

CONTRACT DOCUMENTS  
FOR THE CONSTRUCTION OF  
NORTH REGIONAL WATER RECLAMATION FACILITY  
MASTER REUSE WET WEATHER MANAGEMENT  
WELL SYSTEM PROJECT



PREPARED FOR  
MANATEE COUNTY UTILITIES  
MANATEE COUNTY, FL

VOLUME 2 OF 2  
DRAWINGS

For information regarding this project, contact:  
NIEL POSTLETHWAIT, P.E.  
4350 West Cypress Street  
Suite #600  
Tampa, FL 33607-4178  
(813) 281-7749

**CH2MHILL**

Project No. 674077

NOVEMBER 2019

BID DOCUMENTS

# INDEX OF DRAWINGS

## 01 - GENERAL

SHEET NO.	DRAWING NO.	DRAWING TITLE
02	01-G-001	LOCATION AND VICINITY MAPS, INDEX OF DRAWINGS, SECTION/DETAIL DESIGNATION
03	01-G-002	ABBREVIATIONS
04	01-G-003	CIVIL LEGEND AND GENERAL NOTES
05	01-G-004	PROCESS MECHANICAL LEGEND
06	01-G-005	STRUCUTRAL NOTES
07	01-G-006	ELECTRICAL LEGEND 1
08	01-G-007	ELECTRICAL LEGEND 2
09	01-G-008	ELECTRICAL LEGEND 3
10	01-G-009	INSTRUMENTATION AND CONTROL LEGEND 1
11	01-G-010	INSTRUMENTATION AND CONTROL LEGEND 2
12	01-G-011	PROCESS FLOW DIAGRAM UPGRADES SCHEMATIC

## 05 - CIVIL/SITE

13	05-D-200	RECLAIMED WATER PROPOSED PIPE MAIN KEY MAP
14	05-D-201	RECLAIMED WATER PROPOSED PIPE MAIN PLAN & PROFILE
15	05-D-202	RECLAIMED WATER PROPOSED PIPE MAIN PLAN & PROFILE
16	05-D-203	RECLAIMED WATER PROPOSED PIPE MAIN PLAN & PROFILE
17	05-D-204	RECLAIMED WATER PROPOSED PIPE MAIN PLAN & PROFILE
18	05-D-205	RECLAIMED WATER PROPOSED PIPE MAIN PLAN & PROFILE
19	05-D-206	RECLAIMED WATER PROPOSED PIPE MAIN PLAN & PROFILE
20	05-D-207	RECLAIMED WATER PROPOSED PIPE MAIN PLAN & PROFILE
21	05-D-208	SINGLE ZONE MONITOR WELLS DRAIN LINE ROUTING PLAN
22	05-D-501	DETAILS
23	05-D-502	SINGLE ZONE MONITORING WELLS DISCHARGE CONNECTION LAKE FILTERS - DETAILS
24	05-D-503	DUAL ZONE MONITORING WELL DISCHARGE CONNECTION AT EXISTING HEADWORKS - DETAIL
25	05-E-200	RECLAIMED WATER KEY MAP
26	05-E-201	SITE ENLARGED PLAN
27	05-E-202	ENLARGED SITE PLAN
28	05-E-203	ENLARGED SITE PLAN
29	05-E-204	ENLARGED SITE PLAN
30	05-E-601	MCC-2B ONE-LINE DIAGRAM AND ELEVATION
31	05-E-602	MCC-6 ONE-LINE DIAGRAM AND ELEVATION
32	05-E-603	PANEL SCHEDULES AND LIGHTING FICTURE SCHEDULE

## 08 - INSTRUMENTATION AND CONTROL

33	08-N-601	P&ID INJECTION WELL IW-1
34	08-N-602	P&ID INJECTION WELL IW-2
35	08-N-603	P&ID SIMPLE ZONE MONITORING WELLS
36	08-N-604	P&ID DUAL ZONE MONITORING WELL
37	08-N-701	NETWORK BLOCK DIAGRAM

## 10 - INJECTION WELL No. 1

38	10-D-201	INJECTION WELL No.1 DEVELOPMENT PLAN AND SECTIONS
39	10-D-202	INJECTION WELL No.1 BASKET STRAINER STATION PLAN AND SECTIONS
40	10-D-203	INJECTION WELL No.1 FUTURE PUMP INSTALLATION PLAN AND SECTIONS
41	10-E-201	INJECTION WELL No.1 AND BASKET STRAINER PLAN

## 20 - INJECTION WELL No. 2

42	20-D-201	INJECTION WELL No.2 DEVELOPMENT PLAN, SECTIONS & DETAIL
43	20-E-201	INJECTION WELL No.2 PLAN

## 30 - DUAL ZONE MONITORING WELL No. 1

44	30-D-201	DUAL ZONE MONITORING WELL No.1 PLAN AND SECTION
45	30-D-301	DUAL ZONE MONITORING WELL No.1 SECTION AND DETAILS
46	30-E-201	DUAL-ZONE MONITORING WELL DZMW-1

## 35 - SINGLE ZONE MONITORING WELL

47	35-D-201	TYPICAL SINGLE ZONE MONITORING WELL PLAN, SECTION, & DETAIL
48	35-E-201	SINGLE-ZONE MONITORING WELL DMW-2
49	35-E-202	SINGLE-ZONE MONITORING WELL APMW-2

## 40 - ELECTRICAL AND STORAGE BUILDING

50	40-E-201	ELECTRICAL AND STORAGE BUILDING POWER PLAN
----	----------	--

## 50 - DEWATERING BUILDING

51	50-E-201	DEWATERING BUILDING POWER PLAN
----	----------	--------------------------------

## 80 - ELECTRICAL

52	80-E-601	RISER DIAGRAMS
----	----------	----------------

## 95 - STANDARD DETAILS

53	95-C-501	STANDARD DETAILS
54	95-N-501	STANDARD DETAILS
55	95-N-502	STANDARD DETAILS
56	95-S-501	STANDARD DETAILS
56A	95-S-502	STANDARD DETAILS
57	95-D-501	STANDARD DETAILS
58	95-D-502	STANDARD DETAILS
59	95-E-501	STANDARD DETAILS
60	95-E-502	STANDARD DETAILS
61	95-E-503	STANDARD DETAILS

# SECTION / DETAIL DESIGNATIONS

SECTION (LETTER) OR  
DETAIL (NUMERAL)  
DESIGNATION



DRAWING NUMBER  
(REPLACED WITH A LINE  
IF TAKEN AND SHOWN  
ON SAME SHEET)



100-A-101

ON DRAWING WHERE SECTION  
OR DETAIL IS TAKEN:  
DRAWING NUMBER  
WHERE SHOWN



100-S-301

## SECTION

SCALE ON DRAWING WHERE SECTION  
IS SHOWN:

DRAWING NUMBER(S)  
WHERE TAKEN



200-M-101

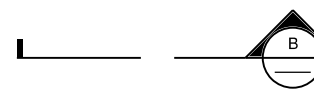
## DETAIL

SCALE ON DRAWING WHERE DETAIL  
IS SHOWN:

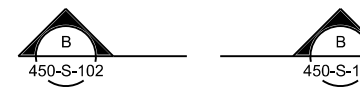
DRAWING NUMBER(S)  
WHERE TAKEN

## DRAWING TITLE

SCALE ON DRAWING WHERE ONLY A  
TITLE IS REQUIRED WITH NO  
REFERENCE (eg: ELEVATIONS)



SECTION CALLOUT WHERE SECTION  
IS ON THE SAME SHEET AND CUT  
EXTENDS TO A FIXED LIMIT



SECTION CALLOUT WHERE SECTION  
IS ON ANOTHER SHEET AND CUT  
EXTENDS THROUGHOUT ENTIRE SHEET



GRID LINE INDICATOR



KEYNOTE NUMBER



REVISION / ADDENDA NUMBER



NORTH ARROW; CAN BE MODIFIED  
TO INCLUDE MAGNETIC NORTH ALONG  
WITH PROJECT NORTH

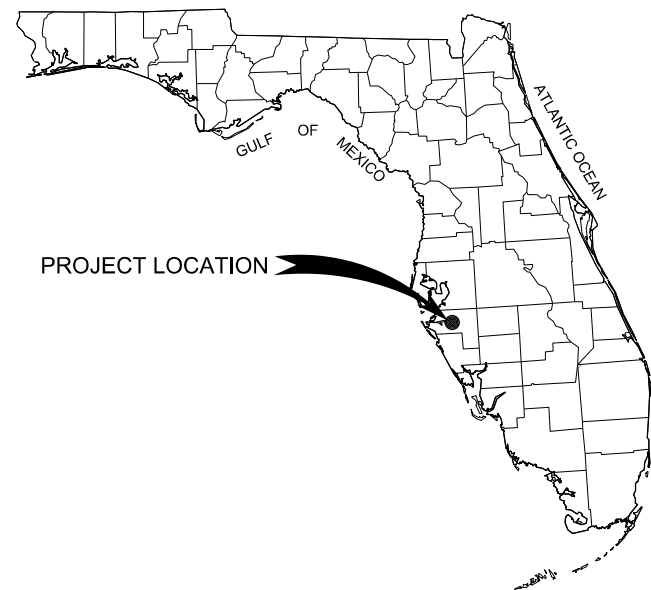
## DESIGN DETAIL DESIGNATION

DESIGN DETAIL  
DESIGNATION  
(NUMERAL)  
SHOWN ON DESIGN  
DETAIL DRAWING(S)

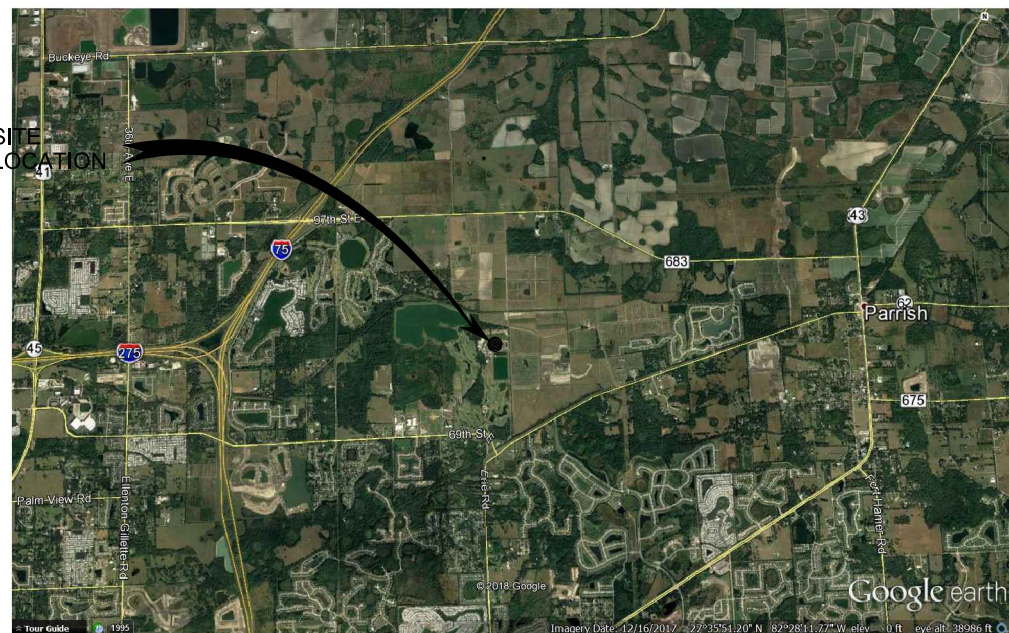
1234-567

### NOTES:

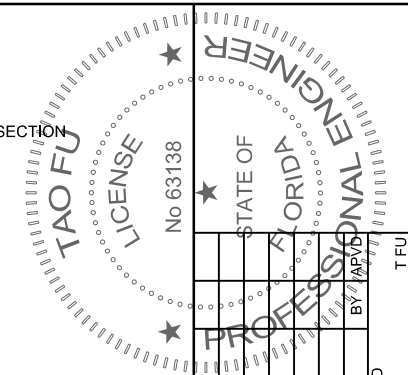
- ALL DESIGN DETAILS ARE TYPICAL AND MUST BE USED IF DESIGN  
DETAIL DESIGNATION IS NOT SHOWN
- THE TERM STANDARD DETAIL, OR A FORM OF IT, IS SYNONOMOUS WITH DESIGN DETAIL.  
THE DESIGN DETAILS REPRESENT THE CHARACTER AND NATURE OF THE WORK  
REQUIRED THROUGHOUT THE PROJECT. ALL ASSOCIATED WORK SHALL BE IN  
ACCORDANCE WITH THE DESIGN DETAILS SHOWN WHETHER THE DETAILS ARE  
SPECIFICALLY REFERENCED OR NOT.



VICINITY MAP



LOCATION MAP



NO.	DATE	REVISION	CHK	APVD	T INMISS	T FU

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
TAO FU, PE #63138  
NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

GENERAL  
**ch2m**  
LOCATION AND VICINITY MAPS  
INDEX OF DRAWINGS AND  
SECTION/DETAIL DESIGNATIONS

NTS
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE MARCH 2020
PROJ 674077
DWG 01-G-001
SHEET 02 of 61





# PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT
		FLANGED JOINT
		MECHANICAL JOINT
		BELL & SPIGOT JOINT (LEADED)
		HUB & SPIGOT JOINT (RUBBER GASKET)
		BALL JOINT
		ADAPTER SIDE GROOVED END ADAPTER FLANGE
		FLANGED COUPLING ADAPTER
		FLEXIBLE COUPLING
		METAL BELLOWS EXP JOINT
		ELASTOMER BELLOWS EXP JOINT
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		REDUCING BUSHING
		UNION

DOUBLE LINE	SINGLE LINE	
		CAP
		ANCHOR
		ELBOW, 90 DEGREE
		CROSS
		TEE
		ELBOW, 45 DEGREE
		LATERAL

- NOTES:**
- ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS.
  - SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.
  - PROVIDE THRUST RESTRAINT FOR ALL FLEXIBLE COUPLINGS, FCA'S, ETC. AS SPECIFIED.
  - PROVIDE CONTROL RODS FOR ALL BELLOWS EXPANSION JOINTS AND COUPLINGS AS SPECIFIED.

## MISCELLANEOUS PIPING SYMBOLS

	STRAINER
	SIGHT GLASS
	FLEXIBLE (ELASTOMER) PIPE CONNECTION
	GAUGE WITH COCK
	THERMOMETER
	ROTAMETER
	PIG LAUNCHER
	PIG CATCHER
	BACKFLOW PREVENTER
	REDUCER
	FLEXIBLE HOSE
	FLEXIBLE CONNECTOR
	TYPICAL INSTRUMENT SYMBOL (SEE I&C LEGEND)

# VALVE SYMBOLS

	GATE
	KNIFE GATE
	BUTTERFLY
	GLOBE
	BALL
	VEE-BALL
	SEATING PORT
	ECCENTRIC PLUG
	PLUG OR COCK
	NEEDLE
	DIAPHRAGM
	PINCH
	SWING CHECK
	BALL CHECK
	HOSE VALVE (HV- X) OR (V-X) X = NO. IN SPECS
	SAMPLE
	MUD
	PRESSURE RELIEF
	AIR AND/OR VACUUM RELEASE
	REGULATED SIDE PRESSURE CONTROL
	REGULATED SIDE PRESSURE REGULATOR
	MULTI-PORT VALVE. ARROWS INDICATE FLOW PATTERN. SEATING PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
	TELESCOPING
	ROTARY
	ANGLE GATE

## ACTUATOR SYMBOLS

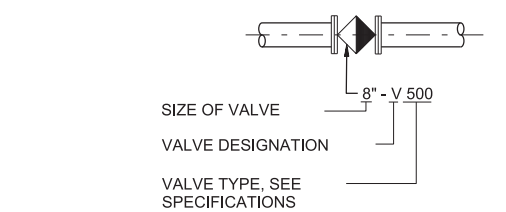
	PNEUMATIC DIAPHRAGM SPRING-OPPOSED, SINGLE OR DOUBLE ACTING		HYDRAULIC
	PNEUMATIC CYLINDER SINGLE OR DOUBLE ACTING ACTUATED BY ONE INPUT		MANUAL
	ELECTRIC MOTOR		SOLENOID
	ELECTRO HYDRAULIC		

# GATE SYMBOLS

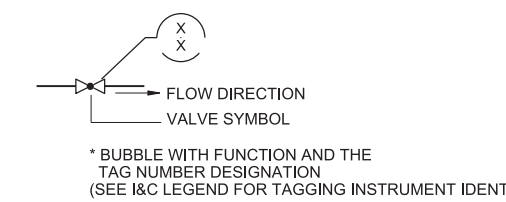
ELEVATION VIEW	PLAN VIEW	
		SLUICE
		BUTTERFLY
		FLAP
		SHEAR
		FABRICATED SLIDE
		STOP LOG

## VALVE DESIGNATIONS

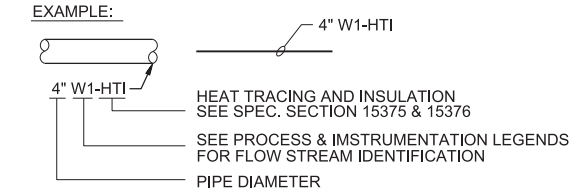
### MANUAL VALVES AND CHECK VALVES



### CONTROL VALVES



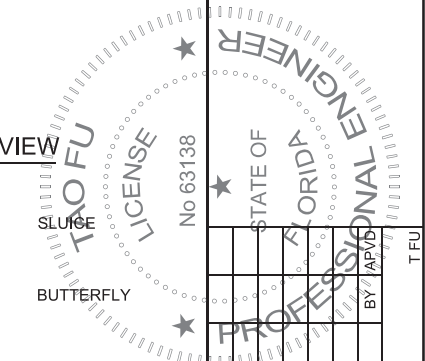
## PIPING DESIGNATION



## PIPE AND FITTING END PATTERNS

B	BELL	PE	PLAIN END
S	SPIGOT	GE	GROOVED END
F	FLANGE	MJ	MECHANICAL JOINT

EXAMPLE:



NO.	DATE	REVISION	CHK	APVD	T. FU	T. FU

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
TAO FU, PE #63138

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

GENERAL  
**ch2m**  
PROCESS MECHANICAL  
LEGEND

NTS
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 01-G-004
SHEET 05 of 61

**Tao Fu** Digitally signed by Tao Fu  
Date: 2019.12.16 11:13:24 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.









GENERAL CIRCUIT CONDUCTOR AND CONDUIT IDENTIFICATION

POWER CIRCUIT CALLOUT SCHEDULE					
EQUIPMENT GROUNDS NEC 250 Table 122		100% GROUNDS NEC 250-122(A)		SERVICE NEUTRAL NEC 250 Table 66	
2 Wire + Ground					
[20E2]	3/4"C-2#12,#12G	[20M2]	3/4"C-2#12,#12G	NA	NA
[30E2]	3/4"C-2#10,#10G	[30M2]	3/4"C-2#10,#10G	NA	NA
[40E2]	3/4"C-2#8,#10G	[40M2]	3/4"C-2#8,#8G	[40S2]	3/4"C-2#8,#8N
[50E2]	3/4"C-2#8,#10G	[50M2]	3/4"C-2#8,#8G	[50S2]	3/4"C-2#8,#8N
[60E2]	1"C-2#6,#10G	[60M2]	1"C-2#6,#6G	[60S2]	3/4"C-2#6,#8N
[70E2]	1"C-2#4,#8G	[70M2]	1"C-2#4,#4G	[70S2]	3/4"C-2#4,#8N
[80E2]	1"C-2#4,#8G	[80M2]	1"C-2#4,#4G	[80S2]	3/4"C-2#4,#8N
[90E2]	1"C-2#3,#8G	[90M2]	1"C-2#3,#3G	[90S2]	1"C-2#3,#8N
[100E2]	1"C-2#3,#8G	[100M2]	1"C-2#3,#3G	[100S2]	1"C-2#3,#8N
[110E2]	1"C-2#2,#6G	[110M2]	1"C-2#2,#2G	[110S2]	1"C-2#2,#8N
[125E2]	1-1/4"C-2#1,#6G	[125M2]	1-1/4"C-2#1,#1G	[125S2]	1-1/4"C-2#1,#6N
[150E2]	1-1/4"C-2#1/0,#6G	[150M2]	1-1/4"C-2#1/0,#1/0G	[150S2]	1-1/4"C-2#1/0,#6N
[200E2]	1-1/2"C-2#3/0,#6G	[200M2]	1-1/2"C-2#3/0,#3/0G	[200S2]	1-1/4"C-2#3/0,#4N
[225E2]	2"C-2#4/0,#4G	[225M2]	2"C-2#4/0,#4/0G	[225S2]	1-1/2"C-2#4/0,#2N
[400E2]	3"C-2#500,#3G	[400M2]	3"C-2#500,#500G	[400S2]	3"-2#500,#1/0N
3 Wire + Ground					
[20E3]	3/4"C-3#12,#12G	[20M3]	3/4"C-3#12,#12G	NA	NA
[30E3]	3/4"C-3#10,#10G	[30M3]	3/4"C-3#10,#10G	NA	NA
[40E3]	3/4"C-3#8,#10G	[40M3]	3/4"C-3#8,#8G	[40S3]	3/4"C-3#8,#8N
[50E3]	3/4"C-3#8,#10G	[50M3]	3/4"C-3#8,#8G	[50S3]	3/4"C-3#8,#8N
[60E3]	3/4"C-3#6,#10G	[60M3]	3/4"C-3#6,#6G	[60S3]	3/4"C-3#6,#8N
[70E3]	1"C-3#4,#8G	[70M3]	1"C-3#4,#4G	[70S3]	1"C-3#4,#8N
[80E3]	1"C-3#4,#8G	[80M3]	1"C-3#4,#4G	[80S3]	1"C-3#4,#8N
[90E3]	1-1/4"C-3#3,#8G	[90M3]	1-1/4"C-3#3,#3G	[90S3]	1"C-3#3,#8N
[100E3]	1-1/4"C-3#3,#8G	[100M3]	1-1/4"C-3#3,#3G	[100S3]	1"C-3#3,#8N
[110E3]	1-1/2"C-3#2,#6G	[110M3]	1-1/2"C-3#2,#2G	[110S3]	1"C-3#2,#8N
[125E3]	1-1/2"C-3#1,#6G	[125M3]	1-1/2"C-3#1,#1G	[125S3]	1-1/2"C-3#1,#6N
[150E3]	1-1/2"C-3#1/0,#6G	[150M3]	1-1/2"C-3#1/0,#1/0G	[150S3]	1-1/4"C-3#1/0,#6N
[200E3]	2"C-3#3/0,#6G	[200M3]	2"C-3#3/0,#3/0G	[200S3]	1-1/2"C-3#3/0,#4N
[225E3]	2"C-3#4/0,#4G	[225M3]	2"C-3#4/0,#4/0G	[225S3]	2"C-3#4/0,#2N
[250E3]	2-1/2"C-3#300,#4G	[250M3]	2-1/2"C-3#300,#300G	[250S3]	2-1/2"C-3#300,#2N
[300E3]	3"C-3#350,#4G	[300M3]	3"C-3#350,#350G	[300S3]	2-1/2"C-3#350,#2N
[350E3]	3"C-3#500,#3G	[350M3]	3"C-3#500,#500G	[350S3]	3"C-3#500,#1/0N
[400E3]	3"C-3#500,#3G	[400M3]	3"C-3#500,#500G	[400S3]	3"C-3#500,#1/0N
[500E3]	(2)2-1/2"C-3#250,#2G	[500M3]	(2)2-1/2"C-3#250,#250G	[500S3]	(2)2-1/2"C-3#250,#1/0N
[600E3]	(2)3"C-3#350,#1G	[600M3]	(2)3"C-3#350,#350G	[600S3]	(2)3"C-3#350,#2/0N
[700E3]	(2)3"C-3#500,#1/0G	[700M3]	(2)3"C-3#500,#500G	[700S3]	(2)3"C-3#500,#2/0N
[800E3]	(2)4"C-3#600,#1/0G	[800M3]	(2)3"C-3#500,#500G	[800S3]	(2)4"C-3#600,#2/0N
[1000E3]	(3)3"C-3#350,#2/0G	[1000M3]	(3)3"C-3#500,#500G	[1000S3]	(3)3"C-3#500,#3/0N
[1200E3]	(3)4"C-3#600,#3/0G	[1200M3]	(3)4"C-3#600,#600G	[1200S3]	(3)4"C-3#600,#3/0N
[1600E3]	(4)4"C-3#600,#4/0G	[1600M3]	(4)4"C-3#600,#600G	[1600S3]	(4)4"C-3#600,#3/0N
[2000E3]	(5)4"C-3#600,#250G	[2000M3]	(5)4"C-3#600,#600G	[2000S3]	(5)4"C-3#600,#3/0N
[2500E3]	(6)4"C-3#600,#350G	[2500M3]	(6)4"C-3#600,#600G	[2500S3]	(6)4"C-3#600,#3/0N
[3000E3]	(8)4"C-3#600,#400G	[3000M3]	(8)4"C-3#600,#600G	[3000S3]	(8)4"C-3#600,#3/0N
[4000E3]	(10)4"C-3#600,#500G	[4000M3]	(10)4"C-3#600,#600G	[4000S3]	(10)4"C-3#600,#3/0N
4 Wire + Ground					
[20E4]	3/4"C-4#12,#12G	[20M4]	3/4"C-4#12,#12G	[20E5]	3/4"C-5#12,1#12N
[30E4]	3/4"C-4#10,#10G	[30M4]	3/4"C-4#10,#10G	[20E6]	3/4"C-6#12,1#12N
[40E4]	3/4"C-4#8,#10G	[40M4]	3/4"C-4#8,#8G	[20E7]	3/4"C-7#12,1#12N
[50E4]	3/4"C-4#8,#10G	[50M4]	3/4"C-4#8,#8G	[20E8]	3/4"C-8#12,1#12N
[60E4]	1"C-4#6,#8G	[60M4]	1"C-4#6,#6G	[20E9]	3/4"C-9#12,1#12N
[70E4]	1-1/4"C-4#4,#8G	[70M4]	1-1/4"C-4#4,#4G	[20E10]	1"C-10#10,1#10N
[80E4]	1-1/4"C-4#4,#8G	[80M4]	1-1/4"C-4#4,#4G	[20E11]	1"C-11#10,1#10N
[90E4]	1-1/4"C-4#3,#8G	[90M4]	1-1/4"C-4#3,#3G	[20E12]	1"C-12#10,1#10N
[100E4]	1-1/4"C-4#3,#8G	[100M4]	1-1/4"C-4#3,#3G	[20E13]	1"C-13#10,1#10N
[110S4]	1-1/2"C-4#2,#6G	[110M3]	1-1/2"C-4#2,#2G	[20E14]	1"C-14#10,1#10N
[125E4]	1-1/2"C-4#1,#6G	[125M4]	1-1/2"C-4#1,#1G	[20E15]	1"C-15#10,1#10N
[150E4]	2"C-4#1/0,#6G	[150M4]	2"C-4#1/0,#1/0G	[20E16]	1-1/4"C-16#10,1#10N
[200E4]	2"C-4#3/0,#6G	[200M4]	2"C-4#3/0,#3/0G	[20E17]	1-1/4"C-17#10,1#10N
[225E4]	2-1/2"C-4#4/0,#4G	[225M4]	2-1/2"C-4#4/0,#4/0G	[20E18]	1-1/4"C-18#10,1#10N
[250E4]	3"C-4#300,#4G	[250M4]	3"C-4#300,#300G	[20E19]	1-1/4"C-19#10,1#10N
[300E4]	3"C-4#350,#2G	[300M4]	3"C-4#350,#350G	[20E20]	1-1/4"C-20#10,1#10N
[350E4]	3-1/2"C-4#500,#3G	[350M4]	3-1/2"C-4#500,#500G		
[400E4]	3-1/2"C-4#500,#3G	[400M4]	3-1/2"C-4#500,#500G		
[500E4]	(2)3-1/2"C-4#250,#2G	[500M4]	(2)3-1/2"C-4#250,#250G		
[600E4]	(2)3"C-4#350,#1G	[600M4]	(2)3"C-4#350,#350G		
[700E4]	(2)3-1/2"C-4#500,#1/0G	[700M4]	(2)3-1/2"C-4#500,#500G		
[800E4]	(2)3-1/2"C-4#500,#1/0G	[800M4]	(2)3-1/2"C-4#500,#500G		
[1000E4]	(3)3"C-4#350,#2/0G	[1000M4]	(3)3"C-4#350,#350G		
[1200E4]	(3)4"C-4#600,#3/0G	[1200M4]	(3)4"C-4#600,#600G		
[1600E4]	(4)4"C-4#600,#4/0G	[1600M4]	(4)4"C-4#600,#600G		
[2000E4]	(5)4"C-4#600,#250G	[2000M4]	(4)4"C-4#600,#600G		
[2500E4]	(6)4"C-4#600,#350G	[2500M4]	(4)4"C-4#600,#600G		
[3000E4]	(8)4"C-4#600,#400G	[3000M4]	(4)4"C-4#600,#600G		
[4000E4]	(10)4"C-4#600,#500G	[4000M4]	(4)4"C-4#600,#600G		

MULTICONDUCTOR POWER CABLE CIRCUIT CALLOUTS	
[PC1]	3/4"C,1 (3C#12,1#12G) TYPE 2]
[PC2]	3/4"C,1 (3C#10,1#10G) TYPE 2]
[PC3]	1"C,1 (3C#8,1#10G) TYPE 2]
[PC4]	[1 1/4"C,2 (3C#12,1#12G) TYPE 2]
[PC5]	[1 1/2"C,2 (3C#10,1#10G) TYPE 2]
[PC1A]	3/4"C,1 (2C#12,1#12G) TYPE 2]
[PC2A]	3/4"C,1 (2C#10,1#10G) TYPE 2]

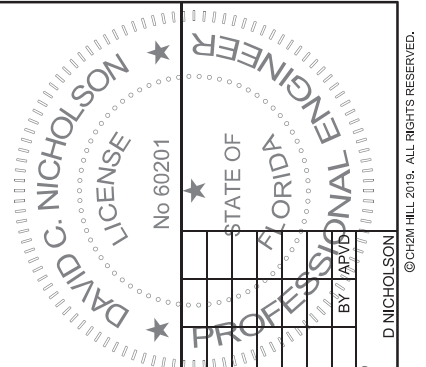
EMPTY CONDUIT	
[EC-1]	3/4"C,WITH PULL STRING]
[EC-2]	1"C,WITH PULL STRING]
[EC-3]	[1 1/4"C,WITH PULL STRING]
[EC-4]	[1 1/2"C,WITH PULL STRING]
[EC-5]	[2"C,WITH PULL STRING]
[EC-6]	[3"C,WITH PULL STRING]
[EC-7]	[4"C,WITH PULL STRING]
[EC-8]	[5"C,WITH PULL STRING]

MULTICONDUCTOR CONTROL CABLE CIRCUIT CALLOUTS	
[CC5]	3/4"C,1-5C TYPE 1]
[CC7]	3/4"C,1-7C TYPE 1]
[CC9]	[1"C,1-9C TYPE 1]
[CC12]	[1"C,1-12C TYPE 1]
[CC19]	[1 1/2"C,1-19C TYPE 1]
[CC25]	[1 1/2"C,1-25C TYPE 1]
[CC37]	[2"C,1-37C TYPE 1]
[CCC1]	[1-7C #12 TYPE 1]
[MSC]	[MANUFACTURER SUPPLIED CABLE]
[CAT]	[1"C, CAT6 CABLE]
[CX]	[1-1/2"C, COAX CABLE]
[FMM]	[2"C, MULTI-MODE FIBER OPTIC CABLE W/ INNER DUCT]
[PH]	[1"C, PHONE CABLE]
[DP]	[1"C, PROFIBUS DP CABLE]
[HDMI]	[1 1/2"C, HDMI CABLE]

ANALOG CIRCUIT CALLOUTS		CONTROL CIRCUIT CALLOUTS	
[A1]	3/4"C,1 TYPE 3]	[C1]	3/4"C,MSC]
[A2]	[1"C,2 TYPE 3]	[C2]	3/4"C,2#14,1#14G]
[A3]	[1"C,3 TYPE 3]	[C3]	3/4"C,3#14,1#14G]
[A4]	[1"C,4 TYPE 3]	[C4]	3/4"C,4#14,1#14G]
[A5]	[1 1/4"C,5 TYPE 3]	[C5]	3/4"C,5#14,1#14G]
[A6]	[1 1/4"C,6 TYPE 3]	[C6]	3/4"C,6#14,1#14G]
[A7]	[1 1/2"C,7 TYPE 3]	[C7]	3/4"C,7#14,1#14G]
[A8]	[1 1/2"C,8 TYPE 3]	[C8]	3/4"C,8#14,1#14G]
[A9]	[1 1/2"C,9 TYPE 3]	[C9]	3/4"C,9#14,1#14G]
[A10]	[2"C,10 TYPE 3]	[C10]	3/4"C,10#14,1#14G]
[A11]	[2"C,11 TYPE 3]	[C11]	3/4"C,11#14,1#14G]
[A12]	[2"C,12 TYPE 3]	[C12]	3/4"C,12#14,1#14G]
[A13]	[2"C,13 TYPE 3]	[C13]	3/4"C,13#14,1#14G]
[A14]	[2"C,14 TYPE 3]	[C14]	3/4"C,14#14,1#14G]
[A15]	[3/4"C,1 TYPE 4]	[C15]	3/4"C,15#14,1#14G]
[A16]	3/4"C,2 TYPE 4]	[C16]	3/4"C,16#14,1#14G]
[A17]	[1"C,3 TYPE 4]	[C17]	3/4"C,17#14,1#14G]
[A18]	[1 1/4"C,4 TYPE 4]	[C18]	3/4"C,18#14,1#14G]
[A19]	[1 1/4"C,5 TYPE 4]	[C19]	3/4"C,19#14,1#14G]
[A20]	[1 1/4"C,6 TYPE 4]	[C20]	[1"C,20#14,1#14G]
[A21]	[1 1/2"C,7 TYPE 4]	[C21]	[1"C,21#14,1#14G]
[A22]	[1 1/2"C,8 TYPE 4]	[C22]	[1"C,22#14,1#14G]
[A23]	[2"C,9 TYPE 4]	[C23]	[1"C,23#14,1#14G]
[A24]	3/4"C,1-4 pr. TYPE 5]	[C24]	[1"C,24#14,1#14G]
[A25]	[1"C,2-4 pr. TYPE 5]	[C25]	[1"C,25#14,1#14G]
		[C30]	[1"C,30#14,1#14G]
		[C40]	[1 1/4"C, 40#14, 1#14G]
		[C50]	[1 1/4"C, 50#14, 1#14G]

THE CONFIGURATIONS SHOWN IN THIS SECTION TITLED "MULTI-WIRE 20 AMP" SHALL NOT BE USED FOR RECEPTACLE CIRCUITS OR OTHER CORD-AND-PLUG-CONNECTED PORTABLE LOADS. NEC-240.4(B)

- NOTES:
- FOR CABLE TYPES, SEE SPECIFICATIONS.
  - CONDUIT SIZES ARE BASE ON THE AREA OF THE CONDUCTORS.
  - SIZING OF CONDUCTORS #1AWG AND SMALLER BASED ON AMPACITIES AT 60 DEGREES C, SIZING OF CONDUCTORS #1/0AWG AND LARGER BASED ON AMPACITIES AT 75 DEGREES C.
  - WHERE CIRCUITS ARE UNDERGROUND, DIRECT BURIED OR CONCRETE ENCASED, MINIMUM CONDUIT SIZE SHALL BE 1".
  - FOR METRIC CONDUIT SIZES USE THE FOLLOWING CONVERSION:  
 1/2" = 16 mm      1/4" = 35 mm  
 3/4" = 21 mm      1 1/2" = 41 mm  
 1" = 27 mm        2" = 53 mm



DATE	NOVEMBER 2019
PROJ	674077
DWG	01-G-008
SHEET	09 of 61

DAVID C. NICHOLSON, PE #60201  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA

ch2m  
 GENERAL  
 ELECTRICAL LEGEND 3

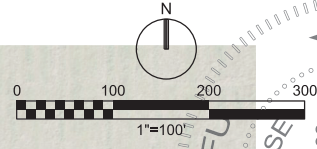
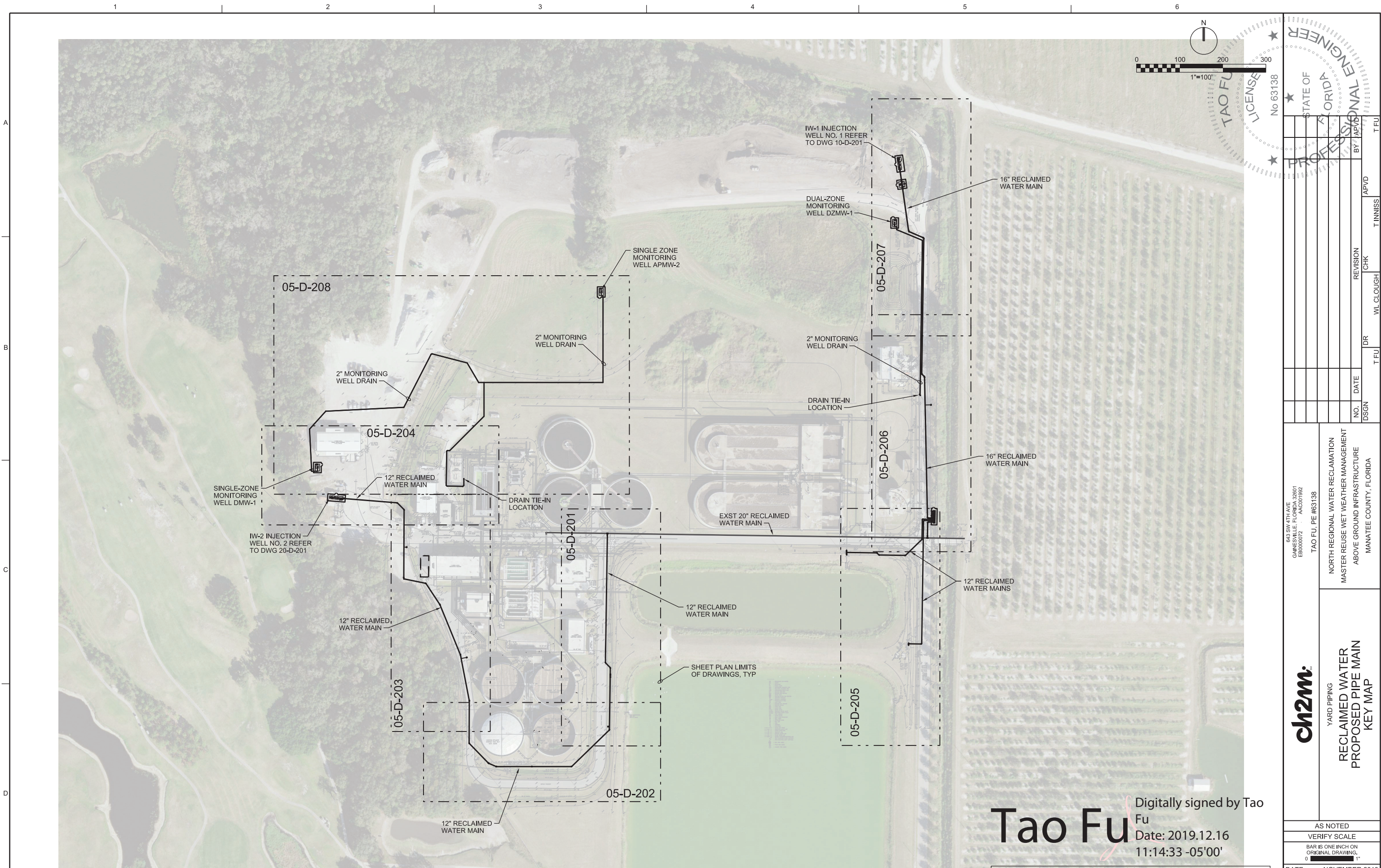
Digitally signed by David Nicholson  
 Date: 2019.12.17 09:09:44 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.









TAO FU  
 LICENSE  
 No 63138  
 PROFESSIONAL ENGINEER  
 STATE OF FLORIDA  
 BY TAO FU  
 APVD T INNISS  
 DR WL CLOUGH  
 REVISION  
 NO. DATE  
 DSGN

643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982 TAO FU, PE #63138	NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA
--	---

**ch2m**  
 YARD PIPING  
**RECLAIMED WATER  
 PROPOSED PIPE MAIN  
 KEY MAP**

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 05-D-200
SHEET 13 of 61

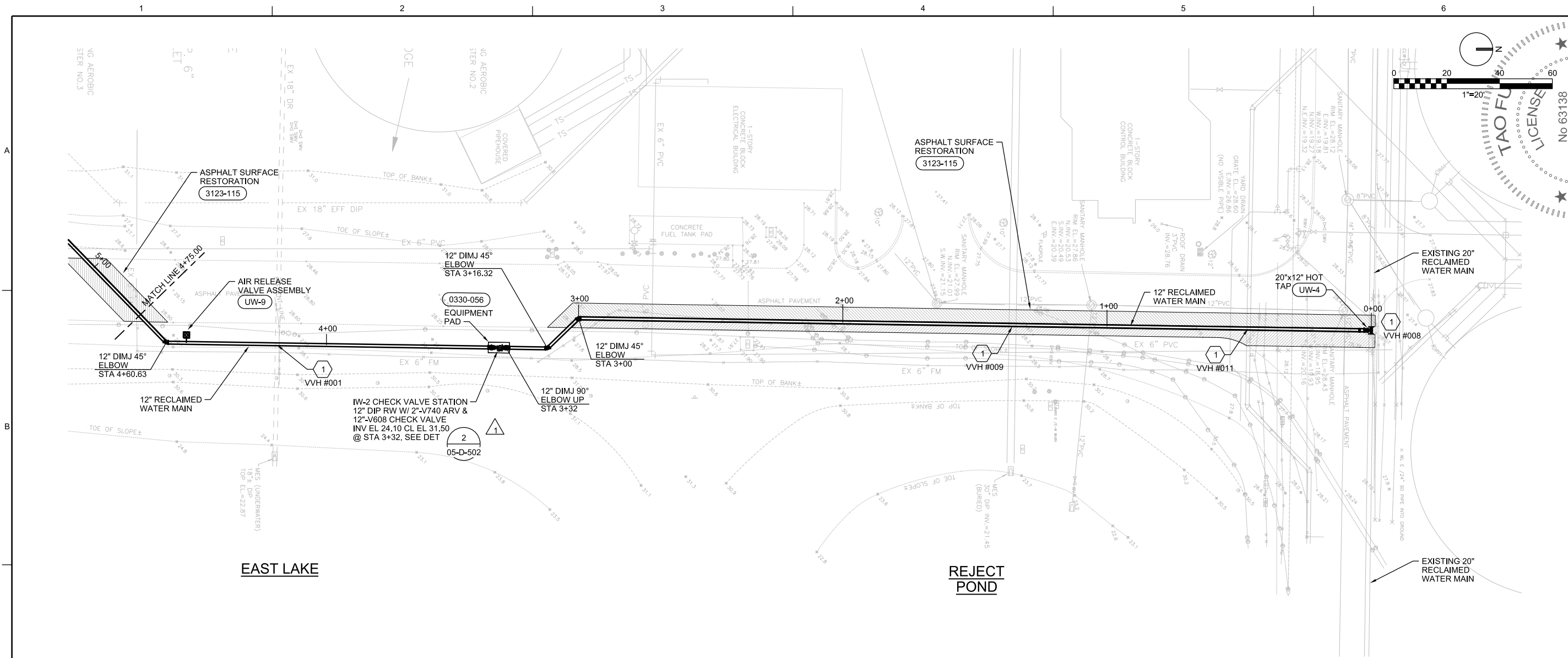
Digitally signed by Tao Fu  
**Tao Fu**  
 Date: 2019.12.16  
 11:14:33 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

**KEY MAP - PLAN**  
 1"=100'

BID DOCUMENTS

© CH2M HILL 2019. ALL RIGHTS RESERVED.



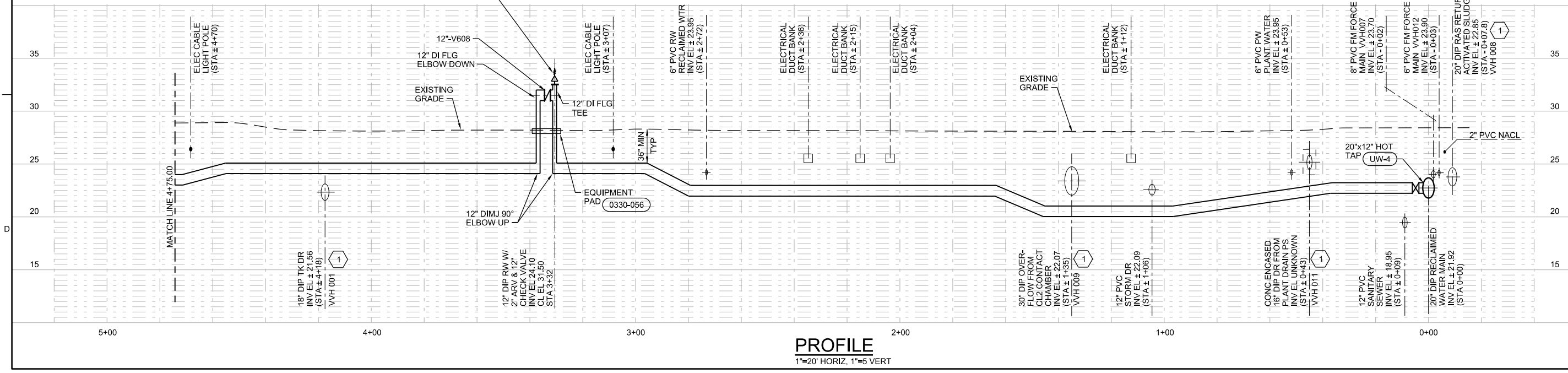
**PLAN**  
1"=20'

**SHEET KEYNOTES**

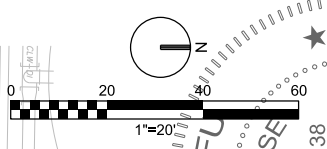
1. SOFT DIG LOCATION REFER TO "SUE" REPORT. SEE DETAIL 1 ON DWG 05-D-503.

2  
05-D-502

1  
IW-2 CHECK VALVE STA 3+16.32  
2"-V740 W/ 2"-V306 SHUT-OFF



**PROFILE**  
1"=20' HORIZ, 1"=5' VERT



TAO FU  
LICENSE No 63138  
PROFESSIONAL ENGINEER

STATE OF FLORIDA  
PROFESSIONAL ENGINEER  
T. FU

NO.	DATE	REVISION
1	26 03 2020	ADDED IW-2 CHECK VALVE STA DETAIL CALLOUT

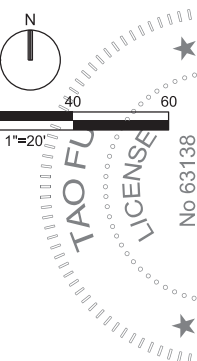
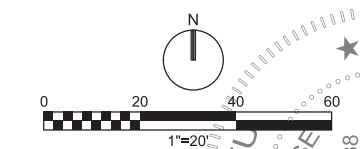
643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
TAO FU, PE #63138

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE MARCH 2020
PROJ 674077
DWG 05-D-201
SHEET 14 of 61

REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2020. ALL RIGHTS RESERVED.

**BID DOCUMENT**



STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 TAO FU  
 LICENSE No. 63138

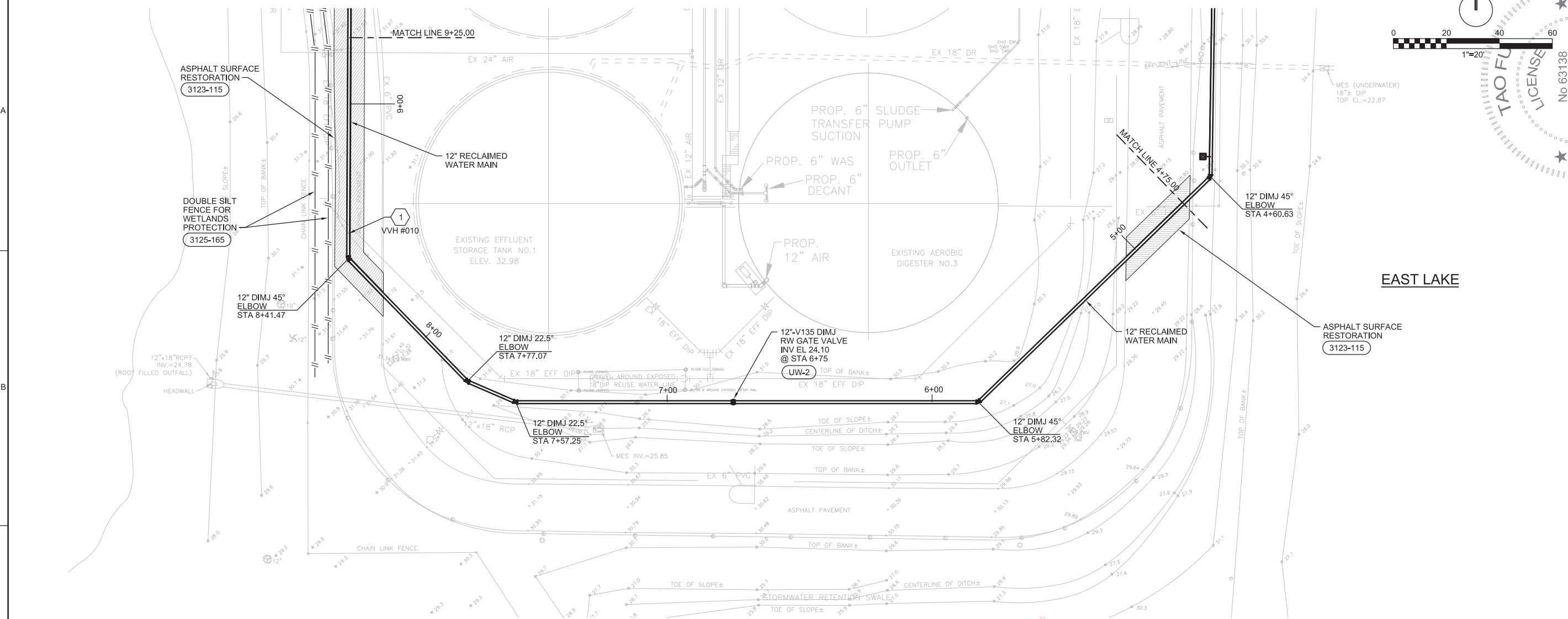
NO.	DATE	REVISION	CHK	APVD	T. FU

643 SW 4TH AVE  
 GAINESVILLE, FLORIDA 32601  
 EB0000072 AAC001982  
 TAO FU, PE #63138

NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 05-D-202
SHEET 15 of 61

BID DOCUMENTS



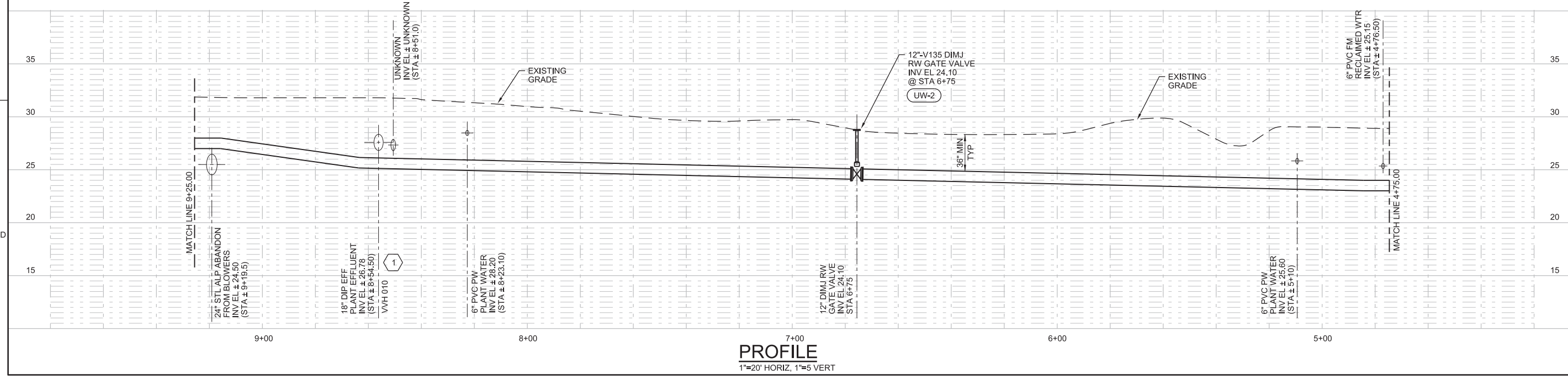
**PLAN**  
 1"=20'

**Tao Fu** Digitally signed by Tao Fu  
 Date: 2019.12.16 11:16:25 -05'00'

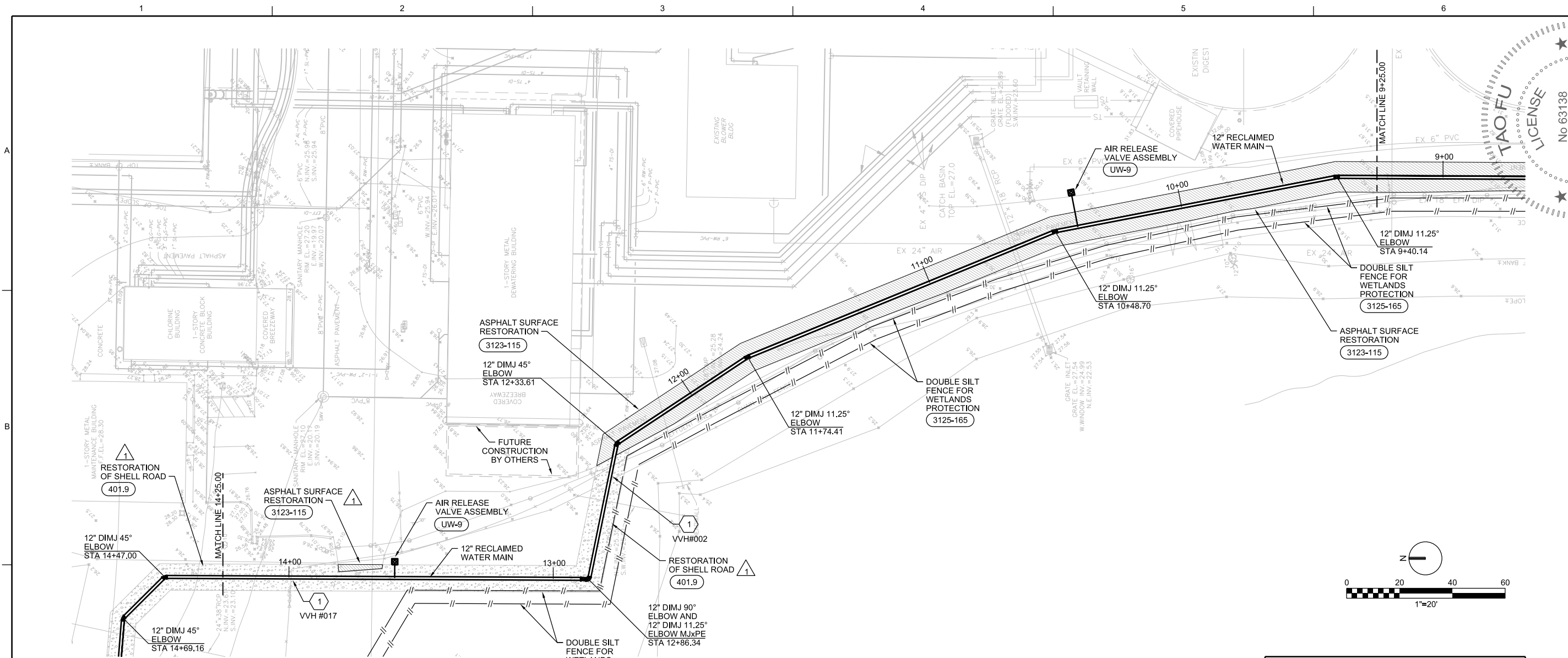
THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

**SHEET KEYNOTES**

- SOFT DIG LOCATION REFER TO "SUE" REPORT. SEE DETAIL 1 ON DWG 05-D-503.



**PROFILE**  
 1"=20' HORIZ, 1"=5 VERT



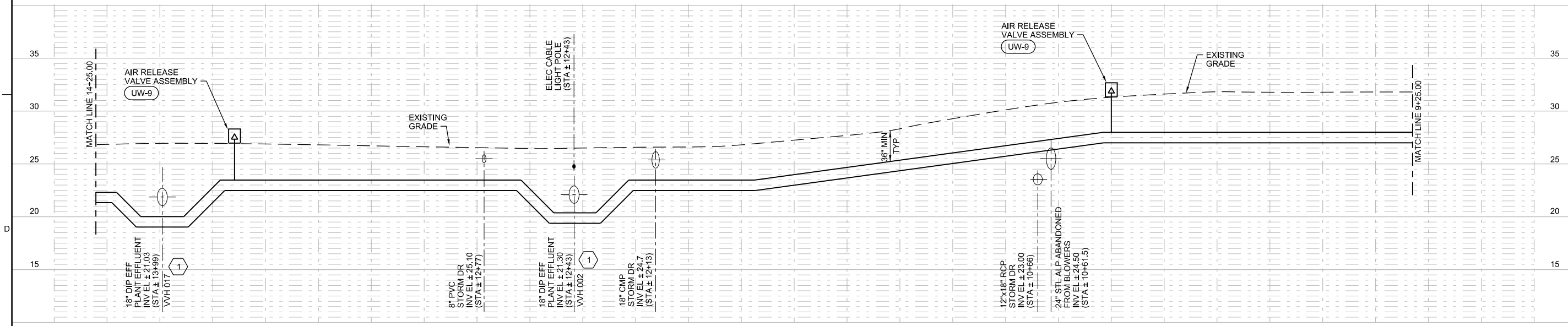
**PLAN**  
1"=20'

**GENERAL NOTES**

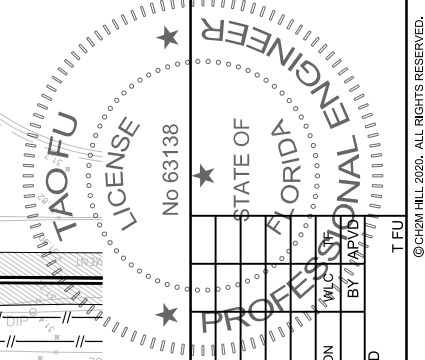
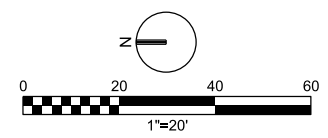
- WHERE DRAWING NOTES "RURAL SHELL ROAD" AND "RESTORATION OF SHELL ROAD" CONTRACTOR SHALL USE LIKE MATERIALS TO EXISTING CONDITIONS.

**SHEET KEYNOTES**

- SOFT DIG LOCATION REFER TO "SUE" REPORT. SEE DETAIL 1 ON DWG 05-D-503.



**PROFILE**  
1"=20' HORIZ, 1"=5' VERT



PROJECT NO. 05-D-203		DATE: MARCH 2020	
BY: TAO FU		PROJ: 674077	
CHECK: WL CLOUGH		DWG: 05-D-203	
APVD: T INNISS		SHEET: 16 of 61	
GENERAL NOTE & ASPHALT/SHELL ROAD SURFACE RESTORATION NO. 1 DATE: 26 03 2020			
NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA			
AS NOTED VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.			
FILENAME: 05-D-203_674077.dgn PLOT DATE: 3/26/2020 PLOT TIME: 12:19:06 PM			

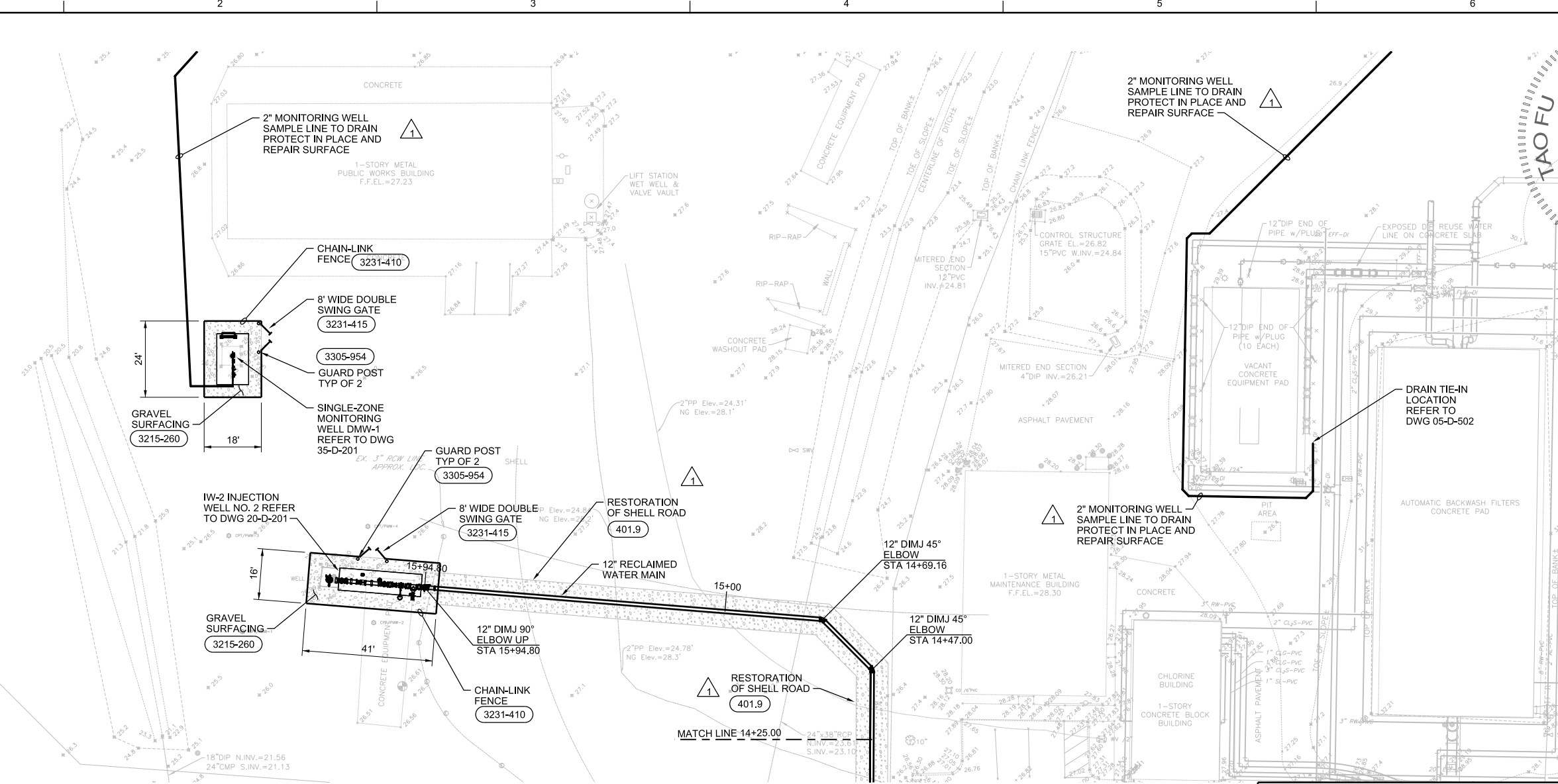
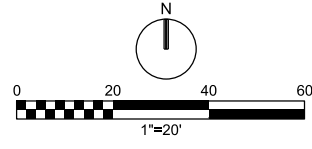


YARD PIPING  
**RECLAIMED WATER  
PROPOSED PIPE MAIN  
PLAN & PROFILE**

**BID DOCUMENT**

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2020. ALL RIGHTS RESERVED.

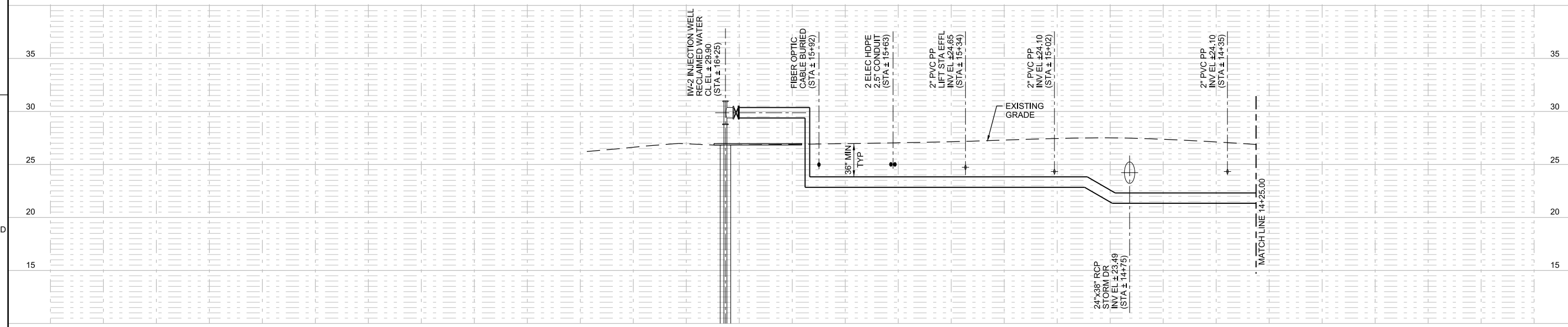




**PLAN**  
1"=20'

**GENERAL NOTES**

- WHERE DRAWING NOTES "RURAL SHELL ROAD" AND "RESTORATION OF SHELL ROAD" CONTRACTOR SHALL USE LIKE MATERIALS TO EXISTING CONDITIONS.



**PROFILE**  
1"=20' HORIZ, 1"=5' VERT

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
TAO FU, PE #63138

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

**ch2m**  
YARD PIPING  
RECLAIMED WATER  
PROPOSED PIPE MAIN  
PLAN & PROFILE

AS NOTED  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE MARCH 2020  
PROJ 674077  
DWG 05-D-204  
SHEET 17 of 61

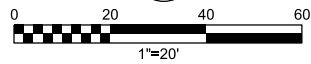
STATE OF FLORIDA  
**PROFESSIONAL ENGINEER**  
TAO FU  
LICENSE No 63138

NO.	DATE	REVISION
1	26 03 2020	GENERAL NOTE & ASPHALT/SHELL ROAD SURFACE RESTORATION

DR T FU  
CHK T INNISS  
APVD WL CLOUGH  
BY JAF/06

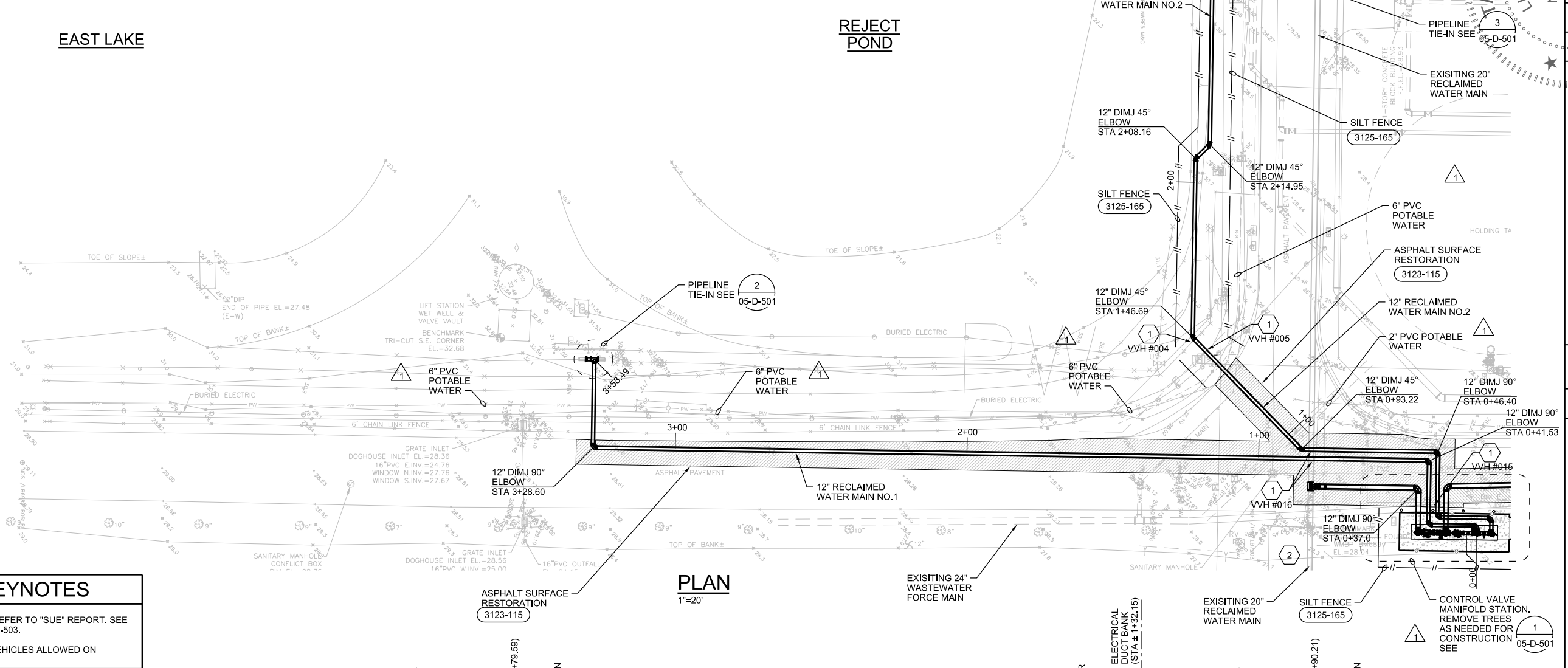
REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.

© CH2M HILL 2020. ALL RIGHTS RESERVED.



EAST LAKE

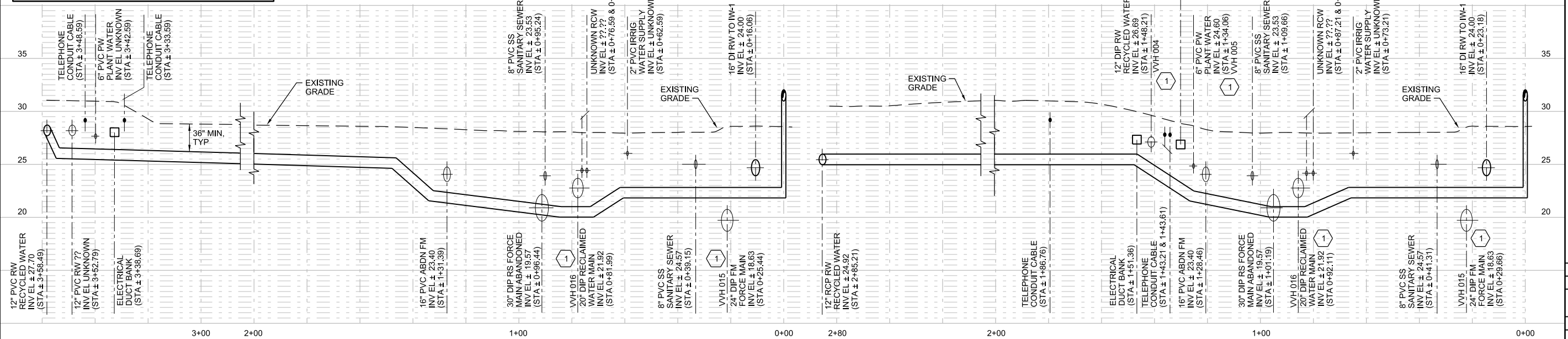
REJECT POND



**PLAN**  
1"=20'

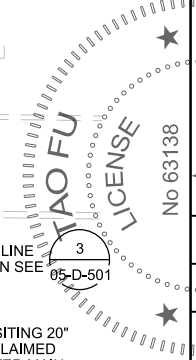
**SHEET KEYNOTES**

1. SOFT DIG LOCATION REFER TO "SUE" REPORT. SEE DETAIL 1 ON DWG 05-D-503.
2. NO CONSTRUCTION VEHICLES ALLOWED ON BRIDGE



**PROFILE MAIN NO.1**  
1"=20' HORIZ, 1"=5' VERT

**PROFILE MAIN NO.2**  
1"=20' HORIZ, 1"=5' VERT



PROJECT NO.	05-D-205
DATE	26 03 2020
BY	T FU
CHECKED	WL CLOUGH
APPROVED	T INNISS
REVISION	CHK
LINE SERVICE CALLOUTS	

NO.	1	DATE	26 03 2020
DSGN	T FU	DR	WL CLOUGH
REVISION	CHK	APVD	T INNISS

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EBO0000072 AAC001982  
TAO FU, PE #63138

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

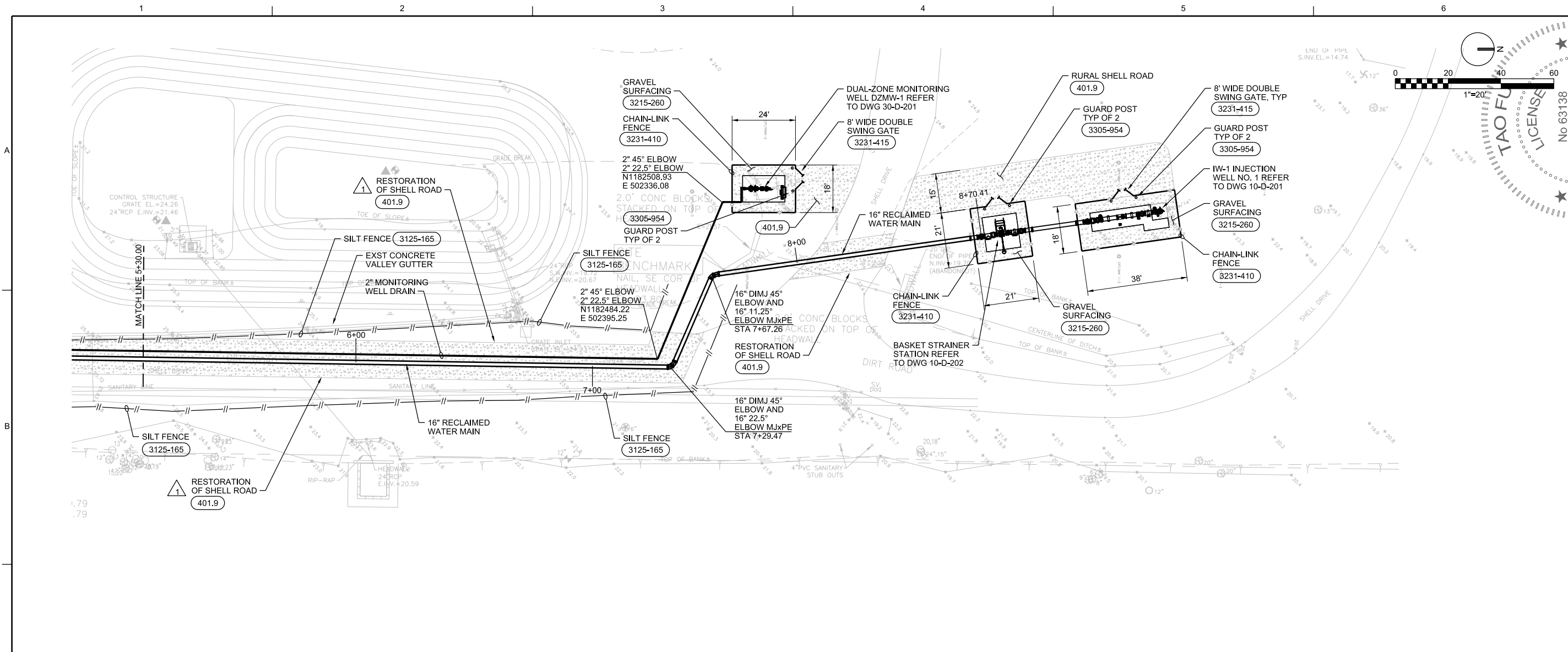
**ch2m**  
YARD PIPING  
RECLAIMED WATER  
PROPOSED PIPE MAIN  
PLAN & PROFILE

AS NOTED  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	MARCH 2020
PROJ	674077
DWG	05-D-205
SHEET	18 of 61

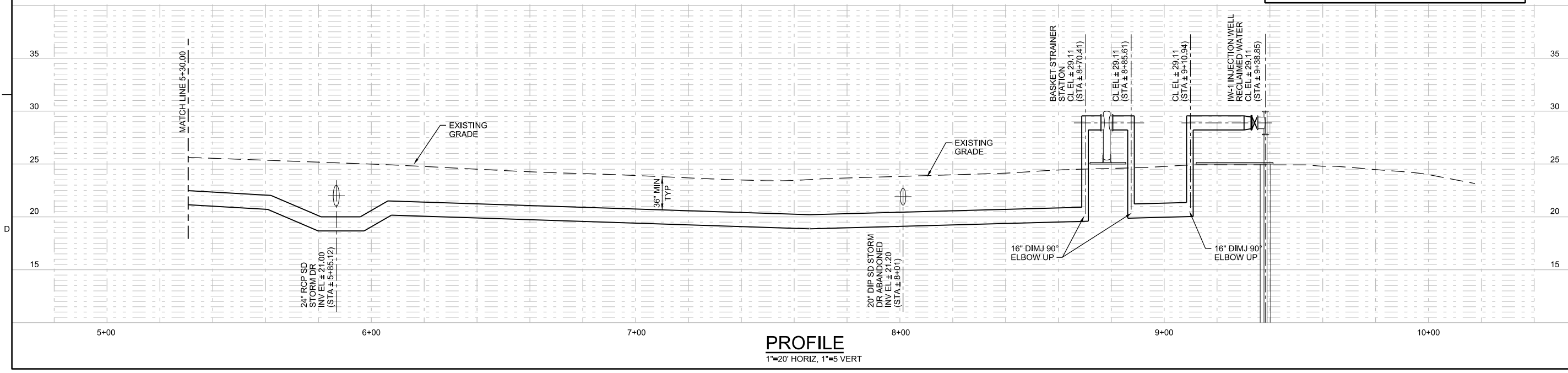
LICENSE No. 63138  
 STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 TAO FU  
 REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2020. ALL RIGHTS RESERVED.





**GENERAL NOTES**

- WHERE DRAWING NOTES "RURAL SHELL ROAD" AND "RESTORATION OF SHELL ROAD" CONTRACTOR SHALL USE LIKE MATERIALS TO EXISTING CONDITIONS.



643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
TAO FU, PE #63138

STATE OF FLORIDA  
PROFESSIONAL ENGINEER  
T. INNIS  
LICENSE No. 63138

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

PROJECT NO. 674077  
DATE: MARCH 2020  
BY: TAO FU  
CHECKED: WL CLOUGH  
APPROVED: T INNIS

AS NOTED  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE: MARCH 2020  
PROJ: 674077  
DWG: 05-D-207  
SHEET: 20 of 61

FILENAME: 05-D-207\_674077.dgn

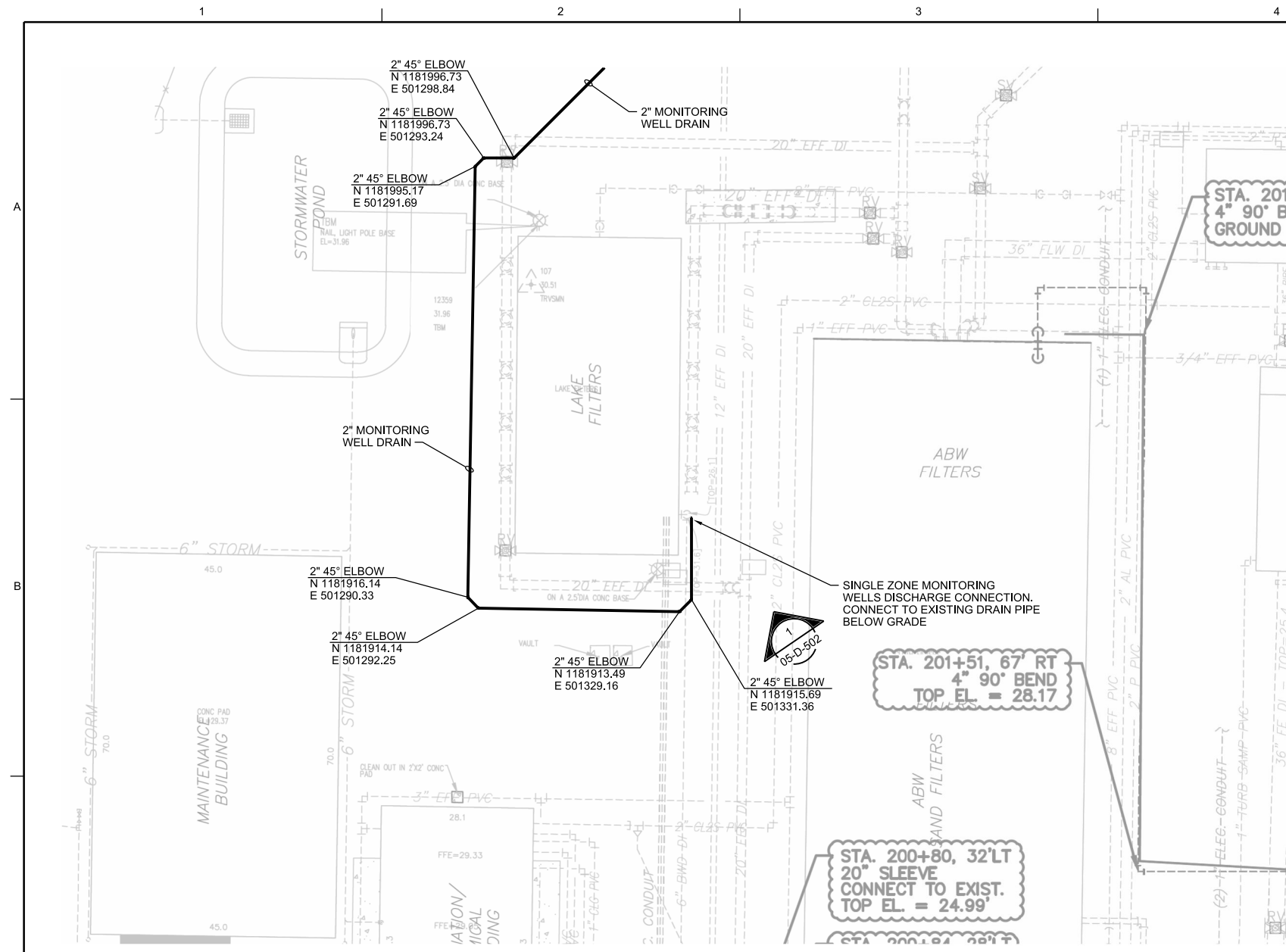
PLOT DATE: 3/26/2020

PLOT TIME: 12:22:05 PM

REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2020. ALL RIGHTS RESERVED.





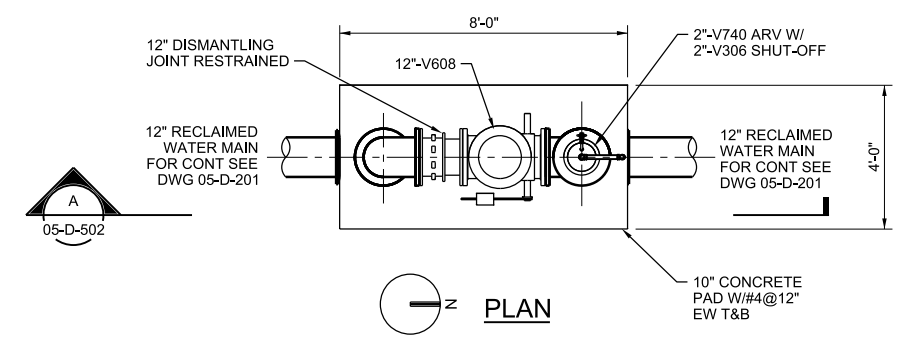


**EXISTING LAKE FILTERS PLAN**  
NTS

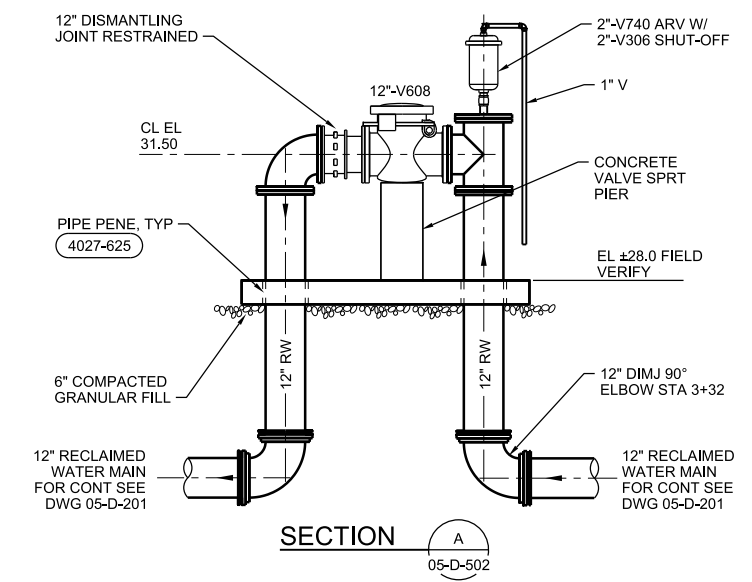


DRAIN CONNECTION. CUT INTO EXISTING 6\"/>

**1 PHOTO DETAIL**  
NTS



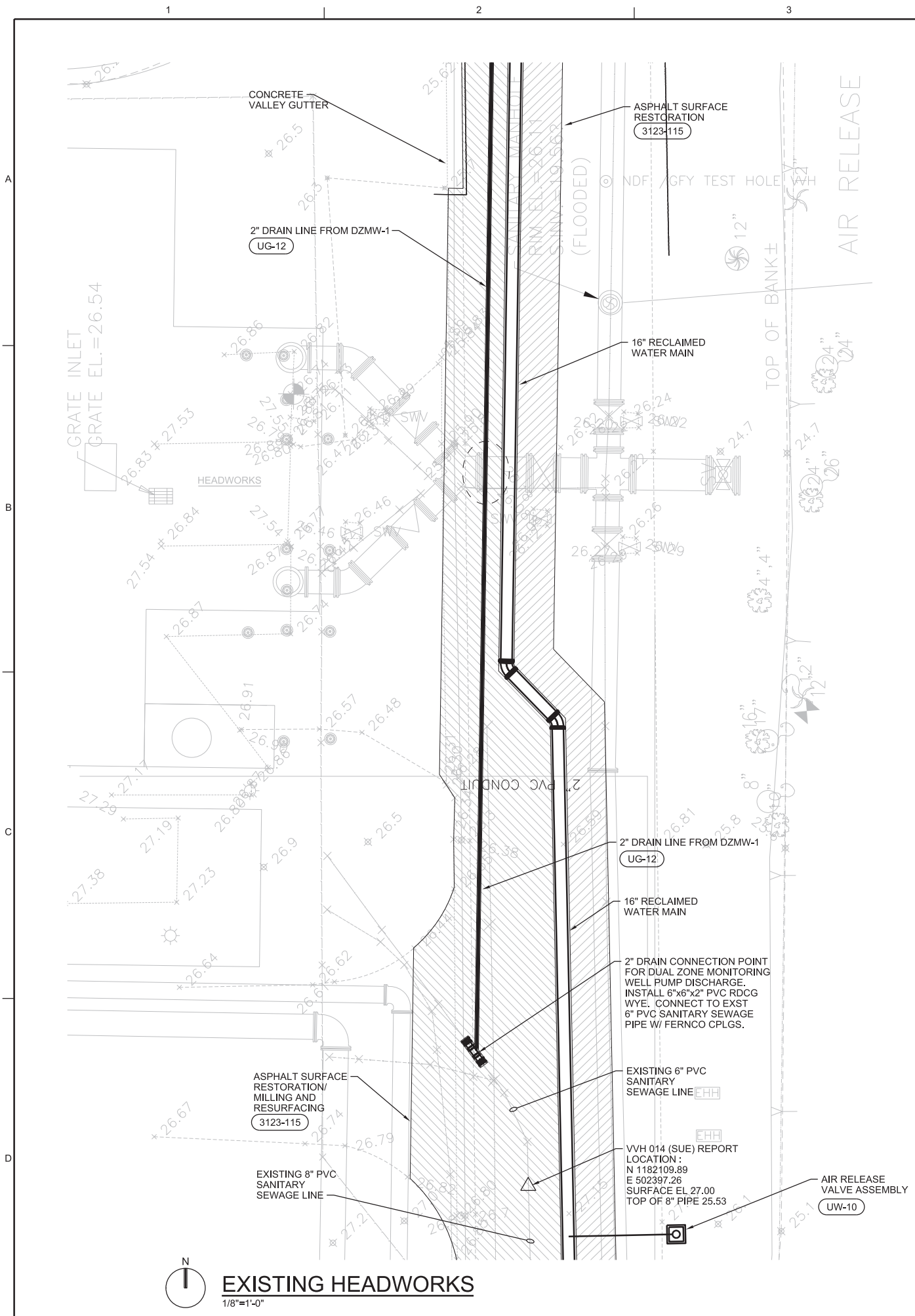
**PLAN**



**SECTION**

**2 IW-2 CHECK VALVE STATION - DETAIL**  
3/8\"/>

64 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982 TAO FU, PE #63138	NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA
<b>ch2m</b> YARD PIPING <b>SINGLE ZONE MONITORING WELLS          DISCHARGE CONNECTION          LAKE FILTERS - DETAILS</b>	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.	DATE MARCH 2020 PROJ 674077 DWG 05-D-502 SHEET 23 of 61



## North Regional Wastewater Reclamation Facility SUBSURFACE UTILITY EXCAVATION (SUE) REPORT

ID Name Location	Northing	Easting	Surface Elevation	Measured Depth (ft.)	Top of Pipe	Pipe Size	Pipe Material	Type	Surface
VVH#001	1181393.37	501670.22	28.06	4.87	23.19	18"	DIP	EFFLUENT	GROUND
VVH#002	1181692.07	501233.11	26.47	3.54	22.93	18"	DIP	RECLAIMED	GROUND
VVH#003	1181761.29	502221.21	30.44	2.78	27.66	12"	DIP	RECLAIMED	GROUND
VVH#004	1181756.36	502358.02	30.16	2.37	27.79	12"	DIP	RECLAIMED	GROUND
VVH#005	1181767.85	502362.39	28.33	3.21	25.12	6"	PVC	WATER	GROUND
VVH#006	1182492.98	502407.96	23.49	5.12	18.37	48"	DIP	FORCE MAIN	GROUND
VVH#007	1181807.24	501673.66	28.15	3.73	24.42	8"	PVC	RECLAIMED	4" PVMT.
VVH#008	1181811.80	501666.12	27.98	3.33	24.65	20"	DIP	RECLAIMED	GROUND
VVH#009	1181671.31	501663.61	27.91	3.17	24.74	30"	DIP	EFFLUENT	4" PVMT.
VVH#010	1181329.12	501344.87	31.84	3.44	28.40	18"	DIP	RECLAIMED	4" PVMT.
VVH#011	1181782.39	501666.22	28.36	1.96	26.40	28"±	CONC. CAP	UNKNOWN	4" PVMT.
VVH#012	1181809.63	501665.88	28.03	3.57	24.46	6"	PVC	FORCE MAIN	GROUND
VVH#013	1182199.83	502393.60	26.10	6.82	19.28	48"	DIP	FORCE MAIN	4" PVMT.
VVH#014	1182109.89	502397.26	27.00	1.47	25.53	8"	PVC	SANITARY	4" PVMT.
VVH#015	1181841.62	502411.92	28.58	7.80	20.78	48"±	DIP	FORCE MAIN	2" PVMT.
VVH#016	1181800.67	502406.23	27.85	4.13	23.72	20"	DIP	RECLAIMED	3" PVMT.
VVH#017	1181806.90	501194.16	27.36	4.71	22.65	18"	DIP	RECLAIMED	GROUND

DIP = Ductile Iron Pipe, PVC = Polyvinyl Chloride Pipe, PVMT. = Pavement, CONC. = Concrete

### SURVEYOR'S REPORT MANATEE COUNTY NORTH REGIONAL WASTEWATER RECLAMATION FACILITY

- I hereby certify that:
- I am a Professional Surveyor and Mapper, registered in the State of Florida, holding Certificate No. PSM 4292 and that I am acting on behalf of ZNS Engineering, L.C., a corporation authorized to offer services of registered Surveyors and Mappers in the State of Florida, holding L.B. No. 6982.
  - This certificate is made to SUE Report of Subsurface Utility Location as shown hereon.
  - Elevations shown are based on 1988 NAVD. The elevations are derived from Square Cut Found at Northwest corner of bridge, East side of site, WMBP BM 6897 (Elevation of 28.04) and Manatee County Benchmark Revit & Disk Found at North centerline of bridge, East side of site (Elevation of 27.82).
  - Coordinates are based on the Florida State Plane Coordinate System (West Zone) NAD 83 / 2011 - EPOCH 2010.0000 and were derived using Real Time Kinematic Method and the Florida Department of Transportation Permanent Reference Network Site "Manatee G. Stroop CORS-ARP" (PID DL7628).

Date: June 13, 2019

*R.E.M. Edgerton*  
R.E.M. Edgerton, PSM  
Professional Surveyor and Mapper  
Florida License No. 4292

T:\Manatee\NRWRF\ SUE Report 06-13-19.dwg

## 1 SUBSURFACE UTILITY EXCAVATION (SUE) REPORT - DETAIL

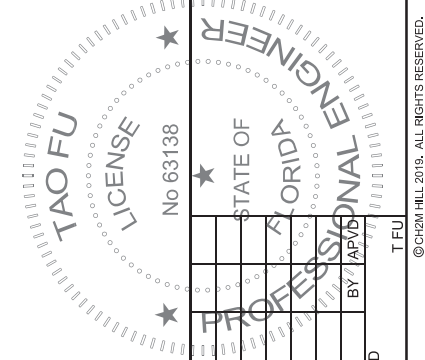
- NTS
- 05-D-201
  - 05-D-202
  - 05-D-203
  - 05-D-205
  - 05-D-206

Tao Fu

Digitally signed by Tao Fu  
Date: 2019.12.16 11:30:47  
-05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.

SHEET KEYNOTES	
1.	SOFT DIG LOCATION REFER TO "SUE" REPORT. SEE DETAIL 1 ON DWG 05-D-503.



643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
E80000072 AAC001982  
TAO FU, PE #63138

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

YARD PIPING  
DUAL ZONE MONITORING WELL  
DISCHARGE CONNECTION AT  
EXISTING HEADWORKS - DETAIL

AS NOTED  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
DATE NOVEMBER 2019  
PROJ 674077  
DWG 05-D-503  
SHEET 24 of 61

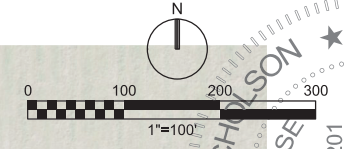
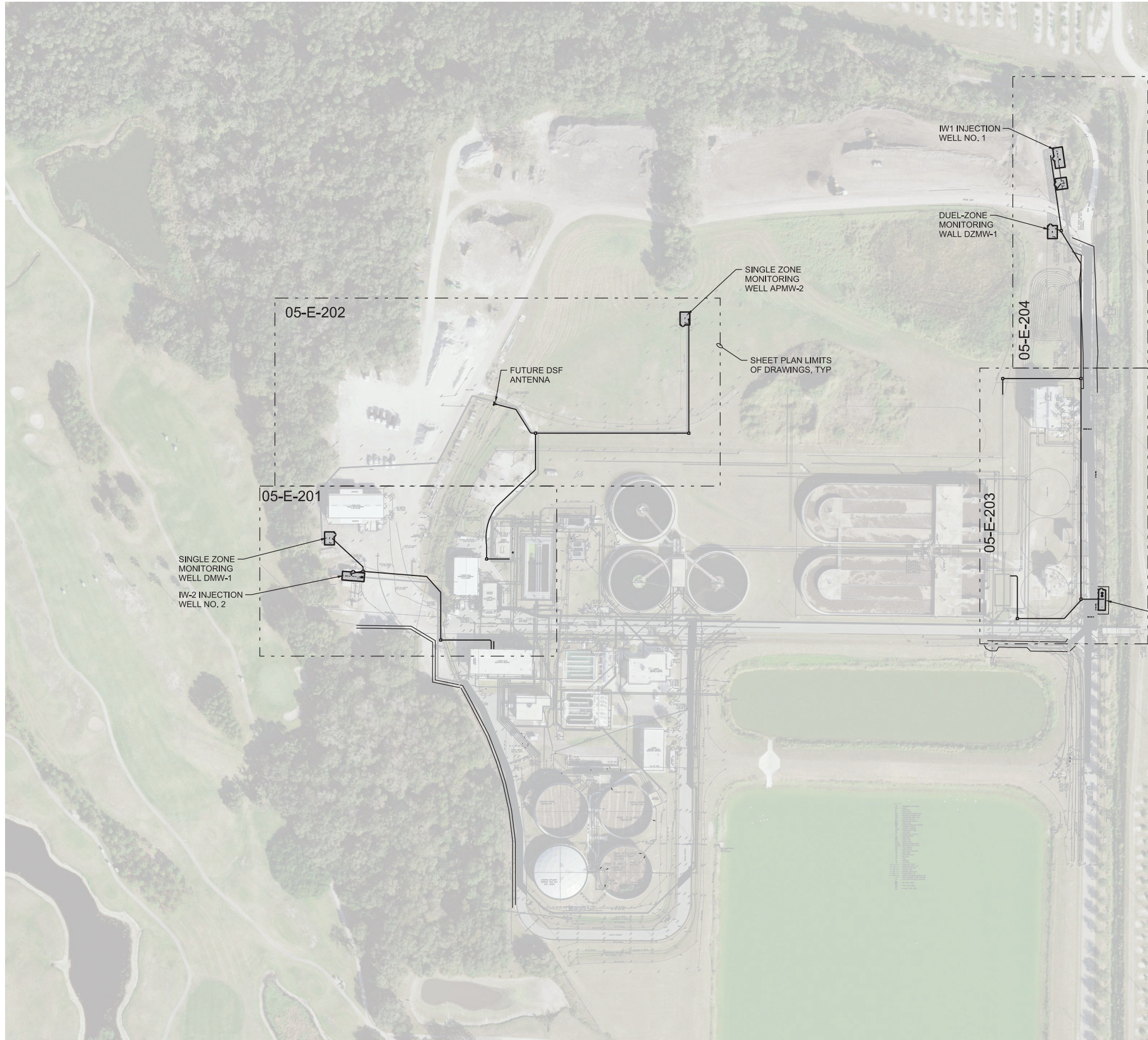
REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.

© CH2M HILL 2019. ALL RIGHTS RESERVED.

EXISTING HEADWORKS

1/8"=1'-0"





DAVID C. NICHOLSON  
 LICENSED PROFESSIONAL ENGINEER  
 No. 60201  
 STATE OF FLORIDA

PROJECT NO. 674077  
 BY: APVD  
 REVISION: CHK  
 DR: A. PASTRANA  
 M. GOSLOW  
 D. NICHOLSON  
 © CH2M HILL 2019. ALL RIGHTS RESERVED.

NO.	DATE	REVISION	CHK	APVD

643 SW 4TH AVE  
 GAINESVILLE, FLORIDA 32601  
 EB0000072 AAC001982  
 DAVID C. NICHOLSON, PE #60201  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA

**ch2m**  
 ELECTRICAL  
**RECLAIMED WATER  
 KEY MAP**

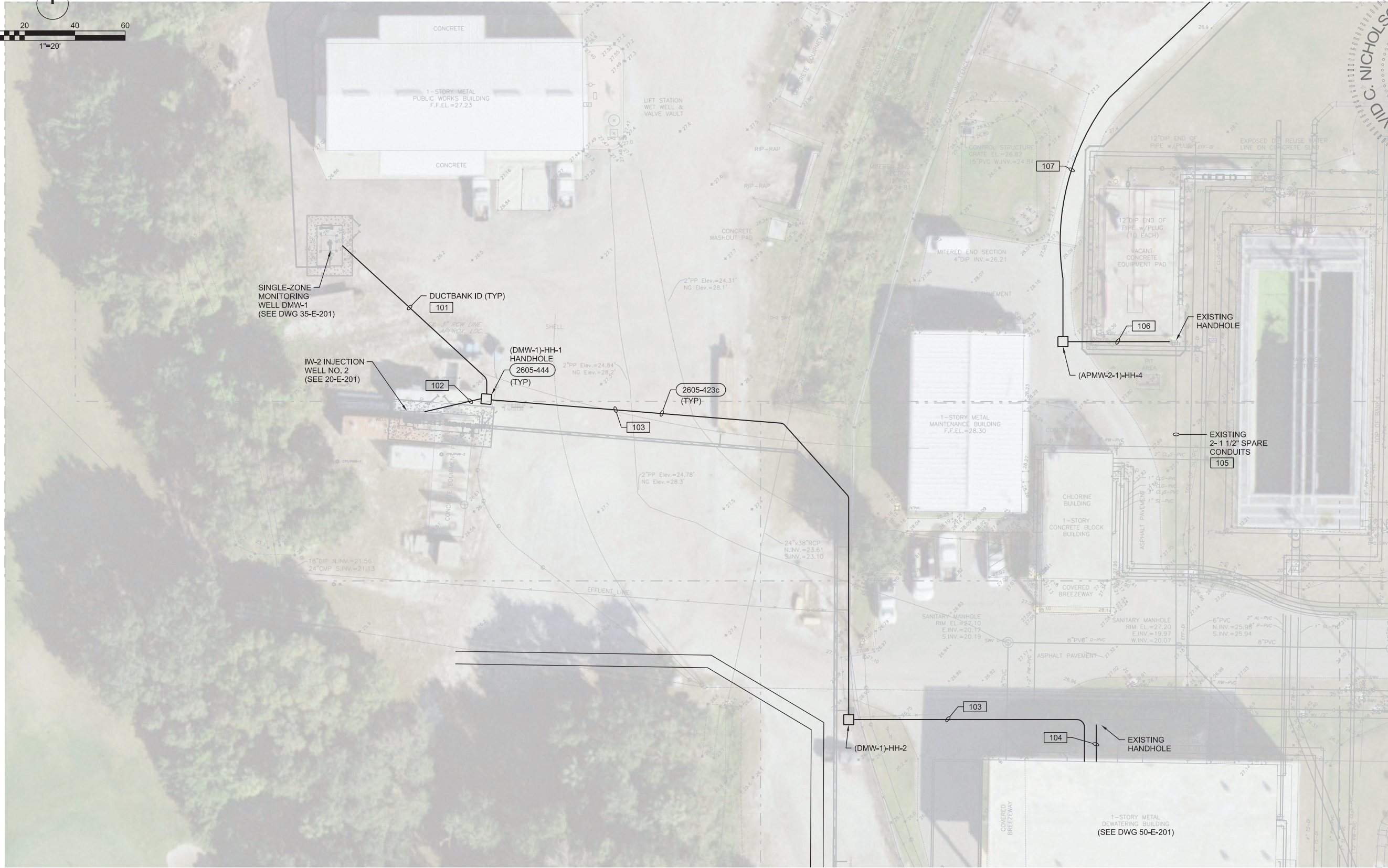
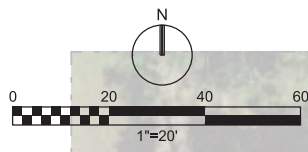
Digitally signed by  
**David Nicholson**  
 Date: 2019.12.17  
 11:02:36 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY  
 DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE.  
 PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED  
 AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.

**KEY MAP - PLAN**  
 1"=100'

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 05-E-200
SHEET 25 of 61

**BID DOCUMENTS**

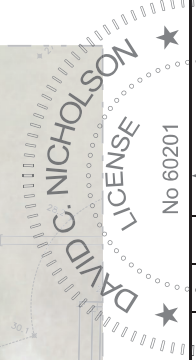


**ENLARGED PLAN**  
1"=20'

GENERAL SHEET NOTES	
1.	SEE DRAWING 05-E-603 FOR DUCTBANK SCHEDULE.
SHEET KEYNOTES	
1.	SEE DRAWING 05-E-202 FOR CONTINUATION.

**David Nicholson**  
Digitally signed by David Nicholson  
Date: 2019.12.17 09:15:25 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.



643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982		DAVID C. NICHOLSON, PE #60201	
NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE		MANATEE COUNTY, FLORIDA	
ELECTRICAL <b>SITE ENLARGED PLAN</b>		REVISION	
AS NOTED	NO.	DATE	DR
VERIFY SCALE	105		A. PASTRANA
BAR IS ONE INCH ON ORIGINAL DRAWING.	106		M. GOSLOW
DATE	107		D. NICHOLSON
PROJ			APVD
DWG			CHK
SHEET			REV
NOVEMBER 2019		BY: D. NICHOLSON	
674077		DATE: 11/15/2019	
05-E-201		PROJECT: 674077	
26 of 61		SHEET: 26 of 61	



**ENLARGED PLAN**  
1"=30'

**David Nicholson** Digitally signed by David Nicholson  
Date: 2019.12.17 09:21:33 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

**GENERAL SHEET NOTES**

- SEE DWG 05-E-603 FOR DUCT BANK SCHEDULE
- AS NOTED  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.
- SHEET KEYNOTES**
- SEE DWG 05-E-201 FOR CONTINUATION.
  - CAP END OF EMPTY CONDUITS 24" BELOW FINISHED GRADE.

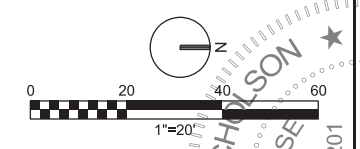
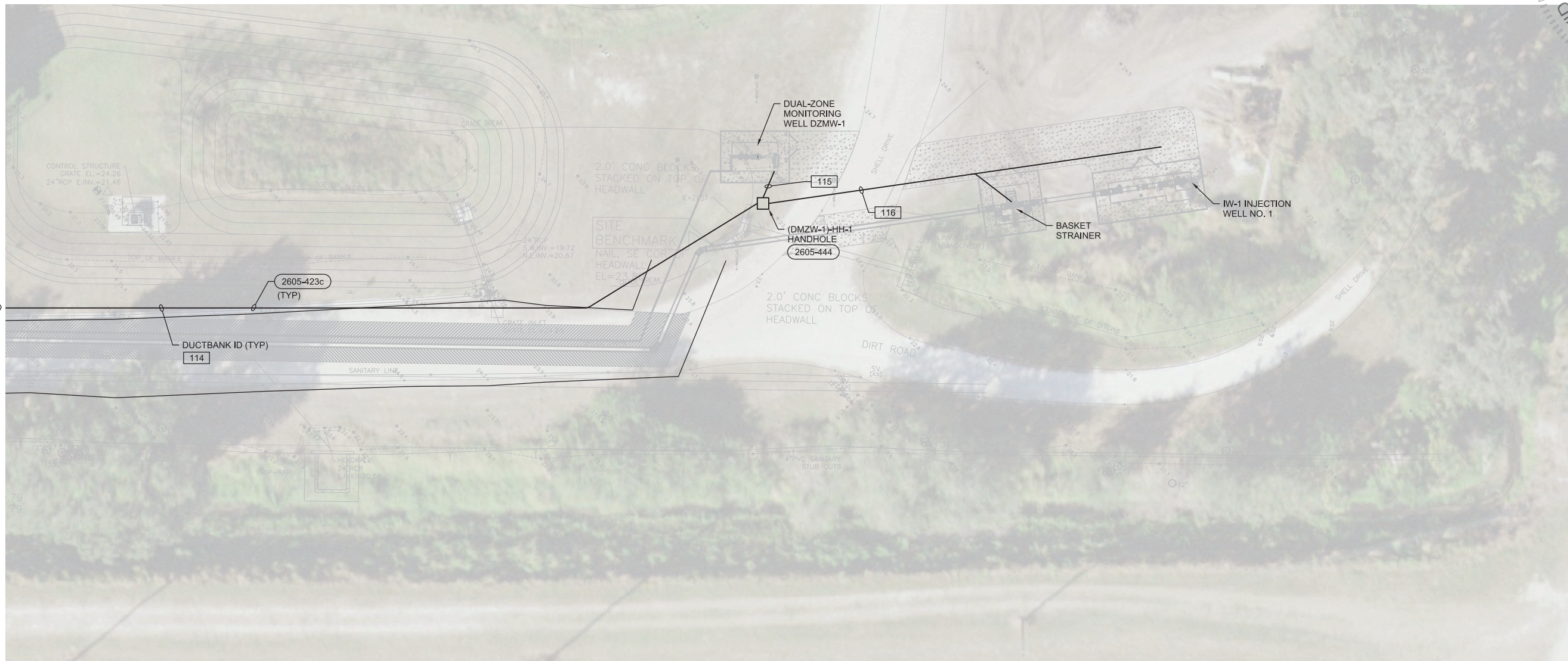
643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982		DAVID C. NICHOLSON, PE #60201		NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA	
D NICHOLSON		A PASTRANA		M GOSLOW	
DR		CHK		APVD	
NO.		DATE		REVISION	
1					
BY		APVD		BY	
D NICHOLSON		M GOSLOW		D NICHOLSON	
LICENSED PROFESSIONAL ENGINEER		LICENSED PROFESSIONAL ENGINEER		LICENSED PROFESSIONAL ENGINEER	
No 60201		No 60201		No 60201	
STATE OF FLORIDA		STATE OF FLORIDA		STATE OF FLORIDA	



ELECTRICAL  
**ENLARGED SITE PLAN**

BID DOCUMENTS





**ENLARGED PLAN**  
1"=20'

**David Nicholson** Digitally signed by David Nicholson  
Date: 2019.12.17 09:31:13 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

**GENERAL SHEET NOTES**

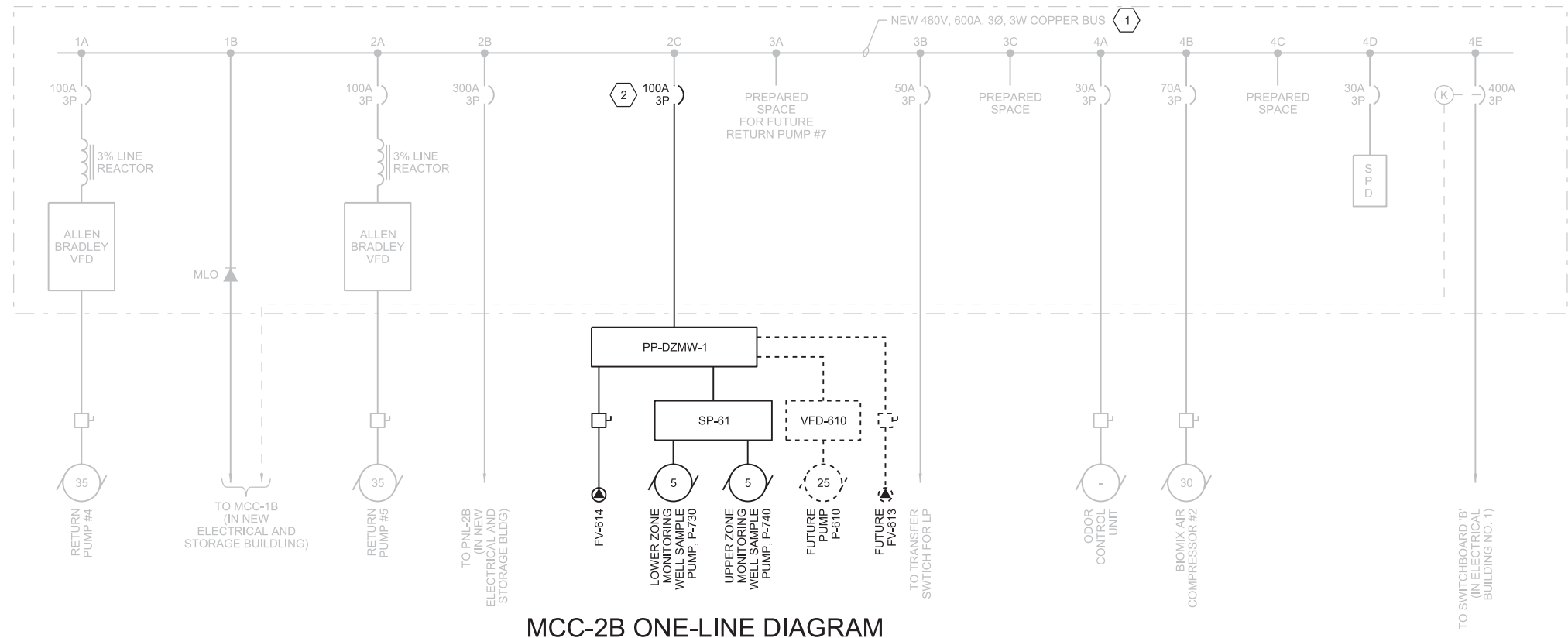
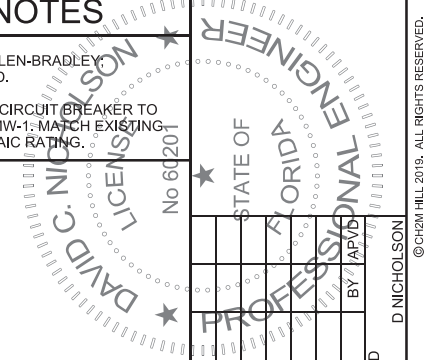
- 1. SEE DWG 05-E-603 FOR DUCTBANK SCHEDULE

**SHEET KEYNOTES**

- 1. SEE DWG 05-E-203 FOR CONTINUATION.

<p>643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982</p> <p>DAVID C. NICHOLSON, PE #60201</p> <p>NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA</p>	<p>PROJECT NO. 674077</p> <p>DATE NOVEMBER 2019</p> <p>DWG 05-E-204</p> <p>SHEET 29 of 61</p>
<p><b>ch2m</b> ELECTRICAL</p> <p><b>ENLARGED SITE PLAN</b></p>	
<p>AS NOTED</p> <p>VERIFY SCALE</p> <p>BAR IS ONE INCH ON ORIGINAL DRAWING.</p>	
<p><b>BID DOCUMENTS</b></p>	

- SHEET KEYNOTES**
- MCC MANUFACTURED BY ALLEN-BRADLEY CENTERLINE2100 ARCSHIELD.
  - PROVIDE NEW 100A, 3-POLE CIRCUIT BREAKER TO FEED POWER PANEL PP-DZMW-1: MATCH EXISTING MANUFACTURER TYPE AND AIC RATING.



**MCC-2B ONE-LINE DIAGRAM**  
NTS



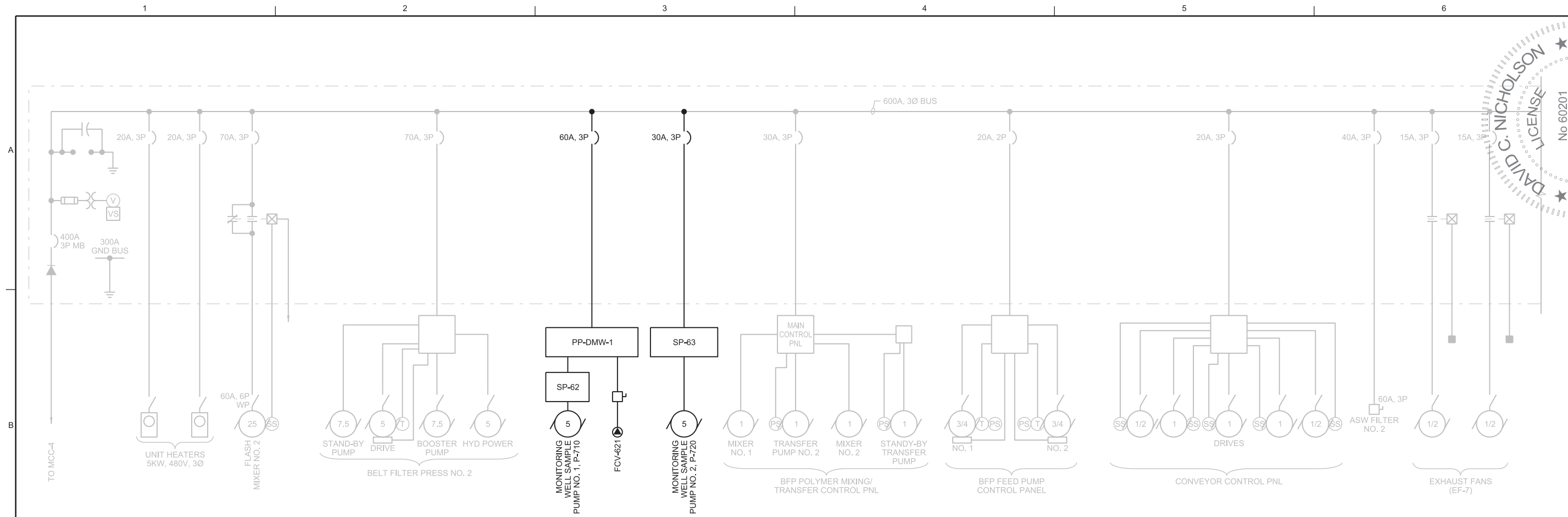
**MCC-2B ELEVATION**  
NTS

Digitally signed by  
**David Nicholson**  
Date: 2019.12.17  
09:35:37 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019. USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.

643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982 DAVID C. NICHOLSON, PE #60201		NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA	
		ELECTRICAL <b>MCC-2B ONE-LINE DIAGRAM AND ELEVATION</b>	
D NICHOLSON DSGN		A PASTRANA DR	
M GOSLOW APVD		D NICHOLSON APVD	
NO. DATE REVISION		BY REVISION	
D NICHOLSON DSGN		STATE OF FLORIDA PROFESSIONAL ENGINEER LICENSE NO. 60201	
REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.			
NTS VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		DATE NOVEMBER 2019 PROJ 674077 DWG 05-E-601 SHEET 30 of 61	

BID DOCUMENTS



**MCC-6 ONE-LINE DIAGRAM**

NTS

70A, 3P BELT F.P. NO. 2	30A, 3P BFP POLY. CP	ELR 8 LDR RELAYS	3P, SIZE 1 THICKENED SLUDGE PUMP NO. 2	3P, SIZE 1 EXH. FAN NO. 4
40A, 3P ABW FILTER NO. 2	20A, 3P BFP POLY FP CP	3P, SIZE 1 SPARE	3P, SIZE 1 THICKENED SLUDGE PUMP NO. 4	3P, SIZE 1 SPARE
20A, 3P ELEC. HTR. NO. 2	20A, 3P ELEC. HTR. NO. 4	A/C CONTROL RELAY	3P, SIZE 1 THICKENED SLUDGE PUMP NO. 4	3P, SIZE 1 SPARE
40A, 3P CONVY CP	50A, 3P MTS-2	6P, SIZE 1 FLASH MIXER NO. 2	400A, 3P MB	SURGE PROTECTOR
SP-62	SP-63			V VS
3P SIZE 1 EXH FAN NO. 3				

**MCC-6 ELEVATION**

NTS

**David  
Nicholson** Digitally signed by  
David Nicholson  
Date: 2019.12.17  
09:41:00 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.



DAVID C. NICHOLSON  
LICENSE  
No 60201  
STATE OF  
FLORIDA  
PROFESSIONAL  
ENGINEER  
BY APVD  
D NICHOLSON

NO.	DATE	DR	CHK	REVISION

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
E80000072 AAC001982  
DAVID C. NICHOLSON, PE #60201  
NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

**ch2m**  
ELECTRICAL  
**MCC-6 ONE-LINE DIAGRAM  
AND ELEVATION**

NTS
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 05-E-602
SHEET 31 of 61

BID DOCUMENTS

PANEL NAME: RELOCATED PNL-2B		VOLTAGE: 480 PHASE: 3 WIRE: 3	BUS RATING: MAIN BREAKER RATING: 400A	LOCATION: ELECTRICAL AND STORAGE BUILDING FLOOR MCC-2B				
CKT NO.	CIRCUIT DESCRIPTION	LOAD (KVA)	BKR AMPS	PH	BKR AMPS	LOAD (KVA)	CIRCUIT DESCRIPTION	CKT NO.
1	GRIT PUMP #2	17.5	40	A/B/C	50	9.0	PANEL 'HWL' IN HEADWORKS VIA XFMR T1	2
3	RELOCATED SURGE PROTECTION DEVICE	-	30	A/B/C	20	4.0	SCREEN #2	4
5	FUTURE GRIT SNAIL #2	-	20	A/B/C	20	5.0	SCREW CONVEYOR #3	6
7	FV-616A	1.0	20	A/B/C	-	-	SPACE	8
9	FV-616B	1.0	20	A/B/C	-	-	SPACE	10
11	SPACE	-	-	PH	-	-	SPACE	12
13	SPACE	-	-	PH	-	-	SPACE	14
15	STORAGE ROOM HVAC EQUIPMENT (1)	15.0	20	PH	-	-	SPACE	16
CONNECT LOAD (PER PHASE KVA):		17.2	17.2	17.2	51.5			
CONNECT LOAD (PER PHASE AMPS):		62.0	62.0	62.0				

PANEL: PP-DMW-1		LOCATION: SINGLE ZONE MONITORING WELL NO. 1					
SERVICE VOLTAGE: 480Y/277V		PHASE: 3 WIRE: 4					
TOTAL LOAD KVA: 11.5		BUS SIZE: 100 MAIN SIZE: 60 TYPE: CB					
REMARKS: INTEGRAL SPD		NEUTRAL: N/A MOUNTING: SURFACE AIC: 35K					
NEMA 4X 316 SS ENCLOSURE							
LOAD IN KVA		BKR	CKT	CKT	BKR	LOAD IN KVA	
A	B	C	A/P	NO.	NO.	A/P	CIRCUIT DESCRIPTION
3.5			30/3	1	2	30/3	SPARE
	3.5			3	4		
		3.5		5	6		
0.3			20/3	7	8	20/3	SPARE
	0.3			9	10		
		0.3		11	12		
				13	14		SPACE
				15	16		SPACE
				17	18		SPACE
				19	20		SPACE
				21	22	30/3	SPD
				23	24		
3.8	3.8	3.8	TOTAL				0.0 0.0 0.0

PANEL: PP-DZMW-1		LOCATION: DUEL ZONE MONITORING WELL NO. 1					
SERVICE VOLTAGE: 480Y/277V		PHASE: 3 WIRE: 4					
TOTAL LOAD KVA: 52.2		BUS SIZE: 100 MAIN SIZE: 100 TYPE: CB					
REMARKS: INTEGRAL SPD		NEUTRAL: N/A MOUNTING: SURFACE AIC: 35K					
NEMA 4X 316 SS ENCLOSURE							
LOAD IN KVA		BKR	CKT	CKT	BKR	LOAD IN KVA	
A	B	C	A/P	NO.	NO.	A/P	CIRCUIT DESCRIPTION
3.5			30/3	1	2	60/3	FUTURE VFD-610
	3.5			3	4		
		3.5		5	6		
0.3			20/3	7	8	20/3	FUTURE FV-613
	0.3			9	10		
		0.3		11	12		
				13	14		SPACE
				15	16	20/3	SPACE
				17	18		
				19	20		SPACE
				21	22	30/3	SPD
				23	24		
3.8	3.8	3.8	TOTAL				0.0 0.0 0.0

LIGHTING FIXTURE SCHEDULE									
SYMBOL	MARK	VOLTS	DRIVER CURRENT	LAMP TYPE	WATTS	LUMENS	MOUNT	DESCRIPTION	MAKE/MODEL
⊙	A	120	700mA (MIN)	LED 40K	137	15,964	CONCRETE POLE 10FT AFG	CUT-OFF SHOE BOX LIGHTING FIXTURE ALL ALUMINUM WITH DIE CAST BODY W/ DARK BRONZE FINISH AND DOOR TEMPERED GLASS LENS MOUNTED ON NINE INCH ARM SEALED AGAINST ENTRY OF INSECTS. ALUMINUM REFLECTOR, TYPE R3 DISTRIBUTION WITH HINGED DOOR ACCESS. PROVIDE MANUAL ON-OFF SWITCH 48-INCH AFG ON POLE UL LISTED FOR OUTDOOR LOCATIONS. CONTRACTOR SHALL HAVE STRUCTURAL CALCULATIONS PERFORMED TO DETERMINE REQUIRED POLE AND HARDWARE STRENGTH AND DEPTH OF BURIAL. CALCULATIONS SHALL BE BASED ON CHARACTERISTICS OF LIGHT FIXTURE AND DESIGN CRITERIA ON STRUCTURAL NOTES SHEET OF THESE DOCUMENTS AND SHALL BE PERFORMED BY AN ENGINEER QUALIFIED UNDER FLORIDA STATUTES 471.003 EITHER BY LICENSURE OF FULL TIME EMPLOYMENT BY POLE MANUFACTURER	LITHONIA KAD LED SERIES: KAD LED 60C 700 40K R3 MVOLT SP09 DDBXD  COOPER/LUMARK RK RIDGEWAY SERIES  HUBBELL/SPAULDING CIMARRON SERIES

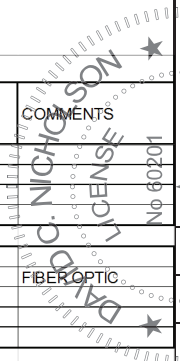
DUCT BANK SCHEDULE						
DUCT BANK ID	CONDUIT SIZE	CIRCUIT ID	CIRCUIT TYPE	FROM	TO	COMMENTS
101	1 1/2"	PP-DMW-1	POWER	MCC-6	PP-DMW-1	
	2"	SP-62	NETWORK	SP-3	SP-62	FIBER OPTIC
	1"	LIT-620	ANALOG	SP-62	LIT-620	SHEET KEYNOTE 2
	1"	PIT-620	ANALOG	SP-62	PIT-620	SHEET KEYNOTE 2
	1"	DPIT-622	ANALOG	SP-62	DPIT-622	SHEET KEYNOTE 2
	1"	FIT-621	ANALOG	SP-62	FIT-621	SHEET KEYNOTE 2
	1"	FIT-621	POWER	SP-62	FIT-621	SHEET KEYNOTE 2
	1"	FCV-621	ANALOG	SP-62	FCV-621	SHEET KEYNOTE 2
	1"	FCV-621	POWER	PP-DMW-1	FCV-621	
	1"	FCV-621	CONTROL	SP-62	FCV-621	
	1"	POLE LIGHT IW2	POWER	POLE LIGHT DMW1	POLE LIGHT IW2	
	1 1/2"	EMPTY	SPARE	MCC-6	PP-DMW-1	
2"	EMPTY	SPARE	PP-DMW-1	IW-2		
2"	EMPTY	SPARE	PP-DMW-1	IW-2		
2"	EMPTY	SPARE	SP-3	SP-62		
102	1"	LIT-620	ANALOG	SP-62	LIT-620	SHEET KEYNOTE 2
	1"	PIT-620	ANALOG	SP-62	PIT-620	SHEET KEYNOTE 2
	1"	DPIT-622	ANALOG	SP-62	DPIT-622	SHEET KEYNOTE 2
	1"	FIT-621	ANALOG	SP-62	FIT-621	SHEET KEYNOTE 2
	1"	FIT-621	POWER	SP-62	FIT-621	SHEET KEYNOTE 2
	1"	FCV-621	ANALOG	SP-62	FCV-621	SHEET KEYNOTE 2
	1"	FCV-621	POWER	PP-DMW-1	FCV-621	
	1"	FCV-621	CONTROL	SP-62	FCV-621	
	1"	POLE LIGHT IW2	POWER	POLE LIGHT DMW1	POLE LIGHT IW2	
	2"	EMPTY	SPARE	PP-DMW-1	IW-2	
	2"	EMPTY	SPARE	PP-DMW-1	IW-2	
	103	1 1/2"	PP-DMW-1	POWER	MCC-6	PP-DMW-1
2"		SP-62	NETWORK	SP-3	SP-62	FIBER OPTIC
1 1/2"		EMPTY	SPARE	MCC-6	PP-DMW-1	
2"		EMPTY	SPARE	SP-3	SP-62	
104	1 1/2"	SP-63	POWER	MCC-6	SP-63	
	1"	LIT-720	ANALOG	SP-3	LIT-720	SHEET KEYNOTE 2
105	1 1/2"	SP-63	POWER	MCC-6	SP-63	
	1 1/2"	LIT-720	ANALOG	SP-3	LIT-720	
106	1 1/2"	SP-63	POWER	MCC-6	SP-63	
	1"	LIT-720	ANALOG	SP-3	LIT-720	SHEET KEYNOTE 2
107	1 1/2"	SP-63	POWER	MCC-6	SP-63	
	1"	LIT-720	ANALOG	SP-3	LIT-720	SHEET KEYNOTE 2
	2"	EMPTY	SPARE	(APMW-2)-HH-4	FUTURE ANTENNA	
	2"	EMPTY	SPARE	(APMW-2)-HH-4	FUTURE ANTENNA	
108	1 1/2"	SP-63	POWER	MCC-6	SP-63	
	1"	LIT-720	ANALOG	SP-3	LIT-720	SHEET KEYNOTE 2
	2"	EMPTY	SPARE	(APMW-2)-HH-4	SP-63	SPARE
	2"	EMPTY	SPARE	(APMW-2)-HH-4	SP-63	SPARE
109	2"	EMPTY	SPARE	(APMW-2)-HH-4	FUTURE ANTENNA	SPARE
	2"	EMPTY	SPARE	(APMW-2)-HH-4	FUTURE ANTENNA	SPARE
110	1"	FV-616A	POWER	PP-DMW-1	FV-616A	
	1"	FV-616B	POWER	PP-DMW-1	FV-616B	
	1"	EMPTY	SPARE	PNL-2B	FV-616A	
	1"	EMPTY	SPARE	PNL-2B	FV-616B	
111	1"	FV-616A	POWER	PP-DMW-1	FV-616A	
	1"	FV-616B	POWER	PP-DMW-1	FV-616B	
	1"	EMPTY	SPARE	PNL-2B	FV-616A	
	1"	EMPTY	SPARE	PNL-2B	FV-616B	
	1"	FV-616A	CONTROL	SP-61	FV-616A	
	1"	FV-616B	CONTROL	SP-61	FV-616B	

DUCT BANK SCHEDULE						
DUCT BANK ID	CONDUIT SIZE	CIRCUIT ID	CIRCUIT TYPE	FROM	TO	COMMENTS
112	1"	FV-616A	CONTROL	SP-61	FV-616A	
	1"	FV-616B	CONTROL	SP-61	FV-616B	
	1"	EMPTY	SPARE	SP-61	FV-616A	
113	2"	PP-DZMW-1	POWER	MCC-2B	PP-DZMW-1	
	2"	SP-61	NETWORK	EQ-1	SP-61	FIBER OPTIC
	2"	EMPTY	SPARE	MCC-2B	(DZMW-1)-HH-1	
114	2"	EMPTY	SPARE	MCC-1B	(DZMW-1)-HH-1	
	2"	EMPTY	SPARE	MCC-1B	(DZMW-1)-HH-1	
	2"	EMPTY	SPARE	MCC-1B	(DZMW-1)-HH-1	
115	2"	PP-DZMW-1	POWER	MCC-2B	PP-DZMW-1	
	2"	SP-61	NETWORK	EQ-1	SP-61	FIBER OPTIC
	1"	FV-616A	CONTROL	SP-61	FV-616A	
116	1"	FV-616B	CONTROL	SP-61	FV-616B	
	1"	EMPTY	SPARE	SP-61	FV-616A	
	1"	EMPTY	SPARE	SP-61	FV-616B	
	2"	VFD-610	POWER	PP-DZMW-1	VFD-610	FUTURE
	1"	VFD-610	NETWORK	SP-61	VFD-610	FUTURE
	1"	FV-613	POWER	PP-DZMW-1	FV-613	FUTURE
	1"	FV-613	CONTROL	SP-61	FV-613	FUTURE
	1"	ZSC-610	CONTROL	SP-61	ZSC-610	FUTURE
	1"	LIT-610	ANALOG	SP-61	LIT-610	SHEET KEYNOTE 2
	1"	PIT-610	ANALOG	SP-61	PIT-610	SHEET KEYNOTE 2
	1"	DPIT-621	ANALOG	SP-61	DPIT-621	SHEET KEYNOTE 2
	1"	DPIT-621	ANALOG	SP-61	DPIT-621	SHEET KEYNOTE 2
1"	FIT-614	ANALOG	SP-61	FIT-614	SHEET KEYNOTE 2	
1"	FIT-614	POWER	SP-61	FIT-614		
1"	FCV-614	ANALOG	SP-61	FCV-614	SHEET KEYNOTE 2	
1"	FCV-614	POWER	PP-DZMW-1	FCV-614		
1"	FCV-614	CONTROL	SP-62	FCV-614		
1"	POLE LIGHT IW1	POWER	POLE LIGHT DZMW1	POLE LIGHT IW1		
2"	EMPTY	SPARE	PP-DZMW-1	IW-1		
2"	EMPTY	SPARE	SP-61	IW-1		
117	2"	VFD-610	POWER	PP-DZMW-1	VFD-610	FUTURE
	1"	VFD-610	NETWORK	SP-61	VFD-610	FUTURE
	1"	FV-613	POWER	PP-DZMW-1	FV-613	FUTURE
	1"	FV-613	CONTROL	SP-61	FV-613	FUTURE
	1"	ZSC-610	CONTROL	SP-61	ZSC-610	FUTURE
	1"	LIT-610	ANALOG	SP-61	LIT-610	SHEET KEYNOTE 2
	1"	PIT-610	ANALOG	SP-61	PIT-610	SHEET KEYNOTE 2
	1"	DPIT-621	ANALOG	SP-61	DPIT-621	SHEET KEYNOTE 2
	1"	DPIT-621	ANALOG	SP-61	DPIT-621	SHEET KEYNOTE 2
	1"	FIT-614	ANALOG	SP-61	FIT-614	SHEET KEYNOTE 2
	1"	FIT-614	POWER	SP-61	FIT-614	
	1"	FCV-614	ANALOG	SP-61	FCV-614	SHEET KEYNOTE 2
1"	FCV-614	POWER	PP-DZMW-1	FCV-614		
1"	FCV-614	CONTROL	SP-62	FCV-614		
1"	POLE LIGHT IW1	POWER	POLE LIGHT DZMW1	POLE LIGHT IW1		
2"	EMPTY	SPARE	PP-DZMW-1	IW-1		
2"	EMPTY	SPARE	SP-61	IW-1		

David Nicholson  
Digitally signed by David Nicholson  
Date: 2019.12.17 09:46:12 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

- SHEET KEYNOTES**
- PROVIDE NEW 20A, 3-POLE CIRCUIT BREAKER MATCH EXISTING MANUFACTURER, TYPE AND AIC RATING.
  - SEPERATE ANALOG FROM 480V CABLES BY A MINIMUM OF 18 INCHES, AND FROM 120V CABLES BY A MINIMUM OF 12 INCHES.



STATE OF FLORIDA  
PROFESSIONAL ENGINEER  
DAVID C. NICHOLSON  
LICENSE NO. 60201

645 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
GBO000072 AAC001982

DAVID C. NICHOLSON, PE #60201

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

REVISION  
CHK  
M. GOSLOW  
APVD  
D. NICHOLSON  
DR  
NO. DATE  
D. NICHOLSON  
DSGN

**ch2m**  
ELECTRICAL

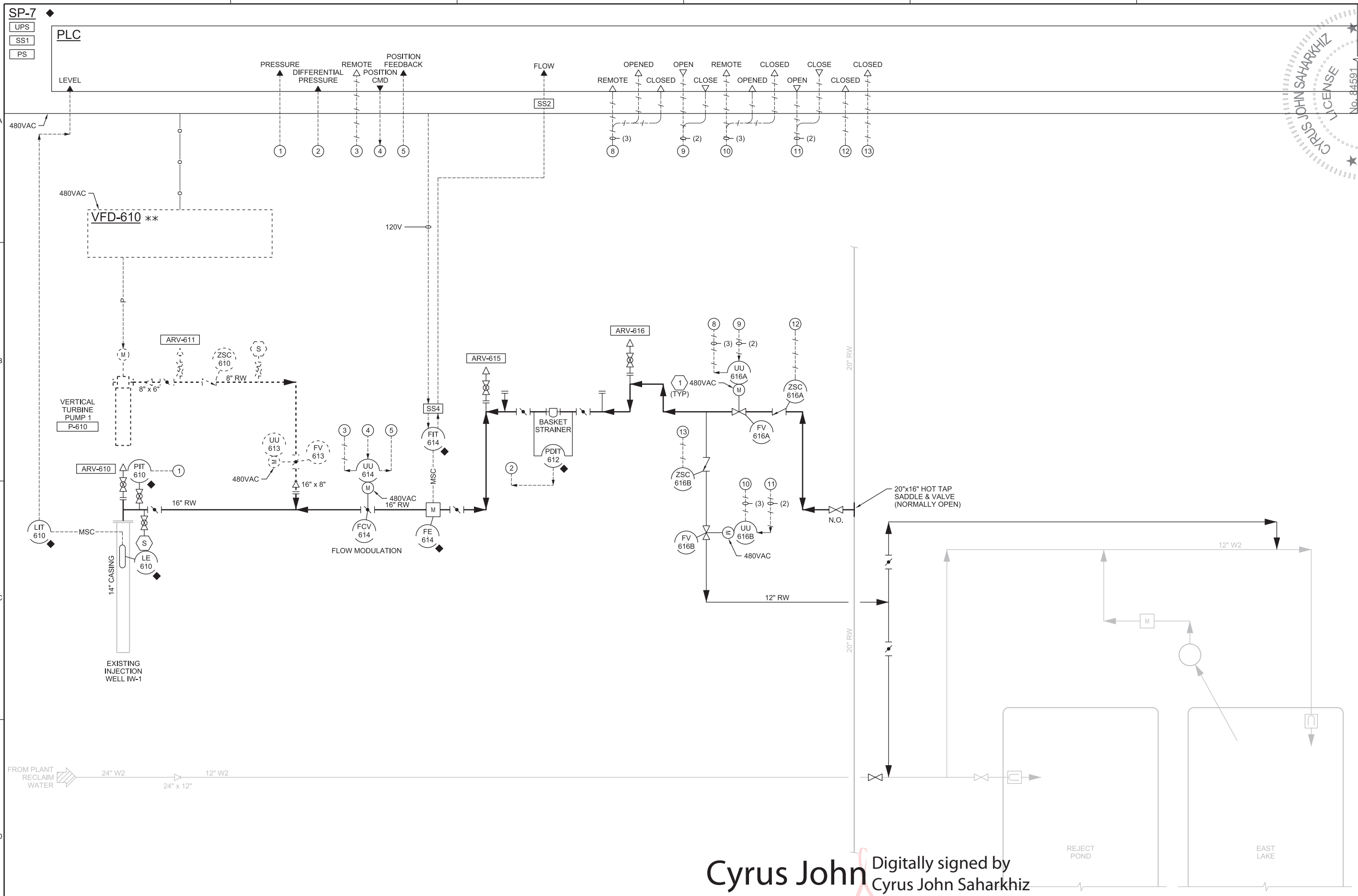
**PANEL SCHEDULES,  
LIGHTING FIXTURE SCHEDULE, AND  
DUCT BANK SCHEDULE**

NTS  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE: NOVEMBER 2019  
PROJ: 674077  
DWG: 05-E-603  
SHEET: 32 of 61

**BID DOCUMENTS**

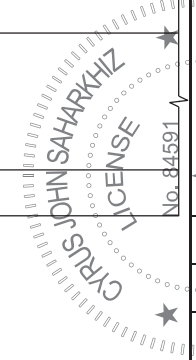




SHEET KEYNOTES	
1.	CONTROL VALVE POWER FED FROM 480VAC PARTITION OF CONTROL PANEL.

**Cyrus John Saharkhiz** Digitally signed by  
 Cyrus John Saharkhiz  
 Date: 2019.12.16  
 14:12:56 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY CYRUS JOHN SAHARKHIZ, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.



STATE OF FLORIDA  
 PROFESSIONAL ENGINEER  
 CYRUS JOHN SAHARKHIZ  
 LICENSE No. 84591

NO.	DATE	DR	REVISION	CHK	APVD

643 SW 4TH AVE  
 GAINESVILLE, FLORIDA 32601  
 EB0000072 AAC001982  
 CYRUS JOHN SAHARKHIZ, PE #84591  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA

**ch2m**  
 INSTRUMENTATION AND CONTROL  
 P&ID  
 INJECTION WELL IW-1

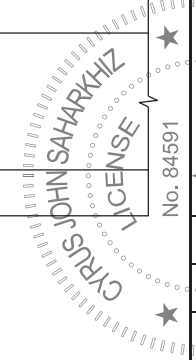
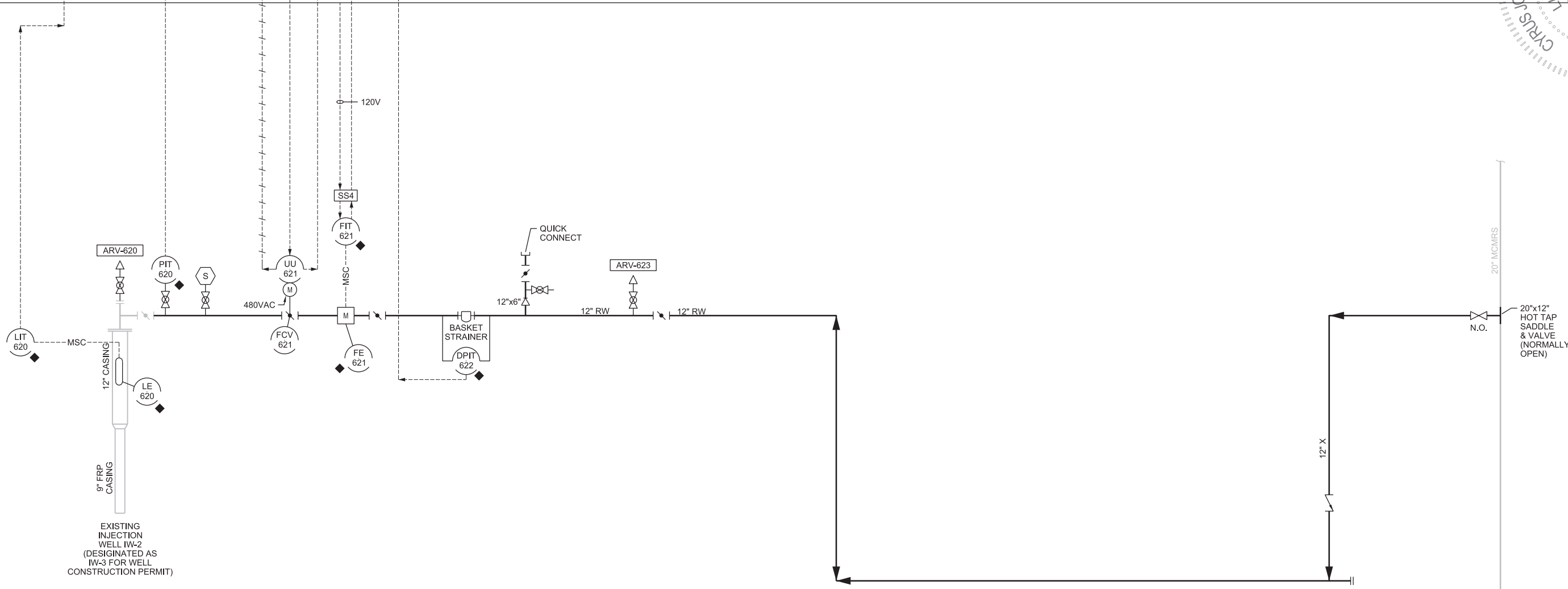
NTS
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 08-N-601
SHEET 33 of 61

BID DOCUMENTS

SP-8  
 UPS  
 SS1  
 PS

PLC

LEVEL PRESSURE REMOTE POSITION DIFFERENTIAL  
 SS2 SS2 SS2 SS2



PROFESSIONAL ENGINEER  
 STATE OF FLORIDA  
 C. SAHARKHIZ  
 APVD  
 C. WILSON  
 CHK  
 A. PASTRANA  
 DR  
 C. SAHARKHIZ  
 DSGN

NO.	DATE	REVISION

643 SW 4TH AVE  
 GAINESVILLE, FLORIDA 32601  
 EB0000072 AAC001982  
 CYRUS JOHN SAHARKHIZ, PE #84591  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA

**ch2m**  
 INSTRUMENTATION AND CONTROL  
 P&ID  
 INJECTION WELL IW-2

DATE	NOVEMBER 2019
PROJ	674077
DWG	08-N-602
SHEET	34 of 61

Digitally signed  
 by Cyrus John Saharkhiz  
 Date: 2019.12.16  
 14:15:47 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY CYRUS JOHN SAHARKHIZ, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.

BID DOCUMENTS



SP-7

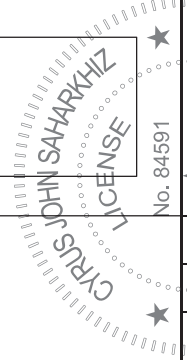
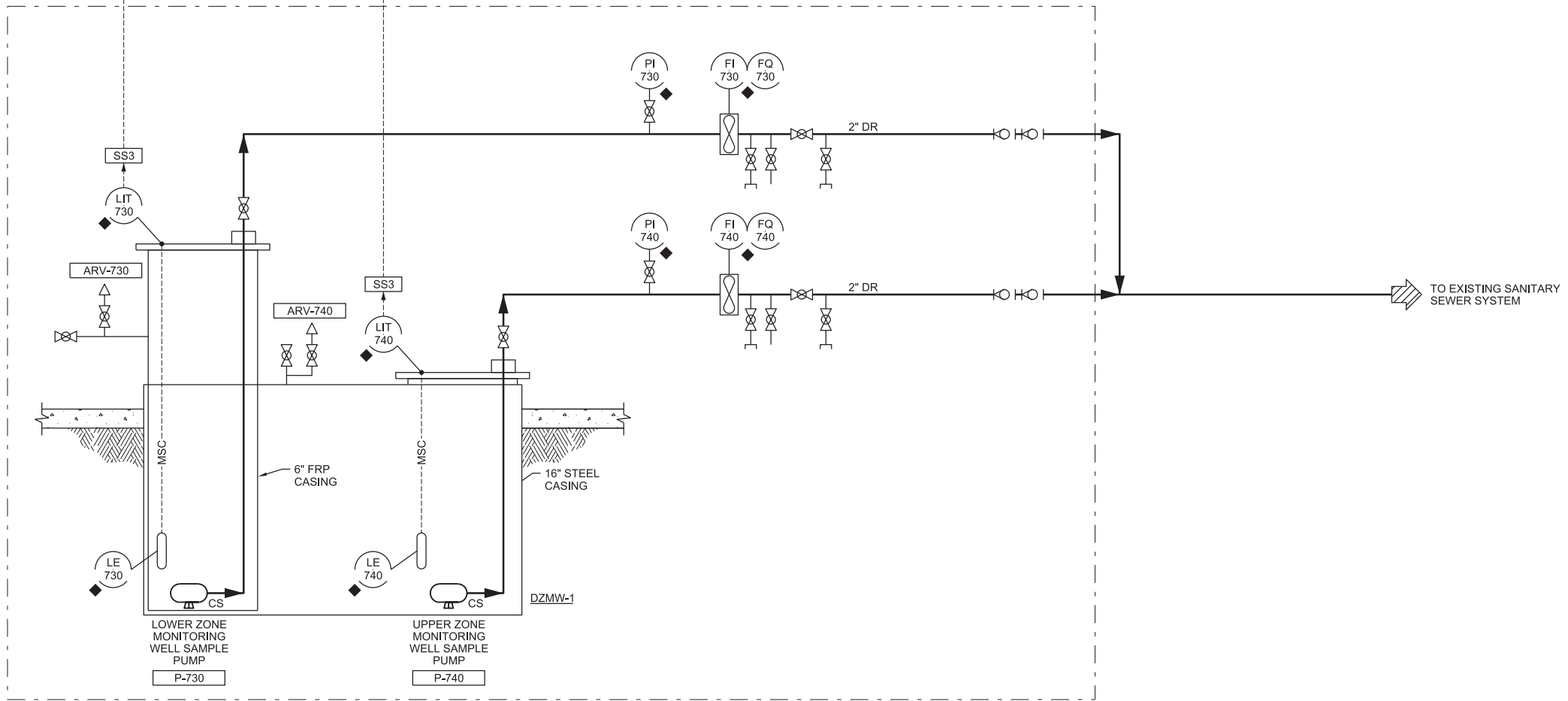
PLC

LEVEL

SS2

LEVEL

SS2



PROFESSIONAL ENGINEER  
STATE OF FLORIDA  
BY APVD  
C SAHARKHIZ  
C WILSON  
A PASTRANA  
CHK  
DR  
NO. DATE  
DSGN

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
CYRUS JOHN SAHARKHIZ, PE #84591  
NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

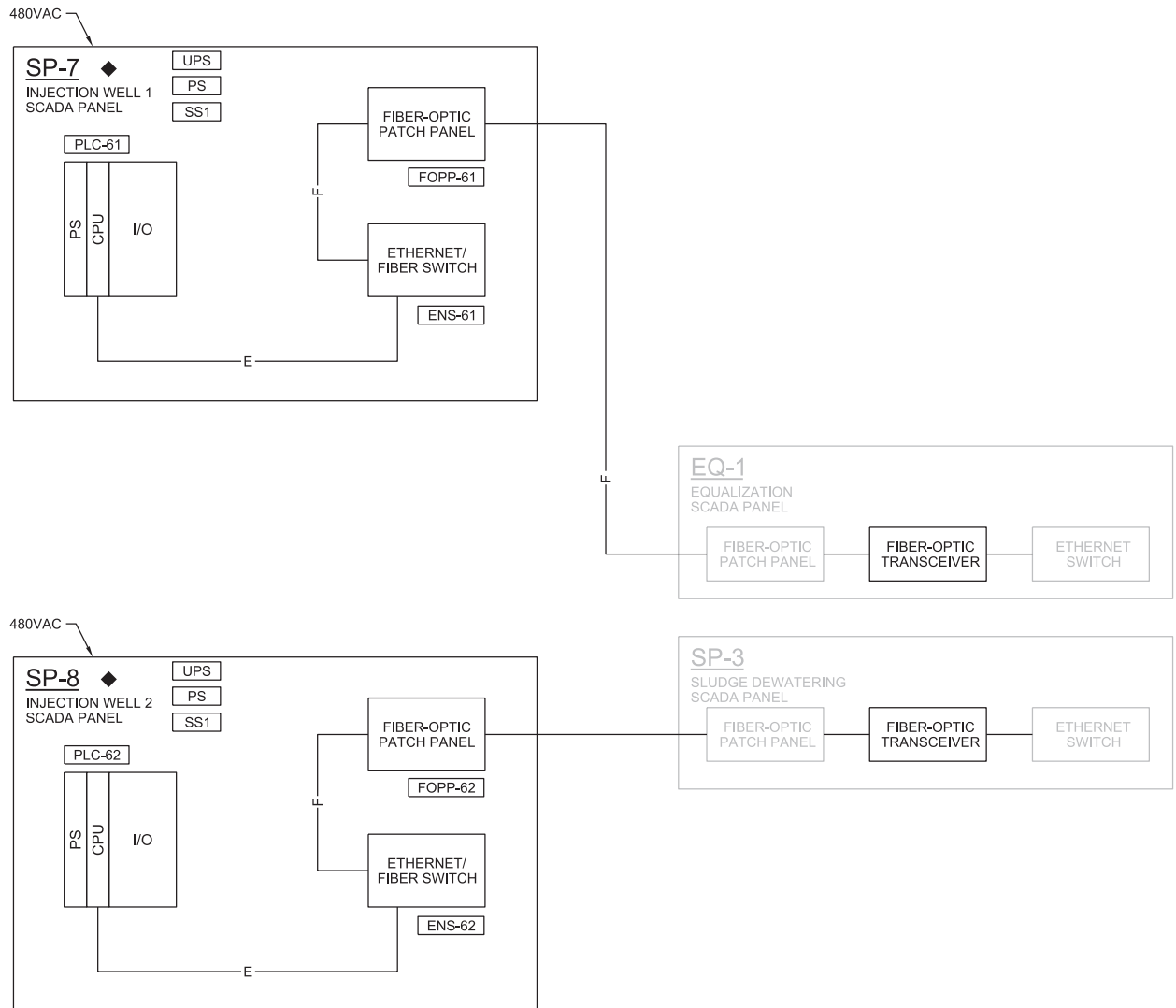
INSTRUMENTATION AND CONTROL  
P&ID  
DUAL ZONE MONITORING WELL

NTS  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
DATE NOVEMBER 2019  
PROJ 674077  
DWG 08-N-604  
SHEET 36 of 61

**Cyrus John Saharkhiz**  
Digitally signed by Cyrus John Saharkhiz  
Date: 2019.12.16 14:19:53 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY CYRUS JOHN SAHARKHIZ, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

BID DOCUMENTS



- GENERAL SHEET NOTES**
- E — ETHERNET, CATEGORY 5e
  - F — FIBER-OPTIC CABLE, MULTIMODE OM1
  - CPU - CENTRAL PROCESSING UNIT
  - ENS - ETHERNET SWITCH
  - FOPP - FIBER-OPTIC PATCH PANEL
  - I/O - INPUT/OUTPUT
  - PLC - PROGRAMMABLE LOGIC CONTROLLER
  - PS - POWER SUPPLY
  - SCADA - SUPERVISORY CONTROL AND DATA ACQUISITION
  - SS1 - PANEL SURGE SUPPRESSOR
  - UPS - UNINTERRUPTIBLE POWER SUPPLY

PROFESSIONAL ENGINEER  
 STATE OF FLORIDA  
 No. 84591  
 C. SAHARKHIZ  
 APVD  
 C. WILSON  
 DR  
 A. PASTRANA  
 REVISION  
 CHK

NO.	DATE	REVISION	BY	APVD

643 SW 4TH AVE  
 GAINESVILLE, FLORIDA 32601  
 EB0000072 AAC001982  
 CYRUS JOHN SAHARKHIZ, PE #84591  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA

INSTRUMENTATION AND CONTROL  
**ch2m**  
 NETWORK BLOCK DIAGRAM

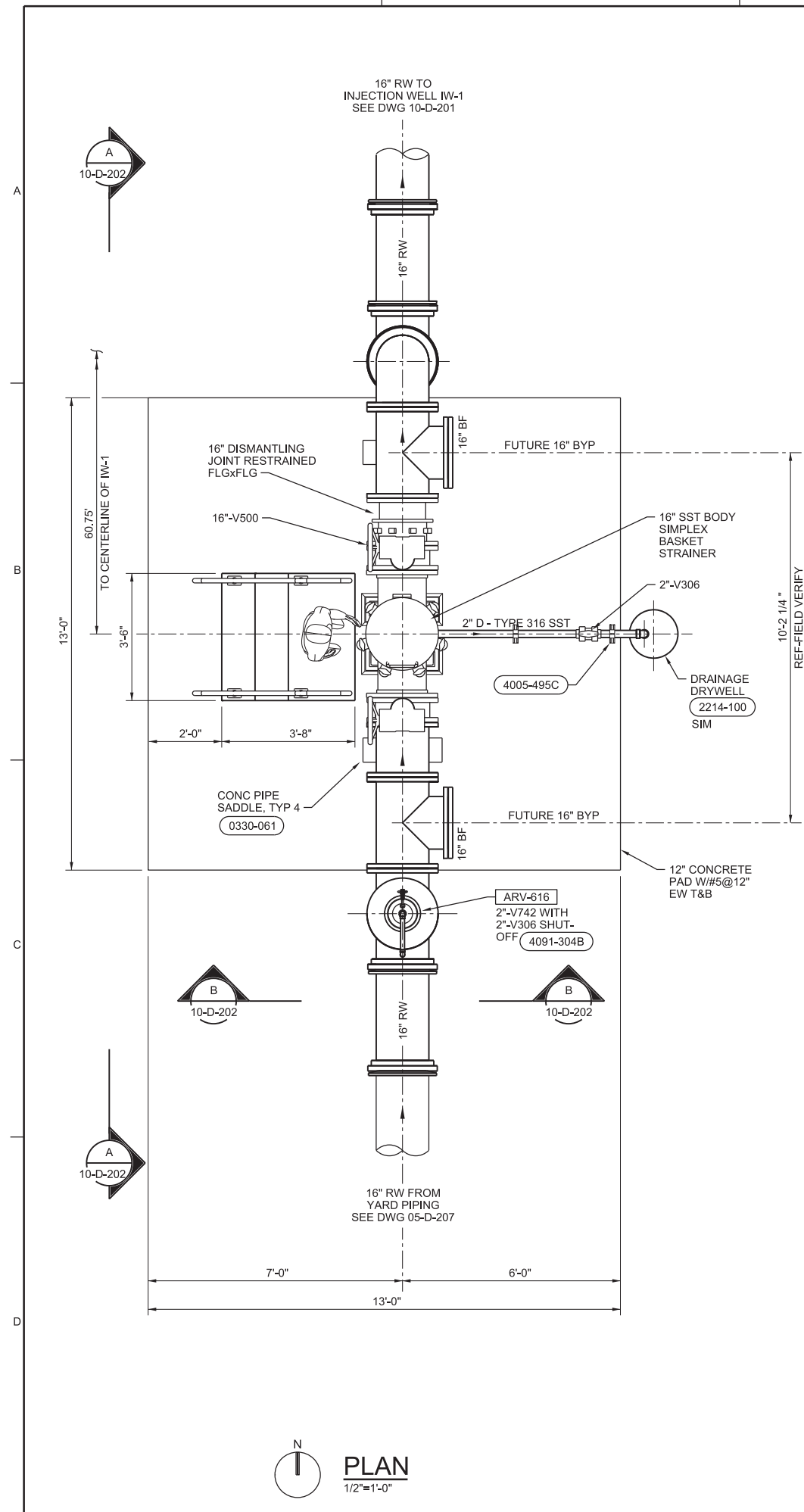
Cyrus John Saharkhiz  
 Digitally signed by Cyrus John Saharkhiz  
 Date: 2019.12.16 14:21:47 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY CYRUS JOHN SAHARKHIZ, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.

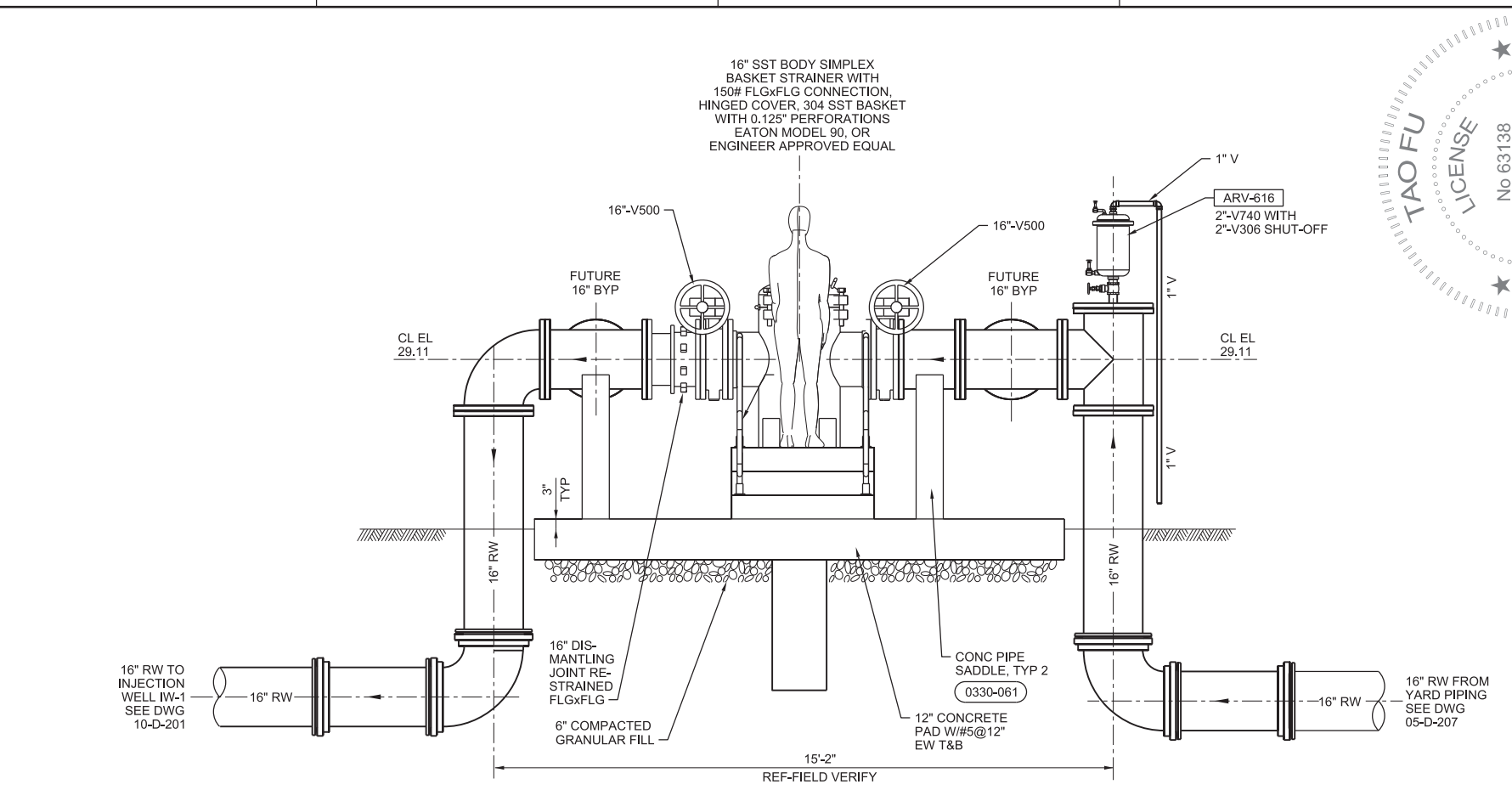
NTS
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 08-N-701
SHEET 37 of 61

BID DOCUMENTS

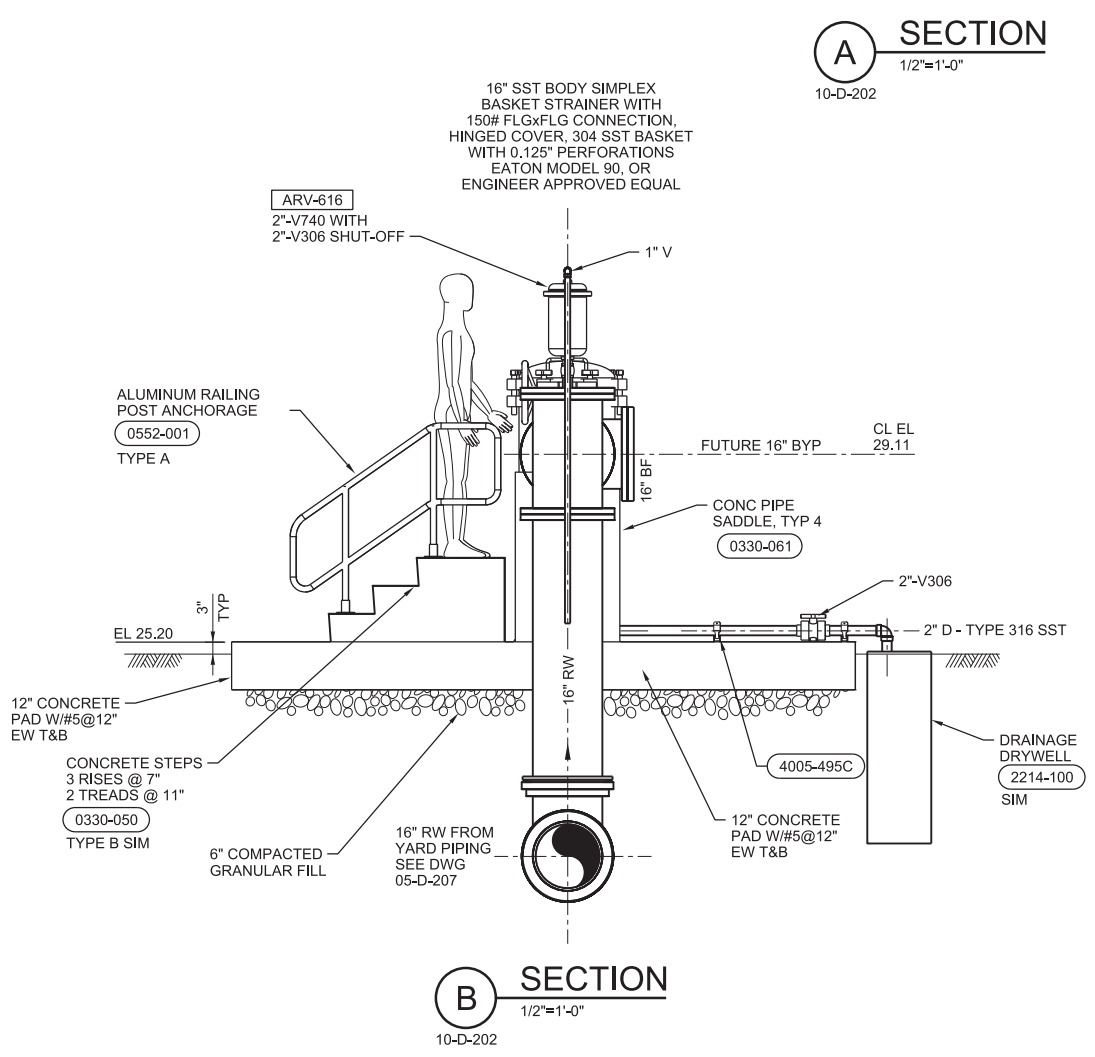




**PLAN**  
1/2"=1'-0"



**SECTION A**  
1/2"=1'-0"



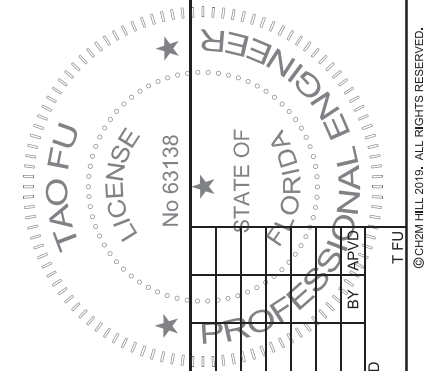
**SECTION B**  
1/2"=1'-0"

**Tao Fu** Digitally signed by Tao Fu  
Date: 2019.12.16 11:34:20 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.

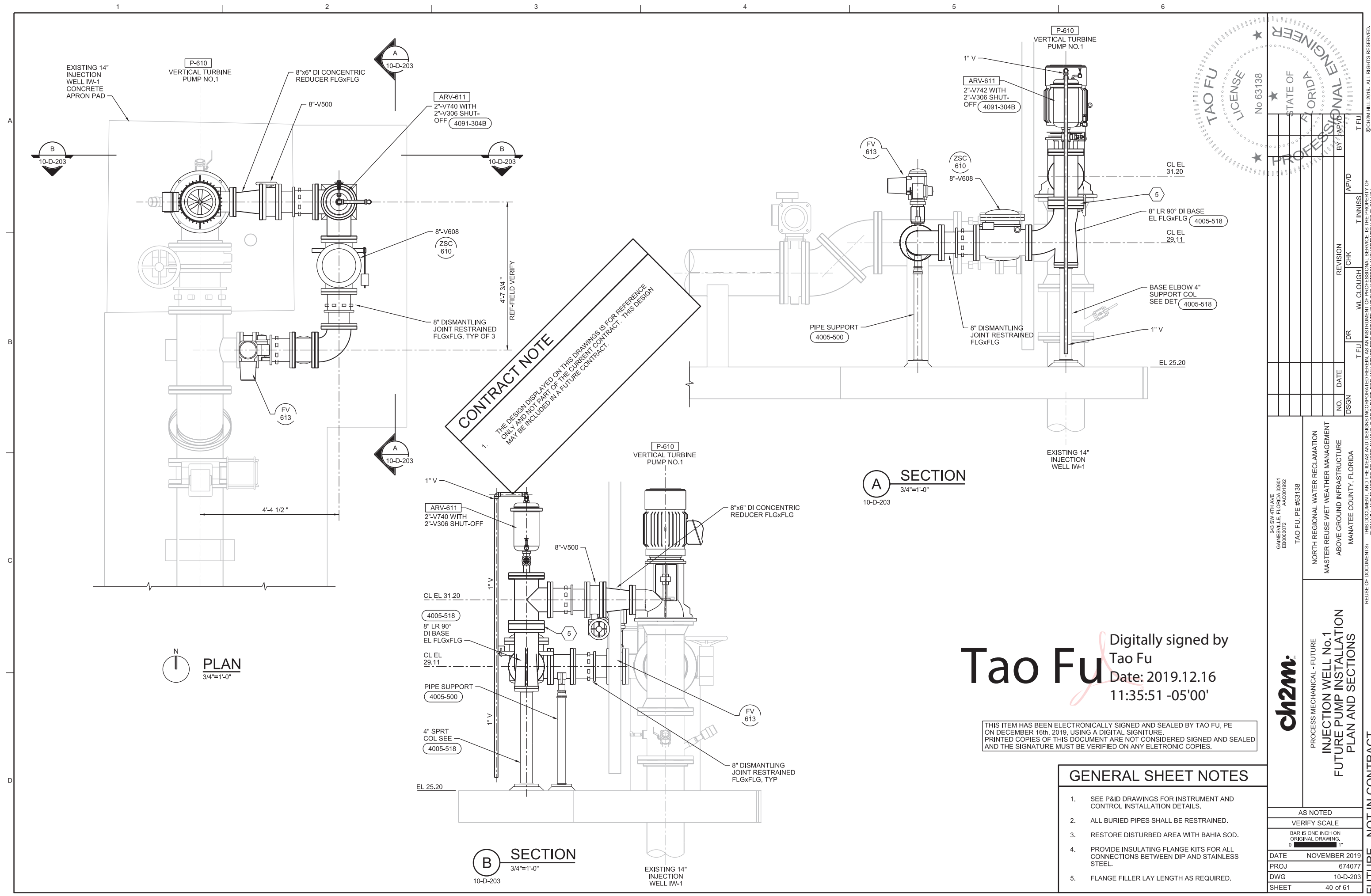
**GENERAL SHEET NOTES**

- SEE P&ID DRAWINGS FOR INSTRUMENT AND CONTROL INSTALLATION DETAILS.
- ALL BURIED PIPES SHALL BE RESTRAINED.
- RESTORE DISTURBED AREA WITH BAHIA SOD.
- PROVIDE INSULATING FLANGE KITS FOR ALL CONNECTIONS BETWEEN DIP AND STAINLESS STEEL.



643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982 TAO FU, PE #63138		NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA	
PROJECT NO. 10-D-202		DATE NOVEMBER 2019	
DESIGNER T. FU		PROJECT NO. 674077	
CHECKER W.L. CLOUGH		SHEET NO. 39 OF 61	
DRAWN BY T. FU		DATE 10-D-202	
REVISION		DATE	
APPROVED BY T. FU		DATE	
T. FU		DATE	

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 10-D-202
SHEET 39 OF 61



**CONTRACT NOTE**  
 1. THE DESIGN DISPLAYED ON THIS DRAWING IS FOR REFERENCE ONLY AND NOT PART OF THE CURRENT CONTRACT. THIS DESIGN MAY BE INCLUDED IN A FUTURE CONTRACT.

**A SECTION**  
 3/4"=1'-0"  
 10-D-203

**B SECTION**  
 3/4"=1'-0"  
 10-D-203

**PLAN**  
 3/4"=1'-0"

Digitally signed by  
**Tao Fu**  
 Date: 2019.12.16  
 11:35:51 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

**GENERAL SHEET NOTES**

- SEE P&ID DRAWINGS FOR INSTRUMENT AND CONTROL INSTALLATION DETAILS.
- ALL BURIED PIPES SHALL BE RESTRAINED.
- RESTORE DISTURBED AREA WITH BAHIA SOD.
- PROVIDE INSULATING FLANGE KITS FOR ALL CONNECTIONS BETWEEN DIP AND STAINLESS STEEL.
- FLANGE FILLER LAY LENGTH AS REQUIRED.

643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982 TAO FU, PE #63138	NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA	PROCESS MECHANICAL - FUTURE <b>INJECTION WELL NO.1          FUTURE PUMP INSTALLATION          PLAN AND SECTIONS</b>	AS NOTED VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.	DATE NOVEMBER 2019 PROJ 674077 DWG 10-D-203 SHEET 40 of 61
--	---	--	--	---

FUTURE - NOT IN CONTRACT



**GENERAL SHEET NOTES**

- SEE RISER DIAGRAM ON DWG 80-E-601 FOR WIRE AND CONDUIT REQUIREMENTS.
- SEE INSTRUMENTATION AND CONTROL DETAILS FOR ADDITIONAL GROUNDING REQUIREMENTS.
- FOR CONTINUATION SEE DWG 05-E-804.
- CONDUIT BELOW CONCRETE SLAB.
- EMBED #2/0 BARE COPPER GROUND CONDUCTOR IN CONCRETE SLAB FOR A MINIMUM OF 20 FEET. TIE GROUND CONDUCTOR TO SLAB STEEL REBAR.
- CAP END OF EMPTY CONDUITS AT 6" ABOVE SLAB.

**SHEET KEYNOTES**

- SEE RISER DIAGRAM ON DWG 80-E-601 FOR WIRE AND CONDUIT REQUIREMENTS.
- FOR CONTINUATION SEE DWG 05-E-804.
- CONDUIT BELOW CONCRETE SLAB.
- EMBED #2/0 BARE COPPER GROUND CONDUCTOR IN CONCRETE SLAB FOR A MINIMUM OF 20 FEET. TIE GROUND CONDUCTOR TO SLAB STEEL REBAR.
- CAP END OF EMPTY CONDUITS AT 6" ABOVE SLAB.

STATE OF FLORIDA  
PROFESSIONAL ENGINEER

No. 60201

DAVID C. NICHOLSON

NO.	DATE	DR	CHK	REVISION

BY: APVD  
M. GOSLOW  
APVD  
D. NICHOLSON

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982

DAVID C. NICHOLSON, PE #60201

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

**ch2m**  
ELECTRICAL

**INJECTION WELL No.1  
AND BASKET STRAINER PLAN**

AS NOTED  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	NOVEMBER 2019
PROJ	674077
DWG	10-E-201
SHEET	41 of 61

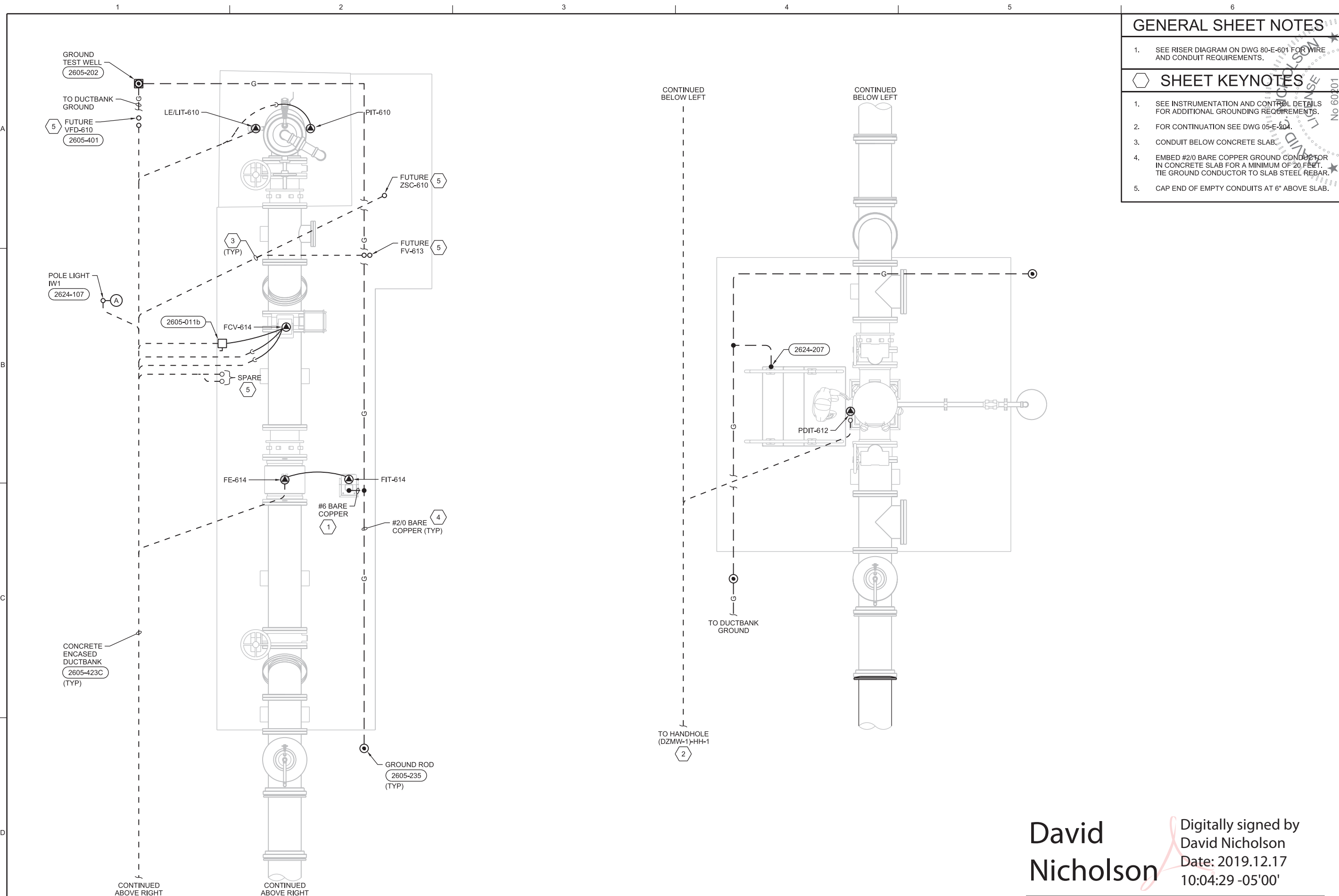
BID DOCUMENTS

David  
Nicholson

Digitally signed by  
David Nicholson  
Date: 2019.12.17  
10:04:29 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

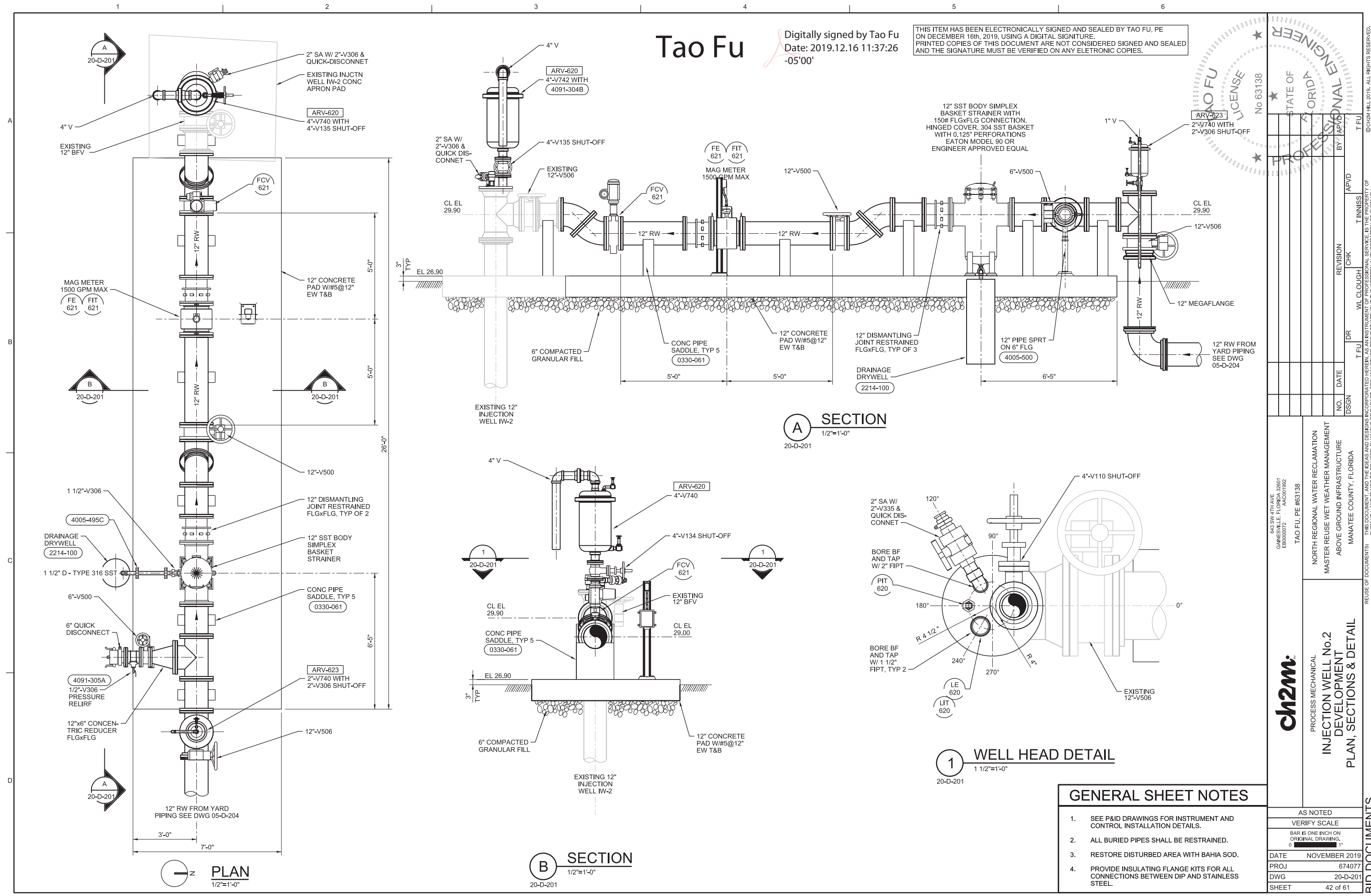
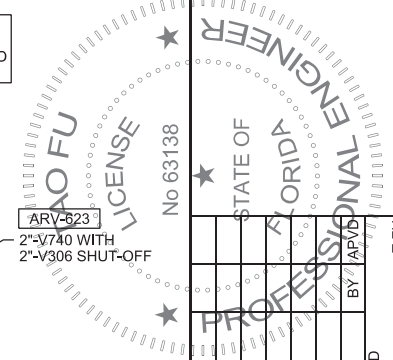
N  
↑  
**PLAN**  
1/2"=1'-0"



Tao Fu

Digitally signed by Tao Fu  
Date: 2019.12.16 11:37:26  
-05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



**A SECTION**  
1/2"=1'-0"  
20-D-201

**B SECTION**  
1/2"=1'-0"  
20-D-201

**1 WELL HEAD DETAIL**  
1 1/2"=1'-0"  
20-D-201

**GENERAL SHEET NOTES**

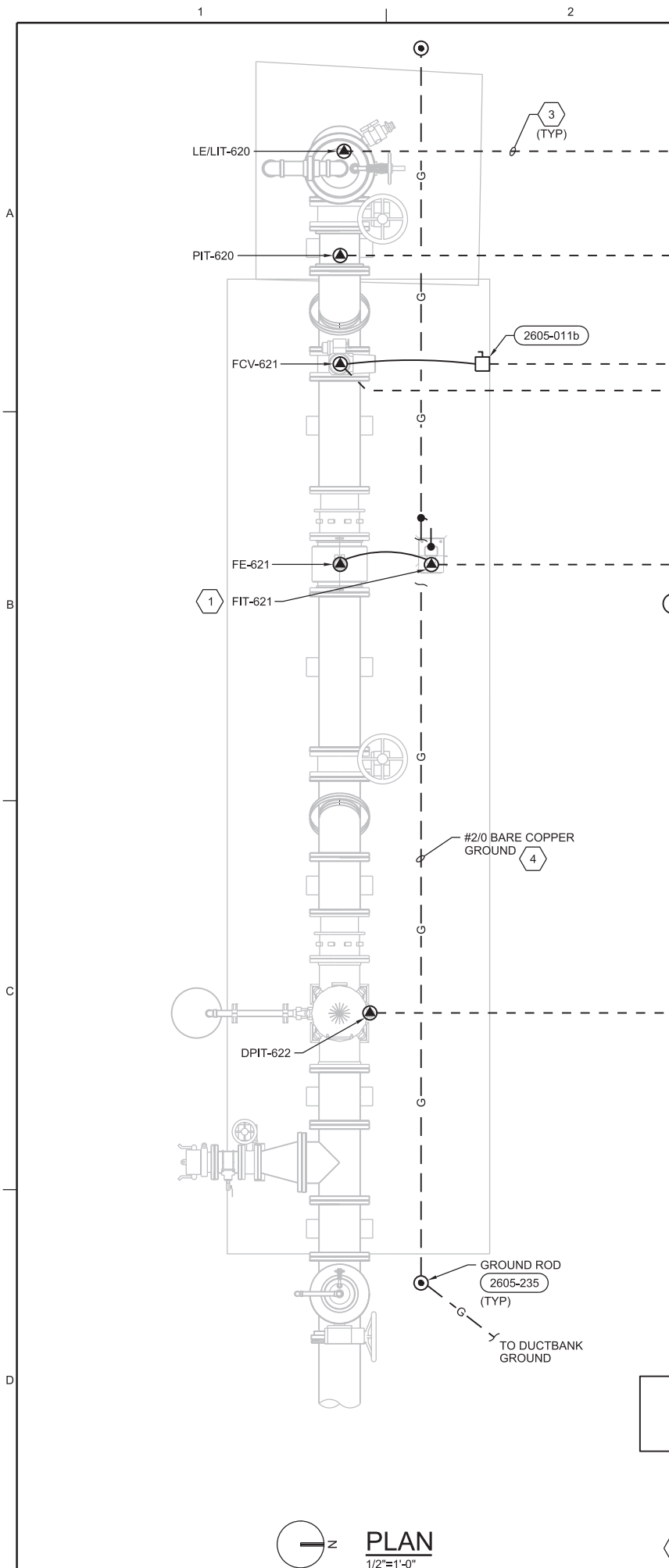
- SEE P&ID DRAWINGS FOR INSTRUMENT AND CONTROL INSTALLATION DETAILS.
- ALL BURIED PIPES SHALL BE RESTRAINED.
- RESTORE DISTURBED AREA WITH BAHIA SOD.
- PROVIDE INSULATING FLANGE KITS FOR ALL CONNECTIONS BETWEEN DIP AND STAINLESS STEEL.

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
TAO FU, PE #63138

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

**ch2m**  
PROCESS MECHANICAL  
INJECTION WELL No.2  
DEVELOPMENT  
PLAN, SECTIONS & DETAIL

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 20-D-201
SHEET 42 of 61



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

**GENERAL SHEET NOTES**

1. SEE RISER DIAGRAM ON DWG 80-E-601 FOR WIRE AND CONDUIT REQUIREMENTS.

**SHEET KEYNOTES**

- SEE INSTRUMENTATION AND CONTROL DETAILS FOR ADDITIONAL GROUNDING REQUIREMENTS.
- SEE DWG 05-E-201 FOR LOCATION OF HANDHOLE AND CONTINUATION OF DUCTBANK.
- CONDUITS BELOW CONCRETE SLAB.
- EMBED #2/0 BARE COPPER GROUND CONDUCTOR IN CONCRETE SLAB FOR A MINIMUM OF 20 FEET. TIE GROUND CONDUCTOR TO SLAB STEEL REBAR.

DAVID C. NICHOLSON  
PROFESSIONAL ENGINEER  
No. 60201  
STATE OF FLORIDA

NO.	DATE	DR	CHK	REVISION

D. NICHOLSON  
M. GOSLOW  
A. PASTRANA  
D. NICHOLSON  
APVD  
CHK  
DR

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
DAVID C. NICHOLSON, PE #60201  
NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

**ch2m**  
ELECTRICAL  
**INJECTION WELL No.2  
PLAN**

AS NOTED  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
DATE NOVEMBER 2019  
PROJ 674077  
DWG 20-E-201  
SHEET 43 of 61

David  
Nicholson  
Digitally signed by  
David Nicholson  
Date: 2019.12.17  
10:09:32 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

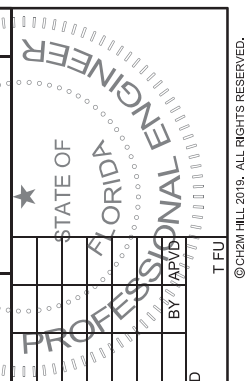
BID DOCUMENTS

1 2 3 4 5 6

- ### GENERAL SHEET NOTES
1. ALL EXPOSED PIPE SHALL BE TYPE 316 SST.
  2. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL CONDUITS IN SLAB.
  3. SAMPLE PUMP SETTING DEPTH: 80 FT LOWER ZONE - 120 FT UPPER ZONE.
  4. WELD HOOK ON BLIND FLANGE BOTTOM FOR SAMPLE PUMP.
  5. PROVIDE ONE SUBMERSIBLE PUMP IN EACH ZONE. THE PUMP SHALL BE GOULDS MODEL 85GS50, 5HP, 460V, 3 PHASE. DESIGN POINT 800 GPM AT 182 FT.

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

**Tao Fu** Digitally signed by Tao Fu  
Date: 2019.12.16 11:39:03  
-05'00'



NO.	DATE	DSGN	CHK	APVD	T. FU

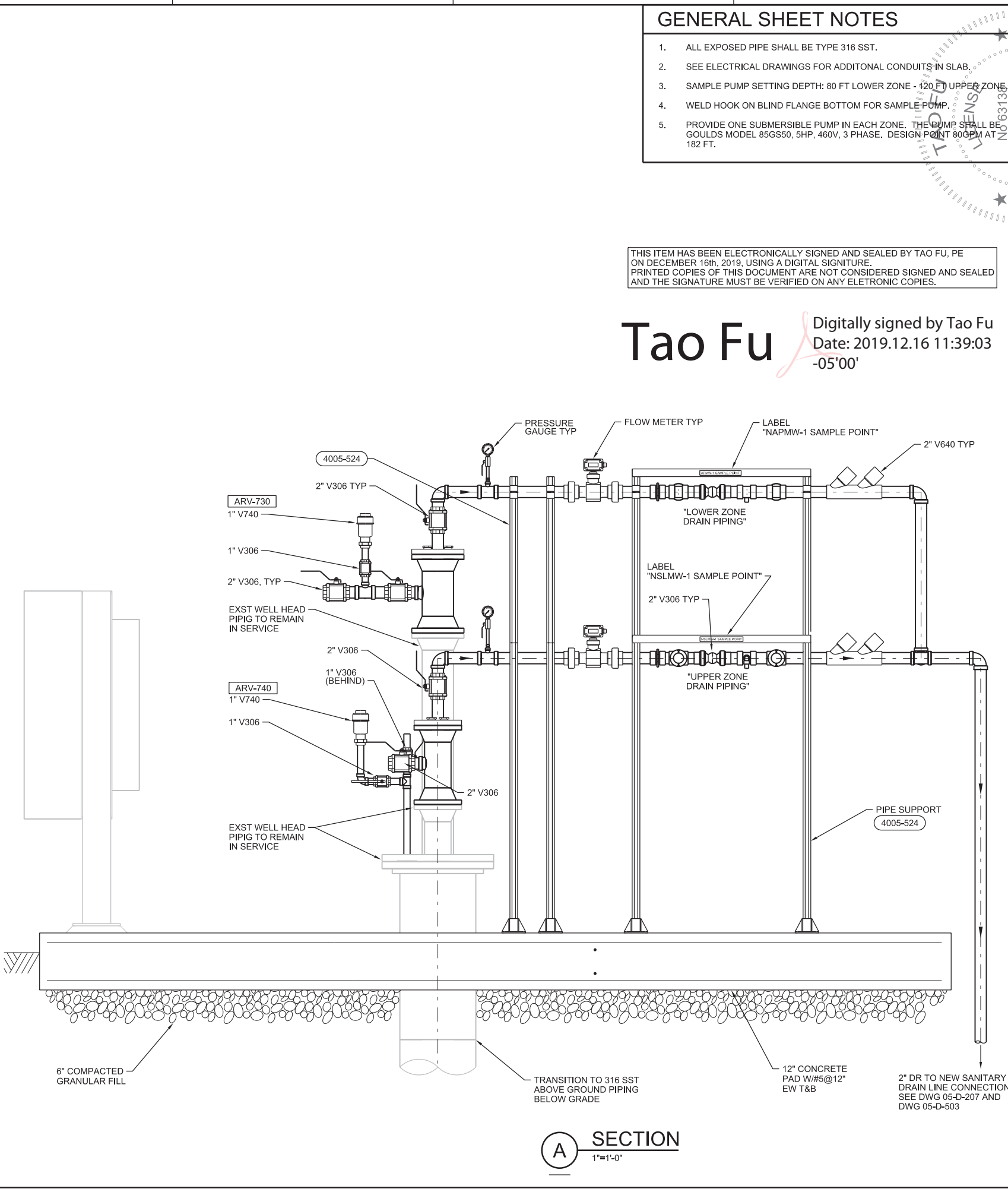
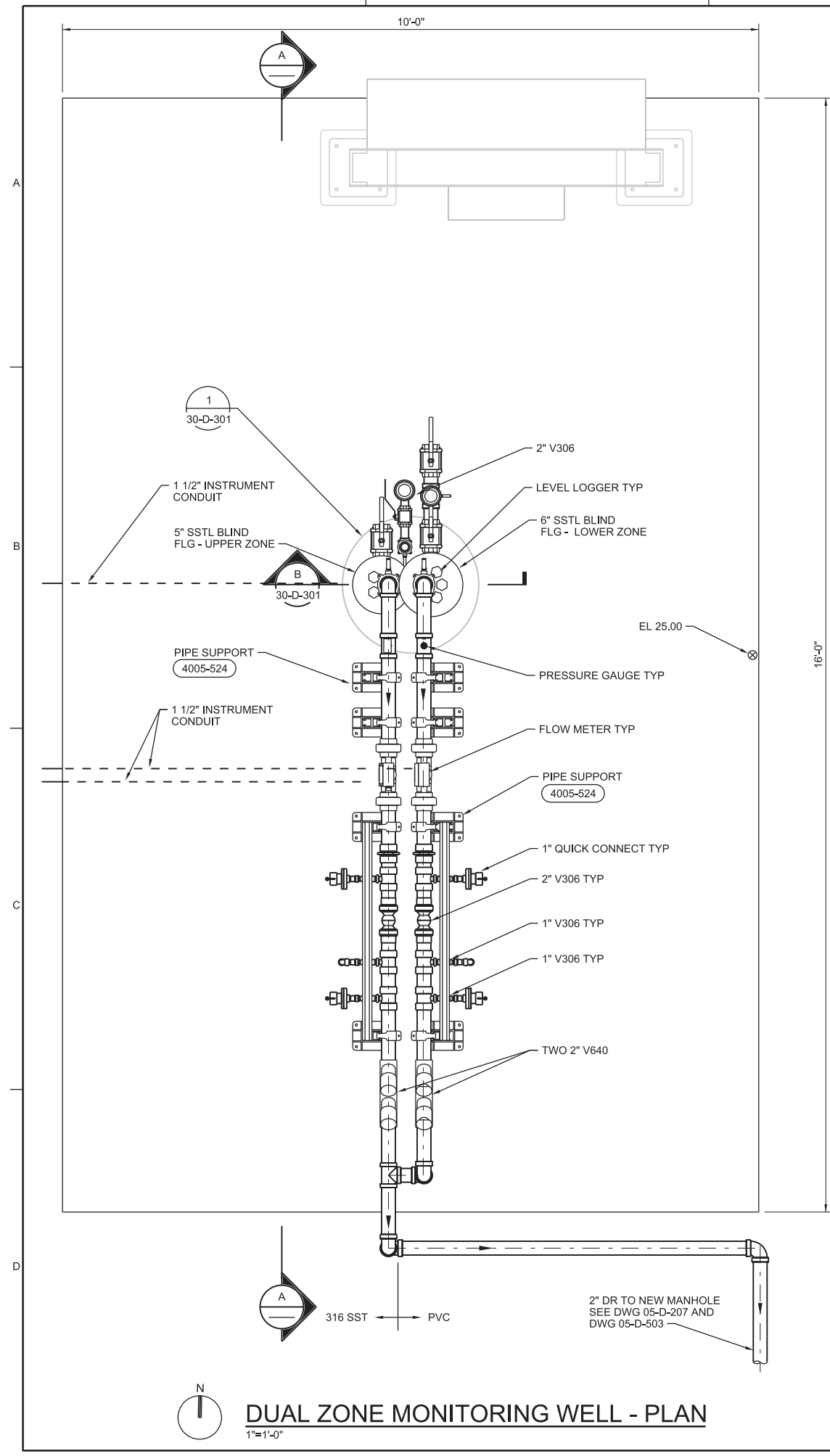
643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982  
TAO FU, PE #63138

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

**ch2m**  
PROCESS MECHANICAL  
**DUAL ZONE  
MONITORING WELL No.1  
PLAN AND SECTION**

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 30-D-201
SHEET 44 of 61

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2019. ALL RIGHTS RESERVED.



**DUAL ZONE MONITORING WELL - PLAN**  
1"=1'-0"

**SECTION A-A**  
1"=1'-0"

BID DOCUMENTS



**GENERAL NOTES**

1. SEE RISER DIAGRAM ON DWG 80-E-601 FOR WIRE AND CONDUIT REQUIREMENTS.

**SHEET KEYNOTES**

- PANELBOARD PP-DMZW-1:**
  - 480V, 3 PHASE, 3 WIRE, 100A MAIN, 24 CIRCUITS, TIN-PLATED COPPER BUS, COPPER GROUND BUS, TIN PLATED COPPER BUS BARS
  - NEMA 4X STAINLESS STEEL ENCLOSURE WITH NAMEPLATE PER DETAIL 2605-500.
  - EATON POW-R LINE C PANELBOARD OR EQUAL
  - SEE PANELBOARD SCHEDULE ON DWG 05-E-603.
- SEE DWG 05-E-204 FOR LOCATION OF HANDHOLE AND CONTINUATION OF DUCTBANK.
- CONDUIT BELOW CONCRETE SLAB.
- EMBED #2/0 BARE COPPER GROUND CONDUCTOR IN CONCRETE SLAB FOR A MINIMUM OF 20 FEET. TIE GROUND WIRE TO SLAB STEEL REBAR.
- SEE INSTRUMENTATION AND CONTROL DETAILS FOR ADDITIONAL GROUNDING REQUIREMENTS.

PROFESSIONAL ENGINEER  
 STATE OF FLORIDA  
 LICENSE NO. 66201  
 DAVID C. NICHOLSON

NO.	DATE	REVISION	BY

DR: A. PASTRANA  
 M. GOSLOW  
 APVD: D. NICHOLSON  
 DSGN: D. NICHOLSON

643 SW 4TH AVE  
 GAINESVILLE, FLORIDA 32601  
 EB0000072 AAC001982  
 DAVID C. NICHOLSON, PE #60201  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA

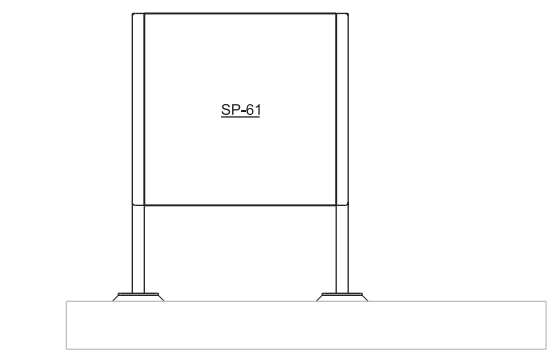
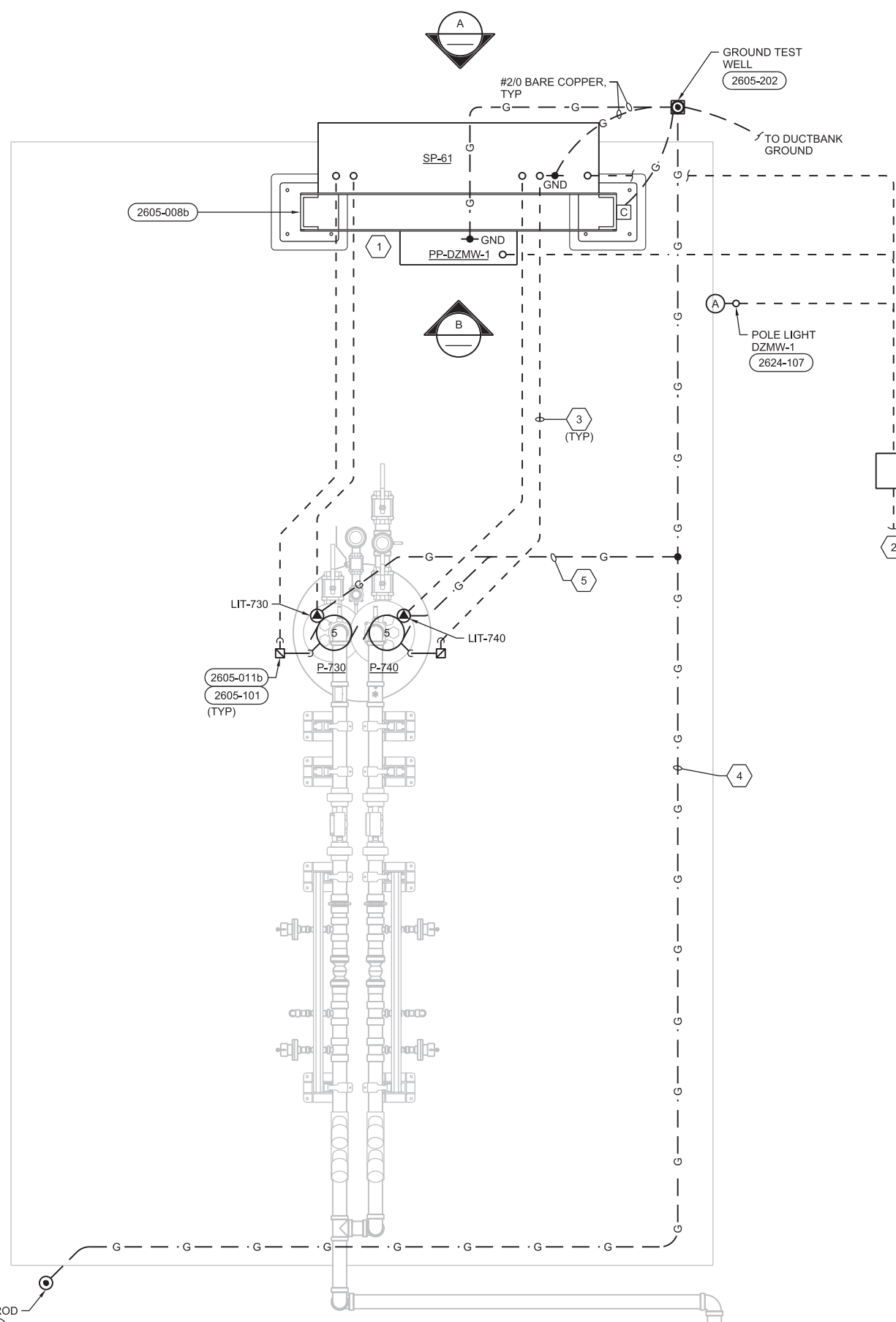
**ch2m**  
ELECTRICAL

**DUAL-ZONE MONITORING WELL  
DZMW-1**

AS NOTED  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

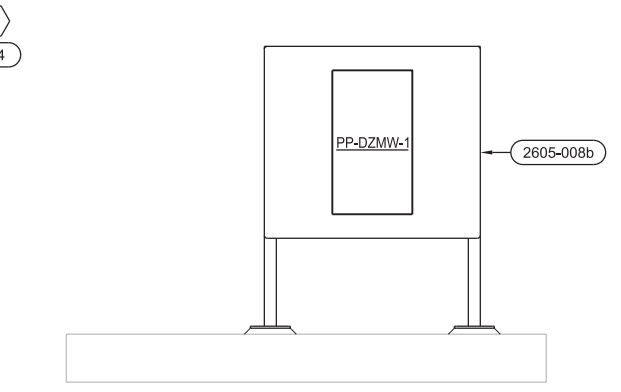
DATE	NOVEMBER 2019
PROJ	674077
DWG	30-E-201
SHEET	46 of 61

**BID DOCUMENTS**



**ELECTRICAL EQUIPMENT - NORTH**

**A ELEVATION**  
1/2"=1'-0"



**ELECTRICAL EQUIPMENT - SOUTH**

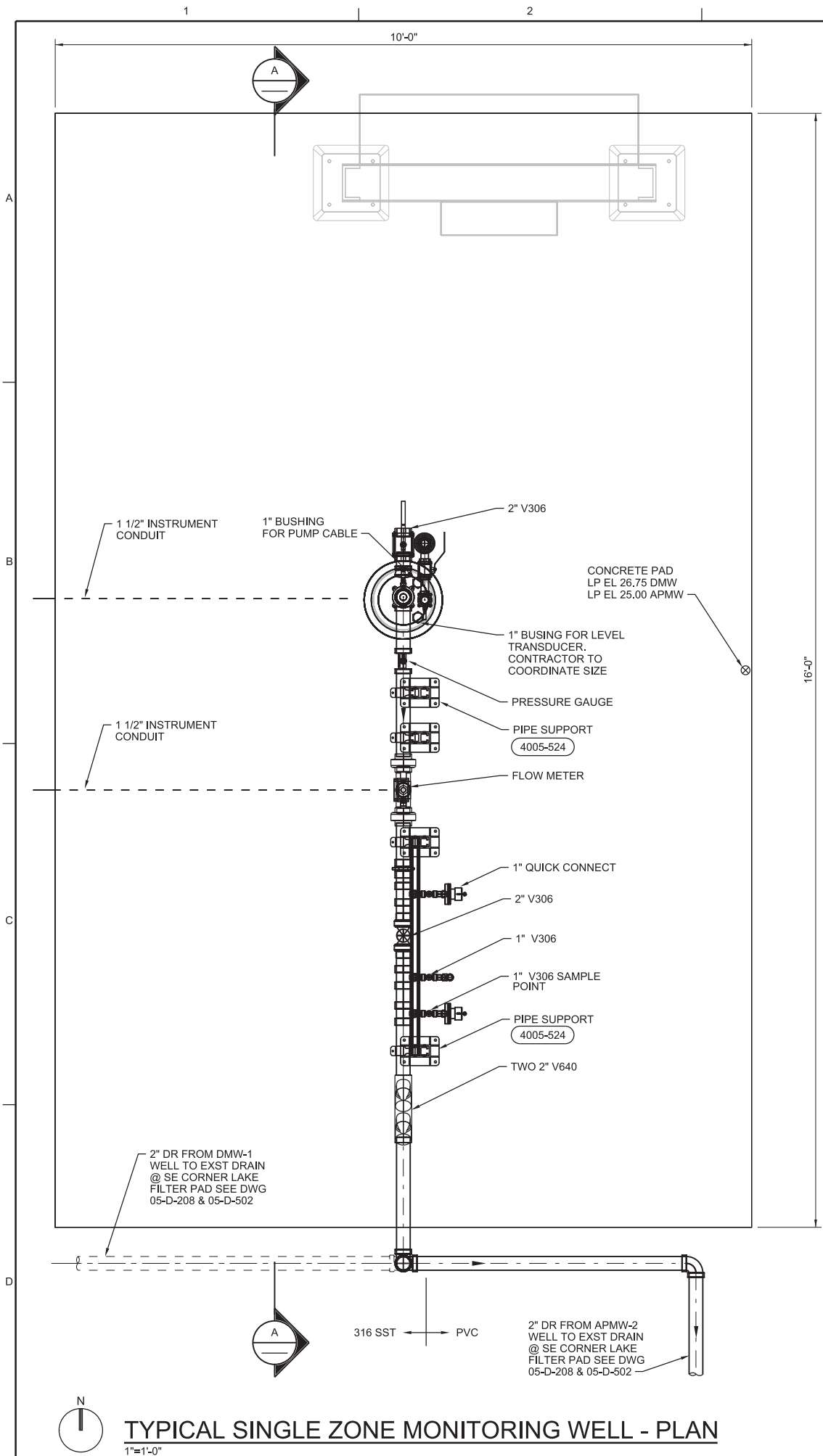
**B ELEVATION**  
1/2"=1'-0"



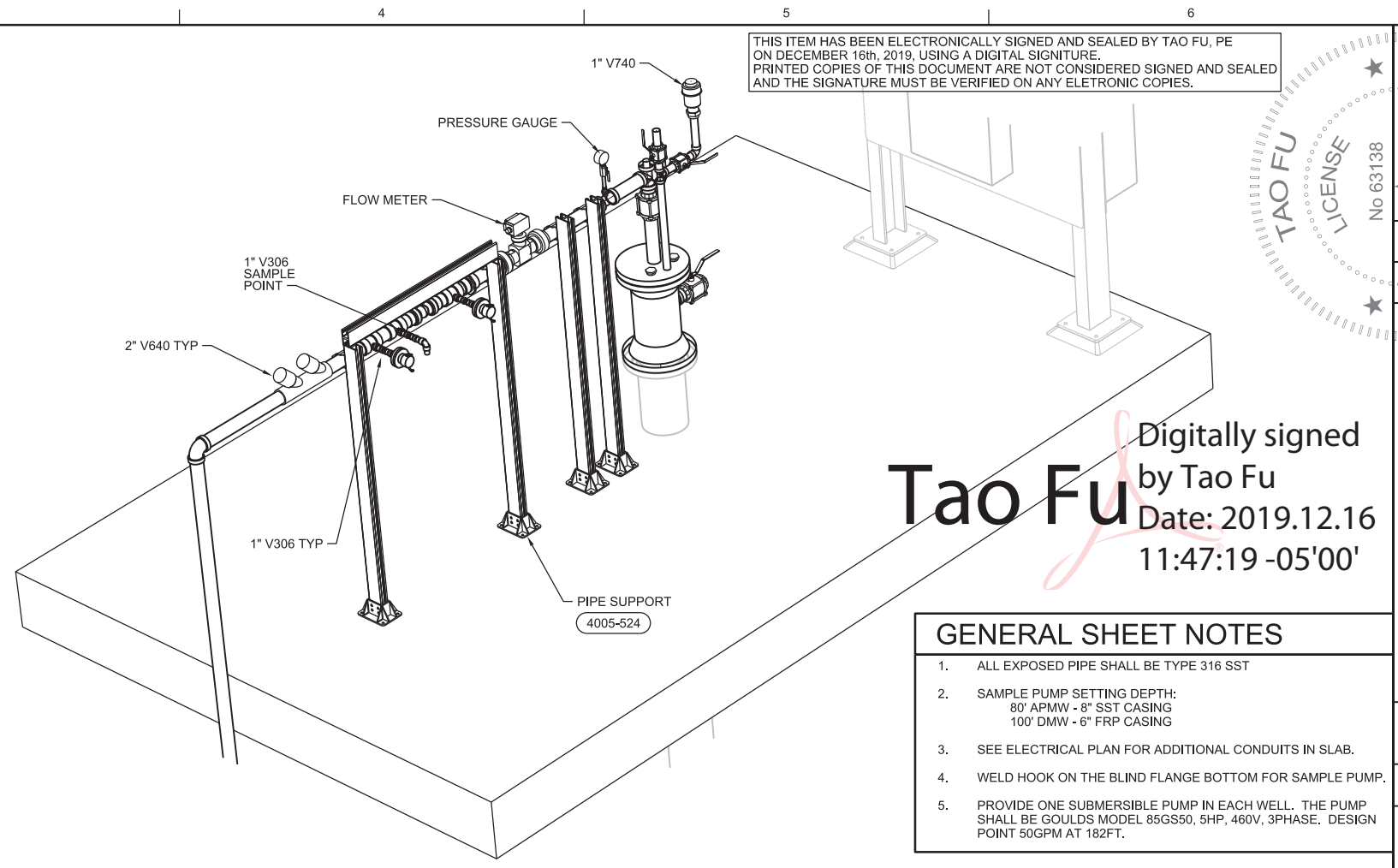
**DUAL-ZONE MONITORING WELL PLAN**  
1"=1'-0"

**David  
Nicholson**  
 Digitally signed by  
 David Nicholson  
 Date: 2019.12.17  
 10:14:59 -05'00'

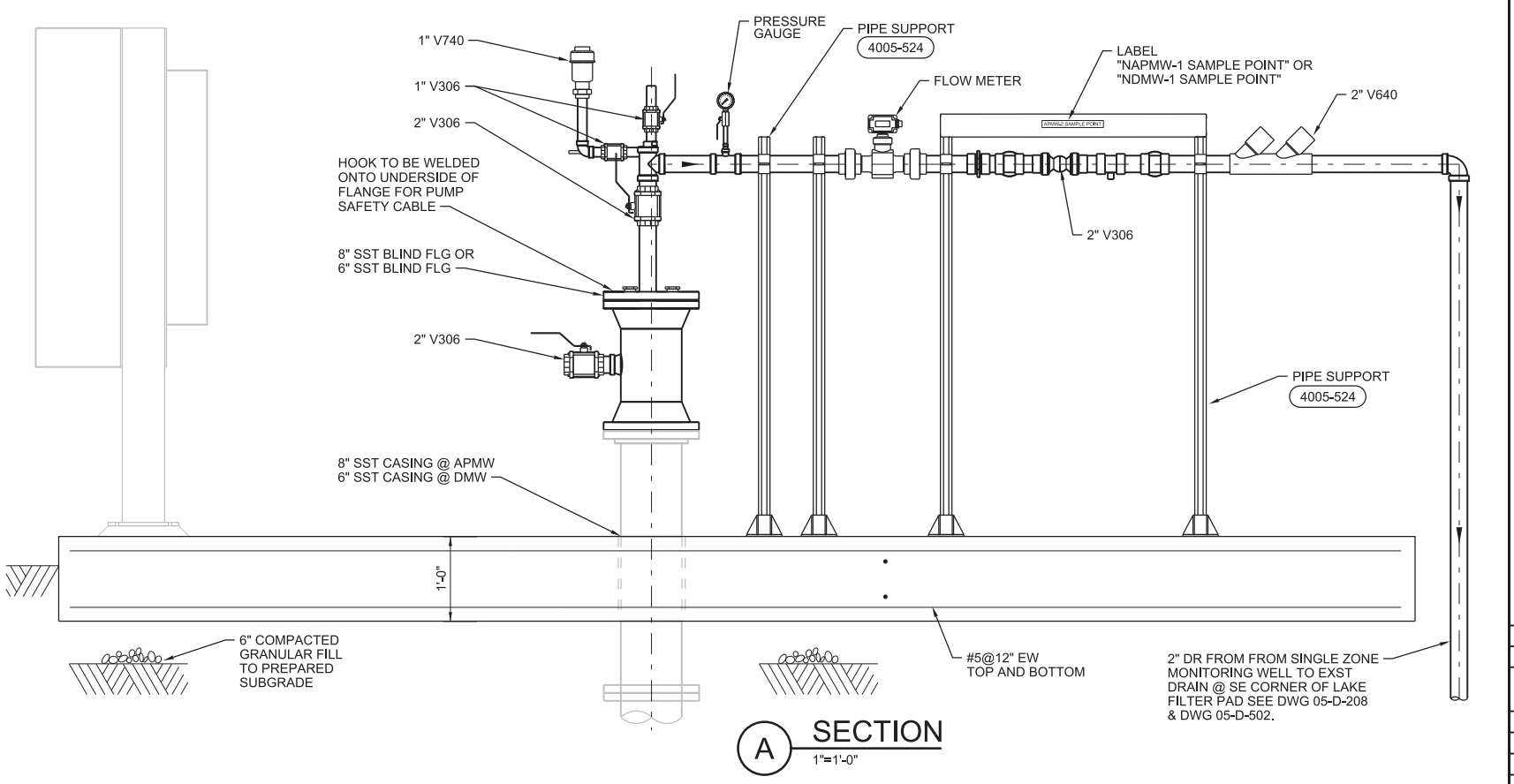
THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY  
 DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE.  
 PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED  
 AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.



**TYPICAL SINGLE ZONE MONITORING WELL - PLAN**  
1"=1'-0"



**TYPICAL SINGLE ZONE MONITORING WELL - ISOMETRIC**  
NTS



**SECTION A**  
1"=1'-0"

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY TAO FU, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

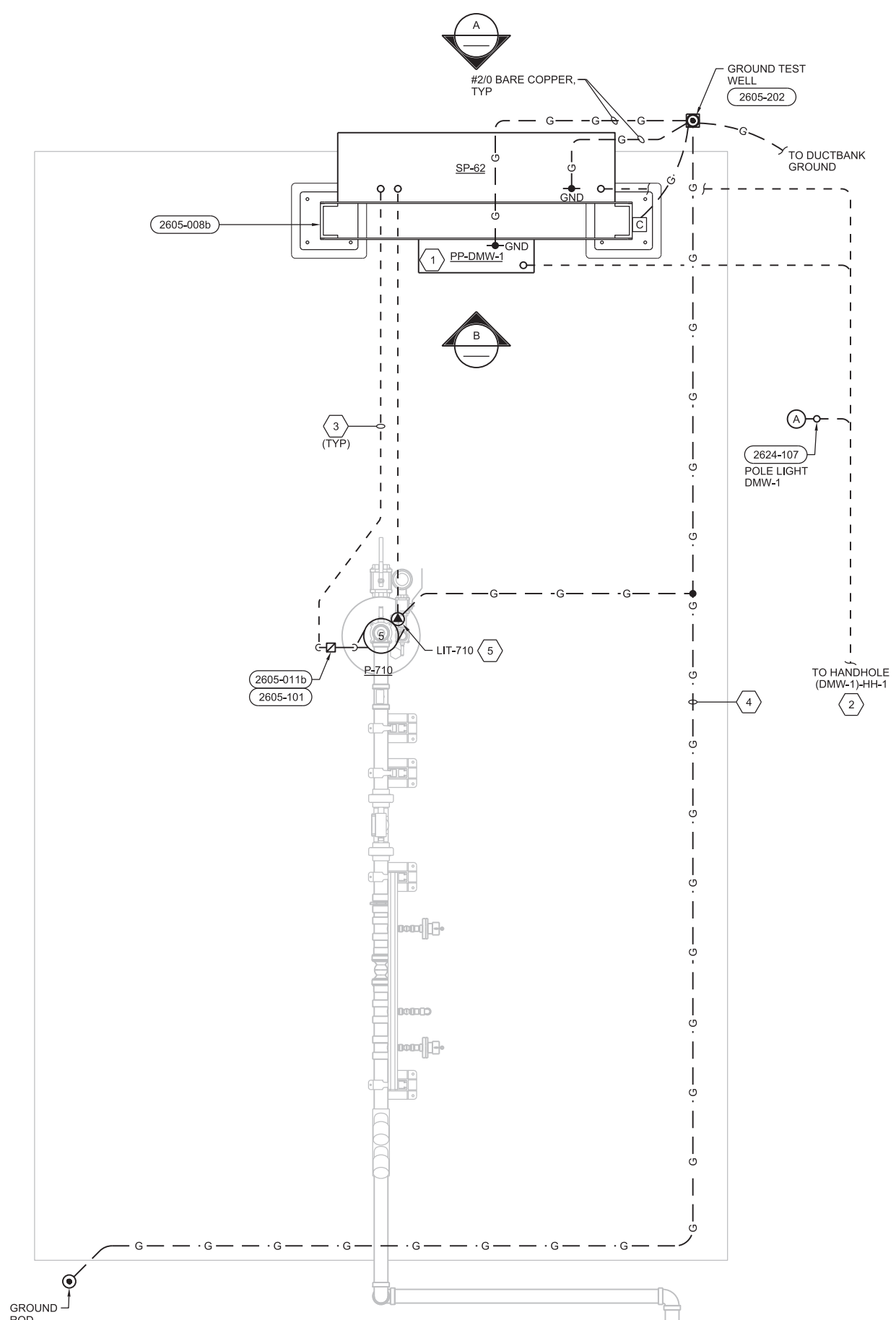


Digitally signed  
by Tao Fu  
Date: 2019.12.16  
11:47:19 -05'00'

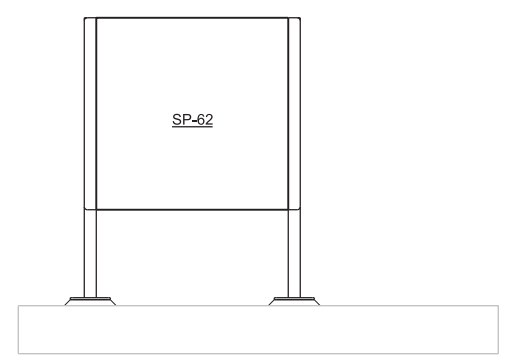
- GENERAL SHEET NOTES**
- ALL EXPOSED PIPE SHALL BE TYPE 316 SST
  - SAMPLE PUMP SETTING DEPTH:  
80' APMW - 8" SST CASING  
100' DMW - 6" FRP CASING
  - SEE ELECTRICAL PLAN FOR ADDITIONAL CONDUITS IN SLAB.
  - WELD HOOK ON THE BLIND FLANGE BOTTOM FOR SAMPLE PUMP.
  - PROVIDE ONE SUBMERSIBLE PUMP IN EACH WELL. THE PUMP SHALL BE GOULDS MODEL 85GS50, 5HP, 460V, 3PHASE. DESIGN POINT 50GPM AT 182FT.

643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982 TAO FU, PE #63138		NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA	
<b>ch2m</b> YARD PIPING		<b>TYPICAL SINGLE ZONE MONITORING WELL PLAN, SECTION, &amp; DETAIL</b>	
AS NOTED VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.			
DATE	NOVEMBER 2019	PROJ	674077
DWG	35-D-201	SHEET	47 of 61

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. ©CH2M HILL 2019. ALL RIGHTS RESERVED.

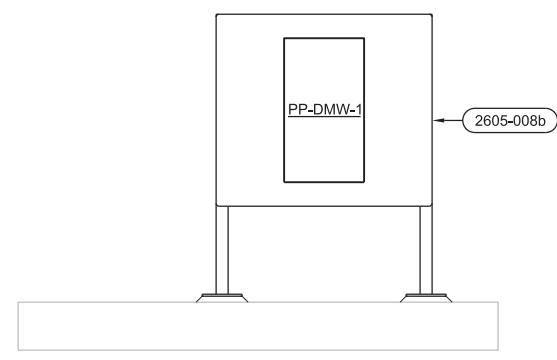


GROUND ROD (2605-235) N  
**SINGLE-ZONE MONITORING WELL DMW-1 PLAN**  
 1"=1'-0"



**ELECTRICAL EQUIPMENT - NORTH**

**A ELEVATION**  
 1/2"=1'-0"



**ELECTRICAL EQUIPMENT - SOUTH**

**B ELEVATION**  
 1/2"=1'-0"

**GENERAL NOTES**

1. SEE RISER DIAGRAM ON DWG 80-E-601 FOR WIRE AND CONDUIT REQUIREMENTS.

**SHEET KEYNOTES**

- PANELBOARD PP-DMW-2:**
  - 480V, 3 PHASE, 3 WIRE, 100A MAIN, 24 CIRCUITS, TIN-PLATED COPPER BUS, COPPER GROUND BUS, TIN PLATED COPPER BUS BARS
  - NEMA 4X STAINLESS STEEL ENCLOSURE WITH NAMEPLATE PER DETAIL 2605-500.
  - EATON POW-R LINE C PANELBOARD OR EQUAL.
  - SEE PANELBOARD SCHEDULE ON DWG 05-E-603.
- SEE DWG 05-E-201 FOR LOCATION.
- EMBED CONDUIT IN CONCRETE SLAB.
- EMBED #2/0 BARE COPPER GROUND CONDUCTOR IN CONCRETE SLAB FOR A MINIMUM OF 20 FEET. TIE GROUND WIRE TO SLAB STEEL REBAR.
- SEE INSTRUMENTATION AND CONTROL DETAILS FOR ADDITIONAL GROUNDING REQUIREMENTS.

PROFESSIONAL ENGINEER DAVID C. NICHOLSON LICENSE No 60201 STATE OF FLORIDA	
DSGN D. NICHOLSON	DR A. PASTRANA
REVISION M. GOSLOW	CHK M. GOSLOW
NO. DATE	BY APVD D. NICHOLSON

643 SW 4TH AVE  
 GAINESVILLE, FLORIDA 32601  
 EB0000072 AAC001982  
 DAVID C. NICHOLSON, PE #60201  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA

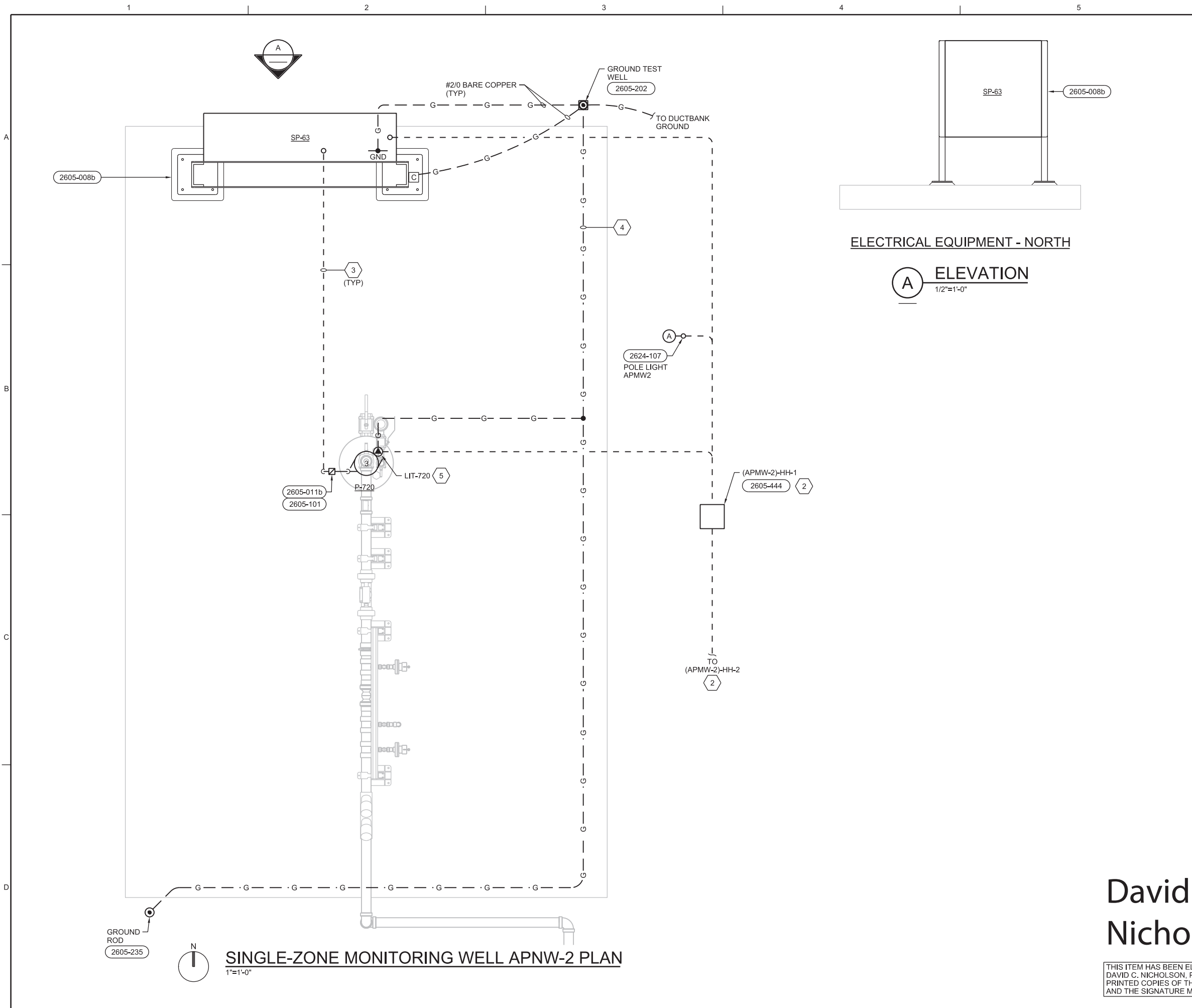
<b>ch2m</b> ELECTRICAL SINGLE-ZONE MONITORING WELL DMW-1	
AS NOTED	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	NOVEMBER 2019
PROJ	674077
DWG	35-E-201
SHEET	48 of 61

**David Nicholson**  
 Digitally signed by David Nicholson  
 Date: 2019.12.17 10:19:41 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

BID DOCUMENTS





**SINGLE-ZONE MONITORING WELL APNW-2 PLAN**  
1"=1'-0"

**ELECTRICAL EQUIPMENT - NORTH**

**A ELEVATION**  
1/2"=1'-0"

- GENERAL NOTES**
- SEE RISER DIAGRAM ON DWG 80E-601 FOR WIRE AND CONDUIT REQUIREMENTS.
- SHEET KEYNOTES**
- NOT USED.
  - SEE DWG 05-E-202 FOR LOCATION OF HANDHOLE AND CONTINUATION OF DUCTBANK.
  - EMBED CONDUIT IN CONCRETE SLAB.
  - EMBED #2/0 BARE COPPER GROUND CONDUCTOR IN CONCRETE SLAB FOR A MINIMUM OF 20 FEET. TIE GROUND WIRE TO SLAB STEEL REBAR.
  - SEE INSTRUMENTATION AND CONTROL DETAILS FOR ADDITIONAL GROUNDING REQUIREMENTS.

STATE OF FLORIDA  
PROFESSIONAL ENGINEER  
DAVID C. NICHOLSON  
LICENSE NO. 60201

NO.	DATE	REVISION	BY	CHK	APVD

D. NICHOLSON  
M. GOSLOW  
A. PASTRANA  
D. NICHOLSON

643 SW 4TH AVE  
GAINESVILLE, FLORIDA 32601  
EB0000072 AAC001982

DAVID C. NICHOLSON, PE #60201

NORTH REGIONAL WATER RECLAMATION  
MASTER REUSE WET WEATHER MANAGEMENT  
ABOVE GROUND INFRASTRUCTURE  
MANATEE COUNTY, FLORIDA

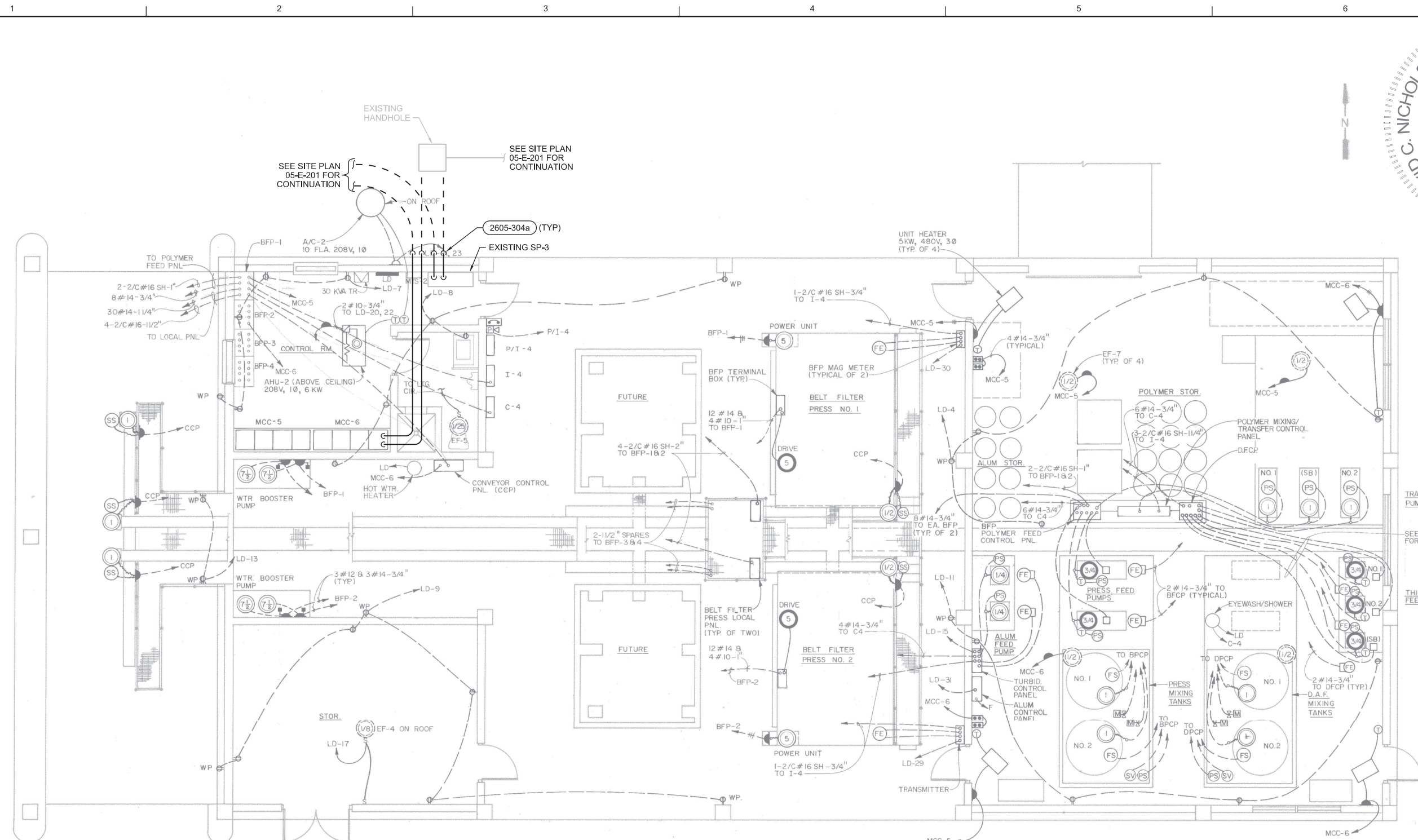
**ch2m**  
ELECTRICAL  
**SINGLE-ZONE MONITORING WELL  
APMW-2**

**David  
Nicholson** Digitally signed by  
David Nicholson  
Date: 2019.12.17  
11:08:48 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

AS NOTED
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE NOVEMBER 2019
PROJ 674077
DWG 35-E-202
SHEET 49 of 61





**POWER PLAN**  
NTS

Digitally signed by  
**David Nicholson**  
Date: 2019.12.17  
11:19:54 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELETRONIC COPIES.



64 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EBO000072 AAC001982		DAVID C. NICHOLSON, PE #60201		NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE		MANATEE COUNTY, FLORIDA	
ELECTRICAL		DEWATERING BUILDING POWER PLAN		D NICHOLSON		A PASTRANA	
DATE		NOVEMBER 2019		DR		M GOSLOW	
PROJ		674077		CHK		REVISION	
DWG		50-E-201		APVD		BY APVD	
SHEET		51 of 61		D NICHOLSON		D NICHOLSON	
DATE		NOVEMBER 2019		NO.		DATE	
PROJ		674077		DSGN		NO.	
DWG		50-E-201		D NICHOLSON		NO.	
SHEET		51 of 61		D NICHOLSON		NO.	

BID DOCUMENTS

**GENERAL SHEET NOTES**

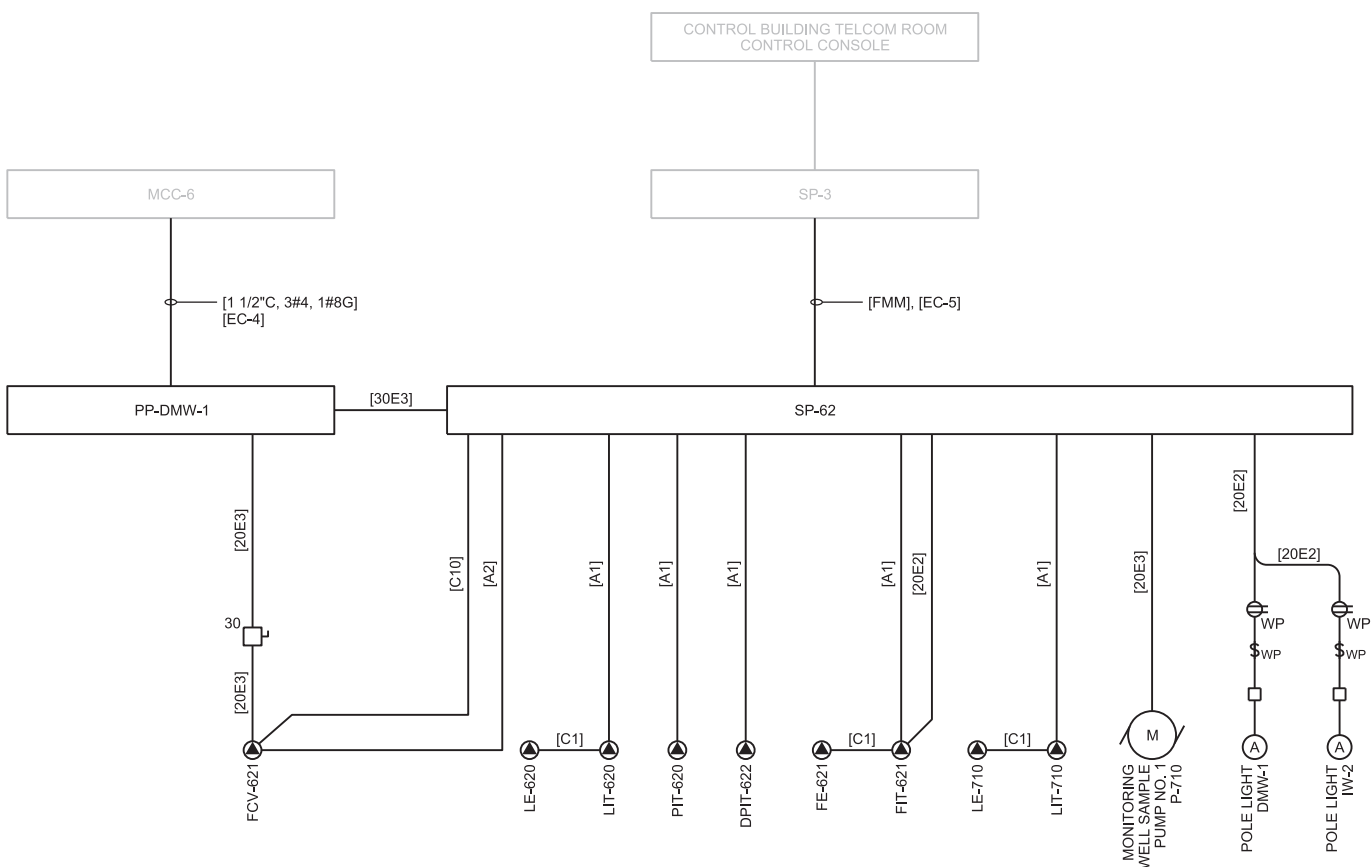
- SEE DWG 01-G-008 FOR CIRCUIT CONDUCTOR AND CONDUIT IDENTIFICATION SCHEDULES.
- NOT USED.
- EXTEND EXISTING 2" CONDUITS TO NEW HANDHOLE.
- ROUTE NEW CONDUCTORS FOR PP-DZMW-1 IN EXISTING 2" CONDUIT FROM NEW HANDHOLE TO MCC-2B.
- ROUTE NEW FIBER OPTIC CABLE FOR SP-61 IN EXISTING 2" CONDUIT FROM NEW HANDHOLE TO PANEL EQ-1.

**SHEET KEYNOTES**

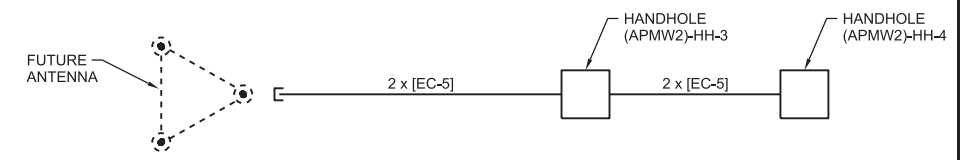
THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

**David Nicholson**  
 Digitally signed by David Nicholson  
 Date: 2019.12.17 11:25:33 -05'00'

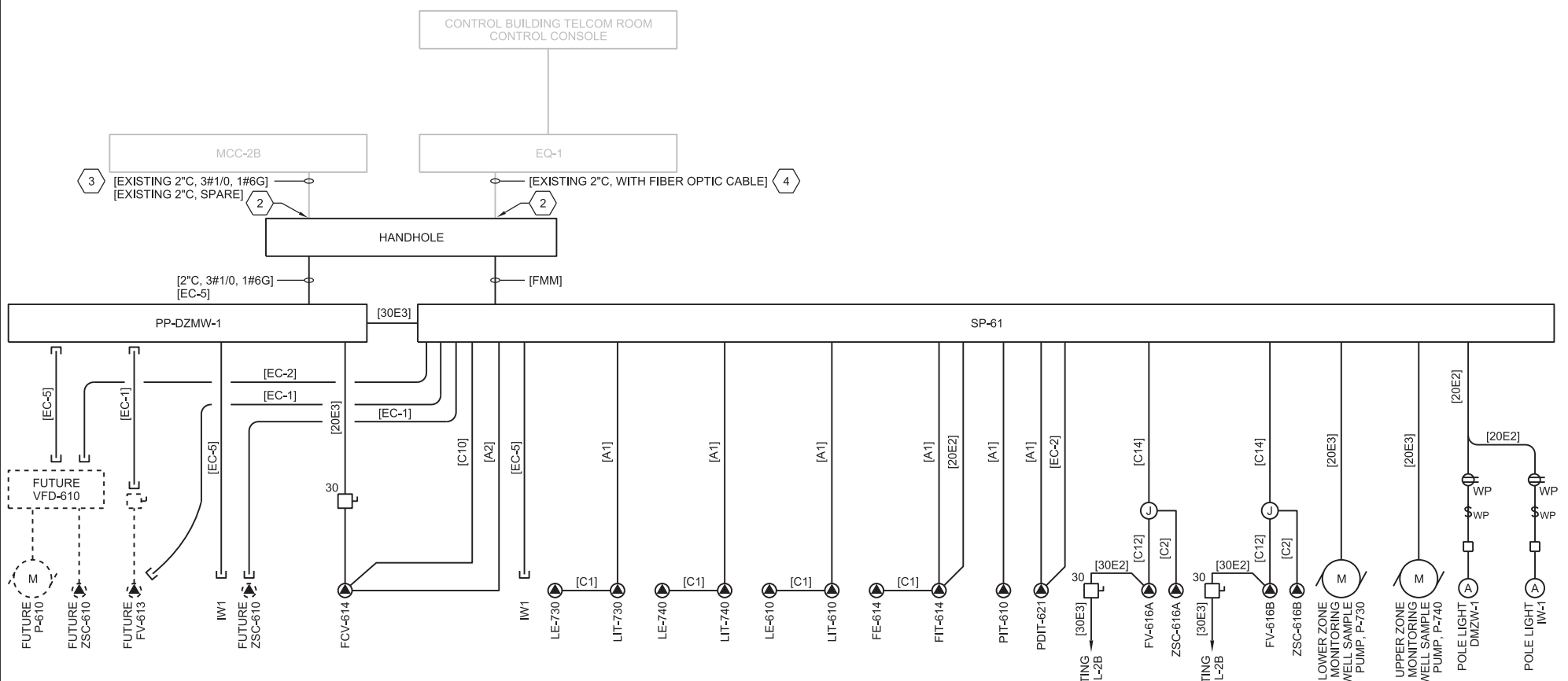
PROFESSIONAL ENGINEER  
 STATE OF FLORIDA  
 No 60201  
 D. NICHOLSON  
 M. GOSLOW  
 A. PASTRANA  
 DR  
 REVISION  
 NO. DATE  
 DSGN



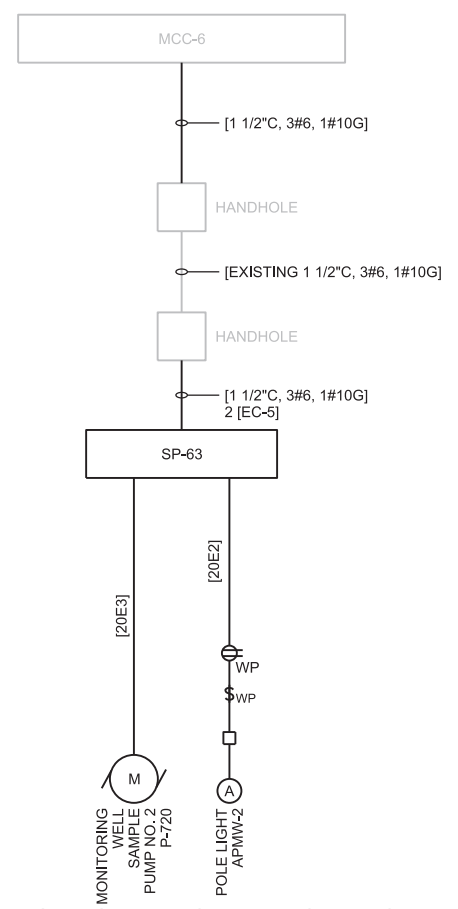
**SINGLE-ZONE DMW-1 MONITORING WELL & INJECTION WELL NO. 2 RISER DIAGRAM**  
 NTS



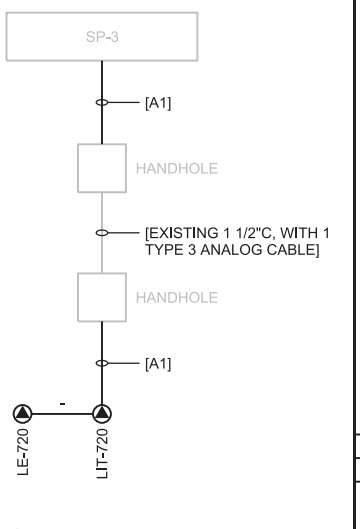
**FUTURE ANTENNA RISER DIAGRAM**  
 NTS



**DUAL-ZONE MONITORING WELL & INJECTION WELL NO. 1 RISER DIAGRAM**  
 NTS



**SINGLE-ZONE MONITORING WELL APMW-2 RISER DIAGRAM**  
 NTS

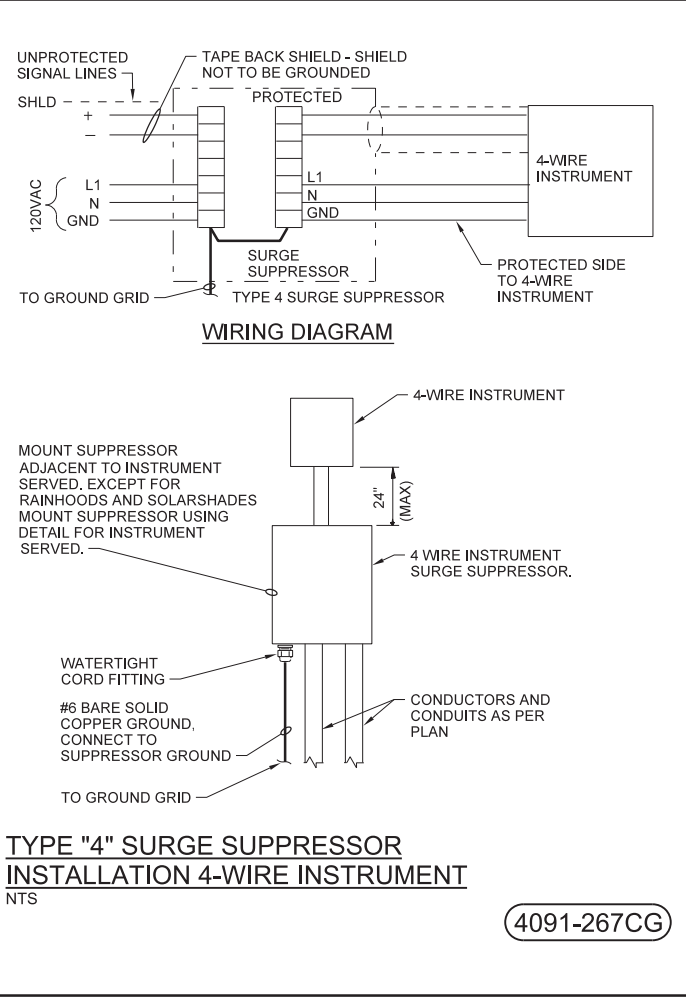
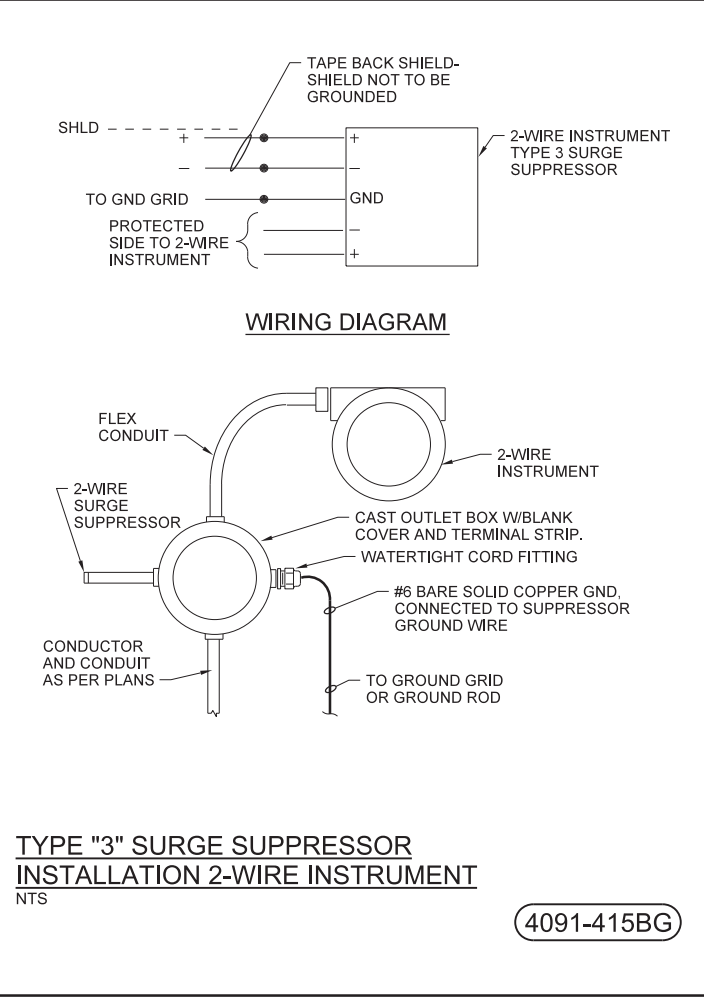
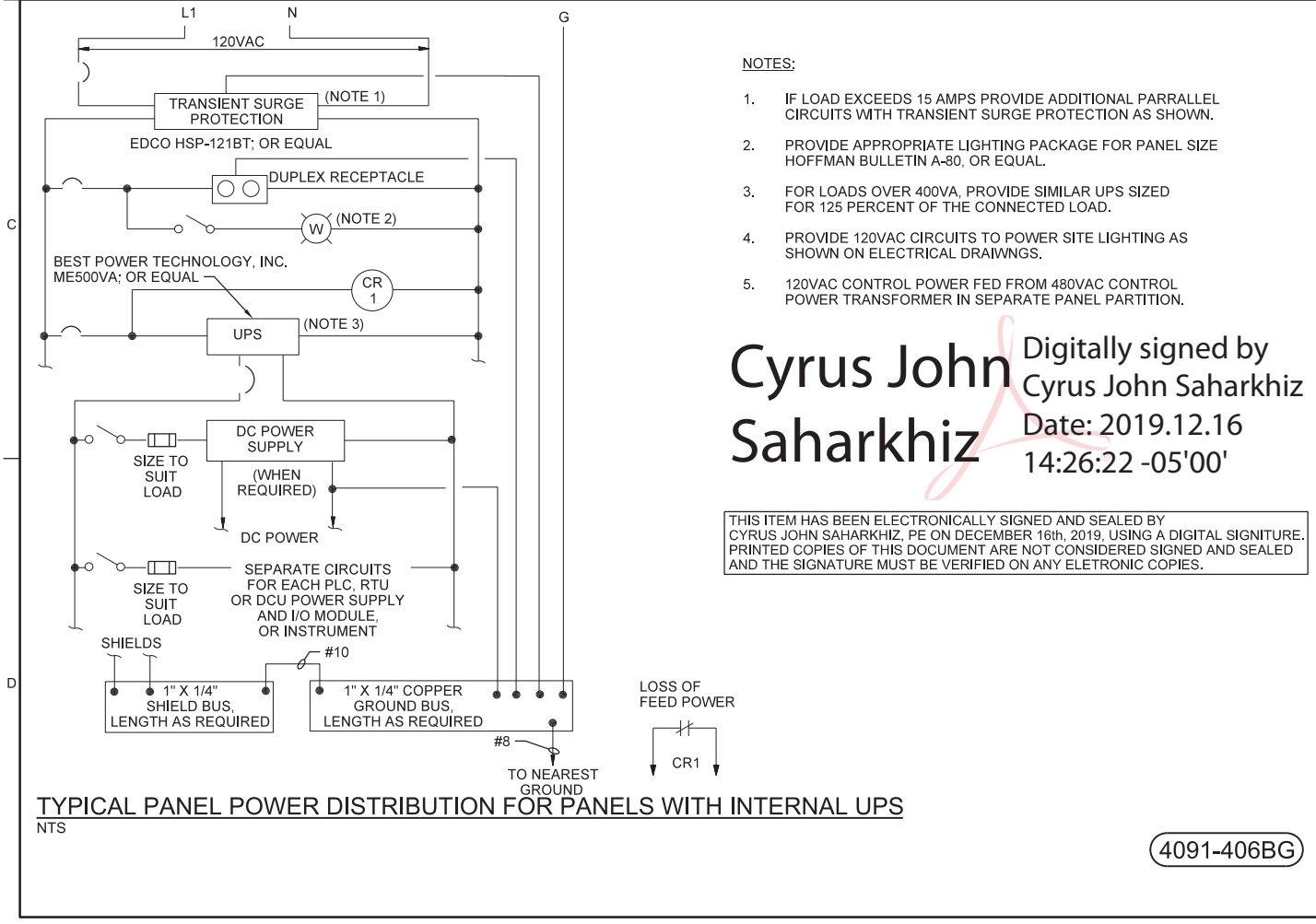
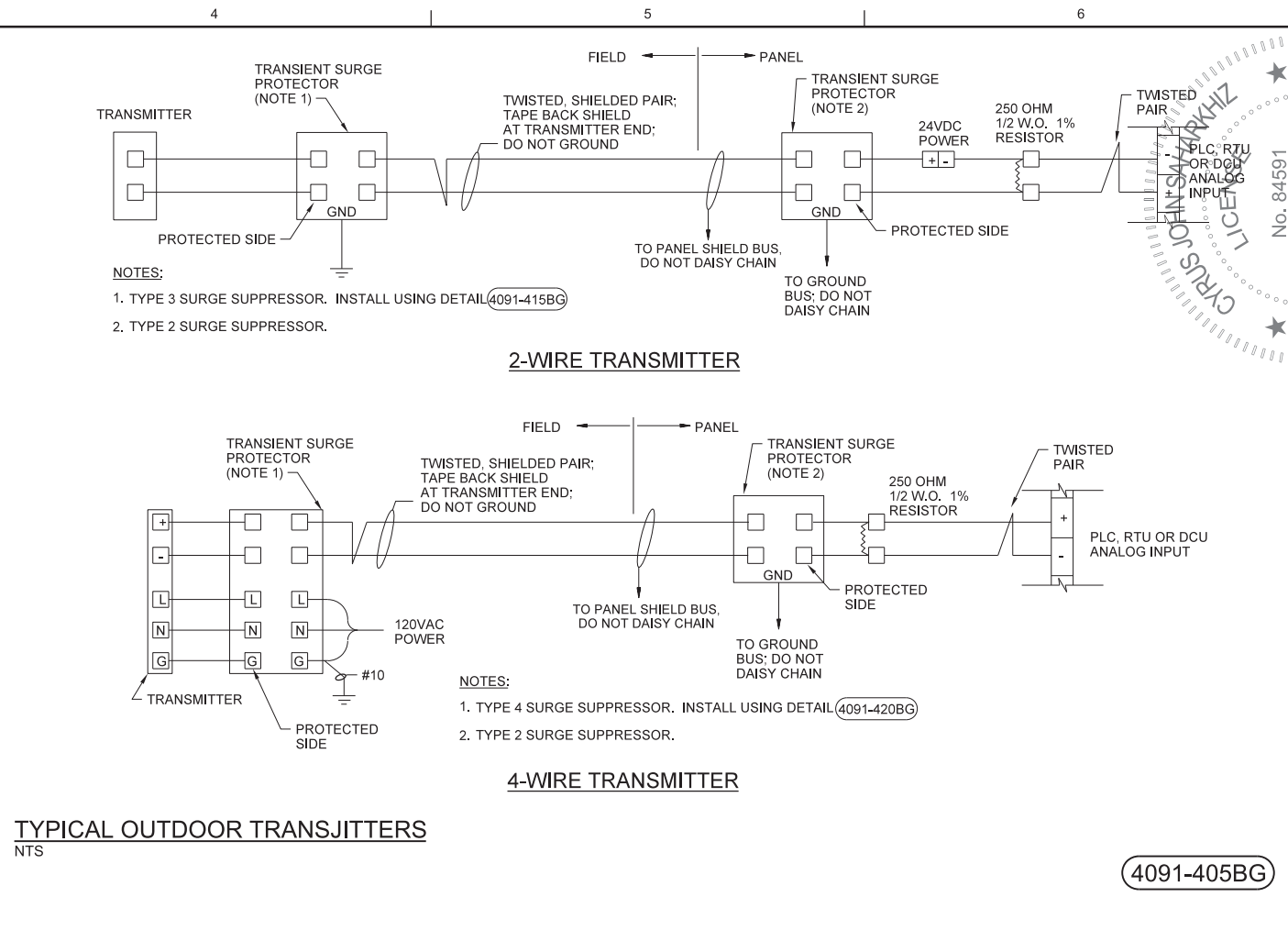
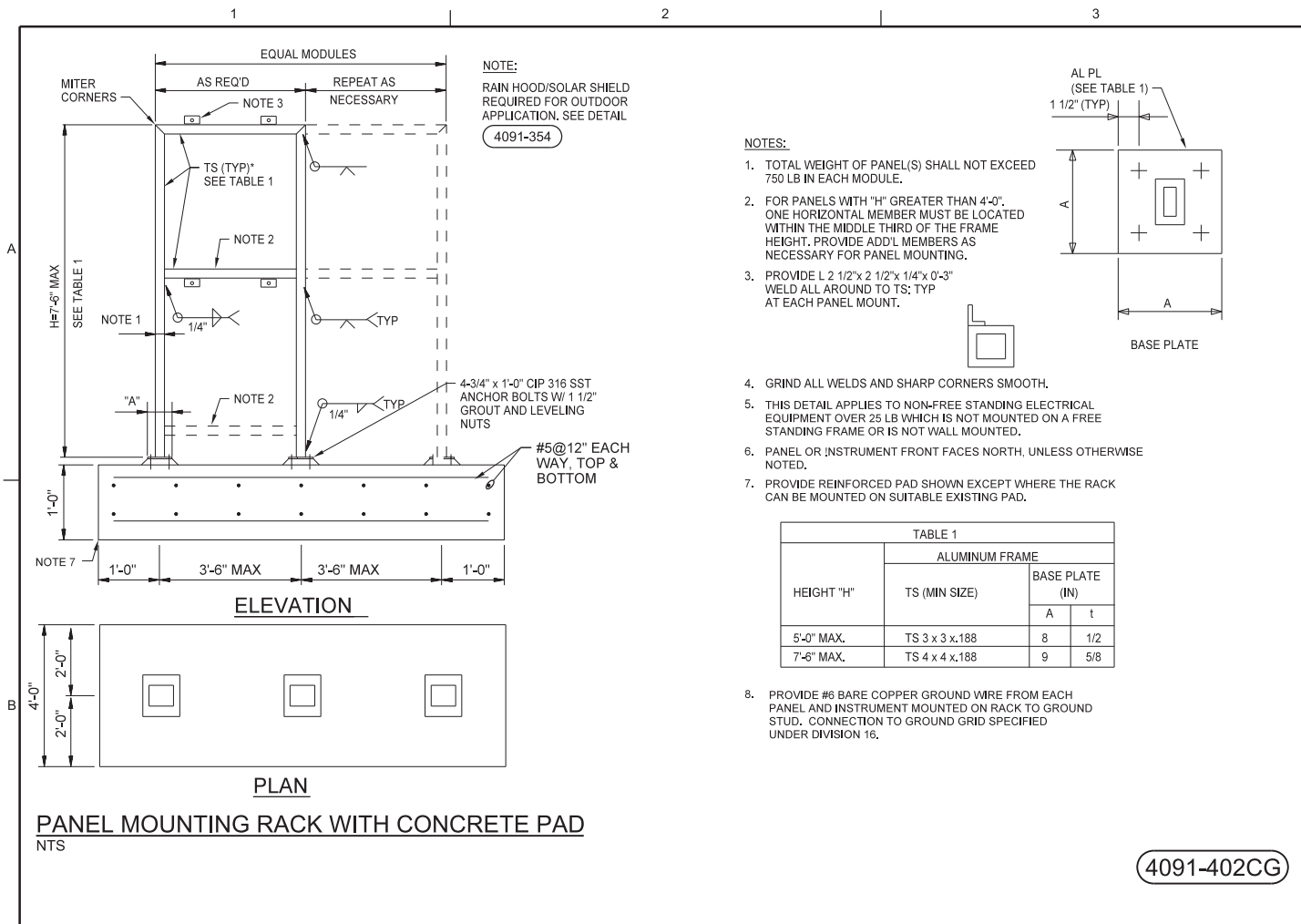


643 SW 4TH AVE  
 GAINESVILLE, FLORIDA 32601  
 EB0000072 AAC001982  
 DAVID C. NICHOLSON, PE #60201  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA  
**ch2m**  
 ELECTRICAL  
**RISER DIAGRAMS**  
 NTS  
 VERIFY SCALE  
 BAR IS ONE INCH ON ORIGINAL DRAWING.  
 DATE NOVEMBER 2019  
 PROJ 674077  
 DWG 80-E-601  
 SHEET 52 of 61

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2019. ALL RIGHTS RESERVED.







**PROFESSIONAL ENGINEER**

**CYRUS JOHN SAHARKHIZ** No. 84591

**STATE OF FLORIDA**

**REVISION**

**NO.** **DATE**

**DR** **APVD** **CHK**

**A. PASTRANA** **C. WILSON**

**MANATEE COUNTY, FLORIDA**

**643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982**

**CYRUS JOHN SAHARKHIZ, PE #84591**

**NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE**

**INSTRUMENTATION AND CONTROL STANDARD DETAILS**

**ch2m**

**NTS**

**VERIFY SCALE**

**BAR IS ONE INCH ON ORIGINAL DRAWING.**

**DATE** NOVEMBER 2019

**PROJ** 674077

**DWG** 95-N-502

**SHEET** 55 of 61

**BID DOCUMENTS**

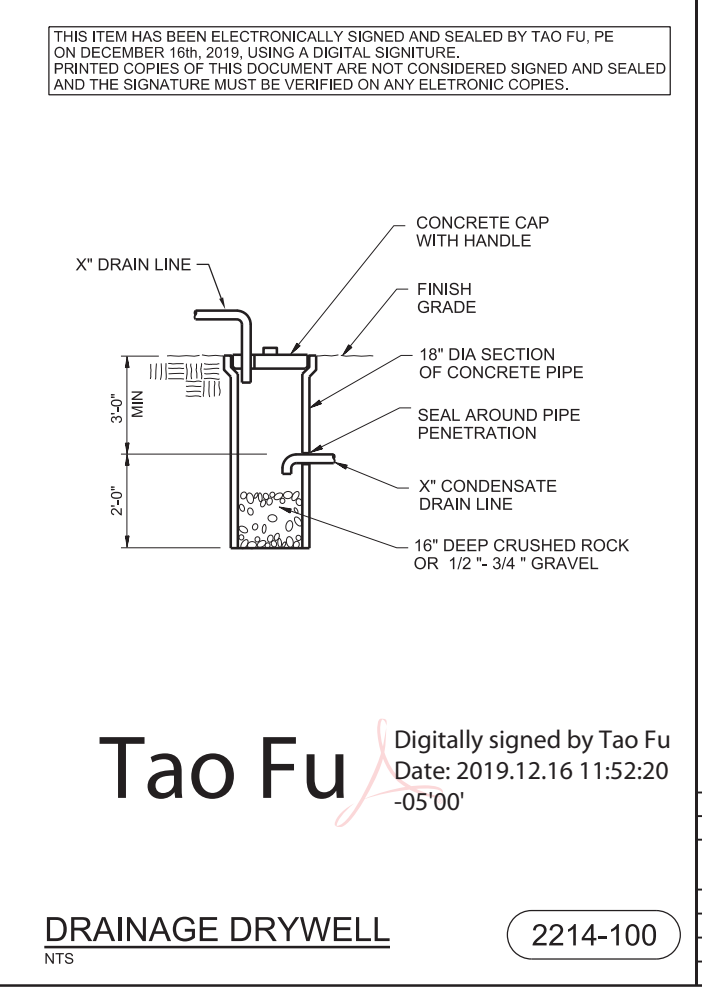
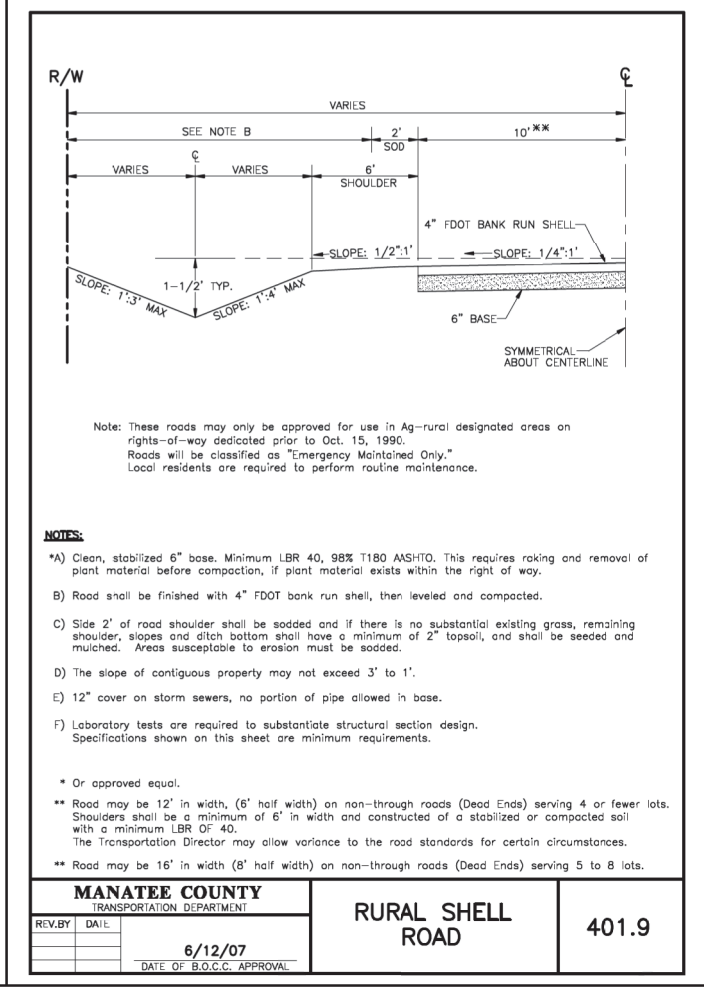
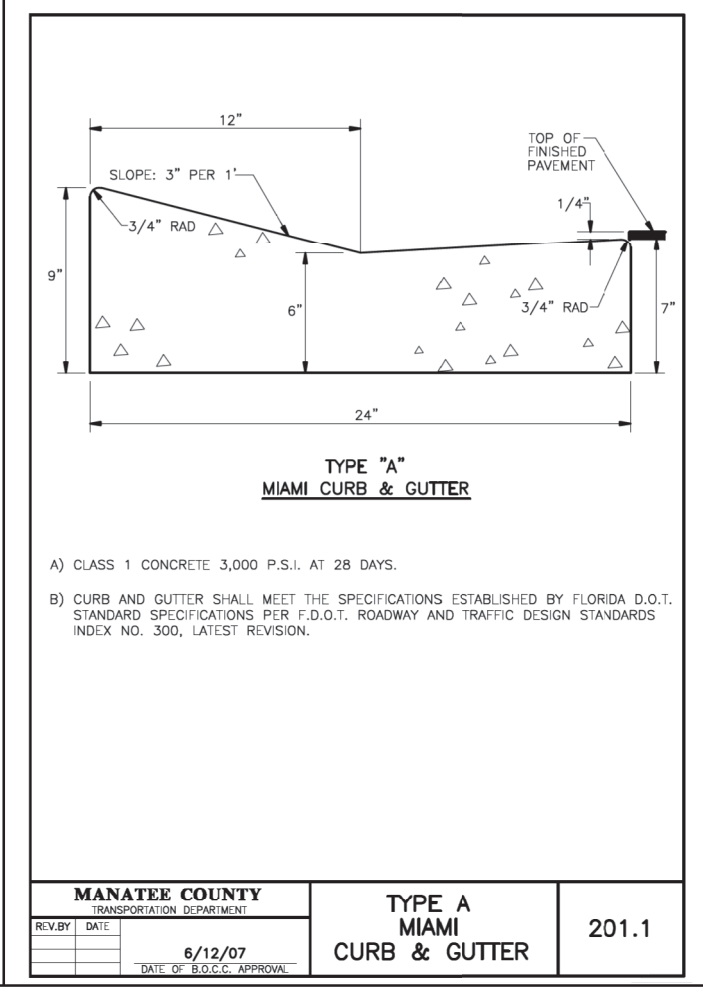
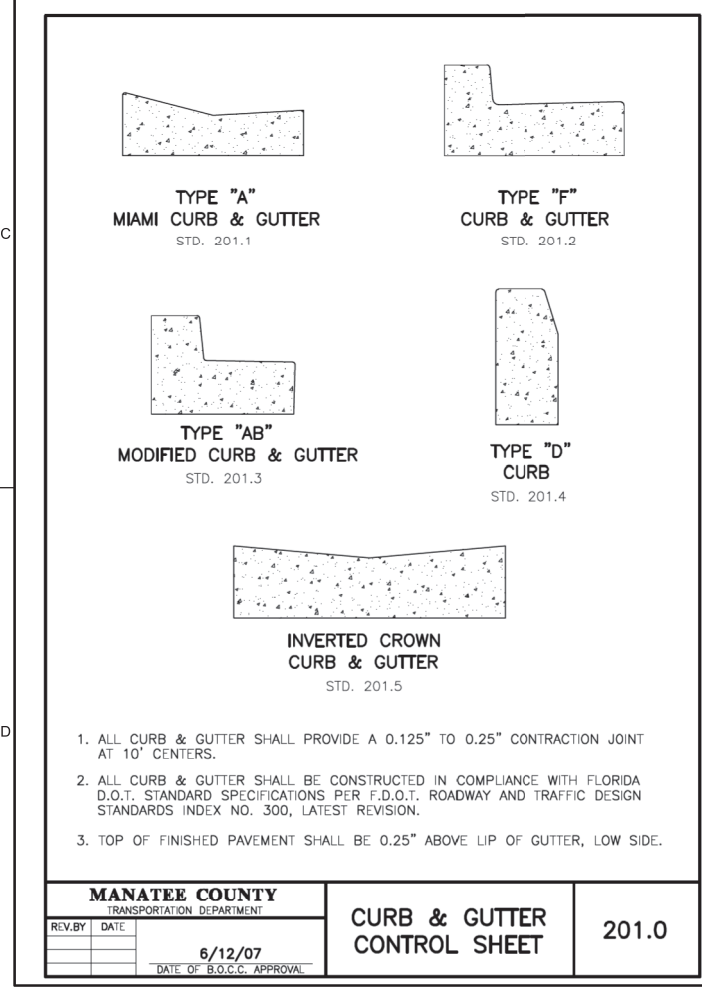
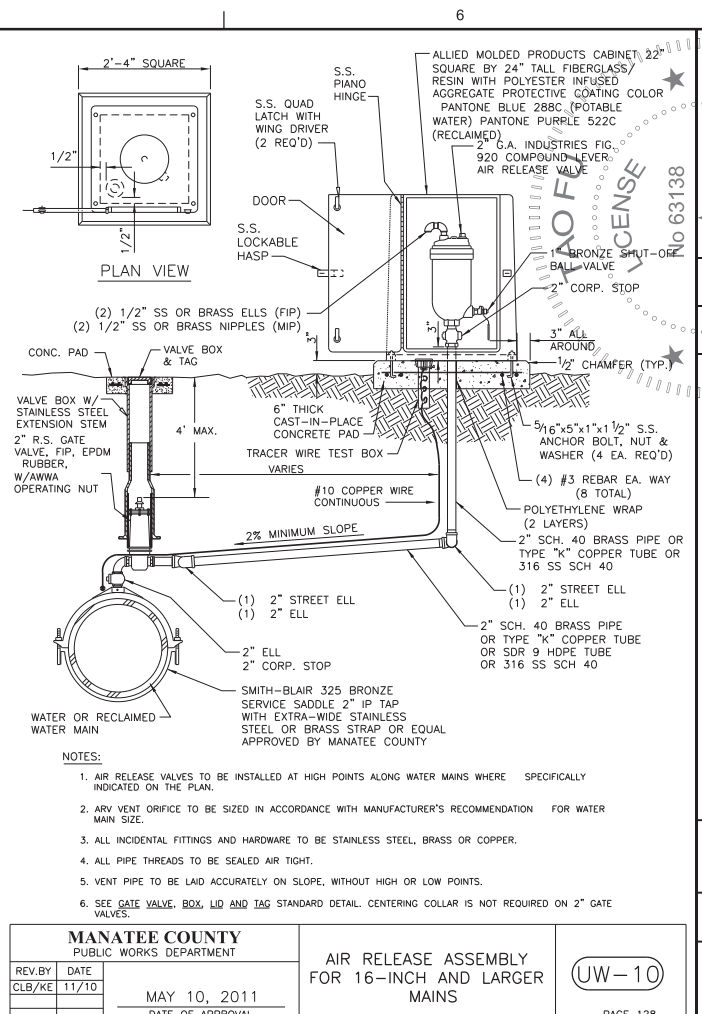
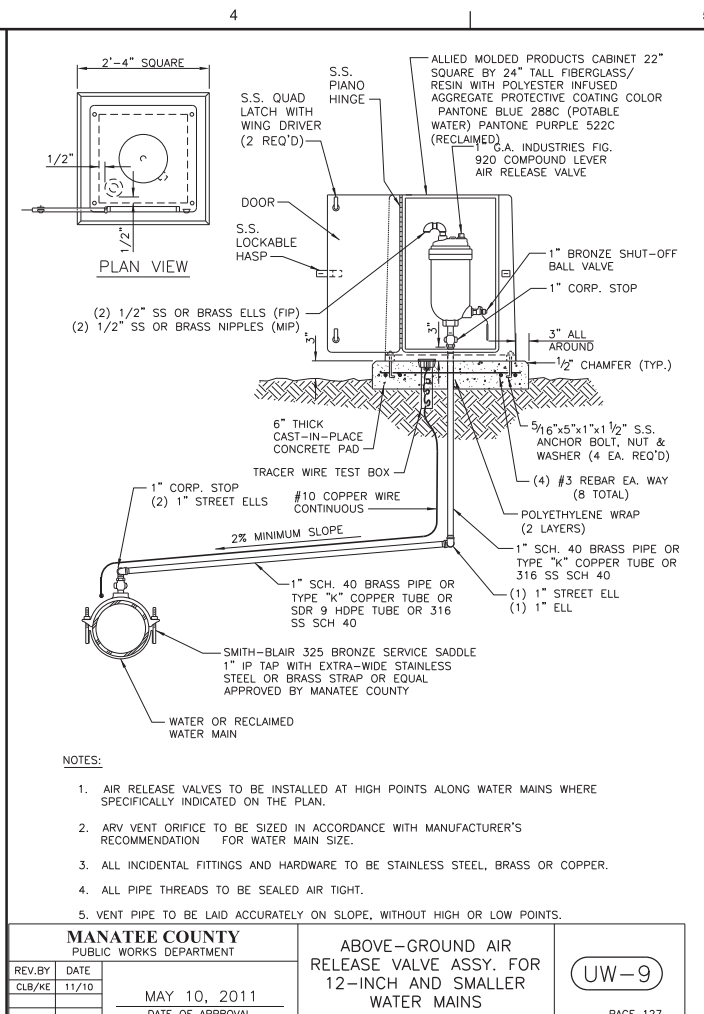
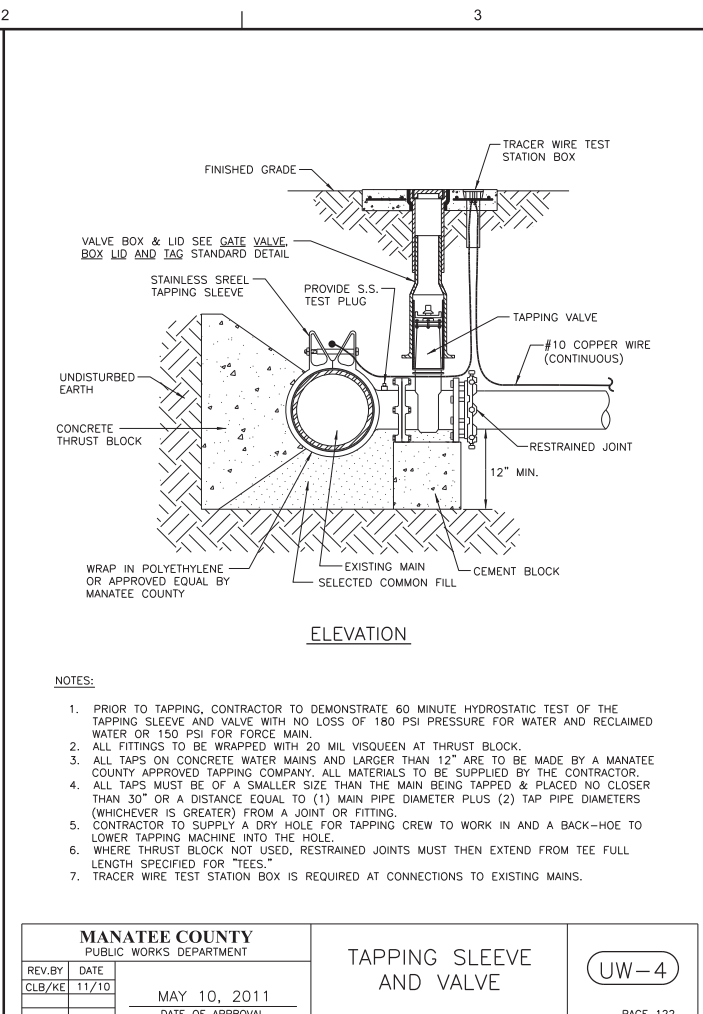
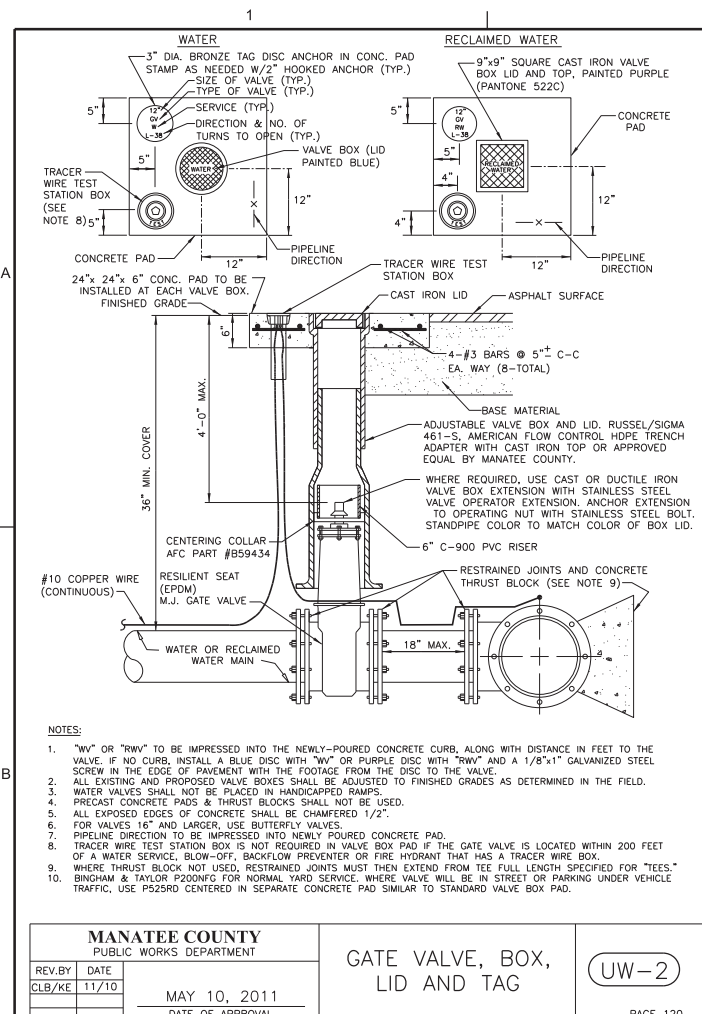
FILENAME: 92-4462-10-177.dgn PLOT DATE: 11/15/2019 PLOT TIME: 9:06:33 AM



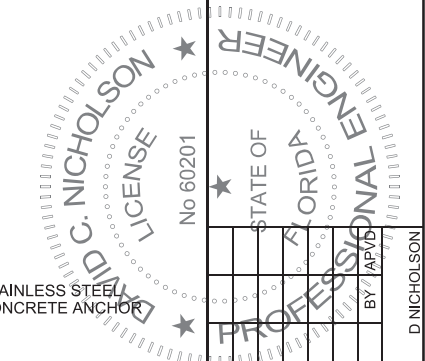
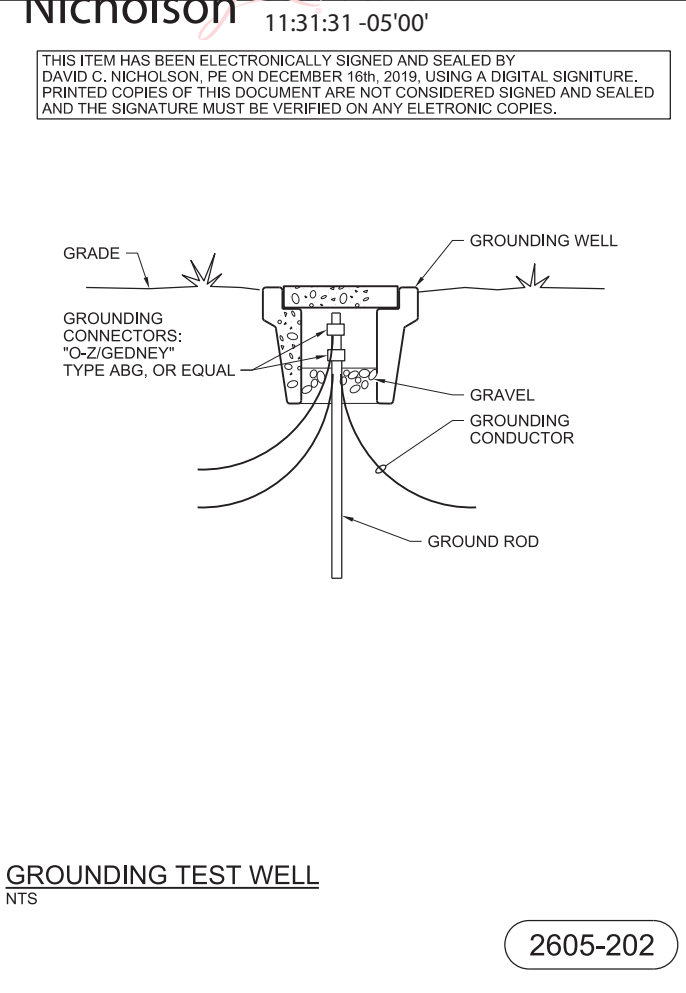
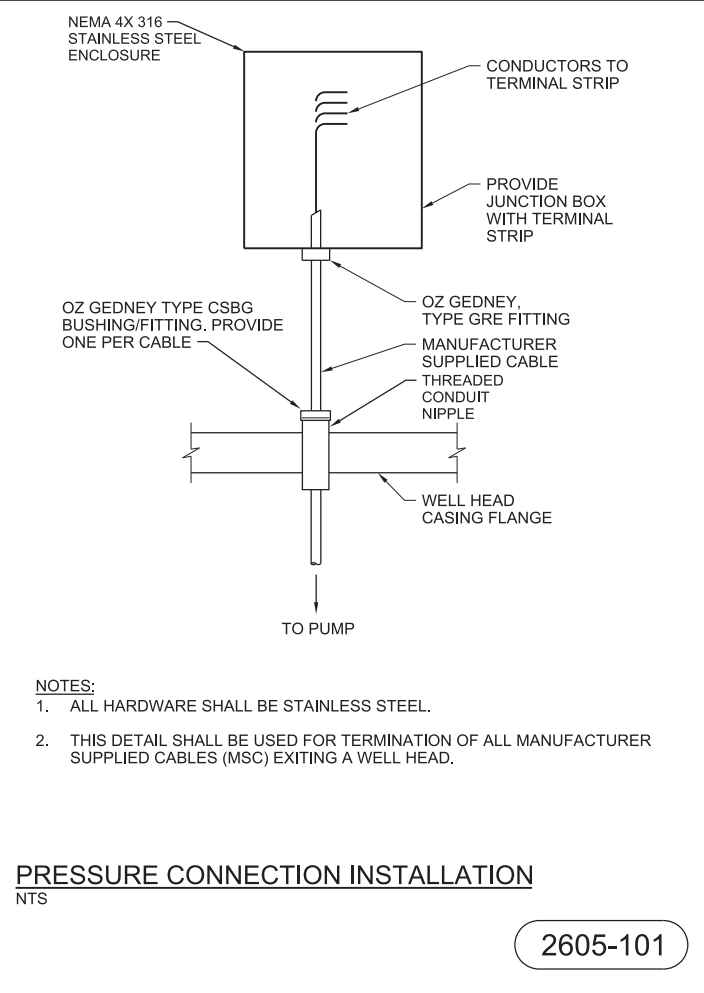
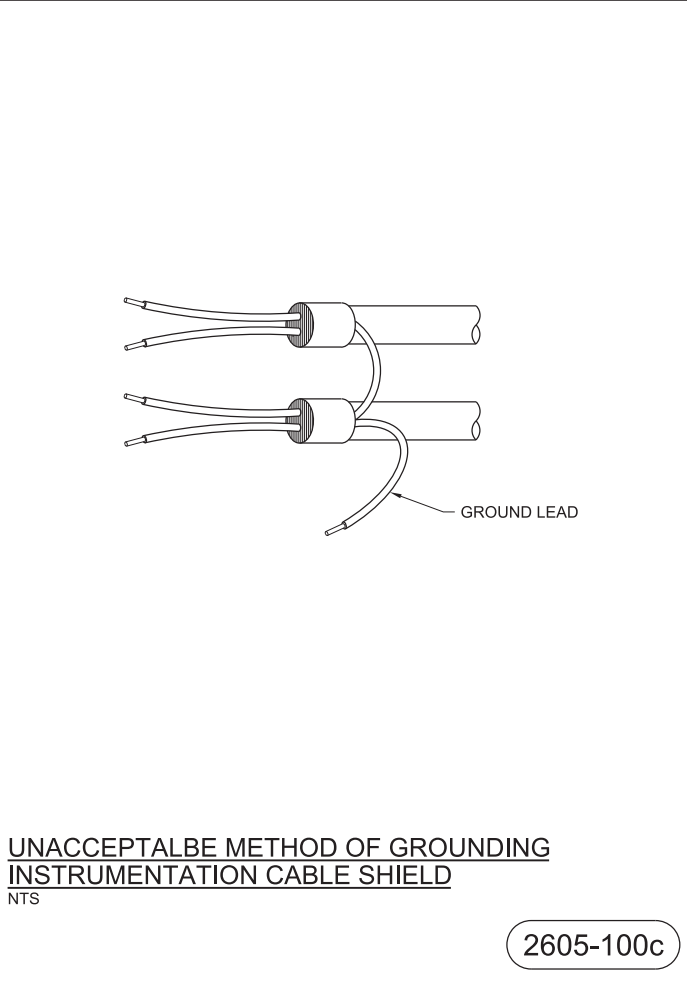
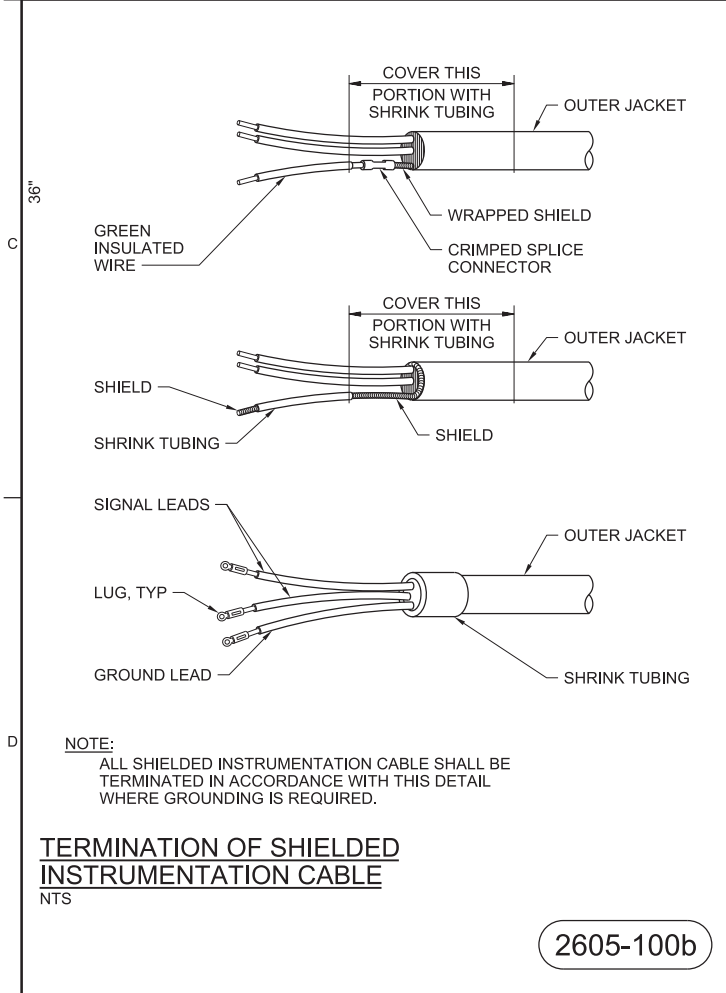
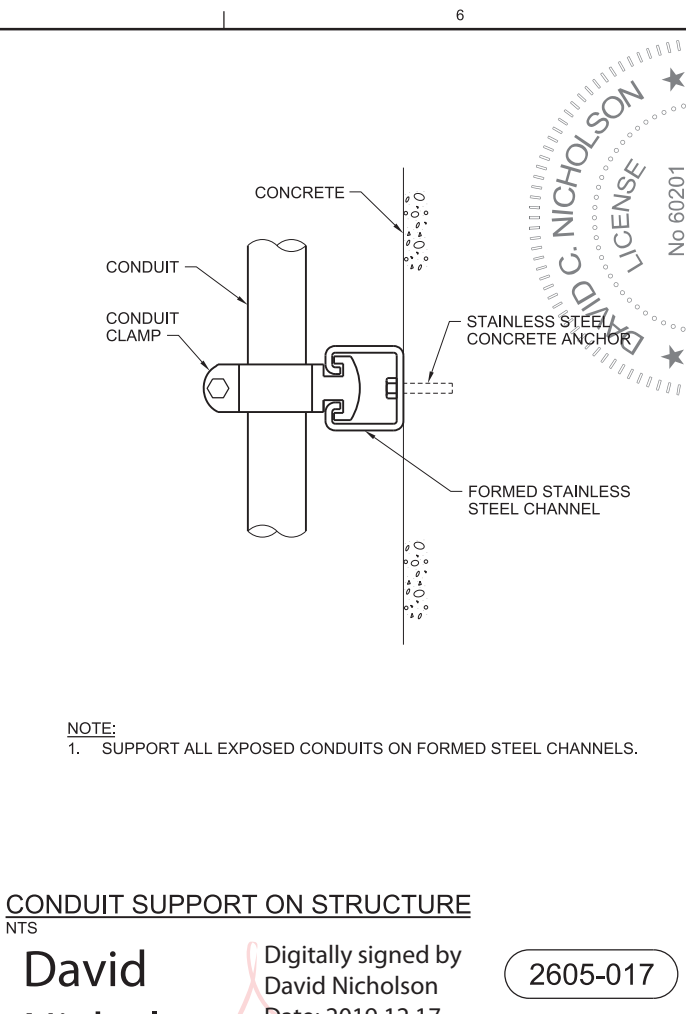
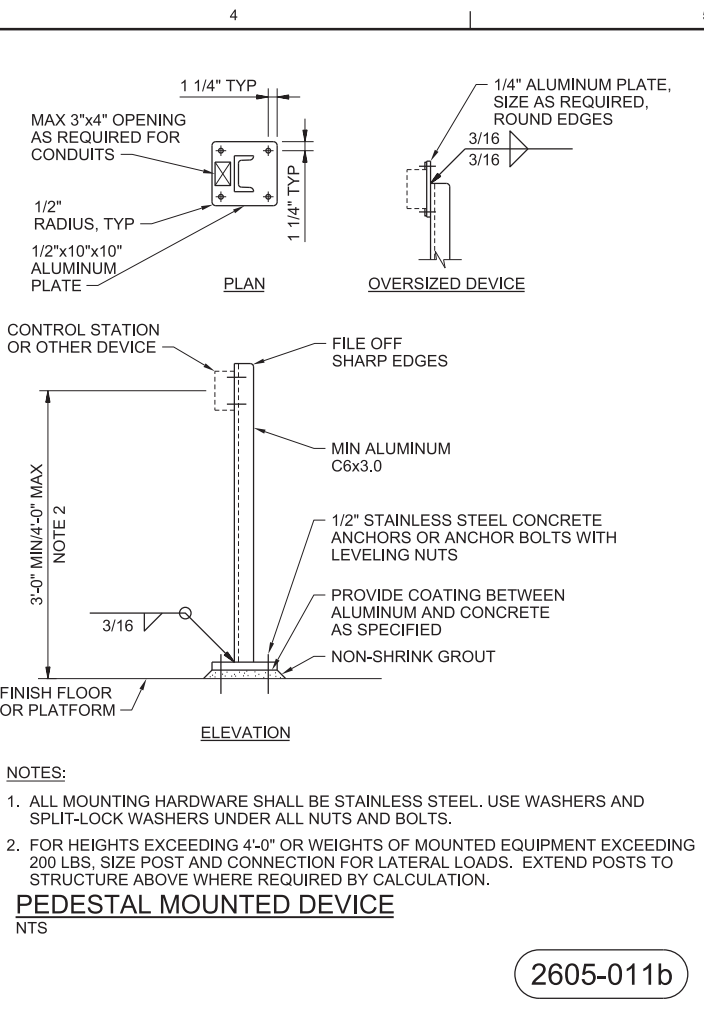
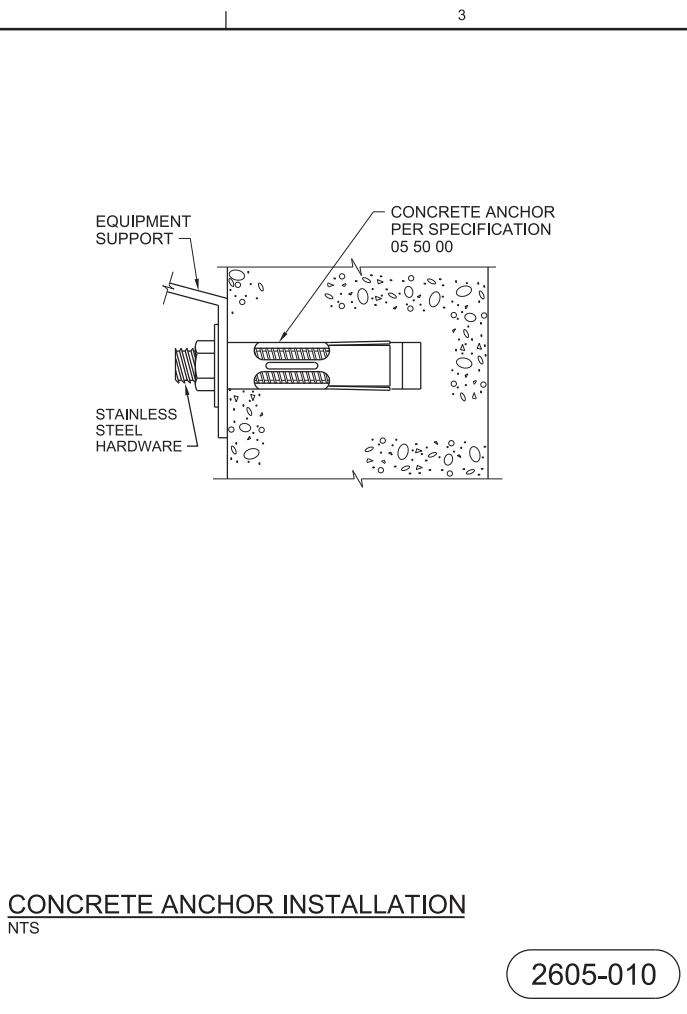
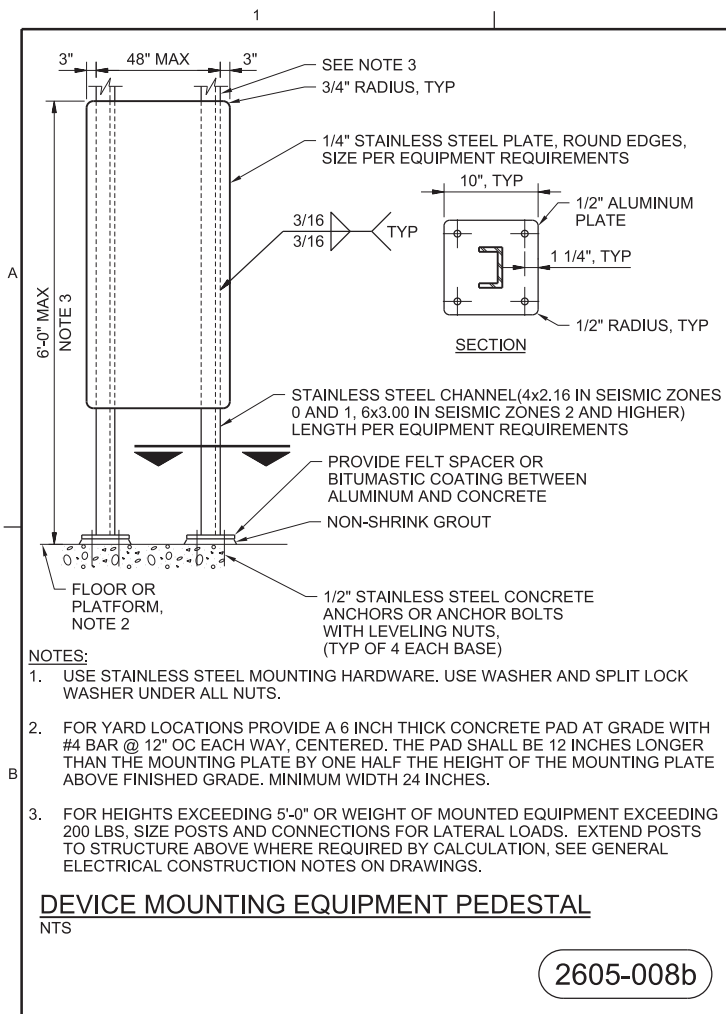








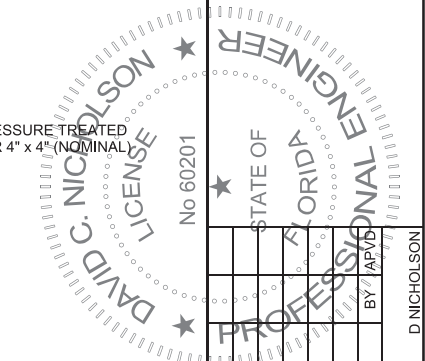
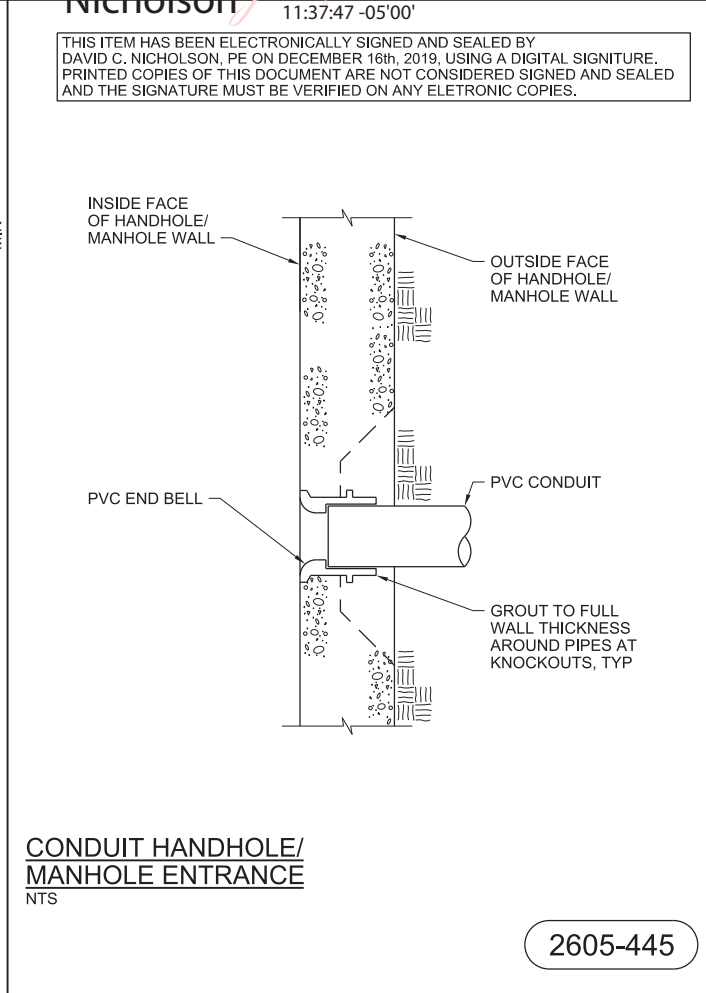
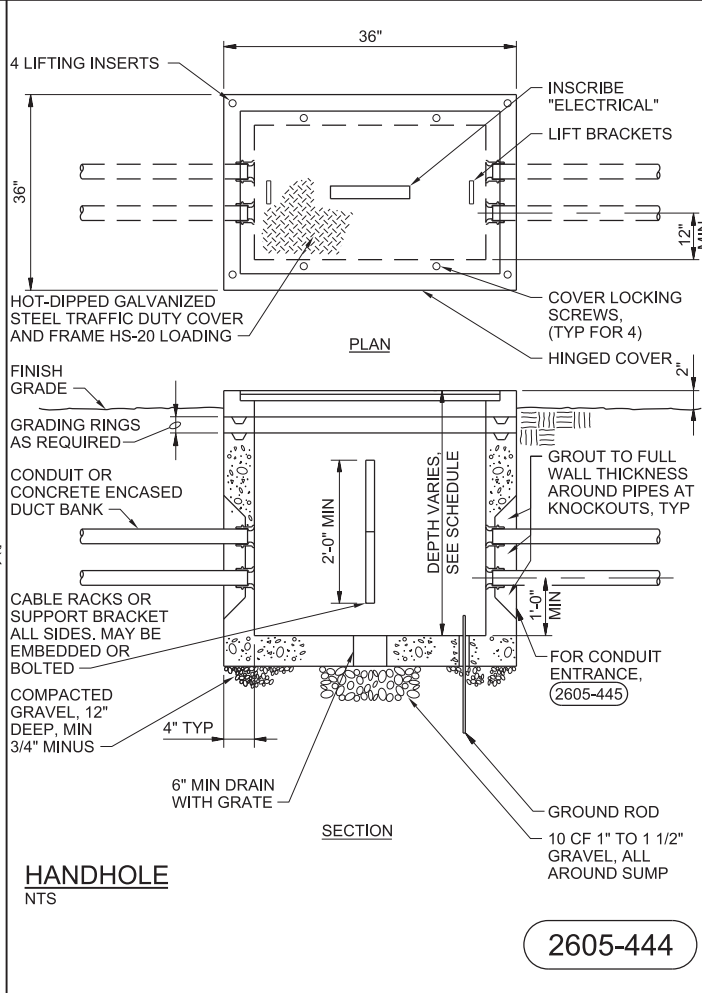
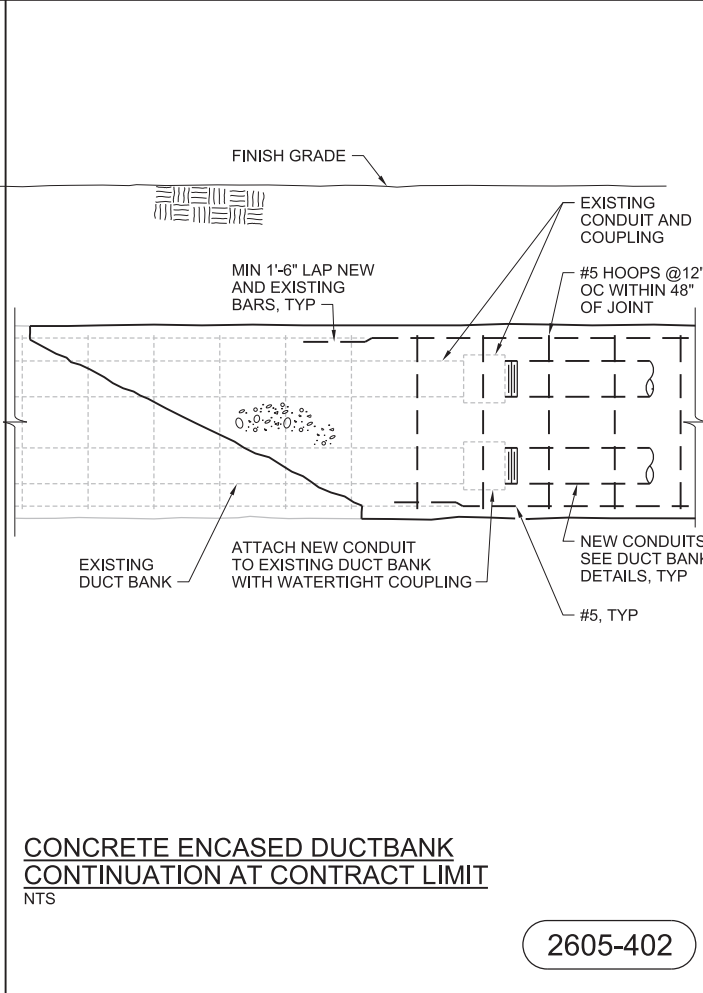
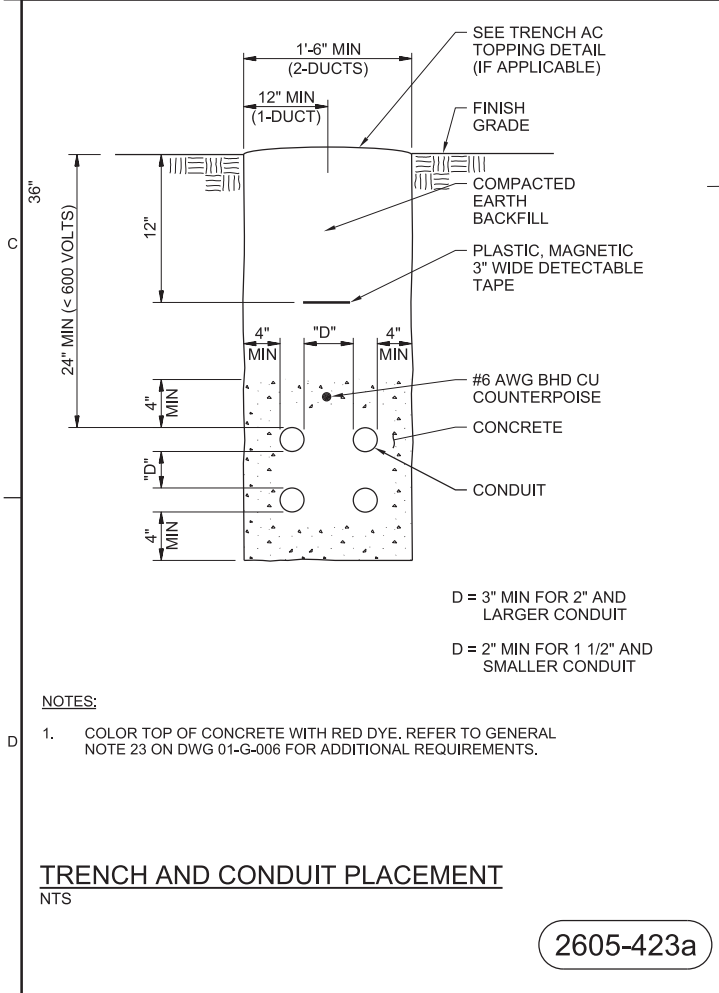
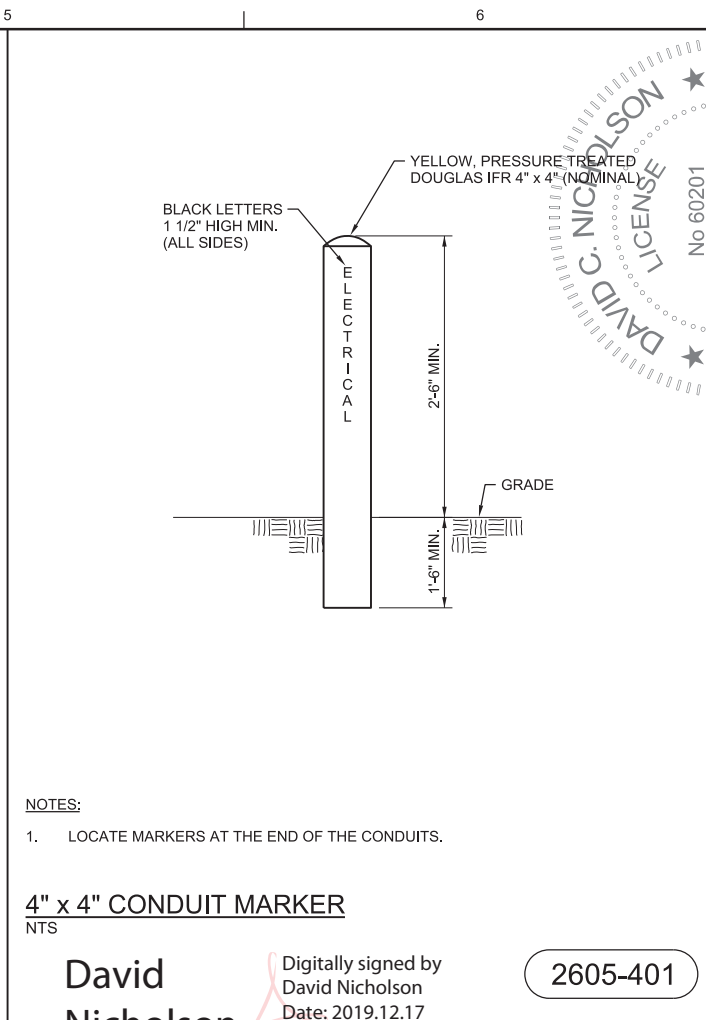
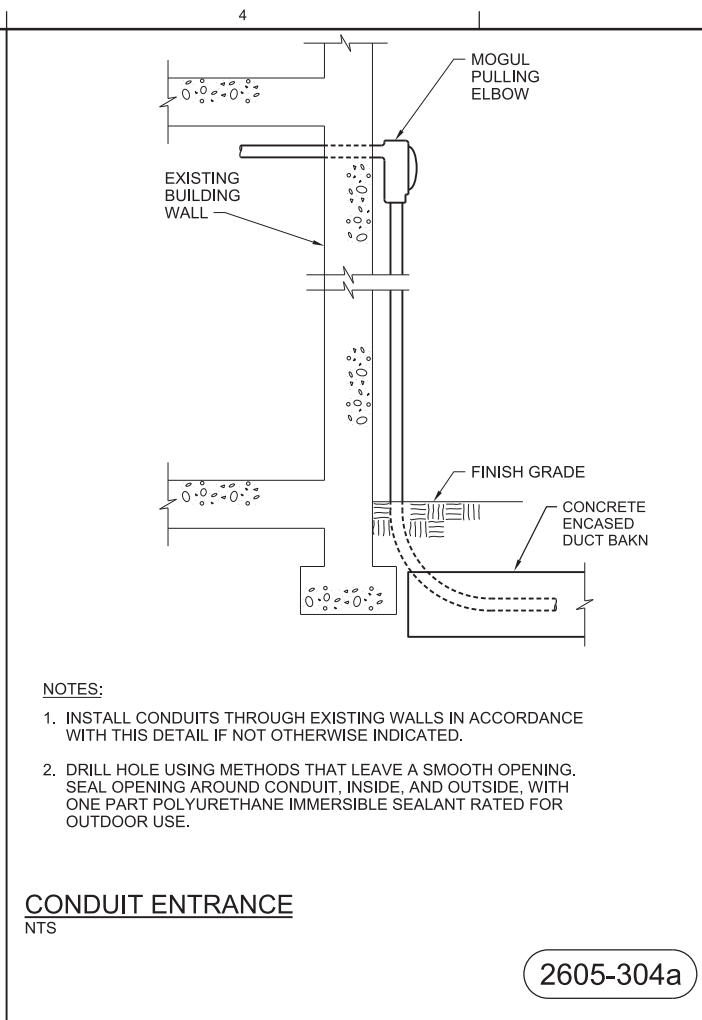
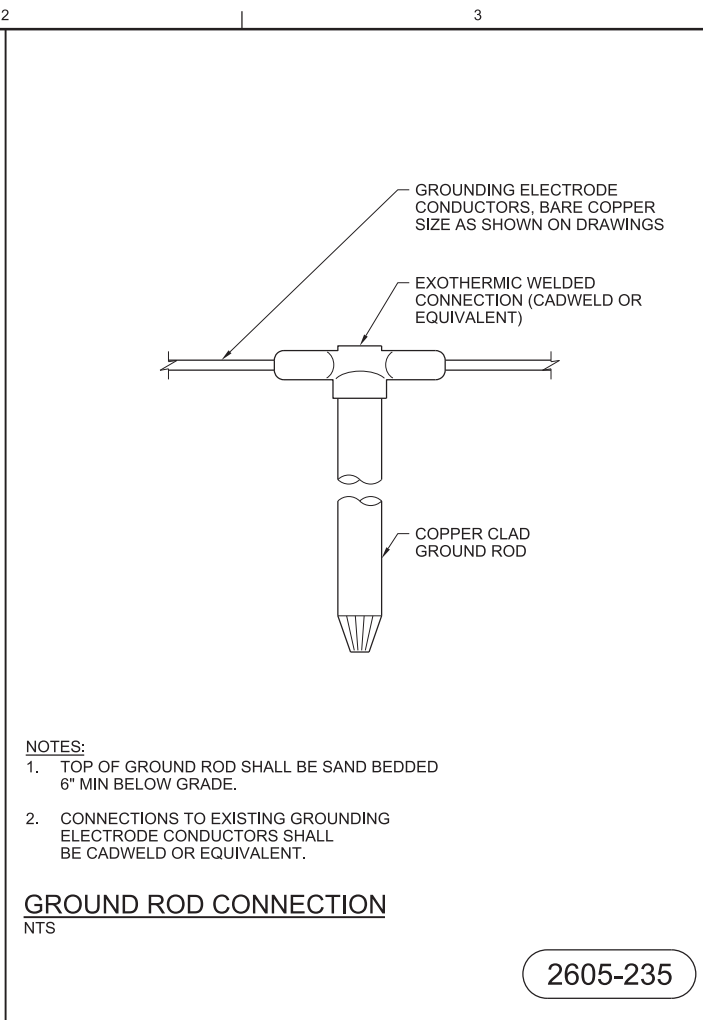
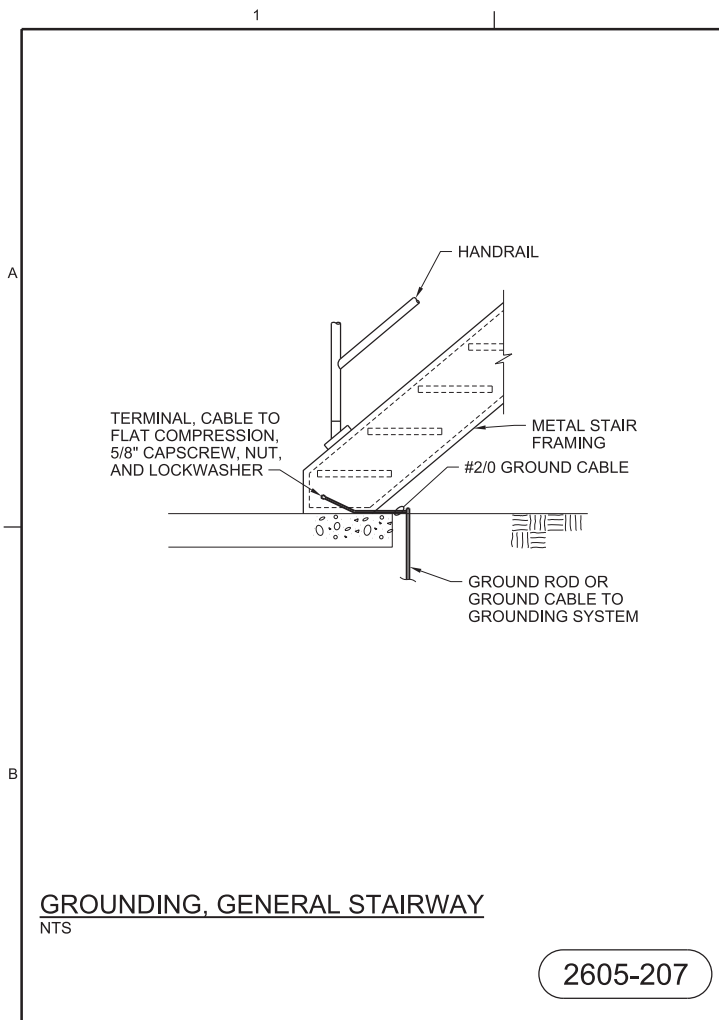
**STATE OF FLORIDA**  
**PROFESSIONAL ENGINEER**  
 TAO FU, PE #63138  
 NORTH REGIONAL WATER RECLAMATION  
 MASTER REUSE WET WEATHER MANAGEMENT  
 ABOVE GROUND INFRASTRUCTURE  
 MANATEE COUNTY, FLORIDA  
 YARD PIPING  
 STANDARD DETAILS  
 NTS  
 VERIFY SCALE  
 BAR IS ONE INCH ON ORIGINAL DRAWING.  
 DATE: NOVEMBER 2019  
 PROJ: 674077  
 DWG: 95-D-502  
 SHEET: 58 OF 61  
 FILENAME: 95-D-502\_674077.dgn  
 PLOT DATE: 11/15/2019  
 PLOT TIME: 9:09:17 AM



Digitally signed by David Nicholson  
Date: 2019.12.17 11:31:31 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EB0000072 AAC001982	DAVID C. NICHOLSON, PE #60201	NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA	AS NOTED
DAVID C. NICHOLSON, PE #60201			VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.			DATE NOVEMBER 2019
PROJECT NO. 674077			PROJ 674077
DWG NO. 95-E-501			DWG 95-E-501
SHEET 59 OF 61			SHEET 59 OF 61



Digitally signed by David Nicholson  
Date: 2019.12.17  
11:37:47 -05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY DAVID C. NICHOLSON, PE ON DECEMBER 16th, 2019, USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

643 SW 4TH AVE GAINESVILLE, FLORIDA 32601 EBO000072 AAC001982	DAVID C. NICHOLSON, PE #60201	NORTH REGIONAL WATER RECLAMATION MASTER REUSE WET WEATHER MANAGEMENT ABOVE GROUND INFRASTRUCTURE MANATEE COUNTY, FLORIDA	AS NOTED
			VERIFY SCALE
ELECTRICAL			BAR IS ONE INCH ON ORIGINAL DRAWING.
STANDARD DETAILS			DATE NOVEMBER 2019
D. NICHOLSON A. PASTRANA M. GOSLOW D. NICHOLSON DSGN NO. DATE REVISION CHK APVD BY DATE			PROJ 674077
LICENSE NO. 60201 STATE OF FLORIDA PROFESSIONAL ENGINEER			DWG 95-E-502
REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL. © CH2M HILL 2019. ALL RIGHTS RESERVED.			SHEET 60 of 61

