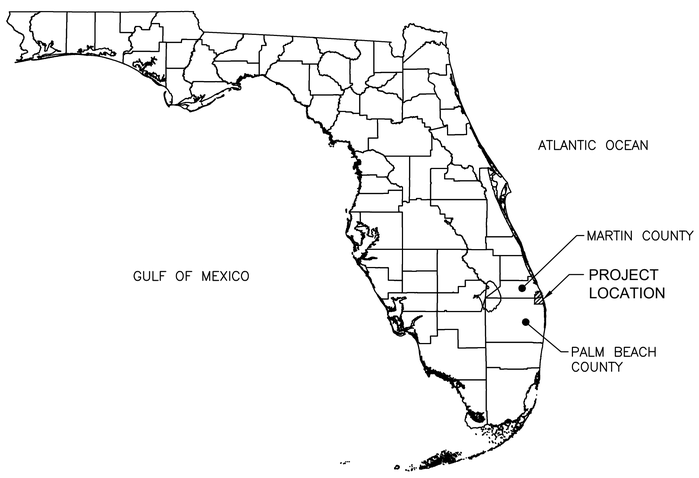
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

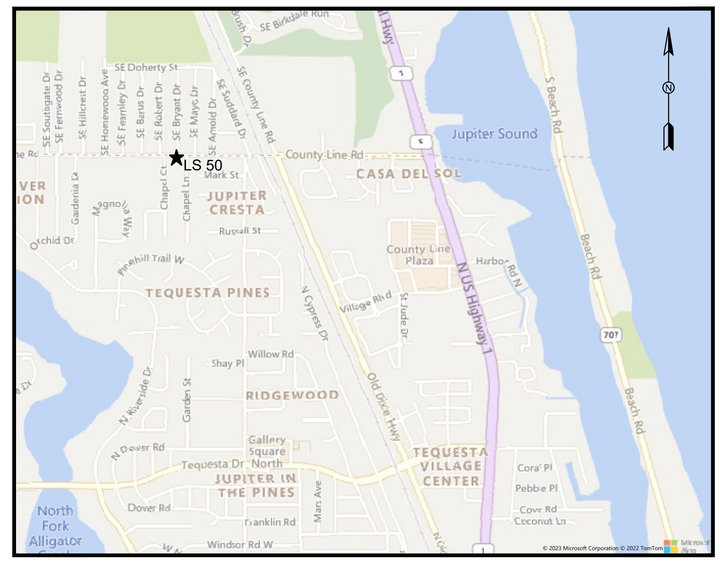
PREPARED FOR
LOXAHATCHEE RIVER DISTRICT

PALM BEACH COUNTY, FLORIDA

SECTION 25, TOWNSHIP 40S, RANGE 42E

LIFT STATION 50 ADDRESS: 4282 COUNTY LINE ROAD, JUPITER, FL.





VICINITY MAP

NTS

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C-2	LIFT STATION No. 50 SITE PLAN
D-1	CIVIL DETAILS
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LOXAHATCHEE RIVER ENVIRONMENTAL CONTROL DISTRICT 1971

LOXAHATCHEE RIVER
DISTRICT GOVERNING BOARD

STEPHEN B. ROCKOFF	CHAIRMAN
GORDON M. BOGGIE	VICE CHAIRMAN
CLINTON R. YERKES	TREASURER
KEVIN L. BAKER	SECRETARY
DR. MATT ROSTOCK	ASST. TREASURER

JUNE 2024

LIFT STATION NO. 50 EMERGENCY GENERATOR PROJECT

HOLTZ CONSULTING ENGINEERS, INC.
270 SOUTH CENTRAL BLVD., SUITE 207
JUPITER, FLORIDA 33458
PH. (561) 575-2005
Cert. No. 26960

CHRISTINE J. MIRANDA, P.E.
License No: 60906

G-1

ISSUED DATE: 06-11-2024

GENERAL ABBREVIATIONS

ABND	Abandon or Abandoned
ACP	Asbestos Cement Pipe
ADD'L	Additional
AL, Alum	Aluminum
APPROX	Approximate
ARV	Air Release Valve
ASP, Asph	Asphalt
BFP	Backflow Preventer
BFV	Butterfly Valve
B/L	Base Line
BLDG	Building
BM	Benchmark
BO	Blowoff
BOP	Bottom of Pipe
CATV	Cable Television
CB	Catch Basin
CO	Cleanout
CL	Center Line
CLF	Chain Link Fence
CIP	Cast Iron Pipe / Cast in Place
CMP	Corrugated Metal Pipe
CONC	Concrete
CONST	Construct/Construction
DE	Drainage Easement
DI	Ductile Iron
DIP	Ductile Iron Pipe
DIA	Diameter
DR	Dimensional Ratio/Drainage
DWY	Driveway
EL	Elevation
EOP	Edge of Pavement
ESMT	Easement
EOW	Edge of Water
EX, EXIST	Existing
FDOT	Florida Department of Transportation
FH	Fire Hydrant
FM	Force Main
FND	Found
FNPT	Female Nominal Pipe Thread
FPL	Florida Power and Light
FW	Finished Water
GPS	Global Positioning System
GV	Gate Valve
HB	Hose Bibb
HDD	Horizontal Directional Drill
HDPE	High Density Polyethylene
HYD	Hydrant
ID	Identification
INV	Invert/Invert Elevation
IRC	Iron Rod & Cap
IRR	Irrigation
LAE	Limited Access Easement
LF	Linear Feet
LP	Light Pole
LS	Lift Station
LSA	Landscape Area
MAX	Maximum
MB	Mailbox
MECH	Mechanical
MH	Manhole
MIN	Minimum
MISC	Miscellaneous
MJ	Mechanical Joint
N/D	Nail and Disk
NAVD	North American Vertical Datum
NGVD	National Geodetic Vertical Datum
No	Number
NTS	Not to Scale
OC,O/C	On Center
OD	Outside Diameter
OHW	Overhead Wire
ORB	Official Records Book
PB	Plat Book
PGL	Profile Grade Line
PVC	Polyvinyl Chloride/Polyvinyl Chloride Pipe
RC	Reinforced Concrete
RCP	Reinforced Concrete Pipe
RCW	Reclaimed Water
RED	Reducer
REINF	Reinforce/Reinforced
RJ	Restrained Joint
RWM	Raw Water Main
R/W,ROW	Right of Way
S=	Slope (FT/FT)/(Rise/Run)
SAN	Sanitary
SCH/SCHED	Schedule
SEC	Section
SF	Silt Fence
SP	Sample Point
SS	Sanitary Sewer
STA	Station
TBM	Temporary Benchmark
TEMP	Temporary
TOB	Top of Bank
TON	Top of Nut
TOP	Top of Pipe
TOS	Toe of Slope
TYP	Typical
UE	Utility Easement
UEC	Underground Electric Conduit
UGE	Underground Electric
UGT	Underground Telephone
UNK	Unknown
W/	With (Combined Form)
WF	Wood Fence
WM	Water Main or Water Meter
WPB	Wire Pullbox
WTP	Water Treatment Plant
WV	Water Valve
WWTP	Waste Water Treatment Plant

LINETYPES

	EXISTING*	PROPOSED*
CABLE TV	CATV	
CENTER LINE		
DRAIN	DR DR	DR DR
EASEMENT		
ELECTRIC	E E	
FENCE	X X	X X
FIBER OPTIC	FOC FOC	FOC FOC
FIRE MAIN	FIRE FIRE	FIRE
FORCE MAIN	FM FM	FM FM
GAS	GAS GAS	
GUARDRAIL		
IRRIGATION	IRR IRR	
OVERHEAD UTILITIES	OHU OHU	
RAILROAD TRACK		
RAW WATER MAIN	RWM	RWM
RECLAIMED WATER MAIN	RCW RCW	RCW
RIGHT-OF-WAY		
SANITARY SEWER	S S	S S
SANITARY SEWER SERVICE	SS SS	SS SS
SILT FENCE		SF SF
STORM DRAINAGE	ST ST	ST ST
TELEPHONE	T T	
TOP OF BANK		
TOE OF SLOPE		
TRAFFIC SIGNAL	TS TS	TS TS
TURBIDITY BARRIER		TB TB
UNKNOWN	UNK UNK	
VACUUM SEWER	VS VS	VS VS
WATER MAIN	WM WM	WM WM
WATER SERVICE	WS WS	WS WS
WOOD FENCE	WF WF	WF WF

* DEPICTS ABOVE GRADE — TEXT — TEXT — TEXT —

* DEPICTS BELOW GRADE --- TEXT --- TEXT --- TEXT --- TEXT -

PIPING SYMBOLOGY

- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- UNION
- BALL VALVE (BV)
- GATE VALVE (GV)
- BUTTERFLY VALVE (BFV)/ ODOR CONTROL DAMPENER
- PLUG VALVE (PV)
- CHECK VALVE (CV)
- PLUG/CAP
- CO — CLEAN OUT
- TAPPING VALVE
- LINE STOP
- HOSE BIBB
- EXISTING PIPE
- EXISTING BURIED PIPE
- PROPOSED PIPE
- PROPOSED PIPE
- MECHANICAL JOINT
- FLANGE JOINT
- FLEXIBLE COUPLING
- FLEXIBLE COUPLING WITH THRUST TIES
- ELBOW UP
- ELBOW DOWN
- 90° ELBOW
- TEE UP
- TEE DOWN
- TEE
- CROSS

CIVIL SYMBOLOGY

- CONSTRUCTION BASE LINE — 0+00
- DIRECTION OF FLOW
- EXIST. SPOT ELEVATION — x 79.5
- PROP. SPOT ELEVATION — 0.0
- BENCHMARK — EL. 20.90
- NEW CONTOUR ELEV. — 79.5
- EXIST. UTILITY POLES — UTILITY, POWER, TELEPHONE, LIGHT
- NEW UTILITY POLES — UTILITY, POWER, TELEPHONE, LIGHT
- PIPING CONFLICT LOCATION — C-1
- SAMPLE POINT — SP1
- WATER SURFACE — PLAN; SECTION — EL 48.00
- FIRE HYDRANT — NEW, EXIST.
- EXIST. MANHOLE, DRAINAGE STRUCTURE
- NEW MANHOLE, DRAINAGE STRUCTURE
- TO BE REMOVED/DEMOLISHED

SECTION/DETAIL SYMBOL

SECTION — SCALE: — 5 / 15

SECTION LETTER/DETAIL NUMBER

SHEET/DRAWING NO. ON WHICH SECTION/DETAIL IS SHOWN

1 / 101

SECTION LETTER/DETAIL NUMBER

SHEET/DRAWING NO. ON WHICH SECTION/DETAIL IS SHOWN

SECTION CUT

A A

SECTION CUT ON DETAILS

PIPE DESIGNATION — 8" DIP FORCE MAIN

- NOMINAL PIPE DIA.(IN.)
- PIPE MATERIAL (IF SHOWN)
- FLOW STREAM IDENTIFICATION (IF SHOWN)

Symbols:

#	Pounds/Number
∢	Angle
Ø	Round/Diameter

SURVEY ABBREVIATIONS & LEGEND

(C) = CALCULATED
C.B.S. = CONCRETE BLOCK STRUCTURE
C.M.B. = COMMISSIONERS' MINUTES BOOK
CMH = CONFLICT MANHOLE
D.B. = DEED BOOK
E = EAST
I.P. = IRON PIPE
I.R. = IRON ROD
LB = LICENSED BUSINESS
LS = LICENSED SURVEYOR
(M) = MEASURED
M.H.W. = MEAN HIGH WATER
MON. = MONUMENT
N = NORTH
(P) = PLAT
P.B.C.R. = PALM BEACH COUNTY RECORDS
PCN = PARCEL CONTROL NUMBER
PG. = PAGE
P.R.M. = PERMANENT REFERENCE MONUMENT
R.P.B. = ROAD PLAT BOOK
S = SOUTH
(S) = SURVEY
SLP = STOP LIGHT POLE
SMH = SANITARY MANHOLE
SBTMH = SOUTHERN BELL TELEPHONE MANHOLE
STMH = STORM MANHOLE
TB = TRAFFIC BOX
TLP = TRAFFIC LIGHT POLE
TV = TELEVISION
W = WEST
WP = WOOD POLE
WUP = WOOD UTILITY POLE

- BENCHMARK
- PALM TREE WITH DIAMETER IN INCHES
- S — SANITARY MANHOLE
- SV — SANITARY VALVE WITH CONCRETE APRON
- WOOD POWER POLE

SURVEY NOTES

1. THIS SURVEY DOES NOT ADDRESS ENVIRONMENTAL MATTERS, JURISDICTIONAL BOUNDARIES OR HAZARDOUS WASTE CONCERNS SHOULD ANY OF THE FOREGOING EXIST.
2. THE ELEVATIONS SHOWN HEREON ARE FOR THE PURPOSE OF INDICATING THE GROUND ELEVATION ONLY AT THE POSITION SHOWN AND IN NO WAY INDICATE ELEVATIONS AT ANY OTHER POINT THAN SHOWN HEREON AND DO NOT DETERMINE SUB SURFACE CONDITIONS.
3. UNDERGROUND APPARENT USE AND/OR IMPROVEMENTS HAVE NOT BEEN SHOWN UNLESS OTHERWISE NOTED.
4. DATE OF FIELD SURVEY: FEBRUARY 17TH 2023, AS RECORDED IN FIELD BOOK 532, PAGES 58 THROUGH 60.
5. BY GRAPHIC PLOTTING ONLY THE SUBJECT PROPERTY LIES WITHIN ZONE X, AS SHOWN ON THE U.S. DEPARTMENT OF HOMELAND SECURITY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP, MAP NUMBER: 12099C0180F, COMMUNITY: VILLAGE OF TEQUESTA, NUMBER: 120228, PANEL 0180, SUFFIX: F, EFFECTIVE DATE: OCTOBER 5, 2017.
6. IN SOME INSTANCES, GRAPHIC REPRESENTATIONS HAVE BEEN EXAGGERATED TO MORE CLEARLY ILLUSTRATE RELATIONSHIPS BETWEEN PHYSICAL IMPROVEMENTS AND/OR LOT LINES. IN ALL CASES, DIMENSIONS SHOWN SHALL CONTROL THE LOCATION OF THE IMPROVEMENTS OVER SCALED POSITIONS.
7. MEASUREMENTS SHOWN HEREON ARE EXPRESSED IN FEET AND DECIMAL PARTS THEREOF UNLESS OTHERWISE NOTED.
8. BENCHMARK OF ORIGIN: NGS BENCHMARKS "A 232" AND "B 170" WHOSE PUBLISHED ELEVATIONS ARE 15.92' AND 14.83' RESPECTIVELY, BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988.
9. ELEVATIONS REFERENCED HEREON ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).
10. TO CONVERT FROM NAVD 88 TO NGVD 29 ADD 1.529'.
    EXAMPLE: 10.00' (NAVD 88) = 11.529' (NGVD 29).

811 Know what's below. Call before you dig.

REV	DATE	REVISIONS	BY

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
0 — 1
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

Date: 6/11/24
Scale: AS NOTED
Design By: CM
Drawn By: RR
Check By: CM

LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

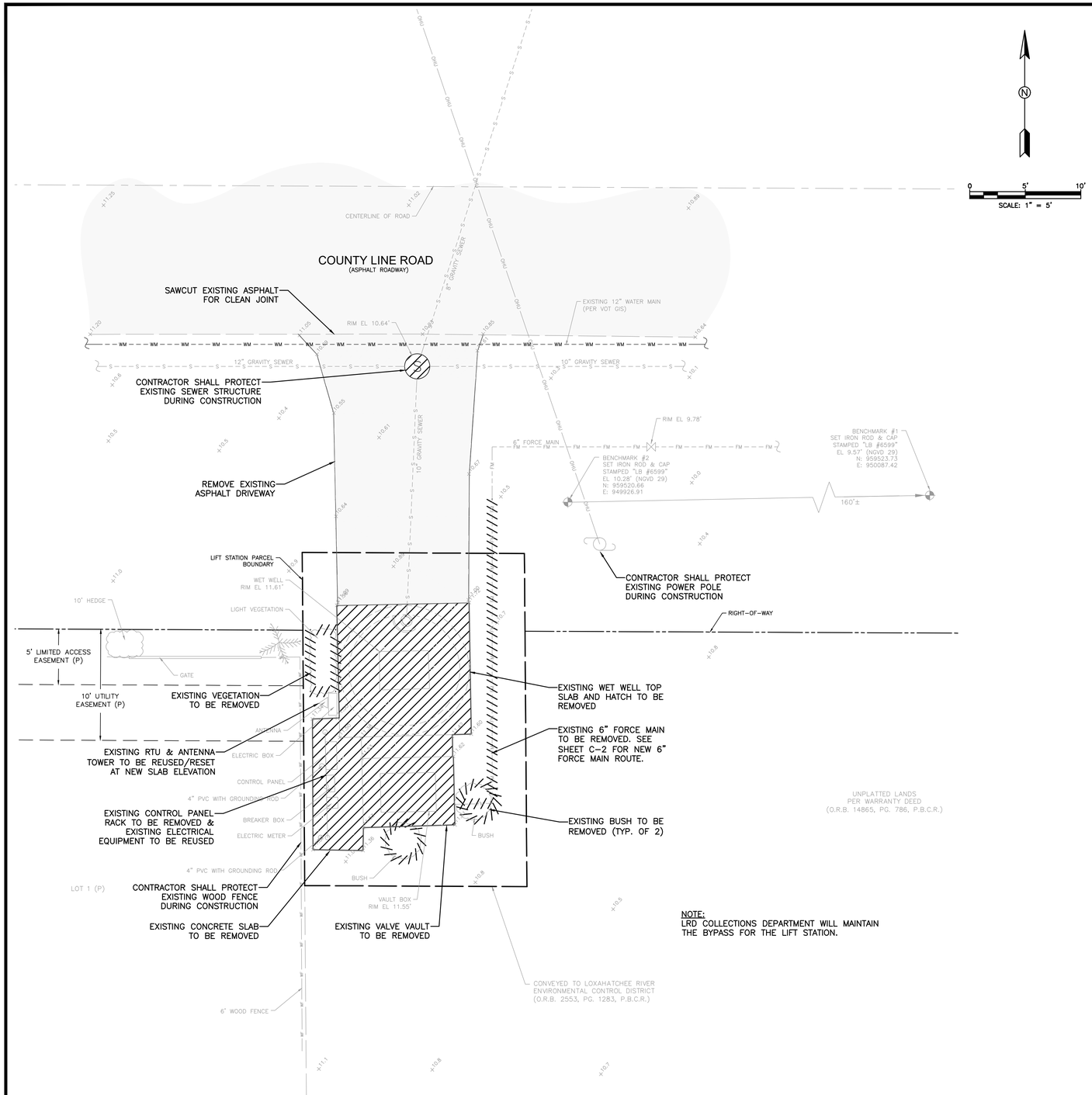
LEGEND

HOLTZ CONSULTING ENGINEERS, INC.
270 SOUTH CENTRAL BLVD., SUITE 207
JUPITER, FLORIDA 33458
PH. (561) 575-2005
Cert. No. 26960

CHRISTINE J. MIRANDA, P.E.
License No: 60906

G-2

Drawing Name: F:\PROJECTS\LRD\Lift Station 50 Emergency Generator\Design\Drawings\LEGEND.dwg Layout Name: LEGEND – Plotted by: Russell Ryan – Date: 7/8/2024 – 10:08 AM – Holtz Consulting Engineers



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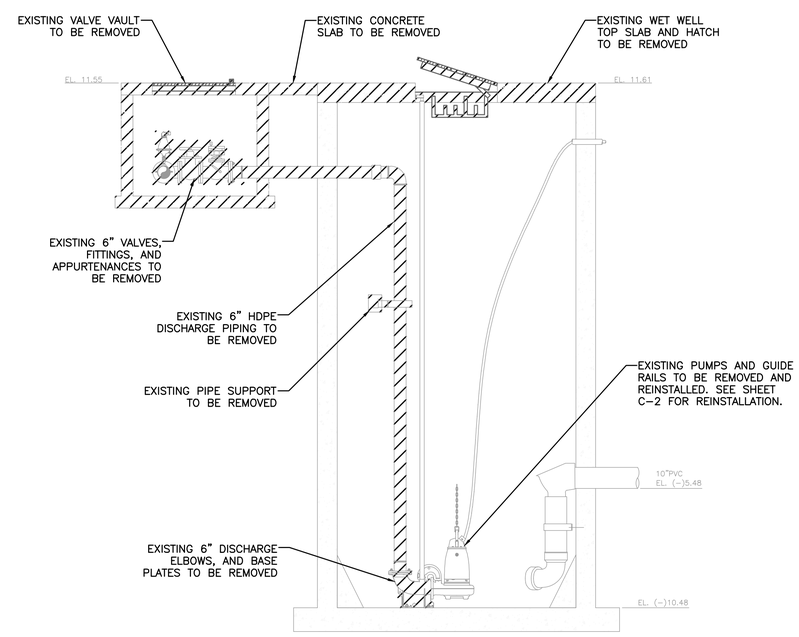
5. MAINTAIN MINIMUM 4FT. HORIZONTAL CLEARANCE AND 1 FT. VERTICAL CLEARANCE FROM OUTSIDE ALL OF PALM BEACH COUNTY UTILITY STRUCTURES, CONDUITS, AND PIPES.

NOTE:
LRD COLLECTIONS DEPARTMENT WILL MAINTAIN THE BYPASS FOR THE LIFT STATION.



EXISTING LIFT STATION PROFILE

SCALE: 1" = 3'

REV	DATE	REVISIONS	BY

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
0 1
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

Date: 6/11/24
Scale: AS NOTED
Design By: CM
Drawn By: RR
Check By: CM

LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

LIFT STATION NO. 50
DEMOLITION PLAN

HOLTZ CONSULTING ENGINEERS, INC.
HCE
270 SOUTH CENTRAL BLVD., SUITE 207
JUPITER, FLORIDA 33458
PH. (561) 575-2005
Cert. No. 26960

CHRISTINE J. MIRANDA, P.E.
License No: 60906

C-1

NOTES:

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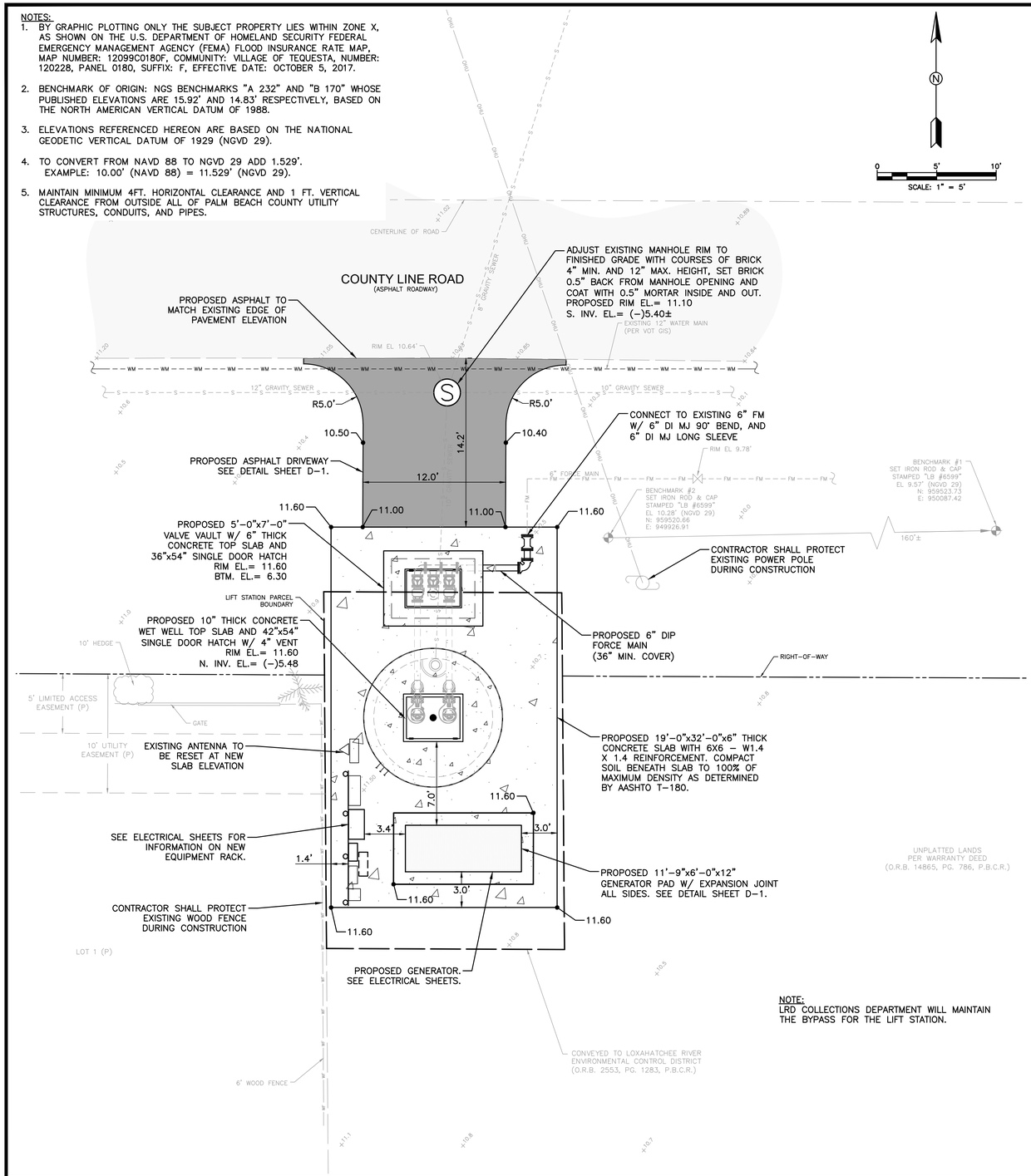
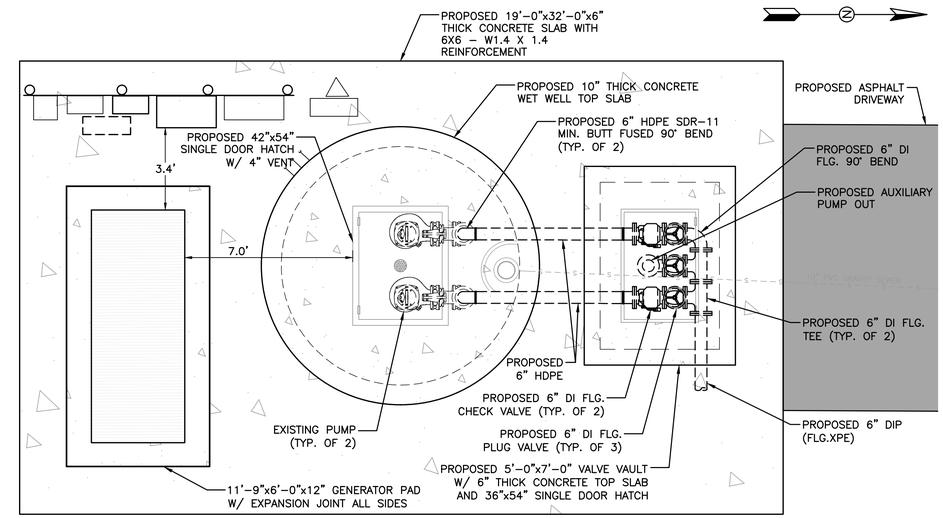
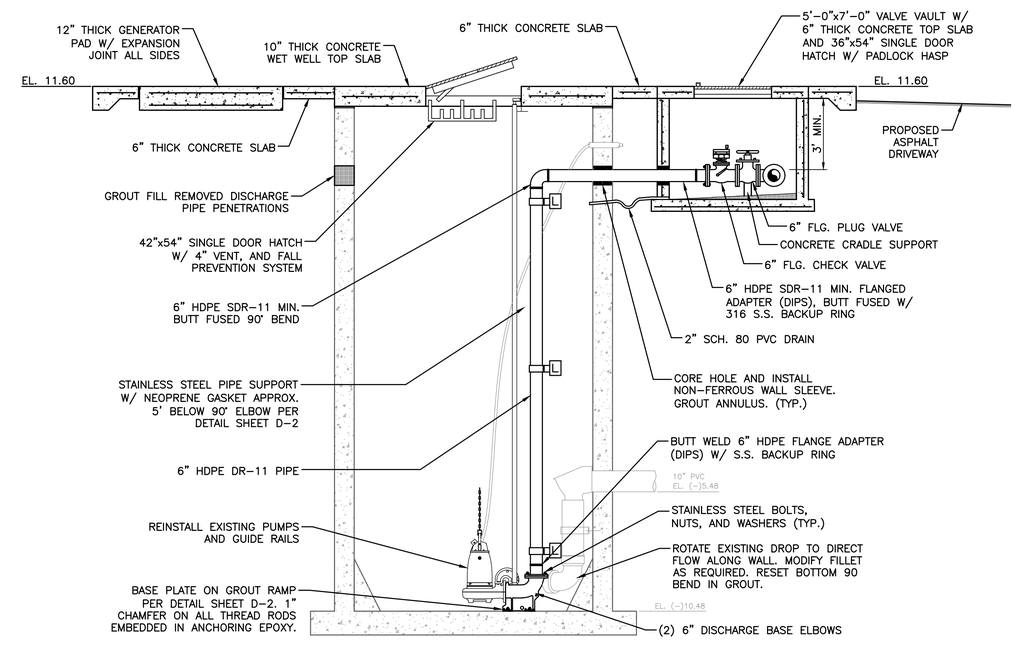


NOTE:
LRD COLLECTIONS DEPARTMENT WILL MAINTAIN THE BYPASS FOR THE LIFT STATION.



PROPOSED LIFT STATION PLAN

SCALE: 1" = 3'



PROPOSED LIFT STATION PROFILE

SCALE: 1" = 3'

REV	DATE	REVISIONS	BY

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
0 1
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

Date: 6/11/24
Scale: AS NOTED
Design By: CM
Drawn By: RR
Check By: CM

LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

LIFT STATION NO. 50
SITE PLAN

HOLTZ CONSULTING ENGINEERS, INC.
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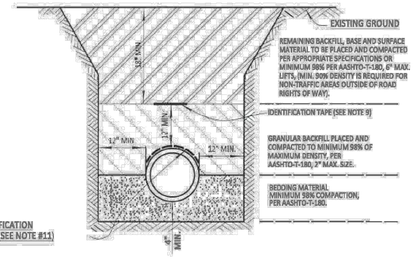
C-2



NOTES:

1. BEDDING SHALL CONSIST OF IN-SITU GRANULAR MATERIAL OR WASHED AND GRADED LIMEROCK 3/8" - 7/8" SIZING WITH EQUAL OR GREATER STRUCTURAL ADEQUACY AS EXISTING. UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS AND LARGER ROCKS SHALL BE REMOVED.
2. THE PIPE SHALL BE FULLY SUPPORTED FOR ITS ENTIRE LENGTH WITH APPROPRIATE COMPACTION UNDER THE PIPE HAUNCHES.
3. THE PIPE SHALL BE PLACED IN A DRY TRENCH.
4. BACKFILL SHALL BE FREE OF UNSUITABLE MATERIAL SUCH AS LARGE ROCK, MUCK AND DEBRIS.
5. DENSITY TESTS SHALL BE TAKEN IN 1 FOOT LIFTS ABOVE THE PIPE AT INTERVALS OF 400' MAXIMUM. (MINIMUM 1 TEST) OR AS DIRECTED BY THE CONSTRUCTION COORDINATION DIVISION. RESULTS SHALL BE SUBMITTED TO CONSTRUCTION COORDINATION AS PART OF THEIR FIELD REVIEW.
6. THE PERMITTEE/DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ALL TRENCH SAFETY LAWS AND REGULATIONS.
7. SEE SEPARATE DETAIL FOR PAVED AREAS (OPEN CUT FOR THOROUGHFARE AND NON-THOROUGHFARE ROADS).
8. THE AFFECTED AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION OR AS SPECIFIED IN PERMIT/CONTRACT DOCUMENTS.
9. APPROVED MAGNETIC TAPE IS REQUIRED FOR ALL MAIN PRESSURE PIPES AND CONDUIT IN THE COUNTY'S RIGHT-OF-WAY. INSTALL TAPE 18" BELOW FINISHED GRADE.
10. ROOT BARRIER IS REQUIRED FOR APPROVED PIPE INSTALLATION CLOSER THAN 10 FEET FROM AN EXISTING TREE. SEE SEPARATE DETAIL FOR ROOT BARRIER.
11. CONTINUOUS 4" WIDE PAINT STRIPING IS REQUIRED FOR DIP/PCCP WATER MAINS (BLUE), DIP SANITARY FORCE MAINS (GREEN), DIP RECLAIMED WATER MAINS (PURPLE), GAS MAINS (YELLOW), OR AS REQUIRED BY THE AHWA.
12. PERMANENT ABOVE GROUND UTILITY MARKER SHALL BE INSTALLED IF REQUIRED.

FILEPATH: P:/DGN/ENG_SER/LAND DEVELOPMENT STANDARDS/1.DGN

PALM BEACH COUNTY DEPARTMENT OF ENGINEERING & PUBLIC WORKS				TYPICAL TRENCH DETAIL (NON-PAVED AREAS)	DRAWING NO.
DRAWN BY: K.L.	DATE: 05/23/90	REVISED BY: J.M.K.	DATE: 02/01/2018	APPROVED: COUNTY ENGINEER OR DESIGNEE 4/27/18	EFFECTIVE: 1

TABLE 100.6

TABLE OF MATERIALS AND CONSTRUCTION STANDARDS: RESIDENTIAL ACCESS AND LOCAL STREETS

Component (1)	Description of Materials	Construction Standards Minimum In Place		Notes
		Thickness (2)	SN (min.) (3)	
A	SP Structural Course	1 ½"	0.66	Traffic Level A
B	Optional Base Group 8	See notes	1.65	Refer to FDOT Flexible Pavement Design Manual Table 5.6
C	Compacted Subgrade (3)	12"	0	
	Total		2.31	

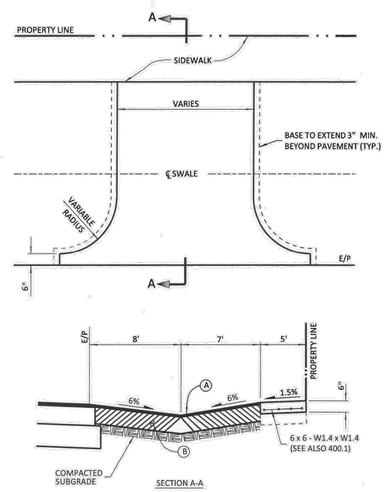
(1) A = Pavement
B = Base
C = Subgrade

(2) All Dimensions Refer to Finished Thickness

(3) Compacted to At Least 98% Maximum Density Per PER A.A.S.H.T.O. T-180.

FILEPATH: P:/DGN/ENG SER/LAND DEVELOPMENT STANDARDS/DWF FORMAT/100.6

PALM BEACH COUNTY DEPARTMENT OF ENGINEERING & PUBLIC WORKS				TABLE OF MATERIALS AND CONSTRUCTION STANDARDS: RESIDENTIAL ACCESS AND LOCAL STREETS	DRAWING
DRAWN BY: K.L.	DATE: 05/23/90	REVISED BY: J.M.K.	DATE: 02/01/2018	APPROVED: COUNTY ENGINEER OR DESIGNEE 2/19/18	EFFECTIVE: 100.6

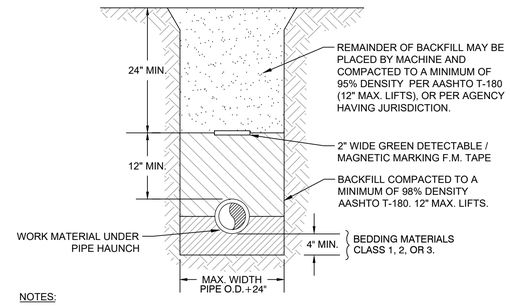


(A) WEARING SURFACE: 1 INCH ASPHALTIC CONCRETE

(B) BASE: SEE TABLE 100.6

FILEPATH: P:/DGN/ENG SER/LAND DEVELOPMENT STANDARDS/DWF FORMAT/300.1A

PALM BEACH COUNTY DEPARTMENT OF ENGINEERING & PUBLIC WORKS				RESIDENTIAL DRIVEWAY SWALE SECTION (ASPHALT)	TABLE
DRAWN BY: K.L.	DATE: 05/23/90	REVISED BY: J.M.K.	DATE: 02/01/2018	APPROVED: COUNTY ENGINEER OR DESIGNEE 2/19/18	EFFECTIVE: 300.1A



NOTES:

CLASS 1 MATERIAL - ANGULAR .25" TO .75" GRADED STONE SUCH AS CORAL, CRUSHED STONE, OR CRUSHED SHELLS OR BEDDING ROCK (100% PASSING 1" SIEVE).

CLASS 2 MATERIAL - COURSE SAND AND GRAVEL'S WITH MAXIMUM PARTICLE SIZE OF .25 INCH WITH SMALL PERCENTAGE OF FINES. COMPACT TO A MIN. 98% DENSITY PER AASHTO T-180.

CLASS 3 MATERIAL - FINE SAND AND CLAYEY GRAVEL'S, INCLUDING FINE SANDS, SAND-CLAY MIXTURES AND GRAVEL-CLAY MIXTURES. INCLUDED IN CLASS 3 ARE EXISTING SOIL TYPES CLASSIFIED AS SELECT BACKFILL. COMPACT TO A MIN. 98% DENSITY PER AASHTO T-180.

1. IF CLASS 1 MATERIAL IS USED FOR BEDDING, IT MUST BE USED FOR THE ENTIRE EMBEDMENT. A DRY TRENCH SHALL BE MAINTAINED WHEN USING CLASS 2 AND CLASS 3 MATERIAL.
2. DENSITY TESTING IS REQUIRED IN 1 FOOT LIFTS ABOVE PIPELINE AT INTERVALS OF 400' MAXIMUM.
3. UNSUITABLE IN-SITU MATERIAL SUCH AS MUCK, DEBRIS AND LARGER ROCKS SHALL BE REMOVED.
4. THE AFFECTED AREA SHALL BE RESTORED TO EQUAL OR BETTER CONDITION OR AS SPECIFIED IN PERMIT / CONTRACT DOCUMENTS.

TYPICAL TRENCH DETAIL
NOT TO SCALE

REV	DATE	REVISIONS	BY

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
0 — 1
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

Date: 6/11/24
Scale: AS NOTED
Design By: CM
Drawn By: RR
Check By: CM

LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

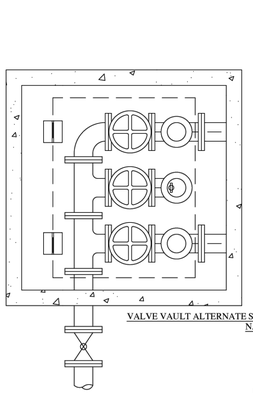
CIVIL DETAILS

HOLTZ CONSULTING ENGINEERS, INC.
270 SOUTH CENTRAL BLVD., SUITE 207
JUPITER, FLORIDA 33458
PH. (561) 575-2005
Cert. No. 26960

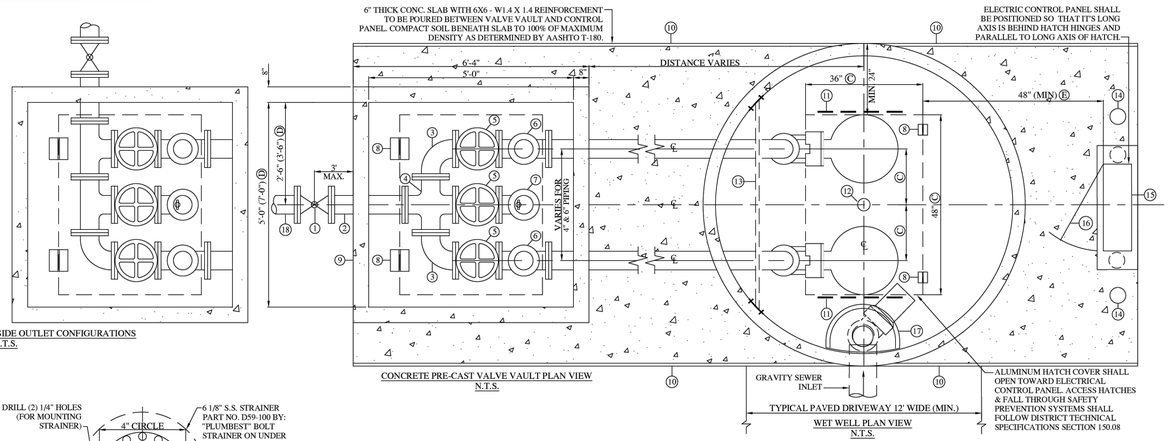
CHRISTINE J. MIRANDA, P.E.
License No: 60906

D-1

Drawing Name: F:\PROJECTS\LRD\Lift Station 50 Emergency Generator\Design\Drawings\DETAILS.dwg Layout Name: D-1 – Plotted by: Russell Ryan – Date: 7/8/2024 – 10:08 AM – Holtz Consulting Engineers

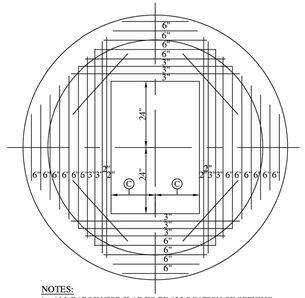


VALVE VAULT ALTERNATE SIDE OUTLET CONFIGURATIONS
N.T.S.



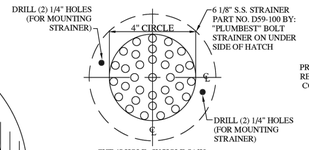
CONCRETE PRE-CAST VALVE VAULT PLAN VIEW
N.T.S.

WET WELL PLAN VIEW
N.T.S.

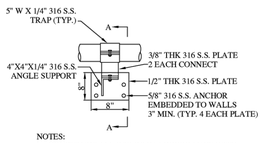


NOTES:
1. ALL BARS IN TOP SLAB TO BE #5 LOCATION OF OPENING IN TOP SLAB TO BE VERIFIED BY DESIGN ENGINEER WITH REQUIREMENT OF PUMP MANUFACTURER.

TOP SLAB DETAIL
N.T.S.

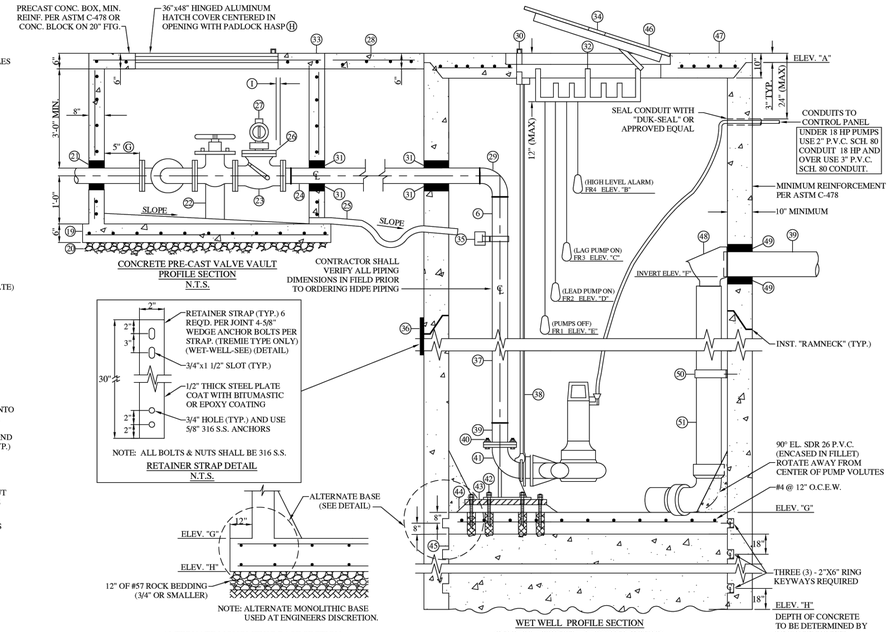


VENT HOLE DETAIL WET WELL HATCH
N.T.S.



NOTES:
1. CONSTRUCT ALL WELDS IN ACCORDANCE WITH AWS D-1.6 STRUCTURAL WELDING CODE.
2. ALL NUTS & BOLTS SHALL BE 1/2" THICK S.S.

ANGLE PIPE SUPPORT DETAIL
N.T.S.

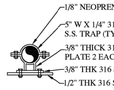


CONCRETE PRE-CAST VALVE VAULT PROFILE SECTION
N.T.S.

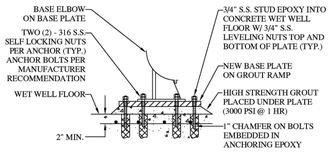
WET WELL PROFILE SECTION
(INSTALLATION VIA CAISSON METHOD)
N.T.S.

NOTE: ALL BOLTS & NUTS SHALL BE 316 S.S.

RETAINER STRAP DETAIL
N.T.S.



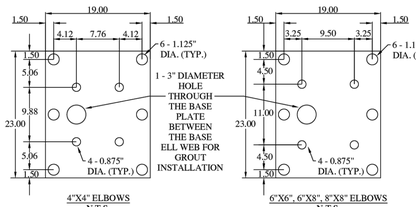
SECTION A-A
N.T.S.



PUMP BASEPLATE SECTION DETAIL
N.T.S.

NOTE: ALTERNATE MONOLITHIC BASE USED AT ENGINEERS DISCRETION.

ALTERNATE MONOLITHIC BASE SECTION
N.T.S.



4"X4" ELBOWS
N.T.S.

6"X6", 6"X8", 8"X8" ELBOWS
N.T.S.

BASE PLATE: 316 STAINLESS STEEL 0.50" THICK
(ALL MEASUREMENTS IN INCHES)

GENERAL SPECIFICATIONS:

IT IS THE INTENT OF THIS STANDARD TO SPECIFY A TWO PUMP SUB- MERSIBLE LIFT STATION COMPLETE IN EVERY RESPECT WHETHER OR NOT COVERED BY SPECIFICATION OR THESE CONSTRUCTION DETAILS.

THE SURFACE OF THE LIFT STATION AND PAVED ACCESS ROADWAY SHALL BE SET AT PROPER ELEVATIONS SO THAT FUTURE ACCESS TO THE STATION WILL NOT BE IMPAIRED BY FLOODING, EXCESSIVE ROAD GRADES, SWALES, WALLS OR LANDSCAPING IN ANY MANNER. A SITE PLAN OF THE LIFT STATION SIZE (PLOT PLAN) INDICATING ALL TOPOGRAPHICAL FEATURES, RIGHT-OF-WAYS AND EASEMENTS SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL OF THE SITE AND ADJOIN- ING CONTIGUOUS AREAS.

THE WETWELL DRIVEWAY IS INCLUDED WITH THE JOB, IT WILL BE CONSTRUCTED PER LOCAL CODE REQUIREMENTS.

THE CONTRACTOR SHALL COORDINATE WITH AND PAY ALL FEES, DEPOSITS, AND SERVICE COSTS TO FLORIDA POWER AND LIGHT CORP., TO BRING THREE (3) PHASE, FOUR (4) WIRE 230/120 VOLT (480 VOLTS WHEN REQUIRED) UNDERGROUND POWER SERVICE TO THE LIFT STATION SITE. THIS REQUIREMENT DOES NOT APPLY TO PROJECTS INVOLVING LIFT STATION REHABILITATION WORK PERFORMED BY THE DISTRICT.

THE LIFT STATION AND APPURTENANCES SHALL INCLUDE ALL COUPLINGS, ANCHOR BOLTS, PIPING, VALVES, ELECTRICAL EQUIPMENT, ETC., REQUIRED FOR A COMPLETE WORKING INSTALLATION.

A LIST OF EQUIPMENT INCLUDED UNDER THIS ITEM IS GIVEN BELOW. THIS LIST IS NOT ALL INCLUSIVE AND THE CONTRACTOR SHALL SUPPLY ALL OTHER EQUIPMENT NECESSARY FOR COMPLETE WORKING INSTALL- ATIONS. THE LIFT STATION SHALL INCLUDE:

TWO (2) SUBMERSIBLE TYPE SEWAGE PUMPS WITH 304 STAINLESS STEEL GUIDE RAILS AND ALL ACCESSORIES.

TWO (2) DISCHARGE LINES WITH SWING CHECK VALVES, DEZURIK PLUG VALVES INSTALLED WITHIN A PRE-CAST CONCRETE PIT. (SEE STANDARD DETAIL THIS SHEET)

ONE (1) PUMP LEVEL CONTROL SYSTEM FOR PUMP LEAD/LAG CONTROLS WITH HIGH LEVEL ALARM, ELECTRICAL PANEL, ETC. (SEE DETAILS SD-32, SD-33 & SD-34)

ONE (1) WET-WELL STRUCTURE WITH ACCESS HATCH PER DISTRICT STANDARD SPECIFICATIONS SECTION 150.08.

ONE (1) PRE-CAST VALVE VAULT STRUCTURE.

ELEVATION SCHEDULE	
ELEV. "A"	
ELEV. "B"	
ELEV. "C"	
ELEC. "D"	
ELEV. "E"	
ELEV. "F"	
ELEV. "G"	
ELEV. "H"	
FLOOD ZONE /100 YR FLOOD ELEV.	

PUMP SELECTION	
PRESS. IN EXIST. F.M.	
SUCTION LIFT	
STATION LOSS	
FRICTION LOSS	
STATIC HEAD	
T.D.H. (FEET)	

PLAN & PROFILE NOTES:
Ⓐ - ALL DISCHARGE PIPING & VALVES SHALL BE ___ INCHES.
Ⓑ - ORIENTATION OF INFLUENT SEWER AND FORCE MAIN MAY BE DIFFERENT THAN SHOWN. SEE SITE PLAN FOR DETAILS.
Ⓒ - PER PUMP MANUFACTURER RECOMMENDATION.
Ⓓ - PROVIDE 36"x 54" OPENING WHEN 6" PIPE IS USED. VALVE VAULT WIDTH SHALL BE 7'-0" INSIDE DIMENSION.
Ⓔ - DISTANCE REQUIRED TO MAINTAIN CLEARANCE BETWEEN WET WELL HATCH DOOR AND CONTROL PANEL DOOR.
Ⓕ - PLUG VALVES SHALL BE MANUFACTURED BY DEZURIK OR MILLIKEN.
Ⓖ - WHEN 6" PIPING IS USED. HOLD THIS DIMENSION
Ⓗ - PROVIDE 36"X54" OPENING WHEN 6" PIPE IS USED. VALVE BOX WIDTH SHALL BE 7'-0" INSIDE DIMENSION.
Ⓘ - MAINTAIN CLEARANCE BETWEEN AUXILIARY PUMP CONNECTION AND EDGE OF HATCH.

PUMP DATA
MANUFACTURER: _____SEWAGE PUMP
MODEL: _____SERIES: _____
MOTORS: _____HP, _____VOLT, _____WIRE, 60 HZ.
PUMPS DELIVERING _____ G.P.M. AT _____FT. T.D.H.
PUMPS DELIVERING [Design / Actual] G.P.M. AT [Design / Actual] FT. T.D.H.

① - M.J. PLUG VALVE WITH VALVE BOX (3 PIECE)
② - FLANGED X PLAIN END D.I.P.
③ - 90° D.I. FLANGED ELBOW
④ - D.I. FLANGED CROSS
⑤ - FLANGED PLUG VALVE
⑥ - FLANGED CHECK VALVE W/ OUTSIDE SPRING AND LEVER
⑦ - AUXILIARY PUMP OUT
⑧ - HINGE (TYP.)
⑨ - PRE-CAST CONCRETE VALVE VAULT
⑩ - 3/4" CHAMFER (TYP.)
⑪ - FLOAT HANGER
⑫ - VENT HOLE IN HATCH (SEE DETAIL BELOW)
⑬ - 316 S.S. PIPE SUPPORT INSIDE WET WELL
⑭ - 4" PVC SLEEVE FOR GROUND ROD (TYP.)
⑮ - ELECTRICAL CONTROL PANEL (SEE DETAILS SD-32, SD-33 & SD34)
⑯ - CONTROL PANEL DOOR
⑰ - TYPE "A" DROP BOWL MFG. BY RELINER-DURAN INC. FABRICATED IN MARINE GRADE FIBERGLASS (ATTACH W/ 4 S.S. BOLTS)
⑱ - FORCE MAIN CONNECTION
⑲ - MONOLITHIC BASE & WALL SECTION W/#4 BAR 12" O.C.E.W. (TYP.)
⑳ - 6" OF #57 ROCK BEDDING (3/4") OR SMALLER
㉑ - GROUT OPENING
㉒ - CONCRETE CRADLE SUPPORT UNDER OUTSIDE VALVES
㉓ - FLANGED CHECK VALVE W/ OUTSIDESPRING AND LEVER
㉔ - ____" HDPE SDR-11 MIN. FLANGED ADAPTER, BUTT FUSED WITH 316 S.S. BACKUP RING
㉕ - 2" SCH 80 PVC DRAIN WITH TRAP
㉖ - FLANGED CLOSE NIPPLE ADAPTER
㉗ - ____"X2" FNPT COMPANION FLANGE AND 2" FxM NPT BUSHING AND 2" MxM NPT CORP STOP
㉘ - MIN. 6" THICK CONC. SLAB WITH 6X6 - W1.4 X 1.4 REINFORCEMENT TO BE POURED BETWEEN WET-WELL AND VALVE VAULT. COMPACT SOIL BENEATH SLAB TO 100% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.CON. SLAB TO BE LEVEL WITH WET WELL AND VALVE VAULT.
㉙ - ____" HDPE SDR-11 MIN. BUTT FUSED 90° BEND
㉚ - PROVIDE HASP FOR PADLOCK
㉛ - CORE HOLE AND INSTALL NON- FERROUS WALL SLEEVE & ONE (1) LINK SEAL MODEL OS-316 OR APPROVED EQUAL PER OPENING, SIZED FOR HDPE OUTER DIAMETER
㉜ - TWO (2) FLOAT HANGERS TO BE INSTALLED ON SHORT SIDES OF HATCH OPENING. HANGERS SHALL BE SUPPLIED BY PUMP MANUFACTURER
㉝ - 6" CONCRETE SLAB 2-#4 TYP. 3-8 E.F. TOTAL 8 BARS
㉞ - 4" DIAMETER VENT HOLE (SEE DETAIL)
㉟ - 316 S.S. PIPE SUPPORT WITH NEOPRENE GASKET APPROXIMATELY 5' BELOW 90° ELBOW (SEE DETAIL)
㊱ - RETAINER STRAP (SEE DETAIL)
㊲ - ____" HDPE, SDR-11 MIN. PIPING, TO CHECK VALVE IN VALVE VAULT
㊳ - 304 S.S. RAILS. PROVIDE INTERMEDIATE SUPPORTS IF RAILS ARE OVER 20 FT. LONG
㊴ - ____" PVC____
㊵ - 316 STAINLESS STEEL (TYP.) BOLTS, NUTS & WASHERS
㊶ - DISCHARGE CONNECTION
㊷ - ANCHOR BOLTS PER PUMP MFGR. RECOMMENDATION
㊸ - BASE PLATE (SEE DETAIL)
㊹ - FILLET AROUND BASE CIRCUMFERENCE
㊺ - 4000 PSI STRUCTURAL REINFORCED CONCRETE FLOOR SLAB
㊻ - 36"X48" ****MINIMUM ALUMINUM HATCH COVER. ACCESS HATCHES & FALL THROUGH SAFETY PREVENTION SYSTEMS SHALL FOLLOW DISTRICT TECHNICAL SPECIFICATIONS SECTION 150.08
㊼ - 6"x8" REINFORCED CONCRETE COLLAR W/ #5 BAR CONTINUOUS
㊽ - TYPE "A" DROP BOWL MFG. BY RELINER-DURAN INC. FABRICATED IN MARINE GRADE FIBERGLASS (ATTACH W/4 S.S. BLOTS)
㊾ - CORE HOLE AND SEAL ANNULUS WITH PORTLAND TYPE II CEMENT AND FIRE CURED CLAY BRICK
㊿ - 2" S.S. STRAP WITH 1/2" Ø S.S. ANCHORS
(51) - ____" P.V.C. PIPE S.D.R. 26 (LENGTH AS REQUIRED)

NOTES:
1. EACH BASE ELBOW SHALL BE SECURED TO THE BOTTOM OF THE WET WELL WITH FOUR (4) 3/4" DIAMETER 316 S.S. THREADED RODS, 316 S.S. SELF LOCKING NUTS, AND 316 S.S. PLATE. THE PLATE SHALL BE SECURED WITH SIX (6) 1" DIAMETER 316 S.S. THREADED RODS. THE THREADED RODS SHALL BE EMBEDDED A MINIMUM OF 6" INTO THE CONCRETE AND THE MAXIMUM TIGHTENING TORQUE APPLIED IS 110 FT. LBS.
2. ANCHOR STUD HEIGHTS ABOVE THE GROUT RAMP SHOULD ALLOW FOR PLATE AND BASE ELBOW THICKNESS, WASHERS, DOUBLE SELF-LOCKING NUTS WITH VERY LITTLE EXTRA HEIGHT (I.E., 0.25: OR LESS).
3. EACH ANCHORING ROD SHALL HAVE TWO (2) SELF-LOCKING NUTS, AND A SINGLE WASHER. EACH PUMP BASE ELBOW SHALL UTILIZE 2"x2"x1/4" 316 SS FABRICATED WASHERS.
4. CONTRACTOR SHALL USE A QUICK SET, HIGH STRENGTH, NON-SHRINKING GROUT TO CREATE 2-INCH (MINIMUM) LIFT OFF OF EXISTING FLOOR (7000 PSI @ 24 HOURS). CONTRACTOR SHALL ENSURE EXISTING FLOOR IS CLEANED AND PREPARED TO MAXIMIZE BONDING OF GROUT. DRY PACKING NOT ALLOWED.
5. ALTERNATE BASE ELL STUDS. CONTRACTOR MAY PROVIDE (4) - 3/4" 316 SS THREADED RODS INSTALLED THROUGH 0.875" DIAMETER HOLES AND WELDED TO THE BOTTOM OF THE BASE PLATE TO ANCHOR THE BASE ELLS TO THE BASE PLATES.

REV	DATE	REVISIONS	BY

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
0 ▬ 1
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

Date: 6/11/24
Scale: AS NOTED
Design By: CM
Drawn By: RR
Check By: CM

LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

LIFT STATION DETAILS

HOLTZ CONSULTING ENGINEERS, INC.
HCE
270 SOUTH CENTRAL BLVD., SUITE 207
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License No: 60906

D-2

GENERAL ELECTRICAL NOTES

1. **SCHEMATIC NATURE**
   PLAN VIEWS ARE SCHEMATIC IN NATURE AND MEANT TO SHOW THE SCHEMATIC ARRANGEMENT OF EQUIPMENT AND CONDUIT.

2. **APPROVED SHOP DRAWINGS**
   USE APPROVED SHOP DRAWINGS FOR LAY OUT OF EQUIPMENT. THE CONTRACT DOCUMENTS WILL VARY FROM THE SHOP DRAWINGS. INFORM THE ENGINEER IMMEDIATELY IF THERE ARE LAY OUT ISSUES OR INADEQUATE SPACE FOR EQUIPMENT OR CLEARANCES. LAND CONDUITS IN OPENINGS OF ENCLOSURES PER THE APPROVED SHOP DRAWINGS, DO NOT USE THE CONTRACT DRAWINGS.

3. **CLEARANCES**
   IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MEET N.E.C. CLEARANCES ABOUT EQUIPMENT. THE SAME APPLIES TO RACEWAY SUPPORTS.

4. **ROUTING**
   CONDUIT ROUTING IS SCHEMATIC IN NATURE. CONDUIT ROUTING IS SHOWN FOR CLARITY ON THE CONTRACT DRAWINGS. ROUTE CONDUITS AS MAY BE REQUIRED.

5. **FIELD VERIFICATIONS**
   FIELD VERIFY ALL EXISTING CONDITIONS. MAKE MINOR ADJUSTMENTS AS NEEDED. INFORM OWNER/ENGINEER OF INCONSISTENCIES IMMEDIATELY IF PROBLEMS OR CONFLICTS EXIST.

6. **COMPLETE AND FUNCTIONAL SYSTEMS**
   PROVIDE ALL LABOR AND MATERIAL FOR A COMPLETE AND FUNCTIONAL SYSTEM. DEMONSTRATE SYSTEM OPERATION TO THE OWNER/ENGINEER.

7. **LABELING**
   THE CONTRACTOR SHALL PROVIDE LAMCOID PRINTED LABELS FOR ALL EQUIPMENT AND TYPED PANELBOARD SCHEDULES AS REQUIRED.

8. **CONTRACTOR MINIMUM REQUIREMENTS**
   PROVIDE AND INSTALL A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS. ITEMS NOT SHOWN BUT OBVIOUSLY NECESSARY FOR A COMPLETE SYSTEM SHALL BE INCLUDED.

   THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS.

   ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE, NFPA, AND THE LOCAL BUILDING CODES. ALL COMPONENTS SHALL BE U.L. APPROVED.

   CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL CONCEALED FACILITIES BEFORE ANY WORK BEGINS.

9. **SCOPE OF WORK**
   A. COORDINATE NEW ELECTRICAL EQUIPMENT.
   B. DEMO EXISTING EQUIPMENT.
   C. INSTALL NEW EQUIPMENT AND REUSE EXIST. EQUIPMENT.
   D. INSTALL OWNER PURCHASED GENERATOR, LOAD BANK/STARTUP GENERATOR
   E. RESTORE AREAS TO ORIGINAL CONDITION.

10. **CONDUIT**
    CONDUIT SIZES AS SHOWN ON THE DRAWINGS ARE MINIMUM. THE CONTRACTOR MAY INCREASE AS REQUIRED FOR EASE OF PULLING. ALL UNDERGROUND CONDUITS SHALL BE INSTALLED 24" BELOW FINAL GRADE.

11. **JUNCTION BOXES**
    PROVIDE ADDITIONAL BOXES AS MAY BE REQUIRED.

12. **CONDUCTORS**

    SEE THE SPECIFICATIONS.

13. **GROUNDING**
    PROVIDE GROUND SYSTEM AS INDICATED ON THE DRAWINGS AND AS REQUIRED BY THE NATIONAL ELECTRIC CODE.

14. **FUTURES FACILITIES**
    WHERE FUTURE FACILITIES ARE INDICATED. CONDUIT ROUTING SHALL ACCOUNT FOR SUCH FACILITIES.

15. **RESPONSIBILITIES**
    BIDDERS, SUPPLIERS, EQUIPMENT VENDORS, GENERAL CONTRACTOR, SUB CONTRACTORS AND OTHER SIMILAR ENTITIES ARE REQUIRED TO READ ALL THE CONTRACT DOCUMENTS INCLUDING DRAWINGS AND SPECIFICATIONS.

16. **HOME RUNS**
    CONTRACTOR SHALL COORDINATE HOME RUNS BETWEEN PLAN VIEWS. WHERE ANY CONDUIT IS SHOWN IN ANY PLAN VIEW IT SHALL BE INSTALLED THE ENTIRE LENGTH AS MAY BE REQUIRED.

17. **SEPARATION**
    MAINTAIN MIN. 12" SEPARATION BETWEEN 4-20MADC SIGNAL AND OTHER RACEWAYS.

18. **RESTORATION**
    CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION ALL FACILITIES HE DISTURBS. CONTRACTOR SHALL PROVIDE CLEANUP, AND PROPER DISPOSAL, AND PAY ALL FEES FOR ALL DEMOLISHED MATERIALS AND THE LIKE.

19. **WARRANTY**
    CONTRACTOR SHALL WARRANT LABOR AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE OWNER'S ACCEPTANCE OF THE COMPLETED PROJECT.

20. **LRD REQUIREMENTS**
    PROVIDE MATERIALS AND METHODS PER LOXAHATCHEE RIVER DISTRICT REQUIREMENTS AND THESE DRAWINGS AND SPECIFICATIONS.

    LRD IS PROVIDING BYPASS PUMPING EQUIPMENT, CONTRACTOR SHALL COORDINATE ALL WORK WITH LRD.

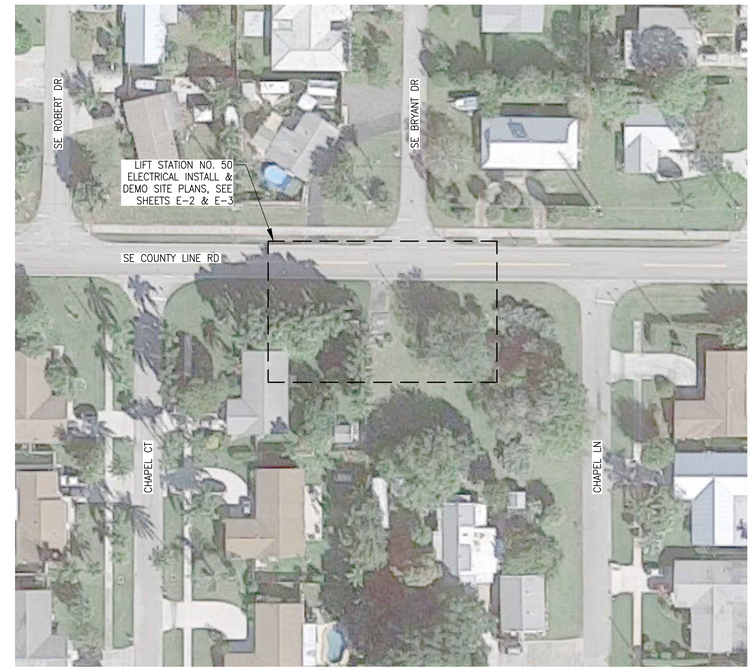
ELECTRICAL ABBREVIATIONS

CP	CONTROL PANEL	OH	OVERHEAD
CM	COMPRESSOR	OOX	OFF, OFF, ON
CR	CONTROL RELAY	PB	PUSH BUTTON
CP	CONTROL PANEL	PB	PULL BOX
DISC	DISCONNECT SWITCH	PDP	POWER DIST. PANEL
ETM	ELAPSED TIME METER	PM	POWER MONITOR
F	FUSE	PSCP	PUMP STATION CONTROL PANEL
FSA	FIELD SURGE ARRESTOR	R,G,A	RED, GREEN, AMBER PILOT LIGHT
GEN	GENERATOR	RTU	REMOTE TERMINAL UNIT
GFI	GROUND FAULT INTERRUPTER	SM	SUB-METER
HLA	HIGH LEVEL ALARM	SA	SURGE ARRESTER
HOA	HAND-OFF-AUTO	SB	SURGE BOX
HOR	HAND-OFF-REMOTE	SC	SURGE CAPACITOR
IPB	INST. PULL BOX	SCC	SHIELDED CONTROL CABLE
JP	JOCKEY PUMP	SS	SELECTOR SWITCH OR 316 STAINLESS STEEL
LA	LIGHTNING ARRESTER		
LLA	LOW LEVEL ALARM	TB	TERM. BOX
LSCP	LIFT STATION CONTROL PANEL	TD	TIME DELAY
LRD	LOXAHATCHEE RIVER DISTRICT	TS	TEST SWITCH
M	MOTOR STARTER	WP	WEATHER PROOF
MCC	MOTOR CONTROL CENTER	XFMR	TRANSFORMER
MLO	MAIN LUGS ONLY	ZSC	POSITION SWITCH CLOSED
MP	MAIN PUMP	ZSO	POSTION SWITCH OPEN
OL	OVER LOAD RELAY		

CONDUIT LEGEND

6 TSP, 1#14, 1-1/2"C

- 1-1/2"C — CONDUIT SIZE
- 1#14 — 1 #14 WIRE
- 6 TSP — 6 TWISTED SHIELDED PAIRS



LIFT STATION NO. 50 AERIAL SITE PLAN

NTS

ELECTRICAL LEGEND

	EXIST. LINETYPE		DUPLEX, 14" AFF	J	JUNCTION BOX
	RACEWAY EXPOSED		LEVEL SWITCH, FLOAT SWITCH		PANELBOARD, ELECTRICAL EQUIP. ENCL
	LIGHTING RACEWAY CONCEALED		THERMAL SWITCH		
	RACEWAY CONCEALED		HEATER	M	MOTOR OPERATED VALVE
	RACEWAY TURNED UP/DOWN	G	PILOT LIGHT		RED, MAINTAINED PUSH BUTTON
5	MOTOR	RTM	RUN TIME METER		TIMING CONTACT
	TRANSFORMER		SELECTOR SWITCH		CONTROL RELAY, MOTOR STARTER, ETC.
	FUSE		PUSH BUTTON	C01	DENOTES CONDUIT TAG 01
	CIRCUIT BREAKER		ON-OFF SWITCH	C01 C02	DENOTES SEPARATE CONDUITS WITH SEPARATE WIRE
	CAPACITOR		NORMALLY OPEN CONTACT	A-1	DENOTES PANELBOARD A, CIRCUIT 3
	LIGHTNING ARRESTER		NORMALLY CLOSED CONTACT		
	SAFETY DISCONNECT SWITCH, HP RATED				
	GROUND				

MATERIAL SCHEDULE

LOCATION	CONDUIT	ENCLOSURE MATERIALS	ENCLOSURE NEMA RATING	FASTENERS, STRUT, THREADED ROD, ETC.	REMARKS
EXTERIOR					
BELOW GRADE	PVC SCHED. 40	CONCRETE BOXES	N/A	316 SS	
ABOVE GRADE	PVC SCHED. 80	316 SS	4X	316 SS	
ABOVE GRADE (CP & TERM. JBOX) *	RGS & E/P SEAL OFF	316 SS	4X	316 SS	EYS E/P CONDUIT SEALS

* PROVIDE DUCT SEAL PUTTY AT ALL CONDUIT PENTRATIONS TO CONTROL PANEL AND RTU ENCL, ALSO TO CONDUITS ENTERING TERMINAL JBOX FROM WETWELL & VALVE VAULT EYS EXPLOSION PROOF RGS FITTING OR SEALING HUB WITH CHICO A/X FOR CONDUIT EXP. FITTING BETWEEN TERM. JBOX AND CONTROL PANEL.

GENERAL NOTES

1. THE SCHEDULE SHALL ESTABLISH THE MINIMUM LEVEL OF QUALITY FOR MATERIALS. UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR IN THE SPECIFICATIONS
2. THE SCHEDULE SHALL NOT APPLY TO POWER TRANSFORMERS, LIGHT FIXTURES AND THE LIKE, THOSE ELEMENTS MAY BE NOTED OR INDICATED ELSEWHERE

LEGEND

N/A	NOT APPLICABLE
316 SS	316 STAINLESS STEEL
E/P	EXPLOSION PROOF

C&W engineering
ELECTRICAL CONSULTANTS
6903 VISTA PARKWAY NORTH, SUITE 10
WEST PALM BEACH, FL. 33411
(561) 642-5333
REGISTRATION NUMBERS
C & W ENGINEERING INC. CA# 33315
MICHAEL A. GUIDA, P.E. 60755
225813

REV	DATE	REVISIONS	BY

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
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Date: 03/25/24
Scale: AS NOTED
Design By: JLR
Drawn By: AOD
Check By: MAG

LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

ELECTRICAL NOTES & LEGEND

HOLTZ CONSULTING ENGINEERS, INC.
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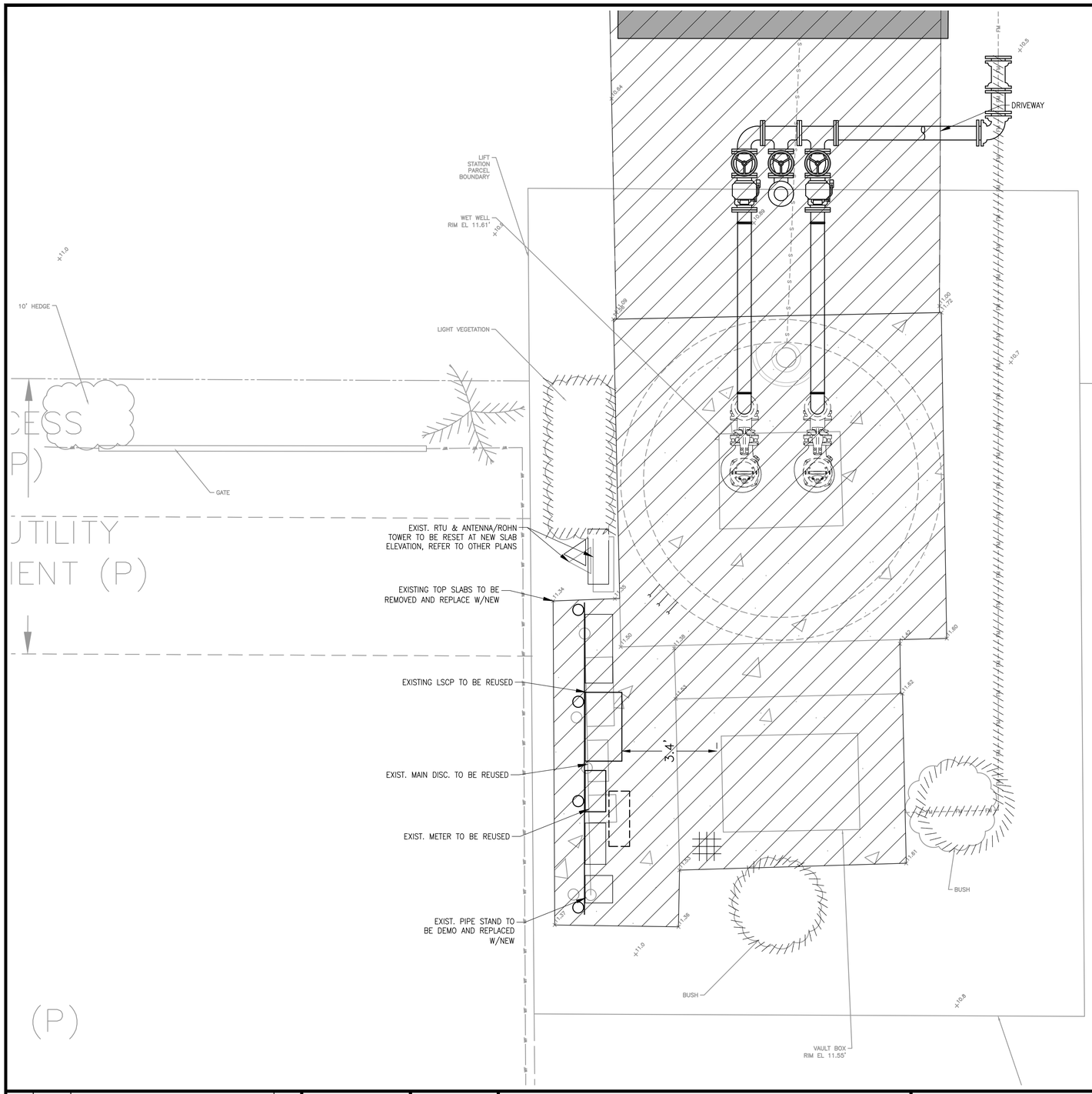
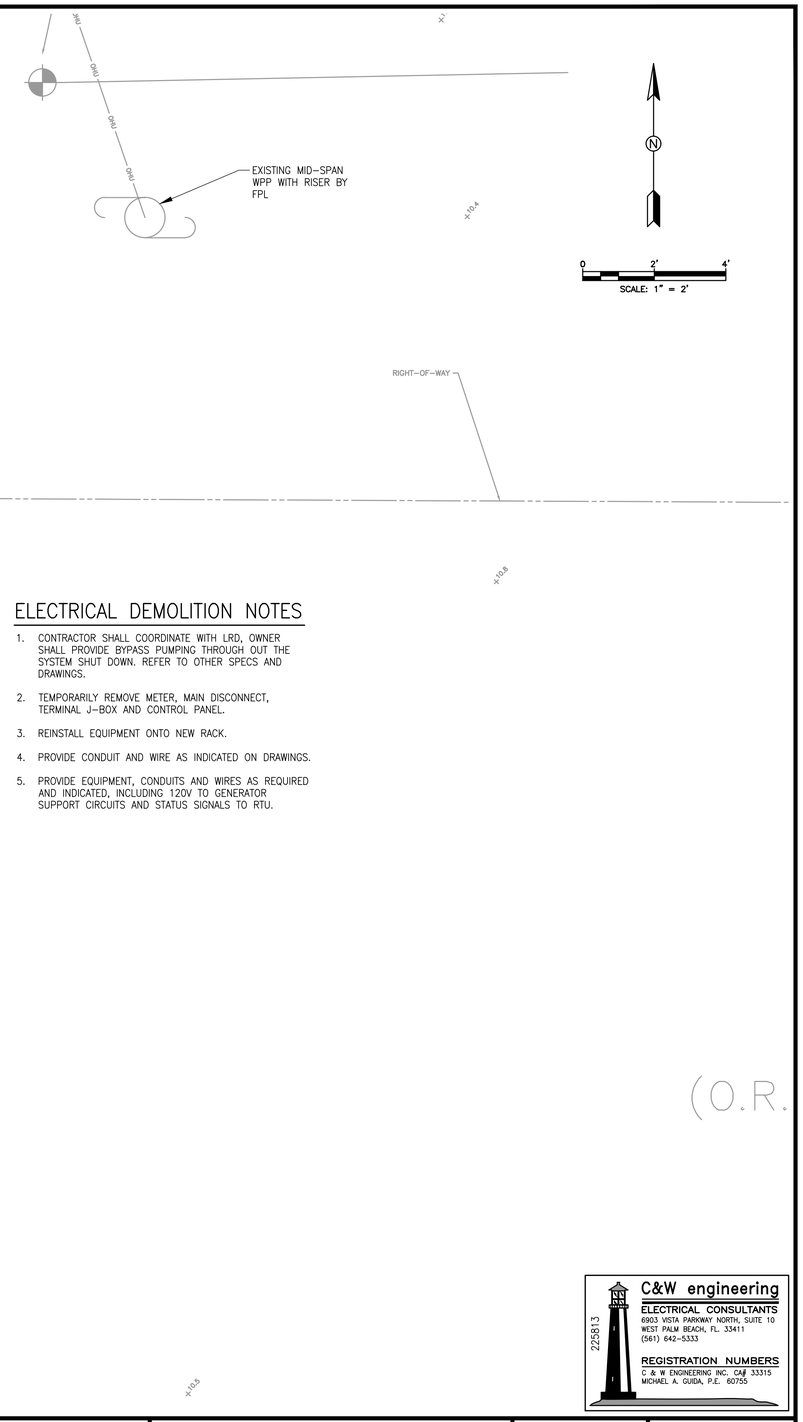
Cert. No. 26960

MICHAEL A. GUIDA, P.E.
License No: 60755

E-1





ELECTRICAL DEMOLITION NOTES

1. CONTRACTOR SHALL COORDINATE WITH LRD, OWNER SHALL PROVIDE BYPASS PUMPING THROUGH OUT THE SYSTEM SHUT DOWN. REFER TO OTHER SPECS AND DRAWINGS.
2. TEMPORARILY REMOVE METER, MAIN DISCONNECT, TERMINAL J-BOX AND CONTROL PANEL.
3. REINSTALL EQUIPMENT ONTO NEW RACK.
4. PROVIDE CONDUIT AND WIRE AS INDICATED ON DRAWINGS.
5. PROVIDE EQUIPMENT, CONDUITS AND WIRES AS REQUIRED AND INDICATED, INCLUDING 120V TO GENERATOR SUPPORT CIRCUITS AND STATUS SIGNALS TO RTU.

C&W engineering
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LOXAHATCHEE RIVER DISTRICT
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ELECTRICAL DEMOLITION SITE PLAN

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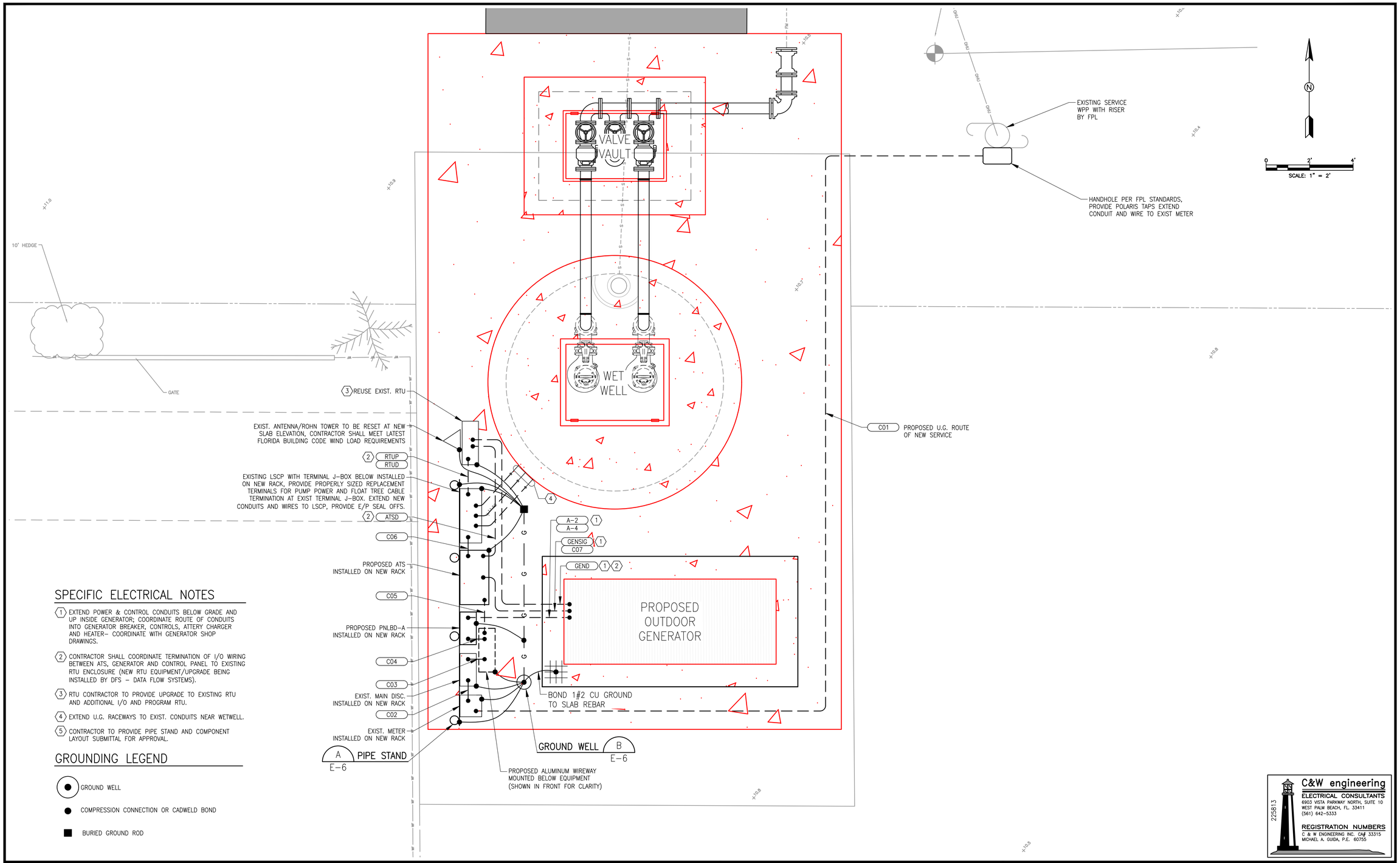
E-2

Drawing Name: F:\PROJECTS\LRD\Lift Station 50 Emergency Generator\Design\Drawings\01 - Electrical Site Plans.dwg Layout Name: DEMO - Plotted by: Russell Ryan - Date: 7/8/2024 - 10:09 AM - Holtz Consulting Engineers



SPECIFIC ELECTRICAL NOTES

1. EXTEND POWER & CONTROL CONDUITS BELOW GRADE AND UP INSIDE GENERATOR; COORDINATE ROUTE OF CONDUITS INTO GENERATOR BREAKER, CONTROLS, ATTERY CHARGER AND HEATER- COORDINATE WITH GENERATOR SHOP DRAWINGS.
2. CONTRACTOR SHALL COORDINATE TERMINATION OF I/O WIRING BETWEEN ATS, GENERATOR AND CONTROL PANEL TO EXISTING RTU ENCLOSURE (NEW RTU EQUIPMENT/UPGRADE BEING INSTALLED BY DFS – DATA FLOW SYSTEMS).
3. RTU CONTRACTOR TO PROVIDE UPGRADE TO EXISTING RTU AND ADDITIONAL I/O AND PROGRAM RTU.
4. EXTEND U.G. RACEWAYS TO EXIST. CONDUITS NEAR WETWELL.
5. CONTRACTOR TO PROVIDE PIPE STAND AND COMPONENT LAYOUT SUBMITTAL FOR APPROVAL.

GROUNDING LEGEND

- GROUND WELL
- COMPRESSION CONNECTION OR CADWELD BOND
- BURIED GROUND ROD

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MICHAEL A. GUIDA, P.E. 60755
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LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

ELECTRICAL INSTALL SITE PLAN

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E-3

Drawing Name: F:\PROJECTS\LRD\Lift Station 50 Emergency Generator\Design\Drawings\01 - Electrical Site Plans.dwg Layout Name: INSTALL - Plotted by: Russell Ryan - Date: 7/8/2024 - 10:09 AM - Holtz Consulting Engineers

PANELBOARD A SCHEDULE

COND SIZE	WIRE SIZE	BUS AMPS A	BUS AMPS B	LOAD	POLES	AMPS	BUS A B	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	WIRE SIZE	COND SIZE
							1 2	20	1	GENSET BATT. CHGR	5		3#12	3/4
							3 4	20	1	JACKET HEATER		7	3#12	3/4
							5 6	20	1	SPARE				
				SPARE	1	20	7 8	20	1	SPARE				

RATED VOLTAGE: ■120/240 ☐277/480 1ø, 3 WIRE	BRANCH POLES: ■8 ☐12	APPROVED MF'RS. CUTLER HAMMER, SQD ONLY
RATED AMPS: ■100 ☐225 ☐400 ☐____	CABINET: ■ SURFACE ☐ FLUSH	NEMA ☐1 ■3R ☐4X
☐ MAIN LUGS ONLY / MAIN 60 AMPS ■ BREAKER ☐ FUSED SWITCH	■ HINGED DOOR	■ KEYED DOOR LATCH
☐ FUSED ■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES	☐ _____ TO BE GFI BREAKERS	FULL NEUTRAL BUS / GROUND BUS
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 22,000 AMPS SYMMETRICAL.		

SPECIFIC ELECTRICAL NOTES

1. THE CONTRACTOR SHALL INSTALL OWNER FURNISHED GENERATOR W/OPTIONS BOARD AND DISCRETE WIRES AS REQUIRED TO MEET I/O. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH GENERATOR MANUFACTURER FOR START UP.
2. PROVIDE 1#4 CU, BOND TO GROUND ELECTRODE 5/8"X20'.
3. CONTRACTOR SHALL PROVIDE I/O SIGNALS TO EXISTING RTU. RTU MODIFICATIONS AND PROGRAMING TO INCORPORATE GENERATOR AND ATS SIGNALS INTO EXISTING DFS TELEMETRY. ALL WORK ASSOCIATED WITH THE RTU IS TO BE PERFORMED BY: DATA FLOW SYSTEMS, INC. OF MELBOURNE, FL.

RTU HARDWIRED SIGNALS

ATSD: ATS ON COMMERCIAL POWER
ATS ON GENERATOR POWER

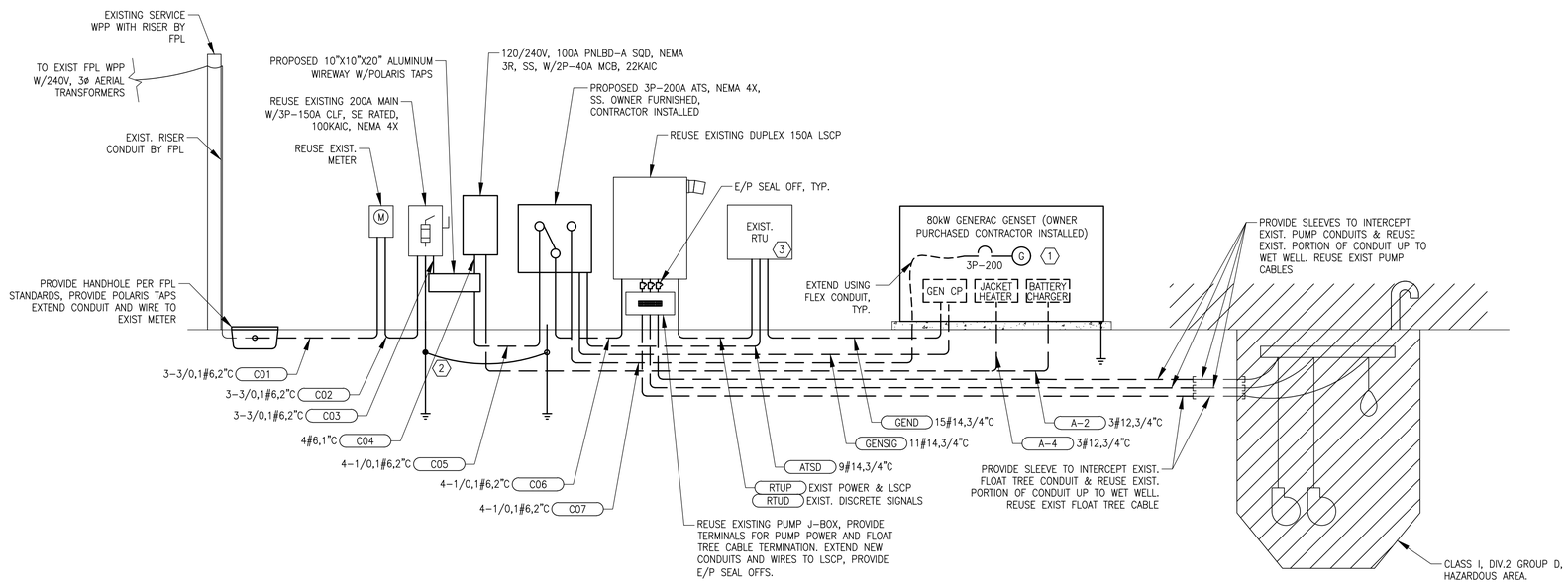
GEND: GENERATOR FAIL TO START
GENERATOR GENERAL ALARM
GENERATOR LOW FUEL
GENERATOR LOW COOLANT

SEE SIGNALS ON E-5

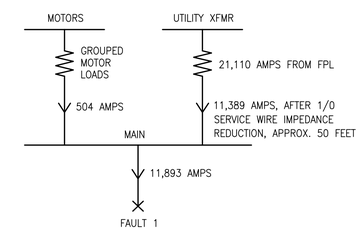
240V 3ø LOAD CALCULATION

DESCRIPTION	AMPS
PUMP 1 (15HP) x 125%	52.5
PUMP 2 (15HP)	42
CONTROLS & GEN.	9
TOTAL	103.5
EXISTING 240V, 3ø SERVICE	150A

EXIST. 240V SERVICE IS LESS THAN 2% VOLTAGE DROP



LS NO. 50 240V 3ø ELECTRICAL RISER DIAGRAM, CLASS 1, DIV. 2, GROUP D HAZARDOUS AREA



FAULT 1 = GROUPED MOTOR + UTILITY

GROUPED MOTOR LOADS = (2 @ 15HP) X 6.0
= (2 X 42A) X 6.0
= 504 AMPS OF MOTOR CONTRIBUTION

UTILITY = 11,389 AMPS

FAULT = 11,389 AMPS + 504 AMPS = 11,893 AMPS

FAULT CURRENT CALCULATION

C&W engineering
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LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

ELECTRICAL RISER DIAGRAM

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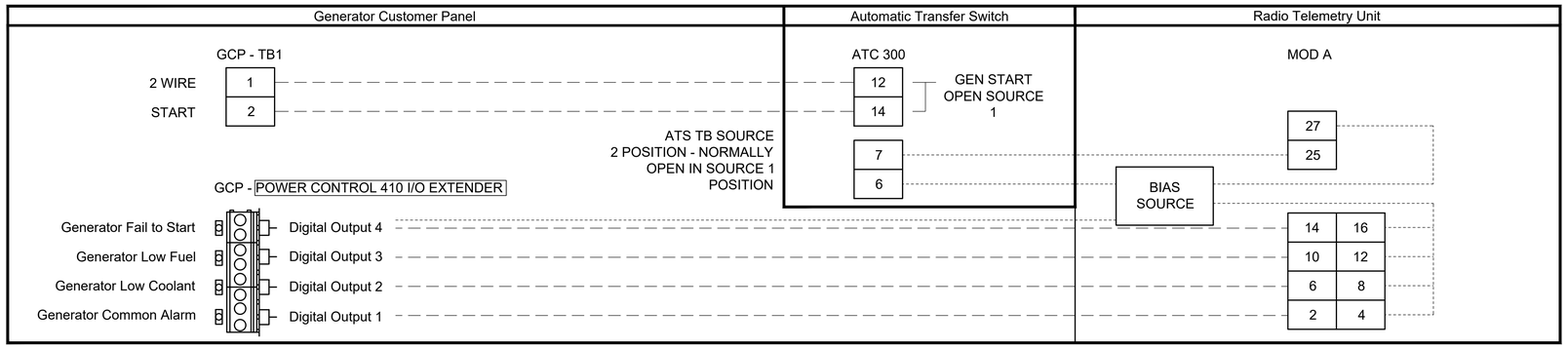

Description	Input Terminal Number	Output Terminal Number	Input Signal	Output Signal	Notes	Location Drawing
Generator Start Signal	GCP-TB1-1	ATC 300 Output Relay - 13				
	GCP-TB1-2	ATC 300 Output Relay - 14				
Generator Fail to Start	DFS-MOD A-16 (bias)	Digital Output 4				
	DFS-MOD-A-14					
Generator Low Fuel	DFS-MOD A-12 (bias)	Digital Output 3				
	DFS-MOD-A-10					
Generator Low Coolant	DFS-MOD-A-8 (bias)	Digital Output 2				
	DFS-MOD-A-6					
Generator Common Alarm	DFS-MOD-A-4 (bias)	Digital Output 1				
	DFS-MOD-A-2					
ATS Position	DFS-MOD-A-27 (bias)	ATS-TB-Source 2 Position-7				
	DFS-MOD-A-25	ATS-TB-Source 2 Position-6				

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LOXAHATCHEE RIVER DISTRICT
LIFT STATION NO. 50
EMERGENCY GENERATOR PROJECT

GENERATOR ATS LOOP CHECK DETAIL

HOLTZ CONSULTING ENGINEERS, INC.
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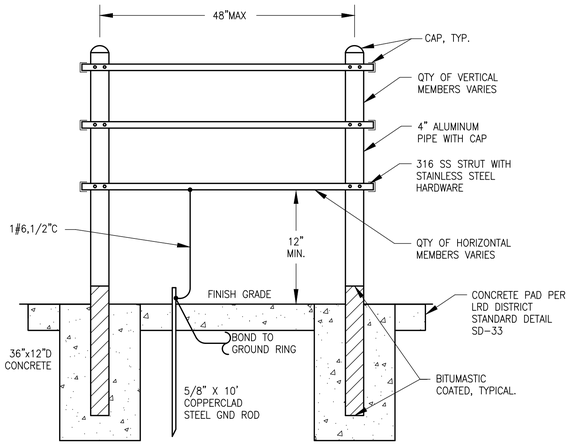
E-5

Drawing Name: F:\PROJECTS\LRD\Lift Station 50 Emergency Generator\Design\Drawings\02 - Electrical Details.dwg Layout Name: GEN ATS LOOP - Plotted by: Russell Ryan - Date: 7/8/2024 - 10:09 AM - Holtz Consulting Engineers

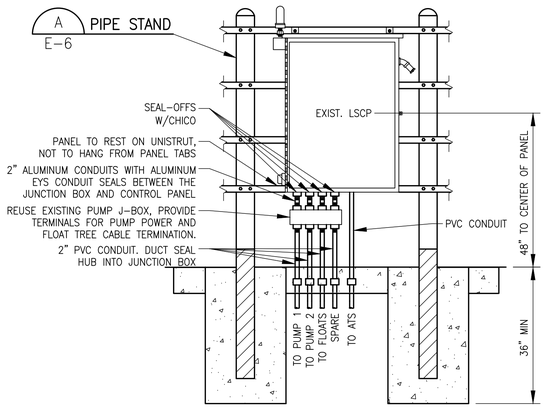
NOTE: CONTRACTOR SHALL BUILD PIPE STAND SIMILAR TO LAYOUT SHOWN IN LRD STANDARD DETAIL SD-33. MATERIALS CALLED IN DETAIL BELOW SHALL BE ENFORCED



PIPE STAND, CONCRETE MOUNT (A)

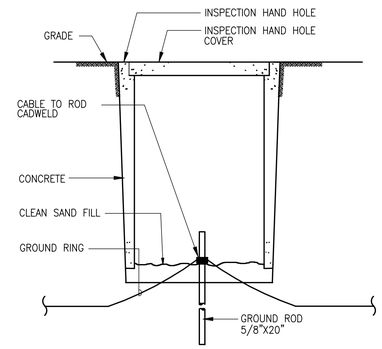
NTS, FOR ATS/PNL

NOTE: CONTRACTOR SHALL MOUNT EXIST. LIFT STATION CONTROL PANEL & J-BOX SIMILAR TO LRD STANDARD DETAIL SD-33. NOT ALL PROPOSED AND EXISTING EQUIPMENT ARE SHOWN IN DETAIL BELOW, REFER TO OTHER PLANS.



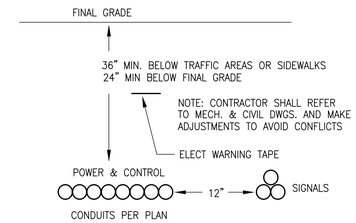
LIFT STATION CONTROL PANEL MOUNTING DETAIL

NTS



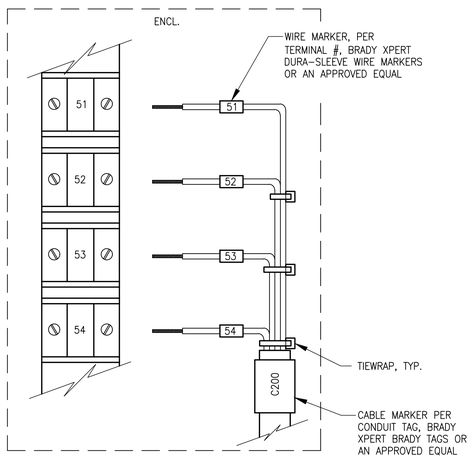
GROUND WELL DETAIL (B)

NTS



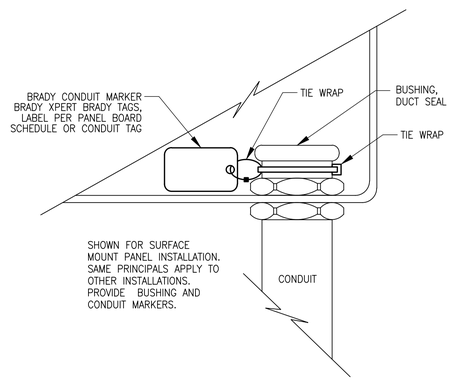
DIRECT BURIED CONDUIT

NTS



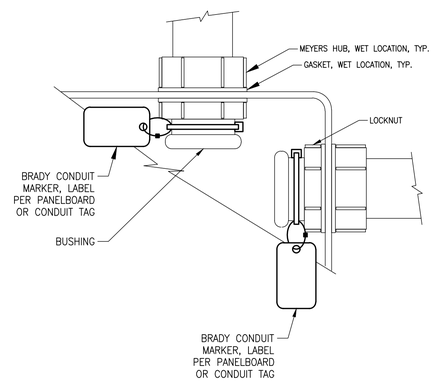
TERMINATION EXAMPLE DETAIL

NTS



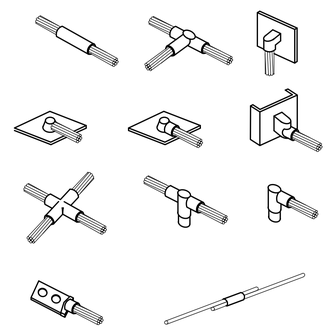
CONDUIT DETAIL

NTS



CONDUIT TERMINATION DETAIL

NTS



CADWELD DETAILS

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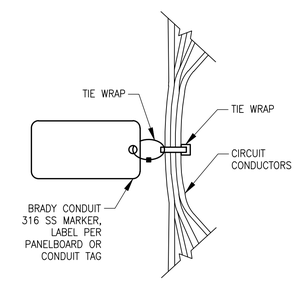

CIRCUIT MARKER DETAIL

NTS

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