CONSTRUCTION PLANS
FOR
WATER SYSTEM IMPROVEMENTS
FOR

HARRIMAN UTILITIES BOARD
HARRIMAN, TENNESSEE

CONTRACT W93-04

WATER TREATMENT FACILITIES

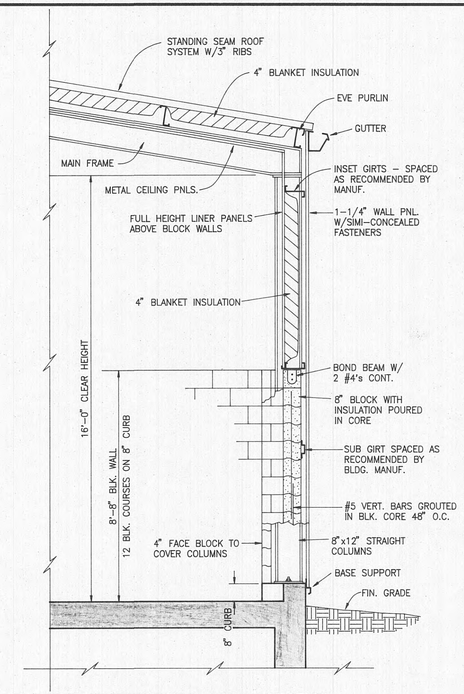
AS BUILT
DATE: 3-20-95
APPROVED: DM

Accepted By: Alvin B Poole
Title: Chairman
For: Harriman Utility Board
Date: 3-29-93

LOUIS E. ROBBINS
LICENSED ENGINEER
Louis E. Robbins
3/31/93
14529
STATE OF TENNESSEE

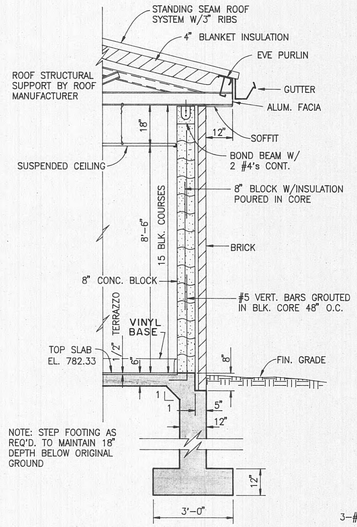
ELROD · DUNSON, INC.
CONSULTING ENGINEERS
Nashville · Knoxville
Lexington, KY

PROJECT NO. 0592
SET NO.



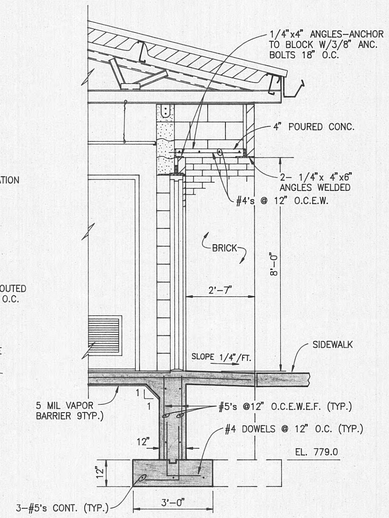
TYPICAL FILTER BLDG. WALL SECTION

SCALE: 3/8"=1'–0"



TYPICAL OPERATIONS BLDG. WALL SECTION

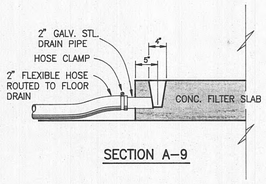
SCALE: 3/8"=1'–0"



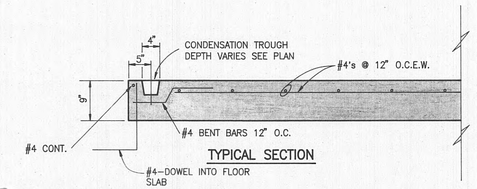
SECTION J–9

MAIN ENTRANCE SECTION

SCALE: 3/8"=1'–0"



SECTION A–9



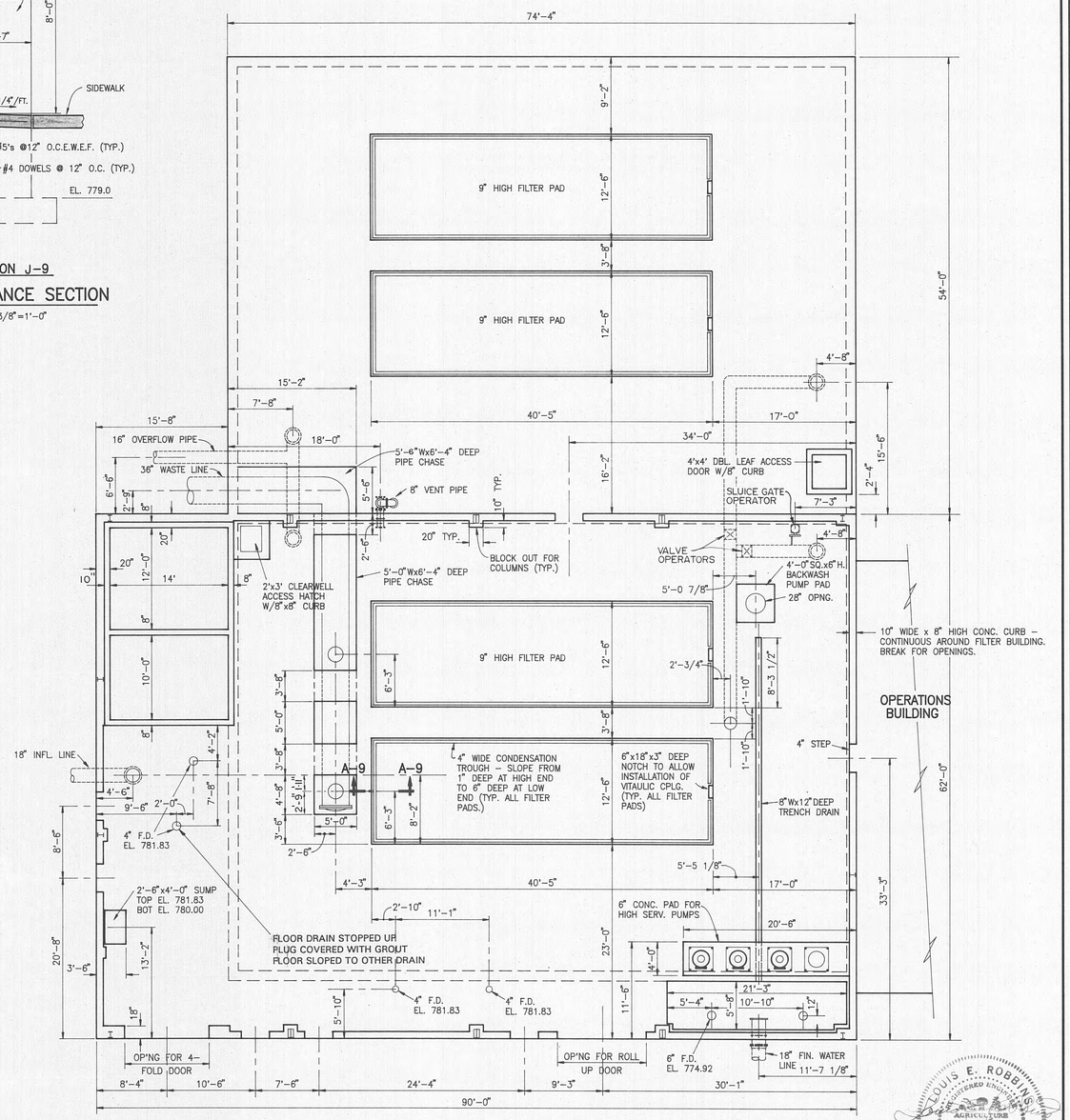
TYPICAL SECTION

FILTER PAD DETAILS

SCALE: 3/4"=1'–0"

ROOF PLAN – FILTER/OPERATIONS BUILDING

SCALE: 1/8"=1'–0"



TOP PLAN – FILTER/BUILDING

SCALE: 1/8"=1'–0"

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBBINS
REGISTERED ENGINEER
AGRICULTURE
No. 14525
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

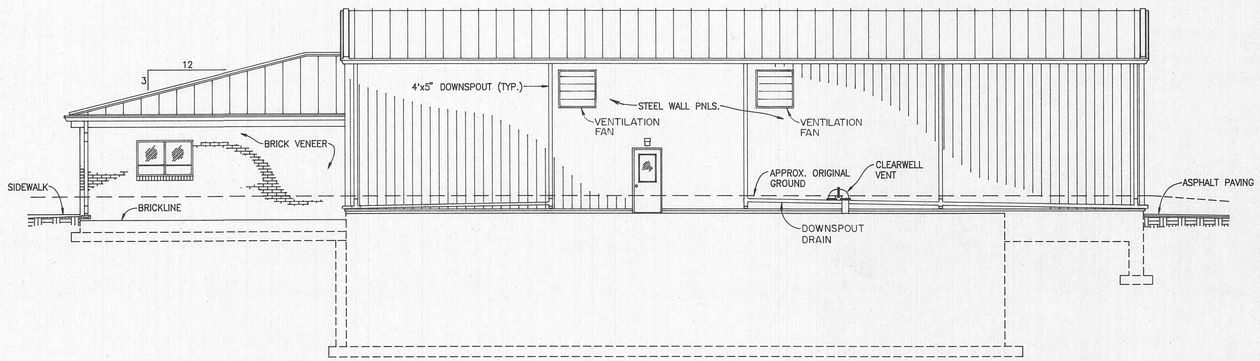
TOP PLAN – FILTER BUILDING, ROOF PLAN – FILTER/OPERATIONS BUILDING, TYP. WALL SECTIONS & MAIN ENTRANCE SECTION

REVISIONS
1 4/19/93 ADDED TRENCH DRAIN AND PIPE CHASE

DESIGNED: L.E.R.
DRAWN: S.C.G.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: NOTED
PROJ. NO. 0593

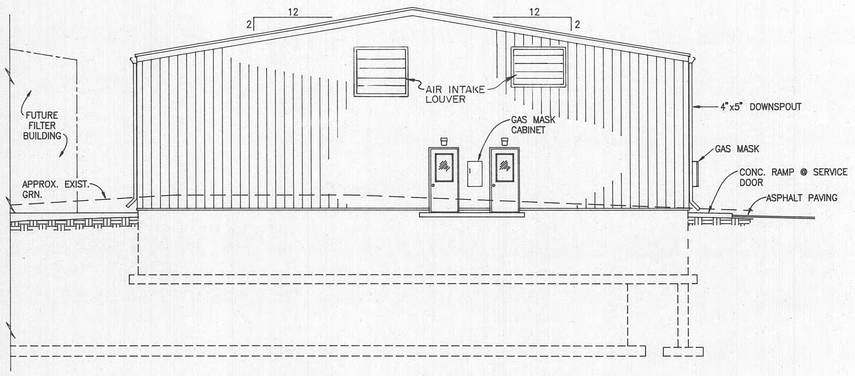
SHEET 9
OF 36

BRUNING 29128 FORM # 6915



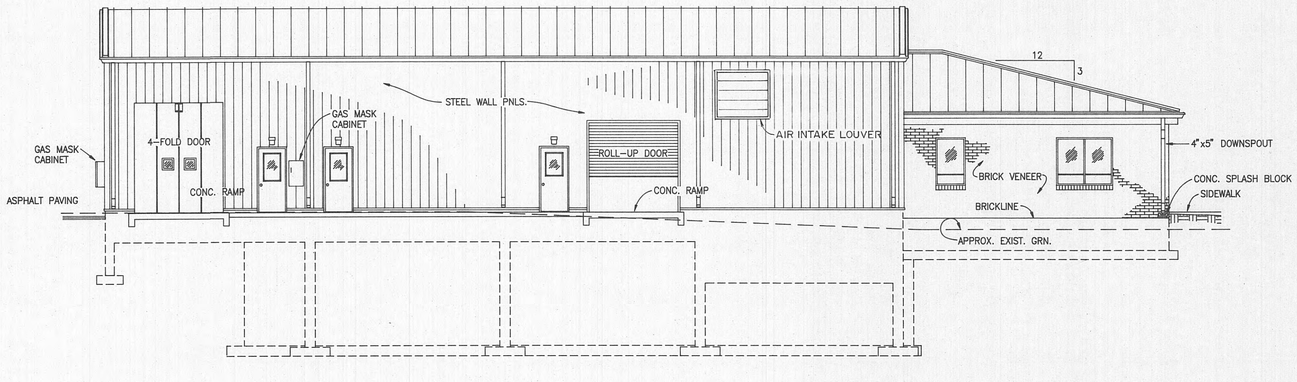
WEST ELEVATION

SCALE: 1/8"=1'-0"



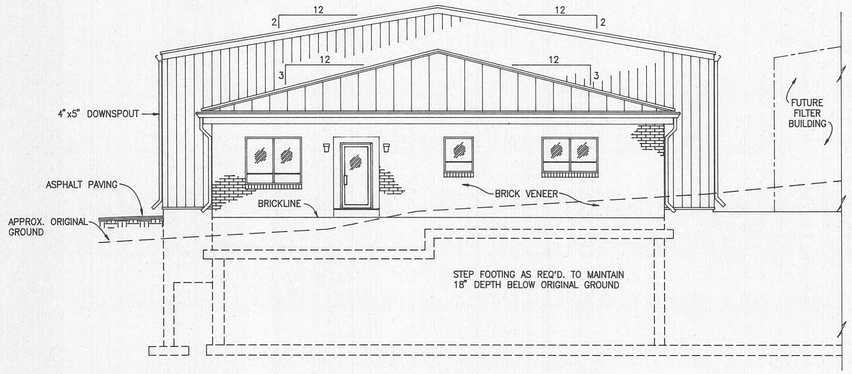
SOUTH ELEVATION

SCALE: 1/8"=1'-0"



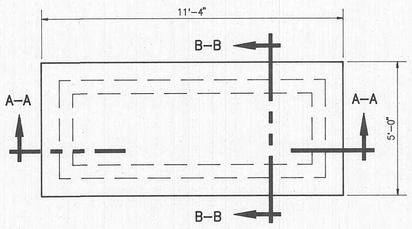
EAST ELEVATION

SCALE: 1/8"=1'-0"

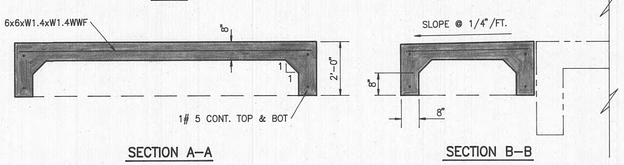


NORTH ELEVATION

SCALE: 1/8"=1'-0"



PLAN

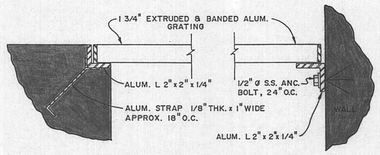


SECTION A-A

SECTION B-B

CONCRETE RAMP DETAIL

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



TYPICAL GRATING DETAIL

NOT TO SCALE

DESIGN LOADS

1. WIND DESIGN DATA: BASIC WIND VELOCITY = 80 M.P.H., I = 1.0, SITE EXPOSURE FACTOR = C.
2. ROOF LIVE LOADS 25 PSF - NO REDUCTION IN LIVE LOAD PERMITTED FOR COLUMNS, RAFTERS, FRAMES & PURLINS. COLLATERAL LOAD 3 PSF.
3. SEISMIC DESIGN DATA: ZONE = 2, K = 1.0, I = 1.0.
4. DESIGN LIVE LOADS: SUPPORTED FLOORS - 200 P.S.F.

MISCELLANEOUS AND SUBMITTALS

1. METAL BUILDING TO BE DESIGNED IN ACCORDANCE WITH STANDARD BUILDING CODE AND ANSI A58.1 - 1982 STANDING SEAM ROOF SHALL BE 24 GAUGE.
2. PRE-ENGINEERED SYSTEMS

   THE DESIGN OF PRE-ENGINEERED SYSTEMS SPECIFIED IN THE CONTRACT DOCUMENTS WHICH ARE DESIGNED/ENGINEERED BY OTHERS, IS THE SOLE RESPONSIBILITY OF THE SUPPLIER AND IT'S DESIGN ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMITTALS OF SUCH SYSTEMS TO THE STRUCTURAL ENGINEER OF RECORD SHALL BE REVIEWED FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS WITH REGARD TO THE ARRANGEMENT AND/OR SIZES OF MEMBERS SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS AND THE SUPPLIERS INTERPRETATION OF THE DESIGN INFORMATION INCLUDED IN THE CONTRACT DOCUMENTS. SUCH REVIEW BY THE STRUCTURAL ENGINEER OF RECORD SHALL NOT IMPLY ANY RESPONSIBILITY FOR THE ACTUAL DESIGN OF SUCH SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DIMENSIONAL ACCURACY AND CONFORMANCE WITH THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS. SUBMIT 4 COPIES OF ENGINEERING CALCULATIONS.

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBERTS
REGISTERED ENGINEER
AGRICULTURAL ENGINEER
3/31/93
No. 14528
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

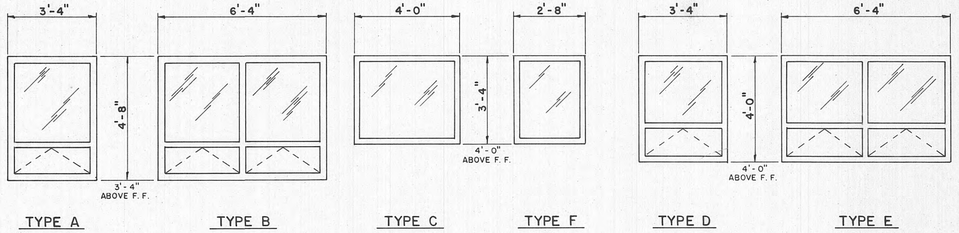
FILTER/OPERATIONS BUILDING EXTERIOR ELEVATIONS AND MISCELLANEOUS DETAILS

REVISIONS

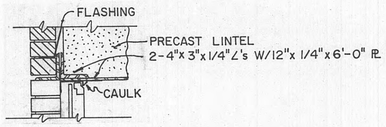
DESIGNED:	L. E. R.
DRAWN:	S. C. G.
CHECKED:	L. E. R.
DATE:	MARCH, 1993
SCALE:	AS NOTED
PROJ. NO.	0592

SHEET 10 OF 36

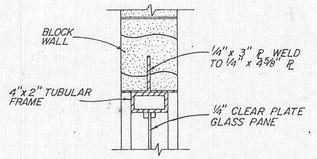
BRUNING 79128 FORM # 6515



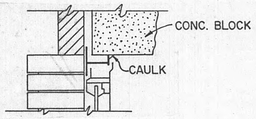
TYPE A TYPE B TYPE C TYPE F TYPE D TYPE E



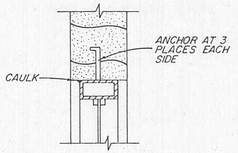
HEAD A



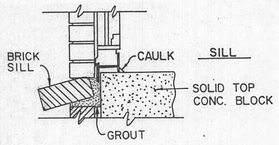
HEAD B



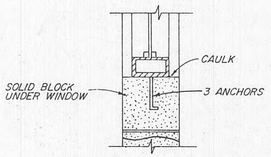
JAMB A



JAMB B

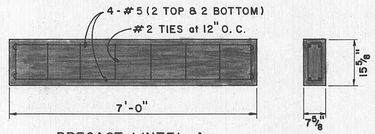


SILL A

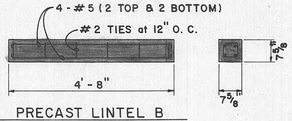


SILL B

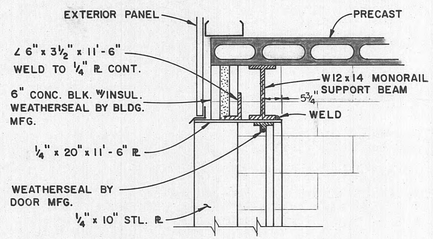
WINDOW ELEVATIONS AND SECTIONS
N. T. S.



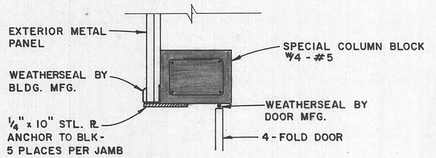
PRECAST LINTEL A



PRECAST LINTEL B

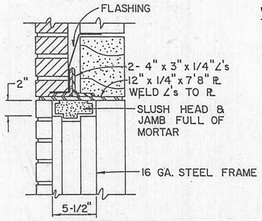


HEAD C

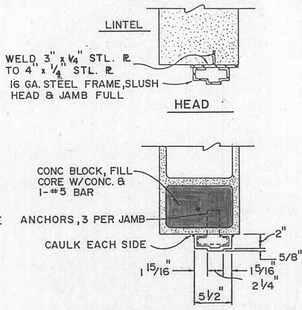


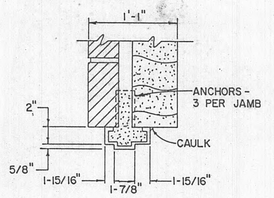
JAMB C

FOUR FOLD SECTIONS
SCALE: 3/4" = 1'-0"

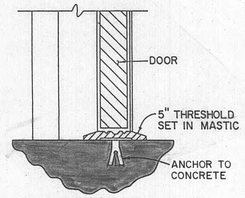


HEAD A



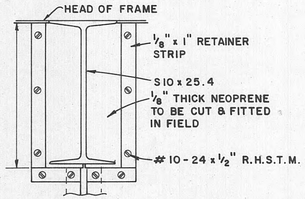


JAMB A

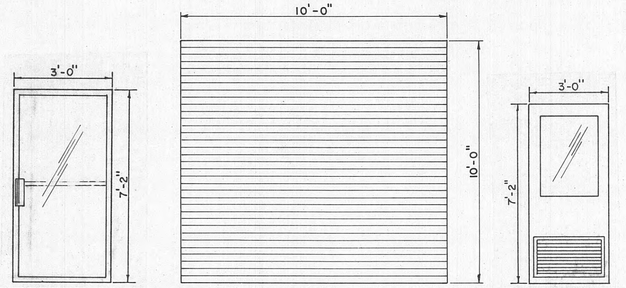


THRESHOLD DETAIL

DOOR SECTIONS
N. T. S.



CUT OUT DETAIL FOR FOLDING DOOR
N. T. S.



DOOR DETAILS
N. T. S.

WINDOW SCHEDULE

MARK	LOCATION	MASONARYOPENING	SILL	HEAD	JAMB	PRECAST LINTEL	REMARKS
A-1	BREAK ROOM	AS REQ'D FOR WINDOW	A	A	A	B	NOTE 1
B-1	OFFICE	AS REQ'D FOR WINDOW	A	A	A	A	NOTE 1
B-2	OFFICE	AS REQ'D FOR WINDOW	A	A	A	A	NOTE 1
C-1	CARBON ROOM	AS REQ'D FOR WINDOW	B	B	B	N/A	FIXED
C-2	FLUORIDE ROOM	AS REQ'D FOR WINDOW	B	B	B	N/A	FIXED
C-3	CHLORINE ROOM	AS REQ'D FOR WINDOW	B	B	B	N/A	FIXED
D-1	BACTERIAL LAB	AS REQ'D FOR WINDOW	A	A	A	B	NOTE 1
E-1	LAB ROOM	AS REQ'D FOR WINDOW	A	A	A	A	NOTE 1
E-2	LAB ROOM	AS REQ'D FOR WINDOW	A	A	A	A	NOTE 1
F-1	CHLORINE STORAGE	AS REQ'D FOR WINDOW	B	B	B	B	FIXED

NOTE 1 WINDOWS TO BE FURNISHED WITH HARDWARE, SCREENS, WEATHER STRIPPING AND NECESSARY ITEMS FOR PROPER INSTALLATION

FINISH SCHEDULE

ROOM	WALL	FLOOR	CEILING
OPERATIONS/EXTERIOR	BRICK	N/A	N/A
FILTER BLDG/EXTERIOR	METAL PANELS	N/A	N/A
ENTRANCE HALL	PAINTED CONC.BLK.	TERRAZZO	SUSPENDED (8'-6")
STORAGE RM	PAINTED CONC.BLK.	HARDENED CONC.	SUSPENDED (8'-6")
OFFICE	PAINTED CONC.BLK	TERRAZZO	SUSPENDED (8'-6")
BREAK ROOM	PAINTED CONC.BLK	TERRAZZO	SUSPENDED (8'-6")
BACT. LAB	PAINTED CONC.BLK	TERRAZZO	SUSPENDED (8'-6")
LAB ROOM	PAINTED CONC.BLK	TERRAZZO	SUSPENDED (8'-6")
ELECT. RM.	PAINTED CONC.BLK	HARDENED CONC.	SUSPENDED (8'-6")
FILTER BLDG.	PAINTED CONC.BLK	HARDENED CONC.	METAL LINER PNLS.
POLYMER FEED RM	PAINTED CONC.BLK	HARDENED CONC.	PRECAST CONC. PAINTED
CARBON FEED RM	PAINTED CONC.BLK	HARDENED CONC.	PRECAST CONC. PAINTED
FLUORIDE FEED RM	PAINTED CONC.BLK	HARDENED CONC.	PRECAST CONC. PAINTED
Cl_2 FEED ROOM	PAINTED CONC.BLK	HARDENED CONC.	PRECAST CONC. PAINTED
Cl_2 CYL. STORAGE	PAINTED CONC.BLK	HARDENED CONC.	PRECAST CONC. PAINTED
RESTROOM	PAINTED CONC.BLK	TERRAZZO	SUSPENDED (8'-6")
STORAGE BLDG (BLOCK)	PAINTED CONC.BLK	HARDENED CONC.	POURED CONCRETE
INTAKE PUMP ROOM	PAINTED CONC.BLK	HARDENED CONC.	POURED CONCRETE

DOOR SCHEDULE

MARK	LOCATION	HAND	DOOR SIZE	HDW	THRES-HOLD	JAMB	HEAD	REMARKS
A-1	OUTSIDE/MAIN ENTRANCE	RHR	3'-0" X 7'-2"	1	YES	--	--	ALUM. DOOR & FRAME
B-1	OUTSIDE/FILTER ROOM	ROLL-UP	10'-0" X 10'-0"	*	NO	**	**	**
B-2	OUTSIDE/STORAGE BLDG.	ROLL-UP	10'-0" X 10'-0"	*	NO	**	**	**
C-1	BACT.LAB/ENTRANCE HALL	RH	3'-0" X 7'-2"	2	NO	B	B	
C-2	ENTRANCE HALL/OFFICE	LH	3'-0" X 7'-2"	2	NO	B	B	NO LOUVER REQ'D.
C-3	ENTRANCE HALL/BREAK RM.	RH	3'-0" X 7'-2"	5	NO	B	B	NO LOUVER REQ'D.
C-4	ENTRANCE HALL/STORAGE	RHR	3'-0" X 7'-2"	2	NO	B	B	NO WINDOW REQ'D.
C-5	HALL/RESTROOM	LH	3'-0" X 7'-2"	4	NO	B	B	NO WINDOW/LOUVER REQ'D.
C-6	HALL/LAB ROOM	LHR	3'-0" X 7'-2"	2	NO	B	B	NO LOUVER REQ'D.
C-7	HALL/ELEC.ROOM	RHR	3'-0" X 7'-2"	6	NO	B	B	NO WINDOW REQ'D.
C-8	LAB ROOM/BACT.LAB	LHR	3'-0" X 7'-2"	5	NO	B	B	
C-9	FILTER ROOM/POLYMER RM.	LHR	3'-0" X 7'-2"	5	NO	B	B	NO LOUVER REQ'D.
D-1	FILTER ROOM/HALL	LH	3'-0" X 7'-2"	2	YES	B	B	
D-2	OUTSIDE/FLUORIDE	LHR	3'-0" X 7'-2"	2	YES	B	B	
D-3	OUTSIDE/CARBON ROOM	LHR	3'-0" X 7'-2"	2	YES	B	B	
D-4	OUTSIDE/Cl_2 FEED RM.	LHR	3'-0" X 7'-2"	3	YES	B	B	
D-5	OUTSIDE/CHLORINE STORAGE	LHR	3'-0" X 7'-2"	3	YES	B	B	
D-6	OUTSIDE/FILTER RM	LHR	3'-0" X 7'-2"	2	YES	B	B	
D-7	OUTSIDE/FILTER RM	RHR	3'-0" X 7'-2"	2	YES	B	B	
D-8	OUTSIDE/STORAGE BLDG.	LHR	3'-0" X 7'-2"	2	YES	B	B	
D-9	OUTSIDE/INTAKE PUMP BLDG.	RHR	3'-0" X 7'-2"	2	YES	B	B	
D-10	OUTSIDE/INTAKE PUMP BLDG.	LH	3'-0" X 7'-2"	2	YES	A	A	
D-11	INSIDE/STORAGE BLDG.	RH	2'-8" X 6'-8"	3	YES	B	B	
E-1	OUTSIDE/CHLORINE STORAGE	FOUR-FOLD	10'-0" X 12'-4"	*	YES	C	C	

*DOOR HDW. FURNISHED BY DOOR MANUFACTURER
**STL. FRAME FOR ROLL-UP DOOR FURNISHED BY BLDG. MANUFACTURER

HARDWARE SCHEDULE

NO.	BUTTS	DOOR STOPS & HOLDERS	LOCKSET	LATCHSET	CLOSER
1	1-1/2 PAIR	YES	KEY-KEY	PULL & BAR	YES
2	1-1/2 PAIR	YES	KEY-BUTTON	KNOB-KNOB	YES
3	1-1/2 PAIR	YES	KEY-BUTTON	KNOB-PANIC BAR	YES
4	1-1/2 PAIR	STOP ONLY	KEY-TURN LEVER	PLATE HANDLE	YES
5	1-1/2 PAIR	YES	NONE	KNOB-KNOB	NO
6	1-1/2 PAIR	YES	NONE	KNOB-PANIC BAR	NO

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROSE
REGISTERED ENGINEER
3/31/93
No. 14529
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04
HARRIMAN, TENNESSEE
DOOR AND WINDOW SCHEDULES AND DETAILS

REVISIONS

DESIGNED: L. E. R.
DRAWN: D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

SHEET 11
OF 36

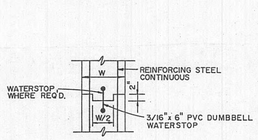
BRUNING 79128 FORM # 6915

FOUNDATION NOTES

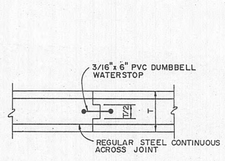
1. INDIVIDUAL FOOTINGS ARE DESIGNED TO BEAR ON SOIL CAPABLE OF SUPPORTING 2500 P.S.F.
2. THE SOIL BEARING CAPACITY SHALL BE VERIFIED WHEN FOUNDATION EXCAVATIONS HAVE BEEN CARRIED DOWN TO THE PROPOSED ELEVATIONS OR PROPER BEARING STRATUM.
3. ANCHOR BOLTS SHALL BE ASTM A307. BOLT SIZE TO BE DETERMINED BY METAL BUILDING CONTRACTOR.

REINFORCED CONCRETE

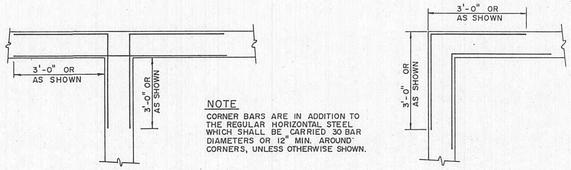
1. ALL CONCRETE WORK SHALL CONFORM TO THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE: (ACI 318-89).
2. REINFORCING STEEL SHALL BE DEFORMED BARS ASTM A615 (GRADE 60).
3. THE COMPRESSIVE STRENGTH AT 28 DAYS OF ALL CAST IN PLACE CONCRETE SHALL BE: 4000 PSI AS SPECIFIED.
4. LAP SPLICES FOR REINFORCING BARS SHALL BE 30 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
5. THE LONGITUDINAL REINFORCING STEEL IN WALLS AND FOOTINGS SHALL BE CONTINUOUS & SHALL BE CONTINUOUS AROUND CORNERS.
6. ALL DOWELS TO BE SAME SIZE AS WALL STEEL UNLESS NOTED OTHERWISE.



CONSTRUCTION JOINT IN WALL
NO SCALE

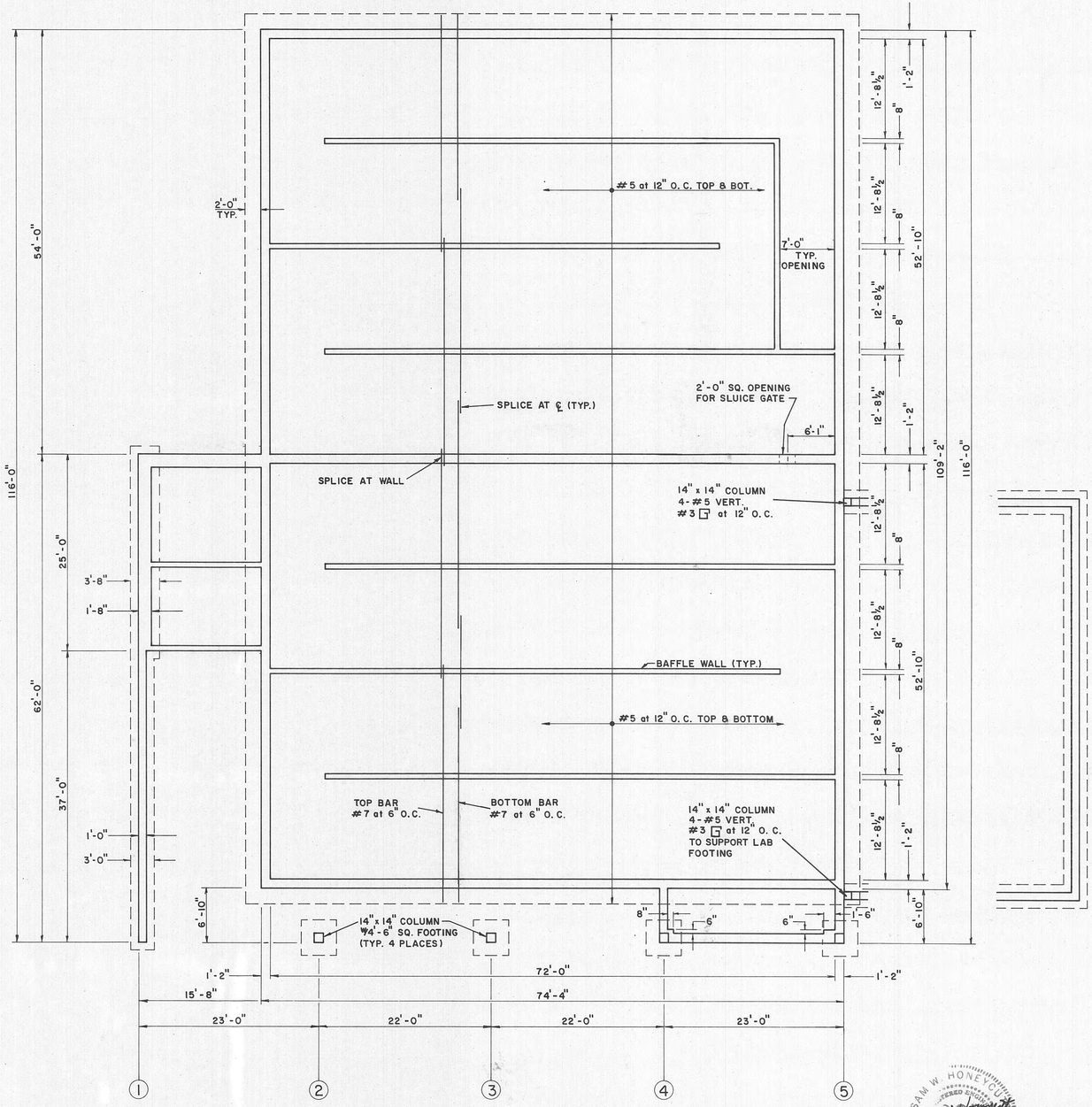


CONSTRUCTION JOINT IN SLAB
NO SCALE



NOTE
CORNER BARS ARE IN ADDITION TO THE REGULAR HORIZONTAL STEEL WHICH SHALL BE CARRIED 30 BAR DIAMETERS OR 12" MIN. AROUND CORNERS, UNLESS OTHERWISE SHOWN.

CORNER BAR DETAILS
REGULAR STEEL OMITTED FOR CLARITY
NO SCALE



STRUCTURAL - FLOOR SLAB ELEVATION 767.00
SCALE: 1/8" = 1'-0"

SAM W. HONEYCUTT
LICENSED ENGINEER
AGRICULTURE
4-6-1992
No. 9210
STATE OF TENNESSEE

AS BUILT
DATE: 3-20-95
APPROVED: DM

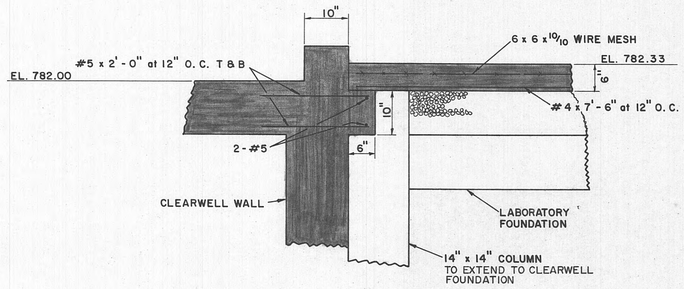
ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04
HARRIMAN, TENNESSEE
STRUCTURAL - FLOOR SLAB ELEVATION 767.00
FILTER / OPERATIONS BUILDING

REVISIONS

DESIGNED: L. E. R.
DRAWN: S. C. G., D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

SHEET 12
OF 36



SECTION A-13

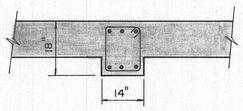
SCALE: 3/4" = 1'-0"

FLOOR SLAB SCHEDULE

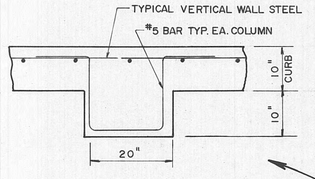
MARK	TYPE	REINFORCING BOTTOM	REINFORCING TOP	REMARKS
FS1	12" SOLID	#5 @ 12"	#7 @ 7"	
FS2	12" SOLID	FROM FS1	FROM FS1	
FS3	12" SOLID	#7 @ 7"	#7 @ 7"	
FS4	12" SOLID	FROM FS3	FROM FS3	
FS5	12" SOLID	#7 @ 7"	#7 @ 7"	
FS6	12" SOLID	#6 @ 12"	FROM FS5	
FS7	12" SOLID	#7 @ 7"	#7 @ 7"	
FS8	12" SOLID	#7 @ 7"	FROM FS7	
FS9	12" SOLID	FROM FS8	FROM FS8	
FS10	12" SOLID	#5 @ 12"	#6 @ 12"	
FS11	12" SOLID	#5 @ 12"	#6 @ 12"	
FS11A	12" SOLID	FROM FS10	FROM FS10	
FS12	12" SOLID	#5 @ 12"	#6 @ 12"	
FS13	12" SOLID	FROM FS12	FROM FS12	
FS14	12" SOLID	#5 @ 12"	#6 @ 12"	
FS15	12" SOLID	#5 @ 12"	FROM FS14	
FS16	12" SOLID	#5 @ 12"	#6 @ 12"	
FS17	12" SOLID	#5 @ 12"	FROM FS16	
FS18	12" SOLID	FROM FS17	FROM FS16	
FS18	12" SOLID	#7 @ 12"	#5 @ 12" O.C.	
FS20	14" SOLID	#7 @ 6"	#5 @ 12 O.C.	

BEAM SCHEDULE

MARK	SIZE B X D	REINFORCING BOTTOM	REINFORCING TOP	STIRRUPS SIZE	STIRRUPS SPACING	REMARKS
FB1	14 X 18	3 # 6	2 # 6	#3 ☐	2" - 12" O.C. CONT.	SEE DETAIL
FB2	14 X 30	3 # 8	3 # 8	#3 ☐	2" - 12" O.C. CONT.	SPLICE TOP BARS ℄ FB3
FB3	14 X 30	3 # 8	FROM FB2	#3 ☐	2" - 12" O.C. CONT.	



DETAIL FB1



STRUCTURAL - FLOOR SLAB ELEVATION 782.0

SCALE: 1/8" = 1'-0"

AS BUILT

DATE: 3-20-95

APPROVED: D.M.

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

STRUCTURAL - FLOOR SLAB ELEVATION 782.0
FILTER/OPERATIONS BUILDING

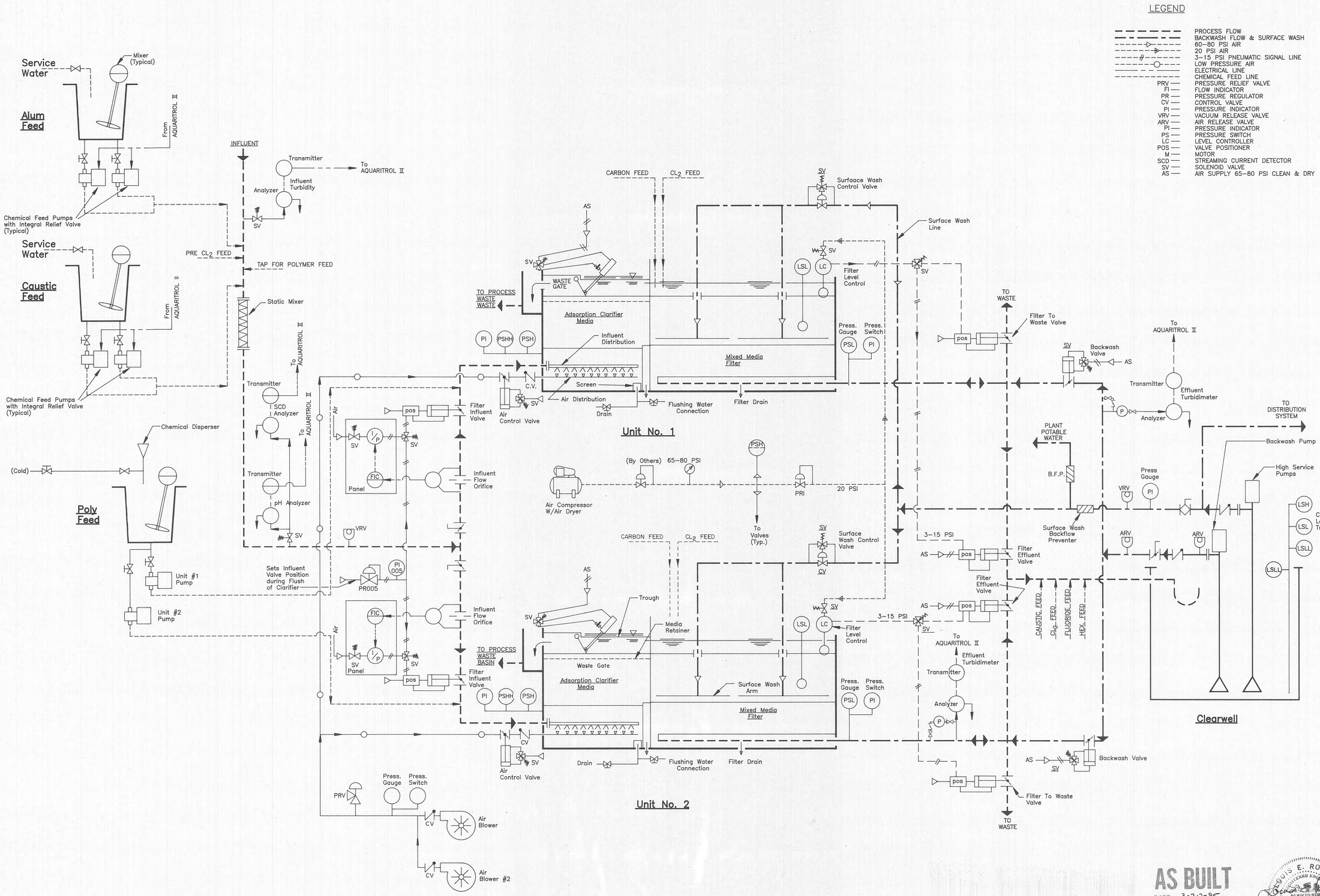
REVISIONS

1 4-19-93 ADDED PIPE CHASE AND TRENCH DRAIN (DR.)

DESIGNED: L. E. R.
DRAWN: S. C. G., D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

SHEET 13
OF 36

BRUNING 39126 FORM # 6915



ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE
FLOW DIAGRAM

REVISIONS

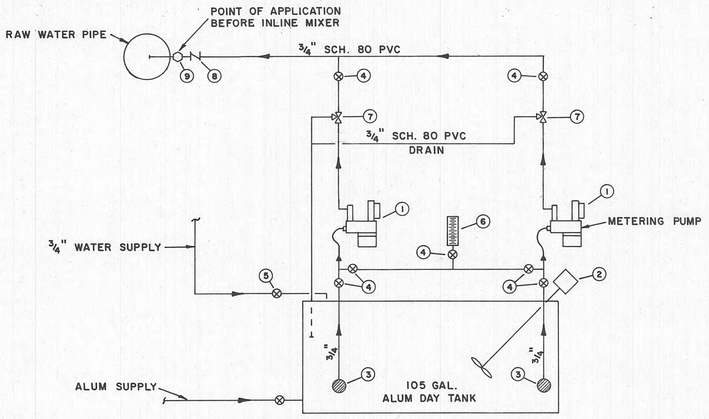
DESIGNED: L.E.R.
DRAWN: S.C.G.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: NONE
PROJ. NO. 0592

SHEET 14
OF 36

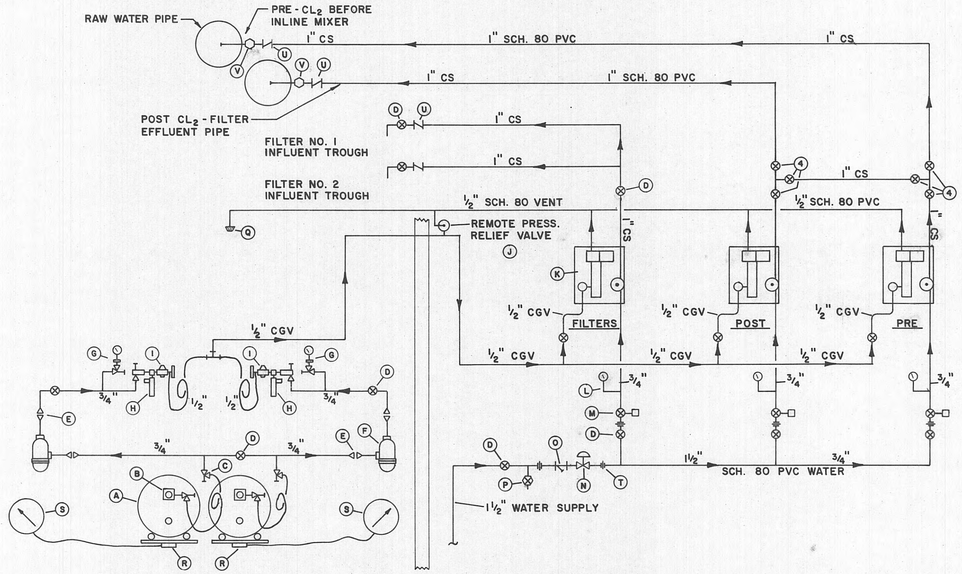
AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBINSON
REGISTERED ENGINEER
AGRICULTURE
3/31/93
NO. 14829
STATE OF TENNESSEE

DRAWING 29128 FORM # 6915



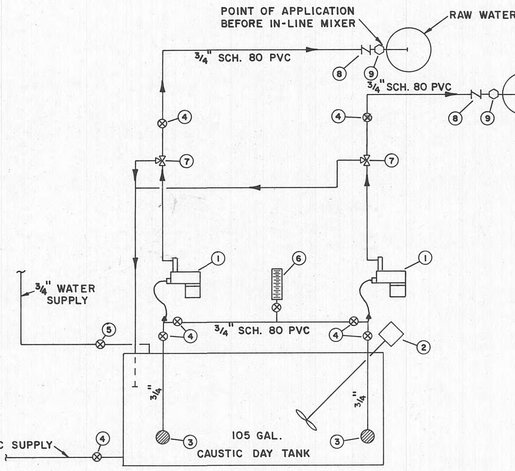
LIQUID ALUM FEED SCHEMATIC



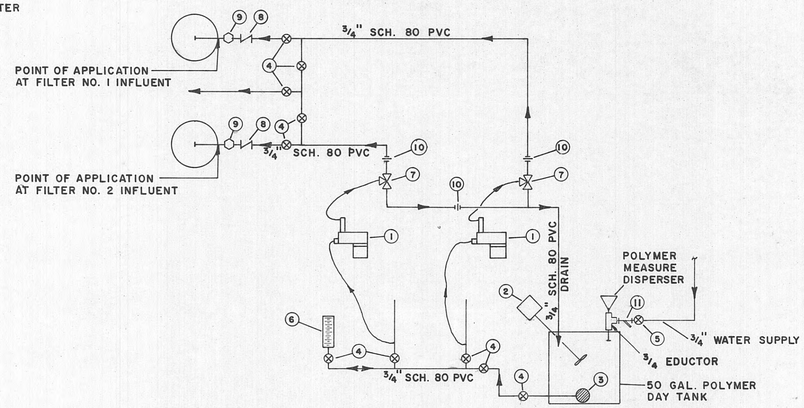
CHLORINATION SCHEMATIC

CHLORINATION LEGEND

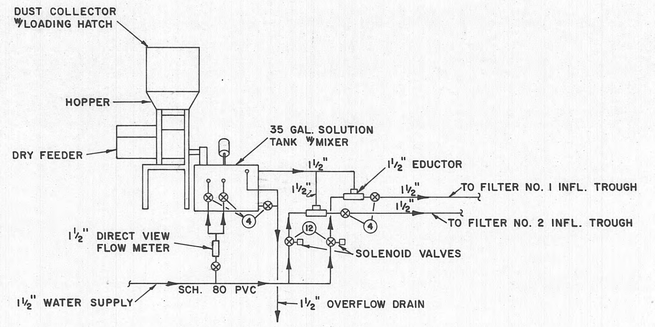
A. TON CYLINDERS
B. CAPTIVE YOLK TYPE TON CYLINDER VALVE
C. HEADER VALVE
D. BALL VALVE
E. AMMONIA UNION
F. FILTER
G. CHLORINE GAS PRESSURE GAUGE W/HEADER VALVE
H. HEATER - DRIP LEG
I. VACUUM REGULATOR
J. REMOTE PRESSURE RELIEF VALVE
K. CHLORINATOR
L. WATER PRESSURE GAUGE
M. SOLENOID VALVE
N. PRESSURE REGULATING VALVE
O. Y-STRAINER
P. HOSE BIBB
Q. VENT SCREEN
R. TON CYLINDER SCALES
S. SCALES DIAL INDICATOR (REMOTE LOCATION)
T. UNION
U. CHECK VALVE
V. CORPORATION COCK MAIN CONNECTION



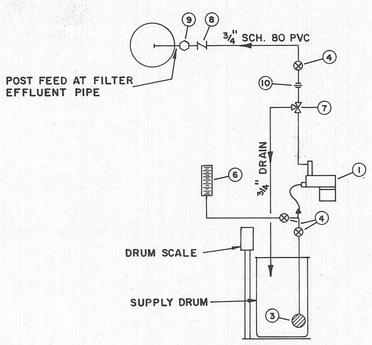
LIQUID CAUSTIC FEED SCHEMATIC



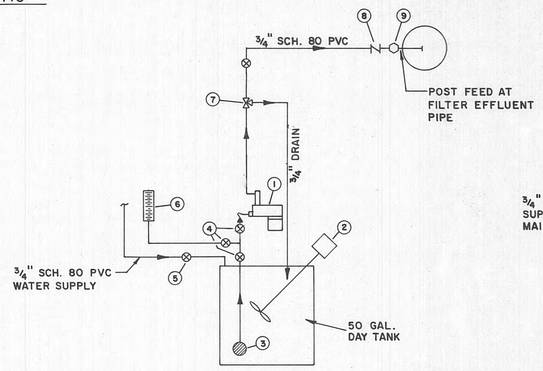
LIQUID POLYMER FEED SCHEMATIC



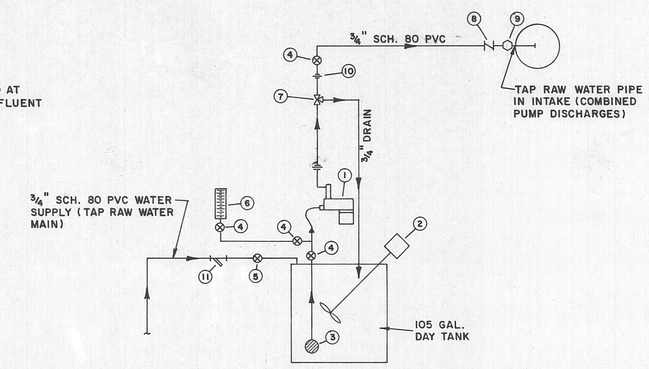
CARBON (DRY) FEED SCHEMATIC



LIQUID FLUORIDE FEED SCHEMATIC



LIQUID PHOSPHATE FEED SCHEMATIC



POTASSIUM PERMANGANATE FEED SCHEMATIC
(LOCATED IN INTAKE PUMP BUILDING)

CHEMICAL FEED LEGEND

1. CHEMICAL METERING PUMP
2. CHEMICAL MIXER
3. FOOT VALVE/STRAINER
4. BALL VALVES
5. HOSE BIBB
6. CALIBRATION CHAMBER
7. PRESSURE RELIEF VALVE
8. CHECK VALVE
9. CORPORATION COCK MAIN CONNECTION
10. UNION
11. STRAINER
12. SOLENOID VALVES

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBB
LICENSED ENGINEER
AGRICULTURE
3/31/93
14529
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

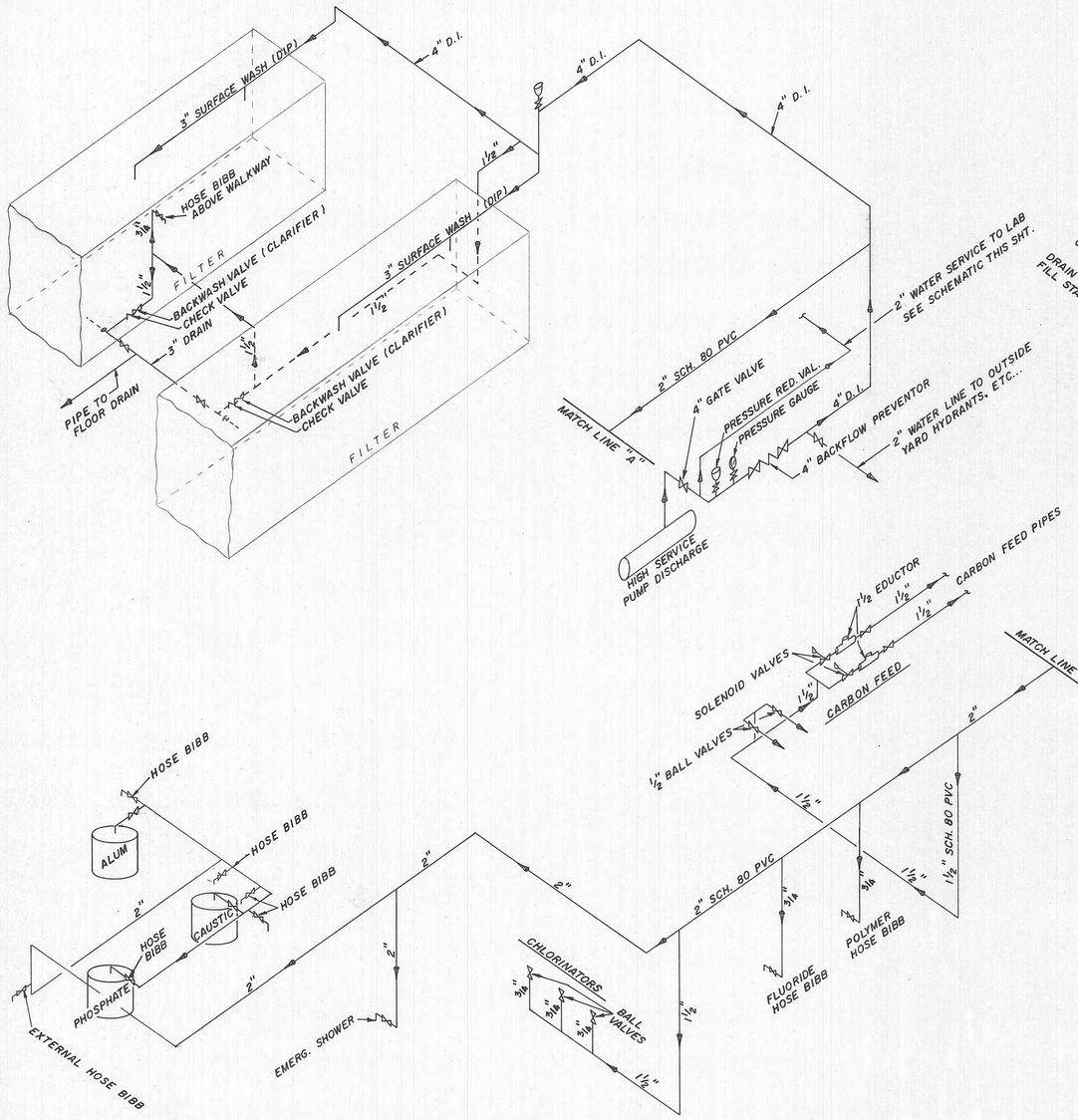
CONTRACT W93-04
HARRIMAN, TENNESSEE
CHLORINATION AND CHEMICAL FEED SCHEMATICS

REVISIONS

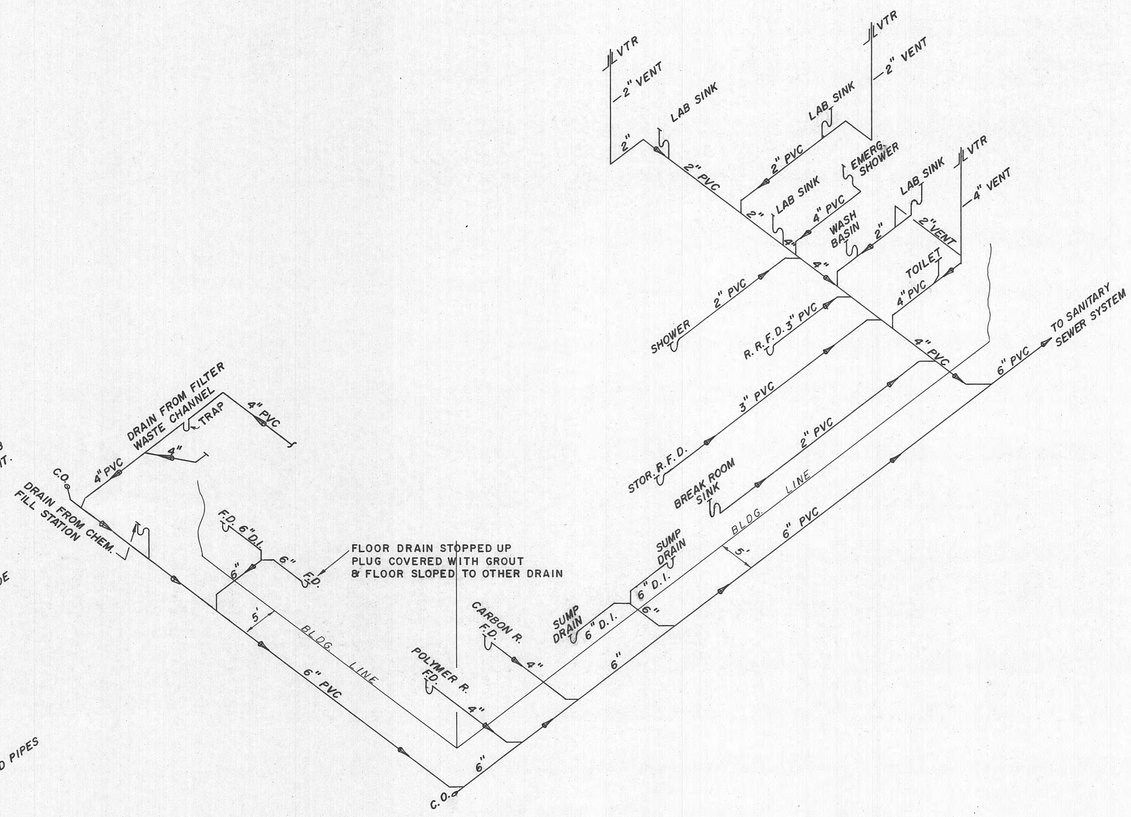
DESIGNED: L. E. R.
DRAWN: D. G. R., D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: NONE
PROJ. NO. 0592

SHEET 15
OF 36

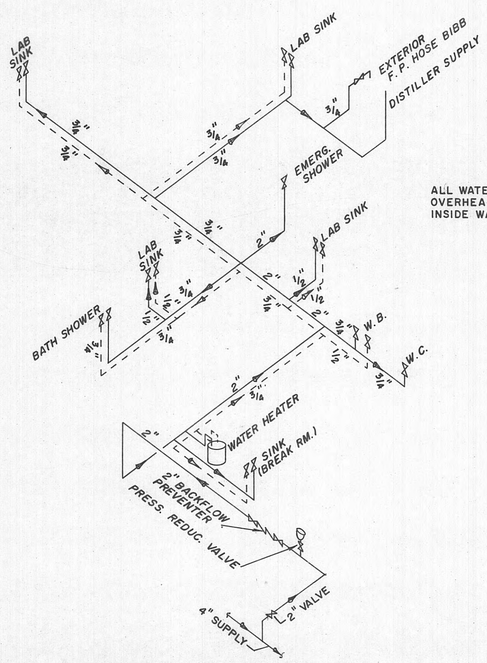
BRUNING 75128 FORM # 6915



SURFACE WASH/CHEMICAL FEED WATER SCHEMATIC



PLUMBING SCHEMATIC



ALL WATER LINES ARE OVERHEAD AND DOWN INSIDE WALLS

LABORATORY WATER SCHEMATIC

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBINSON
REGISTERED ENGINEER
3/31/95
No. 14528
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

CHEMICAL FEED WATER, LABORATORY WATER AND PLUMBING SCHEMATICS

HARRIMAN, TENNESSEE

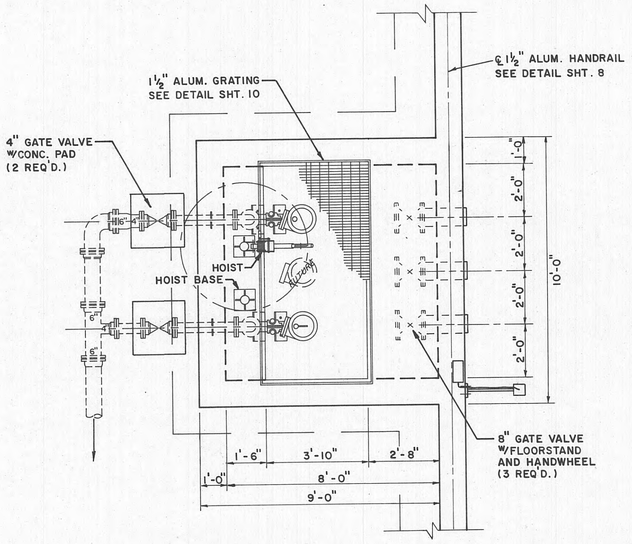
SURFACE WASH / CHEMICAL

REVISIONS
△ 4/19/93
ADD DRAIN FOR FILTER WASTE CHANNEL.

DESIGNED: L. E. R.
DRAWN: D. G. R., D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: NONE
PROJ. NO. 0592

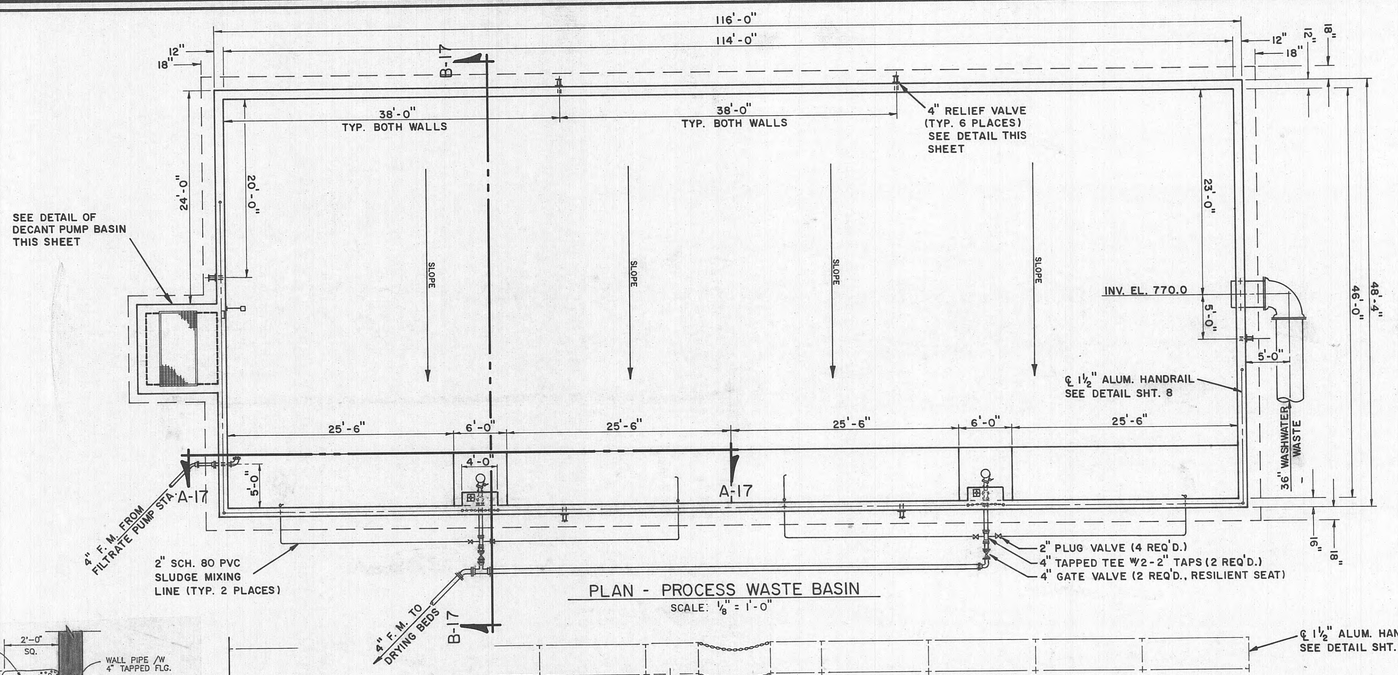
SHEET 16
OF 36

BRUNING TYPE8 FORM # 6515



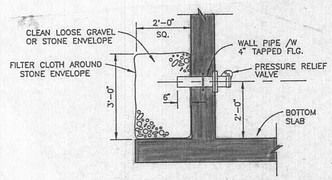
PLAN - DECANT PUMP BASIN DETAIL

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



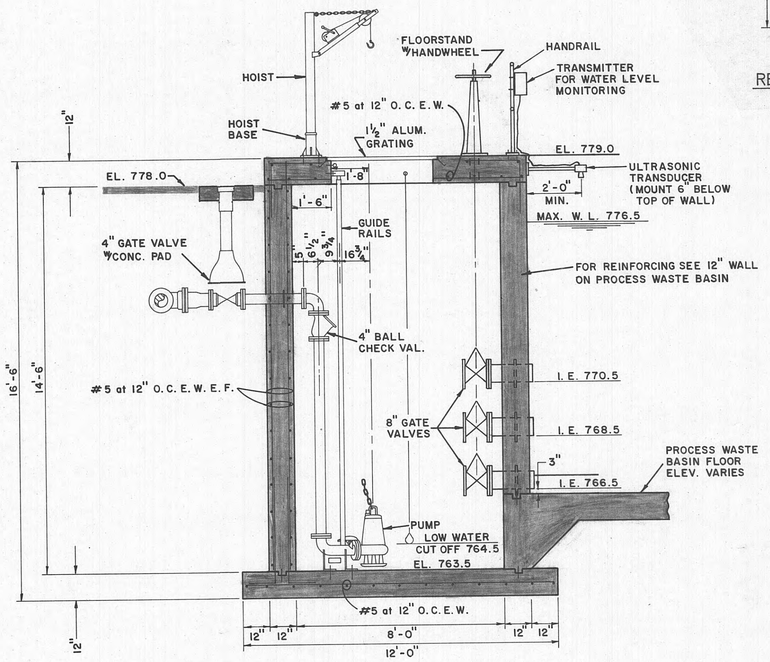
PLAN - PROCESS WASTE BASIN

SCALE: 1/8" = 1'-0"



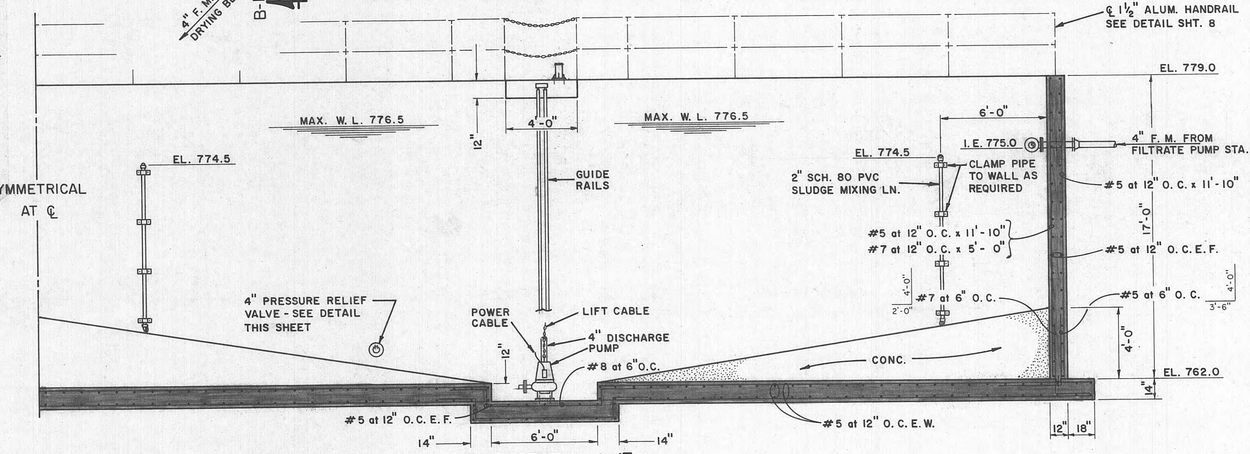
RELIEF VALVE DETAIL

NOT TO SCALE



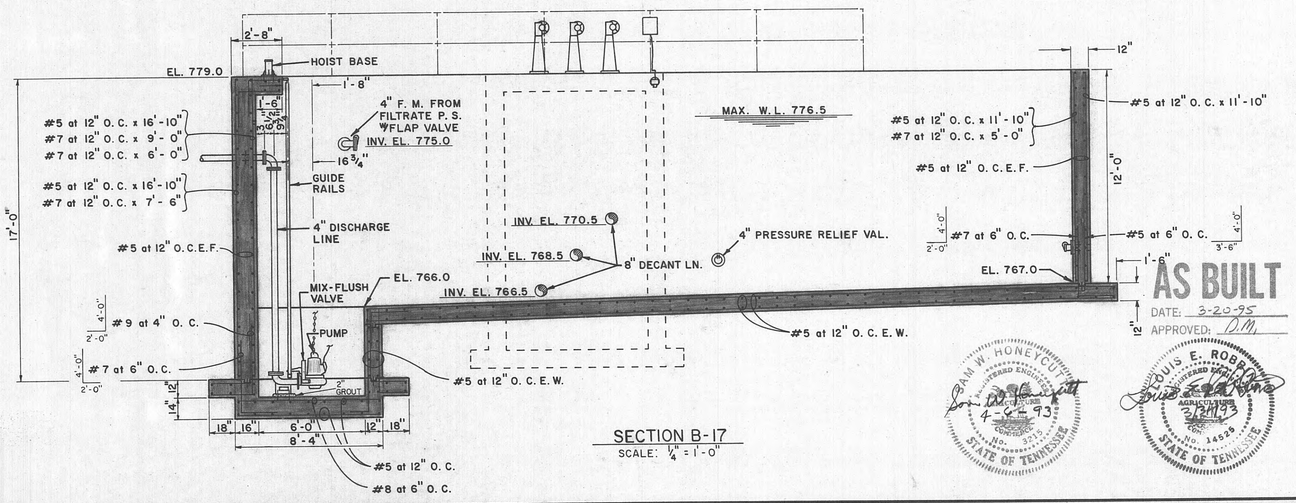
SECTION - DECANT PUMP BASIN DETAIL

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



HALF SECTION A-17

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



SECTION B-17

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

AS BUILT

DATE: 3-20-95

APPROVED: DM

RAM W. HONEYCUTT REGISTERED ENGINEER No. 17373 STATE OF TENNESSEE 4-8-93

LOUIS E. ROBERTS REGISTERED LANDSCAPE ARCHITECT No. 1452 STATE OF TENNESSEE 3/21/93

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

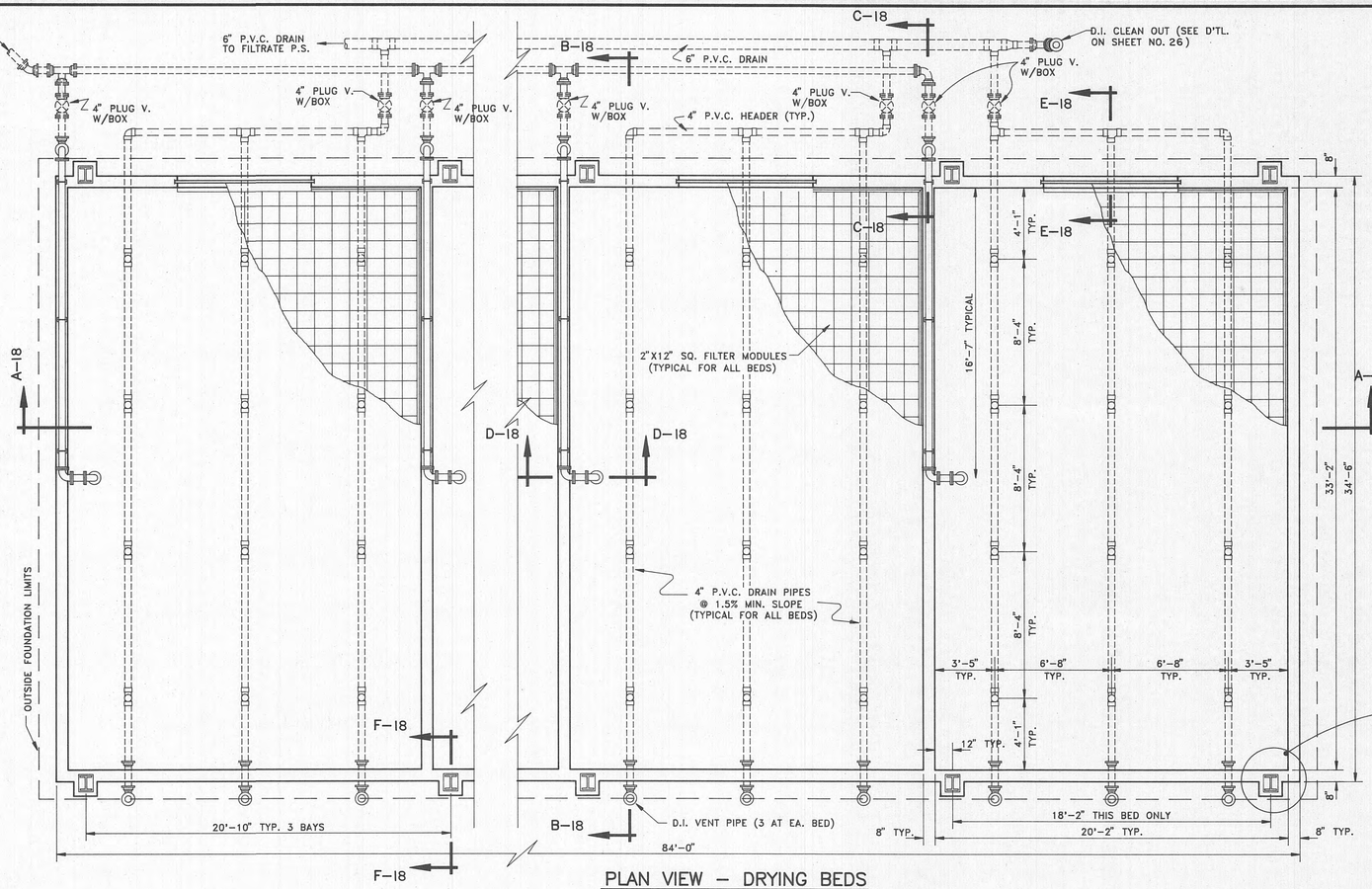
PROCESS WASTE BASIN - PLAN AND SECTIONS
DECANT PUMP BASIN DETAIL - PLAN AND SECTION

REVISIONS

DESIGNED: L. E. R.
DRAWN: D. G. R., D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

SHEET 17 OF 36

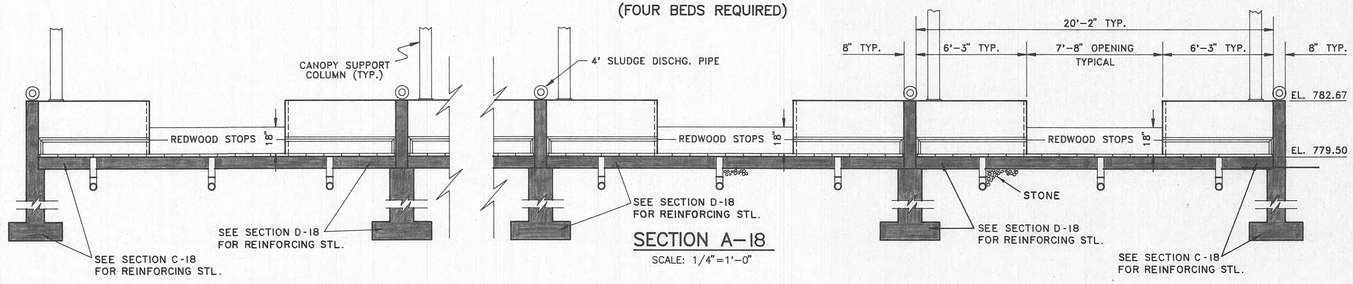
BRUNING 79328 FORM # 6915



PLAN VIEW – DRYING BEDS

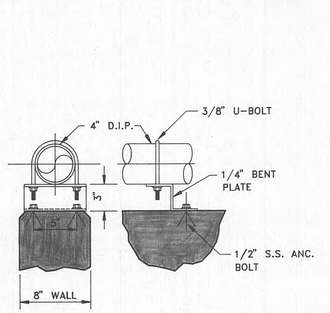
SCALE: 1/4"=1'-0"

(FOUR BEDS REQUIRED)



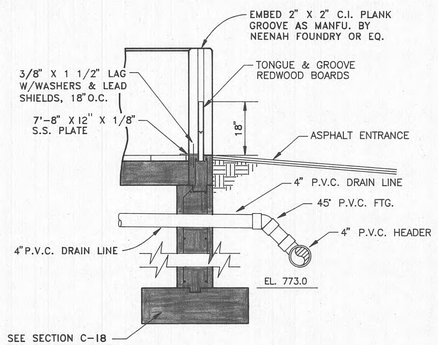
SECTION A–18

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



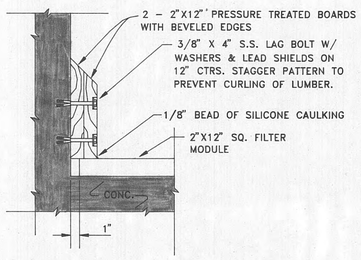
PIPE SUPPORT DETAIL

NOT TO SCALE



SECTION E–18

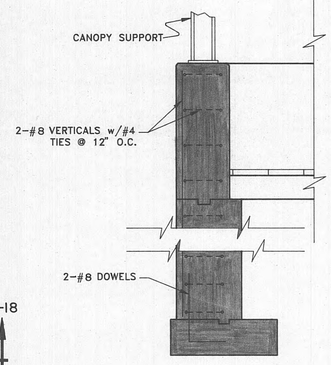
SCALE: 1/2"=1'-0"



FILTER MODULE DETAIL

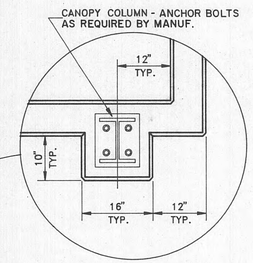
NOT TO SCALE

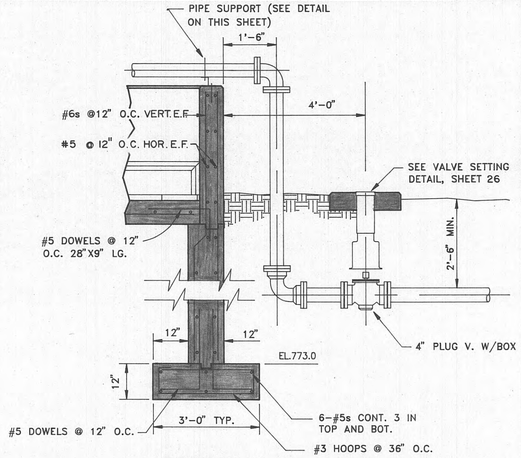
NOTE: COLUMN REINF. STEEL IN ADDITION TO REGULAR WALL STEEL



SECTION F–18

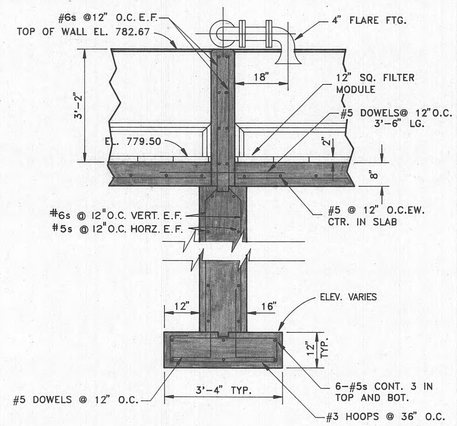
SCALE: 1/2"=1'-0"





SECTION C–18

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



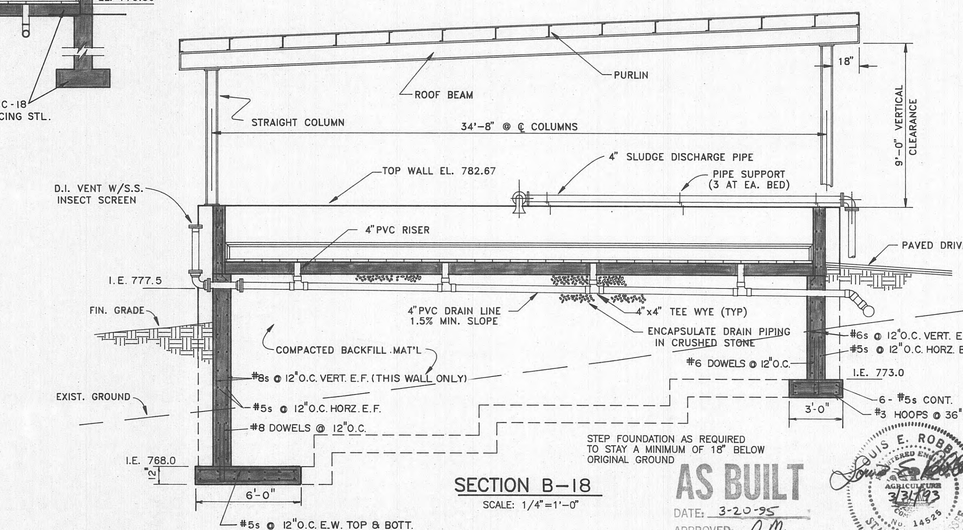
SECTION D–18

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

NOTES:

CONCRETE FLOOR OF DRYING BEDS SHALL BE STEEL TROWEL FINISHED (1/4" IN 10" MAXIMUM SURFACE VARIATION).

CHAMFER ALL EXPOSED EDGES 3/4"x45°



SECTION B–18

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

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBERTS
REGISTERED ENGINEER
AGRICULTURE
3/1/93
NO. 14525
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

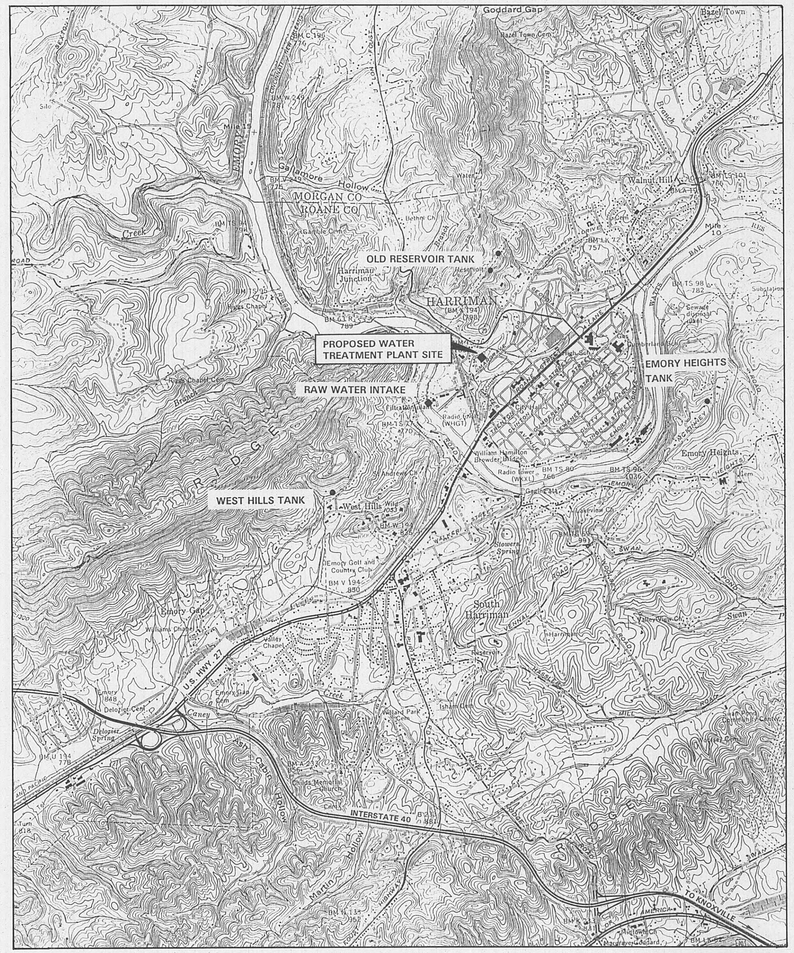
DRYING BEDS – PLAN VIEW, SECTIONS AND MISCELLANEOUS DETAILS

REVISIONS

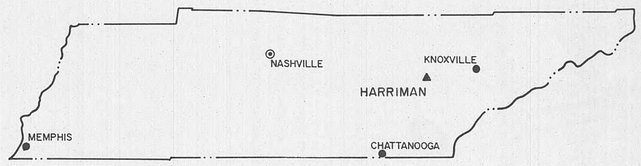
DESIGNED:	L. E. R.
DRAWN:	S. C. G.
CHECKED:	L. E. R.
DATE:	MARCH, 1993
SCALE:	AS NOTED
PROJ. NO.	0592

SHEET 18 OF 36

BRUNING 75139 FORM # 6915



LOCATION PLAN
SCALE 1"= 2000'



VICINITY MAP

INDEX OF SHEETS

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBBINS
REGISTERED ENGINEER
No. 14528
STATE OF TENNESSEE
3/31/93

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

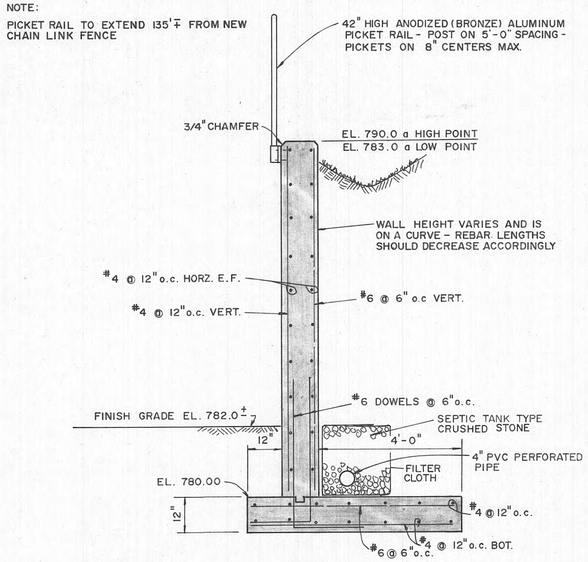
CONTRACT W93-04
HARRIMAN, TENNESSEE
VICINITY MAP, LOCATION PLAN, INDEX OF SHEETS

REVISIONS

DESIGNED: L. E. R.
DRAWN: D. G. R.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

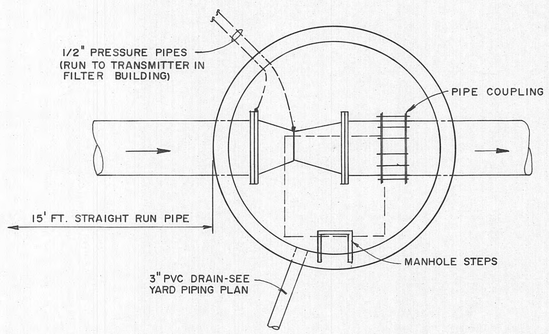
SHEET 1
OF 36

DRAWING 79137 CORA # 4915



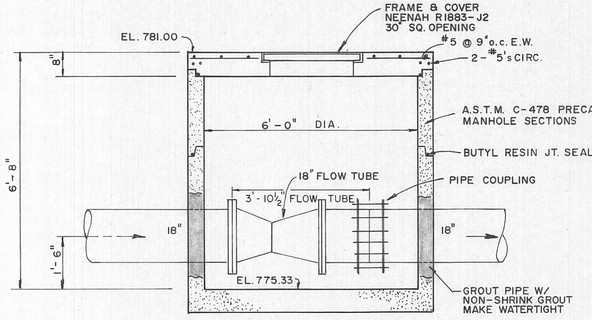
TYPICAL SECTION - RETAINING WALL

SCALE: 1/2" = 1'-0"
SEE GRADING PLAN FOR WALL LOCATION



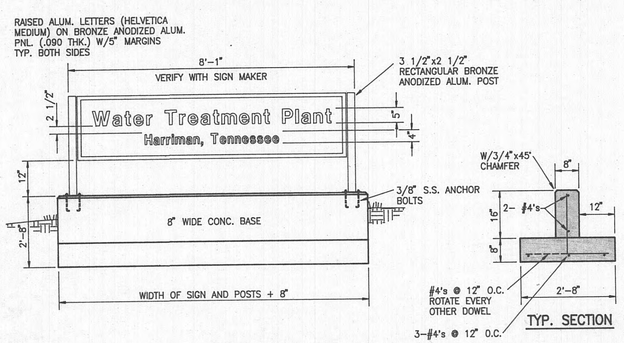
PLAN - FINISHED WATER FLOW METER

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



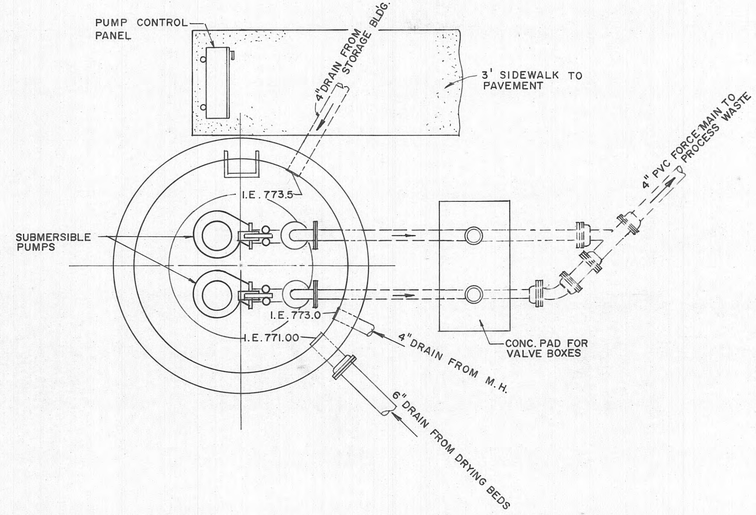
TYPICAL SECTION - FINISHED WATER METER

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



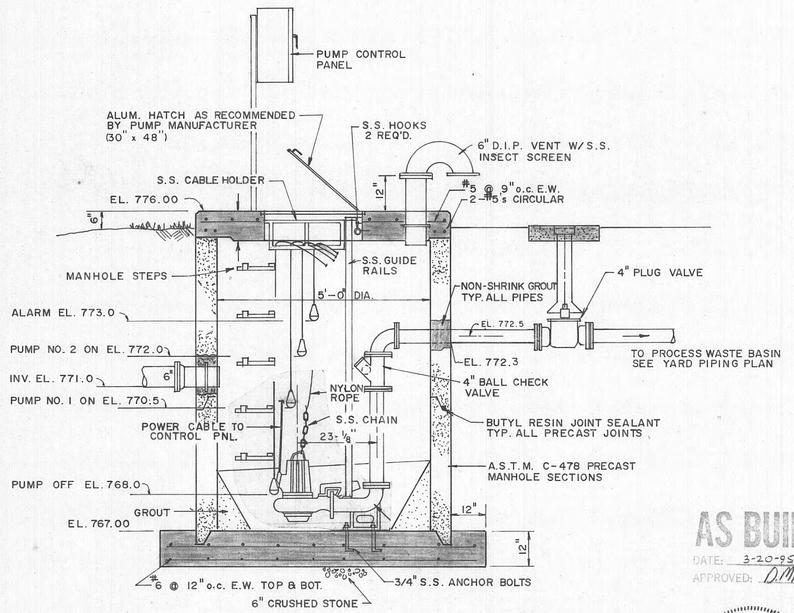
ENTRANCE SIGN DETAIL

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



PLAN - FILTRATE PUMP STATION

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



TYPICAL SECTION - FILTRATE PUMP STATION

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

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBB
REGISTERED ENGINEER
AGRICULTURE
3/1/93
No. 14529
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE · KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

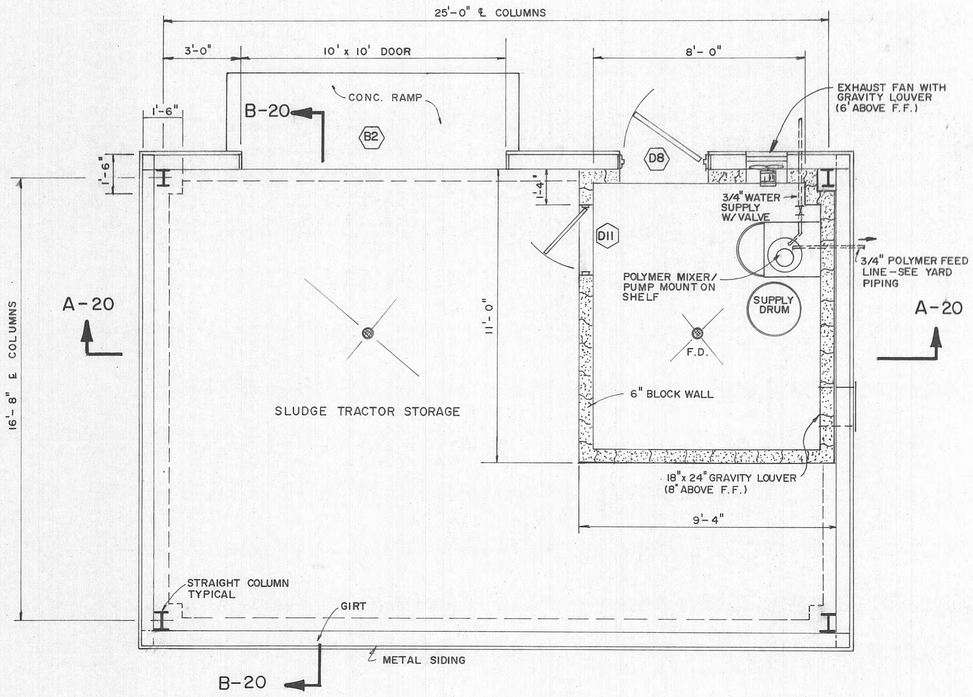
FILTRATE PUMP STATION, FINISHED WATER METER PIT, RETAINING WALL PLAN AND SECTIONS

REVISIONS
⚠ 5/3/93-Add Entrance Sign-Delete Exposed Aggregate on wall

DESIGNED: L.E.R.
DRAWN: D.G.R.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

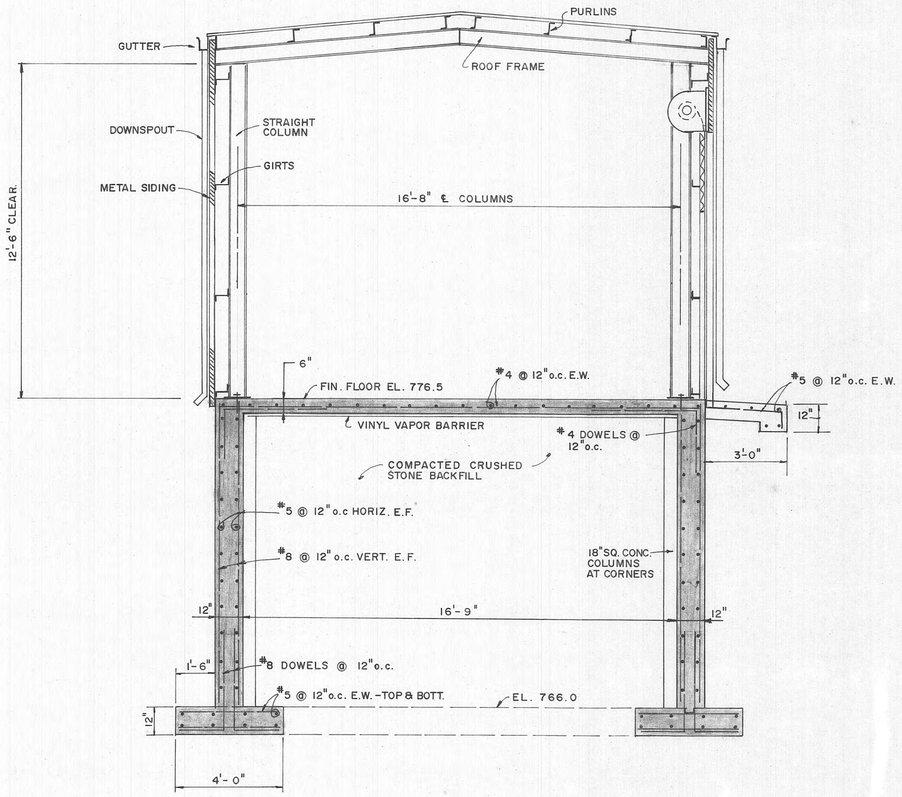
SHEET 19
OF 36

BRUNING 79158 FORM # 6915



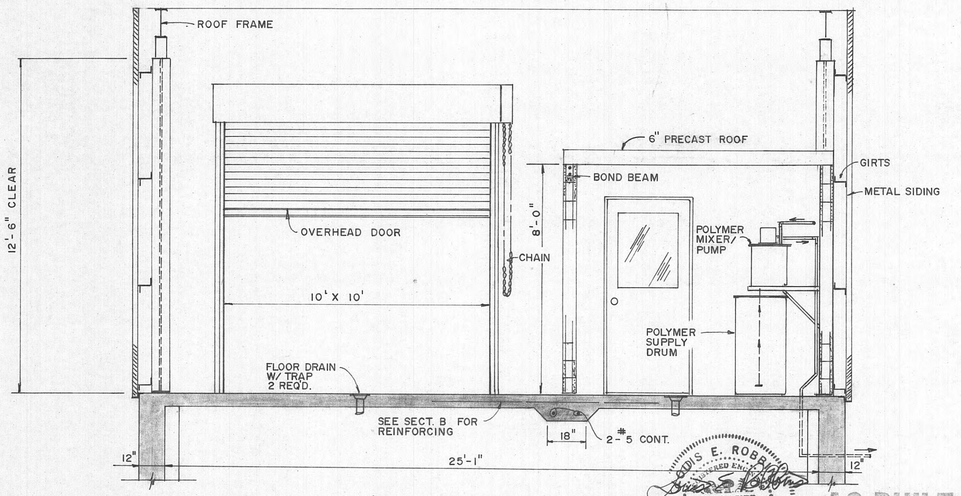
PLAN - STORAGE BUILDING/POLYMER FEED ROOM

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



SECTION B-20

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



SECTION A-20

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

LOUIS E. ROBINSON — REGISTERED ENGINEER — 3/31/93 — No. 14529 — STATE OF TENNESSEE

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

ELROD·DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE · KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

PLAN AND SECTIONS STORAGE BUILDING/ POLYMER FEED ROOM

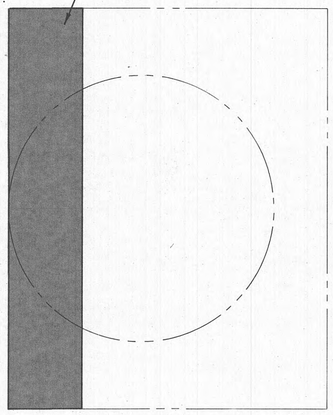
REVISIONS

DESIGNED: L.E.R.
DRAWN: D.G.R.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

SHEET 20
OF 36

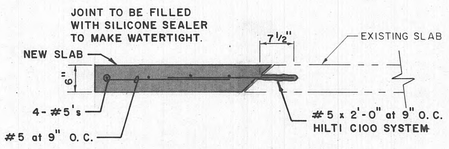
BRUNING 75738 FORM # 6915

CONTRACTOR SHALL CUT AND REMOVE DETERIORATED CONC. SLAB IN AREA SHOWN. A NEW SLAB SHALL BE POURED WITH NEW REBARS DOWELLED INTO EXIST. SLAB. SEE DETAIL THIS SHEET.



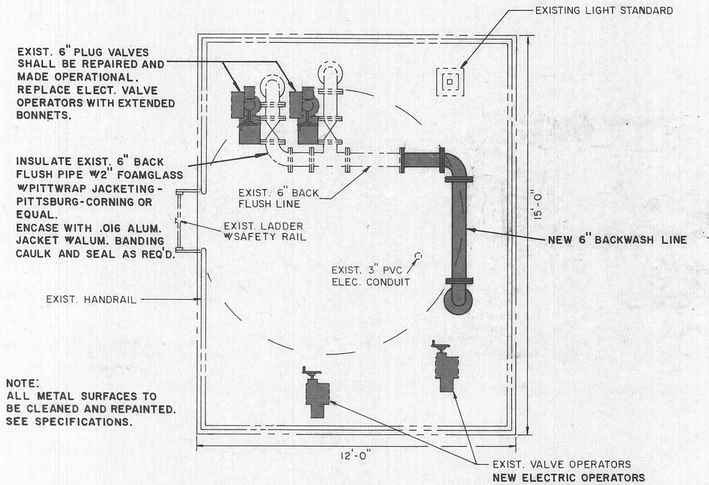
DETAIL - SLAB REPAIR

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



DETAIL - SLAB REPAIR JOINT

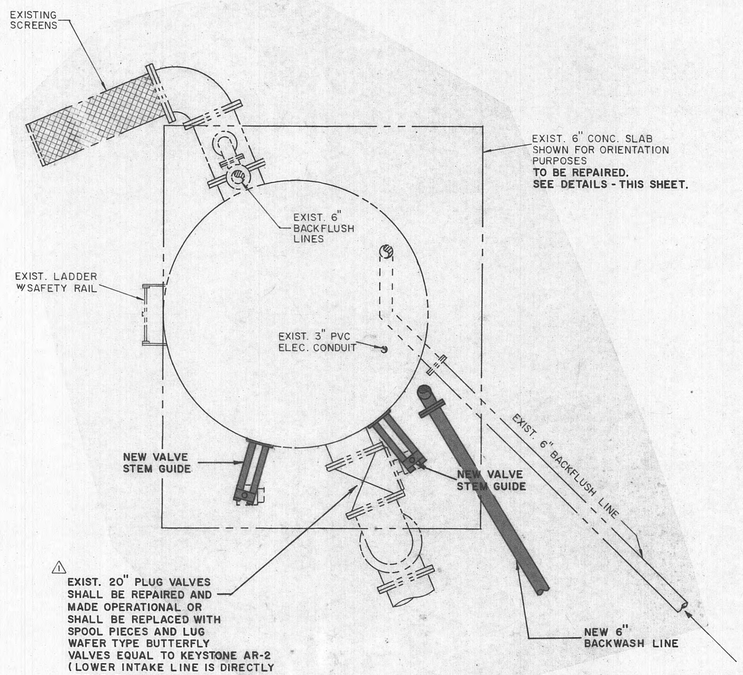
SCALE: 3/4" = 1'-0"



NOTE:
ALL METAL SURFACES TO BE CLEANED AND REPAINTED. SEE SPECIFICATIONS.

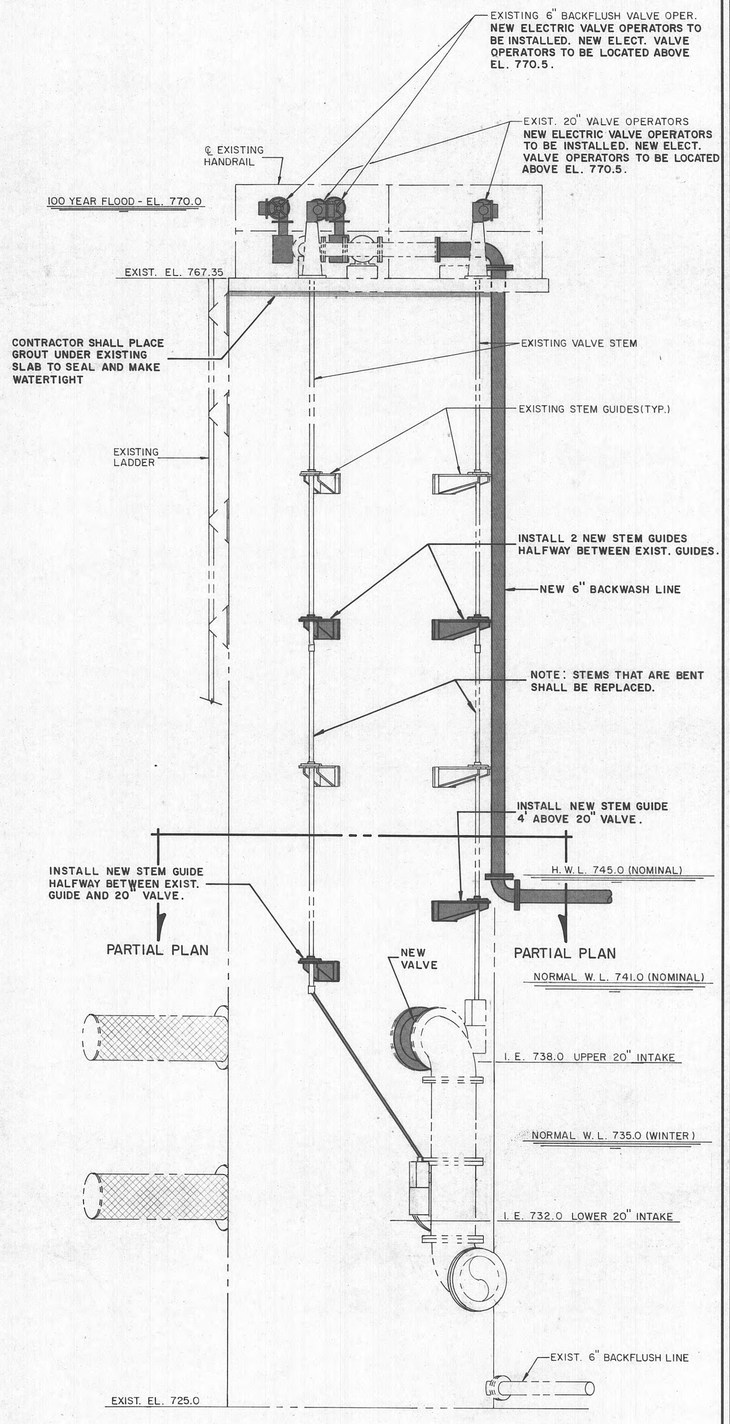
PLAN - INTAKE STRUCTURE

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



PARTIAL PLAN - INTAKE STRUCTURE

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



ELEVATION - INTAKE STRUCTURE

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

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LUIS E. ROBERTS
REGISTERED ENGINEER
AGRICULTURE
3/21/95
No. 14529
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

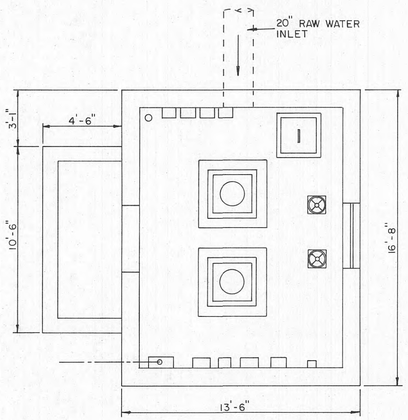
HARRIMAN, TENNESSEE
MODIFICATIONS TO RAW WATER INTAKE STRUCTURE

REVISIONS
⚠ 7-7-93
REVISION 1 - ADDENDUM NO. 1

DESIGNED: L.E.R.
DRAWN: D.M.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

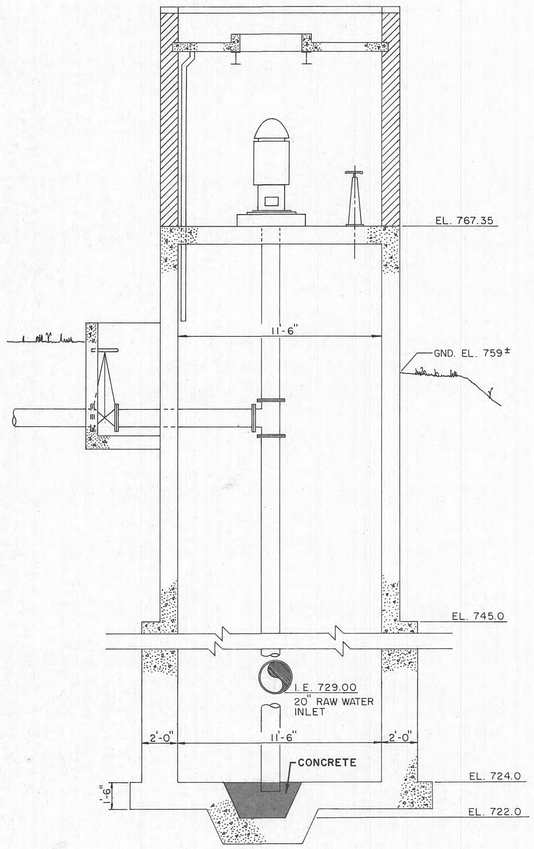
SHEET 21
OF 36

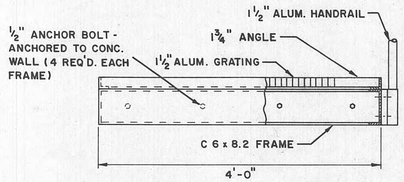
BRUNING 78128 FORM # 6815



PLAN - EXISTING INTAKE PUMP BUILDING

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





C 6 x 8.2 FRAME DETAIL

N. T. S.

INTAKE PUMP BUILDING
FOUNDATION CONSTRUCTION

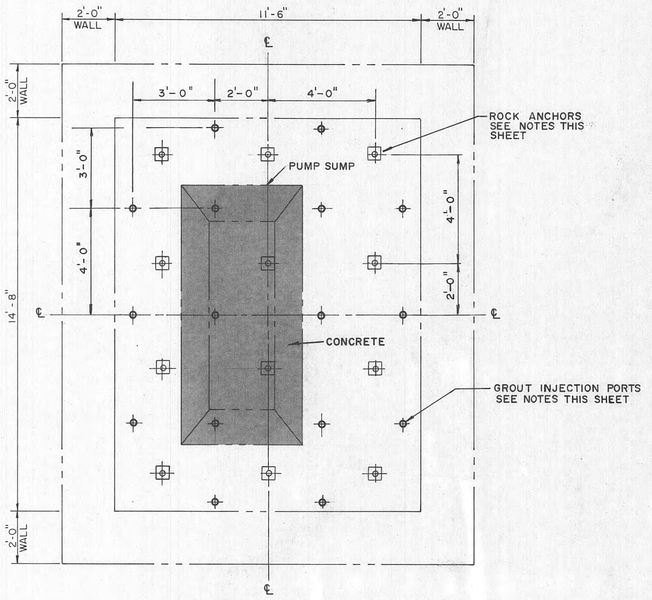
NOTE: Refer to Subsurface Investigation Report developed by Foundation Systems Engineering located at end of Detailed Specifications.

Grout Injection:

1. The Contractor shall prepare 16 each, 3-inch diameter (maximum) injection ports for low pressure grouting at the spacing shown below.
2. Grout shall be Type I Portland with Type F Flyash with a compressive strength of 1000 psi. The Contractor shall submit the design mix for approval by the Engineer.
3. Grout injection shall be initiated at the surface of the bedrock and retracted to the top of the relative injection port. Total injection pressures shall not exceed 100 psi.
4. All grouting procedures shall be performed to eliminate all voids beneath the existing foundation and shall extend to a minimum 2-4 feet horizontal distance beyond the exterior dimensions of the existing concrete foundation as shown on Section B-23 on Sheet 23.
5. It is the intention of this procedure to cement the underlying alluvial material between the existing foundation and bedrock so that minimal settlement from increased loading would occur. Injection rates and pressures must be recorded to assess the influx of grout into the alluvial materials. The installation of rock anchors described hereafter will be an indication of the success of grouting operations. If, during drilling operations, it is apparent that the initial grouting procedure was unsuccessful, then the Contractor shall regrout the deficient area to the satisfaction of the Engineer.

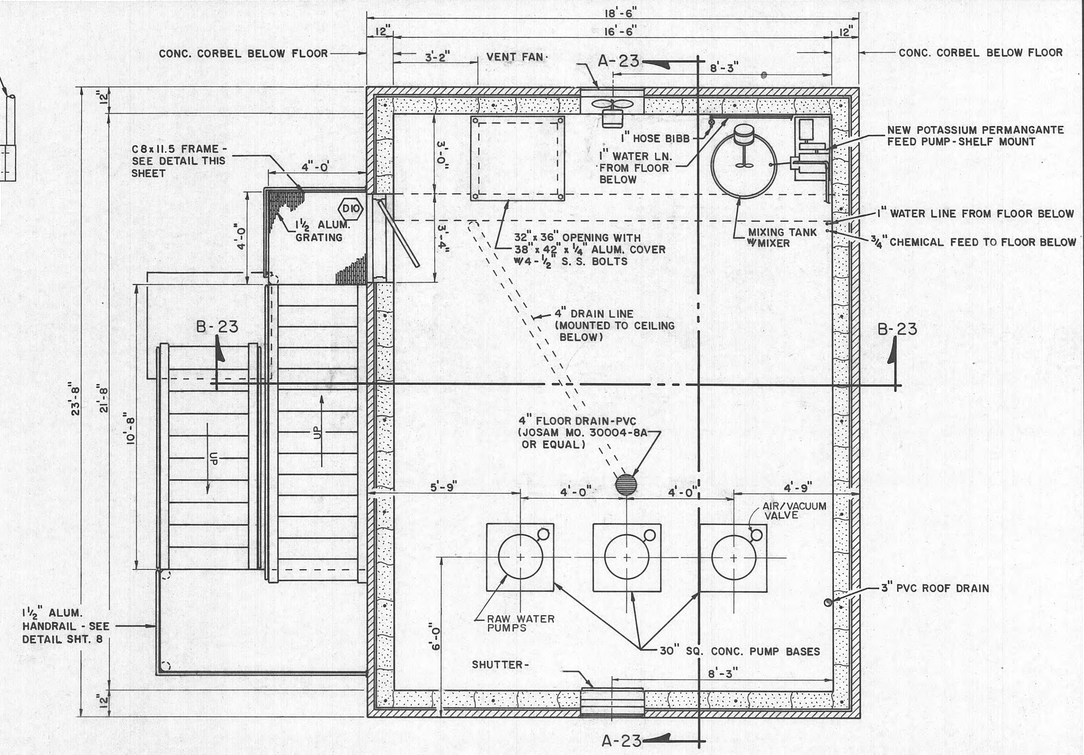
Rock Anchor Installation:

6. After grouting is completed and the grout has reached a compressive strength of 1000 psi, the Contractor shall prepare 12 each, 1½ inch diameter holes at the spacing shown below for the installation of 1" diameter rock anchors.
7. Rock anchors and complete installation procedures shall be by DYWIDAG SYSTEMS INTERNATIONAL or approved equal.
8. Rock anchors shall be 1-inch diameter, prestressing steel according to ASTM A722, and shall be installed to a minimum depth of 10 feet into the underlying bedrock. Resin anchoring material shall be selected for use in saturated/inundated conditions, and shall fully encapsulate the steel anchor from bottom to top prior to prestressing.
9. A 6" x 6" x 1¼" steel plate and associated washer and nut specifically designed for this procedure must be installed as required by the manufacturer and prestressed to 40% of the ultimate strength of the steel anchor after the resin has fully set.
10. The steel anchor, plate, washer, and nut shall be fusion bonded epoxy coated according to ASTM 775 prior to shipment. Epoxy patch kits which will allow final coating of exposed steel surfaces must also be provided.
11. Any deviation of the manufacturer's recommended installation procedure must be brought to the immediate attention of the Engineer for approval.



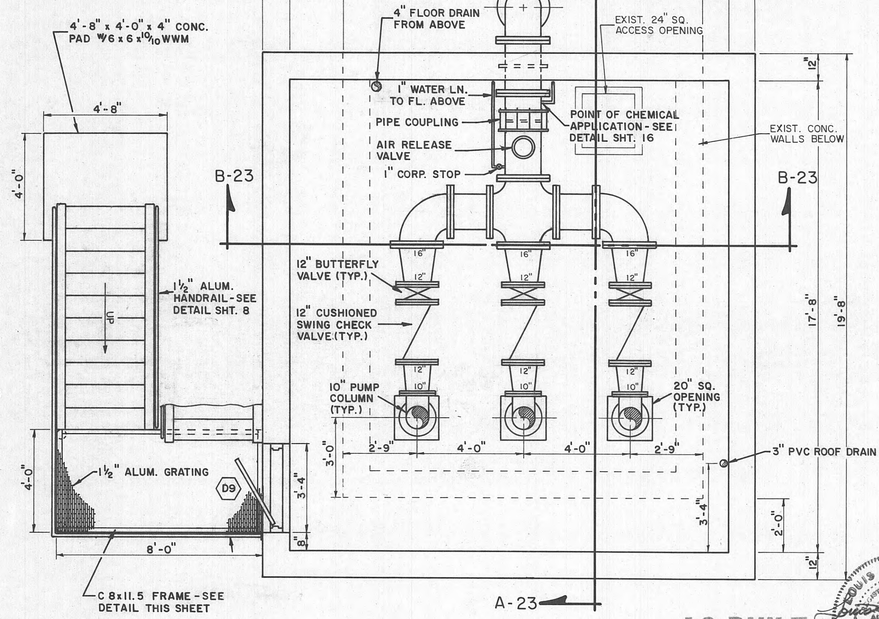
PLAN - BOTTOM ELEVATION 724.0

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



PLAN - FLOOR ELEVATION 778.06

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



PLAN - FLOOR ELEVATION 768.35

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

AS BUILT

DATE: 3-20-95

APPROVED: D.M.

LOUIS E. ROBINSON — REGISTERED ENGINEER — AGRICULTURE — 2/3/1993 — NO. 14828 — STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

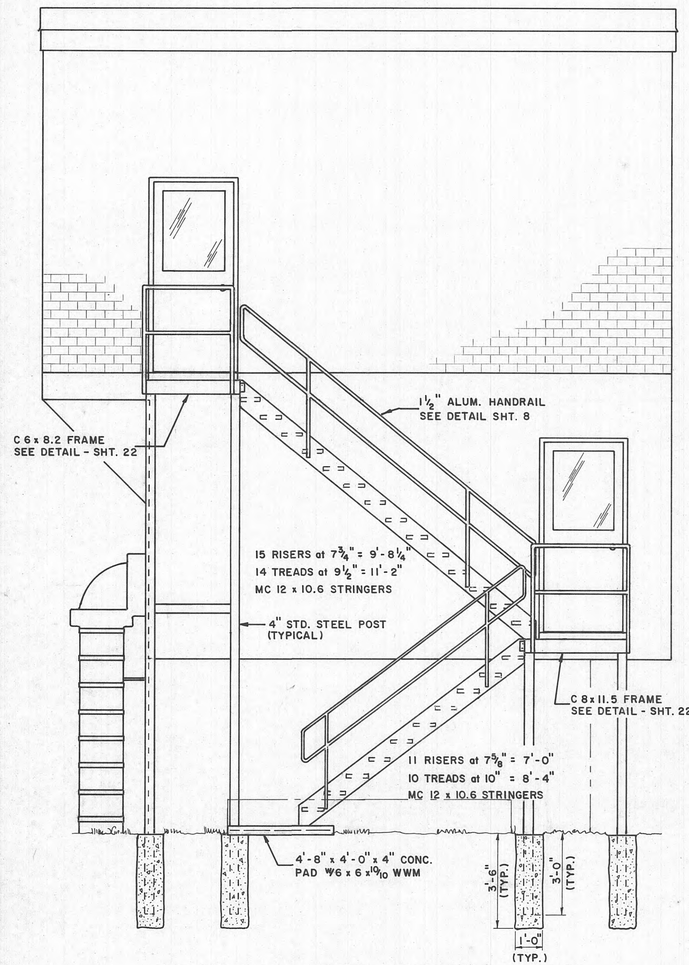
RAW WATER PUMP BUILDING - PLAN AND DETAILS

REVISIONS

DESIGNED: L. E. R.
DRAWN: D. G. R., D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

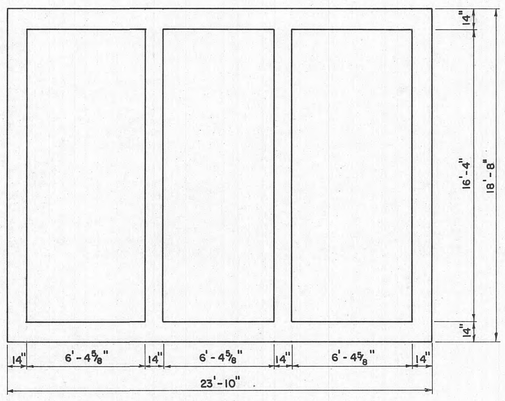
SHEET 22
OF 36

DRINKING DYER FORM # 8915



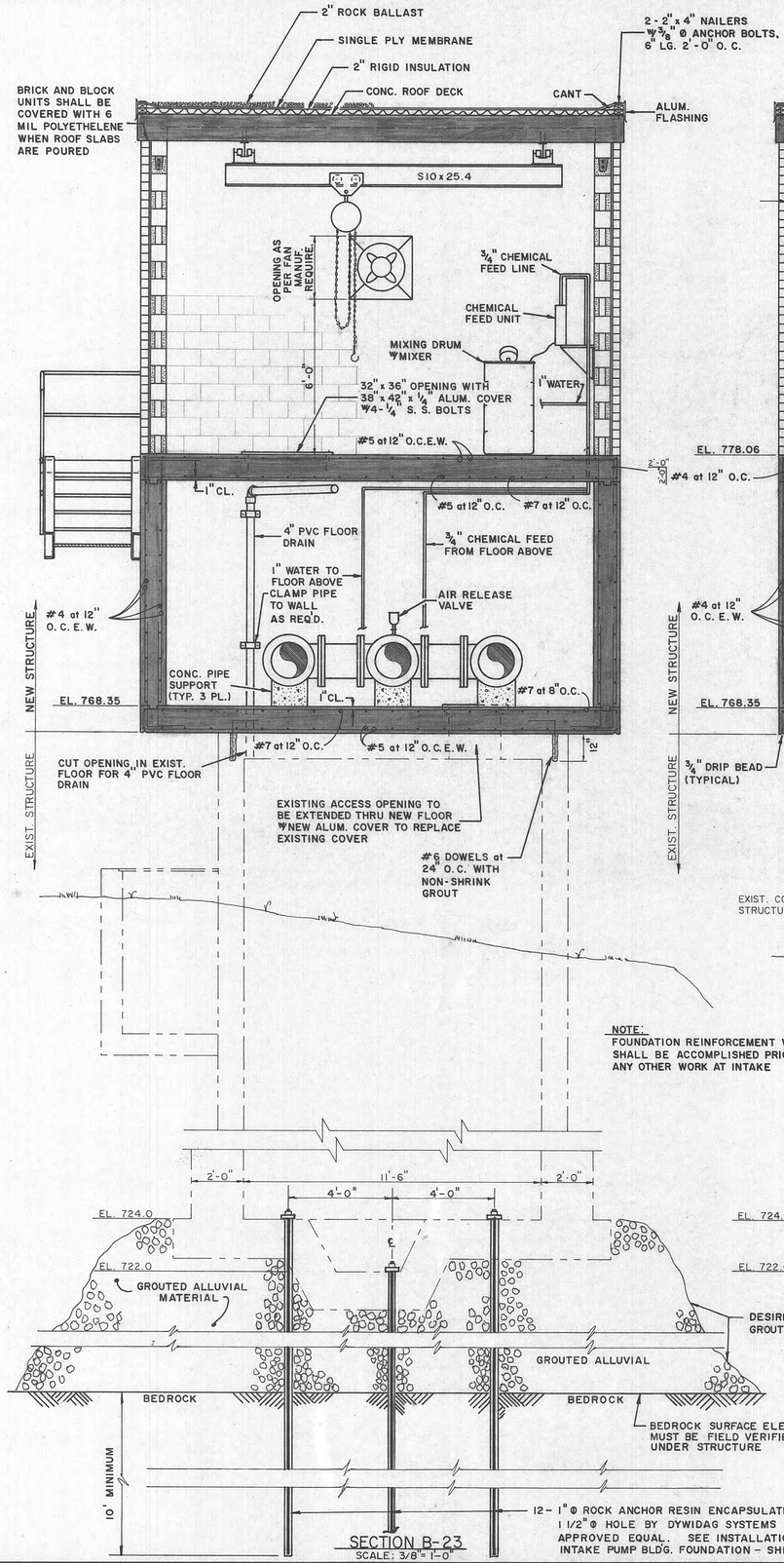
ELEVATION - RAW WATER INTAKE PUMP BUILDING

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



ROOF BEAM DIMENSIONS DETAIL

N.T.S.



SECTION B-23

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

SECTION A-23

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

AS BUILT

DATE: 3-20-95

APPROVED: D.M.

SAM W. HONEYCUTT — REGISTERED ENGINEER — No. 9210 — STATE OF TENNESSEE — 4-20-93

LOUIS E. ROBBINS — REGISTERED ENGINEER — No. 14529 — STATE OF [illegible] — 3/31/93

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

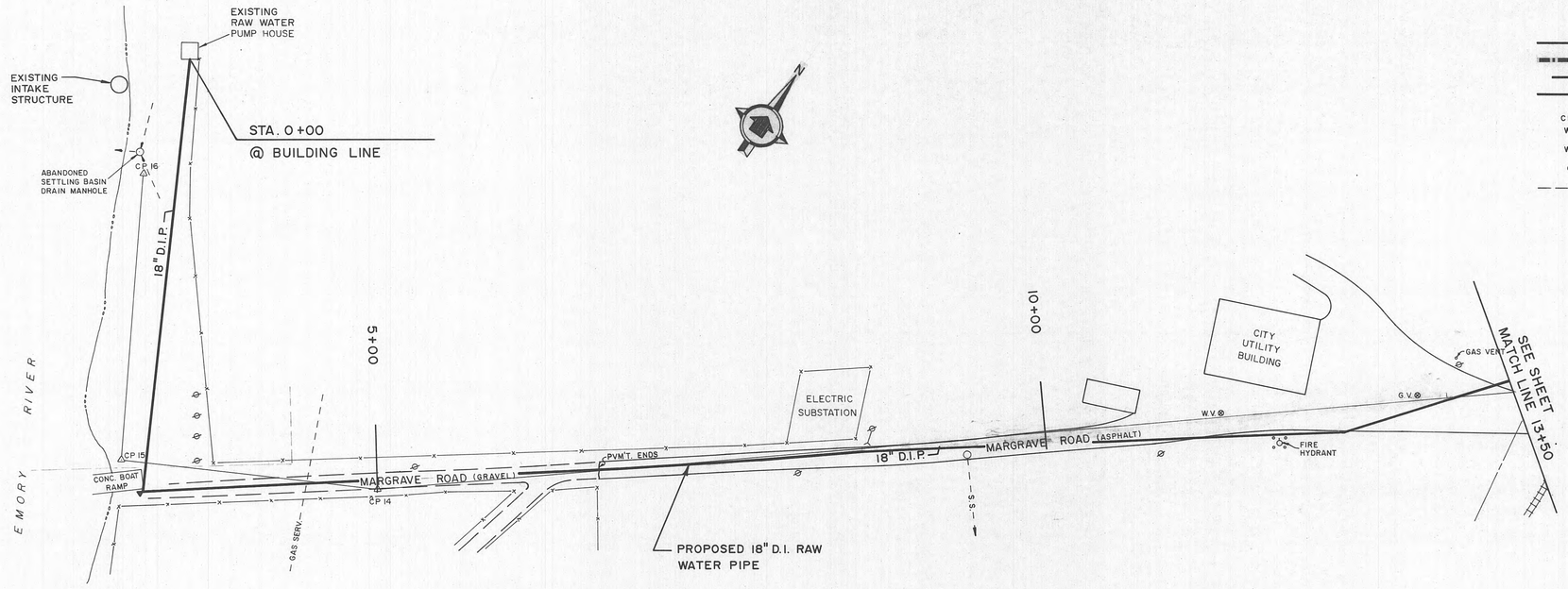
RAW WATER PUMP BUILDING SECTIONS

REVISIONS

DESIGNED: L. E. R.
DRAWN: D.G.R., D.M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: AS NOTED
PROJ. NO. 0592

SHEET 23 OF 36

BRUNING 75128 FORM # 6915

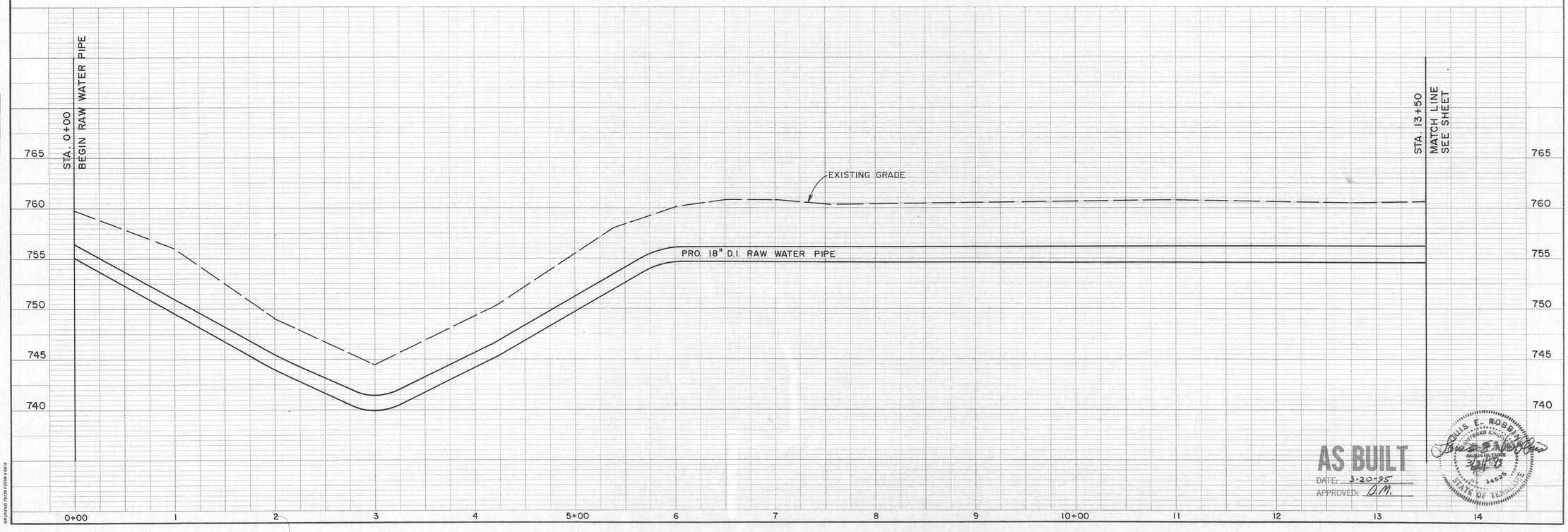


LEGEND

- PROPOSED 18"D.I. RAW WATER PIPE
- PROPOSED 18"D.I. FINISHED WATER
- PROPOSED CONCRETE KICKER
- PROPOSED GATE VALVE & BOX
- CP 16 — CONTROL POINT NUMBER 16
- W.M. — EXISTING WATER METER
- W.V. — EXISTING WATER VALVE
- G.V. — EXISTING GAS VALVE
- 8"W — EXISTING WATER LINE & SIZE

PLAN
SURVEYED
PLOTTED
ALL UTILITY CHECKED
ALL OTHERS CHECKED
NOTE BOOK
NO.
DATE / BY / STRUCTURE NOTATN'S CH'KD

PROFILE
SURVEYED
PLOTTED
CROSS SECTIONS CHECKED
B. M.'S NOTED
NOTE BOOK
NO.
STRUCTURE NOTATN'S CH'KD



AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBERTSON — REGISTERED ENGINEER — AGRICULTURE — 3/31/95 — 14525 — STATE OF TENNESSEE

BRUNING 39128 FORM # 6916

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

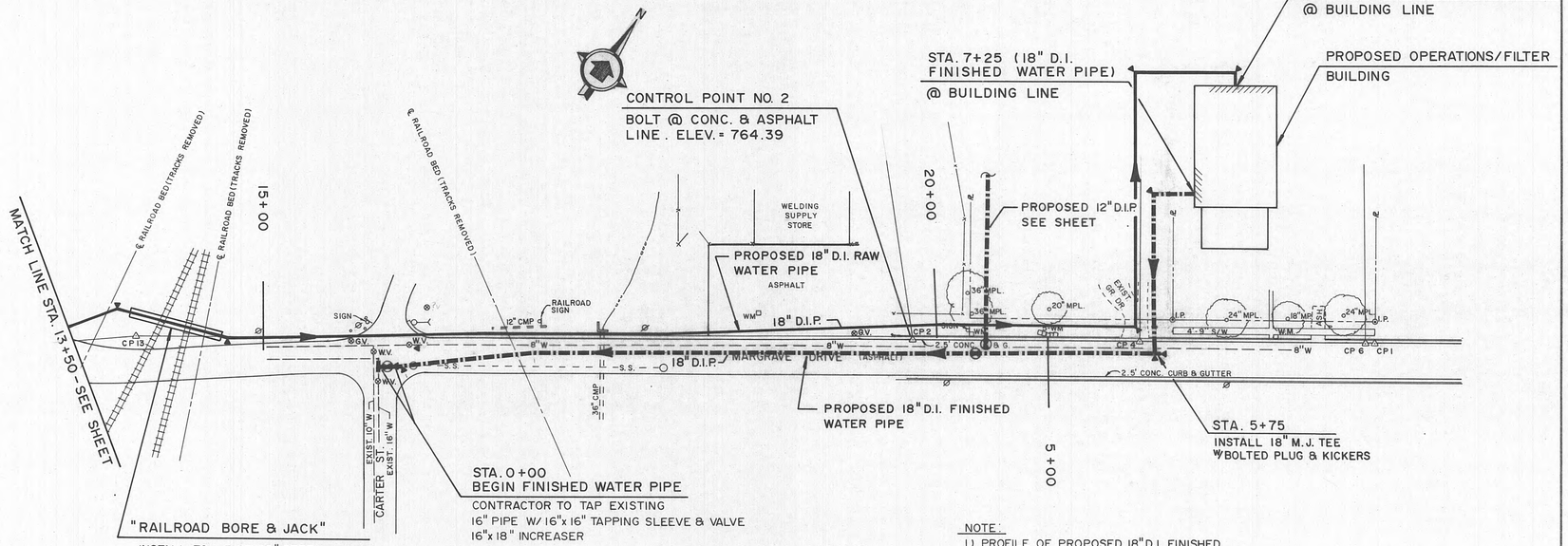
HARRIMAN, TENNESSEE

18" RAW WATER PIPE – STA. 0+00 TO 13+50

REVISIONS

DESIGNED: L. E. R.
DRAWN: D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'
PROJ. NO.

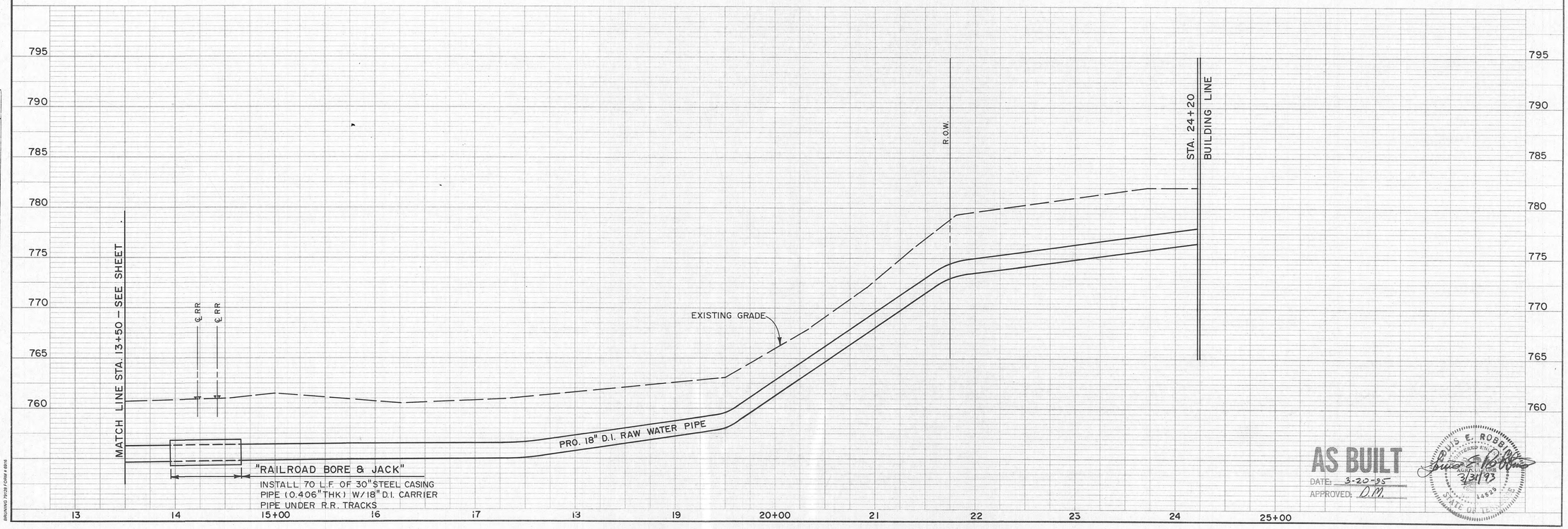
SHEET 24
OF 36



NOTE:

1.) PROFILE OF PROPOSED 18"D.I. FINISHED WATER PIPE IS NOT SHOWN ON THIS SHEET. PROFILE ELEVATIONS FOR 18"D.I. FINISHED WATER PIPE RUNNING PARALLEL WITH PROPOSED 18" D.I. RAW WATER PIPE SHOULD BE ABOUT SAME ELEVATIONS.

2.) MINIMUM COVER OF 48" IS REQUIRED INSIDE ROADWAY FOR 18" D.I. FINISHED WATER PIPE.



AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBBINS
REGISTERED ENGINEER
AUTHORIZED SIGNATURE
3/31/93
14529
STATE OF TENNESSEE

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
ALIGNMENT CHECKED
BY: DRAWING CHECKED
STRUCTURE NOTATIONS CHKD
BY
DATE

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO.
PROFILE CHECKED
B. M.'S NOTED
STRUCTURE NOTATIONS CHKD
BY
DATE

BRUNING 79139 FORM # 8916

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE · KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

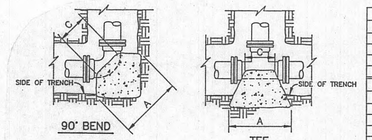
HARRIMAN, TENNESSEE

18" RAW WATER PIPE - STA. 13+50 TO 24+20
18" FINISHED WATER PIPE - STA. 0+00 TO 7+25

REVISIONS

DESIGNED: L. E. R.
DRAWN: D. M.
CHECKED: L. E. R.
DATE: MARCH, 1993
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'
PROJ. NO. 0592

SHEET 25
OF 36



NOTES:
1. THRUST BLOCKS DESIGNED FOR 200 PSI PRESSURE AND 2000 PSF SOIL BEARING. FOR GREATER PRESSURE OR LESS SOIL BEARING, QUANTITIES WILL HAVE TO BE RECALCULATED.
2. THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
3. IF EXACT SIZE PIPE BLOCKING IS NOT SHOWN, USE NEXT LARGER SIZE.
4. THRUST BLOCKING TO BE POURED IN PLACE CLASS B CONC.

90° BEND							
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	72	64	50	40	33	26	16	16
B	72	64	50	40	33	24	16	16
C	32	30	16	15	12	12	9	9
D	36	32	25	20	16	12	8	9

45° BEND							
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	54	48	37	31	24	18	12	12
B	54	48	37	31	24	18	12	12
C	16	18	16	14	12	12	8	8
D	25	22	16	15	12	9	6	6

22½° BEND							
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	38	34	26	23	18	13	9	9
B	38	34	26	23	18	13	9	9
C	16	18	16	14	12	10	8	8
D	18	16	13	11	9	6	4	4

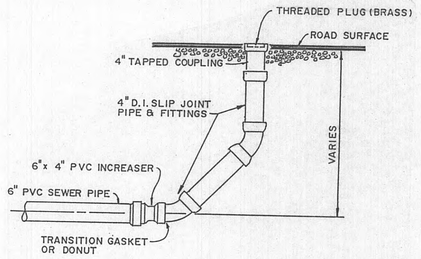
11¼° BEND							
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	27	24	18	16	13	11	9	9
B	27	24	18	16	13	11	9	9
C	16	18	16	14	12	10	8	8
D	14	12	9	8	6	5	4	4

PLUG							
SIZE	18"	16"	12"	10"	8"	6"	4"	2"
A	60	54	52	43	34	26	26	26
B	60	54	52	43	34	26	26	26
C	12	12	12	12	12	12	12	12
D	54	44	32	22	15	11	11	11

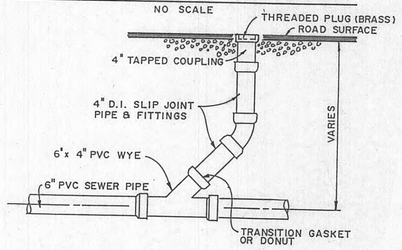
TEE								
SIZE	MA	18"	16"	12"	12"	12"-10"	12"-8"	12"-6"	12"-4"	12"-2"
	BR	18"	16"	12"	10"	8"	6"	4"	2"
A		60	54	52	42	26	43	26	26
B		60	54	52	43	26	43	26	26
C		32	30	12	12	12	12	12	12
D		36	30	26	21	13	21	13	13

DIMENSIONS ARE IN INCHES

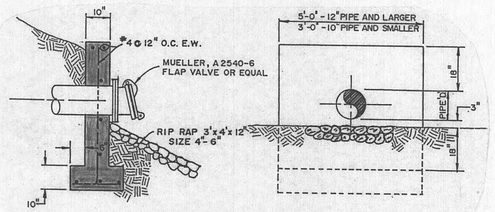
THRUST BLOCKING DETAIL
NOT TO SCALE



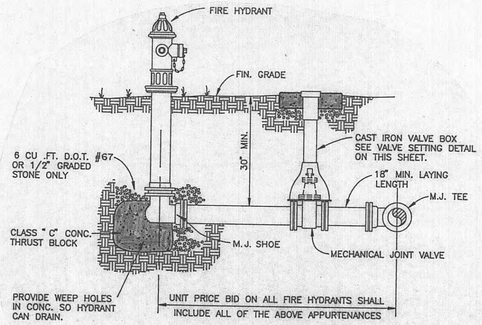
END-OF-LINE CLEANOUT (IN ROADWAY)
NO SCALE



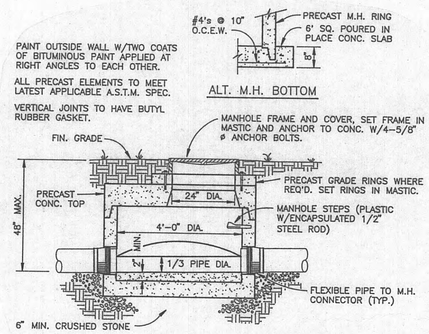
IN-LINE CLEANOUT (IN ROADWAY)
NO SCALE



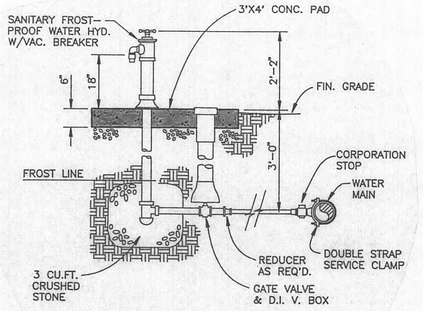
HEADWALL DETAIL
SCALE: 1/2" = 1'-0"



FIRE HYDRANT INSTALLATION
NOT TO SCALE



SHALLOW TYPE MANHOLE DETAIL
NOT TO SCALE

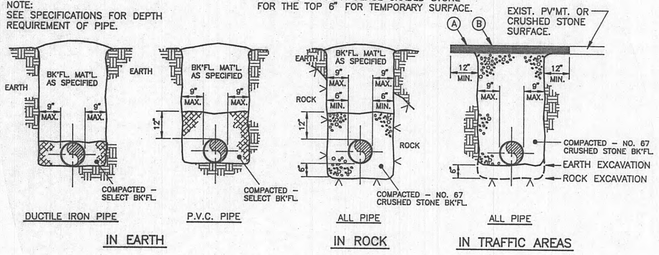


YARD HYDRANT DETAIL
NOT TO SCALE

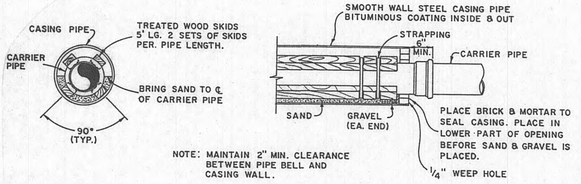
Ⓐ CRUSHED STONE SURFACE EQUAL TO EXISTING SURFACE OR 6" MIN.

Ⓑ SUB-BASE & PV'MT. EQUAL OR BETTER THAN EXISTING SURFACING. UNTIL REPAVING IS COMPLETED USE A DENSE GRADED STONE FOR THE TOP 6" FOR TEMPORARY SURFACE.

NOTE: SEE SPECIFICATIONS FOR DEPTH REQUIREMENT OF PIPE.

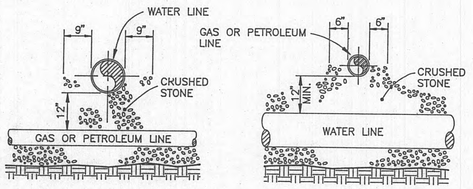


STANDARD WATER LINE BEDDING AND BACKFILLING
NOT TO SCALE



NOTE: MAINTAIN 2" MIN. CLEARANCE BETWEEN PIPE BELL AND CASING WALL.

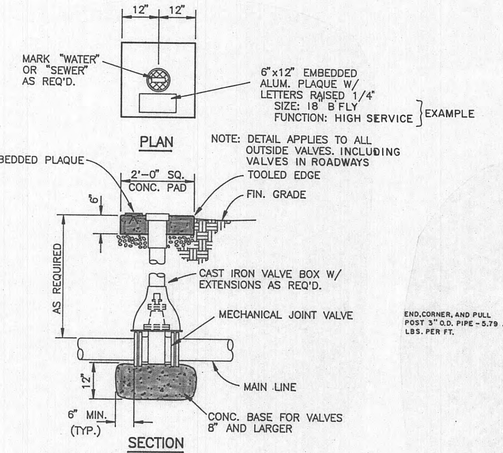
TYPICAL DETAIL OF CASING PIPE W/CARRIER PIPE
NOT TO SCALE



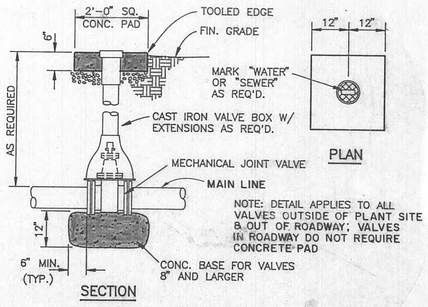
WATER LINE OVER GAS TRANSMISSION LINE

WATER LINE UNDER GAS TRANSMISSION LINE

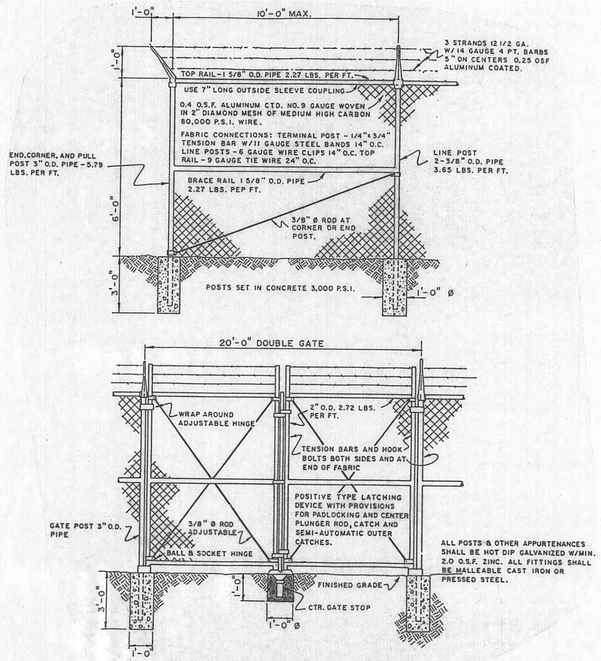
PIPE CROSSING FOR WATER LINE @ GAS MAIN
NOT TO SCALE



VALVE SETTING DETAIL
NOT TO SCALE
(TYPICAL ALL VALVES ON PLANT SITE)



VALVE SETTING DETAIL
NOT TO SCALE



FENCE DETAIL

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBBINS
REGISTERED ENGINEER
AGRICULTURE
3/31/93
No. 14525
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE
MISCELLANEOUS CONSTRUCTION DETAILS

REVISIONS

DESIGNED: L.E.R.
DRAWN: S.H.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: NONE
PROJ. NO. 0592

SHEET 26
OF 36

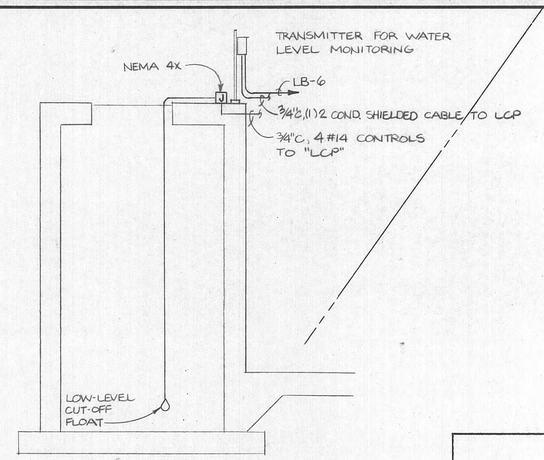
LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER & CATALOGUE NO.	MTG	LAMPS QTY/TYPE	TOTAL WATTS	REMARKS
A	LITHONIA TXL 250M A20 0 LC5P	PENDANT	250W MH COATED	290	LOW BAY
B	LITHONIA TWH 250S I2.0V PE	WALL	250W HPS	290	FLOOD LIGHT
C	LITHONIA TWH 150S I2.0V PE	WALL	150W HPS	190	FLOOD LIGHT
D	LITHONIA C240 120V	SURFACE	2 - F40	85	STRIP
E	LITHONIA 6ELM2 120V	WALL	-	15	EGRESS LIGHT W/BATTERY PACK
E1	LITHONIA ELU2P 120V	WALL	-	16	EGRESS LIGHT W/BATTERY PACK
F	LITHONIA 2GT 440A 120V	RECESSED	4 - F40	175	2' X 4'
G	LITHONIA 2GT 240A 120V	RECESSED	2 - F40	85	2' X 4'
H	LITHONIA 8TC 240 120V	SURFACE	4 - F40	175	TANDEM WIRED STRIP
I	LITHONIA DMW 240 A 120V WLF	SURFACE	2 - F40	85	DUST/WET LOCATION
J	HAZLITE X1M 15 12G C2	SURFACE	150W 1F	150	CLASS I DIVISION I
K	LITHONIA C 240 120V 0°	SURFACE	2 - F40	85	STRIP WITH 0° BALLAST
L	LITHONIA TWH 150S 120V PE	WALL	150W HPS	190	FLOOD LIGHT W/PHOTOELECTRIC
X	LITHONIA QMSW1R 120V EL	SURFACE	-	30	EXIT W/BATTERY PACK
X1	LITHONIA XSW1REL 120V	SURFACE	-	30	EXIT W/BATTERY PACK

LEGEND

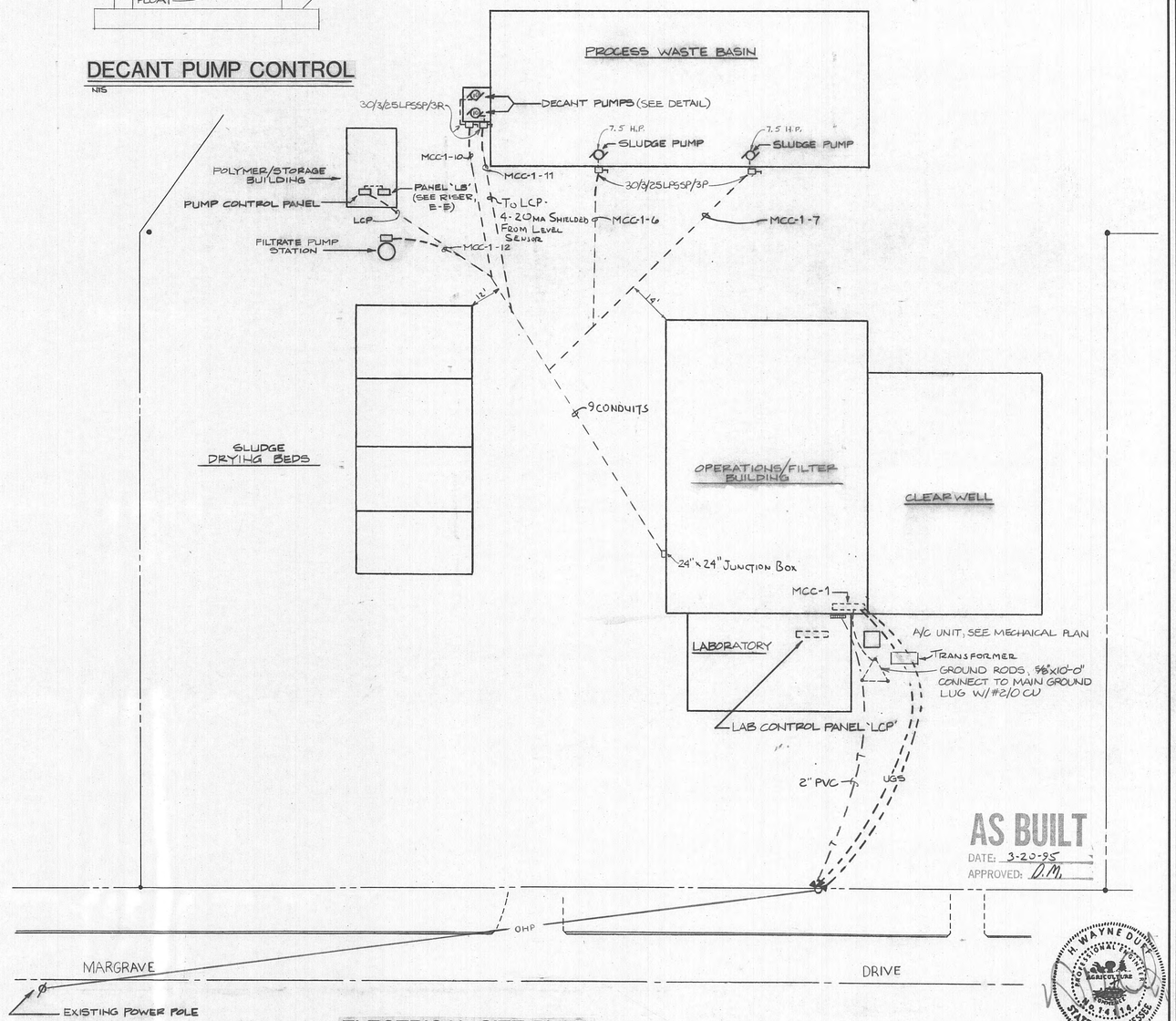
ALL SYMBOLS MAY NOT BE USED

- 2'X 4'- 4L OR 3L-RECESSED FLUOR.
- 2'X 4'- 2L-RECESSED FLUORESCENT
- 2L, 3L OR 4L SURFACE FLUORESCENT
- FLUORESCENT STRIP FIXTURE
- RECESSED FIXTURE
- SURFACE MOUNTED FIXTURE
- WALL BRACKET FIXTURE
- EXIT SIGN WITH 1 FACE
- EXIT SIGN WITH 2 FACES
- FLOOD OR SPOT LIGHT
- TRACK LIGHTS WITH FITTINGS: NUMBER OF HEADS AS SHOWN
- EGRESS LIGHTING
- ISOLATED GROUND TYPE DUPLEX OUTLET 15A MTD. AT 15" AFF UON
- DUPLEX OUTLET 15A AT +15" AFF UON
- DUPLEX OUTLET - 1/2 SWITCHED AT +15" AFF UON
- DUPLEX OUTLET - 20A MTD AT 15" AFF UON
- GFI DUPLEX OUTLET - 15A AT 4" ABOVE COUNTER OR BACKSPLASH UON
- DUPLEX OUTLET - 15A AT 4" ABOVE COUNTER OR BACKSPLASH
- 250V, SINGLE PHASE OUTLET - SIZE AS NOTED
- DOUBLE DUPLEX - 15A AT 15" AFF UON
- FLUSH FLOOR OUTLET - 15A
- CLOCK OUTLET MTD. AT 7'-0" AFF UON
- THERMOSTAT - 1/2" C.O. TO UNIT NOTED
- EXHAUST FAN
- MOTOR OUTLET
- SPEAKER OUTLET
- TV OUTLET
- TELEPHONE OUTLET - WALL MTD., 3/4" C.O. INTO ACCESSIBLE CEILING SPACE UON
- TELEPHONE FLOOR OUTLET
- CRT OR COMPUTER OUTLET - 3/4" C.O. INTO ACCESSIBLE CEILING SPACE UON
- PUSH BUTTON
- S — SWITCH - SINGLE POLE 120V OR 277V 48" MAXIMUM AFF - FLUSH MTD
  - S2 - TWO POLE
  - S3 - THREE WAY
  - S4 - FOUR WAY
  - SP - PILOT LIGHT
  - ST - TIMER
  - SK - KEY OPERATED
  - SM - MANUAL MOTOR STARTER W/THERMAL
  - SD - DIMMER
- DISCONNECT SWITCH
- MAGNETIC MOTOR STARTER
- COMBINATION STARTER
- FIRE ALARM HORN/LIGHT COMBO
- FIRE ALARM PULL STATION
- BELL
- SMOKE DETECTOR
- DUCT TYPE SMOKE DETECTOR
- FIRE ALARM FLASHING LIGHT
- MAGNETIC DOOR HOLDER
- TAMPER SWITCH
- FS — FLOW SWITCH
- JUNCTION BOX - SIZE AS REQUIRED
- TELEPHONE BKBD - 3/4" PLYWOOD
- DISTRIBUTION BOARD
- SURFACE MTD PANEL
- RECESSED PANEL
- (A) / E1 — DENOTES DETAIL "A", SHEET E-1
- CONDUIT CONCEALED ABOVE CLG OR IN WALL
- CONDUIT UNDER SLAB OR BELOW GRADE
- CONDUIT RUN EXPOSED
- FLEX CONDUIT
- STUB UP
- STUB DOWN
- HOMERUN, NO. OF HASH MARKS INDICATE NO. OF CONDUCTORS IF MORE THAN TWO
- AFG — ABOVE FINISHED GRADE
- AFF — ABOVE FINISHED FLOOR
- NL — NIGHT LIGHT
- EWC — ELECTRIC WATER COOLER
- WP — WEATHERPROOF - NEMA 3R
- C.O — CONDUIT ONLY - WITH PULL WIRE
- GFI — GROUND FAULT INTERRUPTOR
- IG — ISOLATED GROUND
- UON — UNLESS OTHERWISE NOTED
- F.A.P — FIRE ALARM PANEL
- N.O. — NORMALLY OPEN
- N.C. — NORMALLY CLOSED
- (1) — REFERENCE TO ELECTRICAL NOTES SAME SHEET



DECANT PUMP CONTROL

NTS



AS BUILT
DATE: 3-20-95
APPROVED: D.M.

ELECTRICAL SITE PLAN

SCALE: 1"=20'-0"

H. WAYNE DUFF — REGISTERED — AGRICULTURAL — No. 14114 — STATE OF TENNESSEE — 3-9-95

DUFF BROWN ENGINEERING INC.
783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757

930772 930772

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

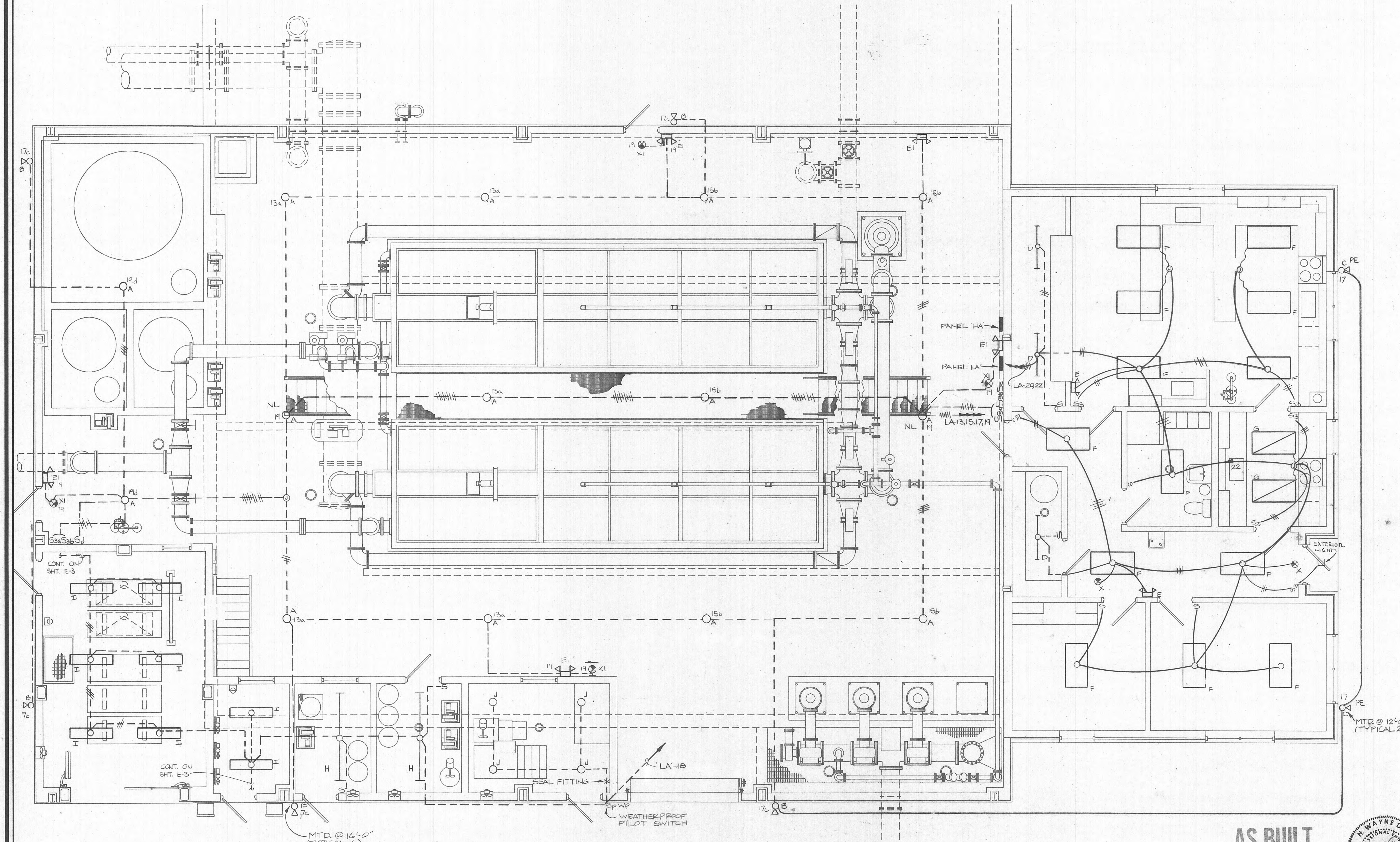
HARRIMAN, TENNESSEE
ELECTRICAL SITE PLAN

REVISIONS

DESIGNED: D.L.S.
DRAWN: M.R.A.
CHECKED: H.W.D.
DATE: MARCH 31, 1993
SCALE: 1"= 20'0"
PROJ. NO. 0592

SHEET 27
E-1
OF 36

BRUNING 79198 FORM # 6915



FILTER BUILDING LIGHTING FLOOR PLAN

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

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

H. WAYNE DUFF — AGRICULTURE — STATE OF TENNESSEE

DUFF BROWN ENGINEERING INC.
783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757
93072

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

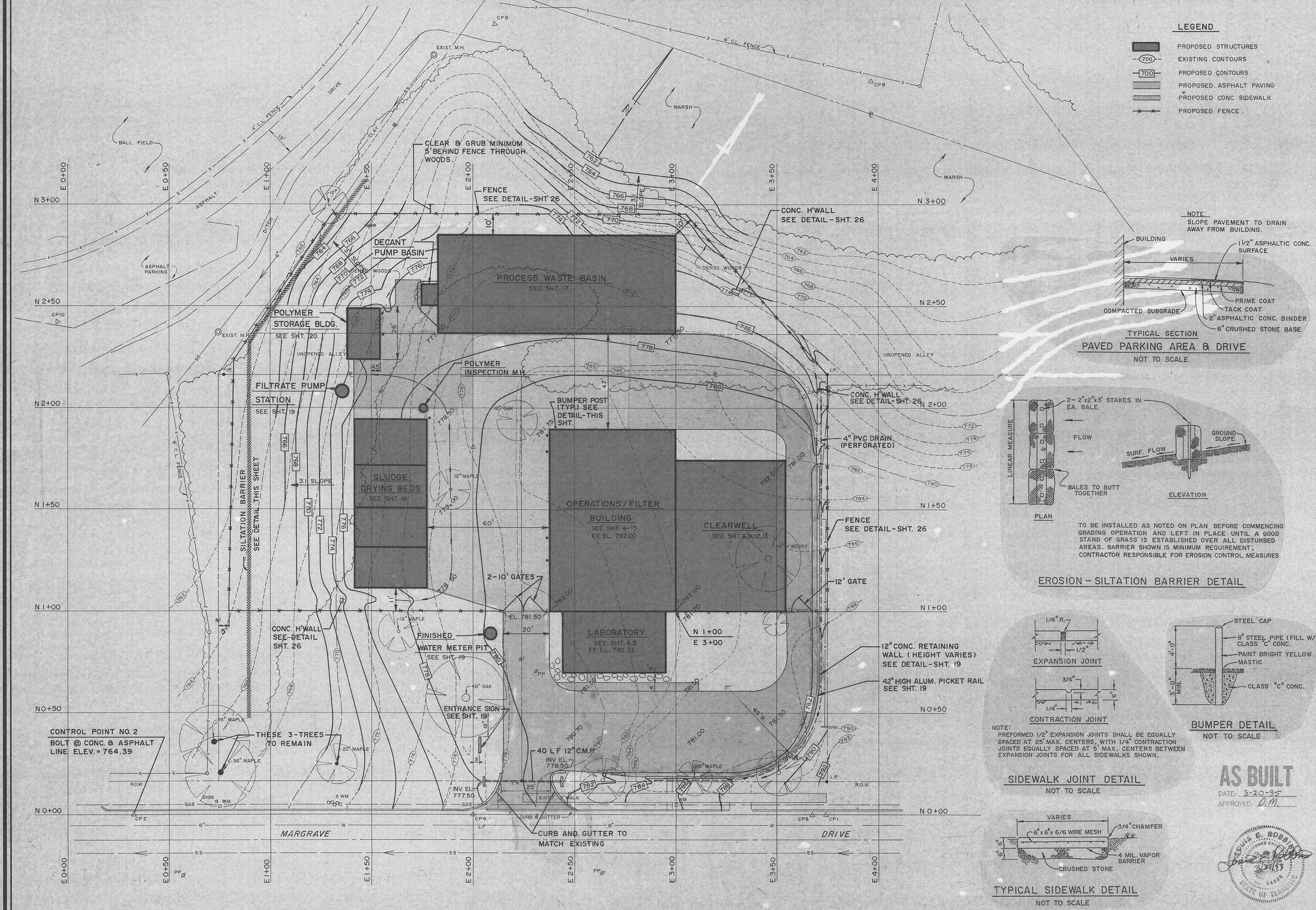
CONTRACT W93-04

HARRIMAN, TENNESSEE
FILTER BUILDING LIGHTING PLAN

REVISIONS

DESIGNED: D.L.S.
DRAWN: M.R.A.
CHECKED: H.W.D.
DATE: MARCH 31, 1993
SCALE: 1/4"=1'-0"
PROJ. NO. 0592

SHEET 28
E-2
OF 36



LEGEND

- PROPOSED STRUCTURES
- (700) EXISTING CONTOURS
- 700 PROPOSED CONTOURS
- PROPOSED ASPHALT PAVING
- PROPOSED CONC. SIDEWALK
- PROPOSED FENCE

NOTE: SLOPE PAVEMENT TO DRAIN AWAY FROM BUILDING.

TYPICAL SECTION

PAVED PARKING AREA & DRIVE

NOT TO SCALE

TO BE INSTALLED AS NOTED ON PLAN BEFORE COMMENCING GRADING OPERATION AND LEFT IN PLACE UNTIL A GOOD STAND OF GRASS IS ESTABLISHED OVER ALL DISTURBED AREAS. BARRIER SHOWN IS MINIMUM REQUIREMENT; CONTRACTOR RESPONSIBLE FOR EROSION CONTROL MEASURES.

EROSION – SILTATION BARRIER DETAIL

NOTE:
PREFORMED 1/2" EXPANSION JOINTS SHALL BE EQUALLY SPACED AT 25' MAX. CENTERS, WITH 1/4" CONTRACTION JOINTS EQUALLY SPACED AT 5' MAX. CENTERS BETWEEN EXPANSION JOINTS FOR ALL SIDEWALKS SHOWN.

SIDEWALK JOINT DETAIL

NOT TO SCALE

BUMPER DETAIL

NOT TO SCALE

TYPICAL SIDEWALK DETAIL

NOT TO SCALE

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBERTS
REGISTERED ENGINEER
No. 14529
STATE OF TENNESSEE
3/31/93

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE · KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

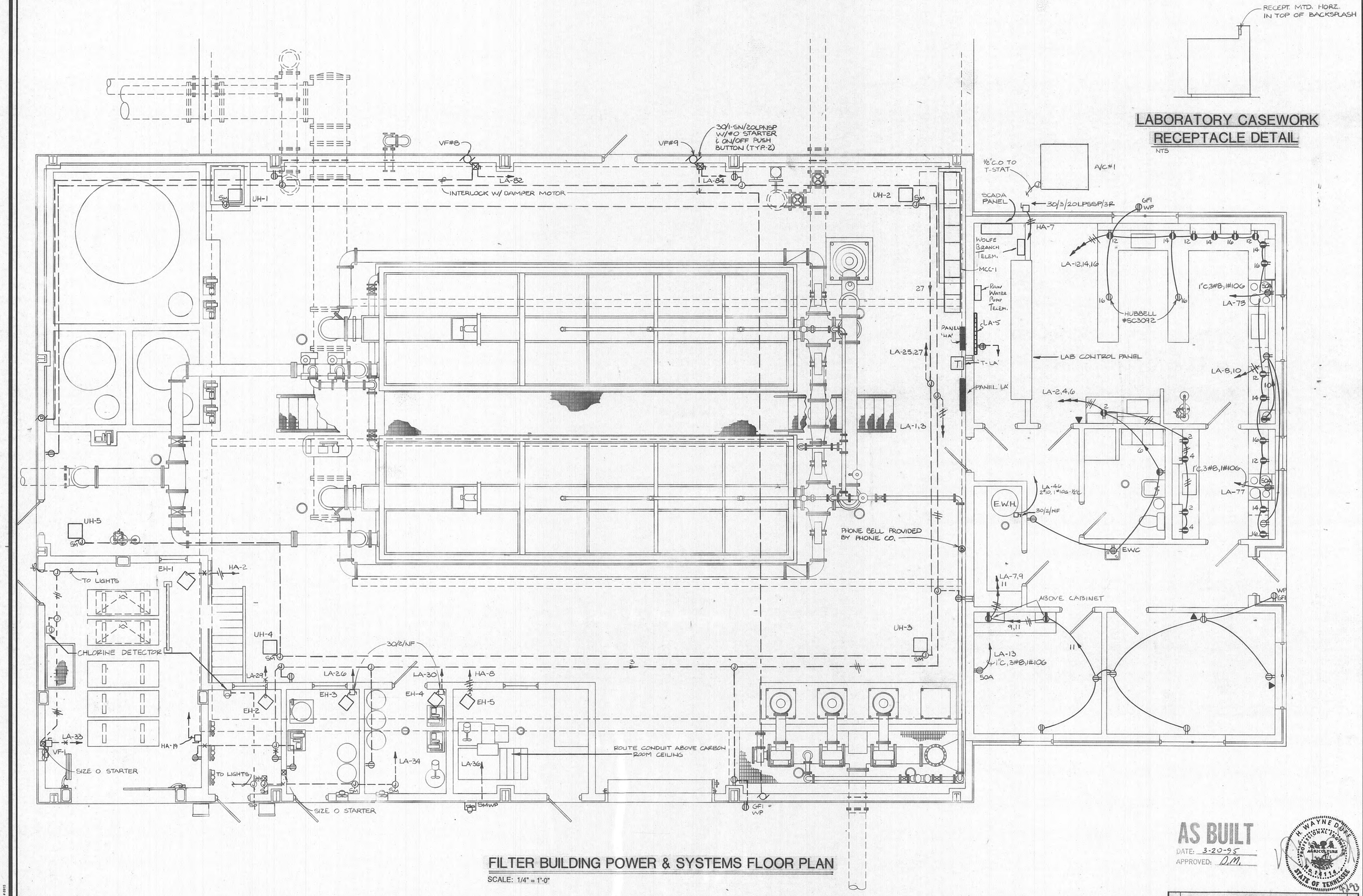
SITE GRADING PLAN

REVISIONS
△ 5/3/93 Add Entrance Sign

DESIGNED: L.E.R.
DRAWN: S.C.G.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: 1" = 20'-0"
PROJ. NO. 0952

SHEET 2
OF 36

DRAWING TYPE/FORM # 2212



FILTER BUILDING POWER & SYSTEMS FLOOR PLAN

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

LABORATORY CASEWORK RECEPTACLE DETAIL

NTS

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE
FILTER BUILDING POWER FLOOR PLAN

REVISIONS

DESIGNED: P.L.S.
DRAWN: D.L.S.
CHECKED: H.W.D.
DATE: MARCH 31, 1995
SCALE: 1/4" = 1'-0"
PROJ. NO. 0592

DUFF BROWN
ENGINEERING INC.
783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757

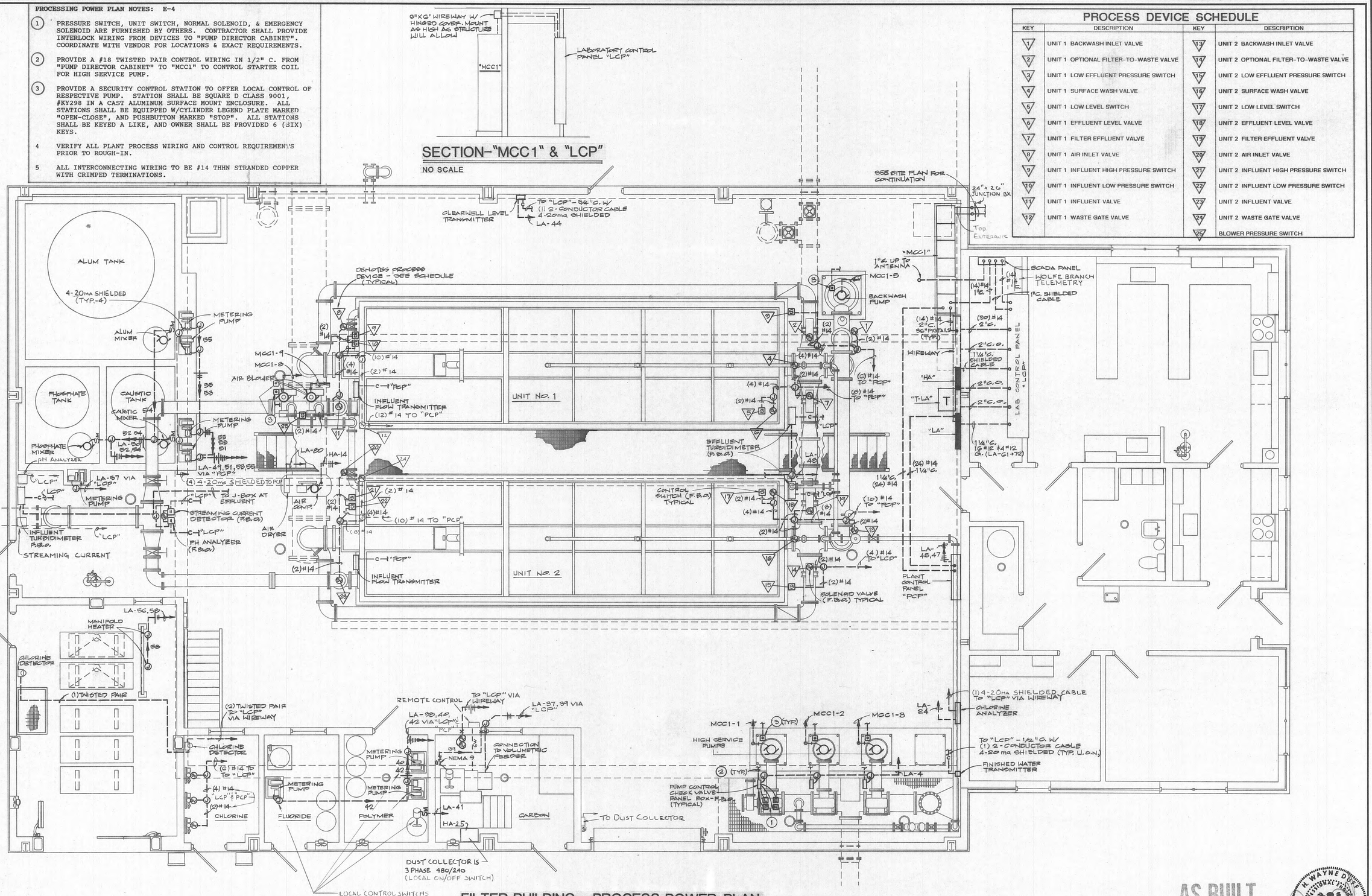
SHEET 29
E-3
OF 36

PROCESSING POWER PLAN NOTES: E-4

1. PRESSURE SWITCH, UNIT SWITCH, NORMAL SOLENOID, & EMERGENCY SOLENOID ARE FURNISHED BY OTHERS. CONTRACTOR SHALL PROVIDE INTERLOCK WIRING FROM DEVICES TO "PUMP DIRECTOR CABINET". COORDINATE WITH VENDOR FOR LOCATIONS & EXACT REQUIREMENTS.
2. PROVIDE A #18 TWISTED PAIR CONTROL WIRING IN 1/2" C. FROM "PUMP DIRECTOR CABINET" TO "MCC1" TO CONTROL STARTER COIL FOR HIGH SERVICE PUMP.
3. PROVIDE A SECURITY CONTROL STATION TO OFFER LOCAL CONTROL OF RESPECTIVE PUMP. STATION SHALL BE SQUARE D CLASS 9001, #KY298 IN A CAST ALUMINUM SURFACE MOUNT ENCLOSURE. ALL STATIONS SHALL BE EQUIPPED W/CYLINDER LEGEND PLATE MARKED "OPEN-CLOSE", AND PUSHBUTTON MARKED "STOP". ALL STATIONS SHALL BE KEYED A LIKE, AND OWNER SHALL BE PROVIDED 6 (SIX) KEYS.
4. VERIFY ALL PLANT PROCESS WIRING AND CONTROL REQUIREMENTS PRIOR TO ROUGH-IN.
5. ALL INTERCONNECTING WIRING TO BE #14 THHN STRANDED COPPER WITH CRIMPED TERMINATIONS.

PROCESS DEVICE SCHEDULE

KEY	DESCRIPTION	KEY	DESCRIPTION
1	UNIT 1 BACKWASH INLET VALVE	13	UNIT 2 BACKWASH INLET VALVE
2	UNIT 1 OPTIONAL FILTER-TO-WASTE VALVE	14	UNIT 2 OPTIONAL FILTER-TO-WASTE VALVE
3	UNIT 1 LOW EFFLUENT PRESSURE SWITCH	15	UNIT 2 LOW EFFLUENT PRESSURE SWITCH
4	UNIT 1 SURFACE WASH VALVE	16	UNIT 2 SURFACE WASH VALVE
5	UNIT 1 LOW LEVEL SWITCH	17	UNIT 2 LOW LEVEL SWITCH
6	UNIT 1 EFFLUENT LEVEL VALVE	18	UNIT 2 EFFLUENT LEVEL VALVE
7	UNIT 1 FILTER EFFLUENT VALVE	19	UNIT 2 FILTER EFFLUENT VALVE
8	UNIT 1 AIR INLET VALVE	20	UNIT 2 AIR INLET VALVE
9	UNIT 1 INFLUENT HIGH PRESSURE SWITCH	21	UNIT 2 INFLUENT HIGH PRESSURE SWITCH
10	UNIT 1 INFLUENT LOW PRESSURE SWITCH	22	UNIT 2 INFLUENT LOW PRESSURE SWITCH
11	UNIT 1 INFLUENT VALVE	23	UNIT 2 INFLUENT VALVE
12	UNIT 1 WASTE GATE VALVE	24	UNIT 2 WASTE GATE VALVE
		25	BLOWER PRESSURE SWITCH



FILTER BUILDING - PROCESS POWER PLAN

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

AS BUILT
DATE: 3-20-95
APPROVED: O.M.

H. WAYNE DUFF — REGISTERED AGRICULTURAL ENGINEER — No. 14114 — STATE OF TENNESSEE

DUFF BROWN ENGINEERING INC.
783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE · KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE
FILTER BUILDING PROCESS POWER PLAN

REVISIONS

DESIGNED: JPS
DRAWN: JPS
CHECKED: HWD
DATE: 04-02-93
SCALE: NOTED
PROJ. NO. 0592

SHEET 30
E-4
OF 36

BRUNING 29138 FORM # 6915

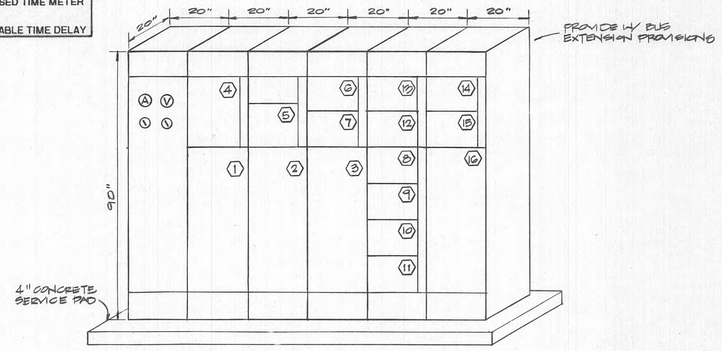
"MCC1"

MOTOR CONTROL CENTER SCHEDULE

VOLTS, AMPS & A.S.I.C.	BRANCH CIRCUIT BREAKER CIR. NO.	AMPS	POLES	STARTER	CONTROL ITEM ON STARTER	LOAD KVA	LOAD H.P.	CONDUIT & WIRE	FEEDS
480, 3PH 3 WIRE 800 A 25,000A	1	225	3	AUTOTRANSFORMER NEMA SIZE 5	S-P-ETM A-H	129.6	125	2"-3#3/0 1#6G	HIGH SERVICE PUMP
	2	225	3	AUTOTRANSFORMER NEMA SIZE 5	S-P-ETM A-H	129.6	125	2"-3#3/0 1#6G	HIGH SERVICE PUMP
800A MAIN FUSED SWITCH	3	225	3	AUTOTRANSFORMER NEMA SIZE 5	S-P-ETM A-H	129.6	125	2"-3#3/0 1#6G	HIGH SERVICE PUMP
	4	225	3	(CIRCUIT BREAKER)	-	107.1	-	2"-4#4/0 1#4G	PANEL HA
	5	100	3	AUTOTRANSFORMER NEMA SIZE 3	S-P-ETM A-H	54.0	50	1"-3#4 1#8G	BACKWASH PUMP
	6	25	3	X-LINE NEMA SIZE 1	S-P-H	11.6	7.5	3/4"-3#10 1#10G	SLUDGE PUMP
	7	25	3	X-LINE NEMA SIZE 1	S-P-H	11.6	7.5	3/4"-3#10 1#10G	SLUDGE PUMP
	8	60	3	X-LINE NEMA SIZE 2	S-P-H ETM-A	22.4	20	3/4"-3#8 1#10G	BLOWER MOTOR
	9	60	3	X-LINE NEMA SIZE 2	S-P-H ETM-A	22.4	20	3/4"-3#8 1#10G	BLOWER MOTOR
	10	25	3	X-LINE NEMA SIZE 1	S-P-H	11.6	10	3/4"-3#10 1#10G	DECANT PUMP
	11	25	3	X-LINE NEMA SIZE 1	S-P-H	11.6	10	3/4"-3#10 1#10G	DECANT PUMP
	12	30	3	(CIRCUIT BREAKER)	-	7.89	3(X2)	3/4"-3#10 1#10G	FILTRATE PUMPS
	13	-	3	SPACE W/PROVISIONS	-	-	-	-	
	14	-	3	SPACE W/PROVISIONS	-	-	-	-	
	15	-	3	SPACE W/PROVISIONS	-	-	-	-	
	16	-	3	SPACE W/PROVISIONS	-	-	-	-	

STARTER CONTROL ITEM LEGEND

S - START/STOP PUSHBUTTONS A - AMMETER
P - PILOT LIGHT (GREEN) ETM - ELAPSED TIME METER
H - HAND-OFF AUTO SEL. SWITCH
PF - PHASE FAILURES RELAY W/ADJUSTABLE TIME DELAY



ELEVATION - MOTOR CONTROL CENTER "MCC1"

NO SCALE

MOUNTING: SURFACE C/B AIC RATING: 14,000A PANEL SIZE: 225 AMP

PANEL HA

VOLTAGE: 480 DELTA, 3PH 3W MAIN TYPE: M.L.O.

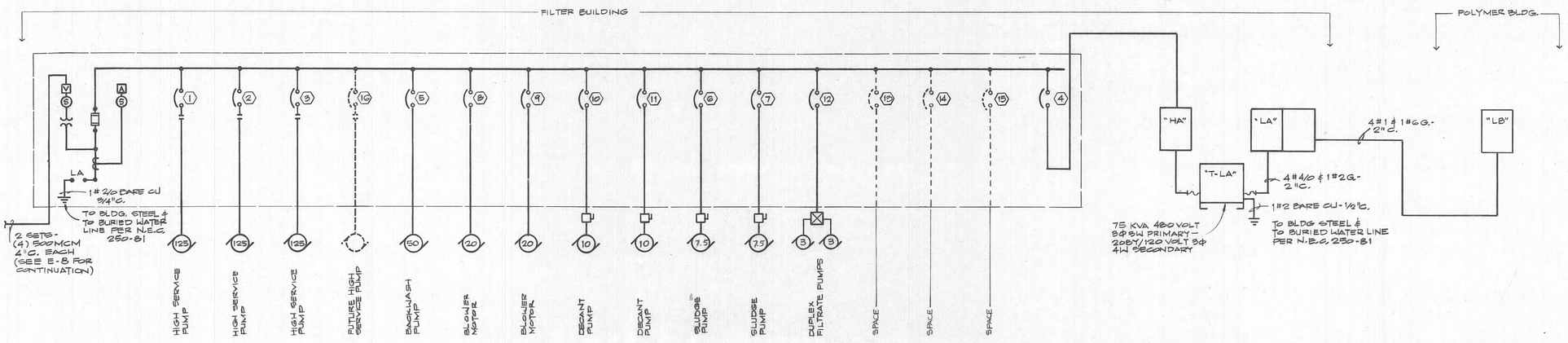
LOCATION	WATTS/PHASE A	B	C	C/B SIZE	CKT. NO.		C/B SIZE	WATTS/PHASE A	B	C	LOCATION
SPACE	-			-	1	2	15/3	2500			EH - 2
SPACE		-		-	3	4	|		2500		|
SPACE			-	-	5	6	|			2500	|
A/C - 1	3879			20/3	7	8	15/3	1000			EH - 5
|		3879		|	9	10	|		1000		|
|			3879	|	11	12	|			1000	|
TRANSFORMER "T-LA"	26265			100/3	13	14	15/3	720			AIR COMPRESSOR
|		26265		|	15	16	|		720		|
|			26265	|	17	18	|			720	|
TROLLY	1274			15/3	19	20	-				SPACE
|		1274		|	21	22	-				SPACE
|			1274	|	23	24	-				SPACE
SPACE				-	25	26	-				SPACE
SPACE				-	27	28	-				SPACE
SPACE				-	29	30	-				SPACE
SPACE				-	31	32	-				SPACE
SPACE				-	33	34	-				SPACE
SPACE				-	35	36	-				SPACE
SPACE				-	37	38	-				SPACE
SPACE				-	39	40	-				SPACE
SPACE				-	41	42	-				SPACE
TOTAL	31418	31418	31418					4220	4220	4220	TOTAL
LCL	W X 1.25 =			W				35638	35638	35638	PHASE TOTAL
AC= 11637 W;HEAT= 10500 W/ AC@125% HT @100%	=			14546	W					106914	TOTAL WATTS
MISC. LOAD	=			96414	W	LARGEST LOAD OF AC OR HEAT IS USED IN CALCS EXCEPT IN THE CASE OF HEAT PUMPS IN WHICH BOTH LOADS ARE USED.					
TOTAL LOAD	=			110460	W =	133.4 AMPS					

MOUNTING: SURFACE C/B AIC RATING: 10,000 PANEL SIZE: 225 AMP

PANEL LA

VOLTAGE: 208Y/120V 3PH 4W MAIN TYPE: 225A M.C.B.

LOCATION	WATTS/PHASE A	B	C	C/B SIZE	CKT. NO.		C/B SIZE	WATTS/PHASE A	B	C	LOCATION
RECEPT - FILTER BLDG	1080			20/1	1	2	20/1	540			RECEPT - LAB
RECEPT - FILTER BLDG		900		20/1	3	4	20/1		360		RECEPT - LAB
RECEPT - TELEPHONE			500	20/1	5	6	20/1			870	RECEPT - EWC
COFFEE MAKER	1500			20/1	7	8	20/1	1200			REFRIGERATOR
MICROWAVE		1200		20/1	9	10	20/1		1500		DISTILLERY
RECEPT - OFFICE			1080	20/1	11	12	20/1*			900	RECEPT - LAB
LTS - OPERATIONS	1450			20/1	13	14	20/1*	900			RECEPT - LAB
LTS - OPERATIONS		1450		20/1	15	16	20/1*		1080		RECEPT - LAB
LTS - OUTSIDE			1830	20/1	17	18	20/1			1630	LTG - CARBON,FLU,CHC
LTS - OPERATIONS	1160			20/1	19	20	20/1	1395			LTG - LAB
SPARE		-		20/1	21	22	20/1		1305		LTG - OFFICE
SPARE			-	20/1	23	24	20/1			500	CHLORINE ANALYZER
VF - 3,4,5	1188			20/1	25	26	20/2	1100			EH - 3
VH - 1,2		960		20/1	27	28	|		1100		|
EH -2			1000	20/2	29	30	20/2			1100	EH - 4
|	1000			|	31	32	|	1100			|
VF - 1		795		15/2	33	34	20/1		984		VF - 2,3,4
|			795	|	35	36	20/1			510	VF - 5
CARBON FEED	696			15/1	37	38	15/1	696			POLYMER METERING PP
CARBON MIXER		696		|	39	40	15/1		696	POLYMER METERING PP
POLYMER MIXER			696	|	41	42	15/1			696	FLUORIDE METERING PP
TURBIDIMETERS	540			20/1	43	44	20/1	180			CLEARWELL TRANSMITTER
PLANT CONTROL PANEL		600		20/1	45	46	30/2		2250		EWH
PLANT CONTROL PANEL			600	20/1	47	48	|			2250	|
METERING PUMP	696			15/1	49	50	15/1	696			PHOSPHATE MIXER
METERING PUMP		696		15/1	51	52	15/1		696		CAUSTIC MIXER
METERING PUMP			696	15/1	53	54	15/1			696	ALUM MIXER
METERING PUMP	696			15/1	55	56	15/1	500			MANIFOLD HEATER
METERING PUMP		696		15/1	57	58	15/1		500		MANIFOLD HEATER
SPACE			-	-	59	60	-			-	SPACE
LAB CONTROL	600			20/1	61	62	20/1	600			LAB CONTROL
LAB CONTROL		600		20/1	63	64	20/1		600		LAB CONTROL
LAB CONTROL			600	20/1	65	66	20/1			600	LAB CONTROL
LAB CONTROL	600			20/1	67	68	20/1	600			LAB CONTROL
LAB CONTROL		600		20/1	69	70	20/1		600		LAB CONTROL
LAB CONTROL			600	20/1	71	72	20/1			600	LAB CONTROL
RANGE	3500			50/2	73	74	100/3	3000			PANEL "LB"
|		3500		|	75	76	|	3000		|
|			3500	50/2	77	78	|			3000	|
|	3500			|	79	80	20/1	180			AIR DRYER
FUTURE RANGE		3500		50/2	81	82	20/1		1130		VF#8
|			3500	|	83	84	20/1			1130	VF#9
TOTAL	10132	10192	9496					5756	7646	7146	TOTAL
LCL	10220 W X 1.25 =			12775	W			30713	30864	28249	PHASE TOTAL
AC= 3084 W;HEAT 8548 W/ AC@125% HT @100%	=			8548	W					89826	TOTAL WATTS
MISC. LOAD	=			57474	W	LARGEST LOAD OF AC OR HEAT IS USED IN CALCS EXCEPT IN THE CASE OF HEAT PUMPS IN WHICH BOTH LOADS ARE USED.					
TOTAL LOAD	=			78797	W =	218 AMPS					



ONE LINE DIAGRAM & RISER - "MCC1"

NO SCALE

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

DUFF BROWN
ENGINEERING INC.
783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE
FILTER BUILDING ONE LINE DIAGRAM

REVISIONS

DESIGNED: JFS
DRAWN: JFS
CHECKED: HWD
DATE: 04-02-98
SCALE: NOTED
PROJ. NO. 0592

SHEET 31
E-5
OF 36

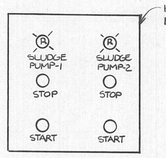
BRUNING 79192 FORM # 6915

MOUNTING: SURFACE | C/B AIC RATING: 10,000 | PANEL SIZE: 100 AMP

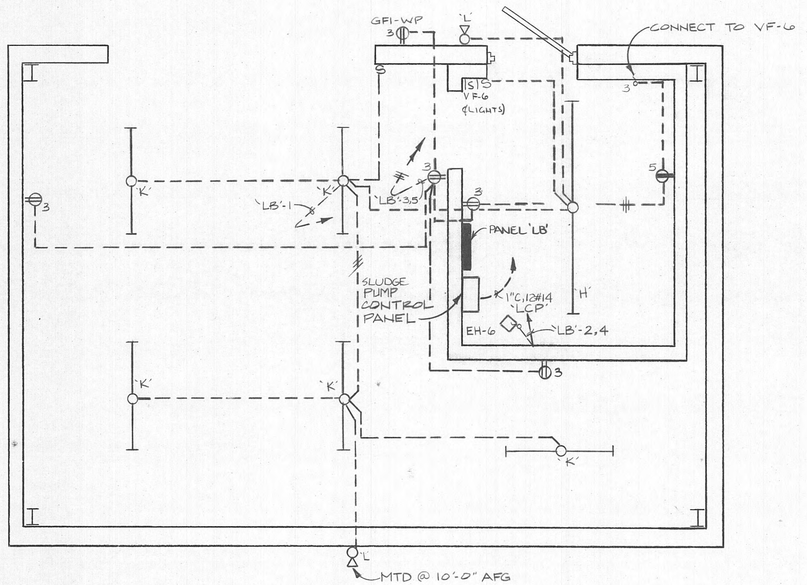
PANEL LB

VOLTAGE: 208Y/120V 3PH 4W | MAIN TYPE: MAIN C.B.

LOCATION	WATTS/PHASE A	WATTS/PHASE B	WATTS/PHASE C	C/B SIZE	CKT. NO.		C/B SIZE	WATTS/PHASE A	WATTS/PHASE B	WATTS/PHASE C	LOCATION
LTS	980			20/1	1	2	20/2	1100			EH - 6
RECEPT		900		20/1	3	4	|		1100		|
RECPET - POLYMER			1000	20/1	5	6	20/1			500	LEVEL TRANSMITTER
					7	8					
					9	10					
					11	12					
					13	14					
					15	16					
					17	18					
					19	20					
					21	22					
					23	24					
					25	26					
					27	28					
					29	30					
					31	32					
					33	34					
					35	36					
					37	38					
					39	40					
					41	42					
TOTAL	980	900	1000					1100	1100	500	TOTAL
LCL	980 W X 1.25 =			1225 W				2080	2000	1000	PHASE TOTAL
AC= W;HEAT= 2200 W/ AC@125% HT @100% =				2200 W						5580	TOTAL WATTS
MISC. LOAD =				2400 W	LARGEST LOAD OF AC OR HEAT IS USED IN CALCS EXCEPT IN THE CASE OF HEAT PUMPS IN WHICH BOTH LOADS ARE USED.						
TOTAL LOAD =				5825 W = 14.7 AMPS							



SLUDGE PUMP CONTROL PANEL



POLYMER BUILDING ELECTRICAL PLAN

SCALE: 3/8" = 1'0"

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

H. WAYNE DUFF — PROFESSIONAL ENGINEER — AGRICULTURE — COMPLETE — M.A.T.I.T.A. — STATE OF TENNESSEE

93072 | DUFF BROWN ENGINEERING INC. | 783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757 | 93072

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

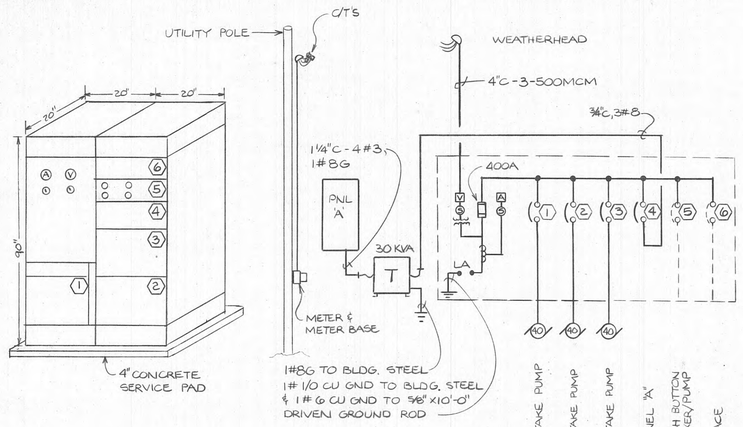
HARRIMAN, TENNESSEE
POLYMER BUILDING ELECTRICAL PLAN

REVISIONS

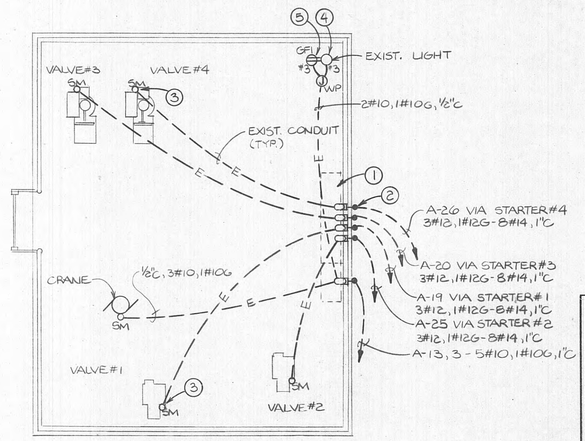
DESIGNED: D.L.S
DRAWN: M.P.A.
CHECKED: H.W.D
DATE: MARCH 31, 1993
SCALE: 3/8" = 1'-0"
PROJ. NO. 0592

SHEET 32
E-6
OF 36

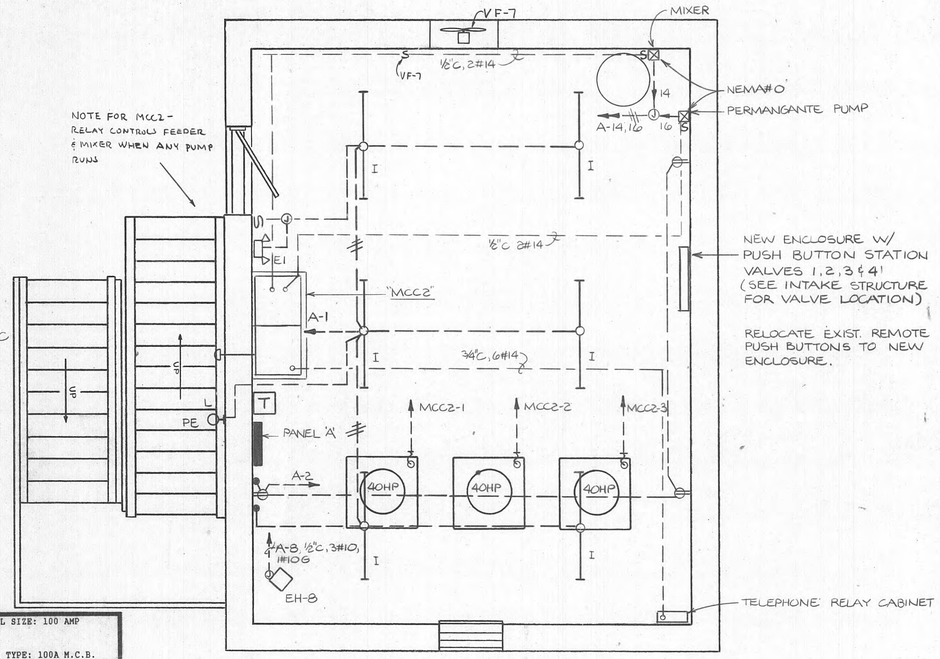
BRUNING 75138 FORM # 6915



ELEVATION - MOTOR CONTROL CENTER "MCC2"



ONE LINE DIAGRAM & RISER - "MCC2"



INTAKE STRUCTURE ELECTRICAL PLAN

SCALE 3/8" 1'-0"

ELEVATION 778.06

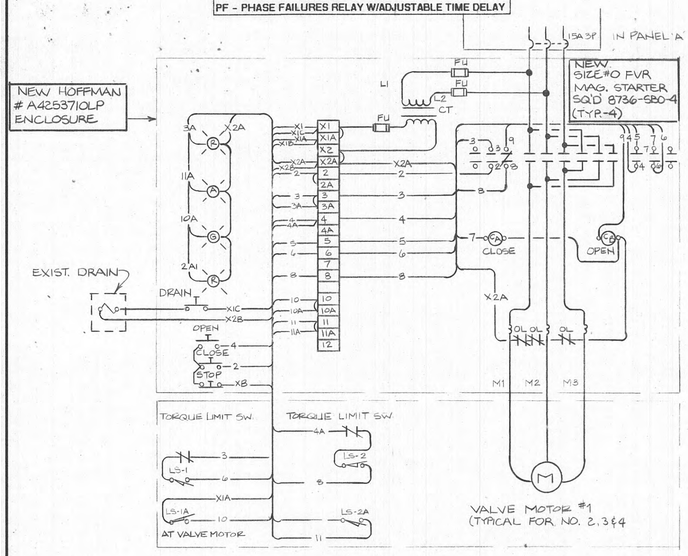
"MCC2"

MOTOR CONTROL CENTER SCHEDULE

VOLTS, AMPS, & A.I.C.	BRANCH CIRCUIT BREAKER CIR. NO.	AMPS	POLES	STARTER	CONTROL ITEM ON STARTER	LOAD KVA	LOAD H.P.	CONDUIT & WIRE	FEEDS
400A 480, 3PH 3 WIRE 25,000A	1	90	3	X-LINE NEMA SIZE 3	S-P-ETM-A	43.2	40	1-1/4"C 3#3 1#8G	INTAKE PUMP
	2	90	3	X-LINE NEMA SIZE 3	S-P-ETM-A	43.2	40	1-1/4"C 3#3 1#8G	INTAKE PUMP
	3	90	3	X-LINE NEMA SIZE 3	S-P-ETM-A	43.2	40	1-1/4"C 3#3 1#8G	INTAKE PUMP
	4	45	3	CIRCUIT BREAKER	-	23.6	-	3½"C 3#8 1#10G	TRANSF "A"
	5	-	3	SPACE W/PROVISIONS	-	-	-	-	-
	6	-	3	SPACE W/PROVISIONS	-	-	-	-	-

STARTER CONTROL ITEM LEGEND

S - START/STOP PUSHBUTTONS A - AMMETER
P - PILOT LIGHT (GREEN) ETM - ELAPSED TIME METER
H - HAND-OFF AUTO SEL. SWITCH
PF - PHASE FAILURES RELAY W/ADJUSTABLE TIME DELAY



TYPICAL VALVE MOTOR SCHEMATIC DIAGRAM

NO SCALE

NOTE: PROVIDE NEW ENCLOSURE & MAG. STARTERS. RELOCATE ALL OTHER WIRING DEVICES FROM OLD ENCLOSURE TO NEW ENCLOSURE (SEE WATER INTAKE BLDG. FOR NEW LOCTION)

MOUNTING: SURFACE C/B AIC RATING: 10,000 PANEL SIZE: 100 AMP

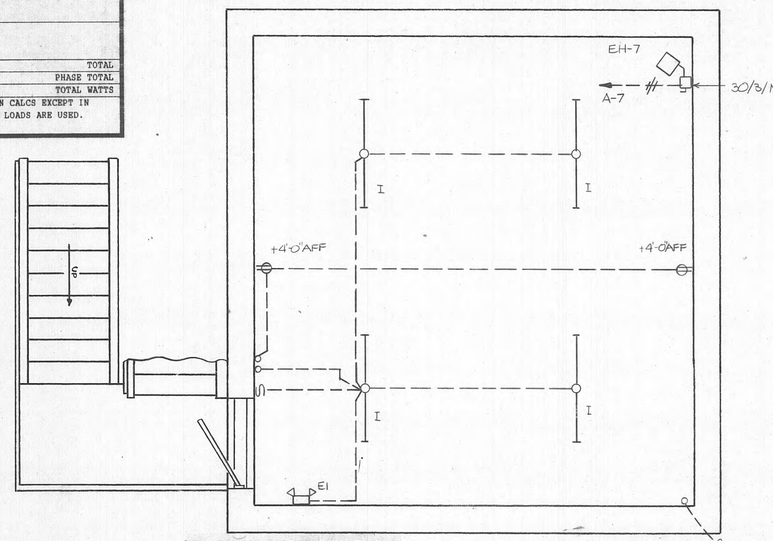
PANEL 'A'

VOLTAGE: 208Y/120V 3PH 4W MAIN TYPE: 100A M.C.B.

LOCATION	WATTS/PHASE A	B	C	C/B SIZE	CKT. NO.		C/B SIZE	WATTS/PHASE A	B	C	LOCATION
LTS - PUMP BLDG	850			20/1	1	2	20/1	900			RECEPT - PUMP BLDG.
LT/RECEPT-INTAKE STRUCTURE		210		20/1	3	4	20/1		-		SPARE
					5	6	20/1			-	SPARE
EH - 7	1667			20/3	7	8	30/3	2500			EH - 8
|		1667		|	9	10	|		2500	|
|			1667	|	11	12	|			2500	|
CRANE	1707			20/3	13	14	20/1	670			MIXER
|		1707		|	15	16	20/1		670		PERMANGANTE PUMP
|			1707	|	17	18					
VALVE #1	200			15/3	19	20	15/3	200			VALVE #3
|		200		|	21	22	|		200		|
|			200	|	23	24	|			200	|
VALVE #2	200			15/3	25	26	15/3	200			VALVE #4
|		200		|	27	28	|		200		|
|			200	|	29	30	|			200	|
					31	32						VF-7
					33	34						
					35	36						
					37	38						
					39	40						
					41	42						
TOTAL	4624	3984	3774					4470	3570	2900		TOTAL
LCL 1060 W X 1.25 = 1325 W								9094	7554	6674		PHASE TOTAL
AC= W;HEAT= 12500 WAC@125% HT @100% = 12500 W										23322		TOTAL WATTS
MISC. LOAD = 9762 W								LARGEST LOAD OF AC OR HEAT IS USED IN CALCS EXCEPT IN THE CASE OF HEAT PUMPS IN WHICH BOTH LOADS ARE USED.				
TOTAL LOAD = 23587 W = 65.5 AMPS												

ELECTRICAL NOTES: E-7

1. REMOVE EXISTING PUMP CONTROL PANEL AND EXISTING PANEL "A".
2. INTERCEPT EXISTING 1" CONDUITS STUBBED UP WITH NEW PULL 90 ELBOW. ROUTE NEW 1" CONDUITS DOWN EXISTING STRUCTURE TO NEW PUSH BUTTON STATION LOCATION.
3. REMOVE EXISTING FLEXIBLE CONNECTION AND INSTALL NEW RIGID CONDUIT UP ABOVE 770.5' FLOOD ELEVATION. INSTALL NEW 3-POLE MANUAL SWITCH EQUAL TO SQUARE D CLASS 2510 NEMA 4 ENCLOSURE. TYPICAL FIVE LOCATIONS.
4. CLEAN AND RELAMP EXISTING LIGHT FIXTURE.
5. INSTALL NEW GFI RECEPTACLE ON EXISTING LIGHT ABOVE 770.5' FLOOD ELEVATION.
6. REMOVE EXISTING TELEMETRY EQUIPMENT AT THE EXISTING WATER PLANT FOR REMOTE TANK LEVEL INDICATORS AND RELOCATE TO THE ELECTRICAL CLOSET IN THE FILTER BUILDING NEXT TO THE SCADA PANEL. FINAL CONNECTION OF TELEMETRY EQUIPMENT SHALL BE BY OTHERS.
7. MAINTAIN POWER TO ONE OF THE RAW WATER PUMPS AT ALL TIMES DURING CONSTRUCTION. RELOCATE EXISTING EQUIPMENT OR PROVIDE TEMPORARY SERVICE FOR MAINTAINING PUMP POWER AS NECESSARY. COORDINATE WITH ENGINEER AS TO WHICH PUMP IS REQUIRED TO MAINTAIN SERVICE.



ELEVATION 768.35

WATER INTAKE BUILDING ELECTRICAL PLAN

SCALE: 3/8" 1'-0"

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

H. WAYNE DUFF — REGISTERED ENGINEER — No. 14114 — STATE OF TENNESSEE

93072 DUFF BROWN ENGINEERING INC. 783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757 93072

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE · KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

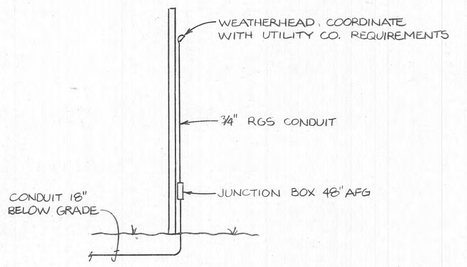
HARRIMAN, TENNESSEE
WATER INTAKE BUILDING ELECTRICAL PLAN

REVISIONS

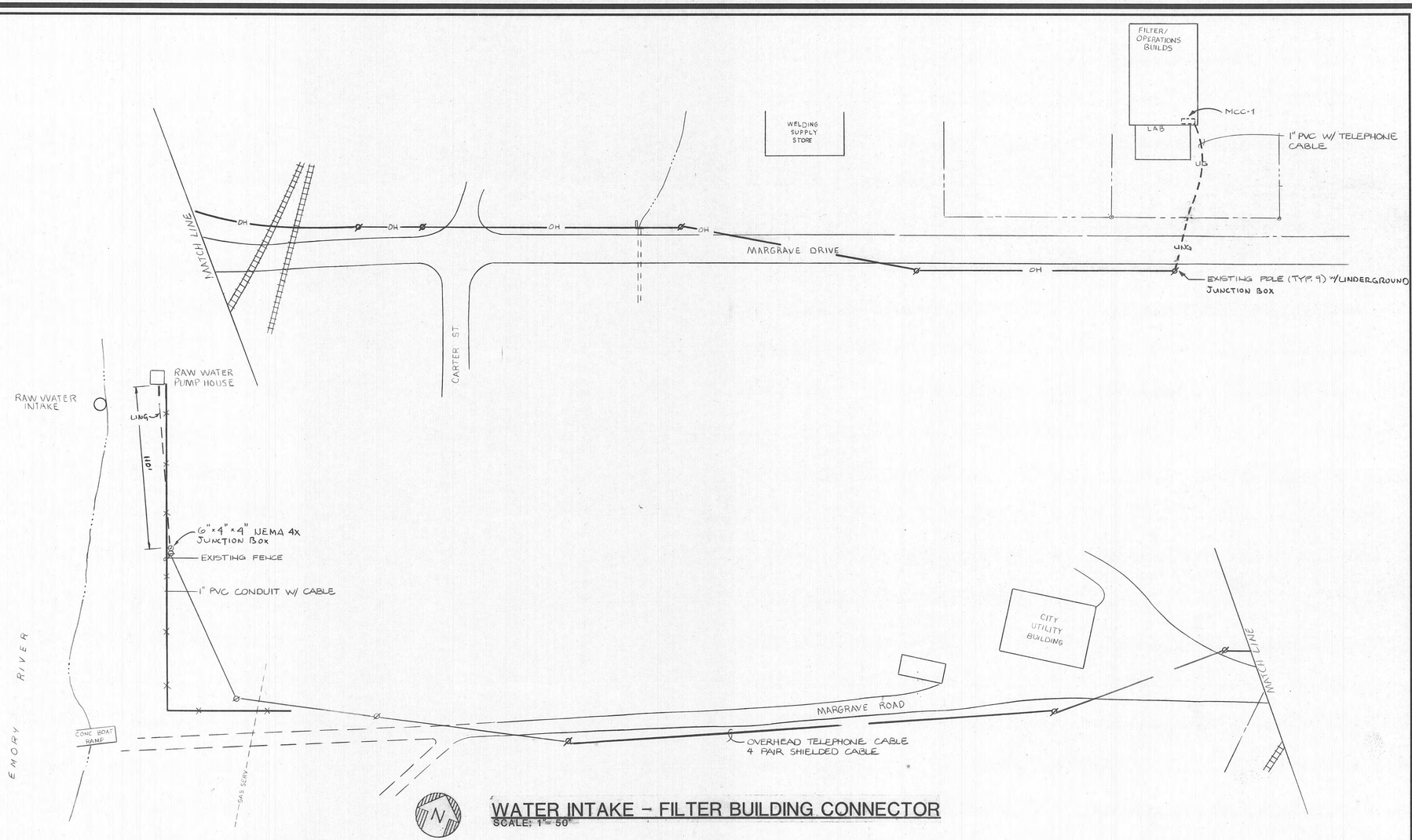
DESIGNED: D.L.S.
DRAWN: D.L.S.
CHECKED: K.D.S
DATE: MARCH 31, 1993
SCALE: SHOWN
PROJ. NO. 0532

SHEET 33
E-7
OF 36

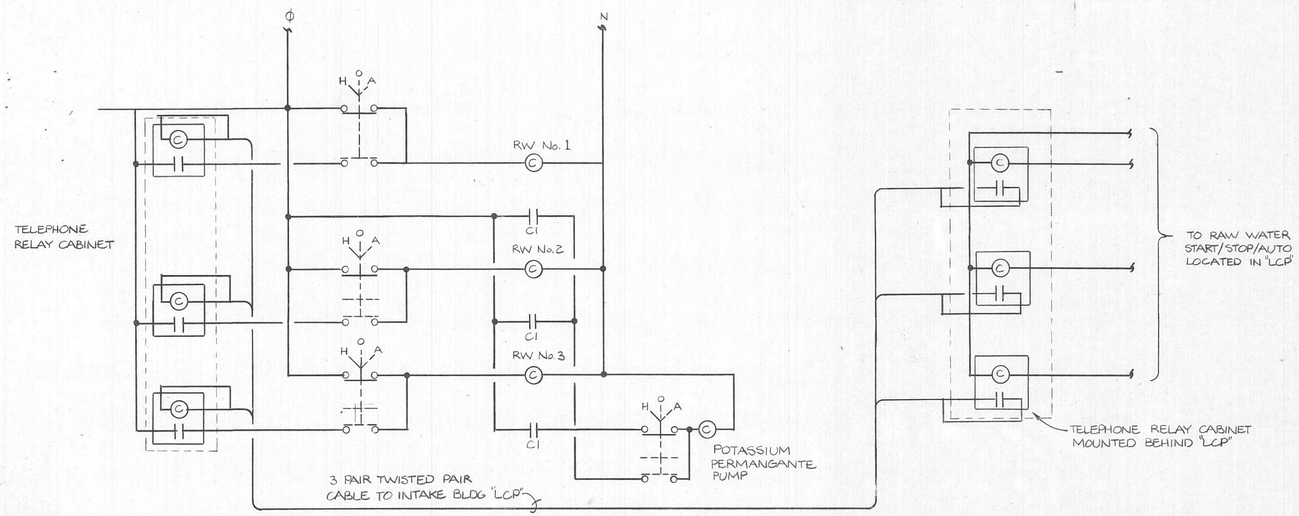
DRAWING 75128 FORM # 6915



RISER POLE DIAGRAM
NTS



WATER INTAKE - FILTER BUILDING CONNECTOR
SCALE: 1" = 50'



RAW WATER CONTROL SCHEMATIC

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

H. WAYNE DUFF — REGISTERED ENGINEER — AGRICULTURE — M.E. 14114 — STATE OF TENNESSEE

DUFF BROWN ENGINEERING INC.
783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757
93072 93072

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE
WATER INTAKE - FILTER BUILDING CONNECTOR

REVISIONS

DESIGNED: D.L.S.
DRAWN: M.R.A.
CHECKED: H.W.D.
DATE: MARCH 31, 1993
SCALE: 1" = 50'
PROJ. NO. 0532

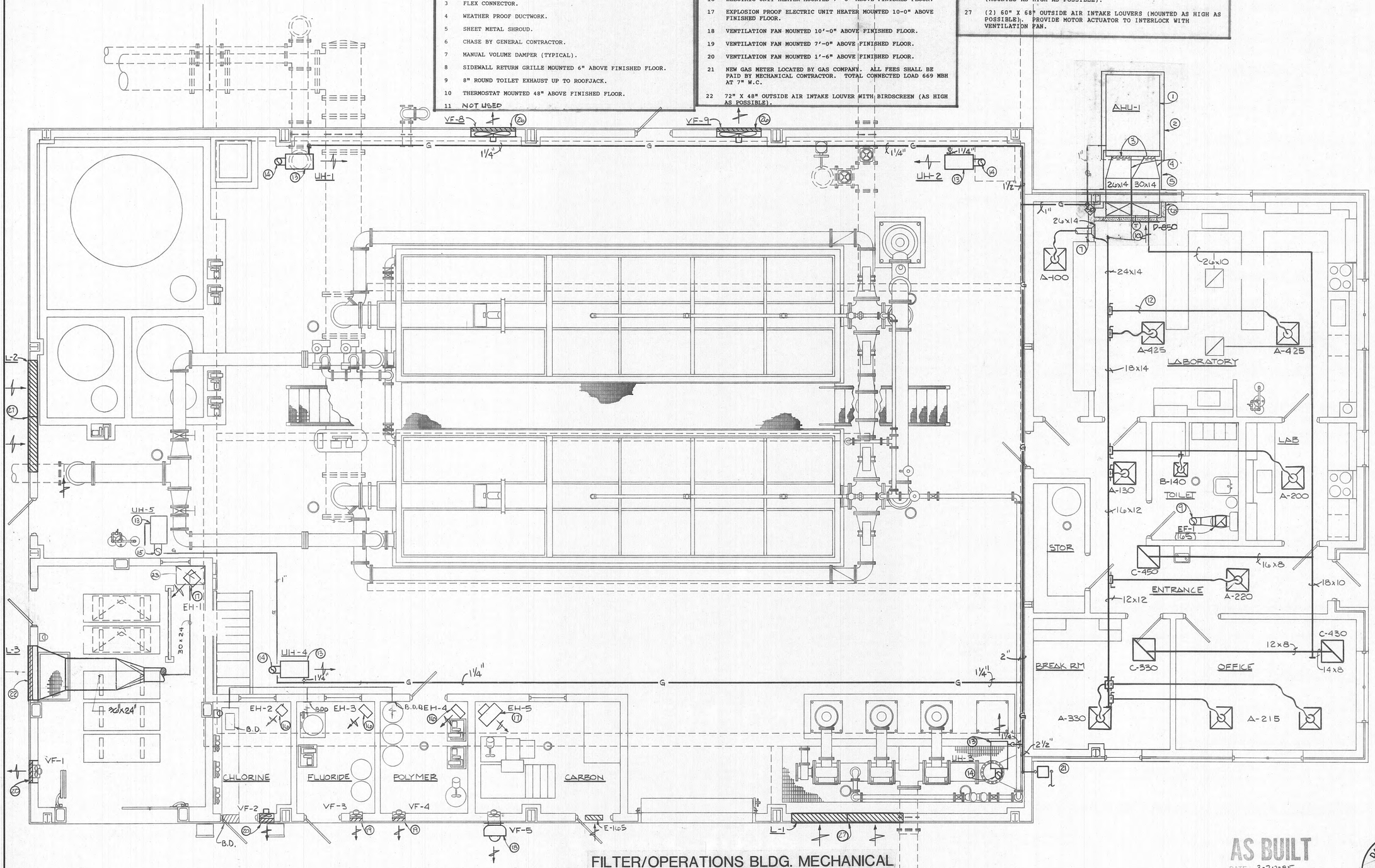
SHEET 34
E-8
OF 36

BRUNING 79128 FORM # 8815

KEY NOTES

KEY NOTES ARE INDICATED ON DRAWING BY NUMBER ENCLOSED INSIDE SYMBOL ○

1 AIR HANDLING UNIT #1 NOMINAL 6 TON.
2 4" CONCRETE PAD.
3 FLEX CONNECTOR.
4 WEATHER PROOF DUCTWORK.
5 SHEET METAL SHROUD.
6 CHASE BY GENERAL CONTRACTOR.
7 MANUAL VOLUME DAMPER (TYPICAL).
8 SIDEWALL RETURN GRILLE MOUNTED 6" ABOVE FINISHED FLOOR.
9 8" ROUND TOILET EXHAUST UP TO ROOFJACK.
10 THERMOSTAT MOUNTED 48" ABOVE FINISHED FLOOR.
11 NOT USED
12 SEE AIR DEVICE SCHEDULE FOR RUNOUT SIZE (TYPICAL).
13 UNIT HEATER SHALL BE MOUNTED 12'-0" ABOVE FINISHED FLOOR (TYPICAL).
14 7" ROUND FLUE UP TO APPROVED CAP.
15 5" ROUND FLUE UP TO APPROVED CAP.
16 ELECTRIC UNIT HEATER MOUNTED 7'-6" ABOVE FINISHED FLOOR.
17 EXPLOSION PROOF ELECTRIC UNIT HEATER MOUNTED 10-0" ABOVE FINISHED FLOOR.
18 VENTILATION FAN MOUNTED 10'-0" ABOVE FINISHED FLOOR.
19 VENTILATION FAN MOUNTED 7'-0" ABOVE FINISHED FLOOR.
20 VENTILATION FAN MOUNTED 1'-6" ABOVE FINISHED FLOOR.
21 NEW GAS METER LOCATED BY GAS COMPANY. ALL FEES SHALL BE PAID BY MECHANICAL CONTRACTOR. TOTAL CONNECTED LOAD 669 MBH AT 7" W.C.
22 72" X 48" OUTSIDE AIR INTAKE LOUVER WITH BIRDSCREEN (AS HIGH AS POSSIBLE).
23 30" X 24" INTAKE DUCT DOWN TO WITHIN 18" ABOVE FINISHED FLOOR. PROVIDE CORROSION RESISTANT DUCTWORK.
24 6" DIAMETER (SCREENED) INTAKE DUCT (AS HIGH AS POSSIBLE).
25 20" X 12" (SCREENED) INTAKE DUCT (AS HIGH AS POSSIBLE).
26 VENTILATION FAN INTERLOCKED WITH OUTSIDE AIR INTAKE LOUVER (MOUNTED AS HIGH AS POSSIBLE).
27 (2) 60" X 68" OUTSIDE AIR INTAKE LOUVERS (MOUNTED AS HIGH AS POSSIBLE). PROVIDE MOTOR ACTUATOR TO INTERLOCK WITH VENTILATION FAN.



FILTER/OPERATIONS BLDG. MECHANICAL

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

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

DANNY W. BROWN
REGISTERED ENGINEER
No. 11625
STATE OF TENNESSEE

DUFF BROWN
ENGINEERING INC.
783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE
FILTER BUILDING MECHANICAL PLAN

REVISIONS

DESIGNED: MAL
DRAWN: MAL
CHECKED: DWB
DATE: 3-31-93
SCALE: NOTED
PROJ. NO. 0592

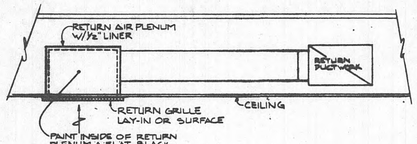
SHEET 35
M-1
OF 36

BRUNING 29152 FORM # 6915

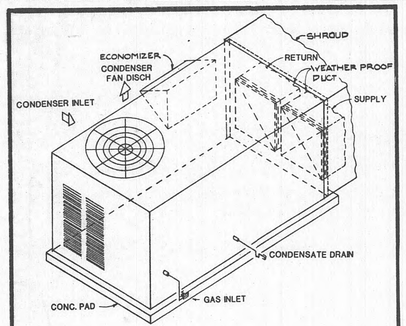
GAS FIRED UNIT HEATERS

① SPARK-IGNITED
② THERMOSTAT AND RELAY & CONTROL TRANSFORMER

IDENT.	MFR.	MODEL NO.	FUEL	HTG INPUT	CFM'S	HP	FLA	ELECT.	NOTES
UH-1	REZNOR	F-130	NAT. GAS	130MBH	1600	1/20	4.0	115/1/60	①②
UH-2									
UH-3	"	"	"	"	"	"	"	"	"
UH-4									
UH-5	↓	F-75	↓	75MBH	980	1/35	1.9	↓	↓



TYPICAL RETURN GRILLE
SCALE — NONE



PACKAGE UNIT DETAIL
NO SCALE

ELECT. HEATER SCHEDULE

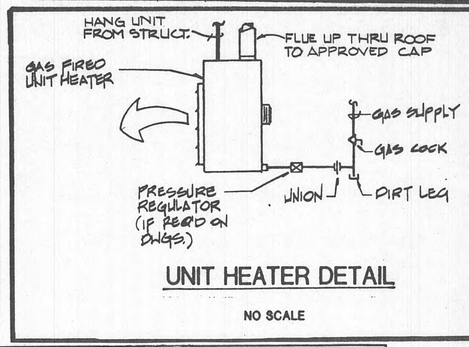
① MOUNTING KIT
② SINGLE POINT CONNECTION
③ CORROSION RESISTANT
④ EXPLOSION PROOF
⑤ UNIT MOUNTED THERMOSTAT
⑥ EXPLOSION PROOF THERMOSTAT

IDENT.	MFR.	MODEL NO.	HTG. CAP.	WATTS	ELECT.	NOTES
EH-1	Q MART	JUW150483	7.5KW	25,590	480/3/60	①②③⑤
EH-2		JUW20081	2 KW	6,824	208/1/60	①②③⑤
EH-3		MUH03-21	2.2KW	7,508	↓	①③⑤
EH-4	↓	MUH03-21	2.2KW	7,508	↓	①②⑤
EH-5		GUW3004851	3 KW	10,236	480/3/60	①②④⑥
EH-6		MUH03-21	2.2KW	7,508	208/1/60	①②⑤
EH-7		MUH05-01	5 KW	17,065	↓	①②⑤
EH-8	↓	MUH07-0	7.5KW	25,590	↓	①②⑤

FAN SCHEDULE

① INTEGRAL DISCONNECT SWITCH
② SPEED CONTROL
③ ROOF CAP W/CURB
④ INTERLOCKED W/LIGHT SWITCH
⑤ ROOF JACK
⑥ INTEGRAL GRILLE
⑦ ROOF CURB
⑧ WALL CAP
⑨ BACKDRAFT DAMPER
⑩ INTERNAL OVER-LOAD PROTECTION
⑪ BIRDSCREEN
⑫ CORROSION RESISTANT
⑬ EXPLOSION PROOF
⑭ INTERLOCK W/LOUVER
⑮ WALL LOUVER
⑯ FAN GUARD

IDENT.	MFGR.	CFM	MODEL NO.	ESP	HP	RPM	ELECT.	NOTES
EF-1	LOREN-COOK	165	GEMINI 4-15A	.125	1/3 watt	1469	115/1/60	②④⑤⑥⑨⑪
VF-1		5900	24SP48		3/4	824	208/1/60	⑪⑫⑭⑮
VF-2		1300	16SP10D		1/4	803	120/1/60	⑪②⑭⑮
VF-3		60	8SP15D		1/25	1087		⑪⑭⑮
VF-4	↓	70	8SP15D	↓	1/25	1268		⑪⑭⑮
VF-5		165	ACW-100VZB		1/6	442	↓	⑪⑬⑭
VF-6		80	8SP15D		1/25	1450		⑪⑭⑮
VF-7	↓	430	10SP15D		1/20	1158		⑪⑭⑮
VF-8 ①		13,500	48SP5B		1/2	258		⑪②⑭⑤⑩



UNIT HEATER DETAIL
NO SCALE

AIR DEVICE SCHEDULE

CD-CEILING SUPPLY DIFFUSER
SSR-SIDEWALL SUPPLY REGISTER
LD-LINEAR DIFFUSER
SRR-SIDEWALL RETURN REGISTER
RG-RETURN GRILLE
EG-EXHAUST GRILLE
TG-TRANSFER GRILLE
DG-DOOR GRILLE
FSR-FLOOR SUPPLY DIFFUSER

IDENT.	MODEL NO	CFM RANGE	NECK SIZE	TYPE	NOTES
A	5800-46	60 - 100	6" ϕ	CD24x24	②③④
		101 - 220	8" ϕ		
		221 - 400	10" ϕ	"	"
		401 - 550	12" ϕ	"	"
B	5800-46	101 - 220	8" ϕ	CD12x12	
C	CCS	0 - 1250	SEE DRAW	RG24x24	
D	RH	0 - 1000	24x24	SRR24x24	
E	DGDF	0 - 200	18 x 6	DG 18x6	②④

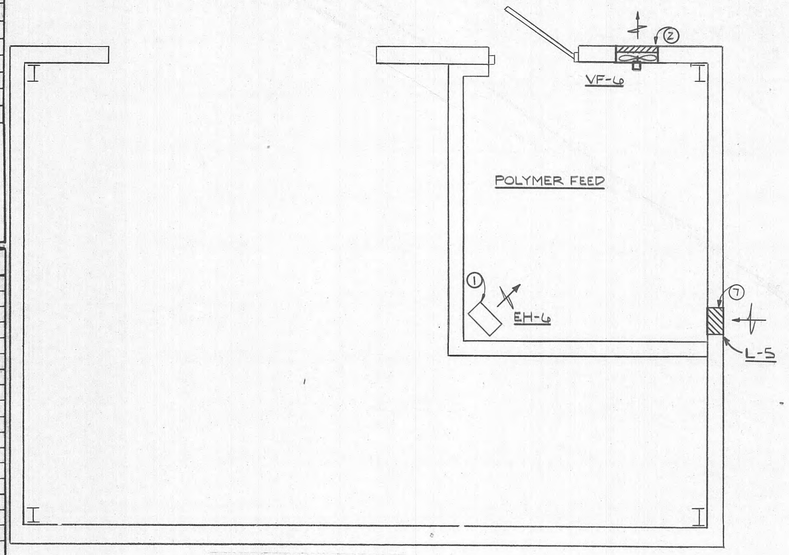
① STEEL CONSTRUCTION
② ALUM. CONSTRUCTION
③ OPPOSED BLADE DAMPER
④ OFF-WHITE ENAMEL
⑤ ANODIZED FINISH
⑥ GOLDEN SAND ENAMEL

PROVIDE METALAIRE, AS SPECIFIED ABOVE, OR APPROVED EQUAL.

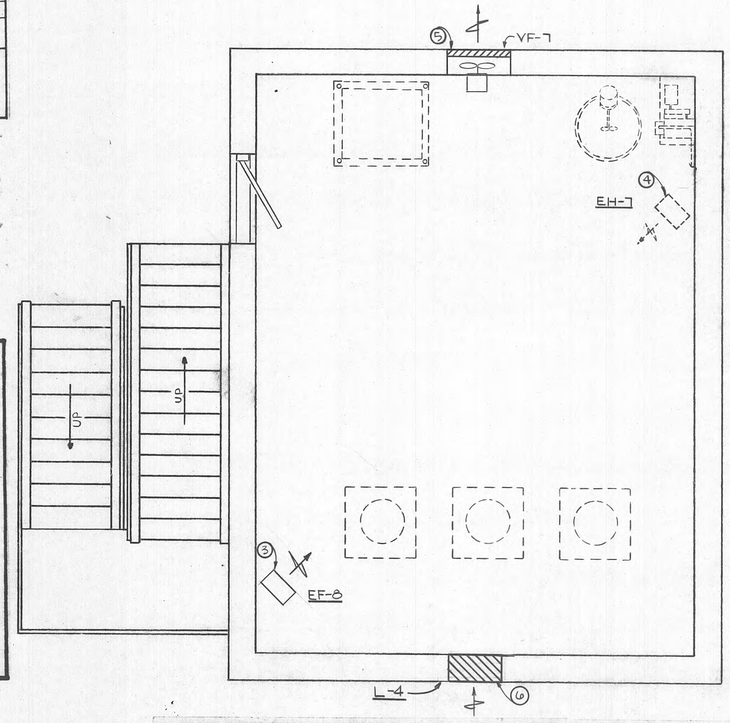
PACKAGE UNIT SCHEDULE

IDENT.		AH4-1						
MFR.		CARRIER						
MODEL NO.		48LJD 007A51						
SUPPLY CFM		2400						
OA CFM		240						
ESP(W.G.)		.5						
COOLING CAPACITY								
TOTAL(BTUH)		77,700						
OA DB		95°F						
ENT. DB/WB		80°/67°F						
HEATING CAPACITY								
INPUT(BTUH)		74,000						
OUTPUT(BTUH)		59,200						
TYPE		NAT. GAS						
EVAP FAN	HP	1½						
	FLA	1.8						
	LRA	——						
COND FAN	HP	⅓						
	FLA	1						
	LRA	——						
COMP.	LRA	69						
	RLA	10.4						
TOTAL WT.		700lbs						
VOLTAGE		460/3/60						
NOTES		②③⑤⑥⑧						

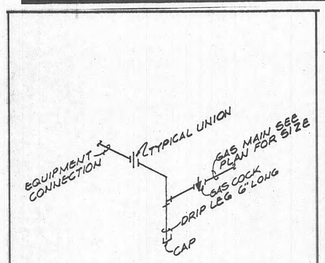
① ROOF CURB
② CURB ISOLATION RAILS
③ ECONOMIZER
④ LOW AMBIENT CONTROL-0 DEGS.
⑤ THROWAWAY FILTERS
⑥ THERMOSTAT
⑦ FIRESTAT IN RETURN
⑧ SMOKE DETECTOR IN SUPPLY *
⑨ SMOKE DETECTOR IN RETURN *
* FURNISHED BY MECH. CONTR., INSTALLED BY MECH. CONTR.



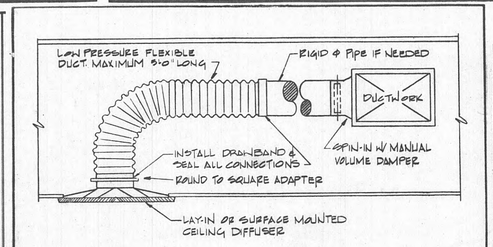
STORAGE BLDG.
SCALE: 3/8" = 1'-0"



RAW WATER INTAKE PUMP BLDG. MECHANICAL
SCALE: 3/8" = 1'-0"



TYPICAL GAS CONNECTION
SCALE: NONE

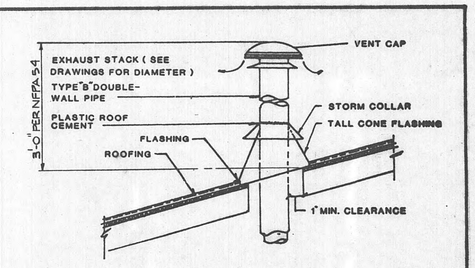


TYPICAL DIFFUSER CONNECTION
NO SCALE

KEY NOTES

KEY NOTES ARE INDICATED ON DRAWING BY NUMBER ENCLOSED INSIDE SYMBOL ⬡

1 ELECTRIC UNIT HEATER MOUNTED 7'-0" ABOVE FINISHED FLOOR.
2 VENTILATION FAN MOUNTED 7'-0" ABOVE FINISHED FLOOR.
3 ELECTRIC UNIT HEATER MOUNTED 10'-0" ABOVE FINISHED FLOOR.
4 EH-7 ELECTRIC UNIT HEATER LOCATED IN BASEMENT MOUNTED AT 7'-0" ABOVE FINISHED FLOOR.
5 VENTILATION FAN MOUNTED 10'-0" ABOVE FINISHED FLOOR.
6 24" X 16" OUTSIDE AIR INTAKE LOUVER (AS HIGH AS POSSIBLE).
7 12" X 12" OUTSIDE AIR INTAKE LOUVER (AS HIGH AS POSSIBLE).



FLUE GAS EXHAUST STACK DETAIL
SCALE: NONE

LOUVER SCHEDULE

IDENT.	MANUF.	MODEL NO.	SIZE	ACCESSORIES
L-1	VENT. PRODUCTS	2000 ADJUST-O-VENT	(2)40 x 68	①②⑤
L-2		2000 ADJUST-O-VENT	(2)40 x 68	①②③
L-3	"	2700 ARROW-O-VENT	72 x 48	②③
L-4	"	"	24 x 16	②③
L-5	"	"	12 x 12	②③

① AUTOMATIC ACTUATOR (120/1/60)
② BIRD SCREEN
③ MAX. FREE AREA VELOCITY 500 FPM.

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

DANNY W. BROWN REGISTERED ENGINEER No. 11622 STATE OF TENNESSEE 3/93

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04
HARRIMAN, TENNESSEE
POLYMER/INTAKE BUILDING MECHANICAL — SCHEDULES

REVISIONS

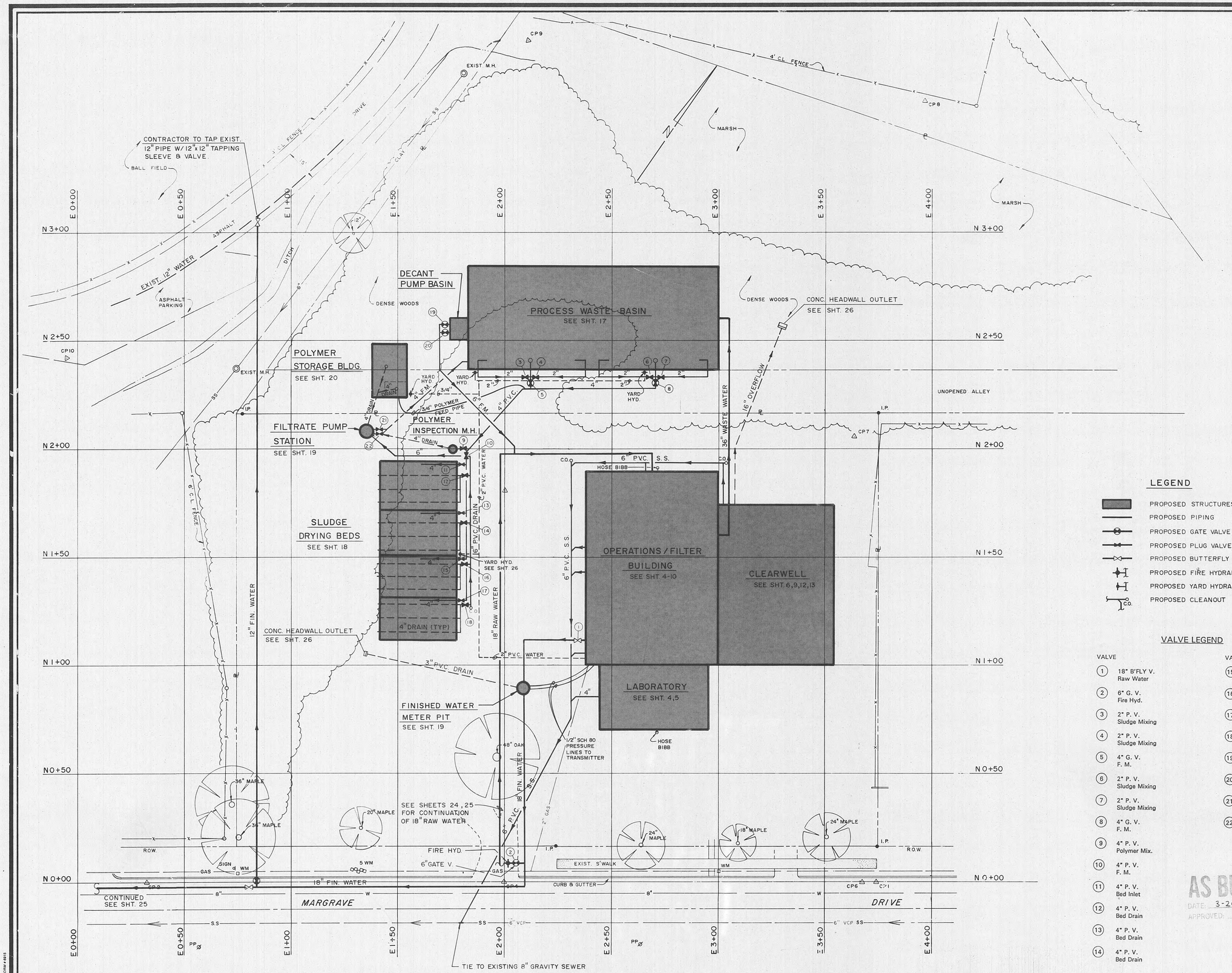
DESIGNED: MAL
DRAWN: MAL
CHECKED: DWB
DATE: 3-31-93
SCALE: NOTED
PROJ. NO. 0592

SHEET 36
M-2
OF 36

DUFF BROWN
ENGINEERING INC.
783 OLD HICKORY BLVD. BRENTWOOD, TN. 37027 (615) 377-3757

0592

BRUNING 7513F FORM # 6915



LEGEND

- PROPOSED STRUCTURES
- PROPOSED PIPING
- PROPOSED GATE VALVE
- PROPOSED PLUG VALVE
- PROPOSED BUTTERFLY VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED YARD HYDRANT
- PROPOSED CLEANOUT

VALVE LEGEND

VALVE		VALVE	
1	18" B'FLY V. Raw Water	15	4" P. V. Bed Inlet
2	6" G. V. Fire Hyd.	16	4" P. V. Bed Drain
3	2" P. V. Sludge Mixing	17	4" P. V. Bed Inlet
4	2" P. V. Sludge Mixing	18	4" P. V. Bed Drain
5	4" G. V. F. M.	19	6" G. V. Decant Pump out.
6	2" P. V. Sludge Mixing	20	6" G. V. Decant Pump out.
7	2" P. V. Sludge Mixing	21	4" P. V. Bed Drain
8	4" G. V. F. M.	22	4" P. V. Bed Drain
9	4" P. V. Polymer Mix.		
10	4" P. V. F. M.		
11	4" P. V. Bed Inlet		
12	4" P. V. Bed Drain		
13	4" P. V. Bed Drain		
14	4" P. V. Bed Drain		

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBBINS — 14529 — STATE OF TENNESSEE — 3/19/93

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

YARD PIPING PLAN

REVISIONS

△ 4-19-93 ADDED DRAIN TO PIPE CHASE OF 36" PIPE

DESIGNED: L.E.R.
DRAWN: S.C.G.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: 1"= 20'-0"
PROJ. NO. 0592

SHEET 3 OF 36

BRUNING 12128 (CINCINNATI)

PLAN VIEW – FILTER/OPERATIONS BLDG.

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

CLARIFIER DRAIN DETAIL

NOT TO SCALE

ULTRASONIC FLOW MONITOR DETAIL

NOT TO SCALE

NOTE: ENDWALL TO BE POST AND BEAM FRAMING W/INSET GIRTS ABOVE BLK. WALL

NOTE: SEE SHEET 5 FOR INTERIOR ELEVATIONS

NOTE: ENDWALL TO BE POST AND BEAM FRAMING W/INSET GIRTS ABOVE BLK. WALL

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. RUBBINS
No. 14529
STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

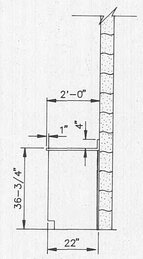
HARRIMAN, TENNESSEE
PLAN VIEW – FILTER/OPERATIONS BUILDING

REVISIONS
1 4/19/93
INSTALLED 36" BACKWASH PIPE IN TROUGH. ADDED 8" WIDE TRENCH DRAIN.

DESIGNED: L.E.R.
DRAWN: S.C.G.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: 1/4"= 1'-0"
PROJ. NO. 0592

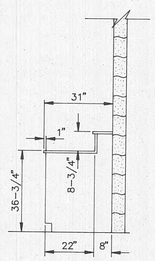
SHEET 4
OF 36

BRUNING 79129 FORM # 5915



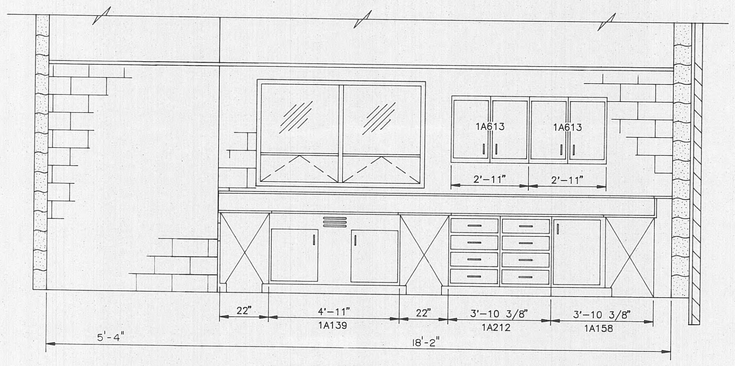
TYP. CABINET SECTION

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



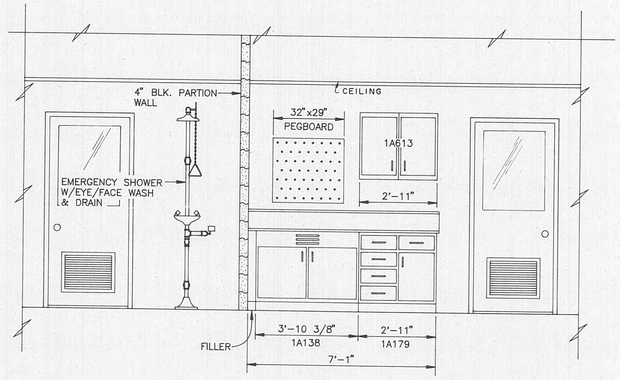
TYP. CABINET SECTION W/ BOX CURB

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



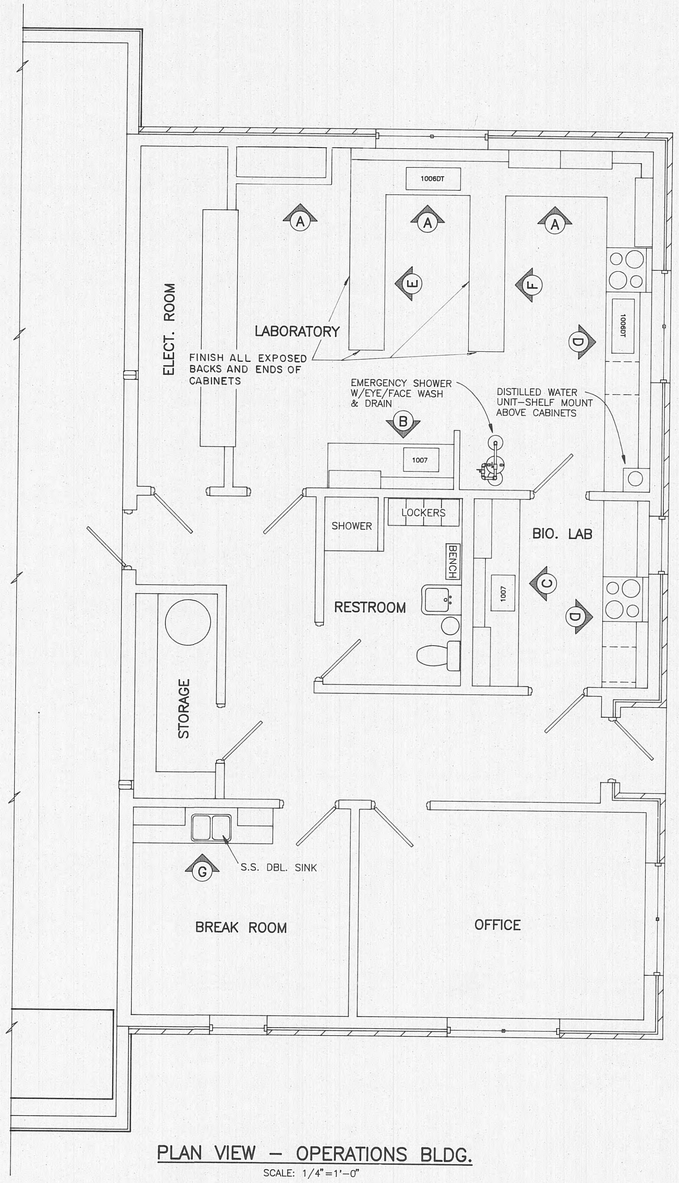
ELEVATION A–A

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



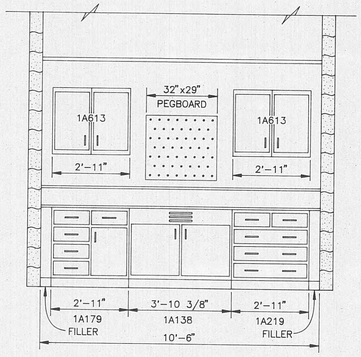
ELEVATION B–B

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



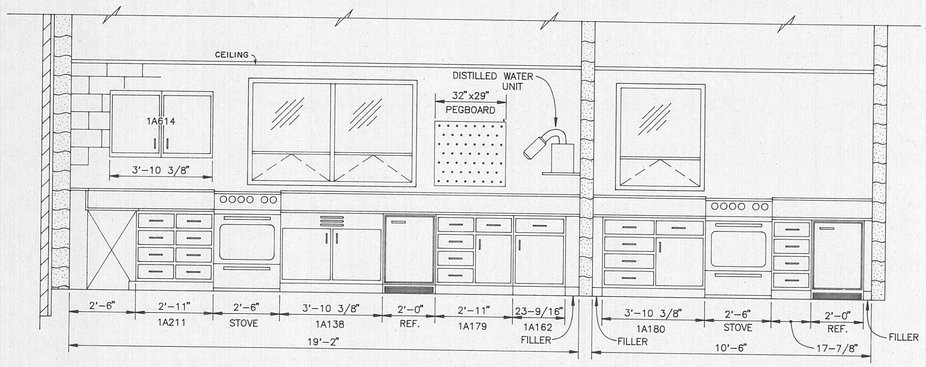
PLAN VIEW – OPERATIONS BLDG.

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



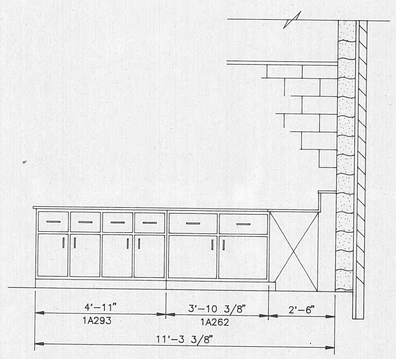
ELEVATION C–C

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



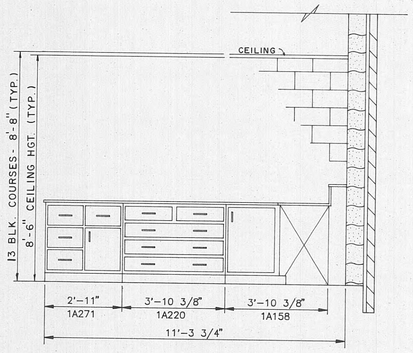
ELEVATION D–D

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



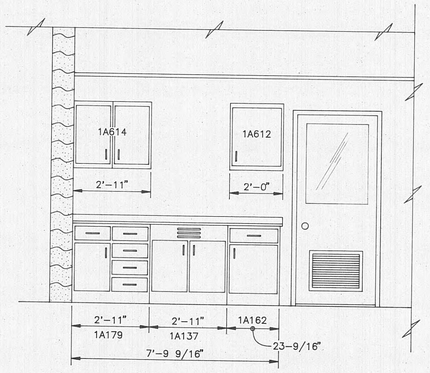
ELEVATION E–E

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



ELEVATION F–F

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



ELEVATION G–G

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

AS BUILT
DATE: 3-20-95
APPROVED: DM

LOUIS E. ROBERTS
REGISTERED ENGINEER
AGRICULTURAL
145.39
STATE OF TENNESSEE
3/2/93

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

OPERATIONS BLDG. – FLOOR PLAN AND INTERIOR DETAILS

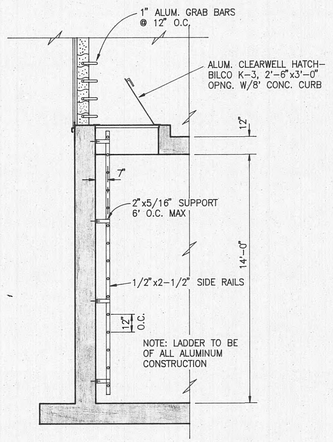
REVISIONS

DESIGNED:	L. E. R.
DRAWN:	S. C. G.
CHECKED:	L. E. R.
DATE:	MARCH, 1993
SCALE:	AS NOTED
PROJ. NO.	0592

SHEET 5

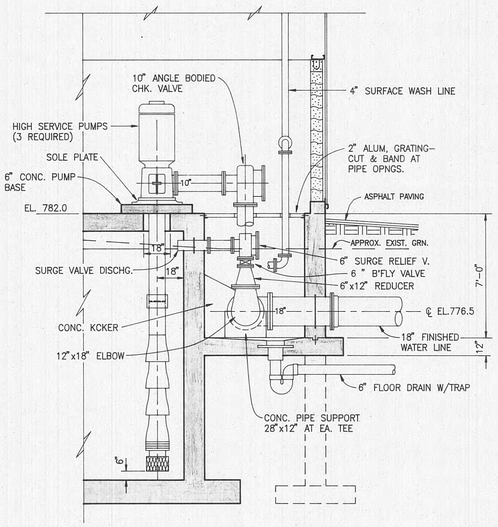
OF 36

BRUNING 79128 FORM # 6915



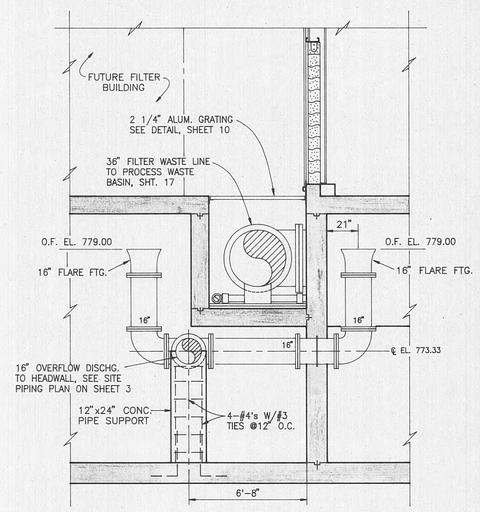
CLEARWELL LADDER DETAIL

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



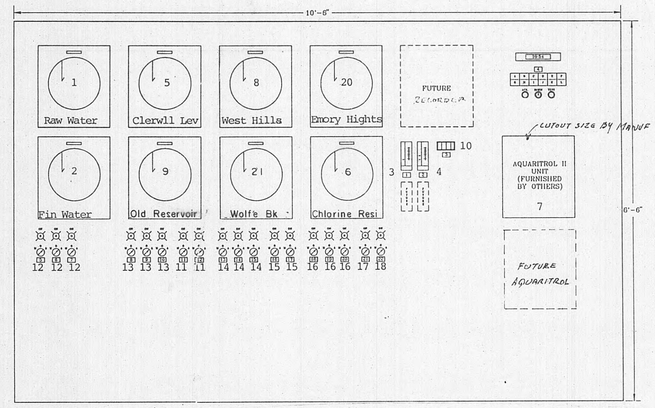
SECTION H-6

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



SECTION I-6
OVERFLOW PIPING DETAIL

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

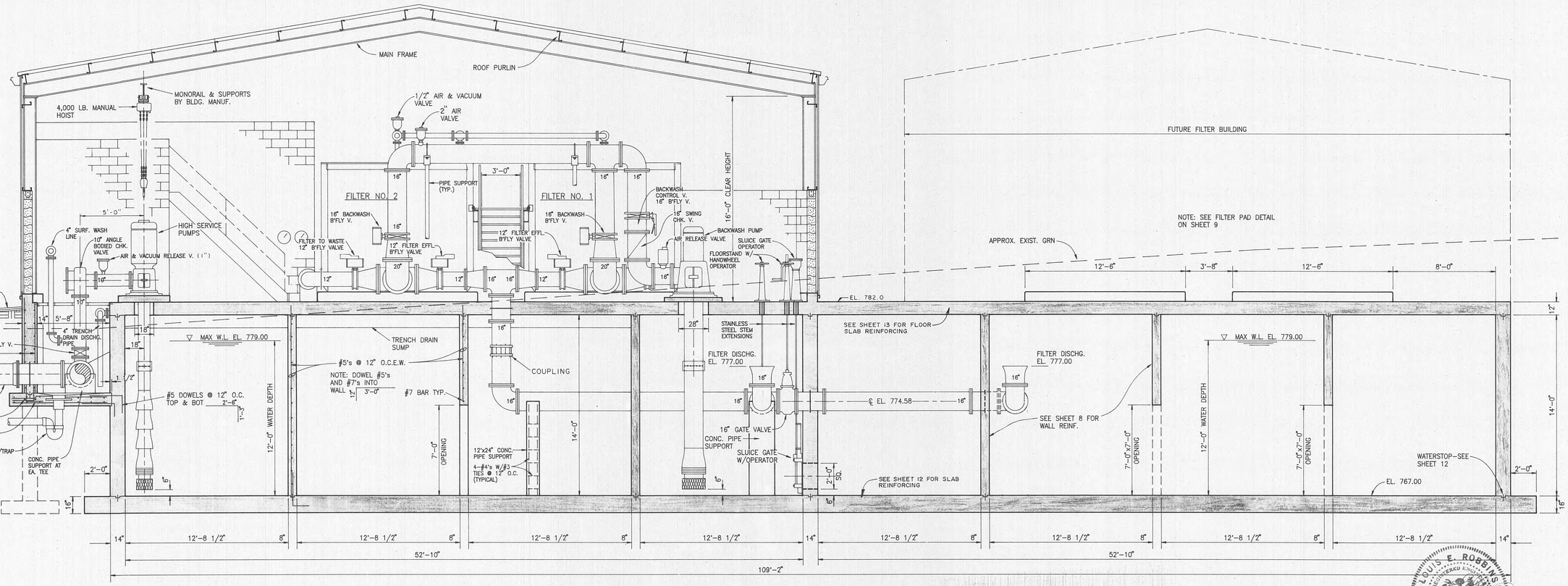


MAIN CONTROL PANEL
NAMEPLATE SCHEDULE

1. RAW WATER TURBIDITY
2. FINISHED WATER TURBIDITY
3. PROCESS WASTE BASIN LEVEL
4. ANNUNCIATOR
5. HIGH SERVICE PUMP NO.1
6. HIGH SERVICE PUMP NO.2
7. HIGH SERVICE PUMP NO.3
8. RAW WATER PUMP NO.1
9 RAW WATER PUMP NO.2
16. RAW WATER PUMP NO.3
11. DECANT PUMP NO.1
12. DECANT PUMP NO.2
13. CHLORINATOR NO.1
14. CHLORINATOR NO.2
15. MIXER
16. POLYMER FEED NO.1
17. POLYMER FEED NO.2
18. CARBON FEEDER NO.1
19. CARBON FEEDER NO.2
20. CARBON FEEDER NO.3
21. CORROSION INHIBITOR FEED PUMP
22. FLUORIDE FEED PUMP

ANNUNCIATOR SCHEDULE

A. HIGH RAW WATER TURBIDITY
B. HIGH FINISHED WATER TURBIDITY
C. HIGH/LOW pH
D. LOW CHLORINE RESIDUAL
E. CLEARWELL LOW LEVEL
F. CLEARWELL HIGH LEVEL
G. PROCESS WASTE BASIN HIGH LEVEL
H. OLD RESERVOIR TANK HIGH LEVEL
I. OLD RESERVOIR TANK LOW LEVEL
J. CHLORINE LEAK ALARM
K. "BLANK"
L. "BLANK"



SECTION A-6

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

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. ROBBINS REGISTERED ENGINEER AGRICULTURE No. 14529 STATE OF TENNESSEE

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

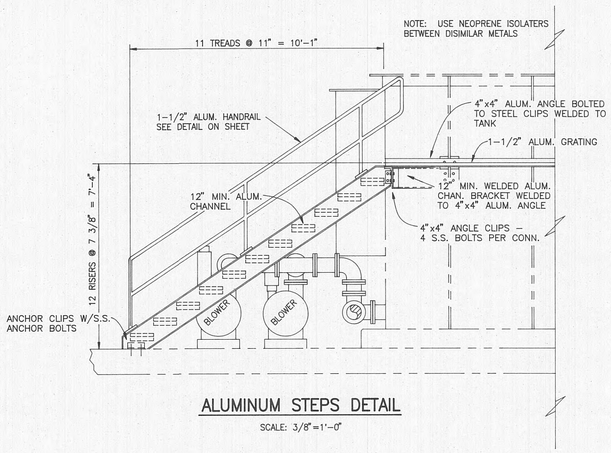
HARRIMAN, TENNESSEE
FILTER BUILDING – SECTIONS, CLEARWELL LADDER DETAIL AND CONTROL PANEL

REVISIONS
⚠1 4/19/93
ADDED TRENCH DRAIN AND OVER-FLOW PIPING DET'L

DESIGNED: L.E.R.
DRAWN: S.C.G.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: NOTED
PROJ. NO. 0592

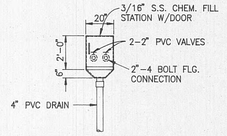
SHEET 6
OF 36

BRUNING 70169 FORM # 6915



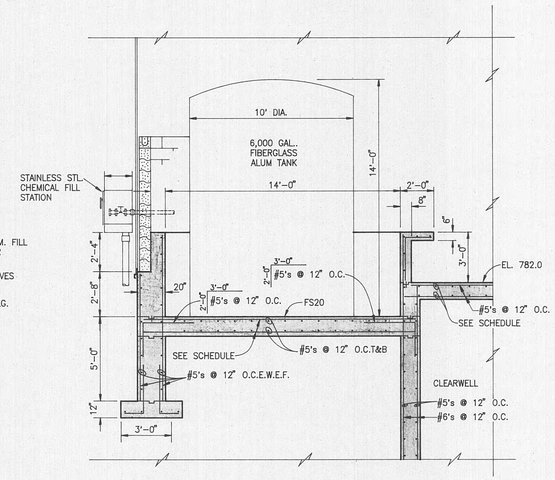
ALUMINUM STEPS DETAIL

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



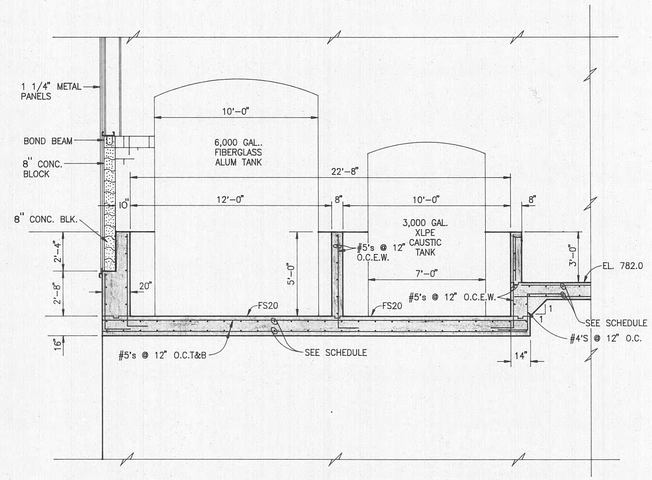
FILL STATION DETAIL

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



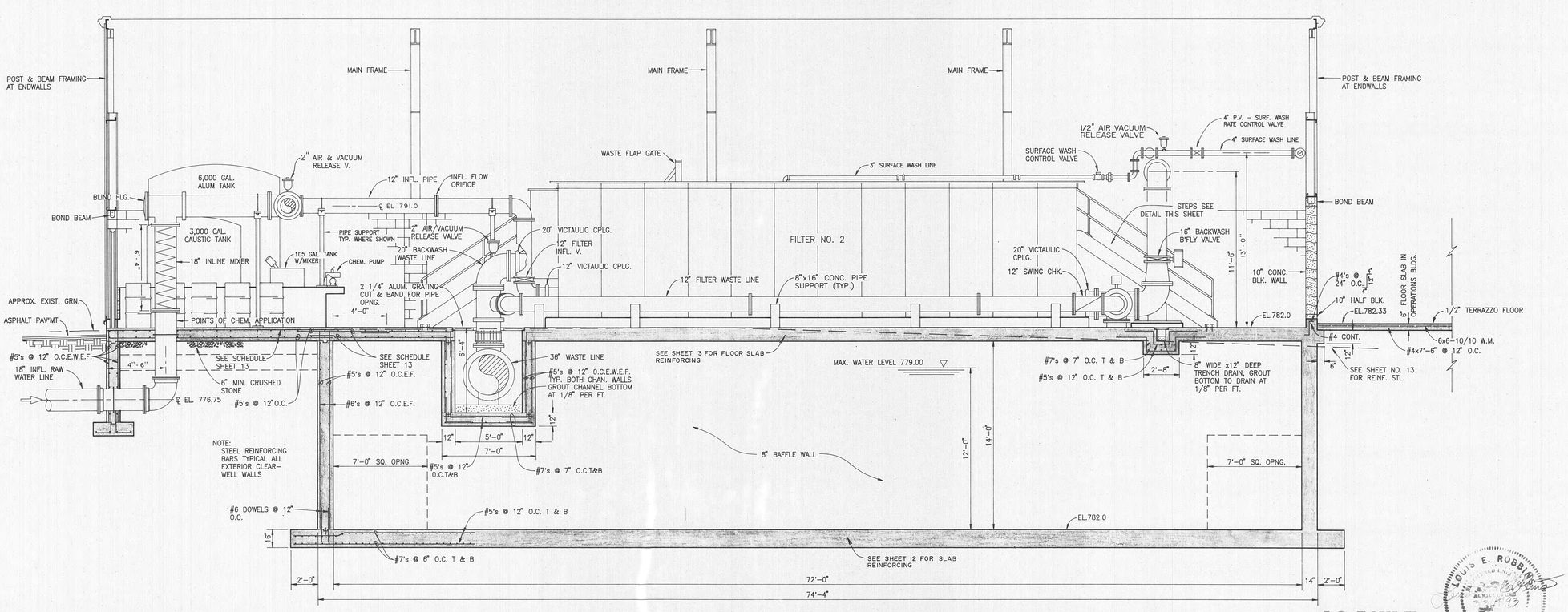
SECTION F-7

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



SECTION G-7

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



SECTION B-7

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

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. RUBINSON
REGISTERED PROFESSIONAL ENGINEER
No. 14529
STATE OF TENNESSEE

BROWNS 79218 FORM # 6815

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

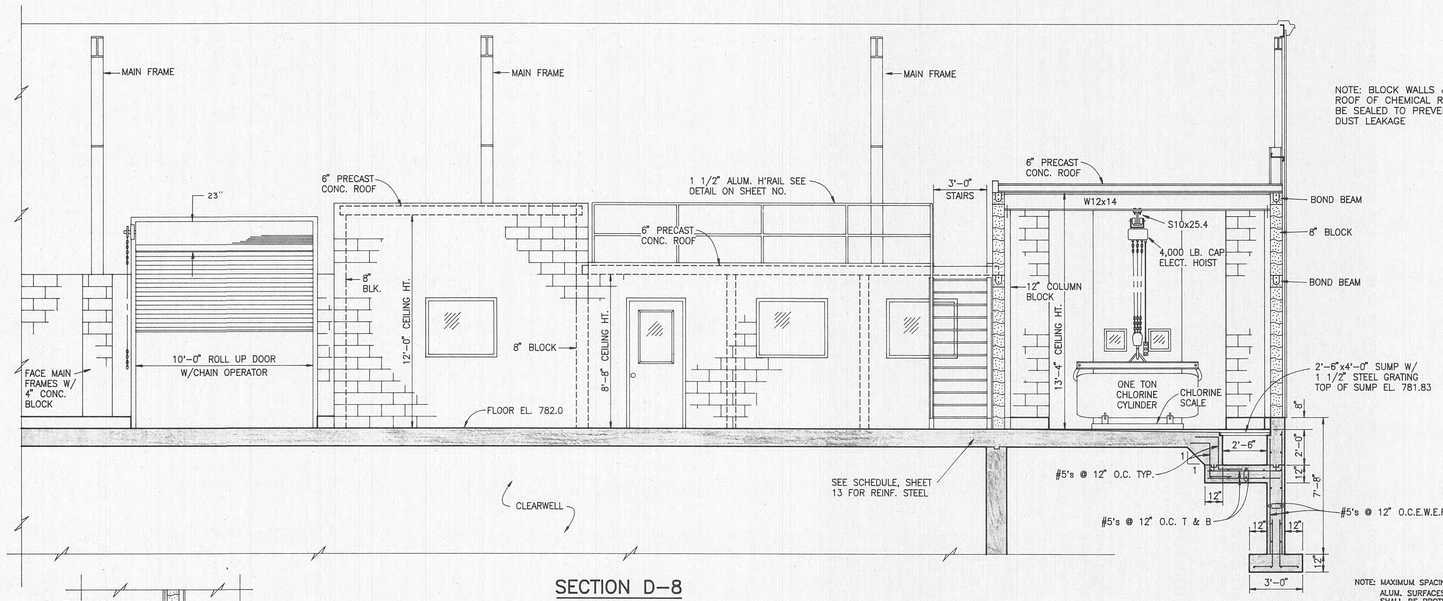
HARRIMAN, TENNESSEE
FILTER BUILDING - SECTIONS AND ALUMINUM STEP DETAIL

REVISIONS

△ 4-19-93 ADDED 36" PIPE TRENCH AND TRENCH DRAIN

DESIGNED: L.E.R.
DRAWN: S.C.G.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: NOTED
PROJ. NO. 0592

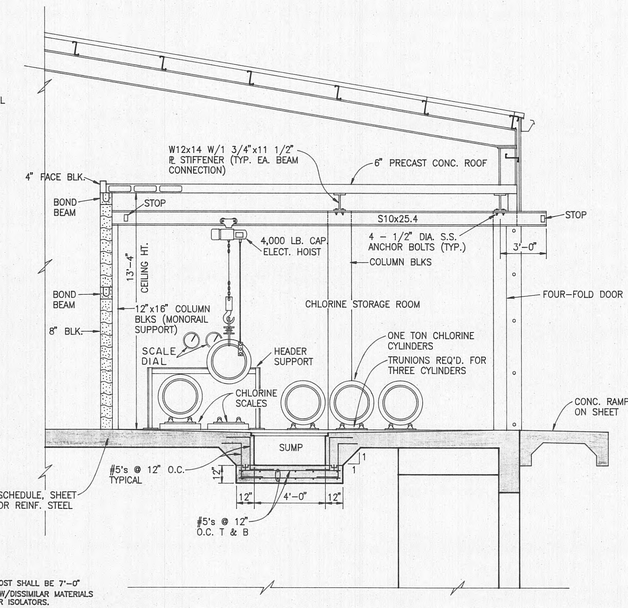
SHEET 7
OF 36



SECTION D–8

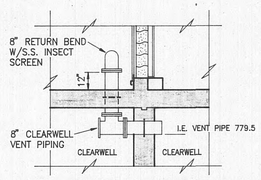
SCALE: 1/4"=1'–0"

NOTE: BLOCK WALLS & PRECAST ROOF OF CHEMICAL ROOMS SHALL BE SEALED TO PREVENT GAS OR DUST LEAKAGE



SECTION E–8

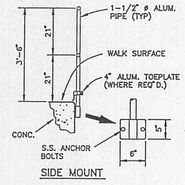
SCALE: 1/4"=1'–0"



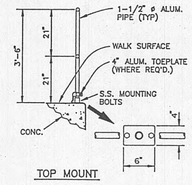
CLEARWELL VENT DETAIL

SCALE: 1/4"=1'–0"

NOTE: MAXIMUM SPACING BETWEEN POST SHALL BE 7'–0" ALUM. SURFACES IN CONTACT W/DISSIMILAR MATERIALS SHALL BE PROTECTED W/MYLAR ISOLATORS.



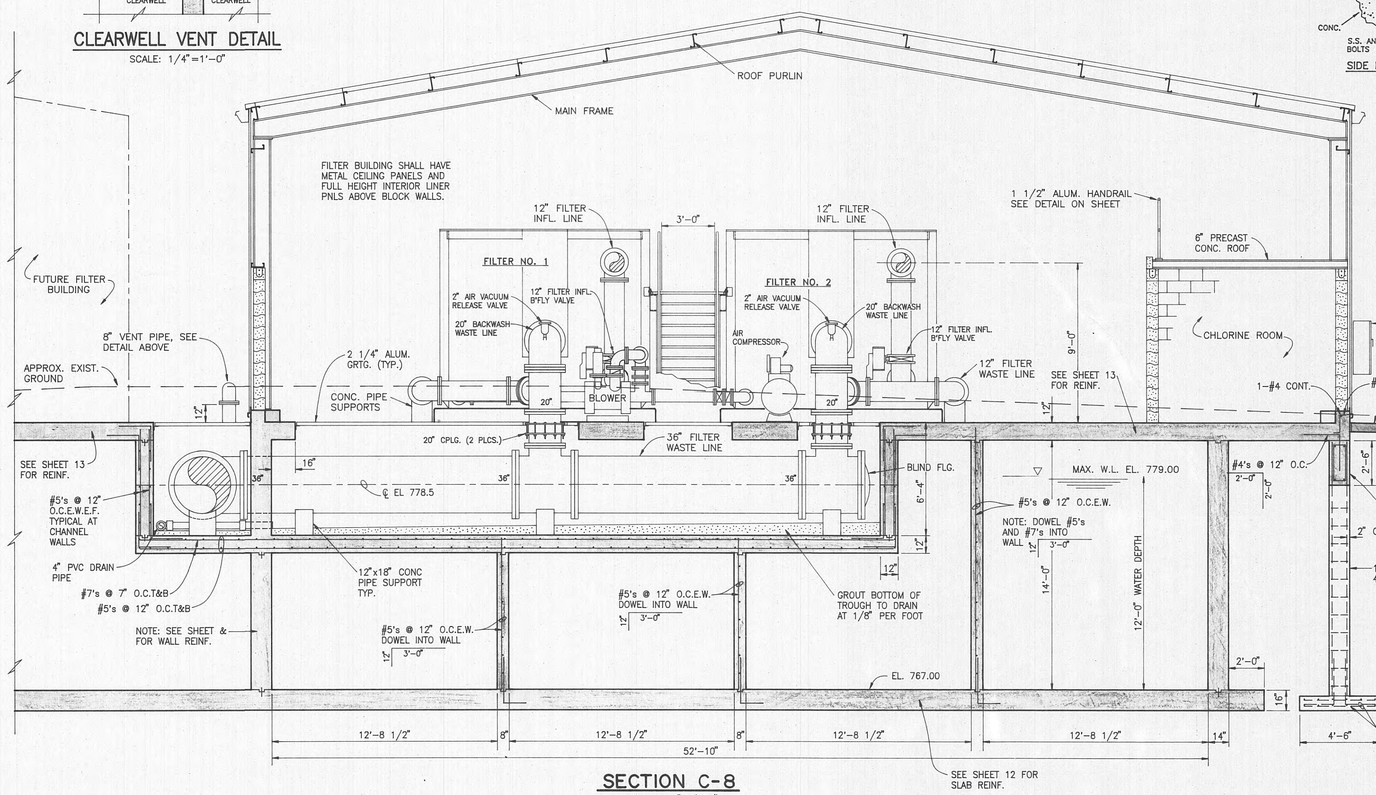
SIDE MOUNT



TOP MOUNT

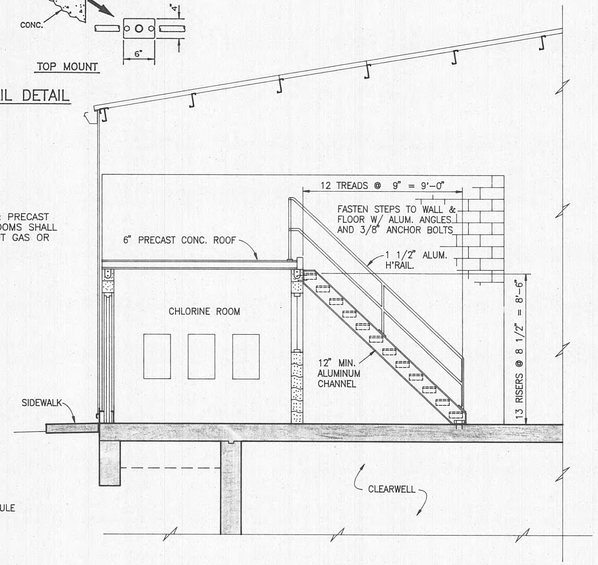
TYPICAL HANDRAIL DETAIL

NOT TO SCALE



SECTION C–8

SCALE: 1/4" = 1'–0"



STAIR DETAIL

SCALE: 1/4"=1'–0"

AS BUILT
DATE: 3-20-95
APPROVED: D.M.

LOUIS E. RUBBINO
REGISTERED LANDSCAPE ARCHITECT
AGRICULTURE
STATE OF TN

ELROD · DUNSON, INC.
CONSULTING ENGINEERS
NASHVILLE • KNOXVILLE
LEXINGTON, KY

CONTRACT W93-04

HARRIMAN, TENNESSEE

FILTER BUILDING – SECTION AND DETAILS

REVISIONS

△ 4-19-93 ADDED 36" PIPE TRENCH

DESIGNED: L.E.R.
DRAWN: S.C.G.
CHECKED: L.E.R.
DATE: MARCH, 1993
SCALE: NOTED
PROJ. NO. 0592

SHEET 8
OF 36

BRUNING 29298 FORM # 6015