

HOWARD COUNTY

DEPARTMENT OF PUBLIC WORKS

ELLCOTT CITY, MARYLAND 21043

PERMIT INFORMATION CHART

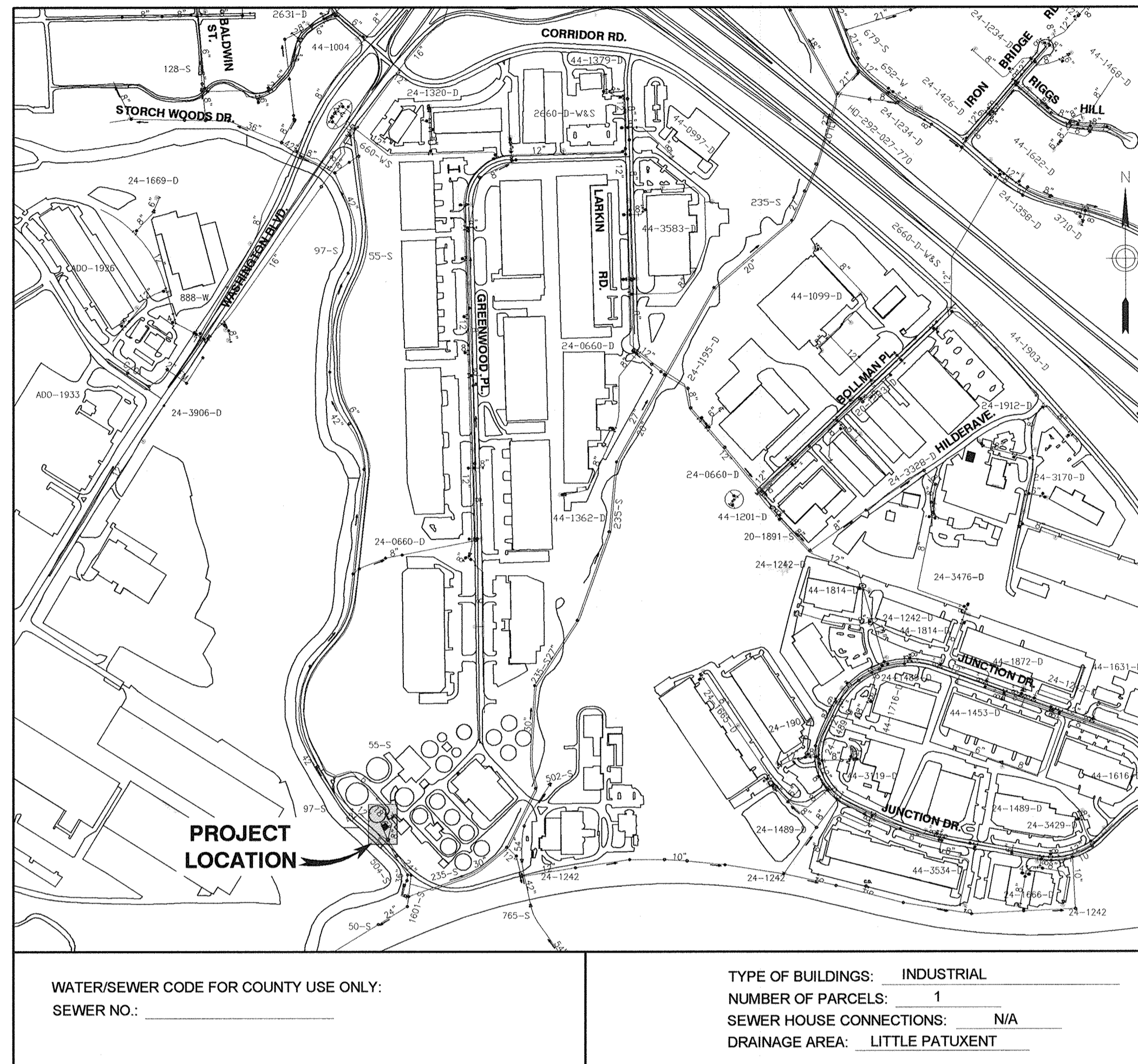
Subdivision Name	N/A	Section Area	N/A	Lot/Parcel No.	200
Plot # or L/F	31/17	Tax Map No.	47	Census Tract	6069.02
Water Code	C04	Sewer Code	4020000		

ADDRESS CHART

Lot/Parcel No.	Street Address
200	8900 Greenwood Place, Savage, MD

SITE ANALYSIS DATA CHART

Total Project Area:	794,752 sf (18.245 acres) (plant)
Area of Plan Submission	15,250 sf
Limit of Disturbed Area	13,250 sf
Present Zoning Designation	M-2
Proposed use	Aerobic Digester Tank & Appurtenances
Floor Space	N/A
Total Number of Units Allowed	N/A
Total Number of Units Proposed	N/A
Maximum Number of Employees	N/A
Number of Parking Spaces Required	N/A
Number of Parking Spaces Provided	N/A
Open Area on Site	N/A
Area of Recreation	N/A
Building Coverage	N/A
DPZ File References	SDP-00-094 & SDP-78-55
Soil Type	Cs Cornus silt loam



WATER/SEWER CODE FOR COUNTY USE ONLY:
SEWER NO.:

TYPE OF BUILDINGS: INDUSTRIAL
NUMBER OF PARCELS: 1
SEWER HOUSE CONNECTIONS: N/A
DRAINAGE AREA: LITTLE PATUXENT

VICINITY MAP
SCALE: 1" = 600'

LITTLE PATUXENT WATER RECLAMATION PLANT SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT NO. 20-4695

GENERAL NOTES

- The purpose of this site development plan is for the addition of an Aerobic Digester to the proposed Scum and Septage Receiving Facility and Screenings Building for the Little Patuxent Water Reclamation Plant.
- The subject property is zoned M-2 per the 2-2-04 the Comprehensive Zoning Plan.
- The coordinates shown on the drawings are based upon the Howard County Geodetic Control which is based upon the Maryland State Plane Coordinate System. Howard County Monument Nos. 47F5 and 48D5 were used for this project.
- All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
- The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work. The contractor is to obtain any necessary permits.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- The existing topography is taken from field run survey with one foot contour intervals prepared by Dewberry dated April 2008 and January 2011.
- Water and sewer is public.
- The existing utilities are based on plant records and test pits.
- The project lies within the 100-year floodplain per FEMA Map 240044-0043B, Elev 142.27' as converted from NGVD29.
- There are no wetlands within the limits of this project.
- This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Code and the Landscape Manual.
- This project is exempt from the requirements of Section 16.1200 of the Howard County Code for Forest Conservation since the improvements are contained within the previously approved limit of disturbance (Section 16.1202(b)(iii) of the Subdivision Regulations).
- Soil Erosion and Sediment Control and Stormwater requirements for both Phase 1B and Phase 2 are included in this Plan Set.
- The Little Patuxent River Water Reclamation Plant was constructed under the following - referenced plans: SDP-00-094 and SDP-78-55.
- Project background information:

Little Patuxent River Water Reclamation Plant
Savage, Maryland
Election District 6
Site Area (of this project): 0.35 acres

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	FLOW SCHEMATIC, DESIGN CRITERIA AND LEGEND
3	SITE PLAN / GRADING, PAVING, TRUCK PULL-OFF AND MISCELLANEOUS DETAILS
4	SITE PLAN / YARD PIPING, DIGESTER TANK ELEVATION AND DETAILS
5	YARD PIPING PROFILES AND MISCELLANEOUS DETAILS
6	GREASE TRAP WASTE PUMPING STATION, PLAN AND SECTIONS
7	AEROBIC DIGESTER PLAN, ELEVATIONS, SECTIONS AND DETAILS
8	HEADWORKS BUILDING PLANS AND DIFFUSER AERATION LAYOUT PLAN
9	SCREENINGS CONVEYOR PLAN AND DETAILS
10	SCREENINGS CONVEYOR DETAILS
11	Mg(OH) ₂ TANK PLANS, ELEVATION, PIPING SCHEMATIC AND DETAILS
12	E-1 ELECTRICAL SYMBOLS AND NOTES
13	E-2 PARTIAL ELECTRICAL SITE PLAN
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15	E-4 MCC-DS DETAILS
16	E-5 INSTRUMENTATION AND CONTROLS SYMBOLS AND ABBREVIATIONS
17	E-6 PARTIAL P&ID
18	E-7 PARTIAL P&ID
19	E-8 ELECTRICAL DETAILS
20	EROSION AND SEDIMENT CONTROL PLAN & SEQUENCE OF CONSTRUCTION
21	SEDIMENT AND EROSION CONTROL DETAILS
22	SEDIMENT AND EROSION CONTROL NOTES
23	ADD/ALT ITEM NO. 1--8" DIA. PG-1 DRAINAGE LINE RELOCATION

NOTE TO CONTRACTOR: PHASE 1B AND PHASE 2 WERE ORIGINALLY DESIGNED AND INTENDED TO BE AWARDED AS TWO SEPARATE CONTRACTS. THE CONTRACT DOCUMENTS HAVE NOW BEEN MODIFIED IN ORDER TO FACILITATE THE MERGING OF BOTH PROJECTS INTO ONE CONTRACT. HOWEVER, IT IS ULTIMATELY THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT THE SEQUENCE OF CONSTRUCTION NECESSARY TO MINIMIZE/ELIMINATE ANY AND ALL POSSIBLE INSTALLATION CONFLICTS.

AS BUILT'S

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____
CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____
DIRECTOR _____ DATE _____

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10966 EXPIRATION DATE: MAY 31, 2012

T. Thomas N. DeMott 2/8/12
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 2/9/12
DATE
CHIEF, BUREAU OF UTILITIES
[Signature] 2/9/12
DATE
CHIEF, UTILITY DESIGN DIVISION

Dewberry

Dewberry & Davis LLC
3106 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2662
410.285.9500
FAX: 410.285.8875



DES: RJP
DRN: CD
CHK: TND
DATE: 1/31/12

TITLE SHEET

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

SCALE:
AS
SHOWN

SHEET
1 OF 23

DESIGN CRITERIA

SAP PUMPING STATION

PUMPS 2
 PUMP CAPACITY 191.8 gpm
 FORCE MAIN 4"ø DIP

AEROBIC DIGESTER TANK

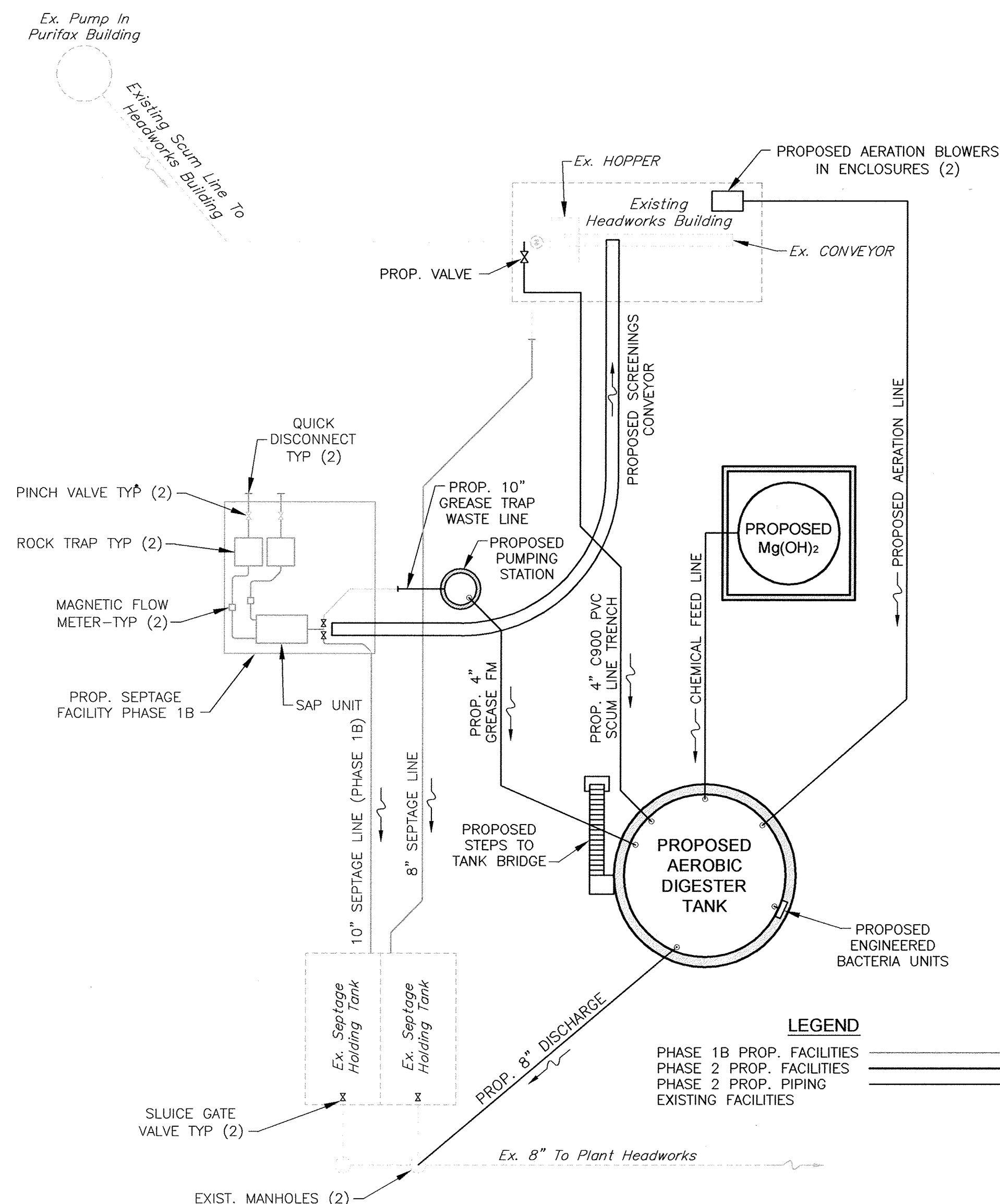
NO. OF TANKS 1
 TANK DIAMETER 31 FT.
 TANK SIDEWATER DEPTH 15 FT.
 TANK VOLUME 84,000 GAL.
 GREASE TRAP WASTE FLOW 13,000 gpm
 HYDRAULIC RETENTION TIME 6.5 DAYS
 AERATION RATE 739 scfm

LEGEND

- EXIST. CONCRETE WALK
- PROP. CONCRETE PAVING
- EXIST. HANDRAIL
- EXIST. GUARDRAIL
- EXIST. EDGE OF ROAD
- EXIST. CONCRETE DITCH
- PROP. CONCRETE DITCH
- EXIST. SANITARY PIPE
- PROP. PIPING
- EXIST. STRUCTURE/FACILITY
- PROP. STRUCTURE/FACILITY
- EXIST. MANHOLE/STRUCTURE
- PROP. PUMPING STATION
- EXIST. MANHOLE FRAME & COVER
- EXIST. BOLLARD
- PROP. BOLLARD (PHASE 1B)
- EXIST. ELECTRIC MANHOLE
- EXIST. VALVE BOX
- EXIST. ROOF DRAIN DOWNSPOUT
- EXIST. CLEANOUT
- PROP. CLEANOUT
- EXIST. YARD HYDRANT
- PROP. YARD HYDRANT
- EXIST. MINOR CONTOUR
- EXIST. MAJOR CONTOUR
- FW FLUSHING WATER
- PW POTABLE WATER

PIPE SCHEDULE

DIA.	MATERIAL	USE
12"	SS-SCH 40	AERATION PIPING
8"	DIP-CL 54	AEROBIC DIGESTER DISCHARGE LINE
8"	PVC-SCH 80	GUTTER DRAIN LINES
4"	DIP-CL 54	GREASE TRAP WASTE P.S. FORCE MAIN
4"	PVC-SCH 80	SCUM LINE
8"	SS-SCH 40	AERATION PIPING
2"	PVC-SCH 80	FLUSHING WATER



LEGEND
 PHASE 1B PROP. FACILITIES
 PHASE 2 PROP. FACILITIES
 PHASE 2 PROP. PIPING
 EXISTING FACILITIES

APPROVED: DEPARTMENT OF PLANNING AND ZONING

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Thomas N. D... [Signature] 2/8/12
 Date

Signature of Engineer

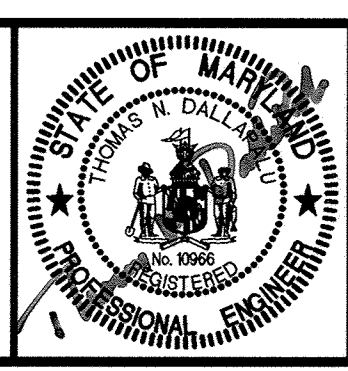
DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 2/9/12
 DIRECTOR OF PUBLIC WORKS DATE

[Signature] 2/9/12
 CHIEF, BUREAU OF UTILITIES DATE

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CHK:	TND
DATE:	1/7/12
BY:	NO.
REVISIONS:	
DATE:	

FLOW SCHEMATIC
DESIGN CRITERIA AND LEGEND

600' SCALE MAP NO. 47 BLOCK NO. 24

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
 CONTRACT 20-4695

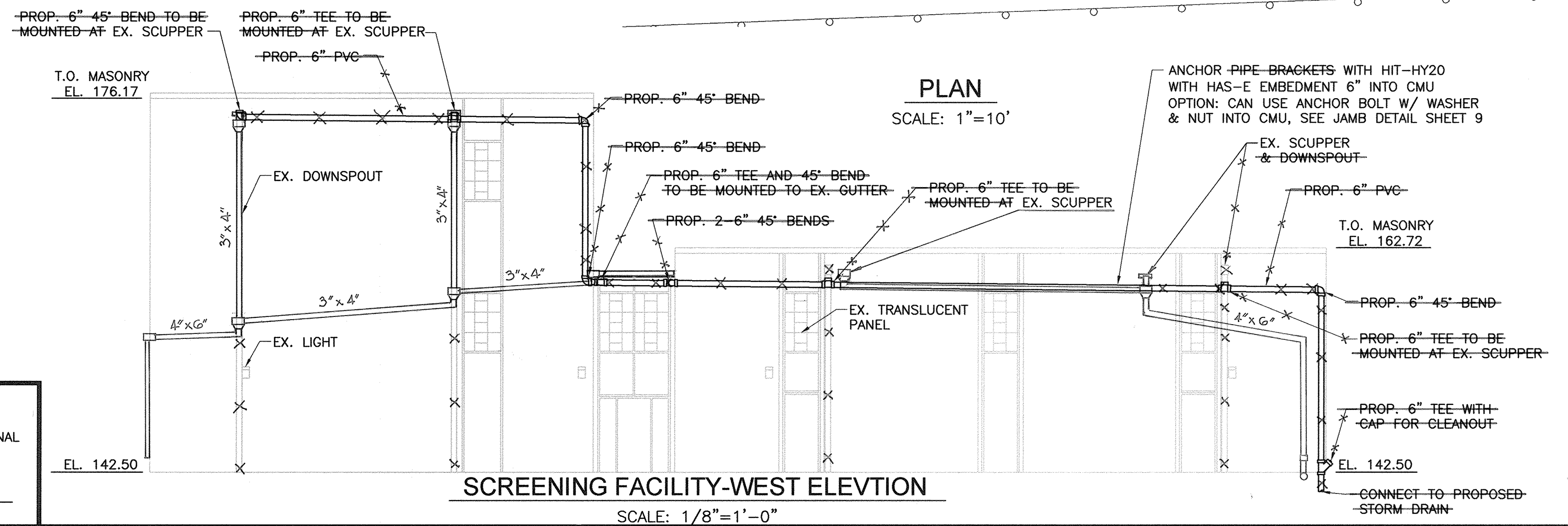
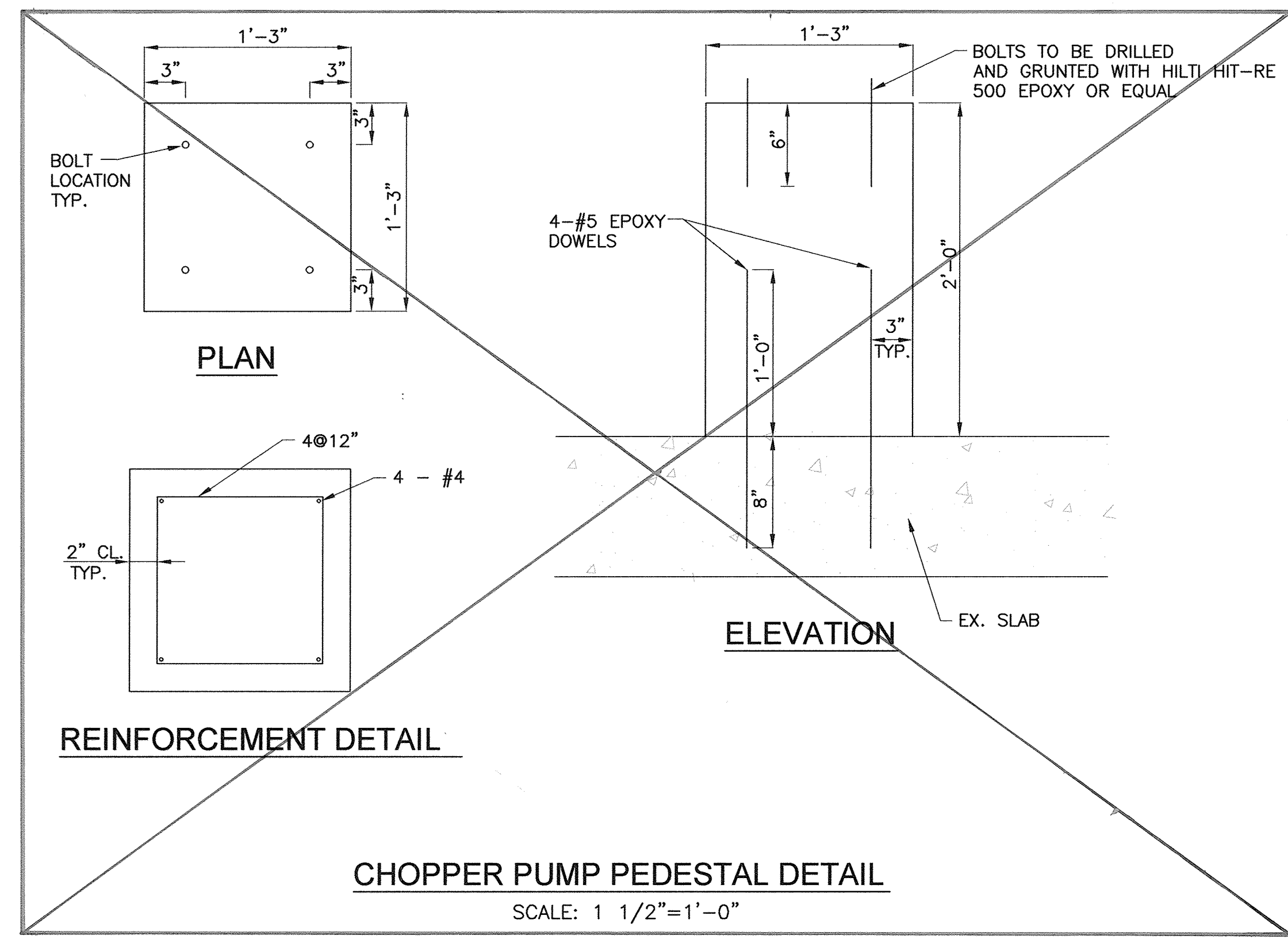
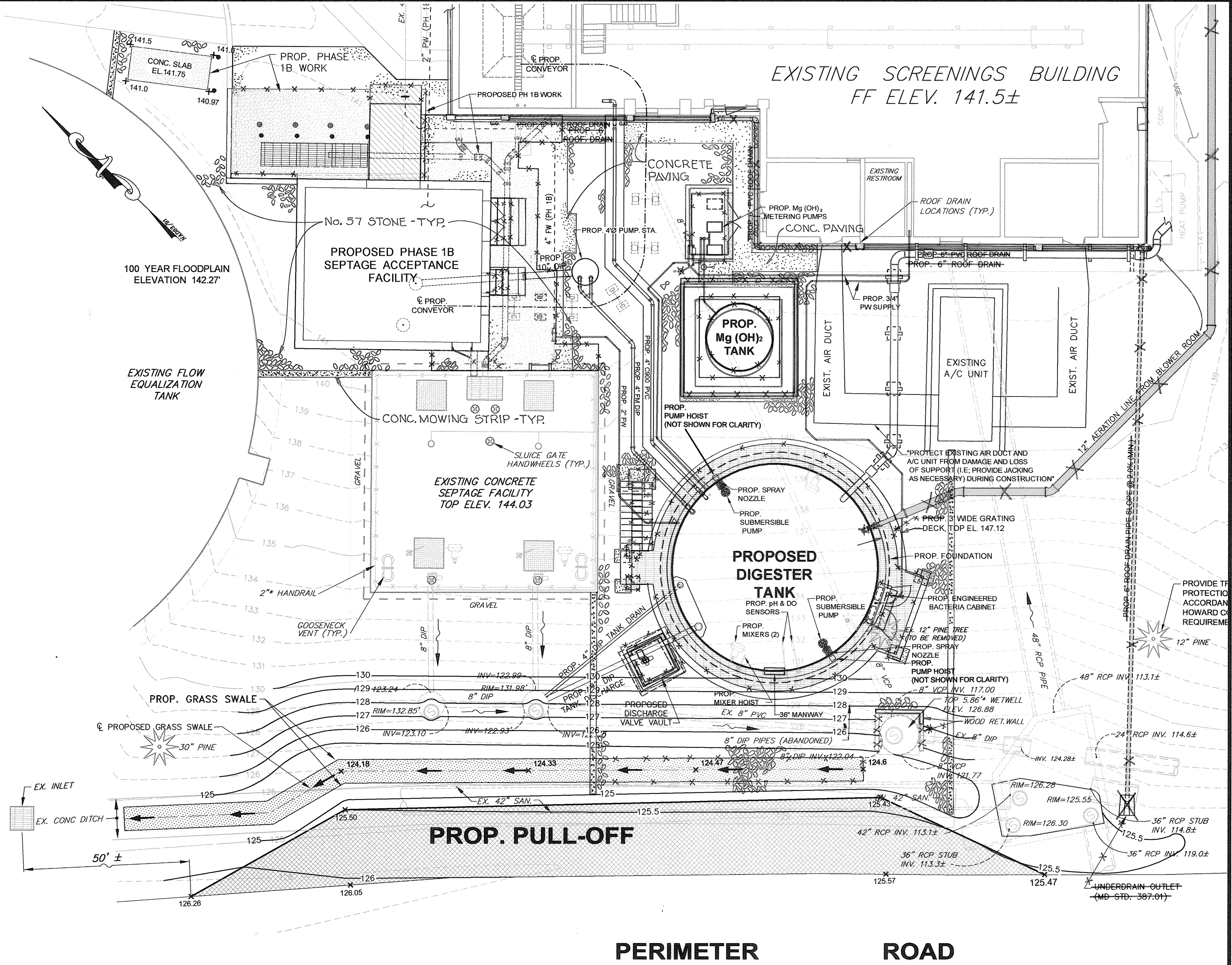
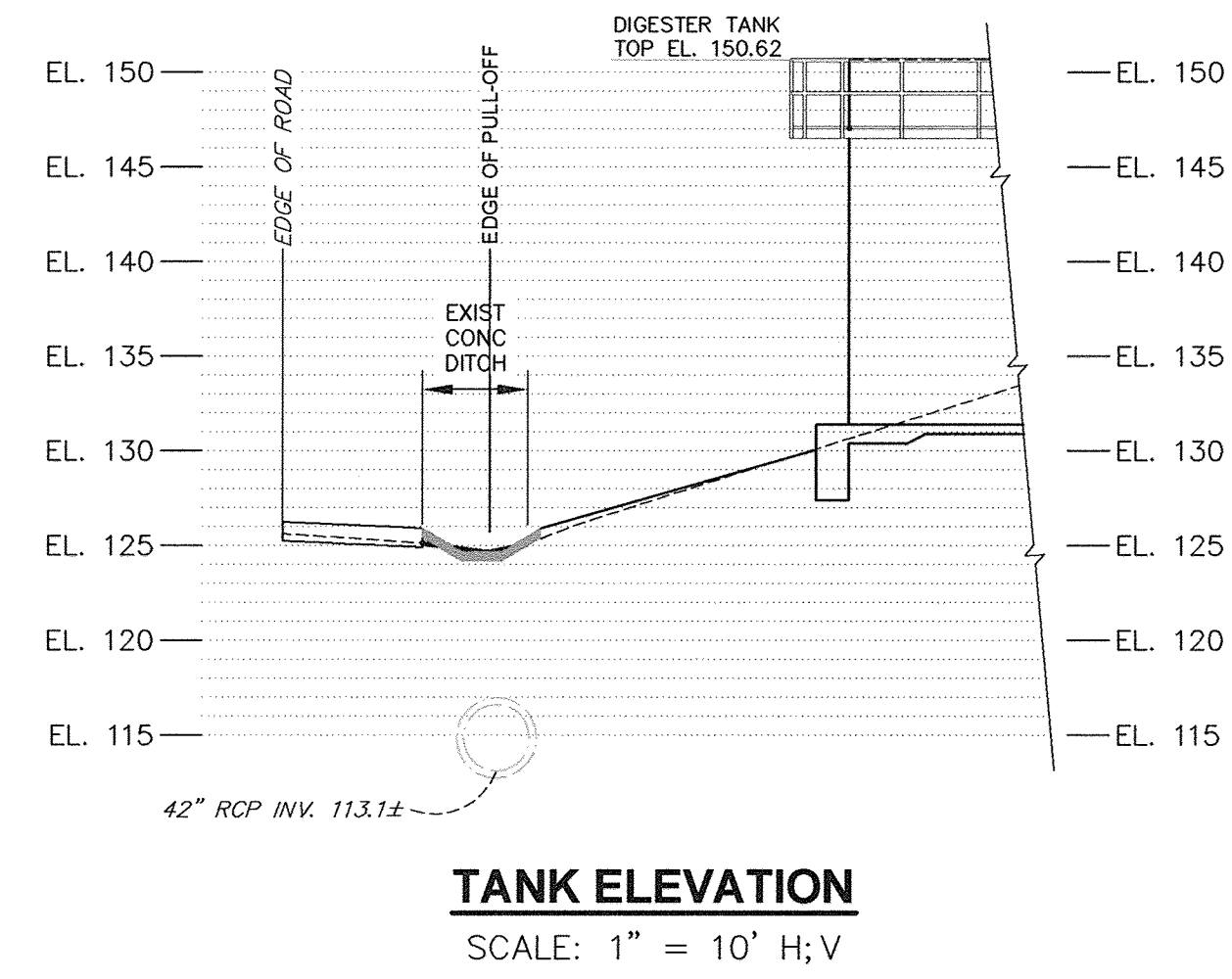
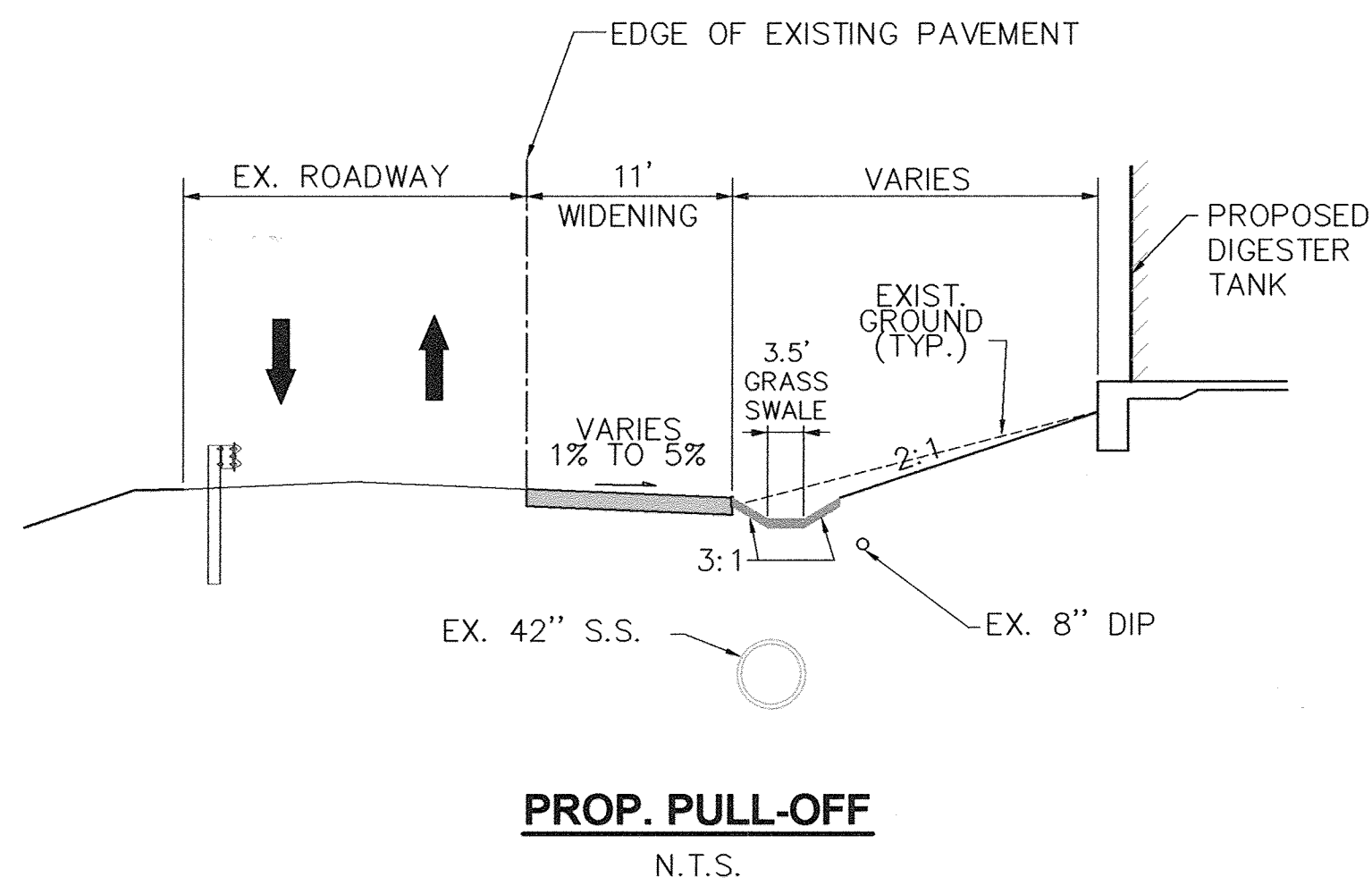
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET 2 OF 23

AS-BUILTS

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 User: [Name] Date: 2/8/12 Time: 10:34am
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APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

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Thomas W. Dellella
Signature of Engineer
2/8/12
Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John A. Zaleski
DIRECTOR OF PUBLIC WORKS
DATE 2/19/12

Mona J. Suttler
CHIEF, BUREAU OF ENGINEERING
DATE 2/9/12

Richard J. Zaleski
CHIEF, BUREAU OF UTILITIES
DATE 2/19/12

Dewberry
Dewberry & Davis LLC
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SITE PLAN / GRADING, PAVING, TRUCK PULL-OFF AND MISCELLANEOUS DETAILS

600' SCALE MAP NO. 47
BLOCK NO. 24

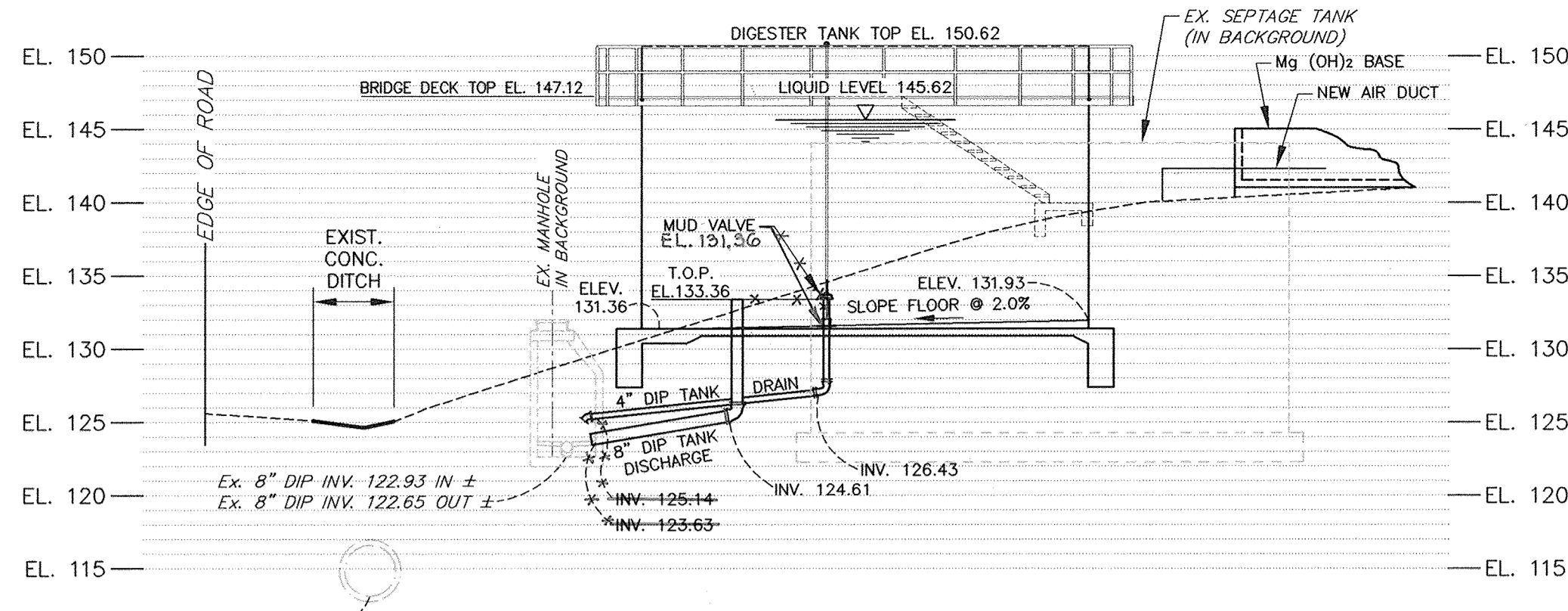
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

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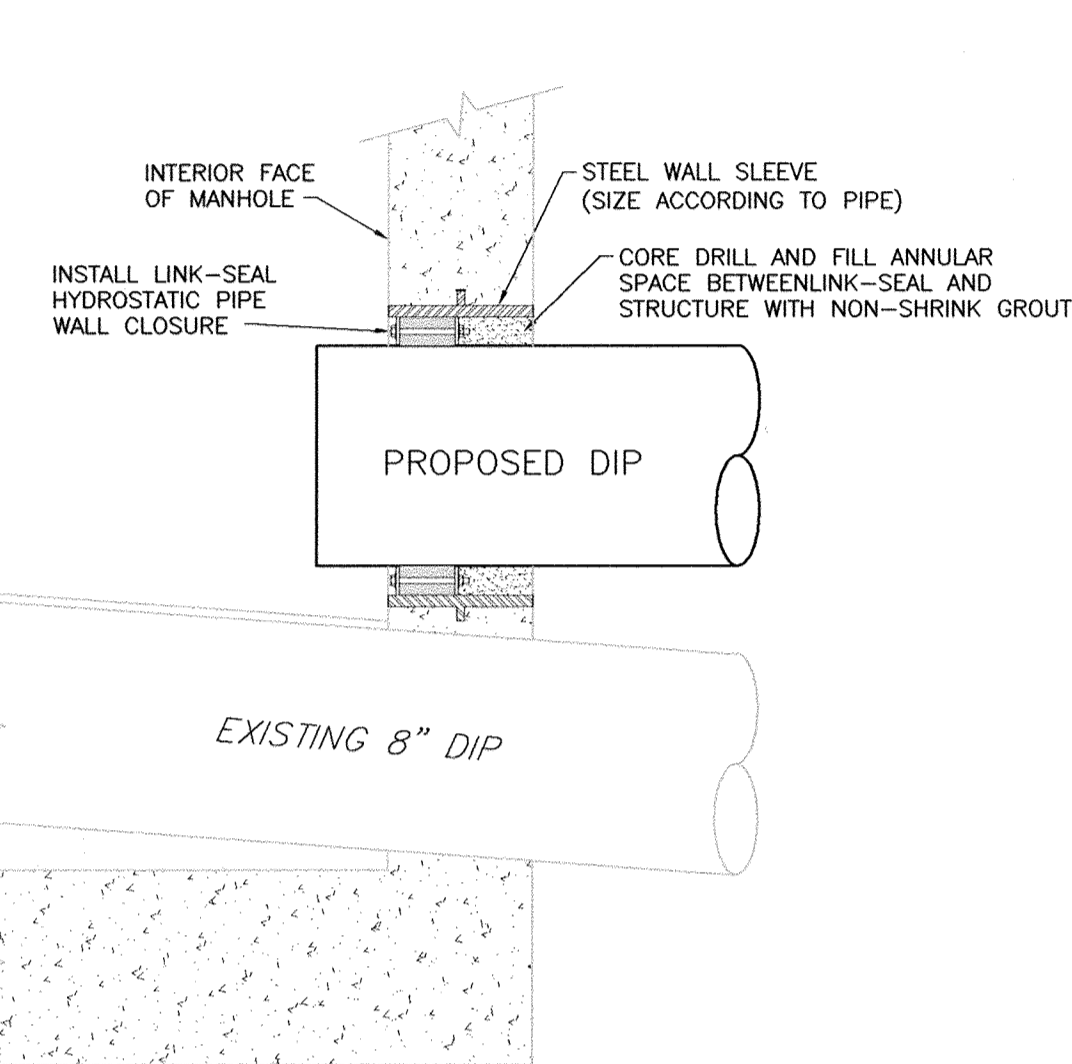
SCALE: AS SHOWN
SHEET 3 OF 23





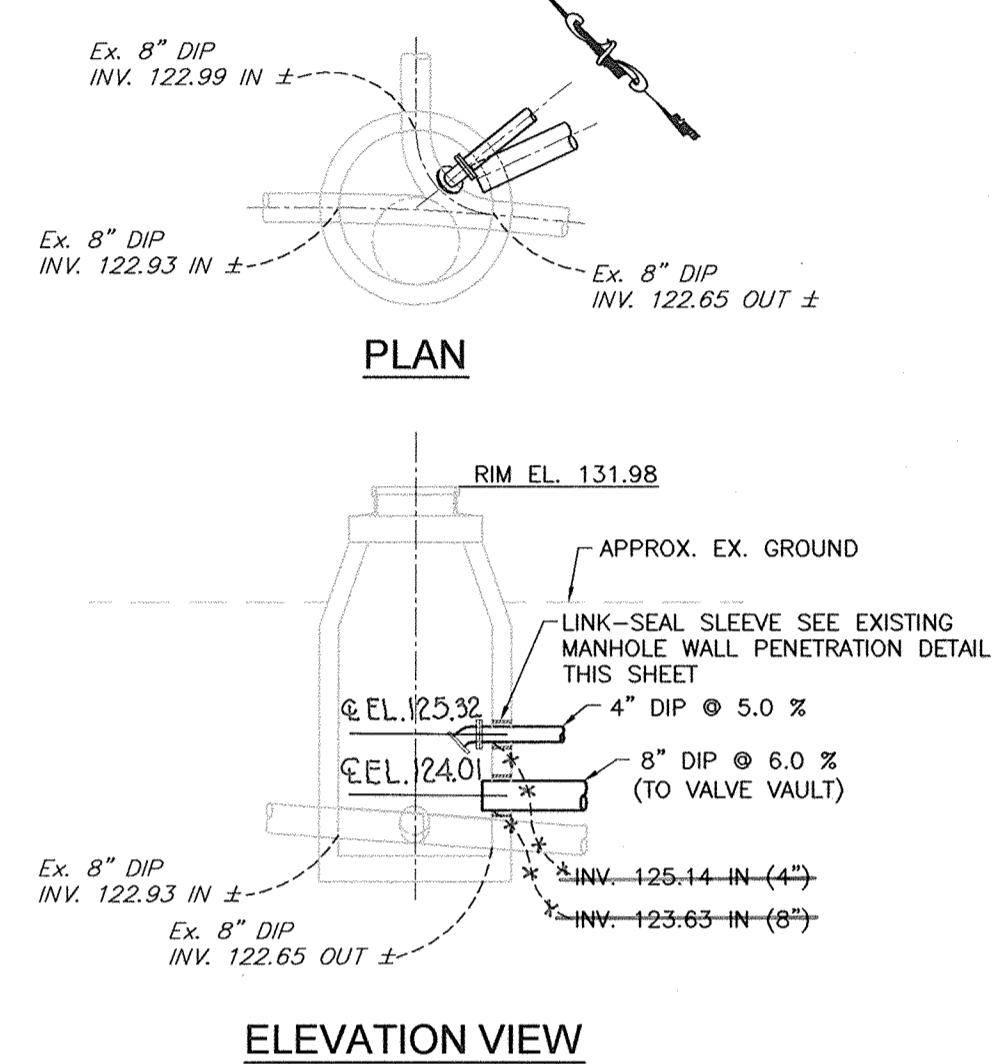
DIGESTER TANK ELEVATION

SCALE: 1" = 10' H; V



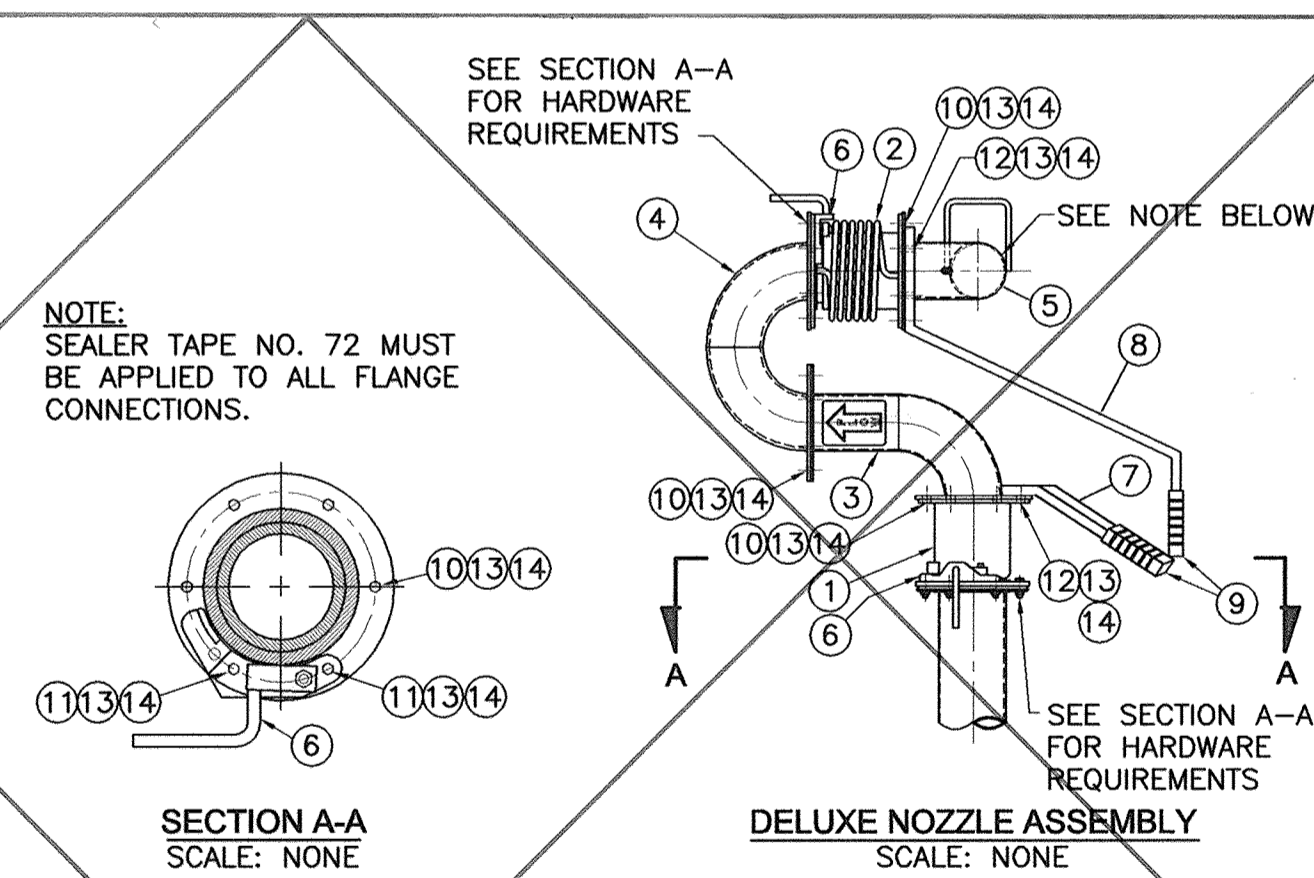
EXISTING MANHOLE TANK DRAIN & DISCHARGE WALL PENETRATION DETAIL

SCALE: NONE



CONNECTION OF DIGESTER TANK PIPING TO EXISTING MANHOLE

SCALE: 1"=5'



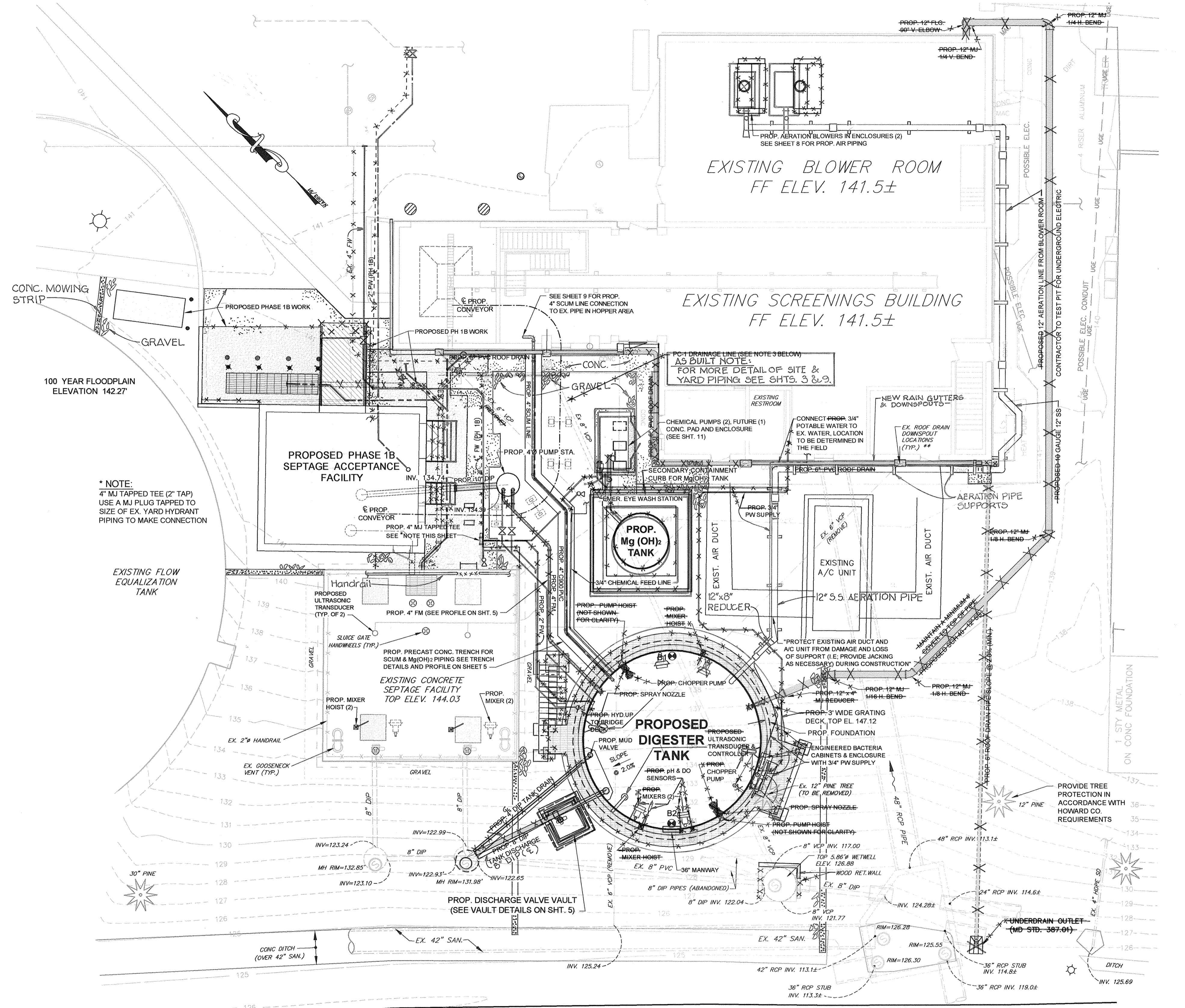
SECTION A-A

DELUXE NOZZLE ASSEMBLY

- NOTE:
- NOZZLES TO BE SITUATED 180° APART.
 - CONTRACTOR TO FABRICATE DUCK BILL ATTACHMENT TO ENABLE FANNING OF SPRAY. SPRAY SHALL BE CAPABLE OF REACHING A 180° RADIUS OF TANK. CONTRACTOR TO VERIFY WITH CHOPPER PUMP MANUFACTURER THAT DUCT BILL ATTACHMENT WILL NOT DAMAGE PUMP OR PIPING.

QTY. USED ON	PART NUMBER	DESCRIPTION	ITEM		
1	1	255567-126	ESPC PRODUCT FORMS		
1	1	084355-004	SEALER TAPE NO. 72		
24	30	12	252169-000	HEX NUT, 3/8"	
24	30	12	252168-000	LOCKWASHER, 3/8"	
4	4	2	017500-157	HEX HEAD CAP SCREW, 3/8" X 2"	
2	4	2	017500-146	HEX HEAD CAP SCREW, 3/8" X 1 3/4"	
18	22	8	017500-067	HEX HEAD CAP SCREW, 3/8" X 1 1/4"	
1	2	1	259098-000	HANDLE GRIP	
1	1	-	259226-000	VERTICAL HANDLE WELDMENT	
-	1	1	259071-000	HORIZONTAL HANDLE	
1	2	1	259097-000	LOCK - RETAINER ASSEMBLY	
-	1	1	258756-000	AGITATION NOZZLE WELDMENT	
1	1	-	258754-000	180° RETURN WELDMENT	
1	1	-	258755-000	ELBOW PIPE WELDMENT	
1	1	-	258700-001	SWIVEL JOINT ASSEMBLY	
-	1	1	258700-000	SWIVEL JOINT ASSEMBLY	
-	002	-001	-000	259280	OVER-TOP NOZZLE ASSEMBLY

PART NUMBER	USED ON
259280-000	STANDARD NOZZLE ASSEMBLY
259280-001	DELUXE NOZZLE ASSEMBLY
259280-002	VERTICAL MODE CONVERSION ASSEMBLY



PERIMETER ROAD

PLAN

SCALE: 1"=10'

- NOTES:
- ALL EXPOSED ABOVEGROUND DISCHARGE PIPING WHICH TRAVELS UP AND OVER THE TOP OF THE AEROBIC DIGESTER WALL AND ALL EXPOSED POTABLE WATER LINES TO BE APPROPRIATELY HEAT TRACED.
 - CONTRACTOR TO INSTALL MIXER CRANE AT HEIGHT NECESSARY TO ENSURE ADEQUATE CLEARANCE OVER TANK SIDEWALL WHEN MIXER IS BEING REMOVED.
 - IF PG-1 DRAINAGE LINE WILL REMAIN IN PLACE UNDER PROPOSED DIGESTER TANK, REPLACE PORTION OF LINE UNDER TANK WITH 6L-54 D.I.P. AND ENGAGE LINE IN CONCRETE TO 5 FEET OUTSIDE OF TANK FOUNDATION ON EACH SIDE.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

DIRECTOR _____ DATE _____

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Thomas W. DeMott *2/8/12*
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John P. ... *2/9/12*
DIRECTOR OF PUBLIC WORKS DATE

Michelle ... *2/9/12*
CHIEF, BUREAU OF UTILITIES DATE

Morgan ... *2/9/12*
CHIEF, BUREAU OF ENGINEERING DATE

... *2/9/12*
CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3108 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2062
410.265.6500
FAX: 410.265.8875

STATE OF MARYLAND
PROFESSIONAL ENGINEER
THOMAS W. DEMOTT
LICENSE NO. 10966
EXPIRES 5/31/2012

DES:	DRN:	CHK:	DATE:	BY:	NO.	REVISIONS	DATE:
RJP	CD	TND	1/7/12				

SITE PLAN / YARD PIPING
DIGESTER TANK ELEVATION
AND DETAILS

600' SCALE MAP NO. 47 BLOCK NO. 24

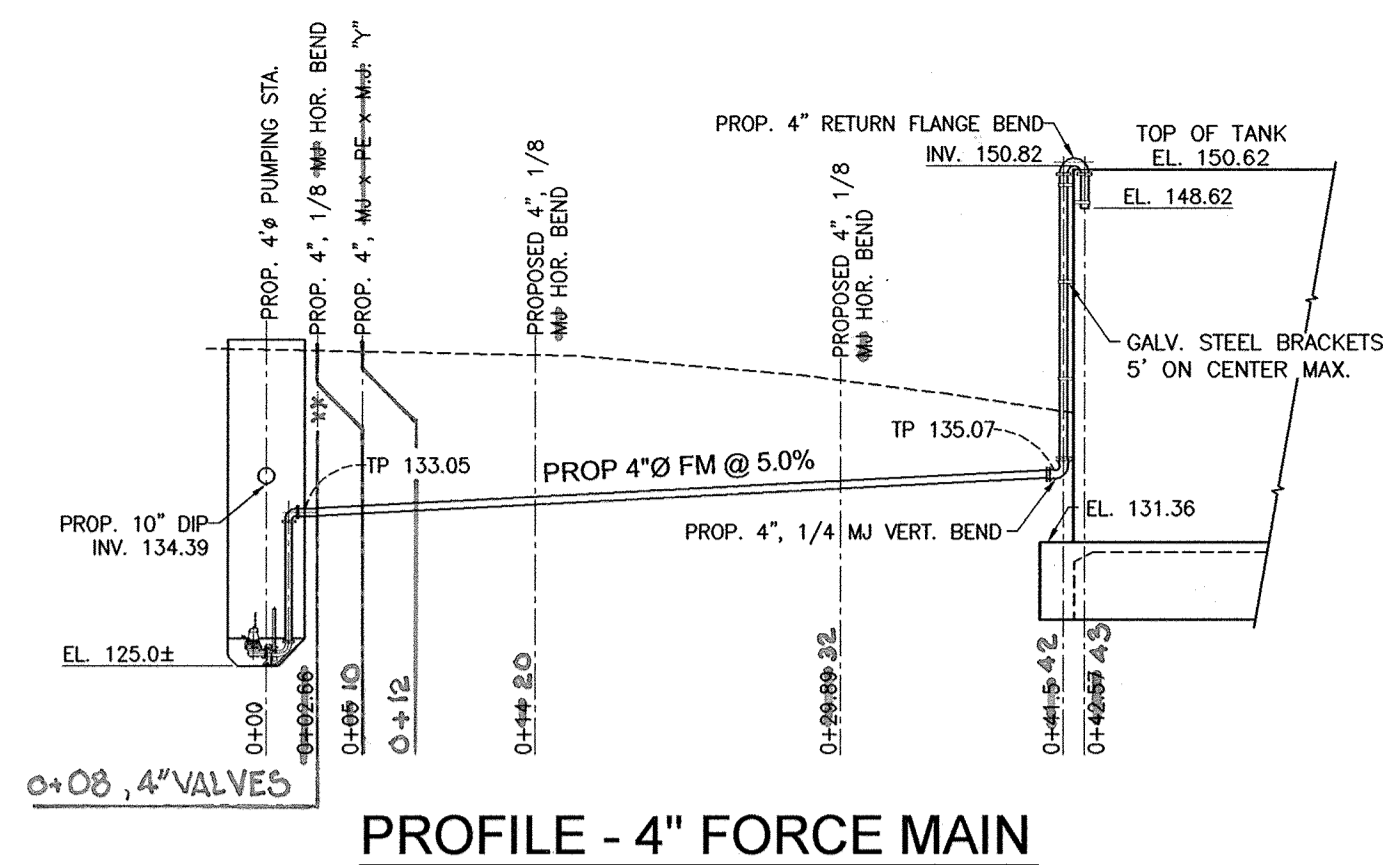
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
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ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

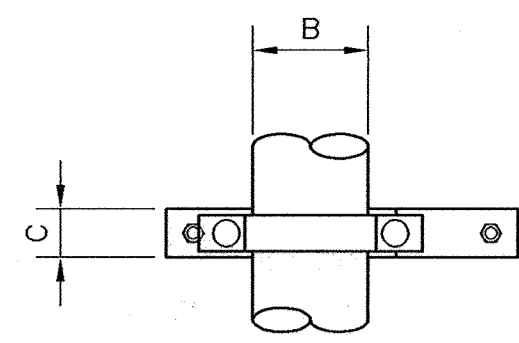
SCALE: AS SHOWN
SHEET 4 OF 23

Printed by (customer) on Feb 07, 2012, 3:31pm
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 Plot: 2/7/2012, 3:31pm
 Plot Size: 11x17
 Plot Scale: 1"=10'
 Plot Orientation: Landscape
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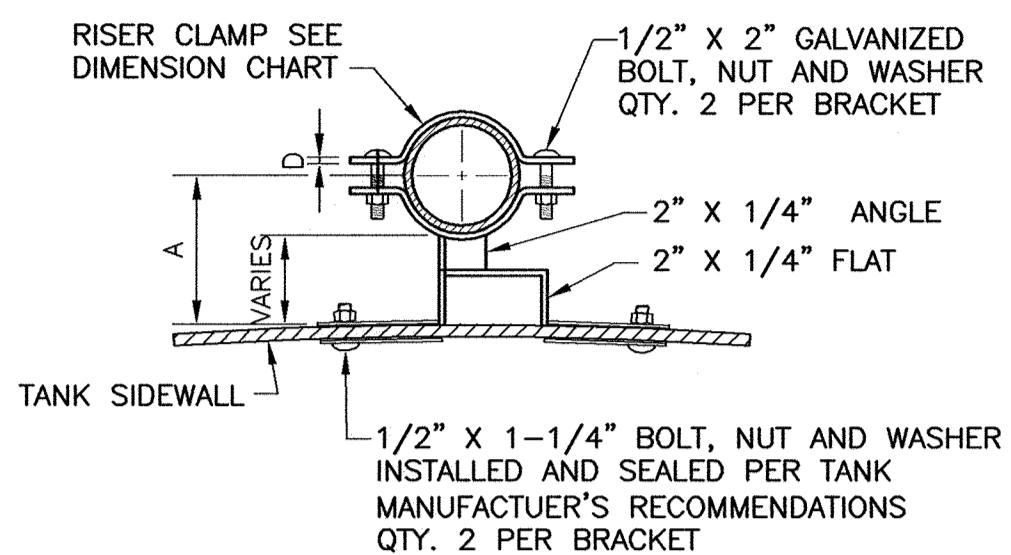


PROFILE - 4" FORCE MAIN

SCALE: 1" = 10' H;V



ELEVATION VIEW

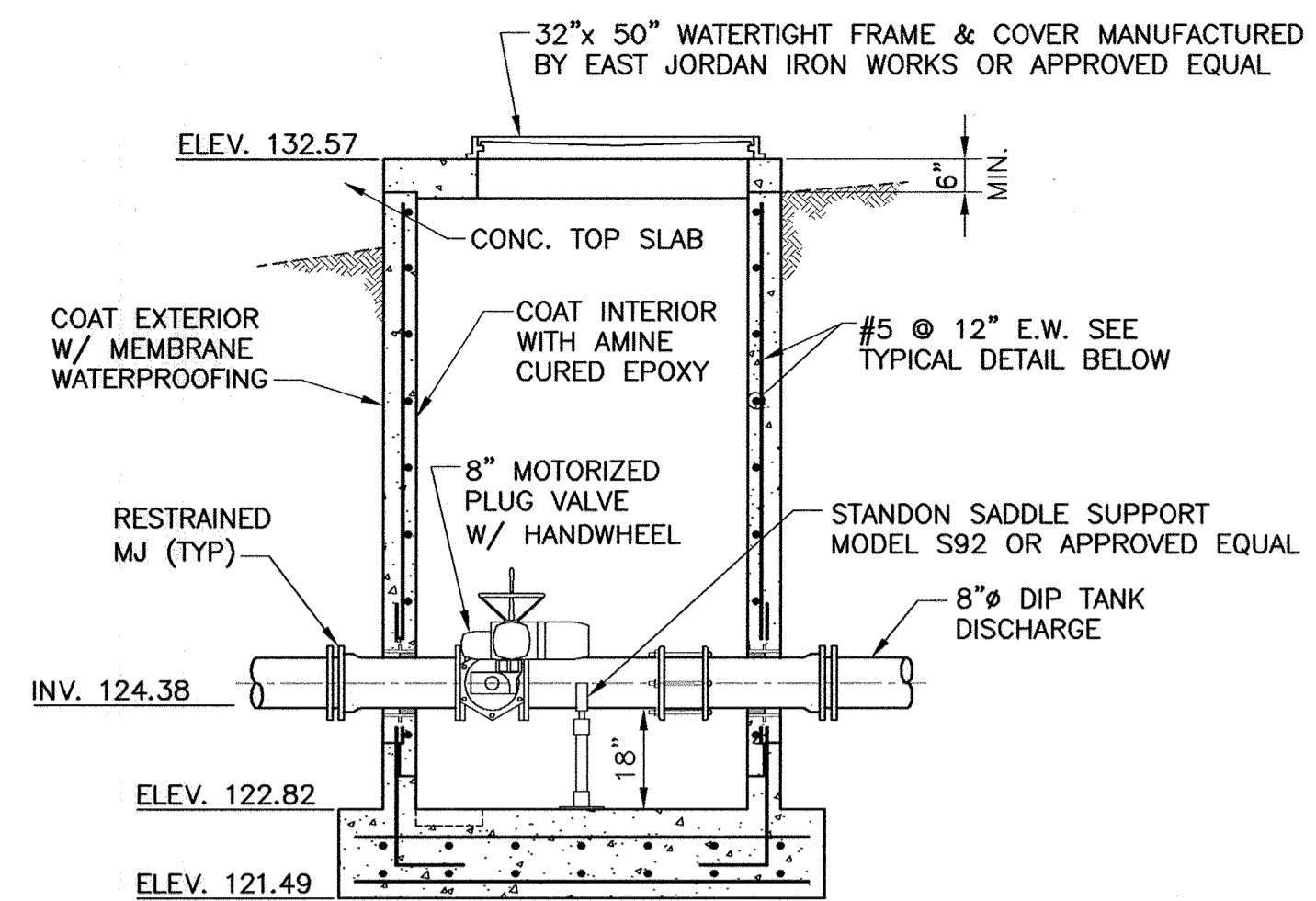


GALVANIZED STEEL BRACKET DETAIL

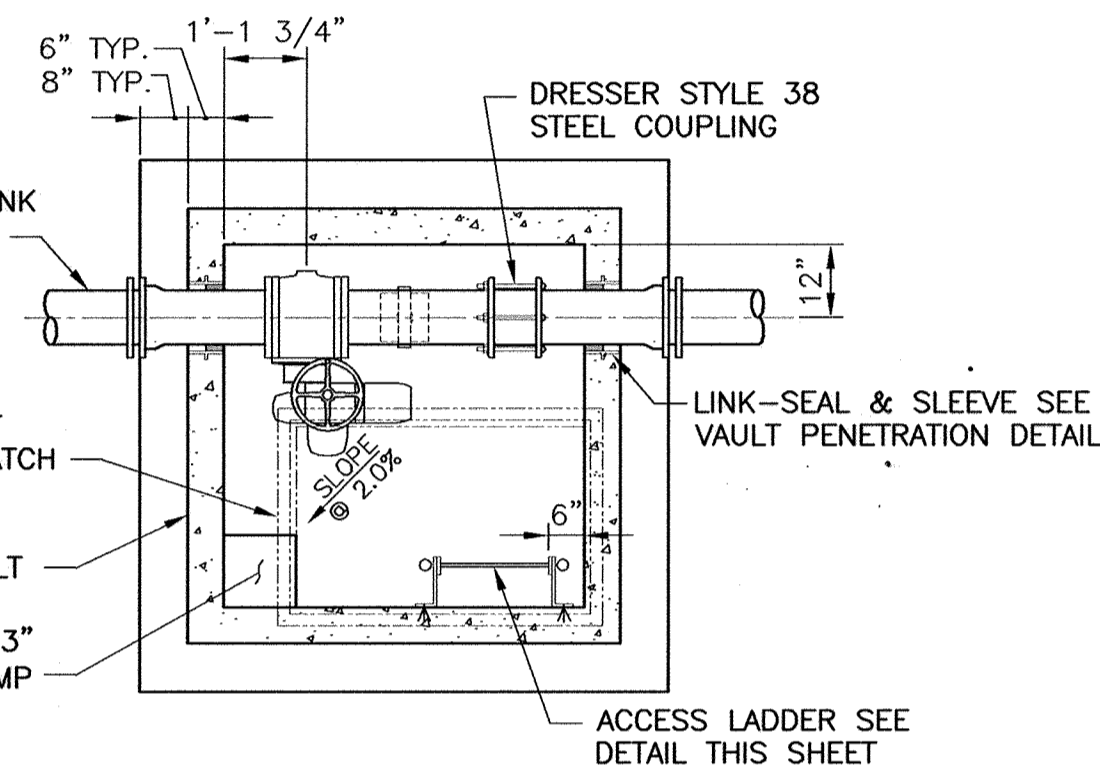
SCALE: NONE

DIMENSION CHART					
PIPE SIZE	A OS	A IS	B	C	D
2" FW	4-1/2"	-	2-1/2"	1"	1/4"
4" FM	6-3/8"	6-3/8"	4-1/2"	1"	1/4"
4" SCUM	12-5/8"	10"	11"	2"	5/16"
4" SPRAY LINE	6-3/8"	6-3/8"	4-1/2"	1"	1/4"
4" AERATION	7-17/32"	6-3/8"	4-1/2"	1"	1/4"

OS = OUTSIDE OF DIGESTER TANK WALL
IS = INSIDE OF DIGESTER TANK WALL
NOTE: DIMENSIONS TO BE VERIFIED BY THE CONTRACTOR.

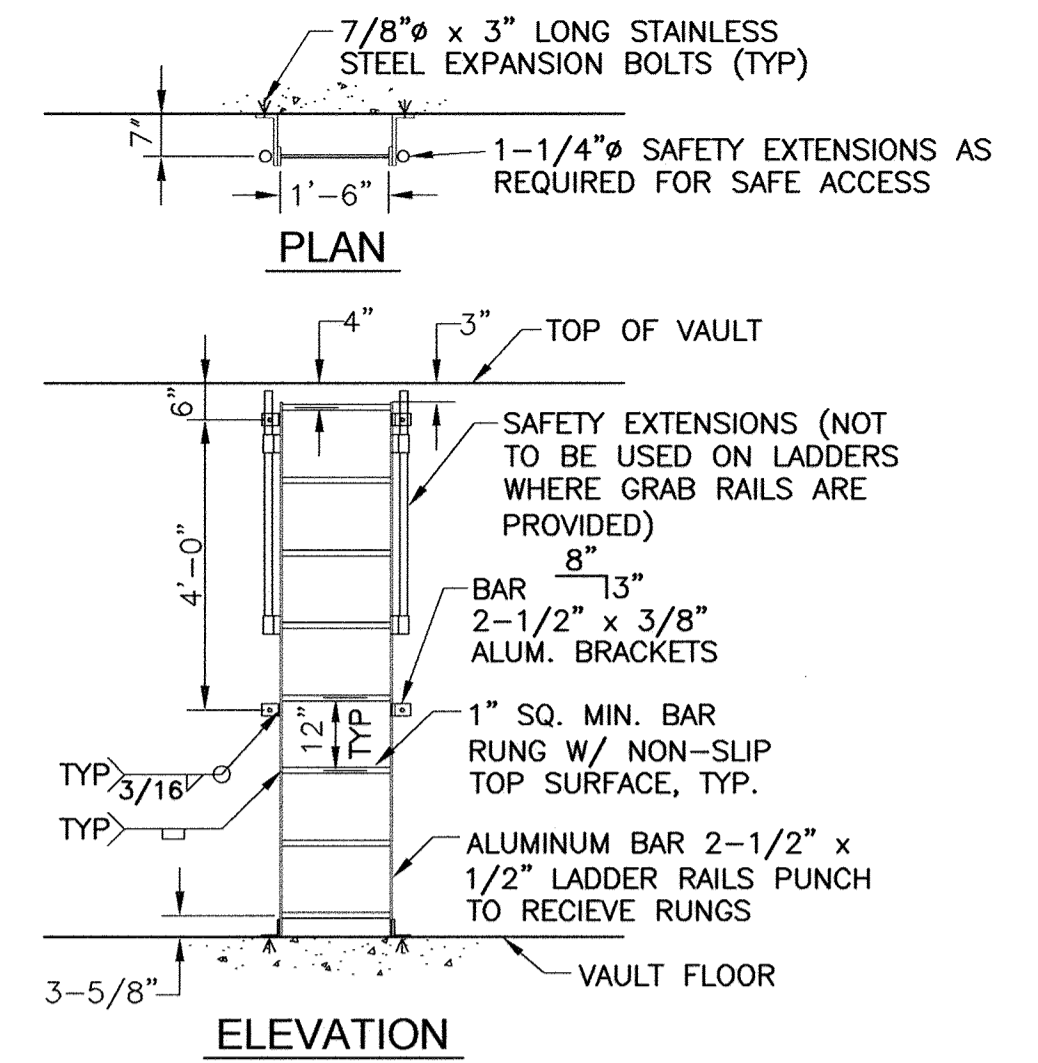


ELEVATION
(LADDER NOT SHOWN FOR CLARITY)



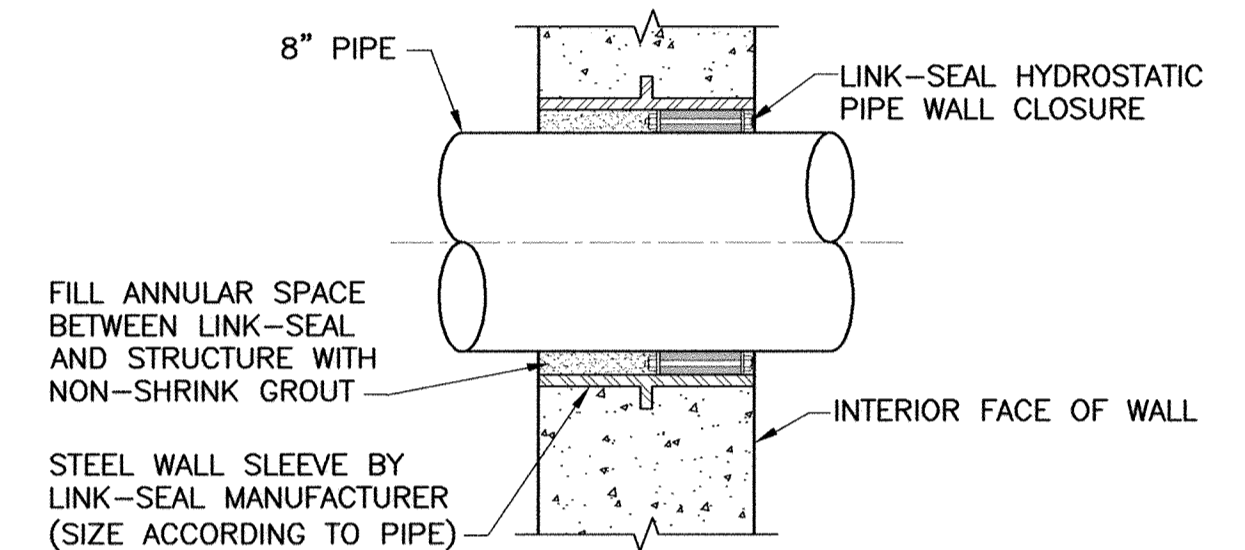
DIGESTER DISCHARGE VALVE VAULT

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



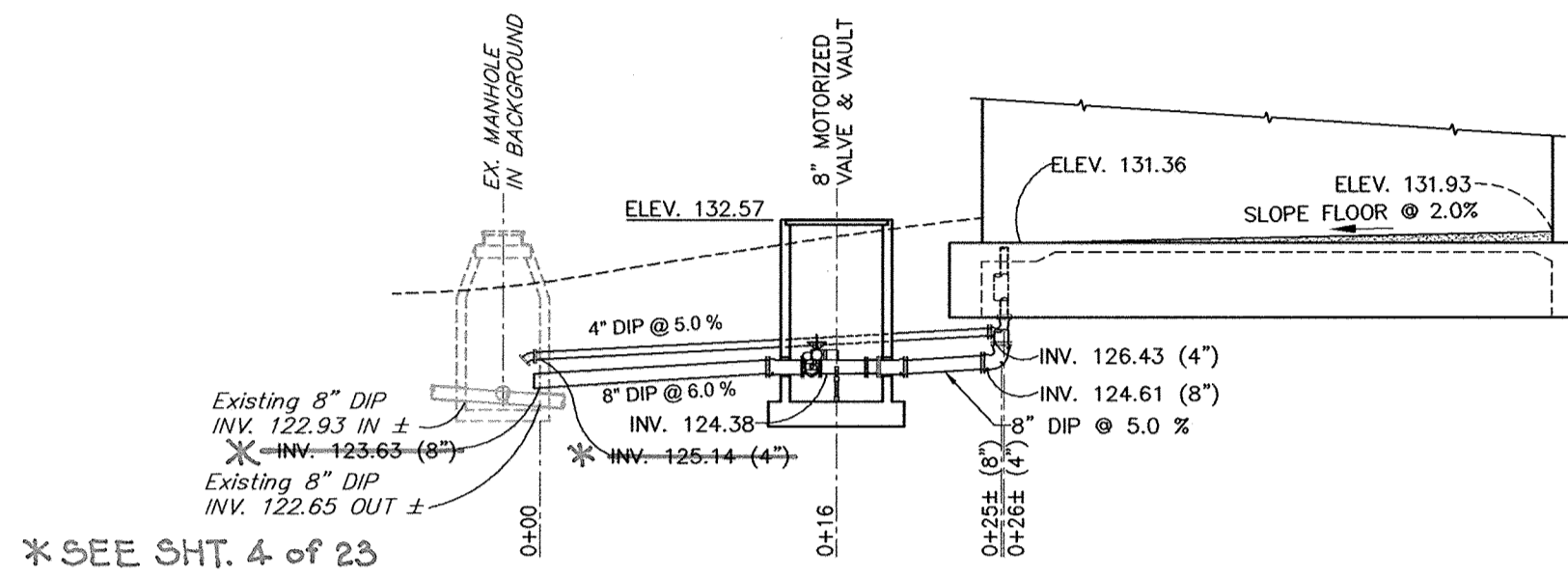
ACCESS LADDER DETAIL

SCALE: NONE



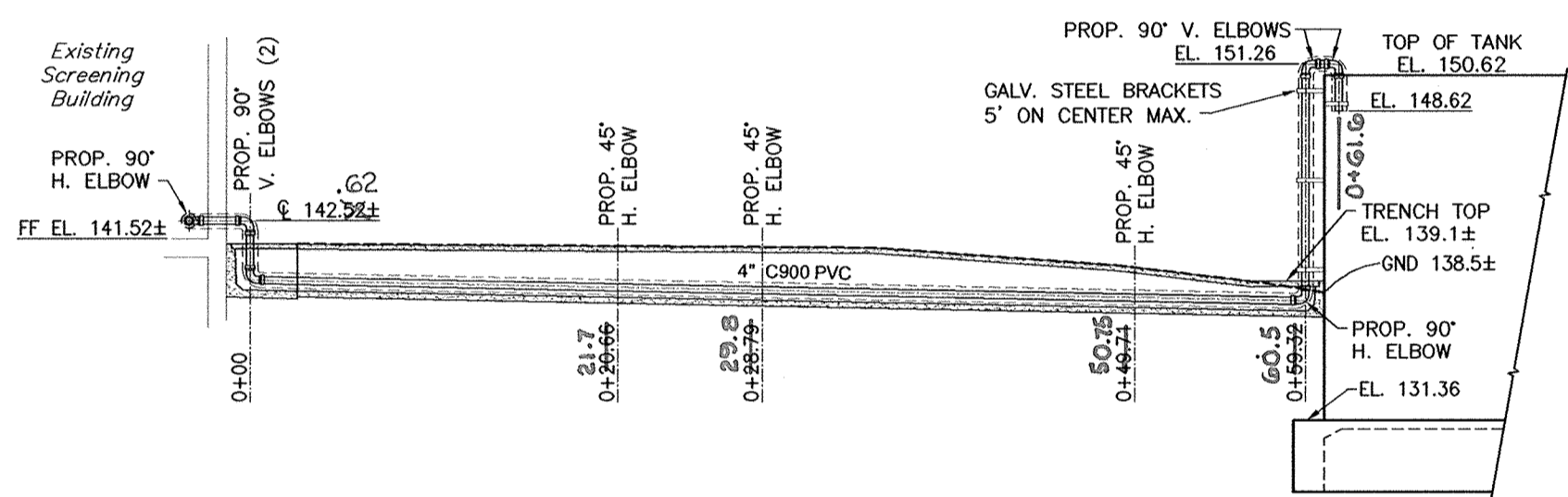
VAULT PENETRATION DETAIL

SCALE: NONE



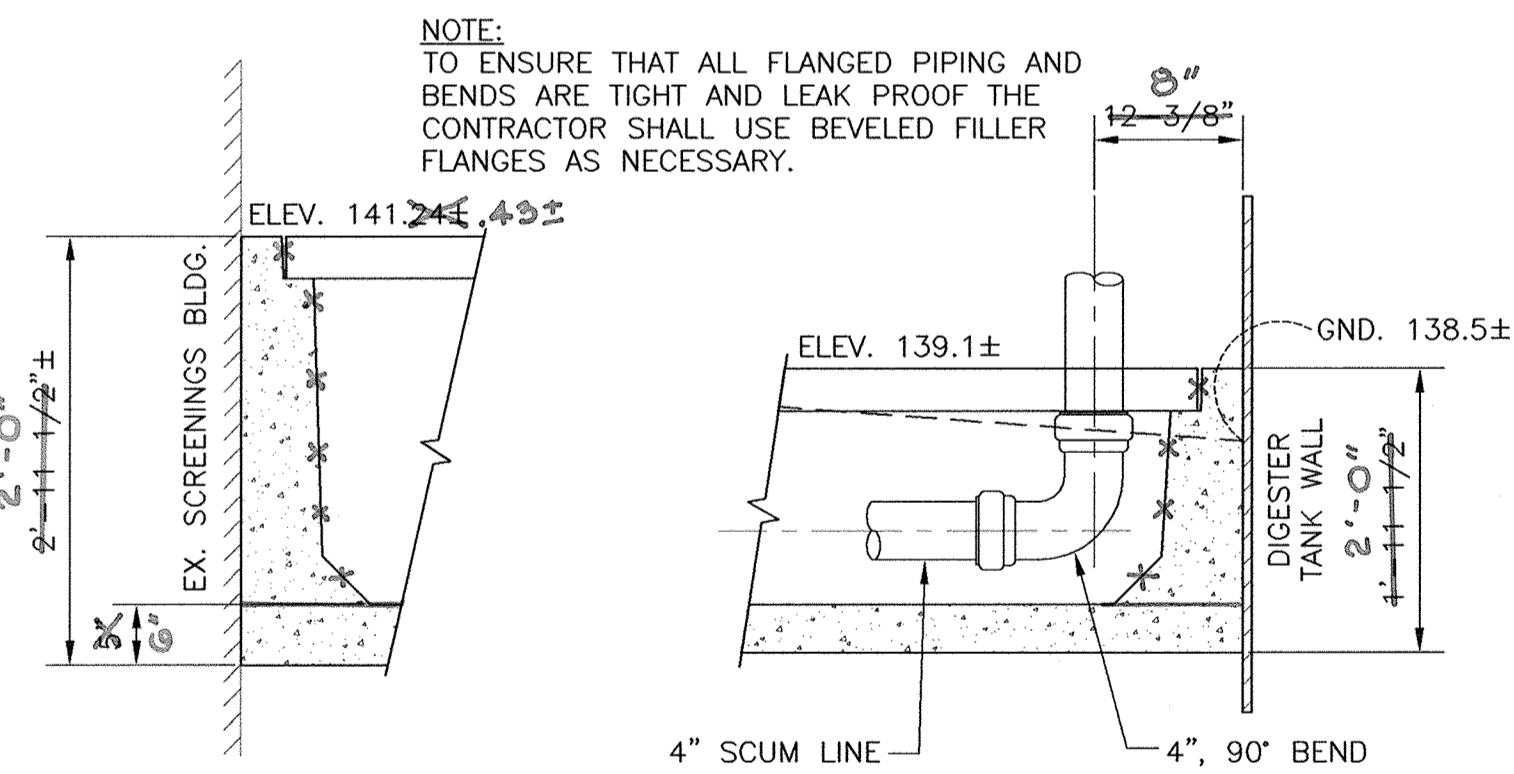
PROFILE - 4" TANK DRAIN & 8" TANK DISCHARGE

SCALE: 1" = 10' H;V



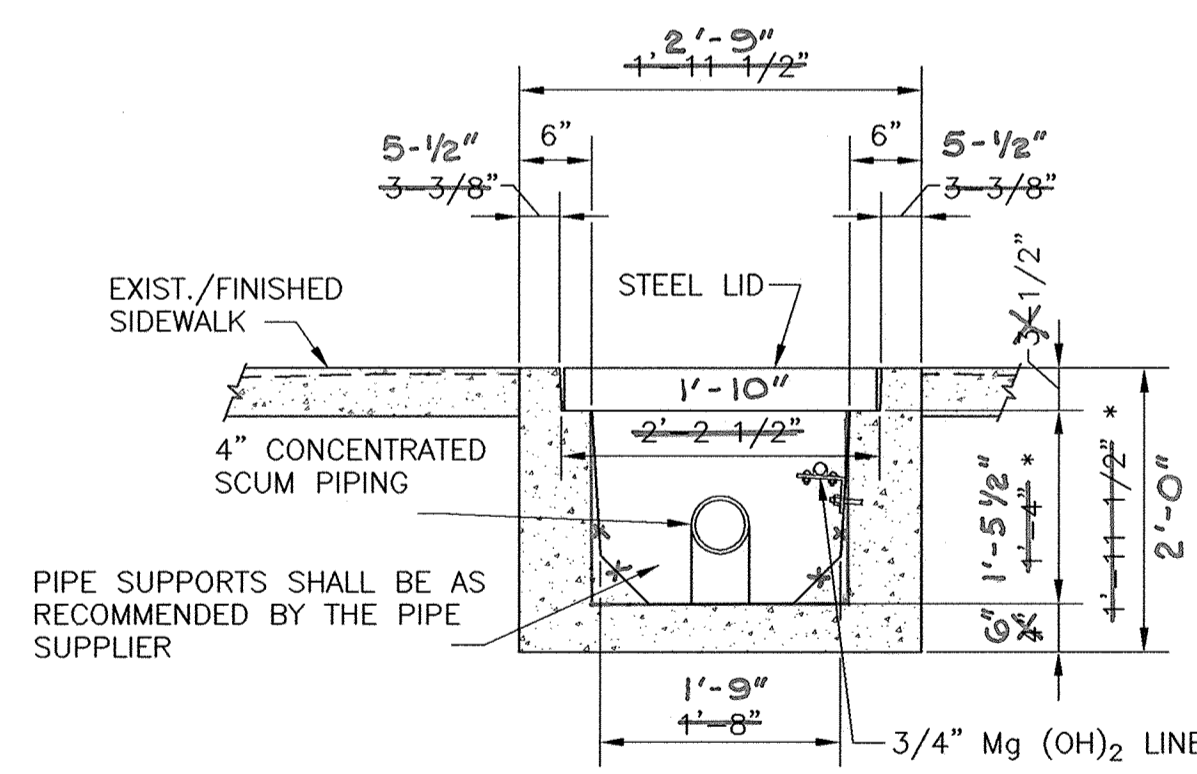
PROFILE - 4" SCUM LINE AND CONCRETE TRENCH

SCALE: 1" = 10' H;V



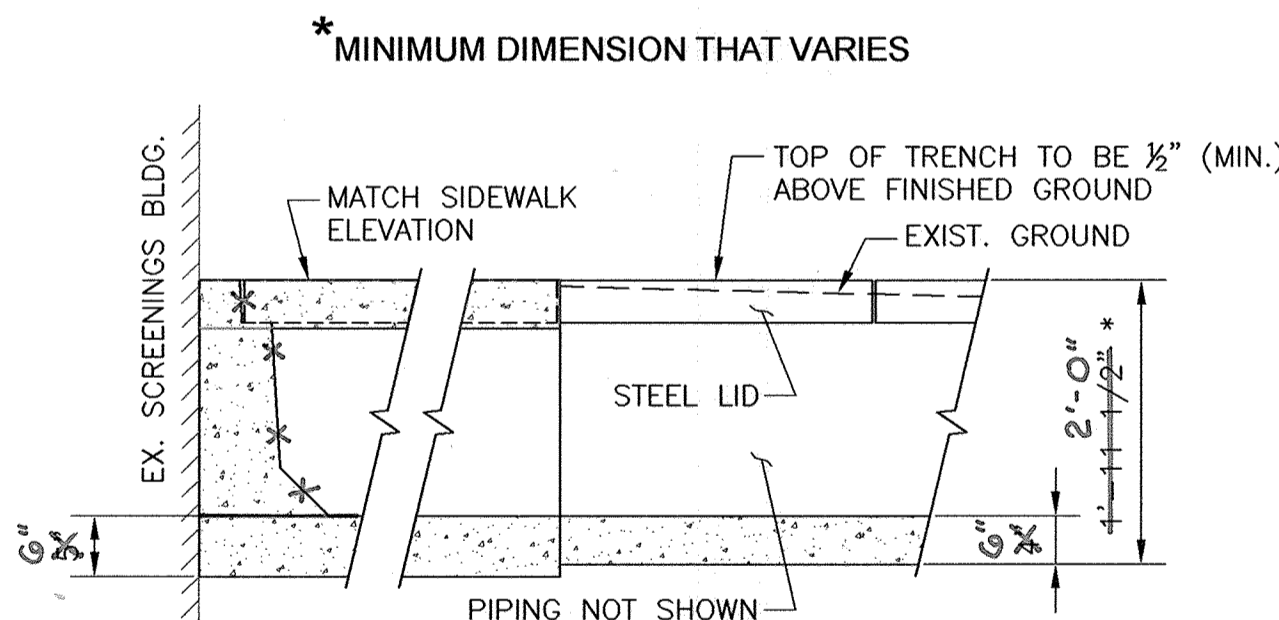
ELEVATION VIEW

ELEVATION VIEW

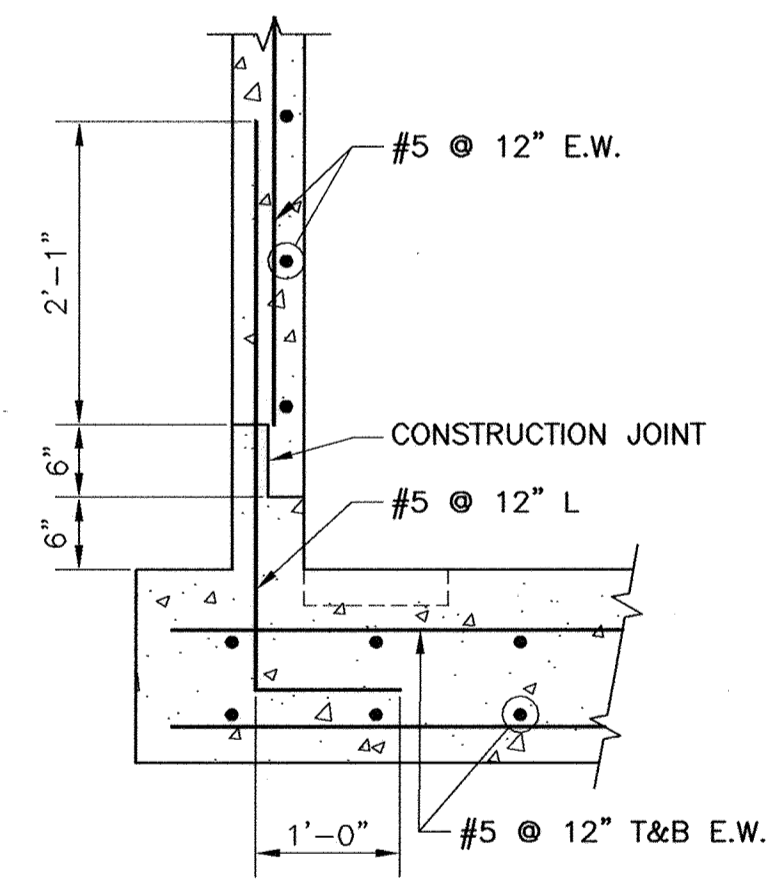


TYPICAL CROSS-SECTION

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

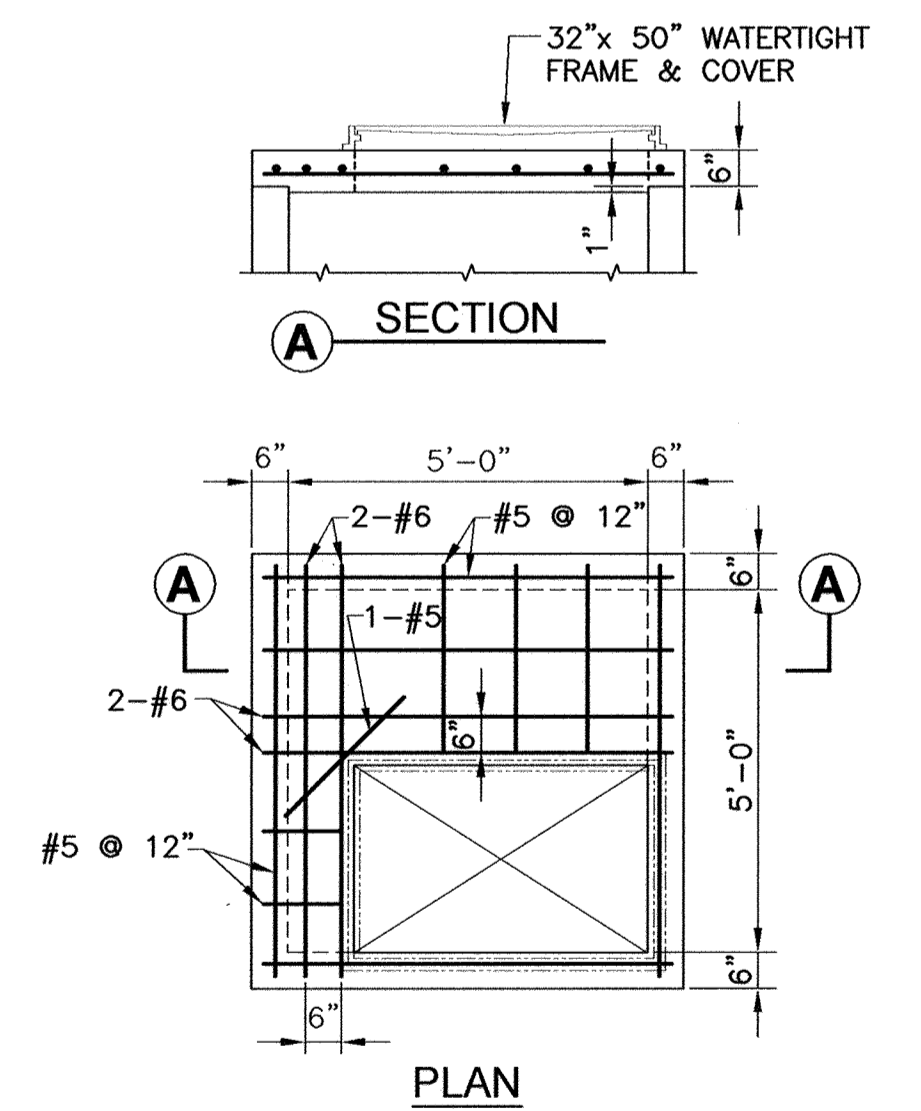


TYPICAL PROFILE-SECTION



TYPICAL VAULT REINFORCEMENT DETAIL

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



VALVE VAULT TOP SLAB DETAIL

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION

DATE

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

DIRECTOR

DATE

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10966 EXPIRATION DATE: MAY 31, 2012

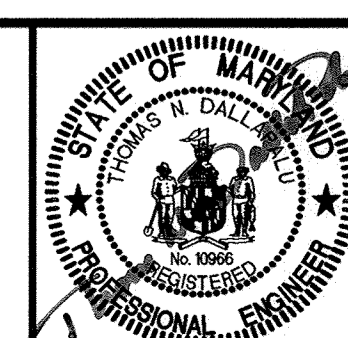
Thomas N. Delle... 2/8/12
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 2/6/12
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 2/6/12
CHIEF, BUREAU OF UTILITIES DATE

Dewberry
Dewberry & Davis LLC
3108 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2662
410.265.9500
FAX: 410.265.8675



DES: RJP
DRN: CD
CHK: TND
DATE: 1/7/12

YARD PIPING PROFILES
AND MISCELLANEOUS DETAILS

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

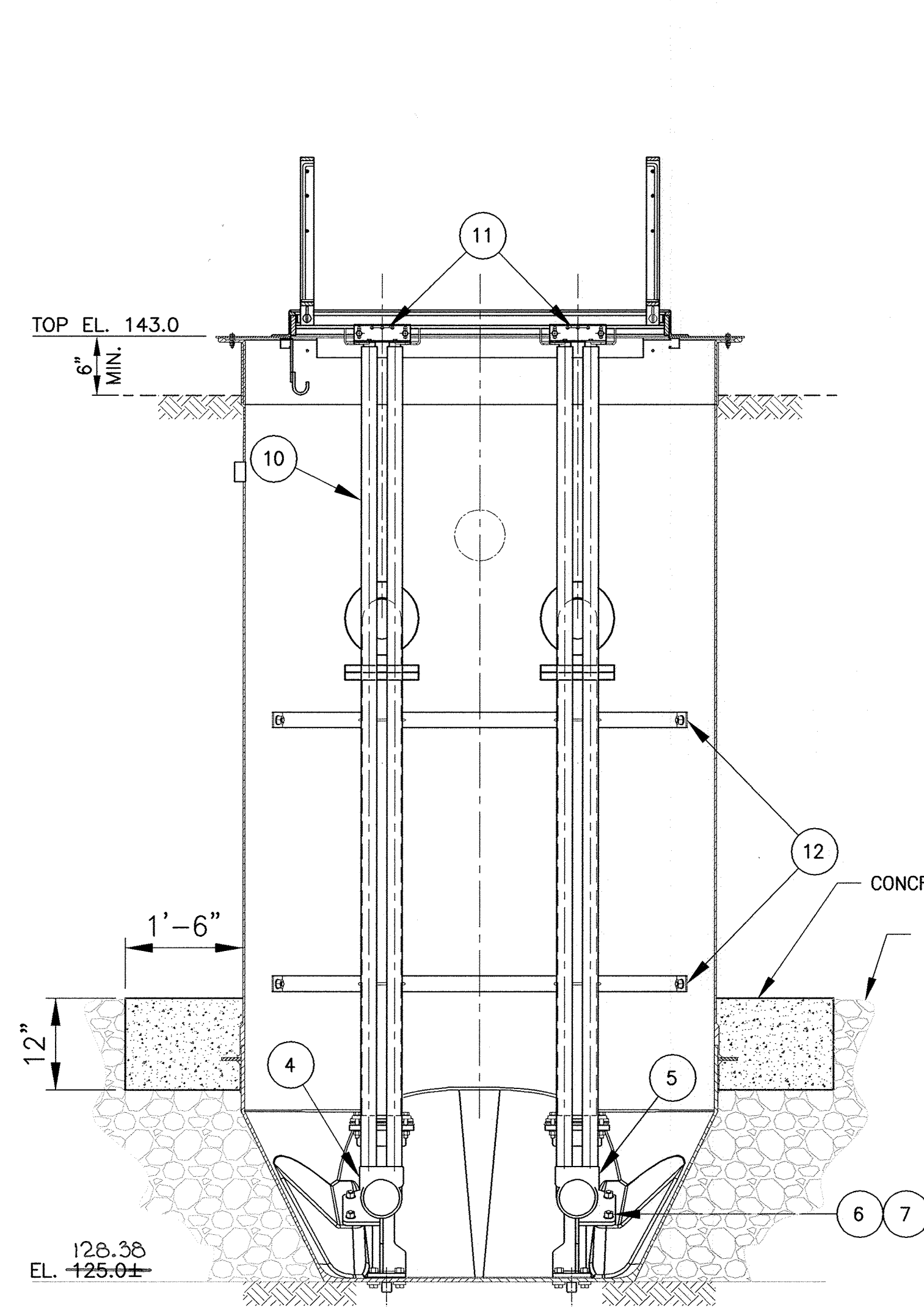
SCALE:
AS
SHOWN

SHEET
5 OF 23

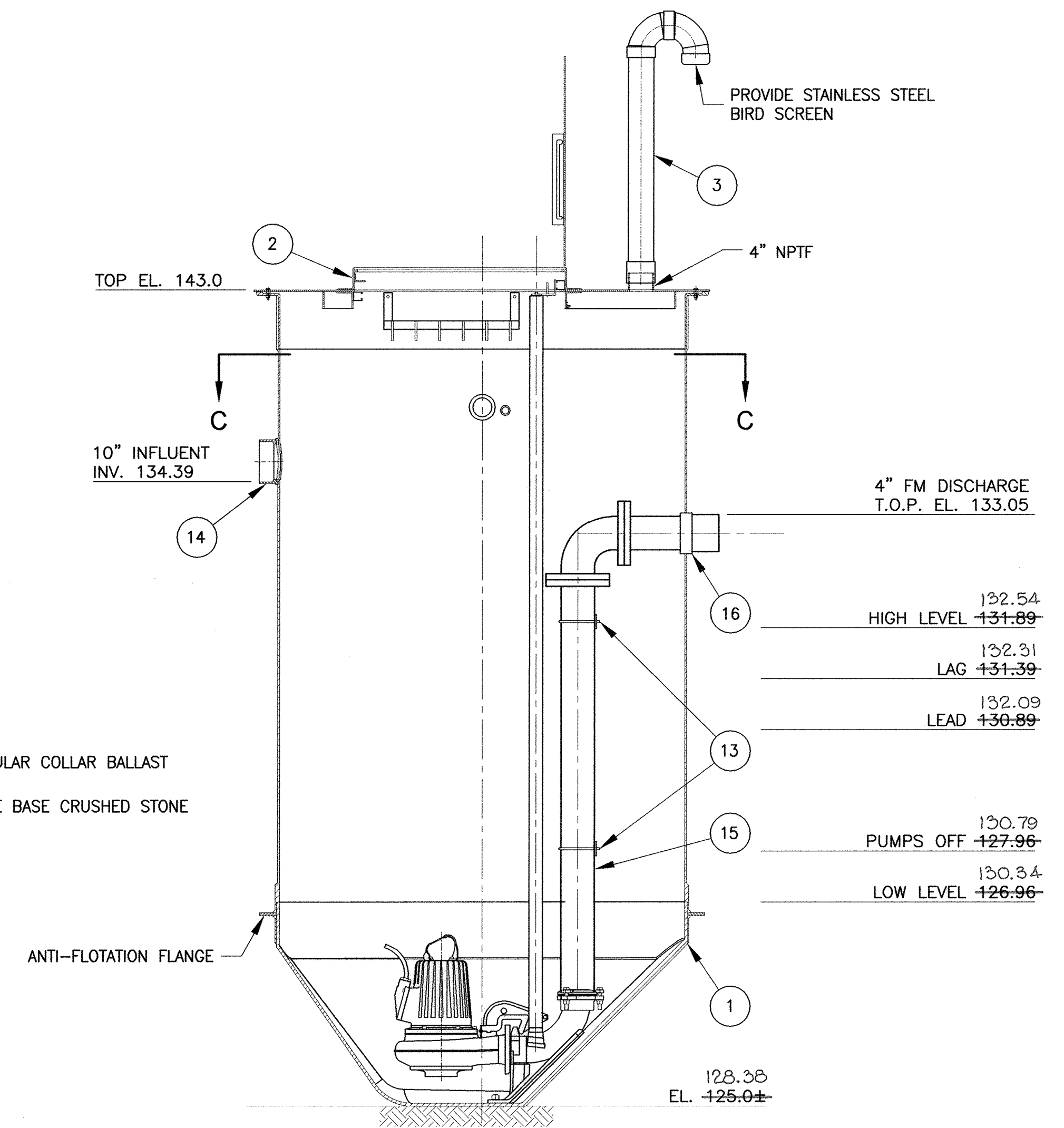
AS BUILTS

ITEM	DESCRIPTION	PART NUMBER	QTY
1	BASIN/CYLINDER ASSEMBLY, 36" dia		1
2	COVER, 36" dia		1
3	VENT PIPE, 4"	14-68 22 02	1
4	DISCHARGE CONNECTION, LEFT, 4"	620 02 10	1
5	DISCHARGE CONNECTION, RIGHT, 4"	620 01 10	1
6	NUT, 3/4"-10, 316 SST	94805A135	8
7	WASHER, 3/8" ID, 1 1/2" OD, GENERAL PURPOSE, 316 SST	91950A036	8
8	SEAL, CABLE WALL, LEVEL SENSOR	1860SCF125P	1
9	SEAL, CABLE WALL, PUMP		1
10	GUIDE BAR, 2", 316 SST		4
11	UPPER GUIDE BAR KIT, 2"		2
12	BRACING, DISCHARGE PIPE		2
13	U-BOLT 3/8"-11 OD 4-1/2", 4" PIPE	29605T11	4
14	HUB		1
15	PIPE, 4" DIP		ft
16	PIPING KIT		1

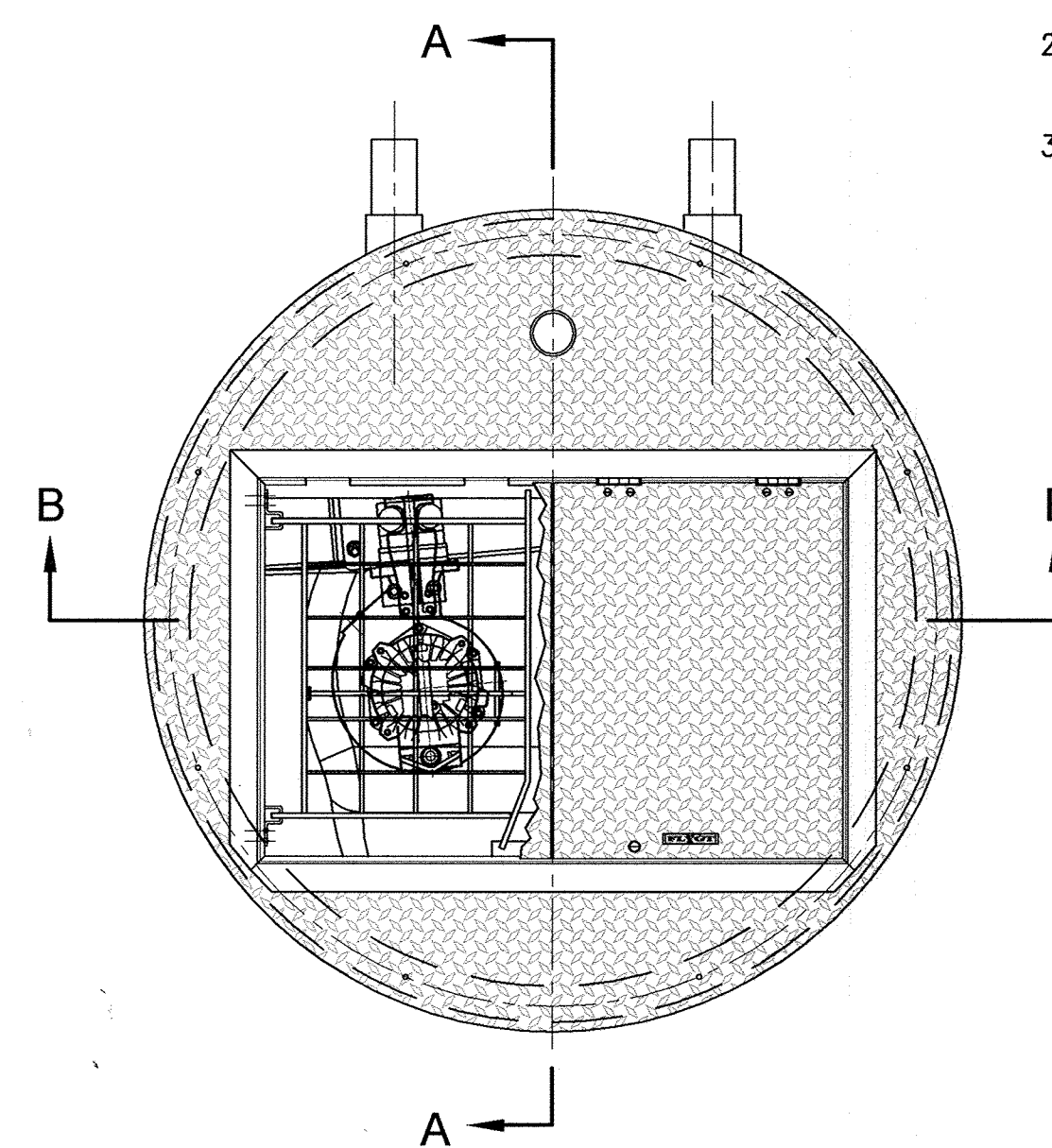
* MCMASTER-CARR



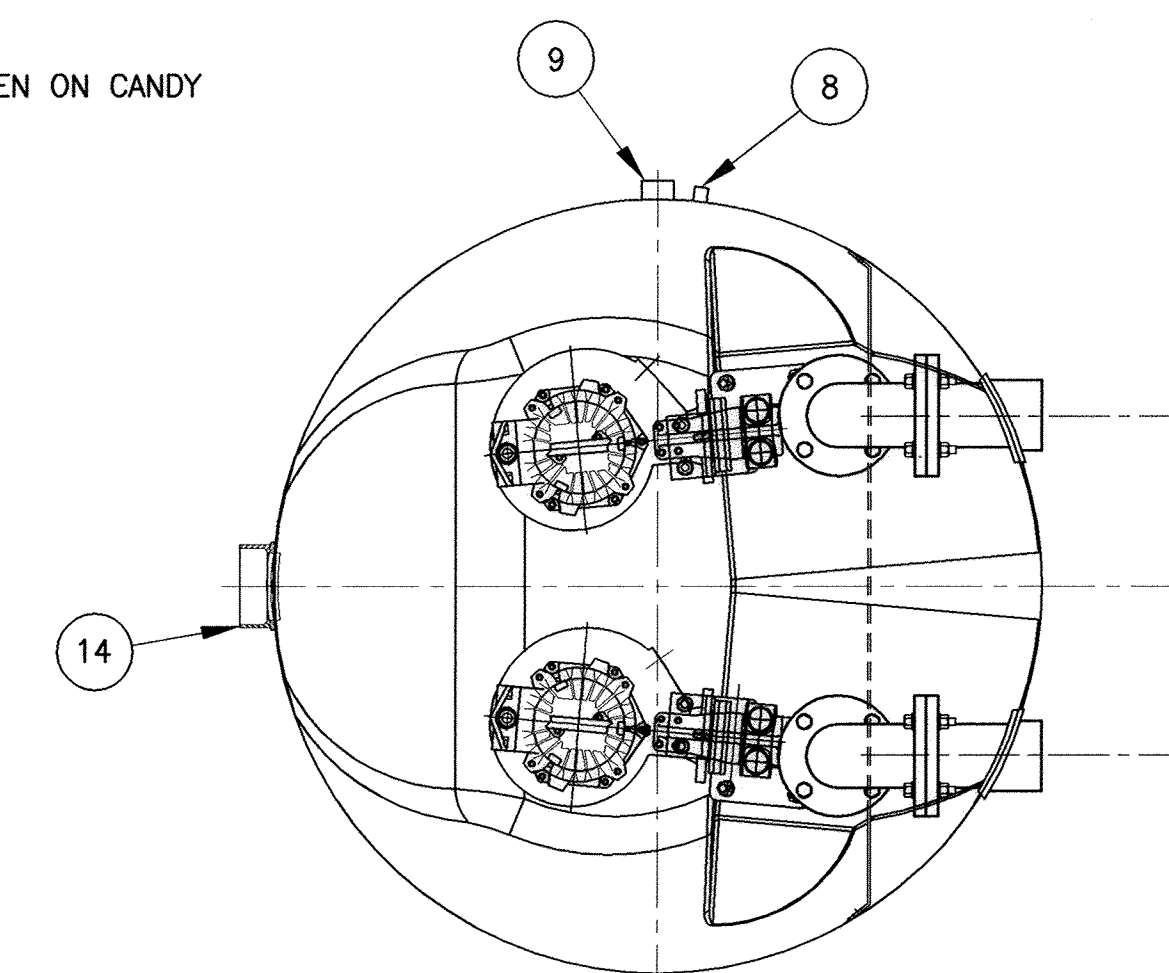
SECTION B-B
NOT TO SCALE



SECTION A-A
NOT TO SCALE



PLAN
NOT TO SCALE



VIEW C-C
NOT TO SCALE

NOTES:

1. STATION DEPTH TO BE 18 FEET.
2. ALL BOLT PENETRATIONS THRU WALLS MUST BE SEALED WITH SILICONE SEALANT.
3. PROVIDE STAINLESS STEEL BIRD SCREEN ON CANDY CANE VENT.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DIRECTOR DATE

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Thomas M. Deller 2/8/12
Signature of Engineer Date

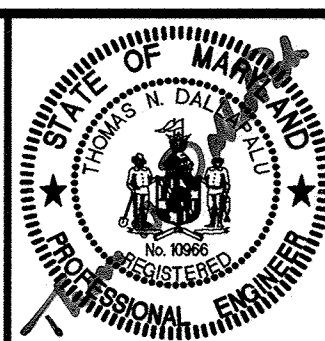
AS BUILTS

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John G. ... 2/9/12 *Thomas M. Deller* 2/9/12
DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING DATE

... 2/9/12 *...* 2/9/12
CHIEF, BUREAU OF UTILITIES DATE CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3106 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2662
410.265.9500
FAX: 410.265.8875



DES:	RJP		
DRN:	CD		
CHK:	TND		
DATE:	1/7/12		
BY	NO.	REVISIONS	DATE

600' SCALE MAP NO. 47 BLOCK NO. 24

GREASE TRAP WASTE PUMPING STATION PLAN AND SECTIONS

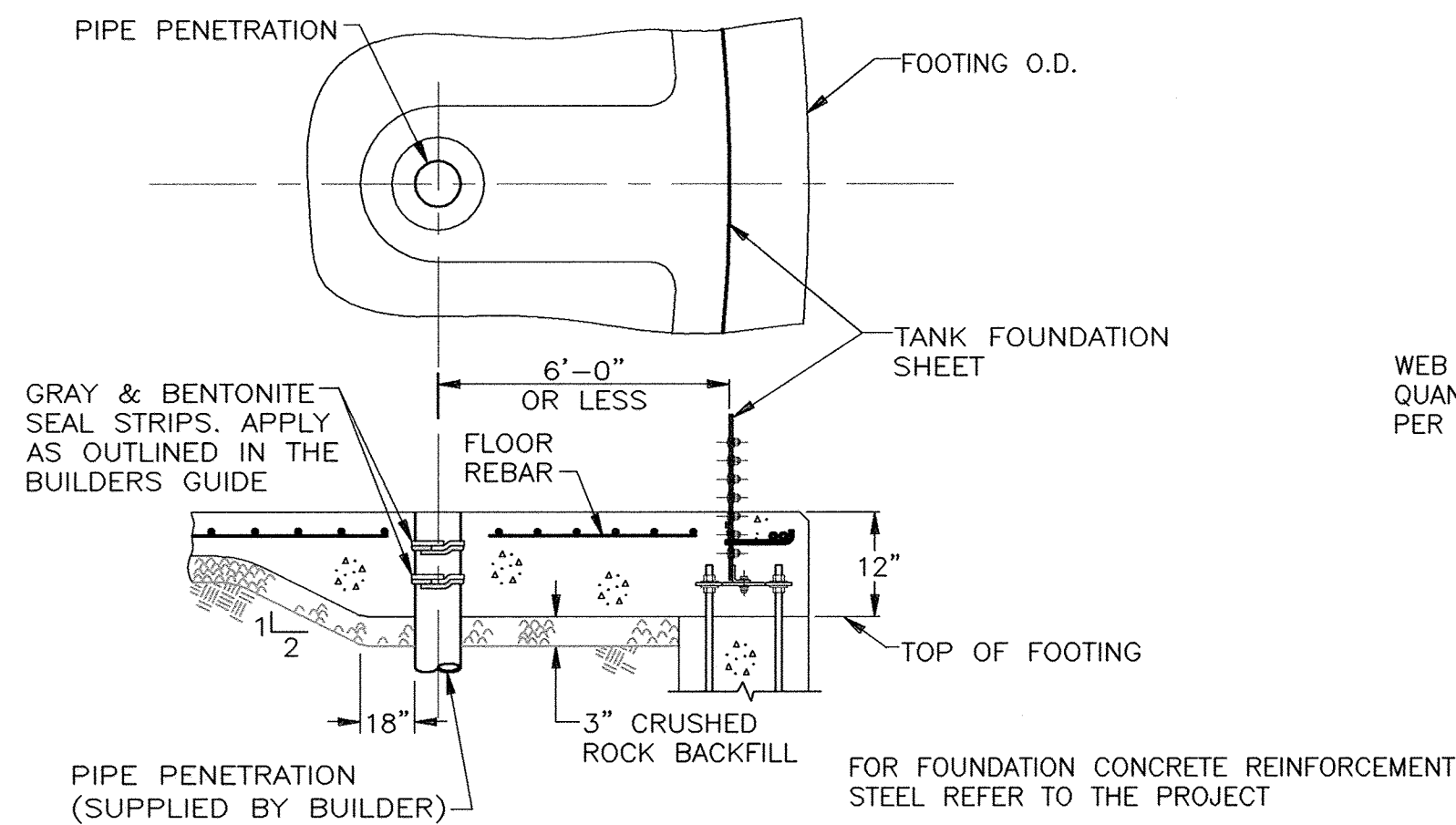
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

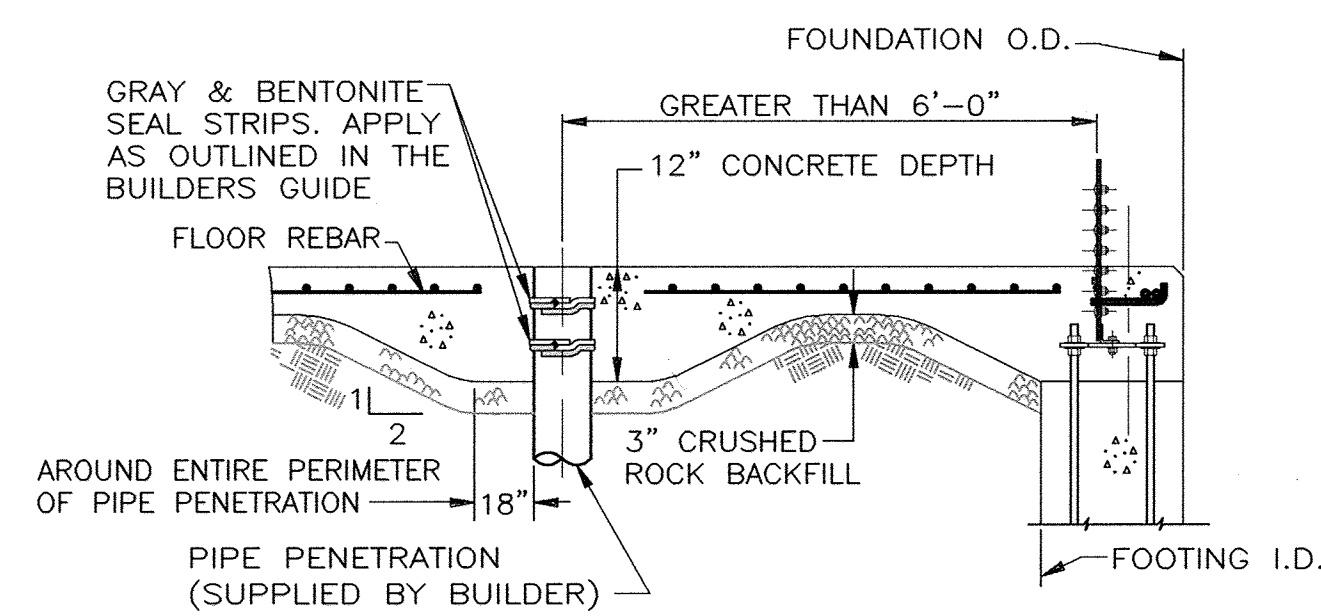
SHEET 6 OF 23



FLOOR PIPE PENETRATION

NOT TO SCALE

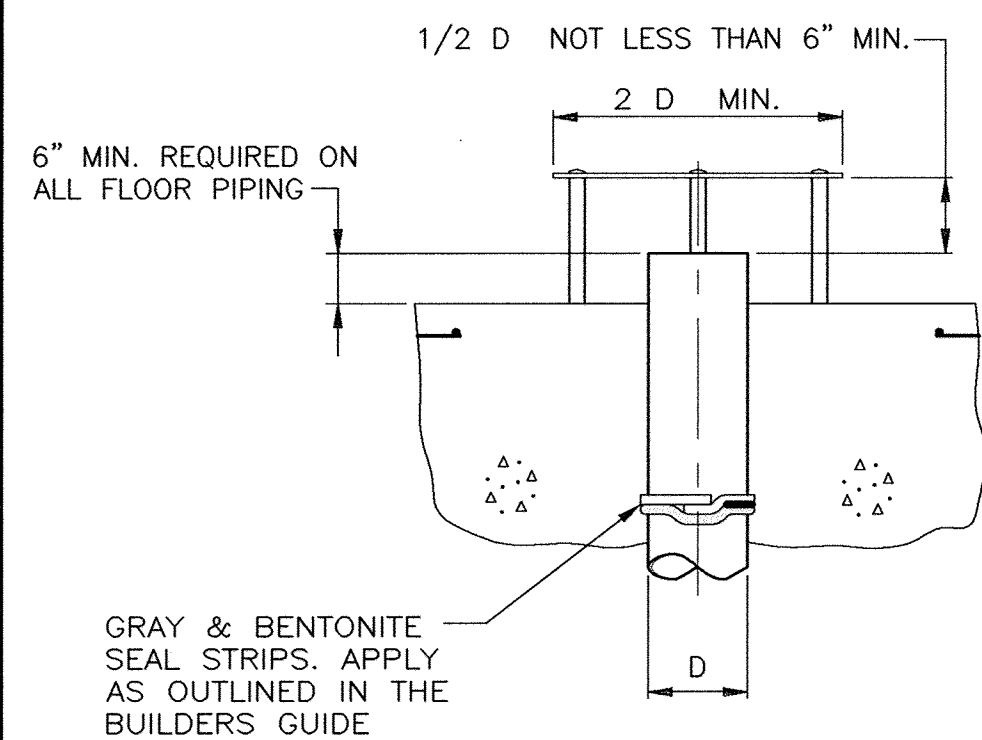
THIS IS A TYPICAL PIPE PENETRATION DETAIL THROUGH THE FOUNDATION FLOOR WHEN THE PIPE IS LOCATED LESS THAN 6'-0" FROM THE TANK INSIDE WALL.



FLOOR PIPE PENETRATION

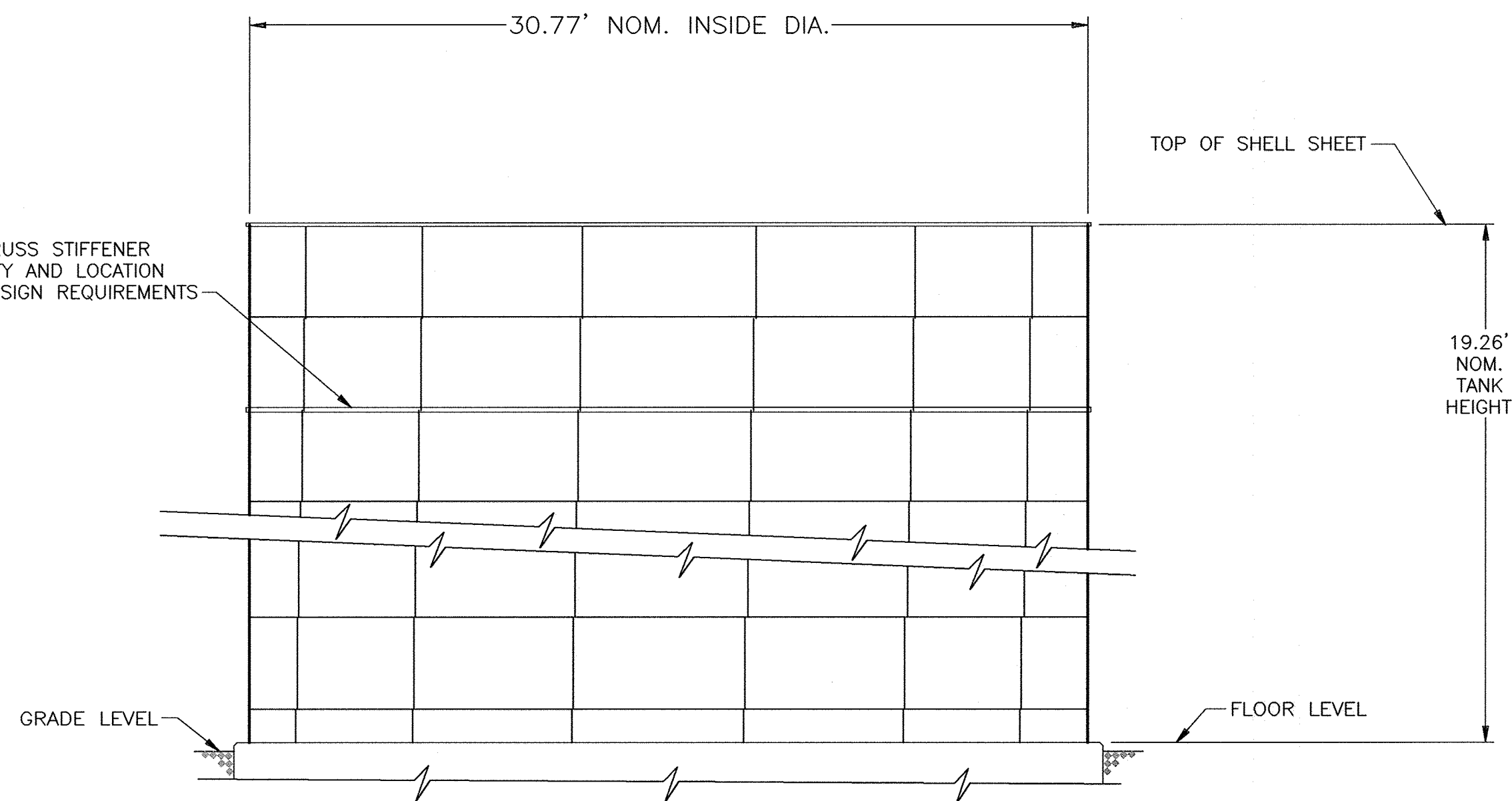
NOT TO SCALE

THIS IS A TYPICAL PIPE PENETRATION DETAIL THROUGH THE FOUNDATION FLOOR WHEN THE PIPE IS LOCATED GREATER THAN 6'-0" FROM THE TANK INSIDE WALL.



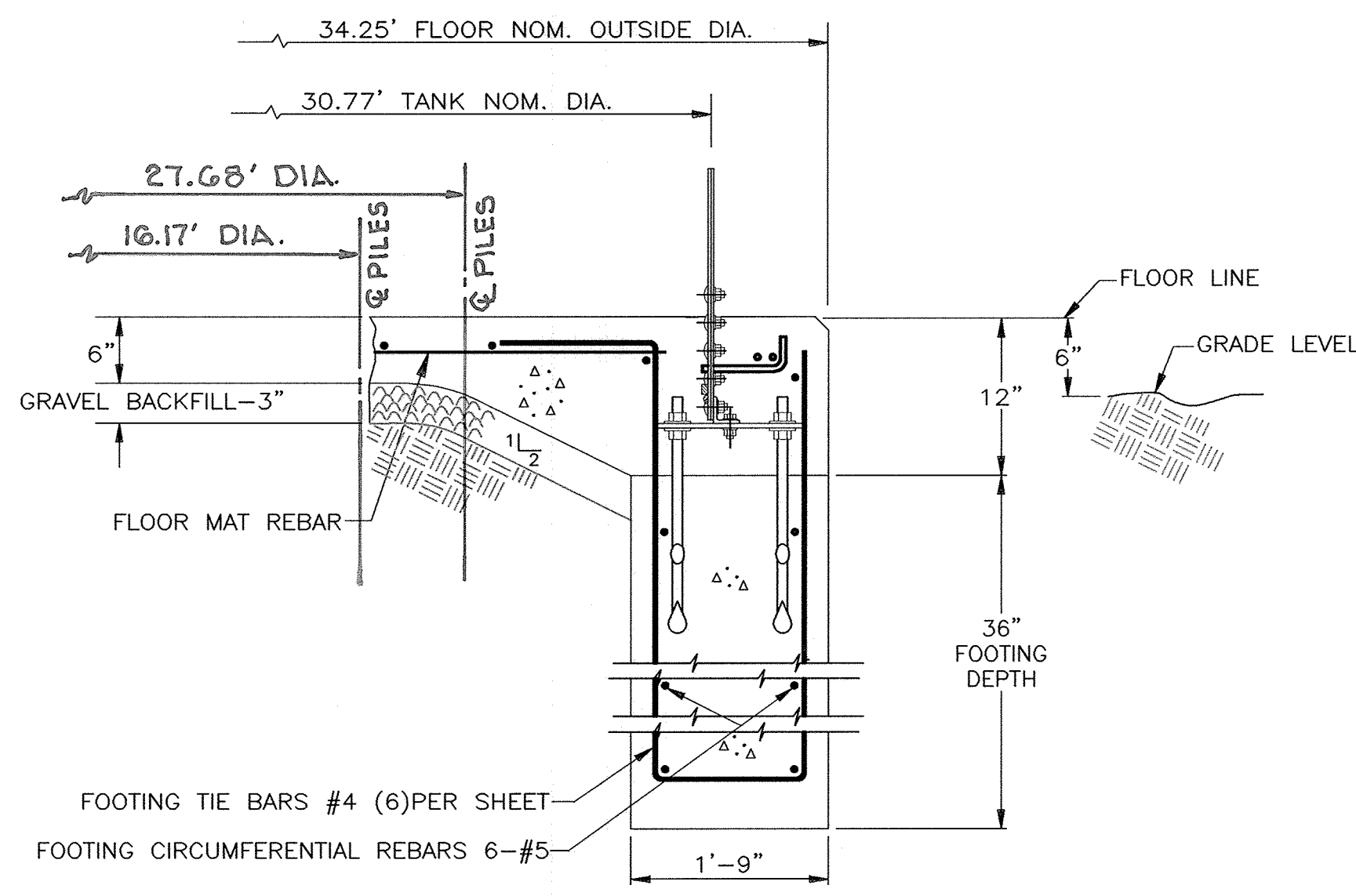
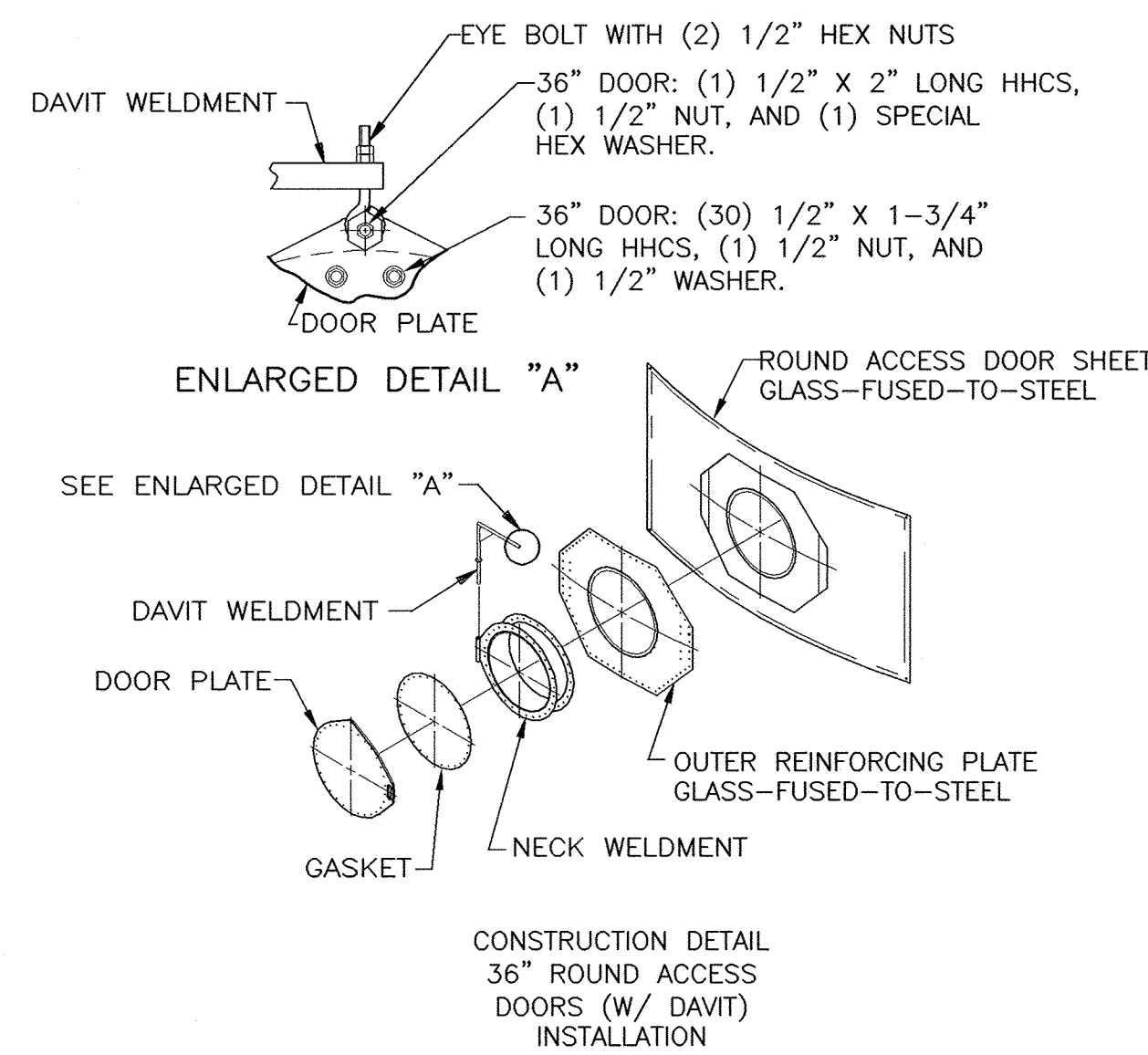
TYPICAL FLOOR PIPE PENETRATION WITH ANTI VORTEX

NOT TO SCALE



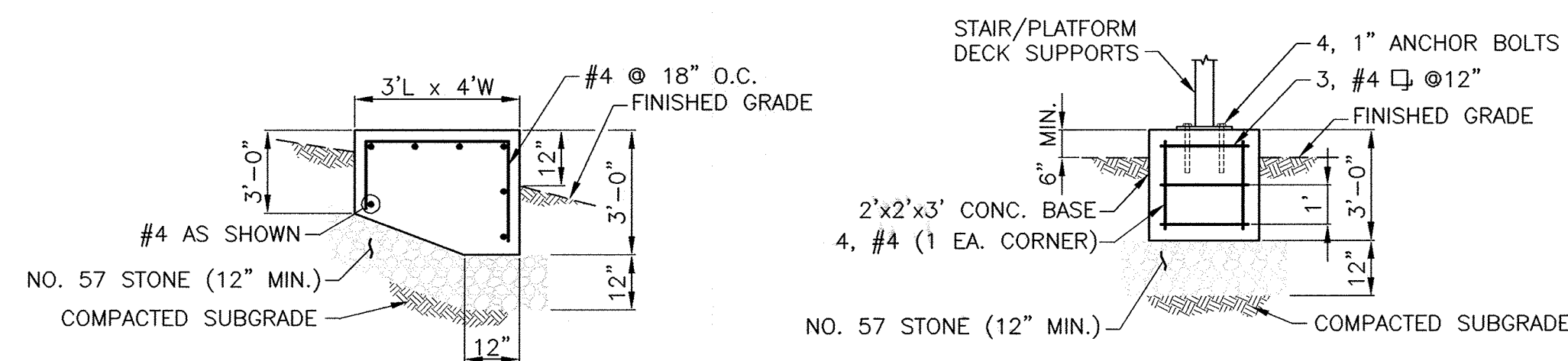
DIGESTER TANK ELEVATION

NOT TO SCALE



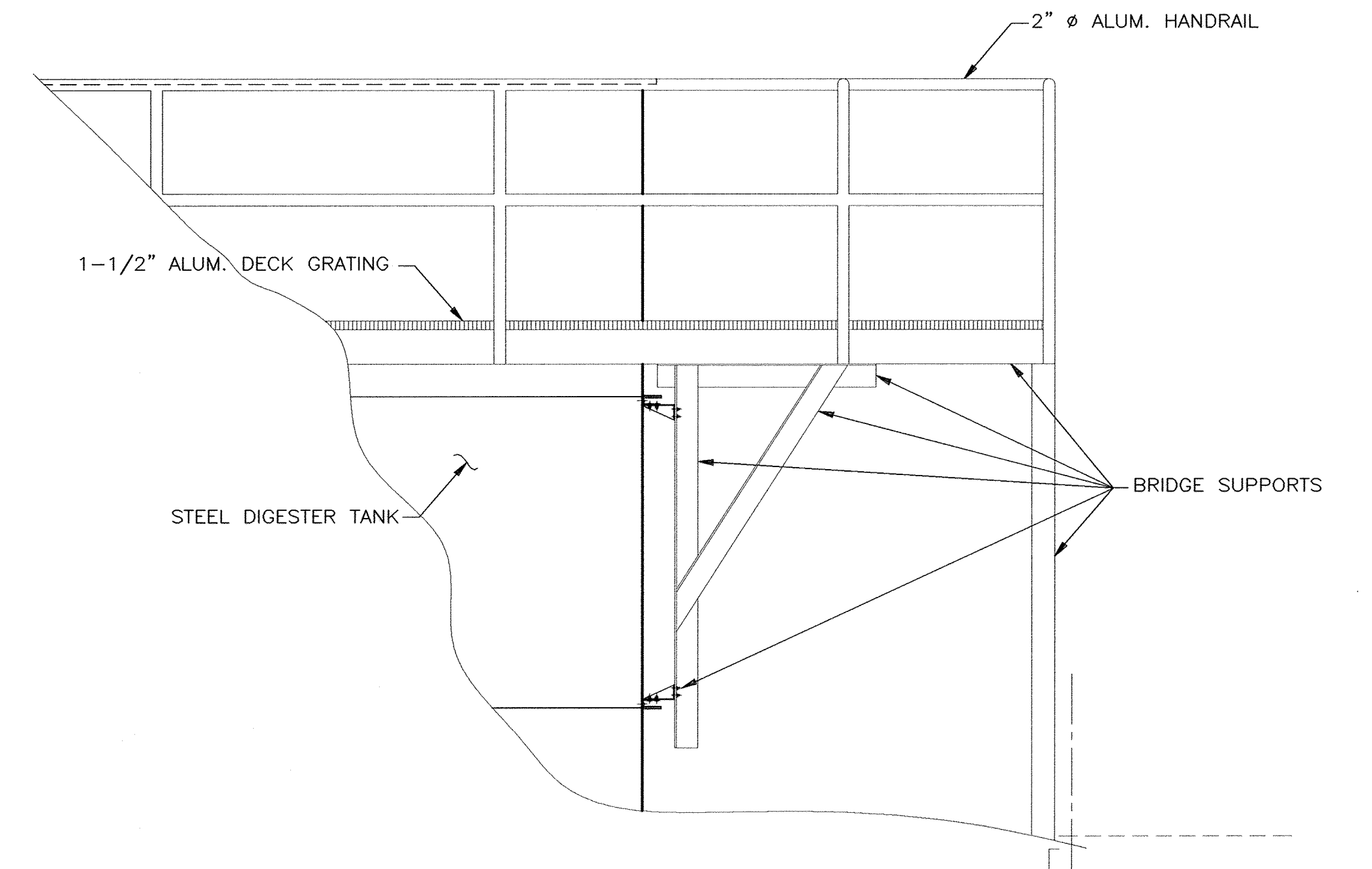
SECTION THROUGH FOOTING

NOT TO SCALE



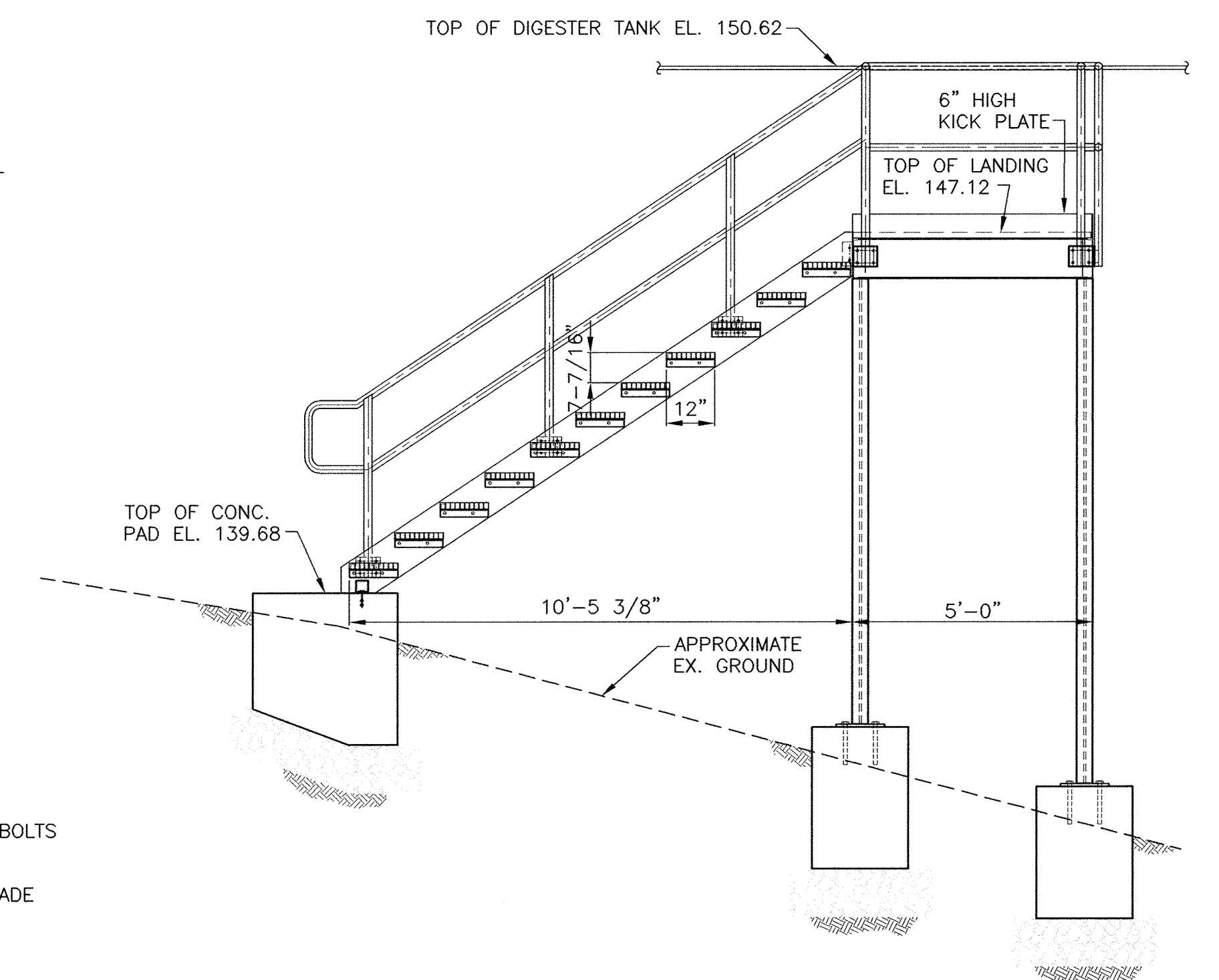
CONCRETE REINFORCING DETAILS - STAIR BASE AND DECK SUPPORTS

NOT TO SCALE



BRIDGE DECK AND HANDRAIL

NOT TO SCALE



BRIDGE STEPS, DECK LANDING AND HANDRAIL

NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DIRECTOR DATE

DRAWING NOT TO SCALE

PROFESSIONAL CERTIFICATION
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Thomas W. Dillard
Signature of Engineer 2/8/12
Date

NOTE:

CONTRACT DRAWINGS PROVIDE TANK MANUFACTURER'S STANDARD TANK FOUNDATION ONLY. FINAL FOUNDATION DESIGN MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO SUBMITTAL OF BID AND CONSTRUCTION.

AS BUILTS

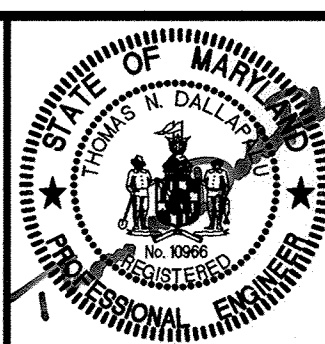
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 User: jay.kim 2/8/12 10:00 AM
 Plotter: HP DesignJet T1100e 2/8/12 10:00 AM
 Plot Size: 36x48 2/8/12 10:00 AM
 Plot Scale: 1:1 2/8/12 10:00 AM
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jay Kim 2/8/12 *Thomas W. Dillard* 2/8/12
DIRECTOR OF PUBLIC WORKS CHIEF, BUREAU OF ENGINEERING DATE

Allen Clark 2/8/12 *Thomas W. Dillard* 2/8/12
CHIEF, BUREAU OF UTILITIES CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3106 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2682
410.265.9500
FAX: 410.265.8875



DES:	RJP/KY
DRN:	CD
CHK:	TND
DATE:	1/7/12

BY	NO.	REVISIONS	DATE

AEROBIC DIGESTER PLAN
ELEVATIONS, SECTIONS AND DETAILS

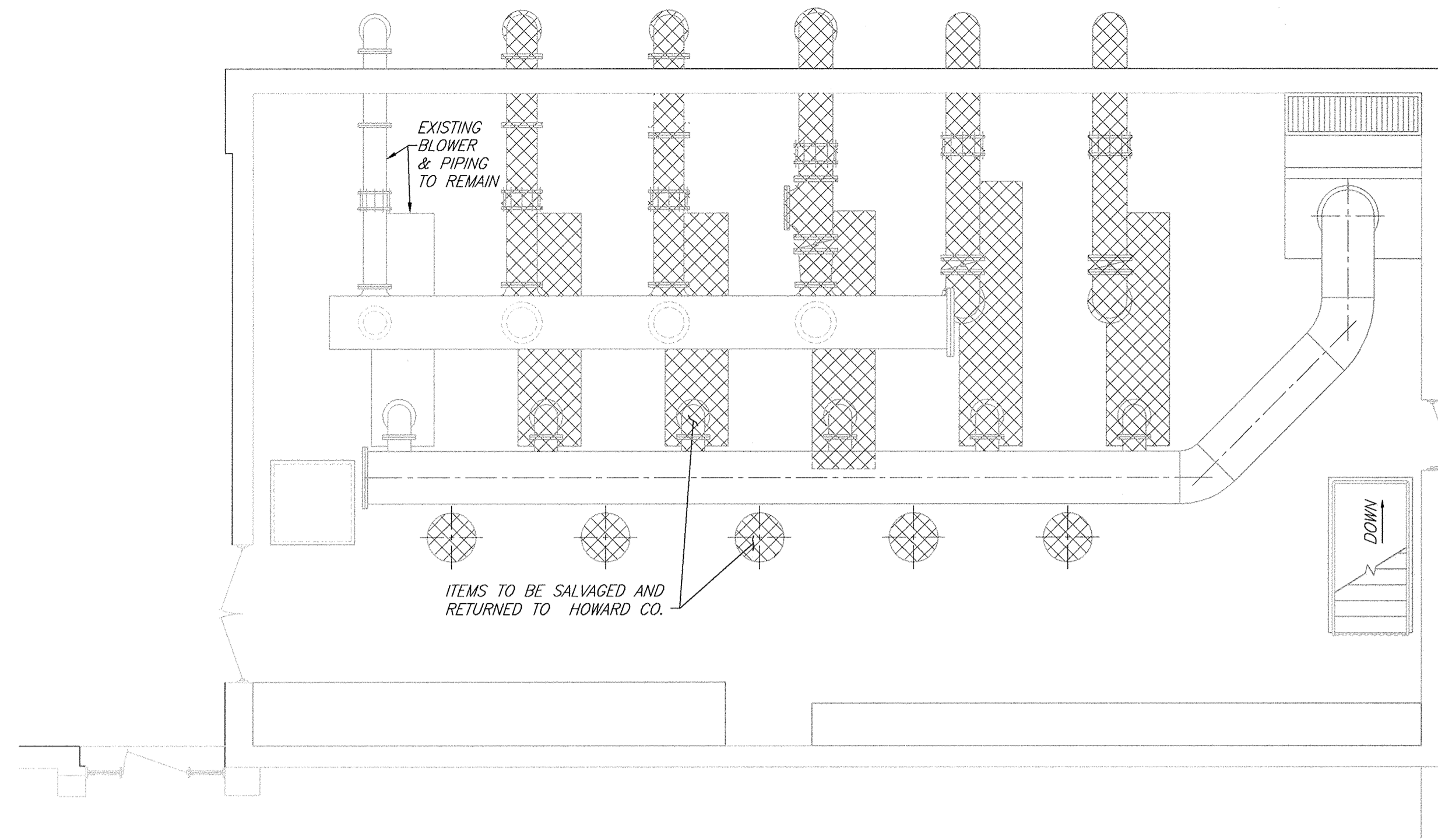
600' SCALE MAP NO. 47 BLOCK NO. 24

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

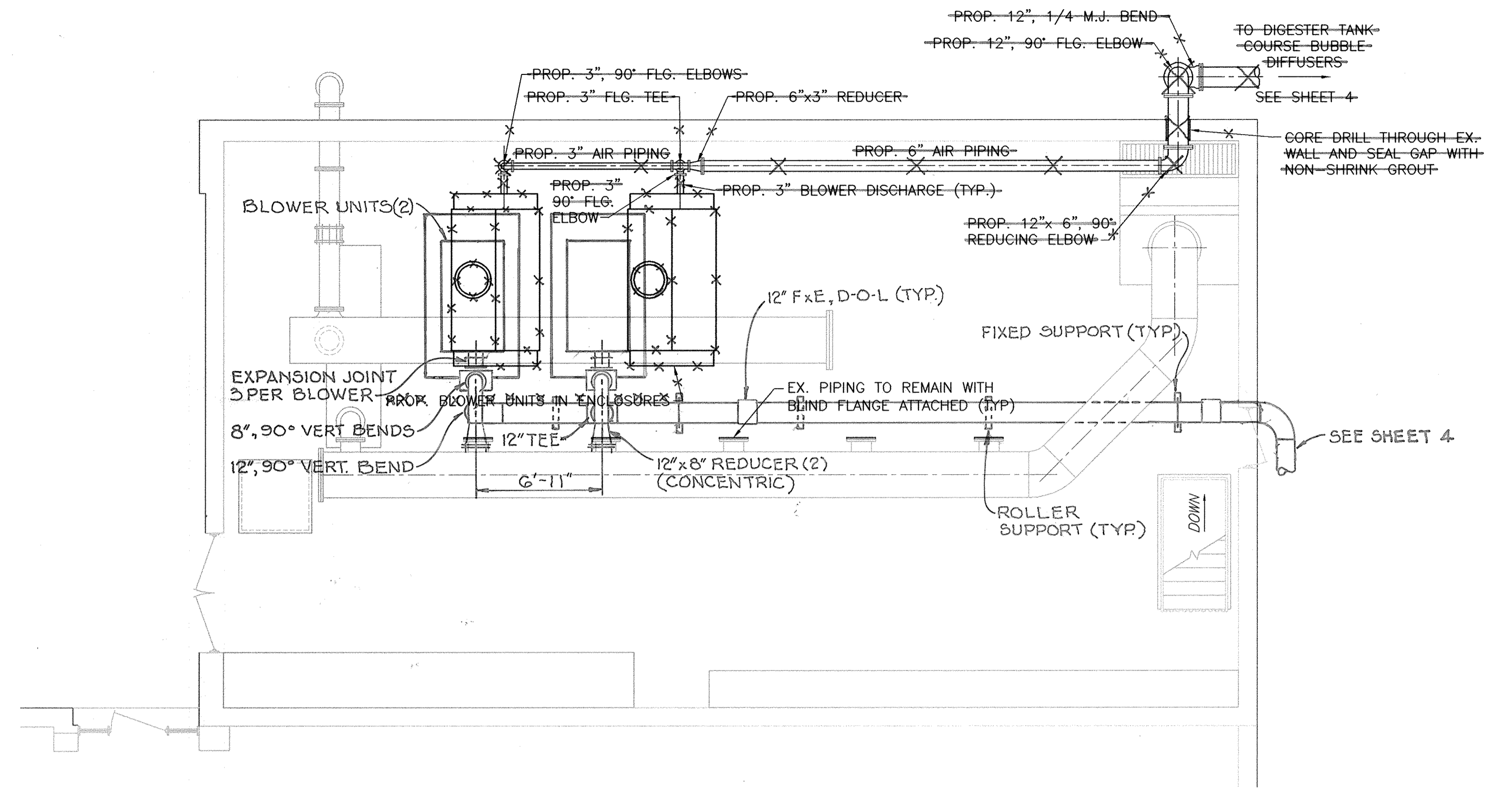
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE:	AS SHOWN
SHEET	7 OF 23



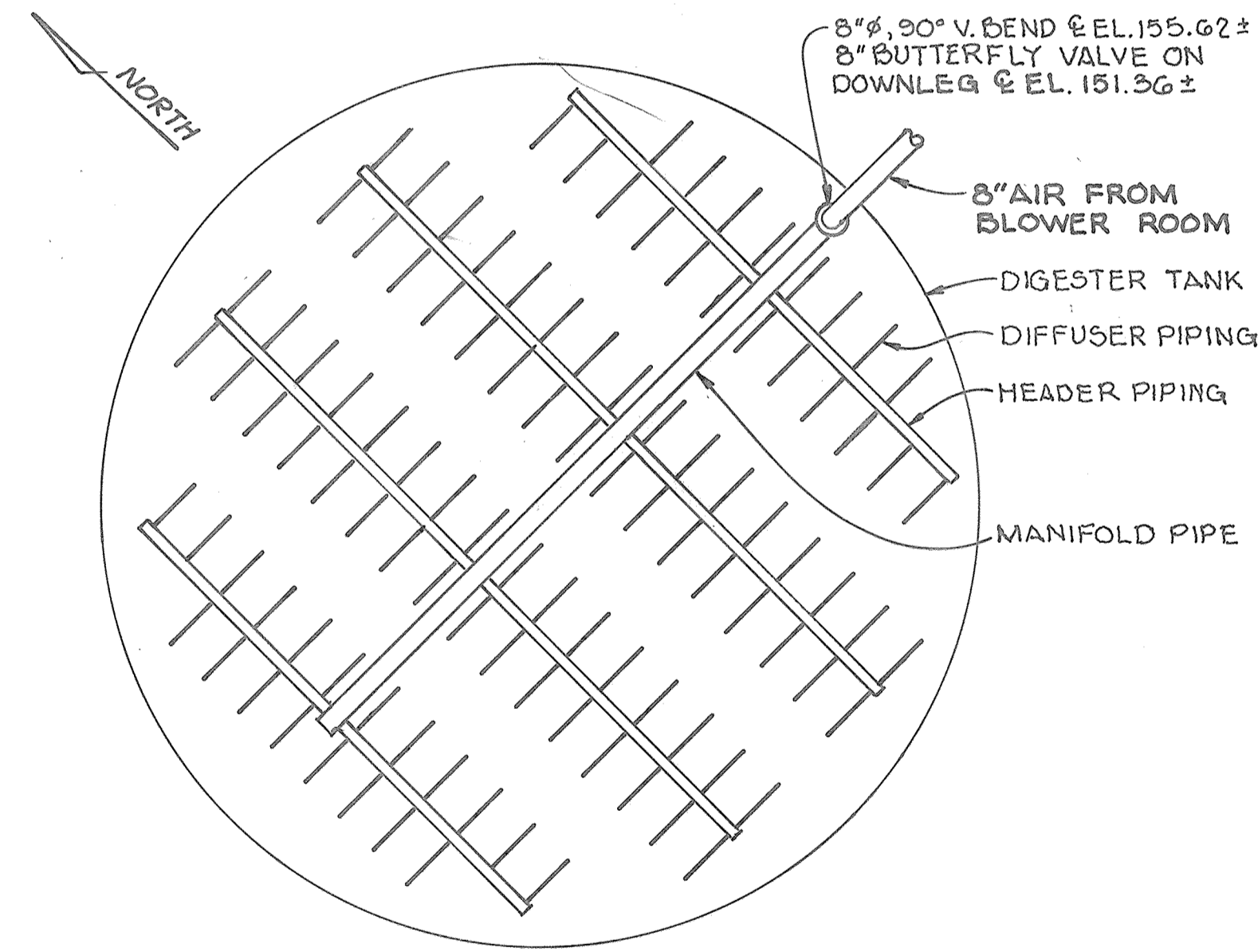
**EXISTING BLOWER ROOM
DEMOLITION PLAN**

SCALE: 3/16"=1'-0"



**EXISTING BLOWER ROOM
PROPOSED PLAN**

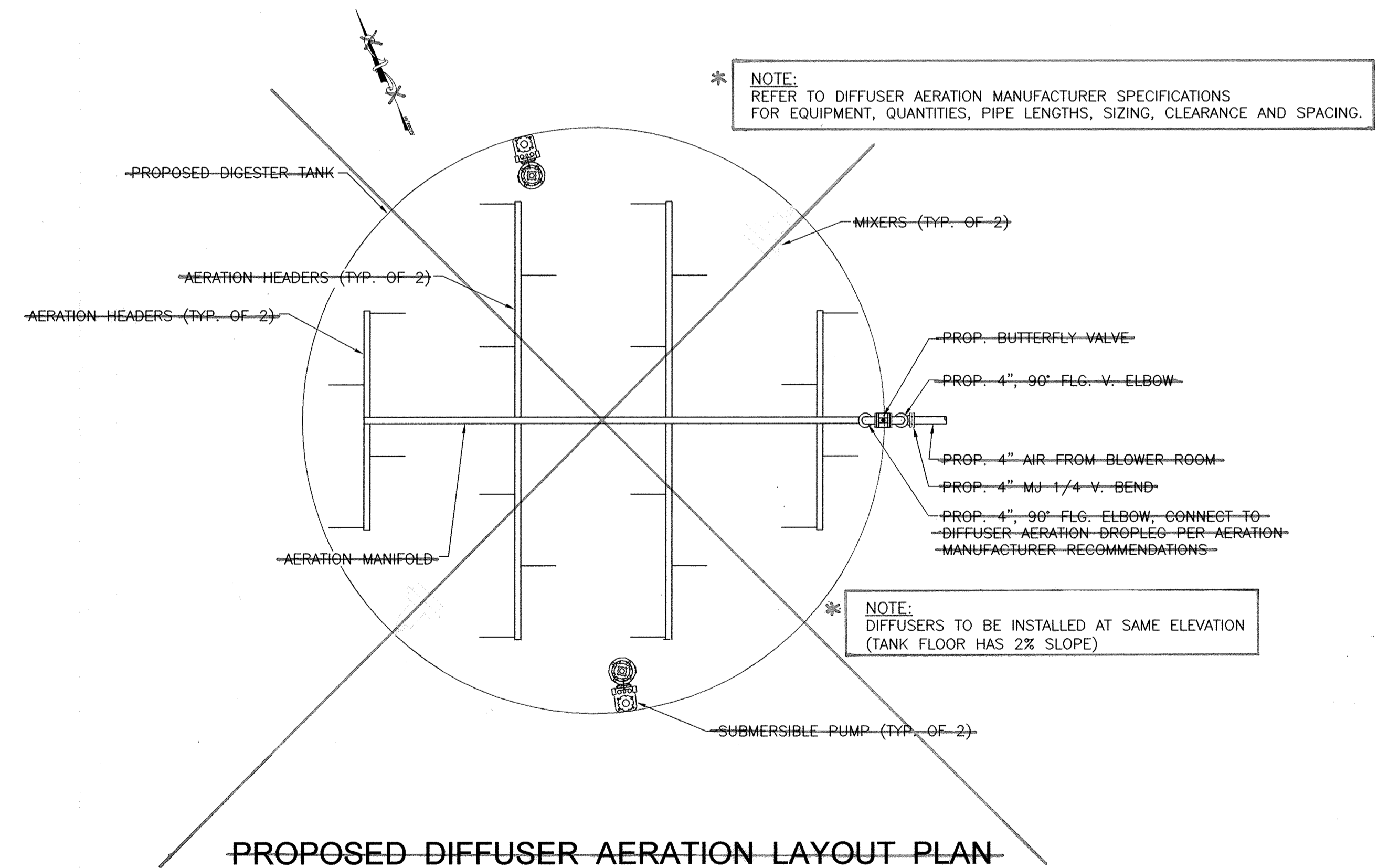
SCALE: 3/16"=1'-0"



DIFFUSER AERATION LAYOUT PLAN

NOT TO SCALE

* SEE NOTES



PROPOSED DIFFUSER AERATION LAYOUT PLAN

SCALE: NONE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DIRECTOR DATE

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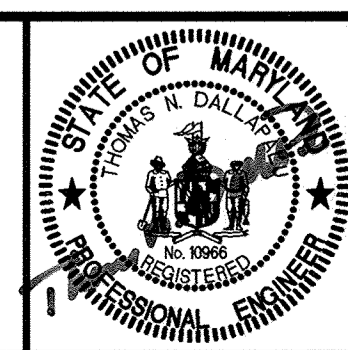
Thomas W. Deller 2/8/12
Signature of Engineer Date

**DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND**

Ralph 2/9/12 *Thomas E. Bull* 2/9/12
DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING DATE

Steve Chen 2/9/12 _____
CHIEF, BUREAU OF UTILITIES DATE CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3109 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2662
410.265.9500
FAX: 410.265.8875



DES:	RJP
DRN:	CD
CHK:	TND
DATE:	1/7/12
BY	NO.
REVISIONS	DATE

**HEADWORKS BUILDING PLANS AND
DIFFUSER AERATION LAYOUT PLAN**

600' SCALE MAP NO. 47 BLOCK NO. 24

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

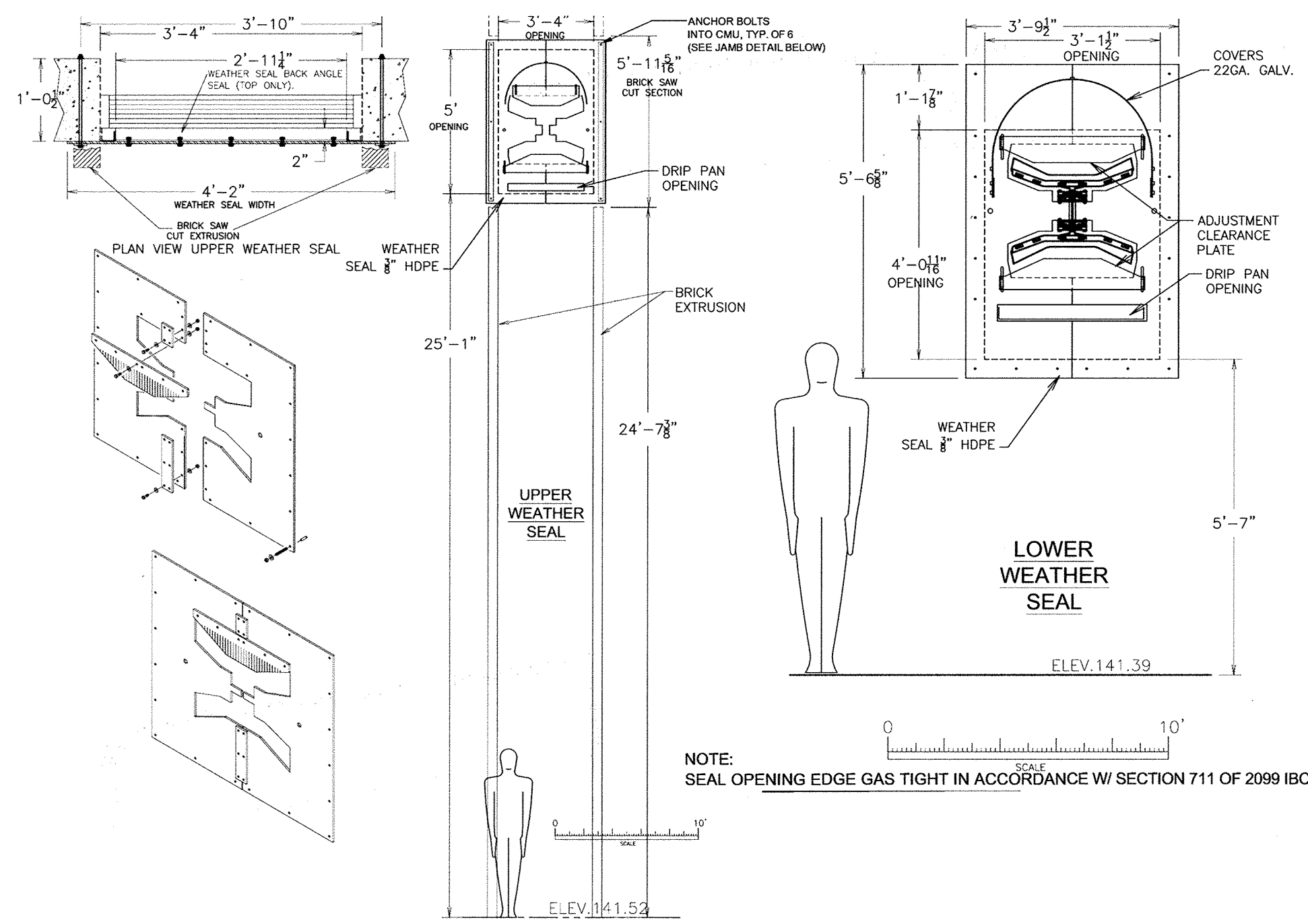
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE:
AS
SHOWN

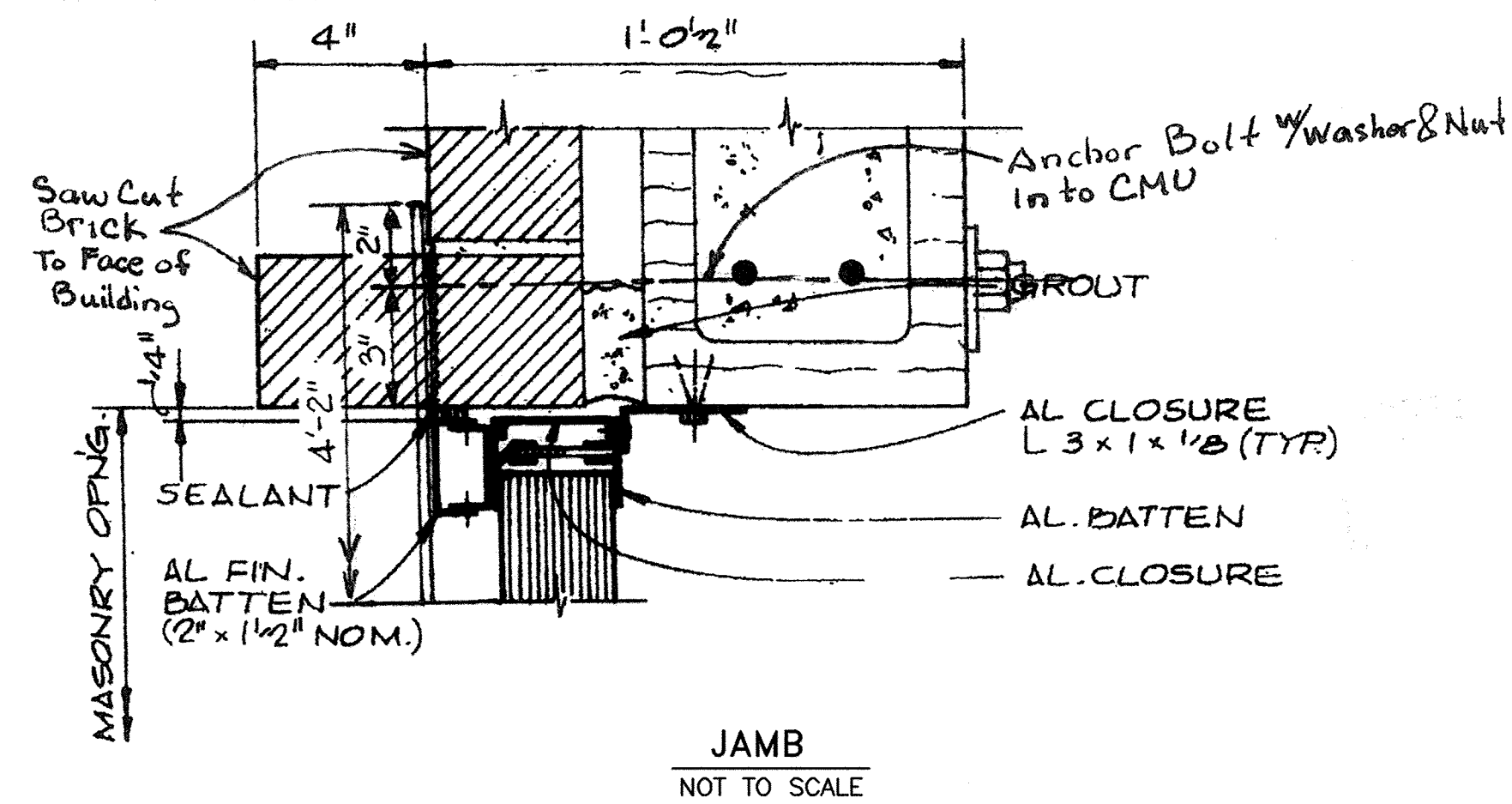
SHEET
8 OF 23

AS BUILTS

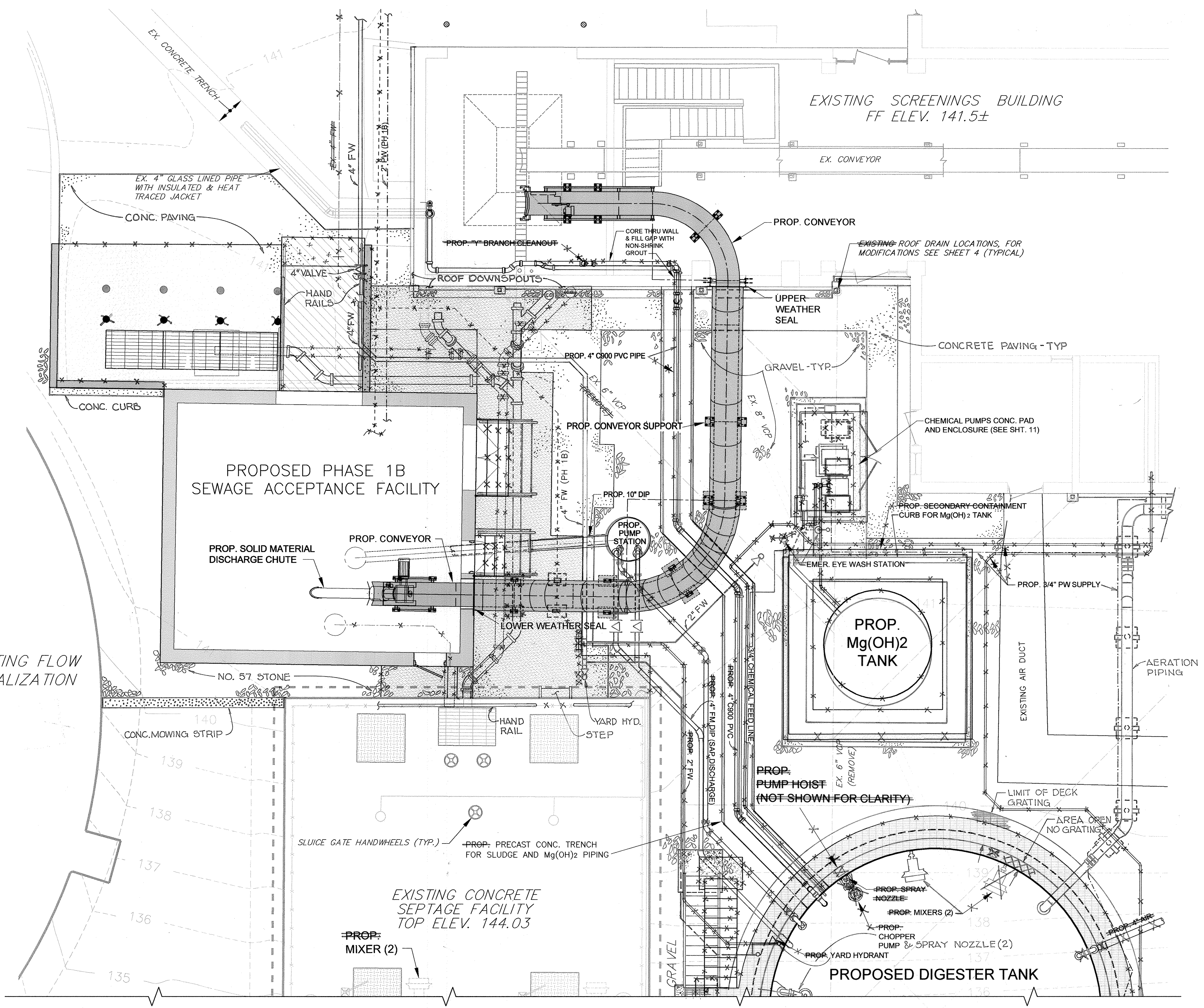
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 User: Thomas W. Deller
 Plot Size: 36" x 48" (A) (Common)
 XREF: 30 - 30, 30008773 (CAD) (Common) - BDRDEE - phase 2.dwg



UPPER AND LOWER WEATHER SEAL DETAILS FOR BUILDING PENETRATIONS
NOT TO SCALE



EXISTING FLOW EQUALIZATION



PLAN
SCALE: 1" = 5'

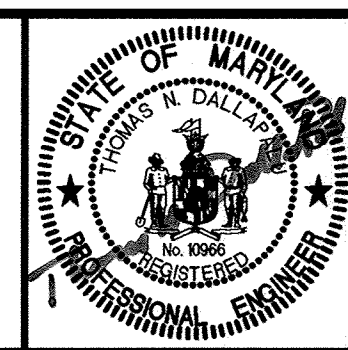
AS BUILTS

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DIRECTOR	DATE

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Thomas N. Dalletta 2/8/12
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works: *John K. ...* 2/9/12
Chief, Bureau of Engineering: *Thomas N. Dalletta* 2/9/12
Chief, Bureau of Utilities: *...* 2/9/12
Chief, Utility Design Division: *...* 2/9/12

Dewberry
Dewberry & Davis LLC
3106 LORD BALTIMORE DRIVE
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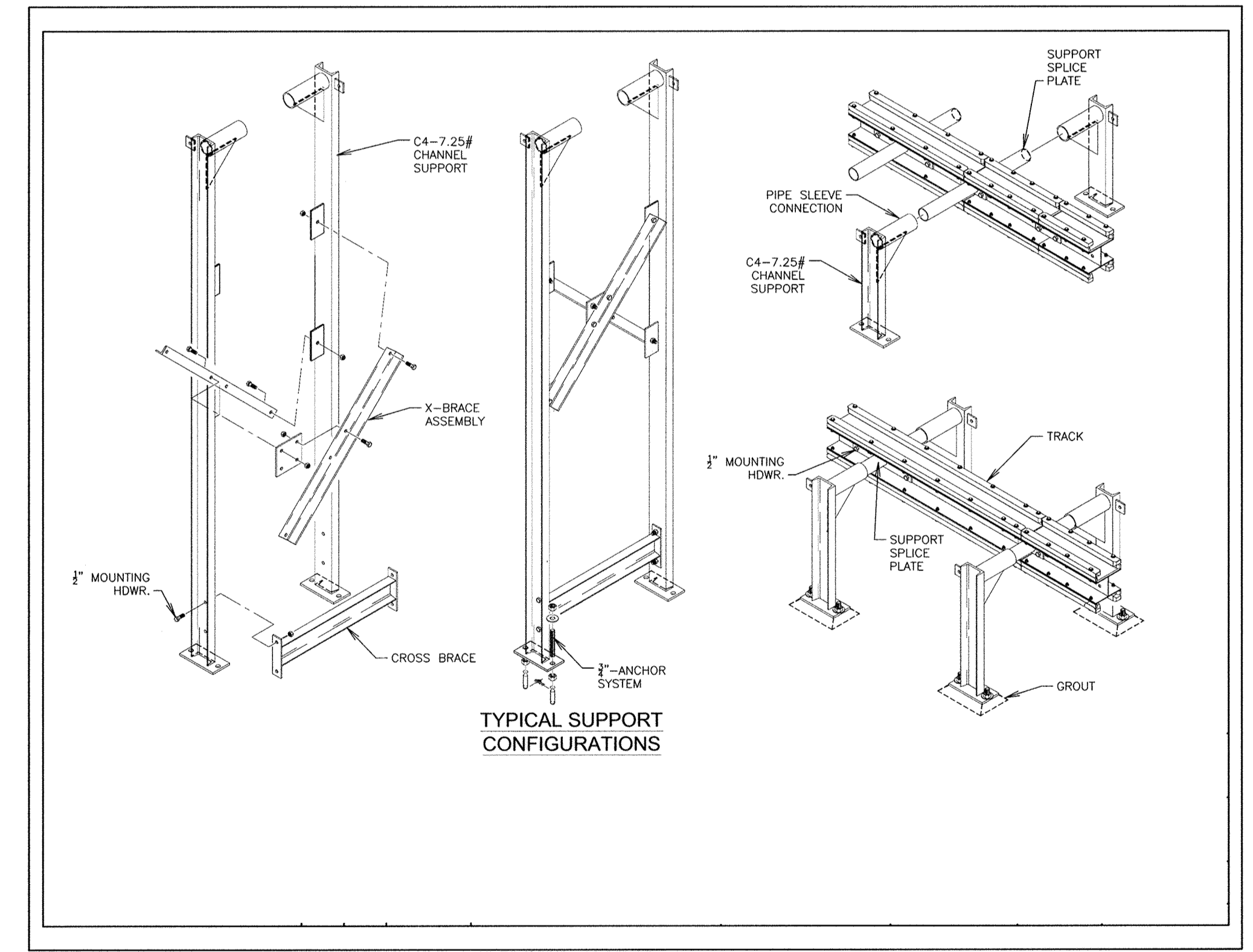
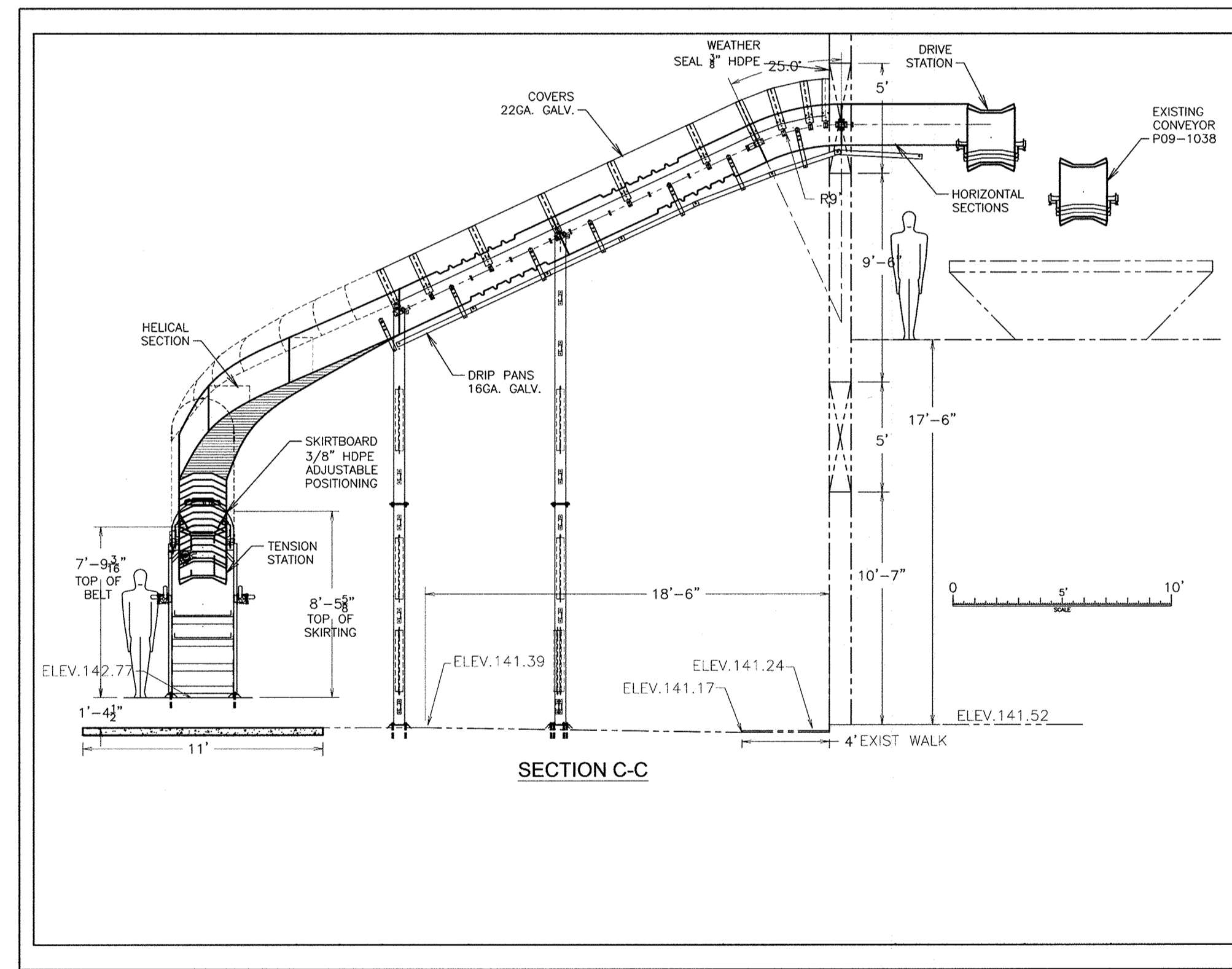
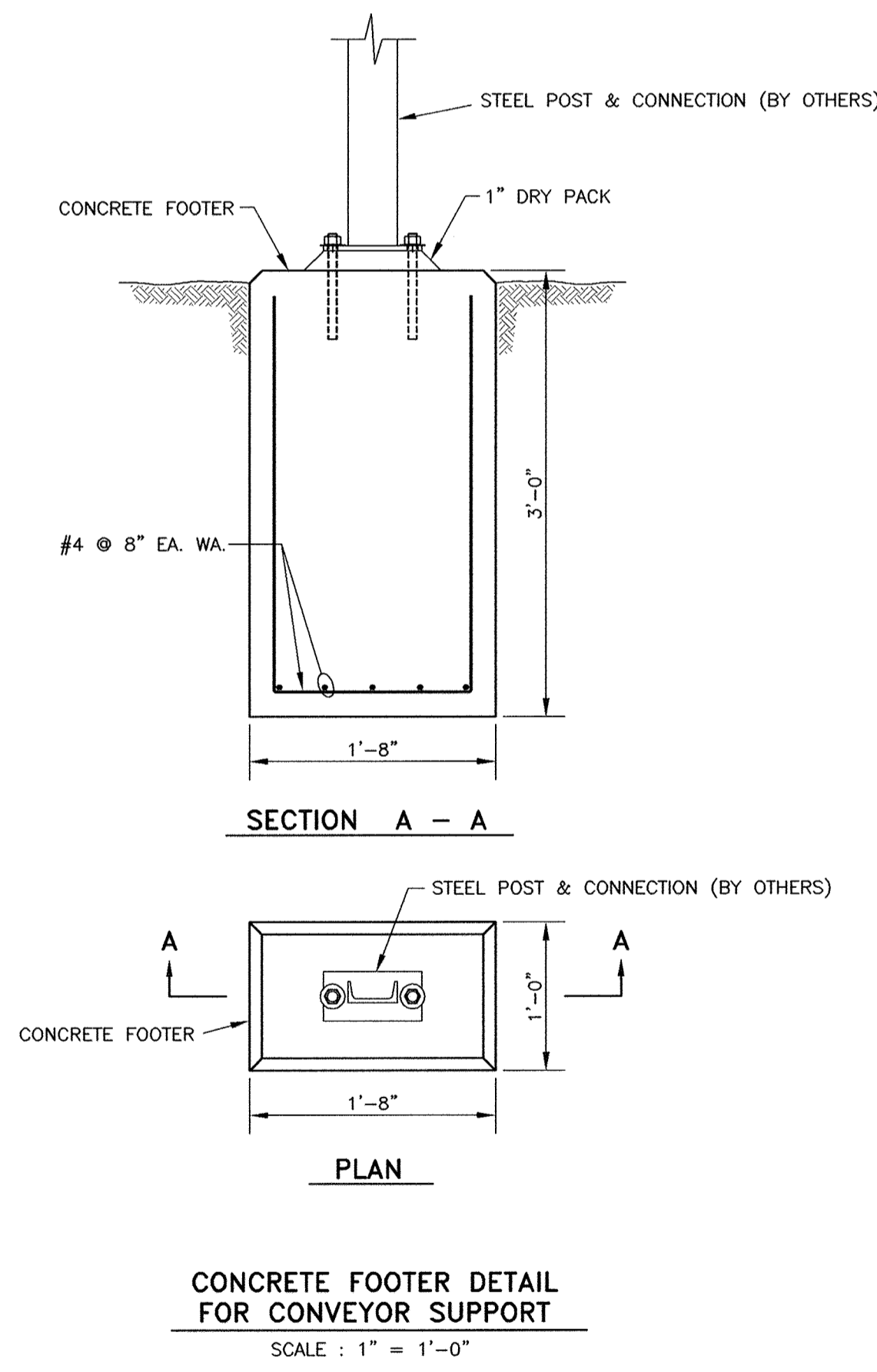
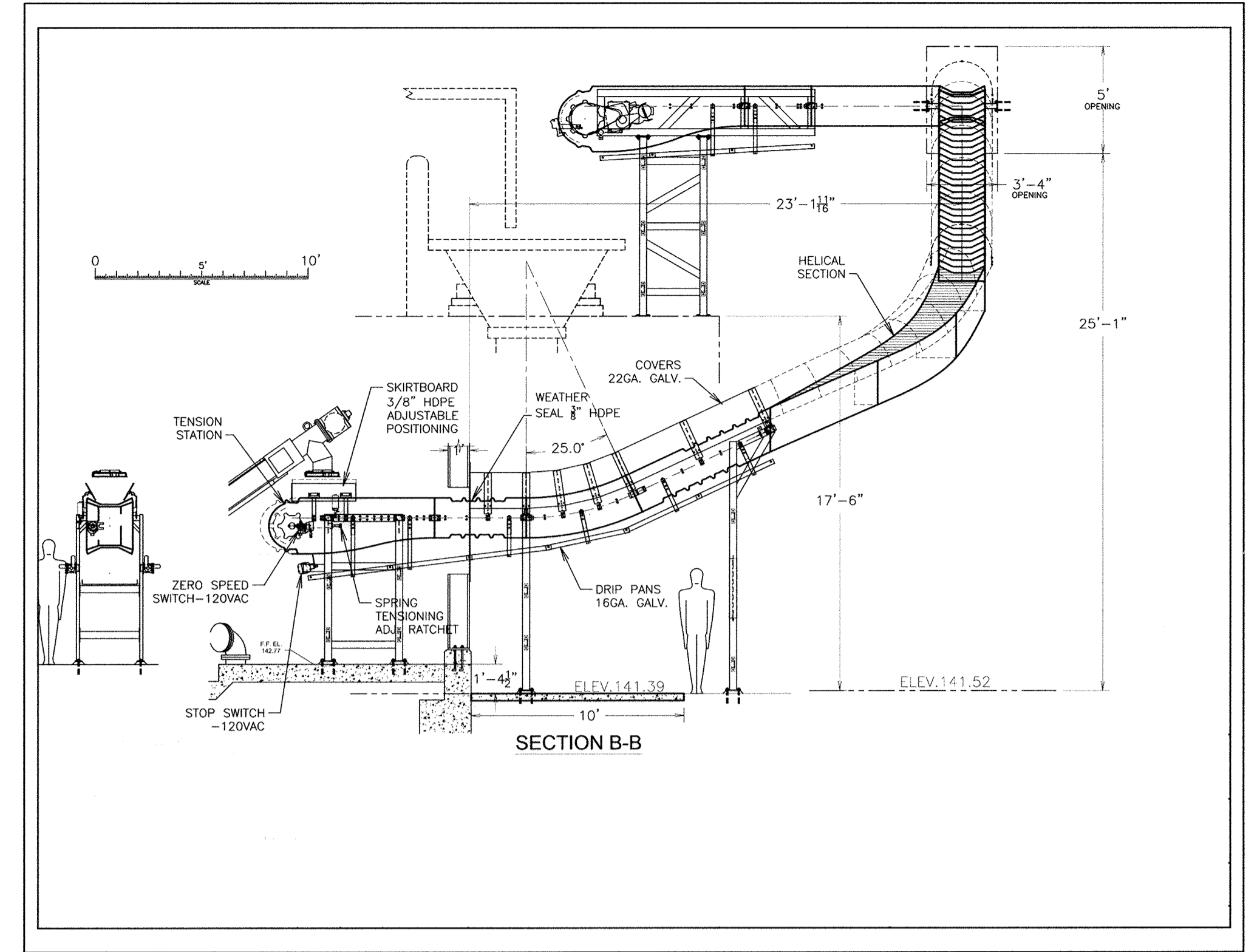
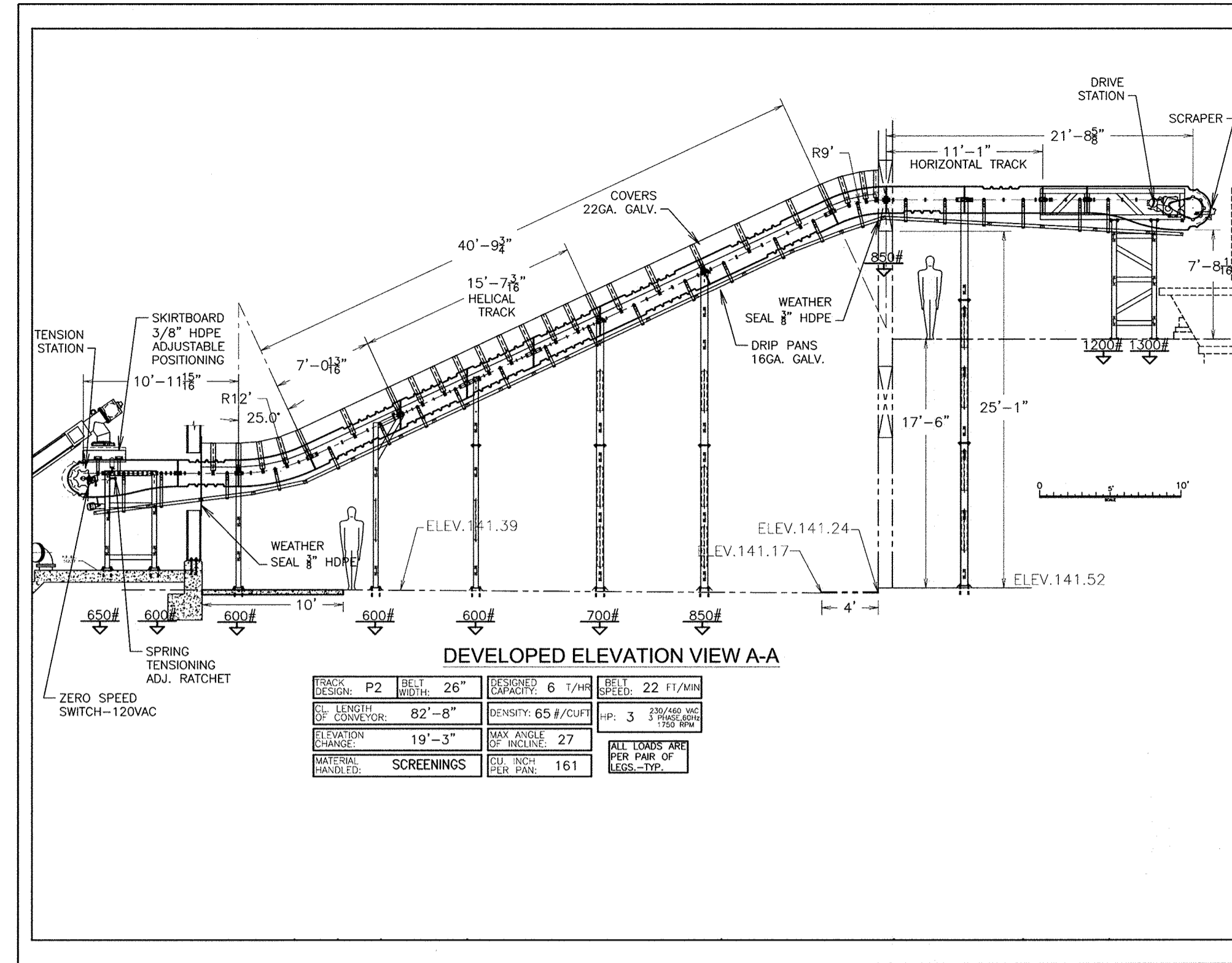
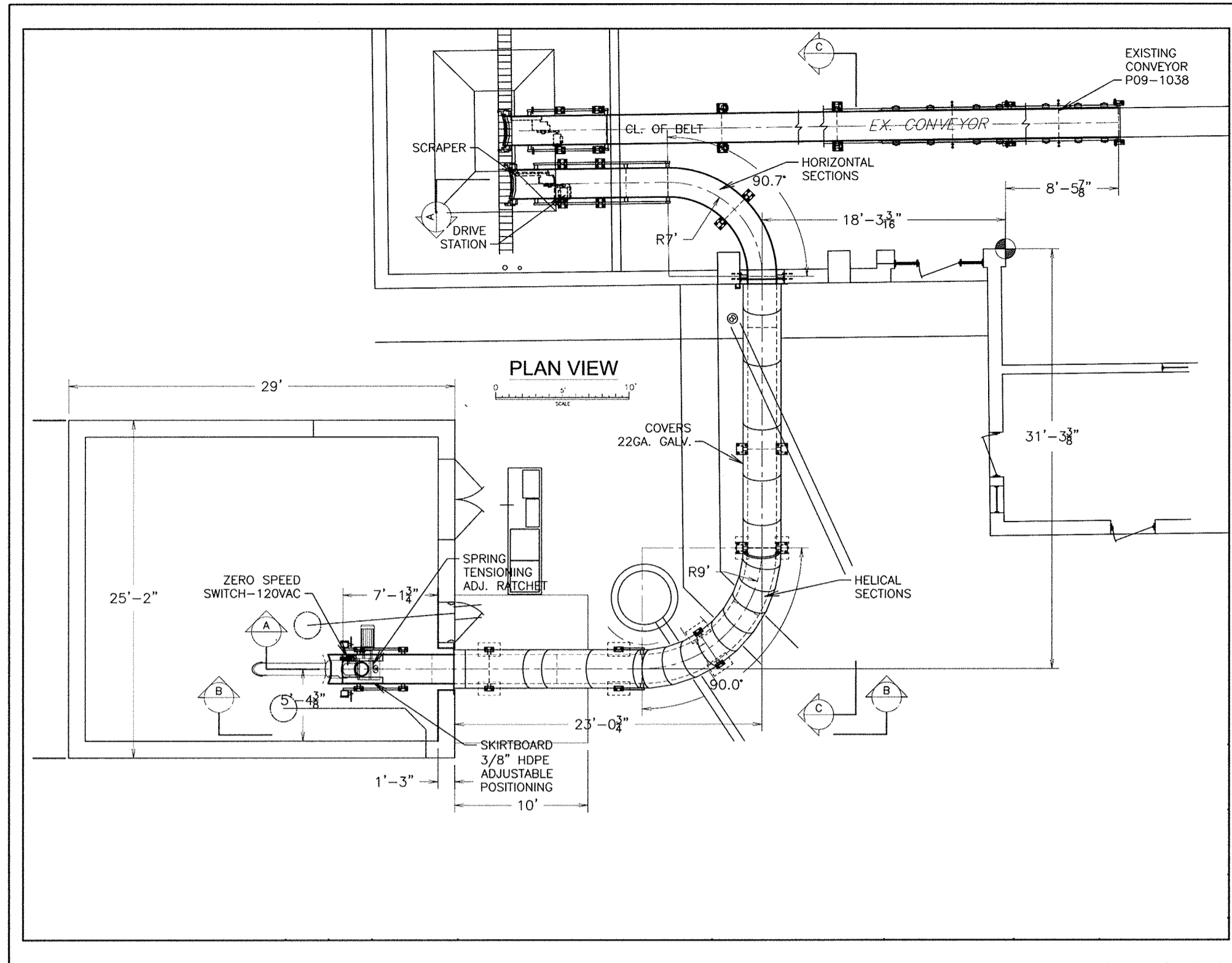
DES:	RJP
DRN:	PWR
CHK:	TND
DATE:	1/7/12
BY NO.	
REVISIONS	
DATE	

600' SCALE MAP NO. 47
BLOCK NO. 24

SCREENINGS CONVEYOR
PLAN AND DETAILS
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)
CAPITAL PROJECT S-6245
CONTRACT 20-4695
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN
SHEET
9 OF 23

Plotted by: (User) on: 2/9/12 at: 10:00 AM
 Title: LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)
 Project: HOWARD COUNTY, MARYLAND
 Drawing: SCREENINGS CONVEYOR PLAN AND DETAILS
 Scale: 1" = 5'
 Date: 2/9/12
 Author: (User)
 Checker: (User)
 Designer: (User)
 Engineer: (User)
 License: (User)
 State: (User)
 Title: (User)
 Date: (User)



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DIRECTOR DATE

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Thomas W. Doherty 2/8/12
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Scott A. Cleary 2/8/12
DIRECTOR OF PUBLIC WORKS DATE

Sierra Clem 2/9/12
CHIEF, BUREAU OF UTILITIES DATE

Mama S. Suttler 2/9/12
CHIEF, BUREAU OF ENGINEERING DATE

Chris Doherty 2/9/12
CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3108 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2662
410.285.9500
FAX: 410.285.8875



DES:	RJP/KY				
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DATE:	1/7/12	BY	NO.	REVISIONS	DATE

SCREENINGS CONVEYOR DETAILS

600' SCALE MAP NO. 47 BLOCK NO. 24

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

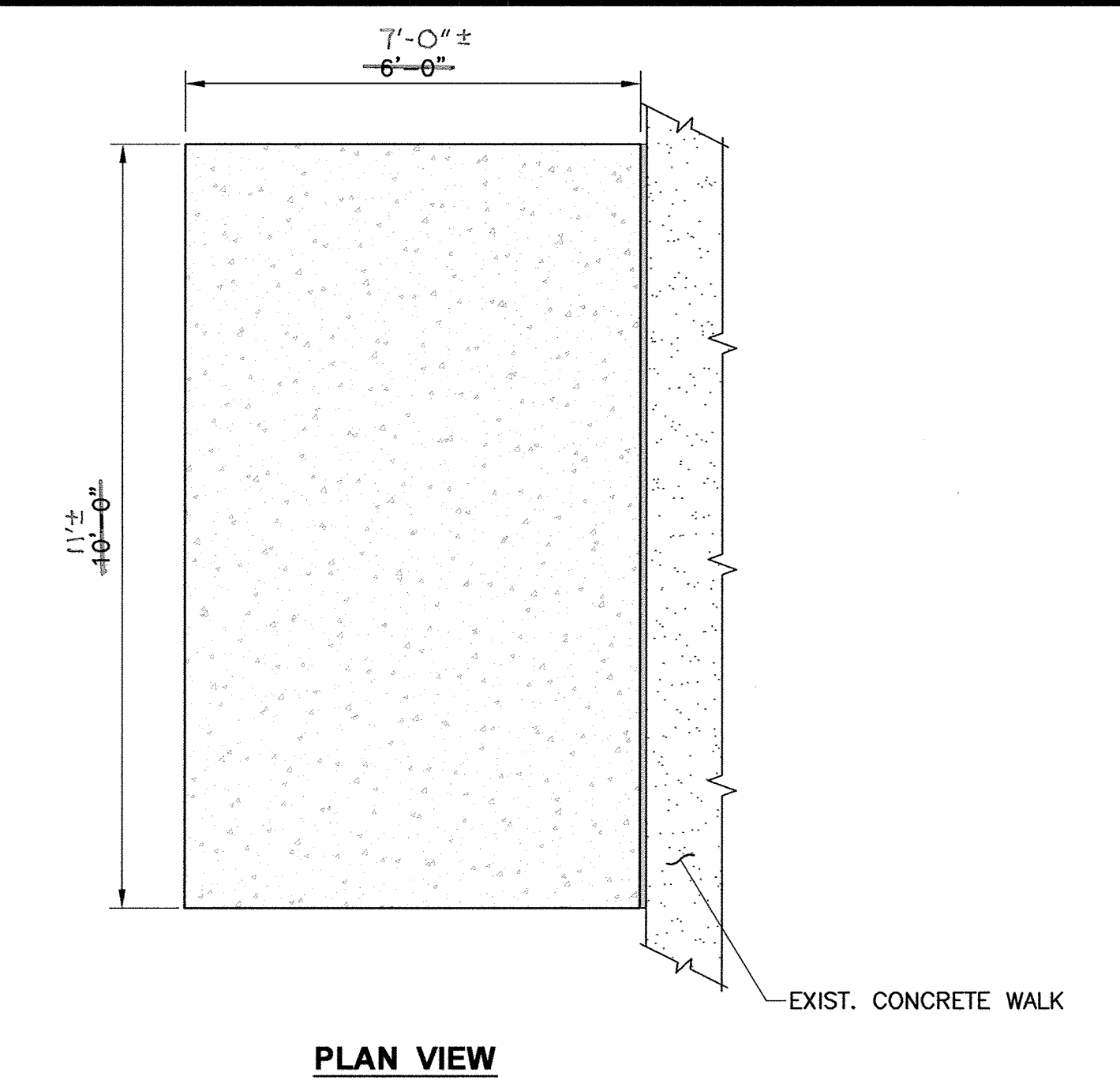
ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

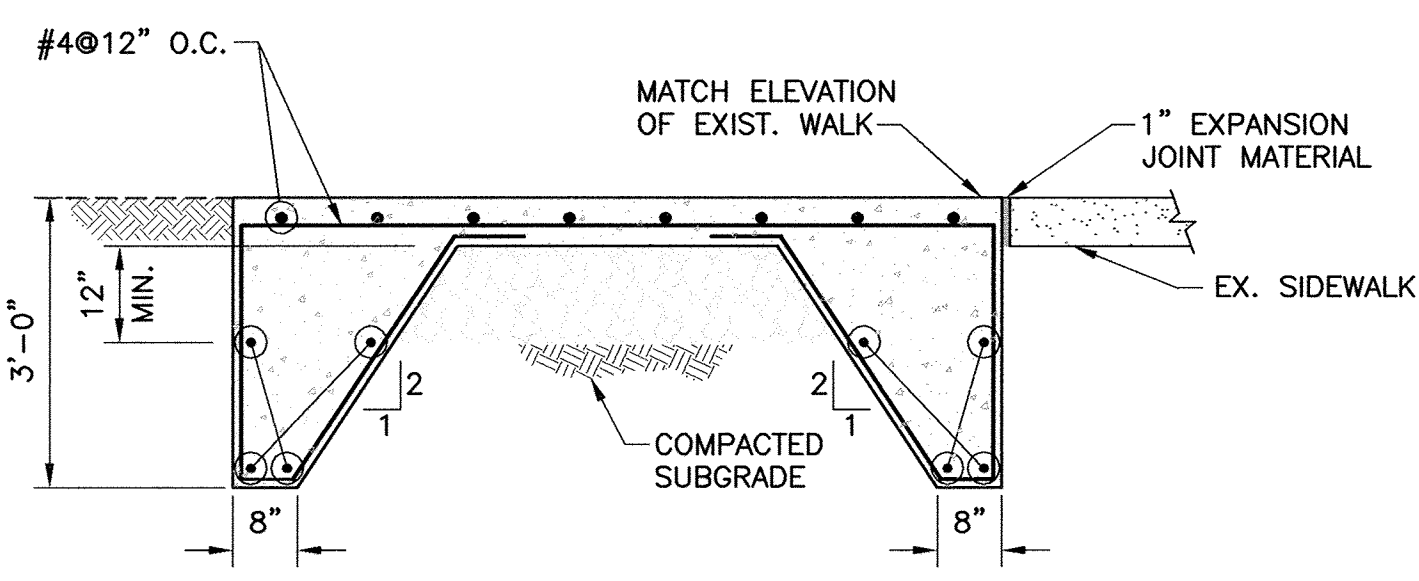
SHEET 10 OF 23

AS BUILTS

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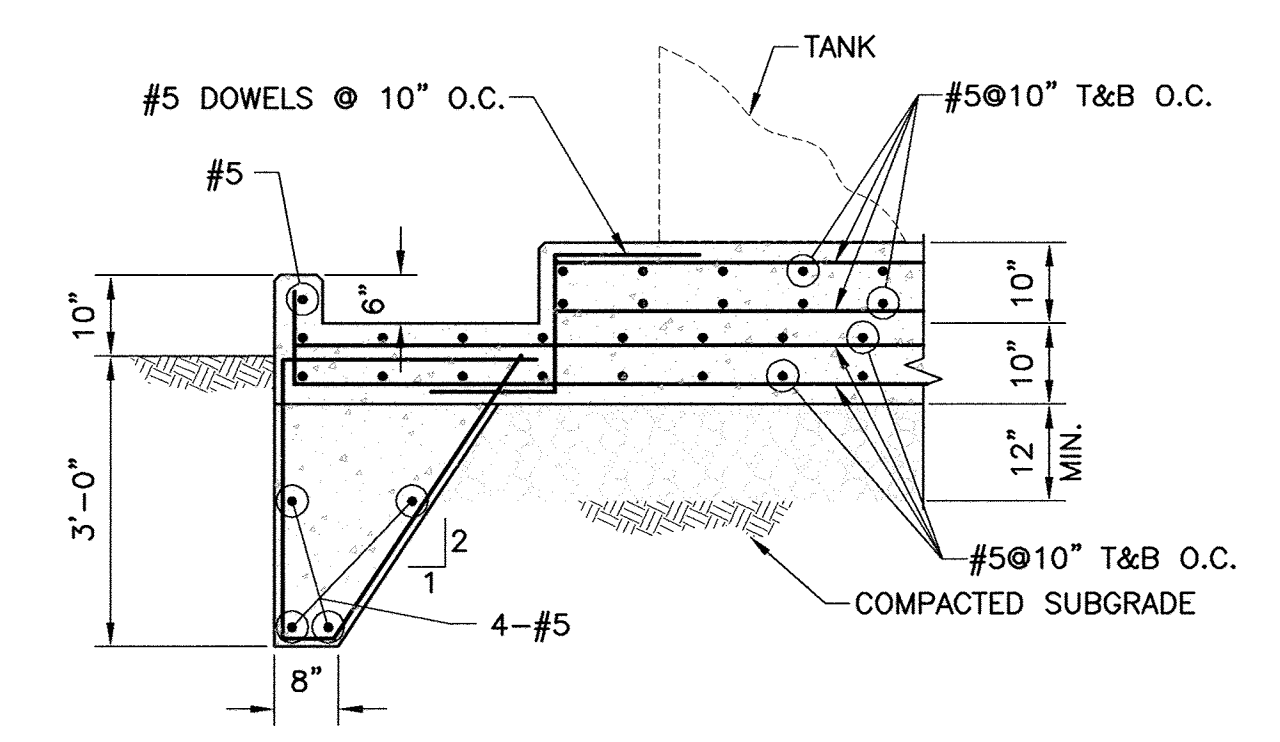
PLAN VIEW



SECTIONAL VIEW

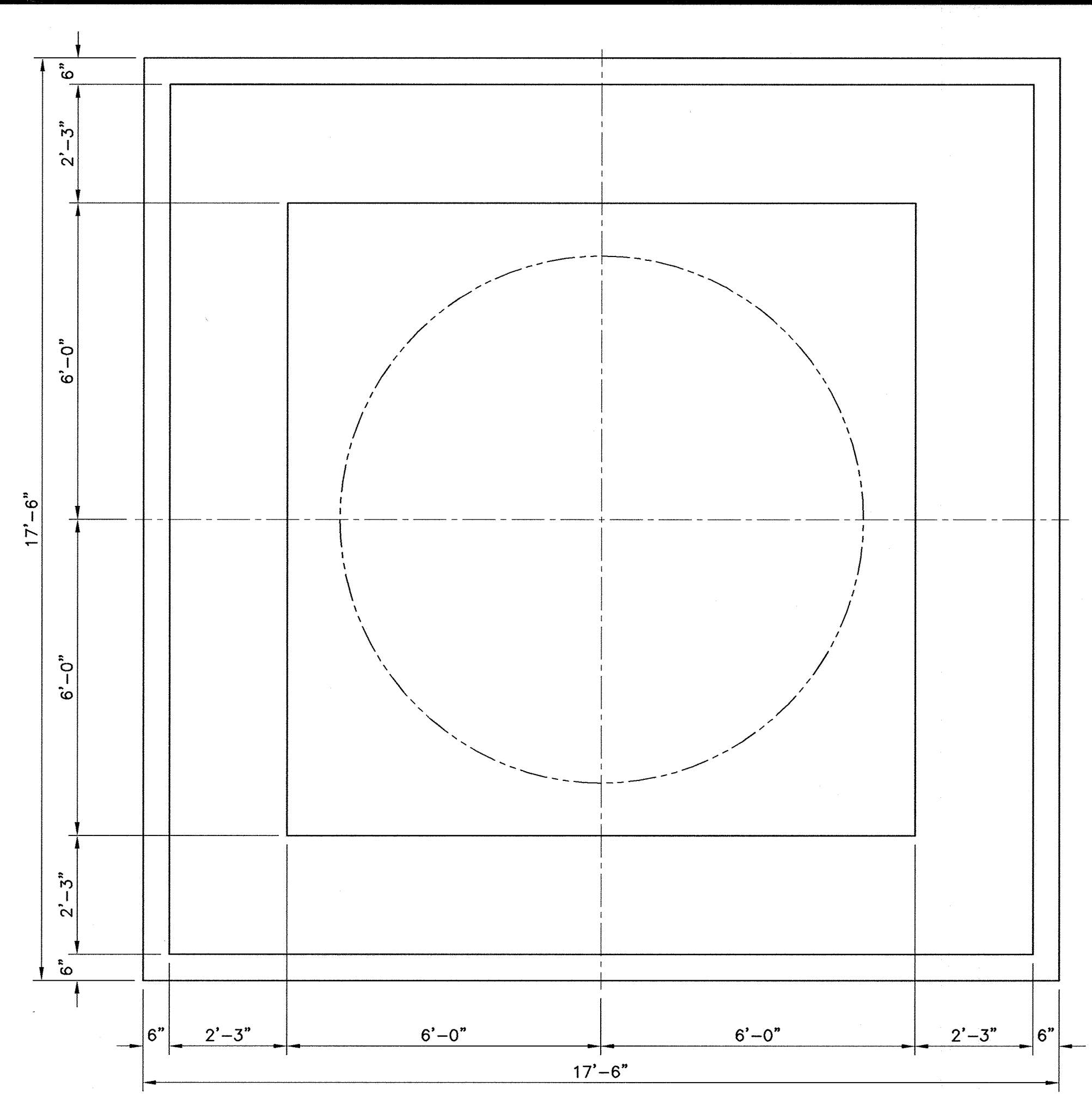
Mg(OH)₂ TANK CONCRETE PUMP PAD

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



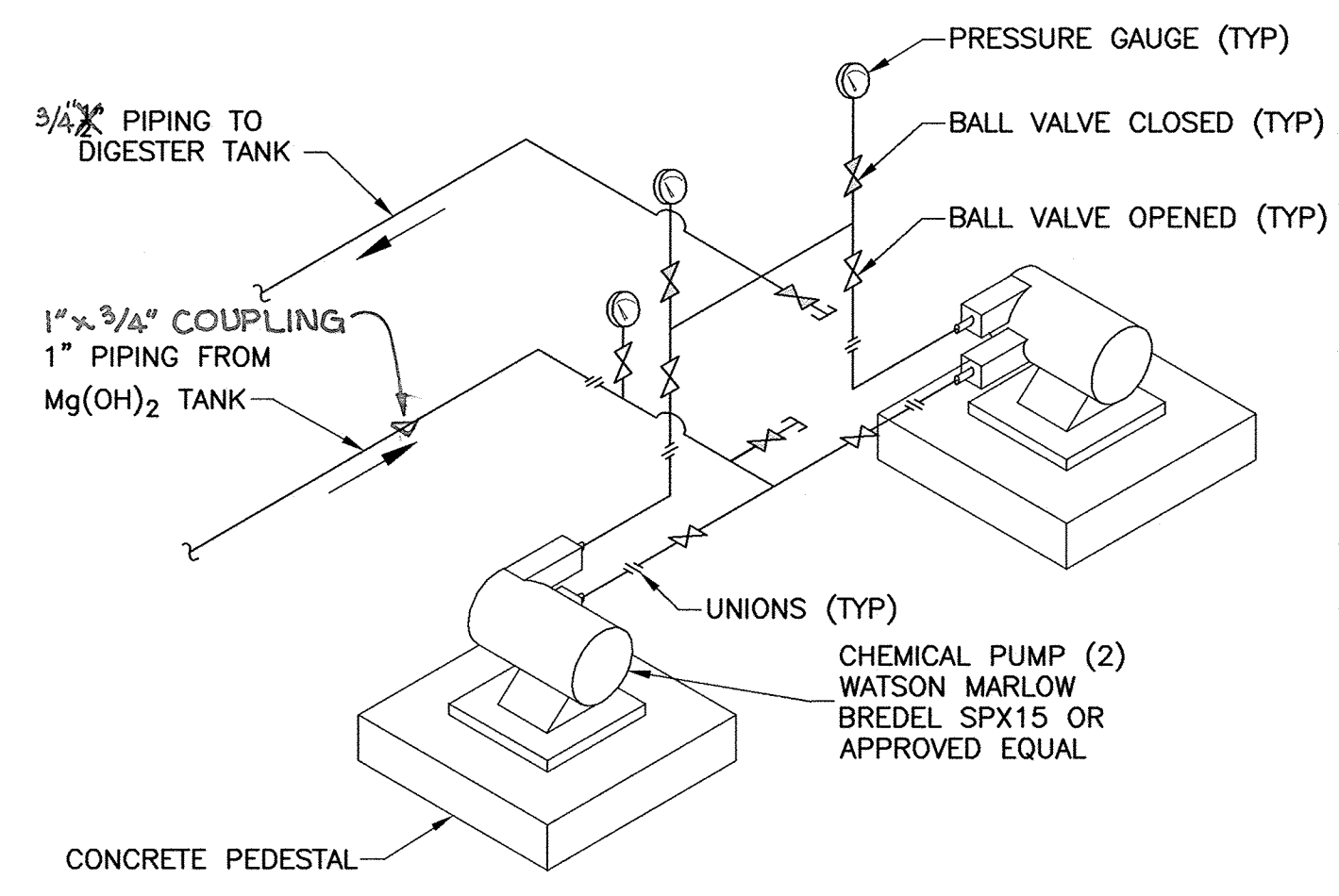
Mg(OH)₂ TANK CONCRETE BASE

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



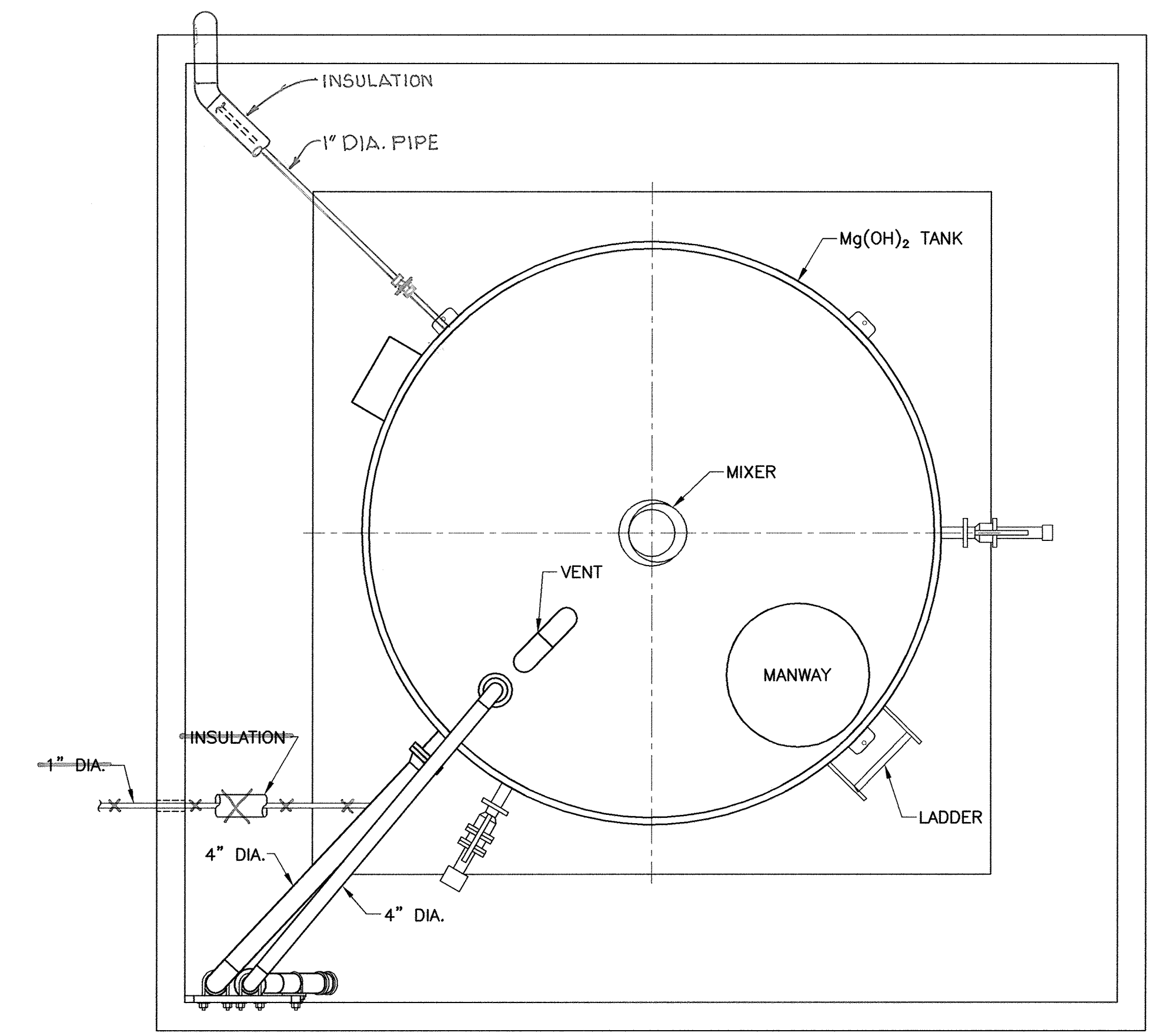
Mg(OH)₂ TANK CONTAINMENT BASE PLAN

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



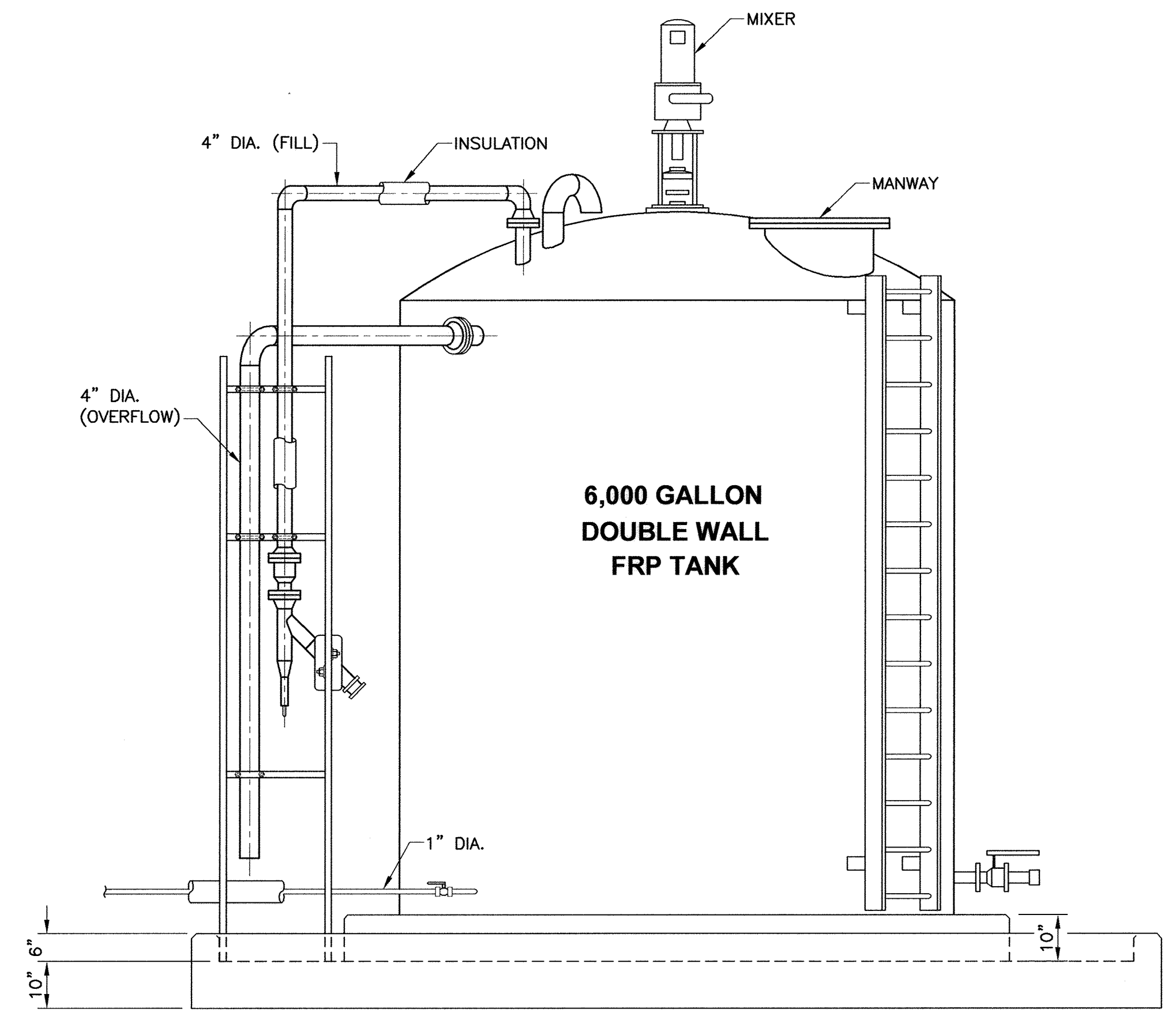
Mg(OH)₂ PUMP PIPING SCHEMATIC

SCALE: NONE



Mg(OH)₂ TANK PLAN

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



TANK ELEVATION VIEW

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

DIRECTOR _____ DATE _____

PROFESSIONAL CERTIFICATION

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Thomas W. Daulton 2/8/12
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jan 7 2012 2/8/12
DIRECTOR OF PUBLIC WORKS DATE

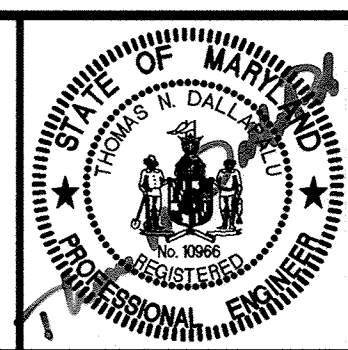
Thomas W. Daulton 2/8/12
CHIEF, BUREAU OF ENGINEERING DATE

Chris Chen 2/8/12
CHIEF, BUREAU OF UTILITIES DATE

Chris Chen 2/8/12
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Dewberry

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DES:	RJP/KY
DRN:	CD
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BY:	NO.
REVISIONS:	
DATE:	

Mg(OH)₂ TANK PLANS, ELEVATION, PIPING SCHEMATIC AND DETAILS

600' SCALE MAP NO. 47 BLOCK NO. 24

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET 11 OF 23

AS BUILTS

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ELECTRICAL SYMBOLS

- FLUORESCENT OR INCANDESCENT LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE AND MOUNTING.
- WALL MOUNTED LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE.
- POLE MOUNTED HIGH INTENSITY DISCHARGE LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE.
- SINGLE POLE TOGGLE SWITCH - 20 AMP, 120 VOLT, M.H. 48" AFF, UNLESS NOTED OTHERWISE.
- THREE WAY TOGGLE SWITCH - 20 AMP, 120 VOLT, M.H. 48" AFF, UNLESS NOTED OTHERWISE.
- MOTOR RATED SWITCH WITH THERMAL OVERLOAD PROTECTION, MOUNT ADJACENT TO OR ON THE MOTOR BEING CONTROLLED.
- JUNCTION BOX, CEILING OR WALL MOUNTED.
- DOUBLE DUPLEX GROUNDING TYPE RECEPTACLE - 20 AMP, 120 VOLT, NEMA 5-20R, M.H. 18" AFF, UNLESS NOTED OTHERWISE.
- DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER PROTECTION - 20 AMP, 120 VOLT, NEMA 5-20R, M.H. 48" AFF, UNLESS NOTED OTHERWISE.
- DISCONNECT SWITCH, AMP, VOLT, POLES AND FUSING AS NOTED ON DRAWING.
- UNLESS OTHERWISE NOTED, COMBINATION STARTER WITH HOA AND 120 VAC CONTROL CIRCUIT TRANSFORMER, ENCLOSURE AS NOTED
- ELECTRIC MOTOR CONNECTION - HORSEPOWER AS NOTED.
- BRANCH CIRCUIT CONDUIT AND WIRING WITH A DEDICATED EQUIPMENT GROUND WIRE. CROSSMARKS AND NUMERALS INDICATE NUMBER AND SIZE OF CONDUCTORS, AND SHOWN ONLY WHERE REQUIRED FOR CLARITY.
- BRANCH CIRCUIT CONDUIT AND WIRING WITH A DEDICATED EQUIPMENT GROUND WIRE, UNDER GROUND OR UNDER SLAB. CROSSMARKS AND NUMERALS INDICATE NUMBER AND SIZE OF CONDUCTORS, AND SHOWN ONLY WHERE REQUIRED FOR CLARITY.
- HOMERUN WIRING WITH A DEDICATED EQUIPMENT GROUND WIRE TO THE REFERENCED PANELBOARD. ARROW HEADS AND NUMERALS INDICATE THE CIRCUIT NUMBERS.
- CONDUIT SEALING FITTING
- COMBINATION VARIABLE FREQUENCY DRIVE. ENCLOSURE AND SEQUENCE AS INDICATED

- CONTACT - NORMALLY OPEN
- CONTACT - NORMALLY CLOSED
- OVERLOAD RELAY HEATER
- MAGNETIC STARTER WITH NEMA SIZE INDICATED
- CIRCUIT BREAKER, MAGNETIC TRIP ONLY, FRAME SIZE SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.
- SWITCH - CURRENT RATING INDICATED, 3 POLE FUSED SWITCH, SWITCH AND FUSE CURRENT RATING UNLESS INDICATED OTHERWISE.
- LIGHTNING ARRESTER
- FUSE
- GROUND
- TRANSFORMER, SECONDARY VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE

ELECTRICAL SYMBOLS CONTINUED

- PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
- PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
- REMOTE DEVICE
- LIMIT SWITCH
- TIMING RELAY CONTACT NORMALLY OPEN TIMED CLOSED
- TIMING RELAY CONTACT NORMALLY CLOSED TIMED OPEN
- TIMING RELAY CONTACT NORMALLY OPEN TIMED OPEN
- TIMING RELAY CONTACT NORMALLY CLOSED TIMED CLOSED
- TEMPERATURE SWITCH
- FLOAT SWITCH
- MAGNETIC RELAY COIL
- 480/3 -EQUIPMENT VOLTAGE
- INDICATES PHASE
- INDICATES VOLTAGE
- SELECTOR SWITCH - MAINTAINED CONTACT - CHART IDENTIFIES OPERATION:
- CURRENT TRANSFORMER
- INDICATING LIGHT - LETTER INDICATES COLOR
- PHASE OR DIAMETER

SELECTOR SWITCH - MAINTAINED CONTACT - CHART IDENTIFIES OPERATION:

CKT.	POSITION			X - CLOSED CONTACT O - OPEN CONTACT
	HAND	OFF	AUTO	
1	X	O	O	
2	O	O	X	

ABBREVIATIONS

- A, AMP AMPERE
- AFF ABOVE FINISHED FLOOR
- AIC SYMMETRICAL AMPERE INTERRUPTING RATING
- AL ALUMINUM
- ANCH ANCHOR
- APPROX APPROXIMATE
- BLD BUILDING
- BRKR CIRCUIT BREAKER
- C CONDUIT
- CKT CIRCUIT
- CL CENTERLINE
- CO COMPANY
- CONC CONCRETE
- CONT CONTROL
- CT CURRENT TRANSFORMER
- CTR CONTROL
- DIA DIAMETER
- DN DOWN
- DP DEEP
- DWG DRAWING
- EA EACH
- EC EMPTY CONDUIT
- ELEC, ELECT'L ELECTRICAL
- EMBED EMBEDMENT DEPTH
- ENCL ENCLOSURE
- EQ EQUAL
- EQUIP EQUIPMENT
- EXIST EXISTING
- EXP EXPANSION
- FC FOOTCANDLE
- FR FROM
- GALV GALVANIZED
- GEC GROUND ELECTRODE CONDUCTOR
- GFCI GROUND FAULT CIRCUIT INTERRUPTER (5 MILLIAMPER SENSITIVITY)
- GND GROUND
- H HIGH
- HP HORSEPOWER
- HT HEATER
- HT 1000 AIC
- KVA KILOVOLT-AMPERES
- KW KILOWATTS
- L ANGLE, LENGTH
- LOC LOCATION
- LTS LIGHTS
- MAT'L MATERIAL
- MECH MECHANICAL
- MCB MAIN CIRCUIT BREAKER
- MTD MOUNTED
- NEC NATIONAL ELECTRICAL CODE
- NTS NOT TO SCALE
- OD OUTSIDE DIAMETER
- OH, OHE OVERHEAD ELECTRICAL
- OPN'G OPENING
- P POLE OR PHASE
- PL PLATE
- PNL, PANEL CIRCUIT BREAKER PANELBOARD
- PRI PRIMARY VOLTAGE (ABOVE 600 VOLTS)
- PWR POWER
- QTY QUANTITY
- RCP REACTOR CONTROL PANEL
- RECEPT RECEPTACLE
- RQ'D REQUIRED
- RQM'TS REQUIREMENTS
- SEC SECONDARY VOLTAGE (600 VOLTS OR LESS)
- SPR STANDARD PRACTICE RECOMMENDATION, SIZE FOR CRUSHED STONE
- SS STAINLESS STEEL
- STA STATION, AS IN PUMP STATION
- STR STRUCTURE
- SVC SERVICE
- SURF SURFACE
- SW SWITCH
- T TRANSFORMER
- TEL TELEPHONE
- THRU THROUGH
- TRANS, TRANSF TRANSFORMER OR TRANSFER
- TSTAT THERMOSTAT
- TYP TYPICAL
- UG, UGE UNDERGROUND ELECTRICAL
- UT, UGT UNDERGROUND TELEPHONE
- V VOLTS
- VAC VOLTS A.C.
- W WIDE OR WIRE
- W/ WITH
- WW WIREWAY
- XP EXPLOSION PROOF (CLASS I DIVISION I GROUP D UNLESS NOTED)

GENERAL ELECTRICAL CONSTRUCTION NOTES

- THE DRAWINGS INDICATE THE EXTENT AND GENERAL ARRANGEMENT OF THE ELECTRICAL SYSTEMS.
- LOCATIONS OF LINES AND EQUIPMENT SHALL BE DETERMINED FROM ACTUAL FIELD CONDITIONS. THE OUTLINES OF THE CONSTRUCTION SHOWN ON THE ELECTRICAL DRAWINGS ARE INTENDED ONLY AS A GUIDE TO INDICATE RELATIVE LOCATIONS OF THE WORK. REFER TO THE APPLICABLE DRAWINGS OF OTHER TRADES AND THE EQUIPMENT SUPPLIER'S INSTALLATION DRAWINGS FOR EXACT LOCATIONS AND ARRANGEMENTS.
 - THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND PROPER RELATION OF HIS WORK TO THE FACILITY STRUCTURES AND TO THE WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION NOR EXTENSION OF COMPLETION TIME WILL BE GRANTED FOR EXTRA WORK CAUSED BY THE LACK OF COORDINATION.
 - DUE TO DIFFERENCES IN VARIOUS MANUFACTURER'S EQUIPMENT CONNECTIONS AND MOTOR CURRENTS, THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS INSTALLATION WITH THAT EQUIPMENT ACTUALLY FURNISHED AND SHALL VERIFY THE CORRECT SIZES AND DETAILS OF INSTALLATION BEFORE ROUGHING IN.
 - RECEPTACLES, SWITCHES, THERMOSTATS, AND OTHER SIMILAR ITEMS SHALL ALIGN VERTICALLY OR HORIZONTALLY WITH EACH OTHER, WITH THE STRUCTURE AND OTHER FEATURES THEREOF WHEN IT APPEARS OBVIOUS AND LOGICAL THAT THEY SHOULD. THE ELECTRICAL CONTRACTOR SHALL CONSULT WITH THE GENERAL CONSTRUCTION SUPERINTENDENT REGARDING THIS REQUIREMENT AND ALSO FOR THE LOCATION OF EQUIPMENT, DOOR SWINGS, BLOCK COURSING, ALIGNMENT OF THIS AND OTHER SIMILAR FEATURES BEFORE ROUGHING-IN FOR THESE COMPONENTS.
 - ALL CONDUITS ENTERING UNDERGROUND STRUCTURES SHALL HAVE WATERTIGHT EXPANSION WALL SEALS.
 - THE CORRECT NUMBER OF WIRES MAY NOT BE INDICATED FOR ALL CIRCUITS, ONLY THOSE WHERE CLARIFICATION IS NECESSARY. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON DRAWINGS OR NOT.
 - ALL CONDUITS WITH WIRING ENTERING UNDERGROUND STRUCTURES WHERE WATER MIGHT ENTER THE CONDUIT AND DRAIN INTO THE STRUCTURE, SHALL BE FITTED WITH WATERTIGHT BUSHINGS WITH SEALING COMPOUND SUCH AS OZ/GEDNEY STYLE CSB.
 - ALL ABOVE GROUND RACEWAYS & RACEWAYS INSIDE STRUCTURES SHALL BE RUN EXPOSED.

CONDUIT & WIRE SIZE SCHEDULE
(UNLESS OTHERWISE SHOWN)

CIRCUIT BREAKER TRIP	GROUND WIRE SIZE	1 OR 2 POLE		3 POLE	
		CONDUIT	WIRE	CONDUIT	WIRE
15A	1 #12	3/4"	#12	3/4"	#12
20A	1 #12	3/4"	#12	3/4"	#12
30A	1 #10	3/4"	#10	3/4"	#10
40A	1 #10	3/4"	#8	1"	#8
50A	1 #10	3/4"	#8	1"	#8
60A	1 #8	1"	#6	1"	#6
70A	1 #8	1"	#4	1-1/4"	#4
80A	1 #8	1-1/4"	#4	1-1/4"	#4
90A	1 #8	1-1/4"	#2	1-1/4"	#2
100A	1 #8	1-1/4"	#2	1-1/4"	#2

FIRE ALARM SYSTEM

- FIRE ALARM MANUAL PULL STATION
- FIRE ALARM HORN WITH FLASHING LIGHT. NUMERAL INDICATES CANDELA LEVEL. WALL MOUNTED
- CEILING MOUNTED IF SUBSCRIPT C IS INDICATED
- SMOKE DETECTOR, CEILING MOUNTED
- HEAT DETECTOR, CEILING MOUNTED
- FIRE ALARM CONTROL PANEL

ELECTRICAL DEMOLITION NOTES

- THE CONTRACTOR SHALL REMOVE EXISTING WORK AS CALLED FOR ON THE DRAWINGS OR AS REQUIRED TO CLEAR THE AREAS OF NEW CONSTRUCTION.
- ALL EQUIPMENT REMOVED THAT IS NOT BEING REUSED SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STORED OR DISPOSED OF AS DIRECTED.
- EXCEPT AS OTHERWISE NOTED, ALL EXISTING ELECTRICAL WORK WHICH WILL NOT BE RENDERED OBSOLETE AND WHICH MAY BE DISTURBED DUE TO ANY CHANGES REQUIRED BY THIS WORK SHALL BE RESTORED TO ITS ORIGINAL OPERATING CONDITION. OTHER ELECTRICAL WORK OR MATERIAL RENDERED OBSOLETE SHALL BE ABANDONED WHERE CONCEALED AND REMOVED WHERE EXPOSED. OLD UNUSED WIRING SHALL BE REMOVED FROM THE ABANDONED (CONCEALED) CONDUITS. ANY CONDUITS STUBBED OUT OF CONCRETE SURFACE SHALL BE CUT INTO SURFACE AND PATCHED.
- WHERE EXISTING ELECTRICAL WORK INTERFERES WITH NEW WORK AND WHERE SUCH INSTALLATIONS ARE TO REMAIN IN USE THE INSTALLATIONS SHALL BE DISCONTINUED AND RELOCATED AND/OR RECONNECTED TO COORDINATE WITH THE WORK INDICATED ON THE DRAWINGS AND AS SPECIFIED.
- WHERE EXISTING RACEWAYS THAT ARE NOT TO BE REUSED INTERFERE WITH NEW WORK, THESE RACEWAYS SHALL BE REMOVED BACK TO THE NEAREST JUNCTION BOX OR PULLBOX AND THE OPENINGS BLANKED.
- ALL WORK SHALL BE PERFORMED IN SUCH A MANNER TO CREATE MINIMAL POWER OUTAGES FOR THE OWNER. ALL SUCH OUTAGES SHALL BE CAREFULLY COORDINATED WITH THE OWNER SO THAT POWER TO ESSENTIAL SERVICES CAN BE MAINTAINED.
- CONTRACTOR SHALL MAINTAIN THE CONTINUITY OF CIRCUITS SERVING MULTIPLE ITEMS OF WHICH ONE OR MORE ARE BEING DEMOLISHED. CONDUCTORS AND CONDUITS FOR THOSE ITEMS BEING DEMOLISHED SHALL BE REMOVED AS FAR AS PRACTICABLE.
- ALL EQUIPMENT INDICATED TO REMAIN IN PLACE SHALL REMAIN IN NORMAL OPERATION AT ALL TIMES DURING CONSTRUCTION. IF ANY CIRCUIT WIRING FEEDING THIS EQUIPMENT IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPLACE WITH NEW WIRING OF THE SAME SIZE AND TYPE.

AS BUILTS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT DATE _____

DIRECTOR DATE _____

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 11529 EXPIRATION DATE: JULY 9, 2013

David Wayne Klein 2/7/12
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Janey R. ... 2/9/12
DIRECTOR OF PUBLIC WORKS DATE

Thomas S. ... 2/9/12
CHIEF, BUREAU OF ENGINEERING DATE

... 2/9/12
CHIEF, BUREAU OF UTILITIES DATE

... 2/9/12
CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3100 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2882
410.285.8600
FAX: 410.285.8875

DES: _____

DRN: _____

CHK: _____

DATE: 2/7/12

BY: _____ NO. _____

REVISIONS

DATE

E-1 ELECTRICAL SYMBOLS AND NOTES

600' SCALE MAP NO. 47

BLOCK NO. 24

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-0245
CONTRACT 20-4695

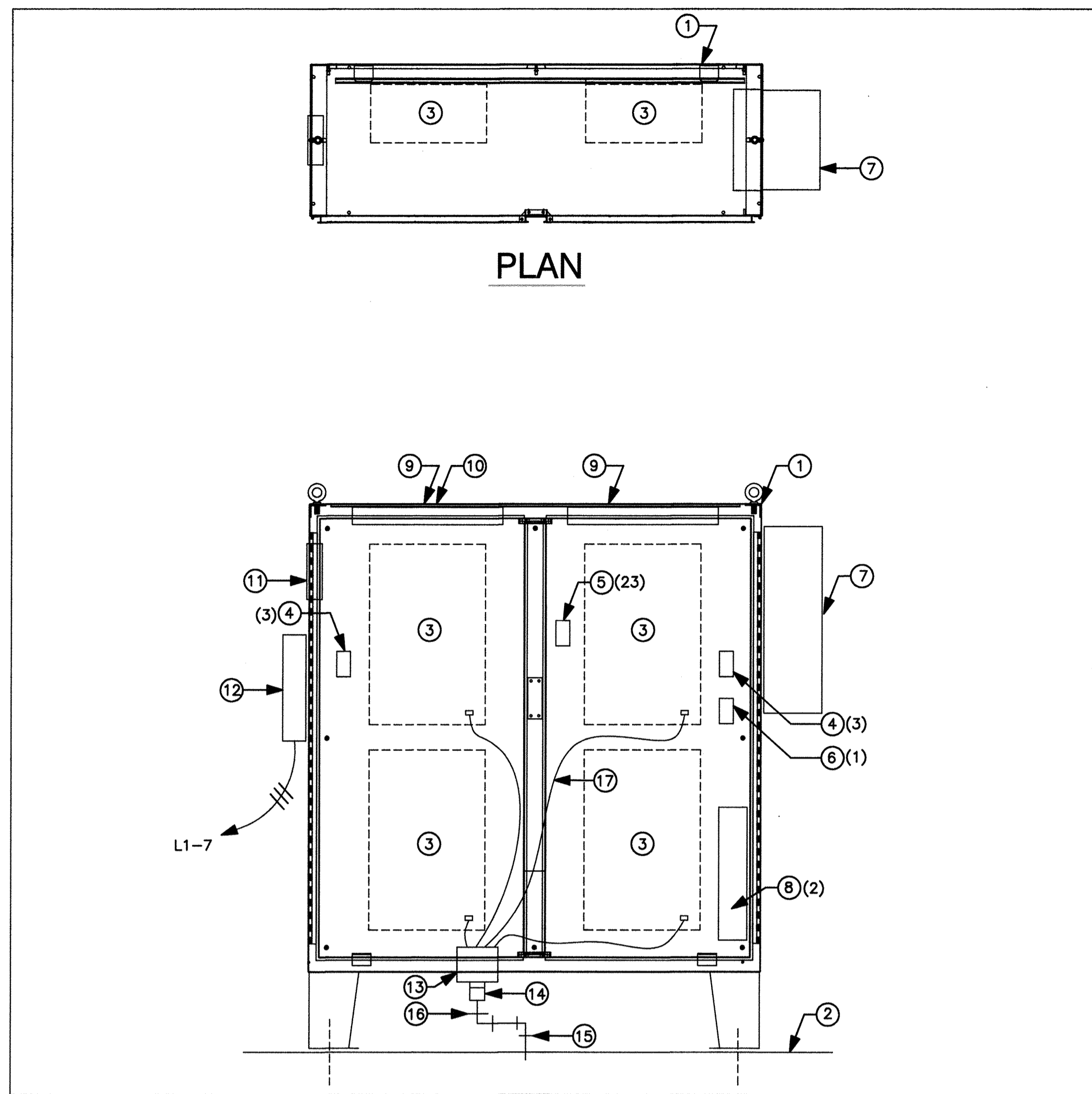
ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET 12 OF 23

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Title: LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)
Scale: AS SHOWN
Sheet: 12 OF 23



ELEVATION, ENGINEERED BACTERIA CABINET ENCLOSURE

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

PANEL L-3 CIRCUIT NUMBERS ARE AS INDICATED THIS ()

- ① NEMA 4X STAINLESS STEEL ENCLOSURE COMPLETE W/PANEL, DOUBLE DOORS AND 3-POINT LATCHES, FLOOR STANDS, AND OTHER ACCESSORIES INDICATED. 72"W X 74"H X 24" DP.
- ② SEE PROCESS PLANS FOR PLATFORM. ANCHOR ENCLOSURE AS RECOMMENDED BY MFG.
- ③ ENGINEERED BACTERIA CABINETS BY OTHERS, TYP OF 4.
- ④ DUPLEX GFCI RECEPTACLE
- ⑤ LIGHT SWITCH
- ⑥ SINGLE 20A, 120V RECEPTACLE FOR AC UNIT, ITEM 7
- ⑦ CABINET AIR CONDITIONER. POWDER COAT STEEL ENCLOSURE. RATED 2700 BTUH AT 95F/95F. 120VAC, HOFFMAN/PENTAIR CR29 OR EQUAL. COMPLETE W/ FILTERS AND INTEGRAL THERMOSTAT.
- ⑧ HEATER. FAN FORCED ELECTRIC RATED 1.5 KW AT 120VAC EQUAL TO TPI 3320 COMPLETE W/SURFACE MOUNTING FRAME, THERMOSTAT, AND DISCONNECT.
- ⑨ ENCLOSURE LIGHT. SINGLE STRIP FLUORESCENT. 17W/8 LAMP, MULTI VOLT BALLAST. LITHONIA TYPE S OR EQUAL.
- ⑩ ALL COMPONENTS NOT BACK OF PANEL MOUNTED W/ STAINLESS STEEL SELF SEALING FASTENERS EQUAL TO APM SEELBOLT.
- ⑪ CABINET VENTILATION LOUVER 7.8"W X 8.8" HIGH APPROX. WALL LOUVER W/ ALUMINUM MESH FILTER.
- ⑫ PANEL L3. SEE SEPARATE SCHEDULE.
- ⑬ 3" PVC LARGE TOP FLOOR DRAIN. SIOUX CHIEF 842 OR SIMILAR WITH 2" CONNECTION ADAPTER.
- ⑭ 2 X 1-1/2 REDUCER WITH 1-1/2 X 1-1/4 BUSHING
- ⑮ 1-1/4 DRAIN. EXTEND INTO DIGESTER.
- ⑯ PAINT ALL EXPOSED PVC FOR SUNLIGHT PROTECTION.
- ⑰ 5/8" EPDM HOSE, TYP.

3-EXIST. U/G CONDUITS POWER AND SIGNAL TO EXIST FEB#3. INTERCEPT EXIST RACEWAYS, SET POLYMER CONCRETE BOXES AND RELOCATE POWER AND SIGNAL AROUND NEW WORK

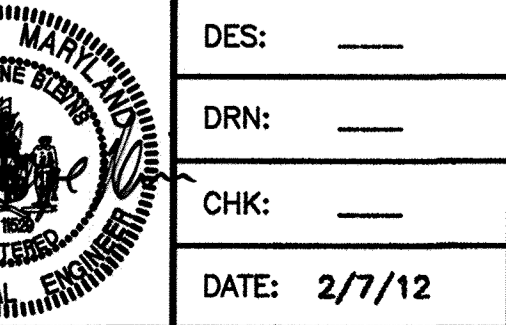
2-EXIST. U/G CONDUITS POWER AND SIGNAL TO EXIST FLOW TRANSDUCER INTERCEPT EXIST RACEWAYS, SET POLYMER CONCRETE BOXES AND RELOCATE POWER AND SIGNAL AROUND NEW WORK

REFER TO EXHIBITS A, B, C, D, AND E FOR THE CONSTRUCTED INFORMATION.

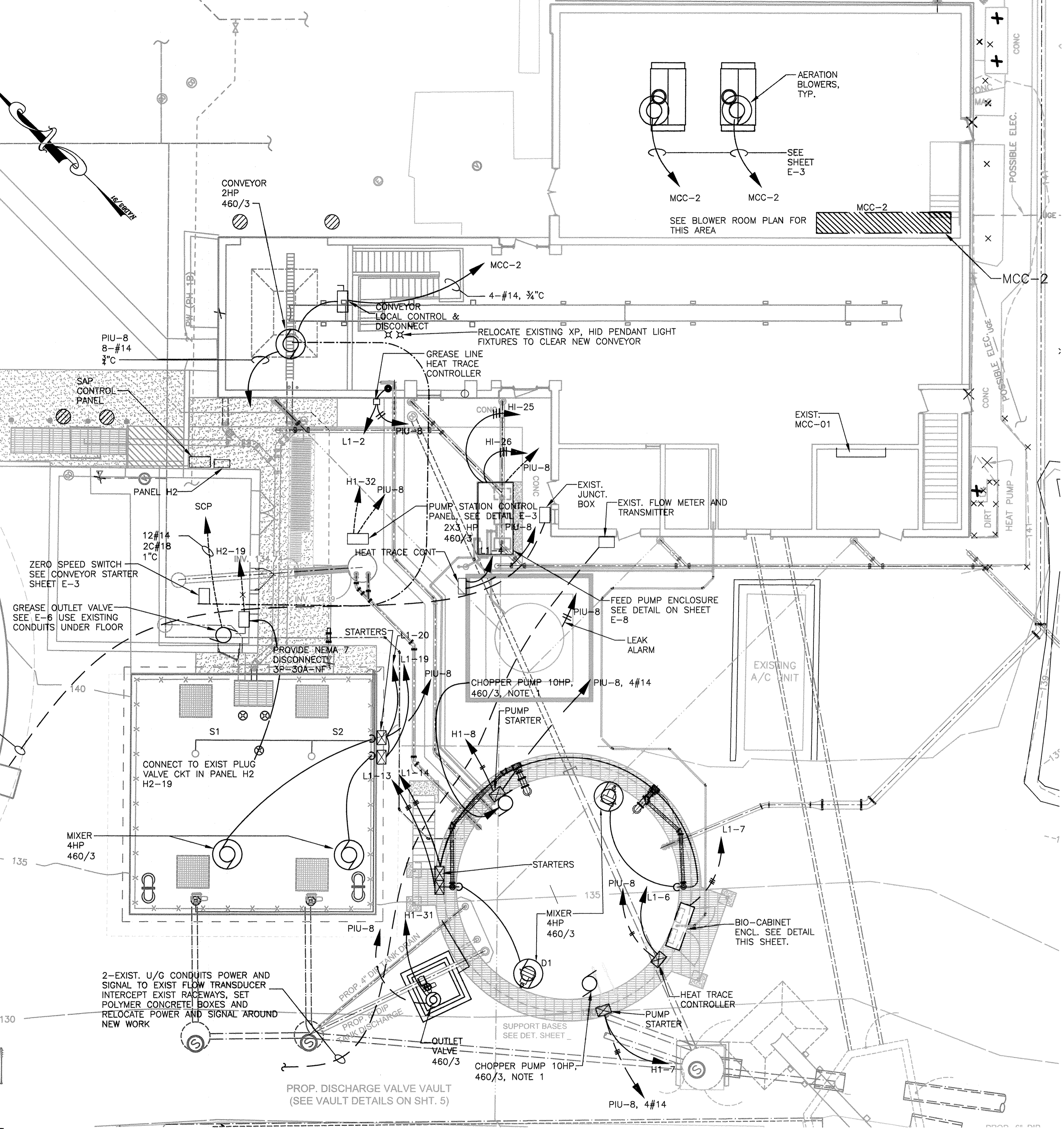
PROFESSIONAL CERTIFICATION
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David Wayne Klein 2/7/12
 Signature of Engineer Date

DES:	---
DRN:	---
CHK:	---
DATE:	2/7/12

BY NO. REVISIONS DATE



Dewberry
 Dewberry & Davis LLC
 3100 LORD BALTIMORE DRIVE
 SUITE 110
 BALTIMORE, MD 21244-2882
 410.285.9500
 FAX: 410.285.9575



NOTE 1: SEE SITE PLAN FOR EXACT LOCATION REFER TO PID, SHEETS E-5 THROUGH E-7 FOR DETAILS OF CIRCUIT, CONTROL AND INSTRUMENTATION RUNS.

PARTIAL ELECTRICAL SITE PLAN

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

A5 BUILTS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

DIRECTOR _____ DATE _____

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

James K. Sullivan 2/9/12
 DIRECTOR OF PUBLIC WORKS DATE

Thomas J. Sullivan 2/9/12
 CHIEF, BUREAU OF ENGINEERING DATE

William C. Lewis 2/9/12
 CHIEF, BUREAU OF UTILITIES DATE

Chris D. Lewis 2/9/12
 CHIEF, UTILITY DESIGN DIVISION DATE

NO.	REVISIONS	DATE

E-2 PARTIAL ELECTRICAL SITE PLAN

600' SCALE MAP NO. 47 BLOCK NO. 24

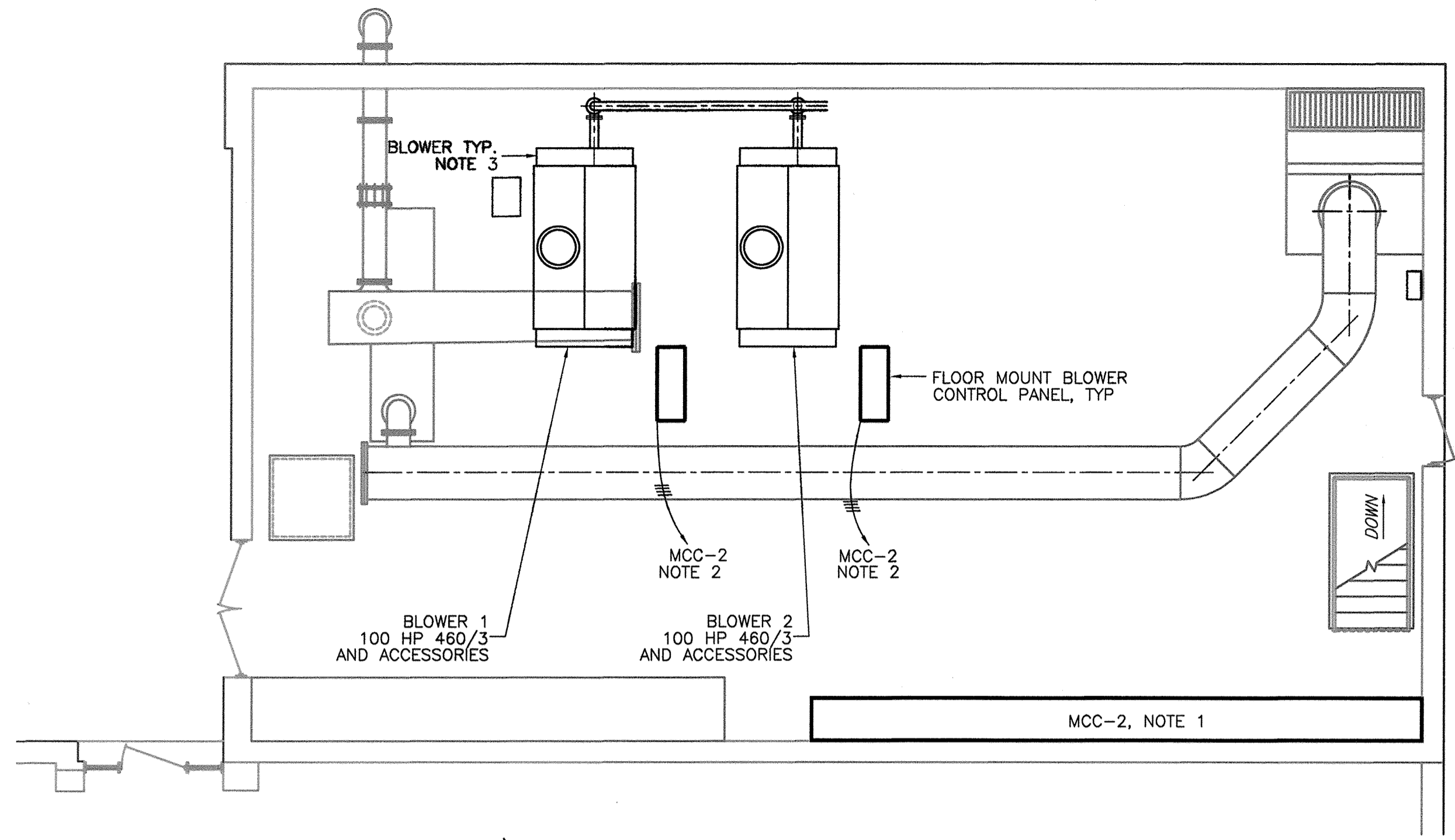
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
 CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 13 OF 23

Project: [unreadable] Rev: [unreadable] Date: [unreadable]
 Prepared by: [unreadable]
 Checked by: [unreadable]
 Date: [unreadable]

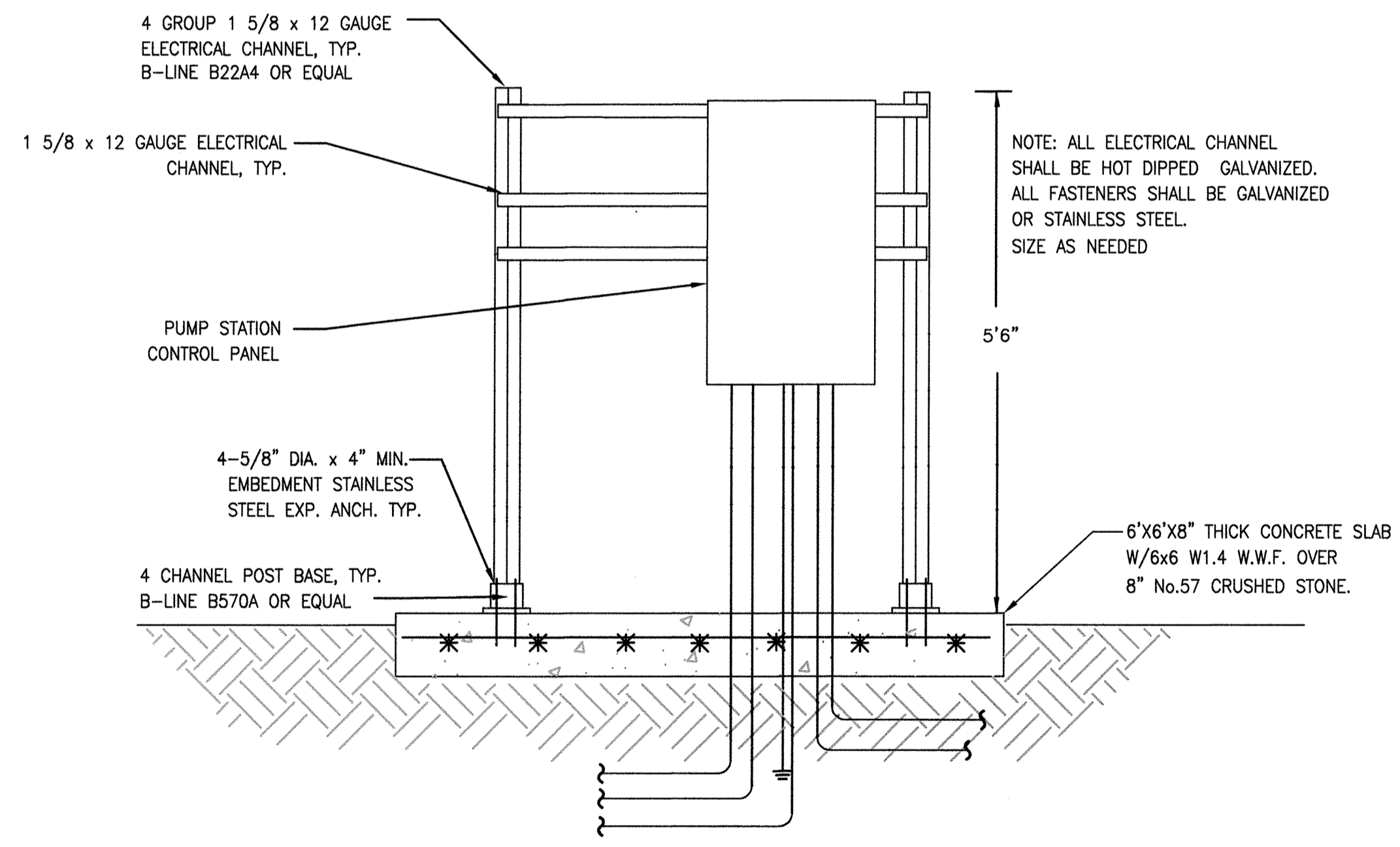


**ELECTRICAL PLAN
EXISTING BLOWER ROOM**
SCALE: 3/16"=1'-0"

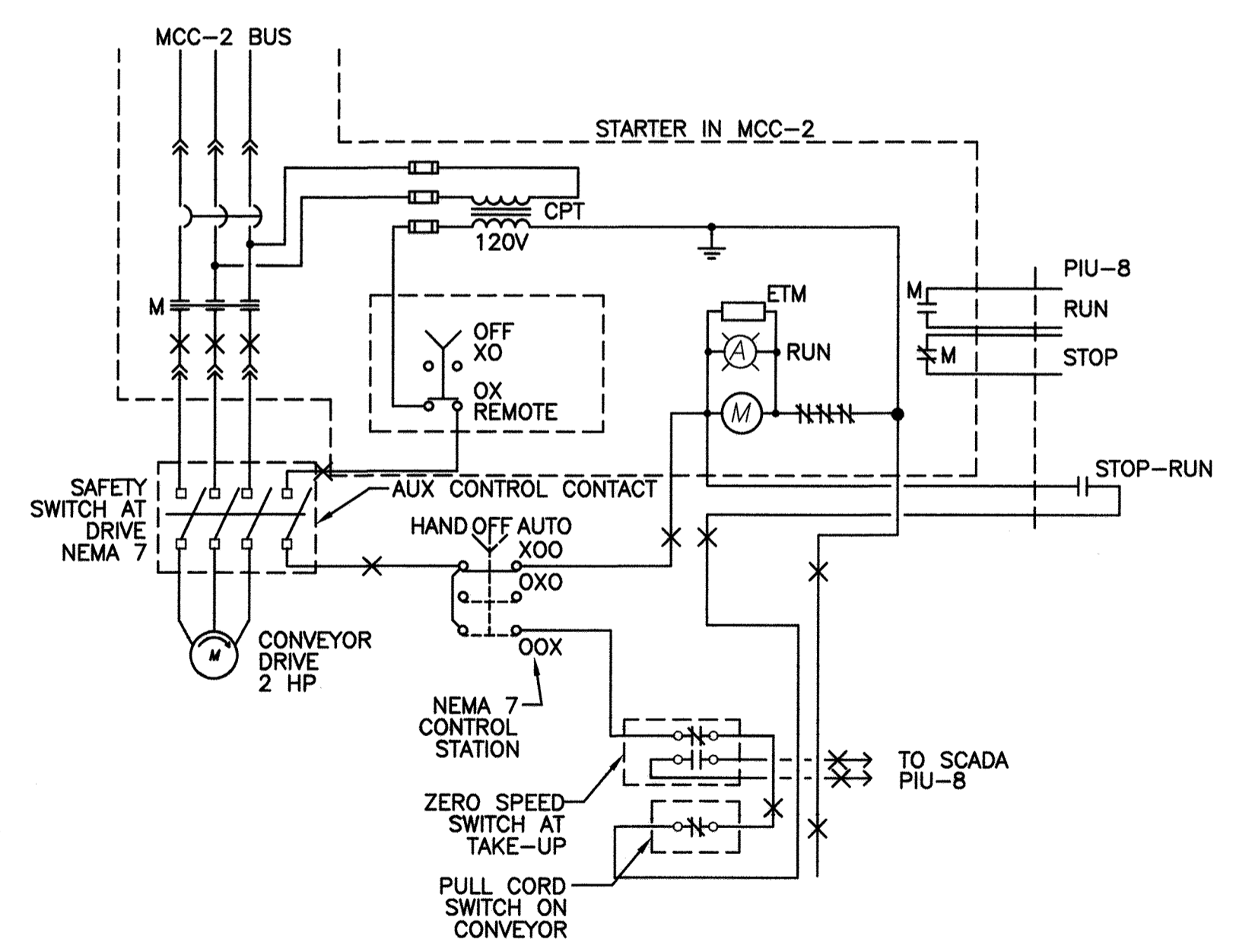


MCC-2 NOTES:
THE FOLLOWING EQUIPMENT WILL BE PROVIDED BY ANOTHER PROJECT:
1. 2 HP CONVEYOR STARTER
2. 2-225 AMP TRIP 3-POLE CIRCUIT BREAKERS FOR THE TWO BLOWERS
THIS PROJECT WILL PROVIDE ALL WIRE, CONDUIT, CONNECTIONS, AND COMMISSIONING FOR THE EQUIPMENT PROVIDED.

NOTES:
1. MCC-2 IS PROVIDED BY ANOTHER PROJECT. COORDINATE CIRCUIT CONNECTIONS WITH THAT WORK.
2. CONNECT TO 3P-225 AMP TRIP CIRCUIT BREAKER. 3#2/0, 1#4 BOND, 2"C.
3. FOR EXISTING BLOWERS THAT ARE REMOVED, REMOVE ALL EXISTING WIRING AND THE ACCESSIBLE RACEWAYS BACK TO THE MOTOR CONTROL CENTERS.
4. SEE DEMOLITION NOTES, SHEET E-1.



DETAIL AT PUMP STATION CONTROL PANEL
NTS



SCHEMATIC WIRING, CONVEYOR STARTER
NTS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT DATE _____

DIRECTOR DATE _____

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Daniel Wayne Klein 2/7/12
Signature of Engineer Date

**DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND**

Laurel K. Clark 2/9/12
DIRECTOR OF PUBLIC WORKS DATE

Thomas J. Buttle 2/9/12
CHIEF, BUREAU OF ENGINEERING DATE

Shawn Green 2/9/12
CHIEF, BUREAU OF UTILITIES DATE

David P. ... 2/9/12
CHIEF, UTILITY DESIGN DIVISION DATE

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DATE: 2/7/12				

**E-3 HEADWORKS BUILDING
PLAN AND DETAILS**

600' SCALE MAP NO. 47 BLOCK NO. 24

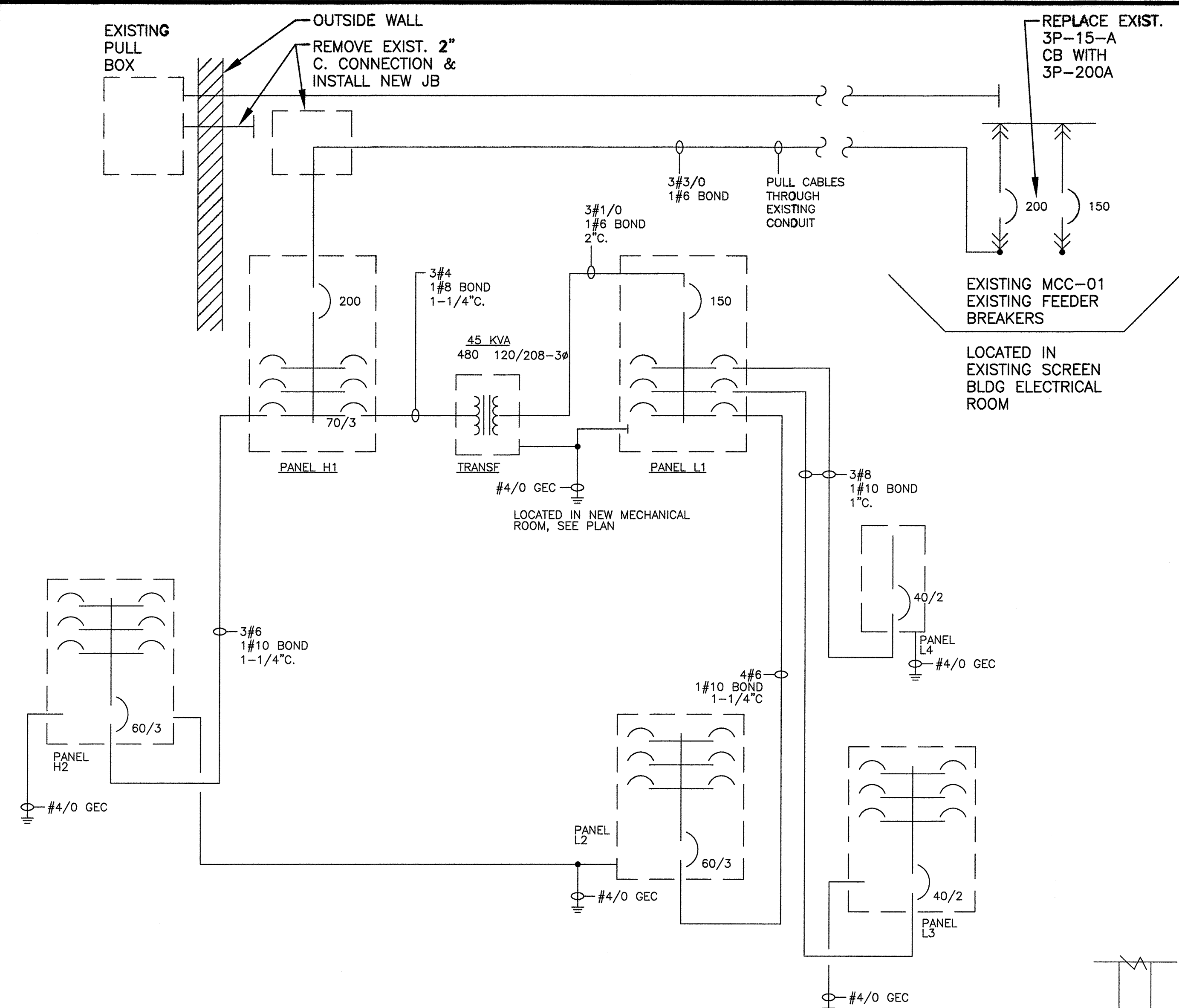
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 14 OF 23

Project: [unclear] Date: Feb. 07, 2012 11:14am
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 Author: [unclear]
 Status: [unclear]
 Version: [unclear]
 Description: [unclear]
 Keywords: [unclear]
 Comments: [unclear]



ONE LINE DIAGRAM
NTS

NOTE:
PANELS H2 AND L2 ARE PROVIDED UNDER THE PHASE 1B WORK.

PANEL SCHEDULE

PANEL: DS-H1 200 AMPS, MAIN CIRCUIT BREAKER PHASE: 3
POLE SPACES: 42 MOUNTING: SURFACE WIRE: 4
LOCATION: SCREEN BLDG 277/480 VOLTS

LOAD	KW/PHASE			CIR/BKR	WIRE	CIR. NO.	CIR. NO.	WIRE	CIR/BKR	KW/PHASE			LOAD	
	A	B	C							A	B	C		
TRANSFORMER	15			3	70	4	1	A	2	6	3	60	4.3	PANEL H2
		15										5.3		
CHOPPER PUMP	3.7			3	30	12	7	A	8	12	3	30	3.7	CHOPPER PUMP
		3.7										3.7		
MIXER	1.7			3	15	12	13	A	14	12	3	15	1.7	MIXER
		1.7										1.7		
MIXER	1.7			3	15	12	19	A	20	12	3	15	1.7	MIXER
		1.7										1.7		
WATER HEATER	8			3	40	8	25	A	26	12	3	15	0.6	MGOH
		8										0.6		
OUTLET VLV	0.2			3	15	12	31	A	32	12	3	20	3.8	GREASE PUMPS
		0.2										3.8		
SPACE													3.8	SPACE

① PROVIDE PADLOCK OFF ATTACHMENT 25 KAIC

PANEL SCHEDULE

PANEL: L1 150 AMPS, MAIN CIRCUIT BREAKER PHASE: 3
POLE SPACES: 30 MOUNTING: SURFACE WIRE: 4
LOCATION: SCREEN BLDG 120/208 VOLTS

LOAD	KW/PHASE			CIR/BKR	WIRE	CIR. NO.	CIR. NO.	WIRE	CIR/BKR	KW/PHASE			LOAD	
	A	B	C							A	B	C		
PANEL L2	3.2			3	60	6	1	A	2	12	1	20	1.5	GREASE HT.
		2.5										1	MGOH HT TRACE	
PANEL L3	2.4			2	40	8	7	A	8	12	1	20	0.6	SPARE
		0.8										1	20	
PANEL L4			1.1	2	4	8	11	C	12			1	20	SPACE
SPACE														SPACE

① 30 MA GROUND FAULT INTERRUPTER 10 KAIC

REFER TO EXHIBIT E FOR THE AS CONSTRUCTED PANEL SCHEDULES

PANEL SCHEDULE

PANEL: L3 40 AMPS, MAIN CIRCUIT BREAKER PHASE: 1
POLE SPACES: 14 MOUNTING: SURFACE WIRE: 3
LOCATION: BACT CABINET 120/240 VOLTS NEMA 3R ENCLOSURE

LOAD	KW/PHASE			CIR/BKR	WIRE	CIR. NO.	CIR. NO.	WIRE	CIR/BKR	KW/PHASE			LOAD	
	A	B	C							A	B	C		
AC UNIT	0.9			1	20	12	1	A	2	12	1	20	1.5	HEATER
RECEP		0.7		1	20	12	3	B	4	12	1	20	0.1	LIGHTS
SPACE														SPACE
														SPACE
														SPACE
														SPACE

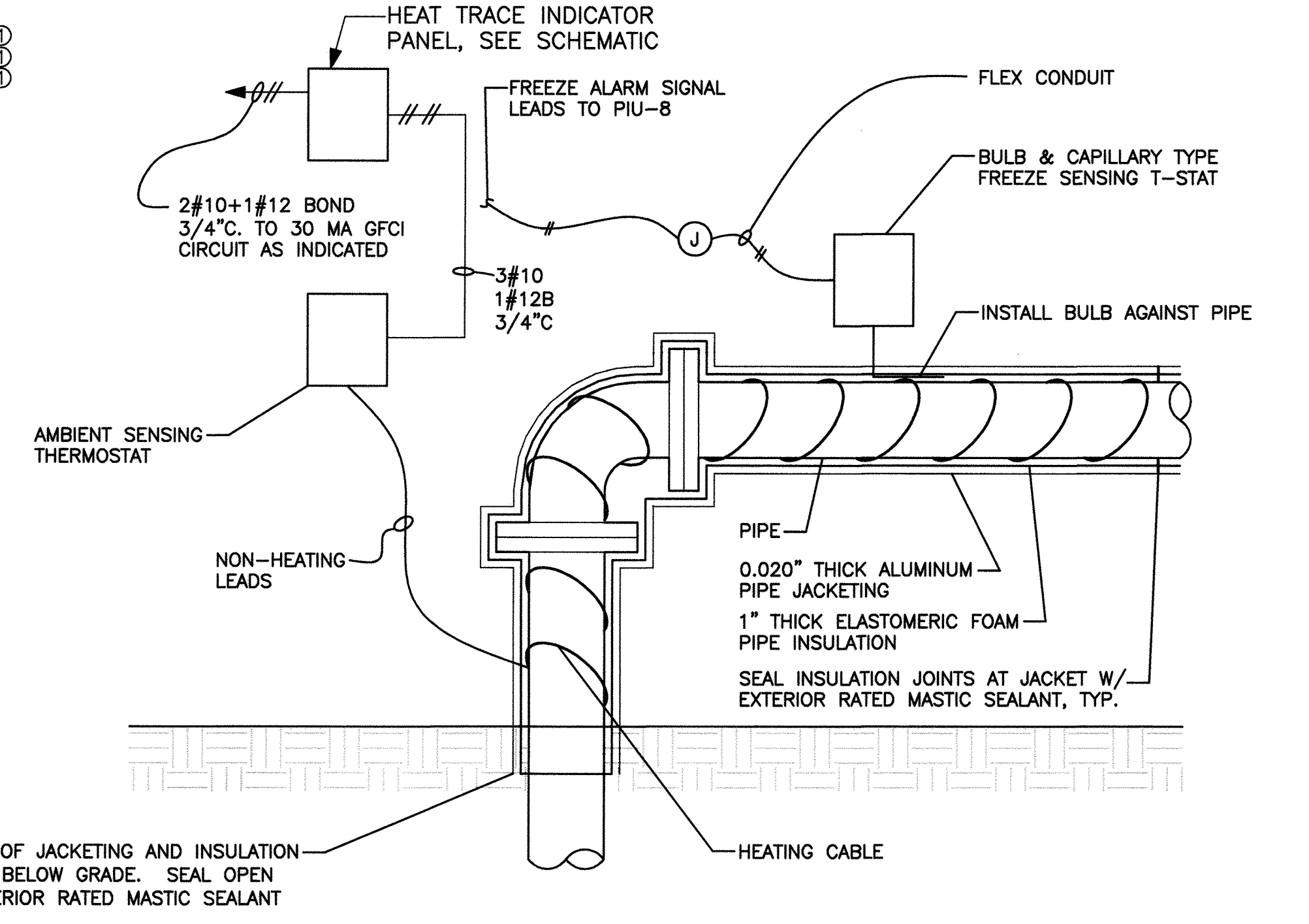
LOAD CENTER 10KW AIC SUITABLE OR SERVICE ENTRANCE EQUIPMENT

PANEL SCHEDULE

PANEL: L4 40 AMPS, MAIN CIRCUIT BREAKER PHASE: 1
POLE SPACES: 14 MOUNTING: SURFACE WIRE: 3
LOCATION: MGOH 120/240 VOLTS NEMA 3R ENCLOSURE

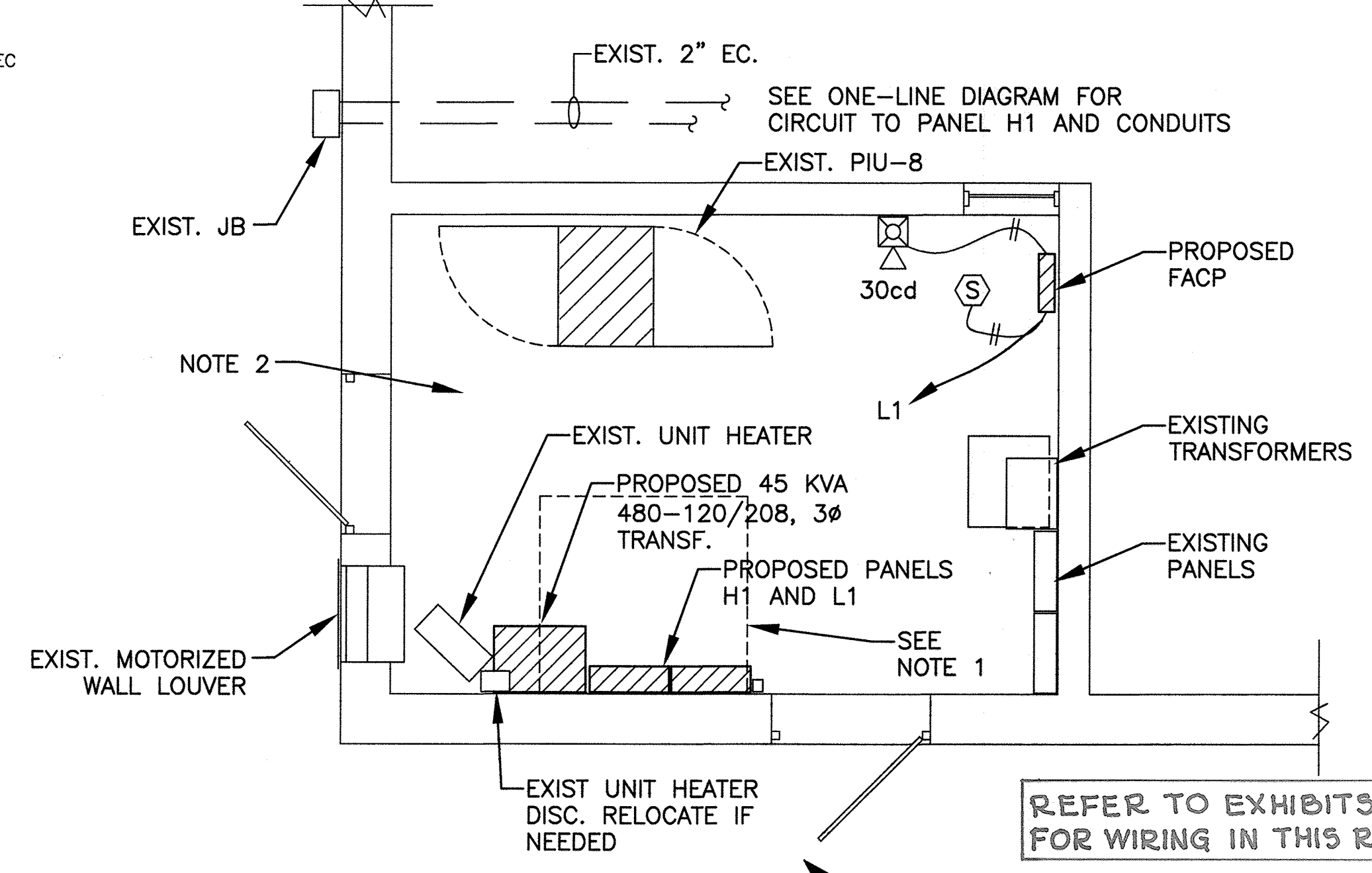
LOAD	KW/PHASE			CIR/BKR	WIRE	CIR. NO.	CIR. NO.	WIRE	CIR/BKR	KW/PHASE			LOAD	
	A	B	C							A	B	C		
FAN LIGHTS	0.4			1	20	12	1	A	2	12	1	20	0.7	RECEP.
HEATER														SPACE
SPACE														SPACE
														SPACE
														SPACE

LOAD CENTER 10KW AIC SUITABLE OR SERVICE ENTRANCE EQUIPMENT



PIPE HEAT TRACING DETAIL
NTS

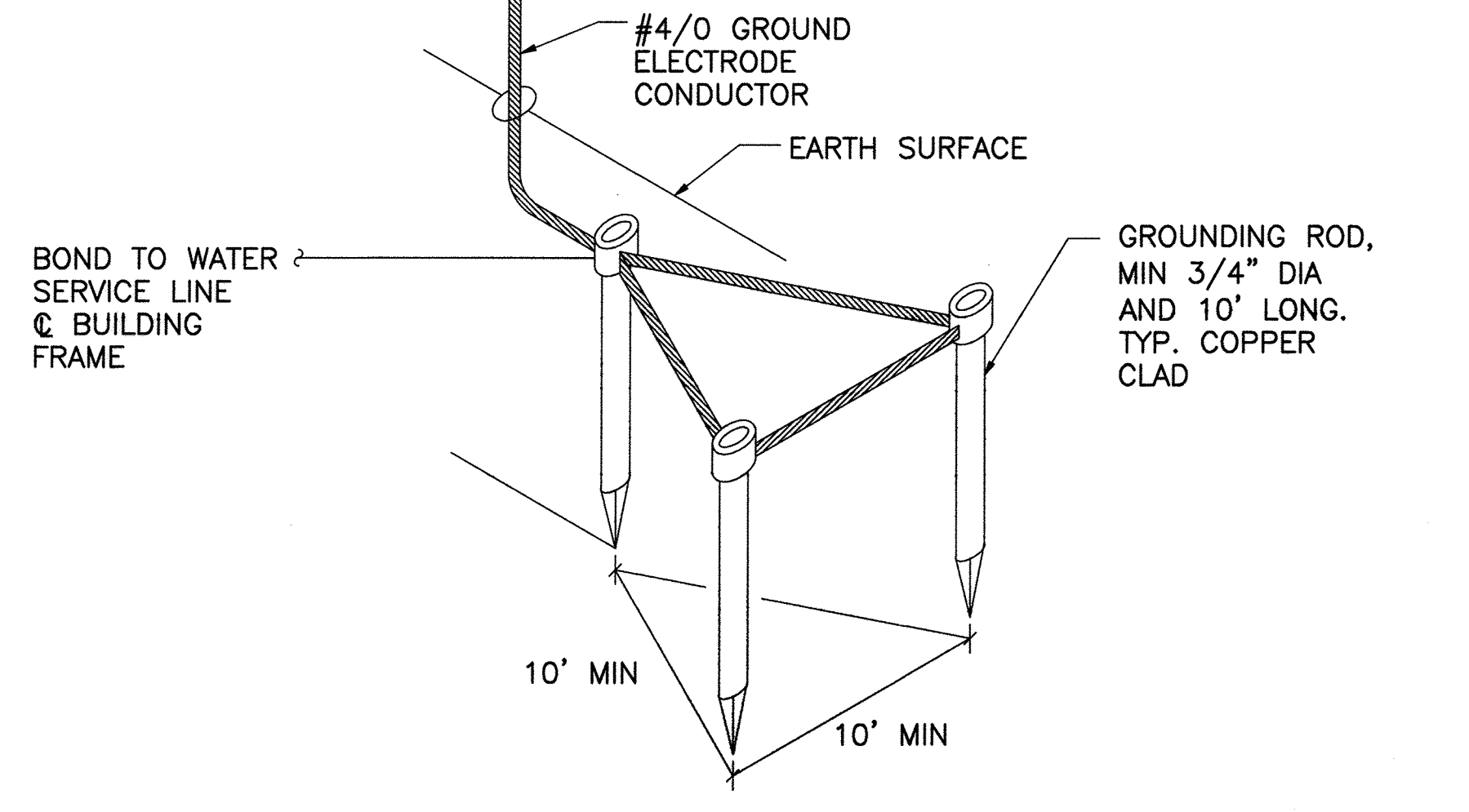
NOTE:
FOR GREASE PIPING, WRAP PIPE UNDER HEATING CABLE WITH 2 LAYERS OF 5 MIL ALUMINUM FOIL.



ELECTRICAL PLAN
SCREEN BLDG NEW MECHANICAL ROOM
SCALE: 3/8" = 1'0"

- NOTE:**
1. REMOVE EXISTING MAIN CONTROL PANEL AND PIU.
 2. REMOVE ALL UN-USED CONCRETE HOUSE KEEPING PADS IN THIS ROOM AND PATCH FLOOR SMOOTH.

REFER TO EXHIBITS D & E FOR WIRING IN THIS ROOM



DETAIL GROUNDING ELECTRODE
NTS

AS BUILT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT DATE _____

DIRECTOR DATE _____

PROFESSIONAL CERTIFICATION
I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 11529 EXPIRATION DATE: JULY 9, 2013

Daniel Williams
Signature of Engineer Date: 2/7/12

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James B. Butler 2/9/12
DATE: 2/9/12
CHIEF, BUREAU OF UTILITIES

Debra L. ... 2/9/12
DATE: 2/9/12
CHIEF, UTILITY DESIGN DIVISION

Dewberry
Dewberry & Davis LLC
3108 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2862
410.285.9500
FAX: 410.285.9575



DES: _____	BY: _____	NO. _____	REVISIONS _____	DATE: 2/7/12
DRN: _____				
CHK: _____				

E-4 ELECTRICAL
DIAGRAMS AND DETAILS

60' SCALE MAP NO. 47 BLOCK NO. 24

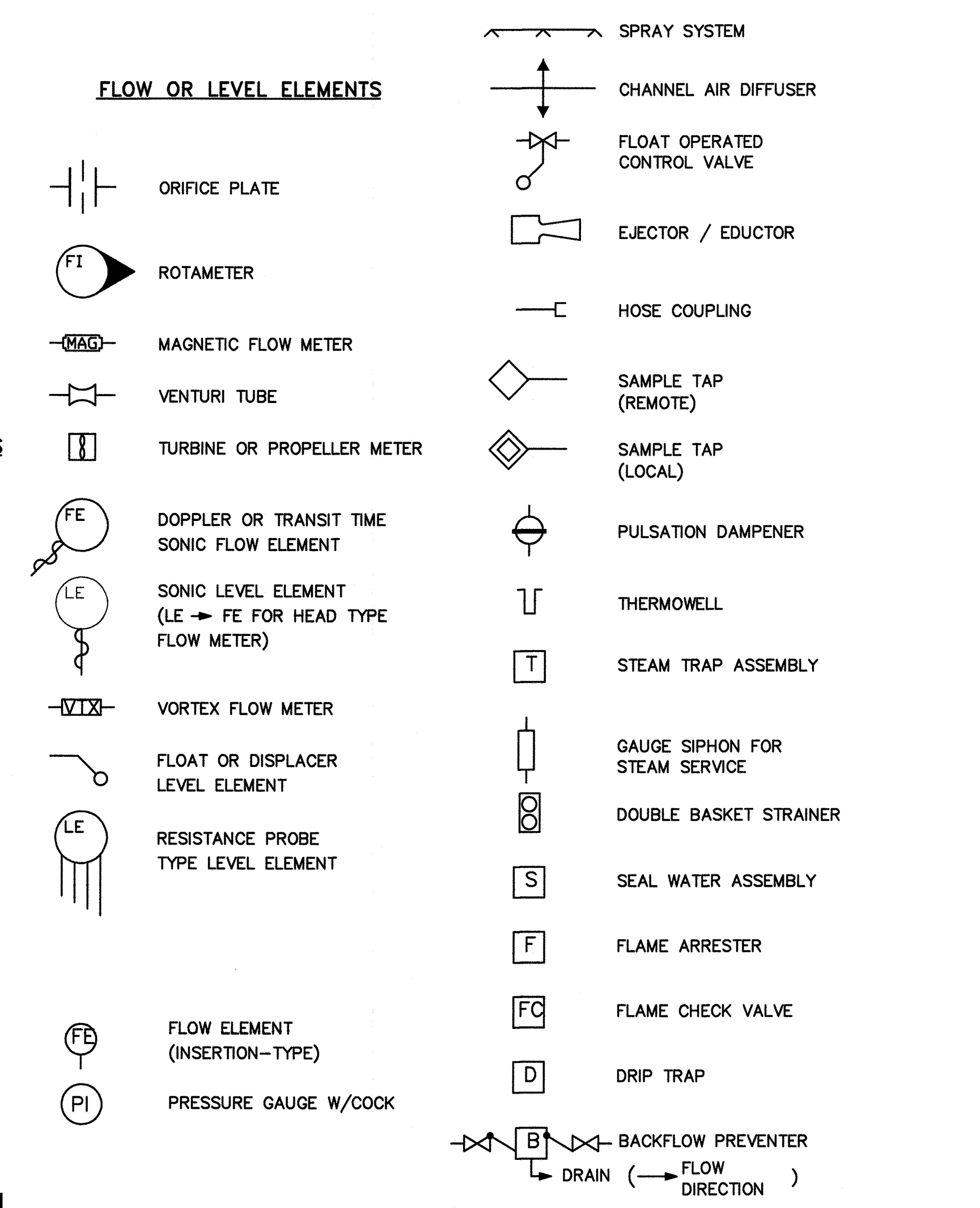
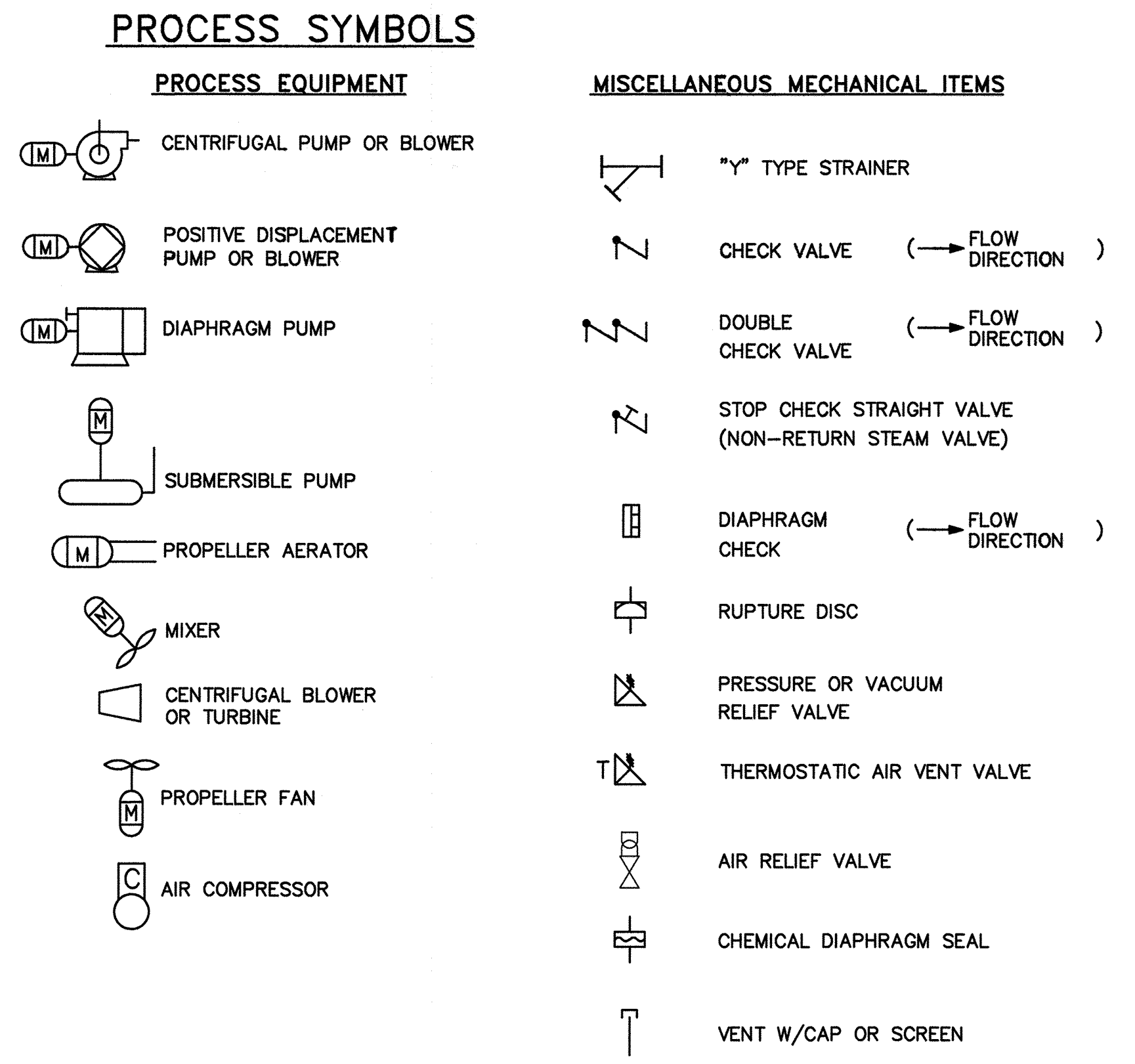
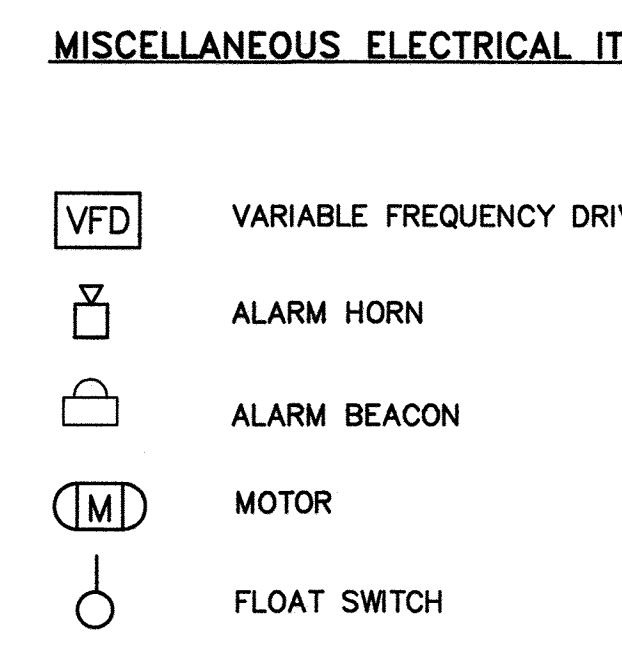
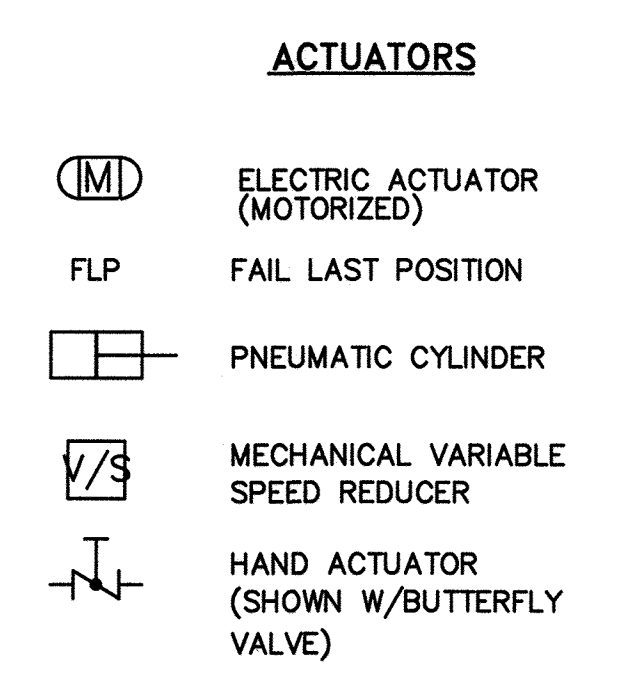
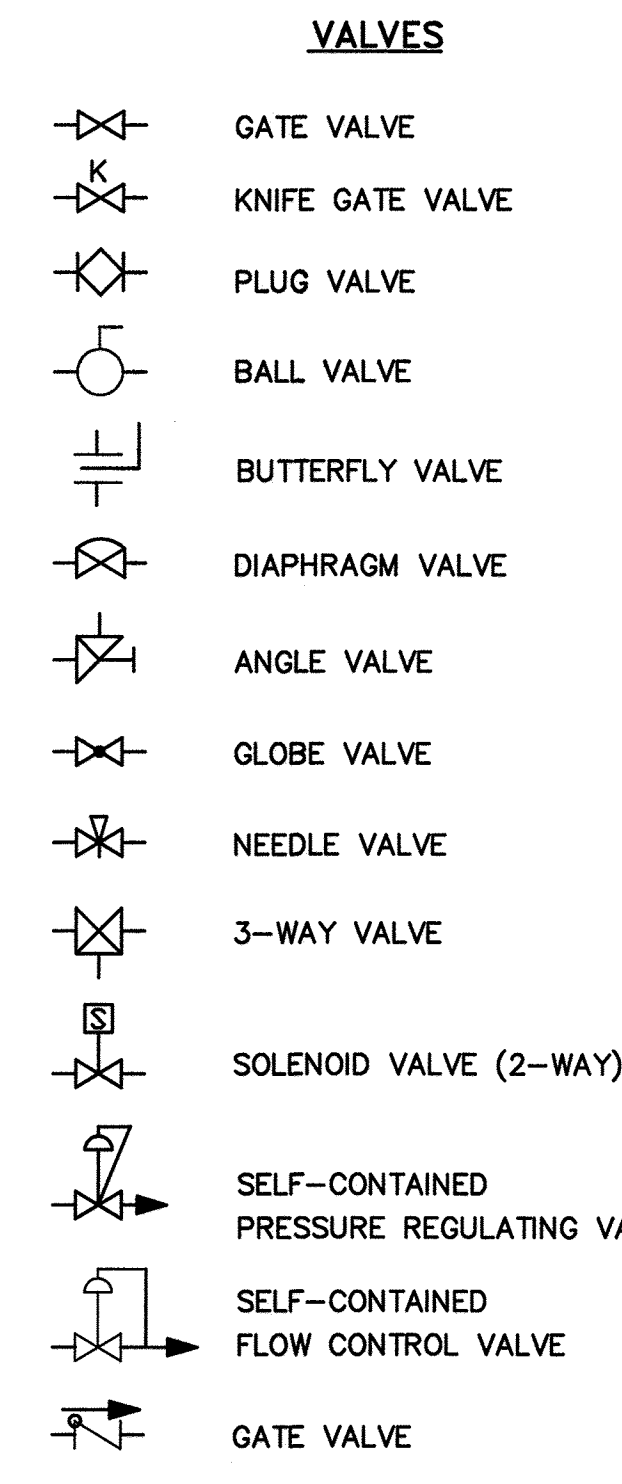
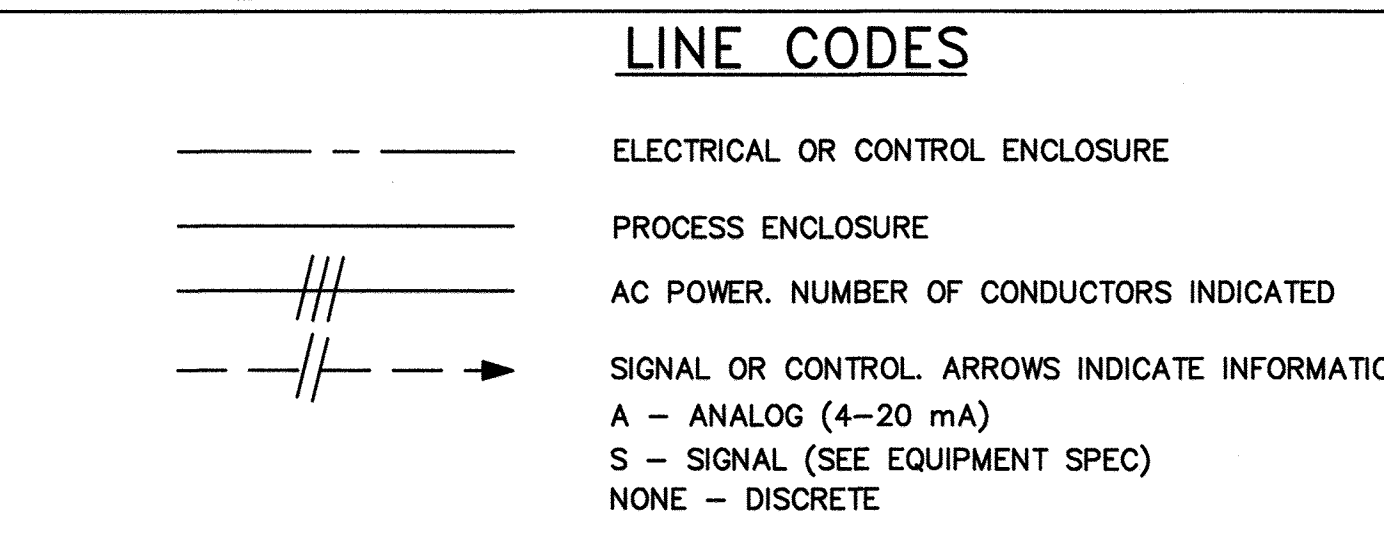
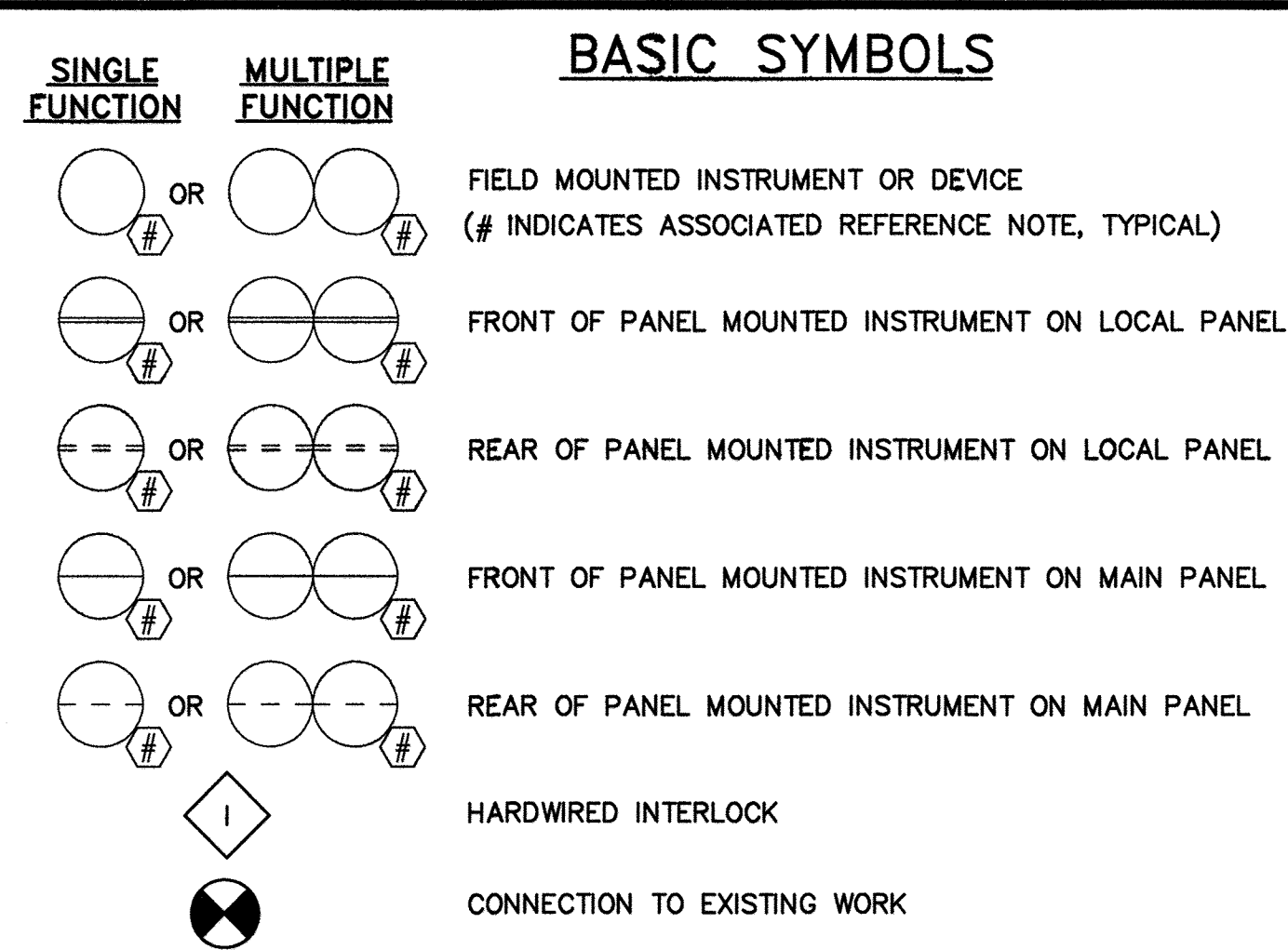
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 15 OF 23

Project: [unclear] Date: Feb 07, 2012 10:13:00 AM
 Path: [unclear]
 User: [unclear]
 Title: [unclear]
 Author: [unclear]
 Status: [unclear]
 Version: [unclear]



OTHER
 (*) SUPPLIED WITH ELECTRICAL OR MECHANICAL EQUIPMENT

FUNCTION PREFIX SCHEDULE

LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER		PROGRAMMER	STOP	
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	CLOSED
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL		START	
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGING		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTOR				MIDDLE OR INTERMEDIATE
N	VIBRATION	IGNITER			
O	OPERATION	OFFSET	ORIFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIOACTIVITY		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	SEE SPEC	TREND	MULTI-FUNCTION	SEE SPEC	MULTI-FUNCTION
V	VISCOSITY			VALVE DAMPER OR LOUVER	
W	WEIGHT, FORCE OR TORQUE		WELL		
X	SPECIAL (SEE SPEC.)		SPECIAL (SEE SPEC.)		STATUS
Y				RELAY OR COMPUTE	
Z	POSITION				DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
DIRECTOR	DATE

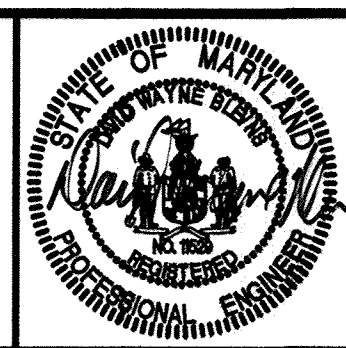
PROFESSIONAL CERTIFICATION
 I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 11529 EXPIRATION DATE: JULY 9, 2013.
David Wayne Klein 2/7/12
 Signature of Engineer Date

Plotted by: (David, David) on: 02/07/2012 10:13 AM
 Path: \\A:\DW\Projects\LPWRP_Scum and Septage Facility\Phase 2_Change Order\CAD\ELECT\workings\5-5.dwg
 User: David Date: 02/07/2012 10:13 AM
 Plot: 02/07/2012 10:13 AM
 Plotter: HP DesignJet 5000 Series
 Scale: 1:1
 Sheet: 23 of 23

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

<i>James H. ...</i>	2/9/12	<i>Thomas J. Butler</i>	2/9/12
DIRECTOR OF PUBLIC WORKS	DATE	CHIEF, BUREAU OF ENGINEERING	DATE
<i>Shirley C. ...</i>	2/9/12	<i>Debra ...</i>	2/9/12
CHIEF, BUREAU OF UTILITIES	DATE	CHIEF, UTILITY DESIGN DIVISION	DATE

Dewberry
 Dewberry & Davis LLC
 3108 LORD BALTIMORE DRIVE
 SUITE 110
 BALTIMORE, MD 21244-2882
 410.285.9500
 FAX: 410.285.8575



DES: _____	
DRN: _____	
CHK: _____	
DATE: 2/7/12	
BY NO.	REVISIONS

E-5 INSTRUMENTATION & CONTROLS SYMBOLS & ABBREVIATIONS

600' SCALE MAP NO. 47 BLOCK NO. 24

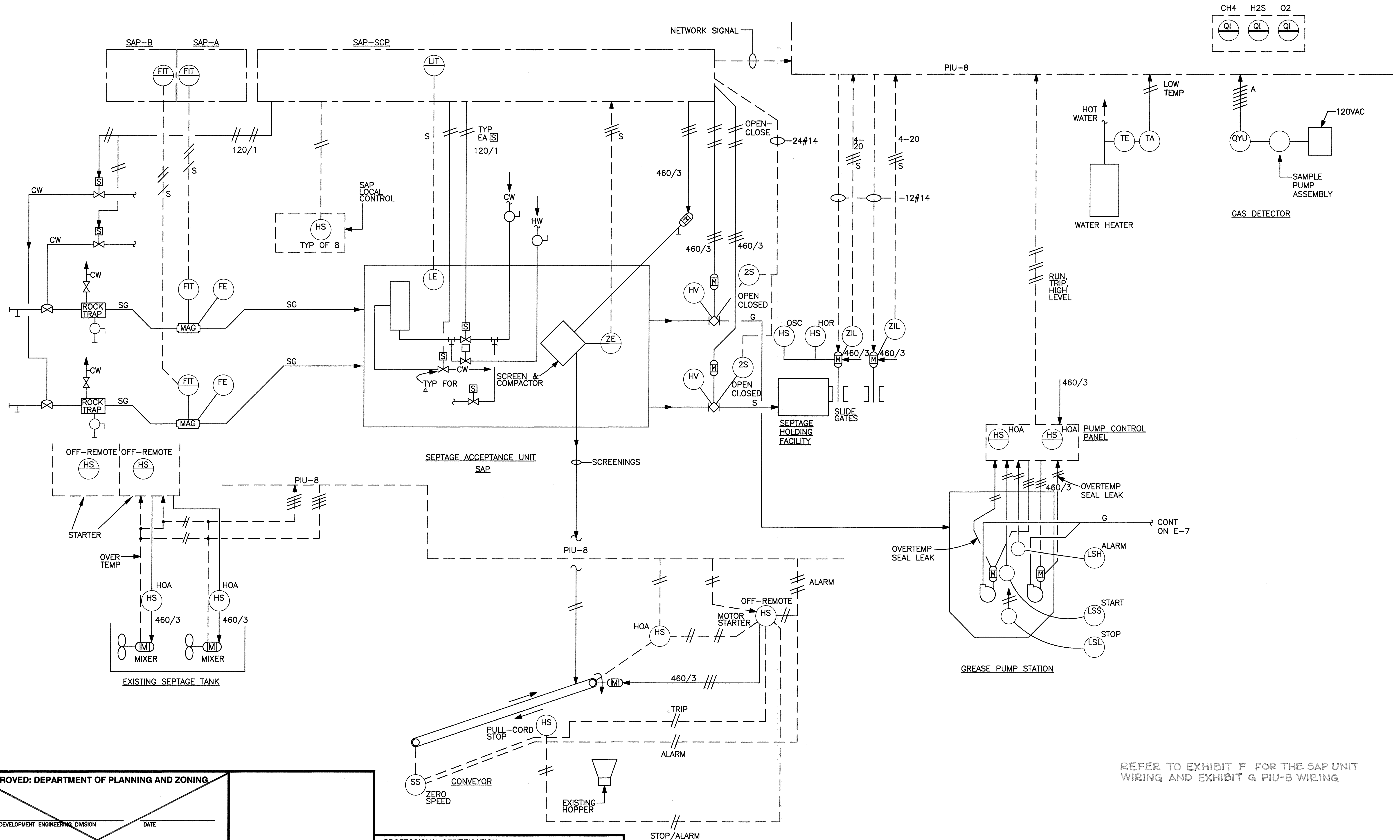
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
 CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET 16 OF 23

AS BUILT



REFER TO EXHIBIT F FOR THE SAP UNIT WIRING AND EXHIBIT G PIU-8 WIRING

APPROVED: DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

 DIRECTOR DATE

PROFESSIONAL CERTIFICATION
 I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 11529 EXPIRATION DATE: JULY 9, 2013

David W. Williams 2/7/12
 Signature of Engineer Date

PARTIAL P&ID
 NTS

AS BUILT

Project: S-6245 Capital Project S-6245 - Sewerage and Sanitation Plant (SSP) - Phase 2
 Location: 21200 Lorraine Road, Baltimore, MD 21244-2882
 Date: 2/7/2012 11:37am
 Author: J. [unintelligible]
 XREF: S-6245-SSP-DEWBERRY/Utility Design and Septage Facility/Phase 2/CADD/7-14-2011/1-8/P&ID - phase 8.dwg

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

 DIRECTOR OF PUBLIC WORKS DATE

 CHIEF, BUREAU OF UTILITIES DATE

 CHIEF, BUREAU OF UTILITIES DATE

Dewberry & Davis LLC
 Dewberry & Davis LLC
 3108 LORD BALTIMORE DRIVE
 SUITE 110
 BALTIMORE, MD 21244-2882
 410-285-9800
 FAX: 410-285-8875

STATE OF MARYLAND
 PROFESSIONAL ENGINEER

DES: _____
 DRN: _____
 CHK: _____
 DATE: 2/7/12 BY: _____ NO. _____

REVISIONS	DATE

E-6 PARTIAL P&ID

600' SCALE MAP NO. 47 BLOCK NO. 24

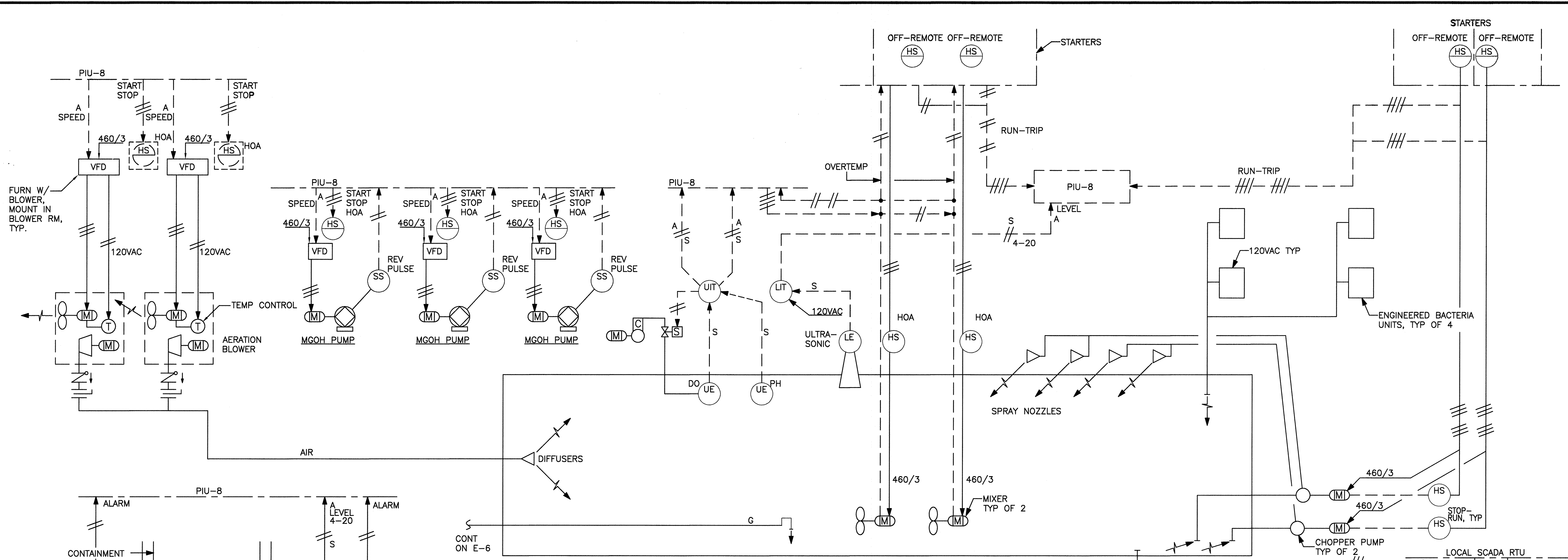
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
 CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE:
 AS SHOWN

SHEET
 17 OF 23

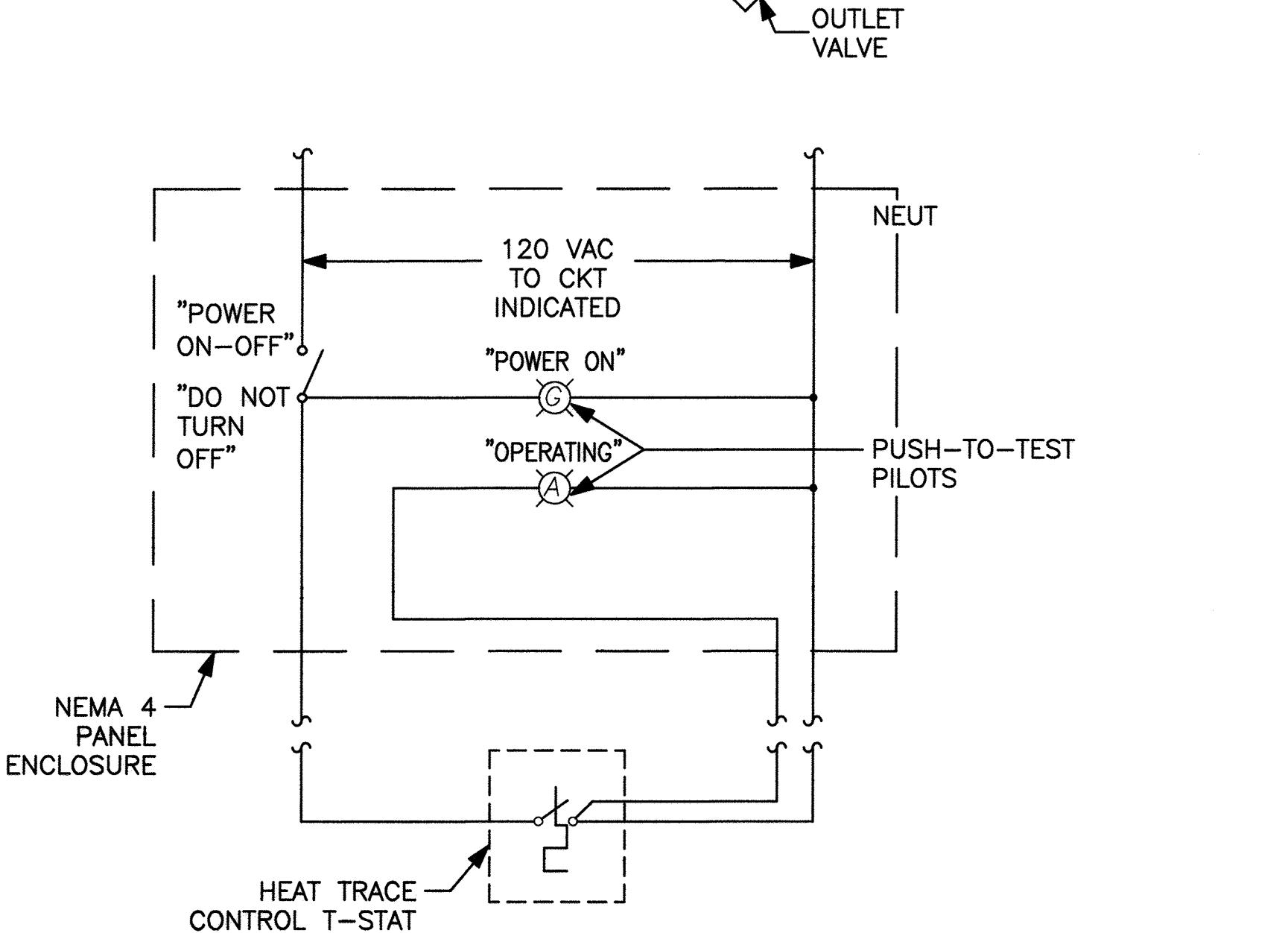


SCHMATIC ARRANGEMENT EYE WASH/SHOWER UNIT WATER SUPPLY
SCALE: NTS

PROFESSIONAL CERTIFICATION
I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 11529 EXPIRATION DATE: JULY 9, 2013

David Wayne Klein 2/7/12
Signature of Engineer Date

SCHMATIC WIRING HEAT TRACE INDICATOR PANEL
SCALE: NTS



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

DIRECTOR _____ DATE _____

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James H. ... 2/9/12
DIRECTOR OF PUBLIC WORKS DATE

... .. 2/9/12
CHIEF, BUREAU OF ENGINEERING DATE

... .. 2/9/12
CHIEF, BUREAU OF UTILITIES DATE

... .. 2/9/12
CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3108 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2882
410.286.9293
FAX: 410.286.8875

DES: _____	BY: _____	NO. _____	REVISIONS _____	DATE: 2/7/12
DRN: _____				
CHK: _____				

E-7 PARTIAL P&ID

600' SCALE MAP NO. 47

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

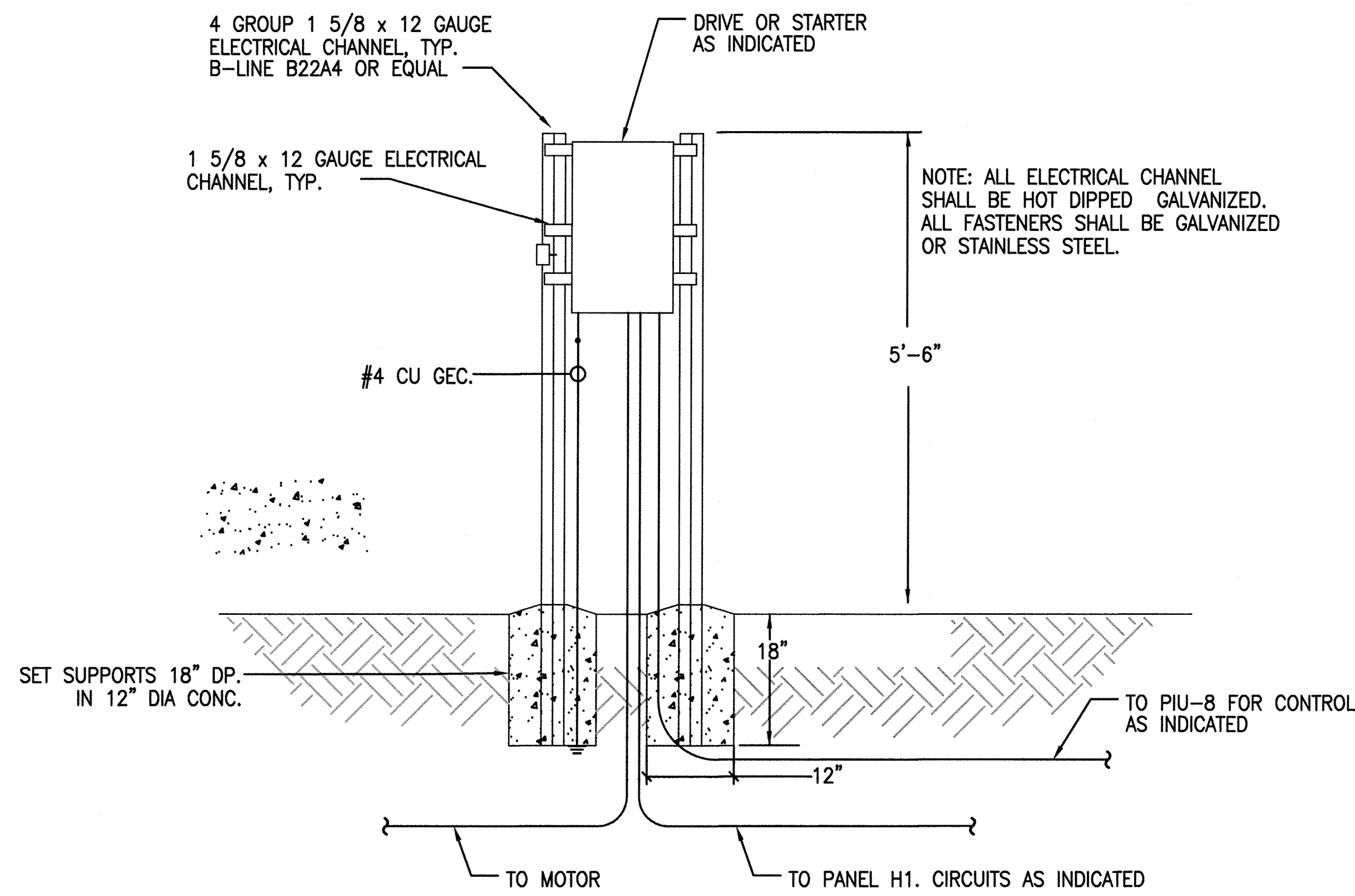
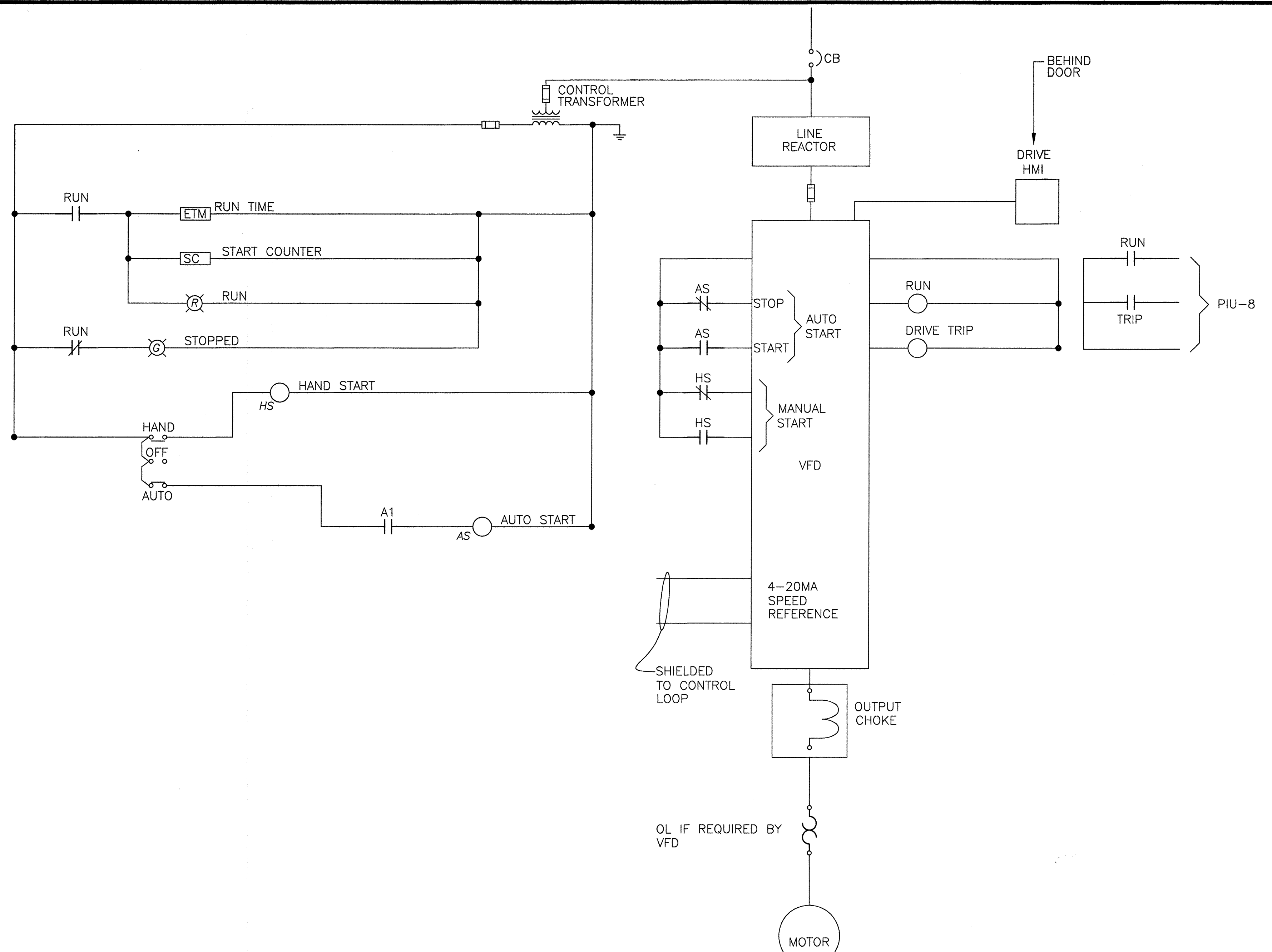
SHEET 18 OF 23

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 User: [unclear]
 XREF: [unclear]

LIGHT FIXTURE SCHEDULE				
MARK	SYMBOL	DESCRIPTION	LAMP	MANUFACTURER TYPE
A		2 LAMP 4' FLUORESCENT DAMP LOCATION CEILING SURFACE MOUNT, 120V	2-32W T8	LITHONIA DMW, MULTI-TAP BALLAST

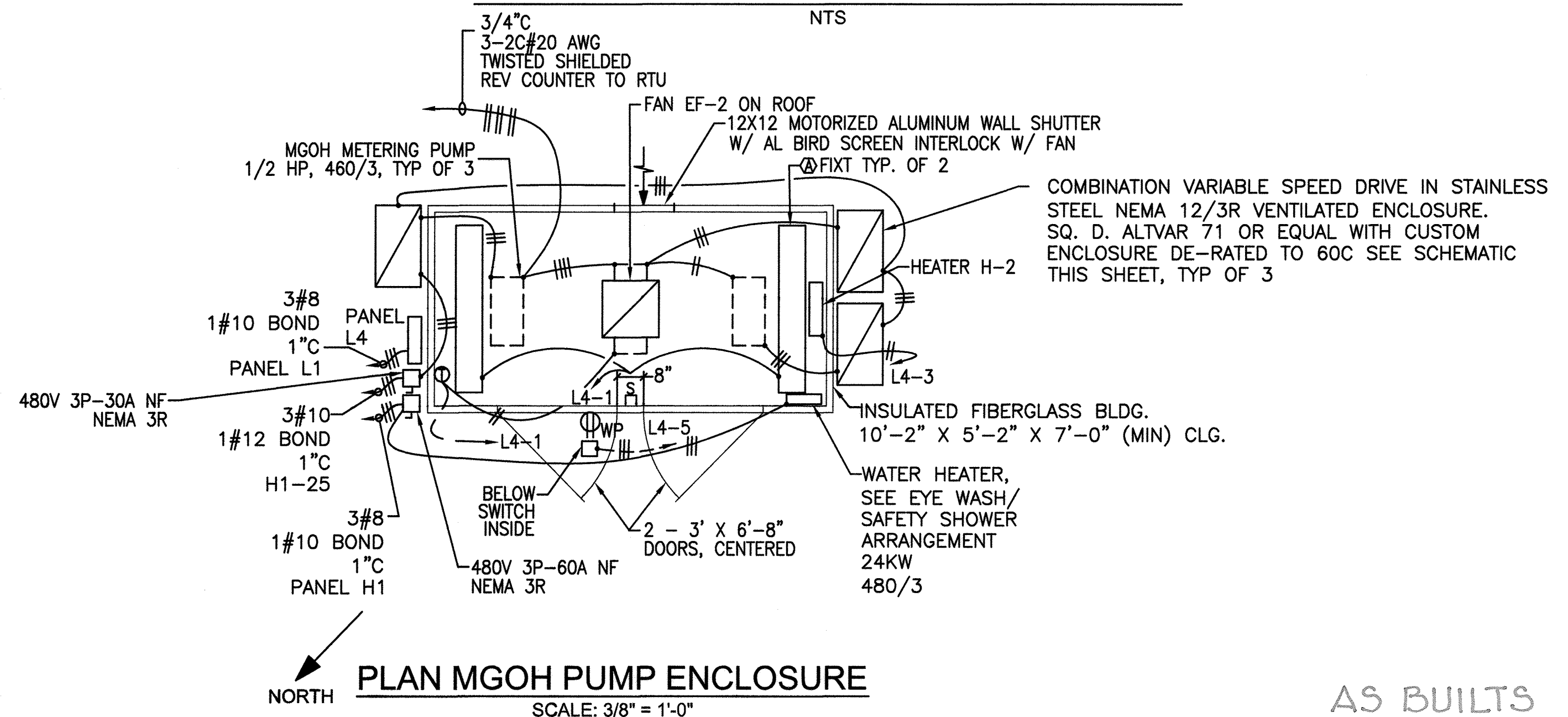
FAN SCHEDULE									
EQUIP. NO.	TYPE	AIR FLOW (CFM)	EXTERNAL STATIC WG	RPM	HP	VOLTAGE PHASE	CONTROL TYPE	FEATURES	MODEL
EF-1	DIRECT DRIVE CENTRIFUGAL ROOF EXHAUSTER, ALUMINUM CONSTRUCTION	230	1/8"	1550 NOMINAL	1/60	120/1	PROVIDE COOLING WALL TSTAT	SPEED CONTROL, ALUMINUM CURB W/ MOTORIZED BACKDRAFT DAMPER, INTEGRAL DISCONNECT	GREENHECK G-065-D

ELECTRIC HEATER SCHEDULE					TYPE:
MARK NO.	TYPE	CAPACITY	VOLTS/PHASE	DESCRIPTION	
H-1	FAN FORCED WALL HEATER	1 KW	120/1	SURFACE MOUNT WALL HEATER W/ INTEGRAL THERMOSTAT	TPI 3320



- NOTES:
1. ALL FIELD MOUNTED DRIVES OR STARTER SHALL BE COMBINATION TYPE SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT.
 2. ENCLOSURES SHALL BE NEMA 12/3R GASKETED STAINLESS STEEL AND DRIVES SHALL HAVE SUNSHIELDS PLUS THERMAL MANAGEMENT FOR 14" TO 122°F RANGE. NEMA E4X ENCLOSURES MAY BE USED IN LIEU OF THE 12/3R CONSTRUCTION.

VFD STARTER ELEMENTARY CONNECTIONS



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

DIRECTOR _____ DATE _____

PROFESSIONAL CERTIFICATION

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David Wayne Klein 2/7/12
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Joseph R. ... 2/9/12
DIRECTOR OF PUBLIC WORKS DATE

Thomas S. ... 2/6/12
CHIEF, BUREAU OF ENGINEERING DATE

... 2/12/12
CHIEF, BUREAU OF UTILITIES DATE

... 2/12/12
CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry

Dewberry & Davis LLC
3105 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2882
410.285.9900
FAX: 410.285.0875

DES:	---
DRN:	---
CHK:	---
DATE:	2/7/12
BY:	NO.
REVISIONS:	
DATE:	

E-8 ELECTRICAL DETAILS

600' SCALE MAP NO. 47

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6

HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN

SHEET 19 OF 23

SEQUENCE OF CONSTRUCTION

1. Obtain grading permit from the department of inspections and permits.
2. Pre-construction meeting: notify the department of inspections and permits (1-410-313-3800) at least 48 hours before commencing work. Work may not commence until the permittee or the responsible personnel have met on site with the sediment and erosion control inspector to review the approved plans.
3. Contractor shall locate and procure all staging and stockpiling areas which shall be approved by project inspector.
4. Erosion and sediment control measures shall be placed prior to the start of construction and remain throughout.
5. Clear and grub as necessary for installation of the erosion and sediment control measures. Stabilize all disturbed areas at the end of each work day.
6. Stake out the limit of disturbance as shown on the plans. No disturbed area shall be left unstabilized overnight unless the runoff is directed to an MDE approved erosion and sediment control device.
7. At the entrance located on the north corner of the project site next to the existing screening building where no SCE may be provided, the contractor shall designate pieces of construction equipment that shall be allowed within the L.O.D.
 - A. These equipments shall be kept within the L.O.D until the proposed work is complete
 - B. These equipments shall have treads/tires cleaned prior to leaving the L.O.D. All material removal/load out shall be lifted from the L.O.D.
 - C. The contractor is responsible to treat the sediments removed from the equipment tires and direct them to an erosion and sediment control device.
8. Install the inlet protection as shown on plans at the location of the existing inlet which outfalls to Little Patuxent River and is located 50 ft north-west from the edge of the proposed pull-off along Perimeter Road.
9. Install a PST for dewatering the excavated areas where the 12" aeration pipe is to be installed. Clean out the tank when one-third (1/3) filled with silt. Haul sediment to Howard County approved site.
10. Remove the existing concrete ditch located along Perimeter Road and within the LOD, as shown on plans.
11. Grade the proposed pull-off along Perimeter Road and install the SCE as shown on plans.
12. Grade the proposed grass swale as shown on plans.
13. Remove the existing asphalt of the modified septage/grease trap waste receiving area at the north corner of the project site.
14. Install the proposed modified septage/grease trap waste receiving area as shown on plans.
15. Install the following proposed structures as shown on the plans: propane tank pad, modified septage/grease trap waste receiving area, septage acceptance facility and its side walk, pumping station, scum piping trench, Mg(OH)₂ pump slab and housing, Mg(OH)₂ tank, digester tank, and digester grating deck support slabs, and deck stair slab, spray nozzle pump with housing, valve vault, and the 12" aeration pipe.
16. Remove the SCE and complete the pull off by Perimeter Road.
17. The waste hauler temporarily discharge manhole located on Perimeter Road will be abandoned upon start-up of septage acceptance facility.
18. Contractor shall unplug the three 12" diameter underground Storm Drain pipes under Perimeter Road that outfall flow from three inlets located north-west of Flow Equalization Basin #1 (FEB-1), west of Flow Equalization Basin #3 (FEB-3), and south of Electrical substation to Little Patuxent River.
19. After completion, remove the PST, the median inlet protection, and any remaining erosion and sediment control measures and stabilize any remaining disturbed areas with the approval of the MDE inspector.

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of Developer _____ Date _____

Print Name _____

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

Thomas N. Dallapatlu 3/29/12
Signature of Engineer Date

THOMAS N. DALLAPATLU
Print Name

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

DIRECTOR _____ DATE _____

PROFESSIONAL CERTIFICATION
I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10966 EXPIRATION DATE: MAY 31, 2012

Thomas N. Dallapatlu 3/8/12
Signature of Engineer Date

PLAN
SCALE: 1"=10'

NOTE:
SEE SHEETS 3,4, & 9 FOR SITE AS-BUILT CHANGES

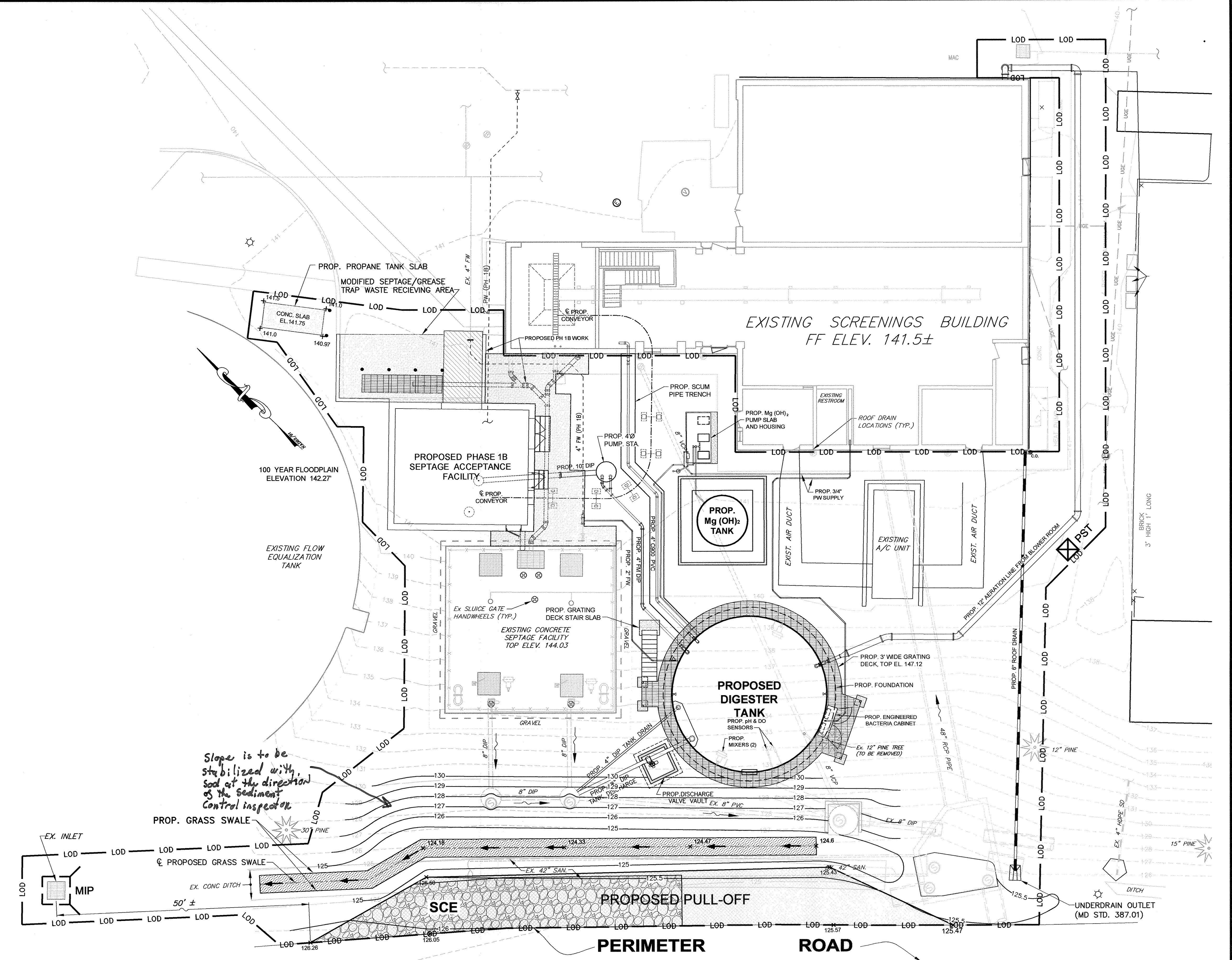
LEGEND

- LOD — LIMIT OF DISTURBANCE
- MIP — MEDIAN INLET PROTECTION
- PST — PORTABLE SEDIMENT TANK
- SCE — STABILIZED CONSTRUCTION ENTRANCE

AS BUILTS

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John K. Robertson 3/1/12
Howard Soil Conservation District Date



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Dewberry
Dewberry & Davis LLC
3108 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2982
410.265.9500
FAX: 410.265.8875



DES: RJP
DRN: CD
CHK: TND
DATE: 1/7/12

BY	NO.	REVISIONS	DATE

EROSION AND SEDIMENT CONTROL PLAN AND SEQUENCE OF CONSTRUCTION

600' SCALE MAP NO. 47 BLOCK NO. 24

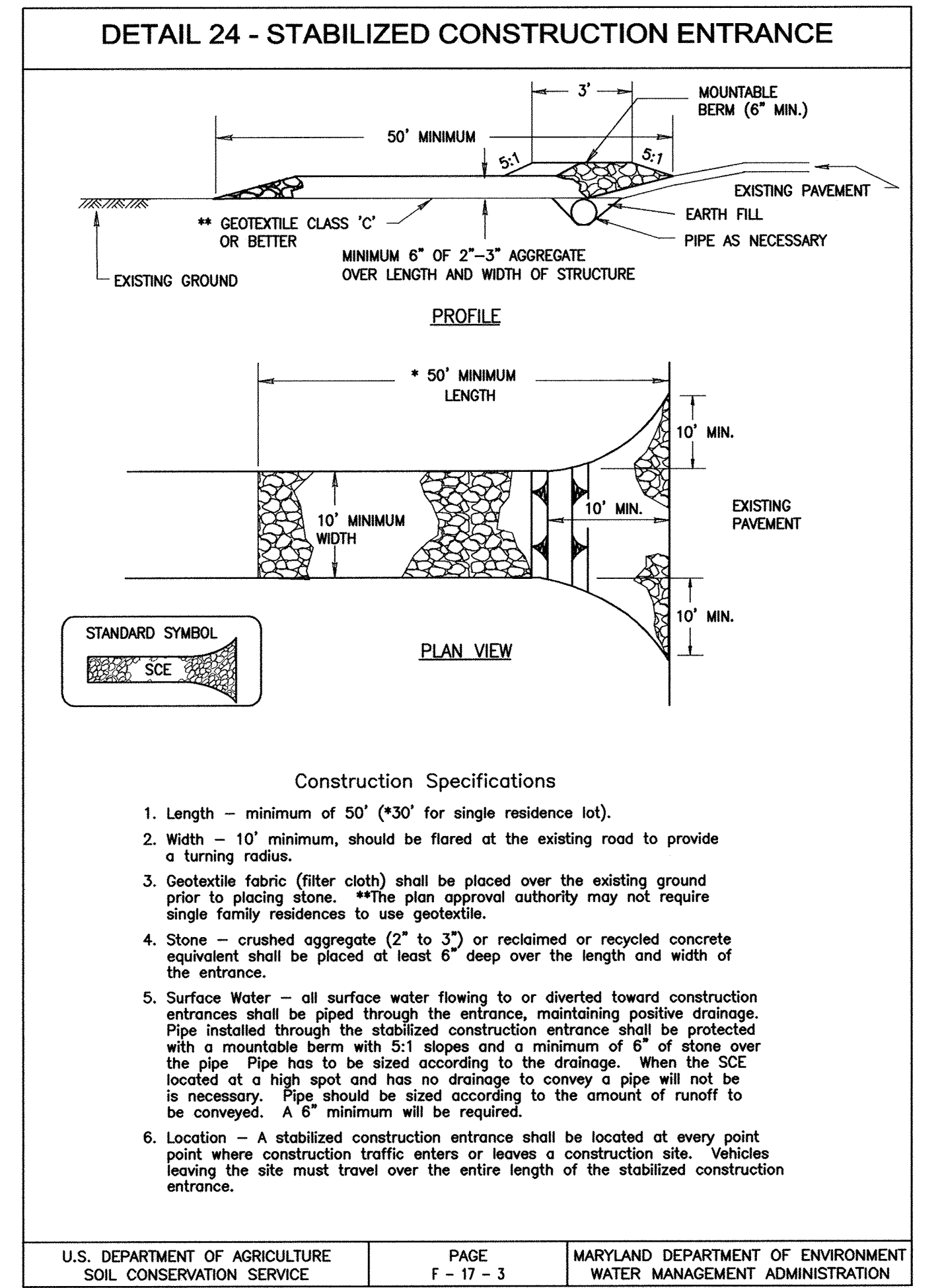
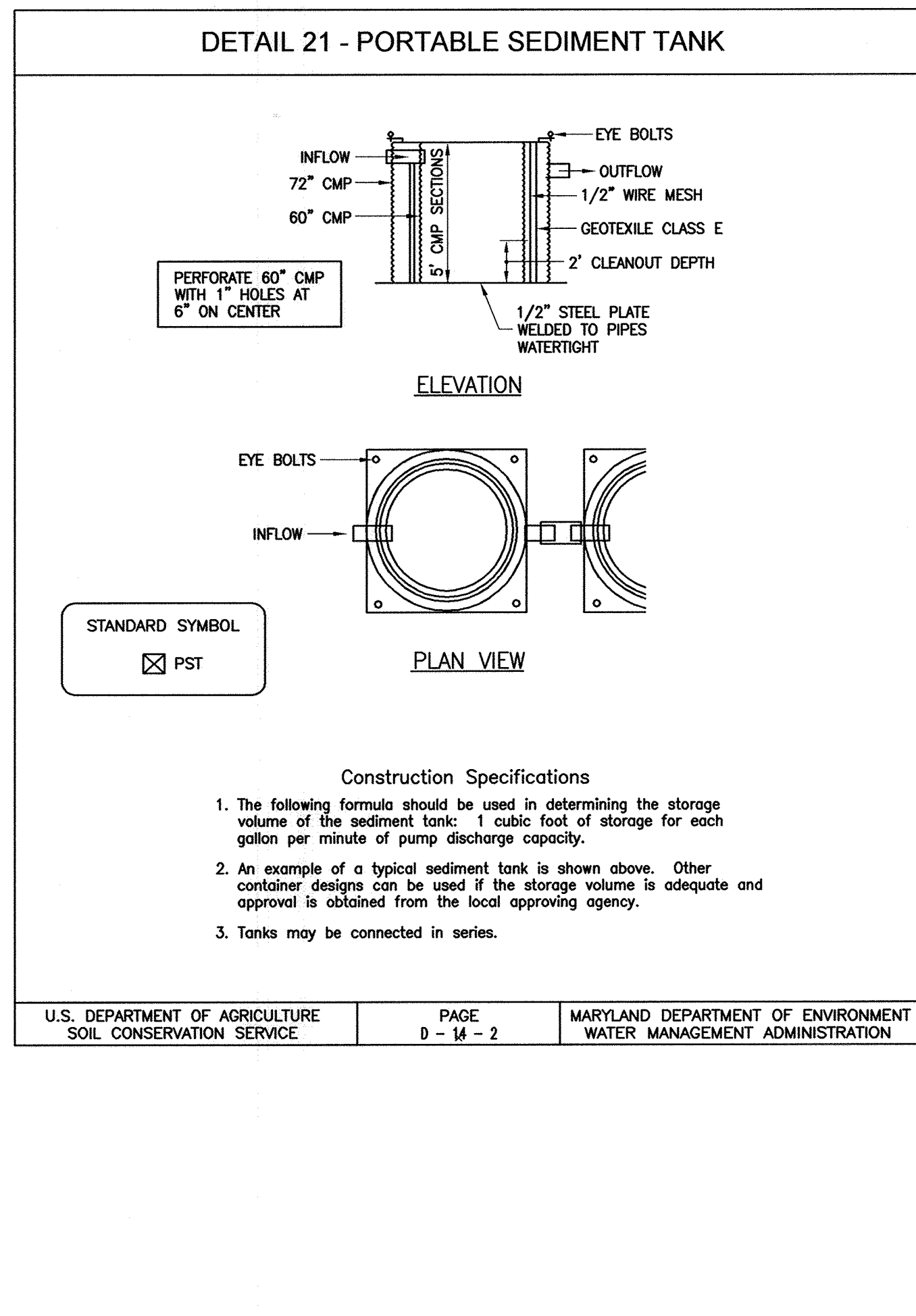
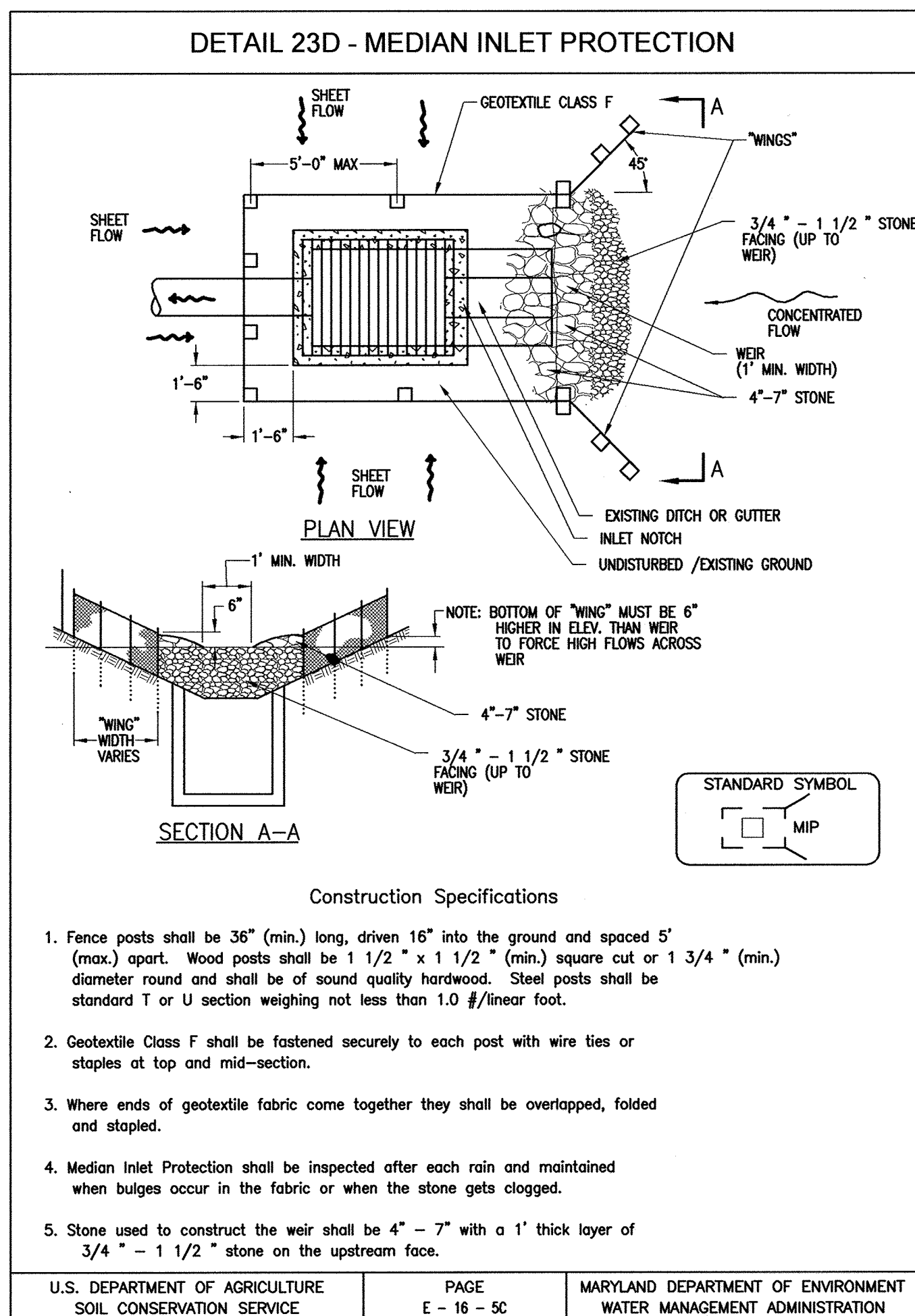
LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 20 OF 23

Printed by (generated) on Fri, 07 Feb 2012 4:34pm
Path: \\s:\projects\1000\lpwrp\erosion and sediment control\SEQUENCE OF CONSTRUCTION.dwg
Last Saved: Feb 07 2012 10:02am
User: TND\tdallapatlu



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DIRECTOR DATE

PROFESSIONAL CERTIFICATION

I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 10966 EXPIRATION DATE: MAY 31, 2012

Thomas N. Dalletta 2/8/12
Signature of Engineer Date

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John C. Redden 3/1/12
Howard Soil Conservation District Date

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

Thomas N. Dalletta 2/29/12
Signature of Engineer Date

THOMAS N. DALLAPAO
Print Name

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of Developer Date

Print Name

AS BUILT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Ray K... 2/9/12 *Momas S. Butler* 2/9/12
DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING DATE

Silvia... 2/9/12 *...* 2/9/12
CHIEF, BUREAU OF UTILITIES DATE CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3108 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2662
410.285.9500
FAX: 410.285.8875

DES:	RJP
DRN:	CD
CHK:	TND
DATE:	1/7/12
BY	NO.
REVISIONS	DATE

SEDIMENT AND EROSION CONTROL DETAILS

600' SCALE MAP NO. 47 BLOCK NO. 24

LPWRP SCUM AND SEPTAGE FACILITY (PHASE 2)

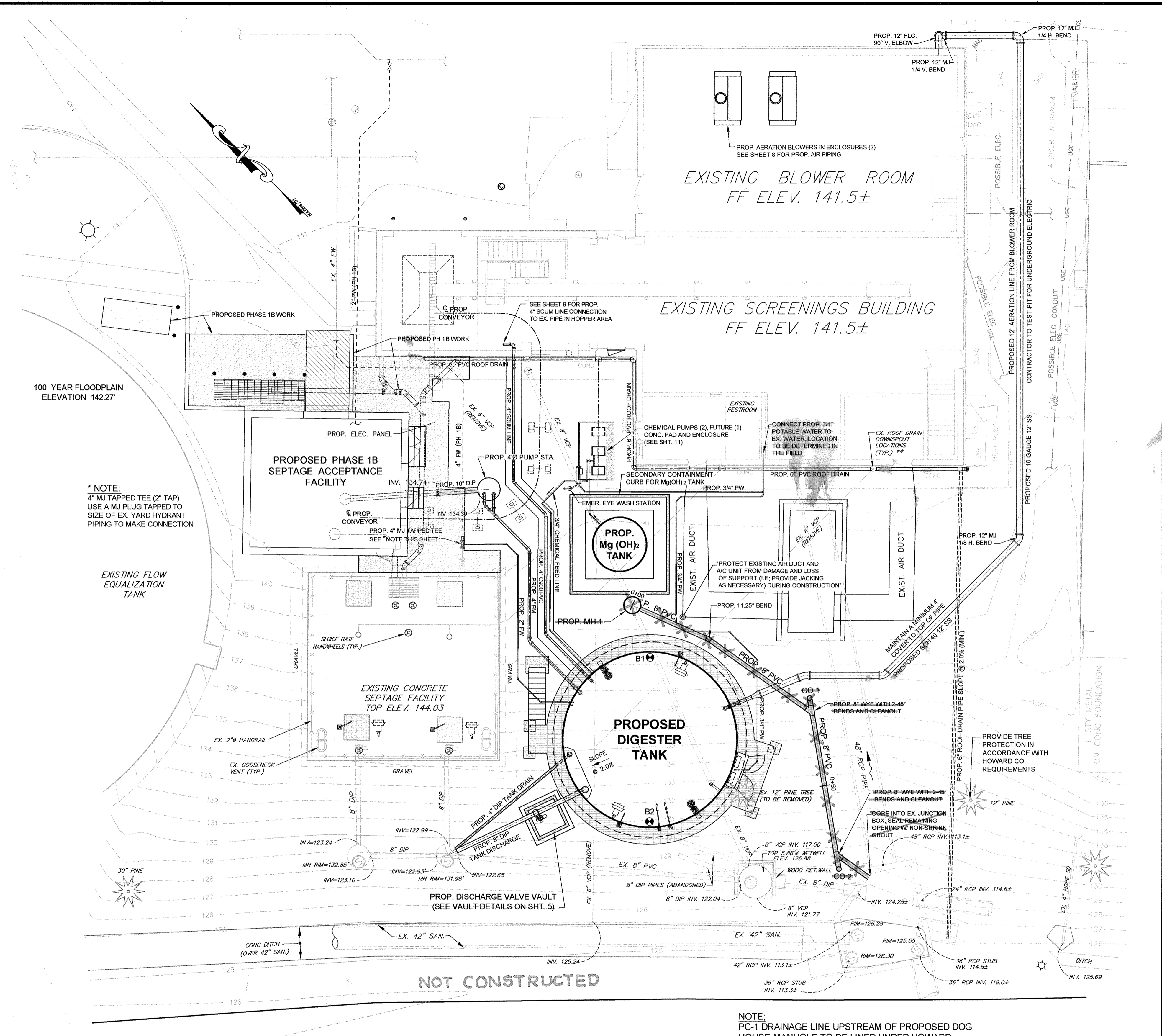
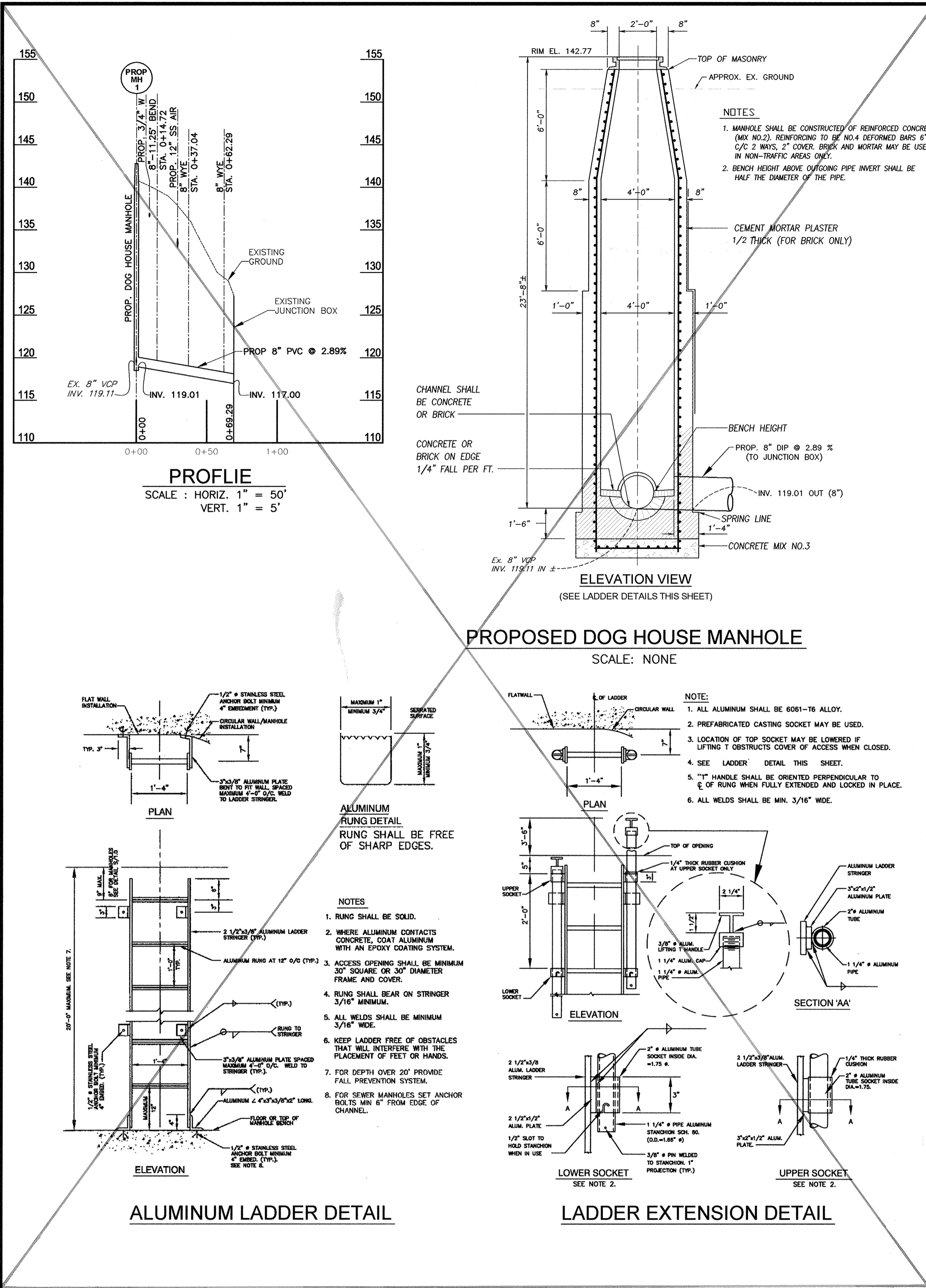
CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SCALE:
NO SCALE

SHEET
21 OF 23

Printed by: (cadm2012) on File Date: Feb 07, 2012 - 4:38pm
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 User: cadm2012 Path: S:\Projects\2012\LPWRP_Sc3.dwg



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE _____

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE _____

DIRECTOR _____ DATE _____

PROFESSIONAL CERTIFICATION

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Thomas H. DellePelle **2/9/12**
Signature of Engineer Date

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

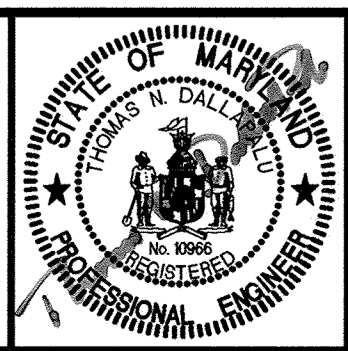
2/9/12 **2/9/12**
DATE DATE

Silvia Clemon **2/9/12**
CHIEF, BUREAU OF UTILITIES DATE

Morgan E. Suttler **2/9/12**
CHIEF, BUREAU OF ENGINEERING DATE

Chris D. King **2/9/12**
CHIEF, UTILITY DESIGN DIVISION DATE

Dewberry
Dewberry & Davis LLC
3106 LORD BALTIMORE DRIVE
SUITE 110
BALTIMORE, MD 21244-2662
410.295.9500
FAX: 410.265.8875



DES:	RJP	BY	NO.	REVISIONS	DATE
DRN:	CD				
CHK:	TND				
DATE:	1/7/12				

ADD/ALT ITEM NO.1
8" DIA. PC-1 DRAINAGE LINE RELOCATION

PLAN
SCALE: 1"=10'

60' SCALE MAP NO. 47 BLOCK NO. 24

LPWR SCUM AND SEPTAGE FACILITY (PHASE 2)

CAPITAL PROJECT S-6245
CONTRACT 20-4695

ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET 23 OF 23