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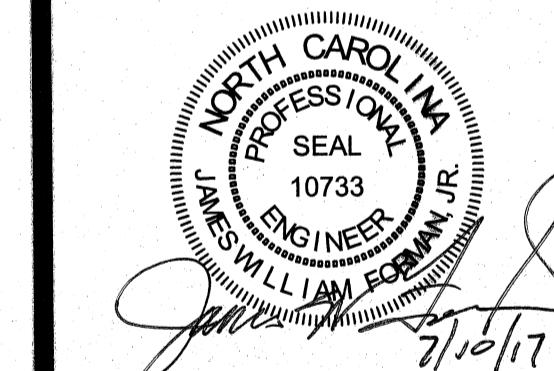
PROJECT MANAGER: JWF
 DESIGNED: JJW
 DRAWN BY: JJW
 CHECKED: JJW
 SCALE: AS SHOWN
 DATE: 09/23/16

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 North Carolina Certification No. C-1509
 OWNER:
 HARKERS ISLAND SEWER COMPANY
 P.O. BOX 370
 HARKERS ISLAND, NC 28531

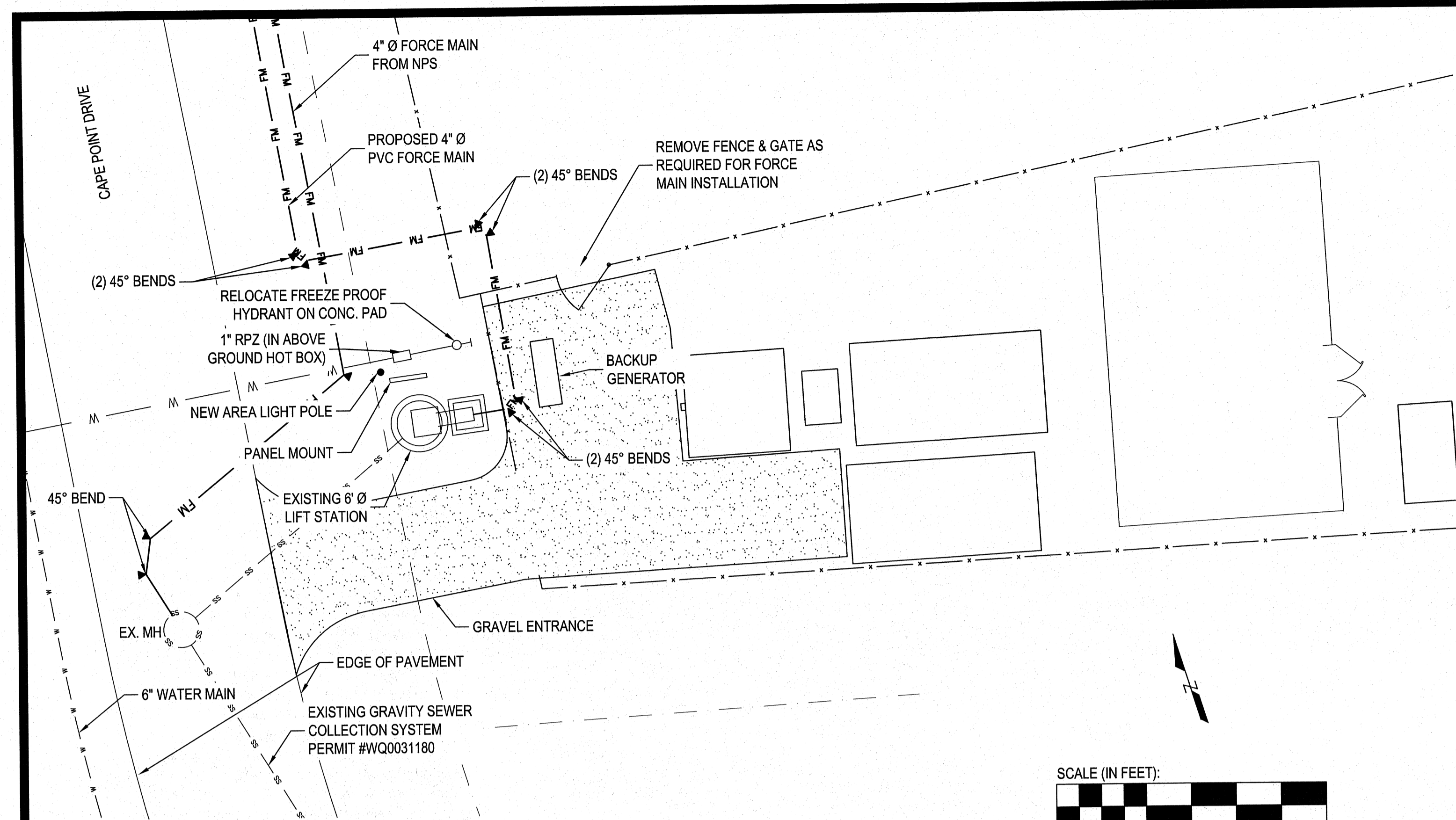
PROJECT:
 SEWER SYSTEM MODIFICATION WQ0031180
 WWTP WQ0031070
 HARKERS ISLAND, NORTH CAROLINA
 CARTERET COUNTY, NC

DRAWING:
 CAPE POINT LIFT STATION & FORCE MAIN

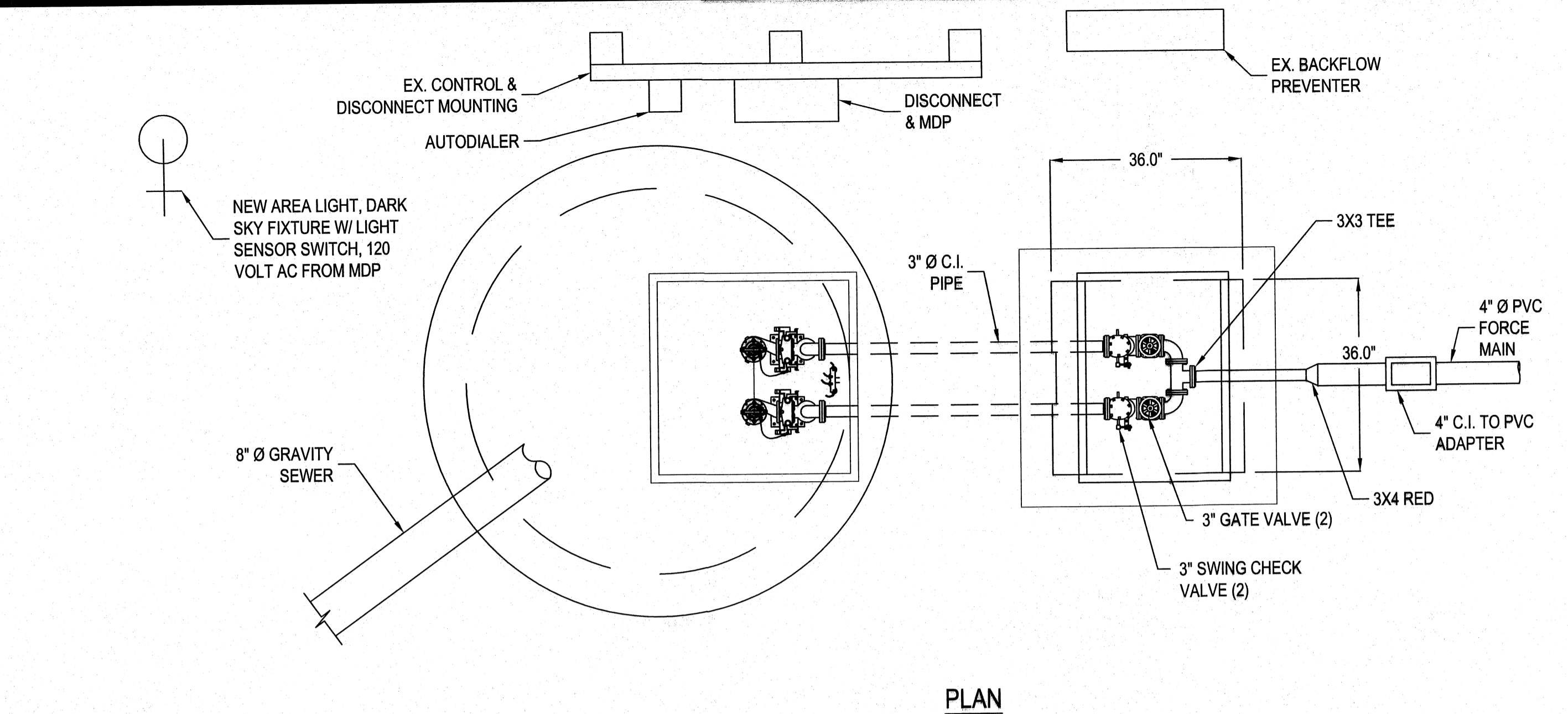
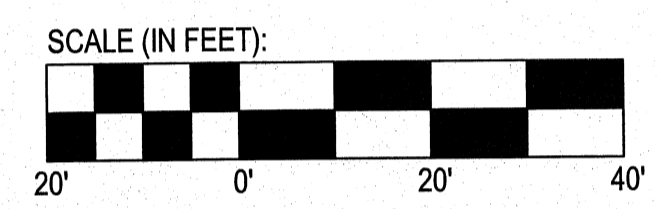


NO.	REVISION	DATE	BY
1	LIFT STATION REVISIONS	11/08/16	JWF
2	MODIFICATIONS	02/21/17	JWF
3	MODIFICATIONS	05/16/17	JWF
4	MODIFICATIONS	07/10/17	JWF

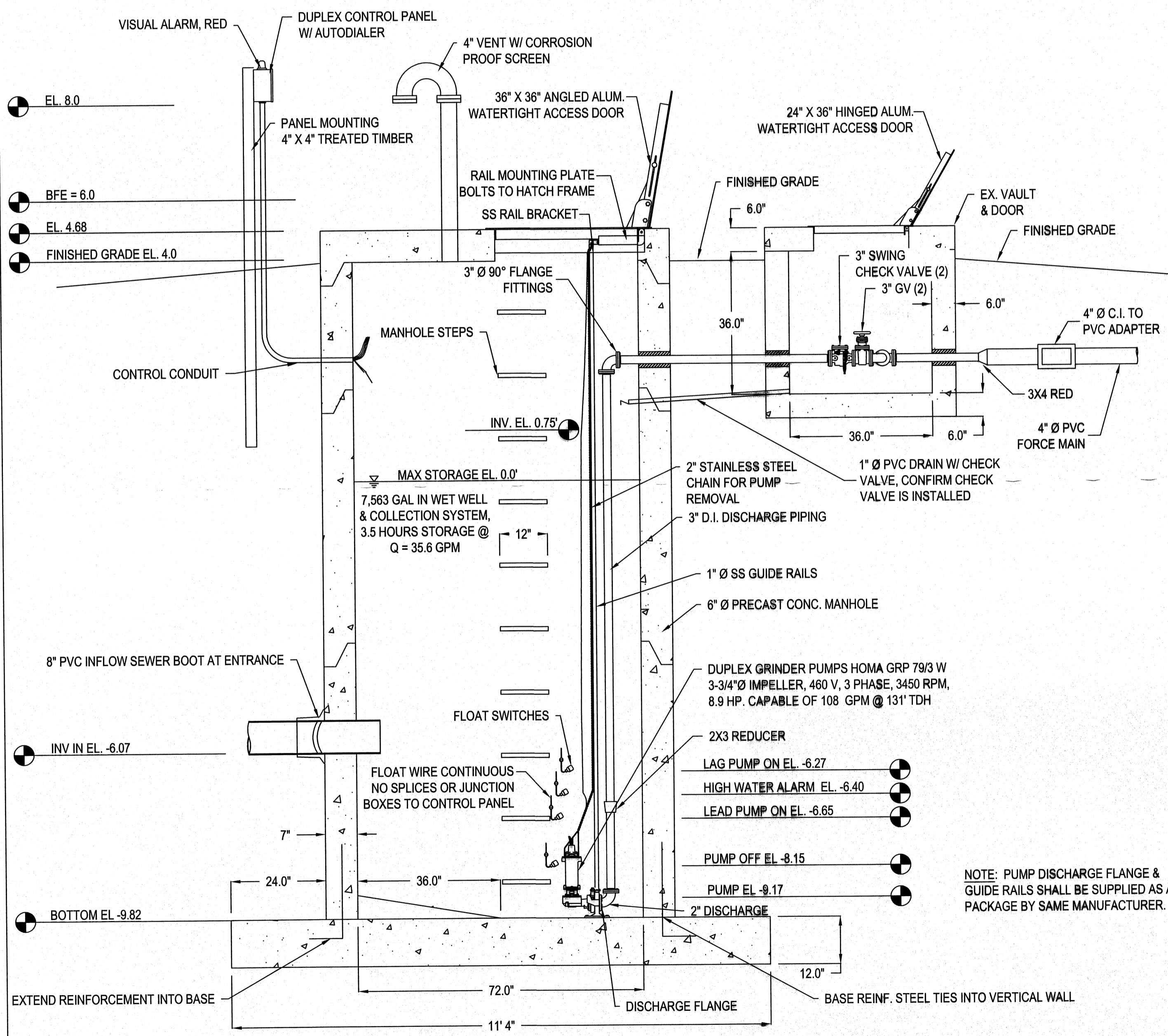
SHEET NO:
C1
 OF: 02
 JOB NO. 16133



LIFT STATION SITE PLAN
 SCALE: 1" = 20'



PLAN



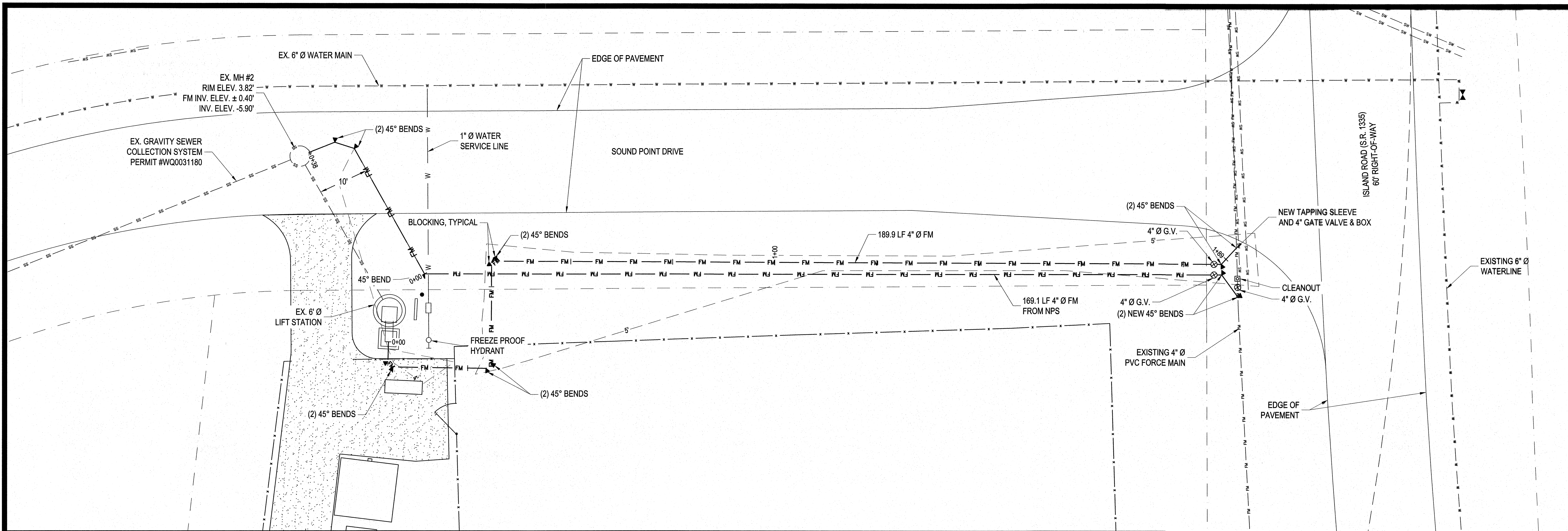
ELEVATION

EXISTING LIFT STATION DETAILS MODIFICATIONS
 NOT TO SCALE

NOTE: EXISTING WETWELL CONFIGURATION AS SHOWN IN PERMIT WQ0031070.

LIFT STATION NOTES

- PUMP: EXISTING PUMP & RAIL SYSTEM IS HYDROMATIC HP 6200 2 HP GRINDER PUMP 1 1/4" DISCHARGE. REPLACE WITH HOMA GRP 79/3, 3 PHASE, 460 VOLT, 8.9 HP PUMP CAPABLE OF PUMPING AT 108 GPM @ 131 FT TDH. NO SUBSTITUTIONS ARE PERMITTED.
- MOTOR: FOR LARGER PUMPS REPLACE MOTOR STARTERS, POWER CABLES AND OTHER CONTROL AND POWER SUPPLY COMPONENTS TO SERVE 8.9 HP MOTORS.
- CORROSION PROTECTION: ALL IRON CASTING SHALL BE PRE-TREATED WITH PHOSPHATE AND CHROMIC RINSE AND PAINTED BEFORE MACHINING AND ALL MACHINED SURFACES EXPOSED TO SEWAGE WATER RE-PAINTED. ALL FASTENERS SHALL BE 302 STAINLESS STEEL.
- POWER CABLES: POWER AND CONTROL CHORDS SHALL BE DOUBLE SEALED. POWER AND CONTROL CONDUCTORS SHALL BE SINGLE STRAND SEALED WITH EPOXY POTTING COMPOUND AND THEN CLAMPED IN PLACE WITH RUBBER BUSHING TO SEAL OUTER JACKET AGAINST LEAKAGE AND TO PROVIDE FOR STRAIN PULL. CORDS SHALL BE ABLE TO WITHSTAND PULL OF 300 LBS TO MEET UL REQUIREMENTS. INSULATION OF POWER AND CONTROL CHORDS SHALL BE TYPE SOOW. BOTH CONTROL AND POWER CORDS SHALL HAVE A GREEN CARRIER ROUND CONDUCTOR THAT ATTACHES TO MOTOR FRAME. THERE SHALL BE NO SPLICES OF POWER OR CONTROL CORDS IN THE WET WELL.
- PIPING, FITTINGS, CHECK VALVE, AND GATE VALVES SHALL BE REPLACED AS INDICATED.
- WETWELL TESTING: WETWELL SHALL BE TESTED FOR LEAKAGE AND WATER LOSS AND SHALL NOT EXCEED 1" OF WETWELL DEPTH IN 24 HOURS.
- PUMP TESTING: PUMP DRAWDOWN TESTING SHALL BE CONDUCTED FOR EACH PUMP IN THE PRESENCE OF THE ENGINEER. OPERATION OF ALL CONTROLS INCLUDING STANDBY POWER SHALL BE CONDUCTED IN THE PRESENCE OF THE ENGINEER.
- DUPLEX CONTROL PANEL: A NEMA 4X ENCLOSURE SHALL BE FURNISHED. ALL HARWARE SHALL BE STAINLESS STEEL WITH EACH PUMP UNIT TO BE INSTALLED. DRIP SHIELD SHALL BE NEMA 3R. EXTERIOR DOOR SHALL BE LOCKABLE BY PAD LOCK. A SEPARATE HINGED DEAD FRONT INNER DOOR SHALL BE PROVIDED IN THE ENCLOSURE. ALL CONTROL SWITCHES, LIGHTS AND OVERLOAD RESETS SHALL BE MOUNTED THROUGH THE INNER DOOR AND SHALL HAVE LOCKING TABS THAT PREVENT THE INNER DOOR FROM BEING OPENED WITH BREAKERS IN THE "ON" POSITION. THE PANEL SHALL INCLUDE A PUMP CIRCUIT BREAKER, ALARM CIRCUIT FUSE, CONTROL CIRCUIT FUSE, I.E.C. RATED MOTOR STARTER WITH 3-POLE AMBIENT COMPENSATED BIMETAL OVERLOAD RELAY, PUMP RUN TIME METER IN TENTHS OF AN HOUR & CYCLE COUNTER FOR EACH PUMP, PUMP HAND-OFF-AUTO SWITCH, ALARM TEST SWITCH, PUMP RUN LIGHTS, SEAL LEAK LIGHTS, ALTERNATOR RELAY (SOLID STATE), OVERRIDE RELAY, CONTROL TRANSFORMER AND PRIMARY FUSING, TERMINAL BLOCKS, GROUND LUGS AND ALL NECESSARY WIRING AND BRACKETS. CONTROL PANEL SHALL ALSO INCLUDE A RED LEXON ALARM LIGHT MOUNTED ON TOP OF THE PANEL LIGHT SHALL BE APPROXIMATELY 3" HIGH AND 3-1/2" IN DIAMETER. THE LENS SHALL NOT BE REMOVABLE FROM THE EXTERIOR OF THE ENCLOSURE. BULB SHALL BE 25 WATT MEDIUM HIGH INTENSITY MEDIUM BASE TYPE. ALARM SHALL GIVE A BRIGHT GLOW AND FLASH DURING HIGH WATER ALARM PERIODS. ALARM AND LIGHT SHALL GO OUT WHEN WATER LEVEL DROPS. CONTROL PANEL AND POWER SUPPLY SCHEMATIC DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ALARMS SHALL BE PROVIDED FOR THE FOLLOWING CONDITIONS:
 - HIGH WATER ELEVATION: A CONTACT CLOSURE FROM HIGH LEVEL FLOAT SHALL INDICATE AN ALARM CONDITION. THIS ALARM SHALL RESET AUTOMATICALLY.
 - PUMP FAIL: A TIME DELAY SHALL BEGIN WHEN THE PUMP IS DEMANDED. IF THE PUMP DOES NOT START A NO FLOW OR PUMP FAILURE ALARM SHALL BE ACTIVATED.
 - PUMP SEAL FAIL: A PUMP SEAL FAILURE SHALL BE ANNUNCIATED ONLY BY THE INDIVIDUAL ALARM LIGHT. THIS ALARM SHALL NOT STOP THE PUMP FROM RUNNING.
- THE USE OF "LIFT" AND "PUMP" STATION ARE INTERCHANGEABLE.
- POWER: 3 PHASE PROTECTION SHALL BE PROVIDED AND MODIFIED AS REQUIRED FOR LARGER PUMPS.
- CONTROLS: PROVIDE NEW CONTROLS MEETING THESE SPECIFICATIONS AND FOR USE WITH LARGER PUMPS.
- CERTIFICATION: WHEN MODIFICATIONS ARE COMPLETED AND BEFORE WETWELL IS ALLOWED TO FILL WITH WATER, CONTACT ENGINEER FOR OBSERVATIONS. NO CERTIFICATION WILL BE PROVIDED WITHOUT ENGINEER OBSERVATION & TESTING OF COMPLETED LIFT STATION.



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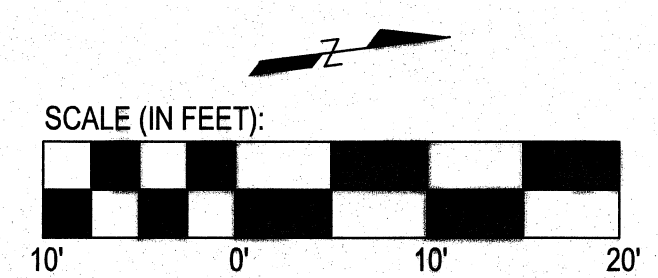
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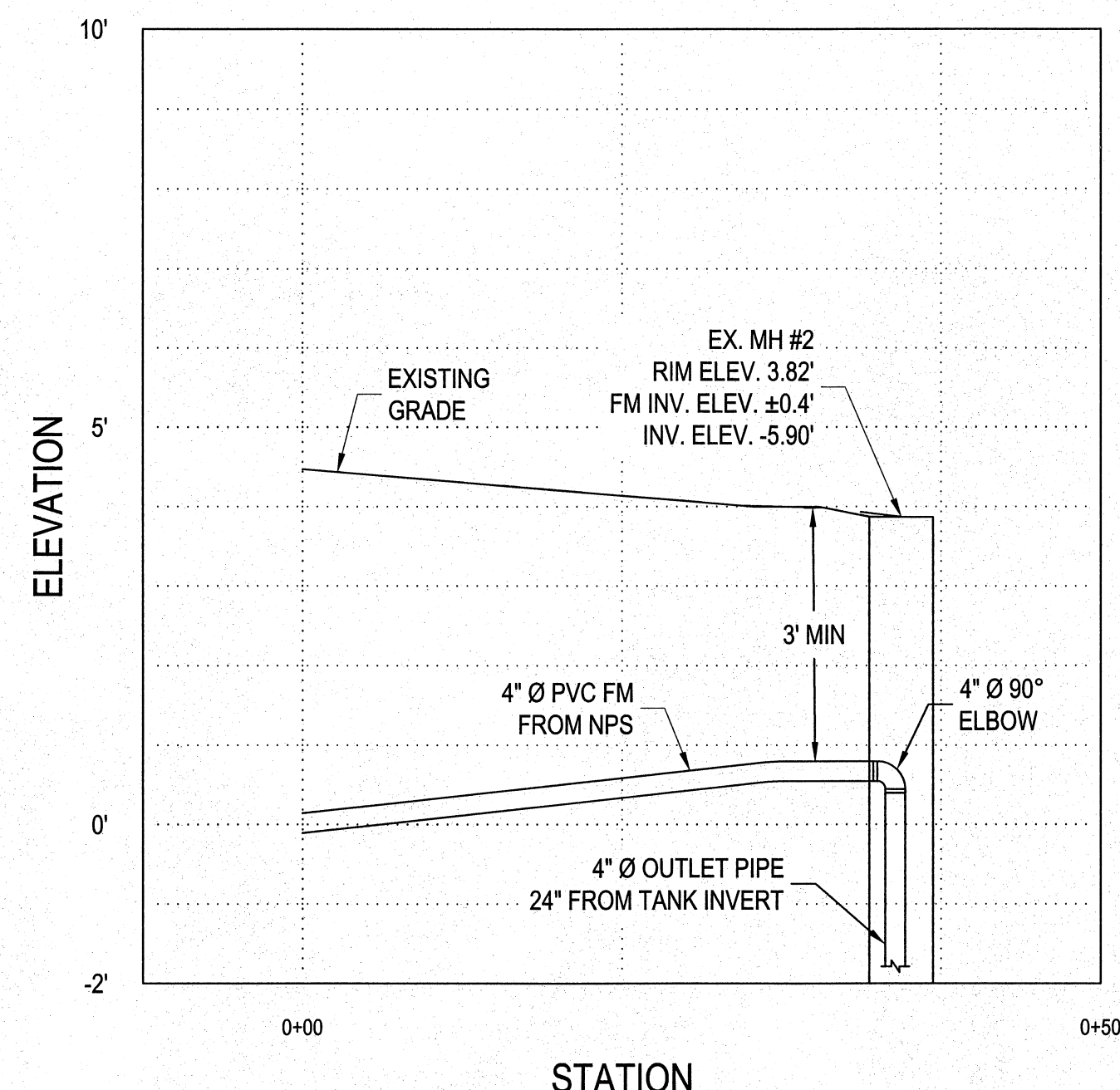
CARTERET COUNTY, NC

DRAWING:
 CAPE POINT LIFT
 FORCE MAIN PLAN & PROFILE

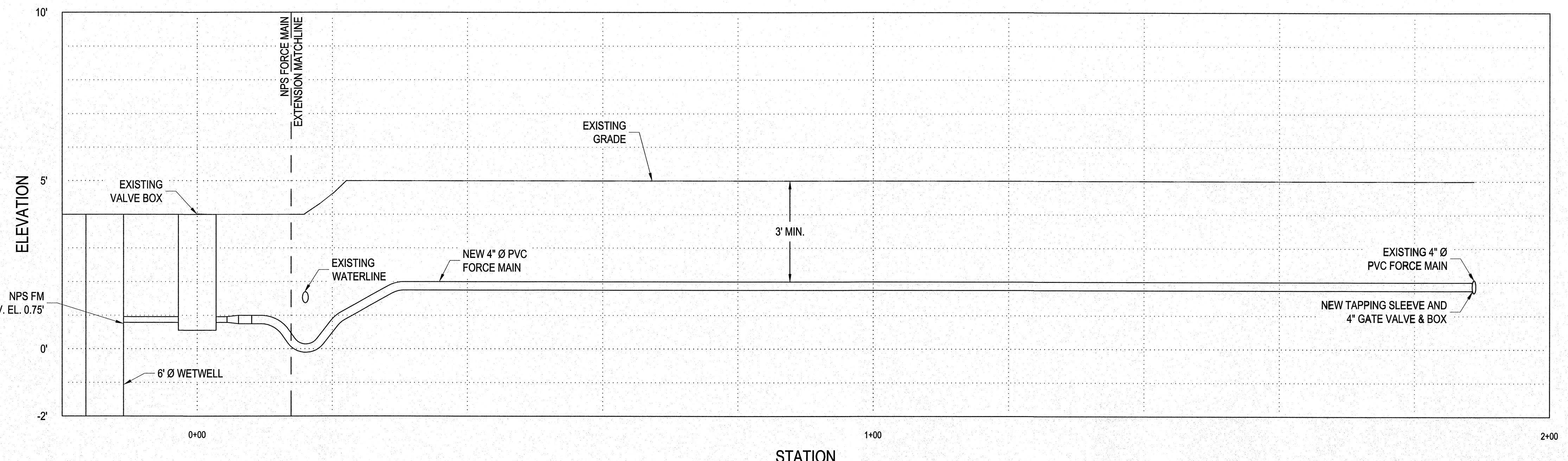
CAPE POINT FORCE MAIN PLAN
 SCALE: 1" = 10'



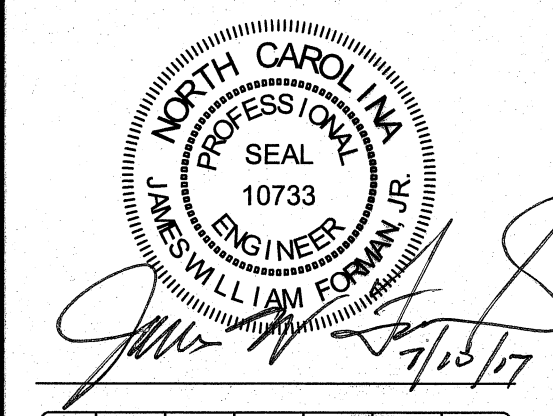
- NOTES:
- MINIMUM VERTICAL SEPARATION OF 24" SHALL BE MAINTAINED BETWEEN SANITARY SEWER AND STORM SEWER AND 18" BETWEEN SANITARY SEWER AND WATER MAIN. IF MINIMUM VERTICAL SEPARATION CANNOT BE MAINTAINED, WATER, GRAVITY SEWER AND FORCE MAIN SHALL BE CONSTRUCTED WITH DUCTILE IRON PIPE WITH PIPE JOINTS TO WATER MAIN STANDARDS. CENTER OF 20' PIPE SECTIONS SHALL BE CENTERED AT CROSSING POINT.
 - BORE BENEATH EACH CONCRETE AND ASPHALT DRIVEWAY. EXTEND 5' BEYOND EDGE OF PAVEMENT EACH SIDE.
 - MAINTAIN MINIMUM VERTICAL SEPARATION OF STORMWATER DITCHES AND SWALES OF 24".
 - MAINTAIN MINIMUM CLEAR DISTANCE FROM EDGE OF TRENCH TO EDGE OF PAVEMENT OF 4 FEET.
 - LOCATION WATER MAINS AND SERVICES THAT EXTEND SOUTH OF ISLAND ROAD ARE ESTIMATED. THESE LINES WILL BE IDENTIFIED IN THE FIELD DURING CONSTRUCTION AND HISCO WILL COORDINATE WITH THE WATER DISTRICT AS NECESSARY. MINIMUM SEPARATION TO MAINS (2" & GREATER) WILL BE 18" AND 12" FOR WATER SERVICES (LESS THAN 2").



NPS FORCE MAIN EXTENSION PROFILE
 SCALE: H: 1" = 10'; V: 1" = 2'



CAPE POINT FORCE MAIN PROFILE
 SCALE: H: 1" = 10'; V: 1" = 2'

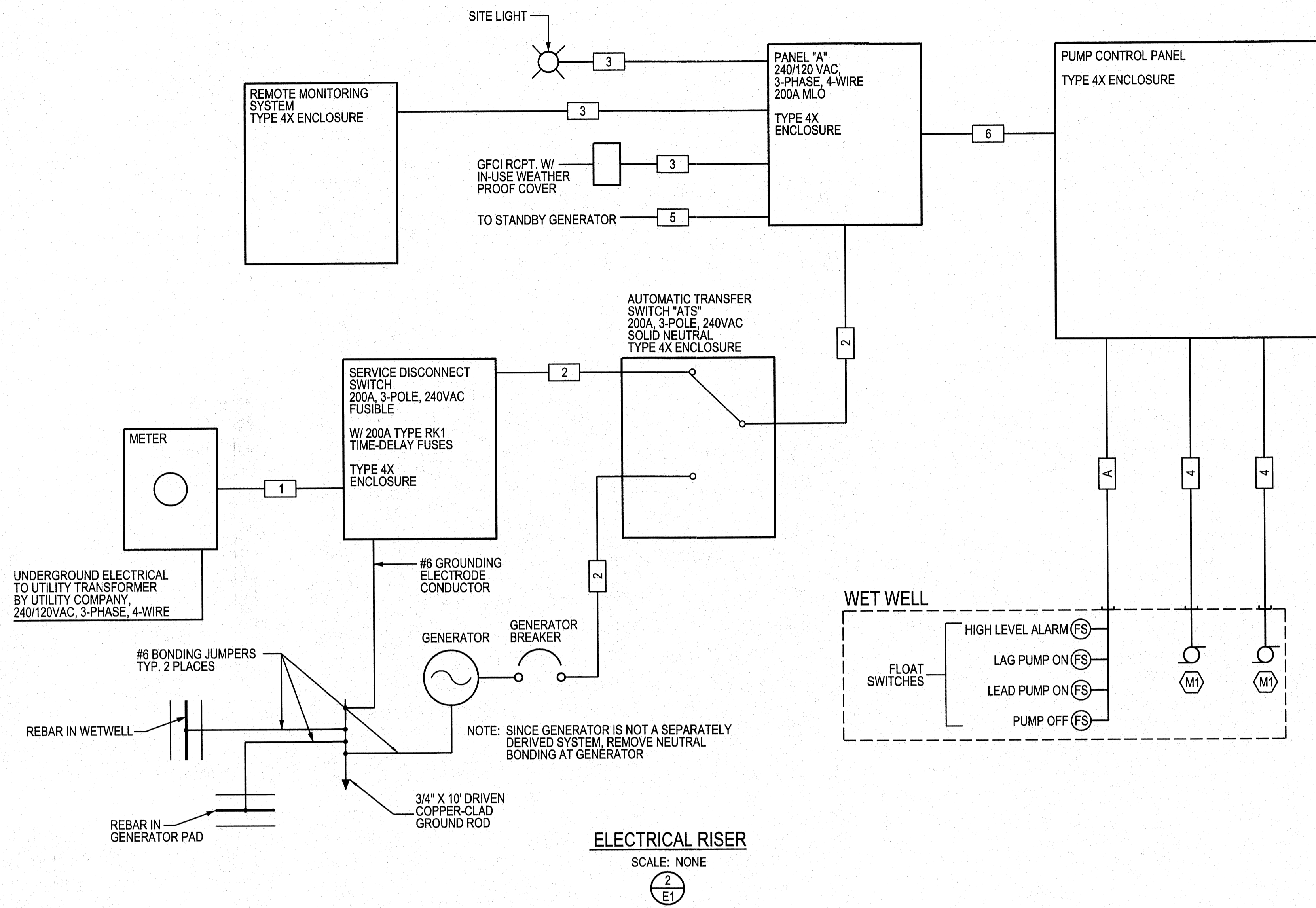


NO.	REVISION	BY	DATE
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SHEET NO:
C2

OF: 02
 JOB NO. 16133

O:\Projects\2016\16007_HISCO West Hill Force Main\dwg\Cape Point_LS Revisions_Spring 2017\16133baas.dwg, 7/11/2017 11:56:37 AM, LANIER, LVS26 PS (Copy 1), 24x36, 1:1



WIRING SCHEDULE

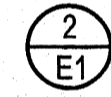
1	3-#9/0,1-#3/0 N. IN 3" PVC CONDUIT
2	3-#9/0,1-#3/0 N., 1-#6 GRD. IN 3" PVC CONDUIT
3	1#12, 1#12 N., 1#12 GRD. IN 3/4" PVC CONDUIT
4	PUMP CABLE IN 2" PVC CONDUIT
5	2#12, 2#12 N. & 1#12 GRD. IN 3/4" PVC CONDUIT
6	3#4, 1#8 N. & 1#8 GRD. IN 1 1/2" PVC CONDUIT
A	FLOAT CABLES IN 2" PVC CONDUIT
B	(8)#14 IN 1/2" PVC CONDUIT
C	(2)#14 IN 1/2" PVC CONDUIT
D	GENERATOR / ATS CONTROL WIRING IN 3/4" PVC CONDUIT

ELECTRICAL NOTES:

- ELECTRICAL INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF NFPA 70 AND ALL OTHER APPLICABLE REGULATIONS.
- SLOPE ALL CONDUITS TOWARD WETWELL.
- ALL CONDUITS ENTERING CONTROL PANEL OR OTHER ELECTRICAL PANELS SHALL BE SEALED WITH DUCT SEAL AT ENTRANCE TO PANEL.
- WIRE THE FOLLOWING CONTACT INPUTS FROM THE PUMP CONTROL PANEL TO THE REMOTE MONITORING SYSTEM:
A. HIGH WET WELL LEVEL.
B. PUMP 1 FAULT.
C. PUMP 2 FAULT.
D. LOSS OF POWER.
- SITE LAYOUT, GENERATOR SLAB DESIGN, & ELECTRICAL EQUIPMENT RACK DESIGN BY OTHERS.
- GENERATOR CHARACTERISTICS
A. 240/120VAC, 3-PHASE
B. 60KW W/ 70KW OVERSIZED ALTERNATOR, 0.8 PF
C. DIESEL
D. 48 HR. SUB-BASE FUEL TANK
E. ALUMINUM ENCLOSURE W/ STAINLESS STEEL HARDWARE
F. SHALL MEET ALL EPA REGULATIONS
G. BREAKER SIZED FOR GENERATOR
- REMOTE MONITORING SYSTEM SHALL BE ON OMNISITE XR50-ENCV-120 OR EQUAL.
- PUMP CONTROL PANEL SHALL BE A DUPLEX CONTROL PANEL MEETING ALL APPLICABLE REGULATIONS.

ELECTRICAL RISER

SCALE: NONE



EQUIPMENT CONNECTION SCHEDULE									
SYMBOL	DESCRIPTION	QTY.	POWER	VOLT.	PHASE	FLA NAMEPLATE	POWER SOURCE	CONTROL SOURCE	DISCONNECT
(M1)	LIFT STATION PUMPS	2	8.9 HP	230	3	22.0	PUMP CONTROL PANEL	PUMP CONTROL PANEL	BREAKER IN PUMP CONTROL PANEL

PANEL - A															
TYPE		MOUNTING		SURFACE		ENCLOSURE		NEMA-4X		PHASE		WIRE		SHORT CIR. RATING	
PLUG-ON		SURFACE		SURFACE		NEMA-4X		NEMA-4X		3		4		10,000	
VOLTS		MAIN		MLO		FRAME		200A		RMS SYM MIN					
CKT. NO.	CB TRIP	DESCRIPTION	COND. SIZE	GRND.	WIRE SIZE	LOAD (AMPS)			COND. (')	GRND.	WIRE SIZE	DESCRIPTION	CB TRIP	CKT. NO.	
						A	B	C							
1	20/1	REMOTE MONITORING SYSTEM	3/4"	(1)#12	(2)#12	1	-	-	45	1 1/2"	1-#6	3-#4,1-#8N.	PUMP CONTROL PANEL	80/3	2
3	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	4
5	20/1	SITE LIGHT	3/4"	(1)#12	(2)#12	2	-	-	44	-	-	-	-	-	6
7	20/1	RCPT.	3/4"	(1)#12	(2)#12	2	-	-	-	-	-	-	-	-	8
9	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	10
11	20/1	GENERATOR BATTERY CHARGER	3/4"	(1)#12	(2)#12	-	-	12	-	-	-	-	-	-	12
13	20/1	GENERATOR BLOCK HEATER	3/4"	(1)#12	(2)#12	12	-	-	-	-	-	-	-	-	14
15	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	16
17	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	18
19	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	20
21	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	22
23	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	24
25	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	26
27	-	BLANK	-	-	-	-	-	-	-	-	-	-	-	-	28
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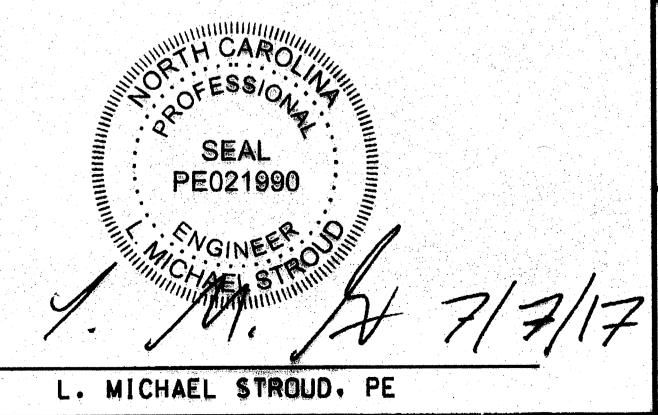
NOTES:
1. DO NOT WIRE 120VAC, 1-PHASE LOAD TO PHASE B (HI-LEG)

PANEL LOAD: 21,890 VA

NEUTRAL TERMINAL BAR
GROUND TERMINAL BAR

REVISIONS			
BY	NO.	DATE	DESCRIPTION

PROJECT NO.: P1542-003
DRAWING NO.: 001



ELECTRICAL ONE-LINE

CAPE POINT LIFT STATION

CARTERET COUNTY NORTH CAROLINA

OWNER: HARKER'S ISLAND SEWER COMPANY
ADDRESS:
PHONE:

DESIGNED: LMS
DRAWN: LMS
APPROVED: LMS
DATE: 7/7/17
SCALE: AS NOTED
SHEET E1 OF 1

STROUD ENGINEERING, P.A.
107-B COMMERCE STREET
GREENVILLE, NORTH CAROLINA 27858
(252) 756-9352
LICENSE NO. C-0647