

UTILITIES PROVIDING SERVICE:

WATER AND SEWER:

LEE COUNTY UTILITIES
1500 MONROE ST
FORT MYERS, FLORIDA 33901
PHONE: (239) 533-8181

TELEPHONE:

CENTURYLINK
1520 LEE STREET
FORT MYERS, FLORIDA 33901
PHONE: (239) 336-2030

GARBAGE COLLECTION:

WASTE PRO
13110 RICKENBACKER PARKWAY
FORT MYERS, FLORIDA 33913
PHONE: (239) 337-0800
FAX: (239) 225-2758

CABLE:

CENTURYLINK
1520 LEE STREET
FORT MYERS, FLORIDA 33901
PHONE: (239) 336-2030

ELECTRIC:

FLORIDA POWER & LIGHT COMPANY
15834 WINKLER ROAD
FORT MYERS, FLORIDA 33908
PHONE: (239) 415-1326

FIRE CONTROL DISTRICT:

SOUTH TRAIL FIRE DISTRICT
5531 HALIFAX AVENUE
FORT MYERS, FLORIDA 33912
PHONE: (239) 433-0080
FAX: (239) 433-1941

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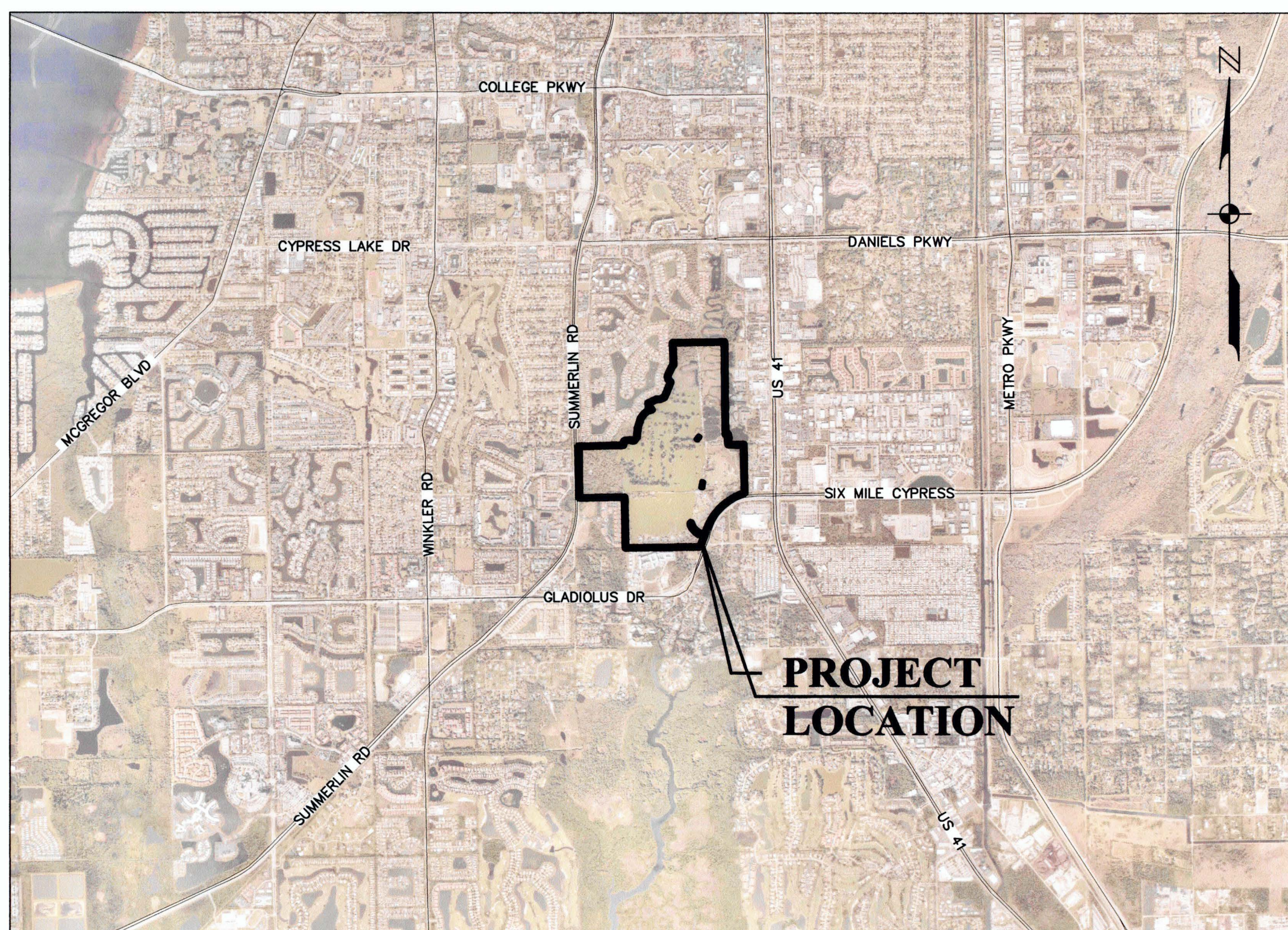
FOR



Lee County
Southwest Florida

LAKES PARK WATER QUALITY - PHASE 3

SECTION 26, TOWNSHIP 45 S., RANGE 24 E. LEE COUNTY FLORIDA



LOCATION MAP



NOVEMBER 2022

OWNER

LEE COUNTY
2115 SECOND ST
FORT MYERS, FL 33901
PHONE: (239) 533-2221
FAX: (239) 485-2262

STRAP NUMBER

26-45-24-00-00008.0000

SIZE OF PROJECT

1.43 ACRES

ZONING

CF

BOARD OF COUNTY COMMISSIONERS

KEVIN RUANE	DISTRICT 1
CECIL PENDERGRASS	DISTRICT 2
RAY SANDELLI	DISTRICT 3
BRIAN HAMMAN	DISTRICT 4
FRANK MANN	DISTRICT 5

COUNTY MANAGER

ROGER DESJARLAIS

DEPUTY COUNTY MANAGER

DAVE HARNER

ASSISTANT COUNTY MANAGER

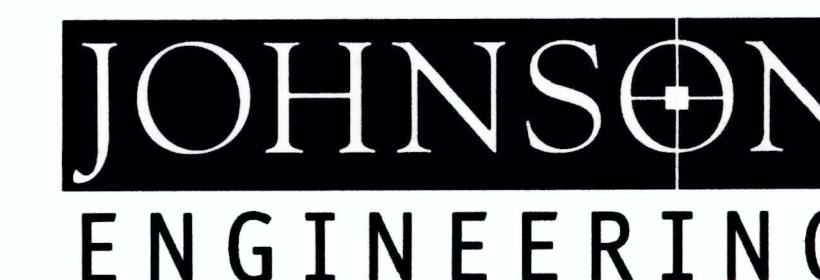
PETER WINTON
CHRISTINE BRADY
GLEN SALYER
MARC MORA

DIVISION OF NATURAL RESOURCES

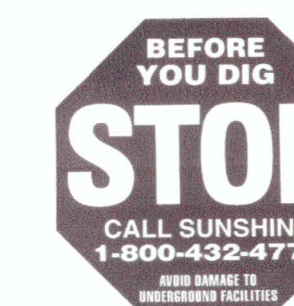
ROLAND OTTOLINI, P.E.



ENVIRONMENTAL RESEARCH & DESIGN, INC.
3419 TRENTWOOD BLVD.,
SUITE 102
BELLE ISLE, FLORIDA 32812
PHONE: (407) 855-9465
E.B. #6244



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2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046
FAX: (239) 334-3661
E.B. #642 & L.B. #642

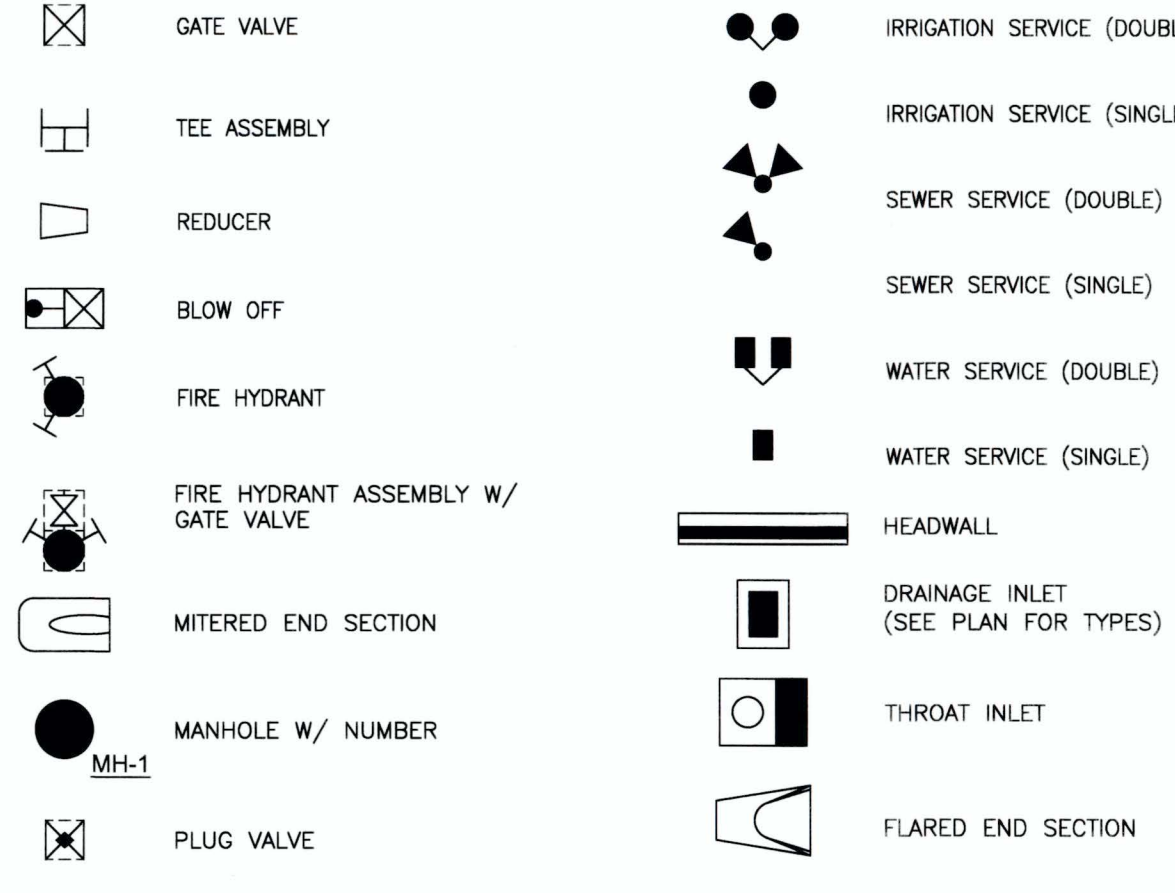


NOTICE TO ALL CONTRACTORS
IT'S THE LAW IN FLORIDA
2 BUSINESS DAYS BEFORE
YOU DIG
CALL SUNSHINE
1-800-432-4770
STATE, COUNTIES & CITIES
ARE "NOT" PART OF THE
ONE CALL SYSTEM. THEY
MUST BE CALLED
INDIVIDUALLY.

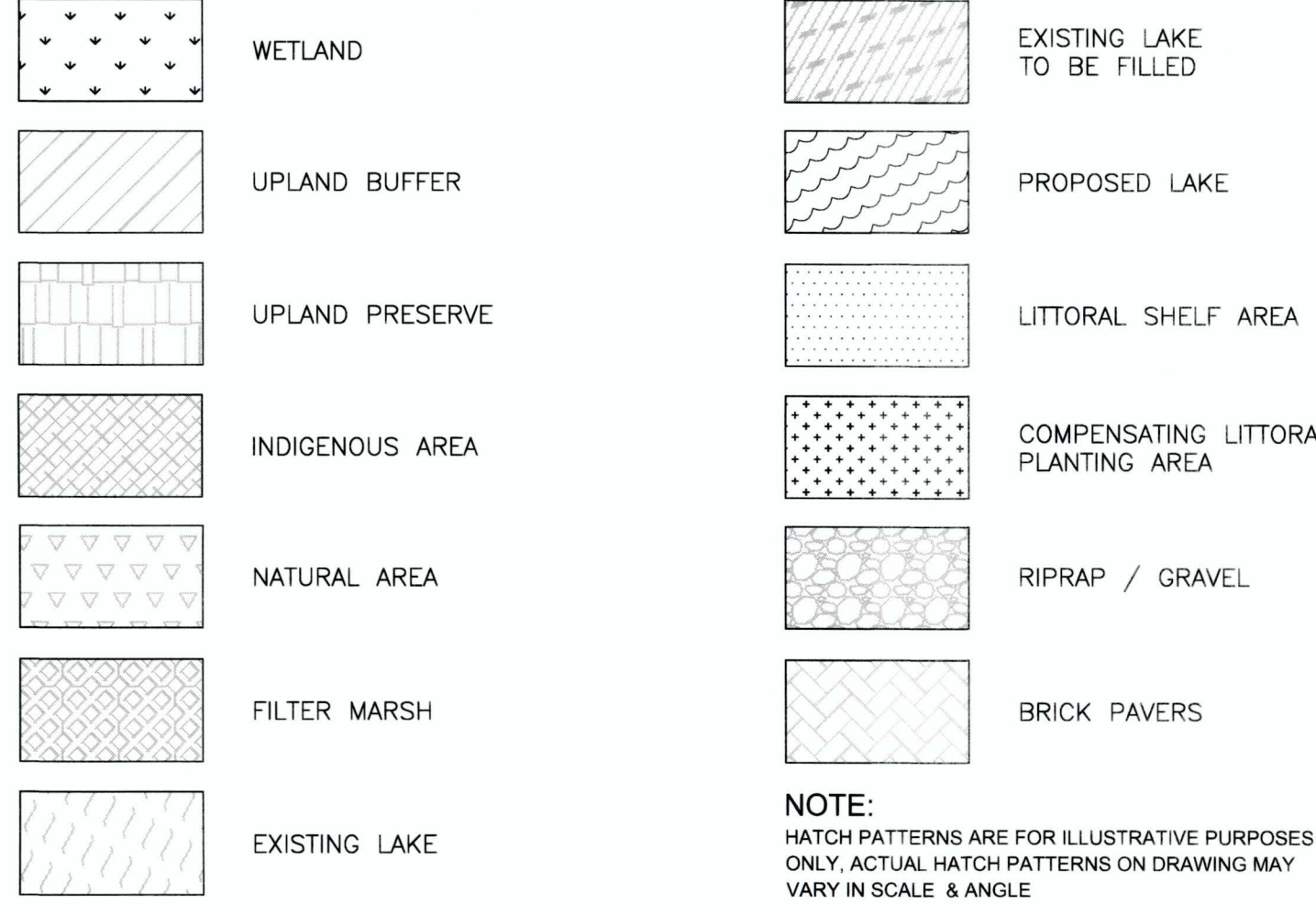
ABBREVIATIONS

Table of abbreviations for construction terms, including AC (ACRE), ALT (ALTERNATE), and others.

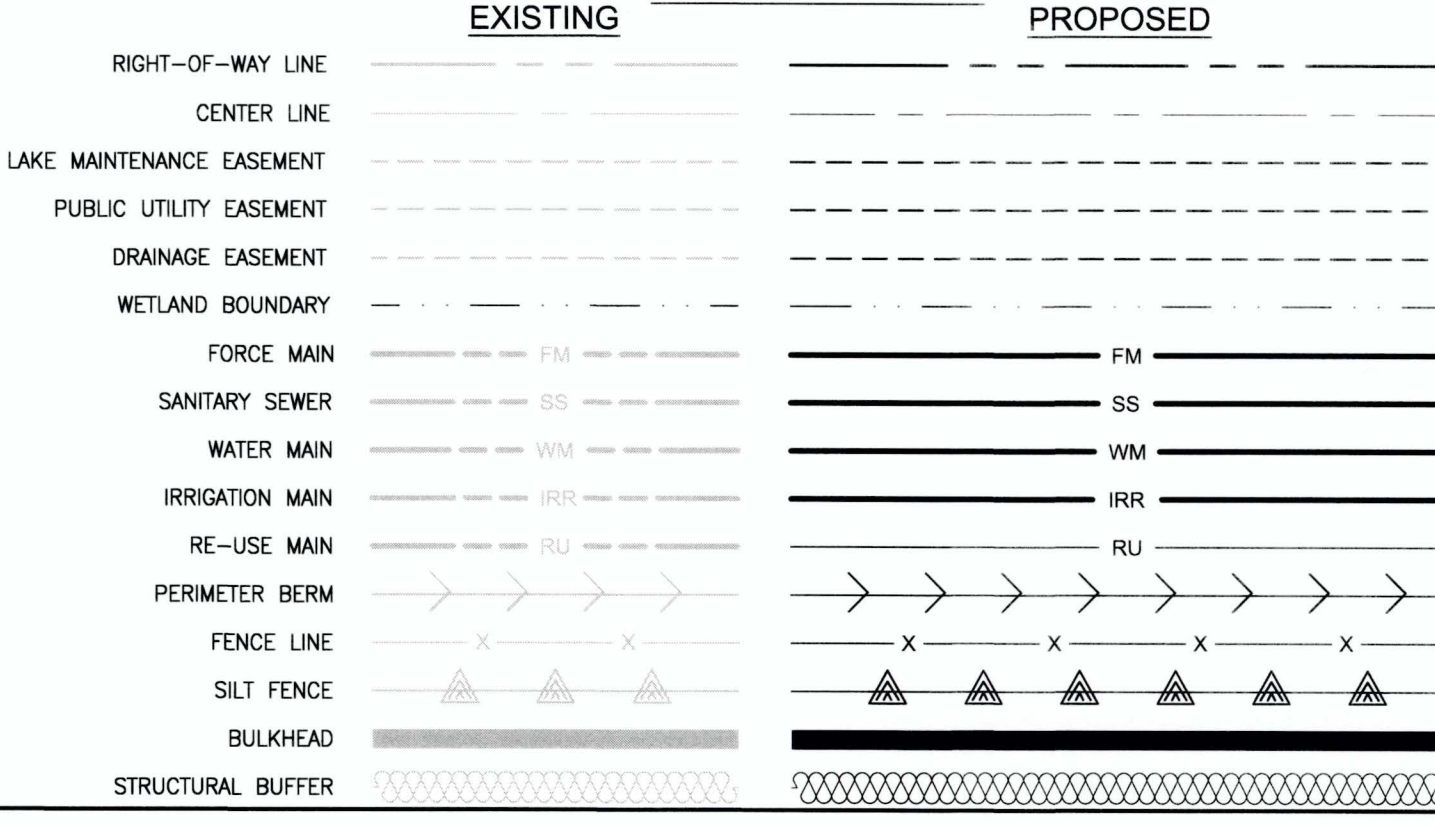
SYMBOLS



HATCH PATTERNS



LINETYPES



SITE DEMOLITION:

Text regarding site demolition procedures, including the requirement for a permit and notification to the contractor.

EXISTING UTILITY NOTE:

Note regarding existing utilities, specifically mentioning the requirement to call 811 for utility location before construction.



GENERAL NOTES:

- 1. ELEVATIONS REFERENCE TO NAVD 1988. CONVERSION TO NGVD 1929 IS: NAVD 1988 + 1.18 = NGVD 1929.
2. THE GENERAL NOTES MUST BE PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS...

SIGNING AND PAVEMENT MARKING NOTES:

- 1. ALL SIGNING AND PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH FDOT STANDARD PLANS (LATEST EDITION)...
2. MATCH EXISTING PAVEMENT MARKINGS AT EXISTING ROADS.

ACCESSIBILITY DESIGN GUIDELINES:

- 1. ALL ACCESSIBLE (A.K.A. ADA) COMPONENTS AND ACCESSIBLE ROUTES MUST BE CONSTRUCTED TO MEET, AT A MINIMUM THE MOST STRINGENT OF:
(A) THE REQUIREMENTS OF THE 'AMERICANS WITH DISABILITIES ACT' (ADA)...

PAVING, GRADING AND DRAINAGE NOTES:

- 1. THIS SITE CAN BE UTILIZED SAFELY FOR BUILDING PURPOSES WITHOUT UNDUE DANGER FROM FLOODING OR ADVERSE SOIL CONDITIONS.
2. LENGTH OF STORM DRAIN PIPES ARE APPROXIMATE AND ARE MEASURED FROM CENTER OF STRUCTURE.

WATER LINE NOTES:

- 1. THE ENDS OF ALL CAPPED IRRIGATION AND POTABLE WATERLINES SHALL BE MARKED WITH ELECTRIC MARKERS AND 2"x4" STAKES 5' IN LENGTH WITH 2' ABOVE GROUND.
2. ALL POTABLE & IRRIGATION LINES (4" OR LARGER) SHALL BE AWWA C-900, DR18, CLASS 150...

SANITARY SEWER / FORCE MAIN NOTES:

- 1. ALL PIPE LENGTHS ARE APPROXIMATE AND ARE MEASURED FROM CENTER OF STRUCTURE OR FITTINGS.
2. ALL GRAVITY SEWER LINES SHALL BE PVC (SDR-26) UNLESS NOTED OTHERWISE.

LEE COUNTY UTILITIES

STANDARD PLAN NOTES:

- 1. ALL WORK SHALL CONFORM TO LATEST REVISION OF THE LCU DESIGN MANUAL WHICH IS AVAILABLE ON OUR WEB-PAGE VIA THE FOLLOWING LINK: https://www.lee.gov/utilities/design-manual.
2. ALL REGULATORY AND PERMITTING AGENCIES' REQUIREMENTS SHALL BE COMPLIED WITH AS WELL.

JOHNSON ENGINEERING INC. logo and contact information.

ERD logo and contact information.

Professional Engineer seal for Jordan Levi Venable, PE, No. 11418, State of Florida.

Lee County logo and 'LAKES PARK WATER QUALITY - PHASE 3 LEE COUNTY FLORIDA' text.

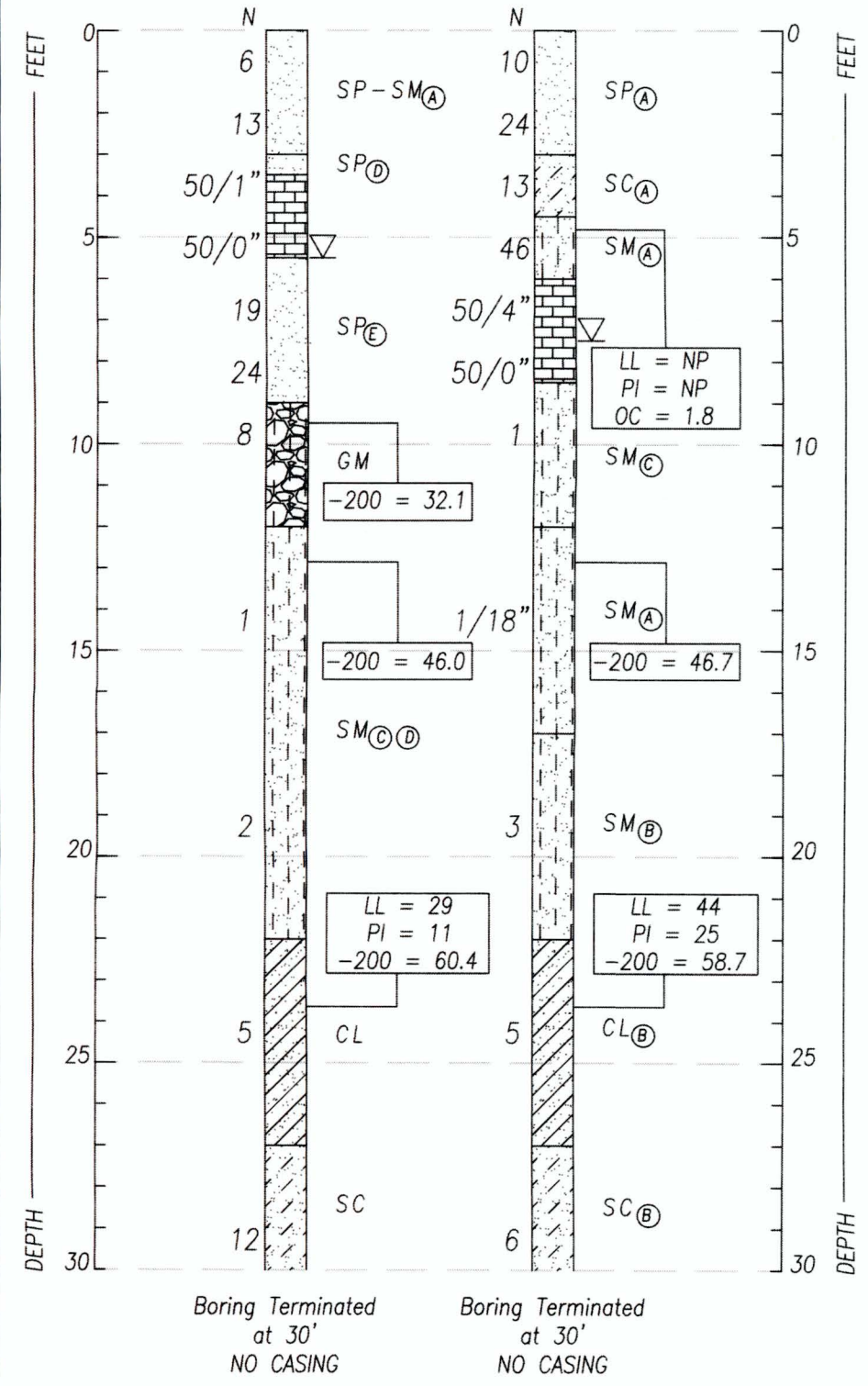
Revisions table with columns for NO., DESCRIPTION, and DATE.

Project information including DATE (NOVEMBER 2022), PROJECT NO. (20214150-000), FILE NO. (26-45-24), and SCALE (AS SHOWN).

GENERAL NOTES & ABBREVIATIONS

SHEET NUMBER C02

BORING: B-01 B-02
 DATE: 01/24/2022 01/24/2022
 LATITUDE: N26°31'33.83" N26°31'30.99"
 LONGITUDE: W81°52'40.60" W81°52'38.48"
 HAMMER: AUTO AUTO



- LEGEND**
- [Symbol] SAND: Sand with ≤ 12% fines
 - [Symbol] Silty SAND: Sand with 12% to 50% Silt
 - [Symbol] Sandy CLAY: Clay with > 30% Sand
 - [Symbol] Clayey SAND: Sand with 12% to 50% Clay
 - [Symbol] HARD LIMESTONE: Limestone with N > 50
 - [Symbol] Silty GRAVEL: Gravel with 12% to 50% Silt

- ADDITIONAL SOIL COMPONENTS**
- (A) Trace of Rock
 - (B) Trace of Shell
 - (C) Some Rock
 - (D) Some Shell
 - (E) Gravelly

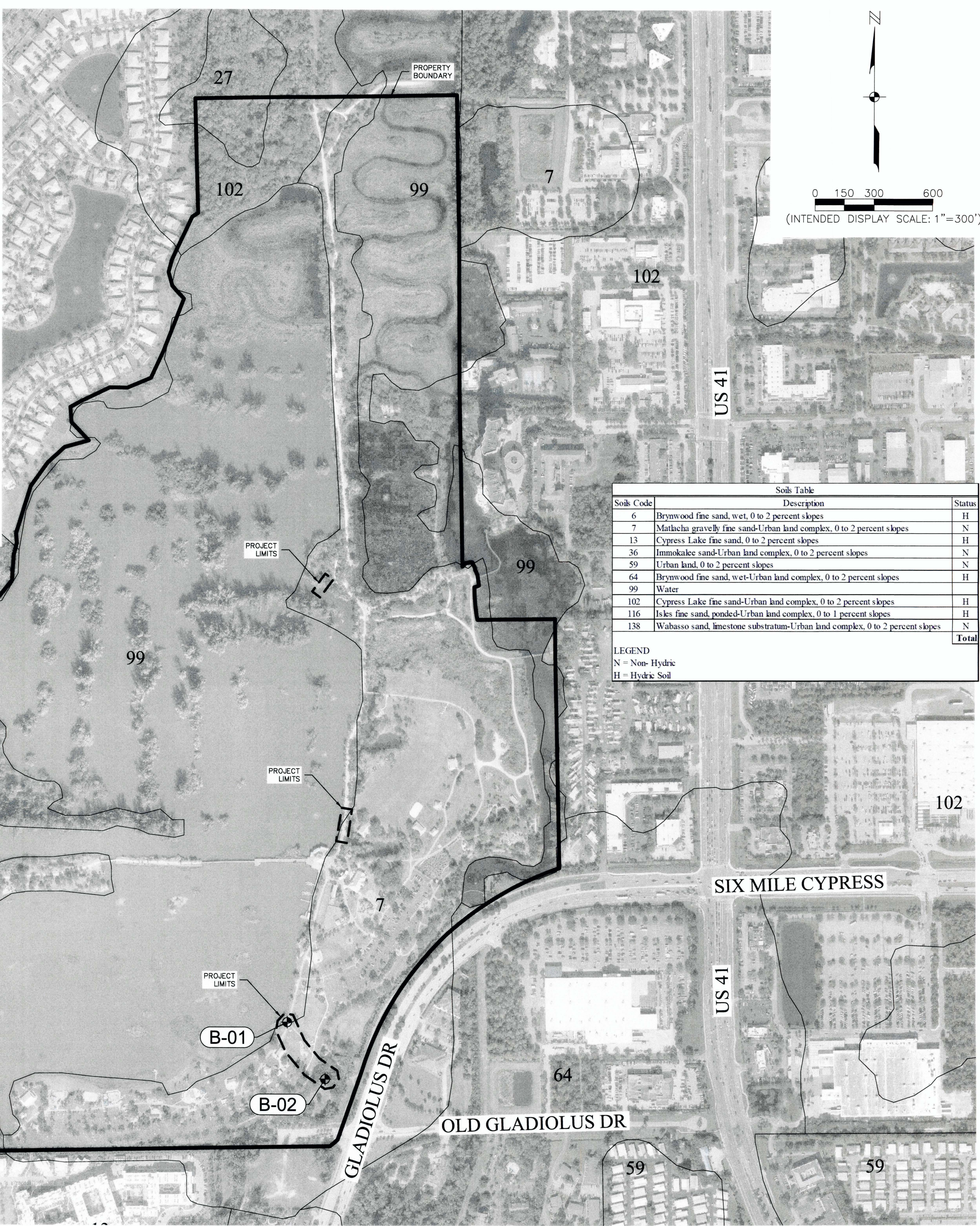
SM UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) GROUP SYMBOL
 ⊙ SUBSCRIPT INDICATING ADDITIONAL COMPONENTS OF SOIL SAMPLE
 N SPT N-VALUE IN BLOWS PER FOOT
 50/4" NUMBER OF BLOWS FOR GIVEN PENETRATION (I.E. 50 BLOWS FOR 4 INCHES)
 ∇ GROUNDWATER LEVEL MEASURED ON DATE DRILLED
 OC ORGANIC CONTENT (%)
 -200 % PASSING #200 SIEVE
 LL LIQUID LIMIT (%)
 PI PLASTICITY INDEX (%)

SOIL BORING PROFILES

Ardaman & Associates, Inc.
 Geotechnical, Environmental and
 Materials Consultants

LAKES PARK WATER QUALITY IMPROVEMENTS
 PHASE 3
 FORT MYERS, LEE COUNTY, FLORIDA

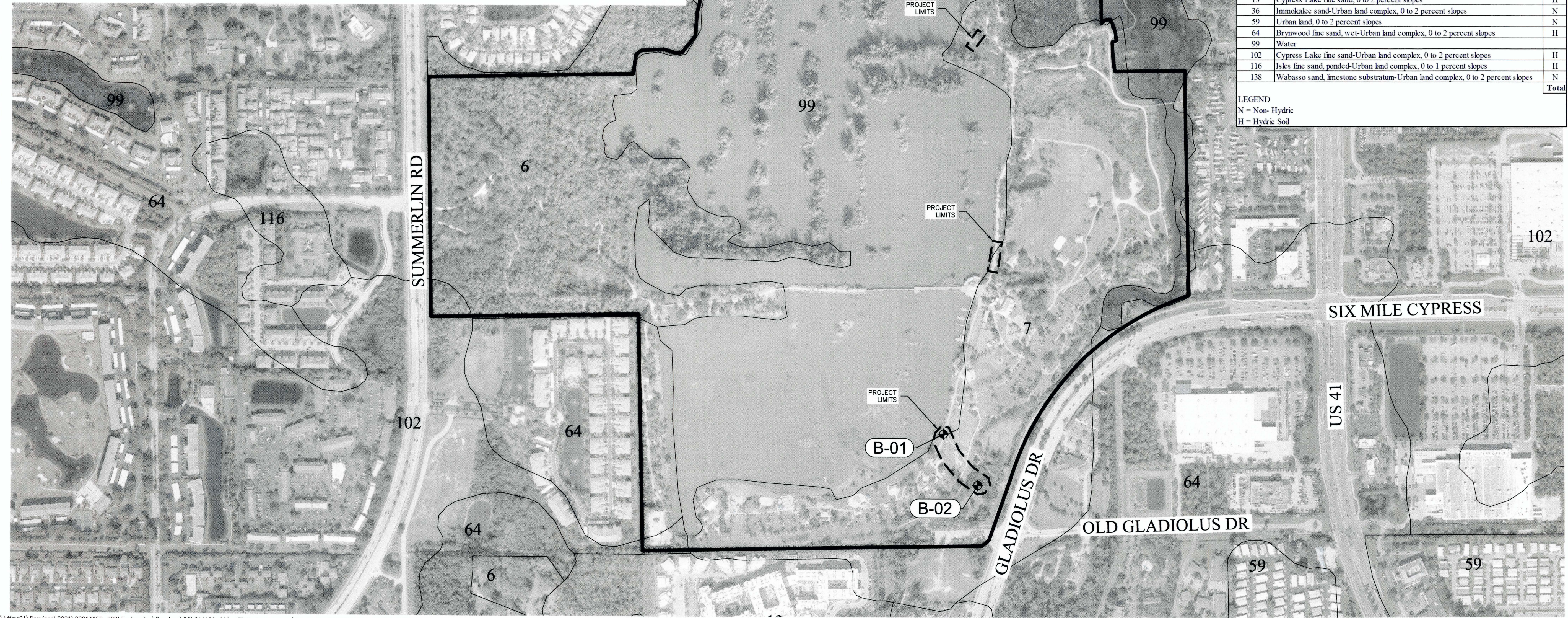
DATE: 02/08/2022
 DRAWN BY: CS CHECKED BY: IS
 FILE NO: 21-33-4542 APPROVED BY: IS FIGURE: 3



Soils Table

Soils Code	Description	Status
6	Brynwood fine sand, wet, 0 to 2 percent slopes	H
7	Matlacha gravelly fine sand-Urban land complex, 0 to 2 percent slopes	N
13	Cypress Lake fine sand, 0 to 2 percent slopes	H
36	Immokalee sand-Urban land complex, 0 to 2 percent slopes	N
59	Urban land, 0 to 2 percent slopes	N
64	Brynwood fine sand, wet-Urban land complex, 0 to 2 percent slopes	H
99	Water	N
102	Cypress Lake fine sand-Urban land complex, 0 to 2 percent slopes	H
116	Isles fine sand, ponded-Urban land complex, 0 to 1 percent slopes	H
138	Wabasso sand, limestone substratum-Urban land complex, 0 to 2 percent slopes	N
Total		

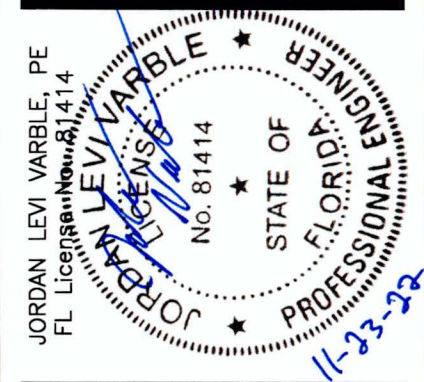
LEGEND
 N = Non-Hydric
 H = Hydric Soil



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ERD
 Water Quality Engineering

ENVIRONMENTAL RESEARCH & DESIGN, INC.
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 BELLE ISLE, FLORIDA 32812
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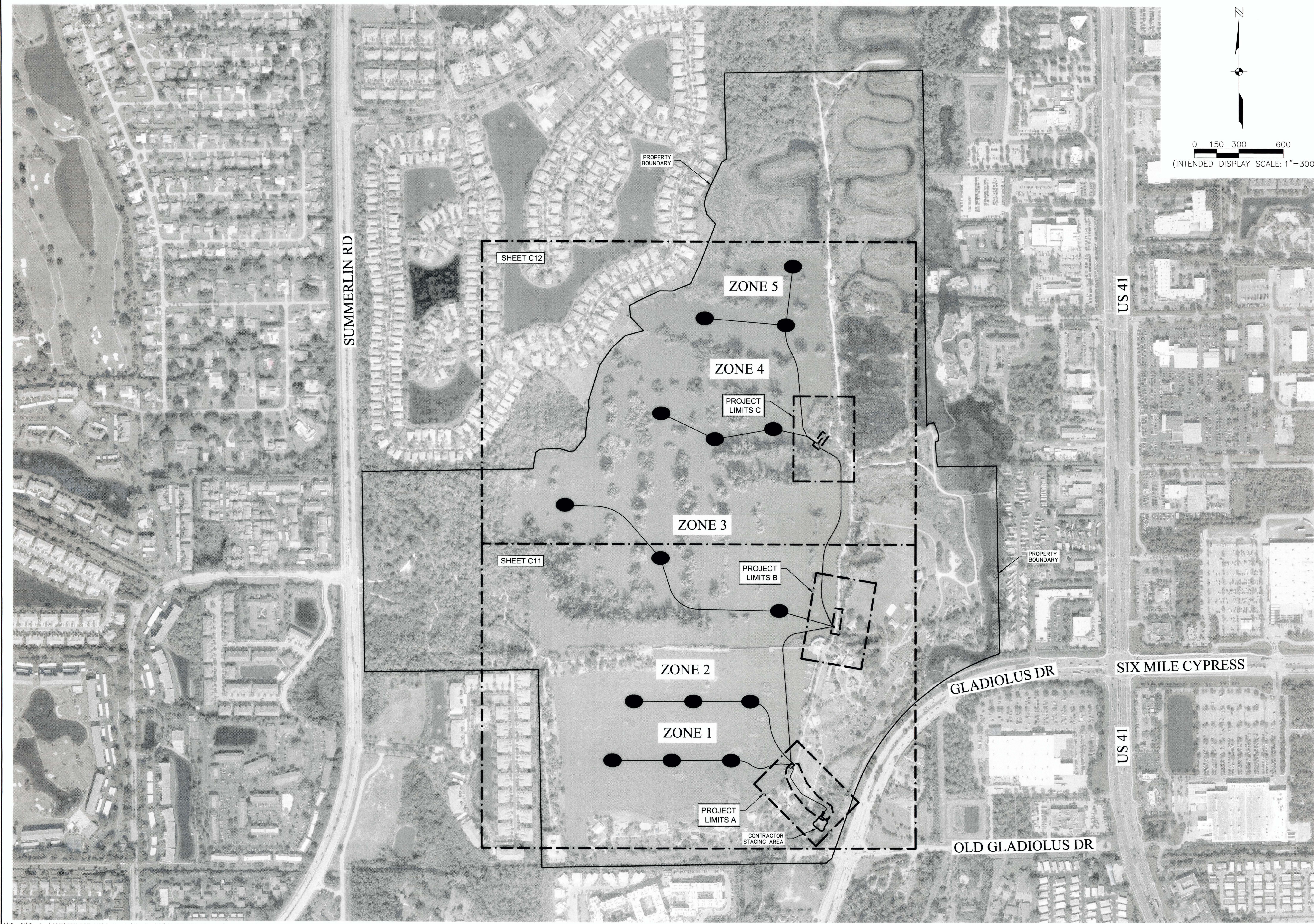
LAKES PARK WATER QUALITY - PHASE 3 LEE COUNTY FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

AERIAL PHOTOGRAPHY & SOILS MAP
 SHEET NUMBER
C03



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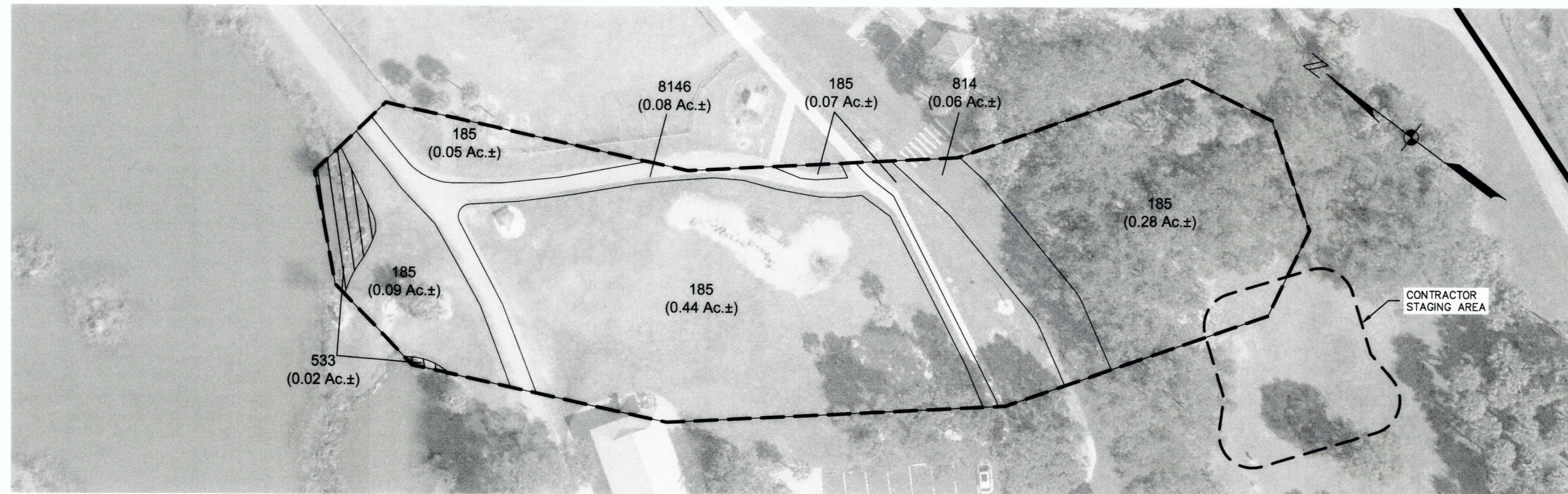


LAKES PARK WATER QUALITY - PHASE 3
LEE COUNTY FLORIDA

NO.	DESCRIPTION	DATE

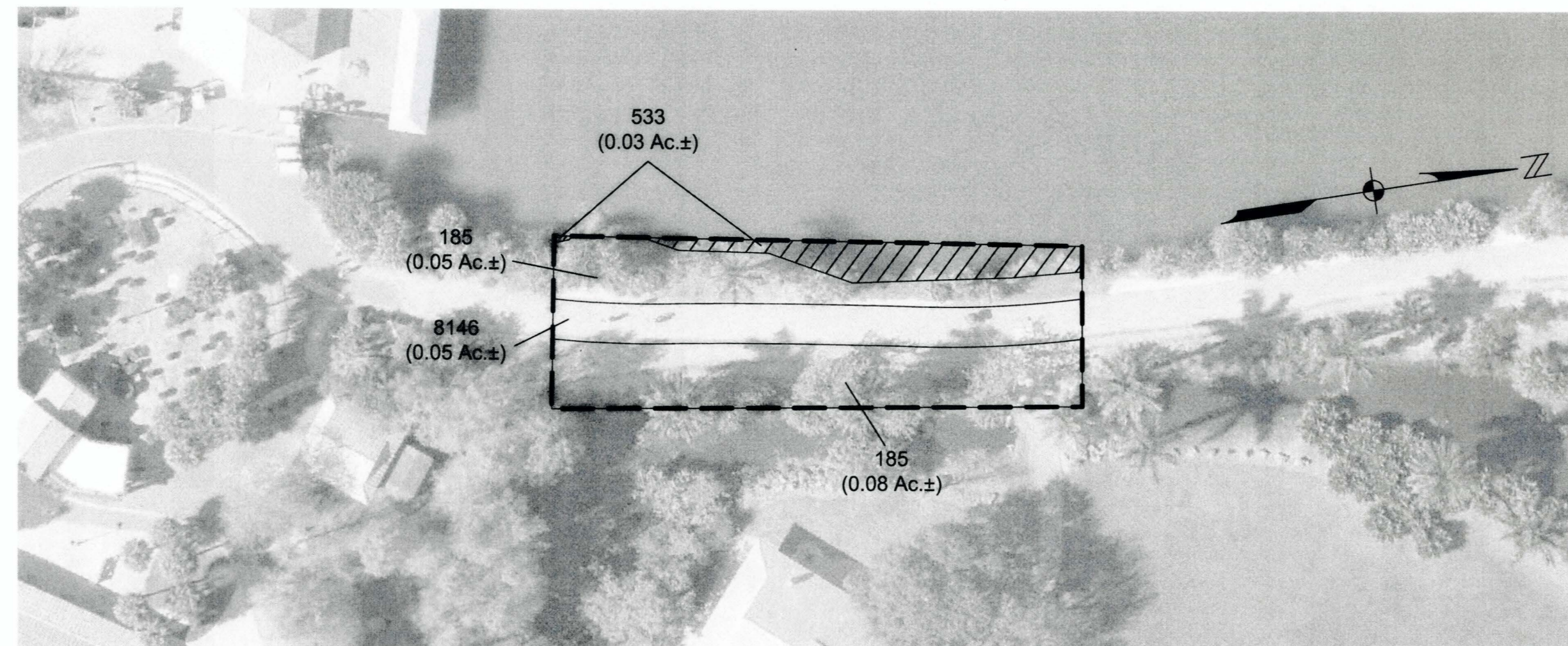
DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

KEY MAP
 SHEET NUMBER
C04



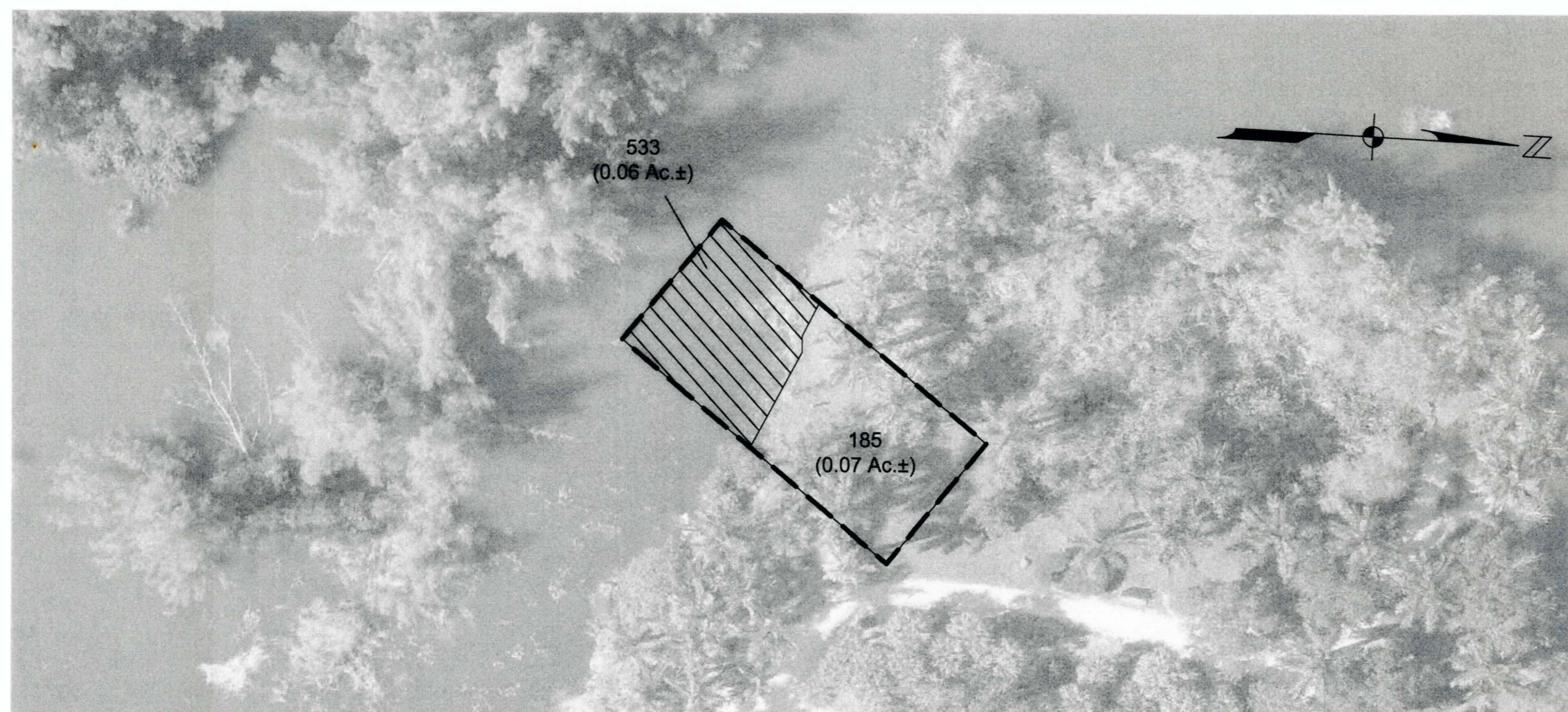
PROJECT LIMITS A

SCALE: 1" = 40'



PROJECT LIMITS B

SCALE: 1" = 40'



PROJECT LIMITS C

SCALE: 1" = 40'

Legend

	Surface Waters (0.28± Ac)
--	---------------------------

- Notes:**
1. Nomenclature and delineations as per the Florida Land Use Cover and Forms Classification System (FLUCFCS) (FDOT, 1999).
 2. These drawings are for permitting purposes only and are not intended for construction.
 3. Aerial photograph was acquired from Lee County and has a flight date of 2021.

FLUCFCS Table

FLUCFCS CODE	DESCRIPTION	PROJECT LIMITS A	PROJECT LIMITS B	PROJECT LIMITS C	TOTAL	STATUS
185	Parks and Zoos (Lakes Park)	0.93± Ac.	0.13± Ac.	0.07± Ac.	1.13± Ac.	N
533	Reservoirs larger than 10 acres, but less than 100 acres	0.02± Ac.	0.03± Ac.	0.06± Ac.	0.11± Ac.	SW
814	Roads	0.06± Ac.	-	-	0.06± Ac.	N
8146	Trails	0.08± Ac.	0.05± Ac.	-	0.13± Ac.	N
		1.09± Ac.	0.21± Ac.	0.13± Ac.	1.43± Ac.	

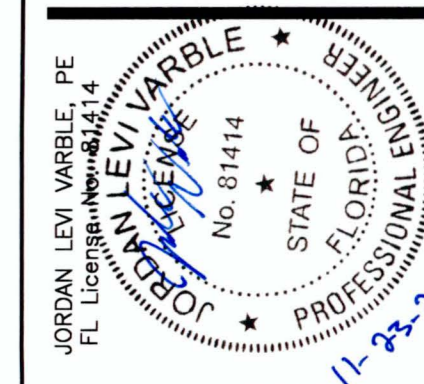
Legend

SW	Surface Water
N	Non-Wetlands

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 E.B. #6244



LAKES PARK WATER QUALITY - PHASE 3 LEE COUNTY FLORIDA

REVISIONS

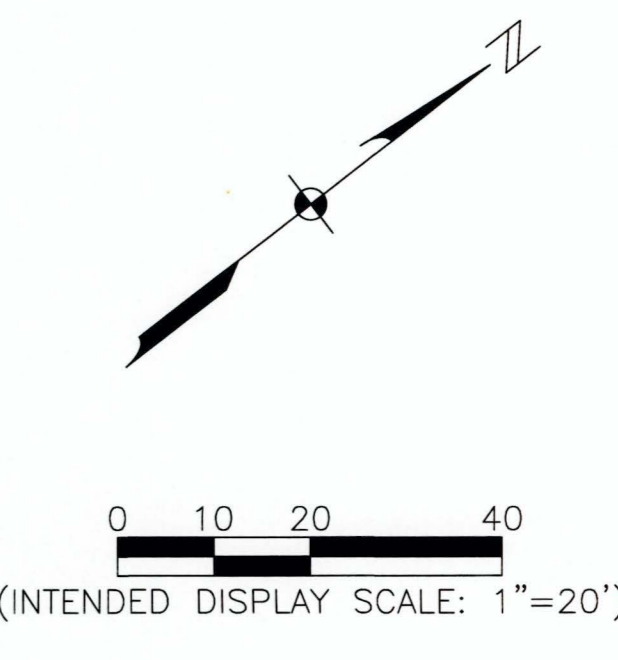
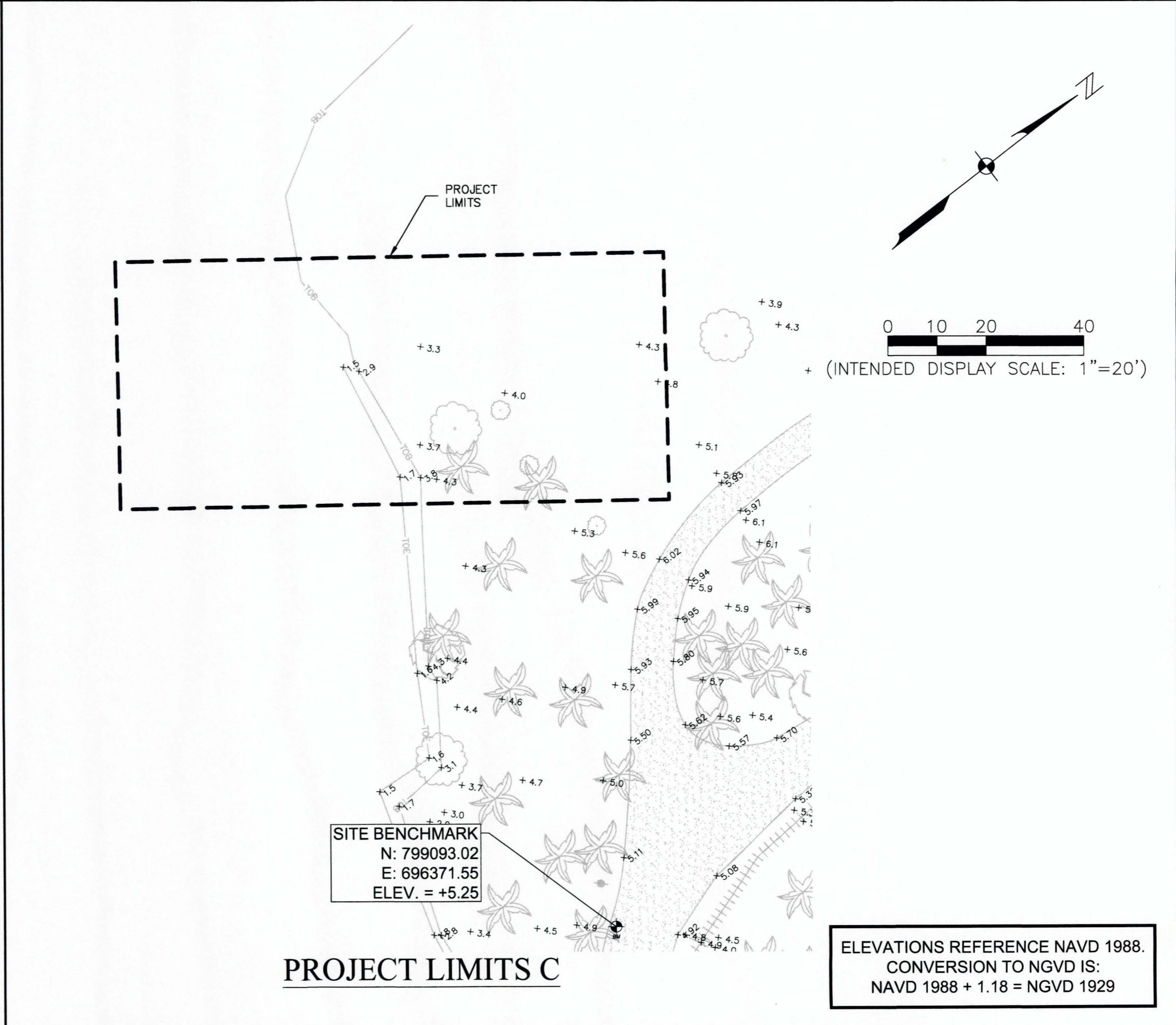
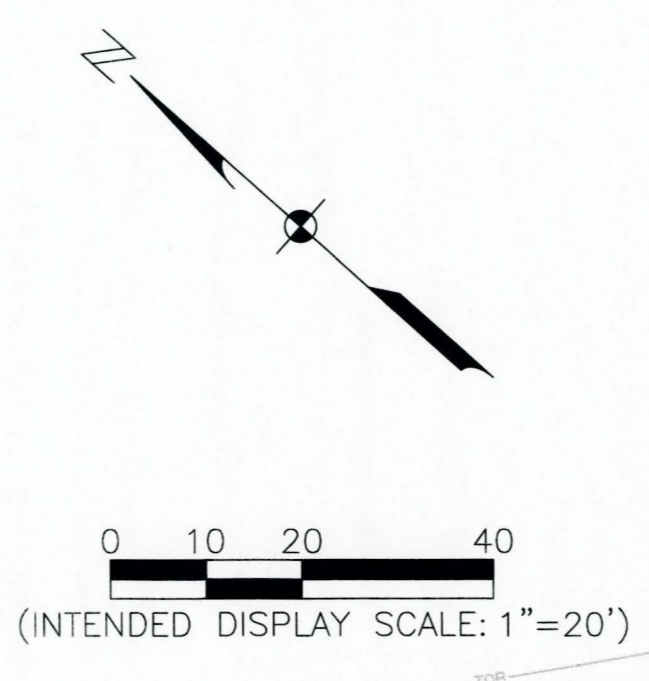
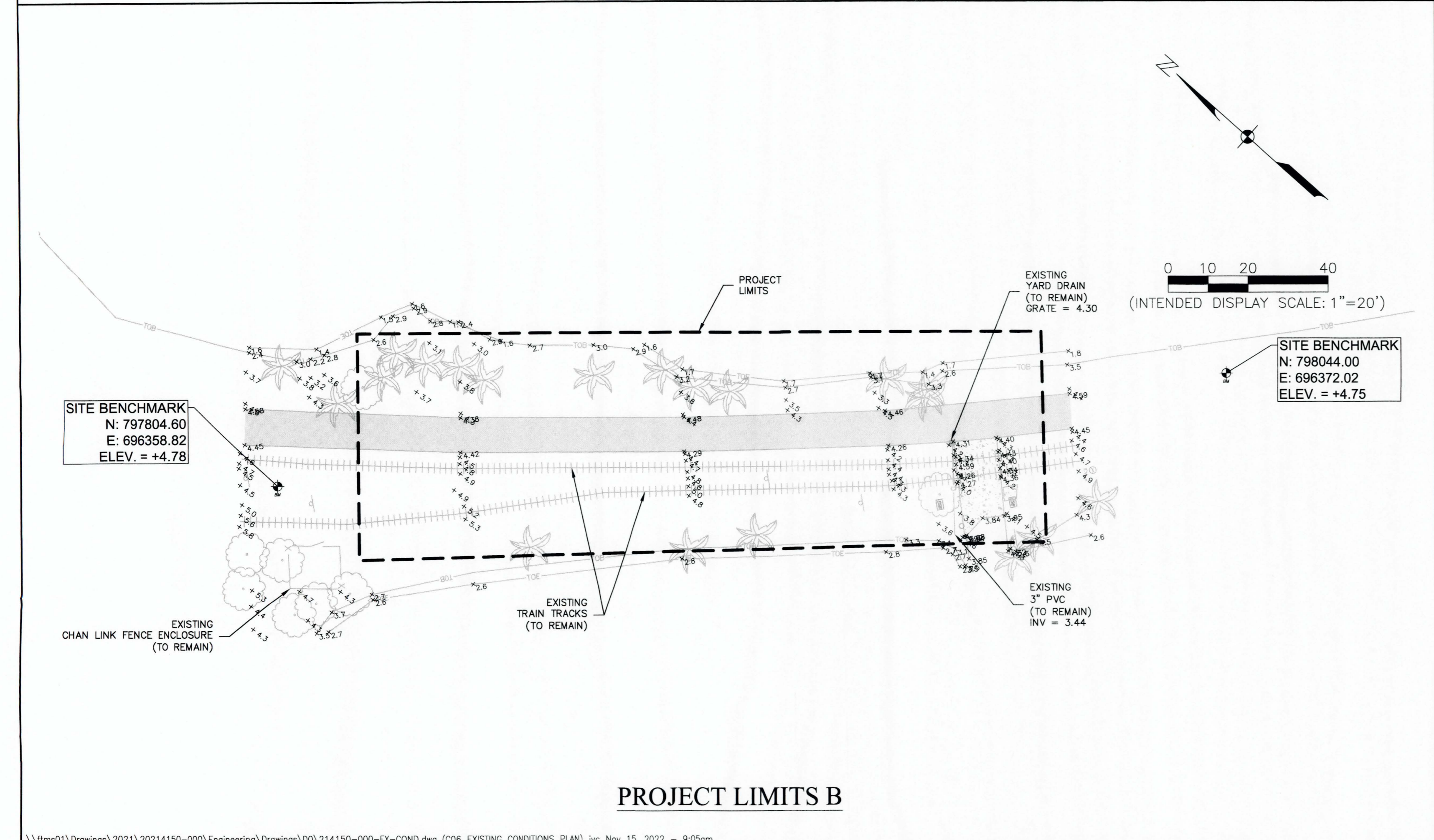
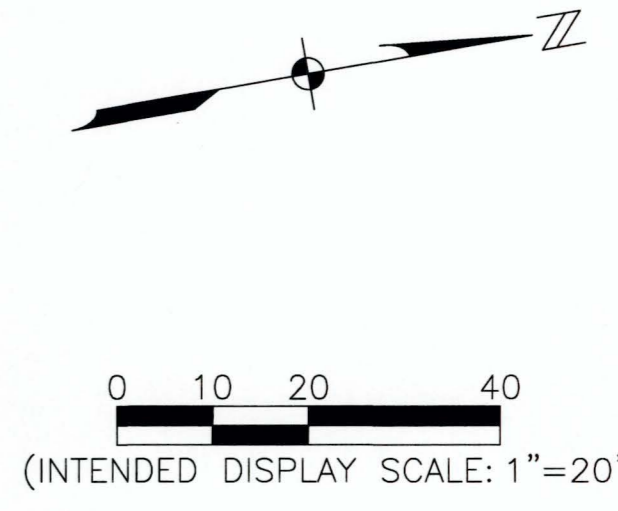
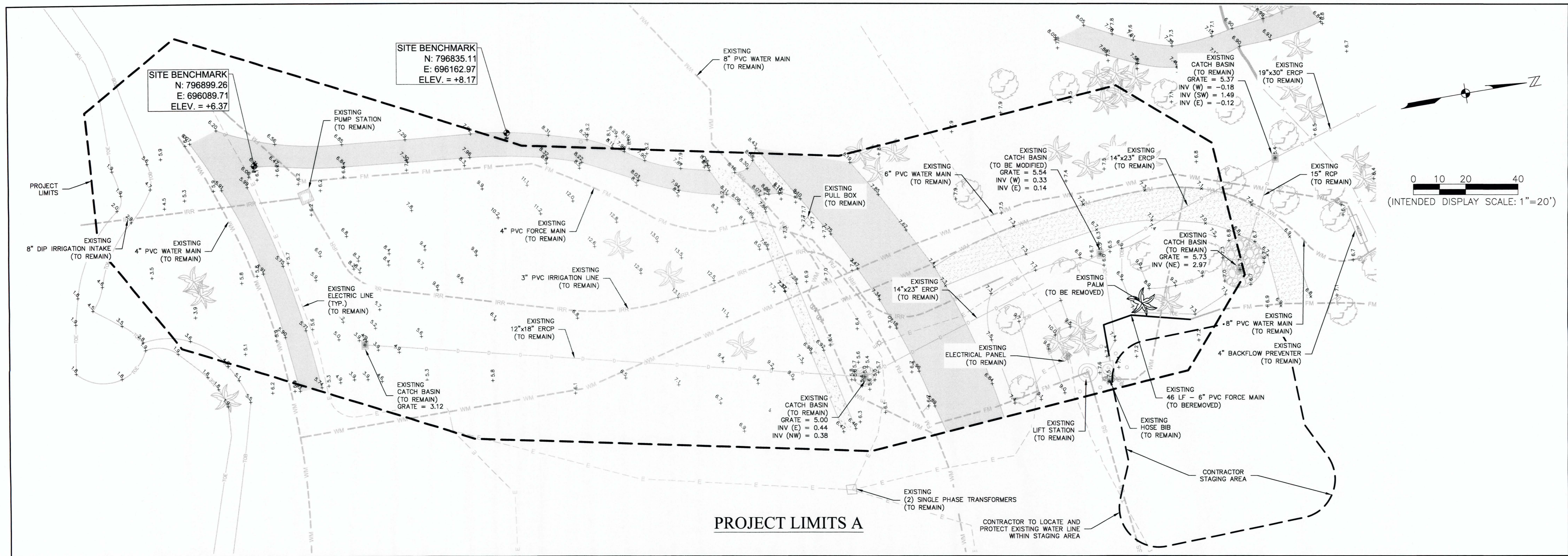
NO.	DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

FLUCFCS MAP

SHEET NUMBER

C05



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 BELLE ISLE, FLORIDA 32812
 PHONE: (407) 855-5465
 E.B. #6244

JORDAN LEVI VARBLE, PE
 FL License No. 81414

Professional Engineer
 STATE OF FLORIDA
 No. 81414
 11-23-22

Lee County
 Seachuck, Florida

LAKES PARK WATER QUALITY - PHASE 3
 LEE COUNTY FLORIDA

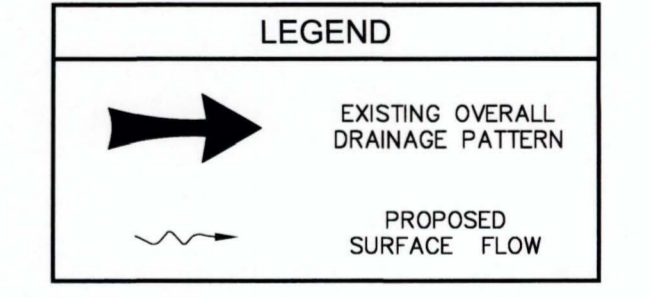
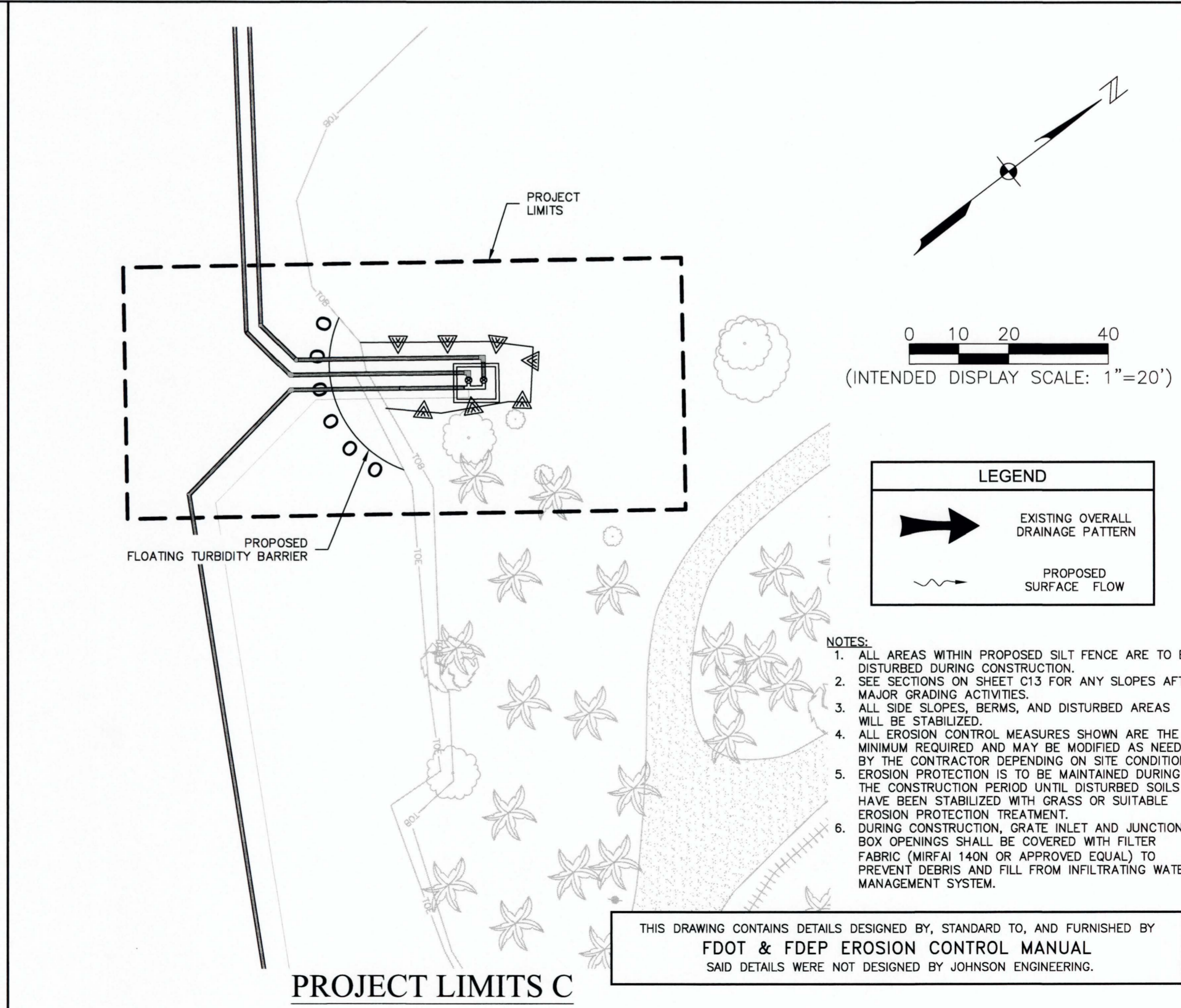
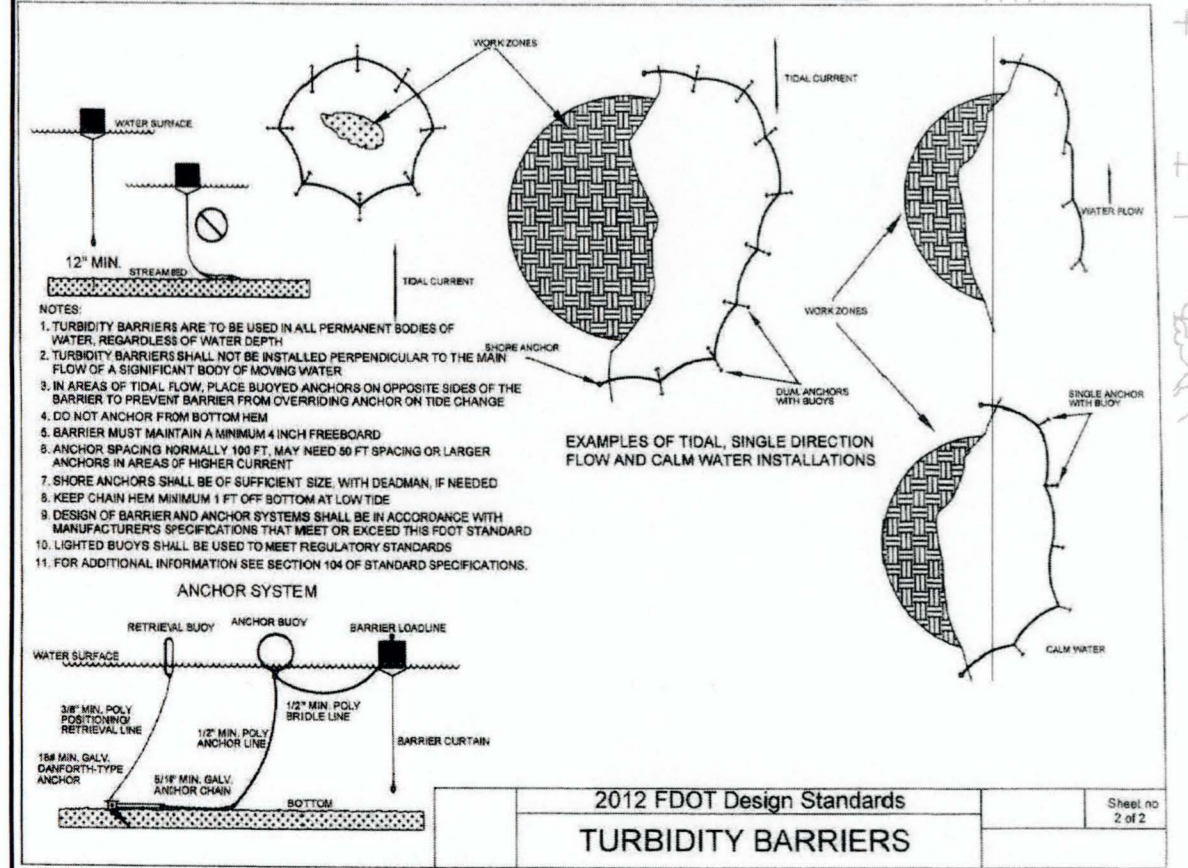
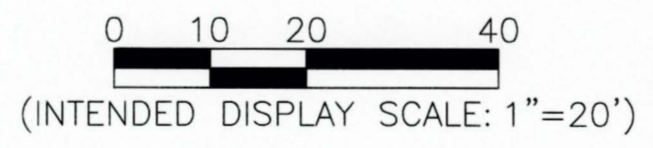
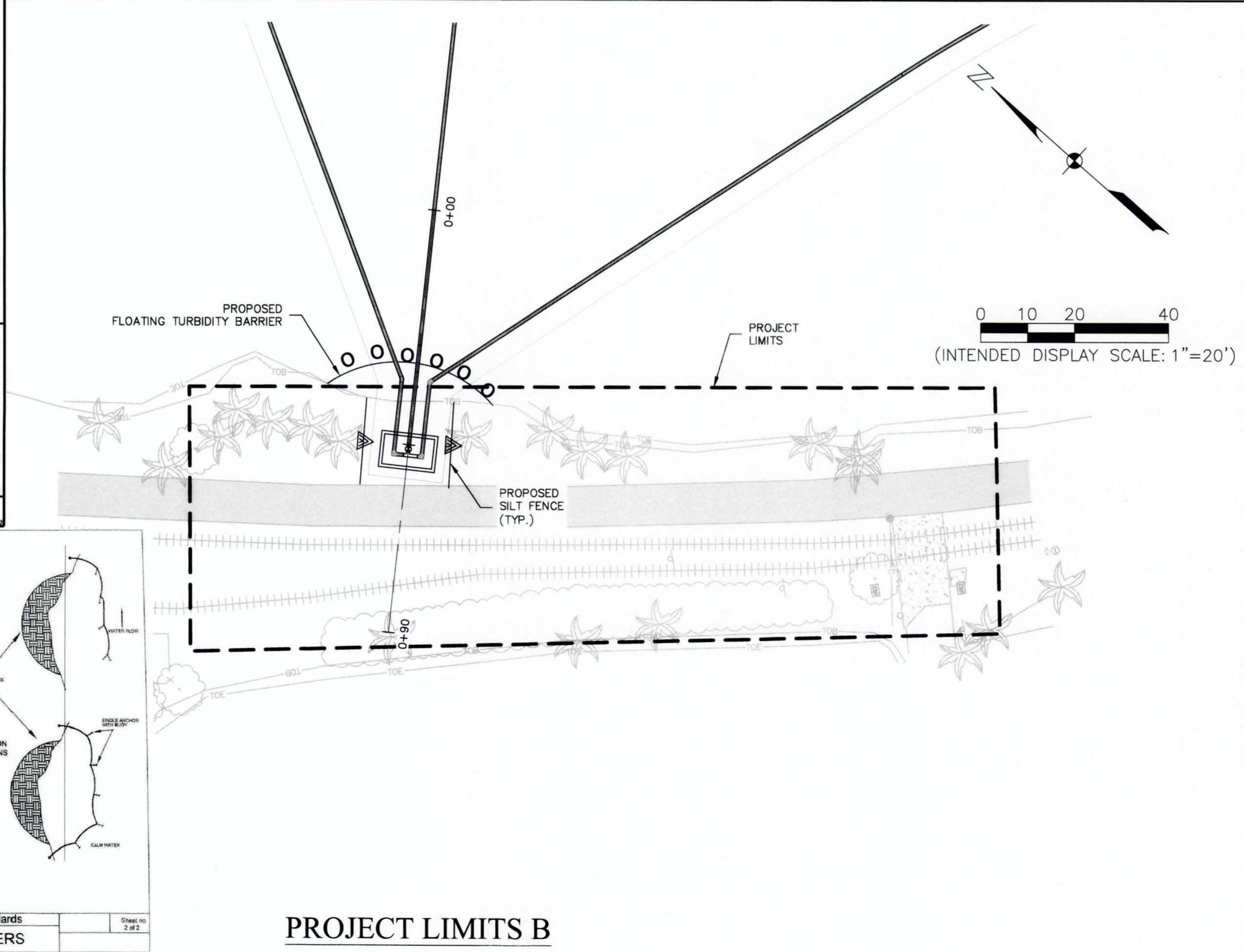
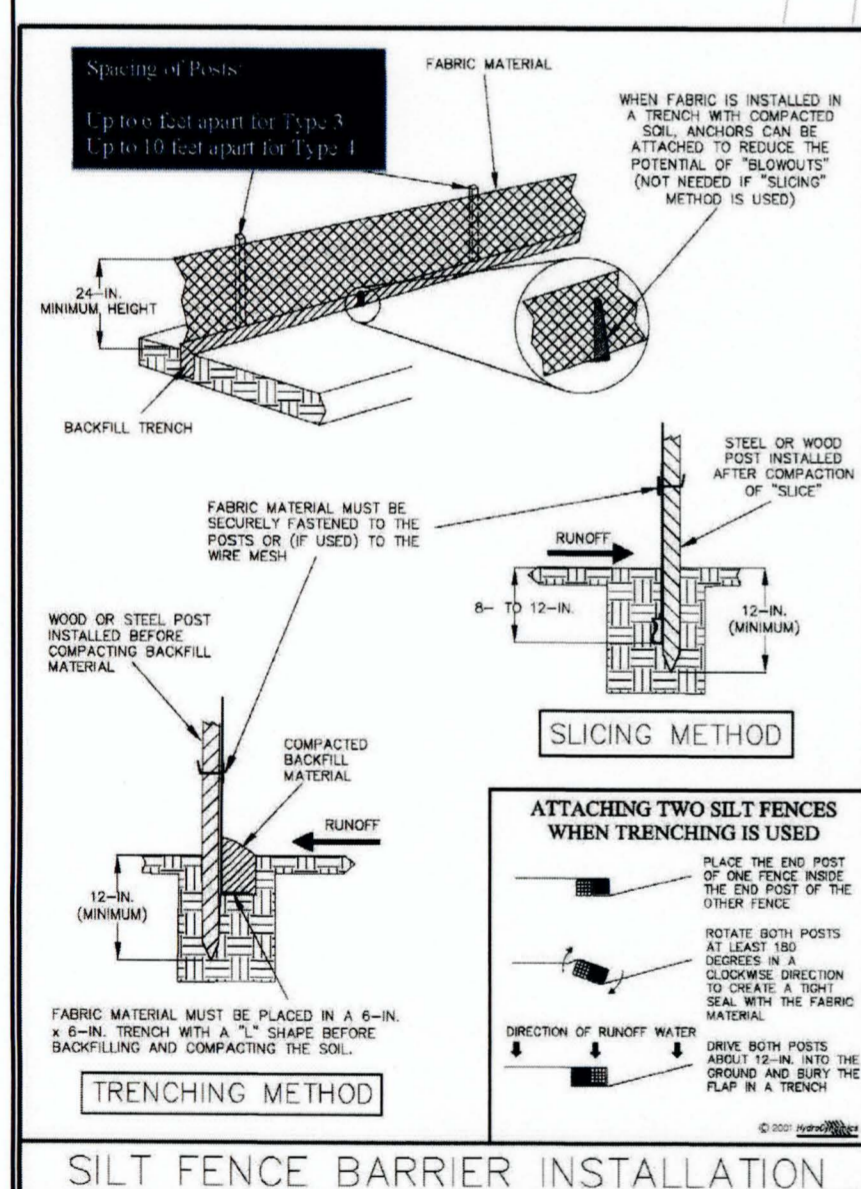
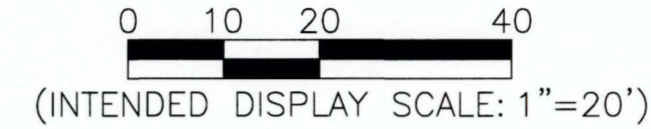
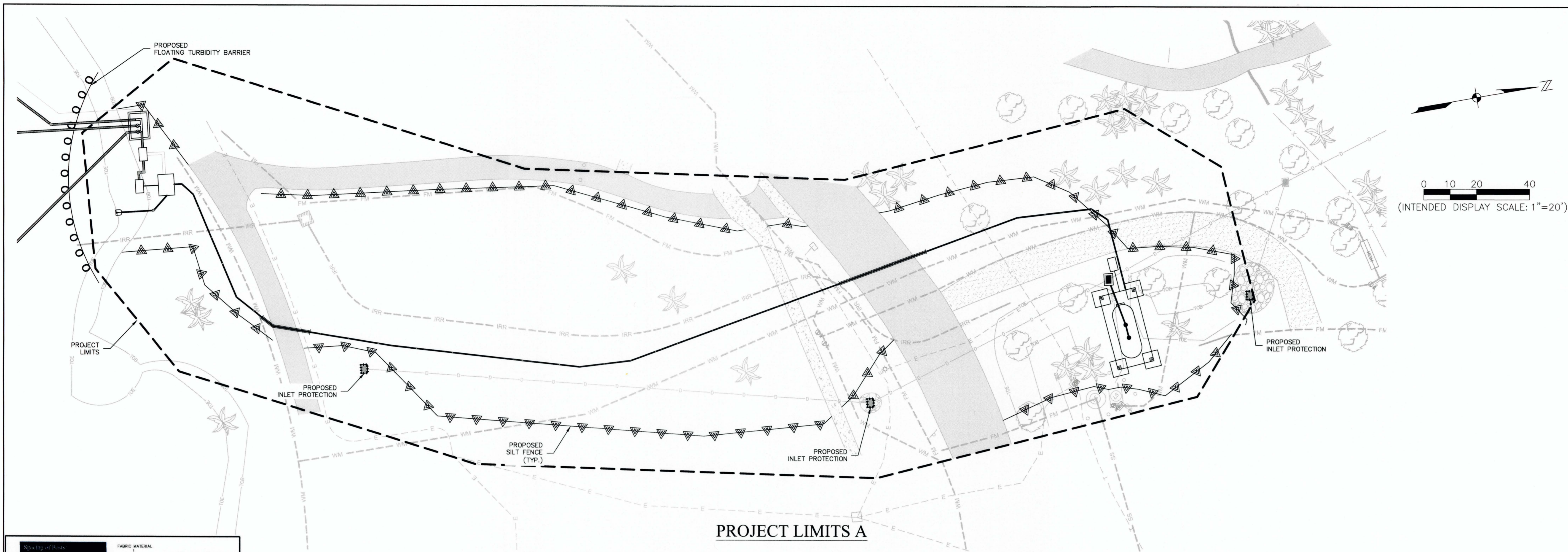
REVISIONS	DATE

NO. _____
 DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

EXISTING CONDITIONS PLAN

SHEET NUMBER
C06

ELEVATIONS REFERENCE NAVD 1988.
 CONVERSION TO NGVD IS:
 NAVD 1988 + 1.18 = NGVD 1929



- NOTES:**
1. ALL AREAS WITHIN PROPOSED SILT FENCE ARE TO BE DISTURBED DURING CONSTRUCTION.
 2. SEE SECTIONS ON SHEET C13 FOR ANY SLOPES AFTER MAJOR GRADING ACTIVITIES.
 3. ALL SIDE SLOPES, BERMS, AND DISTURBED AREAS WILL BE STABILIZED.
 4. ALL EROSION CONTROL MEASURES SHOWN ARE THE MINIMUM REQUIRED AND MAY BE MODIFIED AS NEEDED BY THE CONTRACTOR DEPENDING ON SITE CONDITIONS.
 5. EROSION PROTECTION IS TO BE MAINTAINED DURING THE CONSTRUCTION PERIOD UNTIL DISTURBED SOILS HAVE BEEN STABILIZED WITH GRASS OR SUITABLE EROSION PROTECTION TREATMENT.
 6. DURING CONSTRUCTION, GRATE INLET AND JUNCTION BOX OPENINGS SHALL BE COVERED WITH FILTER FABRIC (MIRFAI 140N OR APPROVED EQUAL) TO PREVENT DEBRIS AND FILL FROM INFILTRATING WATER MANAGEMENT SYSTEM.

THIS DRAWING CONTAINS DETAILS DESIGNED BY, STANDARD TO, AND FURNISHED BY FDOT & FDEP EROSION CONTROL MANUAL SAID DETAILS WERE NOT DESIGNED BY JOHNSON ENGINEERING.

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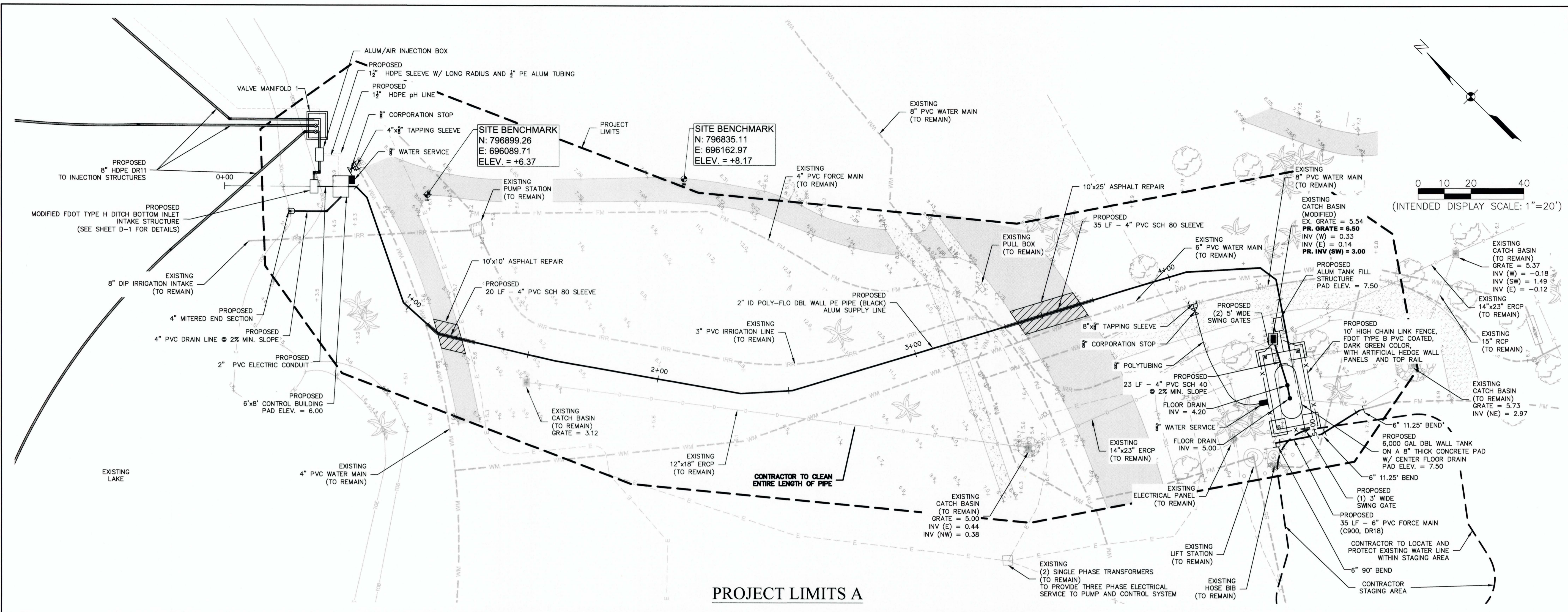
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Lee County
 Southwest Florida
 LAKES PARK WATER QUALITY - PHASE 3
 LEE COUNTY FLORIDA

NO.	DATE	DESCRIPTION

DATE:	NOVEMBER 2022
PROJECT NO.:	20214150-000
FILE NO.:	26-45-24
SCALE:	AS SHOWN

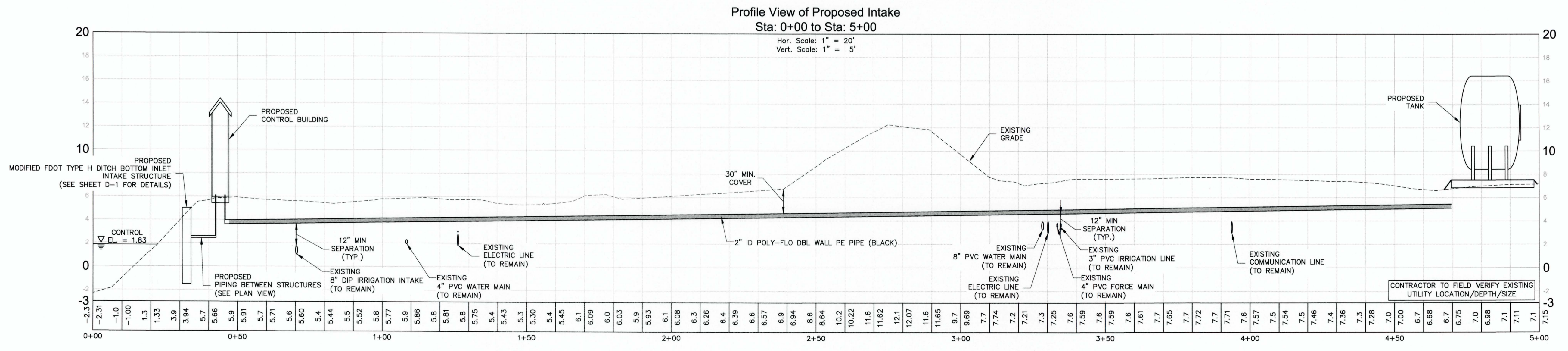
EROSION CONTROL PLAN
 SHEET NUMBER
C07



Land Coverage Table

	Lakes Park Water Quality			
	Existing		Proposed	
	(S.F.)	(%)	(S.F.)	(%)
Open Space	40,932	85.5%	40,684	85.0%
Concrete/Asphalt	6,528	13.6%	6,728	14.1%
Building	23	0.0%	71	0.1%
Lake	363	0.8%	363	0.8%
Total	47,846	100.0%	47,846	100.0%

- NOTES:**
- CONTRACTOR TO TRIM CANOPY AS NECESSARY TO BUILD STRUCTURE. TREES SHALL NOT BE REMOVED WITHOUT WRITTEN PRIOR AUTHORIZATION FROM OWNER.
 - PROVIDE NEW HOSE BIB CONNECTIONS AT PROPOSED CONTROL BUILDING AND PROPOSED TANK STRUCTURE.

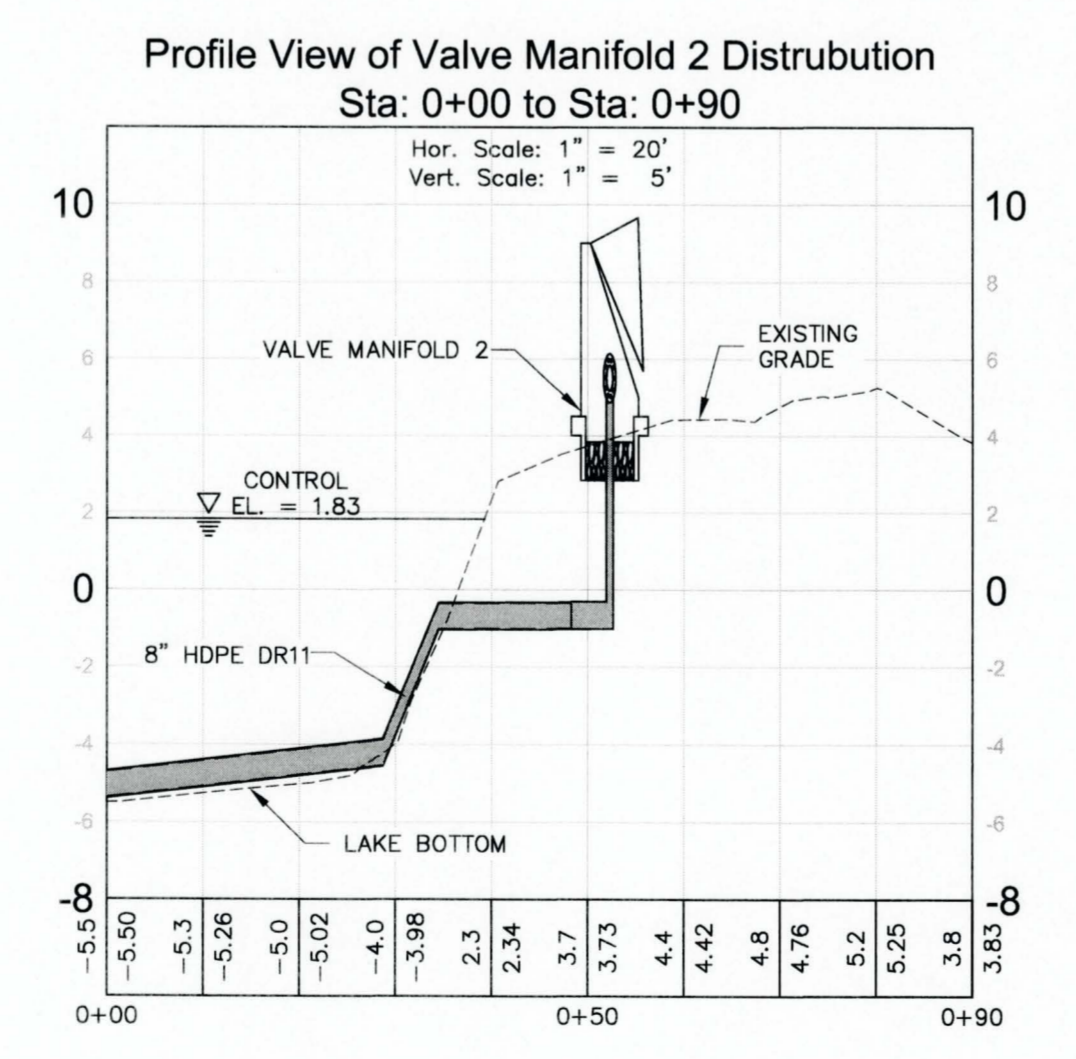
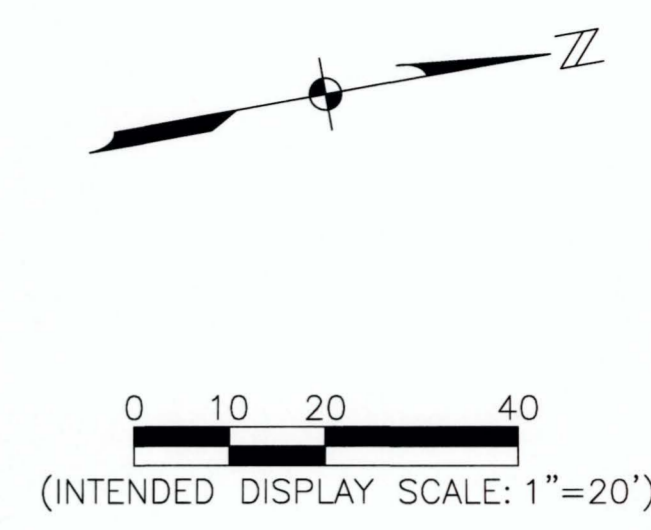
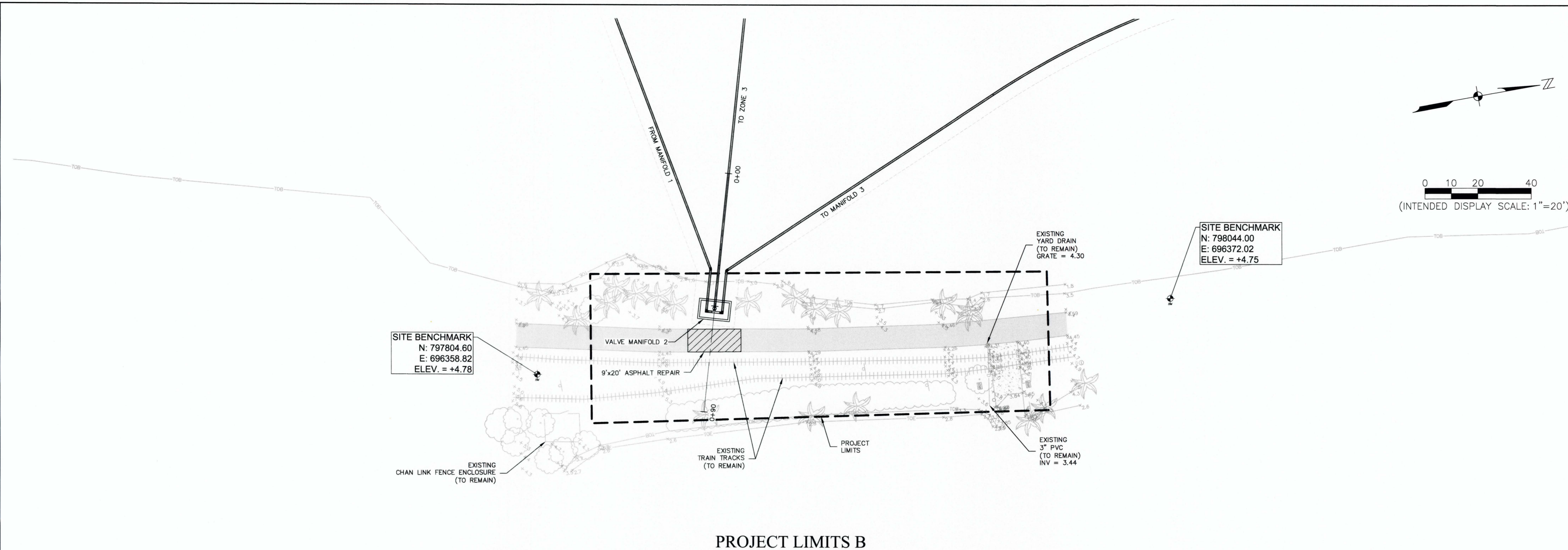


ELEVATIONS REFERENCE NAVD 1988.
 CONVERSION TO NGVD IS:
 NAVD 1988 + 1.18 = NGVD 1929

REVISIONS

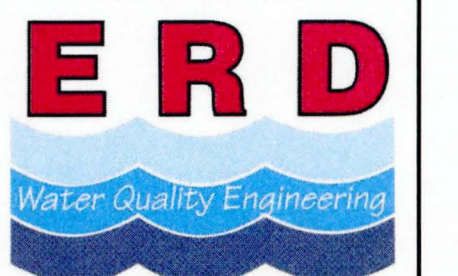
NO.	DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

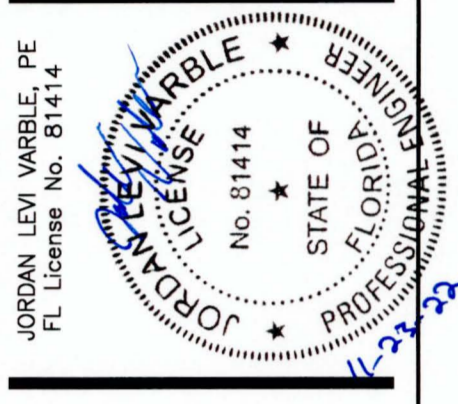


ELEVATIONS REFERENCE NAVD 1988.
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E.B. #642 & L.B. #642



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E.B. #6244



LAKES PARK WATER QUALITY - PHASE 3
LEE COUNTY FLORIDA

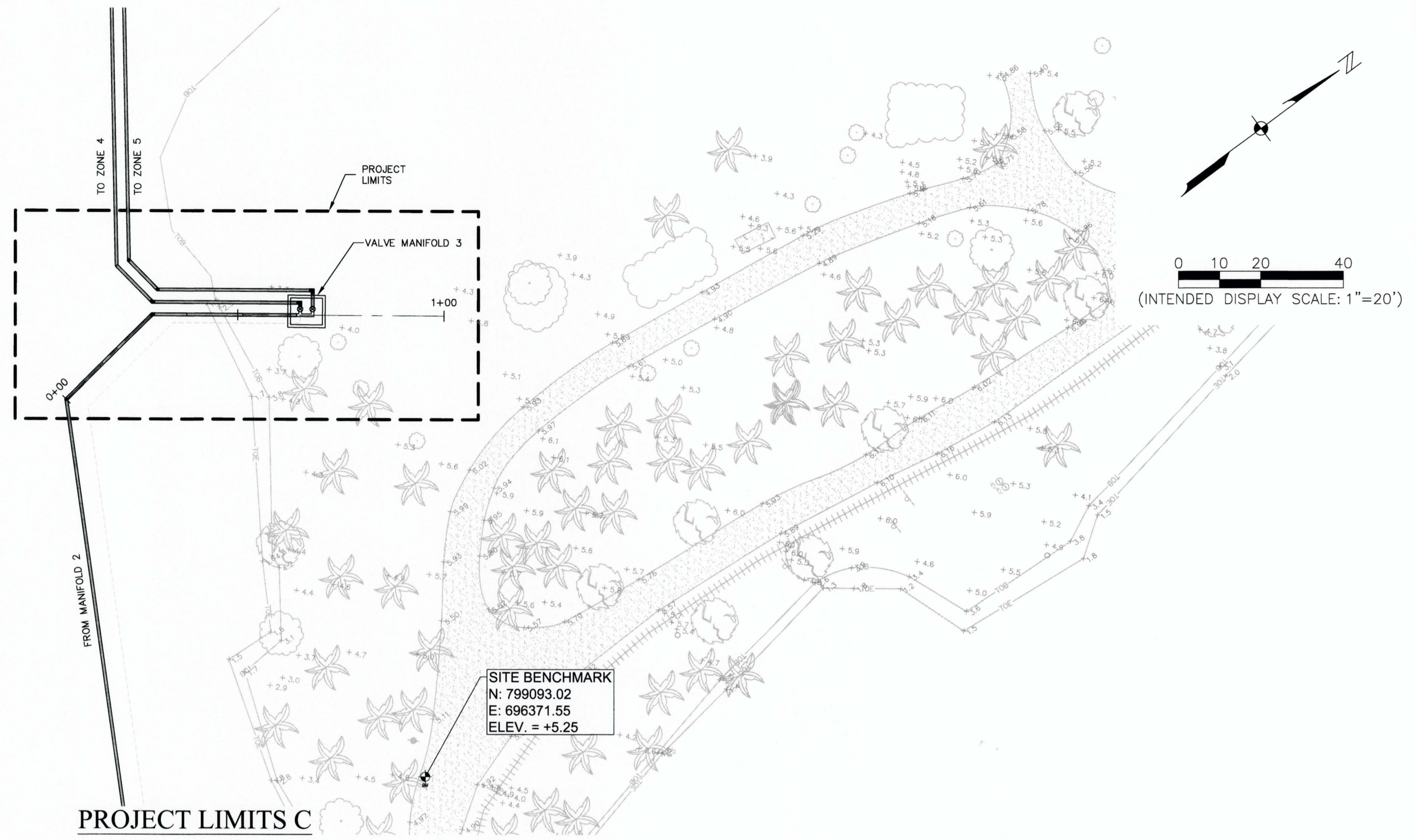
NO.	REVISIONS DESCRIPTION	DATE

DATE: NOVEMBER 2022
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

SITE PLAN

SHEET NUMBER

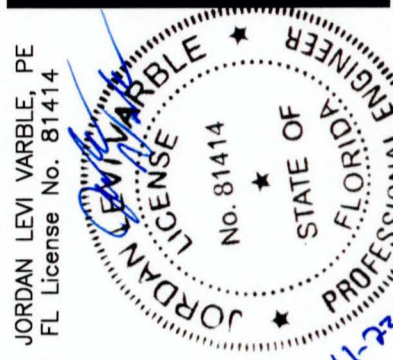
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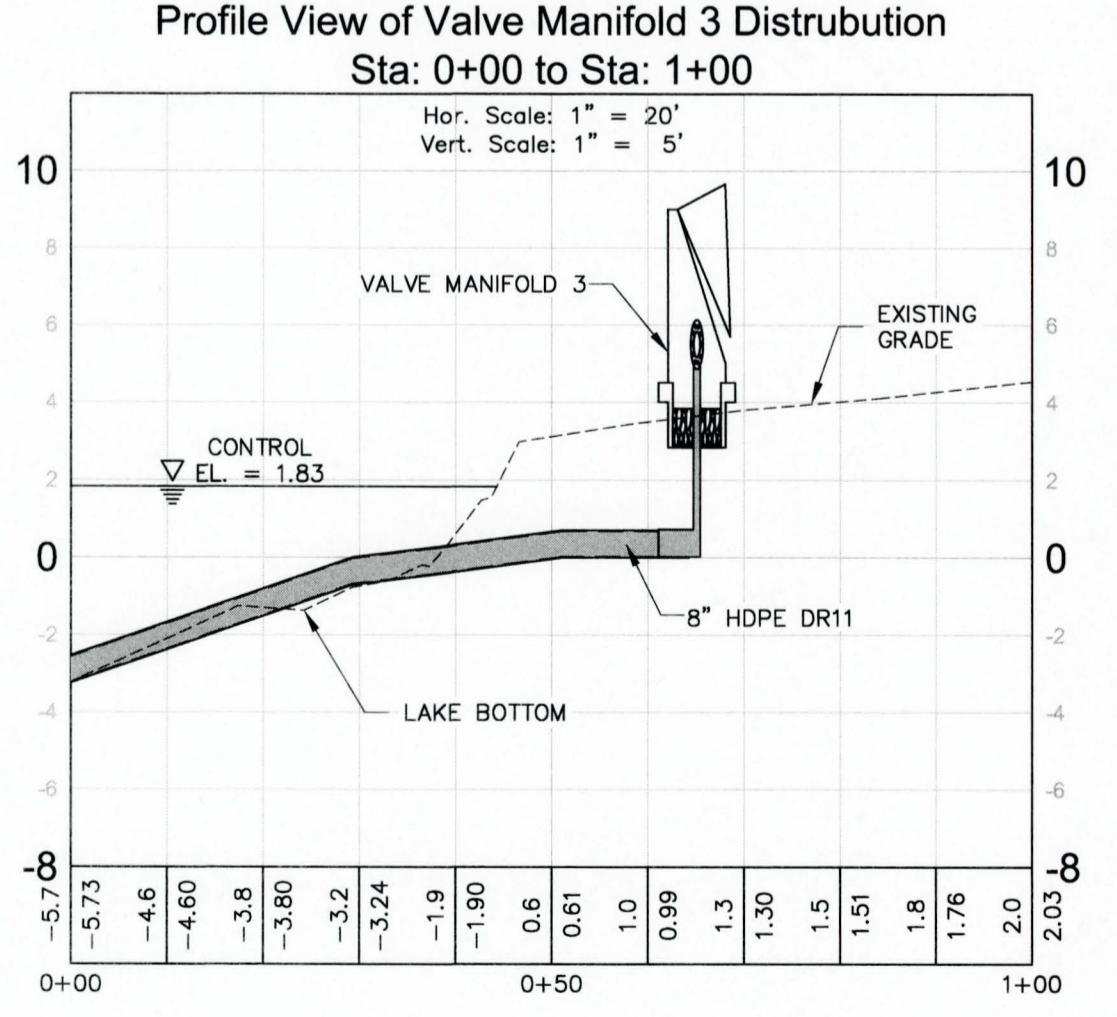
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LAKES PARK WATER QUALITY - PHASE 3
 LEE COUNTY FLORIDA



NO.	DESCRIPTION	DATE

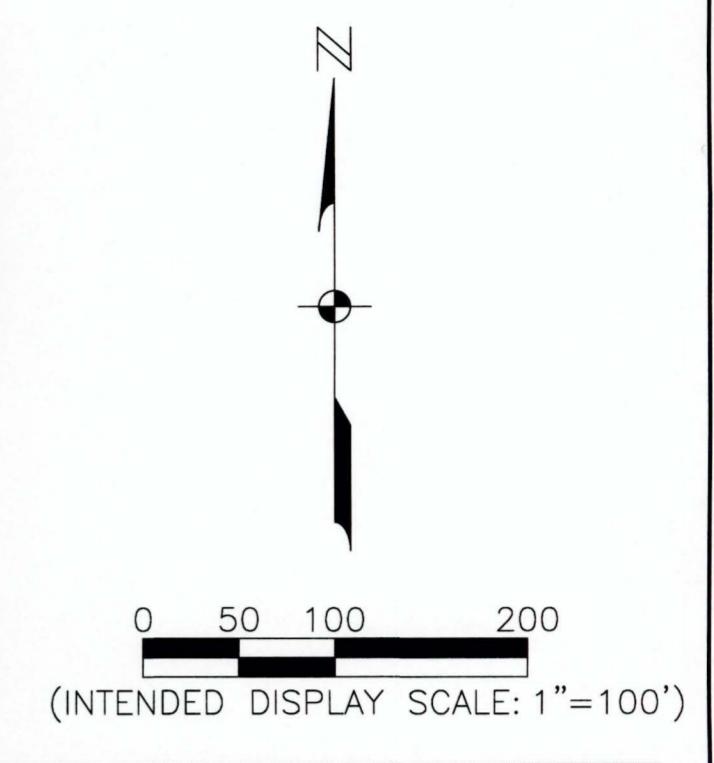
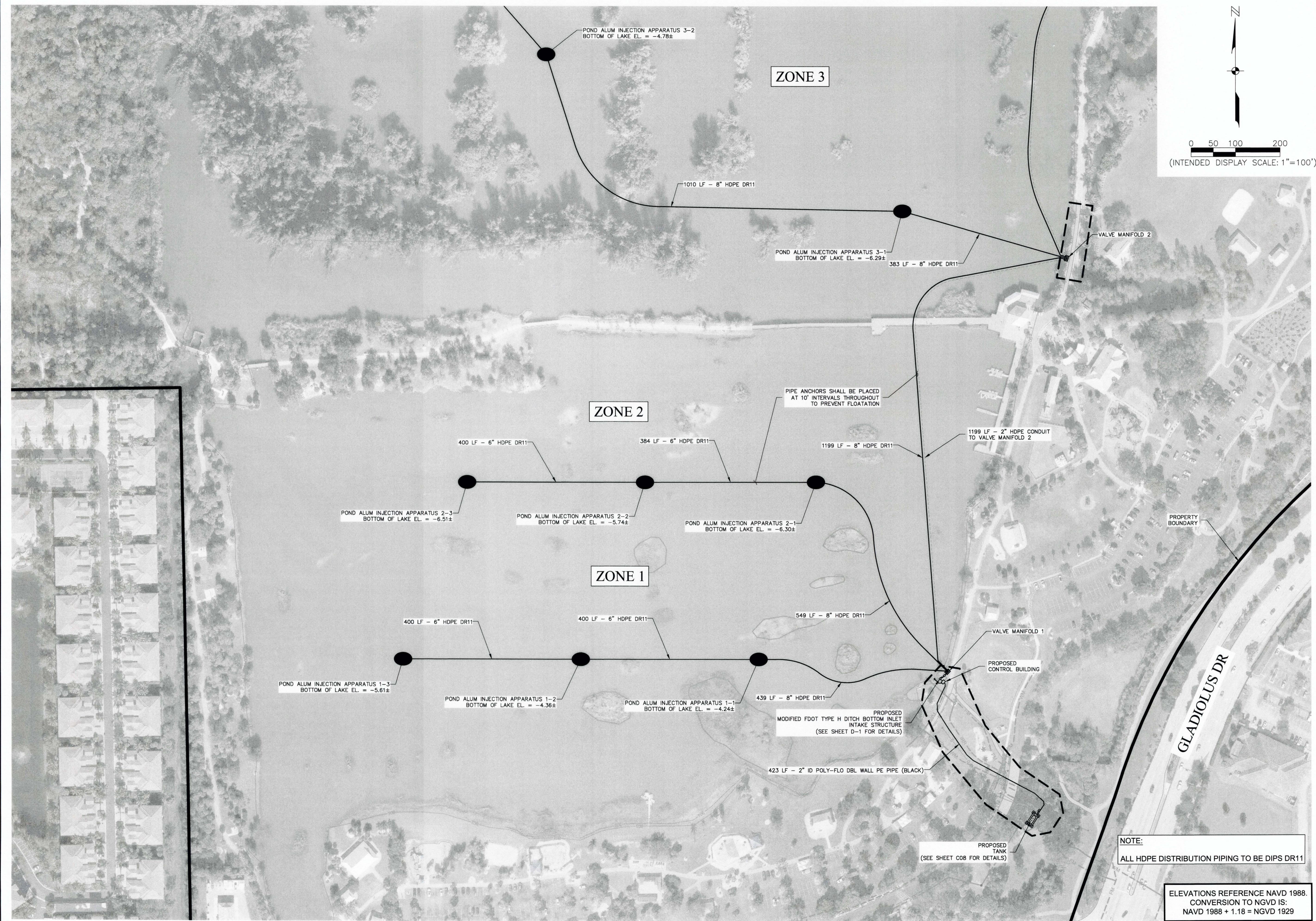
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 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

SITE PLAN

SHEET NUMBER

C10

ELEVATIONS REFERENCE NAVD 1988.
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JORDAN LEVI VARBLE, PE
 FL License No. 81414

Professional Engineer
 State of Florida
 No. 81414



LAKES PARK WATER QUALITY - PHASE 3
LEE COUNTY FLORIDA

NO.	DESCRIPTION	DATE

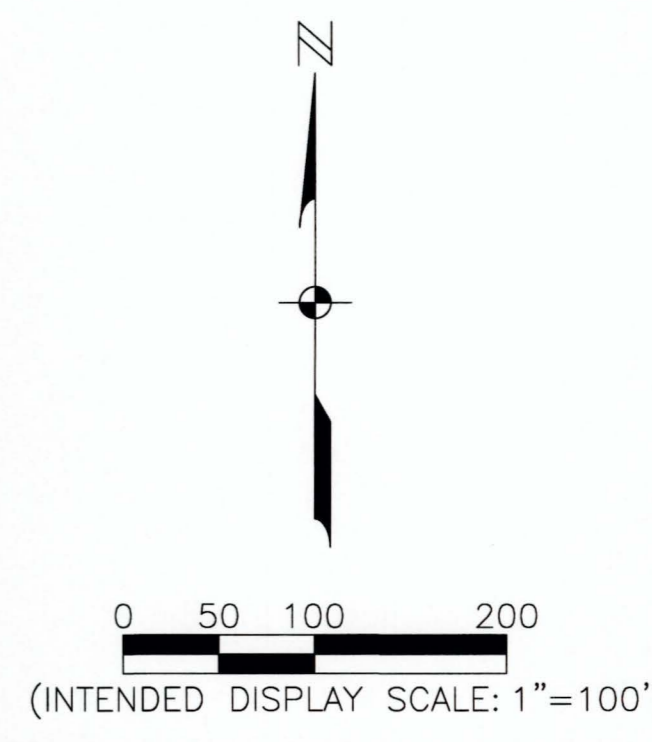
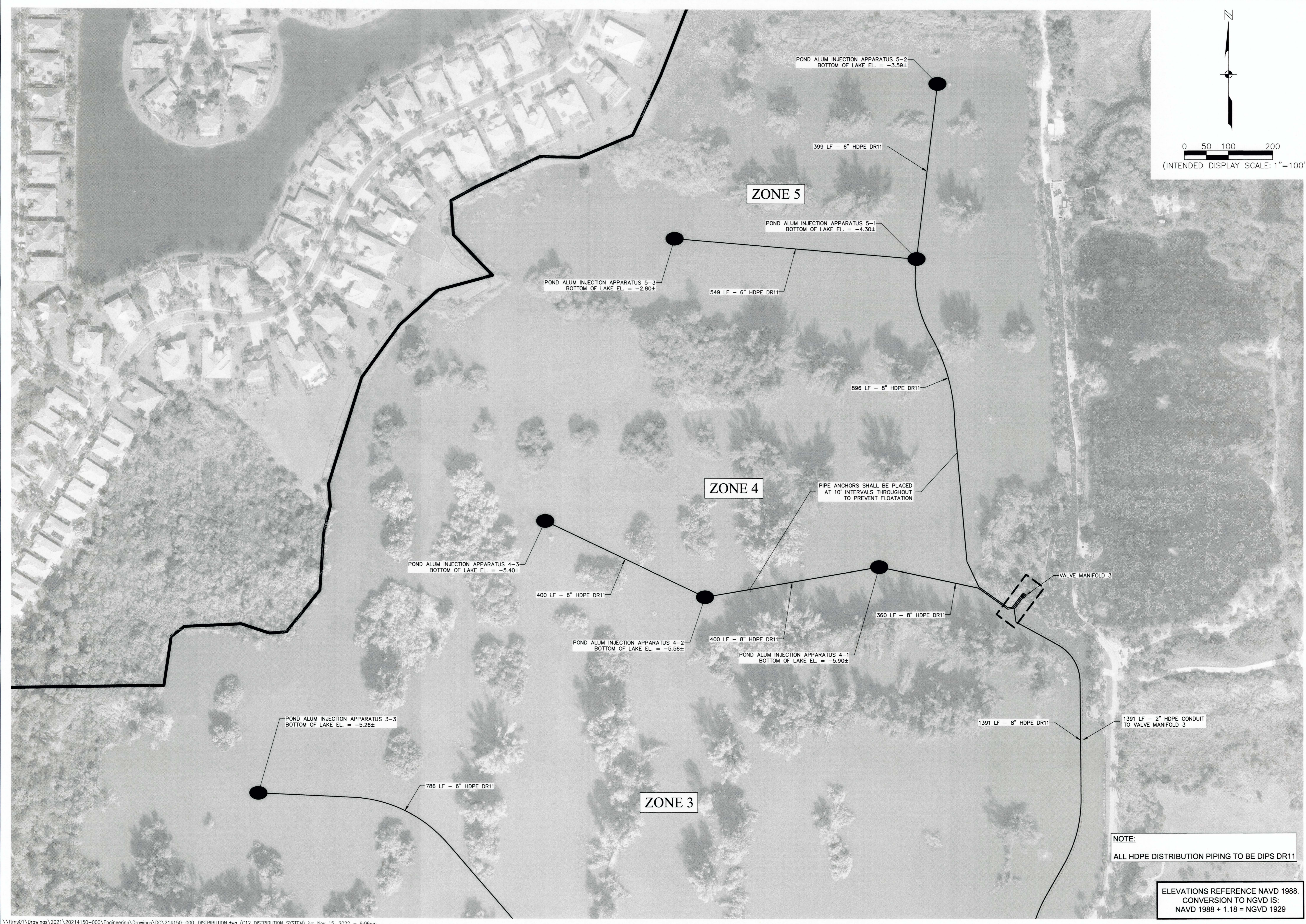
DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

DISTRIBUTION SYSTEM

SHEET NUMBER
C11

NOTE:
 ALL HDPE DISTRIBUTION PIPING TO BE DIPS DR11

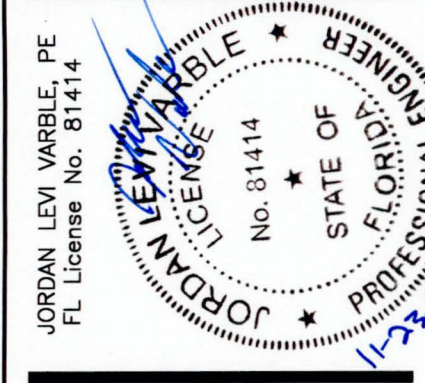
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LAKES PARK WATER QUALITY - PHASE 3
LEE COUNTY FLORIDA

NO.	DATE	DESCRIPTION

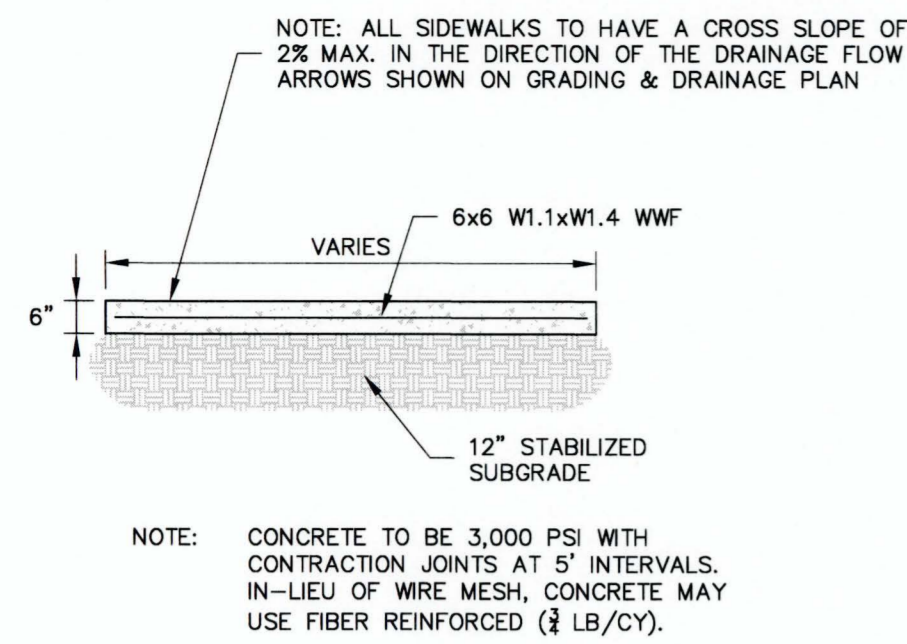
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 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

DISTRIBUTION SYSTEM

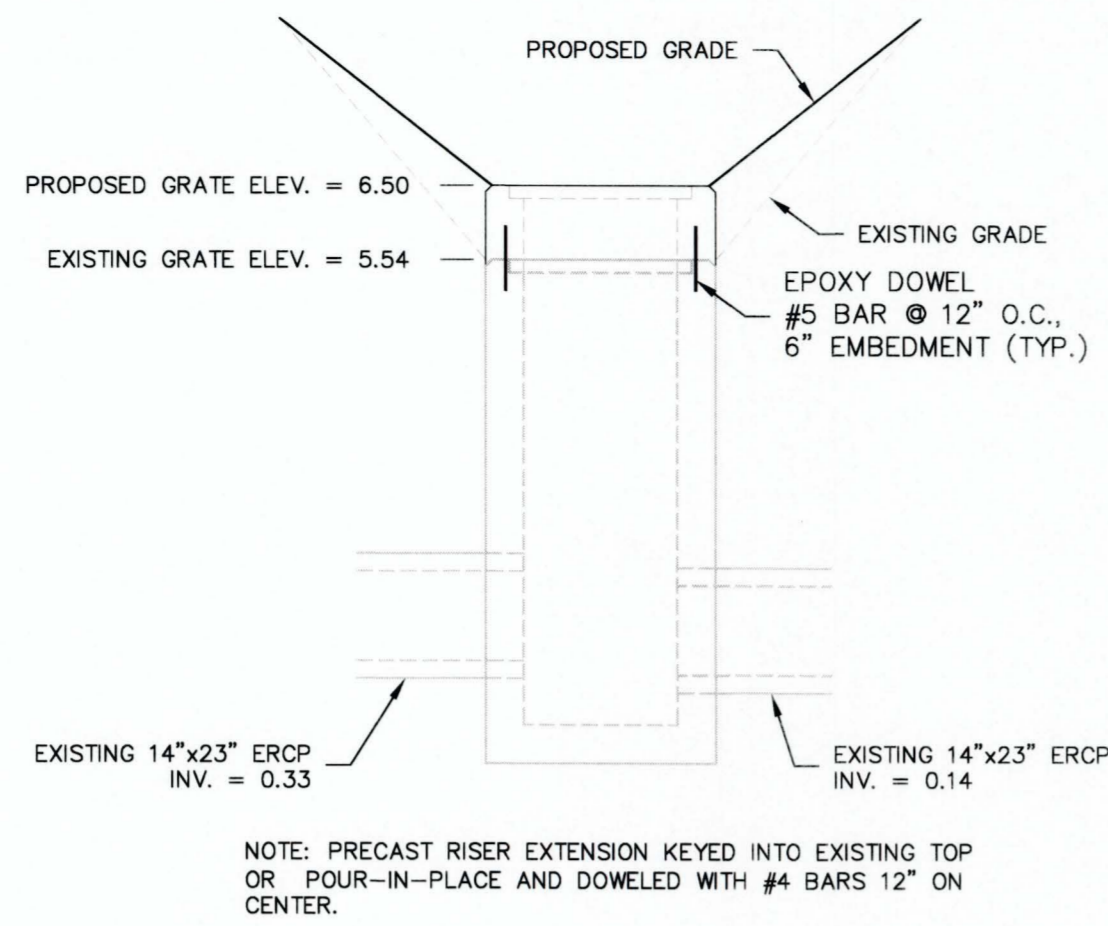
SHEET NUMBER
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NOTE:
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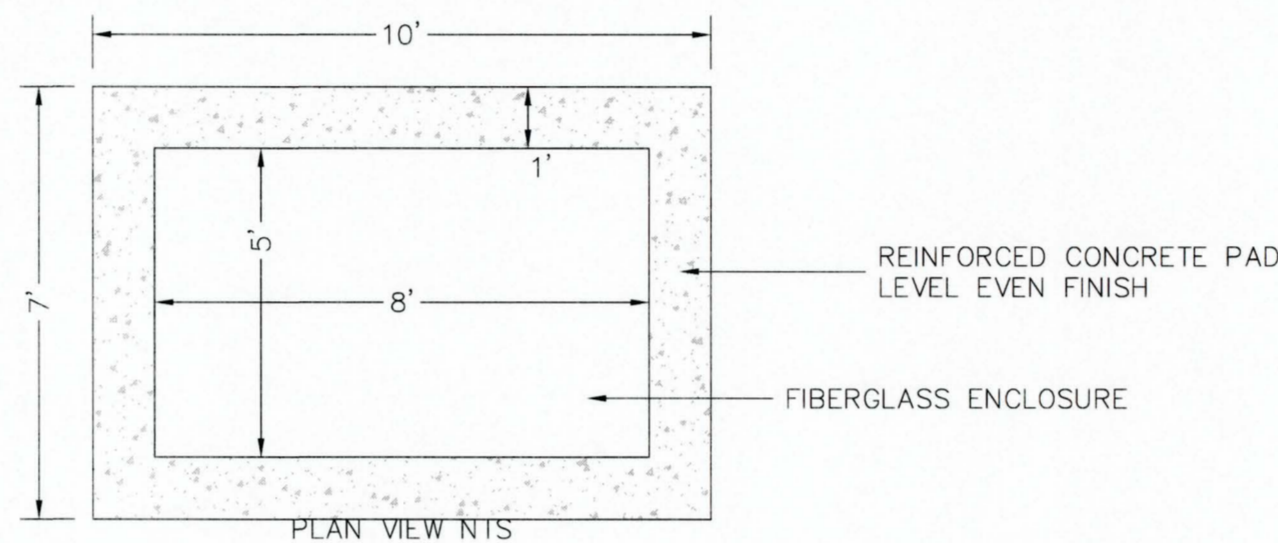
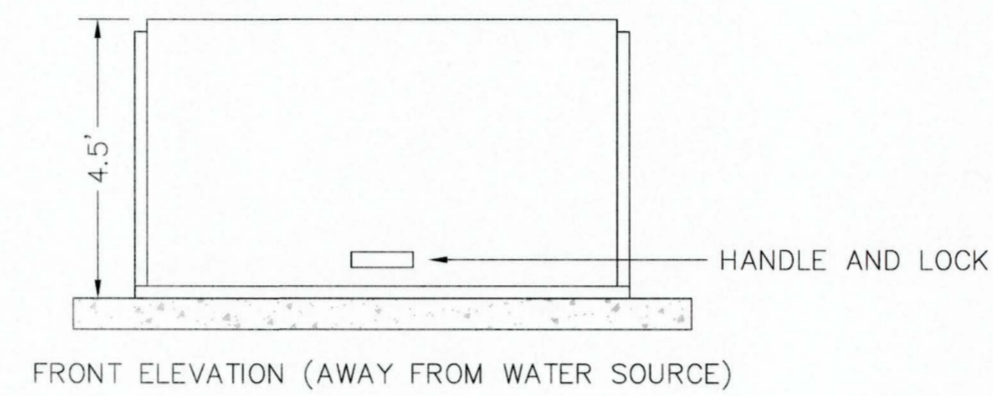
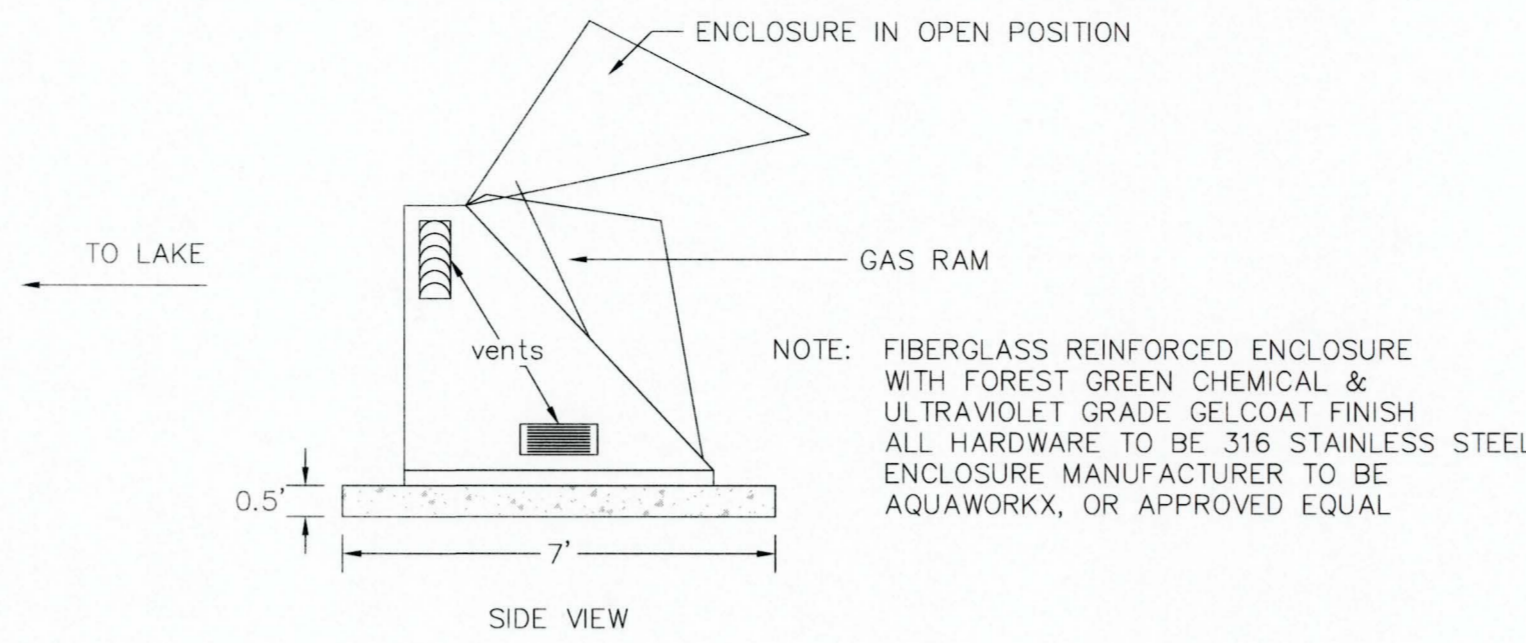
ELEVATIONS REFERENCE NAVD 1988.
 CONVERSION TO NGVD IS:
 NAVD 1988 + 1.18 = NGVD 1929



TYPICAL SIDEWALK REPLACEMENT DETAIL
N.T.S.

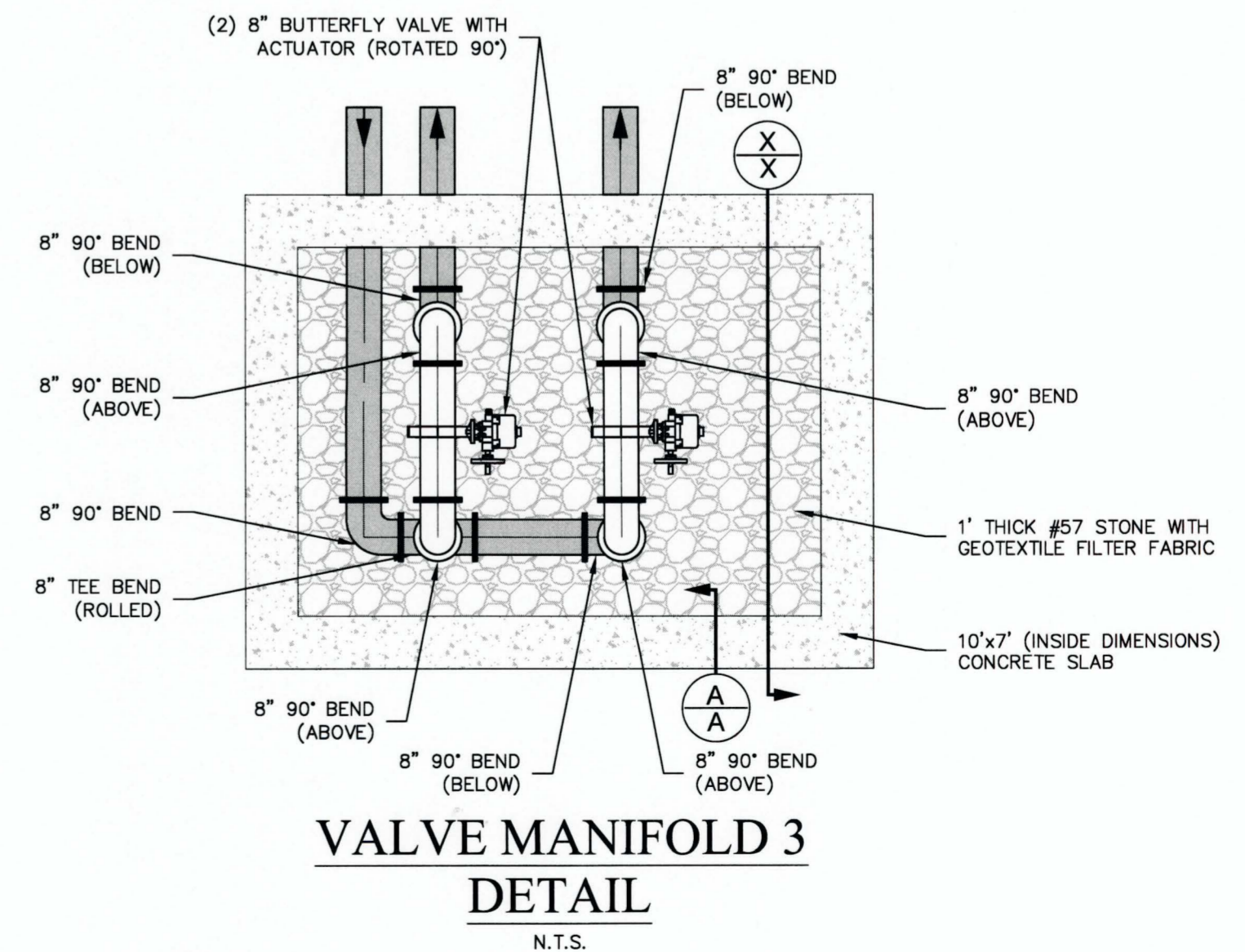
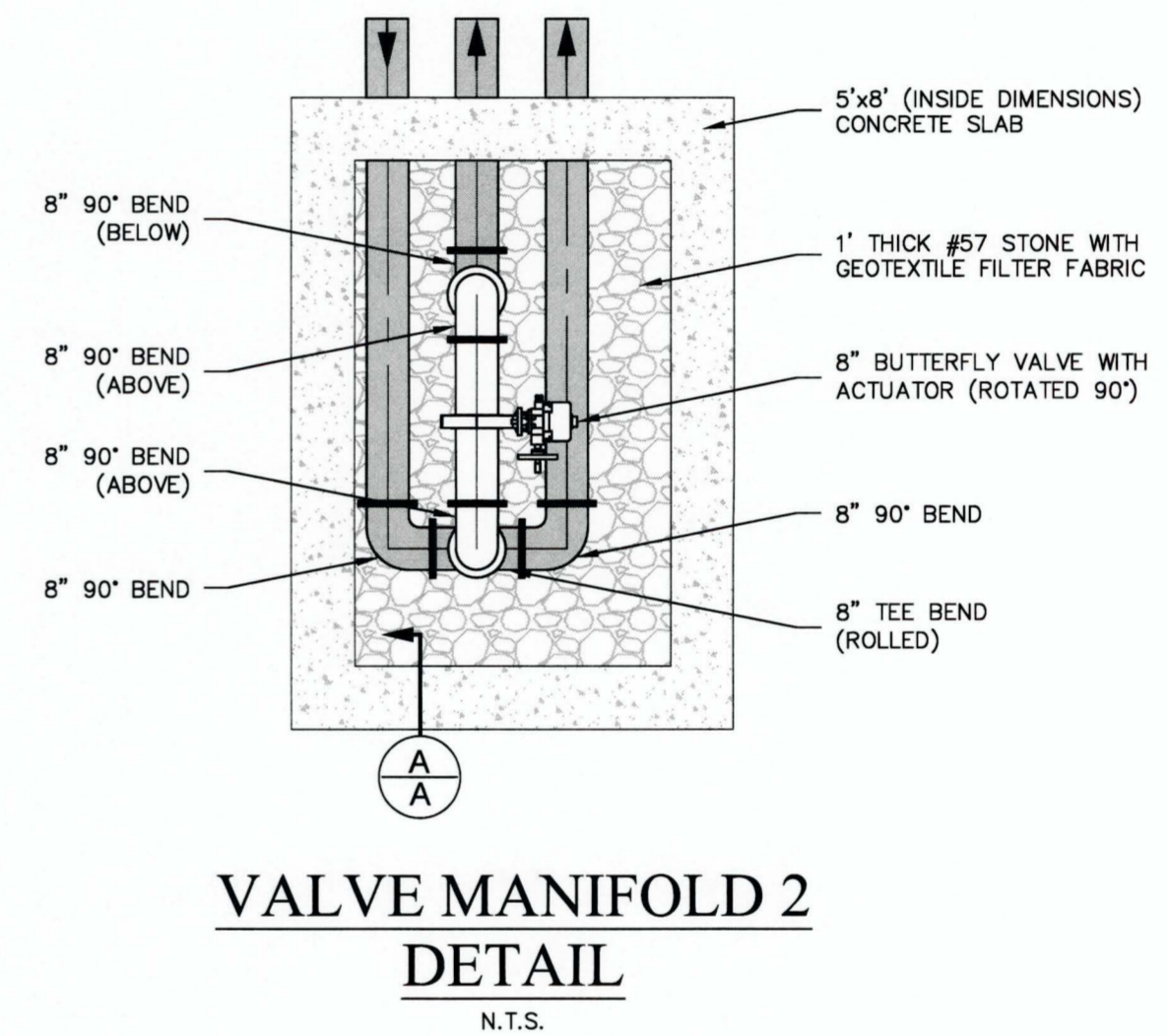
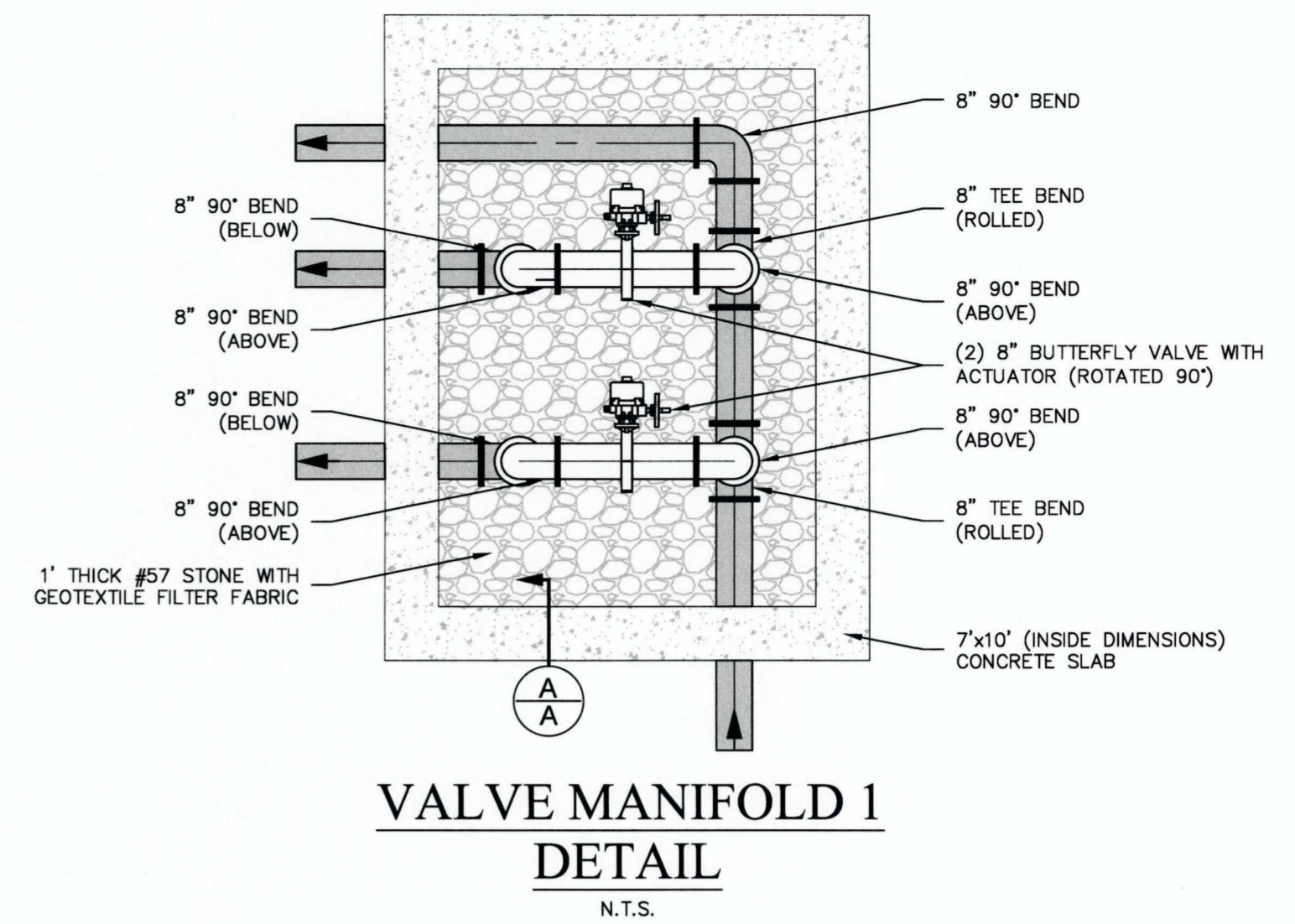
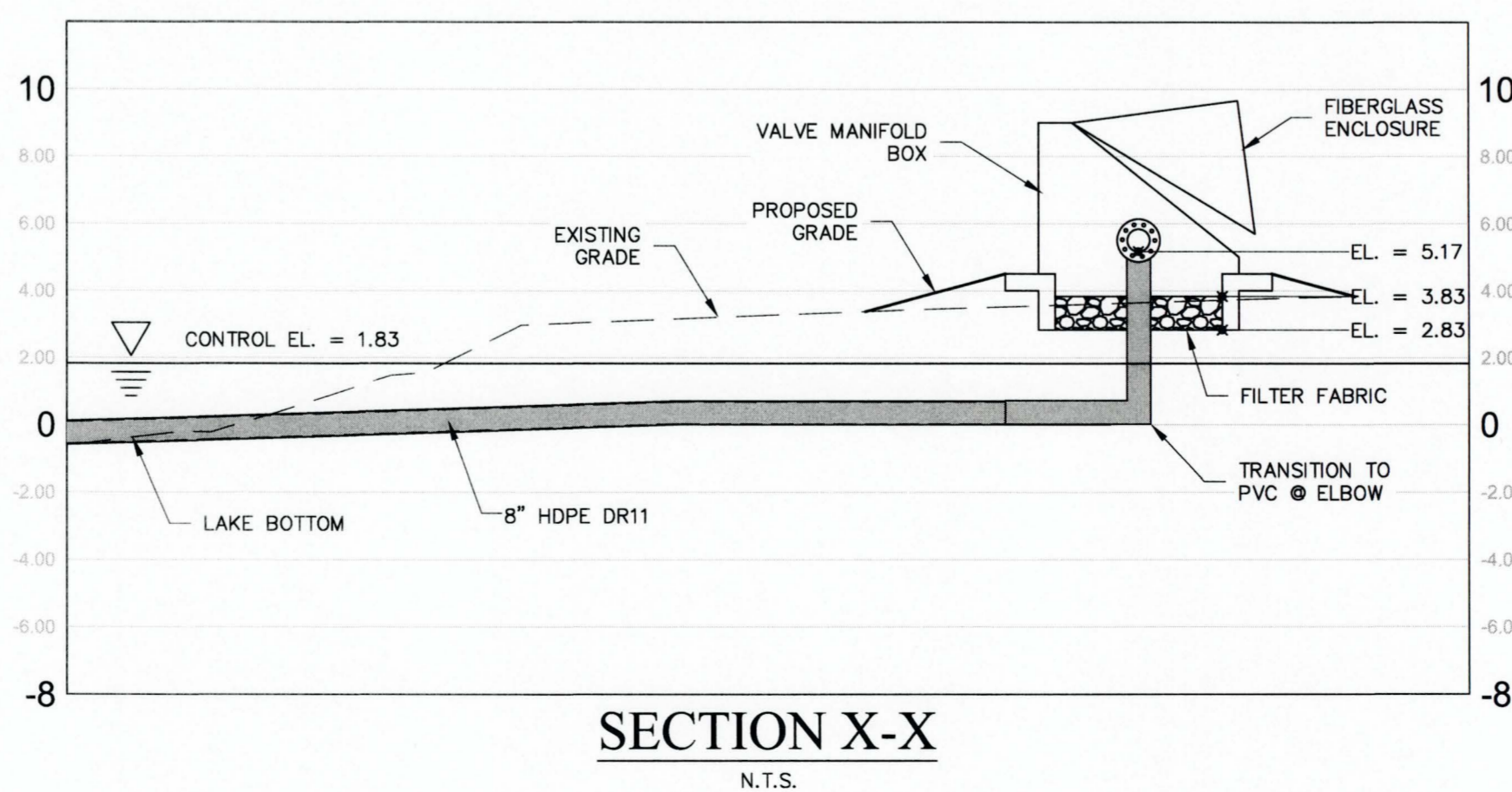
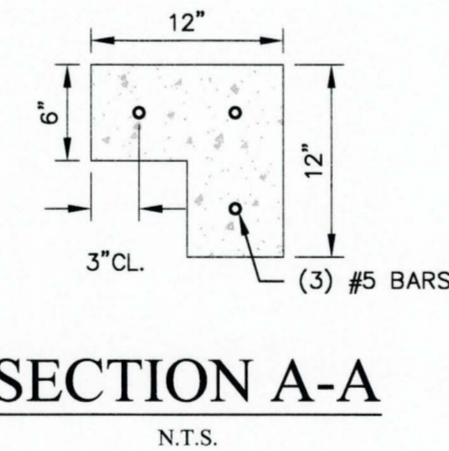


INLET RISER DETAIL
N.T.S.

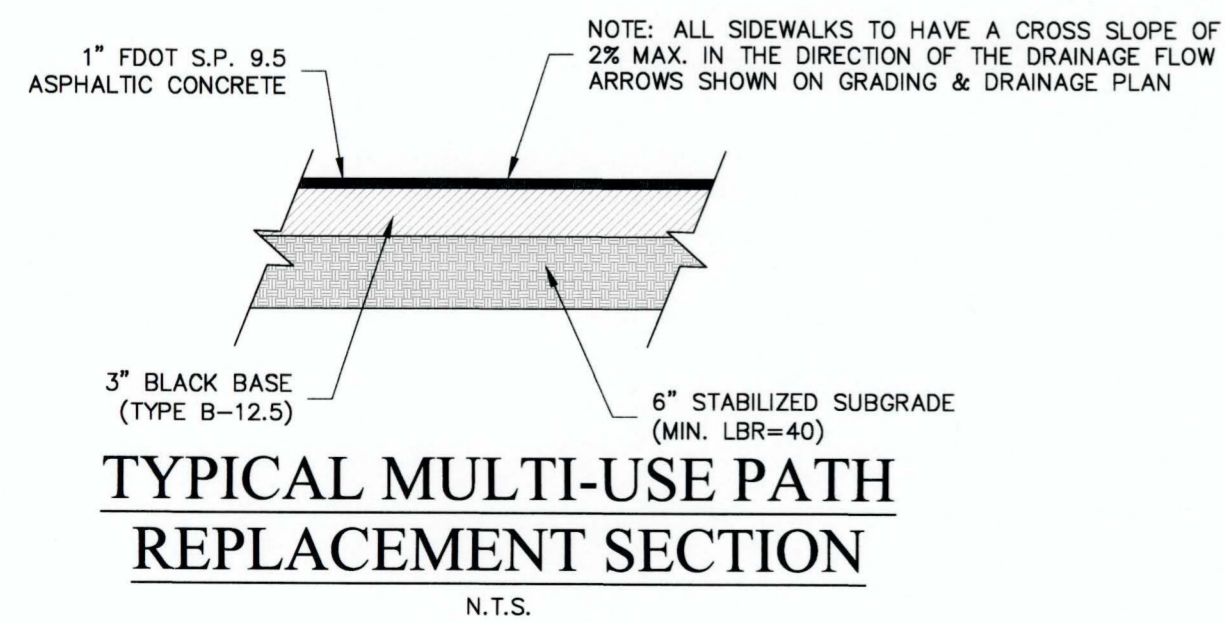
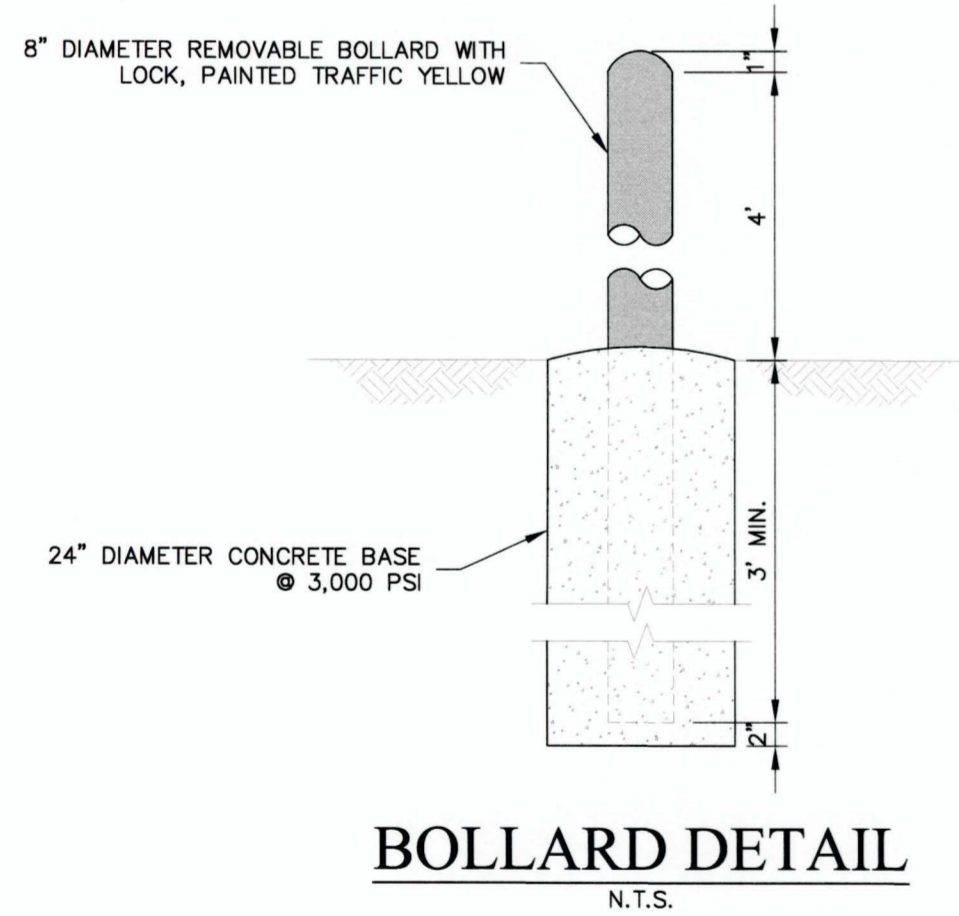
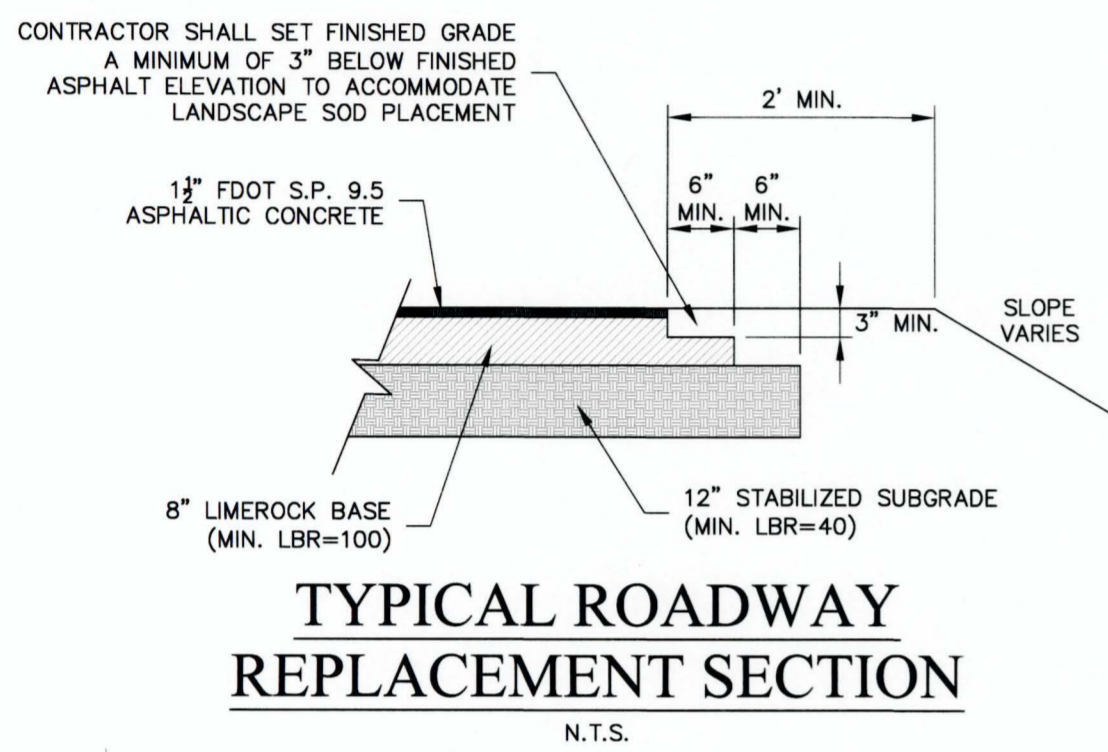


5'x8' FIBERGLASS ENCLOSURE, OR OF APPROPRIATE DIMENSIONS TO CONTAIN THE PIPING SYSTEM.

5x8 FIBERGLASS ENCLOSURE DETAIL



- NOTES:
1. A MINIMUM OF 16" SPACING MUST BE UPHOLD BETWEEN THE TOP OF STONE AND BOTTOM OF PIPING.
 2. CONTRACTOR SHALL ADJUST CONCRETE BOX DIMENSIONS AS NEEDED TO UPHOLD SPACING REQUIREMENTS AND SUPPORT FIBERGLASS ENCLOSURE.
 3. TRANSITION TO PVC INSIDE VALVE MANIFOLD USING FLANGED CONNECTIONS.
 4. EACH MANIFOLD SHALL HAVE A FIBERGLASS ENCLOSURE OF CORRESPONDING DIMENSIONS.



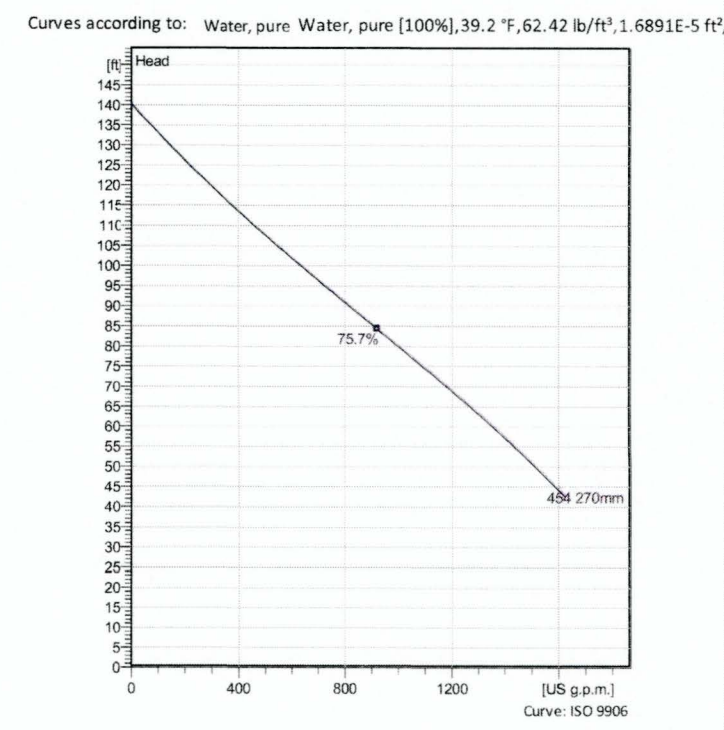
REVISIONS	DATE
DESCRIPTION	
NO.	
DATE:	NOVEMBER 2022
PROJECT NO.	20214150-000
FILE NO.	26-45-24
SCALE:	AS SHOWN

NP 3171 HT 3~ 454

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Modular based design with high adaptation grade.



Technical specification



Configuration

Motor number
N3171.660 25-19-4AA-W
34hp

Installation type
P - Semi permanent, Wet

Impeller diameter
270 mm

Discharge diameter
4 inch

Pump information

Impeller diameter
270 mm

Discharge diameter
4 inch

Inlet diameter
150 mm

Maximum operating speed
1765 rpm

Number of blades
2

Max. fluid temperature
40 °C

Materials
Impeller
Stainless steel

Project Block Created by Chris Stewart
Created on 7/26/2022 Last update 7/26/2022

NP 3171 HT 3~ 454

Technical specification



Motor - General

Motor number N3171.660 25-19-4AA-W 34hp	Phases 3~	Rated speed 1765 rpm	Rated power 34 hp
ATEX approved No	Number of poles 4	Rated current 83 A	Stator variant 7
Frequency 60 Hz	Rated voltage 230 V	Insulation class H	Type of Duty S1
Version code 660			

Motor - Technical

Power factor - 1/1 Load 0.85	Motor efficiency - 1/1 Load 90.5 %	Total moment of inertia 4.16 lb ft ²	Starts per hour max. 30
Power factor - 3/4 Load 0.80	Motor efficiency - 3/4 Load 91.3 %	Starting current, direct starting 585 A	
Power factor - 1/2 Load 0.69	Motor efficiency - 1/2 Load 91.1 %	Starting current, star-delta 195 A	

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Created on 7/26/2022 Last update 7/26/2022

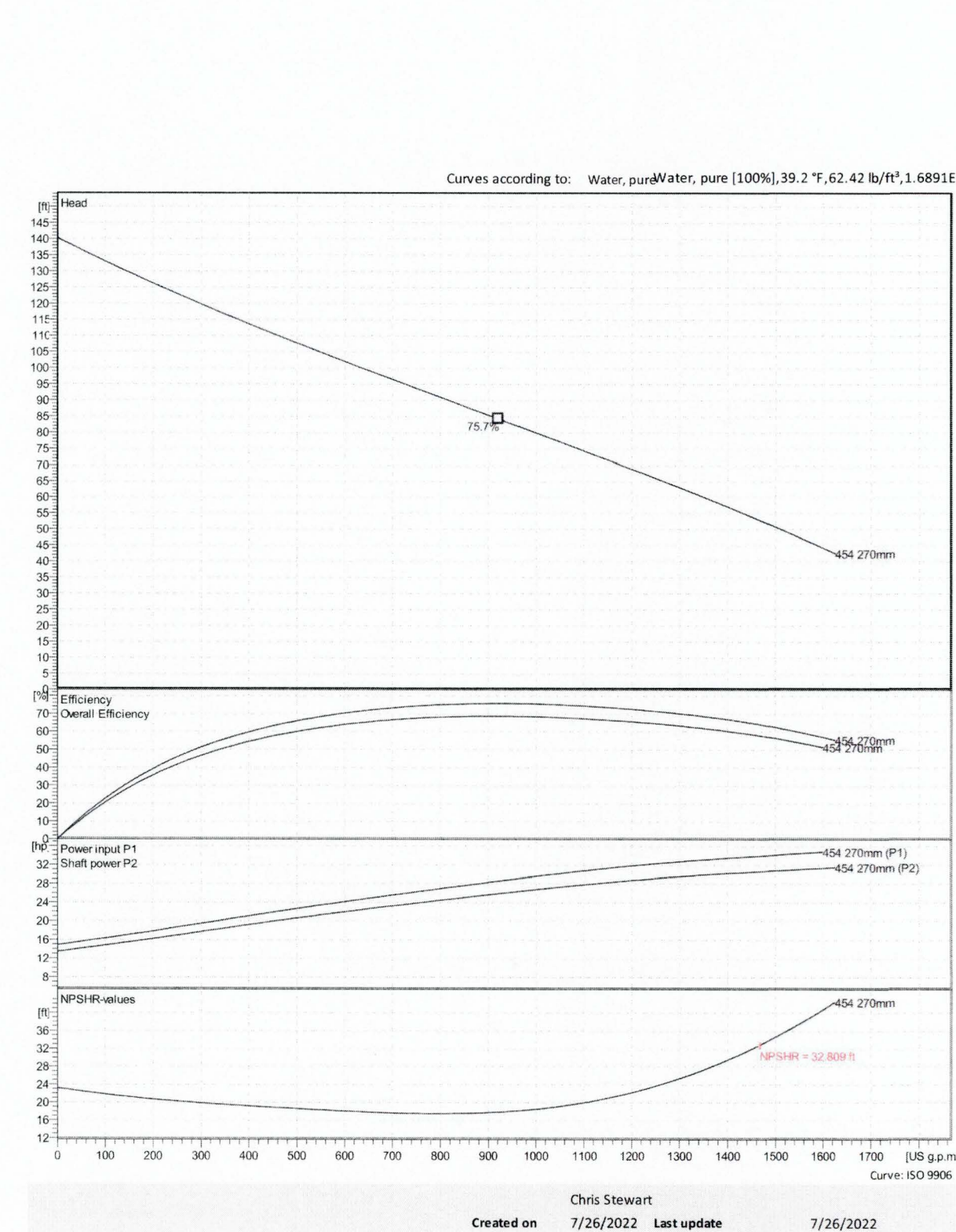
NP 3171 HT 3~ 454

Performance curve



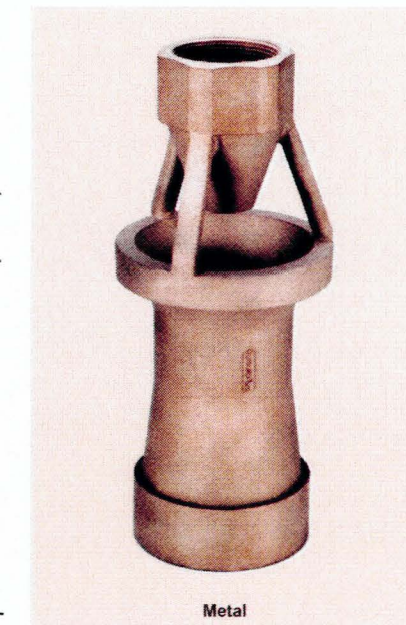
Duty point

Flow Head



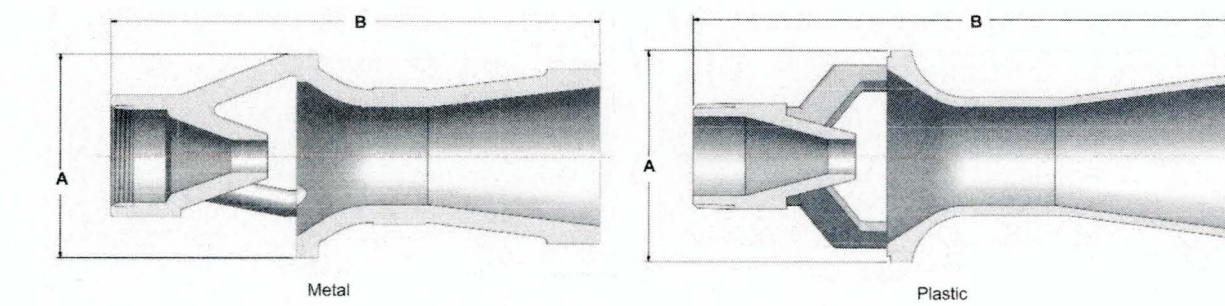
Project Block Created by Chris Stewart
Created on 7/26/2022 Last update 7/26/2022

TurboMix®



TurboMix® Eductor Mixing Nozzle

- DESIGN FEATURES**
- Effective, economical way to circulate liquids in closed or open tanks
 - No moving parts
 - Inherently clog resistant
 - Requires minimal maintenance
 - Nozzle operation creates multiplying effect on fluid flow
 - The volume of discharge liquid will be 3-5 times greater than the motive
- liquid pumped**
- SPRAY CHARACTERISTICS**
- Cone-shaped plume
- Flow rates: 7 to 3180 gpm (motive)**



Dimensions are approximate. Check with BETE for critical dimension applications.

NPT or BSP Connection Size	TurboMix Number	K Factor	Motive Flow Rate GALLONS PER MINUTE @ PSI*								Dimensions (In.)		Wt. (lbs)
			10 PSI	15 PSI	20 PSI	25 PSI	30 PSI	40 PSI	50 PSI	60 PSI	A	B	
Male	3/8	TM73	2.3	7.3	8.9	10.3	11.5	12.6	14.6	16.3	2.13	4.5	0.96
	1/2	TM120	3.8	12	14.7	17	19	20.8	24	26.8	2.5	6.5	0.98
	3/4	TM137	4.3	13.7	16.8	19.4	21.7	23.7	27.4	30.6	2.88	6.38	0.14
	1	TM140	7.6	24	29.4	33.9	37.9	41.6	48	53.7	3.5	9.5	0.32
1 1/2	TM146	10.8	34	41.6	48.1	53.8	58.9	68.3	76.4	4.5	9.75	0.46	

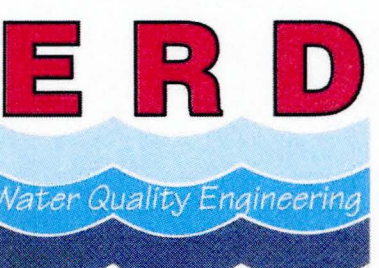
NPT or BSP Connection Size	TurboMix Number	K Factor	Motive Flow Rate GALLONS PER MINUTE @ PSI*								Dimensions (In.)		Wt. (lbs)
			10 PSI	20 PSI	30 PSI	40 PSI	50 PSI	60 PSI	80 PSI	100 PSI	A	B	
Male	3/8	TM70	2.2	7	9.8	12.1	13.9	17.1	19.8	22.1	1.69	4.25	0.50
	1/2	TM110	3.5	11	15.6	19.1	22	26.9	31.1	34.8	2.16	5.25	0.75
	3/4	TM150	4.7	15	21.2	25.7	29.7	36.7	42.4	47.4	2.63	6.25	1.50
	1	TM230	7.3	23	32.5	38.6	46	56.3	65.1	72.7	3.25	7.88	2.75
Female	1 1/2	TM320	10.1	32	45.3	55.4	63.9	78.4	90.5	101	3.81	9.19	6.50
	2	TM420	19.8	62	87.7	107	124	152	175	196	4.75	11.25	12.5
	3	TM560	27.4	85	119	145	167	202	232	264	5.75	14.38	40.0
	4	TM210	70.4	251	355	435	502	615	710	794	9.00	34	40.0
150# Flange	6	TM610	190	601	850	1040	1200	1470	1700	1900	13.63	52	120
	8	TM1060	318	1005	1420	1740	2010	2460	2840	3180	16.38	68	325

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SPECIAL PURPOSE

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LAKES PARK WATER
QUALITY - PHASE 3
LEE COUNTY FLORIDA

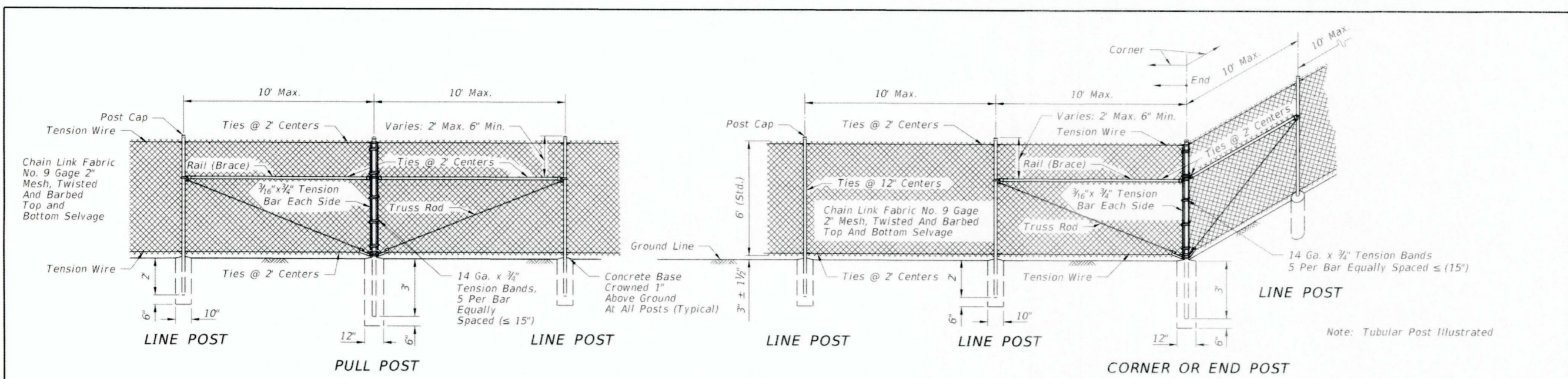
NO.	REVISIONS DESCRIPTION	DATE

DATE: NOVEMBER 2022
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

PUMP & NOZZLE
DETAILS

SHEET NUMBER

C14



GENERAL NOTES

- This fence to be used generally in urban areas.
- For supplemental information refer to Specification 550.
- Chain link fabric, post, truss rods, tension wires, tie wires, stretcher bars, gates and all miscellaneous fittings and hardware shall meet the requirements of AASHTO and ASTM signify current reference.
- Fence Component Options:
 - Line post options:
 - Galvanized steel pipe, Schedule 40- 1 1/2" nominal dia, zinc galvanized at the rate of 1.8 oz./ft.²; ASTM A53 Table 2 (Grade A or B), ASTM F1083, and AASHTO M111.
 - Aluminum coated steel pipe; ASTM A53 steel, 1 1/2" Tables, Schedule 40, 1 1/2" nominal dia, 1.660" OD; coated at the rate 0.40 oz./ft.²; AASHTO M111.
 - Aluminum alloy pipe- 1 1/2" nominal dia; ASTM B241 or B221, Alloy 6063 T6.
 - Resistance welded steel pipe; 50,000 psi min. yield strength ASTM A569/A569M, A653/A653M or uncoated stock of discontinued A446/A446M base materials; ASTM F669 Group IV (Alternative Design); fence industry 2" OD, 1 1/2" NPS, 1.900" dec. equiv., 0.120" min. wall thick, and min. wt. 2.28 lb./ft.; with ASTM F1043 metric equivalent internal coating Types A, B, C or D and external coating Types A, B, or C; the chrome conversion coating of external Type B shall have a thickness of 15µg/in² min. and the polymer film topcoat shall have a thickness of 0.0003" min.; internal and external coatings are not restricted to the combinations of Table 2, ASTM F1043.
 - Aluminum alloy H-Beam- 1 1/2" x 1 1/2" Detail.
 - Steel C- 1 1/2" x 1 1/2" Galv- 1.8 oz./ft.²; zinc; AASHTO M111; OR, 0.9 oz./ft.²; zinc-5% aluminum-miscellaneous; ASTM F1043 and Detail.
 - Resistance welded steel pipe; 50,000 psi min. yield strength ASTM A569/A569M, A653/A653M or uncoated stock of discontinued A446/A446M base materials; ASTM F669 Group IV (Alternative Design); fence industry 2" OD, 1 1/2" NPS, 2.375" dec. equiv., 0.130" min. wall thick, and min. wt. 3.117 lb./ft.; with ASTM F1043 metric equivalent internal coating Types A, B, C or D and external coating Types A, B, or C; the chrome conversion coating of external Type B shall have a thickness of 15µg/in² min. and the polymer film topcoat shall have a thickness of 0.0003" min.; internal and external coatings are not restricted to the combinations of Table 2, ASTM F1043.
 - Corner, end, and pull post options:
 - Galvanized steel pipe, Schedule 40- 2" nominal dia, zinc galvanized at the rate of 1.8 oz./ft.²; ASTM A53 Table 2, ASTM F1083, and AASHTO M111.
 - Aluminum coated steel pipe; ASTM A53 steel, 2" Tables; Schedule 40, 2" nominal dia, 2.375" OD; coated at the rate 0.40 oz./ft.²; AASHTO M111.
 - Aluminum alloy pipe- 2" nominal dia- ASTM B241 or B221, Alloy 6063 T6.
 - Resistance welded steel pipe; 50,000 psi min. yield strength ASTM A569/A569M, A653/A653M or uncoated stock of discontinued A446/A446M base materials; ASTM F669 Group IV (Alternative Design); fence industry 2" OD, 2" NPS, 2.375" dec. equiv., 0.130" min. wall thick, and min. wt. 3.117 lb./ft.; with ASTM F1043 metric equivalent internal coating Types A, B, C or D and external coating Types A, B, or C; the chrome conversion coating of external Type B shall have a thickness of 15µg/in² min. and the polymer film topcoat shall have a thickness of 0.0003" min.; internal and external coatings are not restricted to the combinations of Table 2, ASTM F1043.
 - Chain link fabric options (2" mesh with twisted and barbed selvage top and bottom for all options except as described in Note 10):
 - AASHTO M181 Type I- Zinc Coated Steel, No. 9 gage (coated wire diameter), coated at the rate of 1.8 oz./ft.²; M181 Class D 2.0 oz./ft.²; modified to 1.8 oz./ft.².
 - Alternative Design; fence industry 1 1/2" OD, 1 1/2" NPS 1.660" dec. equiv., 0.111" min. wall thick, and min. wt. 1.836 lb./ft.; with ASTM F1043 metric equivalent internal coating Types A, B, C or D and external coating Types A, B, or C; the chrome conversion coating of external Type B shall have a thickness of 15µg/in² min. and the polymer film topcoat shall have a thickness of 0.0003" min.; internal and external coatings are not restricted to the combinations of Table 2, ASTM F1043.
 - AASHTO M181 Type IV- Polyvinyl Chloride (PVC) Coated Steel, No. 9 gage (coated core wire diameter), core wire zinc coated steel, PVC coated, M181 Class A (either extruded or bonded and bonded) or Class B (bonded). See table right. Unless the plans call for M181 standard color medium green, dark green or black the coating color shall be soft gray matching that of 36622 of Federal Standard 595a.
 - Tension wire options:
 - Steel wire No. 7 gage zinc galvanized at the rate of 1.2 oz./ft.²; AASHTO M181.
 - Aluminum alloy wire with a diameter of 0.1875" or larger conforming to the requirements of ASTM B211, Alloy 5056 Temper H38, or Alclad Alloy 5056 Temper H192.
 - Aluminum coated steel wire No. 7 gage coated at the rate of 0.40 oz./ft.²; AASHTO M181.
 - Tie wire and hog ring options:
 - Steel wire No. 9 gage zinc galvanized at the rate of 1.2 oz./ft.².
 - Aluminum alloy wire with a diameter of 0.1875" or larger conforming to the requirements of ASTM B211, Alloy 5056 Temper H38, or Alclad Alloy 5056 Temper H192.
 - Aluminum coated steel wire No. 7 gage coated at the rate of 0.40 oz./ft.².

LAST REVISION 11/01/17	DESCRIPTION: REVISION	FDOT	FY 2022-23 STANDARD PLANS	FENCE TYPE B	INDEX 550-002	SHEET 1 of 3
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GENERAL NOTES CONTINUED

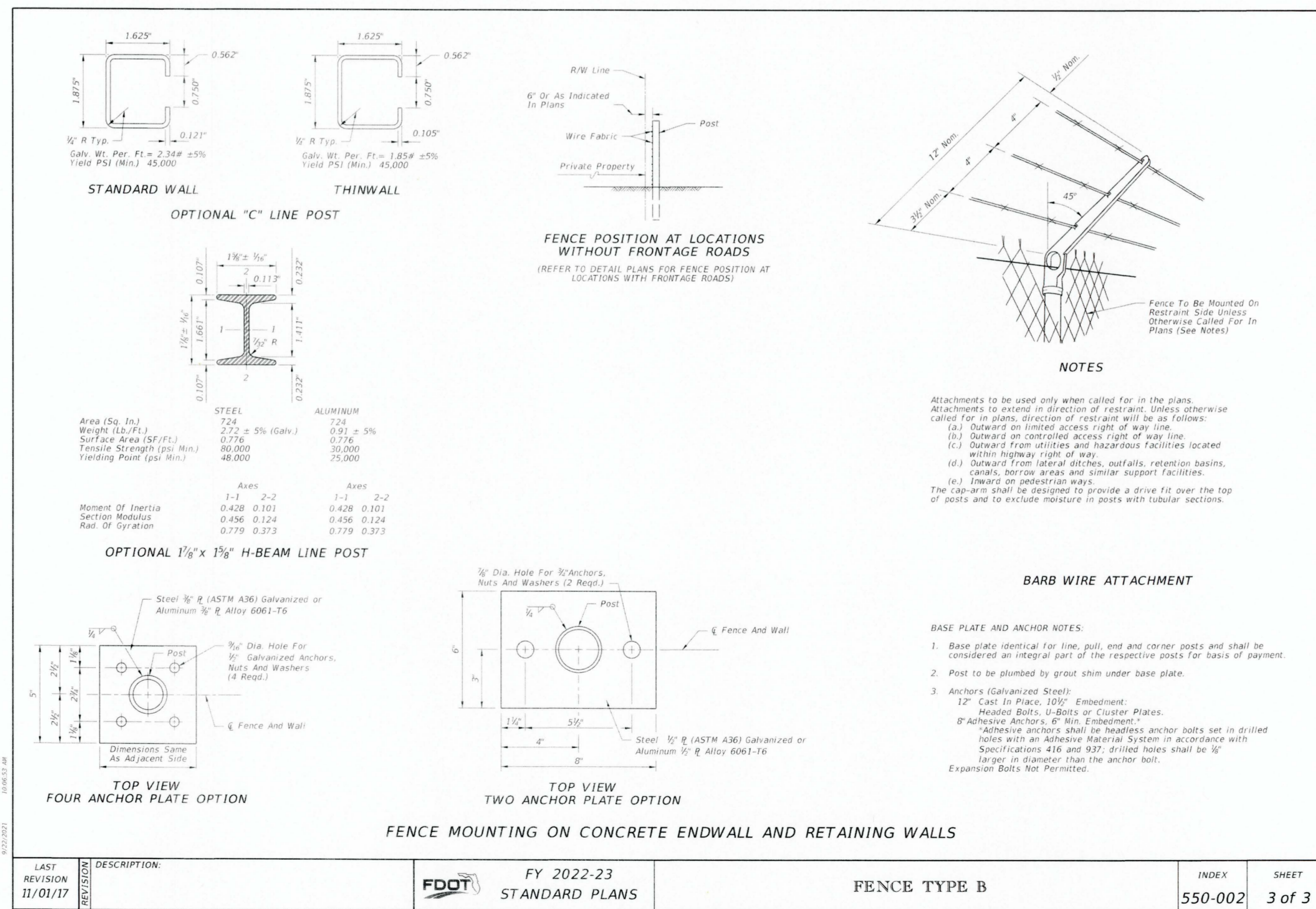
- Unless a specific material is called for in the plans the Contractor may elect to use either a single type of material or a combination of material types from the component options listed in note 4. Combinations of optional materials are restricted as follows:
 - Only one fabric optional material will be permitted between corner and/or end post assemblies.
 - Only one line post optional material will be permitted between corner and/or end post assemblies.
 - Pull post assemblies shall be optional materials identical to either the line post optional material or the corner and end post assembly optional material; but, pull post assemblies shall be the same optional material between any set of corner and/or end post assemblies.
- Concrete for bases shall be Class NS concrete as specified in Specification 347 or a packaged, dry material meeting the requirements of a concrete under ASTM C-387. Materials for Class NS concrete may be proportioned by volume and/or by weight.
- Line post shall be 8'-6" long (Standard). Line post are to be set in concrete as described above or by the following methods:
 - In accordance with special details and/or as specifically described in the Contract Plans and Specifications.
 - In accordance with ASTM F567 Subsections 5.4 through 5.10 as approved by the Engineer.
 - Line post installed in accordance with Section 5.8 shall be 9'-6" long.
 - Post mounted on concrete structure or solid rock shall be mounted in accordance with the base plate detail "Fence Mounting on Concrete Endwalls and Retaining Wall", Sheet 3; or, by embedment in accordance with ASTM F567 Subsection 5.5.
- End, pull and corner post assemblies shall be in concrete as detailed above for all soil conditions other than solid rock. Post within assemblies that are located on concrete structures or solid rock shall be set by base plate or by embedment as prescribed under (a) above for line post.
 - Line and assembly posts for 6' fence which must be lengthened due to a variation in the normal ground clearance, shall be set an additional 3' in depth for each 1' of additional ground clearance.
- Pull post shall be used at breaks in vertical grades of 15% or more, or at approximately 350' centers except that this maximum interval may be reduced by the Engineer on curves where the curve is greater than 2'.
- Corner post are to be installed at all horizontal breaks in fence at 15' or more and as required at vertical breaks over 15' as determined by the Engineer.
- When fence has an installed top of fabric height less than 6' knuckled top and bottom selvages shall be used unless the plans specifically identify locations for twisted selvage fabrics.
- Unless sliding gates or special gates are called for in the plans, all gates shall be chain link swing gates meeting the material requirements described and as approved by the Engineer. Payment shall include the gates, single or double all necessary hardware for installation and any additional length and/or size for posts at the opening. Gates shall be paid for under the contract unit price for Fence Gates, EA.
- For construction purposes corner post assemblies shall consist of one corner post, two truss rods, and all necessary fittings and hardware as detailed; End post assemblies shall consist of one end post, one brace, one truss rod and all necessary fittings and hardware as detailed.
- In areas where there are physical constraints outside the right-of-way which restricts the fence construction, the fabric may be installed on the inside of the posts.

TYPE IV VINYL COATED FABRIC								
AASHTO M181 Table 4 Redefined As Follows								
Specified Diameter Of Metallic Coated Core Wire	Minimum Weight Or Zinc Coating	PVC Thickness Range	M181 Class A (Extruded Or Extruded And Bonded Coating)		M181 Class B (Bonded Coating)			
			in.	mm	in.	mm		
0.148	3.77	9	0.30	92	0.015 to 0.025	0.38 to 0.64	0.006 to 0.010	0.15 to 0.25

DESIGN NOTE

This index details fencing that is constructed with chain link fabric 6' (nominal) in height and with specific ground clearance. For fencing of different height or installation details, the fence shall be fully detailed in the Contract plans.

LAST REVISION 11/01/17	DESCRIPTION: REVISION	FDOT	FY 2022-23 STANDARD PLANS	FENCE TYPE B	INDEX 550-002	SHEET 2 of 3
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LAST REVISION 11/01/17	DESCRIPTION: REVISION	FDOT	FY 2022-23 STANDARD PLANS	FENCE TYPE B	INDEX 550-002	SHEET 3 of 3
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ERD
 Water Quality Engineering

ENVIRONMENTAL RESEARCH & DESIGN, INC.
 3416 TRENTWOOD BLVD., SUITE 102
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JORDAN LEVY VARGEL, PE
 FL License No. 81414
 JORDAN LEVY VARGEL, PE
 License No. 81414
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER
 11-23-23

Lee County
 Southwest Florida

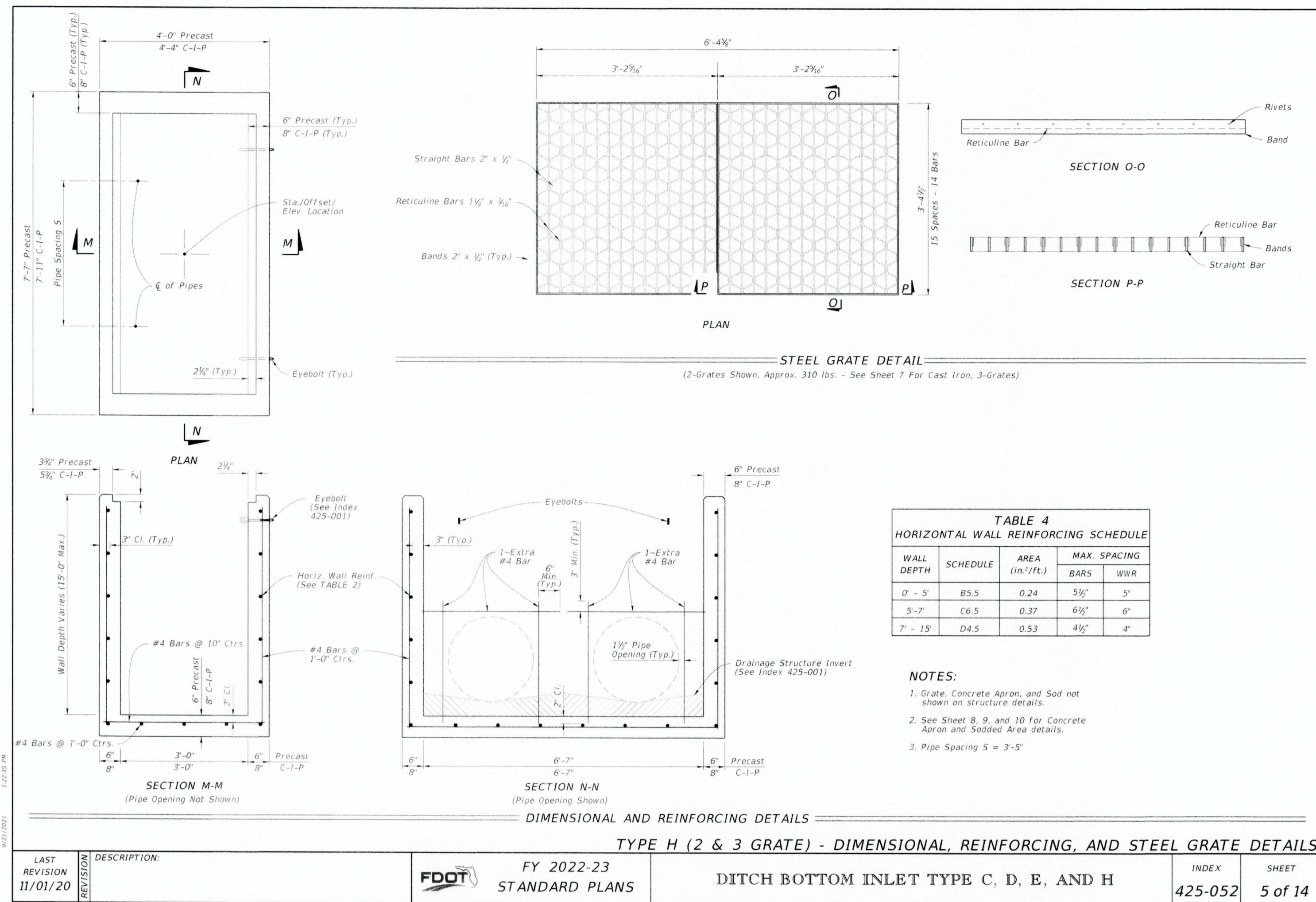
LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

NO.	DATE	DESCRIPTION

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

FDOT DETAILS

SHEET NUMBER
C15



LAST REVISION	DESCRIPTION	INDEX	SHEET
11/01/20		425-052	5 of 14

FDOT
FY 2022-23
STANDARD PLANS

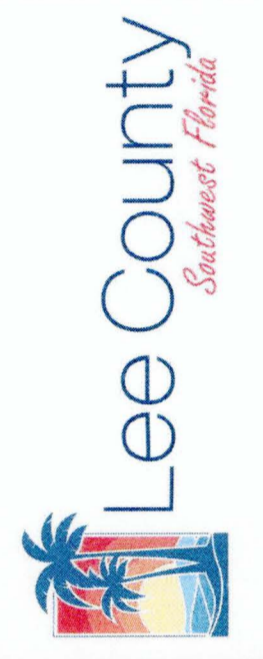
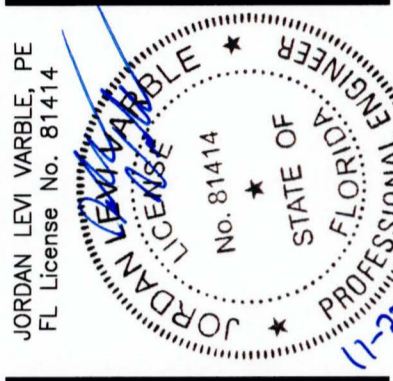
DITCH BOTTOM INLET TYPE C, D, E, AND H

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LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

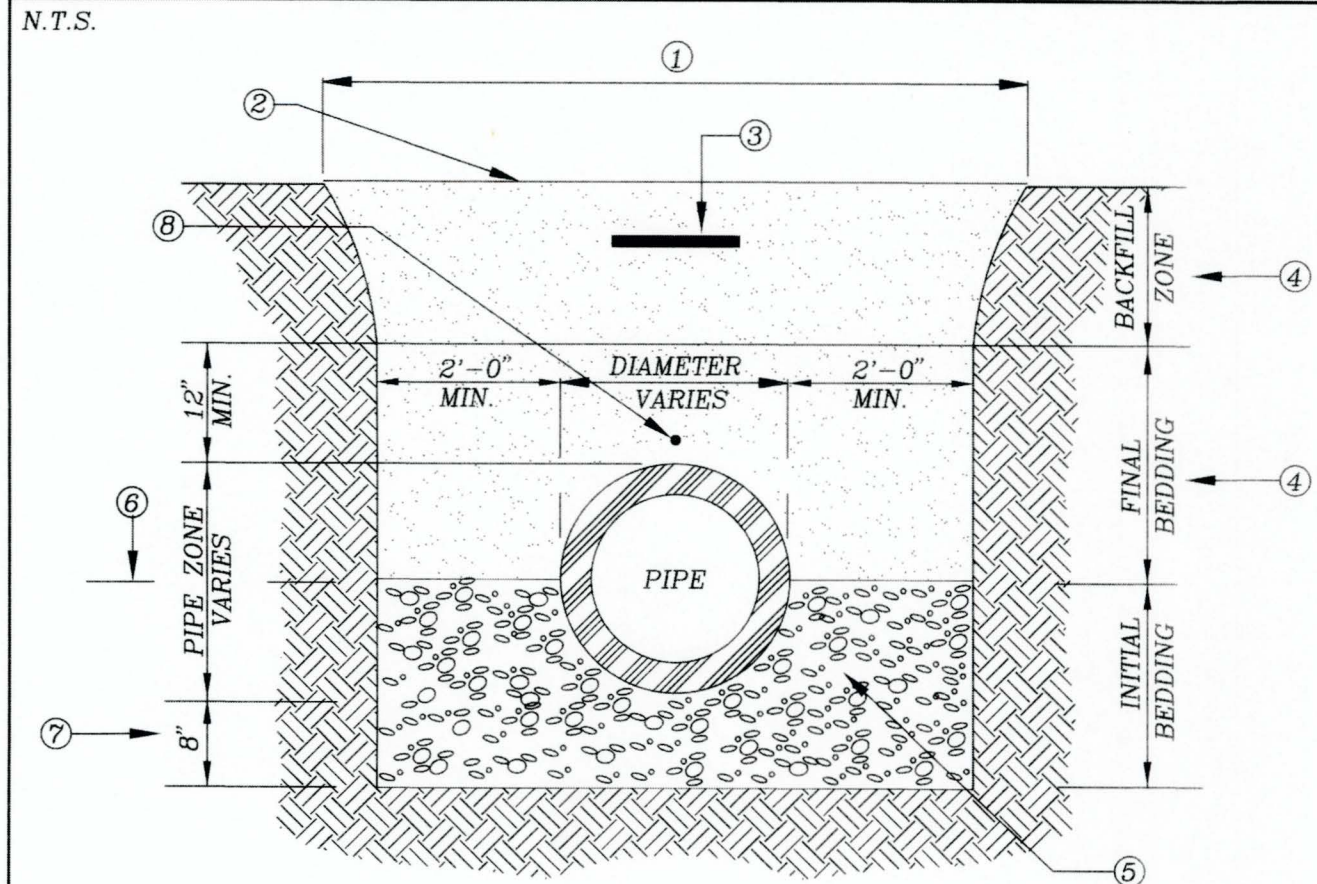
NO.	REVISIONS DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

FDOT DETAILS

SHEET NUMBER
C16

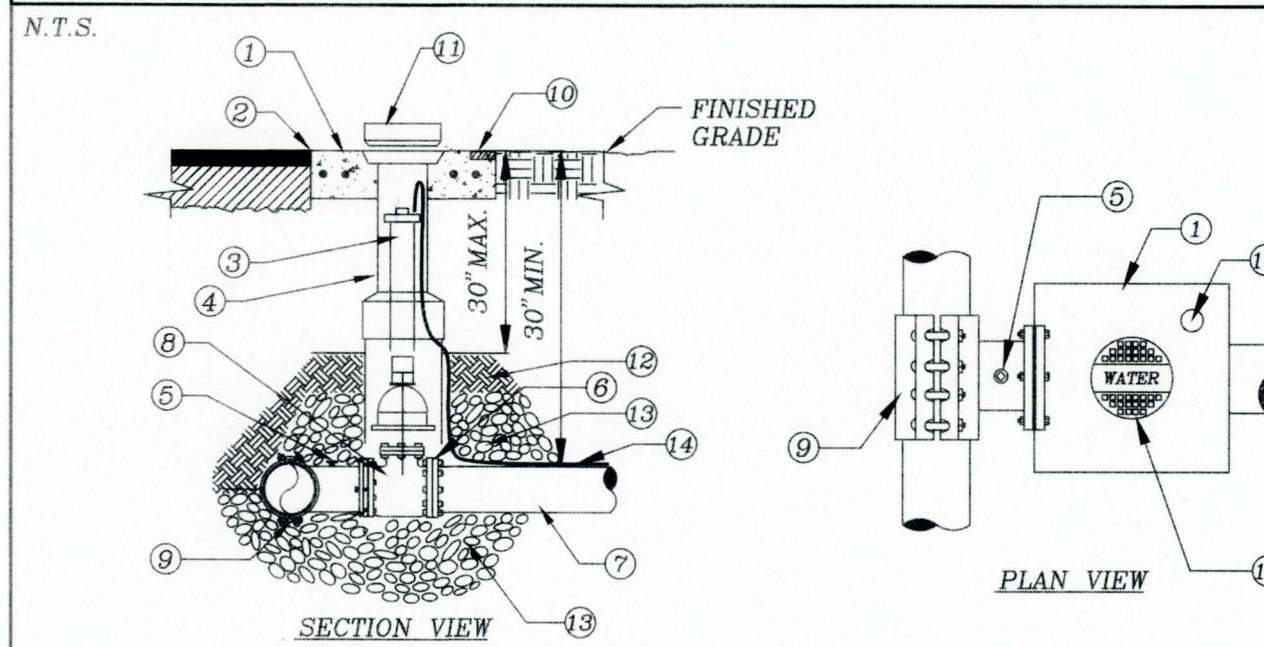
**STANDARD DETAIL NO. 6.5
LEE COUNTY UTILITIES
TRENCH CROSS SECTION**



- ① EXCAVATED TRENCH
- ② FINISHED GRADE
- ③ MARKING TAPE 12" DEPTH MAX.
- ④ MATERIALS CLEAN DRY SAND, FINE LIME ROCK OR PIT SHELL MECHANICALLY COMPACTED IN 6" LIFTS TO AT LEAST 95% OF MAX. DENSITY, OR 98% IF UNDER PAVED AREA OF ROADWAY.
- ⑤ #57 STONE LOCATED UNDER PIPE OR EXISTING UNDISTURBED SUITABLE MATERIAL
- ⑥ SPRING LINE
- ⑦ STANDARD 6" MIN TRENCH UNDERCUT AND BACKFILL WITH #57 STONE COMPACTED IN 6" LIFTS ADDITIONAL UNDERCUT AND CRUSHED ROCK BEDDING FOUNDATION WHEN DIRECTED BY L.C.U. THE CONTRACTOR IS TO REMOVE UNSTABLE MATERIAL FROM THE TRENCH FOUNDATION. THEN INSTALL STABILIZED CRUSHED ROCK BACKFILL WITH #57 STONE COMPACTED IN 6" LIFTS
- ⑧ LOCATING WIRE IS REQUIRED FOR ALL OR EXISTING UNDISTURBED PRESSURIZED PIPELINES.

REV: 12/10/2015

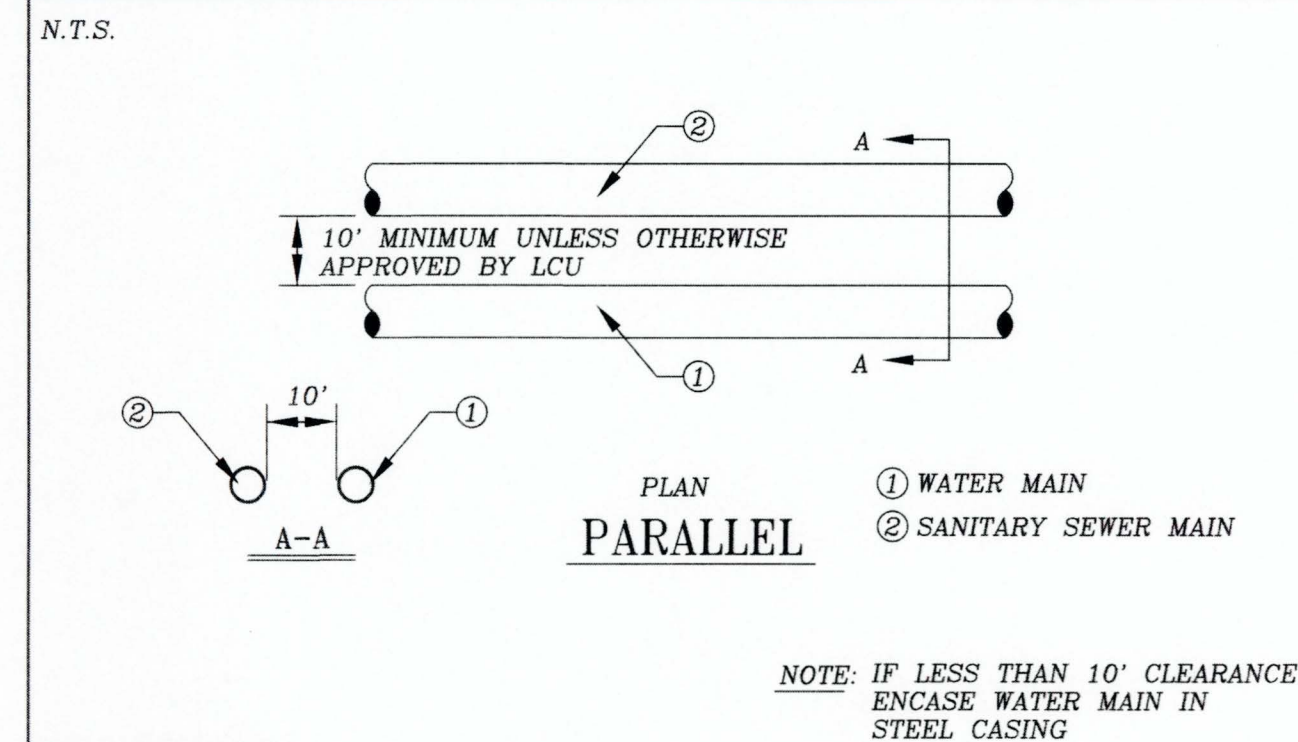
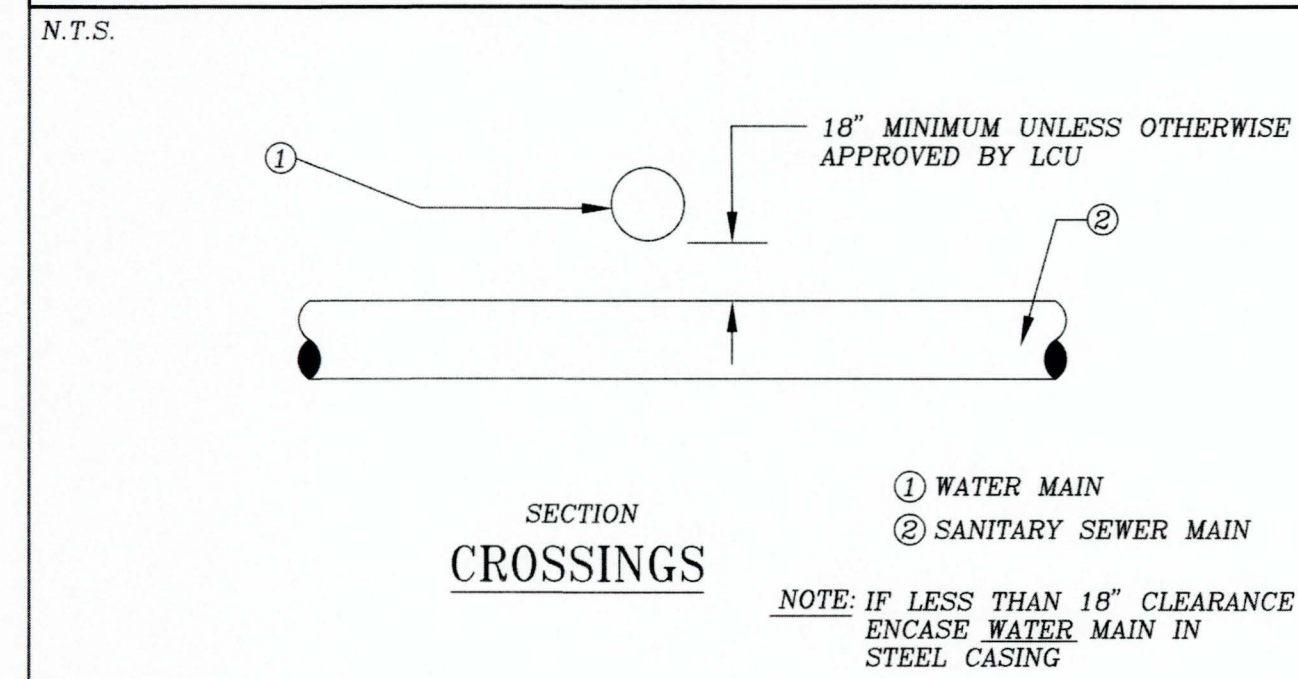
**STANDARD DETAIL NO. 6.1
LEE COUNTY UTILITIES
TAPPING SLEEVE AND VALVE**



- ① CONCRETE PAD (SEE VALVE INSTALLATION DETAIL)
- ② SET TOP OF BOX FLUSH WITH FINISHED GRADE
- ③ EXTENSION STEM IF TOP OF OPERATING NUT IS MORE THAN 30" BELOW FINISH GRADE
- ④ VALVE BOX (SEE VALVE INSTALLATION DETAIL)
- ⑤ OUTLET FOR TESTING
- ⑥ M.J. RESTRAINED
- ⑦ MAIN SIZE VARIES
- ⑧ TAPPING VALVE (SEE VALVE INSTALLATION DETAIL)
- ⑨ LCU APPROVED ALL STAINLESS STEEL PRESSURE RATED TAPPING SLEEVE. FOR SIZE ON SIZE TAPS A FLANGED TAPPING SLEEVE IS REQUIRED. SPRING LOADED TAPPING SLEEVE IS REQUIRED WHEN CONNECTING TO HDPE (SEE APPROVED MATERIAL LIST).
- ⑩ BRASS PLATE (SEE VALVE INSTALLATION DETAIL)
- ⑪ CAST IRON DROP COVER MARKED "WATER", "SEWER", OR "REUSE"
- ⑫ COMPACTED SUITABLE EARTH BACKFILL
- ⑬ 3/4" GRANULAR MATERIAL #57 STONE
- ⑭ 12 GAUGE DOUBLE INSULATED COPPER LOCATING WIRE (SEE LCU STANDARD DETAIL)

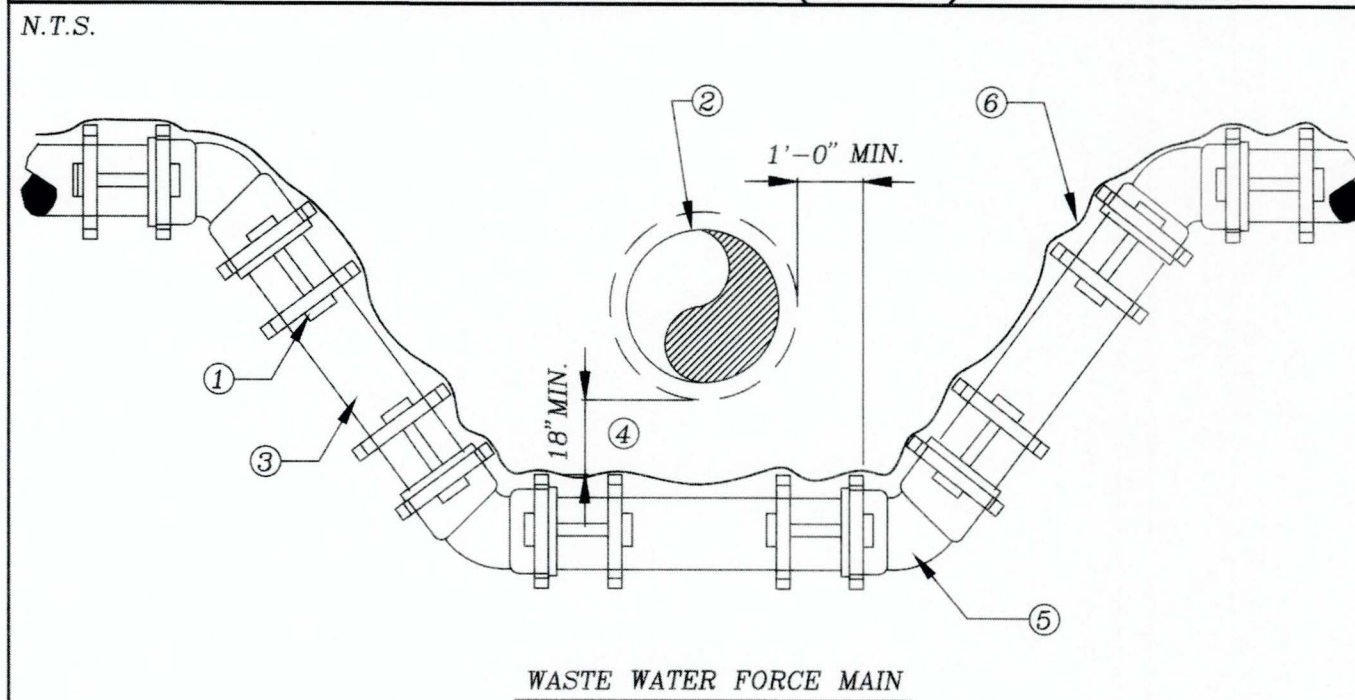
REV: 12/10/2015

**STANDARD DETAIL NO. 6.8
LEE COUNTY UTILITIES
WATER AND SEWER CROSSING DETAIL**



REV: 12/10/2015

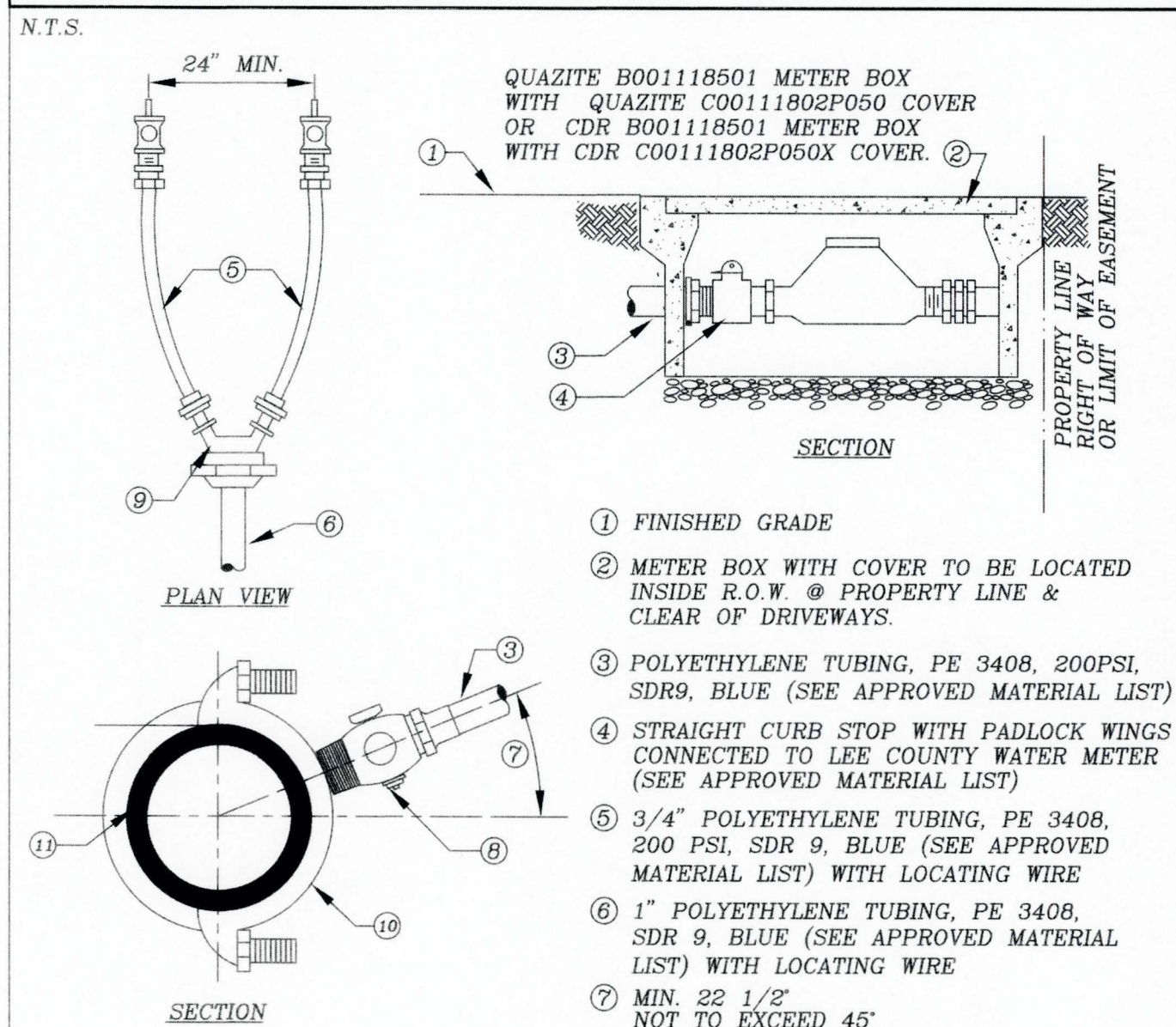
**STANDARD DETAIL NO. 6.11
LEE COUNTY UTILITIES
WASTE WATER FORCE MAIN VERTICAL OFFSET WITH FITTINGS, (P.V.C.)**



- ① LCU APPROVED JOINT RESTRAINT FOR P.V.C. M.J. PIPE AND FITTINGS PLACED IN ACCORDANCE WITH JOINT RESTRAINT SCHEDULE. (SEE DETAIL 6.12)
- ② CONFLICT PIPE
- ③ LCU APPROVED C-900 PVC DR 14
- ④ 18" MIN. UNLESS OTHERWISE APPROVED BY LCU
- ⑤ 45° MECHANICAL JOINT FITTING, TYPICAL
- ⑥ 12 GAUGE DOUBLE INSULATED COPPER WIRE (SEE LCU STANDARD DETAIL)

REV: 12/10/2015

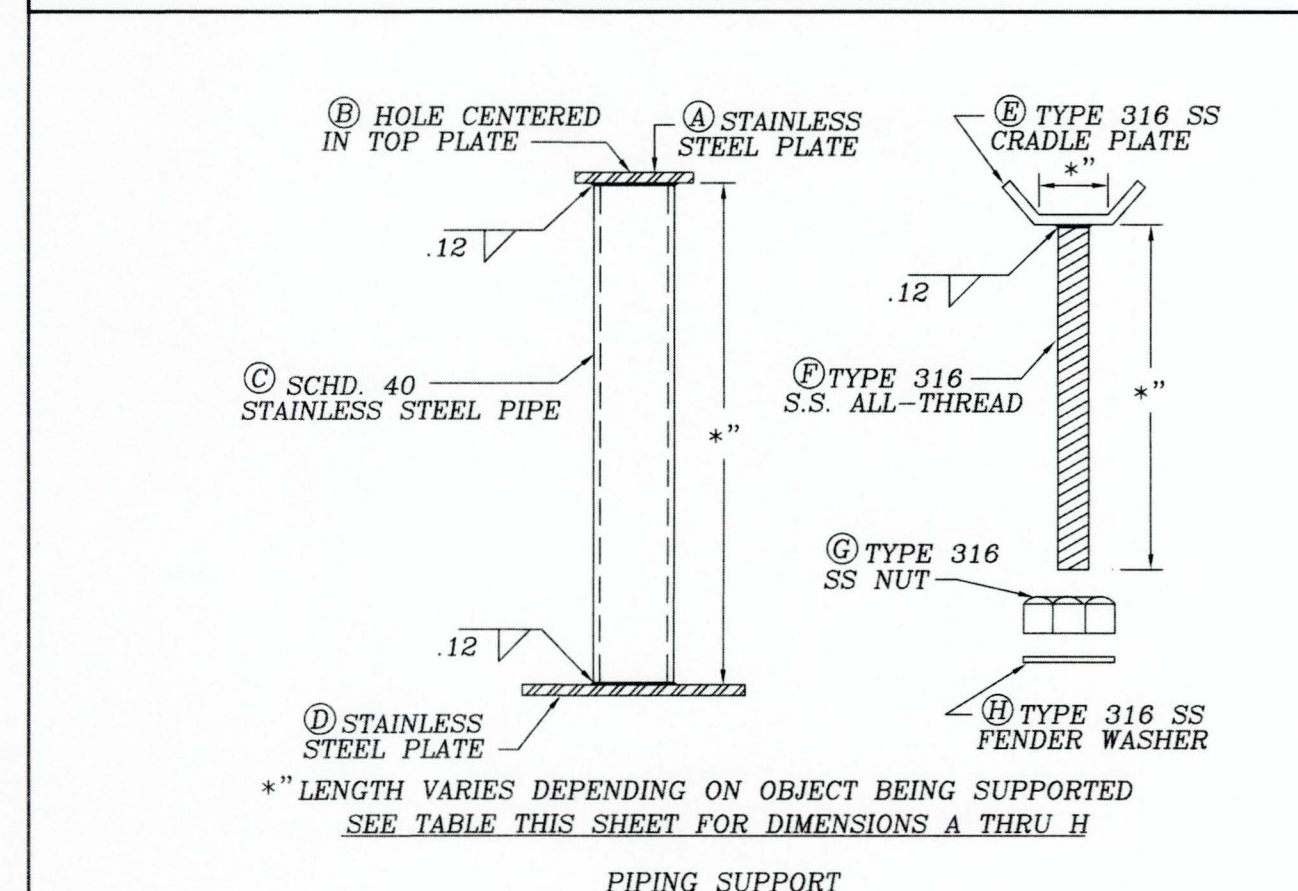
**STANDARD DETAIL NO. 6.16
LEE COUNTY UTILITIES
WATER SERVICE INSTALLATION 5/8" THROUGH 1"**



- ① FINISHED GRADE
- ② METER BOX WITH COVER TO BE LOCATED INSIDE R.O.W. @ PROPERTY LINE & CLEAR OF DRIVEWAYS.
- ③ POLYETHYLENE TUBING, PE 3408, 200PSI, SDR 9, BLUE (SEE APPROVED MATERIAL LIST)
- ④ STRAIGHT CURB STOP WITH PADLOCK WINGS CONNECTED TO LEE COUNTY WATER METER (SEE APPROVED MATERIAL LIST)
- ⑤ 3/4" POLYETHYLENE TUBING, PE 3408, 200 PSI, SDR 9, BLUE (SEE APPROVED MATERIAL LIST) WITH LOCATING WIRE
- ⑥ 1" POLYETHYLENE TUBING, PE 3408, SDR 9, BLUE (SEE APPROVED MATERIAL LIST) WITH LOCATING WIRE
- ⑦ MIN. 22 1/2° NOT TO EXCEED 45°
- ⑧ BALL CORPORATION STOP (SEE APPROVED MATERIAL LIST)
- ⑨ BRASS "Y" OR "T" CONNECT (SEE APPROVED MATERIAL LIST)
- ⑩ DOUBLE STRAP SERVICE SADDLE (SEE APPROVED MATERIAL LIST)
- ⑪ WATER MAIN

REV: 12/10/2015

**STANDARD DETAIL NO. 6.22
LEE COUNTY UTILITIES
PIPING SUPPORT**



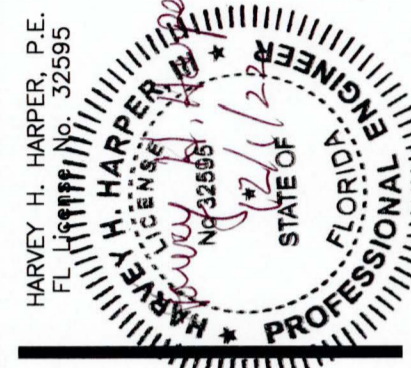
PIPING SUPPORT DIMENSIONS			
	FOR 3/4" & 1"	FOR 1-1/2" TO 3"	FOR 4" & LARGER
A	1/4" x 3" x 3"	1/4" x 3-1/4" x 3-1/4"	1/4" x 5" x 5"
B	1.0"	1.0"	1-1/2"
C	2.0"	2-1/2"	4"
D	1/4" x 6" x 6"	1/4" x 8" x 8"	1/4" x 10" x 10"
E	1/4" x 2" x 4"	1/2" x 2" x 4"	1/2" x 4" x 6"
F	3/4"	7/8"	1-1/4"
G	3/4"	7/8"	1-1/4"
H	1.0"	1.0"	1-1/2"

NOTE: 1. HOT DIPPED GALVANIZED STEEL MAY BE USED IN PLACE OF STAINLESS STEEL.

REV: 12/10/2015

NO.	REVISIONS	DATE
	DESCRIPTION	

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SAID DETAILS WERE NOT DESIGNED BY JOHNSON ENGINEERING.



NO.	DATE	DESCRIPTION

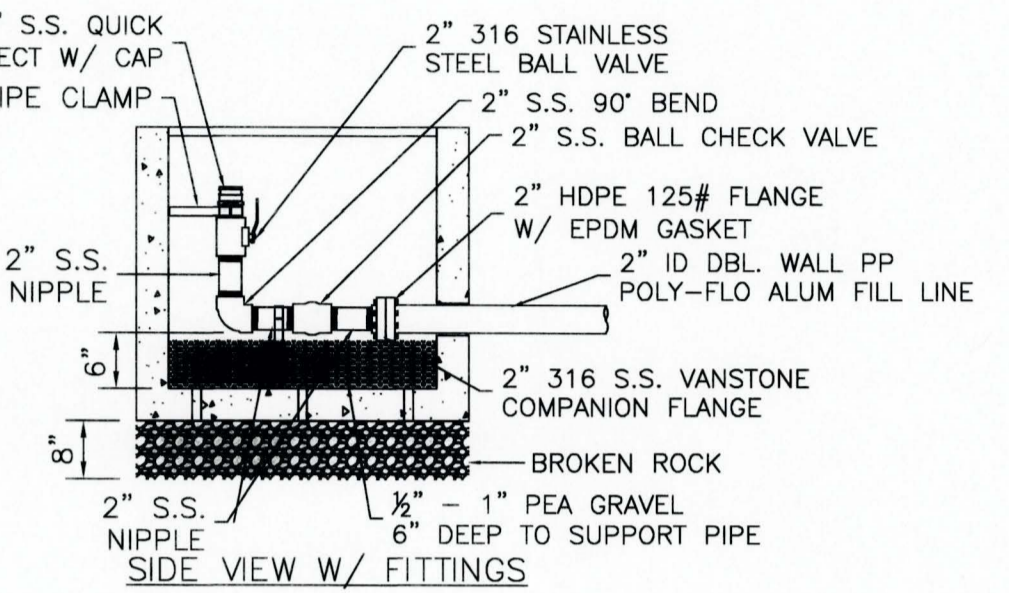
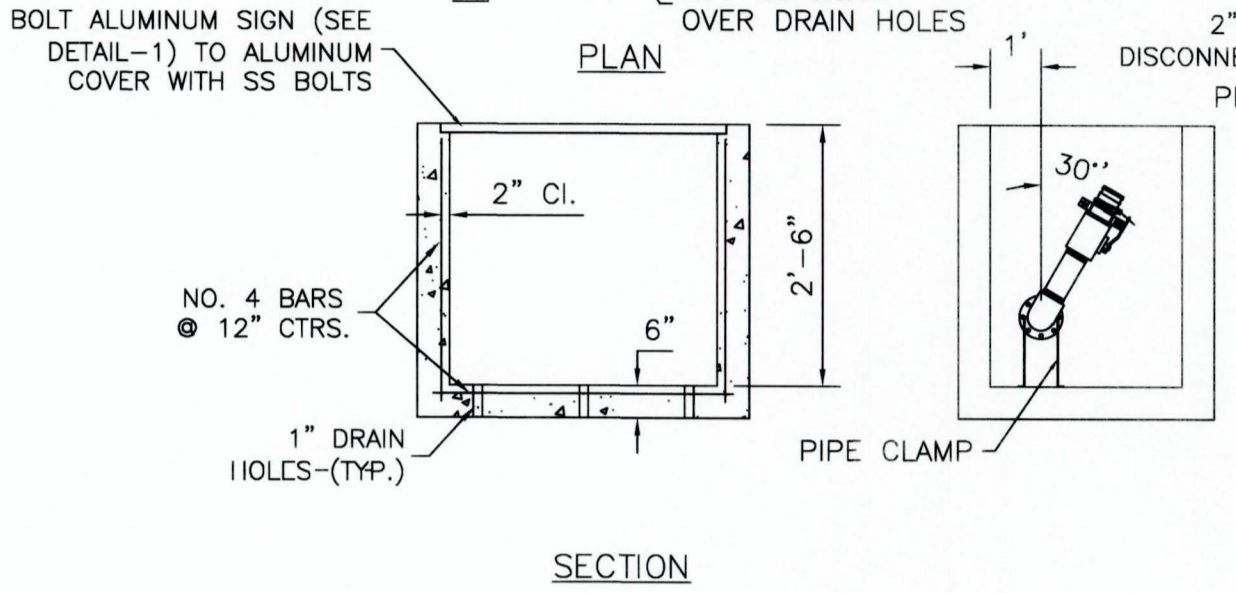
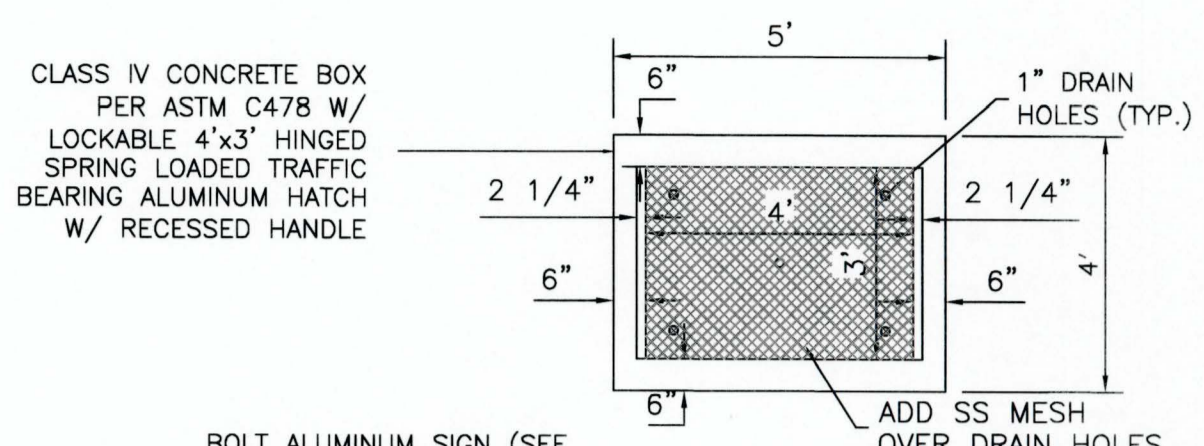
DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

SYSTEM DETAILS

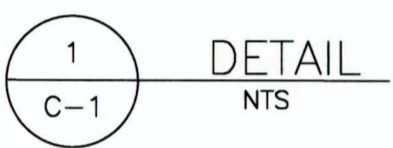
SHEET NUMBER

D01

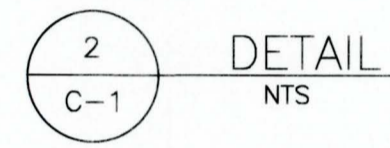
ZONE	FIRST	SECOND	THIRD
1	1.5"	2"	2"
2	1.5"	2"	2"
3	1.5"	2"	2"
4	1.5"	2"	2"
5	2"	2"	2"



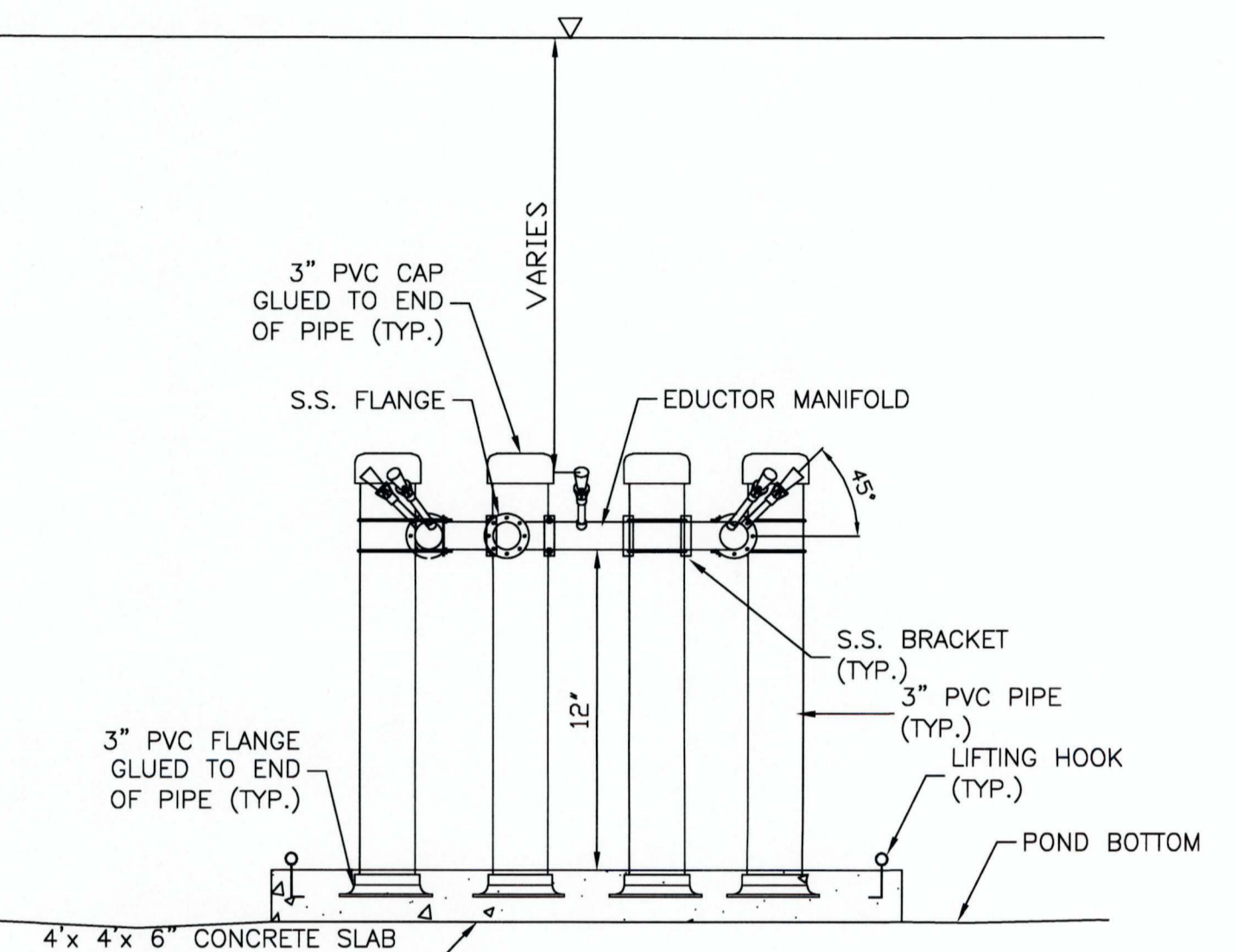
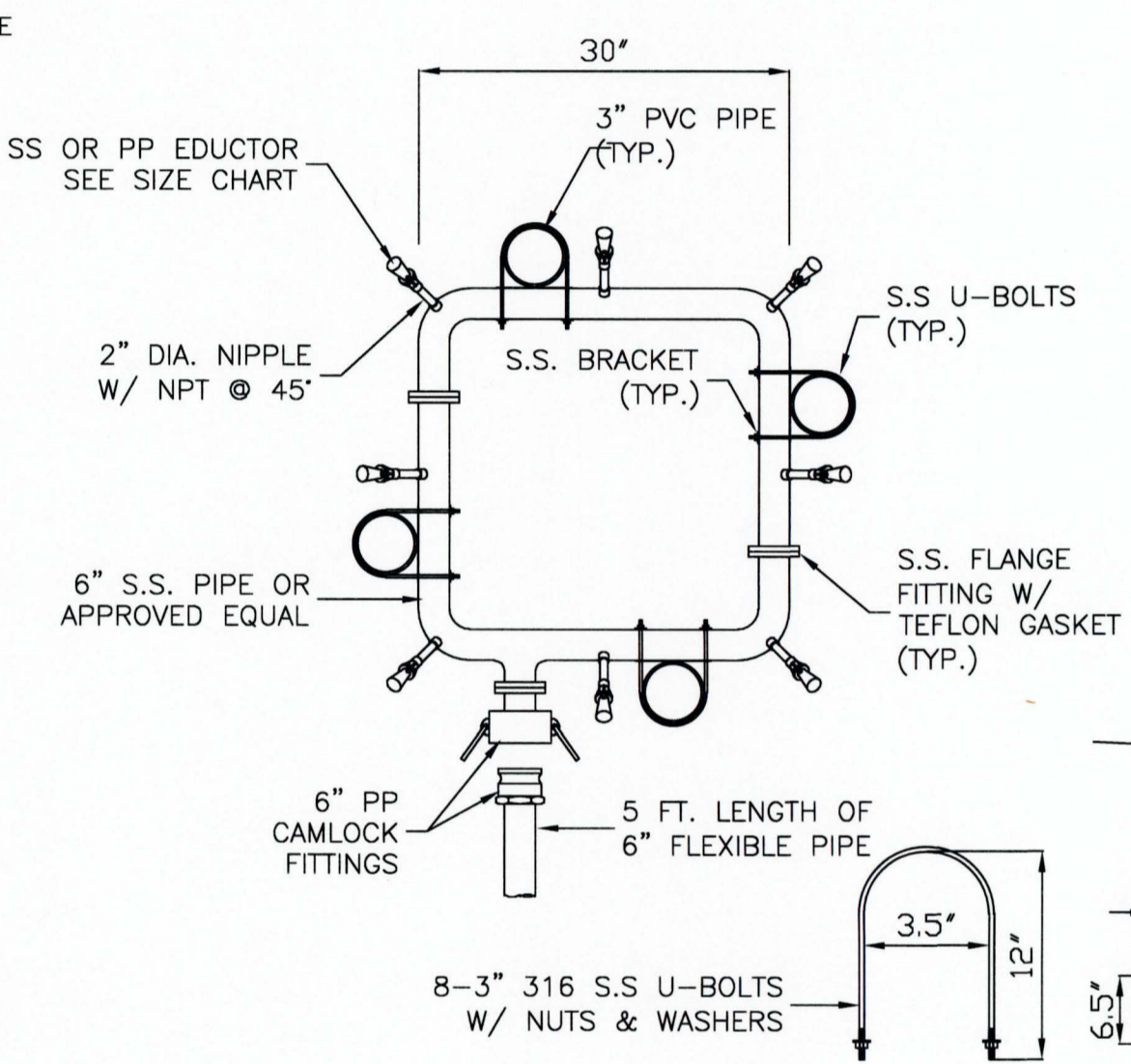
- NOTES:
1. ALL LETTERS ARE 1" SERIES "C".
 2. SIGN SHALL HAVE A WHITE BACKGROUND WITH BLUE OPAQUE LETTERS AND BORDER.
 3. SECURE SIGN TO ALUM PUMP BUILDING DOOR.



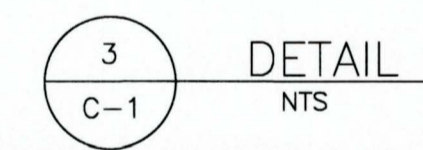
CONTROL BUILDING EQUIPMENT



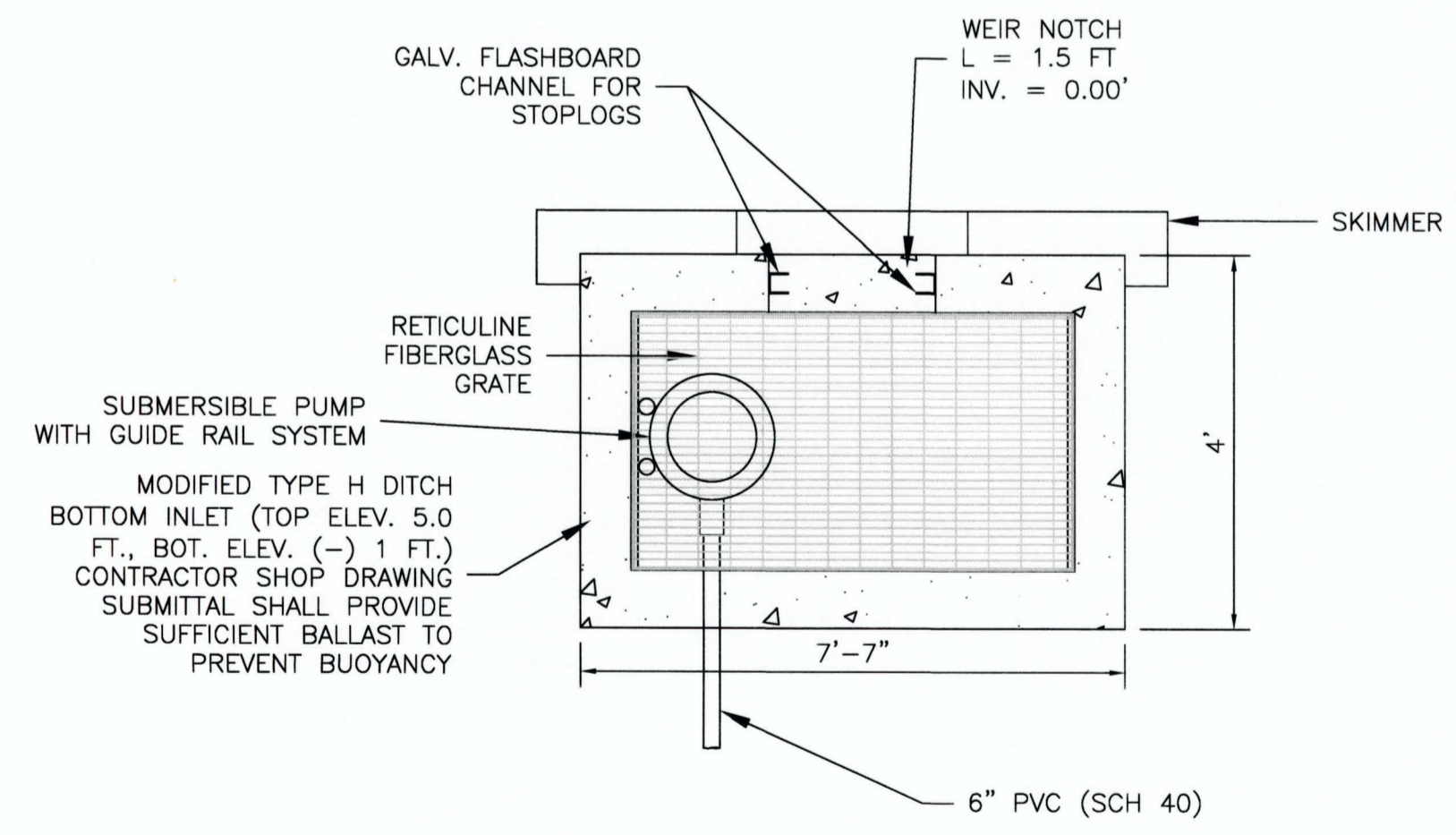
ALUM TANK FILL STRUCTURE



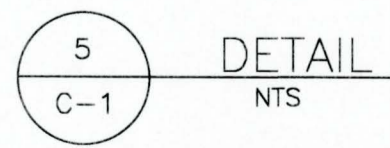
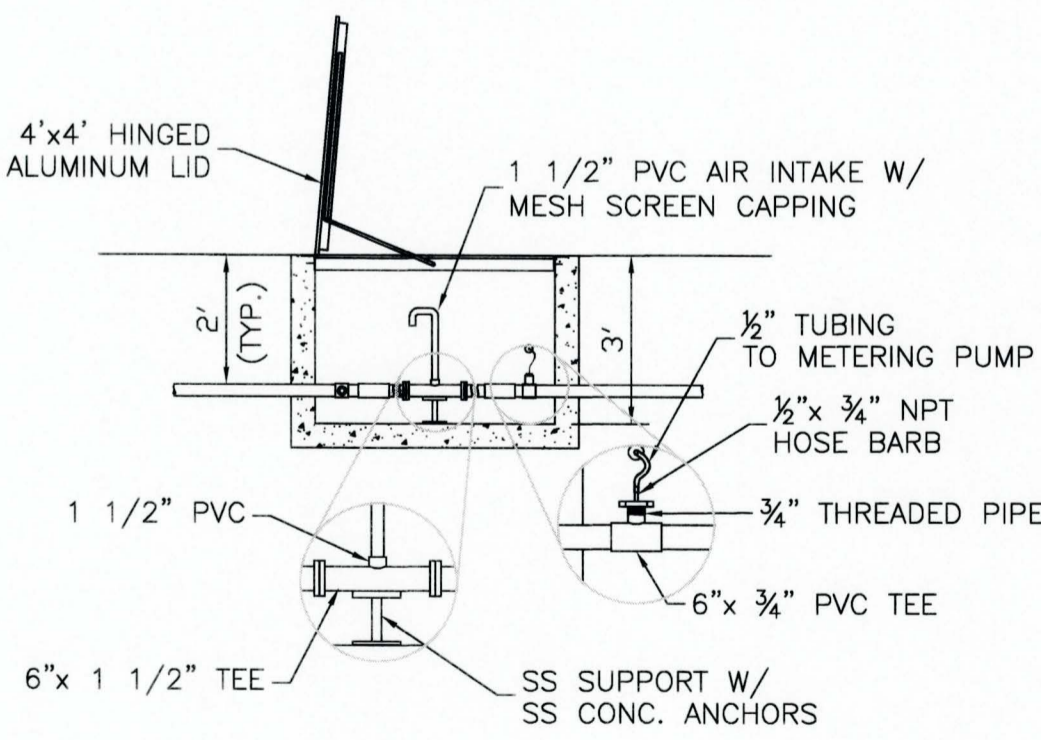
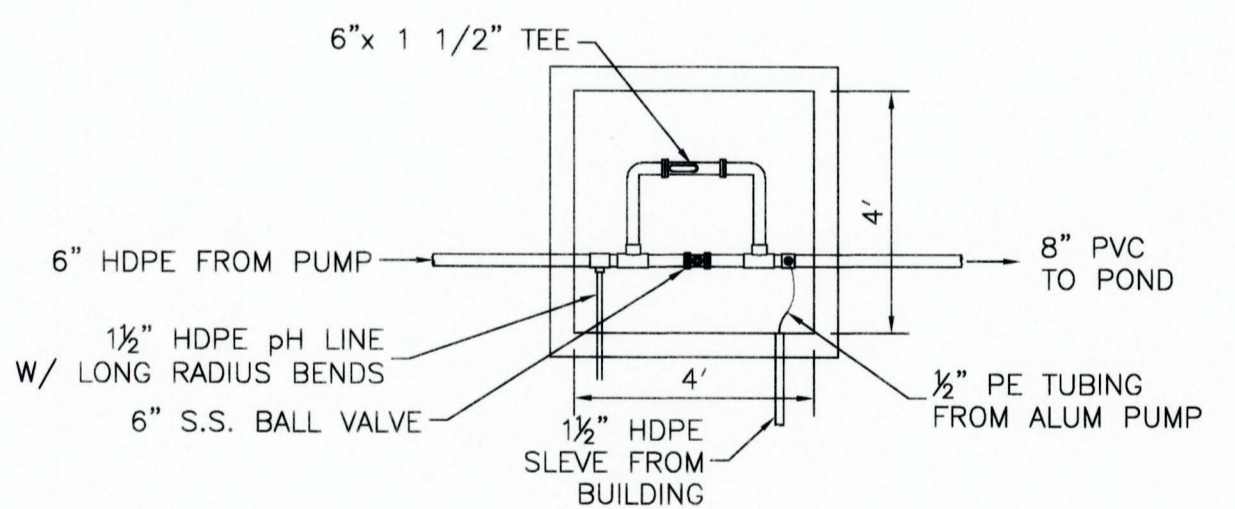
- NOTES:
1. CONFIRM THE OUTSIDE DIA. OF THE 6" MANIFOLD PIPING AND ADJUST THE SIZE OF THE BRACKETS IF NECESSARY.



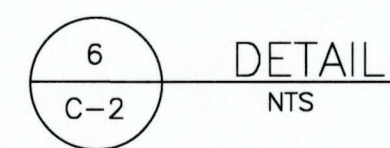
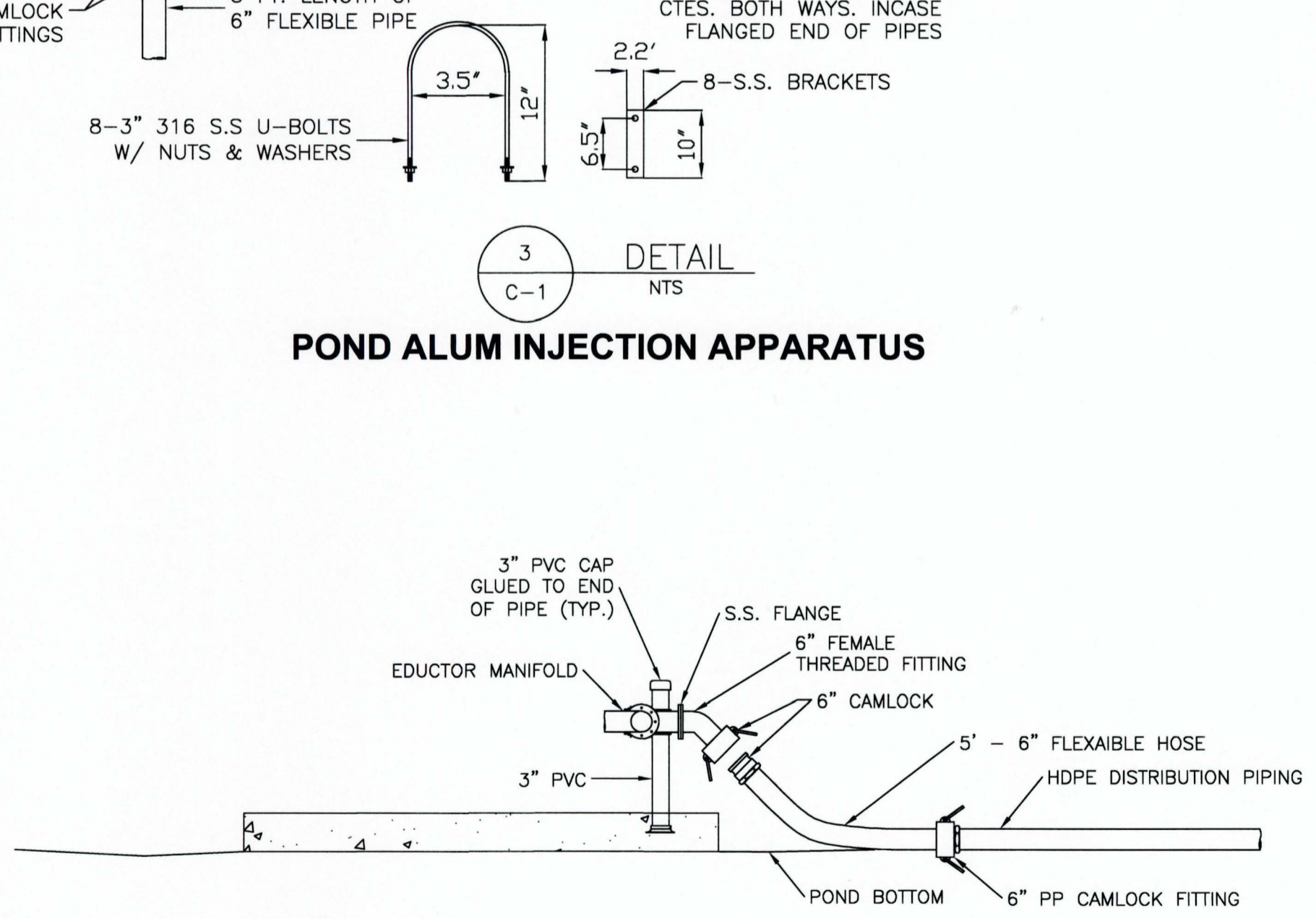
POND ALUM INJECTION APPARATUS



INTAKE STRUCTURE



ALUM / AIR INJECTION



FLEXIBLE PIPING CONNECTION TO MANIFOLD



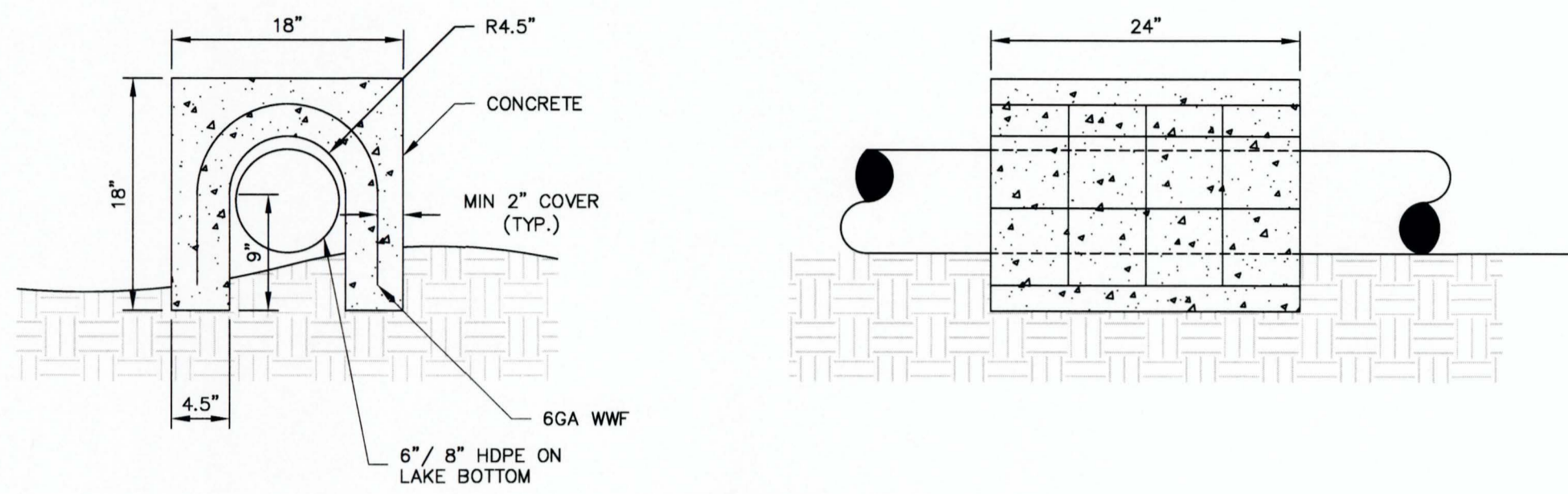
LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

NO.	DESCRIPTION	DATE

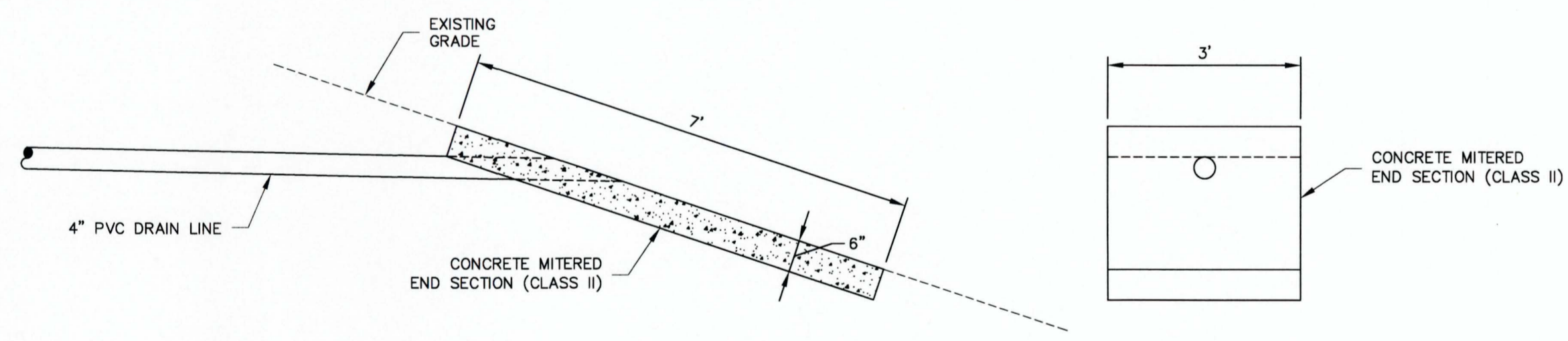
DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

SYSTEM DETAILS

SHEET NUMBER
D02



PIPE ANCHOR



**DRAIN LINE
 MITERED END SECTION**

ABBREVIATIONS

A	AMPERES, AMBER OR ALARM
AH	AMP HOUR OR ALARM HORN
AL	ALARM LIGHT
ALM	ALARM
ASR	ALARM SILENCE RELAY
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BAT	BATTERY
BPC	BACKUP PUMP CONTROLLER
BOM	BILL OF MATERIAL
CB	CIRCUIT BREAKER
C	CONDUIT
CP	CONTROL PANEL
CPSA	CONTROL PANEL SURGE ARRESTOR
CT	CURRENT TRANSFORMER
CU	COPPER
DISC	DISCONNECT
DO	DIGITAL OUTPUT
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EG	EQUIPMENT GROUND
ETM	ELAPSED TIME METER
F	FUSE
FLT	FAULT
FPL	FLORIDA POWER AND LIGHT
FMC	FLEXIBLE METALLIC CONDUIT
FS	FLOAT SWITCH
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND, G	GROUND
GRS	GALVANIZED RIGID STEEL
H	HIGH
HS	HAND SWITCH
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HMI	HUMAN MACHINE INTERFACE
I	INDICATOR
I&C	INSTRUMENTATION & CONTROL
INTR	INTRUSION
JB	JUNCTION BOX
L	LEVEL OR LOW
LR	LINE REACTOR
NEUT, N	NEUTRAL
NTS	NOT TO SCALE
O/C	OPEN / CLOSE
OIT	OPERATOR INTERFACE TERMINAL
MOV	MOTOR OPERATED VALVE
NF	NON-FUSIBLE
P	PRESSURE
PB	PUSHBUTTON
PLC	PROGRAMMABLE LOGIC CONTROLLER
PH, Ø	PHASE
PC	PHOTOCELL
PCP	PUMP CONTROL PANEL
PM	PHASE MONITOR
PS	POWER SUPPLY
PTT	PUSH-TO-TEST
Q	TOTALIZER
RECP.T.	RECEPTACLE
R	RELAY, TREN, RESISTOR
RTU	REMOTE TELEMETRY UNIT
SCCR	SHORT CIRCUIT CURRENT RATING
SHLD	SHIELDED
SPD	SURGE PROTECTION DEVICE
S	SWITCH
SS	SELECTOR SWITCH
SSOL	SOLID STATE OVERLOAD
SV	SOLENOID VALVE
TB	TERMINAL BLOCK
TD	TIME DELAY
TSP	TWISTED SHIELDED PAIR
UG	UNDERGROUND
UPS	UNINTERRUPTABLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
Z	POSITION

SYMBOLS

	MAGNETIC FLOW INDICATING TRANSMITTER
	PRESSURE INDICATING TRANSMITTER
	FLOW INDICATING TRANSMITTER
	FLOW ELEMENT
	LEVEL (FLOAT) SWITCH
	PRESSURE SWITCH
	FLOW SWITCH
	MOTOR OPERATED VALVE (MOV)
	SOLENOID VALVE (SV)
	SOLENOID VALVE (SV)
	DIAPHRAGM VALVE
	VOLTMETER
	AMMETER
	GROUND FAULT INTERRUPTER
	DRAW-OUT CIRCUIT BREAKER
	CIRCUIT BREAKER WITH TRIP RATING
	MOTOR WITH HP RATING
	EQUIPMENT GROUND
	DRIVEN ROD-TYPE GROUNDING ELECTRODE
	DRIVEN ROD-TYPE GROUNDING ELECTRODE WITH GROUND ACCESS WELL
	NON-FUSIBLE DISCONNECT SWITCH, 30A, 3P UNLESS OTHERWISE INDICATED
	CURRENT TRANSFORMER
	TRANSFORMER
	TRANSFORMER
	CONDUIT OR WIRE ROUTING; SHORT HASH MARK = PHASE CONDUCTOR LONG HASH MARK = NEUTRAL CONDUCTOR
	MOTOR OVERLOAD (EUTECTIC ALLOY)

PROJECT ELECTRICAL NOTES

GENERAL ELECTRICAL NOTES

- ALL NEW CONSTRUCTION SHALL COMPLY WITH APPLICABLE N.E.C. AND LOCAL CODES.
- CONDUCTORS SHALL NOT BE SPLICED.
- ALL CONDUCTORS SHALL BE 600-VOLT RATED, STRANDED COPPER. #8AWG AND LARGER SHALL BE RATED 90 DEGREE CELSIUS INSULATED STRANDED COPPER CONDUCTORS, THHN-2 OR XHHW-2. ALL MULTICONDUCTOR CONTROL CABLE SHALL BE #14 AWG XHHW-2, OMNIBCALE P/N AF114XX, OR EQ.
- ALL CONDUIT RUNS SHALL BE SCHEDULE 80 PVC CONDUIT.
- ALL BONDING CONDUCTORS SHALL BE ROUTED IN SCHEDULE 80 PVC CONDUIT. GROUND WIRE FROM SERVICE SHALL BE INSTALLED IN SCH. 40 CONDUIT.
- TOP PENETRATIONS OF ELECTRICAL ENCLOSURES ARE NOT PERMITTED, UNLESS NOTED. ALL PENETRATIONS IN ELECTRICAL EQUIPMENT SHALL BE BOTTOM-ENTRY, UNLESS NOTED OTHERWISE.
- ALL RACEWAYS SHALL HAVE AN INSULATED COPPER SYSTEM GROUND CONDUCTOR THROUGHOUT THE ENTIRE LENGTH OF THE CIRCUIT INSTALLED PER N.E.C.
- ALL RACEWAYS WHICH ARE INSTALLED FOR FUTURE USE SHALL HAVE A NYLON PULLCORD.
- PVC CONDUIT JOINTS SHALL BE SOLVENT-WELDED, EXCEPT FOR RIGID METALLIC TO PVC COUPLINGS.
- MINIMUM CONDUIT SIZE SHALL BE 3/4". MINIMUM LIQUIDTIGHT FLEXIBLE STEEL CONDUIT SIZE SHALL BE 1/2".
- ALL RACEWAYS SHALL BE RUN IN NEAT AND WORKMANLIKE MANNER AND SHALL BE PROPERLY SUPPORTED PER N.E.C.
- ALL CONNECTIONS TO MOTORS AND OTHER VIBRATING EQUIPMENT OR AT OTHER LOCATIONS WHERE REQUIRED SHALL BE MADE WITH FLEXIBLE LIQUID-TIGHT STEEL CONDUIT 12" TO 36" IN LENGTH.
- ALL FEEDER AND BRANCH CIRCUIT WIRING SHALL BE COLOR CODED AS FOLLOWS:
3-PHASE 480Y/277VAC (A/B/C/N/G) : PUR/BRN/YEL/WHT/GRN
3-PHASE 240/120VAC (A/B(HI)/C/N/G) : BLK/RED(ORG)/BLU/WHT/GRN
1-PHASE AC POWER : BLK, 12 AWG MIN.
AC POWER HOT : BLK, 12 AWG MIN.
AC POWER NEUTRAL : WHT, 12 AWG MIN.
AC SWITCHED : RED, 16 AWG MIN.
EXTERNALLY POWERED : YEL, 16 AWG MIN.
GROUND : GRN, 12 AWG MIN.
DC + : BLU, 16 AWG MIN.
DC - : BLU WITH WHT STRIPE, 16 AWG MIN.
TSP (+/-) : RED/BLK, 16 AWG. MIN., BELDEN 1118A, OR EQ.
- CONTROL PANEL WIRING TO UTILIZE SCREW TYPE TERMINALS WITH LOCKING FORK TONGUE OR RING TONGUE LUGS.
MAX. OF ONE WIRE TO BE TERMINATED IN A CRIMP LUG. MAX. OF TWO LUGS TO BE INSTALLED IN A SCREW TERMINAL.
- DC AND AC CIRCUITS SHALL BE ON SEPARATE TERMINAL BLOCK STRIPS.
- ETHERNET CABLE SHALL BE CAT-5e 600V UL AWM RATED
- ALL WIRES AND CABLES SHALL BE MARKED USING WHITE HEAT SHRINK MARKERS.
- BRANCH CIRCUITS EXCEEDING 75' SHALL BE WIRED WITH MINIMUM #10AWG WIRE.
- ALL OUTDOOR ENCLOSURES TO MEET FBC WIND LOAD REQUIREMENTS FOR 150MPH.
- PROVIDE DESSICANT PACKETS IN DISCONNECT SWITCHES AND CONTROL PANEL ENCLOSURES, SIZED ACCORDINGLY.
- ALL RACEWAYS SHALL BE RUN IN NEAT AND WORKMANLIKE MANNER, PROPERLY SUPPORTED.
- ALL EXISTING EQUIPMENT, CABLING, AND CONDUIT DESIGNATED TO BE REPLACED SHALL BE DEMOED AND REMOVED BY THE CONTRACTOR.
- COORDINATE ALL SERVICE ENTRANCE WORK WITH FP&L, AND ADHERE TO ALL UTILITY STANDARDS.
- PROVIDE TYPED CIRCUIT DIRECTORIES FOR ALL PANELBOARDS.
- CONTRACTOR SHALL APPLY FOR AND SCHEDULE INSTALLATION OF NEW SERVICES AND REQUEST CONFIRMATION PER PLANS OF MAX AVAILABLE FAULT CURRENT FROM THE UTILITY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THE WORK AND FURNISHING ALL MATERIALS OUTLINED IN THESE PLANS AND ANY OTHER MATERIALS AND WORK NECESSARY FOR A FULLY OPERATIONAL SYSTEM.
- ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EXTERNALLY-MOUNTED SURGE PROTECTOR AS SHOWN. INSTALL SPD AND CUT SPD LEADS SO THAT LEADS ARE AS SHORT AND STRAIGHT AS POSSIBLE. MOUNT TO ENCLOSURE BOTTOM WITH STATUS LIGHTS FACING FRONT. INSTALL AND BIND THE LEAD WIRES TOGETHER WITH ONE TWIST/INCH TO REDUCE THE LEAD WIRE IMPEDANCE.
- CUSTOM ELECTRICAL ENCLOSURES TO BE UL508A LISTED.
- ALL ELECTRICAL ENCLOSURES TO HAVE PADLOCKING PROVISIONS.
- NAMEPLATES TO BE ADHESIVE BACKED, PHENOLIC, UV RATED.
- PROVIDE 2" MIN. SPACE FROM TERMINAL BLOCKS TO WIRE DUCT.
- DC AND AC CIRCUIT WIRING TO BE TERMINATED ON SEPARATE TERMINAL STRIPS.
- ALL WIRES 10 AWG AND SMALLER TO UTILIZE FORK TONGUE, RING TONGUE, OR FERRULES. WIRE CRIMP LUGS TO HAVE ONLY ONE WIRE, TERMINAL BLOCKS TO HAVE NO MORE THAN TWO WIRES PER LUG.
- ONLY A PORTION OF THE REQUIRED CONDUIT RUNS ARE SHOWN.
- LABEL ALL ELECTRICAL EQUIPMENT USING MIN. 1/2" BLACK LETTERING ON WHITE PLASTIC LABELS SS SCREW MOUNTED ON TO FRONT OF ALL PANELS AND CABINETS.
- MAJOR COMPONENTS AND GENERAL ARRANGEMENT ARE PROVIDED AS A BASIS FOR DESIGN. ALL REQUIRED COMPONENTS ARE NOT SHOWN. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A FULLY FUNCTIONAL SYSTEM.
- ALL BELOW GRADE GROUND CONNECTIONS SHALL BE MADE VIA EXOTHERMIC WELD.
- ALL ABOVE GRADE BOND CONNECTIONS SHALL BE MADE VIA BOLTED CONNECTION, BURNDY TYPE QDA-QIKLUG.
- ALL REQUIRED CONDUIT AND CONDUCTORS ARE NOT SHOWN. SEE SINGLE LINE DIAGRAM FOR CONDUITS AND CONDUCTORS REQUIRED FOR CONTROL AND POWER CIRCUITS.
- PROVIDE COUNTY SIGNED INSPECTION OR PHOTO OF ALL CAD-WELDED SPLICES AND UNDERGROUND TAPS. PROVIDE GROUND TEST REPORT TO COUNTY VERIFYING COUNTERPOISE RESISTANCE IS 5 OHMS MAX. CONTRACTOR TO PROVIDE ADDITIONAL GROUNDING, IF NECESSARY, TO ACHIEVE 5 OHMS MAX. GROUND RESISTANCE.
- EXOTHERMICALLY BOND GROUNDING JUMPERS TO COUNTERPOISE. GROUND POTENTIAL SHALL BE CONSISTENT FOR ENTIRE SITE. GROUNDING JUMPERS AND COUNTERPOISE SHALL BE #4/0 BARE COPPER. GROUND RODS SHALL BE 3/4" X 20' COPPER-CLAD GROUND RODS. EXOTHERMICALLY WELD CONNECTIONS BELOW GRADE. MECHANICALLY CONNECT CONNECTIONS ABOVE GRADE. MECHANICAL LUGS SHALL ONLY HAVE ONE WIRE LANDED IN EACH TERMINATION. EACH LUG SHALL BE FASTENED WITH A STAINLESS STEEL NUT AND BOLT. STACKING OF INDIVIDUAL LUGS WILL NOT BE ACCEPTABLE.
- GROUND BOXES SHALL BE 14" LONG QUAZITE #PC1118CA0017 OR #PG1118BA12, INSTALL LEVEL WITH THE ADJACENT GROUND, PROVIDE 57 STONE OR MATCH SITE STONE IN BOX, WITH GROUND ROD LOCATED OFF CENTER OF BOX. QUAZITE BOX COVER TO READ "GROUND". EXPOSED GROUNDING SHALL BE IN 1" SCHEDULE 80 PVC OR LIQUID TIGHT FLEXIBLE CONDUIT.

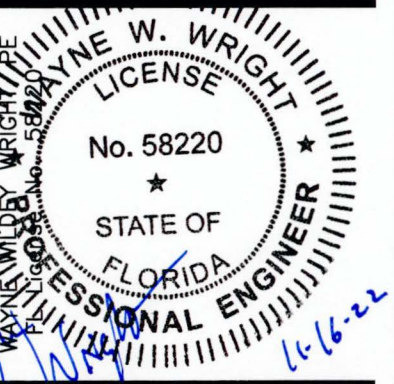
NO.	DATE	DESCRIPTION

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

ELECTRICAL NOTES

SHEET NUMBER

E00



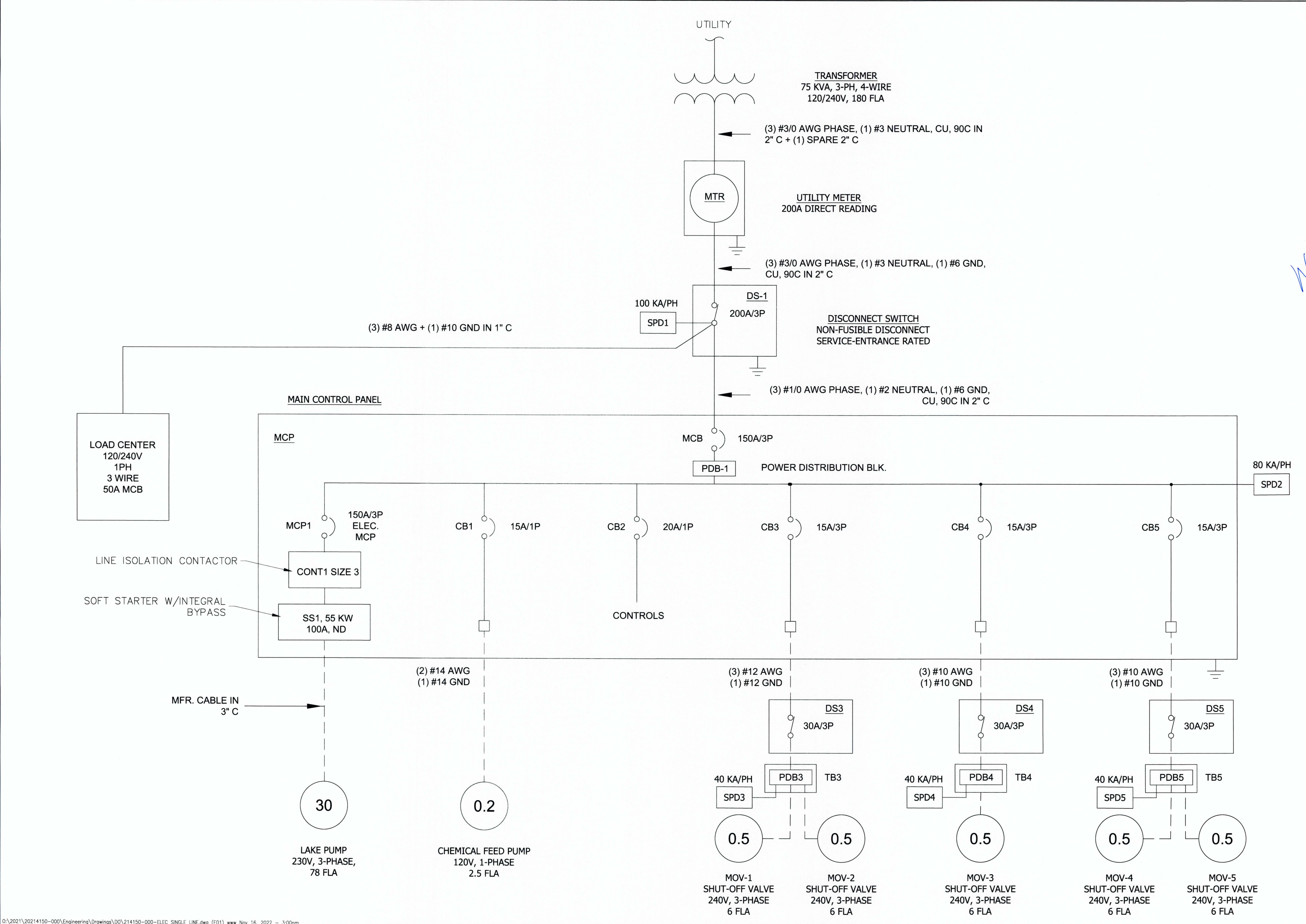
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DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

SINGLE LINE DIAGRAM

SHEET NUMBER

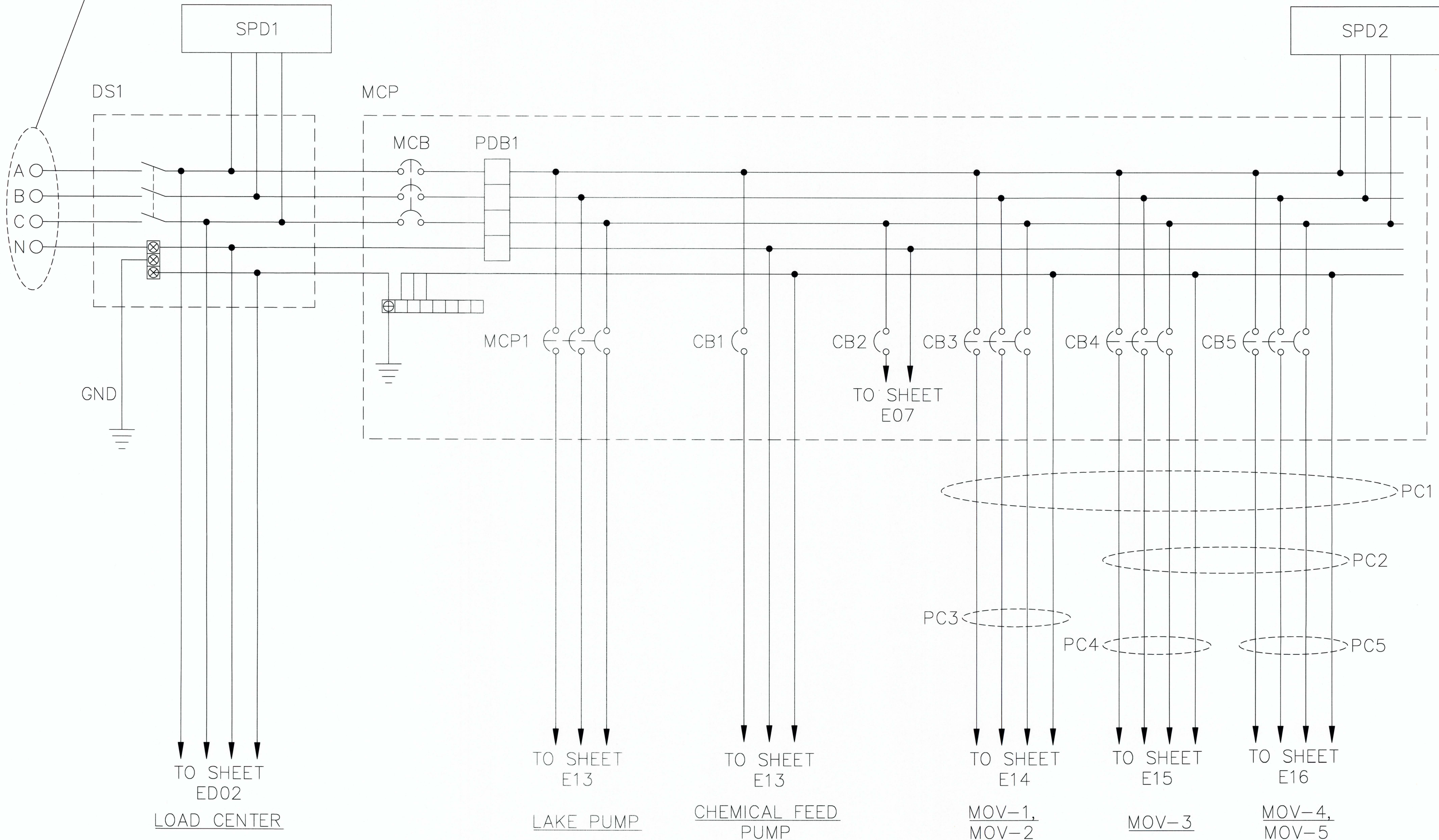
E01



UTILITY POWER:
120/240VAC, THREE PHASE, HIGH LEG (PHASE B) DELTA

NOTES:

INSTALL DOUBLE LUG KIT ON LOAD SIDE OF DS1 FOR CONNECTION TO MCP AND LOAD CENTER
SEE GROUNDING DETAIL SHEET ED01



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E.B. #6244

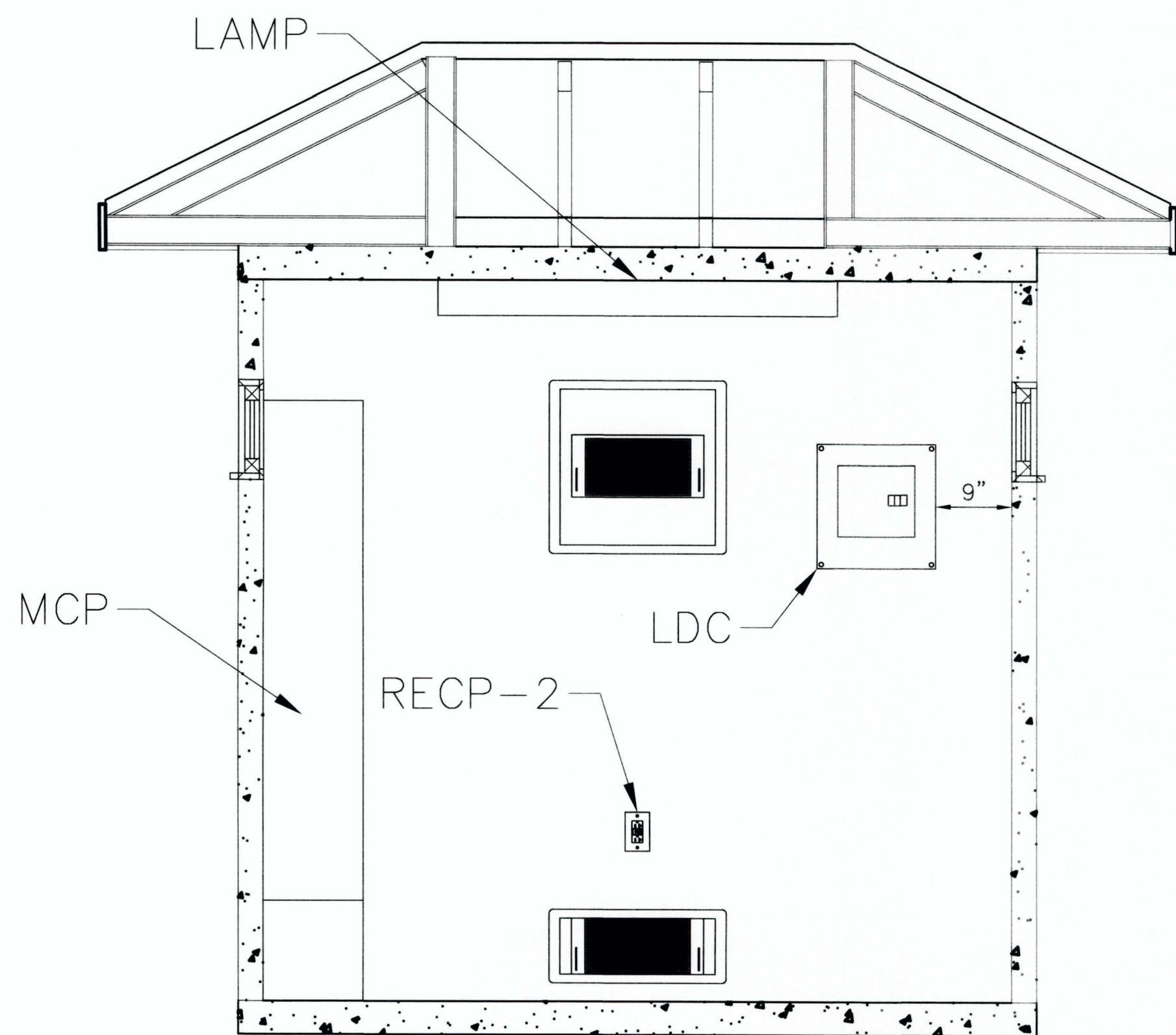
WAYNE WILDT, PE
WAYNE W. WRIGHT, PE
LICENSE
No. 58220
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Lee County
Southwest Florida
LAKES PARK WATER
QUALITY - PHASE 3
LEE COUNTY FLORIDA

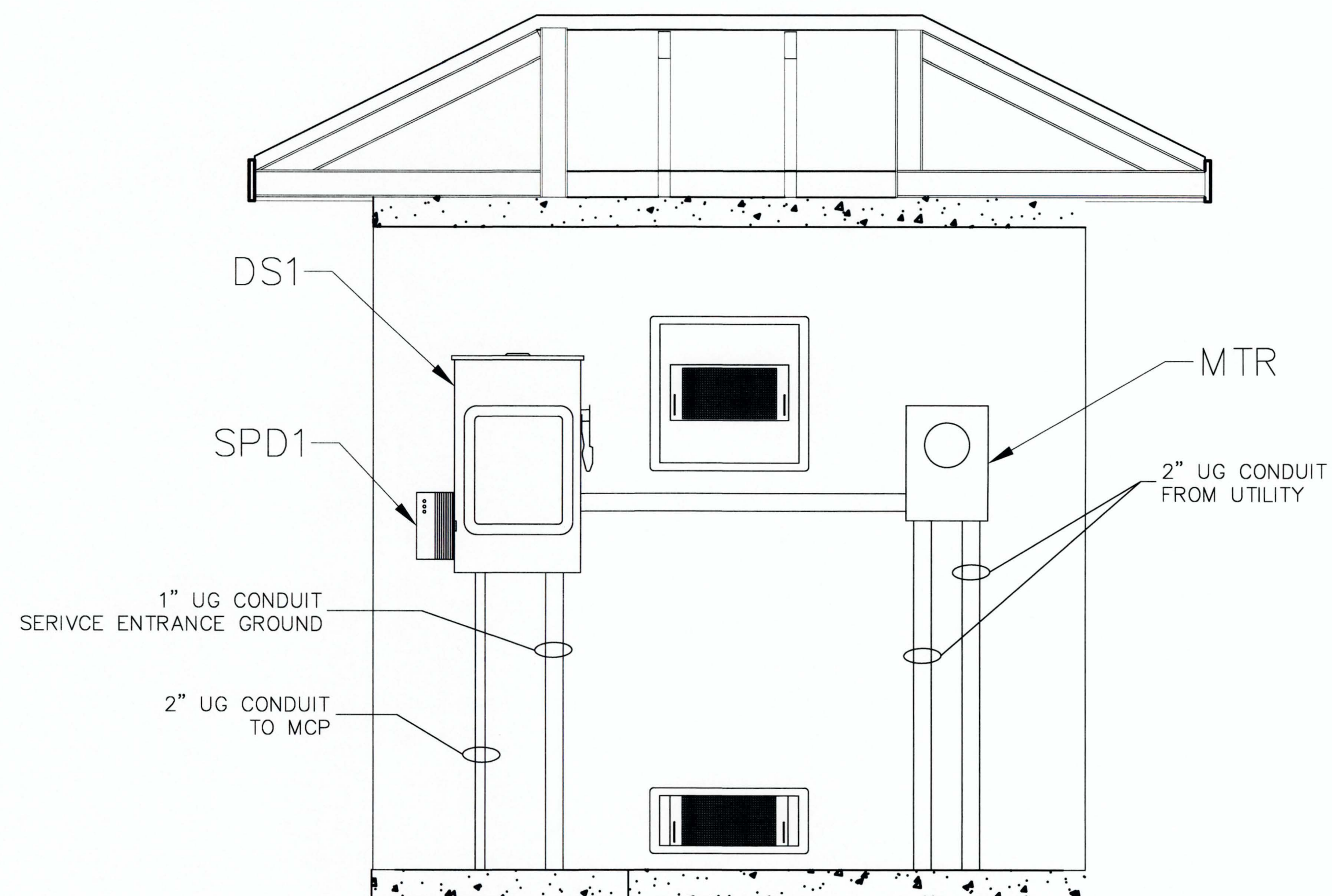
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DESCRIPTION	
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DATE: NOVEMBER 2022
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

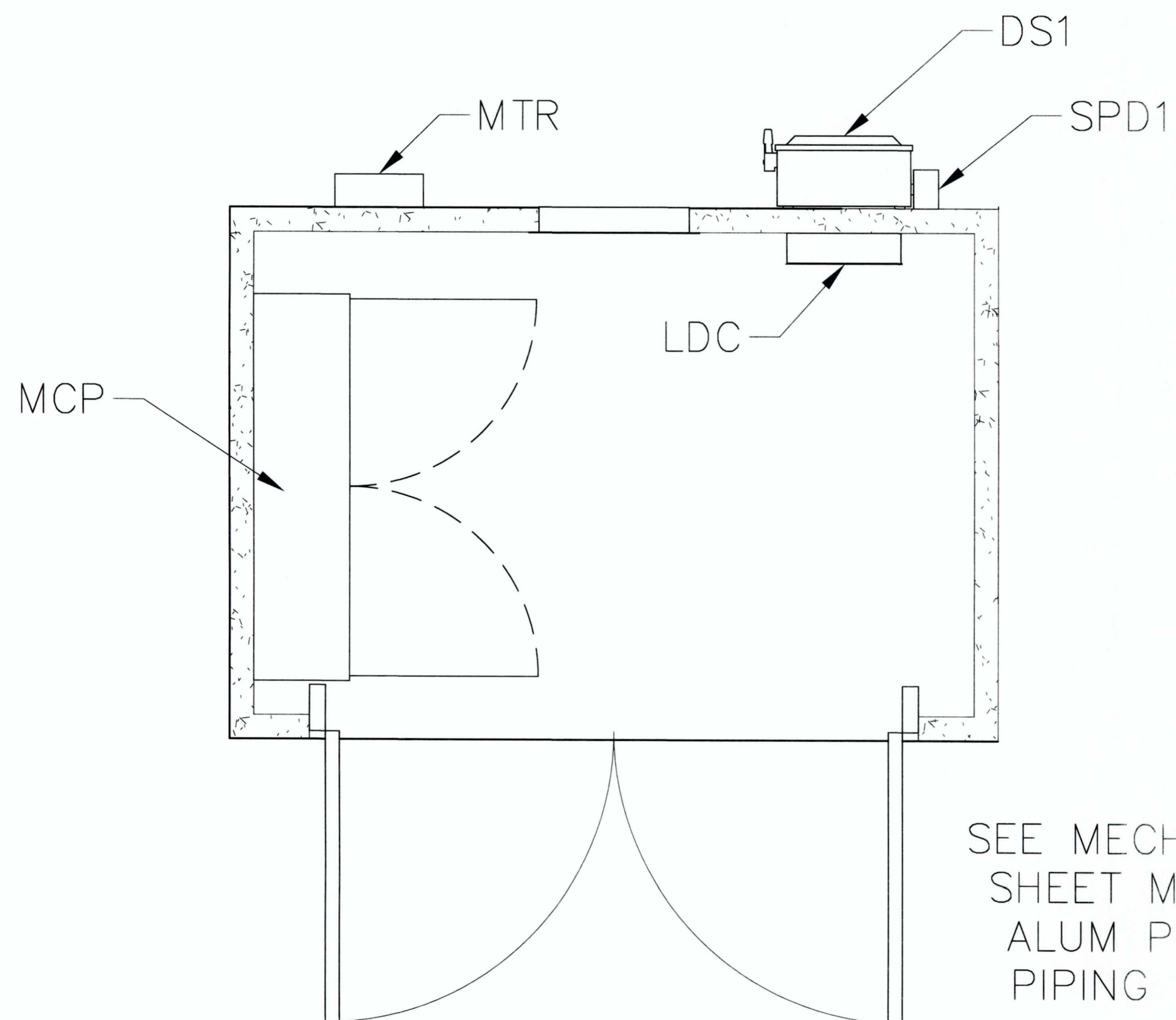
THREE LINE
DIAGRAM
SHEET NUMBER
E02



INTERIOR BACK WALL

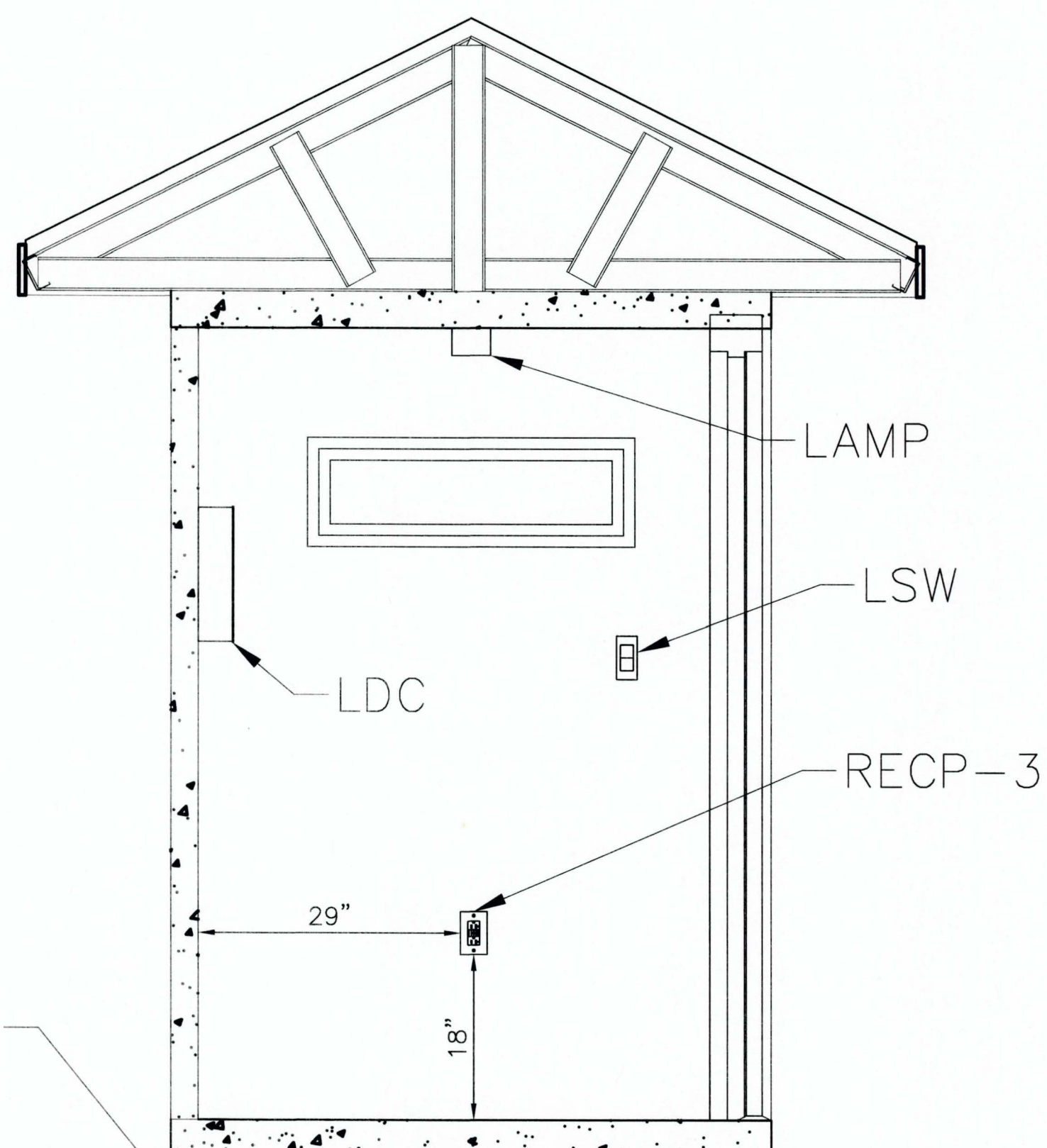


EXTERIOR BACK WALL

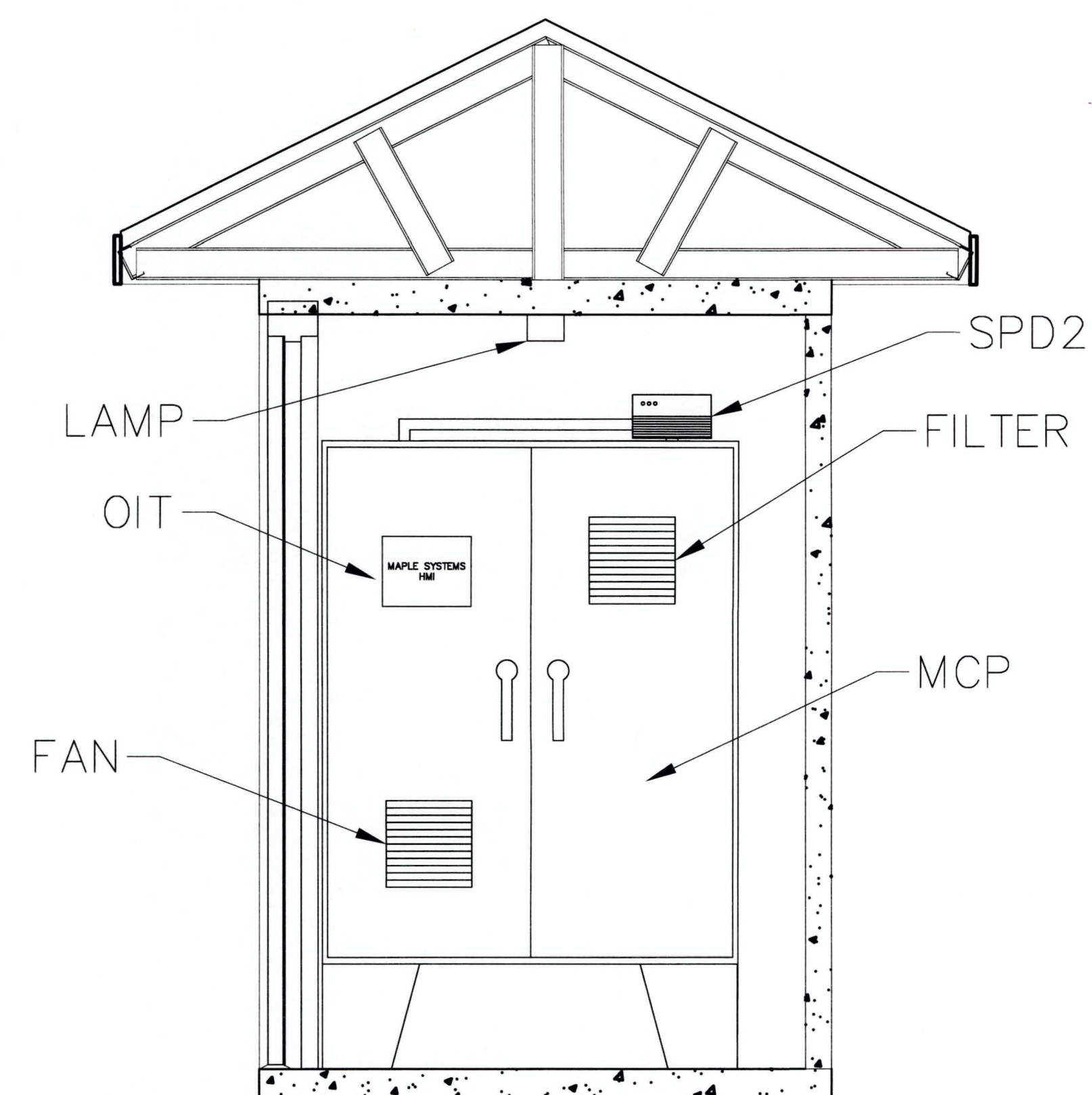


PLAN VIEW

SEE MECHANICAL SHEET M02 FOR ALUM PROCESS PIPING LAYOUT



INTERIOR RIGHT WALL



INTERIOR LEFT WALL

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WAYNE WRIGHT, PE
 LICENSE No. 58220
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER

Lee County
 Southwest Florida

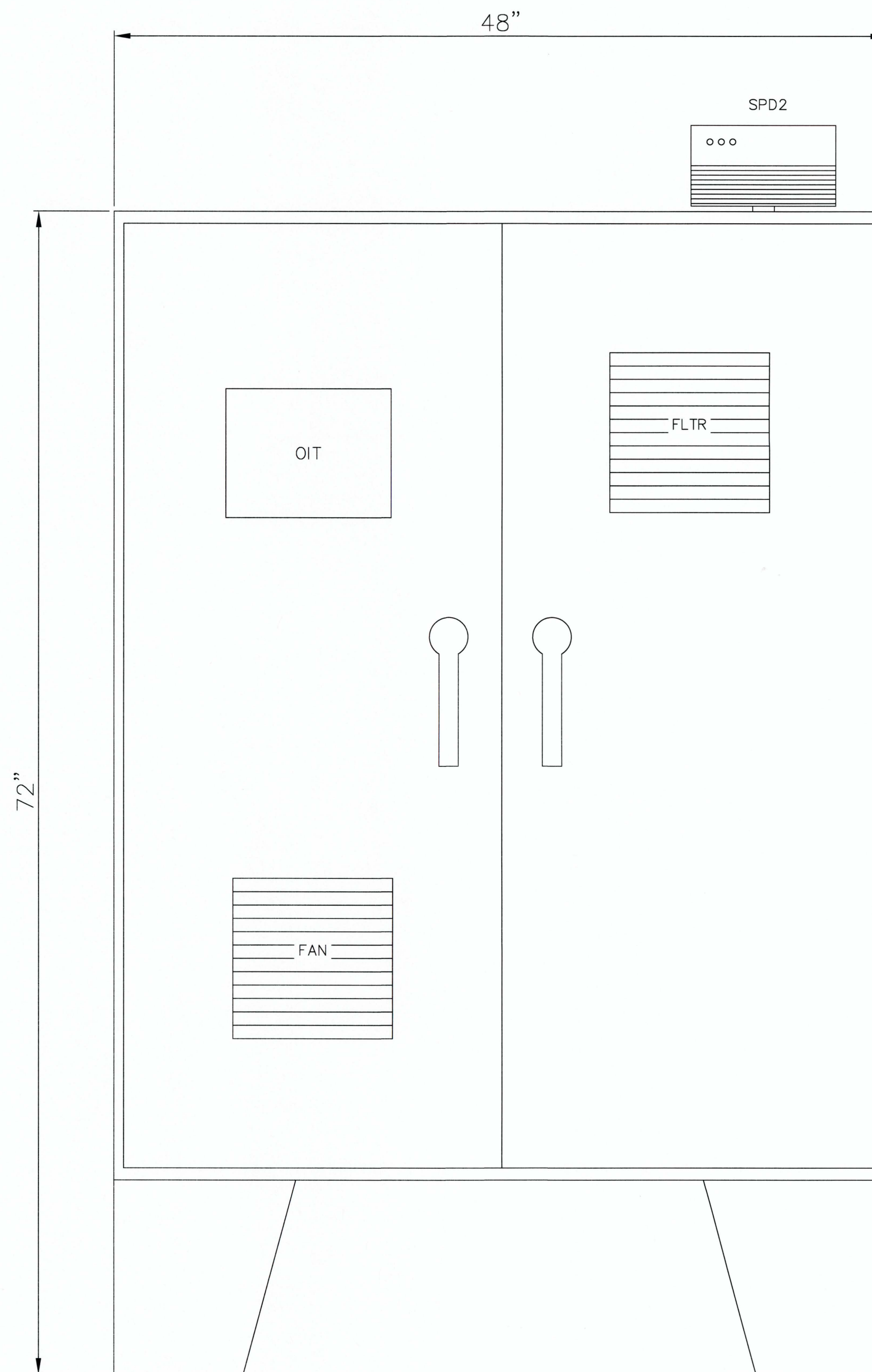
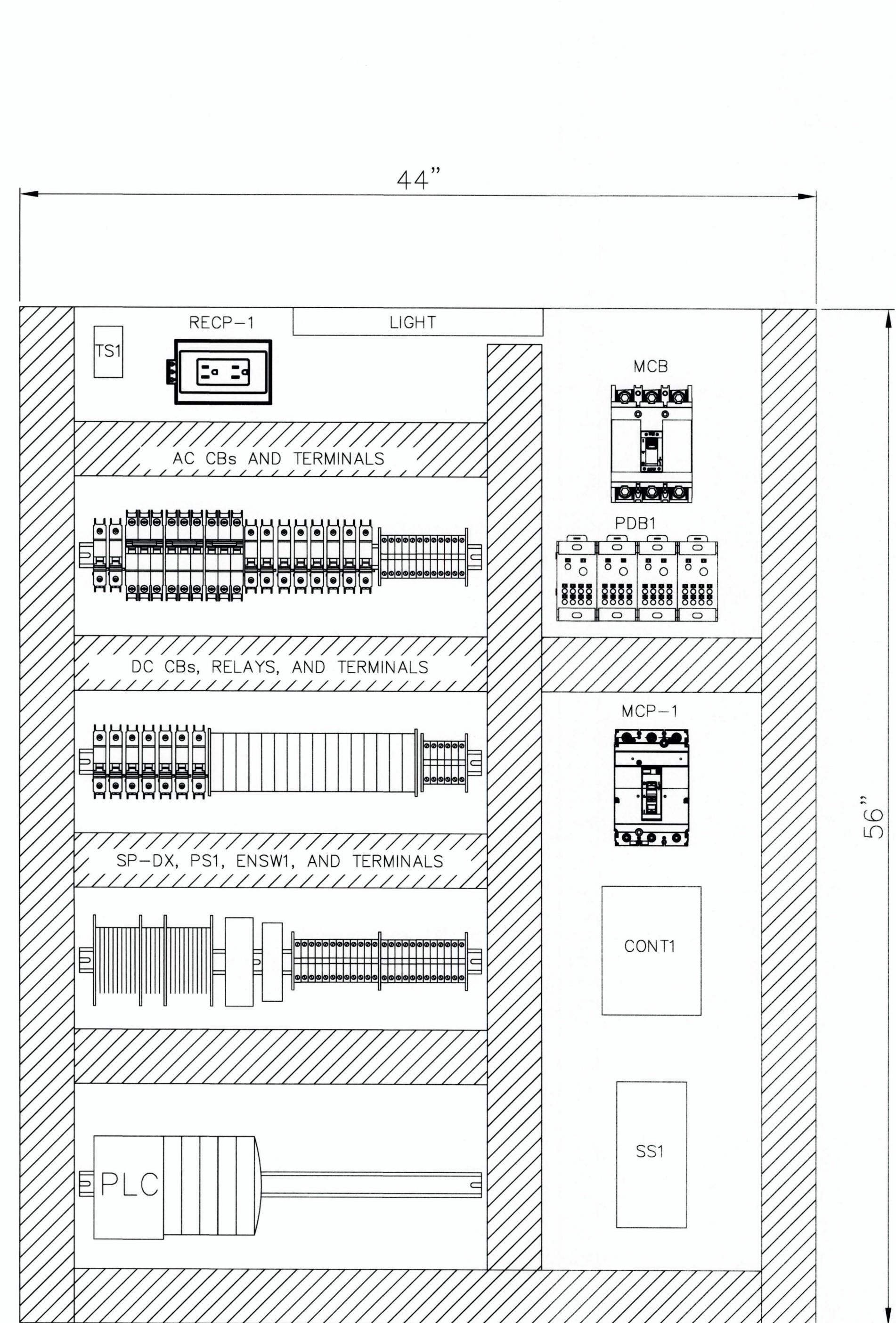
LAKES PARK WATER QUALITY - PHASE 3
 LEE COUNTY FLORIDA

NO.	REVISIONS	DESCRIPTION	DATE

DATE: NOVEMBER 2022
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OPS BUILDING ELECTRICAL LAYOUT

SHEET NUMBER
E03



NO.	REVISIONS	DATE
	DESCRIPTION	

DATE: NOVEMBER 2022
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

CONTROL PANEL
INTERIOR AND
EXTERIOR

SHEET NUMBER
E04

NOTES:

BILL OF MATERIAL FOR MAJOR COMPONENTS IS PROVIDED AS A BASIS FOR DESIGN. ALL REQUIRED COMPONENTS ARE NOT SHOWN. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A FULLY FUNCTIONAL SYSTEM.

CONTROL PANEL TO BE UL508A LISTED WITH A SHORT CIRCUIT CURRENT RATING OF 10KA OR HIGHER

MAIN CONTROL PANEL MAJOR BILL OF MATERIALS					
ITEM	QTY	ID	DESCRIPTION	MFR.	PART #
1	1	MCP	DOUBLE DOOR, TYPE 12, RIGHT FLANGE SUB PANEL (SPDD-6048) SIZE = 56" X 44"	Schaefer	SPN12D-604812
2	1	TS1	THERMOSTAT, NOC		FLZ-530
3	1	FAN	COOLING FAN, 120VAC		PF-43000
4	1	FLTR	COOLING FAN INLET FILTER		PFA-40000
5	1	LIGHT	ENCLOSURE, LED LIGHT 14" 120VAC, MOTION		21120
6	1	SPD2	SURGE PROTECTION DEVICE, 80KA, 241/120V HLD - 3PH, 4 WIRE	Square D	TVS3HWA80X
7	4	PDB1	POWER DISTRIBUTION BLOCK, LINERGY, ENCLOSED, 335A CU, 270A AL, 600 V, 2 LINE SIDE LUG, 8 LOAD SIDE LUG, AL LUG, RAIL		NSYEBAD13618
8	1	MCB	MCB, 150A/3P, 240V, 65KAIC, LSI		HGL34150U33X
9	1	MCP1	SQUARE D POWERPACT ELECTRONIC MOTOR CIRCUIT PROTECTOR		HJL36150M74
10	1	CONT1	CONTACTOR, SIZE 3, 90A, 120V COIL		8502-SE02V02S
11	21	CB "X"	CIRCUIT BREAKERS, UL-489 OR UL-1077		MULTI 9 C60 series
12	1	SS1	SOFT STARTER, 480V, 3PH, OPEN, 55 KW, NORMAL DUTY, 50C, 24VDC CONTROL, WITH ETHERNET MODULE	Danfoss	MCD-202-055-T4-CV1
13	1	ENSW1	INDUSTRIAL ETHERNET SWITCH, 5 RJ45 PORTS, UNMANAGED, 24 VDC, FL SWITCH SFNB SERIES	Phoenix Contact	2891001
14	16	---	CONTROL RELAY, 2-POLE 24VDC		2987943
15	16	---	CONTROL RELAY BASE, 1 & 2 POLE		2833521
16	1	RECP-1	RECEPT-DUAL GFI DIN MOUNT 120VAC 15A		5600462
17	25	SP-DX	120VAC SURGE PROTECTION DEVICE TTC-6-MOV-C-120AC-PT-1	PULS	2906858
18	1	PS1	POWER SUPPLY, 24VDC 240W		CP10.241
19	1	PLC	CONTROLLER, COMPACTLOGIX 5380, 600 KB USER MEMORY, 8 I/Os, 16 ETHERNET/IP DEVICES	Allen Bradley	5069-L306ER
20	2		10...32V DC 16-POINT, SINKING INPUT MODULE		5069-IB16
20	1		10...32V DC 16-POINT, SOURCING OUTPUT MODULE		5069-OB16
20	1		8-CHANNEL ANALOG INPUT MODULE		5069-IF8
21	1		4-CHANNEL ANALOG OUTPUT MODULE		5069-OF4
22	1	OIT	10.1" BASIC HMI, 1 ETH PORT	Maple Systems	HMI5100B

FIELD DEVICES - BILL OF MATERIAL						
ITEM	QTY	ID	DESCRIPTION	MFR.	PART #	
1	1	SPD1	SURGE PROTECTION DEVICE, 100KA, 240/120V HLD, 3PH, 4 WIRE	SQUARE D	TVS3HWA10X	
2	1	DS1	SAFETY SWITCH, HEAVY DUTY, NON-FUSIBLE, 200A, 3 POLES, 60HP, 240VAC/250VDC, NEMA 3R, SUITABLE FOR SERVICE ENTRANCE		HU364RB	
3	1	DLK	CONNECTION ACCESSORY, HEAVY DUTY SAFETY SWITCH, DOUBLE LUG KIT, 200A		AL20DTF	
4	1	LDC	LOAD CENTER, QO, 1 PHASE, 12 SPACES, 24 CIRCUITS, 100A CONVERTIBLE MAIN BREAKER, NEMA1, UL		QO112M100P	
5	1		LOAD CENTER COVER, QO, 12 CIRCUITS, SURFACE, GRAY		QOC12US	
6	1		PANELBOARD ACCESSORY, NQ, GROUND BAR KIT, 12 CIRCUITS, 225A MAX		PK9GTA	
7	1	SPD-4	SURGE PROTECTION DEVICE, SURGEBREAKER, 22.5KA, 120/240 VAC, 1 PHASE, 3 WIRE, SPD TYPE 2		QO2175SB	
8	1	LAMP	4 FT. 32-WATT DOUBLE ROW T8 FLUORESCENT WHITE LINEAR STRIP LIGHT FIXTURE		NICOR (OR EQUIVALENT)	10395EB
9	2	RECP-2,3	20AMP GFCI RECEPTACLE		---	---
10	1	LSW	15AMP SINGLE POLE LIGHT SWITCH		---	---
11	1	CFP	CHEMICAL FEED PUMP		BLUE-WHITE	C3V242XVA
12	1	pH	pH SENSOR, MULTI CHANNEL 4-WIRE ANALYZER FLXA402		YOKOGAWA	FLXA402
13	1	LLS	LOW LEVEL SHUTDOWN SENSOR FOR CHEMICAL FEED PUMP.		TBD	TBD
13	1	MTR	200 AMP DIRECT READING. CHECK WITH LOCAL UTILITY FOR METER REQUIREMENTS		MILBANK (OR EQUIVALENT)	---
14	5	MOV	IQ SERIES, 240V 60HZ THREE PHASE, 120VAC CONTROLS	ROTORK	TBD	

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Professional Engineer License
 No. 58220
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 WAYNE WILDER, P.E.
 11-16-22

Lee County
 Seachest Florida

LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

NO.	REVISIONS DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

MCP AND FIELD
 DEVICE BOMs

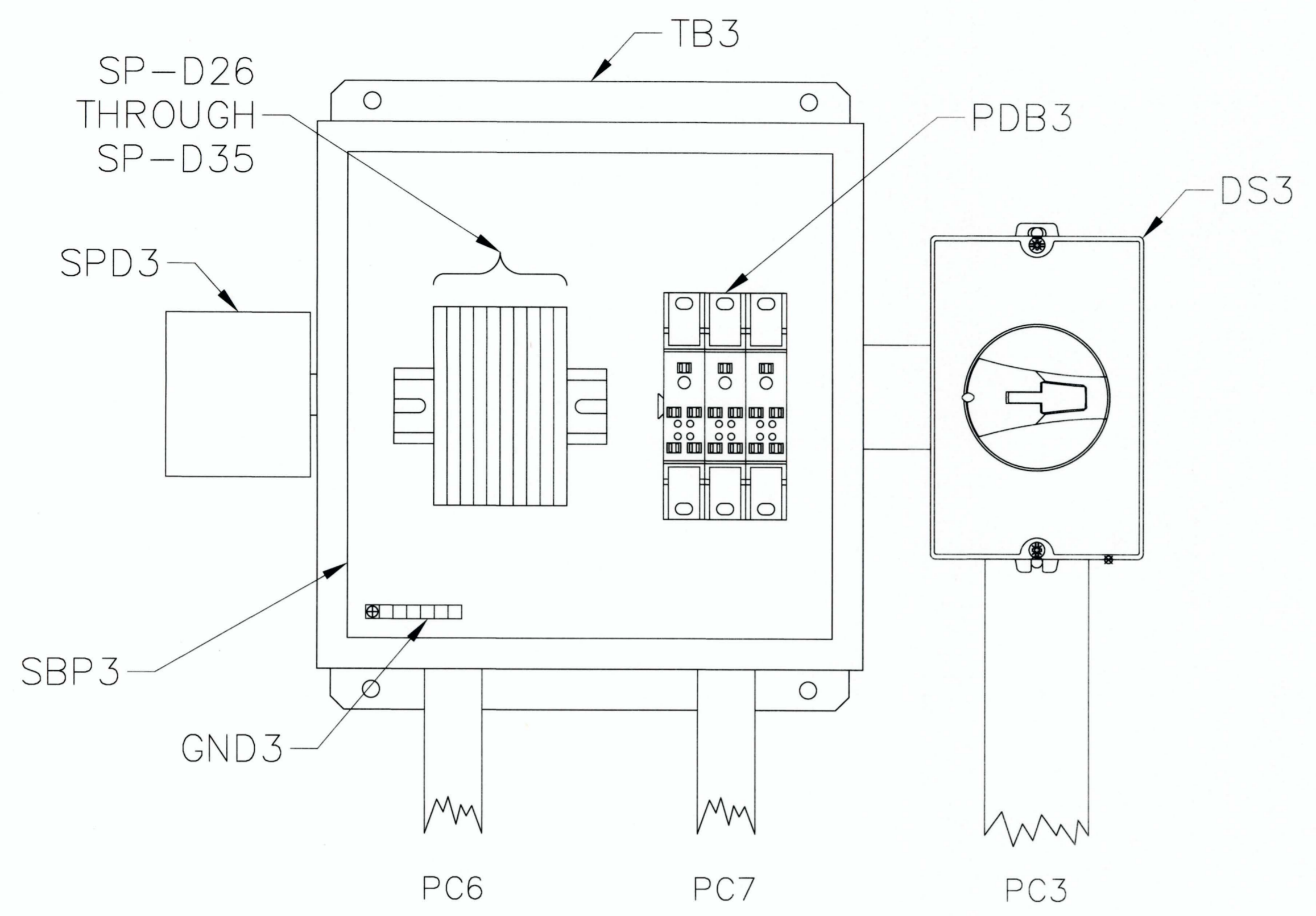
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E05

NO.	DATE	DESCRIPTION

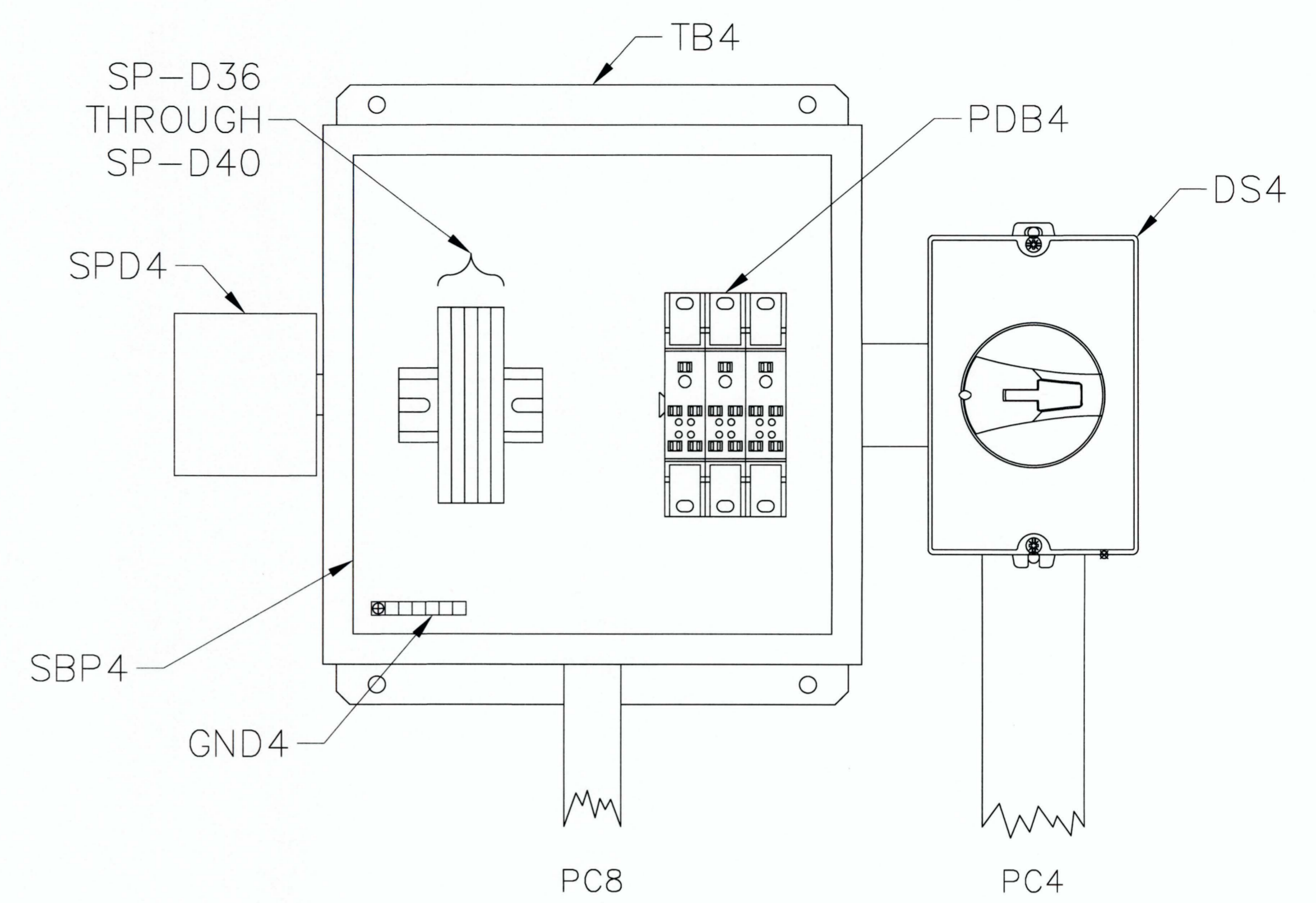
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 FILE NO. 26-45-24
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TERMINAL BOX LAYOUT AND BOM

SHEET NUMBER
E06



TERMINAL BOX #3

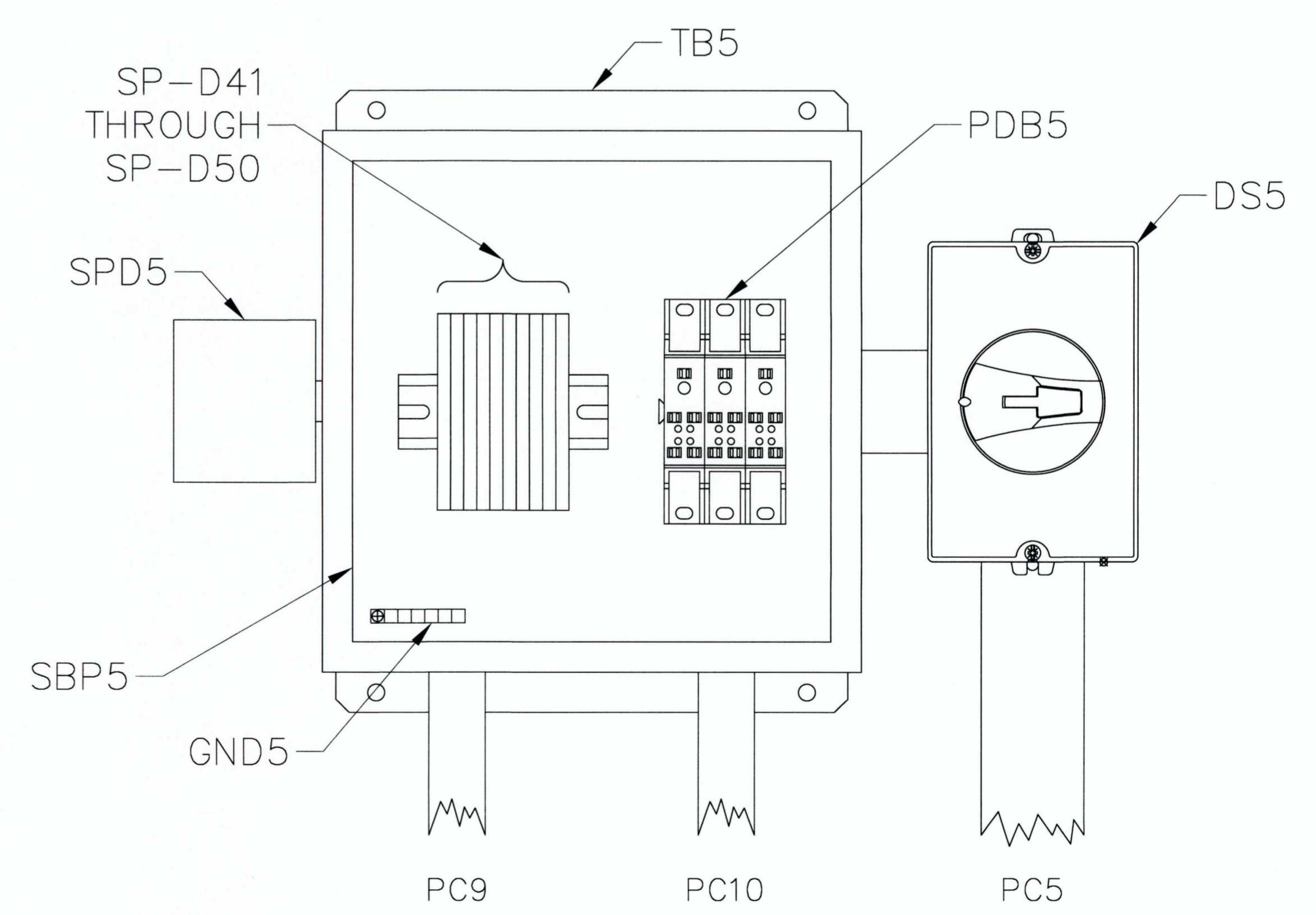


TERMINAL BOX #4

JUNCTION BOX BILL OF MATERIAL						
ITEM	ID	QTY	DESCRIPTION	MFR.	PART #	
1	SPD3,4,5	3	SURGE PROTECTION DEVICE, SURELOGIC, 40KA, 240 HLD, 3PH	SQUARE D	SDSA2040D	
2	GND3,4,5	3	7 TERMINAL GROUND BAR KIT		PK7GTACP	
3	DS3,4,5	3	30A ROTARY DISCONNECT		MD3304X	
4	JB3,4,5	3	304 STAINLESS STEEL JUNCTION ENCLOSURE 10" x 10" x 6"	SCHAEFER	SPJSS-10106	
5	SBP3,4,5	3	SUB PANEL	SCHNEIDER ELECTRIC	SPPJ-1010	
6	PDB3,4,5	9	POWER DISTRIBUTION BLOCK		NSYEBAD11614	
7	SP-D26 THROUGH SP-D50	25	120VAC SURGE PROTECTION DEVICE TTC-6-MOV-C-120AC-PT-1	PHOENIX CONTACT	2906858	

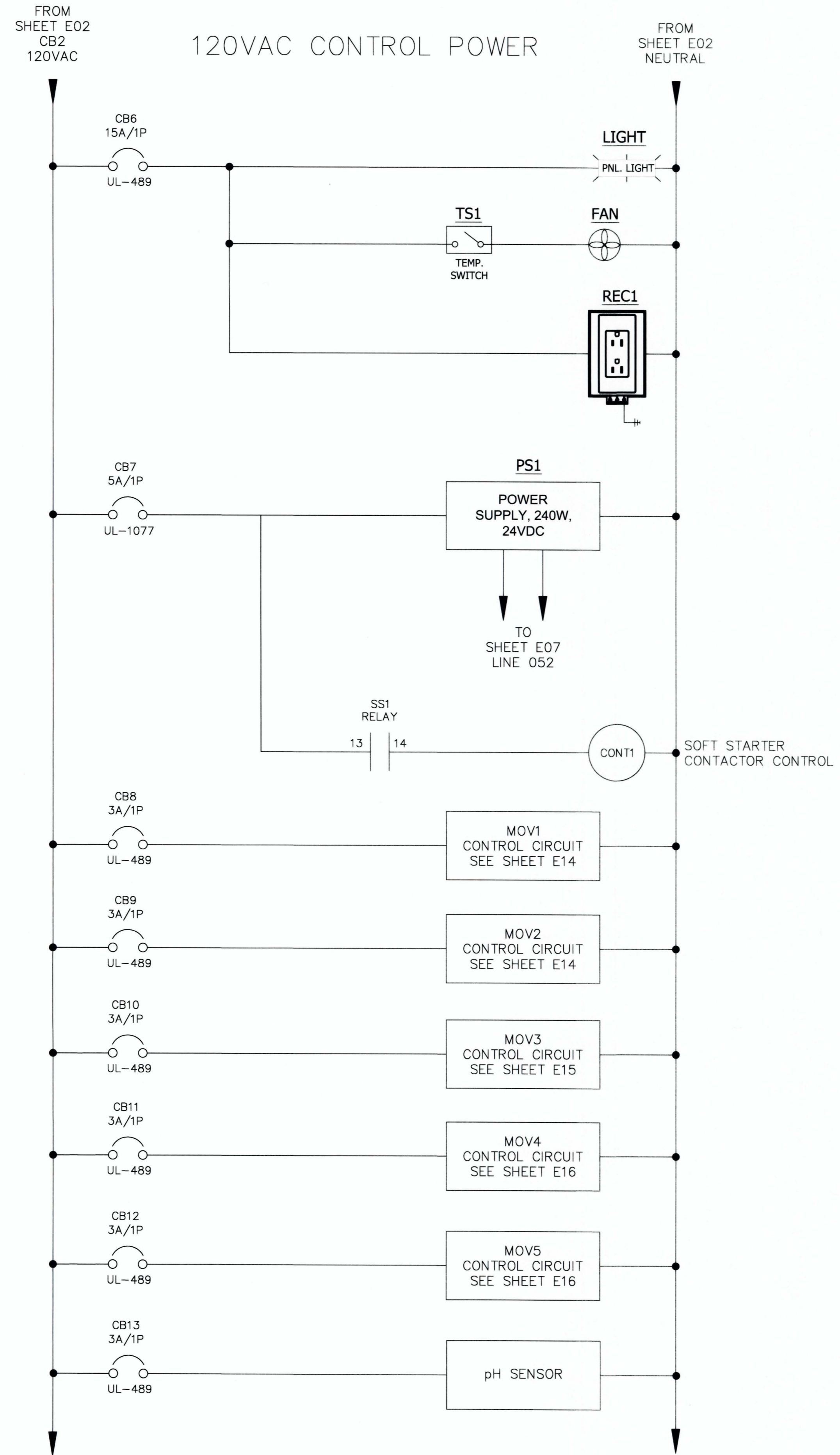
NOTES:

TERMINAL BOXES #1 AND #2 DO NOT EXIST. TERMINAL BOX NAMING CONVENTION ON THIS SHEET CHOSEN SO THAT IT IS CONSISTENT WITH THE ITEM ID NUMBERS OF THE EQUIPMENT WITHIN EACH BOX.

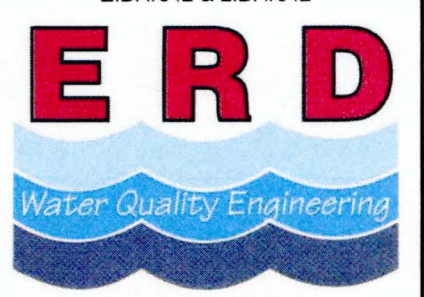
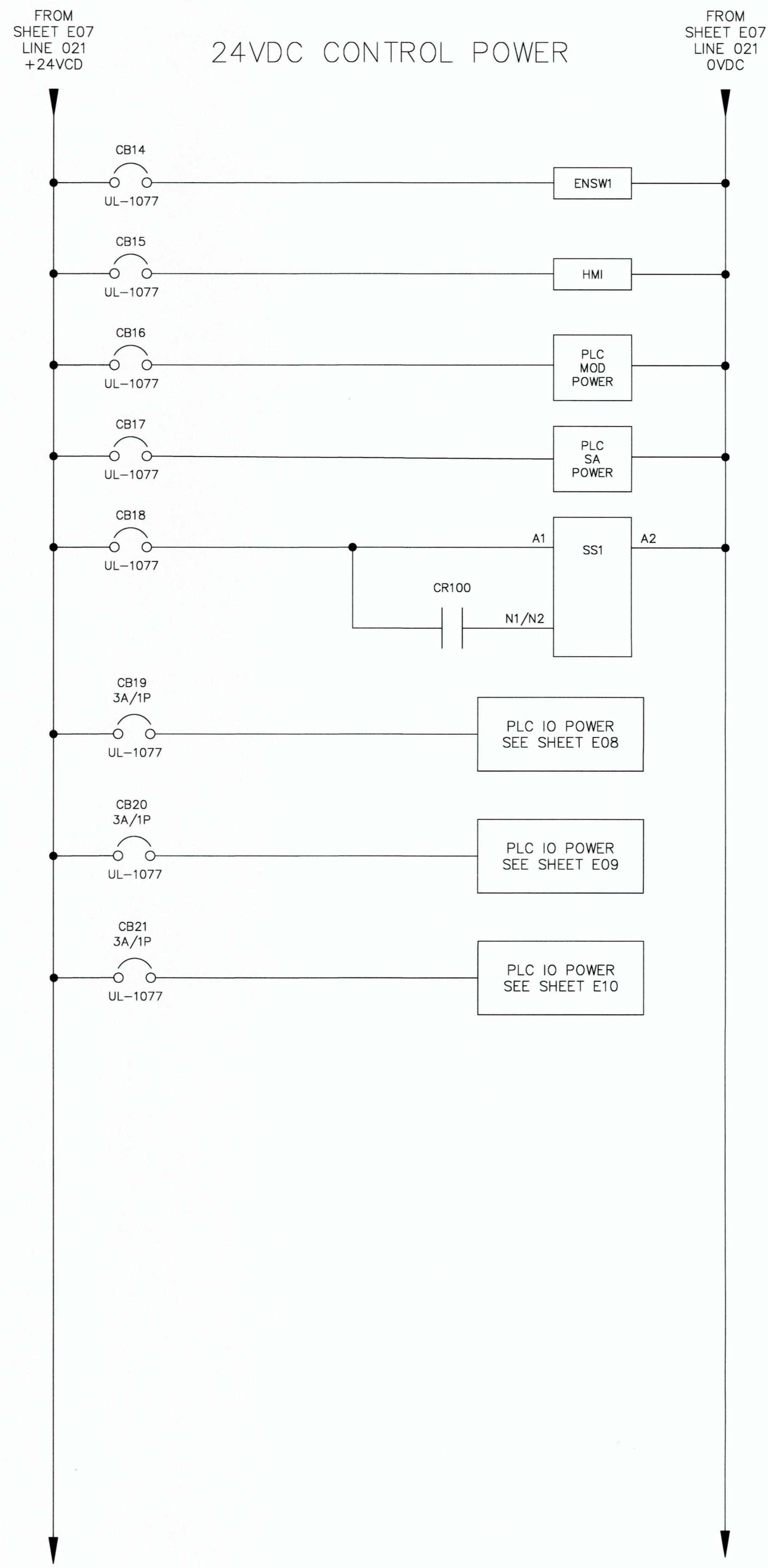


TERMINAL BOX #5

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LAKES PARK WATER
QUALITY - PHASE 3
LEE COUNTY FLORIDA

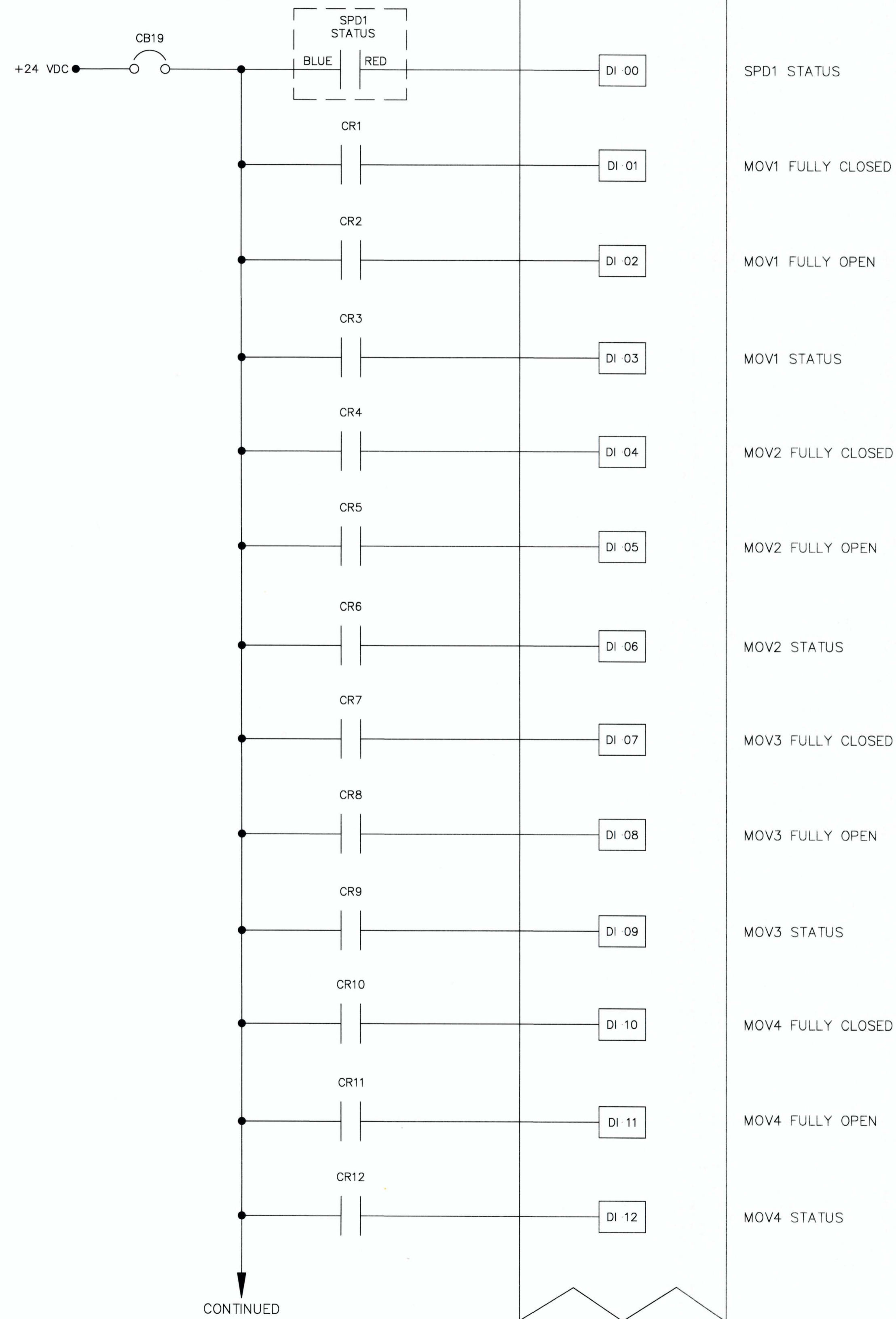
REVISIONS	DATE
DESCRIPTION	
NO.	

DATE: NOVEMBER 2022
PROJECT NO. 20214150-000
FILE NO. 26-45-24
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CONTROL POWER
SHEET NUMBER
E07

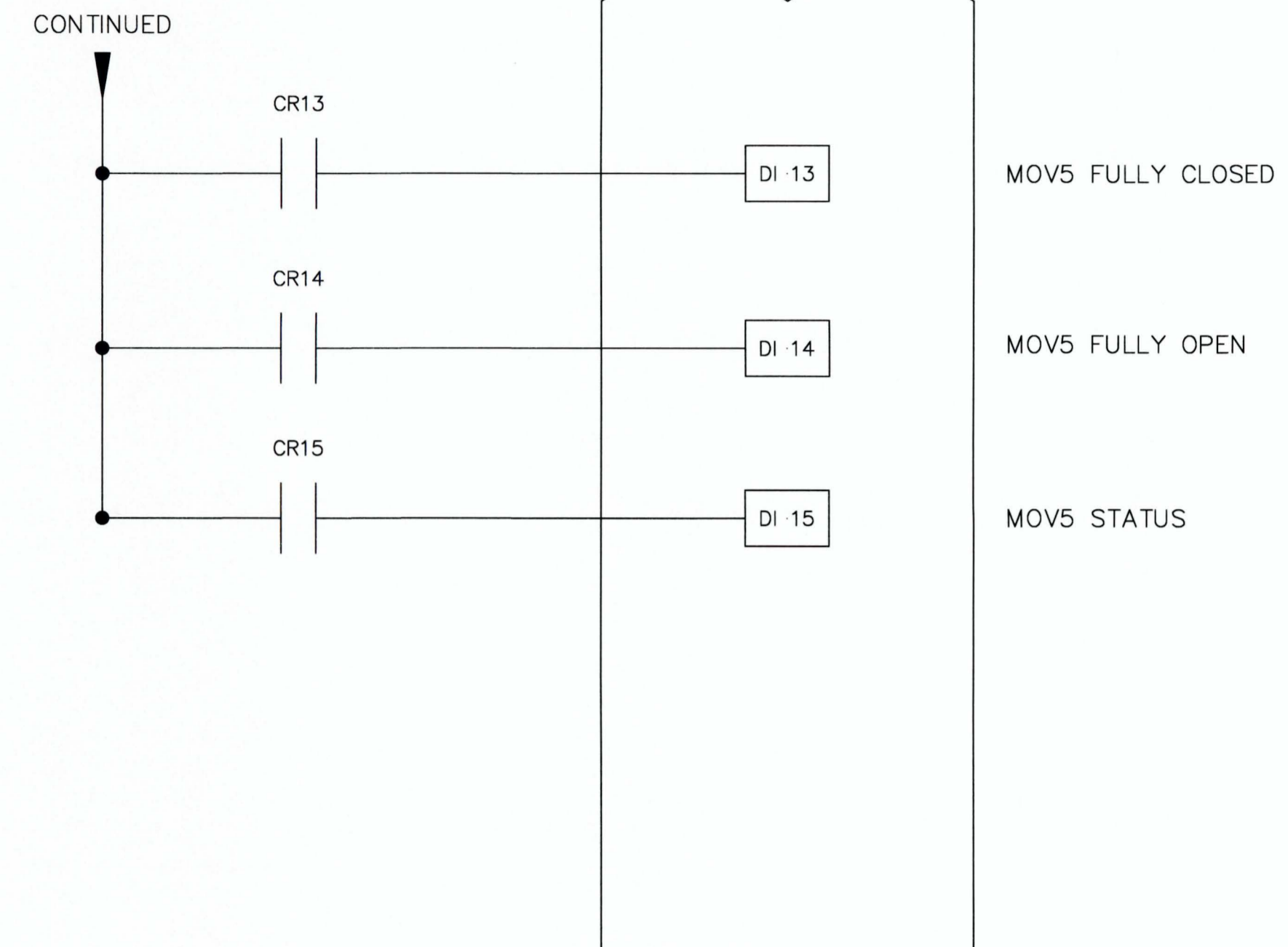
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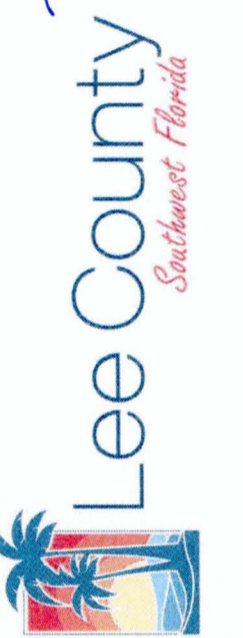
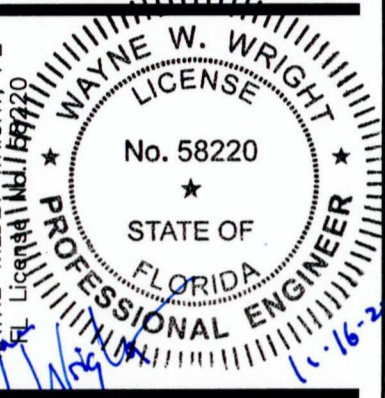


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LAKES PARK WATER
QUALITY - PHASE 3
LEE COUNTY FLORIDA

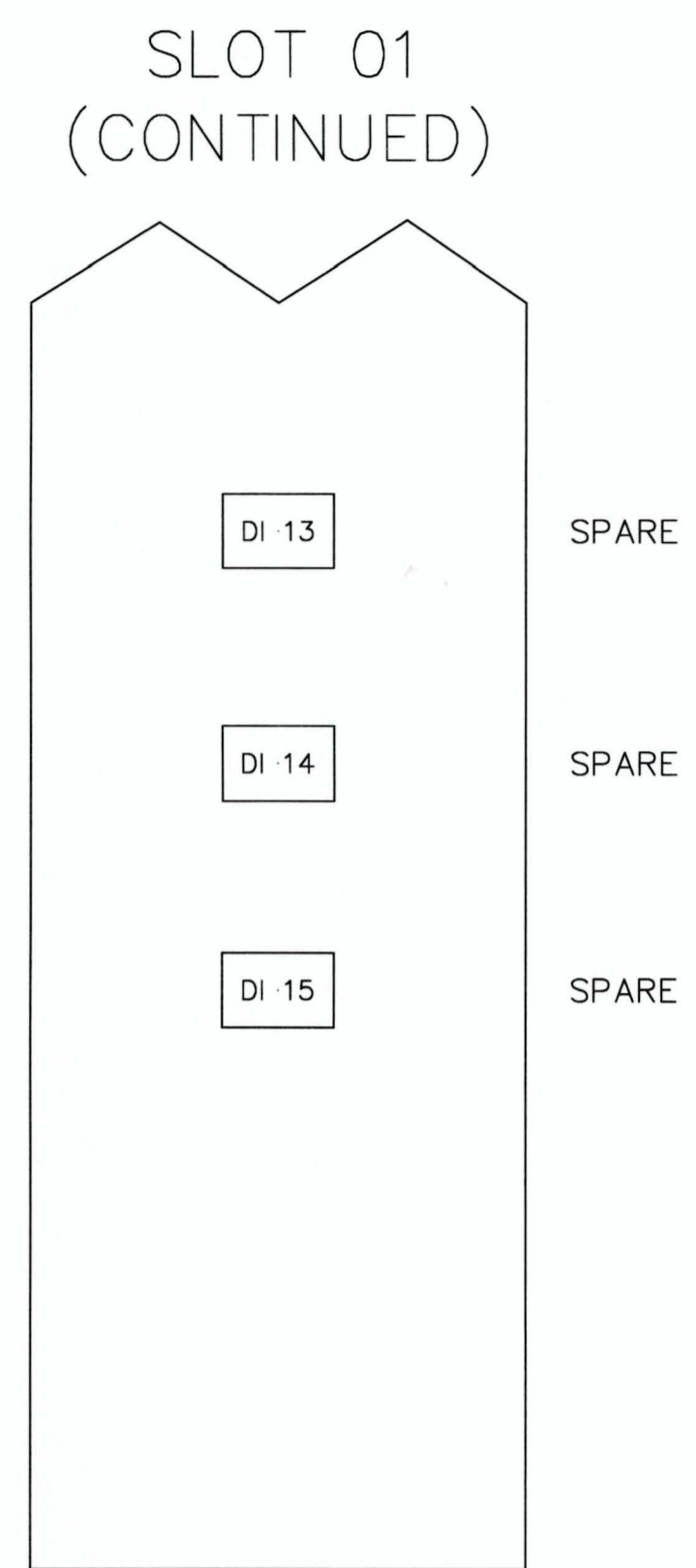
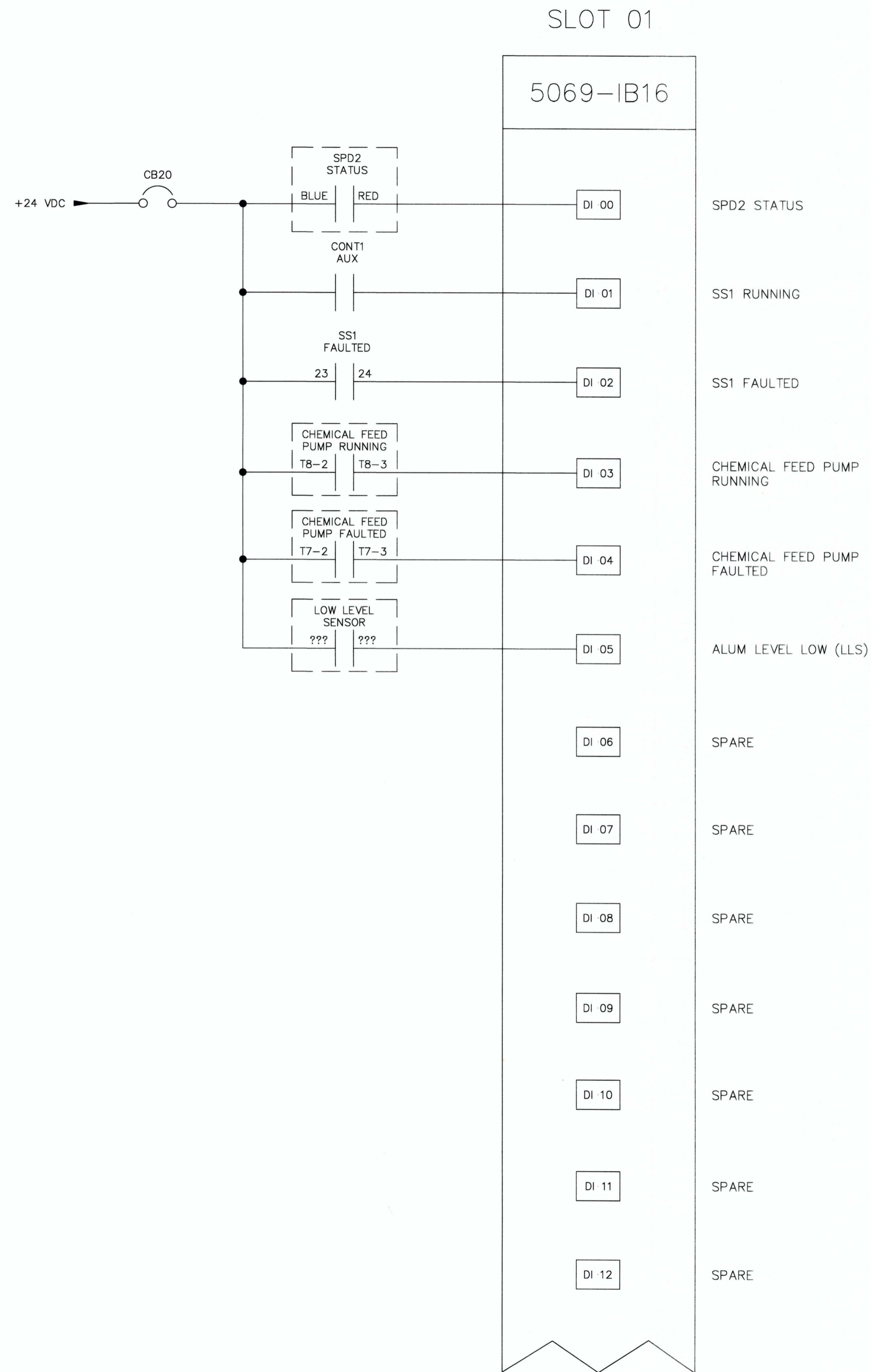
NO.	REVISIONS	DESCRIPTION	DATE

DATE: NOVEMBER 2022
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FILE NO. 26-45-24
SCALE: AS SHOWN

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IN 1

SHEET NUMBER

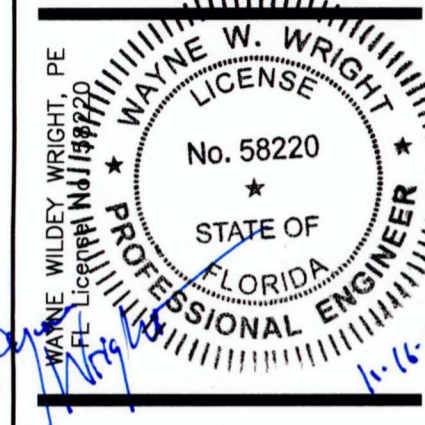
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LAKES PARK WATER
QUALITY - PHASE 3
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NO.	DESCRIPTION	DATE

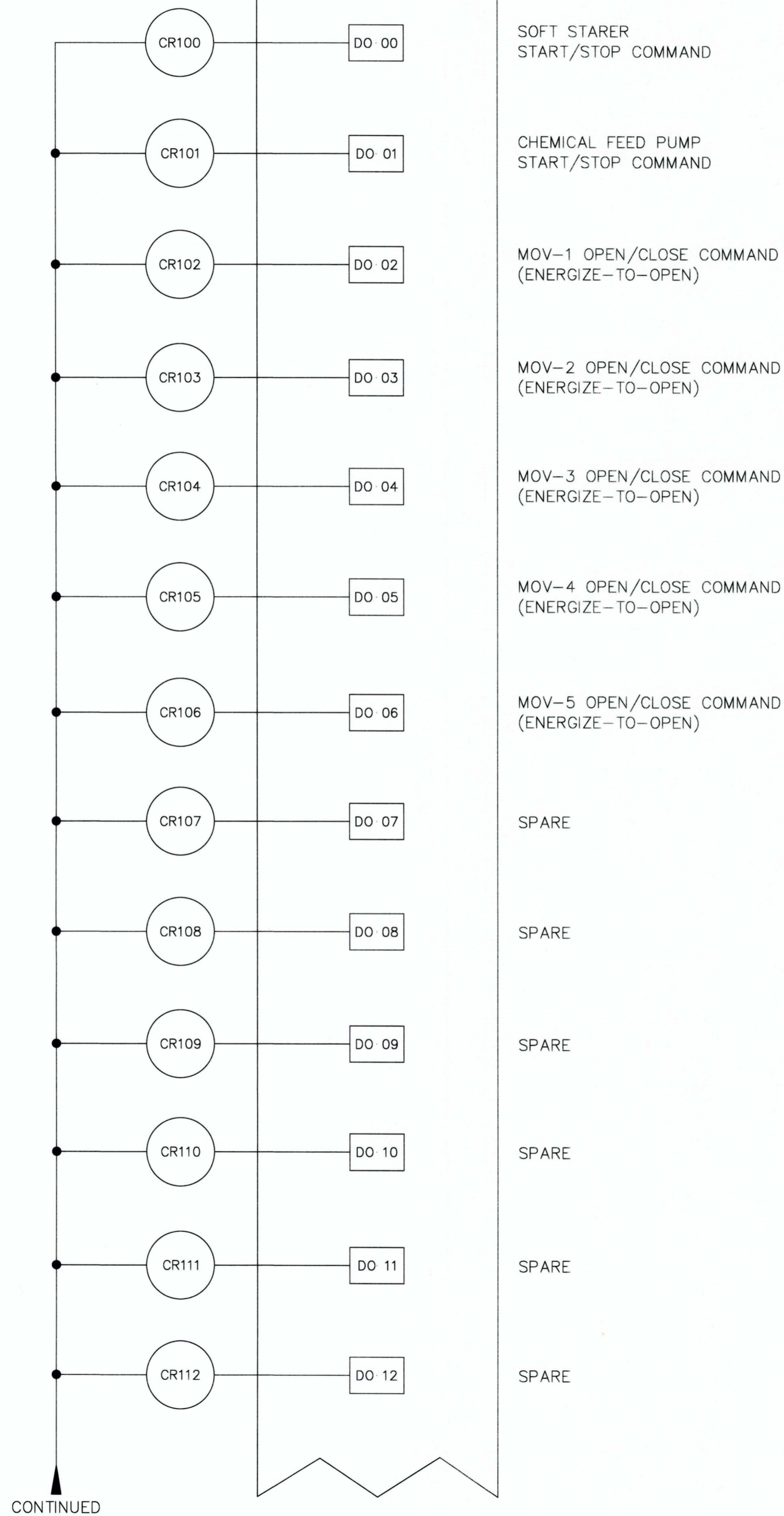
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PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

PLC IO - DISCRETE
IN 2

SHEET NUMBER
E09

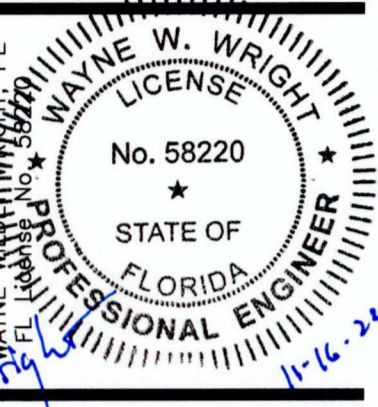
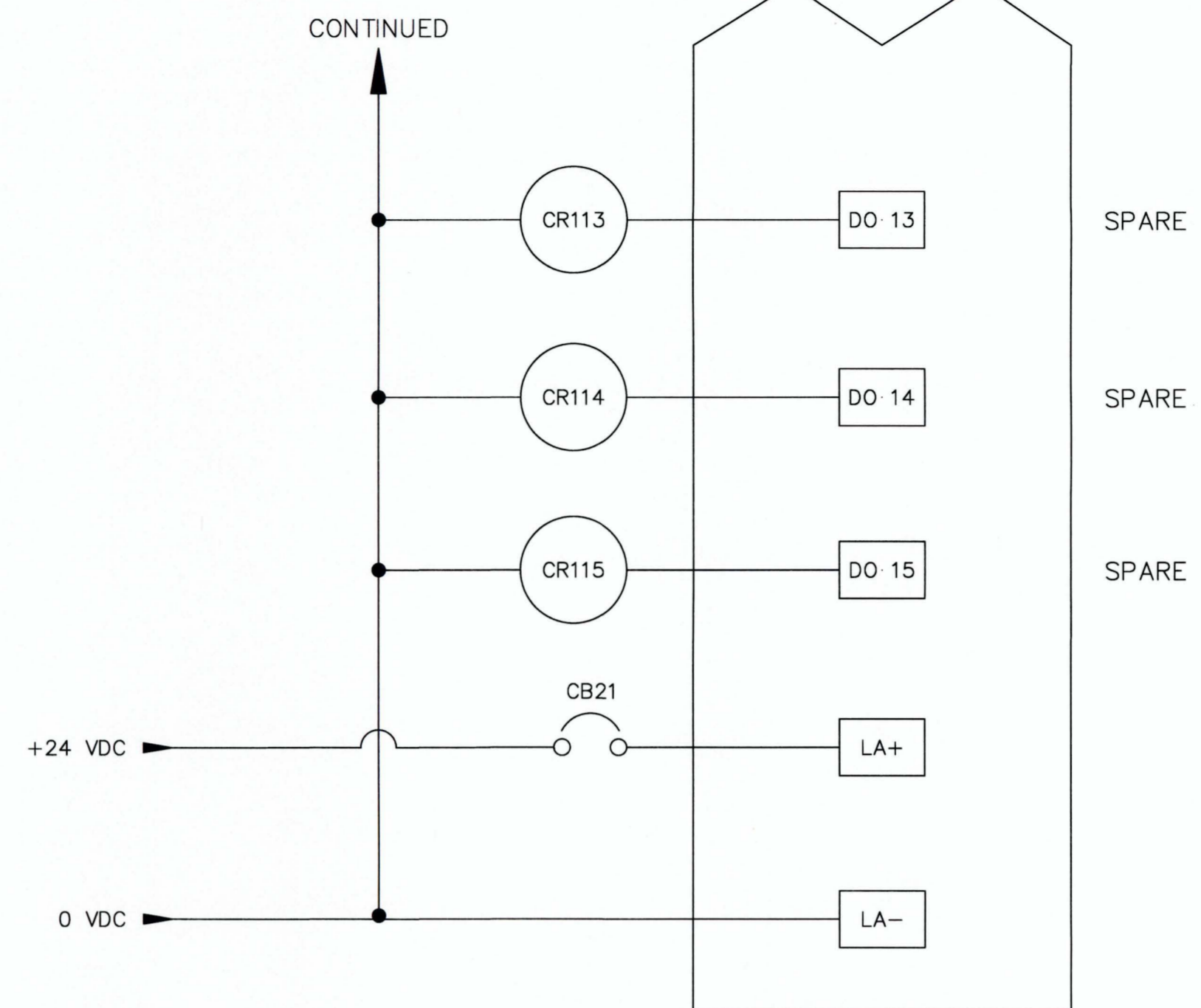
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SLOT 02
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LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

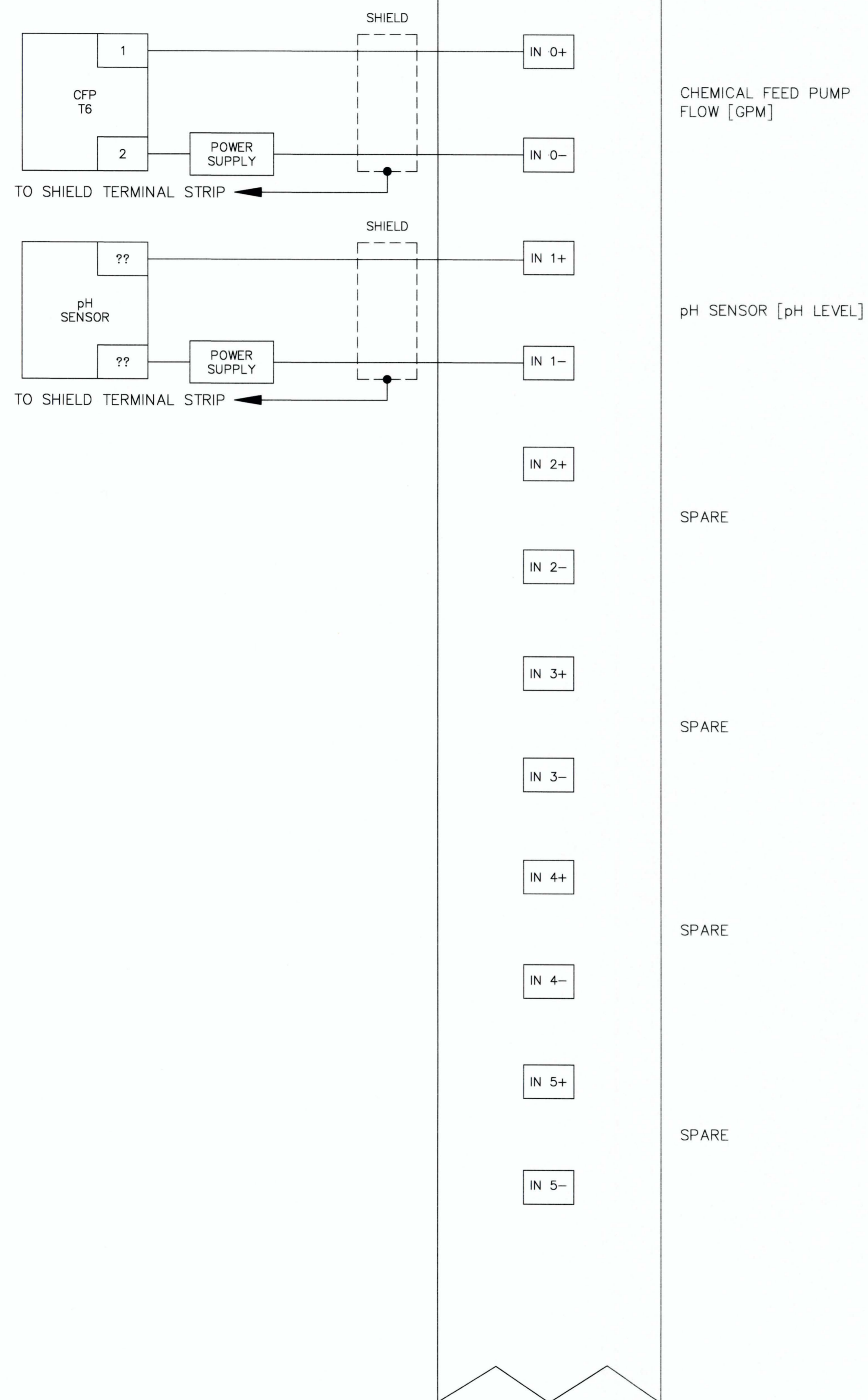
NO.	REVISIONS DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

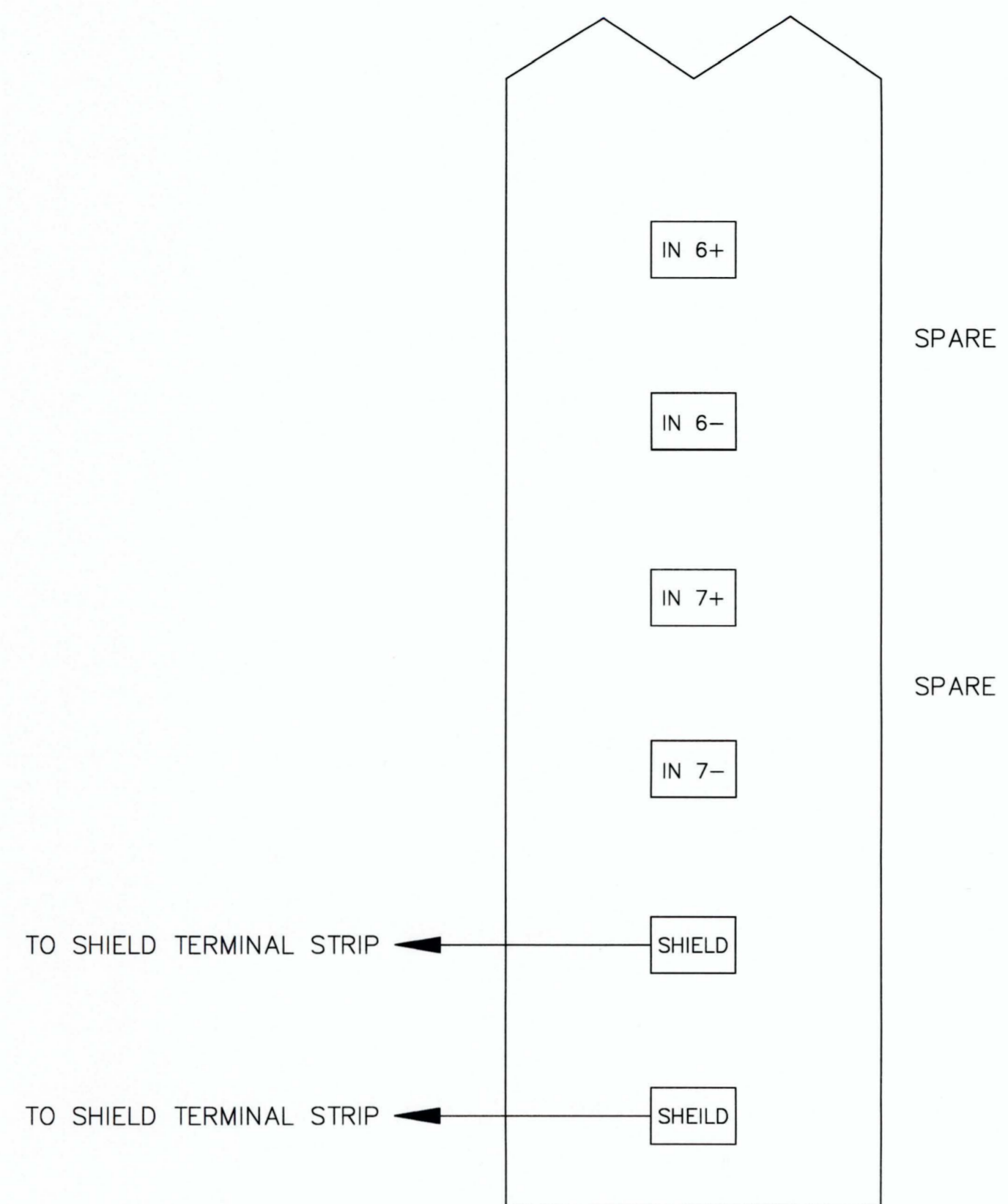
PLC IO - DISCRETE OUT

SLOT 03

5069-IF8



SLOT 03
(CONTINUED)



Wayne Wright
11-16-22



LAKES PARK WATER
QUALITY - PHASE 3
LEE COUNTY FLORIDA

NO.	REVISIONS	DESCRIPTION	DATE

DATE: NOVEMBER 2022
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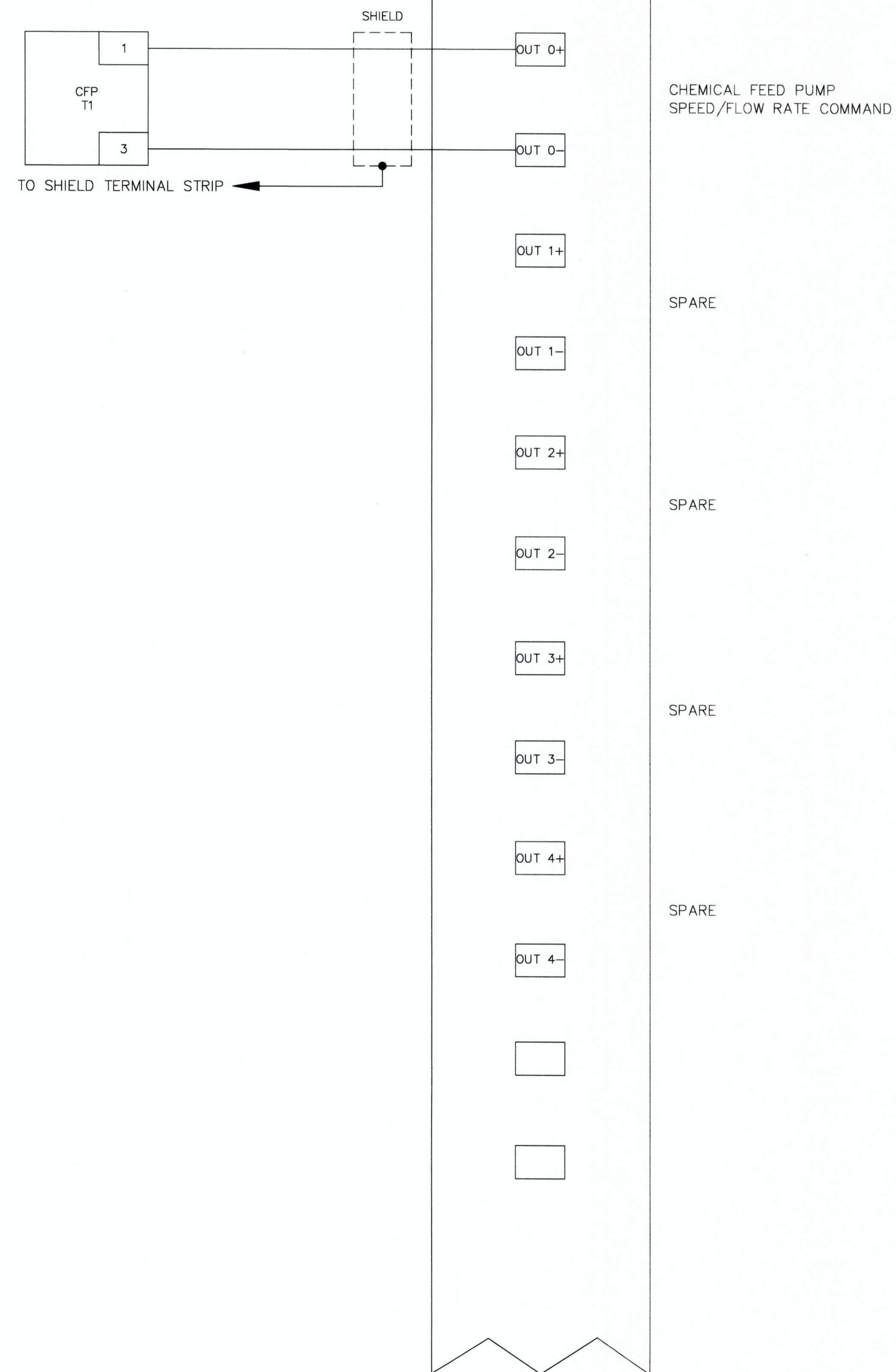
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SHEET NUMBER

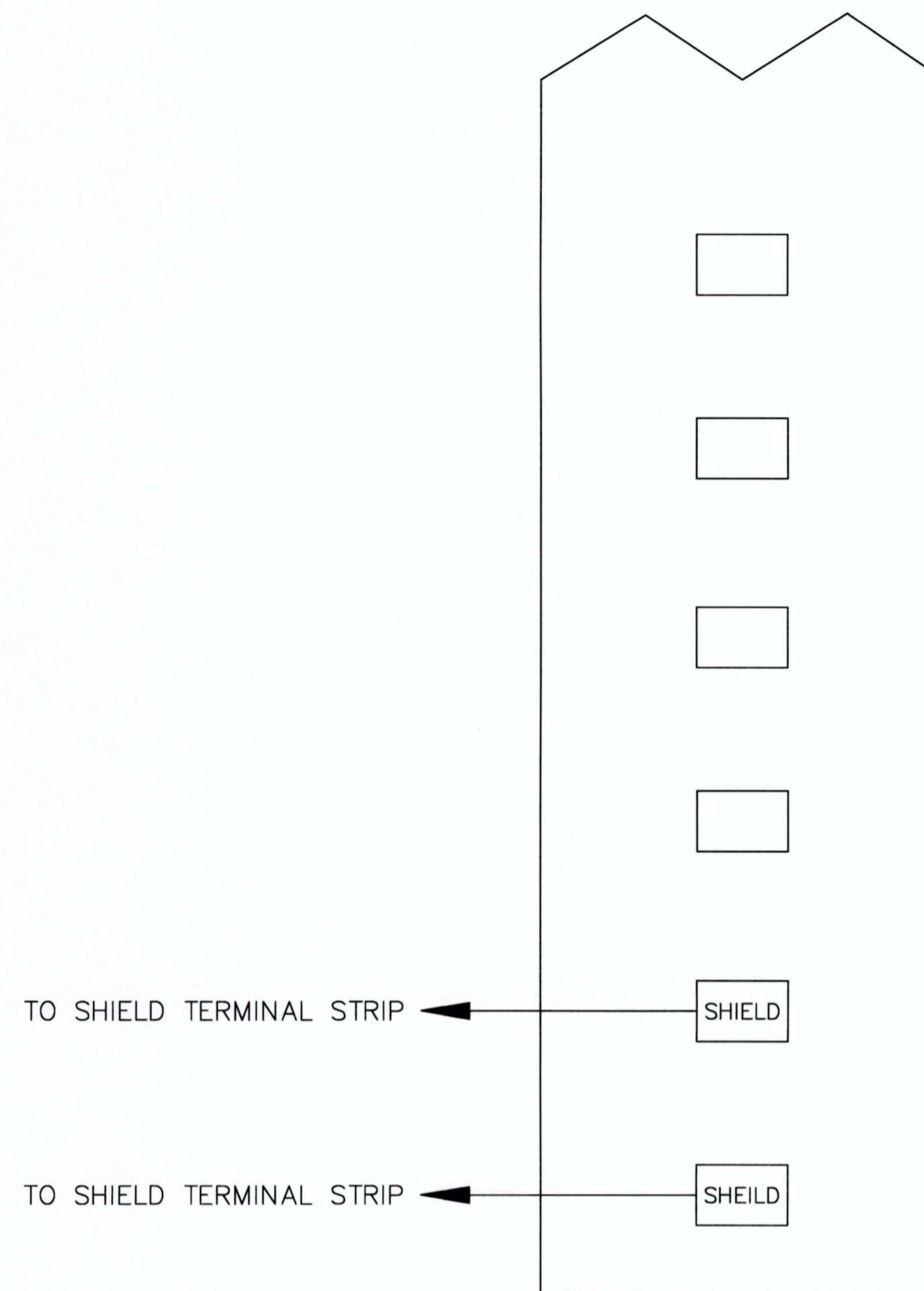
E11

SLOT 04

5069-OF4



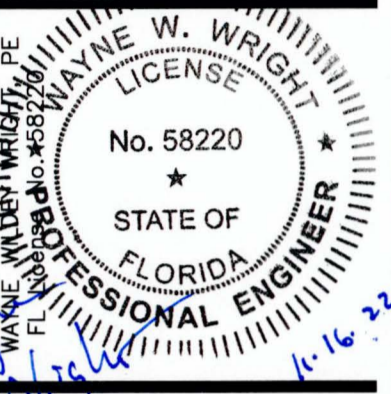
SLOT 04
(CONTINUED)



JOHNSON ENGINEERING
 JOHNSON ENGINEERING, INC.
 2122 JOHNSON STREET
 P.O. BOX 1550
 FORT MYERS, FLORIDA 33902-1550
 PHONE: (239) 334-0046
 FAX: (239) 334-3661
 E.B. #642 & L.B. #642



ENVIRONMENTAL RESEARCH & DESIGN, INC.
 3419 TRENTWOOD BLVD., SUITE 102
 BELLE ISLE, FLORIDA 32812
 PHONE: (407) 855-9465
 F.B. #244



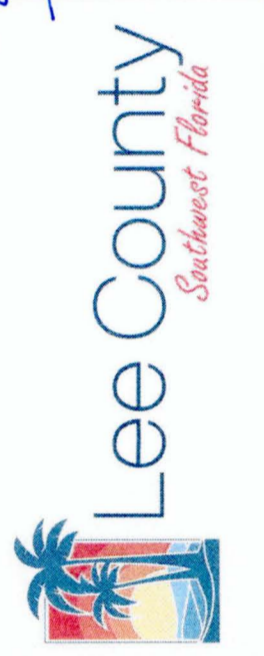
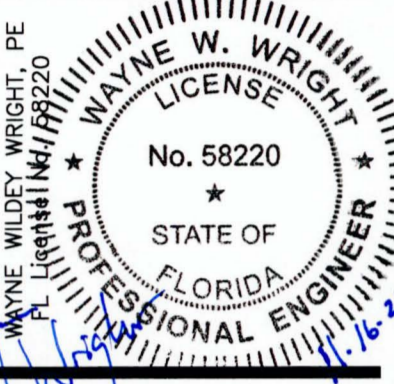
LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

NO.	DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

PLC IO - ANALOG
 OUT

SHEET NUMBER
E12



LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

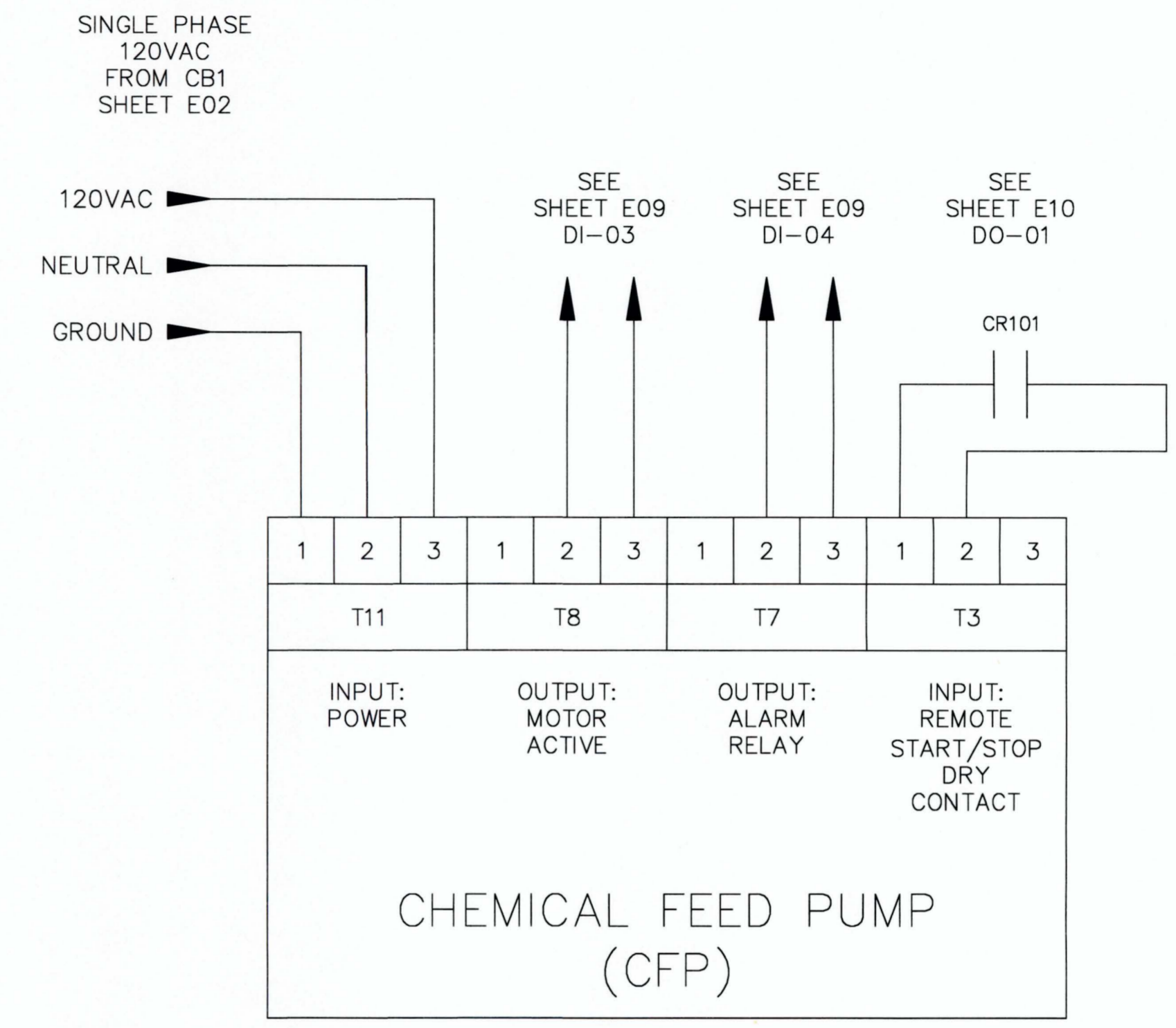
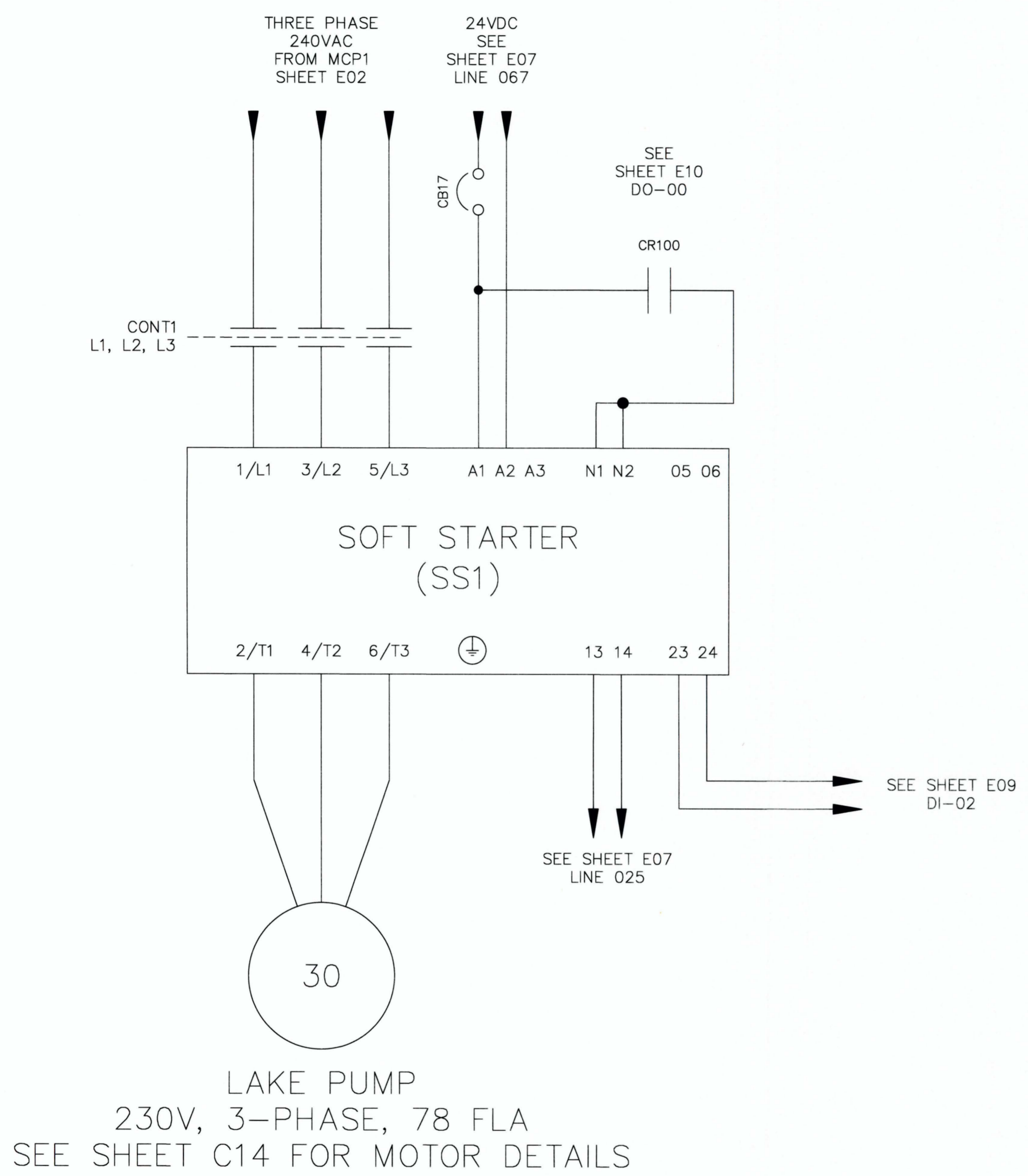
NO.	REVISIONS DESCRIPTION	DATE

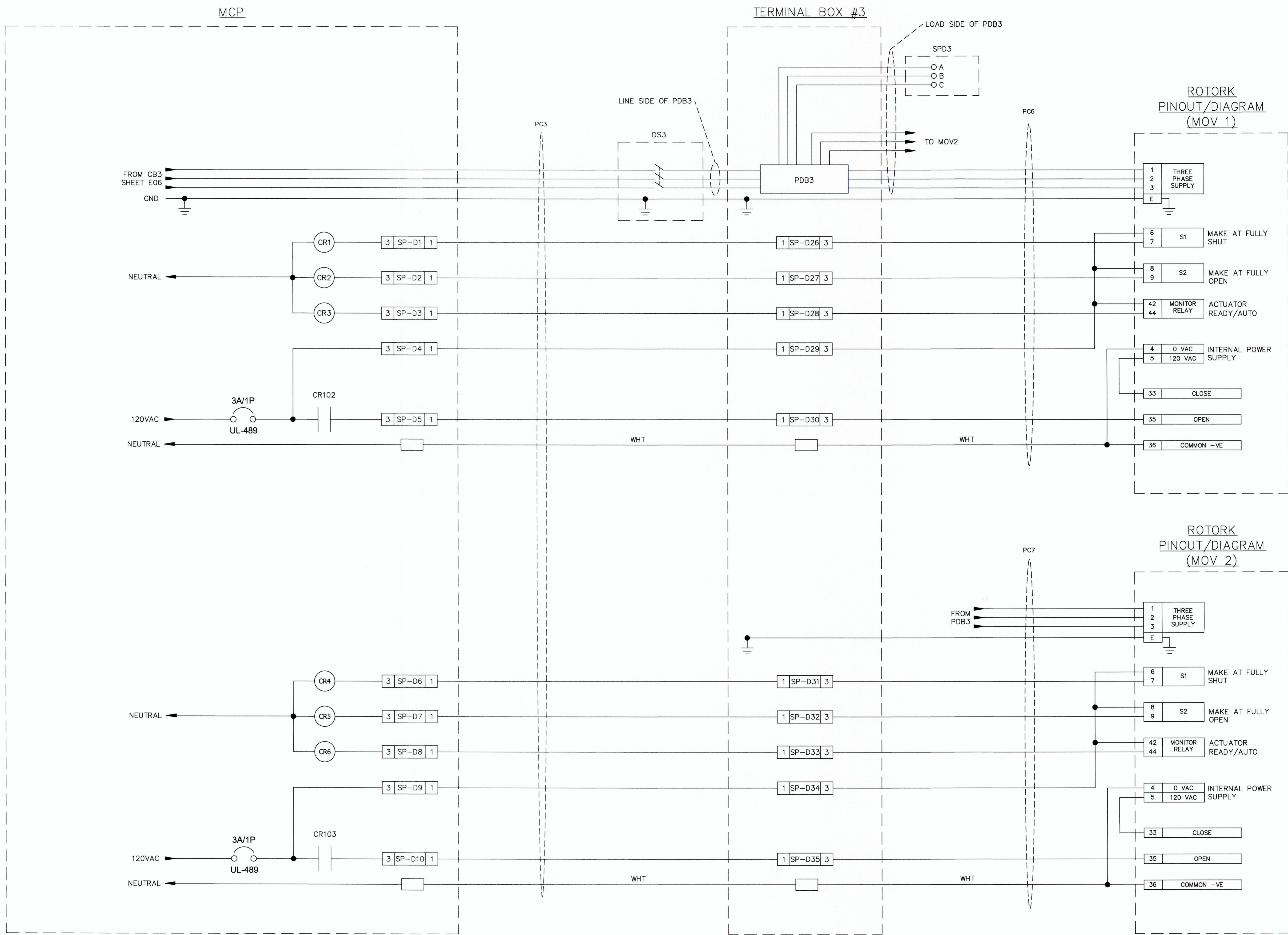
DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

SS1 AND CFP
 BLOCK DIAGRAM

SHEET NUMBER

E13

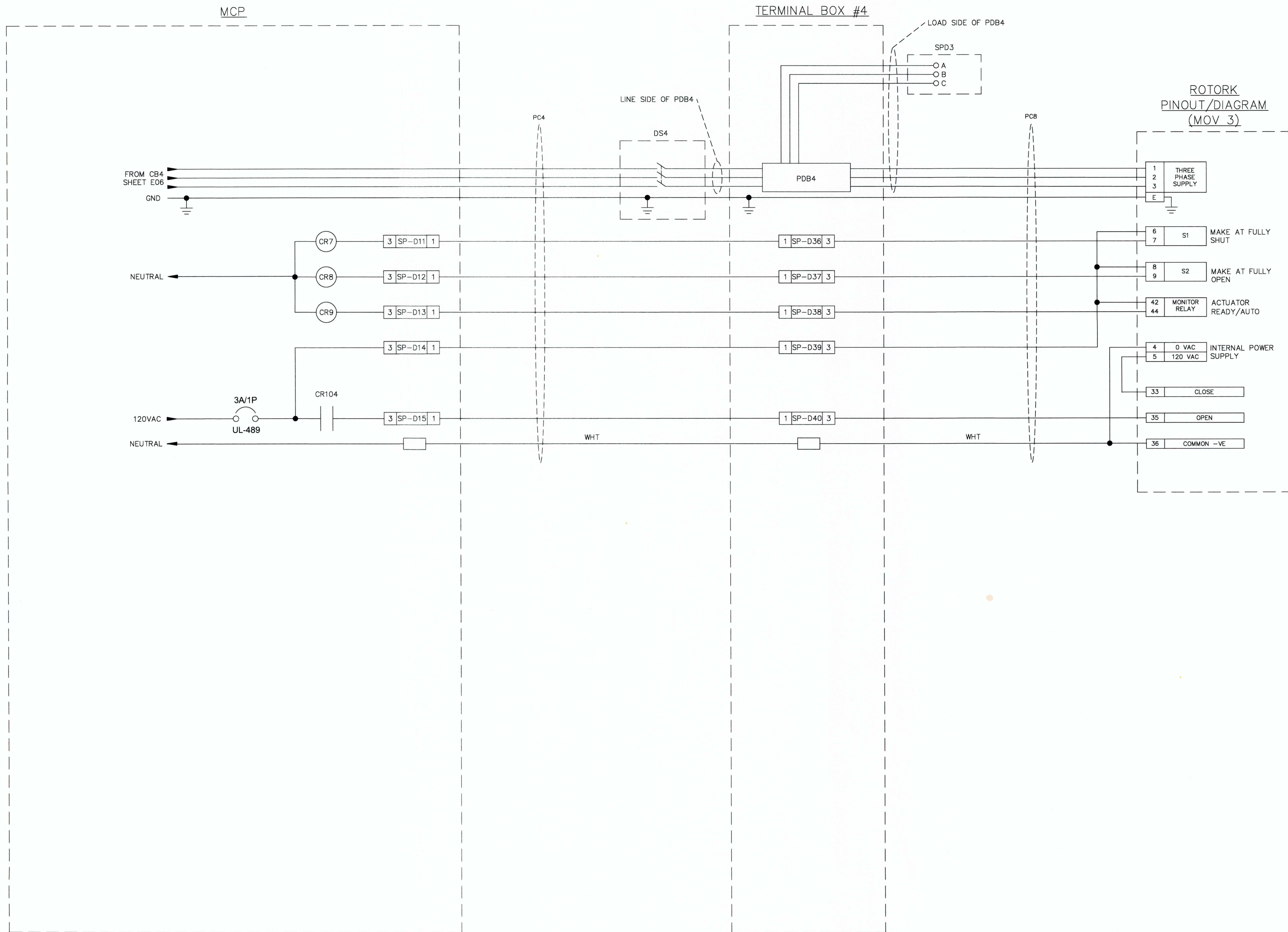




NO.	DATE	DESCRIPTION

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

MOV1 & MOV2
 BLOCK DIAGRAM

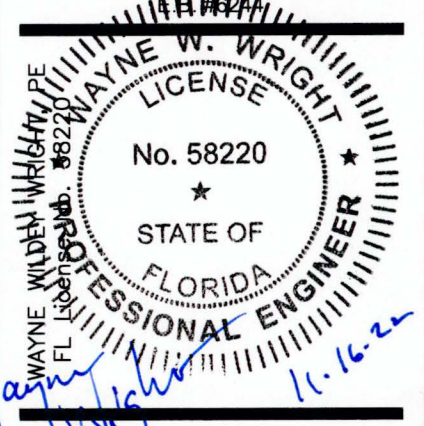
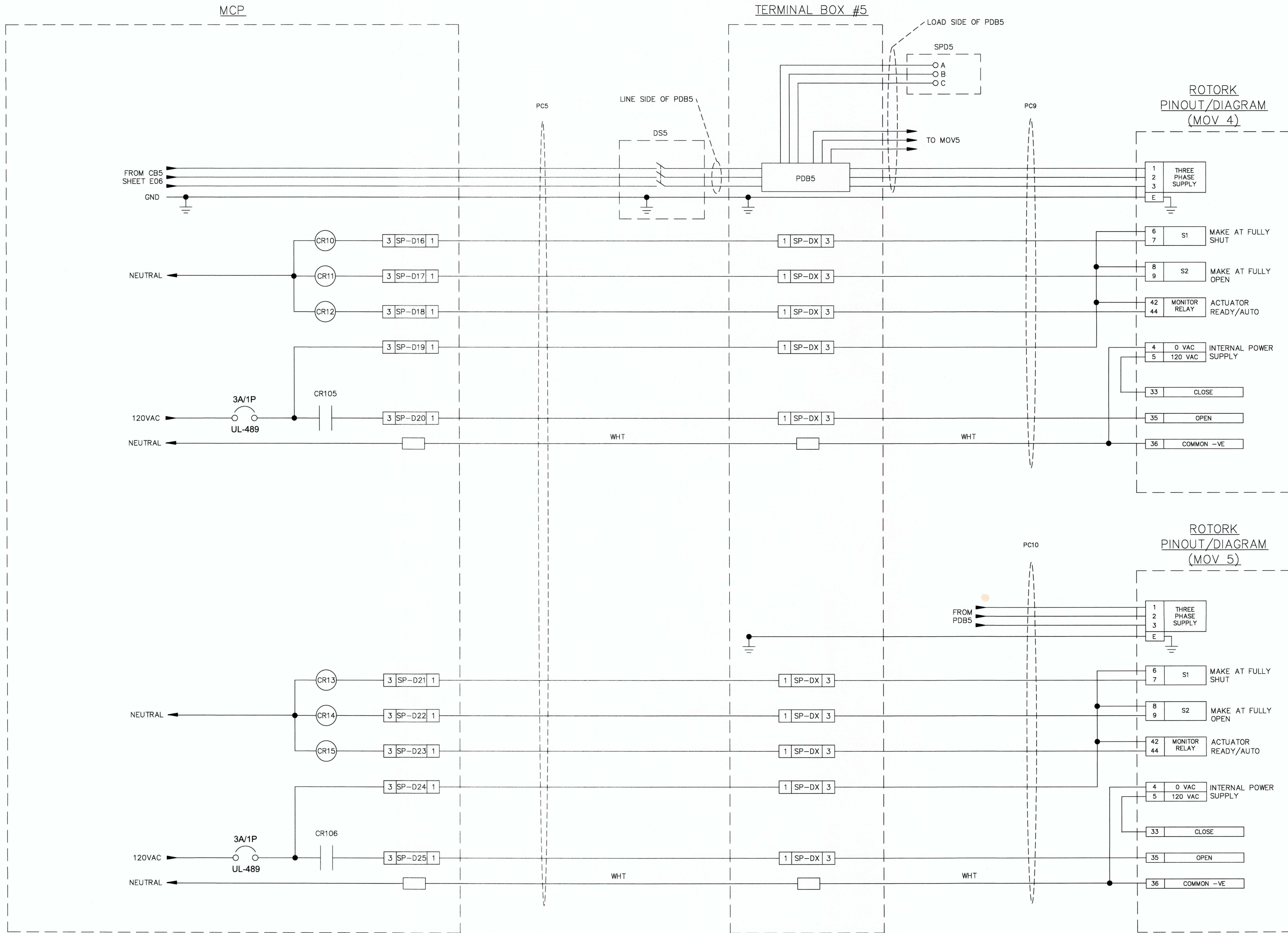


NO.	REVISIONS DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

MOV3 BLOCK
 DIAGRAM

SHEET NUMBER
E15



LAKES PARK WATER QUALITY - PHASE 3
 LEE COUNTY FLORIDA

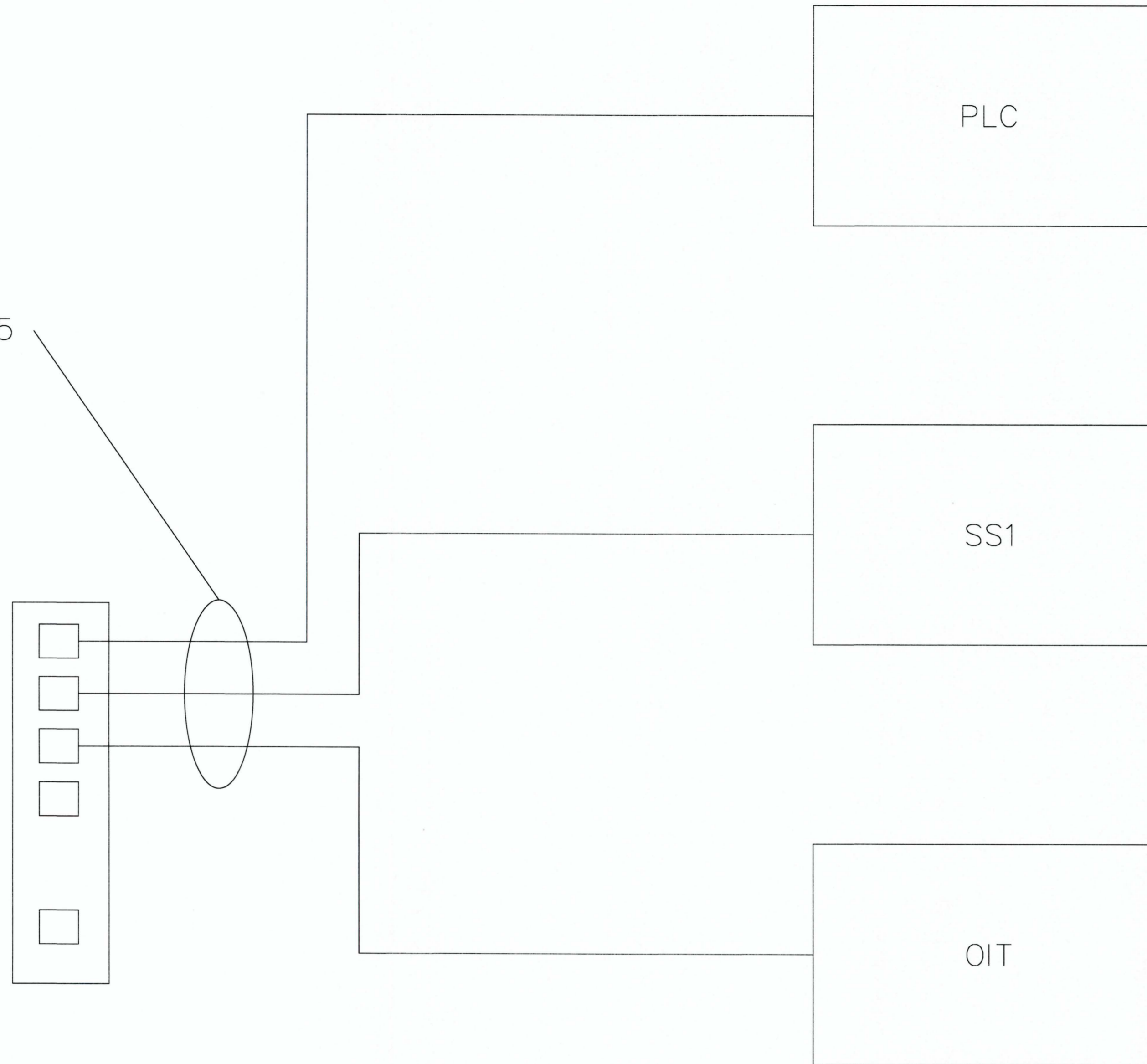
NO.	DATE	DESCRIPTION

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

MOV4 & MOV5
 BLOCK DIAGRAM

CAT 5/RJ 45

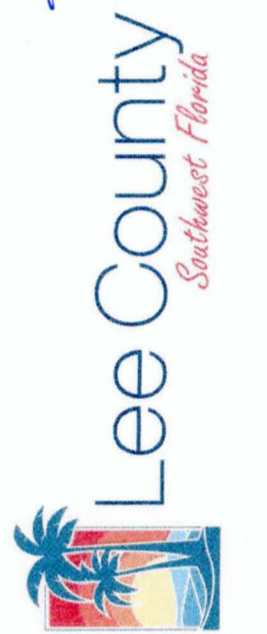
ENSW1



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BELLE ISLE, FLORIDA 32812
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E.B. #6244



LAKES PARK WATER
QUALITY - PHASE 3
LEE COUNTY FLORIDA

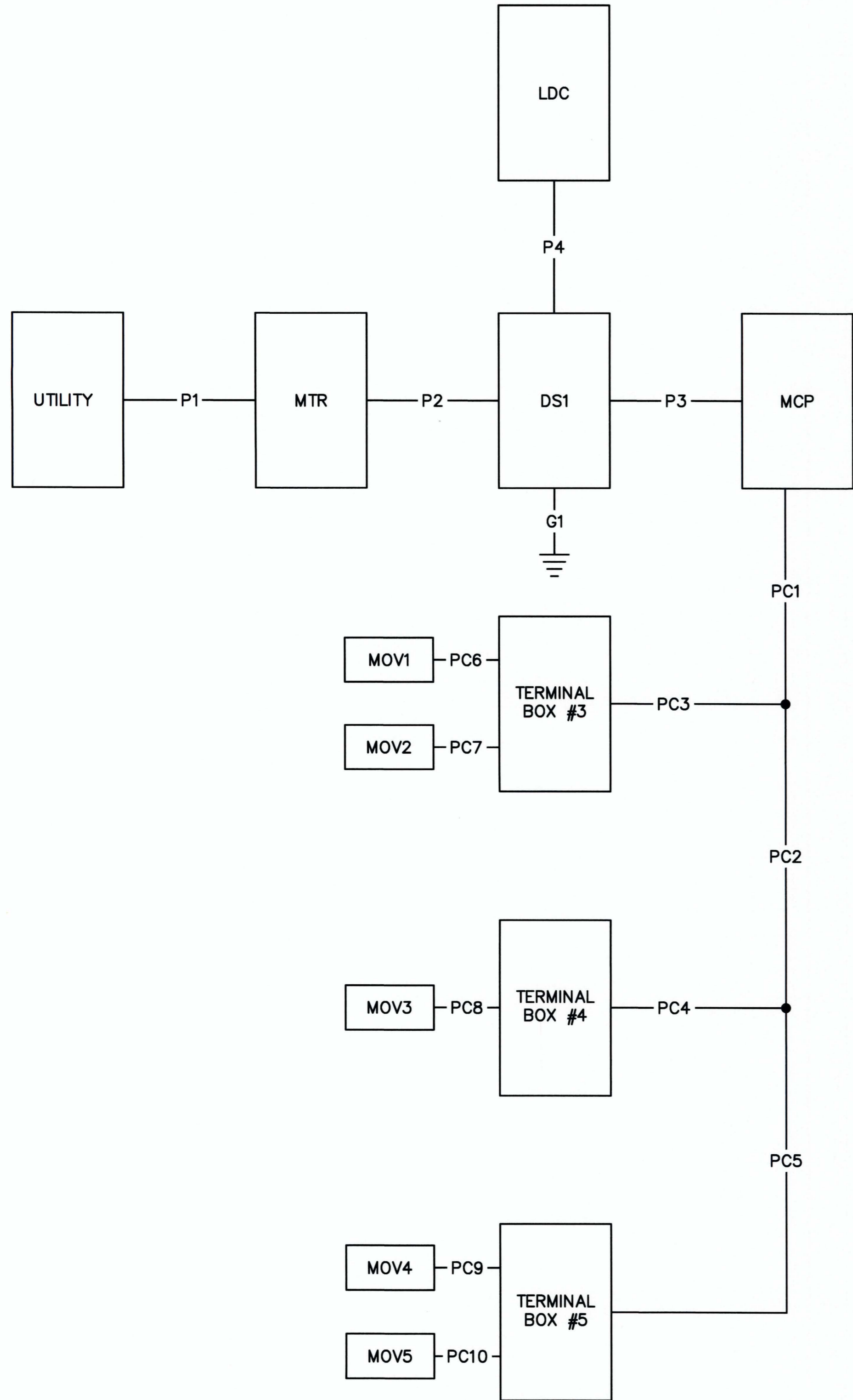
NO.	DESCRIPTION	DATE

DATE: NOVEMBER 2022
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

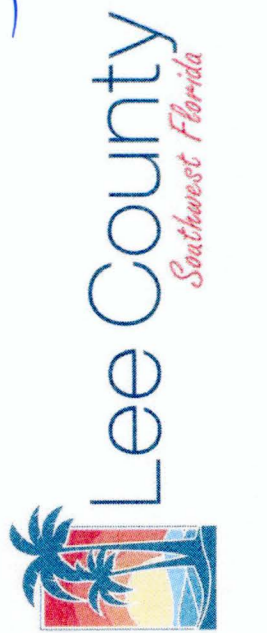
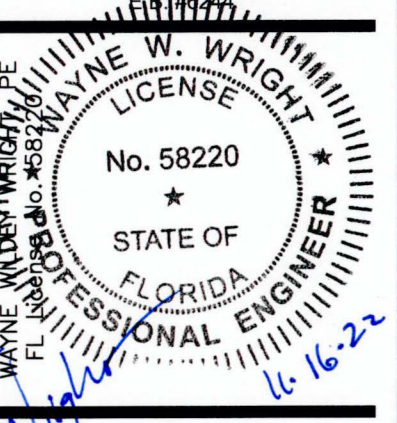
NETWORK
DIAGRAM

SHEET NUMBER

E17



CONDUIT SCHEDULE				
#	CONDUIT	LENGTH [FT] *	WIRES	DESCRIPTION
P1	2" PVC	TBD	(3) #3/0 AWG PH (1) #3 AWG N	FROM THE SECONDARY OF THE UTILITY TRANSFORMER. RUN UNDERGROUND WITH A SPARE 2" CONDUIT TO THE METER MOUNTED ON THE OUTSIDE OF THE OPS BUILDING
P2	2" PVC	6	(3) #3/0 AWG PH (1) #3 AWG N	RUN ALONG THE CONCRETE WALL ON THE EXTERIOR OF THE OPS BUILDING.
P3	2" PVC	20	(3) #1/0 AWG PH (1) #2 AWG N (1) #6 AWG GROUND	EXIT THE BOTTOM OF DISCONNECT DS-1 AND RUN UNDER THE FLOOR AND ENTER THE BOTTOM OF THE MAIN CONTROL PANEL.
P4	1" PVC	15	(2) #8 AWG PH (1) #8 AWG N (1) #10 AWG GROUND	RUN CONDUIT THROUGH THE BACKSIDE OF THE DISCONNECT, THROUGH THE CONCRETE WALL TO THE LOAD CENTER.
G1	N/A	20	(1) #6 AWG GROUND	SYSTEM GROUND. SEE GROUND DETAIL SHEET.
PC1	3" PVC	50	(9) #10 AWG PH (3) #10 AWG GND (30) #12 AWG	THREE PHASE CONDUCTORS FOR TERMINAL BOXES 3,4, AND 5 GROUND CONDUCTORS FOR TERMINAL BOXES 3,4, AND 5 120 VAC CONTROL WIRING FOR MOV 1, 2, 3, 4, AND 5
PC2	2-1/2" PVC	1000	(6) #10 AWG PH (2) #10 AWG GND (18) #12 AWG	THREE PHASE CONDUCTORS FOR TERMINAL BOXES 4, AND 5 GROUND CONDUCTORS FOR TERMINAL BOXES 4, AND 5 120 VAC CONTROL WIRING FOR MOV 3, 4, AND 5
PC3	1-1/2" PVC	20	(3) #10 AWG PH (1) #10 AWG GND (12) #12 AWG	THREE PHASE CONDUCTORS FOR TERMINAL BOX 3 GROUND CONDUCTORS FOR TERMINAL BOX 3 120 VAC CONTROL WIRING FOR MOV 1 AND 2
PC4	1-1/2" PVC	20	(3) #10 AWG PH (1) #10 AWG GND (6) #12 AWG	THREE PHASE CONDUCTORS FOR TERMINAL BOX 4 GROUND CONDUCTORS FOR TERMINAL BOX 4 120 VAC CONTROL WIRING FOR MOV 3
PC5	1-1/2" PVC	1300	(3) #10 AWG PH (1) #10 AWG GND (12) #12 AWG	THREE PHASE CONDUCTORS FOR TERMINAL BOX 5 GROUND CONDUCTORS FOR TERMINAL BOX 5 120 VAC CONTROL WIRING FOR MOV 4 AND 5
PC6	3/4" PVC	30	(3) #12 AWG PH (1) #12 AWG GND (6) #12 AWG	THREE PHASE CONDUCTORS FOR MOV 1 GROUND CONDUCTORS FOR MOV 1 120 VAC CONTROL WIRING FOR MOV 1
PC7	3/4" PVC	30	(3) #12 AWG PH (1) #12 AWG GND (6) #12 AWG	THREE PHASE CONDUCTORS FOR MOV 2 GROUND CONDUCTORS FOR MOV 2 120 VAC CONTROL WIRING FOR MOV 2
PC8	3/4" PVC	30	(3) #12 AWG PH (1) #12 AWG GND (6) #12 AWG	THREE PHASE CONDUCTORS FOR MOV 3 GROUND CONDUCTORS FOR MOV 3 120 VAC CONTROL WIRING FOR MOV 3
PC9	3/4" PVC	30	(3) #12 AWG PH (1) #12 AWG GND (6) #12 AWG	THREE PHASE CONDUCTORS FOR MOV 4 GROUND CONDUCTORS FOR MOV 4 120 VAC CONTROL WIRING FOR MOV 4
PC10	3/4" PVC	30	(3) #12 AWG PH (1) #12 AWG GND (6) #12 AWG	THREE PHASE CONDUCTORS FOR MOV 5 GROUND CONDUCTORS FOR MOV 5 120 VAC CONTROL WIRING FOR MOV 5



LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

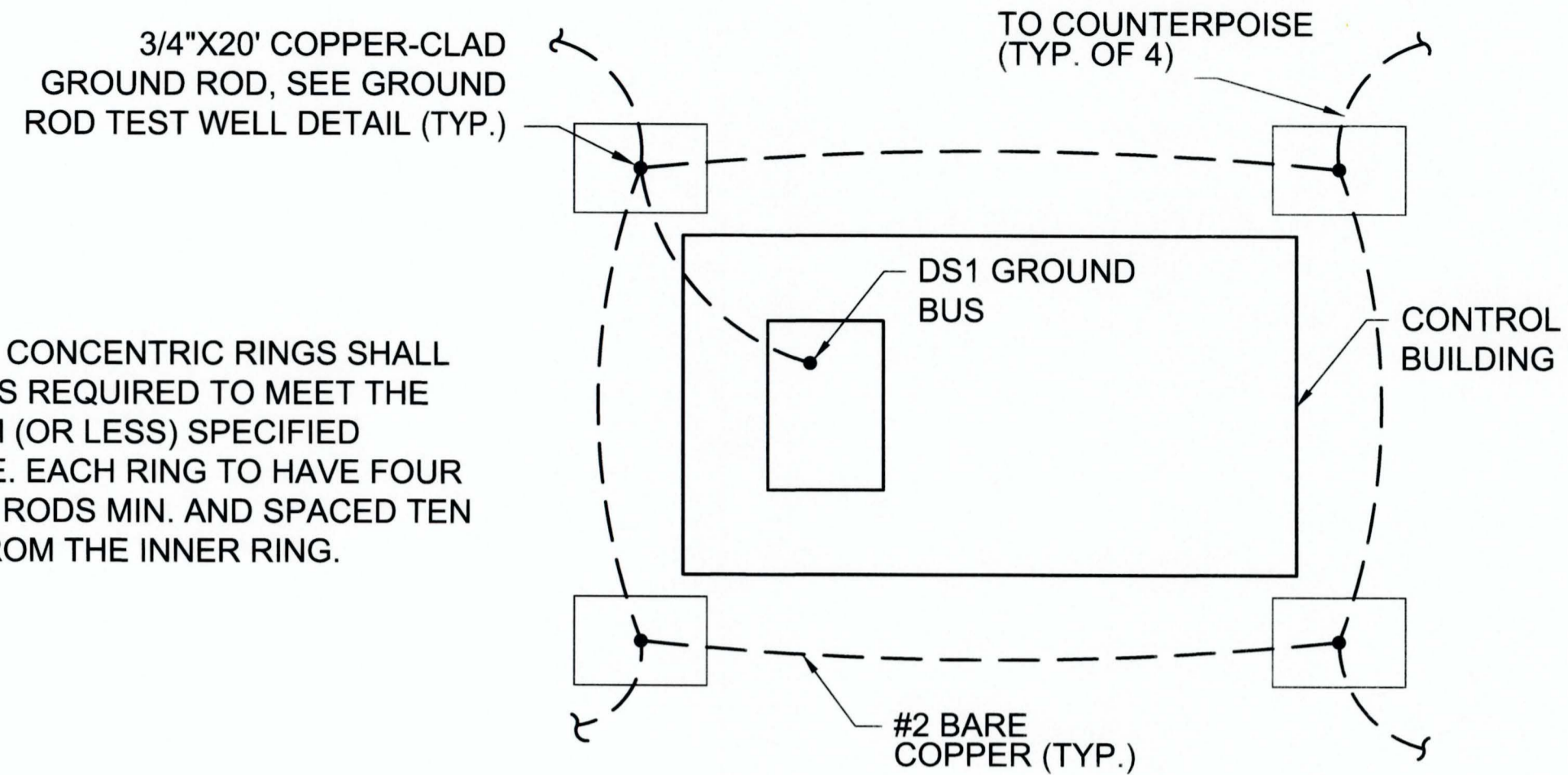
NO.	REVISIONS DESCRIPTION	DATE

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

CONDUIT LAYOUT

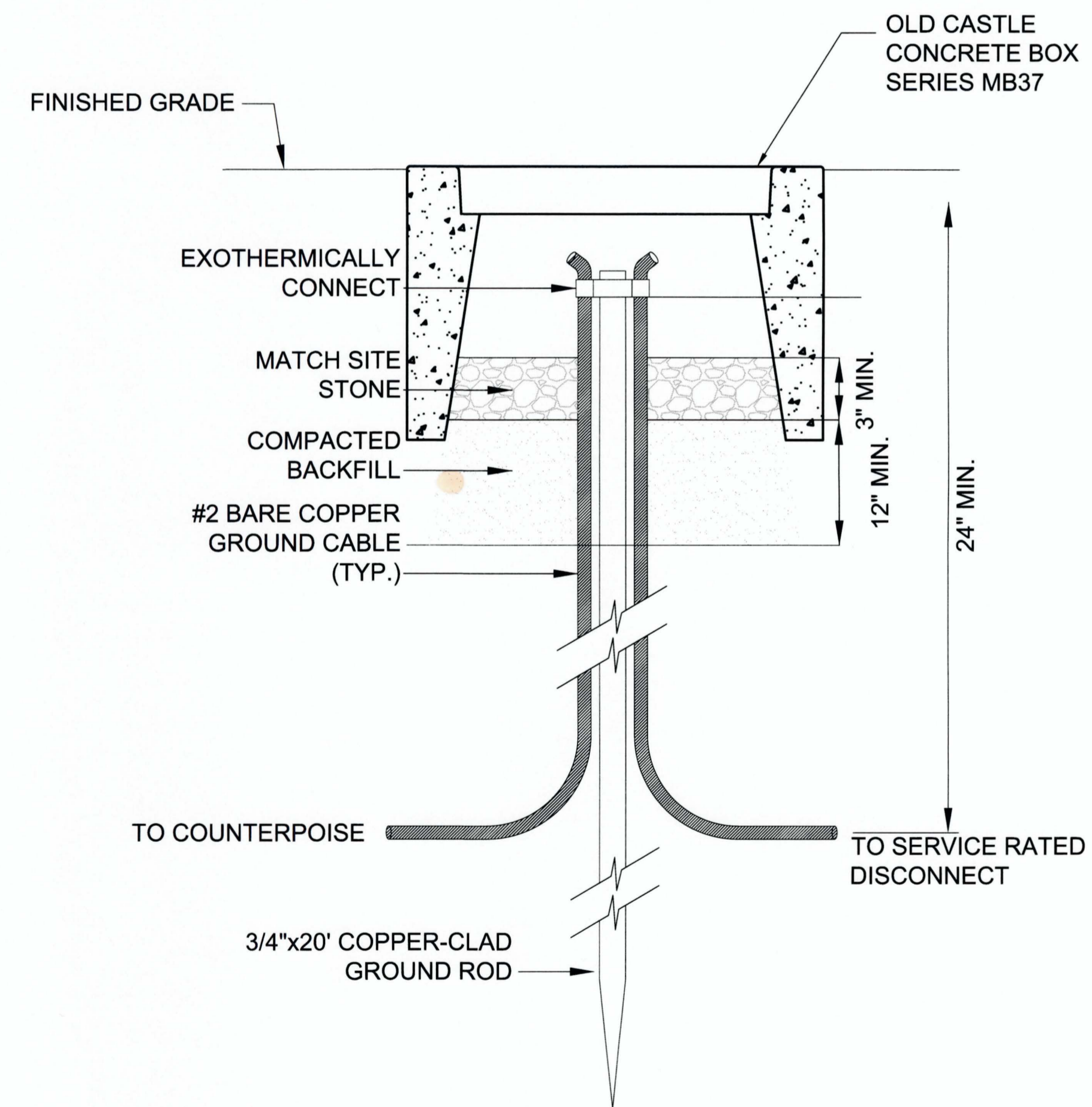
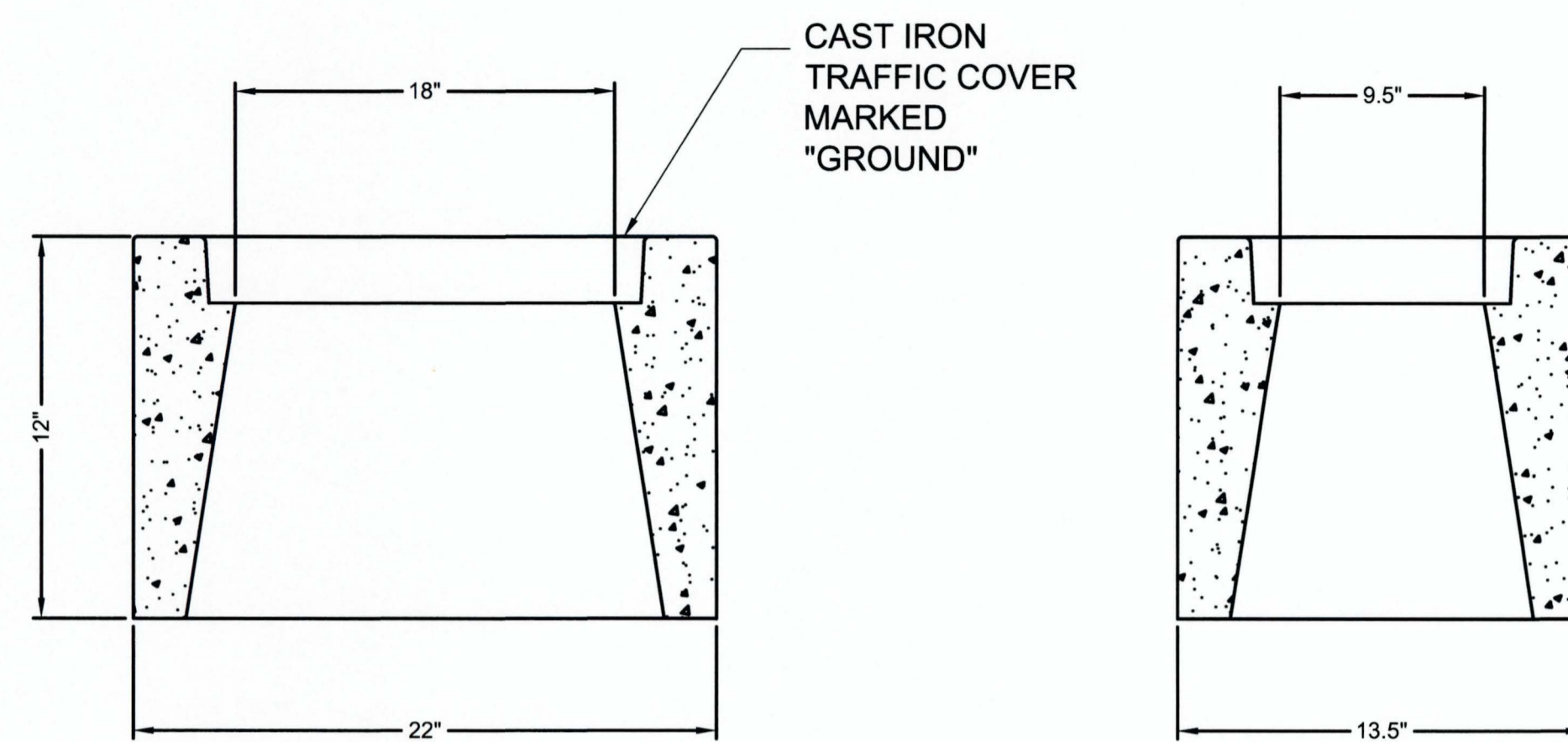
SHEET NUMBER

E18



NOTES:
 1. ADDITIONAL CONCENTRIC RINGS SHALL BE ADDED AS REQUIRED TO MEET THE FIVE (5) OHM (OR LESS) SPECIFIED RESISTANCE. EACH RING TO HAVE FOUR (4) GROUND RODS MIN. AND SPACED TEN (10) FEET FROM THE INNER RING.

GROUND MAT DETAIL
 NOT TO SCALE



GROUND TEST WELL DETAIL
 NOT TO SCALE

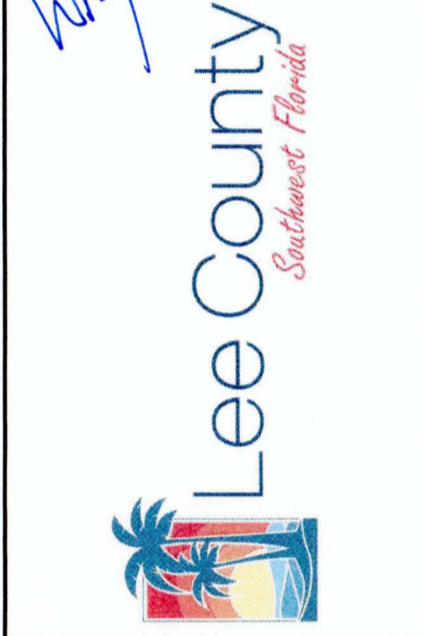
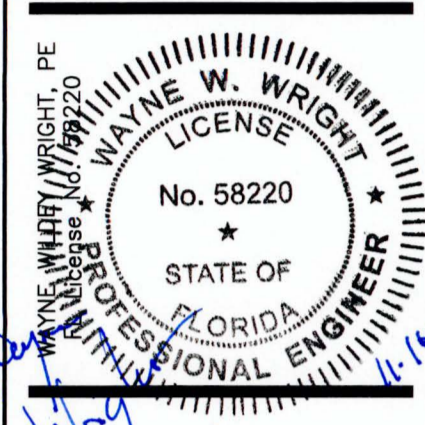
REVISIONS	DATE
DESCRIPTION	

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

GROUNDING
 DETAILS

SHEET NUMBER

ED01



LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

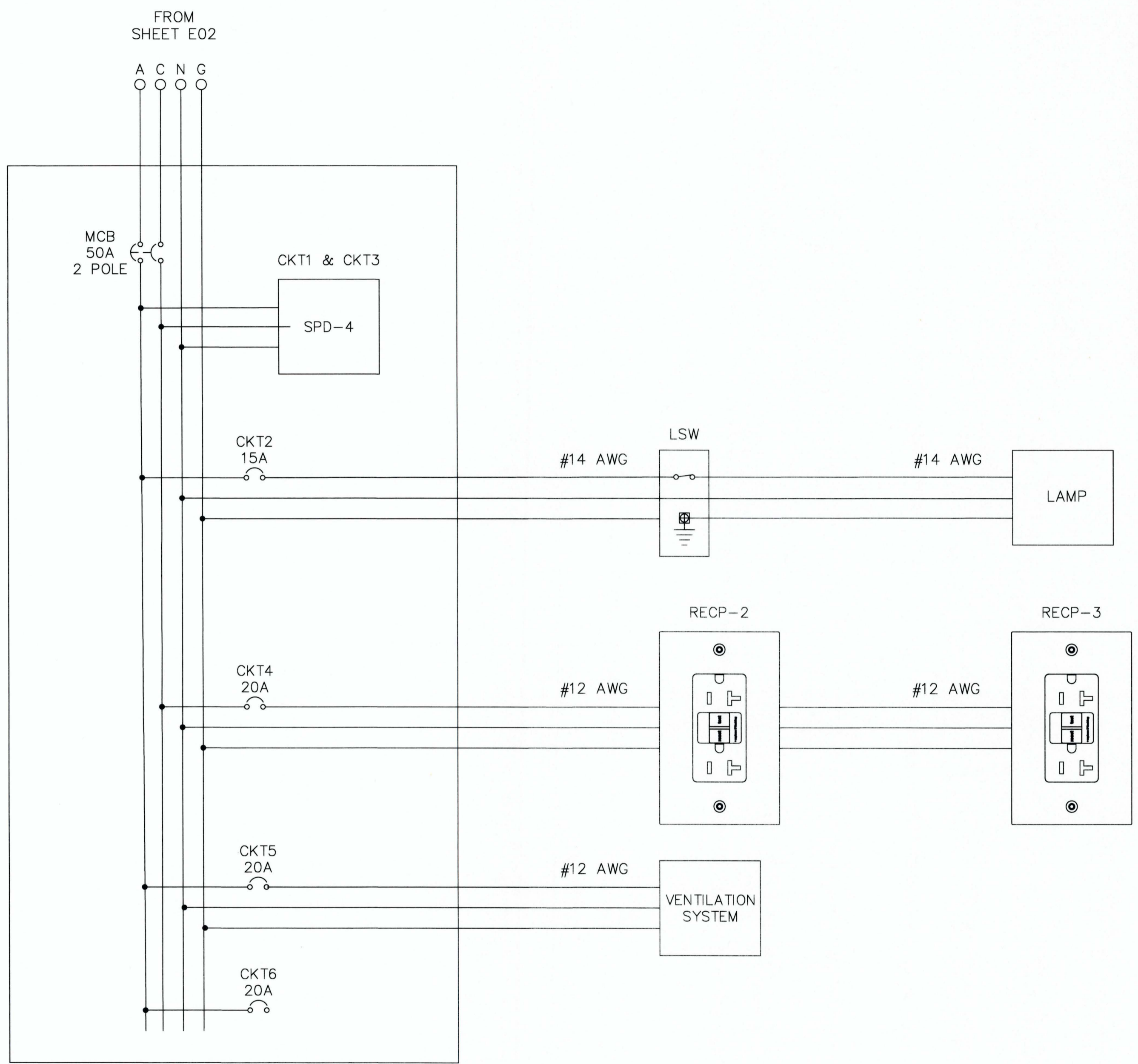
NO.	DATE	DESCRIPTION

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

LOAD CENTER
 SCHEDULE &
 DETAILS

SHEET NUMBER
ED02

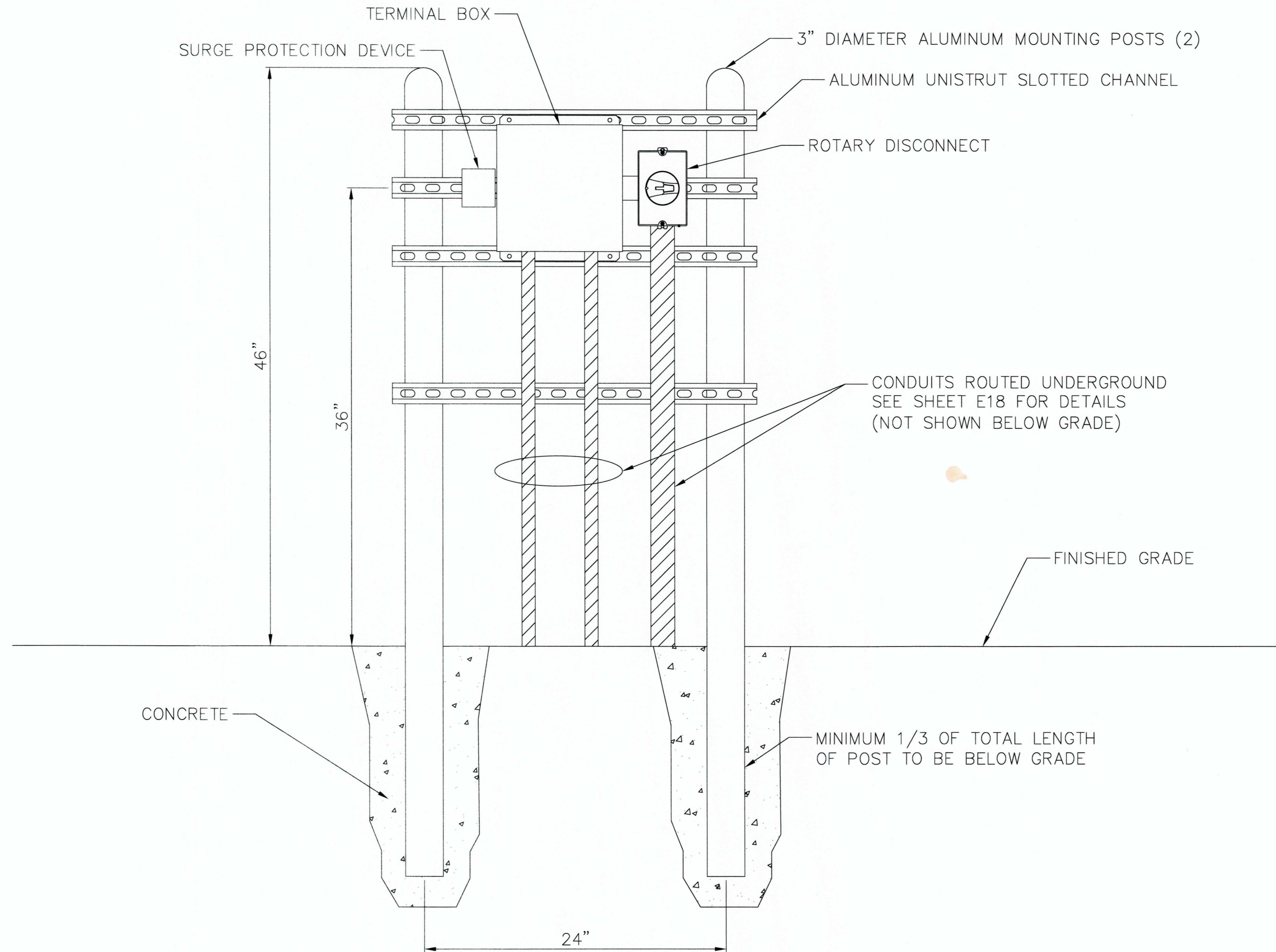
OPS ROOM LOAD CENTER									
LOCATION	OPS ROOM				TYPE	MCB			
MOUNTING	SURFACE				VOLTAGE	120/240, 1PH, 3W			
MFR/MODEL	SQUARE D/QO112M100P				ENCLOSURE	NEMA 1			
BRACING	10K AIC				BRANCH C/B	PLUG-ON			
CKT. NO.	LOAD DESCRIPTION	BRKR. SIZE	DEMAND KVA	PH A	PH C	DEMAND KVA	BRKR. SIZE	LOAD DESCRIPTION	CKT. NO.
1	SPD-4	-	0.0	0.2		0.2	15	INTERIOR LIGHT	2
3		-	0.0		1.2	1.2	20	GFCI RECEPTACLES	4
5	VENTILATION	20	1.2	1.2		0.0	20	SPARE	6
7	---	-	0.0		0.0	0.0	-	---	8
9	---	-	0.0	0.0		0.0	-	---	10
11	---	-	0.0		0.0	0.0	-	---	12
CONNECTED LOAD PER PHASE				1.4	1.2	KVA			
TOTAL LOAD				2.6		KVA			
NOTES: QO LOAD CENTER, 12 SPACE, 24 CIRCUIT; SPD-4: SQUARE D MOD. QO2175SB INTEGRAL SURGE PROTECTOR MCB: 50A, 2P, QO250 BRANCH CB'S: QO115, QO120									



SQUARE D LOAD CENTER
 (SEE SHEET E03 FOR LOCATION)

TYPICAL INSTALLATION FOR TERMINAL BOXES 3, 4, AND 5

LOCATE TERMINAL BOX #3 NEAR VALVE MANIFOLD 1
 LOCATE TERMINAL BOX #4 NEAR VALVE MANIFOLD 2
 LOCATE TERMINAL BOX #5 NEAR VALVE MANIFOLD 3
 SEE SHEETS C11 AND C12 FOR VALVE MANIFOLD LOCATIONS



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ERD
 Water Quality Engineering

ENVIRONMENTAL RESEARCH &
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 3419 TRENTWOOD BLVD., SUITE 102
 BELLE ISLE, FLORIDA 32812
 PHONE: (407) 856-9465

WAYNE WILCOX, WRIGHT, PE
 LICENSE
 No. 58220
 STATE OF
 FLORIDA
 PROFESSIONAL ENGINEER
 11/16/22

Lee County
 Southwest Florida

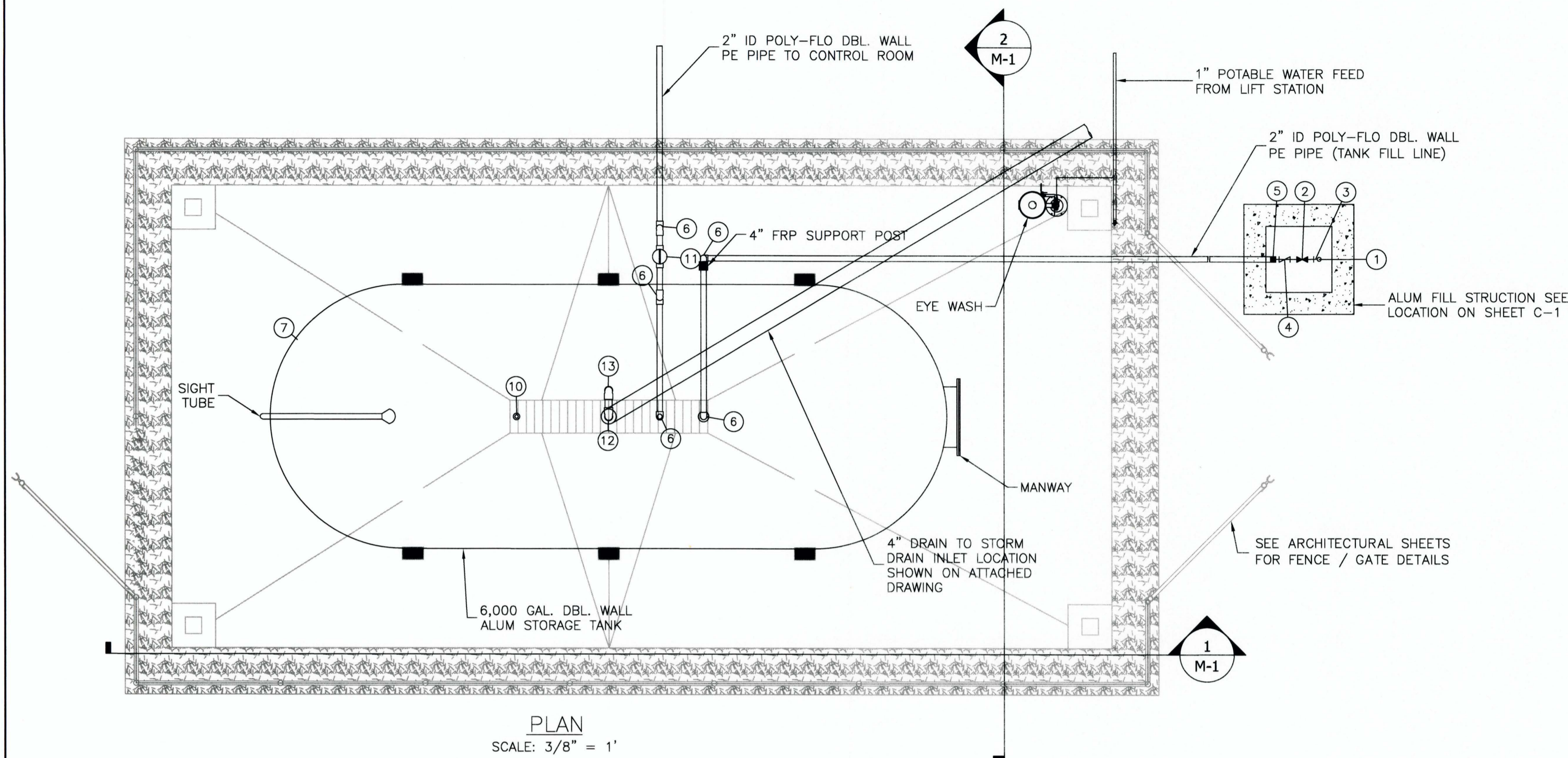
LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

NO.	DESCRIPTION	DATE

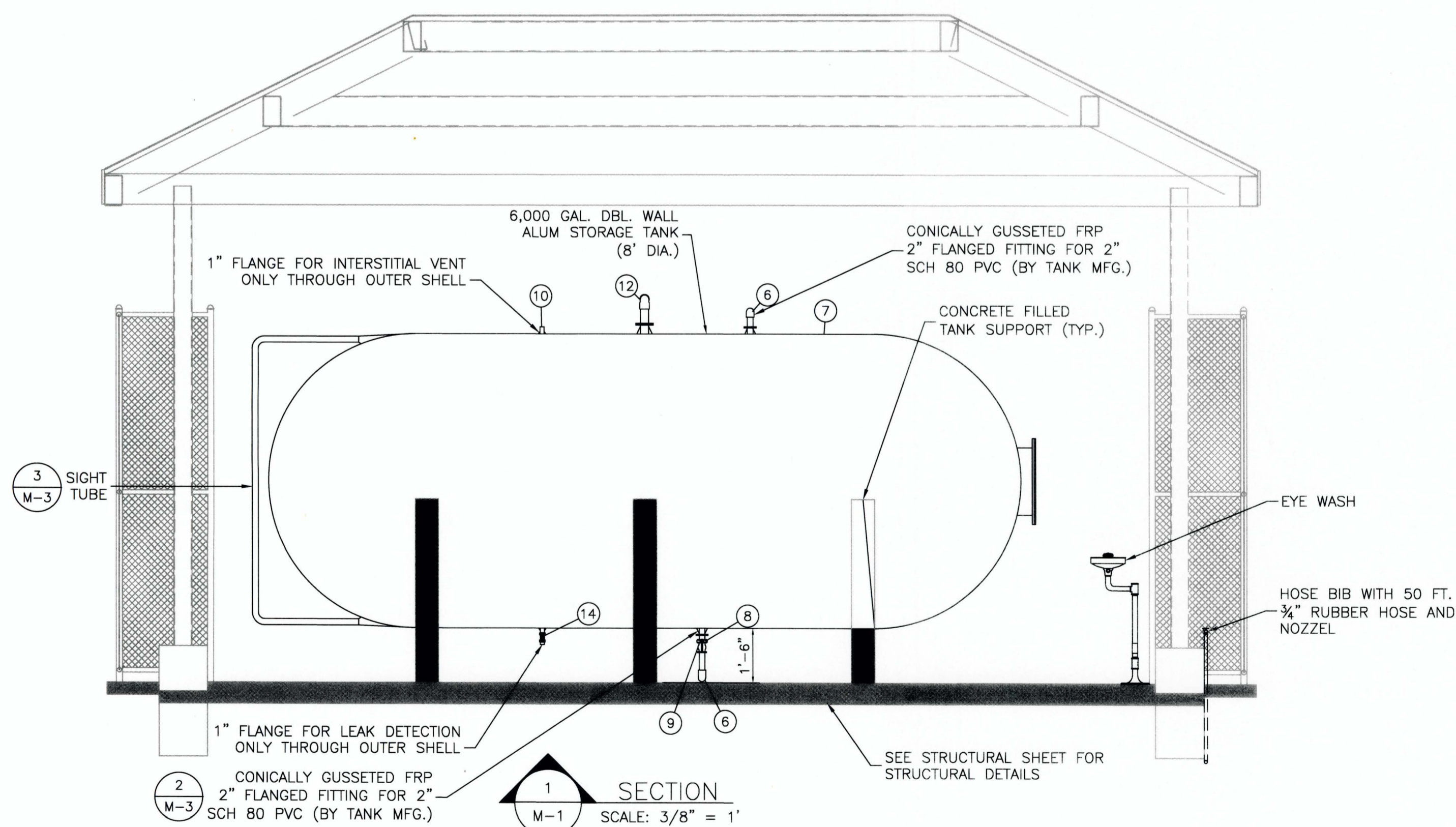
DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
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 SCALE: AS SHOWN

TERMINAL BOX
 MOUNTING
 DETAILS

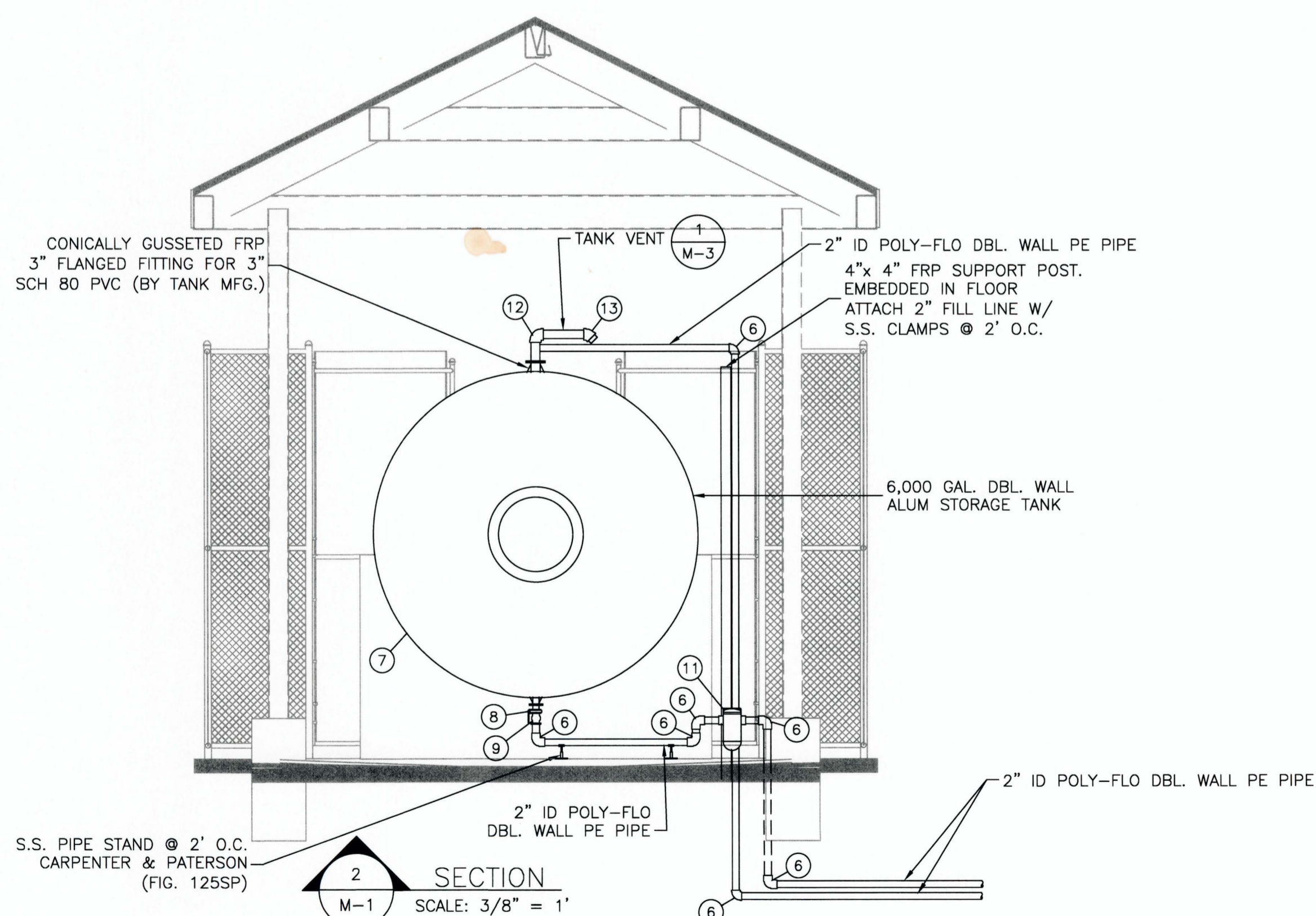
SHEET NUMBER
ED03



PLAN
SCALE: 3/8" = 1'



SECTION
SCALE: 3/8" = 1'



SECTION
SCALE: 3/8" = 1'

FITTING SCHEDULE

REF. NO.	DESCRIPTION	QUAN.
1	2" MALE 316 S.S. CAMLOCK CONNECTOR W/ CAP	1
2	2" 316 S.S. BALL VALVE W/ CONNECTOR	1
3	2" PVC 90° BEND	1
4	2" PVC CHECK VALVE W/ CONNECTOR	1
5	2" PVC TO 2" ID DBL. WALL HDPE ADAPTER	1
6	2" POLY-FLO 90° BEND (BLACK PE)	8
7	6,000 gal. FRP TANK (8' DIA.)	1
8	2" PVC BUTTERFLY VALVE	1
9	2" FLEXIBLE CONNECTION	1
10	INTERSTITIAL VENT	1
11	2" PVC BASKET STRAINER	1
12	3" PVC 90° BEND	1
13	3" PVC 45° BEND	1
14	1" S.S. VALVE	1

ALUM TANK FLANGED NOZZLE SCHEDULE			
QUANTITY	CONNECTION	NOZZLE SIZE (inches)	LOCATION ON TANK
1	Vent	3	Top
1	Fill	2	Top
1	Suction	2	Bottom
1	Upper Sight Tube Port	1	Near Top
1	Lower Sight Tube Port	1	Near Bottom
1	Access Manway	22	End
1	Leak Detection	1	Bottom
1	Interstitial Vent	1	Top

- NOTES:**
- SOME ITEMS LISTED MAY NOT BE NOTED IN ALL APPLICABLE VIEWS.
 - ALL PVC SHALL BE SCH 80. EXPOSED PVC SHALL BE PAINTED PER MANUFACTURER'S REQUIREMENTS.
 - DESIGN AND LOCATION OF TANK SUPPORTS TO BE DETERMINED BY TANK MANUFACTURER.
 - ALL PIPING CONTAINING AND/OR IN CONTACT WITH ALUM SHALL BE POLY-FLOW DBL. WALL PP PIPE.

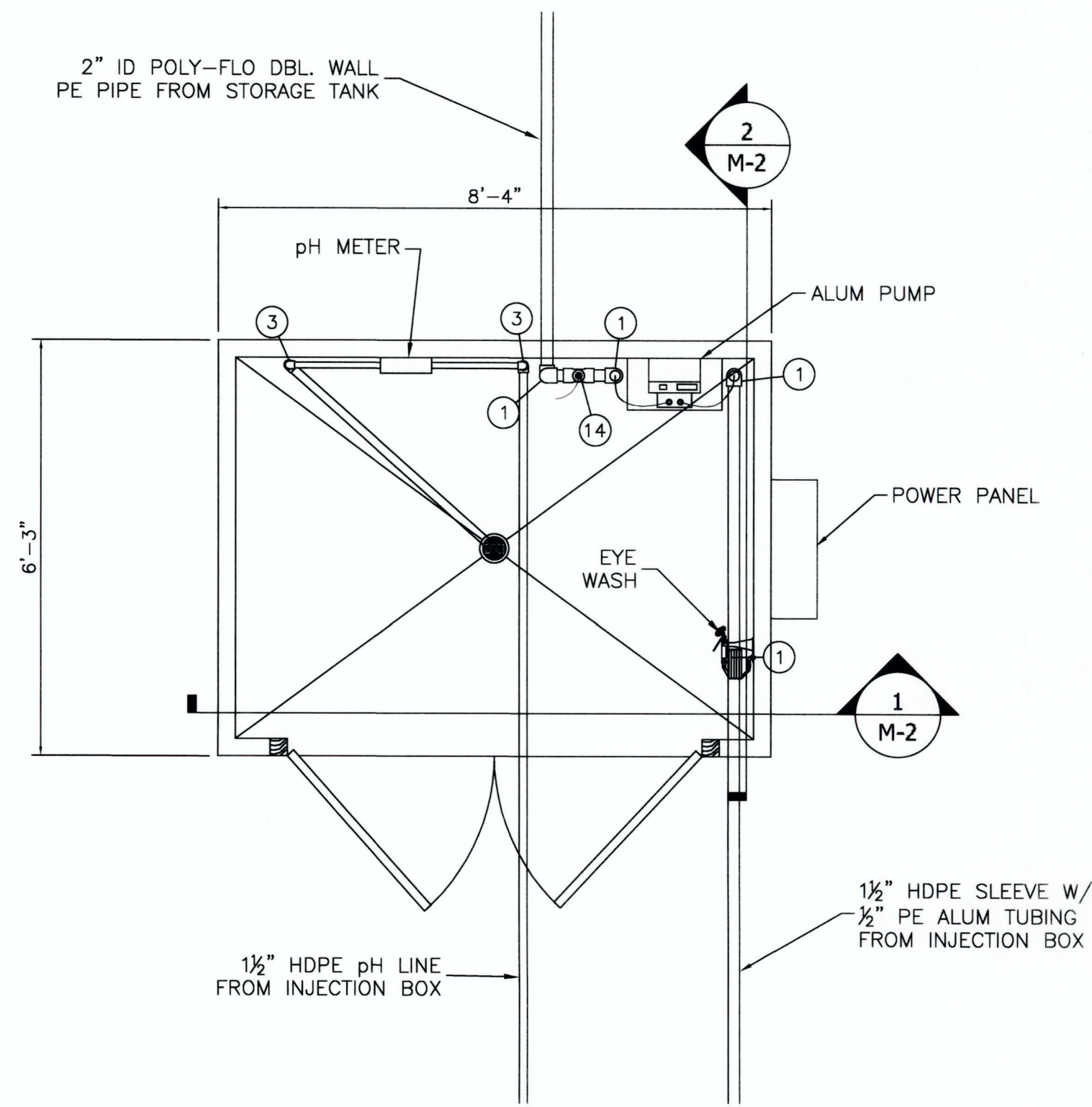
NO.	DESCRIPTION	DATE

DATE: NOVEMBER 2022
PROJECT NO. 20214150-000
FILE NO. 26-45-24
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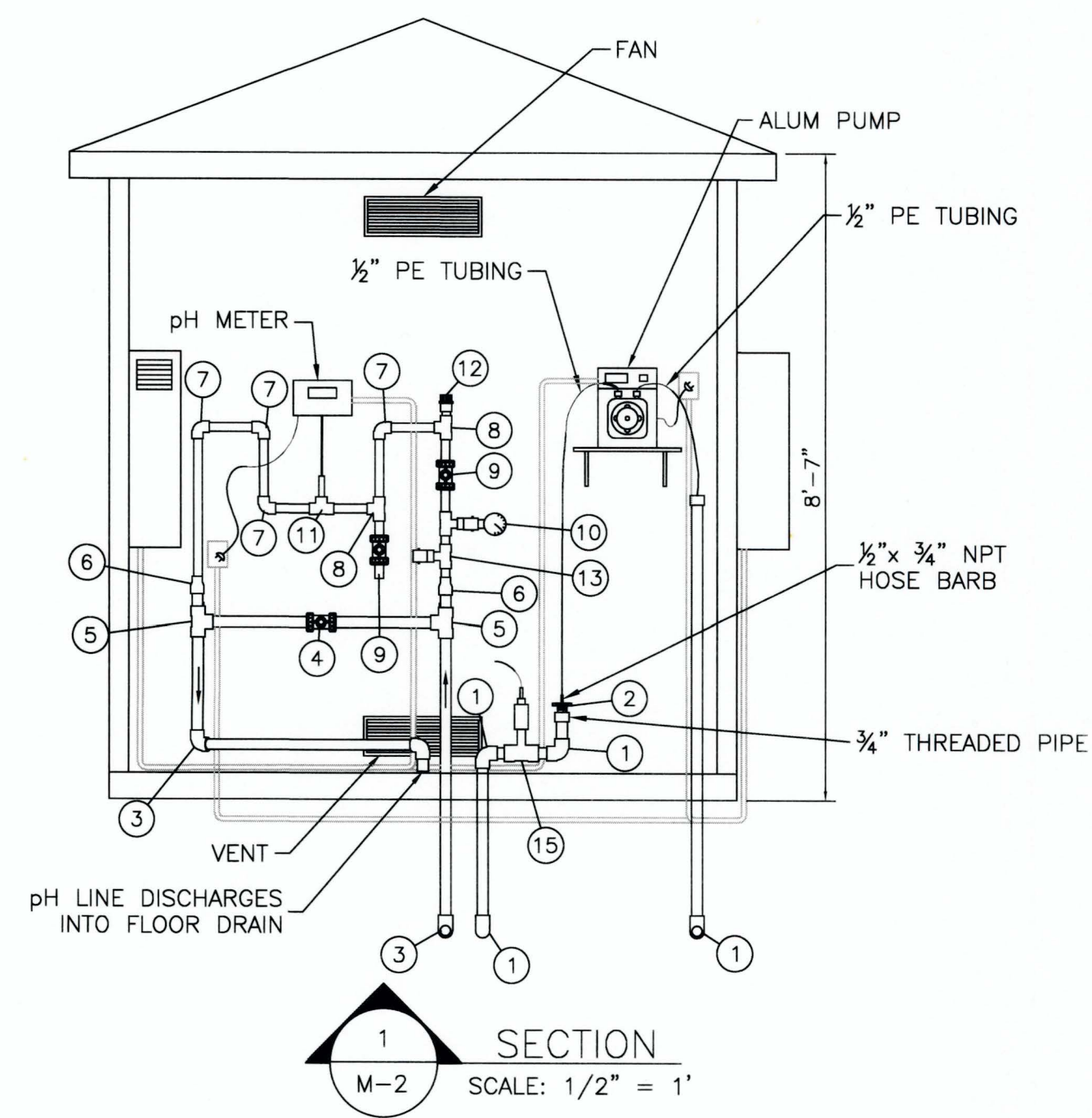
STORAGE TANK MECHANICAL PLAN

SHEET NUMBER

M01



PLAN
SCALE: 1/2" = 1'



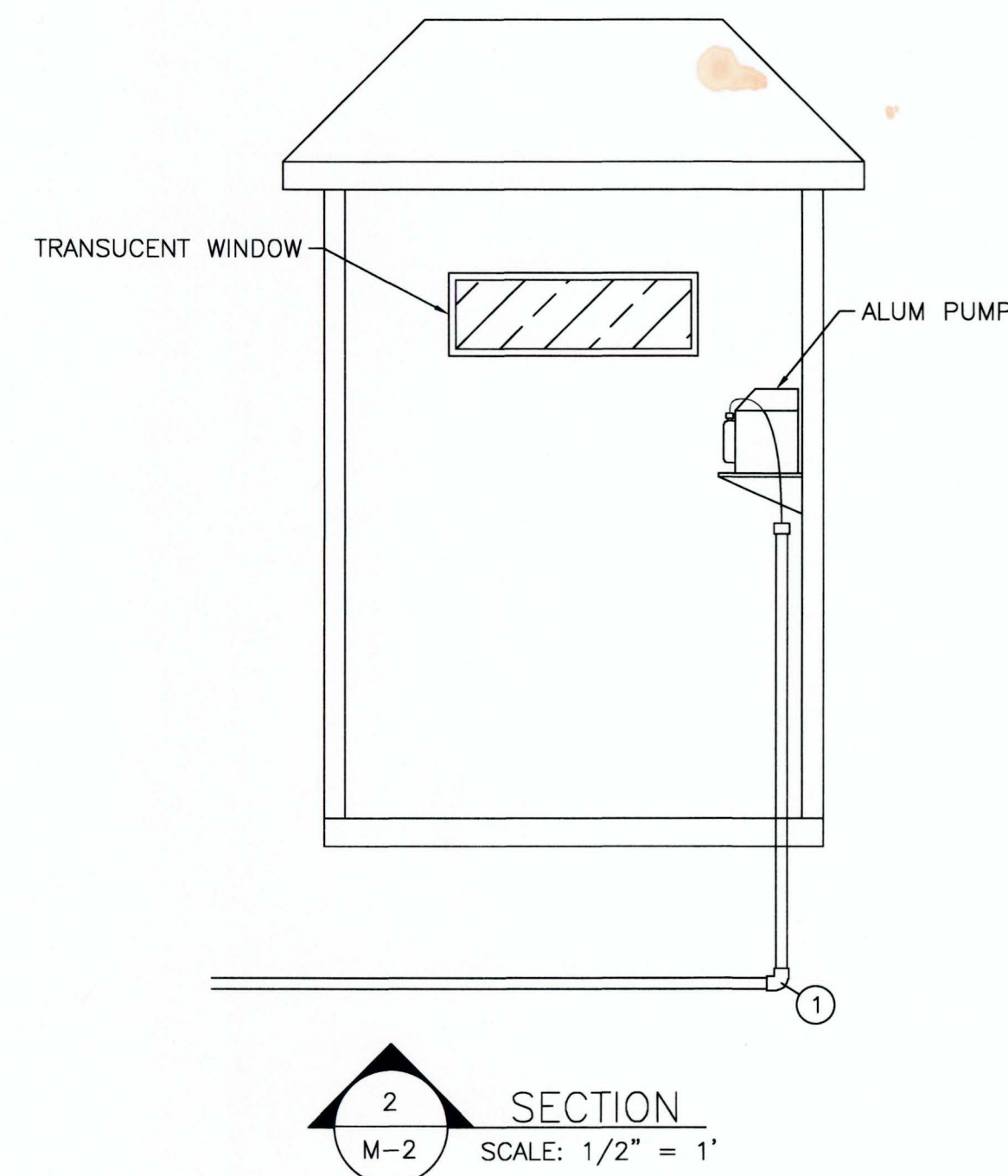
SECTION 1
M-2 SCALE: 1/2" = 1'

FITTING SCHEDULE

REF. NO.	DESCRIPTION	QUAN.
1	2" POLY-FLO 90° BEND (BLACK PE)	3
2	TREADED 1/2" PE TUBING ADAPTER	1
3	1 1/2" PVC 90° BEND	1
4	1 1/2" 316 S.S. BALL VALVE	1
5	1 1/2" PVC TEE	1
6	1 1/2"x1" PVC REDUCER	4
7	1" PVC 90° BEND	1
8	1" PVC TEE	1
9	1" PVC BALL VALVE	1
10	1" PVC TEE W/ S.S. PRESSURE GAUGE	8
11	1" PVC TEE W/ pH PROBE	2
12	VACUUM RELEASE VALVE	1
13	PUMP PRESSURE SWITCH	1
14	LOW LEVEL SHUTDOWN LINKED TO PUMP PANEL	1
15	2" PVC TEE	1

NOTES:
 1. SOME ITEMS LISTED MAY NOT BE NOTED IN ALL APPLICABLE VIEWS.
 2. ALL PVC SHALL BE SCH 80. EXPOSED PVC SHALL BE PAINTED PER MANUFACTURERS REQUIREMENTS.

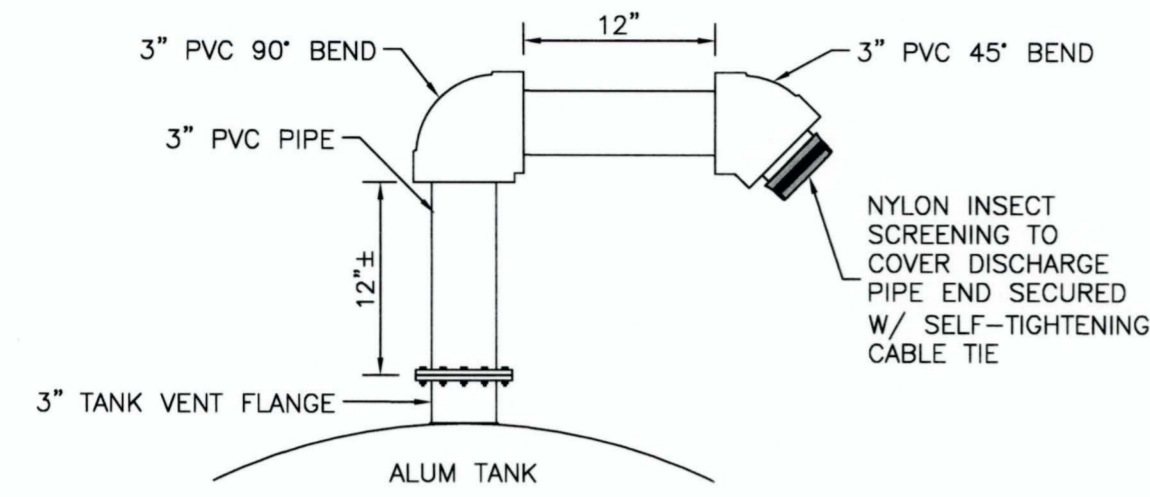
- ALL PIPING SHALL BE SECURELY FASTENED TO BUILDING WALL USING S.S. OR PLASTIC PIPE CLAMPS.
- ALL PIPING AND FITTINGS SHALL BE GRAY SCH 80 PVC UNLESS OTHERWISE NOTED.
- THE FLOOR WALL AND CEILING OF THE BUILDING SHALL BE COATED WITH 3 COATS OF TMEC SERIES 66 HI-BUILD EPOXYLINE OR APPROVED EQUAL. SURFACE PREPARATION AND COATING APPLICATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. SAND SHALL BE BROADCAST IN THE WET 3RD. COAT ON THE FLOOR. ALL COLORS TO BE SELECTED BY OWNER DURING SHOP DRAWING REVIEW. COATING SHALL BE APPLIED USING A ROLLER ONLY.
- ALL PIPING SHALL BE LABELED WITH PRE-PRINTED LABELS INDICATING TYPE OF LINE (i.e. ALUM SUCTION, ALUM DISCHARGE, ALUM RETURN) AND DIRECTION OF FLOW.



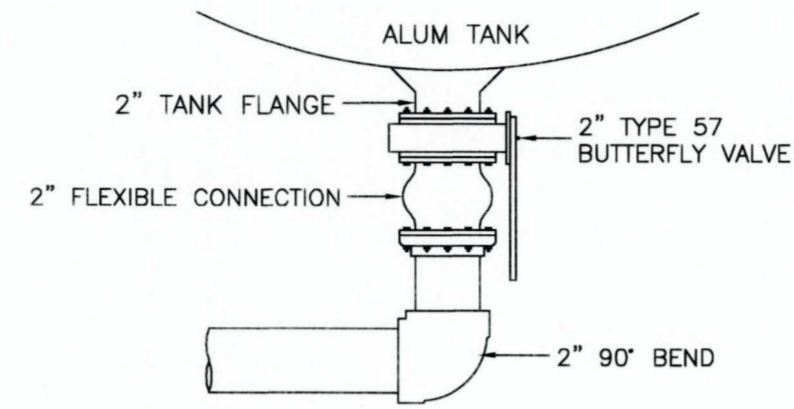
SECTION 2
M-2 SCALE: 1/2" = 1'

NO.	DATE	DESCRIPTION

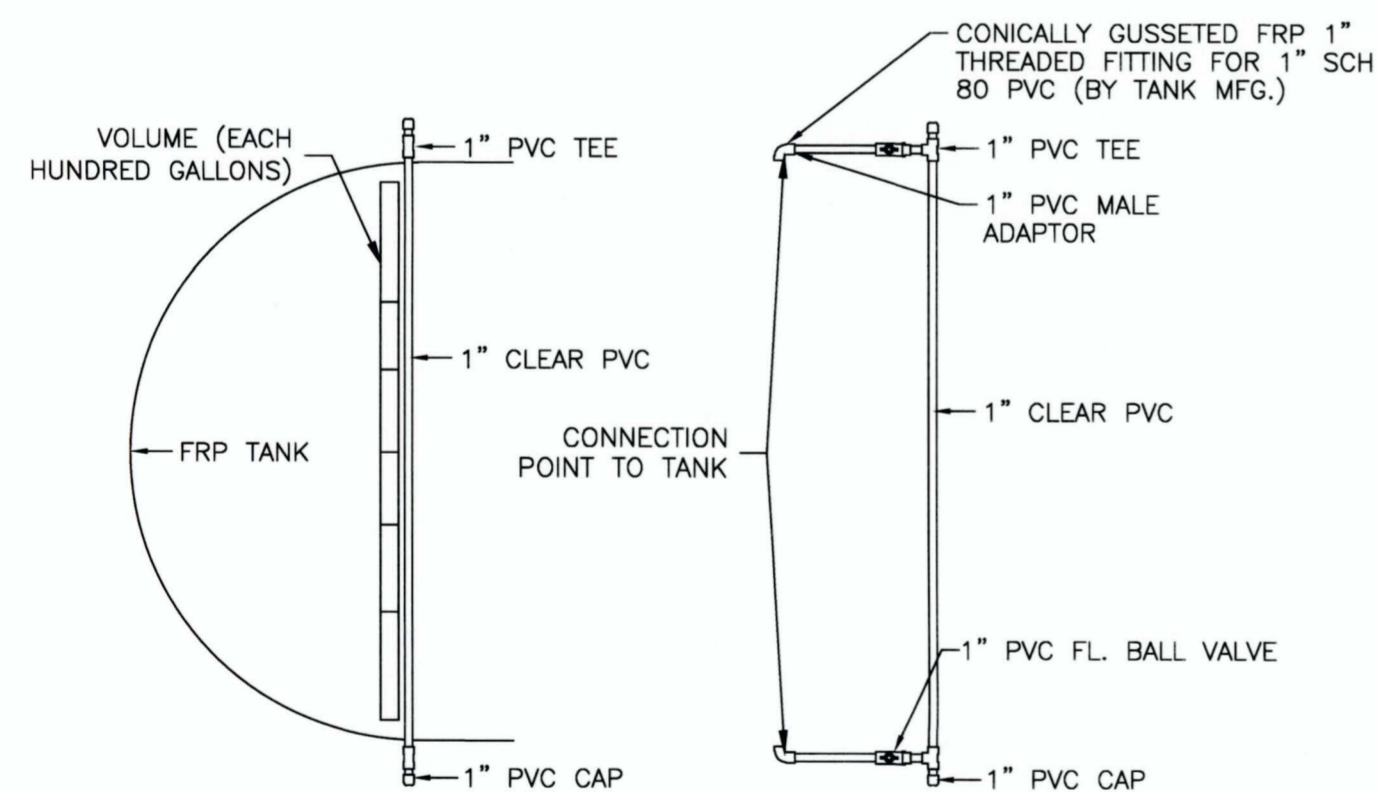
DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN



1
M-1
DETAIL
NTS
TANK VENT

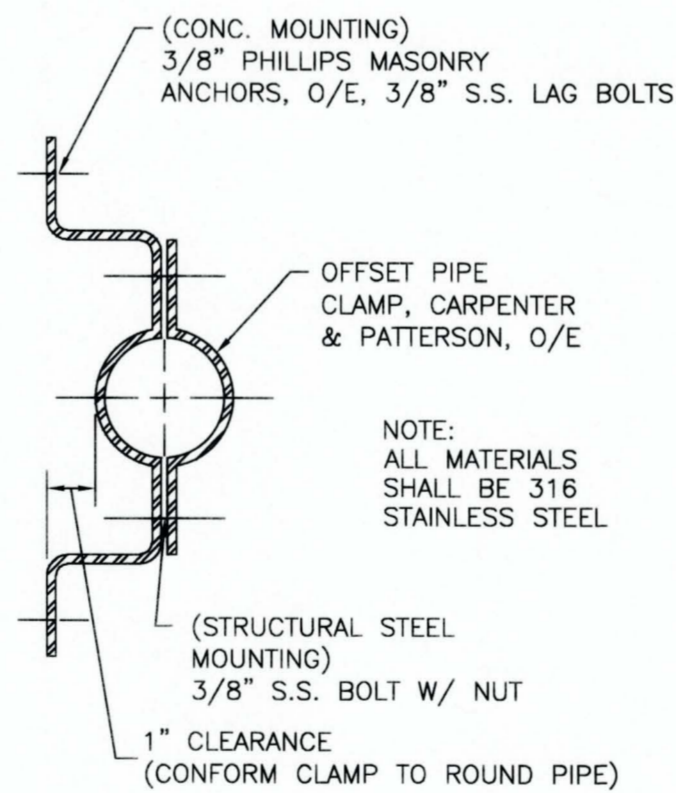


2
M-1
DETAIL
NTS
FLEXIBLE CONNECTION



REFER TO PLAN VIEW FOR LOCATION ON THE TANK.

3
M-1
DETAIL
NTS
SIGHT TUBE



4
M-3
DETAIL
NTS
PIPE CLAMP DETAIL

NOTES

1. ALL PIPING SHALL BE SECURELY FASTENED TO BUILDING FLOOR AND SUPPORT POSTS USING S.S. PIPE CLAMPS.
2. ALL PIPING AND FITTINGS SHALL BE GRAY SCH 80 PVC UNLESS OTHERWISE NOTED.
3. THE FLOOR OF THE STRUCTURE PAD SHALL BE COATED WITH 3 COATS OF TNEC SERIES 66 HI-BUILD EPOXYLINE OR APPROVED EQUAL. SURFACE PREPARATION AND COATING APPLICATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. SAND SHALL BE BROADCAST IN THE WET 3RD. COAT. ALL COLORS TO BE SELECTED BY OWNER DURING SHOP DRAWING REVIEW. COATING SHALL BE APPLIED USING A ROLLER ONLY.
4. ALL PIPING SHALL BE LABELED WITH PRE-PRINTED LABELS INDICATING TYPE OF LINE (i.e. ALUM SUCTION, ALUM DISCHARGE, ALUM RETURN) AND DIRECTION OF FLOW.

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Lee County
 Suwannee, Florida

LAKES PARK WATER QUALITY - PHASE 3 LEE COUNTY FLORIDA

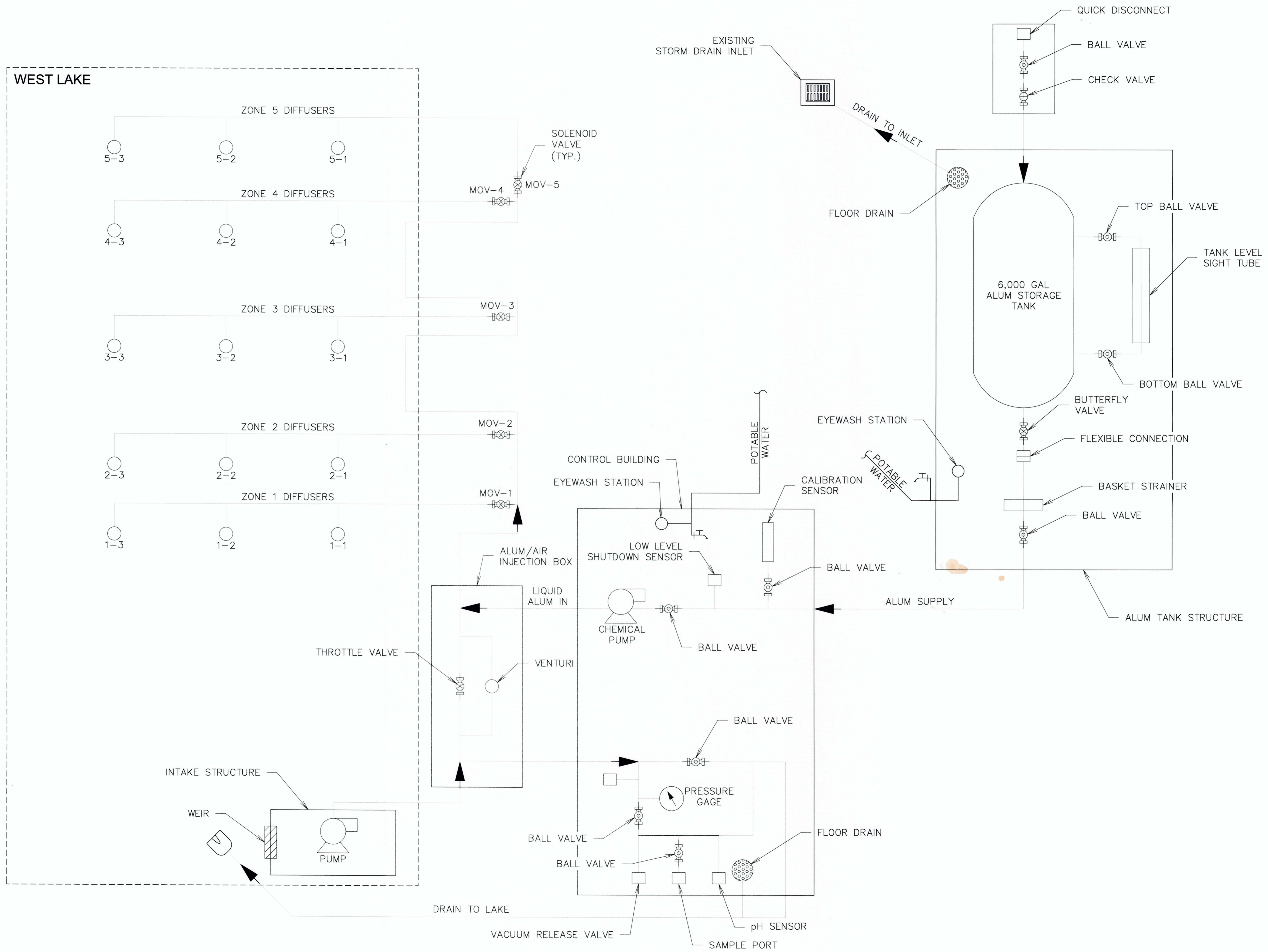
NO.	DATE	DESCRIPTION

DATE: NOVEMBER 2022
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

STORAGE TANK DETAILS

SHEET NUMBER
M03

WEST LAKE



NO.	REVISIONS	DESCRIPTION	DATE

DATE: NOVEMBER 2022
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

PROCESS & INSTRUMENTATION DIAGRAM

SHEET NUMBER
P01