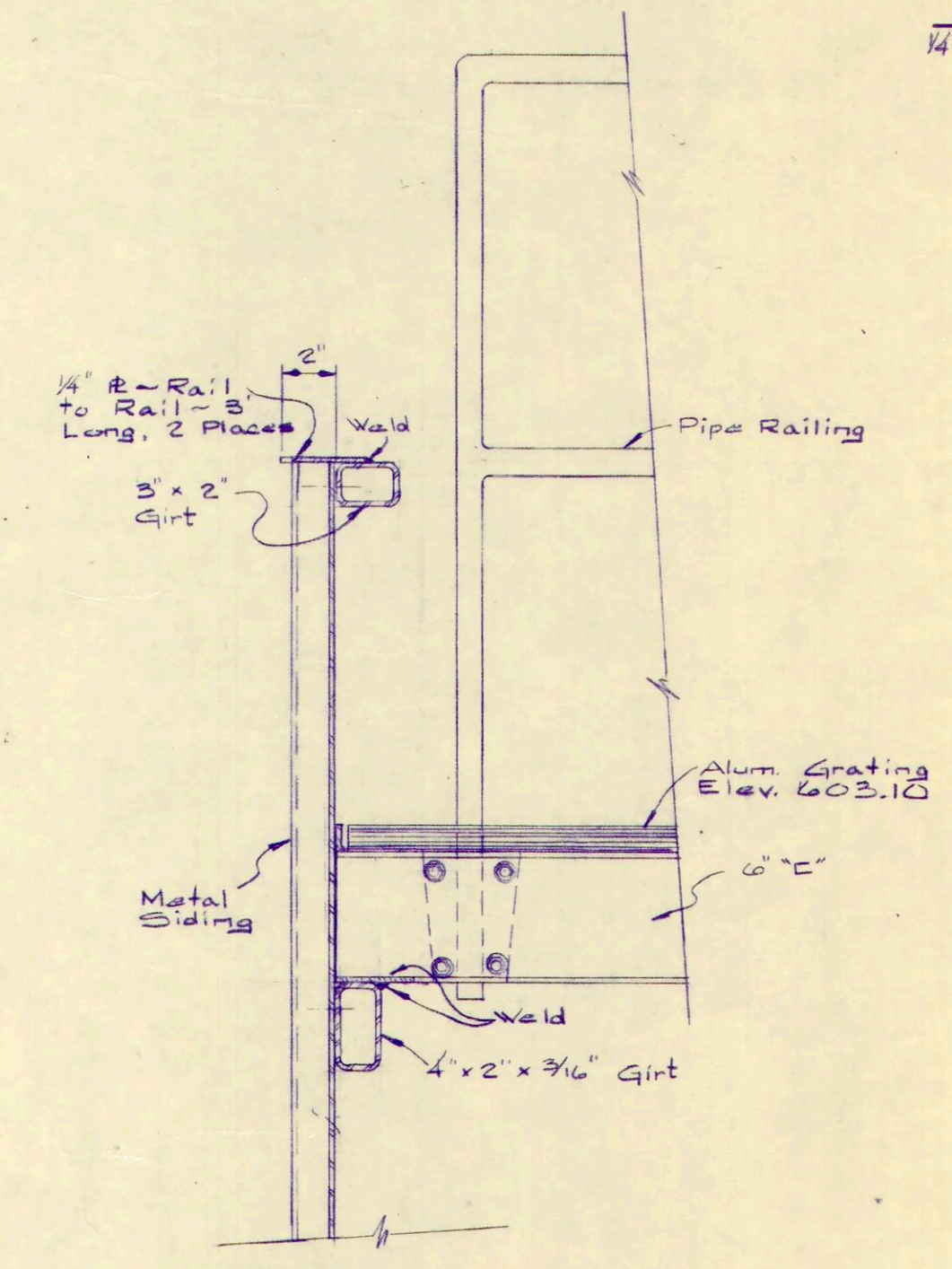
ELEVATION



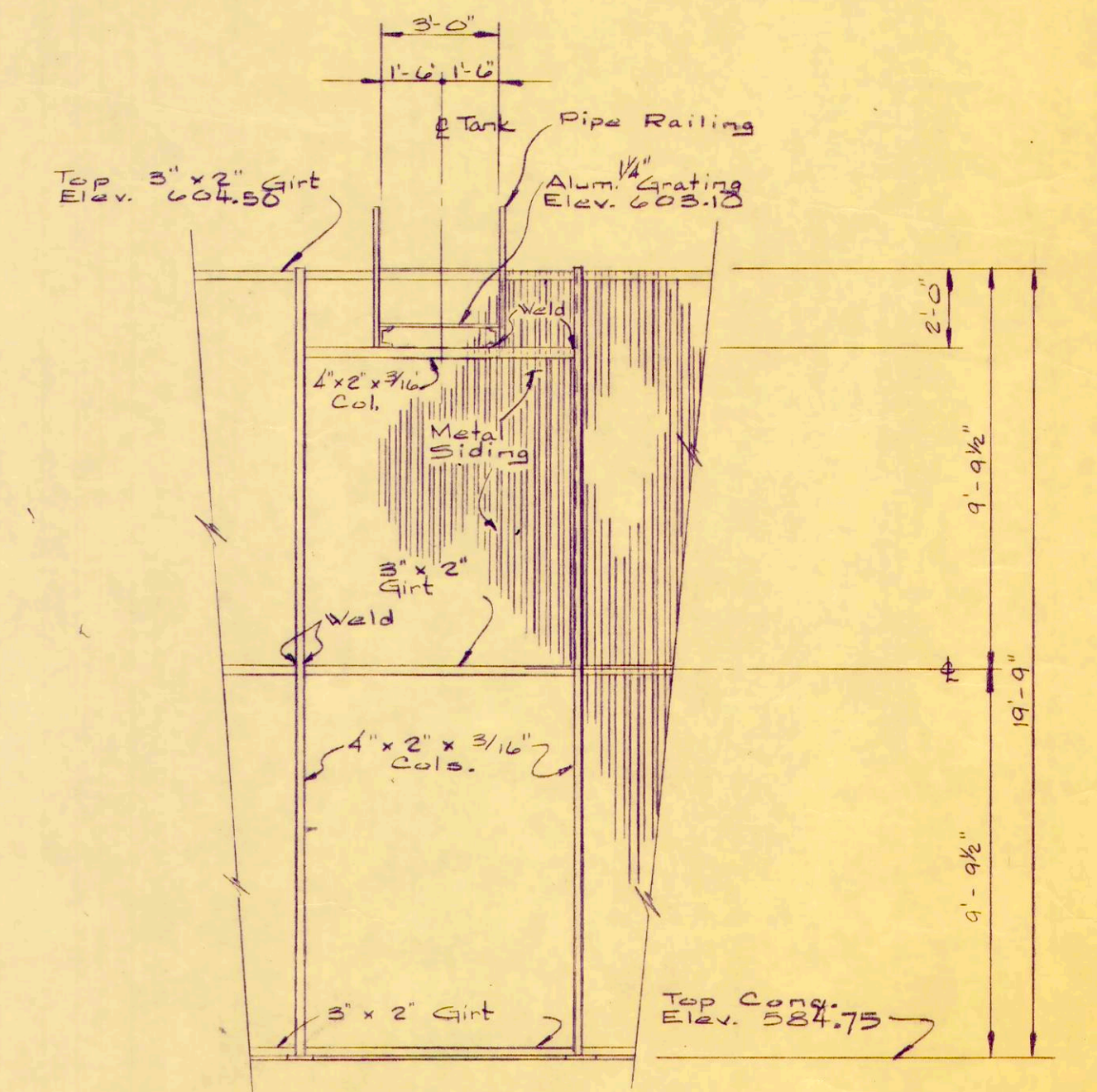
PLAN
14" = 1' - 0"



WALL ELEVATION
1/4" = 1' - 0"



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



SECTION A-A
1/4" = 1' - 0"

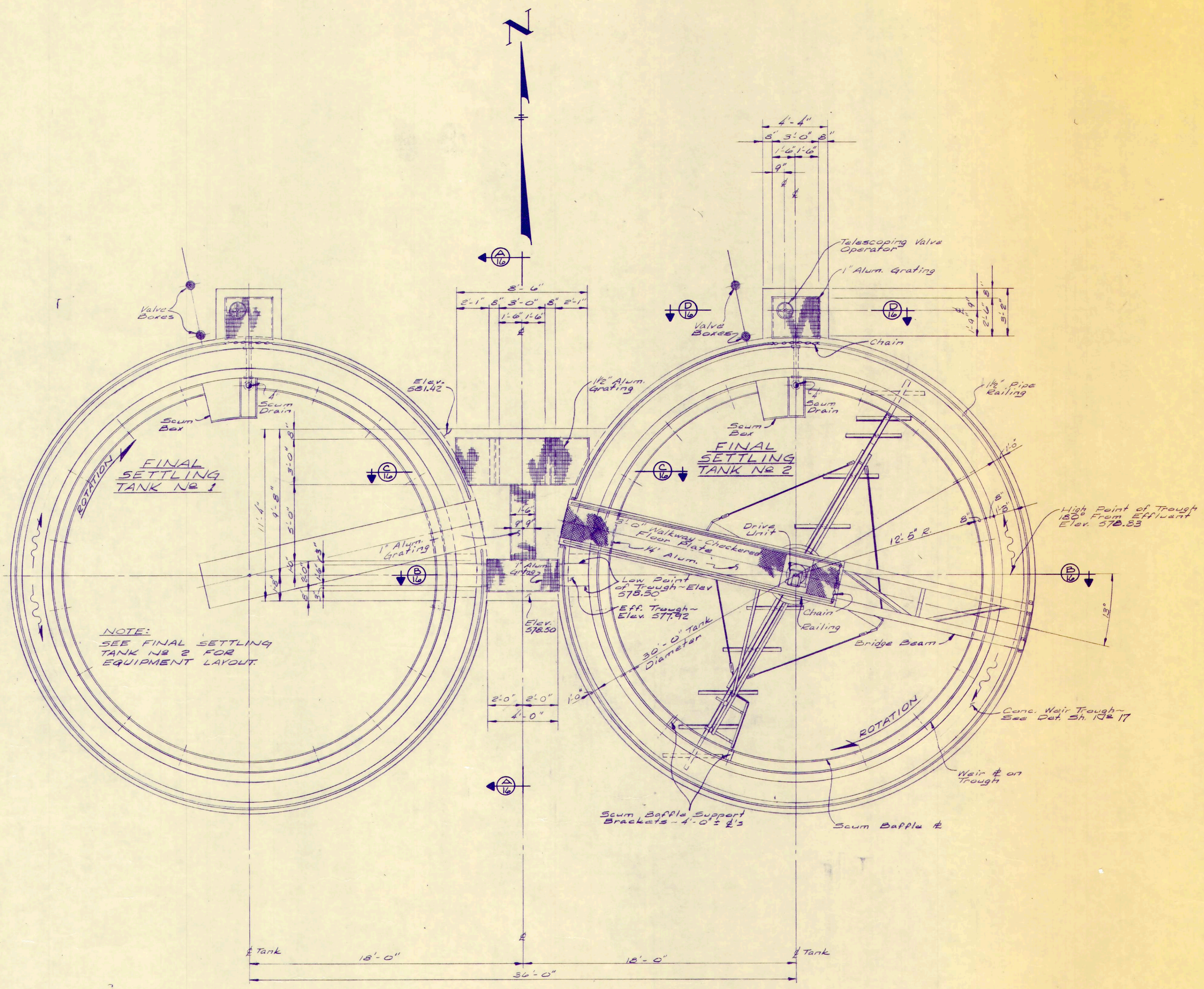
REV. NO.	DESCRIPTION	DATE	BY	APP'D

FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO

SCALE
As Noted
DESIGNED BY
R.B.W.
DRAWN BY
P.L.C.
CHECKED BY
W.C.R.

ALTERNATE TRICKLING FILTER WALLS
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

PROJECT NO.
OAKSOO1
SECTION
DATE
3 - 71
14 OF



PLAN

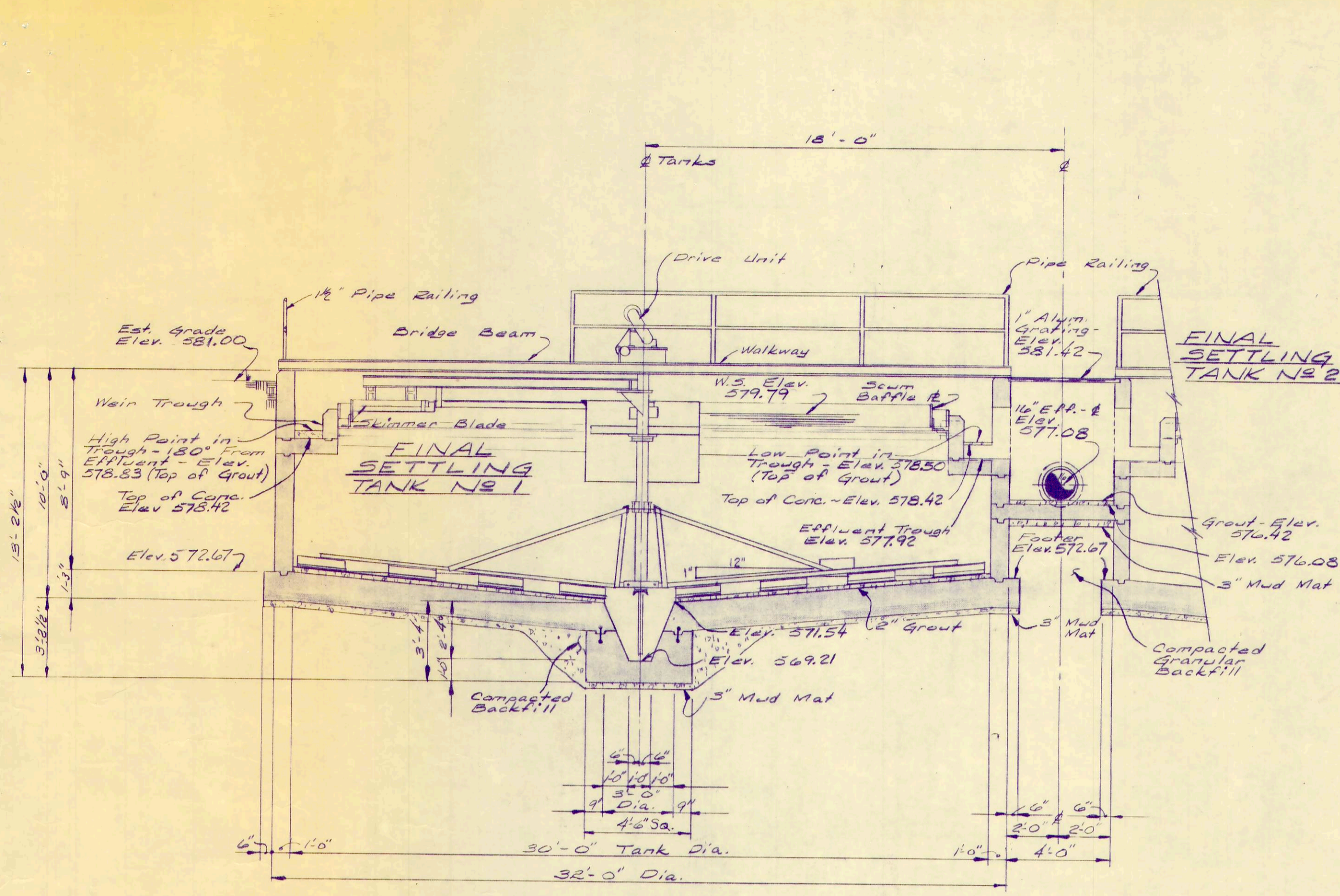
REV. NO.	DESCRIPTION	DATE	BY	APP'D

**FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO**

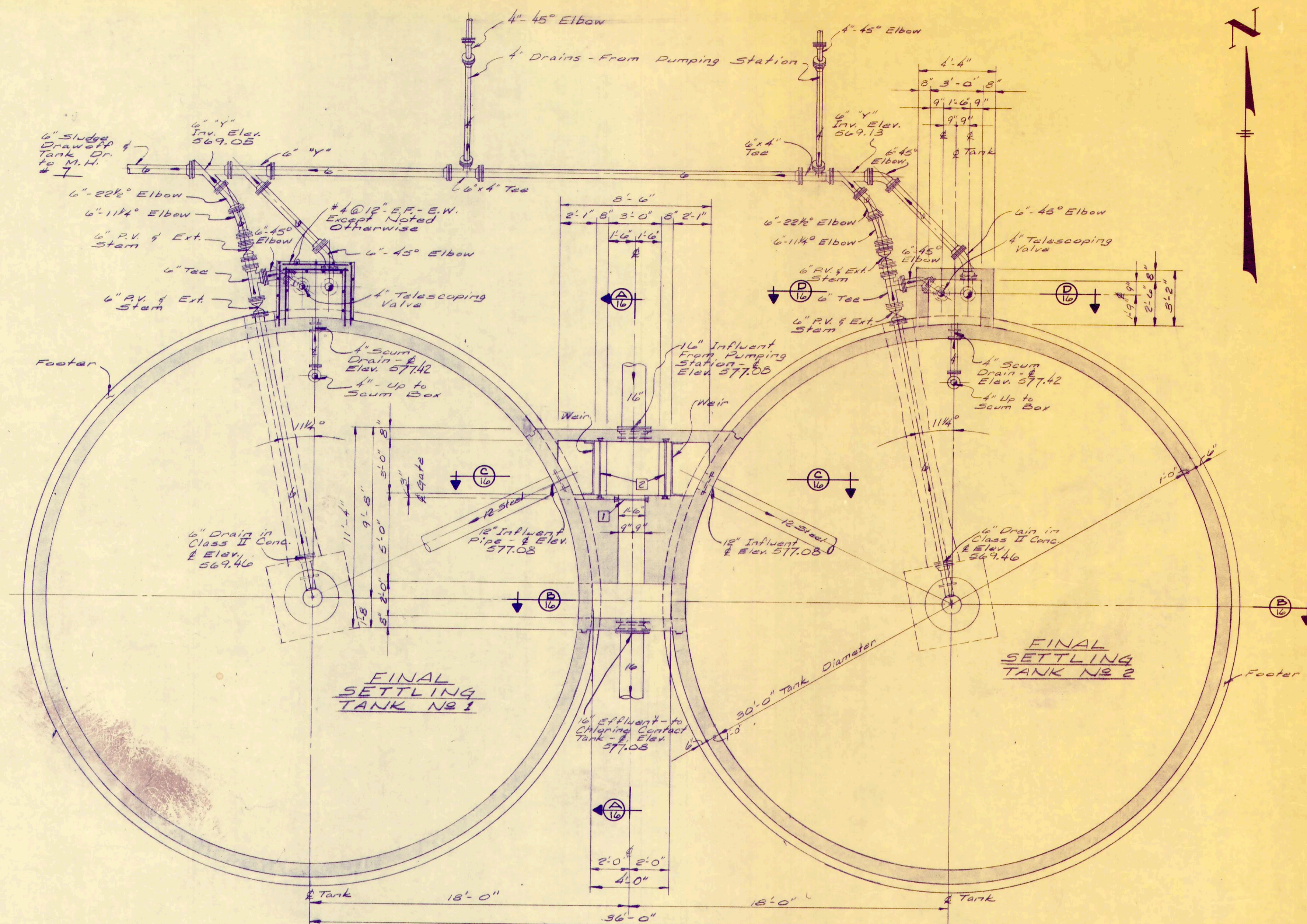
SCALE
1/4" = 1'-0"
DESIGNED BY R.B.W.
DRAWN BY E.L.C.
CHECKED BY V.C.K.

**FINAL SETTLING TANK
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO**

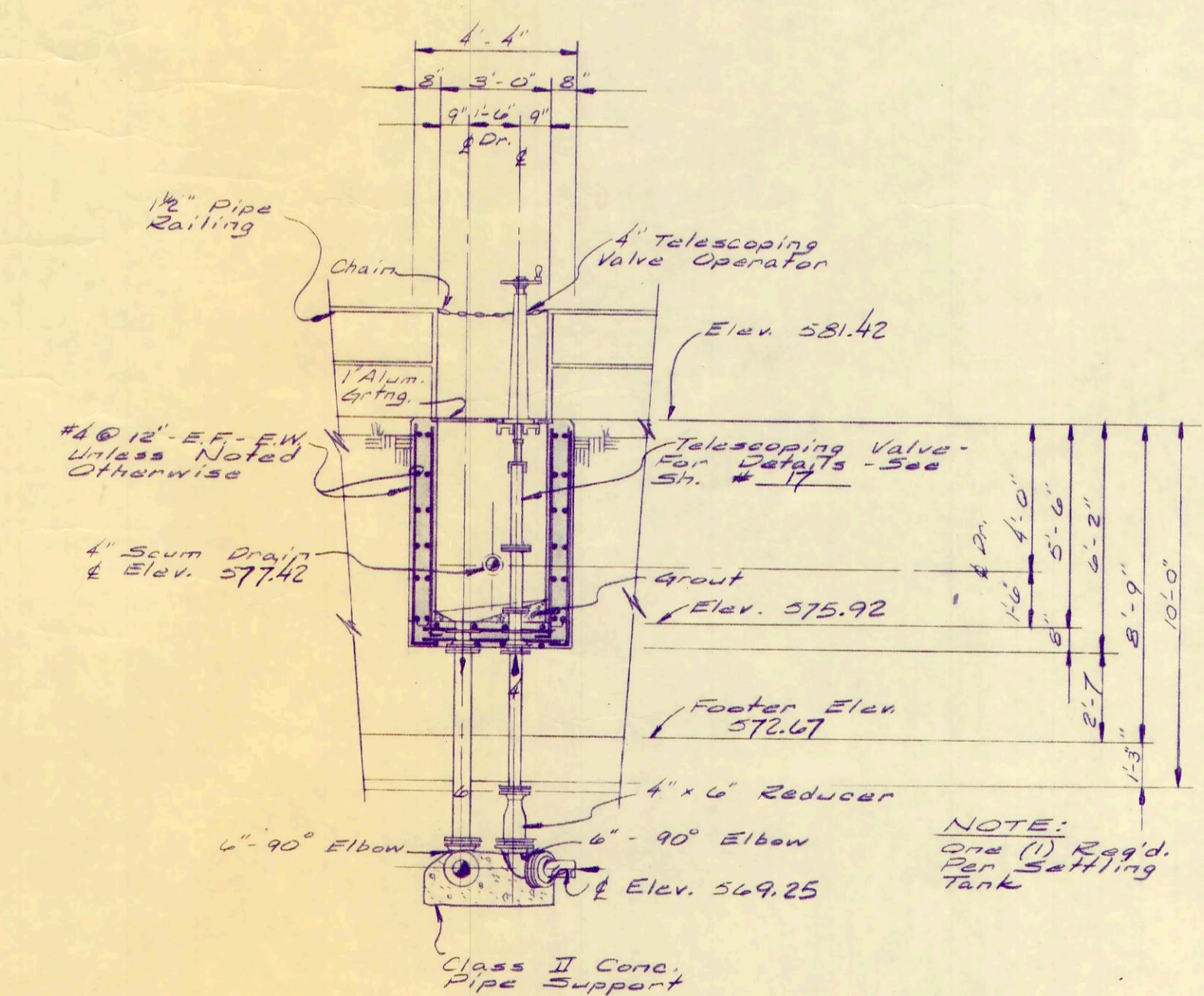
PROJECT NUMBER
OAKS001
SECTION
DATE
3-71
15 OF 36



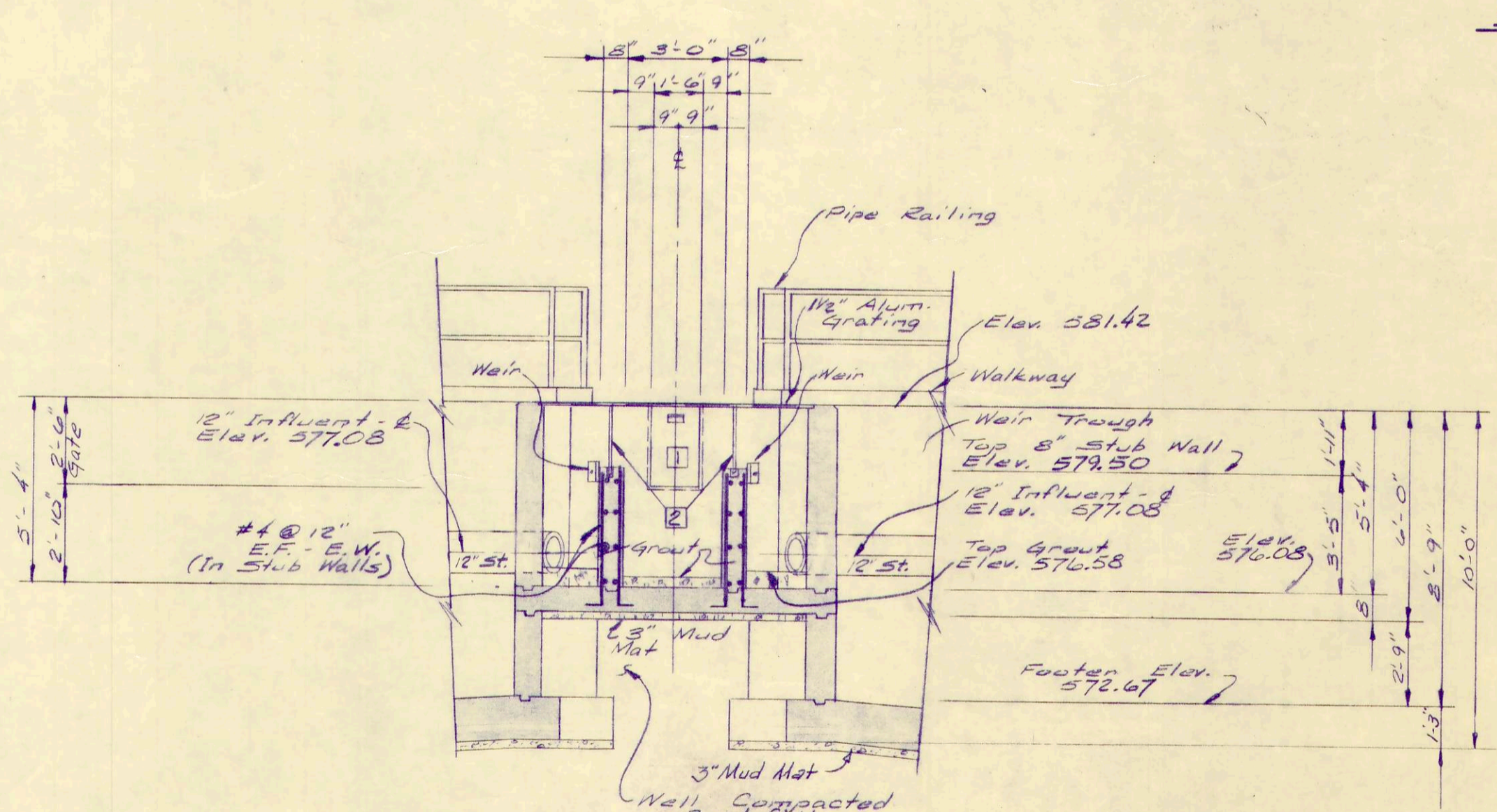
SECTION B-B



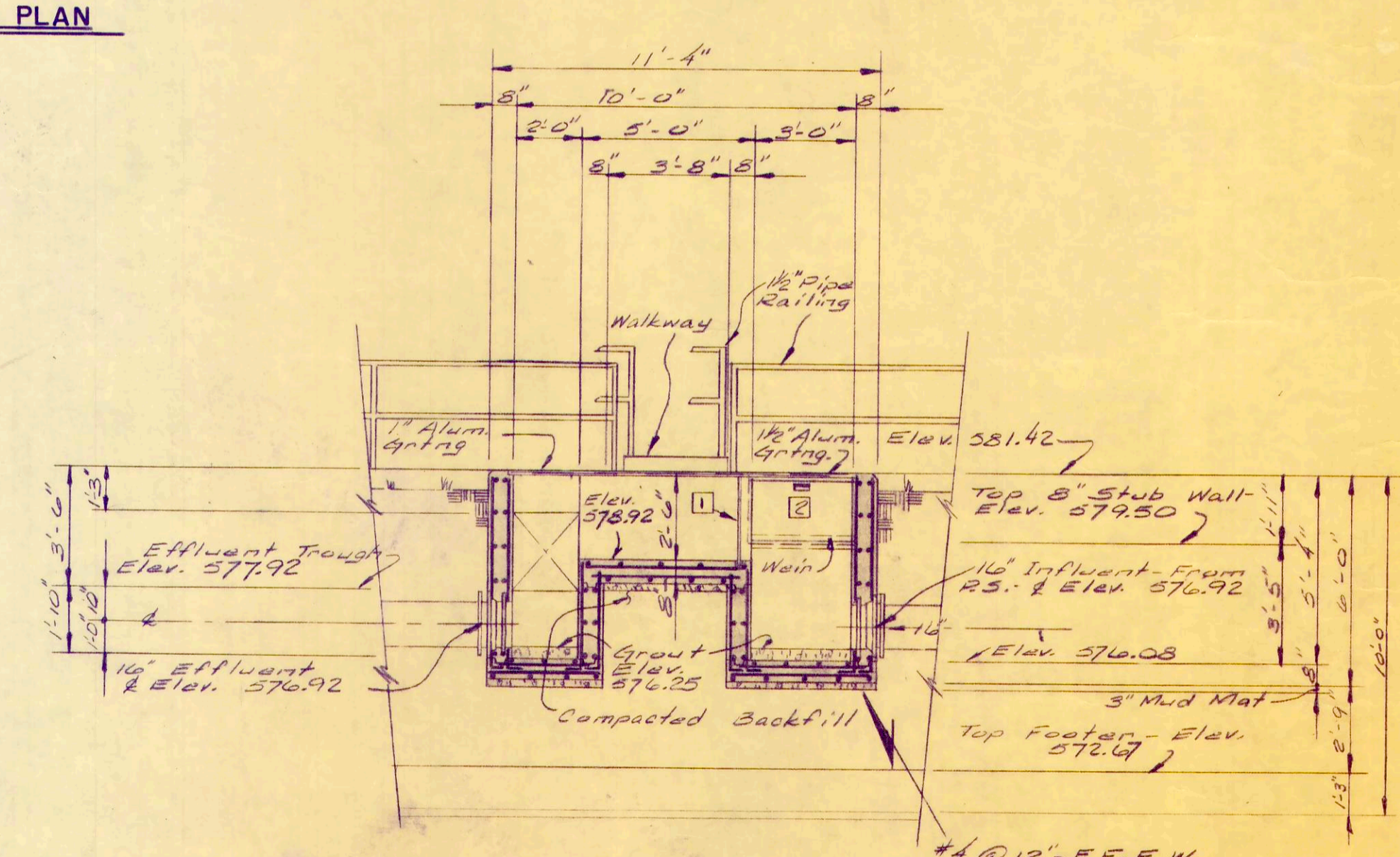
SECTIONAL PLAN



SECTION D-D



SECTION C-C



SECTION A-A

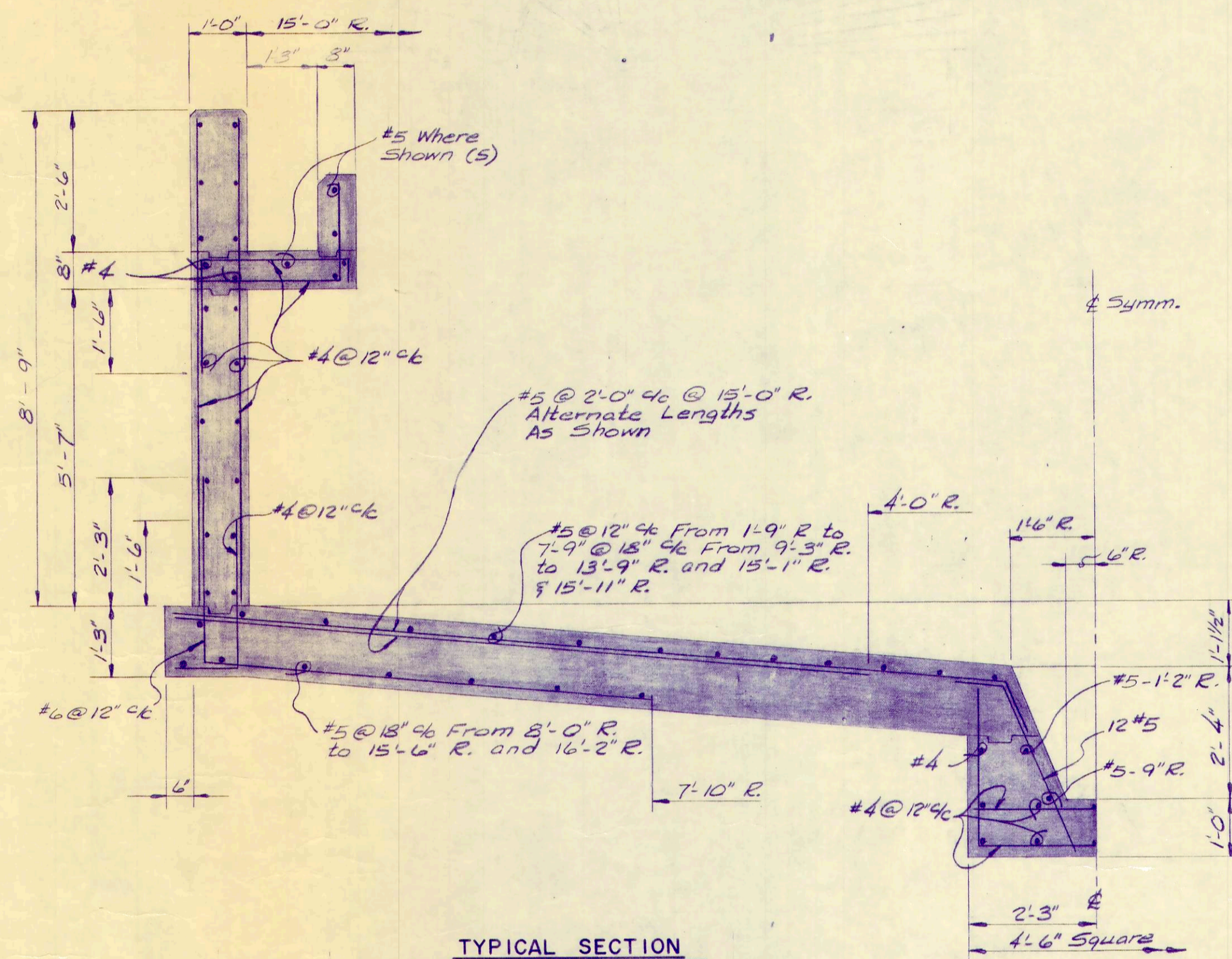
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1	Corrected Elevations Sec. "A-A"	6-15-72	R.L.C.	R.B.W.

FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
 TOLEDO, OHIO

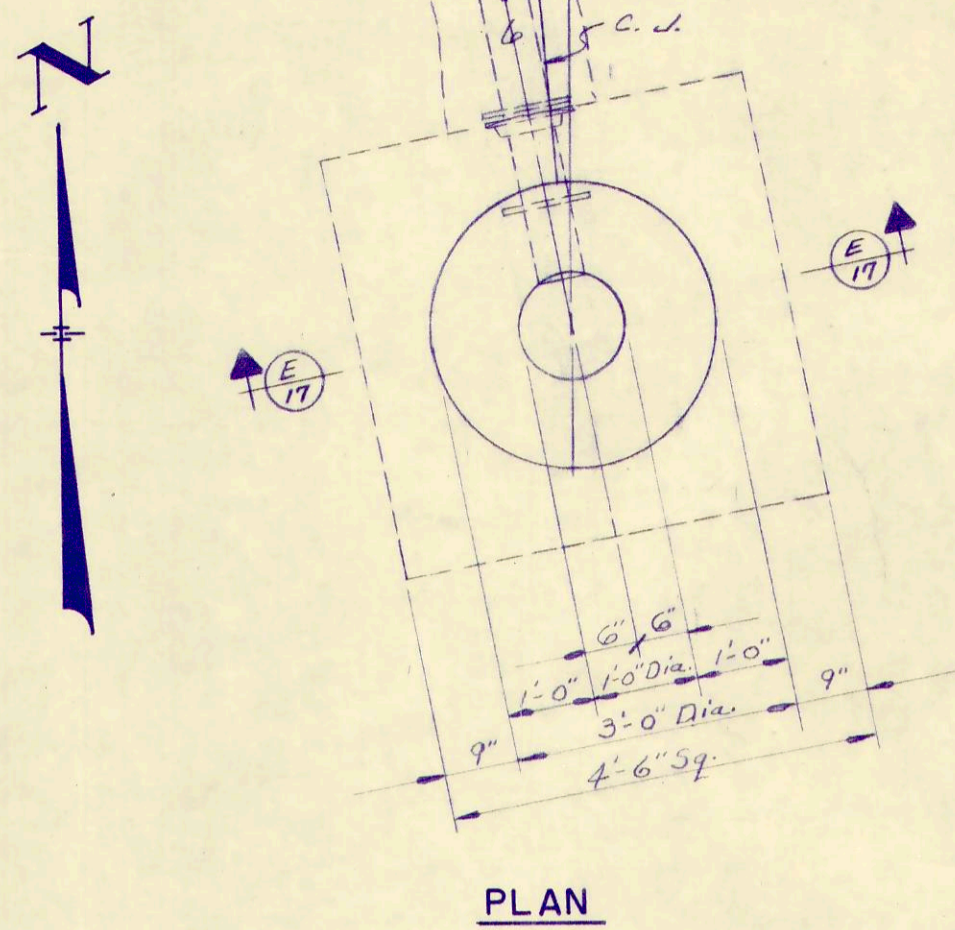
SCALE
 1/4" = 1'-0"
 DESIGNED BY
 R.B.W.
 DRAWN BY
 R.L.C.
 CHECKED BY
 W.C.R.

FINAL SETTLING TANK
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

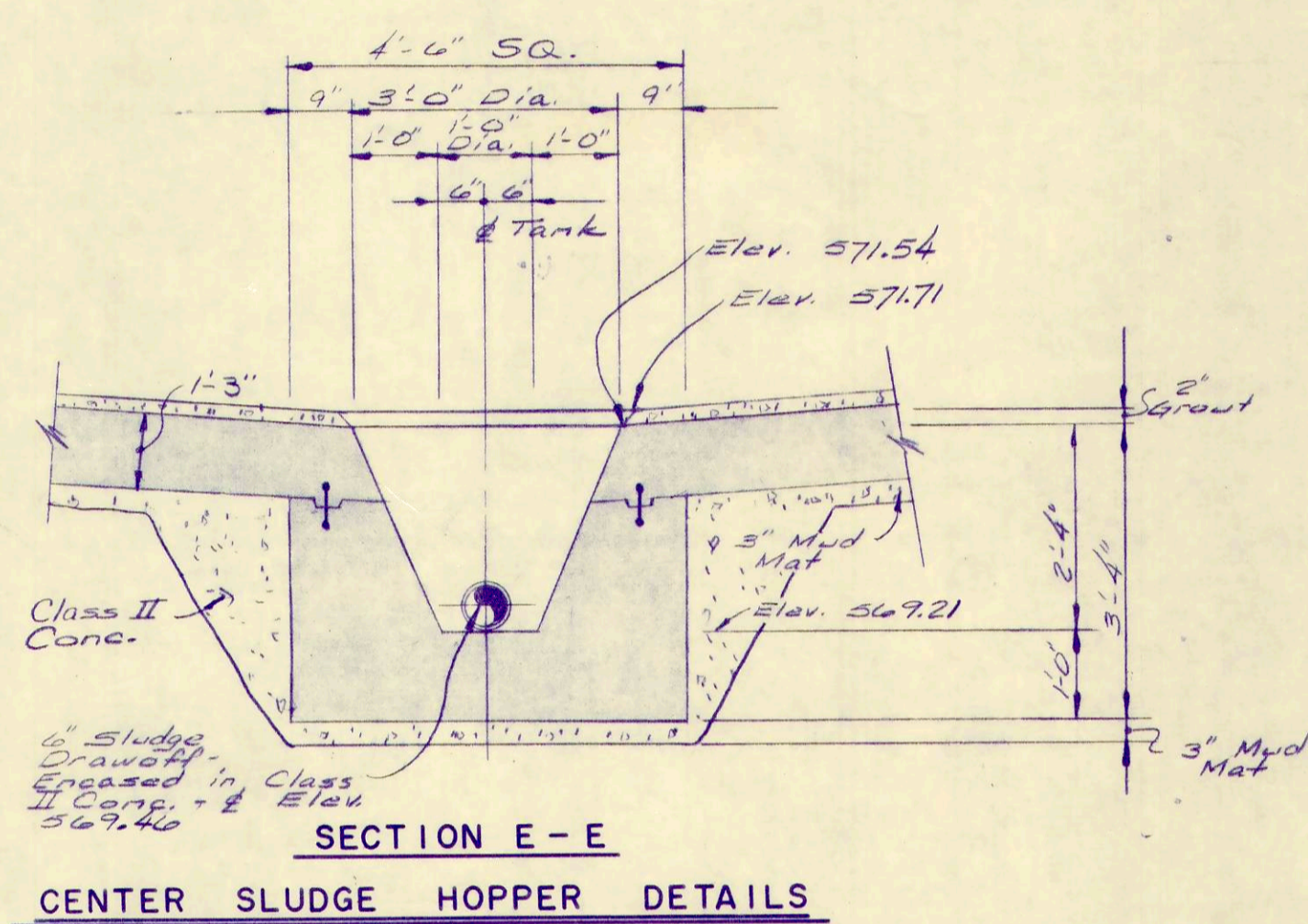
PROJECT NUMBER
 OAKSOOI B
 SECTION
 DATE
 3-71
 16 OF 36



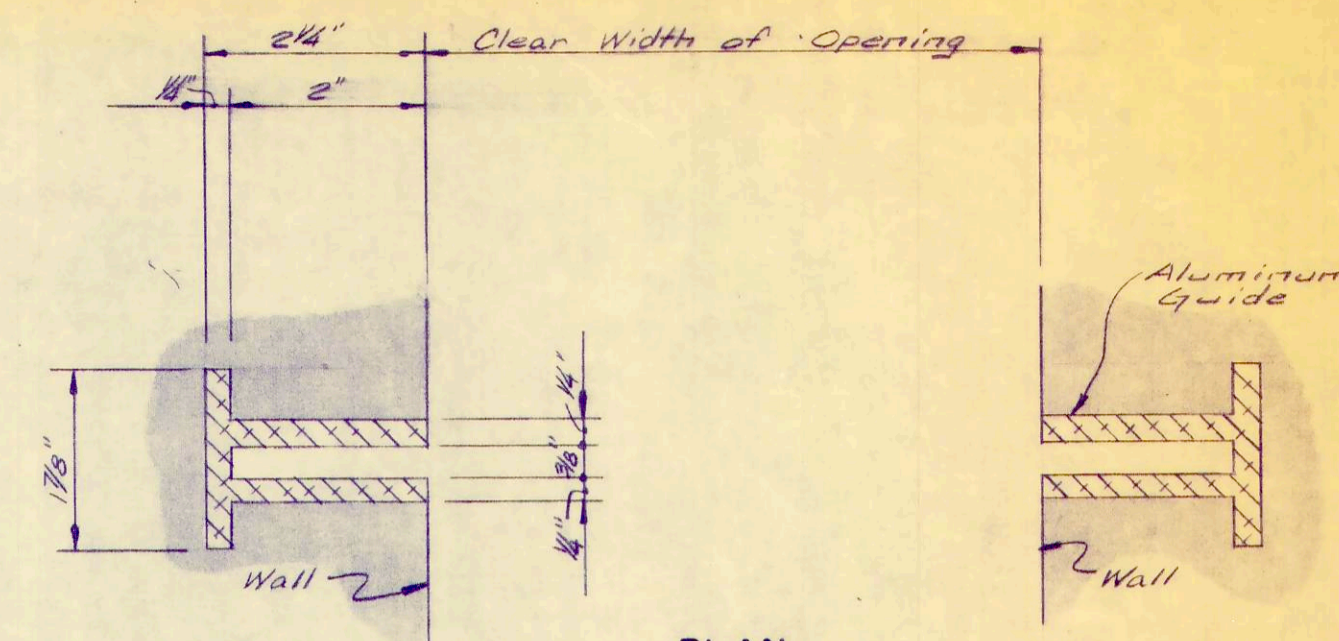
TYPICAL SECTION
1/2" = 1'-0"



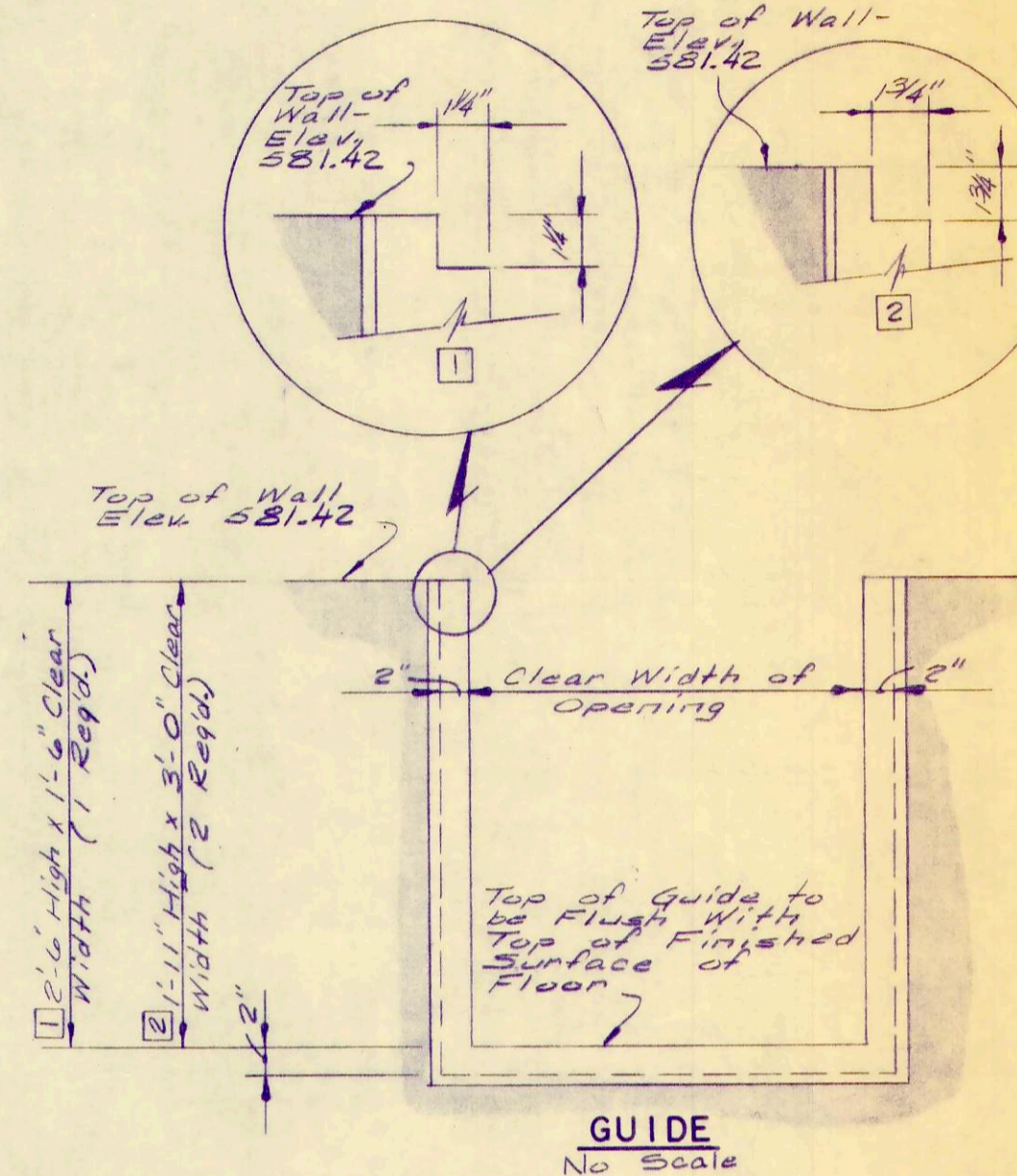
PLAN
1/2" = 3'-11"



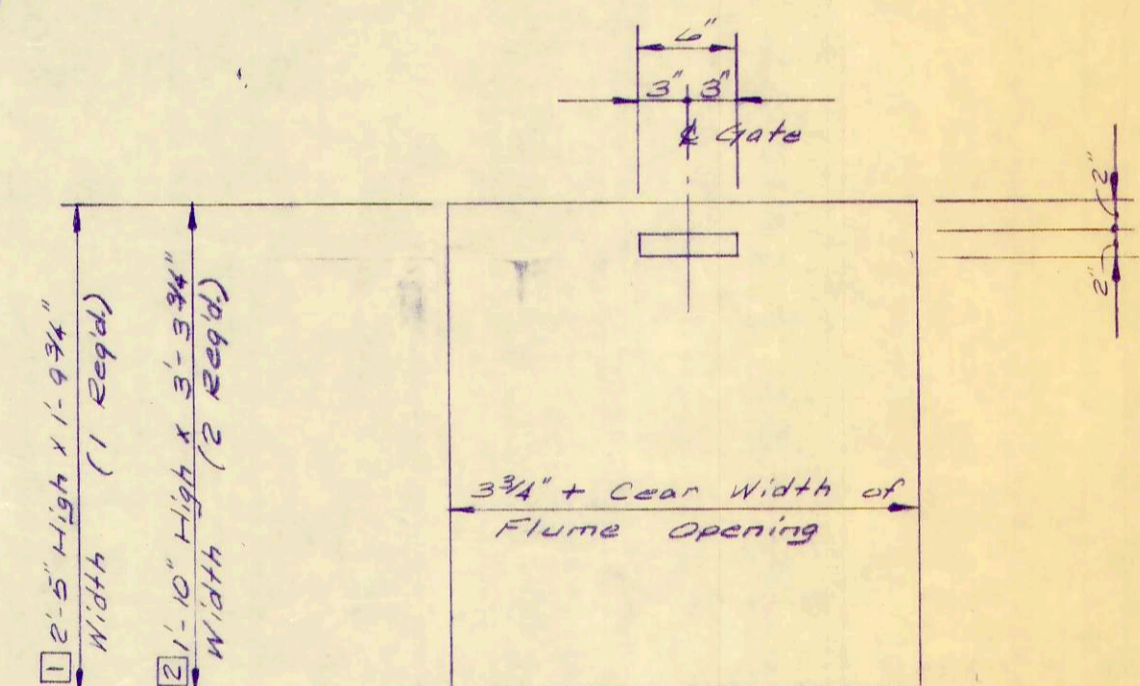
SECTION E-E
CENTER SLUDGE HOPPER DETAILS
1/2" = 1'-0"



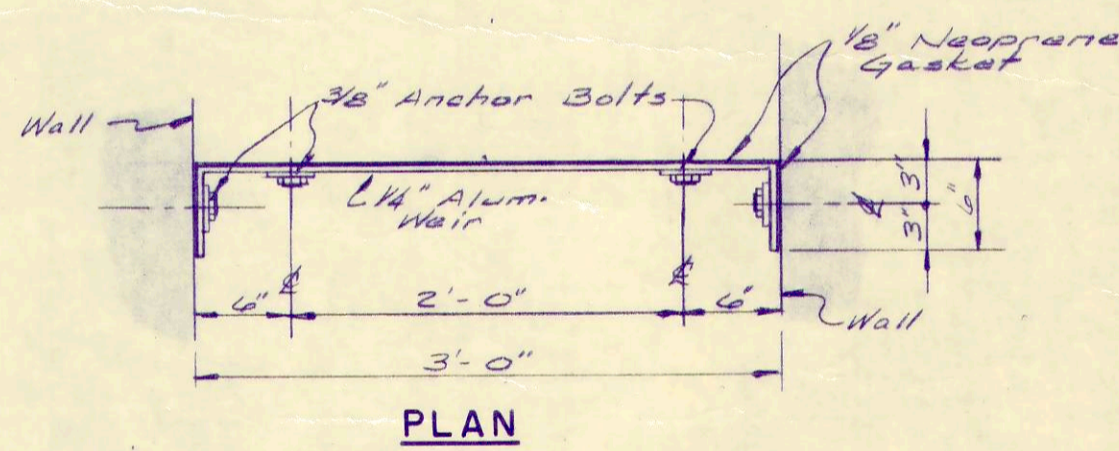
PLAN
1/2" = 3'-11"



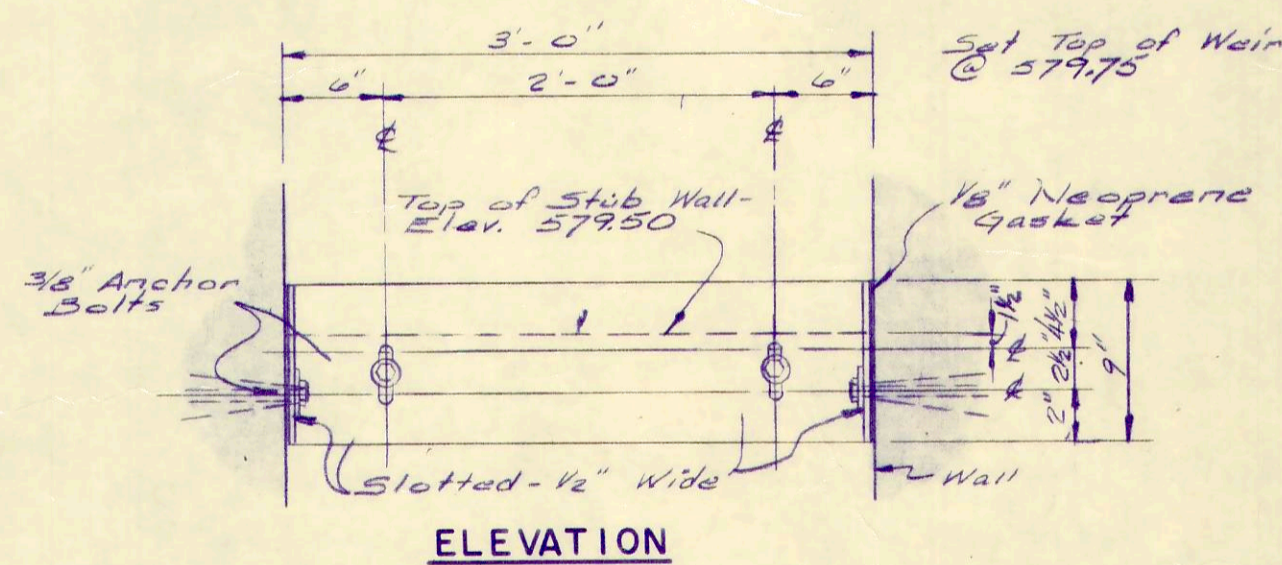
GUIDE
No Scale



GATE
No Scale

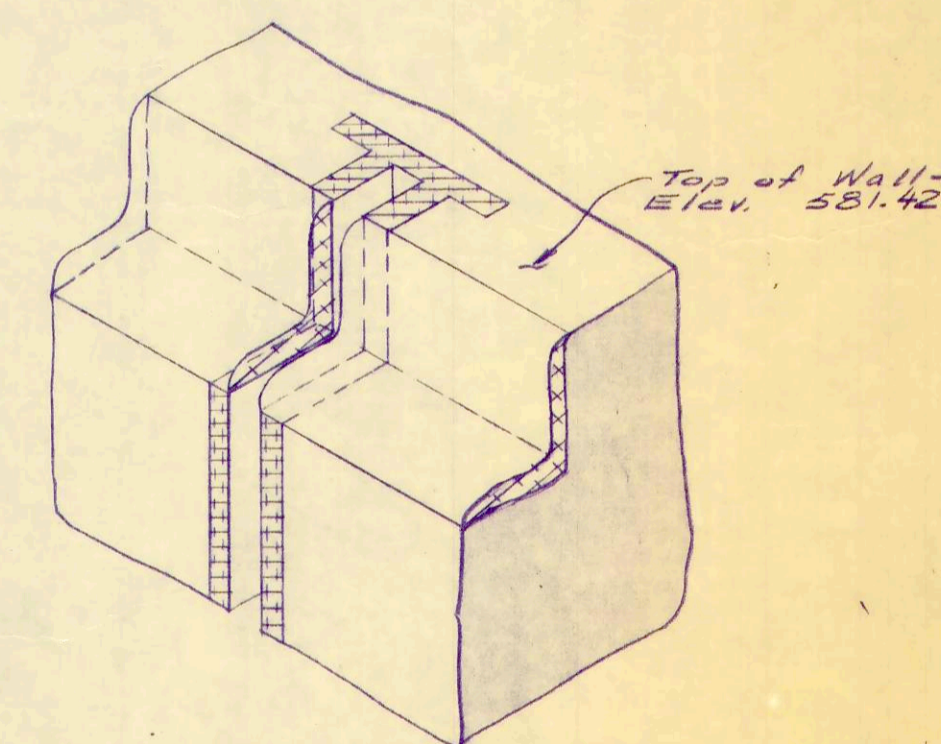


PLAN



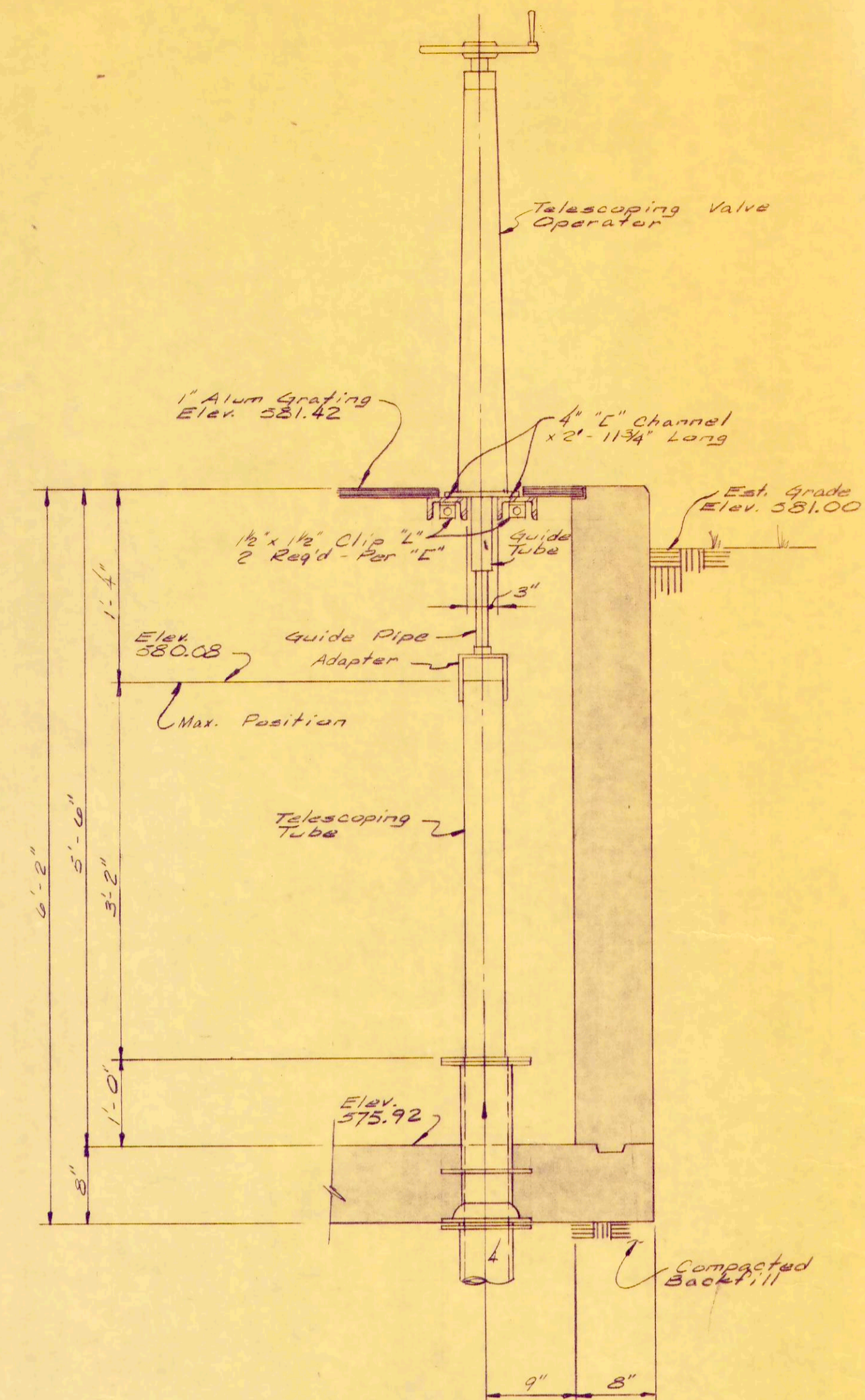
ELEVATION

WEIR DETAILS
1/2" = 1'-0"

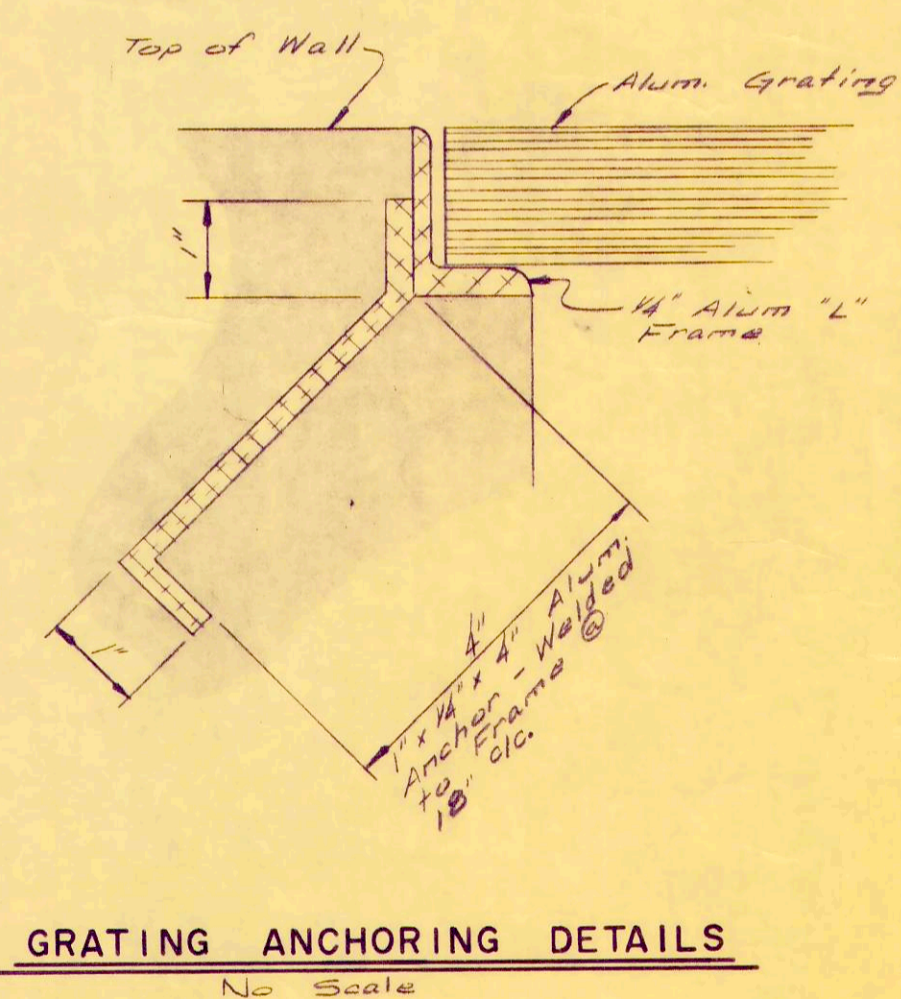


GRATING ANGLE SUPPORT
DETAIL AT GUIDE
No Scale

STOP GATE DETAILS

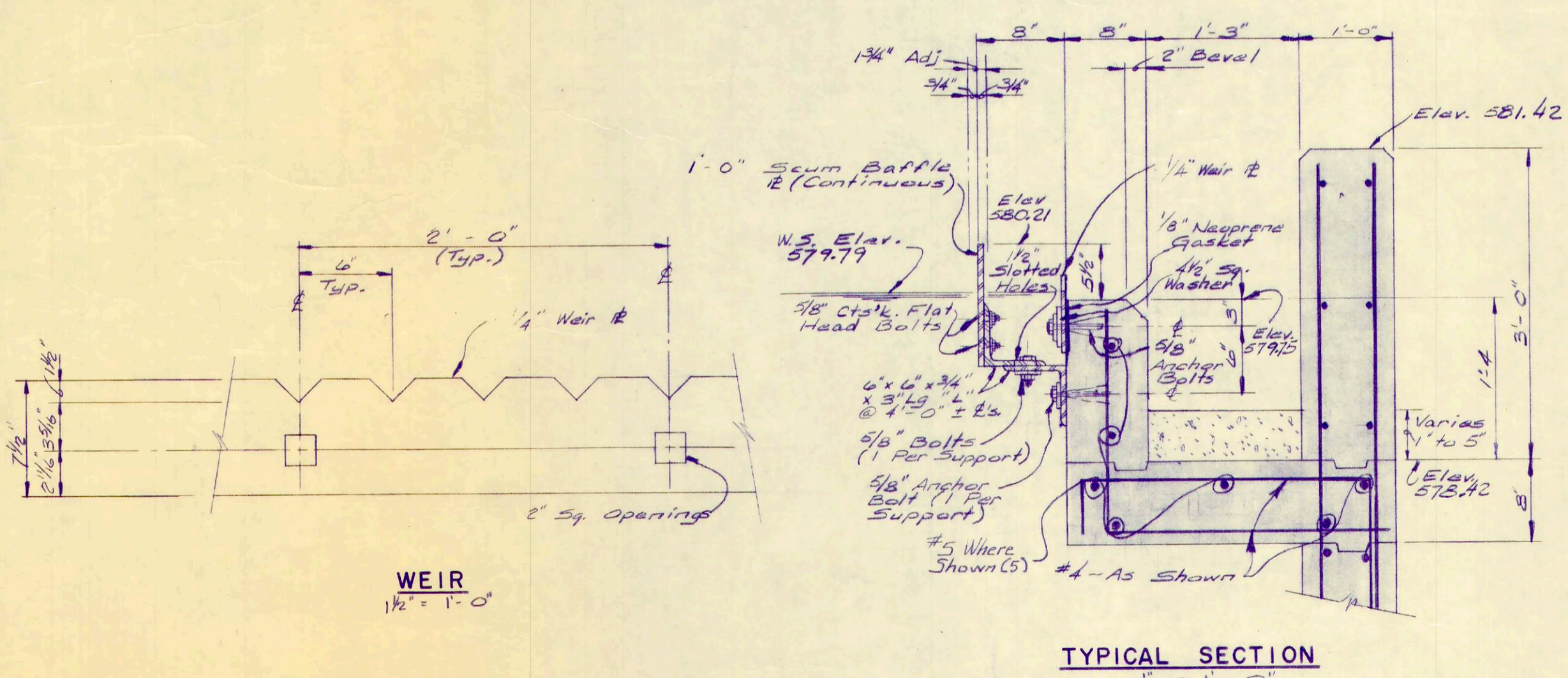


TELESCOPING VALVE DETAILS
No Scale



GRATING ANCHORING DETAILS
No Scale

NOTE:
All Aluminum Surfaces
in Contact With Concrete
to be Painted With a
Bitumastic Paint.



TROUGH DETAILS
1/2" = 1'-0"

WEIR
1/2" = 1'-0"

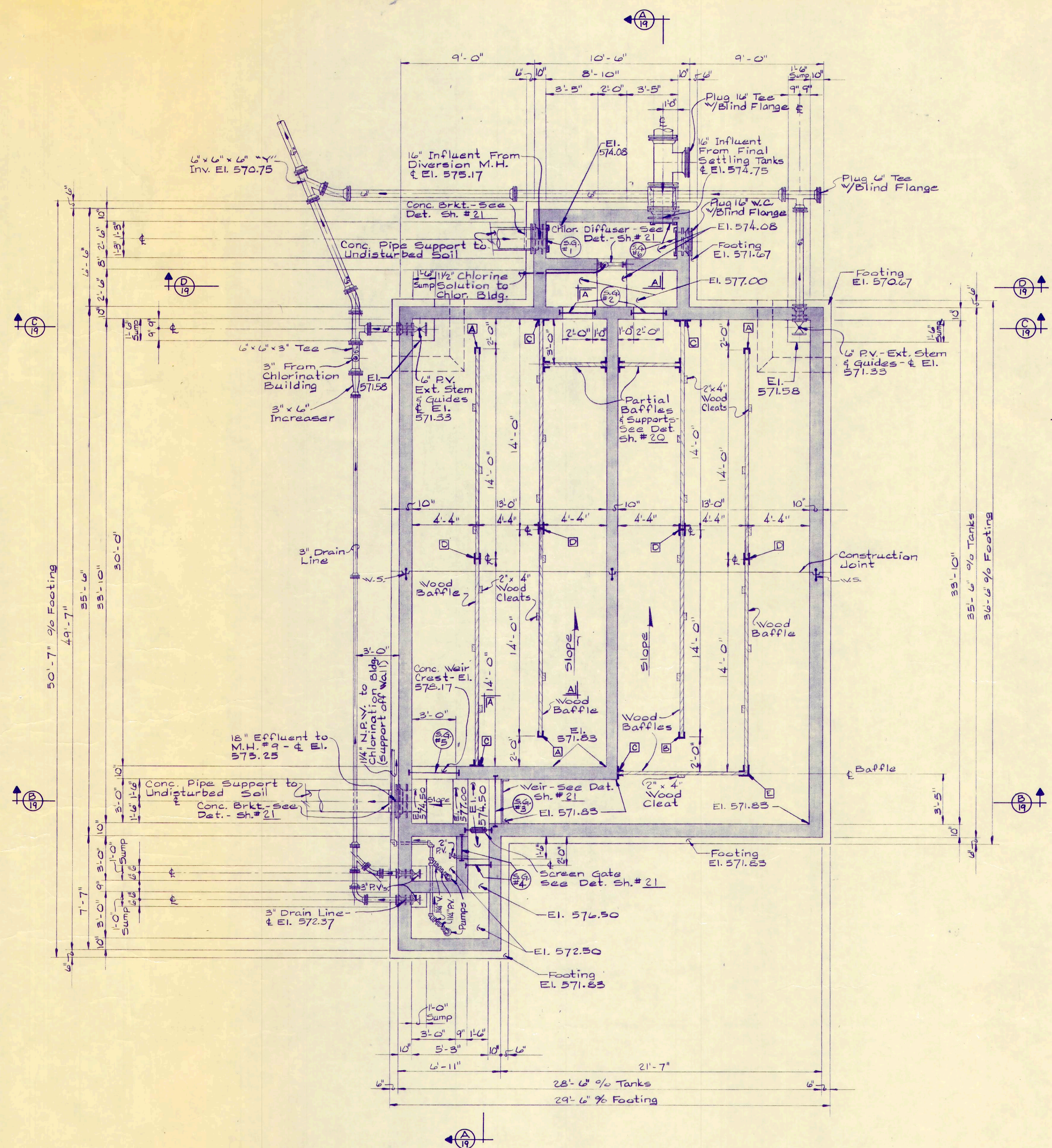
REV. NO.	DESCRIPTION	DATE	BY	APP'D

FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO

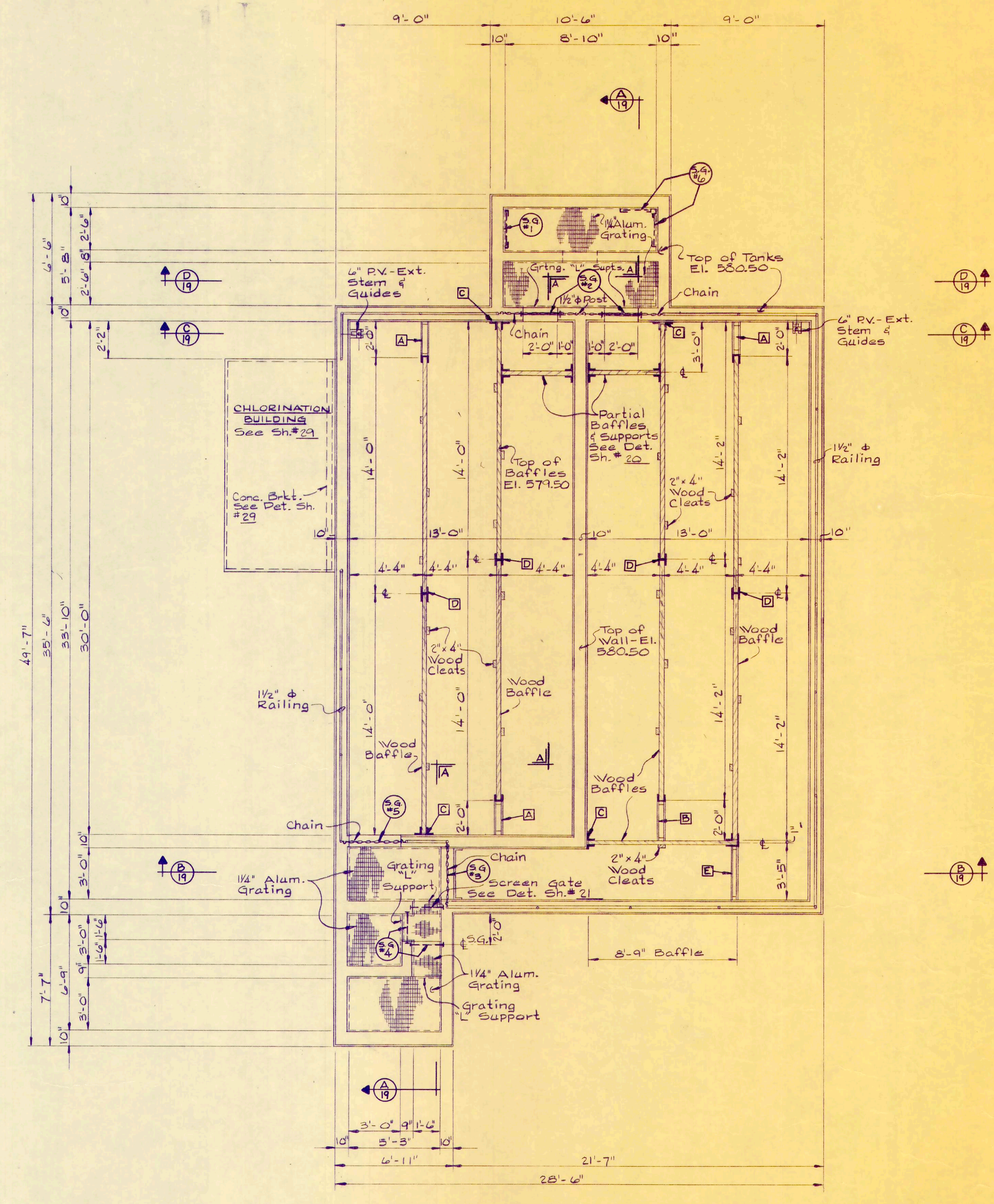
SCALE
As Noted
DESIGNED BY
R.S.W.
DRAWN BY
P.L.C.
CHECKED BY
W.C.R.

FINAL SETTLING TANK
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

PROJECT NUMBER
OAKSOO BI
SECTION
DATE
3-71
17 OF 36



SECTIONAL PLAN

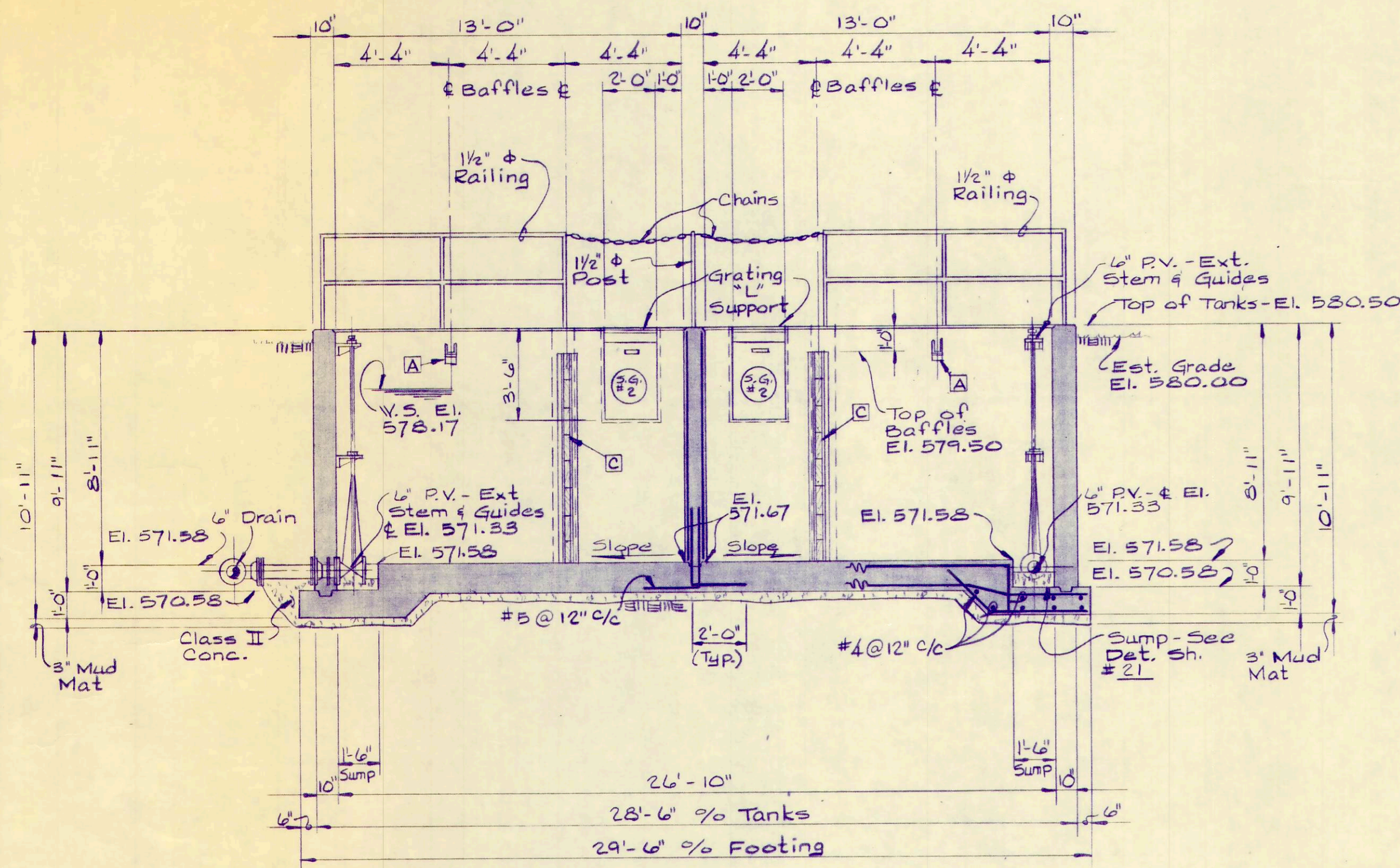


PLAN

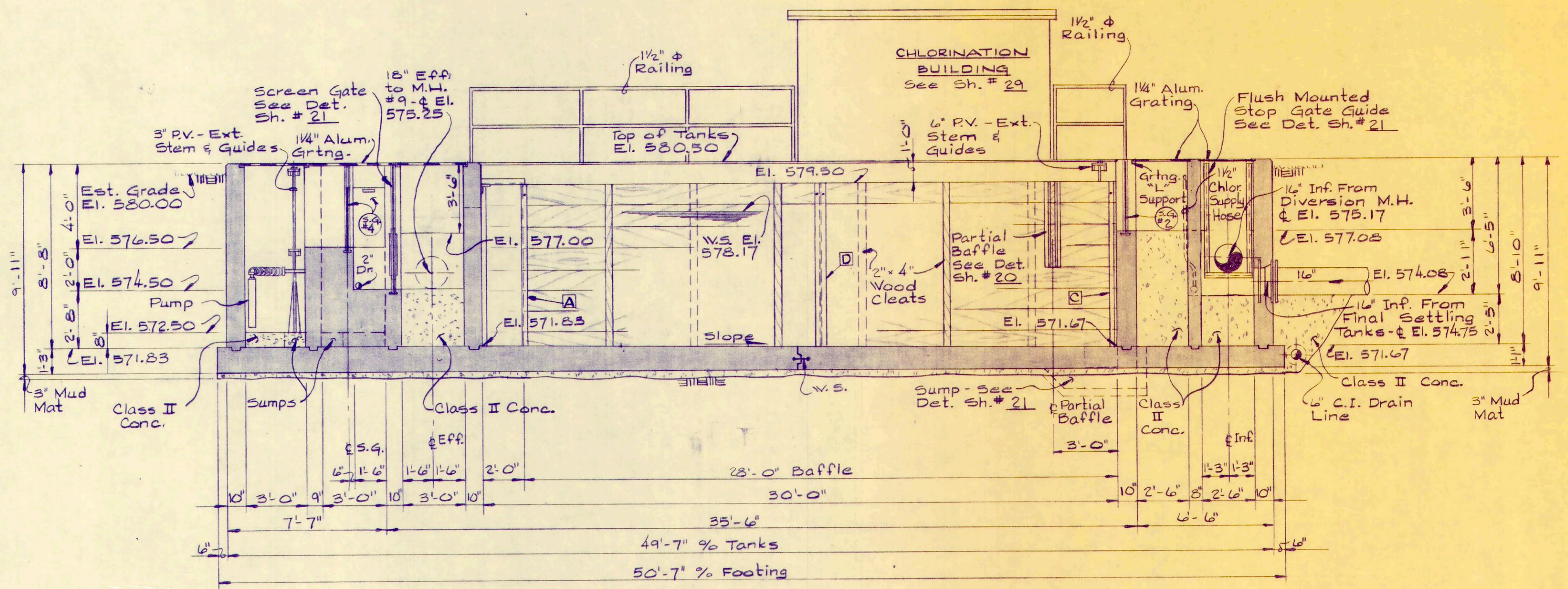
REV. NO.	DESCRIPTION	DATE	BY	APP'D.	SCALE	PROJECT NUMBER
					1/4" = 1' - 0"	OAKSOOI BI
					DESIGNED BY R. B. W.	SECTION
					DRAWN BY R. L. C.	DATE 3 - 72
					CHECKED BY W. C. K.	18 OF 36

FINKBEINER, PETTIS & STROUT, LTD.
CONSULTING ENGINEERS
TOLEDO, OHIO

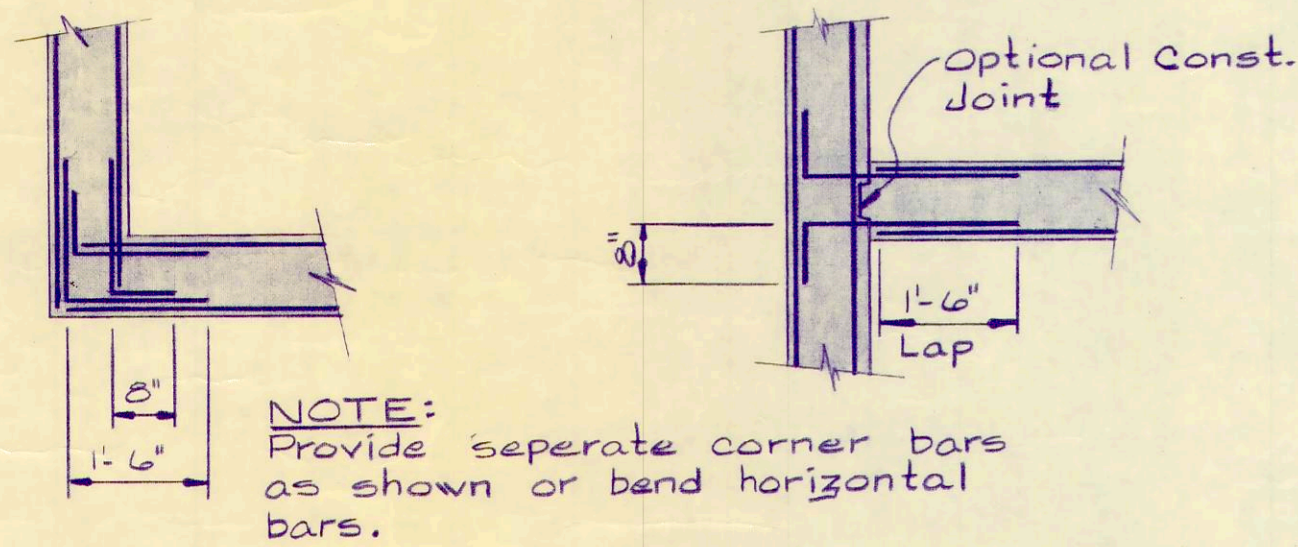
CHLORINE CONTACT TANK
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO



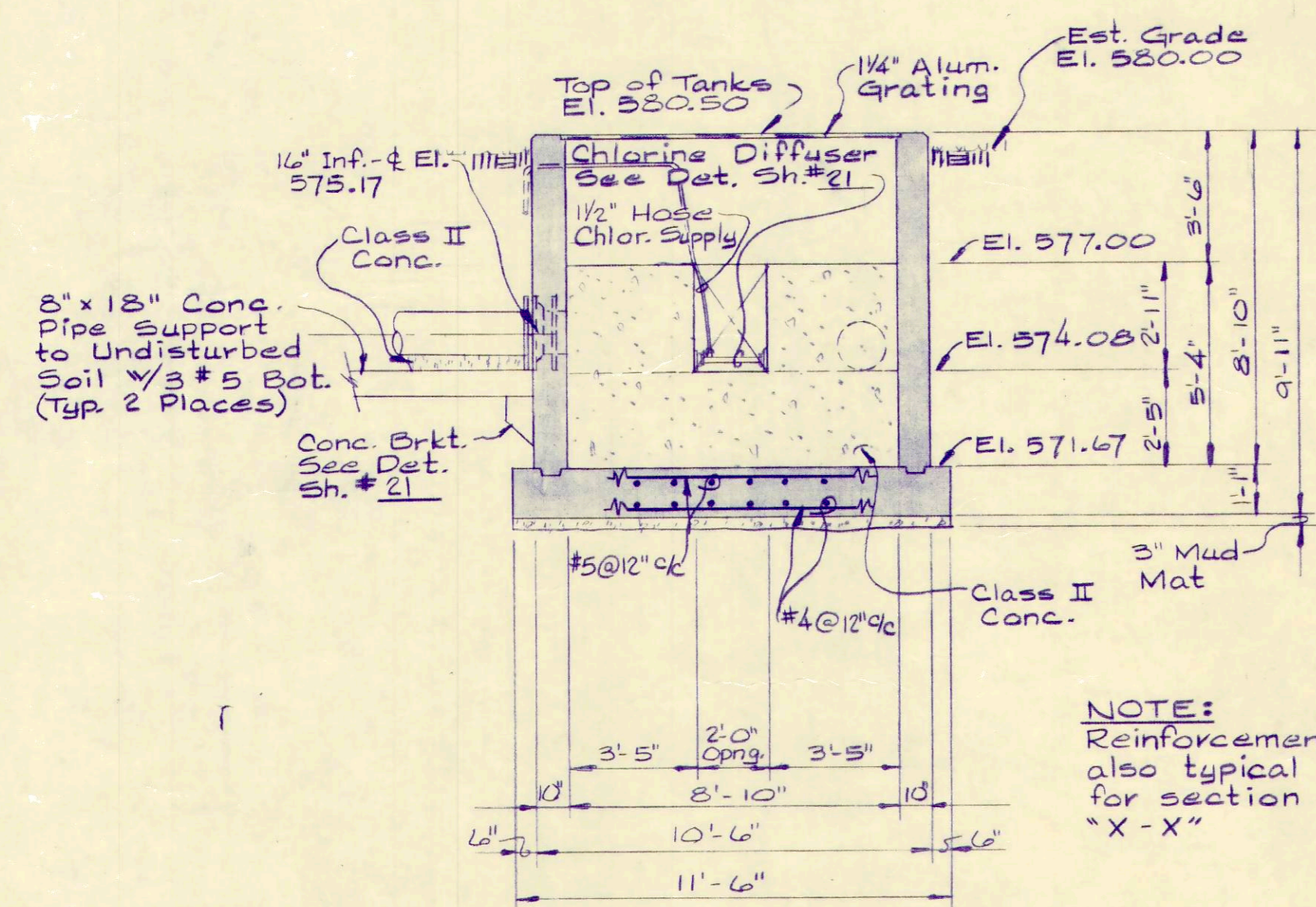
SECTION "C-C"
1/4" = 1'-0"



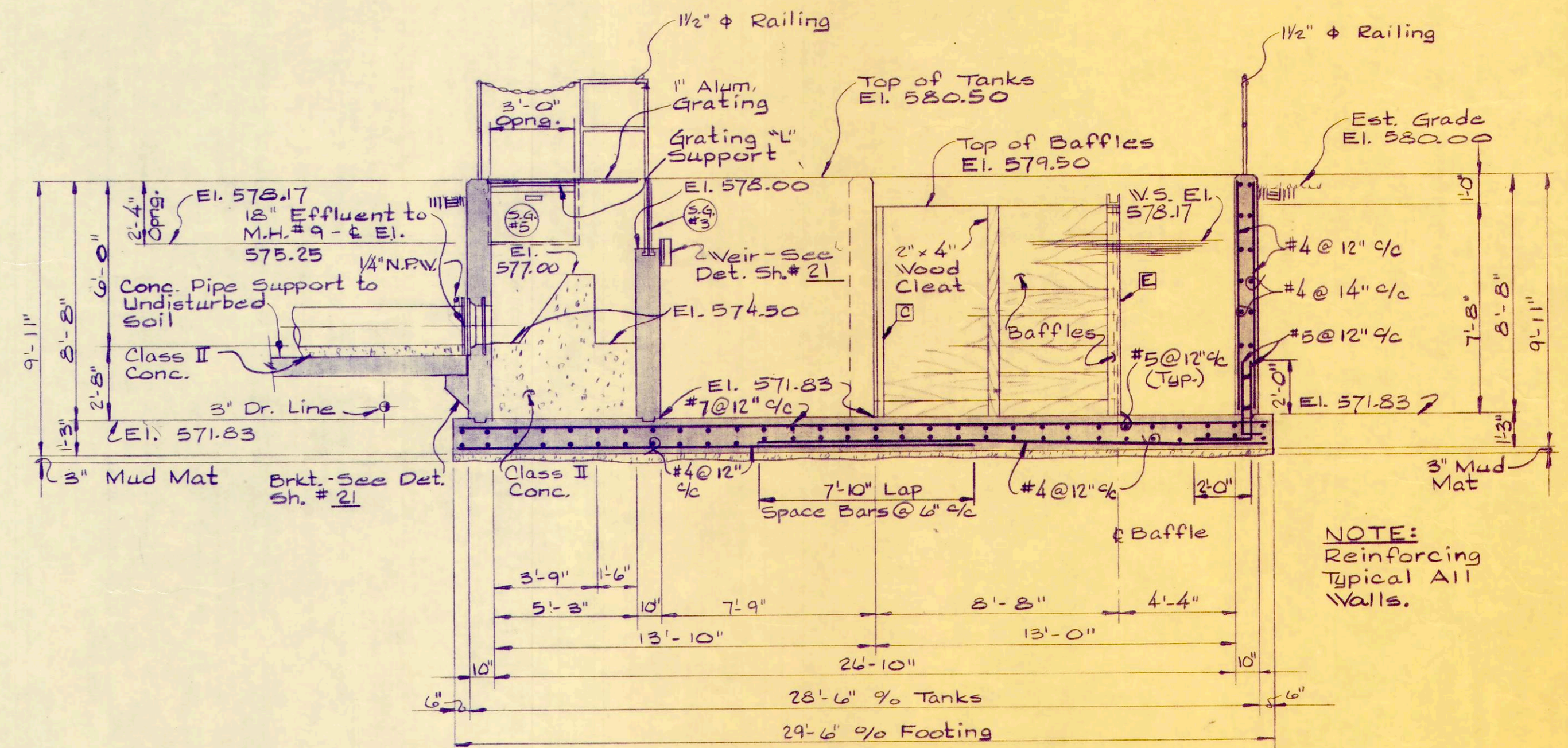
SECTION "A-A"
1/4" = 1'-0"



TYPICAL WALL CORNER DETAILS
1/2" = 1'-0"



SECTION "D-D"
1/4" = 1'-0"



SECTION "B-B"
1/4" = 1'-0"

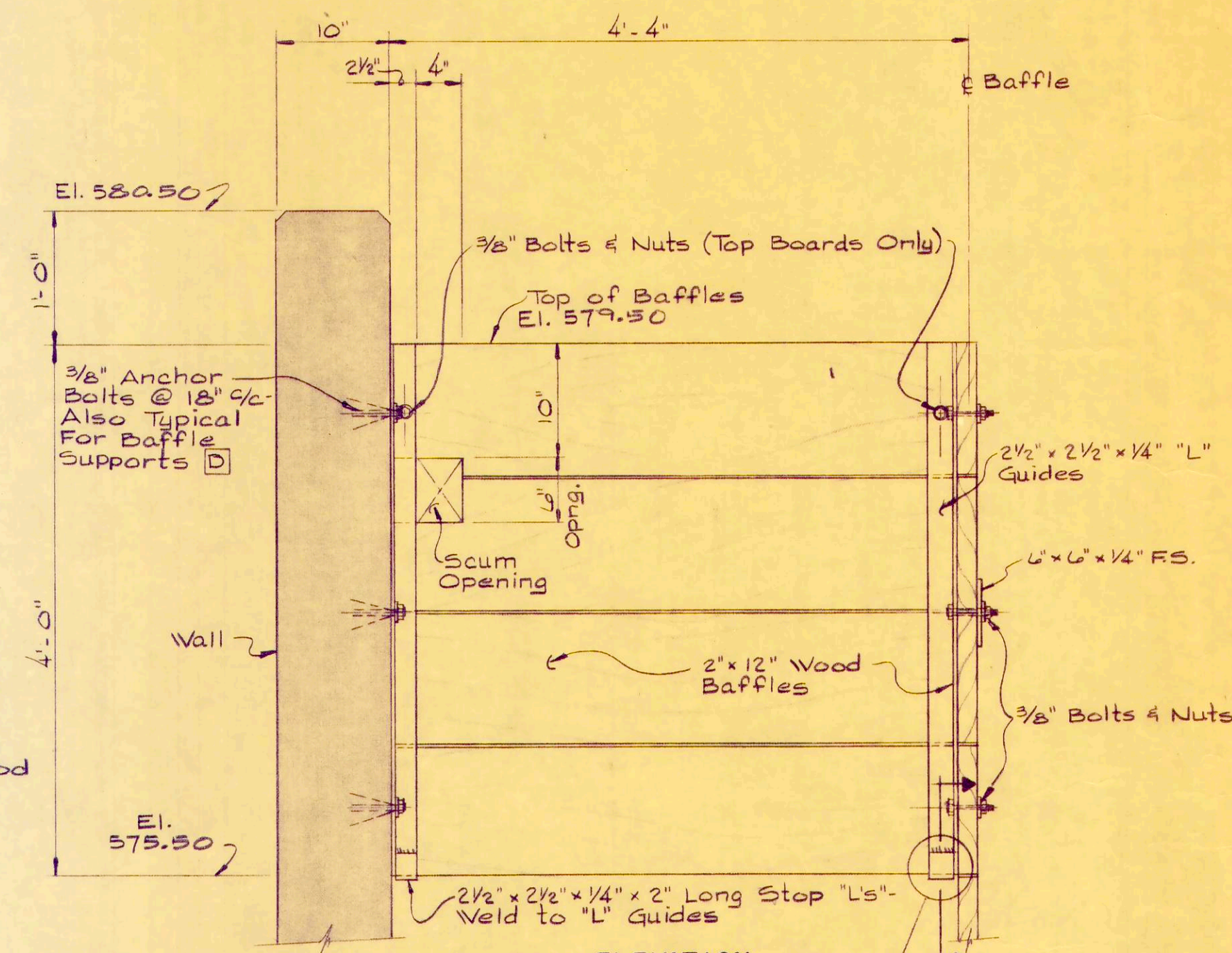
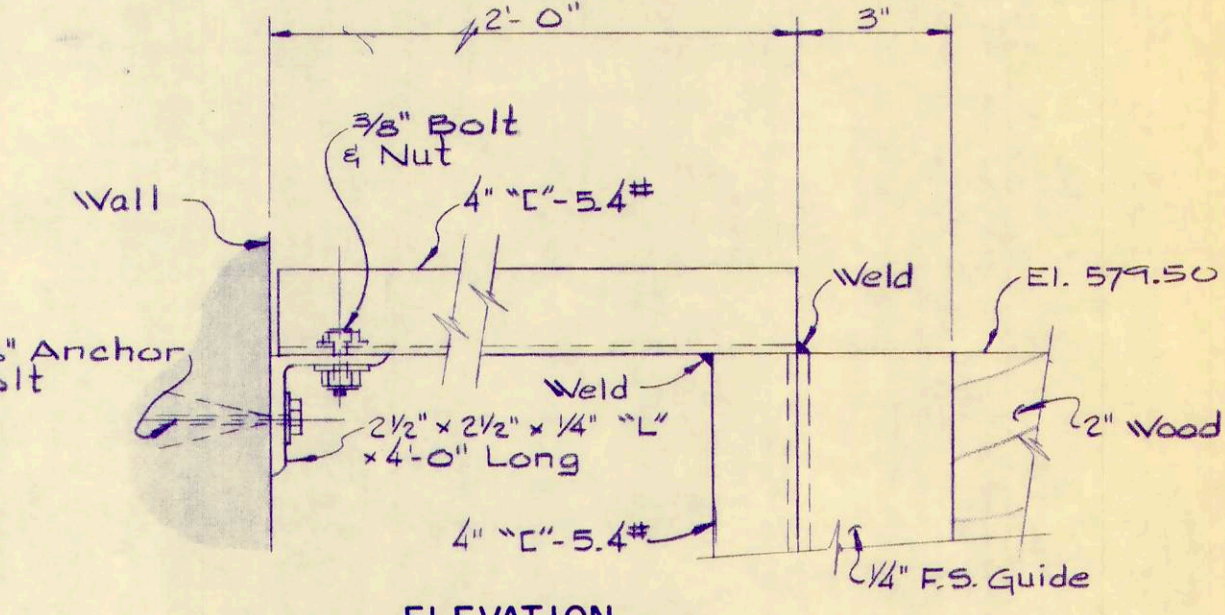
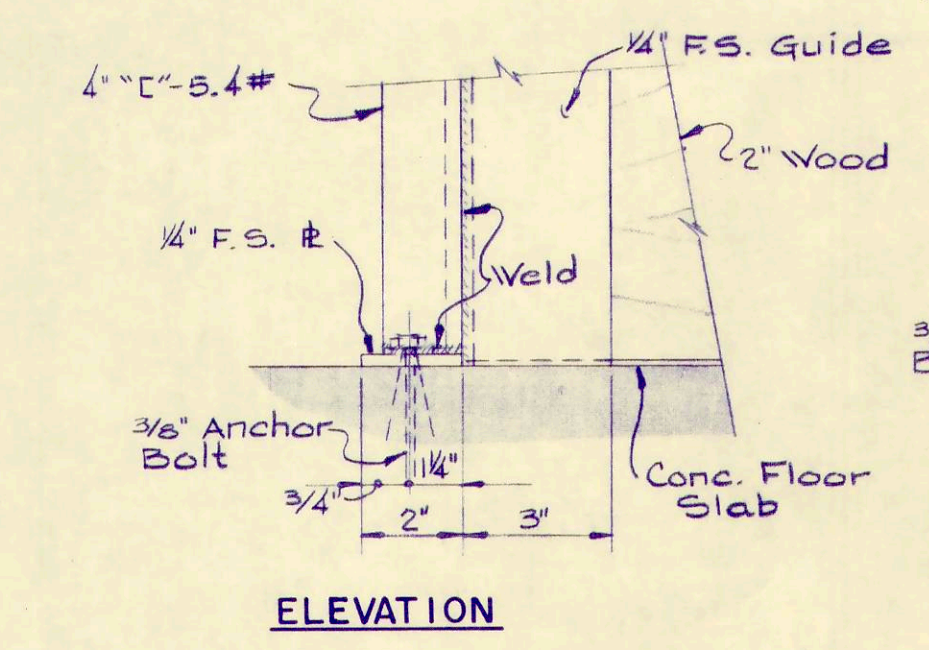
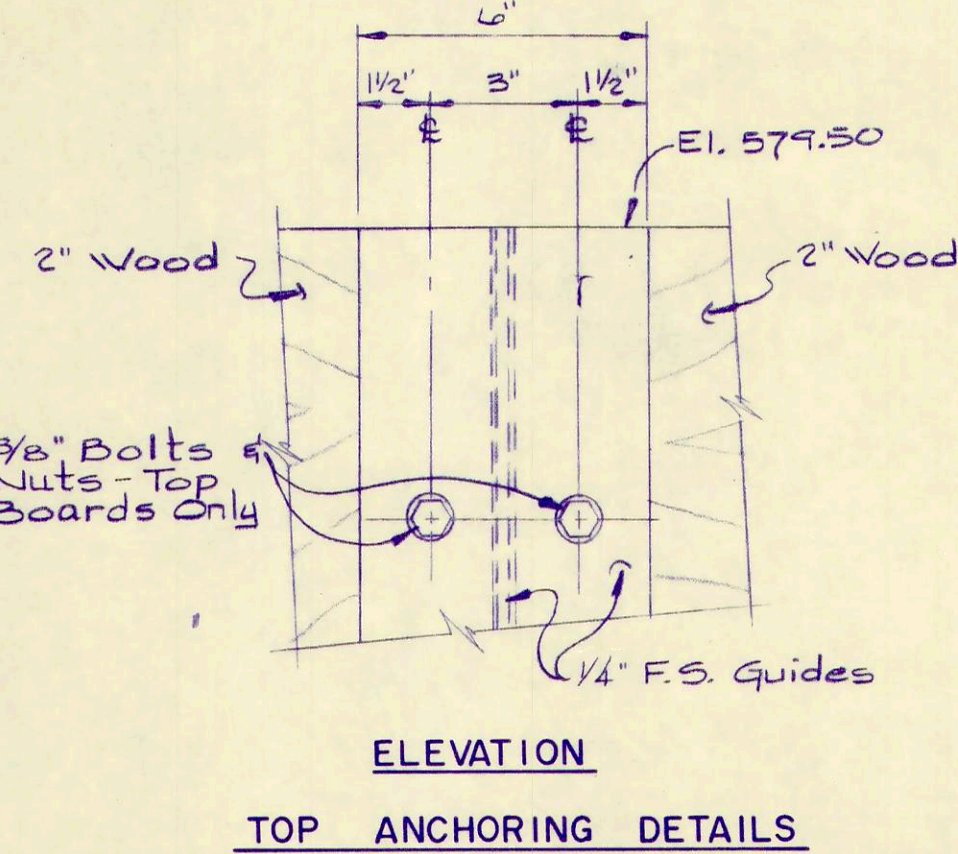
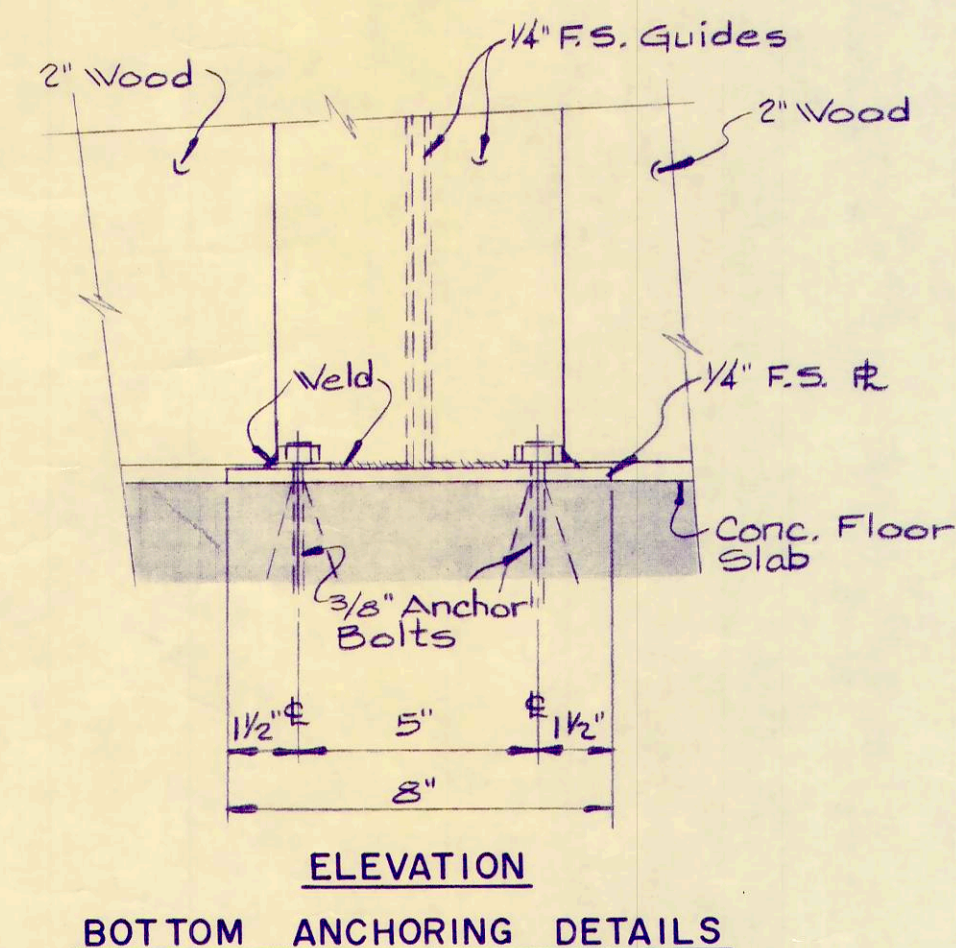
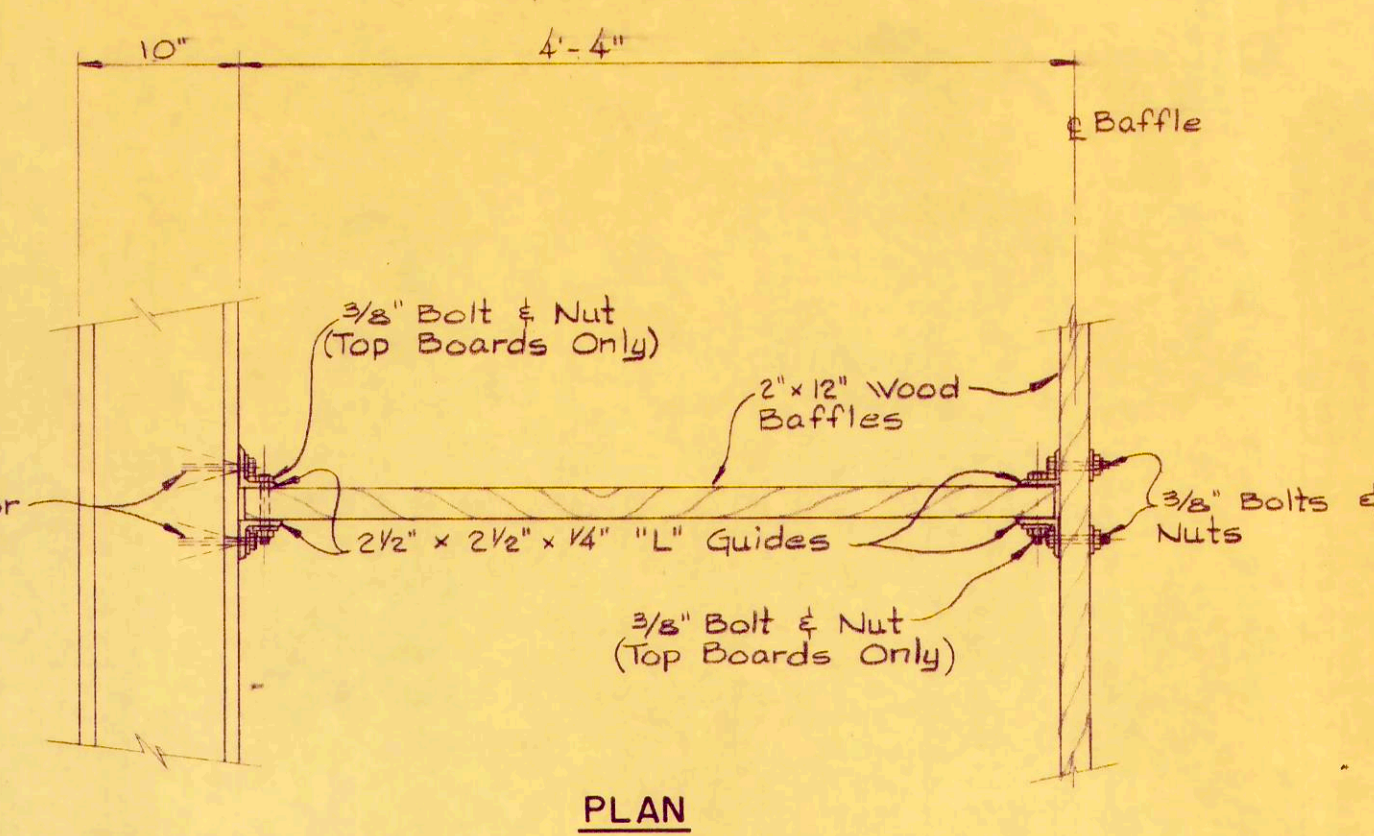
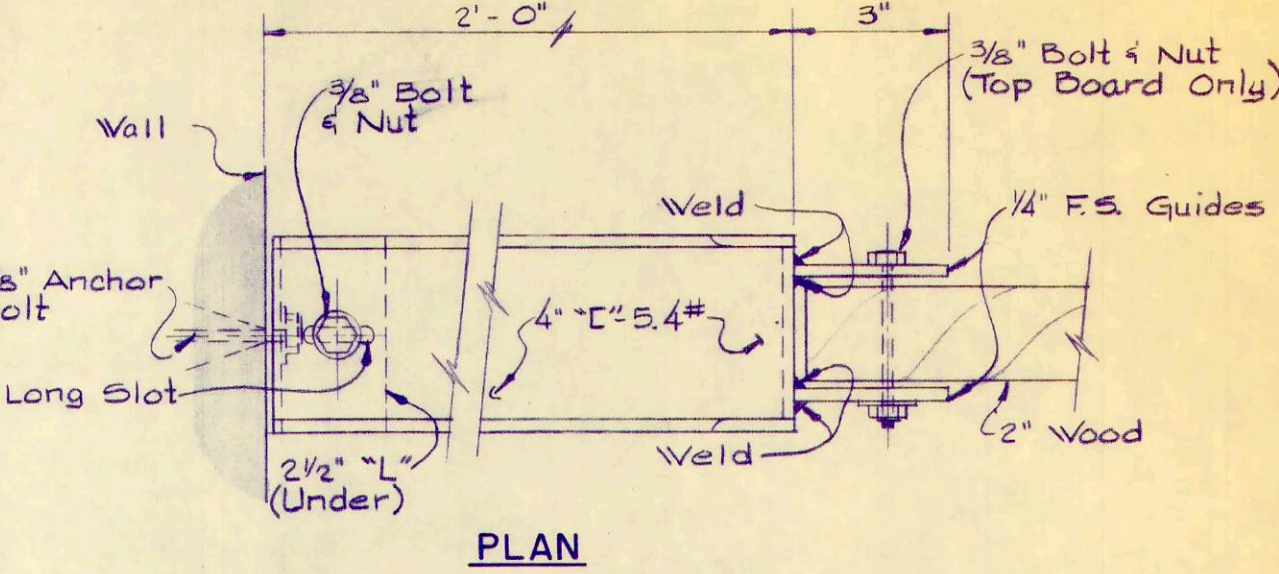
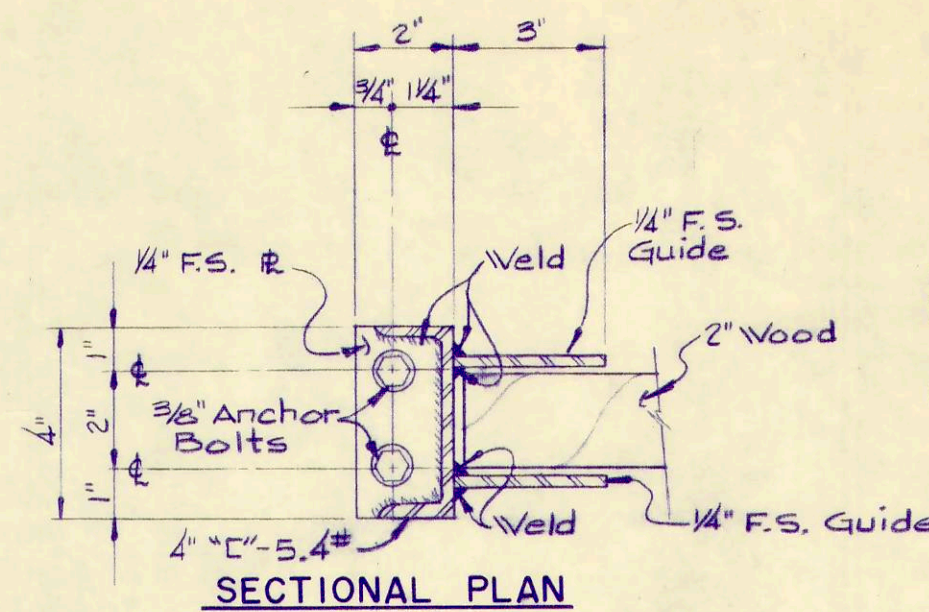
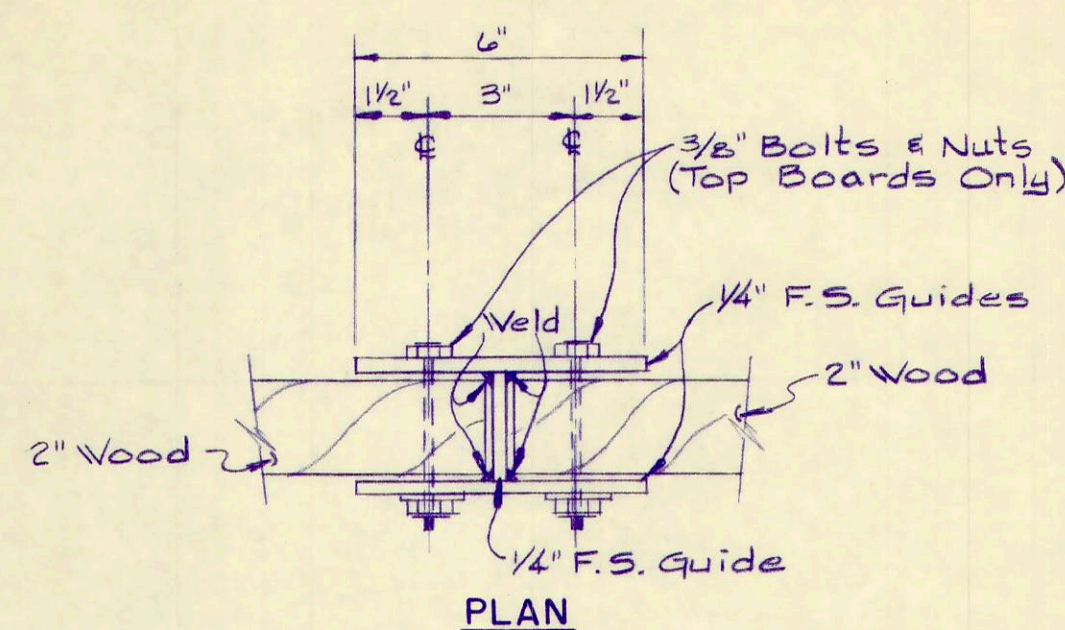
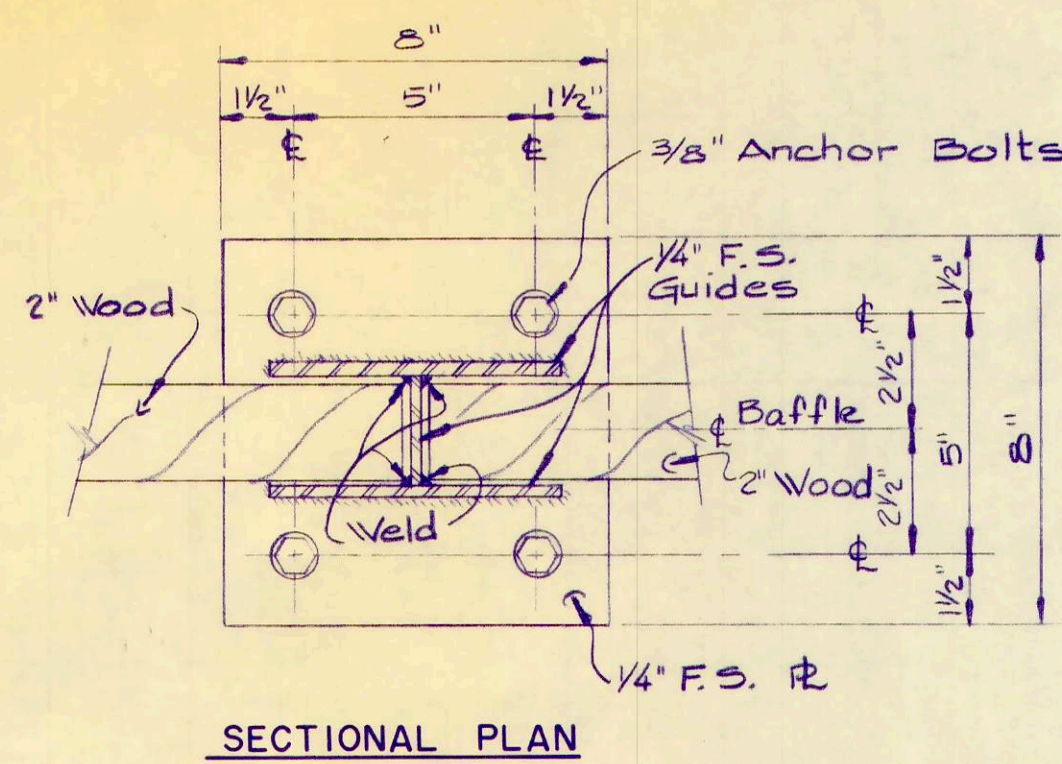
REV. NO.	DESCRIPTION	DATE	BY	APPD.

FINKBEINER, PETTIS & STROUT, LTD.
CONSULTING ENGINEERS
TOLEDO, OHIO

SCALE
As Noted
DESIGNED BY
R. B. W.
DRAWN BY
R. L. C.
CHECKED BY
W. C. K.

CHLORINE CONTACT TANK
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

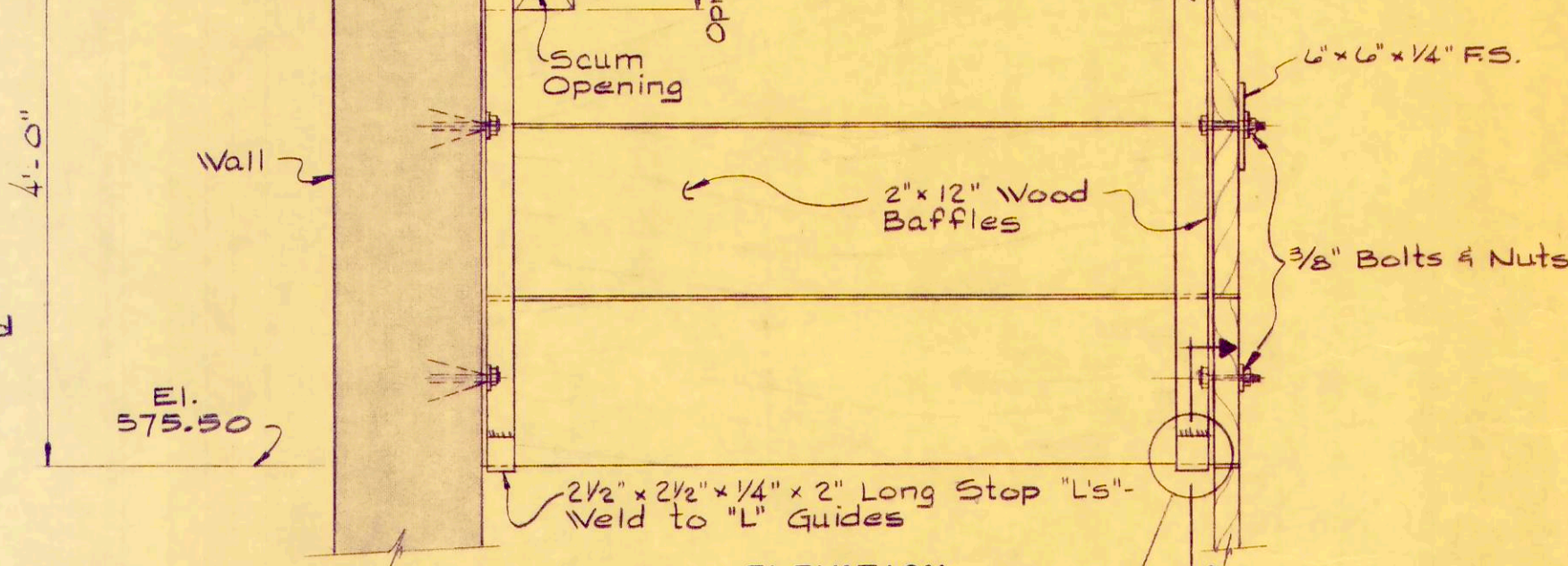
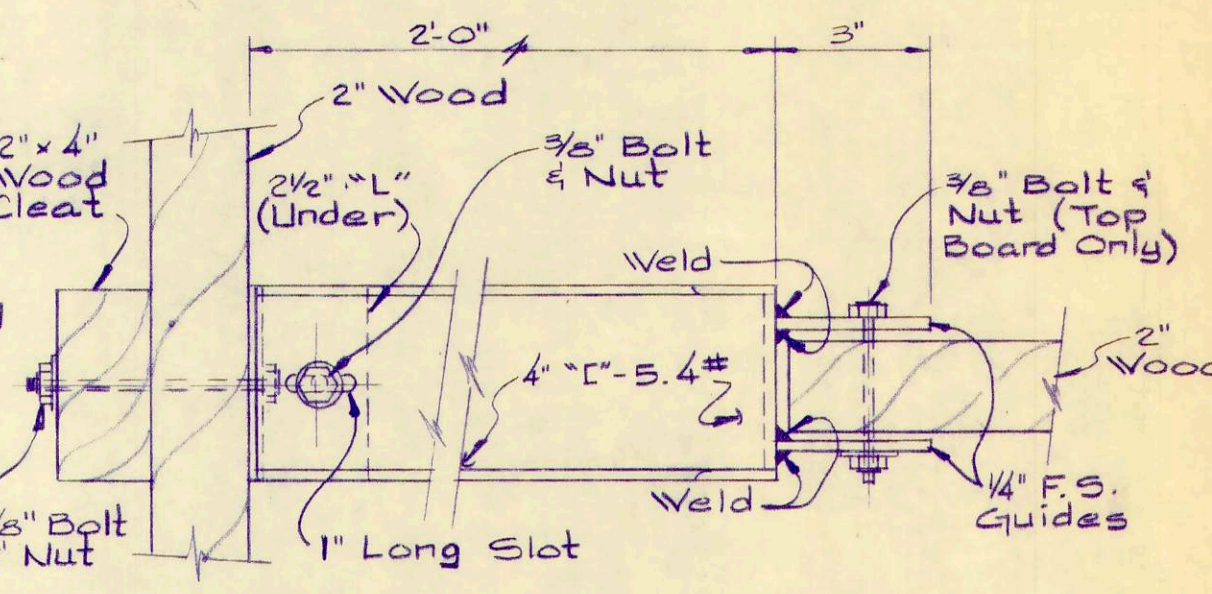
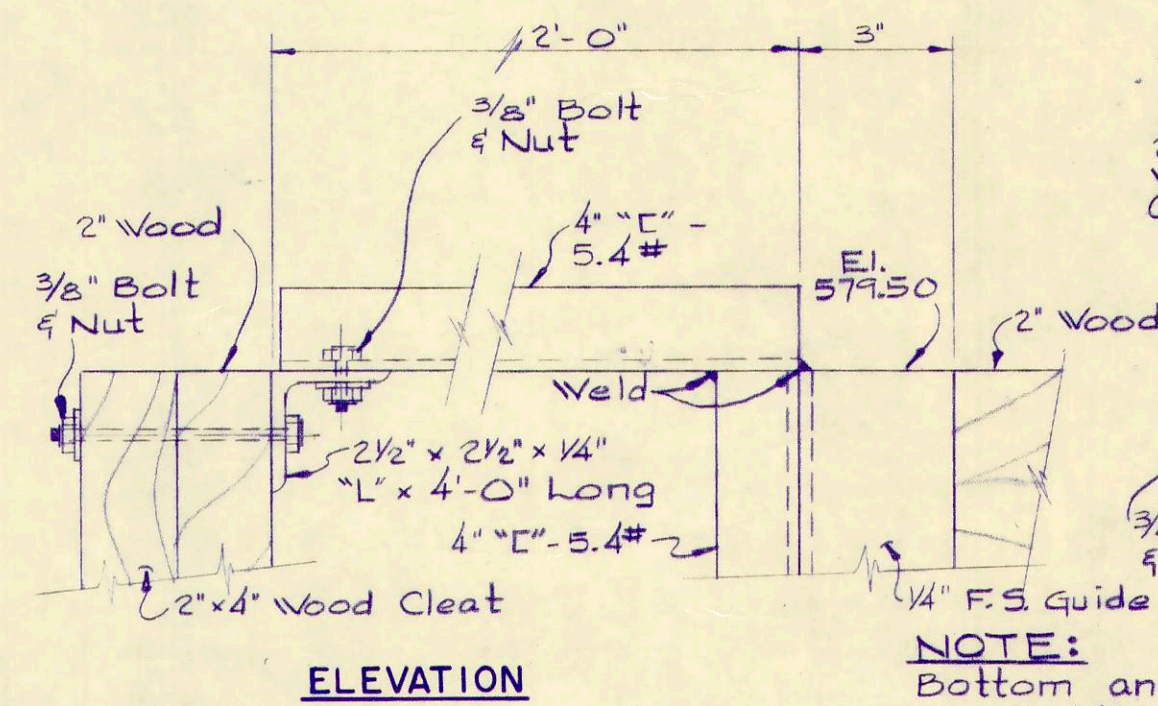
PROJECT NUMBER
OAKSOOI B1
SECTION
DATE
3-72
19 OF 36



BAFFLE SUPPORT [D]
4 Req'd. 3" = 1'-0"

BAFFLE SUPPORT [A]
4 Req'd. 3" = 1'-0"

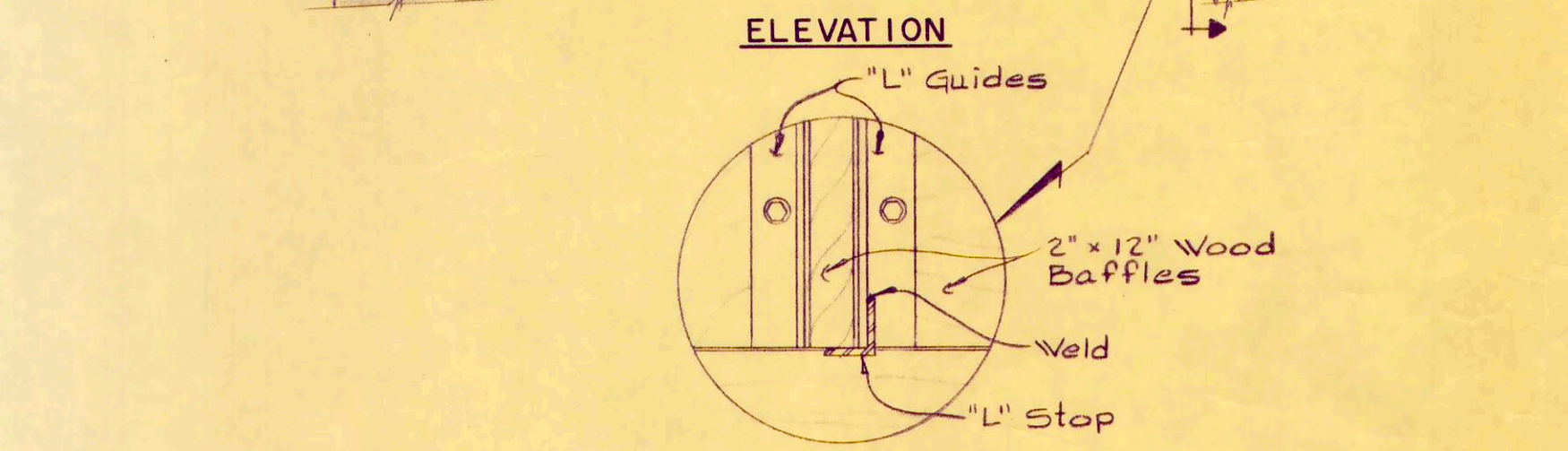
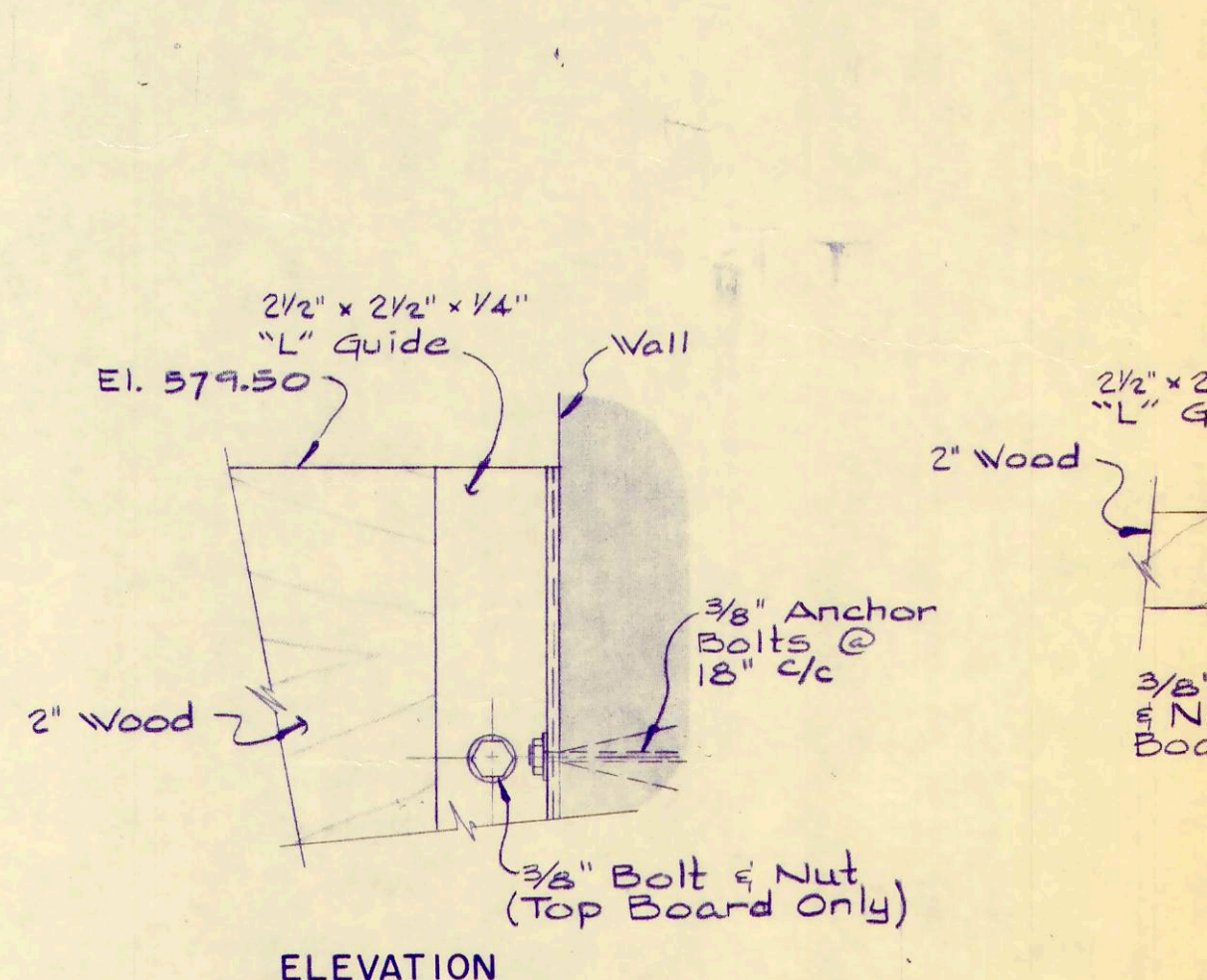
TOP ANCHORING DETAILS
3 Req'd.



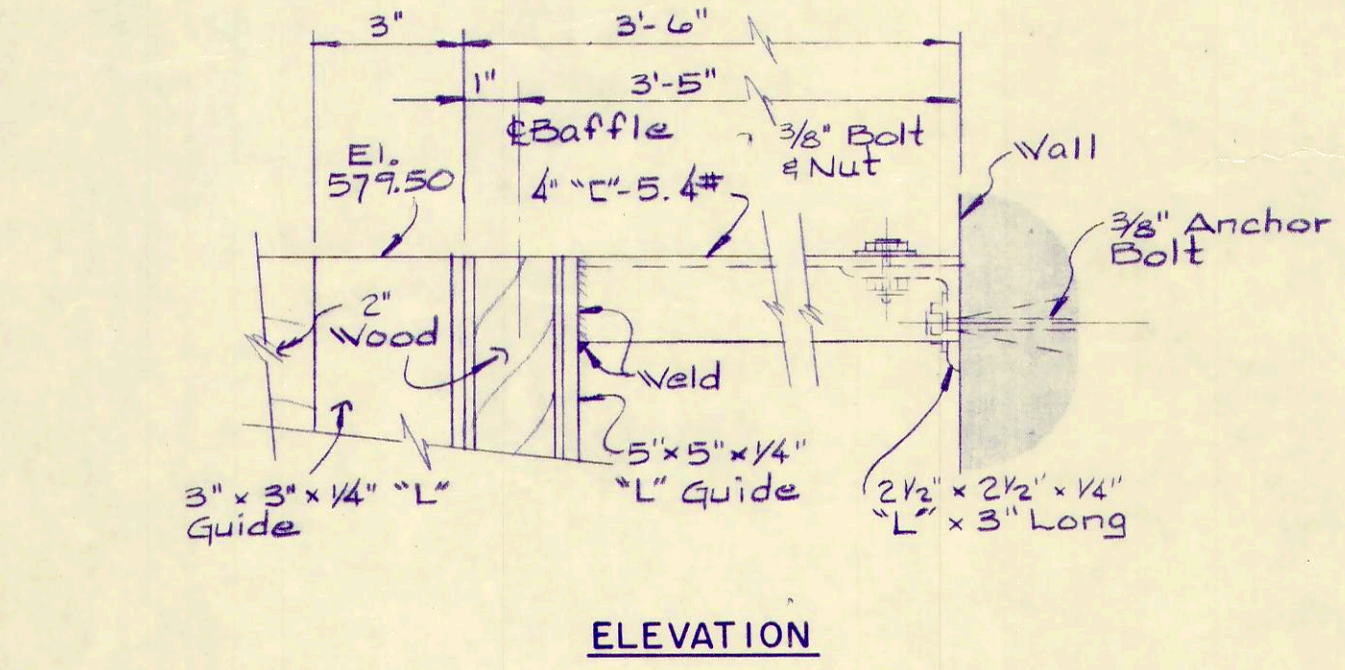
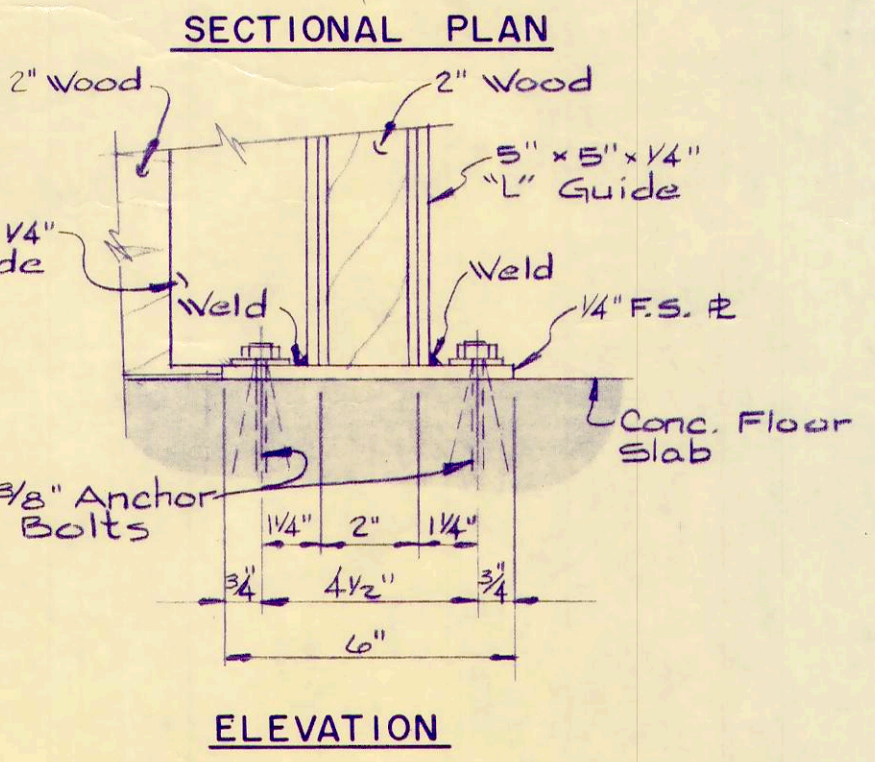
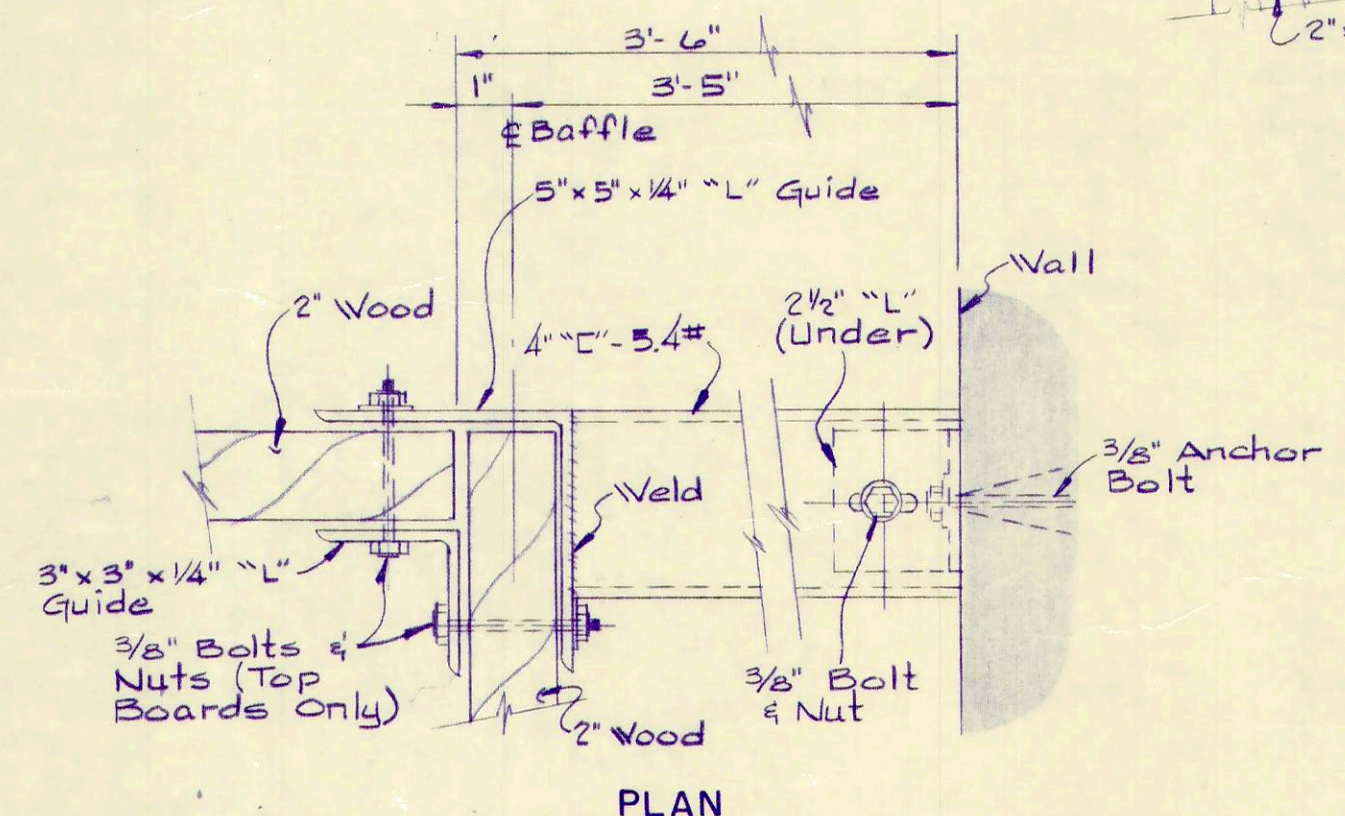
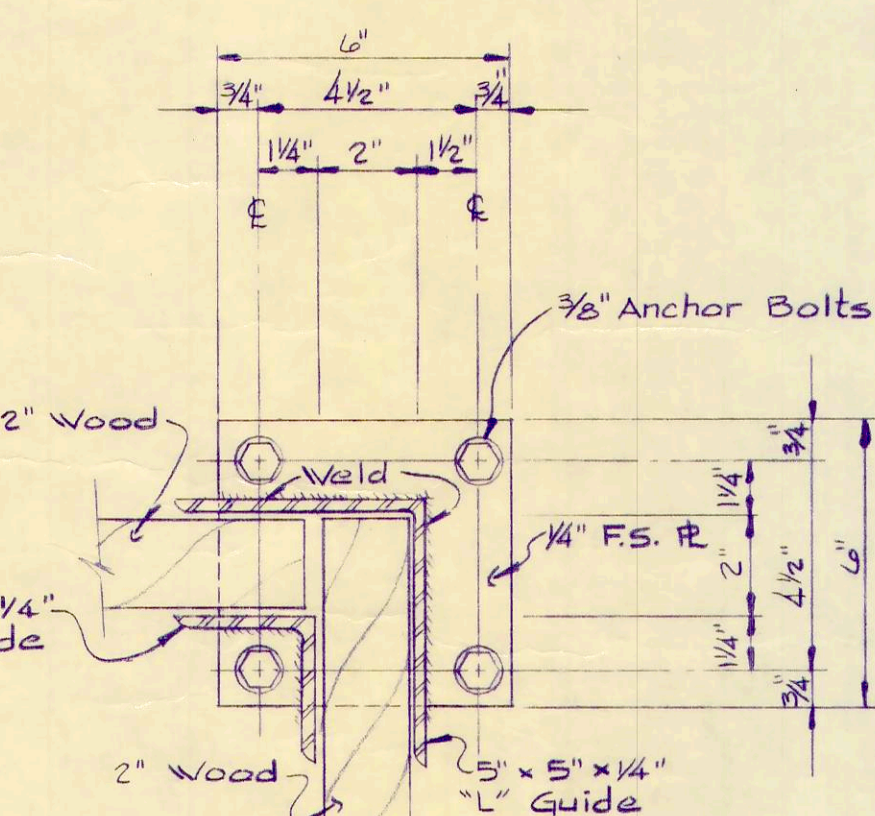
BAFFLE SUPPORT [B]
1 Req'd. 3" = 1'-0"

NOTE: Bottom anchoring details same as baffle support [A].

BAFFLE SUPPORT [C]
4 Req'd. 3" = 1'-0"



PARTIAL BAFFLE DETAILS
1" = 1'-0"



BAFFLE SUPPORT [E]
1 Req'd. 3" = 1'-0"

TOP ANCHORING DETAILS

NOTES:
All bolts and nuts to be bronze.
All aluminum surfaces in contact with concrete to be painted with a bitumastic paint.
All structural steel to be galvanized.

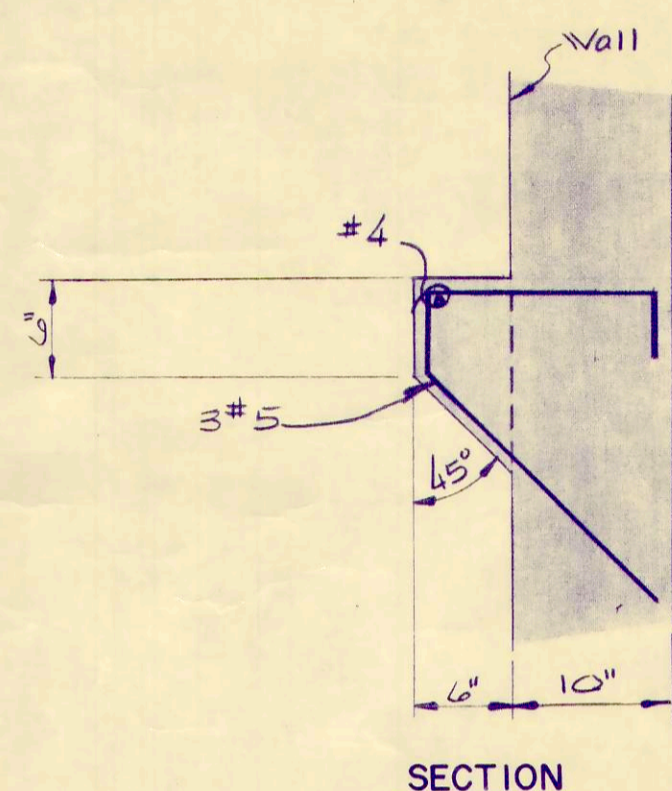
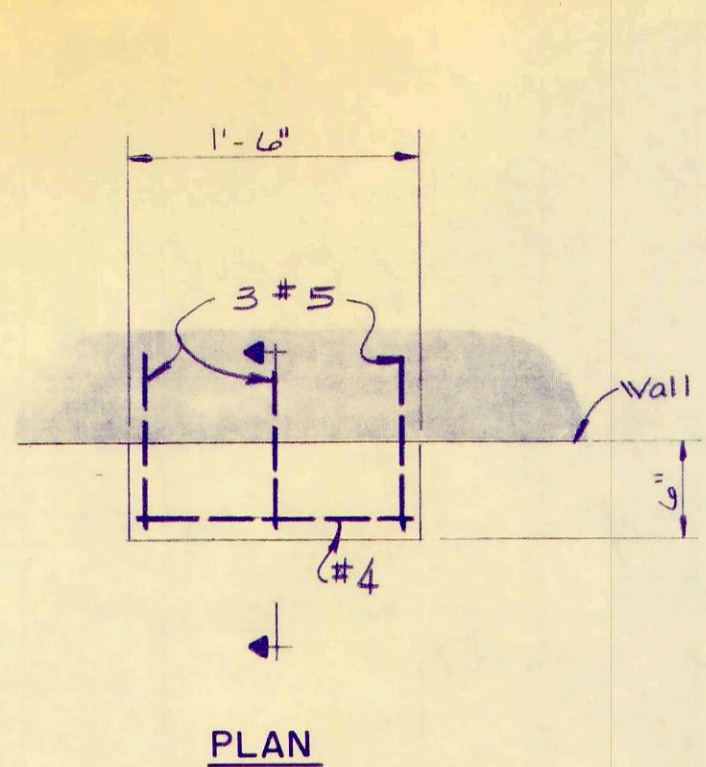
REV. NO.	DESCRIPTION	DATE	BY	APP'D

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TOLEDO, OHIO

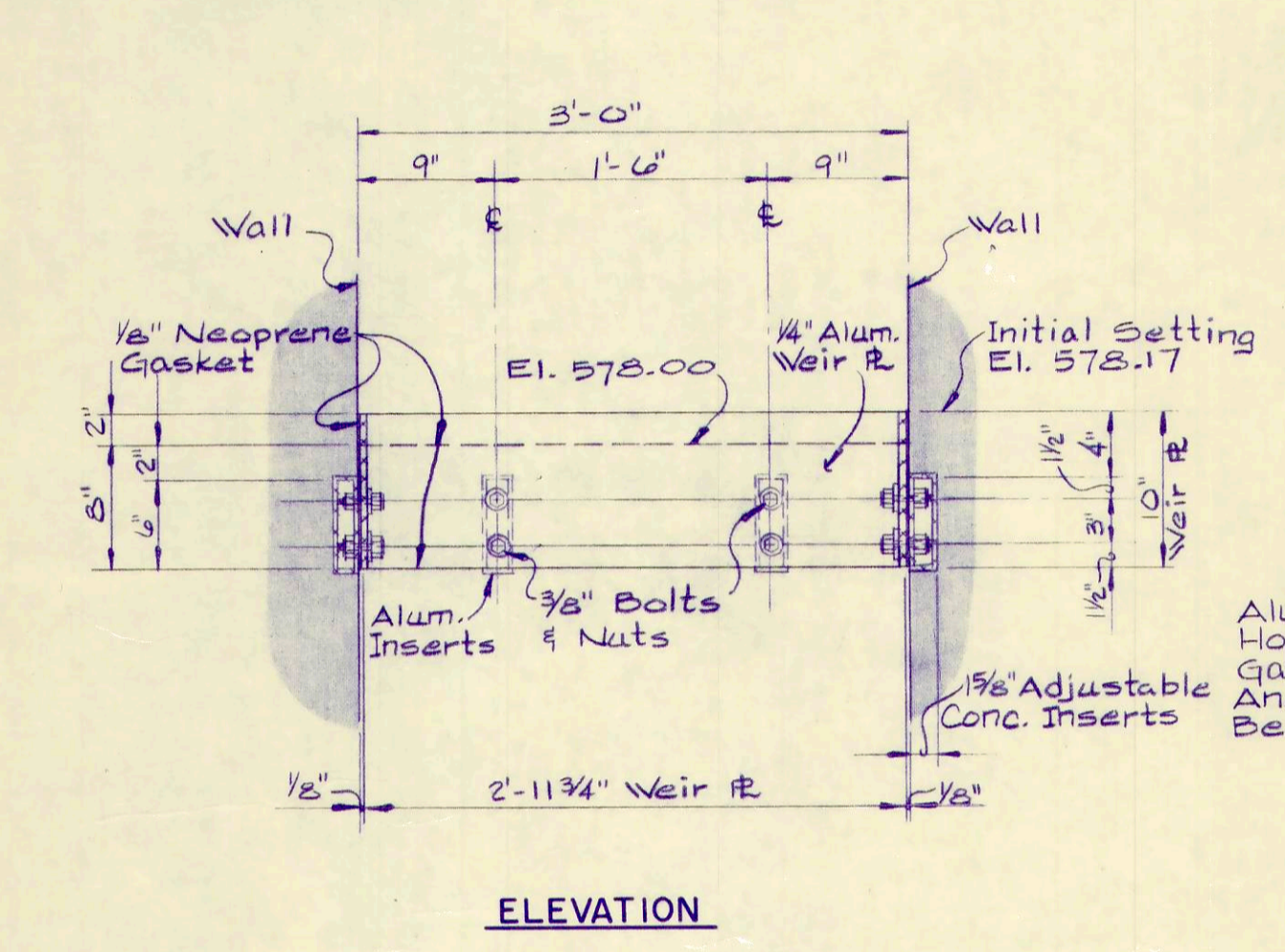
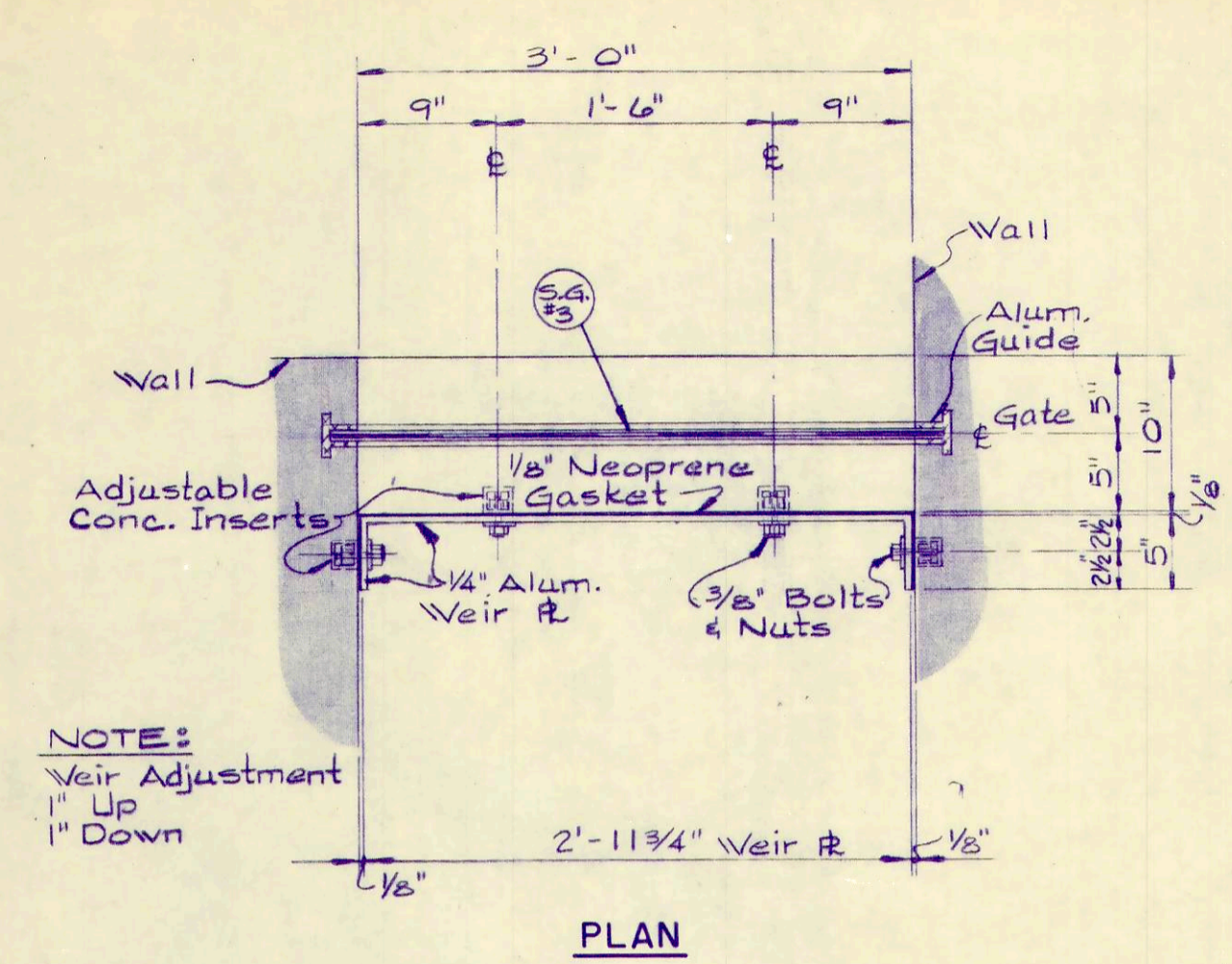
SCALE
As Noted
DESIGNED BY
R. B. W.
DRAWN BY
R. L. C.
CHECKED BY
W. C. K.

CHLORINE CONTACT TANK
WASTEWATER TREATMENT PLANT IMPROVEMENTS
OAK HARBOR, OHIO

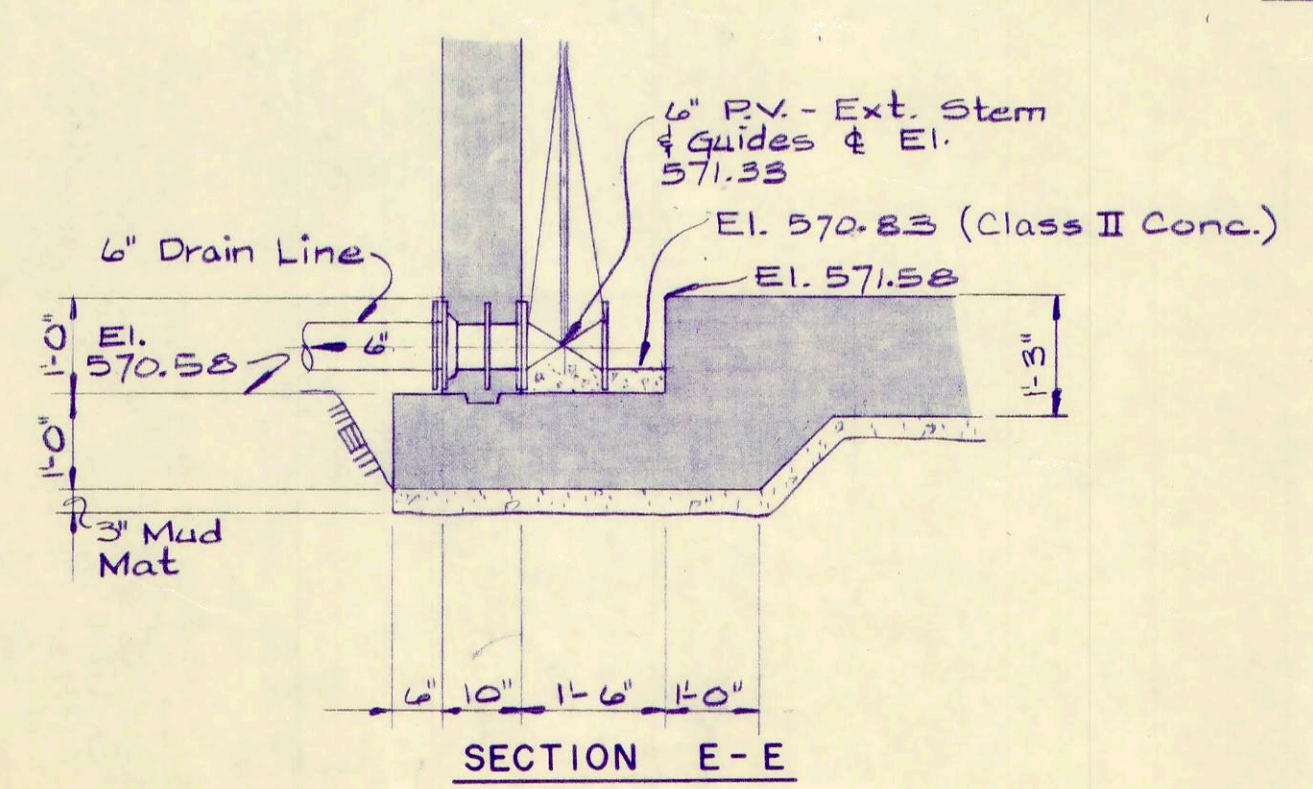
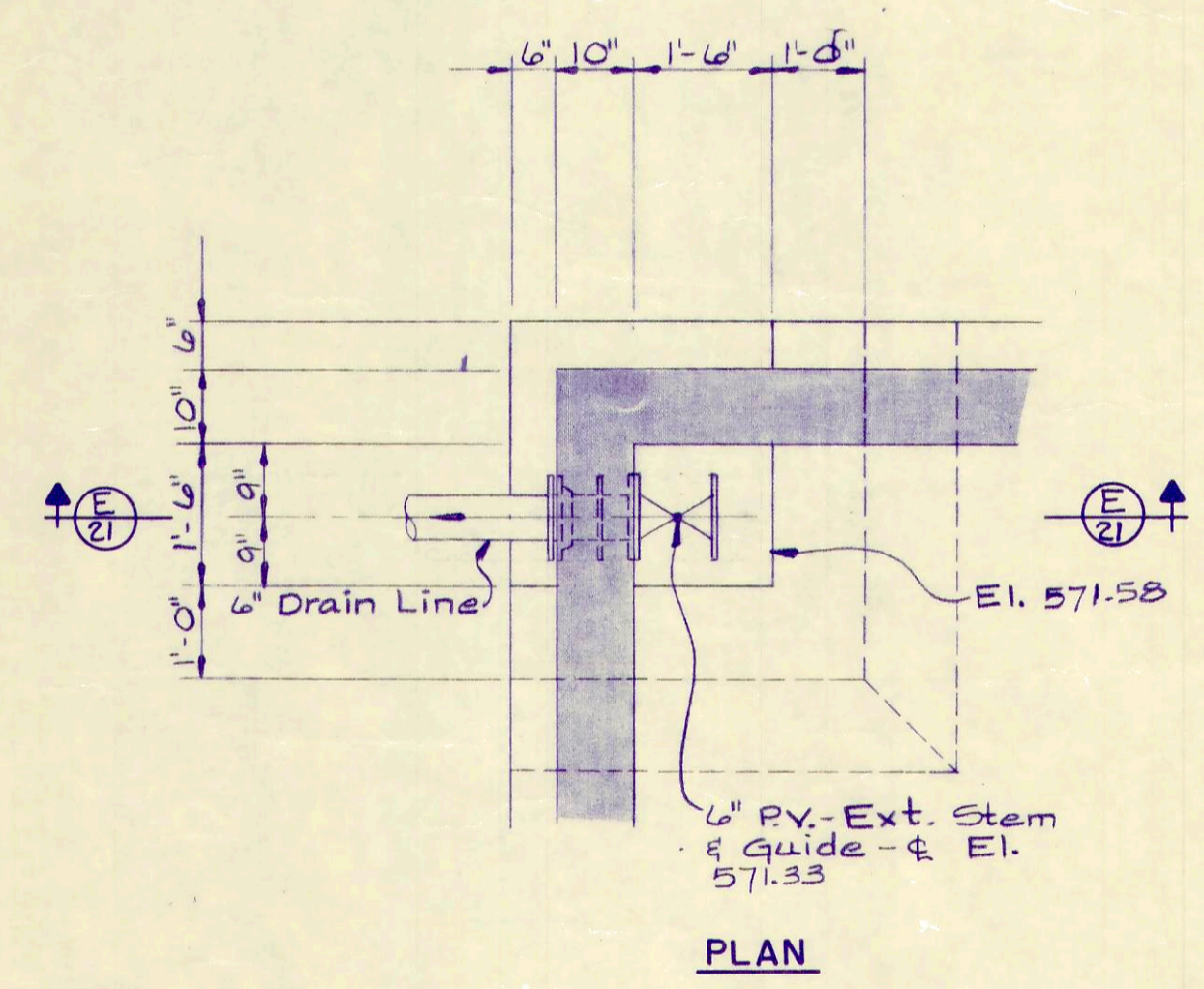
PROJECT NUMBER
OAKSOO1 B1
SECTION
DATE
3-72
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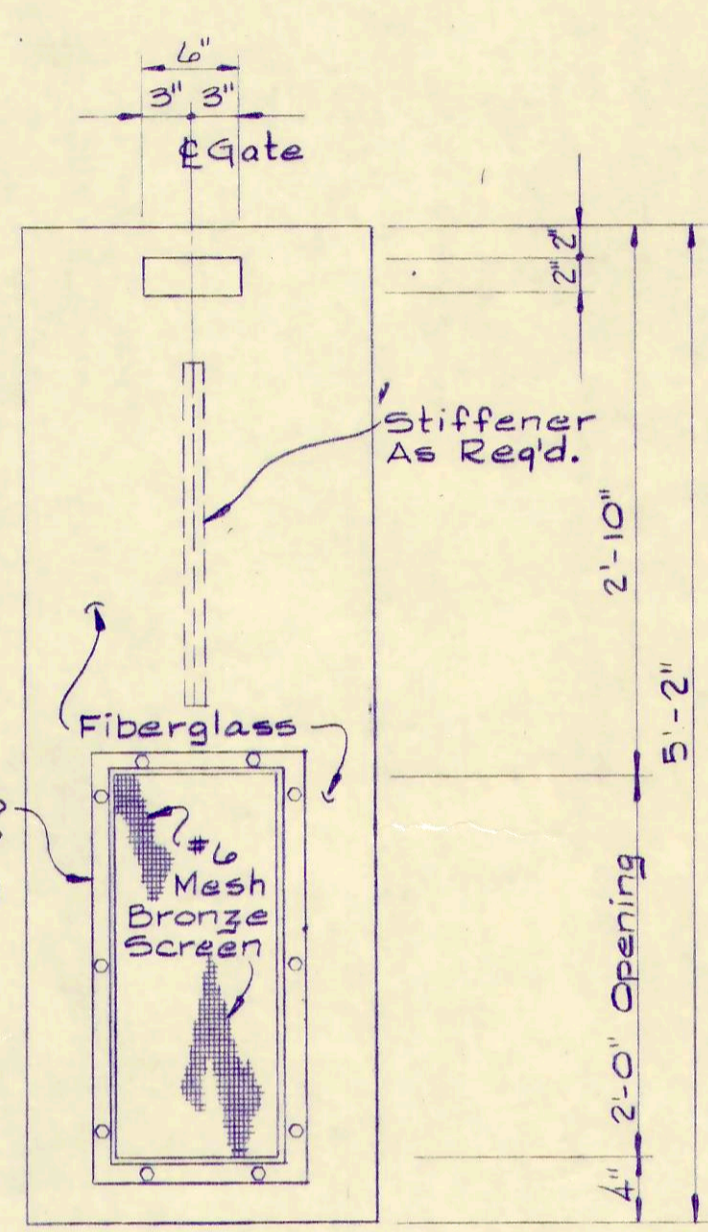
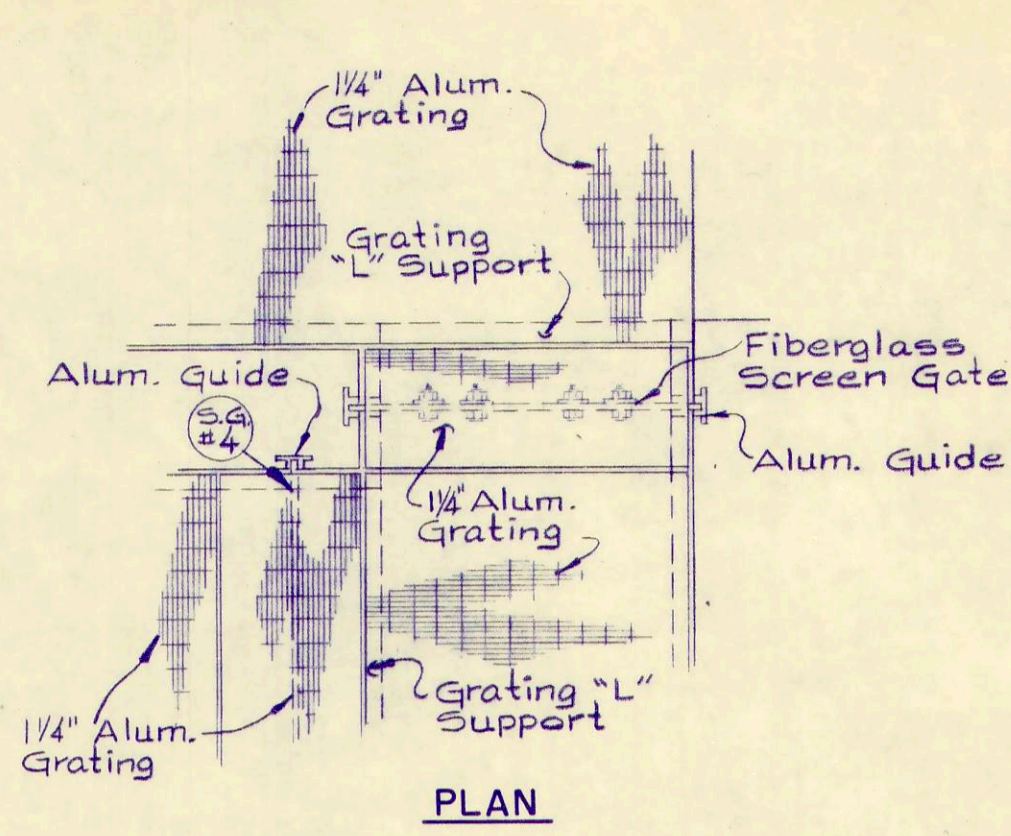
CONCRETE BRACKET DETAILS
2 Req'd. 1" = 1'-0"



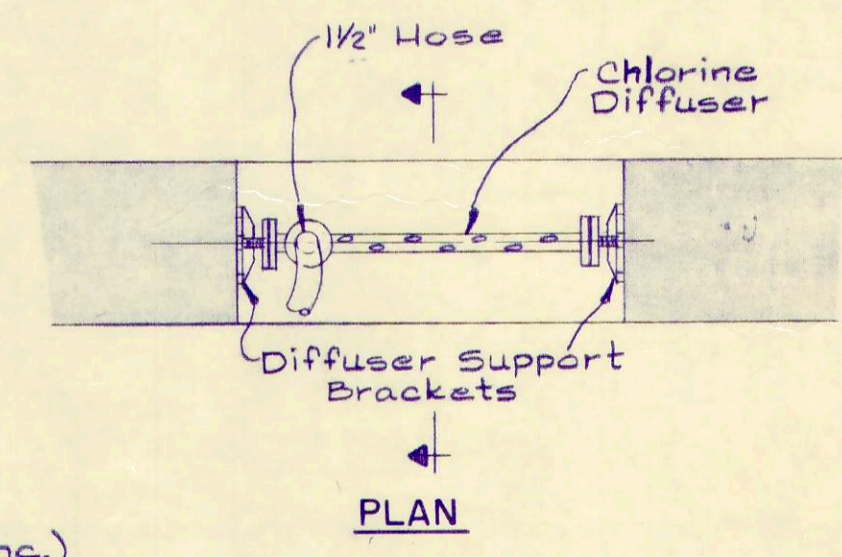
WEIR DETAILS
1" = 1'-0"



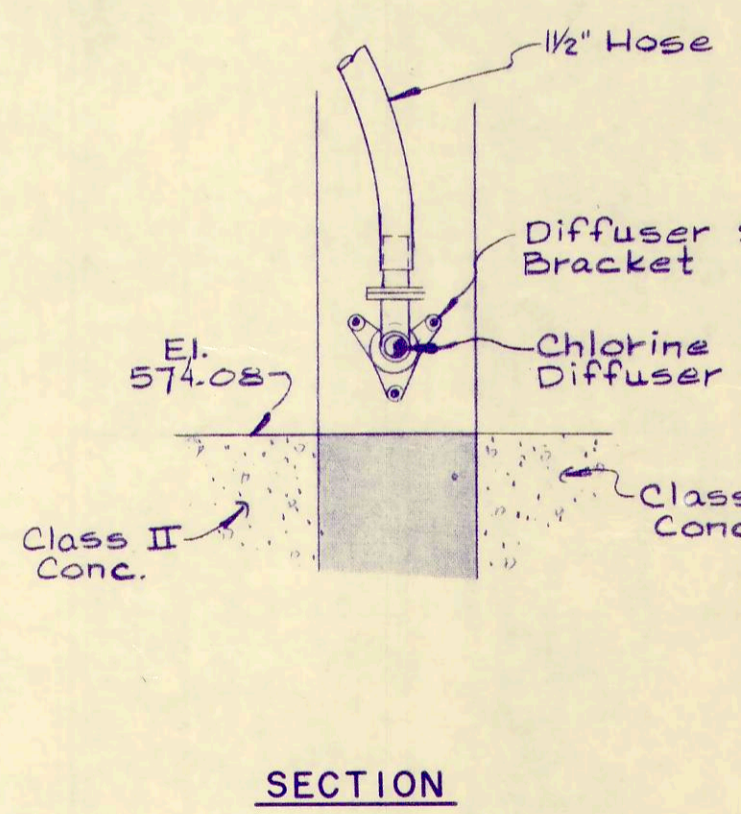
SUMP DETAILS
1/2" = 1'-0"



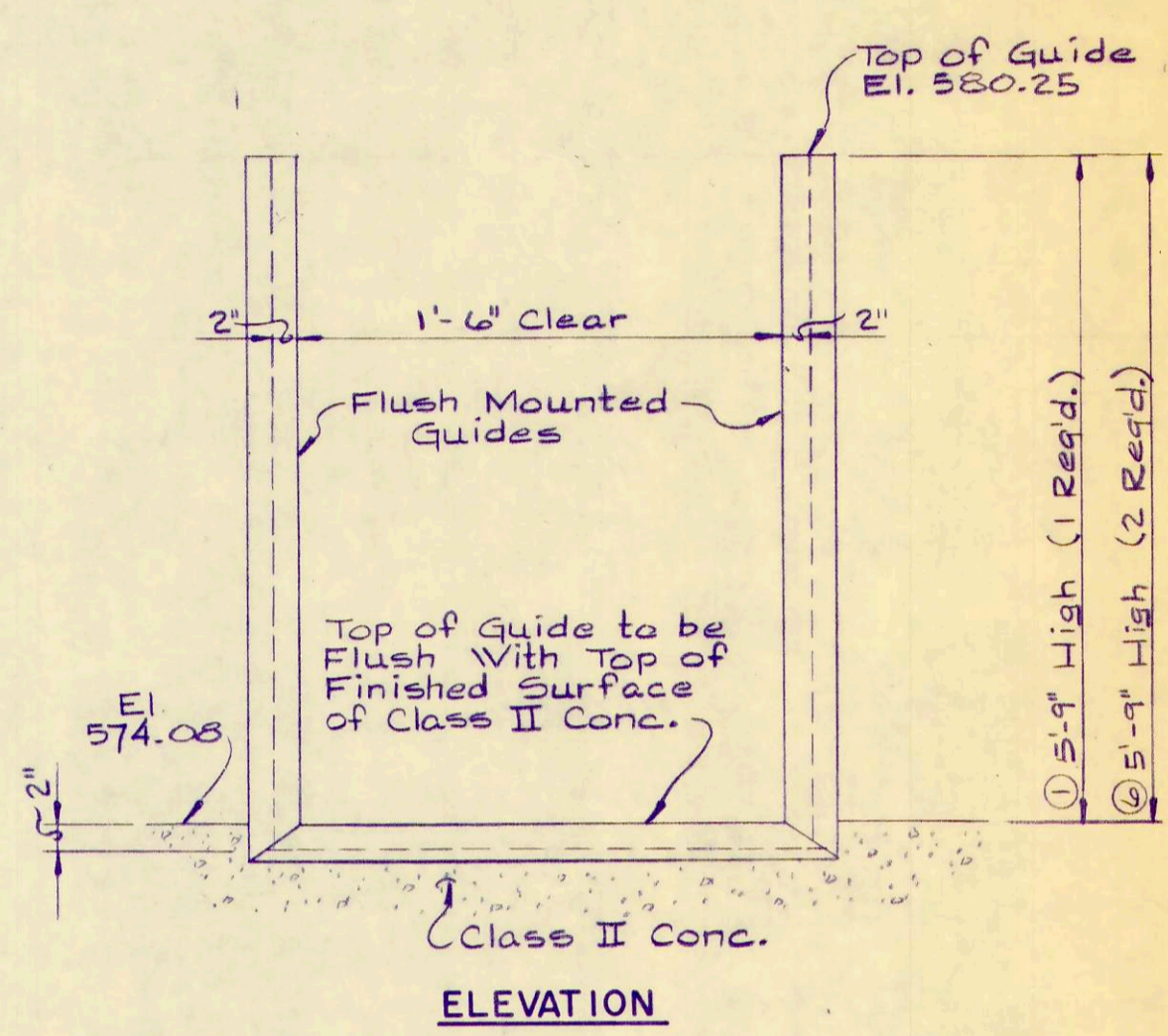
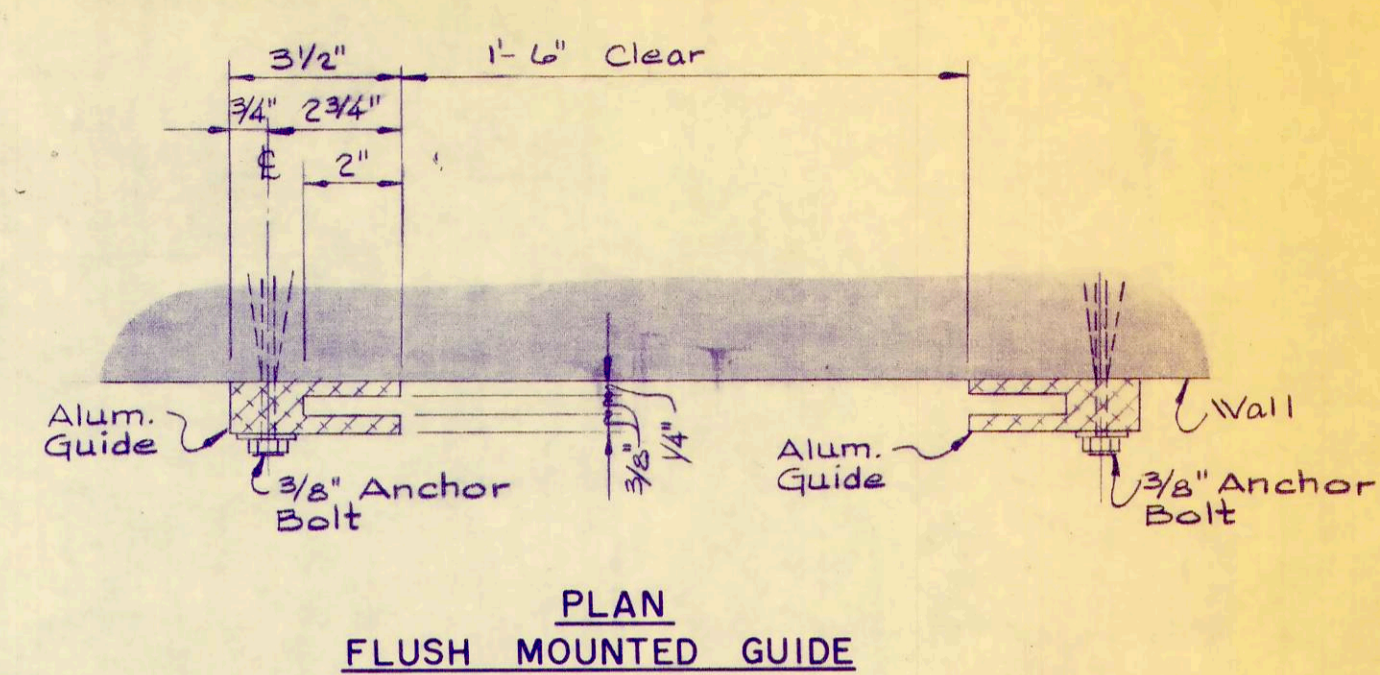
SCREEN GATE DETAILS
1" = 1'-0"



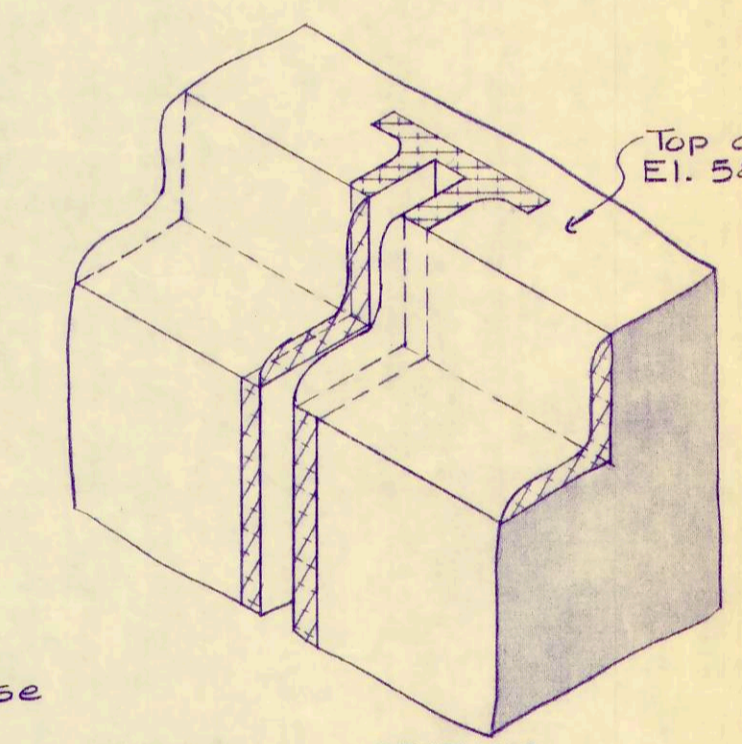
CHLORINE DIFFUSER DETAILS
1" = 1'-0"



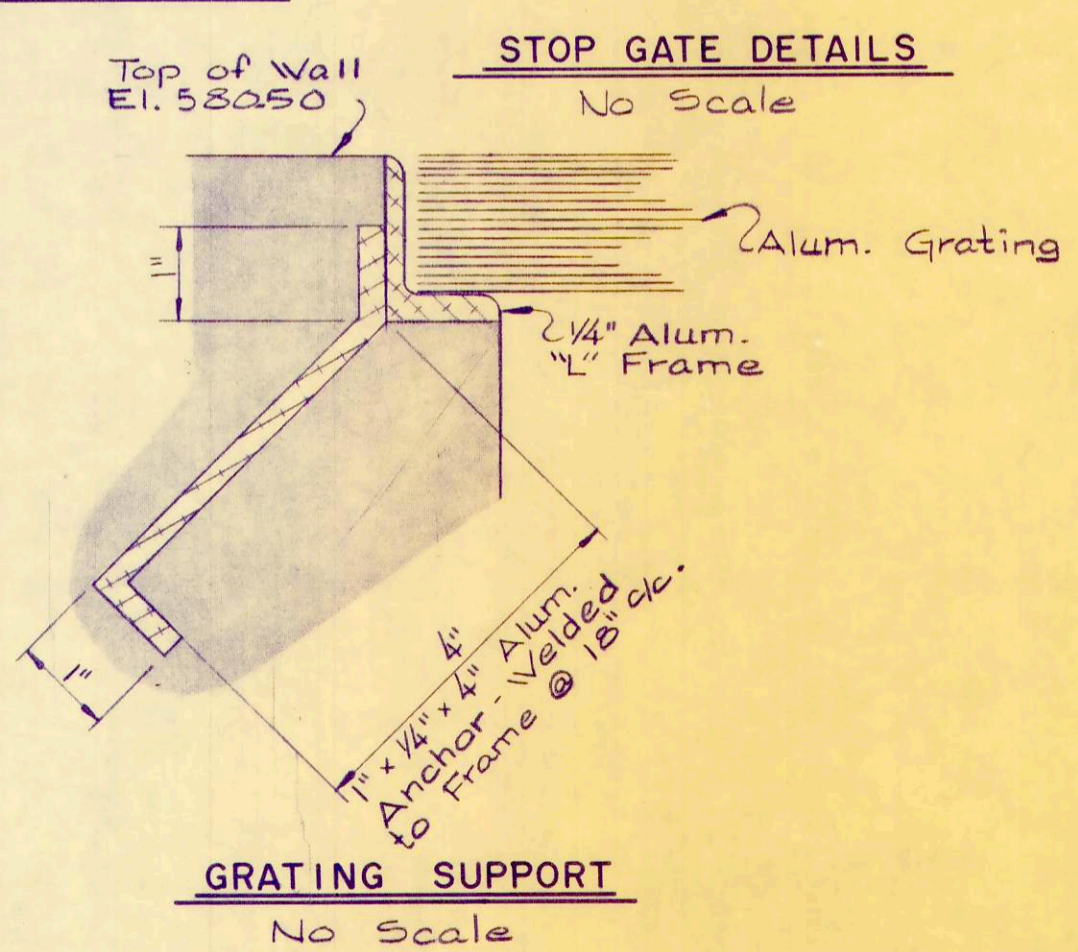
CHLORINE DIFFUSER DETAILS
1" = 1'-0"



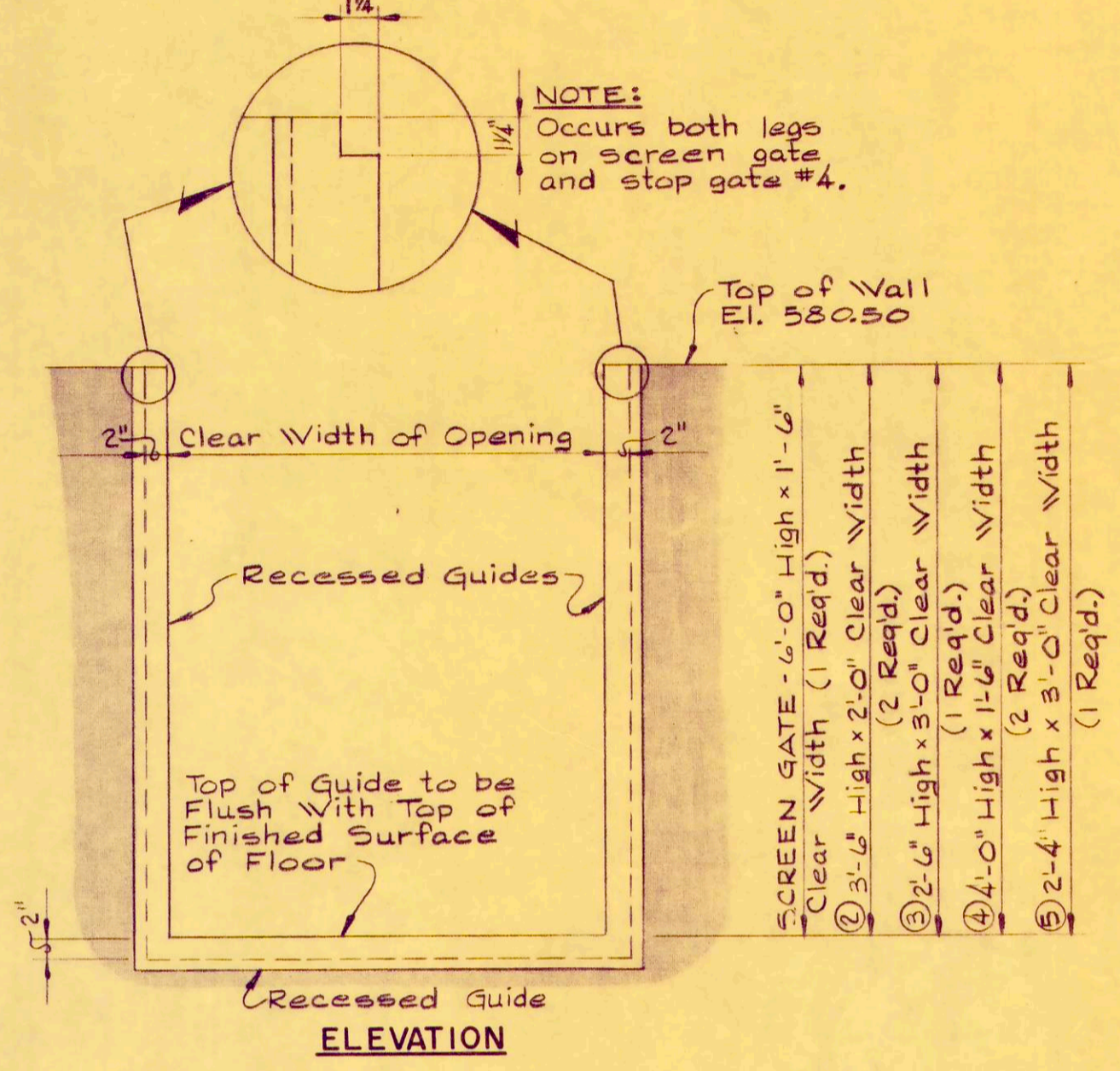
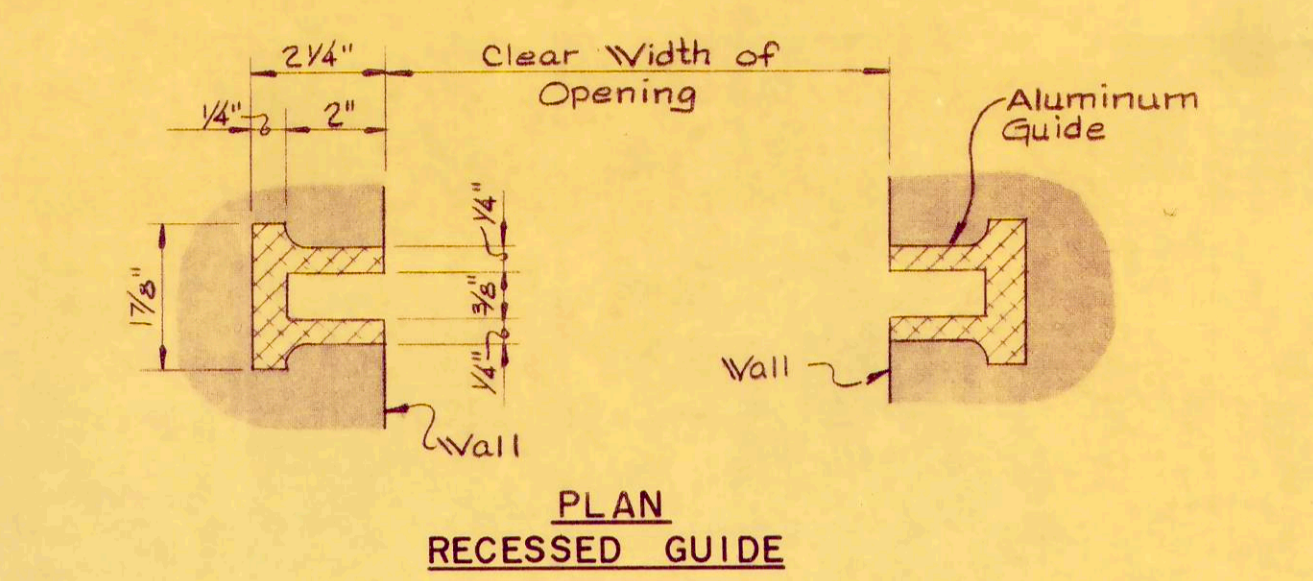
ELEVATION



GRATING ANCHORING SUPPORT DETAILS AT GUIDE



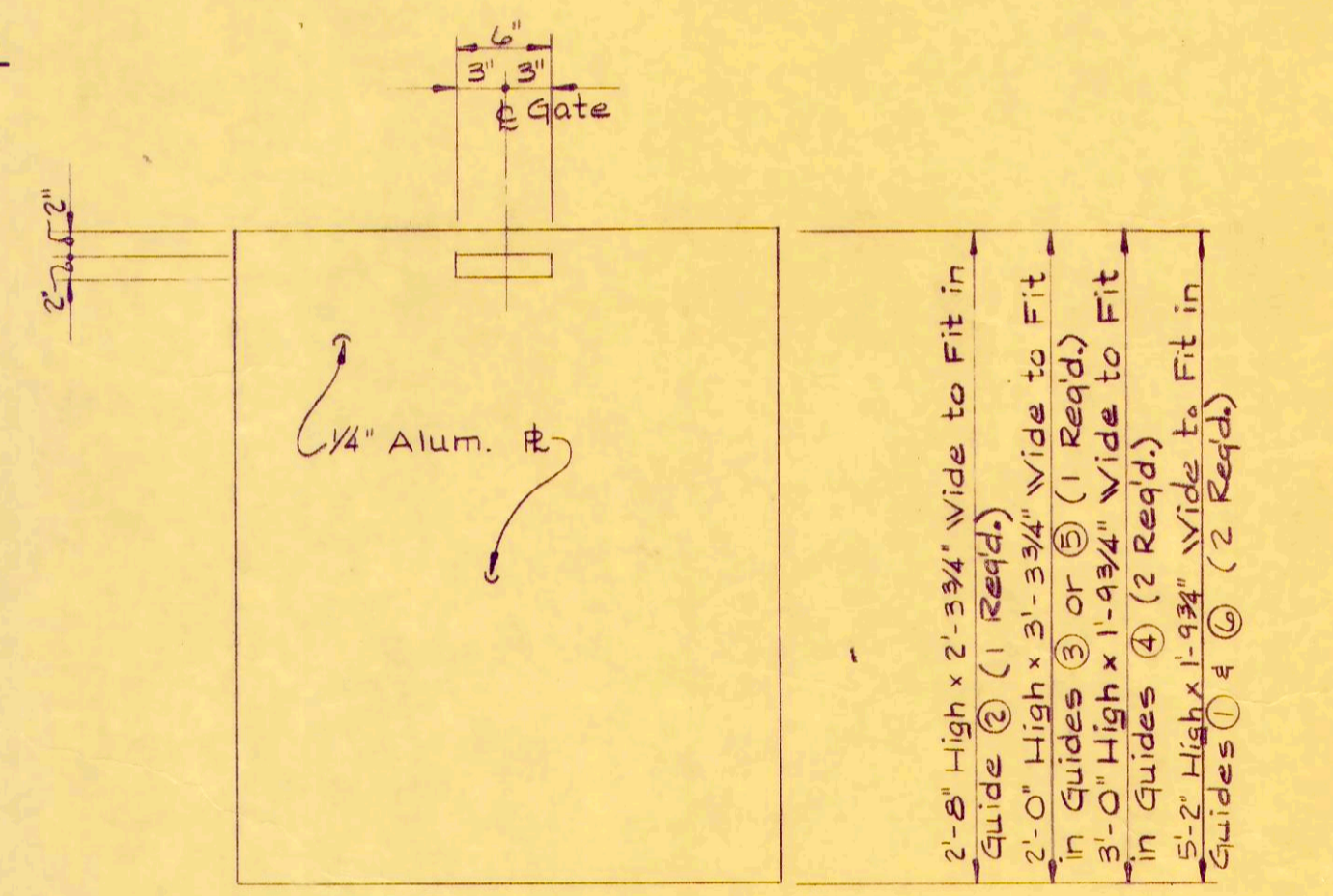
GRATING SUPPORT
No Scale



PLAN

ELEVATION

GUIDES



GATE

NOTE:
All aluminum surfaces in contact with concrete to be painted with a bitu-mastic paint.
All structural steel to be galvanized.
All bolts and nuts to be bronze.

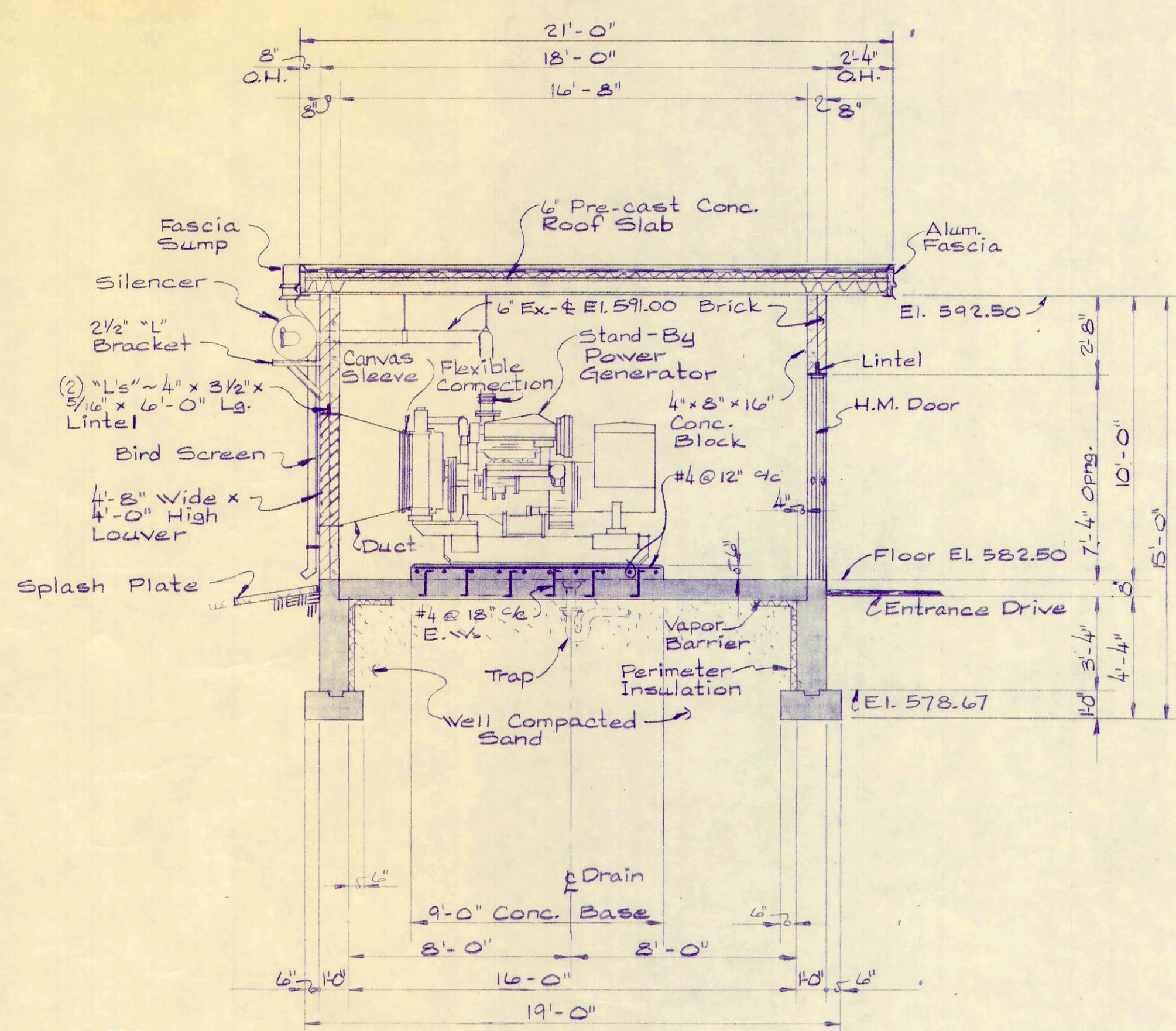
REV. NO.	DESCRIPTION	DATE	BY	APP'D

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TOLEDO, OHIO

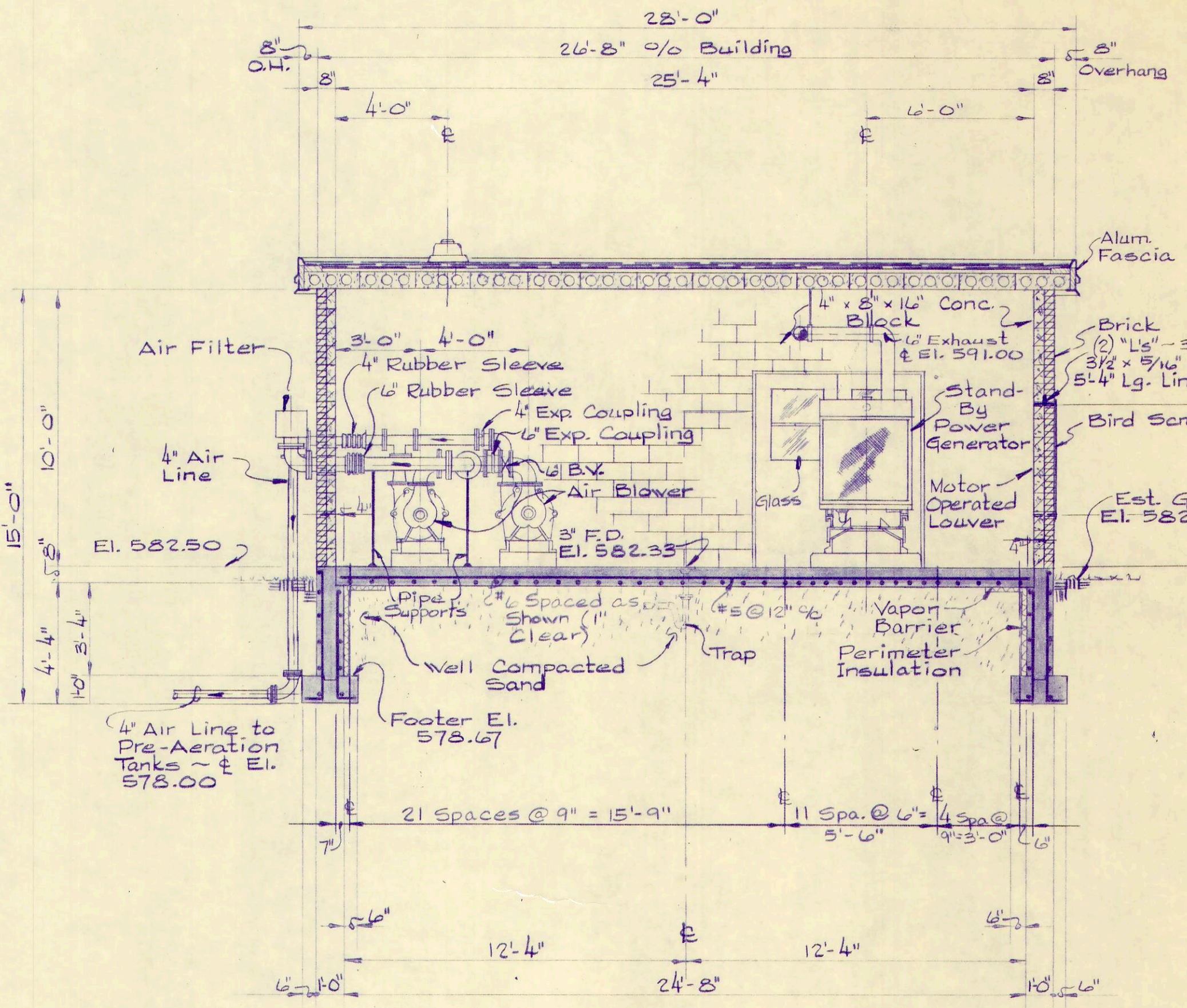
SCALE
As Noted
DESIGNED BY
R. B. W.
DRAWN BY
R. L. C.
CHECKED BY
W. C. K.

CHLORINE CONTACT TANK
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

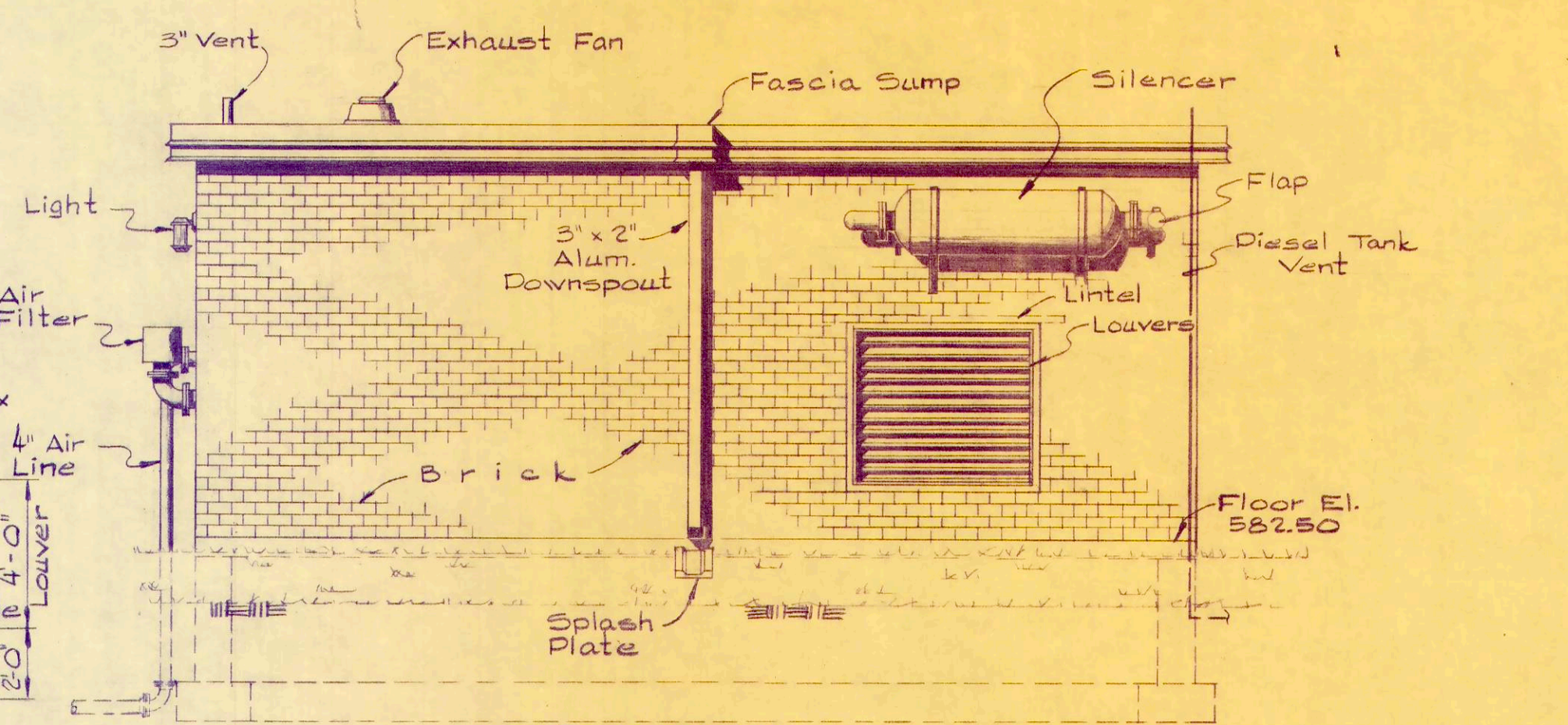
PROJECT NUMBER
OAKSOOI BI
SECTION
DATE
3-72
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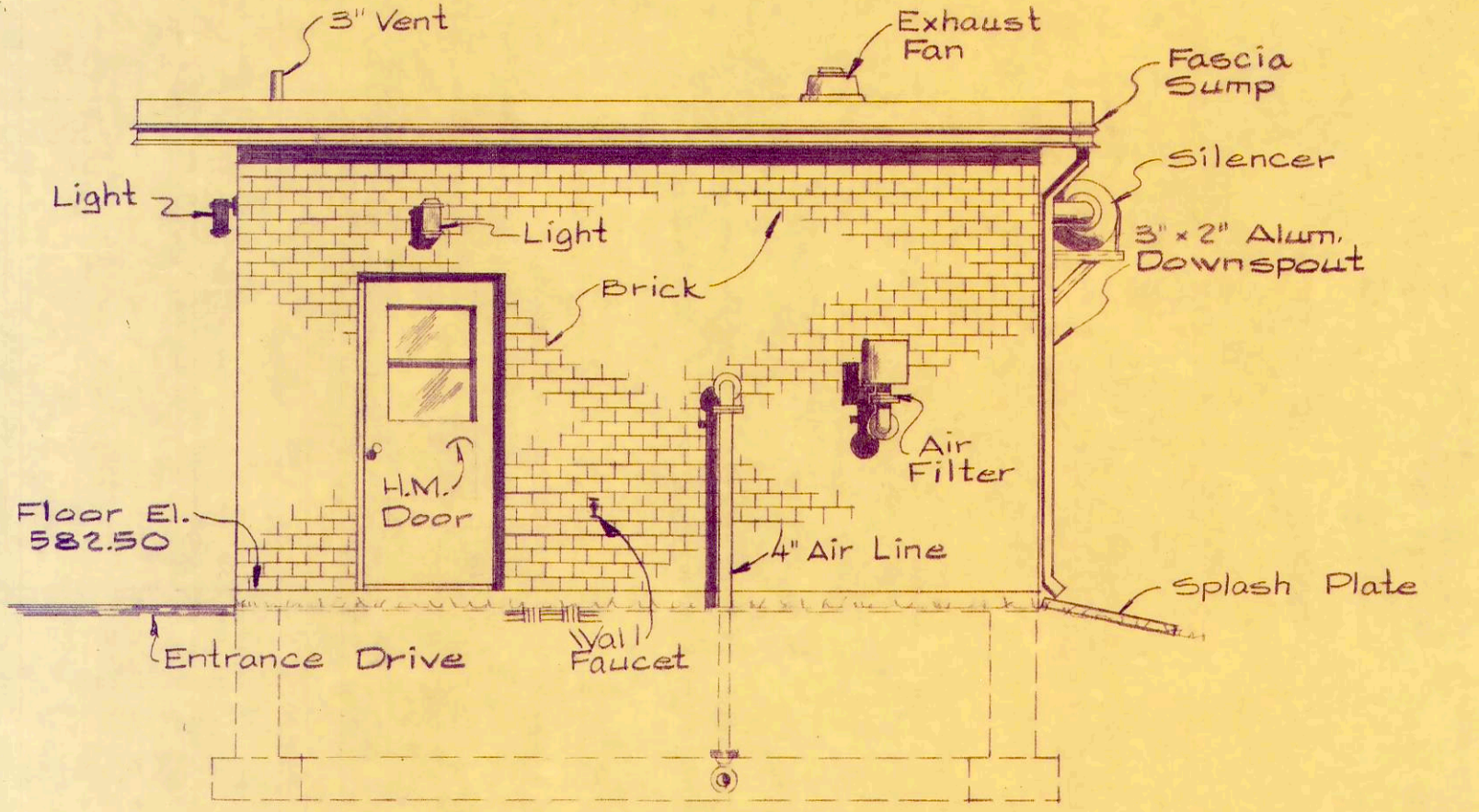
SECTION "B-B"
1/4" = 1'-0"



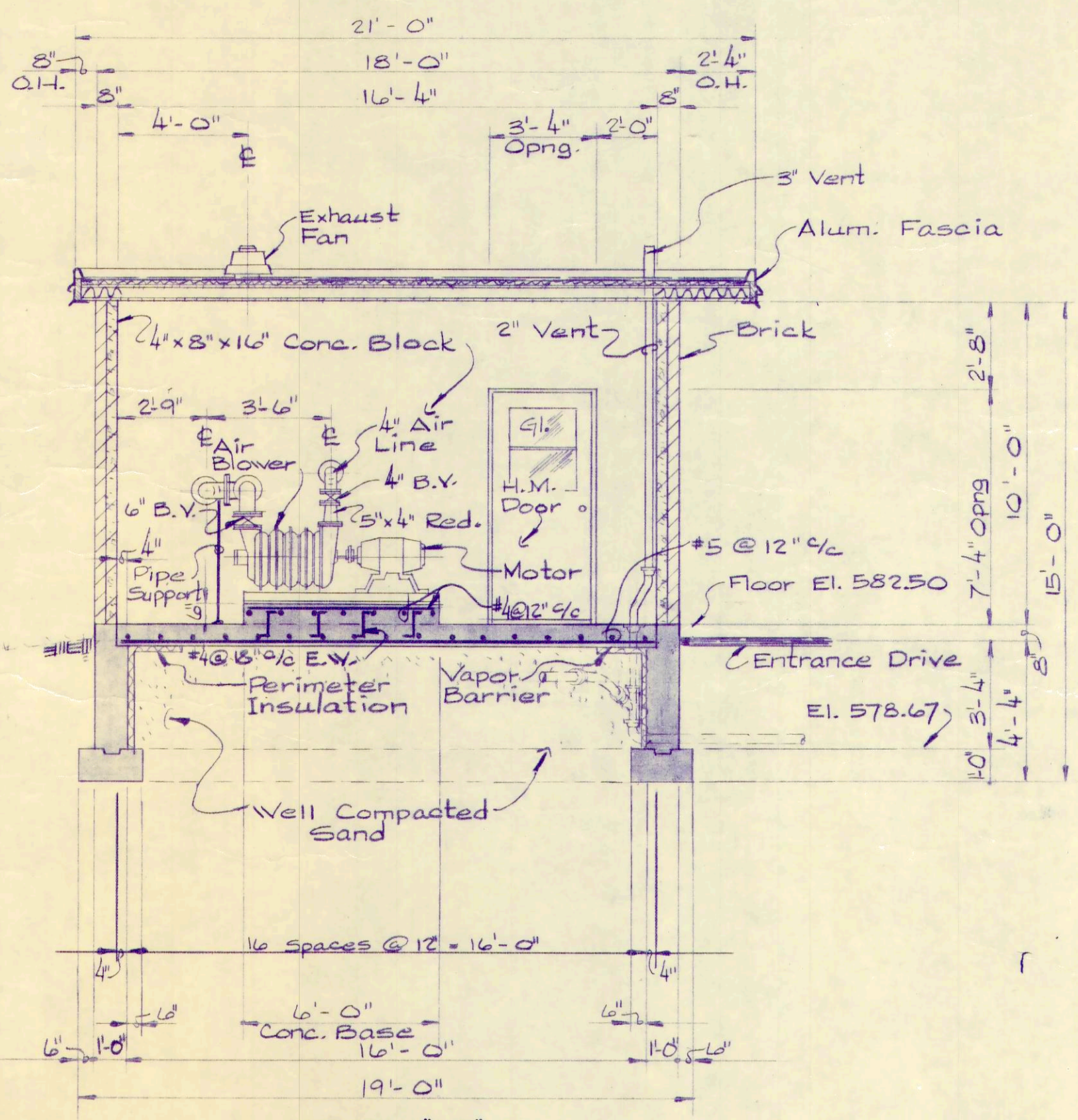
SECTION "A-A"
1/4" = 1'-0"



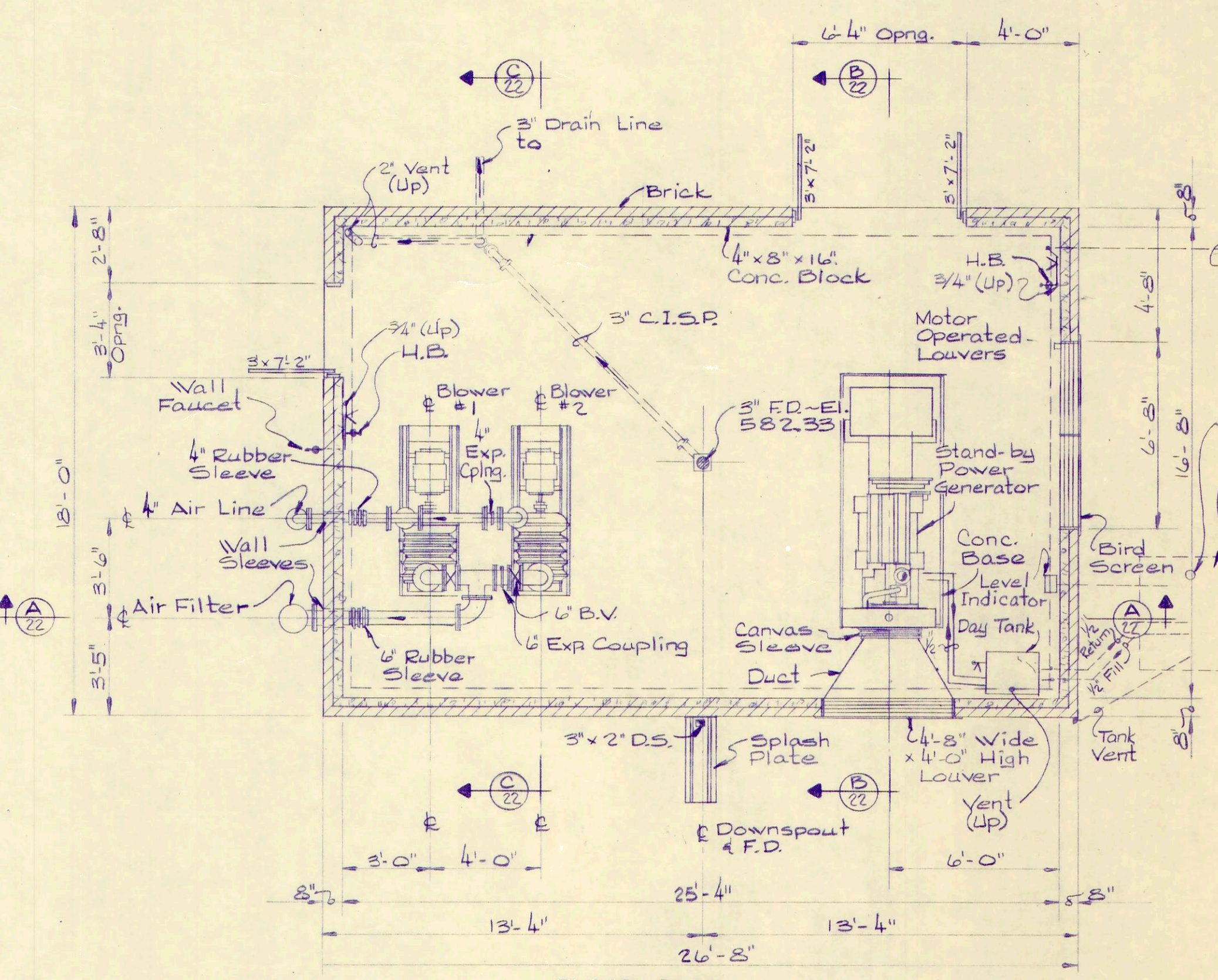
EAST ELEVATION
1/4" = 1'-0"



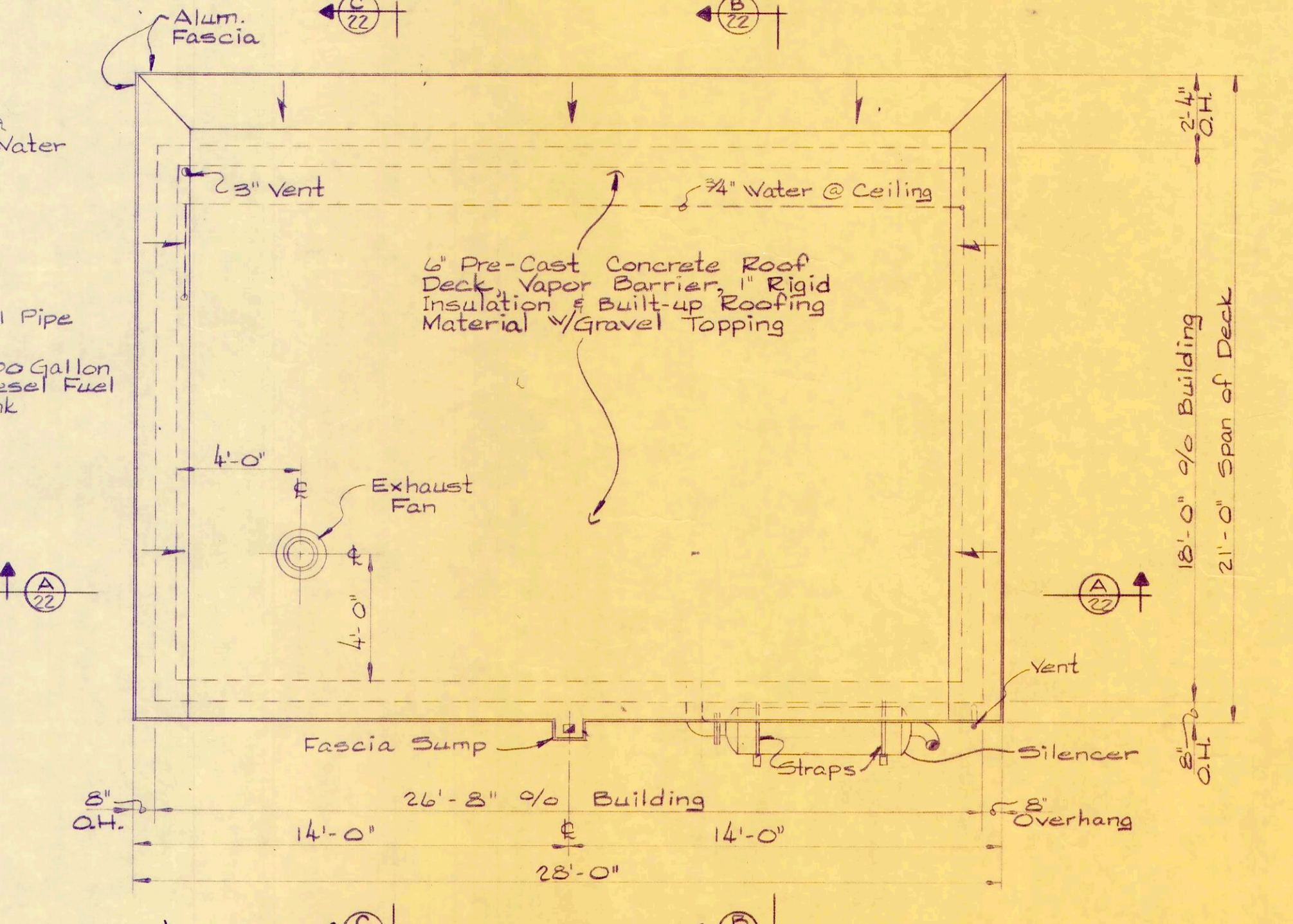
SOUTH ELEVATION
1/4" = 1'-0"



SECTION "C-C"
1/4" = 1'-0"



FLOOR PLAN
1/4" = 1'-0"



ROOF PLAN
1/4" = 1'-0"

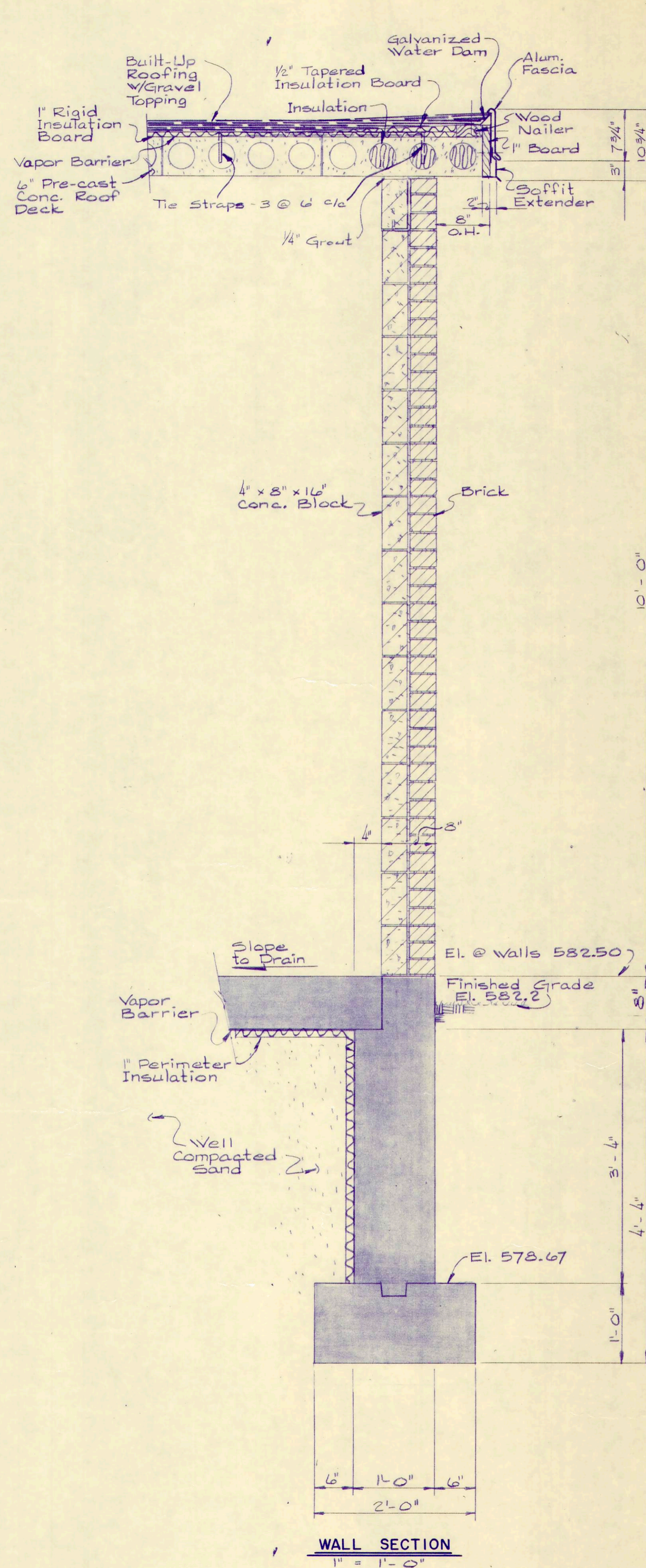
REV. NO.	DESCRIPTION	DATE	BY	APP'D
1	CHANGED REINF. & FLOOR SLAB ENLARGED LOUVER	6-5-72	R.L.C.	R.B.W.
2	RELOCATED WATER LINE	6-15-72	R.L.C.	R.B.W.

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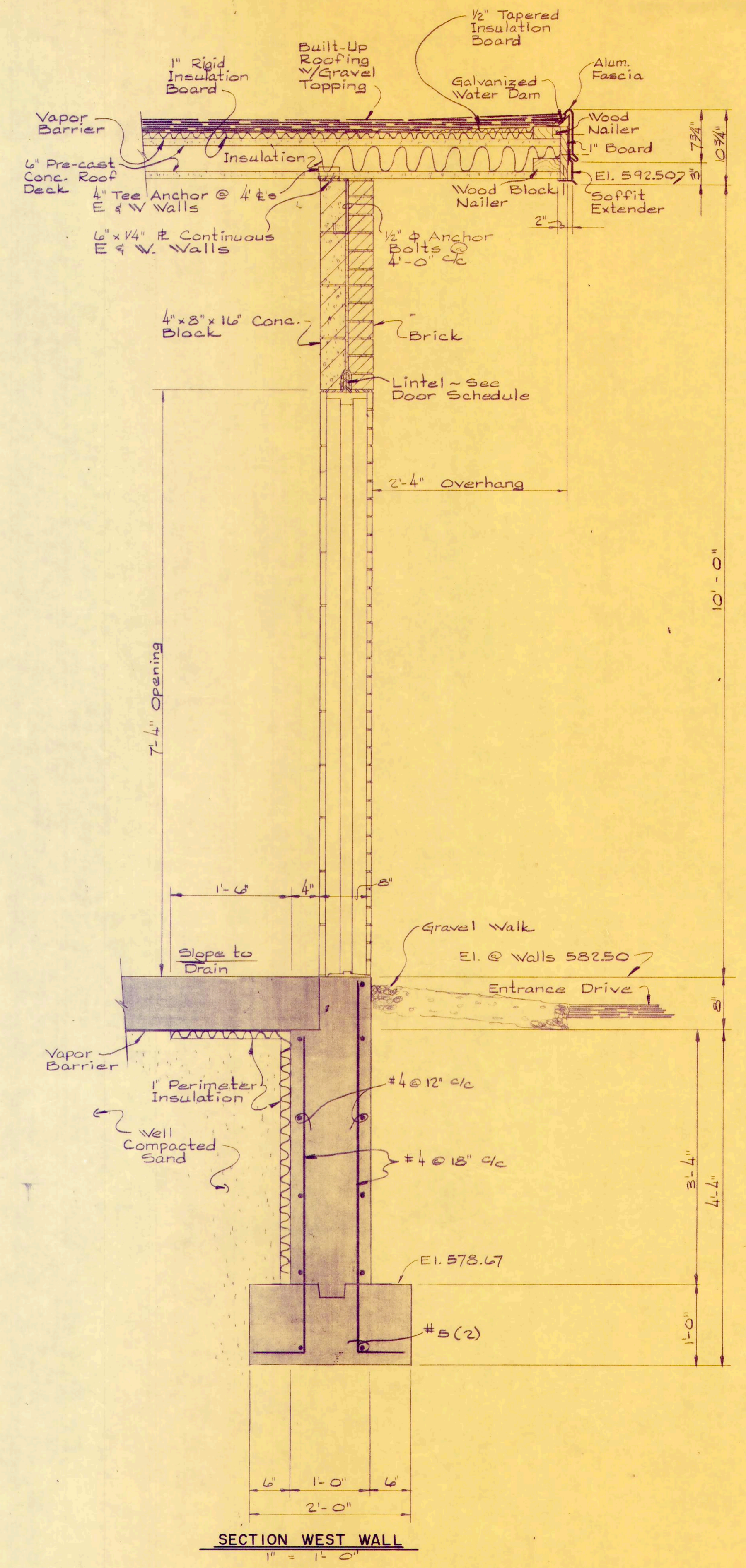
SCALE
1/4" = 1'-0"
DESIGNED BY
R.B.W.
DRAWN BY
R.L.C.
CHECKED BY
W.C.K.

WORKSHOP & BLOWER BUILDING
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

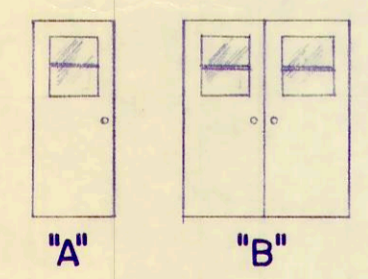
PROJECT NUMBER
OAKSOOI B
SECTION
DATE
3-71
22 OF 36



WALL SECTION
1" = 1'-0"



SECTION WEST WALL
1" = 1'-0"



DOOR SCHEDULE

No	Req'd	Type	Masonry Opening	Door Size	Lintel Size	Glass Size	Remarks
1	A		3'-4" x 7'-4"	3' x 7'-2"	(2) 3" x 3 1/2" x 5 1/2" x 4'-8"	23 3/8" Wide 15 3/8" High 2 Lite	Hollow Metal w/Glass Weatherproof
2	B		6'-4" x 7'-4"	6' x 7'-2"	(2) 4" x 3 1/2" x 7'-6" x 7'-4"	23 3/8" Wide 15 3/8" High 2 Lite	Hollow Metal w/Glass Weatherproof

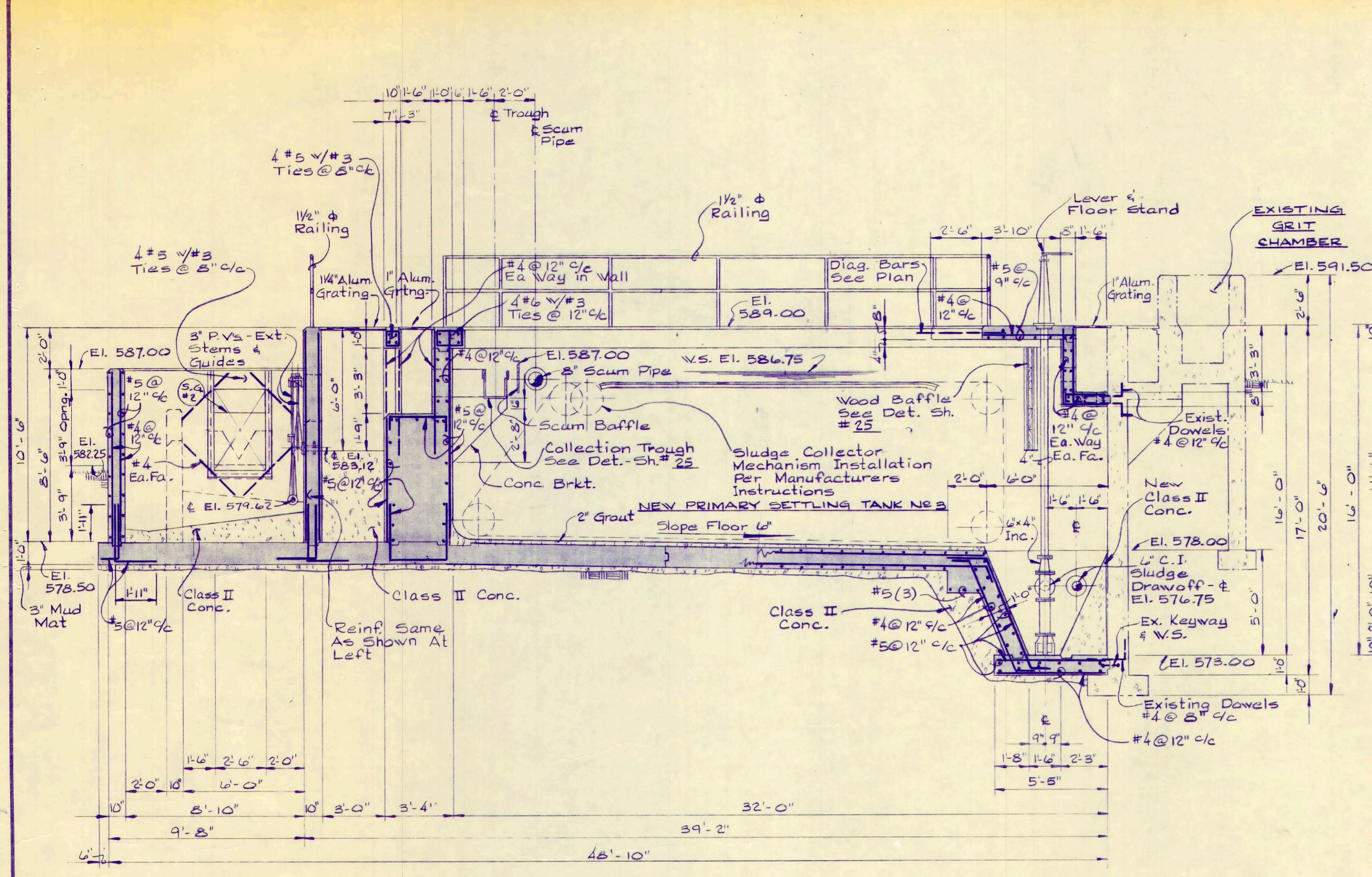
REV. NO.	DESCRIPTION	DATE	BY	APP'D
1	CHANGED REINF. & FLOOR SLAB REVISED CEILING SUPPORTS	6-5-72	R.L.C.	R.B.W.

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TOLEDO, OHIO

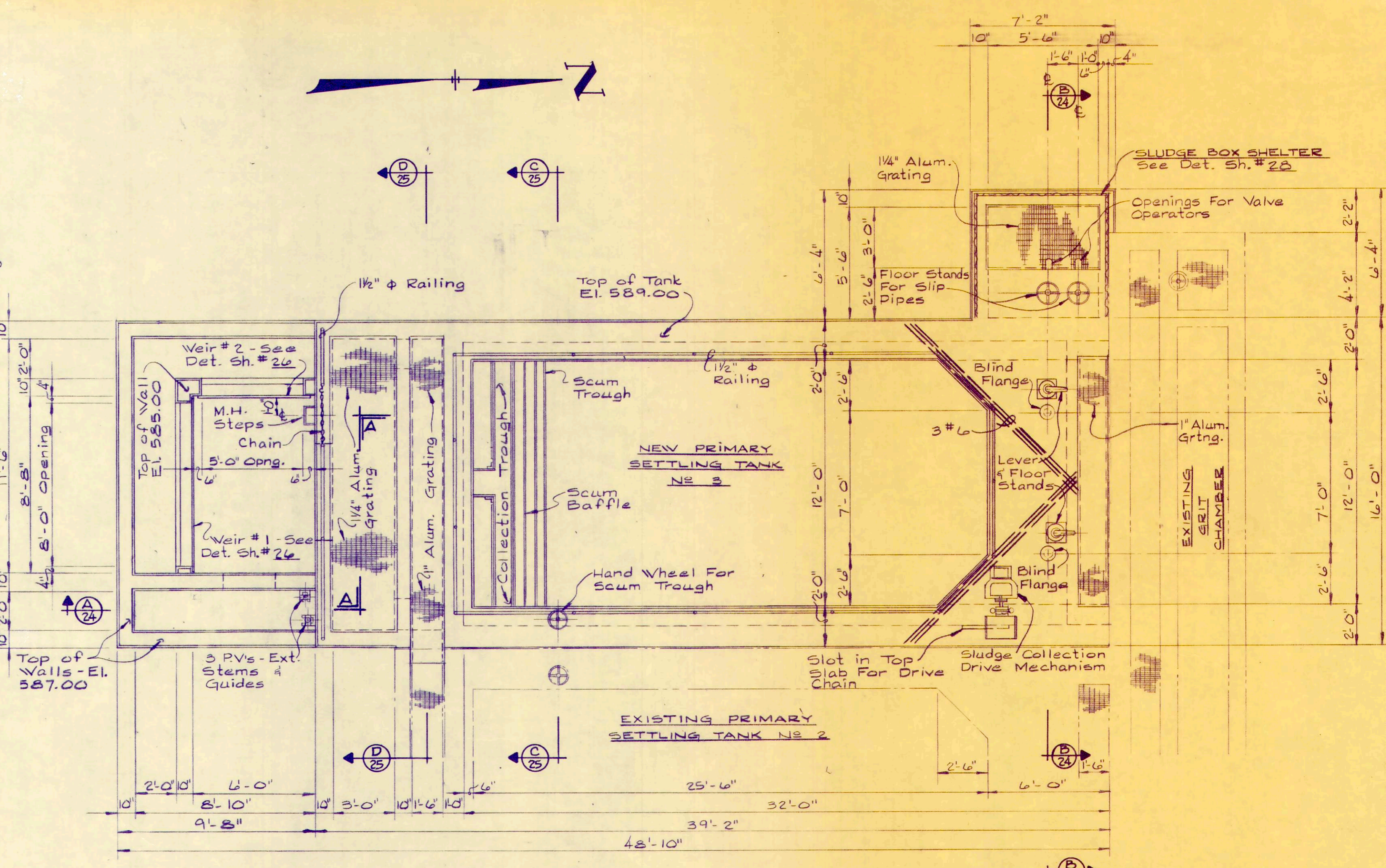
SCALE
As Noted
DESIGNED BY
R.B.W.
DRAWN BY
R.L.C.
CHECKED BY
W.C.K.

WORKSHOP & BLOWER BUILDING
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

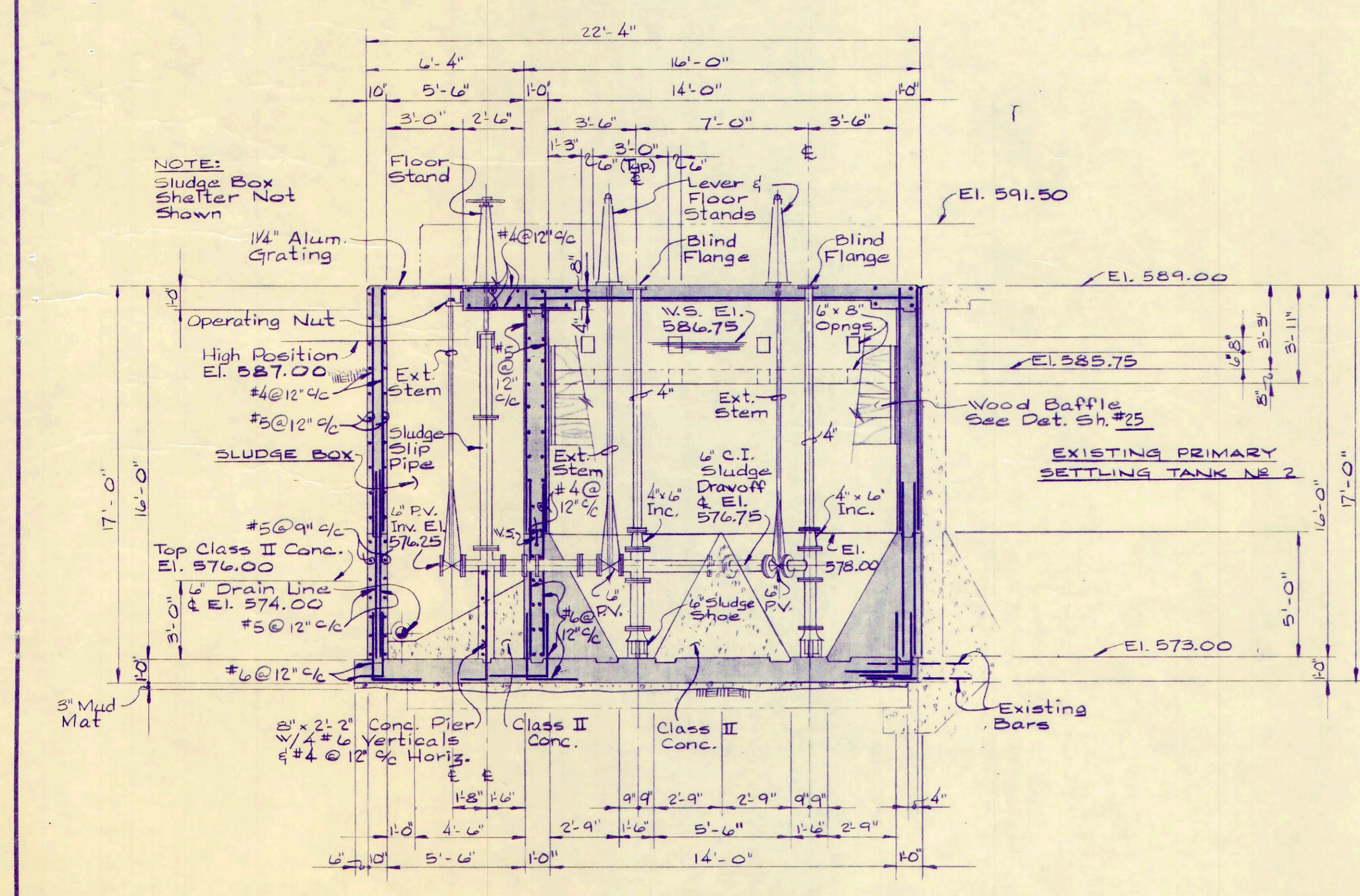
PROJECT NUMBER
OAKSOOI
SECTION
DATE
3-71
23 OF 3



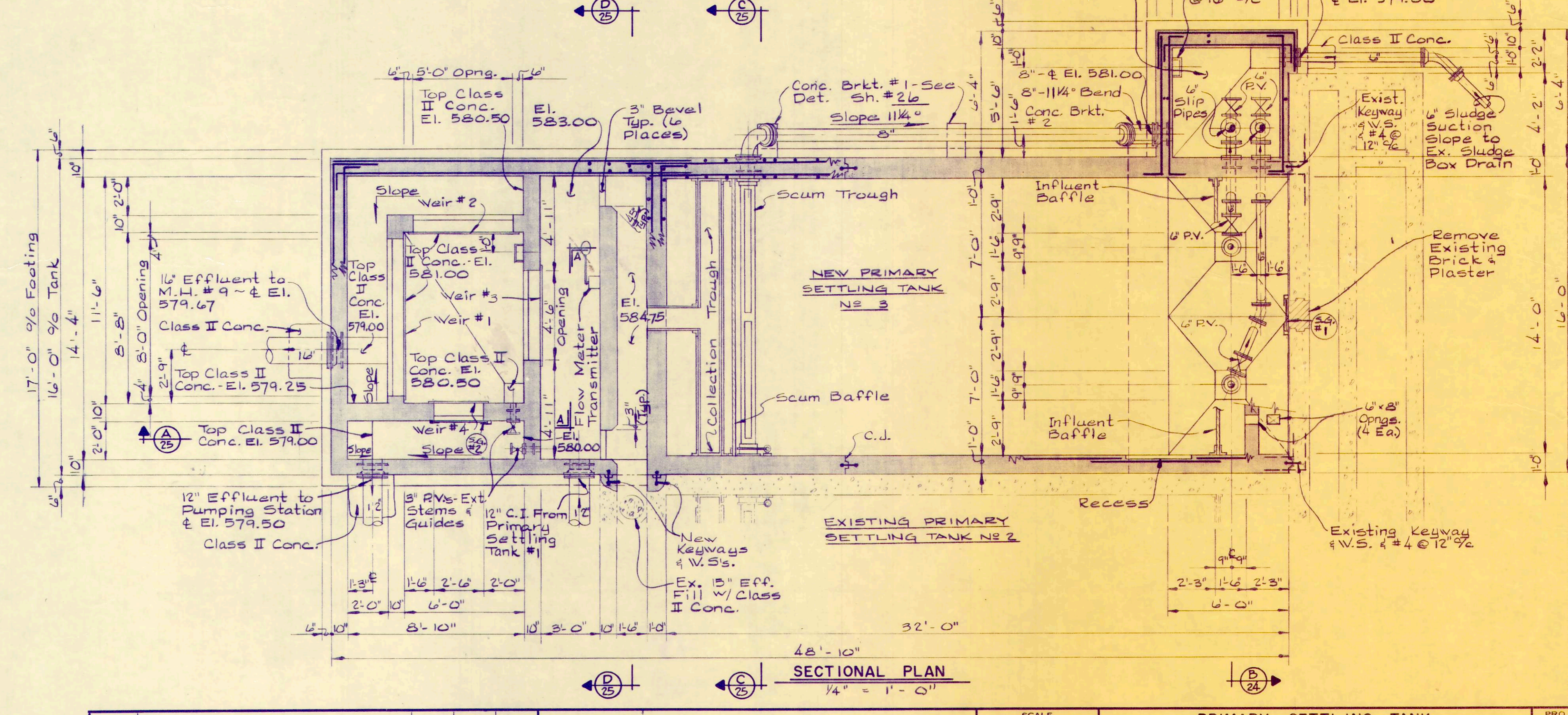
SECTION "A-A"
1/4" = 1'-0"



PLAN
1/4" = 1'-0"



SECTION "B-B"
1/4" = 1'-0"



SECTIONAL PLAN
1/4" = 1'-0"

REV. NO.	DESCRIPTION	DATE	BY	APP'D

FINKBEINER, PETTIS & STROUT, LTD.
CONSULTING ENGINEERS
TOLEDO, OHIO

SCALE
1/4" = 1'-0"

DESIGNED BY
R. B. W.

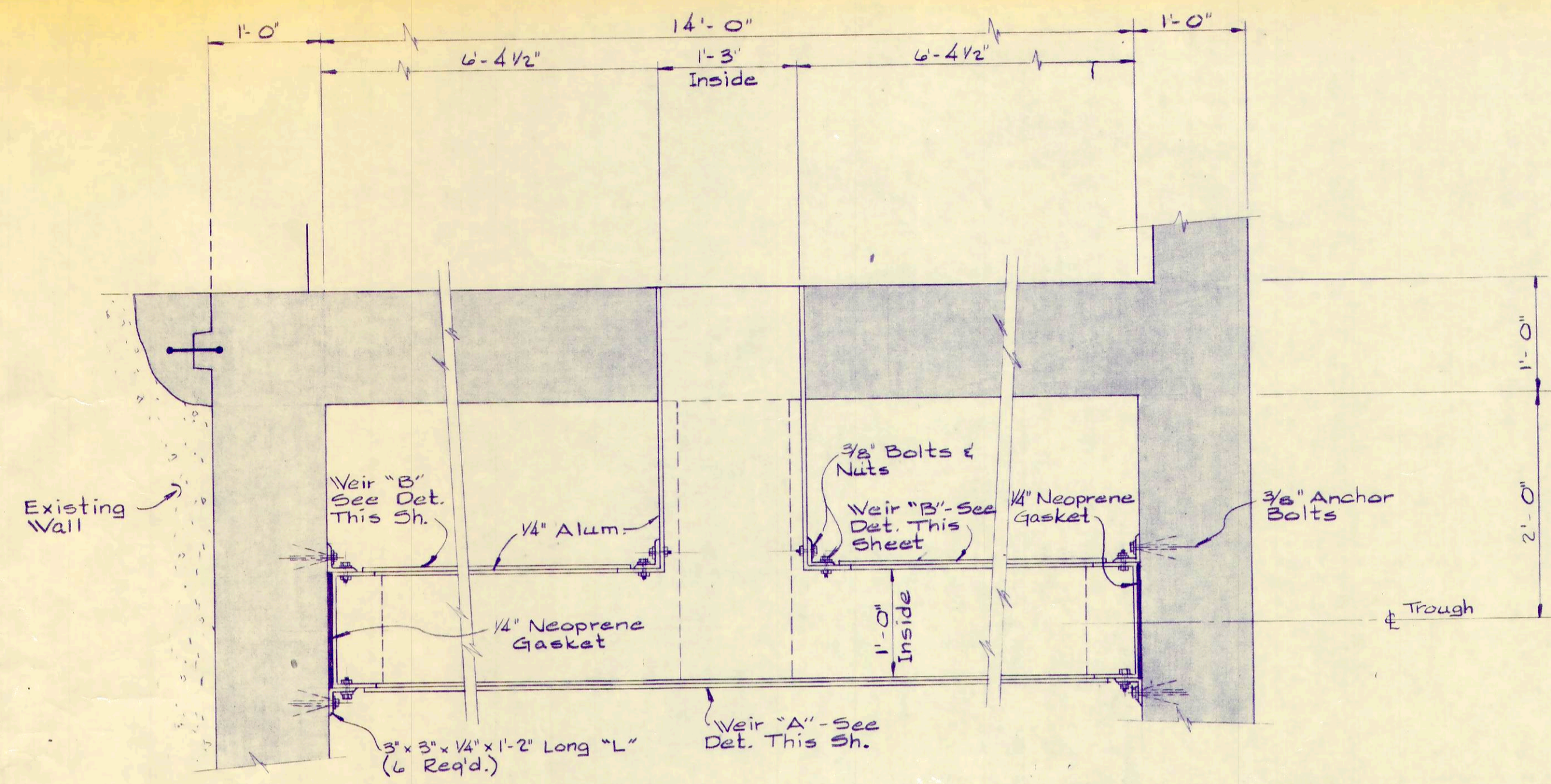
DRAWN BY
R. L. C.

CHECKED BY
W. C. K.

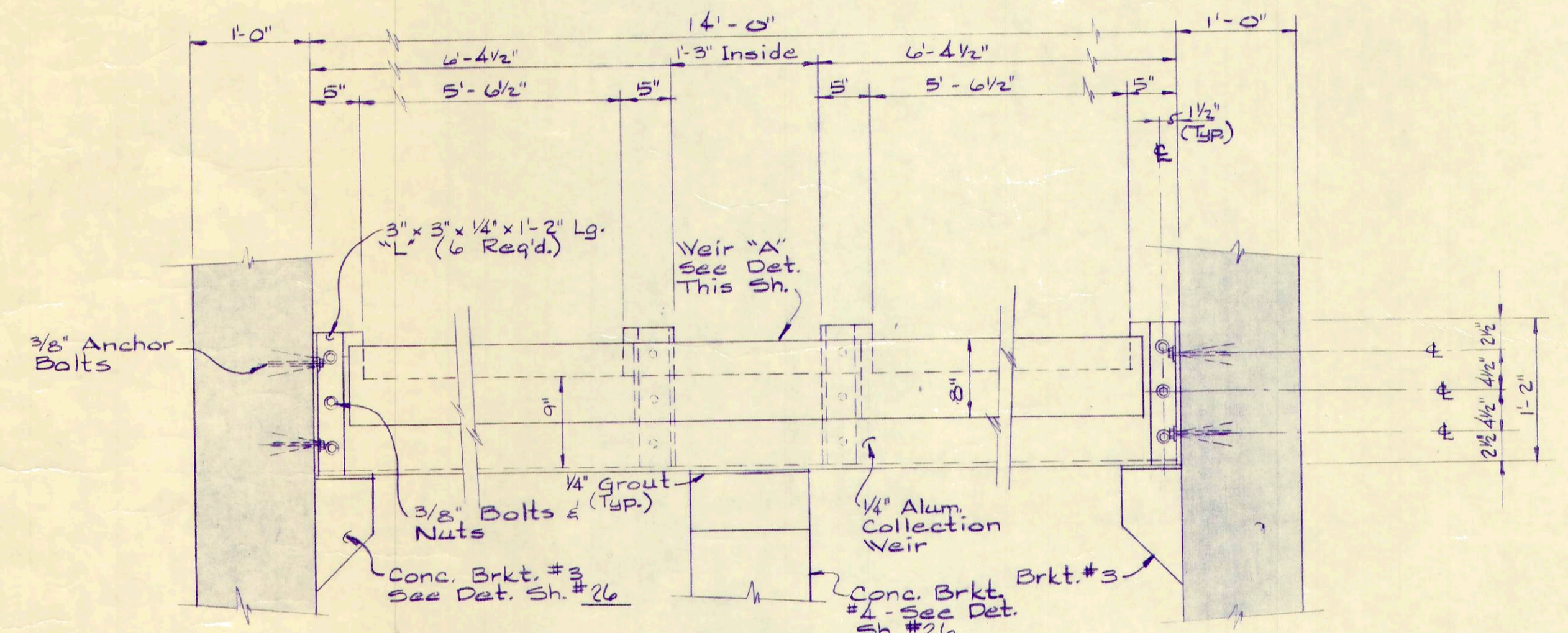
PRIMARY SETTLING TANK

**WASTEWATER TREATMENT
PLANT IMPROVEMENTS**

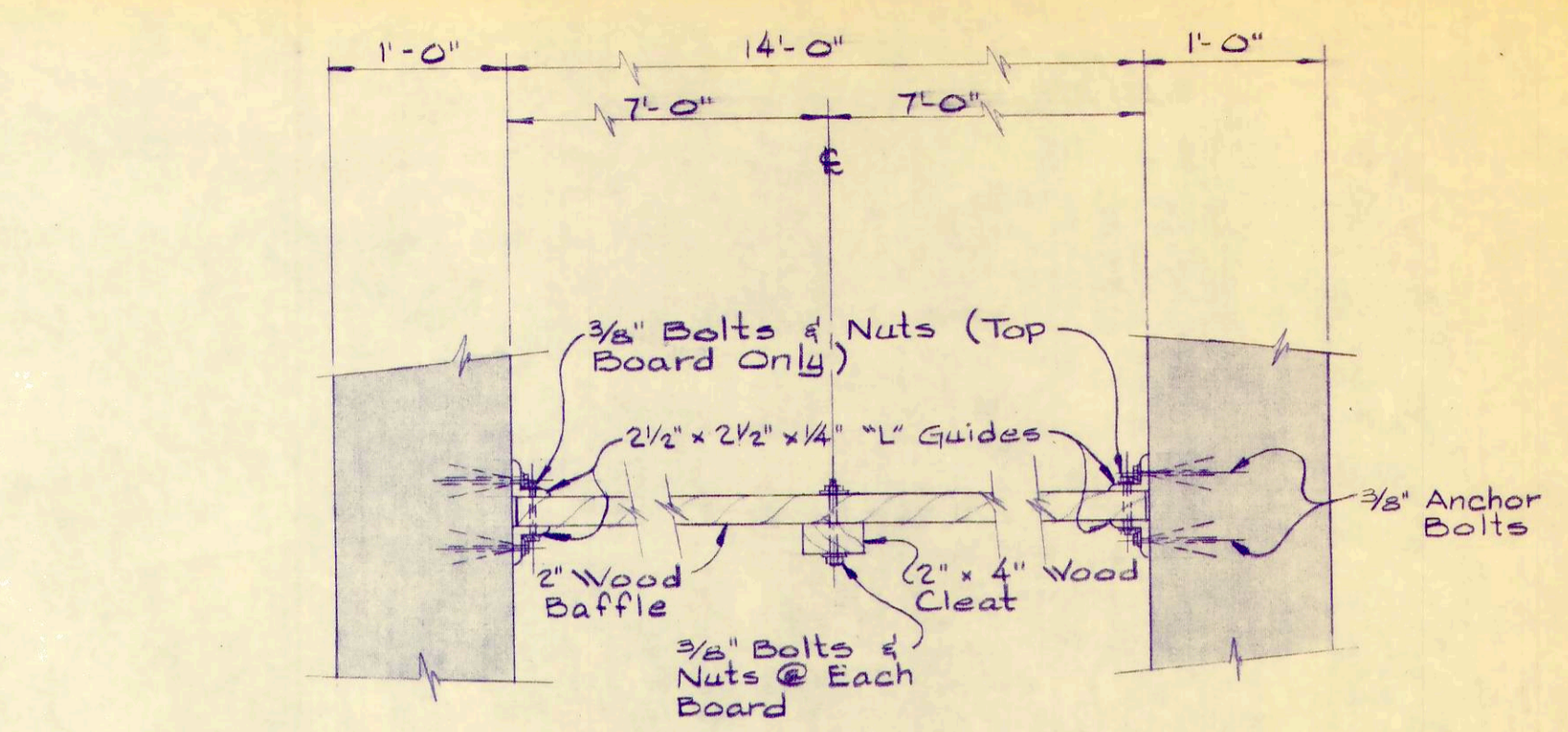
OAK HARBOR, OHIO



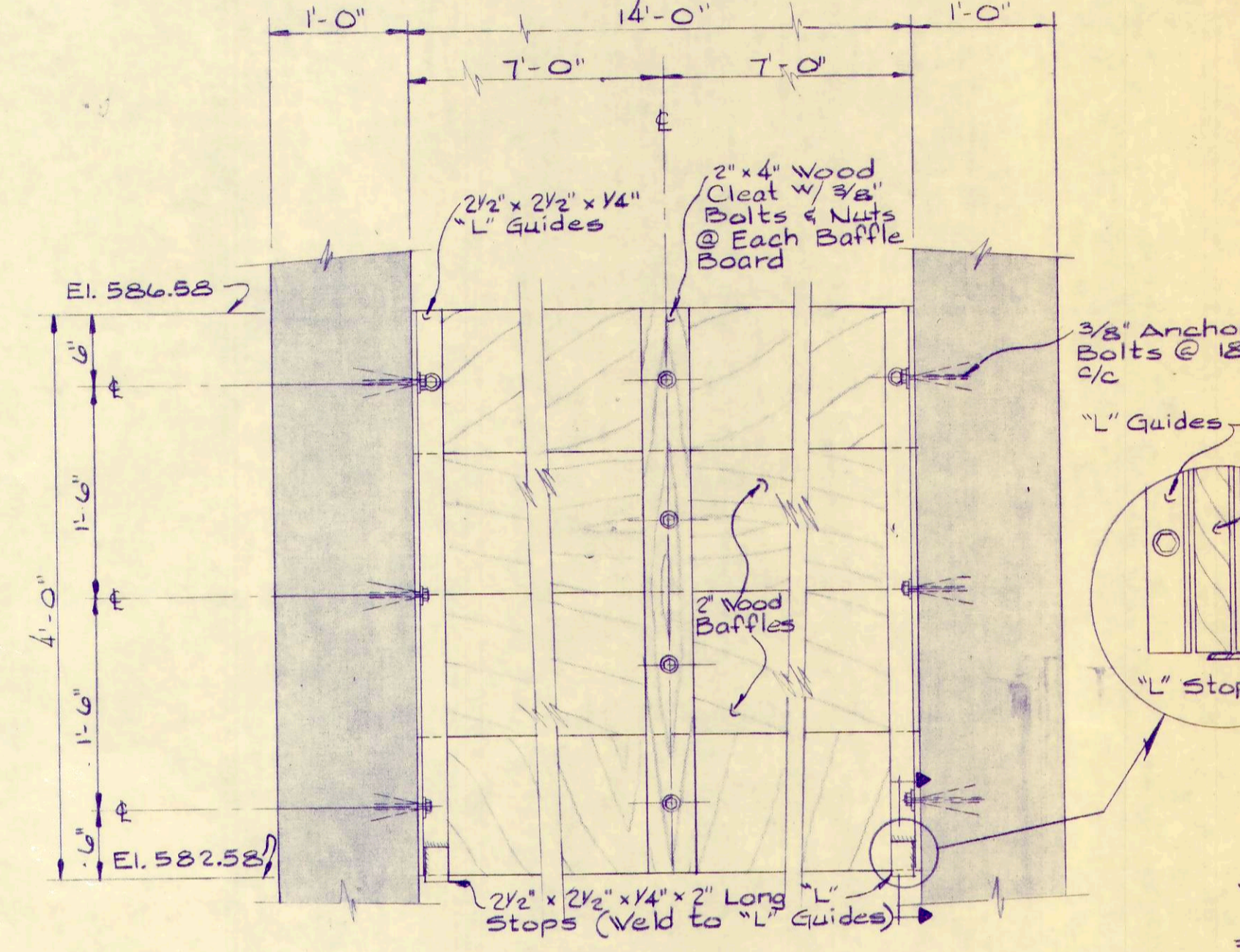
PLAN



ELEVATION

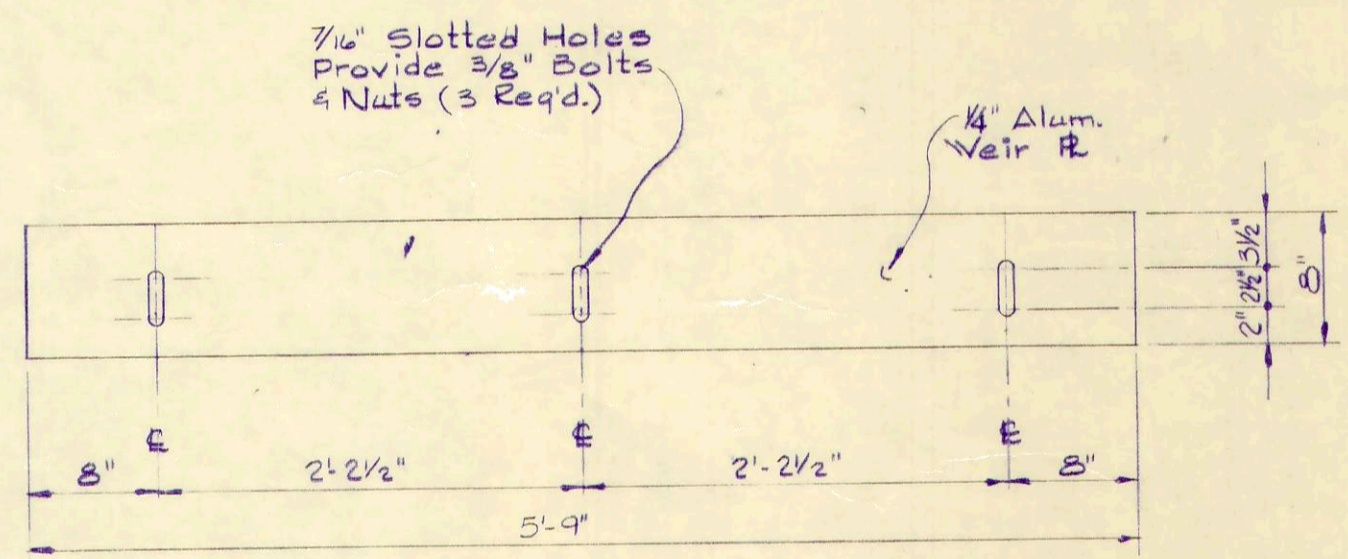


PLAN

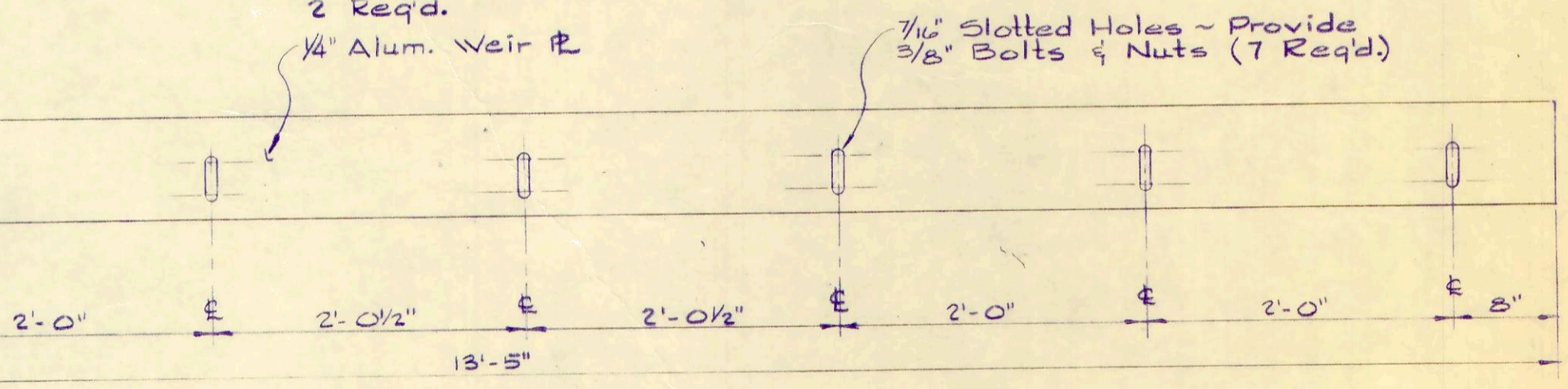


ELEVATION

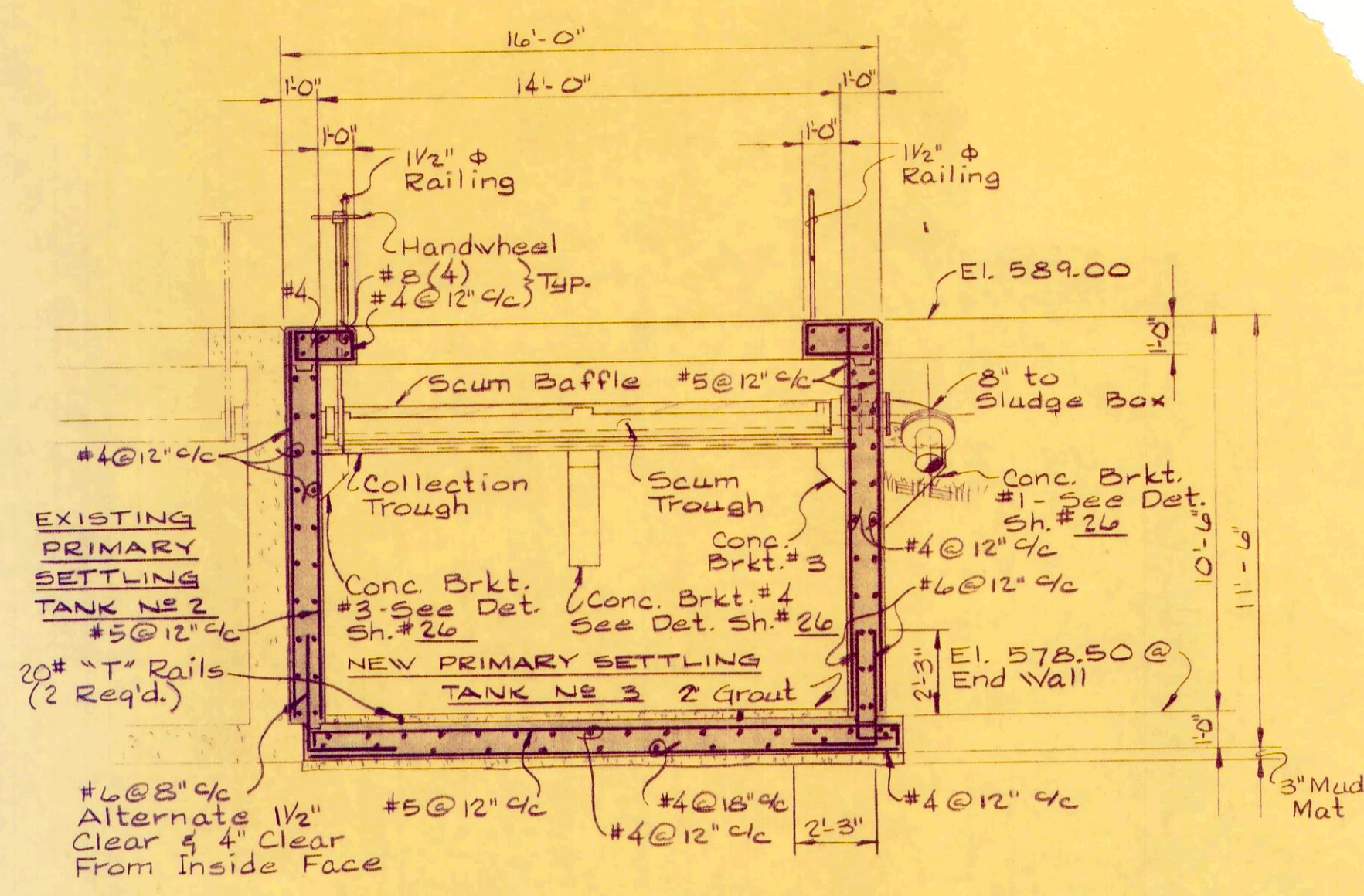
INFLUENT BAFFLE DETAILS
1" = 1'-0"



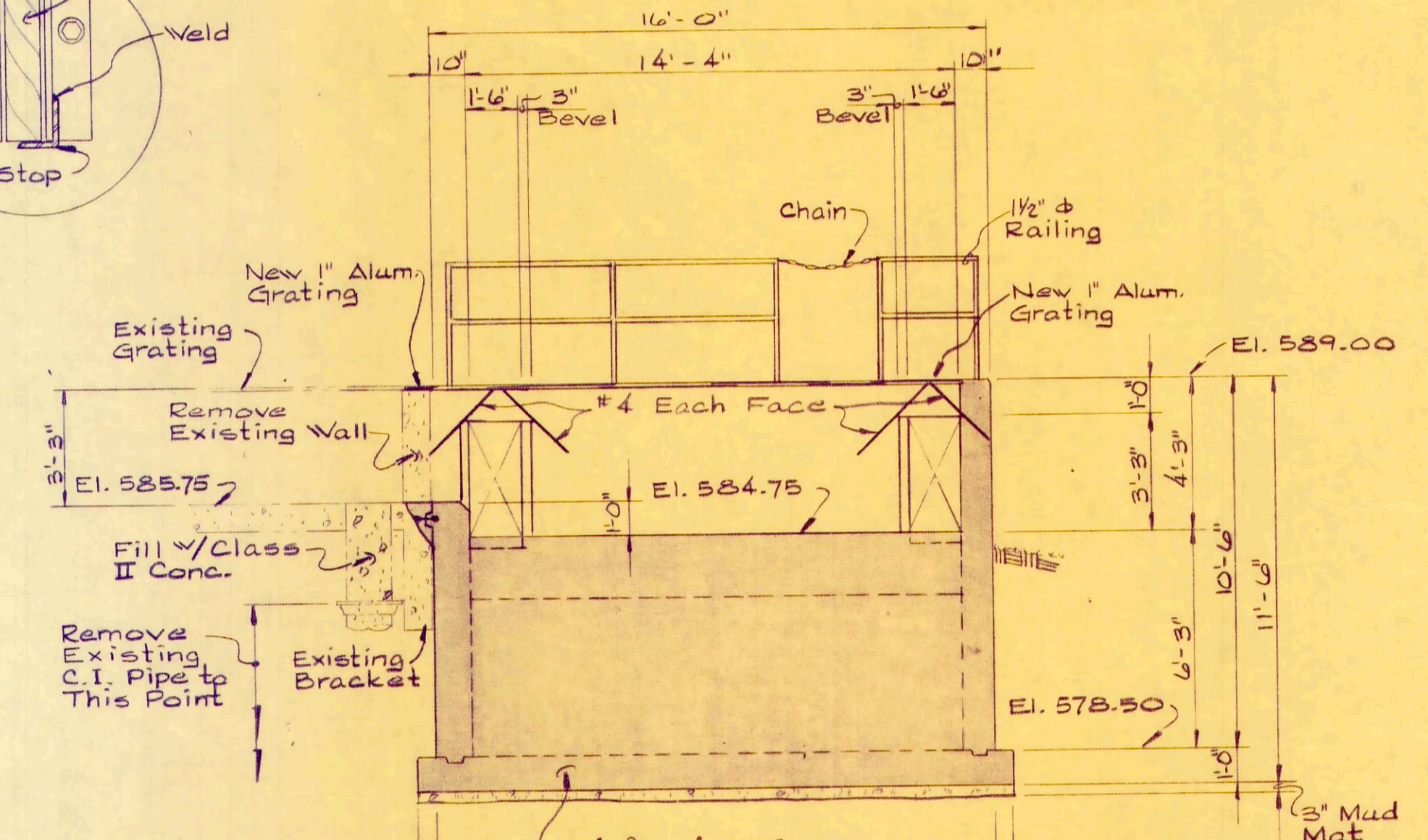
WEIR "B" DETAILS



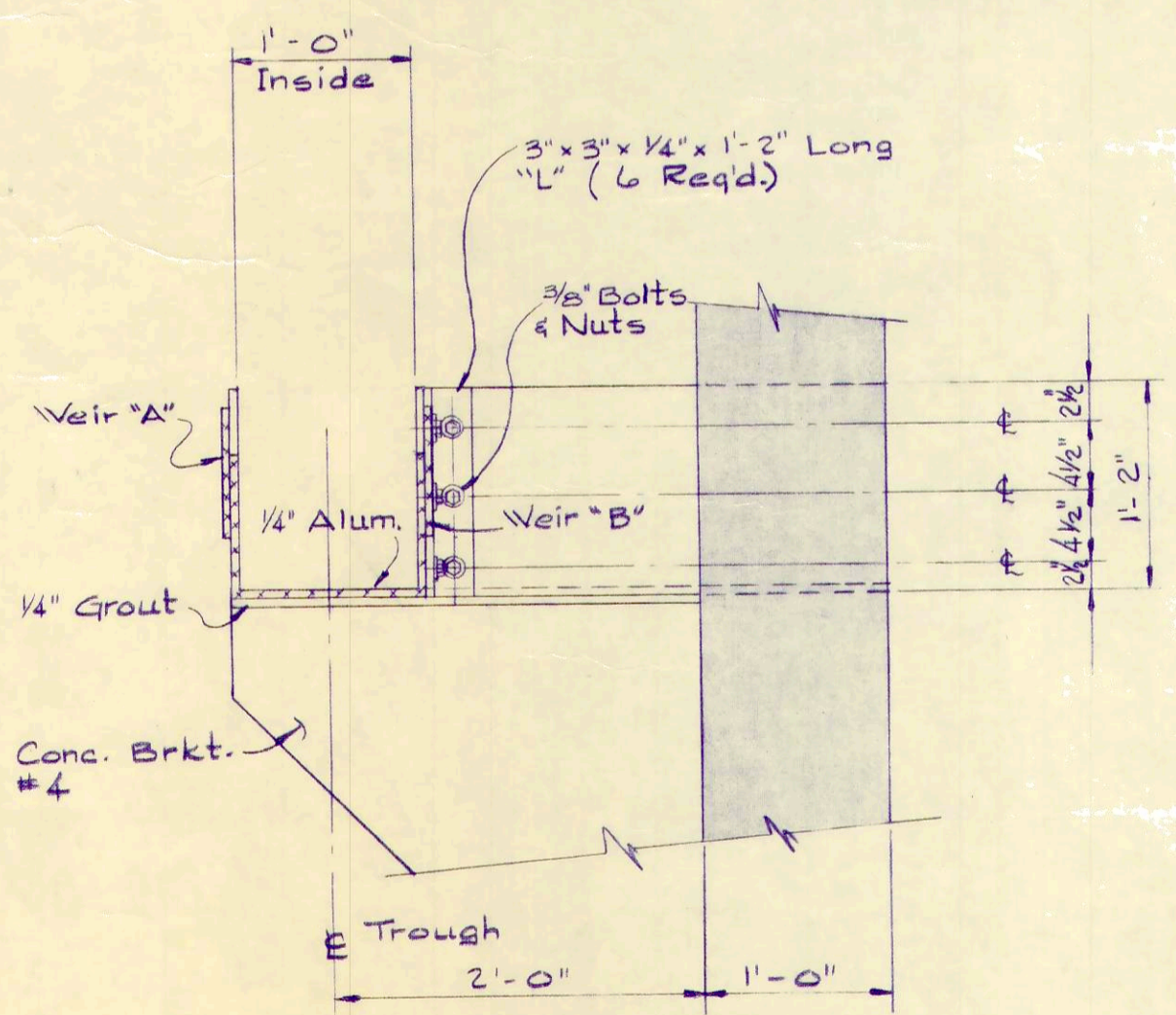
WEIR "A" DETAILS



SECTION "C-C"



SECTION "D-D"



SECTION "E-E"

COLLECTION TROUGH DETAILS
1" = 1'-0"

NOTE: Reinforcing in walls same as 10" walls shown in section "A-A"

NOTES
All aluminum surfaces in contact with concrete to be painted with a bitumastic paint.
All structural steel to be galvanized.
All bolts and nuts to be bronze.

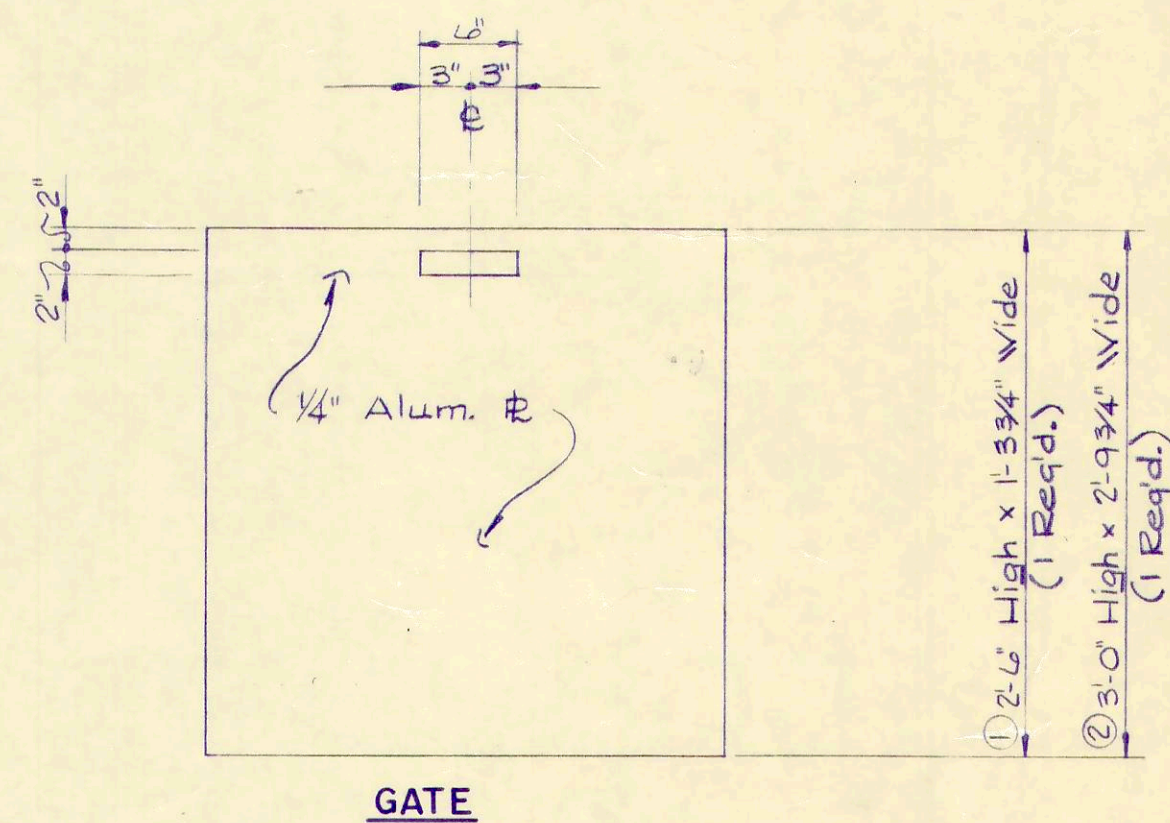
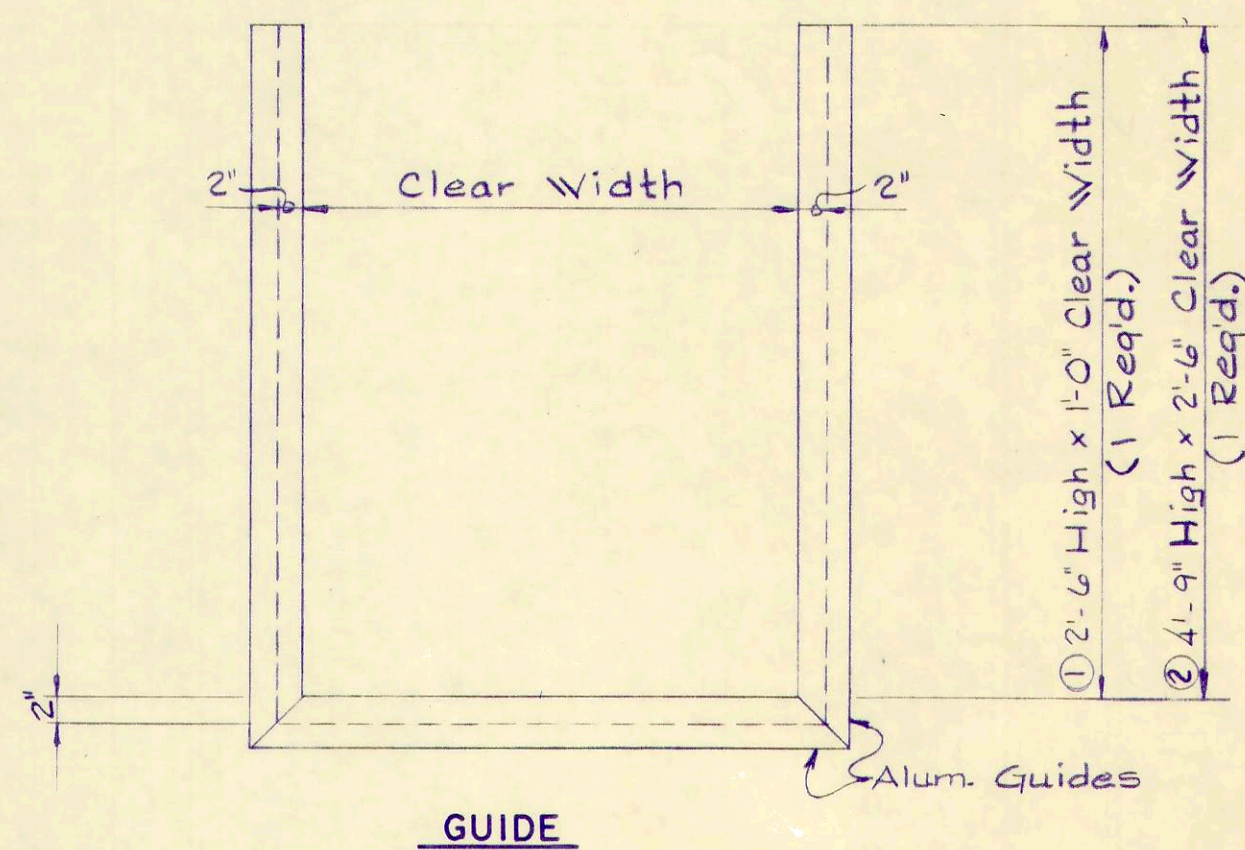
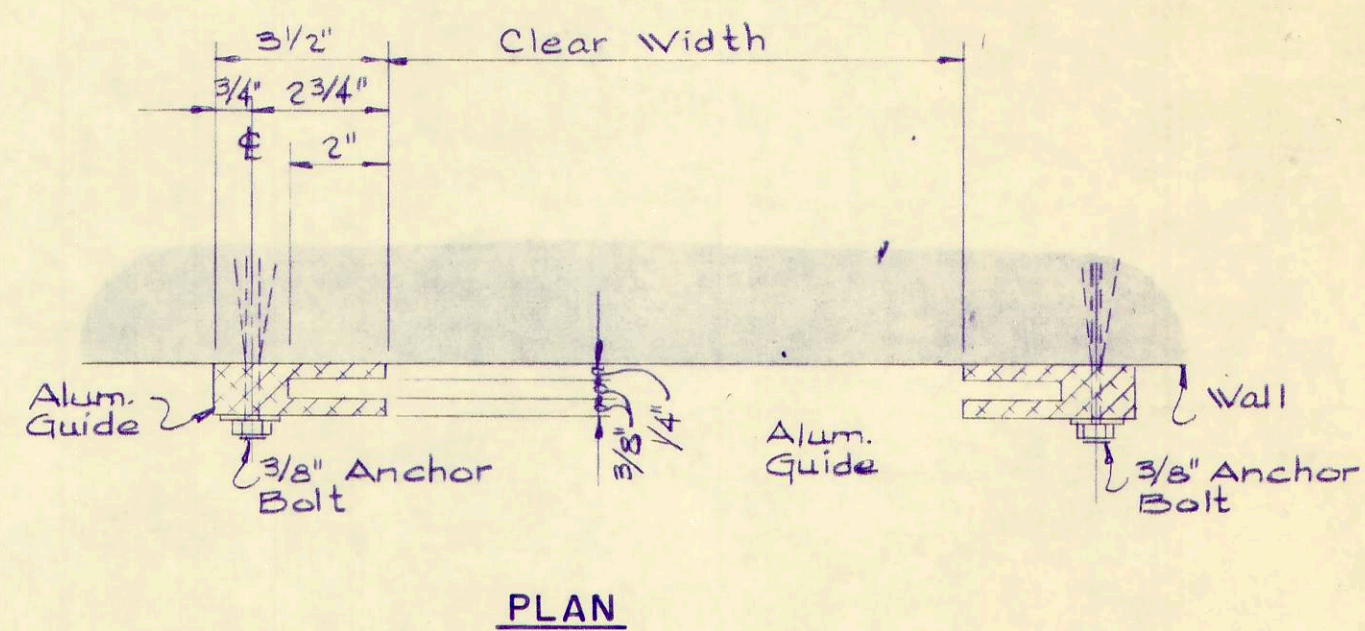
REV. NO.	DESCRIPTION	DATE	BY	APP'D

FINKBEINER, PETTIS & STROUT, LTD.
CONSULTING ENGINEERS
TOLEDO, OHIO

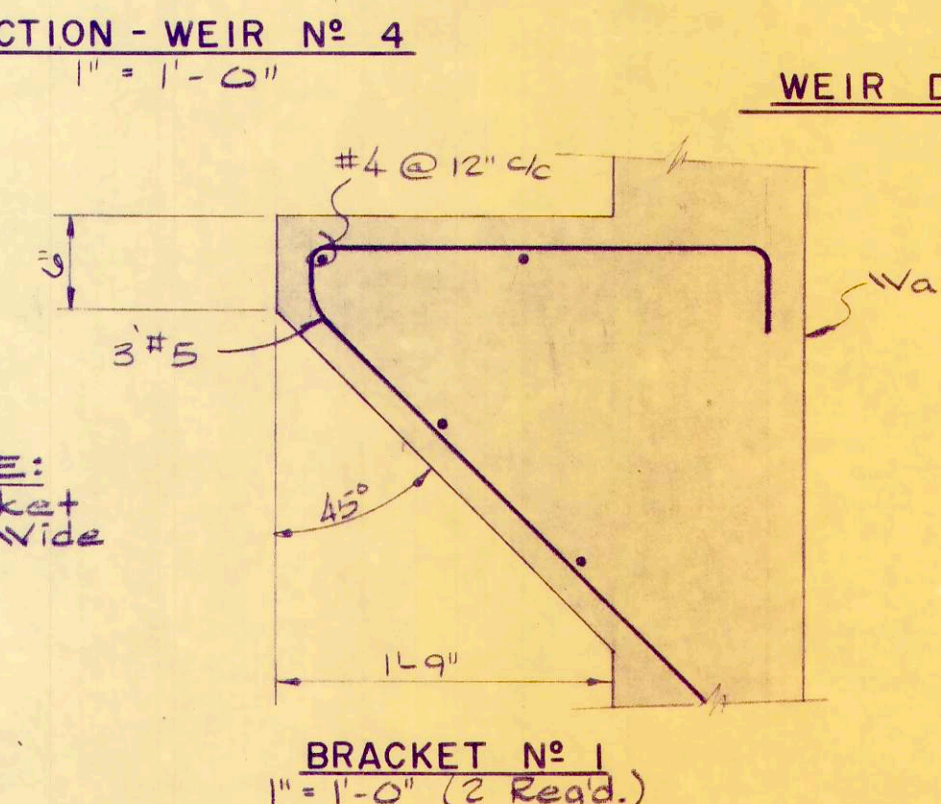
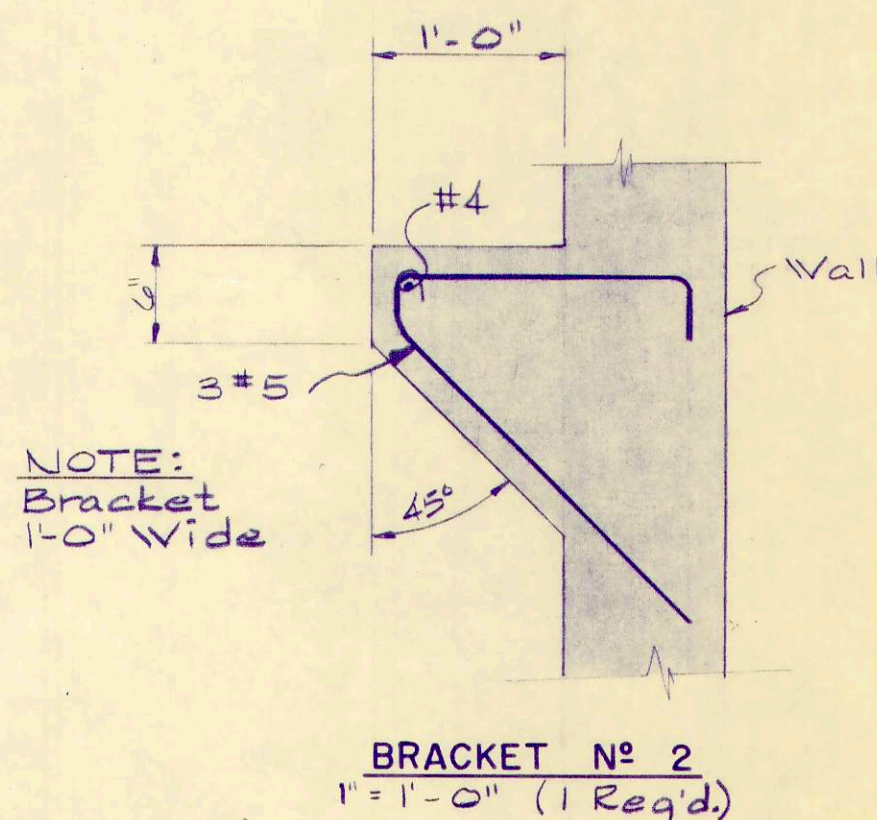
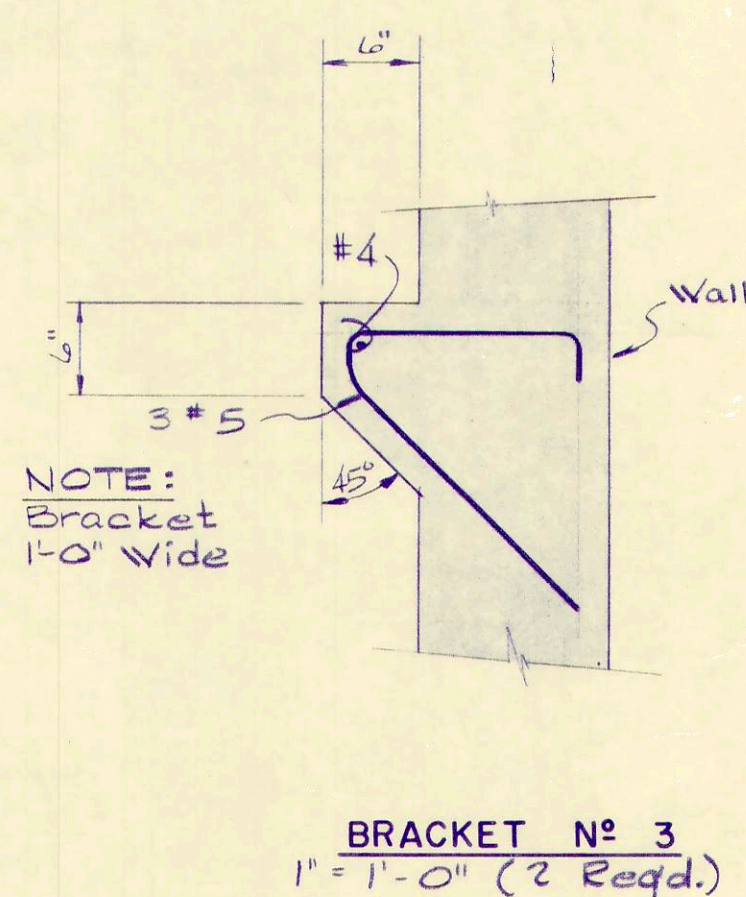
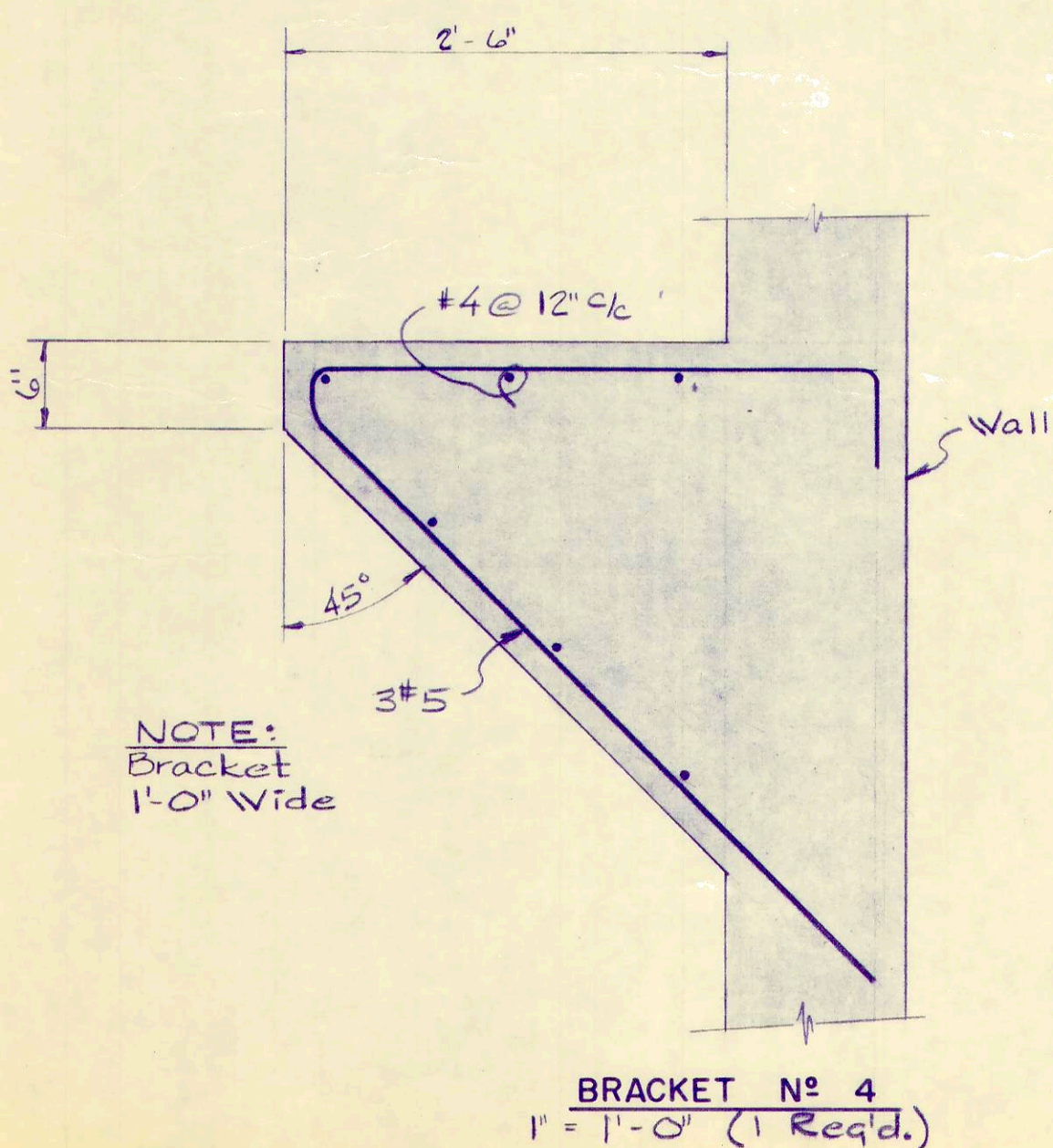
SCALE
As Noted
DESIGNED BY
R. B. W.
DRAWN BY
R. L. C.
CHECKED BY
W. C. K.

PRIMARY SETTLING TANK
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

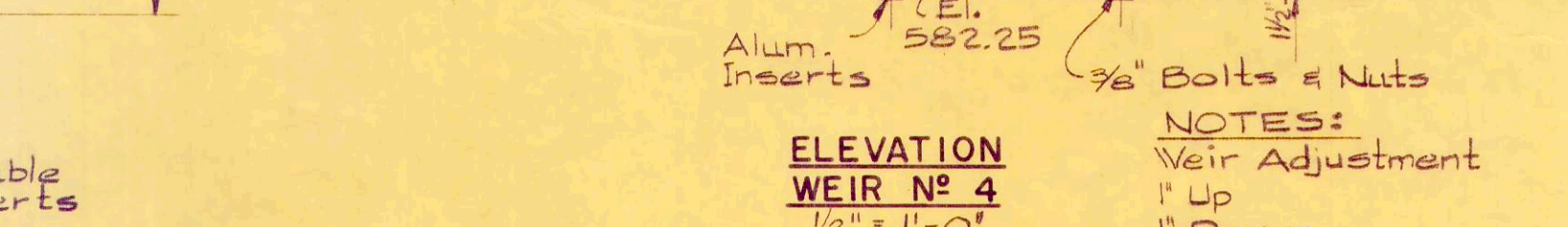
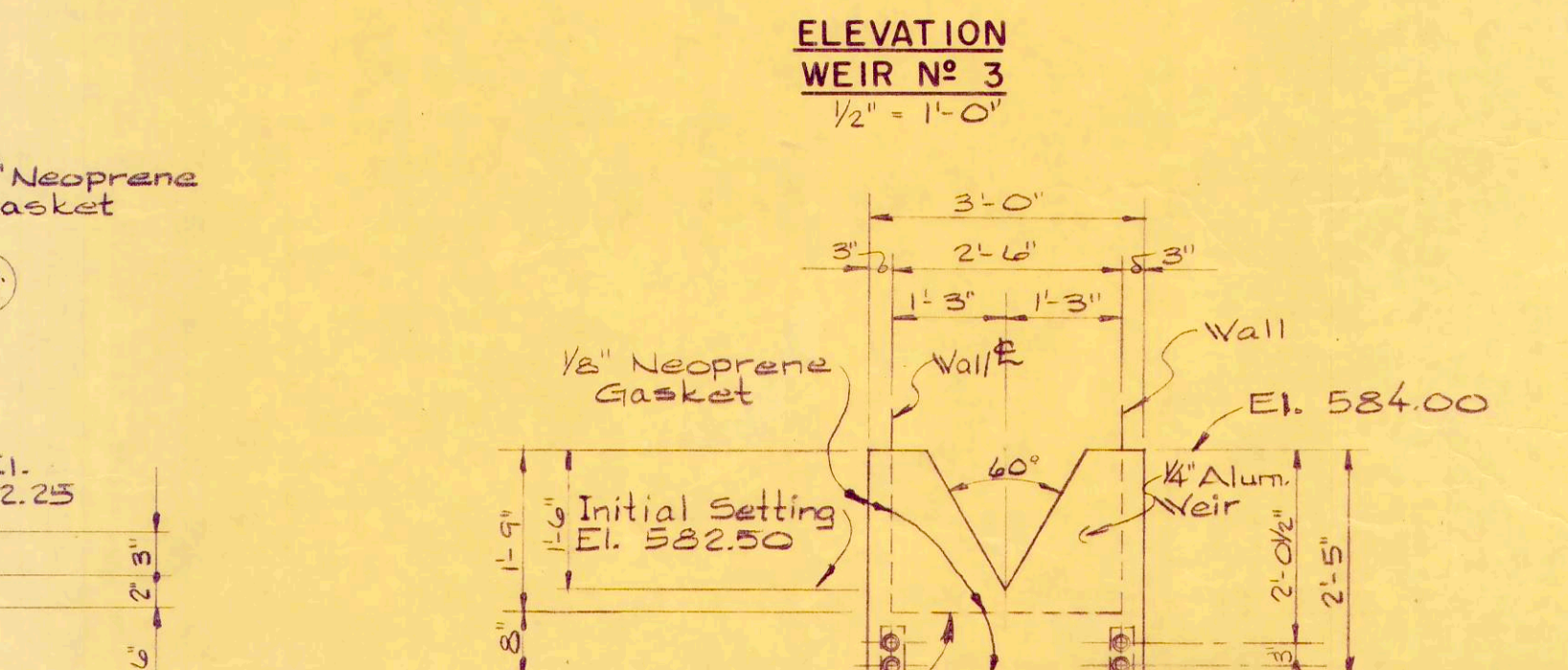
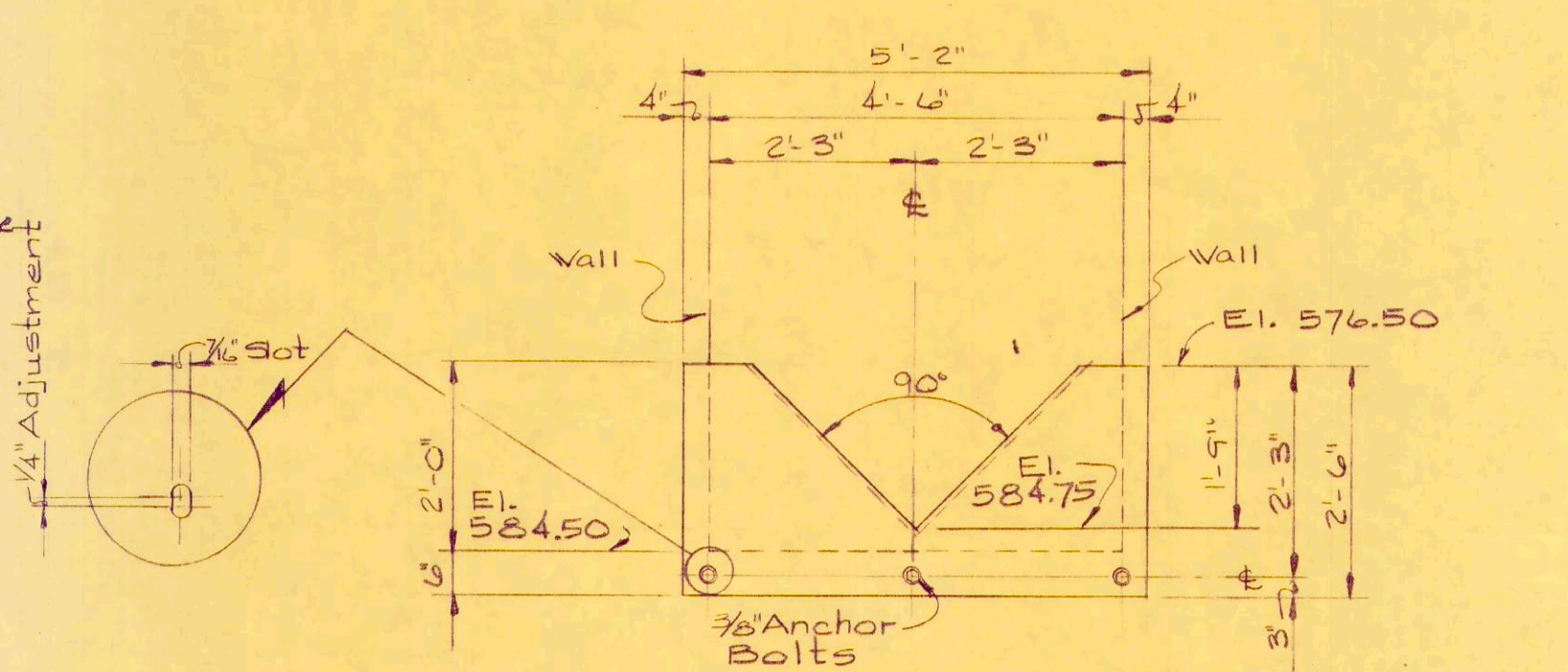
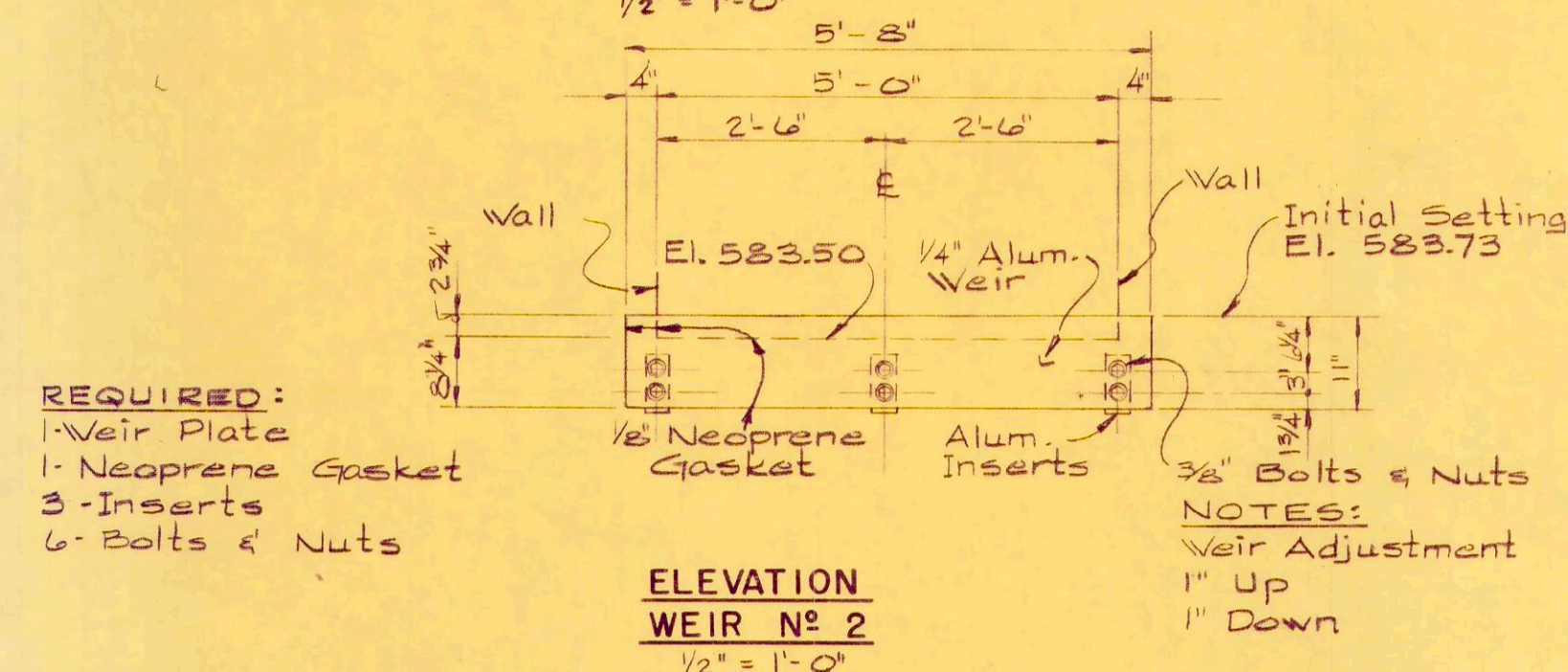
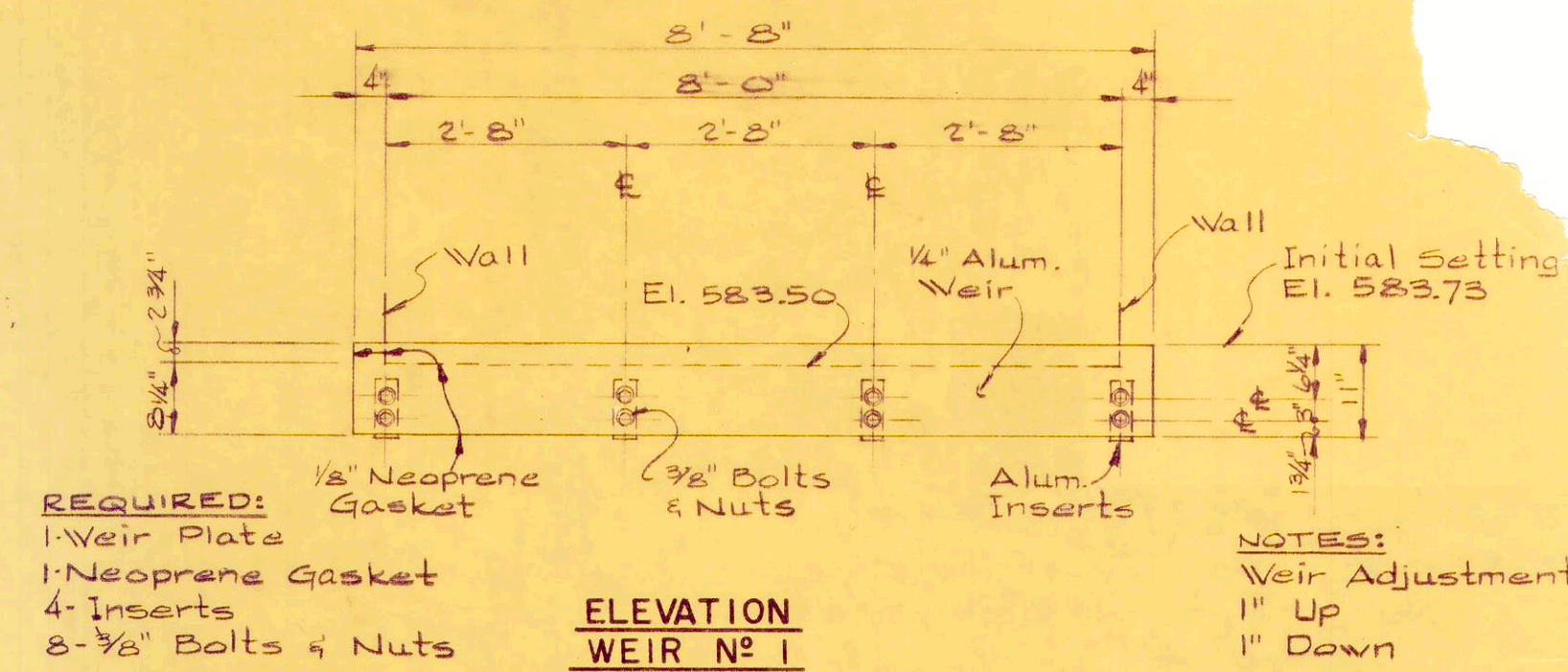
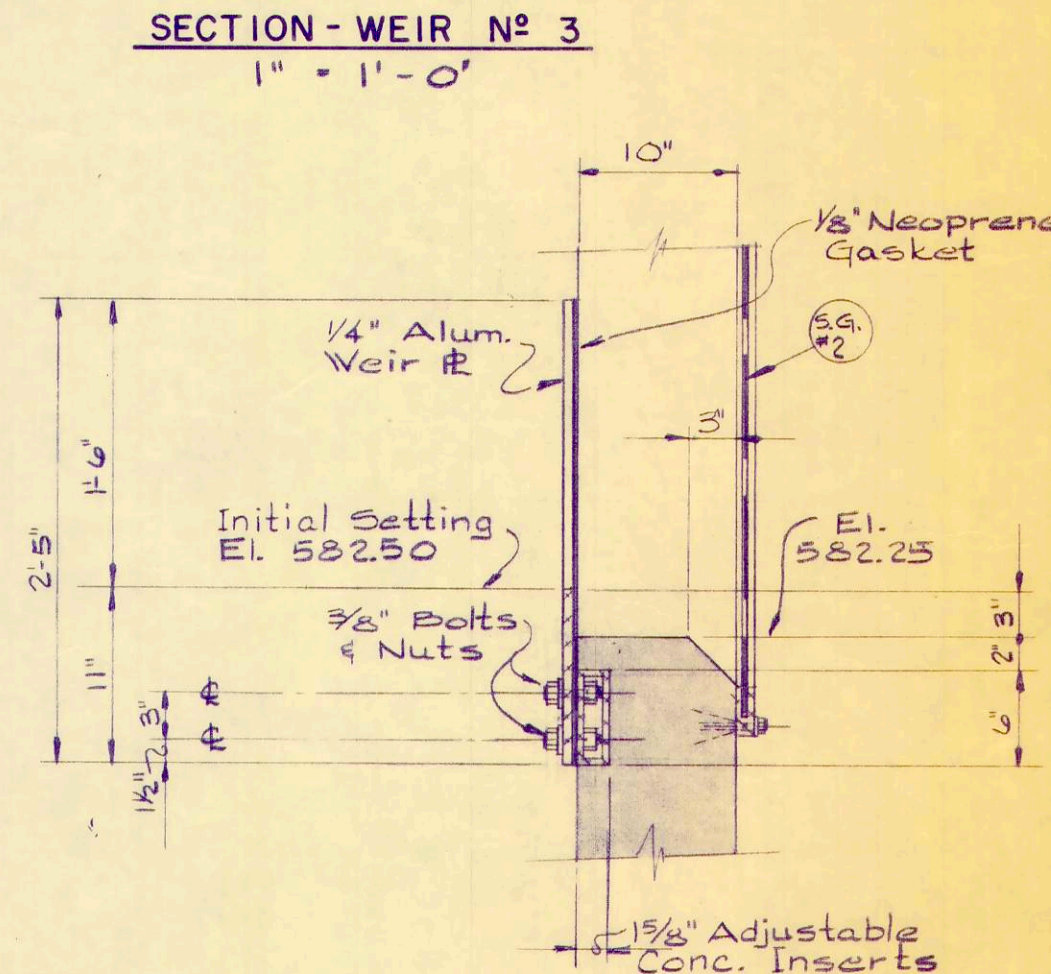
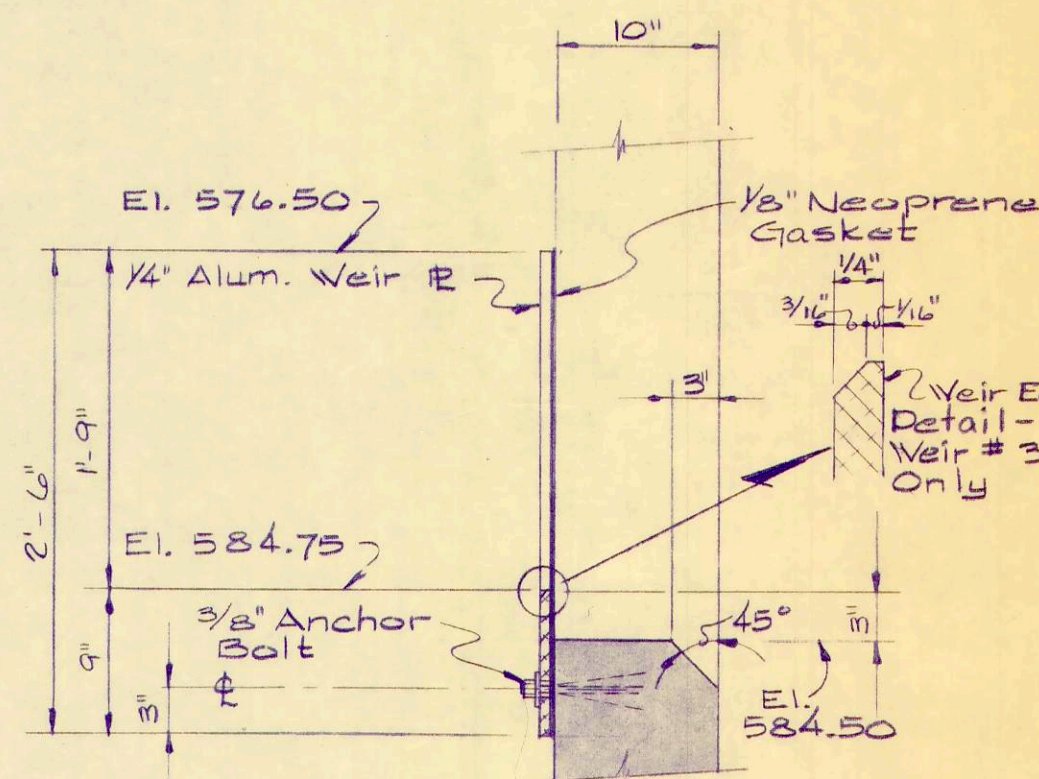
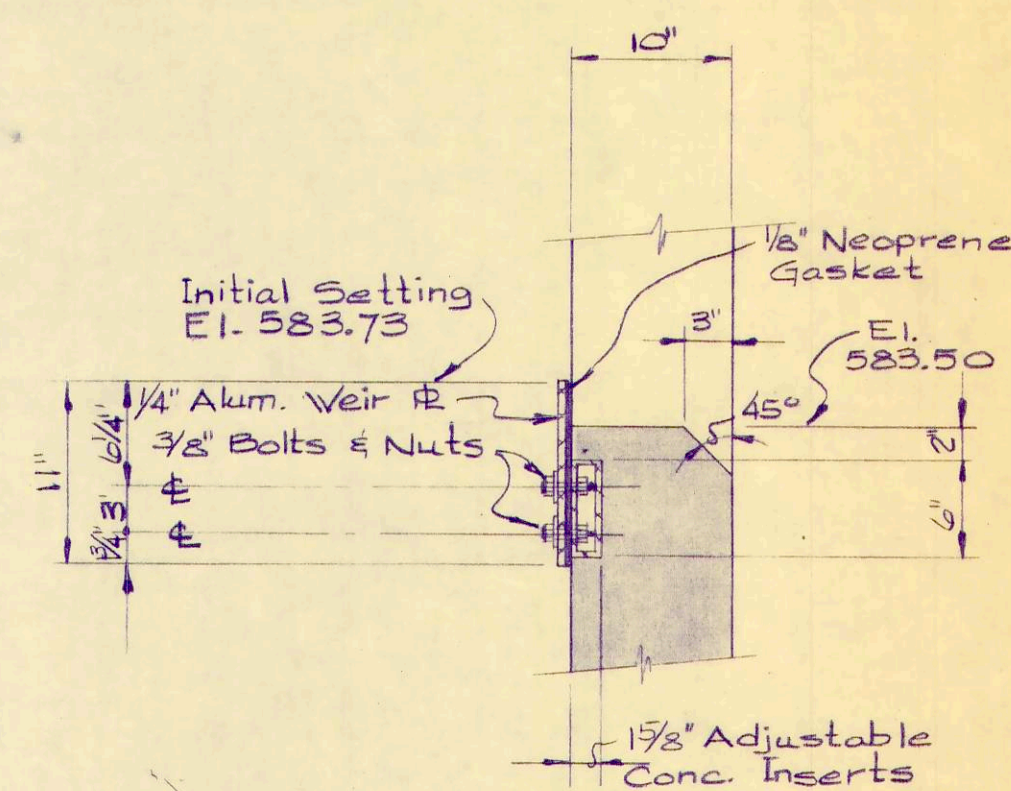
PROJECT NUMBER
OAKSO01 BI
SECTION
DATE
3-72
25 OF 36



STOP GATE DETAILS
No Scale



CONCRETE BRACKET DETAILS



WEIR DETAILS

NOTES:
All aluminum surfaces in contact with concrete to be painted with a bitumastic paint.
All structural steel to be galvanized.
All bolts and nuts to be bronze

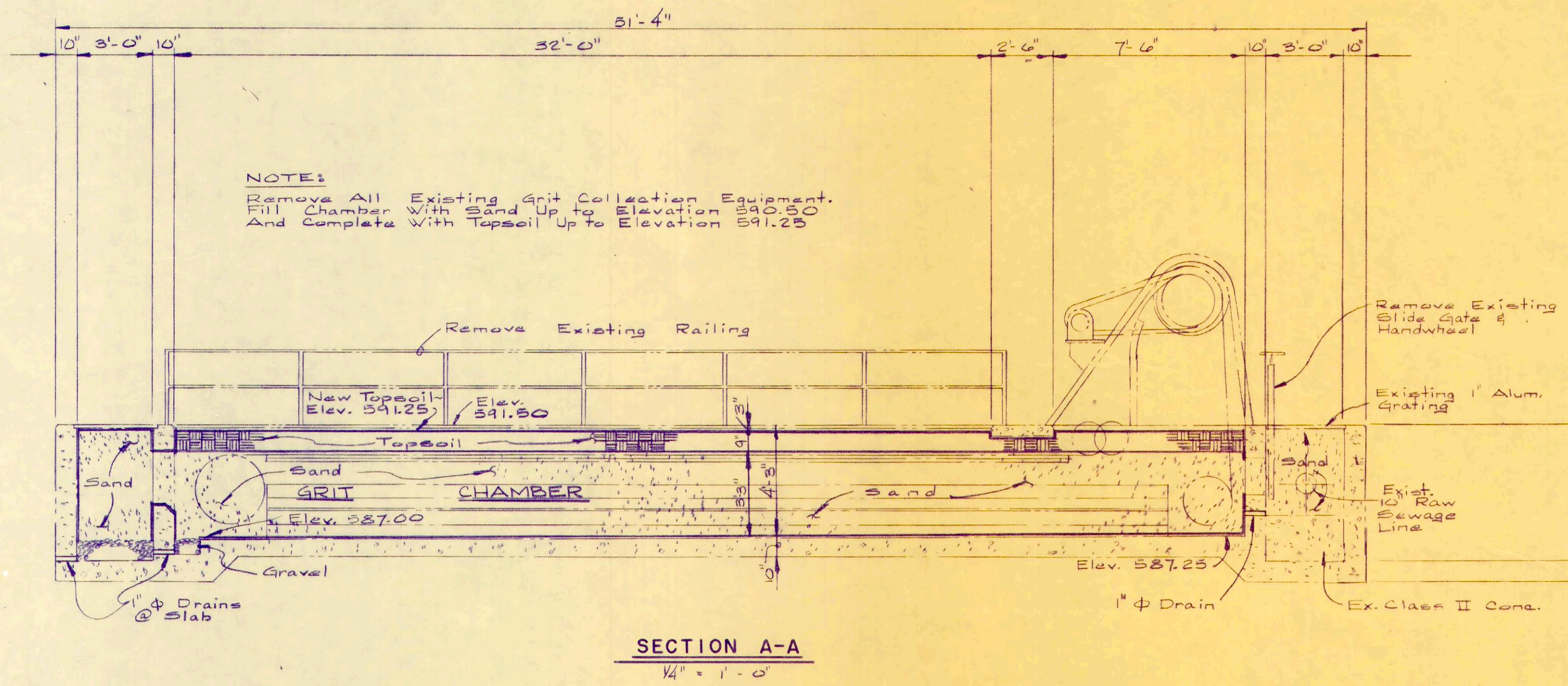
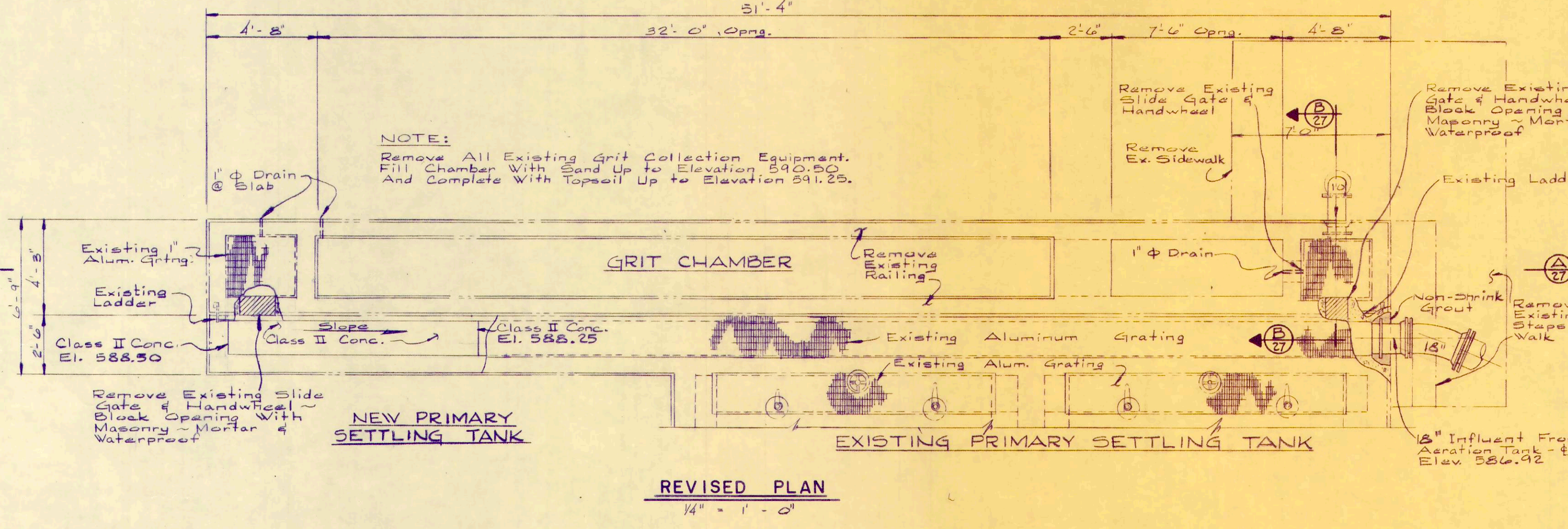
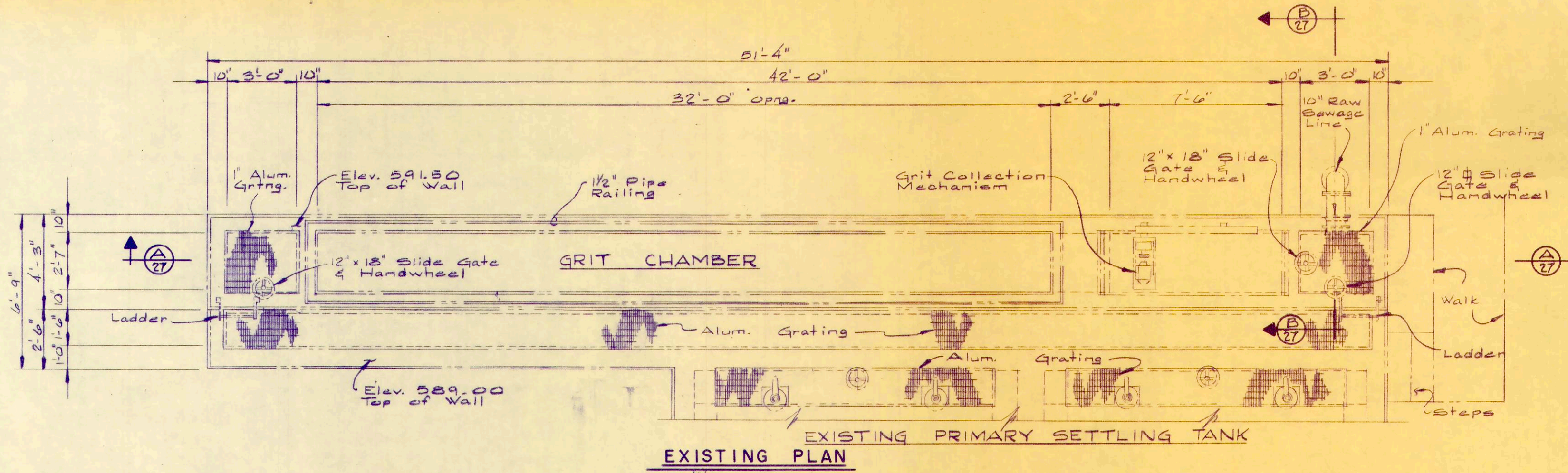
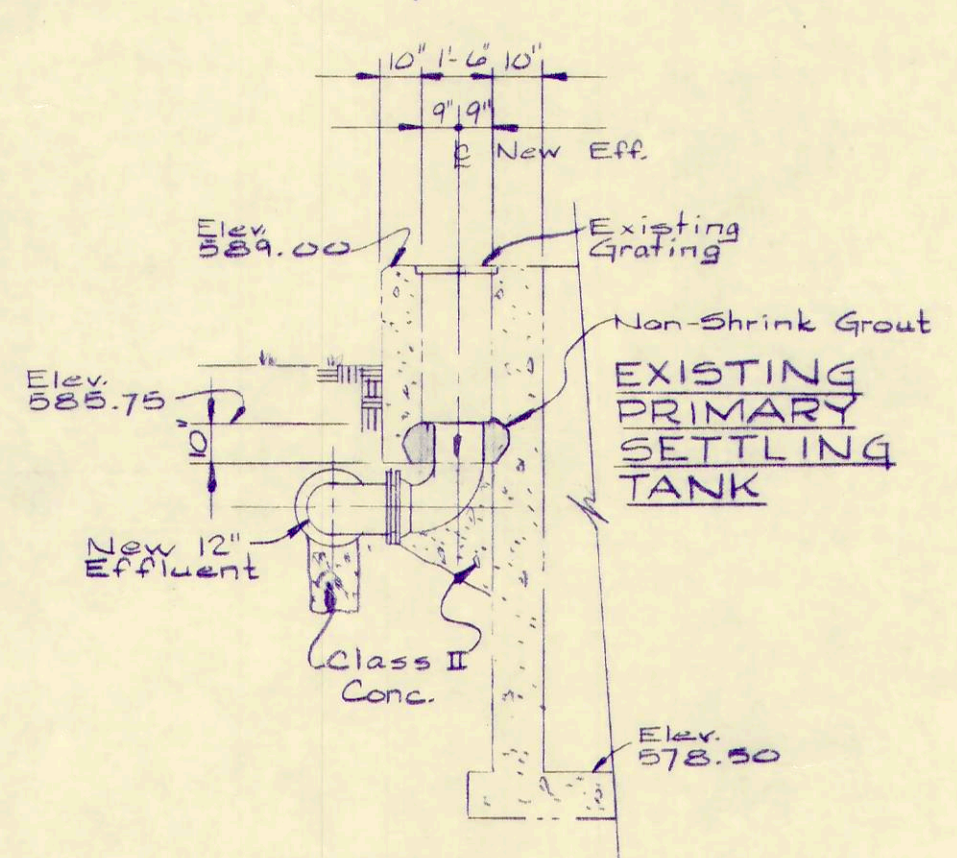
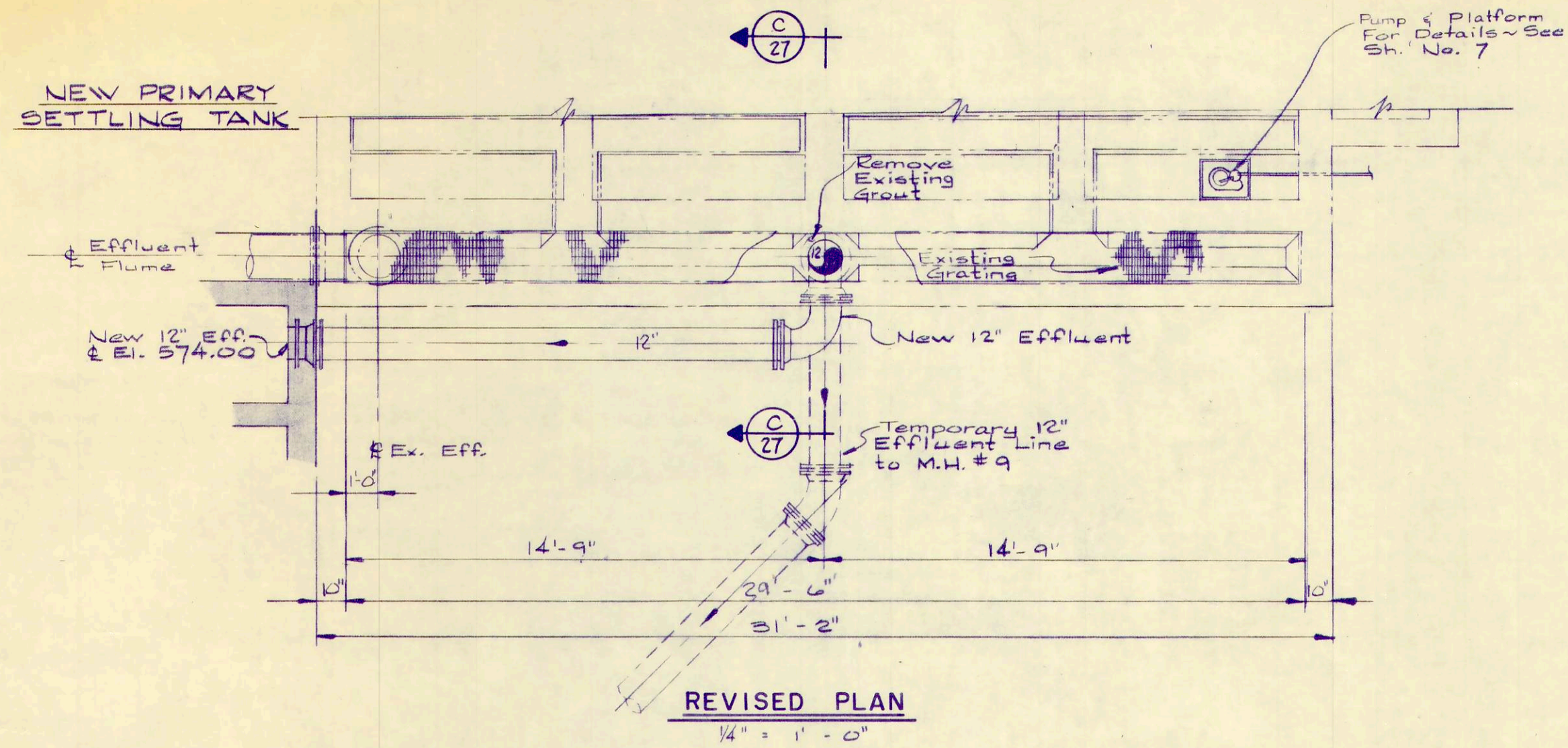
REV. NO.	DESCRIPTION	DATE	BY	APP'D

FINKBEINER, PETTIS & STROUT
CONSULTING ENGINEERS
TOLEDO, OHIO

SCALE
As Noted
DESIGNED BY
R. B. W.
DRAWN BY
R. L. C.
CHECKED BY
W. C. K.

PRIMARY SETTLING TANK
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

PROJECT NUMBER
OAKS001 BI
SECTION
DATE
3 - 72
26 OF 36

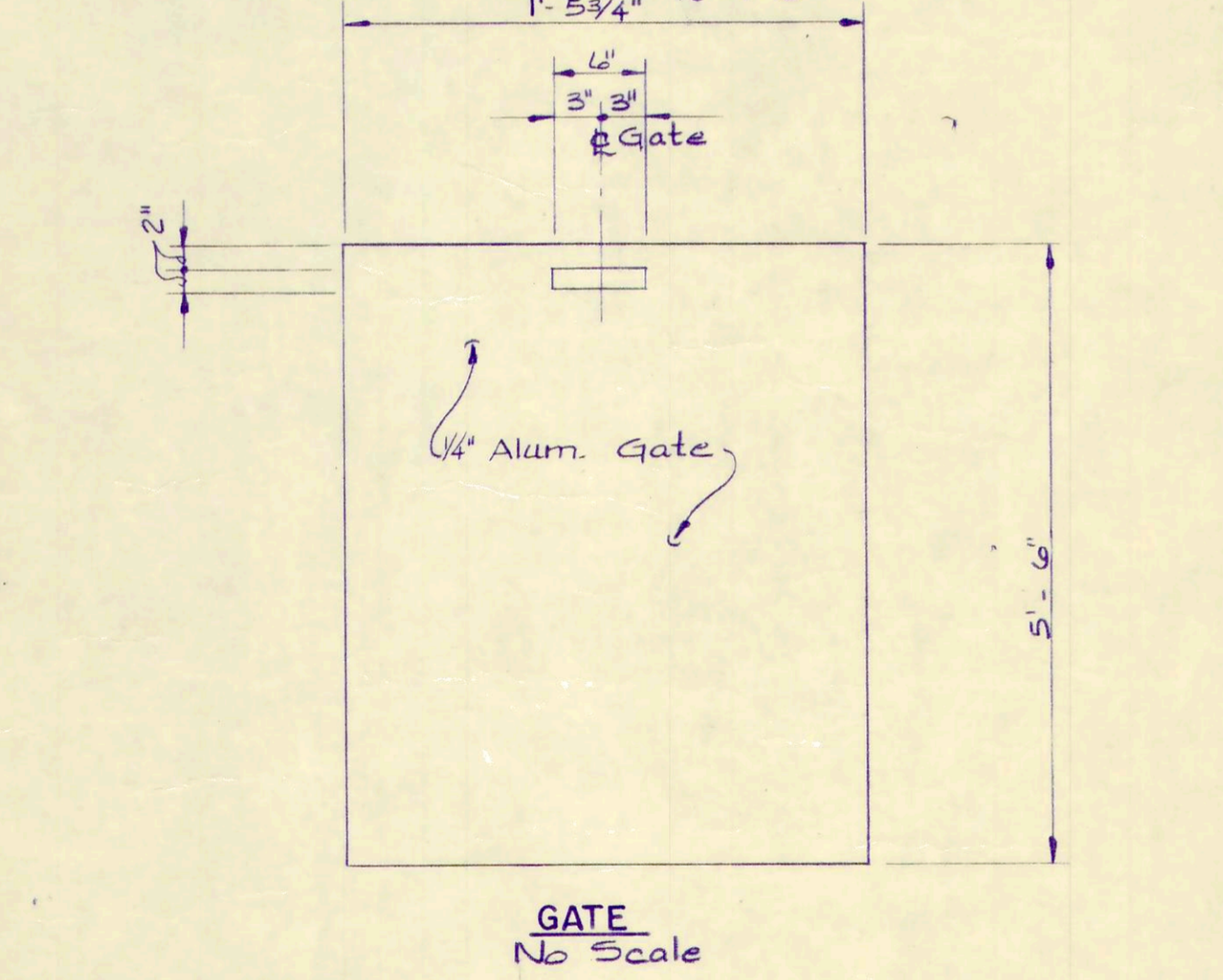
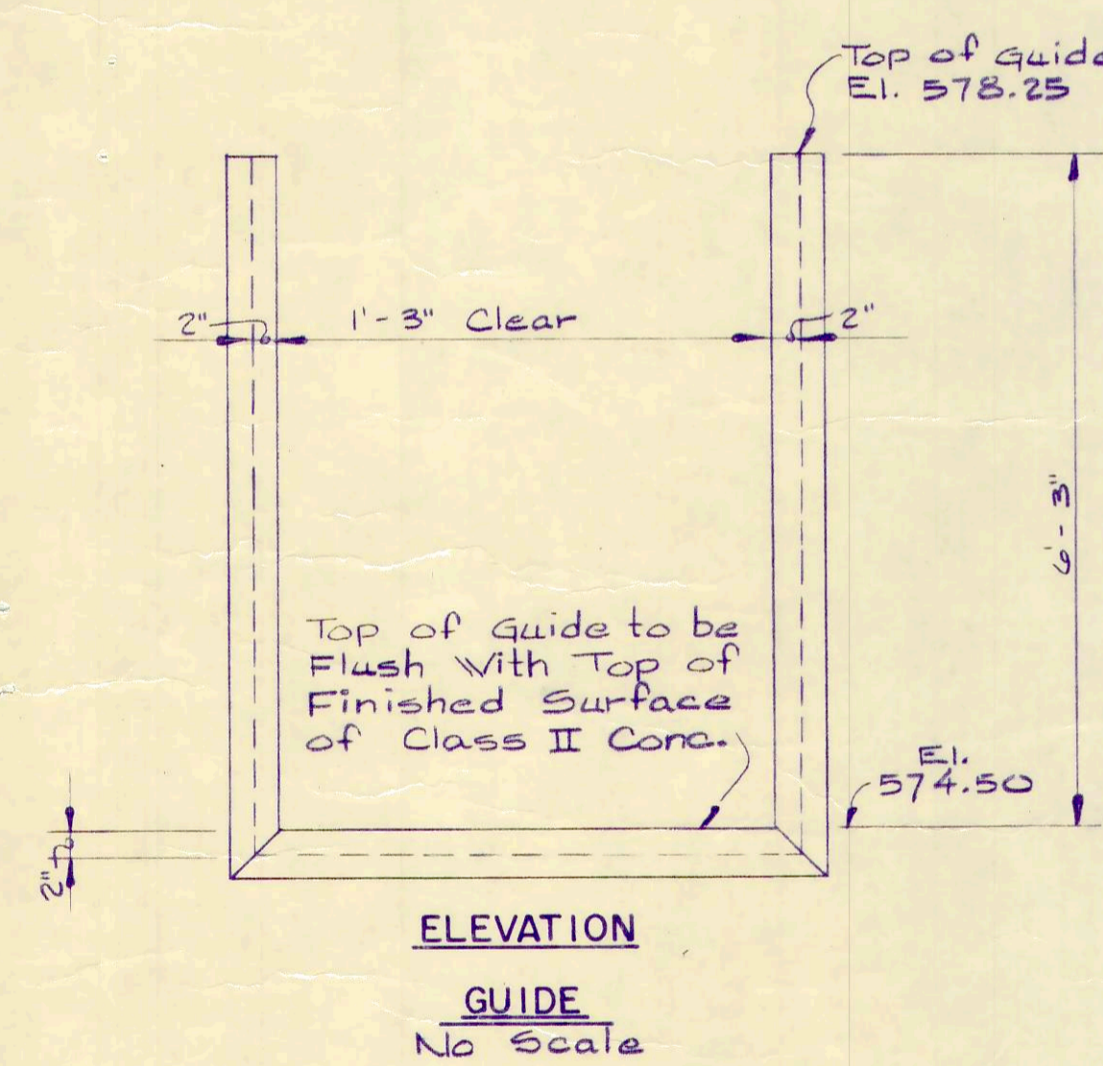
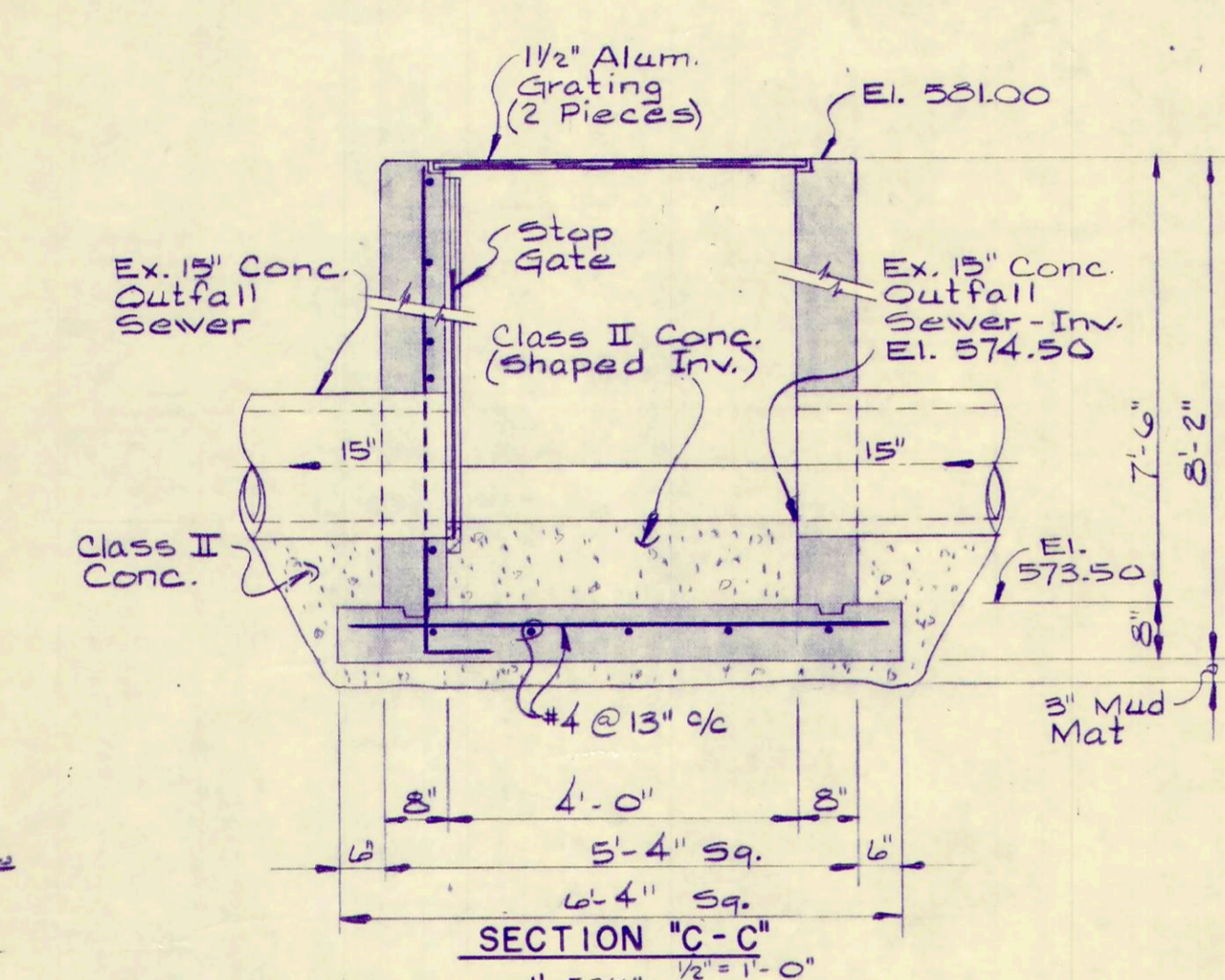
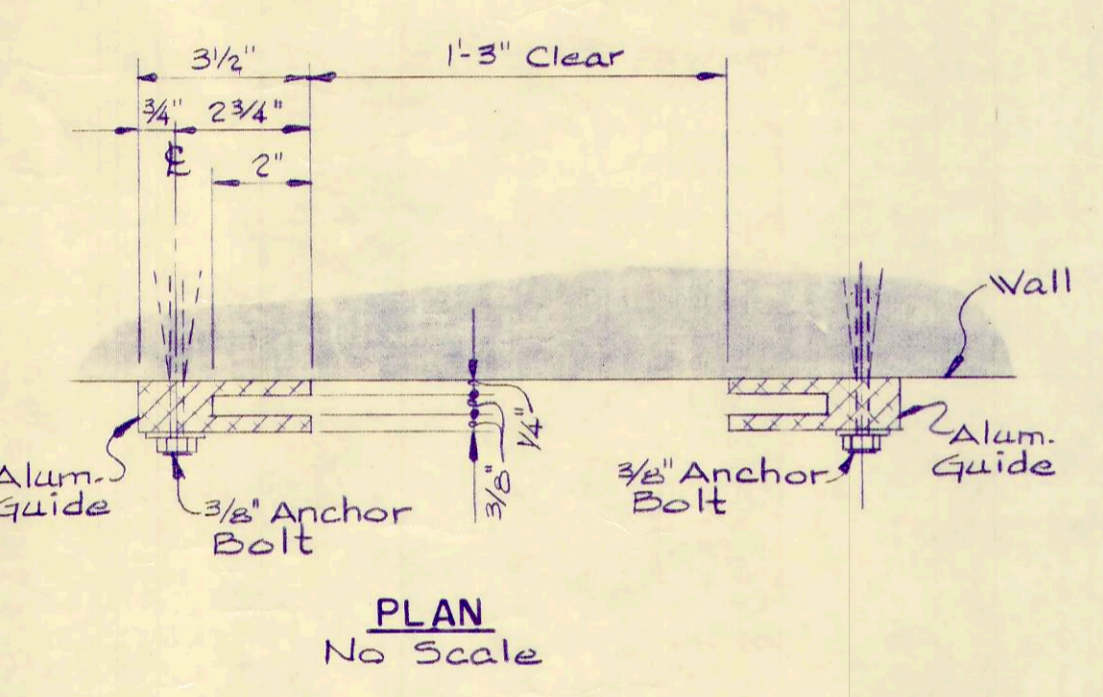
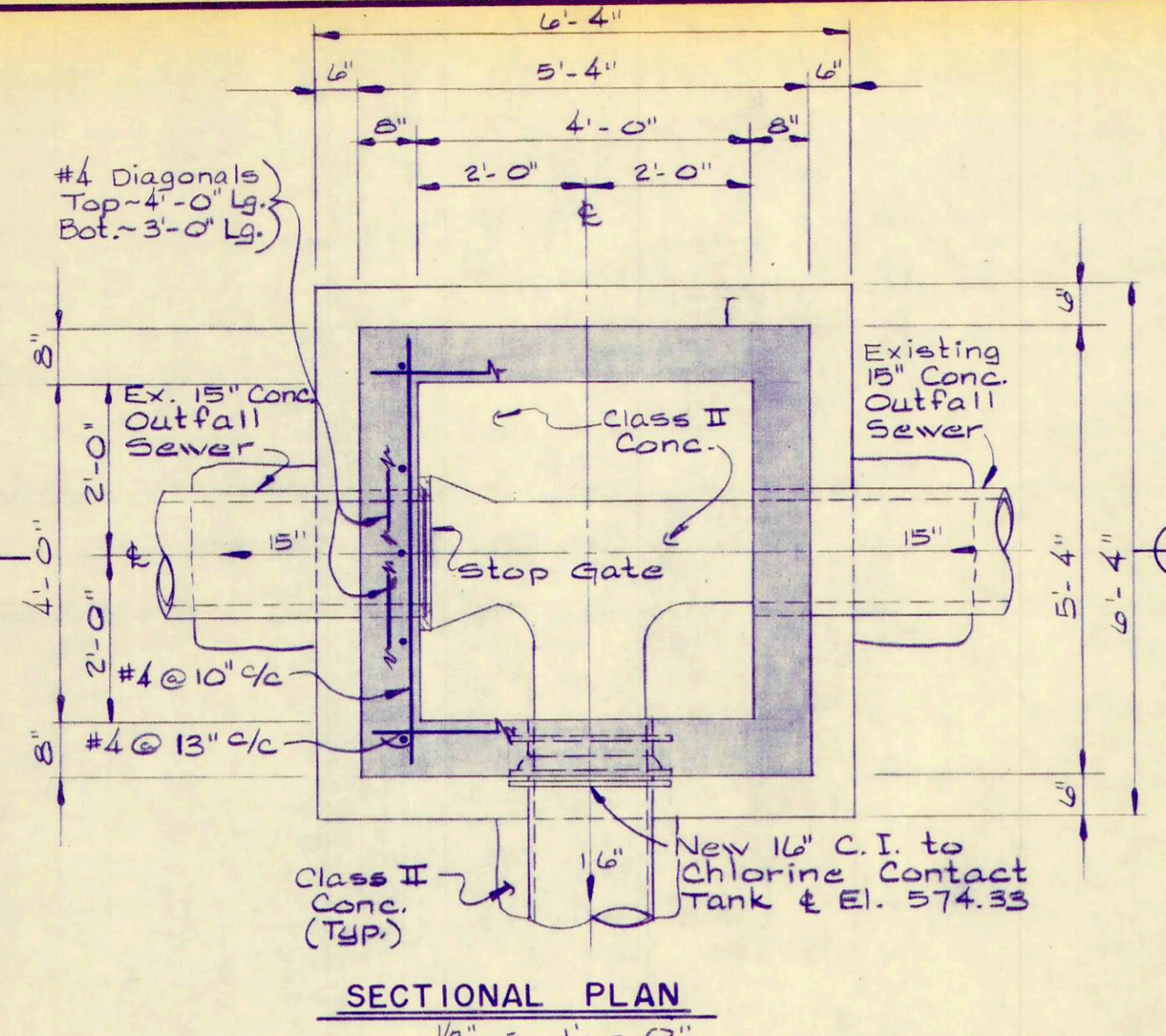
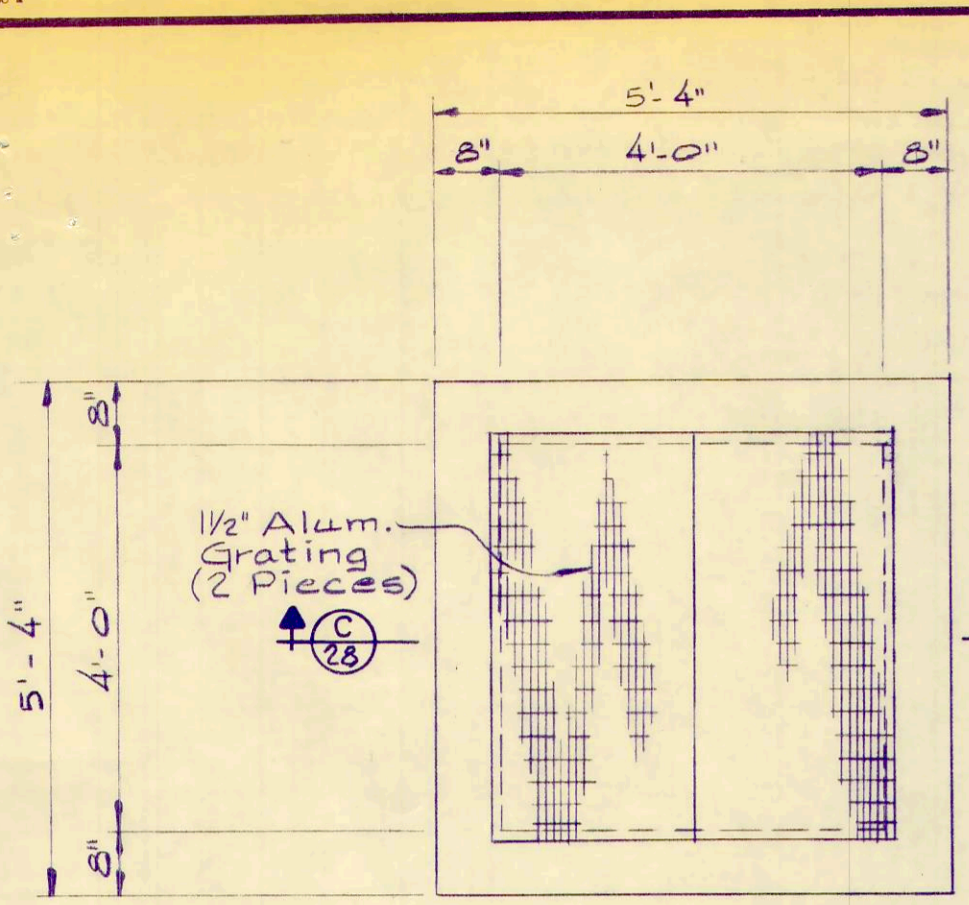


NOTE:
 All Aluminum Surfaces in Contact With Concrete to be Painted With a Bitu-mastic Paint.

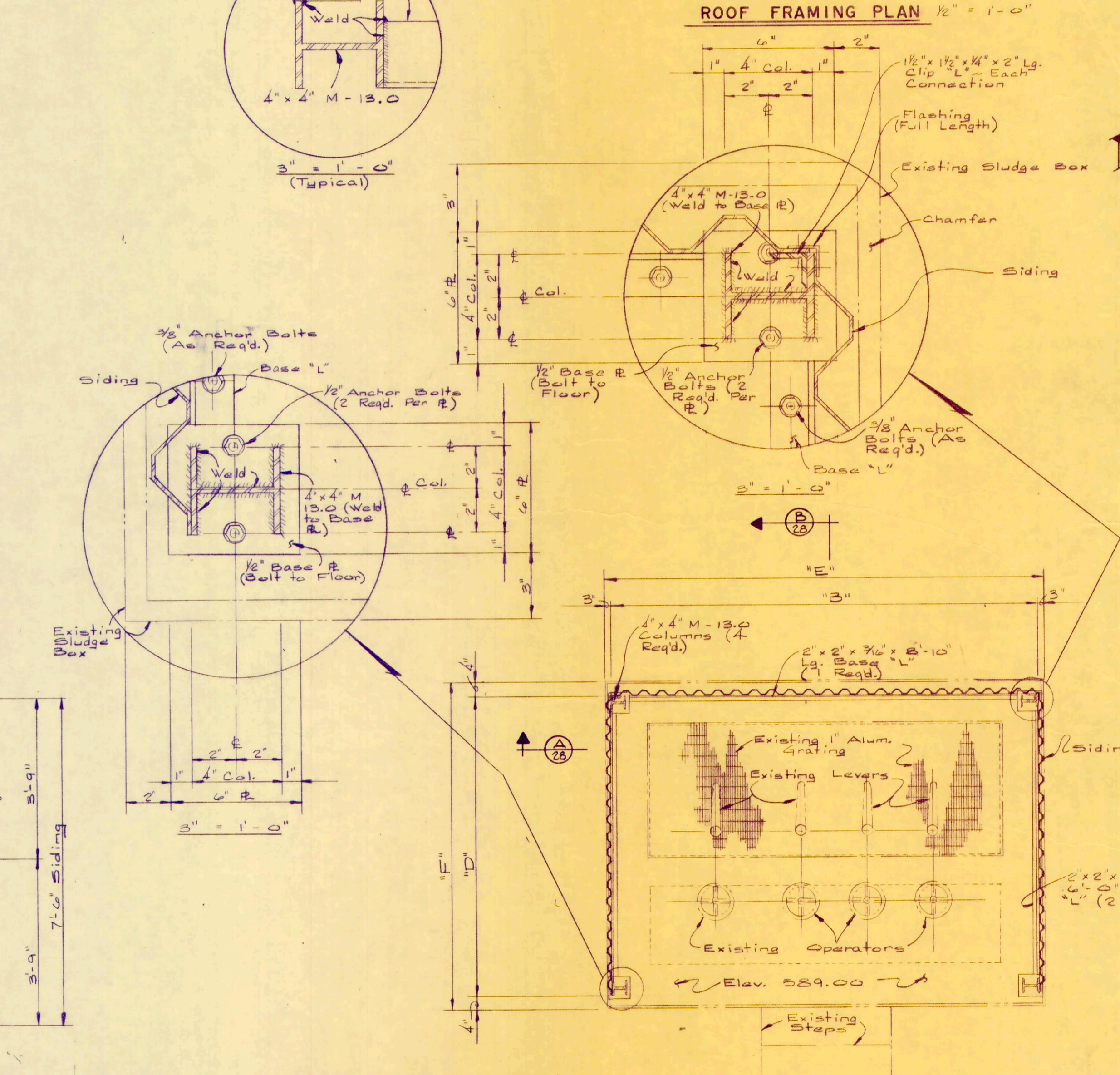
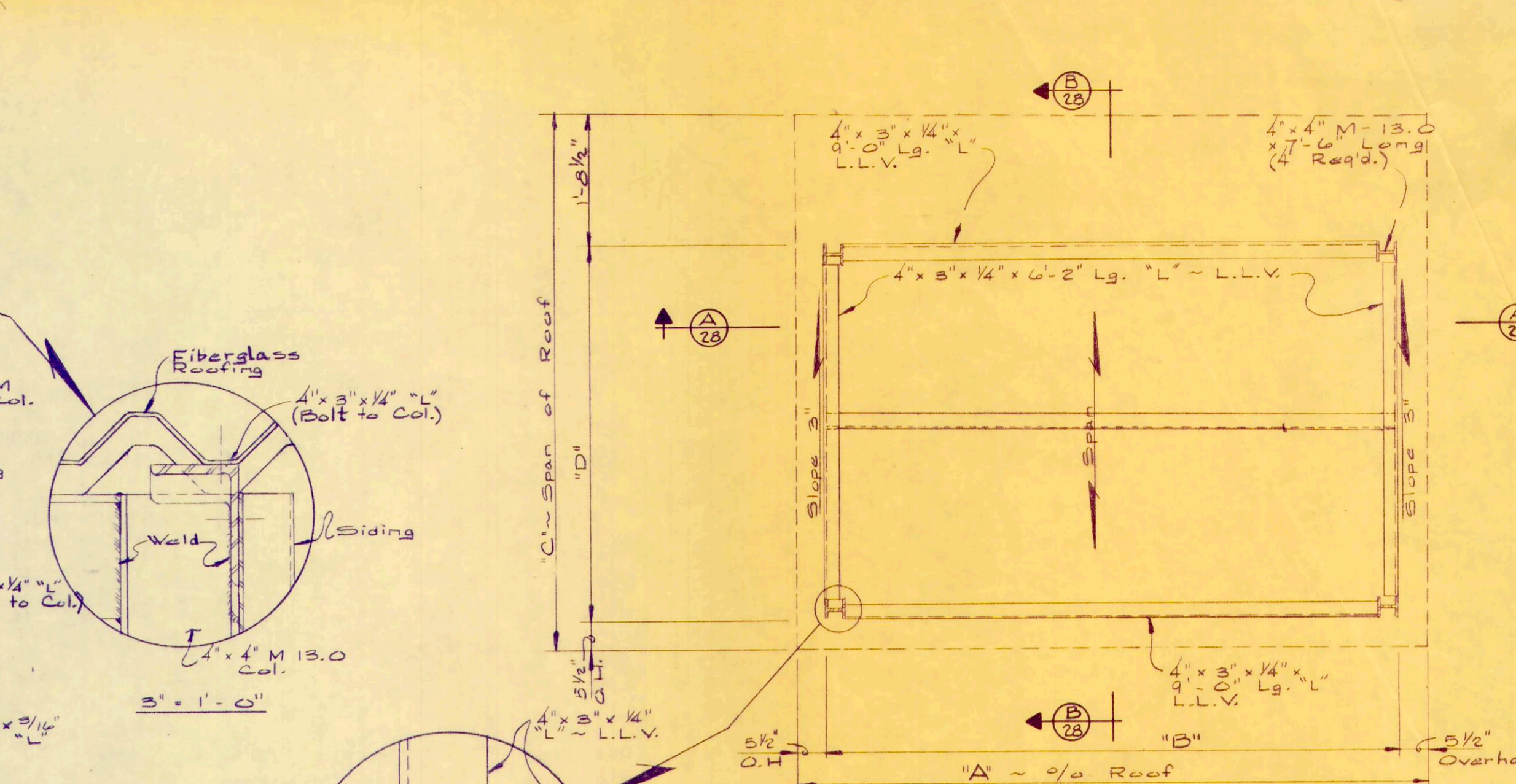
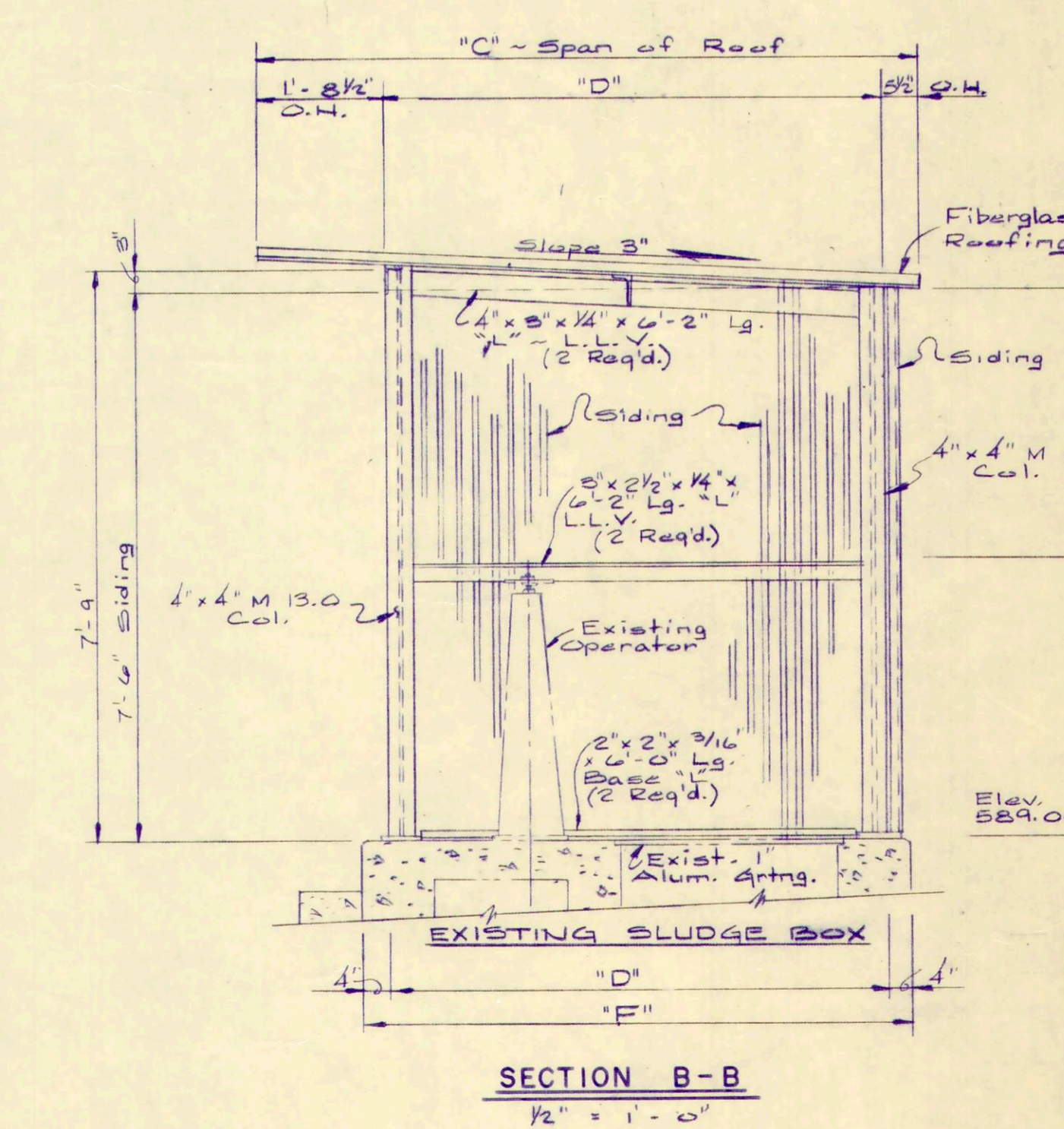
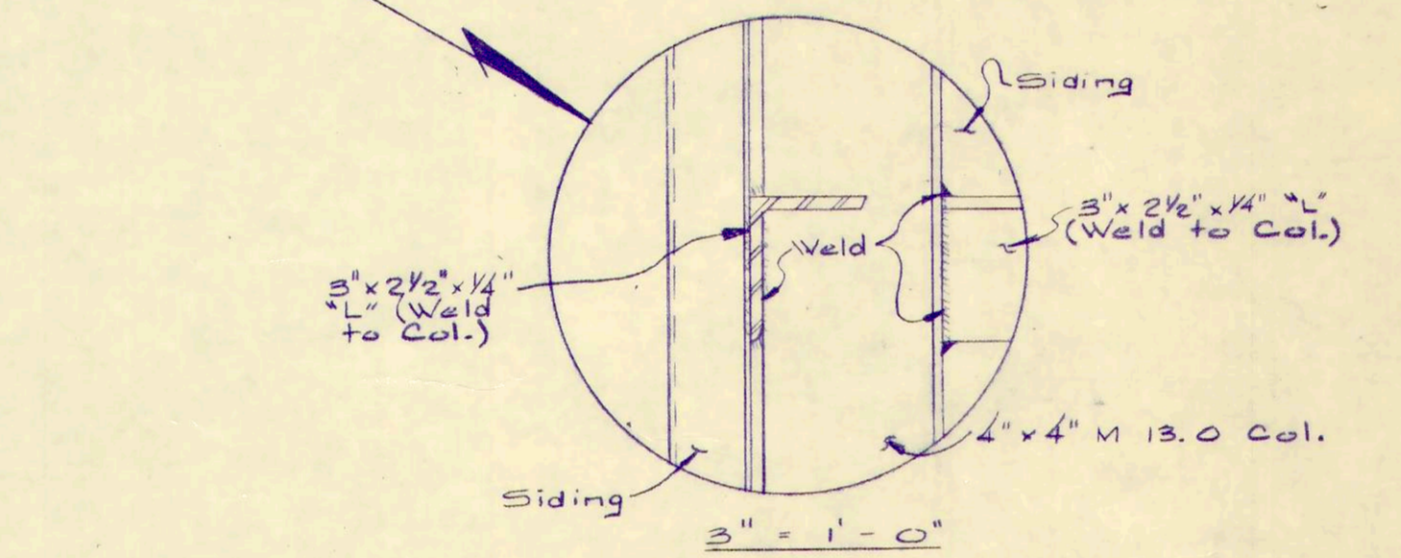
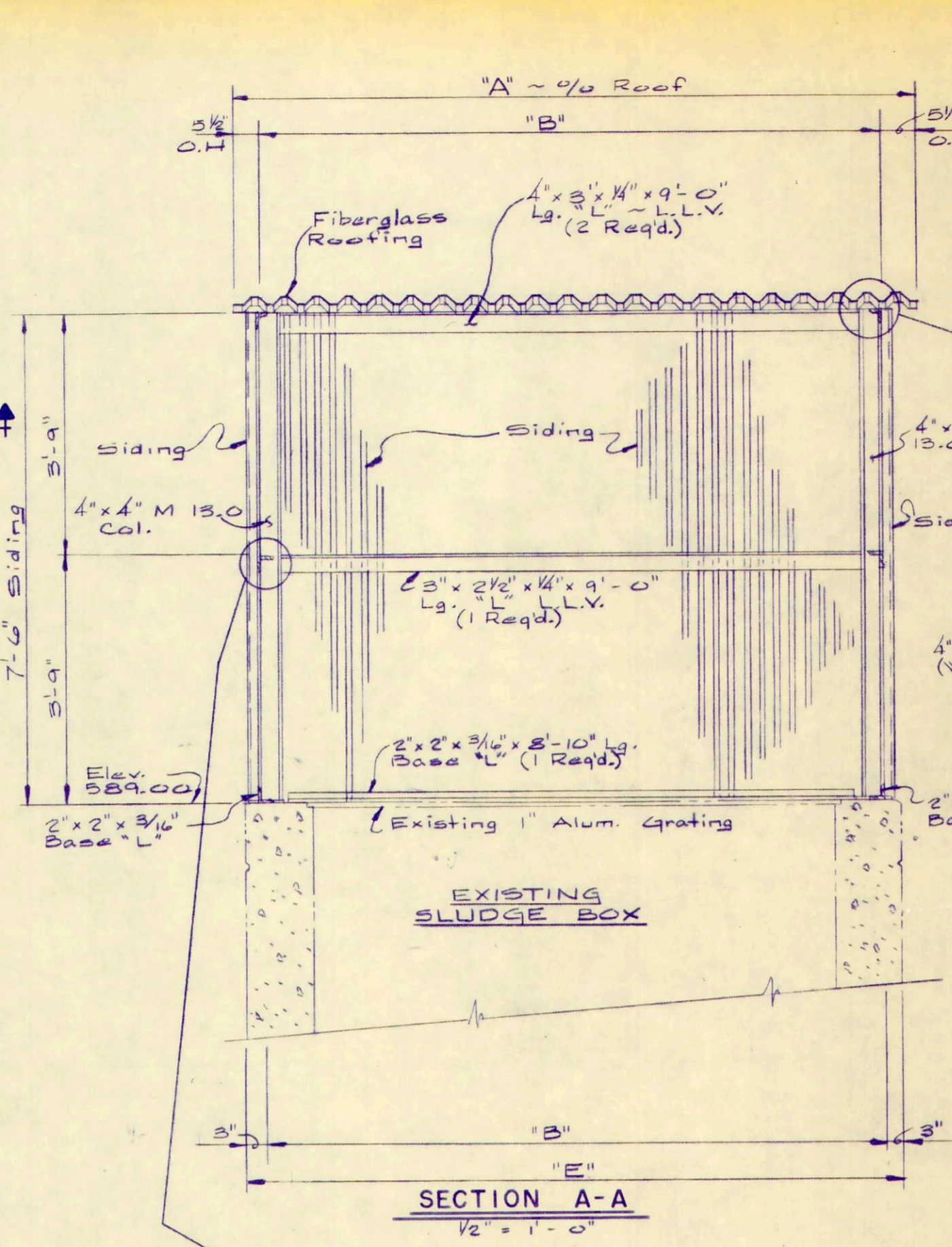
REV. NO.	DESCRIPTION	DATE	BY	APP'D	SCALE	PROJECT
					As Noted	PRIMARY SETTLING TANK ALTERATIONS
					DESIGNED BY R.B.W.	WASTEWATER TREATMENT PLANT IMPROVEMENTS
					DRAWN BY E.L.C.	OAK HARBOR, OHIO
					CHECKED BY W.C.K.	

FINKBEINER, PETTIS & STROUT
 LIMITED
 CONSULTING ENGINEERS
 TOLEDO, OHIO

PROJECT: OAKSO
 SECTION: 3-
 DATE: 27



DIVERSION MANHOLE DETAILS



SLUDGE BOX SHELTERS SCHEDULE						
	A	B	C	D	E	F
EXISTING SLUDGE BOX	10'-5"	9'-6"	9'-0"	6'-10"	10'-0"	7'-6"
PRIMARY SETTLING TANK No 3 SLUDGE BOX	7'-7"	6'-8"	6'-7"	5'-8"	7'-2"	6'-4"

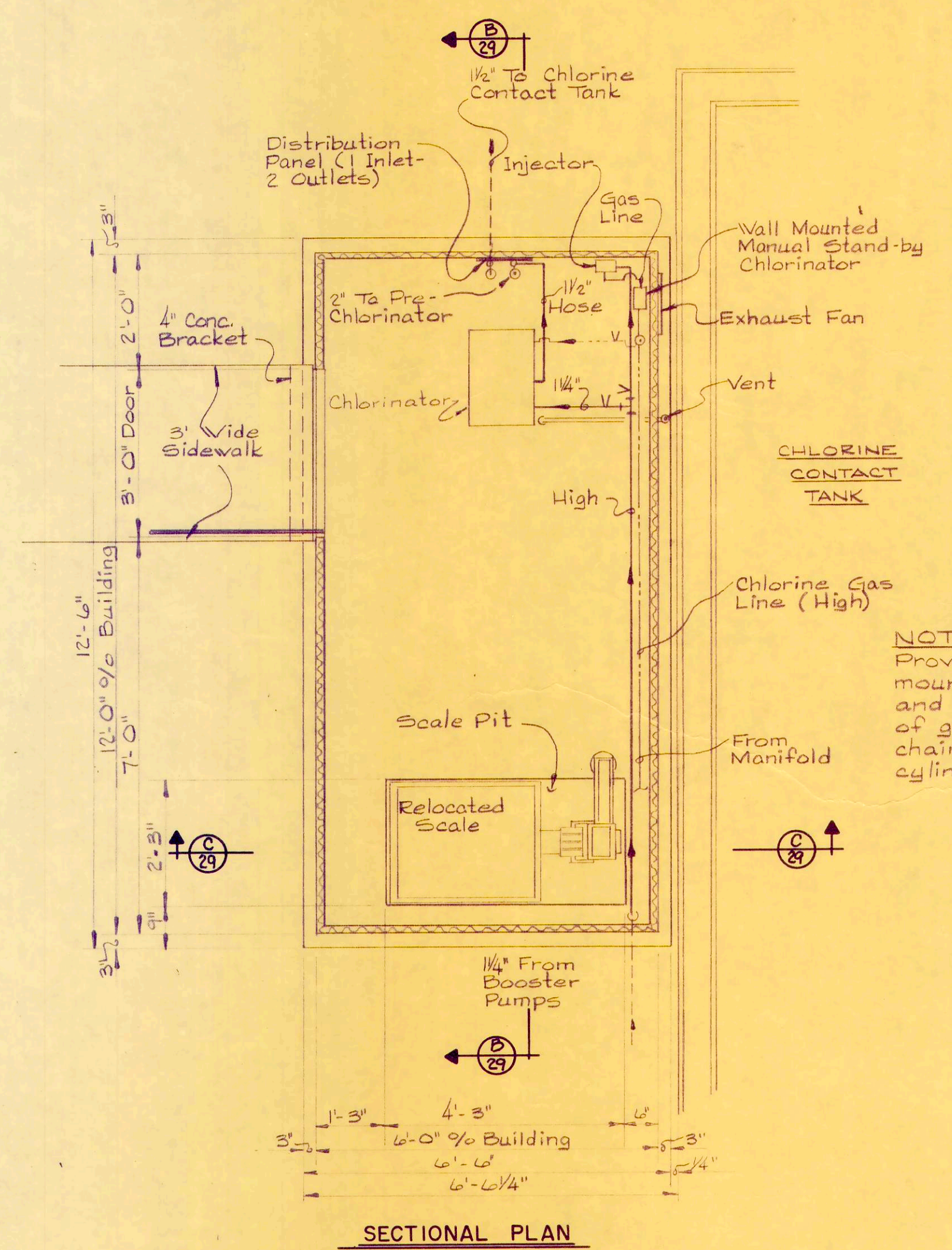
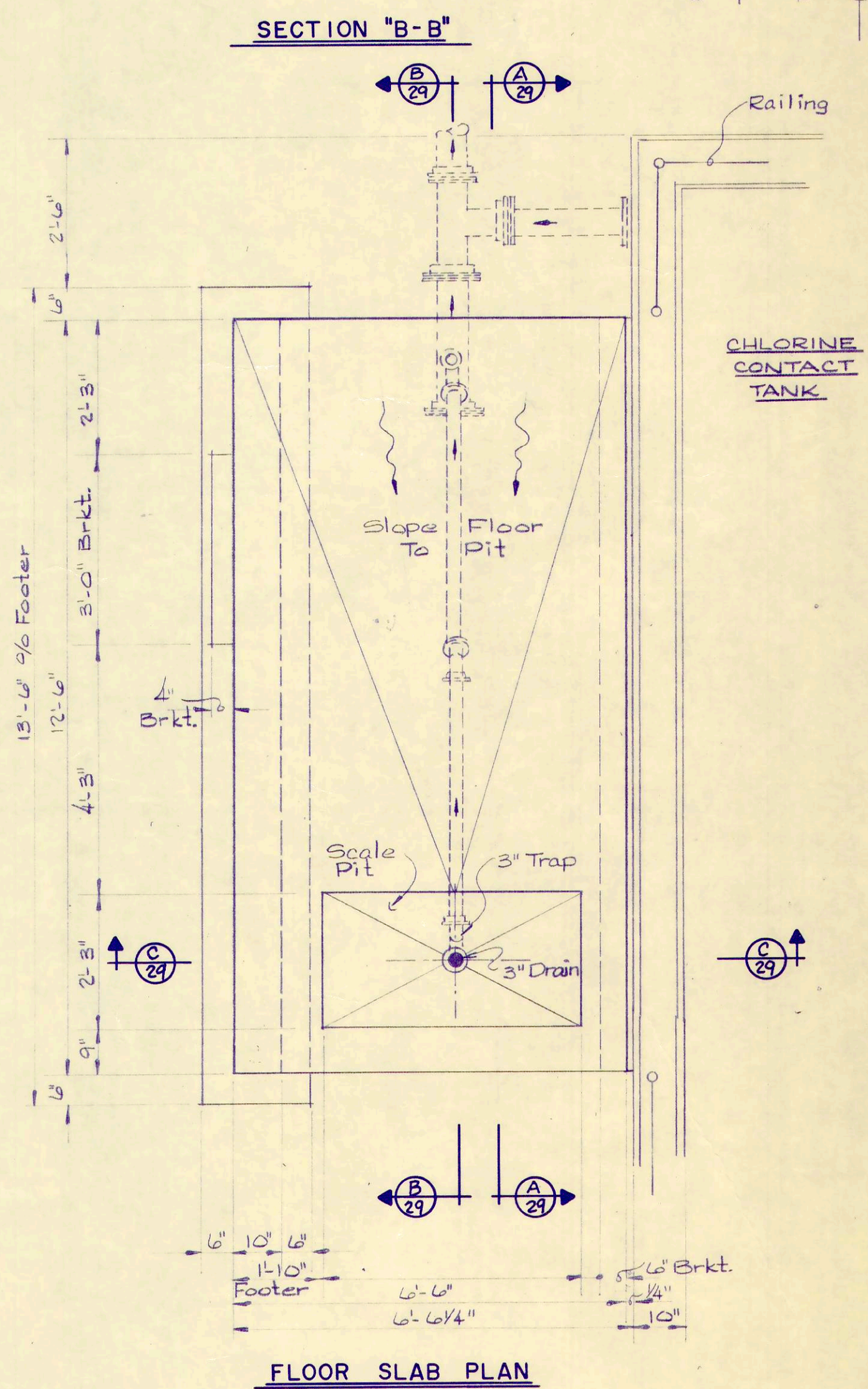
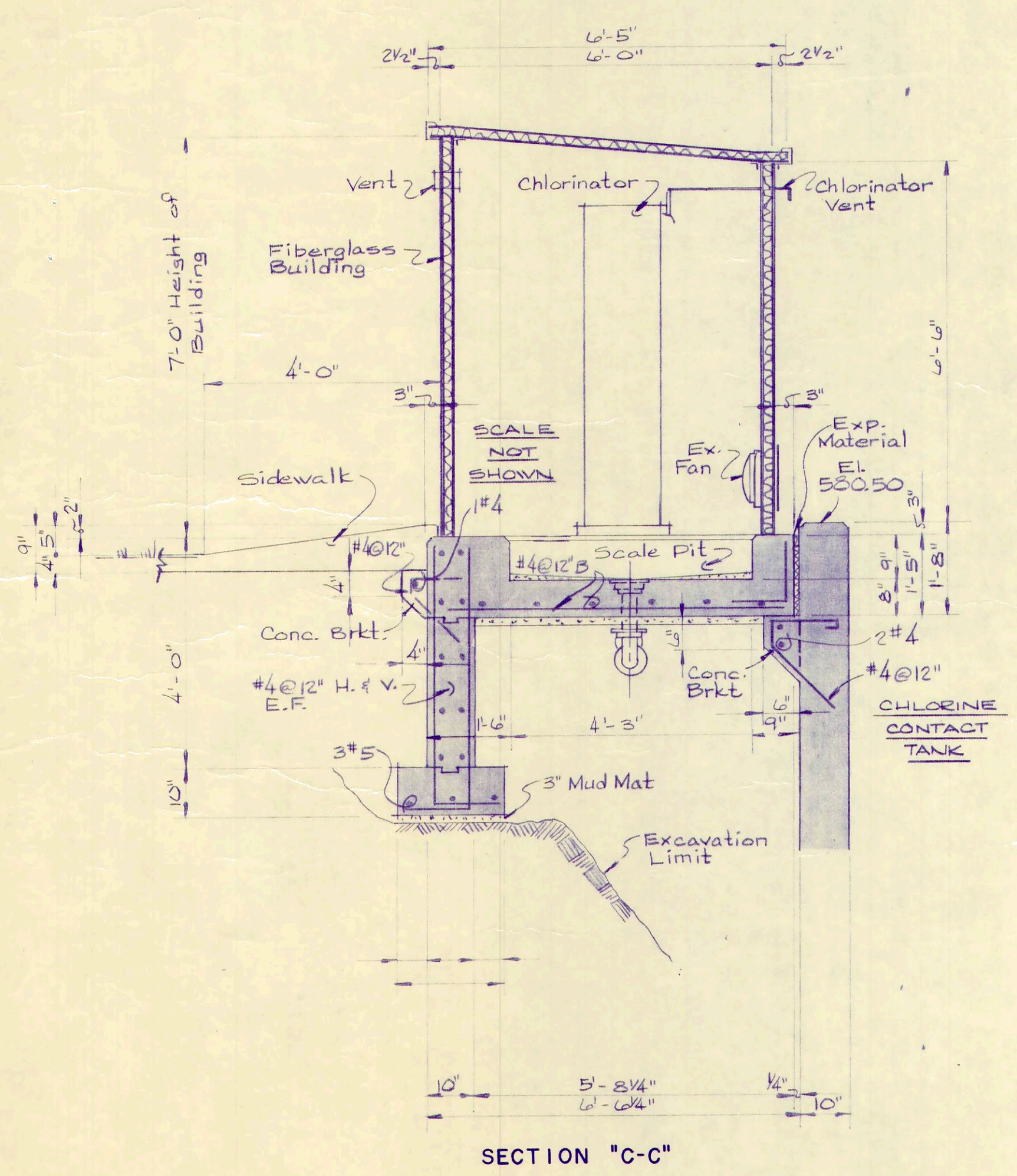
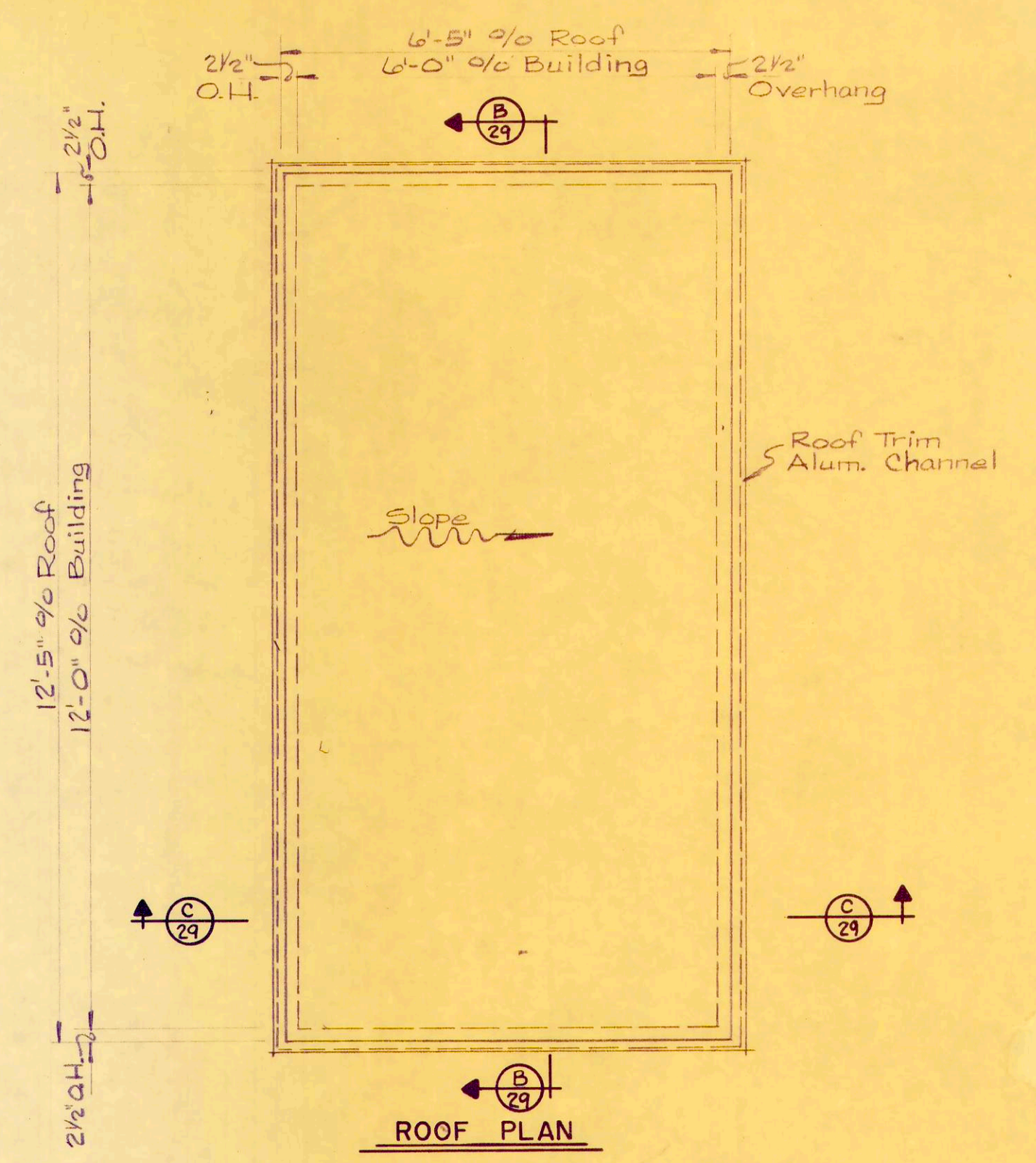
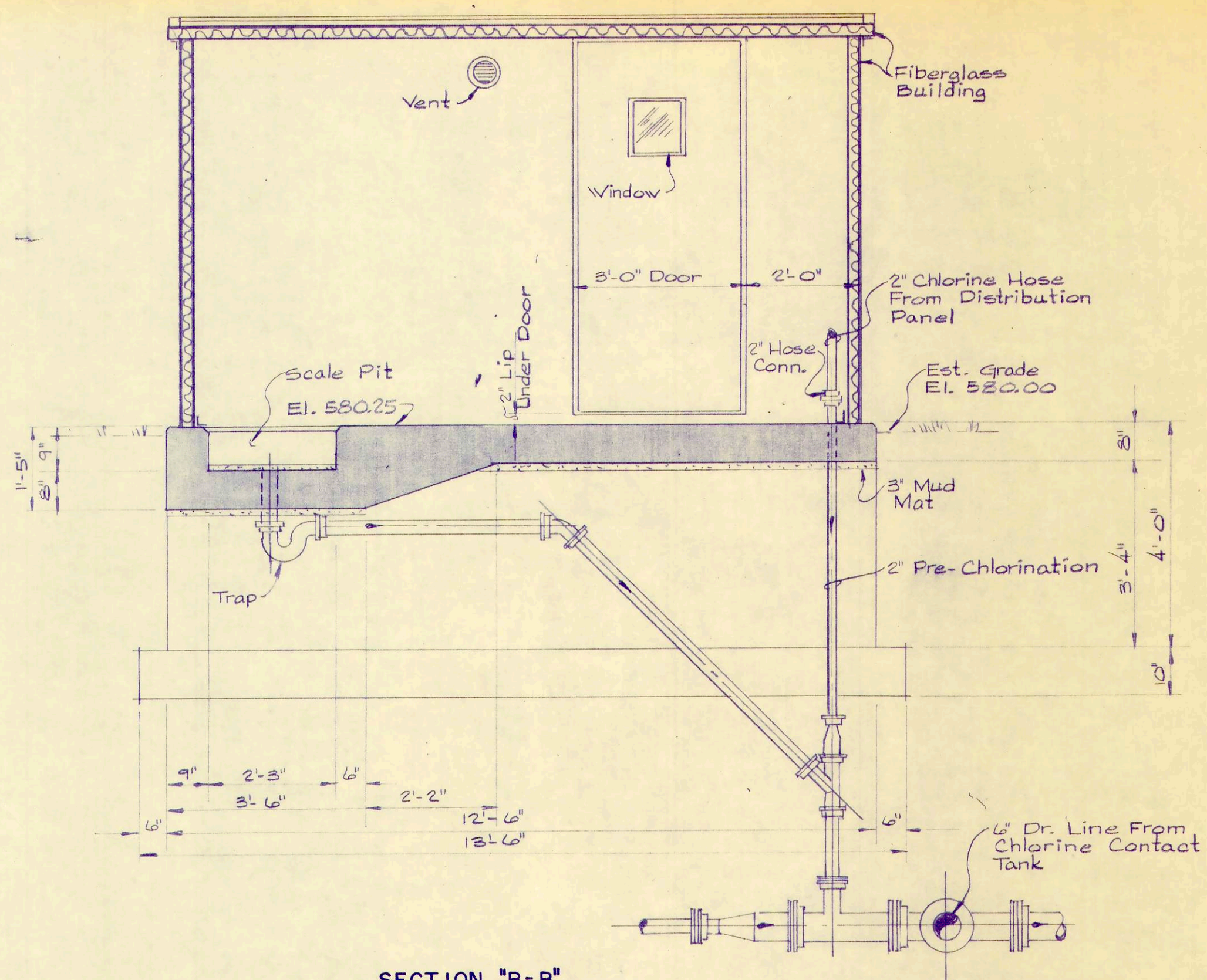
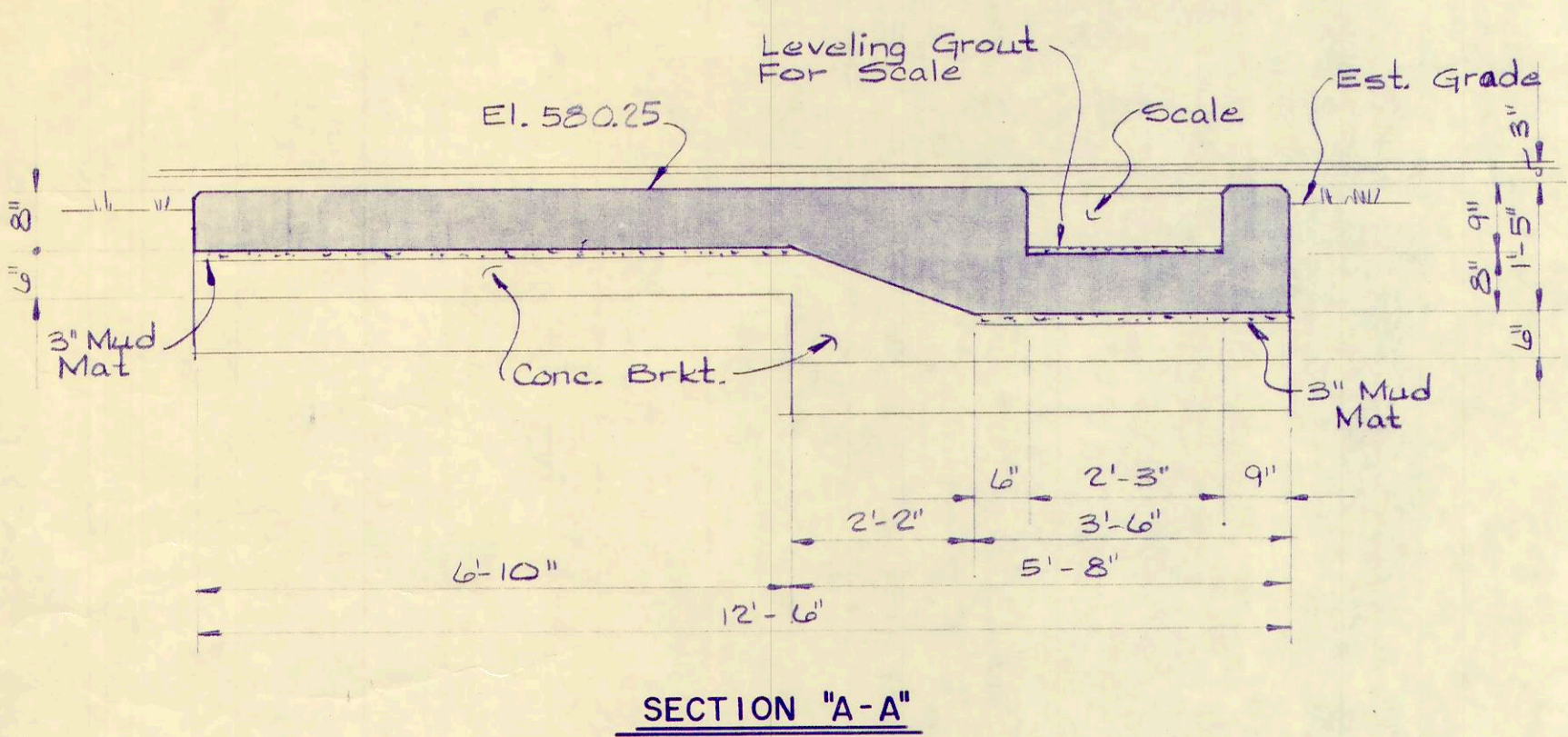
REV. NO.	DESCRIPTION	DATE	BY	APP'D

**FINKBEINER, PETTIS & SROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO**

SCALE
As Noted
DESIGNED BY
R.B.W.
DRAWN BY
P.L.C.
CHECKED BY
W.C.K.

**SLUDGE BOX SHELTERS
AND DIVERSION MANHOLE
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO**

PROJECT NO.
OAK500
SECTION
DATE
3 -
28 OF



NOTE:
 Provide 3 wall mounted hooks and 2-8' lengths of galvanized chain for securing cylinders.

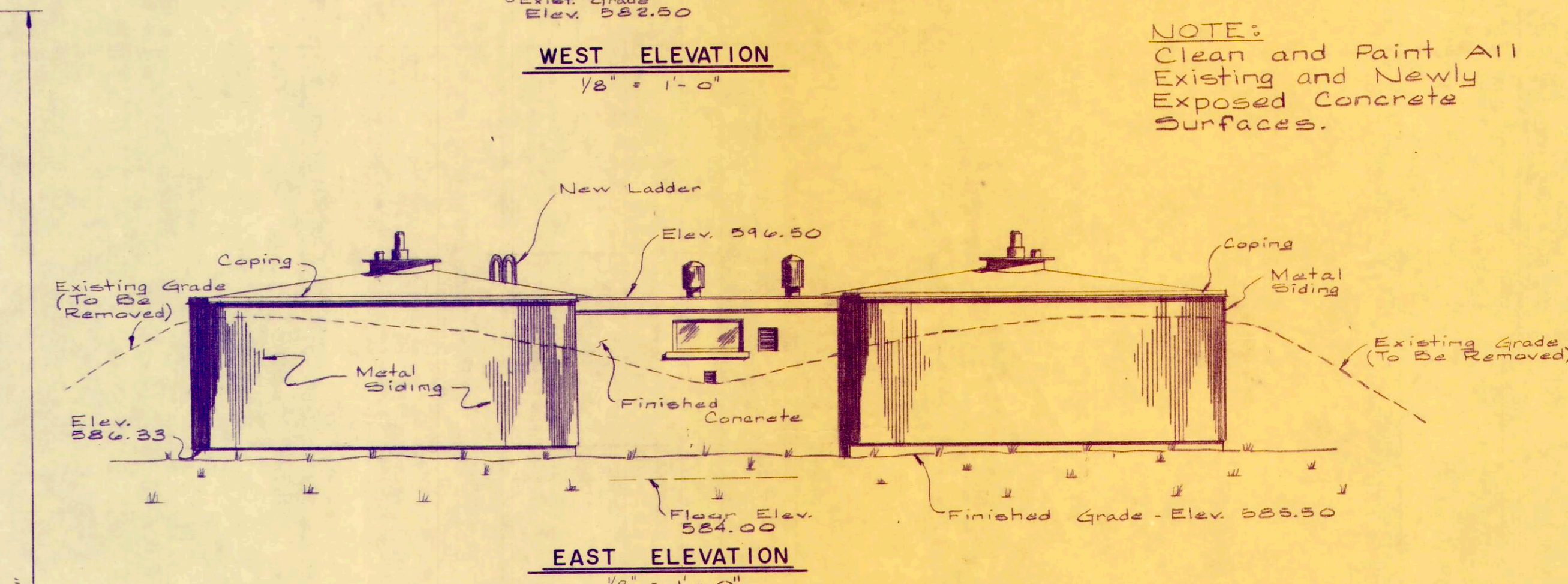
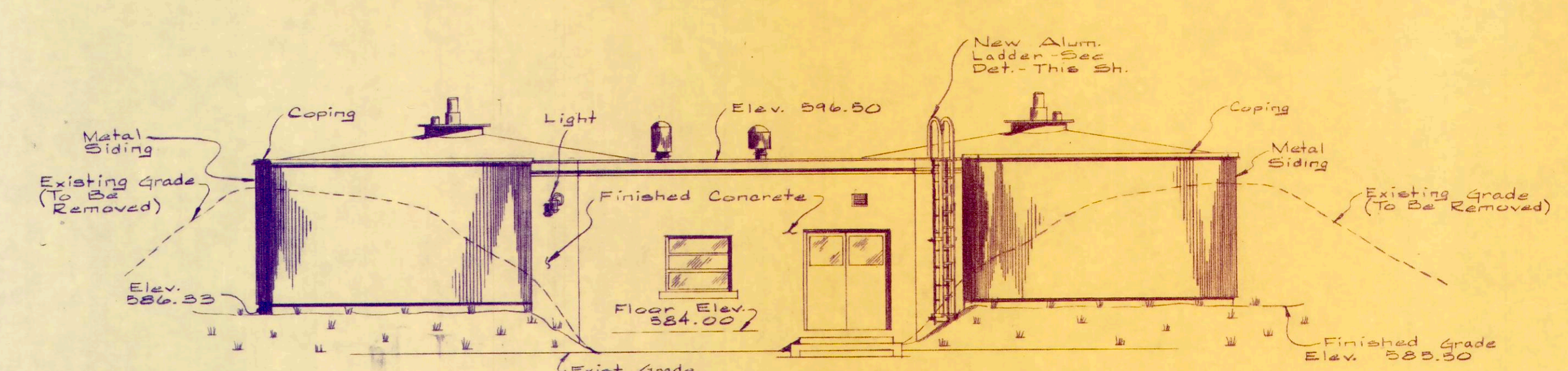
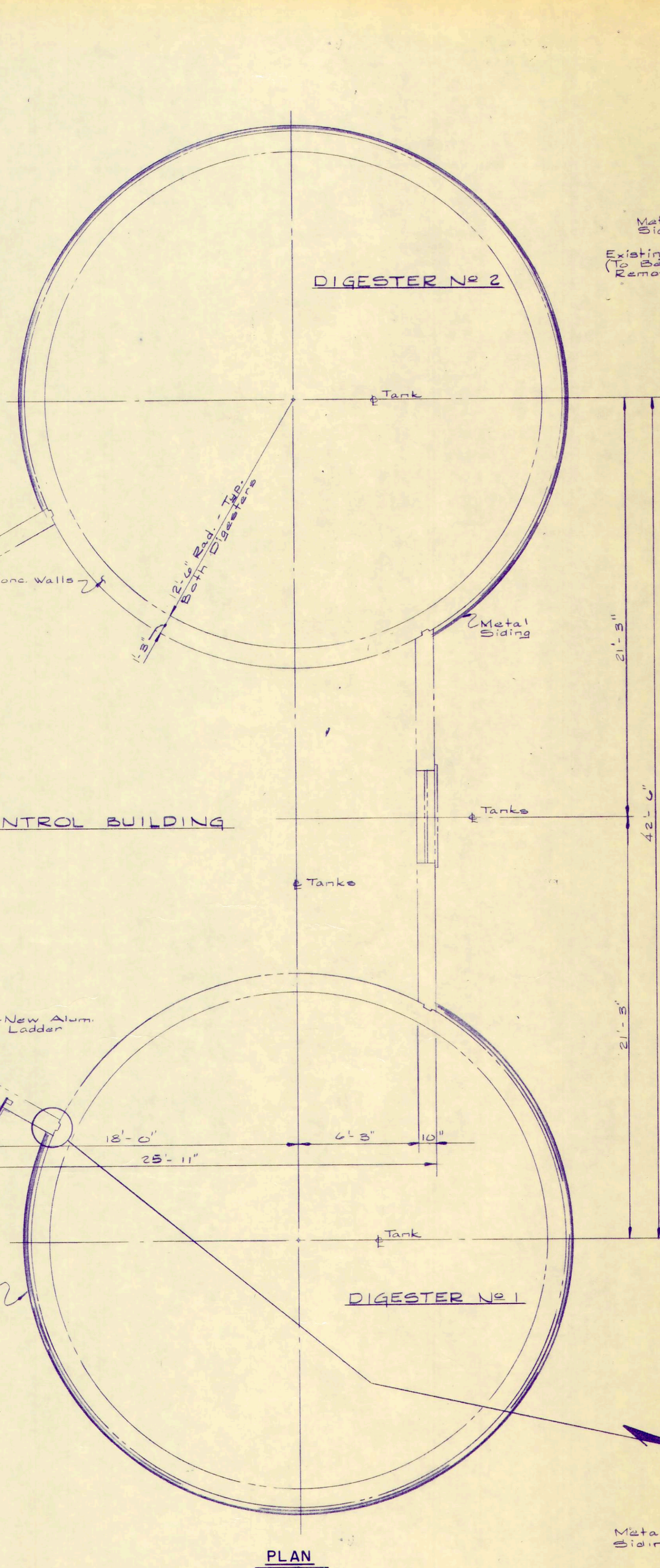
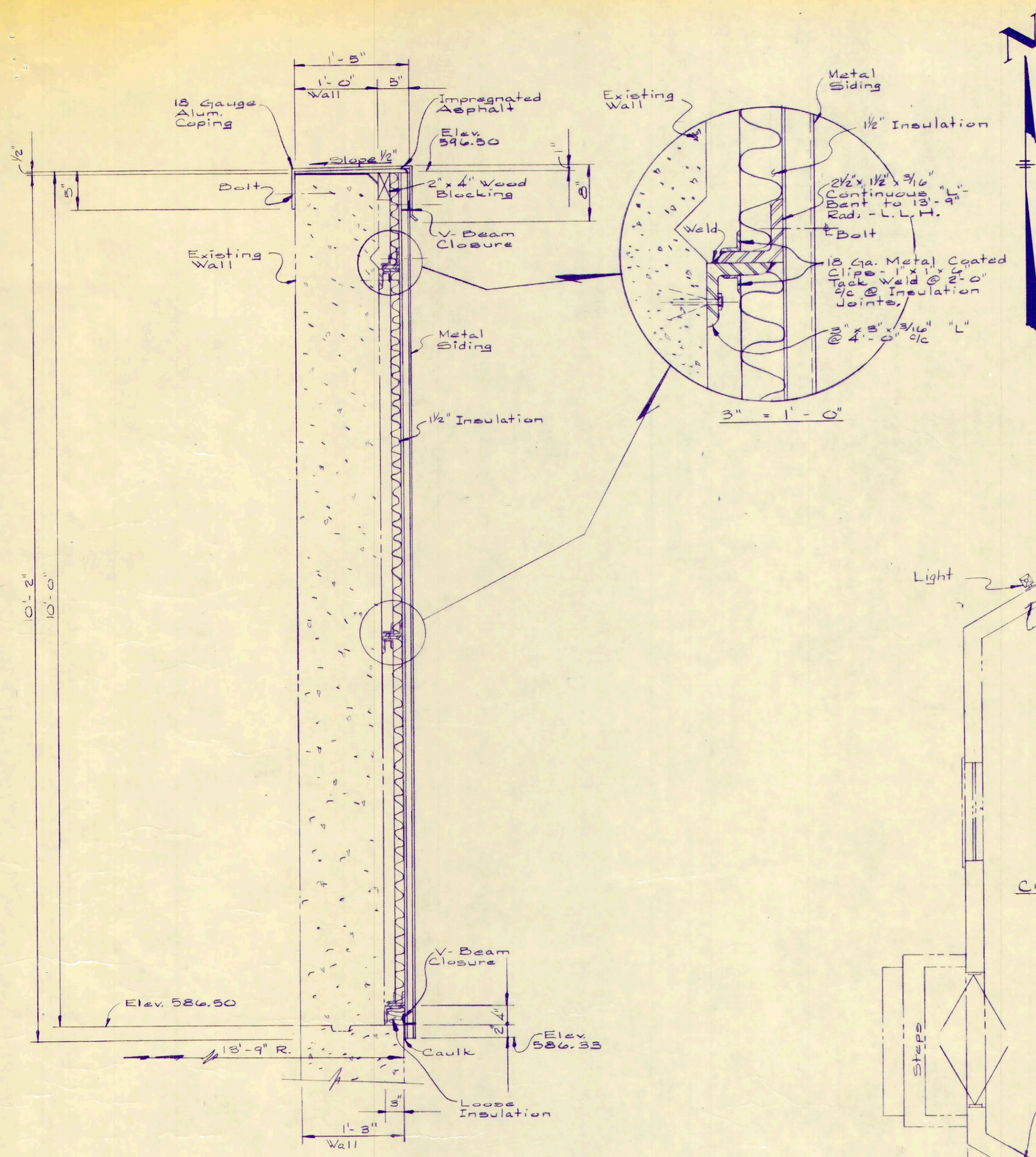
REV. NO.	DESCRIPTION	DATE	BY	APPD.

FINKBEINER, PETTIS & STROUT, LTD.
 CONSULTING ENGINEERS
 TOLEDO, OHIO

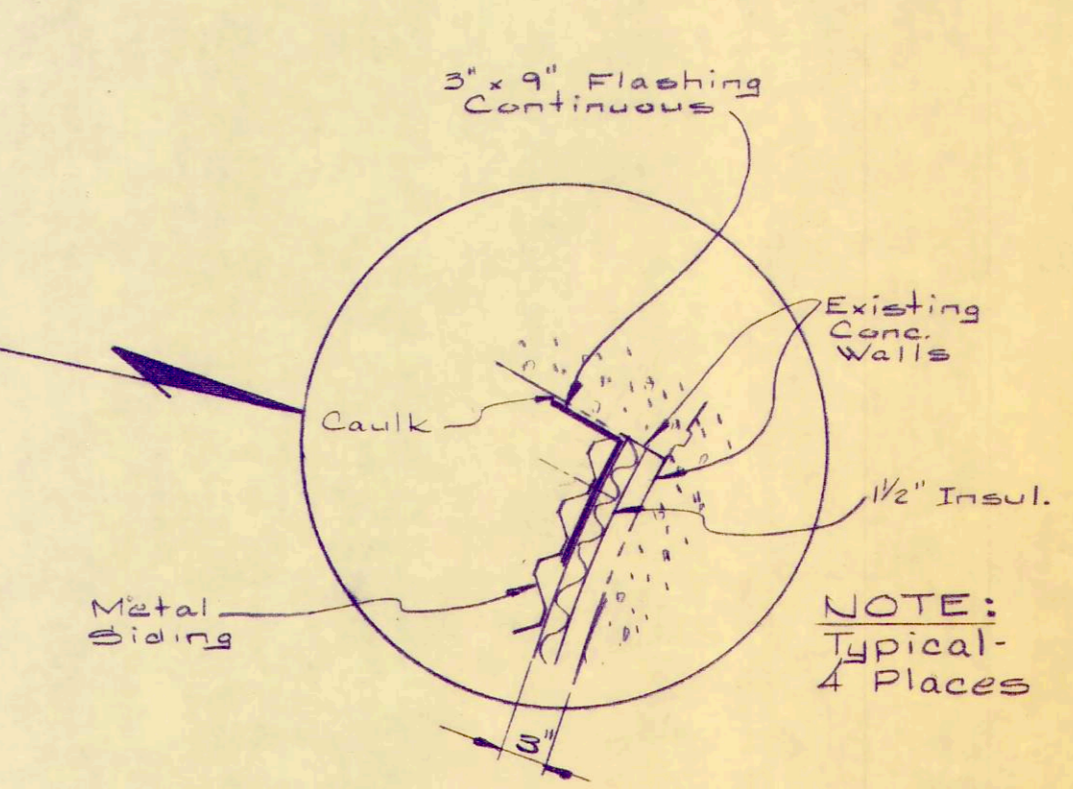
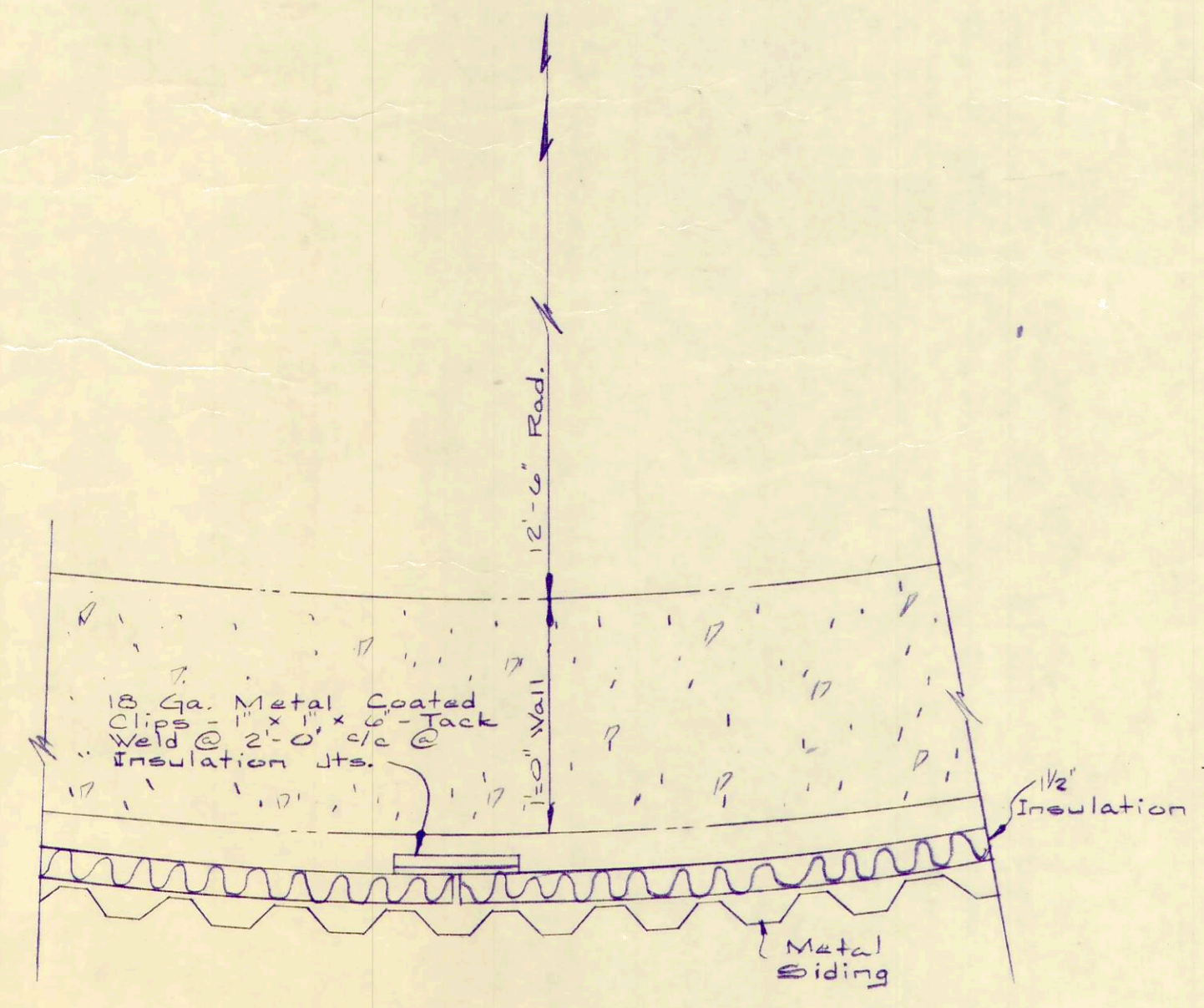
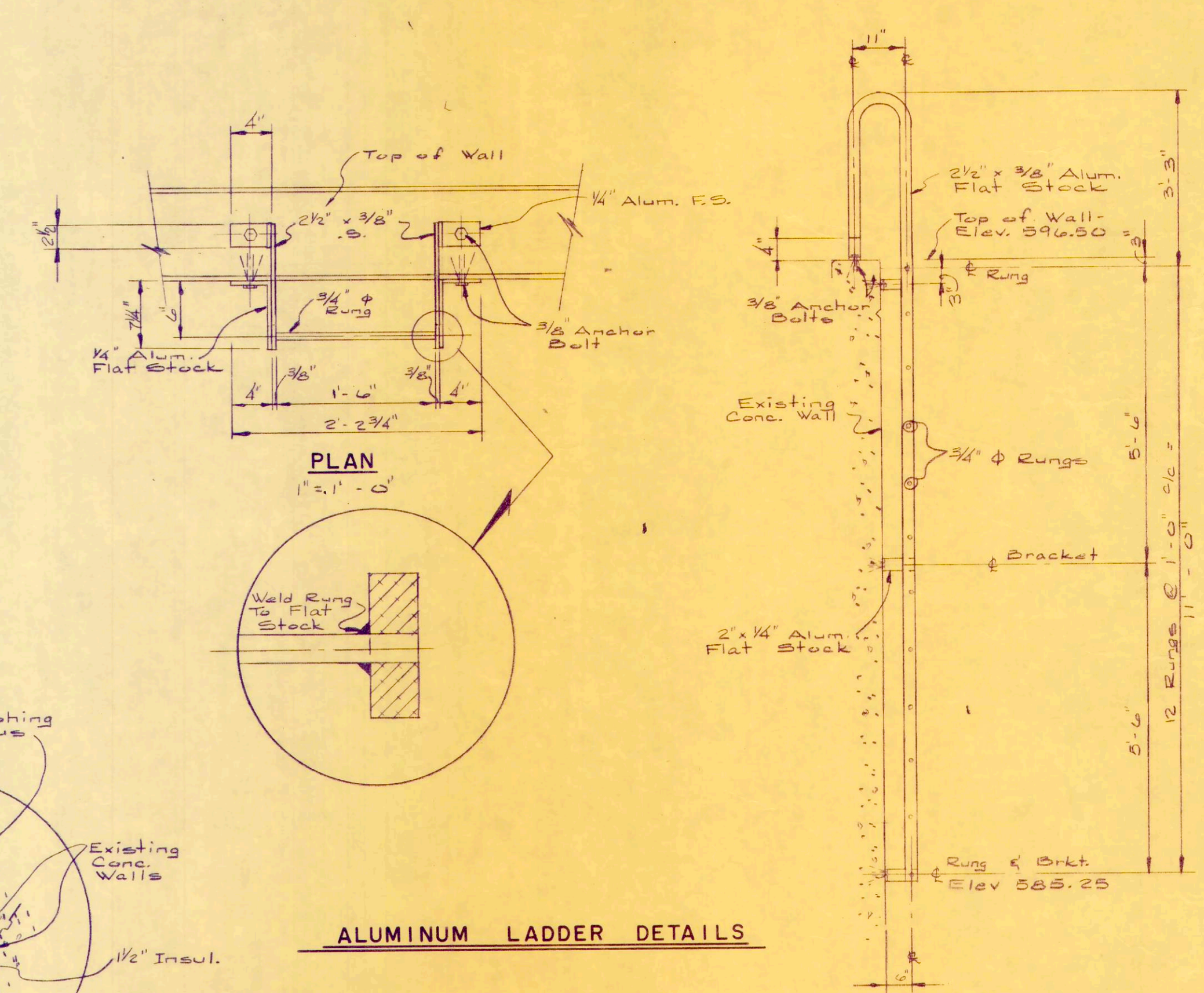
SCALE
 1/2" = 1'-0"
 DESIGNED BY
 R. B. V.
 DRAWN BY
 R. L. C.
 CHECKED BY
 W. C. K.

CHLORINATION BUILDING
 WASTEWATER TREATMENT
 PLANT IMPROVEMENTS
 OAK HARBOR, OHIO

PROJECT NO.
 OAKSOO1
 SECTION
 DATE
 3-71
 29 OF 31



NOTE:
 Clean and Paint All Existing and Newly Exposed Concrete Surfaces.



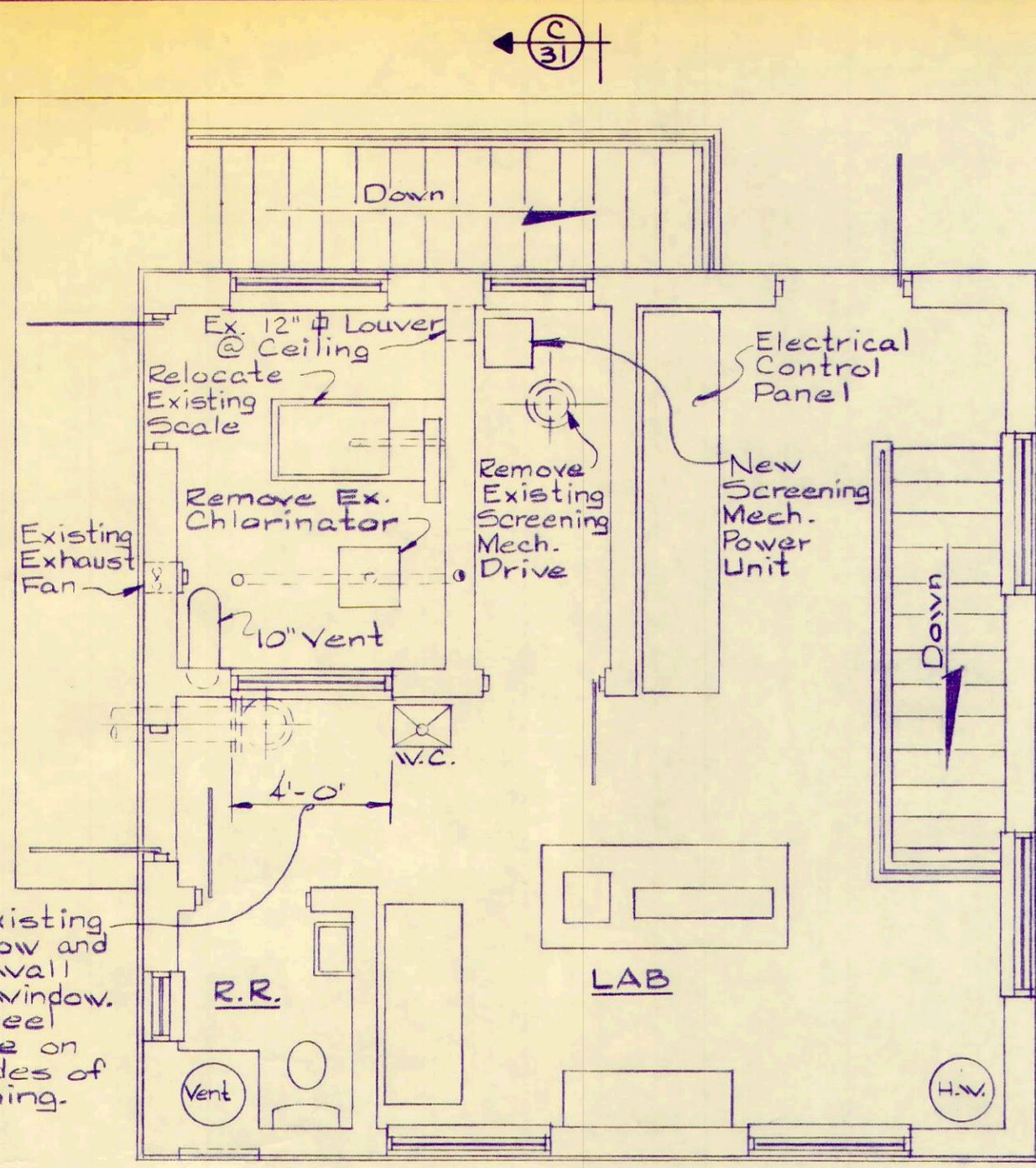
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FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
 TOLEDO, OHIO

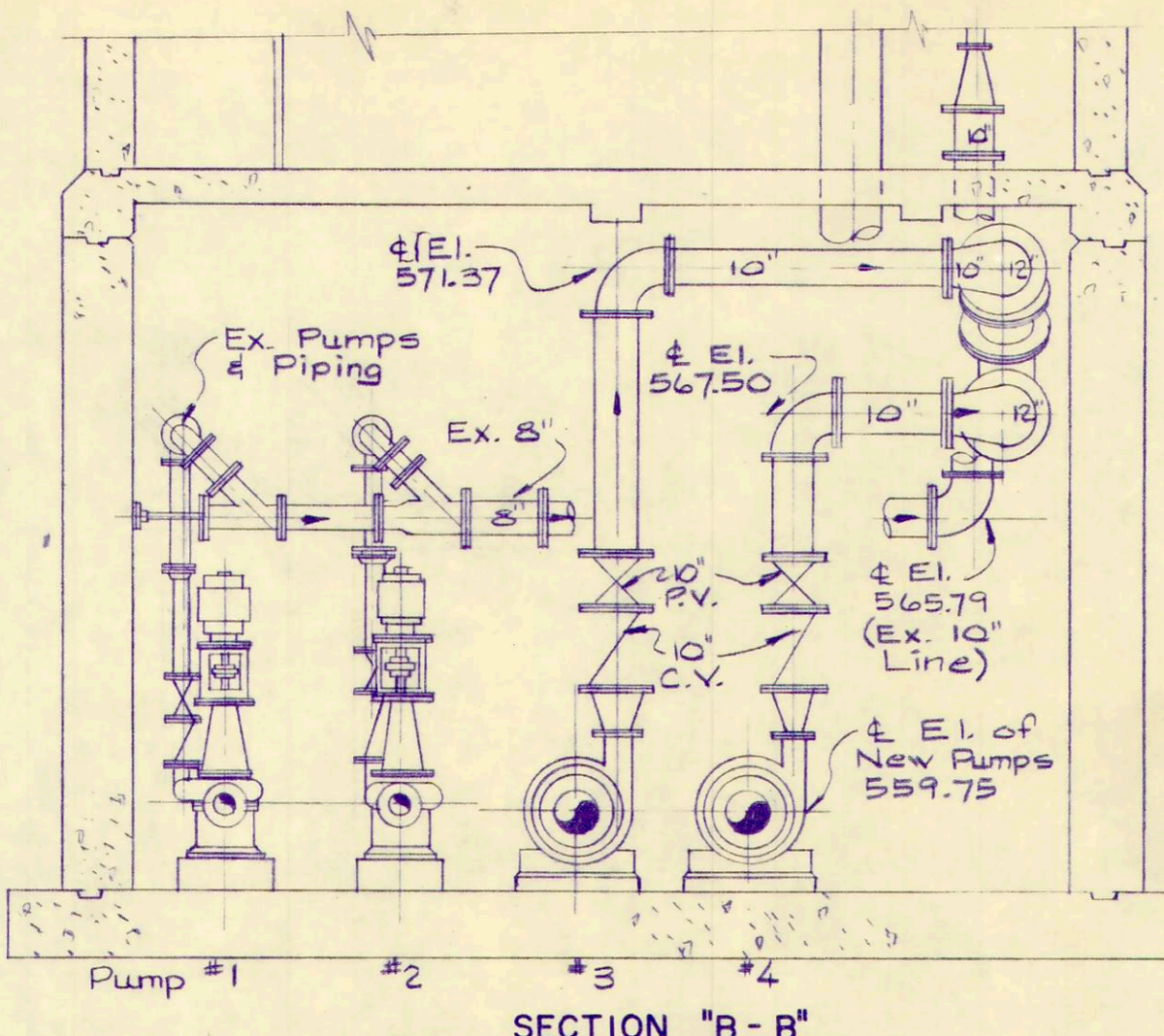
SCALE
 As Noted
 DESIGNED BY
 R.B.W.
 DRAWN BY
 P.C.
 CHECKED BY
 W.C.K.

DIGESTER WALL PANELING
WASTEWATER TREATMENT
PLANT IMPROVEMENTS
OAK HARBOR, OHIO

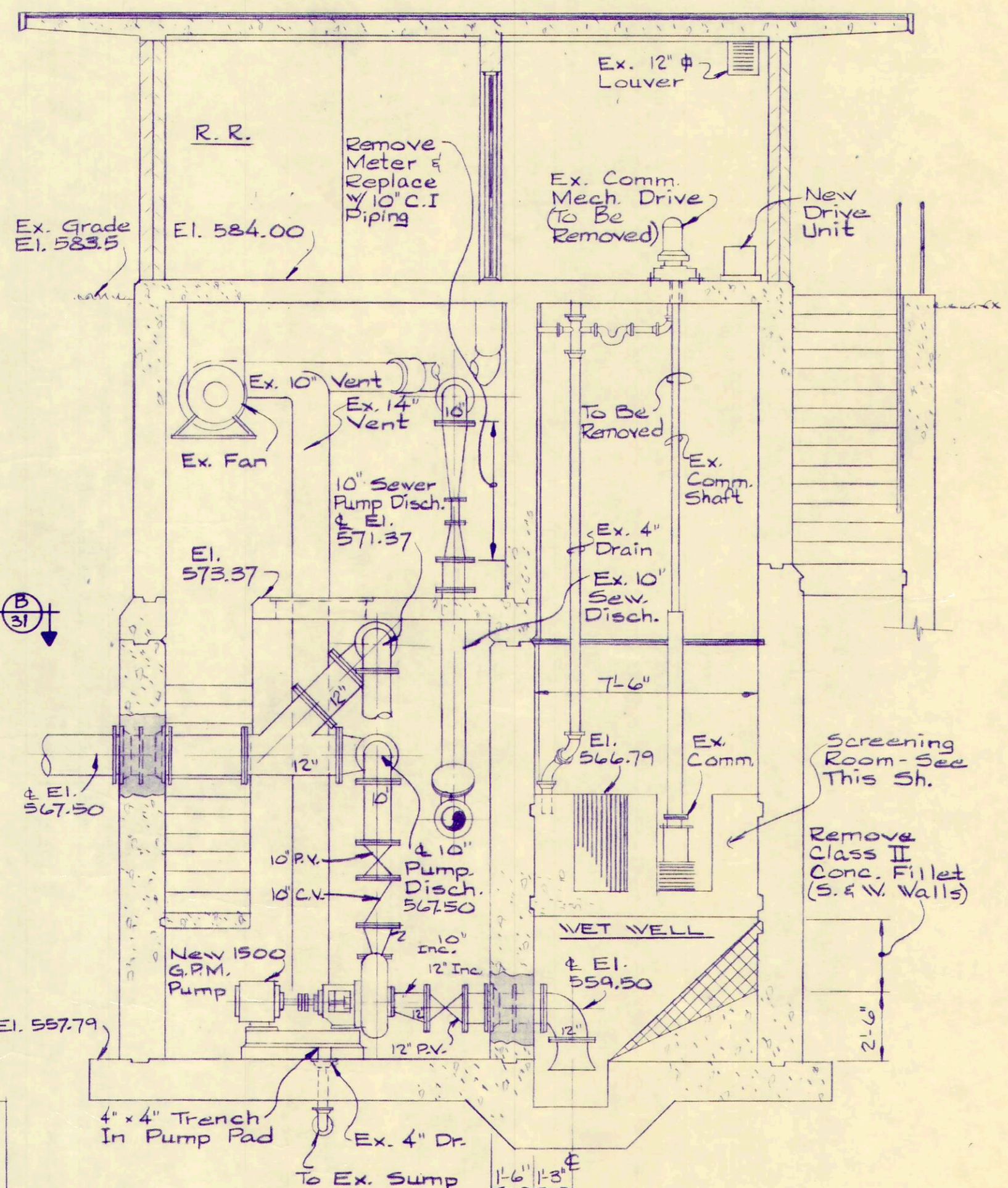
PROJECT NUMBER
 OAKS001
 SECTION
 DATE
 3-71
 30 OF 36



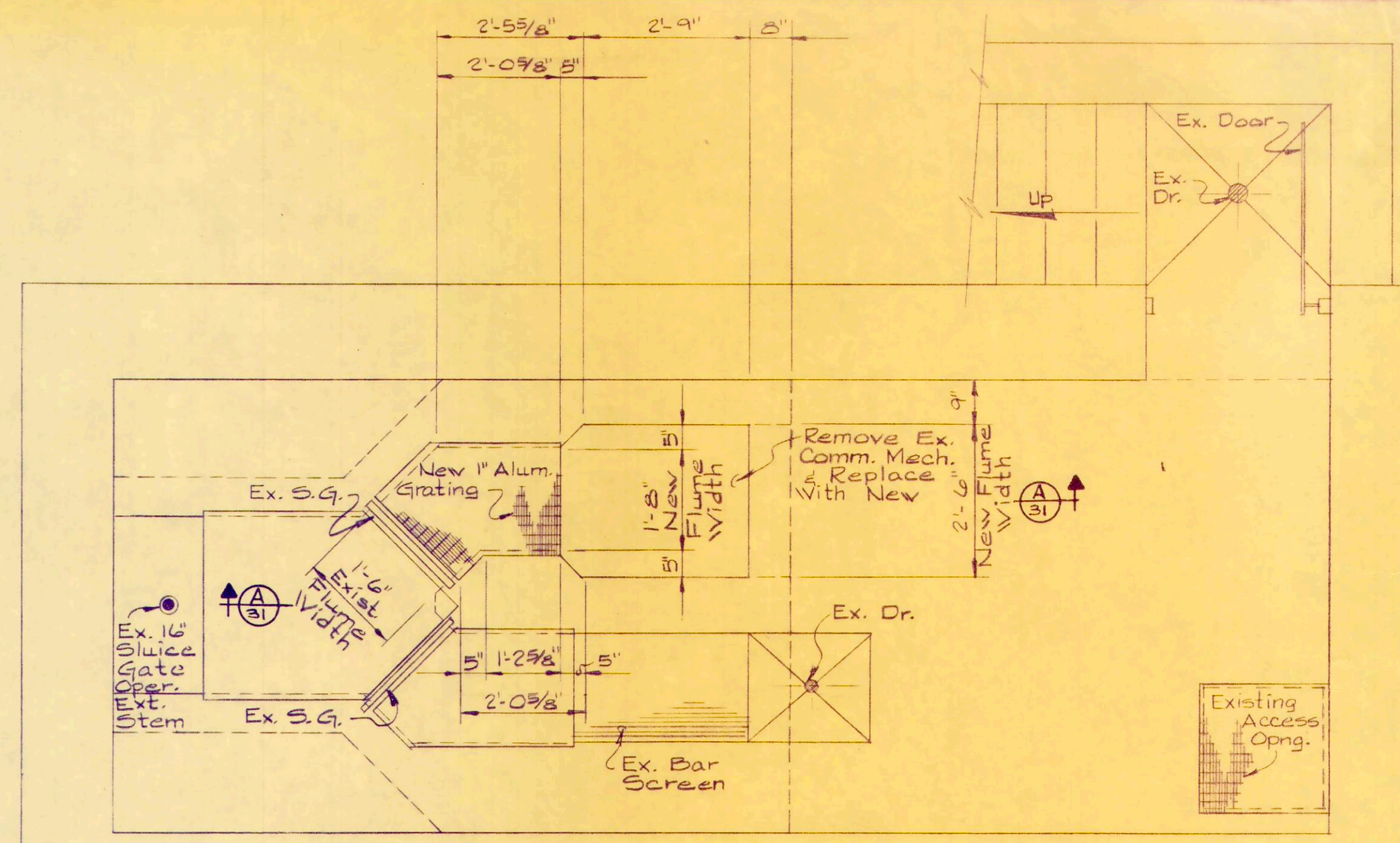
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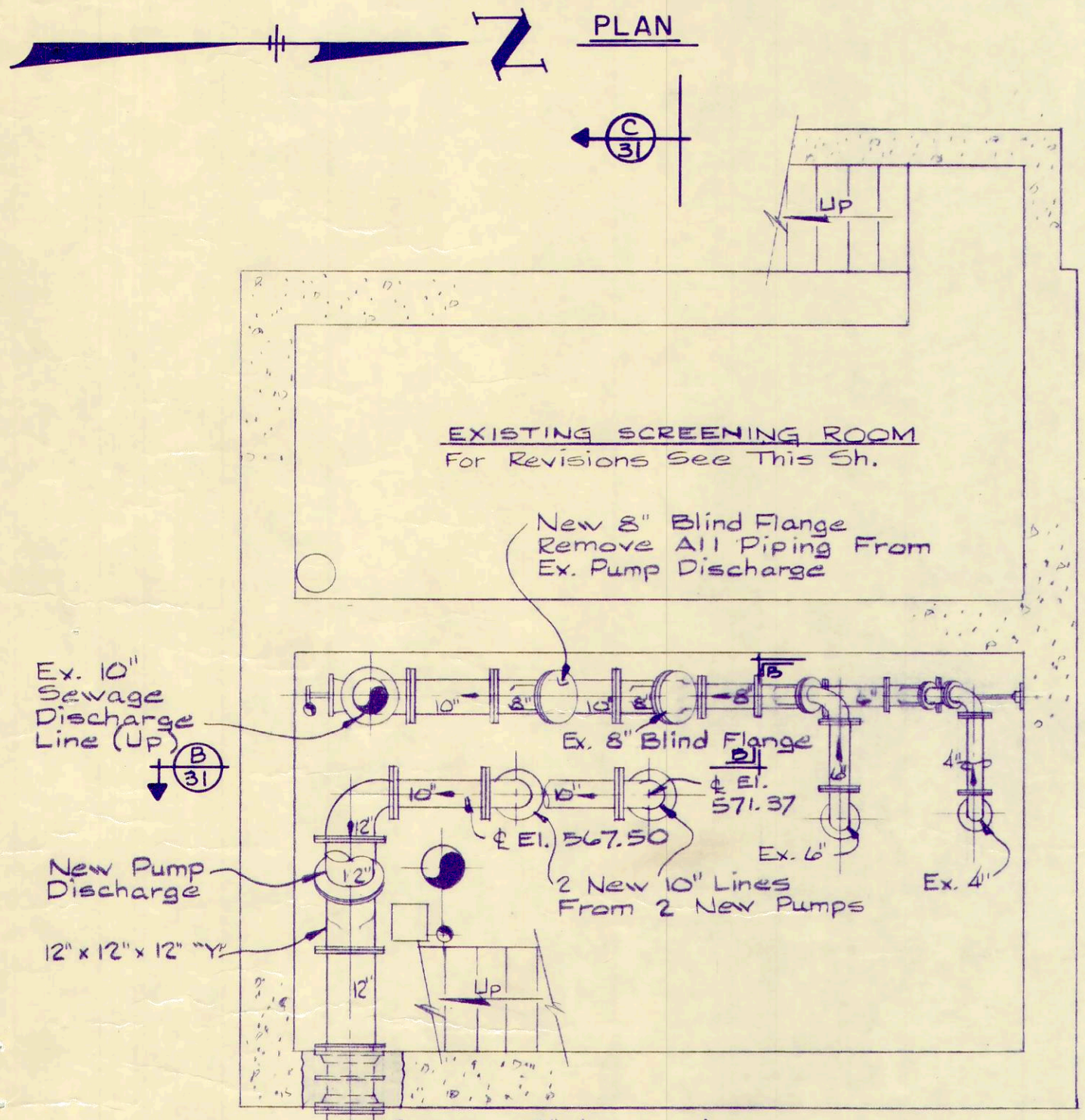
SECTION "B-B"



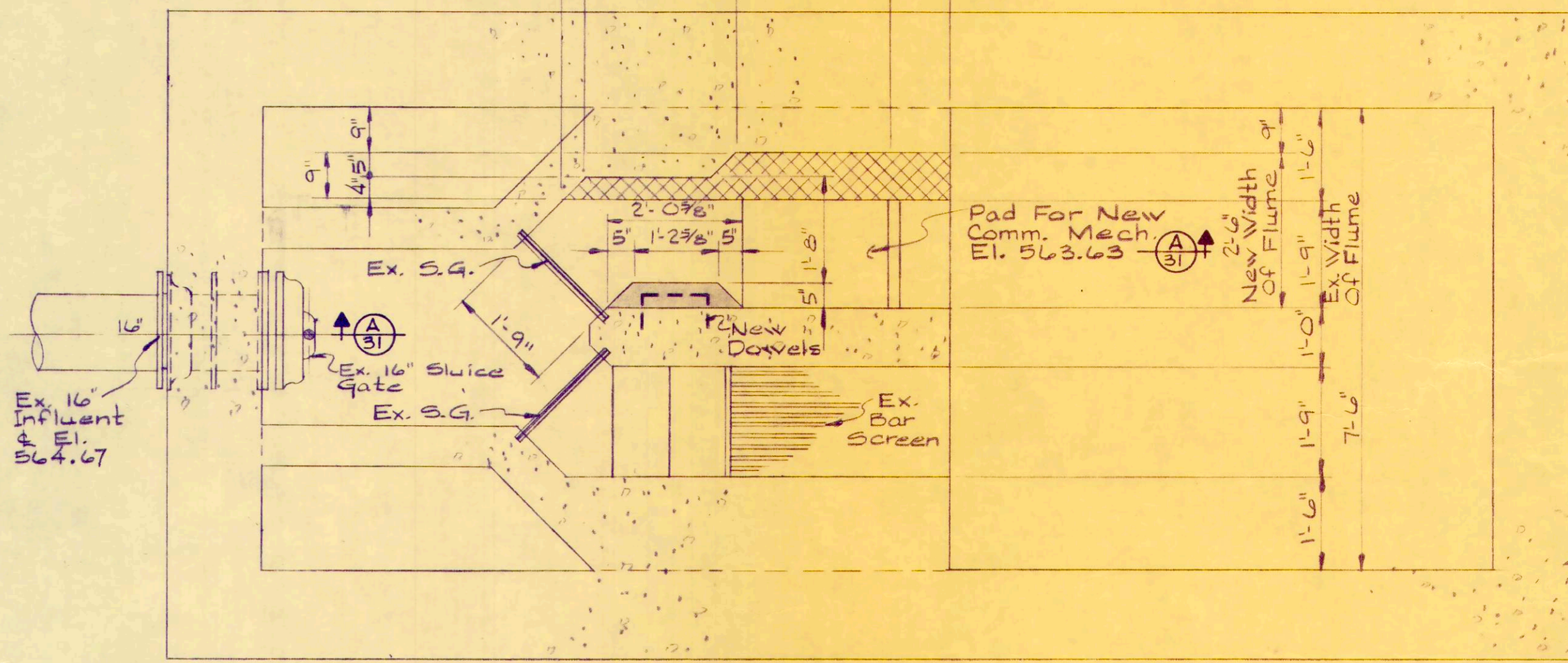
SECTION "C-C"



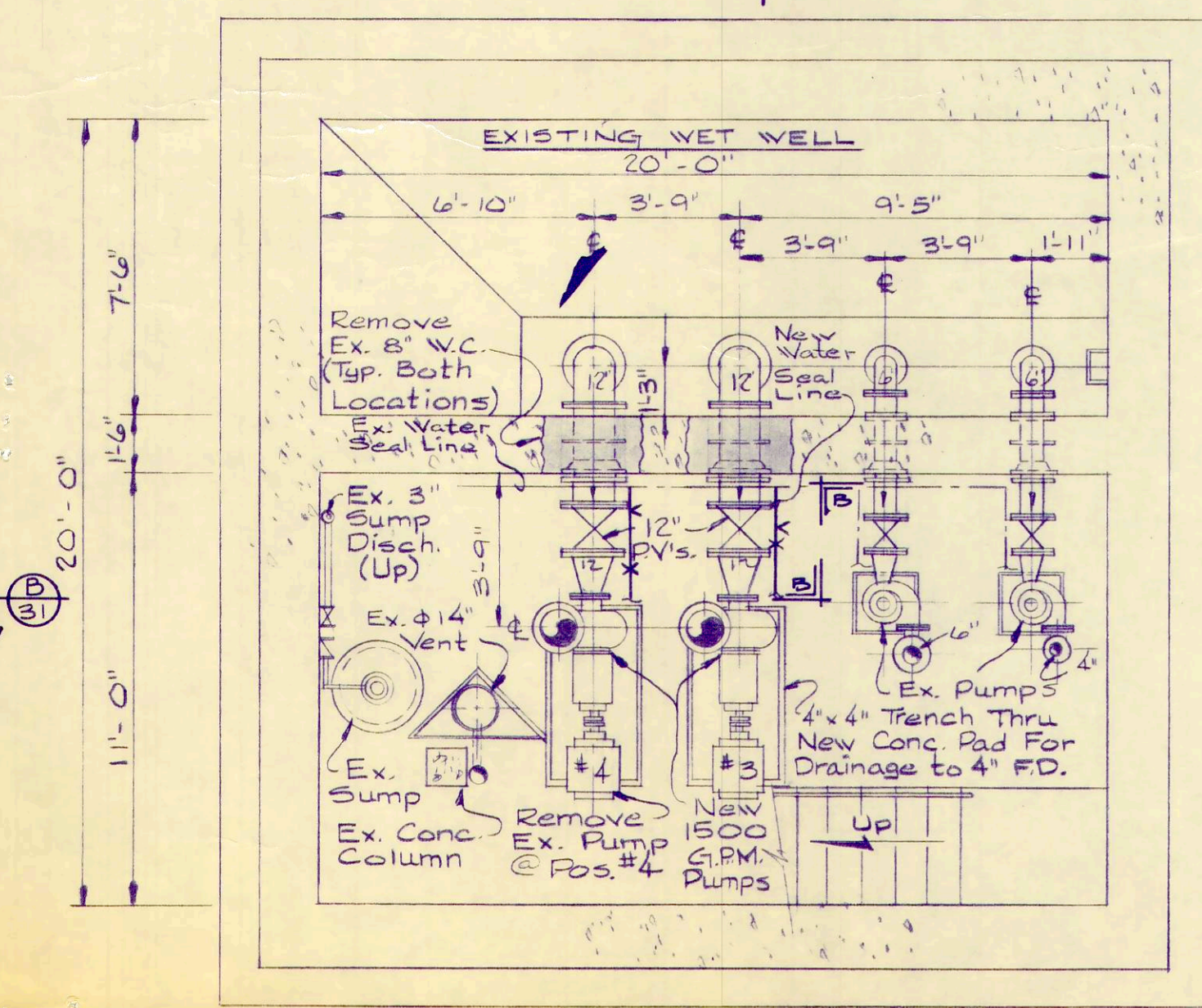
PLAN



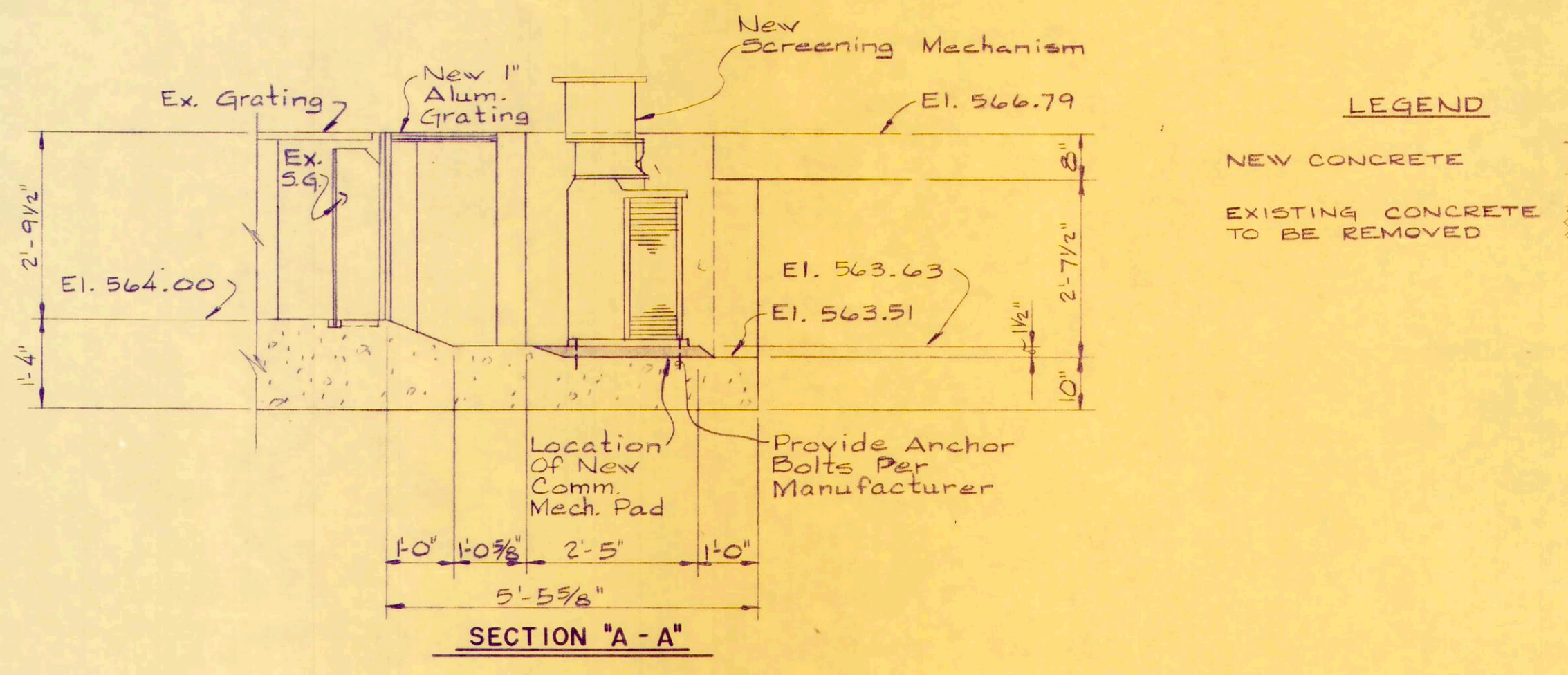
SECTIONAL PLAN EL. 572.50



SECTIONAL PLAN EL. 565.00



SECTIONAL PLAN EL. 562.00



SECTION "A-A"

LEGEND
 NEW CONCRETE
 EXISTING CONCRETE TO BE REMOVED

SCREENING MECHANISM

RAW WASTEWATER PUMPS

REV. NO.	DESCRIPTION	DATE	BY	APPD.

FINKBEINER, PETTIS & STROUT
 CONSULTING ENGINEERS
 TOLEDO, OHIO

SCALE
 As Noted
 DESIGNED BY
 R.B.W.
 DRAWN BY
 R.L.C.
 CHECKED BY
 W.C.K.

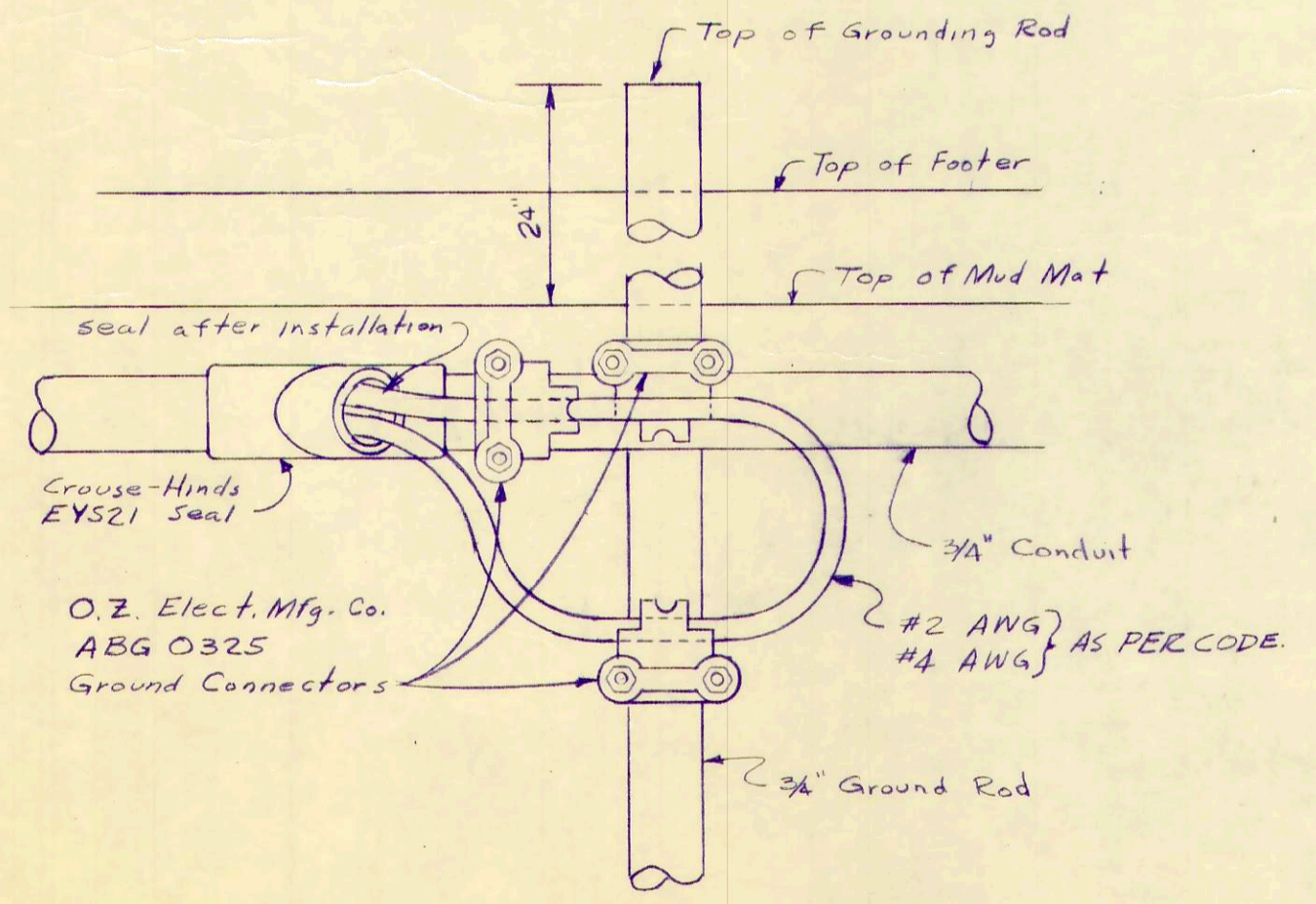
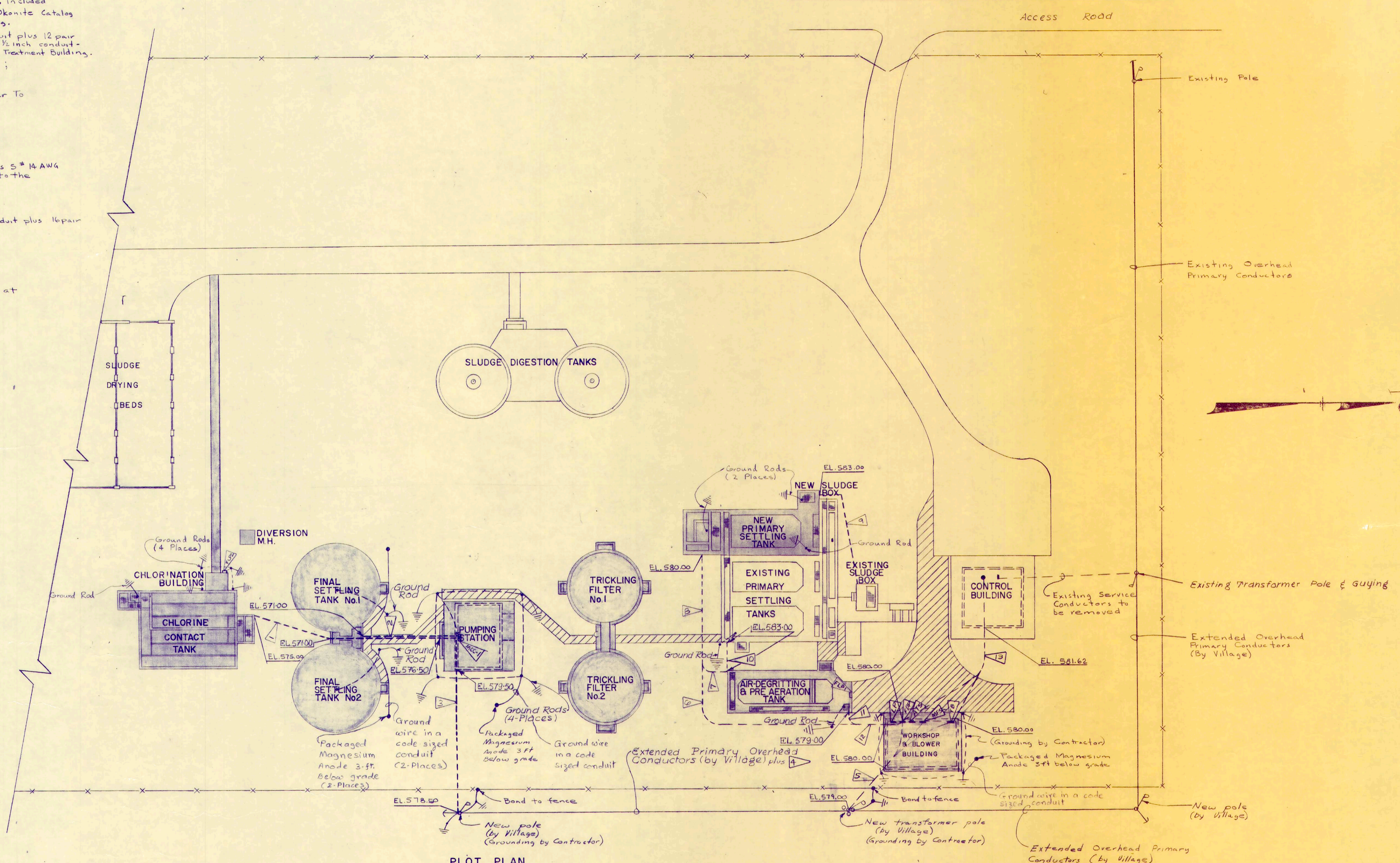
RAW WASTEWATER PUMPS AND SCREENING MECHANISM
WASTEWATER TREATMENT PLANT IMPROVEMENTS
OAK HARBOR, OHIO

PROJECT NUMBER
 OAKSO01
 SECTION
 DATE
 3-72
 31 OF 36

FLAG NOTES

- 1 3 #1 AWG In 2" Conduit, Plus 4 Pair #20 AWG Shielded Cable Per Okonite Cat. No. 261-30-2204 Or Approved Equal For Flowmeter Pacing
- 2 3 #10 AWG In 3/4" Conduit, 5 #14 AWG In 3/4" Conduit, 4 #14 AWG In 3/4" Conduit And 2 #12 AWG In 3/4" Conduit. Duplicate For The Other Final Settling Tank.
- 3 3 #3/0 AWG Underground Conductor In a 2 1/2" Conduit, 12 Pair #20 AWG Shielded Control Cable Per Okonite Cat. No. 261-30-2212 Or Approved Equal in 2" Conduit for Remote Monitoring And Flowmeter Pacing, 2 #10 AWG Pull Wires In A 2" Conduit Provision For Telephone
- 4 3 #3/0 AWG-CU Overhead Conductors per G.E. SI.58069 or Approved equal twisted on a 5/16" inch, 30 % extra high strength, copper clad steel messenger, included here with for self support plus 12 pair #20 AWG shielded control cable per Okonite Catalog No. 261-30-2210 or Approved equal for remote monitoring & flowmeter pacing.
- 5 6 #350-MCM-CU in 2-3 1/2 inch conduits plus 3 #3/0 AWG-CU in a 2 1/2 inch conduit plus 12 pair #20 AWG shielded control cable in 2 inch conduit plus 2 #10 AWG pull wires in 1 1/2 inch conduit - provision for telephone. 2 #10 AWG pullwires in 2 inch conduit - provision for Tertiary Treatment Building.
- 6 3 #8 AWG In 1" Conduit For 3 ϕ , 3 W Power To The Sludge Collection Equipment ; 4 Pair #20 AWG Shielded Control Cable For Okonite Cat. No. 261-30-2204 Or Approved Equal For Flowmeter X/ATR-RCVR Connection.
- 7 2 #8 AWG In 3/4" Conduit For 1 ϕ Power To Flowmeter. Duplicate For 1 ϕ Power To The Lights In The New Sludge Box
- 8 Plus 7
- 9 5 #14 AWG In 3/4" Conduit For Remote Control Of Sludge Pump
- 10 2 #8 AWG In 3/4" Conduit For 1 ϕ Power To The Foam Spray Pump
- 11 3 #8 AWG in 1 inch conduit for 3 ϕ , 3W power to the Grit Removal Motor plus 5 #14 AWG in a 3/4 inch conduit plus 3 #6 AWG in a 1 1/2 inch conduit for 1 ϕ , 3W power to the Fusible Lighting Panelboard No. 1
- 12 Plus 11
- 13 3 #250MCM-CU in a 3 inch conduit plus 2 #10 AWG pullwires in a 2 inch conduit plus 16 pair #20 AWG shielded control cable in a 2 inch conduit.

NOTES:
 Elevations listed for \pm of conduits and concrete envelopes at Pierce location on structure and at bottom of risers.
 For additional flag notes see sheet No. 53/36.
 For Symbols and Abbreviations see sheet No. 30/36.



GROUNDING DETAIL

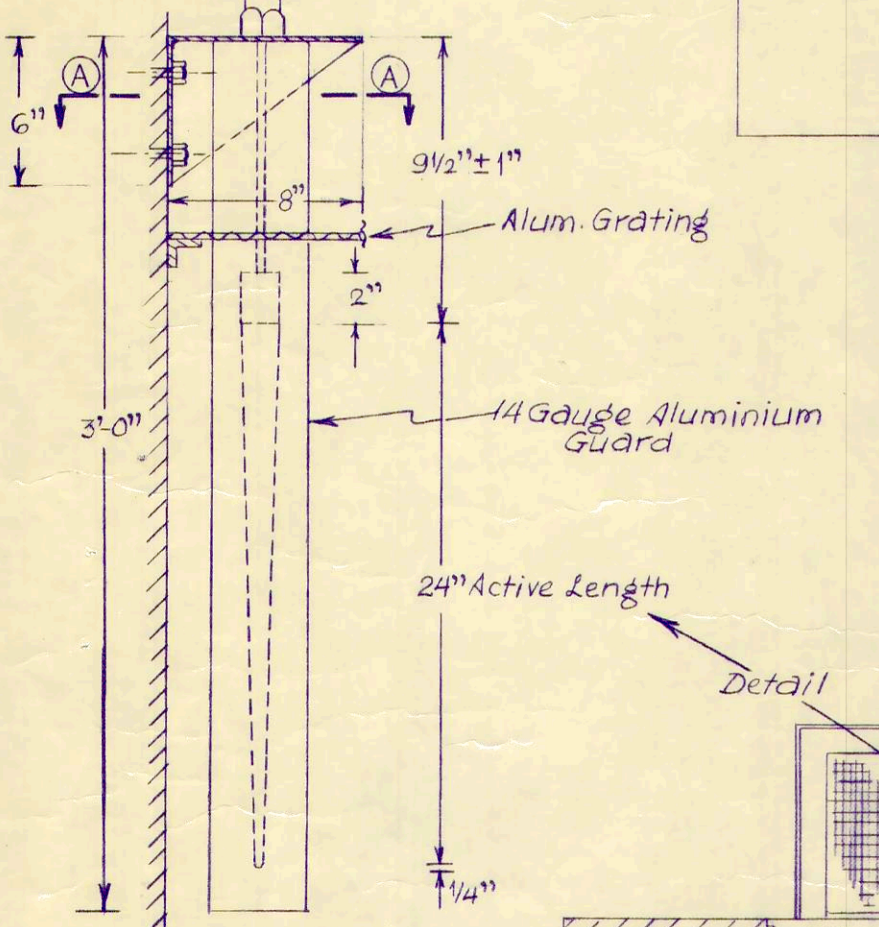
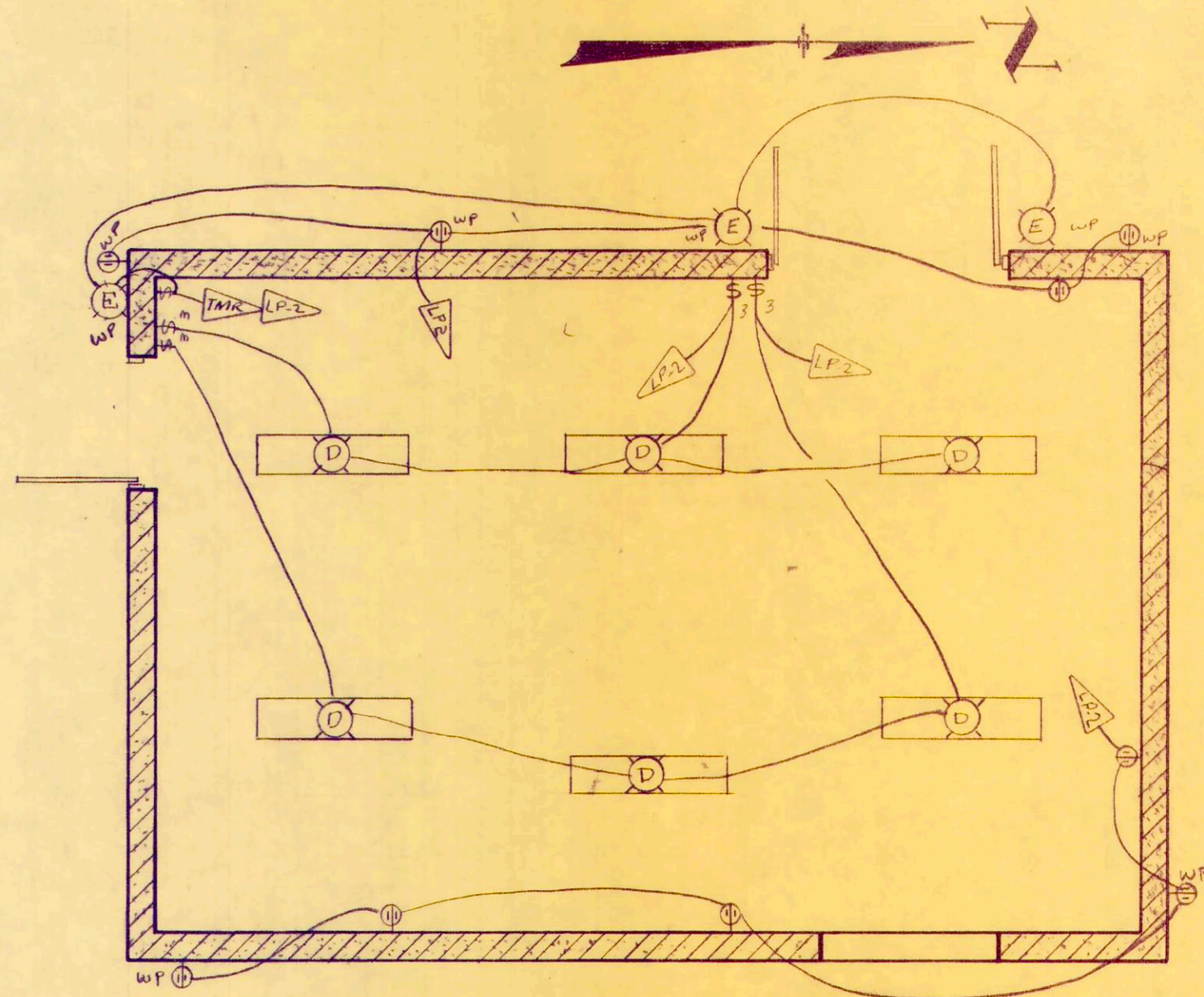
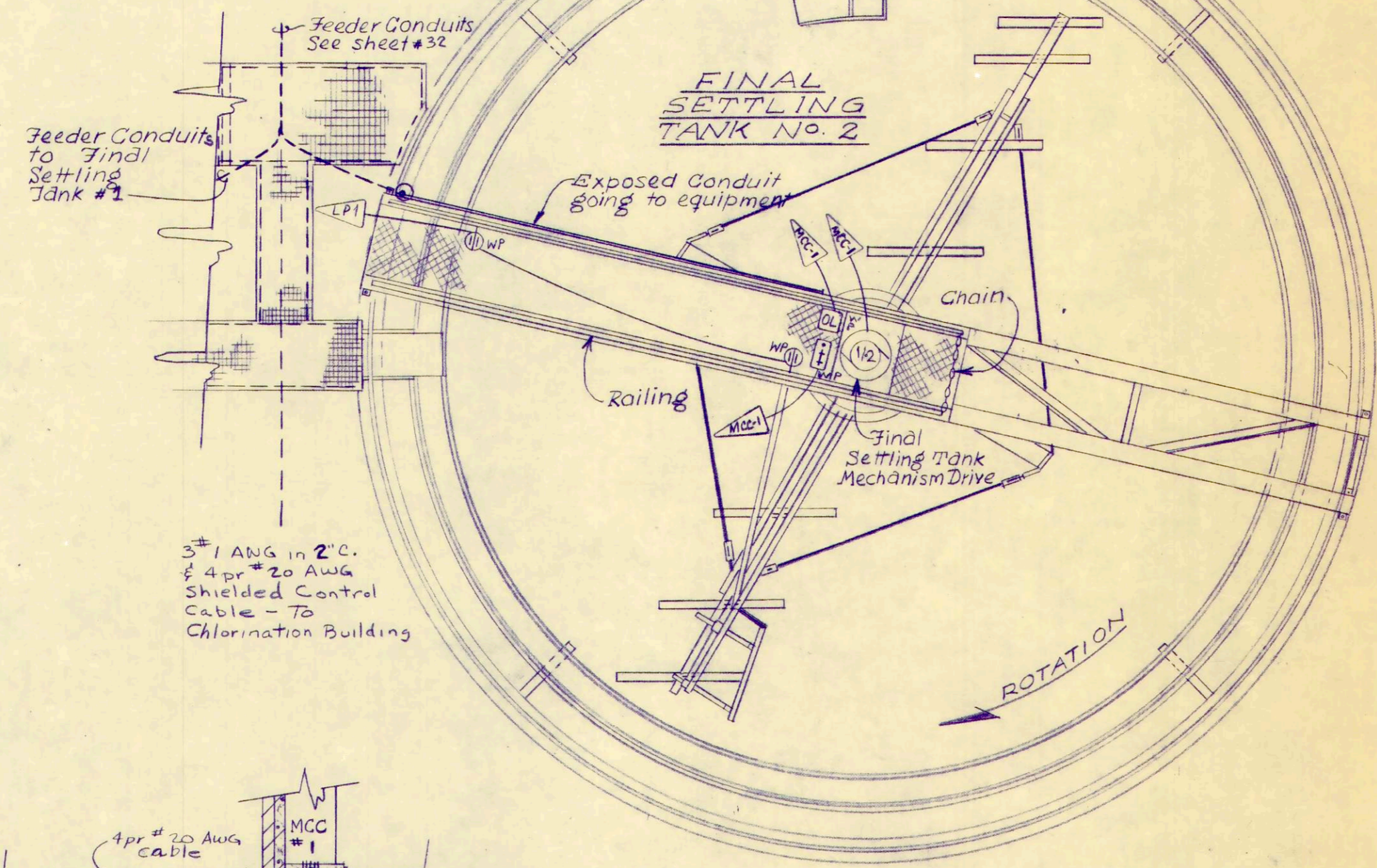
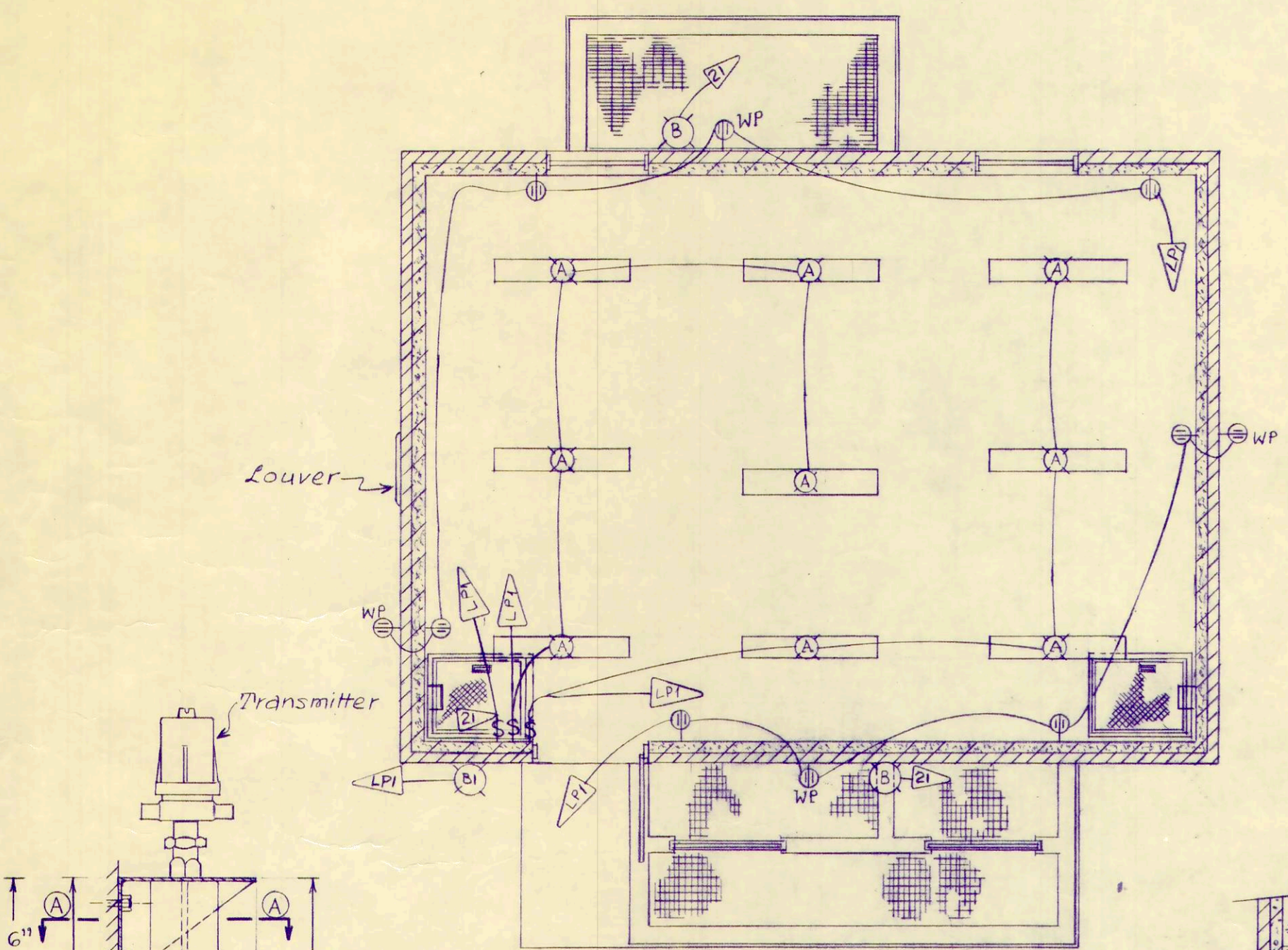
REV. NO.	DESCRIPTION	DATE	BY	APP'D

FINKBEINER, PETTIS & STROUT
 LIMITED
 CONSULTING ENGINEERS
 TOLEDO, OHIO

SCALE
 1"=20'
 DESIGNED BY
 R.D.T.
 DRAWN BY
 S.R.D.
 CHECKED BY
 J.W.H.

ELECTRICAL DETAILS - PLOT PLAN
 WASTEWATER TREATMENT
 PLANT IMPROVEMENTS
 OAK HARBOR, OHIO

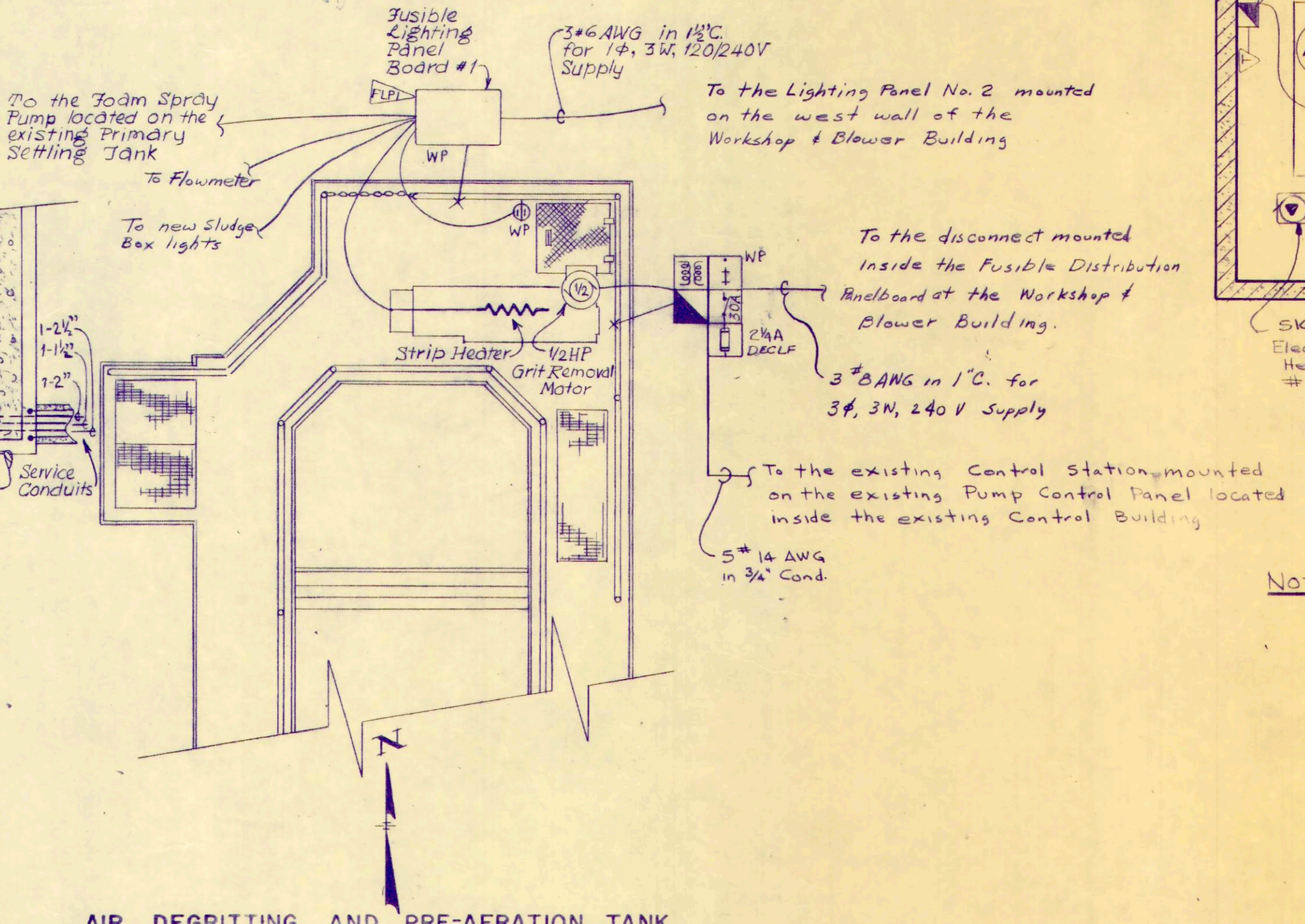
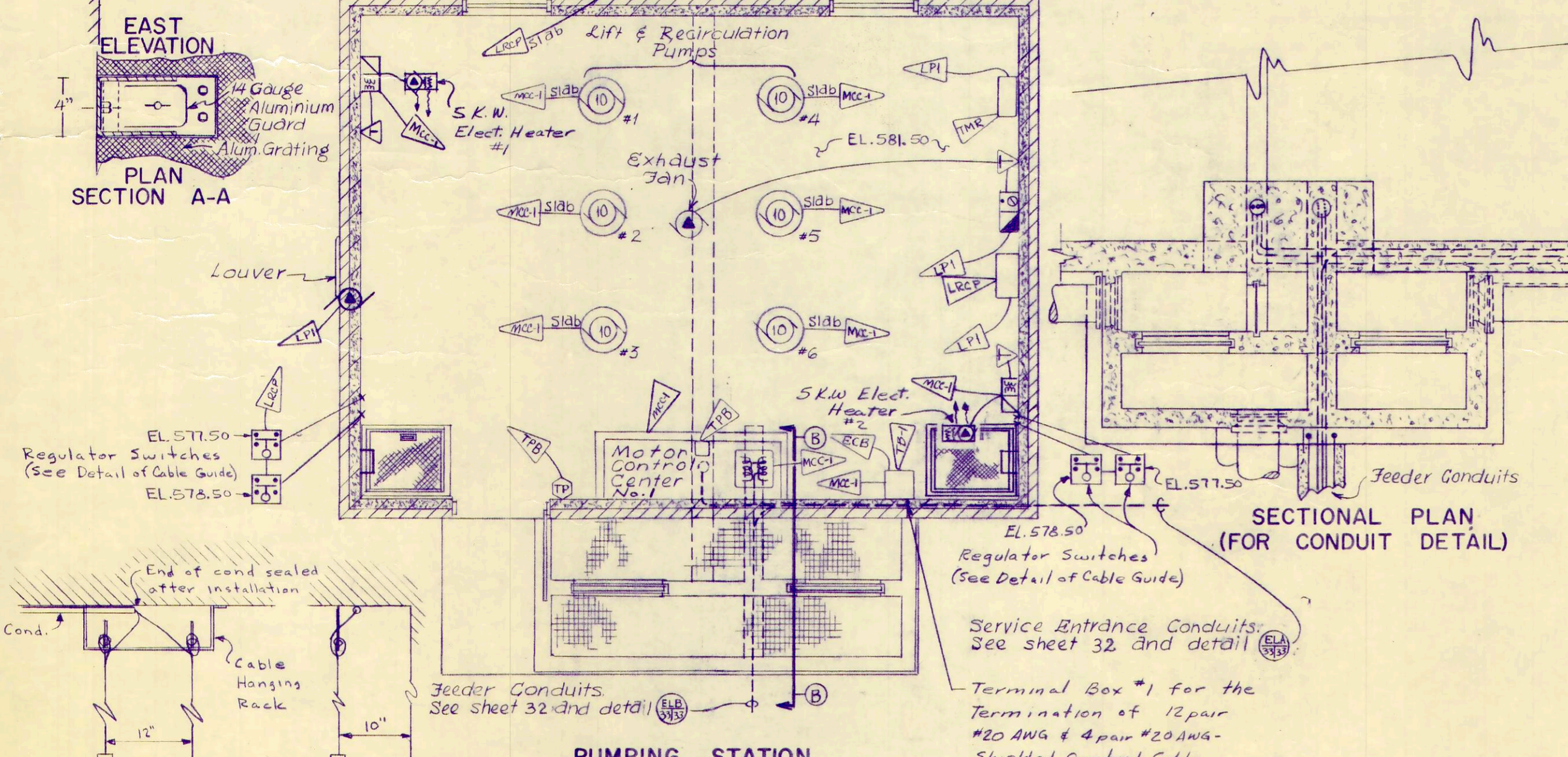
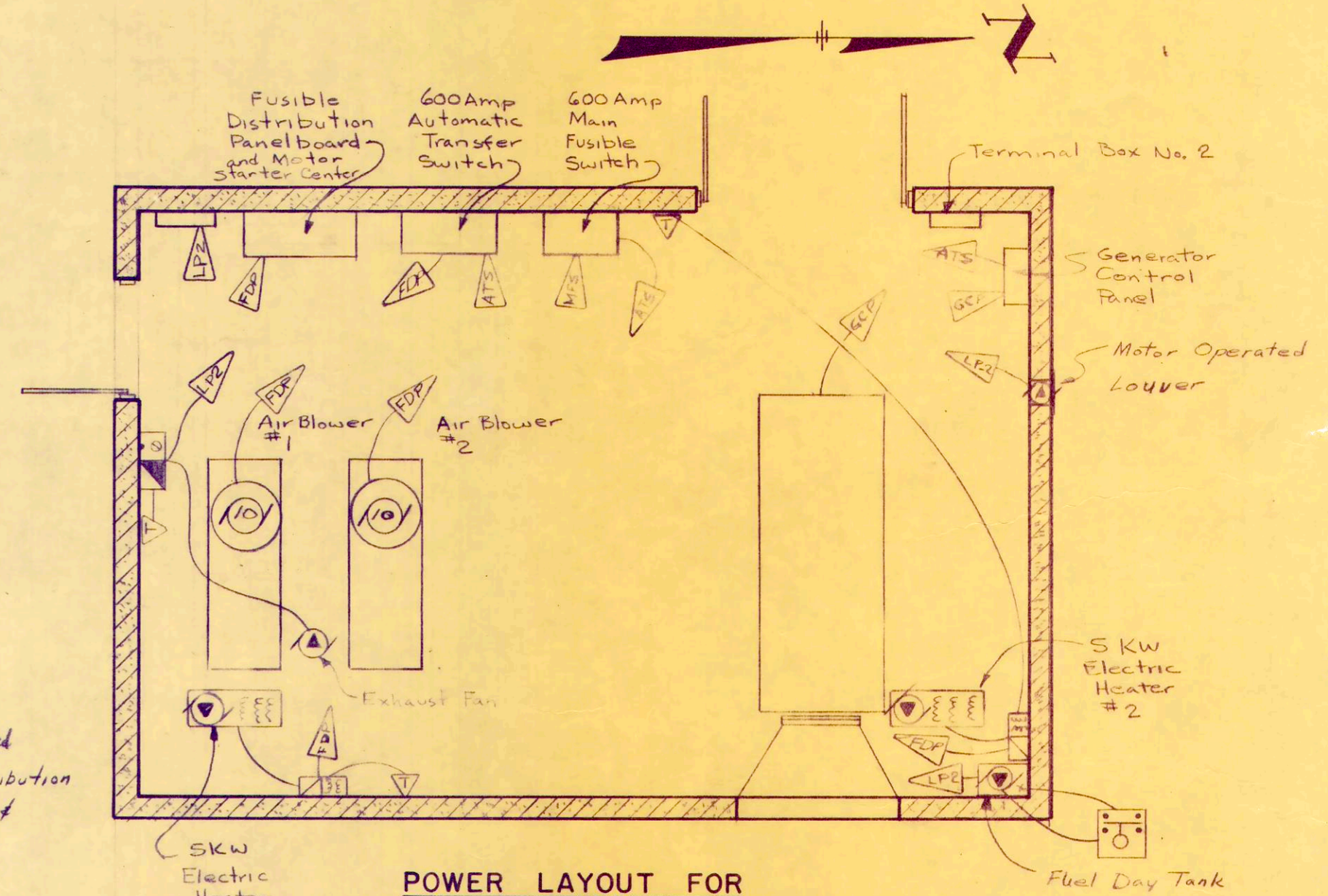
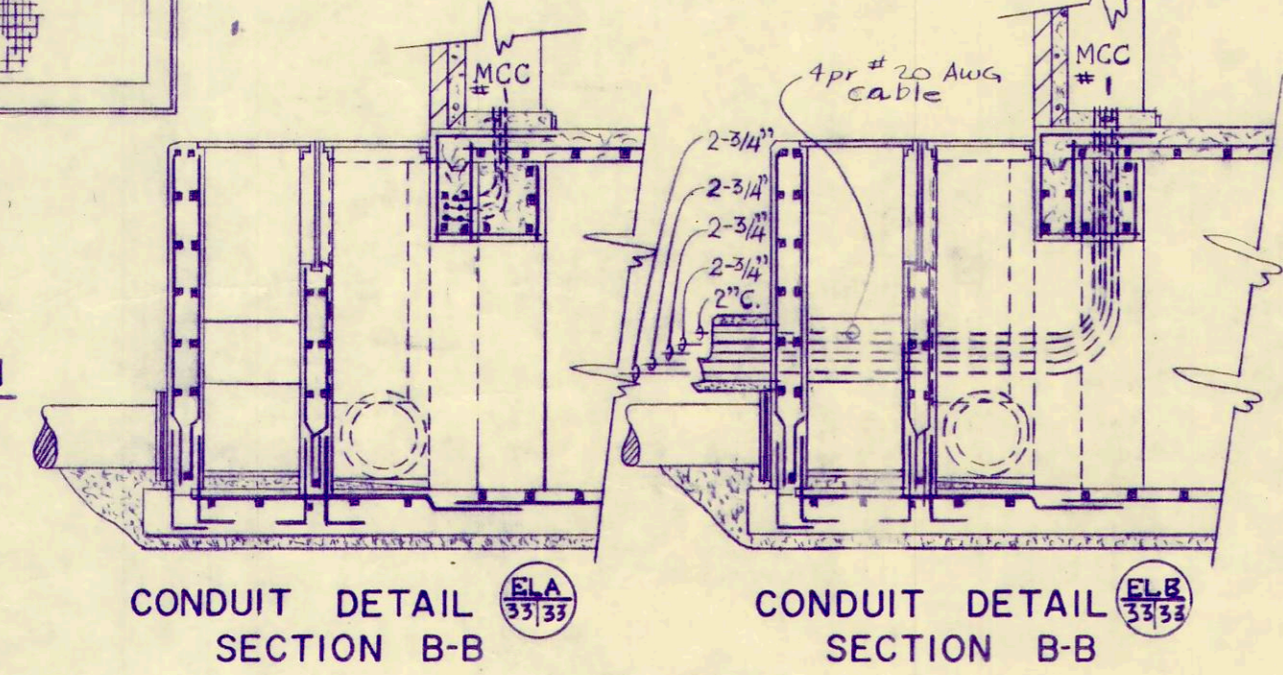
PROJECT NUMBER
 OAKSOO1 B
 SECTION
 DATE
 3-71
 32 OF 36



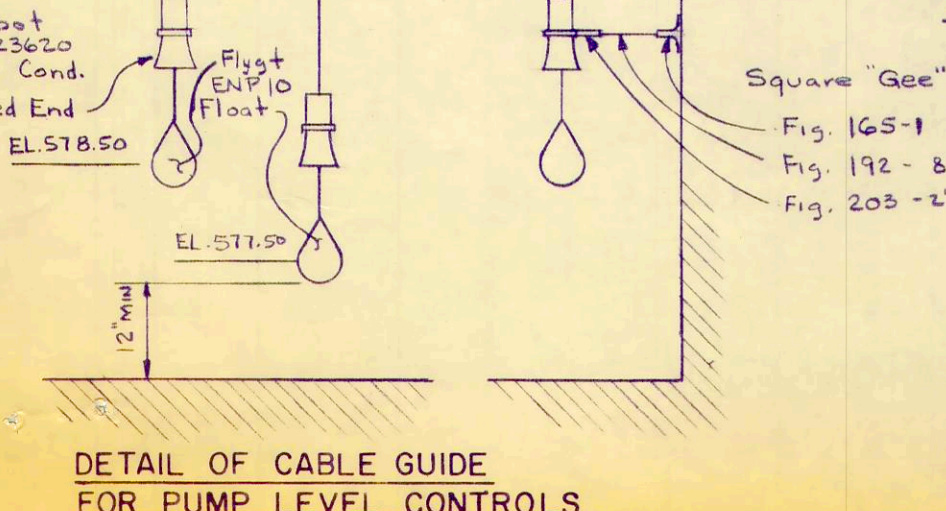
PUMPING STATION (LIGHTING PLAN)

FINAL SETTLING TANK (2-REQUIRED)

LIGHTING PLAN FOR WORKSHOP & BLOWER BUILDING



Notes:
 For One line Schematic, Control Schematics & MCC Layout of the Pumping Station see sheet No. 34/36
 For One Line Schematic & FDP Layout of the Workshop & Blower Building see sheet No. 35/36



- FLAG NOTES:**
- BCB -> To Existing Control Building - See sheet #32
 - TR -> Terminal Box #1
 - TPB -> Telephone Pull Box
 - LRCPC -> Lift and Recirculation Control Panel
 - FDP -> Fusible Distribution Panelboard and Motor Starter Center
 - ATS -> Automatic Transfer Switch
 - WFS -> Main Fusible Switch
 - GCP -> Generator Control Panel

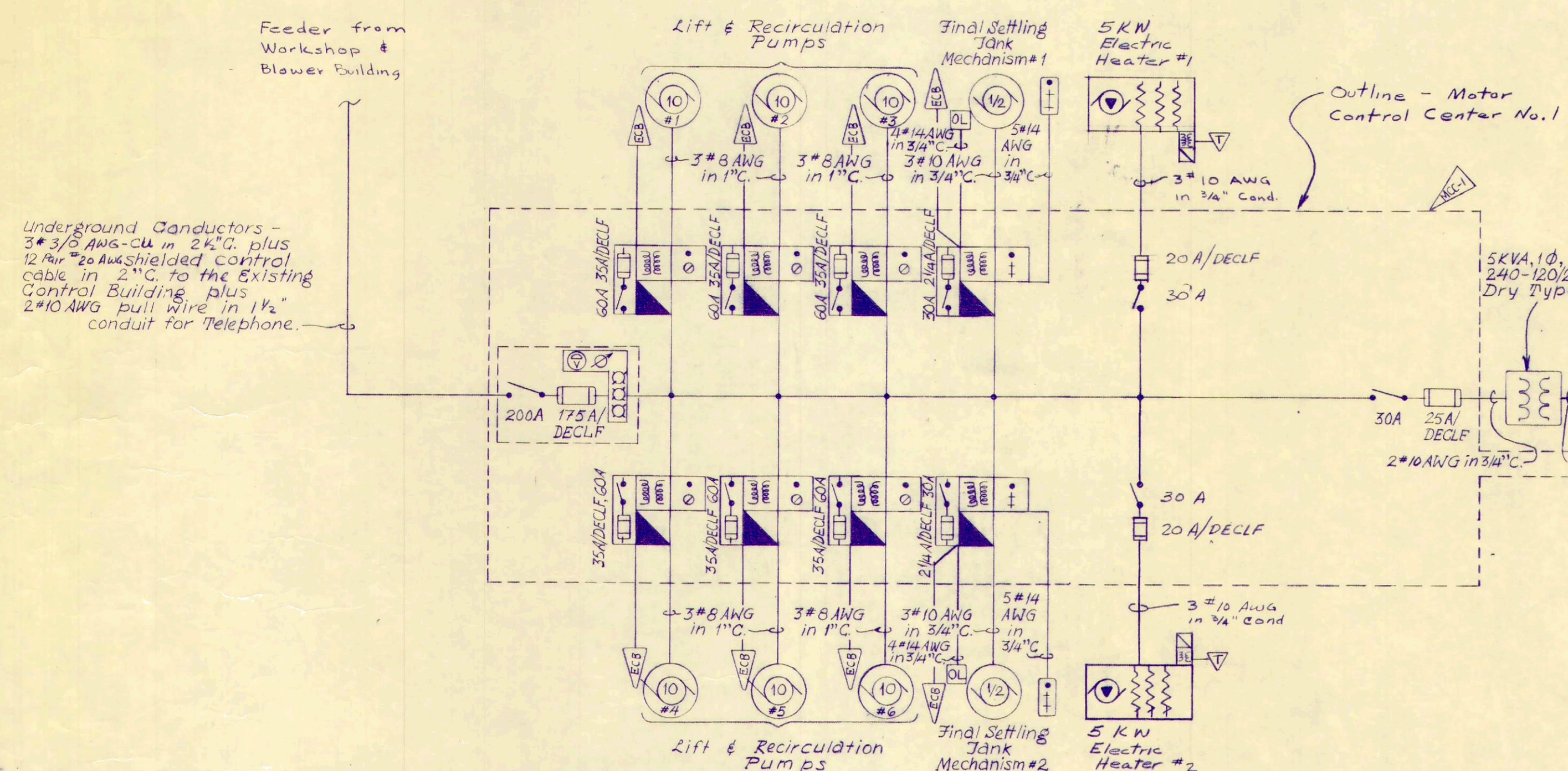
REV. NO.	DESCRIPTION	DATE	BY	APPD

FINKBEINER, PETTIS & STROUT LIMITED CONSULTING ENGINEERS
TOLEDO, OHIO

SCALE
 NO SCALE
 DESIGNED BY
 R.D.T.
 DRAWN BY
 S.R.D.
 CHECKED BY
 J.W.H.

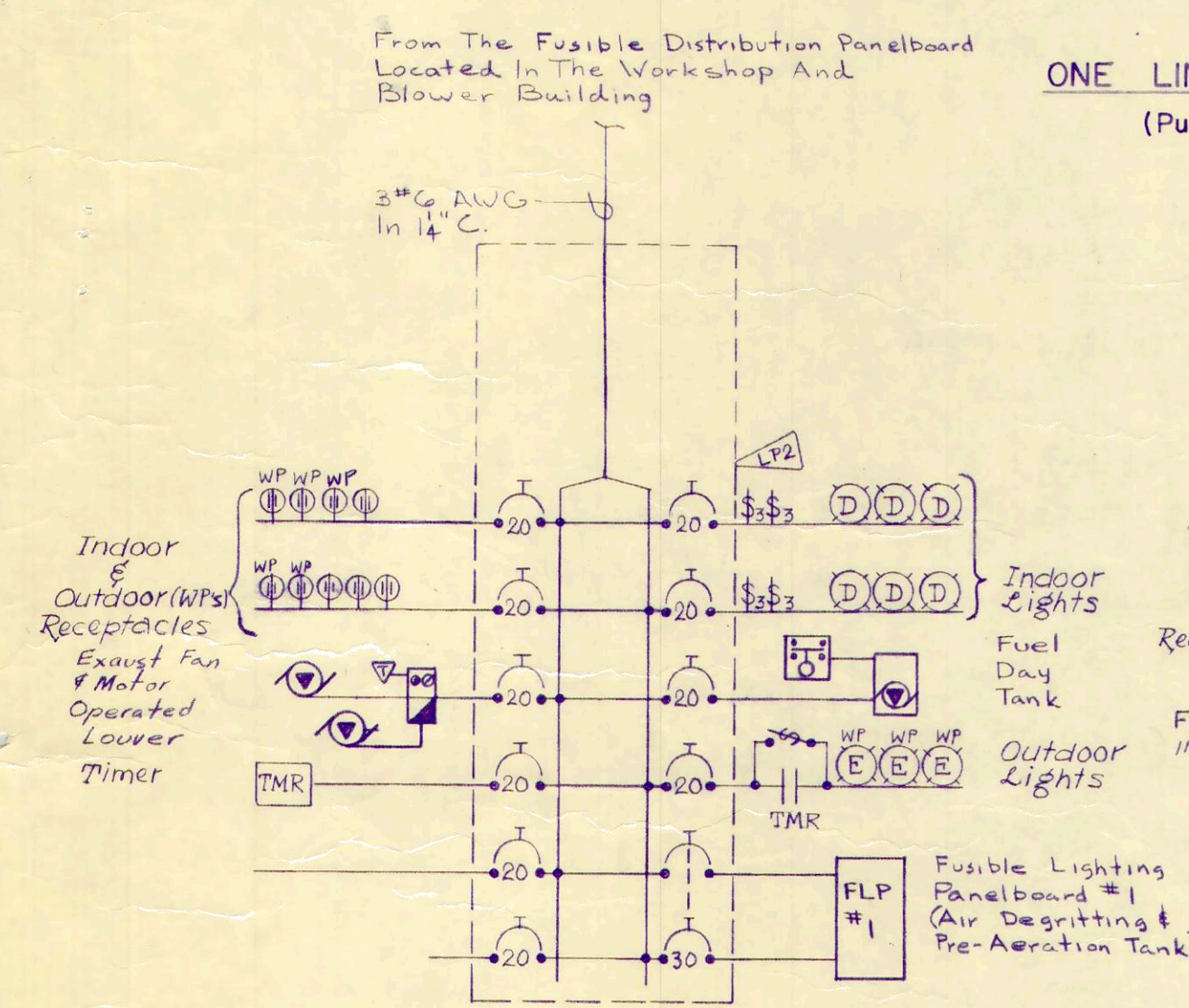
ELECTRICAL DETAILS LIGHTING PLAN & POWER LAYOUT
WASTEWATER TREATMENT PLANT IMPROVEMENTS
OAK HARBOR, OHIO

PROJECT NUMBER
 OAKSOOI B1
 SECTION
 DATE
 3-71
 33 OF 36



ONE LINE SCHEMATIC (Pumping Station)

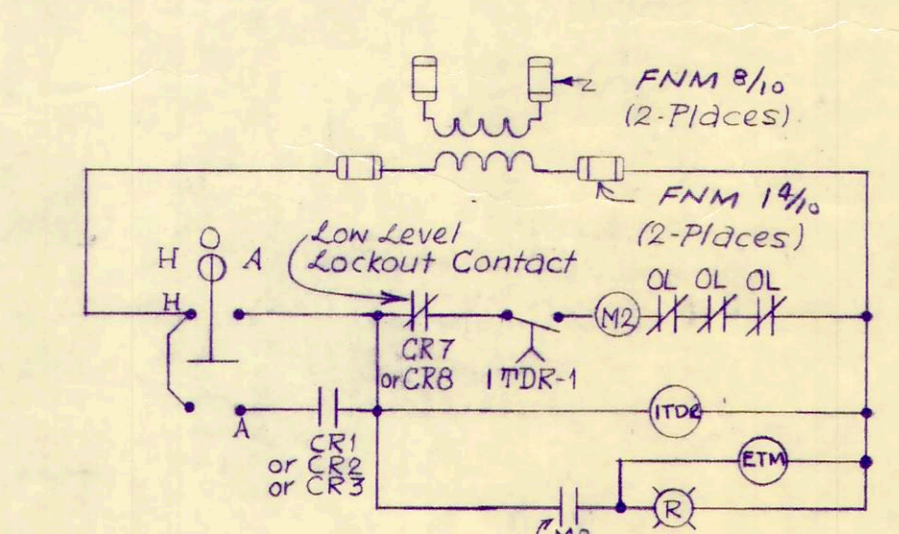
LIGHTING PANEL No. 1 (Pumping Station)



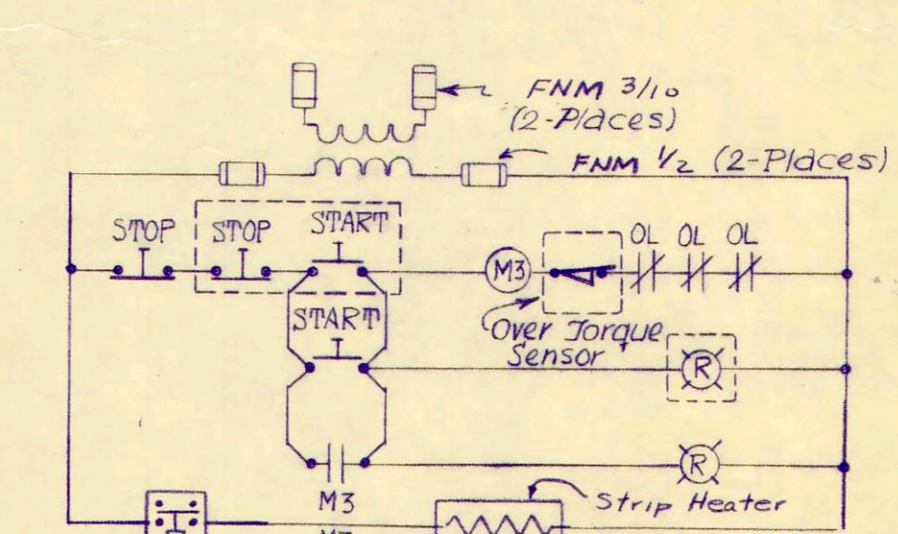
LIGHTING PANEL No. 2 (Workshop & Blower Building)

FUSIBLE LIGHTING PANELBOARD No. 1 (Air Degritting & Pre-aeration Tank)

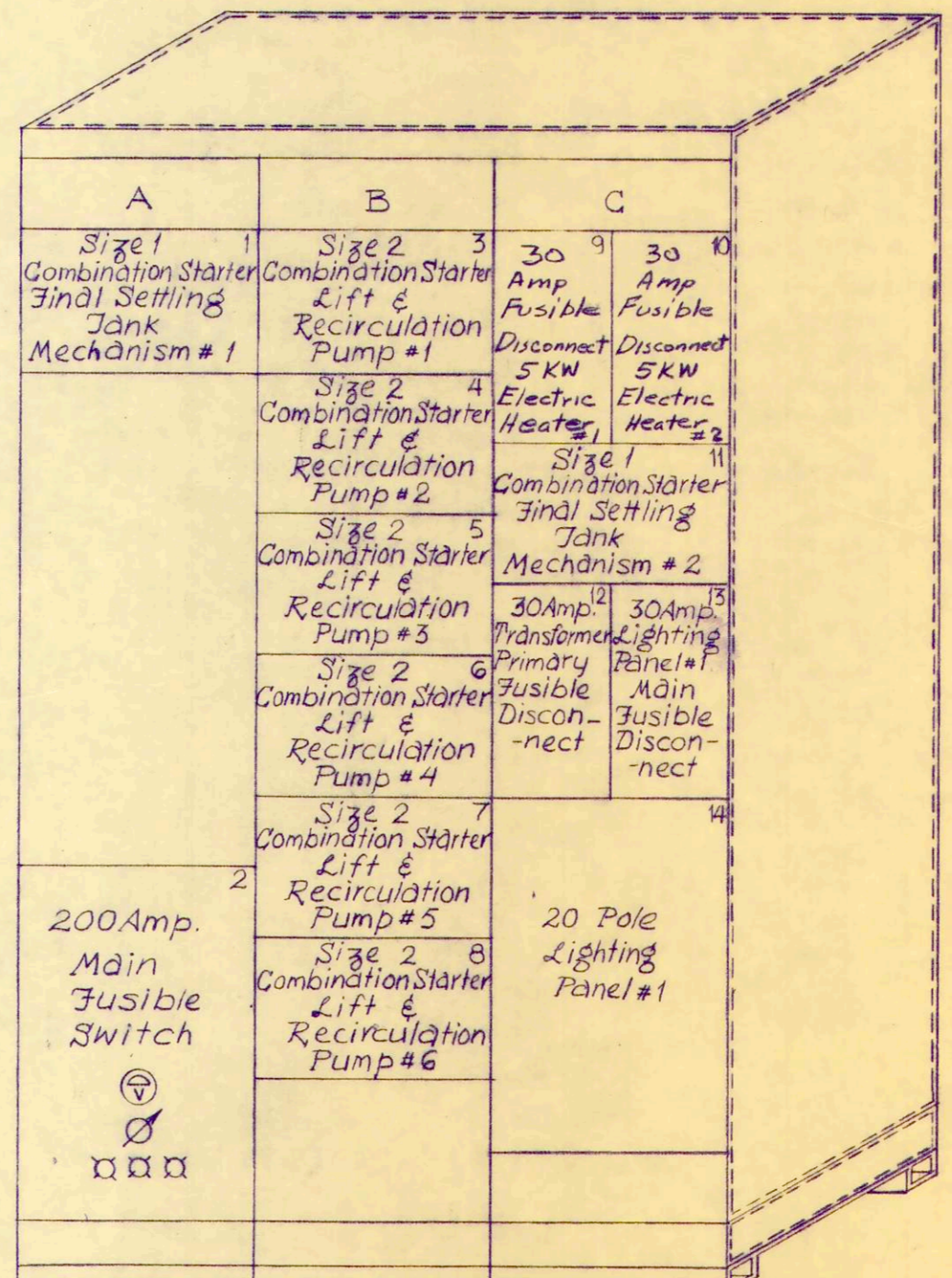
FUSIBLE LIGHTING PANELBOARD No. 2 (Chlorination Building)



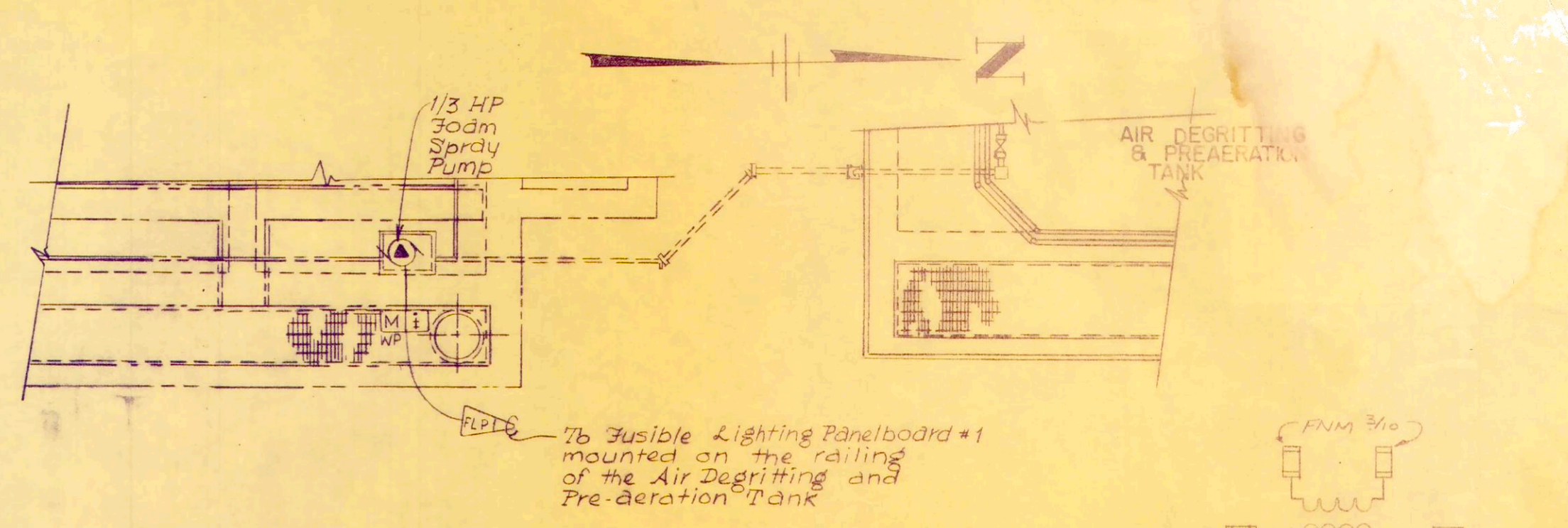
TYPICAL LIFT AND RECIRCULATION PUMP (6 - REQUIRED)



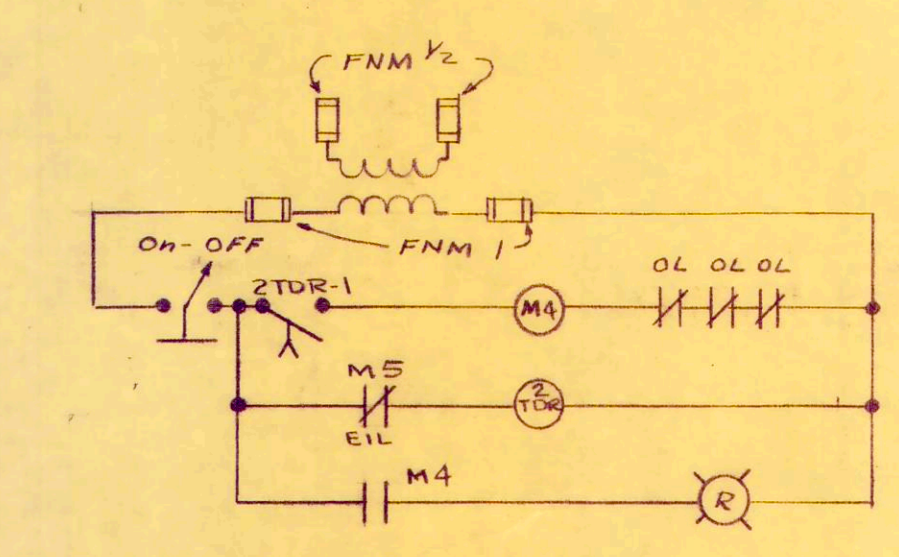
TYPICAL FINAL SETTLING TANK MECHANISM (2-REQUIRED)



MOTOR CONTROL CENTER NO. 1 (Pumping Station)

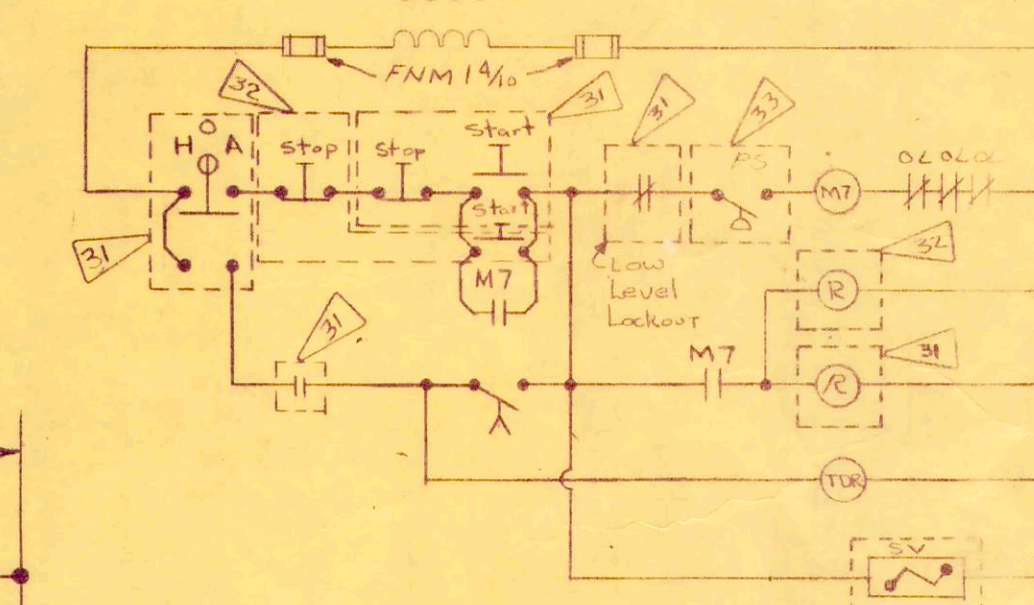


EXISTING PRIMARY SETTLING TANK

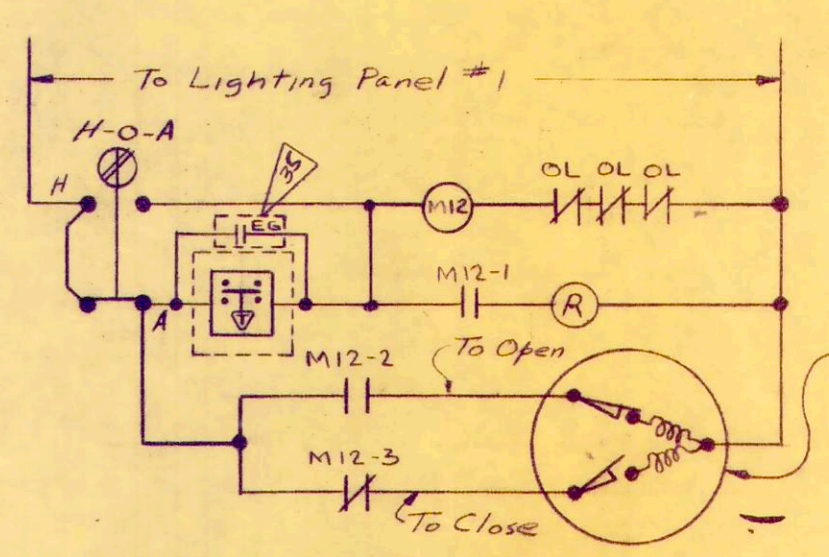


TYPICAL AIR BLOWER (2 REQUIRED)

SCREENING MECHANISM

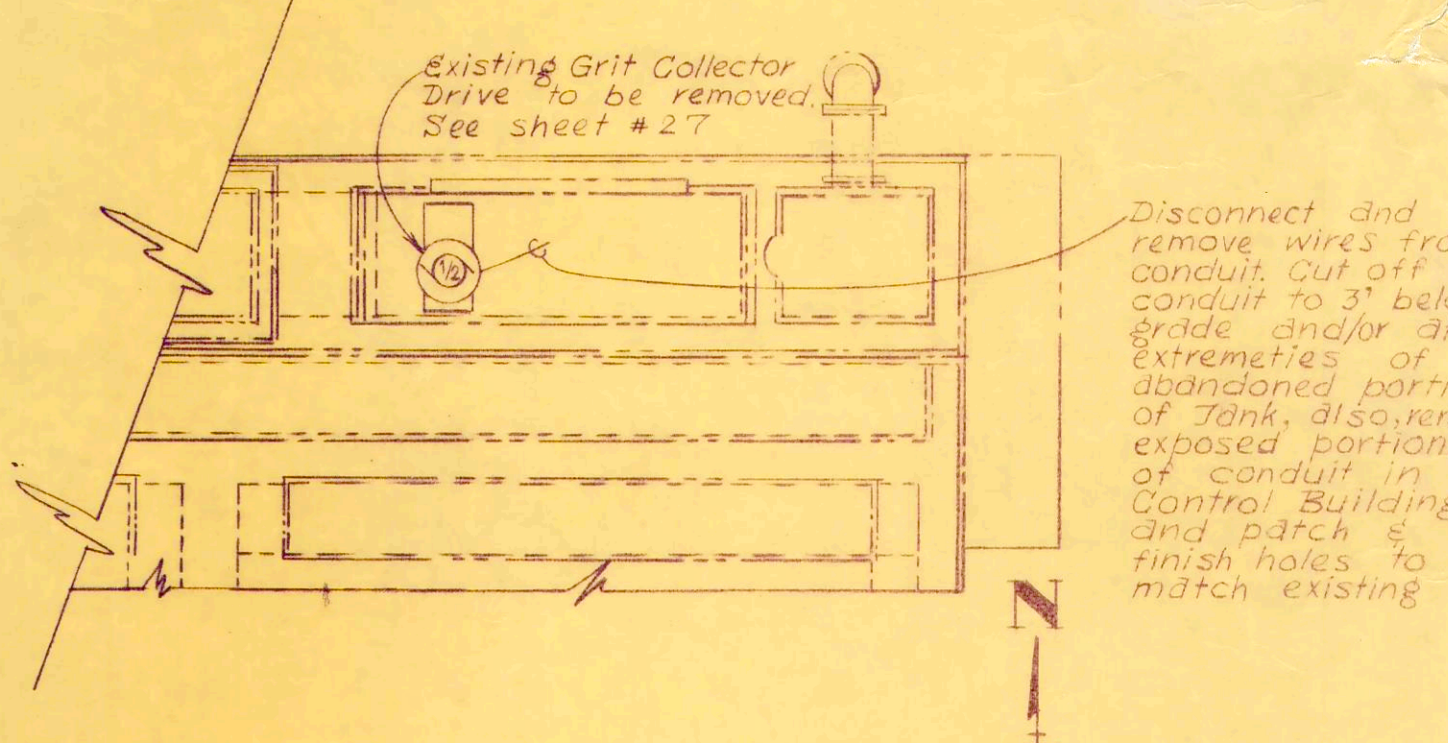


RAW WASTEWATER PUMP (2 REQUIRED)

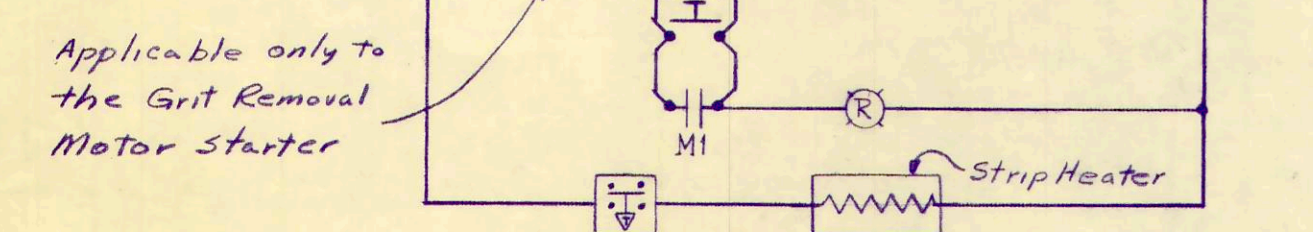


PUMPING STATION EXHAUST FAN & WORKSHOP & BLOWER BUILDING EXHAUST FAN

- FLAG NOTES:
- 31 Existing equipment mounted inside the Pump Control Panel located in the existing Control Building. Contractor responsible for electrical item shall furnish and install all necessary wire and conduit required for the connection of the above mentioned equipment.
 - 32 Mount in sight of motor (See sheet 55/56)
 - 33 Mount on influent side of the seal in case of...
 - 34 Mount on the back side of the seal



EXISTING PRIMARY SETTLING TANK (ALTERATIONS TO EXISTING EQUIPMENT)



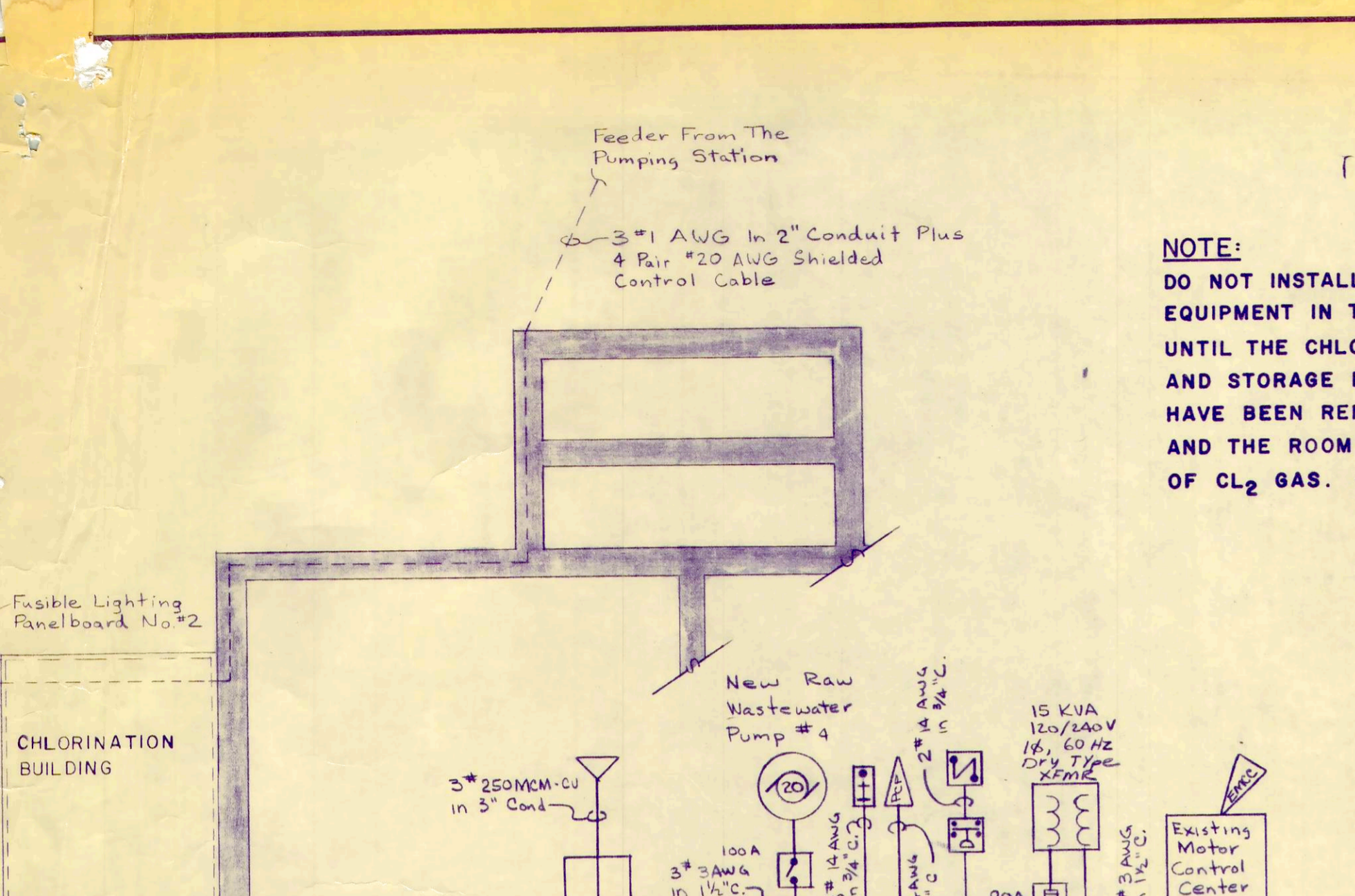
TYPICAL FOR SLUDGE COLLECTION MECHANISM GRIT REMOVAL MOTOR

NOTE:
See sheet #36/36 for Lift & Recirculation Pump Automatic Control Schematic

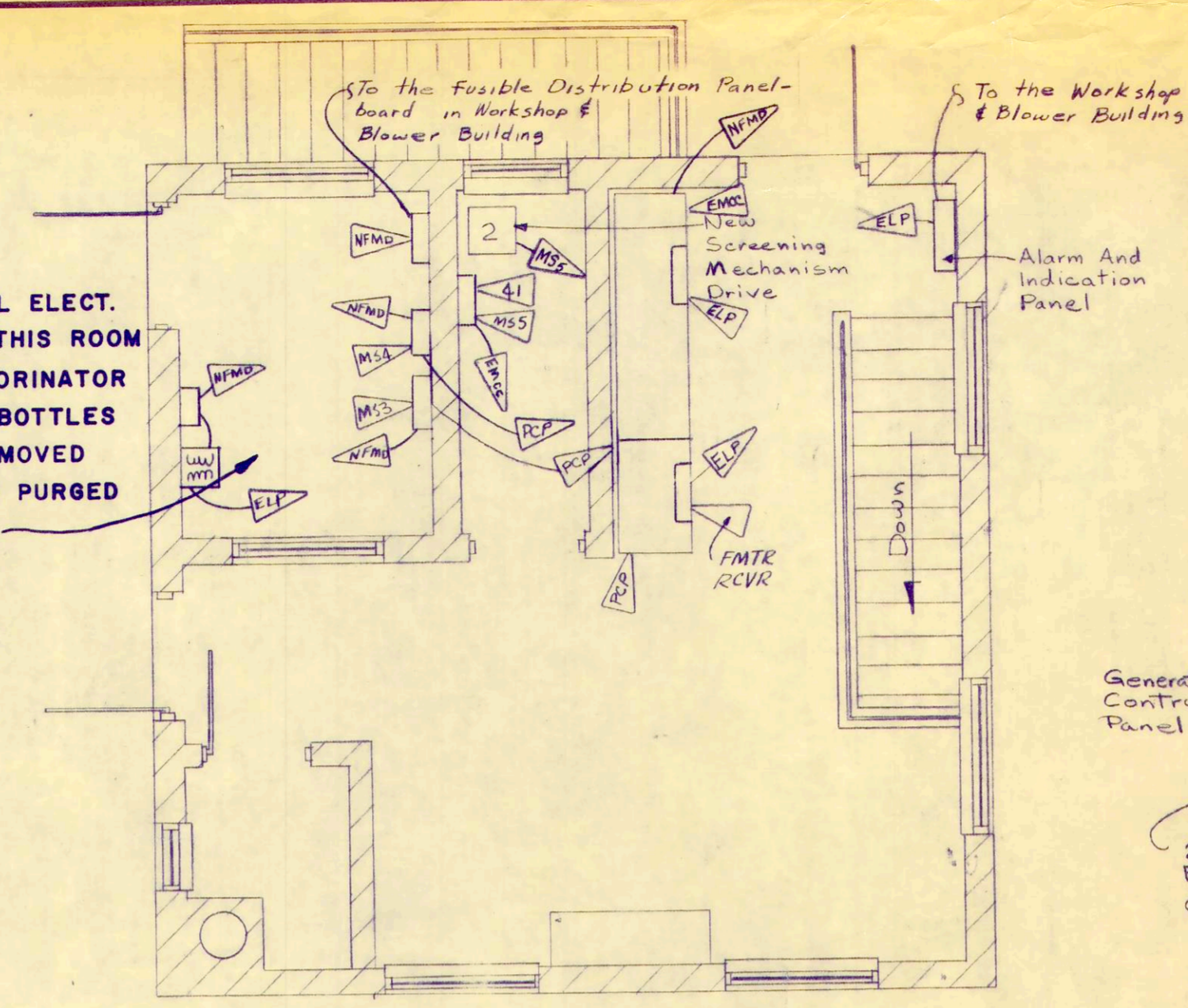
REV. NO.	DESCRIPTION	DATE	BY	APP'D

FINKBEINER, PETTIS & STROUT LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO

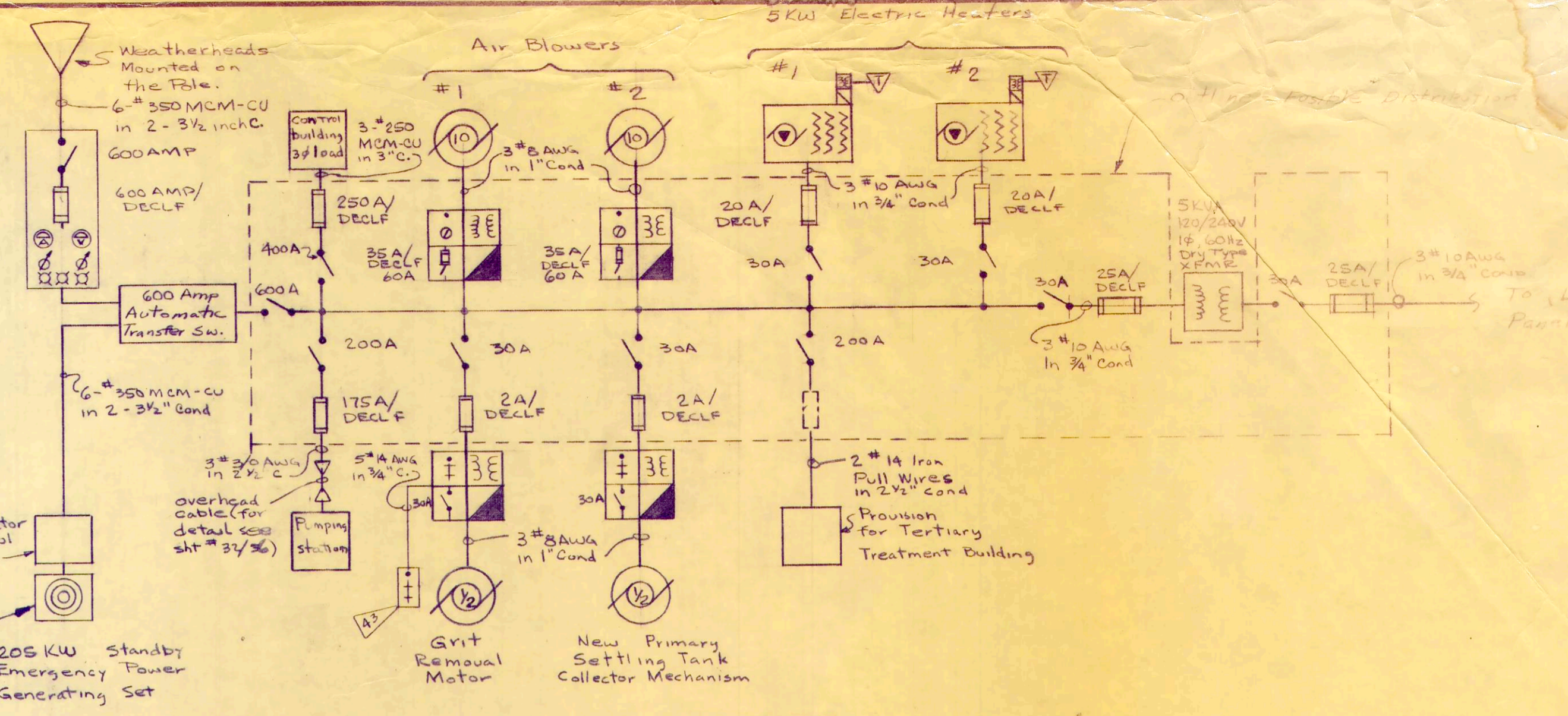
SCALE NO SCALE	ELECTRICAL DETAILS ONE LINE SCHEMATIC & I.C.C. LAYOUT WASTEWATER TREATMENT PLANT IMPROVEMENTS OAK HARBOR, OHIO	PROJECT NUMBER OAKSOOL BI
DESIGNED BY R.D.T.		SECTION
DRAWN BY S.R.D.		DATE 3-71
CHECKED BY J.W.H.		34 of 36



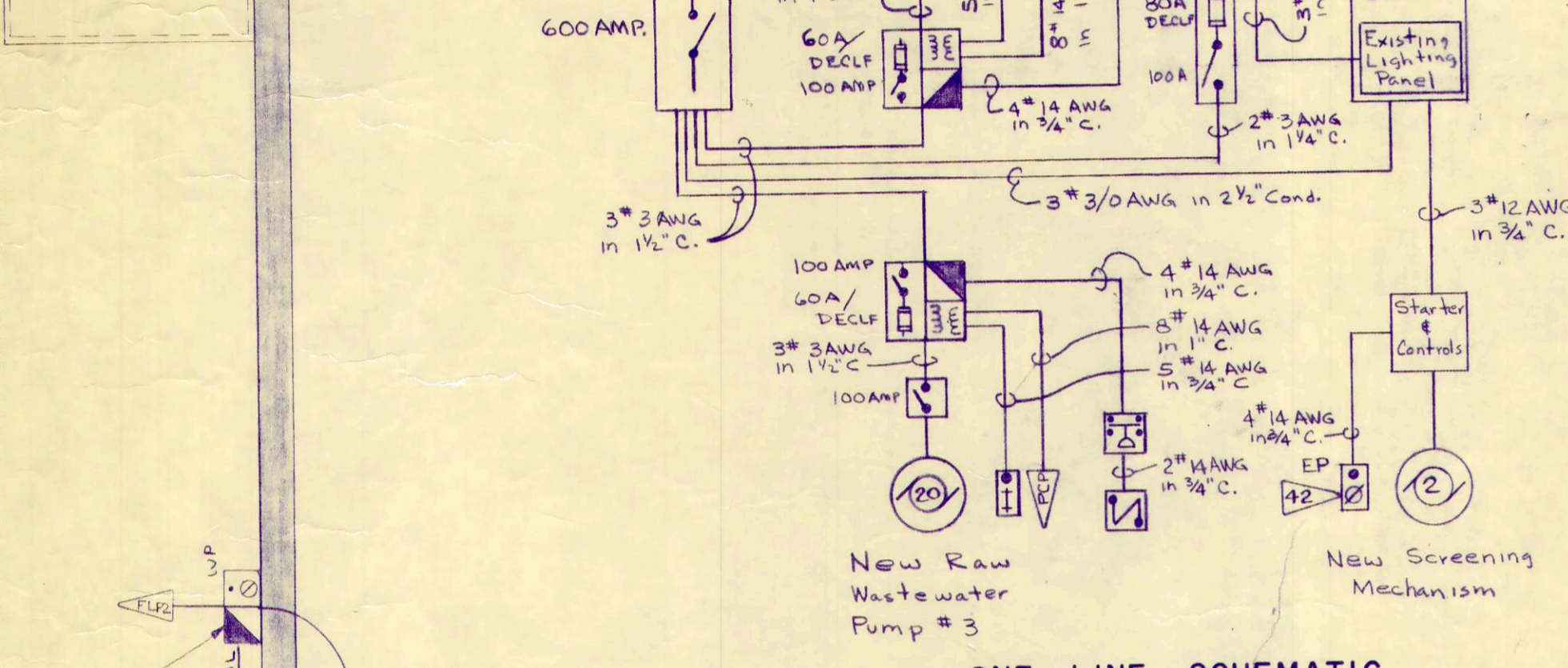
NOTE:
DO NOT INSTALL ELECT. EQUIPMENT IN THIS ROOM UNTIL THE CHLORINATOR AND STORAGE BOTTLES HAVE BEEN REMOVED AND THE ROOM PURGED OF CL₂ GAS.



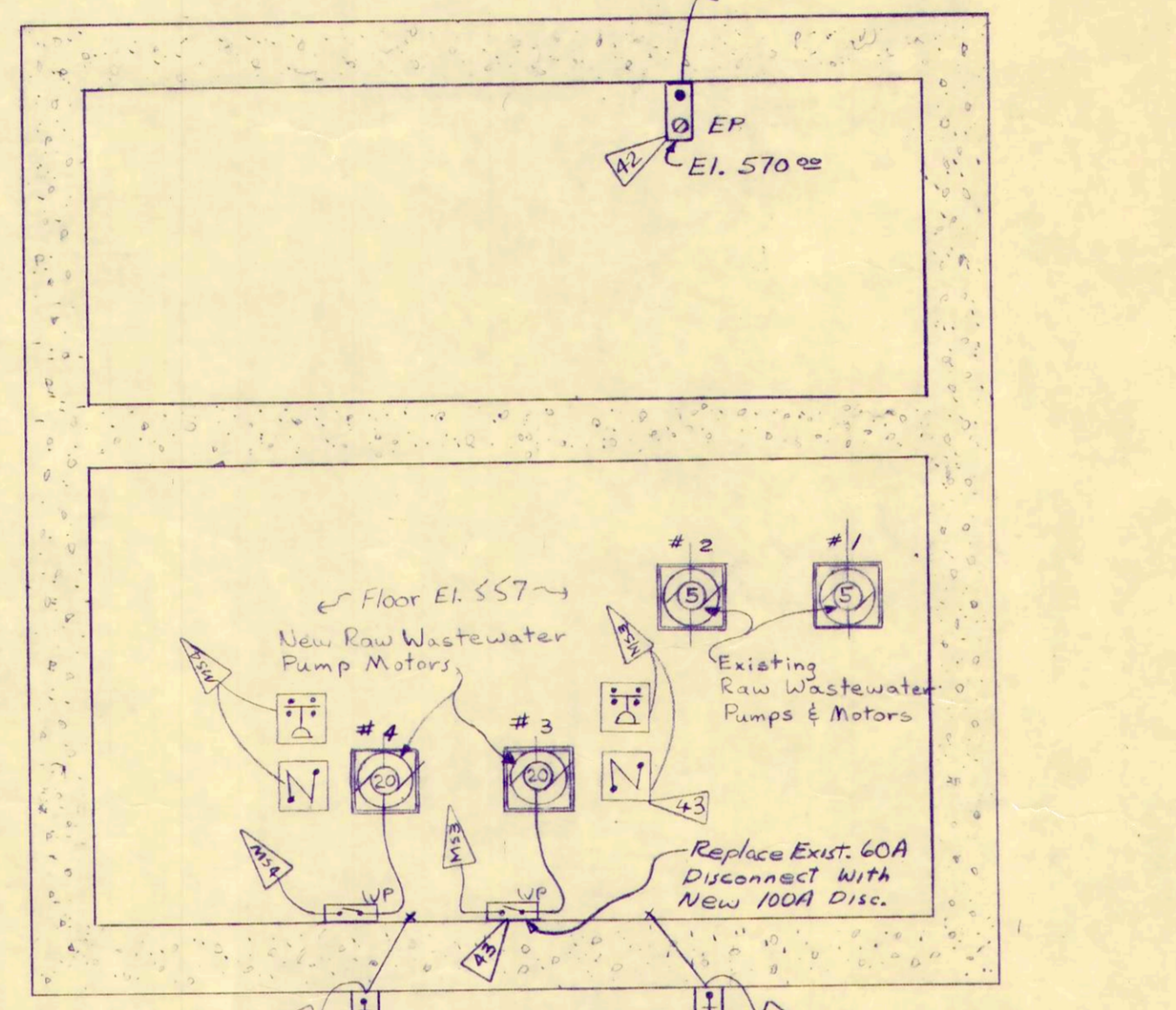
PLAN
(EXISTING CONTROL BUILDING)



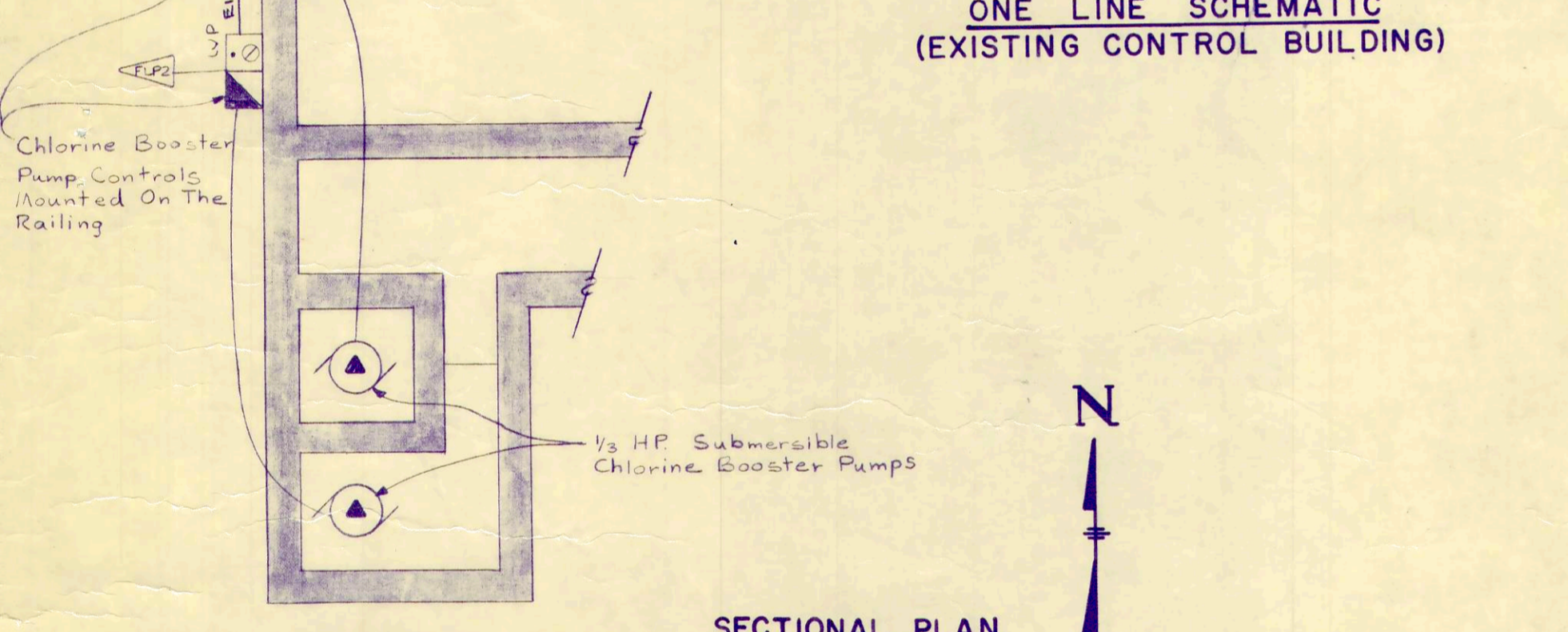
ONE LINE SCHEMATIC
(WORKSHOP AND BLOWER BUILDING)



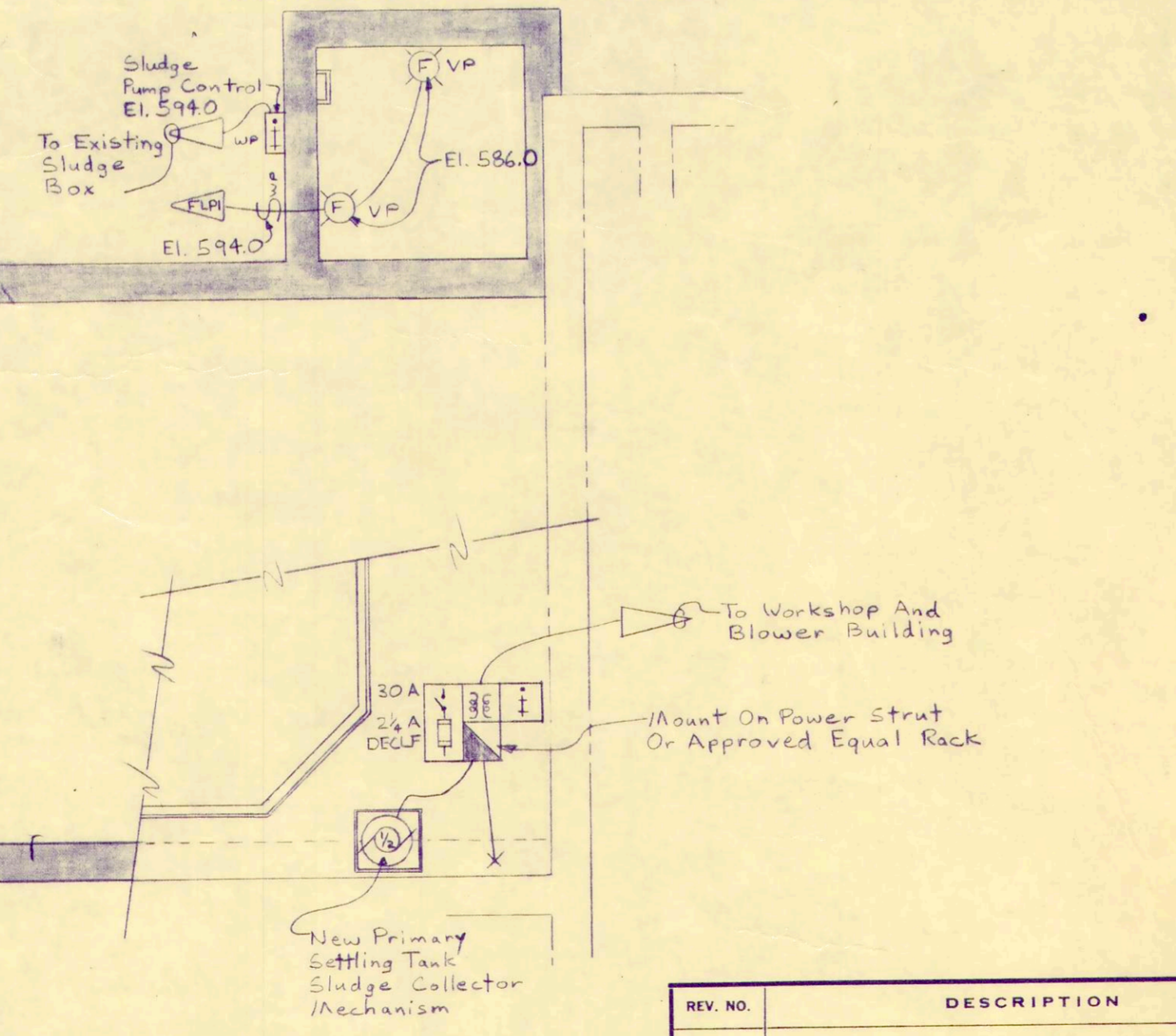
ONE LINE SCHEMATIC
(EXISTING CONTROL BUILDING)



SECTIONAL PLAN
(EXISTING CONTROL BUILDING)

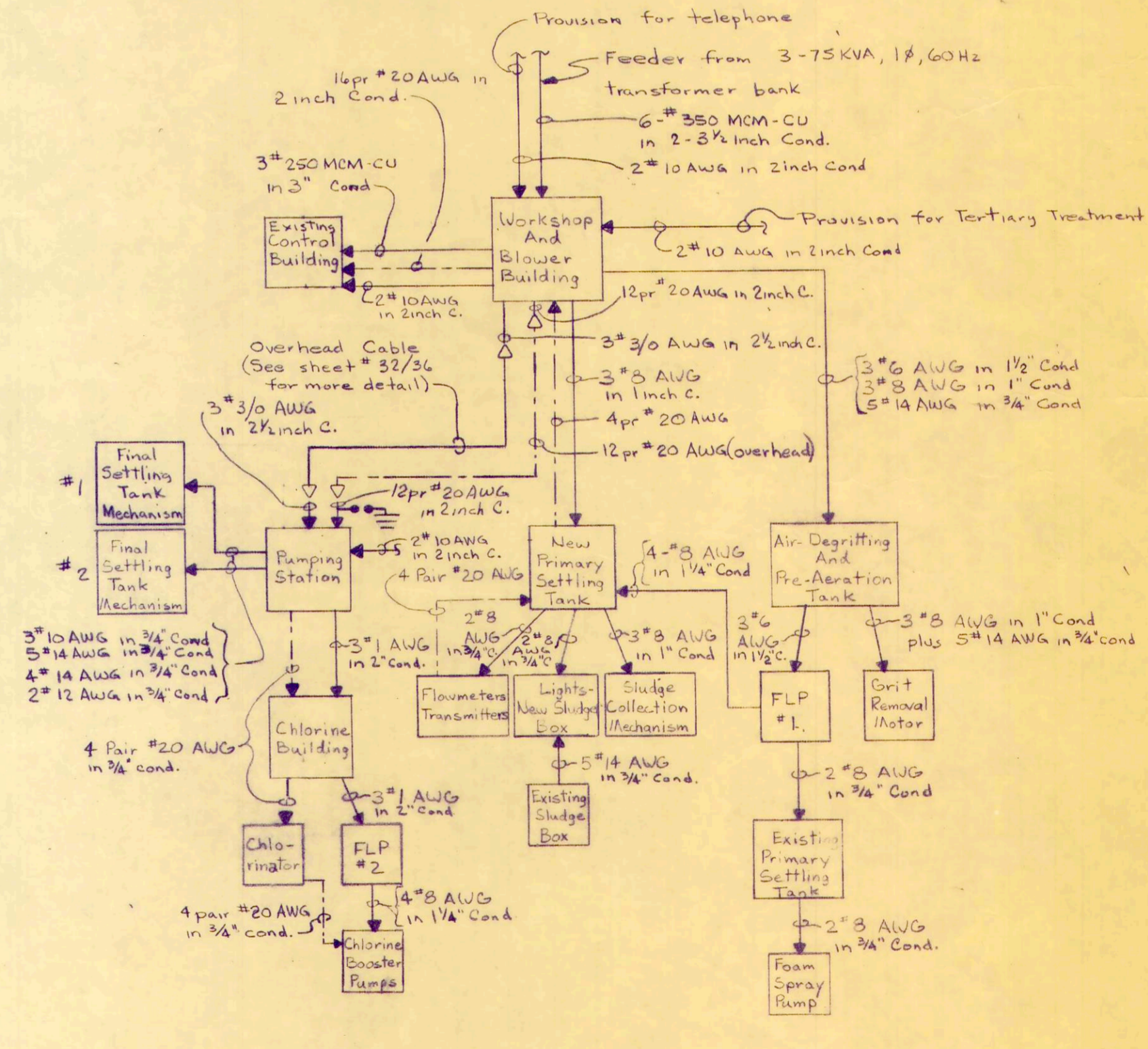


SECTIONAL PLAN
(CHLORINE CONTACT TANK)



SECTIONAL PLAN
(NEW PRIMARY SETTLING TANK)

- FLAG NOTE:**
- 41 Starter & Controls to be furnished by the Contractor responsible for the Screening Mechanism but installed by the Contractor responsible for the Electrical.
 - 42 Remote Control Station (Explosion Proof) to be furnished and installed by the Contractor responsible for the Electrical. Existing Equipment - Wiring to be rerouted.
 - 43 Fusible Distribution Panel-board.
 - 44 Pump Control Panel (Existing)
 - 45 Remove Existing Flowmeter Receiver and replace with new Flowmeter Receiver for Primary Settling Tank Effluent.
 - 46 Existing Motor Control Center
 - 47 Non-Fusible Main Disconnect
 - 48 Existing Lighting Panel



BLOCK SCHEMATIC

Fusible Panel.	
30 AMP. Disc. Elect. Htr. #1	30 AMP. Disc. Elect. Htr. #2
30 Amp. Disc. Grit Removal Motor	30 Amp. Disc. Sludge Collector Motor
30 Amp. Disc. XFMR Primary	30 Amp. Disc. Light Panel Main
60 Amp. Disc. Air Blower #1	60 Amp. Disc. Air Blower #2
Size 2 Magnetic Starter Air Blower #1	Size 2 Magnetic Starter Air Blower #2
200 Amp Fusible Disconnect Tertiary Treatment (Space Only)	
200 Amp Fusible Disconnect L & R Pumping Station	
400 Amp Fusible Disconnect Control Building	
600 Amp Main Non-Fusible Switch	
MAIN LUG COVER	

FUSIBLE DISTRIBUTION AND MOTOR STARTER

REV. NO.	DESCRIPTION	DATE	BY	APPD.

FINKBEINER, PETTIS & STROUT, LTD.
CONSULTING ENGINEERS
TOLEDO, OHIO

SCALE	AS NOTED	ELECTRICAL
DESIGNED BY	R.D.T.	WASTEWATER PLANT
DRAWN BY	W.E.H.	OAK HAVEN
CHECKED BY	J.W.H.	

MOTOR CONTROL CENTER NO. 1
(PUMPING STATION)

Section Unit	Controlled Function	Circuit Breaker Size Amps.	Switch Size Amps.	Fuse Size Amps.	KVA	(Largest) HP	Volts	Poles	NEMA Size Starter	Unit Height in inches	Include the Following Features and Remarks
A 1	Comb. Starter - Final Settling Tank Mechanism #1	-	30	2k	-	1/2	240	3	1	12	(A) (FVNRMS) (240-120-4FT) (2XI) (R) (30L) (RCI)
A 2	Disconnect - Main Fusible Switch	-	200	475	50	-	240	3	-	30	(3KOP) (3ODPL) (V) (3S) (LF2)
B 3	Comb. Starter Lift and Recirculation - Pump #1	-	60	35	-	10	240	3	2	12	(C) (FVNRMS) (240-120-4FT-50) (ETM) (2XI) (R) (30L) (RCI) (TDR)
B 4	Comb. Starter Lift and Recirculation - Pump #2	-	60	35	-	10	240	3	2	12	(C) (FVNRMS) (240-120-4FT-50) (ETM) (2XI) (R) (30L) (RCI) (TDR)
B 5	Comb. Starter - Lift and Recirculation Pump #3	-	60	35	-	10	240	3	2	12	(C) (FVNRMS) (240-120-4FT-50) (ETM) (2XI) (R) (30L) (RCI) (TDR)
B 6	Comb. Starter - Lift and Recirculation Pump #4	-	60	35	-	10	240	3	2	12	(C) (FVNRMS) (240-120-4FT-50) (ETM) (2XI) (R) (30L) (RCI) (TDR)
B	Comb. Starter Lift and Recirculation Pump #5	-	60	35	-	10	240	3	2	12	(C) (FVNRMS) (240-120-4FT-50) (ETM) (2XI) (R) (30L) (RCI) (TDR)
B 3	Comb. Starter Lift and Recirculation Pump #6	-	60	35	-	10	240	3	2	12	(C) (FVNRMS) (240-120-4FT-50) (ETM) (2XI) (R) (30L) (RCI) (TDR)
C 9	Disconnect - 5KW Electric Heater #1	-	30	20	5	-	240	3	-	18*	(LF2)
C 10	Disconnect - 5KW Electric Heater #2	-	30	20	5	-	240	3	-	18*	(LF2)
C 11	Comb. Starter Final Settling Tank Mechanism #2	-	30	2k	-	1/2	240	3	1	12	(A) (FVNRMS) (240-120-4FT) (2XI) (R) (30L) (RCI)
C 12	Disconnect - Transformer Primary	-	30	25	-	-	240	2	-	18*	(LF2)
C 13	Disconnect - Ltg. Panel #1 Main	-	30	25	-	-	120/240	2	-	18*	(LF2)
C 14	Panelboard - Lighting Panel #1	20	-	-	-	-	120/240	2	-	30	Include: 20-20A. 1.P.C.B., 2-20A 2P.C.B.

INDIVIDUAL MOTOR STARTERS

Unit	Controlled Function	Circuit Breaker Size Amps.	Switch Size Amps.	Fuse Size Amps.	Capacity KVA	(Largest) (HP)	Volts	Poles	NEMA Size Starter	NEMA Type Enclosure	Include the following Features and Remarks
1	Raw Wastewater Pump (2 required)	-	100	60	-	20	230	3	3	12	(A)(C)(FVNRMS) (240-120-4FT)(TDR) (3XI) (2AI) (R) (RCI) (30L) Square D 8538-SEA-25 or approved equal.
2	Grit Removal Mechanism	-	30	-	-	1/2	230	3	0	4	(A) (FVNRMS) (240-120-4FT) (3XI) (2AI) (R) (RCI) (30L) Square D 8538-SB-12 or approved equal. include thermostat strip heater.
3	Chlorine Booster Pump (2 Required)	-	-	-	-	1/3	115	2	0	4	(B) (R) (3XI) (20L) Magnetic Starter per Square D 8536-SB-11 or approved equal.
4	Exhaust Fan - Chlorination Building	-	-	-	-	1/50	115	2	0	4	(A) (R) (3XI) (20L) Manual Starter per Square D 2510-MB-1 or approved equal.
5	Exhaust Fan - Pumping Station & Workshop & Blower Building	-	-	-	-	1/3	115	2	0	12	(C) (R) (3XI) (20L) Magnetic Starter per Square D 8536-SB-1 or approved equal.
6	Foam Spray Pump	-	-	-	-	1/3	115	2	0	4	(A) (3XI) (2AI) (R) (RCI) (30L) Square D 8536-MB-1 or approved equal.
7	New Screening Mechanism	-	30	-	-	2	230	3	0	12	Same As Unit #1 Except SBA-21 In Lieu Of SBA-22
8	New Primary Settling Tank Sludge Collection Mechanism	-	30	-	-	1/2	230	3	0	4	Same As Unit #2

* Furnished by the contractor responsible for equipment but installed by the contractor responsible for electrical.

MOTORS

Spec. Para. No.	Name of Driven Equipment	Quantity	Horsepower	Phase	Volts	Speed in R.P.M.		Efficiency	Percent Power Factor	Code	Enclosure	Mounting Attitude	Type of Coupling or Equal	Remarks
						Synch.	Full Load							
25	Lift and Recirculation Pumps	6	10	3	230	1800	1760	86	82	H	Open Drip-proof	Vertical	-	Non-Reverse Ratchet
26	Pumping Station Exhaust Fan	1	1/3	1	115	1800	1725	-	-	-	Totally Enclosed	Horizontal	Direct	Include Built-in Overload Protection
27	Foam Spray Pump	1	1/3	1	115	1800	1725	-	-	-	Totally Enclosed	Horizontal	Direct	Include Built-in Overload Protection
29	Heater in Pumping Station	2	1/85	1	115	-	-	-	-	-	Totally Enclosed	Horizontal	Direct	Include Built-in Overload Protection
23	Final Settling Tanks Mechanism	2	1/2	3	230	-	-	-	-	-	Totally Enclosed	Vertical	Flexible	-
29	Electric Unit Heater in Workshop & Blower Building	2	1/85	1	115	-	-	-	-	-	Totally Enclosed	Horizontal	Direct	Include Built-in Overload Protection
19	Air Blower in Workshop & Blower Building	2	10	3	230	3600	3500	85	84.5	H	Open Drip-proof	Horizontal	Direct	-
28	Chlorination Building Exhaust Fan	1	1/25	1	115	-	-	-	-	-	Totally Enclosed	Horizontal	Direct	Include Built-in Overload Protection
17	Grit Collector Drive Motor	1	1/2	3	230	-	-	-	-	-	Totally Enclosed	Horizontal	Flexible	-
24	Chlorine Booster Pump	2	1/3	1	115	-	-	-	-	-	Submersible	Vertical	Direct	Include built in Overload Protection
20	New Primary Settling Tank Sludge Collector Mechanism	1	1/2	3	230	-	-	-	-	-	Totally Enclosed	Horizontal	Flexible	-
16	Raw Wastewater Pump	2	20	3	230	900	865	90.5	76.5	G	Totally Enclosed	Horizontal	Flexible	-
15	New Screening Mechanism	1	2	3	230	-	-	-	-	-	Totally Enclosed	Vertical	-	-

LIGHTING FIXTURE SCHEDULE

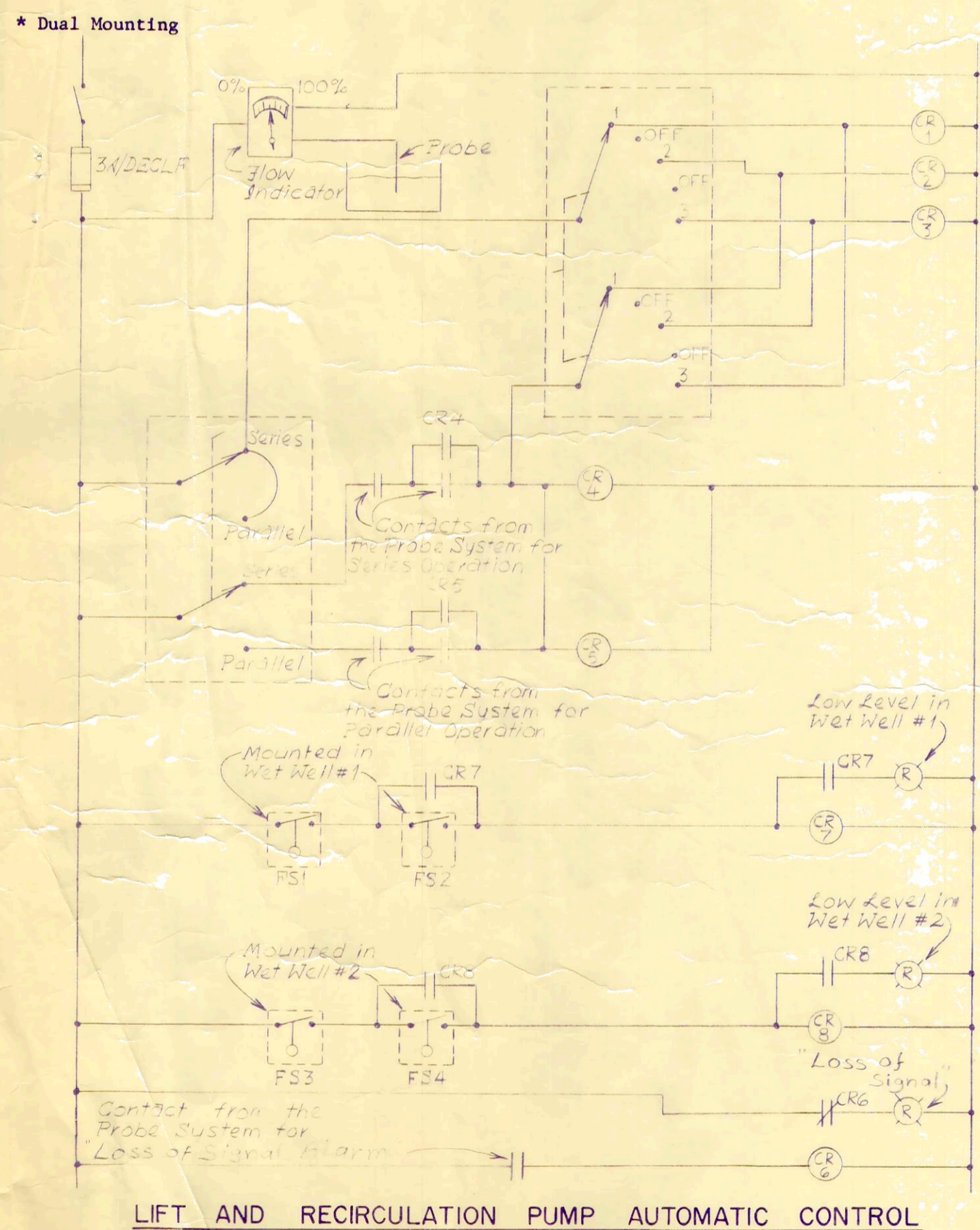
Fixture	Description
A	Benjamin catalog number FE-1524-4, fluorescent fixture with two (2) 40W, rapid start lamps, Acrylic lens and baked white enamel steel housing, pendant mounted
B	Holophane catalog number 400, incandescent lamp fixture with 150 watt incandescent lamp, outdoor, weatherproof, wall mounted
B-1	Holophane catalog number 408 PR2 Black incandescent lamp fixture with 200 watt incandescent lamp, outdoor, weatherproof, wall mounted.
D	Westinghouse type number ER-240-RM-WOK fluorescent fixture with Two (2) F40 lamps and perforated top reflector type 320C825G02, surface mounted
E	McPhibben catalog number 66-24VT incandescent lamp fixture with one (1) 200 watt incandescent lamp, outdoor, fully enclosed and gasketed, wall mounted
F	Crouse-Hinds catalog number VDA 25GRD incandescent lamp fixture with one (1) 150 watt incandescent lamp, globe and dome reflector, fully enclosed and gasketed, vaportight, ceiling mounted.

ELECTRICAL SYMBOLS

\$	Single pole wall switch (toggle)	⊠	Relay contact
\$2	Double pole wall switch (toggle)	⊠	Magnetic motor non-reversing
\$3	Three way wall switch (toggle)	⊠	Reversing motor start
\$4	Four way wall switch (toggle)	⊠	Reduced voltage motor
\$	Weather proof or vapor proof wall switch	⊠	Safety switch - fusible
⊠	Duplex convenience receptacle grounding type	⊠	Safety switch - non-fusible
⊠	Combination switch & conv. recep.	⊠	"Start-stop" forward-control station, L ind
⊠	Floor conven. Recep.	⊠	Same as above but with
⊠	Telephone conven. recep. (4-Pin, plug-in type)	⊠	Selector switch control
⊠	Thermostat switch	⊠	Same as above but with
⊠	Light sensitive switch	⊠	2 Selector switch control light - Local remote & H
⊠	Probe Control Elements	⊠	Pilot light - red or green
⊠	Pressure switch	⊠	Pilot light - red
⊠	Float switch	⊠	Pilot light - green
⊠	Limit switch	⊠	Less than or equal to
⊠	Solenoid operated device	⊠	Capacitor bank
⊠	Luminaries (see spec. for type schedule)	⊠	BA
⊠	Single phase motor	⊠	Electric heater
⊠	Single phase motor with built-in OL's with automatic resets	⊠	Overload detector switch and/or Detector switch
⊠	Three phase motor	⊠	Centrifugal switch
⊠	Transformer	⊠	Instrument Gage, Type as Indicated
⊠	Manual motor starter with start-stop-reset pushbuttons and pilot light	⊠	Circuit breaker
⊠	Fuse	⊠	

ELECTRICAL ABBREVIATIONS

EP	Explosion proof (NEMA Type 7)	ETM	Elapsed time
WP	Weather proof (NEMA Type 3R)	∅	Phase
VP	Vapor proof (NEMA Type 4)	P	Pole
LP	Light Panel	COND. or C	Conduit
HOA	Hand-off-auto	W	Wire
FU	Fusible	RV	Reduced voltage
NF	Non-fusible	V	Volts or Volts
PS	Pressure-switch	A	Amperes or
LS	Limit switch	KW	Kilowatts or Kilo-
FS	Float switch	KVA	Kilo-Volt-Amperes
TMR	Timing device- Cycler	T	Thermostat
OL	Overload protection	L	Light sensitive or Loc
SC	Short circuit protection	FMT R	Flow meter transmitter
TDR	Time delay relay	PG XMT R	Pressure gage transmitter
TO-E	Delay opening on energization	BOH	Bearing overheat detector
TO-D	Delay opening on de-energization	WOH	Winding overheat detector
TC-E	Delay closing on energization	AYR	Quantity or size as required
TC-D	Delay closing on de-energization	FMT R RCVR	Flowmeter receiver
EIL	Electrical Interlock	PG RCVR	Pressure gage receiver
MIL	Mechanical Interlock	LG XMT R	Level gage transmitter
CR	Control relay	LG RCVR	Level gage receiver
R	Motor running relay	DEGLF	Dual Element Gurch
S	Motor starting relay	MCC	Motor Control
XFMR	Transformer	FLP	Fusible Lighting Panel



MOTORS (continued)

28	Exhaust Fan - Workshop & Blower Building	1	1/3	1	115	-	-	-	-	Totally Enclosed	Vertical	Direct	Include built-in overload protection
26	Fuel Day Tank	1	-	1	115	-	-	-	-	Open Drip-proof	Horizontal	Direct	Include built-in overload protection
28	Motor Operated Lower - Pumping Station	1	-	1	115	-	-	-	-	Totally Enclosed	Horizontal	Direct	Include built-in overload protection
28	Motor Operated Lower - Workshop & Blower Building	1	-	1	115	-	-	-	-	Totally Enclosed	Horizontal	Direct	Include built-in overload protection

REV. NO.	DESCRIPTION	DATE	BY	APP'D

FINKBEINER, PETTIS & STROUT
LIMITED
CONSULTING ENGINEERS
TOLEDO, OHIO

SCALE
NO SCALE
DESIGNED BY
R.D.T.
DRAWN BY
S.R.D.
CHECKED BY
F.G.D.

ELECTRICAL DETAILS - TAB
WASTEWATER TREATMENT
PLANT IMPROVEMENT
OAK HARBOR