



Addendum No. 2

October 13, 2023

Re: Chicopee Electric Light Bid No. 23-0507
Chicopee Falls Hydroelectric Project Steel Penstock Replacement

From: DuBois & King, Inc.
6 Green Tree Drive
South Burlington, Vermont 05403

To: Prospective Bidders

This Addendum forms part of the Contract Documents and modifies the original Bidding Documents issued for the Chicopee Falls Hydroelectric Project Steel Penstock Replacement project dated September 21, 2023. Acknowledge receipt of this Addendum in the space provided on Page 1 of the Bid Form. Failure to do so will subject the Bidder to disqualification.

I. Contract Document (Bid Document) Changes

None.

II. QUESTION & ANSWERS

QUESTION 1:

Can the RFI due date be extended?

Questions will be received by DuBois & King until Wednesday, October 18 at 4:00 pm. Responses will be provided in Addendum 3 anticipated to be issued on Monday, October 23, 2023.

QUESTION 2:

Can the bid date be extended?

The Owner is willing to extend the bid opening until 11 AM on Tuesday, October 31, 2023. However, this extension will likely delay contract award for approximately 1 month due the requirement to present the Bid Proposals and the Recommendation of Award to the Owner's Board of Commissioners, unless the Owner is able to convene a special meeting the week of November 13th.

QUESTION 3:

Can bids be qualified based on reaching mutually agreed upon contract terms?

Owner is willing to negotiate contract terms as long as modifications do not affect the financial bid submitted.

QUESTION 4:

Will the sump pumps that were being worked on during the pre-bid walk be available for use during construction?

The Owner, through their Operator, Ware River Power shall be responsible for dewatering the worksite and will do everything within their control and the limits of the site to maintain as dry a work area as possible.

QUESTION 5:

Please advise on the extents of the access road repairs that will be complete by the owner prior to construction?

The Owner/Operator will perform some minor repair and leveling of the access road prior to mobilization. However, improvements beyond this “basic restoration” shall be the responsibility of the Contractor. It should be noted that the access road is limited to its existing footprint/width

QUESTION 6:

Will the access road be repaired/regraded prior to mobilization?

Refer to response to Question 5

QUESTION 7:

Does the existing penstock contain lead paint?

The penstocks have not be tested for lead paint and the Owner is not aware of the use of lead paint in the original coatings used on the penstock.

QUESTION 8:

“Proposed Construction Sequence” 1D. States control of water by owner. Is this correct? The specs may indicate differently.

The Owner, through their operator Ware River Power, is responsible for control of water for the project duration.

QUESTION 9:

May we submit a price per day for down time due to high water events that may prevent work from occurring by flooding the work area? Or should this be included in our lump sum price?

The Contractor is to include potential down time due to weather of high water events within the lump sum price.

QUESTION 10:

If the new penstock does not properly fit into the existing concrete saddles, would it be considered extra work to correct the saddles as needed?

General contractor is responsible for all field measurements and survey as needed to install the steel penstock for the limits shown on the drawings. This includes verifying the furnished penstock will fit within the existing concrete saddles. Any saddle modifications, including the associated engineering design and review, associated with the penstock not fitting are the responsibility of the contractor and should be included in the bid.

QUESTION 11:

The specifications 01 5000-4 1.16 call for Engineer office, owner office/laboratory, owner storage/maint trailer, contractor office. Will these all be required for this project?

Field offices are not required for this project. If field offices are provided, they should comply with project specifications.

QUESTION 12:

Supplemental Conditions sec 14.02 “tests, inspections and approvals” subsection “B” states owner shall retain and pay for all inspection services.....”, however Spec 01 40000 Quality Requirement sec 1.06 Testing & Inspection agencies sub section A states the contractor is responsible for and pay for testing services. Please Clarify

Supplemental Condition does not contain sec 14.02, we interpret this to reference General Condition sec 14.02. Contractor is responsible to retain an independent testing agency to perform specified testing.

QUESTION 13:

Are there as - built for the new penstock section previously installed?

Design drawings for the section of the Unit 1 penstock previously replaced are available and attached to this addendum. As-built or record drawings are not available.

QUESTION 14:

Are there any as-builts for the existing Penstock?

Original design drawings for the penstocks are attached to this addendum. As-built or record drawings are not available.

QUESTION 15:

Who is going to be responsible for the dewatering around the exterior of the Penstocks?

The Owner, through their operator Ware River Power, is responsible for control of water for the project duration.

QUESTION 16:

Do you have any contact information on who the previous supplier was for the section of penstock which was replaced?

The Owner believes the steel used for the section of penstock previously replaced was supplied by Troy Boiler in Troy, NY. He does not have a POC at Troy Boiler. The relationship with the contractor who performed the work is “fractured” and the Owner would prefer to not provide that information at this time.

QUESTION 17:

On Sheet 2 of 10, Steel Section, note 8 calls out UHMW Pads manufactured by Garland Manufacturing Co or Equal. After reviewing the plans, Garland Representatives have requested more detail on what needs to be provided, specifically length, width & thickness of the pads to accurately price the work.

UHMW pads to have dimensions that match the saddle width and full contact areas of the penstock with the concrete saddle. General contractor is responsible for all field measurements and survey as needed to install the steel penstock for the limits shown on the drawings. This includes determining the UHMW pad thickness required to maintain contact between the penstock and concrete saddle.

QUESTION 18:

Would “ProCore” be an acceptable alternative to the Web-Based Electronic Submittal system listed in spec section 01 3000 paragraph 3.11 A?

ProCore is an acceptable alternative.

QUESTION 19:

Specification section 01 5000 paragraph 1.16 refers us to section 01 5250 for further details but this section is not contained in the Project Documents. Can this information be provided prior to bid?

Field offices are not required for this project, please omit reference to section 01 5250. If field offices are provided, they should comply with project specifications.

QUESTION 20:

Please clarify what should be included on “Contractor’s Rate Sheet” requested in Article 2.10 section F. Will the Rate sheets be kept confidential after bid opening?

The Contractor Rate Sheet should include standard labor and equipment rates that can be referenced if it becomes necessary to request a change order using a Time and Material approach. The breadth of information to be provided is at the discretion of the bidder. Per Massachusetts bidding laws, Information submitted with the bid becomes public record.

QUESTION 21:

Would you please consider extending the bid 1 week to allow us more time to allow the penstock fabricators enough time to bid the project?

Refer to response to Question 2

QUESTION 22:

At the pre-bid walkthrough it was mentioned that the owner will be responsible for dewatering during construction. We noticed that there is a significant active leak into the work area. Please define to what extent the owner will be responsible for maintaining a dry work area by the penstocks? Can the contractors assume that the work area will be maintained dry by the owner requiring no dewatering effort on the contractors part?

The Owner, through their Operator, Ware River Power shall be responsible for dewatering the worksite and will do everything within their control and the limits of the site to maintain as dry a work area as possible.

QUESTION 23:

Section 1/ drawing page 8 . “Replace deteriorated portion of existing penstock invert with 3/8” plate. Can you give us an estimated size for this replacement area, or could we call it an “extra” if it is needed at the top or bottom of the new to old penstock connections?

Please reference demolition keynote E on sheet 5 for approximate limits of replacement area.

QUESTION 24:

I don’t see a thickness of the UHMW pads that go under the new penstock at the saddles.

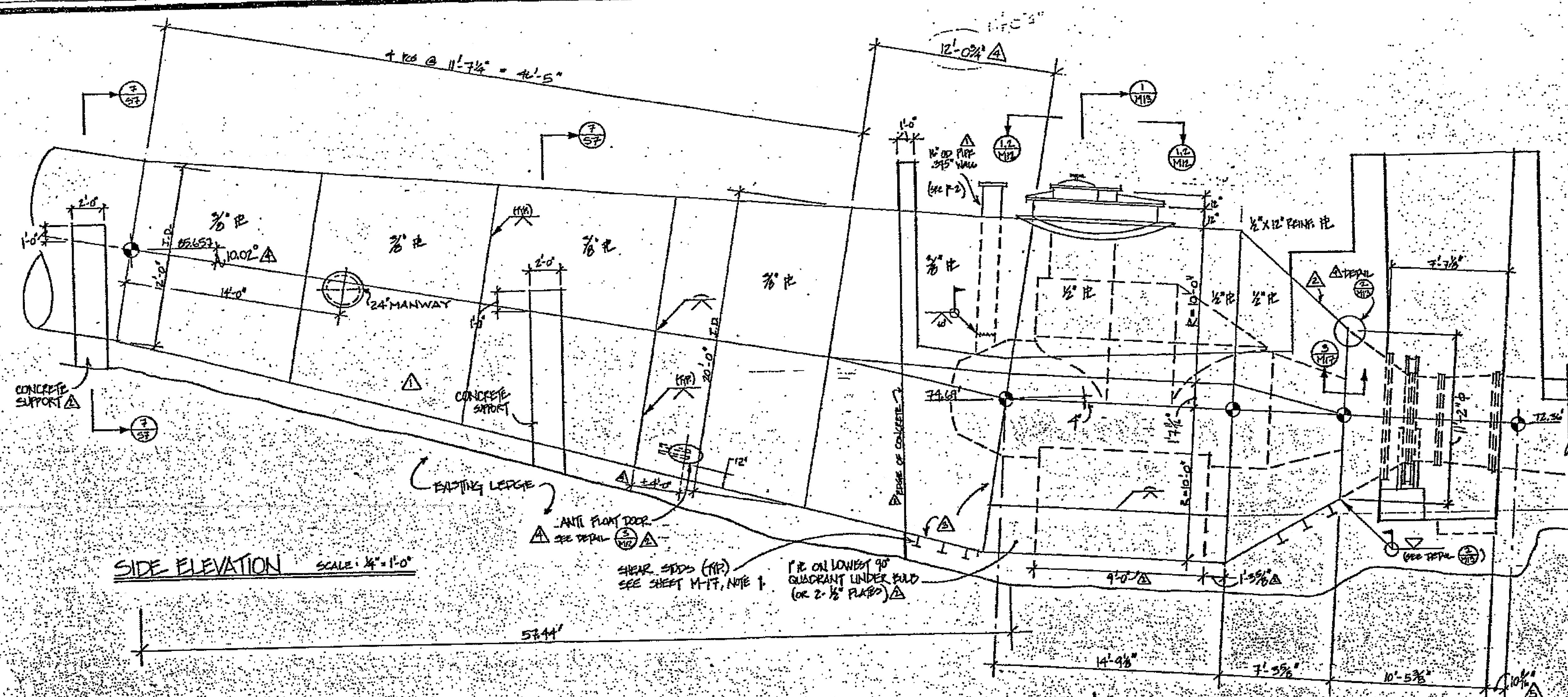
UHMW pads to have dimensions that match the saddle width and full contact areas of the penstock with the concrete saddle. General contractor is responsible for all field measurements and survey as needed to install the steel penstock for the limits shown on the drawings. This includes determining the UHMW pad thickness required to maintain contact between the penstock and concrete saddle.

III. ATTACHMENTS

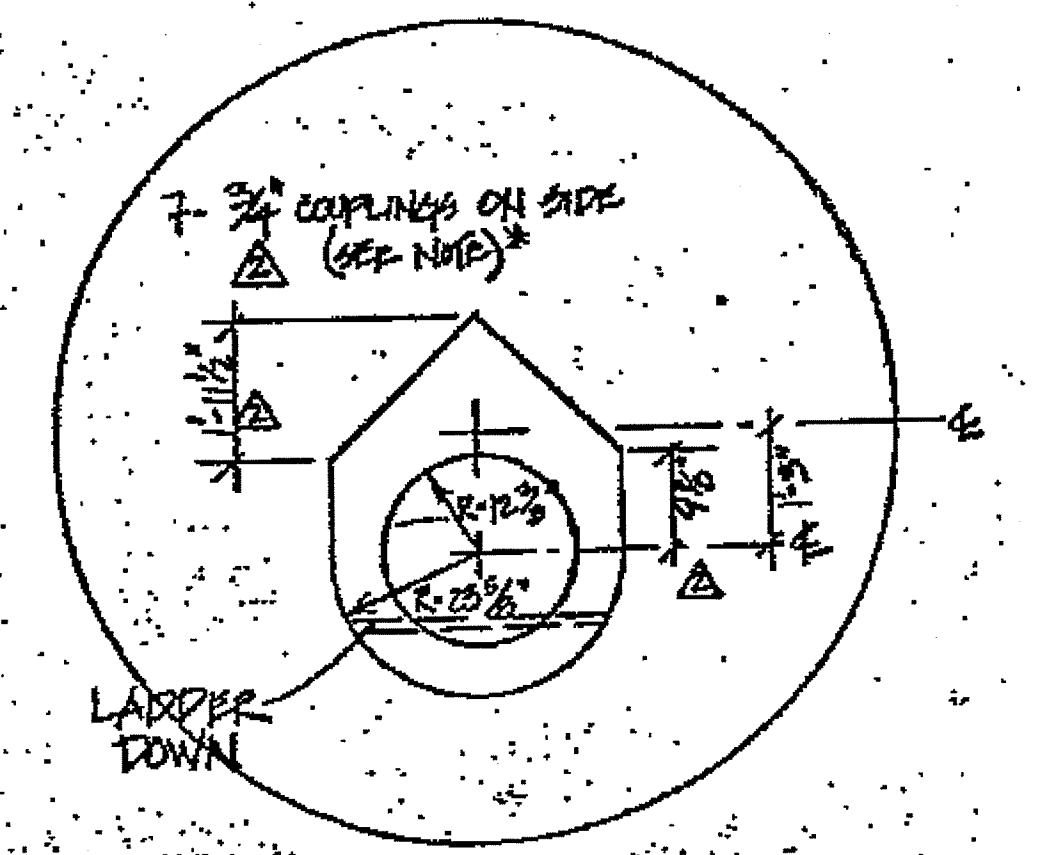
1. Original design drawings titled “Chicopee Hydroelectric” prepared by Chris Hosford.
2. Unit 1 steel penstock repair Issued for Construction drawings titled “Chicopee Hydroelectric Project – Steel Penstock Rehabilitation” prepared by Kleinschmidt.

This document constitutes Addendum 2 for this project.

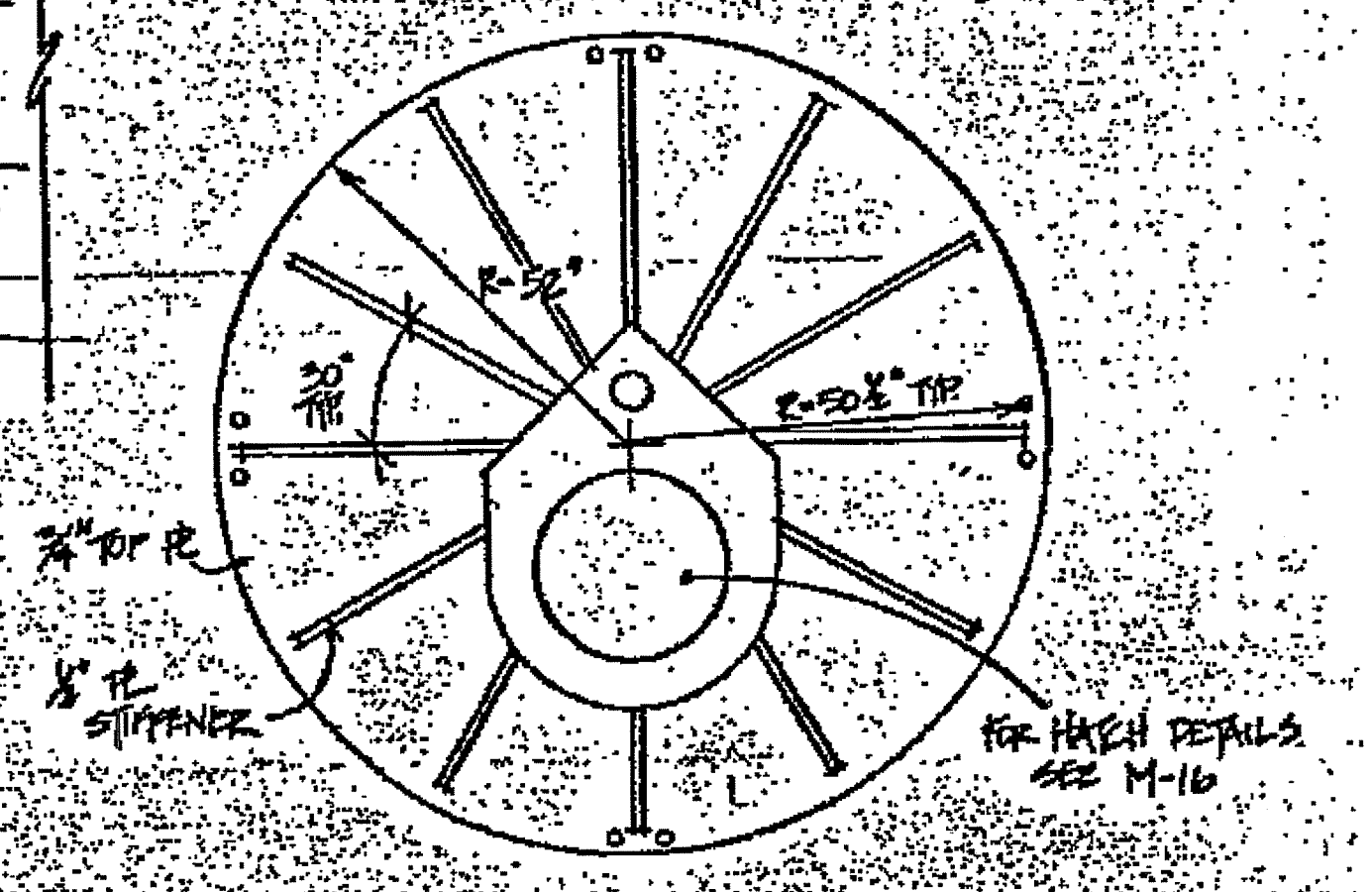
* NOTE: COUPLING LOCATED ON SIDE OF HATCH DOWNWARD & OF PROJECT (SEE SHEET F-10)



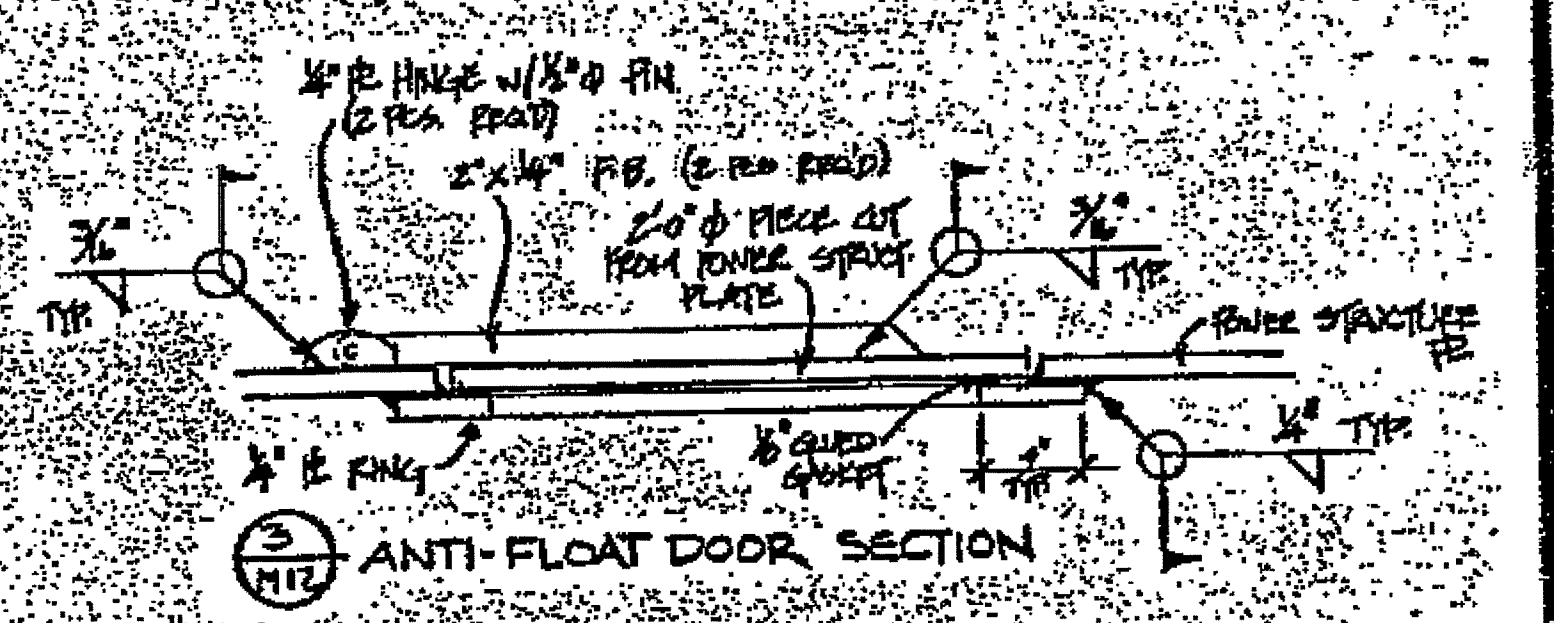
SIDE ELEVATION SCALE: 1/4" = 1'-0"



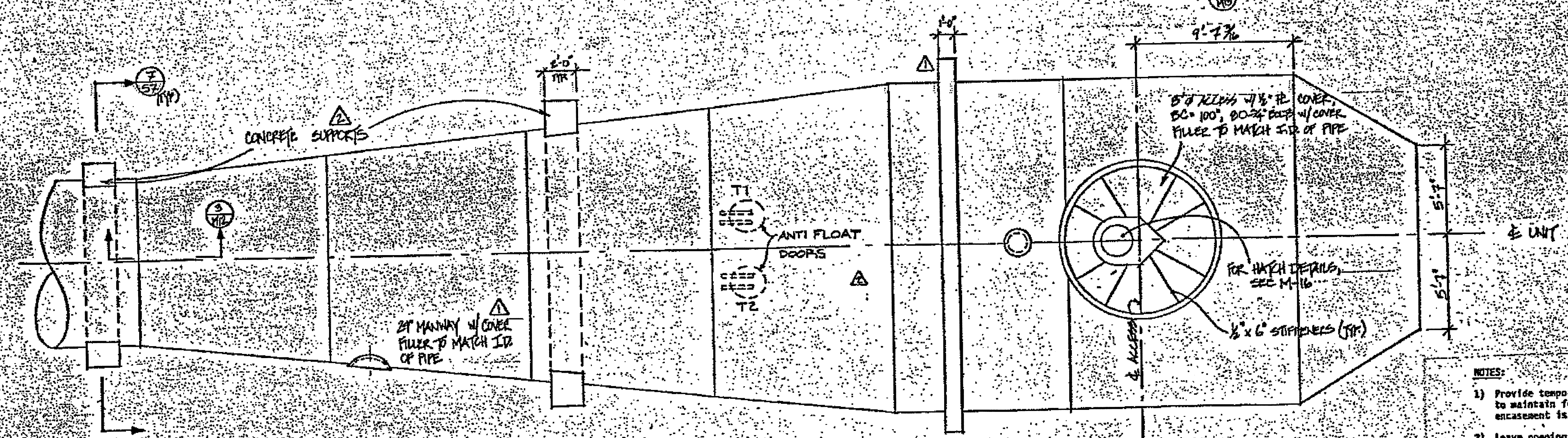
SECTION 2 SCALE: 1/2" = 1'-0"



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



ANTI-FLOAT DOOR SECTION



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

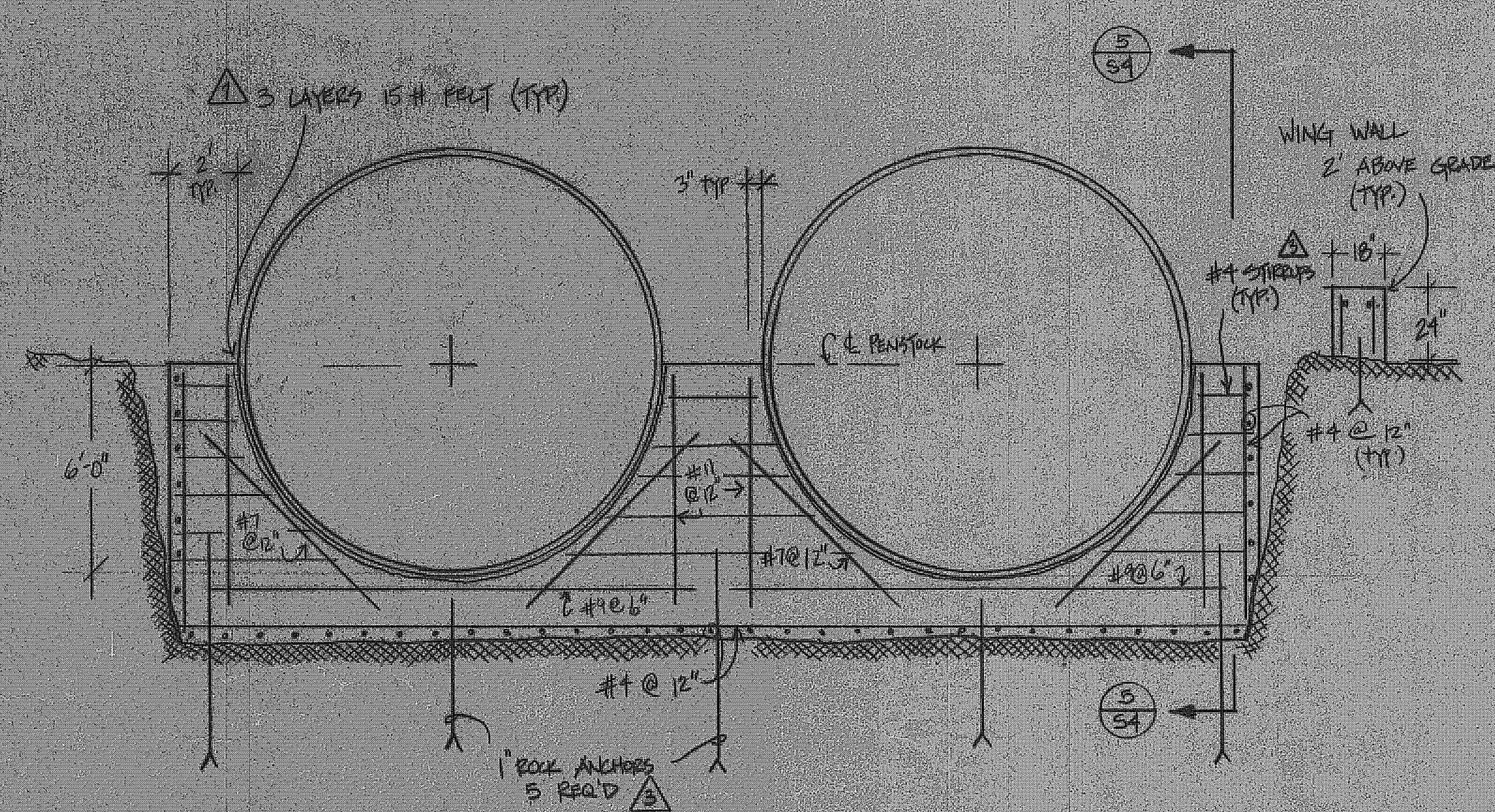
- NOTES:
- 1) Provide temporary bracing for plating to maintain form while concrete encasement is placed.
 - 2) Leave opening in top of plating to erect machinery.
 - 3) All welds to be full penetration butt welds ground flush with inside of pipe.
 - 4) All dimensions are inside of pipe.

6	11-14-83	AS BUILT	SAH
5	10/1/84	DIMENSIONAL CHANGE @ SHOP OF IDENTIFIED	KPA
4	7-9-84	ANGLE CORRECTION, NEW TIE	KPA
3	6-20-84	DIMENSIONAL CORRECTIONS	KPA
2	6-4-84	SEAMS, COUPLINGS, SUPPORTS, WELDS	KPA
1	4-20-84	CROSS-SECTION CONCRETE	KPA
02			

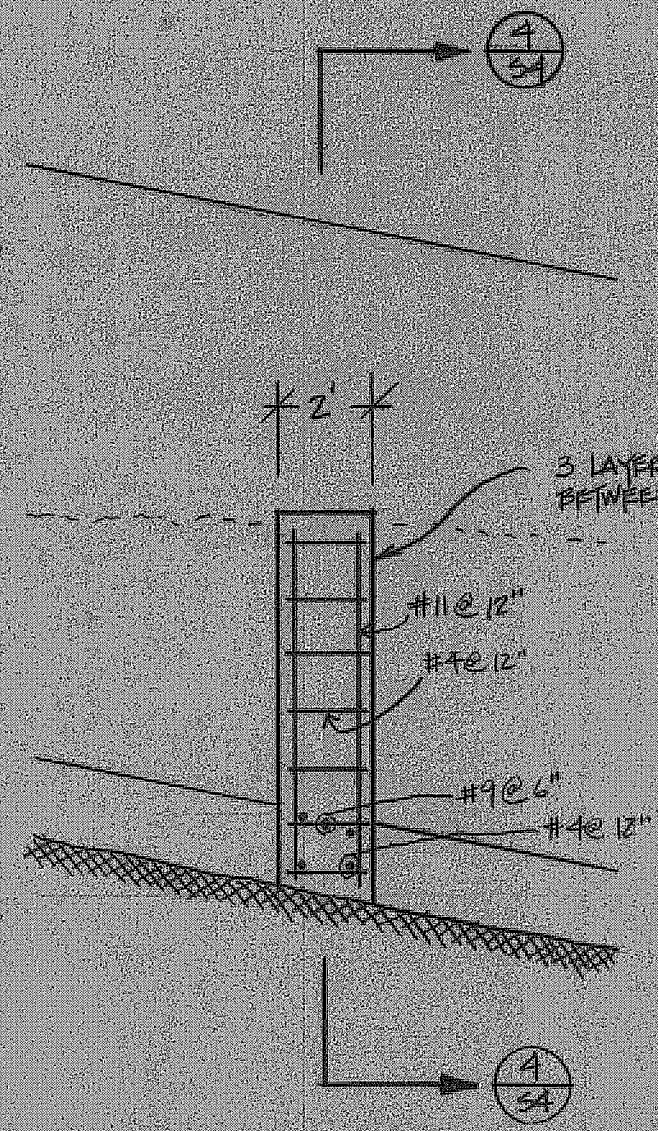
POWER STRUCTURE PLAN & ELEVATION FOR FABRICATION
 CHICOFEE HYDROELECTRIC SRC/DOC

CHRIS HOSFORD, INC.
 3179 Main Street
 BARNSTABLE, MASSACHUSETTS 02630
 (617) 362-4561

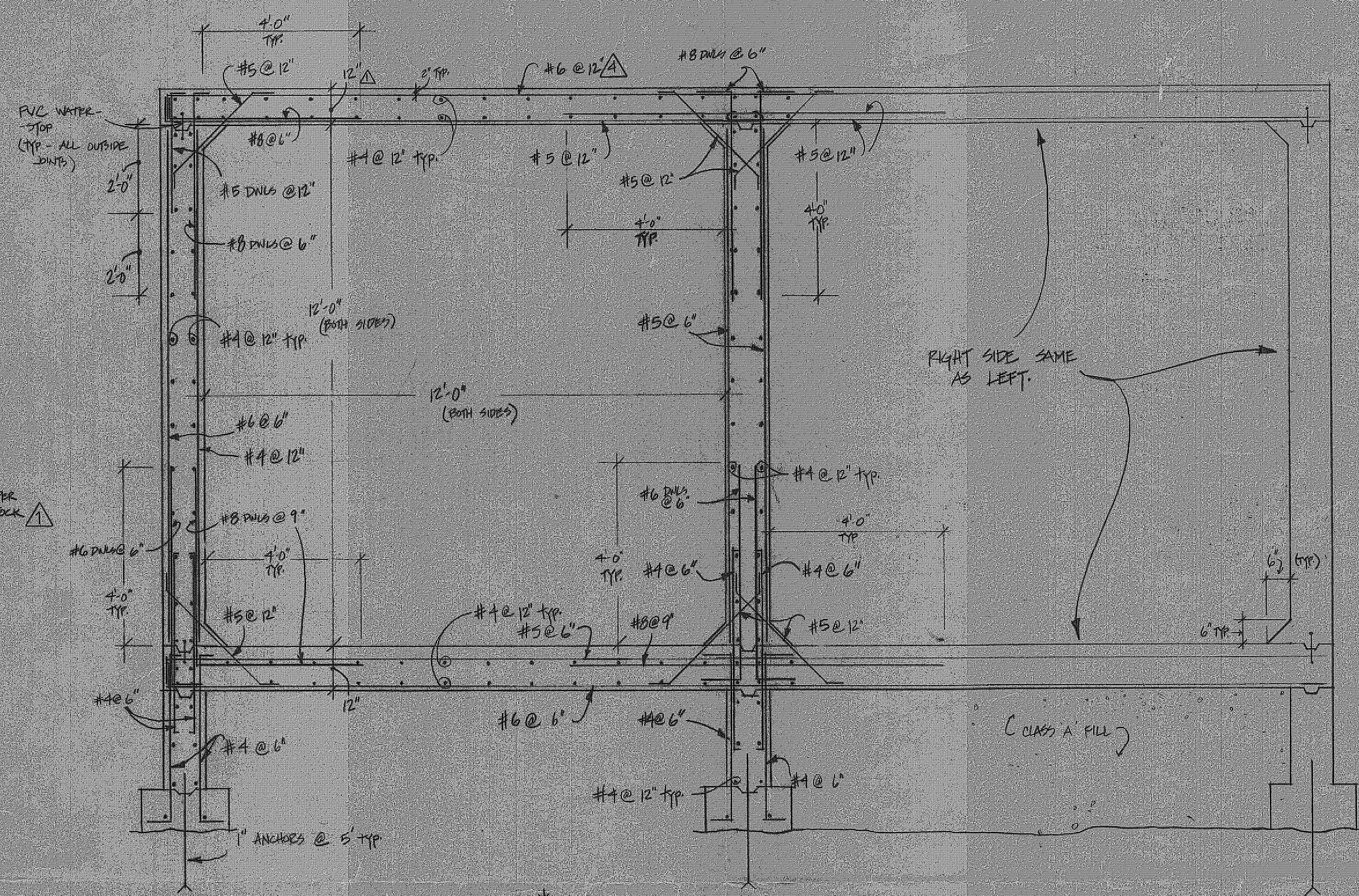
M12
 1 of 1 sheets



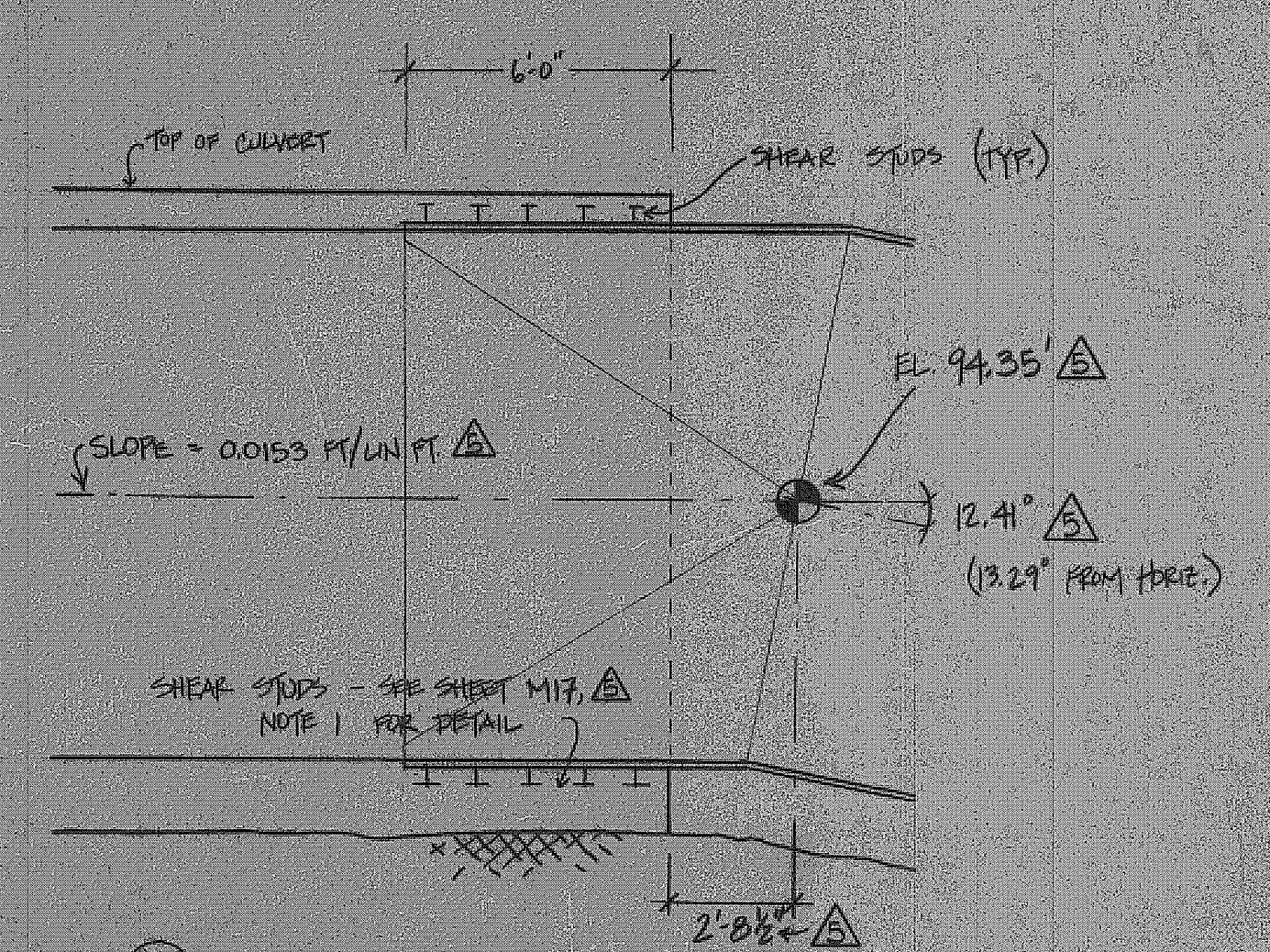
SECTION 4/54 PENSTOCK SUPPORT @ STATION 3+73.5 (ALONG 4)
SCALE: 1/4" = 1'-0"



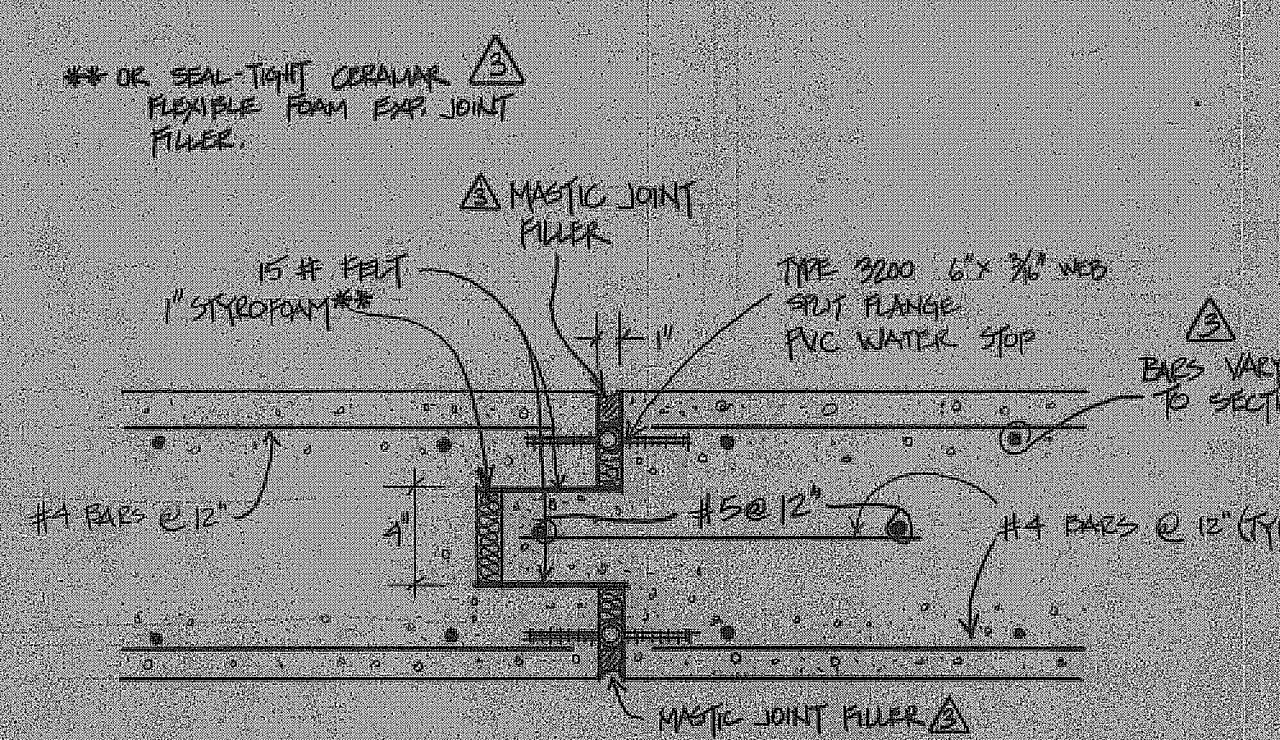
SECTION 5/54
SCALE: 1/4" = 1'-0"



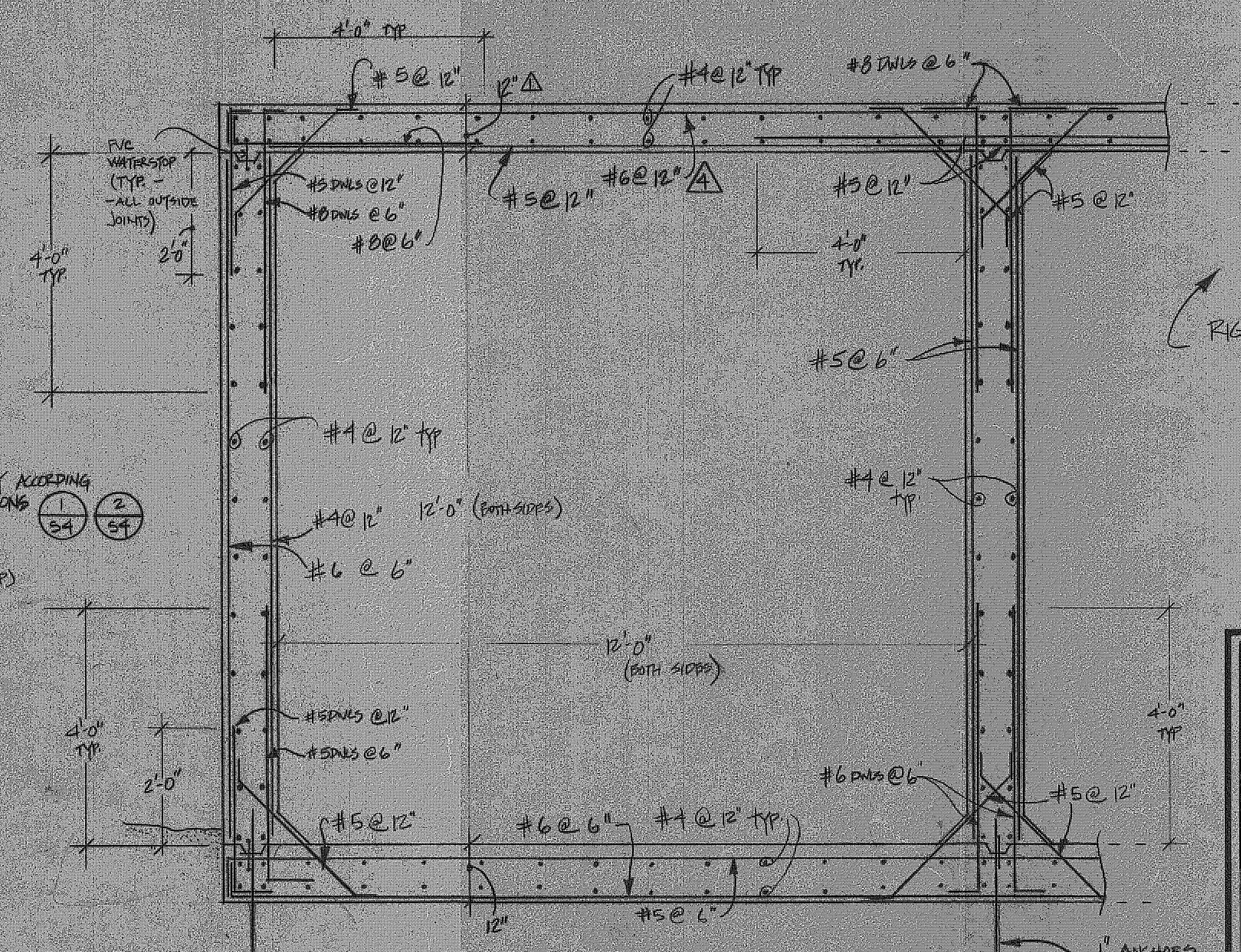
REINFORCING LAYOUT SECTION 1/54
SCALE: 1/2" = 1'-0"



SECTION 6/54 CULVERT/PENSTOCK TRANSITION
SCALE: 1/4" = 1'-0"

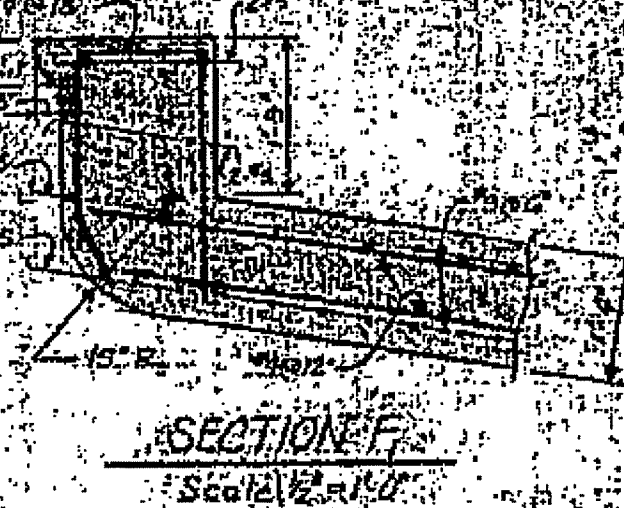
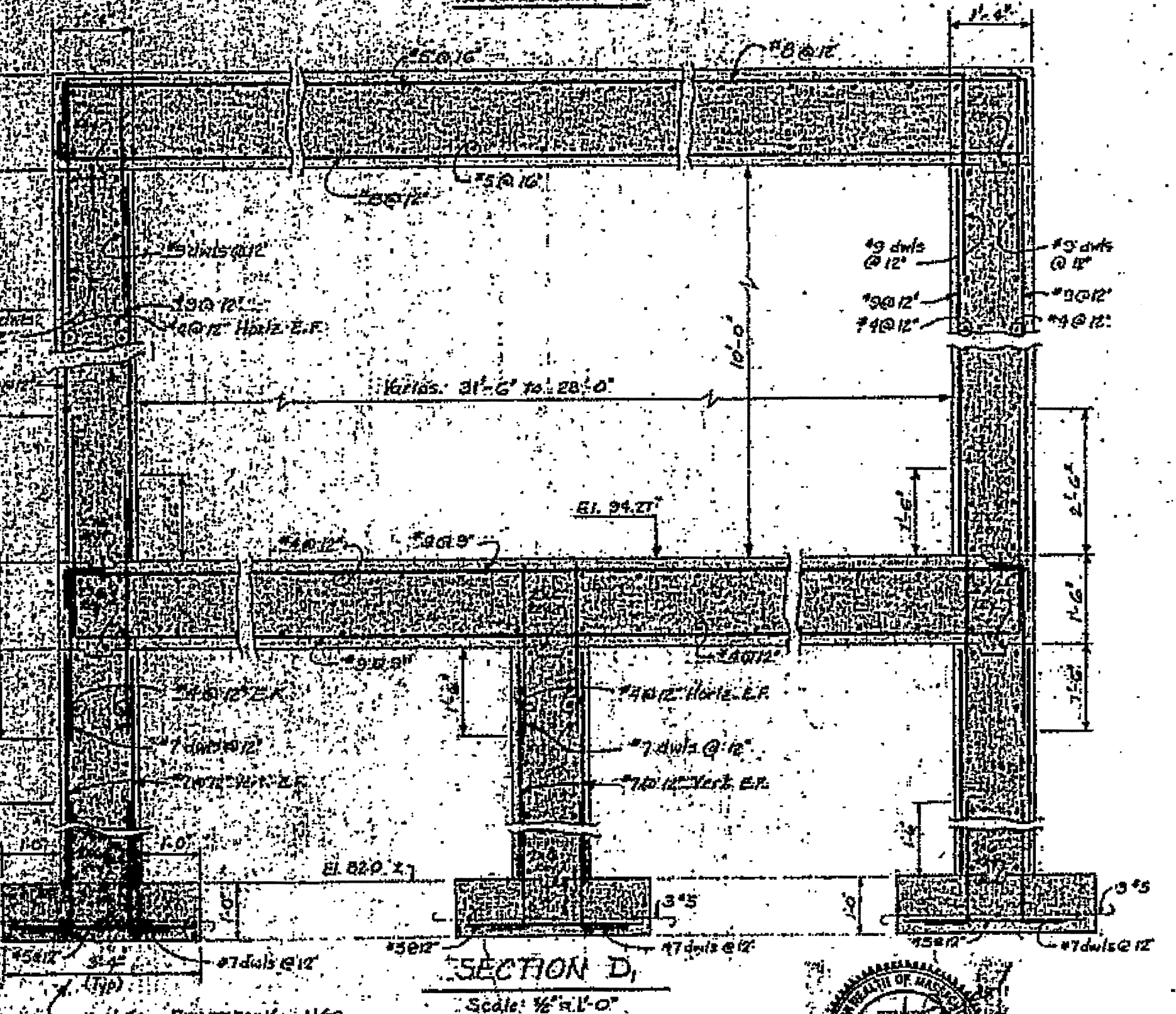
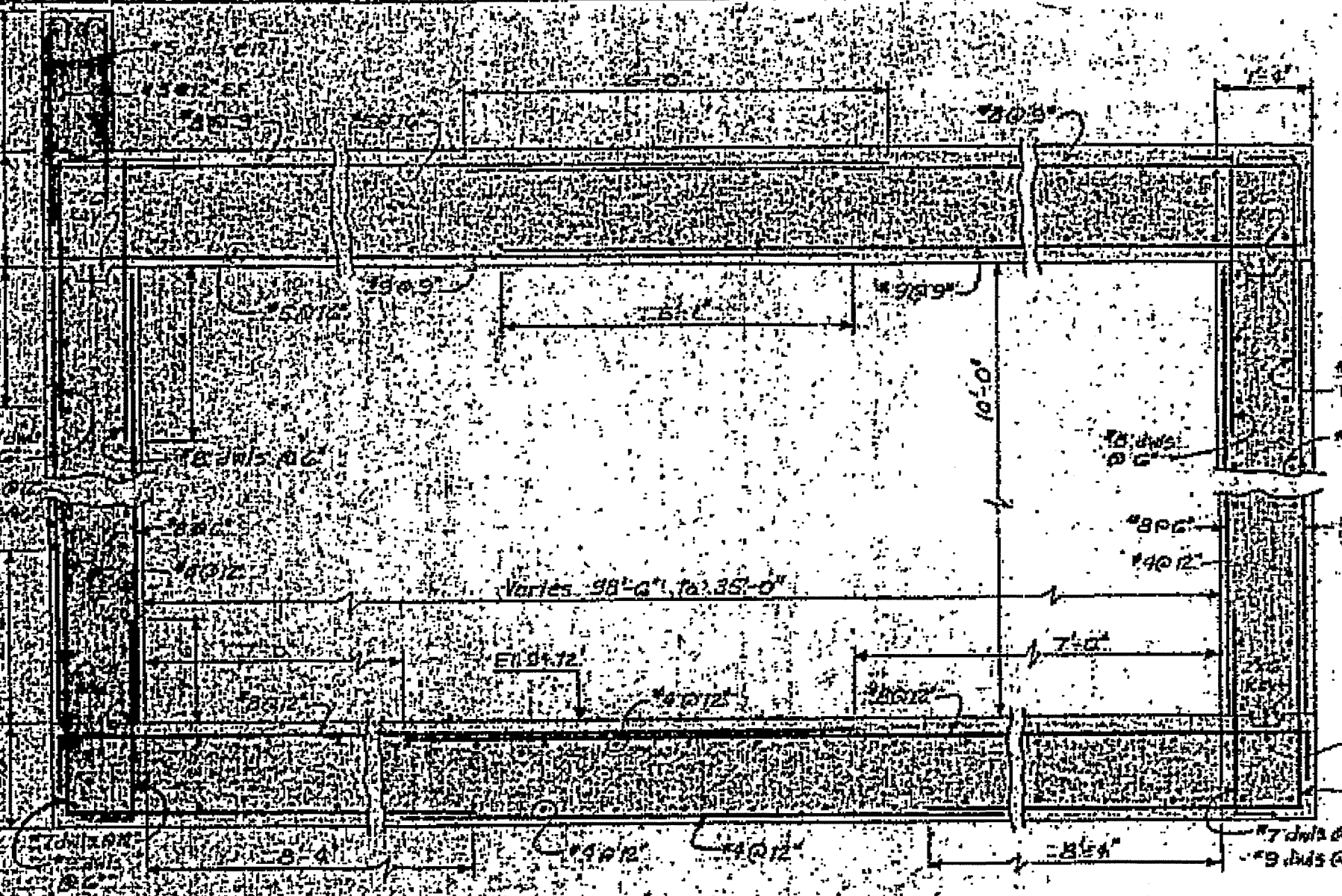
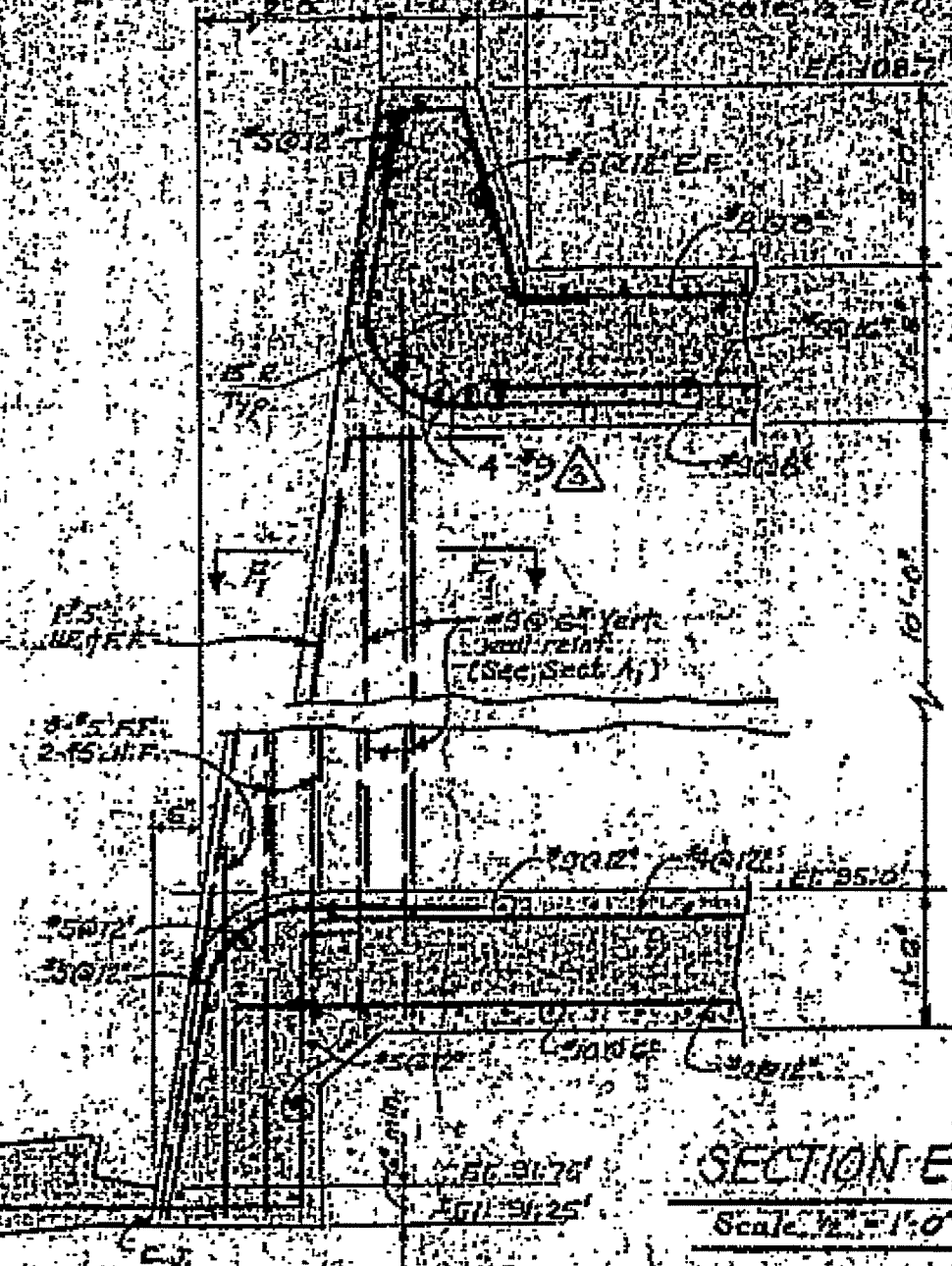
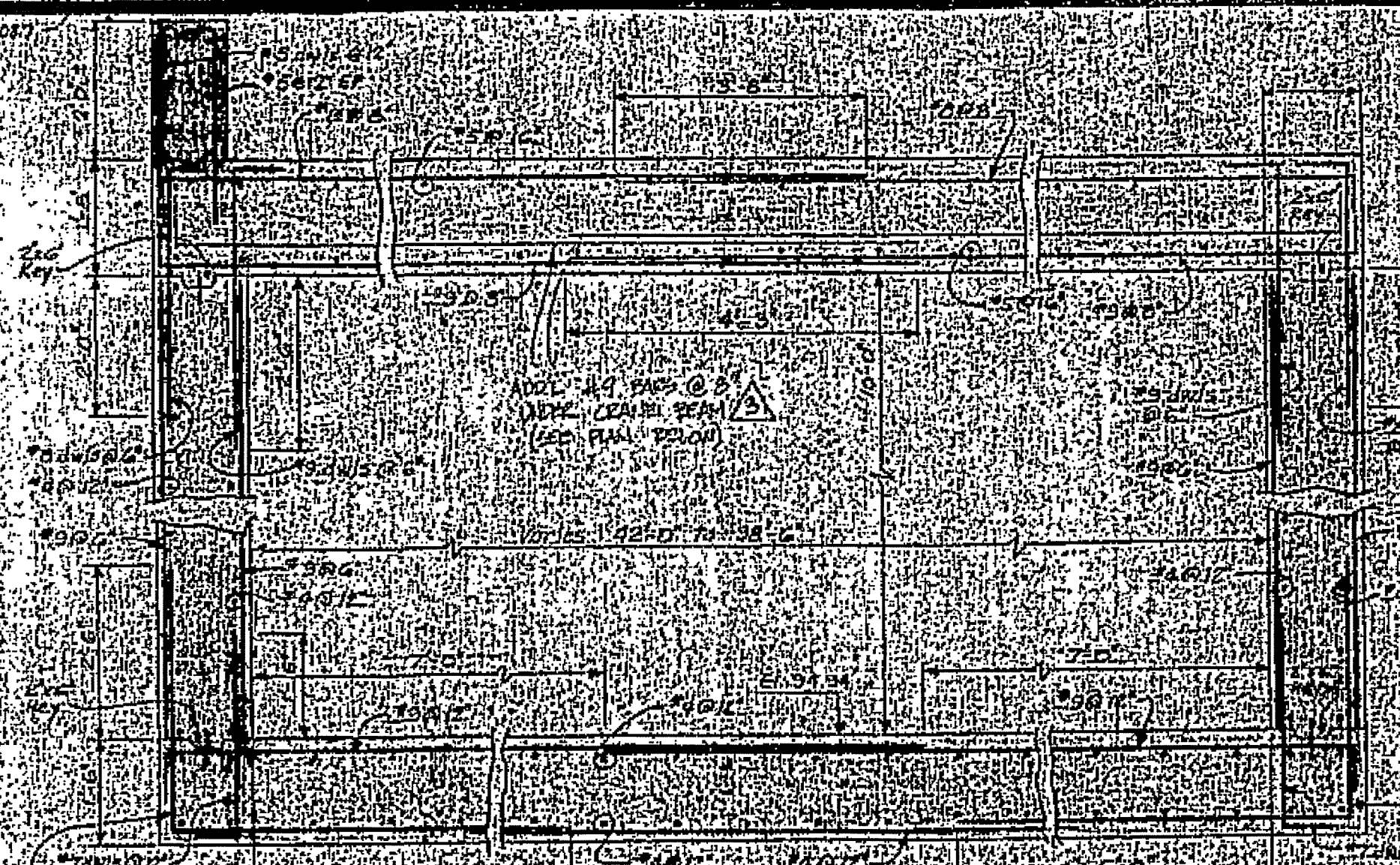
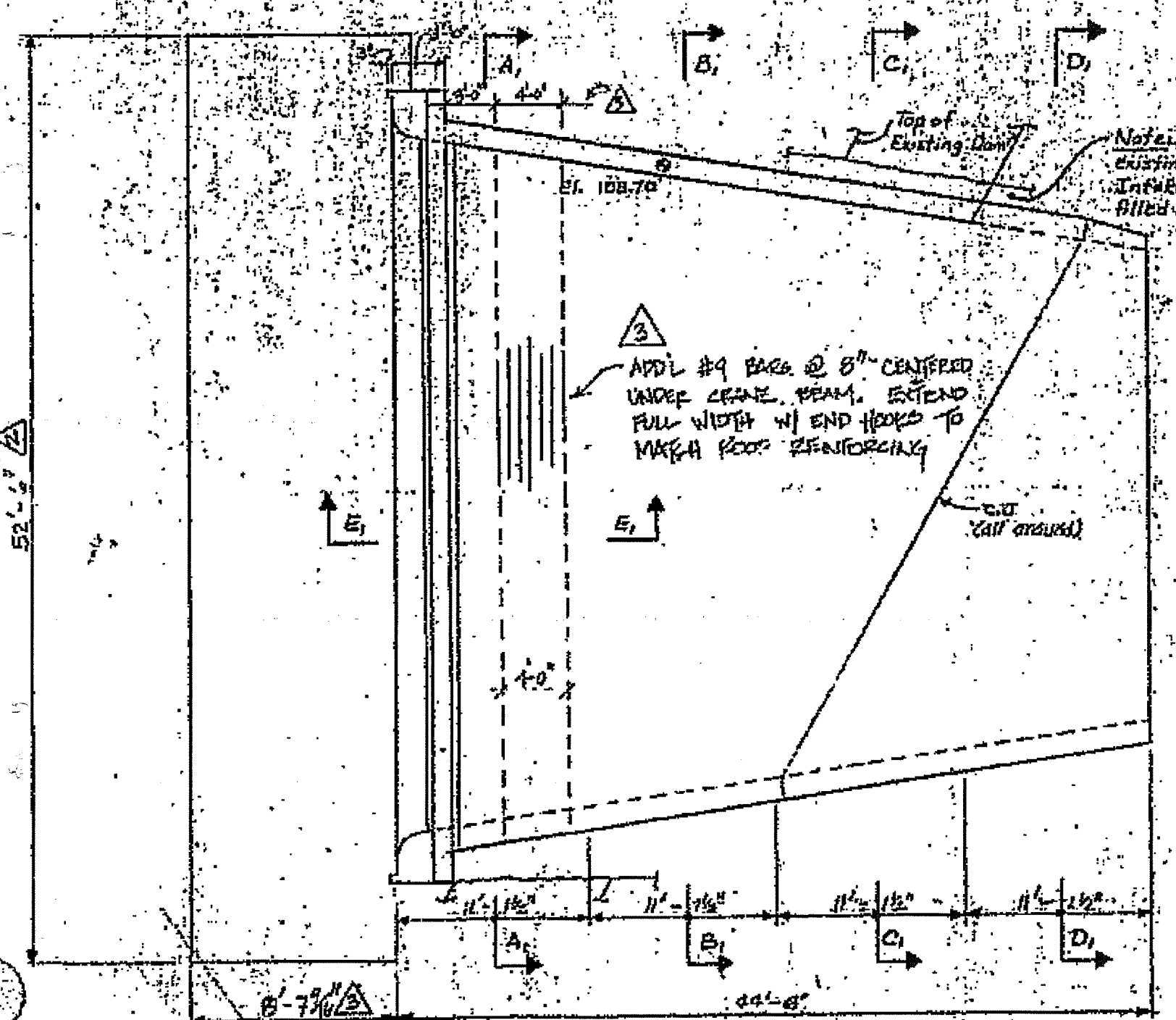
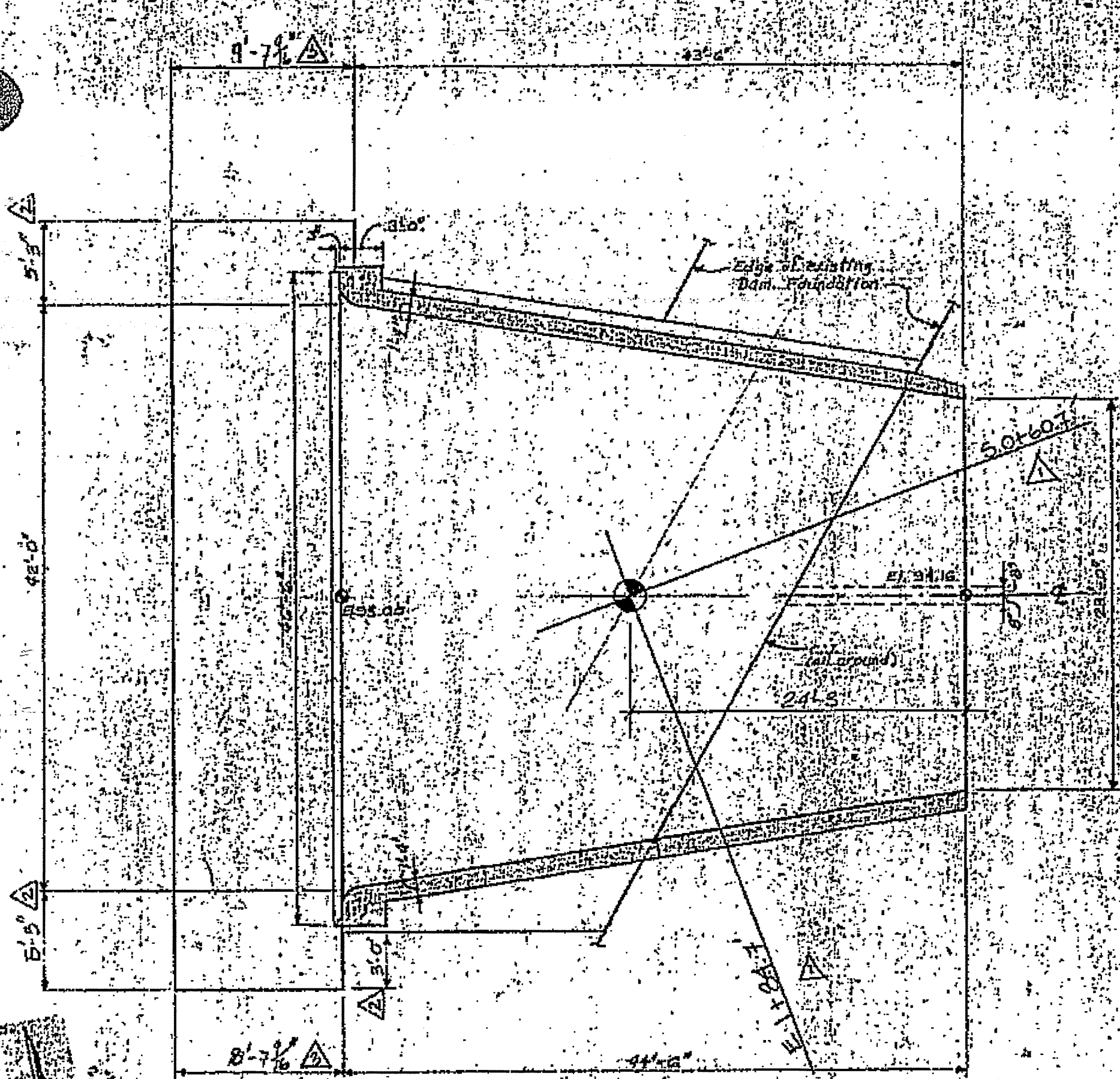


EXPANSION JOINT DETAIL (TYP) SECTION 3/54
SCALE: 1/2" = 1'-0"



REINFORCING LAYOUT SECTION 2/54
SCALE: 1/2" = 1'-0"

5 7-9-84 TRANSITION FLOOR NOTES				KFA
1	6-28-84	CHANGE TOP PERMS SECTION 1+2		KFA
3	6-15-84	FE BAR REVISIONS		KFA
2	5-14-84	RE BAR REVISIONS		KFA
1	5-1-84	FELT PAPER, CONCRETE THICKNESS		KFA
NO.	DATE	REVISION	BY	
PROJECT TITLE				
BOX CULVERT / CONCRETE DETAILS				
PROJECT				
CHICOPEE HYDROELECTRIC SWIFT RIVER COMPANY				
DRAWING NO.				
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561				
				S4
				OF 1 SHEETS



* NOTE - REINFORCING ALSO APPLICABLE TO CURBET BETWEEN INTAKE AND BIPURCATION (SEE SECTION REFERENCED ON S2).

GENERAL NOTES

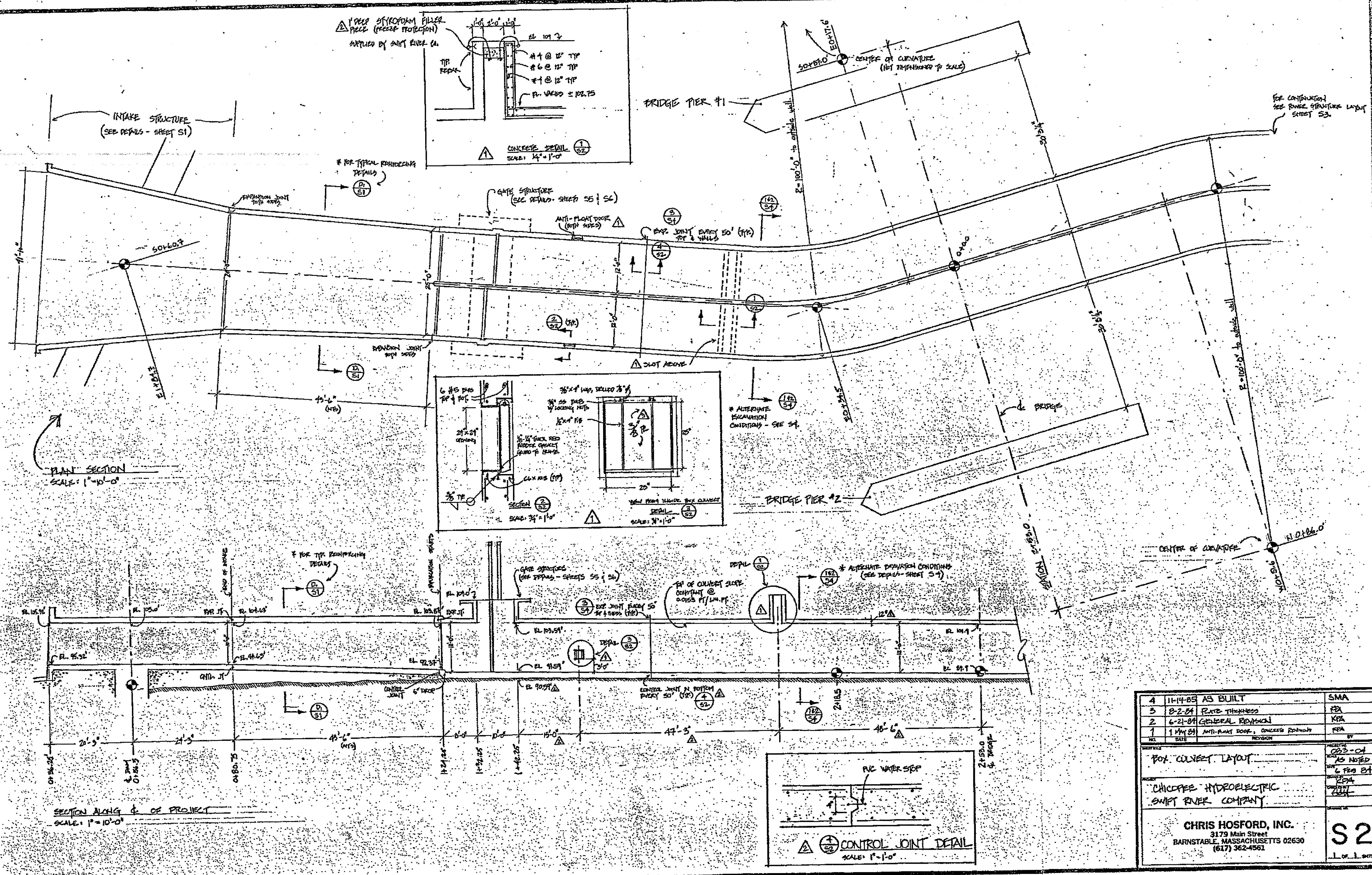
- Concrete shall be ACI No. 1 having a minimum 28 day compressive strength of 4000 psi. Refer to the Cast-In-Place Concrete Specification for this project for trial mix designs, testing, placing and all other requirements.
- Reinforcing steel bars shall be ASTM A-615, Grade 60.
- Design live load - Roof - 100 psf.
- Indicates construction joint.
- Structural steel shall be ASTM A-36 grade.
- General Contractor shall verify existing conditions, dimensions, elevations, etc. prior to construction.
- Provide proper camber at midspan of roof formwork to compensate for dead load deflection as directed.
- PVC WATER STOP TO BE 9" WIDE, 1/2" THICK, TYPE B030, CSH



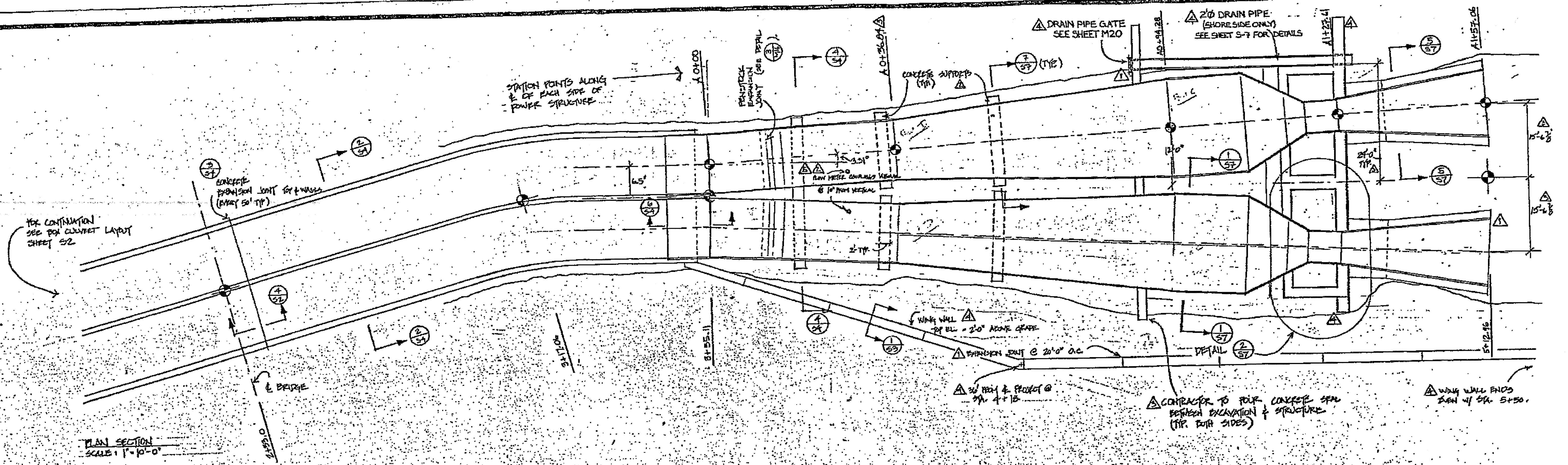
SNYDER ASSOCIATES
CONSULTING ENGINEERS
WEAVERDALE RD. FLORENCE MA
01067
WEST CHATHAM, MA 02550

NO.	DATE	REVISION	BY
1	6-20-84	ADD BARS / DIMENSIONS REVISIONS	VPA
2	6-21-84	DIMENSION REVISIONS FOR TRENCH	VPA
3	7/84	ADD NOTE ON ESBAR LIGANDS	CSH

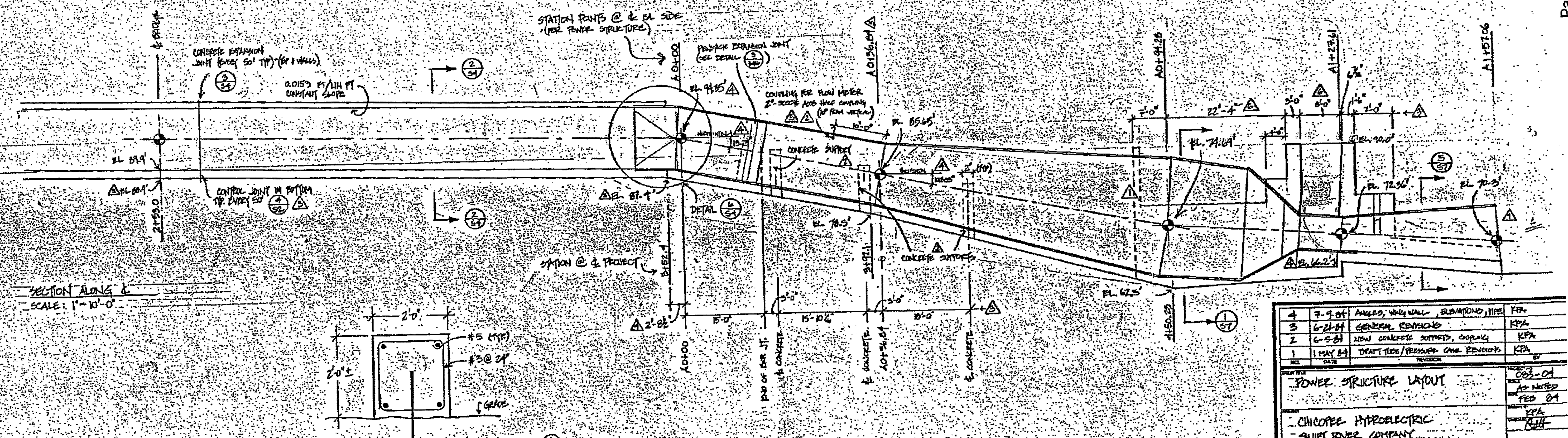
PROJECT	INTAKE STRUCTURE	PROJECT NO.	OBS-04
CLIENT	CHICOPEE HYDROELECTRIC DOC/SRC (AJVC)	DATE	05 noted 11/21/83
DESIGNER	CHRIS HOSFORD, INC.	CHECKED BY	FWW
DATE	3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561	APPROVED BY	CSH
		SCALE	S-1



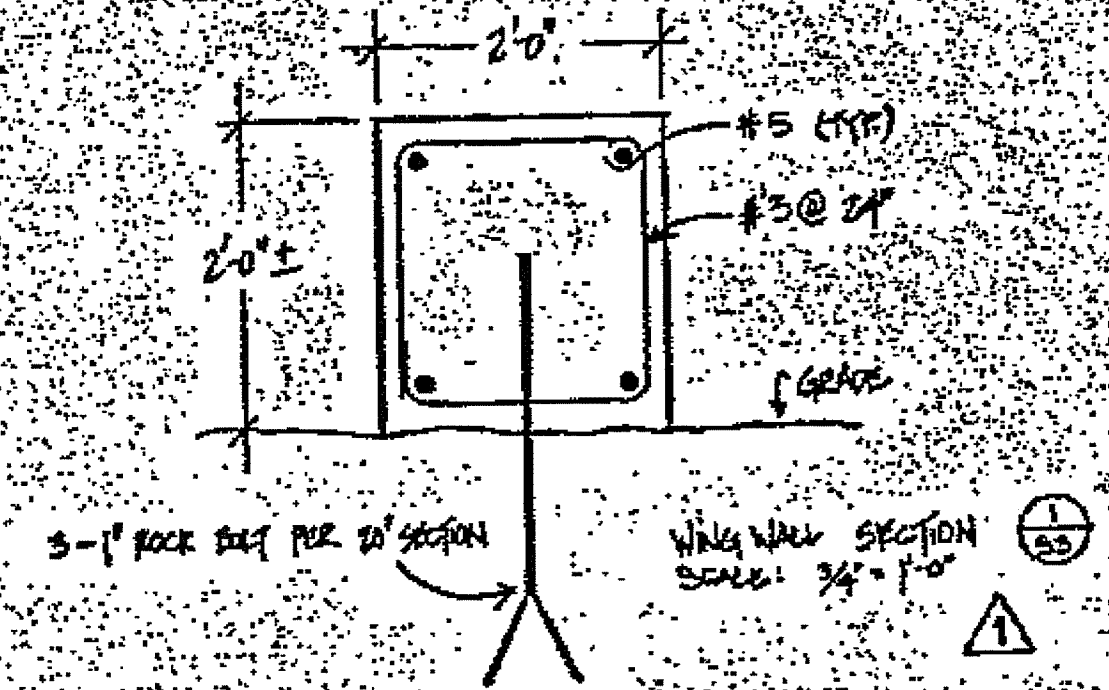
4	11-14-88	AS BUILT	SMA
5	8-2-84	PLATE THICKNESS	FEA
2	6-21-84	GENERAL REVISION	KFA
1	1 MAY 84	ANTI-FLOAT DOOR, CONCRETE REINFORCE	FEA
NO.	DATE	REVISION	BY
BOX COLLECT LAYOUT			023-04 AS NOTED 6 FEB 84
CHICPEE HYDROELECTRIC SWIFT RIVER COMPANY			FEA KFA
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561			S2 1 OF 1 SHEETS



PLAN SECTION
SCALE: 1" = 10'-0"



SECTION ALONG E
SCALE: 1" = 10'-0"



WING WALL SECTION
SCALE: 3/4" = 1'-0"

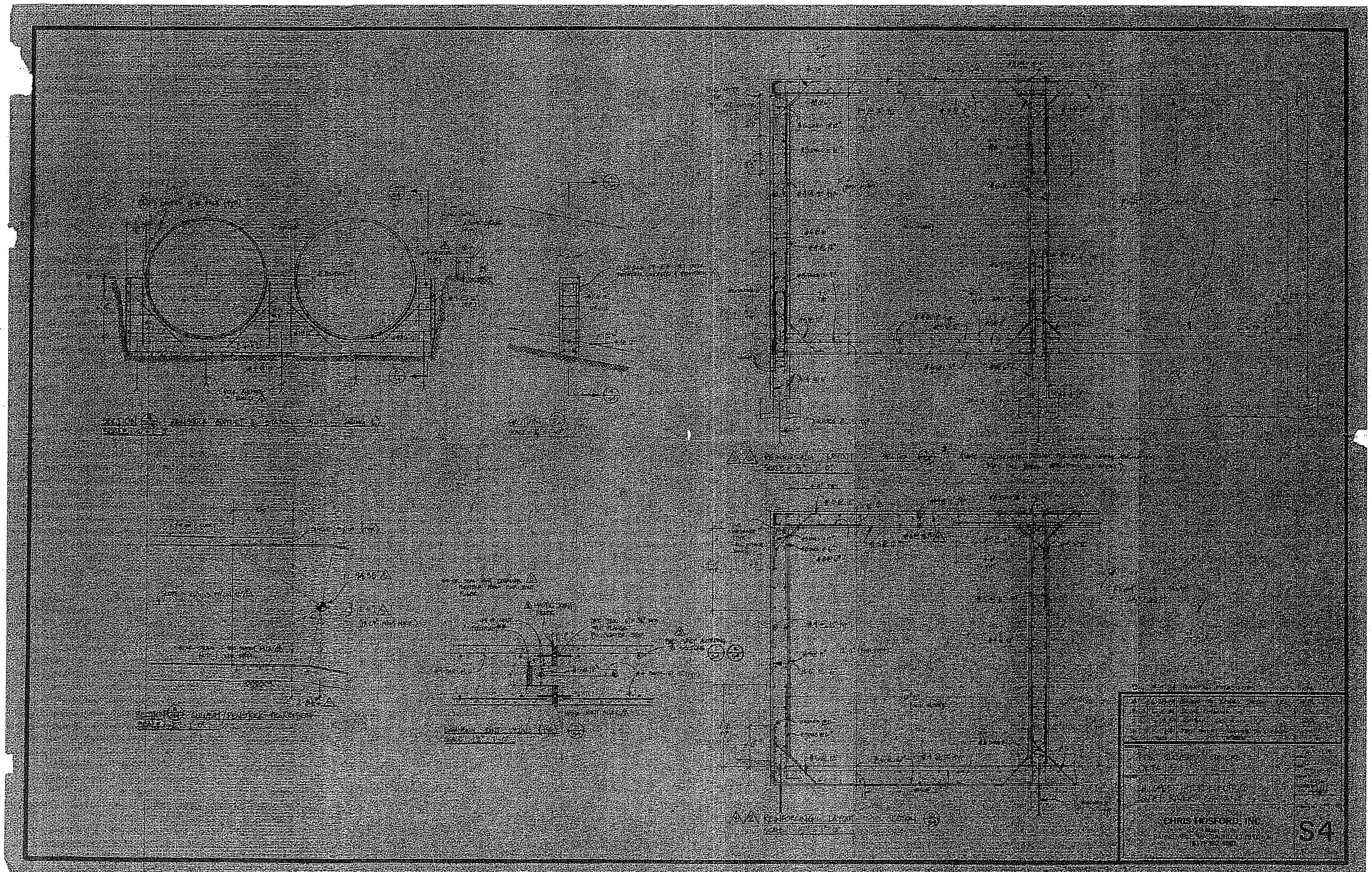
7	11-14-85	AS BUILT	SMA
6	10/1/84	DIMENSIONS	KPA
5	9/10/84	FLOW HERE LAYOUT	KPA

4	7-7-84	ALICES, WING WALL, BRAMPONS, PIPE	KPA
3	6-21-84	GENERAL REMARKS	KPA
2	6-5-84	NEW CONCRETE SUPPORTS, CORRUG.	KPA
1	1 MAY 84	DRAFT TUBE/BRAMPON CORR. REMARKS	KPA

POWER STRUCTURE LAYOUT
 CHICOPPE HYDROELECTRIC
 SWIFT RIVER COMPANY
 CHRIS HOSFORD, INC.
 3179 Main Street
 BARNSTABLE, MASSACHUSETTS 02630
 (617) 362-4562

003-04
 AS NOTED
 FEB 84
 KPA
 CHH

S3
 L.O.L. 10/11/85



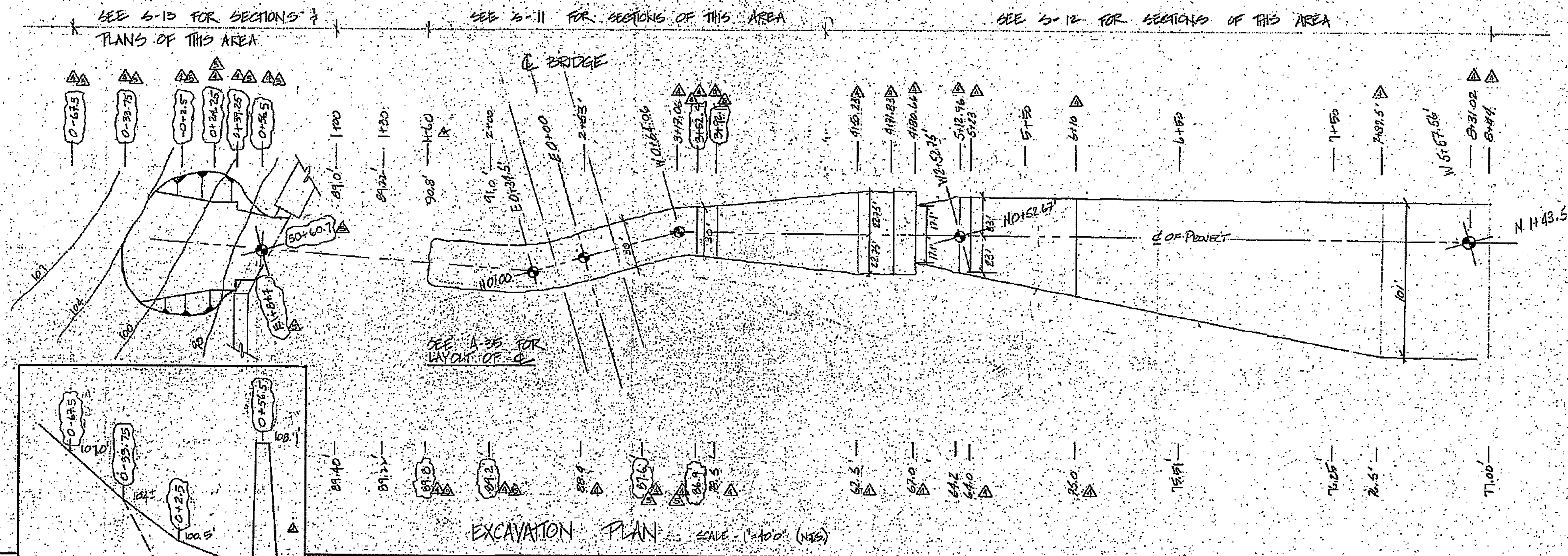
DATE: 10/15/10
DRAWN BY: [illegible]
CHECKED BY: [illegible]
APPROVED BY: [illegible]
S4

STATION ALONG ϕ OF PROJECT

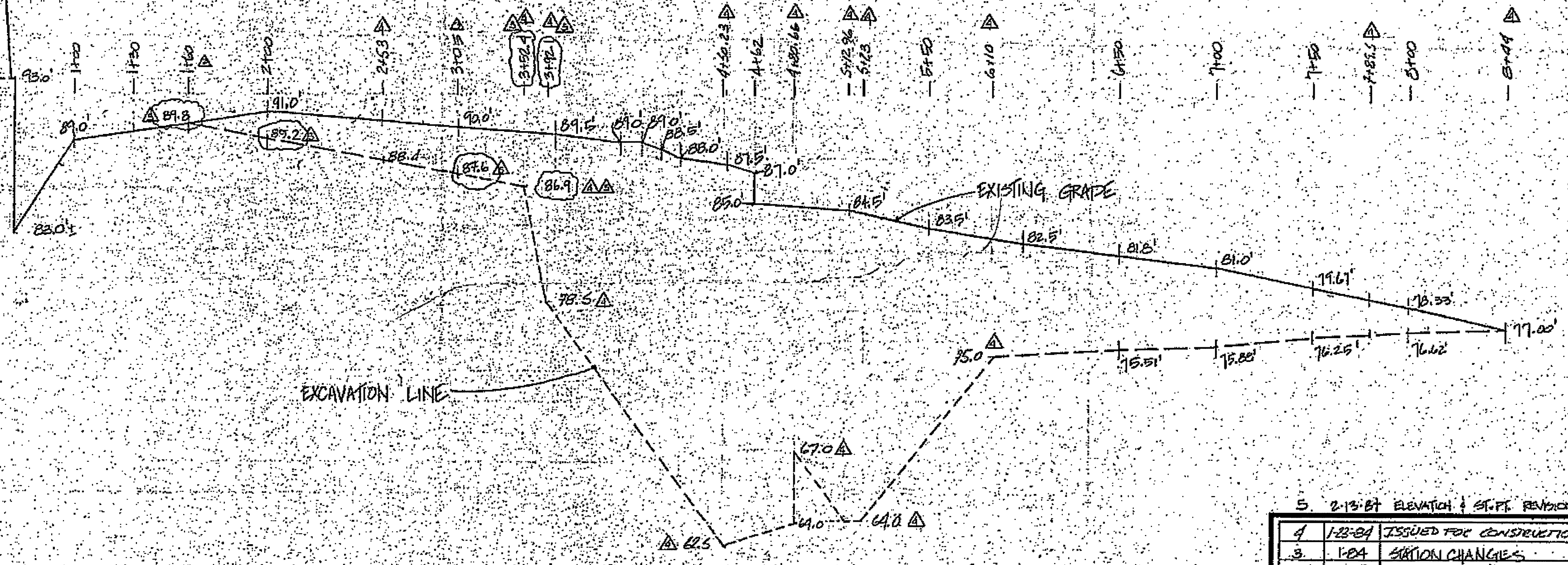
EXISTING GRADE

EDGEM OF EXCAVATION

STATION ALONG ϕ OF PROJECT



EXCAVATION SECTION HORIZONTAL SCALE 1"=100' (N.T.S.) VERTICAL SCALE 1"=50'

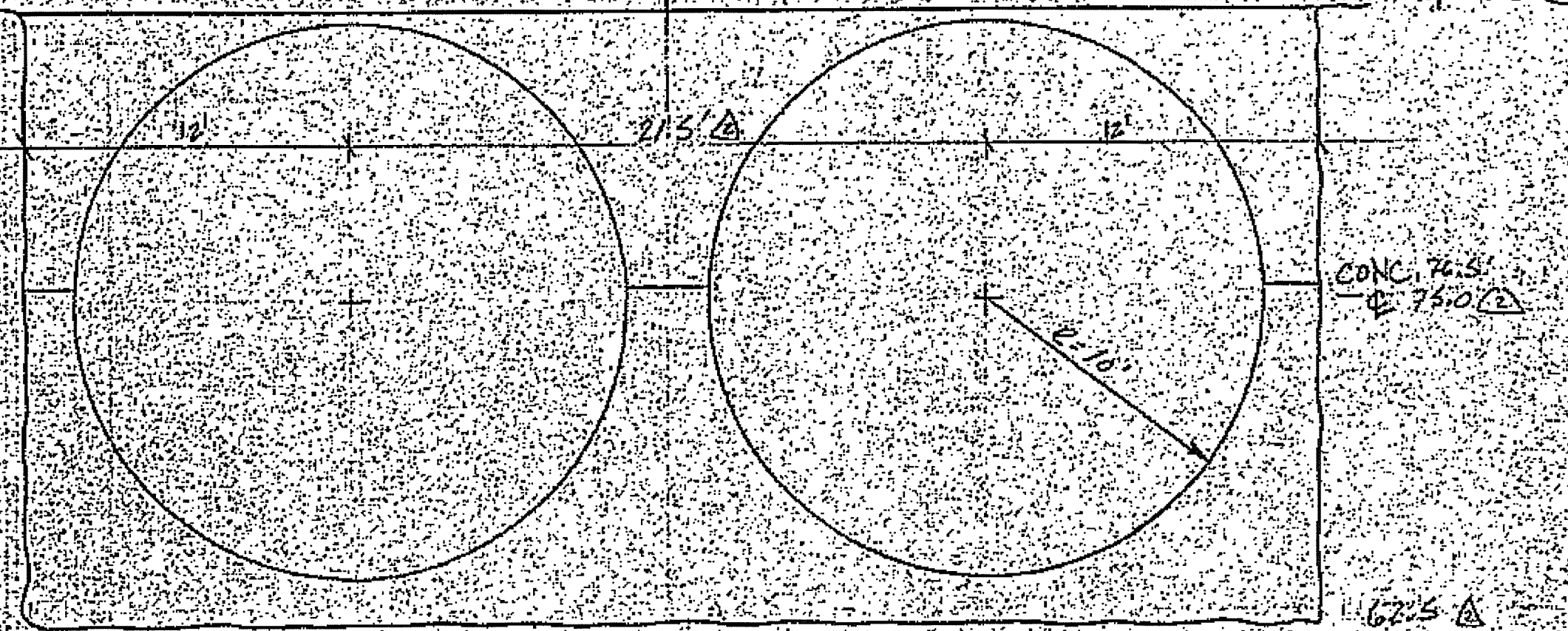
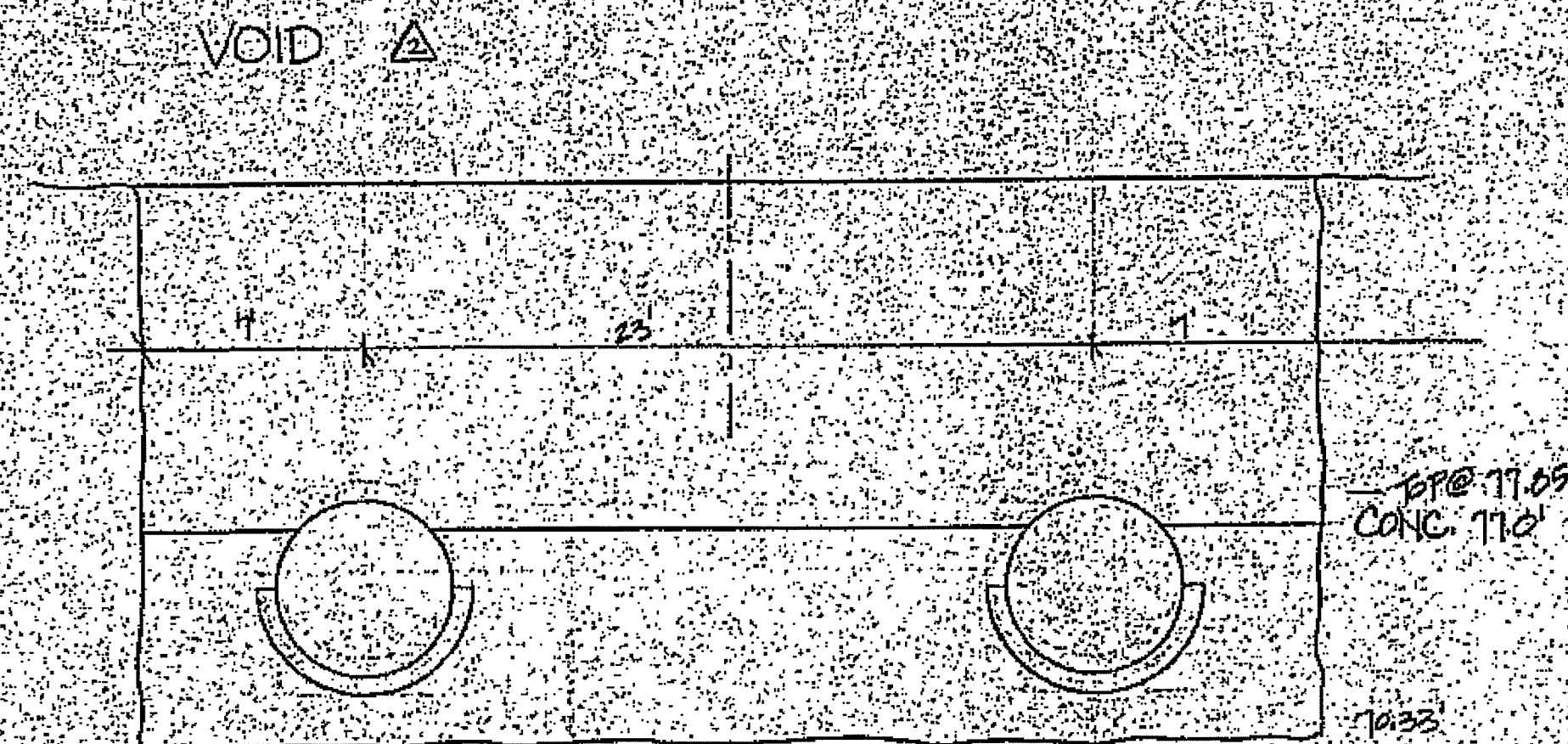
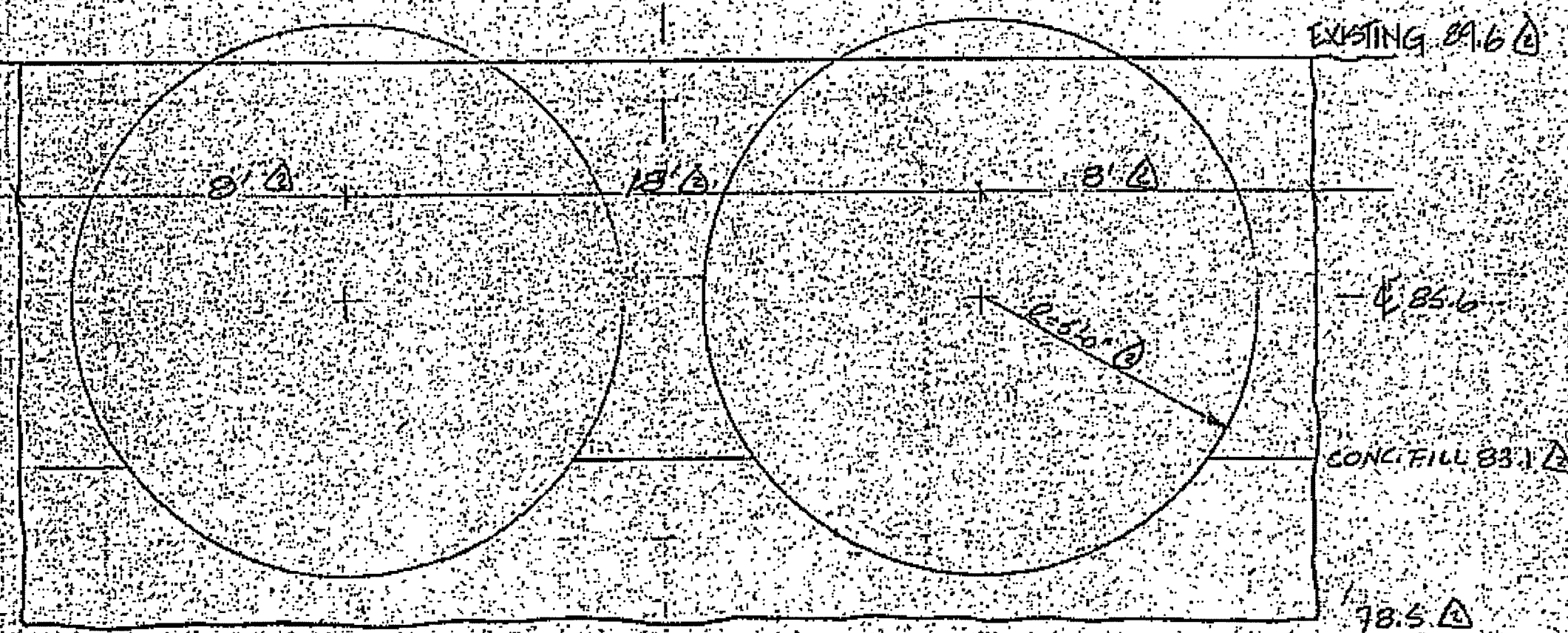
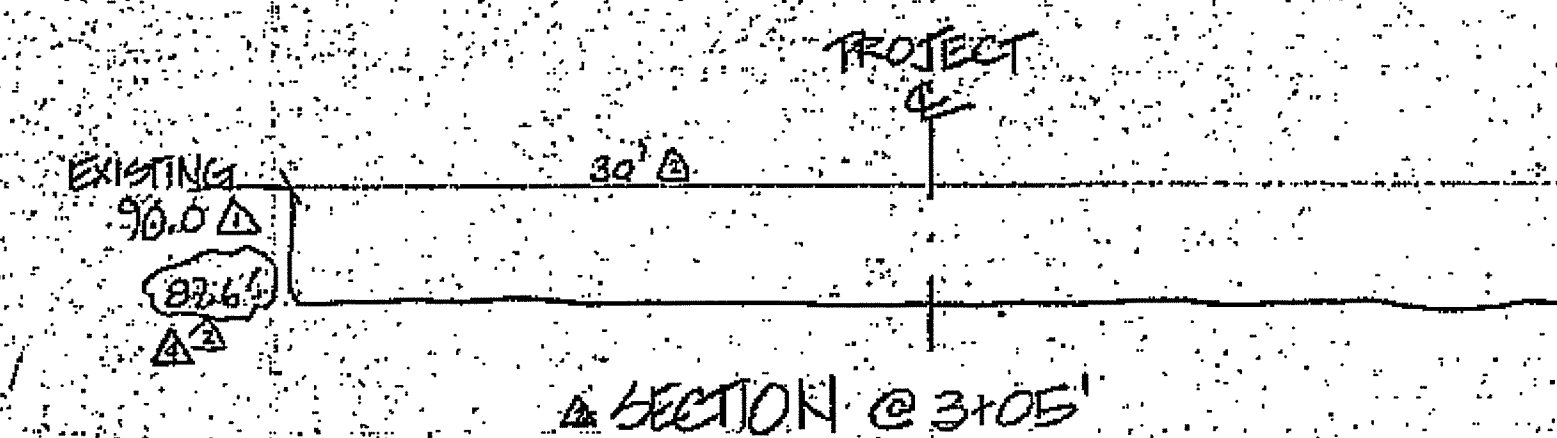
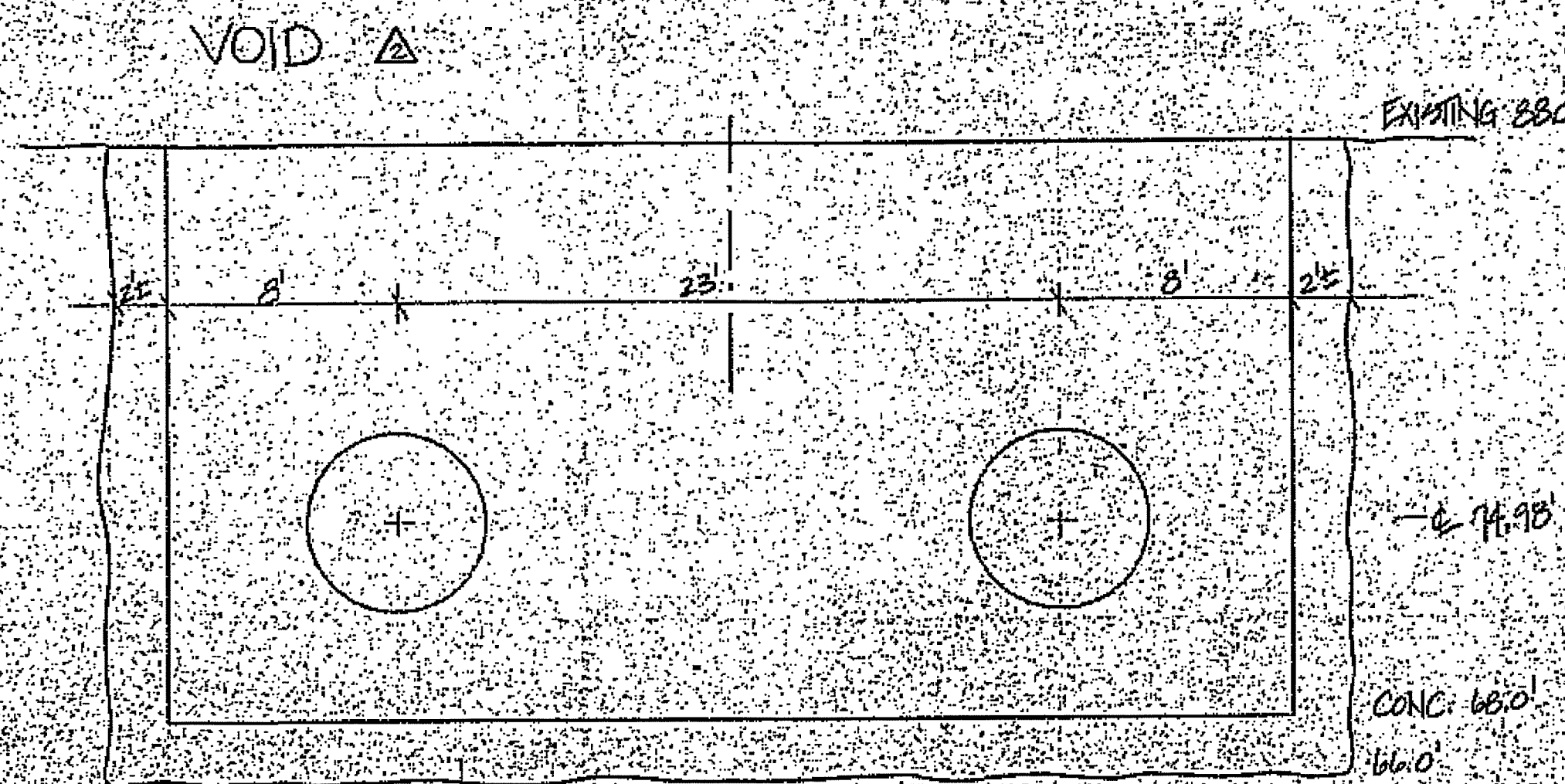
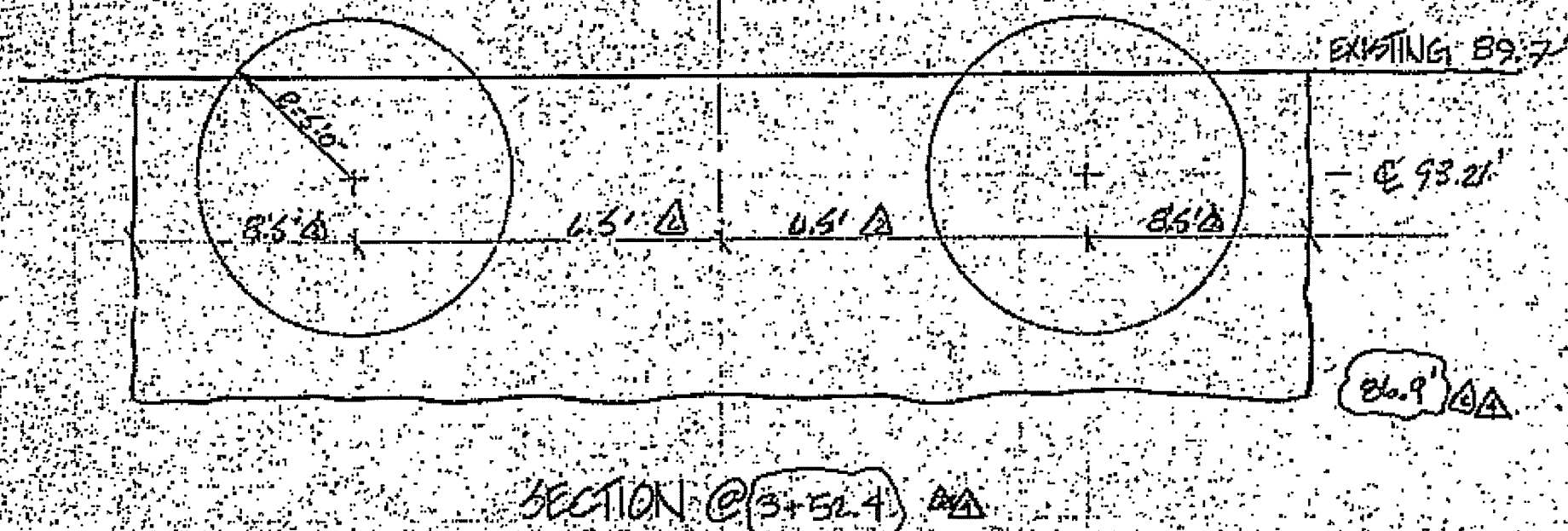
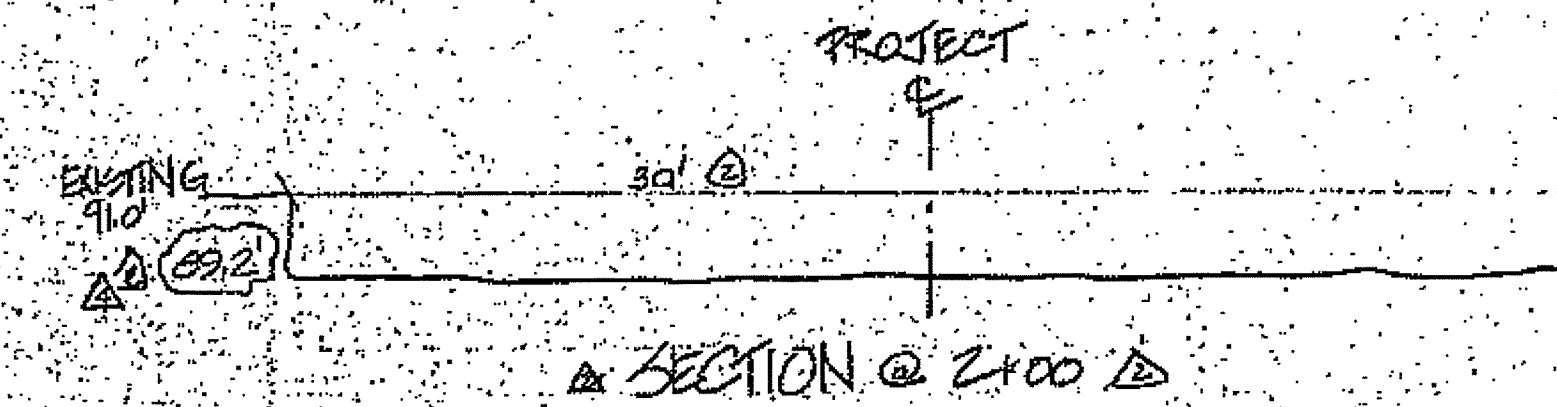
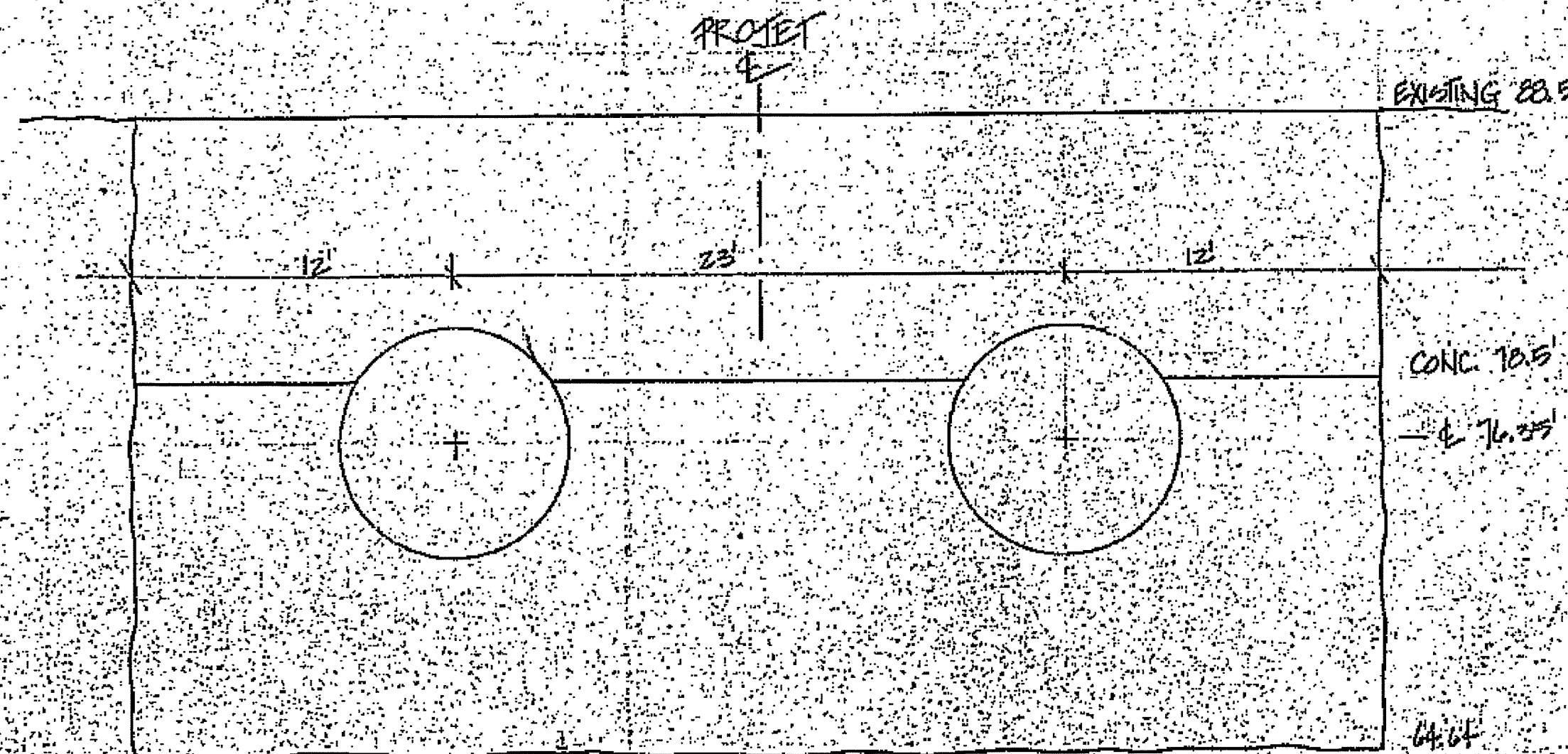
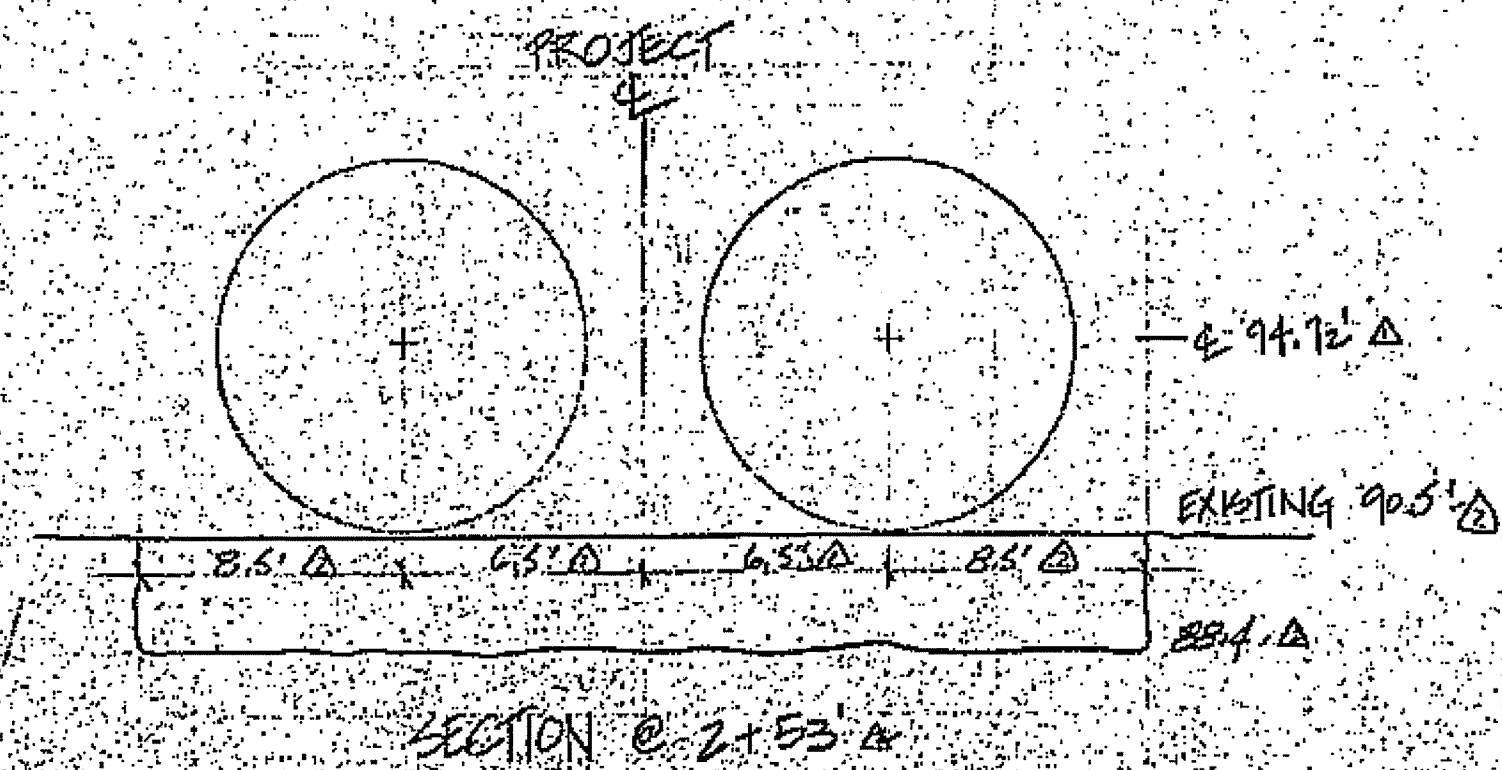


NO.	DATE	REVISION	BY
5	2-13-87	ELEVATION & ST. PT. REVISIONS	EPH/WH
4	1-23-87	ISSUED FOR CONSTRUCTION	CSH
3	1-24	STATION CHANGES	DD
2	11-29-83	ADD BRIDGE, ALIGNMENT & STATIONS	DD
1	10-14-83	CORRECTIONS	DD

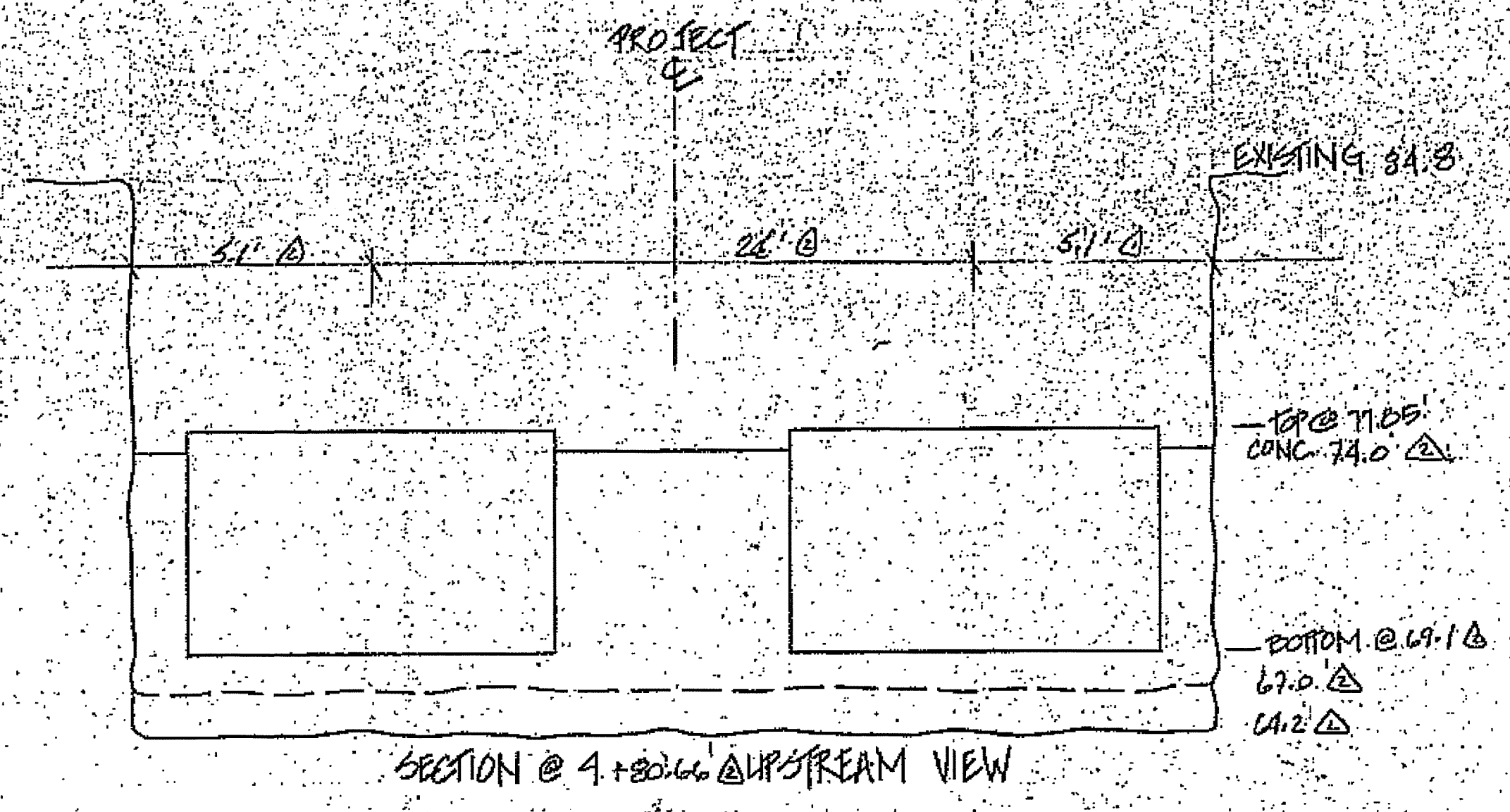
PROJECT	NO.	DATE	BY
EXCAVATION PLAN AND SECTION	082-04	10-23	DD
CHICOPEE HYDROELECTRIC SWIFT RIVER COMPANY	DD		CSH

CHRIS HOSFORD, INC.
 3179 Main Street
 BARNSTABLE, MASSACHUSETTS 02630
 (617) 362-4561

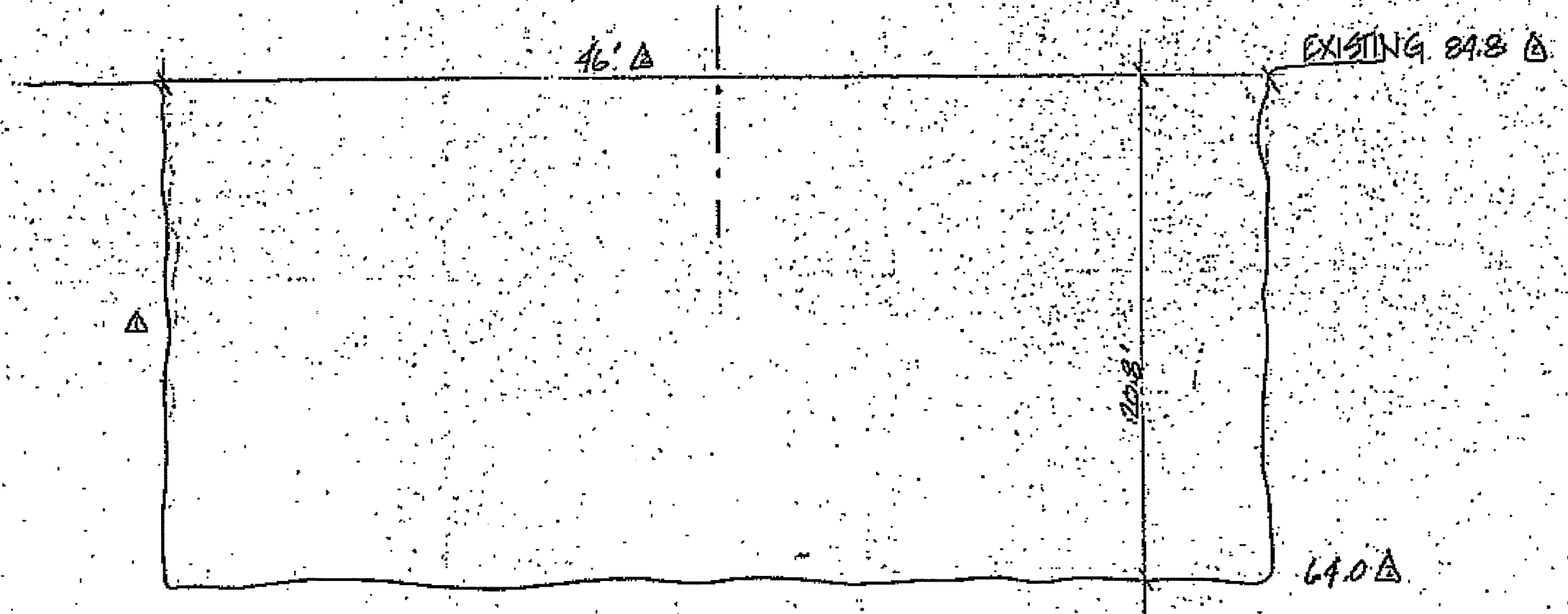
SIO
 1 of 1 SHEET



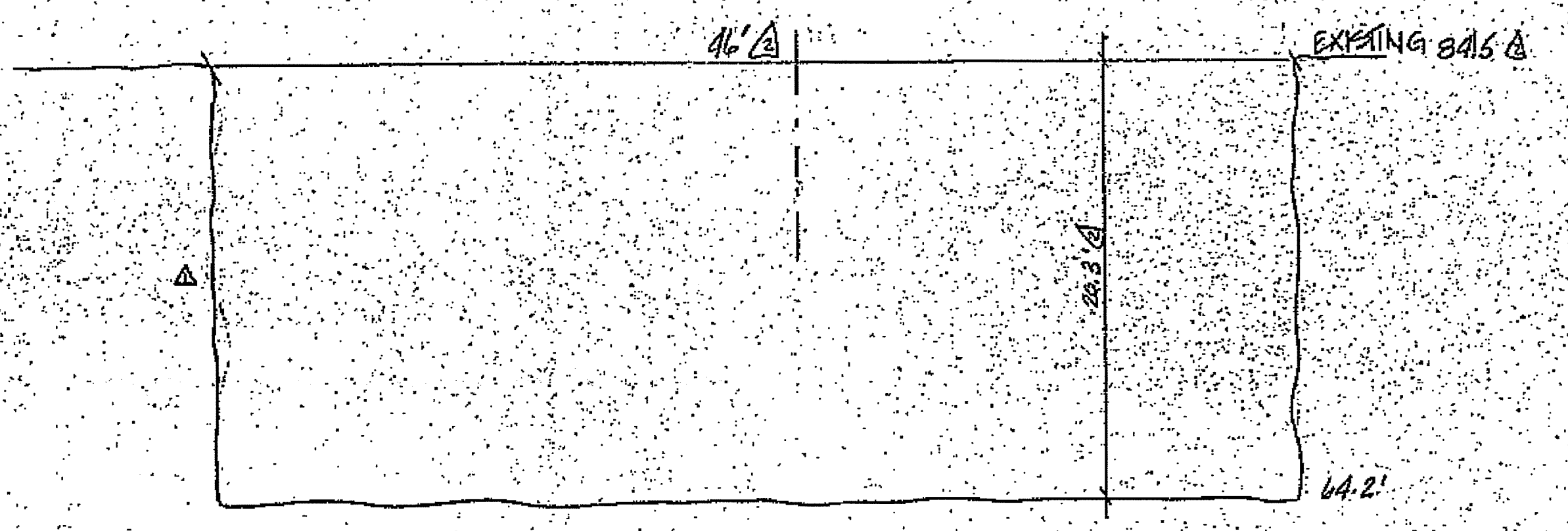
4	2-13-04	ELEVATION & 91' PT. REVISIONS	KFA/CSH
3	1-23-04	ISSUED FOR CONSTRUCTION	CSH
2	1-24	ADD SECT 2 AND HIND 3/5 CHANGES	DD
1	12-1-03	CHANGE STATION 2+00 & 2+10	DD
NO.	DATE	REVISION	BY
EXCAVATION CROSS SECTIONS			083-04 12-21-04 10-03-04
CHICOPEE HYDROELECTRIC SWIFT RIVER CO.			DD CSH
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561			SII SII



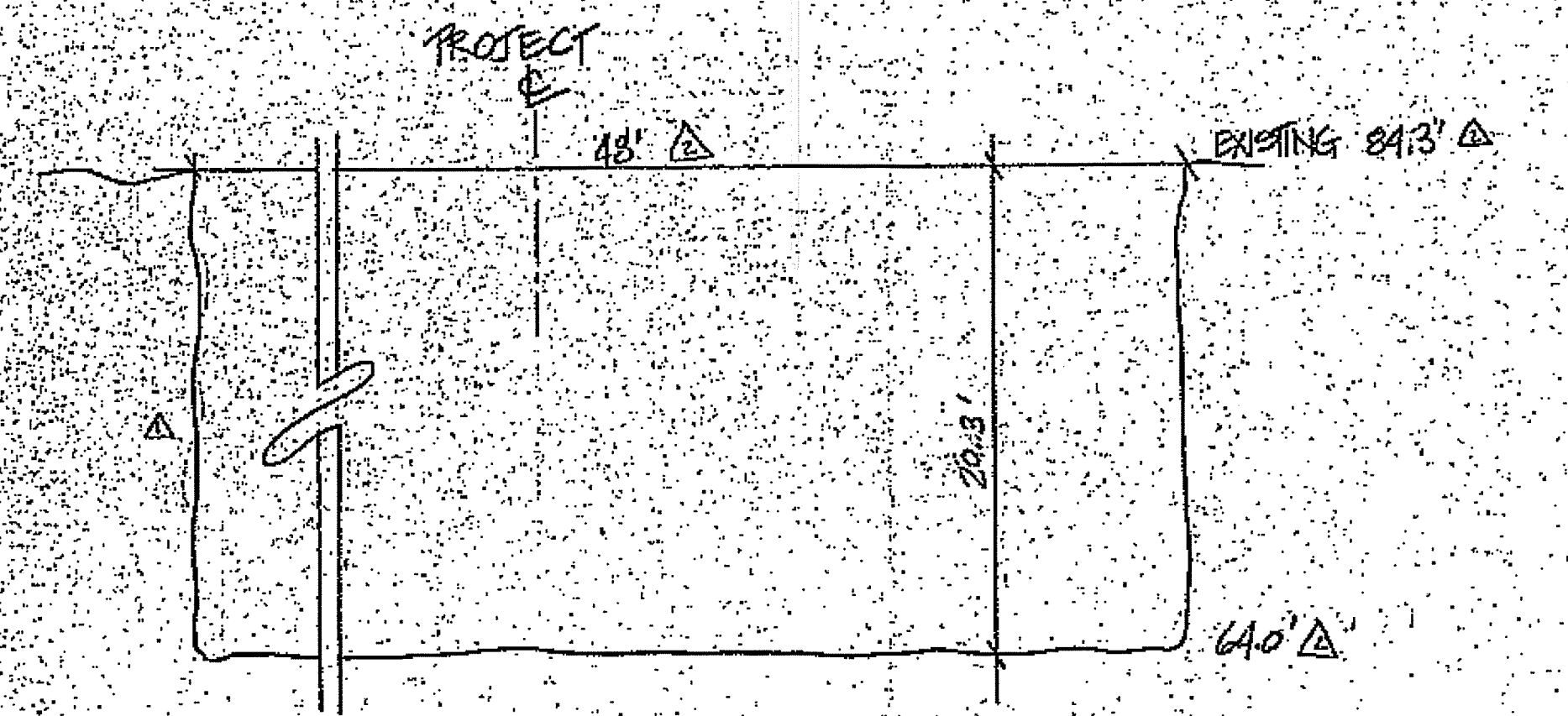
SECTION @ 4+80.66' Δ UPSTREAM VIEW



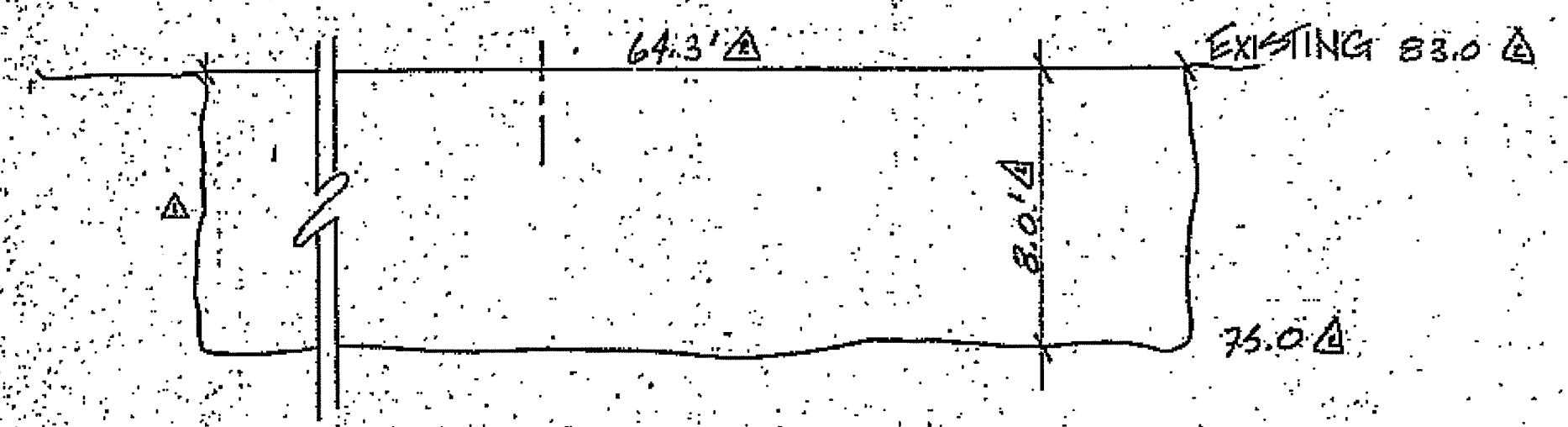
SECTION @ 4+80.66' Δ DOWNSTREAM VIEW



SECTION @ 5+12.96' Δ



SECTION @ 5+23.0' Δ (NPS)

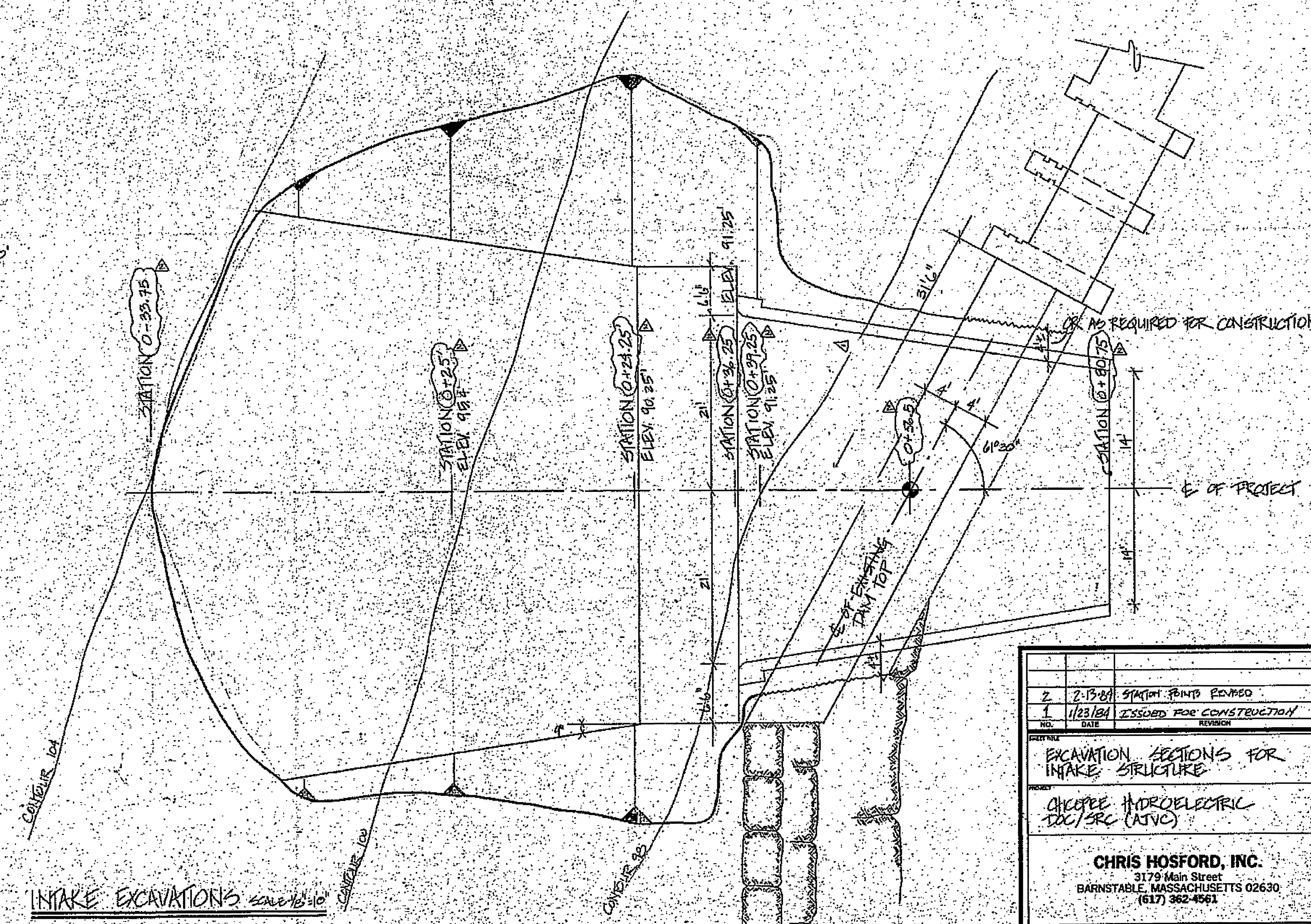
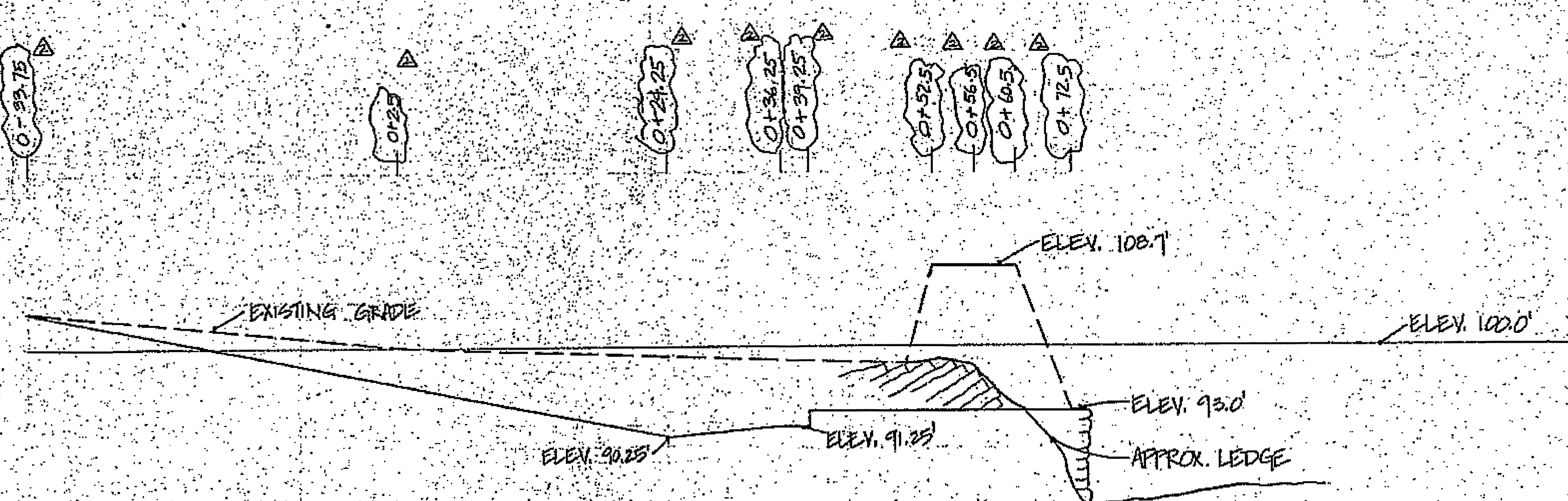
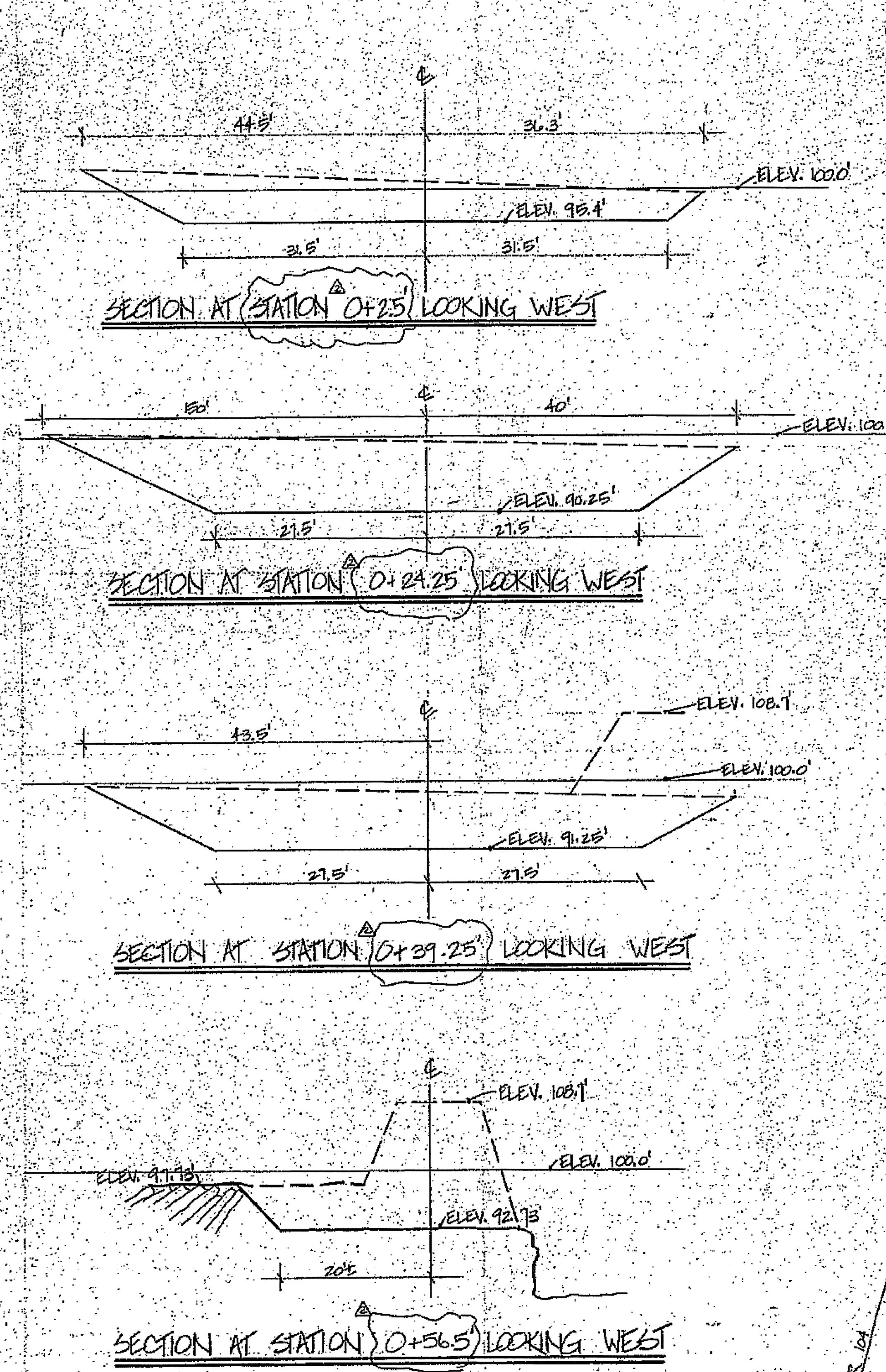


SECTION @ 6+10' Δ (NPS)



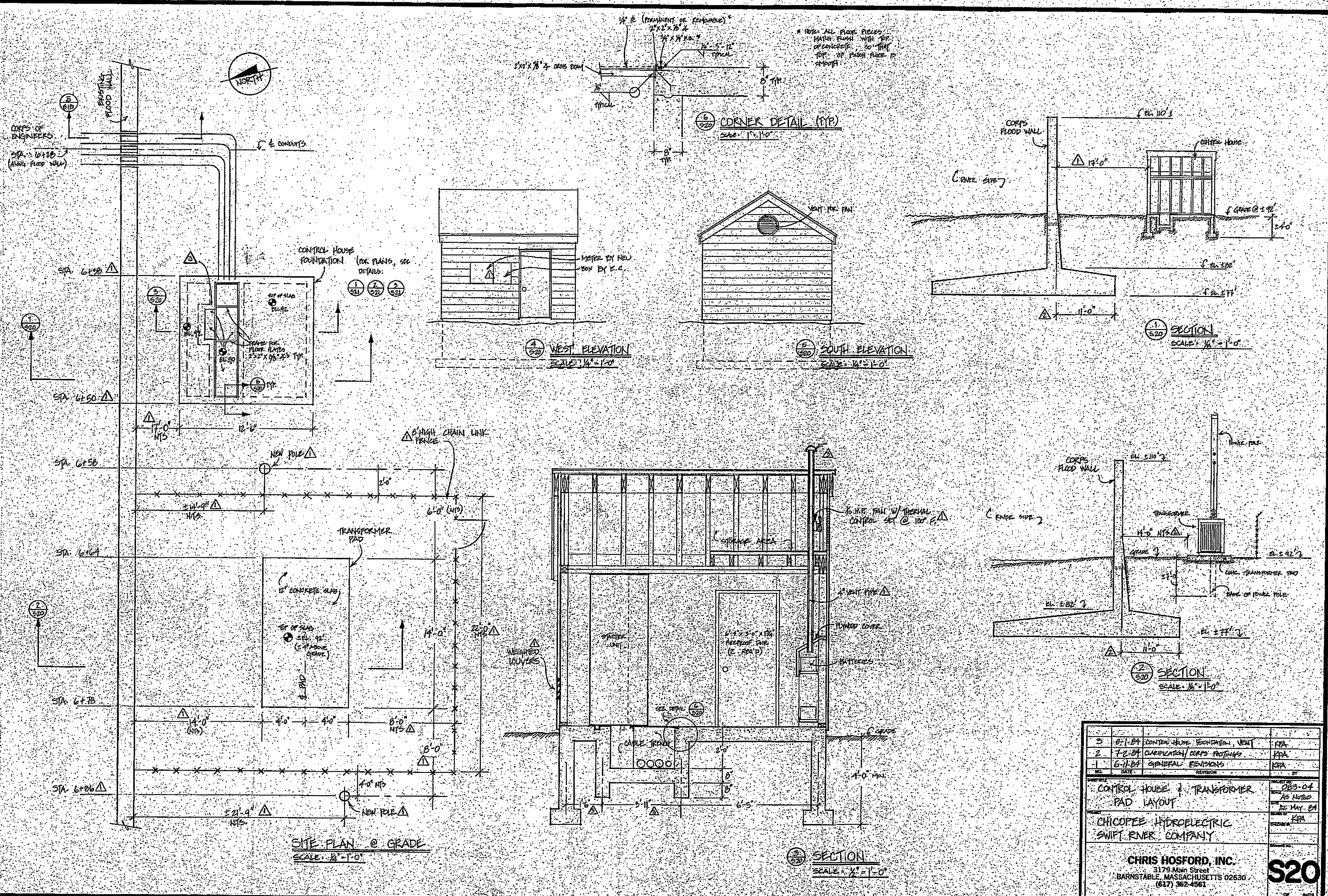
SECTION @ 7+89.5' Δ (NPS)

NO.	DATE	REVISION	BY
2	1-23-84	ISSUED FOR CONSTRUCTION	CSH
1	1-24	ADDED TAILRACE EXCAV	TDZ
PROJECT TITLE			PROJECT NO.
EXCAVATION CROSS SECTIONS			10-83
CLIENT			DATE
CHICOPEE HYDROELECTRIC SWIFT RIVER CO.			10-83
DRAWN BY			DATE
CHRIS HOSFORD, INC.			10-83
3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561			DATE
SHEET NO.			DATE
S12			1 OF 1 SHEETS

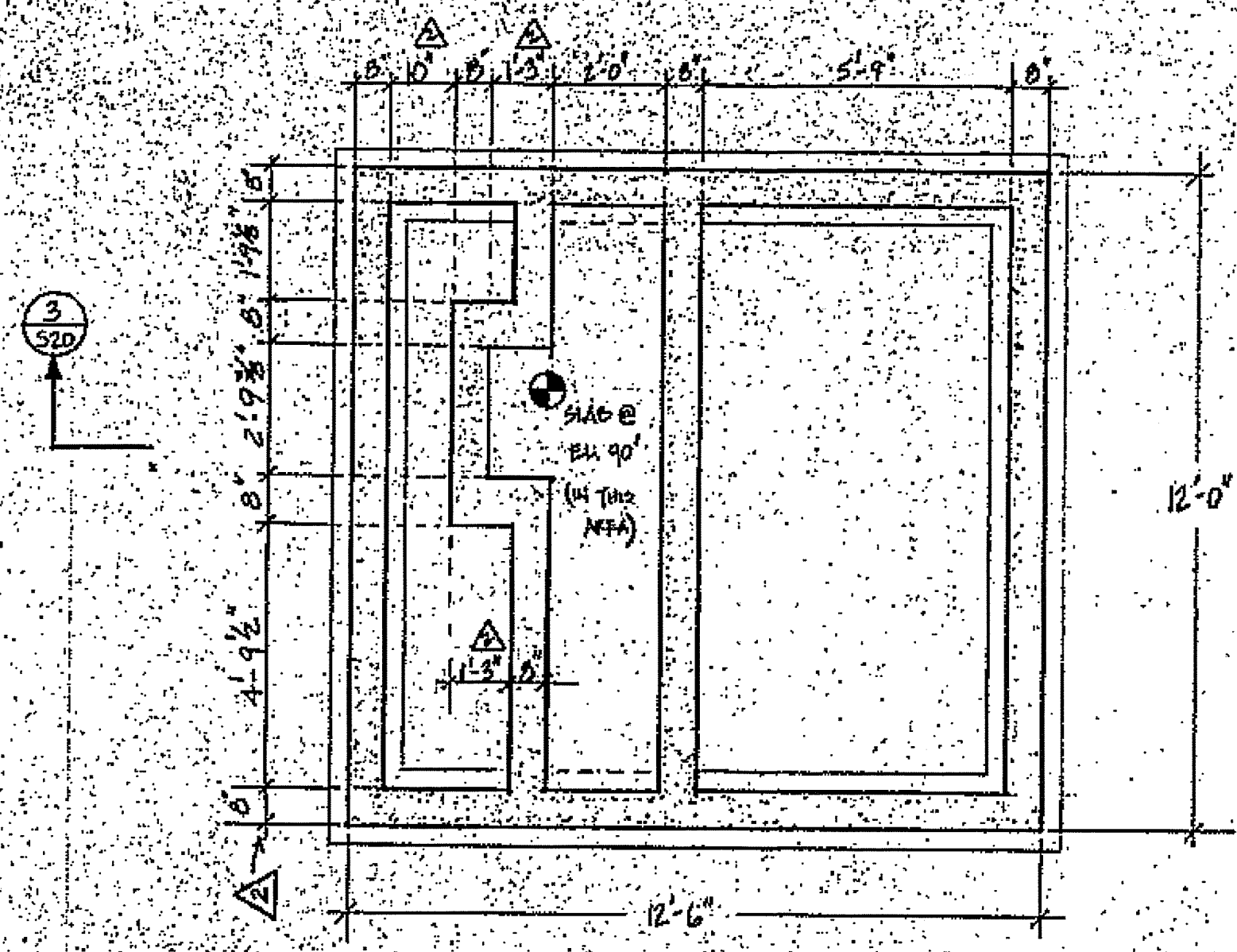


NO.	DATE	REVISION	BY
2	2-15-81	STATION POINTS REVISED	KPA/PLH
1	1/23/84	ISSUED FOR CONSTRUCTION	CSH

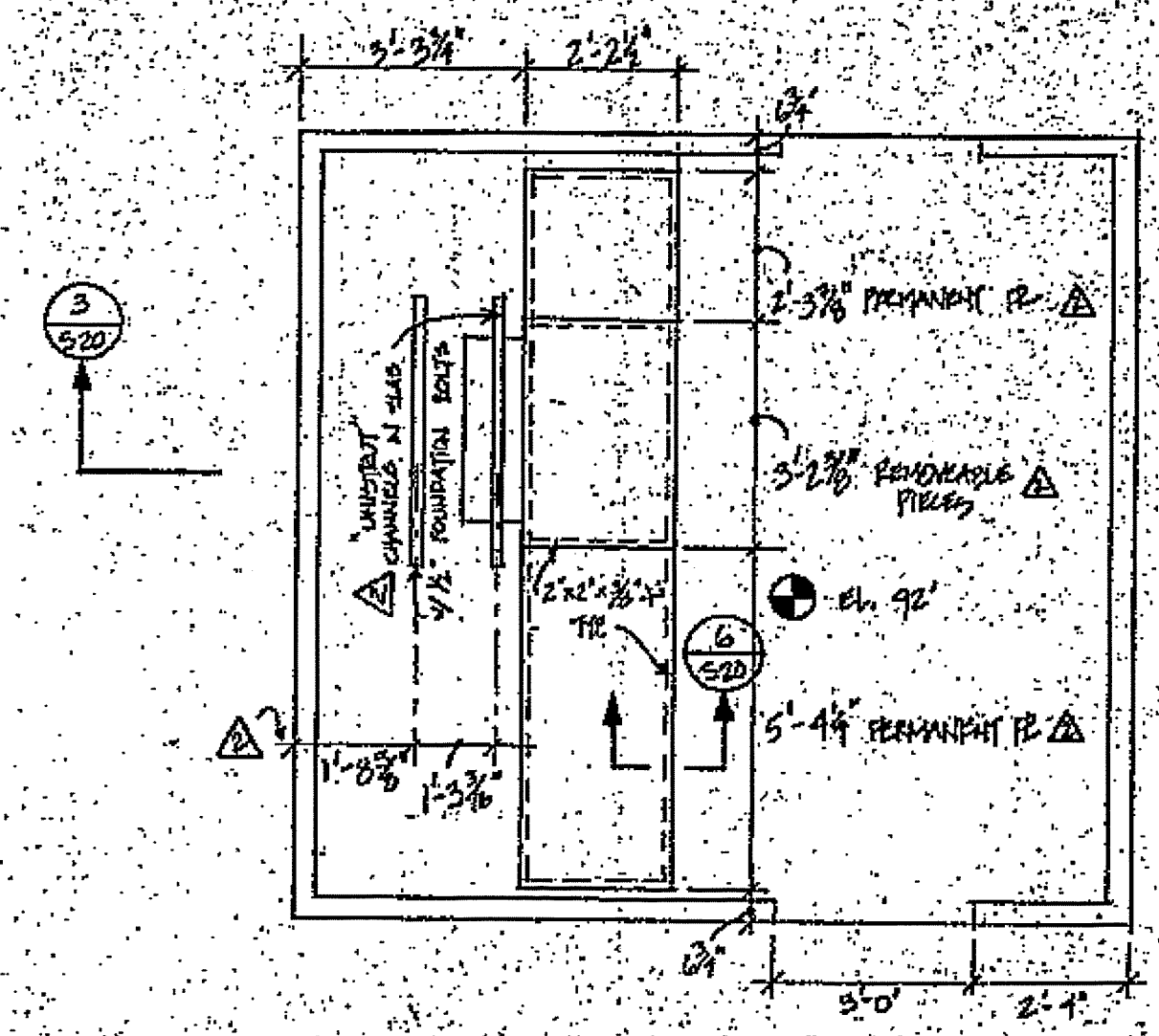
PROJECT TITLE	EXCAVATION SECTIONS FOR INTAKE STRUCTURE	PROJECT NO.	88-24
CLIENT	CHICPEE HYDROELECTRIC INC./SRC (ATVC)	SCALE	1"=10'
DRAWN BY	CSH	CHECKED BY	CSH
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561		S13 OF 1 SHEET	



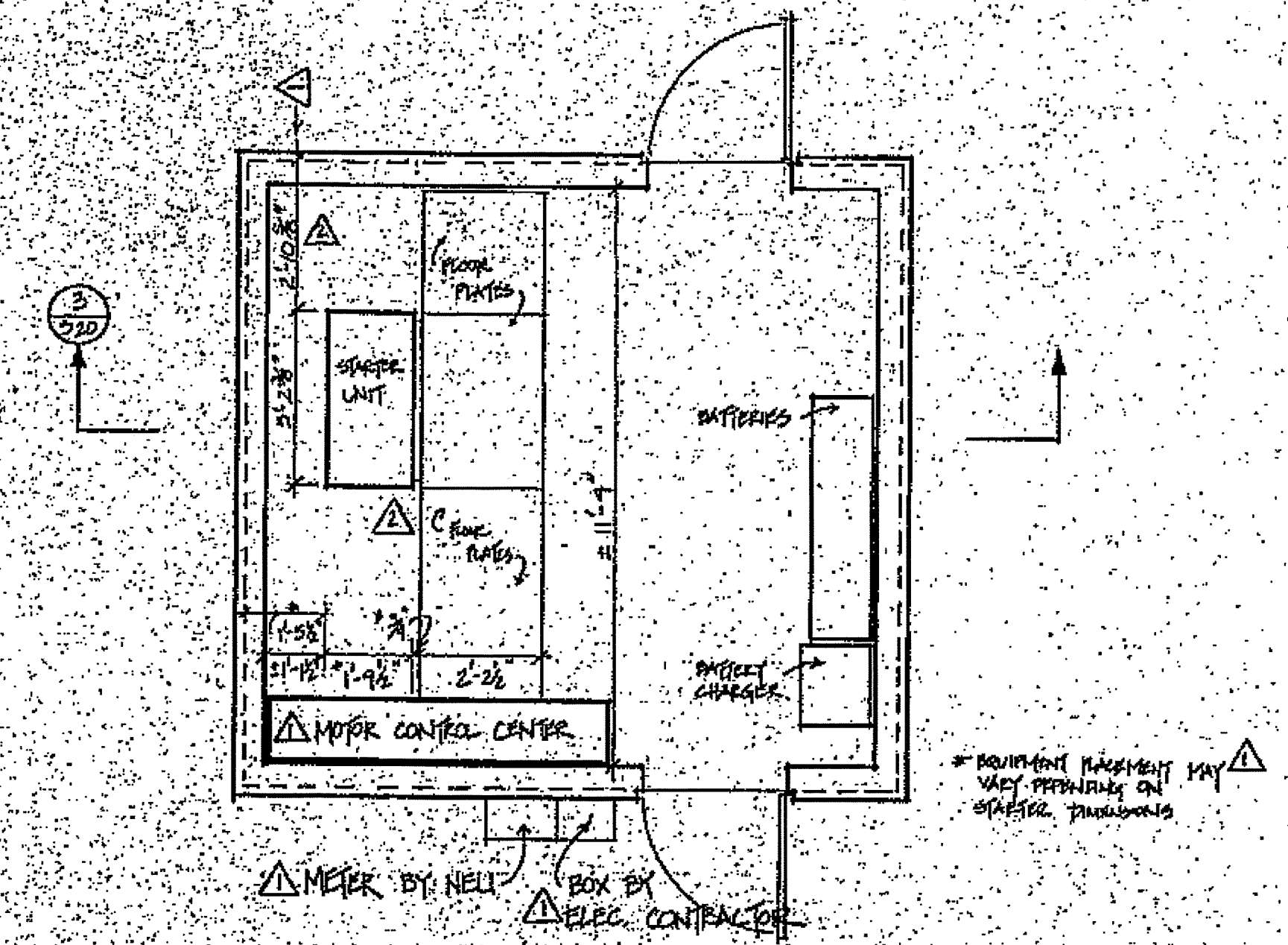
NO.	DATE	REVISION	BY
3	6-1-84	CONTROL HOUSE FOUNDATION, WEST	KPA
2	7-2-84	CLARIFICATION CORPS FOOTINGS	KPA
1	6-11-84	GENERAL ESTIMATIONS	KPA
CONTROL HOUSE & TRANSFORMER PAD LAYOUT CHICOPEE HYDROELECTRIC SWIFT RIVER COMPANY 083-04 AS NOTED 20 MAY 84 KPA			
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02530 (617) 362-4561			S20 OF 5478



① FOUNDATION PLAN
SCALE: 3/8" = 1'-0"

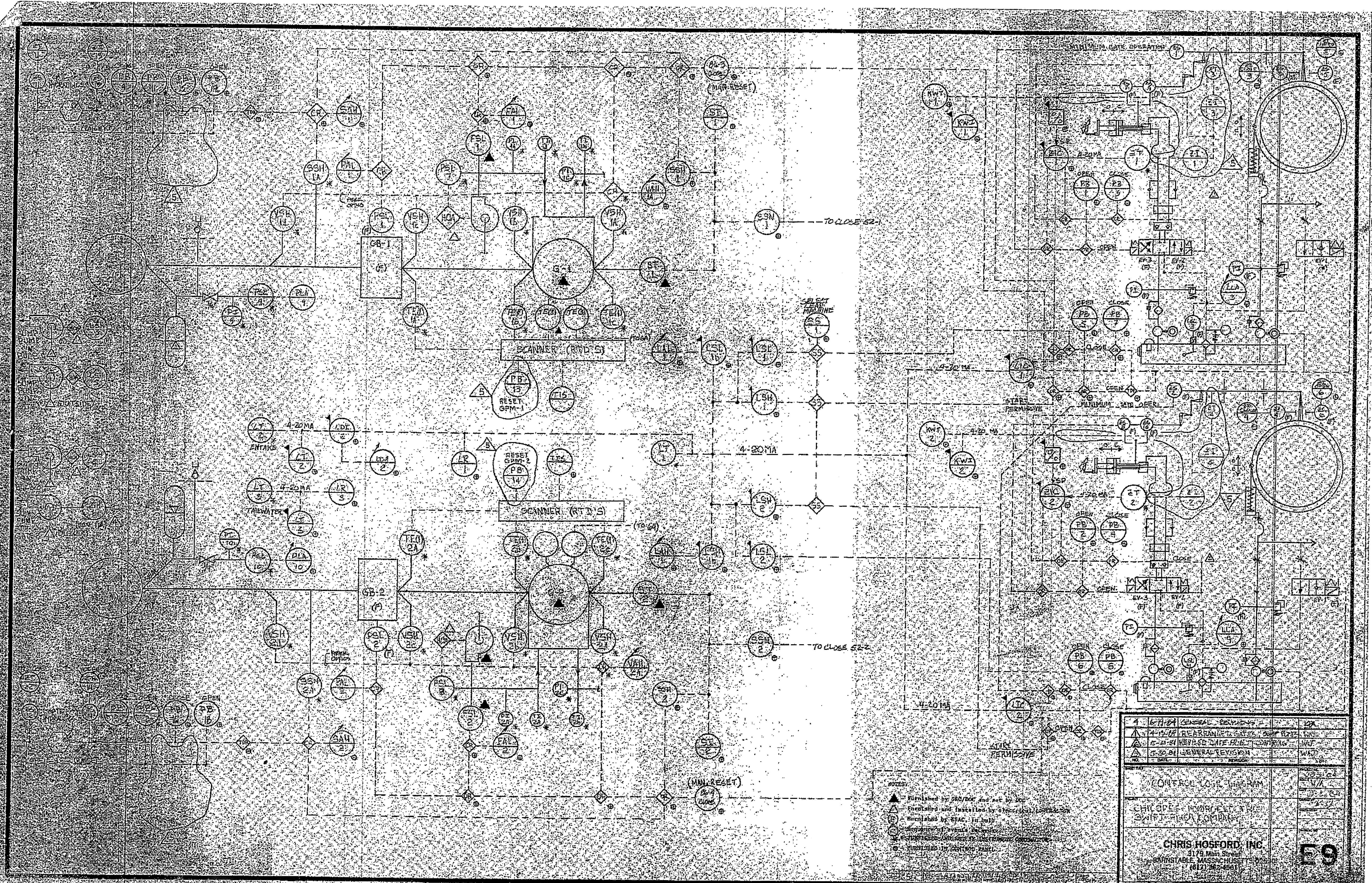


② GROUND SLAB PLAN
SCALE: 3/8" = 1'-0"



③ EQUIPMENT LAYOUT PLAN
SCALE: 3/8" = 1'-0"

NO.	DATE	REVISION	BY
2.	8-1-84	SHAFTS & FOUNDATION	KEA
1.	6-21-84	ADD METER, METERS, PAN RAYS	KPK
PROJECT TITLE			PROJECT NO.
CONTROL HOUSE DETAILS			083-04
CLIENT			AS NOTED
CHICOPEE HYDROELECTRIC			24 MAY 84
SWIFT RIVER COMPANY			DESIGNED BY KEA
DRAWN BY			CHECKED BY
CHRIS HOSFORD, INC.			PROJECT NO.
3179 Main Street			
BARNSTABLE, MASSACHUSETTS 02630			
(617) 362-4561			
S21			OF 1 SHEET



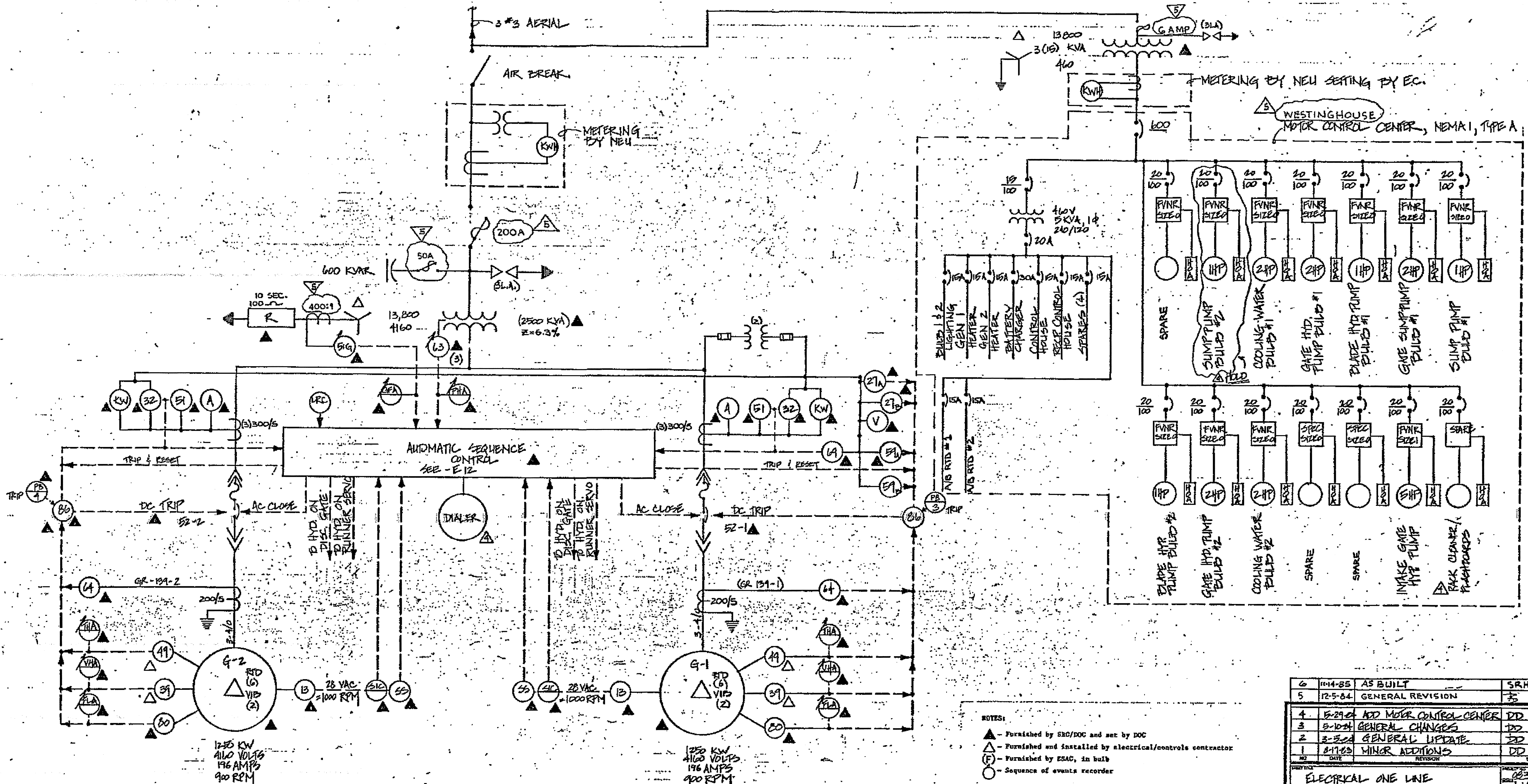
- NOTES:
- ▲ Furnished by OEM/DOC and set by DOC
 - △ Furnished and installed by other than OEM/DOC
 - ⊙ Furnished by OEM/DOC, in box
 - Component to be replaced by OEM/DOC
 - Component to be replaced by other than OEM/DOC
 - ⊞ Component to be replaced by other than OEM/DOC

1	6/1/64	GENERAL REVISION	SWA
2	7/1/64	REARRANGED GATE SWITCHING	SWA
3	8/1/64	KEYPUSH DATE FROM SWITCH	SWA
4	9/1/64	GENERAL REVISION	SWA
5	10/1/64	GENERAL REVISION	SWA

CONTROL CO. - GUNNAM		DATE
CHICOPPEE POWER PLANT		NO. 1
SWITCHING ROOM		NO. 1
CHRIS HOSFORD, INC.		NO. 1
3178 Main Street		NO. 1
BARRISTABLE MASSACHUSETTS		NO. 1
17 (617) 862-4901		NO. 1

D. NEU SUBSTATION

STATION SERVICE

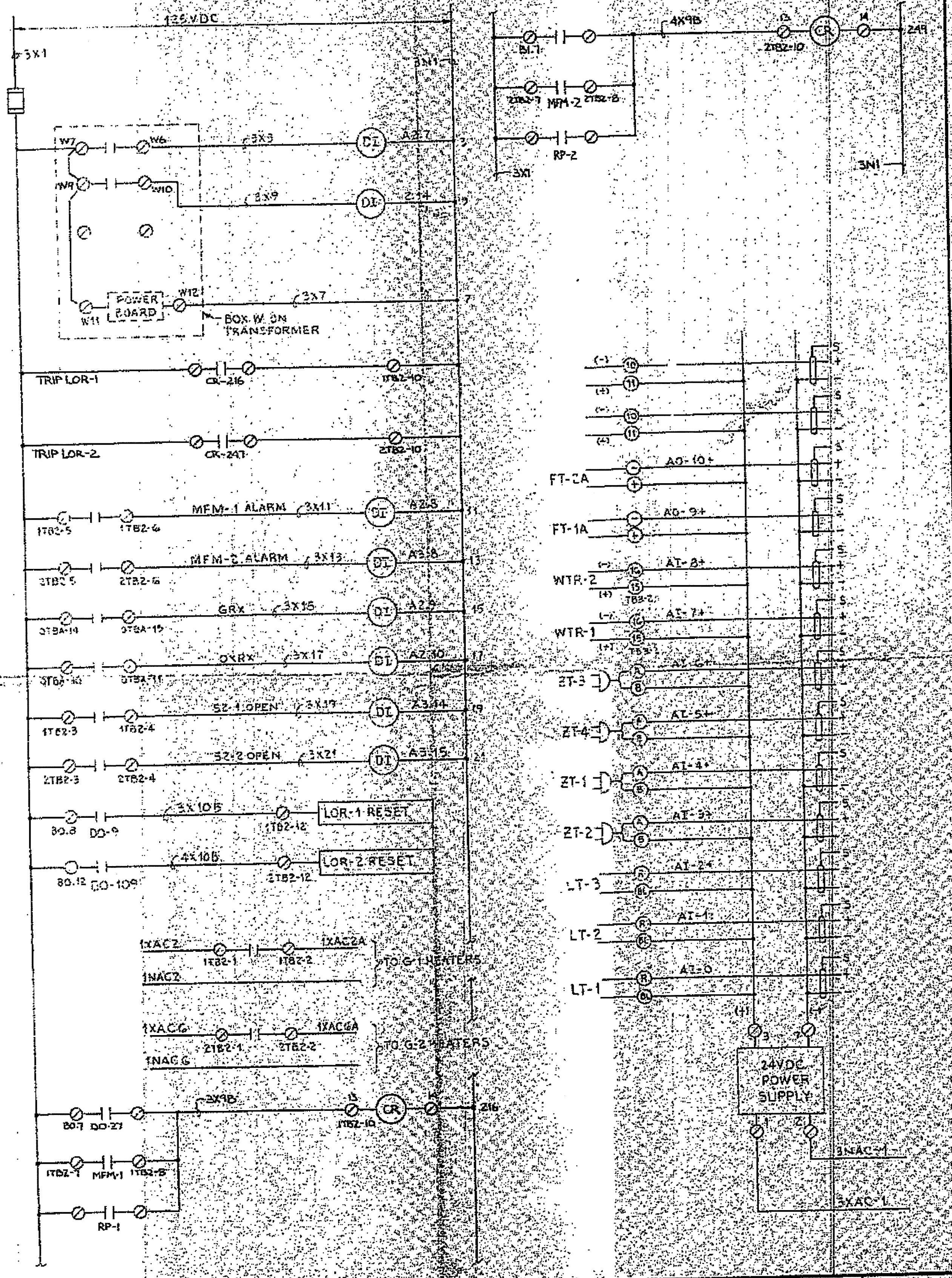
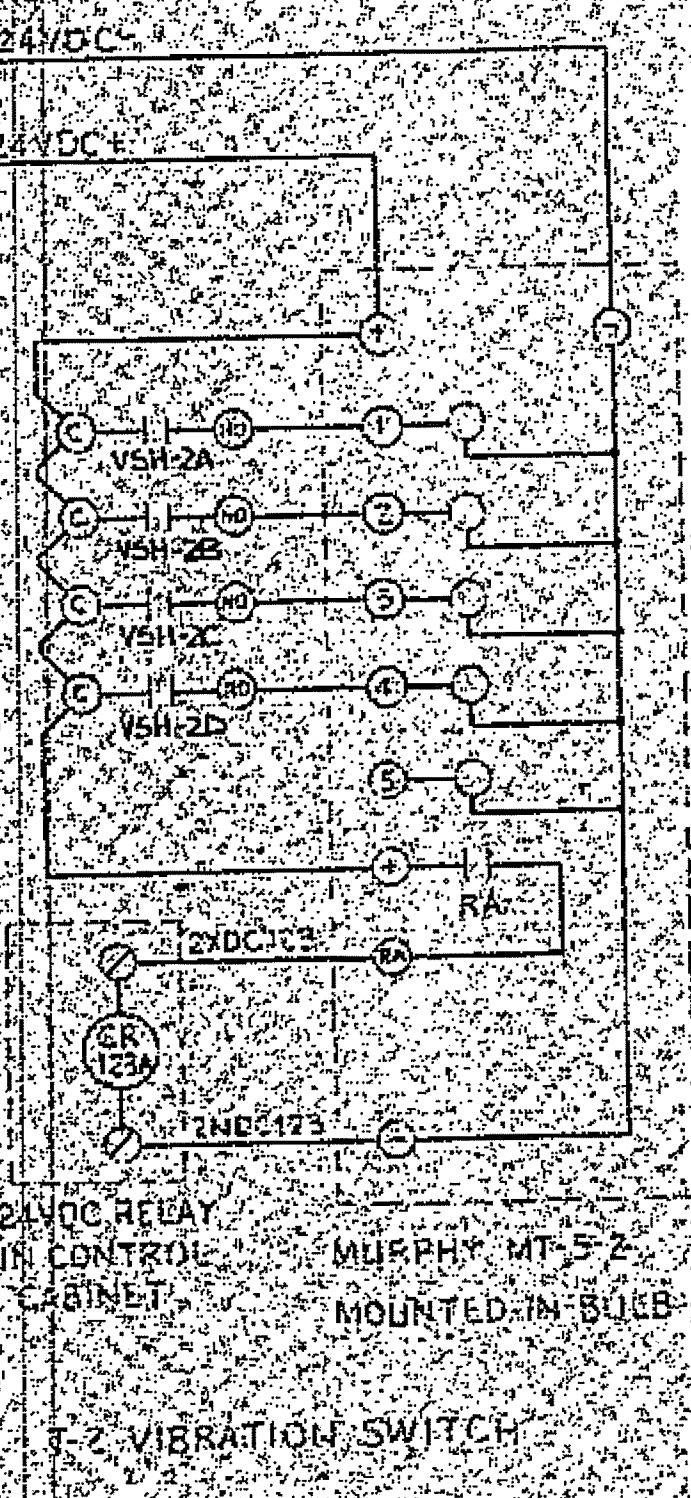
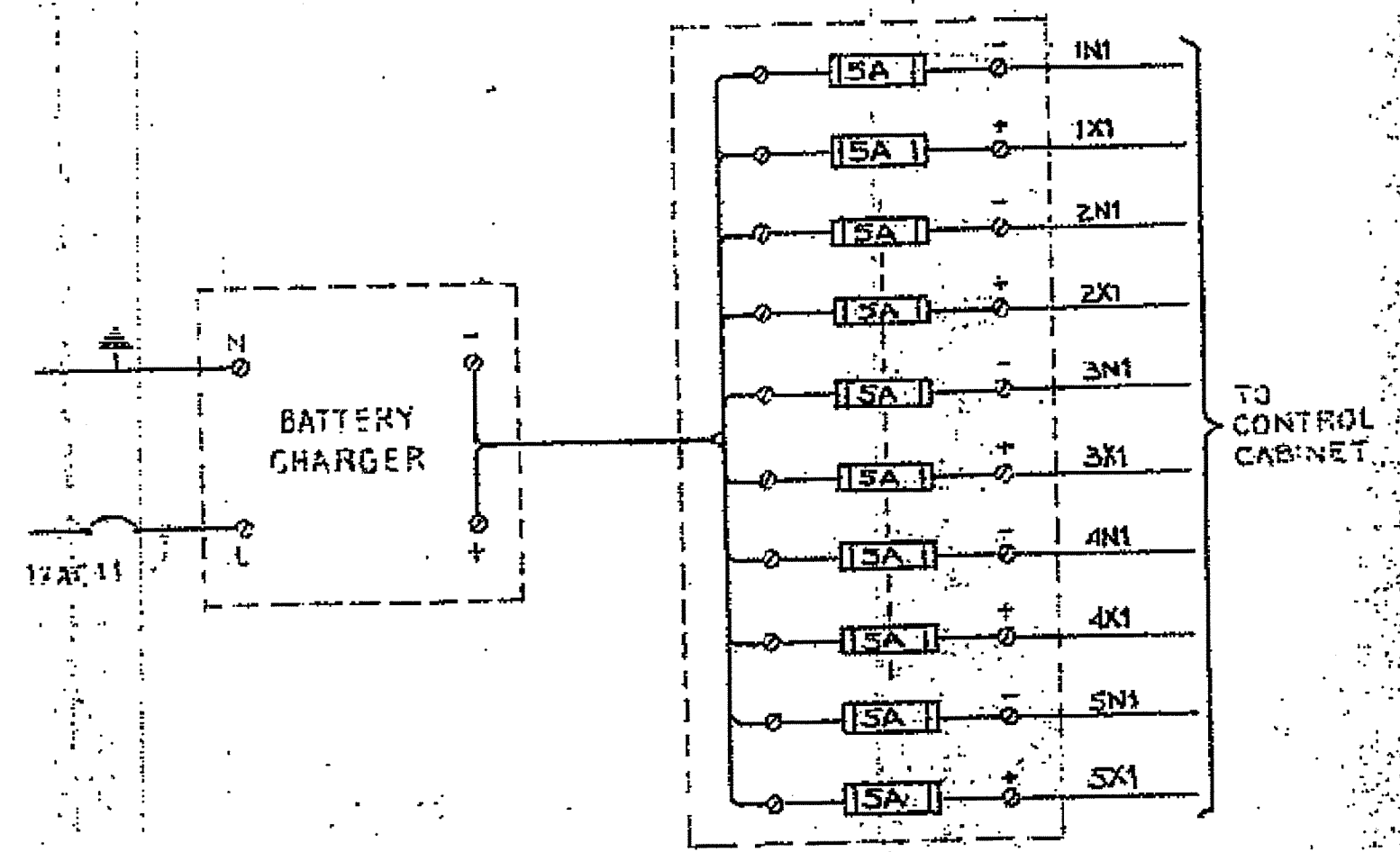
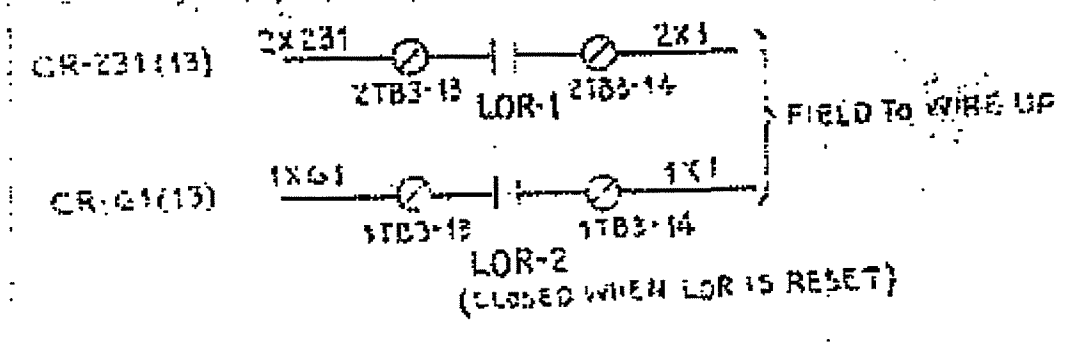
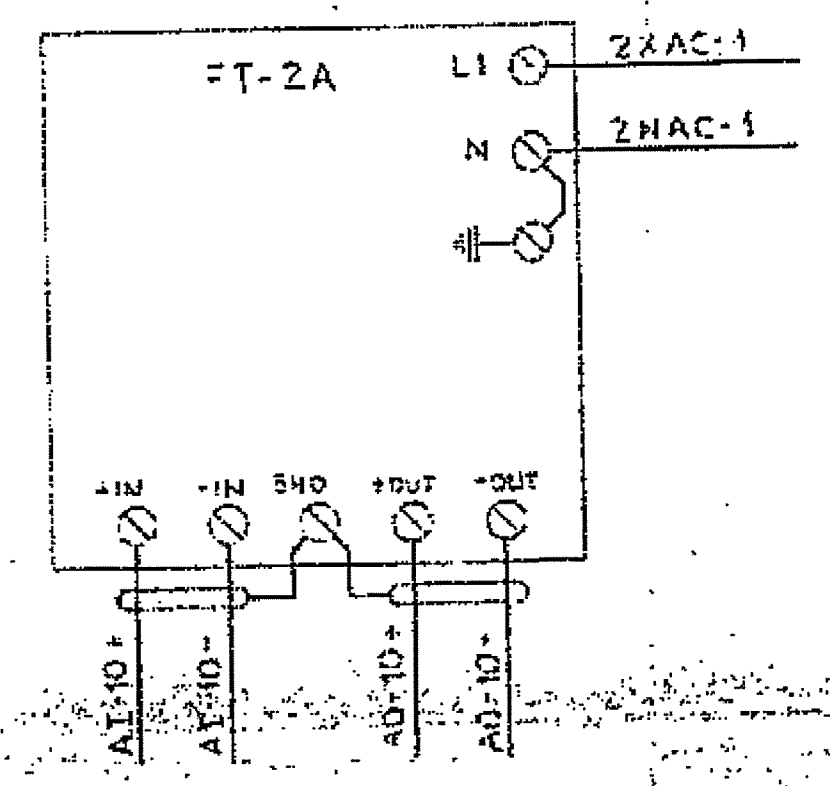
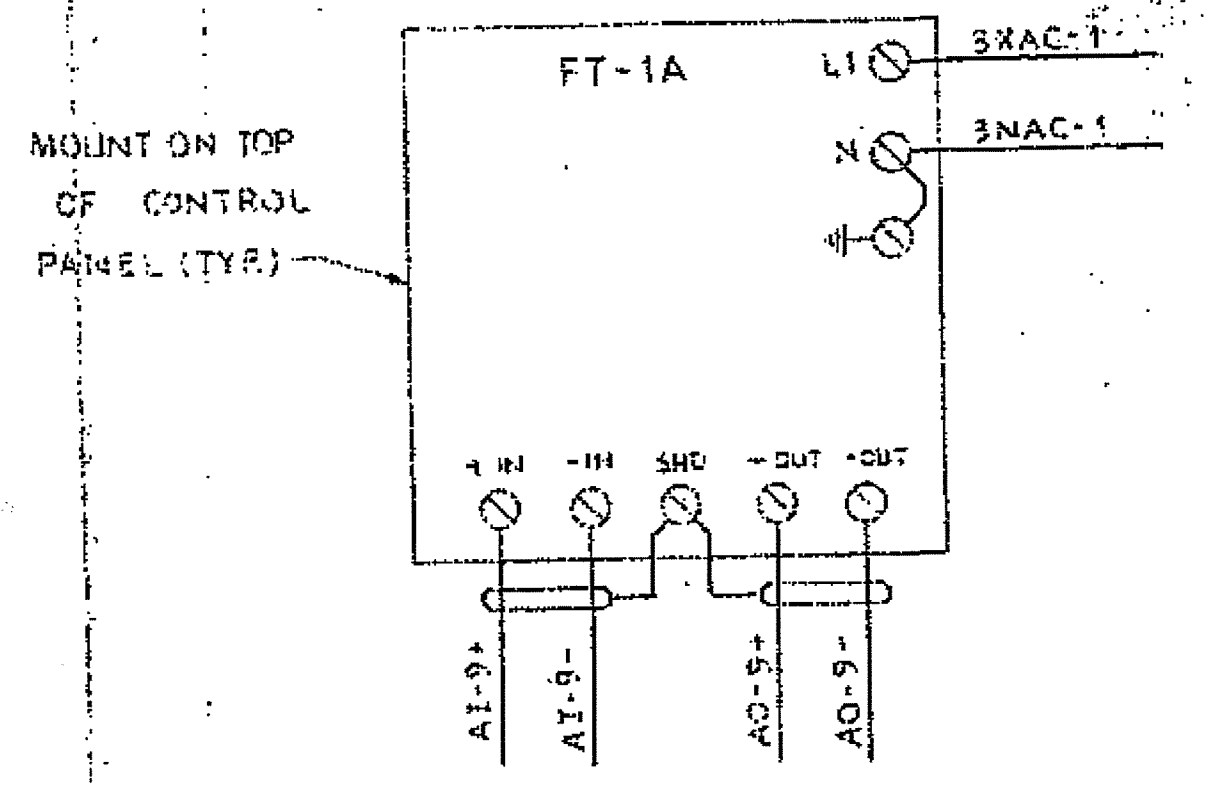
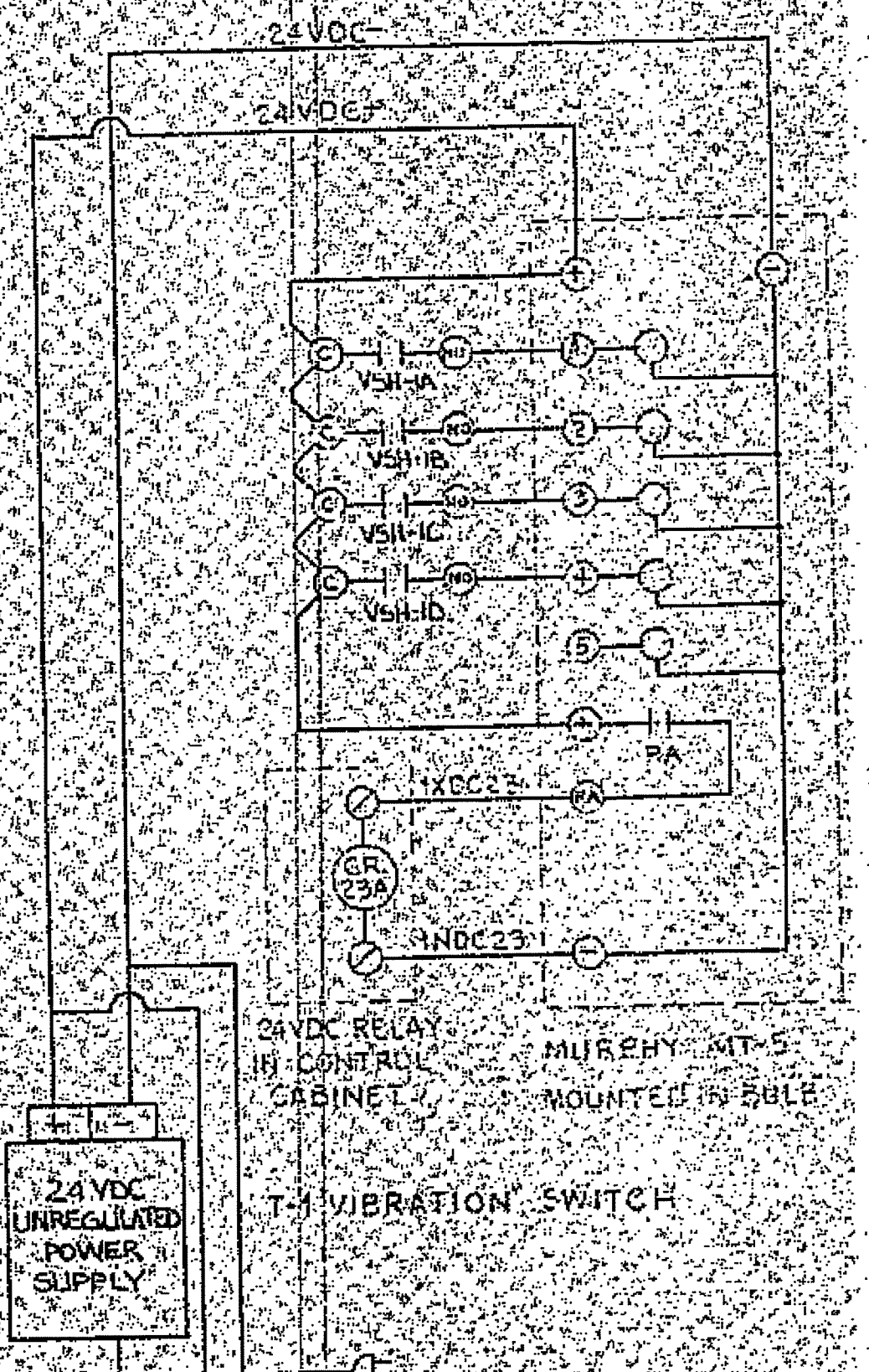


ONE LINE DIAGRAM

- NOTES:
- ▲ - Furnished by SHG/DOC and set by DOC
 - △ - Furnished and installed by electrical/controls contractor
 - ⊕ - Furnished by ESAG, in bulk
 - - Sequence of events recorder

6	11-4-85	AS BUILT	SRH
5	12-5-84	GENERAL REVISION	JS
4	5-29-84	ADD MOTOR CONTROL CENTER	DD
3	2-10-84	GENERAL CHANGES	DD
2	3-22-84	GENERAL UPDATE	DD
1	8-17-83	MINOR ADDITIONS	DD

ELEC. NO. 1
 ELECTRICAL ONE LINE DIAGRAM
 CHICOPEE HYDROELECTRIC DOC/SRC (ASVC)
 023-04
 N/A
 7-83
 DD
 CHRIS HOSFORD, INC.
 3179 Main Street
 BARNSTABLE, MASSACHUSETTS 02630
 (517) 362-4561
EIO



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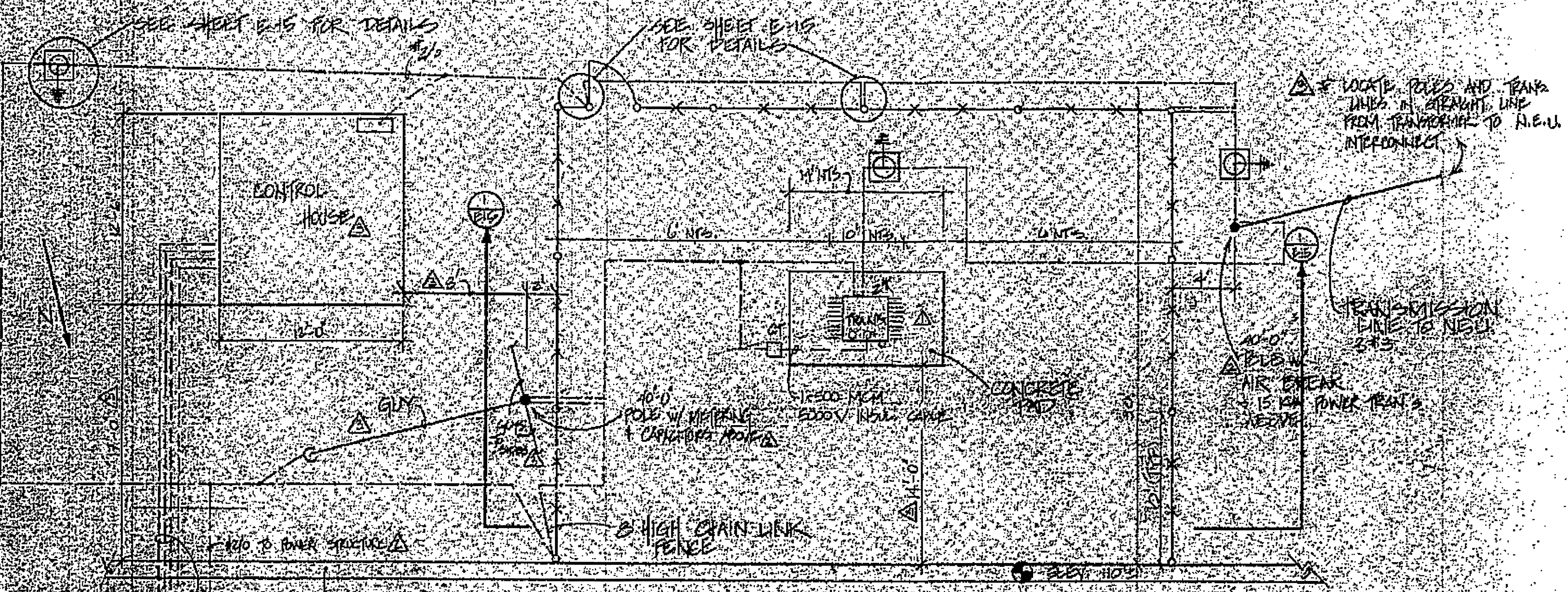
REV.	ISSUED	DATE	BY	BY
1	ISSUED			
2				
3				
4				

CHRIS HOSFORD, INC.
BARNSTABLE, MASSACHUSETTS 02630
(617) 362-4561

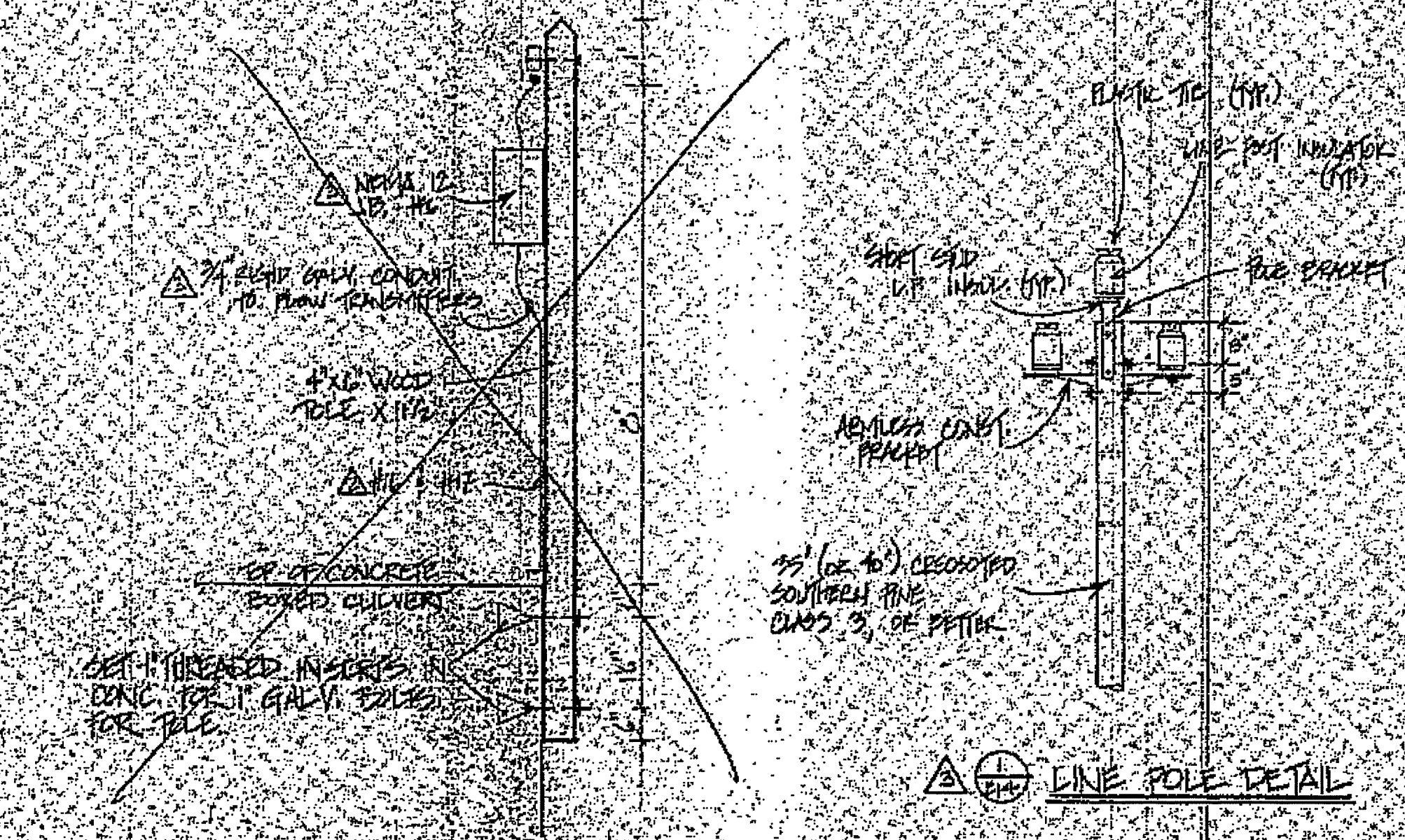
MISC. ELEMENTARY DIAGRAMS

GNICOPEE HYDROELECTRIC
SRC/BOC (A/V/C)

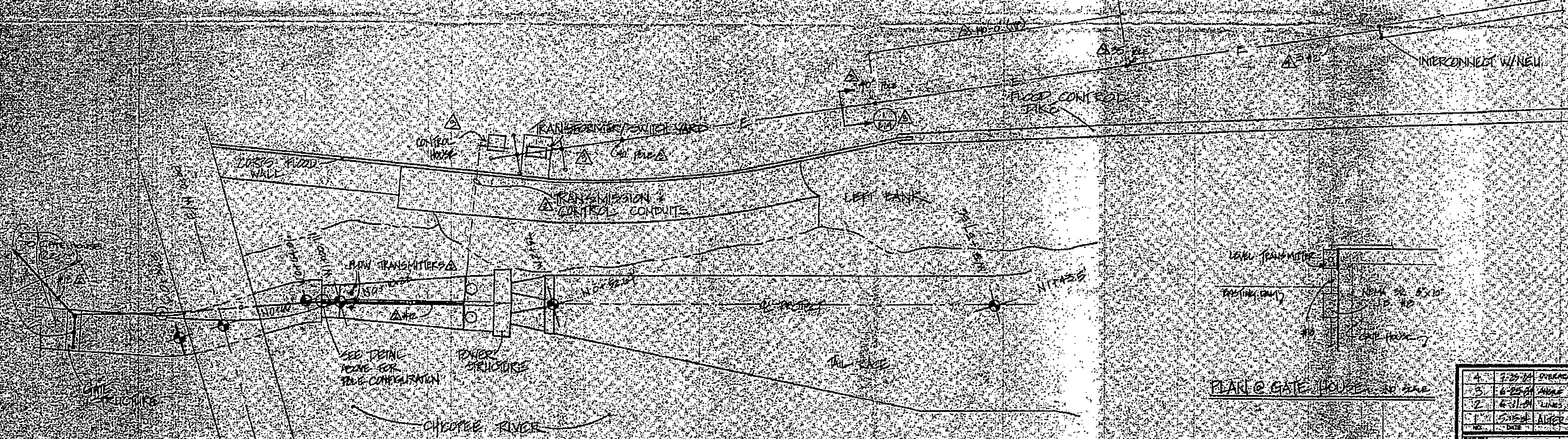
Date: 11-20-84
Sub No.: 083-04
Dwg No.: 12



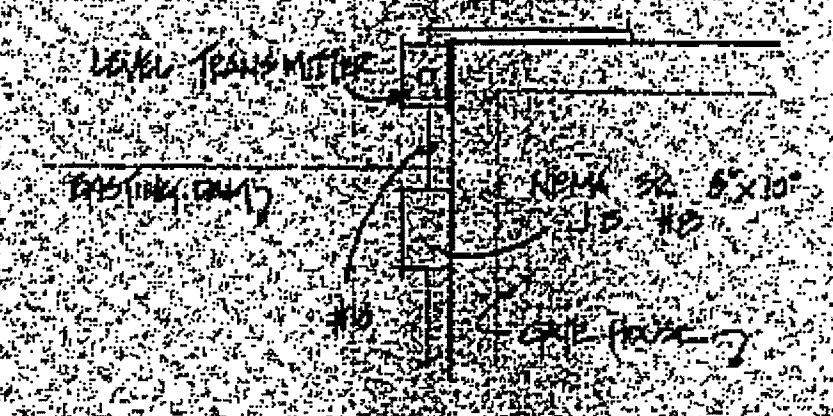
PLAN TRANSFORMER, SWITCHYARD AND CONTROLS



TYP. POLE DETAIL AT EXPOSED CULVERT



PLAN POWER LINE LAYOUT



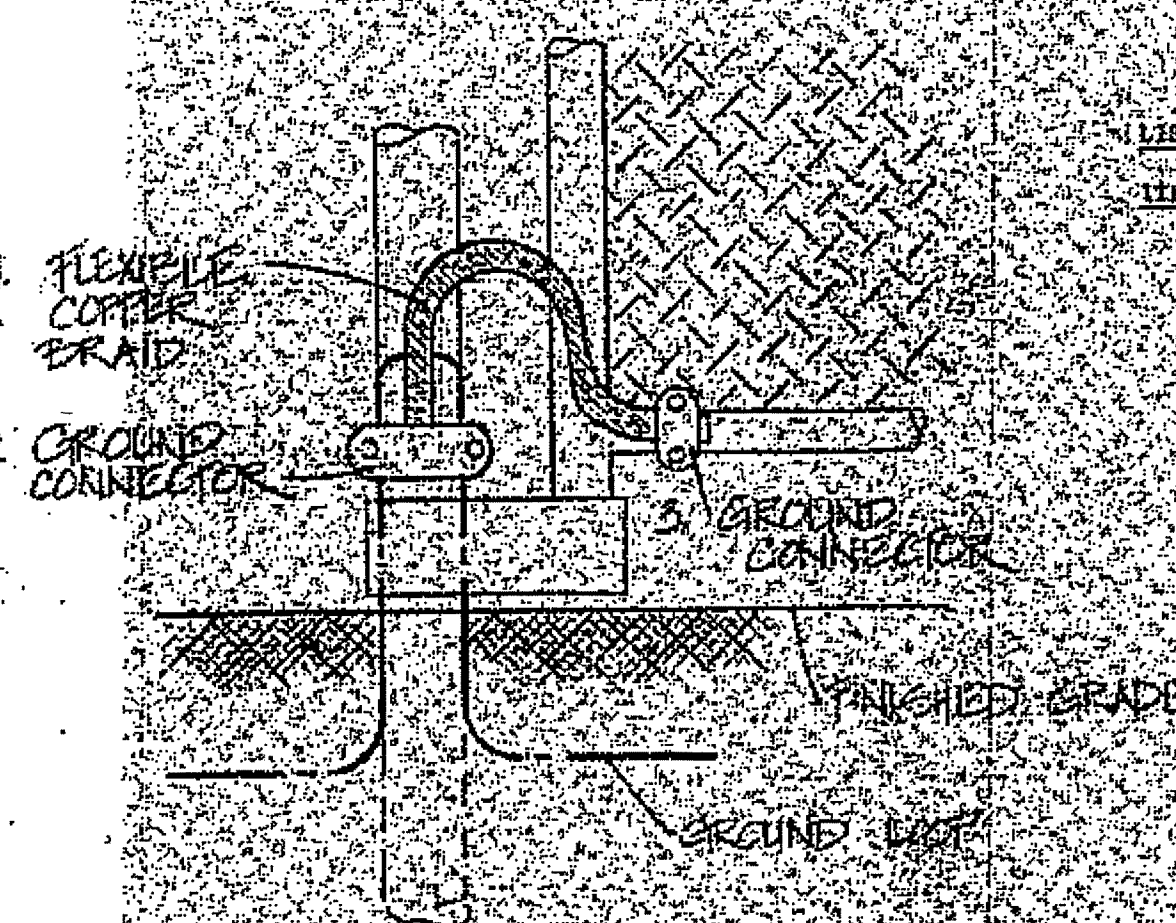
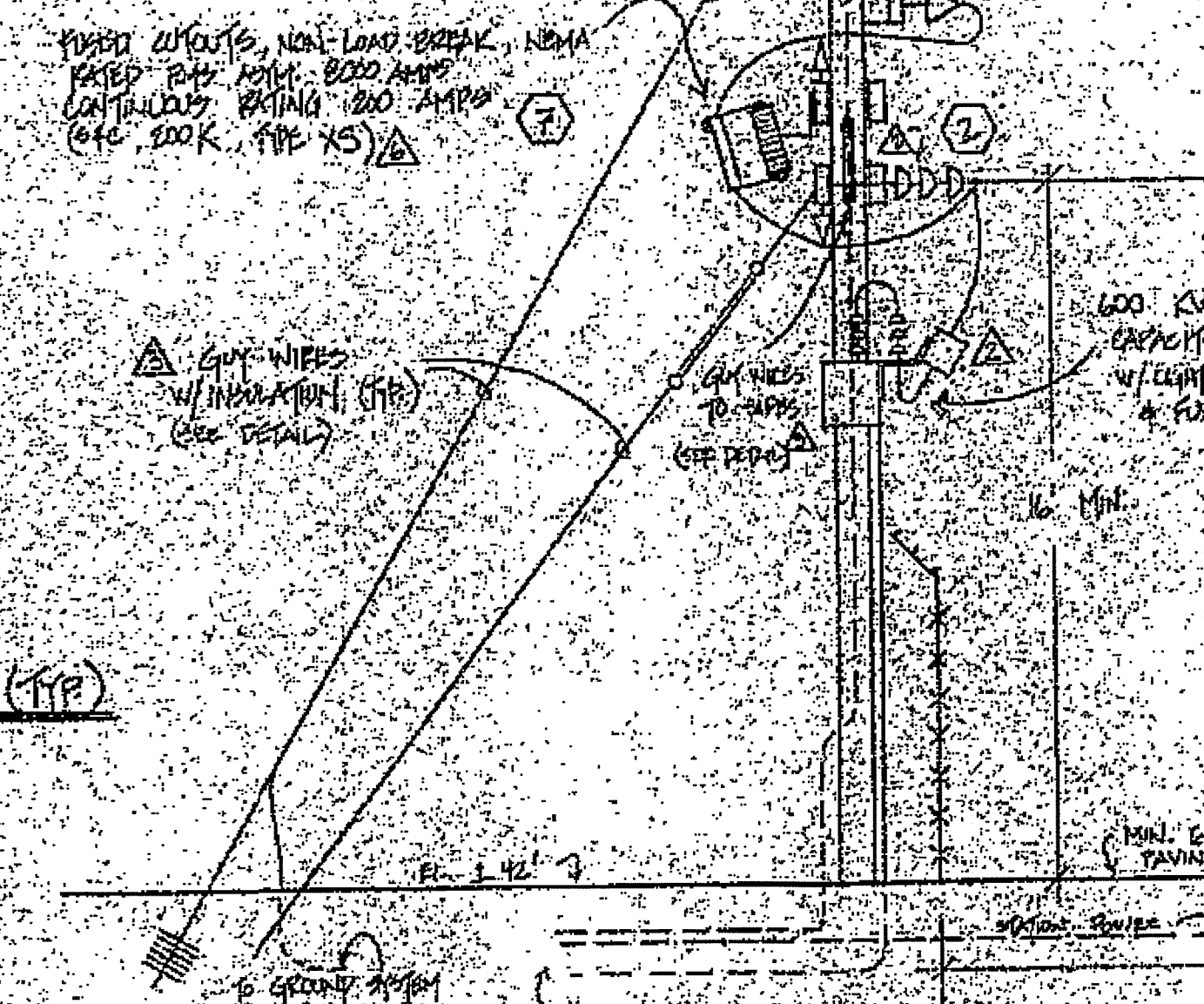
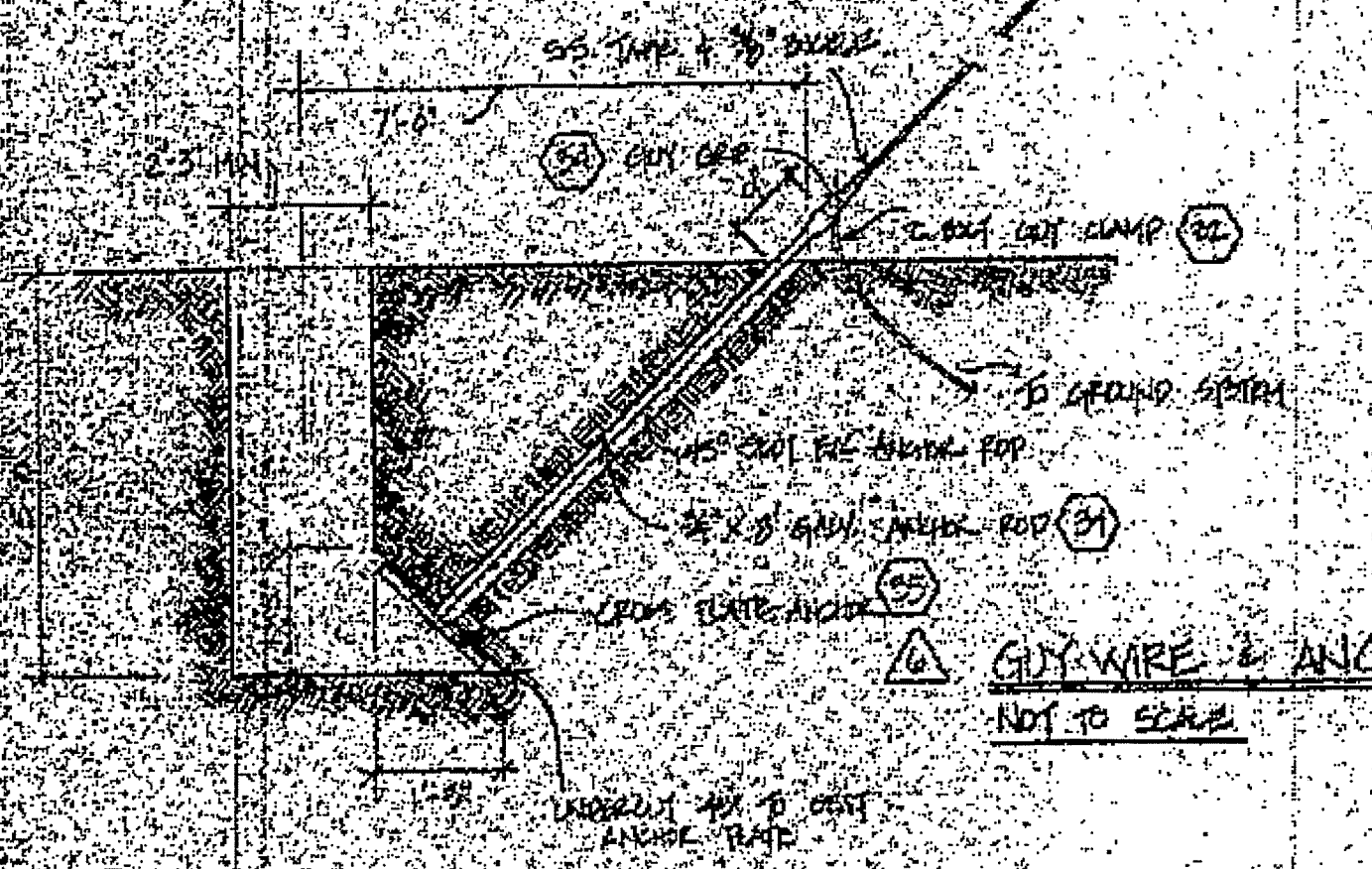
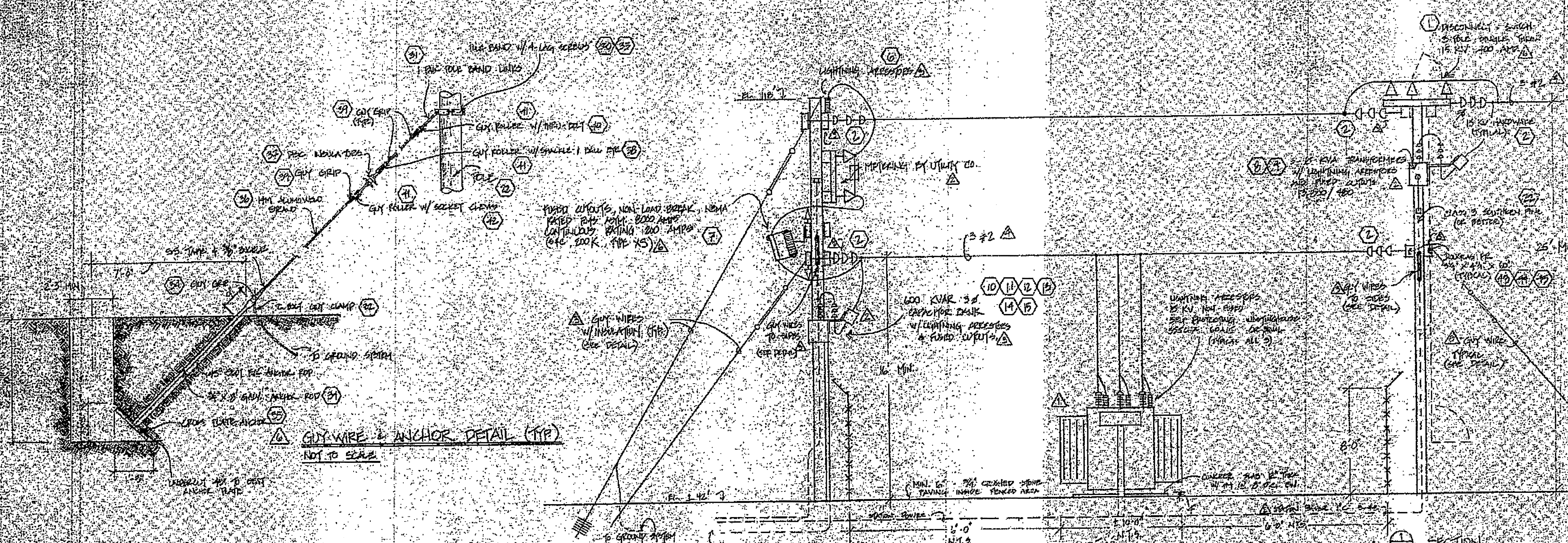
PLAN @ GATE HOUSE

1	7/25/54	DESIGNED UNDER E14	CHS
2	8/25/54	REVISED UNDER E14	CHS
3	9/25/54	REVISED UNDER E14	CHS
4	10/25/54	REVISED UNDER E14	CHS
5	11/25/54	REVISED UNDER E14	CHS
6	12/25/54	REVISED UNDER E14	CHS
7	1/25/55	REVISED UNDER E14	CHS
8	2/25/55	REVISED UNDER E14	CHS
9	3/25/55	REVISED UNDER E14	CHS
10	4/25/55	REVISED UNDER E14	CHS

POWERLINE LAYOUT - PLAN OF CONTROL HOUSE & SWITCHYARD
CHICOPPEE HYDROELECTRIC PROJECT (ACTIVE)

CHRIS HOSFORD, INC.
3179 Main Street
BARNSTABLE, MASSACHUSETTS 02530
(617) 362-4561

E14



LIST OF MATERIALS

ITEM NO.	DESCRIPTION
1	1/8" dia. x 10 1/2" long, unthreaded copper, and steel ground rod, Q & P Manufacturing Co., Inc. or equal.
2	1/2" dia. x 1/2" long, stainless steel pipe cap, size with sub.
3	1/8" ground connector, to take fence cables sized from #210 thru #250 MCM, Autrey, Cat. # 06628.

LIST OF MATERIALS

ITEM NO.	DESCRIPTION
1	Flexible copper braid, Bunnycat, Cat. # 100-100.
2	Ground connector, Bunnycat, type 100.
3	Ground connector, Bunnycat, Cat. # 100-100.

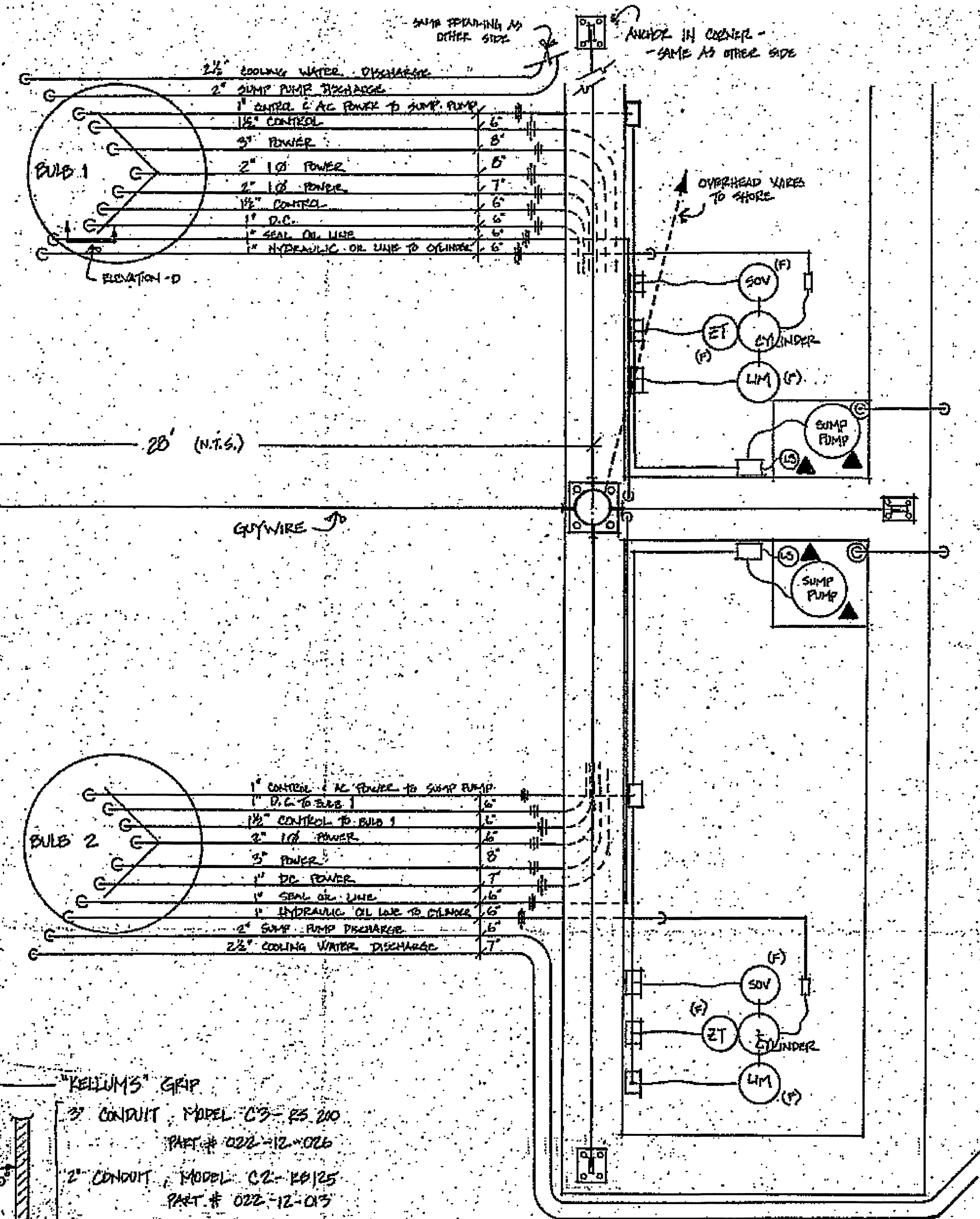
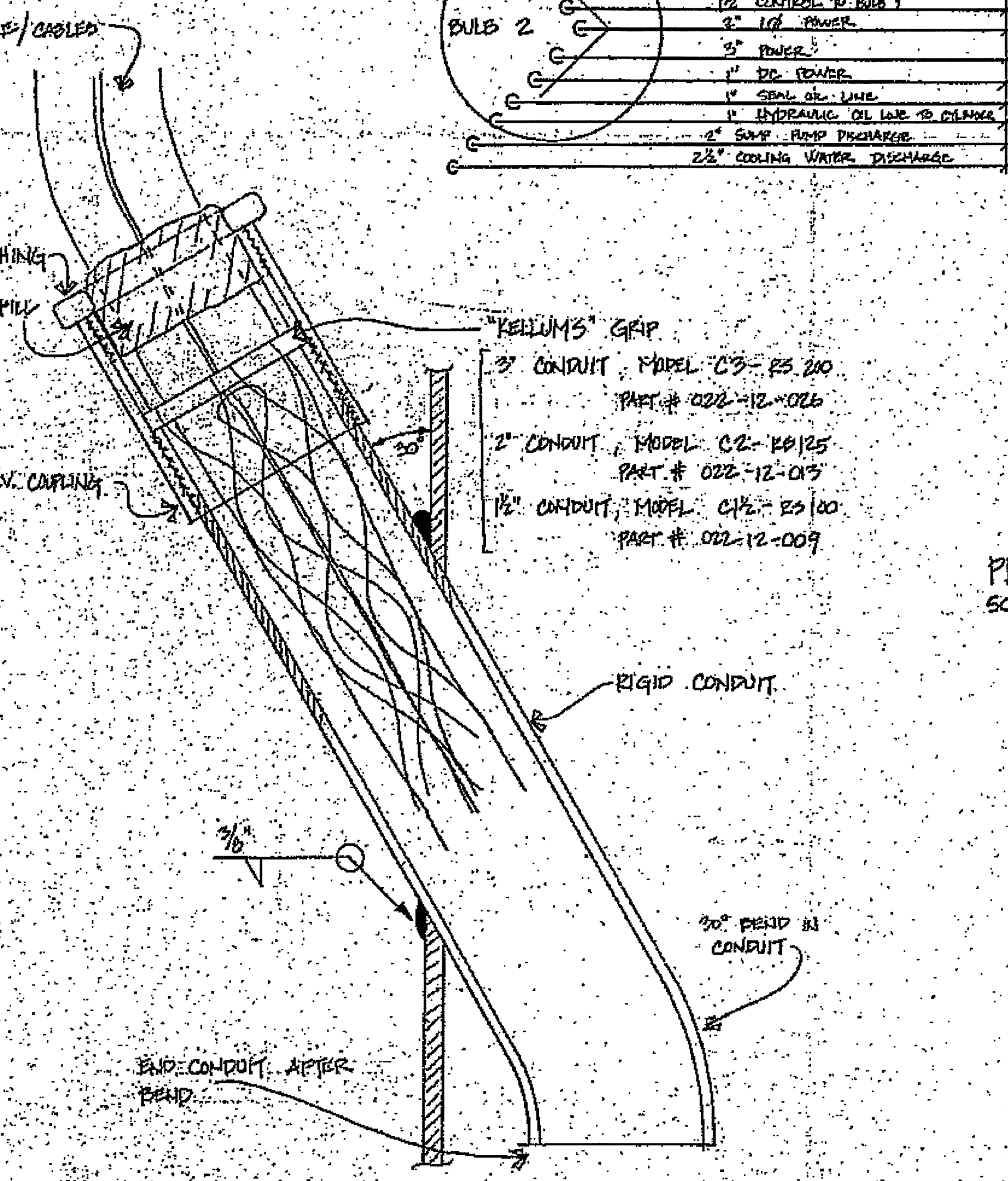
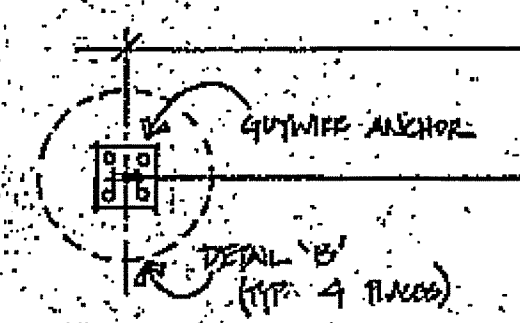
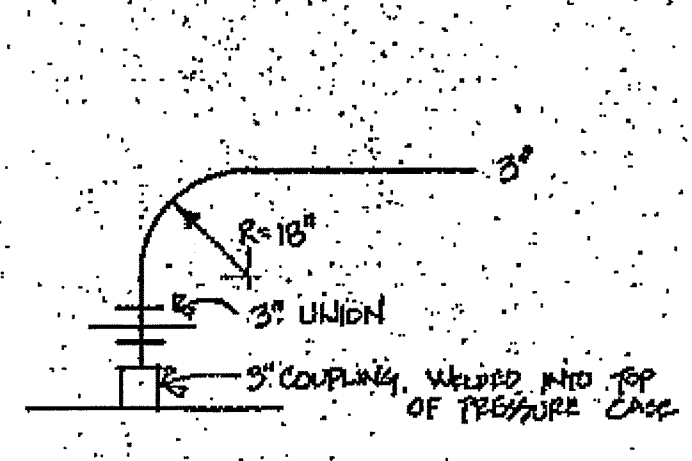
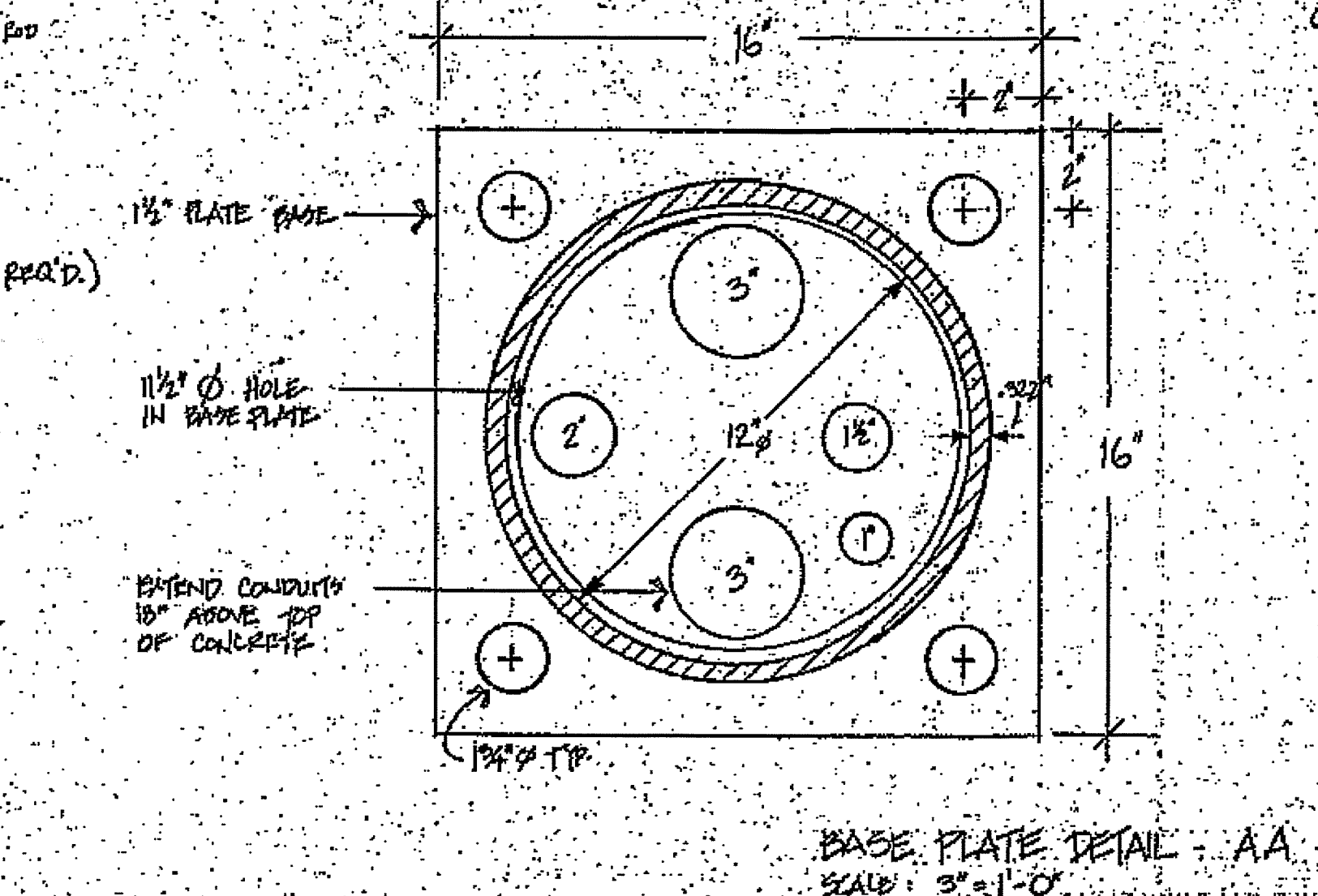
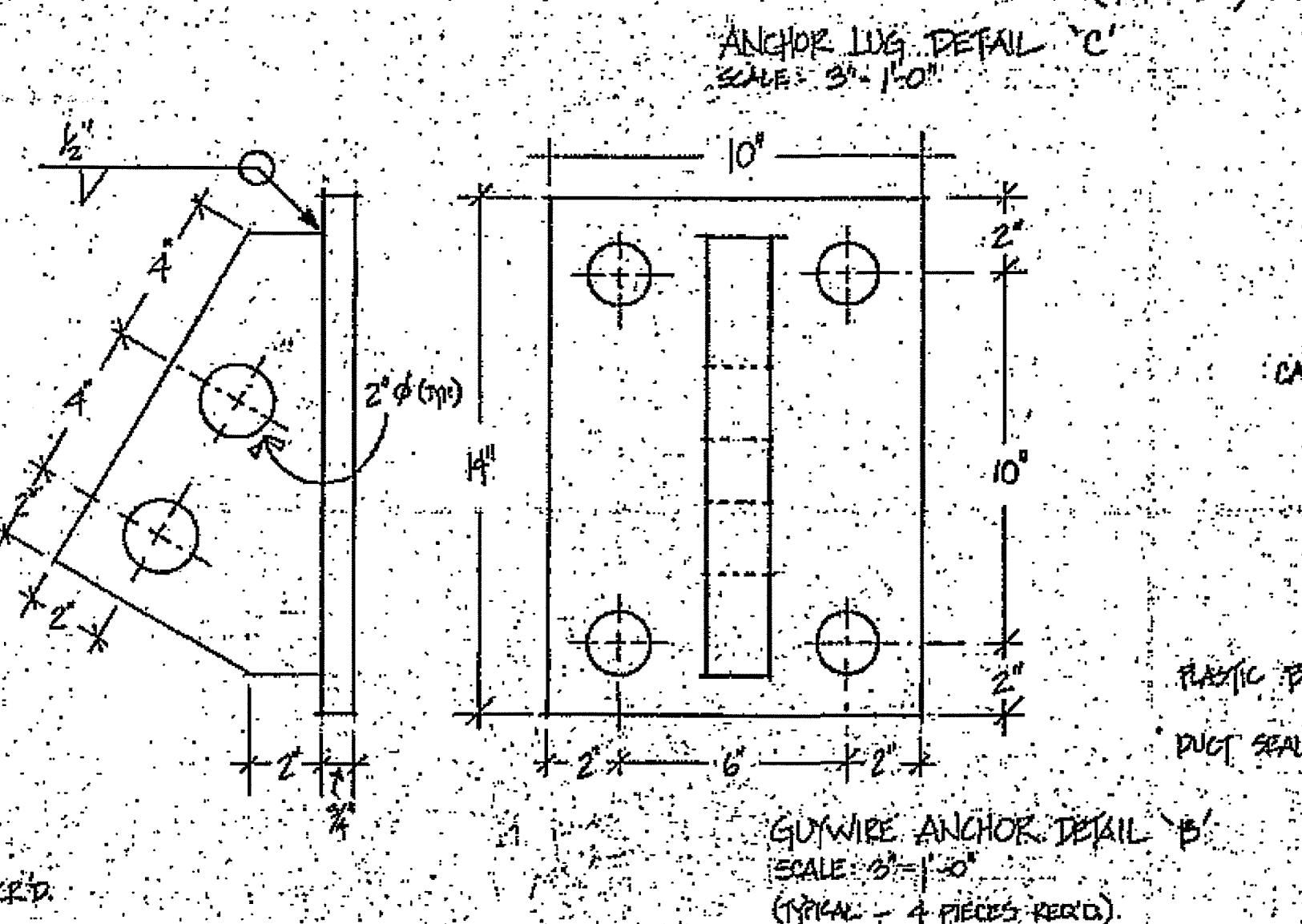
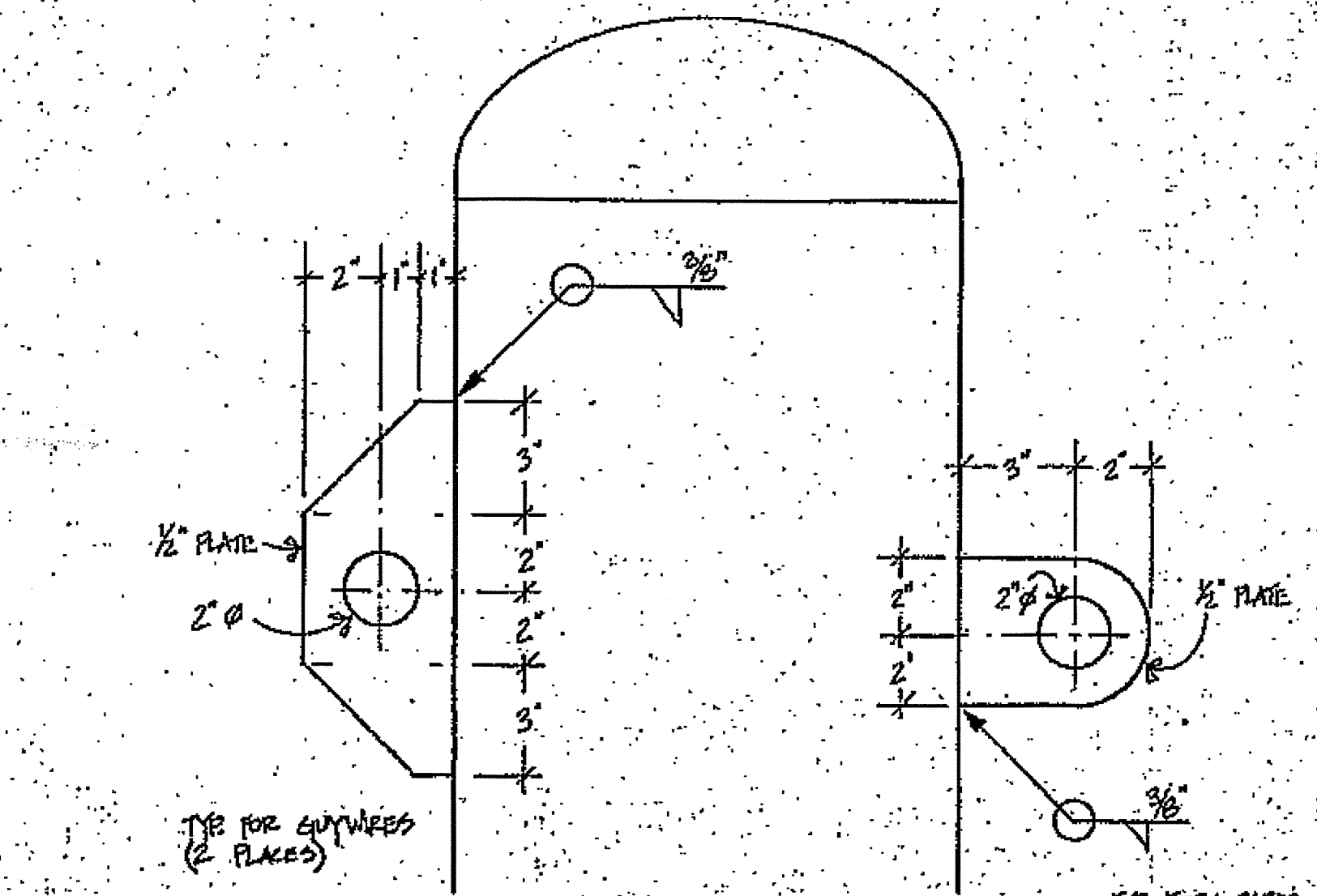
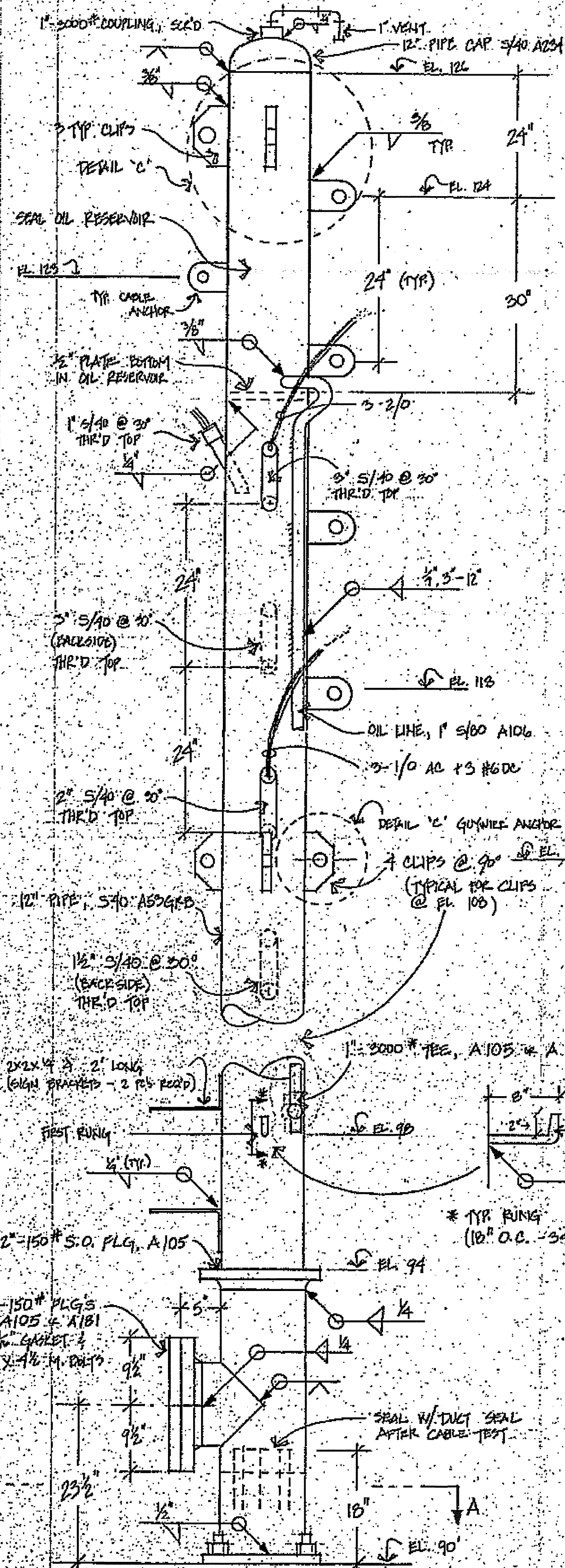
ITEM NO.	DESCRIPTION	QTY	UNIT
6	9-2-84 GUY WIRE DETAIL		EA
5	6-6-84 FENCE RITE		EA
4	7-2-84 GROUNDING WIRE		EA
3	6-8-84 FENCE POST AND GUY GROUNDING		EA
2	6-11-84 FENCE POST AND GUY GROUNDING		EA
1	6-11-84 FENCE POST AND GUY GROUNDING		EA

POWERLINE & GROUNDING DETAILS

CHICOPPE HYDROELECTRIC SWIFT RIVER COMPANY

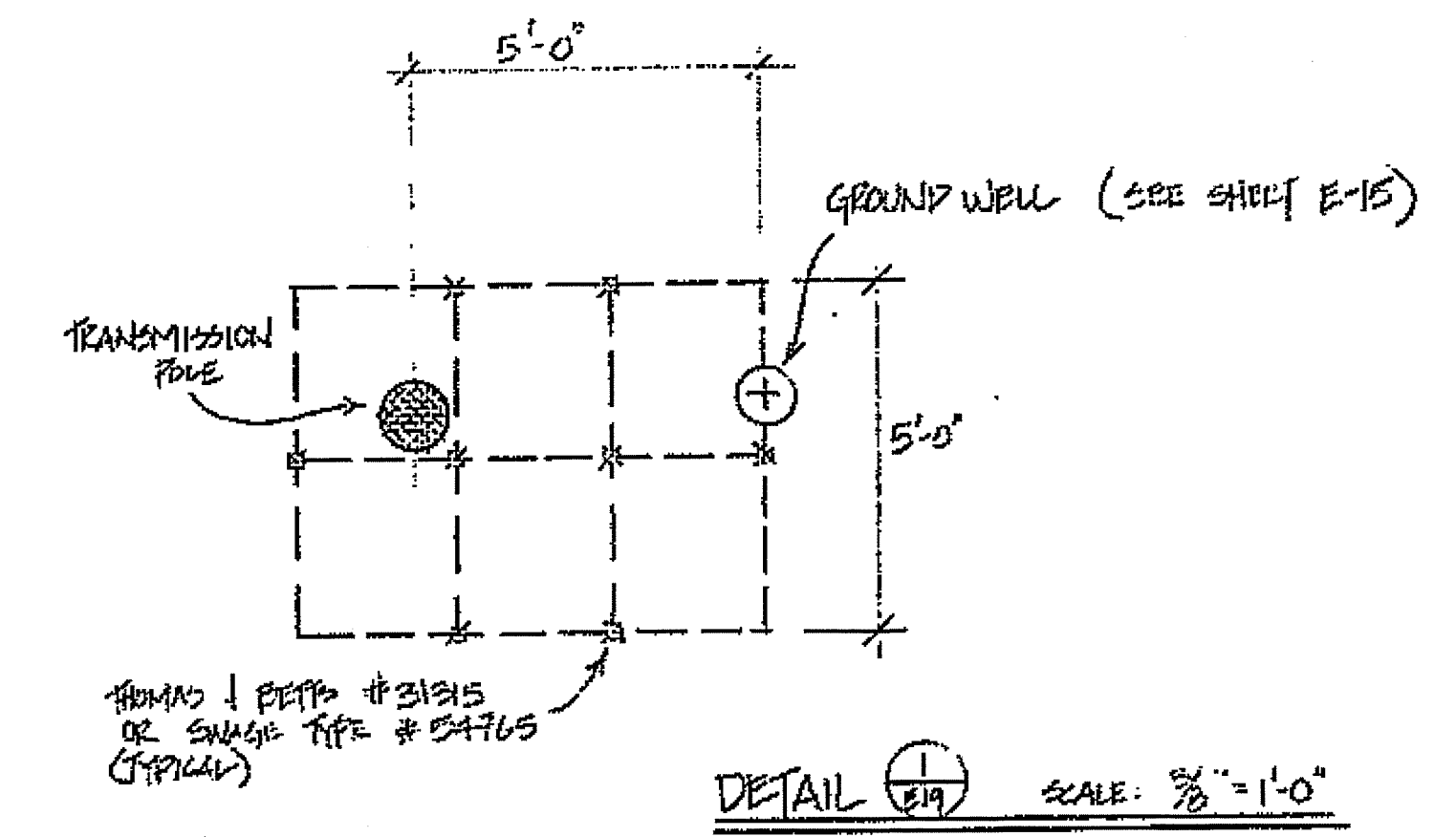
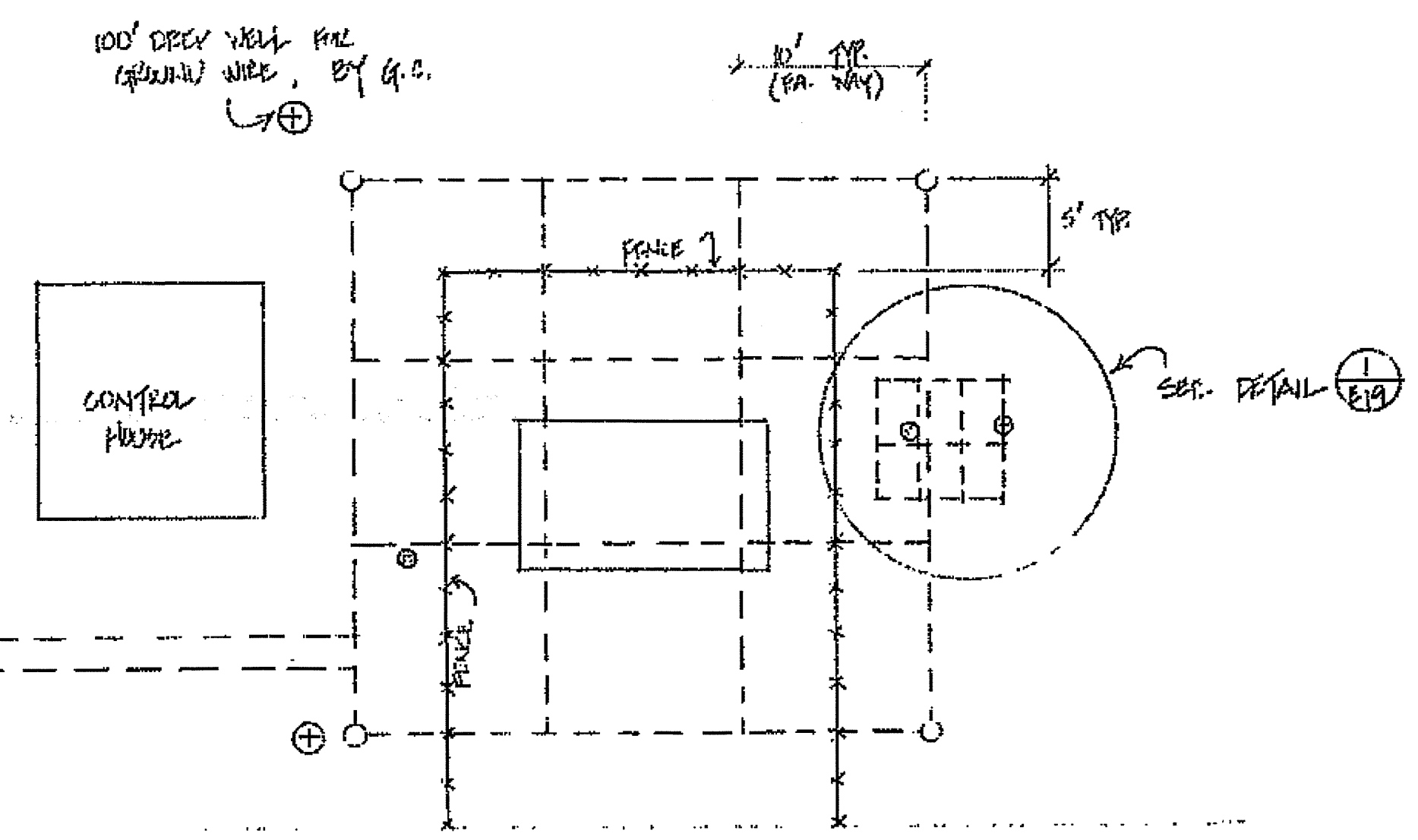
CHRIS HOSFORD, INC.
 3179 Main Street
 BARNSTABLE, MASSACHUSETTS 02530
 (517) 382-4581

E15

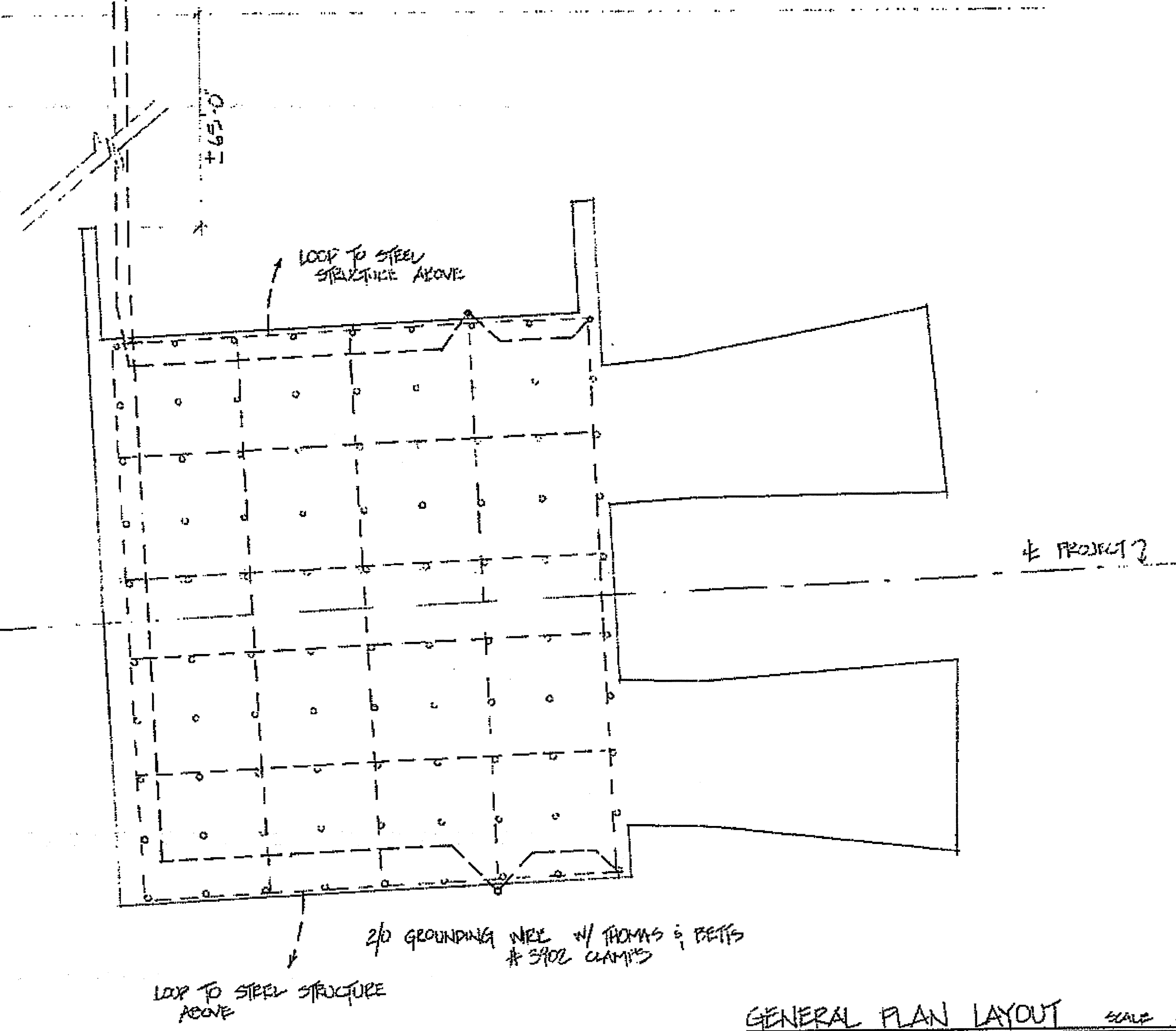


- NOTES:
- ▲ - Furnished by SRC/DOC and set by DOC
 - △ - Furnished and installed by electrical/controls contractor
 - (F) - Furnished by ESAG, in bulb
 - - Sequence of events recorder

NO.	DATE	REVISION	BY
ELECTRICAL POLE DETAILS POWER STRUCTURE			
CHICOPEE HYDROELECTRIC SWIFT RIVER COMPANY			
PROJECT: 022-01 DRAWING: AS-NOTED DATE: MAR 89 DRAWN BY: KPA			E16 <small>OF 1 SHEETS</small>
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561			



- GROUNDING NOTES
1. ALL GROUNDING LOOP WIRES SHALL BE BURIED 24\"
 2. ALL STRUCTURE, STEELWORK, ENCLOSURES, ETC. SHALL BE BONDED TO THE GROUNDING LOOP W/ #2 BARE COPPER STRANDED WIRE.
 3. ALL NEUTRALS, GROUNDING BUSBARS, ETC. SHALL BE BONDED W/ 2/0 WIRE.
 4. THE TRANSFORMER NEUTRAL SHALL BE 5KV INSULATED CABLE.

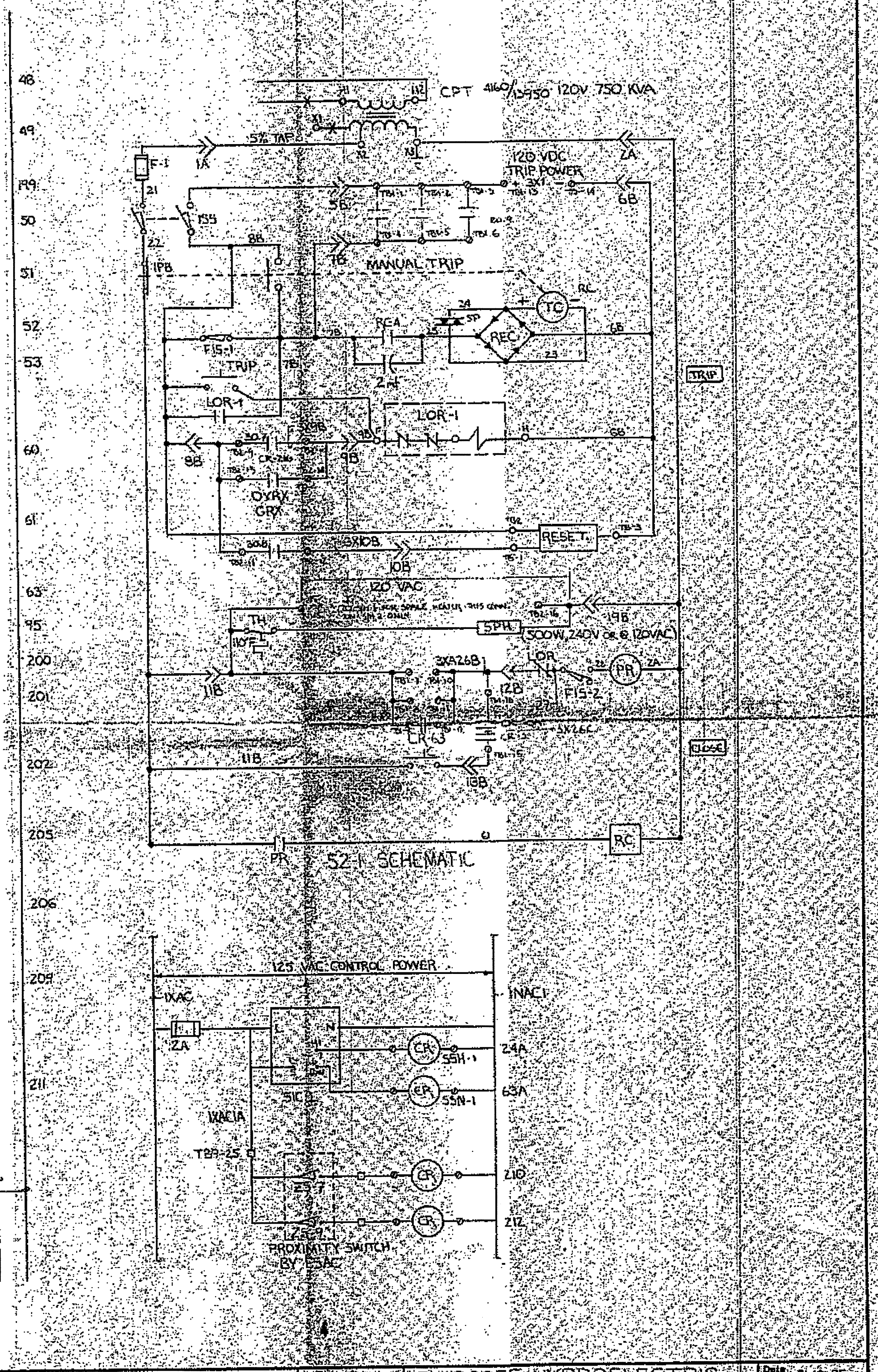
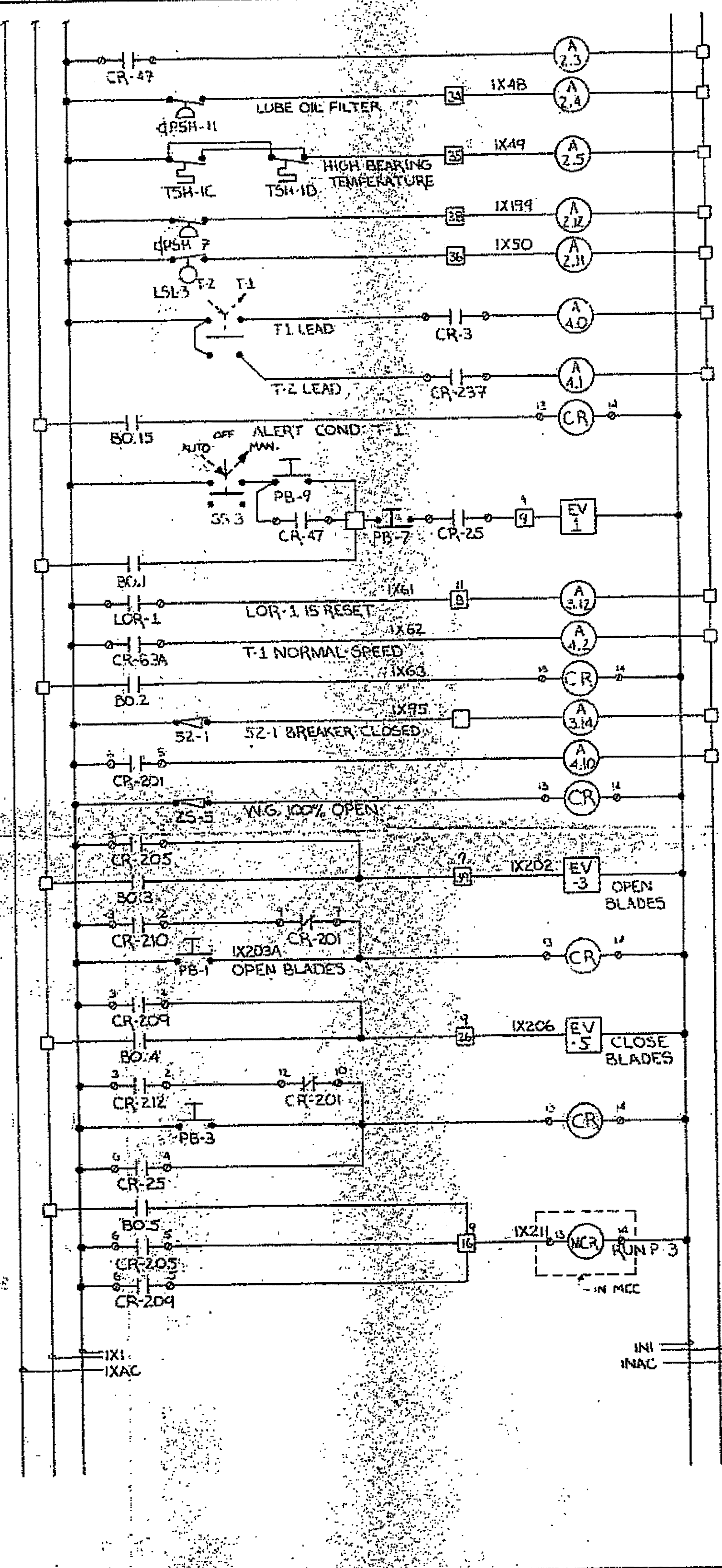
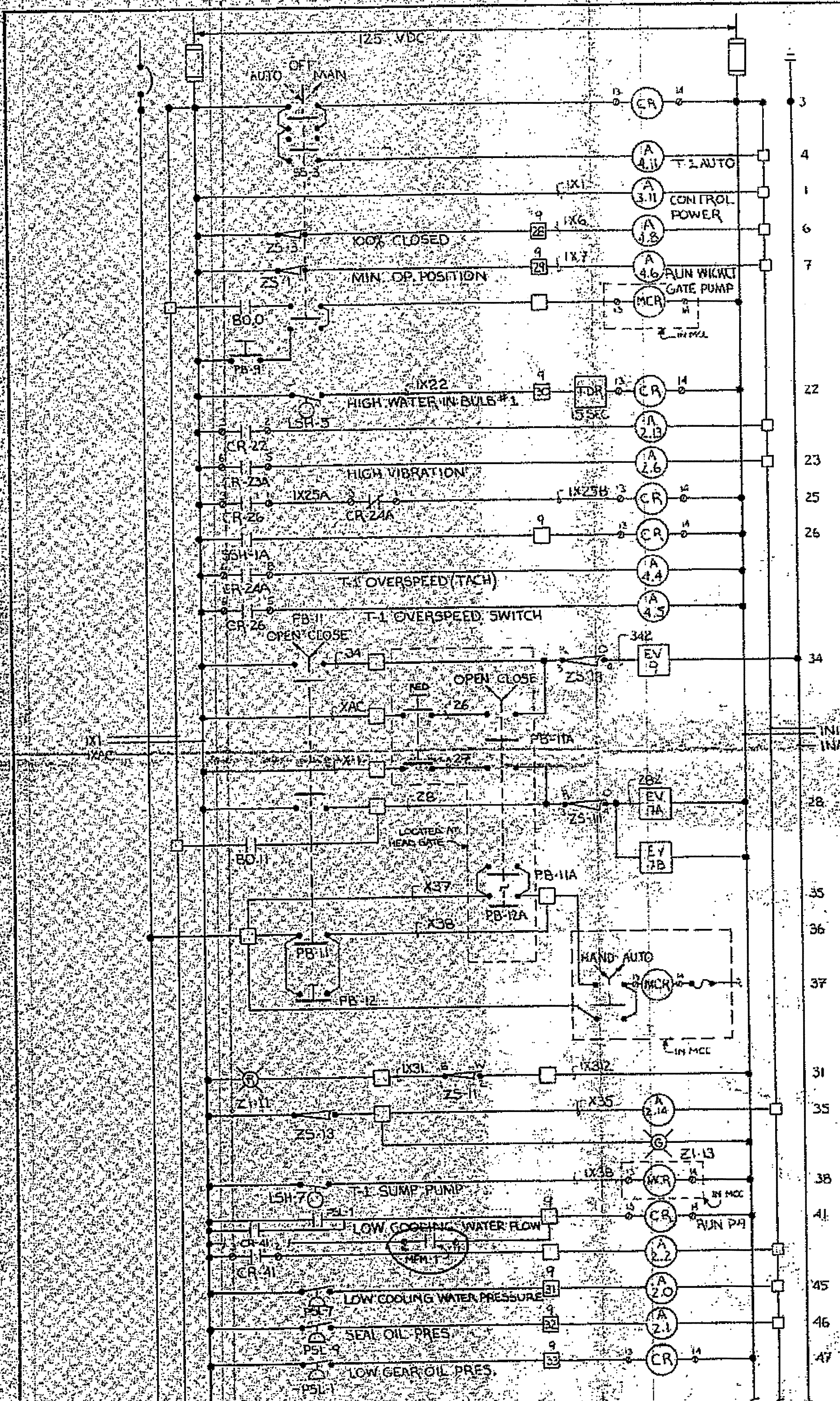


2/32 x 4 = 2752
 (32) x (4 x 5) = 640
 2752 + 640 = 3392
 3392 / 33 = 102.78

GENERAL PLAN LAYOUT scale 1/8"=1'-0"

THIS BLUEPRINT IS THE PROPERTY OF CHRIS HOSFORD, INC. IT IS LOANED TO YOU AND MUST BE RETURNED AFTER IT HAS SERVED THE PURPOSE FOR WHICH IT WAS INTENDED	REVISIONS	1		DATE	BY	8		DATE	BY	CHRIS HOSFORD, INC. BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4861	<u>GROUNDING DIAGRAMS</u>	Drawn By	KFA	Date	Aug 6 1971
		2				7						Checked By		Job No.	CEP-24
		3					6					Scale	AS NOTED	Draw No.	E 19
		4					5								

**CHICOPEE HYDROELECTRIC
 SWIFT RIVER COMPANY**



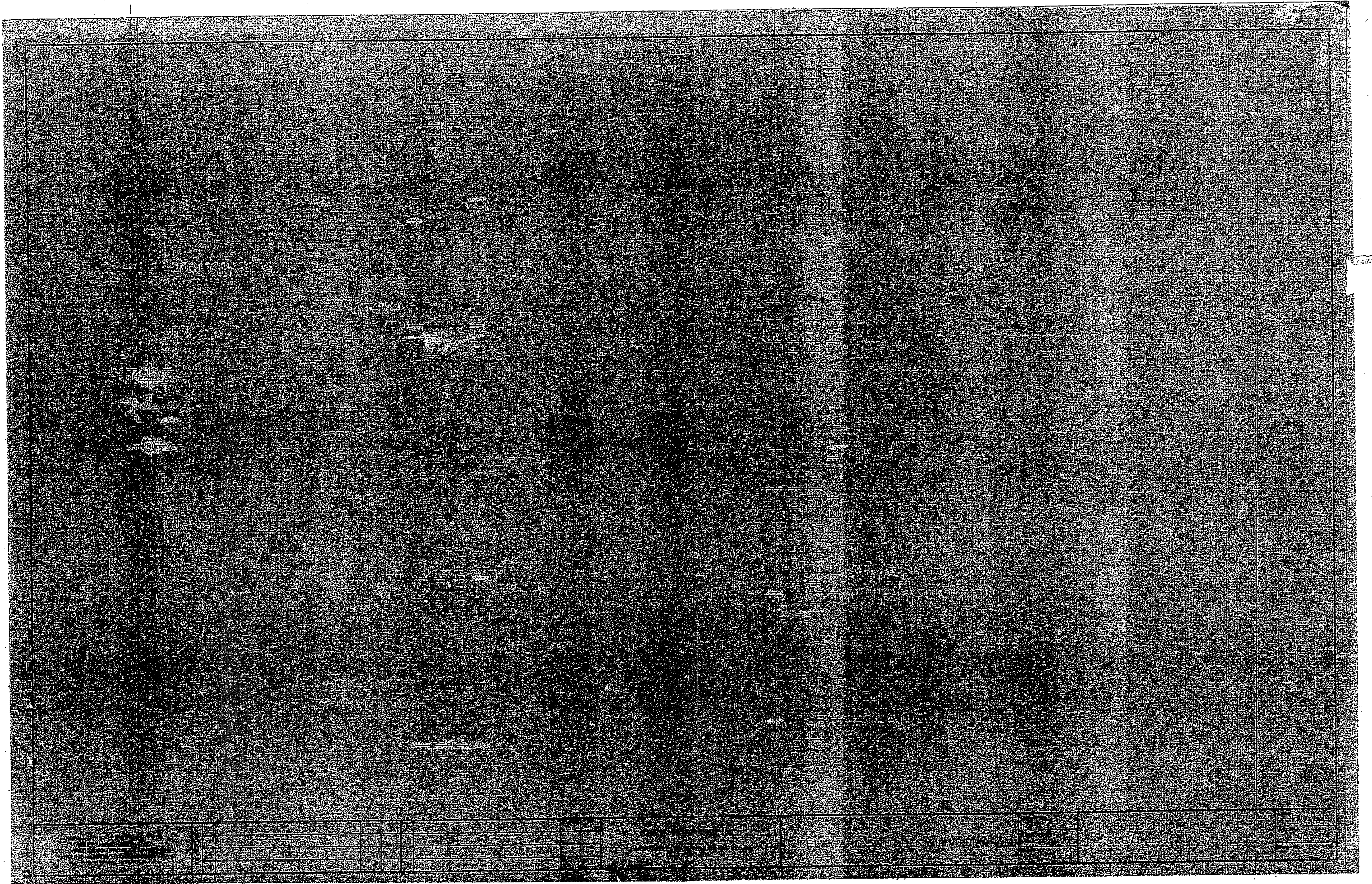
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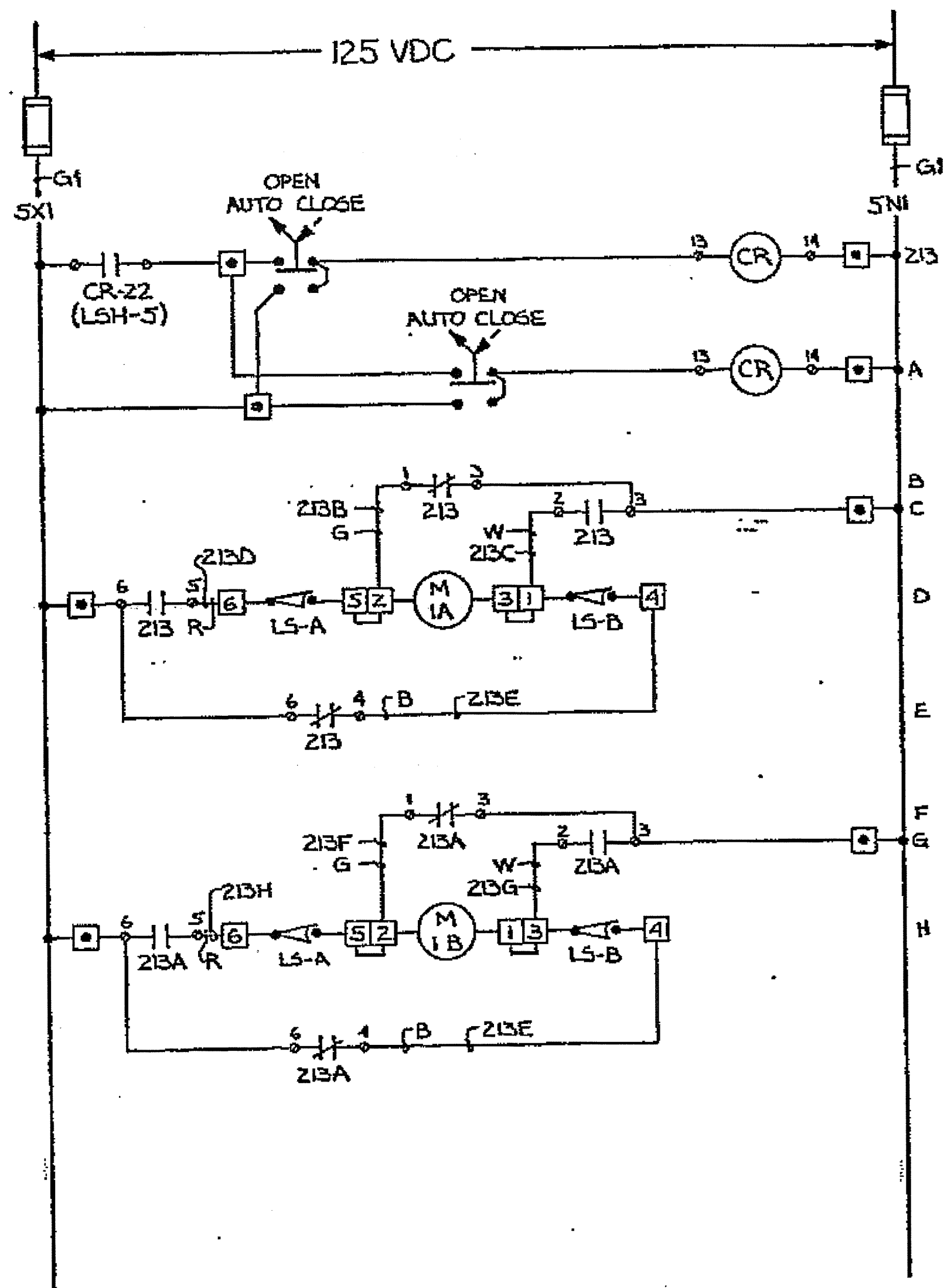
NO.	REVISION	DATE	BY	NO.	DATE	BY
1	GENERAL REVISION	12-22-54	AS	8		
2	AS BUILT REDRAWN	11-18-54	SM	7		
3				6		
4				5		

CHRIS HOSFORD, INC.
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(617) 362-4561

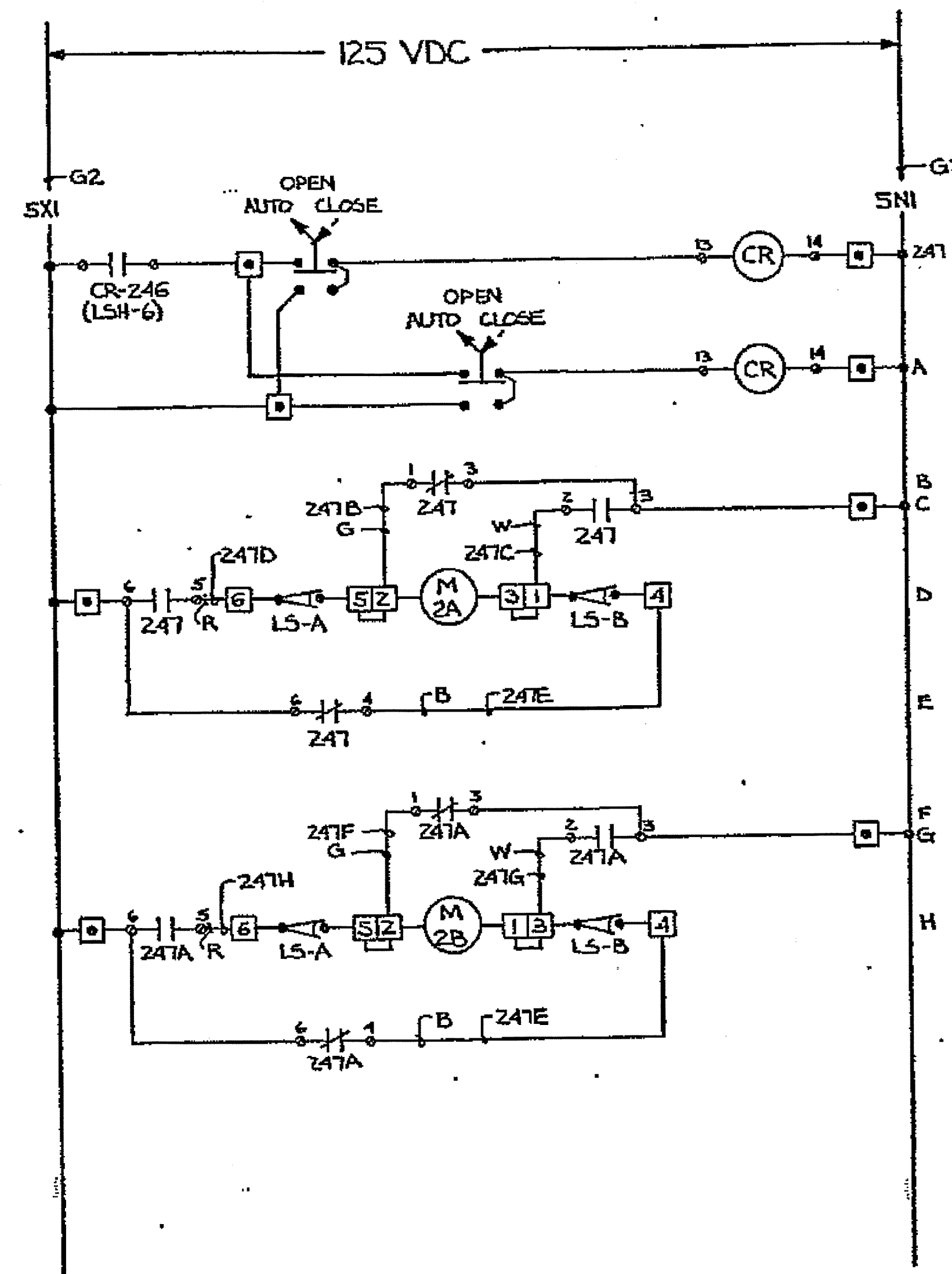
ELEMENTARY DIAGRAM
TURBINE ONE

Drawn by: SMA	CHICOPEE HYDROELECTRIC SWIFT RIVER COMPANY	Date: 6-16-55
Checked by:		Job No: 08304
Scale:		Dwg. No: E-27





T-1 (E-27)



T-2 (E-28)

T-1 & T-2 NOTES: □ = SPLICES IN J.B. IN BULB
 1) LS-A: OPEN WHEN VALVE IS CLOSED
 2) LS-B: OPEN WHEN VALVE IS OPEN

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 WHICH IT WAS INTENDED

REVISIONS	1	2	3	4	DATE	BY	#	DATE	BY
							7		
							8		
							8		

CHRIS HOSFORD, INC.
 BARNSTABLE, MASSACHUSETTS 02630
 (617) 362-4561

ELEMENTARY DIAGRAMS
 CONTINUED FROM
 DRAWINGS E-27 + E-28

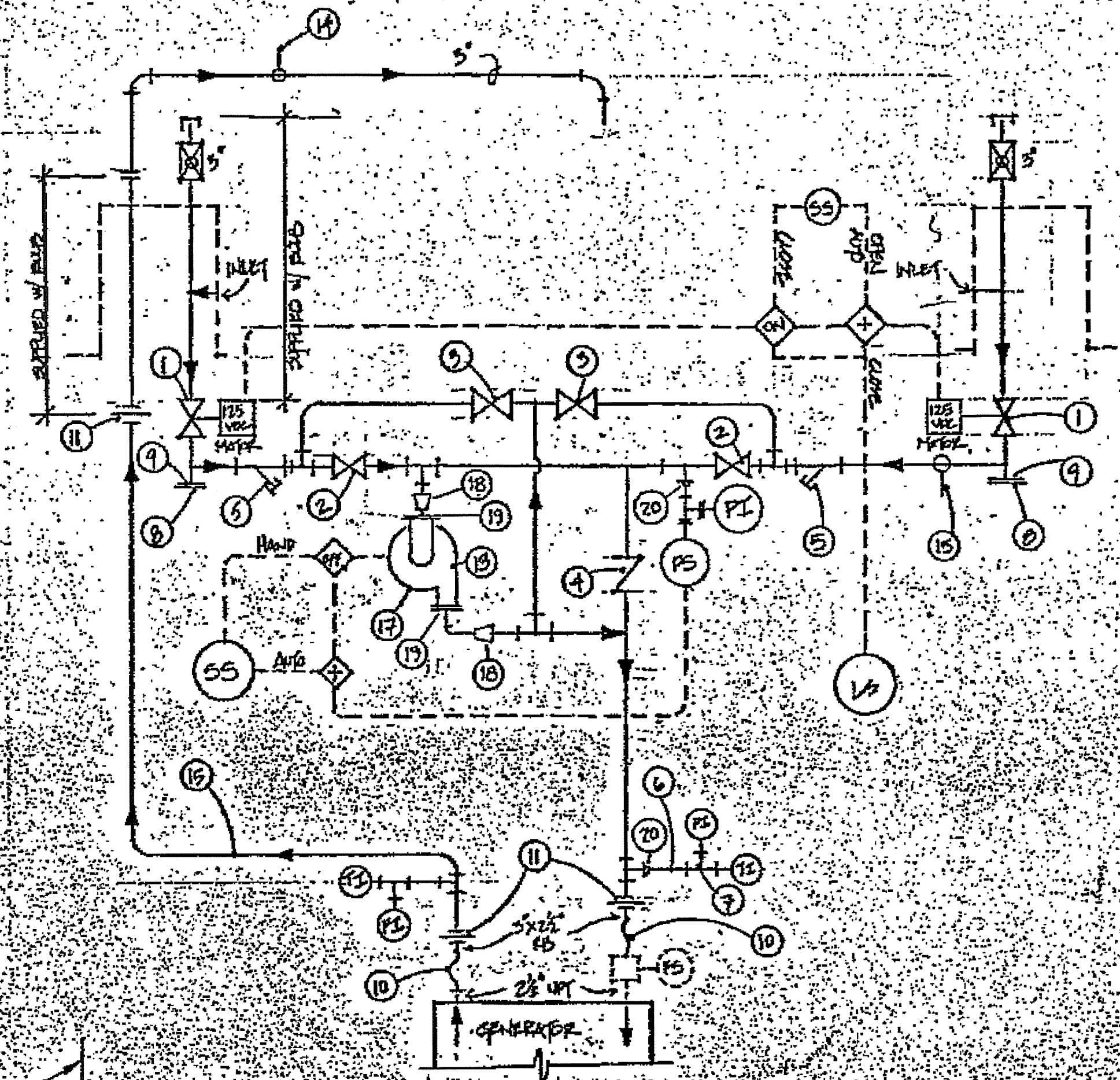
Drawn By SMA
 Checked By
 Scale ~

CHICOPEE HYDROELECTRIC
 SWIFT RIVER COMPANY

Date 12-6-85
 Job No. 08304
 Dwg No. E-31

LIST OF MATERIALS

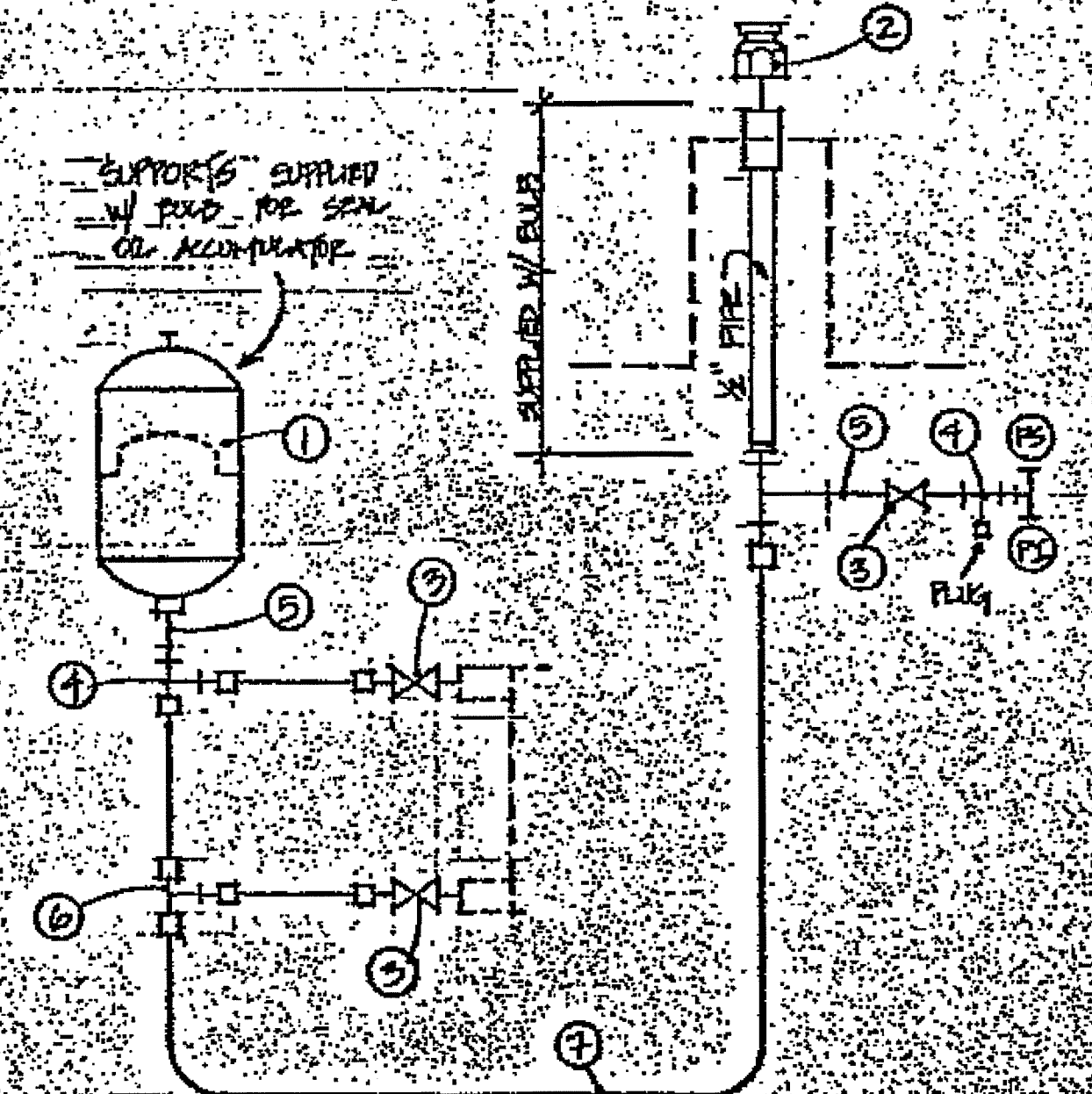
1. 3" Ball Valve, True Union, FNPT x FSOCKET, PVC with EDM O-rings, with Kayword Control Systems electric operator, 125VDC, with open-close-auto switch.
2. 3" Ball Valve, True Union, FS x FS, PVC with EDM O-rings, ASAHI # ABEVSPVE080, or approved equal.
3. 2" Ball Valve, same as #2, ASAHI # AMVSPVE050 or equal.
4. 3" Check Valve, union ball type, FS x FS, PVC with EDM O-rings, ASAHI # AMVSPVE080 or approved equal.
5. 3" Eye Strainers, transparent PVC, 20 mesh PVC screen, FS x FS, ASAHI # FVSPVE080 or approved equal.
6. 1" x 2" Rippla, Brass, NPT, (3 req'd).
7. 1" Tee, 150#, Brass, NPT, (1 req'd).
8. 3" - 150# Flange, PVC, socket.
9. 3" - 150# Blind Flange, PVC, with red rubber gasket and bronze flange bolting.
10. 2 1/2" flexible stainless steel hose, 24" long, Kelflex or equal.
11. 3" union, PVC, FS x FS.
12. Piping in bulb:
Pipes: PVC 5/8", ASTM D-1785.
Fittings: PVC Socket weld, ASTM D-2457.
13. Pump, 60 GPM, 20 Foot TDH, 480V, 3 #, Bell & Gossett, # 60-145R.
14. Support PVC discharge under platform. Hangers shall be Grinnell Figure 65 or approved equal.
15. Support piping inside bulb with "u" bolts and rigid angle supports welded to bulb.
16. Items supplied and installed by others: AS, FS, FS, FT, FT, FS, all wiring, and the piping into and out of the bulb proper.
17. Support pump so that no force is on PVC piping.
18. 3"x2" RED PVC
19. 2" - 150# FLANGE, PVC, SOCKET, W/ RED RUBBER GASKET
20. 3"x1" R.B. PVC, M3XFFT



COOLING WATER SYSTEM
(ONE FOR EACH DUG)

LIST OF MATERIALS

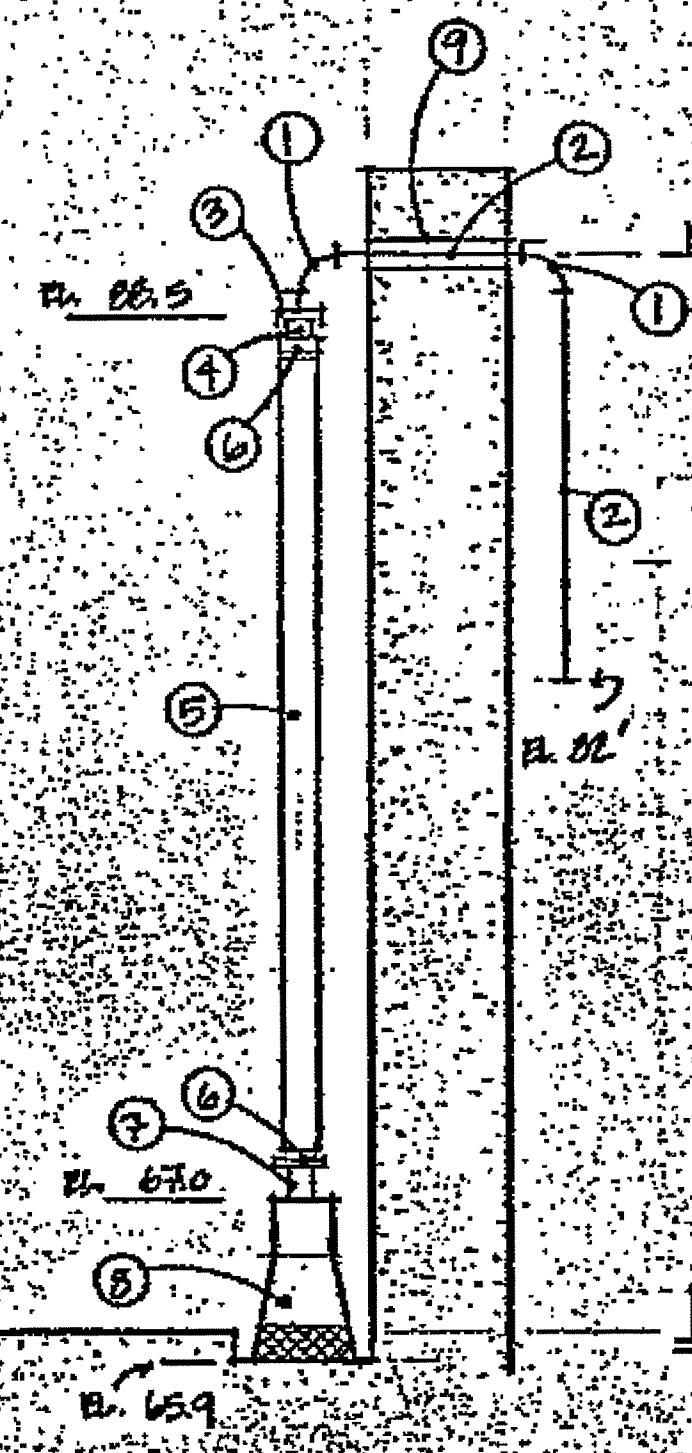
1. Accumulator: Extrol Model S908 with Hydron diaphragm, 30 PSI on air side, 1/2" FNPT Bottom Connection, for use with #30 SAE lube oil.
2. Male Quick Disconnect: 1/2" FNPT x Swagelok quick disconnect, Swagelok #SS-QDB-D-3PH.
3. Gate Valve: 1/2" NPT Brass, 150#.
4. Fittings: 1/2" Red Brass, 150#.
5. Nipples: 1/2" Red Brass, 150#.
6. Tube Fittings: Swagelok Brass.
7. Tubings: 1/2" OD x 0.035" Wall, 304 Stainless Steel, 25' per bulb.
8. Pressure gauge and pressure switch by others.



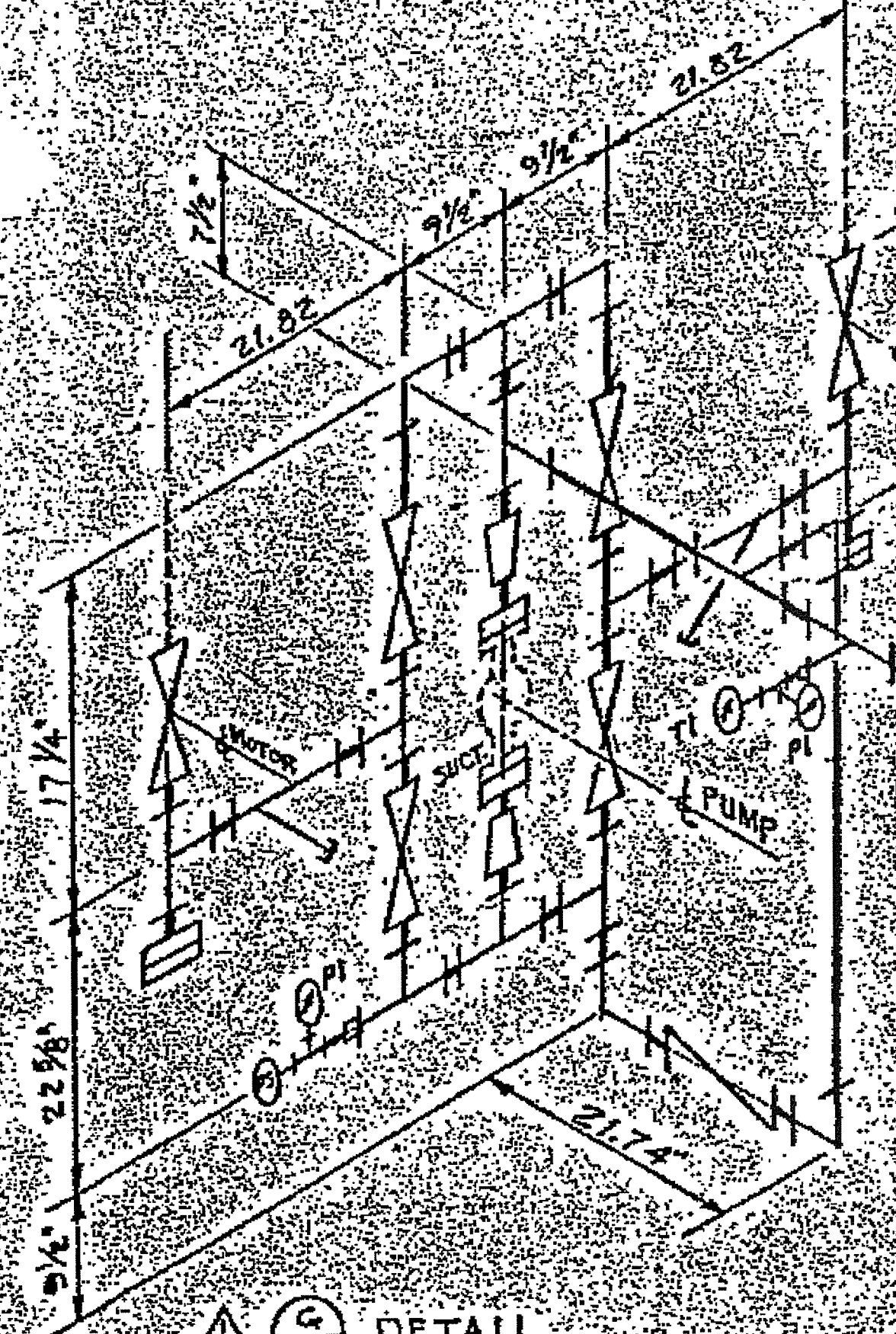
SEAL OIL SYSTEM
(ONE FOR EACH DUG)

LIST OF MATERIALS

1. 3" Pipe, Galv., 3/40, A120 or A53GRB.
2. 3" 150# MI 90° ELB, FNPT.
3. 3" Female quick disconnect, glass reinforced polypropylene, Part 3, Camlock x NPT.
4. 3" Male quick disconnect, G/R/P, Part 4, Male Camlock x 3" Hose.
5. 3" x 21" hose, Kamflat Series 160BL, 3" ID, 70 PSI MAWP.
6. 3" Stainless steel Hose clamp, "68" HY-CLAMP, Part # 106872.
7. 3" Hose Nipple, Galv. steel, 3" FNPT x 3" hose.
8. 600 GPM pump, Fltgc Model HS2102 with 3" FNPT disconnect, supplied by owner.
9. 4" PVC sleeve in wall by G.C. Piping contractor to grout in 3" with dry mortar mix or lead wool.



MAIN SUMP PUMP

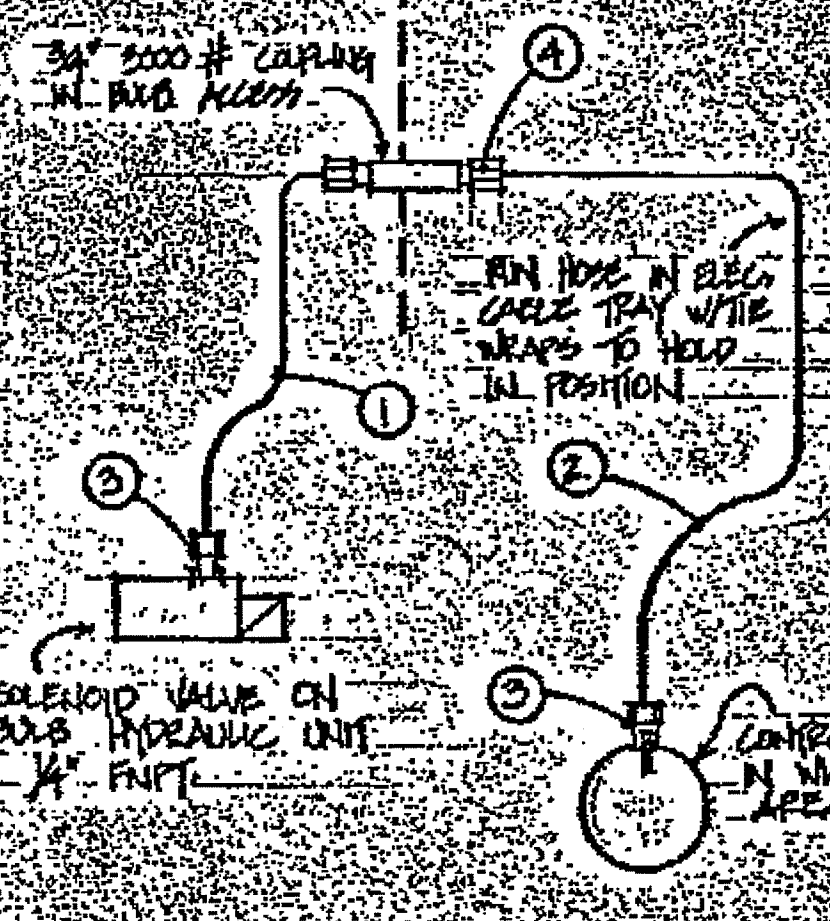


DETAIL COOLING WATER PIPING

DRAIN GATE TUBING (LOCATED @ POWER STRUCTURE)
SEE B/M-DG FOR PART NUMBERS
NO SCALE

LIST OF MATERIALS

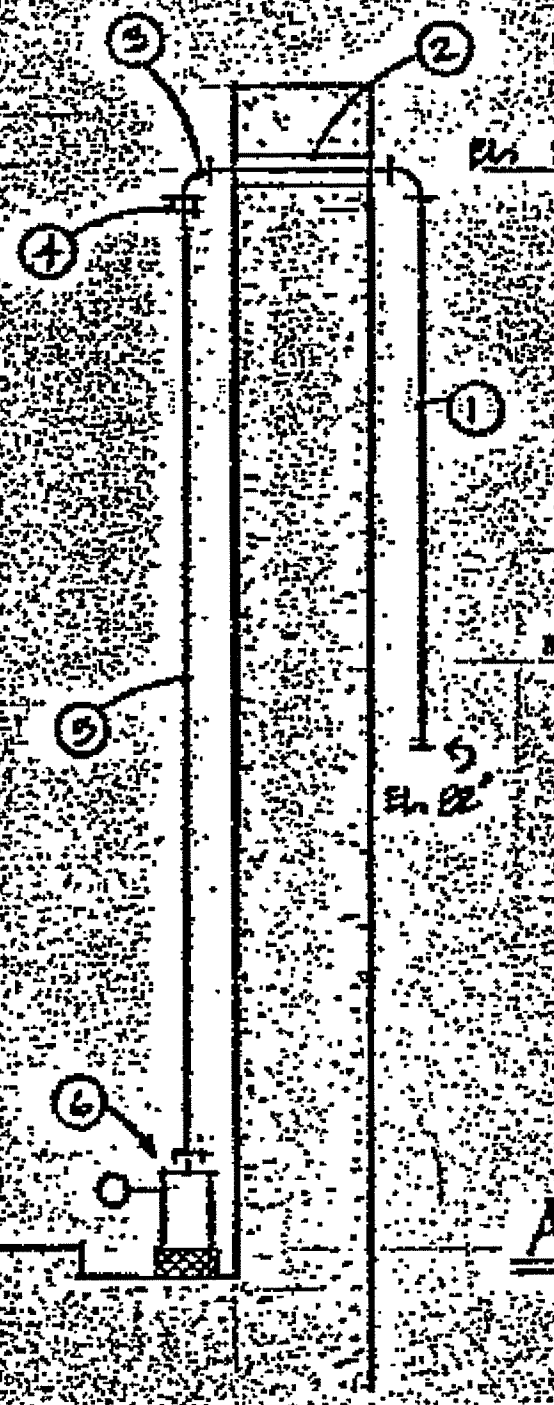
1. 1/4" Medium Pressure Hydraulic Hose with Impregnated Textile Braid Cover, Superior Eastman Style 19, Max. Working Pressure 3000 PSI, Min. Burst 12,000 PSI, Part No. 1903A, 25' long.
2. Same hose as #1, 50' long.
3. Hose fitting, steel, 1/4" FNPT, union type.
4. Hose fitting, steel, 3/4" FNPT, union type.



HYDRAULIC OIL SCHEMATIC
(ONE FOR EACH DUG)

LIST OF MATERIALS

1. 1" PVC Pipe, 5/40.
2. 1 1/2" PVC Sleeve in conc. wall by G.C. Piping contractor to grout in 3" with mortar or lead wool.
3. 1" PVC fittings, solvent cement or NPT.
4. Hose adapter, 1" NPT to garden hose.
5. 25' long good quality garden hose.
6. Good quality sump pump from "Sears," with integral level switch and 30' long cord.



AUXILIARY SUMP PUMP

THIS BLUEPRINT IS THE PROPERTY OF CHRIS HOSFORD, INC. IT IS LOANED TO YOU AND MUST BE RETURNED AFTER IT HAS SERVED THE PURPOSE FOR WHICH IT WAS INTENDED.

REV.	DESCRIPTION	DATE	BY	DATE	BY
1	ADD DETAIL "G". ADD ITEMS 18, 19, 20 TO LIST OF MATERIAL	01/78	E		
2	AS BUILT	11-4-85	SMA		
3					
4					

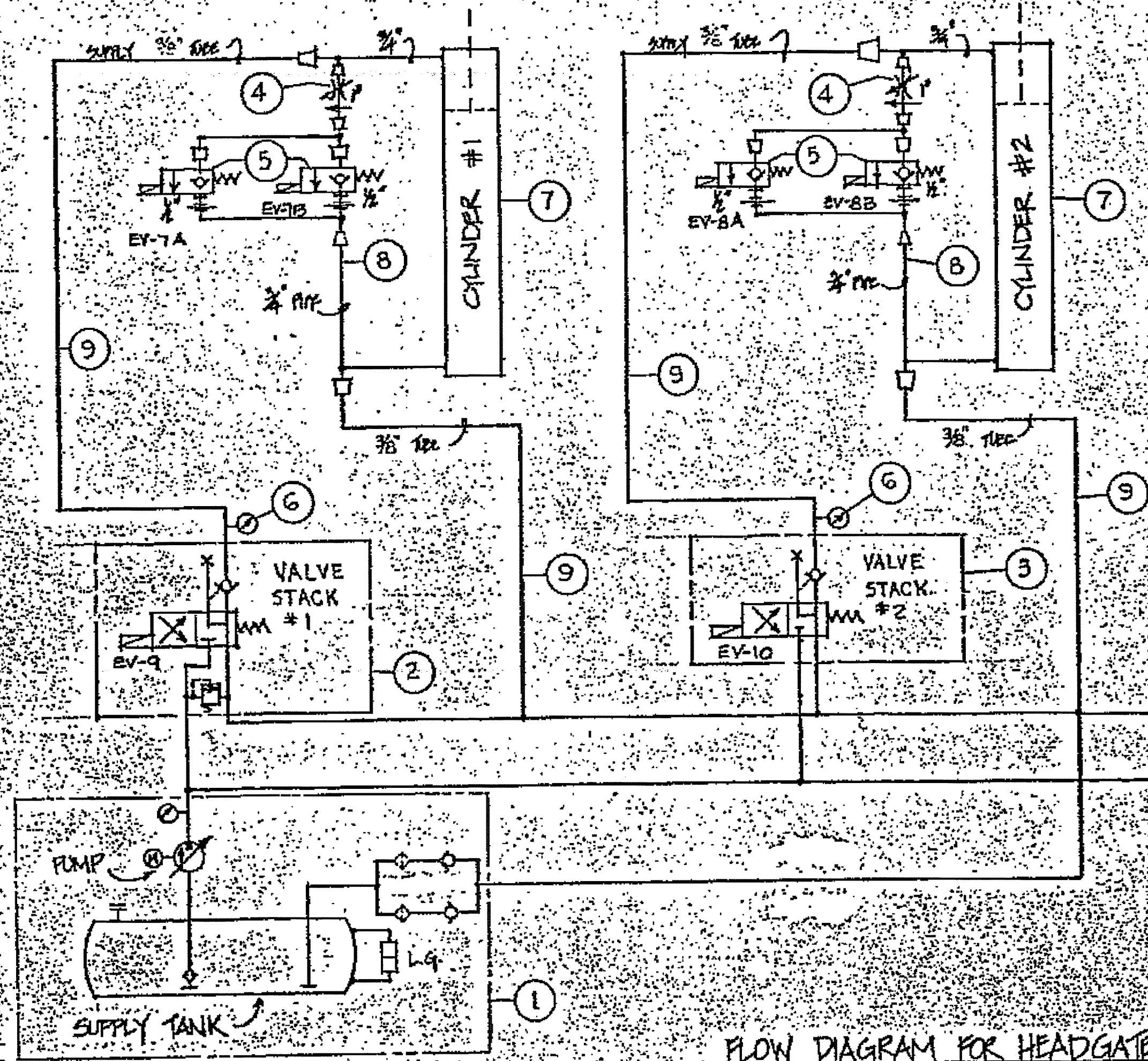
CHRIS HOSFORD, INC.
BARNSTABLE, MASSACHUSETTS 02630
(617) 362-4561

PIPING & INSTRUMENT DIAGRAMS

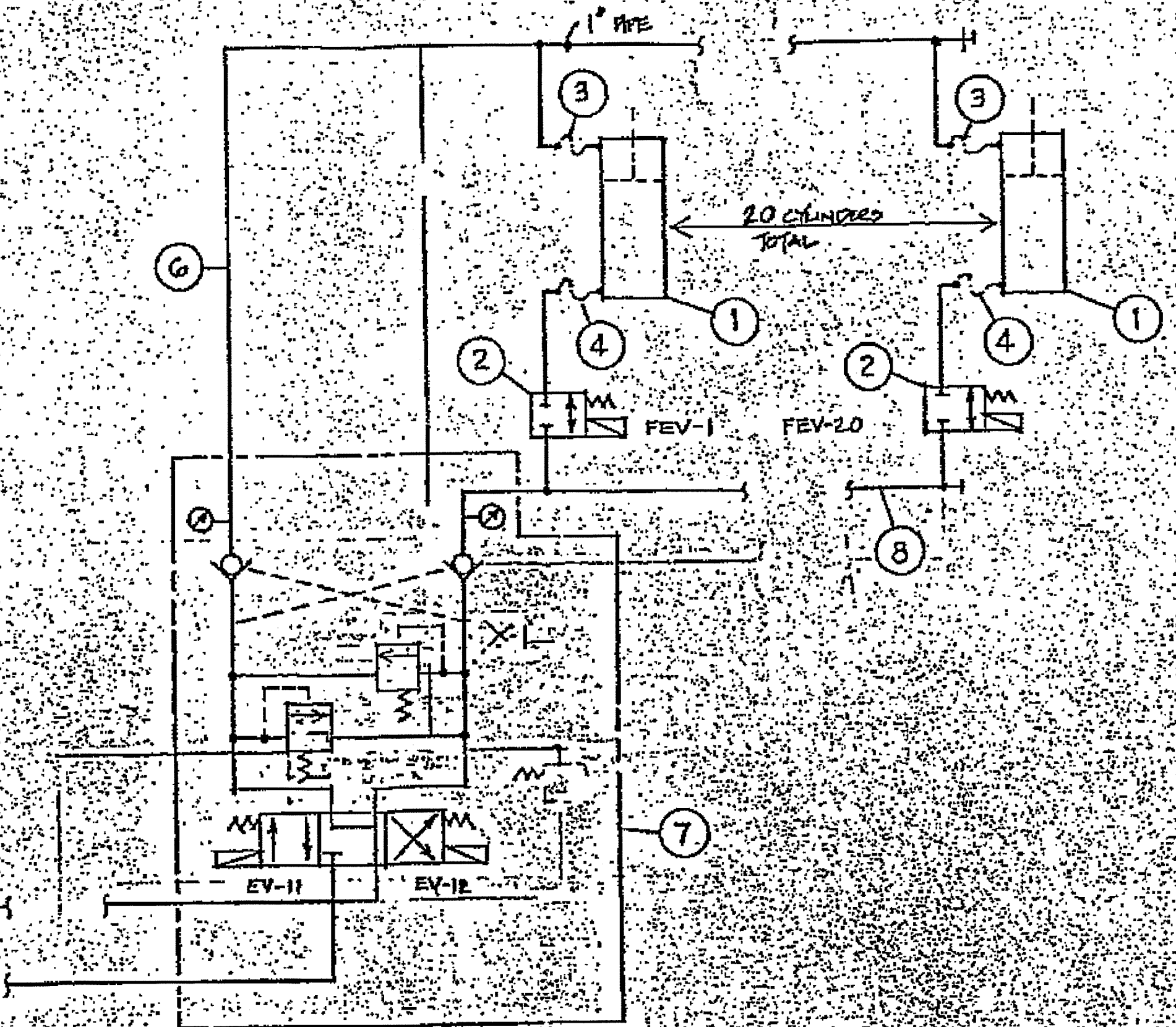
Drawn By: KFA
Checked By:
Scale: AS NOTED

CHICOPEE HYDROELECTRIC
SWIFT RIVER COMPANY

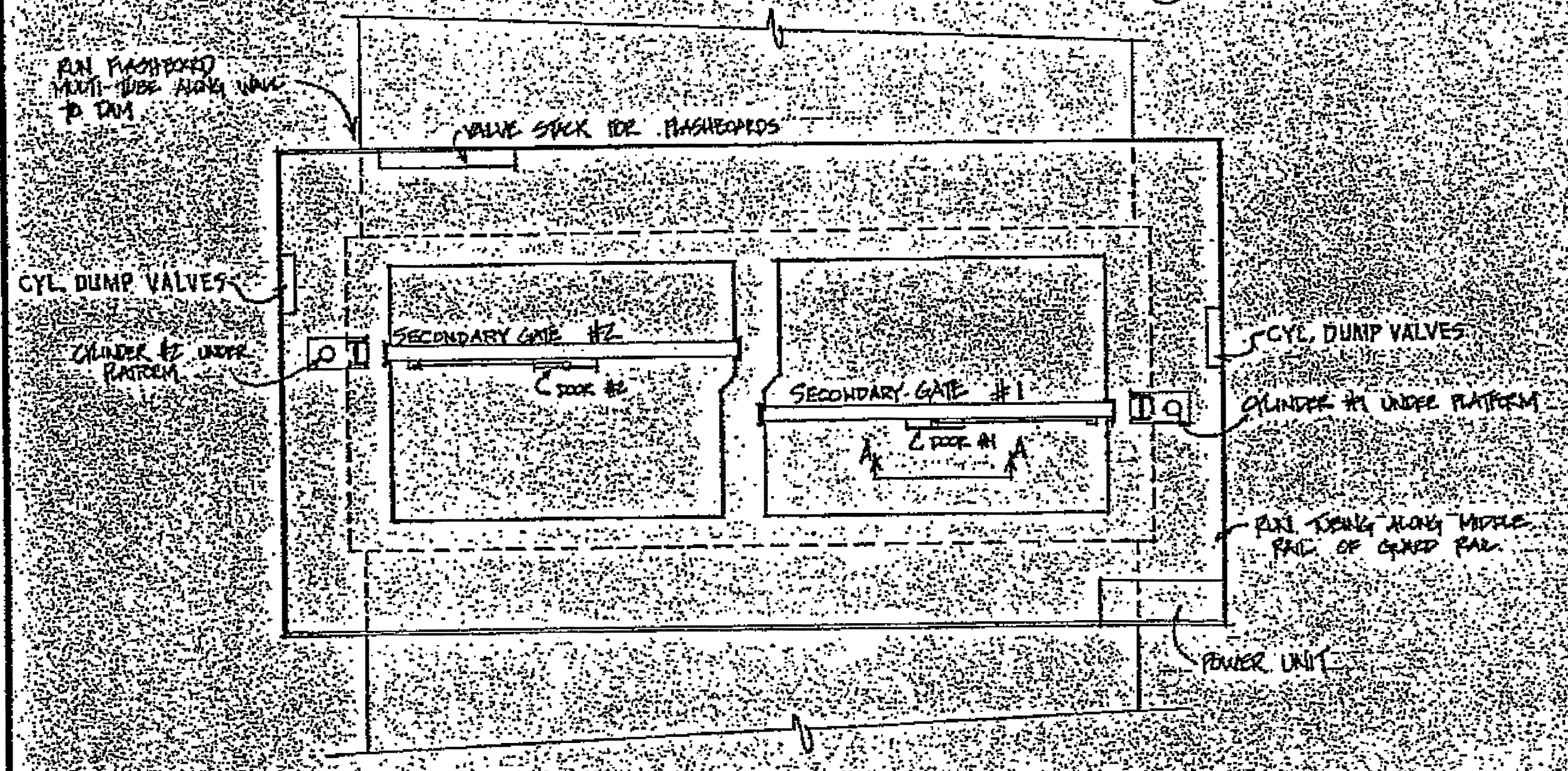
Date: Aug 1984
Job No: 083-04
Dwg No: P10



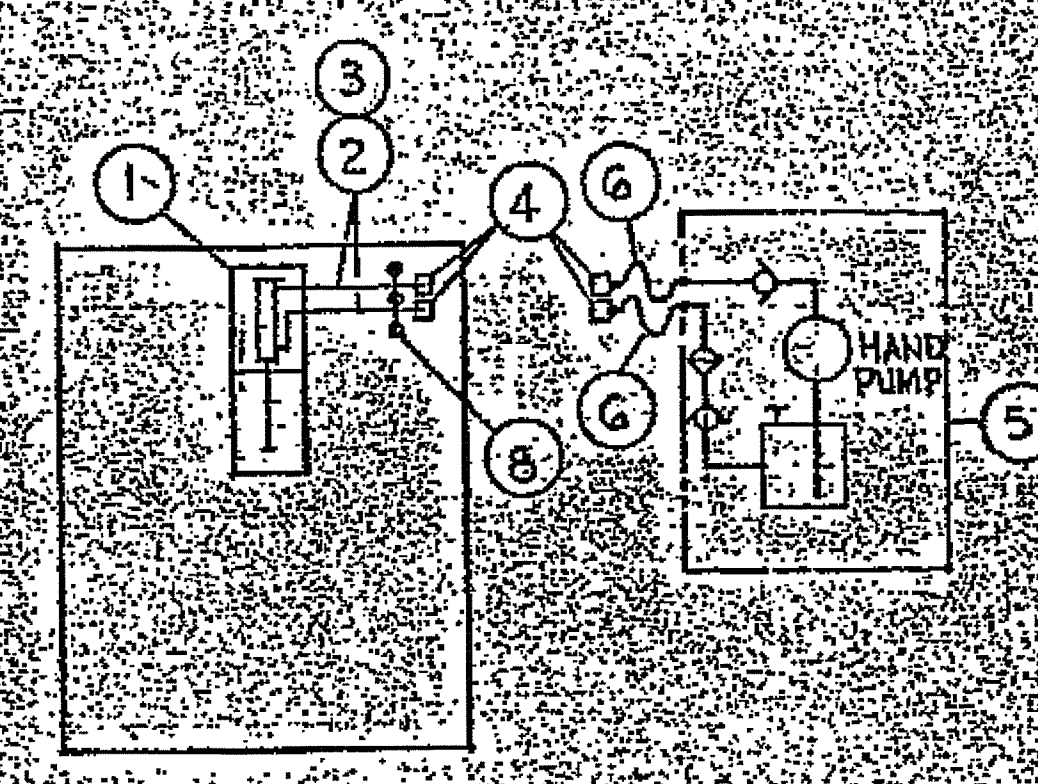
FLOW DIAGRAM FOR HEADGATES
SEE B/M-IG FOR PART NUMBERS



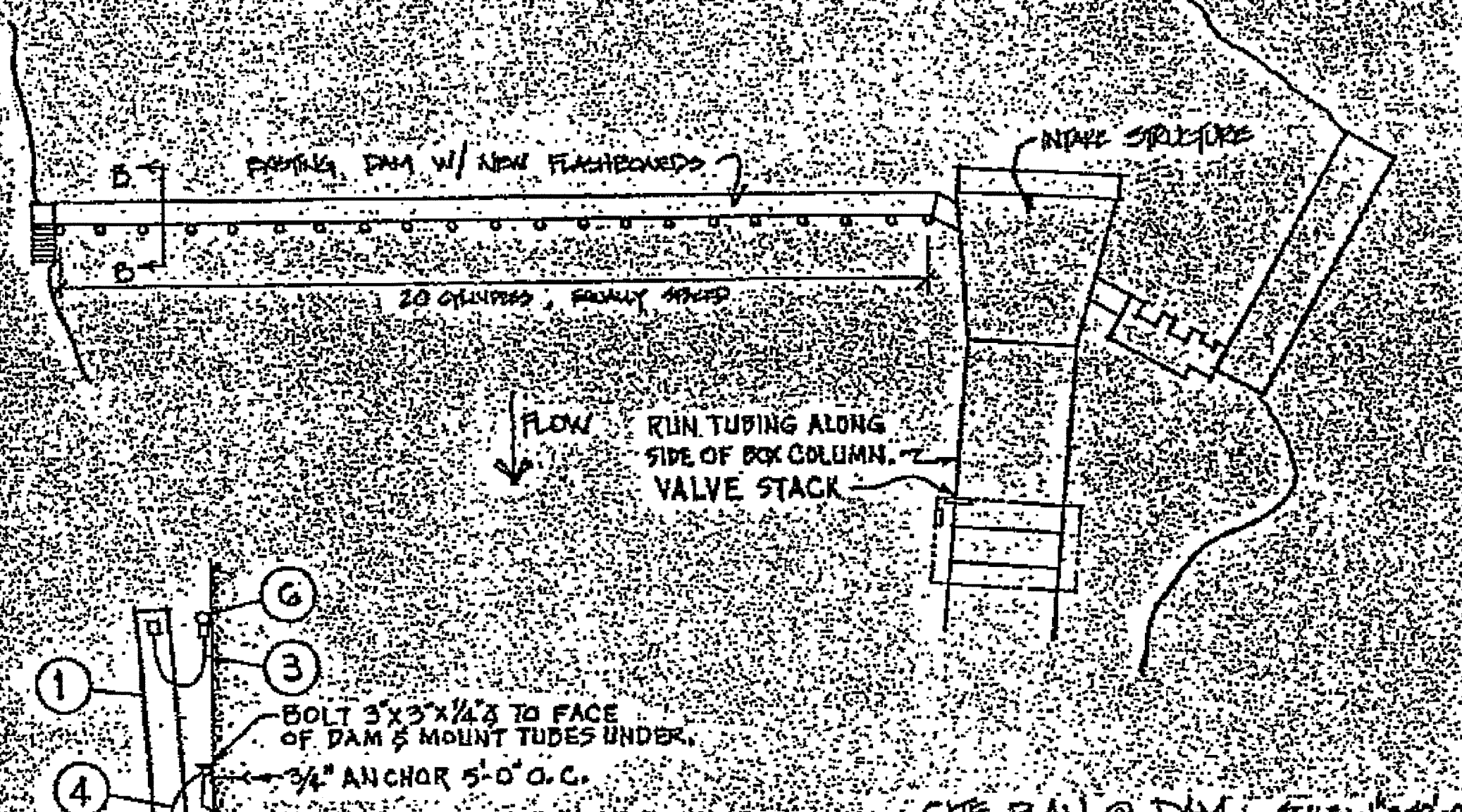
FLOW DIAGRAM FOR FLASHBOARDS
SEE B/M-FB FOR PART NUMBERS



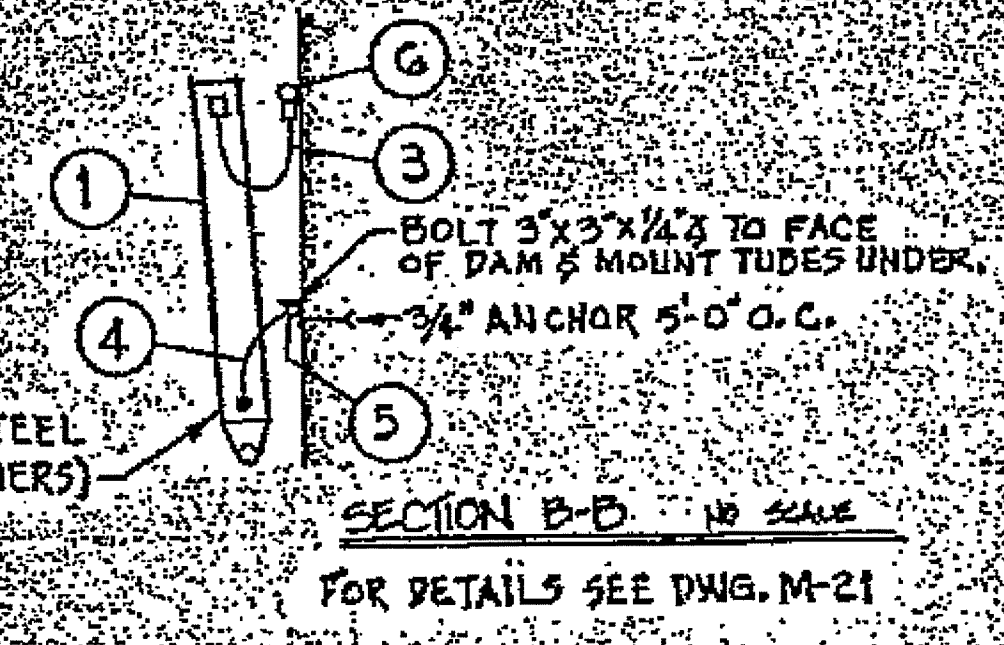
PLAN @ HEAD GATES Scale 1/4" = 1'-0"



TYR SECONDARY GATE TUBING - SECTION A-A
SEE B/M-GD FOR PART NUMBERS
NO SCALE
FOR DETAILS SEE DWGS. 5-5 & 5-G



SITE PLAN @ DAM Scale 1/4" = 1'-0"



SECTION B-B - NO SCALE
FOR DETAILS SEE DWG. M-21

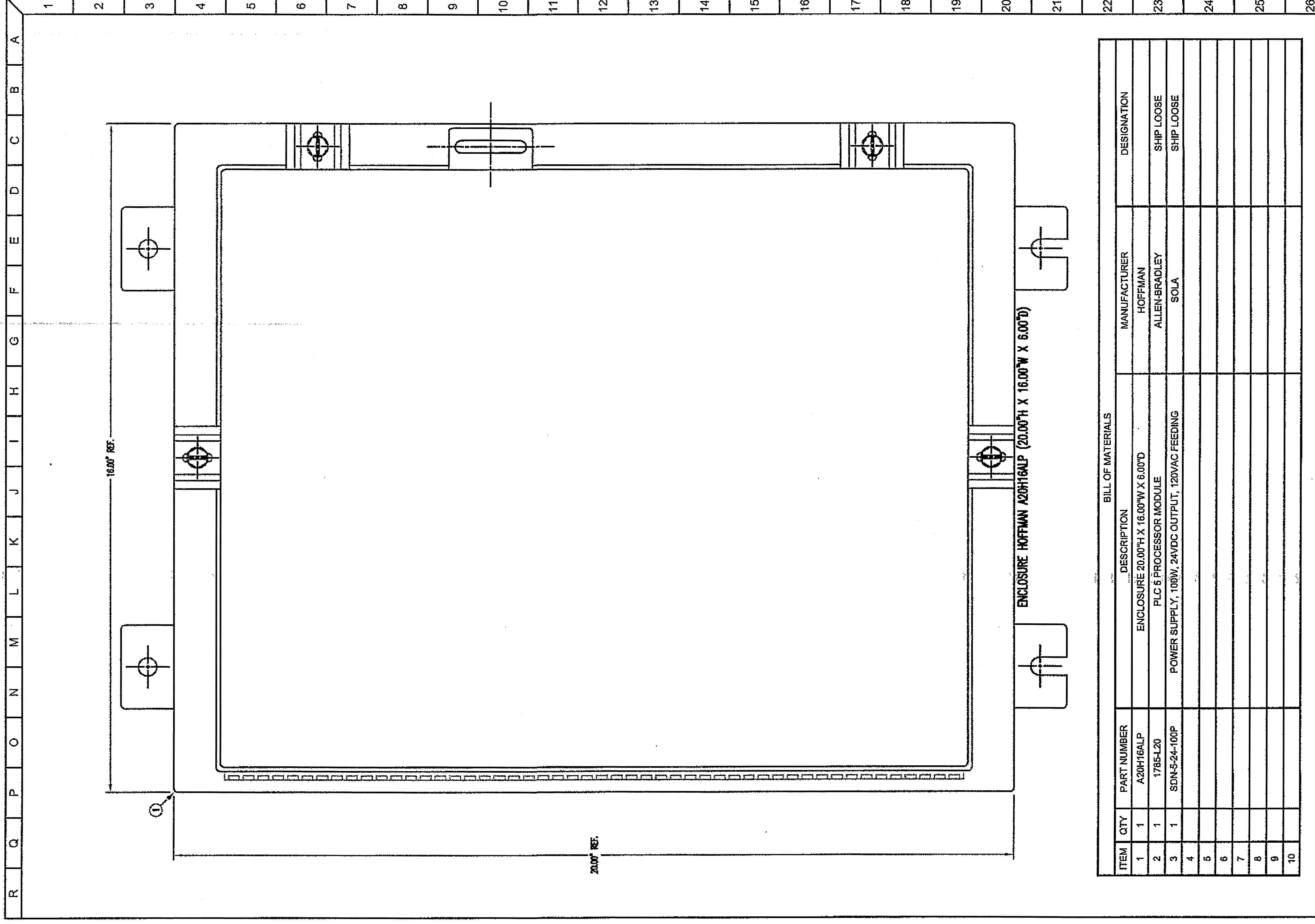
<p>THIS BLUEPRINT IS THE PROPERTY OF CHRIS HOSFORD, INC. IT IS LOANED TO YOU AND MUST BE RETURNED AFTER IT HAS SERVED THE PURPOSE FOR WHICH IT WAS INTENDED.</p>	1	AS BUILT	DATE	BY	DATE	BY	<p>CHRIS HOSFORD, INC. BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561</p>	<p>HYDRAULIC SYSTEM</p>	Drawn By	KPA	Date	9/84
	2								Checked By		Job No.	083-04
	3								Scale	N/A	Dwg No.	P 12
	4											

CHICOPEE HYDROELECTRIC
ERC/DOC

R	Q	P	O	N	M	L	K	J	I	H	G	F	E	D	C	B	A								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26

INDEX:
 SHEET 01 - TITLE SHEET
 SHEET 02 - INDEX SHEET (THIS SHEET)
 SHEET 03 - CONTROL PANEL EXTERNAL, LAYOUT AND B.O.M.
 SHEET 04 - CONTROL PANEL INTERNAL, LAYOUT AND B.O.M.
 SHEET 05 - PLC CONFIGURATION, SCHEMATIC DIAGRAM
 SHEET 06 - PLC ANALOG INPUT MODULE 1, SCHEMATIC DIAGRAM
 SHEET 07 - PLC TEMPERATURE SENSOR INPUT MODULE 2, SCHEMATIC DIAGRAM
 SHEET 08 - PLC TEMPERATURE SENSOR INPUT MODULE 3, SCHEMATIC DIAGRAM

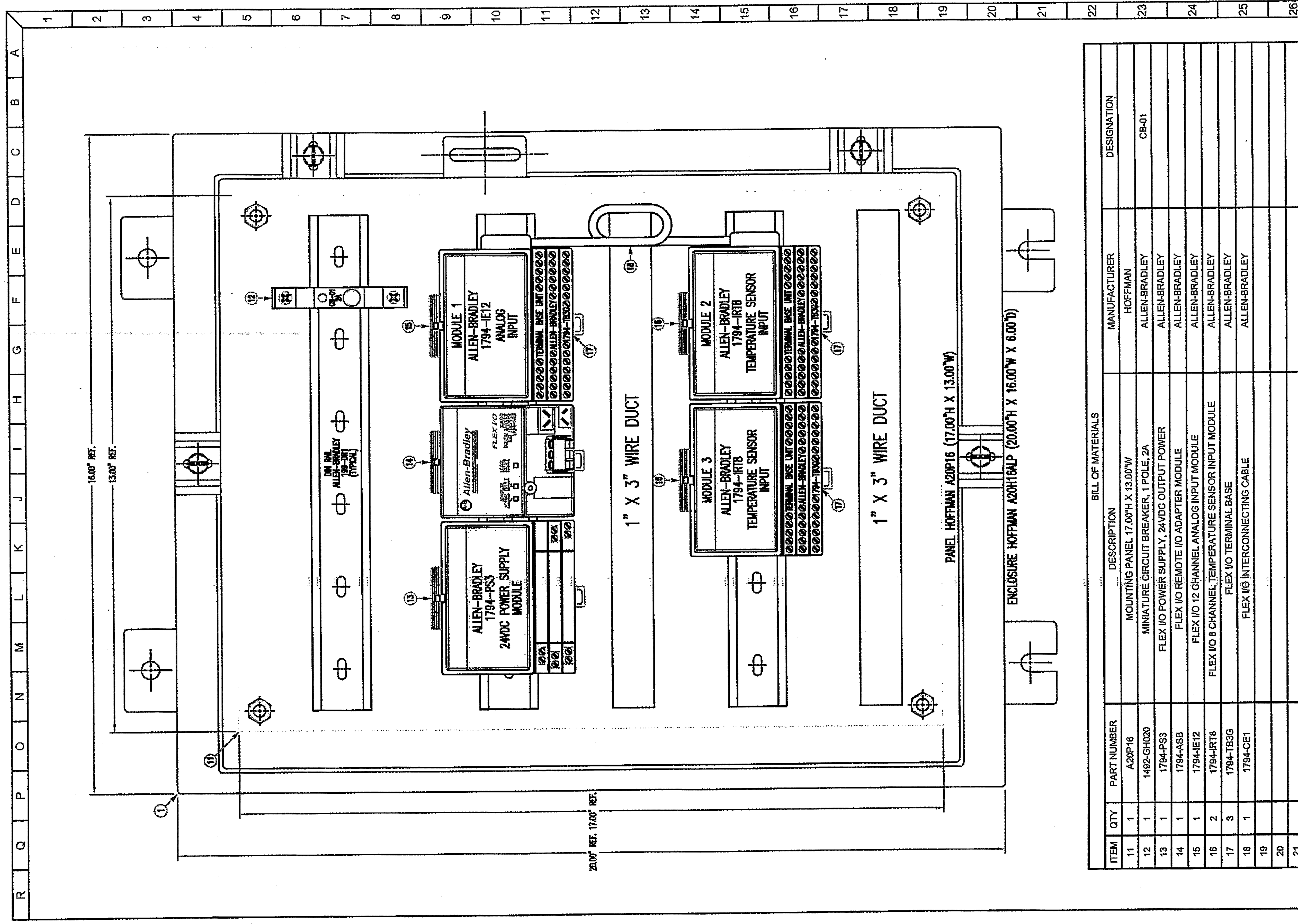
RELEASED FOR: REVIEW		O'CONNELL DEVELOPMENT		ELM		68 UNION STREET	
REV: A	DATE: 02/05/06	BY: BA	DESCRIPTION: RELEASE FOR REVIEW	480 HAMPSDEN STREET		WESTFIELD, MA 01085	
				HOLYOKE, MA 01041-0867		PHONE 413.568.0905	
				PROJECT: CHICOPEE HYDRO-STATION PLC MODIFICATIONS		FAX 413.562.0407	
				SCALE: N/A		E-MAIL: elm@imtelec.com	
				PROJECT NUM: EIN-C-3188-J08		ELECTRICAL INC.	
				DWN BY: KWL		DATE DWN: 01/31/06	
				CHKD BY: BA		CAD FILE: 31880102.dwg	
				SERIES: 01		SHEET: 02	
				NEXT: 03		REV: A	



BILL OF MATERIALS

ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURER	DESIGNATION
1	1	A20H16ALP	ENCLOSURE 20.00"H X 16.00"W X 6.00"D	HOFFMAN	
2	1	178E-L20	PLC 6 PROCESSOR MODULE	ALLEN-BRADLEY	SHIP LOOSE
3	1	SDN-5-24-100P	POWER SUPPLY, 100W, 24VDC OUTPUT, 120VAC FEEDING	SOLA	SHIP LOOSE
4					
5					
6					
7					
8					
9					
10					

RELEASED FOR: REVIEW REV. DATE BY DESCRIPTION A 02/08/06 BA RELEASE FOR REVIEW		O'CONNELL DEVELOPMENT 480 HAMPSHIRE STREET HOLYOKE, MA 01041-0867		68 UNION STREET WESTFIELD, MA 01085 PHONE 413.568.0905 FAX 413.562.0407 E-MAIL: elm@elmelc.com	
PROJECT:	CHICOPEE HYDRO-STATION PLC MODIFICATIONS	OWNARY:	KIVL	CHECKED BY:	BA
DWG TITLE:	EXTERNAL ENCLOSURE LAYOUT AND B.O.M.	SCALE:	1:2	DATE/DOWN:	01/21/06
		PROJECT NUM:	EN-C-3186-06	CAD FILE:	31860103.dwg
				SHEET:	03
				NEXT:	04
				REV:	A



ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURER	DESIGNATION
11	1	A20P16	MOUNTING PANEL 17.00"H X 13.00"W	HOFFMAN	
12	1	1492-GH020	MINIATURE CIRCUIT BREAKER, 1 POLE, 2A	ALLEN-BRADLEY	CB-01
13	1	1794-PS3	FLEX I/O POWER SUPPLY, 24VDC OUTPUT POWER	ALLEN-BRADLEY	
14	1	1794-ASB	FLEX I/O REMOTE I/O ADAPTER MODULE	ALLEN-BRADLEY	
15	1	1794-IE12	FLEX I/O 12 CHANNEL ANALOG INPUT MODULE	ALLEN-BRADLEY	
16	2	1794-IRT8	FLEX I/O 8 CHANNEL TEMPERATURE SENSOR INPUT MODULE	ALLEN-BRADLEY	
17	3	1794-TB3G	FLEX I/O TERMINAL BASE	ALLEN-BRADLEY	
18	1	1794-OE1	FLEX I/O INTERCONNECTING CABLE	ALLEN-BRADLEY	
19					
20					
21					

RELEASED FOR: REVIEW

REV: DATE BY DESCRIPTION

A 02/06/06 BA RELEASE FOR REVIEW

PROJECT: CHICOPEE HYDRO-STATION PLC MODIFICATIONS

DWG TITLE: INTERNAL PANEL LAYOUT AND B.O.M.

O'CONNELL DEVELOPMENT
480 HAMPPDEN STREET
HOLYOKE, MA 01041-0867

ELM ELECTRICAL INC.

68 UNION STREET
WESTFIELD, MA. 01085
PHONE 413.568.0805
FAX 413.562.0407
E-MAIL: elm@elmtec.com

SCALE: 1:2

DRAWN BY: KWL

CHECKED BY: BA

DATE/DRAWN: 01/31/06

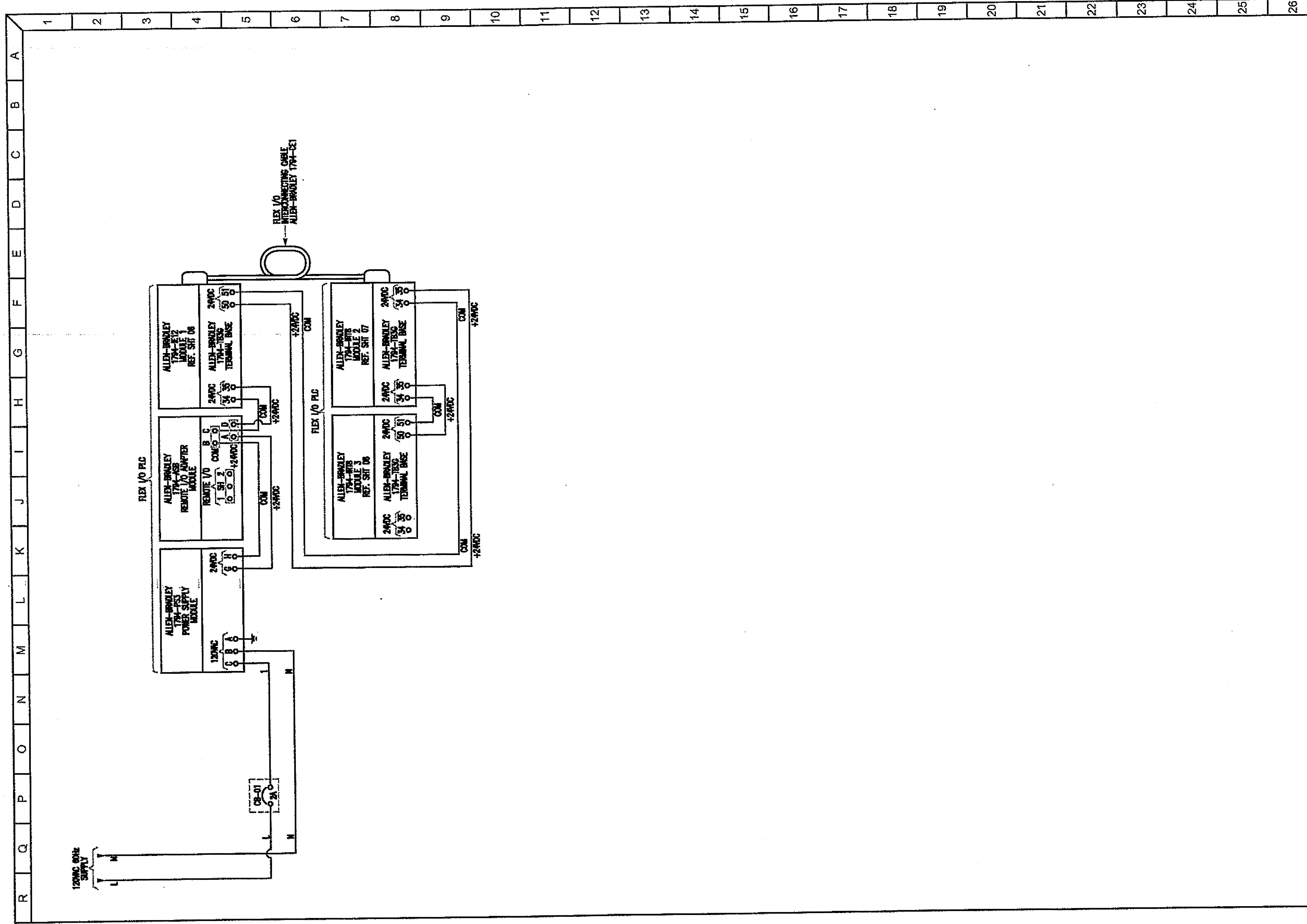
PROJECT NUM: EN-C-3186-06

SHEET: 04

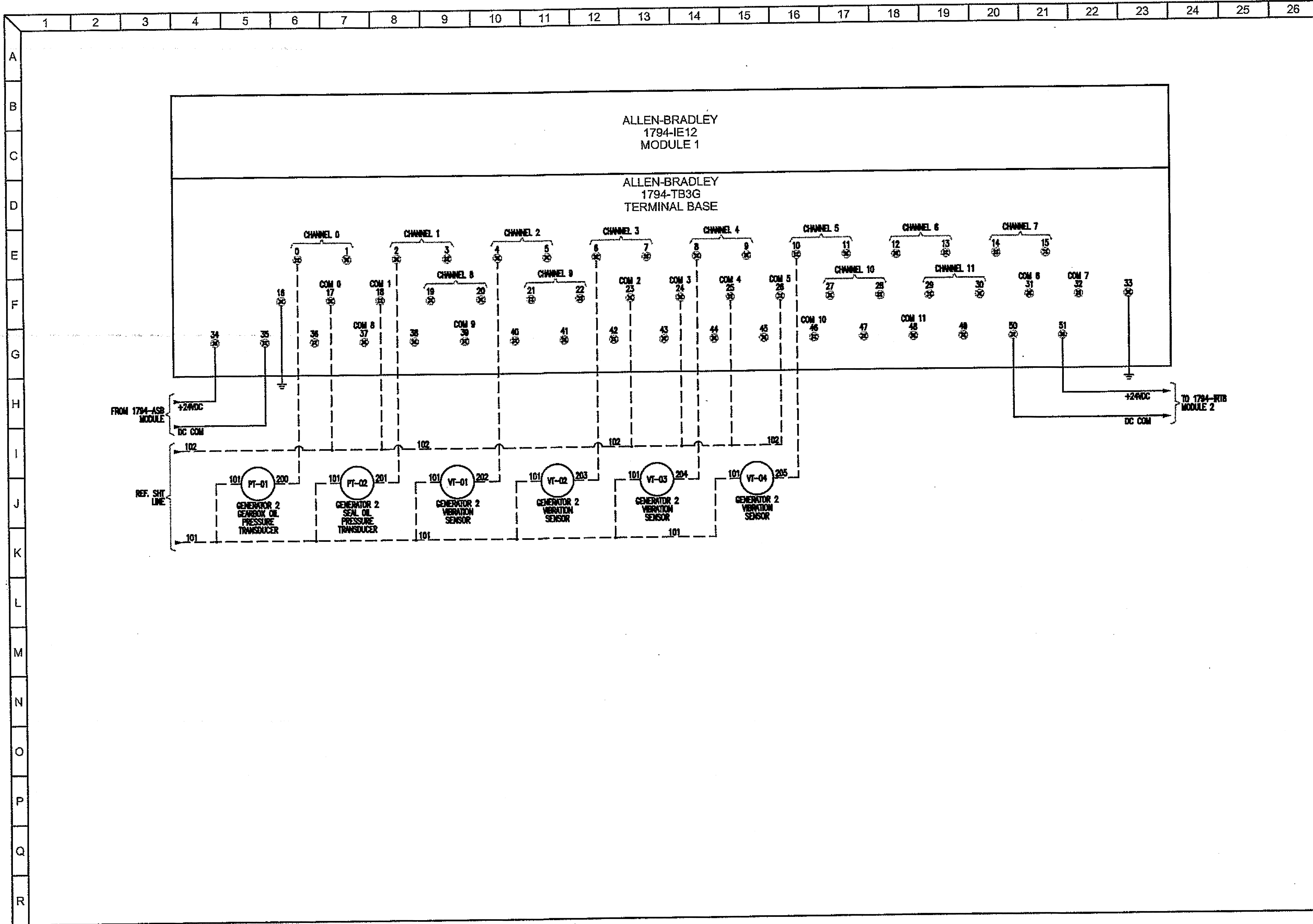
NEXT: 05

REV: A

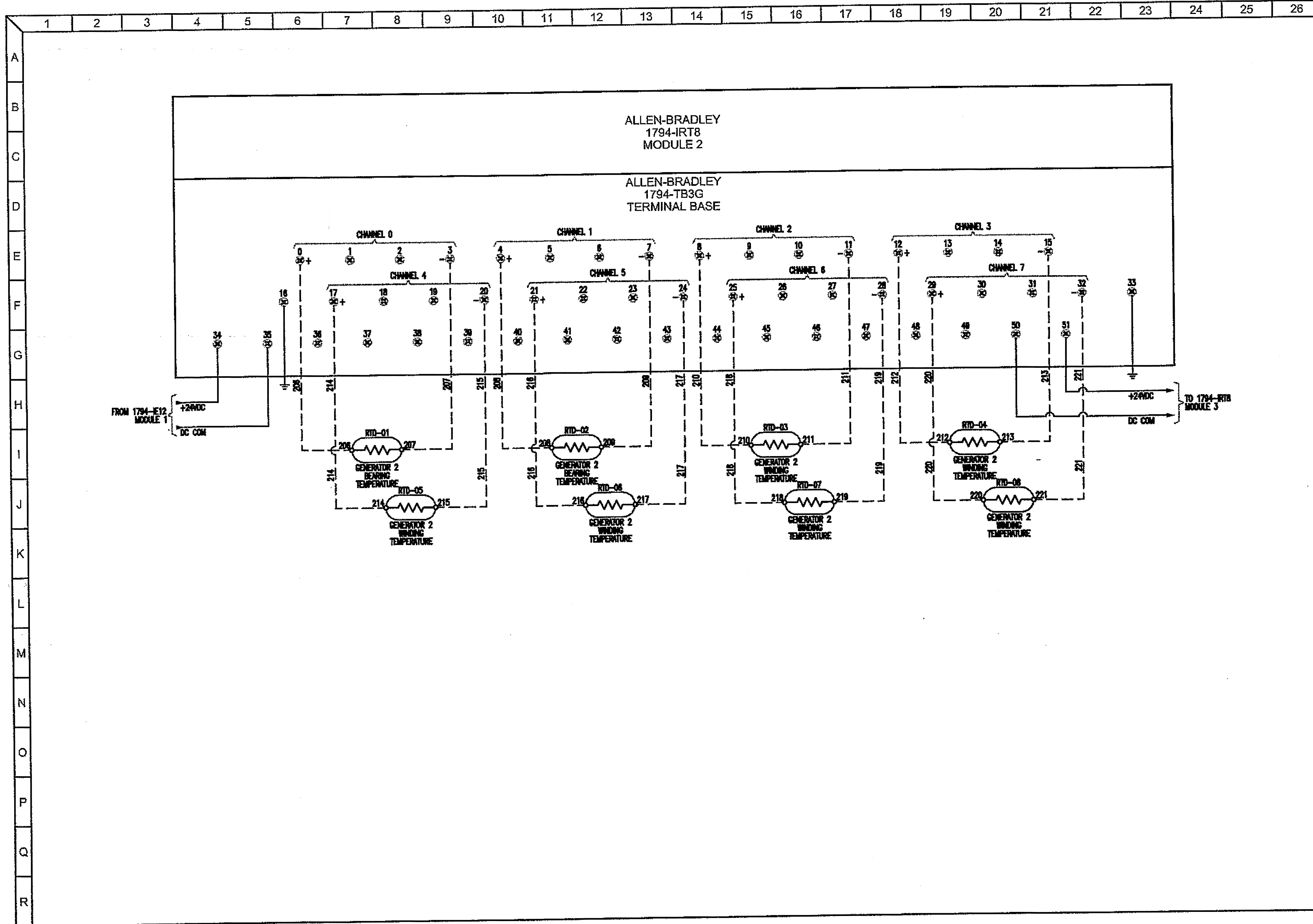
CAD FILE: 31860104.dwg



RELEASED FOR: REVIEW		O'CONNELL DEVELOPMENT		ELM ELECTRICAL INC.		68 UNION STREET WESTFIELD, MA 01085 PHONE 413.668.0905 FAX 413.562.0407 E-MAIL: elm@elmelec.com	
REV. A	DATE 02/26/06	BY BA	DESCRIPTION RELEASE FOR REVIEW	SCALE: N/A	DWG BY: KWL	DATE OWN: 01/31/06	CAD FILE: 31860105.dwg
				PROJECT NUM: EN-C-3188-06	SHEET: 01	SHEET: 05	REV: A
				PROJECT: CHICOPEE HYDRO-STATION PLC MODIFICATIONS			
				DWG TITLE: CONTROL POWER DISTRIBUTION & PLC CONFIGURATION			

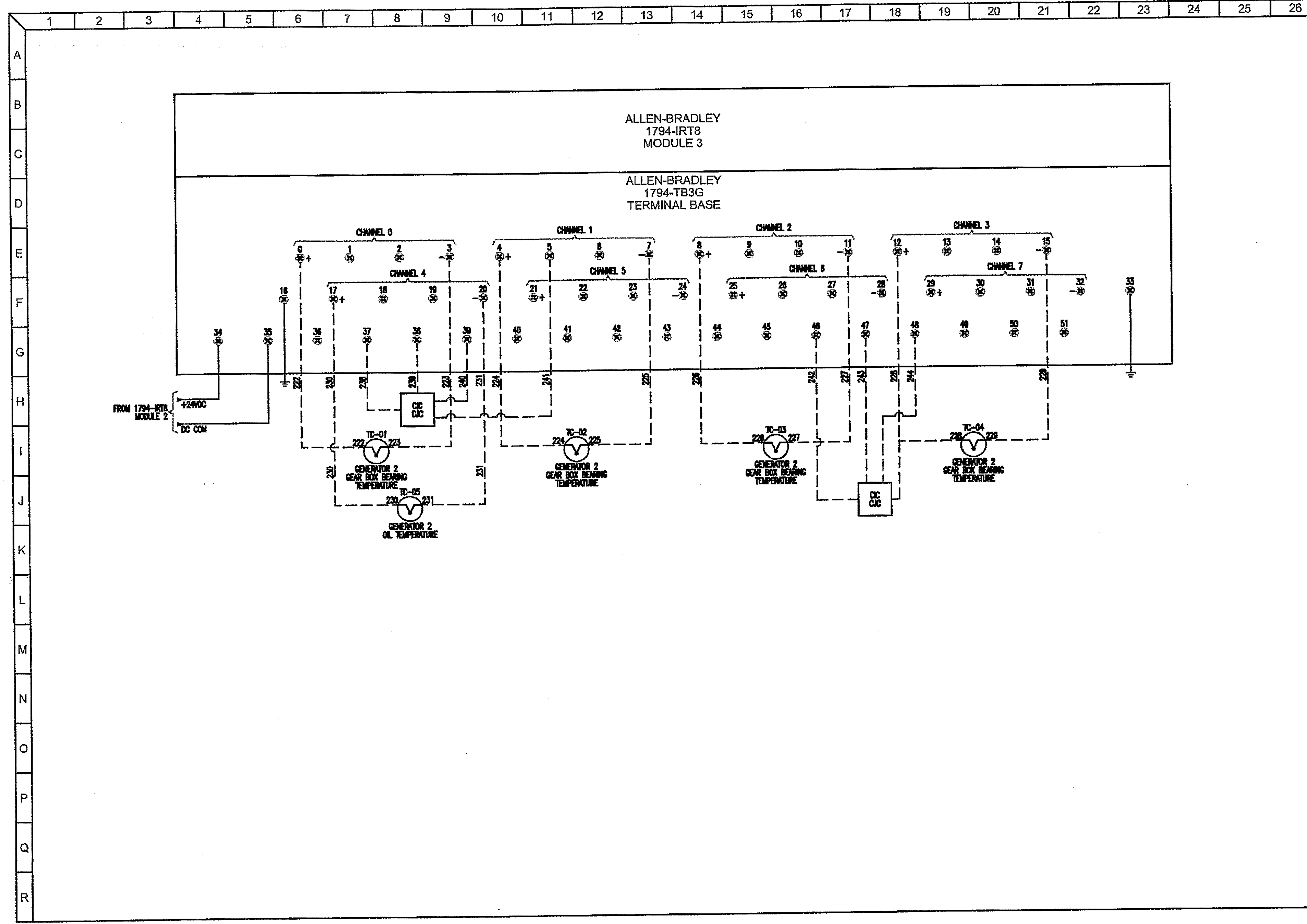


68 UNION STREET WESTFIELD, MA 01085 TEL: 413-252-0407 FAX: 413-252-0407 EMAIL: elm@elm-inc.com		CAD FILE: 31860106.dwg
ELM ELECTRICAL, INC.		DATE DWN: 01/31/05
DWG BY: KVL	CHKD BY: BA	SHEET: 01
SCALE: N/A	PROJECT NO: EN-C-3186-06	NEXT: 07
O'CONNELL DEVELOPMENT 480 HAMPTDEN STREET HOLYOKE, MA 01041-0867		
PROJECT: CHICOPEE HYDRO-STATION PLC MODIFICATIONS		
DWG TITLE: ANALOG INPUT, MODULE 1 WIRING		
RELEASED FOR: REVIEW	BY:	DESCRIPTION:
REV: A	DATE: 02/09/05	RELEASE FOR REVIEW

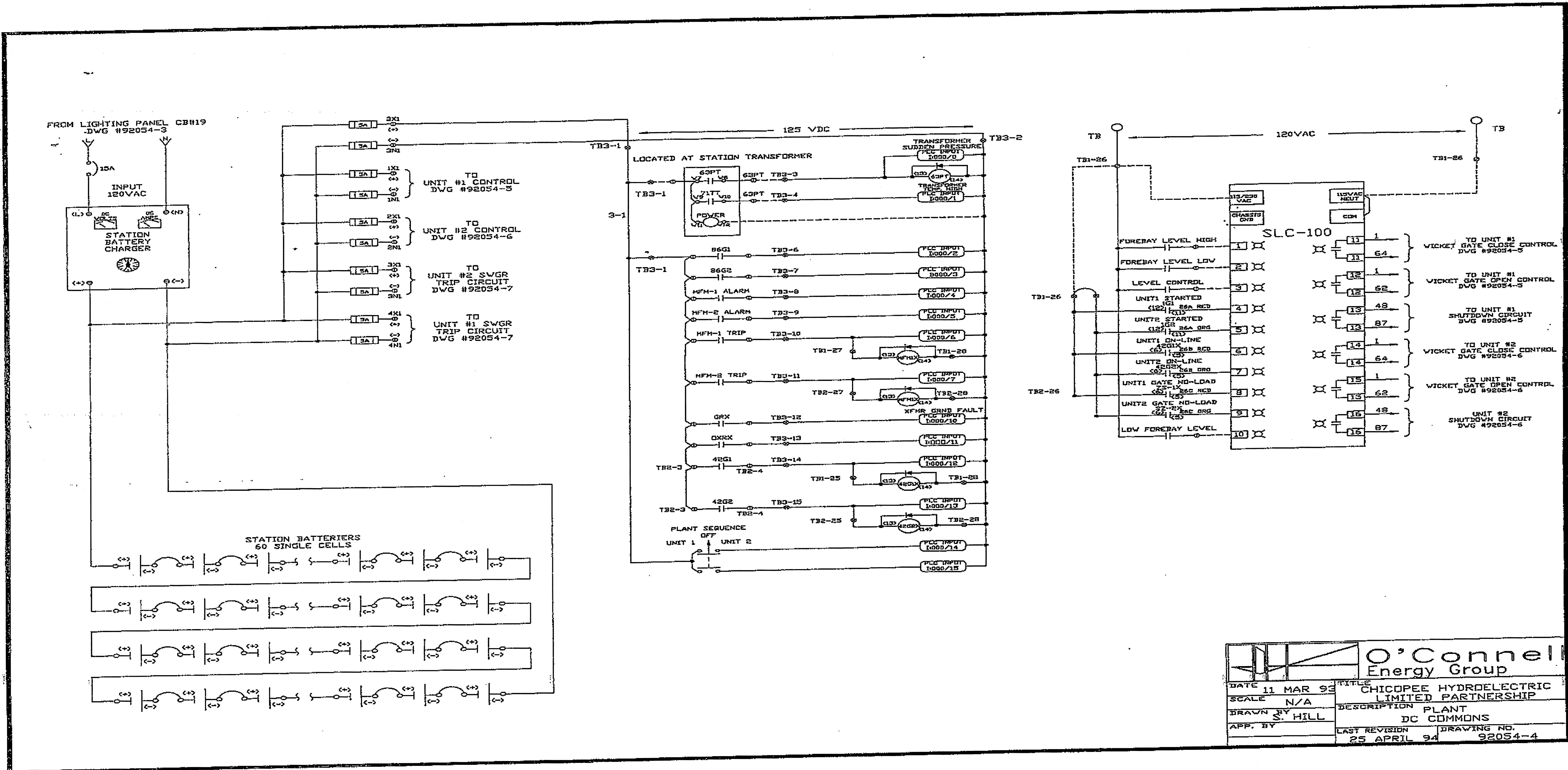


O'CONNELL DEVELOPMENT 480 HAMPSHIRE STREET HOLYOKE, MA 01041-0867		ELM ELECTRICAL, INC. 68 UNION STREET WESTFIELD, MA, 01085 PHONE 413.668.0905 FAX 413.662.0407 E-MAIL: elm@elmelec.com	
PROJECT: CHICOPEE HYDRO-STATION PLC MODIFICATIONS	SCALE: N/A	DRAWN BY: KWIL	CAD FILE: 31860107.dwg
DWG TITLE: TEMPERATURE SENSOR INPUT, MODULE 2 WIRING	PROJECT NUM: EN-C-3186-08	CHECKED BY: BA	DATE DWN: 01/31/08
		SERIES: 01	SHEET: 07
			NEXT: 08
			REV: A

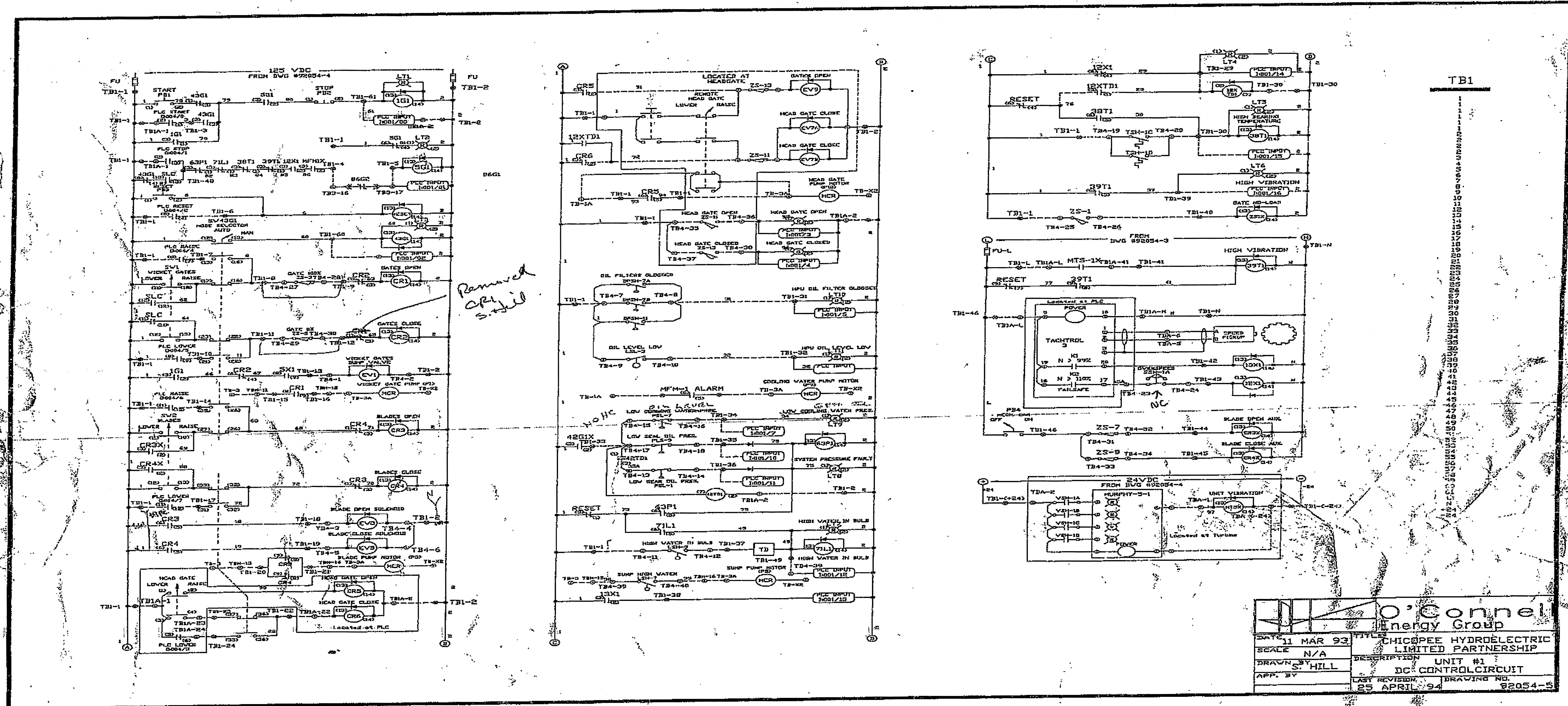
RELEASED FOR: REVIEW	
REV: DATE BY DESCRIPTION	
A 02/06/06 BA RELEASE FOR REVIEW	



68 UNION STREET HOLYOKE, MA 01085 PHONE 413.568.0805 FAX 413.562.0407 E-MAIL: elm@elmelec.com		CAD FILE: 31860108.dwg
ELM ELECTRICAL INC.		DATE DWN: 01/31/08
UWN BY: KVL	CHKD BY: BA	SHEET: 08
SCALE: N/A	PROJECT NO: EN-C-3186-06	REV: A
O'CONNELL DEVELOPMENT 480 HAMPSHIRE STREET HOLYOKE, MA 01041-0867		
PROJECT: CHICOPEE HYDRO-STATION PLC MODIFICATIONS		
DWG TITLE: TEMPERATURE SENSOR INPUT, MODULE 3 WIRING		
RELEASED FOR: REVIEW	BY:	DESCRIPTION:
REV: A	DATE: 02/06/08	RELEASE FOR REVIEW



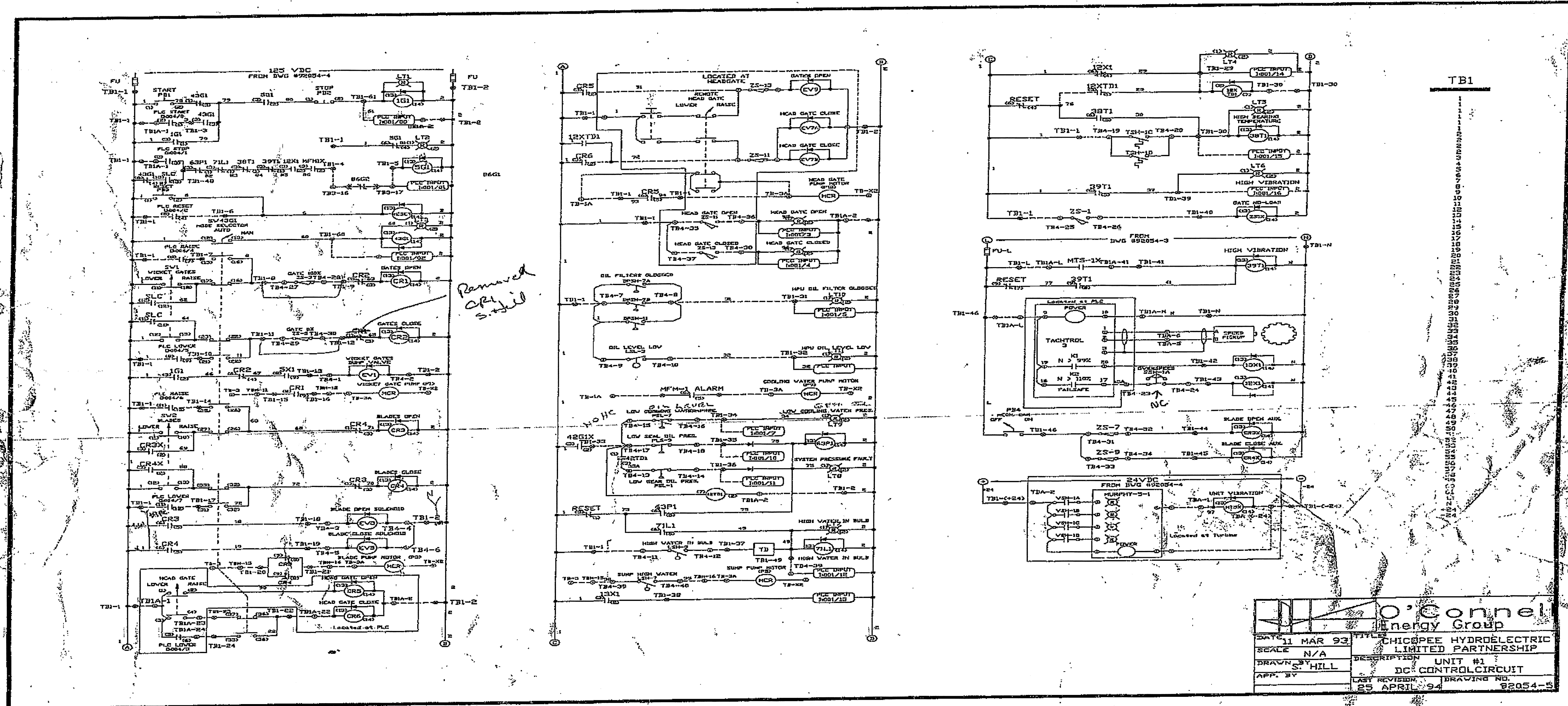
O'Connell Energy Group	
DATE 11 MAR 93	TITLE CHICOPEE HYDROELECTRIC LIMITED PARTNERSHIP
SCALE N/A	DESCRIPTION PLANT
DRAWN BY S. HILL	DC COMMONS
APP. BY	LAST REVISION 25 APRIL 94
	DRAWING NO. 92054-4



Removed CR1 3-11-94

TB1

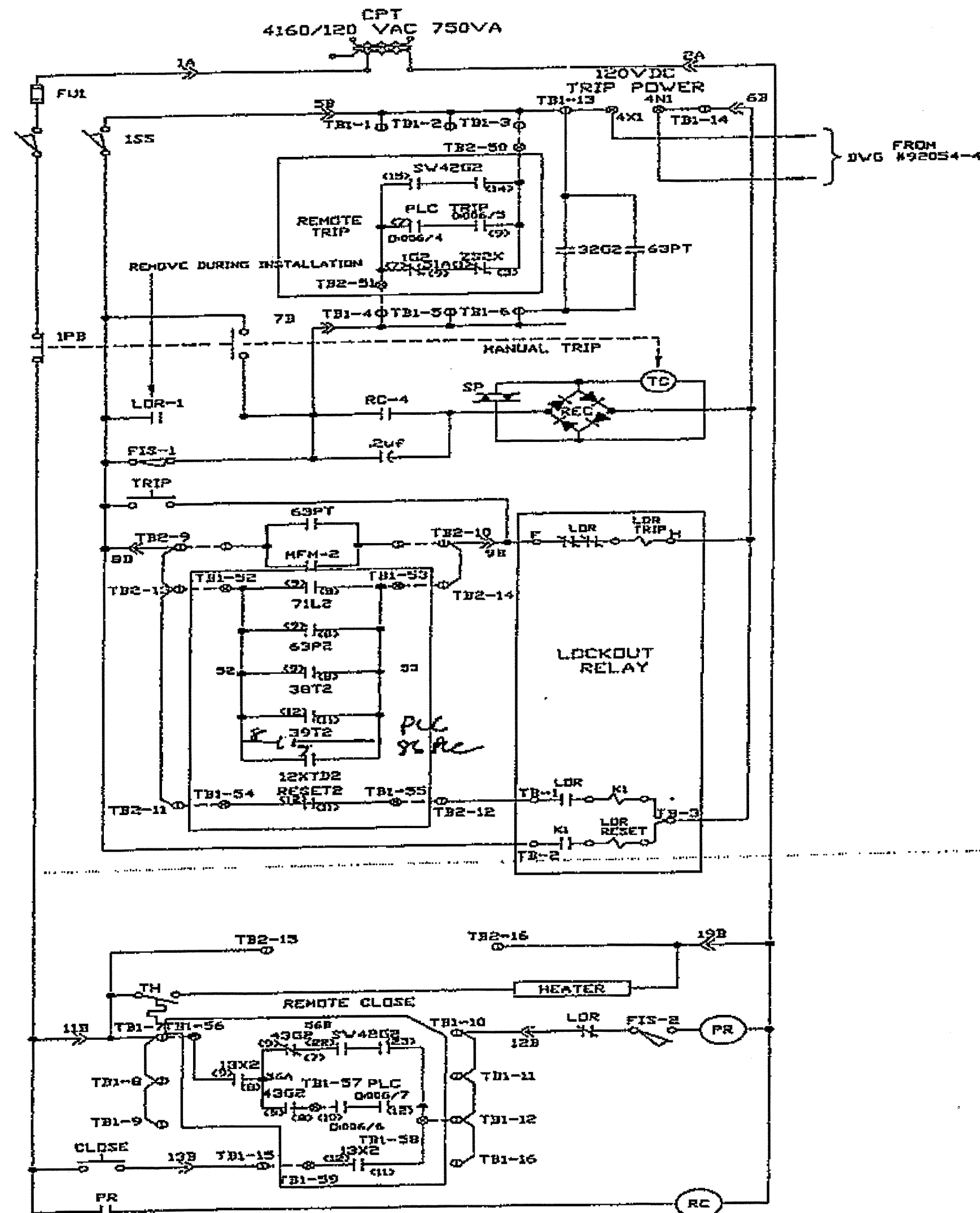
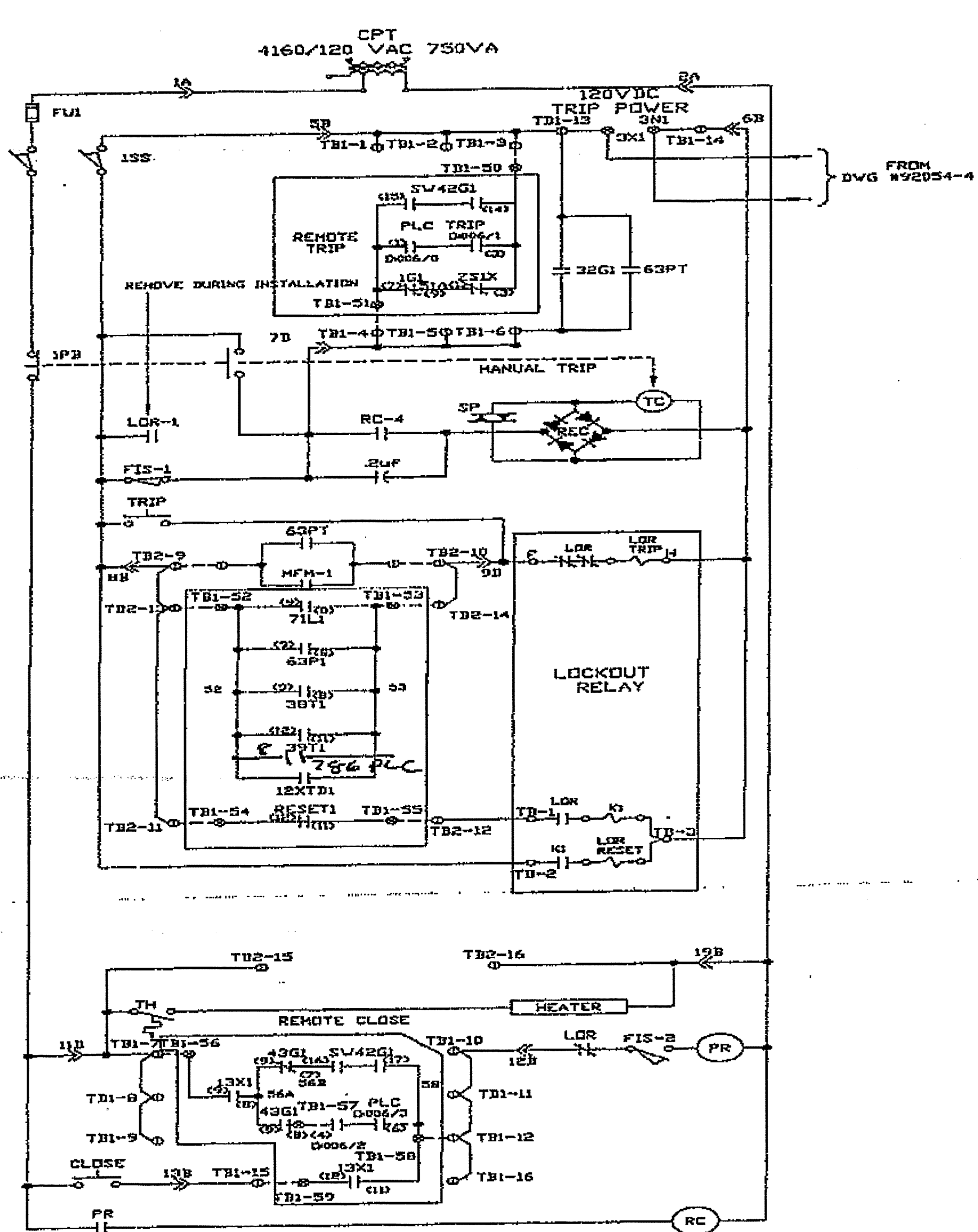
O'Connell Energy Group	
DATE: 11 MAR 93	TITLE: CHICPEE HYDROELECTRIC LIMITED PARTNERSHIP
SCALE: N/A	DESCRIPTION: UNIT #1
DRAWN BY: HILL	DC CONTROL CIRCUIT
APP. BY:	LAST REVISION: 25 APRIL 94
	DRAWING NO. 82054-5



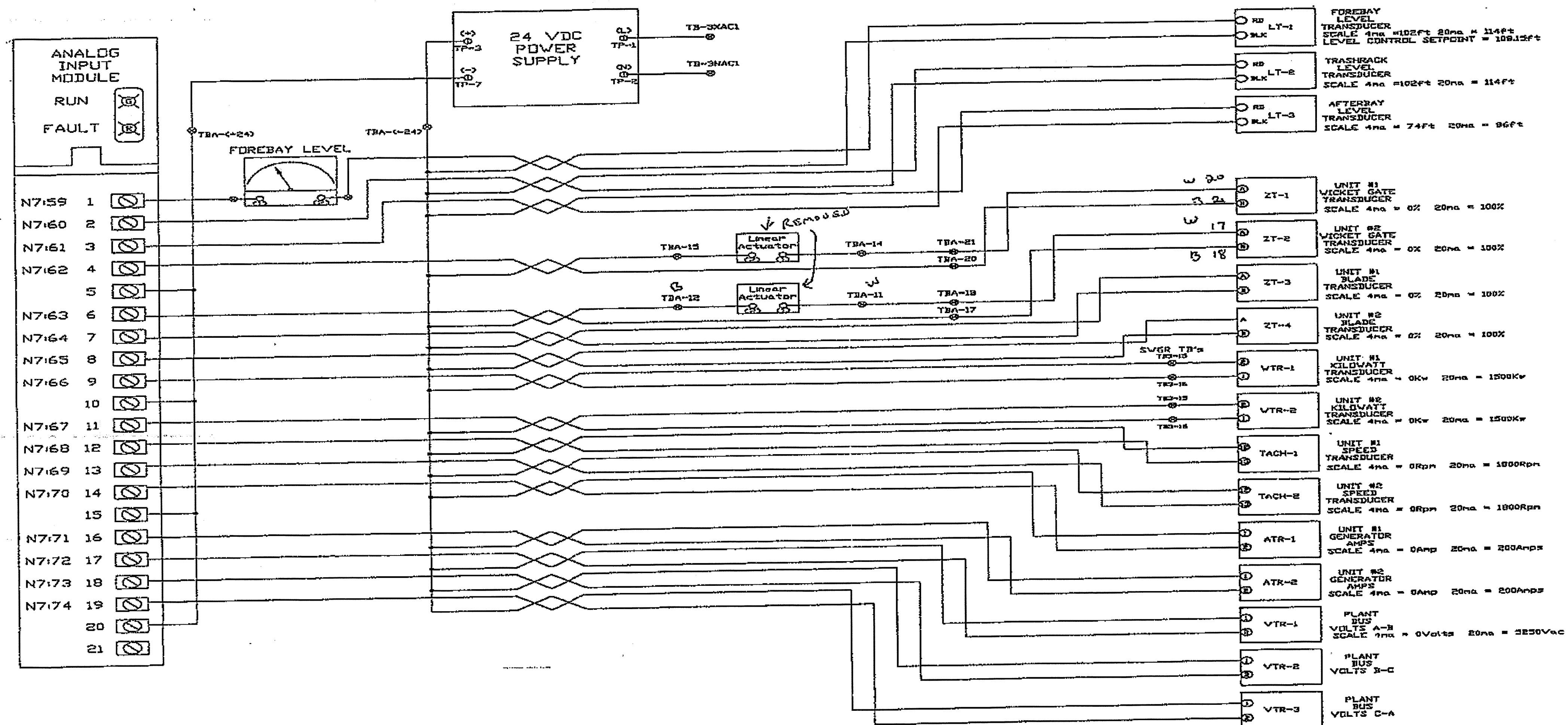
Removed CR1 3-11-11

TBI

O'Connell Energy Group	
DATE: 11 MAR 93	TITLE: CHICPEE HYDROELECTRIC LIMITED PARTNERSHIP
SCALE: N/A	DESCRIPTION: UNIT #1
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APP. BY:	LAST REVISION: 25 APRIL 94
	DRAWING NO. 82054-5

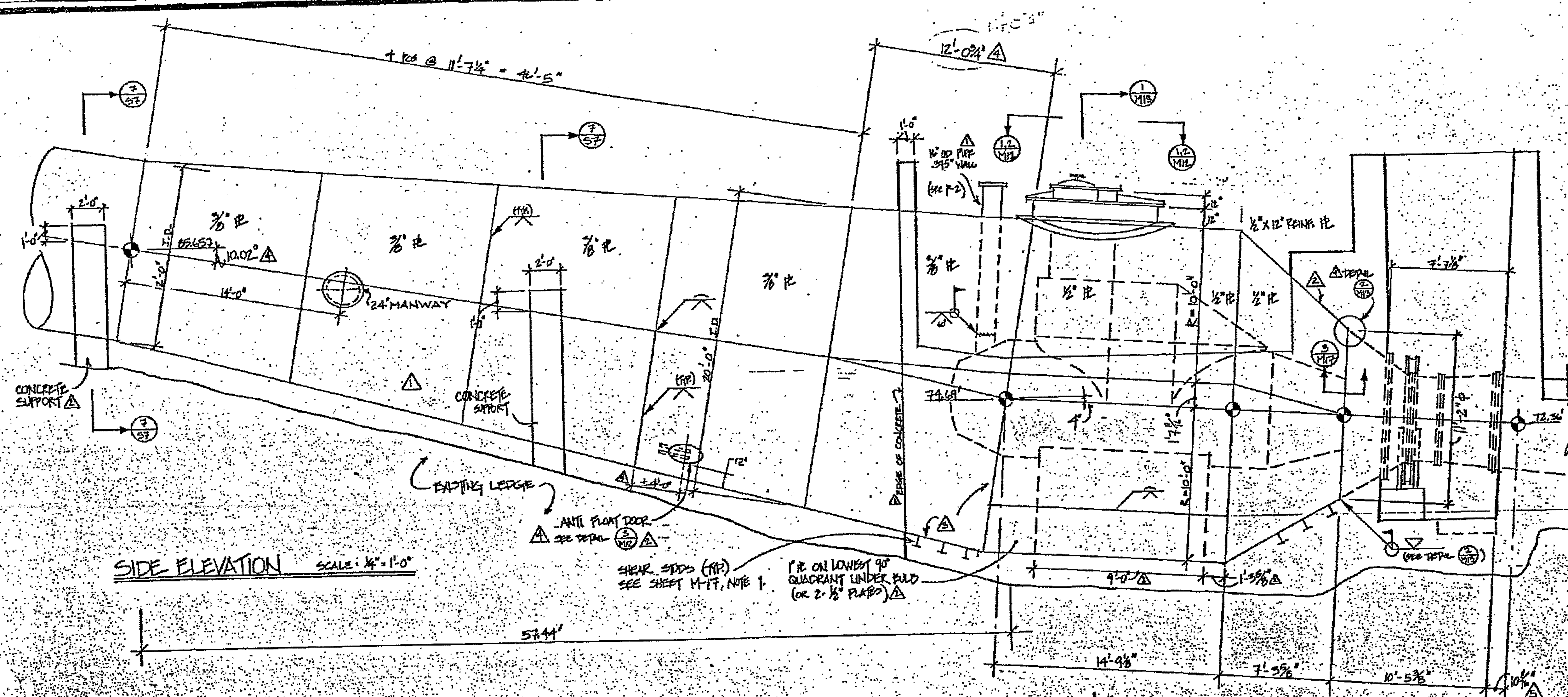


		O'Connell	
ENGINEERING & FINANCIAL, INC.			
DATE	11 MAR '93	TITLE	CHODOPEE HYDROELECTRIC LIMITED PARTNERSHIP
SCALE	N/A	DESCRIPTION	UNIT 1 & 2 SWITCHGEAR CONTROL CIRCUIT
DRAWN BY	S. HILL	LAST REVISION	4 FEB 94
APP. BY		DRAWING NO.	92054-7

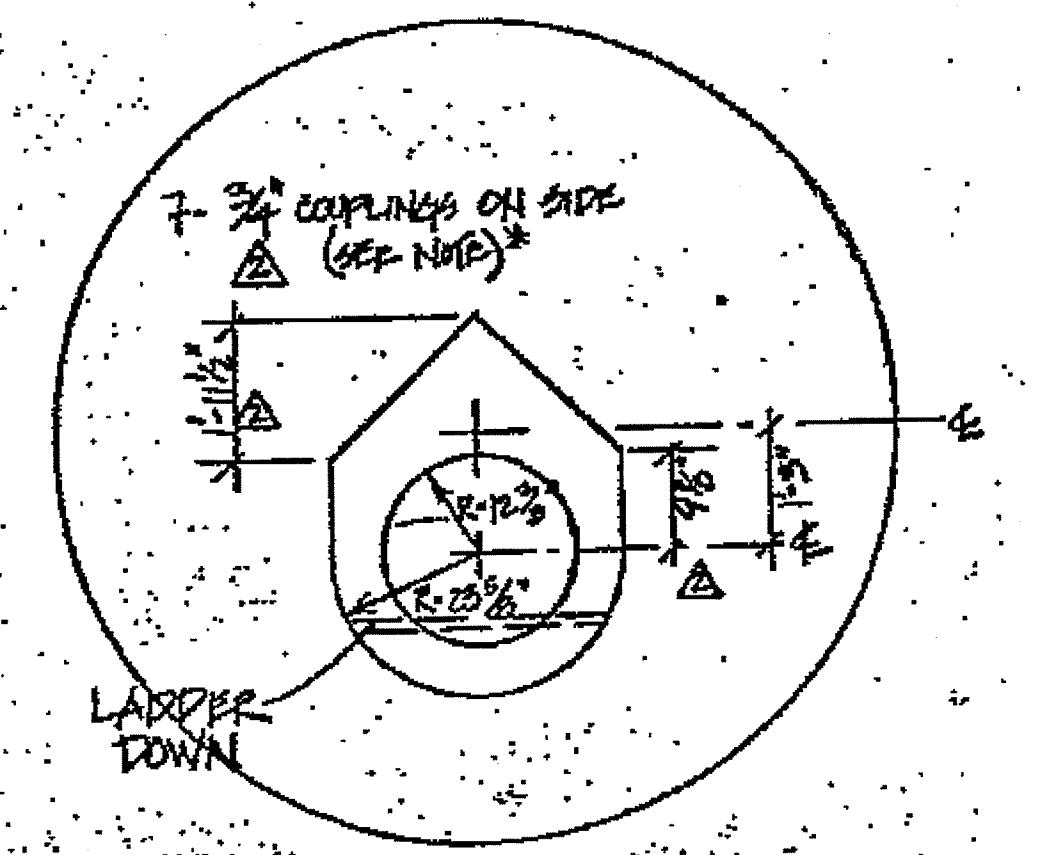


DATE: 11 MAR 93	TITLE: CHICOPEE HYDROELECTRIC LIMITED PARTNERSHIP
SCALE: N/A	DESCRIPTION: PLANT ANALOG INPUTS
DRAWN BY: S. HILL	LAST REVISION: 25 APRIL 94
APP. BY:	DRAWING NO.: 92054-8

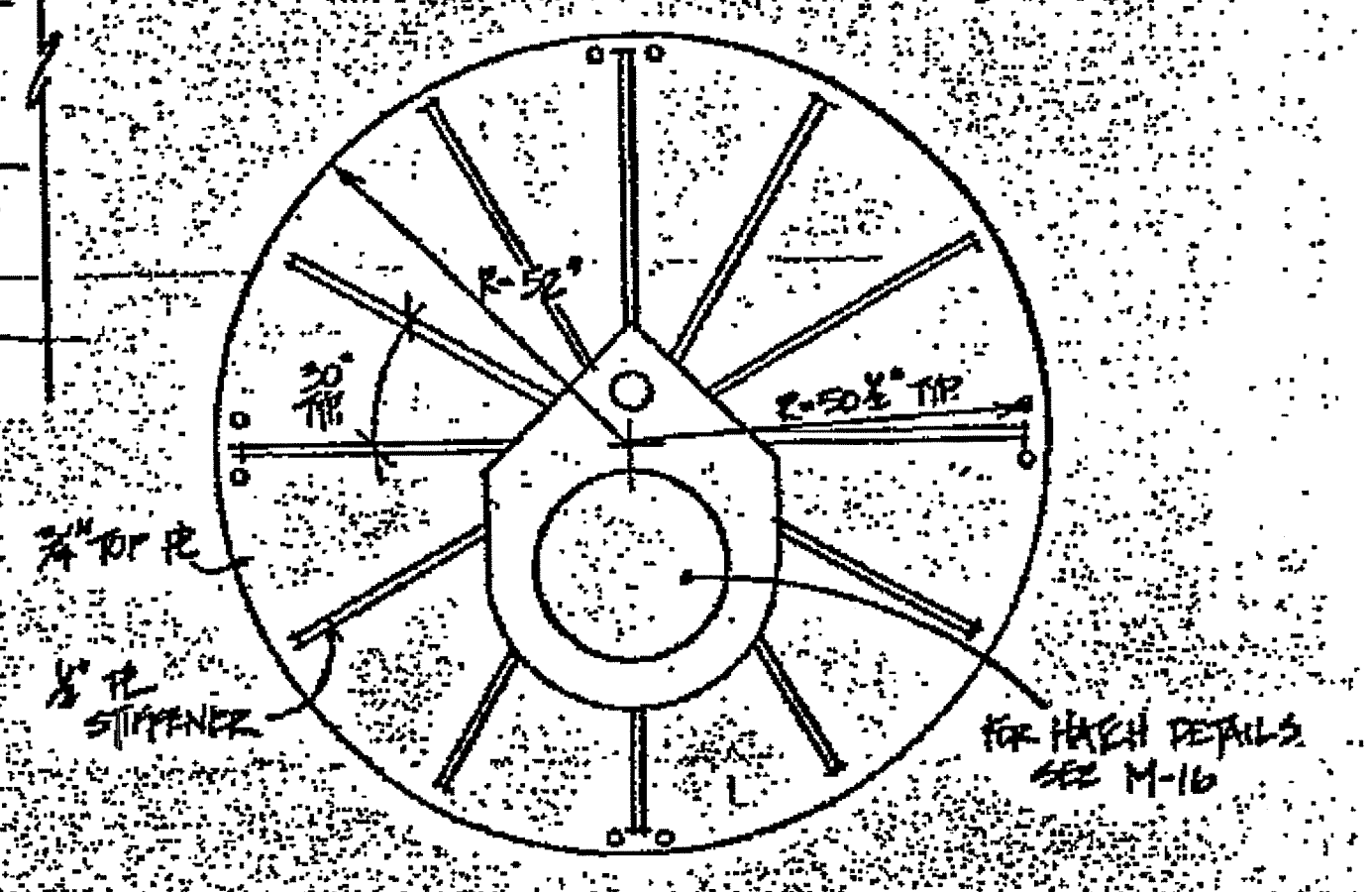
* NOTE: COUPLING LOCATED ON SIDE OF HATCH DOWNWARD & OF PROJECT (SEE SHEET F-10)



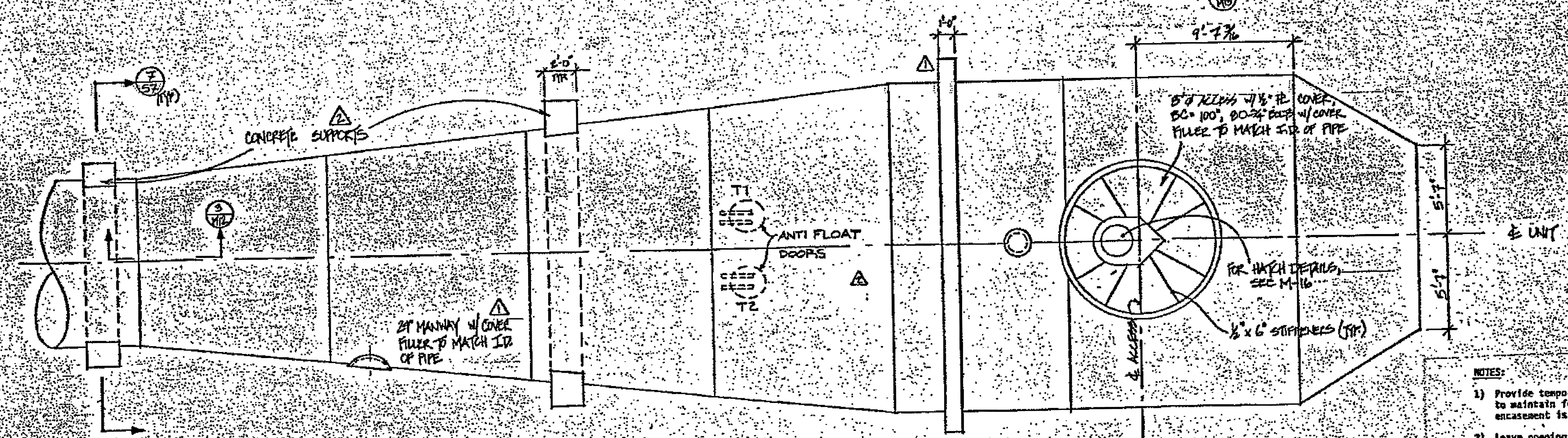
SIDE ELEVATION SCALE: 1/4" = 1'-0"



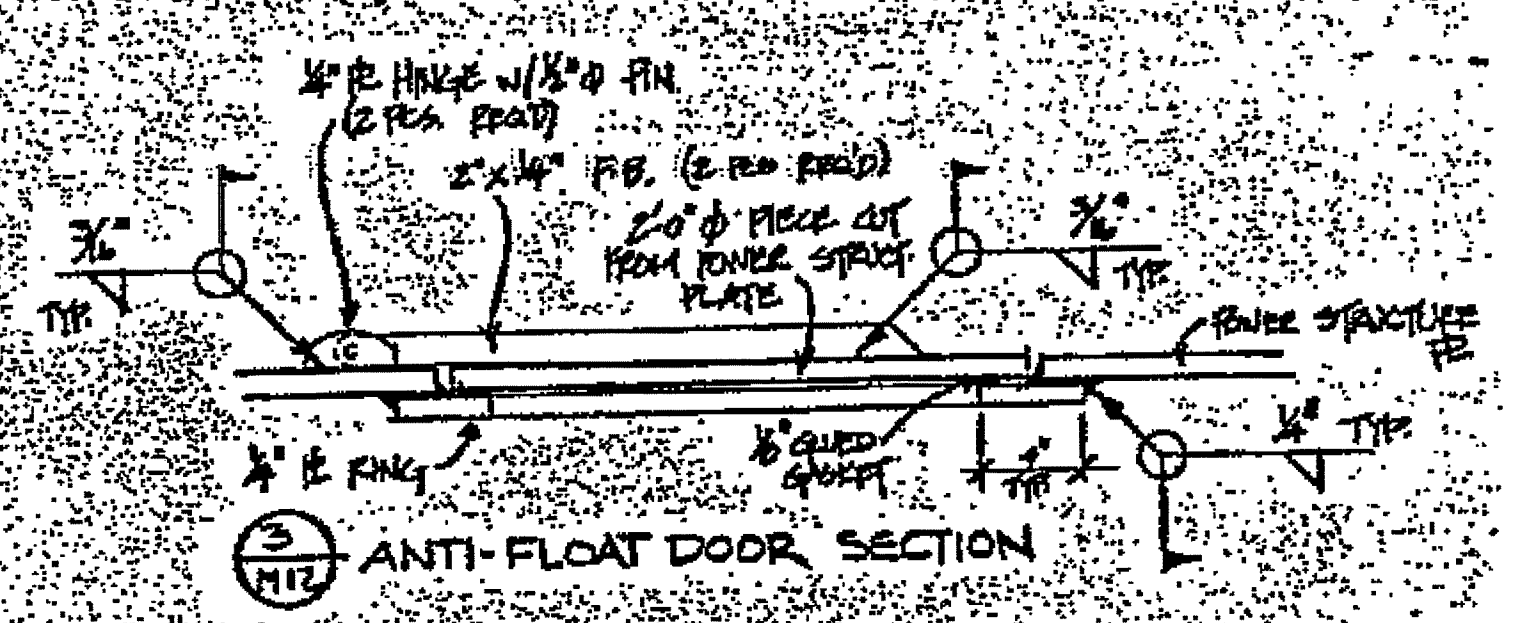
SECTION 2 SCALE: 1/2" = 1'-0"



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



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



ANTI-FLOAT DOOR SECTION

NOTES:

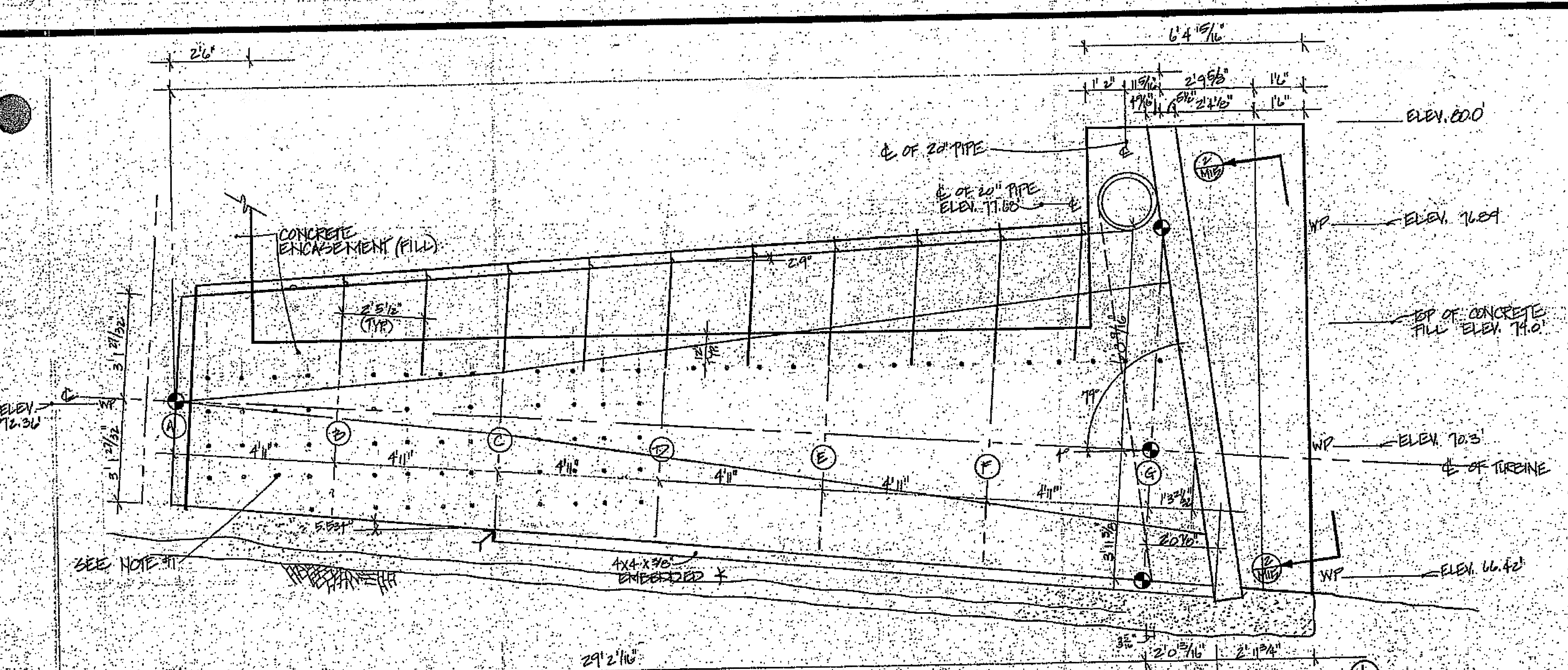
- 1) Provide temporary bracing for plating to maintain form while concrete encasement is placed.
- 2) Leave opening in top of plating to erect machinery.
- 3) All welds to be full penetration butt welds ground flush with inside of pipe.
- 4) All dimensions are inside of pipe.

6	11-14-83	AS BUILT	SAH
5	10/1/84	DIMENSIONAL CHANGE @ SHEET OF IDENTIFY	KPA
4	7-9-84	ANGLE CORRECTION, NEW TIE	KPA
3	6-20-84	DIMENSIONAL CORRECTIONS	KPA
2	6-4-84	SEAMS, COUPLINGS, SUPPORTS, WELDS	KPA
1	4-20-84	CROSS-SECTION CONCRETE	KPA
02			

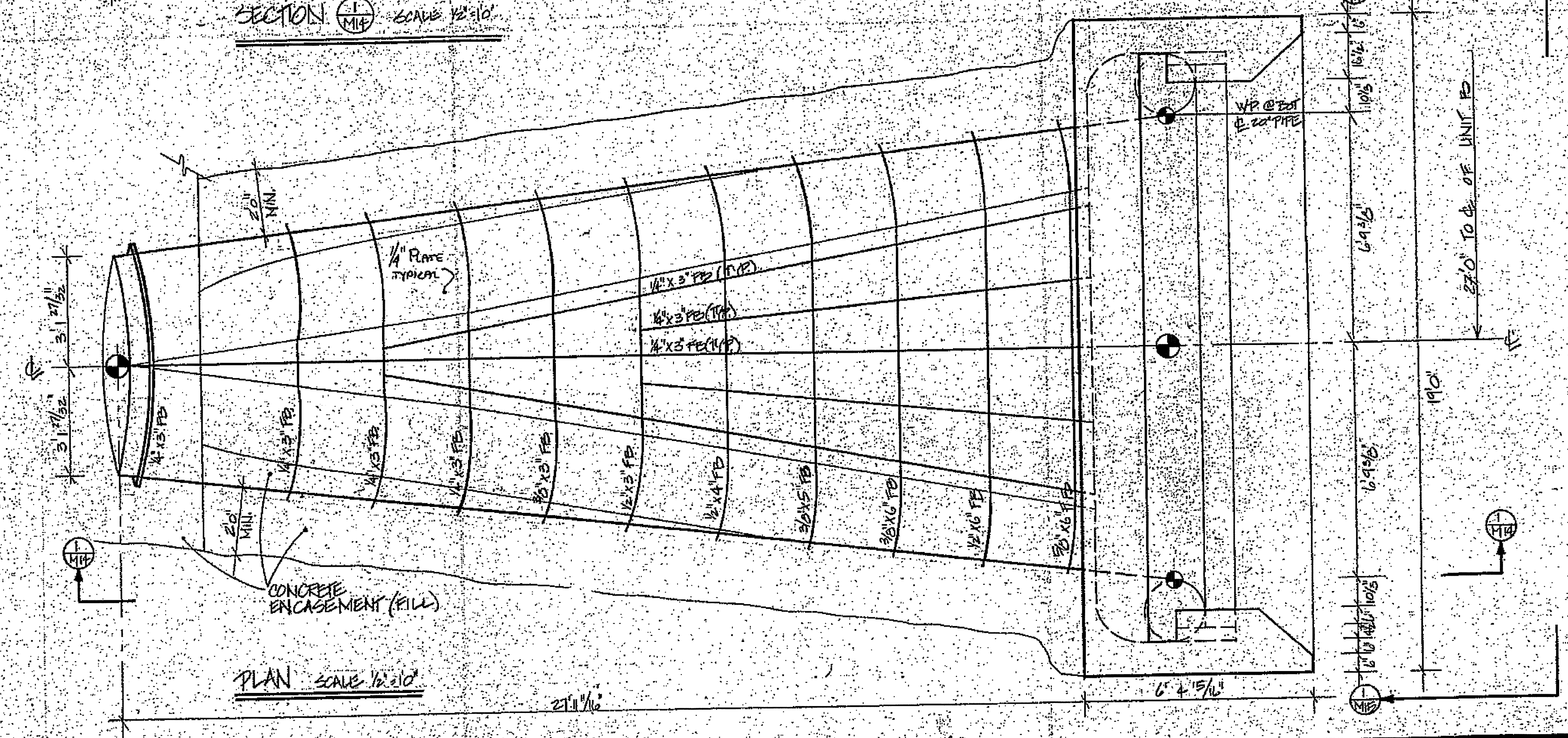
POWER STRUCTURE PLAN & ELEVATION FOR FABRICATION
 CHICOFEE HYDROELECTRIC SRC/DOC

CHRIS HOSFORD, INC.
 3179 Main Street
 BARNSTABLE, MASSACHUSETTS 02630
 (617) 362-4561

M12
 1 of 1 sheets

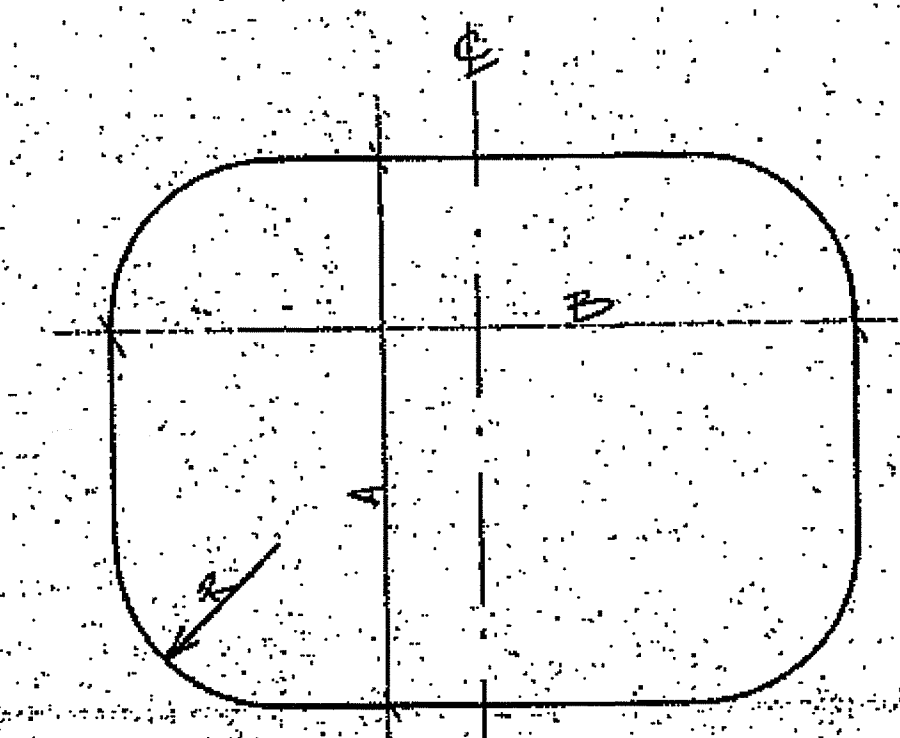


SECTION I-I SCALE 1/2"=1'-0"



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

- NOTES:
- 1) Provide 1/4" Dia. x 2-11/16" long, 1/2" Dia. x .187" thick headed steel studs, 12" O.C. each way, for all steel plate and pipe embedded in concrete, as generally shown on the drawings.
 - 2) Provide temporary supports for erection onsite and casting of concrete in three lifts around the draft tubes.
 - 3) Erection Sequence:
 Pour bottom slab with embedded angles.
 Set steel draft tube on slab and weld to angles in slab.
 Anchor sides of steel tube to slab with temp. straps cast with slab.
 Pour concrete to elevation 69.00 ± and allow to cure 8 hrs.
 Brace inside of draft tube with shoring to prevent buckling of flat sides.
 Pour concrete to elevation 72.00 ± and allow to cure 8 hrs.
 Pour concrete to elevation 74 and 80.00.
 - 4) All welds on inside of draft tube to be ground smooth and flush.

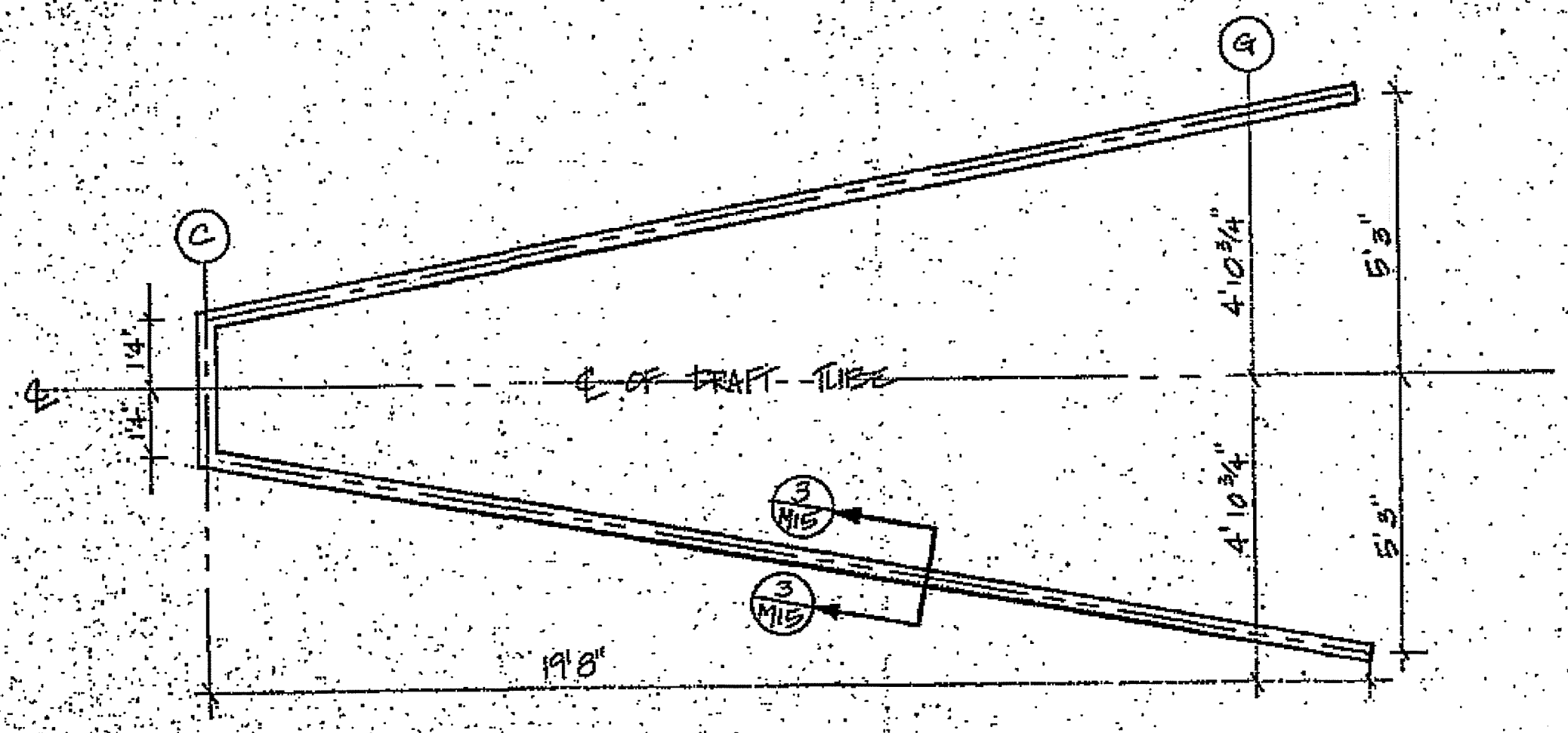
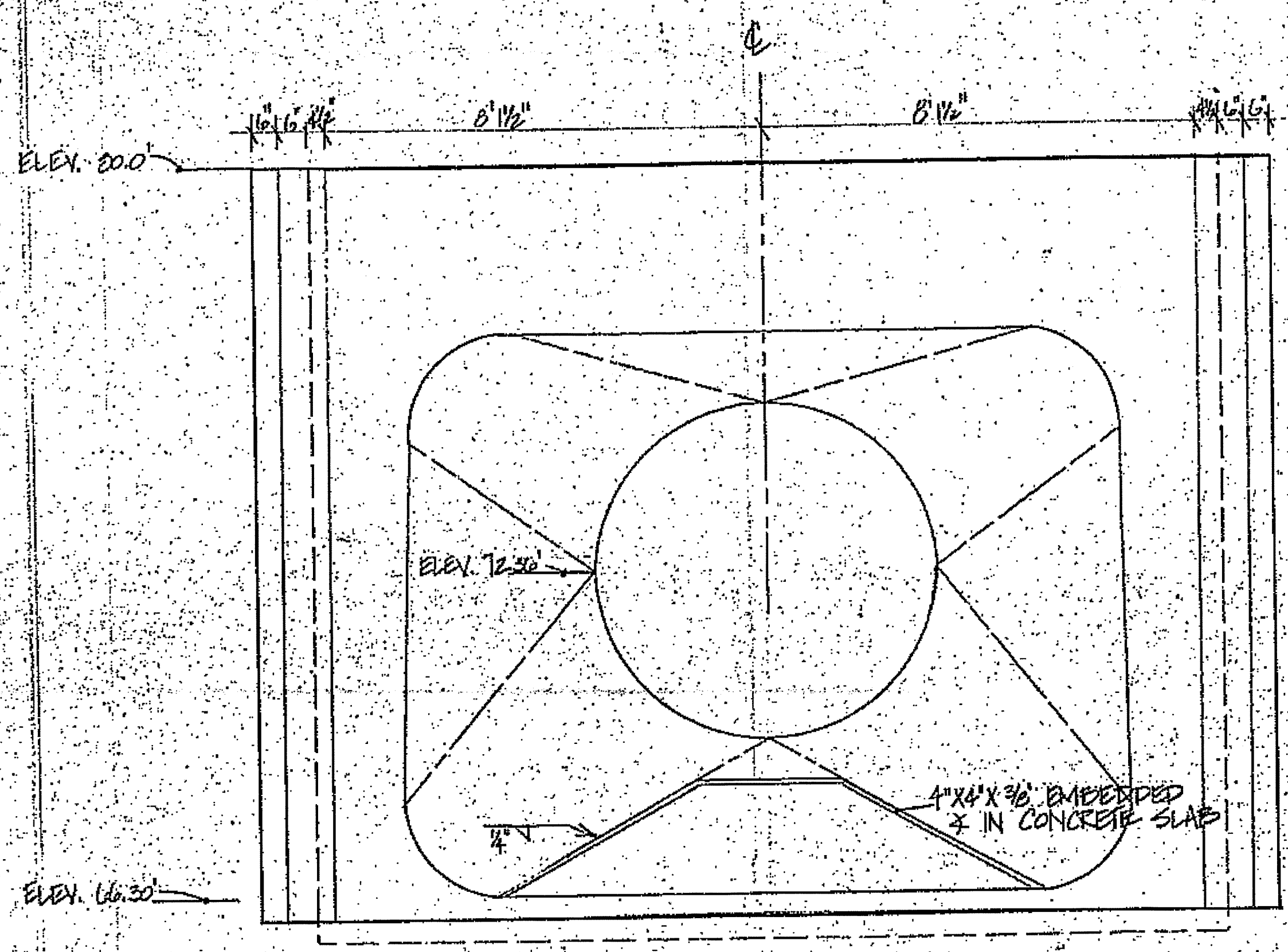


SECTION A, B, C, D, E, F, G Hrs.

SECTION	R	A	B
A	3.154'		
B	3.051'	7.040'	7.454'
C	2.953'	7.166'	6.586'
D	2.632'	8.491'	9.721'
E	2.310'	9.213'	10.853'
F	1.989'	9.931'	11.993'
G	1.667'	10.653'	13.123'

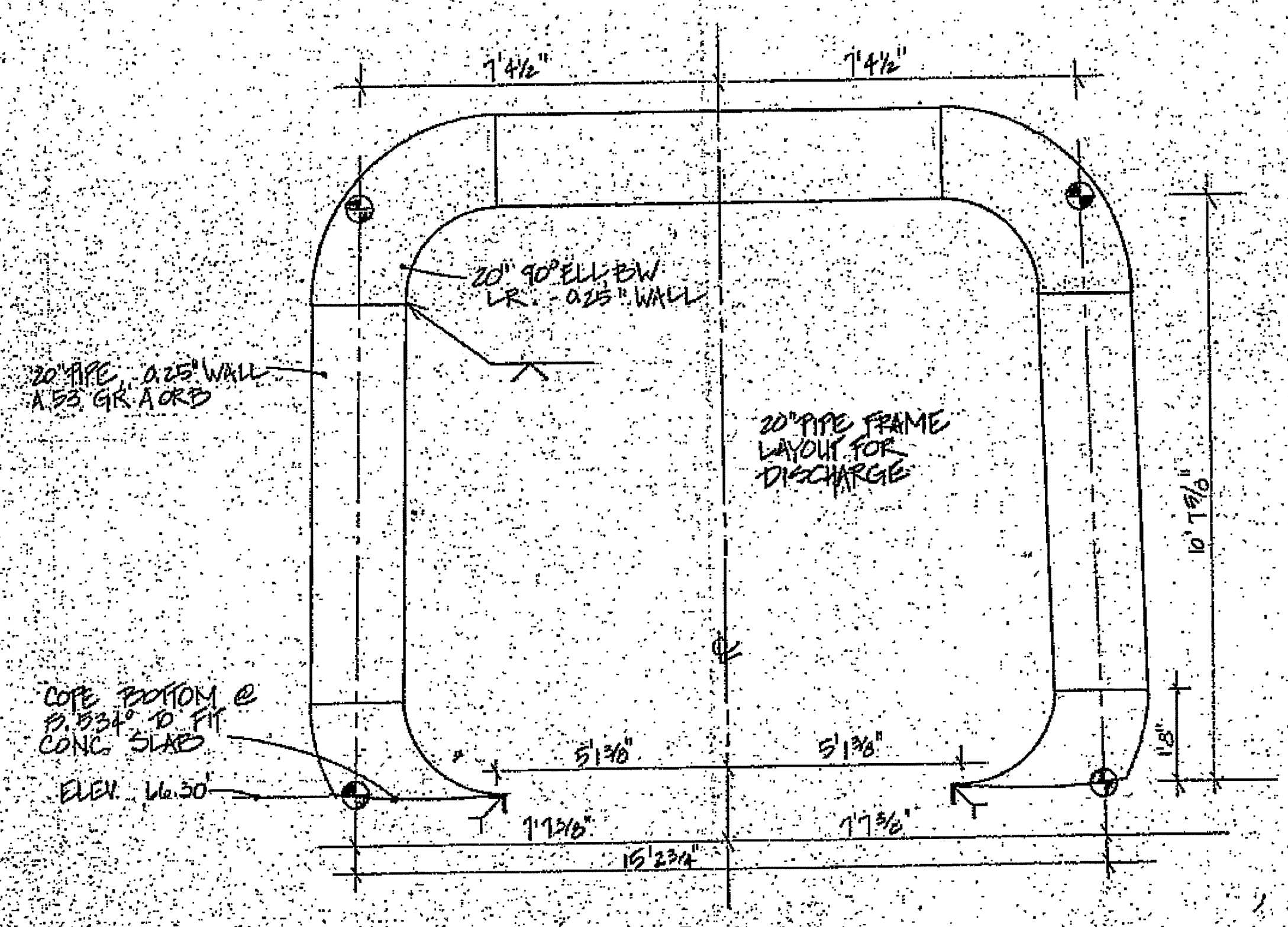
INNER DIMENSIONS OF DRAFT TUBE

DATE			
NO.	DATE	REVISION	BY
DRAFT TUBE - PLAN & SECTIONS FOR FABRICATION			083-04 AS NOTED
CHICOFEE HYDROELECTRIC REC/SRC (ATVC)			1st
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561			M14
			1 of 1 SHEETS

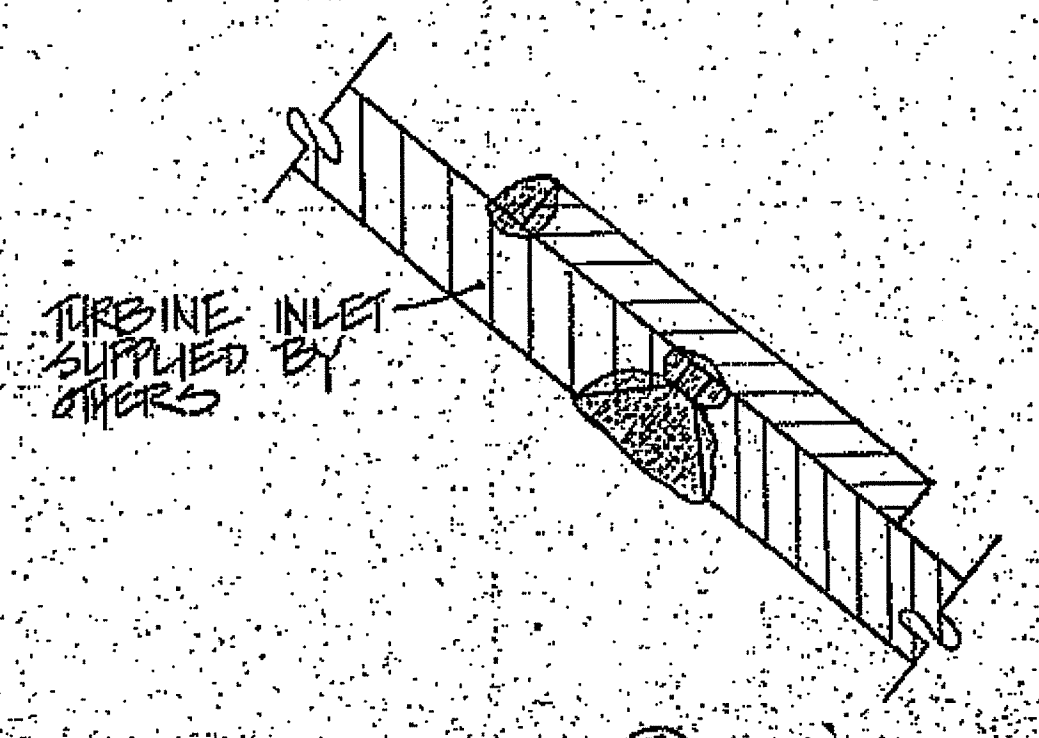


PLAN OF EMBEDDED BASE ANGLE. SCALE - 1/8" = 1'-0"

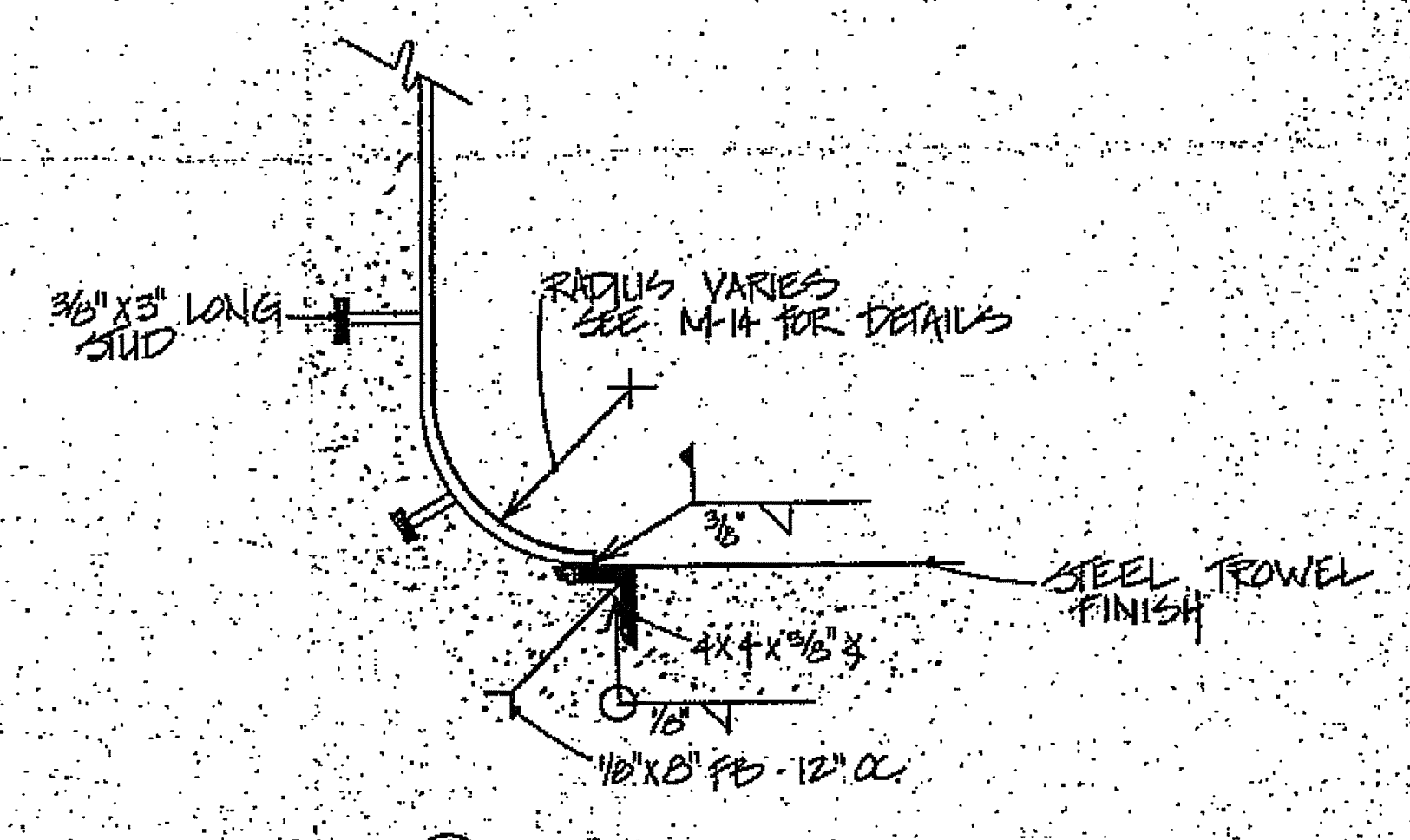
SECTION 1 SCALE - 1/2" = 1'-0"



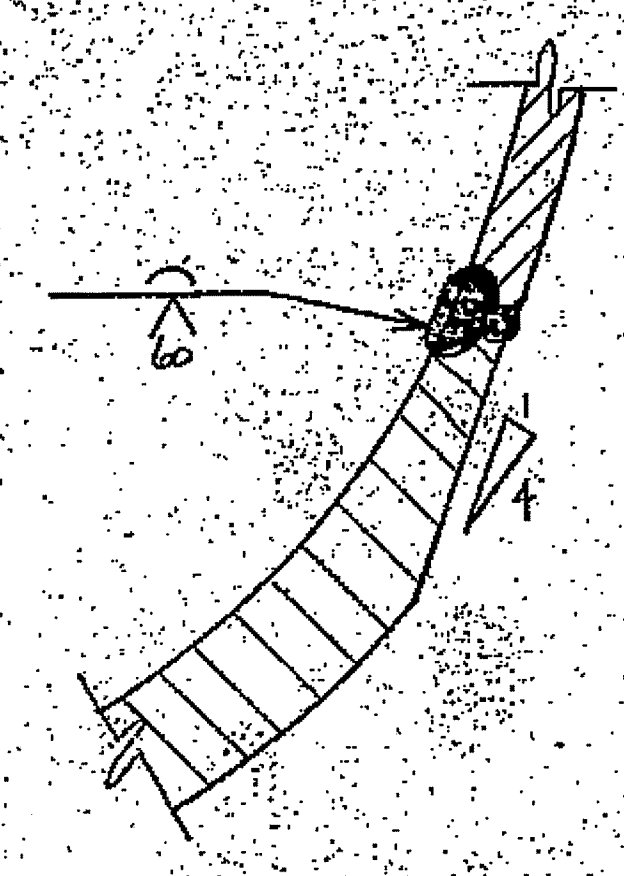
SECTION 2 SCALE - 1/2" = 1'-0"



SECTION 3 SCALE - ACTUAL

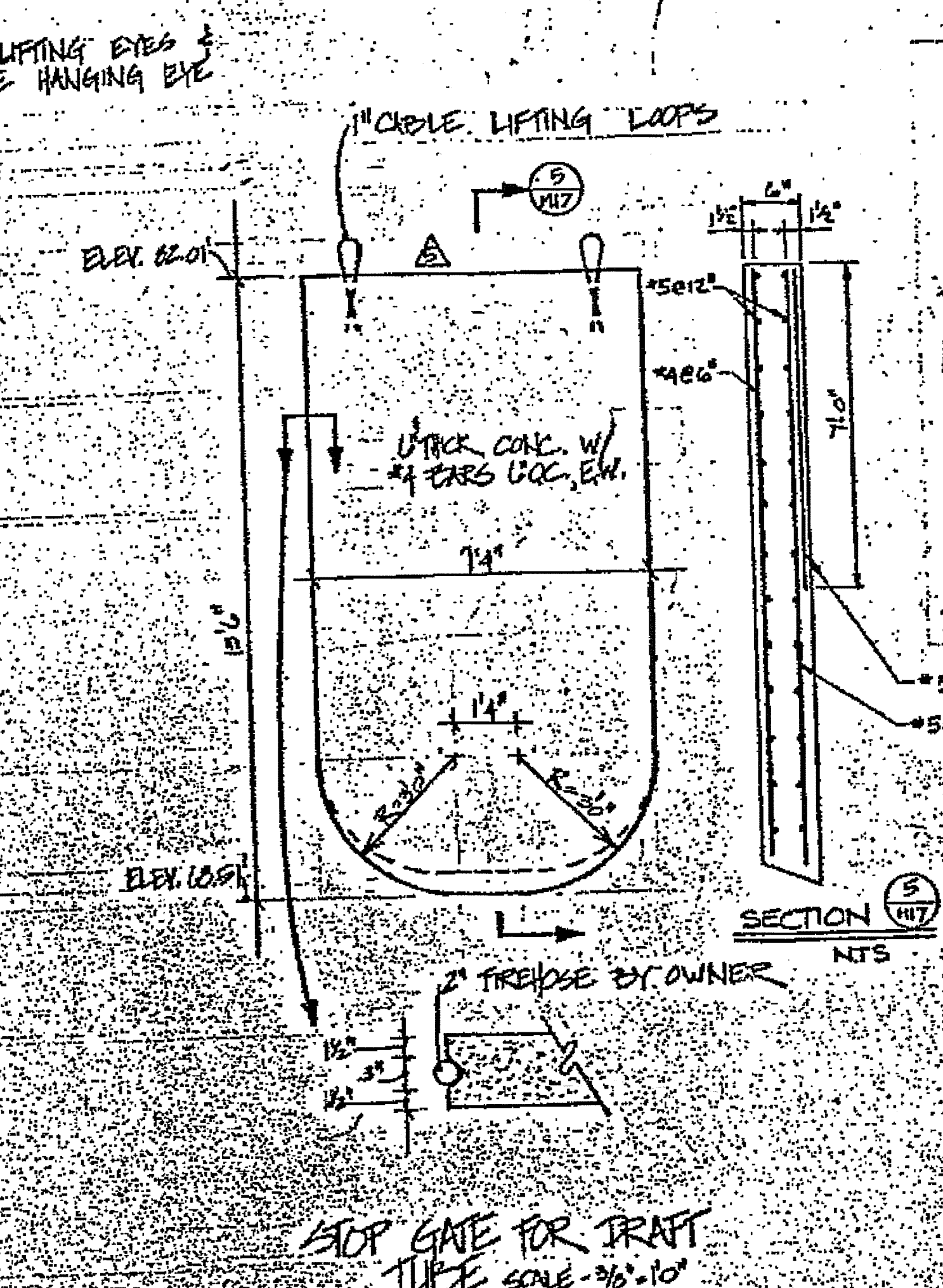
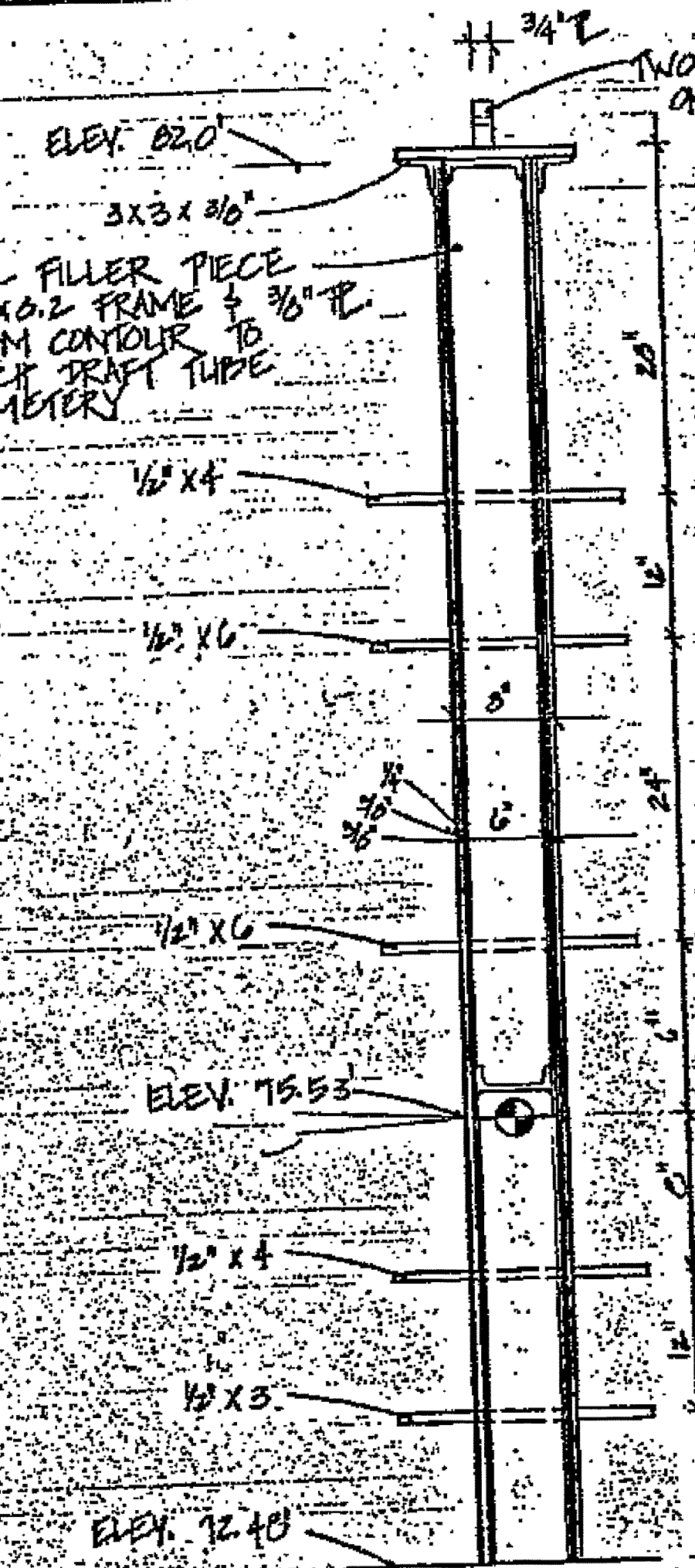
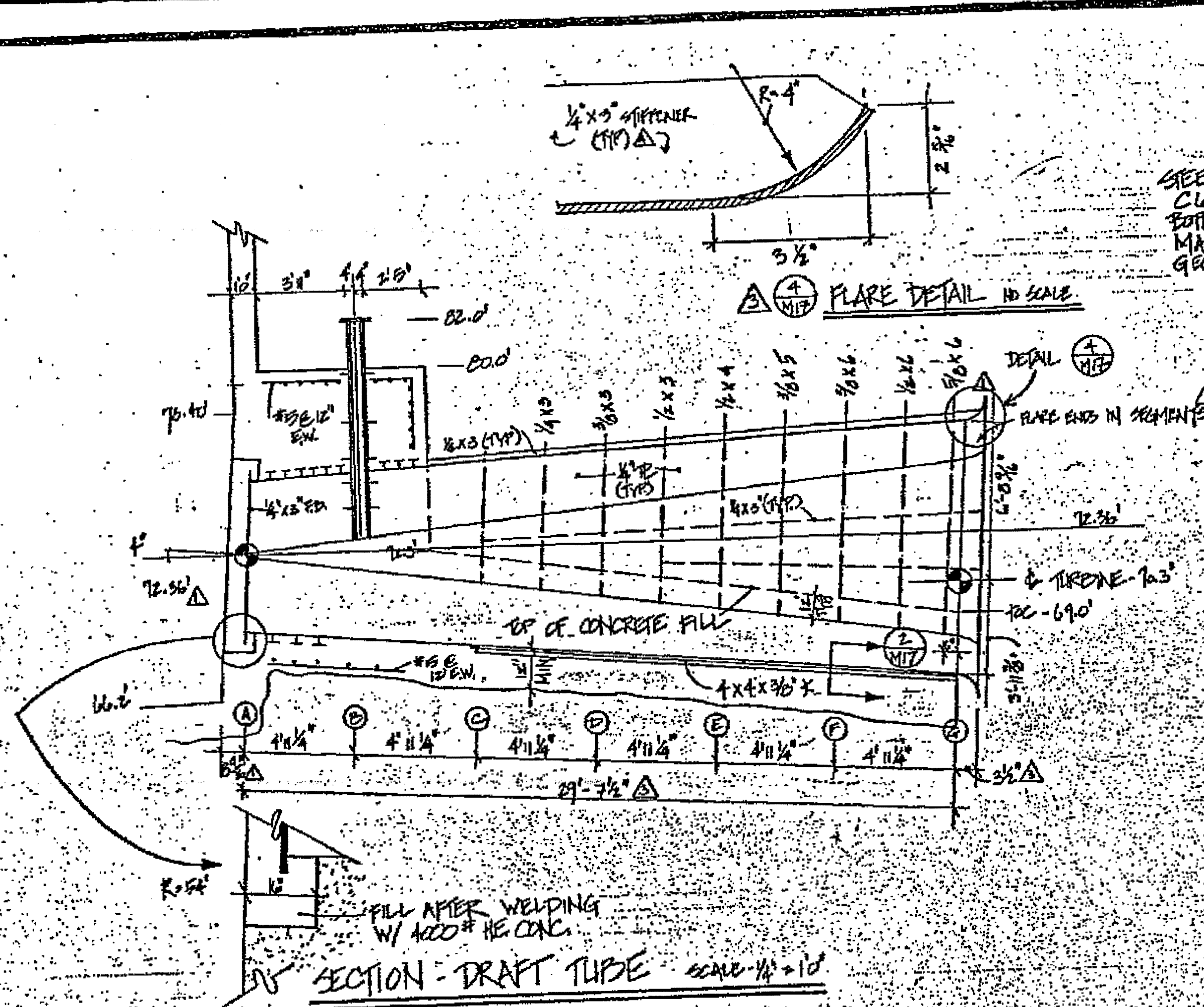


SECTION 4 SCALE - 1/2" = 1'-0"

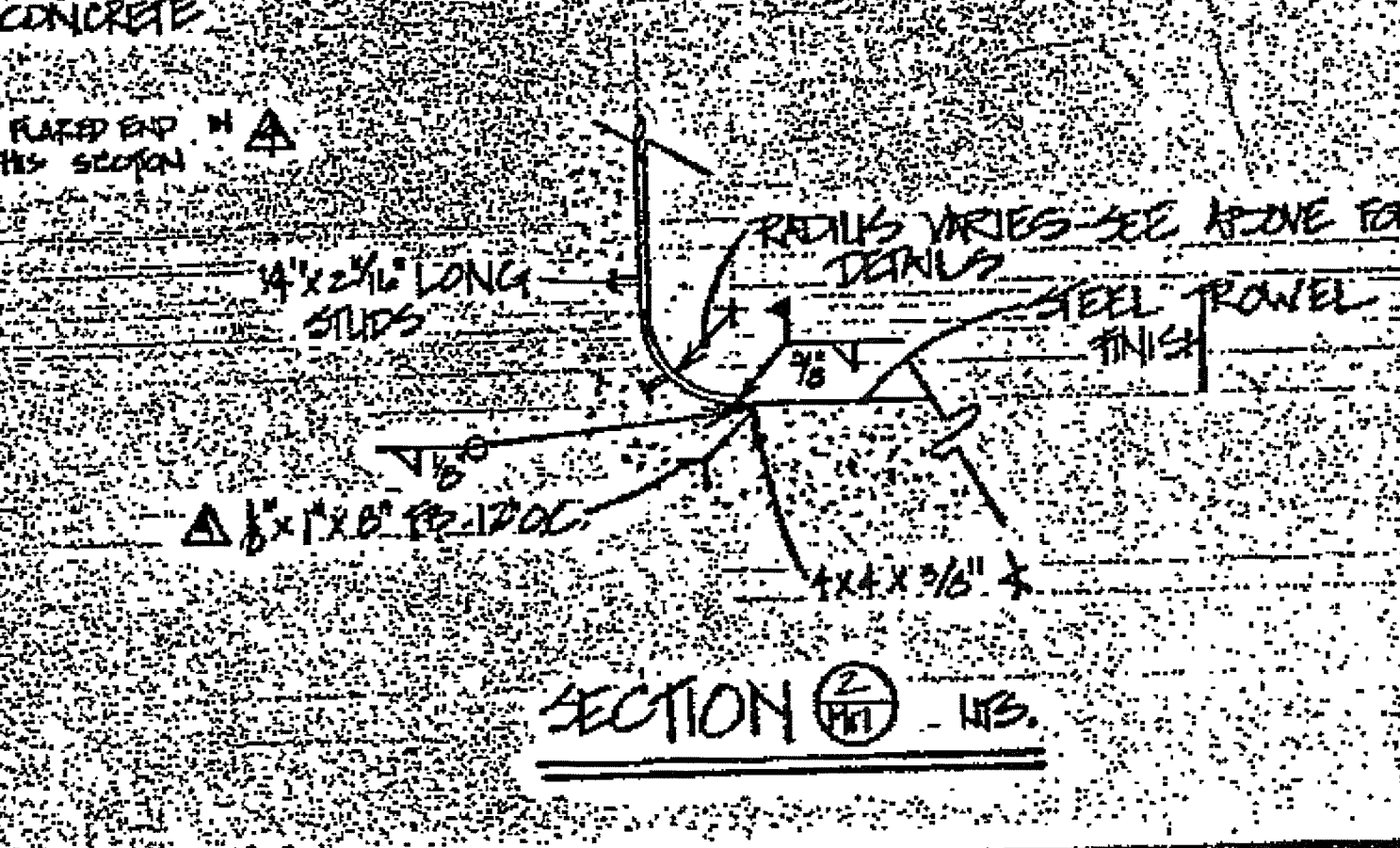
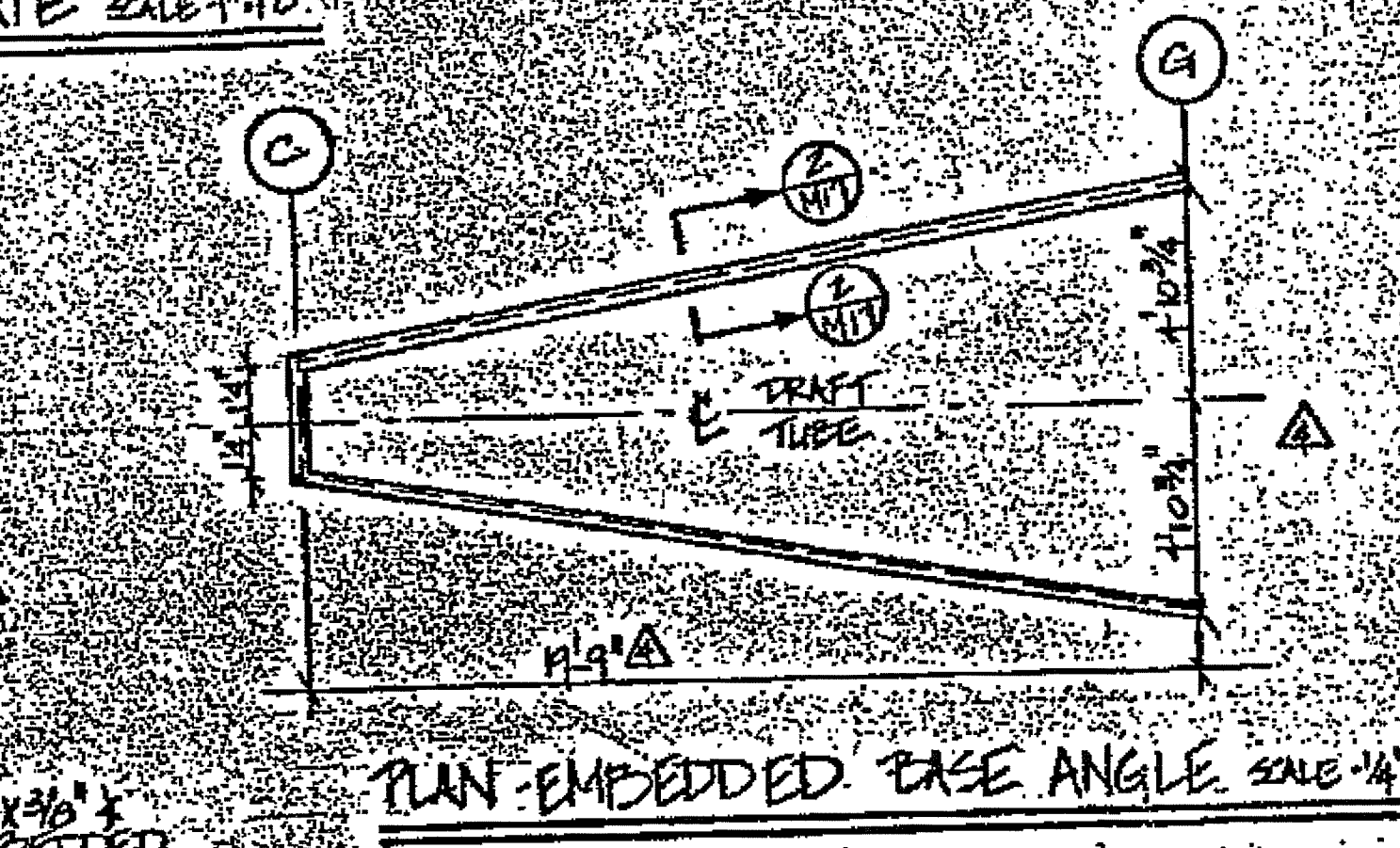
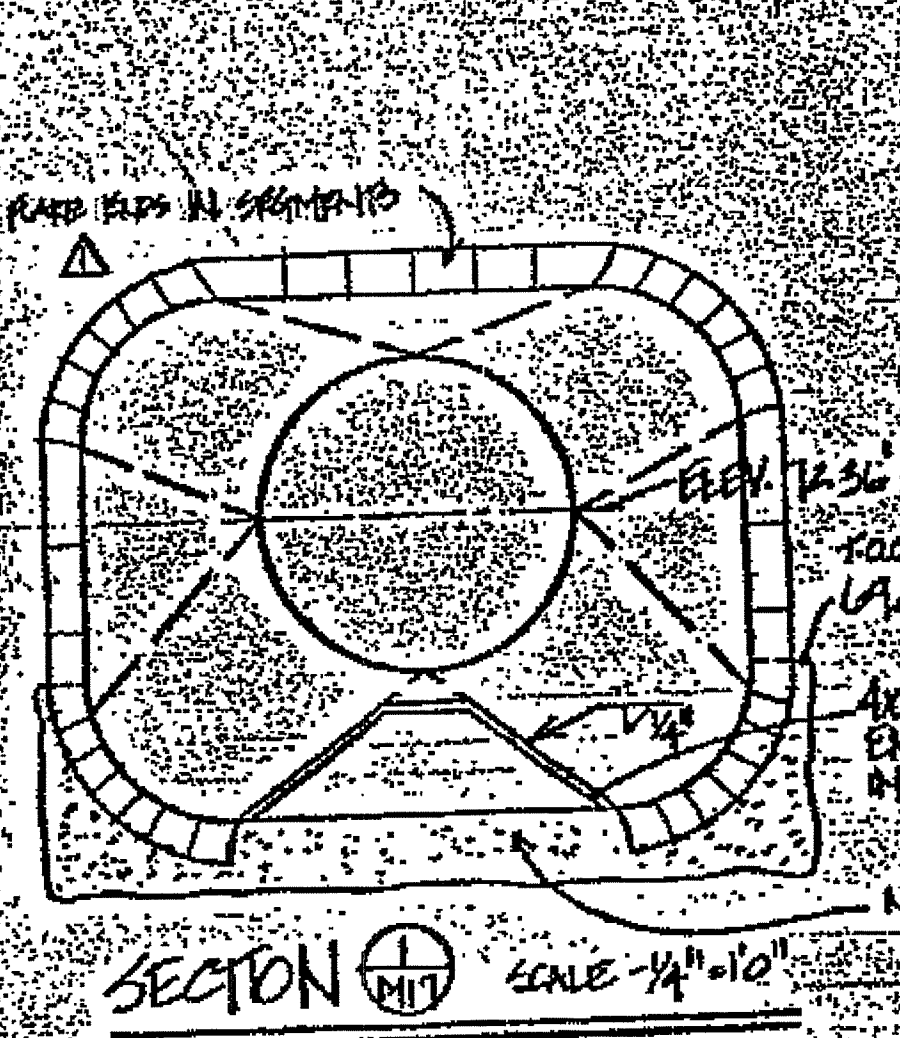
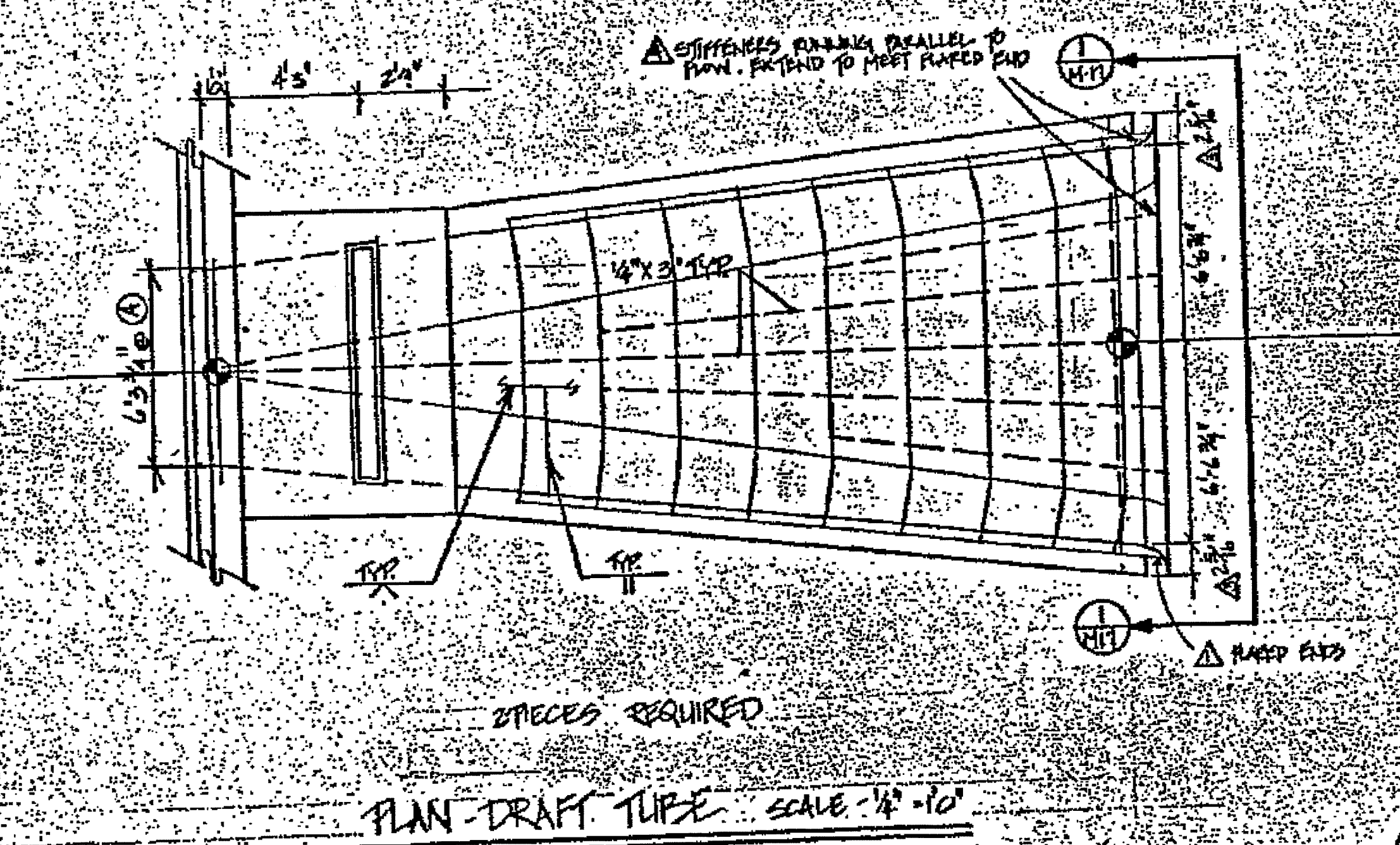
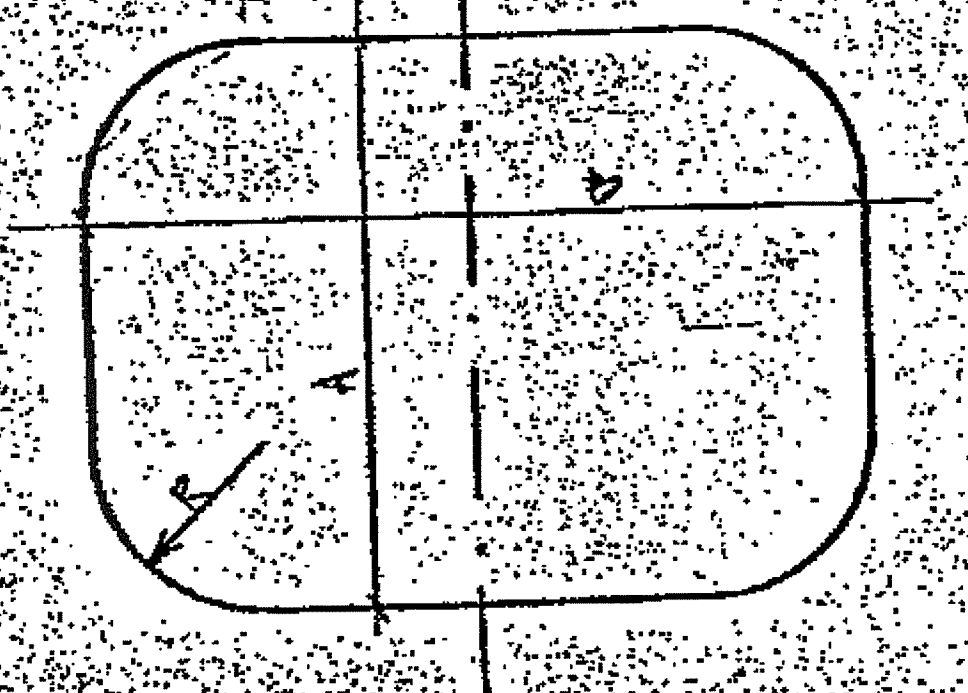


SECTION 5 SCALE - ACTUAL

NO.	DATE	REVISION	BY
DRAFT TUBE AND WELDING DETAILS 08-04 AS NOTED 1-24 DB CEII			
CHOCOPES HYDROELECTRIC DDC/SRC (ATVC)			
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561			MI5 1 of 1 SHEETS



- NOTES:
- 1) Provide 1/4" .187" thick, way, for all concrete, as s
 - 2) Provide temporary and casting of a the draft tubes.
 - 3) Erection Sequence: Pour bottom slab w/ set steel draft tube in slab. Anchor sides of steel strays cast with slab. Pour concrete to elevation 74' 8 hrs. Place inside of draft tube prevent buckling of flat's. Pour concrete to elevation 75' 8 hrs. Pour concrete to elevation 76' 8 hrs.
 - 4) All welds on inside of draft tube smooth and flush.

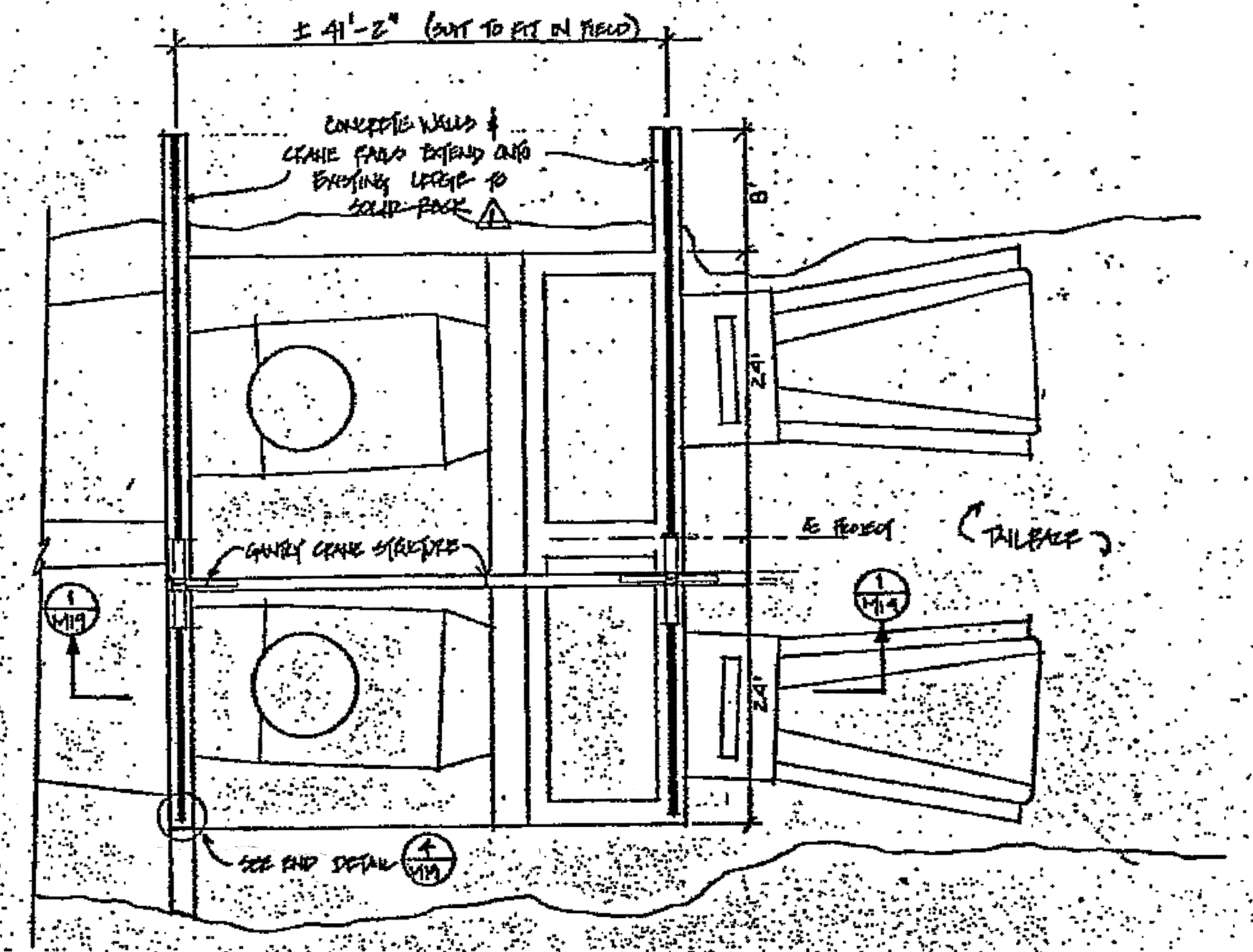
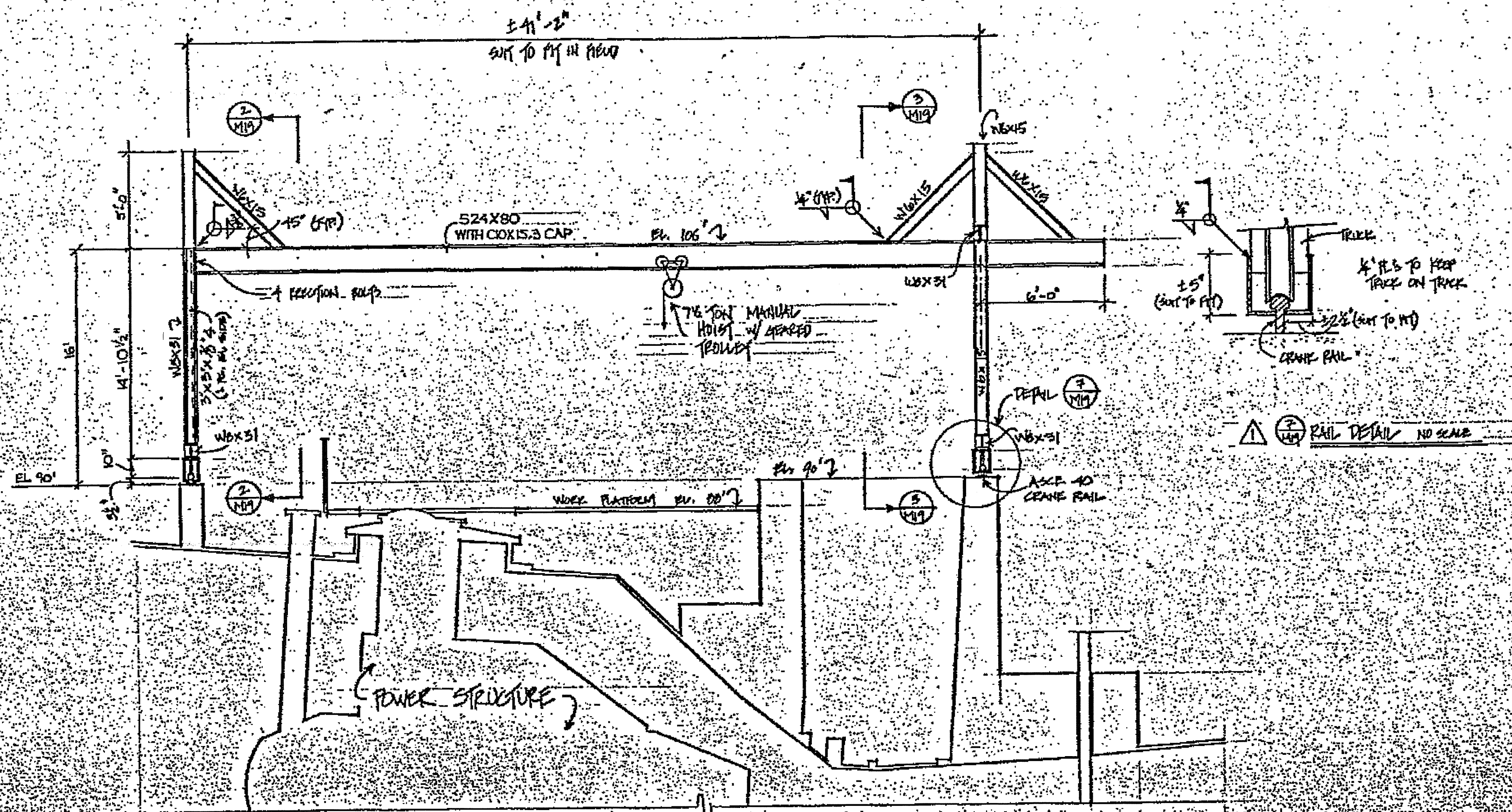


SECTION	R	A	D
A	3.154'		
B	3.051'	11.040'	11.454'
C	2.953'	7.166'	8.526'
D	2.632'	8.191'	9.121'
E	2.310'	9.215'	10.053'
F	1.989'	9.931'	11.418'
G	1.667'	10.663'	13.123'

INNER DIMENSIONS OF DRAFT TUBE

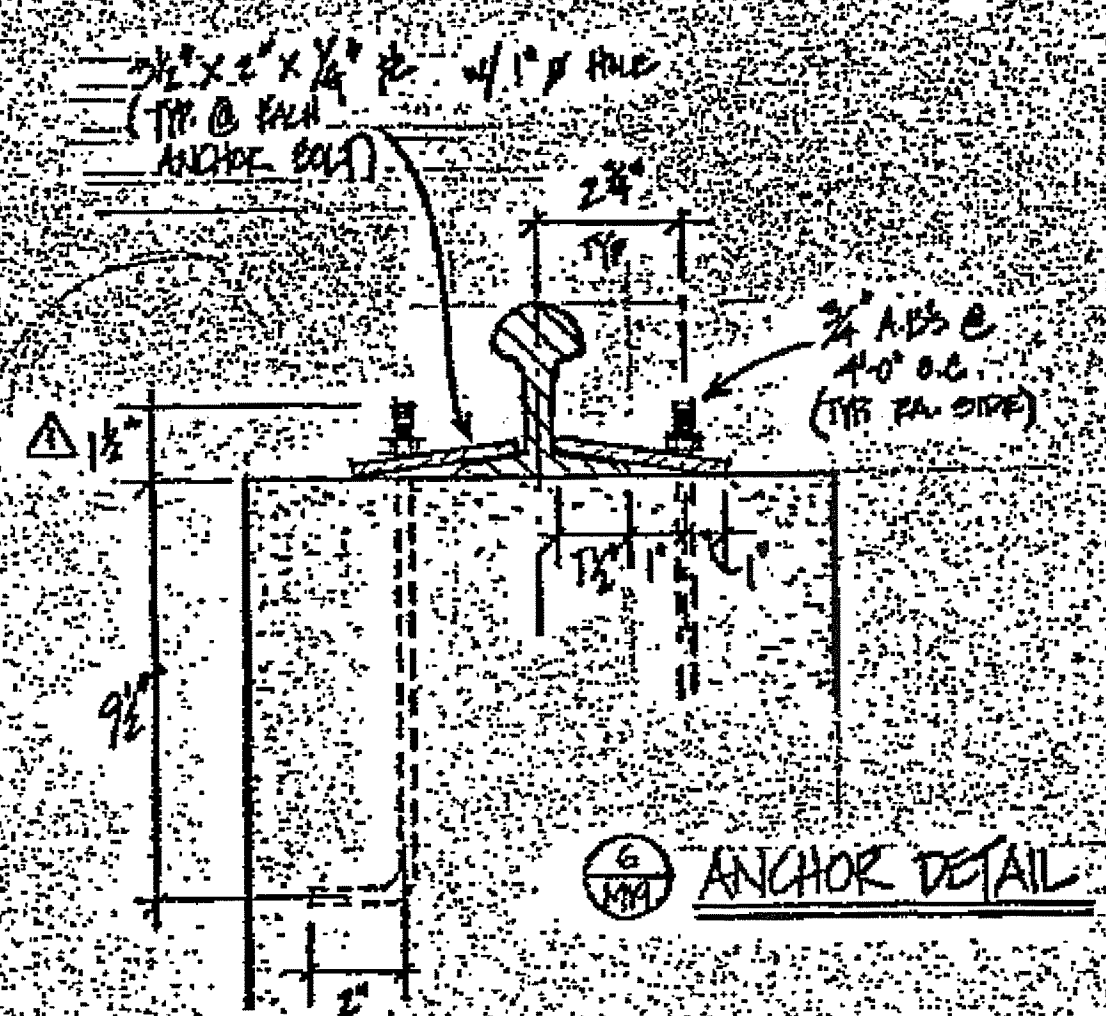
NO.	DATE	DESCRIPTION	BY
6	11-14-85	AS BUILT	SAH
5	8-22-84	TR OF STOP GATE, NOTE 3	KPA
4	7-18-84	PIPE ANGLE, DIFFERENCE CORRECTED	KPA
3	7-2-84	LENGTH CORRECTION, PLATE CHANGES	KPA
2	6-20-84	SECTION 5, NOTE ON STOP GATE	KPA
1	6-5-84	PLANO AND 2 DRAFT TUBE	KPA

DRAFT TUBE - PLAN & SECTIONS ALTERNATE #1
 CHICOPPEE HYDROELECTRIC CO. SRC (A)VC
 CHRIS HOSFORD, INC.
 3179 Main Street
 BARNSTABLE, MASSACHUSETTS 02630
 (617) 362-4561
MI7
 1 of 1

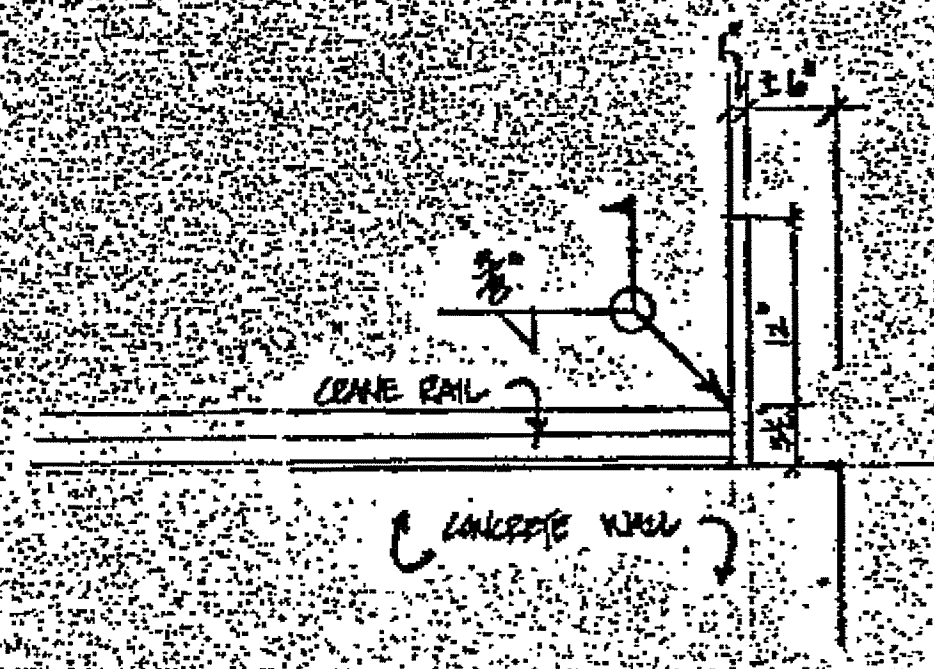


PLAN @ POWER STRUCTURE SCALE: 1/4\"/>

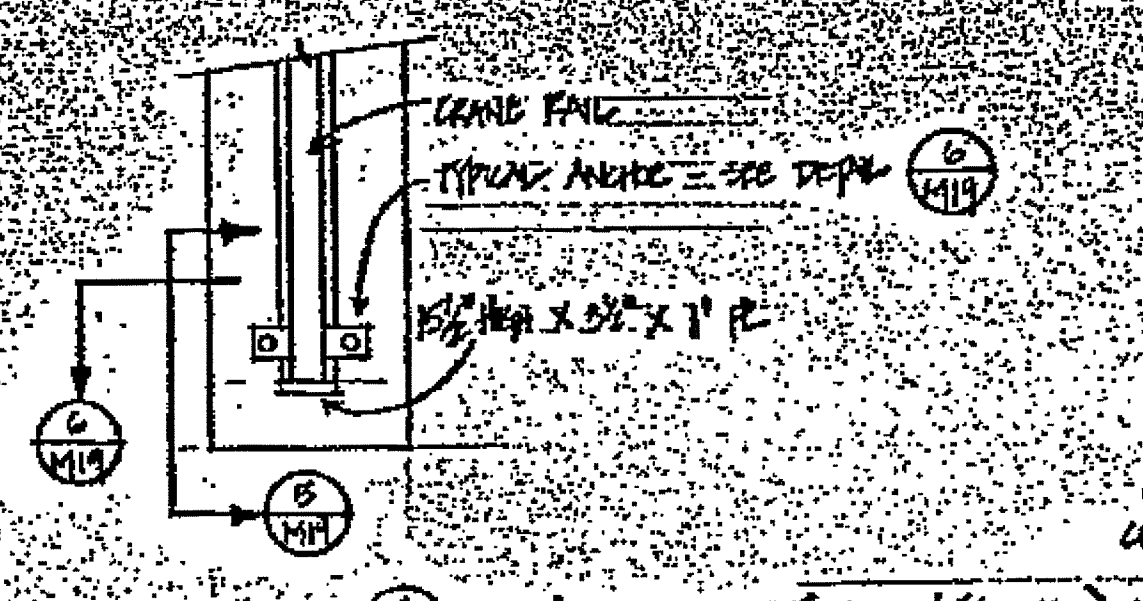
SECTION VIEW SCALE: 1/4\"/>



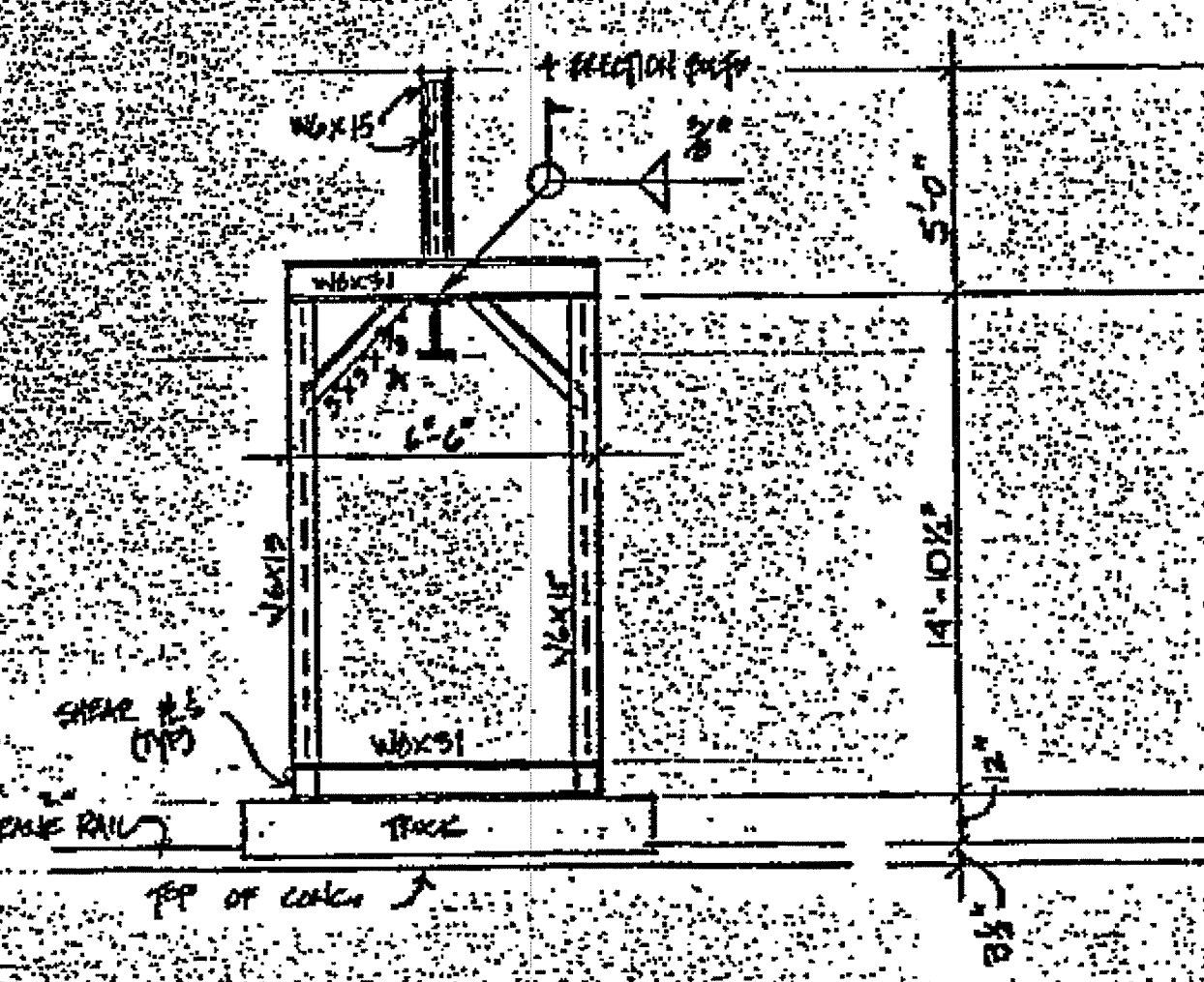
ANCHOR DETAIL SCALE: 1/4\"/>



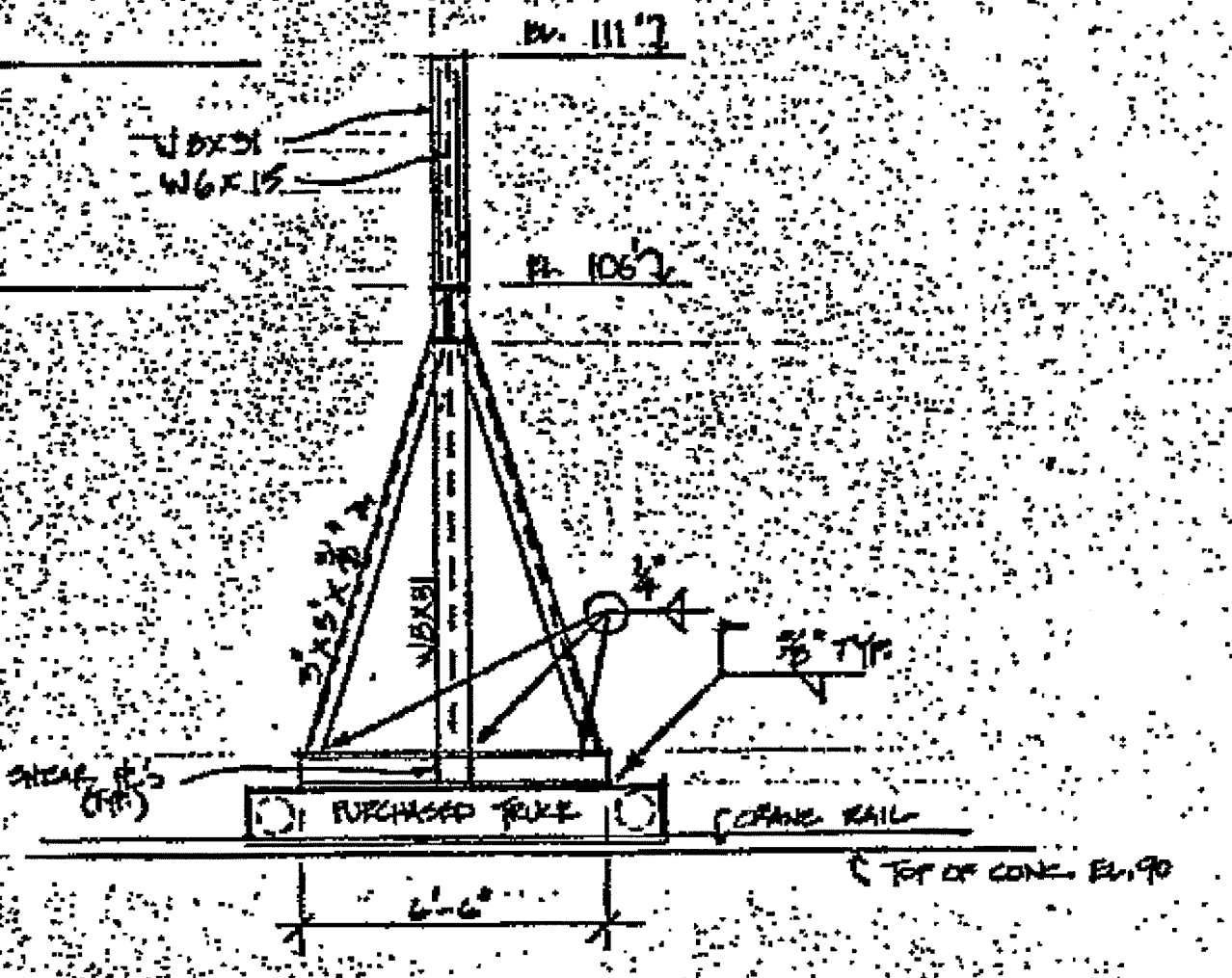
DETAIL SCALE: 1/4\"/>



PLAN-END DETAIL (TYPICAL) SCALE: 1/4\"/>



SECTION SCALE: 1/4\"/>



SECTION SCALE: 1/4\"/>

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REVISIONS	NO.	DESCRIPTION	DATE	BY	DATE	BY
	1	ADD DETAIL 7, EXTEND WALL DIMENSION		EPA		
	2	AS BUILT	11/14/80	SRH		
	3					
	4					

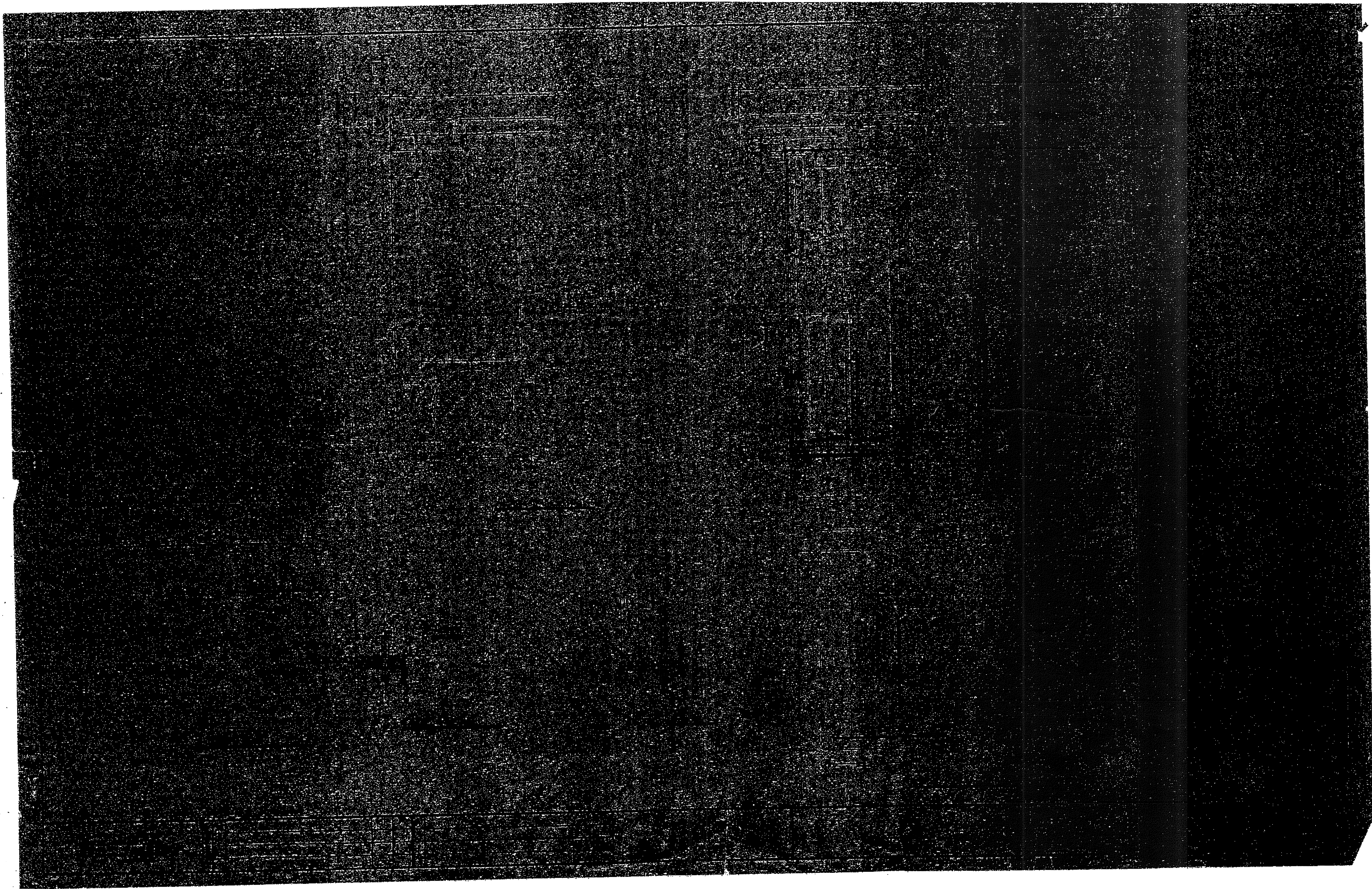
CHRIS HOSFORD, INC.
BARNSTABLE, MASSACHUSETTS 02630
(617) 362-4561

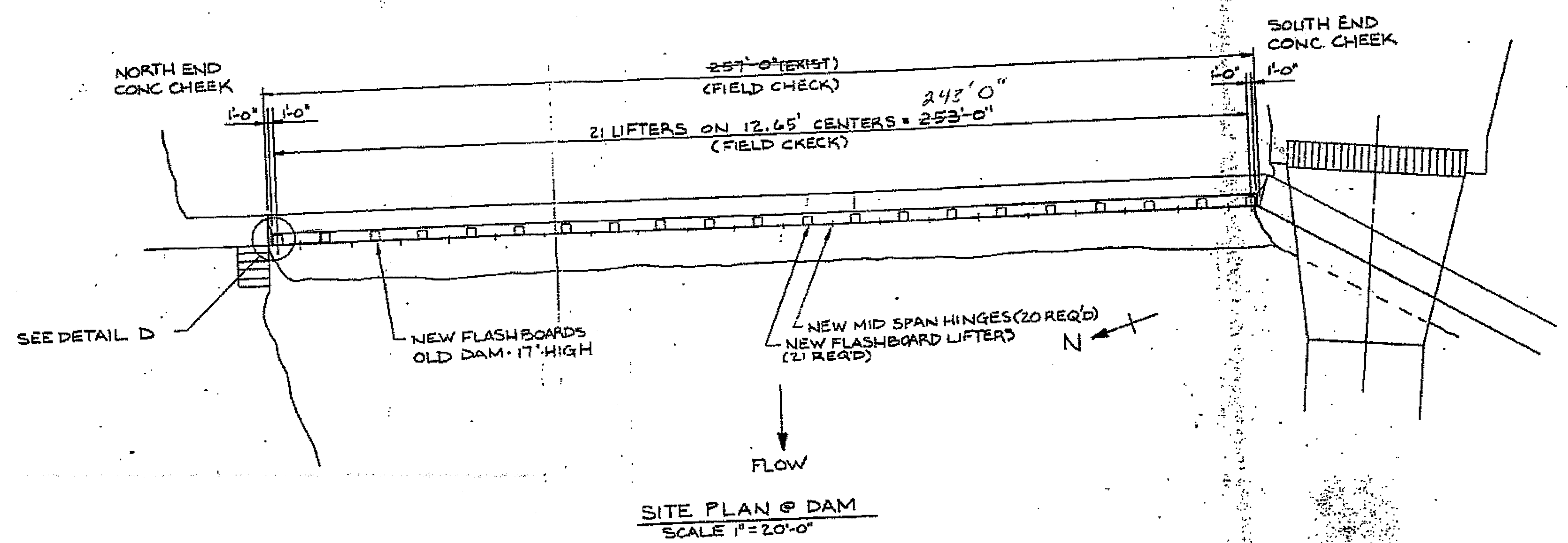
GANTRY CRANE DETAILS

Drawn By: KFA
Checked By:
Scale: AS NOTED

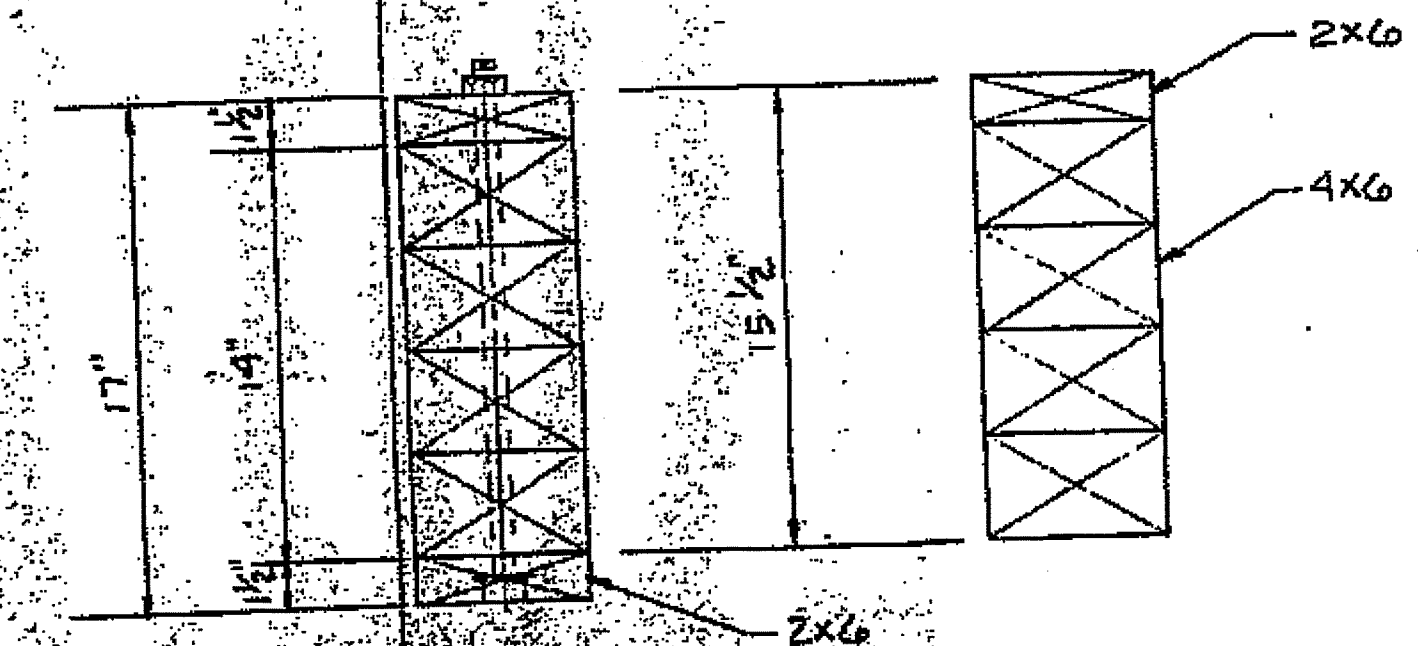
CHICOPEE HYDROELECTRIC
SWIFT RIVER COMPANY

Date: Aug 1, 1984
Job No.: 083-04
Dwg No.: M19





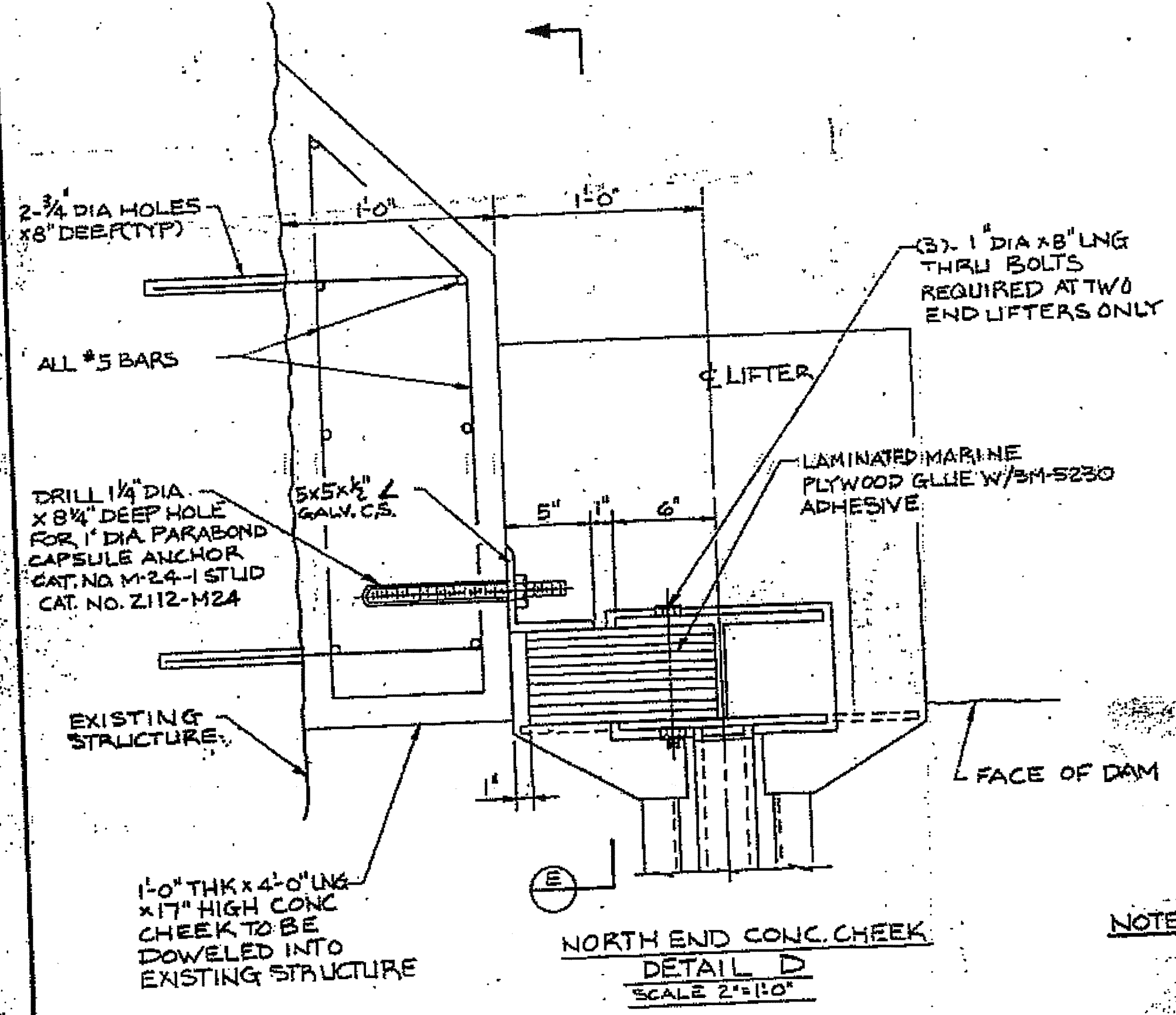
SITE PLAN @ DAM
SCALE 1" = 20'-0"



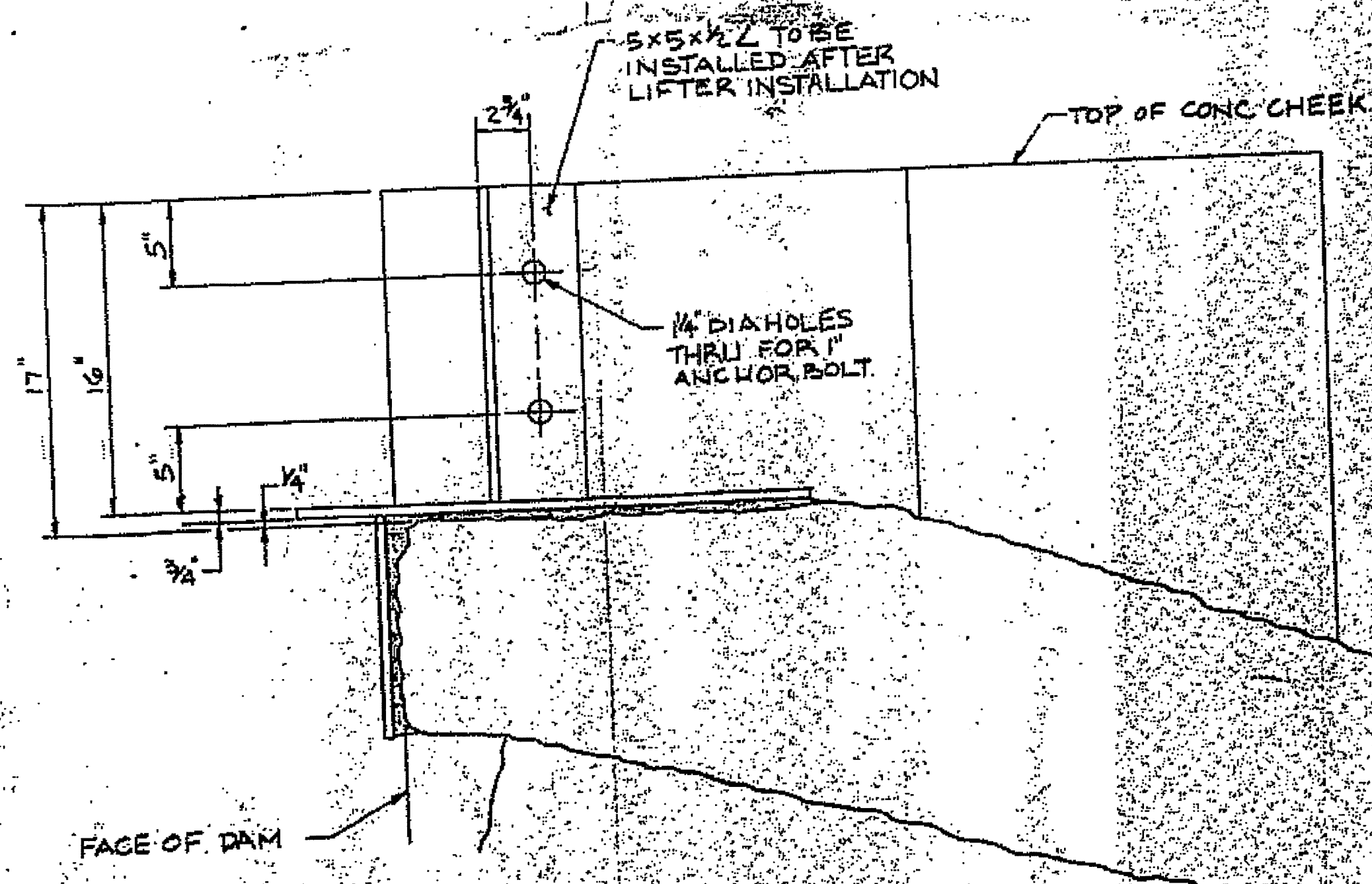
TIMBER CROSS SECTION

TOTAL LENGTH OF FLASHBOARDS = 253' ±
NO. OF SECTIONS = 20
NO. OF LIFTERS = 21
LIFTER SPACING = 12.65' ±

FABRICATE FROM PRESSURE TREATED SOUTHERN YELLOW PINE STRUCTURAL GRADE. USE 3/4" DIA GALVANIZED CARRAGE BOLTS 16' OC W/WASHERS & HEAVY HEX NUT ON TOP. LAMINATE EACH JOINT WITH 3 RIBBONS OF 3M-5230 ADHESIVE.



NORTH END CONC. CHEEK
DETAIL D
SCALE 2" = 1'-0"



SECTION E
SCALE 2" = 1'-0"

NOTE: SOUTH END CONC. CHEEK DETAIL TYP OPPOSITE HAND

THIS BLUEPRINT IS THE PROPERTY OF CHRIS HOSFORD, INC. IT IS LOANED TO YOU AND MUST BE RETURNED AFTER IT HAS SERVED THE PURPOSE FOR WHICH IT WAS INTENDED

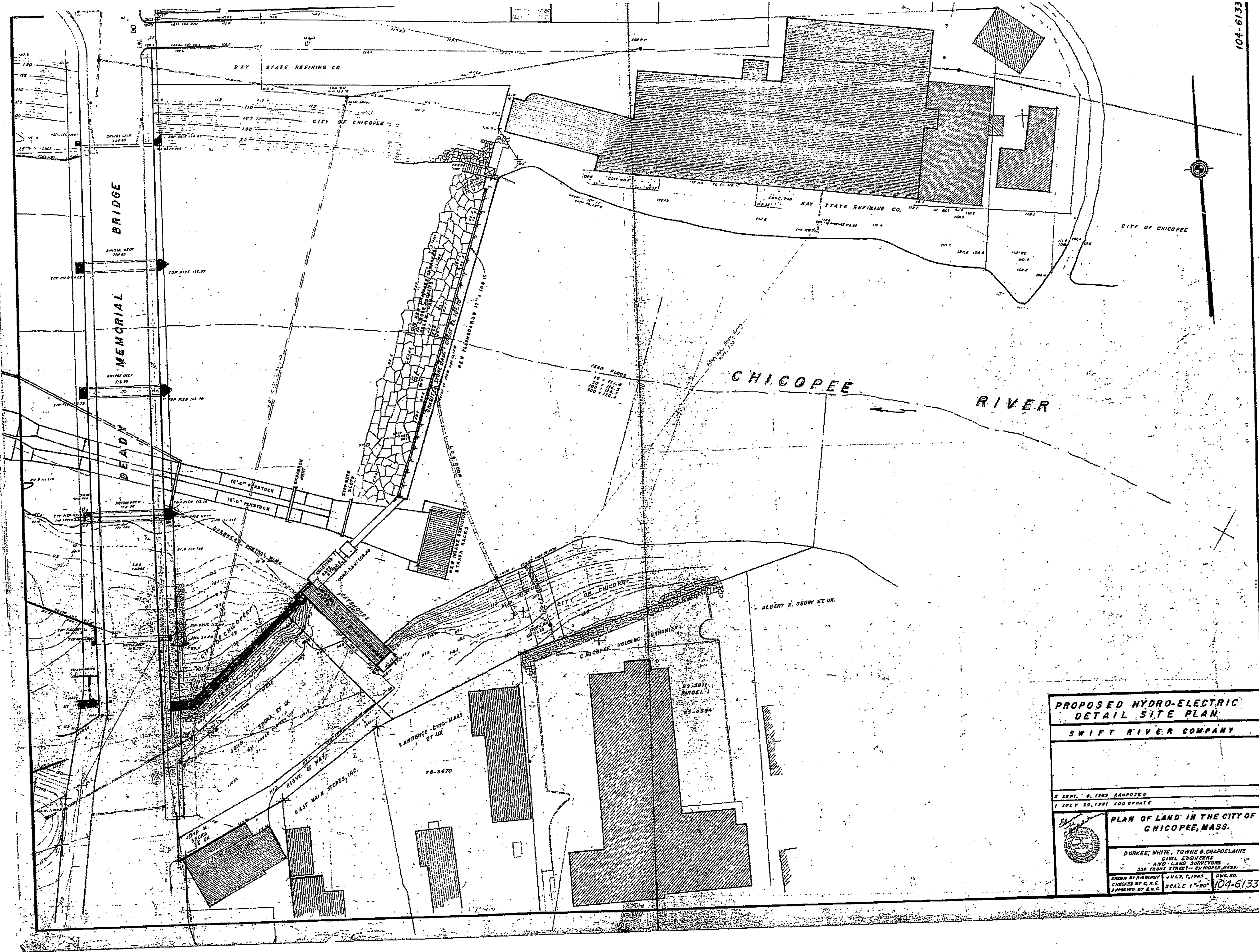
REVISIONS	DATE	BY	1	DATE	BY
1			7		
2			8		
3			5		
4					

CHRIS HOSFORD, INC.
BARNSTABLE, MASSACHUSETTS 02630
(617) 382-4561

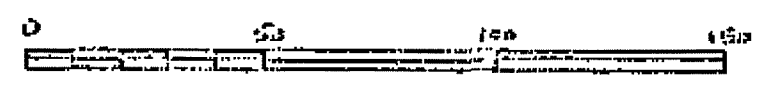
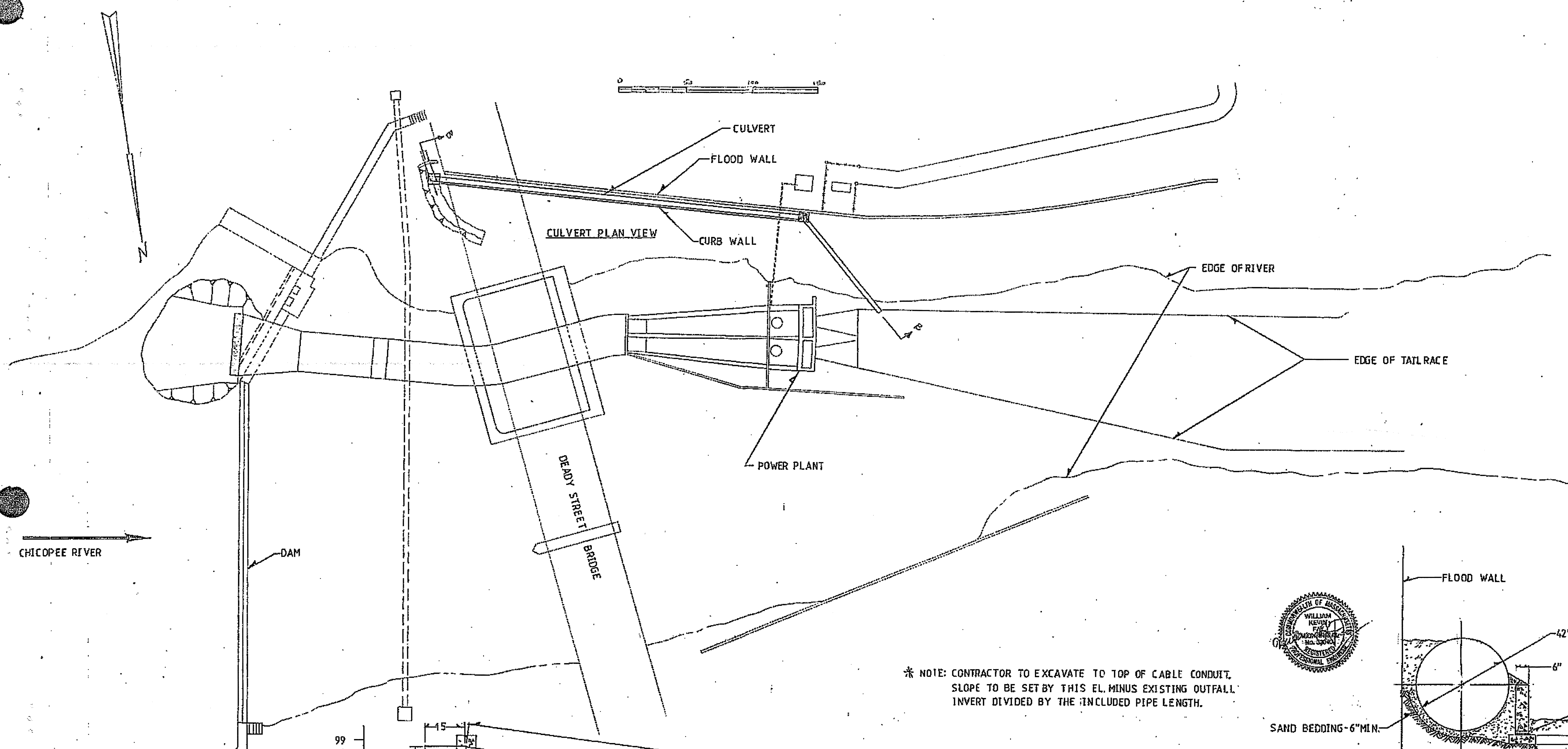
FLASHBOARD INSTALLATION

CHICOPEE HYDROELECTRIC
SWIFT RIVER COMPANY

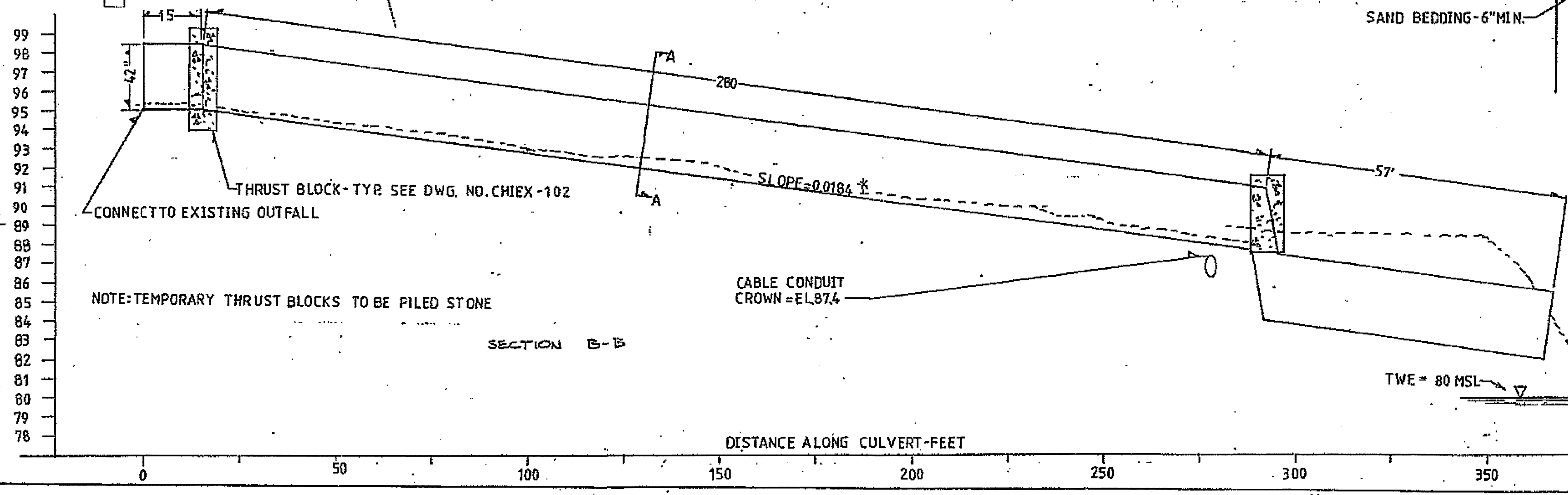
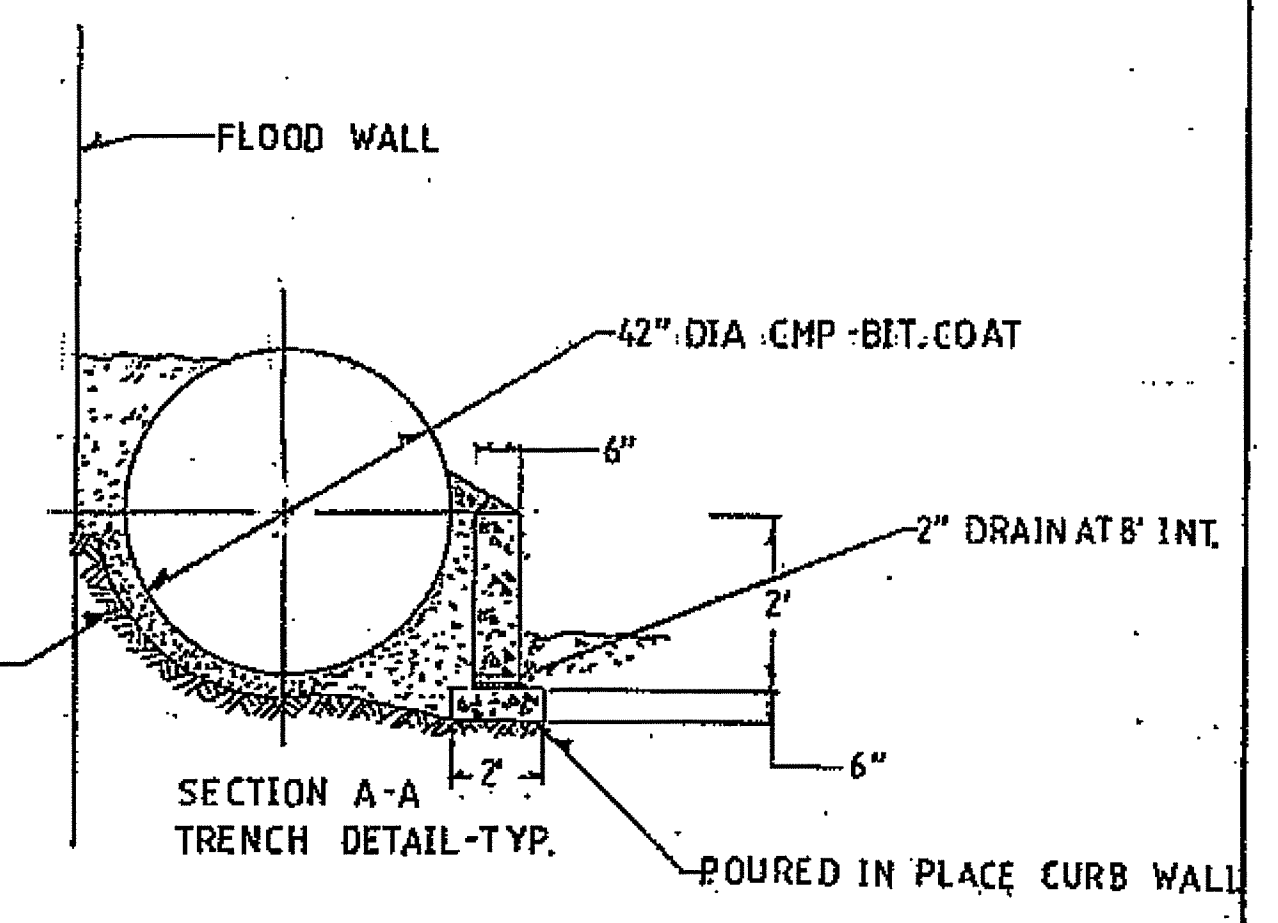
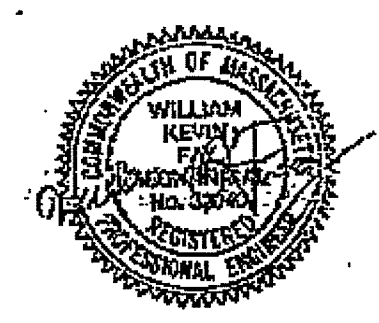
Date 5-20-85
Job No. 08304.00
Dwg No. M-23



PROPOSED HYDRO-ELECTRIC DETAIL SITE PLAN	
SWIFT RIVER COMPANY	
2 SEPT. 6, 1923 PROPOSED 1 JULY 29, 1924 ADD UPDATE	
PLAN OF LAND IN THE CITY OF CHICOPEE, MASS.	
DURKEE, WHITE, TOWNE & CHAPOLAINE CIVIL ENGINEERS AND LAND SURVEYORS 316 FRONT STREET - CHICOPEE MASS.	
DRAWN BY ERMHOUT CHECKED BY E.R.C.	JULY 7, 1925 SCALE 1"=20' DWG. NO. 104-6133



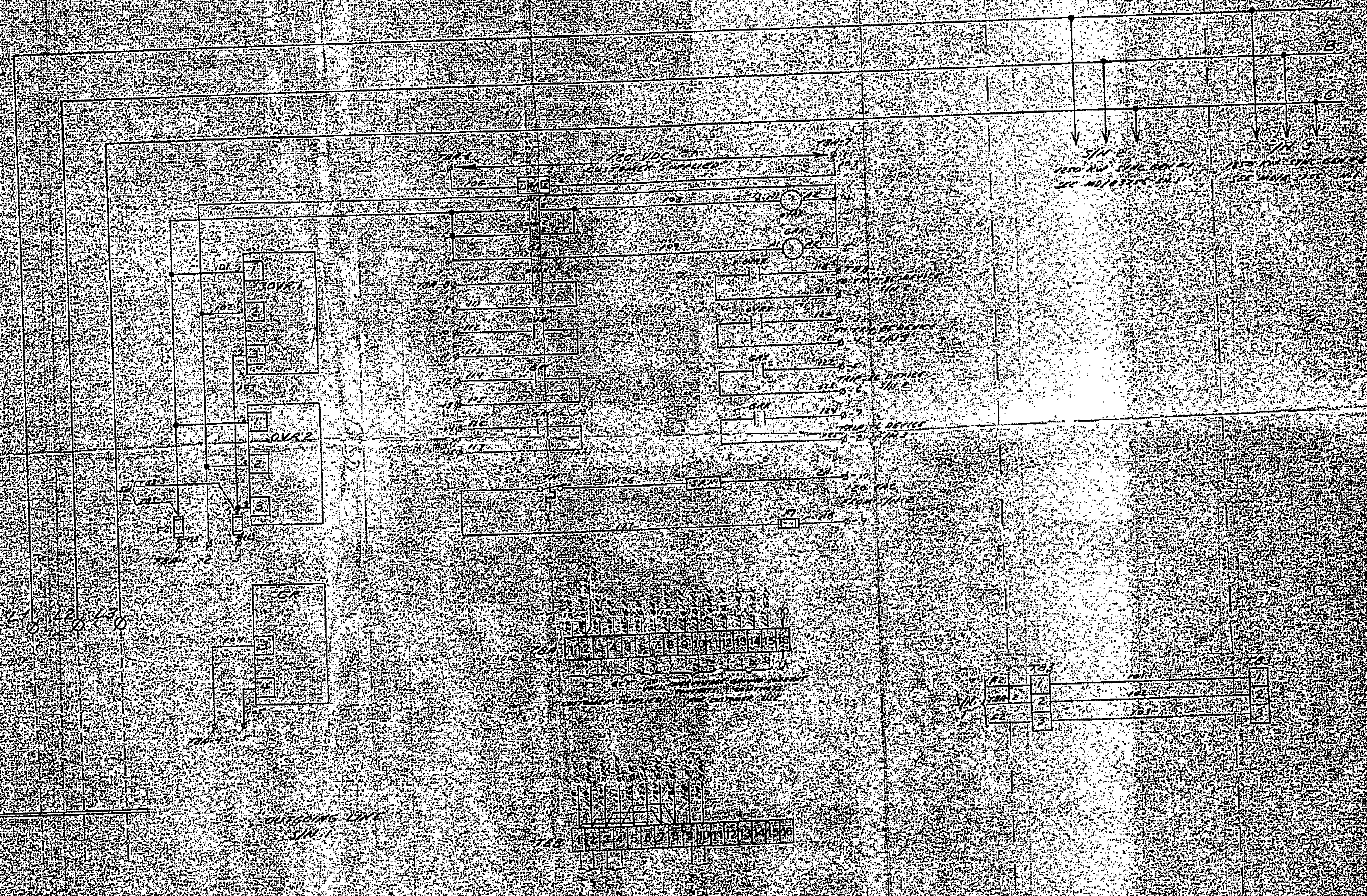
* NOTE: CONTRACTOR TO EXCAVATE TO TOP OF CABLE CONDUIT. SLOPE TO BE SET BY THIS EL. MINUS EXISTING OUTFALL INVERT DIVIDED BY THE INCLUDED PIPE LENGTH.



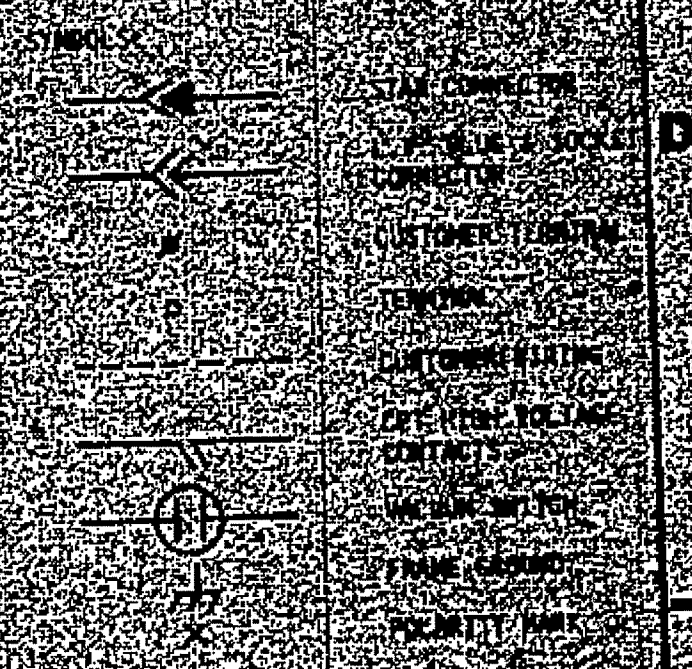
SWIFT RIVER / HAFSLUND		
scale: AS NOTED	PLAN, SECTION & PROFILE	W. FAY PE.
date: 10/6/87	CHICOPEE SOUTH SIDE CULVERT EXTENSION	
		CHIEX-101

4160 VOLTS 3 PHASE
60 HZ 700 AMP
SEQUENCE A-B-C
FAULT RATING
50 MA 1 SEC
NIR INSULATED
COPPER BARS

QUALITY DEVELOPMENT SEE ENG. W/1130
WORKSHEET SEE ENG. W/1130



- WIRE CORRELATIONS
- 18 AME 500V GREY
 - 19 AME 500V BLACK
 - 20 AME 500V GREY
 - 21 AME 500V GREY
 - 22 AME 500V GREY
 - 23 AME 500V WHITE
 - 24 AME 500V BLACK
 - 25 AME 500V WHITE
 - 26 AME 500V BLACK
 - 27 AME 500V BLACK
 - 28 AME 500V BLACK
 - 29 AME 500V BLACK
 - 30 AME 500V BLACK
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 - 93 AME 500V BLACK
 - 94 AME 500V BLACK
 - 95 AME 500V BLACK
 - 96 AME 500V BLACK
 - 97 AME 500V BLACK
 - 98 AME 500V BLACK
 - 99 AME 500V BLACK
 - 100 AME 500V BLACK
- WIRE NUMBER, SIZE, TYPE OR COLOR, WIRE TERMINAL NUMBER, STRIP LENGTH OR BEND WIRE SIZE, AND ONLY PLUG SOCKET HAVE SAME NUMBER AS WIRE
- CONDUIT ENCLASURES OTHER THAN EMCC REPAIR MUST BE IDENTIFIED



CONTROL CERTIFIED FOR

CUSTOMER: *EMCC*

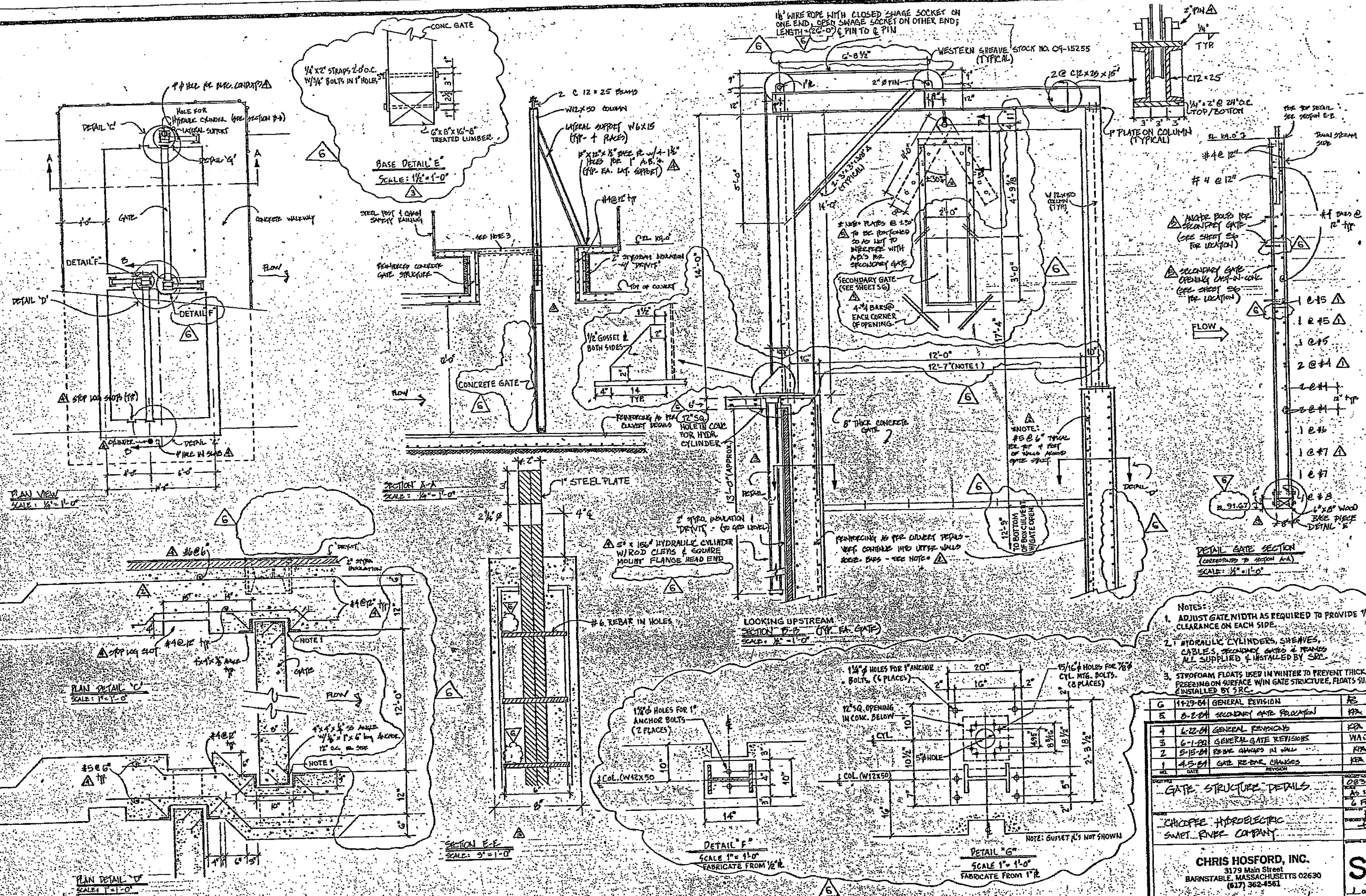
DATE: *11/18/70*

LINE NO.	WIRE NO.	WIRE SIZE	WIRE TYPE	WIRE COLOR	WIRE LENGTH	WIRE WEIGHT	WIRE VALUE	WIRE TYPE	WIRE COLOR	WIRE LENGTH	WIRE WEIGHT	WIRE VALUE
1	18	12	THHN	GREY	100	1.5	1.50	12	THHN	GREY	100	1.50
2	19	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
3	20	12	THHN	GREY	100	1.5	1.50	12	THHN	GREY	100	1.50
4	21	12	THHN	GREY	100	1.5	1.50	12	THHN	GREY	100	1.50
5	22	12	THHN	GREY	100	1.5	1.50	12	THHN	GREY	100	1.50
6	23	12	THHN	WHITE	100	1.5	1.50	12	THHN	WHITE	100	1.50
7	24	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
8	25	12	THHN	WHITE	100	1.5	1.50	12	THHN	WHITE	100	1.50
9	26	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
10	27	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
11	28	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
12	29	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
13	30	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
14	31	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
15	32	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
16	33	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
17	34	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
18	35	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
19	36	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
20	37	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
21	38	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
22	39	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
23	40	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
24	41	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
25	42	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
26	43	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
27	44	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
28	45	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
29	46	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
30	47	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
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32	49	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
33	50	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
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35	52	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
36	53	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
37	54	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
38	55	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
39	56	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
40	57	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
41	58	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
42	59	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
43	60	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
44	61	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
45	62	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
46	63	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
47	64	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
48	65	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
49	66	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
50	67	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
51	68	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
52	69	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
53	70	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
54	71	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
55	72	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
56	73	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
57	74	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
58	75	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
59	76	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
60	77	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
61	78	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
62	79	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
63	80	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
64	81	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
65	82	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
66	83	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
67	84	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
68	85	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
69	86	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
70	87	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
71	88	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
72	89	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
73	90	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
74	91	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
75	92	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
76	93	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
77	94	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
78	95	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
79	96	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
80	97	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
81	98	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
82	99	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50
83	100	12	THHN	BLACK	100	1.5	1.50	12	THHN	BLACK	100	1.50

EMCC

OUTGOING LINE

DATE: 11/18/70



- NOTES:**
- ADJUST GATE WIDTH AS REQUIRED TO PROVIDE 1/2" CLEARANCE ON EACH SIDE.
 - HYDRAULIC CYLINDERS, SHEAVES, CABLES, SECONDARY GATES & FRAMES ALL SUPPLIED & INSTALLED BY SRC.
 - STYROFOAM FLOATS USED IN WINTER TO PREVENT THICK FREEZING ON SURFACE WITH GATE STRUCTURE. FLOATS SUPPLIED & INSTALLED BY SRC.

NO.	DATE	DESCRIPTION	BY
6	11-29-84	GENERAL REVISION	KFA
5	8-2-84	SECONDARY GATE PROVISION	KFA
4	6-22-84	GENERAL REVISION	KFA
3	6-1-84	GENERAL GATE REVISIONS	WAT
2	5-15-84	FRAME CHANGES IN WALL	KFA
1	4-5-84	GATE REBAR CHANGES	KFA

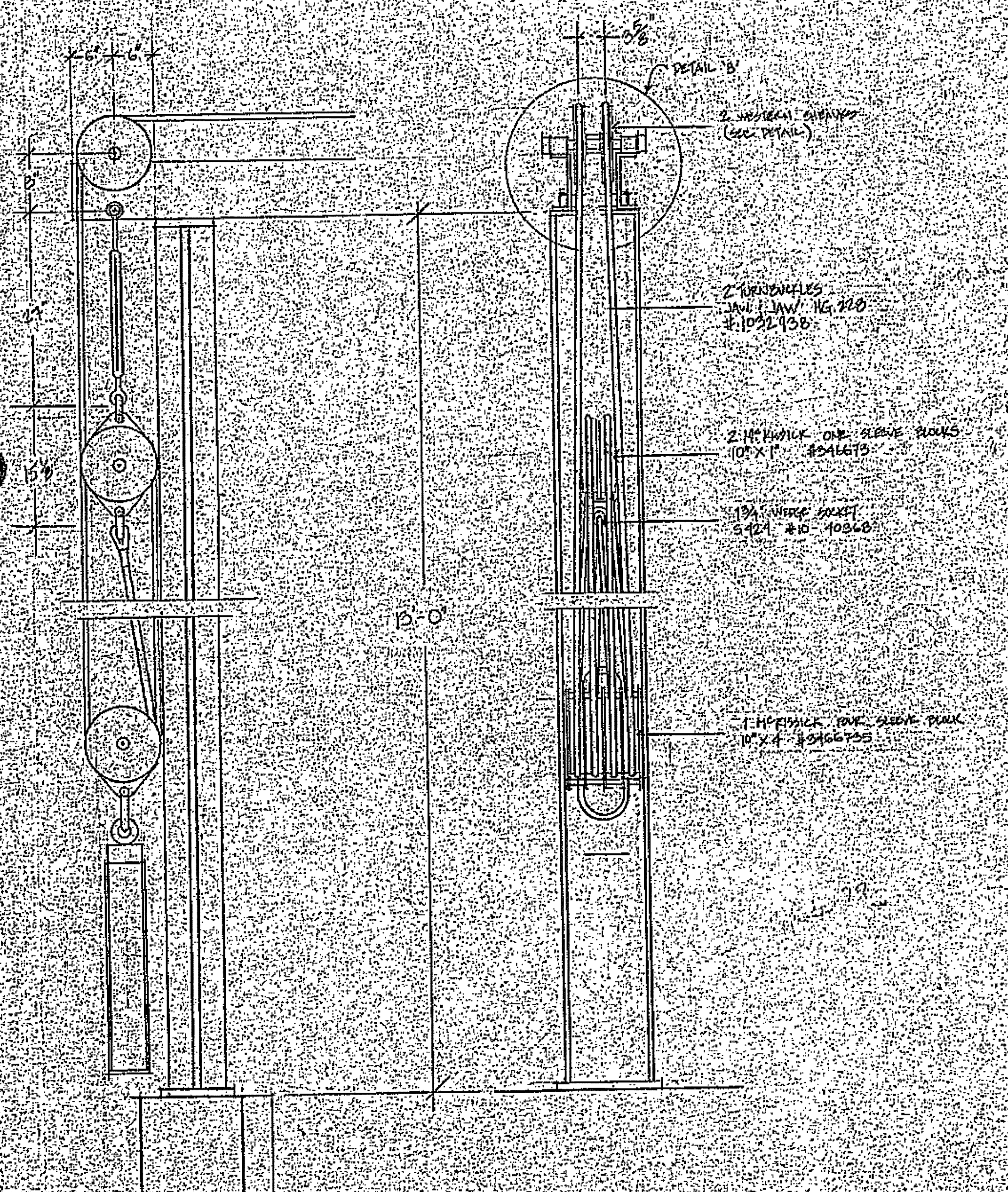
GATE STRUCTURE DETAILS
 083-04
 AS SHOWN
 6 FEB 85
 KFA
 WAT

CHICPEE HYDROELECTRIC
SMART RIVER COMPANY

CHRIS HOSFORD, INC.
 3179 Main Street
 BARNSTABLE, MASSACHUSETTS 02630
 (517) 362-4561

S5
 L.O.L.

TOP PLAN VIEW - SHEAVE SYSTEM
SCALE: 1" = 1'-0"



DETAIL 'B'
2 SHEAVE SHEAVES
(SEE DETAIL)

2 BRIDGES
1/4" x 1/4" x 1/4" 1020
#1022 1020

2 HORIZONTAL ROPE BLOCKS
10" x 10" #24615

19A WIRE ROPE
5/16" x 10' 10260

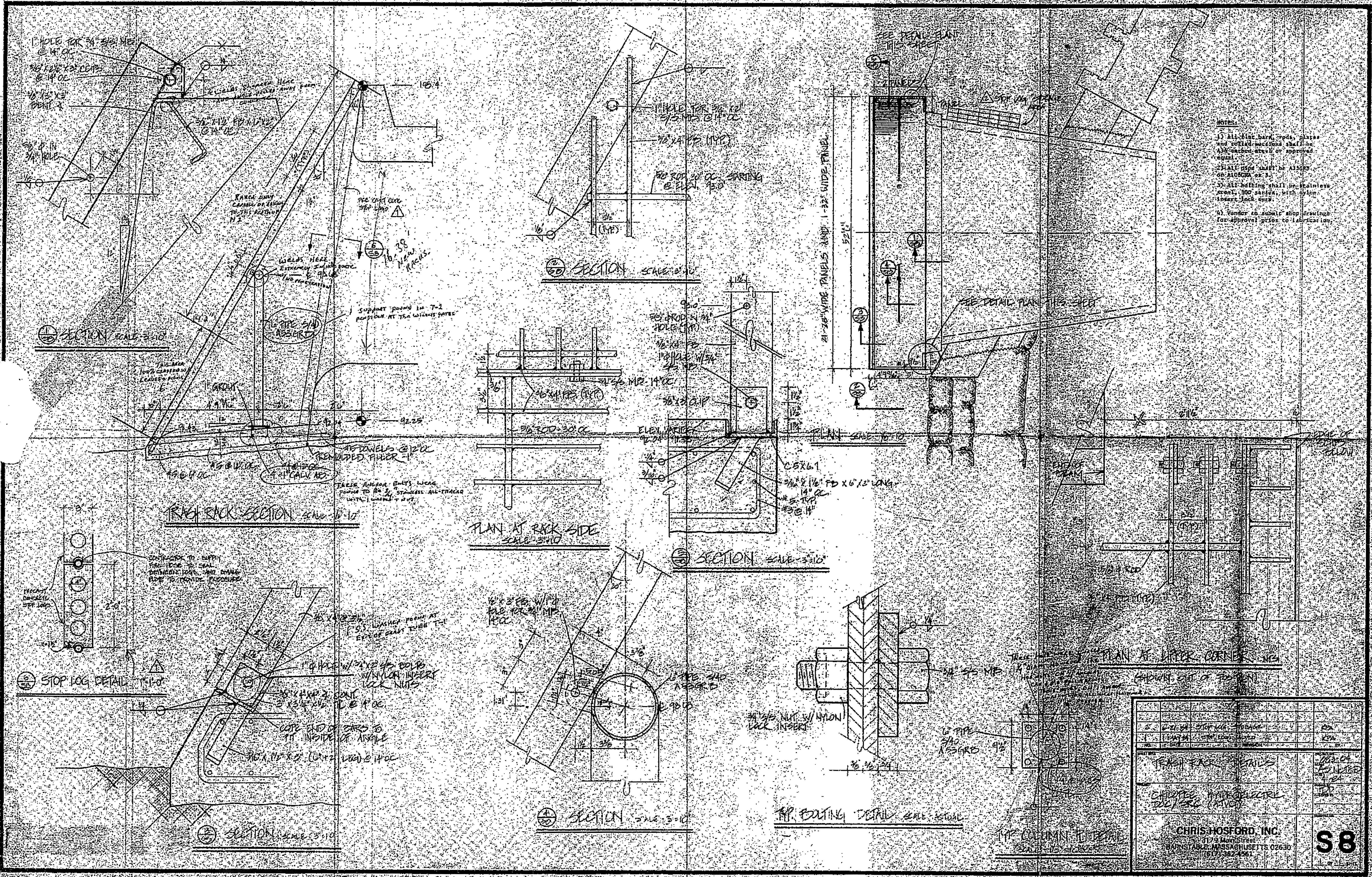
1 HORIZONTAL ROPE BLOCK
10" x 10" #24615

SECTION A-A
SCALE: 1" = 1'-0"

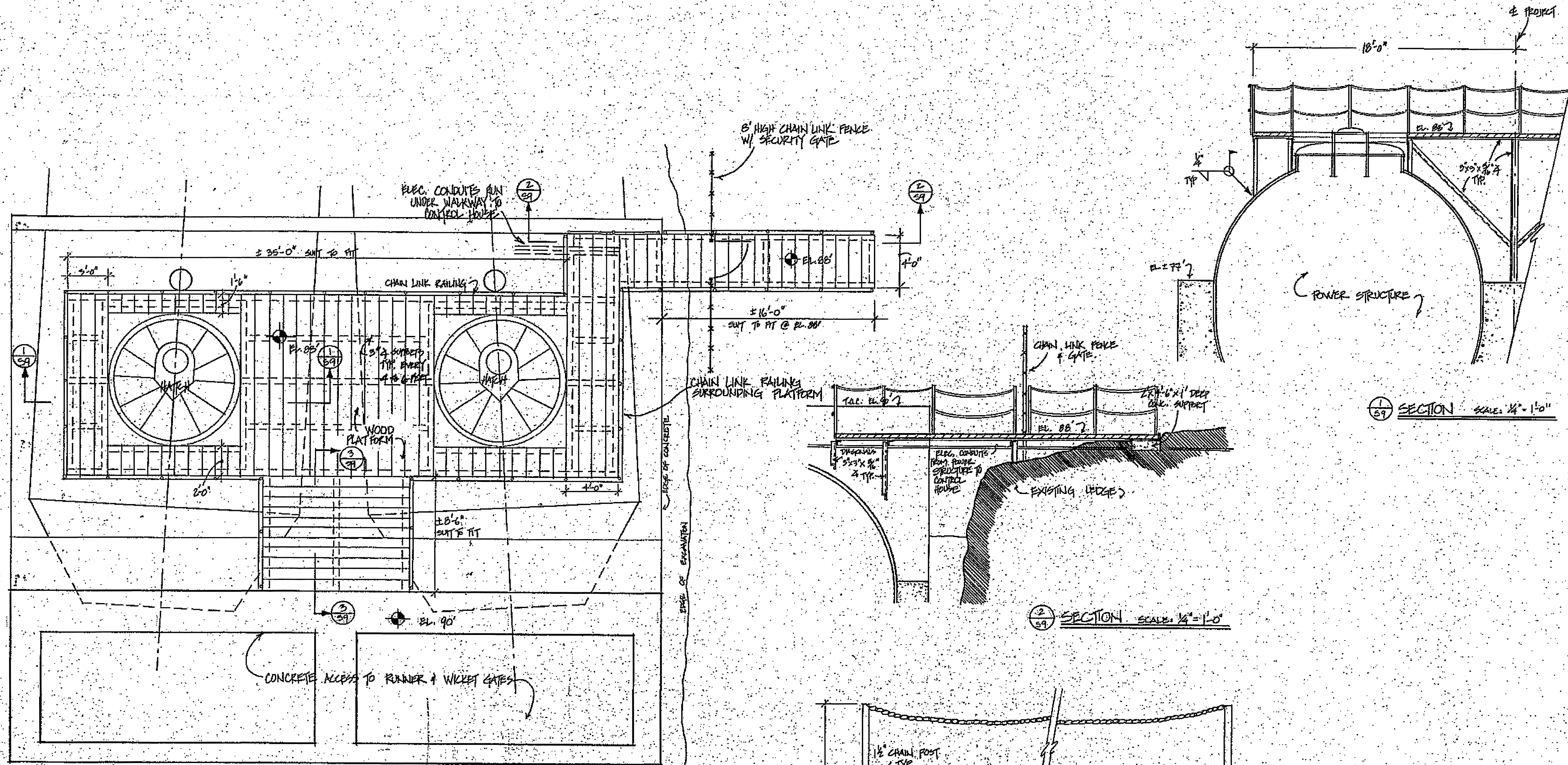
END ELEVATION - BLOCK ARRANGEMENT
SCALE: 1" = 1'-0"

DOUBLE SHEAVE DETAIL 'B'
SCALE: 6" = 1'-0" (SEE ADOX SHEET)

NO.	DATE	REVISION	BY
HYDRAULIC GATE LIFT SYSTEM DETAILS CHICOPPEE HYDROELECTRIC SWIFT RIVER COMPANY			082-04 AS NOTED FEB 09 VIA
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (517) 362-4561			S6 OF 10



ITEM	DESCRIPTION	QTY	UNIT
1	304 SS PIPE 1/2" DIA	10	FT
2	316 SS PIPE 1/2" DIA	5	FT
3	304 SS PIPE 3/4" DIA	2	FT
4	316 SS PIPE 3/4" DIA	1	FT
5	304 SS PIPE 1" DIA	1	FT
6	316 SS PIPE 1" DIA	1	FT
7	304 SS PIPE 1 1/2" DIA	1	FT
8	316 SS PIPE 1 1/2" DIA	1	FT
9	304 SS PIPE 2" DIA	1	FT
10	316 SS PIPE 2" DIA	1	FT
11	304 SS PIPE 2 1/2" DIA	1	FT
12	316 SS PIPE 2 1/2" DIA	1	FT
13	304 SS PIPE 3" DIA	1	FT
14	316 SS PIPE 3" DIA	1	FT
15	304 SS PIPE 3 1/2" DIA	1	FT
16	316 SS PIPE 3 1/2" DIA	1	FT
17	304 SS PIPE 4" DIA	1	FT
18	316 SS PIPE 4" DIA	1	FT
19	304 SS PIPE 4 1/2" DIA	1	FT
20	316 SS PIPE 4 1/2" DIA	1	FT
21	304 SS PIPE 5" DIA	1	FT
22	316 SS PIPE 5" DIA	1	FT
23	304 SS PIPE 5 1/2" DIA	1	FT
24	316 SS PIPE 5 1/2" DIA	1	FT
25	304 SS PIPE 6" DIA	1	FT
26	316 SS PIPE 6" DIA	1	FT
27	304 SS PIPE 6 1/2" DIA	1	FT
28	316 SS PIPE 6 1/2" DIA	1	FT
29	304 SS PIPE 7" DIA	1	FT
30	316 SS PIPE 7" DIA	1	FT
31	304 SS PIPE 7 1/2" DIA	1	FT
32	316 SS PIPE 7 1/2" DIA	1	FT
33	304 SS PIPE 8" DIA	1	FT
34	316 SS PIPE 8" DIA	1	FT
35	304 SS PIPE 8 1/2" DIA	1	FT
36	316 SS PIPE 8 1/2" DIA	1	FT
37	304 SS PIPE 9" DIA	1	FT
38	316 SS PIPE 9" DIA	1	FT
39	304 SS PIPE 9 1/2" DIA	1	FT
40	316 SS PIPE 9 1/2" DIA	1	FT
41	304 SS PIPE 10" DIA	1	FT
42	316 SS PIPE 10" DIA	1	FT
43	304 SS PIPE 10 1/2" DIA	1	FT
44	316 SS PIPE 10 1/2" DIA	1	FT
45	304 SS PIPE 11" DIA	1	FT
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47	304 SS PIPE 11 1/2" DIA	1	FT
48	316 SS PIPE 11 1/2" DIA	1	FT
49	304 SS PIPE 12" DIA	1	FT
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51	304 SS PIPE 12 1/2" DIA	1	FT
52	316 SS PIPE 12 1/2" DIA	1	FT
53	304 SS PIPE 13" DIA	1	FT
54	316 SS PIPE 13" DIA	1	FT
55	304 SS PIPE 13 1/2" DIA	1	FT
56	316 SS PIPE 13 1/2" DIA	1	FT
57	304 SS PIPE 14" DIA	1	FT
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60	316 SS PIPE 14 1/2" DIA	1	FT
61	304 SS PIPE 15" DIA	1	FT
62	316 SS PIPE 15" DIA	1	FT
63	304 SS PIPE 15 1/2" DIA	1	FT
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65	304 SS PIPE 16" DIA	1	FT
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73	304 SS PIPE 18" DIA	1	FT
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77	304 SS PIPE 19" DIA	1	FT
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79	304 SS PIPE 19 1/2" DIA	1	FT
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81	304 SS PIPE 20" DIA	1	FT
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83	304 SS PIPE 20 1/2" DIA	1	FT
84	316 SS PIPE 20 1/2" DIA	1	FT
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105	304 SS PIPE 26" DIA	1	FT
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107	304 SS PIPE 26 1/2" DIA	1	FT
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247	304 SS PIPE 61 1/2" DIA	1	FT
248	316 SS PIPE 61 1/2" DIA	1	FT
249	304 SS PIPE 62" DIA	1	FT
250	316 SS PIPE 62" DIA	1	FT
251			



ELEC. CONDUITS RUN UNDER WALKWAY TO CHAINED HOUSES

6' HIGH CHAIN LINK FENCE W/ SECURITY GATE

CHAIN LINK RAILING

CHAIN LINK RAILING SURROUNDING PLATFORM

CHAIN LINK FENCE + GATE

POWER STRUCTURE

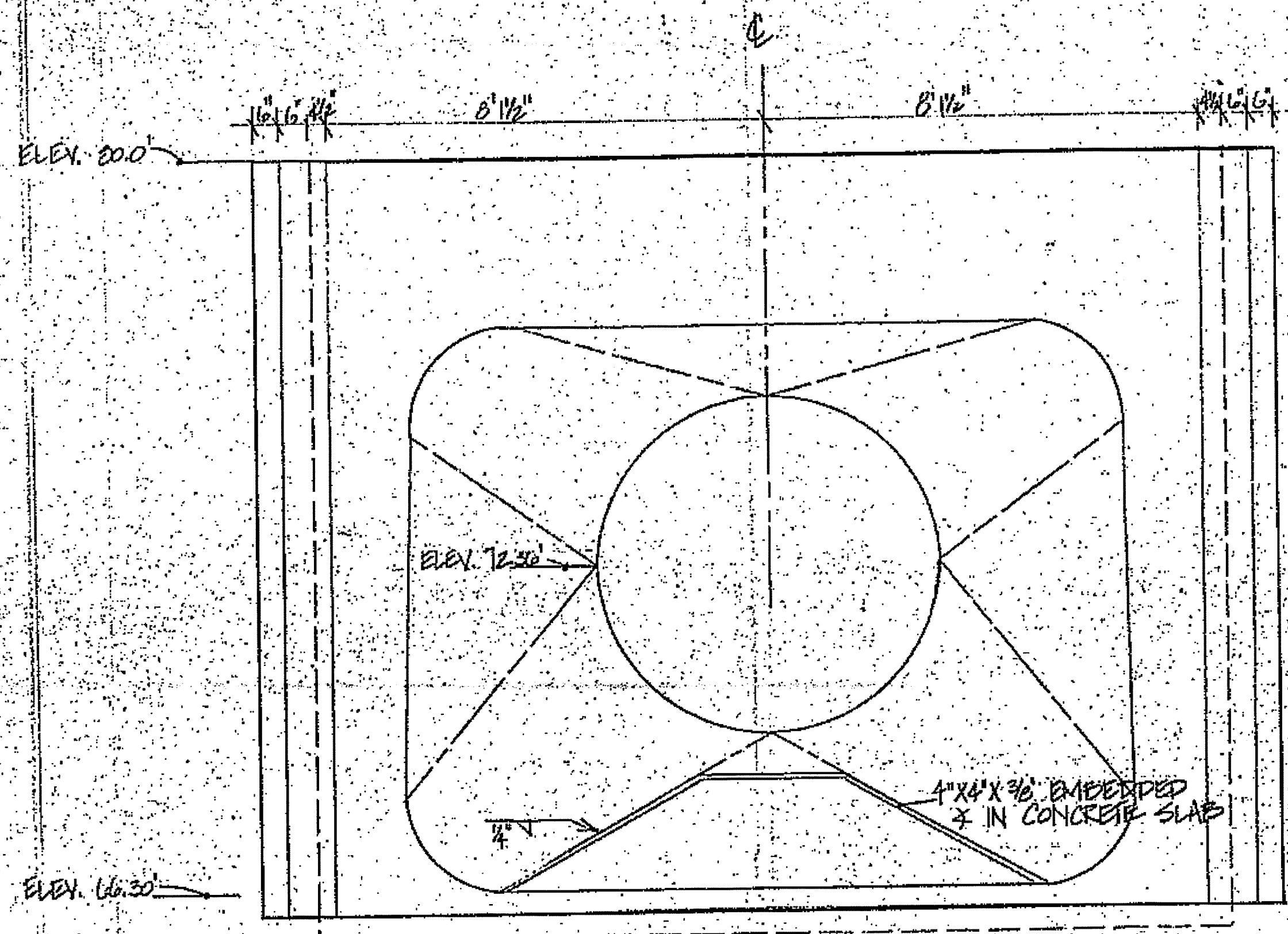
SECTION SCALE: 1/4" = 1'-0"

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

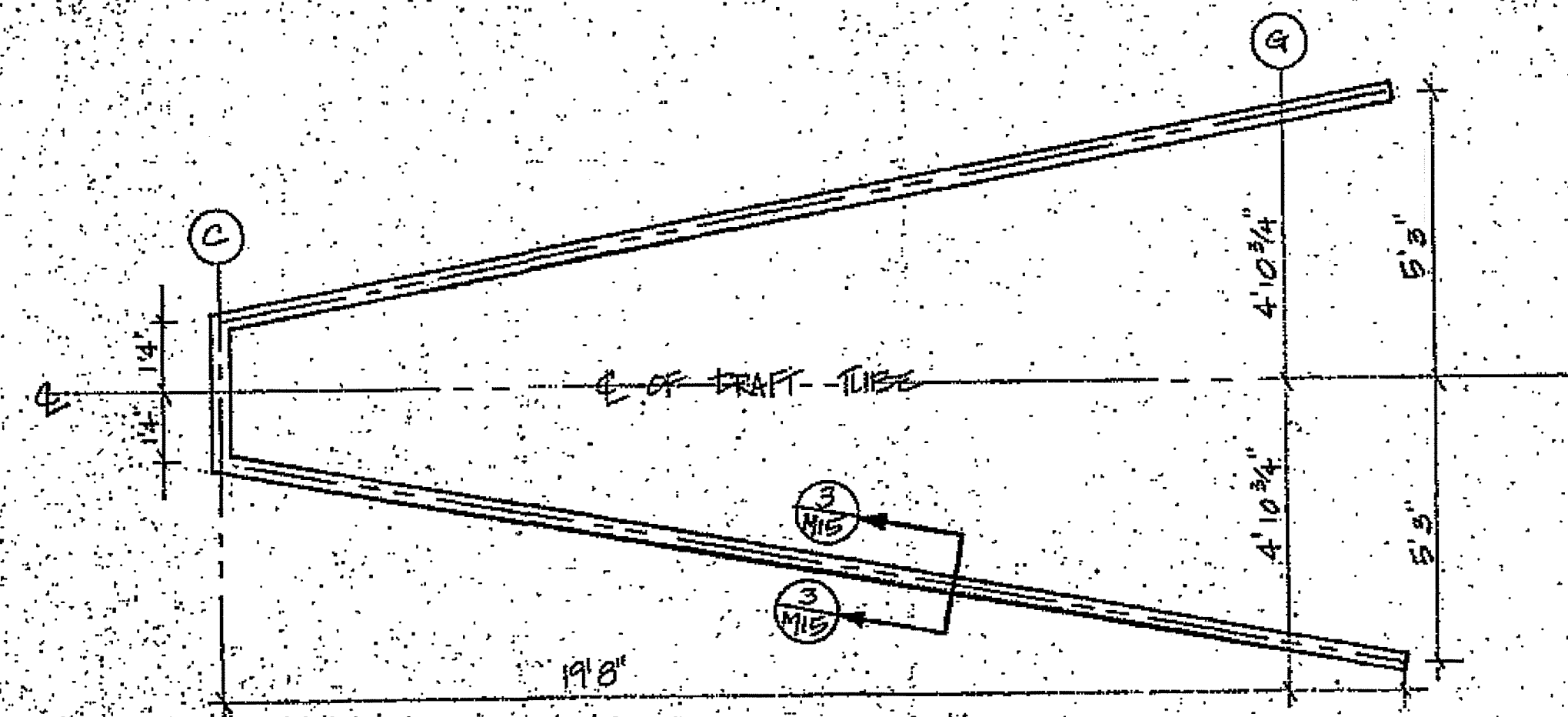
PLAN @ POWER STRUCTURE
SCALE: 1/4" = 1'-0"

SECTION SCALE: 1" = 1'-0"

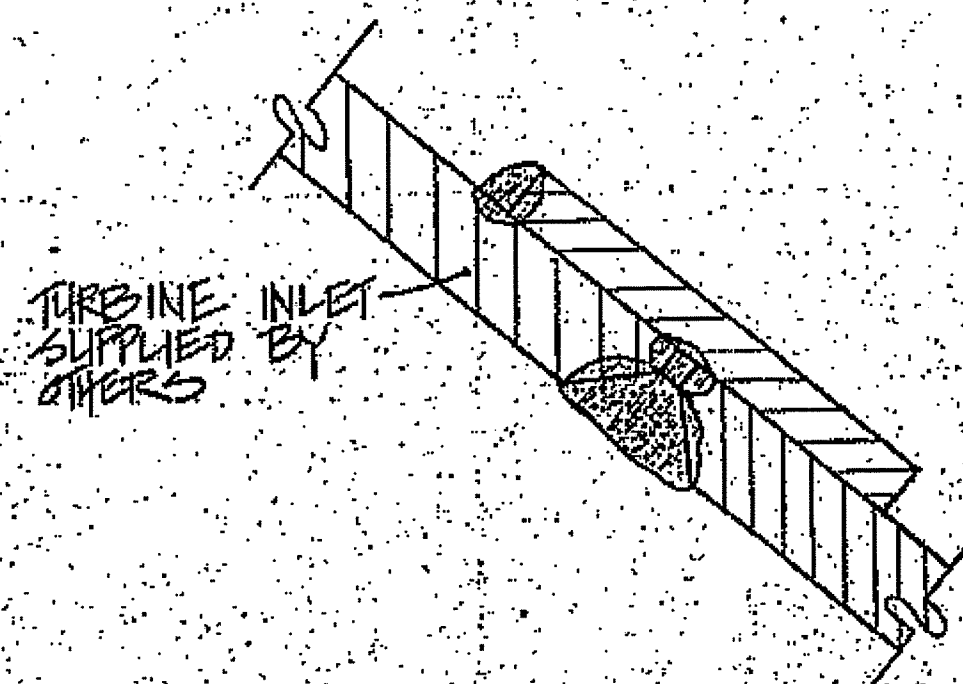
NO.	DATE	REVISION	BY
1	6-21-04	ENTIRE DRAWING REVISED	KPA
DESCRIPTION			DATE
WORK PLATFORM DETAILS			8-5-04
CHICOPEE HYDROELECTRIC INC/ERC (ATVC)			8-14-04
DRAWN BY			ES
CHECKED BY			
APPROVED BY			
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561			S9 1 OF 1 SHEETS



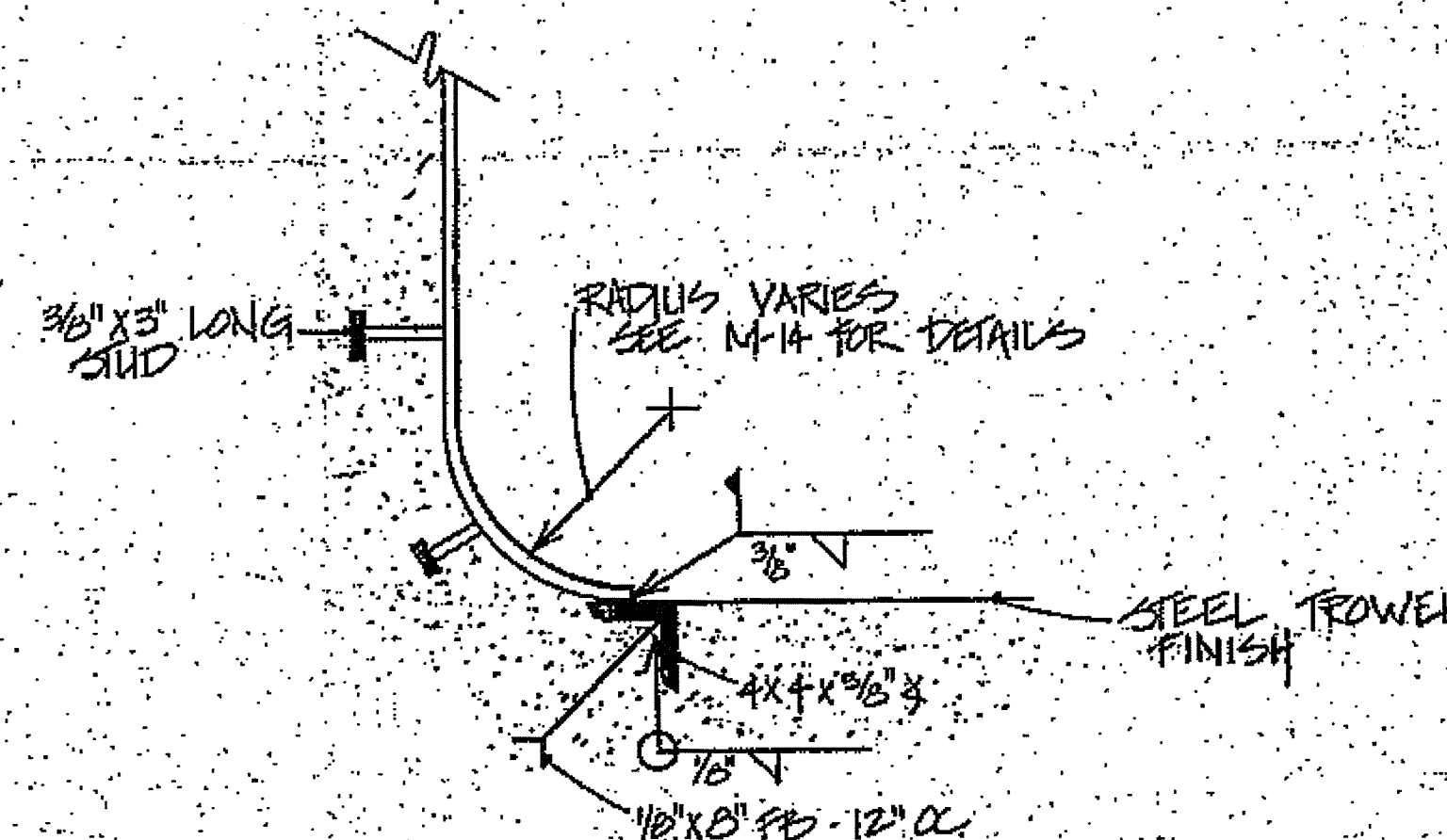
SECTION ① SCALE: 1/2"=10'



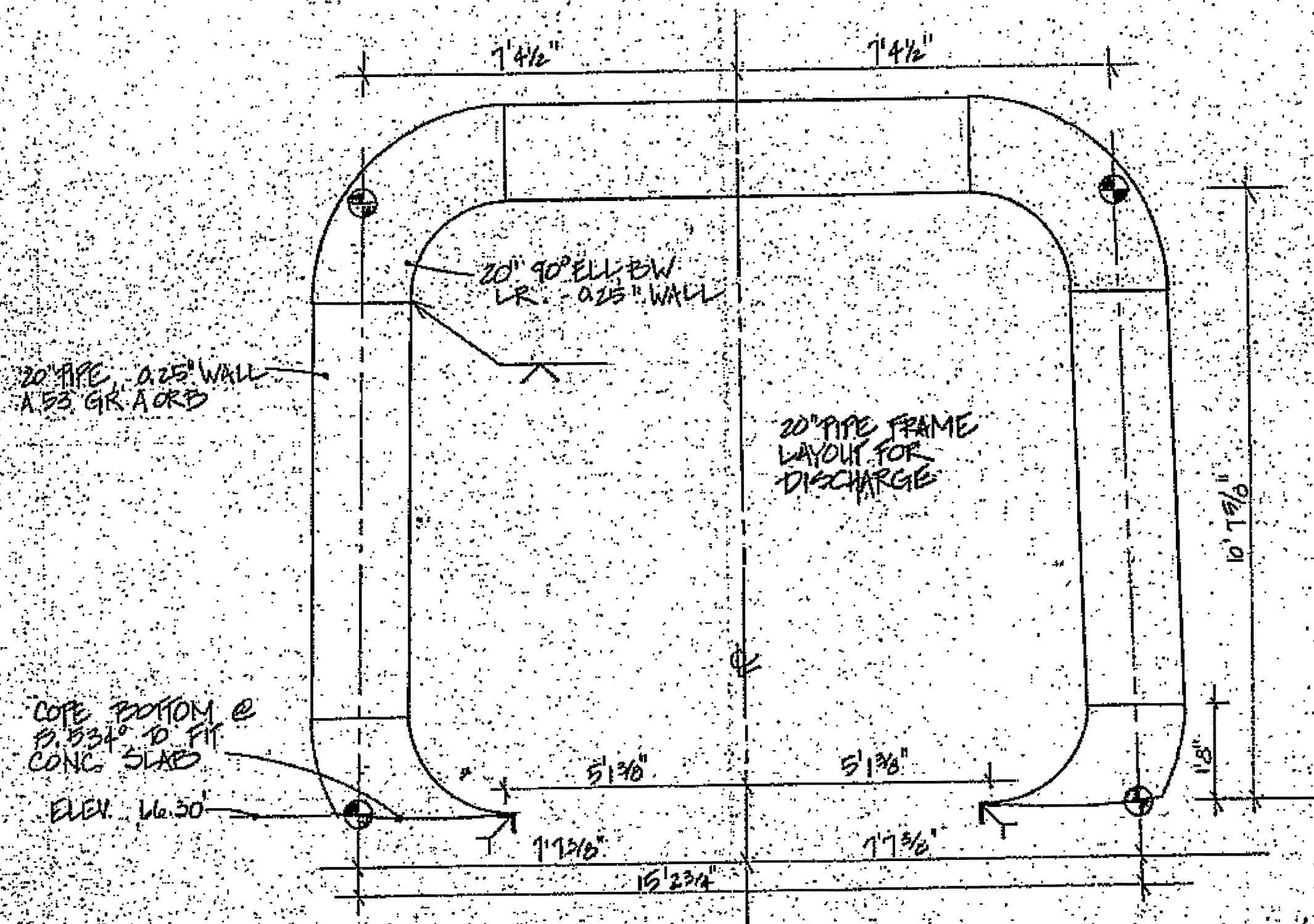
PLAN OF EMBEDDED BASE ANGLE SCALE: 1/2"=10'



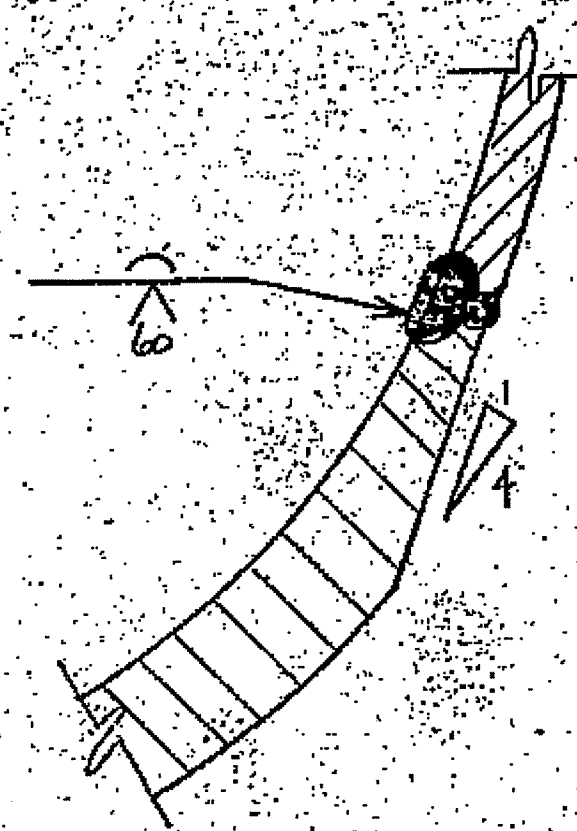
SECTION ② SCALE: ACTUAL



SECTION ③ SCALE: 1/2"=10'



SECTION ④ SCALE: 1/2"=10'

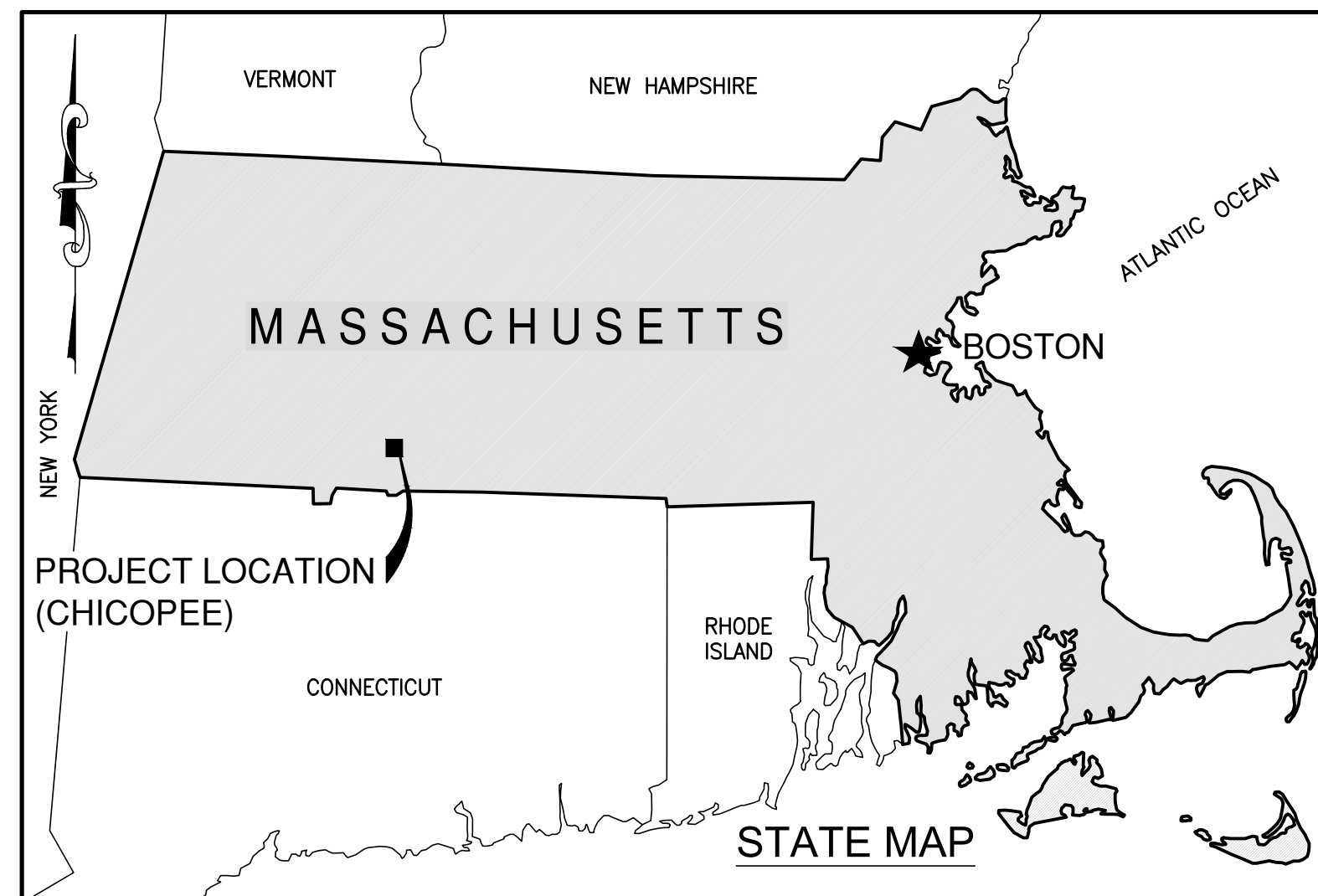


SECTION ⑤ SCALE: ACTUAL

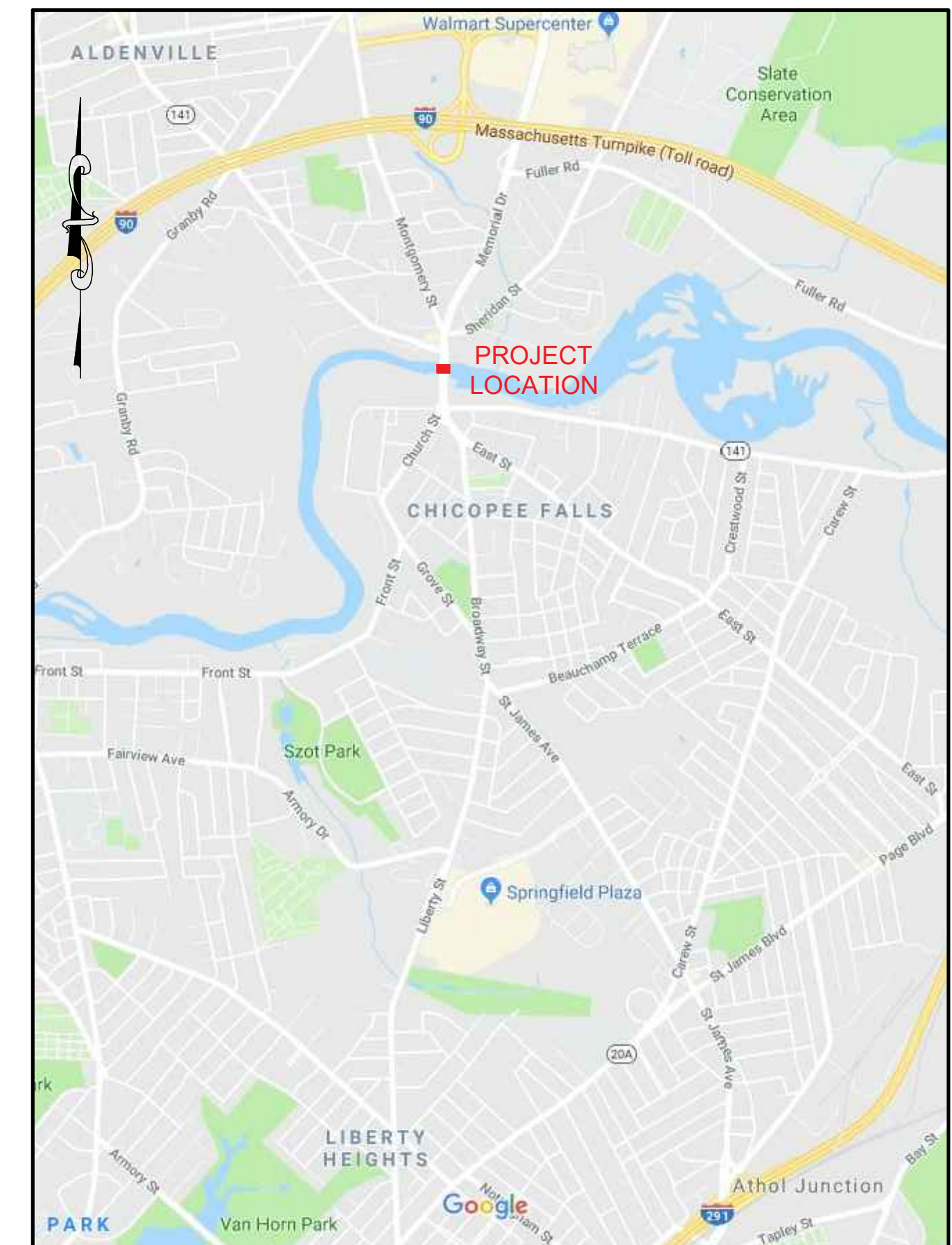
NO.	DATE	REVISION	BY
DRAFT TUBE AND WELDING DETAILS 085-04 AS NOTED 1-24 DB CEII			
CHOCOPET HYDROELECTRIC DDC/SRC (ATVC)			
CHRIS HOSFORD, INC. 3179 Main Street BARNSTABLE, MASSACHUSETTS 02630 (617) 362-4561			M15 1 OF 1 SHEETS

CHICOPEE MUNICIPAL LIGHTING PLANT CHICOPEE, MA

CHICOPEE HYDROELECTRIC PROJECT STEEL PENSTOCK REHABILITATION (F.E.R.C. NO. 6522) (BID NO.: CEL 19-0480)



DRAWING LIST				
SHEET NO.	SHEET DESCRIPTION	DATE	REVISION	STATUS
001	PROJECT NOTES	01-31-20	0	RELEASED FOR CONSTRUCTION
002	EXISTING CONDITIONS AND DEMOLITION PLAN	01-31-20	0	RELEASED FOR CONSTRUCTION
003	PROPOSED CONDITIONS OPTIONS #1 & #2	01-31-20	0	RELEASED FOR CONSTRUCTION
004	PROPOSED CONDITIONS DETAILS	01-31-20	0	RELEASED FOR CONSTRUCTION
005	RIVERBANK EROSION REPAIR DETAILS	01-31-20	0	RELEASED FOR CONSTRUCTION



AERIAL IMAGE

VICINITY MAP

RELEASED FOR CONSTRUCTION
01-31-2020



24x36 = FULL SCALE

GENERAL NOTES:

- THE PROJECT CONSISTS OF:
 - THE INSTALLATION OF APPROXIMATELY 25 LINEAR FEET OF REPLACEMENT PENSTOCK STEEL FOR PENSTOCK T1 AT THE CHICOPEE HYDROELECTRIC STATION.
 - RECONSTRUCT & RE-ESTABLISH ARMORING OF THE ERODED RIVERBANK FROM THE T1 PENSTOCK RUPTURE.
- KLEINSCHMIDT HAS PROPOSED TWO OPTIONS FOR THE REPLACEMENT OF THE RUPTURED T1 PENSTOCK.
 - REPLACE THE RUPTURED STEEL IN THE LOWER 180'-220' OF PENSTOCK GOOD STEEL NOT IN THIS RANGE TO REMAIN, (OPTION 1).
 - REPLACE ALL STEEL THROUGHOUT THE FULL LENGTH OF SPAN 4, (OPTION 2).
- THESE ARE STANDARD NOTES APPLYING TO ALL PENSTOCK WORK. SPECIFIC NOTES SHOWN ON OTHER DRAWINGS WILL TAKE PRECEDENCE.
- DETERMINE LOCATIONS, EXISTING CONDITIONS AND DIMENSIONS BY VISITING THE SITE. VERIFY ALL DIMENSIONS IN THE FIELD BEFORE FABRICATION OR ORDERING MATERIAL. WHERE DIMENSIONS ARE NOT SHOWN, CONSULT ENGINEER FOR CLARIFICATION.
- DIMENSIONS OF THE EXISTING PENSTOCK AND SURROUNDING STRUCTURES WERE TAKEN FROM EXISTING DRAWINGS FROM CHRIS HOSFORD, INC. DATED 11/14/1985.
- CONTRACTOR SHALL CONFORM TO ALL ECRE SAFETY AND DEWATERING TAGOUT PROCEDURES.
- CONTRACTOR SHALL SCHEDULE WORK IN COOPERATION WITH THE OWNER AND OPERATOR.
- CONTRACTOR SHALL DISCUSS LAYDOWN AND STAGING AREAS WITH OWNER PRIOR TO START OF CONSTRUCTION.
- PRIOR TO SUBMITTING THE BID, THE CONTRACTOR SHALL INSPECT THE SITE CONDITIONS, DETERMINE LOCATIONS, EXISTING CONDITIONS AND DIMENSIONS BY VISITING THE SITE. WHERE POSSIBLE VERIFY DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING MATERIAL. WHERE DIMENSIONS ARE NOT SHOWN, CONTACT ENGINEER FOR CLARIFICATION.
- PROTECT ALL EXISTING SITE FEATURES FROM DAMAGE DURING CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL LEAVE SITE IN AS IS OR BETTER CONDITION UPON PROJECT COMPLETION. CONTRACTOR IS RESPONSIBLE FOR REPAIRS TO DAMAGED AREAS CAUSED BY CONSTRUCTION ACTIVITIES. PROTECT TREES AGAINST DAMAGE DURING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO THAT EXCAVATIONS, EXISTING FOUNDATIONS, EMBANKMENTS, AND IMPORTED MATERIALS ARE STABLE DURING THE DURATION OF CONSTRUCTION ACTIVITIES.
- EROSION & SEDIMENT CONTROL MEASURES SHALL BE EMPLOYED AT ALL TIMES TO THE MAXIMUM EXTENT PRACTICABLE TO PREVENT DAMAGE BY SEDIMENTATION, EROSION OR DUST TO STREAMS, WATER COURSES, NATURAL AREAS AND THE PROPERTY OF OTHERS.
- ALL MATERIALS STORED ONSITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND ALLOCATED STORAGE AREAS.
- CONTRACTOR SHALL CLEAN ANY SPILLS OR DEBRIS CAUSED BY CONSTRUCTION.

DEMOLITION:

- CONTRACTOR SHALL NOT BEGIN ANY PENSTOCK DEMOLITION UNTIL AFTER RECEIVING WRITTEN AUTHORIZATION TO BEGIN DEMOLITION FROM ECRE'S PROJECT MANAGER.
- CONTRACTOR SHALL DISPOSE ALL DEMOLITION MATERIAL AT AN OFF-SITE LOCATION THAT HAS BEEN APPROVED BY ECRE.
- REMOVE EXISTING STEEL TO EXTENT SHOWN ON DRAWINGS. DO NOT DAMAGE STEEL TO REMAIN.
- CONTRACTOR TO DEMOLISH EXISTING PENSTOCK TO 12-INCHES BEYOND DAMAGED PORTIONS OF PENSTOCK. OWNER'S ENGINEER OR OWNER TO CONFIRM EXTENT OF DEMOLITION.

REPLACEMENT PENSTOCK:

- NEW PENSTOCK STEEL SHALL MATCH EXISTING 3/8" WALL THICKNESS.
- REPAIR OPTIONS:
 - OPTION 1 - REPLACE LOWER 180'-220' OF STEEL PENSTOCK SPAN 4. TOP SECTION OF GOOD STEEL TO REMAIN.
 - OPTION 2 - REPLACE ENTIRE LENGTH OF SPAN 4.
- AN EXTRA 2 FEET OF PIPE SHALL BE PROVIDED AT EACH END OF EACH REPLACEMENT SECTION TO ALLOW FOR FINAL FIELD ADJUSTMENTS (OR AN APPROVED ALTERNATIVE APPROACH).
- NEW PIPE SHALL BE PLACED SO THERE IS A POSITIVE DOWNWARD SLOPE MATCHING THE SLOPE OF THE EXISTING PENSTOCK WITHOUT SAGS OR DIPS.

MATERIALS:

- STEEL
 - PENSTOCK SHELL SHALL BE ASTM A-139 GRADE C OR APPROVED EQUIVALENT ASTM A20 OR AWWA C200 GRADE MATERIAL WITH A MINIMUM F_y=42 KSI AND TENSILE STRESS F_u=60 KSI.

- COATINGS
 - PENSTOCK INTERIOR COATING

SURFACE PREPARATION:

THE INTERIOR SURFACES SHALL BE CLEANED IN ACCORDANCE WITH THE SOCIETY FOR PROTECTIVE COATINGS (SSPC) SP-10 STANDARDS, "NEAR WHITE METAL BLAST". MINIMUM 2 MIL ANCHOR PROFILE IS REQUIRED.

PRIMER COAT:

TNEMEC 94-H2O HYDRO-ZINC OR APPROVED EQUAL MEETING THE REQUIREMENTS OF ANSI/NSF STANDARD 61 FOR USE IN POTABLE WATER SYSTEMS. TOTAL DRY FILM THICKNESS OF 2.5 TO 3.5 MILS THICKNESS.

STRIP COAT:

TNEMEC 94-H2O HYDRO-ZINC OR APPROVED EQUAL MEETING THE REQUIREMENTS OF ANSI/NSF STANDARD 61 FOR USE IN POTABLE WATER SYSTEMS. STRIPE COAT SHALL BE APPLIED AT ALL WELD SEAMS. TOTAL DRY FILM THICKNESS OF 2.5 TO 3.0 MILS THICKNESS.

FINISH COAT:

ONE COAT OF TNEMEC SERIES 22 OR TNEMEC SERIES EPOXOLINE OR APPROVED EQUAL MEETING THE REQUIREMENTS OF ANSI/NSF STANDARD 61 FOR USE IN POTABLE WATER SYSTEMS. TOTAL DRY FILM THICKNESS OF 25 TO 30 MILS. DO NOT EXCEED 40 MILS THICKNESS; THIS WILL CAUSE THE COATING TO DELAMINATE. COLOR SHALL BE AN APPROVED LIGHT COLOR. EDGES OF COATING NEAR JOINTS SHALL BE FEATHERED.

EDGES OF FIELD INTERIOR COATINGS SHALL BE FEATHERED AND APPLIED AS DIRECTED BY MANUFACTURER

- PENSTOCK EXTERIOR COATING

SURFACE PREPARATION:

THE EXTERIOR SURFACES SHALL BE CLEANED IN ACCORDANCE WITH THE SSPC SP-6 STANDARDS, "COMMERCIAL BLAST CLEANING". MINIMUM 1.5 MIL ANCHOR PROFILE.

PRIMER COAT:

TNEMEC 94-H2O HYDRO-ZINC OR APPROVED EQUAL MEETING THE REQUIREMENTS OF ANSI/NSF STANDARD 61 FOR USE IN POTABLE WATER SYSTEMS. TOTAL DRY FILM THICKNESS OF 2.5 TO 3.5 MILS THICKNESS.

STRIP COAT:

TNEMEC 94-H2O HYDRO-ZINC OR APPROVED EQUAL MEETING THE REQUIREMENTS OF ANSI/NSF STANDARD 61 FOR USE IN POTABLE WATER SYSTEMS. STRIPE COAT SHALL BE APPLIED AT ALL WELD SEAMS. TOTAL DRY FILM THICKNESS OF 2.5 TO 3.0 MILS THICKNESS.

FINISH COAT:

TNEMEC SERIES 73 ENDURA-SHIELD OR APPROVED EQUAL MEETING THE REQUIREMENTS OF ANSI/NSF STANDARD 61 FOR USE IN POTABLE WATER SYSTEMS. TOTAL DRY FILM THICKNESS OF 3 TO 5 MILS. FOR SPRAY APPLICATION, ONE COAT IS REQUIRED. FOR BRUSH AND ROLLER APPLICATION, TWO COATS ARE REQUIRED. DO NOT EXCEED 5 MILS THICKNESS; THIS WILL CAUSE THE COATING TO DELAMINATE. COLOR SHALL BE AN APPROVED DARK COLOR.

- DO NOT SHOP PAINT WITHIN 2 INCHES OF ANY FIELD WELD. PAINT SHALL BE FREE OF ALL RUNS, DRIPS AND HOLIDAYS.

- TOUCH-UP COATING: CLEAN FIELD WELDS, BOLTED CONNECTIONS, AND ABRADED AREAS OF SHOP APPLIED COATING, AND PROVIDE THESE AREAS WITH THE APPROPRIATE PRECEDING COATING APPLICATION.

- EXTERIOR ALTERNATIVE COATINGS MUST PROVIDE AT LEAST THE FOLLOWING MINIMUM PERFORMANCE CHARACTERISTICS:

- ABRASION TEST (ASTM D4060) CS-17 WHEEL, 1000 GRAM 1000 CYCLES MAXIMUM 130 MG OR LESS LOSS.
- ADHESION TO STEEL (ASTM 4541) MINIMUM 900-1100 PSI
- SALT FOG RESISTANCE (ASTM B117) MINIMUM 2500 HOURS

- COATING SHALL BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS OF THESE DRAWINGS

- DRY FILM THICKNESS SHALL BE MEASURED IN ACCORDANCE WITH PROCEDURES OUTLINED IN SSPC-PA2

- WET FILM THICKNESS SHALL BE MEASURED WITH A WET MIL GAUGE.

TEMPORARY FACILITIES AND ACCESS NOTES:

- ALL TEMPORARY FACILITIES ARE AT CONTRACTOR'S OPTION, UNLESS REQUIRED BY LAW.
- CONTRACTOR SHALL PROVIDE SECURITY FOR EQUIPMENT AND MATERIALS. THE OWNER SHALL NOT BE RESPONSIBLE FOR THEFT OR VANDALISM OF CONTRACTOR'S PROPERTY.
- ESTABLISH AND MAINTAIN AREAS FOR TEMPORARY PARKING AND CONTRACTOR EQUIPMENT AND MATERIALS LAYDOWN, WHERE DESIGNATED BY OWNER, TO ACCOMMODATE USE OF CONSTRUCTION PERSONNEL.
- MAINTAIN EXISTING ROADWAYS AND PARKING AREAS USED FOR CONSTRUCTION. PROMPTLY REPAIR BREAKS, POTHOLES, LOW AREAS, STANDING WATER, AND OTHER DEFICIENCIES CAUSED BY CONTRACTOR, TO MAINTAIN DRAINAGE IN ORIGINAL CONDITION.
- REMOVE TEMPORARY MATERIALS AND CONSTRUCTION BEFORE SUBSTANTIAL COMPLETION.
- PROVIDE FLAGGERS, BARRICADES, GATES, ETC. AT THE ENTRANCE TO THE WORK SITE TO CONTROL TRAFFIC AND ACCESS TO THE SITE, AND TO STOP TRAFFIC DURING ENTERING AND EXIT OF LARGE VEHICLES AS NEEDED.
- SPECIAL TRAFFIC ACCOMMODATIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- COMPLY WITH REQUIREMENTS OF LOCAL LAW AND REGULATIONS GOVERNING CONSTRUCTION AND LOCAL INDUSTRY STANDARDS, IN THE INSTALLATION AND MAINTENANCE OF TEMPORARY SERVICES AND FACILITIES.

EARTHWORK:

- BACKFILL SHALL CONFORM TO MASSDOT GRAVEL BORROW SPECIFICATIONS M1.03.0 TYPE C.
- RIPRAP SHALL CONFORM TO MASSDOT SPECIFICATION M2.02.0.
- REMOVE LOOSE SOIL, HUMUS AND SILT FROM EXCAVATION BEFORE LAYING MATERIALS.
- TRENCHING SHALL BE COMPLETED SO THAT ALL REPLACEMENT SECTIONS MATCH THE SLOPE OF THE EXISTING PENSTOCK WITHOUT SAGS OR DIPS.

FIELD TESTING

- JOINT LAP PRESSURE TEST ALL CIRCUMFERENCES AT FIELD JOINTS AFTER WELDING.
- OWNER WILL TEST THE COMPLETED PENSTOCK BY FILLING IT WITH WATER UNDER FULL STATION PRESSURE AND CONTINUOUSLY INSPECT IT FOR THE FIRST 30 MINS AFTER FILLING. ONLY AFTER THE PENSTOCK HAS BEEN FILLED WITH WATER FOR 12 HOURS WITHOUT ANY LEAKING WILL OWNER ACCEPT THE PIPE. DURING THIS PERIOD, THE TURBINE WICKET GATES SHALL BE CLOSED USING THE NORMAL FASTEST CLOSING RATES ADVISABLE.
- ALL JOINTS SHALL BE EXPOSED AROUND THEIR FULL PERIMETER DURING PRESSURE TESTING.
- OWNER RESERVES THE RIGHT TO PERFORM MAGNETIC PARTICLE, ULTRASONIC TESTING, OR RADIOGRAPHY TESTING OF ANY WELDING.
- ALL WELDS NOT CONFORMING TO REQUIREMENTS SPECIFIED ON THESE DRAWINGS SHALL BE REPAIRED AND ANY ADDITIONAL RETESTING COMPLETED AT CONTRACTOR'S OR FABRICATOR'S EXPENSE.
- OWNER MAY OBSERVE, AT THEIR DISCRETION, THE WORK AT ANY STAGE OF CONSTRUCTION.

7. CONTRACTOR TO MEASURE STEEL THICKNESS AT THE EXTENT OF DEMOLITION TO ENSURE ADEQUATE STEEL REMAINS AND SUBMIT MEASUREMENTS TO OWNER AND ENGINEER.

SUBMITTALS

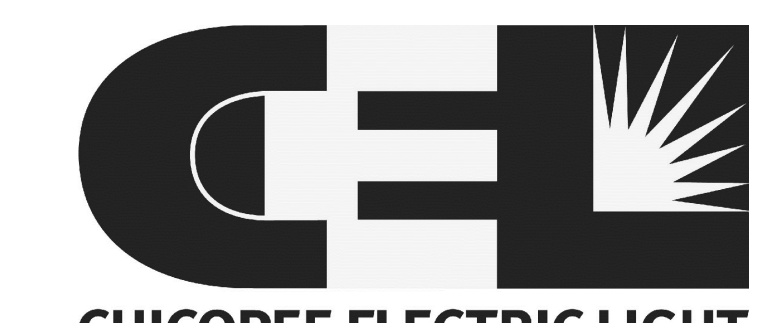
- AT LEAST TWO WEEKS PRIOR TO MOBILIZING TO THE SITE, THE CONTRACTOR SHALL PROVIDE TO THE OWNER A WRITTEN PLAN OF HOW THE CONSTRUCTION AREA WILL BE ACCESSED AND A DETAILED DESCRIPTION OF THE METHOD FOR PERFORMING THE WORK.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE NEW PENSTOCK REPLACEMENT STEEL AND COATINGS FOR APPROVAL PRIOR TO FABRICATION AND CONSTRUCTION.
- CONTRACTOR SHALL SUBMIT ALL FIELD WELDING PROCEDURES FOR APPROVAL PRIOR TO INSTALLATION. PROVIDE ASME OR AWS CERTIFICATION DOCUMENTS FOR ALL WELDERS AND WELDING OPERATORS.

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No.	Revision	Date	Drawn	Checked
0	RELEASED FOR CONSTRUCTION	01-31-20	JCH	KMG
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			JA	CFT
			Checked	KMG

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CHICOPEE ELECTRIC LIGHT

EAGLE CREEK RENEWABLE ENERGY, LLC.
FORESTBURGH, NEW YORK

CHICOPEE HYDROELECTRIC PROJECT (F.E.R.C. NO. 6522)
STEEL PENSTOCK REHABILITATION

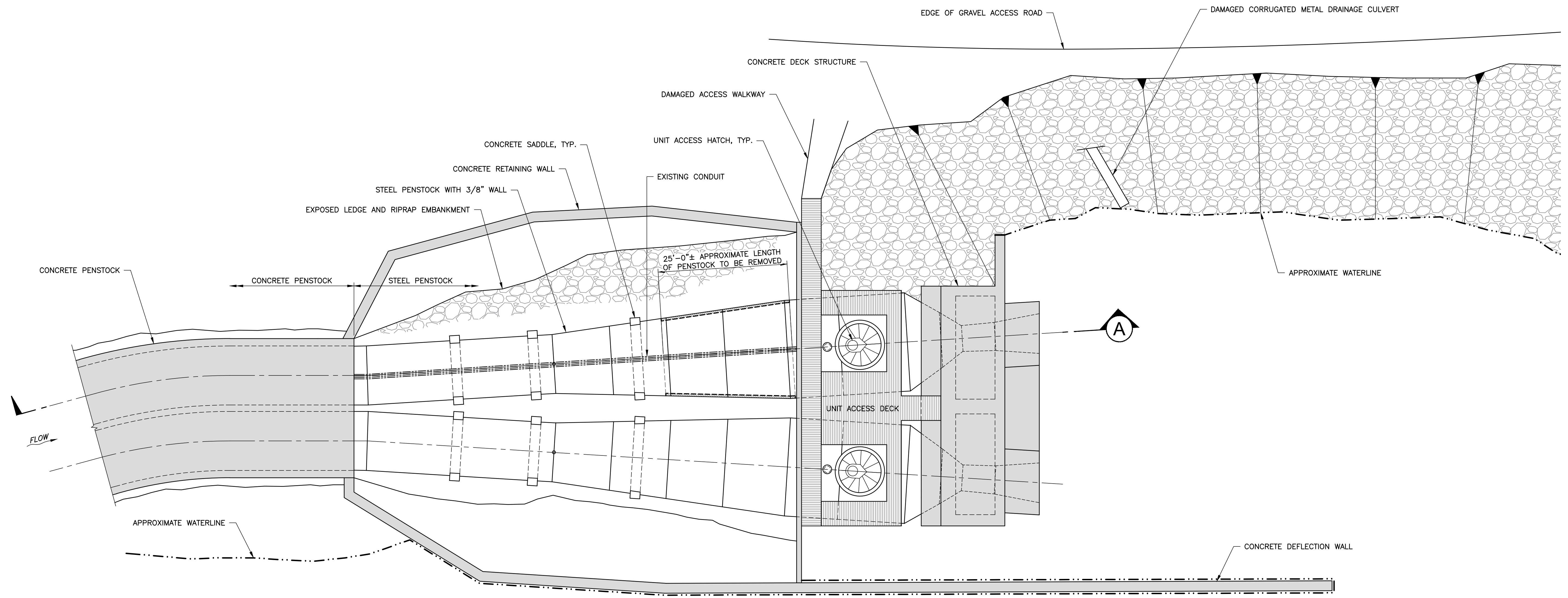
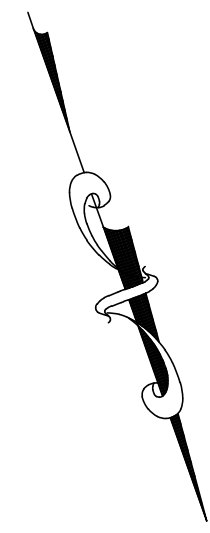
PROJECT NOTES

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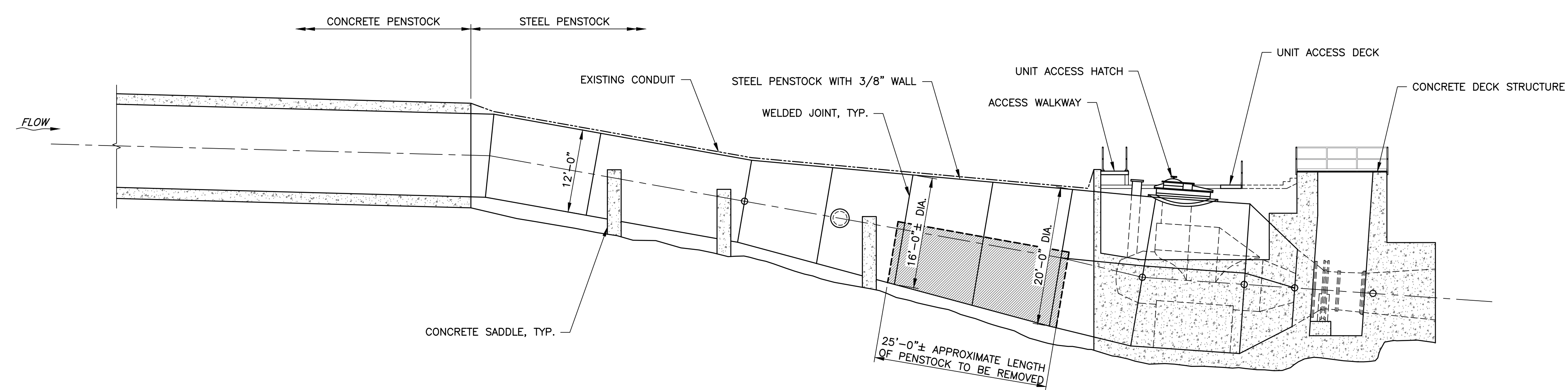
Project No.	Date Revised	Drawing No.
1871-137	01-31-20	001

24x36 = FULL SCALE

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PLAN
3/32" = 1'-0"



SECTION A
3/32" = 1'-0"



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CHICOPEE ELECTRIC LIGHT

EAGLE CREEK RENEWABLE ENERGY, LLC.
FORESTBURGH, NEW YORK

CHICOPEE HYDROELECTRIC PROJECT (F.E.R.C. NO. 6522)
STEEL PENSTOCK REHABILITATION

EXISTING CONDITIONS AND DEMOLITION PLAN

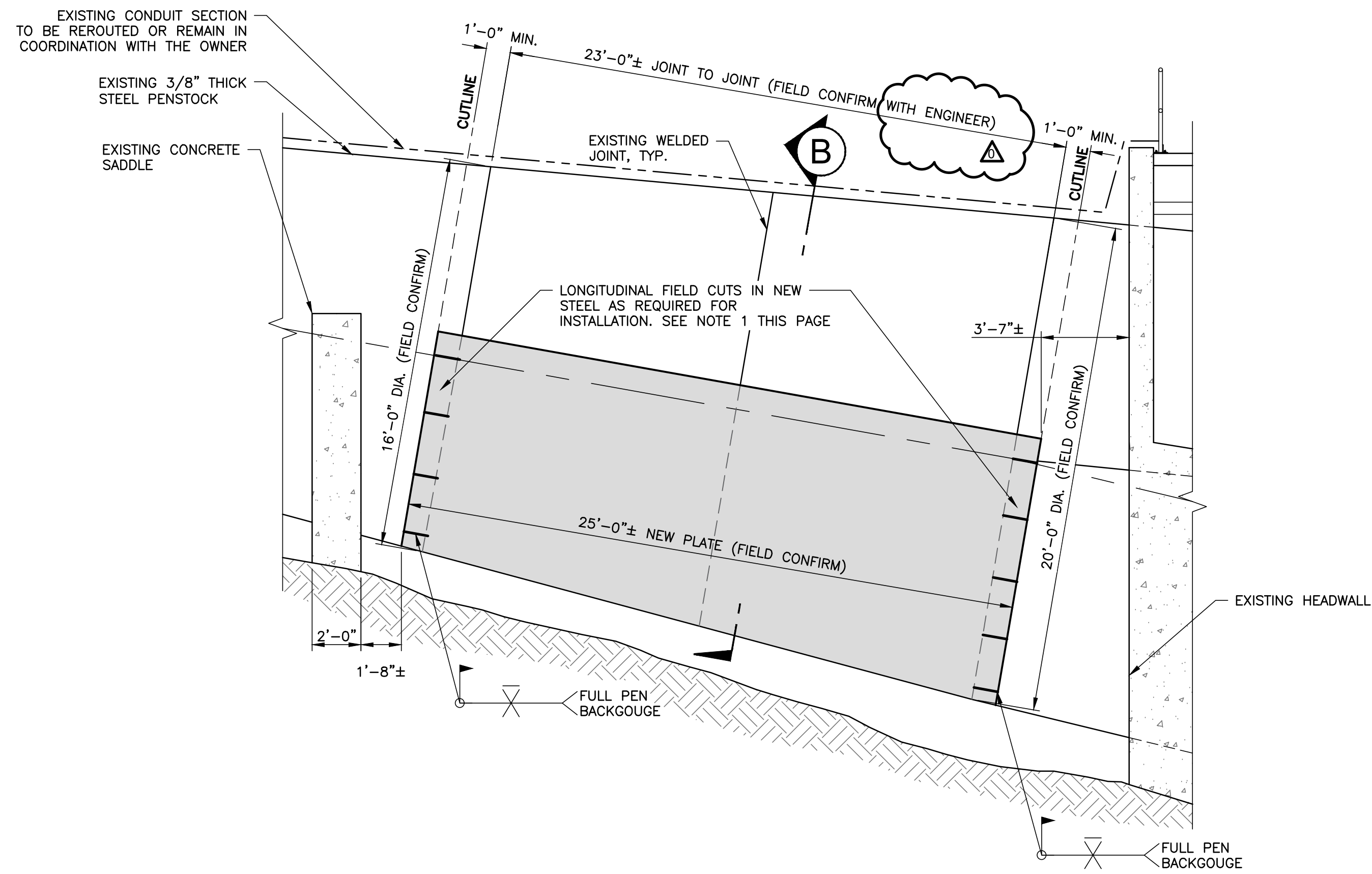


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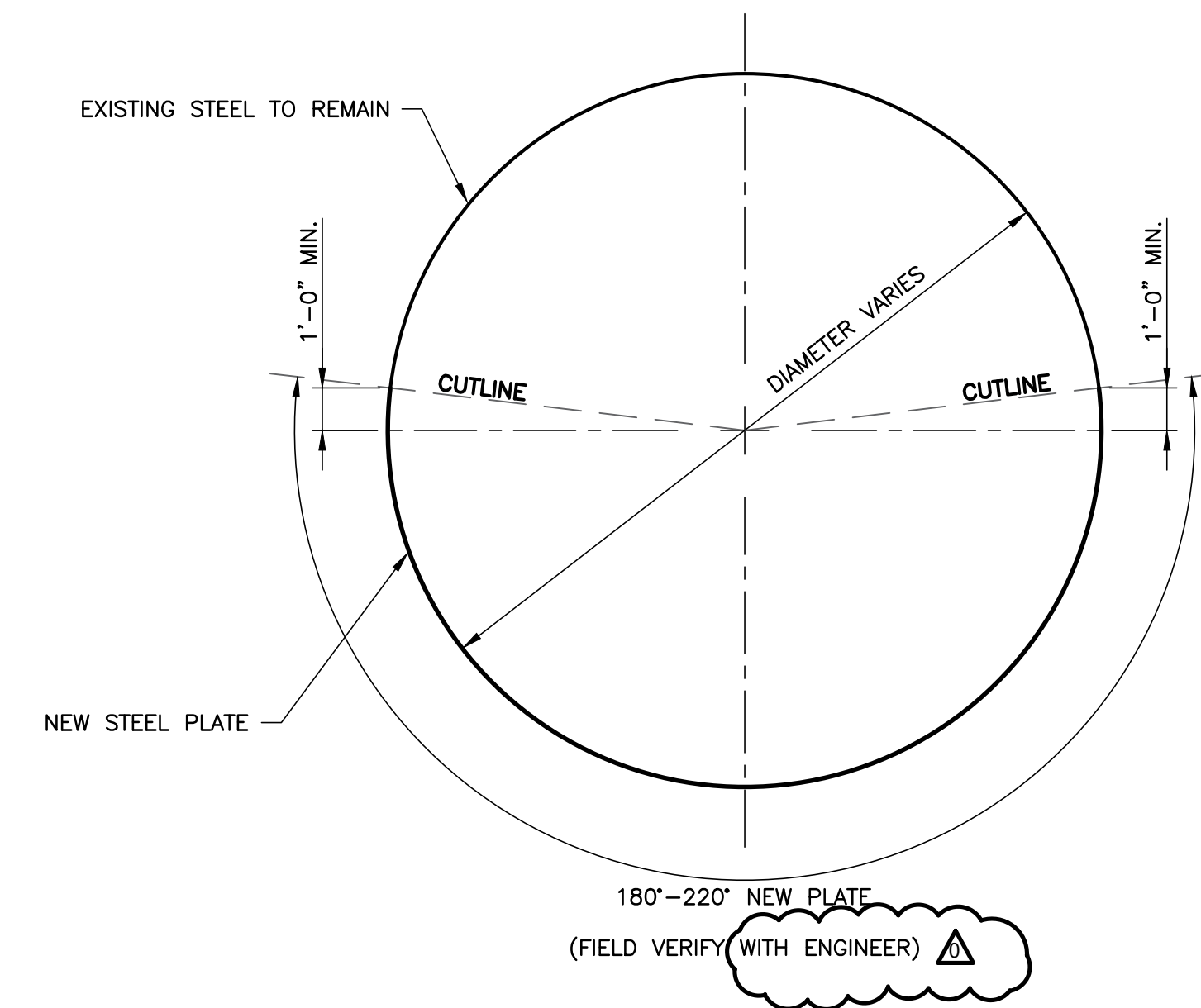
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JA	CFT	KMG	1871-137	01-31-20	002

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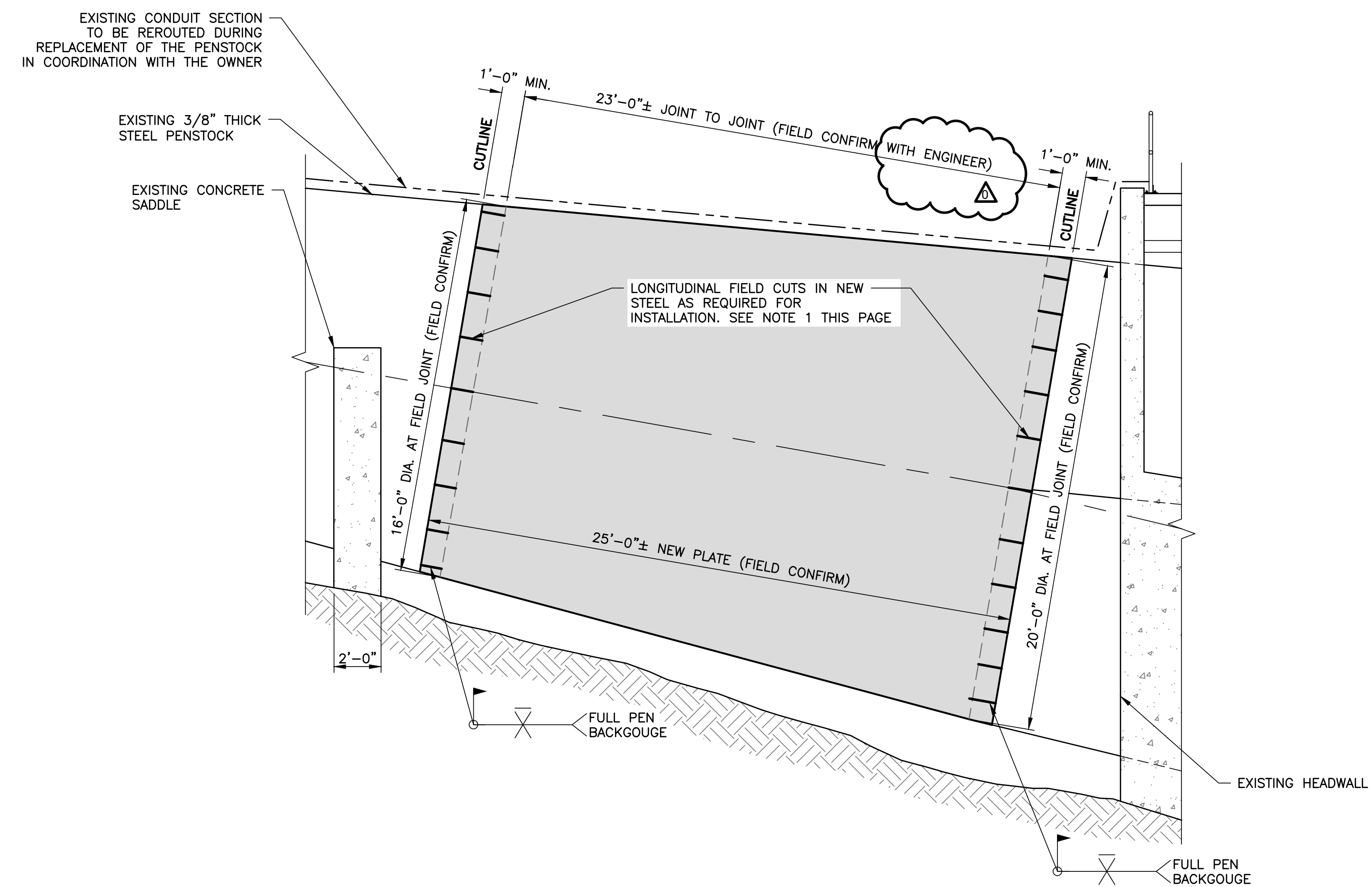
24x36 = FULL SCALE



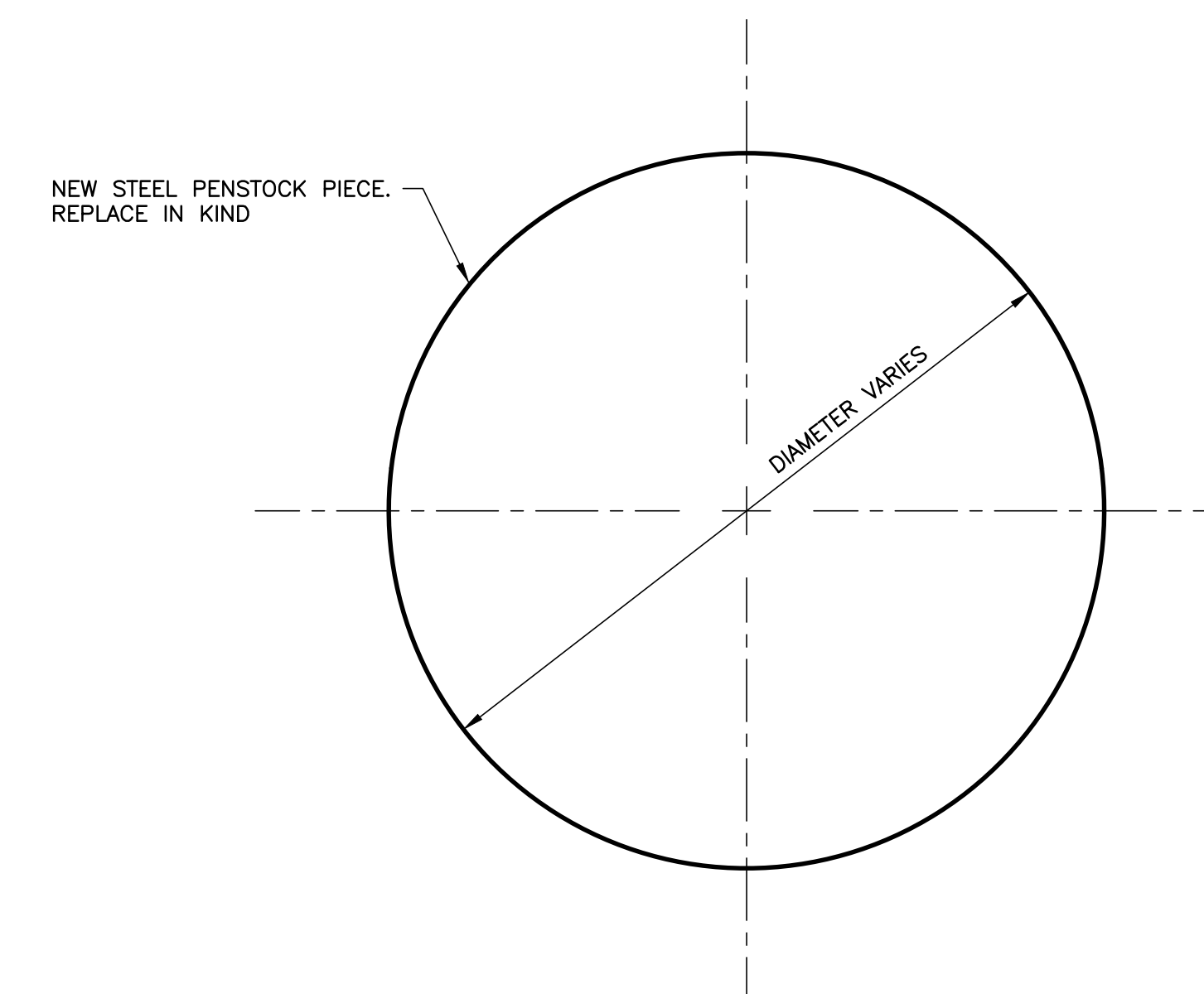
PROPOSED ELEVATION VIEW - OPTION #1
1/4" = 1'-0"



SECTION - OPTION #1 (B)
1/4" = 1'-0"



PROPOSED ELEVATION VIEW - OPTION #2
1/4" = 1'-0"



SECTION - OPTION #2 (B)
1/4" = 1'-0"

- NOTES:
1. THE EXISTING STEEL PENSTOCK TO REMAIN MAY BE OUT OF ROUND. CONTRACTOR MUST FIELD MEASURE DIAMETERS AND OVALITY PRIOR TO FABRICATION OF STEEL TRANSITION PIECES. WITH OWNER APPROVAL, CONTRACTOR MAY MAKE UP TO 1/2 INCH LONG LONGITUDINAL CUTS IN NEW OR EXISTING STEEL SHELL AT THE NEW TO EXISTING CONNECTION TO FIELD FIT THE NEW STEEL TO EXISTING STEEL. CUTS MUST BE CLOSED WITH A FULL PENETRATION GROOVE WELD, BACKGOUGED. SUBMIT PROPOSED INSTALLATION AND WELDING PROCEDURES TO OWNER AND ENGINEER FOR APPROVAL.
 2. FIELD APPLY INTERIOR AND EXTERIOR COATING TO JOINTS AFTER WELD TESTING.



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CHICOPEE ELECTRIC LIGHT

EAGLE CREEK RENEWABLE ENERGY, LLC.
FORESTBURGH, NEW YORK

CHICOPEE HYDROELECTRIC PROJECT (F.E.R.C. NO. 6522)
STEEL PENSTOCK REHABILITATION

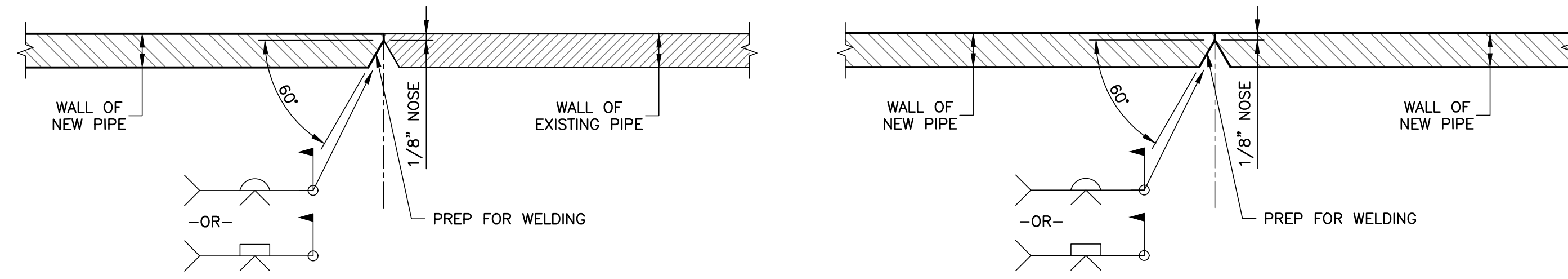
PROPOSED CONDITIONS
OPTIONS #1 & #2



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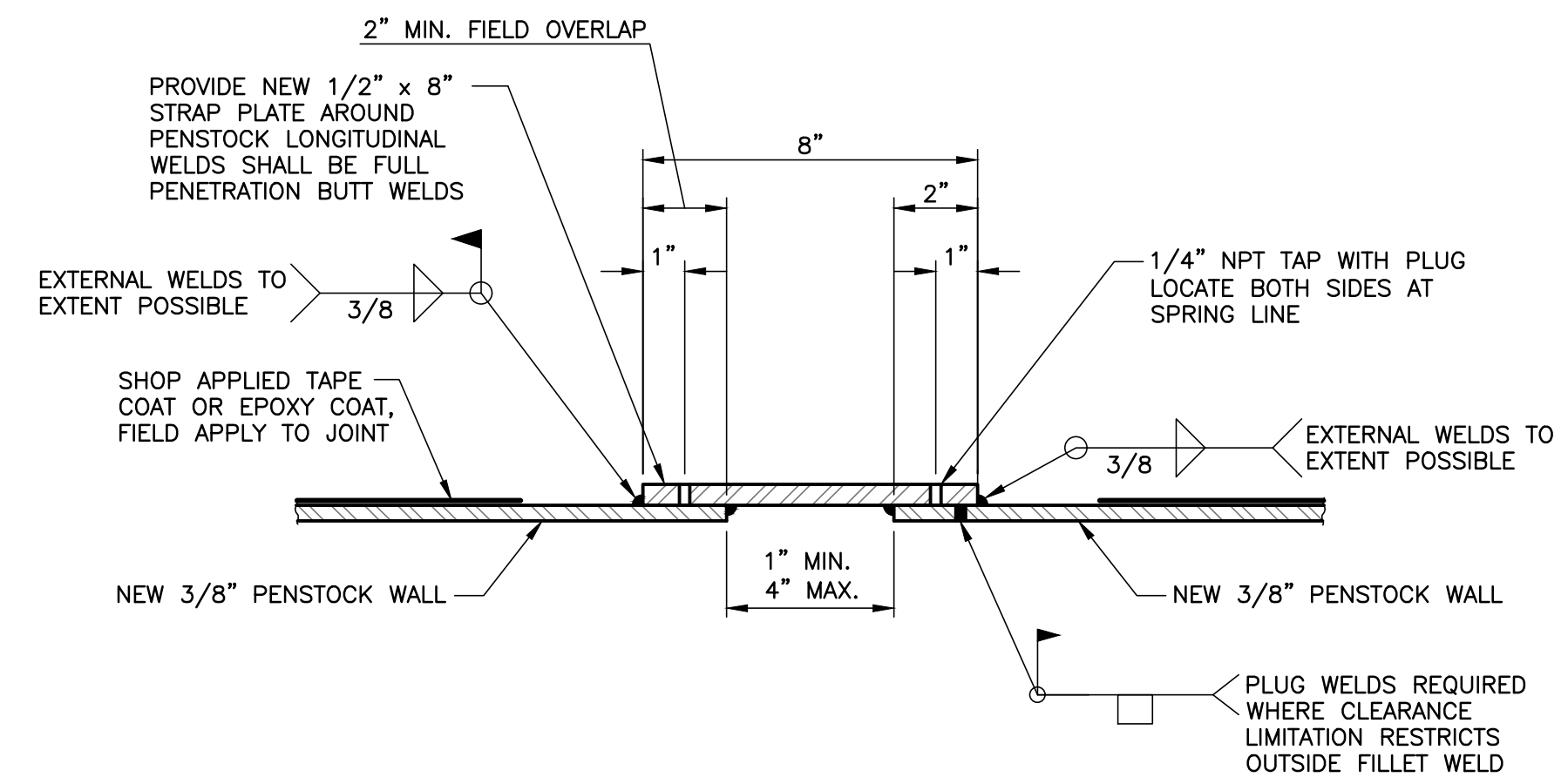
Project No.	Date Revised	Drawing No.
1871-137	01-31-20	003

24x36 = FULL SCALE



**NEW STEEL TO EXISTING STEEL
FIELD JOINT CONNECTION DETAIL**
6"= 1'-0"
SCALE IN INCHES

**NEW STEEL TO NEW STEEL FIELD
JOINT CONNECTION DETAIL TYPE 1**
6"= 1'-0"
SCALE IN INCHES



**NEW STEEL TO NEW STEEL
FIELD JOINT CONNECTION TYPE 2**
3"= 1'-0"

- NOTES:
1. THE BUTT STRAPS SHALL BE WELDED TO BOTH THE PIPE EXTERIOR AND INTERIOR.
 2. THIS CONNECTION MAY ONLY BE APPLIED TO JOINTS WHERE ACCESS IS FEASIBLE ON BOTH INTERIOR AND EXTERIOR OF PENSTOCK.
 3. ADDITIONAL WELD TESTING WILL BE REQUIRED IF PLUG WELDS ARE USED.

- NOTES:
1. IT IS THE CONTRACTOR'S OPTION TO SELECT WHICH NEW STEEL TO NEW STEEL CONNECTION TO BE USED AT THE JOINTS. DETAIL 2 SHALL ONLY BE USED WHERE THE PENSTOCK INTERIOR AND EXTERIOR ARE EASILY ACCESSIBLE. THE CONTRACTOR SHALL SUBMIT PROPOSED INSTALLATION AND WELDING PROCEDURES TO OWNER FOR APPROVAL.
 2. ALL WELDS SHALL BE IN ACCORDANCE WITH ASME AND AWS CURRENT CODES AND STANDARDS.



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CHICOPEE HYDROELECTRIC PROJECT (F.E.R.C. NO. 6522)
STEEL PENSTOCK REHABILITATION

PROPOSED CONDITIONS
DETAILS



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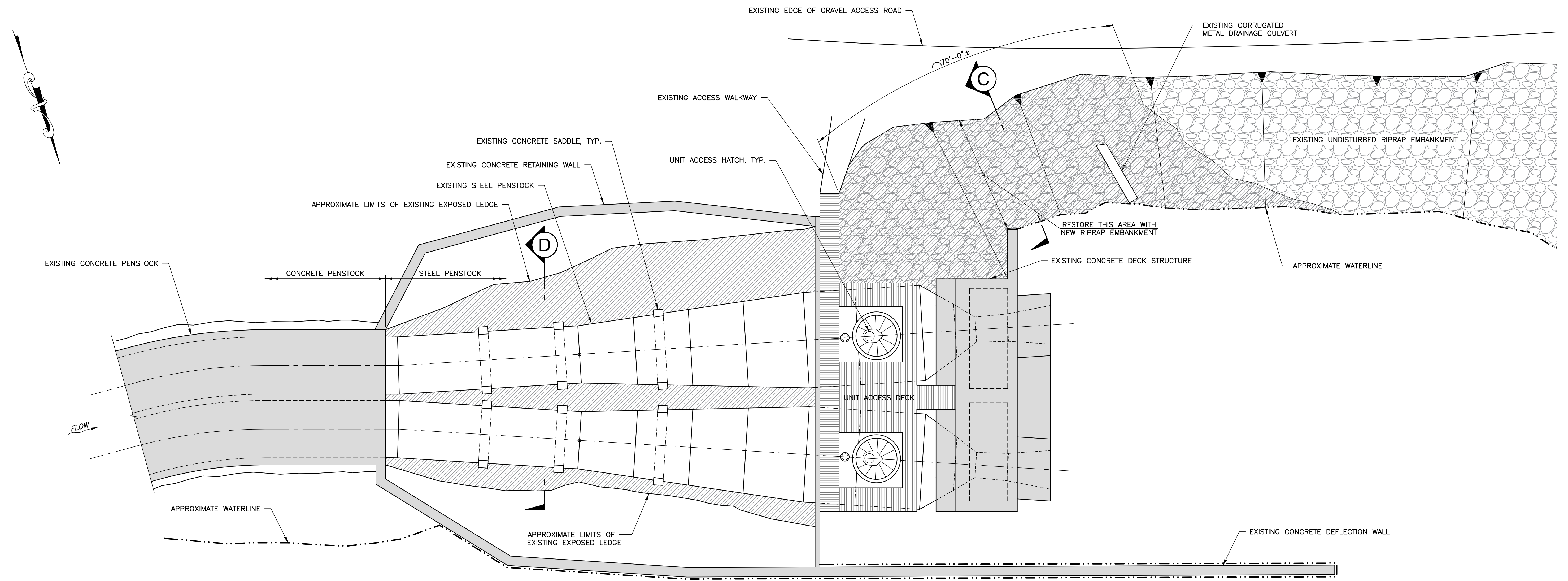
Project No.	Date Revised	Drawing No.	004
1871-137	01-31-20		

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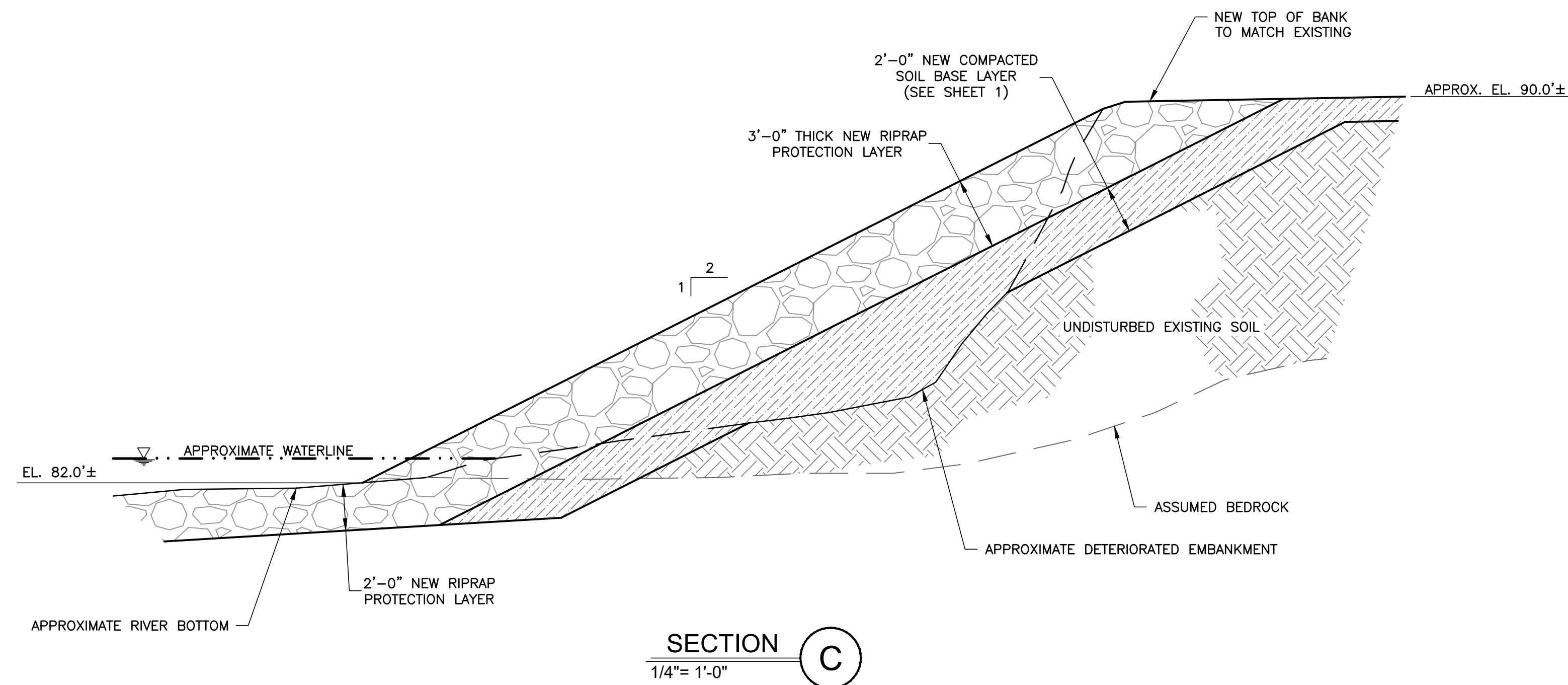
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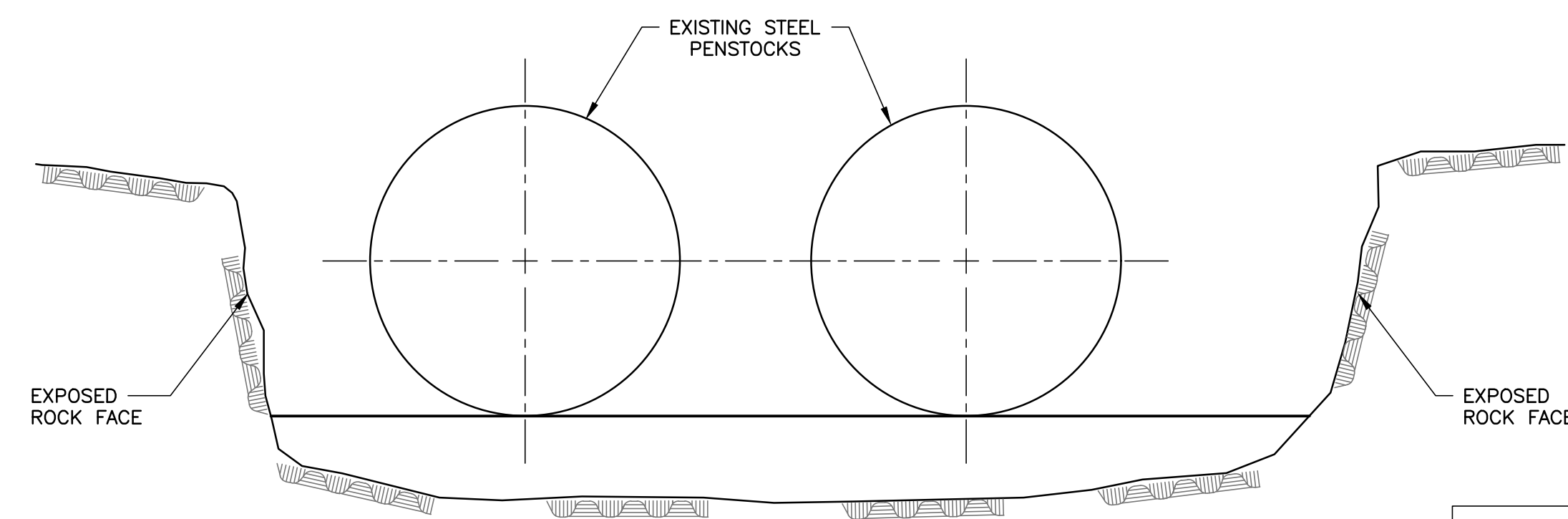


EMBANKMENT RESTORATION PLAN
3/32" = 1'-0"



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

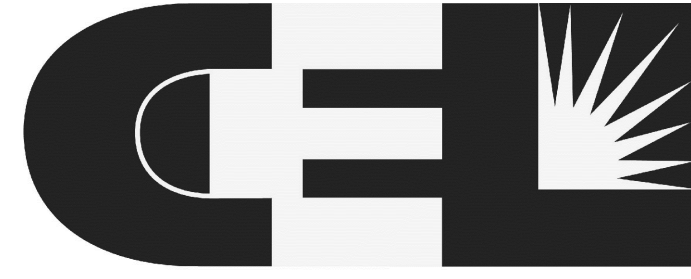
NOTE:
1. ELEVATION DATA IS APPROXIMATE PER GOOGLE EARTH VERTICAL DATUM WGS 84.



SECTION D
3/16" = 1'-0"



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CHICOPEE ELECTRIC LIGHT

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CHICOPEE HYDROELECTRIC PROJECT (F.E.R.C. NO. 6522)
STEEL PENSTOCK REHABILITATION

RIVERBANK EROSION REPAIR DETAILS



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