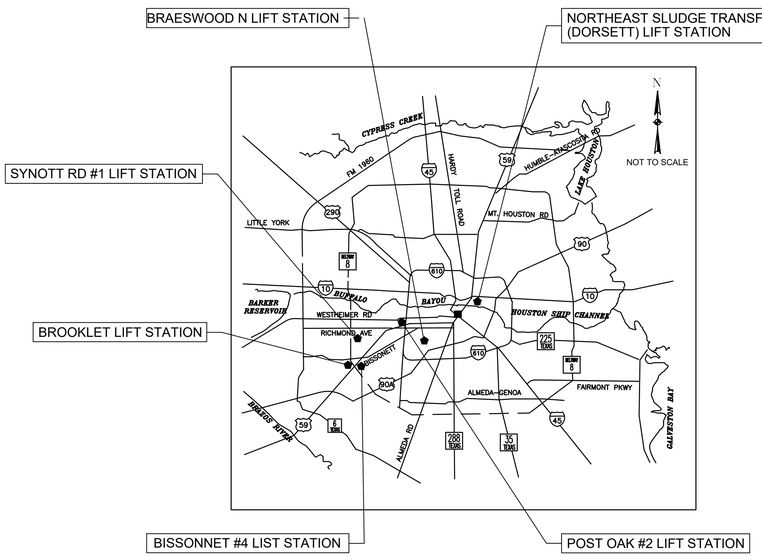
CITY OF HOUSTON

HOUSTON PUBLIC WORKS CAPITAL PROJECTS

N.E. SLUDGE TRANSFER, BRAESWOOD N, POST OAK #2, BISSONNET #4, BROOKLET, AND SYNOTT RD. #1 LIFT STATION RENEWAL AND REPLACEMENT

WBS NO. R-000267-0173-3

60% SUBMITTAL



LOCATION MAP

CITY OF HOUSTON TEXAS

MAYOR
JOHN WHITMIRE

CONTROLLER
CHRIS HOLLINS

DISTRICT COUNCIL MEMBERS

AMY PECK, DISTRICT A
TARSHA JACKSON, DISTRICT B
ABBIE KAMIN, DISTRICT C
CAROLYN EVANS–SHABAZZ, DISTRICT D
FRED FLICKINGER, DISTRICT E
TIFFANY D. THOMAS, DISTRICT F
MARY NAN HUFFMAN, DISTRICT G
MARIO CASTILLO, DISTRICT H
JOAQUIN MARTINEZ, DISTRICT I
EDWARD POLLARD, DISTRICT J
MARTHA CASTEX–TATUM, DISTRICT K

COUNCIL MEMBERS AT–LARGE

JULIAN RAMIREZ, POSITION 1
WILLIE DAVIS, POSITION 2
TWILA CARTER, POSITION 3
LETITIA PLUMMER, POSITION 4
SALLIE ALCORN, POSITION 5

Z0G01

TDLR EABPR _____

NO.	DATE	REVISION	APP.
3			
2			
1			

HATCH
750 TOWN & COUNTRY BLVD, SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

SURVEYED BY: AMANI ENGINEERING, INC.
FB NO. P-6170

PARKS–FORESTRY DEPT.

METRO

HOUSTON WATER

TRANSPORTATION & DRAINAGE OPERATIONS

CAPITAL PROJECTS

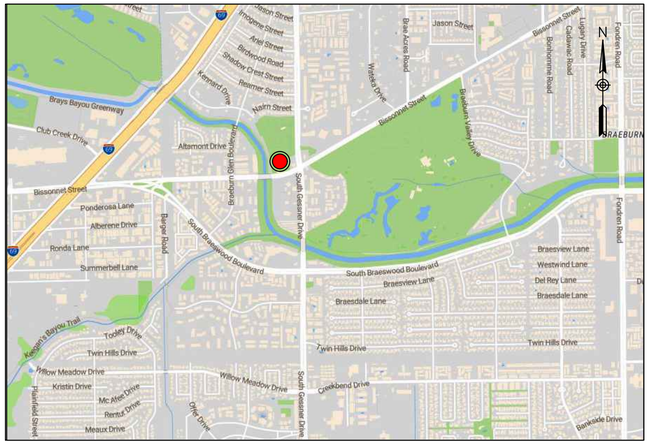
SURVEY

CITY ENGINEER DATE

DIRECTOR OF HOUSTON PUBLIC WORKS DATE

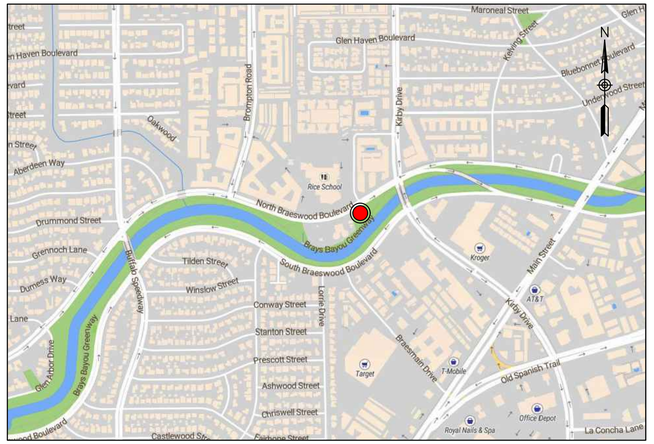
FOR CITY OF HOUSTON USE ONLY

SHEET NO 01 OF 246 SHEETS



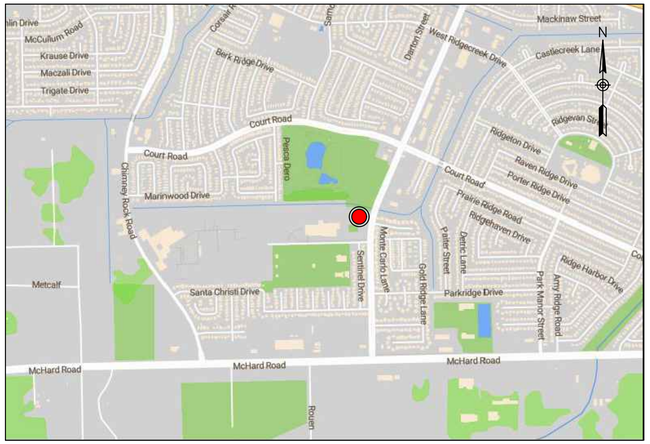
BISSONNET #4 LIFT STATION

8620 BISSONNET STREET - HOUSTON TX, 77074
KEY MAP 530-T COUNICIL DISTRICT J



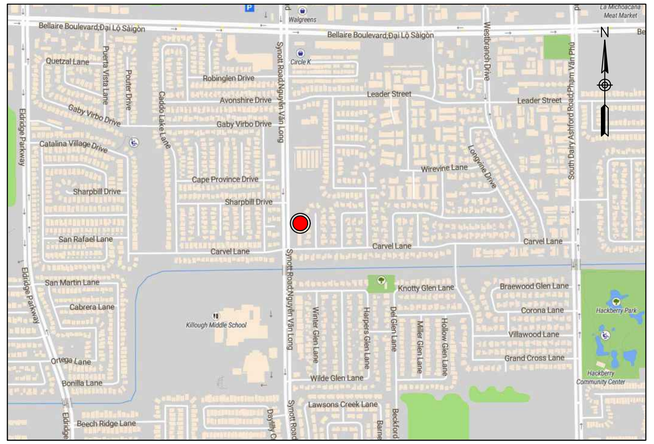
BRAESWOOD NORTH LIFT STATION

2707 NORTH BRAESWOOD BOULEVARD - HOUSTON TX, 77025
KEY MAP 532-L COUNCIL DISTRICT C



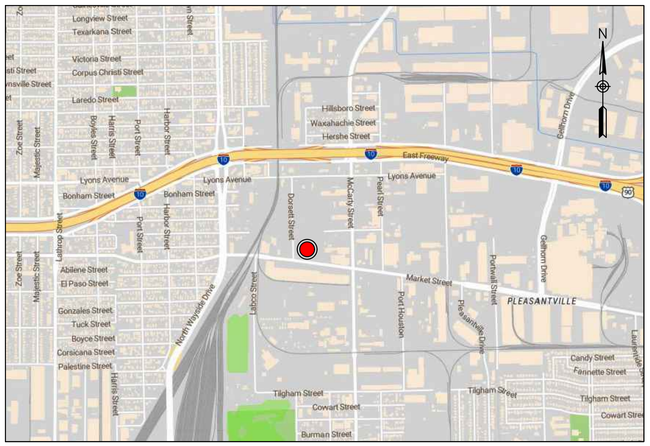
POST OAK #2 LIFT STATION

16500 SOUTH POST OAK ROAD - HOUSTON TX, 77053
KEY MAP 611-C COUNCIL DISTRICT K



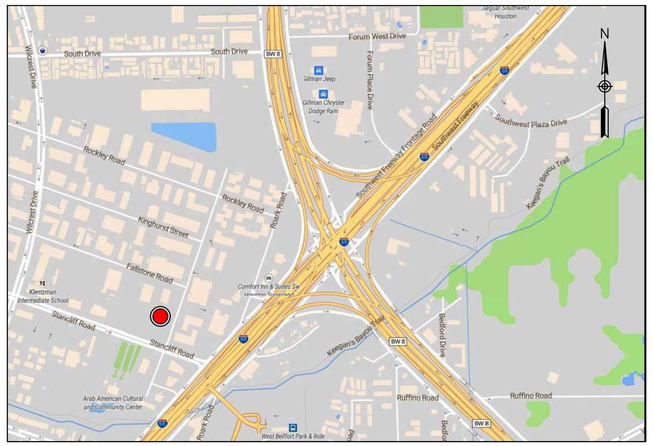
SYNOTT ROAD #1 LIFT STATION

7330 SYNOTT ROAD - HOUSTON TX, 77083
KEYMAP 528-L COUNCIL DISTRICT



NORTHEAST SLUDGE TRANSFER (DORSETT) LIFT STATION

MARKET STREET AND DORSETT STREET - HOUSTON TX, 77029
KEY MAP 495-E COUNCEL DISTRICT H



BROOKLET LIFT STATION

11126 BROOKLET DRIVE - HOUSTON TX, 77099
KEY MAP 529-Y COUNCIL DISTRICT J

NO.	DATE	REVISION	APP.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

VICINITY MAPS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, P.E.	
Z0G02 SHEET NO. OF 246	

PLOTTED: 10/29/2025 8:18 AM
PLOT STYLE: COH.ctb
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DWG. NO.	SHEET NO.	SHEET TITLE
		GENERAL
Z0G01	1	COVER SHEET
Z0G02	2	VICINITY MAPS
Z0G03	3	SHEET INDEX
Z0G04	4	GENERAL NOTES
Z0G05	5	GENERAL SYMBOLS AND ABBREVIATIONS
Z0G06	6	LIFT STATION SWPPP NOTES AND DETAILS
Z0G07	6A	LIFT STATION FLOODPLAIN MAPS
		BRAESWOOD N LS
E1C01	7	BRAESWOOD N LIFT STATION SURVEY CONTROL MAP
E1C02	8	BRAESWOOD N LIFT STATION EXISTING TOPOGRAPHIC PLAN
E1C03	9	BRAESWOOD N LIFT STATION SITE DEMOLITION PLAN
E1C04	10	BRAESWOOD N LIFT STATION SURFACE PLAN VIEW AND MECHANICAL DEMO
E1C05	11	BRAESWOOD N LIFT STATION PUMP FLOOR PLAN VIEW MECHANICAL DEMO
E1C06	12	BRAESWOOD N LIFT STATION INTERMEDIATE FLOOR PLAN VIEW MECHANICALDEMO
E1C07	13	BRAESWOOD N LIFT STATION SECTION VIEW MECHANICAL DEMO
E1C08	14	BRAESWOOD N LIFT STATION PROPOSED SITE PLAN
E1C09	15	BRAESWOOD N LIFT STATION SWPPP
E1S01	16	BRAESWOOD N LIFT STATION DEMO & PROPOSED PLAN
E1S02	17	BRAESWOOD N LIFT STATION PLAN & SECTION
E1S03	18	BRAESWOOD N LIFT STATION – PLATFORM PLAN & SECTION
E1M01	19	BRAESWOOD N LIFT STATION PLAN VIEW
E1M02	20	BRAESWOOD N LIFT STATION ELEVATION SECTION
E1M03	21	BRAESWOOD N LIFT STATION TOP VIEW/ BASE SECTION
E1M04	22	BRAESWOOD N LIFT STATION PIPING SUPPORT DETAILS
E1M05	23	BRAESWOOD N LIFT STATION TYPICAL DETAILS
E1M06	24	BRAESWOOD N LIFT STATION TYPICAL DETAILS
E1E01	25	BRAESWOOD N LS ELECTRICAL SITE PLAN
E1E02	26	BRAESWOOD N LS LIFT STATION ELEVATION
E1E03	27	BRAESWOOD N LS POWER & CONTROL CABINET INSTALLATION
E1E04	28	BRAESWOOD N LS POWER & CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE
E1E05	29	BRAESWOOD N LS POWER & CONTROL CABINET EQUIPMENT LAYOUT–I
E1E06	30	BRAESWOOD N LS POWER & CONTROL CABINET EQUIPMENT LAYOUT–II
E1E07	31	BRAESWOOD N LS POWER & CONTROL CABINET EQUIPMENT LAYOUT–III
E1E08	32	BRAESWOOD N LS INCOMING POWER THREE LINE DIAGRAM
E1E09	33	BRAESWOOD N LS SINGLE LINE DIAGRAM
E1E10	34	BRAESWOOD N LS COMMUNICATION DIAGRAM
E1E11	35	BRAESWOOD N LS PROCESS & INSTRUMENTATION DIAGRAM–I
E1E12	36	BRAESWOOD N LS PROCESS & INSTRUMENTATION DIAGRAM–II
E1E13	37	BRAESWOOD N LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–I
E1E14	38	BRAESWOOD N LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–II
E1E15	39	BRAESWOOD N LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–III
E1E16	40	BRAESWOOD N LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–IV
E1E17	41	BRAESWOOD N LS PUMP NO.1 CONTROL WIRING DIAGRAM
E1E18	42	BRAESWOOD N LS PUMP NO.2 CONTROL WIRING DIAGRAM
E1E19	43	BRAESWOOD N LS PUMP NO.3 CONTROL WIRING DIAGRAM
E1E20	44	BRAESWOOD N LS ELECTRICAL CONDUIT SCHEDULE
		POST OAK #2 LS
C1C41	45	POST OAK #2 LIFT STATION SURVEY CONTROL MAP
C1C42	46	POST OAK #2 LIFT STATION EXISTING TOPOGRAPHIC PLAN
C1C43	47	POST OAK #2 LIFT STATION SITE DEMOLITION PLAN
C1C44	48	POST OAK #2 LIFT STATION PROPOSED SITE PLAN
C1C45	49	POST OAK #2 LIFT STATION SWPPP
C1S41	50	POST OAK #2 LIFT STATION DEMOLITION PLAN
C1S42	51	POST OAK #2 LIFT STATION SECTIONS & DETAILS
C1M41	52	POST OAK #2 LIFT STATION EXISTING PLAN & SECTION
C1M42	53	POST OAK #2 LIFT STATION SURFACE PLAN VIEW MECHANICAL DEMO
C1M43	54	POST OAK #2 LIFT STATION SECTION VIEW MECHANICAL DEMO
C1M44	55	POST OAK #2 LIFT STATION PLAN VIEW & GRADE
C1M45	56	POST OAK #2 LIFT STATION ELEVATION SECTION
C1M46	57	POST OAK #2 LIFT STATION PIPING SUPPORT DETAILS
C1M47	58	POST OAK #2 LIFT STATION TYPICAL DETAILS
C1M48	59	POST OAK #2 LIFT STATION SUPPORT DETAILS
C1E41	60	POST OAK #2 LS ELECTRICAL SITE PLAN
C1E42	61	POST OAK #2 LS LIFT STATION ELEVATION
C1E43	62	POST OAK #2 LS POWER & CONTROL CABINET INSTALLATION
C1E44	63	POST OAK #2 LS POWER & CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE
C1E45	64	POST OAK #2 LS POWER & CONTROL CABINET EQUIPMENT LAYOUT–I
C1E46	65	POST OAK #2 LS POWER & CONTROL CABINET EQUIPMENT LAYOUT–II
C1E47	66	POST OAK #2 LS POWER & CONTROL CABINET EQUIPMENT LAYOUT–III
C1E48	67	POST OAK #2 LS THREE LINE DIAGRAM
C1E49	68	POST OAK #2 LS SINGLE LINE DIAGRAM
C1E50	69	POST OAK #2 LS COMMUNICATION DIAGRAM
C1E51	70	POST OAK #2 LS PROCESS & INSTRUMENTATION DIAGRAM–I
C1E52	71	POST OAK #2 LS PROCESS & INSTRUMENTATION DIAGRAM–II
C1E53	72	POST OAK #2 LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–I
C1E54	73	POST OAK #2 LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–II
C1E55	74	POST OAK #2 LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–III
C1E56	75	POST OAK #2 LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–IV
C1E57	76	POST OAK #2 LS PUMP NO.1 CONTROL WIRING DIAGRAM
C1E58	77	POST OAK #2 LS PUMP NO.2 CONTROL WIRING DIAGRAM
C1E59	78	POST OAK #2 LS CONDUIT SCHEDULE
		BISSONNET #4 LS
N1C01	79	BISSONNET #4 LIFT STATION SURVEY CONTROL MAP
N1C02	80	BISSONNET #4 LIFT STATION EXISTING SITE PLAN
N1C03	81	BISSONNET #4 LIFT STATION SITE DEMOLITION PLAN
N1C04	82	BISSONNET #4 LIFT STATION PROPOSED SITE PLAN
N1C05	83	BISSONNET #4 LIFT STATION SWPPP
N1S01	84	BISSONNET #4 LIFT STATION DEMOLITION & CONSTRUCTION PLAN
N1S02	85	BISSONNET #4 LIFT STATION PROPOSED PLAN & DETAILS
N1S03	86	BISSONNET #4 LIFT STATION SECTIONS & DETAILS
N1M01	87	BISSONNET #4 SURFACE PLAN VIEW DEMOLITION PLAN
N1M02	88	BISSONNET #4 SECTION PLAN VIEW DEMOLITION PLAN
N1M03	89	BISSONNET #4 SECTION VIEW DEMOLITION PLAN
N1M04	90	BISSONNET #4 LIFT STATION PLAN & DETAILS
N1M05	91	BISSONNET #4 LIFT STATION PROPOSED SECTION
N1M06	92	BISSONNET #4 LIFT STATION PLAN VIEW
N1M07	93	BISSONNET #4 LIFT STATION ELEVATION SECTION A–A
N1M08	94	BISSONNET #4 LIFT STATION TOP VIEW/ BASE SECTION
N1M09	95	BISSONNET #4 LIFT STATION SUPPORT DETAILS
N1M10	96	BISSONNET #4 LIFT STATION TYPICAL DETAILS
N1M11	97	BISSONNET #4 LIFT STATION PUMP CURVE

DWG. NO.	SHEET NO.	SHEET TITLE
		BISSONNET #4 LS CONT.
N1A01	98	BISSONNET #4 LS ARCHITECTURAL CONTROL BUILDING
N1E01	99	BISSONNET #4 LS ELECTRICAL SITE PLAN
N1E02	100	BISSONNET #4 LS LIFT STATION ELEVATION
N1E03	101	BISSONNET #4 LS CONTROL BUILDING
N1E04	102	BISSONNET #4 LS CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE
N1E05	103	BISSONNET #4 LS CONTROL CABINET EQUIPMENT LAYOUT
N1E06	104	BISSONNET #4 LS INCOMING POWER THREE LINE DIAGRAM
N1E07	105	BISSONNET #4 LS MCC SCHEMATIC AND WIRING DIAGRAM
N1E08	106	BISSONNET #4 LS SINGLE LINE DIAGRAM
N1E09	107	BISSONNET #4 LS COMMUNICATION DIAGRAM
N1E10	108	BISSONNET #4 LS PROCESS & INSTRUMENTATION DIAGRAM–I
N1E11	109	BISSONNET #4 LS PROCESS & INSTRUMENTATION DIAGRAM–II
N1E12	110	BISSONNET #4 LS CONTROL CABINET CONTROL WIRING DIAGRAM–I
N1E13	111	BISSONNET #4 LS CONTROL CABINET CONTROL WIRING DIAGRAM–II
N1E14	112	BISSONNET #4 LS CONTROL CABINET CONTROL WIRING DIAGRAM–III
N1E15	113	BISSONNET #4 LS PUMP NO.1 CONTROL WIRING DIAGRAM
N1E16	114	BISSONNET #4 LS PUMP NO.2 CONTROL WIRING DIAGRAM
N1E17	115	BISSONNET #4 LS PUMP NO.3 CONTROL WIRING DIAGRAM
N1E18	116	BISSONNET #4 LS PUMP NO.4 CONTROL WIRING DIAGRAM
N1E19	117	BISSONNET #4 LS PUMP NO.5 CONTROL WIRING DIAGRAM
N1E20	118	BISSONNET #4 LS PUMP NO.6 CONTROL WIRING DIAGRAM
N1E21	119	BISSONNET #4 LS MCC ELEVATION
N1E22	120	BISSONNET #4 LS ELECTRICAL CONDUIT SCHEDULE
		BROOKLET LS
C1C01	121	BROOKLET LS SURVEY CONTROL MAP
C1C02	122	BROOKLET LS EXISTING TOPOGRAPHIC PLAN
C1C03	123	BROOKLET DEMOLITION PLAN
C1C04	124	BROOKLET SURFACE & SECTIONAL PLAN VIEWS MECH DEMO
C1C05	125	BROOKLET SECTION VIEWS MECHANICAL DEMO
C1C06	126	BROOKLET LS PROP SITE PLAN
C1C07	127	BROOKLET LIFT STATION SWPPP
C1S01	128	BROOKLET LS DEMO & CONST. PLAN
C1S02	129	BROOKLET LS PLANS, SECTIONS & DETAILS
C1S03	130	BROOKLET LS ELEVA. ELEC. CAB. PLTF. PLAN & SECTION
C1M01	131	BROOKLET LS PLAN VIEW GRADE/BASE SECTION
C1M02	132	BROOKLET LS ELEVATION SECTION VIEW
C1M03	133	BROOKLET LS ELEVATION SECTION VIEW
C1M04	134	BROOKLET LS DISCHARGE PIPING SUPPORT DETAILS
C1M05	135	BROOKLET LS TYPICAL DETAILS
C1E01	136	BROOKLET LS ELECTRICAL SITE PLAN
C1E02	137	BROOKLET LS LIFT STATION ELEVATION
C1E03	138	BROOKLET LS POWER & CONTROL CABINET INSTALLATION
C1E04	139	BROOKLET LS POWER & CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE
C1E05	140	BROOKLET LS POWER & CONTROL CONTROL CABINET EQUIPMENT LAYOUT–II
C1E06	141	BROOKLET INCOMING POWER THREE LINE DIAGRAM
C1E07	142	BROOKLET LS SINGLE LINE DIAGRAM
C1E08	143	BROOKLET LS COMMUNICATION DIAGRAM
C1E09	144	BROOKLET LS PROCESS & INSTRUMENTATION DIAGRAM–I
C1E10	145	BROOKLET LS PROCESS & INSTRUMENTATION DIAGRAM–II
C1E11	146	BROOKLET LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–I
C1E12	147	BROOKLET LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–II
C1E13	148	BROOKLET LS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–III
C1E14	149	BROOKLET LS PUMP NO.1 CONTROL WIRING DIAGRAM
C1E15	150	BROOKLET LS PUMP NO.2 CONTROL WIRING DIAGRAM
C1E16	151	BROOKLET LS CONDUIT SCHEDULE
		NE SLUDGE TRANSFER LS
F1C01	152	NE SLUDGE TRANSFER LS SURVEY CONTROL MAP
F1C02	153	NE SLUDGE TRANSFER LS EXISTING TOPOGRAPHIC PLAN
F1C03	154	NE SLUDGE TRANSFER DEMOLITION PLAN
F1C04	155	NE SLUDGE TRANSFER SURFACE PLAN VIEW MECHANICAL DEMO
F1C05	156	NE SLUDGE TRANSFER SECTION VIEW MECHANICAL DEMO
F1C06	157	NE SLUDGE TRANSFER SWPPP
F1C07	158	NE SLUDGE TRANSFER SECTION VIEW MECHANICAL DEMO
F1C08	159	NE SLUDGE TRANSFER PROPOSE SITE PLAN
F1C09	160	NE SLUDGE TRANSFER SWPPP
F1S01	161	NE SLUDGE TRANSFER LS DEMO & CONST PLAN
F1S02	162	NE SLUDGE TRANSFER LIFT STATION SECTIONS & DETAILS
F1M01	163	NE SLUDGE TRANSFER L.S. PLAN VIEW
F1M02	164	NE SLUDGE TRANSFER L.S. ELEVATION VIEW
F1M03	165	NE SLUDGE TRANSFER L.S. ELEVATION SECTION CC
F1M04	166	NE SLUDGE TRANSFER L.S. TOP VIEW/BASE SECTION
F1M05	167	NE SLUDGE TRANSFER L.S. DISCHARGE PIPING SUPPORT DETAILS
F1M06	168	NE SLUDGE TRANSFER L.S. TYPICAL DETAILS
F1M07	169	NE SLUDGE TRANSFER L.S. TYPICAL DETAILS
F1E01	170	NE SLUDGE TRANSFER LS ELECTRICAL SITE PLAN
F1E02	171	NE SLUDGE TRANSFER LS LIFT STATION ELEVATION
F1E03	172	NE SLUDGE TRANSFER LS CONTROL BUILDING – ELECTRICAL
F1E04	173	NE SLUDGE TRANSFER LS CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE
F1E05	174	NE SLUDGE TRANSFER LS CONTROL CABINET EQUIPMENT LAYOUT
F1E06	175	NE SLUDGE TRANSFER LS INCOMING POWER THREE LINE DIAGRAM
F1E07	176	NE SLUDGE TRANSFER LS MCC SCHEMATIC AND WIRING DIAGRAM
F1E08	177	NE SLUDGE TRANSFER LS MCC SCHEMATIC AND WIRING DIAGRAM SUMERSIBLE MIXER
F1E09	178	NE SLUDGE TRANSFER LS SINGLE LINE DIAGRAM
F1E10	179	NE SLUDGE TRANSFER LS COMMUNICATION DIAGRAM
F1E11	180	NE SLUDGE TRANSFER LS PROCESS & INSTRUMENTATION DIAGRAM–I
F1E12	181	NE SLUDGE TRANSFER LS PROCESS & INSTRUMENTATION DIAGRAM–II
F1E13	182	NE SLUDGE TRANSFER LS CONTROL CABINET CONTROL WIRING DIAGRAM–I
F1E14	183	NE SLUDGE TRANSFER LS CONTROL CABINET CONTROL WIRING DIAGRAM–II
F1E15	184	NE SLUDGE TRANSFER LS CONTROL CABINET CONTROL WIRING DIAGRAM–III
F1E16	185	NE SLUDGE TRANSFER LS CONTROL CABINET CONTROL WIRING DIAGRAM–IV
F1E17	186	NE SLUDGE TRANSFER LS PUMP NO.1 CONTROL WIRING DIAGRAM
F1E18	187	NE SLUDGE TRANSFER LS PUMP NO.2 CONTROL WIRING DIAGRAM
F1E19	188	NE SLUDGE TRANSFER LS PUMP NO.3 CONTROL WIRING DIAGRAM
F1E20	189	NE SLUDGE TRANSFER LS MCC – POWER & CONTROL CABINET ELEVATION
F1E21	190	NE SLUDGE TRANSFER LS ELECTRICAL CONDUIT SCHEDULE

DWG. NO.	SHEET NO.	SHEET TITLE
		SYNOTT RD. #1 LS
F1C41	191	SYNOTT RD. #1 LIFT STATION SURVEY CONTROL MAP
F1C42	192	SYNOTT RD. #1 LIFT STATION EXISTING TOPOGRAPHIC PLAN
F1C43	193	SYNOTT RD. #1 LIFT STATION SITE DEMOLITION PLAN
F1C44	194	SYNOTT RD. #1 LIFT STATION PROPOSED SITE PLAN
F1C45	195	SYNOTT RD. #1 LIFT STATION SWPPP
F1S41	196	SYNOTT RD. #1 LIFT STATION DEMO. & CONST PLAN
F1S42	197	SYNOTT RD. #1 LIFT STATION SECTIONS & DETAILS
F1S43	198	SYNOTT RD. #1 LS ELEVA. ELECTR. CAB PLTF. PLANS & SECTIONS
F1M41	199	SYNOTT RD. #1 SURFACE PLAN VIEW MECHANICAL DEMO
F1M42	200	SYNOTT RD. #1 SECTION VIEW MECHANICAL DEMO
F1M43	201	SYNOTT RD. #1 LIFT STATION PLAN VIEW/GRADE
F1M44	202	SYNOTT RD. #1 TOP VIEW/BASE SECTION
F1M45	203	SYNOTT RD. #1 ELEVATION SECTION A–A
F1M46	204	SYNOTT RD. #1 PUMP CURVE
F1M47	205	SYNOTT RD. #1 TYPICAL DETAILS
F1M48	206	SYNOTT RD. #1 TYPICAL DETAILS
F1E41	207	SYNOTT RD. #1 LS 3 PUMPS ELECTRICAL SITE PLAN
F1E42	208	SYNOTT RD. #1 LS 3 PUMPS LIFT STATION ELEVATION
F1E43	209	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET INSTALLATION
F1E44	210	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE
F1E45	211	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET EQUIPMENT LAYOUT–I
F1E46	212	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET EQUIPMENT LAYOUT–II
F1E47	213	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET EQUIPMENT LAYOUT–III
F1E48	214	SYNOTT RD. #1 LS 3 PUMPS INCOMING POWER THREE LINE DIAGRAM
F1E49	215	SYNOTT RD. #1 LS 3 PUMPS SINGLE LINE DIAGRAM
F1E50	216	SYNOTT RD. #1 LS 3 PUMPS COMMUNICATION DIAGRAM
F1E51	217	SYNOTT RD. #1 LS 3 PUMPS PROCESS & INSTRUMENTATION DIAGRAM–I
F1E52	218	SYNOTT RD. #1 LS 3 PUMPS PROCESS & INSTRUMENTATION DIAGRAM–II
F1E53	219	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–I
F1E54	220	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–II
F1E55	221	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–III
F1E56	222	SYNOTT RD. #1 LS 3 PUMPS POWER & CONTROL CABINET CONTROL WIRING DIAGRAM–IV
F1E57	223	SYNOTT RD. #1 LS 3 PUMPS PUMP NO.1 CONTROL WIRING DIAGRAM
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Z0E10	244	RADAR LEVEL TRANSMITTER GAUGING SYSTEM DETAILS INSTALLATION & DETAILS–I
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NO.	DATE	REVISION	APP.
1	12/01/25	60% DESIGN – SUPPLEMENTAL CLARIFICATIONS	MS

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SHEET INDEX

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, P.E.	
Z0G03 SHEET NO. 3 OF 246	

PLOTTED: 12/1/2025 12:29 PM
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PRIVATE UTILITY NOTES:

AT&T TEXAS/ SWBT FACILITIES:

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL CALL 1-800-344-8377 (TEXAS 811) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.
3. WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.
4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.
6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER ROOSEVELT LEE JR. AT (713) 567-4552 OR EMAIL HIM AT RL7259@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR AT&T TEXAS/SWBT FACILITIES.

CENTERPOINT ENERGY NOTES:

CAUTION: UNDERGROUND GAS FACILITIES

1. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.
   - -WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL 713-945-8036 OR 713-945-8037 (7:00 AM TO 4:30 PM) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
   - -WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
   - -WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
   - -FOR EMERGENCIES REGARDING GAS LINES CALL 713-659-3552 OR 713-207-4200
2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES:

1. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:
   - -ANY ACTIVITY WHERE PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
   - -OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.
2. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT 713-207-2222.

ACTIVITIES ON/OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

1. NO APPROVAL TO USE, CROSS, OR OCCUPY NO CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING AND RIGHT OF WAY DIVISION AT (713) 207-6348 OR (713) 207-5769

STANDARD NOTES FOR CONSTRUCTION DRAWINGS (HCFCD):

1. OBTAIN AND COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE, AND FEDERAL PERMITS AND APPROVALS, WITH ASSISTANCE FROM ENGINEER, IF NECESSARY. OBTAIN PERMIT (CERTIFICATION) FROM HARRIS COUNTY ENGINEER TO ENTER HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY.
2. NOTIFY THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT IN WRITING AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. SUBMIT THE HCFCD 48 HOUR PRE-CONSTRUCTION NOTIFICATION FORM, A COPY OF THE APPROVED CONSTRUCTION DRAWINGS, AND A COPY OF THE CORPS OF ENGINEERS INDIVIDUAL SECTION 404 PERMIT, IF APPLICABLE, TO HCFCD, 9900 NORTHWEST FREEWAY, HOUSTON, TEXAS 77092, ATTN: PROPERTY MANAGEMENT DEPT. BY HAND DELIVERY, OR FAX TO 713-684-4129 (FAX NUMBER).
3. ENGINEER SHALL SUBMIT CERTIFICATION LETTER AND RECORD DRAWINGS TO THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT REQUESTING INSPECTION OF ITEMS CONSTRUCTED IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. PRIOR TO REQUESTING INSPECTION, THE DRAINAGE RIGHT-OF-WAY AND/OR EASEMENTS SHALL BE STAKED AND FLAGGED.
4. PROTECT, MAINTAIN, AND RESTORE EXISTING BACKSLOPE DRAINAGE SYSTEMS.
5. BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON PLANS ARE APPROXIMATE. FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.
6. ESTABLISH TURF GRASS ON ALL DISTURBED AREAS WITHIN THE CHANNEL OR DETENTION RIGHT-OF-WAY, EXCEPT THE CHANNEL BOTTOM AND WHERE STRUCTURAL EROSION MEASURES ARE USED. MINIMUM ACCEPTANCE CRITERIA ARE 75% COVERAGE OF LIVE BERMUDA GRASS AND NO EROSION OR RILLS DEEPER THAN 4".
7. BACKFILL IN ACCORDANCE WITH THE HARRIS COUNTY FLOOD CONTROL DISTRICT STANDARD SPECIFICATION, SECTION 02315 – EXCAVATING AND BACKFILLING, OR EQUIVALENT.
8. EXCAVATE CHANNEL FLOWLINE TO DESIGN ELEVATION AS SHOWN ON PLANS AND DOWNSTREAM, AS NECESSARY, TO ENSURE NO WATER REMAINS IN THE FACILITY (STORM SEWER, LATERAL CHANNEL, OR DRY BOTTOM DETENTION BASIN) DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL, SO THE FACILITY WILL FUNCTION AS INTENDED. FOR WET BOTTOM DETENTION BASINS, ENSURE NO WATER IS ABOVE THE DESIGN LEVEL IN THE WET BOTTOM DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL.
9. MAINTAIN FLOW IN CHANNEL DURING CONSTRUCTION AND RESTORE CHANNEL TO ORIGINAL CONDITION.
10. REMOVE ALL EXCAVATED MATERIAL FROM THE HARRIS COUNTY FLOOD CONTROL DISTRICT OR DRAINAGE RIGHT-OF-WAY. NO FILL IS TO BE PLACED WITHIN A DESIGNATED FLOOD PLAIN AREA WITHOUT FIRST OBTAINING A FILL PERMIT FROM THE APPROPRIATE JURISDICTIONAL AUTHORITY.

GENERAL NOTES – METRO:

1. CONTRACTOR SHALL NOTIFY METRO AT 713-615-6195 TWO WEEKS PRIOR TO DISTURBING EXISTING BUS STOPS.
1. CONTRACTOR SHALL COORDINATE WITH METRO TO REMOVE EXISTING AMENITIES.
2. BUS STOPS SHALL CONSTRUCTED PER CITY OF HOUSTON INFRASTRUCTURE DESIGN MANUAL AND MEET CURRENT ADA REQUIREMENTS

NO.	DATE	REVISION	APP.

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

GENERAL NOTES

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, P.E.	
Z0G04	SHEET NO. OF 246

PLOTTED: 10/29/2025 8:13 AM
PLOT STYLE: COH.ctb
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EXISTING PLAN VIEW

- WATER METER
- WATER VALVE (GATE)
- WATER VALVE (BUTTERFLY)
- FIRE HYDRANT/FLUSHING VALVE
- TAPPING SLEEVE & VALVE
- REDUCER (8" 6")
- ROUND CONNECTION
- SANITARY SEWER CLEANOUT & MANHOLE (CO, SAN MH)
- STORM SEWER MANHOLE (STM MH)
- STORM SEWER INLETS ('B' 'B–B' 'C' 'C–1' 'C–2' 'C–2A' 'GRATE')
- CULVERT PIPE AND HEADWALL
- TOP OF CURB ELEVATION (TC=XX.XX)
- GUTTER ELEVATION (G=XX.XX)
- TOP OF PAVEMENT ELEVATION (TP=XX.XX)
- CONTOUR LINE
- ROW LINE
- PROPERTY LINE
- LOT LINES
- EASEMENT LINE
- CENTER LINE OF ROW
- TRANSIT LINE
- EDGE OF DITCHES
- CENTER LINE OF DITCHES
- EDGE OF DITCHES
- FENCE LINE, WOOD
- FENCE LINE, CHAIN LINK
- FENCE LINE, BARBED WIRE
- FENCE LINE, HOG WIRE
- EDGE OF CONCRETE
- CURB LINE
- CONCRETE WALK
- EDGE OF ASPHALT
- EDGE OF SHELL OR GRAVEL
- DIMENSION LINE (28" 3–17)
- CENTERPOINT ENERGY AERIAL LINE
- CENTERPOINT ENERGY UNDERGROUND LINE
- GAS LINE
- MISC UNDERGROUND LINE
- PIPELINE OR WESTERN UNION CONDUIT (IDENTIFY CONDUIT)
- AT&T CONDUIT
- CABLE TV
- RAILROAD LINE
- WATER LINE (20" (AND SMALLER) WATER; 24" (LARGER THAN 20") WATER)
- SANITARY SEWER LINE (24" (AND SMALLER) SANITARY SEWER; 30" (LARGER THAN 24") SANITARY SEWER)
- STORM SEWER LINE (24" (AND SMALLER) STORM SEWER; 30" (LARGER THAN 24") STORM SEWER)
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE (RWL)
- NON–POTABLE WATER LINE (NPW)
- GAS METER
- GAS VALVE
- MISC UNDERGROUND PIPELINE LABLE (A2)

PROPOSED PLAN VIEW

- WATER METER (WM)
- WATER VALVE (GATE) (WV)
- WATER VALVE (BUTTERFLY) (BFWV)
- FIRE HYDRANT/FLUSHING VALVE (FH, WV)
- TAPPING SLEEVE & VALVE (TS&V)
- REDUCER (12" 8")
- ROUND CONNECTION
- SANITARY SEWER CLEANOUT & MANHOLE (CO, SAN MH)
- STORM SEWER MANHOLE (STM MH)
- STORM SEWER INLETS ('B' 'B–B' 'C' 'C–1' 'C–2' 'C–2A' 'GRATE')
- CULVERT PIPE AND HEADWALL
- TOP OF CURB ELEVATION (TC=XX.XX)
- GUTTER ELEVATION (G=XX.XX)
- TOP OF PAVEMENT ELEVATION (TP=XX.XX)
- CONTOUR LINE
- ROW LINE
- PROPERTY LINE
- LOT LINES
- EASEMENT LINE
- CENTER LINE OF ROW
- TRANSIT LINE
- EDGE OF DITCHES
- CENTER LINE OF DITCHES
- EDGE OF DITCHES
- FENCE LINE, WOOD
- FENCE LINE, CHAIN LINK
- FENCE LINE, BARBED WIRE
- FENCE LINE, HOG WIRE
- EDGE OF CONCRETE
- CURB LINE
- CONCRETE WALK
- EDGE OF ASPHALT
- EDGE OF SHELL OR GRAVEL
- DIMENSION LINE (28" 3–17)
- CENTERPOINT ENERGY AERIAL LINE (P P P)
- CENTERPOINT ENERGY UNDERGROUND LINE
- GAS LINE
- MISC UNDERGROUND LINE
- PIPELINE OR WESTERN UNION CONDUIT (IDENTIFY CONDUIT)
- AT&T CONDUIT
- CABLE TV
- MATCH LINE
- RAILROAD LINE
- WATER LINE (20" (AND SMALLER) WATER; 24" (LARGER THAN 20") WATER)
- SANITARY SEWER LINE (24" (AND SMALLER) SANITARY SEWER; 30" (LARGER THAN 24") SANITARY SEWER)
- STORM SEWER LINE (24" (AND SMALLER) STORM SEWER; 30" (LARGER THAN 24") STORM SEWER)
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE (RWL)
- NON–POTABLE WATER LINE (NPW)
- GAS METER
- GAS VALVE
- MISC UNDERGROUND PIPELINE LABLE (A2)

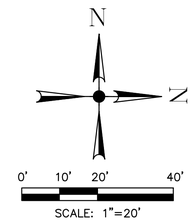
EXISTING PLAN VIEW

- PAVING HEADER
- BUILDING, RESIDENTIAL (RES. 1–STORY BR BLDG.)
- BUILDING, COMMERCIAL (COMM. 1–STORY BR BLDG.)
- TREE
- HEDGE
- IRON PIPE OR IRON ROD MONUMENT (3/4" IP)
- POINT OF INTERSECTION (PI)
- POINT OF CURVE (PC)
- POINT OF TANGENCY (PT)
- POWER POLE
- POWER POLE W/DOWN GUY

PROPOSED PLAN VIEW

- PAVING HEADER
- BUILDING, RESIDENTIAL (RES. 1–STORY BR BLDG.)
- BUILDING, COMMERCIAL (COMM. 1–STORY BR BLDG.)
- TREE
- HEDGE
- IRON PIPE OR IRON ROD MONUMENT (3/4" IP)
- POINT OF INTERSECTION (PI)
- POINT OF CURVE (PC)
- POINT OF TANGENCY (PT)
- POWER POLE (P P)
- POWER POLE W/DOWN GUY
- BIKE LANE

MISC STANDARD ELEMENTS



- COH NORTH ARROW
- COH BAR SCALE
- REVISION CLOUD/DELTA (1)

EXISTING PROFILE VIEW

- NORTH OR EAST PROPERTY LINE
- SOUTH OR WEST PROPERTY LINE
- NORTH OR EAST CURB
- SOUTH OR WEST CURB
- NORTH OR EAST DITCH
- SOUTH OR WEST DITCH
- NORTH OR EAST CULVERT (CULVERT)
- SOUTH OR WEST CULVERT (CULVERT)
- CENTERLINE OF ROW
- CENTERPOINT ENERGY CONDUIT (CENTERPOINT ENERGY CONDUIT)
- GAS LINE
- WESTERN UNION
- AT&T CONDUIT
- WATER LINE (20" (AND SMALLER) WATER LINE; 24" (LARGER THAN 20") WATER)
- SANITARY SEWER LINE (24" (AND SMALLER) SANITARY SEWER; 30" (LARGER THAN 24") SANITARY SEWER)
- STORM SEWER LINE (24" (AND SMALLER) STORM SEWER; 30" (LARGER THAN 24") STORM SEWER)
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE (RWL)
- NON–POTABLE WATER LINE (NPW)
- CENTERPOINT ENERGY MANHOLE
- AT&T MANHOLE
- WATER LINE MANHOLE
- SANITARY SEWER MANHOLE & CLEANOUT
- STORM SEWER MANHOLE
- STORM SEWER INLET

PROPOSED PROFILE VIEW

- NORTH OR EAST PROPERTY LINE
- SOUTH OR WEST PROPERTY LINE
- NORTH OR EAST CURB
- SOUTH OR WEST CURB
- NORTH OR EAST DITCH
- SOUTH OR WEST DITCH
- NORTH OR EAST CULVERT (CULVERT)
- SOUTH OR WEST CULVERT (CULVERT)
- CENTERLINE OF ROW
- CENTERPOINT ENERGY CONDUIT (CENTERPOINT ENERGY CONDUIT)
- GAS LINE (GAS LINE)
- WESTERN UNION
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- CENTERPOINT ENERGY MANHOLE
- AT&T MANHOLE
- WATER LINE MANHOLE
- SANITARY SEWER MANHOLE & CLEANOUT
- STORM SEWER MANHOLE
- STORM SEWER INLET

NO.	DATE	REVISION	APP.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832–930–7670
TX FIRM NUMBER: F–10912

SURVEYED BY:
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

GENERAL SYMBOLS AND ABBREVIATIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, P.E.	
Z0G05	SHEET NO. OF 246

PLOTTED: 10/29/2025 8:14 AM
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NO.	DATE	REVISION	APP.
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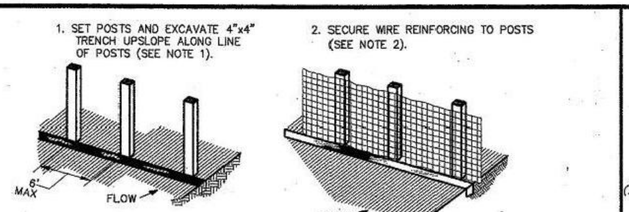
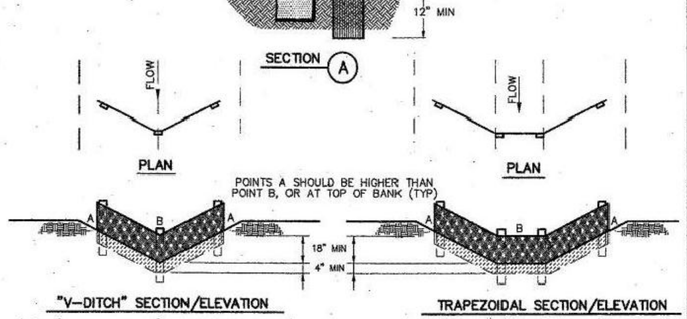


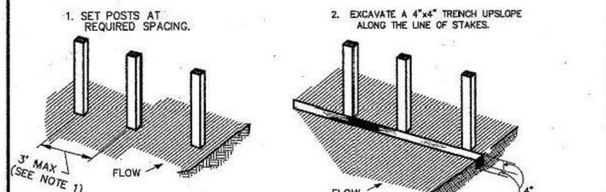


CONSTRUCTION NOTES:

1. SET 2 INCH BY 2 INCH WOODEN STAKES SPACED A MAX OF 6 FEET APART AND EMBEDDED A MIN OF 12 INCHES.
2. WOVEN WIRE REINFORCING TO BE FASTENED SECURELY TO BARRIER POSTS WITH STAPLES.
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE REINFORCING, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
4. MINIMUM HEIGHT OF FILTER SHOULD BE 18 INCHES AND A MAXIMUM OF 36 INCHES ABOVE NATURAL GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
6. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

×— (RFB) —× SYMBOL

REINFORCED FILTER FABRIC BARRIER

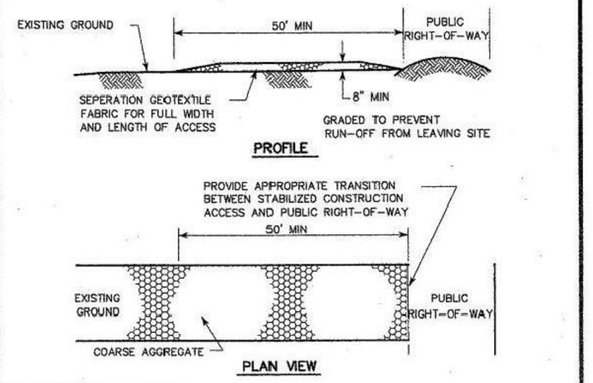


CONSTRUCTION NOTES:

1. 2 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 INCHES. IF PREASSEMBLED BARRIER WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC BARRIER SHALL HAVE A MIN HEIGHT OF 18 INCHES AND MAX HEIGHT OF 36 INCHES ABOVE NATURAL GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
4. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

×— (FF) —× SYMBOL

FILTER FABRIC BARRIER

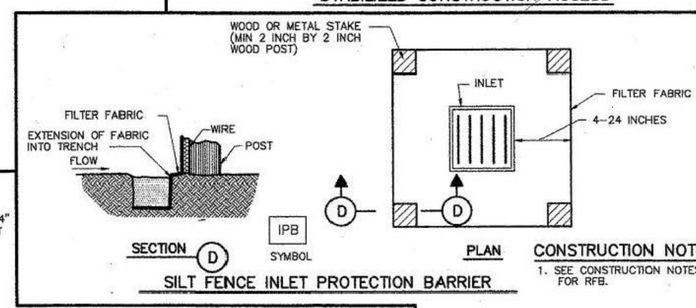


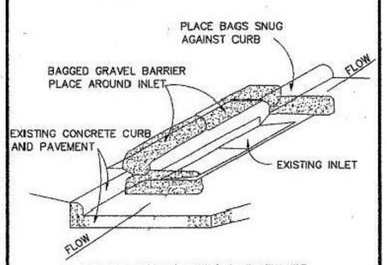
CONSTRUCTION NOTES:

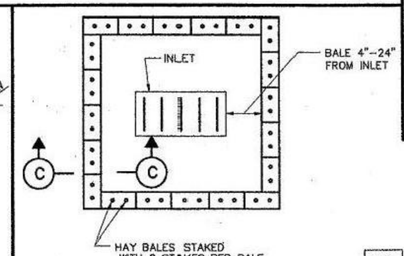
1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION ACCESS, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE WASHING AREA.
6. COH STANDARD SPECIFICATION FOR STABILIZED CONSTRUCTION ACCESS.
7. STABILIZED CONSTRUCTION ACCESS SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.

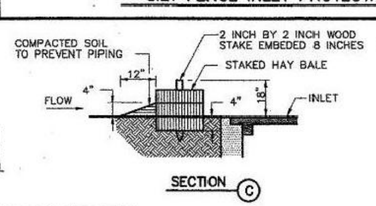
(SC) SYMBOL

STABILIZED CONSTRUCTION ACCESS









HAY BALE INLET PROTECTION BARRIER

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STORM WATER POLLUTION PREVENTION PLAN DETAILS
(NOT TO SCALE)

APPROVED — CITY ENGINEER
APPROVED — DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010
DWG NO: 01571-01

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

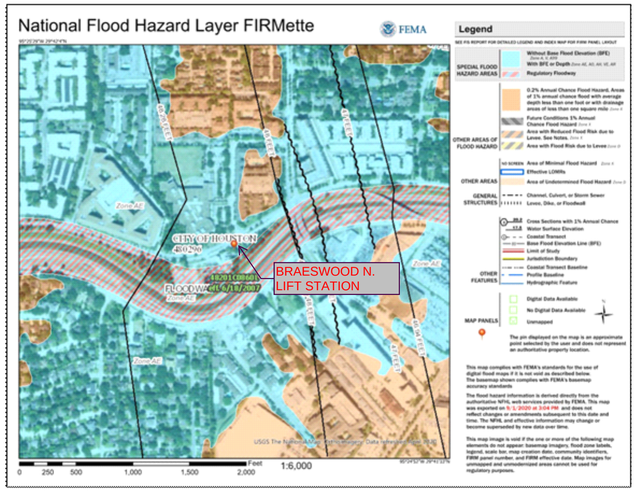
ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
STORM WATER POLLUTION PREVENTION PLAN DETAILS

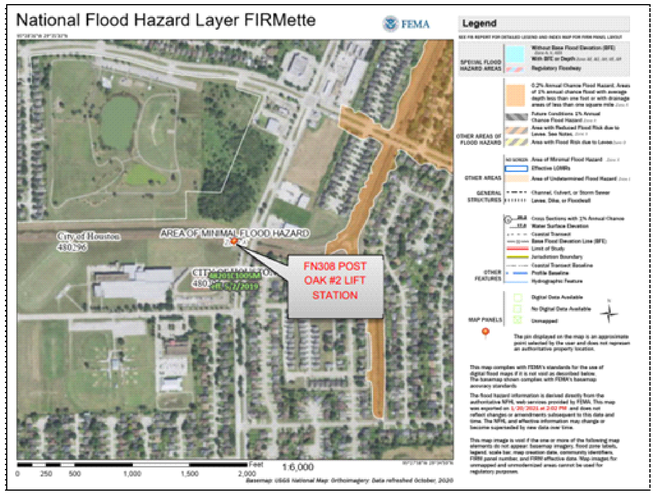
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

Z0G06 | SHEET NO. OF 246



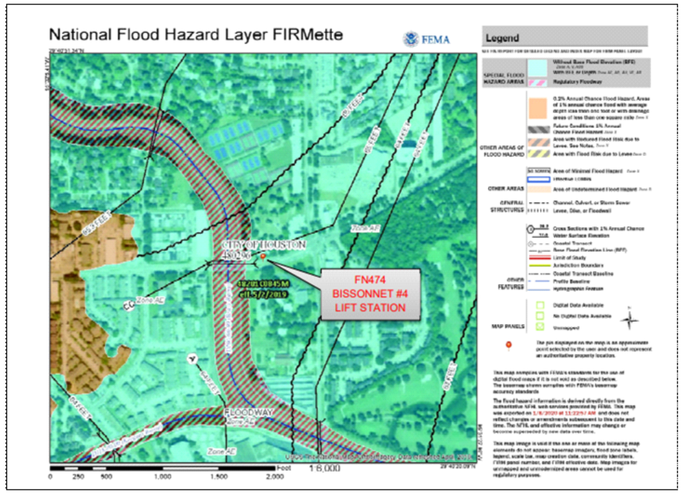
BRAESWOOD NORTH LIFT STATION

2707 NORTH BRAESWOOD BOULEVARD - HOUSTON TX, 77025
KEY MAP 532-L COUNCIL DISTRICT C



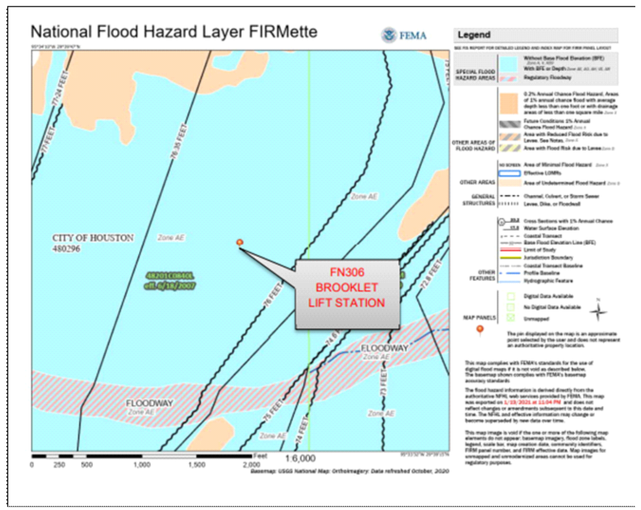
POST OAK #2 LIFT STATION

16500 SOUTH POST OAK ROAD - HOUSTON TX, 77053
KEY MAP 611-C COUNCIL DISTRICT K



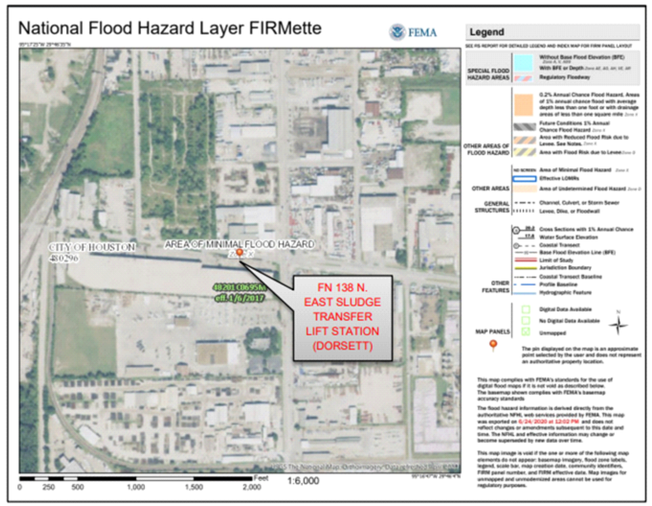
BISSONNET #4 LIFT STATION

8620 BISSONNET STREET - HOUSTON TX, 77074
KEY MAP 530-T COUNICIL DISTRICT J



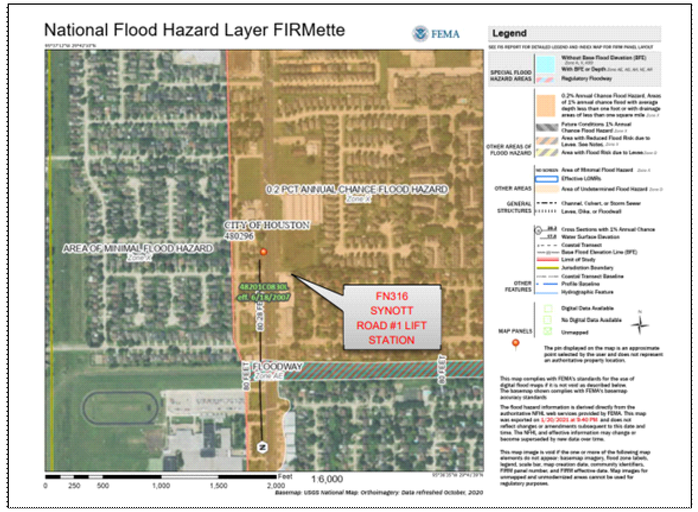
BROOKLET LIFT STATION

11126 BROOKLET DRIVE - HOUSTON TX, 77099
KEY MAP 529-Y COUNCIL DISTRICT J



NORTHEAST SLUDGE TRANSFER (DORSETT) LIFT STATION

MARKET STREET AND DORSETT STREET - HOUSTON TX, 77029
KEY MAP 495-E COUNCEL DISTRICT H



SYNOTT ROAD #1 LIFT STATION

7330 SYNOTT ROAD - HOUSTON TX, 77083
KEYMAP 528-L COUNCIL DISTRICT

NO.	DATE	REVISION	APP.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

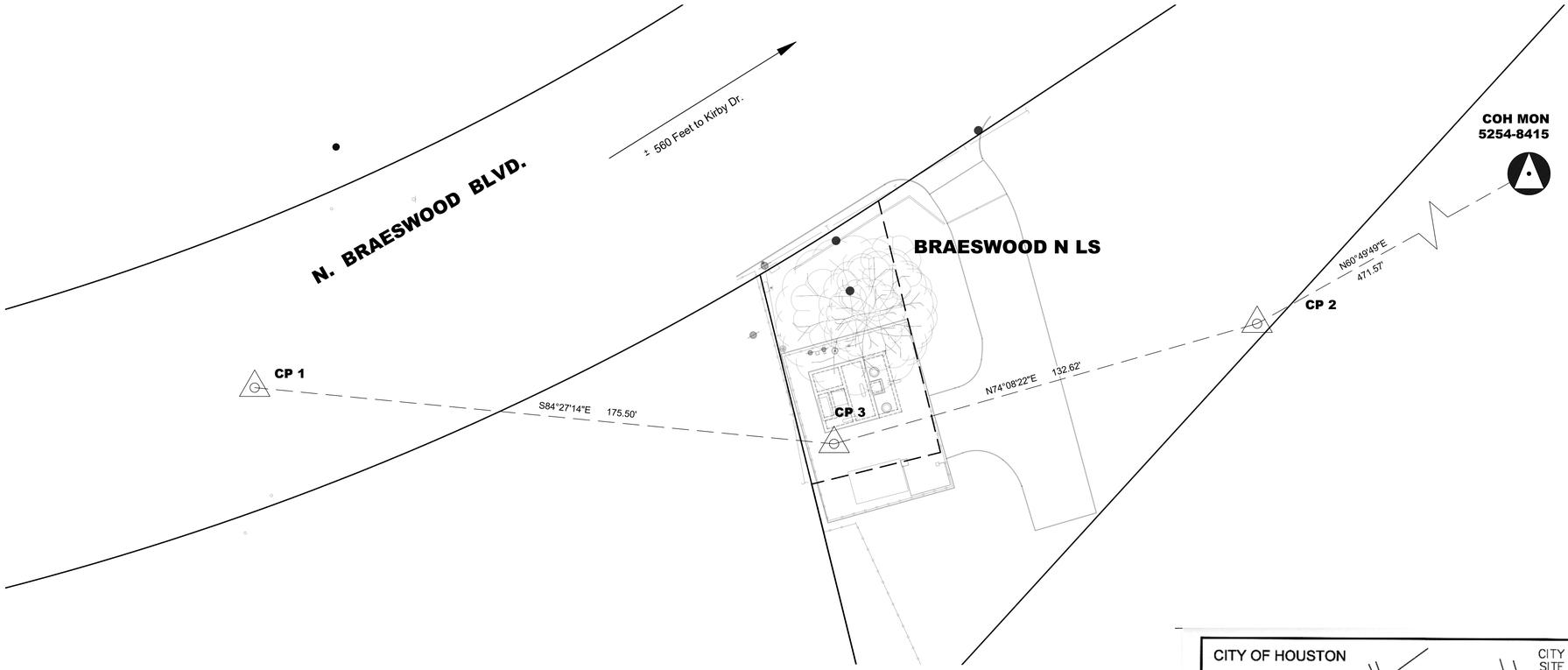
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

FLOODPLAIN MAPS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, P.E.	

Z0G07 SHEET NO. OF 246



N

20 10 0 20

SCALE IN FEET
22 X 34 : 1" = 20'

NO.	DATE	REVISION	APP.

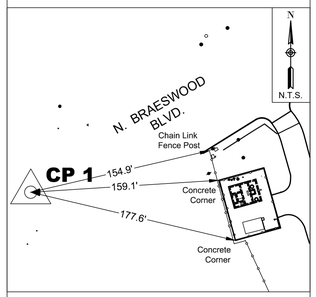
NOTES:

1. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204) NORTH AMERICAN DATUM OF 1983 (2011 ADJ) 2010 EPOCH, US SURVEY FEET. COORDINATES SHOWN HEREON ARE GRID VALUES AND ALL DISTANCES SHOWN ARE SURFACE VALUES. THE COMBINED SCALE FACTOR IS 0.99988535.
2. GRID COORDINATES/SCALE FACTOR = SURFACE COORDINATES.
3. FIELD DATA COLLECTED OCTOBER 2024.
4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID 18. ALL CONTROL NETWORK ELEVATIONS ARE TIED TO CITY SURVEY 5254-8415 SITE CONTROL MONUMENT USING DIFFERENTIAL LEVELING.
5. THE CONVERSION FACTOR FROM PROJECT LEVELED G18 ELEVATION TO THE HCFCD CALLED G99 ELEVATION = -0.11'.

PROJECT BENCH MARK:

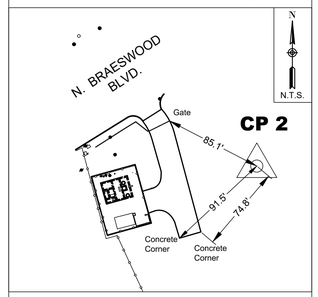
A BRASS DISK LOCATED ON THE EASTERLY SIDE OF KIRBY DRIVE, APPROXIMATELY 132 FEET SOUTH OF N. BRAESWOOD BOULEVARD INTERSECTION. OBSERVED ELEVATION = 44.41' (NAVD 88 GEOID 18) CALLED ELEVATION =44.30' (GEOID 99)

CP 1 -- 5/8" Iron Rod w/Cap



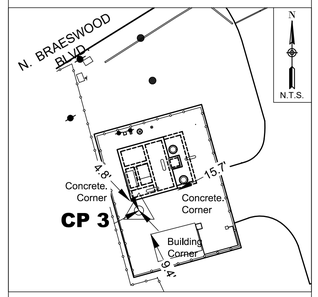
GRID NORTHING : 13,818,308.51
GRID EASTING : 3,104,826.81

CP 2 -- 5/8" Iron Rod w/Cap



GRID NORTHING : 13,818,327.79
GRID EASTING : 3,105,129.03

CP 3 -- X-Cut

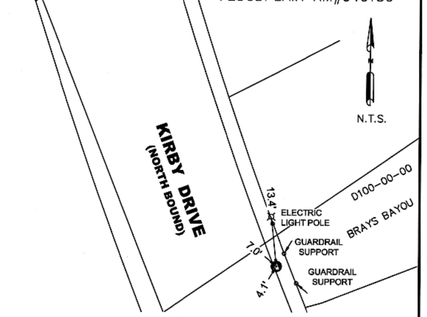


GRID NORTHING : 13,818,291.55
GRID EASTING : 3,105,001.47

CP No.	Grid Northing	Grid Easting	Elevation	Description
1	13,818,308.51	3,104,826.81	43.95	5/8" Iron Rod w/Cap
2	13,818,327.79	3,105,129.03	45.80	5/8" Iron Rod w/Cap
3	13,818,291.55	3,105,001.47	47.79	X-CUT

CITY OF HOUSTON

CITY SURVEY 5254-8415
SITE CONTROL MONUMENT
FLOODPLAIN RM#040130



Project WBS# R-000267-0175-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,105,540.74
Y= 13,818,557.60

Lat.= N 29° 41' 50.8925"
Lon.= W 95° 25' 4.5001"

Keymap Page: 532L
Orthometric Elevation = 44.41
Ellipsoid Height= -45.15
Geoid: GEOID 18
Datum Source & Adjustment: 2-HR STATIC GPS OBSERVATION MADE ON MONUMENT ON 10/24/2024

Reference Frame Used: NAD_83(2011)(EPOCH: 2010.0000)
Vertical Adjustment used: NAVD 88 GEOID18
General Location: ON THE EASTERLY SIDE OF KIRBY DRIVE, APPROXIMATELY 132 FEET SOUTH OF N. BRAESWOOD BOULEVARD INTERSECTION.

Date Set: MAY 14, 2003 Type of Mark: BRASS DISK

3 Nearest project control points (bearings and distances stated below):
1. CP #2, 5/8" IRON ROD CAPPED "AMANI", S 60° 49' 49" W, 471.57'
2. CP #3, X-CUT , S 63° 44' 24" W, 601.40'
3. CP #7, MAG NAIL , S 67° 13' 34" W, 666.29'

NOTE:
1. Bearings are grid bearings.
2. Combined Factor (C.F)= 0.99988535.

Surface= Grid
C.F.

Surveyed By: Amani Engineering, Inc.
11011 Richmond Avenue, Suite 700
Houston, TX 77042
Tel. (713)270-5700
Texas Registered Survey Firm 10028200

STATE OF TEXAS REGISTERED CHRISTINA I. WEAVER 6753 PROFESSIONAL LAND SURVEYOR
2.12.25

\\AEFILS01\Data\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\Monument\Braeswood N. LS\5254-8415.dwg

E1C01

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE, NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

WILLIAM H. REIMER III, R.P.L.S.
License
4044
Registration Number
10/23/2025
Date

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

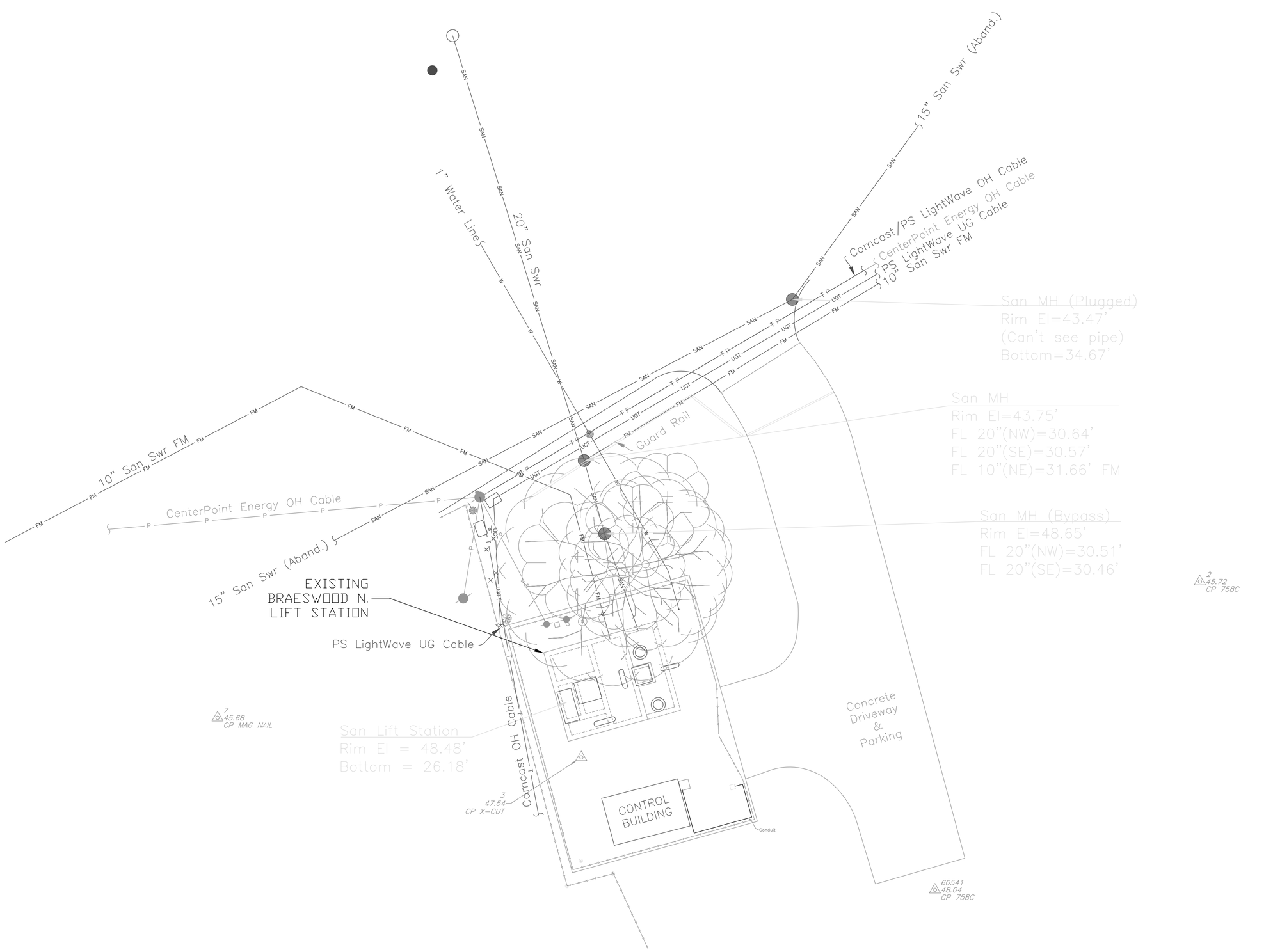
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWWOD N LS
SURVEY CONTROL MAP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
1" = 20'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN	
SHEET NO. OF 246	

FILE PATH: P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Survey Control Drawings\Control-BraeswoodN.LS.dwg

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



NOTE:

1. LS SITE IS LOCATED IN THE 100 YEAR FLOODPLAIN

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N LS

EXISTING TOPOGRAPHIC PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1C02

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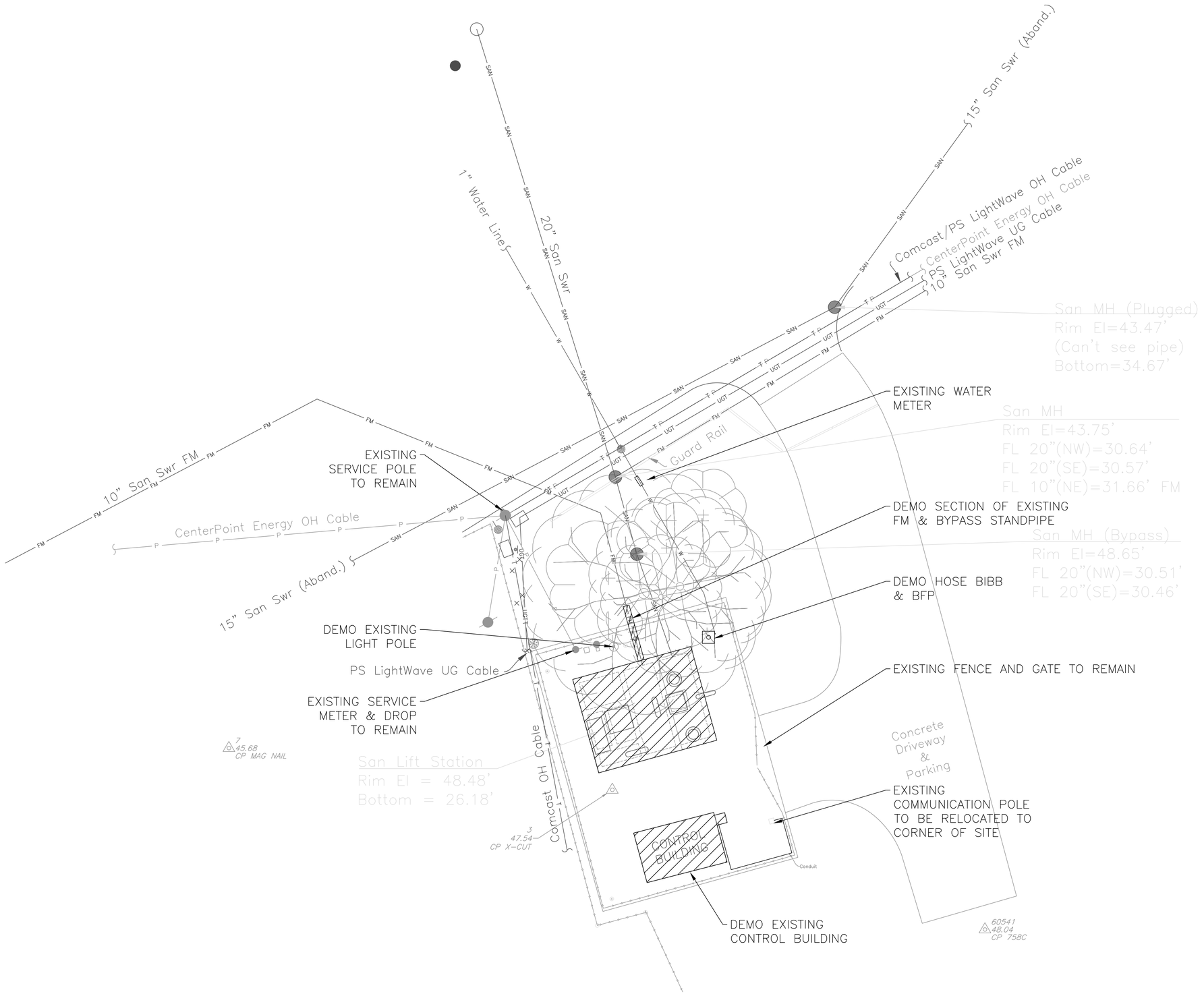

N

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L.

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

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Date

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Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS
DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1C03

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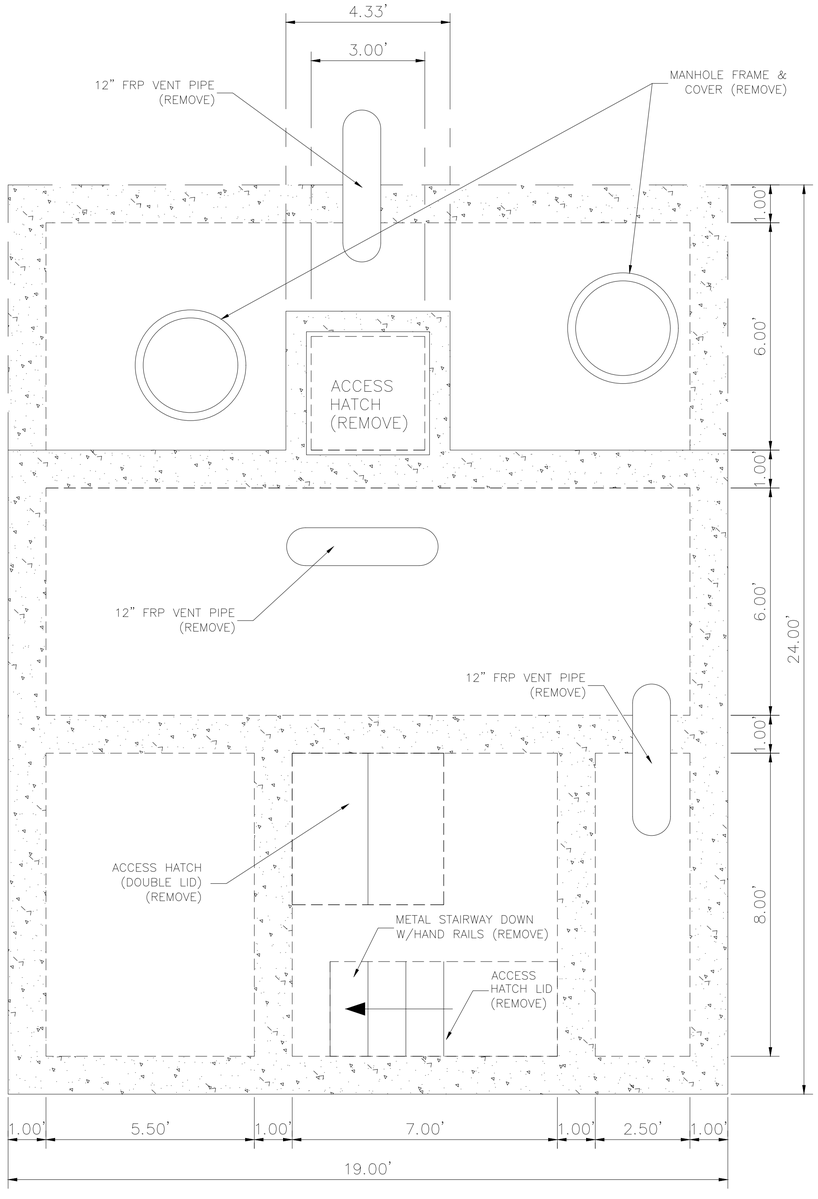


SURFACE PLAN VIEW

DEMOLITION NOTES:

1. THIS DRAWING IS BASED ON AVAILABLE RECORDS AND FIELD OBSERVATIONS. THE CONTRACTOR SHALL SATISFY HIMSELF / HERSELF OF THE ACTUAL CONDITIONS EXISTING AT THE SITE. THIS DRAWING DEPICTS PRIMARY MECHANICAL FEATURES. NOT ALL FEATURES, INCLUDING ELECTRICAL ARE NECESSARILY DEPICTED HEREON. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING EQUIPMENT WITHIN THE EXISTING STRUCTURE AS A PRECURSOR TO CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
2. DEMOLISH AND REMOVE TOP AND SIDE WALLS OF LIFT STATION TO 4-FEET BELOW LIFT STATION TOP SLAB ELEVATION. STEEL IN WALLS TO REMAIN (WHERE POSSIBLE) AND BE USED TO DEVELOP REINFORCEMENT FOR NEW TOP SLAB (REFER TO STRUCTURAL DETAILS).
3. THE CONTRACTOR SHALL NOT PROCEED WITH DEMOLITION WORK UNTIL AUTHORIZED. LIFT STATION BYPASS PUMPING MUST BE IN PLACE WITH OPERATIONAL ADEQUACY CHECKED AND CONFIRMED BY THE CITY BEFORE PROCEEDING WITH DEMOLITION WORK.
4. THE CITY OF HOUSTON WASTEWATER OPERATIONS DIVISION SHALL BE CONTACTED A MINIMUM OF 72-HRS PRIOR TO DEMOLITION. THE CITY SHALL HAVE THE FIRST RIGHT OF REFUSAL OF ANY ELECTRICAL OR MECHANICAL EQUIPMENT REMOVED FROM THE STATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND LOADING ONTO CITY TRUCKS, ALL SALVAGED MATERIALS AND EQUIPMENT DESIRED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PREMIT(S) REQUIRED FOR DEMOLITION WORK.
6. ALL ITEMS DAMAGED OR REMOVED BY THE CONTRACTOR AND NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
7. THE CONTRACTOR MAY DISCHARGE LIQUID WASTE AND WASHDOWN TO THE CITY WASTEWATER COLLECTION SYSTEM, HOWEVER; ALL DISCHARGES MUST BE COMPLIANT WITH THE CITY'S INDUSTRUAL WASTE ORDINANCE, CHAPTER 47, ARTICLE V. THE CONTRACTOR IS ADVISED THAT A PERMIT OR TEMPORARY DISCHARGE AUTHORIZATION MAY BE REQUIRED. CONTACT THE INDUSTRIAL WASTEWATER DIVISION AT (832) 395-5800. IN LIEU OF A DISCHARGE AUTHORIZATION, THE CONTRACTOR SHALL COLLECT AND HAUL, AT CONTRACTOR EXPENSE, ALL NON-SOLID DISCHARGES TO AN APPROVED CITY FACILITY.
8. REFER TO STRUCTURAL AND ELECTRICAL DEMOLITION DRAWINGS FOR INFORMATION RELATED TO THOSE SPECIFIC ACTIVITIES.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENJE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N. LIFT STATION
SURFACE PLAN VIEW MECHANICAL DEMOLITION

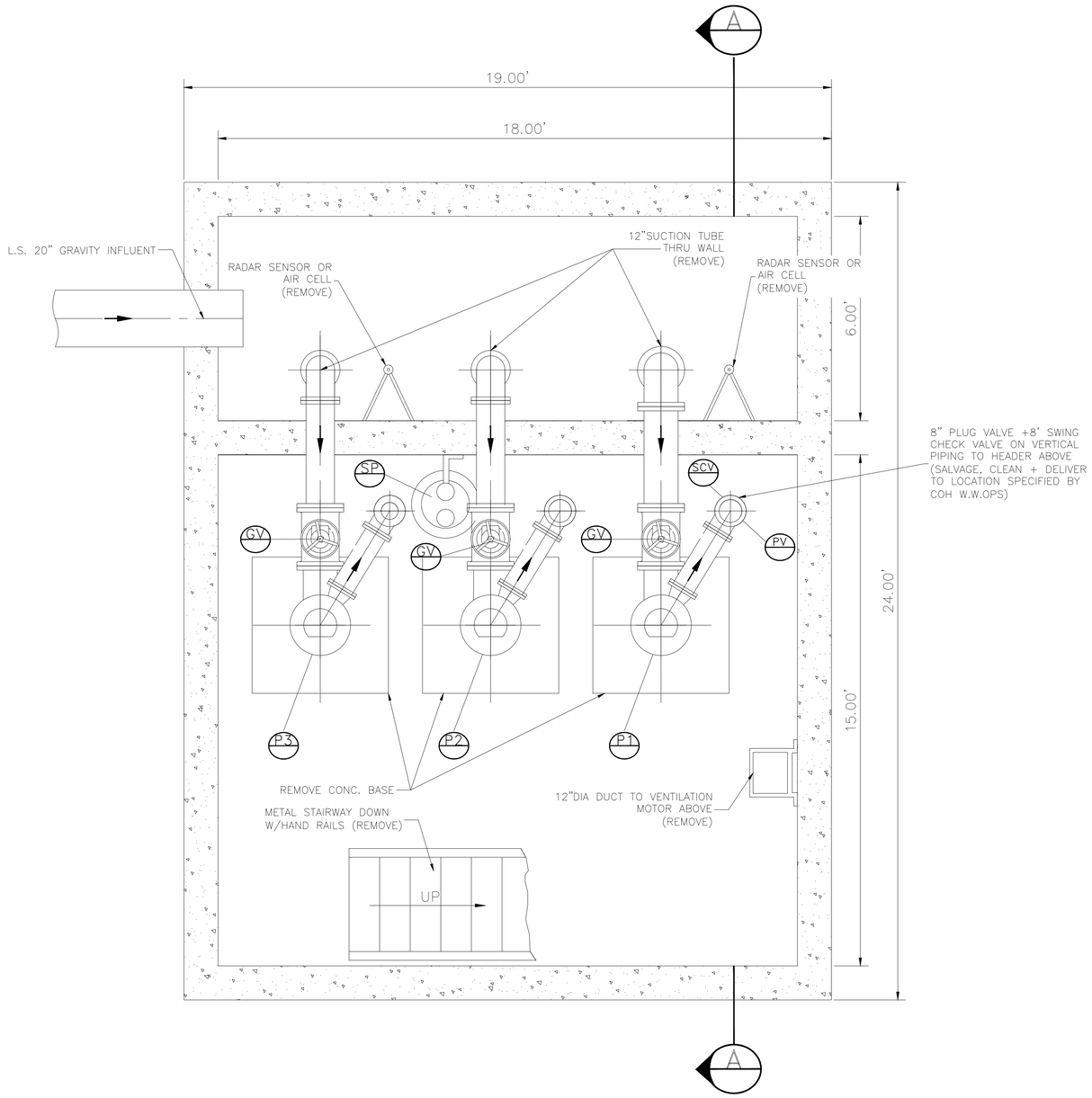
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

E1C04

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cody\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLANS-BRAESWOOD\LS-BRAESWOODDEMOLITION 112025.dwg



PUMP FLOOR PLAN (SECTION B-B)

CONTRACTOR TO REMOVE SUBMERSIBLE PUMPS W/CABLES INTACT. (SALVAGE, CLEAN + DELIVER TO LOCATION SPECIFIED BY COH W.W.OPS)

LEGEND

- SCV — 8"SWING CHECK VALVE (REMOVE +DISPOSE)
- GV — KNIFE GATE VALVE (REMOVE +DISPOSE)
- PV — 8" PLUG VALVE (REMOVE +DISPOSE)
- P1 — PUMP FLYGT 3153 15hp
- P2 — PUMP FLYGT 3153 15hp
- P3 — PUMP FLYGT 3153 15hp
- SP — SUMP PUMP (REMOVE + DISPOSE)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENJE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N. LIFT STATION
PUMP FLOOR PLAN VIEW
MECHANICAL DEMOLITION

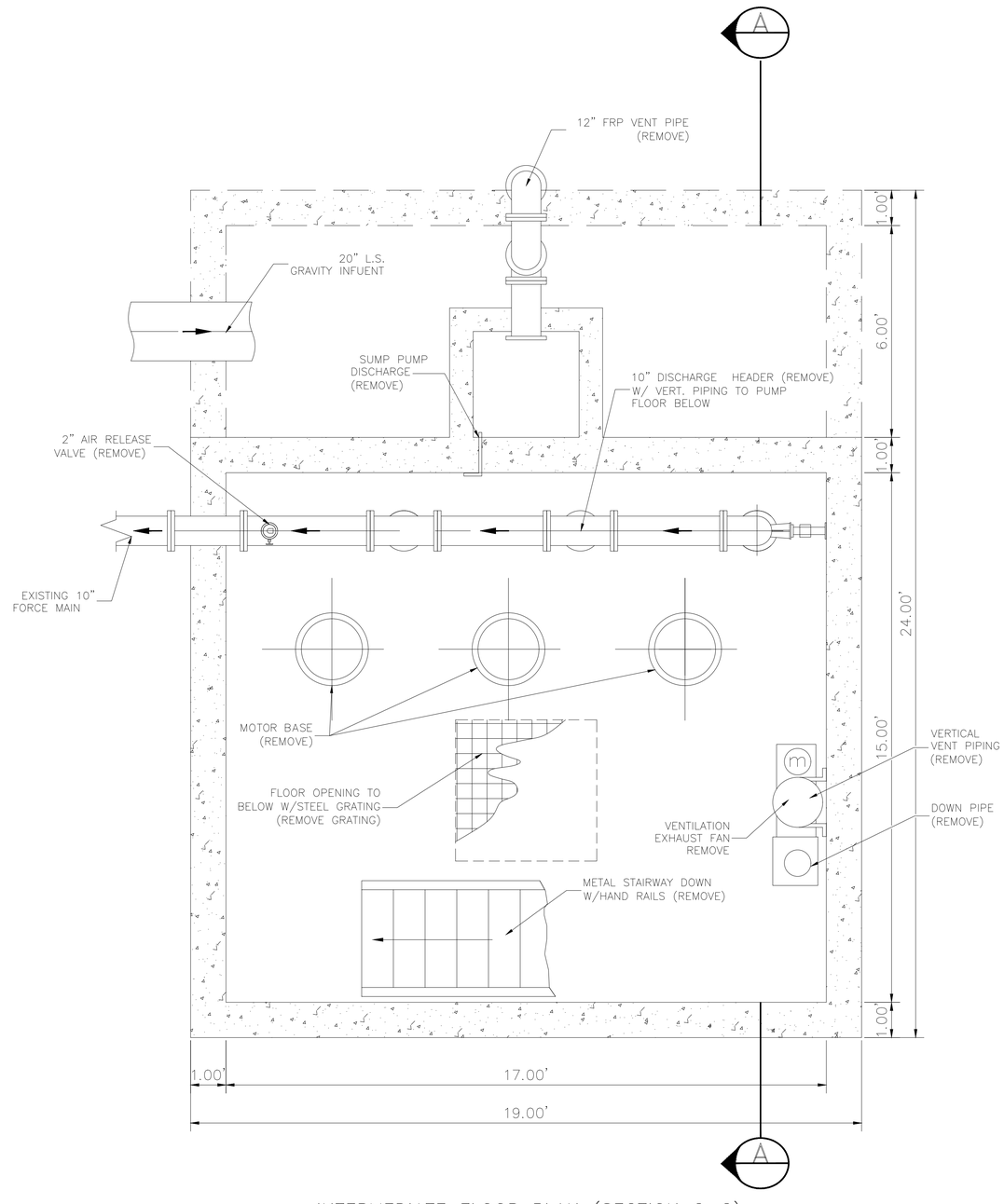
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

E1C05

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

R:\Civil\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLANS-BRAESWOOD\LS-BRAESWOODDEMOLITION 112025.dwg



INTERMEDIATE FLOOR PLAN (SECTION C–C)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N. LIFT STATION
INTERMEDIATE FLOOR PLAN VIEW
MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

E1C06

0 1 2 3 ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

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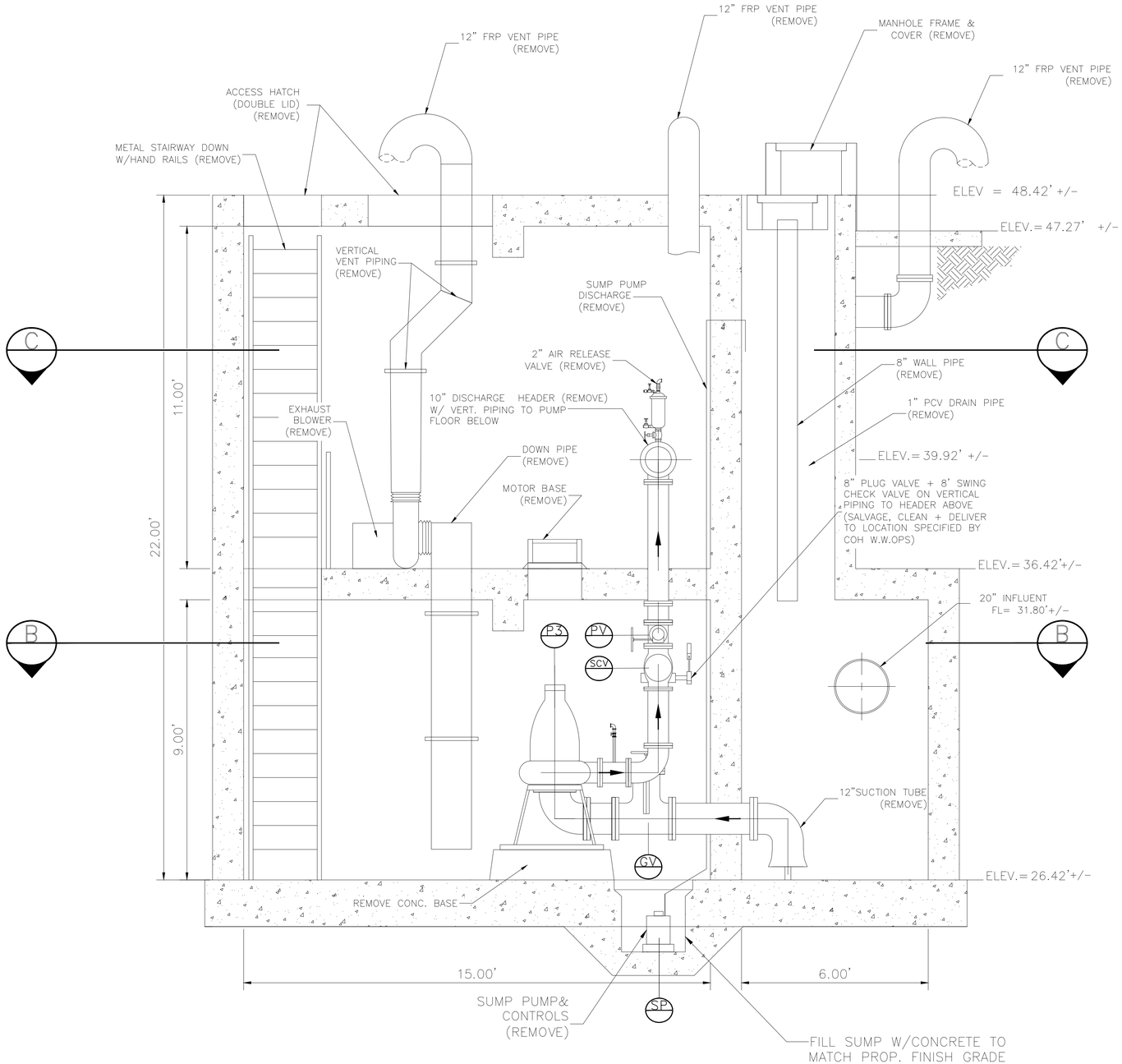

SECTION AA'

LEGEND

- SCV — 8"SWING CHECK VALVE (REMOVE +DISPOSE)
- GV — KNIFE GATE VALVE (REMOVE +DISPOSE)
- PV — 8" PLUG VALVE (REMOVE +DISPOSE)
- P1 — PUMP FLYGT 3153 15hp
- P2 — PUMP FLYGT 3153 15hp
- P3 — PUMP FLYGT 3153 15hp
- SP — SUMP PUMP (REMOVE + DISPOSE)

CONTRACTOR TO REMOVE SUBMERSIBLE PUMPS W/CABLES INTACT. (SALVAGE, CLEAN + DELIVER TO LOCATION SPECIFIED BY COH W.W.OPS)

AMANI ENGINEERING, INC.
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TX FIRM NUMBER:F -10912

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N. LIFT STATION
SECTION VIEW
MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. 0F 246	

E1C07

FILE NAME:
PLOTTED ON:

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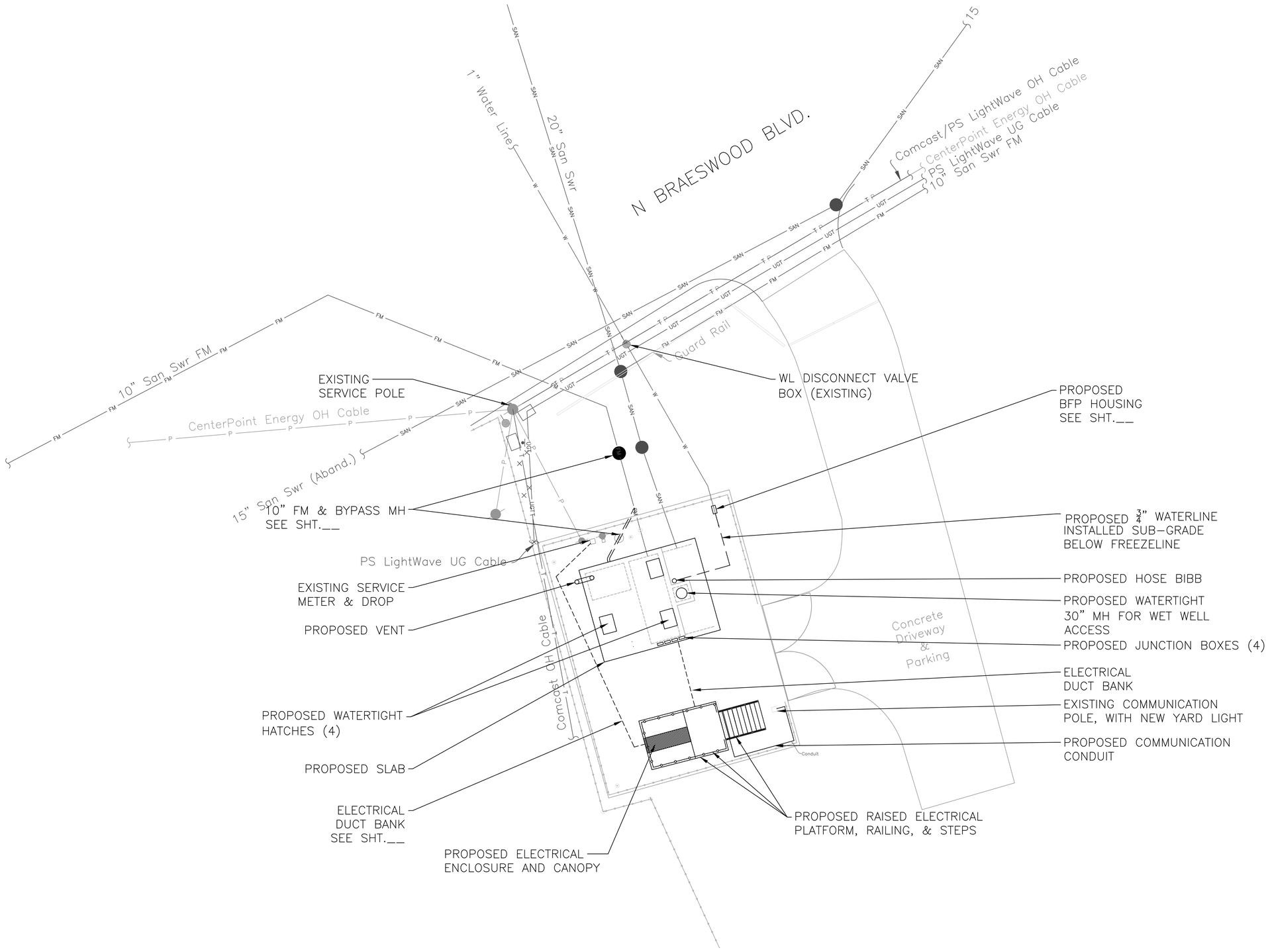

N

0 10 20 Feet

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

LEGEND :

— — — PROPOSED FENCE LINE

—o—o— PROPOSED CONCRETE PAVING EXTENTS

NOTES:

FLOODPLAIN

1. LS SITE IS WITHIN THE 100-YEAR FLOODPLAIN.
2. EXISTING ELECTRICAL BUILDING PROPOSED TO BE REMOVED AND REPLACED WITH A RAISED PLATFORM, THEREFORE THIS PROJECT WILL ADD STORAGE CAPACITY BENEFITS WITHIN THE 100-YEAR FLOOD PLAN.

STORMWATER

1. SITE WORK PROPOSES NO ADDITIONAL IMPERVIOUS SURFACE.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS
PROP SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1C08

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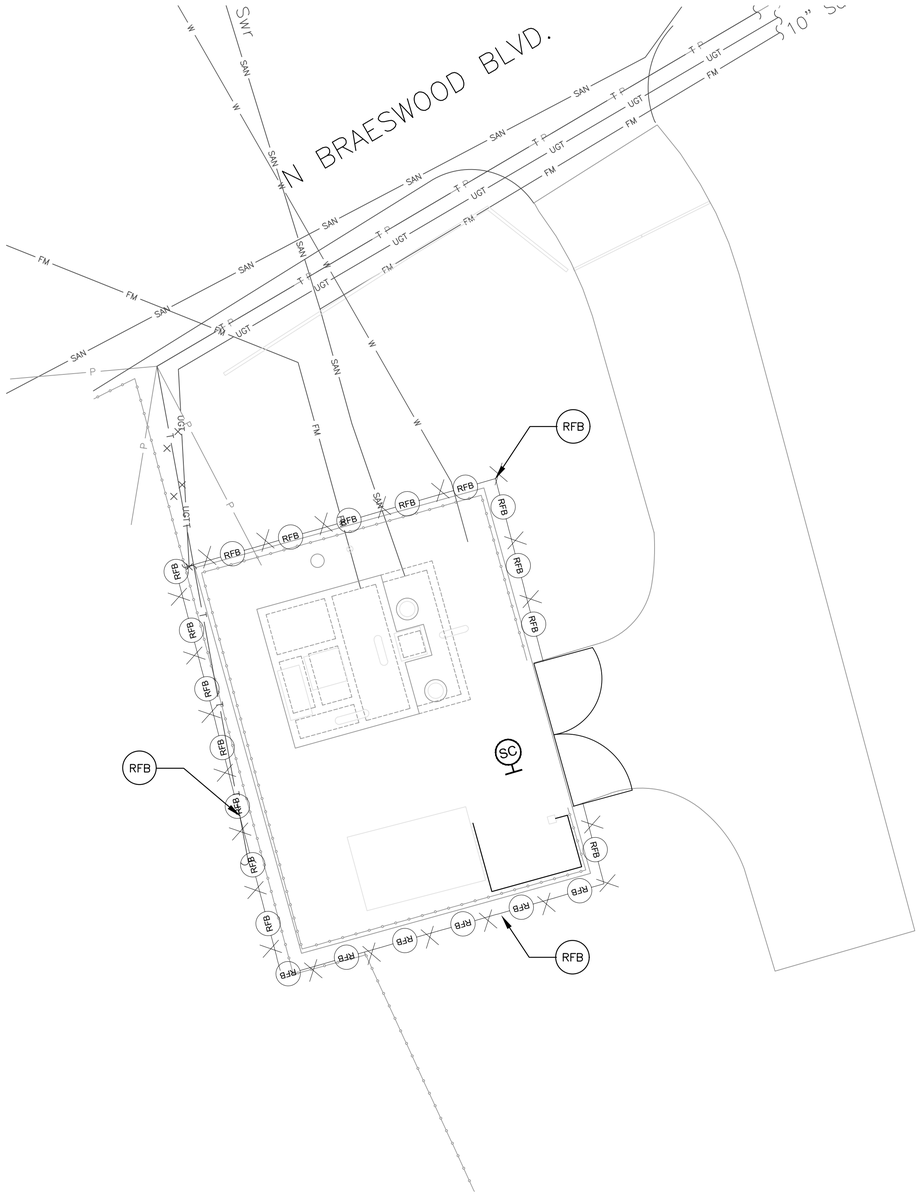

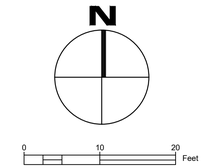

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

LEGEND :

RFB — REINFORCED FILTER FABRIC BARRIER.

SC — STABILIZED CONSTRUCTION ACCESS

NOTES:

1. STORM WATER POLLUTION PLAN CONFORM TO SPECIFICATIONS AND DRAWINGS.
2. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURE SHALL BE SODDED OR HYDROMUCH SEEDED.
3. CONTRACTOR'S LAY DOWN/STORAGE AREA SHALL HAVE A STABILIZED CONSTRUCTION EXIT.
4. SEE SHEET SW3P-7 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
5. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS
SWPPP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1C09

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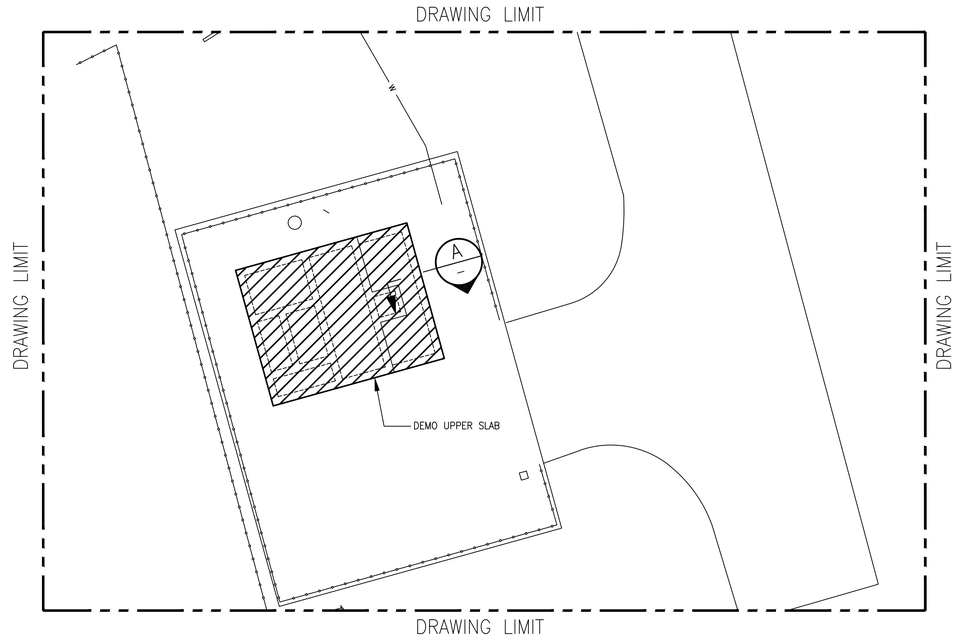
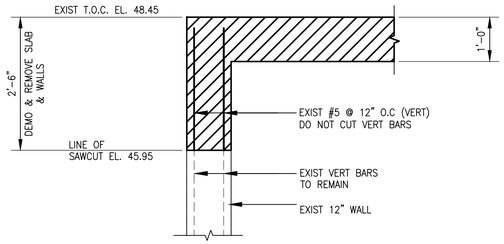
PLOT STYLE: Monochrome.ctb PLOTTED: 10/29/2025 2:02 AM



DEMO PLAN
LIFT STATION FOUNDATION



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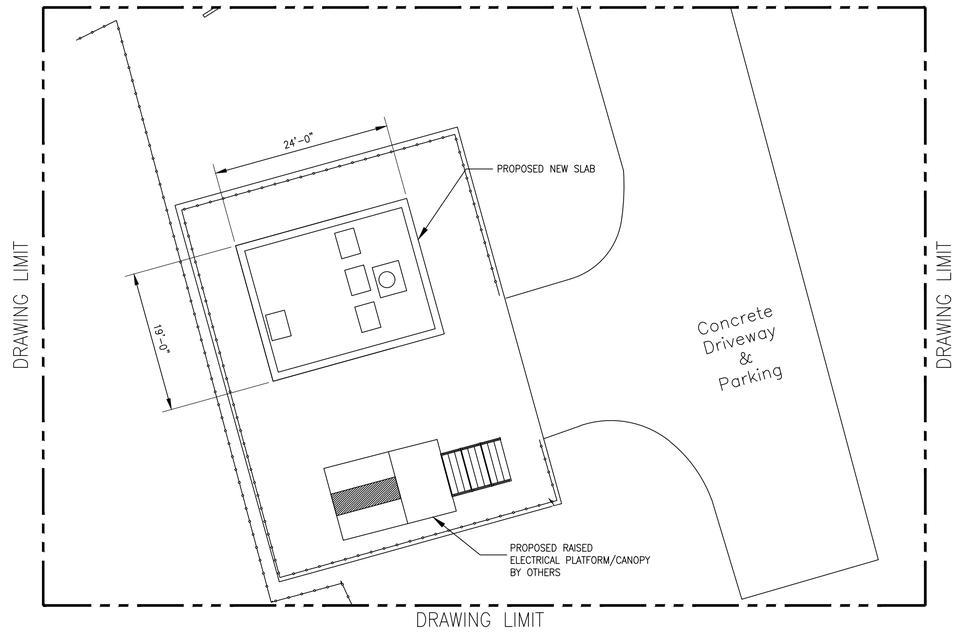
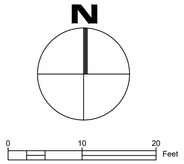


NEW PLAN LAYOUT
LIFT STATION FOUNDATION



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A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS
DEMO & PROPOSED PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1S01

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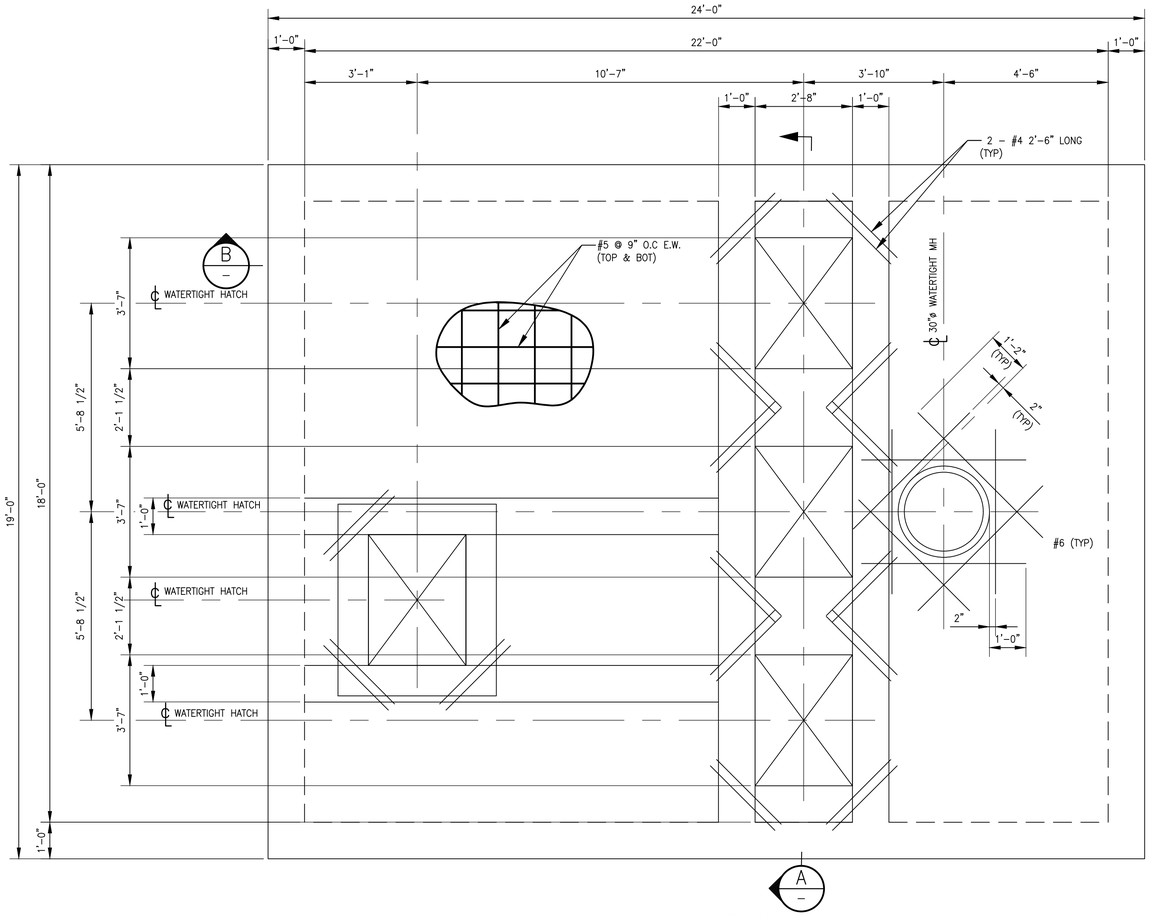
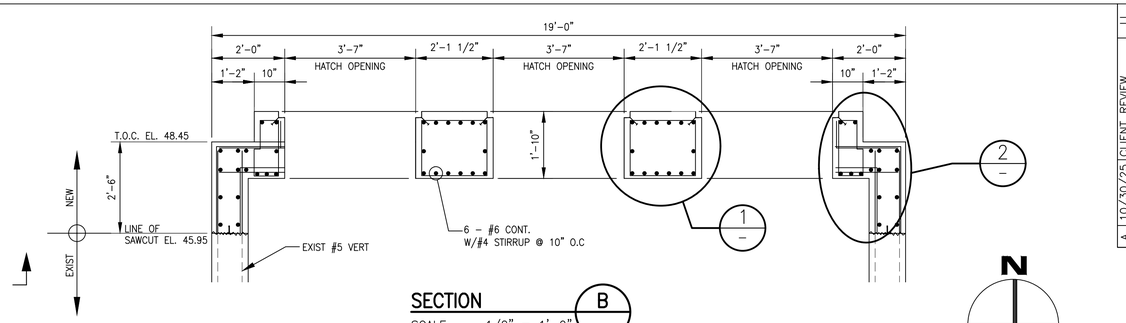
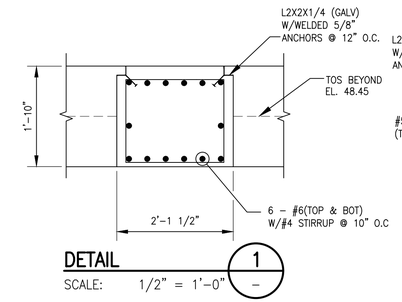


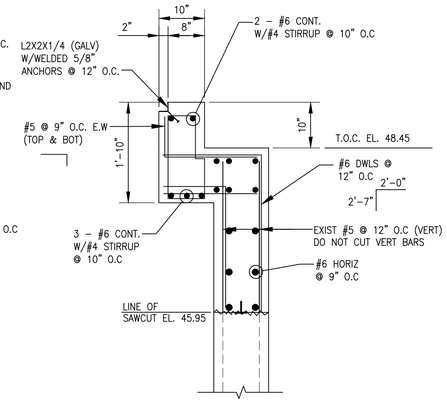
PLAN
LIFT STATION FOUNDATION
SCALE: 1/2" = 1'-0"



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



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



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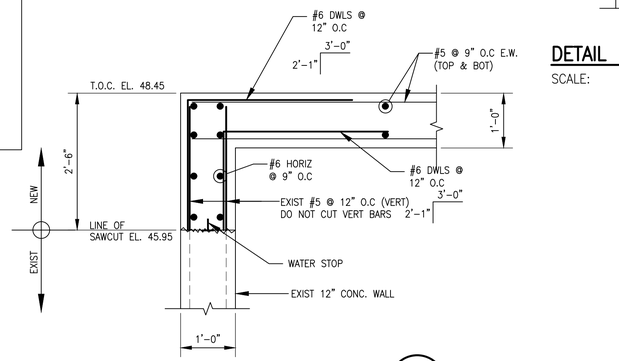
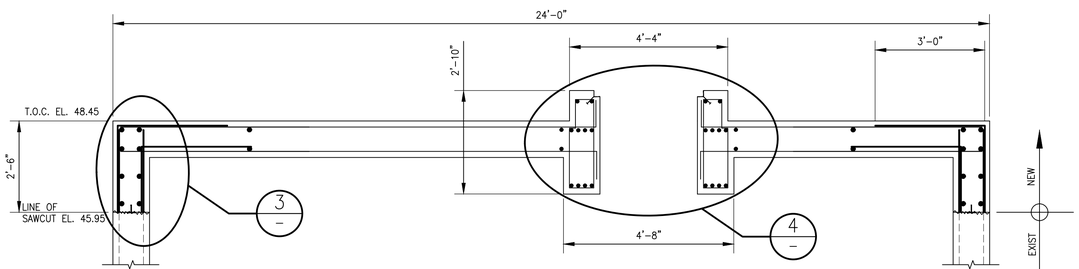


DETAIL 3
SCALE: 3/4" = 1'-0"



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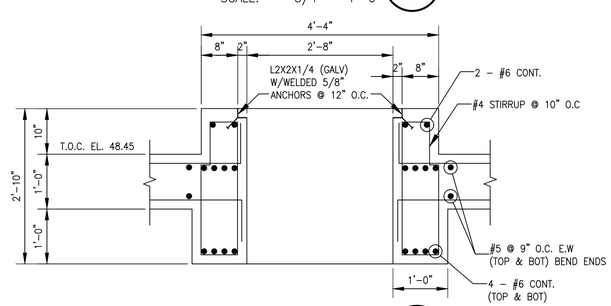

DETAIL 4
SCALE: 1/2" = 1'-0"

NOTE:

1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. REFER TO MECHANICAL/VENDOR DRAWINGS FOR WATERPROOF HATCHES/MANHOLES.
3. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL DIMENSION W/MEP & CIVIL PLANS PRIOR TO BIDDING WORK.

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS
PLAN & SECTION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1S02

PLOTTED: 10/29/2025 2:02 AM
PLOT STYLE: Monochrome.ctb
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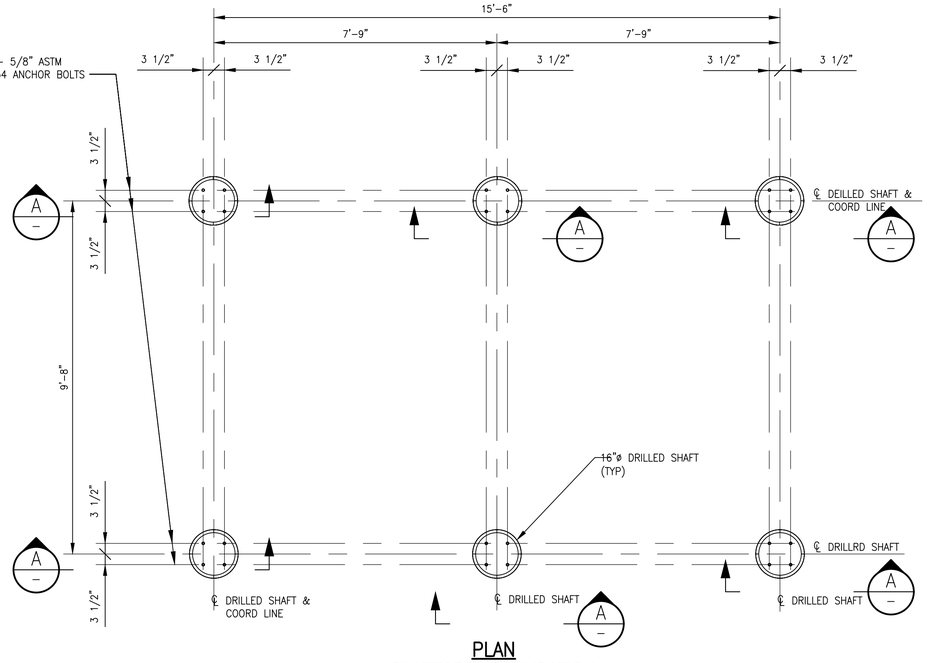
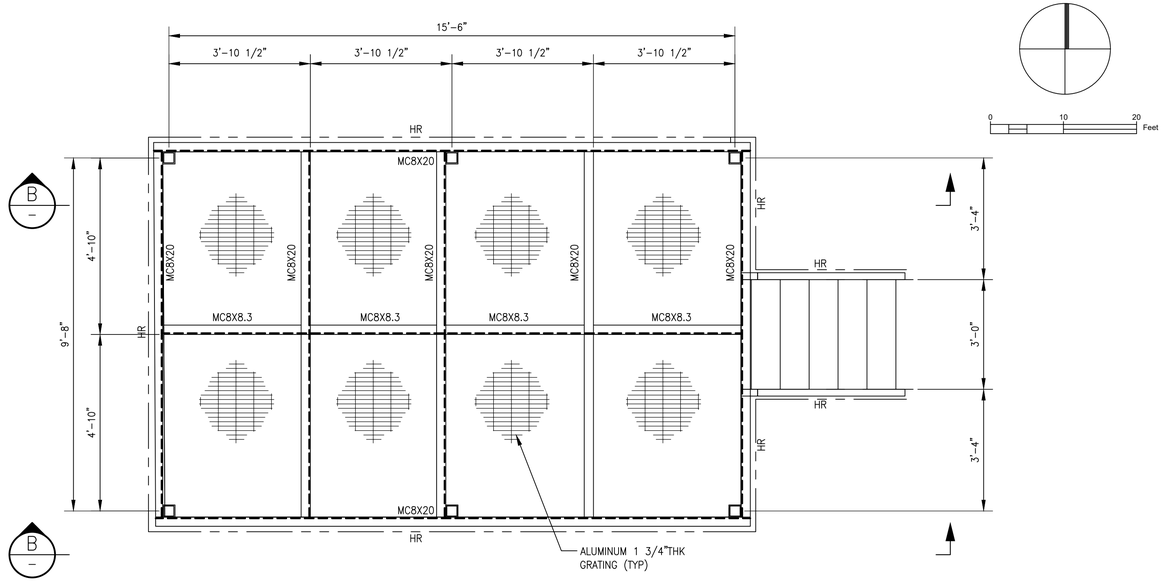
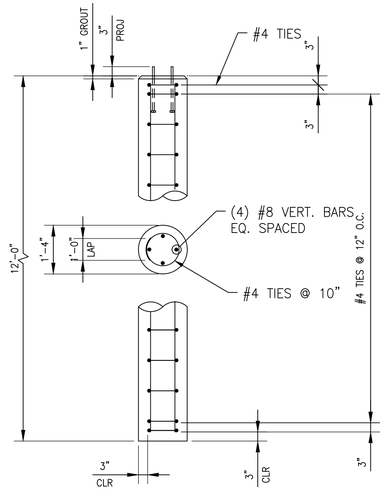


PLAN
PLATFORM FOUNDATION
SCALE: 1/2" = 1'-0"



PLAN
PLATFORM FRAMING
SCALE: 1/2" = 1'-0"



SECTION A
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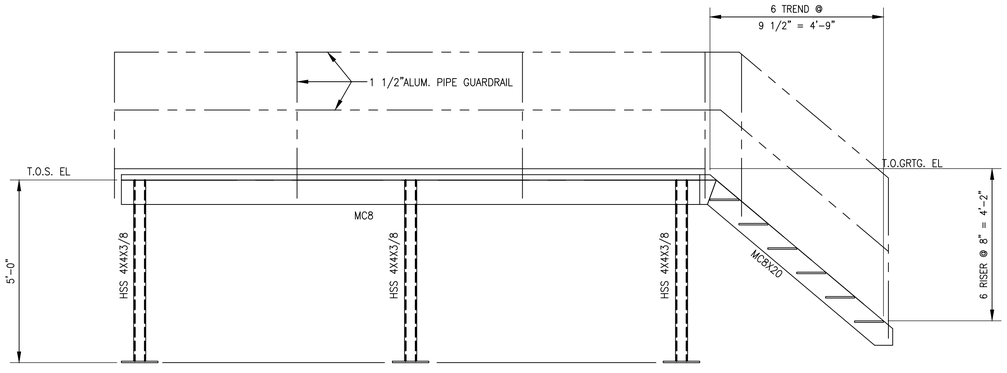

SECTION B
SCALE: 1/2" = 1'-0"

NOTE:

1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL DIMENSION W/MEP & CIVIL PLANS PRIOR TO BIDDING WORK.
3. REFER COH STD PLATFORM DETAILS FOR ADDITIONAL REQUIMENTS

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FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
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HATCH
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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

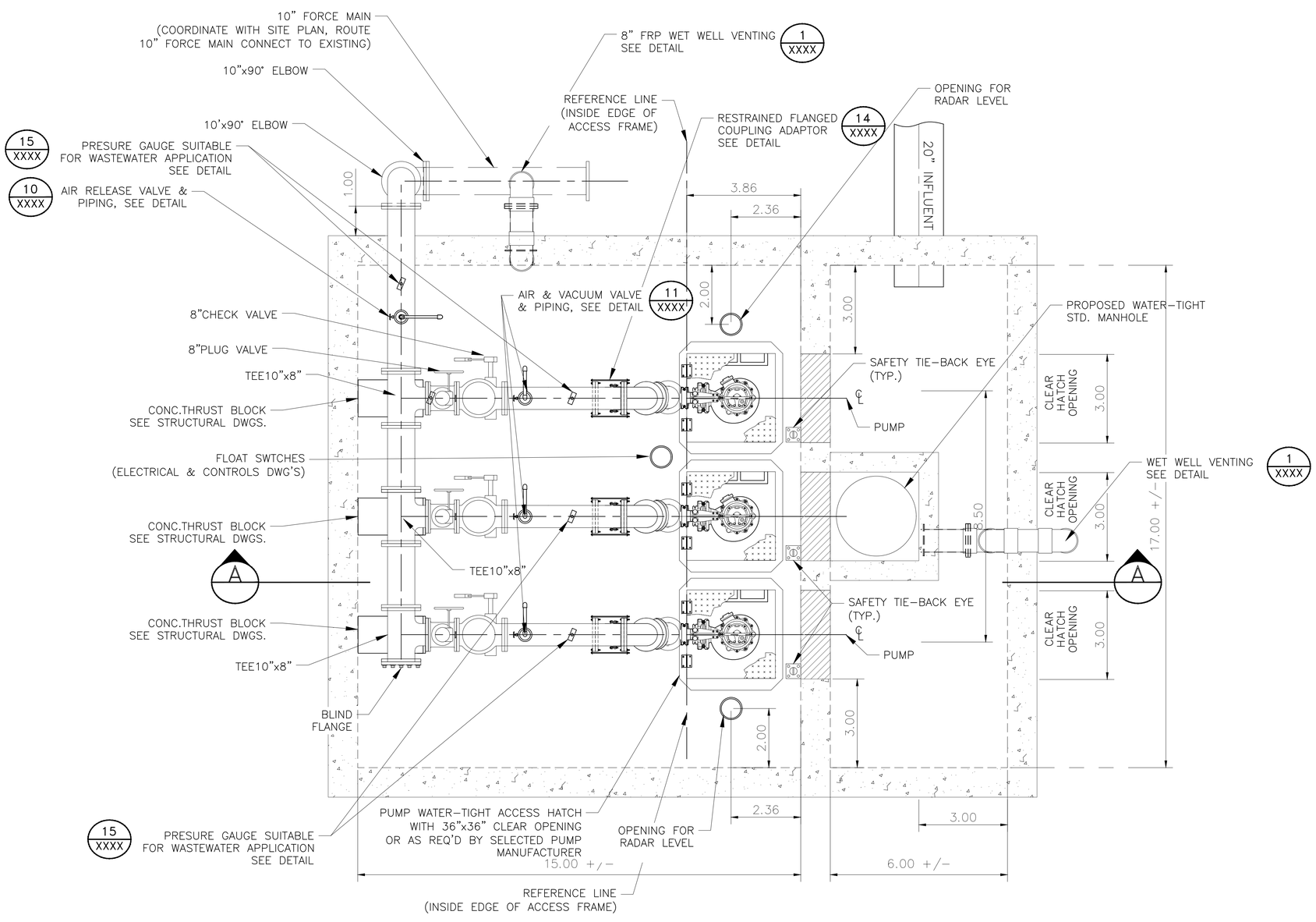
SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS
ELEV. ELEC. CAB. PLATFORM PLAN & SECTION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

E1S03 SHEET NO. OF 246



PLAN VIEW

N
W
E
S

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION; AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO	DATE	REVISION	APP

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N.
PLAN VIEW

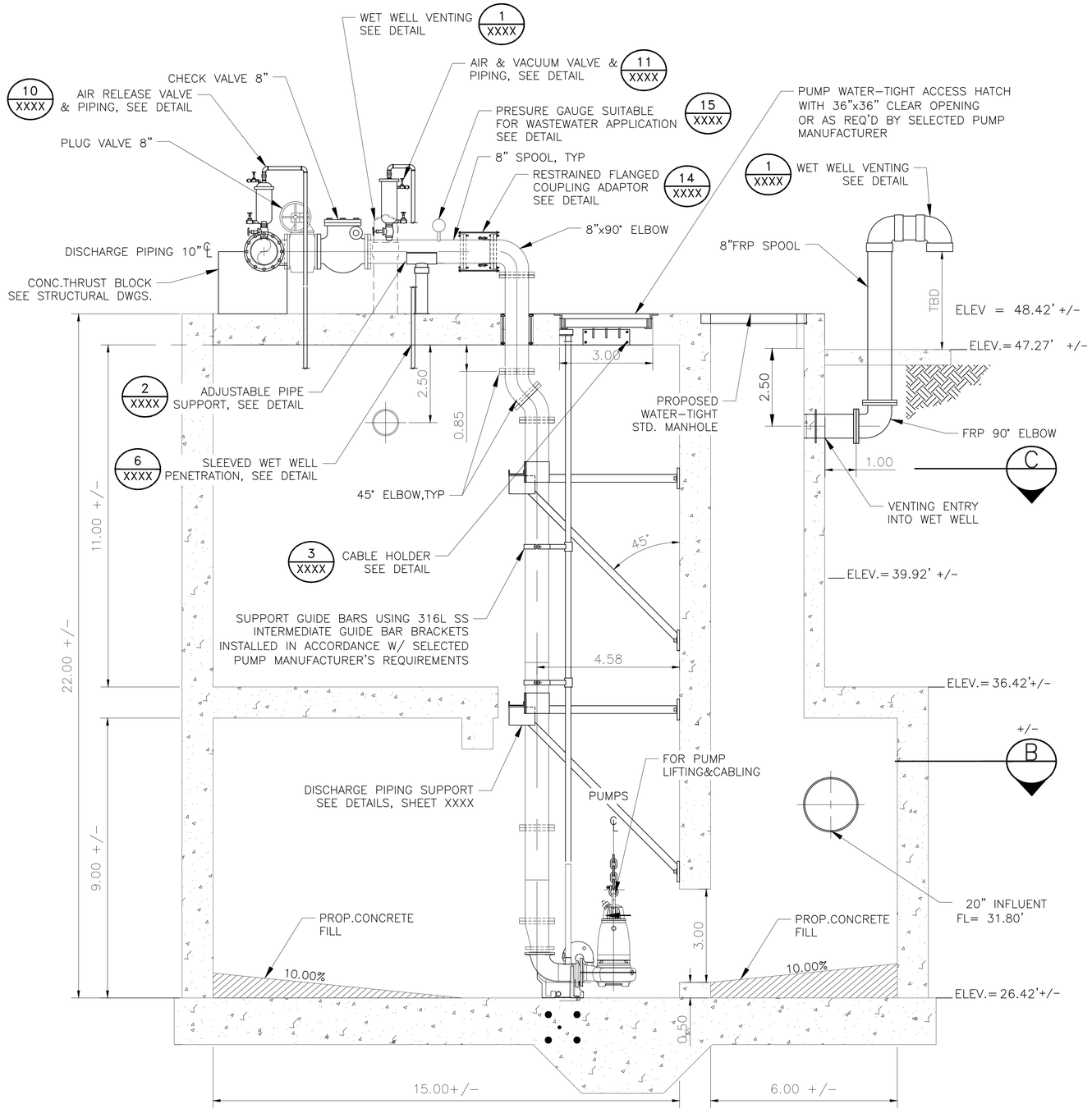
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

E1M01 | SHEET NO. OF 246

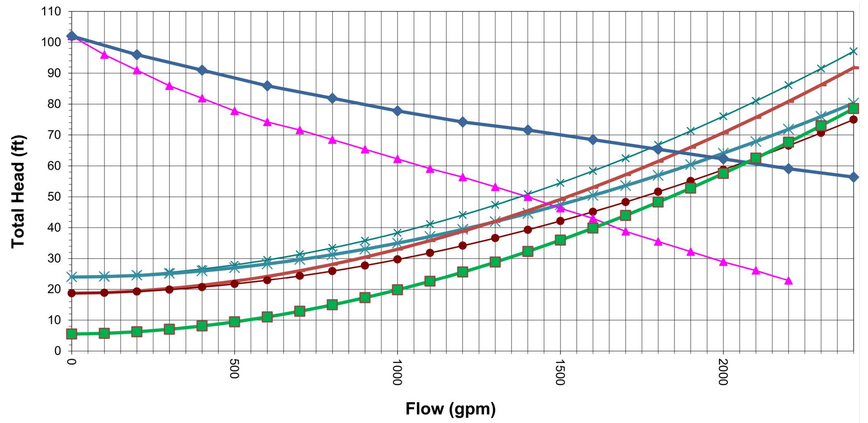
FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Civil\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_BIM\Phase II\14-Phase II BRAESWOOD\Phase II LS - BRAESWOOD.dwg



SECTION AA'



PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2	PUMP NO. 2
MOTOR DATA			
NOMINAL SIZE (HP)	25	25	25
MAX SPEED (RPM)	1755	1755	1755
SOLIDS PASSAGE			
MIN SPHERE (IN)	3	3	3
CAPACITY (GPM)			
DESIGN	1430	1430	1430
RUNOUT	2300	2300	2300
DISCHARGE HEAD (FT)			
DESIGN	50	50	50
RUNOUT	24	24	24
SHUT OFF	101	101	101
EFFICIENCY (%)			
DESIGN	78.5	78.5	78.5
NPSHR (FT)			
DESIGN	22	22	22
RUNOUT	53	53	53

STATION OPERATION TABLES

RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
	LEAD PUMP TURNS ON	LEAD PUMP ON
	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
	HIGH WATER LEVEL ALARM OFF	LEAD PUMP ON
	LEAD PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP

NO.	DATE	REVISION	APP.

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HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N.
ELEVATION SECTION

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CITY OF HOUSTON PM	
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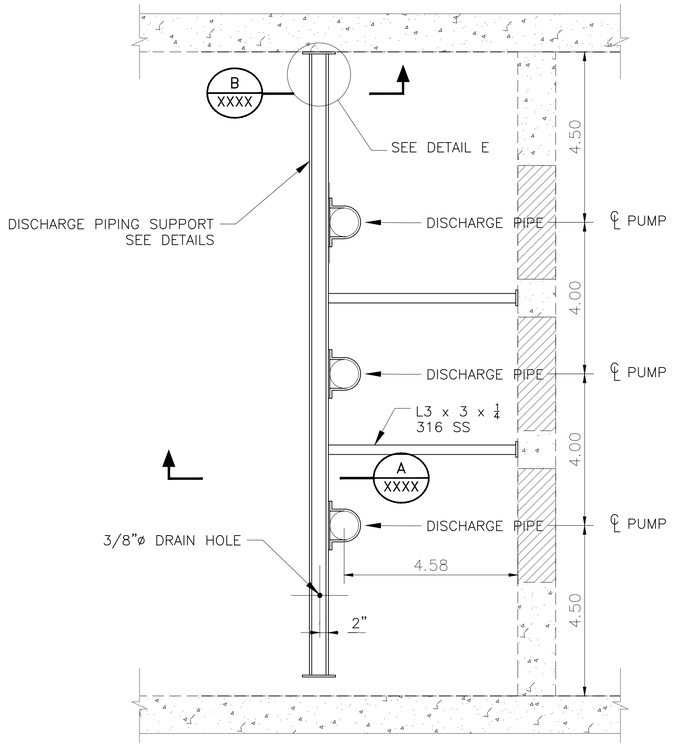
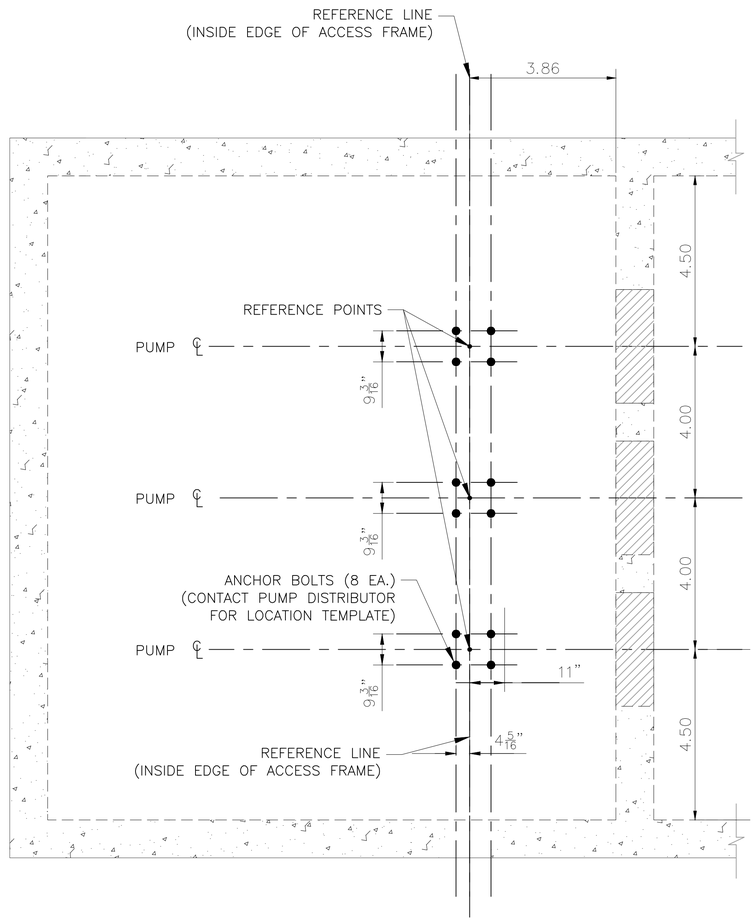


TYP DISCHARGE PIPING SUPPORT



BASE SECTION

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO	DATE	REVISION	APP

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N.
TOP VIEW /BASE SECTION

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R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

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FILE NAME:
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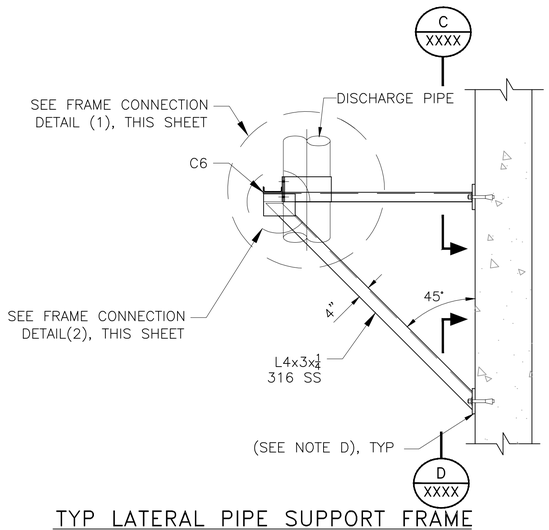


TYP LATERAL PIPE SUPPORT FRAME

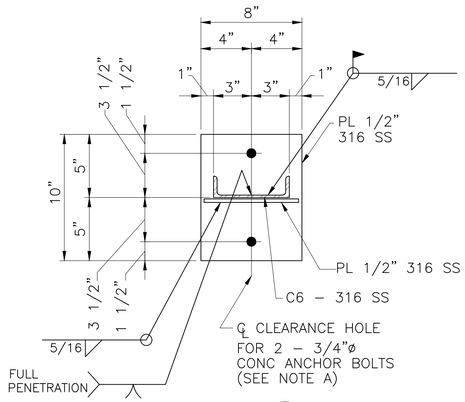
NOTES:

A. CONCRETE ANCHOR BOLTS SHALL HAVE 6" MINIMUM EMBEDMENT AND SHALL BE TYPE 316 STAINLESS STEEL, PER SPECIFICATIONS.

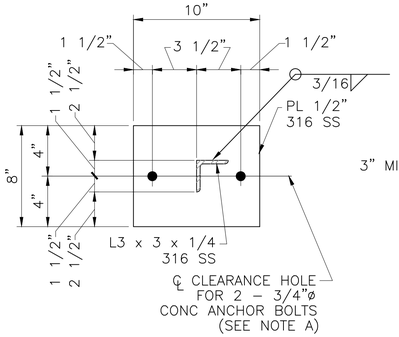
B. SEE STATION AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.

C. DRILL 3/8"ø HOLES, 1" OFF C OF C6 AT MIDSPAN BETWEEN LATERAL PIPE SUPPORTS TO ALLOW FOR DRAINAGE. 3 HOLES PER CHANNEL WHERE 2 LATERAL SUPPORTS REQUIRED; 2 HOLES PER CHANNEL WHERE 1 LATERAL SUPPORT REQUIRED.

D. SET 1/4" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.



SECTION B XXXX



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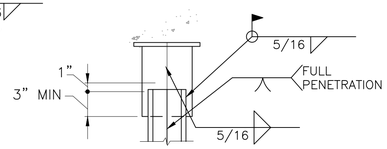
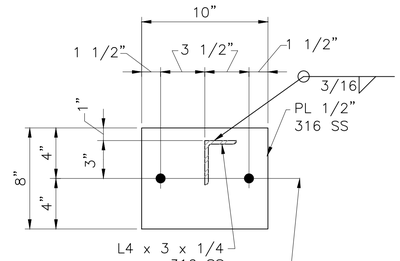
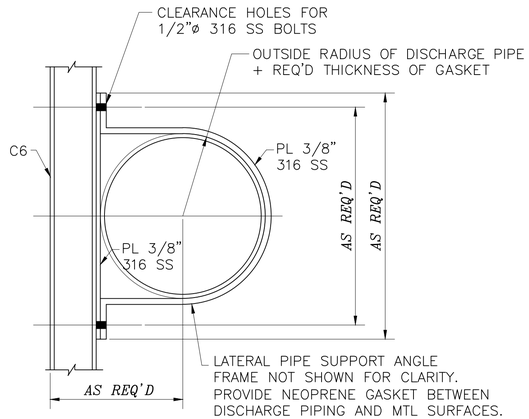


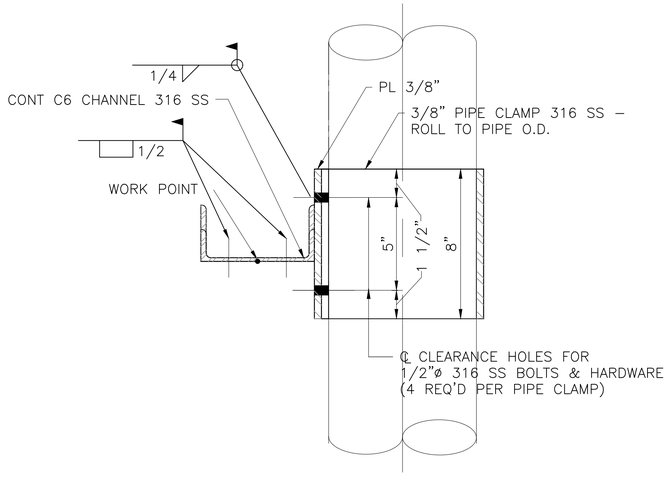
DETAIL E



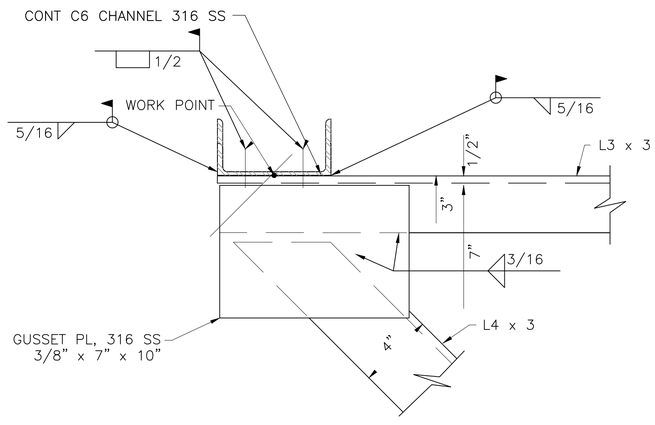
SECTION D XXXX



PIPE CLAMP DETAIL



FRAME CONNECTION DETAIL(1)



FRAME CONNECTION DETAIL(2)

NO.	DATE	REVISION	APP

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Engineer
48282
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10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N. DISCHARGE PIPING SUPPORT DETAILS

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R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

E1M04 SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
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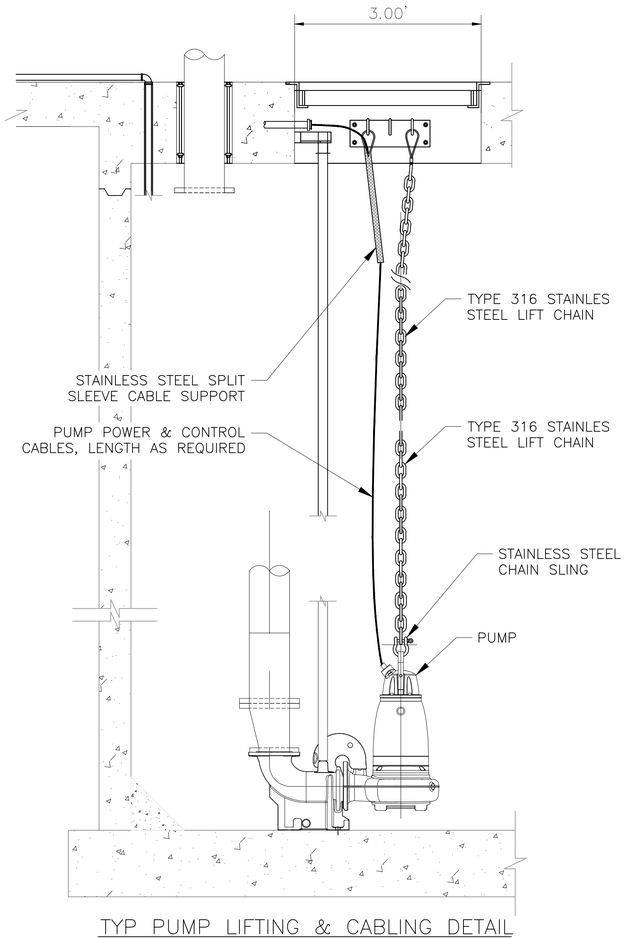
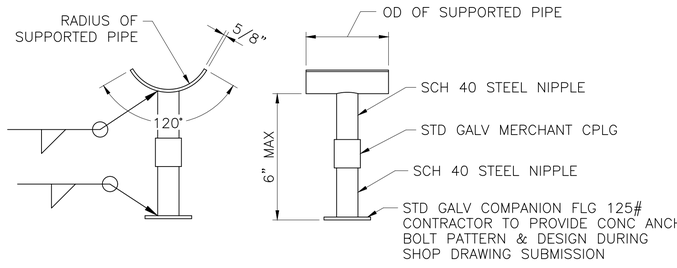


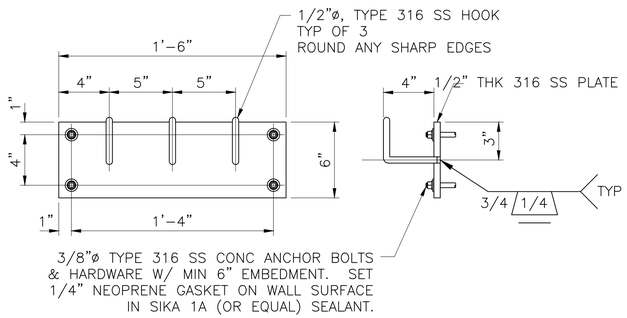
TYP PUMP LIFTING & CABLING DETAIL

DETAIL 3 XXXX



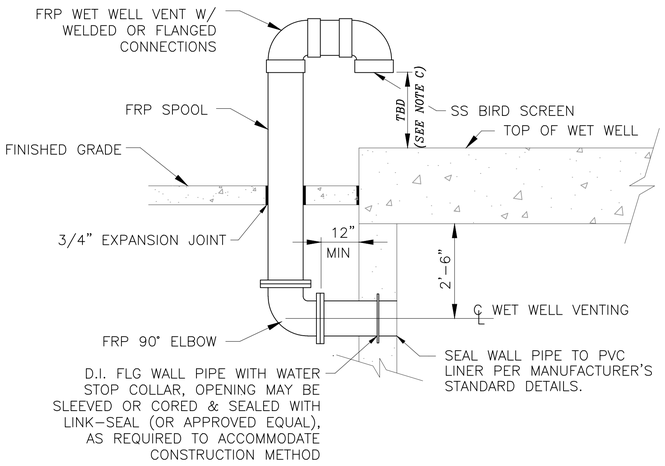
TYP ADJUSTABLE PIPE SUPPORT

DETAIL 2A XXXX



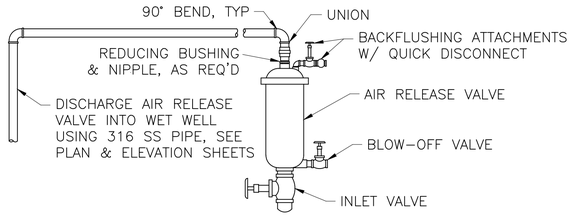
TYPICAL CABLE HOLDER ASSY

DETAIL 3 XXXX



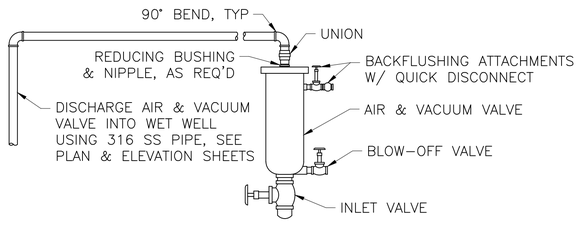
TYPICAL HIGH PROFILE WET WELL VENTING INSTALLATION

DETAIL 1 XXXX



TYPICAL AIR RELEASE VALVE ASSY

DETAIL 10 XXXX



TYPICAL AIR & VACUUM VALVE ASSY

DETAIL 11 XXXX

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LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N.
TYPICAL DETAILS

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CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

E1M05 | SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

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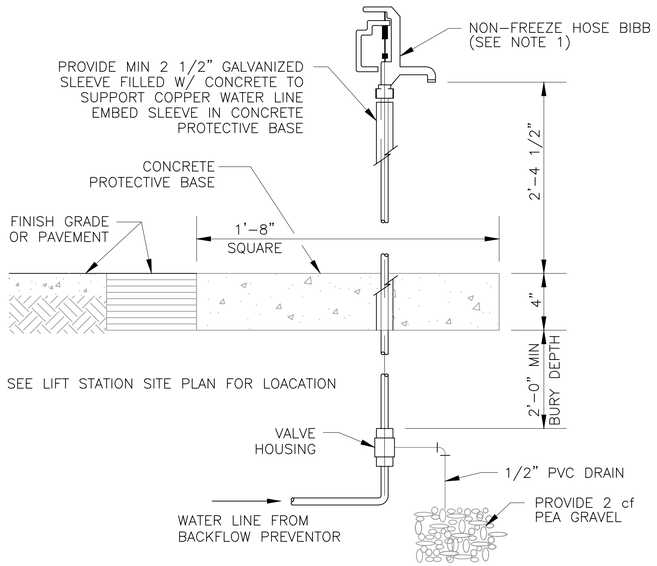
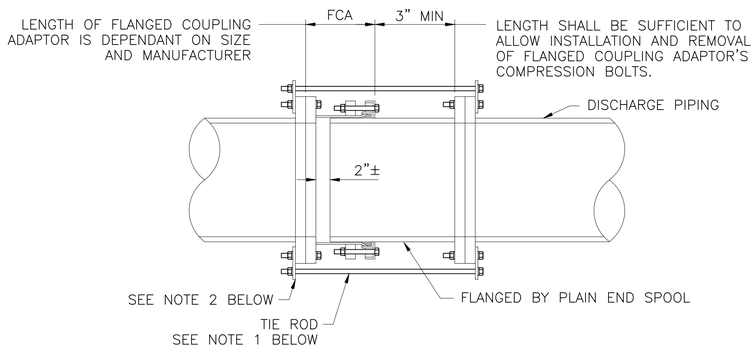


TYP NON–FREEZE HOSE BIBB DETAIL

DETAIL 12 / XXXX



NOTES:

1. PROVIDE A NUMBER OF TIE RODS EQUAL TO 1/2 THE NUMBER OF FLANGE BOLTS. EVENLY SPACE INSTALLATION OF TIE RODS. DIAMETER OF TIE RODS TO BE EQUAL TO THE DIAMETER OF FLANGE BOLTS. LENGTH OF TIE RODS TO BE DETERMINED BY CONTRACTOR BASED ON SIZE AND MANUFACTURER OF FLANGED COUPLING ADAPTOR AND FINAL LENGTH OF SPOOL PIECE.
2. PROVIDE 316 SS TAB FOR ATTACHMENT OF TIE RODS. SIZE TO BE DETERMINED BY CONTRACTOR.
3. CONTRACTOR TO SUBMIT DETAILS DURING SHOP DRAWING SUBMISSION.
4. ALL HARDWARE SHALL BE 316 STAINLESS STEEL. TIE RODS SHOULD BE THREADED.
5. THIS RESTRAINT DOES NOT REPLACE THRUST BLOCKS TO BE PROVIDED AT OTHER LOCATIONS.

TYP FLANGED COUPLING ADAPTOR RESTRAINT DETAIL

DETAIL 14 / XXXX

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

NO	DATE	REVISION	APP

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E1M06	SHEET NO. OF 246

FILE NAME:
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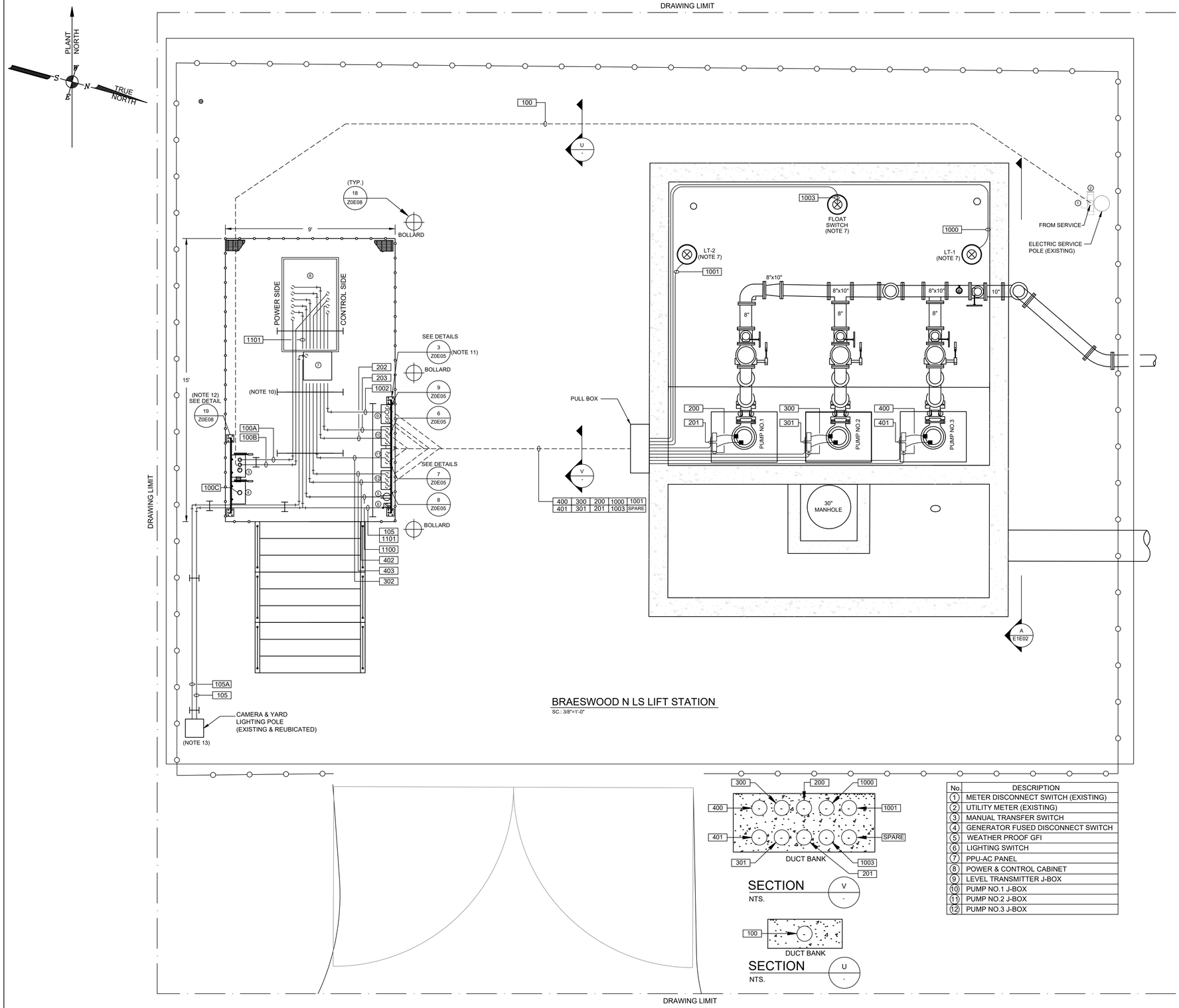
P:\Cont\20224.04613 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\4-Phase II BRAESWOOD\Phase II LS - BRAESWOOD.dwg



NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
3. WHERE JUNCTION BOXES ARE SHOWN, THEY SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. SPLICES WILL NOT BE ALLOWED EXCEPT AS PROVIDED BY NOTE 4 AND AT LIGHTING AND RECEPTACLE TERMINATIONS.
4. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO CONTROL BUILDING OR PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
7. LEVEL TRANSMITTERS AND FLOAT SWITCH SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL FIELD VERIFY.
8. INSIDE WET WELL IS CLASSIFIED AS CLASS I, DIVISION 1. OUTSIDE WET WELL WITHIN 5 FEET OF WET WELL OPENINGS ARE CLASSIFIED AS CLASS I, DIVISION 2.
9. NEW INSTRUMENT TO BE INSTALLED IN THE SAME AREA AS INSTRUMENT REMOVED.
10. CONDUITS INSTALLED UNDER THE PLATFORM AND FIXED TO UNISTRUT SUPPORT.
11. THE JUNCTION BOX RACK MUST BE AT LEAST 6' WIDE.
12. THE ELECTRICAL SERVICE RACK MUST BE AT LEAST 4' WIDE.
13. FOR LIGHT & COMMUNICATION POLE DETAILS, SEE DRAWING NO. Z0E07.

No.	DESCRIPTION
(1)	METER DISCONNECT SWITCH (EXISTING)
(2)	UTILITY METER (EXISTING)
(3)	MANUAL TRANSFER SWITCH
(4)	GENERATOR FUSED DISCONNECT SWITCH
(5)	WEATHER PROOF GFI
(6)	LIGHTING SWITCH
(7)	PPU-AC PANEL
(8)	POWER & CONTROL CABINET
(9)	LEVEL TRANSMITTER J-BOX
(10)	PUMP NO.1 J-BOX
(11)	PUMP NO.2 J-BOX
(12)	PUMP NO.3 J-BOX

NO.	DATE	REVISION	APP.
A	09/05/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

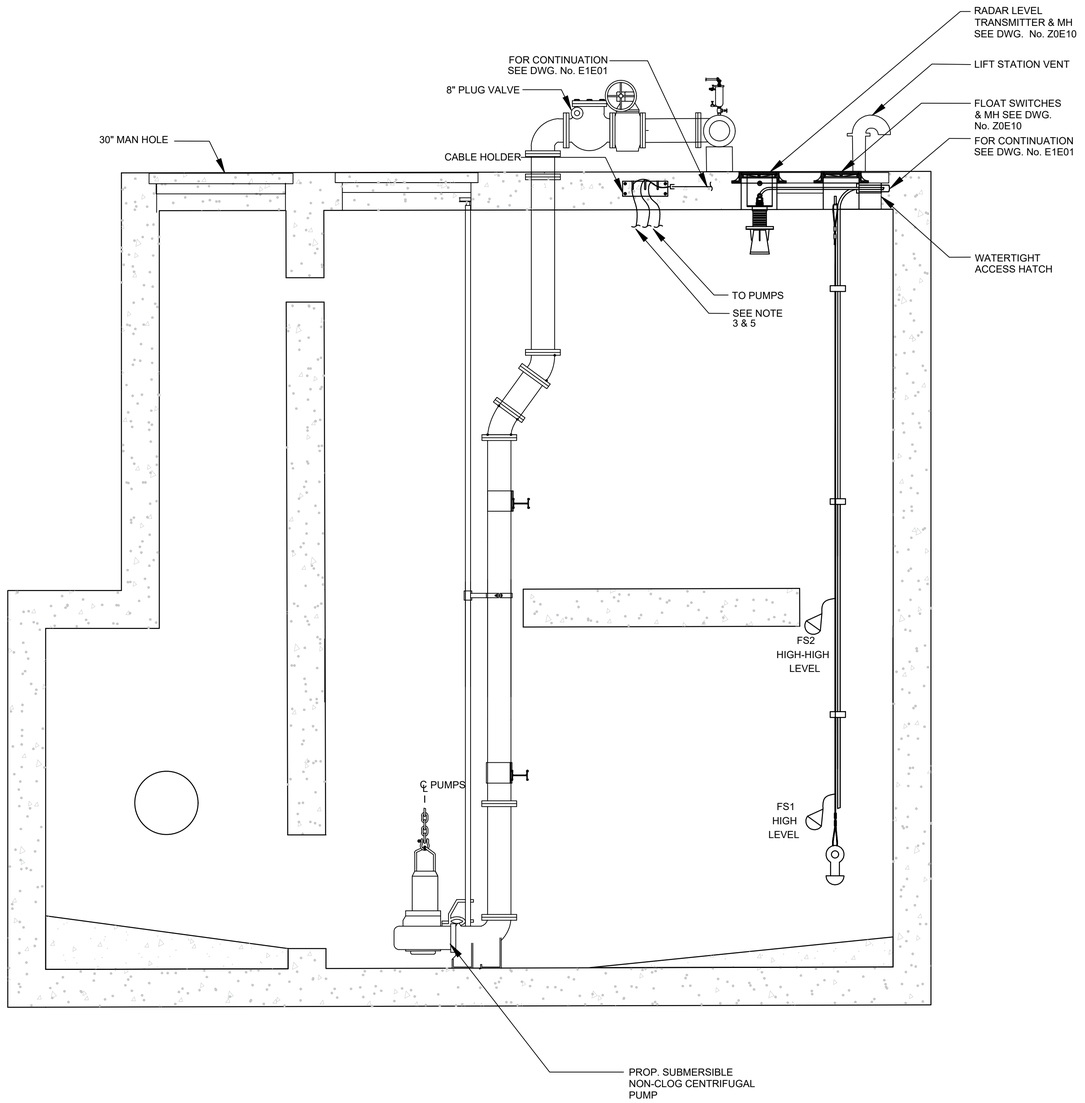
LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

ELECTRICAL SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E01

PLOTTED: 10/28/2025 1:20 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 5\queue5.dwg



BRAESWOOD N - LIFT STATION

A / - ELEVATION

SC.: 1/2"=1'-0"

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION I, GROUP C & D.
3. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
4. FOR MOTOR FEEDER AND CONTROL CABLES. INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO POWER & CONTROL PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. INSTRUMENTS SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL BE ESTABLISHED DURING CONSTRUTION.

NO.	DATE	REVISION	APP.
A	09/05/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

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750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

LIFT STATION ELEVATION

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R-000267-0173-3	
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SHEET NO. OF 246	

E1E02

PLOTTED: 10/28/2025 1:27 PM
PLOT STYLE: COH.ctb
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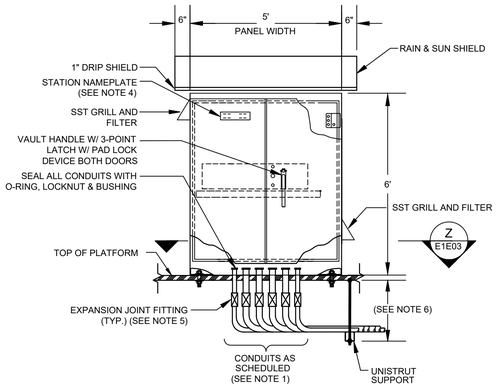
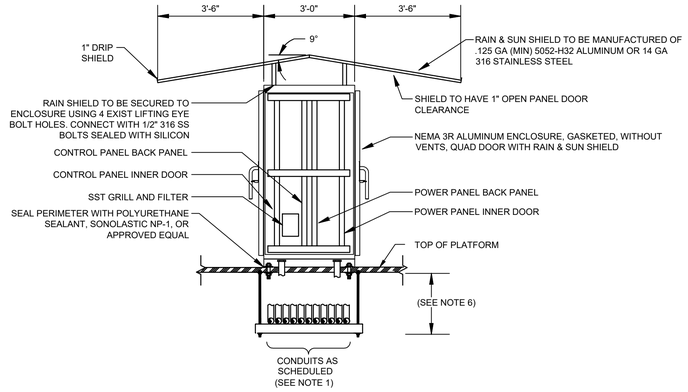


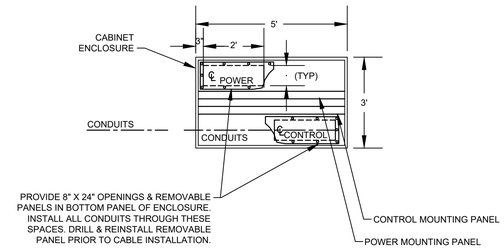
POWER & CONTROL CABINET - FRONT CONDUIT CONNECTION

SC.: NTS



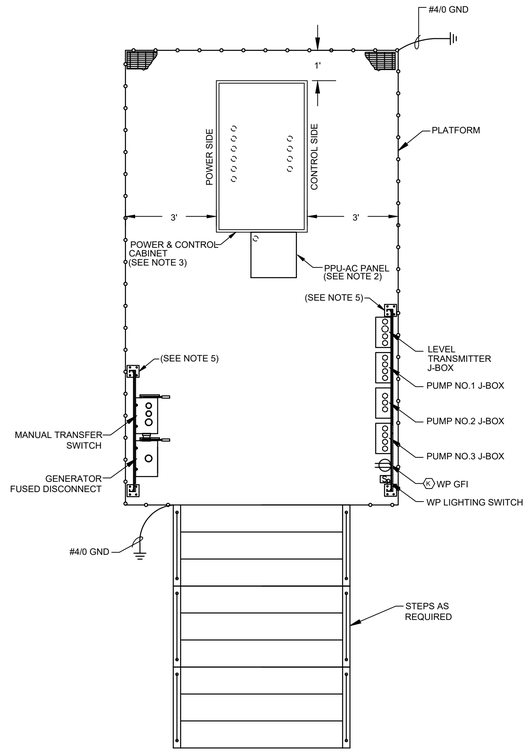
POWER & CONTROL CABINET - SIDE CONDUIT CONNECTION

SC.: NTS



SECTION Z

NTS



POWER & CONTROL CABINET ENCLOSURE ON ELEVATED PLATFORM DETAIL

SC.: NTS

NOTES:

1. FOR CONDUIT SCHEDULE SEE DRAWING NO. E1E20.
2. FOR PPU-AC PANEL SEE DRAWING NO. E1E10
3. FOR POWER & CONTROL PANEL DETAIL SEE DRAWING NO. E1E04.
4. FOR NAME PLATE SCHEDULE SEE DRAWING NO. E1E05.
5. EXPANSION JOINT FITTINGS AS REQUIRED.
6. DISTANCE TO BE DETERMINATED IN FIELD.

NO.	DATE	REVISION	APP.
A	05/30/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N LS

POWER & CONTROL CABINET INSTALLATION

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AS NOTED	
CITY OF HOUSTON PM	
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SHEET NO. OF 246	

E1E03

PLOTTED: 10/28/2025 1:20 PM
PLOT STYLE: COH.ctb
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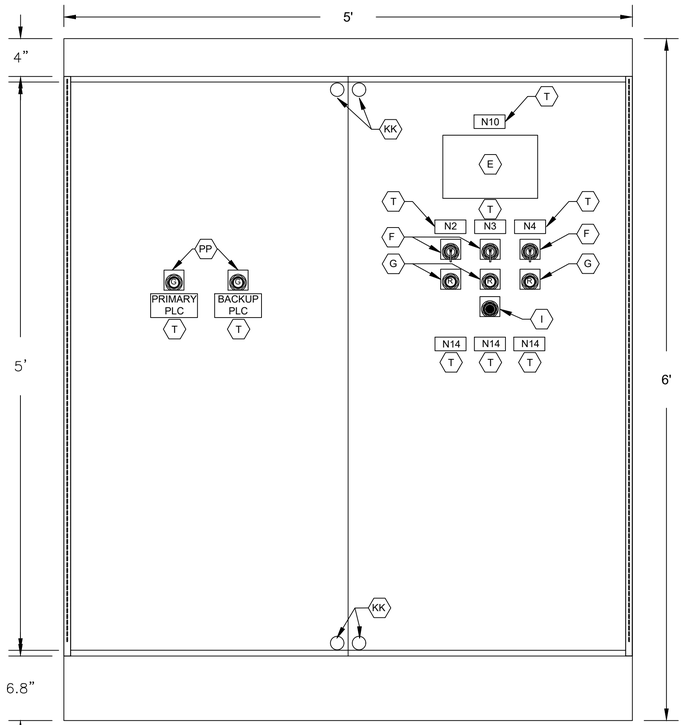
EQUIPMENT AND DEVICE SCHEDULE

ITEM	QTY.	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 2 PHASE, 3 WIRE, 100A, 24 CKTS, SQUARE D MODEL # QP24100CP 21HX, 14.25W
B	3	NEMA MOTO STARTER, NON-REVERSING, TYPE S, SIZE 2, 45 AMP, 25 HP AT 460VAC, 3 PHASE, 3 POLE, SOLID STATE, 120 VAC COIL, SCHNEIDER MODEL 8535SDO1V02H30S
C	3	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 24VDC COIL AND 11 PIN SOCKET BASE.TURCK RELECO MODEL CT3-E30/L WITH S3-S BASE C3-A30X/24DC
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY, ATC MODEL ISO-120-AFA
E	1	PROGRAMMING SCREEN (OIT), SIEMENS INDUSTRY TP900 - COMFORT TOUCH PANEL
F	3	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL), ALLEN-BRADLEY MODEL 800H-JR2B
G	3	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2R
H	6	TERMINAL RAIL, STEEL GALVANIC ZINC, W: 2000 mm, H: 15 mm, D: 5.5 mm, WEIDMULLER ITEM No.0117510000
I	1	PUMP ALARM RESET PUSHBUTTON, ALLEN-BRADLEY MODEL 800H-AR2BF
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST, HUBBELL MODEL HBL1221I, WITH METALLIC BOX 4"x4" AND STEEL METALLIC SQUARE BOX COVER DUPLEX
K	2	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED, HUBBELL MODEL HBL53621, WITH METALLIC BOX 4"x4" AND STEEL METALLIC SQUARE BOX SWITCH COVER.
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION, HOFFMAN MODEL LF120V28
M	1	480VAC, 3 PHASES SURGE PROTECTOR - SURGE SUPPRESSION INC MODEL SDLA3N4
N	39	TAG CARRIER, SCHT 5 WEIDMULLER, CATALOG NO. 0292460000
P	3	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT, PHOENIX CONTACT MODEL MCR-SL-CUC-100-I
Q	12	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS, WEIDMULLER WDU 10
R	16	WIRE DUCT 2" WIDE X 3" DEEP MINIMUM, LENGTH 6', HELLERMANN TYTON MODEL SL2X3W4
S	22	END BRACKET, WEW 35/2 WEIDMULLER, CATALOG NO. 1061200000
T	61	NAMEPLATES, (SEE NAMEPLATE SCHEDULE & EQUIPMENT LAYOUT DRAWINGS)
U	3	ANALOG INPUT MODULE, 4 ANALOG INPUT , SIEMENS MODEL SIMATIC S7-1200, 6ES7231-4HD32-0XB0
V	6	FUSE HOLDER & FUSES - PHASE FAILURE FERRAZ SHAWMUT, PN 30313
W	1	72"x60"x36" NEMA 3R ENCLOSURE, GASKETED, WITHOUT VENTS INCLUDING QUAD DOORS, BACKPLANES, & RAIN-SUN SHIELD MANUFACTURED OF .125 5052-H32 ALUMINUM - NEMA ENCLOSURES MFG. CORP. NE726036-12FSDDA WITH 2ea. NEAF7260P & 4 ea. NE7230SWP
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE ENVIROMENT), SQUARE D MODEL 9421LZ250H43
Y	1	MAIN CIRCUIT BREAKER, POWER PACT J, 200A, 3 POLE, 480VAC, THERMAL MAGNETIC, SQUARE D, MODEL JJL36200
Z	3	CIRCUIT BRAKER POWERPACT H, 70A, 3 POLE, 600VAC, THERMAL MAGNETIC, SQUARE D, MODEL HJL36070
AA	164	TERMINAL BLOCKS, WEIDMULLER WDU 2.5, CATALOG NO. 1020000000
BB	3	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM, SQUARE D MODEL 9066 RA1
CC	2	ANALOG I/O SURGE SUPPRESSOR EATON MODEL IOP32D
DD	1	DIGITAL INPUT MODULE, 16 DIGITAL INPUT 24 VDC , SIEMENS MODEL SIMATIC S7-1200, 6ES7221-1BH32-0XB0
EE	1	CIRCUIT BRAKER POWERPACT H, 50A, 2 POLE, 600VAC, THERMAL MAGNETIC, SQUARE D, MODEL HJL26050
FF	1	GROUND BUS, SQUARE D MODEL 1630 PK9GTA
GG	1	LED LIGHT FOR INDOOR/OUTDOOR USE, 24 VDC, COLOR RED, FEDERAL SIGNAL MODEL LP3PL-024R.
HH	1	10 KVA, 480 - 240/120V, 1Φ, 3W DRY TYPE TRANSFORMER
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED), SQUARE D MODEL 9070T200D13
JJ	12	CARTRIDGE FUSES & FUSE HOLDER, FERRAZ SHAWMUT, PN 30313
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A, PHOENIX CONTACT MODEL QUINT-PS/1AC/24DC/5
MM	2	MOTION SWITCH, CHERRY MODEL E13-00H
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP, PLC" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2G
QQ	21	CONTROL RELAY, 3 POLE, 24VDC CONTROL COIL - TURCK C3-A30X/24DC W/S3-S BASE
RR	2	CONTROL RELAY, 3 POLE, 120VAC CONTROL COIL - TURCK C3-A30X/120AC W/S3-S BASE
SS	1	COMMUNICATION ETHERNET SWITCH, SIEMENS MODEL SCALANCE X310FE
TT	1	120VAC SURGE SURGE PROTECTOR WITH ALARM CONTACT - SURGE SUPPRESSION INC MODEL SDLA1P1
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT, SIEMENS MODEL 6ES7214-1HG40-0XB0
VV	1	PHASE AND UNDER VOLTAGE MONITOR, DIVERSIFIED ELECTRONICS MODEL PDB-480-ALE
WW	118	FUSED TERMINAL BLOCKS, WEIDMULLER WSI 6, CATALOG NO. 1011000000
XX	3	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I, MINICAS II 83 58 57 24VDC/AC
YY	2	ANALOG SIGNAL ISOLATOR, TURCK MODEL IMS-AI-DLI-22-DLI/L
ZZ	1	1-GANG WEATHERPROOF-IN-USE COVER, TAYMAC, MODEL MM420C.
AB	1	TAMPER/WEATHER RESISTANT GFCI RECEPTACLE, LEVITON, MODEL GFWT1-W.
AC	1	POWER DISTRIBUTION BLOCK, 3 POLE, EDISON MODEL HPB106-3
AD	1	1-GANG WEATHERPROOF BOX, 3-1/2", 2" DEPTH, ALUMINUM DIE CAST, BELL, MODEL 5320-0.
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD, HOFFMAN MODEL TFP6
AF	1	T-STAT FOR EXHAUST FAN, HOFFMAN, MODEL ATEMNOF

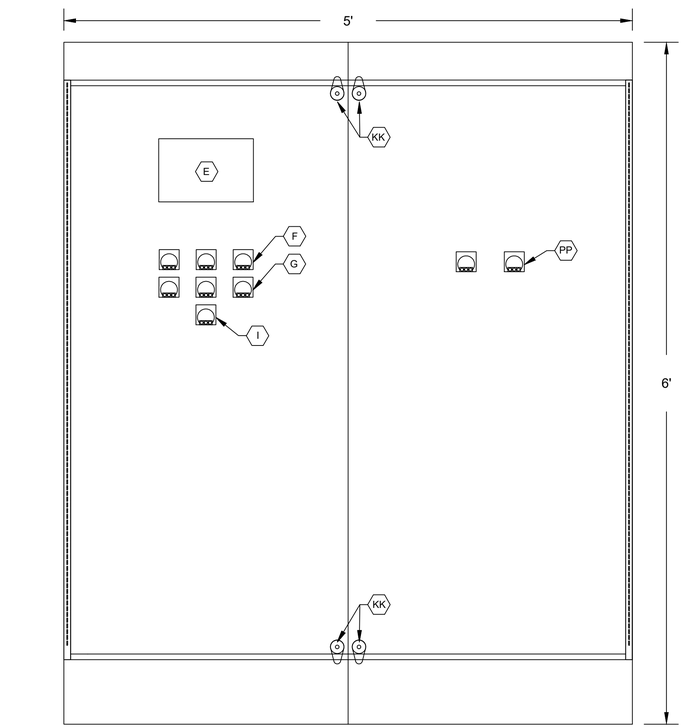
* - AS SCHEDULED



POWER & CONTROL CABINET FRONT INNER DOOR

ELEVATION

SC.: 1-1/2"=1'-0"



POWER & CONTROL CABINET BACK INNER DOOR

ELEVATION

SC.: 1-1/2"=1'-0"

NOTES:

1. NAMEPLATES SHALL BE MOUNTED TO PANELS USING STAINLESS STEEL HARDWARE.
2. REFER SPECIFICATIONS FOR ALL PANEL COMPONENTS.

NO.	DATE	REVISION	APP.
A	05/30/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

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HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

POWER & CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
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CITY OF HOUSTON PM	
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E1E04

PLOTTED: 10/28/2025 1:20 PM
PLOT STYLE: COH.ctb
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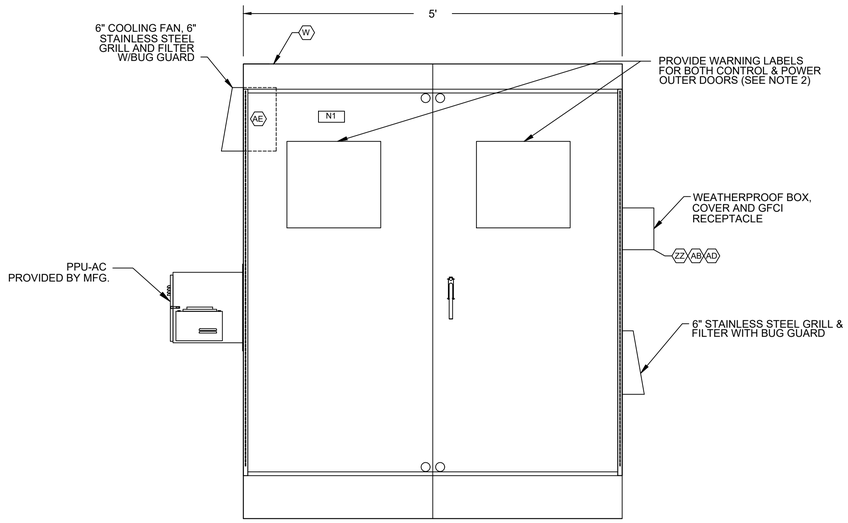
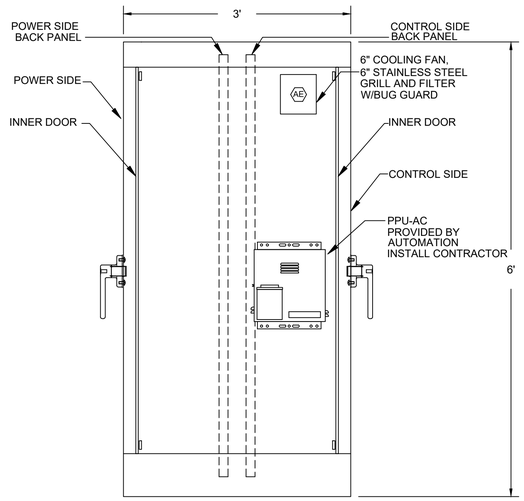


POWER & CONTROL CABINET (CONTROL SIDE) OUTER DOOR

ELEVATION

SC.: 1"=1'-0"



POWER & CONTROL CABINET (LEFT SIDE VIEW)

ELEVATION

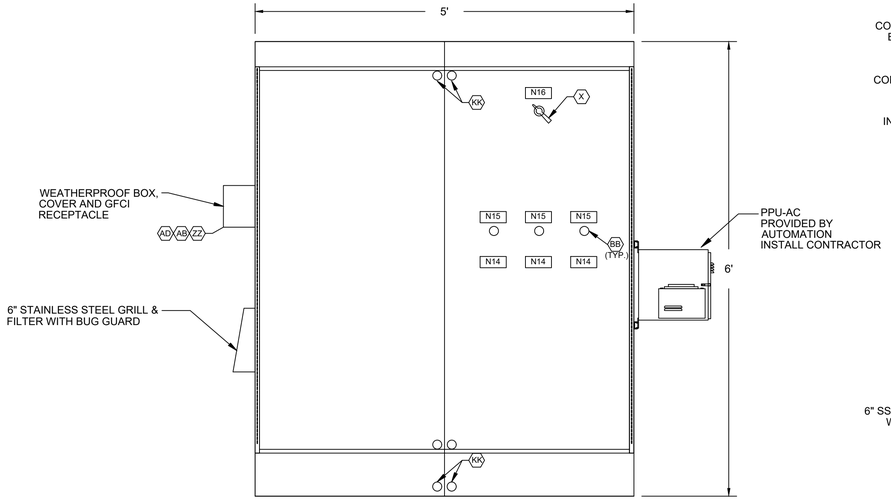
SC.: 1"=1'-0"

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED
N1	BRAESWOOD N LS PUMP STATION
N2	PUMP NO. 1
N3	PUMP NO. 2
N4	PUMP NO. 3
N5	NOT USED.
N6	NOT USED.
N7	NOT USED.
N8	NOT USED.
N9	NOT USED.
N10	PROGRAMMING SCREEN
N11	NOT USED.
N12	PRIMARY PLC
N13	BACKUP PLC
N14	MOTOR DATA HORSEPOWER (OUTPUT) ---------- 25 RPM AT FULL LOAD ---------- 1755 TIME RATING ---------- S1 FREQUENCY ---------- 60 hZ NUMBER OF PHASES ---------- 3 MODEL NUMBER ---------- N3171.185 25-14-4AA-W 25 HP RATED VOLTAGE ---------- 460V SERVICE FACTOR ---------- FULL LOAD AMPS ---------- 30A INSULATION CLAS ---------- H NEMA DESIGN LETTER ---------- TEMPERATURE RISE ---------- NEMA FRAME SIZE ---------- DATE OF MANUFACTURE ---------- THERMO PROTECTION (IF REQUIRED) -- MOISTURE PROTECTION (IF REQUIRED)-
N15	EXTERNAL OVERLOAD RESET PUSH BUTTON MECHANISM
N16	MAIN BREAKER

NOTES:

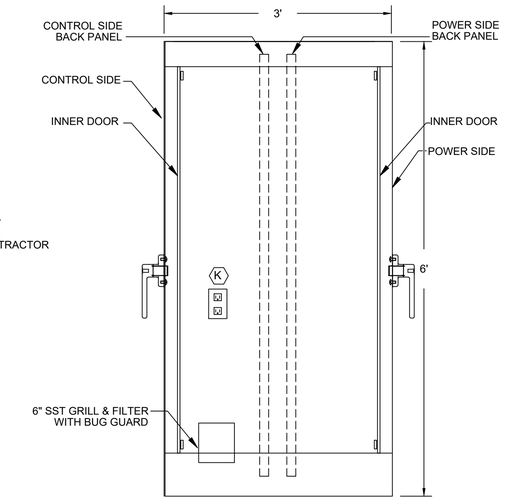
1. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. FOR ARC FLASH HAZARD WARNNG AND LABEL REQUIREMENTS REFER TO NEC SECTIONS 110.16 & 110.21



POWER & CONTROL CABINET (POWER SIDE) INNER DOOR

ELEVATION

SC.: 1"=1'-0"
(SEE NOTE 1)



POWER & CONTROL CABINET (RIGHT SIDE VIEW)

ELEVATION

SC.: 1"=1'-0"

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HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N LS

POWER & CONTROL CABINET EQUIPMENT LAYOUT-I

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NUPUR KRISHNAN P.E.	

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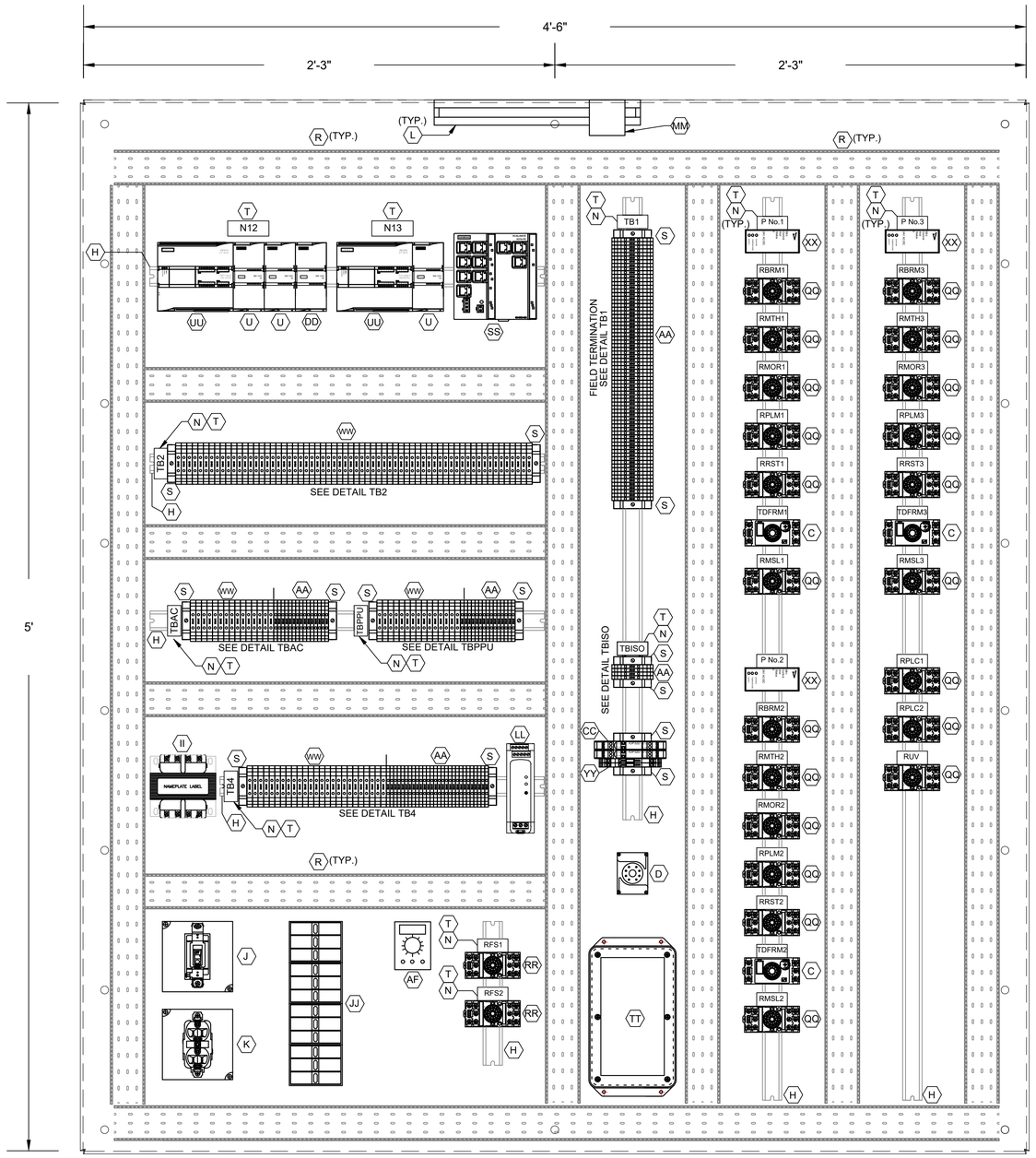

CONTROL PANEL
ELEVATION
SC.: 3"=1'-0"

L1A
L1N
SPARE
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3C
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50
51
52
53
54
1004
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24V-
24V-
1002
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1001
1001A
12
1003
1003A
1002
1004
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3N
SPARE
36
36N
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SPARE
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DETAIL TB1

ALL L AND N FOR EACH PUMP CONTROL TO BE FUSED

36A
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14GB
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DETAIL TB2

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DETAIL TBAC

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DETAIL TBPPU

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N22
N23
N24
N25

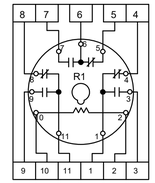
DETAIL TB4

1500
1501
1503
1504

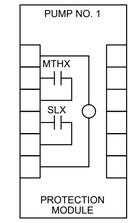
DETAIL TB-ISO

LEGEND

TAG	DESCRIPTION
RMTH	MOTOR HIGH TEMPERATURE ALARM RELAY
RPLM	PLC PUMP RUN RELAY
RRST	PUMP RESET AUX RELAY
RPLC	PLC MODE AUX RELAY
RMOR	MOTOR OVERLOAD ALARM RELAY
RBRM	BACKUP SYSTEM RUN RELAY
RUV	UNDER VOLTAGE RELAY
ISO	INTRINSICALLY SAFE RELAY
RFS	PUMP RUN FLOAT SWITCH RELAY
TDFRM	TIMER FLOAT SWITCH RUN RELAY
RMSL	MOTOR SEAL LEAK ALARM RELAY



RELAY DETAIL
ITEM C



PUMP PROTECTION MODULE
DETAIL, ITEM XX

NOTES:

1. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.

NO.	DATE	REVISION	APP.
A	05/30/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

POWER & CONTROL CABINET
EQUIPMENT LAYOUT-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E06

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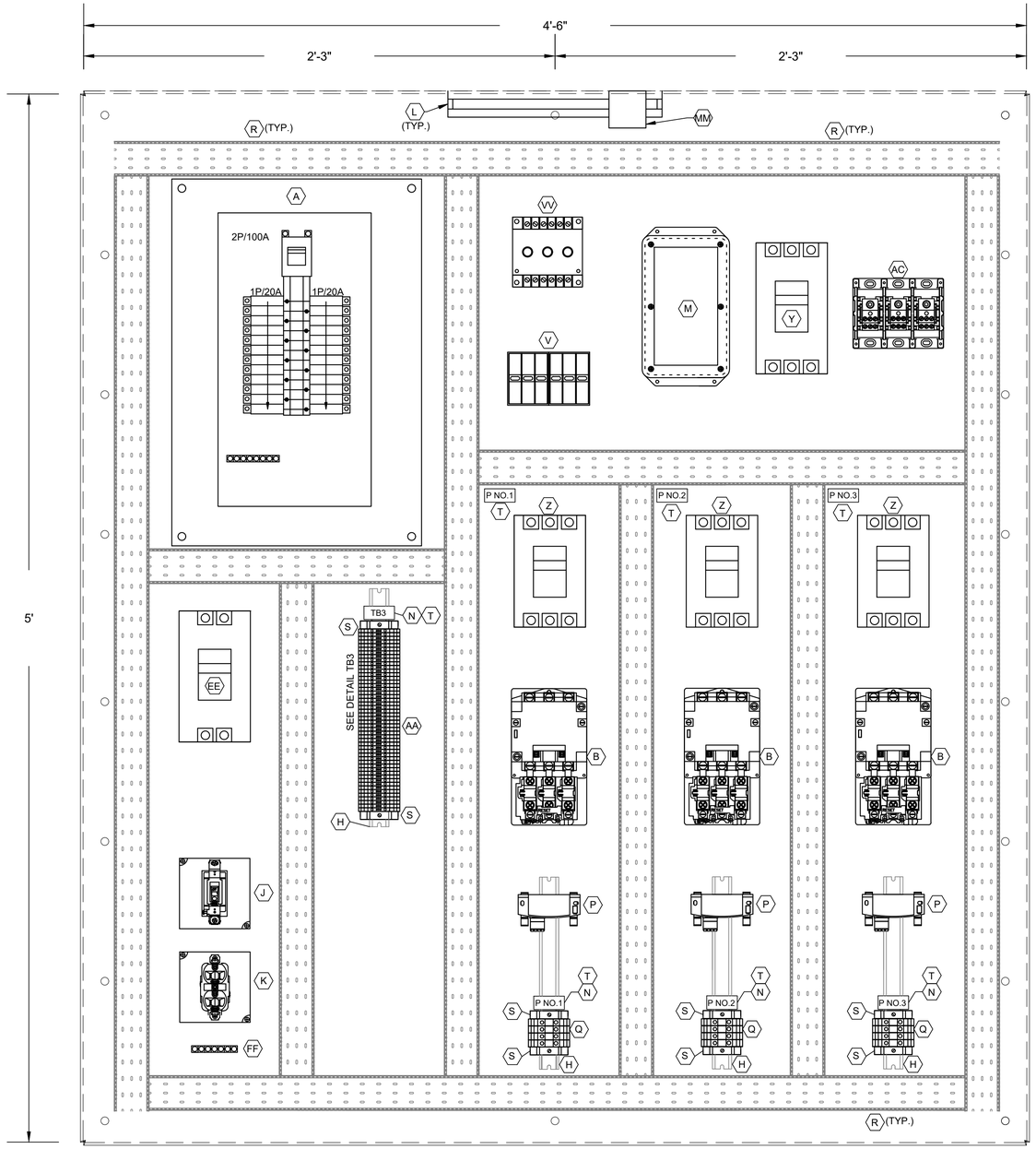

POWER PANEL ELEVATION

SC.: 3"=1'-0"

3
18
L1A
L1N
SPARE
SPARE
103
104
105
106
107
108
110
113
115
116
119
SPARE
203
204
205
206
207
208
210
213
215
216
219
SPARE
303
304
305
306
307
308
310
313
315
316
319
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
3A
3B
3C

DETAIL TB3

NOTES:

1. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.

NO.	DATE	REVISION	APP.
A	05/30/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

POWER & CONTROL CABINET EQUIPMENT LAYOUT-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

E1E07

SHEET NO. OF 246

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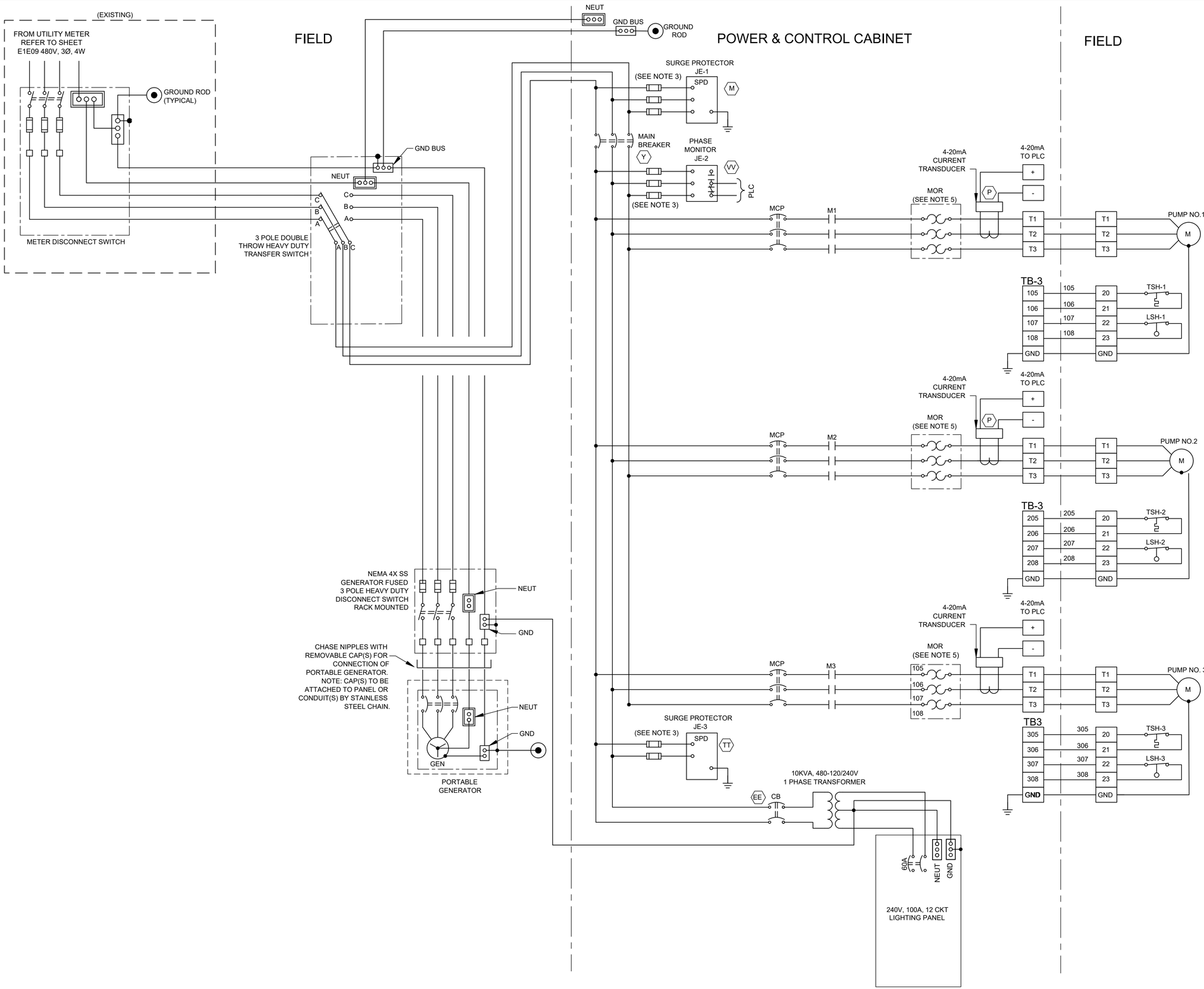

NO.	DATE	REVISION	M.S	APP.
A	05/30/25	INTERNAL REVISION	L.L.	
B	10/30/25	CLIENT REVIEW		

NOTES:

1. UNLESS OTHERWISE INDICATE, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE CONTROL PANEL.
2. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
4. CONTRACTOR SHALL TERMINATE POWER & CONTROL WIRES PER MANUFACTURER'S REQUIREMENTS.
5. MOTOR OVERLOAD RELAY.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- + DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PC INTERFACE TERMINAL

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SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

INCOMING POWER THREE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E08

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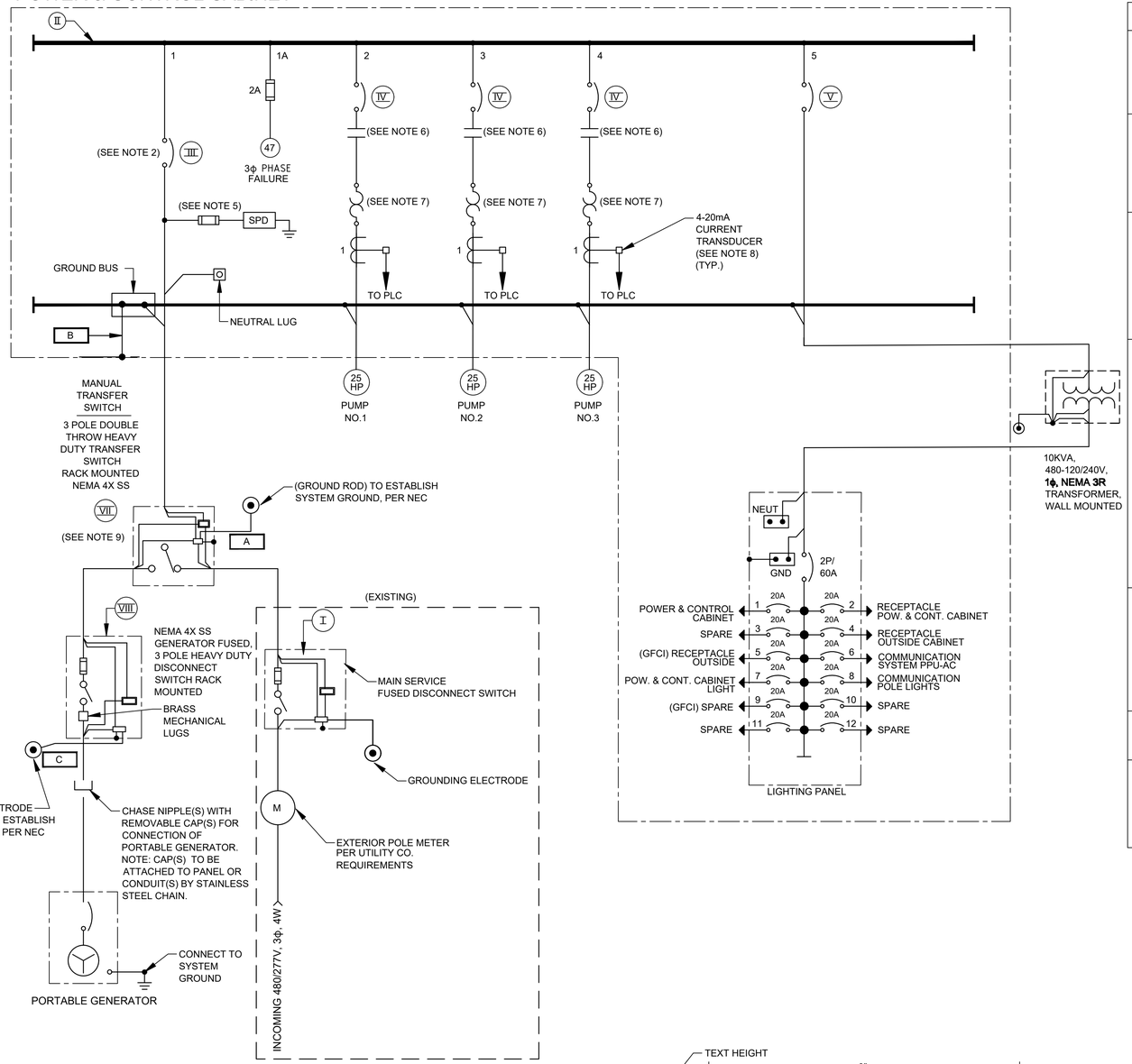
POWER & CONTROL CABINET

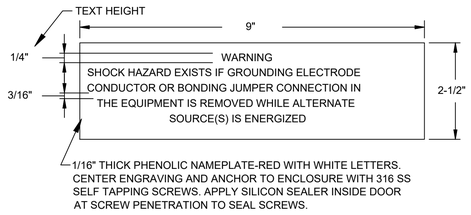


ITEM	CIRCUIT	DESCRIPTION	RATINGS FOR PUMP SIZES INDICATED 3 @ 25HP
I	--	MAIN DISCONNECT SWITCH (EXISTING)	
		OPERATING VOLTAGE	-
		CURRENT RATING	-
		CURRENT LIMITING FUSES TYPE & SIZE	-
II	--	POWER & CONTROL CABINET POWER DISTRIBUTION BLOCK	
		OPERATING VOLTAGE	
		CURRENT RATING	
		NEUTRAL SIZE & TYPE	
		BUS BRACING	
III	1	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	200A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
IV	2 3 4	PUMP MOTOR STARTERS	
		QUANTITY	3
		MOUNTING	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	480V
		FRAME SIZE	70A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	42KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	480V
		SIZE	NEMA 2
		OVERLOAD PROTECTION TYPE	SOLID STATE MOR
		CT RATIO	50:5
V	5	LIGHTING TRANSFORMER FEEDER BREAKER	
		NO. OF POLES	2
		TYPE	MOLDED CASE
		OPERATING VOLTAGE	480V
		FRAME SIZE	150A
		TRIP SETTING	50A
		INTERRUPT CAPACITY	42KA SYM
VII	--	MANUAL TRANSFER SWITCH	3P, 4W SN
		OPERATING VOLTAGE	600V
		CURRENT RATING	200A
VIII	--	GENERATOR FUSED DISCONNECT SWITCH	3P, 4W SN
		OPERATING VOLTAGE	600V
		CURRENT RATING	200A
		CURRENT LIMITING FUSES TYPE & SIZE	CLASS J 200A

NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
2. PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
3. CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
4. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
5. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
6. STARTER NEMA SIZE 2 IS MINIMUM AND NEMA SIZE 3 OR GREATER SHALL BE VACUUM TYPE.
7. MOTOR OVERLOAD RELAY.
8. PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.
9. PROVIDE A NORMALLY OPEN (NO) AUXILIARY CONTACT FOR BOTH ON POSITIONS.

NO.	DATE	REVISION	M.S	L.L.	APP.
A	05/30/25	INTERNAL REVISION			
B	10/30/25	CLIENT REVIEW			



1/16" THICK PHENOLIC NAMEPLATE-RED WITH WHITE LETTERS. CENTER ENGRAVING AND ANCHOR TO ENCLOSURE WITH 316 SS SELF TAPPING SCREWS. APPLY SILICON SEALER INSIDE DOOR AT SCREW PENETRATION TO SEAL SCREWS.

ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLI*
1	PUMP NO. 1	25HP	30A
2	PUMP NO. 2	25HP	30A
3	PUMP NO. 3	25HP	30A
4	10 KVA TRANSFORMER		50A
SUBTOTAL			140A
25% OF LARGEST MOTOR LOAD			7.5A
MINIMUM AMPACITY @480V,3Φ			147.5A

* BASED ON SELECTED PUMP MFG DATA

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

SINGLE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E09

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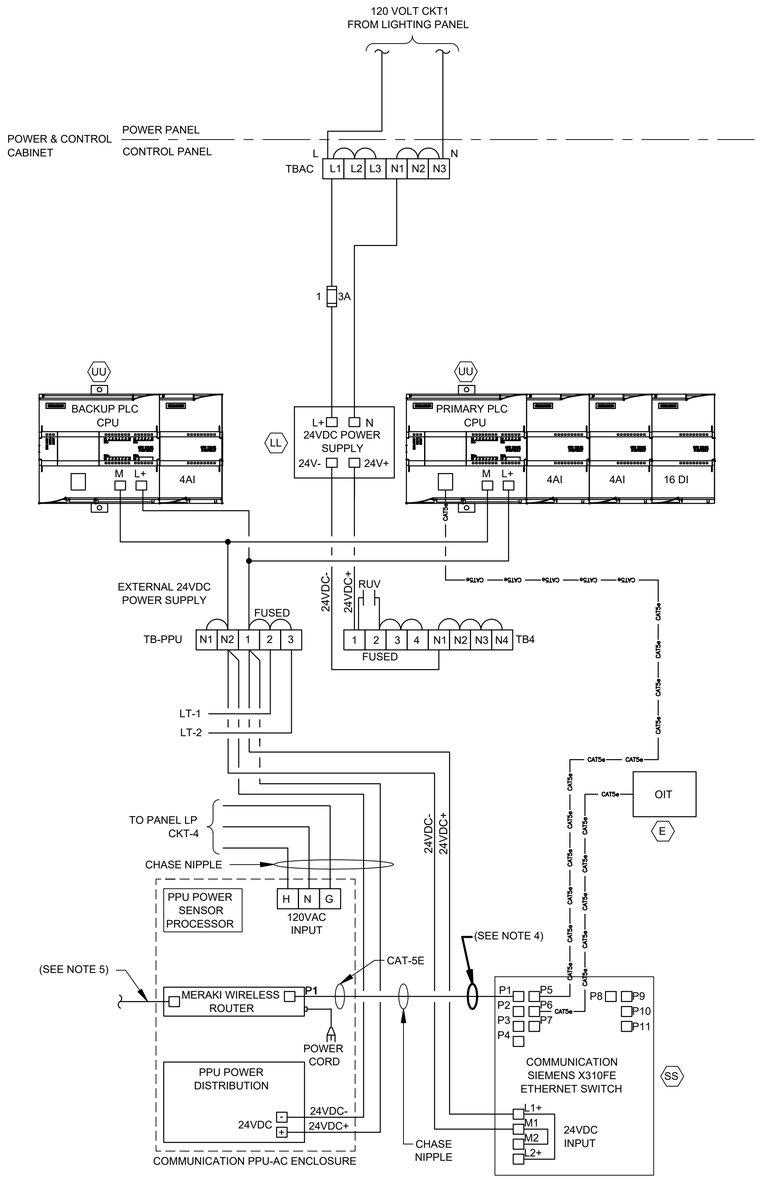
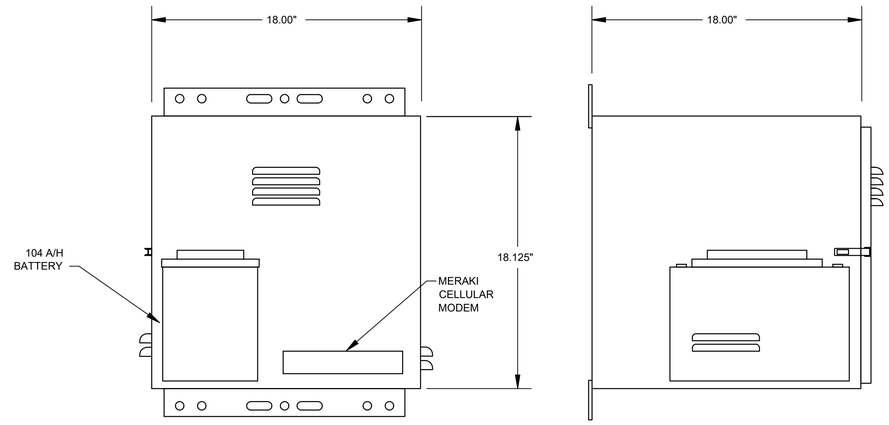


CONTROL POWER &
COMMUNICATIONS WIRING
DIAGRAM
NTS
(SEE NOTE 3)



PPU-AC
CONTROL ENCLOSURE
ELEVATION
NTS

NOTES:

1. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
2. THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
3. COMMUNICATION PPU-AC & SCADA SHALL BE PROVIDED BY CONTRACTOR INCLUDING TO RUN CONDUITS & WIRES.
4. ETHERNET CABLE FOR MERAKI CELLULAR ROUTER (P1).
5. POE CABLE TO RADIO.

NO.	DATE	REVISION	M.S
A	05/30/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	APP.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

COMMUNICATION DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E10

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PLOT STYLE: COH.ctb
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HMI

POWER & CONTROL CABINET (PLC)

POWER & CONTROL CABINET

	PUMP NO. 1								PUMP NO. 2								PUMP NO. 3								PLC		BACKUP PLC		
	SEAL FAIL ALARM	MOTOR OVERLOAD ALARM	MOTOR CURRENT	HIGH TEMP ALARM	IN HAND	IN AUTO	ON/OFF	START/ STOP	SEAL FAIL ALARM	MOTOR OVERLOAD ALARM	MOTOR CURRENT	HIGH TEMP ALARM	IN HAND	IN AUTO	ON/OFF	START/ STOP	SEAL FAIL ALARM	MOTOR OVERLOAD ALARM	MOTOR CURRENT	HIGH TEMP ALARM	IN HAND	IN AUTO	ON/OFF	START/ STOP	ALARMS RESET	FLOAT HIGH-HIGH WETWELL LEVEL	PUMP NO. 1 START/ STOP	PUMP NO. 2 START/ STOP	PUMP NO. 3 START/ STOP
	MA	MO	II	TH	HI	IA	YFS	YCS	MA	MO	II	TH	HI	IA	YFS	YCS	MA	MO	II	TH	HI	IA	YFS	YCS	RE	LAHH	YCS	YCS	YCS
	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	1	1A	1A	2A	3A

PUMP NO. 1 H/O/A RUN — PUMP NO. 2 H/O/A RUN — PUMP NO. 3 H/O/A RUN — PRIMARY PLC — BACKUP PLC — ALARMS RESET — OIT

SHEET E1E12

E1E12
E1E12

WET WELL

LT 1 / LE 1 — LT 2 / LE 2

FS2 HIGH-HIGH LEVEL FLOAT SWITCH

FS1 LOW LEVEL FLOAT SWITCH

LSH 1A / TSH 1A — PUMP NO.1

LSH 2A / TSH 2A — PUMP NO.2

LSH 3A / TSH 3A — PUMP NO.3

AIR-RELEASE

XX"-DIP

XX"-DIP

XX"-DIP

XX"-DIP

XX"-DIP

DISCHARGE

NO.	DATE	REVISION	M.S	APP.
A	05/30/25	INTERNAL REVISION	L.L	
B	10/30/25	CLIENT REVIEW		

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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10/30/2025

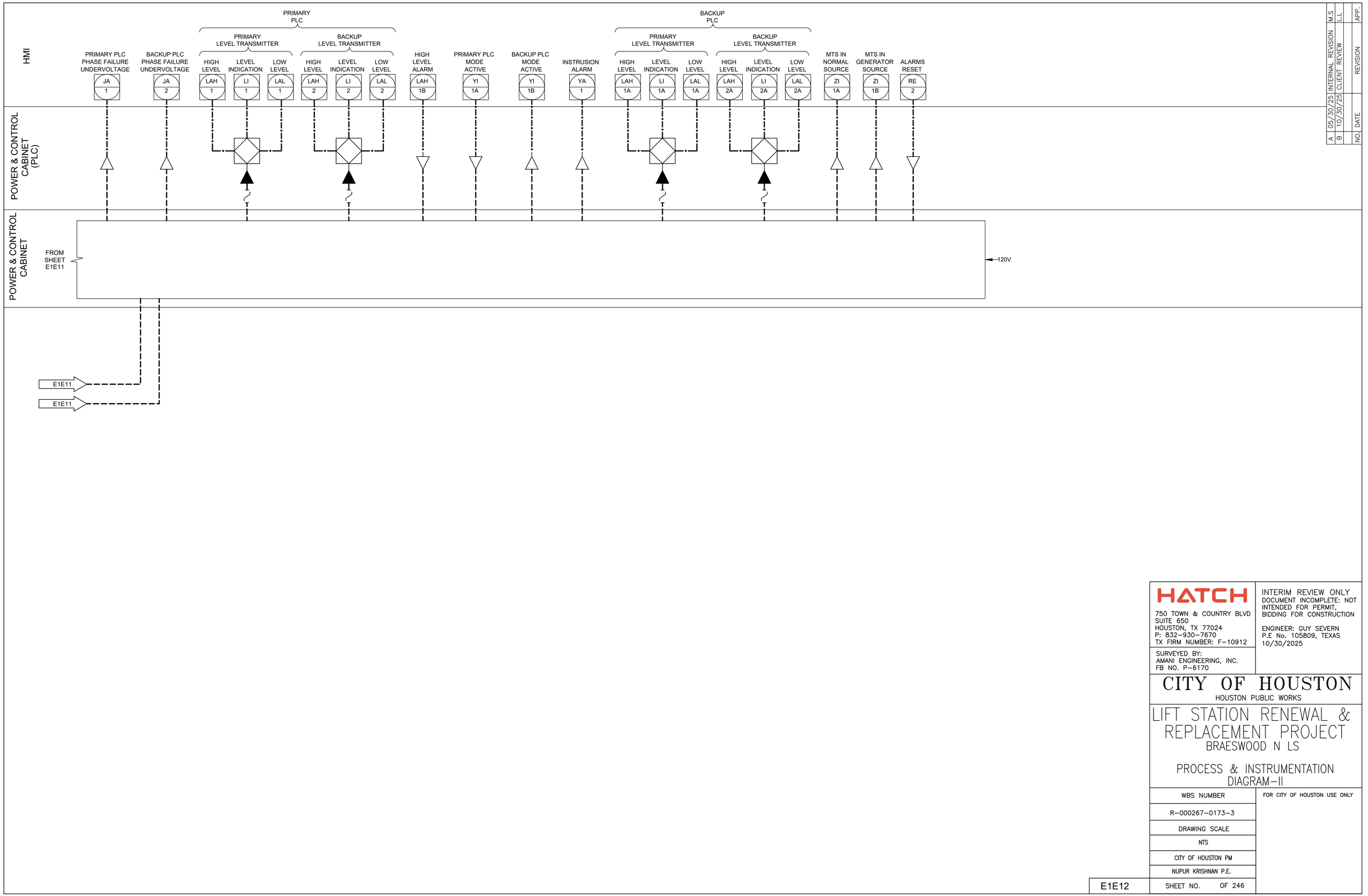
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

PROCESS & INSTRUMENTATION DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E11



NO.	DATE	REVISION	M.S	L.L	APP.
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B	10/30/25	CLIENT REVIEW			

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CITY OF HOUSTON
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LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

PROCESS & INSTRUMENTATION DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E12

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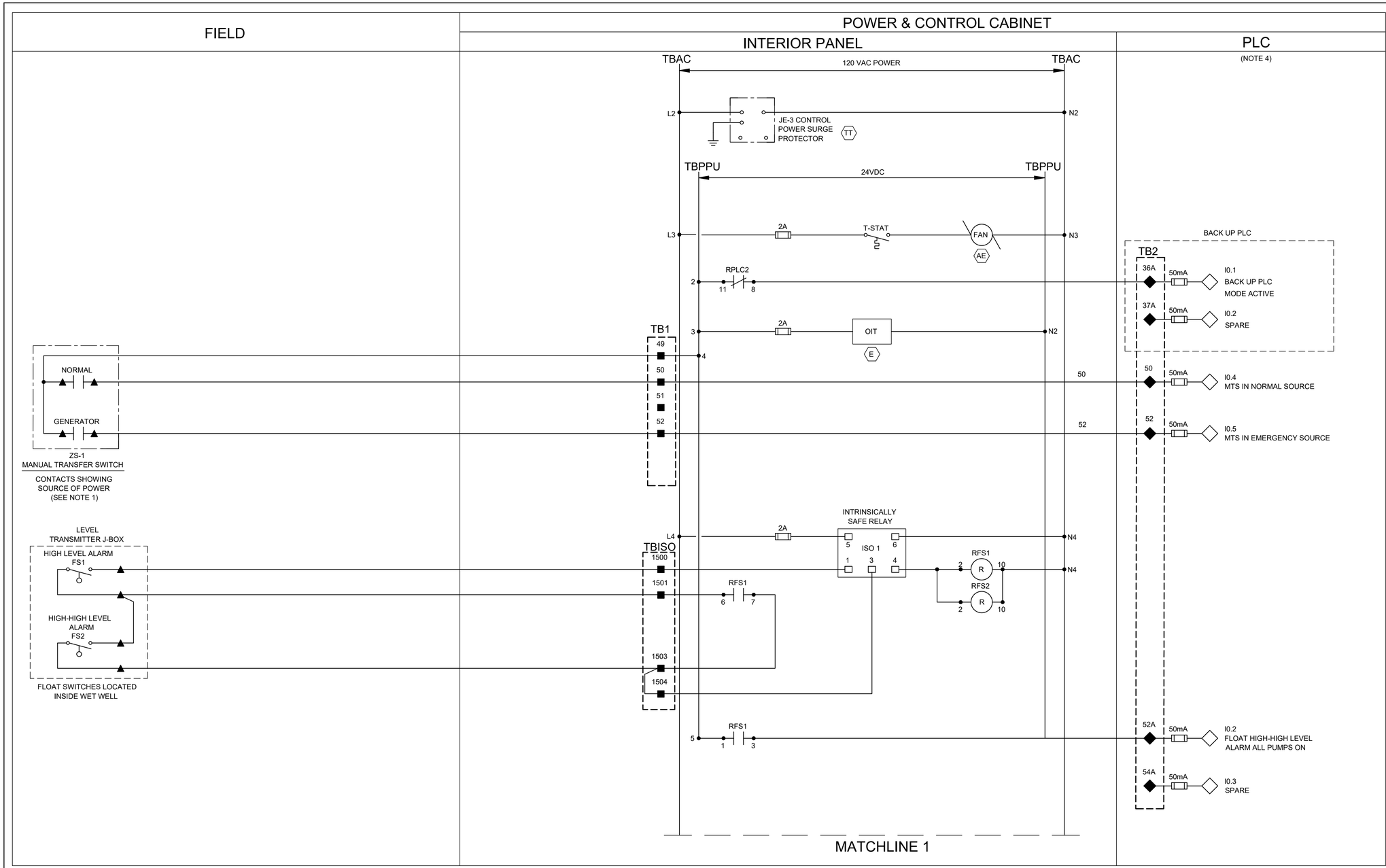

NO.	DATE	REVISION
A	05/30/25	INTERNAL REVISION
B	10/30/25	CLIENT REVIEW

M.S	L.L	APP.

NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
3. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
4. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

POWER & CONTROL CABINET CONTROL WIRING DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E13

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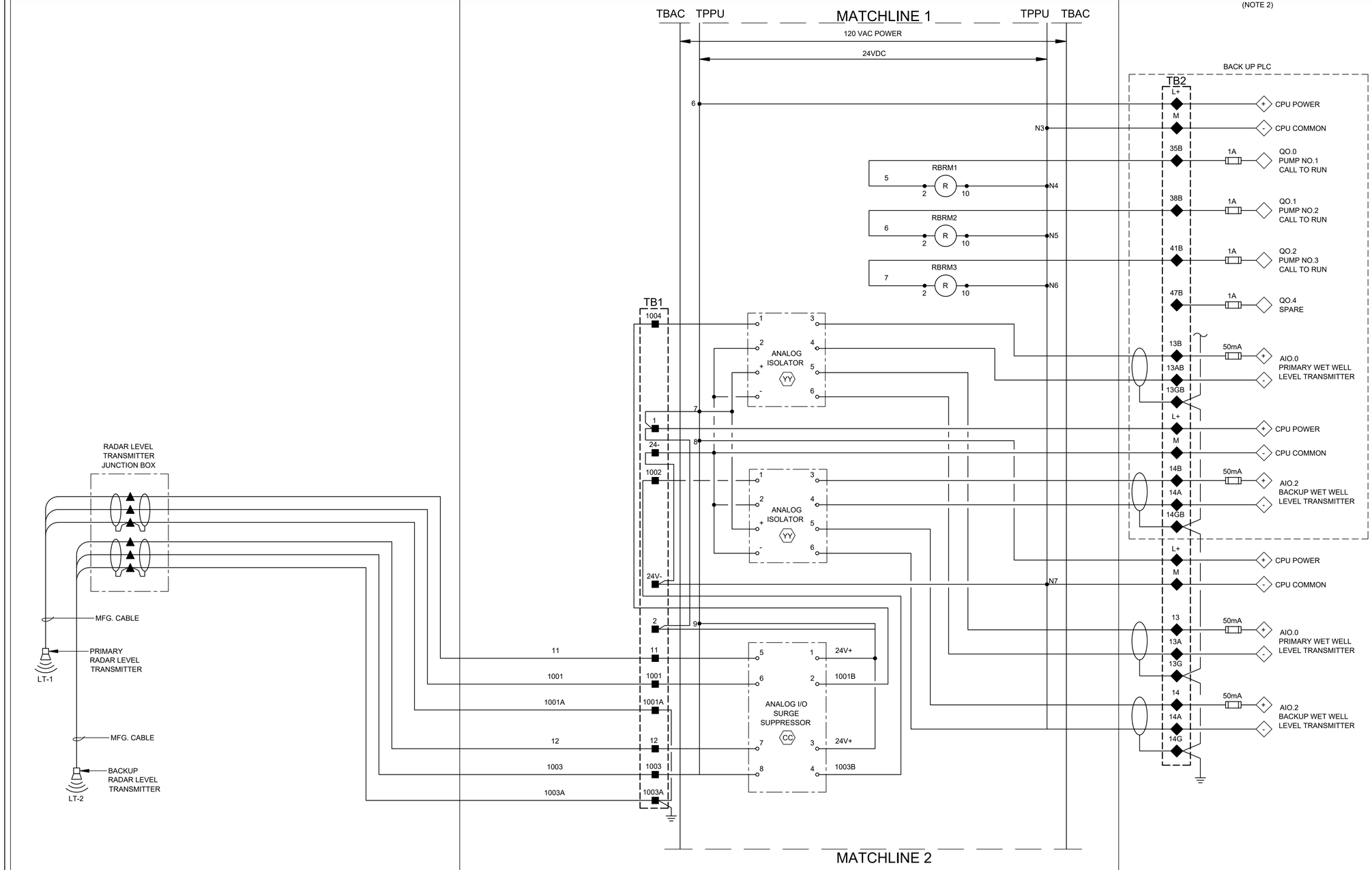
A	05/30/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L.
NO.	DATE	REVISION	APP.

FIELD

POWER & CONTROL CABINET

INTERIOR PANEL

PLC
(NOTE 2)



NOTES:

1. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

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BRAESWOOD N LS

POWER & CONTROL CABINET CONTROL WIRING DIAGRAM-II

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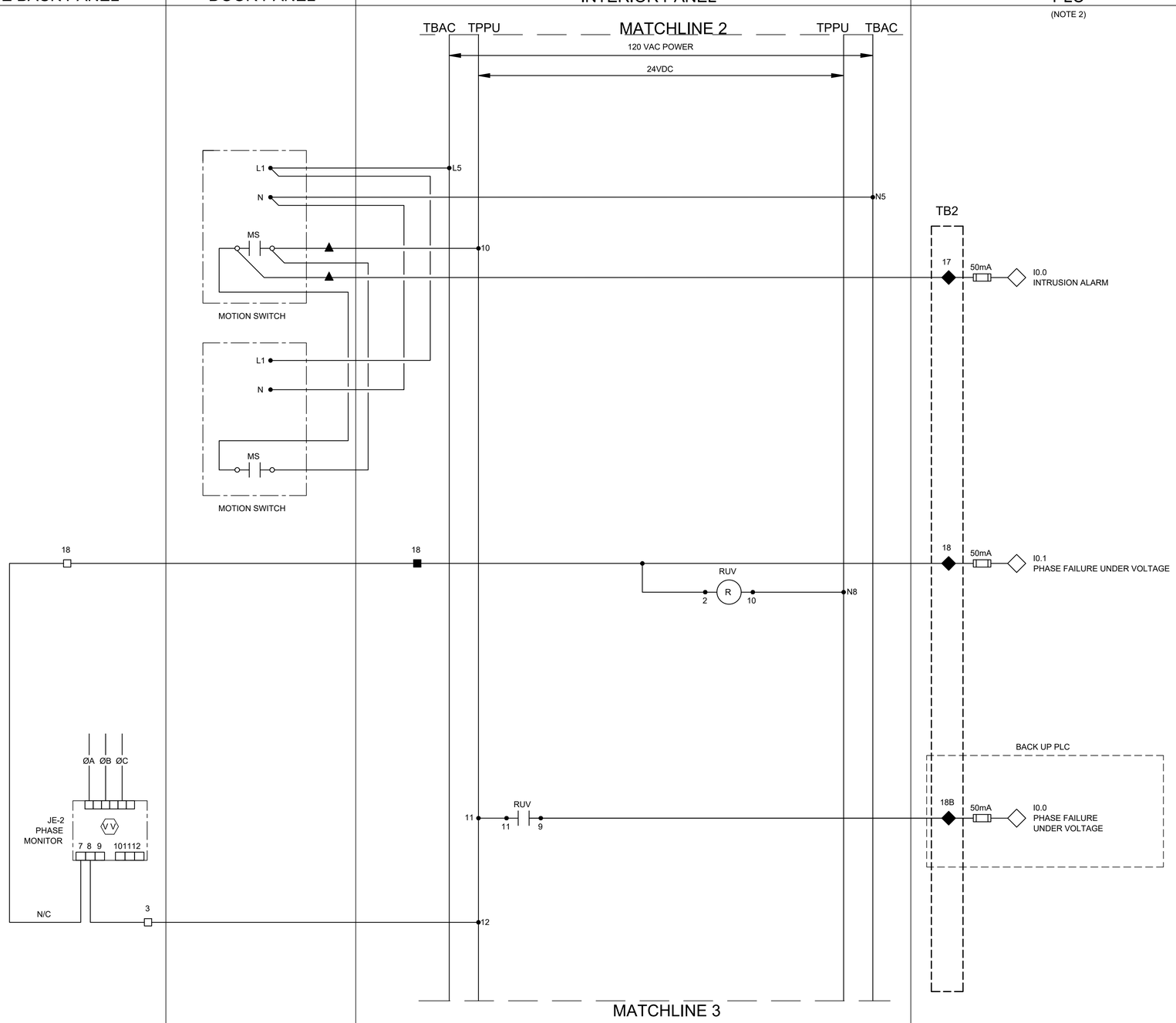
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

FIELD	POWER & CONTROL CABINET			
	POWER SIDE BACK PANEL	DOOR PANEL	INTERIOR PANEL	PLC (NOTE 2)



NOTES:

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

NO.	DATE	REVISION	M.S	APP.
A	05/30/25	INTERNAL REVIEW	L.L	
B	10/30/25	CLIENT REVIEW		

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E15

PLOTTED: 10/28/2025 1:27 PM
PLOT STYLE: COH.ctb
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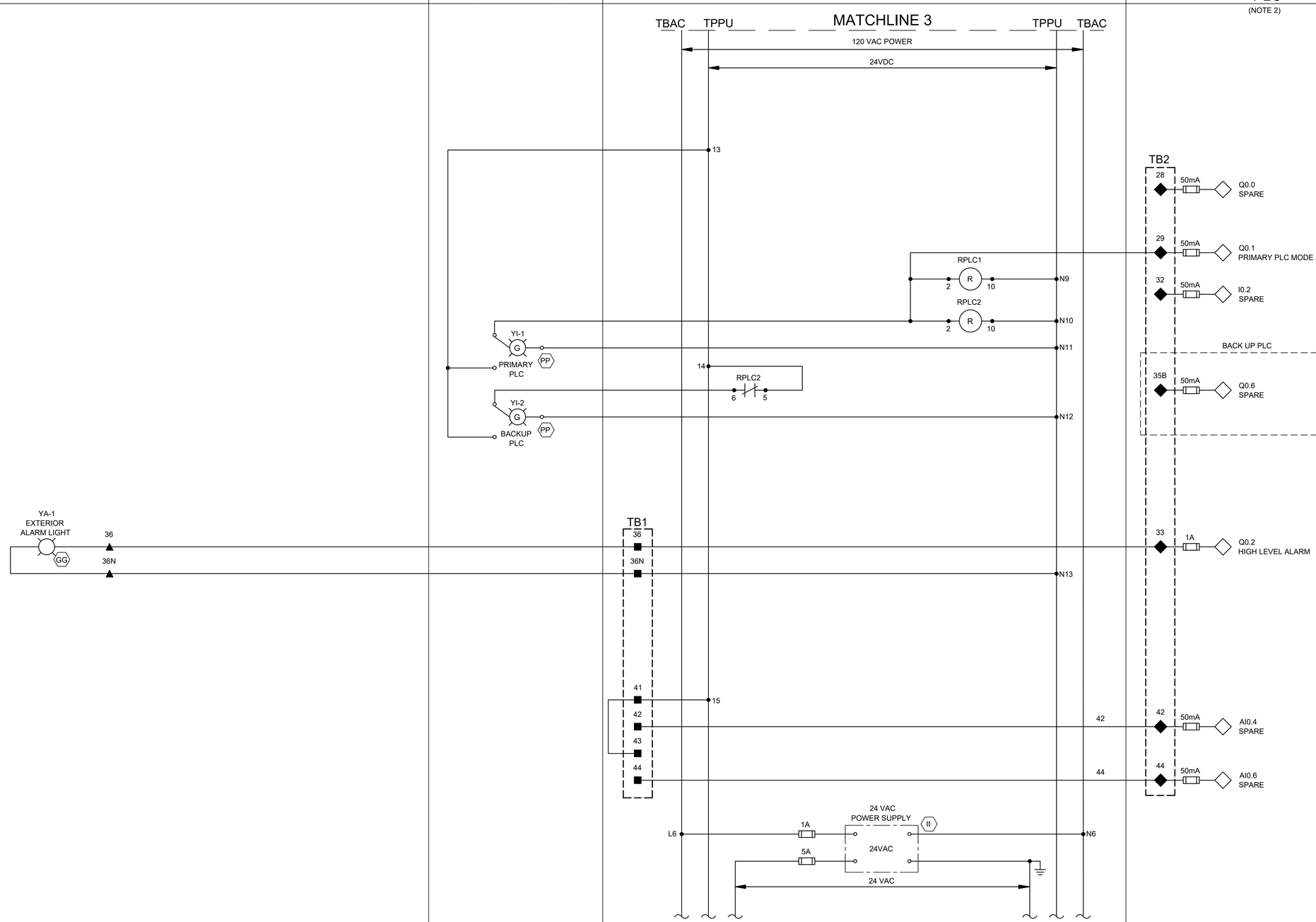

NO.	DATE	REVISION	M.S
A	05/30/25	INTERNAL REVIEW	L.L.
B	10/30/25	CLIENT REVIEW	APP.

NOTES:

1. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

CONTROL PANEL
CONTROL WIRING DIAGRAM-IV

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E16

PLOTTED: 10/28/2025 1:26 PM
PLOT STYLE: COH.ctb
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FIELD

POWER & CONTROL CABINET

POWER SIDE BACK PANEL

DOOR PANEL

INTERIOR PANEL

PLC

TB3

TB1

TBAC

TB4

120 VAC POWER

24 VDC

24 VAC

TB2

TSH-1
MOTOR TEMP
SWITCH

LSH-1 SEAL
LEAK
DETECTOR

TERMINAL
JUNCTION BOX

PUMP
NO.1

REFER TO
SHEET E1E08

4-20mA
CURRENT
TRANSDUCER

IE-1
MOTOR OVERLOAD RELAY
(MOR) (SEE NOTE 1)

HS-1A
RESET

TO SHEET E1E18

HS-1
H-O-A

PUMP NO. 1
PROTECTION MODULE

LAH-1
SL1

TAH-1
MTH1

RRST1

RMSL1

RMTH1

RFS1

TDFRM1

RMOR1

RPLC1

RBRM1

RPLM1

TDFRM1

YI-1
RUN

Q0.4
ALARM RESET

I0.6
ALARM RESET

I1.1
PUMP NO.1
HIGH TEMP
ALARM

AI0.8
PUMP NO.1
MOTOR CURRENT

I3.3
PUMP NO.1
MOTOR OVERLOAD

I3.0
PUMP NO.1
IN HAND

I3.1
PUMP NO.1
IN AUTO

Q0.7
PUMP NO.1
PLC START/STOP

I1.0
PUMP NO.1
RUN

I3.2
PUMP NO.1
SEAL FAILURE
ALARM

L1A

L1N

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

NO.	DATE	REVISION	APP.
A	05/30/25	INTERNAL REVIEW	M.S
B	10/30/25	CLIENT REVIEW	L.L

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH

750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N LS

PUMP NO.1
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E17

PLOTTED: 10/28/2025 1:29 PM

PLOT STYLE: COH.ctb

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FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 1\queue1.dwg

PLOT STYLE: COH.ctb

PLOTTED: 10/28/2025 1:24 PM

FIELD

POWER & CONTROL CABINET

POWER SIDE BACK PANEL

DOOR PANEL

INTERIOR PANEL

PLC

120 VAC POWER
24 VDC
3B
TB3
TB1
TBAC
TB4
24 VAC
FROM SHEET E1E17
HS-1A RESET
M2
TSH-2 MOTOR TEMP SWITCH
LSH-2 SEAL LEAK DETECTOR
PUMP NO.2
TERMINAL JUNCTION BOX
REFER TO SHEET E1E08
MOR2
4-20mA CURRENT TRANSDUCER
IE-2 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)
ZS-2
HS-2 H-O-A
YI-2
RUN
L1A
L1N
RRST2
PUMP NO. 2 PROTECTION MODULE
LAH-2 SL2
TAH-2 MTH2
RMSL2
RMTH2
RFS2
TDFRM2
RPLC1
RBRM2
RPLM2
RMOR2
TB2
I1.3 PUMP NO.2 HIGH TEMP ALARM
AI.0 PUMP NO.2 MOTOR CURRENT
I3.7 PUMP NO.2 MOTOR OVERLOAD ALARM
I3.5 PUMP NO.2 IN HAND
I3.4 PUMP NO.2 IN AUTO
Q1.0 PUMP NO.2 PLC START/STOP
I1.2 PUMP NO.2 RUN
I3.6 PUMP NO.2 SEAL FAILURE ALARM

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

NO.	DATE	REVISION	M.S	APP.
A	05/30/25	INTERNAL REVIEW	L.L.	
B	10/30/25	CLIENT REVIEW		

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BRAESWOOD N LS

PUMP NO.2 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E18

PLOTTED: 10/28/2025 1:24 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wuspplot01\d$\Global ProjectWise Plotting - WUS\Queue 2\queue2.dwg

A.	05/30/25	INTERNAL REVIEW	M.S	APP.
B	10/30/25	CLIENT REVIEW	L.L	
NO.	DATE	REVISION		

FIELD

POWER & CONTROL CABINET

POWER SIDE BACK PANEL | DOOR PANEL | INTERIOR PANEL | PLC

120 VAC POWER
24 VDC
3C
TB3
TB1
TBAC
TB4
24 VAC
120 VAC POWER
24 VDC
TB4
TBAC

TSH-3 MOTOR TEMP SWITCH
LSH-3 SEAL LEAK DETECTOR
PUMP NO.3
M
TERMINAL JUNCTION BOX
REFER TO SHEET E1E08
TRANSDUCER CURRENT 4-20mA
IE-3 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)
HS-1A RESET
FROM SHEET E1E18
HS-3 H-O-A
PUMP NO. 3 PROTECTION MODULE
LAH-3 SL3
TAH-3 MTH3
RRST3
RMSL3
RMTH3
RFS2
TDFRM3
RMOR3
RPLC2
RBRM3
RPLM3
TDFRM3
YI-3 RUN
L1A
L1N
L12
L13

TB2

309	50mA	I1.5 PUMP NO. 3 HIGH TEMPERATURE ALARM
322	50mA	AI1.2 PUMP NO. 3 MOTOR CURRENT
323	50mA	I4.3 PUMP NO. 3 MOTOR OVERLOAD ALARM
316	50mA	I4.1 PUMP NO.3 IN HAND
317	50mA	I4.0 PUMP NO.3 IN AUTO
318	1A	Q1.1 PUMP NO.3 PLC START/STOP
320	50mA	I1.4 PUMP NO. 3 RUN
310	50mA	I4.2 PUMP NO. 3 SEAL FAILURE

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET E1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

PUMP NO.3
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E19

	DESCRIPTION	SERVICE		ROUTING			WIRE SIZE & CONDUIT SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
A	MANUAL TRANSFER SWITCH BONDING JUMPER	--	--	MANUAL TRANSFER SWITCH	GROUND FIELD	--	1#6G
B	POWER & CONTROL CABINET BONDING JUMPER	--	--	POWER & CONTROL CABINET	GROUND FIELD	--	1#6G
C	GENERATOR SWITCH BONDING JUMPER	--	--	GENERATOR FUSED DISCONNECT SWITCH	GROUND FIELD	--	1#6G
100	SERVICE ENTRANCE	480VAC	VARIES	METER DISCONNECT SWITCH (EXISTING)	MANUAL TRANSFER SWITCH	RIGID CONDUIT/DUCT BANK	4#2/0 / 1#6G, 2"C
100A	SERVICE POWER	480VAC	VARIES	MANUAL TRANSFER SWITCH	POWER BACK PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT	4#2/0 / 1#6G, 2"C
100B	NORMAL/EMERGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH	CONTROL BACK PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT	2#14, 3/4"C
101	GROUND ELECTRODE CONDUCTOR	--	--	POWER AREA (POWER & CONTROL CABINET)	GROUND FIELD	--	1#6G
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL AREA (POWER & CONTROL CABINET)	GROUND FIELD	--	1#6G
105	COMMUNICATION	--	--	COMMUNICATION POLE	PPU-AC PANEL	RIGID CONDUIT	ETHERNET CABLE, 3/4"C.
105A	COMMUNICATION POLE LIGHT (EXISTING)	120V	--	POLE SWITCH LIGHT (EXISTING)	LIGHTING PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT	2#12 / 1#12G, 3/4"C.
200	PUMP NO. 1 POWER	480VAC	25 HP	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	MFR CABLE, 2-1/2"C (SEE NOTE 2)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
202	PUMP NO. 1 POWER	480VAC	25 HP	PUMP NO. 1 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	3#8 / 1#8G, 1"C
203	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 1 JUNCTION BOX	CONTROL PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT	(COMBINE 201 & 301) 8#14, 1"C
300	PUMP NO. 2 POWER	480VAC	25 HP	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	MFR CABLE, 2-1/2"C (SEE NOTE 2)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
302	PUMP NO. 2 POWER	480VAC	25 HP	PUMP NO. 2 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	3#8 / 1#8G, 1"C
400	PUMP NO. 3 POWER	480VAC	25 HP	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	MFR CABLE, 2-1/2"C (SEE NOTE 2)
401	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
402	PUMP NO. 3 POWER	480VAC	25 HP	PUMP NO. 3 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	3#8 / 1#8G, 1"C
403	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3 JUNCTION BOX	CONTROL PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT	4#14, 1"C
1000	LEVEL TRANSMITTER LT-1	24VDC	--	LEVEL TRANSMITTER LT-1	TRANSMITTER JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1001	LEVEL TRANSMITTER LT-2	24VDC	--	LEVEL TRANSMITTER LT-2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	TRANSMITTER JUNCTION BOX	POWER & CONTROL CABINET	RIGID CONDUIT	COMBINE 1000/1001/1003, 4#14+2#14G / 4#14, 2"C
1003	WELL FLOAT SWITCHES	24VDC	--	FLOAT SWITCH NO.1 & NO.2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT/DUCT BANK	MFR CABLE, 2-1/2"C (SEE NOTE 2)
1100	120VAC FOR RECEPTACLE	120V	--	LIGHTING PANEL (POWER & CONTROL CABINET)	RECEPTACLE NEXT TO PUMP NO.3 J-BOX	RIGID CONDUIT	L5, 2#12 / 1#12G, 3/4"C
1101	COMMUNICATION POLE LIGHTING SWITCH	120V	--	LIGHTING PANEL (POWER & CONTROL CABINET)	POLE SWITCH LIGHT (EXISTING)	RIGID CONDUIT	L8, 2#12 / 1#12G, 3/4"C

NOTES:

1. CONDUITS LABELED "FUTURE SPACE" ARE TO BE INSTALLED AND CAPPED IN FIELD.
2. ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2".
3. ALL UNDERGROUND CONDUITS (SINGLE AND MULTI-RUN) TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.

NO.	DATE	REVISION	M.S
A	05/30/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	APP.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BRAESWOOD N LS

ELECTRICAL CONDUIT SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

E1E20

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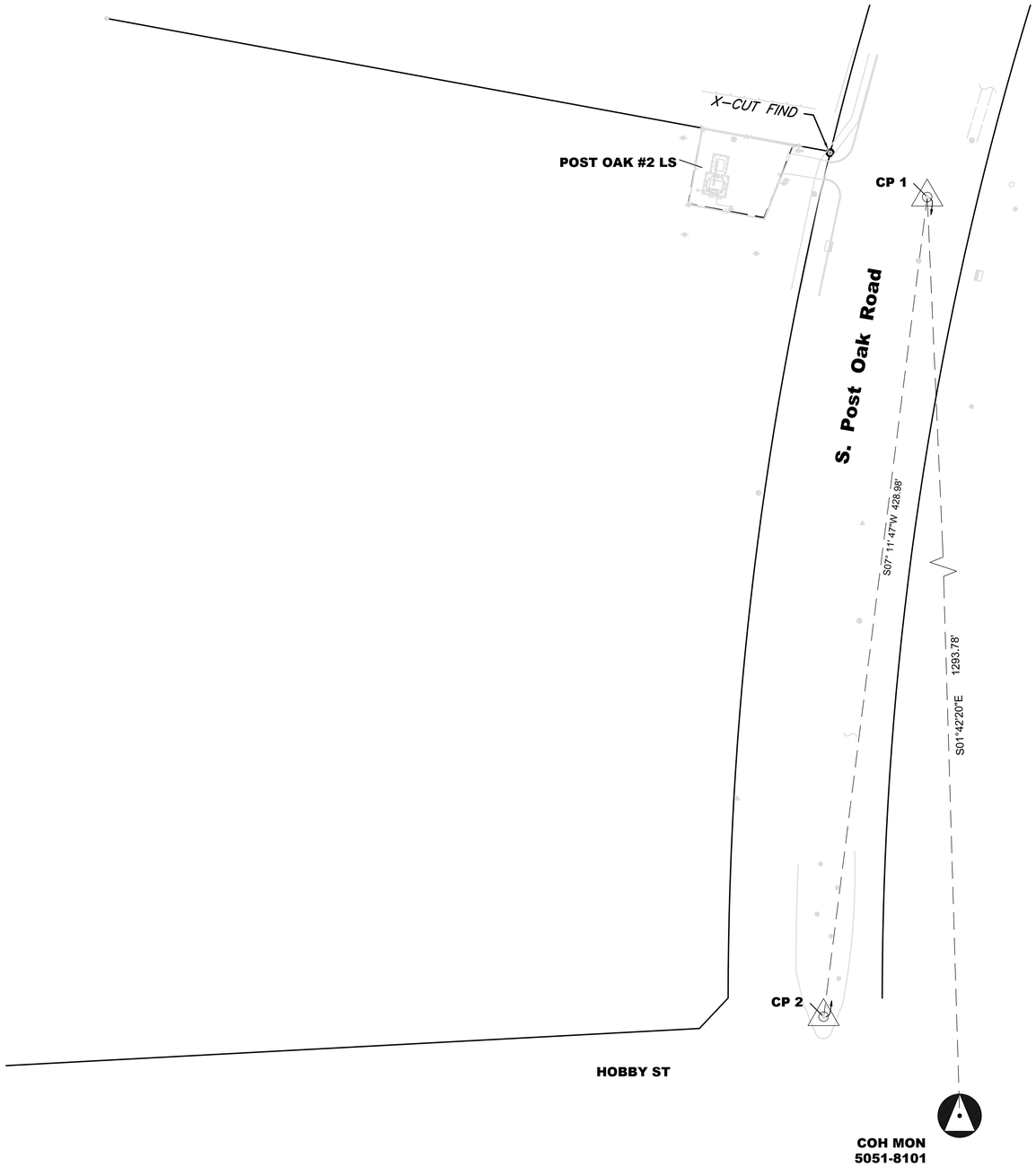
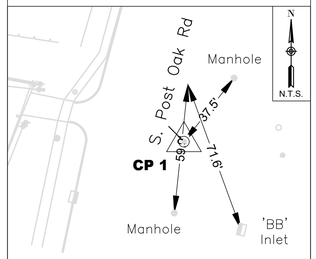


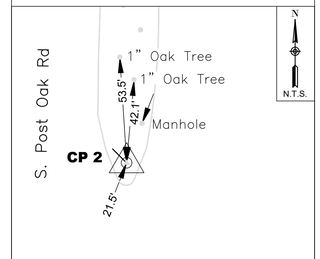
CP No.	Grid Northing	Grid Easting	Elevation	Description
1	13,778,040.80	3,089,895.93	65.60	5/8" Iron Rod w/Cap
2	13,777,615.26	3,089,842.20	65.54	5/8" Iron Rod w/Cap

CP 1 -- 5/8" Iron Rod w/Cap



GRID NORTHING : 13,778,040.80
GRID EASTING : 3,089,895.93

CP 1 -- 5/8" Iron Rod w/Cap

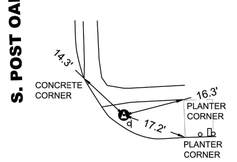


GRID NORTHING : 13,777,615.26
GRID EASTING : 3,089,842.20

CITY OF HOUSTON

CITY SURVEY 5051-8101
SITE CONTROL MONUMENT

S. POST OAK ROAD (NB)



PARKRIDGE DRIVE

Project WBS# R-000267-0175-3
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,089,934.44
Y= 13,776,747.75

Lat.= N 29° 35' 1.8488"
Lon.= W 95° 28' 15.6912"

Keymap Page: 611B
Orthometric Elevation = 66.86
Ellipsoid Height= -22.40
Geoid: GEOID 18
Datum Source & Adjustment:
2-HR STATIC GPS OBSERVATION
MADE ON MONUMENT ON 11/12/2024

Reference Frame Used: NAD_83(2011)(EPOCH: 2010.0000)
Vertical Adjustment used: NAVD 88 GEOID18
General Location: THE NORTHEAST CORNER OF S. POST OAK RD AND PARKRIDGE DR INTERSECTION.

Date Set: JUNE 13, 2011 Type of Mark: BRASS DISK
3 Nearest project control points (bearings and distances stated below):
1. CP #2, 5/8" IRON ROD CAPPED "AMANI", N 6° 04' 08" W, 872.50'
2. CP #1, 5/8" IRON ROD CAPPED "AMANI" , N 1° 42' 20" W, 1293.78'

NOTE:
1. Bearings are grid bearings.
2. Combined Factor (C.F)= 0.99987372.

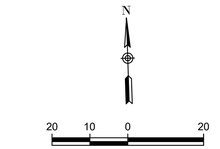
Surface= Grid
C.F.

Surveyed By: Amani Engineering, Inc.
11011 Richmond Avenue, Suite 700
Houston, TX 77042
Tel. (713)270-5700
Texas Registered Survey Firm 10028200

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

CHRISTINA I. WEAVER
Land Surveyor
6753
Registration Number
11/26/2024
Date

P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\Monument\Post Oak #2 LS\CofH-PostOak#2.dwg



22 X 34 : 1" = 20'
11 X 17 : 1" = 40'

NO.	DATE	REVISION	APP.

NOTES:

1. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204) NORTH AMERICAN DATUM OF 1983 (2011 ADJ) 2010 EPOCH, US SURVEY FEET. COORDINATES SHOWN HEREON ARE GRID VALUES AND ALL DISTANCES SHOWN ARE SURFACE VALUES. THE COMBINED SCALE FACTOR IS 0.99987372.
2. GRID COORDINATES/SCALE FACTOR = SURFACE COORDINATES.
3. FIELD DATA COLLECTED NOVEMBER 2024.
4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID 99. ALL CONTROL NETWORK ELEVATIONS ARE TIED TO CITY SURVEY 5051-8101 SITE CONTROL MONUMENT USING DIFFERENTIAL LEVELING. OBSERVED ELEVATION = 66.86'.
5. THECONVERSION FACTOR FROM PROJECT LEVELED G18 ELEVATION TO THE HCFCD CALLED G99 ELEVATION = - 0.04'.

PROJECT BENCH MARK:

STATIC GPS OBSERVATION OF CITY OF HOUSTON MONUMENT 5558-8607 MADE ON 11/12/2024. A BRASS DISK LOCATED IN THE NORTHEAST CORNER OF S. POST OAK RD AND PARKRIDGE DR INTERSECTION. OBSERVED ELEVATION = 66.86' (NAVD 88 GEOID 18) CALLED ELEVATION = 66.82' (GEOID 99)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
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WILLIAM H. REIMER III, R.P.L.S.
Surveyor
4044
Registration Number
10/23/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2 LS
SURVEY CONTROL MAP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
1" = 20'	
CITY OF HOUSTON PM	
SHEET NO. OF 246	

C1C41

FILE PATH: P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Survey Control Drawings\Control-Post Oak #2 LS..dwg

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

PLOT STYLE: Grayscale.ctb
PLOTTED: 10/29/2025 4:03 PM
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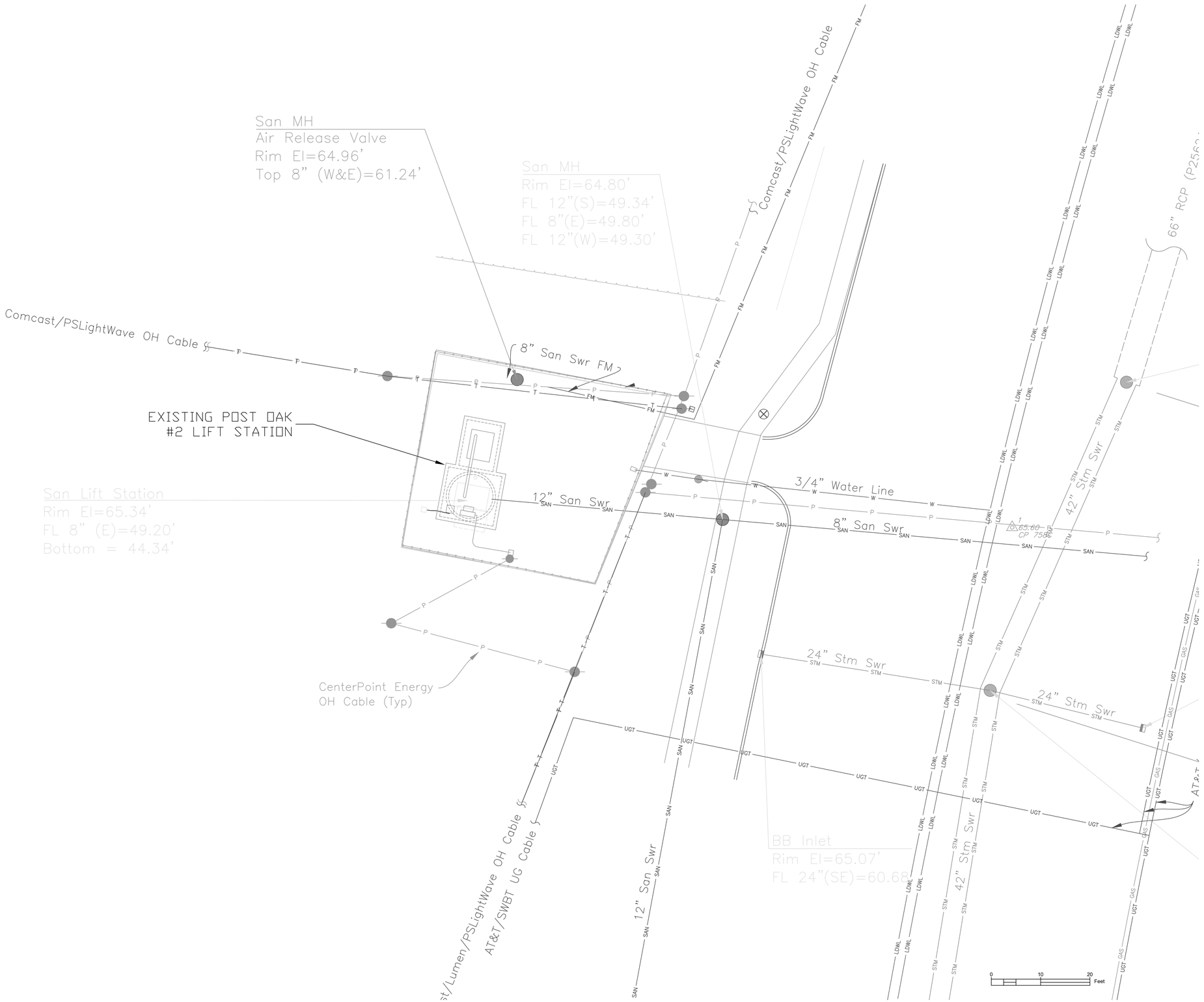


NOTE:

1. LS SITE IS NOT LOCATED IN THE 100 OR 500 YEAR FLOODPLAINS

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

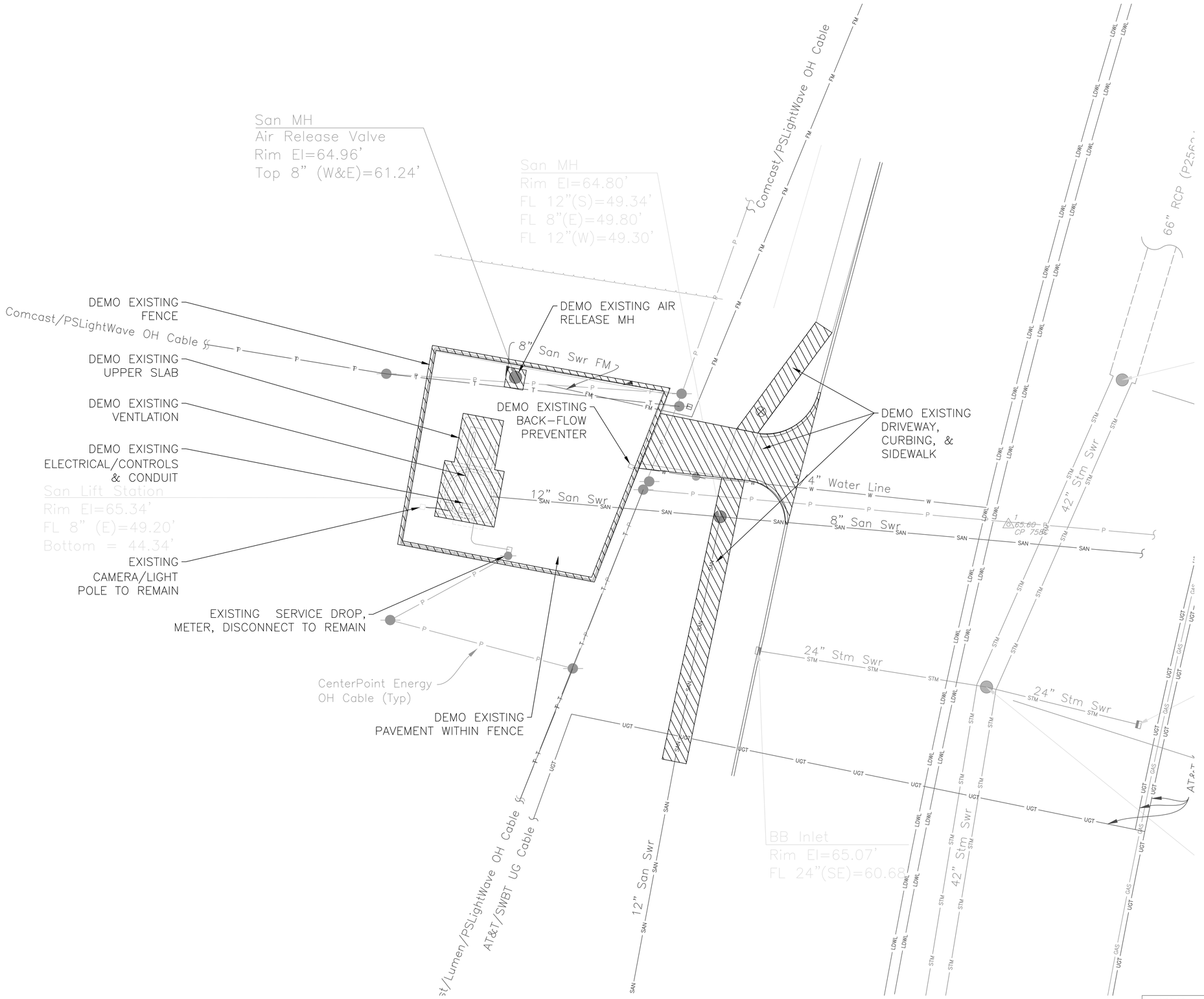
ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2 LS
EXISTING TOPOGRAPHIC PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1C42



NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

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HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2 LS
DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1C43

PLOTTED: 10/29/2025 4:02 PM
PLOT STYLE: Grayscale.ctb
FILE PATH: C:\pwworking\hatch-dpd-south_central_us\dms511138\H374729-0000-220-251-0004.dwg

PROPOSED ELECTRICAL & INSTRUMENTATION AREA WITH OVERHEAD CANOPY

San MH
Air Release Valve
Rim El=64.96'
Top 8" (W&E)=61.24'

FILL AND COVER EXISTING VALVE VAULT

PROPOSED SLAB EXTENTS

PROPOSED JUNCTION BOXES (3)

EXISTING COMMUNICATION POLE & NEW YARD LIGHT

3'X5' DOUBLE LEAF ACCESS HATCH

PROPOSED HOSE BIBB SEE SHT.__

EXISTING POWER POLE, METER & DISSCONNECT

BYPASS INTAKE MH SEE SHT.__

6' CHAINLINK FENCE AND 16' GATE WITH GREEN PRIVACY SLATS WITH 3 STRANDS OF BARBED WIRE

16' DRIVEWAY & PAVEMENT WITH 7" THICK CONCRETE PAVEMENT SEE SHT.__

REGRADE AND RESTORE TO MATCH ADJACENT GRASS & REPLACE SIDEWALK

REPAVE INSIDE FENCE

PROPOSED BYPASS MH SEE SHT.__

PROPOSED ¾" WATER LINE SUB-GRADE BELOW FREEZE LINE

PROPOSED BACK FLOW PREVENTER & HOUSING SEE SHT.__

PROPOSED WATERLINE DISCONNECT VALVE BOX

REGRADE AND RESTORE TO MATCH ADJACENT GRASS & REPLACE SIDEWALK

Stm MH
Rim El=64.85'
FL 66"(NE)=53.19' (R)
FL 42"(SW)=56.53' (R)

San MH
Rim El=64.80'
FL 12"(S)=49.34'
FL 8"(E)=49.80'
FL 12"(W)=49.30'

BB Inlet
Rim El=65.03'
FL 24"(NW)=60.33'

BB Inlet
Rim El=65.07'
FL 24"(SE)=60.68'

S POST OAK RD.

Comcast/PSLightWave OH Cable

8" San Swr FM

12" San Swr

66" RCP (P25624-010)

42" Stm Swr

3/4" Water Line

8" San Swr

24" Stm Swr

AT&T/SWBT UG Cable

Comcast/Lumen/PSLightWave OH Cable

AT&T/SWBT UG Cable

12" San Swr

N

0 10 20 Feet

LEGEND :

PROPOSED FENCE LINE

PROPOSED CONCRETE PAVING EXTENTS

NOTES:

FLOODPLAIN

1. LS SITE IS WITHIN THE 100-YEAR FLOODPLAIN.

STORMWATER

1. SITE WORK PROPOSES TO ADD APPROX. 520 SF OF IMPERVIOUS PAVING AND REPLACE APPROX. 300 SF. OF IMPERVIOUS WITH GRASS. THE IMPROVEMENTS ARE TO IMPROVE ACCESS AND SAFETY FOR OPERATIONS.
2. TOTAL ADDED IMPERVIOUS = 520 SF. -(½) 300 SF = 370 SF OF ADDED IMPERVIOUS.
3. THIS LS SITE DOES NOT HAVE SUFFICIENT SPACE FOR INSTALLING A STORMWATER STORAGE STRUCTURE.
4. THE PROPOSED IMPROVEMENTS WILL NOT NEGATIVELY IMPACT ADJACENT PROPERTIES OR THE DOWNSTREAM DRAINAGE SYSTEM.

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-P-6357

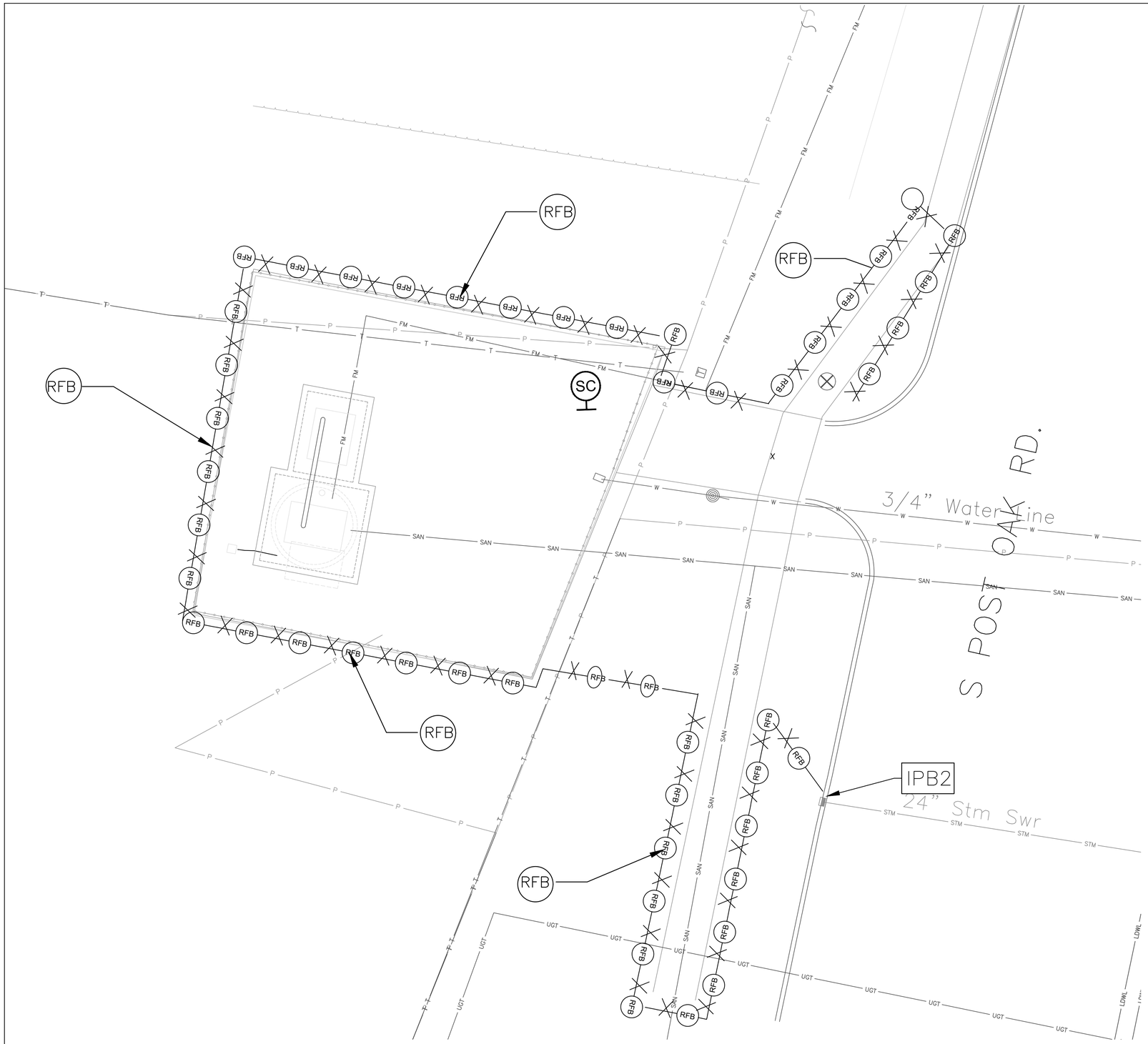
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

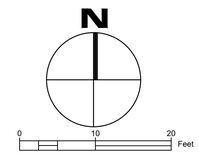
LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2 LS
PROP. SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

C1C44 SHEET NO. OF 246

FILE PATH: Y:\2022071 LIFT STATIONS RENEWAL AND REPLACEMENT (HATCH) WBS NO. R-000267-0173-3\Auto CAD\Post Oak Topo - Site Plan\H374729-0000-220-251-0005.dwg PLOT STYLE: Grayscale.ctb PLOTTED: 10/29/2025 9:09 AM





NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L.

LEGEND :

- RFB — REINFORCED FILTER FABRIC BARRIER.
- IPB2 — INLET PROTECTION BARRIER.
- SC — STABILIZED CONSTRUCTION ACCESS

NOTES:

1. STORM WATER POLLUTION PLAN CONFORM TO SPECIFICATIONS AND DRAWINGS.
2. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURE SHALL BE SODDED OR HYDROMUCH SEEDED.
3. CONTRACTOR'S LAY DOWN/STORAGE AREA SHALL HAVE A STABILIZED CONSTRUCTION EXIT.
4. SEE SHEET SW3P–7 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
5. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832–930–7670
TX FIRM NUMBER: F–10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P–6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2 LS
SWPPP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

C1C45 | SHEET NO. OF 246

PLOTTED: 10/29/2025 10:29 AM
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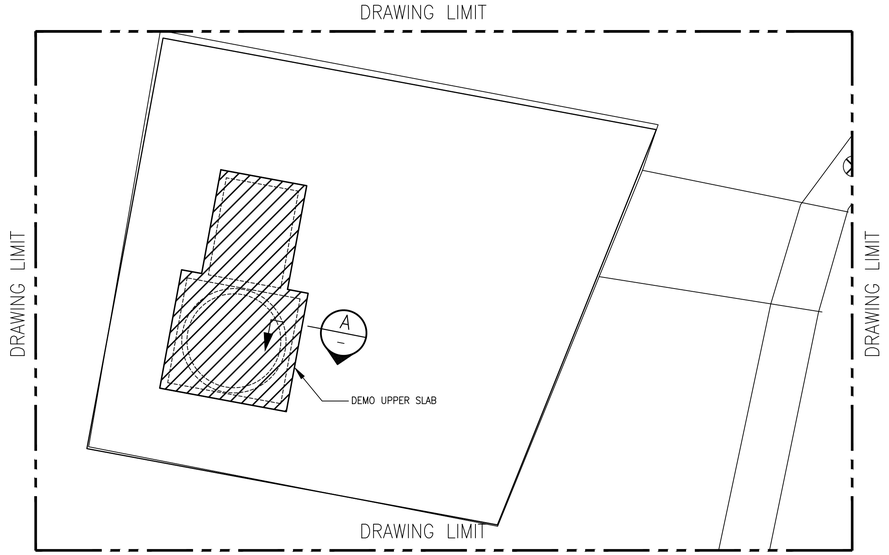
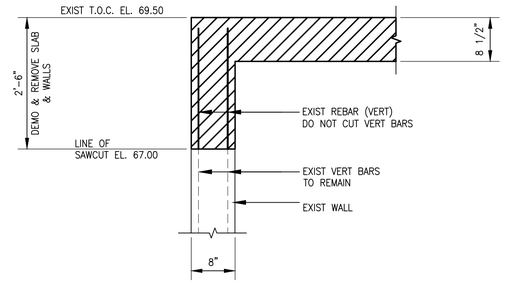


DEMO PLAN
LIFT STATION FOUNDATION



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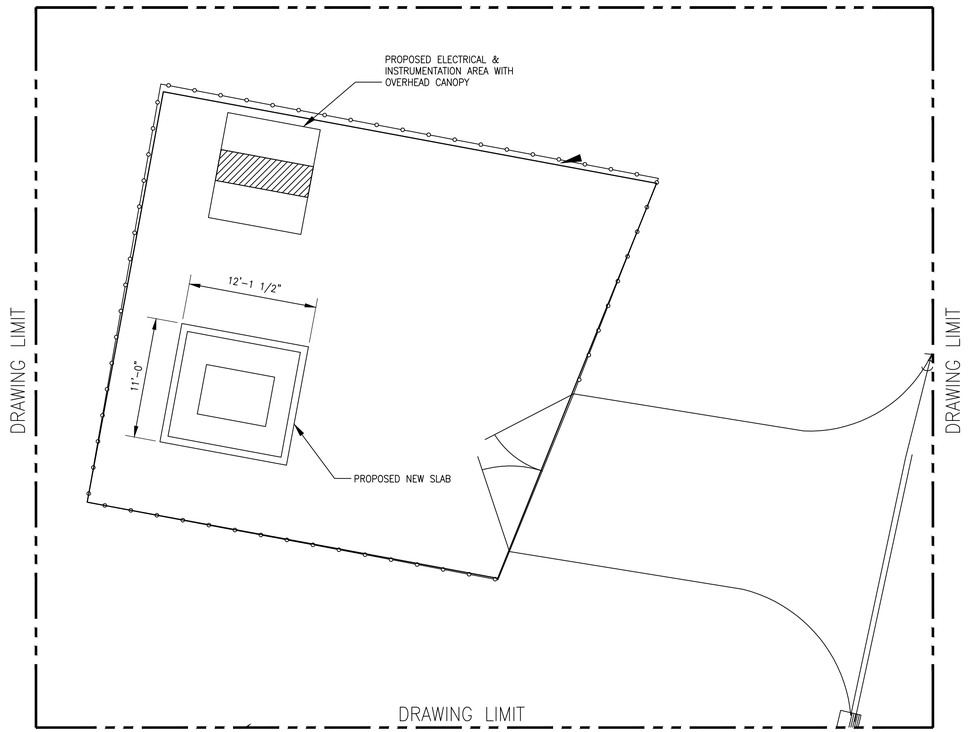
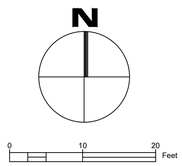


NEW PLAN LAYOUT
LIFT STATION FOUNDATION



NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2 LS
DEMO. & CONST PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1S41

FILE PATH: C:\Users\francis.iheagwara\Desktop\FOI\Lift Station\CAD\MBK\Post Oak\Post Oak Demo & Const.dwg

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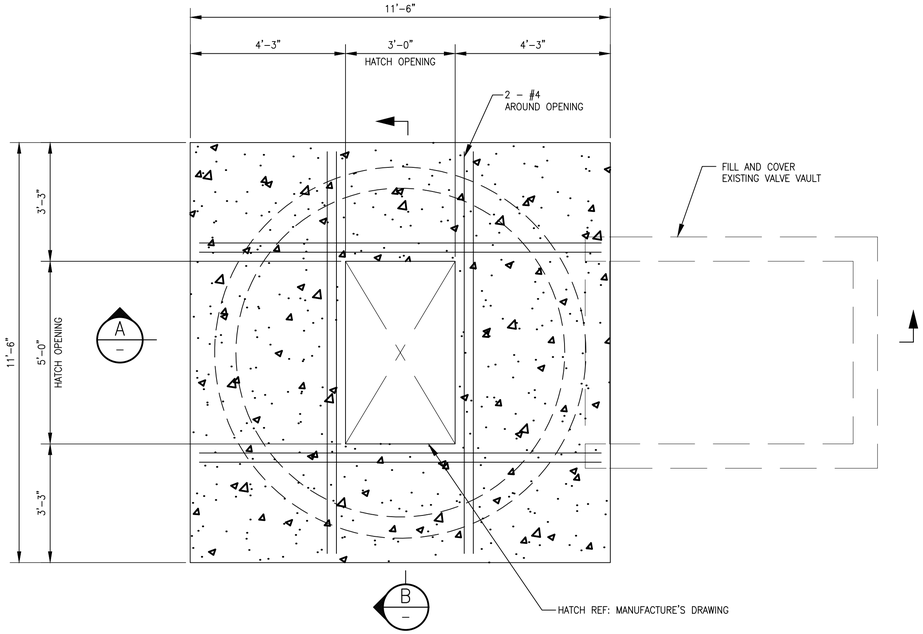
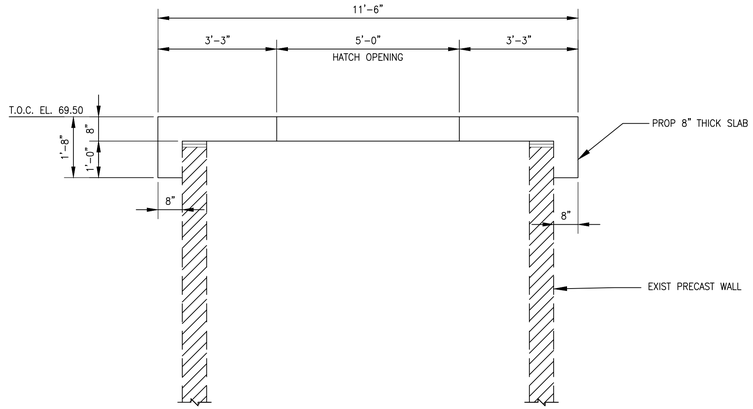


PLAN
LIFT STATION FOUNDATION
SCALE: 1/2" = 1'-0"



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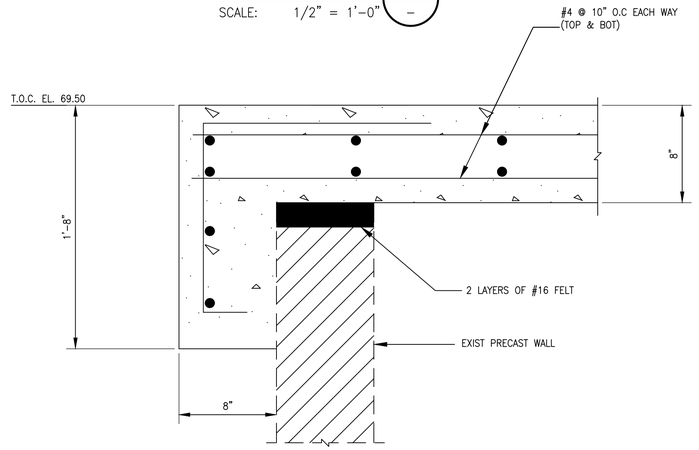
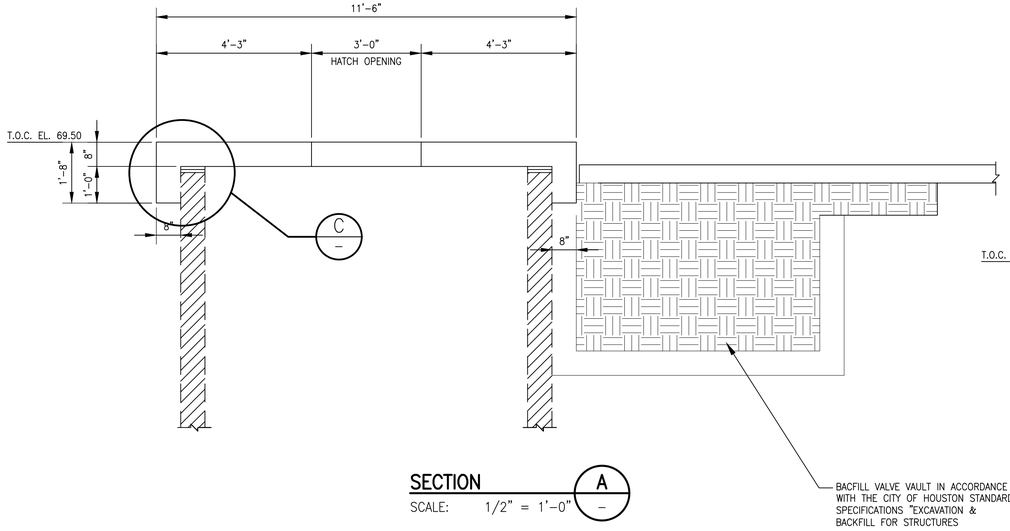


TYPICAL CORNER DETAIL C
N.T.S



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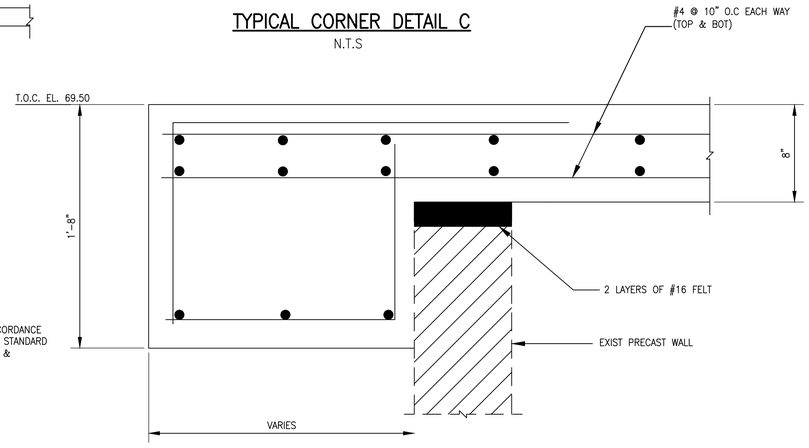

TYPICAL CORNER DETAIL D
N.T.S

NOTE:

1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. REFER TO MECHANICAL/VENDOR DRAWINGS FOR WATERPROOF HATCHES/MANHOLES.
3. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL DIMENSION W/MEP & CIVIL PLANS PRIOR TO BIDDING WORK.

N

0 10 20 Feet

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
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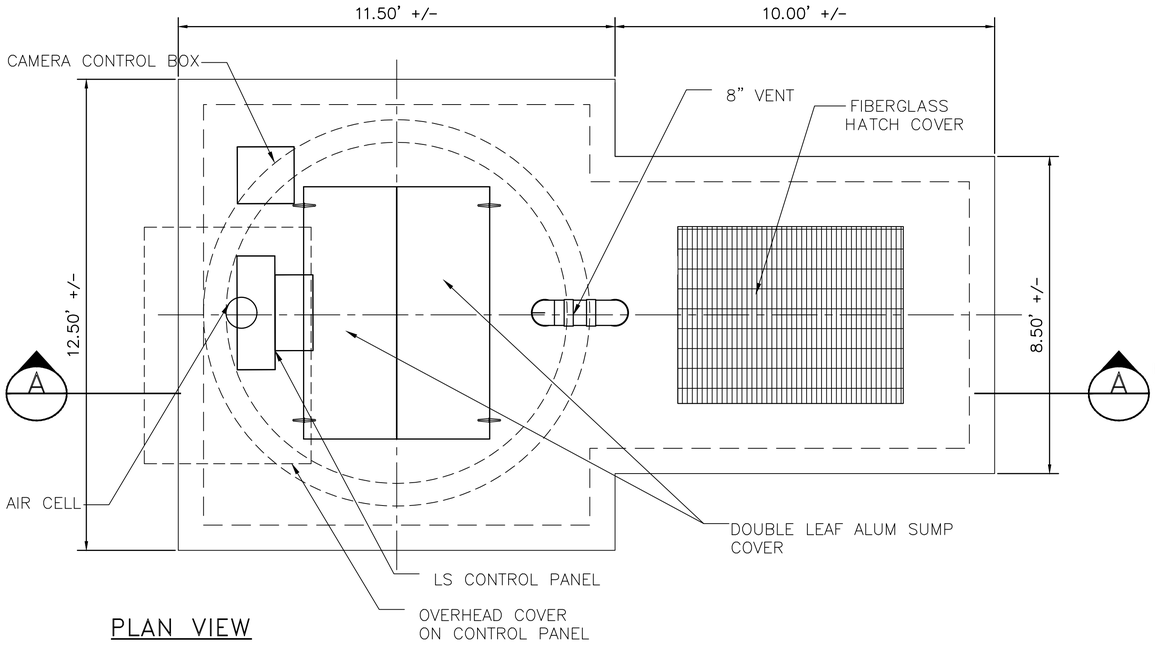
ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

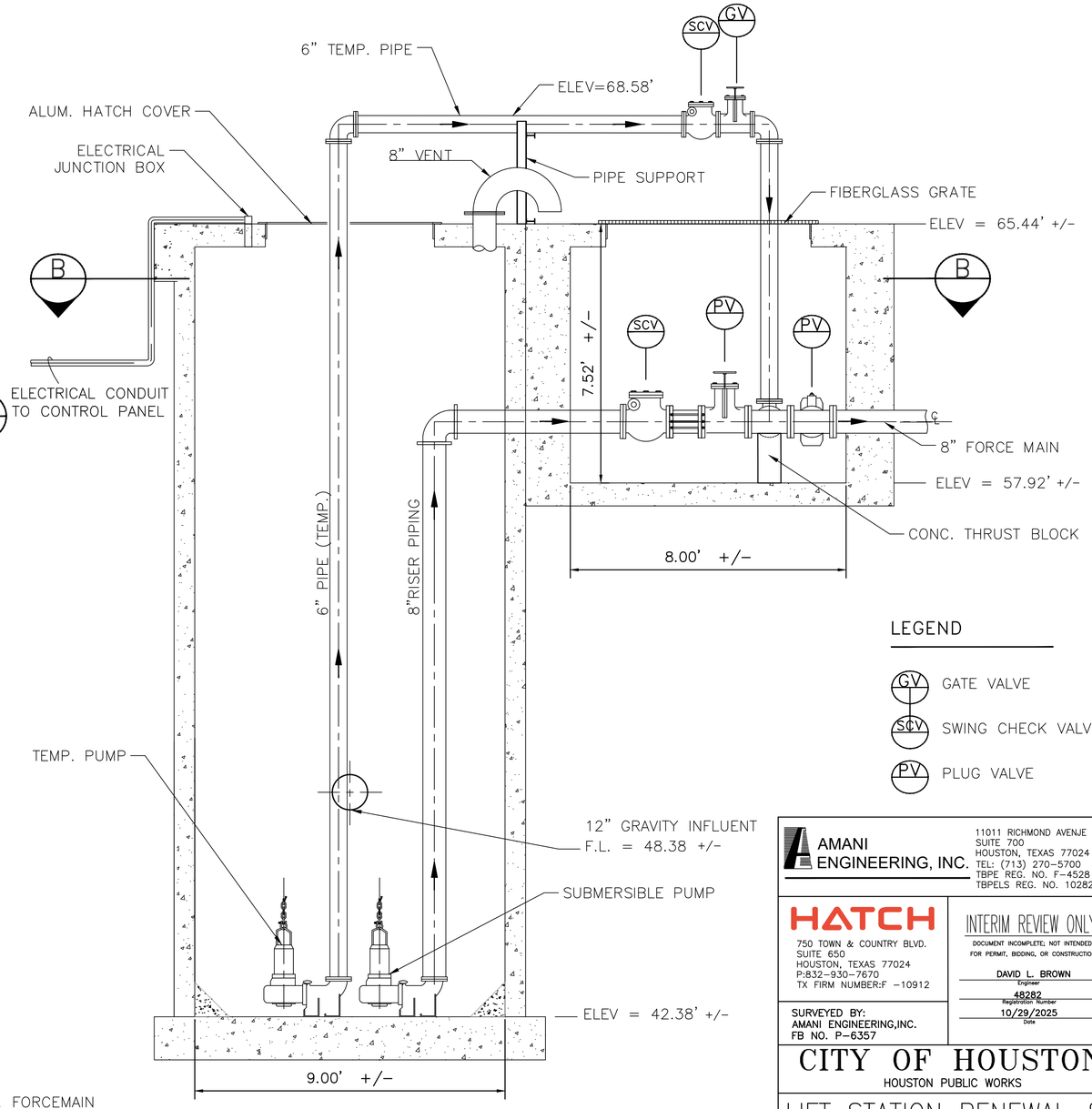
LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2 LS
DEMO. PLAN, SECTION & DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

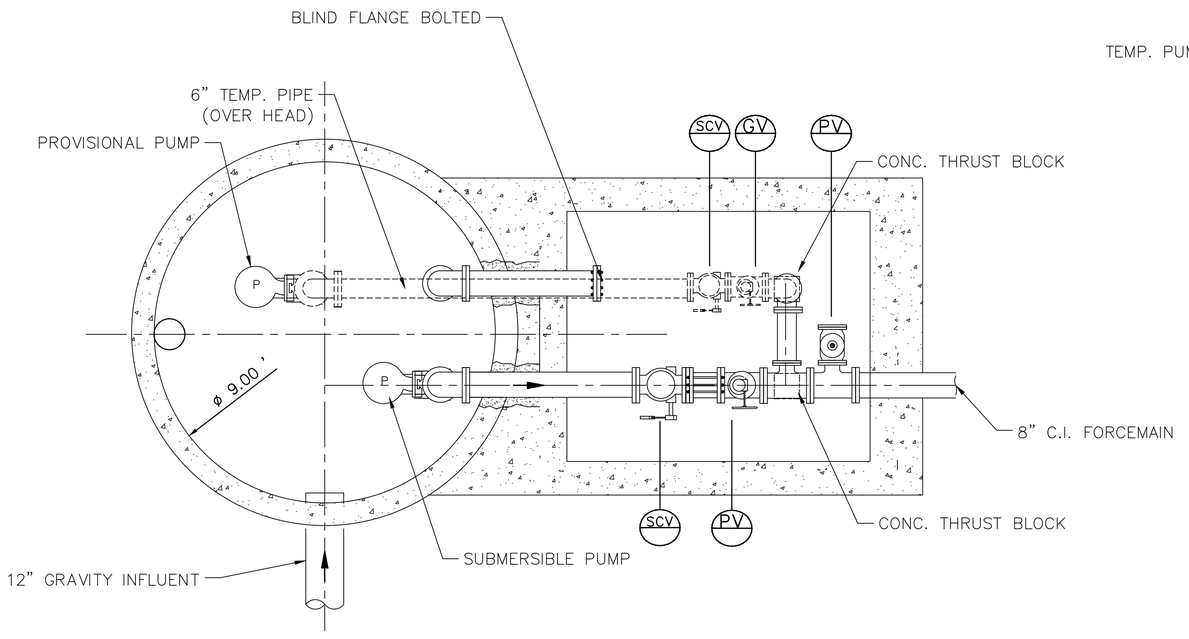
C1S42



PLAN VIEW



SECTION 'A-A'



SECTION B'-B'

LEGEND

- GV — GATE VALVE
- SCV — SWING CHECK VALVE
- PV — PLUG VALVE

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

POST OAK #2 EXISTING
PLAN & SECTION

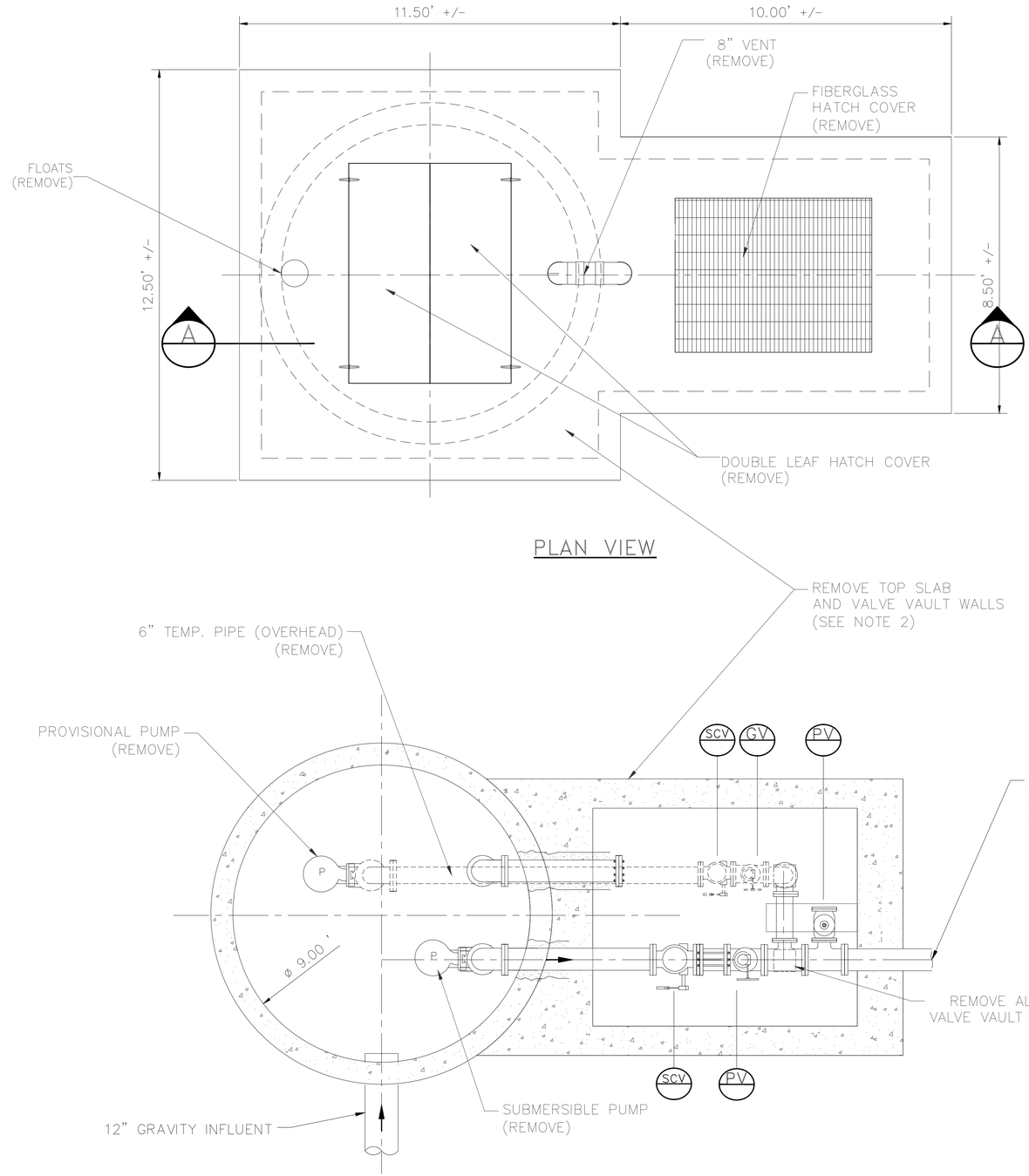
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

C1M41

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\LIFT STATIONS EXISTING PLAN & SECTIONS\1-POST OAK #2\LS- POST OAK #2.dwg



PLAN VIEW

SECTION B'–B'

LEGEND

- GV — GATE VALVE (REMOVE)
- SCV — SWING CHECK VALVE (REMOVE)
- PV — PLUG VALVE (REMOVE)

C1M42

DEMOLITION NOTES:

1. THIS DRAWING IS BASED ON AVAILABLE RECORDS AND FIELD OBSERVATIONS. THE CONTRACTOR SHALL SATISFY HIMSELF / HERSELF OF THE ACTUAL CONDITIONS EXISTING AT THE SITE. THIS DRAWING DEPICTS PRIMARY MECHANICAL FEATURES. NOT ALL FEATURES, INCLUDING ELECTRICAL ARE NECESSARILY DEPICTED HEREON. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING EQUIPMENT WITHIN THE EXISTING STRUCTURE AS A PRECURSOR TO CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
2. REMOVE TOP AND SIDE WALLS OF LIFT STATION TO 4-FEET BELOW LIFT STATION TOP SLAB ELEVATION. STEEL IN WALLS TO REMAIN (WHERE POSSIIBLE) AND BE USED TO DEVELOP REINFORCEMENT FOR NEW TOP SLAB (REFER TO STRUCTURAL DETAILS).
3. THE CONTRACTOR SHALL NOT PROCEED WITH DEMOLITION WORK UNTIL AUTHORIZED. LIFT STATION BYPASS PUMPING MUST BE IN PLACE WITH OPERATIONAL ADEQUACY CHECKED AND CONFIRMED BY THE CITY BEFORE PROCEEDING WITH DEMOLITION WORK.
4. THE CITY OF HOUSTON WASTEWATER OPERATIONS DIVISION SHALL BE CONTACTED A MINIMUM OF 72-HRS PRIOR TO DEMOLITION. THE CITY SHALL HAVE THE FIRST RIGHT OF REFUSAL OF ANY ELECTRICAL OR MECHANICAL EQUIPMENT REMOVED FROM THE STATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND LOADING ONTO CITY TRUCKS, ALL SALVAGED MATERIALS AND EQUIPMENT DESIRED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PREMIT(S) REQUIRED FOR DEMOLITION WORK.
6. ALL ITEMS DAMAGED OR REMOVED BY THE CONTRACTOR AND NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
7. THE CONTRACTOR MAY DISCHARGE LIQUID WASTE AND WASHDOWN TO THE CITY WASTEWATER COLLECTION SYSTEM, HOWEVER; ALL DISCHARGES MUST BE COMPLIANT WITH THE CITY'S INDUSTRUAL WASTE ORDINANCE, CHAPTER 47, ARTICLE V. THE CONTRACTOR IS ADVISED THAT A PERMIT OR TEMPORARY DISCHARGE AUTHORIZATION MAY BE REQUIRED. CONTACT THE INDUSTRIAL WASTEWATER DIVISION AT (832) 395-5800. IN LIEU OF A DISCHARGE AUTHORIZATION, THE CONTRACTOR SHALL COLLECT AND HAUL, AT CONTRACTOR EXPENSE, ALL NON-SOLID DISCHARGES TO AN APPROVED CITY FACILITY.
8. REFER TO STRUCTURAL AND ELECTRICAL DEMOLITION DRAWINGS FOR INFORMATION RELATED TO THOSE SPECIFIC ACTIVITIES.

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11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

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FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

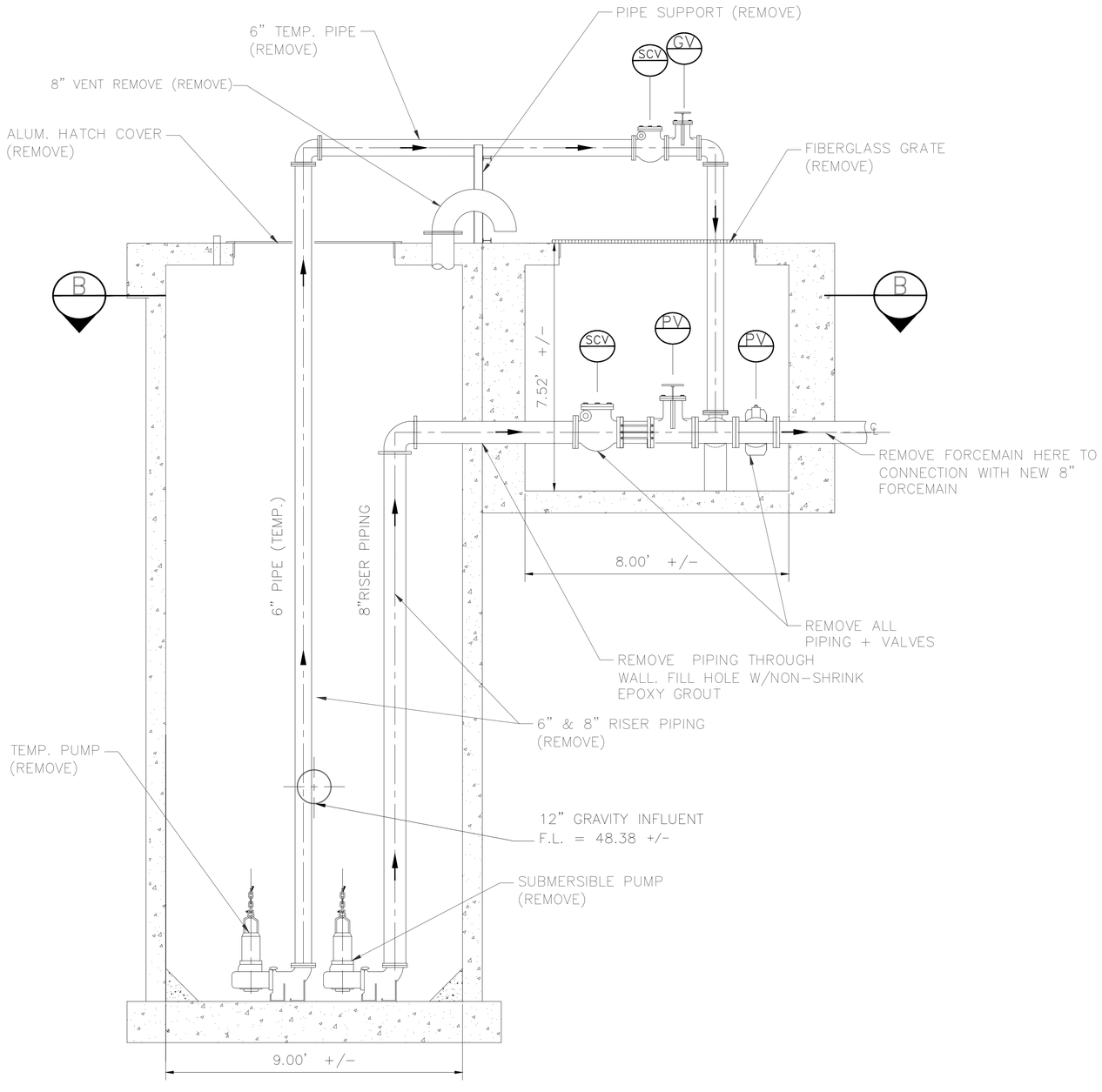
POST OAK #2.LIFT STATION
SURFACE PLAN VIEW MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cost\2024\24013 - Hatch - COH FY29 LIft Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLANS\-POST OAK #2\LS- POST OAK #2 DEMOLITION 11 2025.dwg



SECTION 'A-A'

LEGEND

- GV — GATE VALVE (REMOVE)
- SCV — SWING CHECK VALVE (REMOVE)
- PV — PLUG VALVE (REMOVE)

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11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
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750 TOWN & COUNTRY BLVD.
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Engineer
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HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

POST OAK #2. LIFT STATION
STATION SECTION VIEW MECHANICAL DEMOLITION

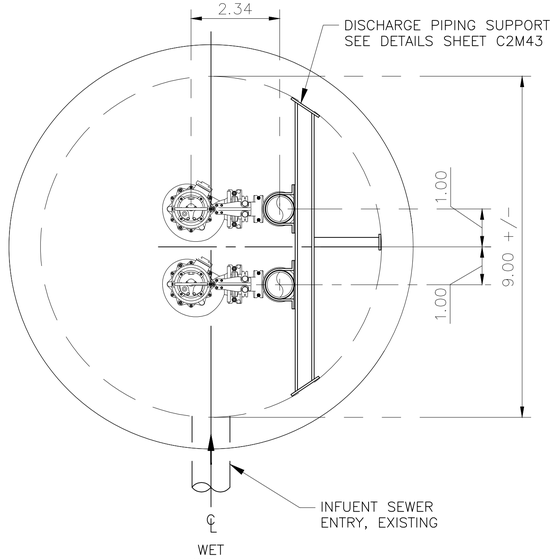
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

C1M43

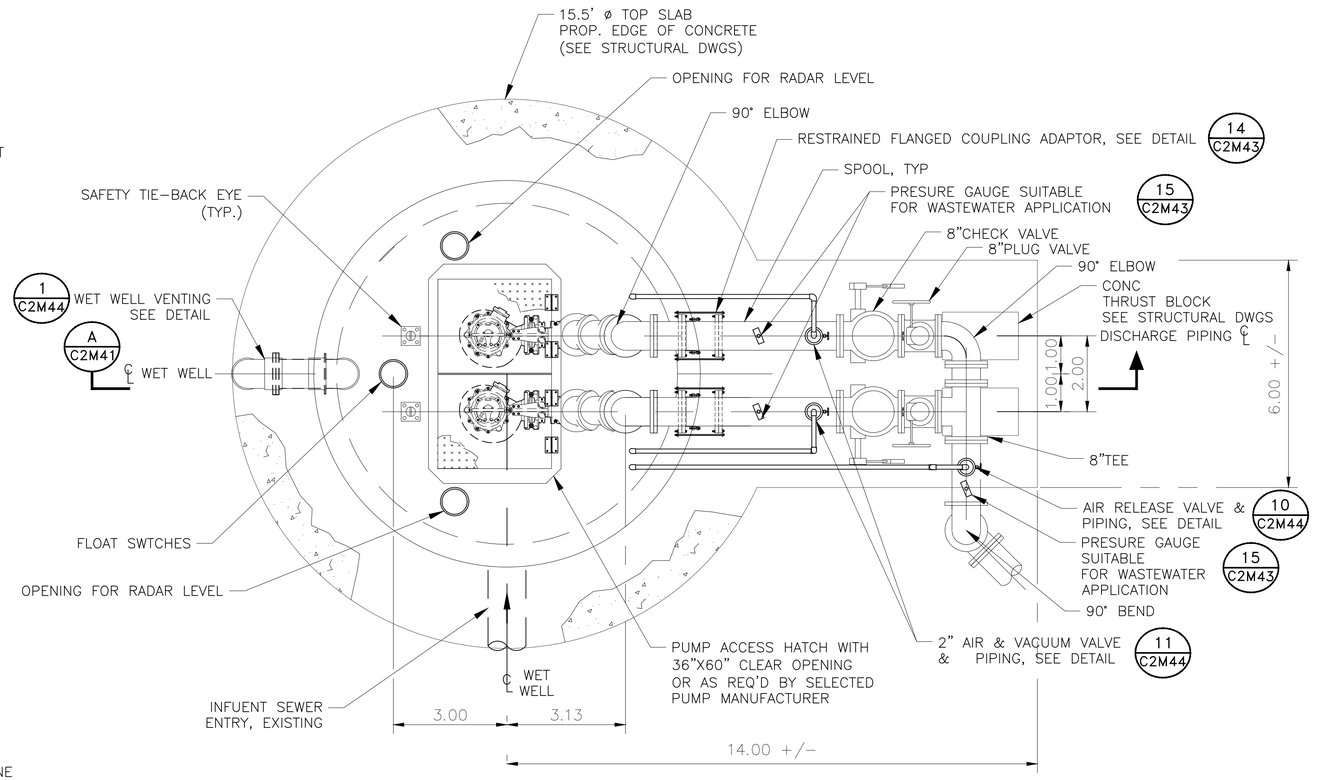
FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

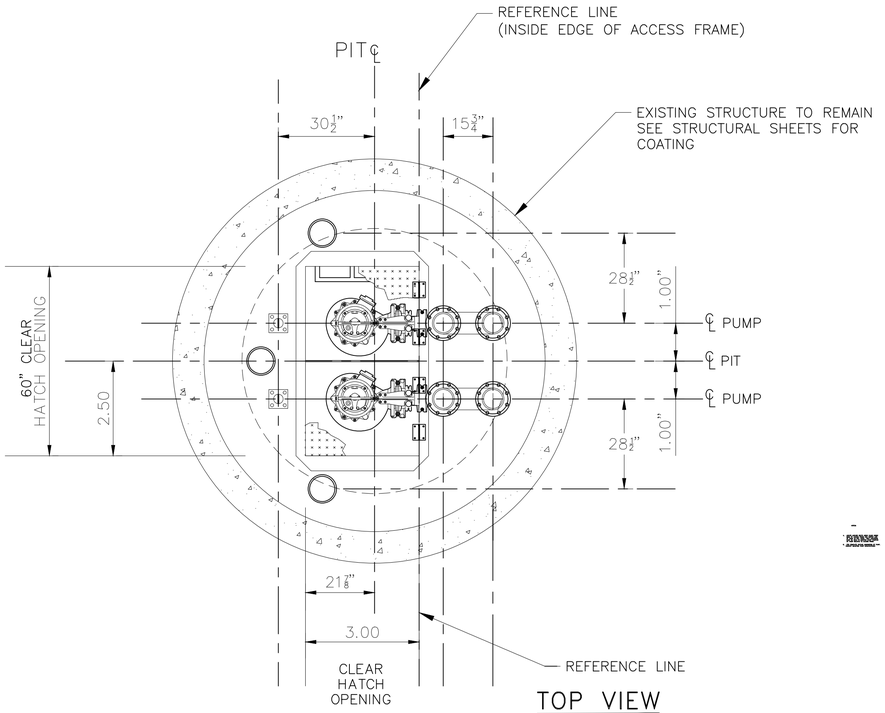
P:\Civil\20224.04613 - Hatch - COH FY26 LIft Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLAN\1-POST OAK #2\LS- POST OAK #2 DEMOLITION 11-2025.dwg



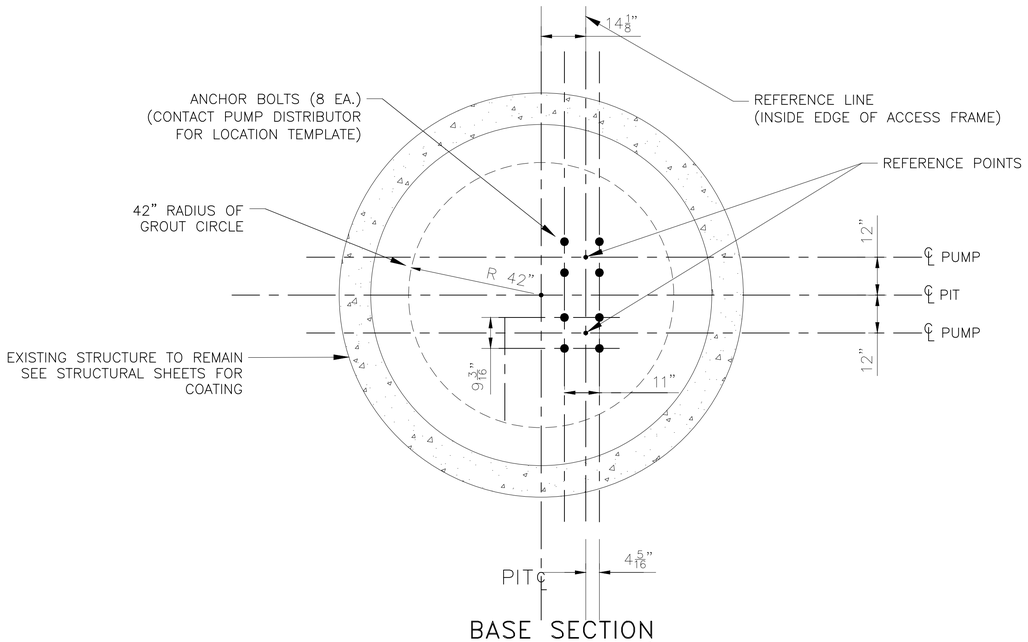
SECTION B'–B'



PLAN VIEW – GRADE



TOP VIEW



BASE SECTION

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12–INCH BY 12–INCH PLATE ENGRAVED WITH 6–INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO.	DATE	REVISION	APP.

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11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270–5700
TBPE REG. NO. F–4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832–930–7670
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

POST OAK #2
PLAN VIEW & GRADE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

C1M44 | SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

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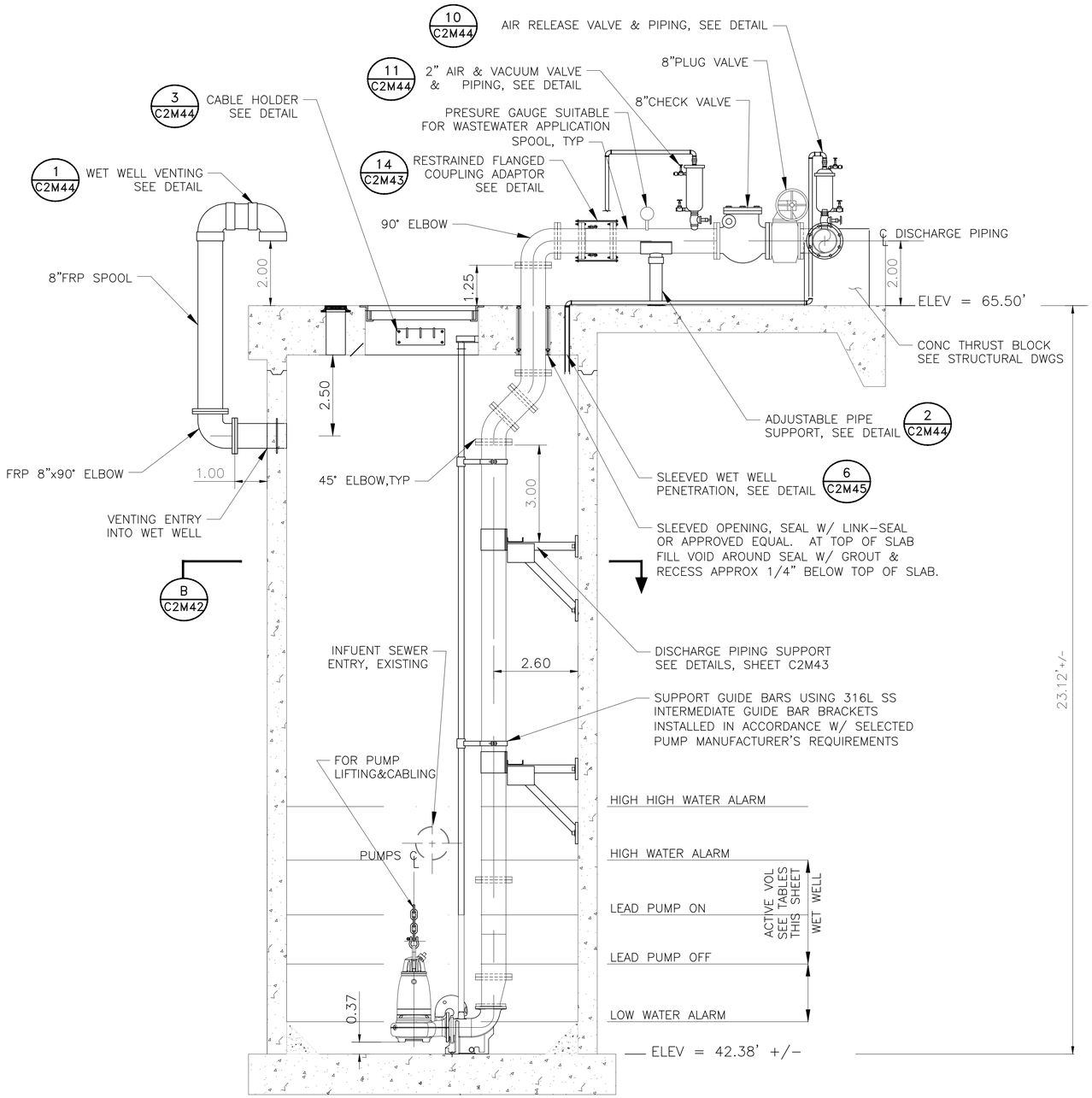
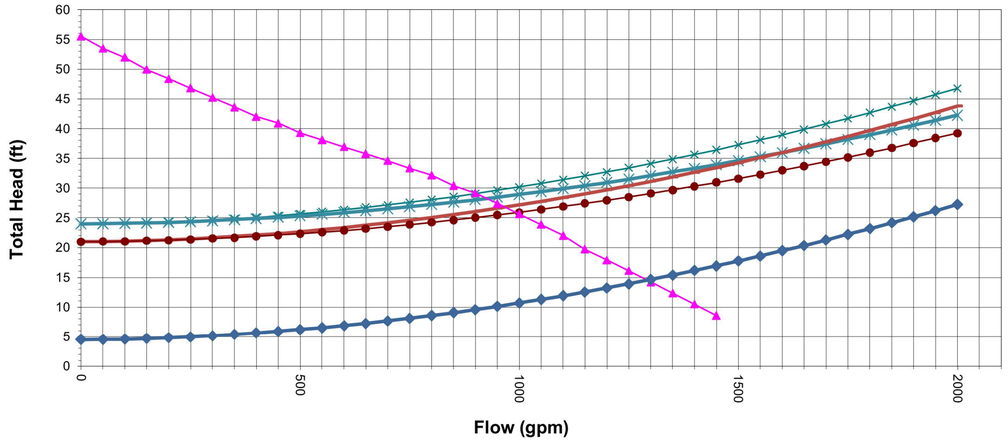


SECTION 'A-A'



PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2
MOTOR DATA NOMINAL SIZE (HP) MAX SPEED (RPM)	 12 1765	 12 1765
SOLIDS PASSAGE MIN SPHERE (IN)	 3	 3
CAPACITY (GPM) DESIGN RUNOUT	 1040 1840	 1040 1840
DISCHARGE HEAD (FT) DESIGN RUNOUT SHUT OFF	 27 4 56	 27 4 56
EFFICIENCY (%) DESIGN	 72.8	 72.8
NPSHR (FT) DESIGN RUNOUT	 21.5 31	 21.5 31

STATION OPERATION TABLES

RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
45.50	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
48.00	LEAD PUMP TURNS ON	LEAD PUMP ON
49.50	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
49.25	HIGH WATER LEVEL ALARM OFF	LEAD PUMP ON
45.50	LEAD PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP

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LIFT STATION RENEWAL & REPLACEMENT PROJECT

POST OAK #2
ELEVATION SECTION

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DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
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C1M45

FILE NAME:
PLOTTED ON:

0 1 2 3
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

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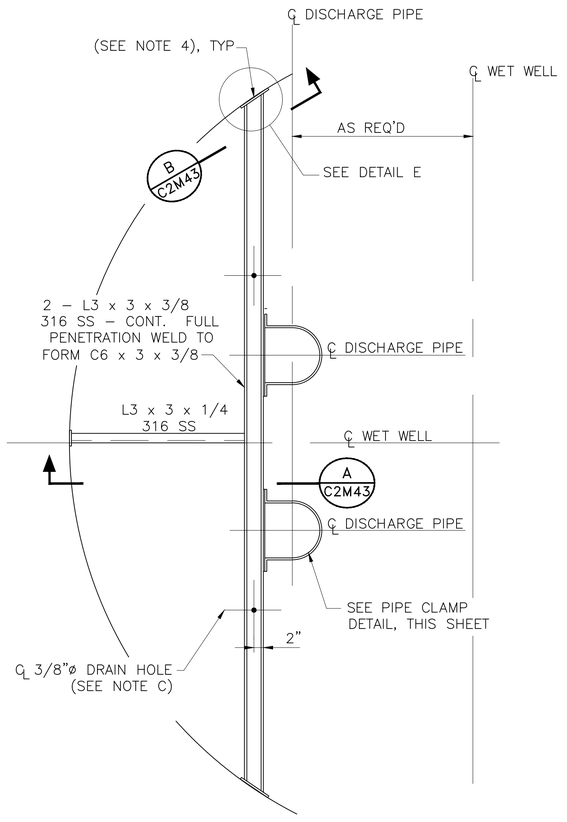
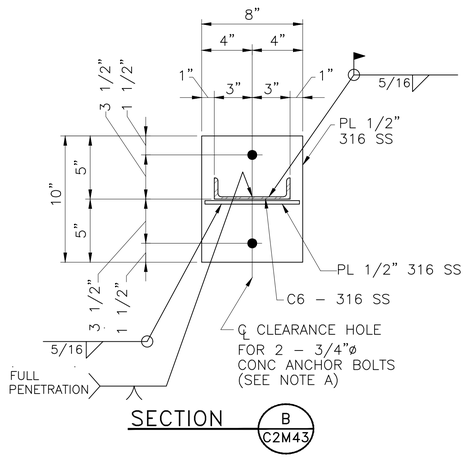
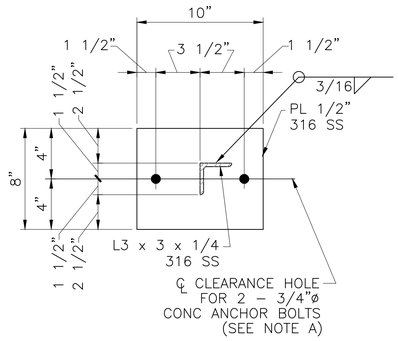


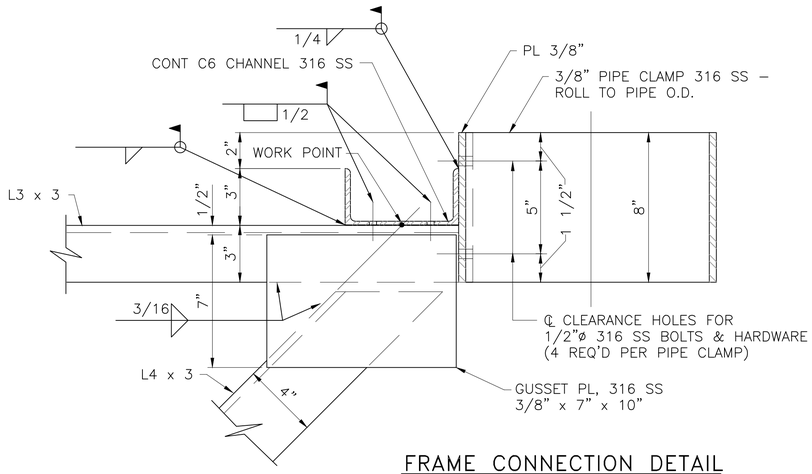
TYP DISCHARGE PIPING SUPPORT
PLAN FOR 2 PUMPS



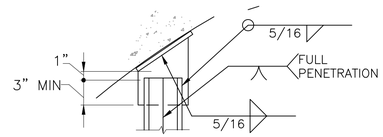
SECTION B C2M43



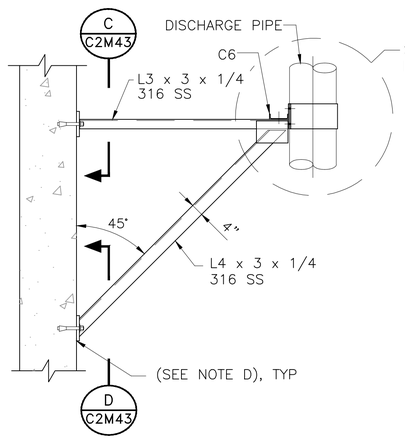
SECTION C C2M43



FRAME CONNECTION DETAIL



DETAIL E



TYP LATERAL PIPE SUPPORT FRAME

SECTION A C2M43

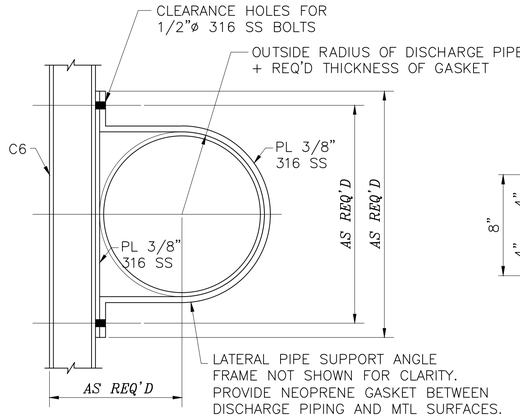
NOTES:

A. CONCRETE ANCHOR BOLTS SHALL HAVE 6" MINIMUM EMBEDMENT AND SHALL BE TYPE 316 STAINLESS STEEL, PER SPECIFICATIONS.

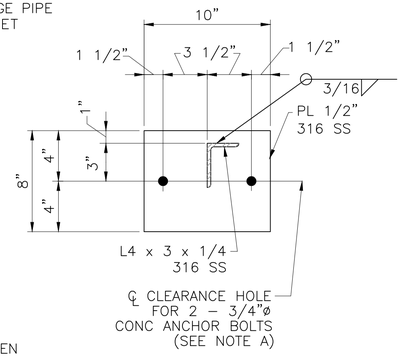
B. SEE STATION AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.

C. DRILL 3/8"ø HOLES, 1" OFF C OF C6 AT MIDSPAN BETWEEN LATERAL PIPE SUPPORTS TO ALLOW FOR DRAINAGE. 3 HOLES PER CHANNEL WHERE 2 LATERAL SUPPORTS REQUIRED; 2 HOLES PER CHANNEL WHERE 1 LATERAL SUPPORT REQUIRED.

D. SET 1/4" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.



PIPE CLAMP DETAIL



SECTION D C2M43

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11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
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750 TOWN & COUNTRY BLVD.
SUITE 650
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2
DISCHARGE PIPING SUPPORT DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

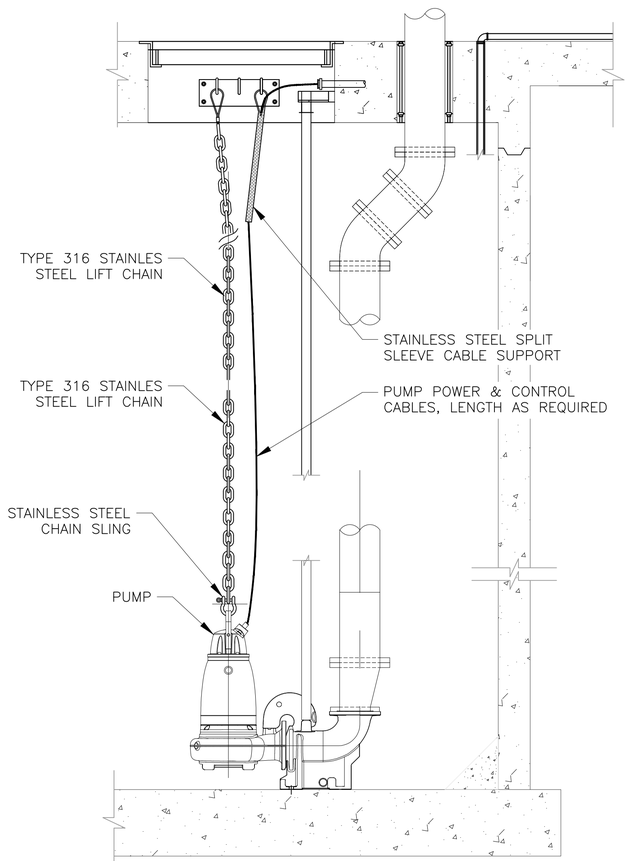
C1M46

SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

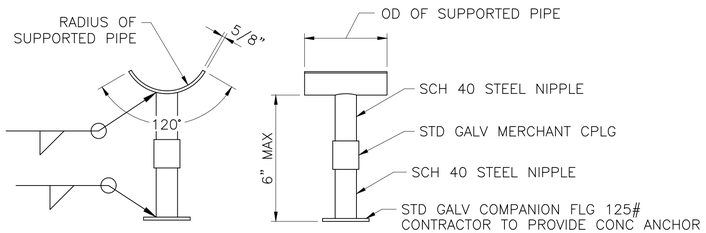
0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cad\2024\24013 - Hatch - COH FY25 Lift Stations\CAD_DWG\Phase II\1-Phase II POST OAK #2\Phase II LS- POST OAK #2.dwg



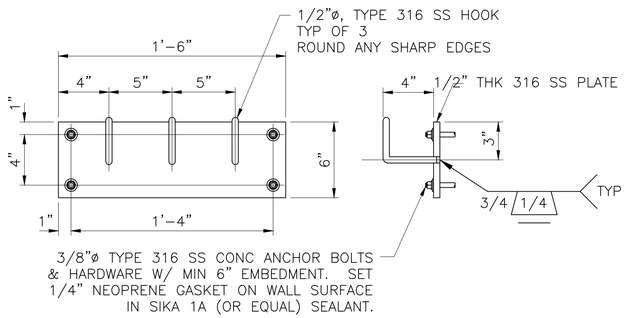
TYP PUMP LIFTING & CABLING DETAIL

DETAIL 3 / C2M44



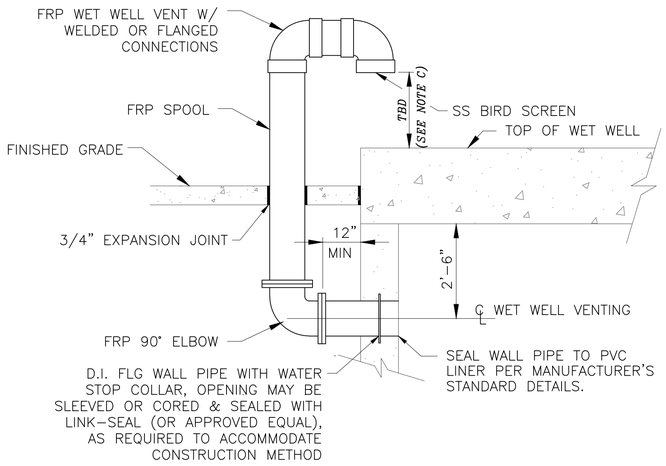
TYP ADJUSTABLE PIPE SUPPORT

DETAIL 2A / C2M44



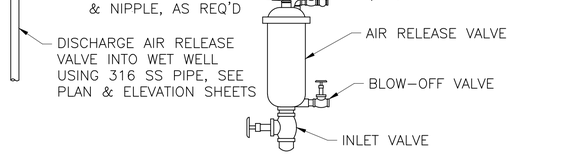
TYPICAL CABLE HOLDER ASSY

DETAIL 3 / C2M44



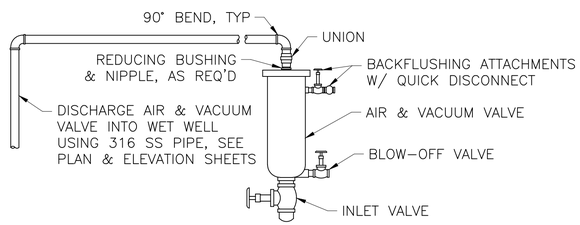
TYPICAL HIGH PROFILE WET WELL VENTING INSTALLATION

DETAIL 1 / C2M44



TYPICAL AIR RELEASE VALVE ASSY

DETAIL 10 / C2M44



TYPICAL AIR & VACUUM VALVE ASSY

DETAIL 11 / C2M44

NO	DATE	REVISION	APP

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HOUSTON, TEXAS 77024
TEL: (713) 270-5700
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LIFT STATION RENEWAL & REPLACEMENT PROJECT

POST OAK #2
TYPICAL DETAILS

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DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

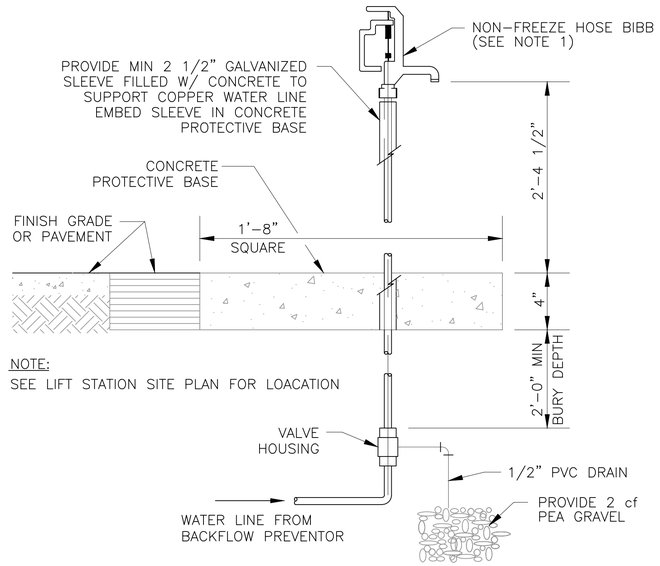
C1M47

SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

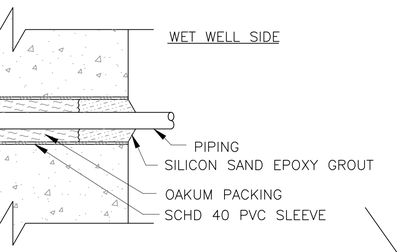
P:\Cad\A'2024\24013 - Hatch - COH FY26 Lift Stations\CAD_DWG\Phase II\1-Phase II POST OAK #2\Phase II LS- POST OAK #2.dwg



NOTE:
SEE LIFT STATION SITE PLAN FOR LOACATION

TYP NON-FREEZE HOSE BIBB DETAIL

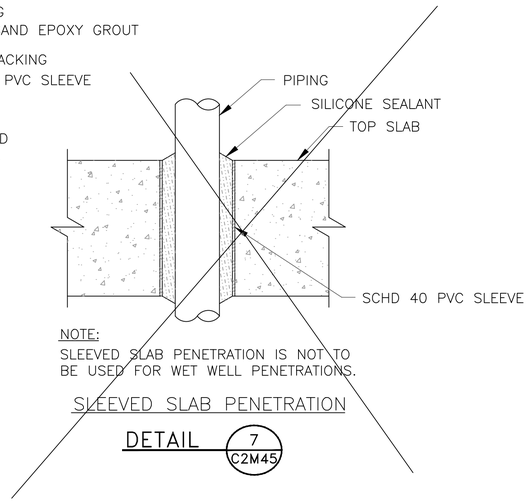
DETAIL 12 C2M45



NOTE:
SLEEVED WET WELL PENETRATION IS NOT TO BE USED FOR CONDUIT INSTALLATION. SEE ELECTRICAL DETAIL SHEETS FOR CONDUIT PENETRATIONS.

SLEEVED WET WELL PENETRATION FOR PIPING 4"ø & SMALLER

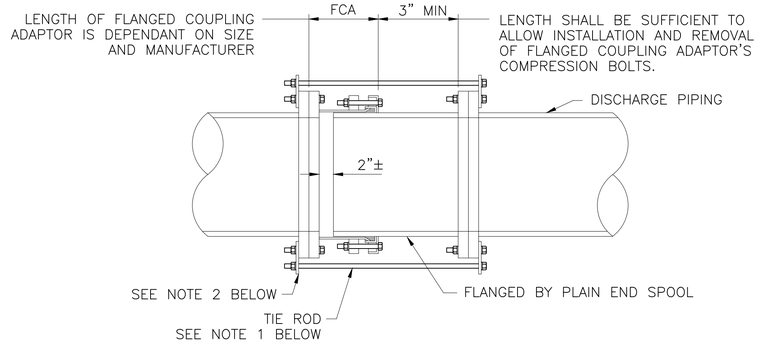
DETAIL 6 C2M45



NOTE:
SLEEVED SLAB PENETRATION IS NOT TO BE USED FOR WET WELL PENETRATIONS.

SLEEVED SLAB PENETRATION

DETAIL 7 C2M45

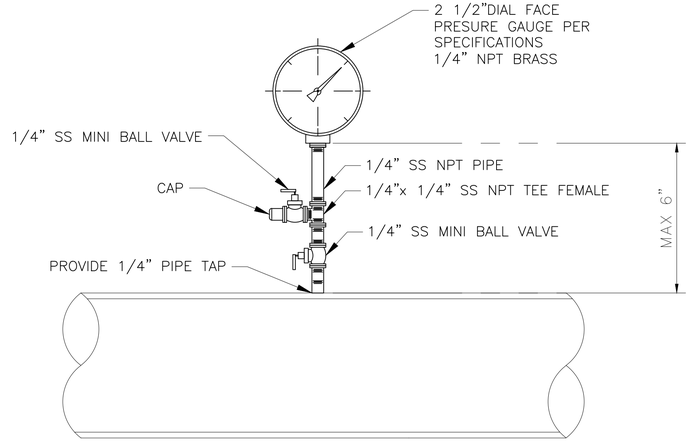


NOTES:

1. PROVIDE A NUMBER OF TIE RODS EQUAL TO 1/2 THE NUMBER OF FLANGE BOLTS. EVENLY SPACE INSTALLATION OF TIE RODS. DIAMETER OF TIE RODS TO BE EQUAL TO THE DIAMETER OF FLANGE BOLTS. LENGTH OF TIE RODS TO BE DETERMINED BY CONTRACTOR BASED ON SIZE AND MANUFACTURER OF FLANGED COUPLING ADAPTOR AND FINAL LENGTH OF SPOOL PIECE.
2. PROVIDE 316 SS TAB FOR ATTACHMENT OF TIE RODS. SIZE TO BE DETERMINED BY CONTRACTOR.
3. CONTRACTOR TO SUBMIT DETAILS DURING SHOP DRAWING SUBMISSION.
4. ALL HARDWARE SHALL BE 316 STAINLESS STEEL. TIE RODS SHOULD BE THREADED.
5. THIS RESTRAINT DOES NOT REPLACE THRUST BLOCKS TO BE PROVIDED AT OTHER LOCATIONS.

TYP FLANGED COUPLING ADAPTOR RESTRAINT DETAIL

DETAIL 14 C2M45



NOTE: ALL FITTINGS SHALL BE STAINLESS STEEL (316)

PRESSURE GAUGE DETAIL

DETAIL 15 C2M45

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

POST OAK #2 SUPPORT DETAILS

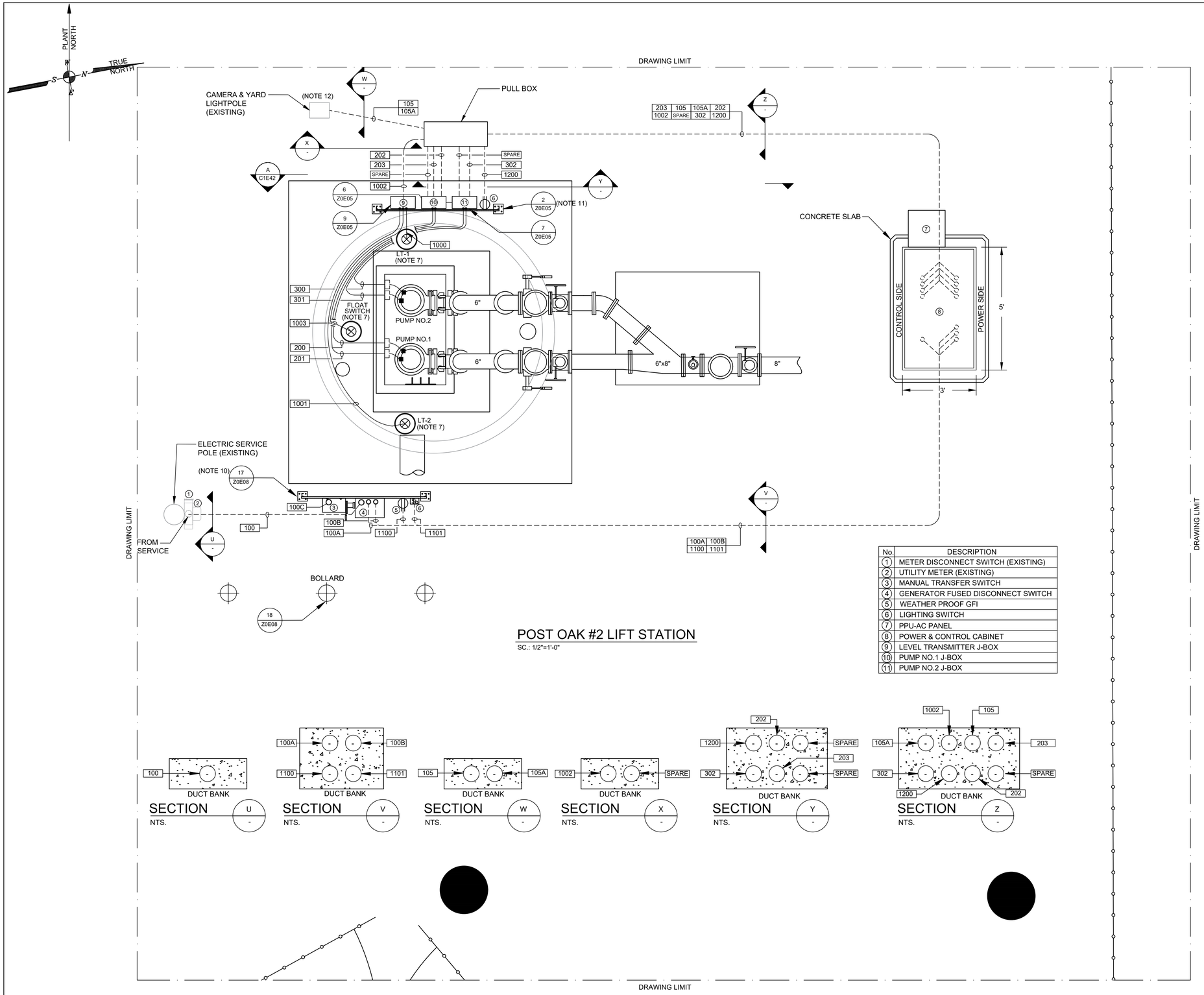
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

C1M48

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Coh\2024\24013 - Hatch - COH FY29 Lift Stations\CAD_DWG\Phase III\1-Phase II POST OAK #2\Phase II POST OAK #2.dwg



No.	DESCRIPTION
1	METER DISCONNECT SWITCH (EXISTING)
2	UTILITY METER (EXISTING)
3	MANUAL TRANSFER SWITCH
4	GENERATOR FUSED DISCONNECT SWITCH
5	WEATHER PROOF GFI
6	LIGHTING SWITCH
7	PPU-AC PANEL
8	POWER & CONTROL CABINET
9	LEVEL TRANSMITTER J-BOX
10	PUMP NO.1 J-BOX
11	PUMP NO.2 J-BOX

POST OAK #2 LIFT STATION

SC.: 1/2"=1'-0"

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
3. WHERE JUNCTION BOXES ARE SHOWN, THEY SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. SPLICES WILL NOT BE ALLOWED EXCEPT AS PROVIDED BY NOTE 4 AND AT LIGHTING AND RECEPTACLE TERMINATIONS.
4. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO CONTROL BUILDING OR PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
7. LEVEL TRANSMITTERS AND FLOAT SWITCH SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL FIELD VERIFY.
8. INSIDE WET WELL IS CLASSIFIED AS CLASS I, DIVISION 1. OUTSIDE WET WELL WITHIN 5 FEET OF WET WELL OPENINGS ARE CLASSIFIED AS CLASS I, DIVISION 2.
9. NEW INSTRUMENT TO BE INSTALLED IN THE SAME AREA AS INSTRUMENT REMOVED.
10. THE ELECTRICAL SERVICE RACK MUST BE AT LEAST 5' WIDE.
11. THE JUNCTION BOX RACK MUST BE AT LEAST 6' WIDE.
12. FOR LIGHT & COMMUNICATION POLE DETAILS, SEE DRAWING NO. Z0E07.

NO.	DATE	REVISION	APP.
A	08/19/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

ELECTRICAL SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E41

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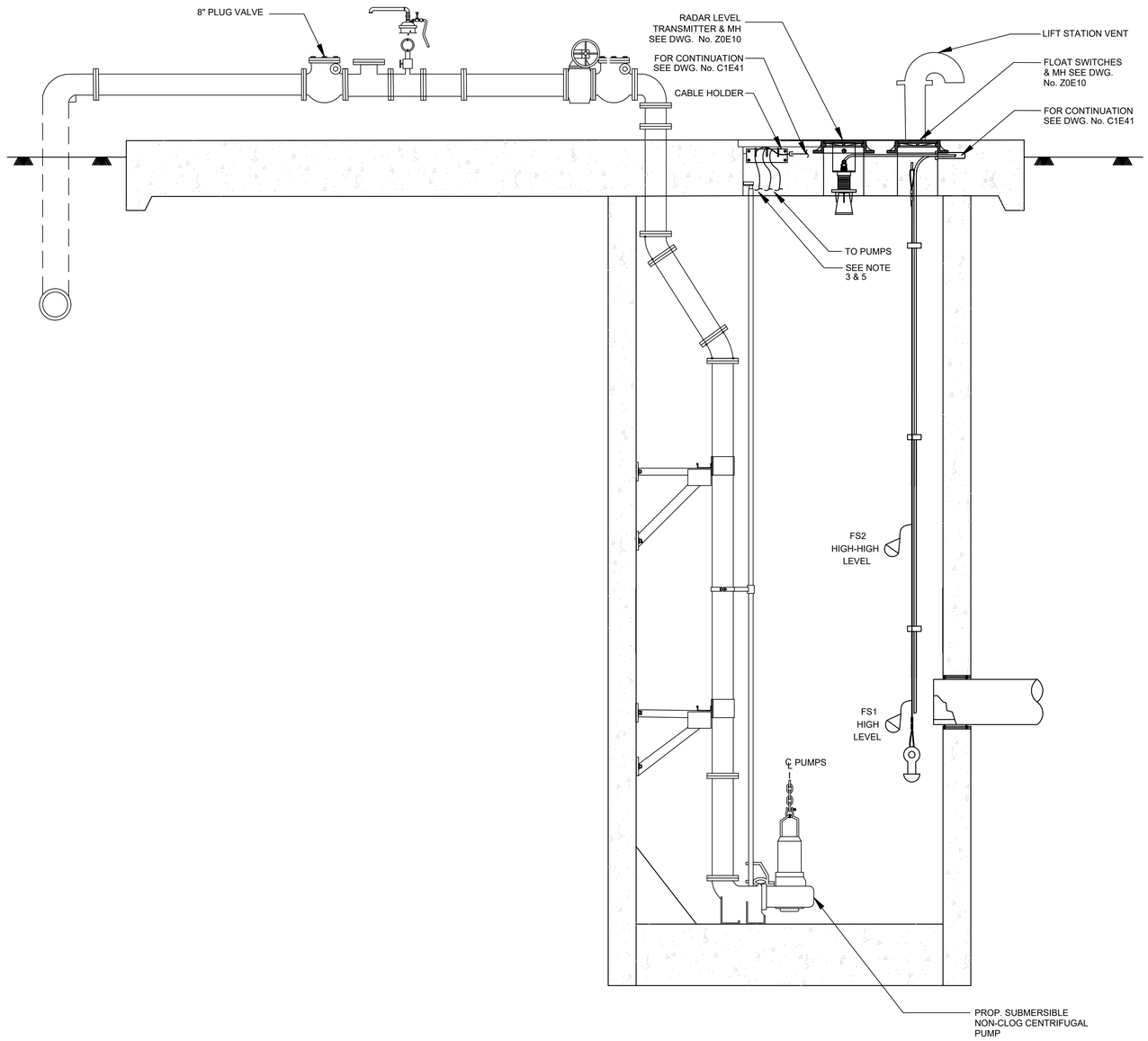

POST OAK #2 - LIFT STATION

A / - ELEVATION

SC.: 1/2"=1'-0"

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION I, GROUP C & D.
3. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
4. FOR MOTOR FEEDER AND CONTROL CABLES. INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO POWER & CONTROL PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. INSTRUMENTS SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL BE ESTABLISHED DURING CONSTRUTION.

NO.	DATE	REVISION	APP.
A	08/19/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

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Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

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Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

LIFT STATION ELEVATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E42

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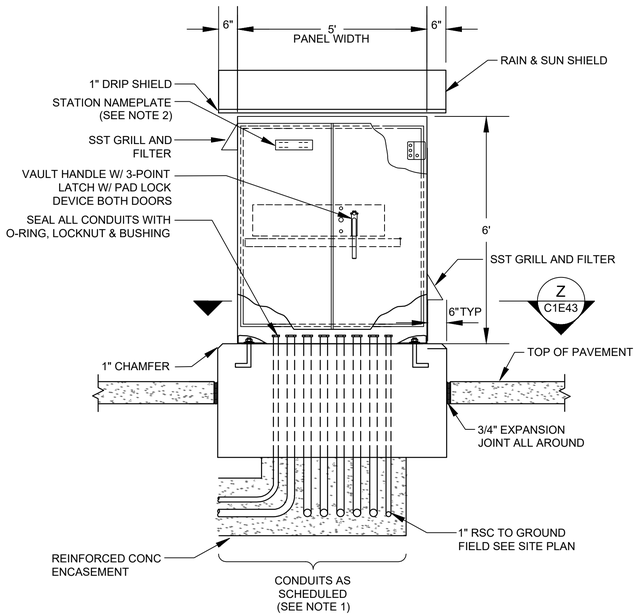
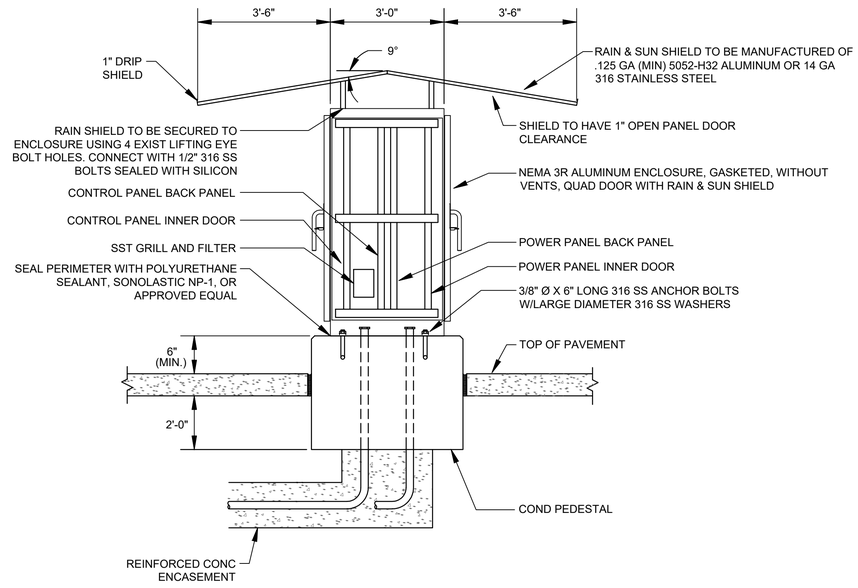
NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

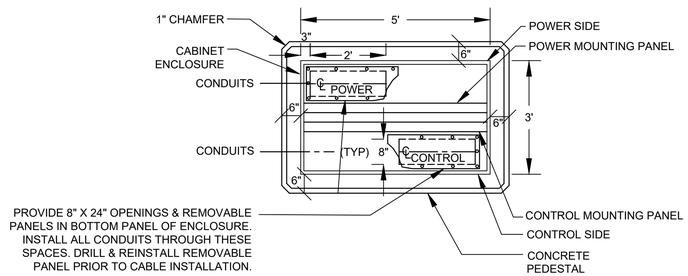
NOTES:

1. FOR CONDUIT SCHEDULE SEE DRAWING NO. C1E59.
2. FOR NAME PLATE SCHEDULE SEE DRAWING NO. C1E45.
3. FOR POWER & CONTROL PANEL DETAIL SEE DRAWING NO. C1E44.





POWER & CONTROL CABINET ENCLOSURE WITH CONCRETE PEDESTAL FOUNDATION



SECTION Z / C1E43
NTS

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

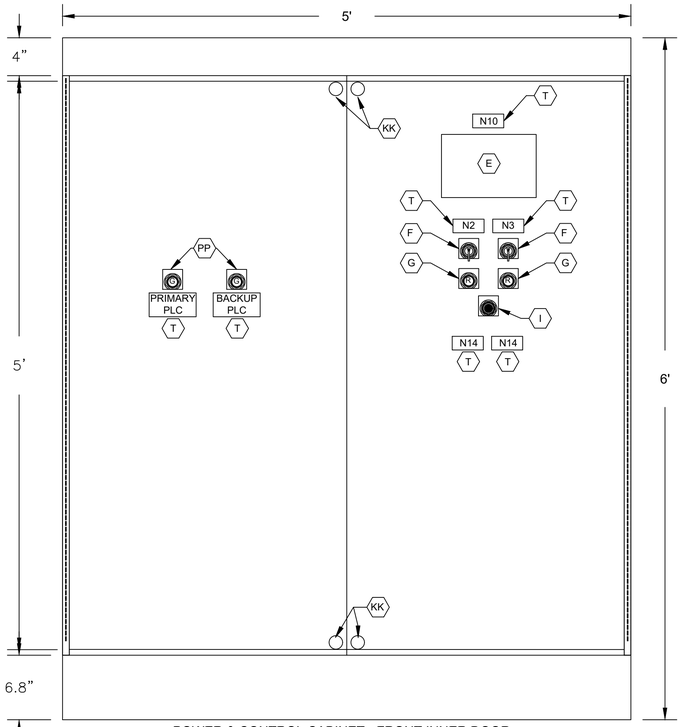
LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2
POWER & CONTROL CABINET INSTALLATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

EQUIPMENT AND DEVICE SCHEDULE

ITEM	QTY.	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 2 PHASE, 3 WIRE, 100A, 24 CKTS, SQUARE D MODEL # QP24100CP 21HX, 14.25W
B	2	NEMA MOTO STARTER, NON-REVERSING, TYPE S, SIZE 2, 45A, 15 HP AT 230VAC, 3 PHASE, 3 POLE, SOLID STATE, 120VAC COIL, SCHNEIDER MODEL 8536SDO1V02H30S
C	2	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 24VDC COIL AND 11 PIN SOCKET BASE.TURCK RELECO MODEL CT3-E30/L WITH S3-S BASE C3-A30X/24DC
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY, ATC MODEL ISO-120-AFA
E	1	PROGRAMMING SCREEN (OIT), SIEMENS INDUSTRY TP900 - COMFORT TOUCH PANEL
F	2	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL), ALLEN-BRADLEY MODEL 800H-JR2B
G	2	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2R
H	6	TERMINAL RAIL, STEEL GALVANIC ZINC, W: 2000 mm, H: 15 mm, D: 5.5 mm, WEIDMULLER ITEM No.0117510000
I	1	PUMP ALARM RESET PUSHBUTTON, ALLEN-BRADLEY MODEL 800H-AR2BF
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST, HUBBELL MODEL HBL12211, WITH METALLIC BOX 4"x4" AND STEEL METALLIC SQUARE BOX COVER DUPLEX
K	2	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED, HUBBELL MODEL HBL53621, WITH METALLIC BOX 4"x4" AND STEEL METALLIC SQUARE BOX SWITCH COVER.
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION, HOFFMAN MODEL LF120V28
M	1	240VAC, 3 PHASES SURGE PROTECTOR - SURGE SUPPRESSION INC MODEL SDLA3N2
N	30	TAG CARRIER, SCHT 5 WEIDMULLER, CATALOG NO. 0292460000
P	2	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT, PHOENIX CONTACT MODEL MCR-SL-CUC-100-I
Q	8	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS, WEIDMULLER WDU 10
R	16	WIRE DUCT 2" WIDE X 3" DEEP MINIMUM, LENGTH 6', HELLERMANN TYTON MODEL SL2X3W4
S	20	END BRACKET, WEW 35/2 WEIDMULLER, CATALOG NO. 1061200000
T	48	NAMEPLATES, (SEE NAMEPLATE SCHEDULE & EQUIPMENT LAYOUT DRAWINGS)
U	3	ANALOG INPUT MODULE, 4 ANALOG INPUT , SIEMENS MODEL SIMATIC S7-1200, 6ES7231-4HD32-0XB0
V	6	FUSE HOLDER & FUSES - PHASE FAILURE FERRAZ SHAWMUT, PN 30313
W	1	72"x60"x36" NEMA 3R ENCLOSURE, GASKETED, WITHOUT VENTS INCLUDING QUAD DOORS, BACKPLANES, & RAIN-SUN SHIELD MANUFACTURED OF .125 5052-H32 ALUMINUM - NEMA ENCLOSURES MFG. CORP. NE726036-12FSDDA WITH 2ea. NEAF7260P & 4 ea. NE7230SWP
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE ENVIROMENT), SQUARE D MODEL 9421LZ250H43
Y	1	MAIN CIRCUIT BREAKER, POWER PACT J, 200A 3-POLE, 600VAC, THERMAL MAGNETIC, SQUARE D, MODEL JJL36200
Z	2	CIRCUIT BRAKER POWERPACT H, 60A, 3 POLE, 600VAC, THERMAL MAGNETIC, SQUARE D, MODEL HGL36060
AA	160	TERMINAL BLOCKS, WEIDMULLER WDU 2.5, CATALOG NO. 1020000000
BB	2	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM, SQUARE D MODEL 9066 RA1
CC	2	ANALOG I/O SURGE SUPPRESSOR EATON MODEL IOP32D
DD	1	DIGITAL INPUT MODULE, 16 DIGITAL INPUT 24 VDC , SIEMENS MODEL SIMATIC S7-1200, 6ES7221-1BH32-0XB0
EE	1	CIRCUIT BRAKER POWERPACT H, 50A, 2 POLE, 600VAC, THERMAL MAGNETIC, SQUARE D, MODEL HJL26050
FF	1	GROUND BUS, SQUARE D MODEL 1630 PK9GTA
GG	1	LED LIGHT FOR INDOOR/OUTDOOR USE, 24 VDC, COLOR RED, FEDERAL SIGNAL MODEL LP3PL-024R.
HH	*	NOT USED.
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED), SQUARE D MODEL 9070T200D13
JJ	12	CARTRIDGE FUSES & FUSE HOLDER, FERRAZ SHAWMUT, PN 30313
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A, PHOENIX CONTACT MODEL QUINT-PS/1AC/24DC/5
MM	2	MOTION SWITCH, CHERRY MODEL E13-00H
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP, PLC" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2G
QQ	15	CONTROL RELAY, 3 POLE, 24VDC CONTROL COIL - TURCK C3-A30X/24DC W/S3-S BASE
RR	2	CONTROL RELAY, 3 POLE, 120VAC CONTROL COIL - TURCK C3-A30X/120AC W/S3-S BASE
SS	1	COMMUNICATION ETHERNET SWITCH, SIEMENS MODEL SCALANCE X310FE
TT	1	120VAC SURGE SURGE PROTECTOR WITH ALARM CONTACT - SURGE SUPPRESSION INC MODEL SDLA1P1
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT, SIEMENS MODEL 6ES7214-1HG40-0XB0, 14DI, 8DO, 2AI.
VV	1	PHASE AND UNDER VOLTAGE MONITOR, DIVERSIFIED ELECTRONICS MODEL PDB-230-ALE
WW	115	FUSED TERMINAL BLOCKS, WEIDMULLER WSI 6, CATALOG NO. 1011000000
XX	2	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I, MINICAS II 83 58 57 24VDC/AC
YY	2	ANALOG SIGNAL ISOLATOR, TURCK MODEL IMS-AI-DLI-22-DLI/L
ZZ	1	1-GANG WEATHERPROOF-IN-USE COVER, TAYMAC, MODEL MM420C.
AB	1	TAMPER/WEATHER RESISTANT GFCI RECEPTACLE, LEVITON, MODEL GFWT1-W.
AC	1	POWER DISTRIBUTION BLOCK, 3 POLE, EDISON MODEL HPB106-3
AD	1	1-GANG WEATHERPROOF BOX, 3-1/2", 2" DEPTH, ALUMINUM DIE CAST, BELL, MODEL 5320-0.
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD, HOFFMAN MODEL TFP6
AF	1	T-STAT FOR EXHAUST FAN, HOFFMAN, MODEL ATEMNOF

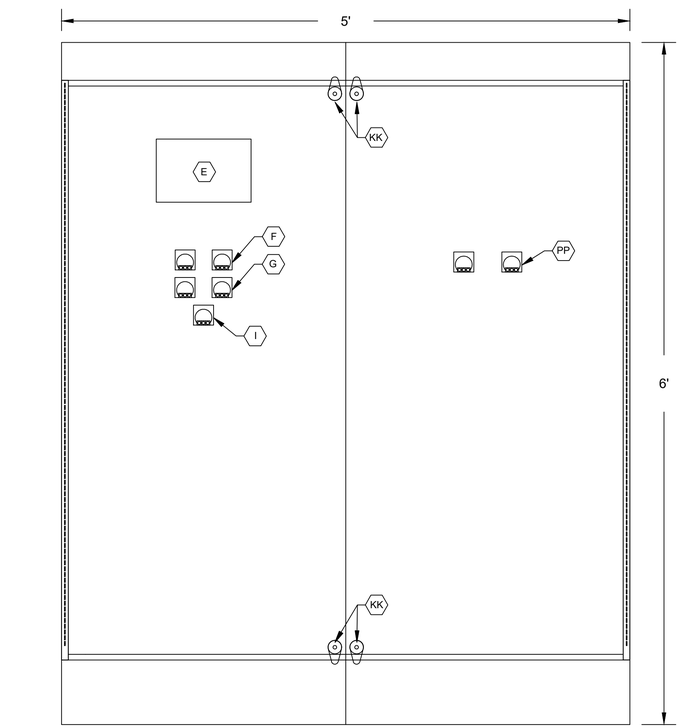
* - AS SCHEDULED



POWER & CONTROL CABINET - FRONT INNER DOOR

ELEVATION

SC.: 1-1/2"=1'-0"



POWER & CONTROL CABINET - BACK INNER DOOR

ELEVATION

SC.: 1-1/2"=1'-0"

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. NAMEPLATES SHALL BE MOUNTED TO PANELS USING STAINLESS STEEL HARDWARE.
2. REFER SPECIFICATIONS FOR ALL PANEL COMPONENTS.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

POWER & CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E44

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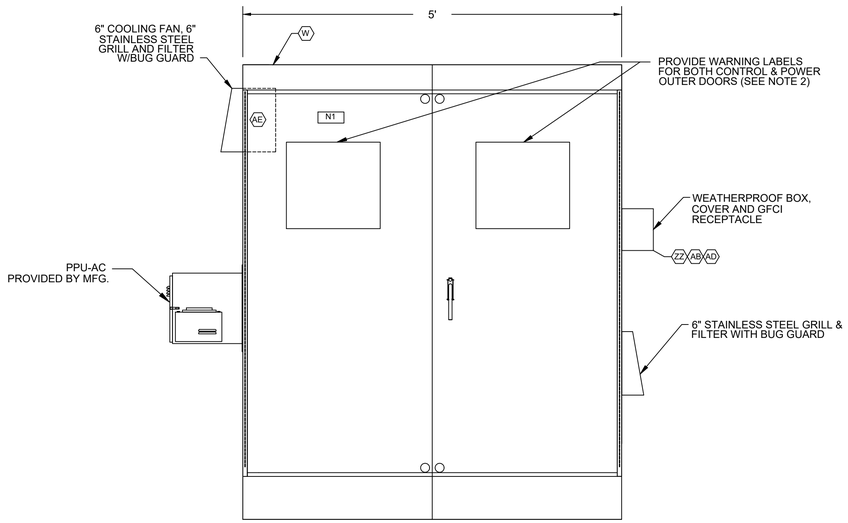
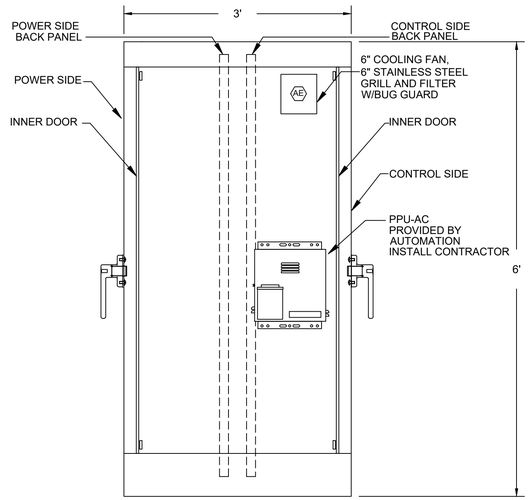


POWER & CONTROL CABINET (CONTROL SIDE)
OUTER DOOR

ELEVATION

SC.: 1"=1'-0"



POWER & CONTROL CABINET
(LEFT SIDE VIEW)

ELEVATION

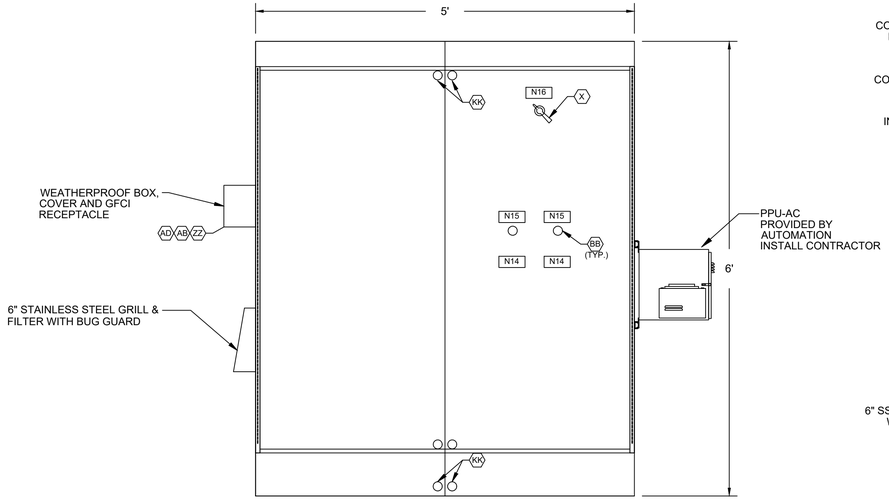
SC.: 1"=1'-0"

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED
N1	POST OAK #2 PUMP STATION
N2	PUMP NO. 1
N3	PUMP NO. 2
N4	NOT USED.
N5	NOT USED.
N6	NOT USED.
N7	NOT USED.
N8	NOT USED.
N9	NOT USED.
N10	PROGRAMMING SCREEN
N11	NOT USED.
N12	PRIMARY PLC
N13	BACKUP PLC
N14	MOTOR DATA HORSEPOWER (OUTPUT) ---------- RPM AT FULL LOAD ---------- TIME RATING ---------- FREQUENCY ---------- NUMBER OF PHASES ---------- MODEL NUMBER ---------- RATED VOLTAGE ---------- SERVICE FACTOR ---------- FULL LOAD AMPS ---------- INSULATION CLAS ---------- NEMA DESIGN LETTER ---------- TEMPERATURE RISE ---------- NEMA FRAME SIZE ---------- DATE OF MANUFACTURE ---------- THERMO PROTECTION (IF REQUIRED) -- MOISTURE PROTECTION (IF REQUIRED)-
N15	EXTERNAL OVERLOAD RESET PUSH BUTTON MECHANISM
N16	MAIN BREAKER

NOTES:

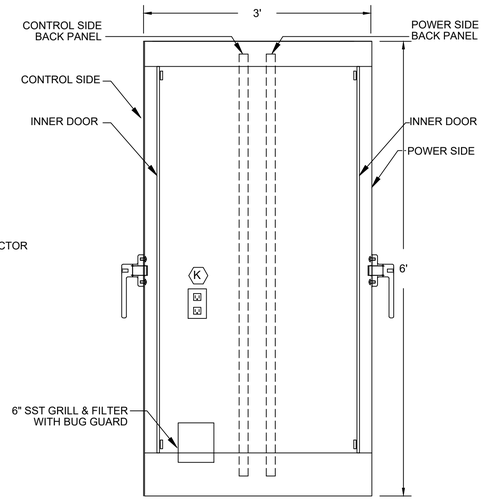
1. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. FOR ARC FLASH HAZARD WARNNG AND LABEL REQUIREMENTS REFER TO NEC SECTIONS 110.16 & 110.21



POWER & CONTROL CABINET (POWER SIDE)
INNER DOOR

ELEVATION

SC.: 1"=1'-0"
(SEE NOTE 1)



POWER & CONTROL CABINET
(RIGHT SIDE VIEW)

ELEVATION

SC.: 1"=1'-0"

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

POWER & CONTROL CABINET
EQUIPMENT LAYOUT-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E45

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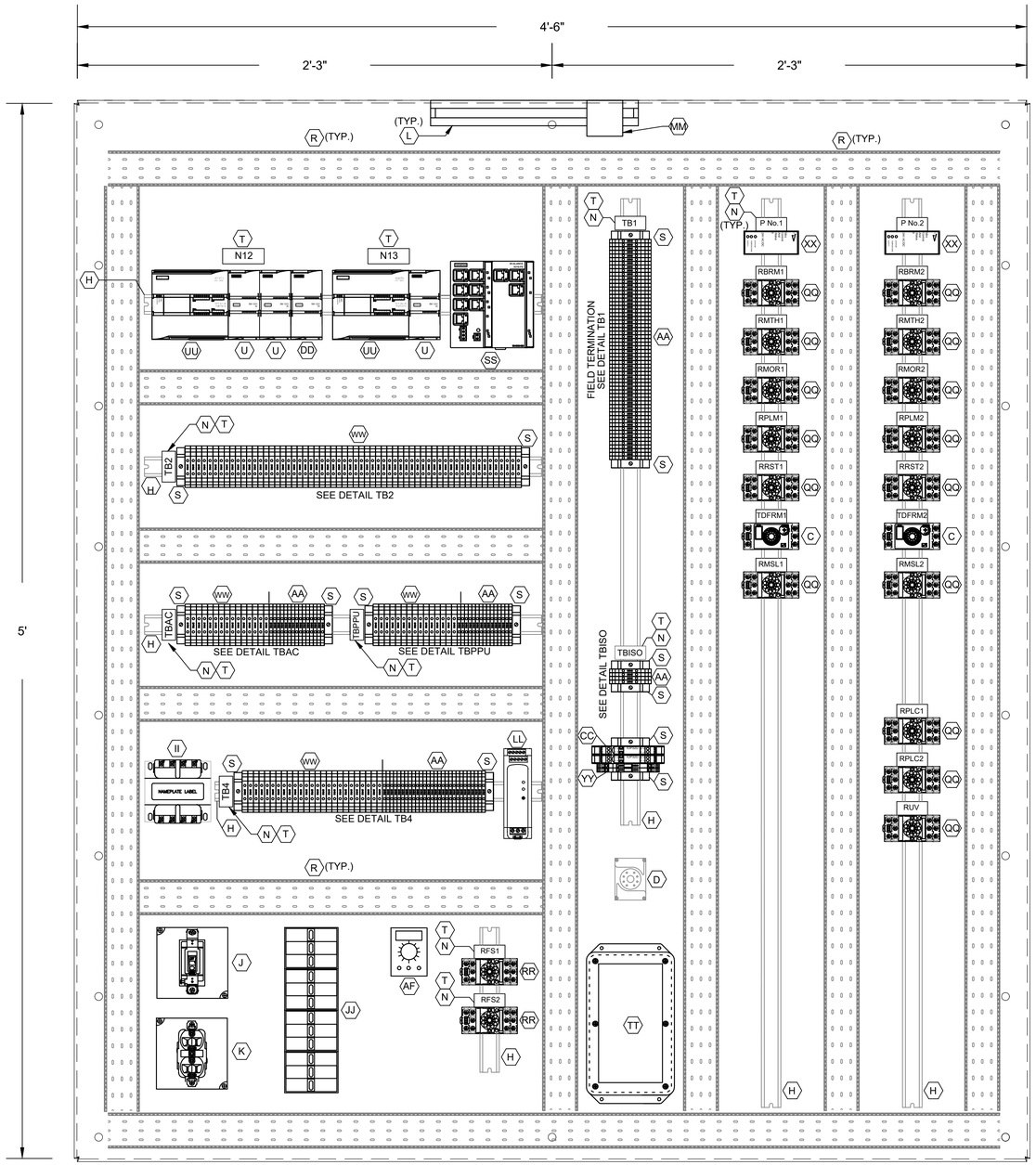


CONTROL PANEL
ELEVATION
SC.: 3"=1'-0"

L1A
L1N
SPARE
3A
3B
SPARE
49
50
51
52
53
54
1004
1
24V-
24V-
1002
2
11
1001
1001A
12
1003
1003A
1002
1004
18
3N
SPARE
36
36N
41
42
43
44
SPARE
L1A
L1N
103
104
105
106
107
108
110
113
115
116
119
SPARE
203
204
205
206
207
208
210
213
215
216
219

DETAIL TB1

ALL L AND N FOR EACH PUMP CONTROL TO BE FUSED

36A
37A
50
52
54
52A
54A
L+
M
35B
38B
41B
47B
13B
13AB
13GB
L+
M
14B
14AB
14GB
L+
M
13
13A
13G
14
14A
14G
17
18
18B
28
29
32
35B
33
42
44
SPARE
103
104
115
109
110
118
120
121
122
123
SPARE
209
210
211
218
220
222
223
SPARE
SPARE
SPARE

DETAIL TB2

L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15

DETAIL TBAC

L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15

DETAIL TBPPU

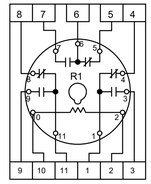
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15
N16
N17
N18
N19
N20
N21
N22
N23
N24
N25

DETAIL TB4

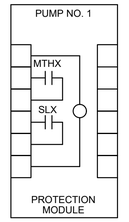
1500
1501
1503
1504

DETAIL TB-ISO

LEGEND	
TAG	DESCRIPTION
RMTH	MOTOR HIGH TEMPERATURE ALARM RELAY
RPLM	PLC PUMP RUN RELAY
RRST	PUMP RESET AUX RELAY
RPLC	PLC MODE AUX RELAY
RMOR	MOTOR OVERLOAD ALARM RELAY
RBRM	BACKUP SYSTEM RUN RELAY
RUV	UNDER VOLTAGE RELAY
ISO	INTRINSICALLY SAFE RELAY
RFS	PUMP RUN FLOAT SWITCH RELAY
TDFRM	TIMER FLOAT SWITCH RUN RELAY
RMSL	MOTOR SEAL LEAK ALARM RELAY



RELAY DETAIL
ITEM RR



PUMP PROTECTION MODULE
DETAIL, ITEM XX

NOTES:

1. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

POWER & CONTROL CABINET EQUIPMENT LAYOUT-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

C1E46 SHEET NO. OF 246

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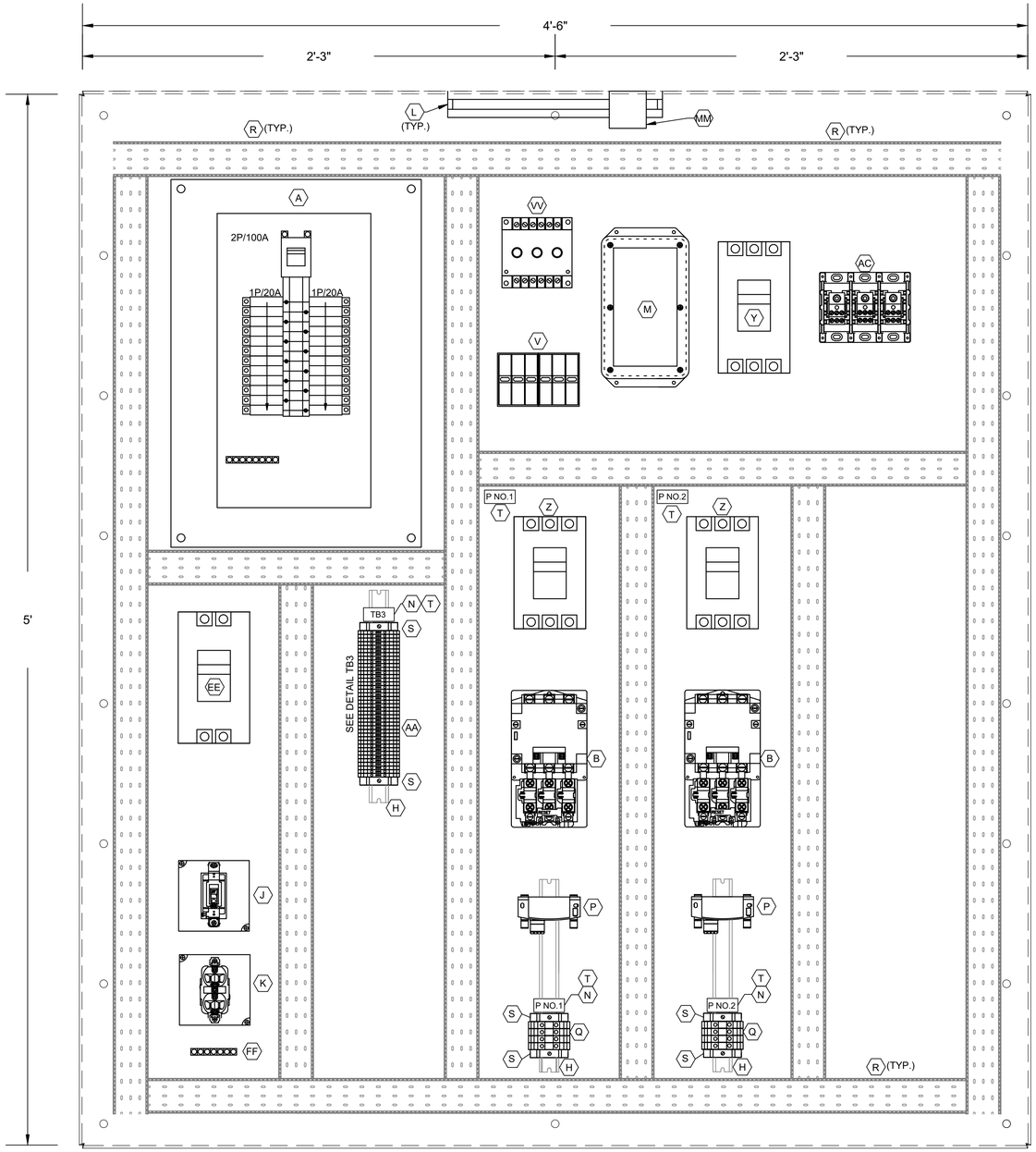

POWER PANEL ELEVATION

SC.: 3"=1'-0"

3
18
L1A
L1N
SPARE
SPARE
103
104
105
106
107
108
110
113
115
116
119
SPARE
203
204
205
206
207
208
210
213
215
216
219
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
3A
3B

DETAIL TB3

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

POWER & CONTROL CABINET EQUIPMENT LAYOUT-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E47

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FIELD

POWER & CONTROL CABINET

FIELD

(EXISTING)

FROM UTILITY METER
REFER TO SHEET
C1E49 240V, 3Ø, 4W

GROUND ROD
(TYPICAL)

METER DISCONNECT SWITCH

3 POLE DOUBLE
THROW HEAVY DUTY
TRANSFER SWITCH

GND BUS

NEUT

NEUT

GND BUS

GROUND
ROD

SURGE PROTECTOR
JE-1
(SEE NOTE 3)
SPD
M

MAIN
BREAKER
X

PHASE
MONITOR
JE-2
VV

(SEE NOTE 3)

PLC

MCP
M1

4-20mA
CURRENT
TRANSDUCER

MOR
(SEE NOTE 5)

P

4-20mA
TO PLC
+
-

T1
T2
T3

PUMP NO.1
M

TB-3

105
106
107
108
GND

105
106
107
108

20
21
22
23
GND

TSH-1

LSH-1

4-20mA
CURRENT
TRANSDUCER

MOR
(SEE NOTE 5)

P

4-20mA
TO PLC
+
-

MCP
M2

T1
T2
T3

PUMP NO.2
M

TB-3

205
206
207
208
GND

205
206
207
208

20
21
22
23
GND

TSH-2

LSH-2

NEMA 4X SS
GENERATOR FUSED
3 POLE HEAVY DUTY
DISCONNECT SWITCH
RACK MOUNTED

NEUT

GND

BRASS
MECHANICAL
LUGS
(TYPICAL)

SURGE PROTECTOR
JE-3
SPD
TT
(SEE NOTE 3)

EE
CB

GND
NEUT
60A

240V, 100A, 12 CKT
LIGHTING PANEL

CHASE NIPPLES WITH
REMOVABLE CAP(S) FOR
CONNECTION OF
PORTABLE GENERATOR.
NOTE: CAP(S) TO BE
ATTACHED TO PANEL OR
CONDUIT(S) BY STAINLESS
STEEL CHAIN.

NEUT

GND

GEN

PORTABLE
GENERATOR

NOTES:

1. UNLESS OTHERWISE INDICATE, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE POWER & CONTROL CABINET.
2. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
4. CONTRACTOR SHALL TERMINATE POWER & CONTROL WIRES PER MANUFACTURER'S REQUIREMENTS.
5. MOTOR OVERLOAD RELAY.

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- * DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PC INTERFACE TERMINAL

HATCH
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SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

THREE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E48

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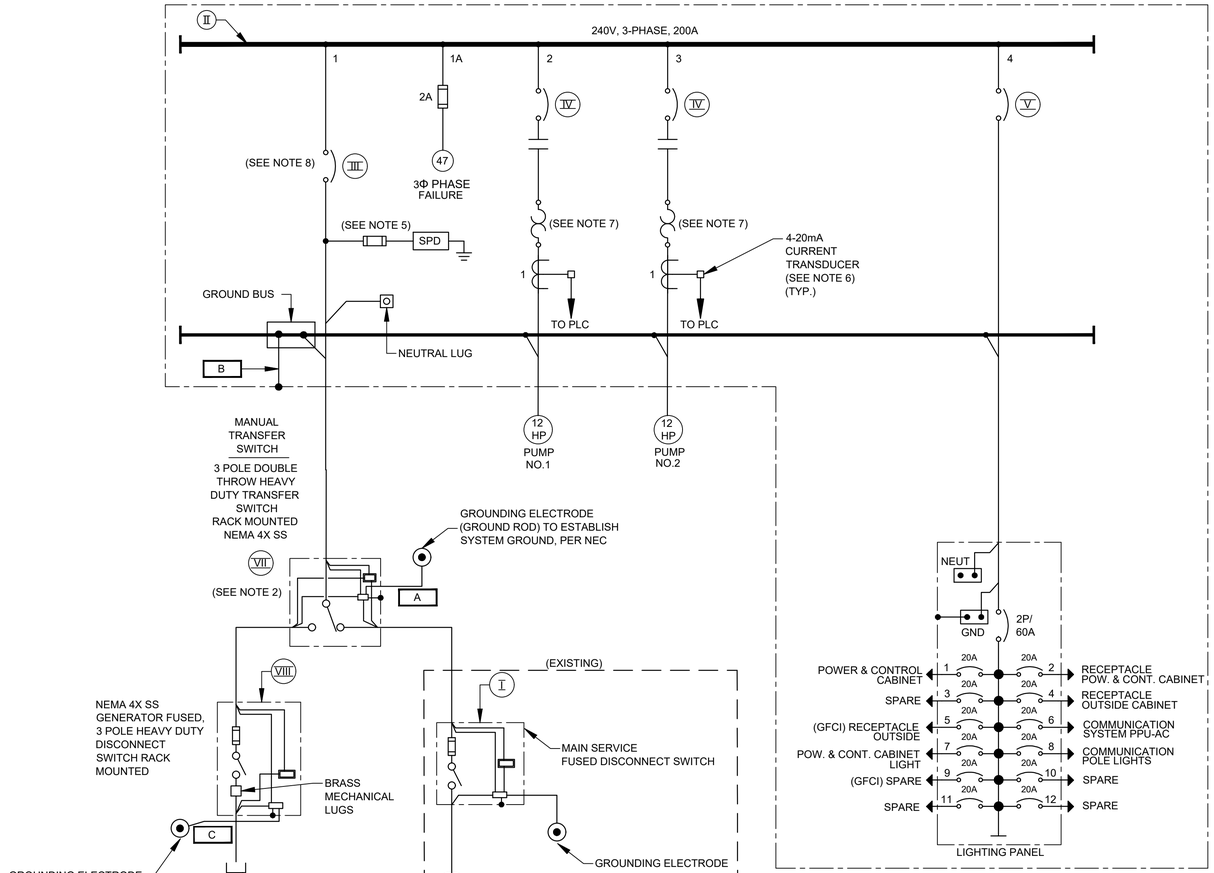
PLOT STYLE: COH.ctb
FILE PATH: \\wuspppl01\d$\Global ProjectWise Plotting - WUS\Queue 2\queue2.dwg

POWER & CONTROL CABINET

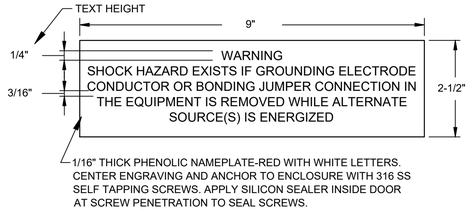


	RATINGS FOR PUMP SIZES INDICATED
ITEM / CIRCUIT / DESCRIPTION	2 @ 15HP
I — CIRCUIT: -- — MAIN DISCONNECT SWITCH (EXISTING)	
OPERATING VOLTAGE	600V
CURRENT RATING	200A
CURRENT LIMITING	CLASS J
FUSES TYPE & SIZE	100A
II — CIRCUIT: -- — POWER & CONTROL CABINET POWER DISTRIBUTION BLOCK	
OPERATING VOLTAGE	240V
CURRENT RATING	200A
NEUTRAL SIZE & TYPE	-
BUS BRACING	-
III — CIRCUIT: 1 — MAIN BREAKER	
3 POLE - TYPE	MOLDED CASE
MOUNTING	FIXED
OPERATING VOLTAGE	240V
FRAME SIZE	225A
TRIP SETTING	100A
INTERRUPT CAPACITY	42KA SYM
OPTIONS	NONE
IV — CIRCUIT: 2, 3 — PUMP MOTOR STARTERS	
QUANTITY	2
MOUNTING	FIXED
SHORT CIRCUIT PROTECTION	
3 POLE - TYPE	MCP
OPERATING VOLTAGE	240V
FRAME SIZE	60A
TRIP SETTING	FIELD ADJ
INTERRUPT CAPACITY	65KA SYM
MOTOR STARTING CONTACTOR	
3 POLE - TYPE	AIR
OPERATING VOLTAGE	240V
SIZE	NEMA 2
OVERLOAD PROTECTION	
TYPE	SOLID STATE MOR
V — CIRCUIT: 4 — LIGHTING PANEL FEEDER BREAKER	
NO. OF POLES	2
TYPE	MOLDED CASE
OPERATING VOLTAGE	240V
FRAME SIZE	150A
TRIP SETTING	60A
INTERRUPT CAPACITY	42KA SYM
VII — CIRCUIT: -- — MANUAL TRANSFER SWITCH	3P, 4W SN
OPERATING VOLTAGE	600V
CURRENT RATING	200A
VIII — CIRCUIT: -- — GENERATOR FUSED DISCONNECT SWITCH	3P, 4W SN
OPERATING VOLTAGE	600V
CURRENT RATING	200A
CURRENT LIMITING	CLASS J
FUSES TYPE & SIZE	100A

NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
2. PROVIDE A NORMALLY OPEN (NO) AUXILIARY CONTACT FOR BOTH ON POSITIONS.
3. CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
4. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
5. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
6. PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.
7. MOTOR OVERLOAD RELAY.
8. PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L.



ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLI*
1	PUMP NO. 1	12 HP	32A
2	PUMP NO. 2	12 HP	32A
3	LIGHTING PANEL		100A
SUBTOTAL			164A
25% OF LARGEST MOTOR LOAD			8A
MINIMUM AMPACITY @480V,3Φ			172A

* BASED ON SELECTED PUMP MFG DATA

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

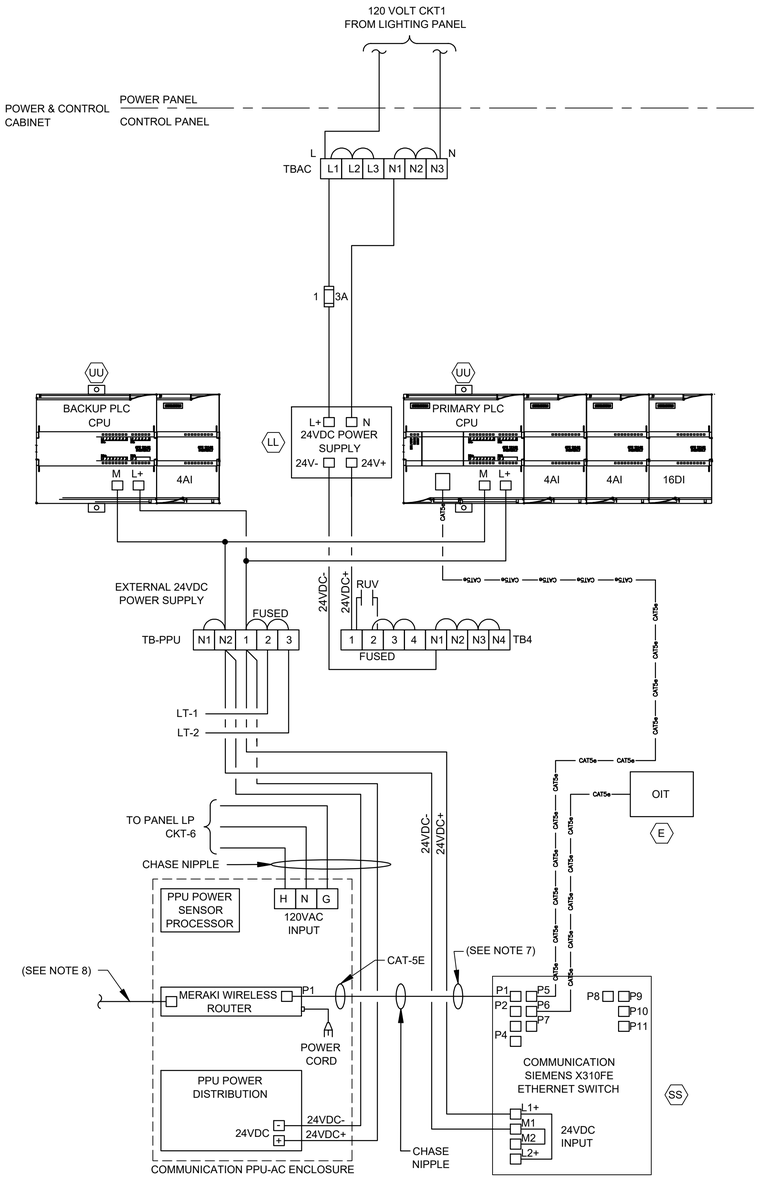
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

SINGLE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E49

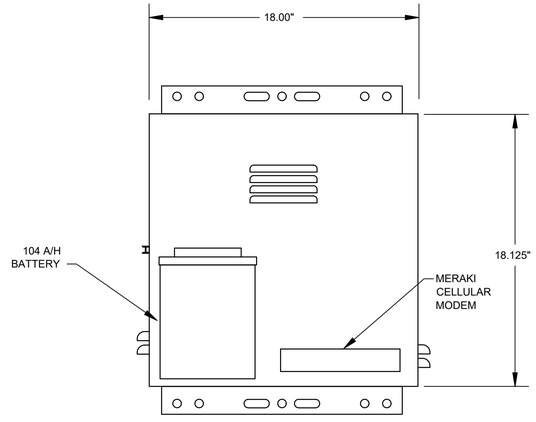


CONTROL POWER &
COMMUNICATIONS WIRING

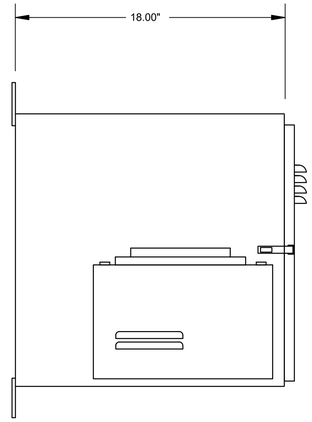
DIAGRAM

NTS

(SEE NOTE 8)



PPU-AC ENCLOSURE
FRONT VIEW



PPU-AC ENCLOSURE
SIDE VIEW

PPU-AC
CONTROL ENCLOSURE

ELEVATION

NTS

(SEE NOTE 4)

NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ITEM TAG, SEE DEVICE RATINGS SCHEDULE.
2. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
3. THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
4. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
5. COORDINATE WITH VENDOR TO PROVIDE PROPER VENTILATION WHERE APPLICABLE.
6. COMMUNICATION PPU-AC & SCADA SHALL BE PROVIDED BY CONTRACTOR INCLUDING TO RUN CONDUITS & WIRES.
7. ETHERNET CABLE FOR MERAKI CELLULAR ROUTER (P1).
8. POE CABLE TO RADIO.

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

COMMUNICATION DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E50

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HMI

POWER & CONTROL CABINET (PLC)

POWER & CONTROL CABINET

PUMP NO. 1

SEAL FAIL ALARM MA 1 | MOTOR OVERLOAD ALARM MO 1 | MOTOR CURRENT II 1 | HIGH TEMP ALARM TH 1 | IN HAND HI 1 | IN AUTO IA 1 | ON/OFF YFS 1 | START/ STOP YCS 1

PUMP NO. 2

SEAL FAIL ALARM MA 2 | MOTOR OVERLOAD ALARM MO 2 | MOTOR CURRENT II 2 | HIGH TEMP ALARM TH 2 | IN HAND HI 2 | IN AUTO IA 2 | ON/OFF YFS 2 | START/ STOP YCS 2

PRIMARY PLC

ALARMS RESET RE 1 | FLOAT HIGH-HIGH WETWELL LEVEL LAHH 1A

BACKUP PLC

PUMP NO. 1 START/ STOP YCS 1A | PUMP NO. 2 START/ STOP YCS 2A

240V

PUMP NO. 1 H/O/A (T) RUN (R)

PUMP NO. 2 H/O/A (T) RUN (R)

PRIMARY PLC (G)

BACKUP PLC (G)

PUMP POWER & CONTROL CABINET

ALARMS RESET

OIT

TO SHEET C1E52

C1E52

C1E52

WET WELL

LT 1

LE 1

LT 2

LE 2

LSH 1A

TSH 1A

M

PUMP NO.1

FS2 HIGHHIGH LEVEL FLOAT SWITCH

LSH 2A

TSH 2A

M

PUMP NO.2

FS1 LOW LEVEL FLOAT SWITCH

AIR-RELEASE

XX"-DIP

XX"-DIP

XX"-DIP

XX"-DIP

DISCHARGE

NO.	DATE	REVISION	M.S	L.L.	APP.
A	05/15/25	INTERNAL REVIEW			
B	10/30/25	CLIENT REVIEW			

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

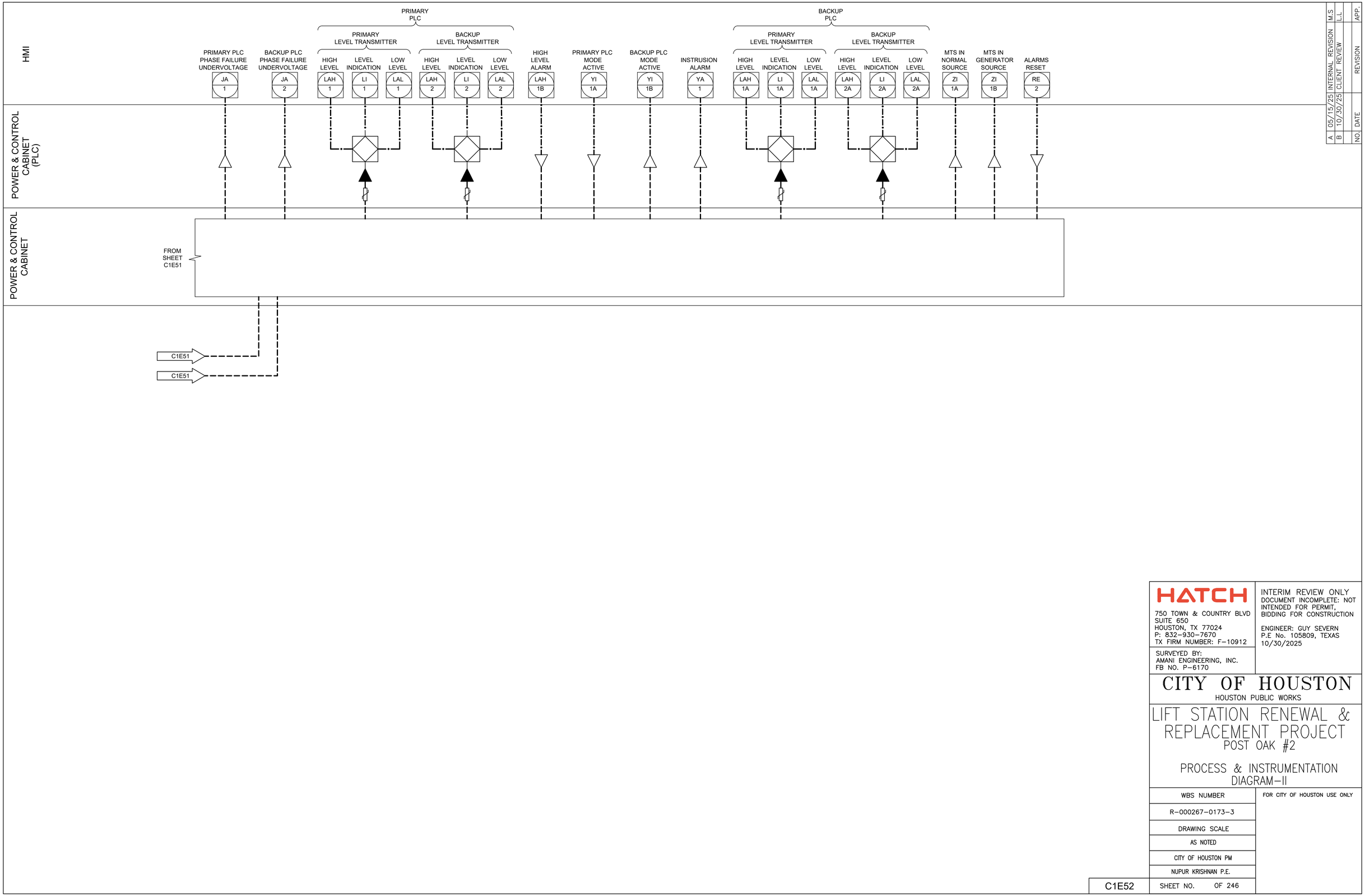
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

PROCESS & INSTRUMENTATION DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E51



NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

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HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

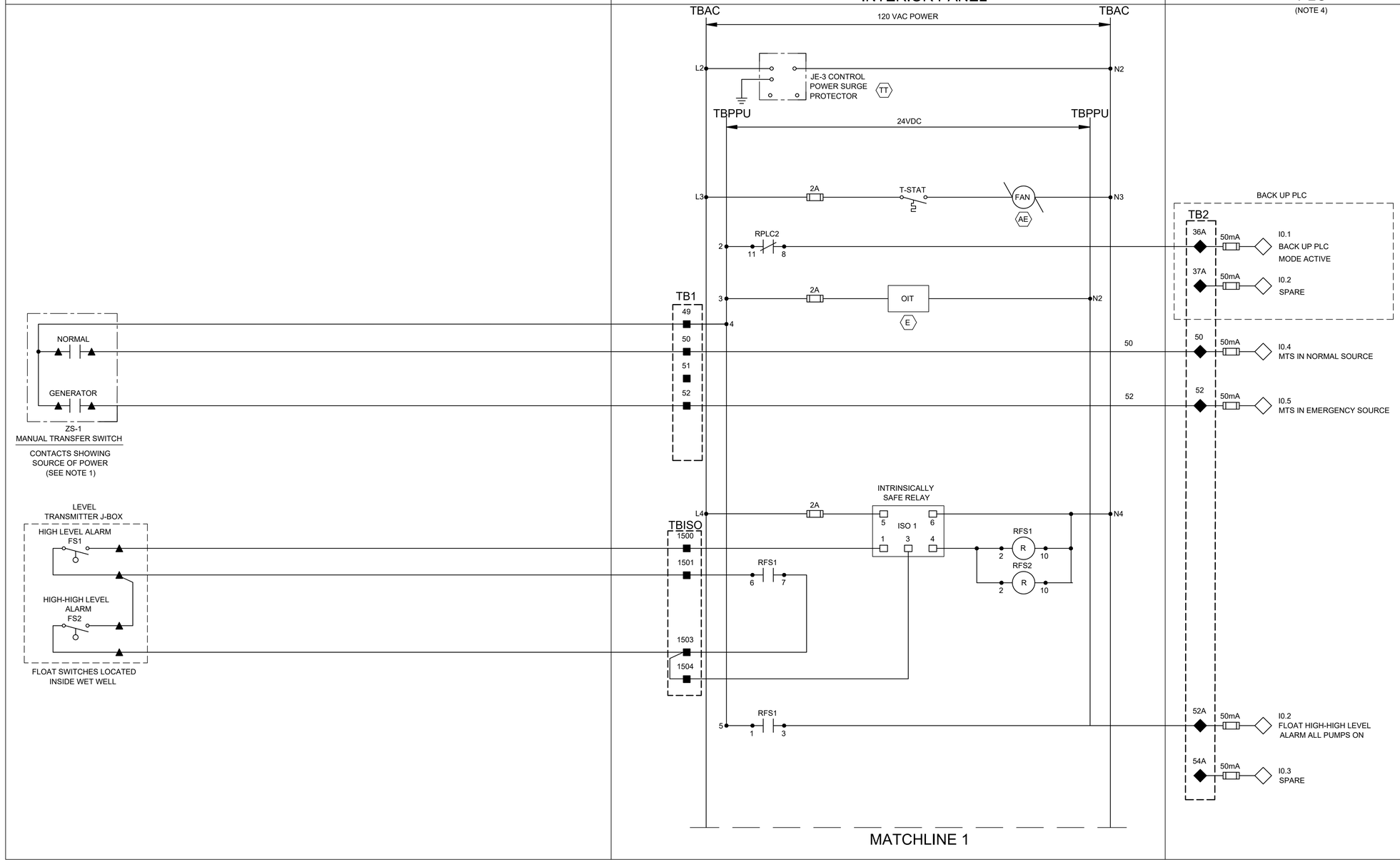
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

PROCESS & INSTRUMENTATION DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E52



NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
3. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
4. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E53

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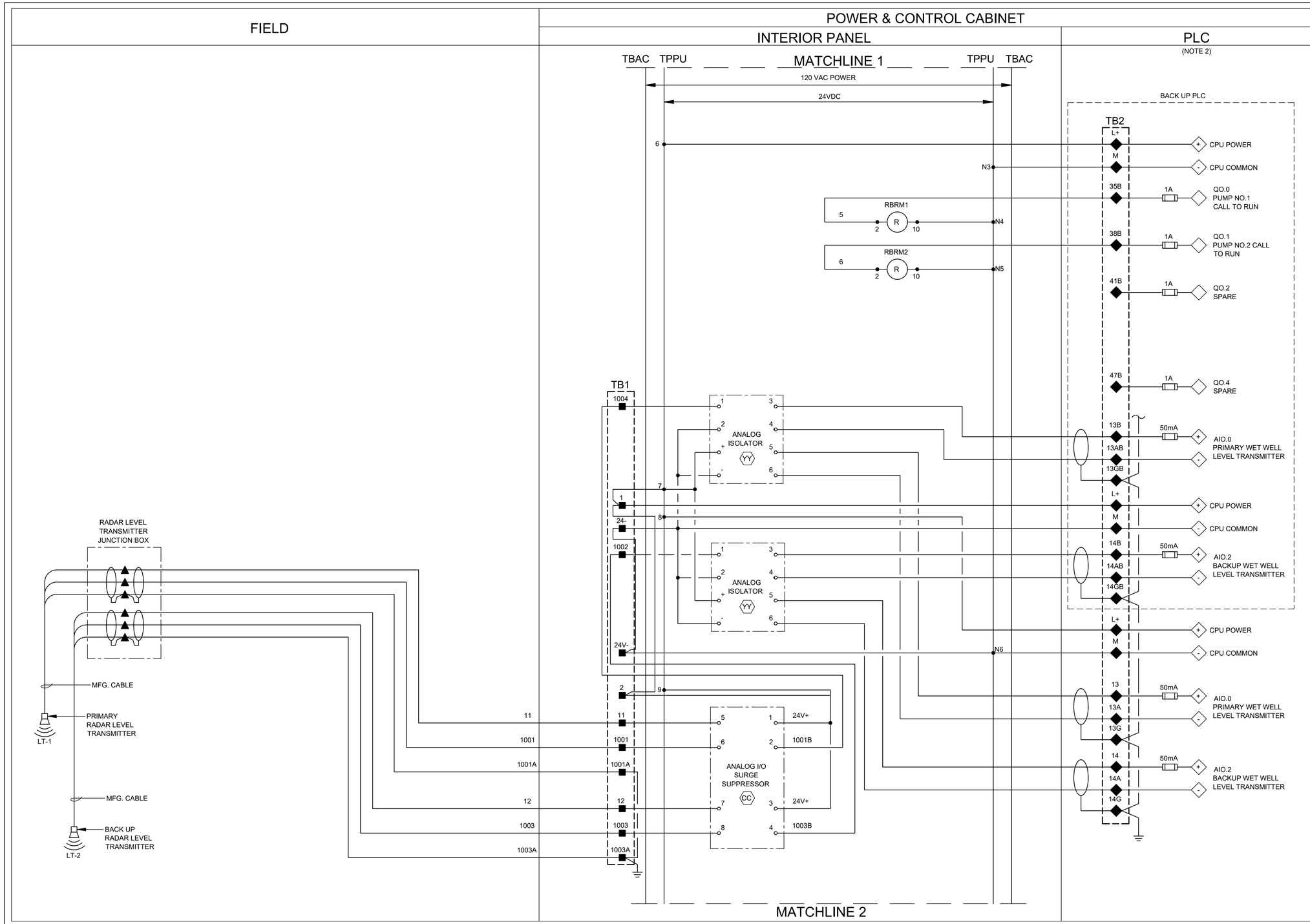

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E54

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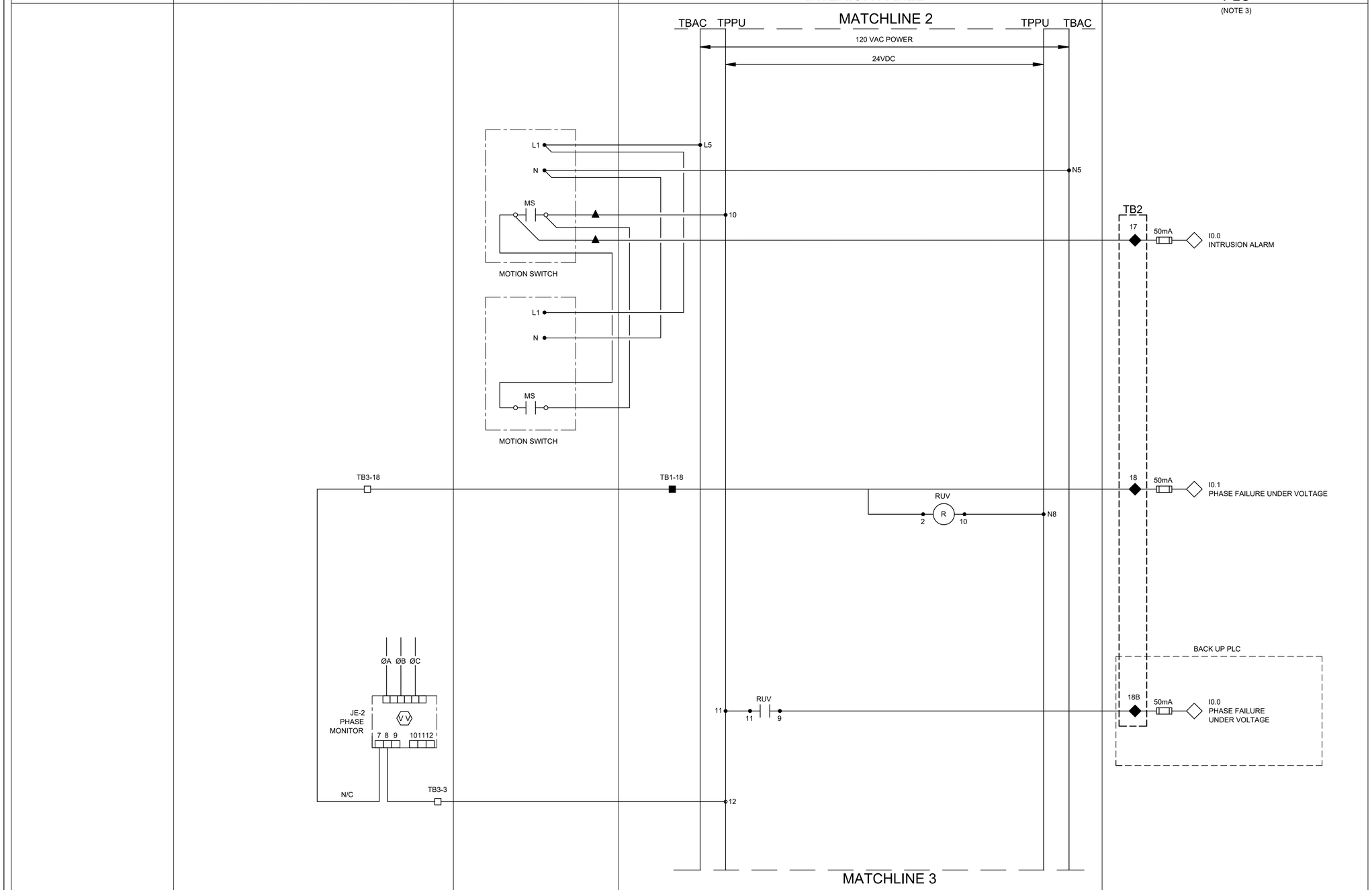

NOTES:

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL.
2. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. PRIMARY PLC UNLESS INDICATED OTHERWISE.

NO.	DATE	REVISION	M.S	APP.
A	05/15/25	INTERNAL REVISION	L.L.	
B	10/30/25	CLIENT REVIEW		

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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P.E No. 105809, TEXAS
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E55

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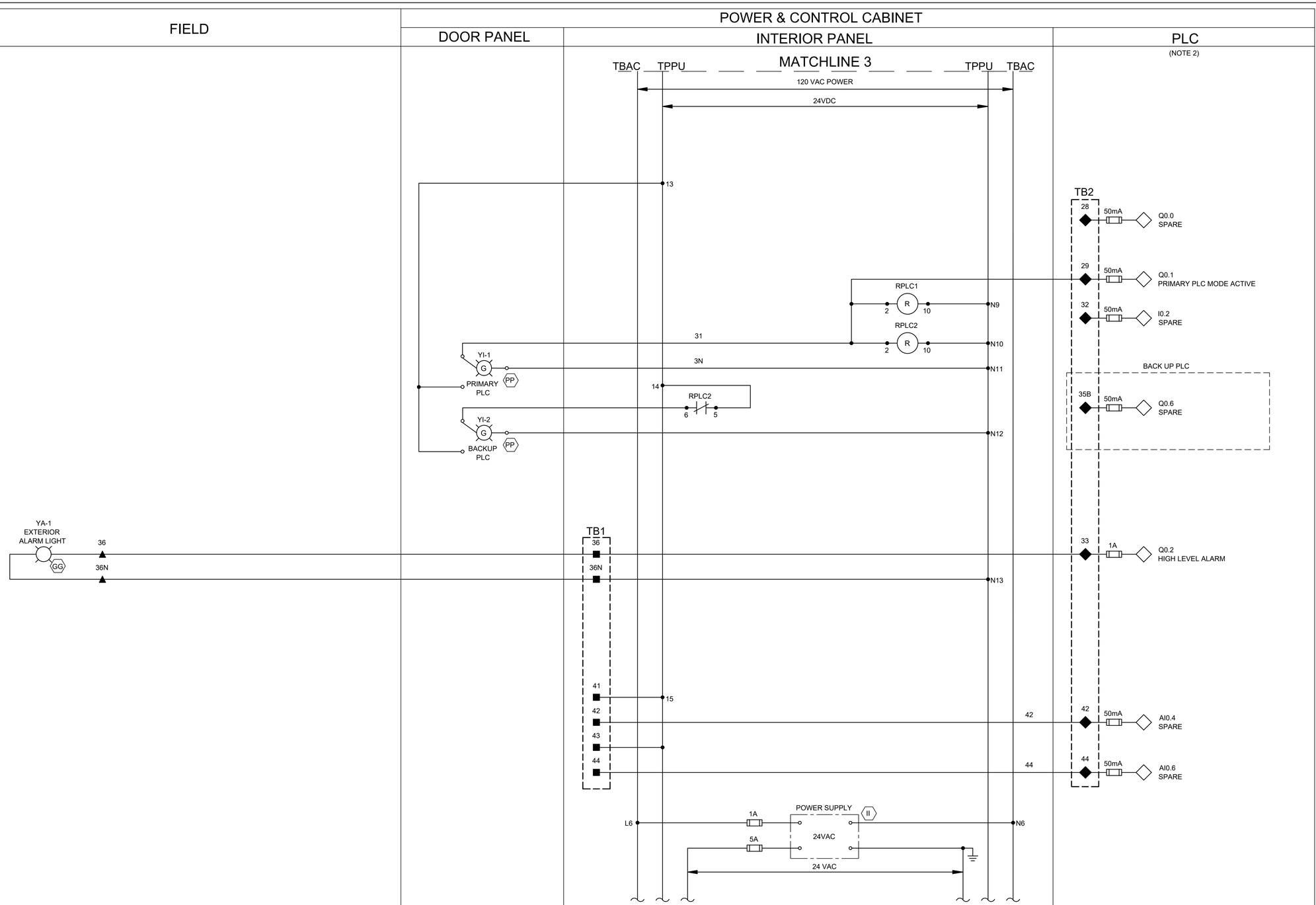

NOTES:

1. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

NO.	DATE	REVISION	M.S	APP.
A	05/15/25	INTERNAL REVISION	L.L.	
B	10/30/25	CLIENT REVIEW		

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-IV

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E56

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FIELD | POWER SIDE BACK PANEL | DOOR PANEL | POWER & CONTROL CABINET — INTERIOR PANEL | PLC

TB3 | TB1 | TBAC | TB4 | TB2

120 VAC POWER | 24 VDC | 24 VAC

TSH-1 MOTOR TEMP SWITCH

LSH-1 SEAL LEAK DETECTOR

PUMP NO.1 (M) — T1, T2, T3, G — CT — M1 — REFER TO SHEET C1E48

TERMINAL JUNCTION BOX

4-20mA CURRENT TRANSDUCER

IE-1 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)

HS-1A RESET — TO SHEET C1E58

HS-1 H-O-A

PUMP NO. 1 PROTECTION MODULE — LAH-1 SL1 — TAH-1 MTH1

RRST1 — TO SHEET C1E58

RMSL1 — RMTH1 — TDFRM1 — RFS1 — RMOR1 — RPLM1 — RPLC1 — RBRM1 — RPLM1 — TDFRM1

YI-1 RUN

PLC		
103	1A	Q0.4 ALARM RESET
104	50mA	I0.6 ALARM RESET
109	50mA	I1.1 PUMP NO.1 HIGH TEMP ALARM
122	50mA	AI0.8 PUMP NO.1 MOTOR CURRENT
123	50mA	I3.3 PUMP NO.1 MOTOR OVERLOAD
115	50mA	I3.0 PUMP NO.1 IN HAND
121	50mA	I3.1 PUMP NO.1 IN AUTO
118	1A	Q0.7 PUMP NO.1 PLC START/STOP
120	50mA	I1.0 PUMP NO.1 RUN
110	50mA	I3.2 PUMP NO.1 SEAL FAILURE ALARM

REVISION			
NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVIEW	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: GUY SEVERN
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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

PUMP NO.1
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E57

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REVISION	M.S	APP.
A 05/15/25 INTERNAL REVIEW	L.L.	
B 10/30/25 CLIENT REVIEW		
NO. DATE	REVISION	

FIELD | POWER & CONTROL CABINET: POWER SIDE BACK PANEL | DOOR PANEL | INTERIOR PANEL | PLC

120 VAC POWER
TB3
TB1
TBAC
TB4
24 VDC
24 VAC
FROM SHEET C1E57
HS-1A RESET (I)
M2
TSH-2 MOTOR TEMP SWITCH
LSH-2 SEAL LEAK DETECTOR
PUMP NO.2
TERMINAL JUNCTION BOX
REFER TO SHEET C1E48
CT
4-20mA CURRENT TRANSDUCER
IE-2 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)
MOR2
HS-2 H-O-A (F)
ZS-2
YI-2 (R) RUN
L1A
L1N
PUMP NO. 2 PROTECTION MODULE
LAH-2
SL2
MTH2
RRST2
RMSL2
RMTH2
RFS2
TDFRM2
RPLC1
RBRM2
RPLM2
RMOR2
TB2

209	50mA	I1.3 PUMP NO.2 HIGH TEMP ALARM
222	50mA	AI.0 PUMP NO.2 MOTOR CURRENT
223	50mA	I3.7 PUMP NO.2 MOTOR OVERLOAD ALARM
210	50mA	I3.5 PUMP NO.2 IN HAND
211	50mA	I3.4 PUMP NO.2 IN AUTO
218	1A	Q1.0 PUMP NO.2 PLC START/STOP
220	50mA	I1.2 PUMP NO.2 RUN
210	50mA	I3.6 PUMP NO.2 SEAL FAILURE ALARM

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET C1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND
- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
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SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

PUMP NO.2 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E58

	DESCRIPTION	SERVICE		ROUTING			WIRE SIZE & CONDUIT SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
A	MANUAL TRANSFER SWITCH BONDING JUMPER	--	--	MANUAL TRANSFER SWITCH	GROUND FIELD	--	1#6G
B	POWER & CONTROL CABINET BONDING JUMPER	--	--	POWER & CONTROL CABINET	GROUND FIELD	--	1#6G
C	GENERATOR SWITCH BONDING JUMPER	--	--	GENERATOR FUSED DISCONNECT SWITCH	GROUND FIELD	--	1#6G
100	SERVICE ENTRANCE	240VAC	VARIES	METER DISCONNECT SWITCH (EXISTING)	MANUAL TRANSFER SWITCH	DUCT BANK	4#2/0 / 1#6G, 2"C
100A	SERVICE POWER	240VAC	VARIES	MANUAL TRANSFER SWITCH	POWER BACK PANEL (POWER & CONTROL CABINET)	DUCT BANK	4#2/0 / 1#6G, 2"C
100B	NORMAL/EMERGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH	CONTROL BACK PANEL (POWER & CONTROL CABINET)	DUCT BANK	2#14, 3/4"C
100C	EMERGENCY POWER	--	--	GENERATOR FUSED DISCONNECT SWITCH	PORTABLE GENERATOR	CAPPED CONDUITS	3"C (MINIMUN)
101	GROUND ELECTRODE CONDUCTOR	--	--	POWER BACK PANEL (POWER & CONTROL CABINET)	GROUND FIELD	--	1#6G
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL BACK PANEL (POWER & CONTROL CABINET)	GROUND FIELD	--	1#6G
105	COMMUNICATION	--	--	COMMUNICATION POLE	PPU-AC PANEL	DUCT BANK	ETHERNET CABLE, 3/4"C.
105A	COMMUNICATION POLE LIGHT (EXISTING)	120V	--	POLE SWITCH LIGHT (EXISTING)	LIGHTING PANEL (POWER & CONTROL CABINET)	DUCT BANK	2#12 / 1#12G, 3/4"C.
200	PUMP NO. 1 POWER	240VAC	12 HP	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
202	PUMP NO. 1 POWER	240VAC	12 HP	PUMP NO. 1 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	DUCT BANK	3#10 / 1#10G, 1"C
203	COMBINED PUMP CONTROLS	120V		PUMP NO. 1 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	DUCT BANK	(COMBINE 201 & 301) 8#14, 1"C
300	PUMP NO. 2 POWER	240VAC	12 HP	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
302	PUMP NO. 2 POWER	240VAC	12 HP	PUMP NO. 2 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	DUCT BANK	3#10 / 1#10G, 1"C
1000	LEVEL TRANSMITTER LT-1	24VDC	--	LEVEL TRANSMITTER LT-1	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1001	LEVEL TRANSMITTER LT-2	24VDC	--	LEVEL TRANSMITTER LT-2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	TRANSMITTER JUNCTION BOX	POWER & CONTROL CABINET	DUCT BANK	COMBINE 1000/1001/1003, 4#14+2#14G / 4#14, 2"C
1003	WELL FLOAT SWITCHES	24VDC	--	FLOAT SWITCH NO.1 & NO.2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
1100	120 VAC FOR RECEPTACLE	120V	--	LIGHTING PANEL (POWER & CONTROL CABINET)	RECEPTACLE NEXT TO GENERATOR FUSED DISCONNECT SWITCH	DUCT BANK	L5, 2#12 / 1#12G, 3/4"C
1101	COMMUNICATION POLE LIGHTING SWITCH	120V	--	LIGHTING PANEL (POWER & CONTROL CABINET)	POLE SWITCH LIGHT (EXISTING)	DUCT BANK	L8, 2#12 / 1#12G, 3/4"C
1200	120VAC FOR RECEPTACLE	120V	--	LIGHTING PANEL (POWER & CONTROL CABINET)	RECEPTACLE NEXT TO PUMP NO. 2 J-BOX	DUCT BANK	L4, 2#12 #12G, 3/4"C,

NOTES:

1. CONDUITS LABELED "FUTURE SPACE" ARE TO BE INSTALLED AND CAPPED IN FIELD.
2. ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2".
3. ALL UNDERGROUND CONDUITS (SINGLE AND MULTI-RUN) TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.

NO.	DATE	REVISION	M.S
A	05/15/25	INTERNAL REVIEW	L.L.
B	10/30/25	CLIENT REVIEW	APP.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
POST OAK #2

CONDUIT SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E59

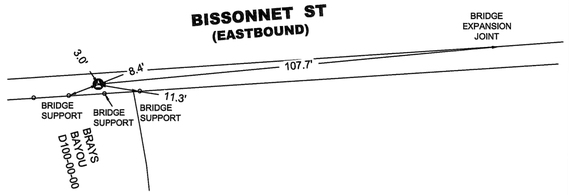
PLOTTED: 10/29/2025 7:38 AM
PLOT STYLE: COH.ctb
FILE PATH: \\wusppla01\c$\Global ProjectWise Plotting - WUS\Queue 1\queue1.dwg

CITY OF HOUSTON

CITY SURVEY 5013-7315
SITE CONTROL MONUMENT
FLOODPLAIN RM#040200

N.T.S.

BISSONNET ST
(EASTBOUND)



Project WBS# R-000267-0175-3

Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,070,036.88
Y= 13,809,790.77

Lat.= N 29° 40' 34.7334"
Lon.= W 95° 31' 49.8680"

Keymap Page: 530T
Orthometric Elevation = 65.79
Ellipsoid Height= -23.84
Geoid: GEOID 18
Datum Source & Adjustment:
2-HR STATIC GPS OBSERVATION
MADE ON MONUMENT ON 10/23/2024

Reference Frame Used: NAD_83(2011)(EPOCH: 2010.0000)
Vertical Adjustment used: NAVD 88 GEOID18
General Location: LOCATED ON THE SOUTHSIDE OF BISSONNET STREET, APPROXIMATELY 700 FEET SOUTHWEST OF S. GESSNER ROAD INTERSECTION.

Date Set: MAY 14, 2003 Type of Mark: BRASS DISK

3 Nearest project control points (bearings and distances stated below):

1. CP #601, X-CUT, N 60° 11' 14" E, 151.44'
2. CP #1, 5/8" IRON ROD CAPPED "AMANI" , N 78° 13' 19" E, 298.90'
3. CP #600, 5/8" IRON ROD CAPPED "AMANI" , N 45° 55' 24" E, 377.52'

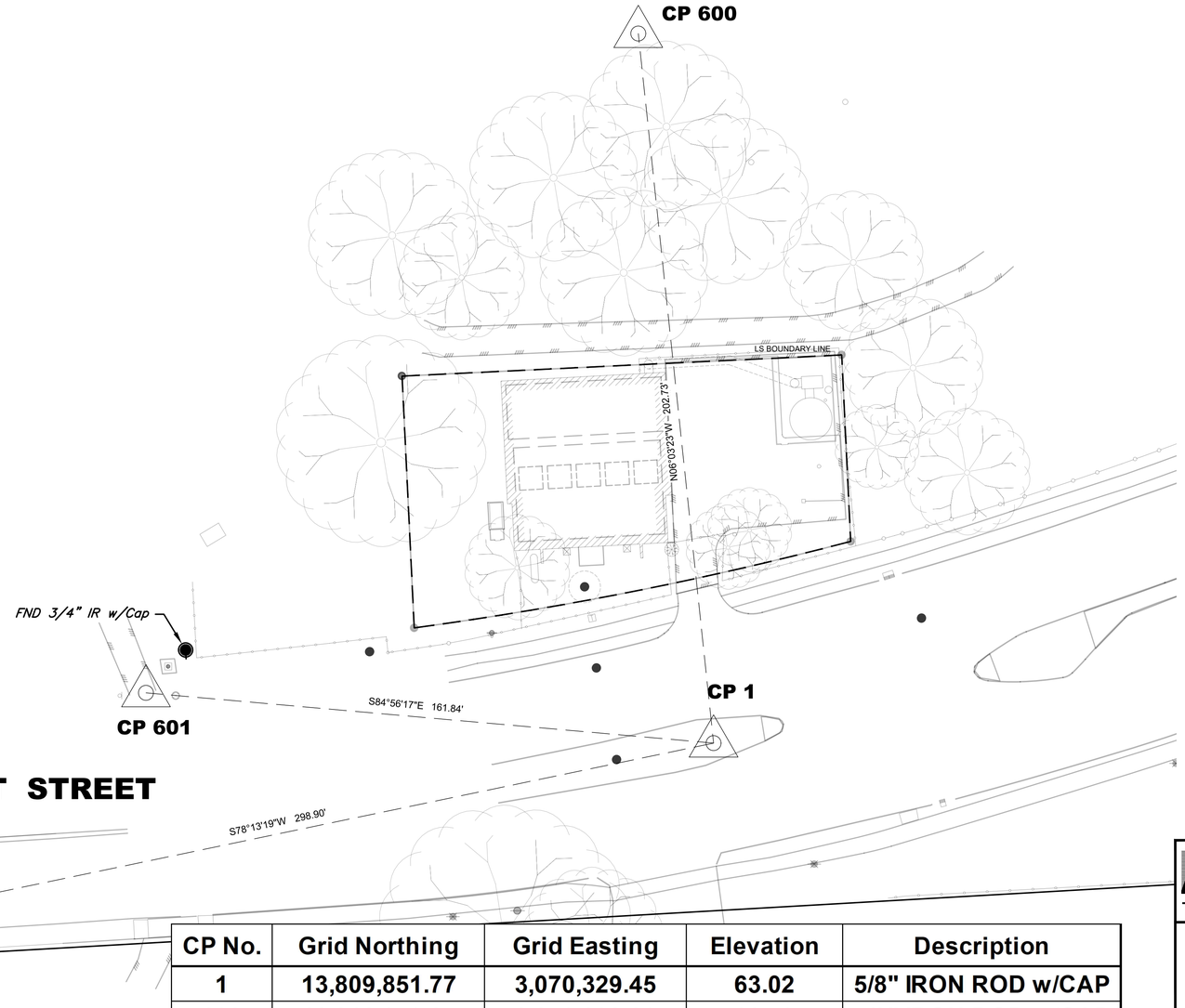
NOTE:
1. Bearings are grid bearings.
2. Combined Factor (C.F)= 0.99988207.

Surface= Grid
C.F.

Surveyed By: Amani Engineering, Inc.
11011 Richmond Avenue, Suite 700
Houston, TX 77042
Tel. (713)270-5700
Texas Registered Survey Firm 10028200

STATE OF TEXAS · REGISTERED · CHRISTINA I. WEAVERS · 6753 · PROFESSIONAL LAND SURVEYOR · 11.27.24

P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\Monument\Bissonnet No. 4 LS\5053-7315.dwg



N

20 10 0 20

SCALE IN FEET
22 X 34 : 1" = 20'

NO.	DATE	REVISION	APP.

NOTES:

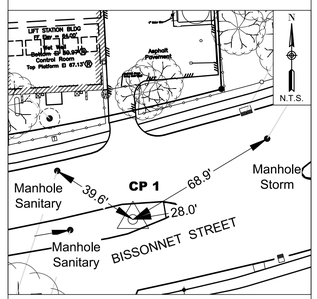
1. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204) NORTH AMERICAN DATUM OF 1983 (2011 ADJ) 2010 EPOCH, US SURVEY FEET. COORDINATES SHOWN HEREON ARE GRID VALUES AND ALL DISTANCES SHOWN ARE SURFACE VALUES. THE COMBINED SCALE FACTOR IS 0.99988207.
2. GRID COORDINATES/SCALE FACTOR = SURFACE COORDINATES.
3. FIELD DATA COLLECTED OCTOBER 2024.
4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID 18. ALL CONTROL NETWORK ELEVATIONS ARE TIED TO CITY SURVEY 5013-7315 SITE CONTROL MONUMENT USING DIFFERENTIAL LEVELING.
5. THE CONVERSION FACTOR FROM PROJECT LEVELED G18 ELEVATION TO THE HCFCD CALLED G99 ELEVATION =+ 0.32'.

PROJECT BENCH MARK:

A BRASS DISK LOCATED ON THE SOUTH SIDE OF BISSONNET STREET, APPROXIMATELY 700 FEET SOUTHWEST OF S. GESSNER ROAD INTERSECTION. OBSERVED ELEVATION = 65.79' (NAVD 88 GEOID 18) CALLED ELEVATION=66.11' (GEIOD 99 CONUS)

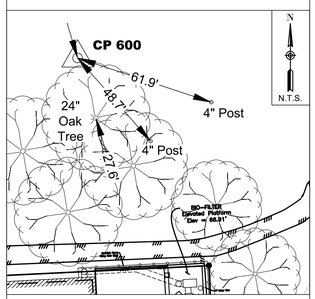
CP No.	Grid Northing	Grid Easting	Elevation	Description
1	13,809,851.77	3,070,329.45	63.02	5/8" IRON ROD w/CAP
600	13,810,053.34	3,070,308.06	62.53	5/8" IRON ROD w/CAP
601	13,809,866.05	3,070,168.26	64.78	X-CUT

CP 1 -- 5/8" IRON ROD w/CAP



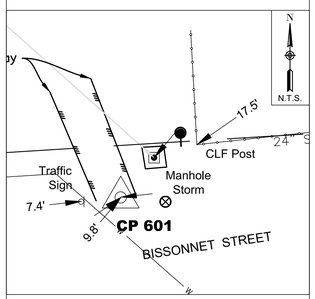
GRID NORTHING : 13,809,851.77
GRID EASTING : 3,070,329.45

CP 600 -- 5/8" IRON ROD w/CAP



GRID NORTHING : 13,810,053.34
GRID EASTING : 3,070,308.06

CP 601 -- X-CUT



GRID NORTHING : 13,809,866.05
GRID EASTING : 3,070,168.26

N1C01

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

WILLIAM H. REIMER III, R.P.L.S.
Surveyor
4044
Registration Number
10/23/2025
Date

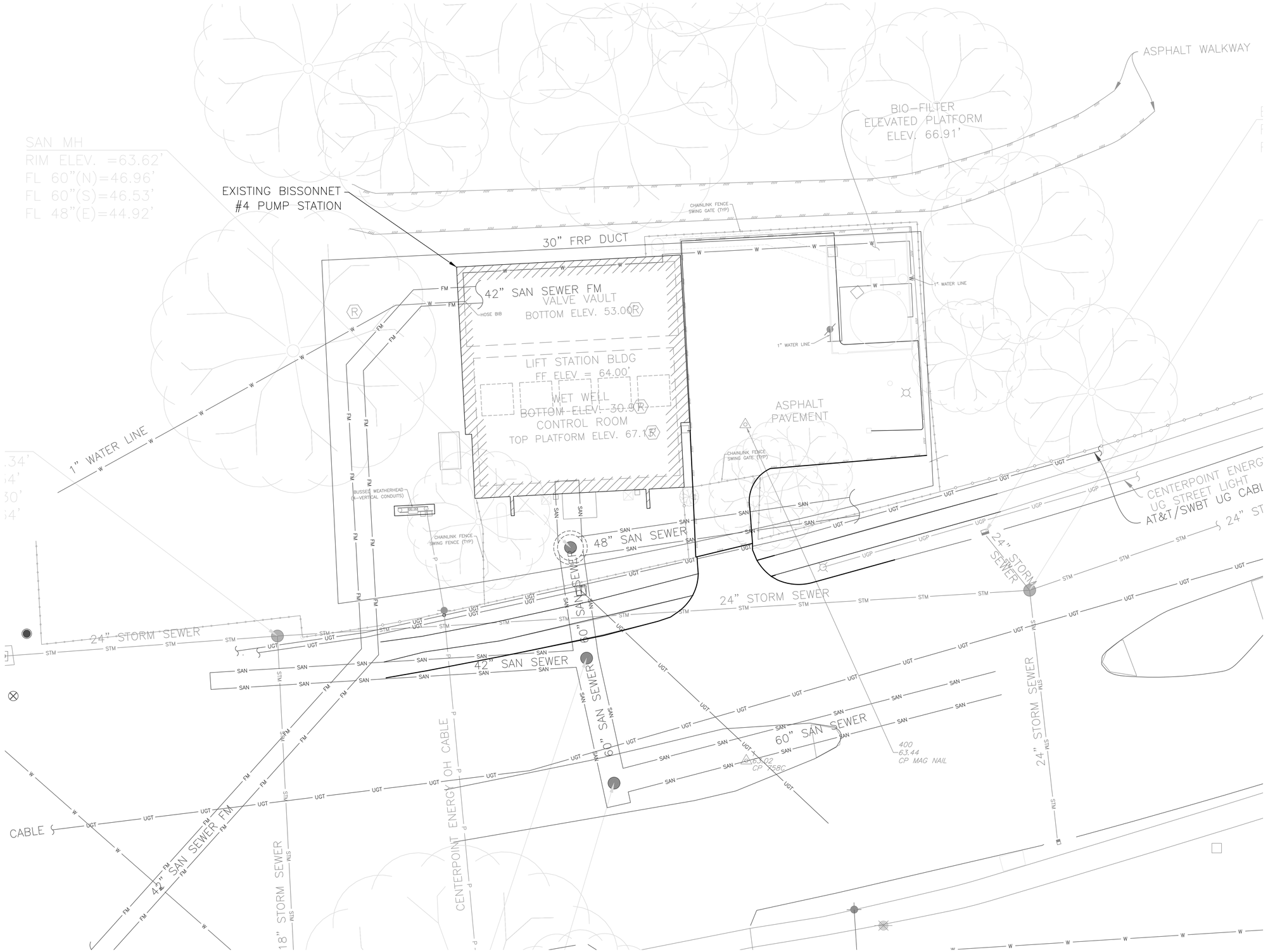
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONET #4 LS
SURVEY CONTROL MAP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
1" = 20'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN	
SHEET NO. OF 246	

FILE PATH: P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Survey Control Drawings\Control-Bissonnet No. 4 LS.dwg

0 1 2 3
ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS



N

NOTE:

1. LS SITE IS LOCATED IN THE 100 YEAR FLOODPLAIN

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 LS

EXISTING TOPOGRAPHIC PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
N1C02	SHEET NO. OF 246

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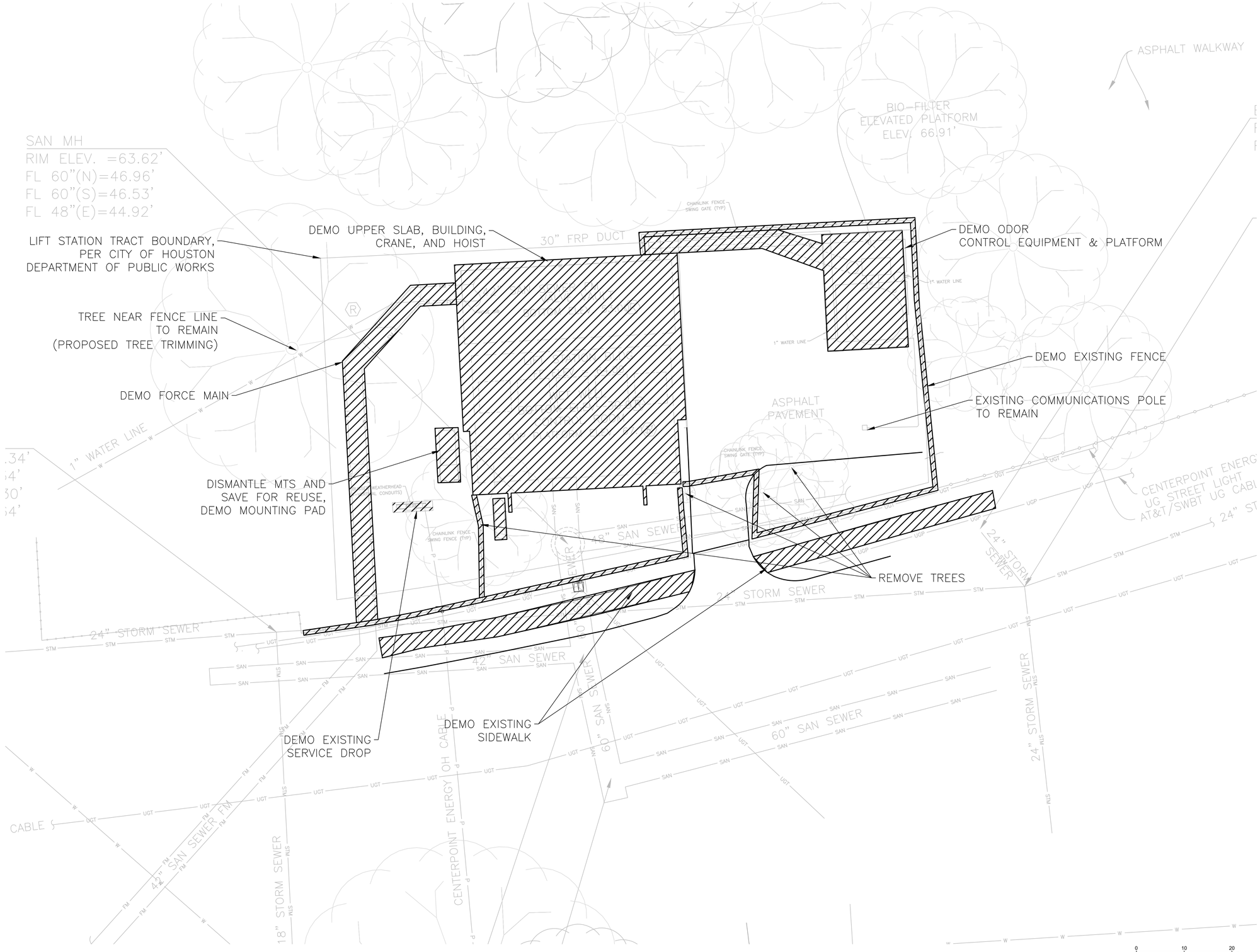

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

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VERIFICATION OF PRIVATE UTILITY LINES

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CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

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CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS
DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1C03

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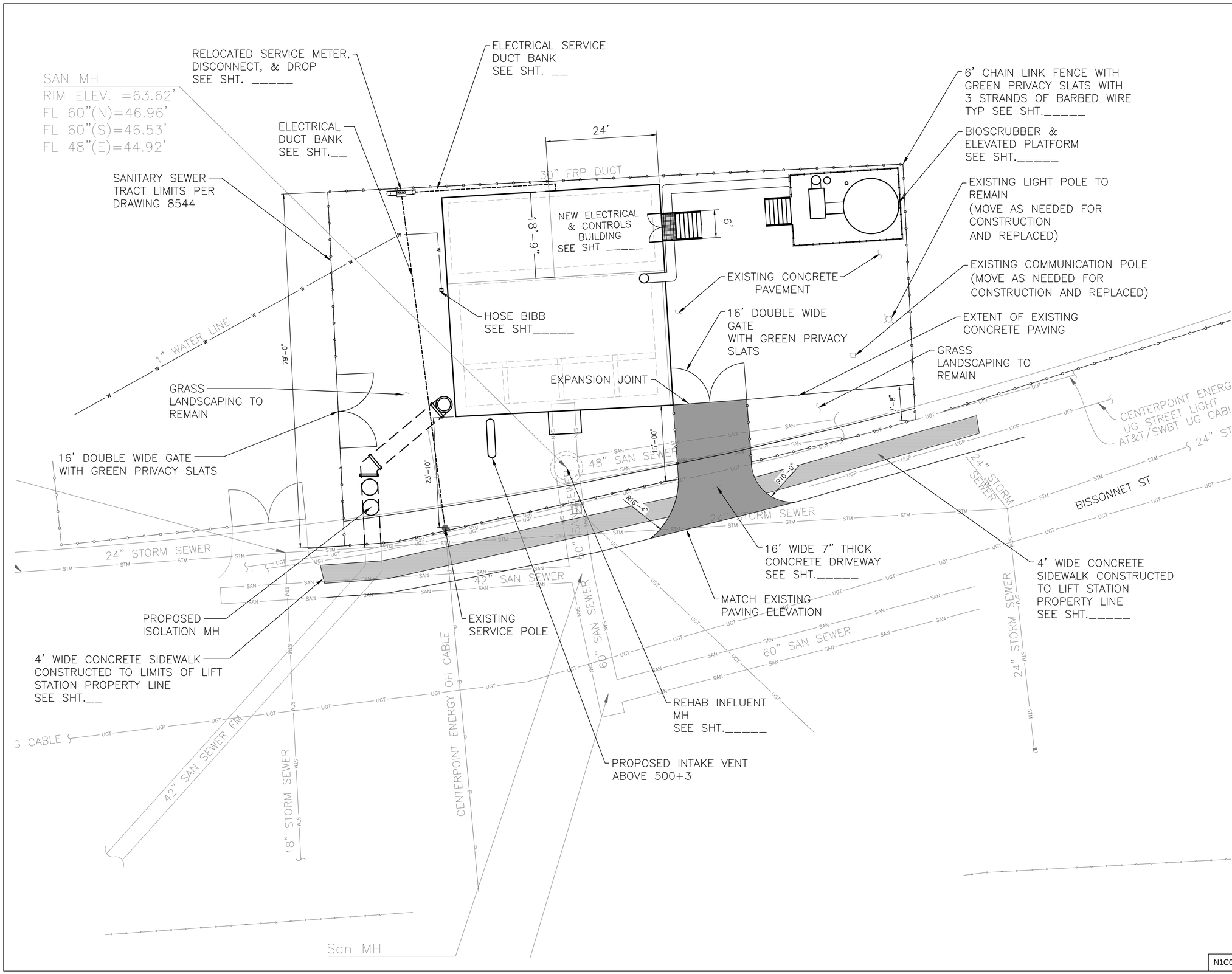

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0 10 20 Feet

APP.	REVISION	DATE	NO.
LL	CLIENT REVIEW	10/30/25	A

LEGEND :

PROPOSED FENCE LINE

PROPOSED CONCRETE PAVING EXTENTS

NOTES:

FLOODPLAIN

1. LS SITE IS WITHIN THE 100-YEAR FLOODPLAIN.
2. EXISTING BUILDINGS ARE PROPOSED TO BE REMOVED AND ELECTRICAL FACILITIES RAISED. THEREFORE THIS PROJECT WILL ADD STORAGE CAPACITY BENEFITS WITHIN THE 100-YEAR FLOODPLAIN.

STORMWATER

1. SITE WORK PROPOSES A SMALL AMOUNT (APPROX. 80 SF) OF ADDITIONAL IMPERVIOUS PAVEMENT. THIS IS NEEDED FOR CRITICAL ACCESS FOR MAINTENANCE (CRANE) EQUIPMENT.
2. THIS LS SITE DOES NOT HAVE SUFFICIENT SPACE FOR INSTALLING A STORMWATER STORAGE STRUCTURE.
3. THE PROPOSED IMPROVEMENTS WILL NOT NEGATIVELY IMPACT ADJACENT PROPERTIES OR THE DOWNSTREAM DRAINAGE SYSTEM.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS
PROP SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
N1C04 SHEET NO. OF 246	

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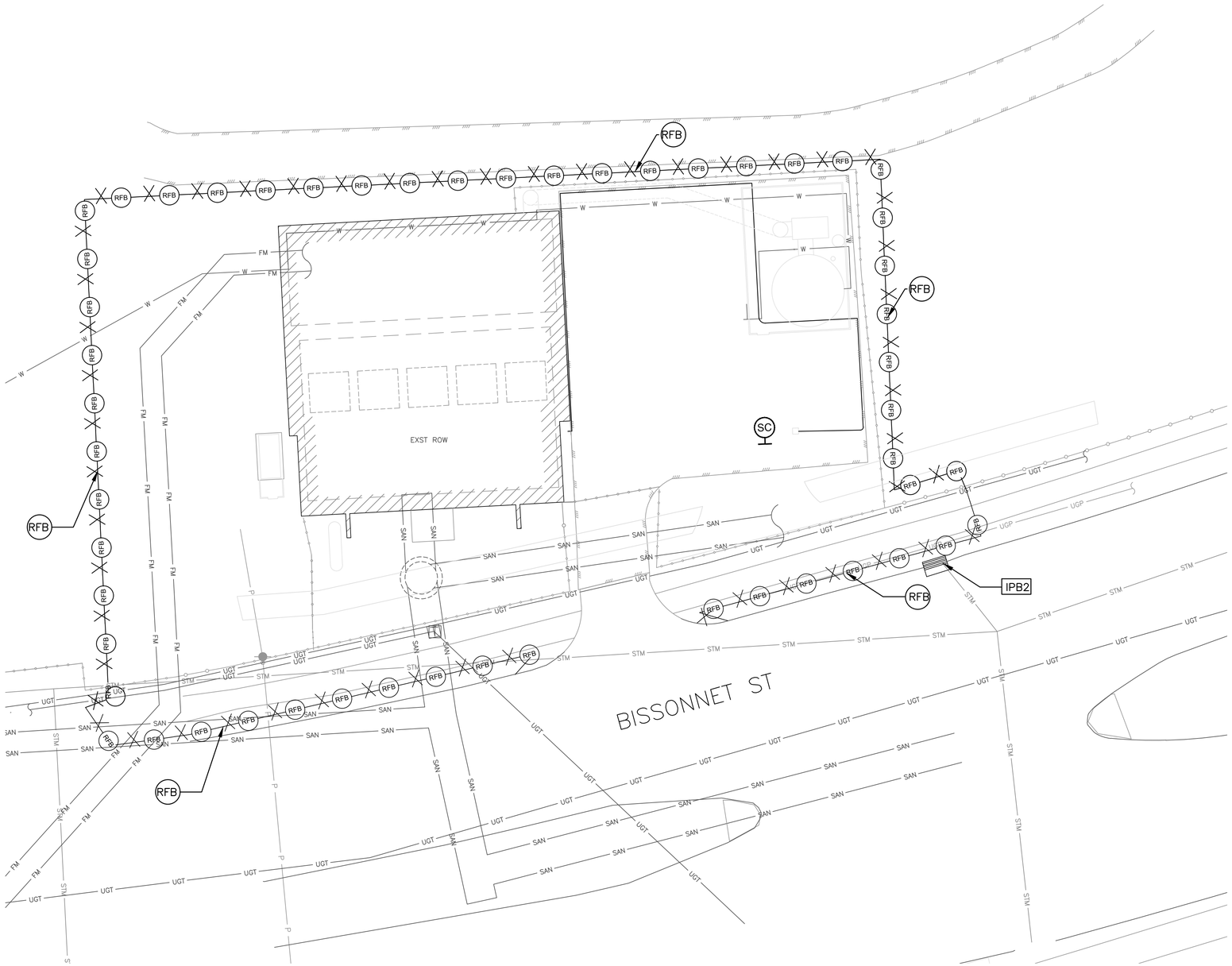

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0 10 20 Feet

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

LEGEND :

- RFB — REINFORCED FILTER FABRIC BARRIER.
- IPB2 — INLET PROTECTION BARRIER.
- SC — STABILIZED CONSTRUCTION ACCESS

NOTES:

1. STORM WATER POLLUTION PLAN CONFORM TO SPECIFICATIONS AND DRAWINGS.
2. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURE SHALL BE SODDED OR HYDROMUCH SEEDED.
3. CONTRACTOR'S LAY DOWN/STORAGE AREA SHALL HAVE A STABILIZED CONSTRUCTION EXIT.
4. SEE SHEET SW3P–7 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
5. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832–930–7670
TX FIRM NUMBER: F–10912

INTERIM REVIEW ONLY
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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P–6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS
SWPPP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1C05

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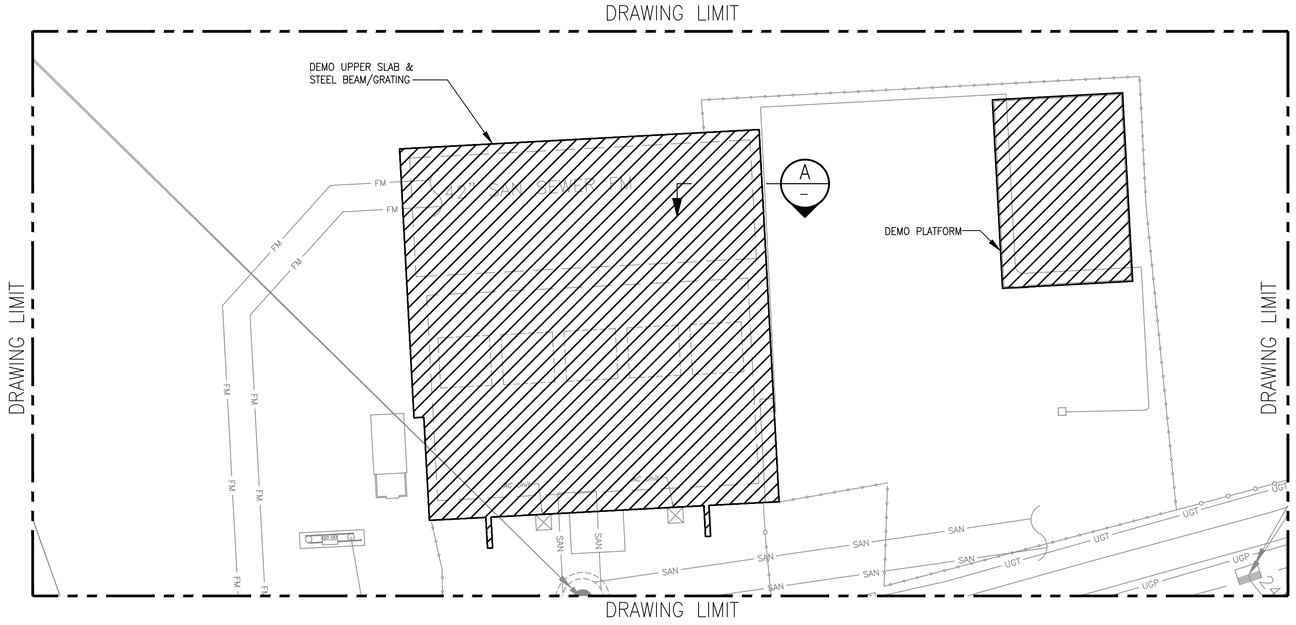
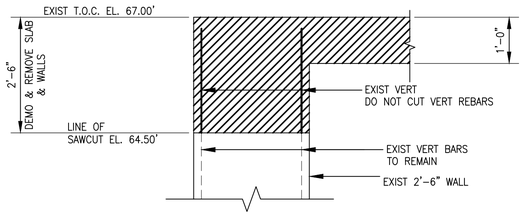
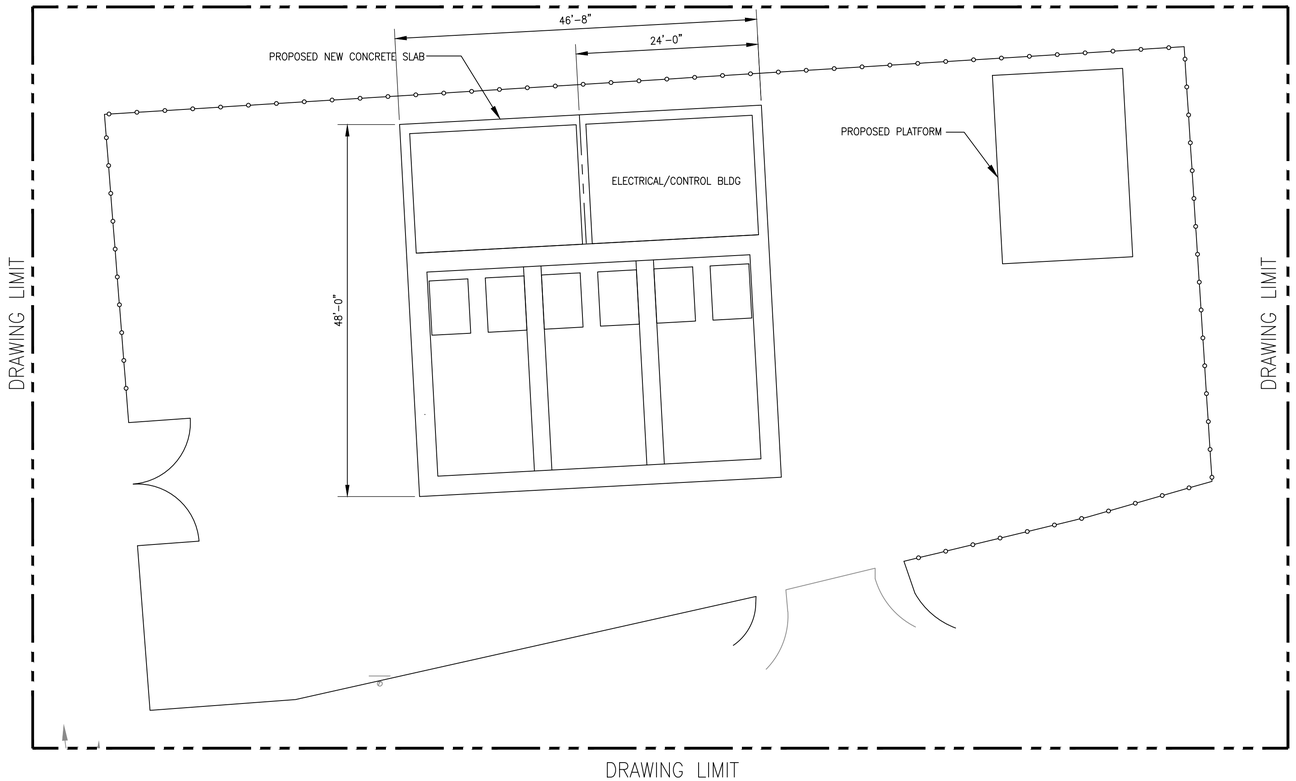


DEMOLITION PLAN
LIFT STATION FOUNDATION



A: TYPICAL DEMO SECTION

NOTE:
ALL EXIST WALL REBAR SHALL REMAIN.
DO NOT CUT BARS DURING DEMOLITION



PLAN
LIFT STATION FOUNDATION

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

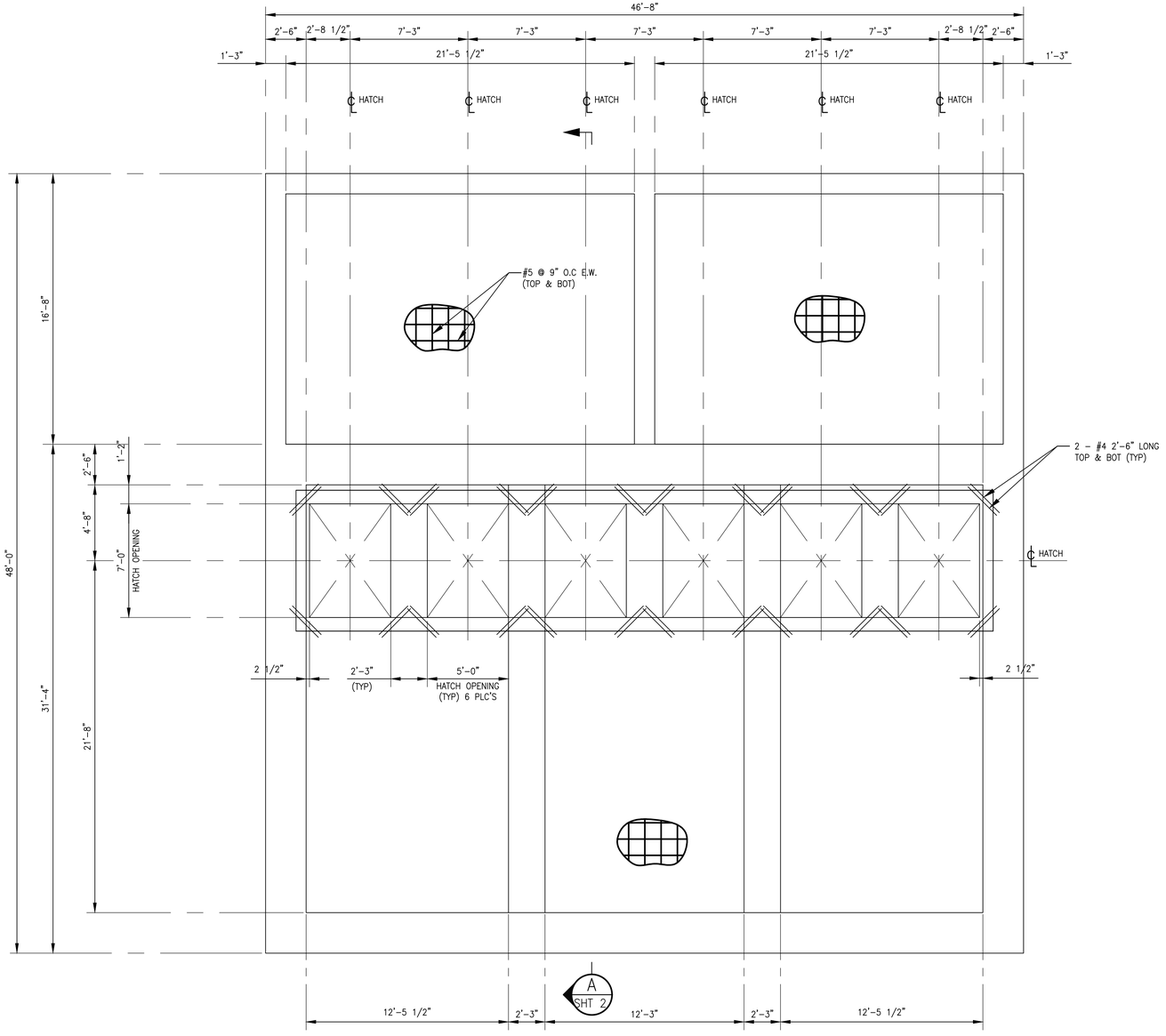
SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

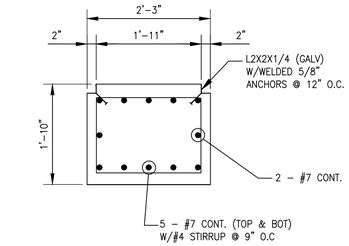
LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS
DEMO & CONST. PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

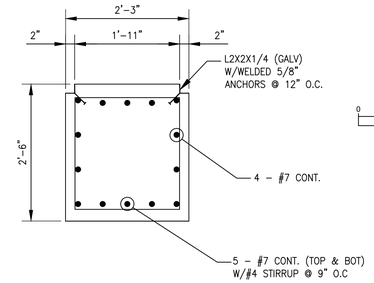
N1S01 SHEET NO. OF 246



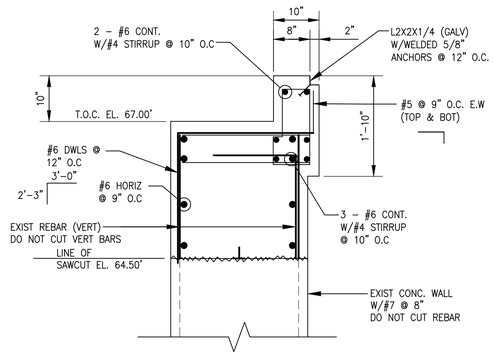
PLAN
LIFT STATION FOUNDATION
SCALE: 1/4" = 1'-0"



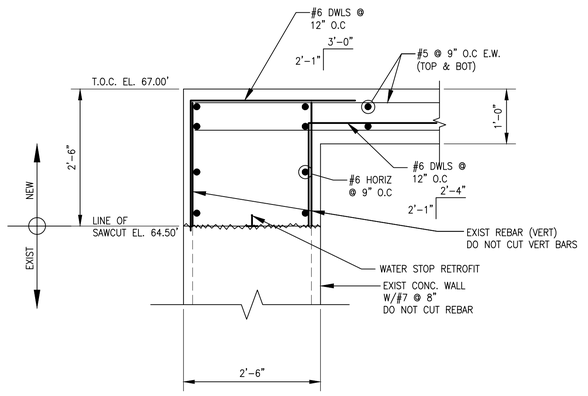
DETAIL 1
SCALE: 3/4" = 1'-0" SHT 2



DETAIL 2
SCALE: 3/4" = 1'-0" SHT 2



DETAIL 3
SCALE: 3/4" = 1'-0" SHT 2



DETAIL 4
SCALE: 3/4" = 1'-0" –

NOTE:

1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. REFER TO MECHANICAL/VENDOR DRAWINGS FOR WATERPROOF HATCHES/MANHOLES.
3. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL DIMENSION W/MEP & CIVIL PLANS PRIOR TO BIDDING WORK.

N

0 10 20 Feet

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE. NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS
PROPOSED PLAN & DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

N1S02 | SHEET NO. OF 246

PLOTTED: 10/29/2025 1:56 AM
PLOT STYLE: Monochrome.ctb
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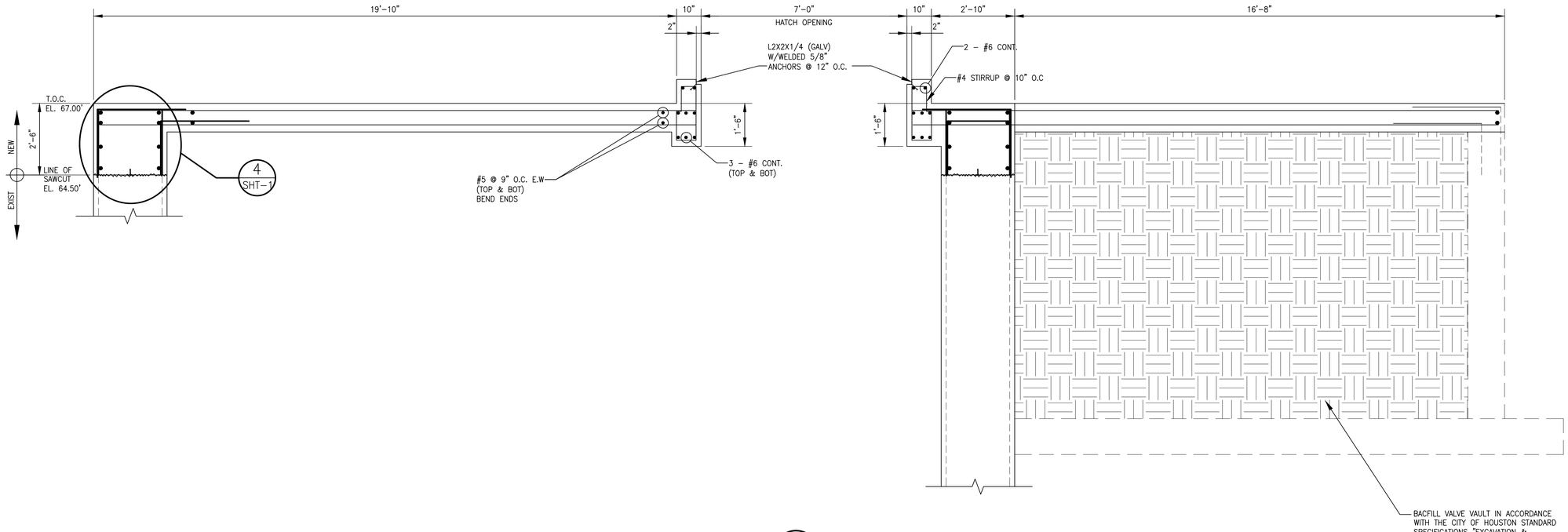
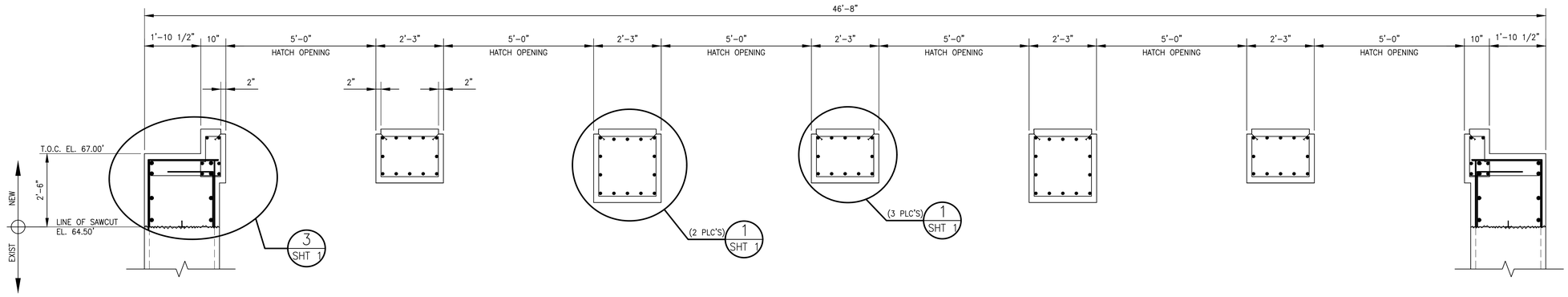


SECTION A
SCALE: 1/2" = 1'-0" (SHT 1)



SECTION B
SCALE: 1/2" = 1'-0" (SHT 1)

NOTE:

1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. REFER TO MECHANICAL/VENDOR DRAWINGS FOR WATERPROOF HATCHES/MANHOLES.
3. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL DIMENSION W/MEP & CIVIL PLANS PRIOR TO BIDDING WORK.

N

0 10 20 Feet

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412 F- 713-706-4410 Tx
Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS
PROPOSED SECTIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

N1S03 | SHEET NO. OF 246

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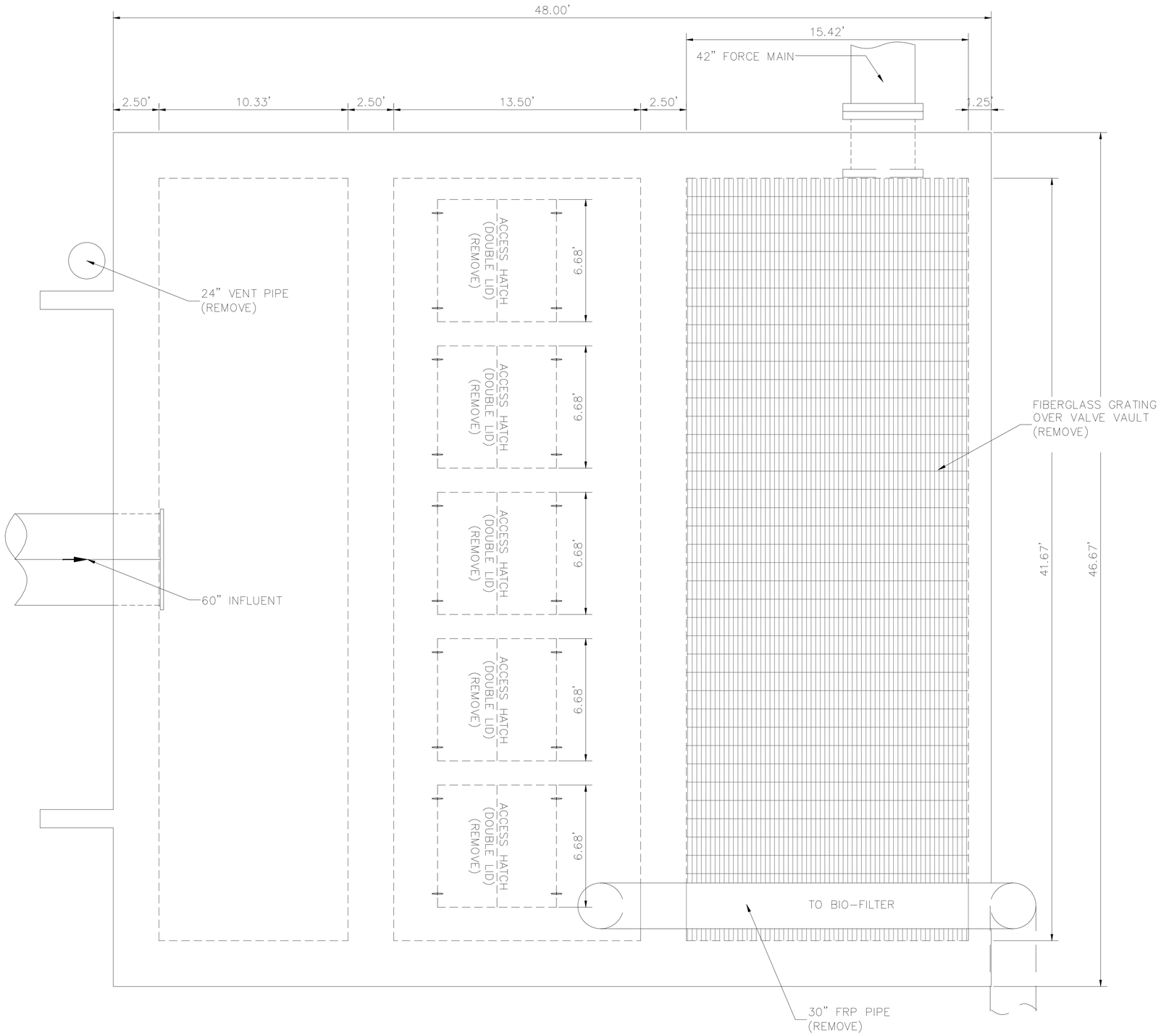

SURFACE PLAN VIEW

DEMOLITION NOTES:

1. THIS DRAWING IS BASED ON AVAILABLE RECORDS AND FIELD OBSERVATIONS. THE CONTRACTOR SHALL SATISFY HIMSELF / HERSELF OF THE ACTUAL CONDITIONS EXISTING AT THE SITE. THIS DRAWING DEPICTS PRIMARY MECHANICAL FEATURES. NOT ALL FEATURES, INCLUDING ELECTRICAL ARE NECESSARILY DEPICTED HEREON. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING EQUIPMENT WITHIN THE EXISTING STRUCTURE AS A PRECURSOR TO CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
2. DEMOLISH AND REMOVE TOP AND SIDE WALLS OF LIFT STATION TO 4-FEET BELOW LIFT STATION TOP SLAB ELEVATION. STEEL IN WALLS TO REMAIN (WHERE POSSIBLE) AND BE USED TO DEVELOP REINFORCEMENT FOR NEW TOP SLAB (REFER TO STRUCTURAL DETAILS).
3. THE CONTRACTOR SHALL NOT PROCEED WITH DEMOLITION WORK UNTIL AUTHORIZED. LIFT STATION BYPASS PUMPING MUST BE IN PLACE WITH OPERATIONAL ADEQUACY CHECKED AND CONFIRMED BY THE CITY BEFORE PROCEEDING WITH DEMOLITION WORK.
4. THE CITY OF HOUSTON WASTEWATER OPERATIONS DIVISION SHALL BE CONTACTED A MINIMUM OF 72-HRS PRIOR TO DEMOLITION. THE CITY SHALL HAVE THE FIRST RIGHT OF REFUSAL OF ANY ELECTRICAL OR MECHANICAL EQUIPMENT REMOVED FROM THE STATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND LOADING ONTO CITY TRUCKS, ALL SALVAGED MATERIALS AND EQUIPMENT DESIRED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PREMIT(S) REQUIRED FOR DEMOLITION WORK.
6. ALL ITEMS DAMAGED OR REMOVED BY THE CONTRACTOR AND NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
7. THE CONTRACTOR MAY DISCHARGE LIQUID WASTE AND WASHDOWN TO THE CITY WASTEWATER COLLECTION SYSTEM, HOWEVER; ALL DISCHARGES MUST BE COMPLIANT WITH THE CITY'S INDUSTRUAL WASTE ORDINANCE, CHAPTER 47, ARTICLE V. THE CONTRACTOR IS ADVISED THAT A PERMIT OR TEMPORARY DISCHARGE AUTHORIZATION MAY BE REQUIRED. CONTACT THE INDUSTRIAL WASTEWATER DIVISION AT (832) 395-5800. IN LIEU OF A DISCHARGE AUTHORIZATION, THE CONTRACTOR SHALL COLLECT AND HAUL, AT CONTRACTOR EXPENSE, ALL NON-SOLID DISCHARGES TO AN APPROVED CITY FACILITY.
8. REFER TO STRUCTURAL AND ELECTRICAL DEMOLITION DRAWINGS FOR INFORMATION RELATED TO THOSE SPECIFIC ACTIVITIES.

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11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 LIFT STATION
SURFACE PLAN VIEW
DEMOLITION PLAN

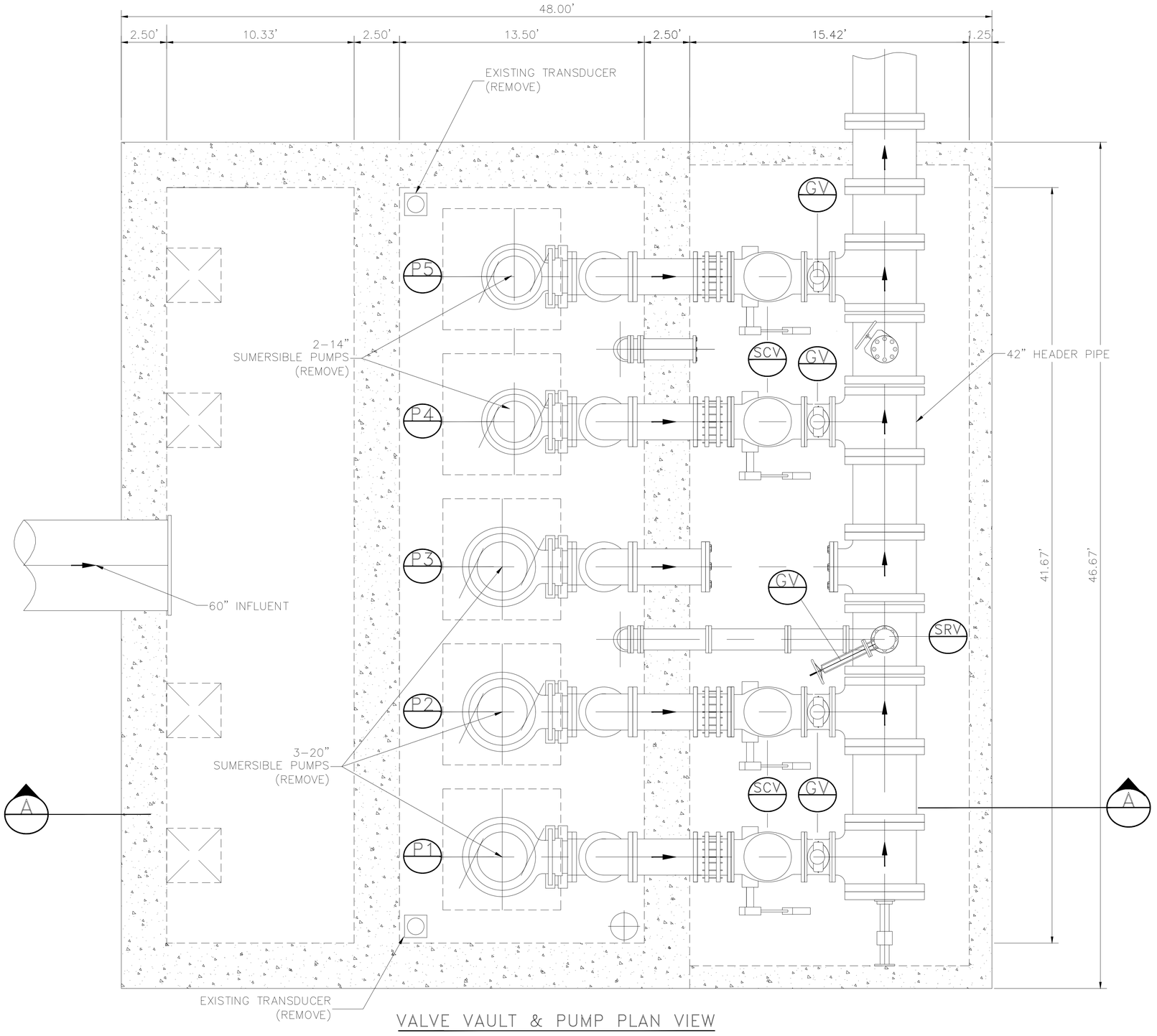
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=60'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

N1M01

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cad\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLAN\6-BISSONNET #4\LS-BISSONNET #4.dwg



VALVE VAULT & PUMP PLAN VIEW

LEGEND

- SCV — 24" SWING CHECK VALVE (REMOVE)
- SRV — 14" SURGE RELIEF VALVE (REMOVE)
- GV — 24" KNIFE GATE VALVE (REMOVE)
- P1 — PUMP (REMOVE)
- P2 — PUMP (REMOVE)
- P3 — PUMP (REMOVE)

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11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
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HATCH
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DAVID L. BROWN
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Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 LIFT STATION
STATION SECTION PLAN VIEW
DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=60'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

N1M02

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

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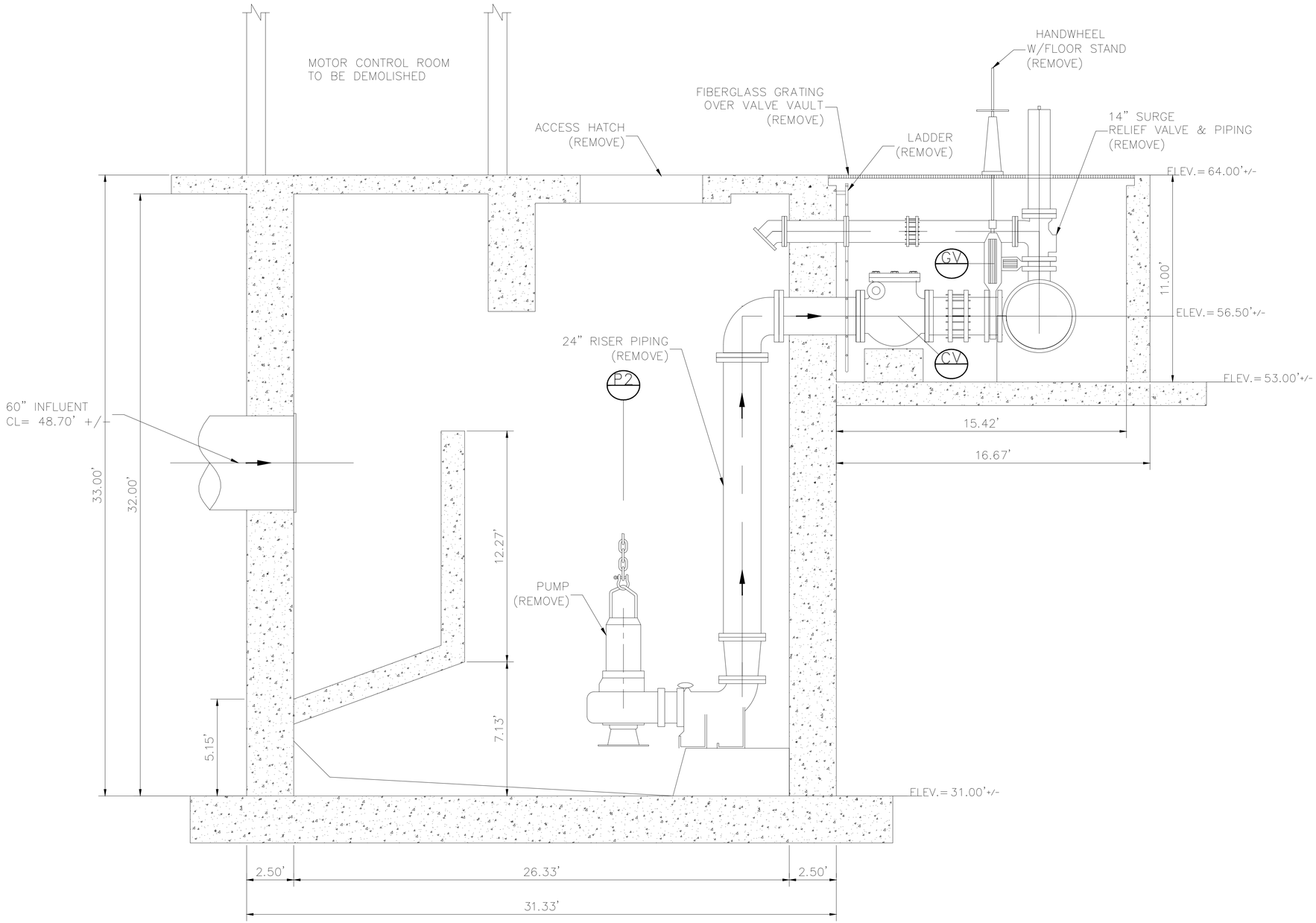

SECTION A–A

LEGEND

- SCV — 24" SWING CHECK VALVE (REMOVE)
- SRV — 14" SURGE RELIEF VALVE (REMOVE)
- GV — 24" KNIFE GATE VALVE (REMOVE)
- P1 — PUMP (REMOVE)
- P2 — PUMP (REMOVE)
- P3 — PUMP (REMOVE)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENJE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

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750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 LIFT STATION
STATION SECTION VIEW
DEMOLITION PLAN

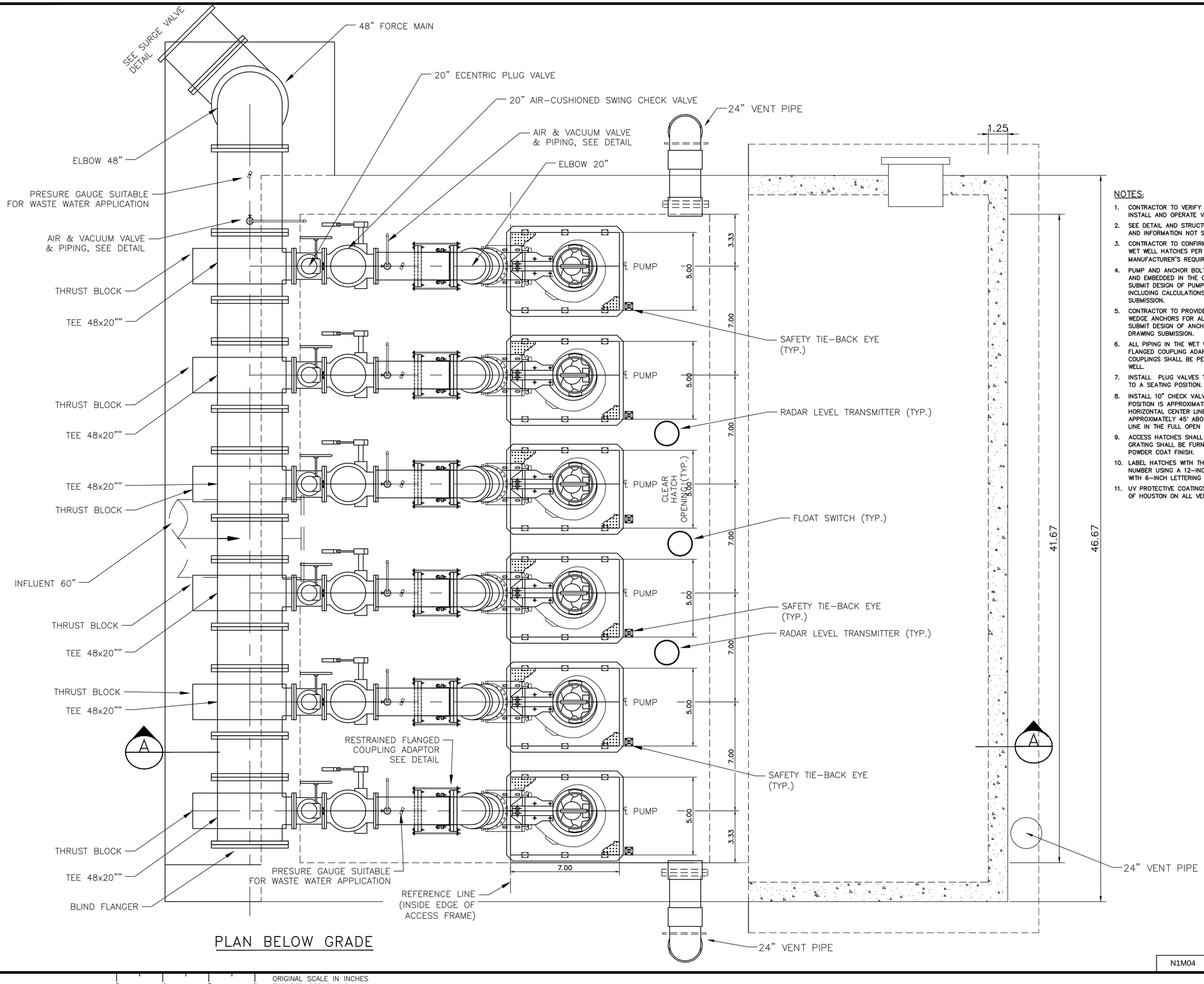
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=60'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

N1M03

0 1 2 3 ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

P:\Cad\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLAN\6-BISSONNET #4\LS-BISSONNET #4.dwg



NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	LL
B	10/30/25	CLIENT REVIEW	LL

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

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SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
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DAVID L. BROWN
Engineer
49282
Registration Number
10/29/2025
Date

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FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 L.S
PLAN VIEW

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=60'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

N1M04

FILE NAME:
PLOTTED ON:

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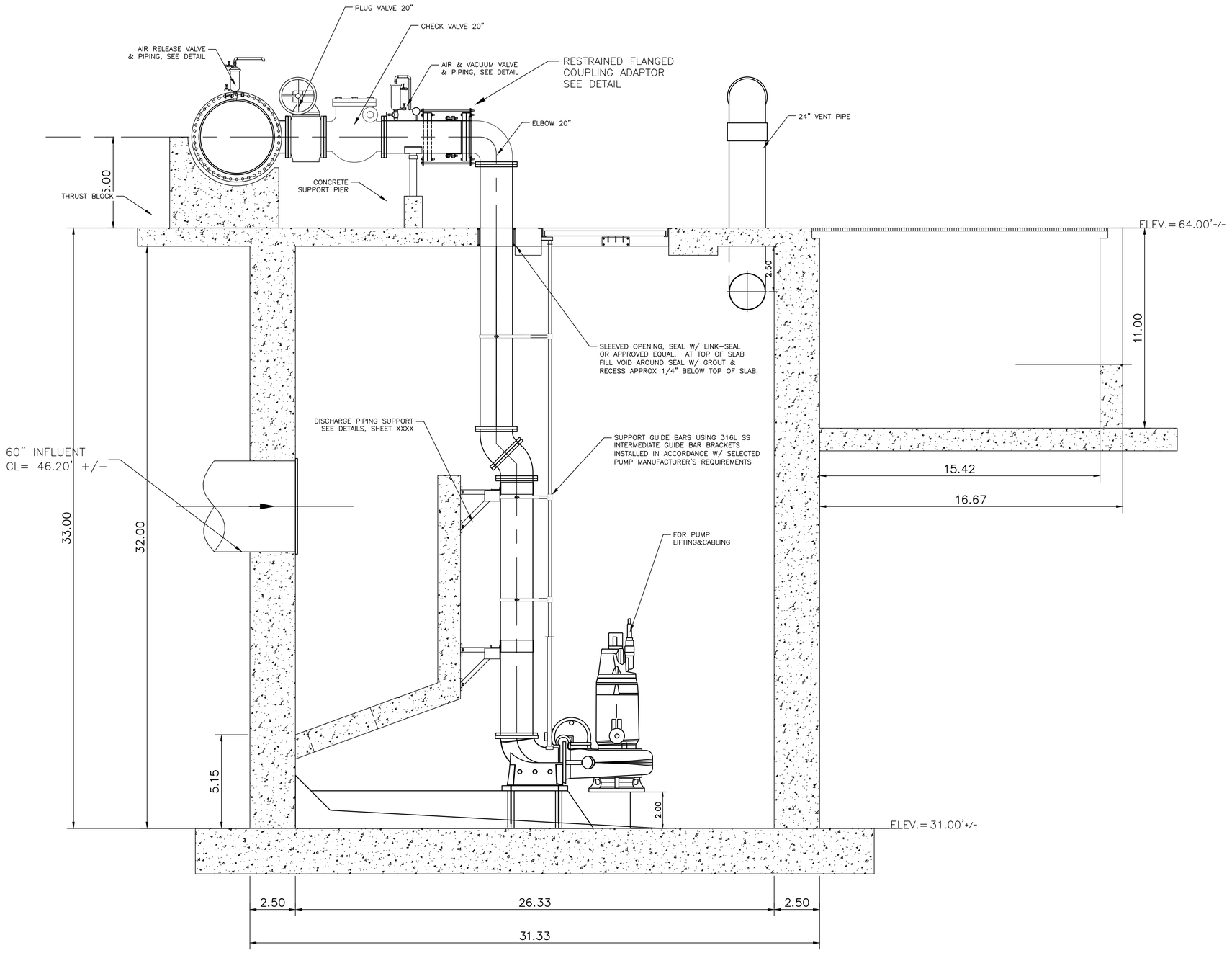

SECTION A-A

NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	LL
B	10/30/25	CLIENT REVIEW	LL

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
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SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1026200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
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TX FIRM NUMBER:F -10912

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 L.S
ELEVATION SECTION A-A

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=60'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
N1M05	SHEET NO. OF 246

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

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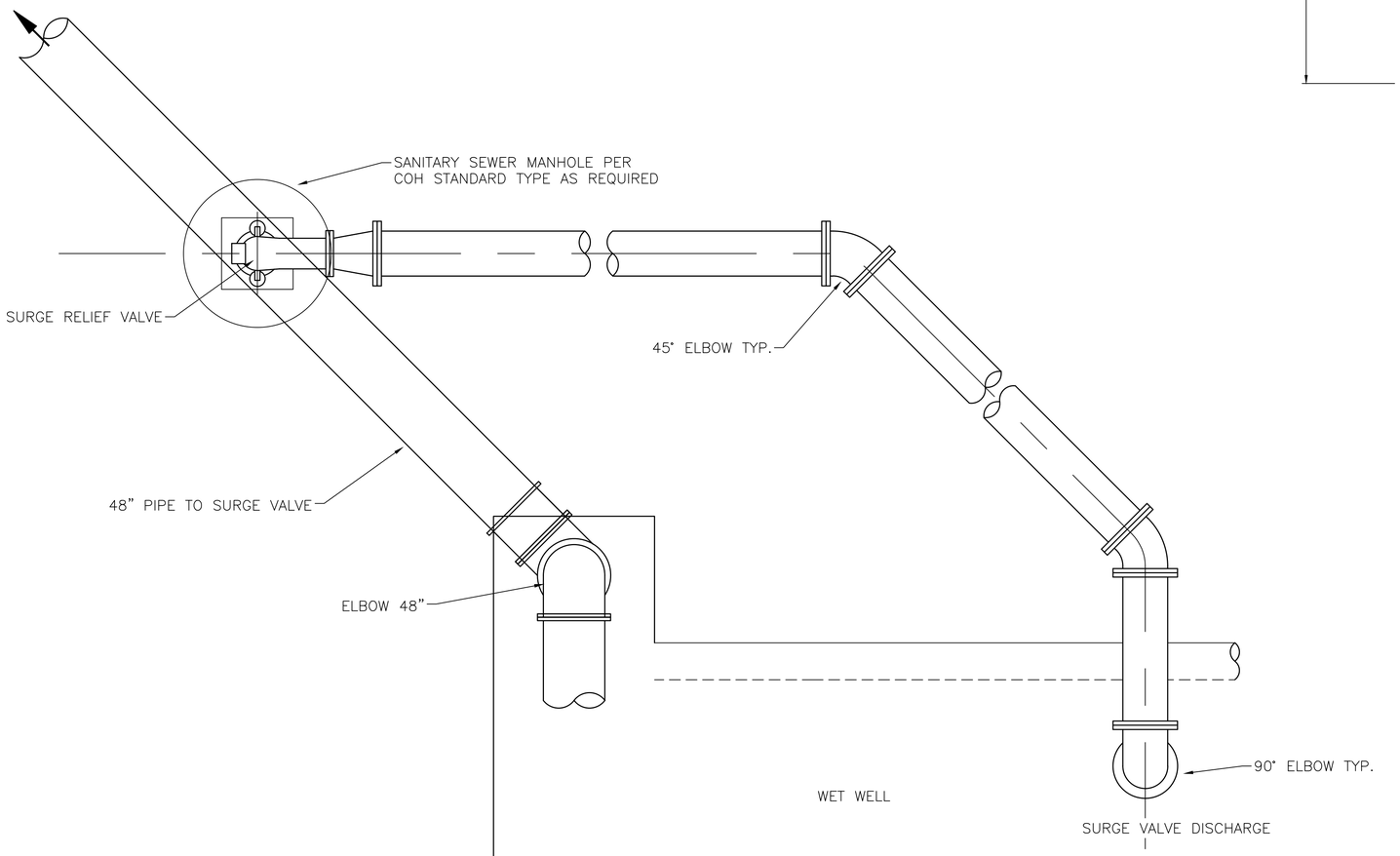
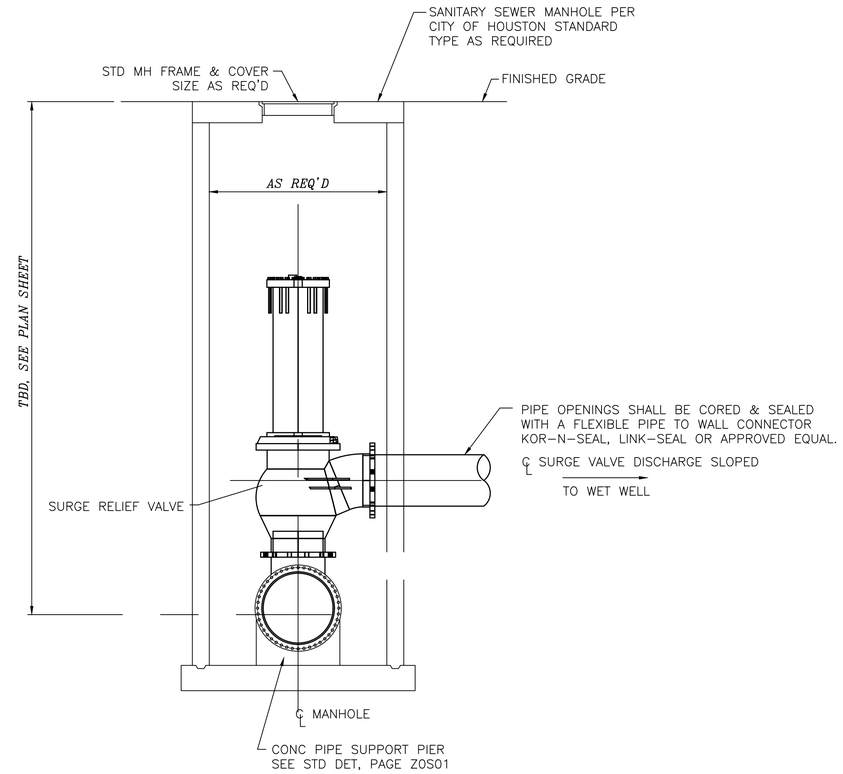
NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L



SURGE RELIEF VALVE FOR STATIONS WITH VALVE VAULT



SECTION

AMANI ENGINEERING, INC.
11011 RICHMOND AVENJE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
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SUITE 650
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DAVID L. BROWN
Engineer
45282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 L.S
SURGE VALVE DETAIL

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
N.T.S	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
N1M05A	SHEET NO. OF 246

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

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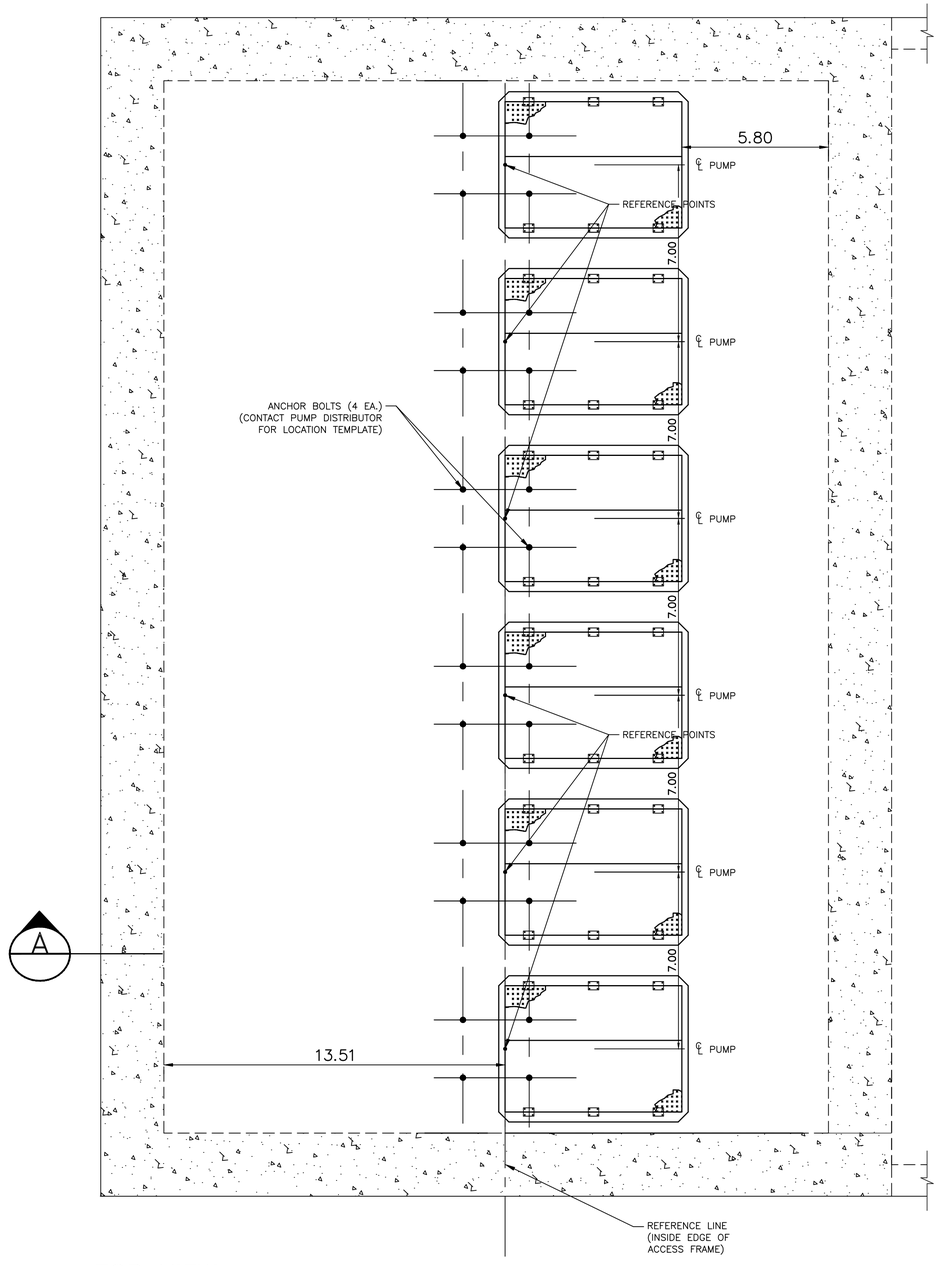
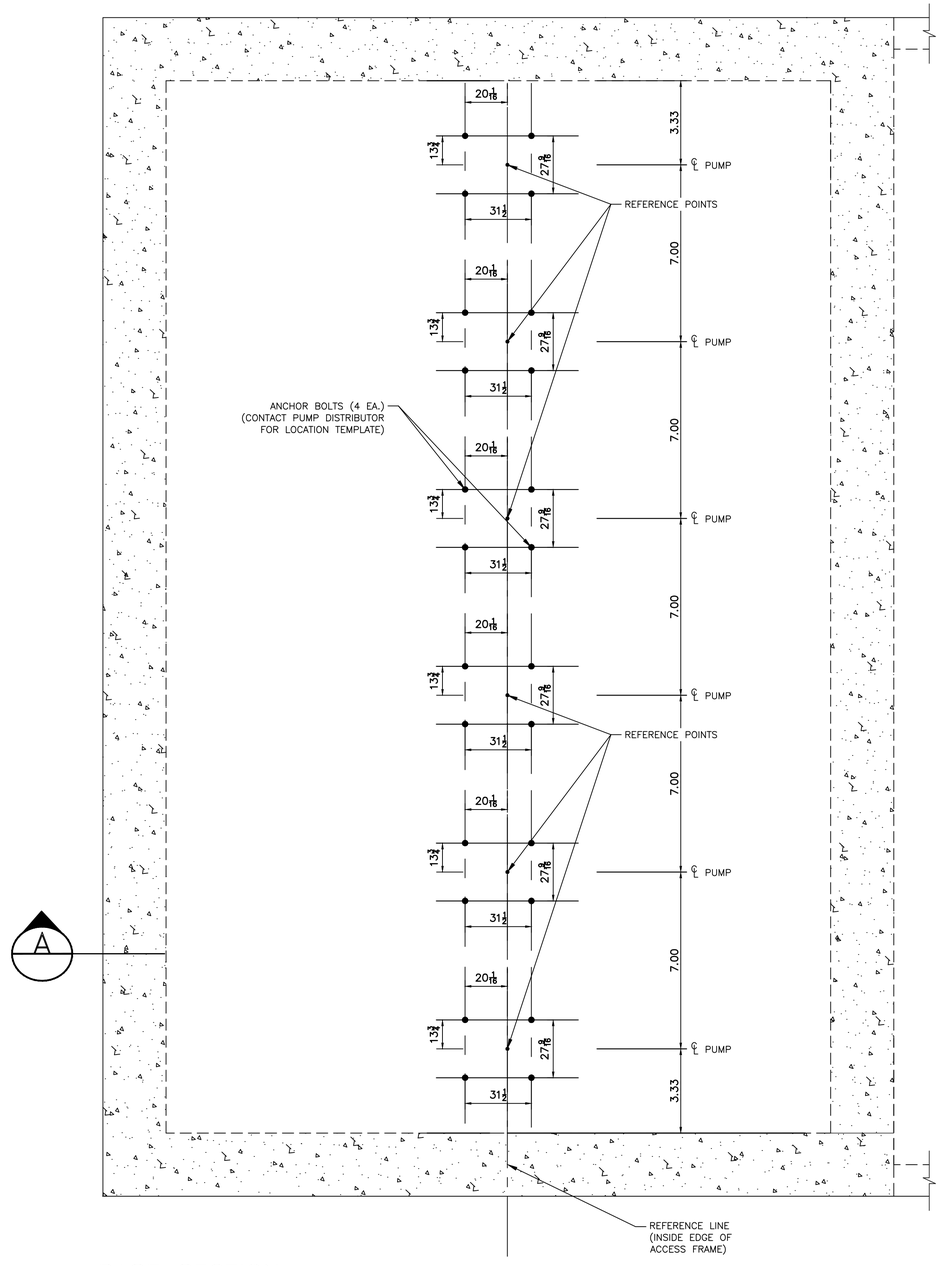


TOP VIEW



BASE SECTION

NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	LL
B	10/30/25	CLIENT REVIEW	LL

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 L.S
TOP VIEW /BASE SECTION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

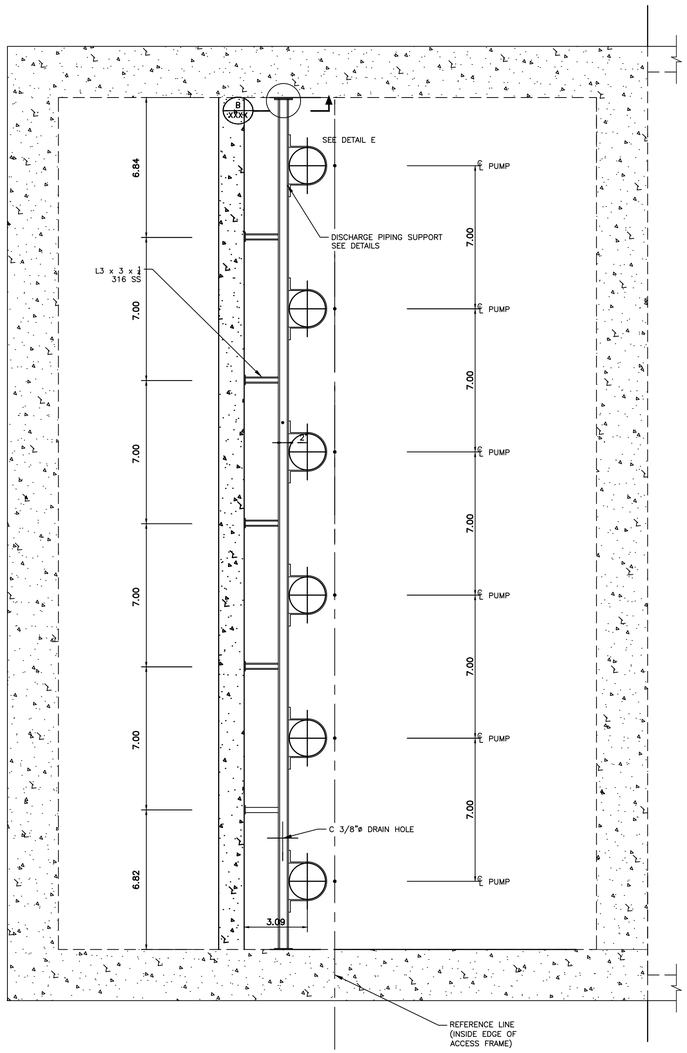
N1M06

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\6-Phase II BISSONNET #4\Phase II LS-BISSONNET #4.dwg

NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	LL
B	10/30/25	CLIENT REVIEW	LL



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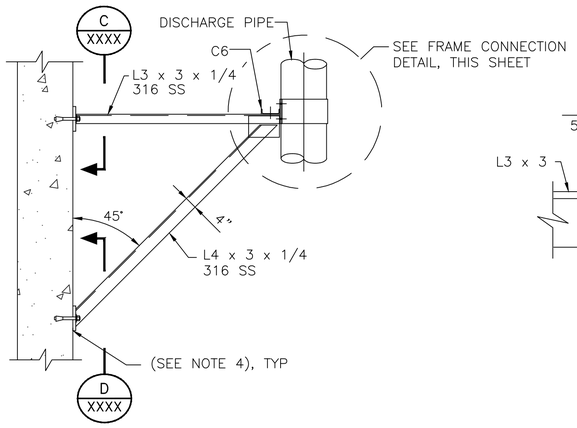
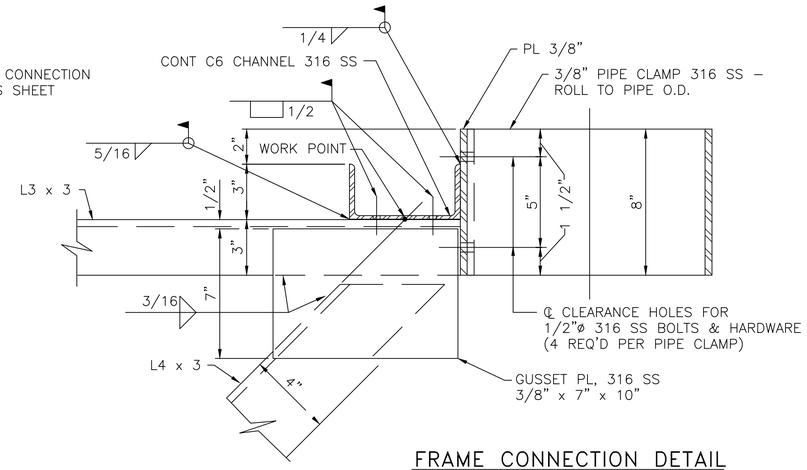
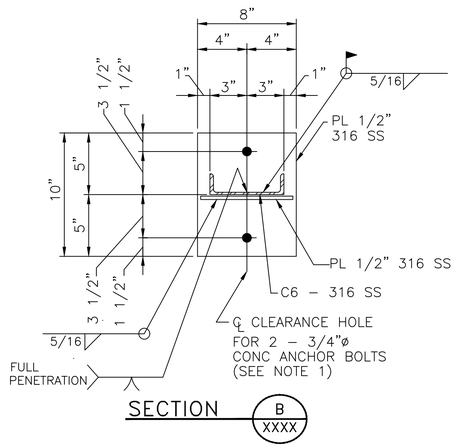


TYP LATERAL PIPE SUPPORT FRAME

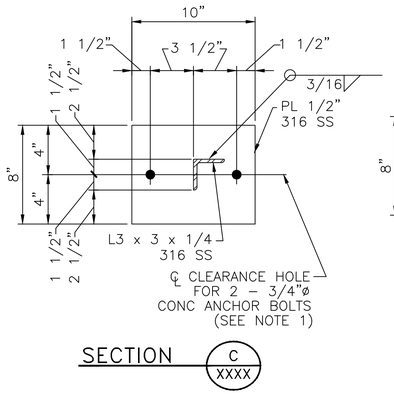


FRAME CONNECTION DETAIL

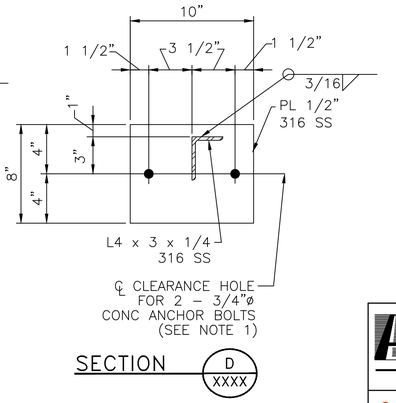
SECTION A XXXX



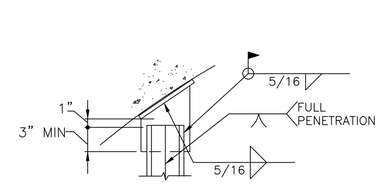
SECTION B XXXX



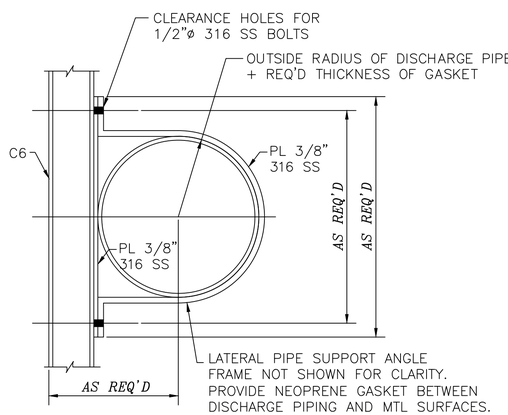
SECTION C XXXX



SECTION D XXXX



DETAIL E



PIPE CLAMP DETAIL

NOTES:

1. CONCRETE ANCHOR BOLTS SHALL HAVE 6" MINIMUM EMBEDMENT AND SHALL BE TYPE 316 STAINLESS STEEL, PER SPECIFICATIONS.
2. SEE STATION AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. DRILL 3/8"ø HOLES, 1" OFF C OF C6 AT MIDSPAN BETWEEN LATERAL PIPE SUPPORTS TO ALLOW FOR DRAINAGE. 3 HOLES PER CHANNEL WHERE 2 LATERAL SUPPORTS REQUIRED; 2 HOLES PER CHANNEL WHERE 1 LATERAL SUPPORT REQUIRED.
4. SET 1/4" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 L.S DISCHARGE PIPING SUPPORT DATAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

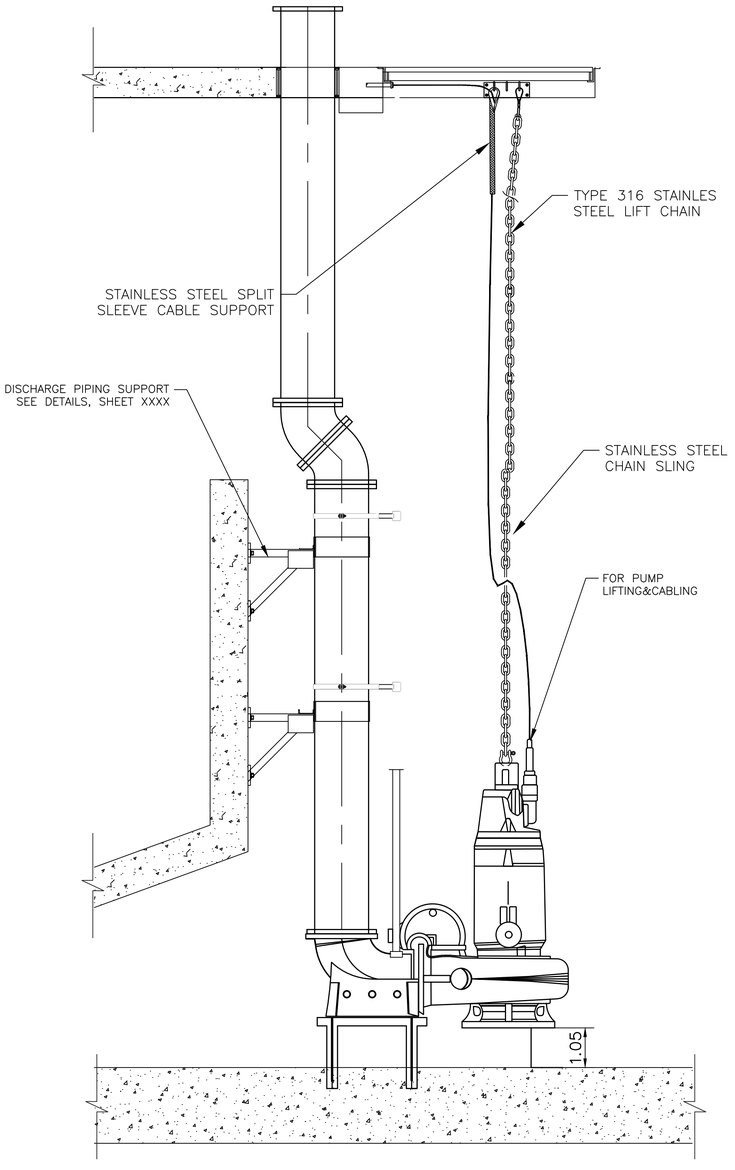
N1M07 | SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

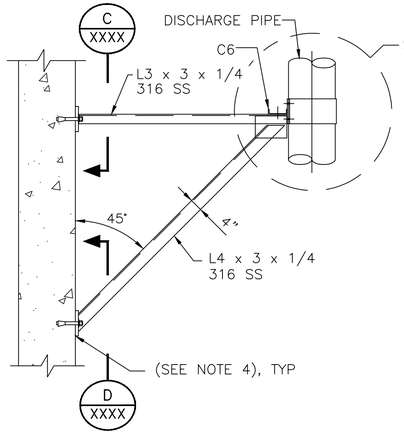
P:\Code\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\8-Phase II BISSONNET #4\Phase II LS-BISSONNET #4.dwg

NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	LL
B	10/30/25	CLIENT REVIEW	LL



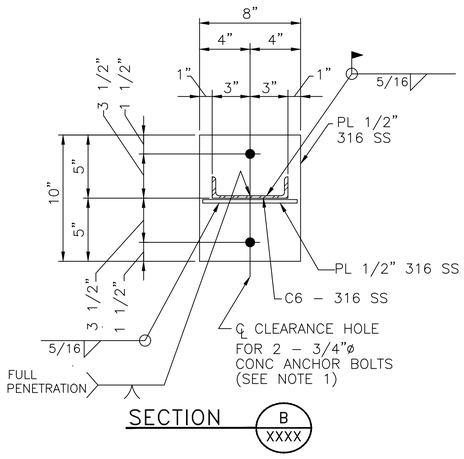
TYP DISCHARGE PIPING SUPPORT PLAN FOR 6 PUMPS

DETAIL 3 / XXXX

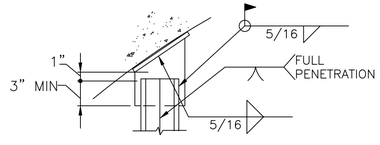


TYP LATERAL PIPE SUPPORT FRAME

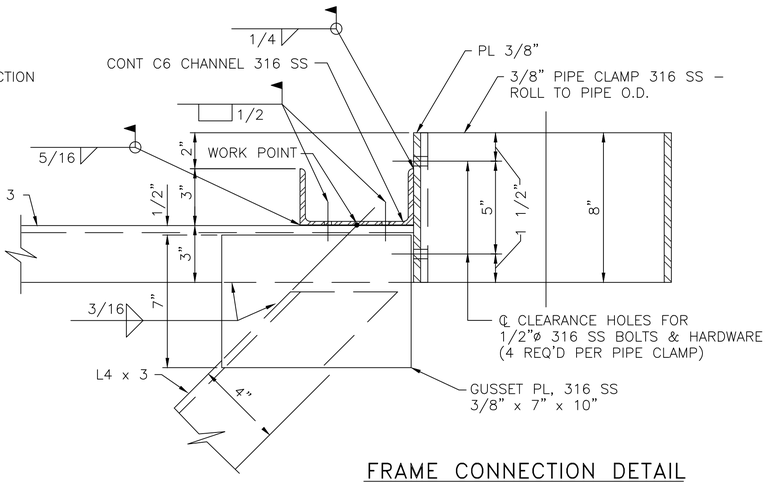
SECTION A / XXXX



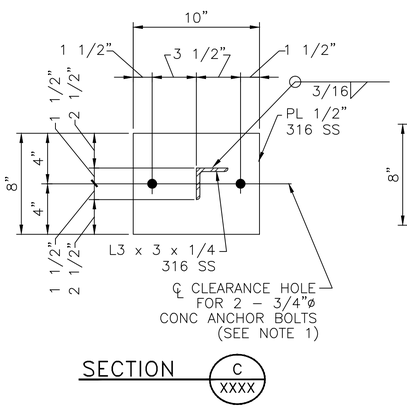
SECTION B / XXXX



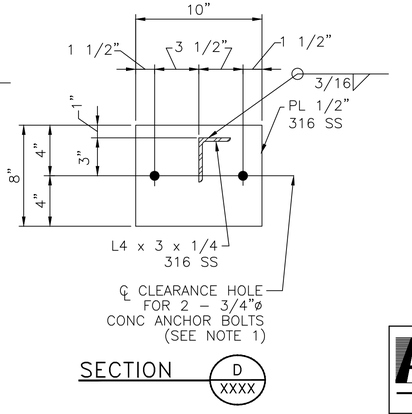
DETAIL E



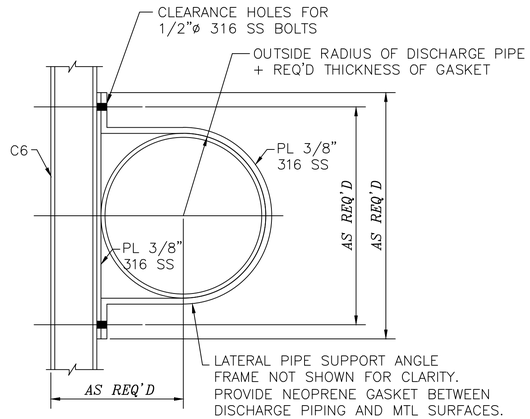
FRAME CONNECTION DETAIL



SECTION C / XXXX



SECTION D / XXXX



PIPE CLAMP DETAIL

NOTES:

1. CONCRETE ANCHOR BOLTS SHALL HAVE 6" MINIMUM EMBEDMENT AND SHALL BE TYPE 316 STAINLESS STEEL, PER SPECIFICATIONS.
2. SEE STATION AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. DRILL 3/8"ø HOLES, 1" OFF C OF C6 AT MIDSPAN BETWEEN LATERAL PIPE SUPPORTS TO ALLOW FOR DRAINAGE. 3 HOLES PER CHANNEL WHERE 2 LATERAL SUPPORTS REQUIRED; 2 HOLES PER CHANNEL WHERE 1 LATERAL SUPPORT REQUIRED.
4. SET 1/4" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 L.S
TYPICAL DATAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
N1M8	SHEET NO. OF 246

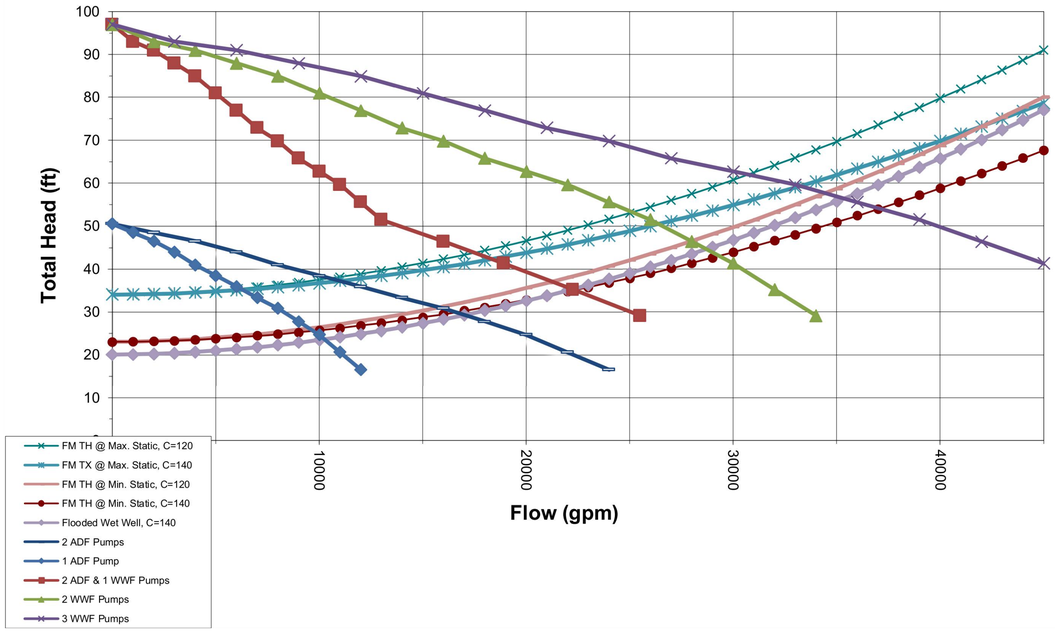
0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\6-Phase II BISSONNET #4\Phase II LS-BISSONNET #4.dwg

NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

BISSONNET #4
LIFT STATION
2-ADF PUMPS + 3-WWF PUMPS



PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3	PUMP NO. 4	PUMP NO. 5
MOTOR DATA					
NOMINAL SIZE (HP)	120	120	215	215	215
MAX SPEED (RPM)	590	590	595	595	595
SOLIDS PASSAGE					
MIN SPHERE (IN)	3	3	3	3	3
CAPACITY (GPM)					
DESIGN	9810	9810	11000	11000	11000
RUNOUT	14000	14000	16500	16500	16500
DISCHARGE HEAD (FT)					
DESIGN	29.7	29.7	54.8	54.8	54.8
RUNOUT	12	12	26	26	26
SHUT OFF	56.5	56.5	88.5	88.5	88.5
EFFICIENCY (%)					
DESIGN	79.5	79.5	85.2	85.2	85.2
NPSHR (FT)					
DESIGN	10	10	11	11	11
RUNOUT	21	21	38	38	38

STATION OPERATION TABLES

RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
	LEAD PUMP TURNS ON	LEAD PUMP ON
	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
	HIGH WATER LEVEL ALARM OFF	LEAD PUMP ON
	LEAD PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP

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HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 L.S
PUMP CURVE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

N1M09

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

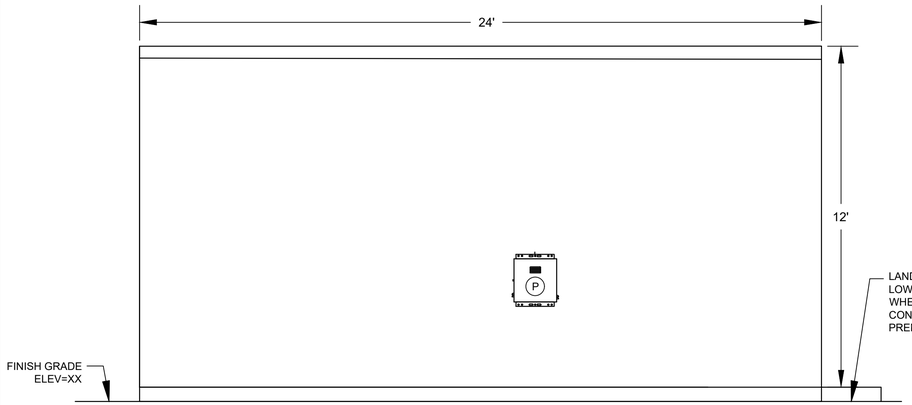
FILE NAME:
PLOTTED ON:

P:\Cook\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\G-Phase II BISSONNET #4\Phase II LS-BISSONNET #4.dwg

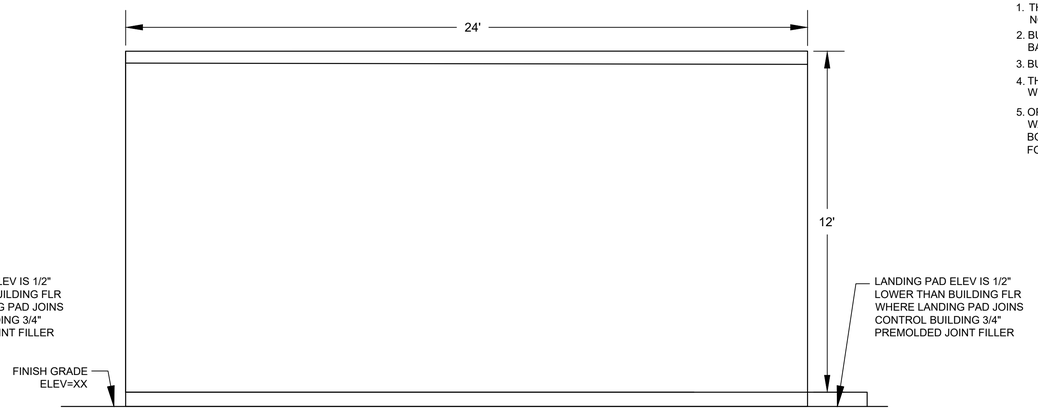
NOTES:

1. THE BUILDING IS GENERAL PURPOSE, NON-CLASSIFIED, NON BLAST RATED.
2. BUILDING MANUFACTURER MAY SIZE THE HVAC UNITS BASED ON HEAT LOSS CALCULATIONS.
3. BUILDING DOORS SHALL BE OF 316SS TYPE.
4. THE DOUBLE ENTRANCE DOORS SHALL BE 72"(W) x 84" (H). WITH 24" HIGH REMOVABLE DOOR PANEL, ABOVE THE DOOR.
5. OPENINGS FOR BELTLESS FAN (24"x24") ON THE TOP OF THE WALL ELEVATION WITH 24"x24" LOUVER ON THE BOTTOM BOTH UNITS SHALL BE PROVIDED WITH REMOVABLE LOUVERS FOR STANDBY USE.

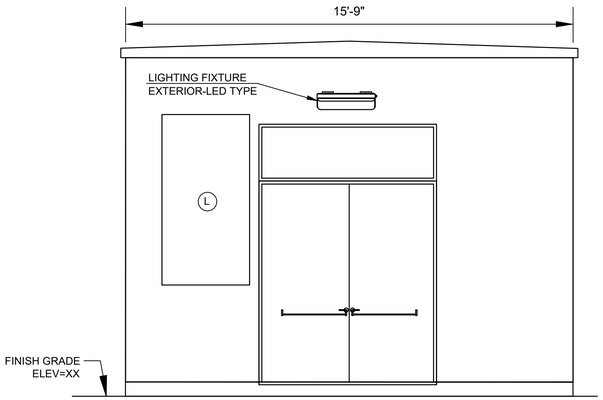
NO.	DATE	REVISION	M.S	APP.
A	06/23/25	INTERNAL REVISION	L.L.	
B	10/30/25	CLIENT REVIEW		



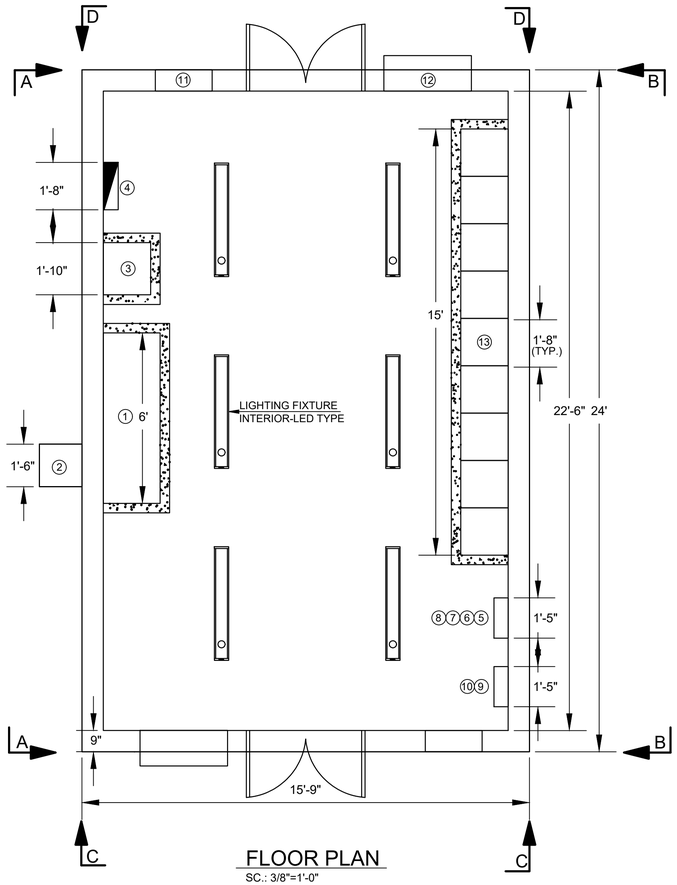
SIDE ELEVATION A
SC.: 3/8"=1'-0"



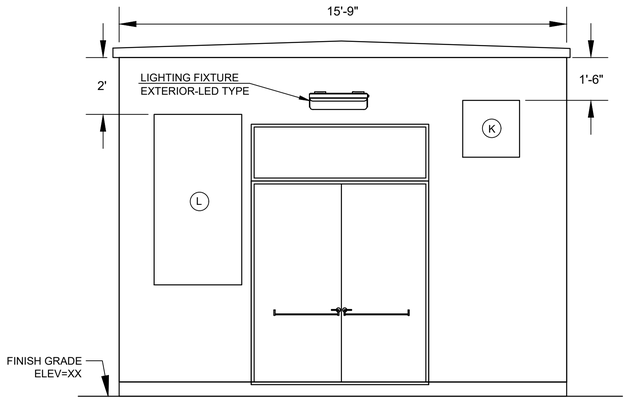
SIDE ELEVATION B
SC.: 3/8"=1'-0"



BACK ELEVATION C
SC.: 3/8"=1'-0"



FLOOR PLAN
SC.: 3/8"=1'-0"



BACK ELEVATION D
SC.: 3/8"=1'-0"

No.	DESCRIPTION
1	CONTROL CABINET
2	PPU-AC PANEL
3	LIGHTING TRANSFORMER
4	LIGHTING PANEL
5	PUMP NO. 1 POWER. FACTOR C. CAPACITOR
6	PUMP NO. 2 POWER. FACTOR C. CAPACITOR
7	PUMP NO. 3 POWER. FACTOR C. CAPACITOR
8	PUMP NO. 4 POWER. FACTOR C. CAPACITOR
9	PUMP NO. 5 POWER. FACTOR C. CAPACITOR
10	PUMP NO. 6 POWER. FACTOR C. CAPACITOR
11	EXHAUST FAN WITH MANUAL DAMPER
12	WALL MOUNT A/C UNIT
13	MCC LINEUP

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

ARCHITECTURAL
CONTROL BUILDING

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1A01

PLOTTED: 10/28/2025 1:00 PM
PLOT STYLE: COH.ctb
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PLOT STYLE: COH.ctb
PLOTTED: 10/28/2025 12:49 PM
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 2\queue2.dwg

PLANT NORTH
TRUE NORTH

DRAWING LIMIT

100A 100B
100C 100D

100E

SEE DETAILS
8 Z0E05
7 Z0E05
(NOTE 10) 5 Z0E05
7 Z0E05
6 Z0E05

802 703 702 502 403 402 302 202 203 1002 1100

SEE DETAILS
6 Z0E05
9 Z0E05
7 Z0E05

CONTROL BUILDING
(NOTE 9)

BIOSCRUBBER

1003
FLOAT SWITCH (NOTE 7)

1000
LT-1 (NOTE 7)

1001
LT-2 (NOTE 7)

800 801 | 700 701 | 500 501 | 400 401 | 300 301 | 200 201

PUMP NO.6 | PUMP NO.5 | PUMP NO.4 | PUMP NO.3 | PUMP NO.2 | PUMP NO.1

OVERHEAD SERVICE LINE

DRAWING LIMIT

105 105A 106
CAMERA & YARD LIGHTING POLE (EXISTING & REUBICATED)
(NOTE 11)
LIGHT POLE (EXISTING & REUBICATED)

A N1E02

EXISTING SERVICE POLE
19 Z0E09

DRAWING LIMIT

DUCT BANK
100E

DUCT BANK
105 105A 106

DUCT BANK
100A 100B 100C 100D

DUCT BANK
202 402 502 703 1100 203 1002 100E 802 302 403 702

SECTION U NTS.
SECTION V NTS.
SECTION W NTS.
SECTION X NTS.

No.	DESCRIPTION
1	SERVICE METER DISCONNECT (EXISTING)
2	UTILITY METER (EXISTING)
3	MANUAL TRANSFER SWITCH (EXISTING)
4	PPU-AC PANEL
5	WEATHER PROOF GFI
6	LEVEL TRANSMITTER J-BOX
7	PUMP NO.1 J-BOX
8	PUMP NO.2 J-BOX
9	PUMP NO.3 J-BOX
10	PUMP NO.4 J-BOX
11	PUMP NO.5 J-BOX
12	PUMP NO.6 J-BOX

NOTES:
1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
3. WHERE JUNCTION BOXES ARE SHOWN, THEY SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. SPLICES WILL NOT BE ALLOWED EXCEPT AS PROVIDED BY NOTE 4 AND AT LIGHTING AND RECEPTACLE TERMINATIONS.
4. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO CONTROL BUILDING OR PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
7. LEVEL TRANSMITTERS AND FLOAT SWITCH SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL FIELD VERIFY.
8. INSIDE WET WELL IS CLASSIFIED AS CLASS I, DIVISION 1. OUTSIDE WET WELL WITHIN 5 FEET OF WET WELL OPENINGS ARE CLASSIFIED AS CLASS I, DIVISION 2.
9. FOR CONTROL BUILDING EQUIPMENT AND CONDUIT ARRANGEMENT SEE DRAWING NO. N1E03.
10. THE JUNCTION BOX RACK MUST BE AT LEAST 12' WIDE.
11. FOR LIGHT & COMMUNICATION POLE DETAILS, SEE DRAWING NO. Z0E07.

NO.	DATE	REVISION	APP.
A	10/15/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

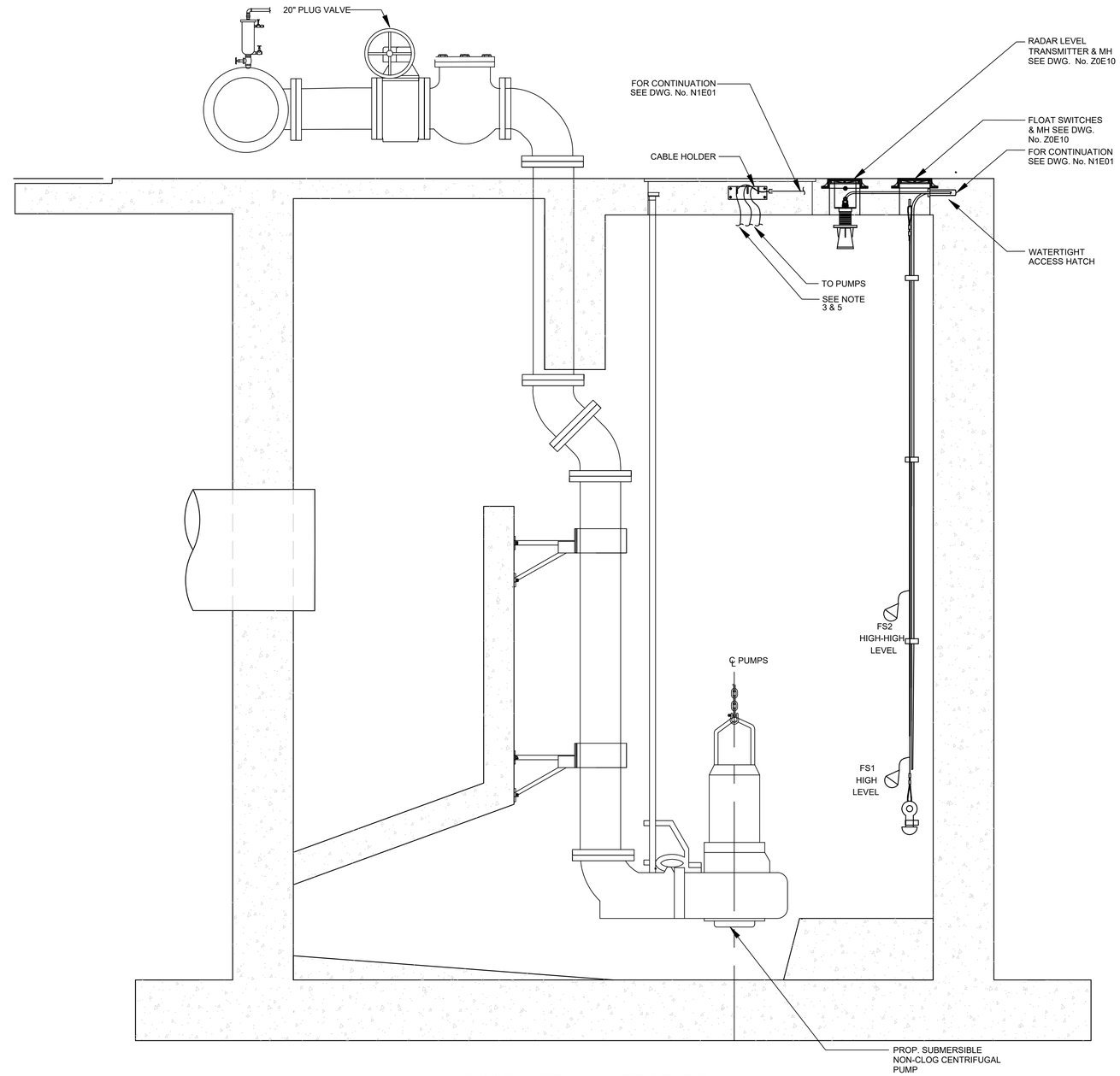
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

ELECTRICAL SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

N1E01 | SHEET NO. OF 246



BISSONNET #4 - LIFT STATION

A / - ELEVATION

SC.: 3/8"=1'-0"

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION I, GROUP C & D.
3. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
4. FOR MOTOR FEEDER AND CONTROL CABLES. INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO POWER & CONTROL PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. INSTRUMENTS SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL BE ESTABLISHED DURING CONSTRUTION.

NO.	DATE	REVISION	APP.
A	10/15/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 LS

LIFT STATION ELEVATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E. P.E.	
SHEET NO. OF 246	

N1E02

PLOTTED: 10/28/2025 12:58 PM
PLOT STYLE: COH.ctb
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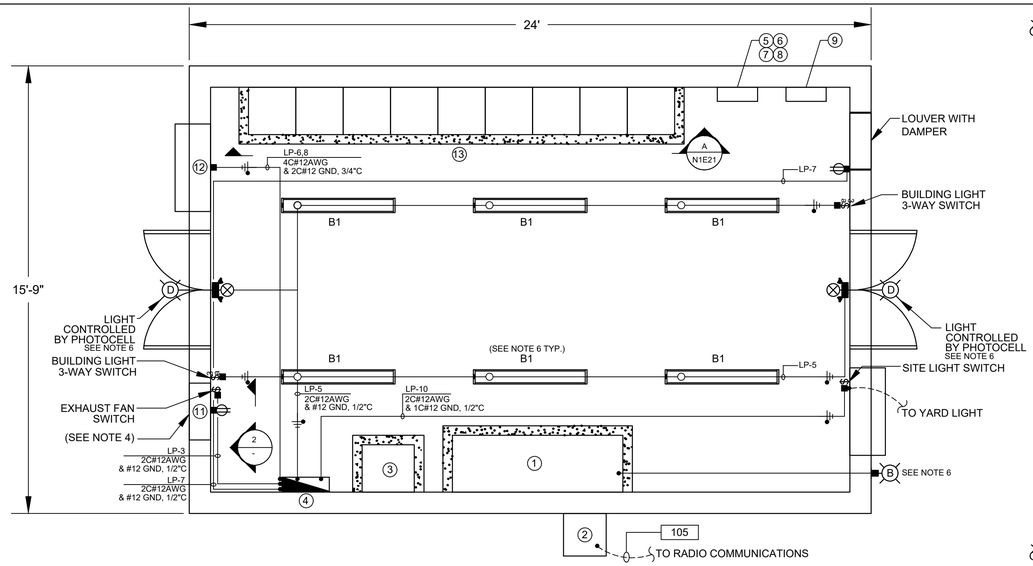
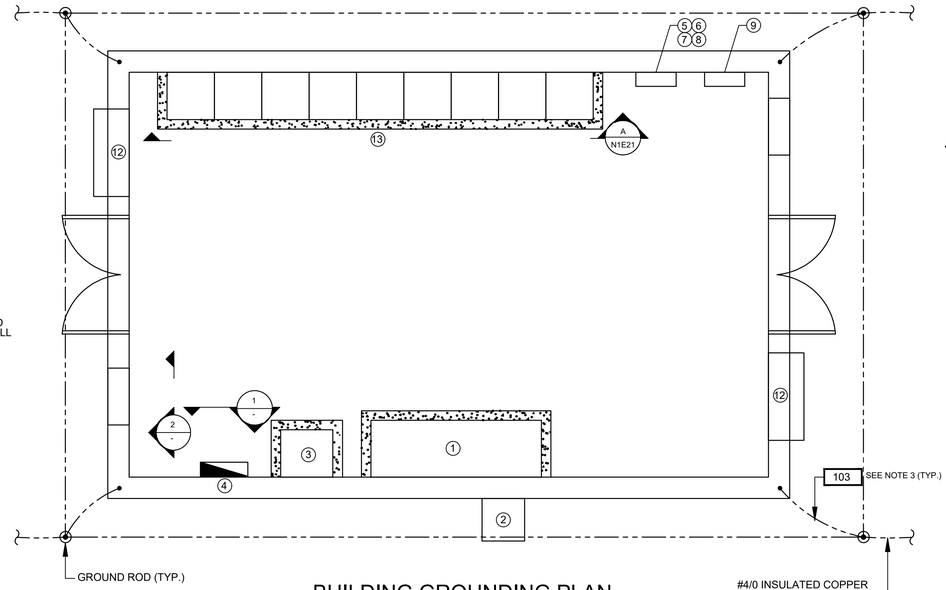


LIGHTING & COMMUNICATION SYSTEM PLAN

SC.: 3/8"=1'-0"



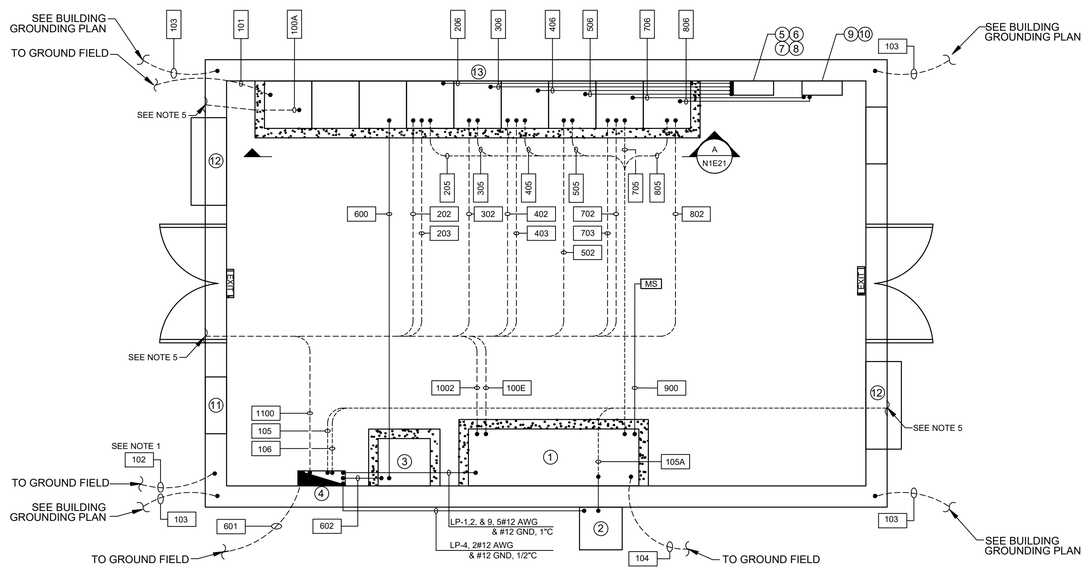
BUILDING GROUNDING PLAN

SC.: 3/8"=1'-0"

NOTES:

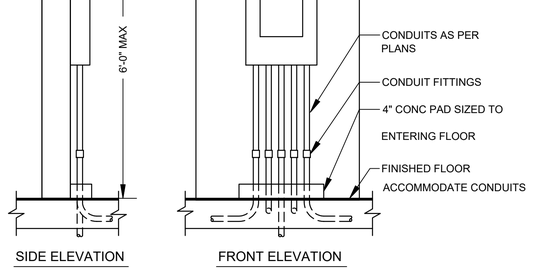
1. EXOTHERMIC WELD BUILDING GROUND CONDUCTOR TO BUILDING REINFORCING STEEL.
2. ALL CONDUITS DESIGNATED AS UP ARE CONTINUED ON THE ROOF PLAN. ALL CONDUITS DESIGNATED AS DOWN (DN) ARE CONTINUED ON THE FLOOR PLAN.
3. BOND REBAR IN CONCRETE FOOTER TO GROUND ROD IN FOUR LOCATIONS.
4. EXHAUST FAN TO BE WALL MOUNT AND SIZED 2HP 120 VOLT MAXIMUM PROVIDE WITH TEMPERATURE SENSOR SET TO OPERATE AT 10" DEGREES ABOVE A/C RANGE COOLING.
5. FOR DUCT BANK CONTINUATION SEE DRAWING NO. N1E01.
6. SEE LUMINAIRE SCHEDULE FOR FIXTURE TYPE.

NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L



POWER PLAN

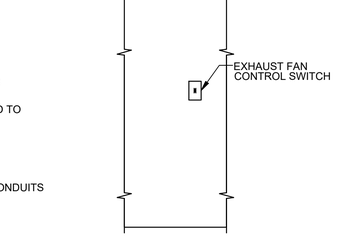
SC.: 3/8"=1'-0"



TYPICAL PANEL INSTALLATION

DETAIL 1 (-)

SC.: 3/8"=1'-0"



EXHAUST FAN

DETAIL 2 (-)

SC.: 3/8"=1'-0"

No.	DESCRIPTION
1	CONTROL CABINET
2	PPU-AC PANEL
3	LIGHTING TRANSFORMER
4	LIGHTING PANEL
5	PUMP NO. 1 POWER. FACTOR C. CAPACITOR
6	PUMP NO. 2 POWER. FACTOR C. CAPACITOR
7	PUMP NO. 3 POWER. FACTOR C. CAPACITOR
8	PUMP NO. 4 POWER. FACTOR C. CAPACITOR
9	PUMP NO. 5 POWER. FACTOR C. CAPACITOR
10	PUMP NO. 6 POWER. FACTOR C. CAPACITOR
11	EXHAUST FAN WITH MANUAL DAMPER
12	WALL MOUNT A/C UNIT
13	MCC LINEUP

LUMINAIRE SCHEDULE

FIXTURE TYPE	VOLTAGE	LAMP TYPE	TOTAL INPUT WATTS	TOTAL OUTPUT LUMENS	MOUNT	DESCRIPTION	MAKE/MODEL
B	120/277V UNIVERSAL DRIVER	LED	13	---	STEM MOUNT	RED POLYCARBONATE LENS SUITABLE FOR WET LOCATIONS - 120V, SERIES 105 XBR	---
B1	120/277V UNIVERSAL DRIVER	LED	42	4000	SUSPENDED	LINEAR LED LUMINAIRE, UV-STABILIZED, INJECTION-MOLDED, IMPACT-RESISTANT, FROSTED POLYCARBONATE HOUSING, -29°C TO 40°C OPERATING TEMPERATURE. 4000K COLOR TEMPERATURE, 80CRI, UV-STABILIZED, INJECTION-MOLDED, IMPACT-RESISTANT CLEAR POLYCARBONATE LENS, UL 1598 WET LOCATION LISTED.	LITHONIA ARCHWAY VAP LED SERIES VAP-4000L-PCL-WD-MVOLT MVOLT-40K-80CRI-VAPCMB
							DAY-BRITE CFI VAPORLUME LED V2 V2VAPB70L840-4-UNV TBK OR WBK ACESSORY & FKR-126
D	120/277V UNIVERSAL DRIVER WITH EMERGENCY BATTERY PACK WITH PHOTO CELL	LED	12W	1500	WALL	POWDER COATED DIE-CAST ALUMINUM HOUSING, NATURAL ALUMINUM FINISH, -30°C TO 40°C OPERATING TEMPERATURE. 4000K COLOR TEMPERATURE, 70CRI, GASKETED LENS, IESNA TYPE III DISTRIBUTION, NEMA 4X RATED, WET LOCATION RATED, WITH EMERGENCY BATTERY PACK.	LITHONIA LIGHTING WST LED SERIES WST LED P1 40K VF MVOLT E20WC
							GARDCO LED WALL SCONCE 101L SERIES 101L-16L-530-NW-G1-3-EBPC-UNV-MGY

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BISSONNET #4 LS

CONTROL BUILDING

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E03

PLOTTED: 10/28/2025 12:46 PM

PLOT STYLE: COH.ctb

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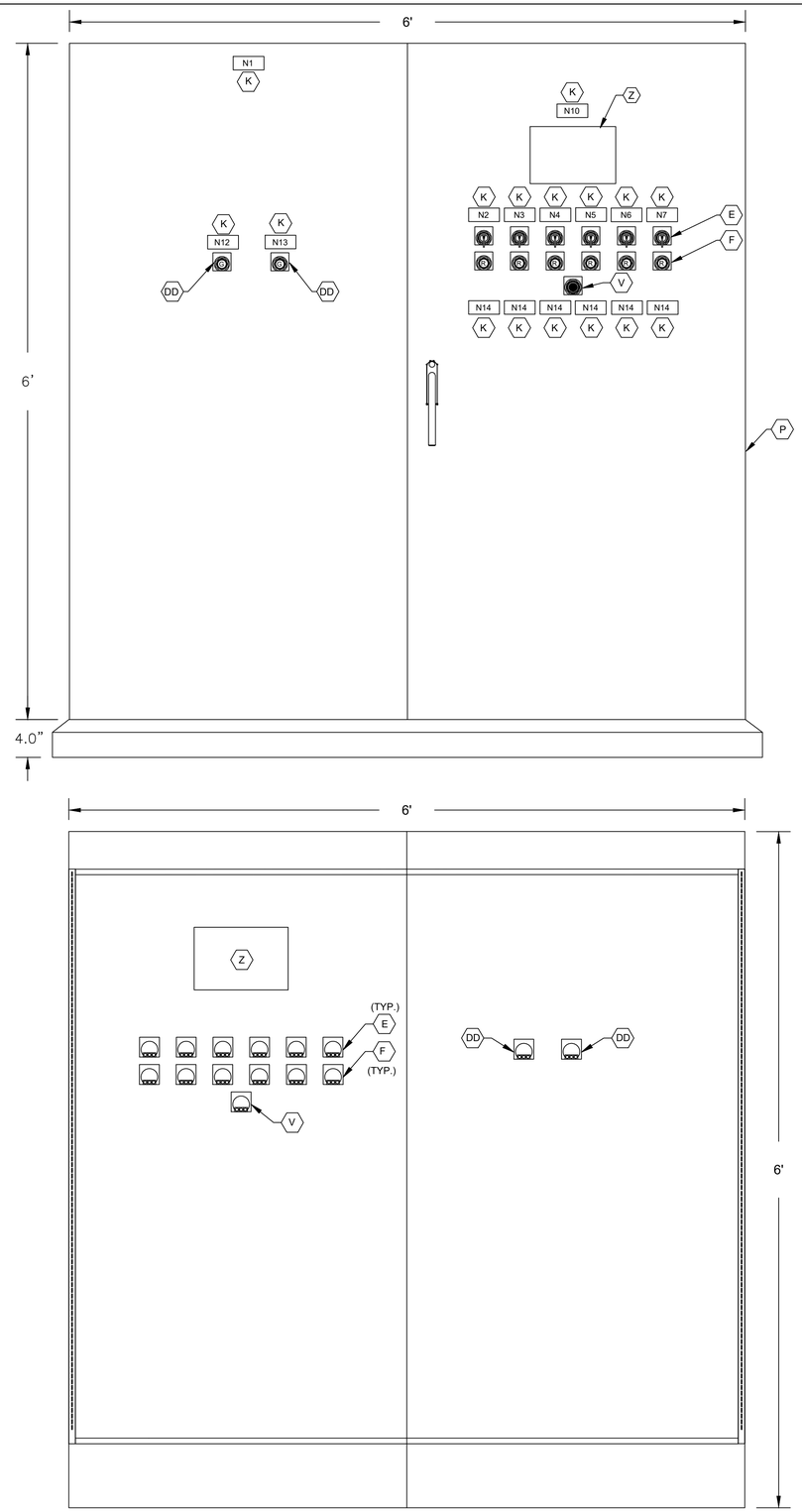
EQUIPMENT AND DEVICE SCHEDULE

ITEM	QTY.	DESCRIPTION
A	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY, ATC MODEL ISO-120-AFA
B	2	ANALOG I/O SURGE SUPPRESSOR EATON MODEL IOP32D
C	6	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I, MINICAS II 83 58 57 24VDC/AC
D	3	CONTROL RELAY, 3 POLE, 120VAC CONTROL COIL - TURCK C3-A30X/120AC W/S3-S BASE
E	6	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL), ALLEN-BRADLEY MODEL 800H-JR2B
F	6	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2R
G	7	TERMINAL RAIL, STEEL GALVANIC ZINC, W: 2000 mm, H: 15 mm, D: 5.5 mm, WEIDMULLER ITEM No.0117510000
H	1	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST, HUBBELL MODEL HBL1221I WITH METALLIC BOX 4"X4" AND STEEL METALLIC SQUARE BOX COVER DUPLEX
I	2	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED, HUBBELL MODEL HBL53621 WITH METALLIC BOX 4"X4" AND STEEL METALLIC SQUARE BOX COVER DUPLEX
J	1	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION, HOFFMAN MODEL LF120V28
K	73	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
L	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT, SIEMENS MODEL 6ES7214-1HG40-0XB0
M	39	CONTROL RELAY, 3 POLE, 24VDC CONTROL COIL - TURCK C3-A30X/24DC W/S3-S BASE
N	55	TAG CARRIER, SCHT 5 WEIDMULLER, CATALOG NO. 0292460000
O	16	END BRACKET, WEW 35/2 WEIDMULLER, CATALOG NO. 1061200000
P	1	NEMA 12 GASKETED STEEL ENCLOSURES WITHOUT VENTS 72" H x 72" W x 24" D.
Q	195	TERMINAL BLOCKS, WEIDMULLER WDU 2.5, CATALOG NO. 1020000000
R	10	WIRE DUCT 2" WIDE X 3" DEEP MINIMUM, LENGTH 6', HELLERMANN TYTON MODEL SL2X3W4
S	1	GROUND BUS
T	1	COMMUNICATION ETHERNET SWITCH, SIEMENS MODEL SCALANCE X310FE
U	1	ANALOG INPUT MODULE, 8 ANALOG INPUT, SIEMENS MODEL SIMATIC S7-1200, 6ES7231-4HF32-0XB0
V	1	PUMP ALARM RESET PUSHBUTTON, ROCKWELL MODEL 800H-AR2BF
W	3	ANALOG INPUT MODULE, 4 ANALOG INPUT, SIEMENS MODEL SIMATIC S7-1200, 6ES7231-4HD32-0XB0
X	192	FUSED TERMINAL BLOCKS, WEIDMULLER WSI 6, CATALOG NO. 1011000000
Y	1	480VAC, 3 PHASES SURGE PROTECTOR - SURGE SUPPRESSION INC MODEL SDLA3N4
Z	1	PROGRAMMING SCREEN (OIT) - SIEMENS INDUSTRY TP900 - CONFORT TOUCH PANEL
AA	1	DIGITAL INPUT/OUTPUT MODULE, 8 DI/8 DO 24 VDC , SIEMENS MODEL SIMATIC S7-1200, 6ES7223-1BH32-0XB0
BB	1	120VAC - 24VDC PLC POWER SUPPLY 5A, PHOENIX CONTACT MODEL QUINT-PS/1AC/24DC/5
CC	2	DIGITAL INPUT MODULE, 16 DIGITAL INPUT 24 VDC, SIEMENS MODEL SIMATIC S7-1200, 6ES7231-4BH32-0XB0
DD	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP, PLC" LEGEND, ALLEN-BRADLEY AB 800H-QRTH2G
EE	2	ANALOG SIGNAL ISOLATOR, TURCK MODEL IMS-AI-DLI-22-DLI/L

* - AS SCHEDULED

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED
N1	BISSONNET #4 LS PUMP STATION
N2	PUMP NO. 1
N3	PUMP NO. 2
N4	PUMP NO. 3
N5	PUMP NO. 4
N6	PUMP NO. 5
N7	PUMP NO. 6
N8	-
N9	-
N10	PROGRAMMING SCREEN
N11	-
N12	PRIMARY PLC
N13	BACKUP PLC
N14	MOTOR DATA HORSEPOWER (OUTPUT) ---------- RPM AT FULL LOAD ---------- TIME RATING ---------- FREQUENCY ---------- NUMBER OF PHASES ---------- MODEL NUMBER ---------- RATED VOLTAGE ---------- SERVICE FACTOR ---------- FULL LOAD AMPS ---------- INSULATION CLAS ---------- NEMA DESIGN LETTER ---------- TEMPERATURE RISE ---------- NEMA FRAME SIZE ---------- DATE OF MANUFACTURE ---------- THERMO PROTECTION (IF REQUIRED) -- MOISTURE PROTECTION (IF REQUIRED)-



CONTROL CABINET
FRONT DOOR
ELEVATION
SC.: 1-1/2"=1'-0"

CONTROL CABINET
INNER DOOR
ELEVATION
SC.: 1-1/2"=1'-0"

NO.	DATE	REVISION	L.L.	APP.
A	06/20/25	INTERNAL REVISION	M.S	
B	10/30/25	CLIENT REVIEW		

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E04

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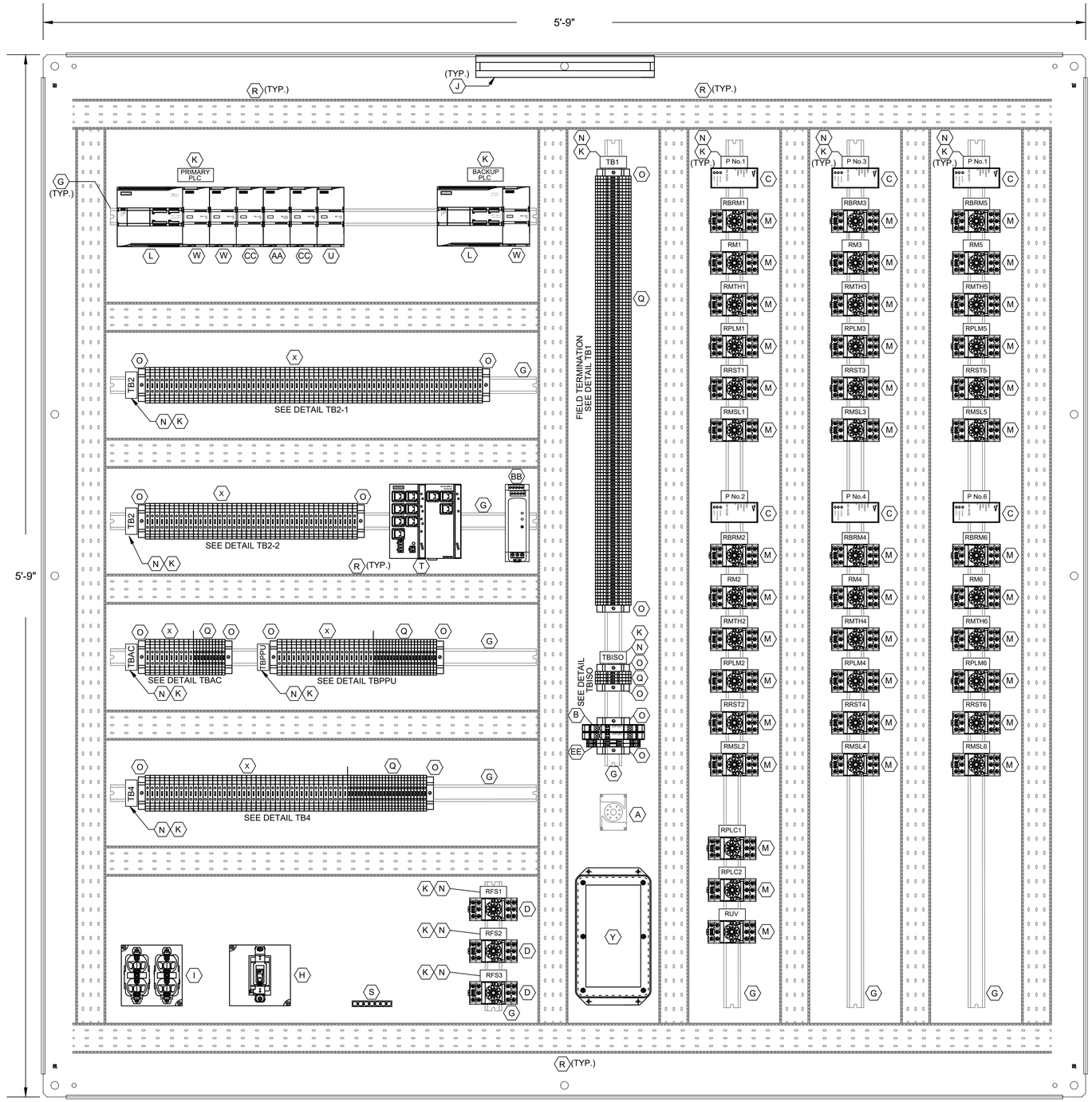

CONTROL PANEL INTERNAL ARRANGEMENT

SC.: 3"=1'-0"

L1A
L1N
SPARE
3
3N
SPARE
49
50
51
52
53
54
1004
1
24V-
24V-
SPARE
1002
2
11
1001
1001A
12
1003
1003A
34
3N
SPARE
SPARE
102
103
3P1
109
110
112
116
117
120
121
122
123
124
125
126
127
SPARE
SPARE
202
203
3P2
209
210
212
216
217
220
221
222
223
224
225
226
227
SPARE
SPARE
302
303
3P3
309
310
312
316
317
320
321
322
323

DETAIL TB1

324
325
326
327
SPARE
SPARE
402
403
3P4
409
410
412
416
417
420
421
422
423
424
425
426
427
SPARE
SPARE
503
3P5
509
510
512
516
517
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522
523
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526
527
SPARE
SPARE
602
603
3P6
609
610
612
616
617
620
621
622
623
624
625
626
627

DETAIL TB1 (CONT.)

36A
37A
50
52
54
52A
52A
54A
L+
M
35B
38B
41B
44B
SPARE
SPARE
47B
50B
53B
13B
13AB
B
L+
M
14B
14AB
14GB
119
SPARE
L+
M
13
13A
13G
14
14A
14G
1M
2M
1L
3
30
32
34
37
38
41
33B
45
18B
SPARE
100
112
113
114
115
117
118
119
120
121
SPARE
200
212
213
214
215
217
218
219
220
221
SPARE

DETAIL TB2-1

300
312
SPARE
313
314
315
317
318
319
320
321
SPARE
400
412
413
414
415
417
418
419
420
421
SPARE
500
512
513
514
515
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518
519
520
521
SPARE
600
612
613
614
615
617
618
619
620
621
SPARE

DETAIL TB2-2

1
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N1
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N11
N12
N13
N14
N15
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N17
N18
N19
N20
N21
N22
N23
N24
N25

DETAIL TB4

L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
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L14
L15
L16
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N15
N16
N17
N18
N19
N20

DETAIL TBPPU

L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10

DETAIL TBAC

1500
1501
1503
1504

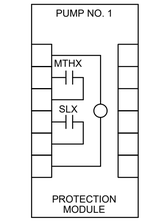
DETAIL TBISO

LEGEND

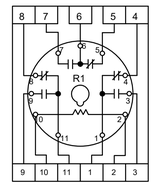
TAG	DESCRIPTION
RMTH	MOTOR HIGH TEMPERATURE ALARM RELAY
RPLM	PLC PUMP RUN RELAY
RRST	PUMP RESET AUX RELAY
RPLC	PLC MODE AUX RELAY
RMOR	MOTOR OVERLOAD ALARM RELAY
RBRM	BACKUP SYSTEM RUN RELAY
RUV	UNDER VOLTAGE RELAY
ISO	INTRINSICALLY SAFE RELAY
RFS	PUMP RUN FLOAT SWITCH RELAY
TDFRM	TIMER FLOAT SWITCH RUN RELAY
RMSL	MOTOR SEAL LEAK ALARM RELAY
RM	PUMP RUN AUX RELAY

NOTES:

1. SEE SHEET N1E04 FOR EQUIPMENT SCHEDULE.



PUMP PROTECTION MODULE DETAIL, ITEM C



RELAY DETAIL ITEM D

NO.	DATE	REVISION	APP.
A	06/20/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

CONTROL CABINET EQUIPMENT LAYOUT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
N1E05	SHEET NO. OF 246

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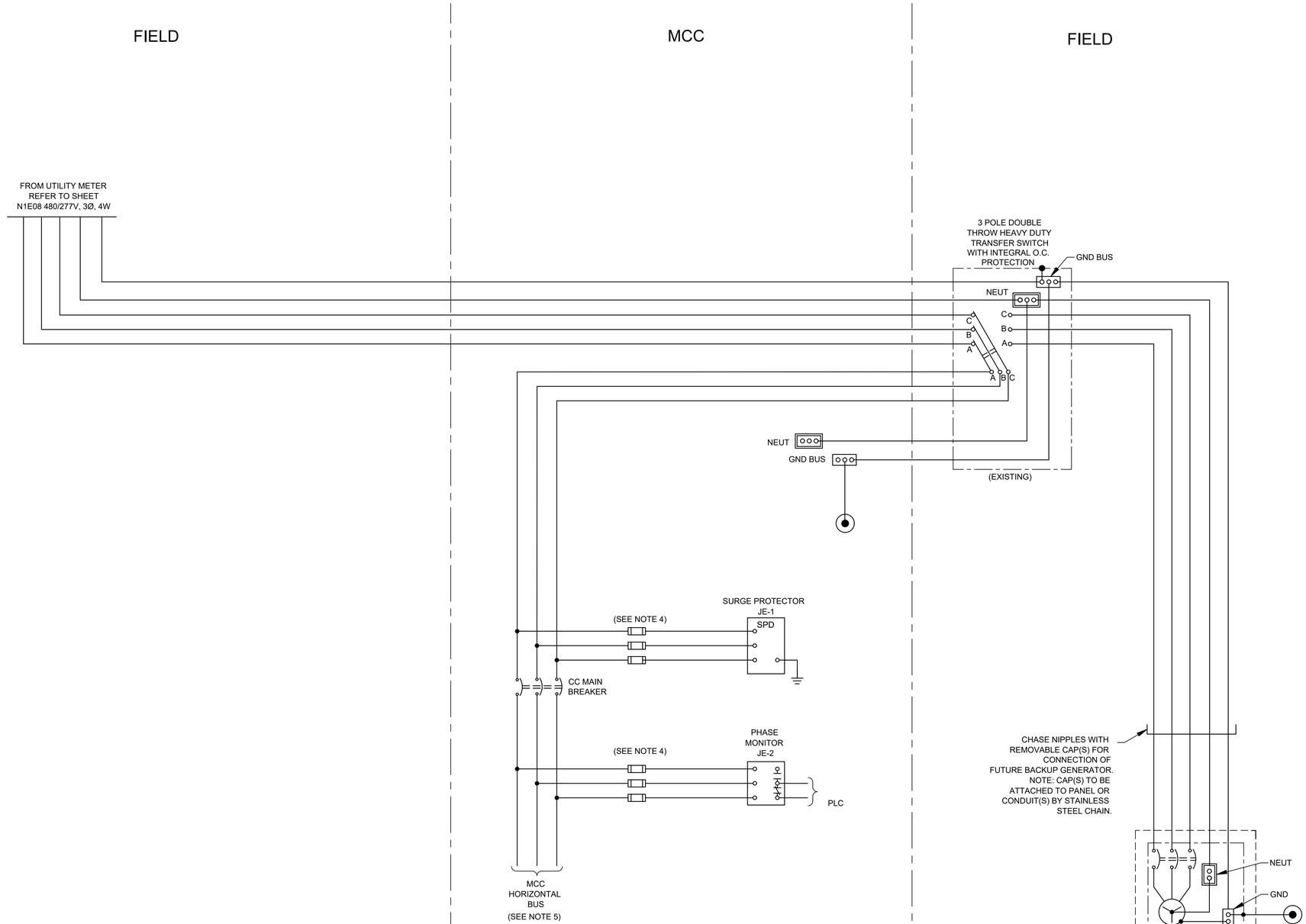

NO.	DATE	REVISION	M.S	APP.
A	06/20/25	INTERNAL REVISION	L.L.	
B	10/30/25	CLIENT REVIEW		

NOTES:

1. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE MOTOR CONTROL CENTER (MCC).
2. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
3. FOR ELECTRICAL DIAGRAM, SEE DRAWING N1E08.
4. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
5. FOR MCC SCHEMATIC AND WIRING DIAGRAM, SEE DRAWING N1E07.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

INCOMING POWER
THREE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E06

PLOTTED: 10/28/2025 12:54 PM
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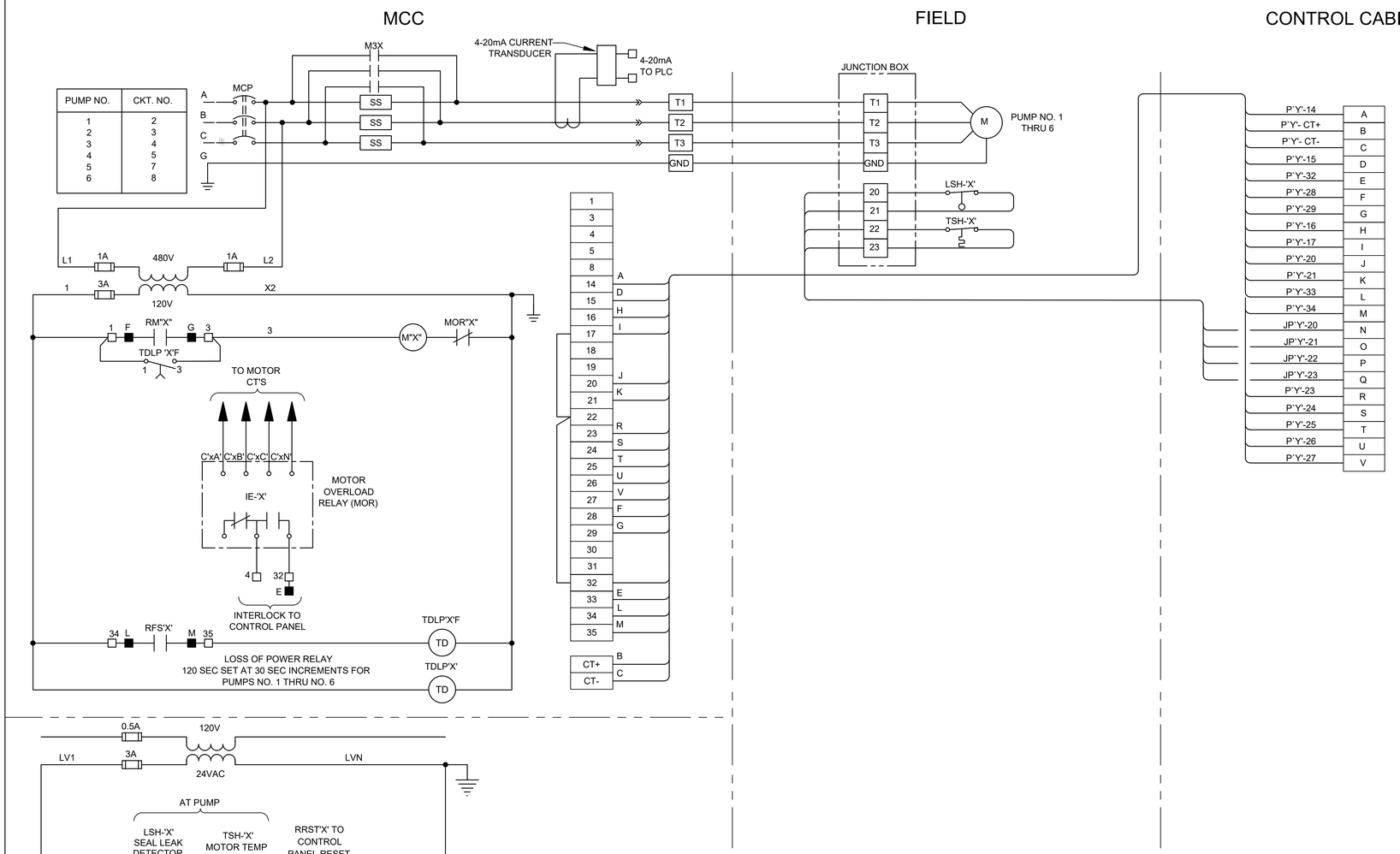

NOTES:

1. THE 'X' NOTATION IN SCHEMATIC DESIGNATIONS REPRESENTS APPLICABLE PUMP NO. 1, 2, 3, 4, 5, OR 6.
2. THE 'Y' NOTATION INDICATES MCC CIRCUIT NUMBER.
3. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE MOTOR CONTROL CENTER (MCC).
4. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED. OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. (VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.)

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- * DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

WIRE TAG OR TERMINAL LABEL	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3	PUMP NO. 4	PUMP NO. 5	PUMP NO. 6	FUNCTION
A	3P1	3P2	3P3	3P4	3P5	3P6	24VDC CONTROL
B	124	224	324	424	524	624	4-20mA CURRENT TRANSDUCER
C	125	225	325	425	525	625	4-20mA CURRENT TRANSDUCER
D	116	216	316	416	516	616	M CONTACT
E	117	217	317	417	517	617	OVERLOAD ALARM
F	114	214	314	414	514	614	RUN INTERLOCK
G	115	215	315	415	515	615	RUN INTERLOCK
H	102	202	302	402	502	602	LOSS OF POWER TIMER
I	103	203	303	403	503	603	LOSS OF POWER TIMER
J	118	218	318	418	518	618	ALARM RESET INTERLOCK
K	119	219	319	419	519	619	ALARM RESET INTERLOCK
L	126	226	326	426	526	626	FLOAT SWITCH RUN INTERLOCK
M	127	227	327	427	527	627	FLOAT SWITCH RUN INTERLOCK
N	120	220	320	420	520	620	**SEAL LEAK DETECTOR**
O	121	221	321	421	521	621	SEAL LEAK DETECTOR
P	122	222	322	422	522	622	**MOTOR TEMPERATURE SWITCH**
Q	123	223	323	423	523	623	MOTOR TEMPERATURE SWITCH
R	109	209	309	409	509	609	SDDR MODE

INDOOR MCC PUMP SCHEMATIC & WIRING DIAGRAM

SCHEMATIC 1 -

NO.	DATE	REVISION	APP.
A	06/20/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

MCC SCHEMATIC AND WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E07

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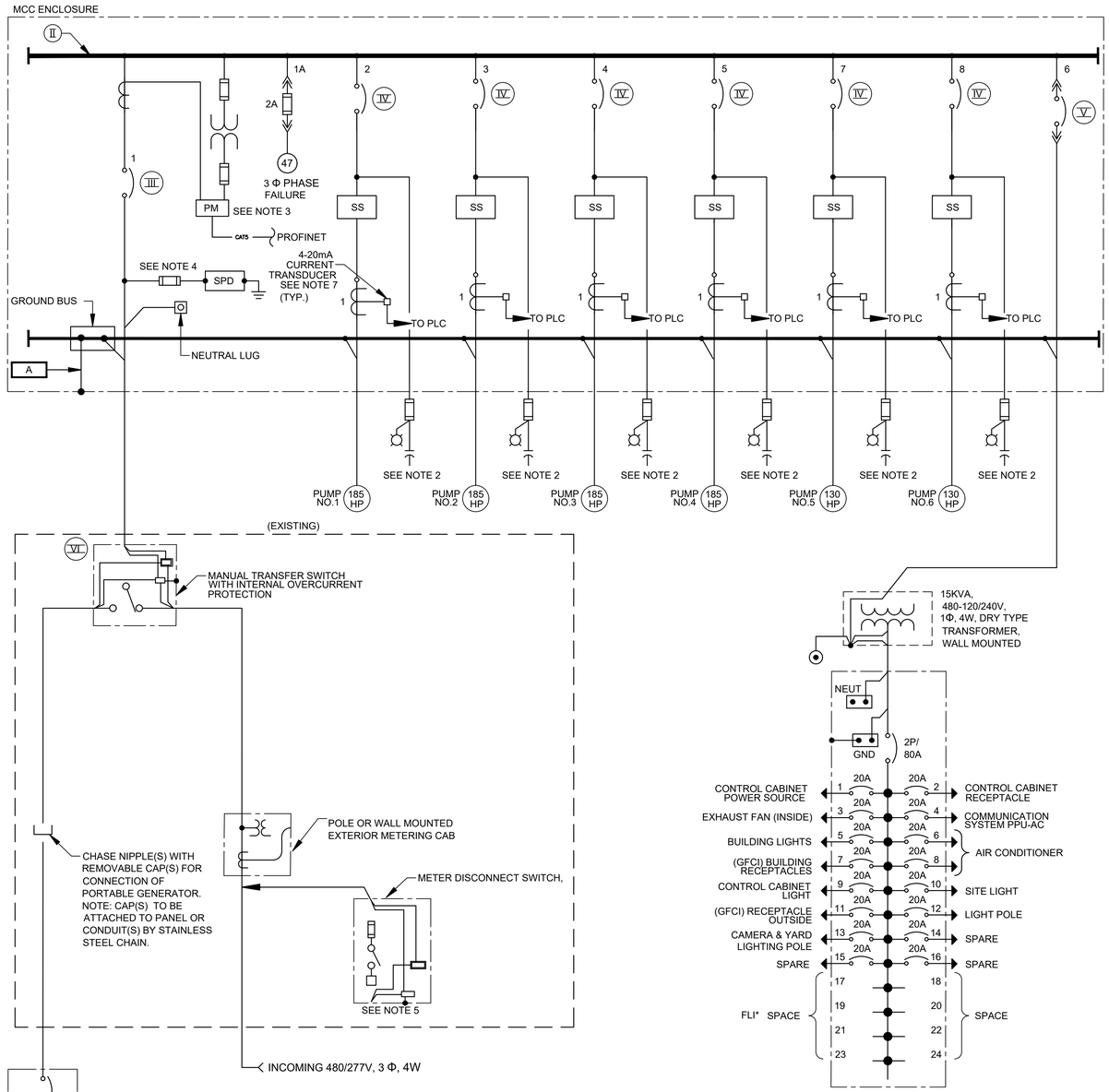

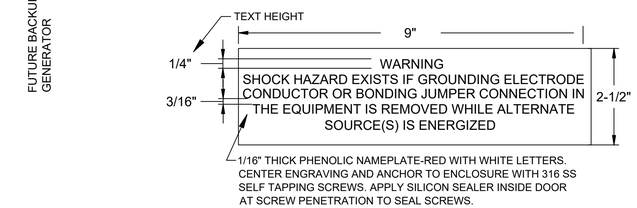

ELECTRICAL WARNING NAMEPLATE NEW ENGRAVING

RATINGS FOR PUMP SIZES INDICATED				
ITEM	CIRCUIT	DESCRIPTION	4 @ 185HP	2 @ 130HP
I		NOT USED		
		--	--	
		--	--	
		--	--	
		--	--	
II	--	MOTOR CONTROL CENTER MAIN BUS - 3/C COPPER		
		OPERATING VOLTAGE	480V	
		CURRENT RATING	1600A	
		NEUTRAL SIZE & TYPE	800A LUG	
		BUS BRACING	65KA SYM	
III	1G (SEE NOTE 6)	MAIN BREAKER		
		3 POLE - TYPE	MOLDED CASE	
		MOUNTING	FIXED	
		OPERATING VOLTAGE	480V	
		FRAME SIZE	1600A	
		TRIP SETTING	1400A	
		INTERRUPT CAPACITY	65KA SYM	
		OPTIONS	GND FAULT	
IV	2 3 4 5 7 8	PUMP MOTOR STARTERS		
		QUANTITY	6	
		MOUNTING	DRAWOUT	
		SHORT CIRCUIT PROTECTION		
		3 POLE - TYPE	MCP	MCP
		OPERATING VOLTAGE	480V	480V
		FRAME SIZE	600A	600A
		TRIP SETTING	FIELD ADJ	FIELD ADJ
		INTERRUPT CAPACITY	65KA SYM	65KA SYM
		MOTOR STARTING CONTACTOR		
		3 POLE - TYPE		
		OPERATING VOLTAGE		
		SIZE		
		OVERLOAD PROTECTION TYPE	SOLID STATE MOR	SOLID STATE MOR
		CT RATIO	300:5	200:5
V	6	LIGHTING TRANSFORMER FEEDER BREAKER		
		NO. OF POLES	2	
		TYPE	MOLDED CASE	
		OPERATING VOLTAGE	480V	
		FRAME SIZE	150A	
		TRIP SETTING	50A	
		INTERRUPT CAPACITY	65KA SYM	
VI	--	MANUAL TRANSFER SWITCH (EXISTING)	---	
		OPERATING VOLTAGE	480V	
		CURRENT RATING	1600A	
MOTOR CONTROL CENTER ELEVATION LETTER			C	
INDOOR CONTROL PANEL WIDTH (MIN)			60"	
CONTROL BUILDING CONFIGURATION			CONTROL BUILDING	

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	
1	PUMP NO. 1	130 HP	150A
2	PUMP NO. 2	130 HP	150A
3	PUMP NO. 3	185 HP	215A
4	PUMP NO. 4	185 HP	215A
5	PUMP NO. 5	185 HP	215A
6	PUMP NO. 6	185 HP	215A
7	15 KVA TRANSFORMER		31A
SUBTOTAL			1191A
25% OF LARGEST MOTOR LOAD			54A
MINIMUM AMPACITY @480V/3 Φ			1245A

* BASED ON SELECTED PUMP MFG DATA

NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
2. CONTRACTOR SHALL VERIFY ACTUAL ELECTRIC VALUES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
3. POWER MONITOR.
4. PROVIDE FUSE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
5. WHERE USED 320 SERIES METER, USE 400A AND BELOW DISCONNECT.
6. PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
7. PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.

NO.	DATE	REVISION	APP.
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B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

SINGLE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E08

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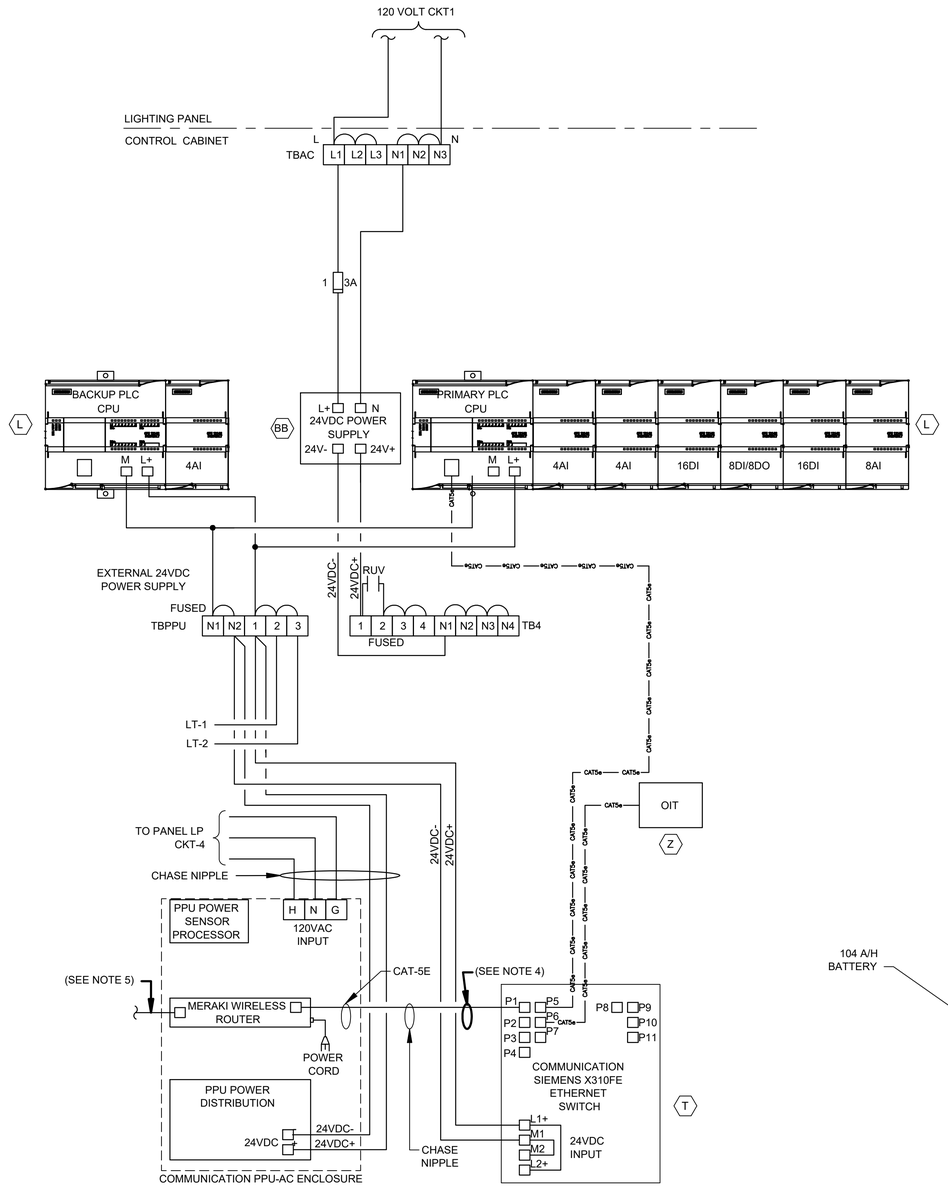
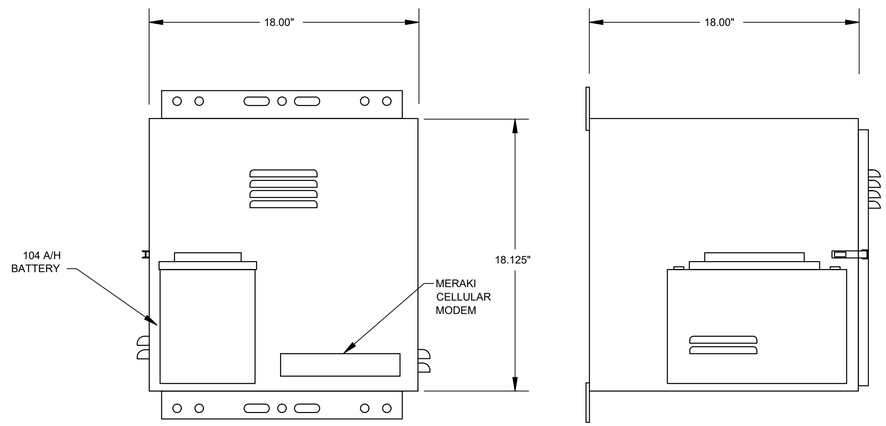


CONTROL POWER &
COMMUNICATIONS WIRING

DIAGRAM

NTS

(SEE NOTE 3)



PPU-AC ENCLOSURE
FRONT VIEW

PPU-AC ENCLOSURE
SIDE VIEW

PPU-AC
CONTROL ENCLOSURE

ELEVATION

NTS

NOTES:

1. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
2. THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
3. COMMUNICATION PPU-AC & SCADA SHALL BE PROVIDED BY CONTRACTOR INCLUDING TO RUN CONDUITS & WIRES.
4. ETHERNET CABLE FOR MERAKI CELLULAR ROUTER (P1).
5. POE CABLE TO RADIO.

NO.	DATE	REVISION	M.S	APP.
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B	10/30/25	CLIENT REVIEW		

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

COMMUNICATION DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E09

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NO.	DATE	REVISION	M.S	L.L.	APP.
A	06/20/25	INTERNAL REVIEW			
B	10/30/25	CLIENT REVIEW			

REVISION

HMI

INFLUENT PUMP NO. 1 | INFLUENT PUMP NO. 2 | INFLUENT PUMP NO. 3 | INFLUENT PUMP NO. 4 | INFLUENT PUMP NO. 5

IN SS IS 1 / IS 2 / IS 3 / IS 4 / IS 5

	PUMP 1	PUMP 2	PUMP 3	PUMP 4	PUMP 5
SEAL FAIL ALARM	MA 1	MA 2	MA 3	MA 4	MA 5
MOTOR OVERLOAD ALARM	MO 1	MO 2	MO 3	MO 4	MO 5
MOTOR CURRENT	II 1	II 2	II 3	II 4	II 5
HIGH TEMP ALARM	TH 1	TH 2	TH 3	TH 4	TH 5
IN HAND	HI 1	HI 2	HI 3	HI 4	HI 5
IN AUTO	IA 1	IA 2	IA 3	IA 4	IA 5
ON/OFF	YFS 1	YFS 2	YFS 3	YFS 4	YFS 5
START/ STOP	YCS 1	YCS 2	YCS 3	YCS 4	YCS 5

CONTROL CABINET (PLC)

CONTROL BUILDING

480V → PUMPS MCC → POWER & CONTROL CABINET

PUMP NO. 1 | PUMP NO. 2 | PUMP NO. 3 | PUMP NO. 4 | PUMP NO. 5 | PUMP NO. 6
H/O/A | RUN

PRIMARY PLC | BACKUP PLC

PUMP CONTROL PANEL

ALARMS RESET | OIT

TO SHEET N1E11

WET WELL

	PUMP No. 1	PUMP No. 2	PUMP No. 3	PUMP No. 4	PUMP No. 5	PUMP No. 6
	TSH 1A, LSH 1A	TSH 2A, LSH 2A	TSH 3A, LSH 3A	TSH 4A, LSH 4A	TSH 5A, LSH 5A	TSH 6A, LSH 6A
	M	M	M	M	M	M
	20"-DIP	20"-DIP	20"-DIP	20"-DIP	20"-DIP	20"-DIP
	42"x20 RED. TEE	42"x20 RED. TEE	42"x20 RED. TEE	42"x20 RED. TEE	42"x20 RED. TEE	42"x20 RED. TEE

LT 1, LE 1 | LT 2, LE 2

FS2 HIGH-HIGH LEVEL FLOAT SWITCH

FS1 HIGH LEVEL FLOAT SWITCH

42"-DIP → DISCHARGE

N1E11

N1E11

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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10/30/2025

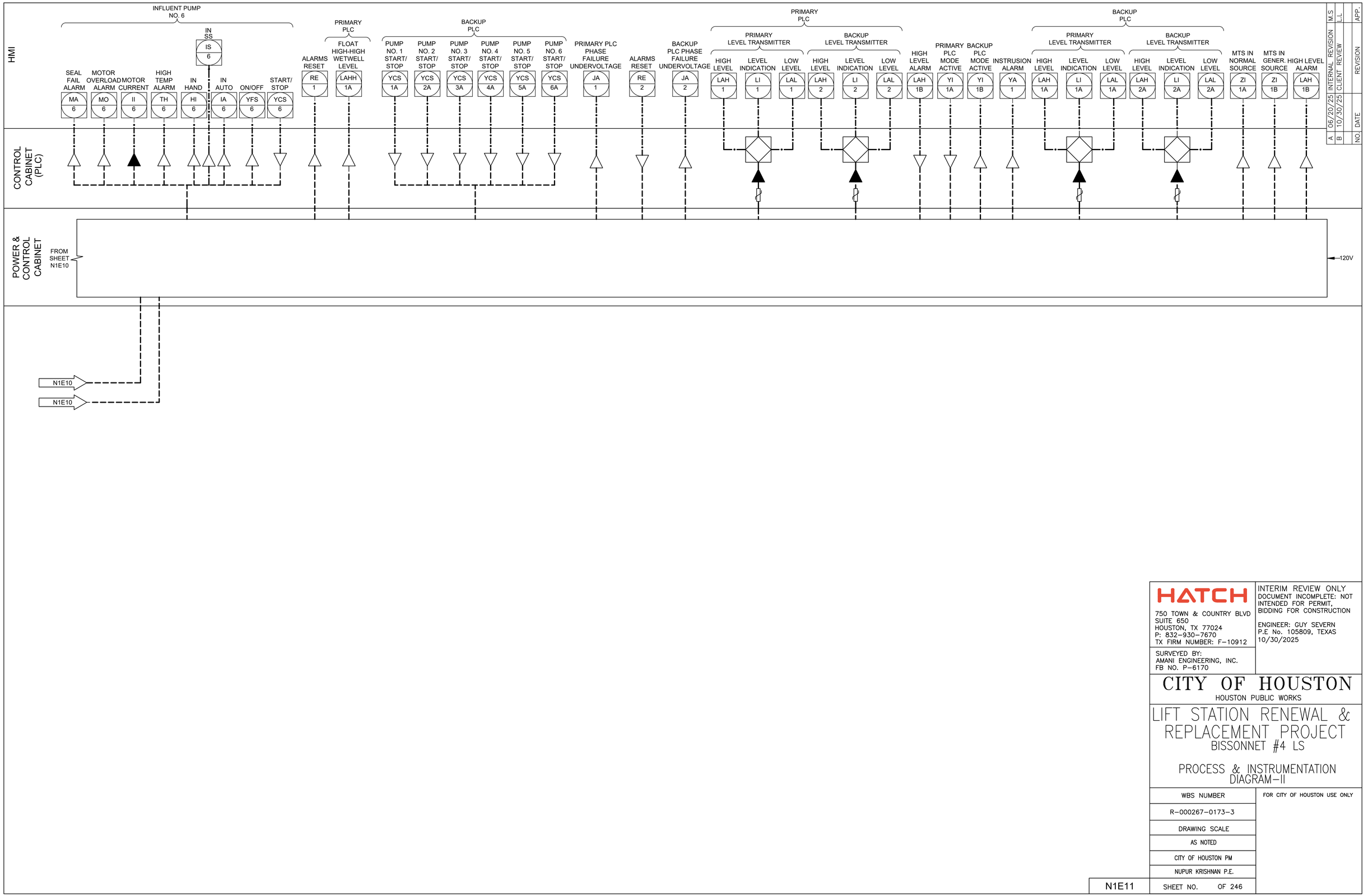
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

PROCESS & INSTRUMENTATION DIAGRAM-1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E10



NO.	DATE	REVISION	M.S	L.L	APP.
A	06/20/25	INTERNAL REVIEW			REVISION
B	10/30/25	CLIENT REVIEW			

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HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

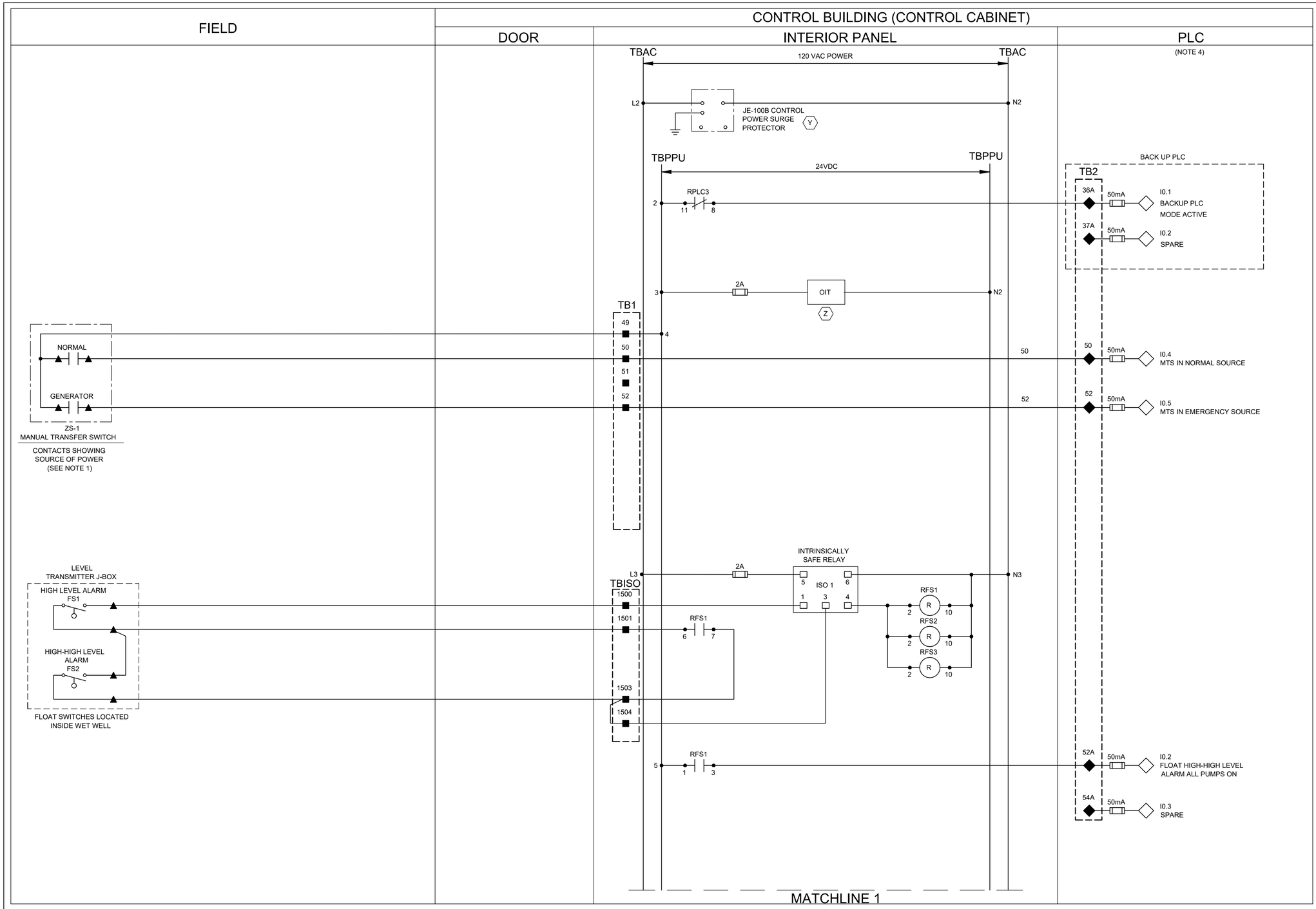
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

PROCESS & INSTRUMENTATION DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E11



NO.	DATE	REVISION	APP.
A	06/20/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
3. SEE SHEET N1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
4. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

CONTROL CABINET CONTROL WIRING DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E12

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FIELD	CONTROL BUILDING (CONTROL CABINET)		
	DOOR	INTERIOR PANEL	PLC

TBAC TPPU MATCHLINE 1 TPPU TBAC

120 VAC POWER

24VDC

TB1

TB2

(NOTE 4)

BACK UP PLC

6 — L+ — CPU POWER

N3 — M — CPU COMMON

RBRM1 — 5 — 2 R 10 — N4 — 35B — 1A — QO.0 PUMP NO.1 CALL TO RUN

RBRM2 — 6 — 2 R 10 — N5 — 38B — 1A — QO.1 PUMP NO.2 CALL TO RUN

RBRM3 — 7 — 2 R 10 — N6 — 41B — 1A — QO.2 PUMP NO.3 CALL TO RUN

RBRM4 — 8 — 2 R 10 — N7 — 44B — 1A — QO.3 PUMP NO.4 CALL TO RUN

RBRM5 — 9 — 2 R 10 — N8 — 47B — 1A — QO.4 PUMP NO.5 CALL TO RUN

RBRM6 — 10 — 2 R 10 — N9 — 50B — 1A — QO.5 PUMP NO.6 CALL TO RUN

53B — 1A — QO.6 SPARE

1004 — ANALOG ISOLATOR (C) — 13B — 50mA — AIO.0 PRIMARY WET WELL LEVEL TRANSMITTER

13AB

13GB

7 — 1 — 24- — 1002 — ANALOG ISOLATOR (C) — L+ — CPU POWER

8 — M — CPU COMMON

14B — 50mA — AIO.2 BACKUP WET WELL LEVEL TRANSMITTER

14AB

14GB

24V- — 2 — 9 — L+ — CPU POWER

N10 — M — CPU COMMON

13 — 50mA — AIO.0 PRIMARY WET WELL LEVEL TRANSMITTER

13A

13G

14 — 50mA — AIO.2 BACKUP WET WELL LEVEL TRANSMITTER

14A

14G

11 — 11 — 1001 — 1001 — 1001A — 1001A — ANALOG I/O SURGE SUPPRESSOR (CC) — 5 1 24V+ — 6 2 1001B — 7 3 24V+ — 8 4 1003B

12 — 12

1003 — 1003

1003A — 1003A

RADAR LEVEL TRANSMITTER

MFG. CABLE

PRIMARY RADAR LEVEL TRANSMITTER

LT-1

MFG. CABLE

BACKUP RADAR LEVEL TRANSMITTER

LT-2

MATCHLINE 2

NOTES:

1. SEE SHEET N1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

NO.	DATE	REVISION	L.L.	M.S
A	06/20/25	INTERNAL REVISION		
B	10/30/25	CLIENT REVIEW		

HATCH
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SUITE 650
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P: 832-930-7670
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ENGINEER: GUY SEVERN
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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

CONTROL CABINET CONTROL WIRING DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E13

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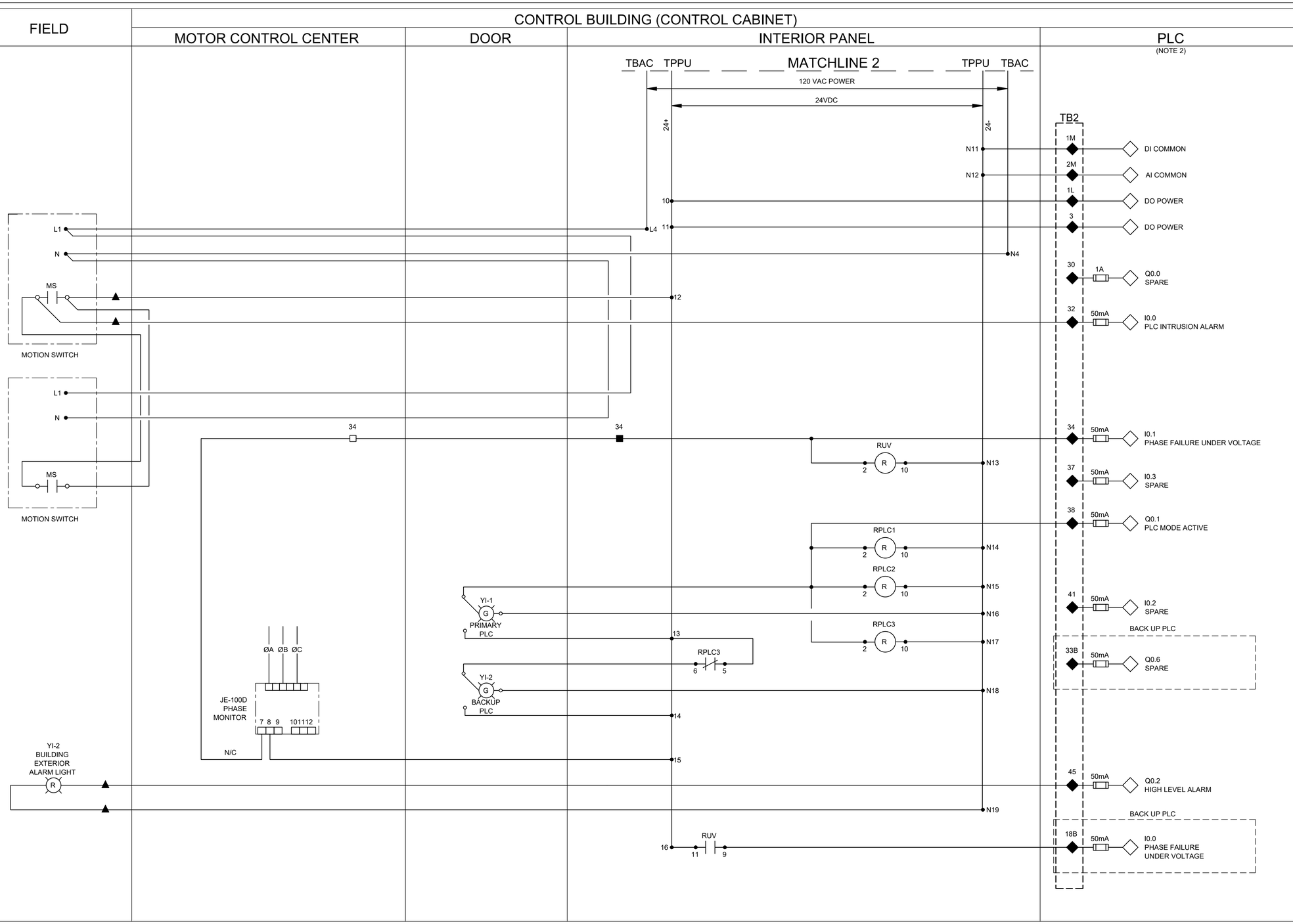

NO.	DATE	REVISION	M.S	APP.
A	06/20/25	INTERNAL REVISION	L.L.	
B	10/30/25	CLIENT REVIEW		

NOTES:

1. SEE SHEET N1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

CONTROL CABINET
CONTROL WIRING DIAGRAM-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E14

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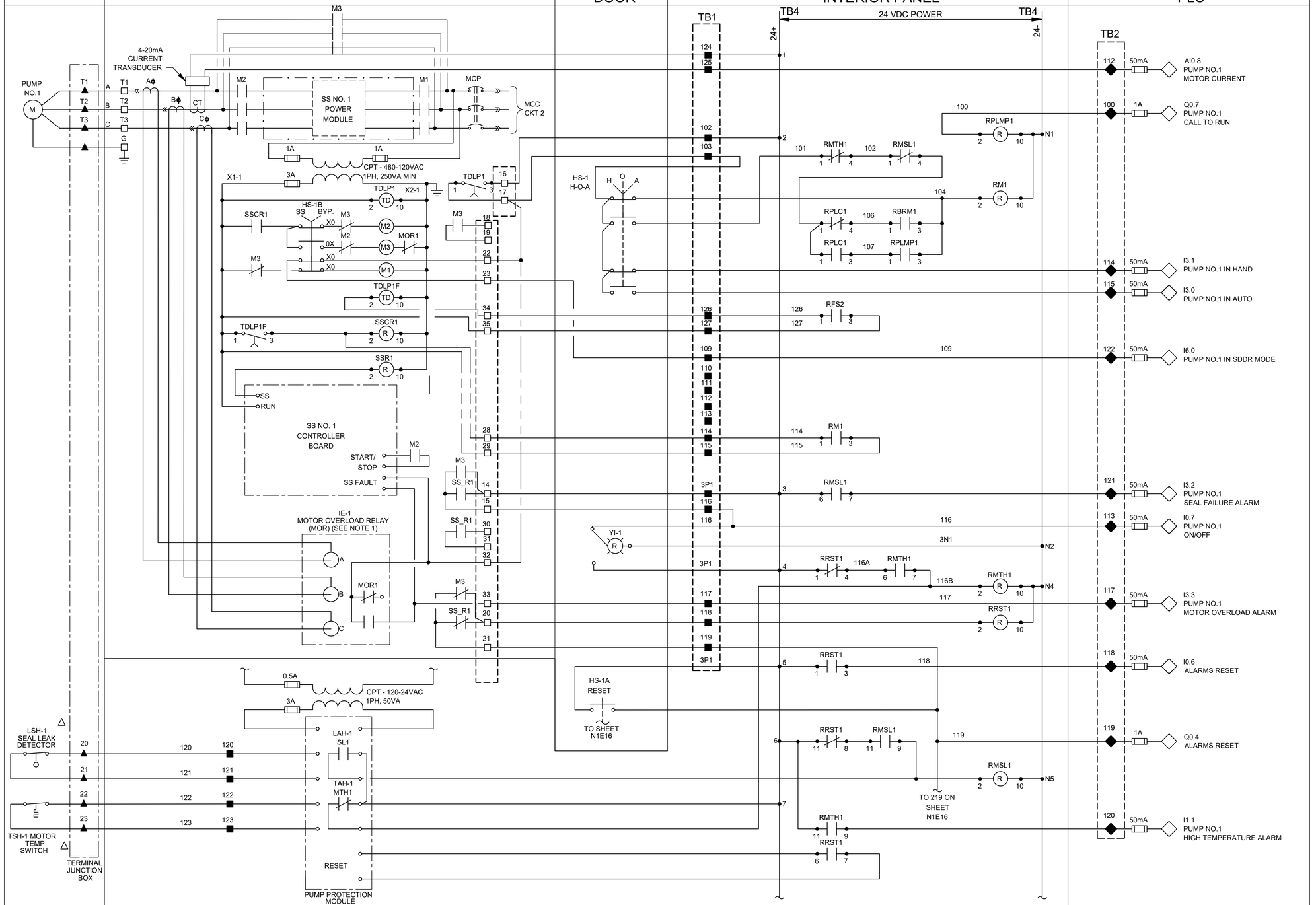
FIELD | CONTROL BUILDING (MOTOR CONTROL CENTER) | CONTROL BUILDING (CONTROL CABINET)

DOOR | INTERIOR PANEL | PLC



NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. N1E09.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

NO.	DATE	REVISION	M.S	L.L.	APP.
A	06/20/25	INTERNAL REVISION			
B	10/30/25	CLIENT REVIEW			

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

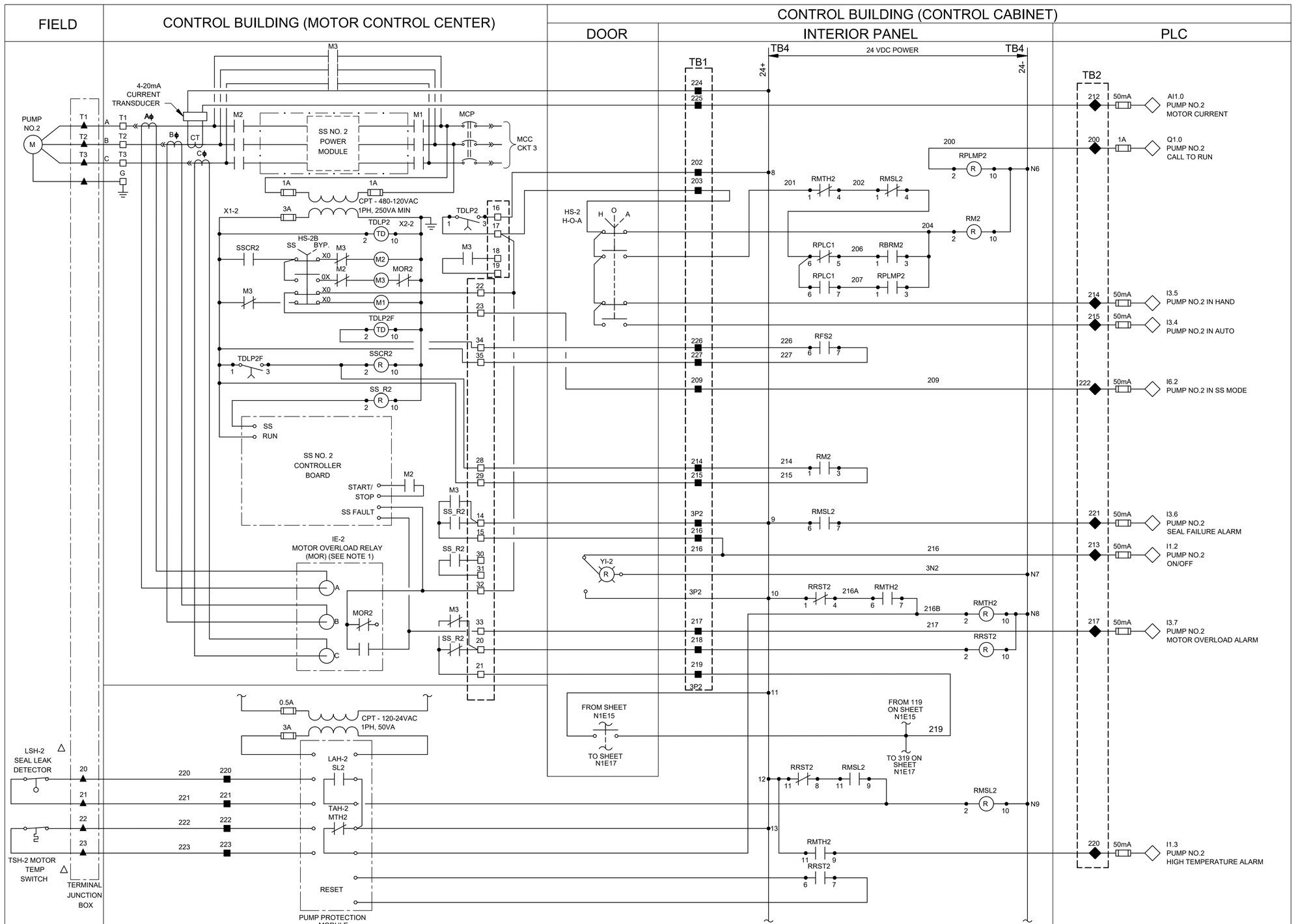
LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

PUMP NO.1 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E15

PLOTTED: 10/28/2025 12:56 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wuspplot01\d$\Global ProjectWise Plotting - WUS\Queue 3\queue3.dwg



NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. N1E09.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

NO.	DATE	REVISION	APP.
A	06/20/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

PUMP NO.2 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E16

PLOTTED: 10/28/2025 12:53 PM
PLOT STYLE: COH.ctb
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PLOTTED: 10/28/2025 12:57 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 1\queue1.dwg

REVISION			
NO.	DATE	REVISION	APP.
A	06/20/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

FIELD

CONTROL BUILDING (MOTOR CONTROL CENTER)

CONTROL BUILDING (CONTROL CABINET)

DOOR

INTERIOR PANEL

PLC

PUMP NO.3

4-20mA CURRENT TRANSDUCER

SS NO. 3 POWER MODULE

MCP

MCC CKT 4

CPT - 480-120VAC 1PH, 250VA MIN

CPT - 120-24VAC 1PH, 50VA

24 VDC POWER

TB1

TB2

TB4

HS-3 H-O-A

HS-3B SS BYP.

SS NO. 3 CONTROLLER BOARD

START/ STOP

SS FAULT

SS RUN

IE-3 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)

LSH-3 SEAL LEAK DETECTOR

TSH-3 MOTOR TEMP SWITCH

TERMINAL JUNCTION BOX

LAH-3 SL3

TAH-3 MTH3

RESET

PUMP PROTECTION MODULE

FROM SHEET N1E16

TO SHEET N1E18

FROM 219 ON SHEET N1E16

TO 419 ON SHEET N1E18

AI1.2 PUMP NO.3 MOTOR CURRENT

Q1.1 PUMP NO.3 CALL TO RUN

I4.0 PUMP NO.3 IN HAND

I4.1 PUMP NO.3 IN AUTO

I6.2 PUMP NO.3 IN SS MODE

I4.2 PUMP NO.3 SEAL FAILURE ALARM

I1.4 PUMP NO.3 ON/OFF

I4.3 PUMP NO.3 MOTOR OVERLOAD ALARM

I1.5 PUMP NO.3 HIGH TEMPERATURE ALARM

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. N1E09.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

PUMP NO.3
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E17

PLOTTED: 10/28/2025 12:49 PM
PLOT STYLE: COH.ctb
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APP.	REVISION	DATE	NO.
M.S	INTERNAL REVISION	06/20/25	A
L.L	CLIENT REVIEW	10/30/25	B

FIELD

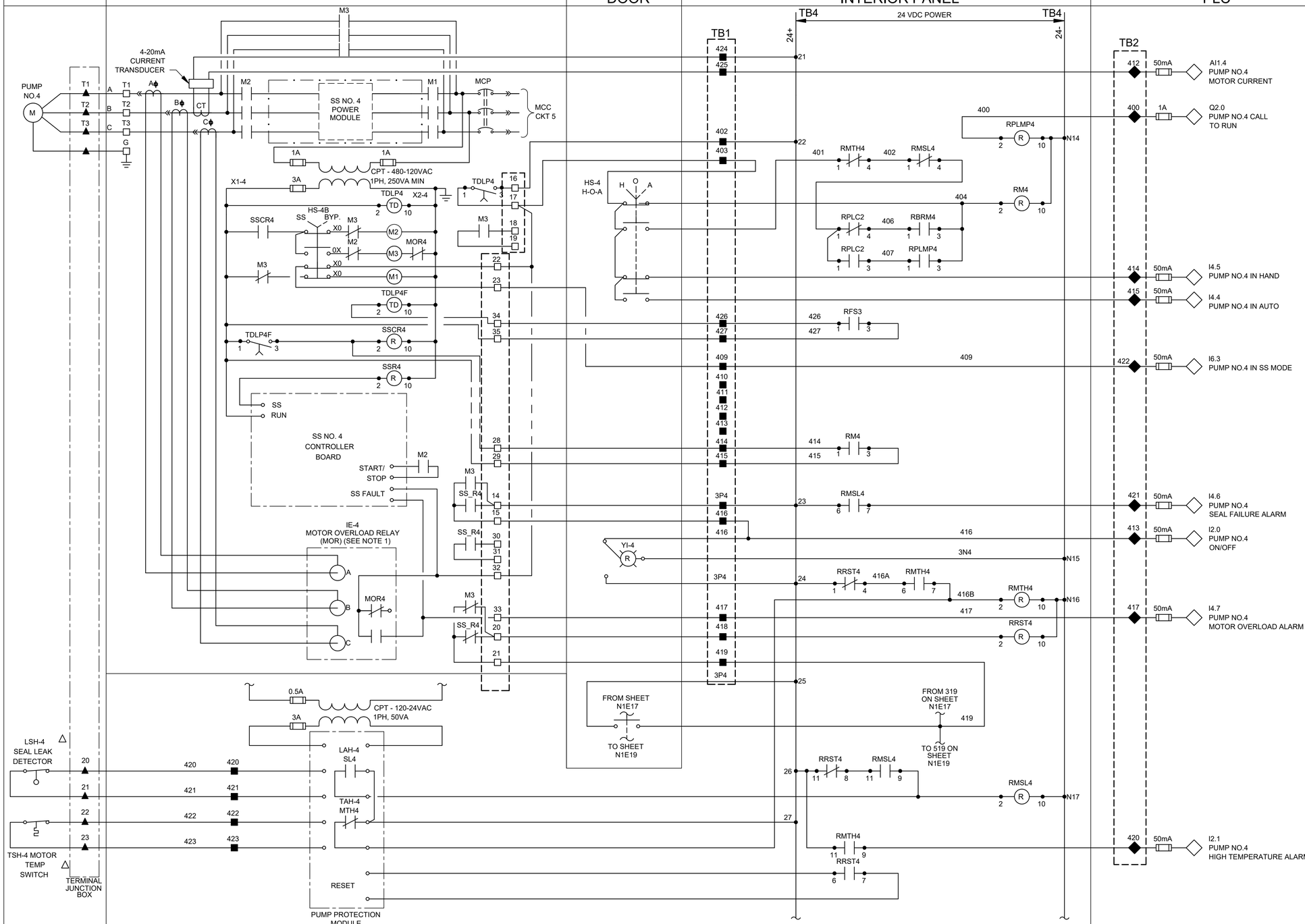
CONTROL BUILDING (MOTOR CONTROL CENTER)

CONTROL BUILDING (CONTROL CABINET)

DOOR

INTERIOR PANEL

PLC



NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. N1E09.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

PUMP NO.4
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E18

FIELD | CONTROL BUILDING (MOTOR CONTROL CENTER) | CONTROL BUILDING (CONTROL CABINET) — DOOR | INTERIOR PANEL | PLC

PUMP NO.5
4-20mA CURRENT TRANSDUCER
SS NO. 5 POWER MODULE
MCC CKT 7
CPT - 480-120VAC
CPT - 120-24VAC 1PH, 50VA
HS-5 H-O-A
SS NO. 5 CONTROLLER BOARD
START/ STOP
SS FAULT
SS RUN
IE-5 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)
PUMP PROTECTION MODULE
LSH-5 SEAL LEAK DETECTOR
TSH-5 MOTOR TEMP SWITCH
TERMINAL JUNCTION BOX
RESET
YI-5
TB1
TB2
TB4
24 VDC POWER
24+
24-
FROM SHEET N1E18
TO SHEET N1E20
FROM 419 ON SHEET N1E18
TO 619 ON SHEET N1E20

AI1.6 PUMP NO.5 MOTOR CURRENT
Q2.1 PUMP NO.5 CALL TO RUN
I5.1 PUMP NO.5 IN HAND
I5.0 PUMP NO.5 IN AUTO
I6.4 PUMP NO.5 IN SS MODE
I5.2 PUMP NO.5 SEAL FAILURE ALARM
I2.2 PUMP NO.5 ON/OFF
I5.3 PUMP NO.5 MOTOR OVERLOAD ALARM
I2.3 PUMP NO.5 HIGH TEMPERATURE ALARM

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. N1E09.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

NO.	DATE	REVISION	APP.
A	06/20/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

LEGEND
- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

PUMP NO.5
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E19

PLOTTED: 10/28/2025 1:00 PM
PLOT STYLE: COH.ctb
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PLOTTED: 10/28/2025 12:55 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wuspplot01\d$\Global ProjectWise Plotting - WUS\Queue 2\queue2.dwg

FIELD | CONTROL BUILDING (MOTOR CONTROL CENTER) | CONTROL BUILDING (CONTROL CABINET): DOOR | INTERIOR PANEL | PLC

PUMP NO.6
4-20mA CURRENT TRANSDUCER
SS NO. 6 POWER MODULE
MCC CKT 8
CPT - 480-120VAC 1PH, 250VA MIN
CPT - 120-24VAC 1PH, 50VA
24 VDC POWER
HS-6 H-O-A
HS-6B SS BYP.
SS NO. 6 CONTROLLER BOARD
START/ STOP
SS FAULT
SS RUN
IE-6 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)
PUMP PROTECTION MODULE
LSH-6 SEAL LEAK DETECTOR
TSH-6 MOTOR TEMP SWITCH
TERMINAL JUNCTION BOX
RESET
FROM SHEET N1E19
FROM 519 ON SHEET N1E19

PLC	
AI1.8	PUMP NO.6 MOTOR CURRENT
Q2.2	PUMP NO.6 CALL TO RUN
I5.5	PUMP NO.6 IN HAND
I5.4	PUMP NO.6 IN AUTO
I6.5	PUMP NO.6 IN SS MODE
I5.6	PUMP NO.6 SEAL FAILURE ALARM
I2.4	PUMP NO.6 ON/OFF
I5.7	PUMP NO.6 MOTOR OVERLOAD ALARM
I2.5	PUMP NO.6 HIGH TEMPERATURE ALARM

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. N1E09.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

NO.	DATE	REVISION	M.S	APP.
A	06/20/25	INTERNAL REVISION	E.L.	
B	10/30/25	CLIENT REVIEW		

LEGEND
- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

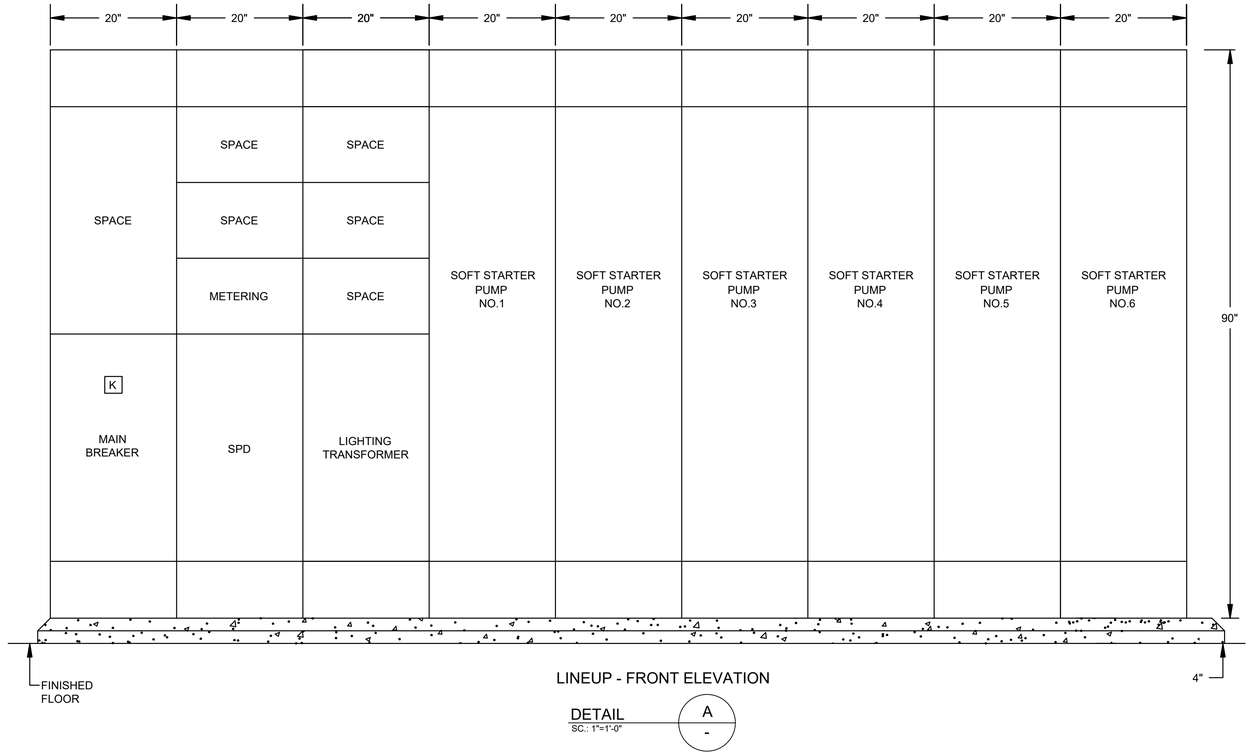
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

PUMP NO.6 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E20



LINEUP - FRONT ELEVATION

DETAIL A
SC.: 1"=1'-0"

NO.	DATE	REVISION	APP.
A	06/20/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
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INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

MCC ELEVATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E21

PLOT STYLE: COH.ctb PLOTTED: 10/28/2025 12:52 PM
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 4\queue4.dwg

	DESCRIPTION	SERVICE		ROUTING			WIRE SIZE & CONDUIT SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
100A	MCC SERVICE POWER	480V	VARIES	MANUAL TRANSFER SWITCH (EXISTING)	MAIN BREAKER IN MCC	DUCT BANK	2#1500 kCMIL, 4"C
100B	MCC SERVICE POWER	480V	VARIES	MANUAL TRANSFER SWITCH (EXISTING)	MAIN BREAKER IN MCC	DUCT BANK	2#1500 kCMIL, 4"C
100C	MCC SERVICE POWER	480V	VARIES	MANUAL TRANSFER SWITCH (EXISTING)	MAIN BREAKER IN MCC	DUCT BANK	2#1500 kCMIL, 4"C
100D	MCC SERVICE POWER	480V	VARIES	MANUAL TRANSFER SWITCH (EXISTING)	MAIN BREAKER IN MCC	DUCT BANK	2#1500 kCMIL, 4"C
100E	NORMAL/EMERGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH (EXISTING)	CONTROL CABINET	DUCT BANK	2#14, 3/4"C
A	EQUIPMENT BONDING JUMPER	--	--	MCC	GROUND BUS	--	1#6G
101	GROUND ELECTRODE CONDUCTOR	--	--	MCC	GROUND FIELD	DUCT BANK	1#6G
102	EXOTHERMIC WELD BUILDING GROUND CONDUCTOR			CONTROL BUILDING	GROUND FIELD	--	1#6G
103	BUILDING GROUND CONDUCTOR	--	--	BUILDING FOOTER REBAR	GROUND ROD	DUCT BANK	1#6G
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL CABINET	GROUND FIELD	DUCT BANK	1#6G
105	COMMUNICATION	--	--	PPU-AC	COMMUNICATION POLE	RIGID CONDUIT/DUCT BANK	ETHERNET CABLE, 3/4"C.
105A	COMMUNICATION LIGHTING POLE	120V	--	COMMUNICATION POLE (EXISTING)	LIGHTING PANEL	DUCT BANK	L13, 2#12 / 1#12G, 3/4"C
106	LIGHT POLE	120V	--	LIGHT POLE (EXISTING)	LIGHTING PANEL	DUCT BANK	L12, 2#12 / 1#12G, 3/4"C
200	PUMP NO. 1 POWER	480V	185 HP	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
202	PUMP NO. 1 POWER	480V	185 HP	PUMP NO. 1 JUNCTION BOX	SOFT STARTER PUMP NO.1 (MCC)	DUCT BANK	3#350AWG/kCMIL / 1#350AWG/kCMIL G, 3"C
203	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 1 JUNCTION BOX	CONTROL CABINET	DUCT BANK	(COMBINE 201 & 301) 8#14, 1"C
205	PUMP NO. 1 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	DUCT BANK	10C#14 / 1P+S#16 AWG, 1"C
206	PUMP NO. 1 CAPACITOR	480V	TBD	PUMP NO. 1 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	RIGID CONDUIT	3#350AWG/kCMIL / 1#350AWG/kCMIL G, 3"C
300	PUMP NO. 2 POWER	480V	185 HP	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
302	PUMP NO. 2 POWER	480V	185 HP	PUMP NO. 2 JUNCTION BOX	SOFT STARTER PUMP NO.2 (MCC)	DUCT BANK	3#350AWG/kCMIL / 1#350AWG/kCMIL G, 3"C
305	PUMP NO. 2 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	DUCT BANK	10C#14 / 1P+S#16 AWG, 1"C
306	PUMP NO. 2 CAPACITOR	480V	TBD	PUMP NO. 2 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	RIGID CONDUIT	3#350AWG/kCMIL / 1#350AWG/kCMIL G, 3"C
400	PUMP NO. 3 POWER	480V	185 HP	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
401	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
402	PUMP NO. 3 POWER	480V	185 HP	PUMP NO. 3 JUNCTION BOX	SOFT STARTER PUMP NO.3 (MCC)	DUCT BANK	3#350AWG/kCMIL / 1#350AWG/kCMIL G, 3"C
403	COMBINED PUMP CONTROLS	120V	185 HP	PUMP NO. 3 JUNCTION BOX	CONTROL CABINET	DUCT BANK	(COMBINE 401 & 501) 8#14, 1"C
405	PUMP NO. 3 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	DUCT BANK	10C#14 / 1P+S#16 AWG, 1"C
406	PUMP NO. 3 CAPACITOR	480V	TBD	PUMP NO. 3 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	RIGID CONDUIT	3#350AWG/kCMIL / 1#350AWG/kCMIL G, 3"C
500	PUMP NO. 4 POWER	480V	185 HP	PUMP NO. 4	PUMP NO. 4 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
501	PUMP NO. 4 CONTROLS	120V	--	PUMP NO. 4	PUMP NO. 4 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
502	PUMP NO. 4 POWER	480V	--	PUMP NO. 4 JUNCTION BOX	SOFT STARTER PUMP NO.4 (MCC)	DUCT BANK	3#350AWG/kCMIL / 1#350AWG/kCMIL G, 3"C
505	PUMP NO. 4 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	DUCT BANK	10C#14 / 1P+S#16 AWG, 1"C
506	PUMP NO. 4 CAPACITOR	480V	TBD	PUMP NO. 4 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	RIGID CONDUIT	3#350AWG/kCMIL / 1#350AWG/kCMIL G, 3"C
600	LIGHTING PANEL FEEDER	480V	--	MOTOR CONTROL CENTER	LIGHTING TRANSFORMER	RIGID CONDUIT	3#10AWG / 1#10AWG G, 1"C
601	LIGHTING PANEL GROUND	--	--	LIGHTING PANEL	GROUND FIELD	RIGID CONDUIT	1#6G
602	LIGHTING PANEL FEEDER	120/240V	--	LIGHTING TRANSFORMER	LIGHTING PANEL	RIGID CONDUIT	3#4AWG / 1#4AWG G, 1-1/2"C
700	PUMP NO. 5 POWER	480V	130 HP	PUMP NO. 5	PUMP NO. 5 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
701	PUMP NO. 5 CONTROLS	120V	--	PUMP NO. 5	PUMP NO. 5 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
702	PUMP NO. 5 POWER	480V	130 HP	PUMP NO. 5 JUNCTION BOX	SOFT STARTER PUMP NO.5 (MCC)	DUCT BANK	3#4/0 / 1# 4/0 G, 2-1/2"C
703	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 5 JUNCTION BOX	CONTROL CABINET	DUCT BANK	(COMBINE 701 & 801) 8#14, 1"C
705	PUMP NO. 5 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	DUCT BANK	10C#14 / 1P+S#16 AWG, 1"C
706	PUMP NO. 5 CAPACITOR	480V	TBD	PUMP NO. 5 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	RIGID CONDUIT	3#4/0 / 1# 4/0 G, 2-1/2"C
800	PUMP NO. 6 POWER	480V	130 HP	PUMP NO. 6	PUMP NO. 6 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
801	PUMP NO. 6 CONTROLS	120V	--	PUMP NO. 6 JUNCTION BOX	PUMP STARTER	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
802	PUMP NO. 6 POWER	480V	130 HP	PUMP NO. 6 JUNCTION BOX	SOFT STARTER PUMP NO.6 (MCC)	DUCT BANK	3#4/0 / 1# 4/0 G, 2-1/2"C
805	PUMP NO. 6 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	DUCT BANK	10C#14 / 1P+S#16 AWG, 1"C
806	PUMP NO. 6 CAPACITOR	480V	TBD	PUMP NO. 6 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	RIGID CONDUIT	3#4/0 / 1# 4/0 G, 2-1/2"C
900	INTRUSION ALARM	24VDC	--	MOTION SWITCH	CONTROL CABINET	RIGID CONDUIT	2#14, 1/2"C
1000	LEVEL TRANSMITTER	24VDC	--	LEVEL TRANSMITTER LT-1	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1001	LEVEL TRANSMITTER	24VDC	--	LEVEL TRANSMITTER LT-2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	TRANSMITTER JUNCTION BOX	CONTROL CABINET	DUCT BANK	COMBINE 1000/1001/1003, 4#14+2#14G / 4#14, 2"C
1003	WELL FLOAT SWITCHES	24VDC	--	FLOAT SWITCH NO.1 & NO.2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
1100	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO TRANSMITTER J-BOX	DUCT BANK	L11, 2#12 / 1#12G, 3/4"C,

NO.	DATE	REVISION	APP.
A	06/20/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. CONDUITS LABELED "FUTURE SPACE" ARE TO BE INSTALLED AND CAPPED IN FIELD.
2. ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2".
3. ALL UNDERGROUND CONDUITS (SINGLE AND MULTI-RUN) TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BISSONNET #4 LS

ELECTRICAL CONDUIT SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

N1E22

PLOTTED: 10/28/2025 12:46 PM
PLOT STYLE: COH.ctb
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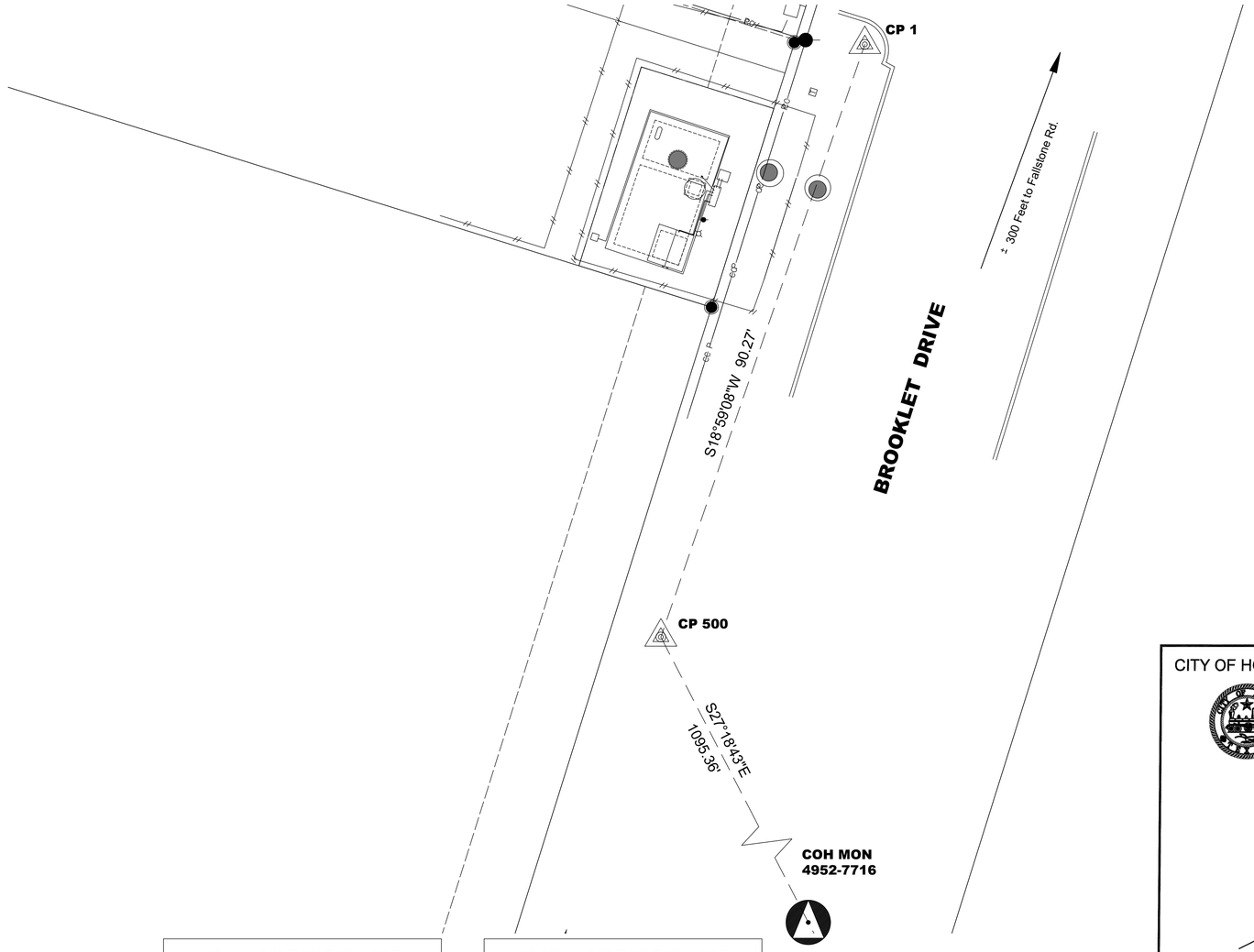
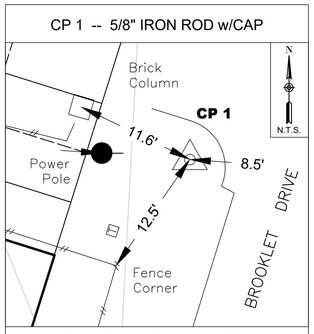
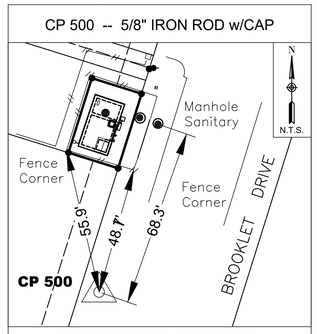


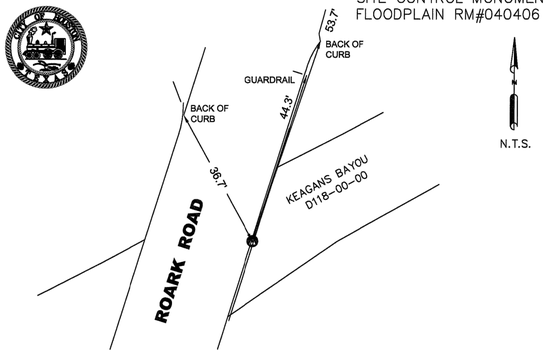




CP No.	Grid Northing	Grid Easting	Elevation	Description
1	13,803,175.29	3,059,675.27	72.36	5/8" IRON ROD w/CAP
500	13,803,089.93	3,059,645.91	72.14	5/8" IRON ROD w/CAP

CITY OF HOUSTON

CITY SURVEY 4952-7716
SITE CONTROL MONUMENT
FLOODPLAIN RM#040406



Project WBS# R-000267-0175-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,060,148.44
Y= 13,802,116.81

Lat.= N 29° 39' 21.6828"
Lon.= W 95° 33' 44.4834"

Keymap Page: 569C
Orthometric Elevation = 75.84
Ellipsoid Height= -13.77
Geoid: GEOID 18
Datum Source & Adjustment:
2-HR STATIC GPS OBSERVATION
MADE ON MONUMENT ON 10/23/2024

Reference Frame Used: NAD_83(2011)(EPOCH: 2010.0000)
Vertical Adjustment used: NAVD 88 GEOID18
General Location: ON THE EASTERLY SIDE OF ROARK RD. APPROXIMATELY 140 FEET SOUTH OF HWAY 59 INTERSECTION.

Date Set: MAY 14, 2003 Type of Mark: BRASS DISK

3 Nearest project control points (bearings and distances stated below):
1. CP #501, 5/8" IRON ROD CAPPED "AMANI", N 43° 18' 08" W, 888.20'
2. CP #500, 5/8" IRON ROD CAPPED "AMANI" , N 27° 18' 43" W, 1095.36'
3. CP #1, 5/8" IRON ROD CAPPED "AMANI" , N 24° 05' 09" W, 1159.56'

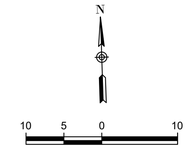
NOTE:
1. Bearings are grid bearings.
2. Combined Factor (C.F)= 0.99987955.

Surface= Grid
C.F.

Surveyed By: Amani Engineering, Inc.
11011 Richmond Avenue, Suite 700
Houston, TX 77042
Tel. (713)270-5700
Texas Registered Survey Firm 10028200

STATE OF TEXAS REGISTERED CHRISTINA I. WEAVER 6753 PROFESSIONAL LAND SURVEYOR
2.18.25

P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\Monument\Brooklet LS\4952-7716.dwg



NO.	DATE	REVISION	APP.

NOTES:

1. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204) NORTH AMERICAN DATUM OF 1983 (2011 ADJ) 2010 EPOCH. COORDINATES SHOWN HEREON ARE GRID VALUES AND ALL DISTANCES SHOWN ARE SURFACE VALUES. THE HCFCD PUBLISHED COMBINED SCALE FACTOR IS 0.99988000.
2. GRID COORDINATES/SCALE FACTOR = SURFACE COORDINATES.
3. FIELD DATA COLLECTED OCTOBER 2024.
4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID 18. ALL CONTROL NETWORK ELEVATIONS ARE TIED TO CITY SURVEY 4952-7716 SITE CONTROL MONUMENT USING DIFFERENTIAL LEVELING.
5. THE CONVERSION FACTOR FROM PROJECT LEVELED G18 ELEVATION TO THE HCFCD CALLED G99 ELEVATION = +0.51'.

PROJECT BENCH MARK:

A BRASS DISK LOCATED ON THE EASTERLY SIDE OF ROARK RD. APPROXIMATELY 140 FEET SOUTH OF HIGHWAY 59 INTERSECTION.
OBSERVED ELEVATION = 75.84' (NAVD 88 GEOID 18)
CALL ELEVATION = 76.35'.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE, NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

WILLIAM H. REIMER III, R.P.L.S.
Surveyor
4044
Registration Number
10/23/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

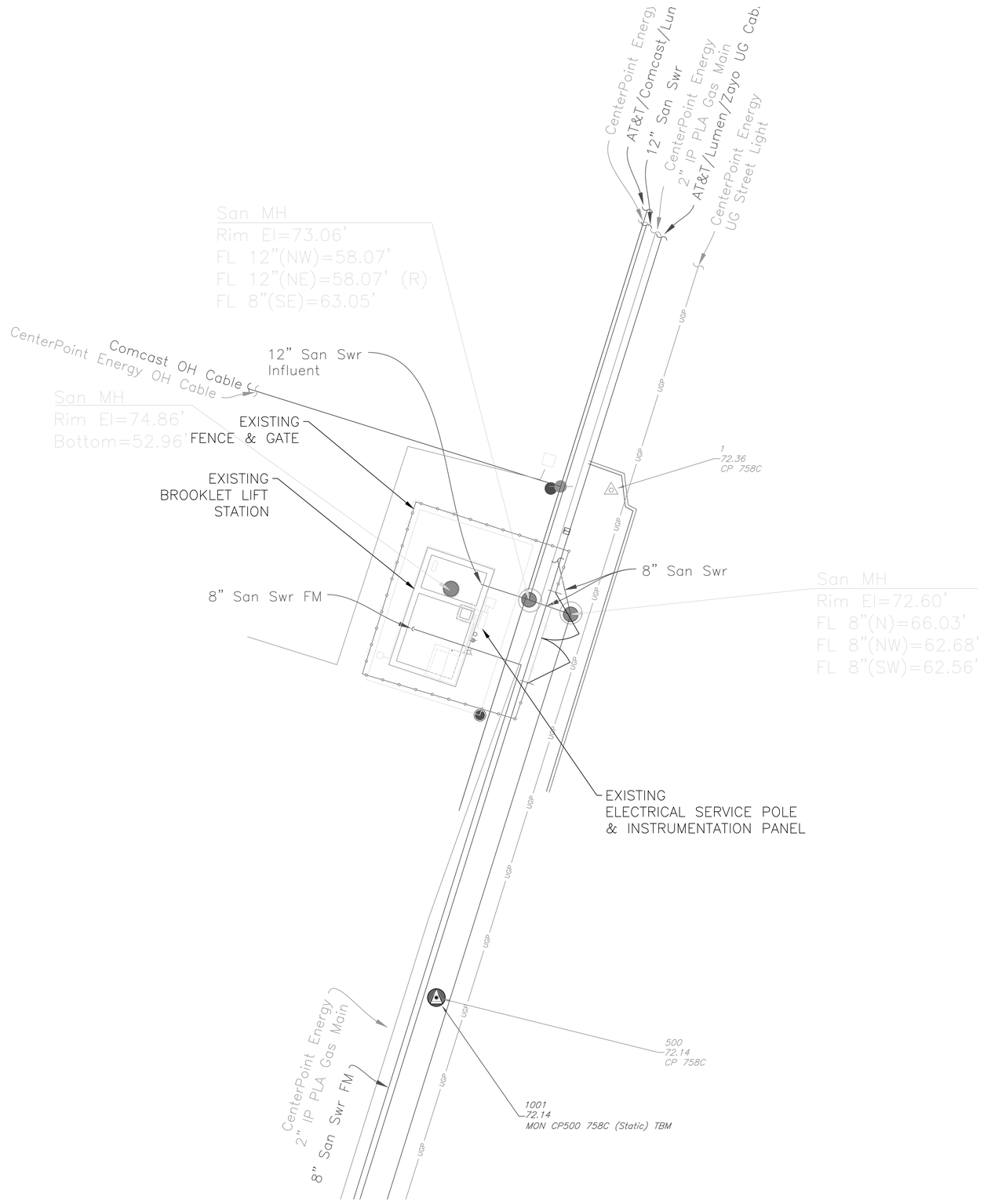
BROOKLET LS
SURVEY CONTROL MAP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
1" = 10'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN	
SHEET NO. OF 246	

C1C01

FILE PATH: P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Survey Control Drawings\Control-Brooklet LS.dwg

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



N

NOTE:

1. LS SITE IS LOCATED IN THE 100 YEAR FLOODPLAIN

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

EXISTING TOPOGRAPHIC PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1C02

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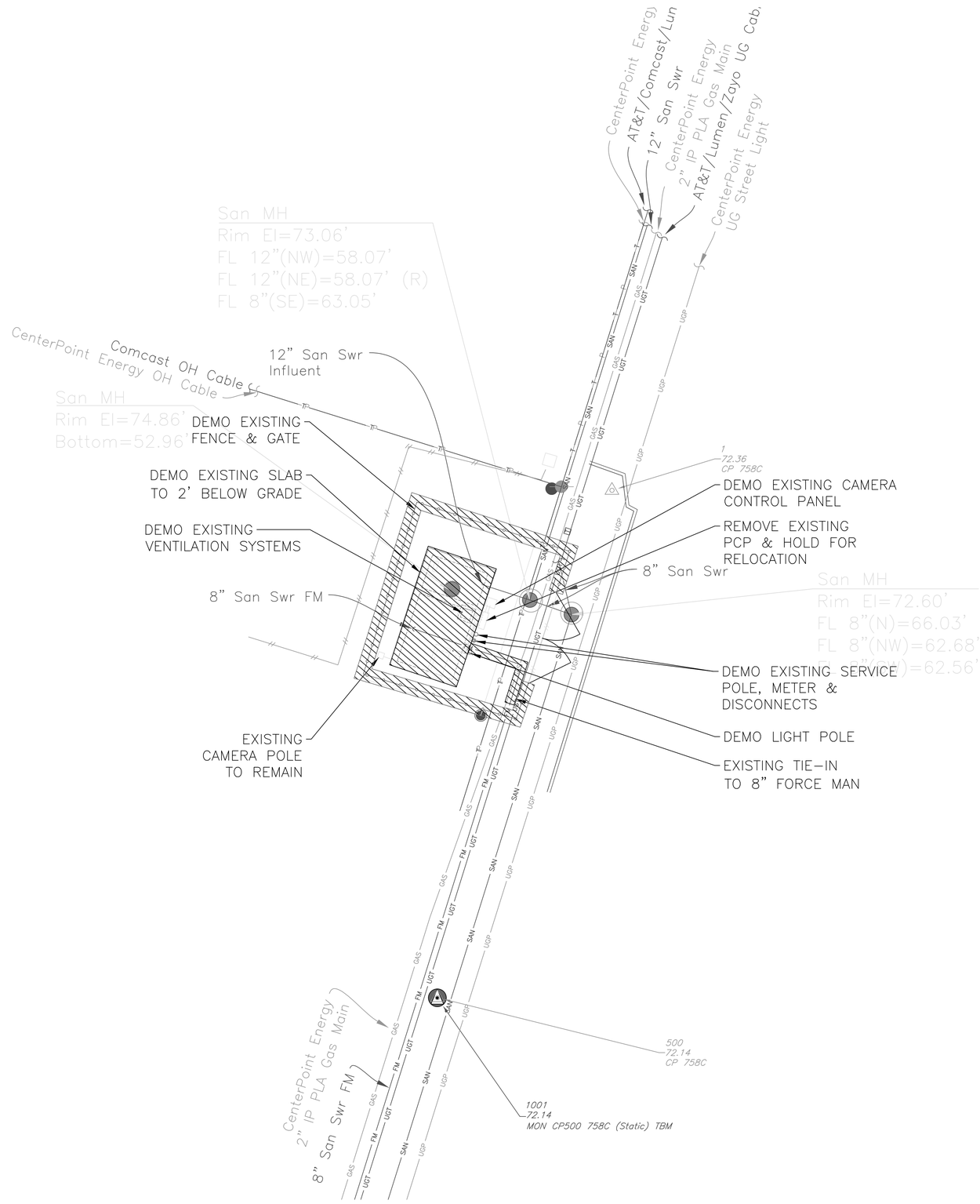

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

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VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS
DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1C03

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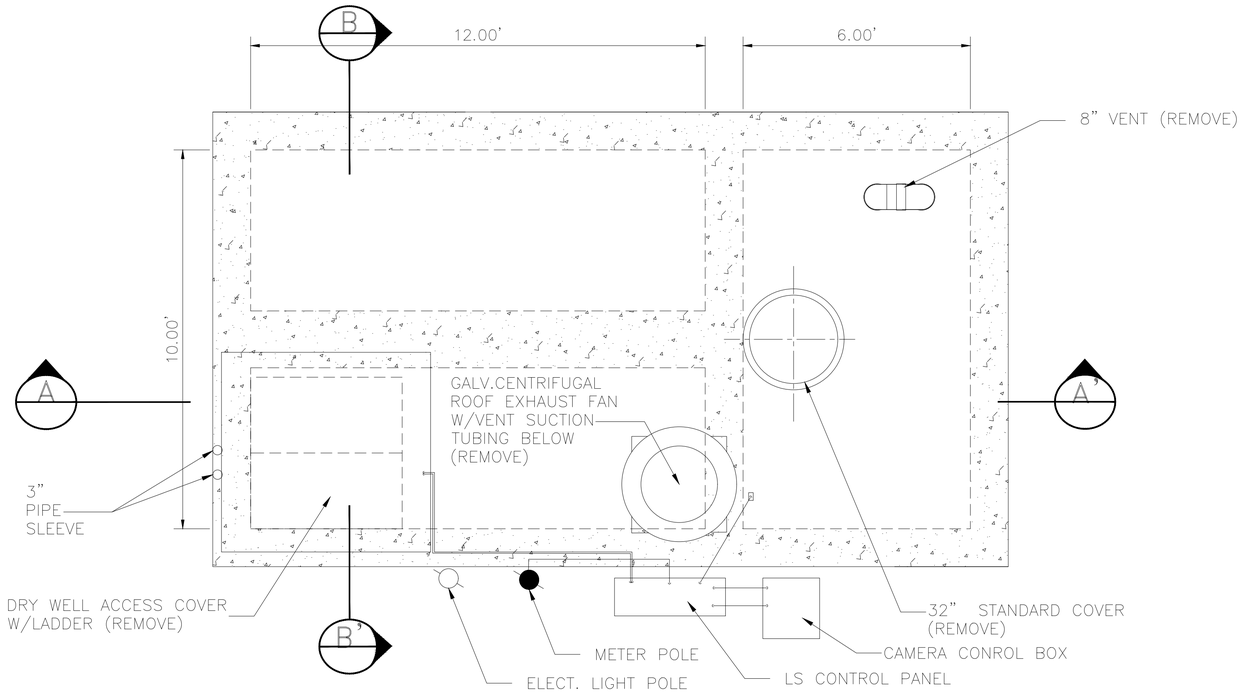
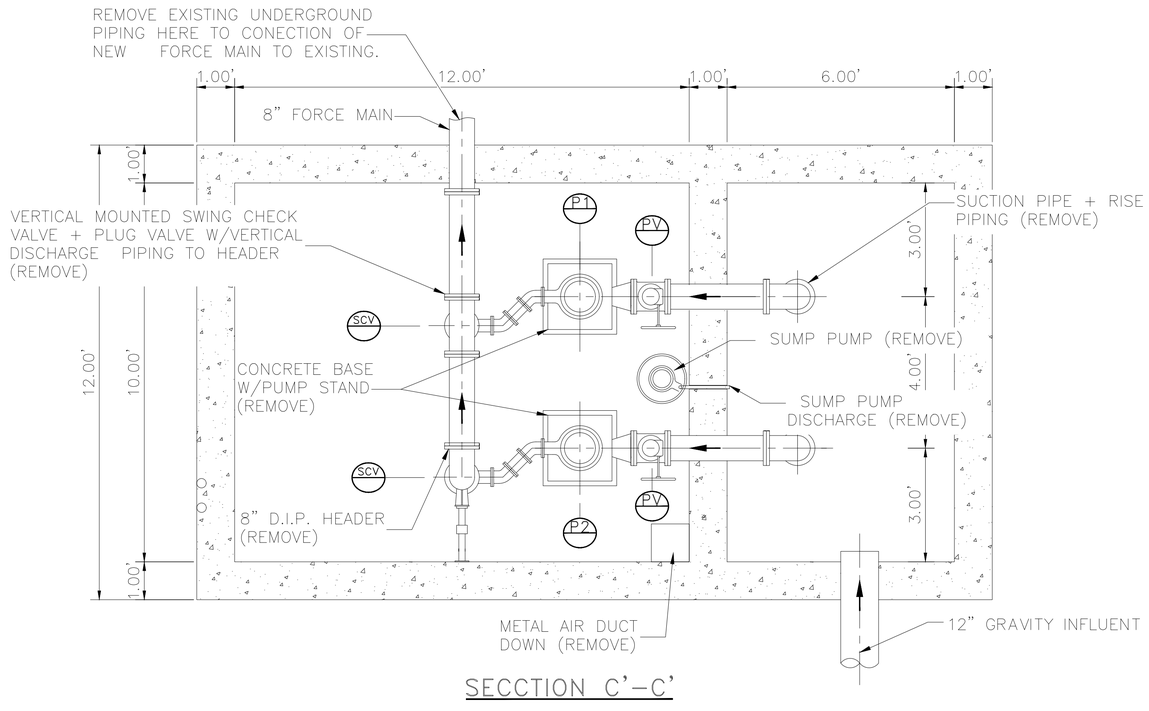


PLAN VIEW



SECCTION C'-C'

DEMOLITION NOTES:

1. THIS DRAWING IS BASED ON AVAILABLE RECORDS AND FIELD OBSERVATIONS. THE CONTRACTOR SHALL SATISFY HIMSELF / HERSELF OF THE ACTUAL CONDITIONS EXISTING AT THE SITE. THIS DRAWING DEPICTS PRIMARY MECHANICAL FEATURES. NOT ALL FEATURES, INCLUDING ELECTRICAL ARE NECESSARILY DEPICTED HEREON. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING EQUIPMENT WITHIN THE EXISTING STRUCTURE AS A PRECURSOR TO CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
2. REMOVE TOP AND SIDE WALLS OF LIFT STATION TO 4-FEET BELOW LIFT STATION TOP SLAB ELEVATION. STEEL IN WALLS TO REMAIN (WHERE POSSIIBLE) AND BE USED TO DEVELOP REINFORCEMENT FOR NEW TOP SLAB (REFER TO STRUCTURAL DETAILS).
3. THE CONTRACTOR SHALL NOT PROCEED WITH DEMOLITION WORK UNTIL AUTHORIZED. LIFT STATION BYPASS PUMPING MUST BE IN PLACE WITH OPERATIONAL ADEQUACY CHECKED AND CONFIRMED BY THE CITY BEFORE PROCEEDING WITH DEMOLITION WORK.
4. THE CITY OF HOUSTON WASTEWATER OPERATIONS DIVISION SHALL BE CONTACTED A MINIMUM OF 72-HRS PRIOR TO DEMOLITION. THE CITY SHALL HAVE THE FIRST RIGHT OF REFUSAL OF ANY ELECTRICAL OR MECHANICAL EQUIPMENT REMOVED FROM THE STATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND LOADING ONTO CITY TRUCKS, ALL SALVAGED MATERIALS AND EQUIPMENT DESIRED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PREMIT(S) REQUIRED FOR DEMOLITION WORK.
6. ALL ITEMS DAMAGED OR REMOVED BY THE CONTRACTOR AND NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
7. THE CONTRACTOR MAY DISCHARGE LIQUID WASTE AND WASHDOWN TO THE CITY WASTEWATER COLLECTION SYSTEM, HOWEVER; ALL DISCHARGES MUST BE COMPLIANT WITH THE CITY'S INDUSTRUAL WASTE ORDINANCE, CHAPTER 47, ARTICLE V. THE CONTRACTOR IS ADVISED THAT A PERMIT OR TEMPORARY DISCHARGE AUTHORIZATION MAY BE REQUIRED. CONTACT THE INDUSTRIAL WASTEWATER DIVISION AT (832) 395-5800. IN LIEU OF A DISCHARGE AUTHORIZATION, THE CONTRACTOR SHALL COLLECT AND HAUL, AT CONTRACTOR EXPENSE, ALL NON-SOLID DISCHARGES TO AN APPROVED CITY FACILITY.
8. REFER TO STRUCTURAL AND ELECTRICAL DEMOLITION DRAWINGS FOR INFORMATION RELATED TO THOSE SPECIFIC ACTIVITIES.

LEGEND

- SCV — SWING CHECK VALVE (REMOVE)
- PV — PLUG VALVE (REMOVE)
- P1 — FLYGT 3102-5hp SUBMERSIBLE PUMP (REMOVE)
- P2 — FLYGT 3102-5hp SUBMERSIBLE PUMP (REMOVE)

C1C04

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

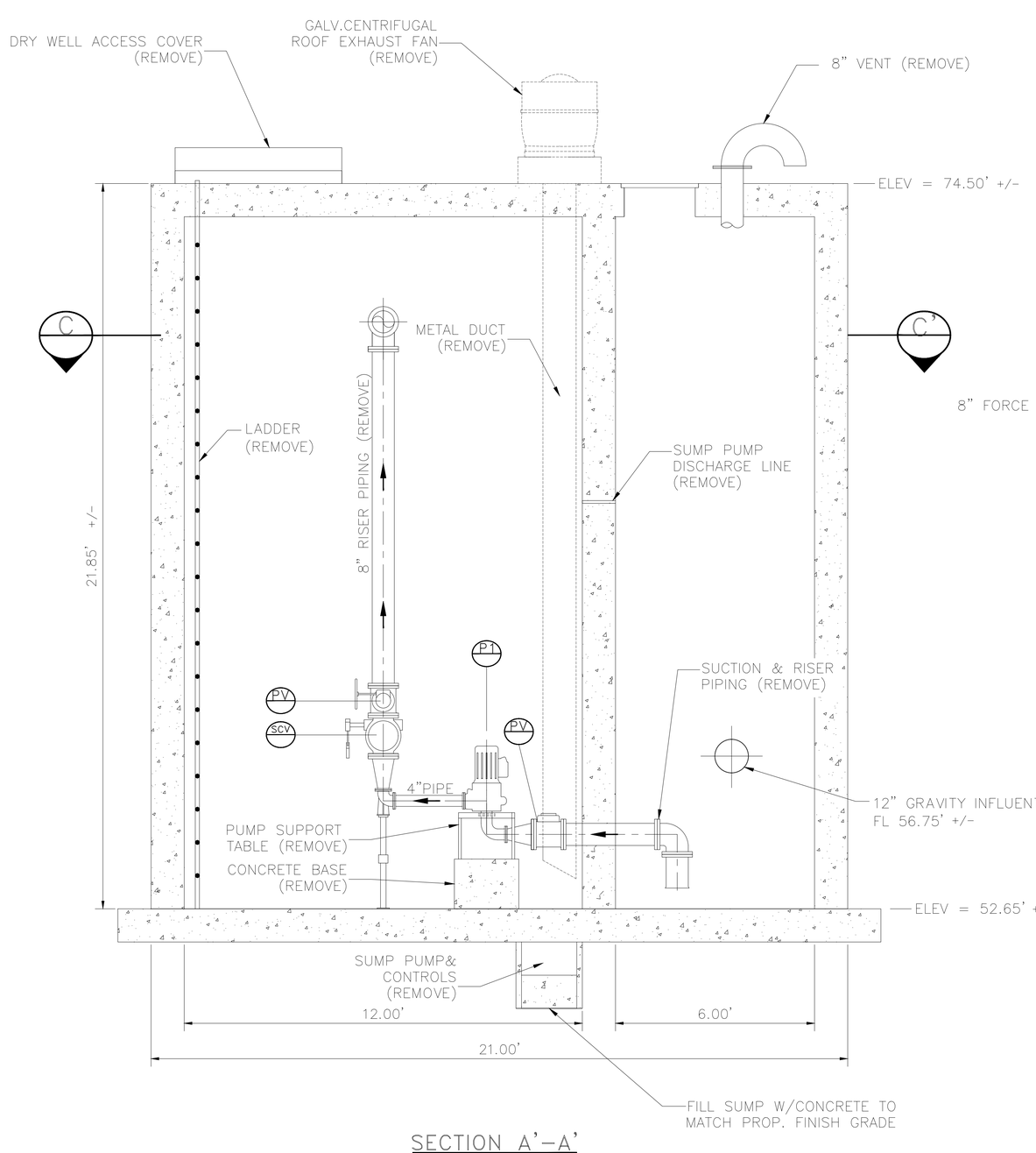
BROOKLET LIFT STATION
SURFACE & SECTIONAL PLAN VIEWS
MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

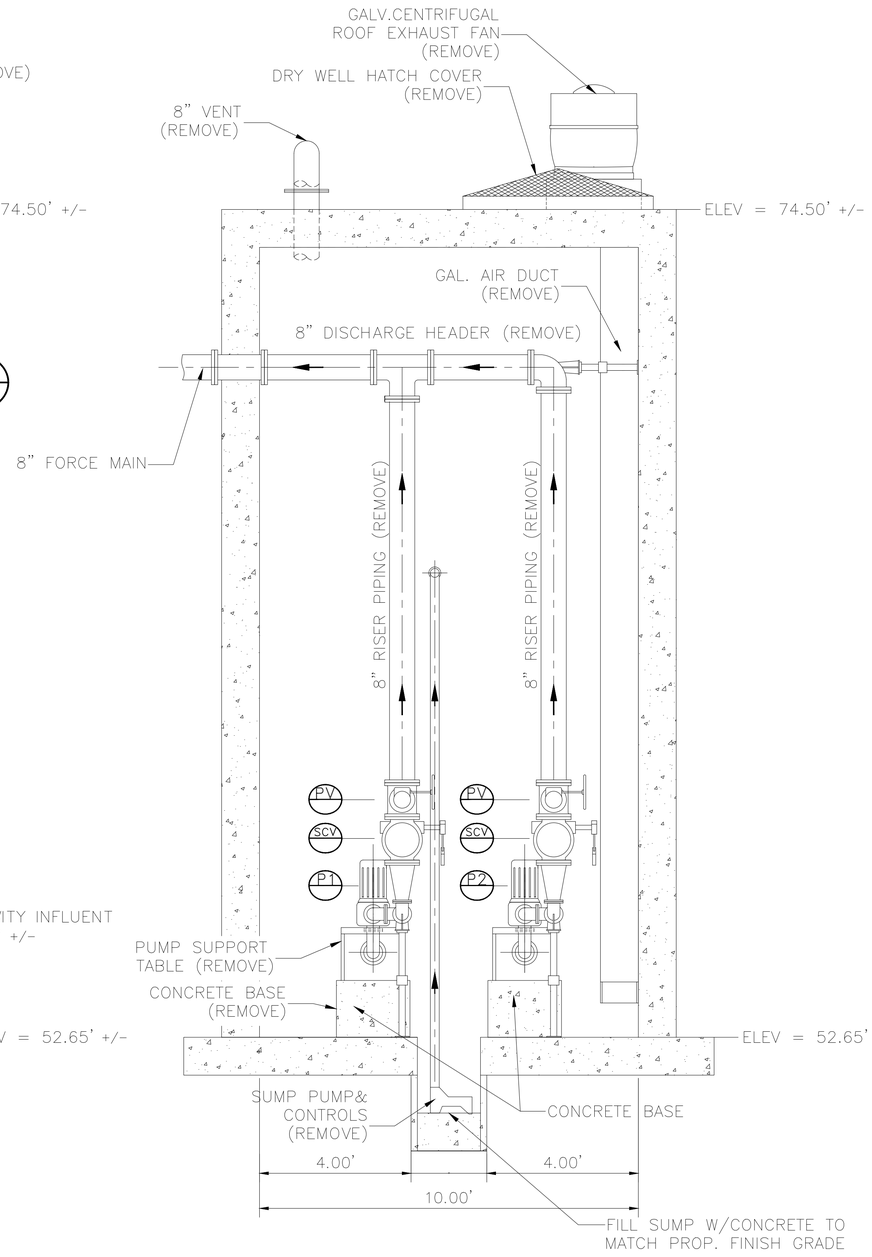
FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cody\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLAN\2-BROOKLET\LS-BROOKLETDEMOLITION 11 2025.dwg



SECTION A'–A'



SECTION B'–B'

LEGEND

- SCV — SWING CHECK VALVE (REMOVE)
- PV — PLUG VALVE (REMOVE)
- P1 — FLYGT 3102–5hp SUBMERSIBLE PUMP (REMOVE)
- P2 — FLYGT 3102–5hp SUBMERSIBLE PUMP (REMOVE)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270–5700
TBPE REG. NO. F–4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832–930–7670
TX FIRM NUMBER:F –10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P–6357

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LIFT STATION
STATION SECTION VIEWS MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

C1C05

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

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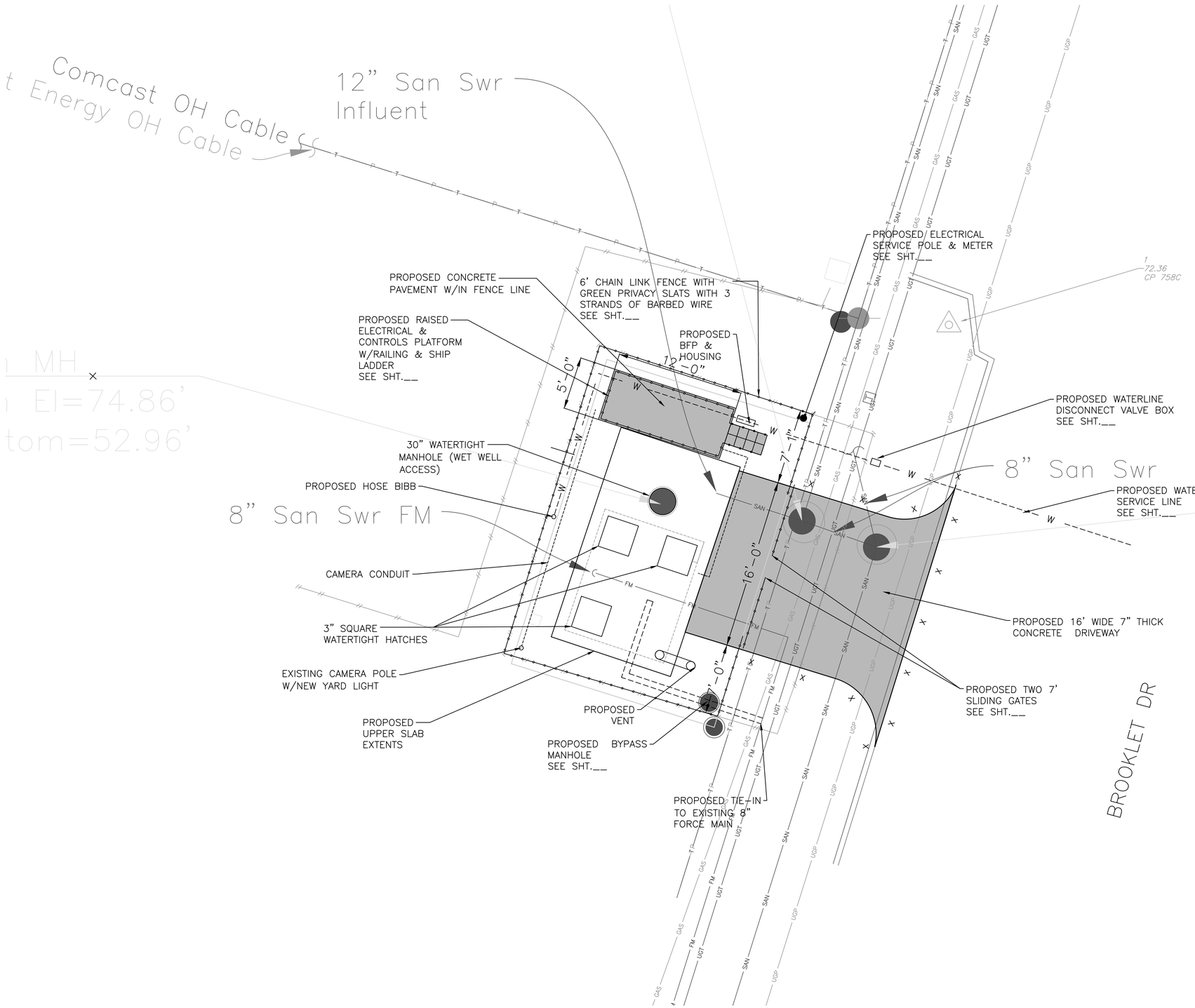

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0 10 20 Feet

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

LEGEND :

PROPOSED FENCE LINE

PROPOSED CONCRETE PAVING EXTENTS

NOTES:

FLOODPLAIN

1. LS SITE IS WITHIN THE 100-YEAR FLOODPLAIN.
2. THIS SITE DOES NOT PROPOSE ADDITIONAL FILL OR STRUCTURES THAT WILL IMPACT EXISTING STORAGE CAPACITY WITHIN THE 100-YEAR FLOODPLAIN.

STORMWATER

1. THIS SITE PROPOSES A SMALL AMOUNT (APPROX. 400 SF) OF ADDITIONAL IMPERVIOUS PAVING. THIS IS NEEDED TO IMPROVE ACCESS AND SAFETY FOR OPERATIONS PERSONNEL.
2. THIS LS SITE DOES NOT HAVE SUFFICIENT SPACE FOR INSTALLING A STORMWATER STORAGE STRUCTURE.
3. THE PROPOSED IMPROVEMENTS WILL NOT NEGATIVELY IMPACT ADJACENT PROPERTIES OR THE DOWNSTREAM DRAINAGE SYSTEM.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE. NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

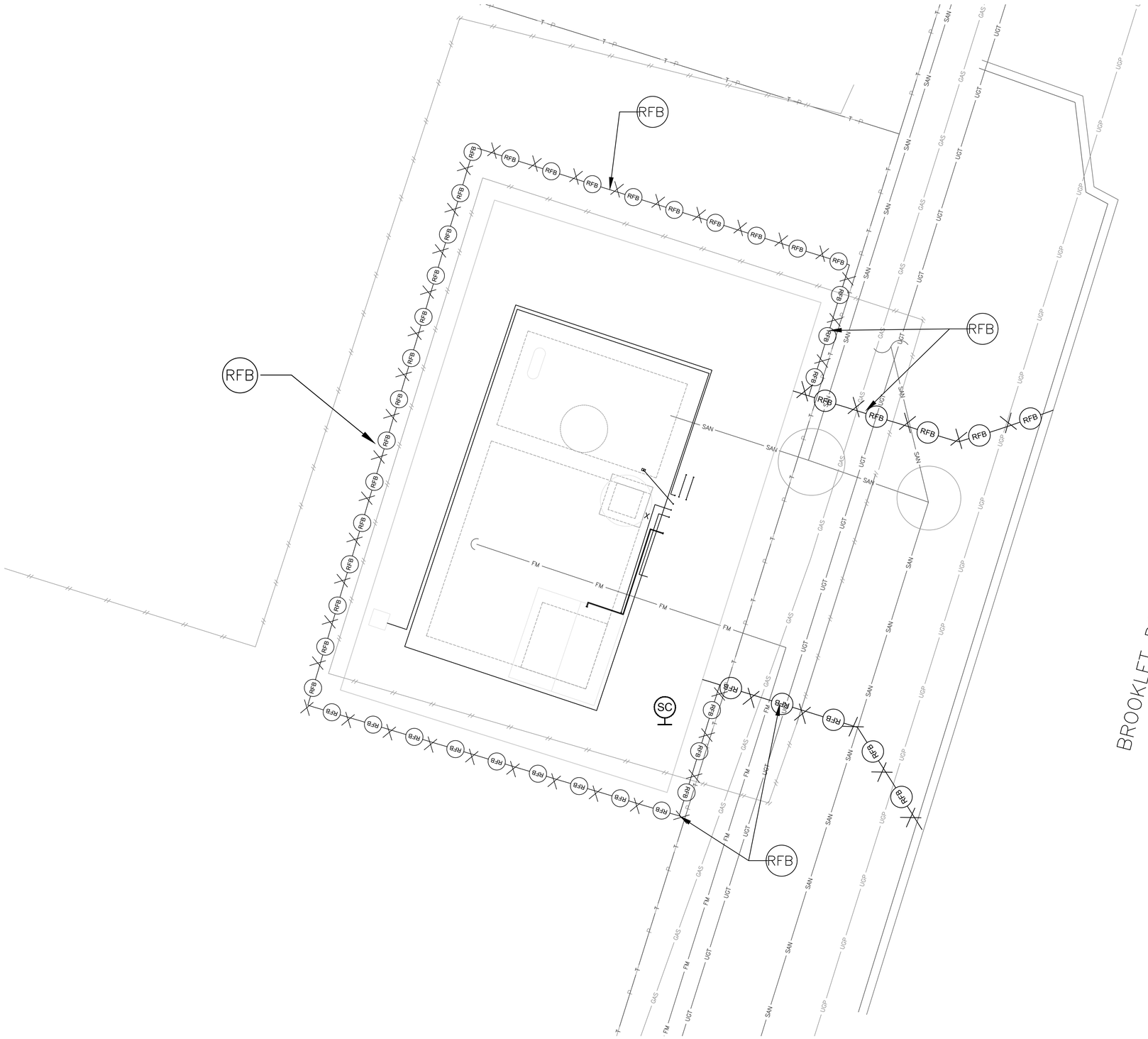
SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & PROP SITE PLAN
BROOKLET LS
PROP SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

C1C06 | SHEET NO. OF 246



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0 10 20 Feet

NO.	DATE	REVISION	CLIENT REVIEW	L.L
A	10/30/25			APP.

LEGEND :

- RFB — REINFORCED FILTER FABRIC BARRIER.
- FF — FILTER FABRIC BARRIER.
- IPB2 — INLET PROTECTION BARRIER.
- SC — STABILIZED CONSTRUCTION ACCESS

NOTES:

1. STORM WATER POLLUTION PLAN CONFORM TO SPECIFICATIONS AND DRAWINGS.
2. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURE SHALL BE SODDED OR HYDROMUCH SEEDED.
3. CONTRACTOR'S LAY DOWN/STORAGE AREA SHALL HAVE A STABILIZED CONSTRUCTION EXIT.
4. SEE SHEET SW3P-7 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
5. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS
SWPPP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

C1C07 SHEET NO. OF 246

FILE PATH: Y:\2022071 LIFT STATIONS RENEWAL AND REPLACEMENT (HATCH) WBS NO. R-000267-0173-3\Auto CAD\New SWPPP\Brooklet Topo\BASE-BrookletLS.dwg PLOT STYLE: Grayscale.ctb PLOTTED: 10/29/2025 2:27 PM

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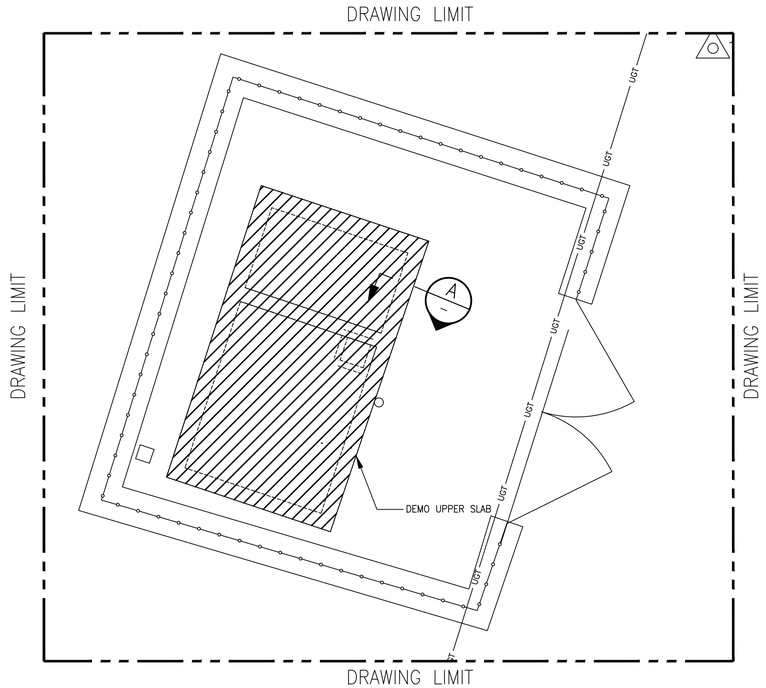
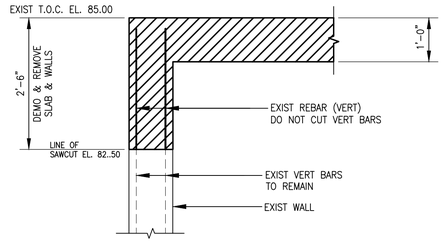


DEMO PLAN
LIFT STATION FOUNDATION



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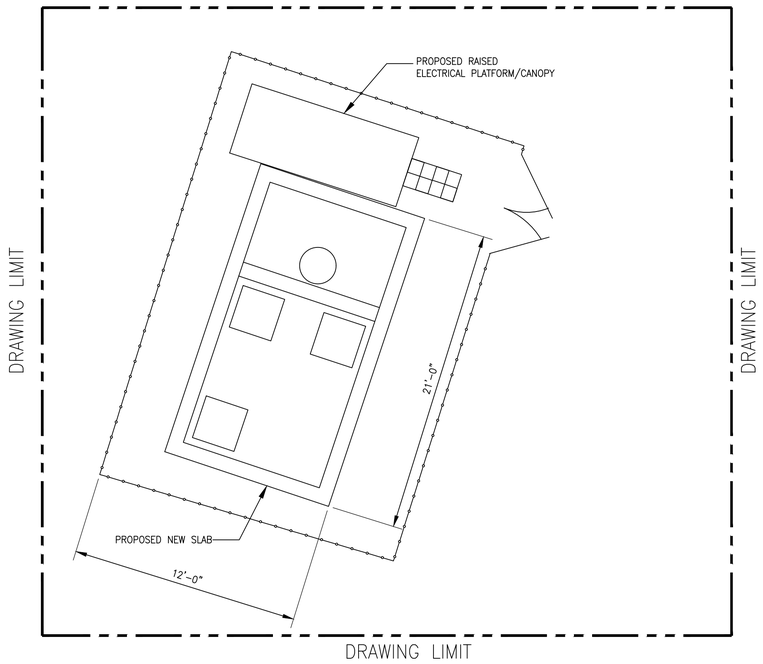
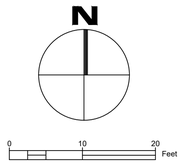


NEW PLAN LAYOUT
LIFT STATION FOUNDATION



NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS
DEMO & CONST. PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
C1S01 SHEET NO. OF 246	

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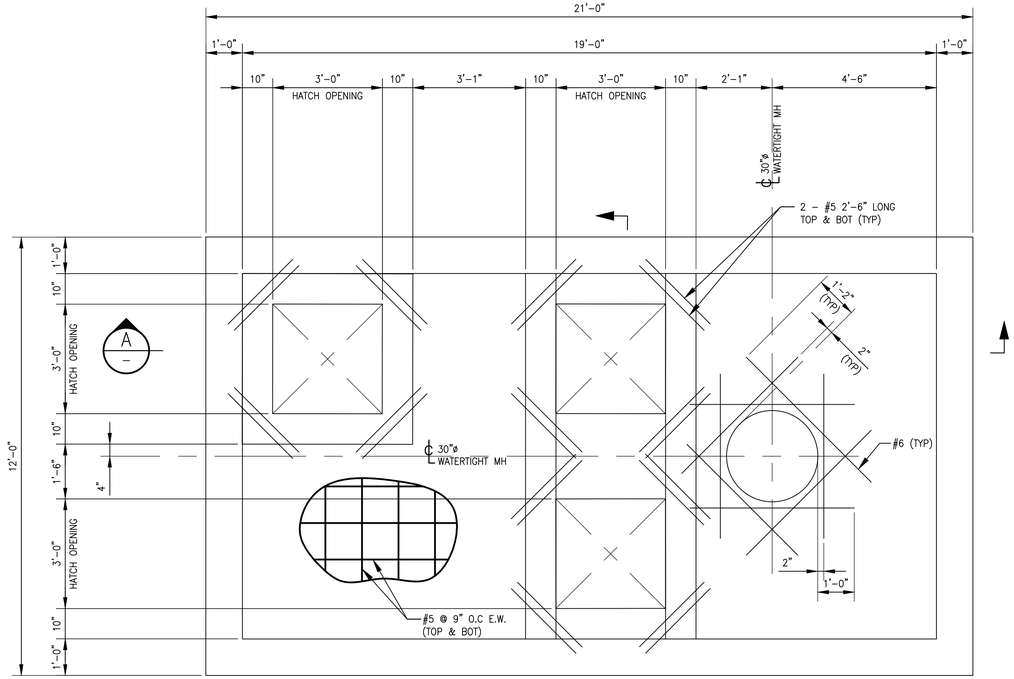
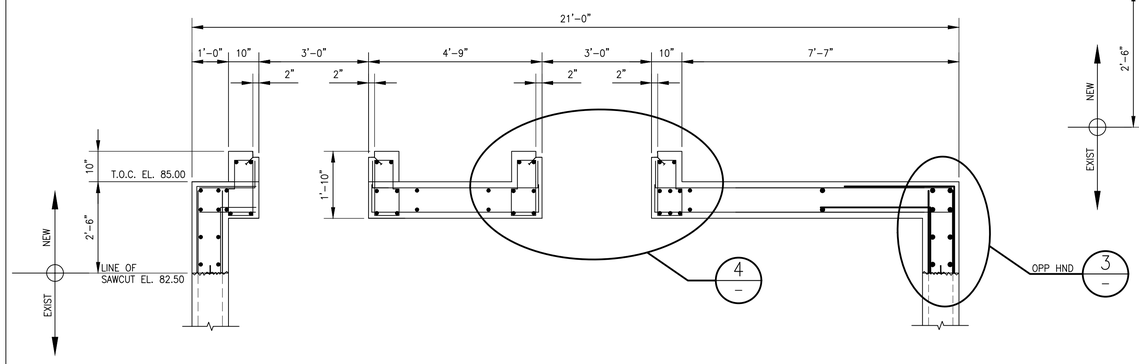


B

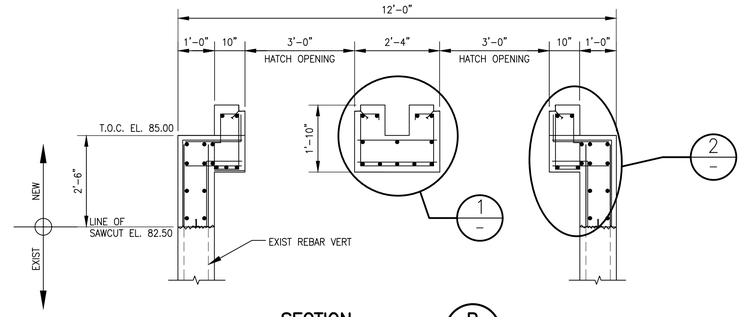
PLAN
LIFT STATION FOUNDATION
SCALE: 1/2" = 1'-0"



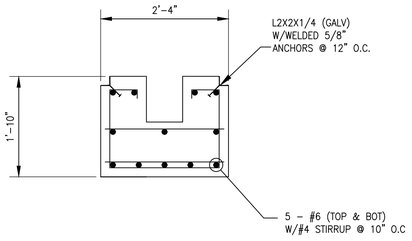
SECTION
SCALE: 1/2" = 1'-0" — A

NOTE:

1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. REFER TO MECHANICAL/VENDOR DRAWINGS FOR WATERPROOF HATCHES/MANHOLES.
3. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL DIMENSION W/MEP & CIVIL PLANS PRIOR TO BIDDING WORK.



SECTION
SCALE: 1/2" = 1'-0" — B



DETAIL
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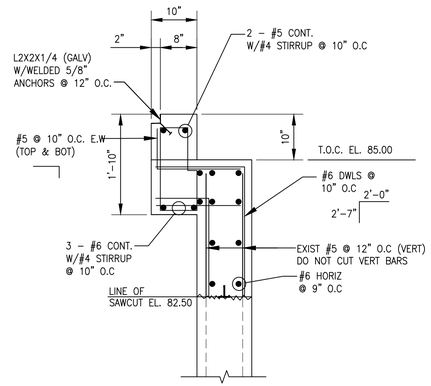
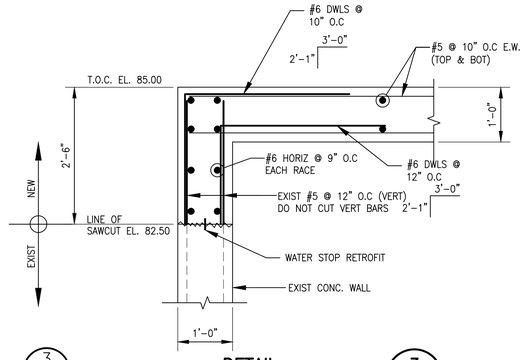
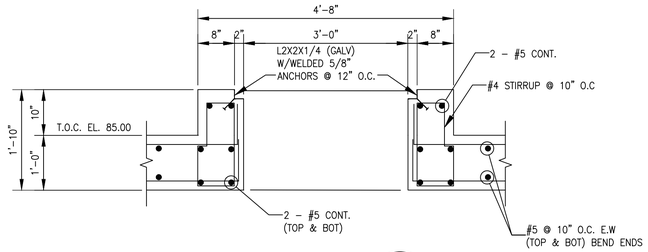


DETAIL
SCALE: 1/2" = 1'-0" — 2



DETAIL
SCALE: 1/2" = 1'-0" — 3



DETAIL
SCALE: 3/4" = 1'-0" — 4

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS
PLAN,SECTIONS & DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
C1S02	SHEET NO. OF 246

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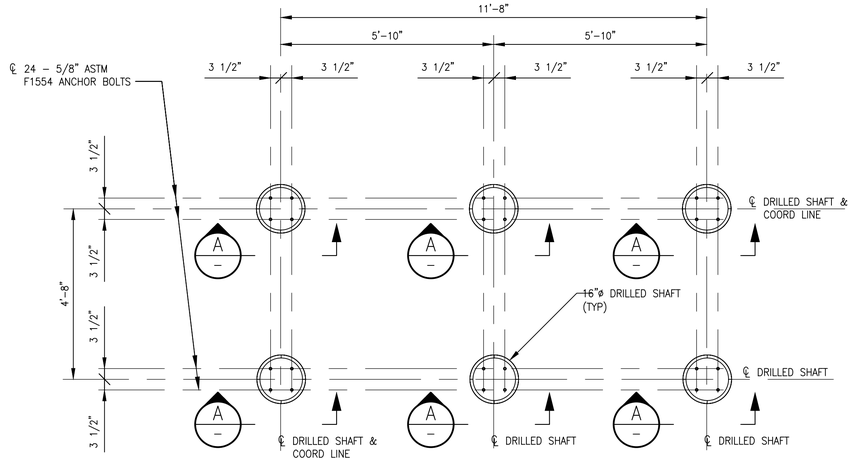
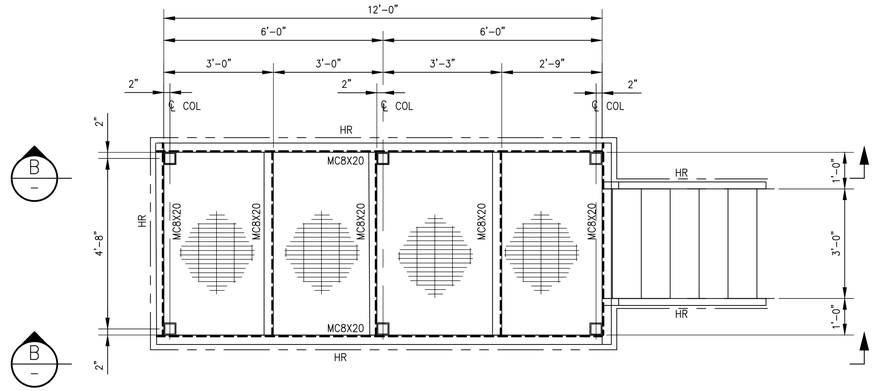
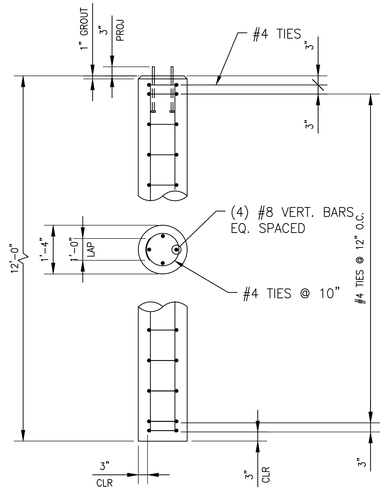


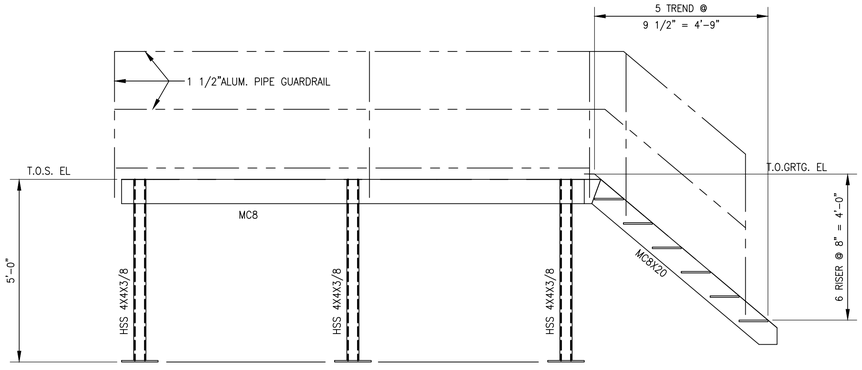
PLAN
PLATFORM FOUNDATION
SCALE: 1/2" = 1'-0"



PLAN
PLATFORM FRAMING
SCALE: 1/2" = 1'-0"



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



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

NOTE:

1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL DIMENSION W/MEP & CIVIL PLANS PRIOR TO BIDDING WORK.
3. REFER COH STD PLATFORM DETAILS FOR ADDITIONAL REQUIMENTS

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
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F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS
ELEVA. ELEC. CAB PLTF.
PLAN & SECTION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1S03

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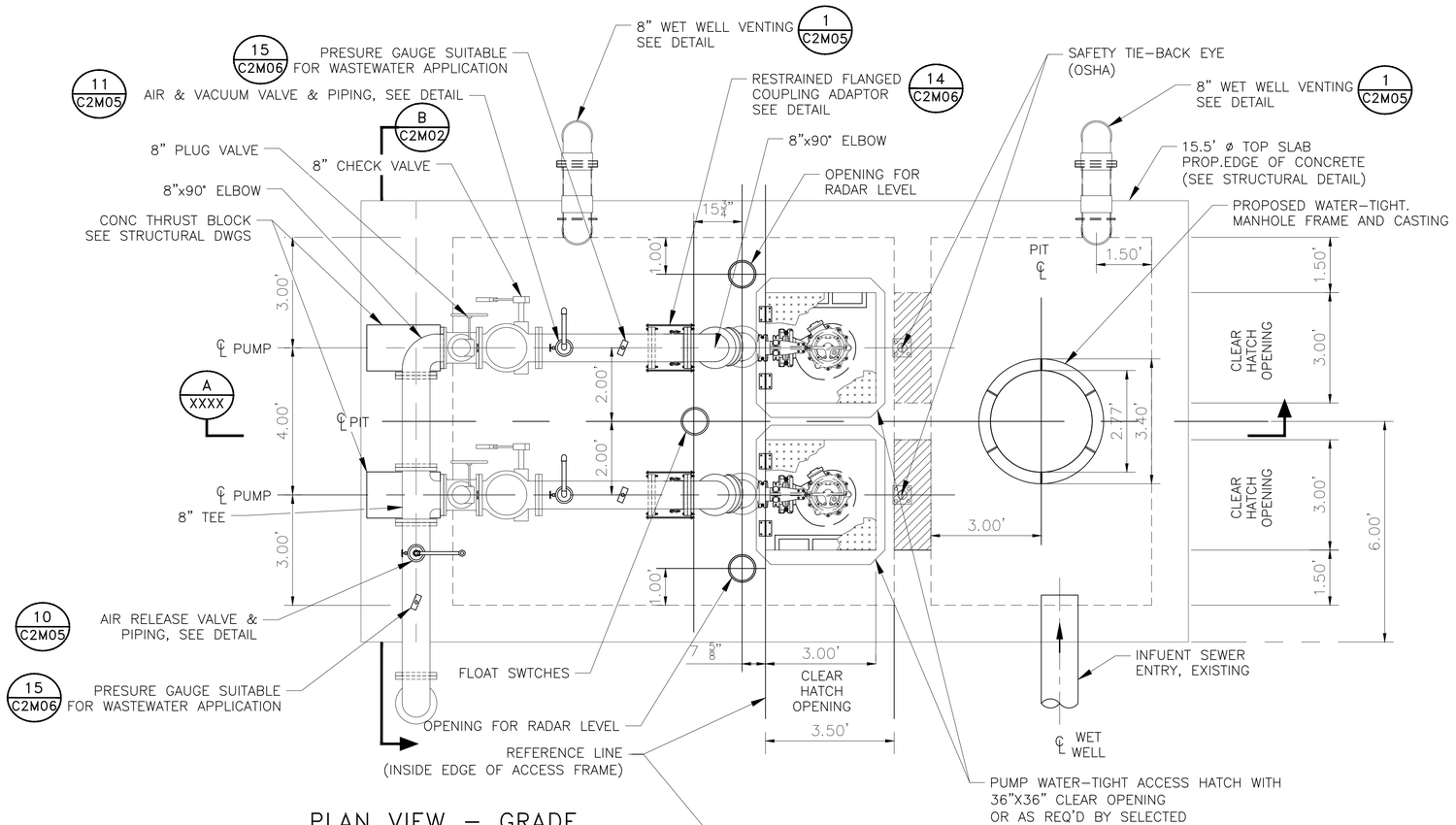
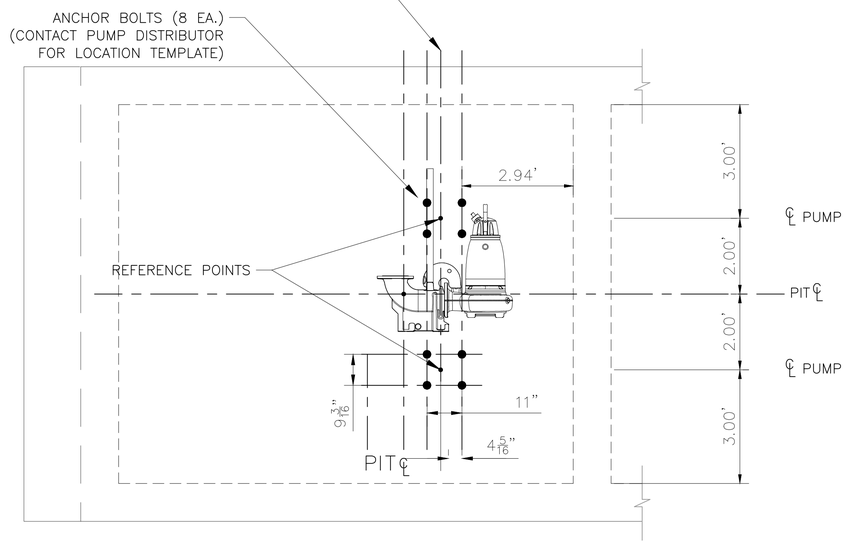


PLAN VIEW – GRADE



BASE SECTION

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS
PLAN VIEW GRADE/BASE SECTION

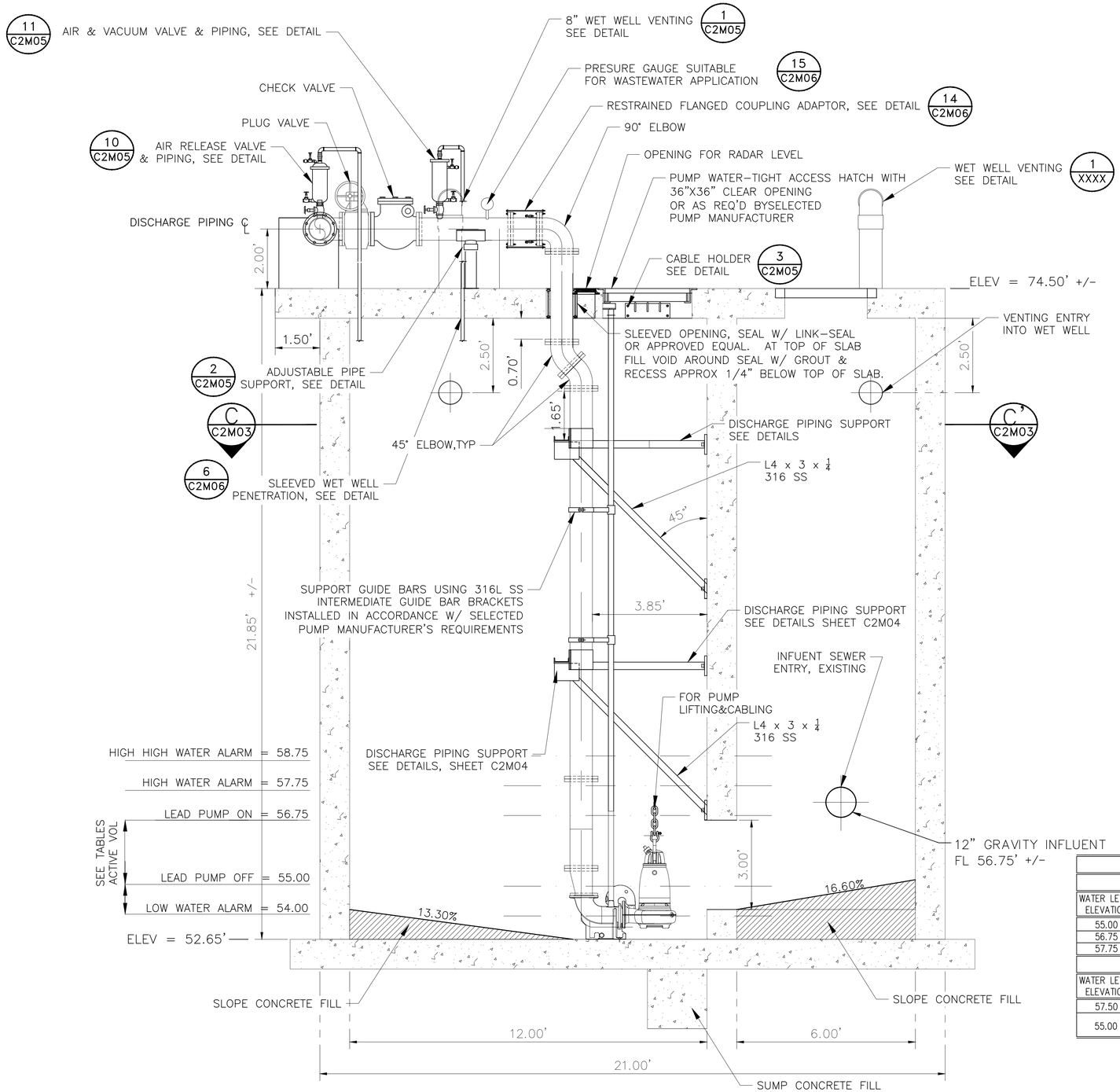
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

C1M01

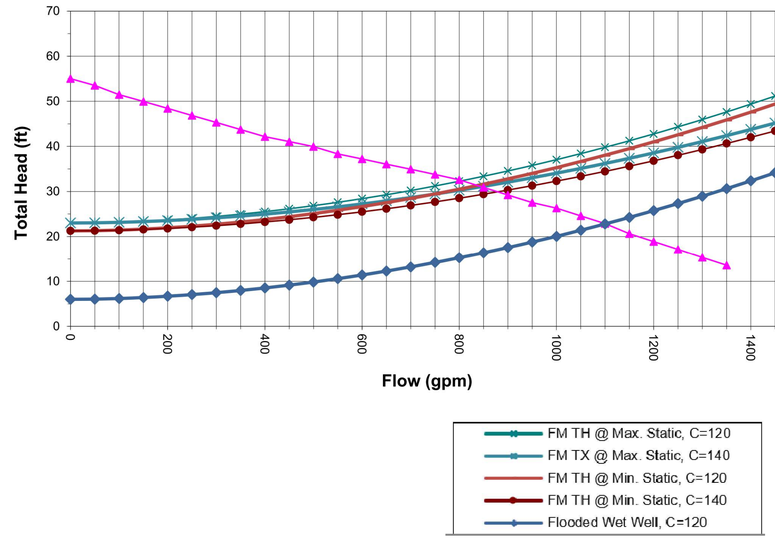
FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

R:\Civil\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\2-Phase II BROOKLET\Phase II LS-BROOKLET.dwg



SECTION A'-A'



PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2
MOTOR DATA		
NOMINAL SIZE (HP)	12	12
MAX SPEED (RPM)	1765	1765
SOLIDS PASSAGE		
MIN SPHERE (IN)	3	3
CAPACITY (GPM)		
DESIGN	875	875
RUNOUT	1620	1620
DISCHARGE HEAD (FT)		
DESIGN	32	32
RUNOUT	5	5
SHUT OFF	55	55
EFFICIENCY (%)		
DESIGN	74.8	74.8
NPSHR (FT)		
DESIGN	22	22
RUNOUT	31	31

STATION OPERATION TABLES

RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
55.00	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
56.75	LEAD PUMP TURNS ON	LEAD PUMP ON
57.75	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
57.50	HIGH WATER LEVEL ALARM OFF	LEAD PUMP ON
55.00	LEAD PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS
ELEVATION SECTION VIEW

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
C1M02	SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

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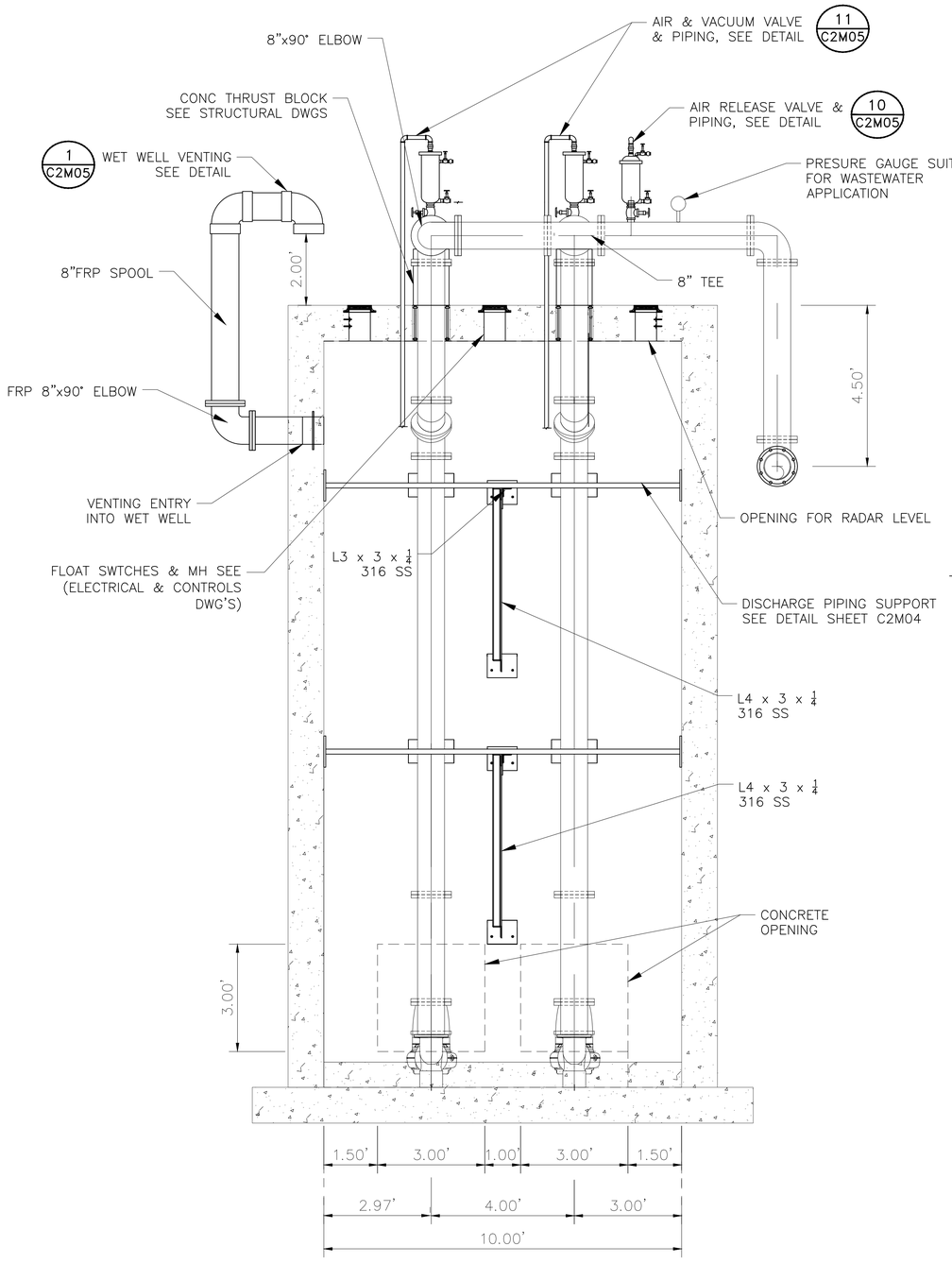
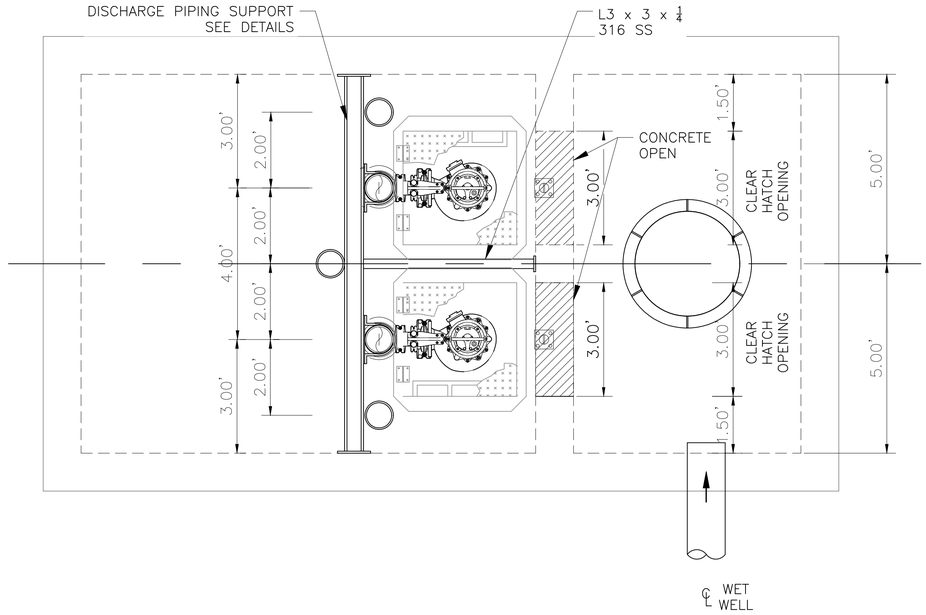


SECTION B'–B'



SECTION C'–C'

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12–INCH BY 12–INCH PLATE ENGRAVED WITH 6–INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270–5700
TBPE REG. NO. F–4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832–930–7670
TX FIRM NUMBER:F –10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P–6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS
ELEVATION SECTION VIEW

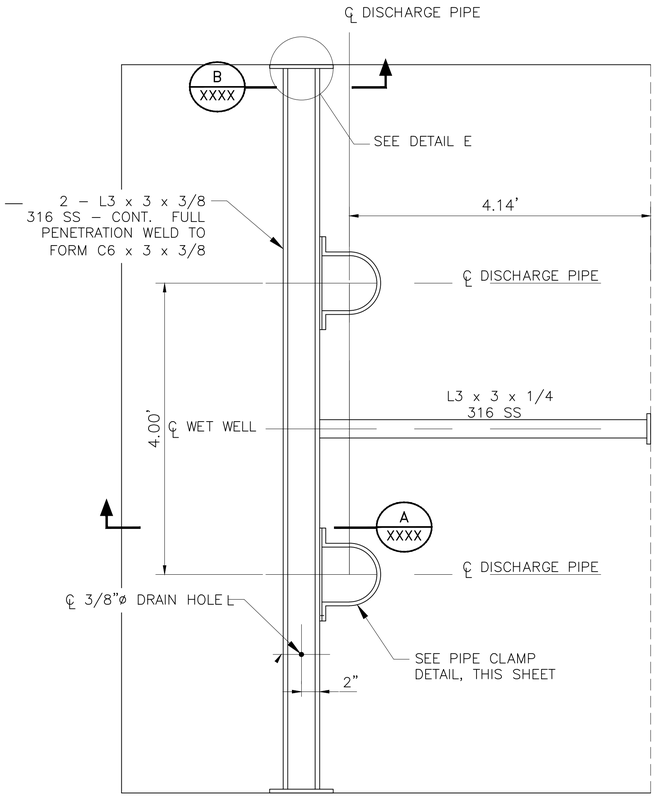
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

C1M03 | SHEET NO. OF 246

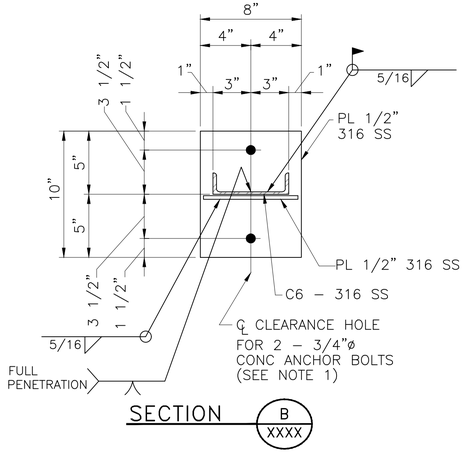
FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

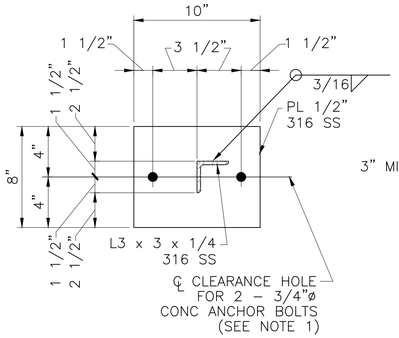
P:\Cad\2024\24013 - Hatch - CSH FY26 Lift Stations\CAD_DWG\Phase IV\2-Phase II BROOKLET\Phase II LS-BROOKLET.dwg



TYP DISCHARGE PIPING SUPPORT PLAN FOR 2 PUMPS



SECTION B XXXX



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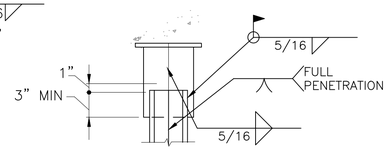
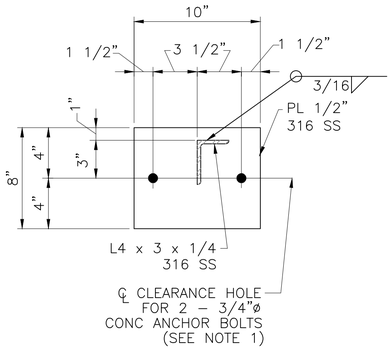


DETAIL E



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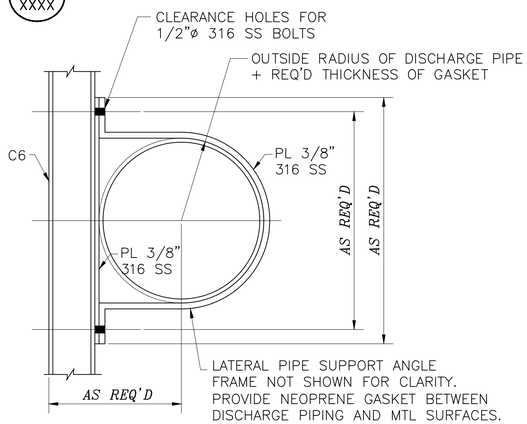
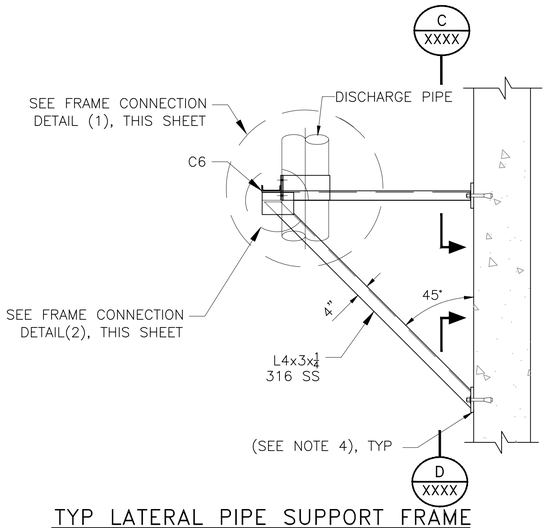
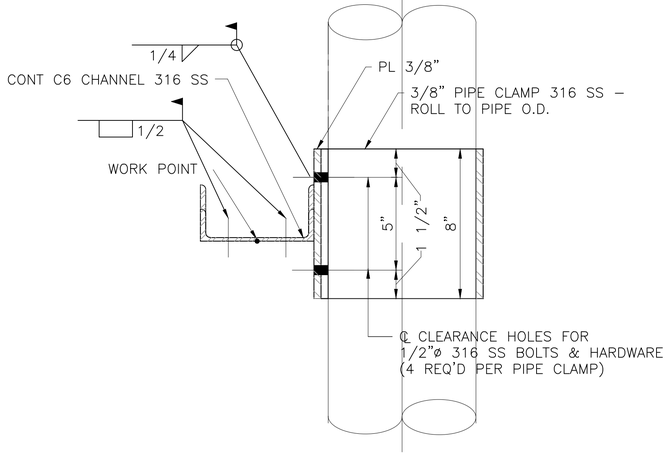


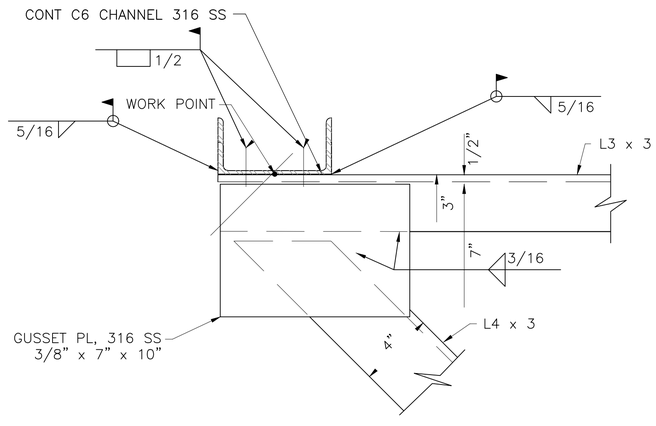
PIPE CLAMP DETAIL



TYP LATERAL PIPE SUPPORT FRAME



FRAME CONNECTION DETAIL(1)



FRAME CONNECTION DETAIL(2)

NO.	DATE	REVISION	APP.

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11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS
DISCHARGE PIPING
SUPPORT DETAILS

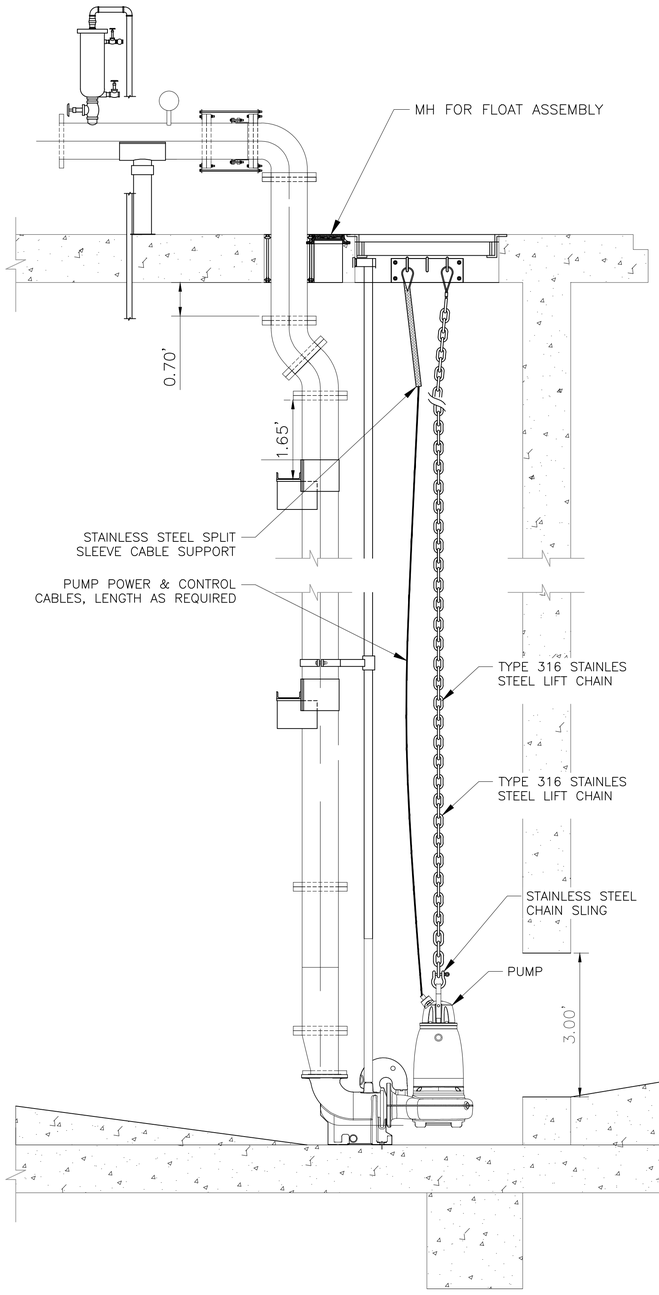
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

C1M04

FILE NAME:
PLOTTED ON:

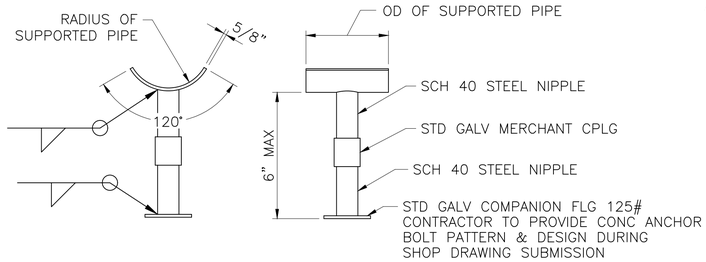
0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Civil\20724.24013 - Hatch - COH FY20 LIft Stations\CAD_DWG\Phase II\2-Phase II BROOKLET\Phase II LS- BROOKLET.dwg

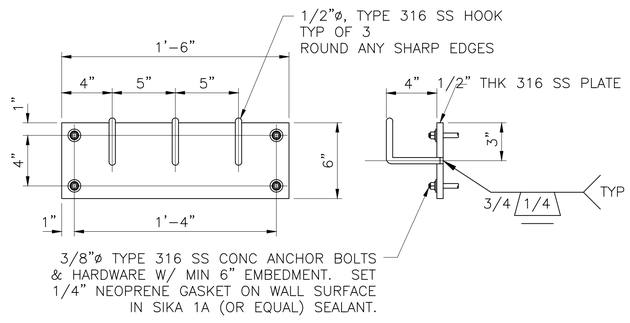


SECTION A'–A'

DETAIL 2 / C2M05

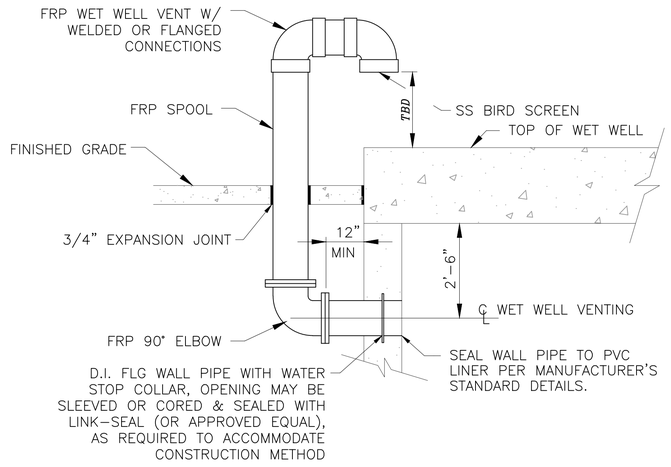


TYP ADJUSTABLE PIPE SUPPORT



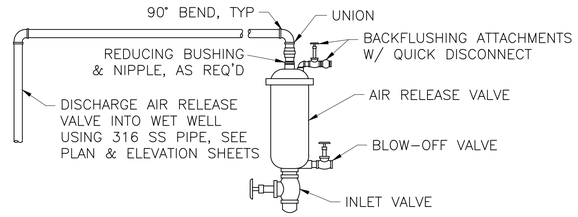
TYPICAL CABLE HOLDER ASSY

DETAIL 3 / C2M05



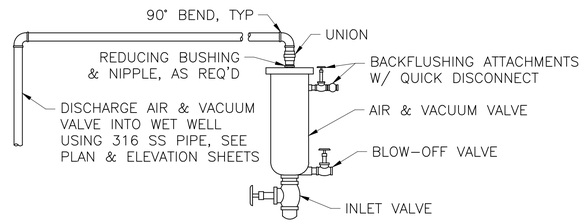
TYPICAL HIGH PROFILE
WET WELL VENTING INSTALLATION

DETAIL 1 / C2M05



TYPICAL AIR RELEASE VALVE ASSY

DETAIL 10 / C2M05



TYPICAL AIR & VACUUM VALVE ASSY

DETAIL 11 / C2M05

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270–5700
TBPE REG. NO. F–4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832–930–7670
TX FIRM NUMBER:F –10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P–6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS
TYPICAL DETAILS

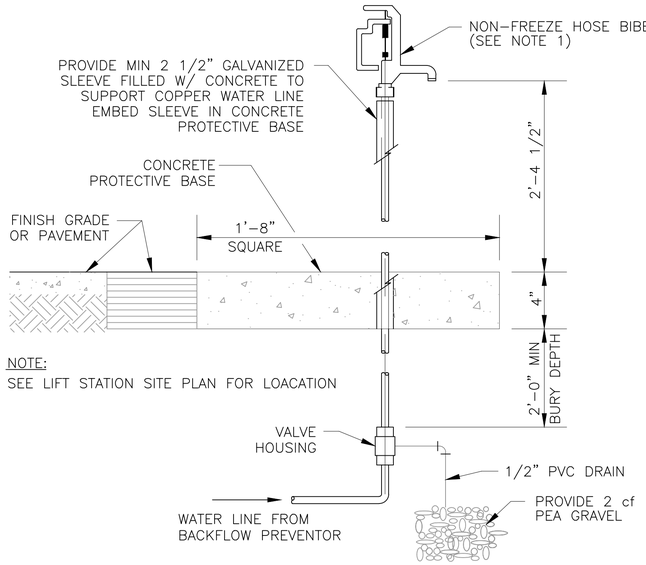
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

C1M05

FILE NAME:
PLOTTED ON:

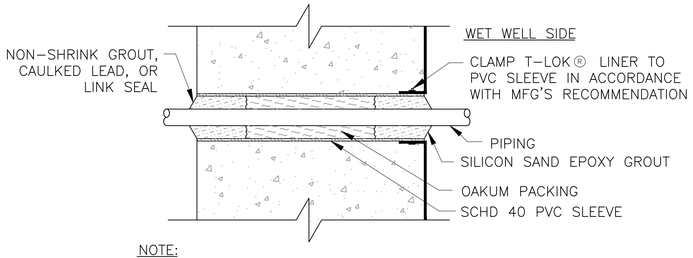
0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cad\2024\24013 - Hatch - COH FY25 Lift Stations\CAD_DWG\Phase II\2-Phase II BROOKLET\Phase II LS- BROOKLET.dwg



TYP NON–FREEZE HOSE BIBB DETAIL

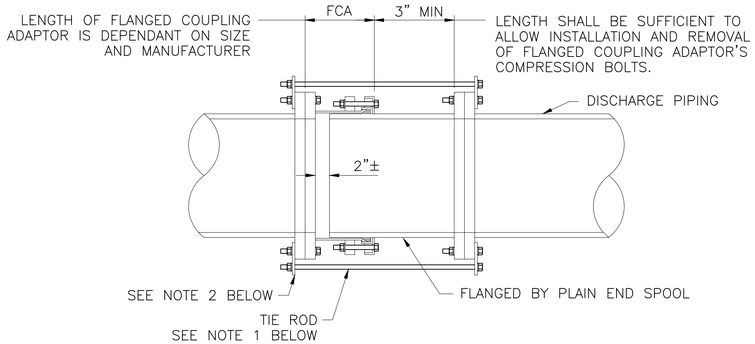
DETAIL 12 C2M06



NOTE:
SLEEVED WET WELL PENETRATION IS NOT TO BE USED FOR CONDUIT INSTALLATION. SEE ELECTRICAL DETAIL SHEETS FOR CONDUIT PENETRATIONS.

SLEEVED WET WELL PENETRATION FOR PIPING 4"ø & SMALLER

DETAIL 6 C2M06

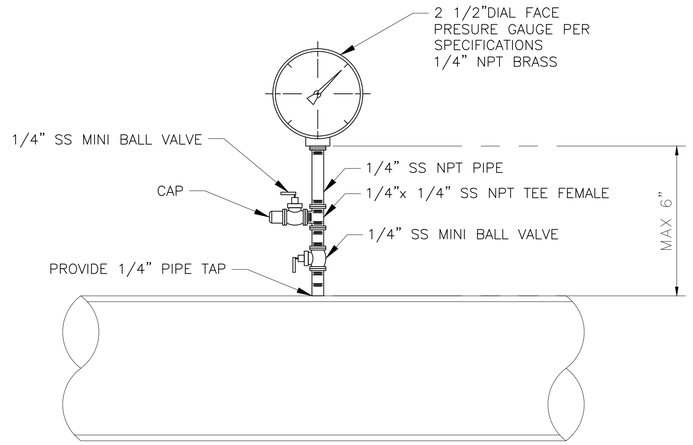


NOTES:

1. PROVIDE A NUMBER OF TIE RODS EQUAL TO 1/2 THE NUMBER OF FLANGE BOLTS. EVENLY SPACE INSTALLATION OF TIE RODS. DIAMETER OF TIE RODS TO BE EQUAL TO THE DIAMETER OF FLANGE BOLTS. LENGTH OF TIE RODS TO BE DETERMINED BY CONTRACTOR BASED ON SIZE AND MANUFACTURER OF FLANGED COUPLING ADAPTOR AND FINAL LENGTH OF SPOOL PIECE.
2. PROVIDE 316 SS TAB FOR ATTACHMENT OF TIE RODS. SIZE TO BE DETERMINED BY CONTRACTOR.
3. CONTRACTOR TO SUBMIT DETAILS DURING SHOP DRAWING SUBMISSION.
4. ALL HARDWARE SHALL BE 316 STAINLESS STEEL. TIE RODS SHOULD BE THREADED.
5. THIS RESTRAINT DOES NOT REPLACE THRUST BLOCKS TO BE PROVIDED AT OTHER LOCATIONS.

TYP FLANGED COUPLING ADAPTOR RESTRAINT DETAIL

DETAIL 14 C2M06



NOTE: ALL FITTINGS SHALL BE STAINLESS STEEL (316)

PRESSURE GAUGE DETAIL

DETAIL 15 C2M06

NO.	DATE	REVISION	APP.

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11011 RICHMOND AVENUE
SUITE 700
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TEL: (713) 270–5700
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HATCH
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SUITE 650
HOUSTON, TEXAS 77024
P:832–930–7670
TX FIRM NUMBER:F –10912

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FB NO. P–6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS
TYPICAL DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

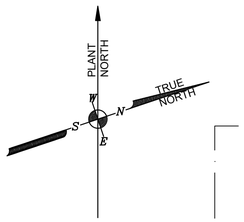
C1M05A

SHEET NO. OF 246

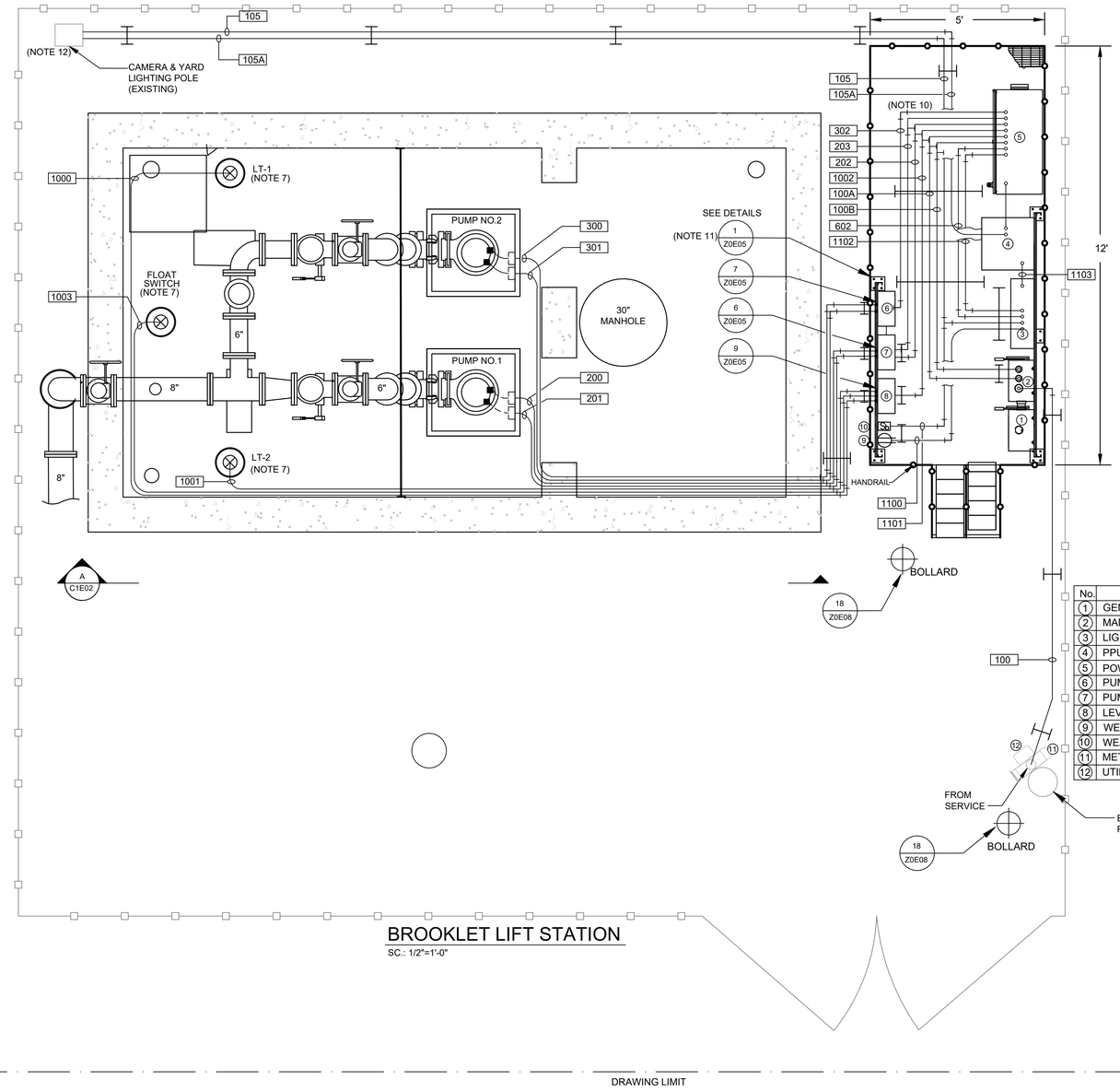
FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cad\2024\24013 - Hatch - COH FY26 Lift Stations\CAD_DWG\Phase IV\2-Phase II BROOKLET\Phase II LS-BROOKLET.dwg



DRAWING LIMIT



No.	DESCRIPTION
1	GENERATOR FUSED DISCONNECT
2	MANUAL TRANSFER SWITCH
3	LIGHTING PANELBOARD
4	PPU-AC PANEL
5	POWER & CONTROL CABINET
6	PUMP NO.2 J-BOX
7	PUMP NO.1 J-BOX
8	LEVEL TRANSMITTER J-BOX
9	WEATHER PROOF GFI
10	WEATHER PROOF LIGHTING SWITCH
11	METER DISCONNECT SWITCH (EXISTING)
12	UTILITY METER (EXISTING)

BROOKLET LIFT STATION
SC.: 1/2"=1'-0"

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
3. WHERE JUNCTION BOXES ARE SHOWN, THEY SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. SPLICES WILL NOT BE ALLOWED EXCEPT AS PROVIDED BY NOTE 4 AND AT LIGHTING AND RECEPTACLE TERMINATIONS.
4. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO CONTROL BUILDING OR PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
7. LEVEL TRANSMITTERS AND FLOAT SWITCH SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL FIELD VERIFY.
8. INSIDE WET WELL IS CLASSIFIED AS CLASS I, DIVISION 1. OUTSIDE WET WELL WITHIN 5 FEET OF WET WELL OPENINGS ARE CLASSIFIED AS CLASS I, DIVISION 2.
9. NEW INSTRUMENT TO BE INSTALLED IN THE SAME AREA AS INSTRUMENT REMOVED.
10. CONDUITS INSTALLED UNDER THE PLATFORM AND FIXED TO UNISTRUT SUPPORT.
11. THE JUNCTION BOX RACK MUST BE AT LEAST 5' WIDE.
12. FOR LIGHT & COMMUNICATION POLE DETAILS, SEE DRAWING NO. Z0E07.

NO.	DATE	REVISION	APP.
A	08/01/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

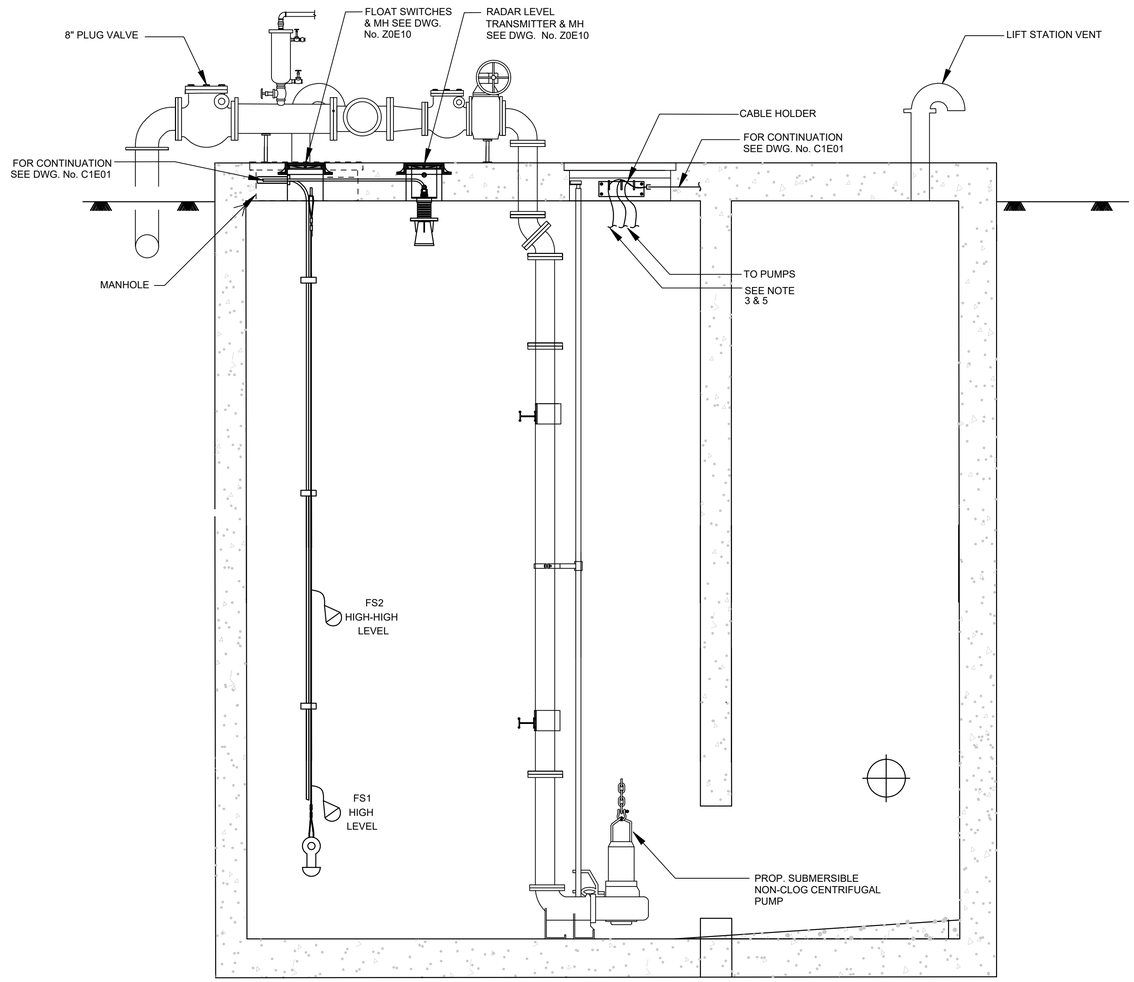
LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

ELECTRICAL SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E01

PLOTTED: 10/28/2025 1:35 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wuspplot01\d$\Global ProjectWise Plotting - WUS\Queue 4\queue4.dwg



BROOKLET - LIFT STATION

A / - ELEVATION

SC.: 1/2"=1'-0"

NOTES:

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4. FOR MOTOR FEEDER AND CONTROL CABLES. INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO POWER & CONTROL PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. INSTRUMENTS SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL BE ESTABLISHED DURING CONSTRUTION.

NO.	DATE	REVISION	APP.
A	08/01/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

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HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

LIFT STATION ELEVATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E02

PLOTTED: 10/28/2025 1:32 PM
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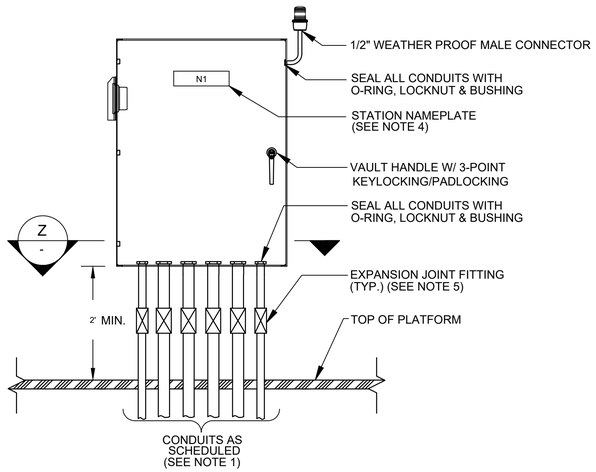
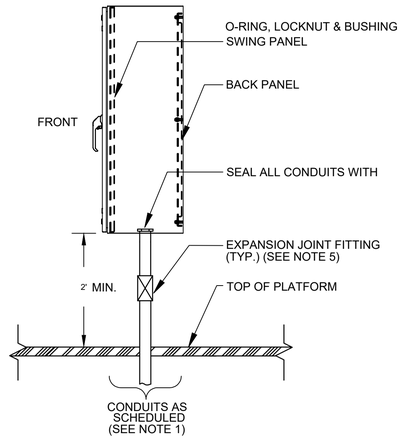


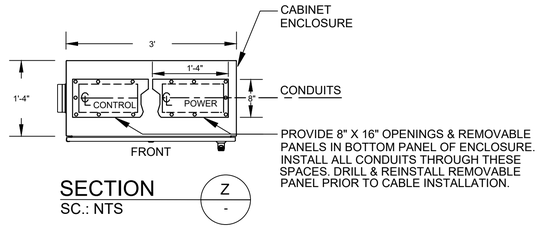
POWER & CONTROL CABINET - FRONT CONDUIT CONNECTION

SC.: NTS



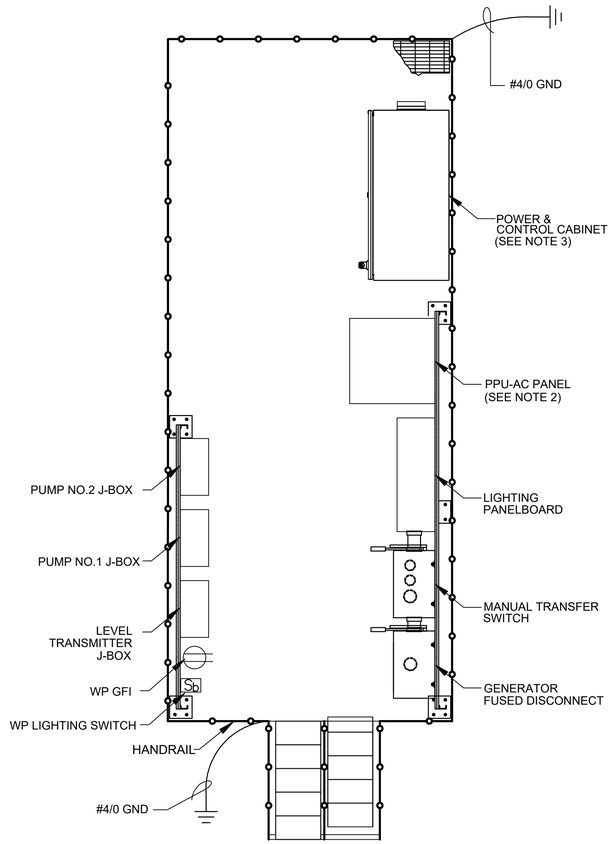
POWER & CONTROL CABINET - SIDE CONDUIT CONNECTION

SC.: NTS



SECTION Z -

SC.: NTS



POWER & CONTROL CABINET ENCLOSURE ON ELEVATED PLATFORM DETAIL

SC.: NTS

NOTES:

1. FOR CONDUIT SCHEDULE SEE DRAWING NO. C1E16.
2. FOR PPU-AC PANEL SEE DRAWING NO. C1E08
3. FOR POWER & CONTROL PANEL DETAIL SEE DRAWING NO. C1E04.
4. FOR NAME PLATE SCHEDULE SEE DRAWING NO. C1E04.
5. EXPANSION JOINT FITTINGS AS REQUIRED.

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS
POWER & CONTROL CABINET INSTALLATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

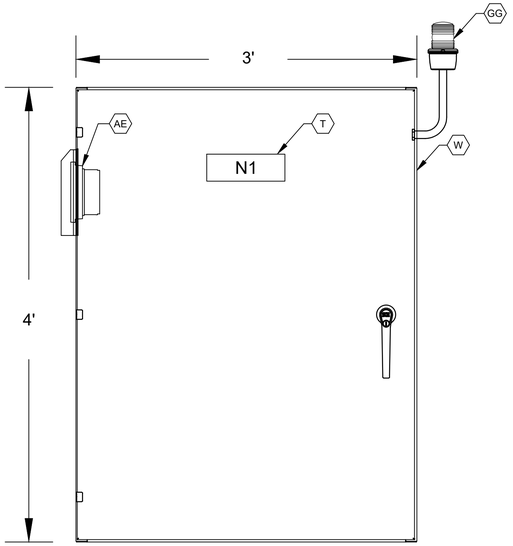
C1E03

PLOTTED: 10/28/2025 1:30 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 1\queue1.dwg

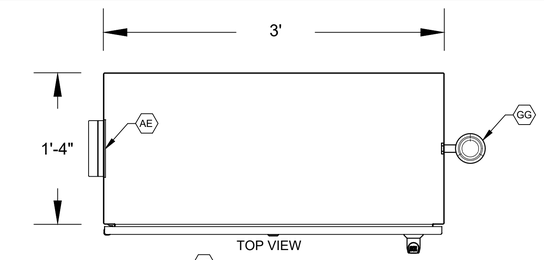
EQUIPMENT AND DEVICE SCHEDULE

ITEM	QTY.	DESCRIPTION
A	*	NOT USED
B	2	NEMA MOTO STARTER, NON-REVERSING, TYPE S, SIZE 2, 45A, 15 HP AT 230VAC, 3 PHASE, 3 POLE, SOLID STATE, 120VAC COIL, SCHNEIDER MODEL 8536SDO1V02H30S
C	*	NOT USED
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY, ATC MODEL ISO-120-AFA
E	1	PROGRAMMING SCREEN (OIT), SIEMENS INDUSTRY TP900 - COMFORT TOUCH PANEL
F	2	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL), ALLEN-BRADLEY MODEL 800H-JR2B
G	2	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2R
H	6	TERMINAL RAIL, STEEL GALVANIC ZINC, W: 2000 mm, H: 15 mm, D: 5.5 mm, WEIDMULLER ITEM No.0117510000
I	1	PUMP ALARM RESET PUSHBUTTON, ALLEN-BRADLEY MODEL 800H-AR2BF
J	*	NOT USED
K	*	NOT USED
L	1	LED ENCLOSURE LIGHT 100-240V, 1200lm, SOCKET TYPE B SUITABLE, HOFFMAN MODEL EL1200MS-US.
M	*	NOT USED
N	7	TAG CARRIER, SCHT 5 WEIDMULLER, CATALOG NO. 0292460000
P	2	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT, PHOENIX CONTACT MODEL MCR-SL-CUC-100-I
Q	8	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS, WEIDMULLER WDU 10
R	16	WIRE DUCT 1" WIDE X 3" DEEP MINIMUM, LENGTH 6', HELLERMANN TYTON MODEL SL1X3W4
S	17	END BRACKET, WEW 35/2 WEIDMULLER, CATALOG NO. 1061200000
T	27	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
U	1	ANALOG INPUT MODULE, 4 ANALOG INPUT , SIEMENS MODEL SIMATIC S7-1200, 6ES7231-4HD32-0XB0
V	*	NOT USED
W	1	CABINET WALL MOUNT, 304 SS, 48"Hx36"Wx16"D, NEMA 4X ENCLOSURE, SINGLE-DOOR, 3 POINT KEYLOCKING/PADLOCKING COMBO HANDLE. MANUFACTURED BY SAGINAW CONTROL & ENGINEERING, MODEL SCE-48EL3616SSLPPL
X	1	SWING PANEL, CARBON STEEL, POWDER COAT FINISH, 44"Hx32.63"W, FOR USE WITH SCE-48EL3616SSLPPL ENCLOSURE. MANUFACTURED BY SAGINAW CONTROL & ENGINEERING, MODEL SCE-48P36GALV.
Y	1	SUBPANEL (BACKPLANE), GALVANIZED STEEL, 45"Hx33"W, FOR USE WITH SCE-48EL3616SSLPPL ENCLOSURE. MANUFACTURED BY SAGINAW CONTROL & ENGINEERING, MODEL SCE-DF48EL36LP.
Z	*	NOT USED
AA	88	TERMINAL BLOCKS, WEIDMULLER WDU 2.5, CATALOG NO. 1020000000
BB	2	CIRCUIT BRAKER POWERPACT H, 60A, 3 POLE, 600VAC, THERMAL MAGNETIC, SQUARE D, MODEL HGL36060
CC	2	ANALOG I/O SURGE SUPPRESSOR EATON MODEL IOP32D
DD	1	DIGITAL INPUT MODULE, 16 DIGITAL INPUT 24 VDC , SIEMENS MODEL SIMATIC S7-1200, 6ES7221-1BH32-0XB0
EE	*	NOT USED
FF	1	GROUND BUS, SQUARE D MODEL 1630 PK9GTA
GG	1	LED LIGHT FOR INDOOR/OUTDOOR USE, 24 VDC, COLOR RED, FEDERAL SIGNAL MODEL LP3PL-024R.
HH	*	NOT USED.
II	*	NOT USED
JJ	*	NOT USED
KK	*	NOT USED
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A, PHOENIX CONTACT MODEL QUINT-PS/1AC/24DC/5
MM	2	MOTION SWITCH, CHERRY MODEL E13-00H
NN	*	NOT USED
PP	*	NOT USED
QQ	10	CONTROL RELAY, 3 POLE, 24VDC CONTROL COIL - TURCK C3-A30X/24DC W/S3-S BASE
RR	1	CONTROL RELAY, 3 POLE, 120VAC CONTROL COIL - TURCK C3-A30X/120AC W/S3-S BASE
SS	1	COMMUNICATION ETHERNET SWITCH, SIEMENS MODEL SCALANCE X310FE
TT	*	NOT USED
UU	1	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT, SIEMENS MODEL 6ES7214-1HG40-0XB0
VV	*	NOT USED
WW	76	FUSED TERMINAL BLOCKS, WEIDMULLER WSI 6, CATALOG NO. 1011000000
XX	2	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I, MINICAS II 83 58 57 24VDC/AC
YY	2	ANALOG SIGNAL ISOLATOR, TURCK MODEL IMS-AI-DLI-22-DLI/L
ZZ	*	NOT USED
AB	*	NOT USED
AC	1	POWER DISTRIBUTION BLOCK, 3 POLE, EDISON MODEL HPB106-3
AD	1	POWER DISTRIBUTION BLOCK, 1 POLE, EDISON MODEL HPB106-1 (NEUTRAL)
AE	1	4" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD, HOFFMAN MODEL TFP4
AF	1	T-STAT FOR EXHAUST FAN, HOFFMAN, MODEL ATEMNOF

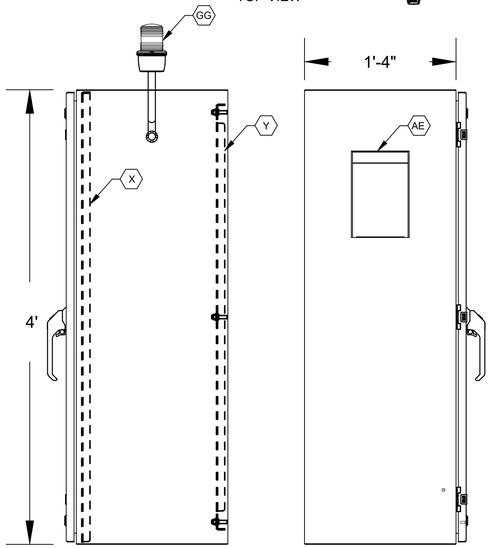
* - AS SCHEDULED



POWER & CONTROL CABINET
FRONT
SC.: 1-1/2"=1'-0"



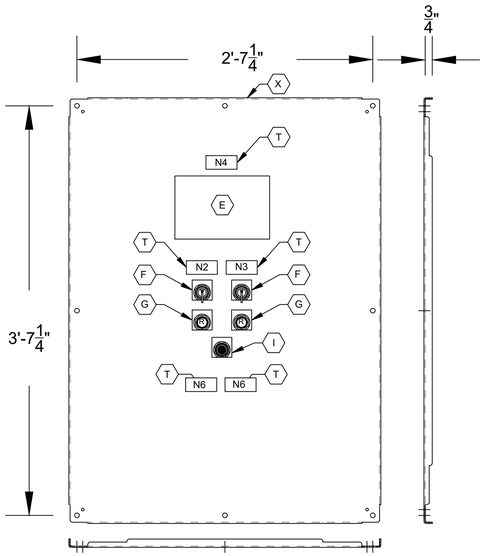
TOP VIEW



RIGHT SIDE VIEW

LEFT SIDE VIEW

POWER & CONTROL CABINET
TOP AND SIDE VIEW
SC.: 1-1/2"=1'-0"



SWING PANEL
FRONT
SC.: 1-1/2"=1'-0"

DESIGNATION	ENGRAVED
N1	BROOKLET PUMP STATION
N2	PUMP NO. 1
N3	PUMP NO. 2
N4	PROGRAMMING SCREEN
N5	PRIMARY PLC
N6	MOTOR DATA HORSEPOWER (OUTPUT) ---------- 12 RPM AT FULL LOAD ---------- 1765 MAX START PER HOUR ---------- 30 FREQUENCY ---------- 60 NUMBER OF PHASES ---------- 3 MODEL NUMBER ---------- RATED VOLTAGE ---------- 230V SERVICE FACTOR ---------- 0.78 FULL LOAD AMPS ---------- 32 A INSULATION CLAS ---------- H NEMA DESIGN LETTER ---------- TEMPERATURE RISE ---------- NEMA FRAME SIZE ---------- DATE OF MANUFACTURE ---------- THERMO PROTECTION (IF REQUIRED) -- MOISTURE PROTECTION (IF REQUIRED)-

NAMEPLATE SCHEDULE

NOTES:

1. NAMEPLATES SHALL BE MOUNTED TO PANELS USING STAINLESS STEEL HARDWARE.
2. REFER SPECIFICATIONS FOR ALL PANEL COMPONENTS.

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

POWER & CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E04

PLOTTED: 10/28/2025 1:32 PM
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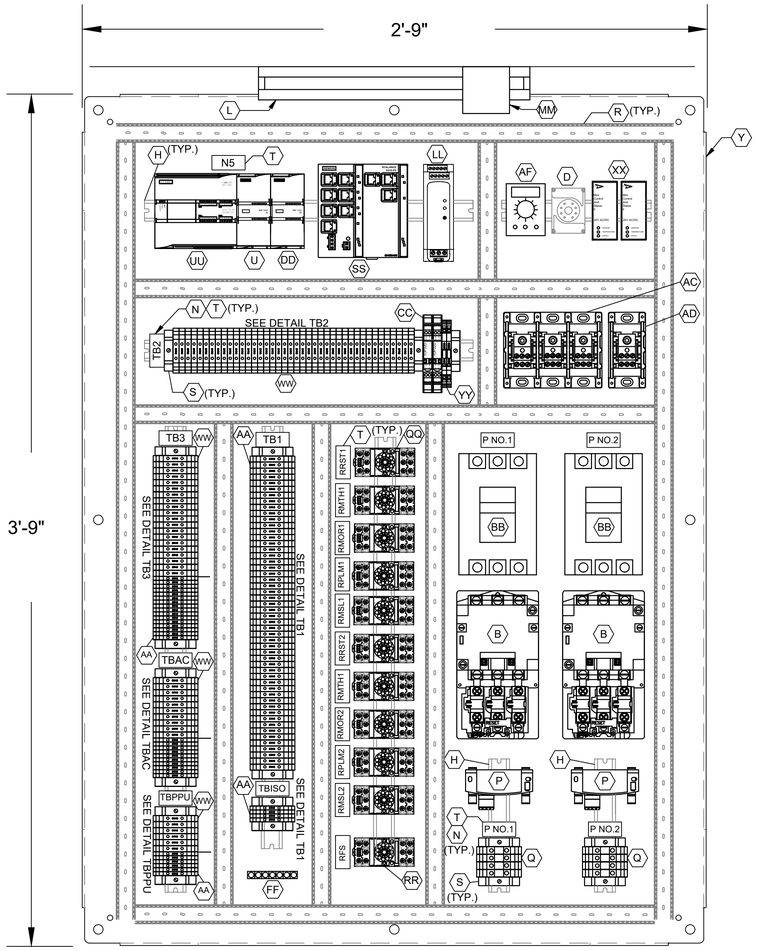


POWER & CONTROL BACKPLANE ARRANGEMENT

SC.: 3"=1'-0"

DETAIL TB1
L1A
L1N
3
3N
49
50
51
52
1004
1002
11
1001
1001A
12
1003
1003A
1002
1004
18
3N
36
36N
41
42
43
44
105
106
107
108
115
116
203
204
205
206
207
208
210
213
215
216
219
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE

ALL L AND N FOR EACH PUMP CONTROL TO BE FUSED

DETAIL TB2
50
52
54
52A
L+
M
13
13A
13G
14
14A
14G
17
28
29
32
35B
33
42
44
103
104
115
109
110
118
120
121
122
123
209
210
211
218
220
222
223
SPARE
SPARE
SPARE

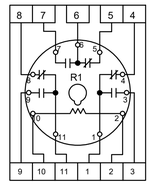
DETAIL TBAC
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10

DETAIL TBPPU
L1
L2
L3
L4
L5
L6
N1
N2
N3
N4
N5
N6

DETAIL TB3
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15
N16

DETAIL TB-ISO
1500
1501
1503
1504

LEGEND	
TAG	DESCRIPTION
RMTH	MOTOR HIGH TEMPERATURE ALARM RELAY
RPLM	PLC PUMP RUN RELAY
RRST	PUMP RESET AUX RELAY
RPLC	PLC MODE AUX RELAY
RMOR	MOTOR OVERLOAD ALARM RELAY
RBRM	BACKUP SYSTEM RUN RELAY
RUV	UNDER VOLTAGE RELAY
ISO	INTRINSICALLY SAFE RELAY
RFS	PUMP RUN FLOAT SWITCH RELAY
TDFRM	TIMER FLOAT SWITCH RUN RELAY
RMSL	MOTOR SEAL LEAK ALARM RELAY



RELAY DETAIL ITEM RR

NOTES:

1. SEE SHEET C1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS

POWER & CONTROL CABINET EQUIPMENT LAYOUT-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E05

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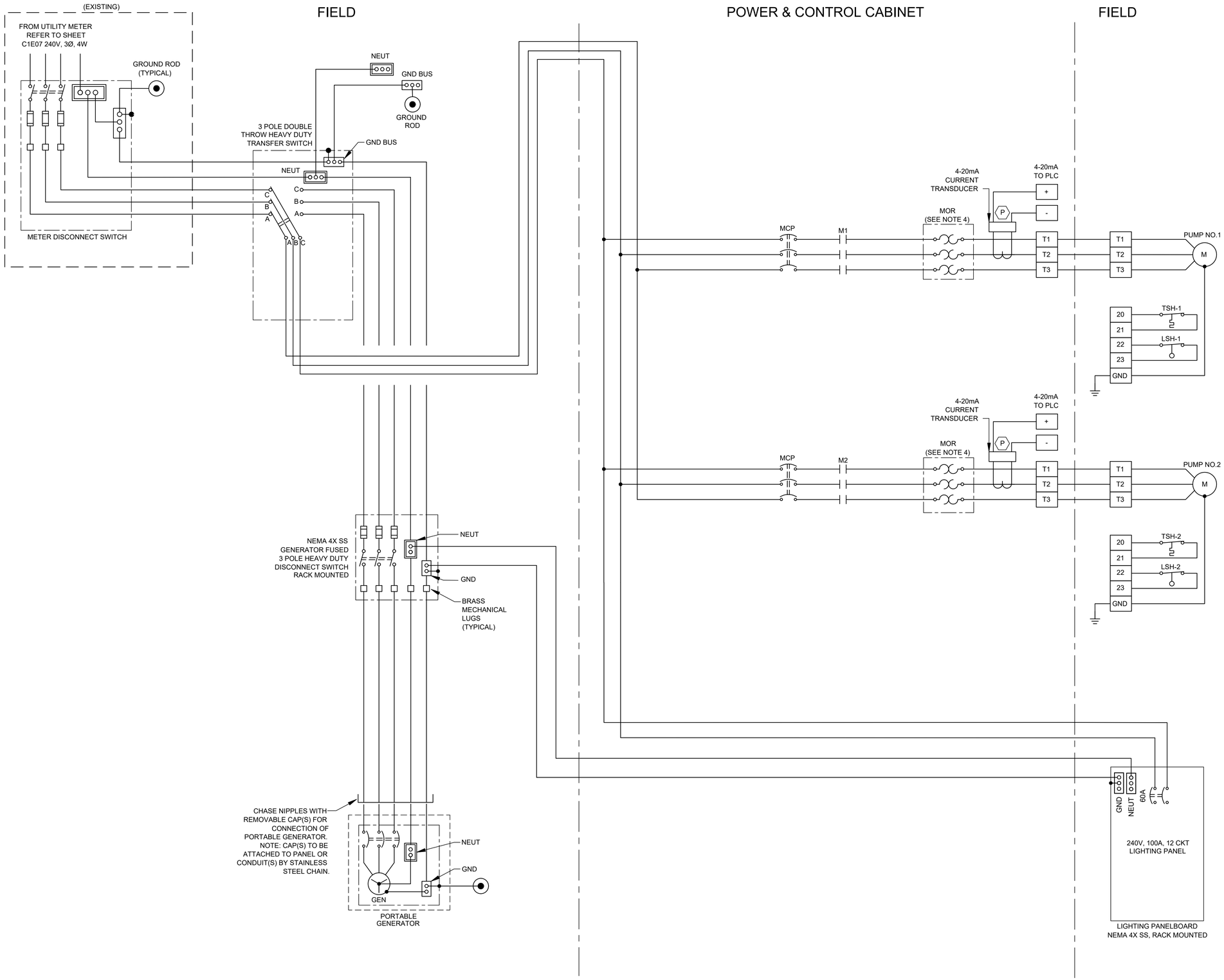

NOTES:

1. UNLESS OTHERWISE INDICATE, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE POWER & CONTROL CABINET.
2. SEE SHEET C1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. CONTRACTOR SHALL TERMINATE POWER & CONTROL WIRES PER MANUFACTURER'S REQUIREMENTS.
4. MOTOR OVERLOAD RELAY.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- * DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PC INTERFACE TERMINAL

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

INCOMING POWER THREE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E06

PLOTTED: 10/28/2025 1:32 PM
PLOT STYLE: COH.ctb
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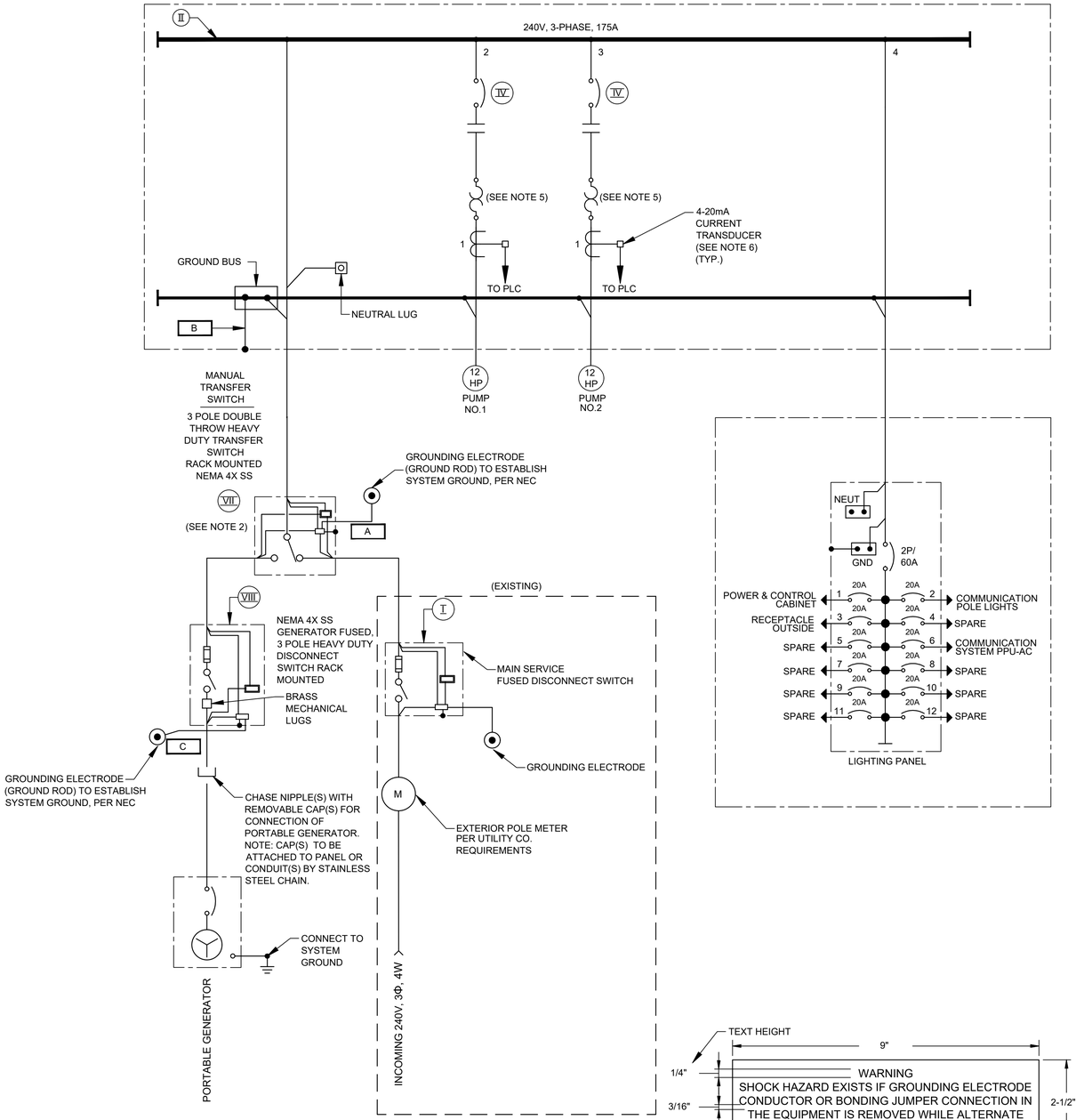
PLOTTED: 10/28/2025 1:40 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 1\queue1.dwg

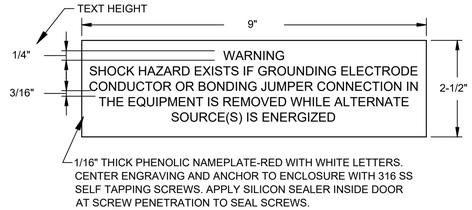
POWER & CONTROL CABINET



ITEM	CIRCUIT	DESCRIPTION	RATINGS FOR PUMP SIZES INDICATED: 2 @ 12HP
I	--	MAIN DISCONNECT SWITCH (EXISTING)	
		OPERATING VOLTAGE	-
		CURRENT RATING	-
		CURRENT LIMITING	-
		FUSES TYPE & SIZE	-
II	--	POWER & CONTROL CABINET POWER DISTRIBUTION BLOCK	
		OPERATING VOLTAGE	240V
		CURRENT RATING	175A
		NEUTRAL SIZE & TYPE	BUS BAR 225A
		SCCR	200KA
III	--	NOT USED	
IV	2 3	PUMP MOTOR STARTERS	
		QUANTITY	2
		MOUNTING	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	240V
		FRAME SIZE	60A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	65KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	240V
		SIZE	NEMA 2
		OVERLOAD PROTECTION	
		TYPE	SOLID STATE MOR
VII	--	MANUAL TRANSFER SWITCH	3P, 4W SN
		OPERATING VOLTAGE	600V
		CURRENT RATING	200A
VIII	--	GENERATOR FUSED DISCONNECT SWITCH	3P, 4W SN
		OPERATING VOLTAGE	600V
		CURRENT RATING	200A
		CURRENT LIMITING FUSES TYPE & SIZE	CLASS J 100A

NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
2. PROVIDE A NORMALLY OPEN (NO) AUXILIARY CONTACT FOR BOTH ON POSITIONS.
3. CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
4. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
5. MOTOR OVERLOAD RELAY.
6. PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.



ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLI*
1	PUMP NO. 1	12 HP	32A
2	PUMP NO. 2	12 HP	32A
3	LIGHTING PANEL		TBD
SUBTOTAL			---A
25% OF LARGEST MOTOR LOAD			---A
MINIMUM AMPACITY @240V,3Φ			---A

* BASED ON SELECTED PUMP MFG DATA

NO.	DATE	REVISION	APP.
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B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

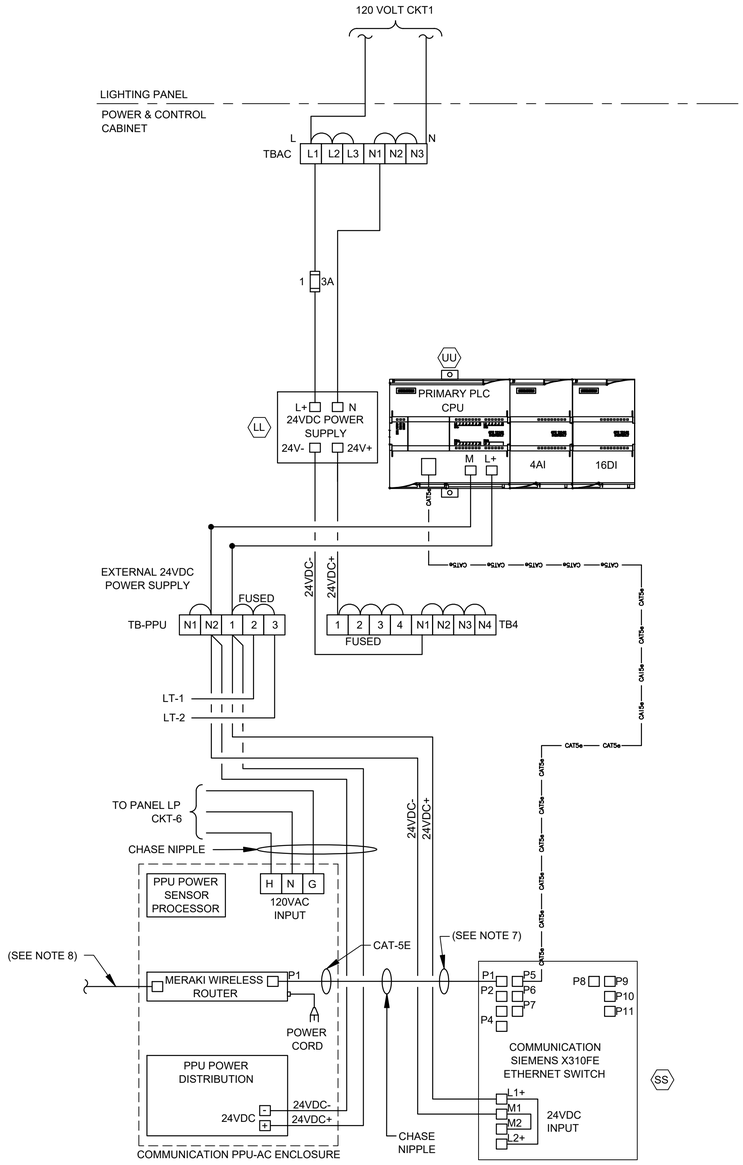
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

SINGLE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E07

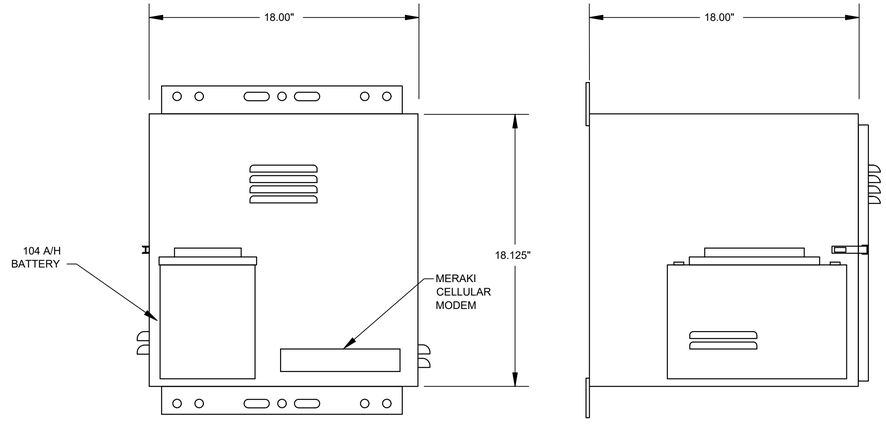


CONTROL POWER & COMMUNICATIONS WIRING

DIAGRAM

NTS

(SEE NOTE 8)



PPU-AC ENCLOSURE FRONT VIEW

PPU-AC ENCLOSURE SIDE VIEW

PPU-AC CONTROL ENCLOSURE

ELEVATION

NTS

(SEE NOTE 4)

NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ITEM TAG, SEE DEVICE RATINGS SCHEDULE.
2. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
3. THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
4. SEE SHEET C1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
5. COORDINATE WITH VENDOR TO PROVIDE PROPER VENTILATION WHERE APPLICABLE.
6. COMMUNICATION PPU-AC & SCADA SHALL BE PROVIDED BY CONTRACTOR INCLUDING TO RUN CONDUITS & WIRES.
7. ETHERNET CABLE FOR MERAKI CELLULAR ROUTER (P1).
8. POE CABLE TO RADIO.

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS

COMMUNICATION DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E08

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PLOT STYLE: COH.ctb
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HMI

POWER & CONTROL CABINET (PLC)

POWER & CONTROL CABINET

PUMP NO. 1

SEAL FAIL ALARM	MOTOR OVERLOAD ALARM	MOTOR CURRENT	HIGH TEMP ALARM	IN HAND	AUTO	ON/OFF	START/ STOP
MA 1	MO 1	II 1	TH 1	HI 1	IA 1	YFS 1	YCS 1

PUMP NO. 2

SEAL FAIL ALARM	MOTOR OVERLOAD ALARM	MOTOR CURRENT	HIGH TEMP ALARM	IN HAND	IN AUTO	ON/OFF	START/ STOP
MA 2	MO 2	II 2	TH 2	HI 2	IA 2	YFS 2	YCS 2

PLC

ALARMS RESET	FLOAT HIGH-HIGH WETWELL LEVEL
RE 1	LAHH 1A

240V

PUMP NO. 1 H/O/A RUN

PUMP NO. 2 H/O/A RUN

PUMP POWER & CONTROL CABINET

ALARMS RESET

TO SHEET C1E10

C1E10

C1E10

WET WELL

LT 1

LE 1

LT 2

LE 2

LSH 1A

TSH 1A

M

PUMP NO.1

FS2 HIGH HIGH LEVEL FLOAT SWITCH

LSH 2A

TSH 2A

M

PUMP NO.2

FS1 LOW LEVEL FLOAT SWITCH

AIR-RELEASE

XX"-DIP

XX"-DIP

XX"-DIP

XX"-DIP

DISCHARGE

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

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SUITE 650
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P: 832-930-7670
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10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

PROCESS & INSTRUMENTATION DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E09

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PLOT STYLE: COH.ctb
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HMI

POWER & CONTROL CABINET (PLC)

POWER & CONTROL CABINET

PLC

PRIMARY LEVEL TRANSMITTER

BACKUP LEVEL TRANSMITTER

HIGH LEVEL LAH 1

LEVEL INDICATION LI 1

LOW LEVEL LAL 1

HIGH LEVEL LAH 2

LEVEL INDICATION LI 2

LOW LEVEL LAL 2

HIGH LEVEL ALARM LAH 1B

INSTRUSION ALARM YA 1

MTS IN NORMAL SOURCE ZI 1A

MTS IN GENERATOR SOURCE ZI 1B

ALARMS RESET RE 2

FROM SHEET C1E09

C1E09

C1E09

NO.	DATE	REVISION	APP.
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B	10/30/25	CLIENT REVIEW	L.L

HATCH

750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

BROOKLET LS

PROCESS & INSTRUMENTATION DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
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SHEET NO. OF 246	

C1E10

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PLOT STYLE: COH.ctb

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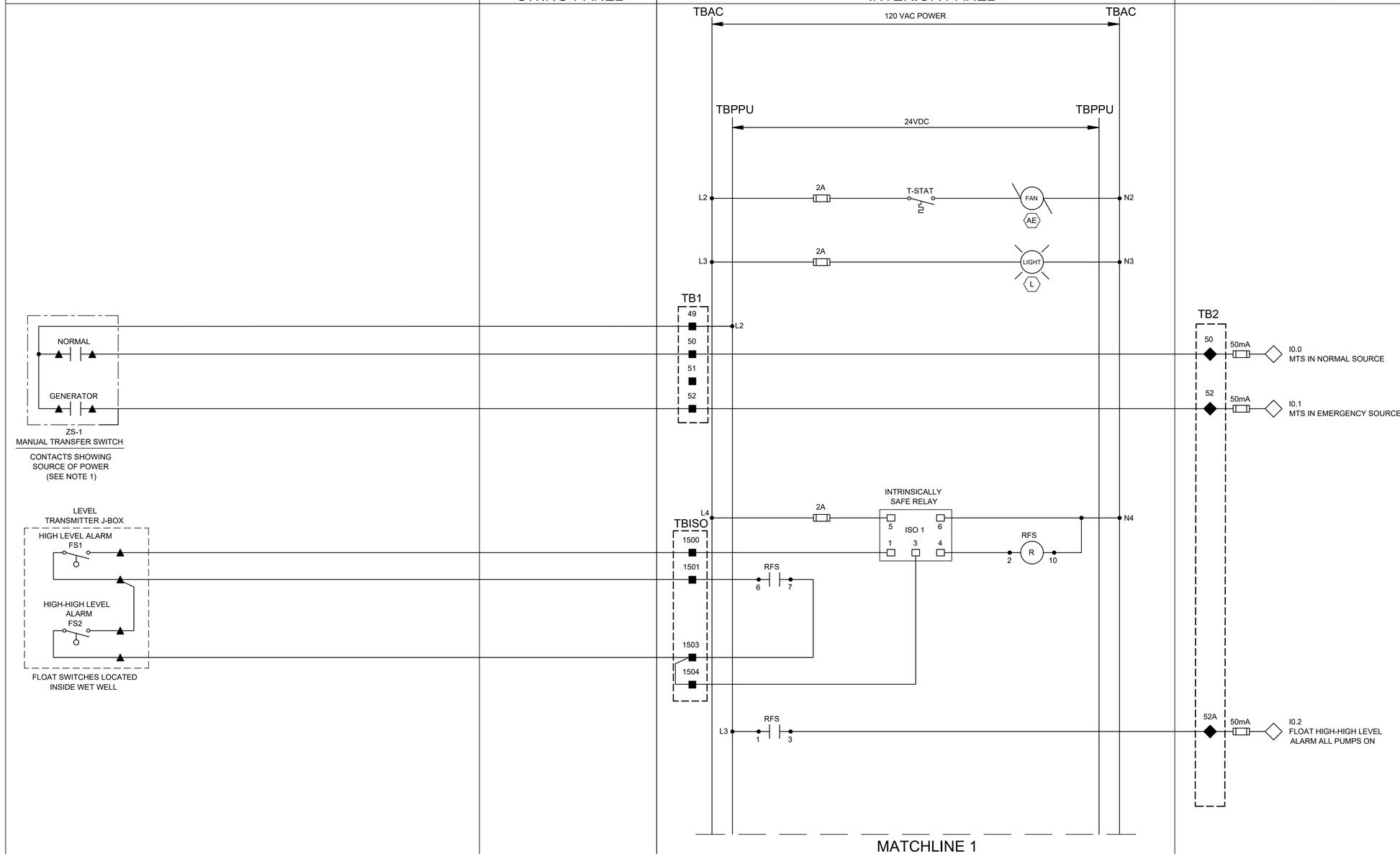

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
3. SEE SHEET C1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E11

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PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 5\queue5.dwg

FIELD

POWER & CONTROL CABINET

SWING-PANEL

INTERIOR PANEL

PLC

TBAC TBPPU MATCHLINE 1 TBPPU TBAC

120 VAC POWER

24VDC

RADAR LEVEL TRANSMITTER JUNCTION BOX

MFG. CABLE

PRIMARY RADAR LEVEL TRANSMITTER

LT-1

MFG. CABLE

BACK UP RADAR LEVEL TRANSMITTER

LT-2

TB1

1004

1002

11

1001

1001A

12

1003

1003A

ANALOG ISOLATOR

ANALOG I/O SURGE SUPPRESSOR

24V+

1001B

24V+

1003B

N2

TB2

L+

M

+ CPU POWER

- CPU COMMON

13

13A

13G

50mA

+ AIO.0 PRIMARY WET WELL LEVEL TRANSMITTER

-

14

14A

14G

50mA

+ AIO.1 BACKUP WET WELL LEVEL TRANSMITTER

-

MATCHLINE 2

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. SEE SHEET C1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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P.E No. 105809, TEXAS
10/30/2025

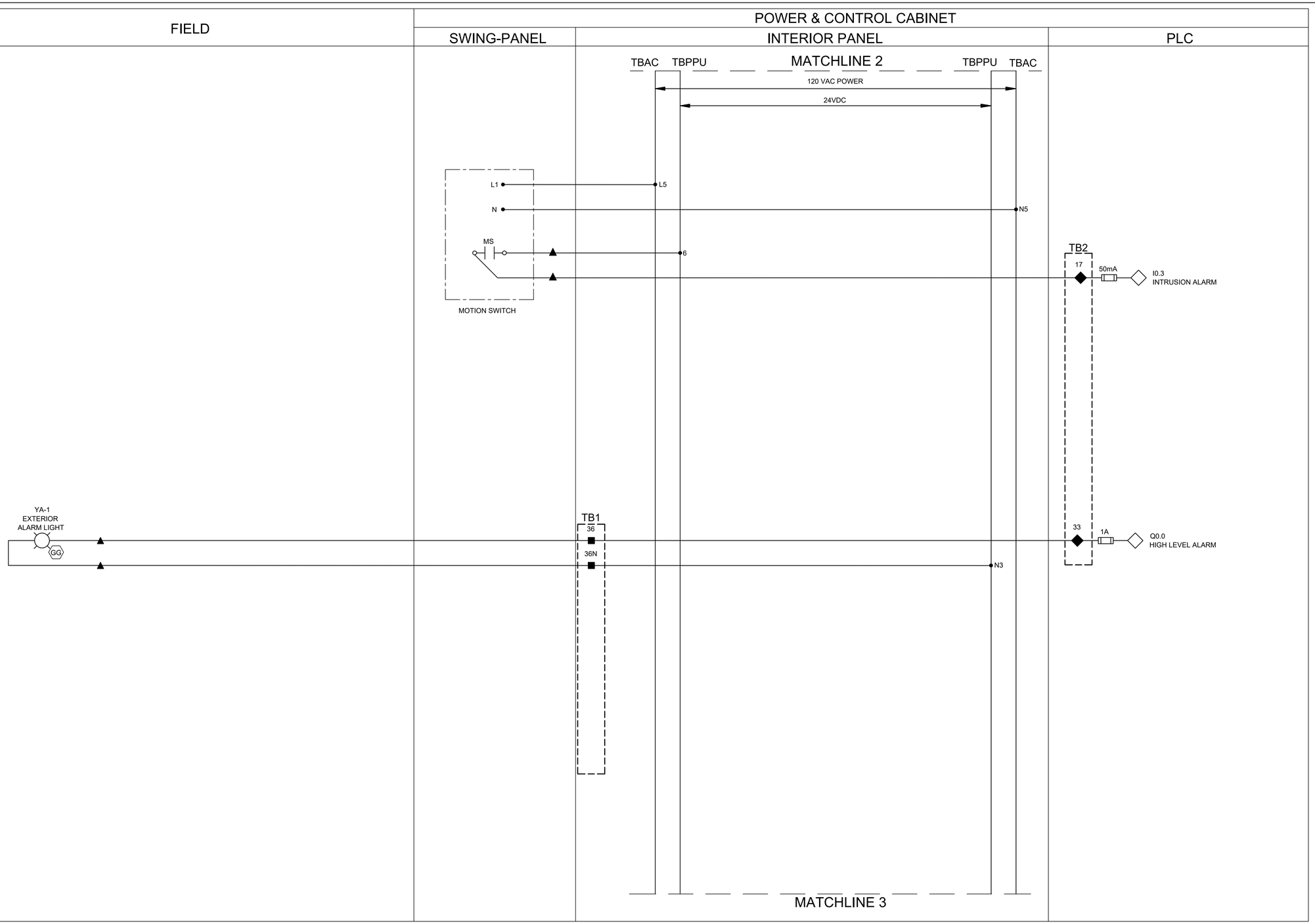
CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	



NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL.
2. SEE SHEET C1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E13

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PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 4\queue4.dwg

APP.	REVISION	DATE	NO.
L.L	INTERNAL REVISION	07/03/25	A
L.L	CLIENT REVIEW	10/30/25	B

FIELD

POWER & CONTROL CABINET

SWING-PANEL

INTERIOR PANEL

PLC

TBAC 120 VAC POWER TBAC

TB3 24 VDC TB3

TB2

TSH-1 MOTOR TEMP SWITCH

LSH-1 SEAL LEAK DETECTOR

TB1

PUMP NO.1

TERMINAL JUNCTION BOX

REFER TO SHEET C1E06

4-20mA CURRENT TRANSDUCER

HS-1A RESET

TO SHEET C1E15

RRST1

TO SHEET C1E15

M1

PUMP NO. 1 PROTECTION MODULE

LAH-1 SL1

TAH-1 MTH1

3P1

RMSL1

RMTH1

MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)

MOR1

RMOR1

RMTH1 RMSL1

HS-1 H-O-A

RPLM1

YI-1 RUN

3N

PLC		
103	1A	Q0.1 ALARM RESET
104	50mA	I0.4 ALARM RESET
109	50mA	I0.5 PUMP NO.1 HIGH TEMP ALARM
122	50mA	AI0.2 PUMP NO.1 MOTOR CURRENT
123	50mA	I0.6 PUMP NO.1 MOTOR OVERLOAD
115	50mA	I0.7 PUMP NO.1 IN HAND
121	50mA	I0.8 PUMP NO.1 IN AUTO
118	1A	Q0.2 PUMP NO.1 PLC START/STOP
120	50mA	I0.9 PUMP NO.1 RUN
110	50mA	I0.10 PUMP NO.1 SEAL FAILURE ALARM

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET C1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
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SUITE 650
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TX FIRM NUMBER: F-10912

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

PUMP NO.1 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

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NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

FIELD

POWER & CONTROL CABINET

SWING-PANEL

INTERIOR PANEL

PLC

TBAC 120 VAC POWER TBAC

TB3 24 VDC TB3

FROM SHEET C1E14

HS-1A RESET (I)

201 202

RRST2 1 3

FROM SHEET C1E14

2 R 10 RRST2 N7

TB1

203 204 205 206 207 208

M2

205

200

TSH-2 MOTOR TEMP SWITCH △

20 21 22 23

208

LSH-2 SEAL LEAK DETECTOR △

5 7 6

PUMP NO. 2 PROTECTION MODULE

LAH-2 SL2 TAH-2 MTH2

L8 2 XX 11 9 1 4 10 N8

PUMP NO.2

T1 T2 T3 G

M

T1 T2 T3 M1

CT

REFER TO SHEET C1E06

3P2 11

RMSL2 2 R 10 N8

3P2

221

RMTH2 2 R 10

3P2

RMTH2 6 7

TB2

209 50mA I0.11 PUMP NO.2 HIGH TEMP ALARM

TERMINAL JUNCTION BOX

215 216

4-20mA CURRENT TRANSDUCER

12

IE-2 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)

B MOR2

RMOR2 2 R 10 N9

13

222 50mA AI.3 PUMP NO.2 MOTOR CURRENT

RMOR2 6 7

212 L9 14 3P2

223 50mA I0.12 PUMP NO.2 MOTOR OVERLOAD ALARM

RMTH2 1 4 211 RMSL2 1 4

HS-2 H-O-A (F) H O A

213

214

213

216 RPLM2 1 3

B M2 M MOR2

15

210 50mA I0.13 PUMP NO.2 IN HAND

211 50mA I1.0 PUMP NO.2 IN AUTO

213

219

218 1A Q0.3 PUMP NO.2 PLC START/STOP

218

RPLM2 2 R 10 N10

M2

16

220 50mA I1.1 PUMP NO.2 RUN

YI-2 R G

RUN

N11

RMSL2 6 7

17

210 50mA I1.2 PUMP NO.2 SEAL FAILURE ALARM

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET C1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
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ENGINEER: GUY SEVERN
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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

PUMP NO.2 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E15

	DESCRIPTION	SERVICE		ROUTING			WIRE SIZE & CONDUIT SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
A	MANUAL TRANSFER SWITCH BONDING JUMPER	--	--	MANUAL TRANSFER SWITCH	GROUND FIELD	--	1#6G
B	POWER & CONTROL CABINET BONDING JUMPER	--	--	POWER & CONTROL CABINET	GROUND FIELD	--	1#6G
C	GENERATOR SWITCH BONDING JUMPER	--	--	GENERATOR FUSED DISCONNECT SWITCH	GROUND FIELD	--	1#6G
100	SERVICE ENTRANCE	240VAC	VARIES	METER DISCONNECT SWITCH (EXISTING)	MANUAL TRANSFER SWITCH	RIGID CONDUIT	4#2/0 / 1#6G, 2"C
100A	SERVICE POWER	240VAC	VARIES	MANUAL TRANSFER SWITCH	POWER & CONTROL CABINET	RIGID CONDUIT	4#2/0 / 1#6G, 2"C
100B	NORMAL/EMERGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH	POWER & CONTROL CABINET	RIGID CONDUIT	2#14, 3/4"C
101	GROUND ELECTRODE CONDUCTOR	--	--	POWER & CONTROL CABINET	GROUND FIELD	RIGID CONDUIT	1#6G
105	COMMUNICATION	--	--	COMMUNICATION POLE	PPU-AC PANEL	RIGID CONDUIT	ETHERNET CABLE, 3/4"C.
105A	COMMUNICATION POLE LIGHT (EXISTING)	120V	--	POLE SWITCH LIGHT (OUTSIDE)/LIGHTING PANEL	COMMUNICATION POLE LIGHTING SWITCH	RIGID CONDUIT	2#12 / 1#12G, 3/4"C.
200	PUMP NO. 1 POWER	240VAC	12 HP	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
202	PUMP NO. 1 POWER	240VAC	12 HP	PUMP NO. 1 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	3#10 / 1#10G, 1"C
203	COMBINED PUMP CONTROLS	120V		PUMP NO. 1 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	(COMBINE 201 & 301) 8#14, 1"C
300	PUMP NO. 2 POWER	240VAC	12 HP	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
302	PUMP NO. 2 POWER	240VAC	12 HP	PUMP NO. 2 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	3#10 / 1#10G, 1"C
602	LIGHTING PANEL FEEDER	120/240V	--	POWER & CONTROL CABINET	LIGHTING PANEL	RIGID CONDUIT	3#10 / 1#10G, 1"C
1000	LEVEL TRANSMITTER LT-1	24VDC	--	LEVEL TRANSMITTER LT-1	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1001	LEVEL TRANSMITTER LT-2	24VDC	--	LEVEL TRANSMITTER LT-2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	POWER & CONTROL CABINET	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	COMBINE 1000/1001/1003, 4#14+2#14G / 4#14, 2"C
1003	WELL FLOAT SWITCHES	24VDC	--	FLOAT SWITCH NO.1 & NO.2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
1100	120VAC FOR RECEPTACLE	120V	--	LIGHTING PANEL	RECEPTACLE NEXT TO LEVEL TRANSMITTER J-BOX	RIGID CONDUIT	L3 2#12 #12G, 3/4"C
1101	COMMUNICATION POLE LIGHTING SWITCH	120V	--	LIGHTING PANEL	POLE SWITCH LIGHT (EXISTING)	RIGID CONDUIT	L2, 2#12 #12G, 3/4"C,
1102	POWER & CONTROL CABINET LIGHT	120V	--	LIGHTING PANEL	LIGHT IN POWER & CONTROL CABINET	RIGID CONDUIT	L5, 2#12 #12G, 3/4"C,
1103	COMMUNICATION PPU-AC FEEDER	120V	--	LIGHTING PANEL	PPU-AC PANEL	RIGID CONDUIT	L6, 2#12 #12G, 3/4"C,

NOTES:

1. CONDUITS LABELED "FUTURE SPACE" ARE TO BE INSTALLED AND CAPPED IN FIELD.
2. ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2".
3. ALL UNDERGROUND CONDUITS (SINGLE AND MULTI-RUN) TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.

NO.	DATE	REVISION	APP.
A	07/03/25	INTERNAL REVISION	L.L
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

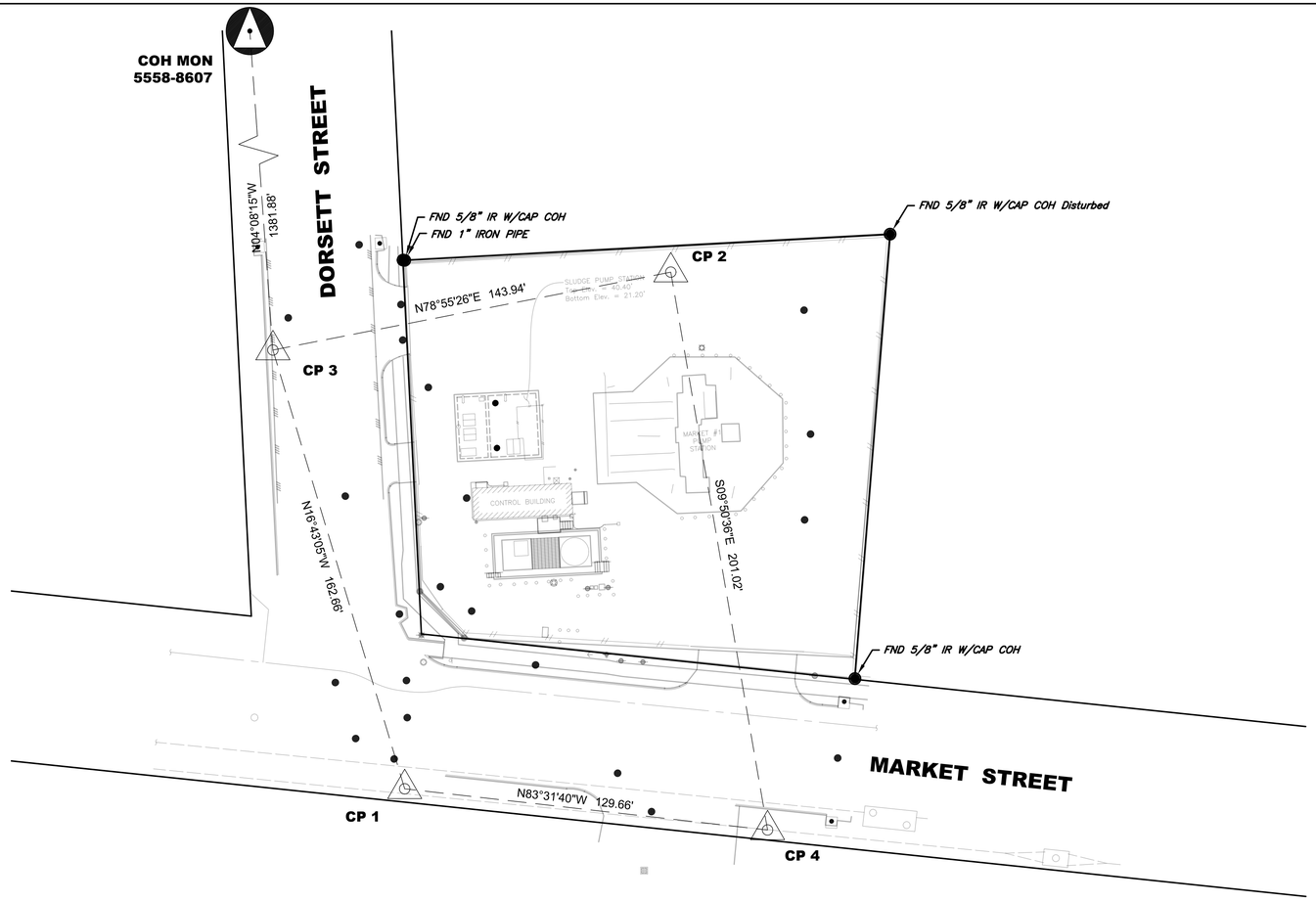
LIFT STATION RENEWAL & REPLACEMENT PROJECT
BROOKLET LS

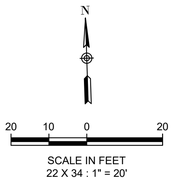
CONDUIT SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

C1E16

PLOTTED: 10/28/2025 1:37 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wuspplot01\d$\Global ProjectWise Plotting - WUS\Queue 1\queue1.dwg





NO.	DATE	REVISION	APP.

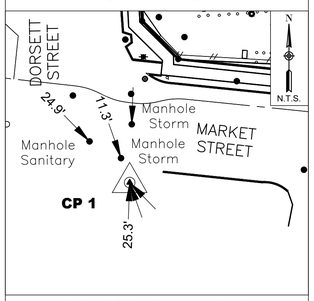
NOTES:

1. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204) NORTH AMERICAN DATUM OF 1983 (2011 ADJ) 2010 EPOCH, US SURVEY FEET. COORDINATES SHOWN HEREON ARE GRID VALUES AND ALL DISTANCES SHOWN ARE SURFACE VALUES. THE COMBINED SCALE FACTOR IS 0.99989521
2. GRID COORDINATES/SCALE FACTOR = SURFACE COORDINATES.
3. FIELD DATA COLLECTED OCTOBER 2024.
4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID 18. ALL CONTROL NETWORK ELEVATIONS ARE TIED TO CITY SURVEY 5558-8607 SITE CONTROL MONUMENT USING DIFFERENTIAL LEVELING.

PROJECT BENCH MARK:

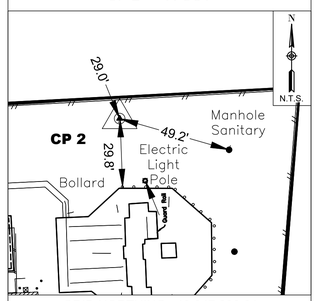
A BRASS DISK LOCATED ON THE SOUTHWEST CORNER OF LYONS AVE. AND DORSETT ST. INTERSECTION. OBSERVED ELEVATION = 40.65' (NAVD 88 GEOID 18)

CP 1 -- X-CUT



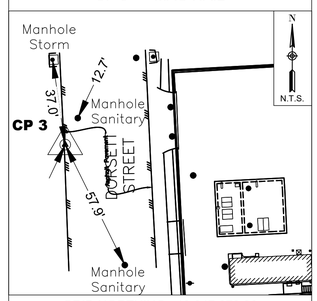
GRID NORTHING : 13,847,115.19
GRID EASTING : 3,146,123.15

CP 2 -- X-CUT



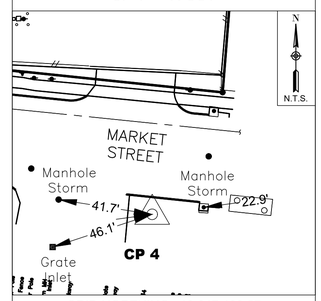
GRID NORTHING : 13,847,298.61
GRID EASTING : 3,146,217.61

CP 3 -- MAG NAIL



GRID NORTHING : 13,847,270.96
GRID EASTING : 3,146,076.36

CP 4 -- X-CUT

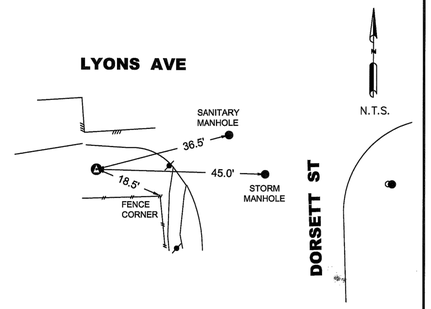


GRID NORTHING : 13,847,100.57
GRID EASTING : 3,146,251.97

CP No.	Grid Northing	Grid Easting	Elevation	Description
1	13,847,115.19	3,146,123.15	38.34	X-CUT
2	13,847,298.61	3,146,217.61	39.71	X-CUT
3	13,847,270.96	3,146,076.36	37.70	MAG NAIL
4	13,847,100.57	3,146,251.97	38.01	CP X-CUT

CITY OF HOUSTON

CITY SURVEY 5558-8607
SITE CONTROL MONUMENT



Project WBS# R-000267-0175-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,145,976.67
Y= 13,848,649.09

Lat.= N 29° 46' 36.1737"
Lon.= W 95° 17' 15.3778"

Keymap Page: 495B
Orthometric Elevation = 40.65
Ellipsoid Height= -48.96
Geoid: GEOID 18
Datum Source & Adjustment: 2-HR STATIC GPS OBSERVATION MADE ON MONUMENT ON 10/29/2024

Reference Frame Used: NAD_83(2011)(EPOCH: 2010.0000)
Vertical Adjustment used: NAVD 88 GEOID18
General Location: THE SOUTHWEST CORNER OF LYONS AVE. AND DORSETT ST. INTERSECTION.

Date Set: MAY 14, 2003 Type of Mark: BRASS DISK

3 Nearest project control points (bearings and distances stated below):
1. CP #2, X-CUT, S 10° 06' 57" E, 1371.95'
2. CP #1, MAG NAIL , S 4° 08' 15" E, 1381.88'
3. CP #4, X-CUT , S 5° 27' 17" E, 1541.04'

NOTE:
1. Bearings are grid bearings.
2. Combined Factor (C.F)= 0.99989521.

Surface= Grid
C.F.

Surveyed By: Amani Engineering, Inc.
11011 Richmond Avenue, Suite 700
Houston, TX 77042
Tel. (713)270-5700
Texas Registered Survey Firm 10028200

STATE OF TEXAS REGISTERED CHRISTINA I. WEAVER 6753 PROFESSIONAL LAND SURVEYOR 9.12.25

P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\Monument\NE Sludge Transfer LS\5558-8607.dwg

F1C01

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

WILLIAM H. REIMER III, R.P.L.S.
Surveyor
4044
Registration Number
10/23/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

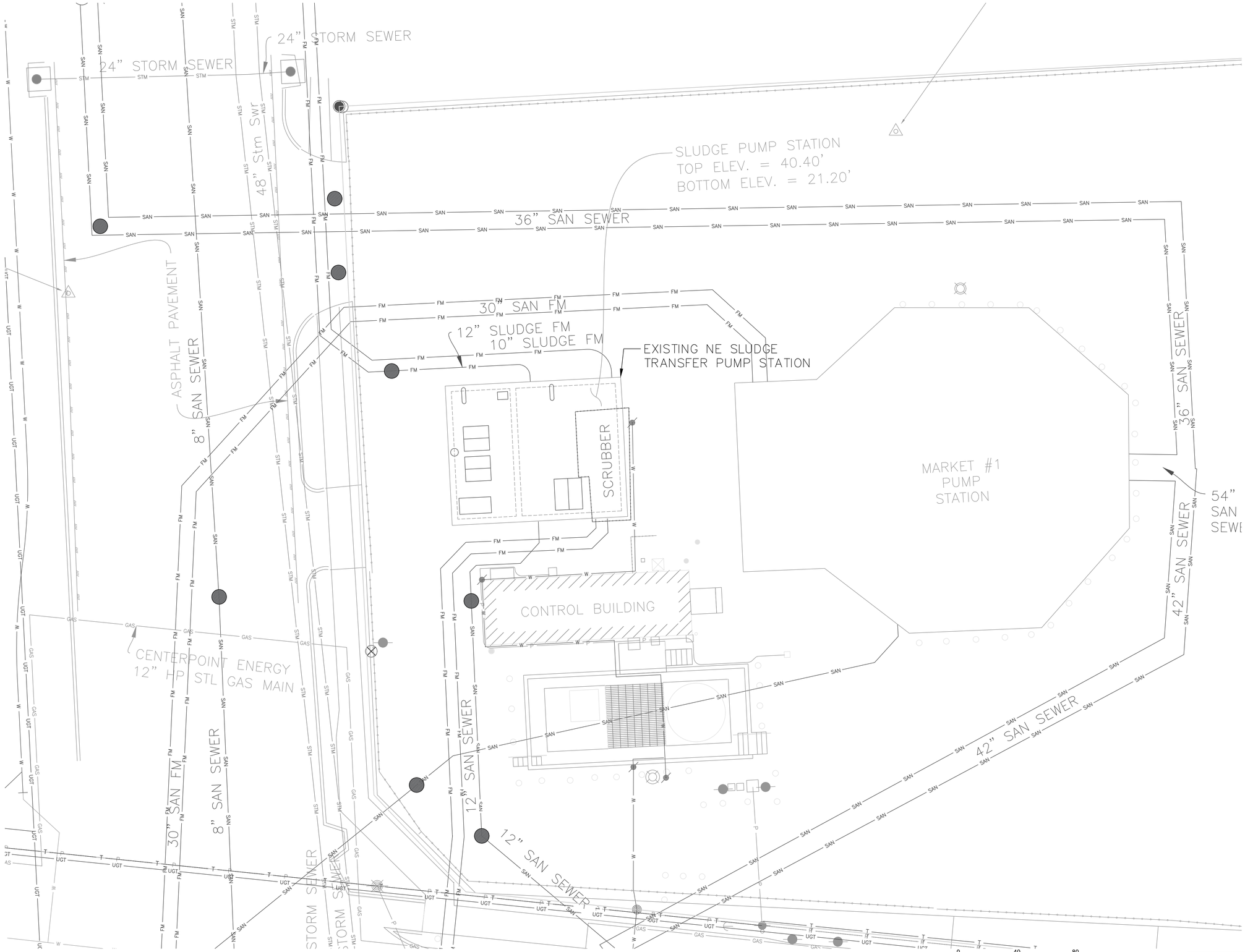
LIFT STATION RENEWAL & REPLACEMENT PROJECT

N.E. SLUDGE TRANSFER LS
SURVEY CONTROL MAP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
1" = 20'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN	
SHEET NO. OF 246	

FILE PATH: P:\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Survey Control Drawings\Control-NE Sludge Transfer LS.dwg

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS



N

NOTE:

1. LS SITE IS NOT LOCATED IN THE 100 OR 500 YEAR FLOODPLAINS

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
NE SLUDGE TRANSFER LS
EXISTING TOPOGRAPHIC PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1C02

PLOT STYLE: Grayscale.ctb PLOTTED: 10/29/2025 4:12 PM

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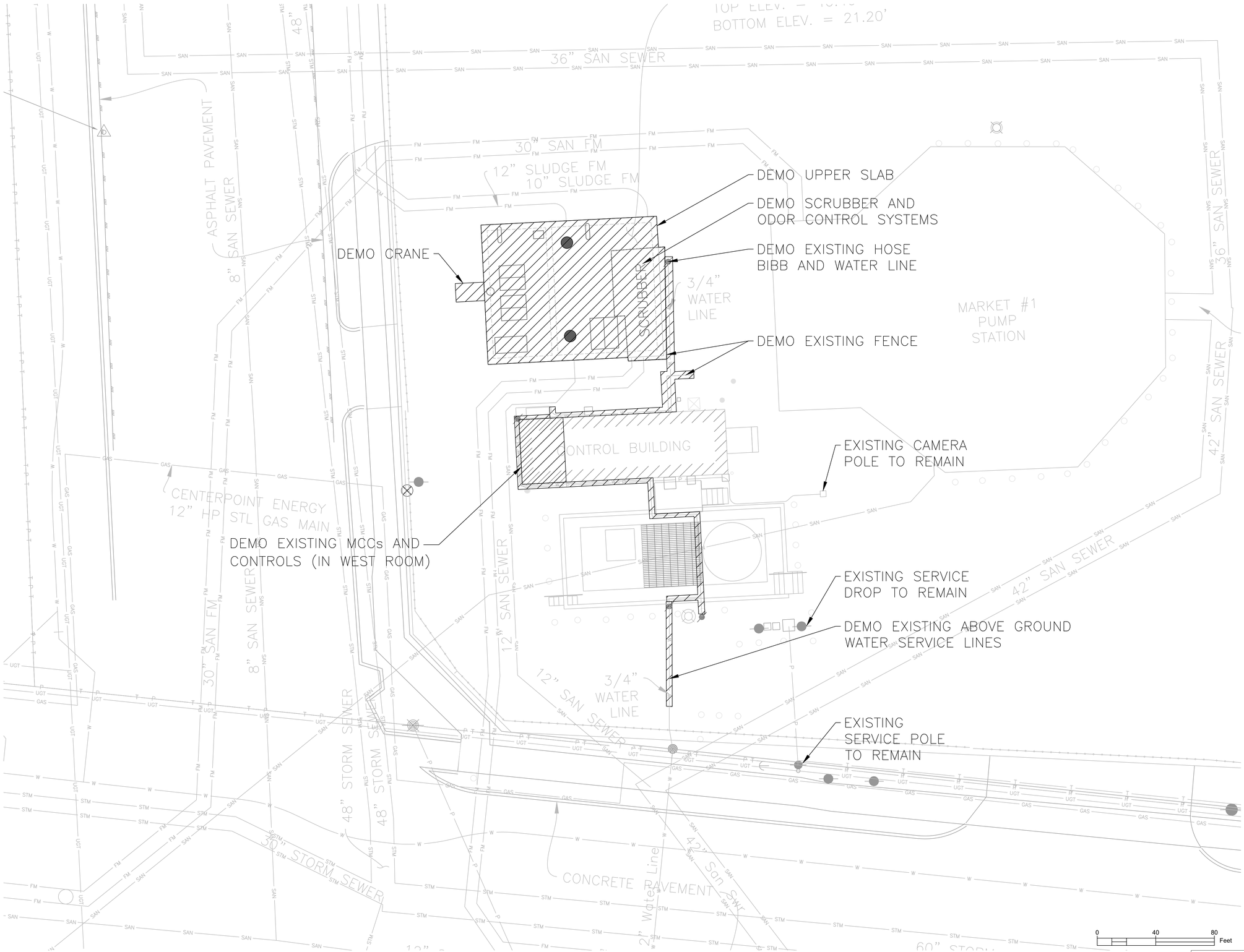
NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX



F1C03

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

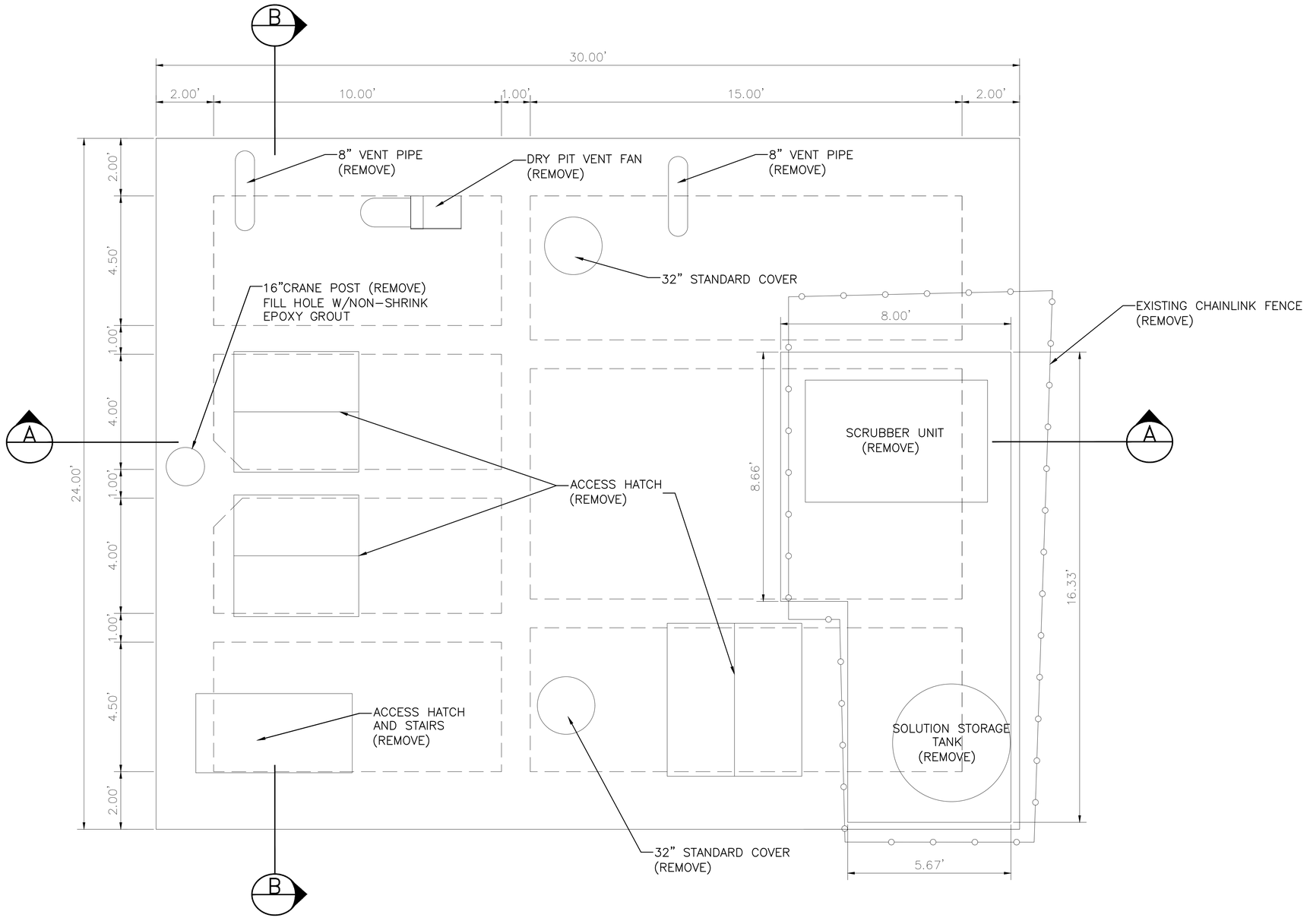
INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
NE SLUDGE TRANSFER LS
DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	



PLAN VIEW

DEMOLITION NOTES:

1. THIS DRAWING IS BASED ON AVAILABLE RECORDS AND FIELD OBSERVATIONS. THE CONTRACTOR SHALL SATISFY HIMSELF / HERSELF OF THE ACTUAL CONDITIONS EXISTING AT THE SITE. THIS DRAWING DEPICTS PRIMARY MECHANICAL FEATURES. NOT ALL FEATURES, INCLUDING ELECTRICAL ARE NECESSARILY DEPICTED HEREON. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING EQUIPMENT WITHIN THE EXISTING STRUCTURE AS A PRECURSOR TO CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
2. REMOVE TOP AND SIDE WALLS OF LIFT STATION TO 4-FEET BELOW LIFT STATION TOP SLAB ELEVATION. STEEL IN WALLS TO REMAIN (WHERE POSSIBLE) AND BE USED TO DEVELOP REINFORCEMENT FOR NEW TOP SLAB (REFER TO STRUCTURAL DETAILS).
3. THE CONTRACTOR SHALL NOT PROCEED WITH DEMOLITION WORK UNTIL AUTHORIZED. LIFT STATION BYPASS PUMPING MUST BE IN PLACE WITH OPERATIONAL ADEQUACY CHECKED AND CONFIRMED BY THE CITY BEFORE PROCEEDING WITH DEMOLITION WORK.
4. THE CITY OF HOUSTON WASTEWATER OPERATIONS DIVISION SHALL BE CONTACTED A MINIMUM OF 72-HRS PRIOR TO DEMOLITION. THE CITY SHALL HAVE THE FIRST RIGHT OF REFUSAL OF ANY ELECTRICAL OR MECHANICAL EQUIPMENT REMOVED FROM THE STATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND LOADING ONTO CITY TRUCKS, ALL SALVAGED MATERIALS AND EQUIPMENT DESIRED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PREMIT(S) REQUIRED FOR DEMOLITION WORK.
6. ALL ITEMS DAMAGED OR REMOVED BY THE CONTRACTOR AND NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
7. THE CONTRACTOR MAY DISCHARGE LIQUID WASTE AND WASHDOWN TO THE CITY WASTEWATER COLLECTION SYSTEM, HOWEVER; ALL DISCHARGES MUST BE COMPLIANT WITH THE CITY'S INDUSTRUAL WASTE ORDINANCE, CHAPTER 47, ARTICLE V. THE CONTRACTOR IS ADVISED THAT A PERMIT OR TEMPORARY DISCHARGE AUTHORIZATION MAY BE REQUIRED. CONTACT THE INDUSTRIAL WASTEWATER DIVISION AT (832) 395-5800. IN LIEU OF A DISCHARGE AUTHORIZATION, THE CONTRACTOR SHALL COLLECT AND HAUL, AT CONTRACTOR EXPENSE, ALL NON-SOLID DISCHARGES TO AN APPROVED CITY FACILITY.
8. REFER TO STRUCTURAL AND ELECTRICAL DEMOLITION DRAWINGS FOR INFORMATION RELATED TO THOSE SPECIFIC ACTIVITIES.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

NORTHEAST SLUDGE TRANSFER STATION
SURFACE PLAN VIEW
MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

F1C04

FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

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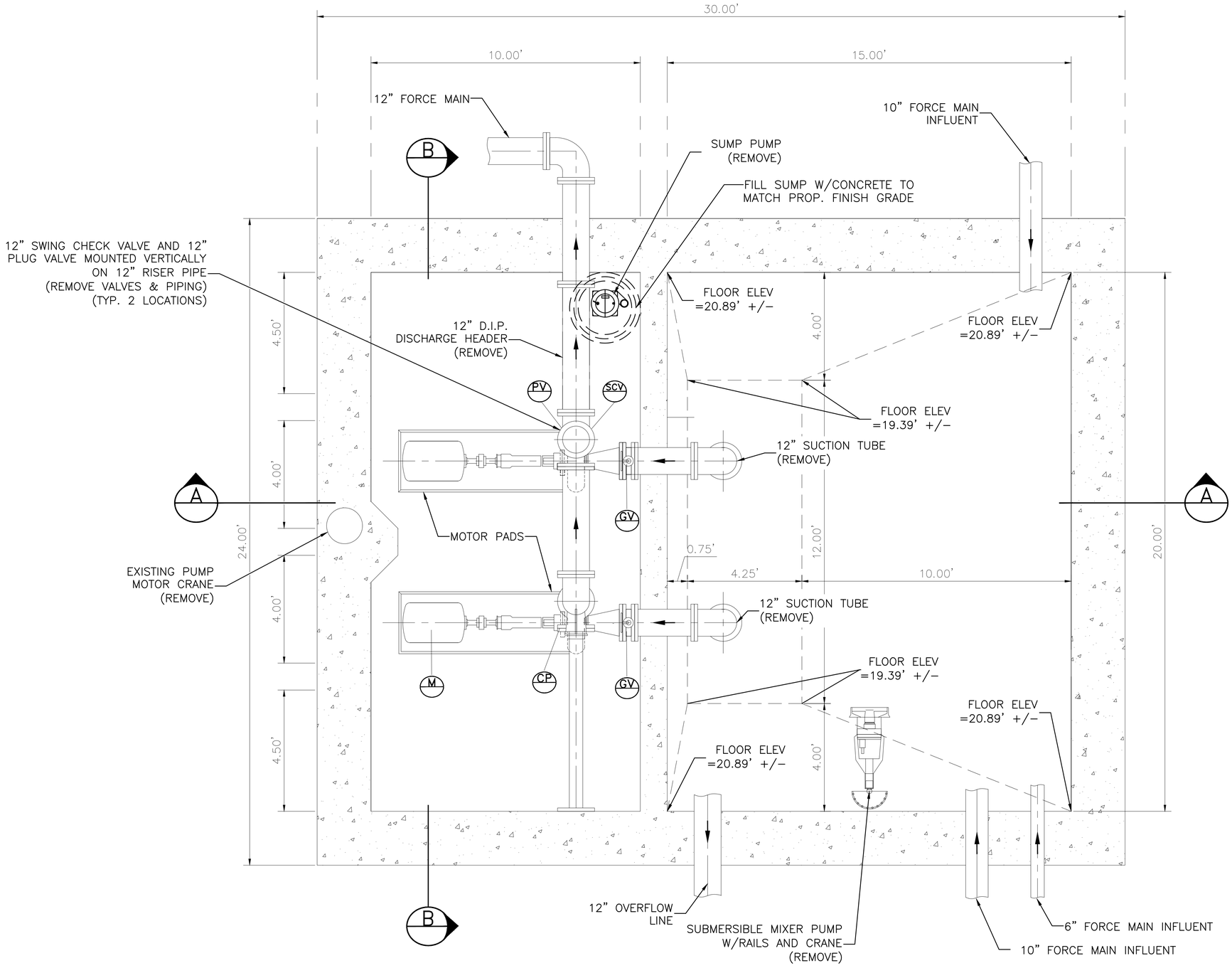

PIPING & EQUIPMENT SECTIONAL PLAN VIEW

LEGEND

- PV — PLUG VALVE (REMOVE)
- SCV — SWING CHECK VALVE (REMOVE)
- GV — KNIFE GATE VALVE (REMOVE)
- CP — CENTRIFUGAL PUMP (REMOVE)
- M — PUMP MOTOR (REMOVE)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

NORTHEAST SLUDGE TRANSFER STATION
SECTIONAL PLAN VIEW
MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

F1C05

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

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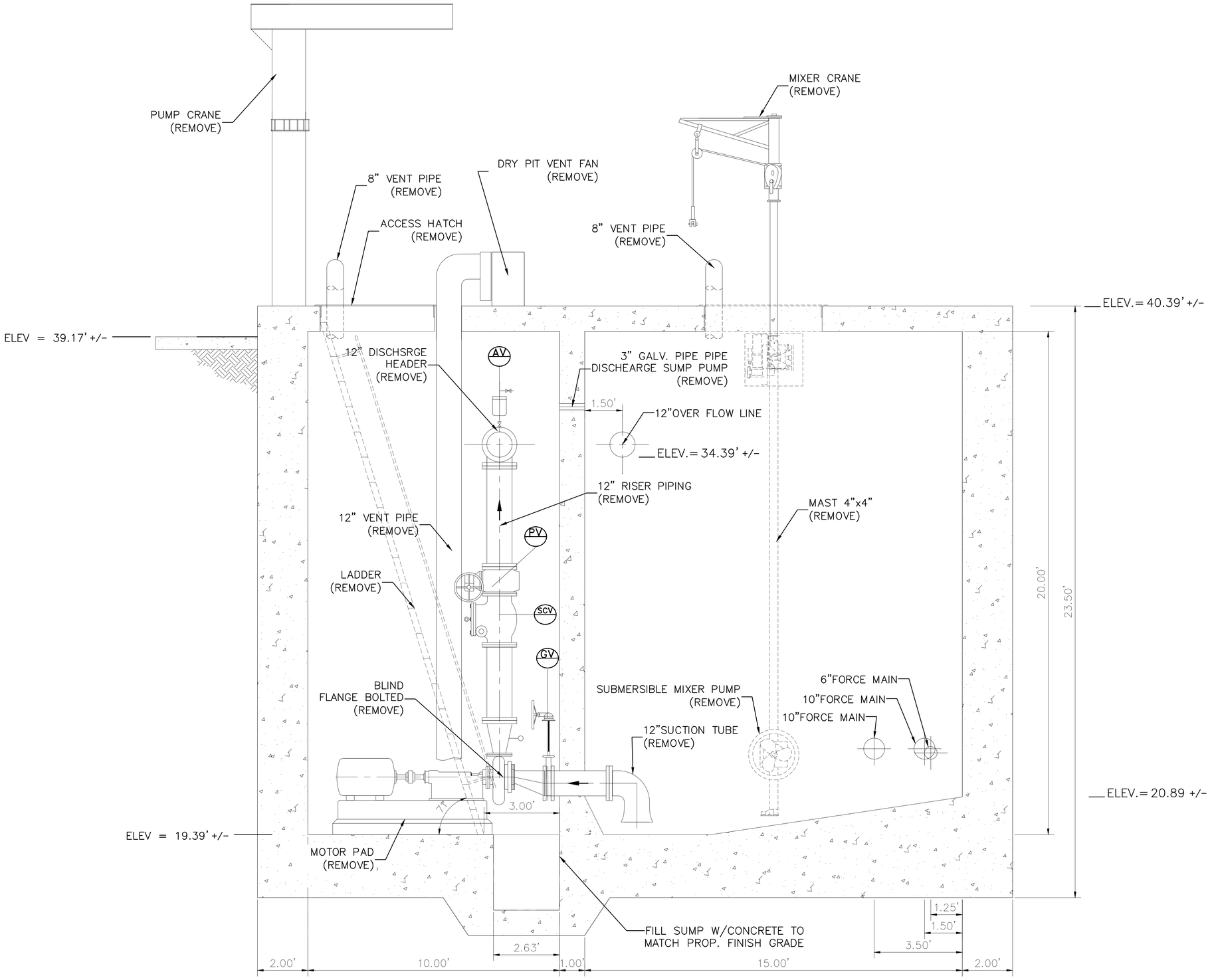

SECTION A'–A'

LEGEND

- PV — PLUG VALVE (REMOVE)
- SCV — SWING CHECK VALVE (REMOVE)
- GV — KNIFE GATE VALVE (REMOVE)
- CP — CENTRIFUGAL PUMP (REMOVE)
- M — PUMP MOTOR (REMOVE)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
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TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

NORTHEAST SLUDGE TRANSFER STATION
STATION SECTION VIEW
MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

F1C06

FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

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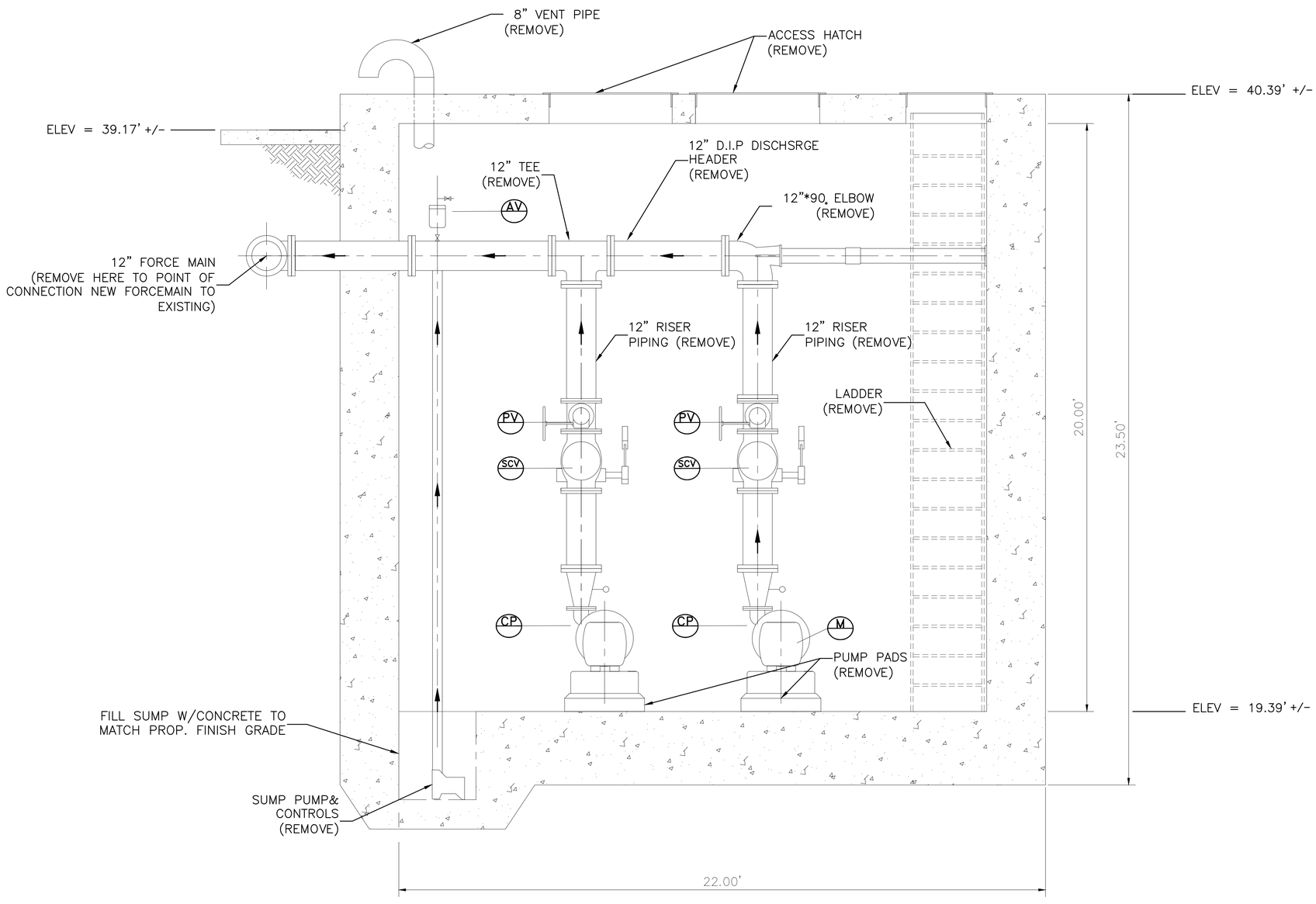

SECTION B'-B'

LEGEND

- PV — PLUG VALVE (REMOVE)
- SCV — SWING CHECK VALVE (REMOVE)
- GV — KNIFE GATE VALVE (REMOVE)
- CP — CENTRIFUGAL PUMP (REMOVE)
- M — PUMP MOTOR (REMOVE)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENJE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

INTERIM REVIEW ONLY
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

NORTHEAST SLUDGE TRANSFER STATION
STATION SECTION VIEW
MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

F1C07

0 1 2 3 ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

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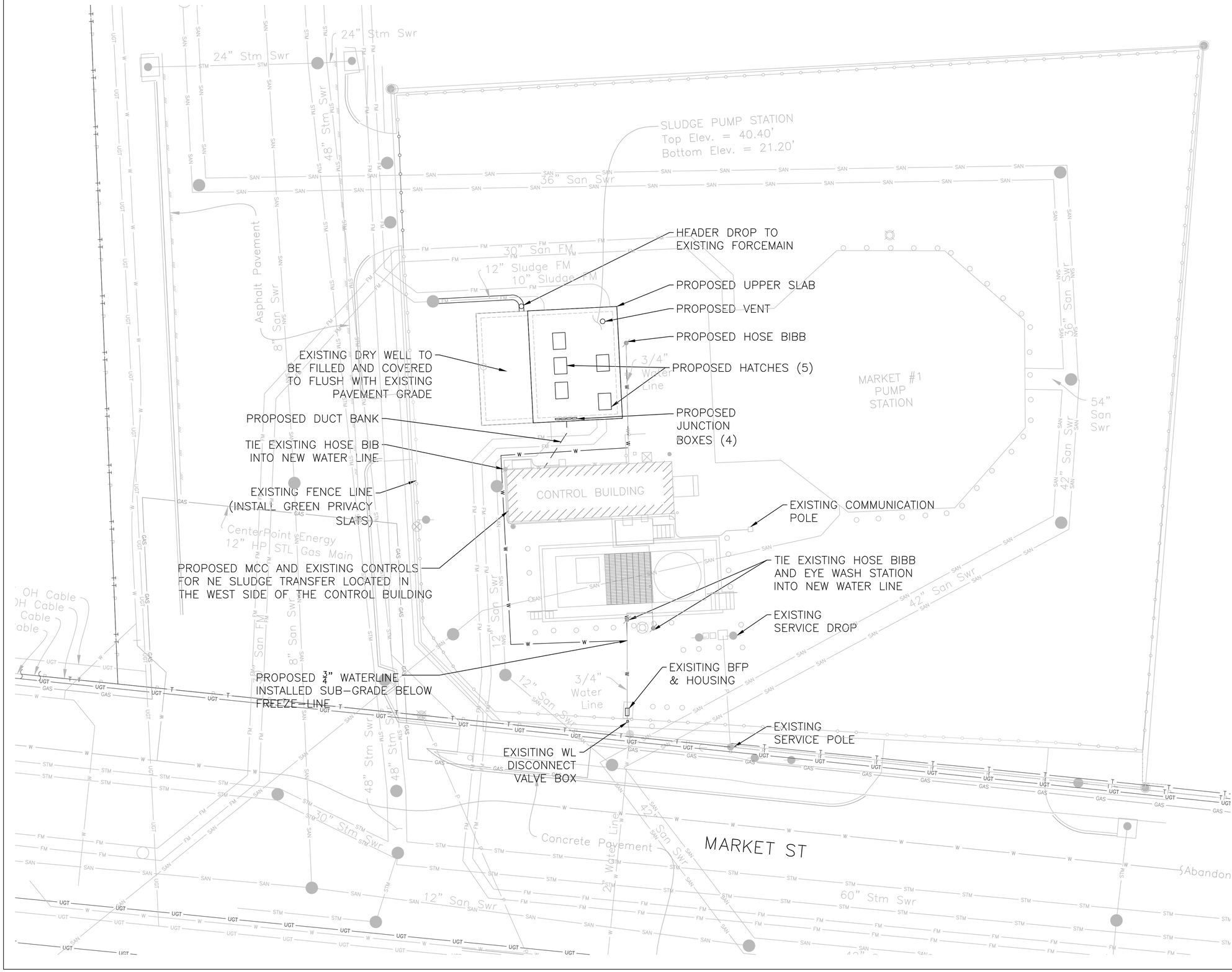


N

0 10 20 Feet

NO.	DATE	REVISION	APP.
A	10/30/25	INTERNAL REVISION	LL

NOTES:

FLOODPLAIN

1. LS SITE IS WITHIN THE 100-YEAR FLOODPLAIN.

STORMWATER

1. SITE WORK PROPOSES NO ADDITIONAL IMPERVIOUS SURFACE.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

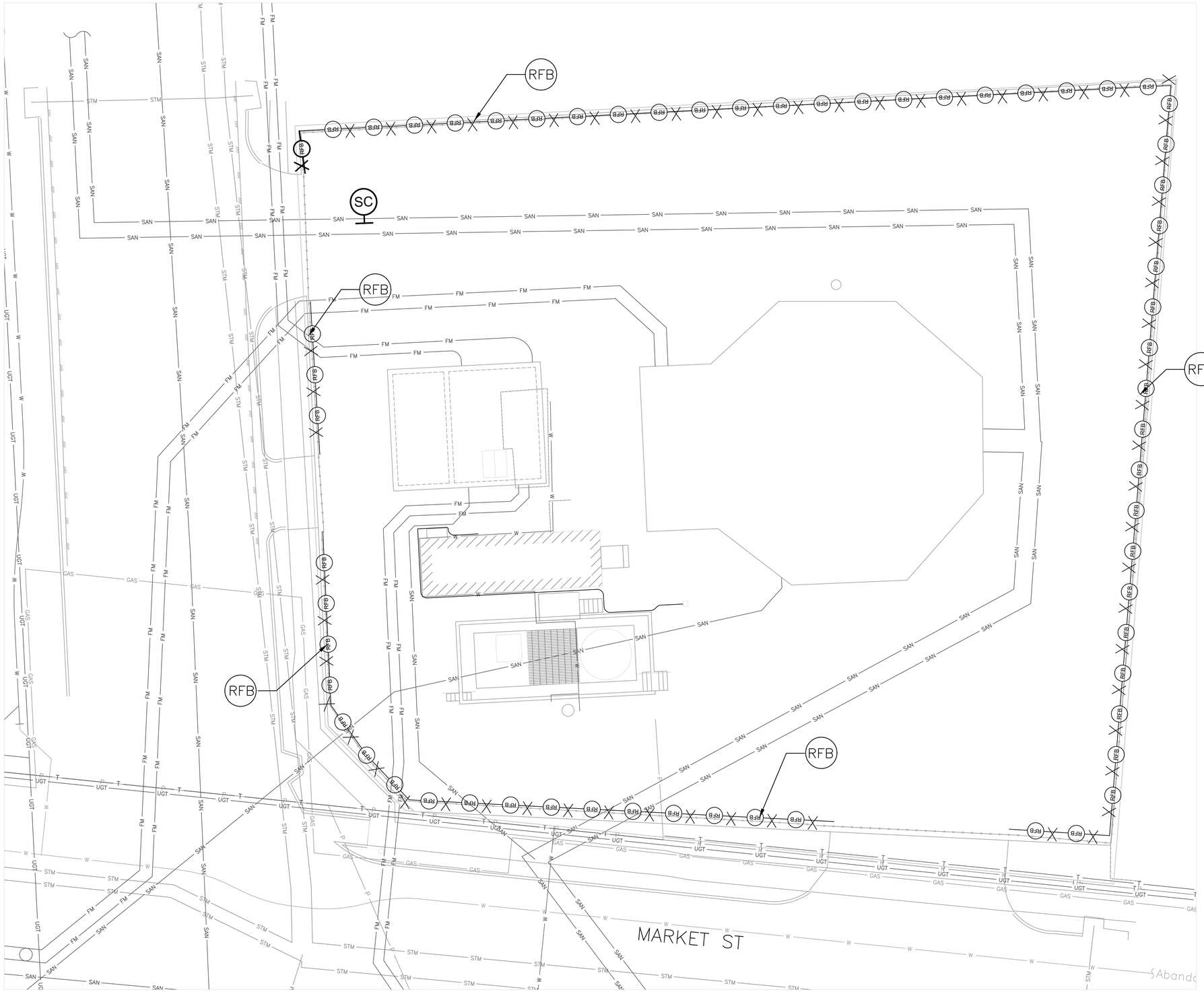
ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
NE SLUDGE TRANSFER LS
PROPOSED SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

F1C08 SHEET NO. OF 246



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0' 10' 20'

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

LEGEND :

- RFB — REINFORCED FILTER FABRIC BARRIER.
- IPB2 — INLET PROTECTION BARRIER.
- SC — STABILIZED CONSTRUCTION ACCESS

NOTES:

1. STORM WATER POLLUTION PLAN CONFORM TO SPECIFICATIONS AND DRAWINGS.
2. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURE SHALL BE SODDED OR HYDROMUCH SEEDED.
3. CONTRACTOR'S LAY DOWN/STORAGE AREA SHALL HAVE A STABILIZED CONSTRUCTION EXIT.
4. SEE SHEET SW3P-7 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
5. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
NE SLUDGE TRANSFER LS SWPPP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
1" = 10'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1C09

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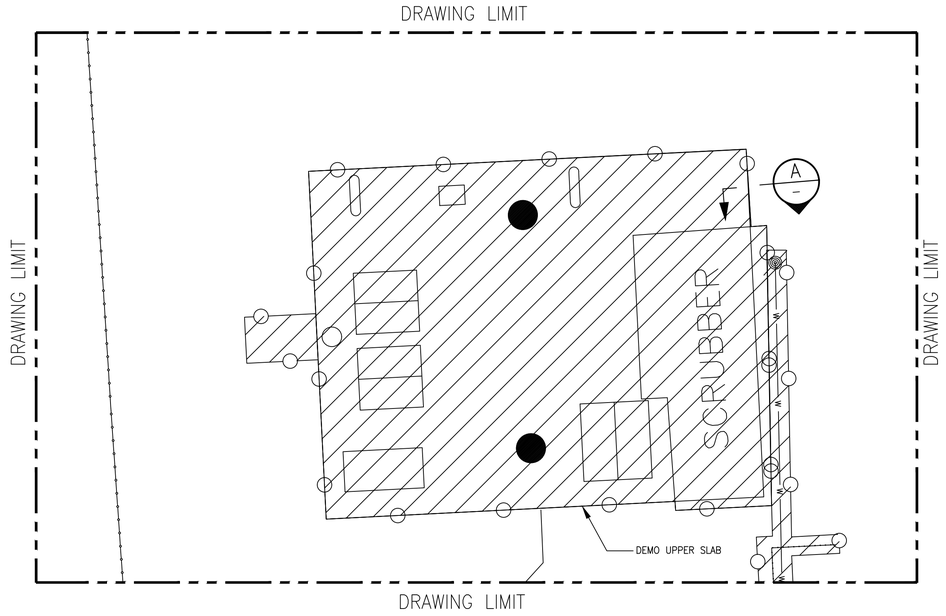
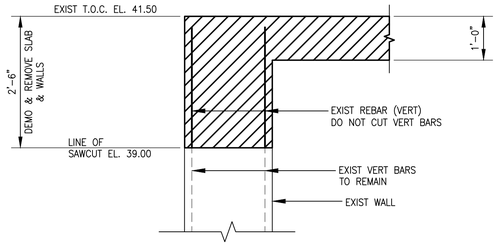


DEMO PLAN
LIFT STATION FOUNDATION



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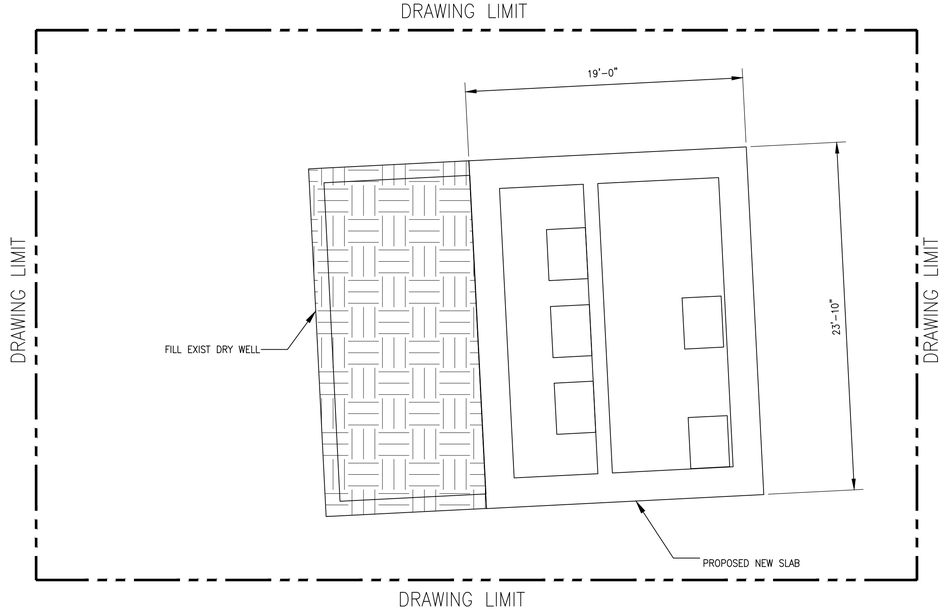
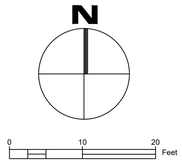


NEW PLAN LAYOUT
LIFT STATION FOUNDATION



NO.	DATE	REVISION	APP.
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FCM Engineers, PC
3300 S. Gessner Rd.
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T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
NE SLUDGE TRANSFER LS
DEMO & CONST PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1S01

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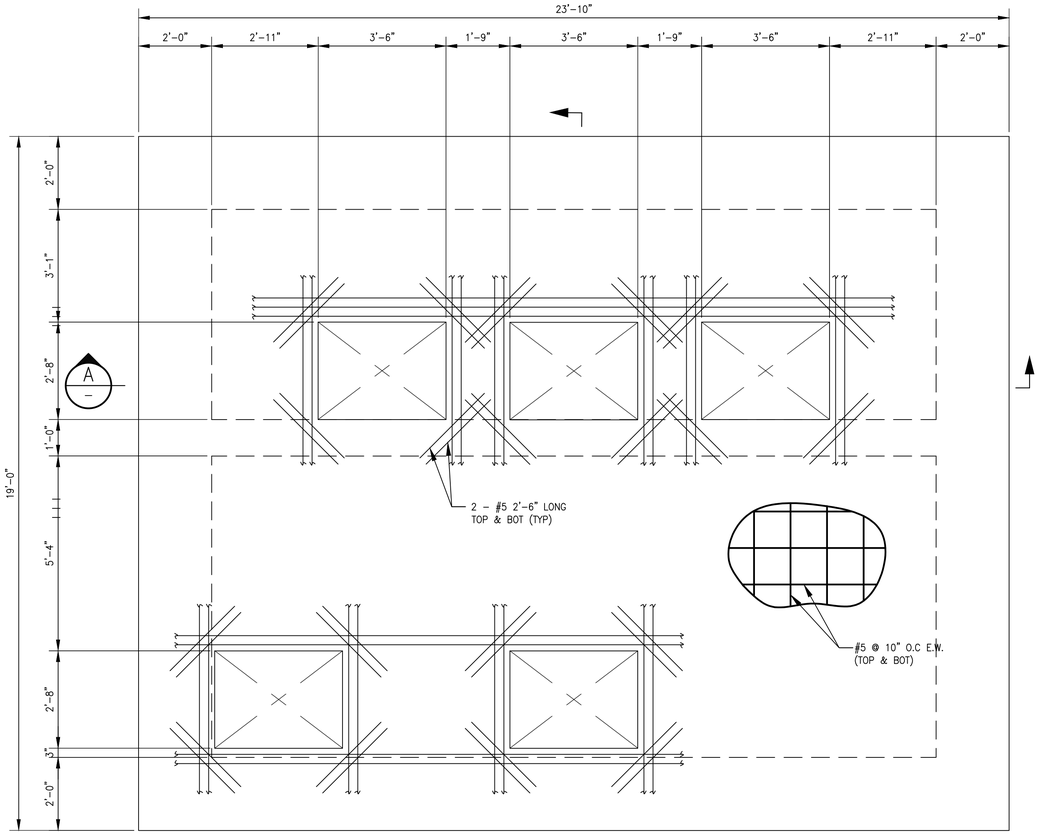
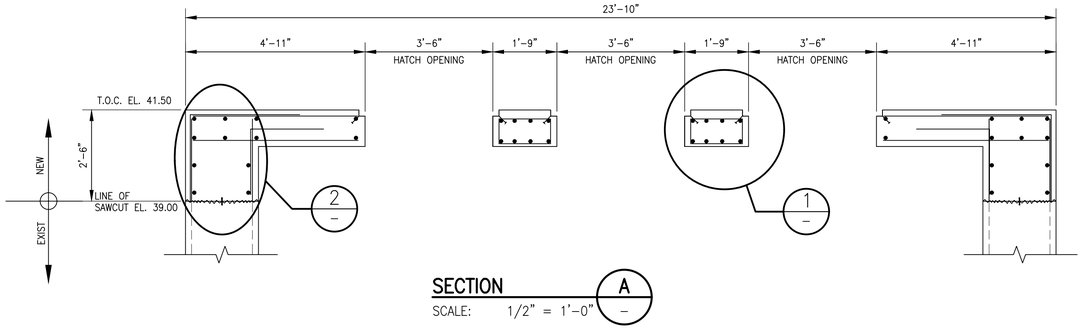
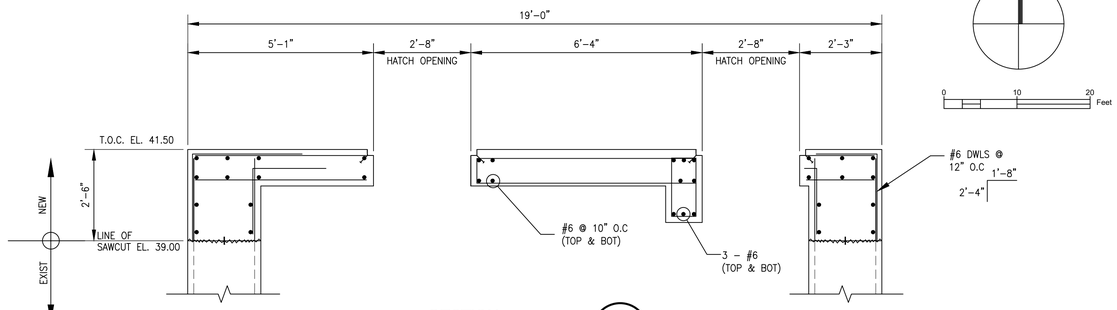


B

PLAN
LIFT STATION FOUNDATION
SCALE: 1/2" = 1'-0"



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



SECTION B
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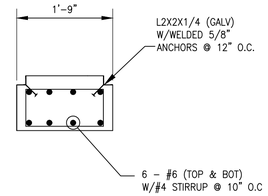
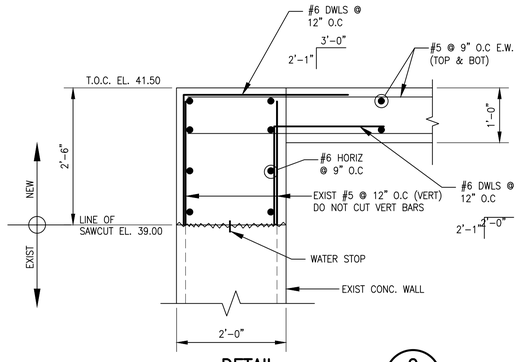


DETAIL 1
SCALE: 3/4" = 1'-0"



DETAIL 2
SCALE: 3/4" = 1'-0"

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A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd.
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HATCH
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HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
NE SLUDGE TRANSFER LS
PLA, SECTIONS & DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
F1S02	SHEET NO. OF 246

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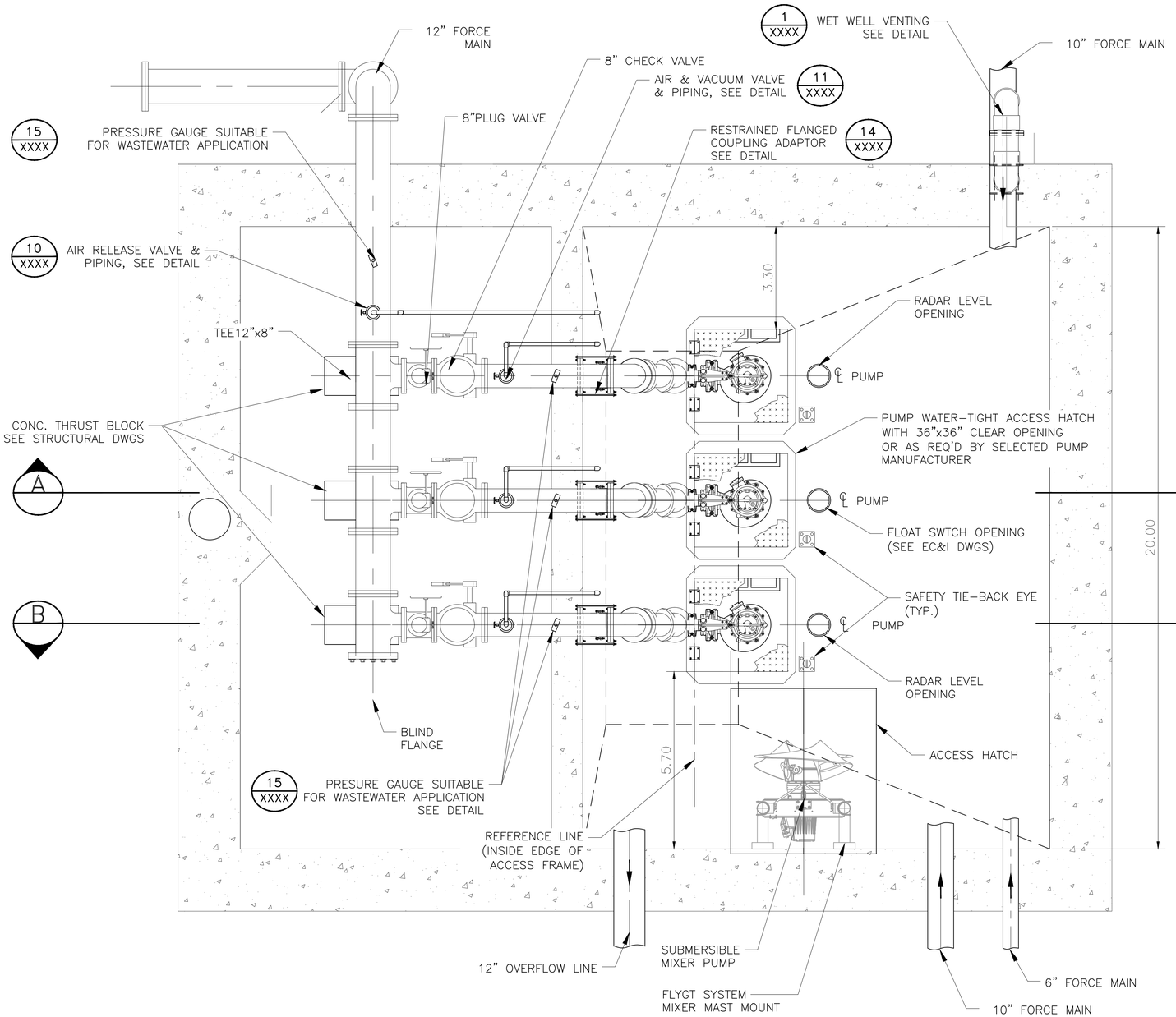
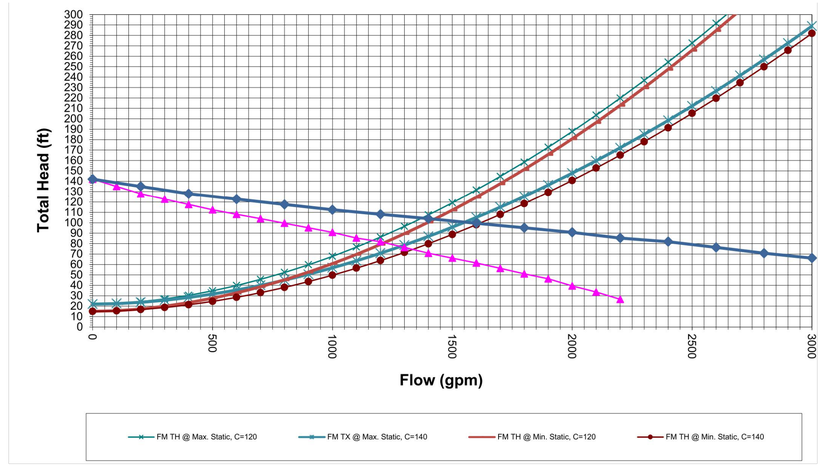


PIPING & EQUIPMENT PLAN VIEW



PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2
MOTOR DATA NOMINAL SIZE (HP) MAX SPEED (RPM)	 45 1775	 45 1775
SOLIDS PASSAGE MIN SPHERE (IN)	 3	 3
CAPACITY (GPM) DESIGN RUNOUT	 1200 1900	 1200 1900
DISCHARGE HEAD (FT) DESIGN RUNOUT SHUT OFF	 85 52 142	 85 52 142
EFFICIENCY (%) DESIGN	 75.8	 75.8
NPSHR (FT) DESIGN RUNOUT	 17.5 32.8	 17.5 32.8

STATION OPERATION TABLES

RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
	LEAD PUMP TURNS ON	LEAD PUMP ON
	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
	HIGH WATER LEVEL ALARM OFF	LEAD PUMP ON
	LEAD PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

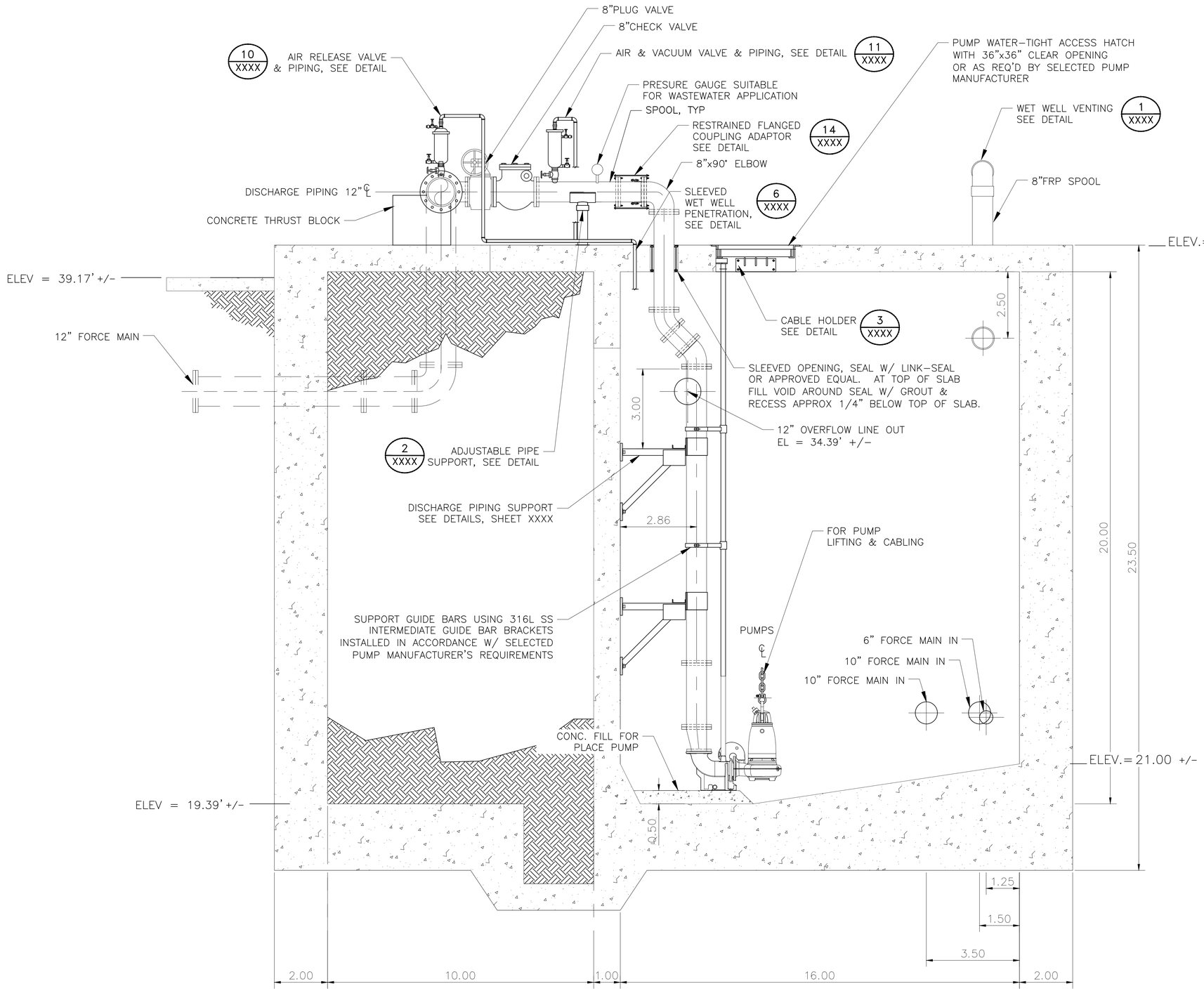
NE SLUDGE TRANSFER L.S. PLAN VIEW

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
F1M01	
SHEET NO. OF 246	

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cost\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\NS- Phase II NORTHEAST SLUDGE TRANSFER\Phase II LS- NORTHEAST SLUDGE TRANSFER.dwg



SECTION A'-A'

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

NE SLUDGE TRANSFER L.S. ELEVATION SECTION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

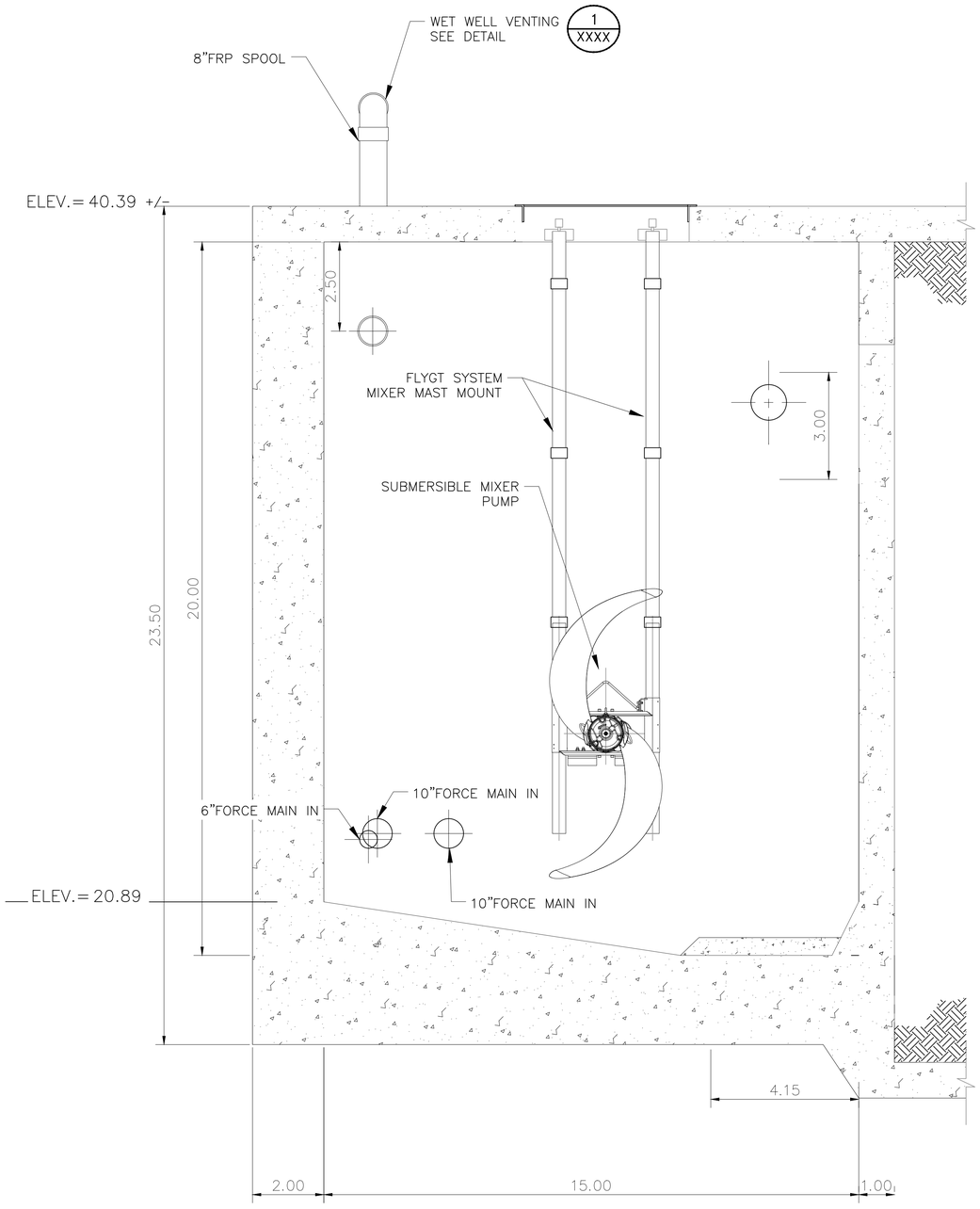
F1M02

SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cad\2024\24013 - Hatch - COH FY25 Lift Stations\CAD_DWG\Phase I\LS- Phase II NORTHEAST SLUDGE TRANSFER\Phase II LS- NORTHEAST SLUDGE TRANSFER.dwg

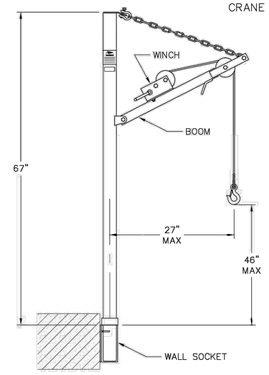


SECTION B'–B'

Manual Crane

For use with 2" System 4 Mixer Mounting System

CRANE NO. 14–9487.800–020 (CARBON STEEL)
CRANE NO. 14–58 79 17 (316 STAINLESS STEEL EXCEPT WINCH)



FEATURES

1. A stainless steel (316) wire rope (40 ft.) for maximum corrosion resistance and lifting height.
2. Full 360 degree rotation.

SPECIFICATIONS

Material
dwtl.....Carbon Steel or 316 stainless steel
winch.....zinc plated steel

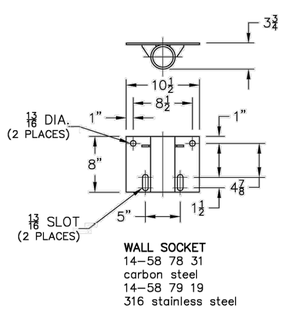
Boom pivots.....360 degrees

Load rating.....650 lbs.

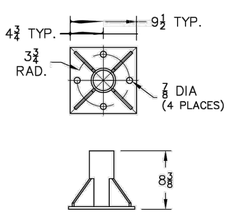
Mast.....2-1/2" SCH 40 pipe
Cable size and length.....1/4" x 40'
(Type 316 SS cable)

Weight
Crane.....60 lbs.

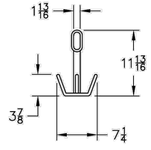
NOTES:
1. LUBRICATE INTERIOR SURFACE AND SHOULDER OF SOCKET WITH BEARING GREASE TO FACILITATE ROTATION OF HOIST.
2. MINIMUM CONCRETE DEPTH REQUIRED FOR WALL MOUNT INSTALLATION IS 12".
3. CARBON STEEL SOCKET
DRILL 4 HOLES 1" x 4" DEEP (TO MATCH HOLES ON SOCKET) FOR 3/4 DOUBLE KEYSTONE HEX HEAD EXPANSION ANCHORS.
STAINLESS STEEL SOCKET
DRILL 4 HOLES 7/8 x 6-5/8 DEEP (TO MATCH HOLES ON SOCKET) FOR 3/4 ADHESIVE TYPE ANCHORS.



WALL SOCKET
14–58 78 31
carbon steel
14–58 79 19
316 stainless steel



PLATFORM SOCKET
14–58 78 30
carbon steel
14–58 79 18
316 stainless steel



GRAPPLING HOOK
10–40 03 79
(FOR USE WITH OPTIONAL LIFTING BAIL ONLY)

MANUAL CRANE

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
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5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12–INCH BY 12–INCH PLATE ENGRAVED WITH 6–INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

N.E. SLUDGE TRANSFER L.S. ELEVATION SECTION CC

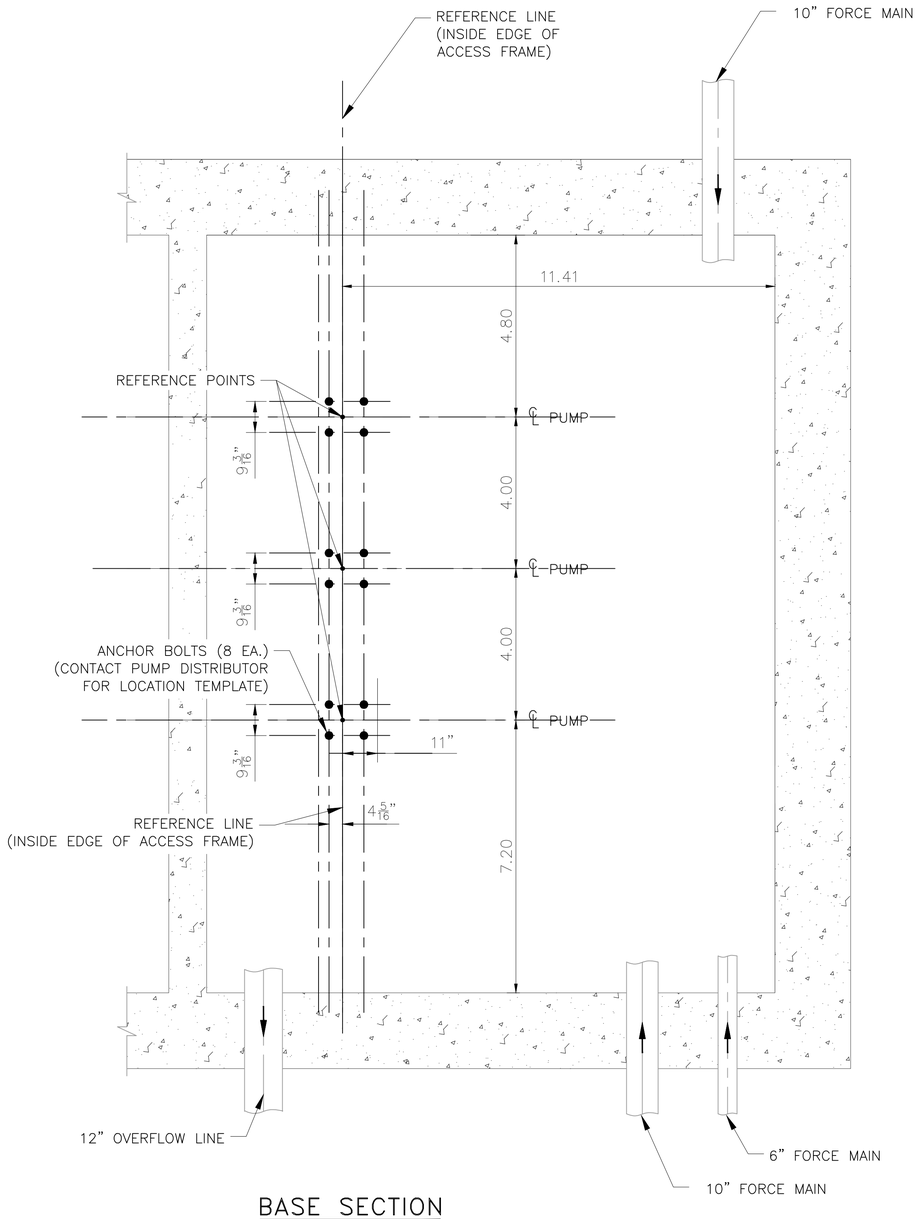
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M03 | SHEET NO. OF 246

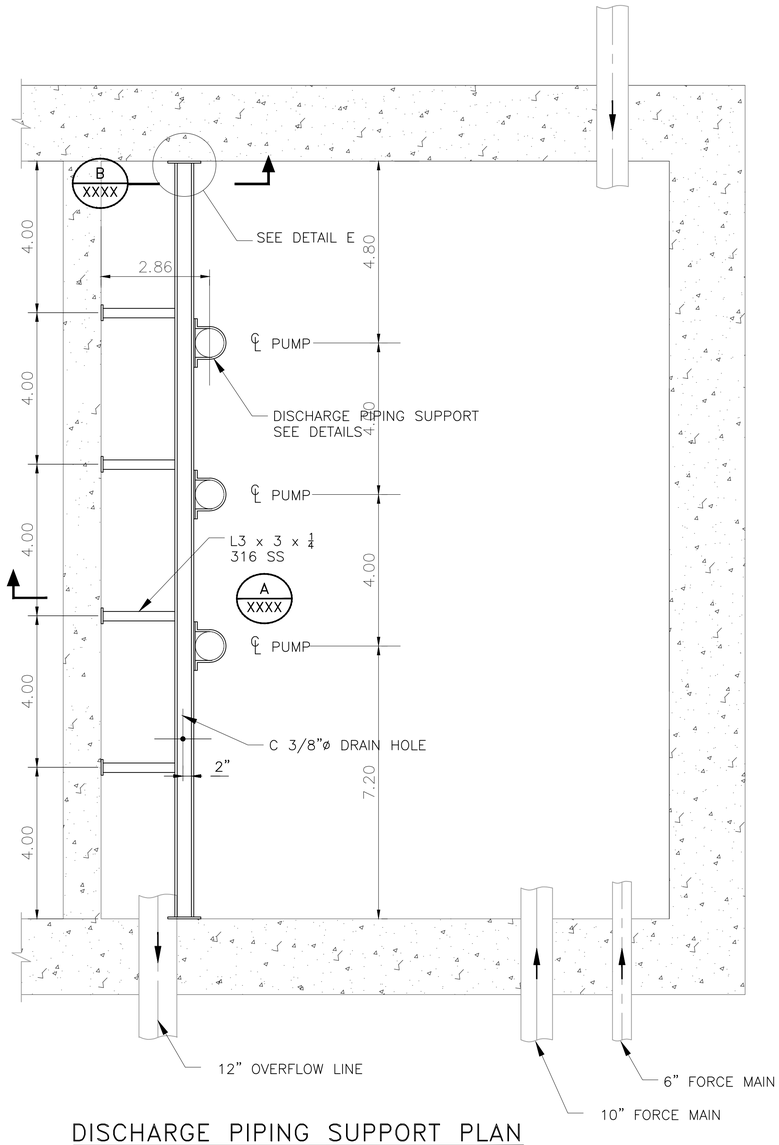
FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Civil\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\LS- Phase II NORTHEAST SLUDGE TRANSFER.dwg



BASE SECTION



DISCHARGE PIPING SUPPORT PLAN

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION; AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

N.E. SLUDGE TRANSFER L.S. TOP VIEW /BASE SECTION

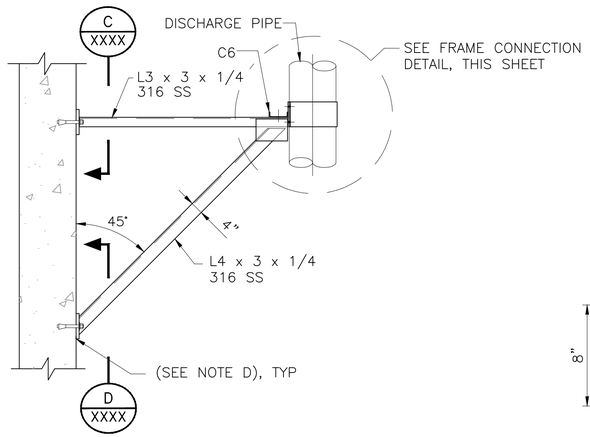
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M04 | SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

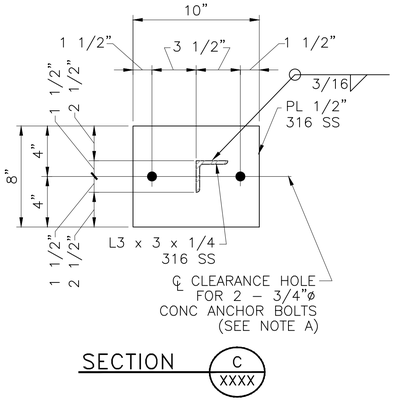
ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

P:\Cad\2024\24013 - Hatch - COH FY25 Lift Stations\CAD_DWG\Phase II\S- Phase II NORTHEAST SLUDGE TRANSFER Phase II LS- NORTHEAST SLUDGE TRANSFER.dwg

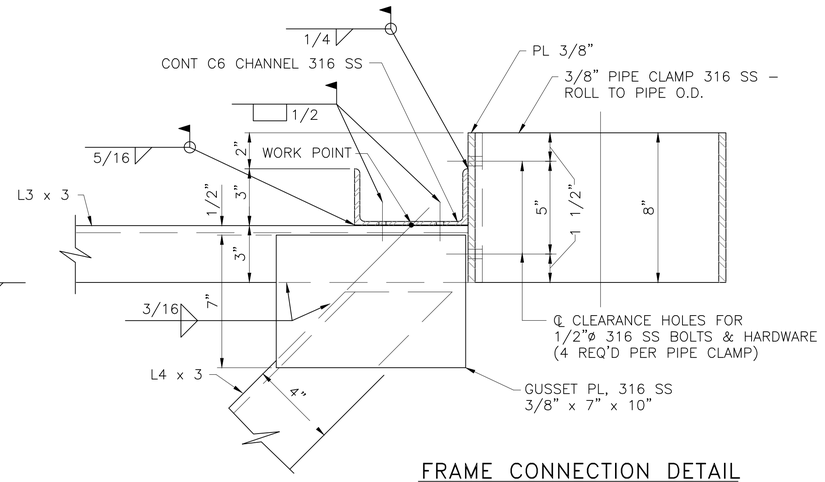


TYP LATERAL PIPE SUPPORT FRAME

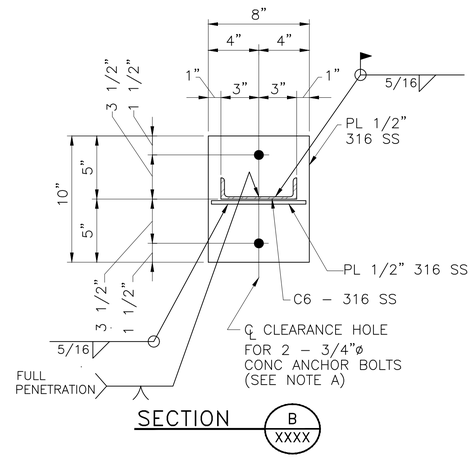
SECTION A XXXX



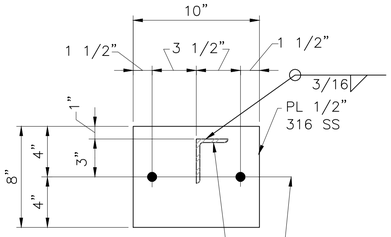
SECTION C XXXX



FRAME CONNECTION DETAIL



SECTION B XXXX



SECTION D XXXX

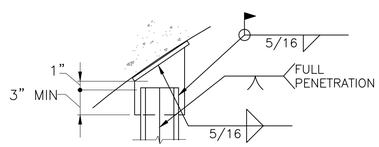
NOTES:

A. CONCRETE ANCHOR BOLTS SHALL HAVE 6" MINIMUM EMBEDMENT AND SHALL BE TYPE 316 STAINLESS STEEL, PER SPECIFICATIONS.

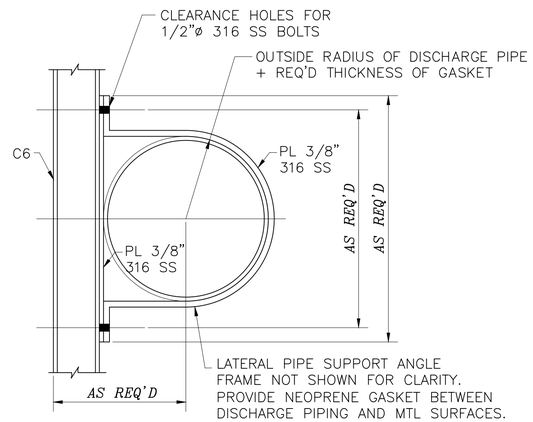
B. SEE STATION AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.

C. DRILL 3/8"ø HOLES, 1" OFF C OF C6 AT MIDSPAN BETWEEN LATERAL PIPE SUPPORTS TO ALLOW FOR DRAINAGE. 3 HOLES PER CHANNEL WHERE 2 LATERAL SUPPORTS REQUIRED; 2 HOLES PER CHANNEL WHERE 1 LATERAL SUPPORT REQUIRED.

D. SET 1/4" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.



DETAIL E



PIPE CLAMP DETAIL

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

N.E. SLUDGE TRANSFER L.S. DISCHARGE PIPING SUPPORT DATAILS

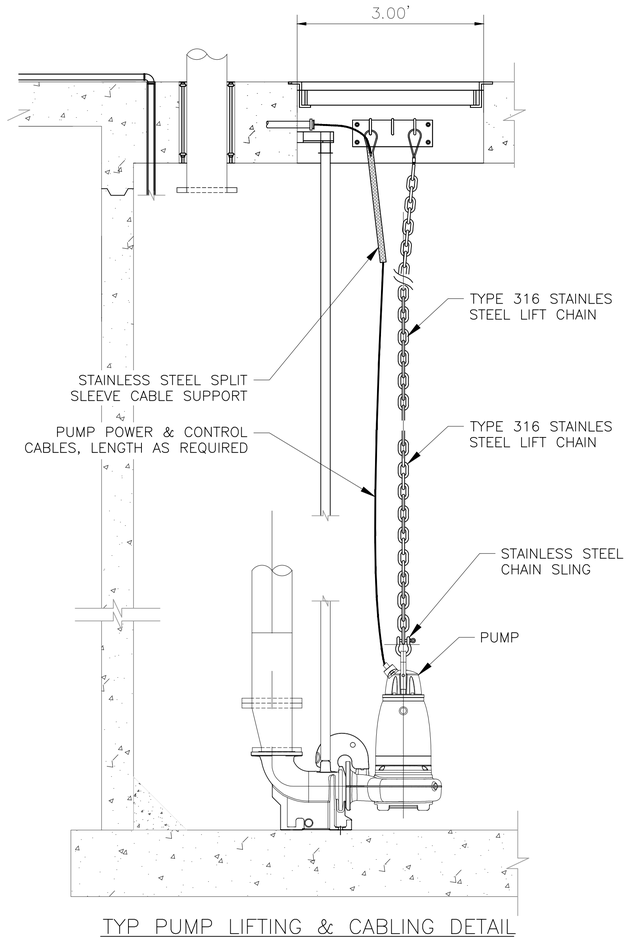
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M05 | SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

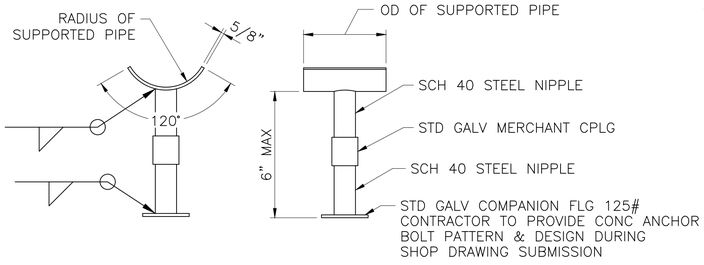
ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

P:\Civil\2024\24013 - Hatch - CON FY26 LIft Stations\CAD_DWG\Phase II\LS- Phase II NORTHEAST SLUDGE TRANSFER\Phase II LS- NORTHEAST SLUDGE TRANSFER.dwg



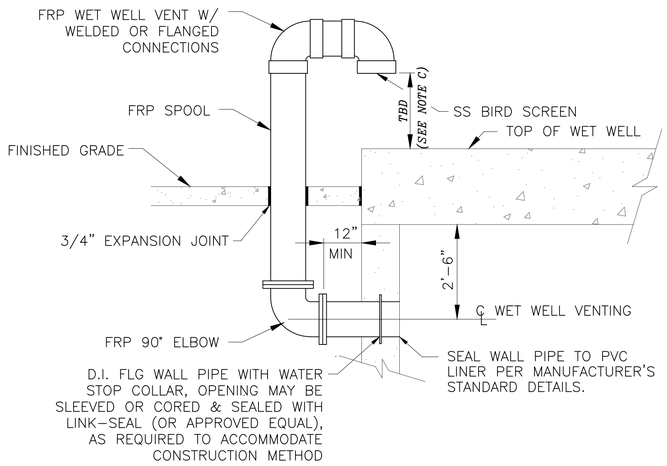
TYP PUMP LIFTING & CABLING DETAIL

DETAIL 3 XXXX



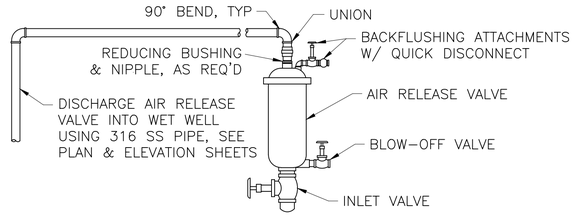
TYP ADJUSTABLE PIPE SUPPORT

DETAIL 2A XXXX



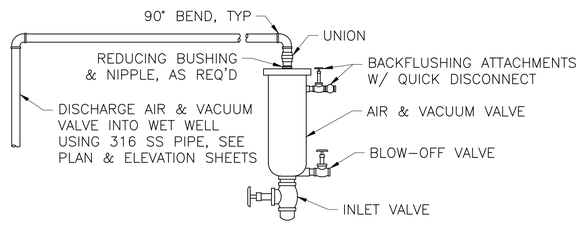
TYPICAL HIGH PROFILE WET WELL VENTING INSTALLATION

DETAIL 1 XXXX



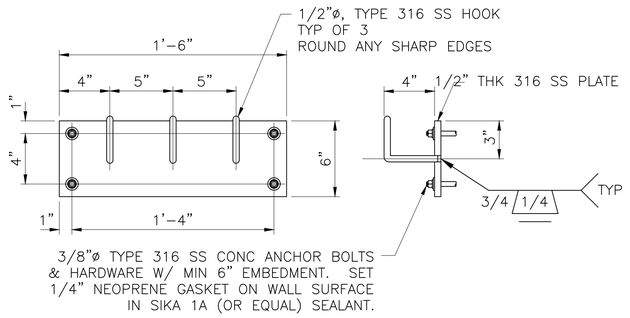
TYPICAL AIR RELEASE VALVE ASSY

DETAIL 10 XXXX



TYPICAL AIR & VACUUM VALVE ASSY

DETAIL 11 XXXX



TYPICAL CABLE HOLDER ASSY

DETAIL 3 XXXX

NO	DATE	REVISION	APP

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

N.E. SLUDGE TRANSFER L.S. TYPICAL DATAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M06

SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

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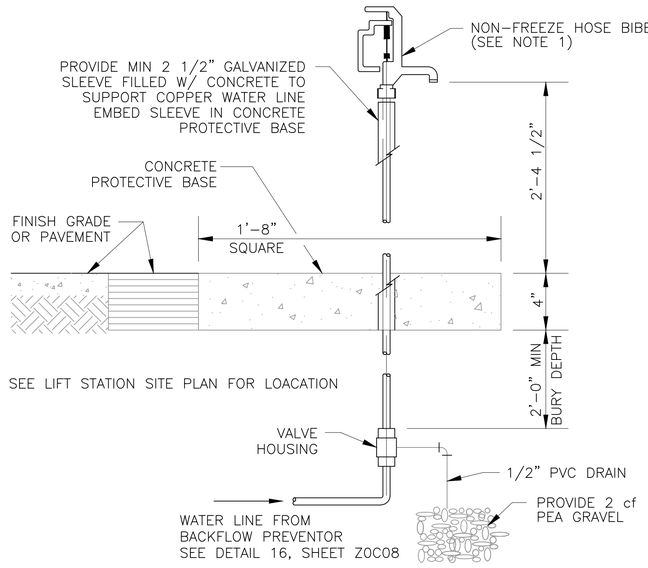
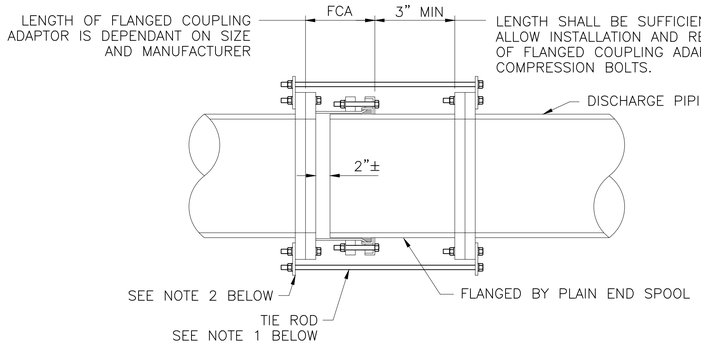


TYP NON–FREEZE HOSE BIBB DETAIL

DETAIL 12 / XXXX



NOTES:

1. PROVIDE A NUMBER OF TIE RODS EQUAL TO 1/2 THE NUMBER OF FLANGE BOLTS. EVENLY SPACE INSTALLATION OF TIE RODS. DIAMETER OF TIE RODS TO BE EQUAL TO THE DIAMETER OF FLANGE BOLTS. LENGTH OF TIE RODS TO BE DETERMINED BY CONTRACTOR BASED ON SIZE AND MANUFACTURER OF FLANGED COUPLING ADAPTOR AND FINAL LENGTH OF SPOOL PIECE.
2. PROVIDE 316 SS TAB FOR ATTACHMENT OF TIE RODS. SIZE TO BE DETERMINED BY CONTRACTOR.
3. CONTRACTOR TO SUBMIT DETAILS DURING SHOP DRAWING SUBMISSION.
4. ALL HARDWARE SHALL BE 316 STAINLESS STEEL. TIE RODS SHOULD BE THREADED.
5. THIS RESTRAINT DOES NOT REPLACE THRUST BLOCKS TO BE PROVIDED AT OTHER LOCATIONS.

TYP FLANGED COUPLING ADAPTOR RESTRAINT DETAIL

DETAIL 14 / XXXX

NO	DATE	REVISION	APP

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270–5700
TBPE REG. NO. F–4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832–930–7670
TX FIRM NUMBER:F –10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P–6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

N.E. SLUDGE TRANSFER L.S. TYPICAL DATAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M07 SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

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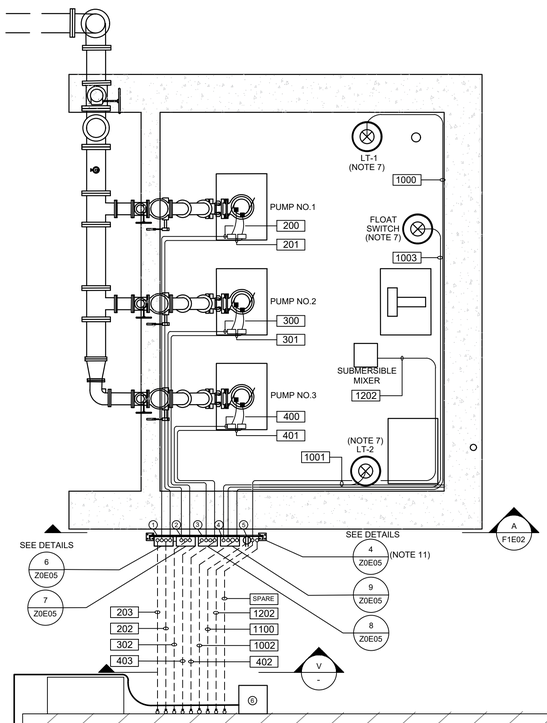
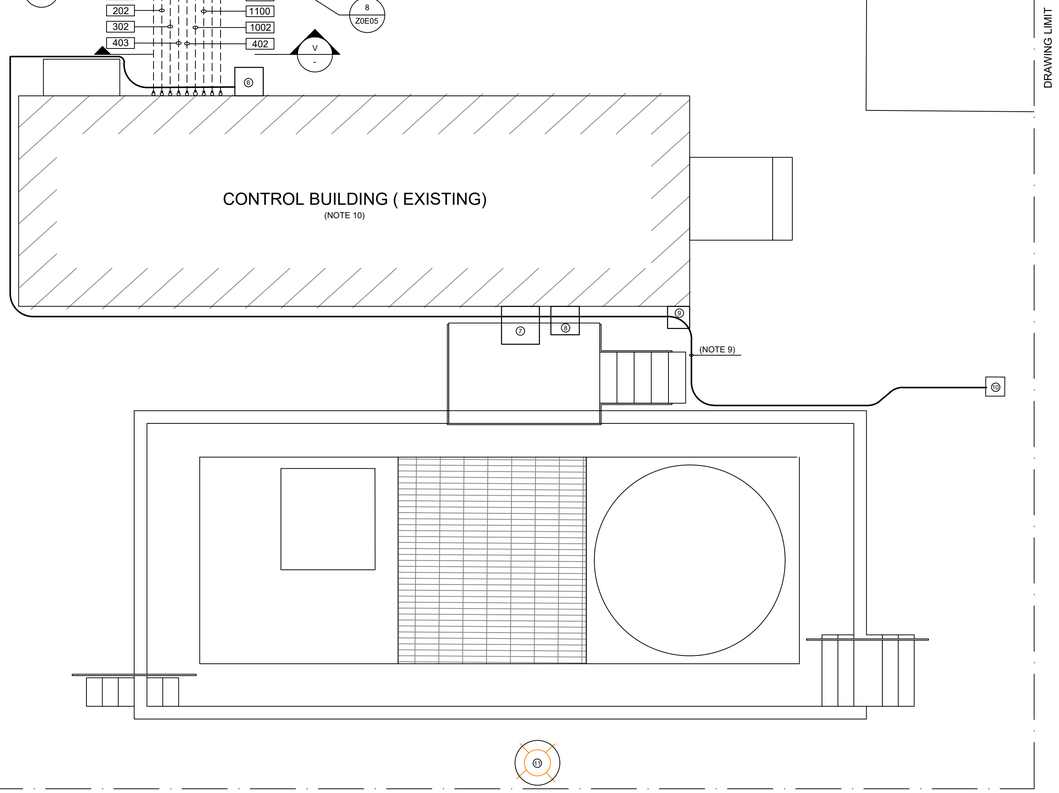
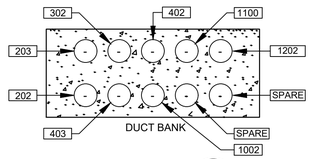
TRUE NORTH





No.	DESCRIPTION
(1)	PUMP NO.1 J-BOX
(2)	PUMP NO.2 J-BOX
(3)	PUMP NO.3 J-BOX
(4)	LEVEL TRANSMITTER J-BOX
(5)	WEATHER PROOF GFI
(6)	PPU-AC PANEL
(7)	MANUAL TRANSFER SWITCH (EXISTING)
(8)	MANUAL TRANSFER SWITCH BOX (EXISTING)
(9)	CAMERA JUCTION BOX (EXISTING)
(10)	CAMERA POLE (EXISTING)
(11)	ELECT. LIGHT POLE (EXISTING)



SECTION V -
NTS.

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
3. WHERE JUNCTION BOXES ARE SHOWN, THEY SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. SPLICES WILL NOT BE ALLOWED EXCEPT AS PROVIDED BY NOTE 4 AND AT LIGHTING AND RECEPTACLE TERMINATIONS.
4. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO CONTROL BUILDING OR PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
7. LEVEL TRANSMITTERS AND FLOAT SWITCH SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL FIELD VERIFY.
8. INSIDE WET WELL IS CLASSIFIED AS CLASS I, DIVISION 1. OUTSIDE WET WELL WITHIN 5 FEET OF WET WELL OPENINGS ARE CLASSIFIED AS CLASS I, DIVISION 2.
9. CONDUIT AND EXISTING CABLE FROM THE CAMERA TO THE PPU-AC PANEL.
10. FOR CONTROL BUILDING EQUIPMENT AND CONDUIT ARRANGEMENT SEE DRAWING NO. F1E03.

NO.	DATE	REVISION	APP.
A	09/29/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

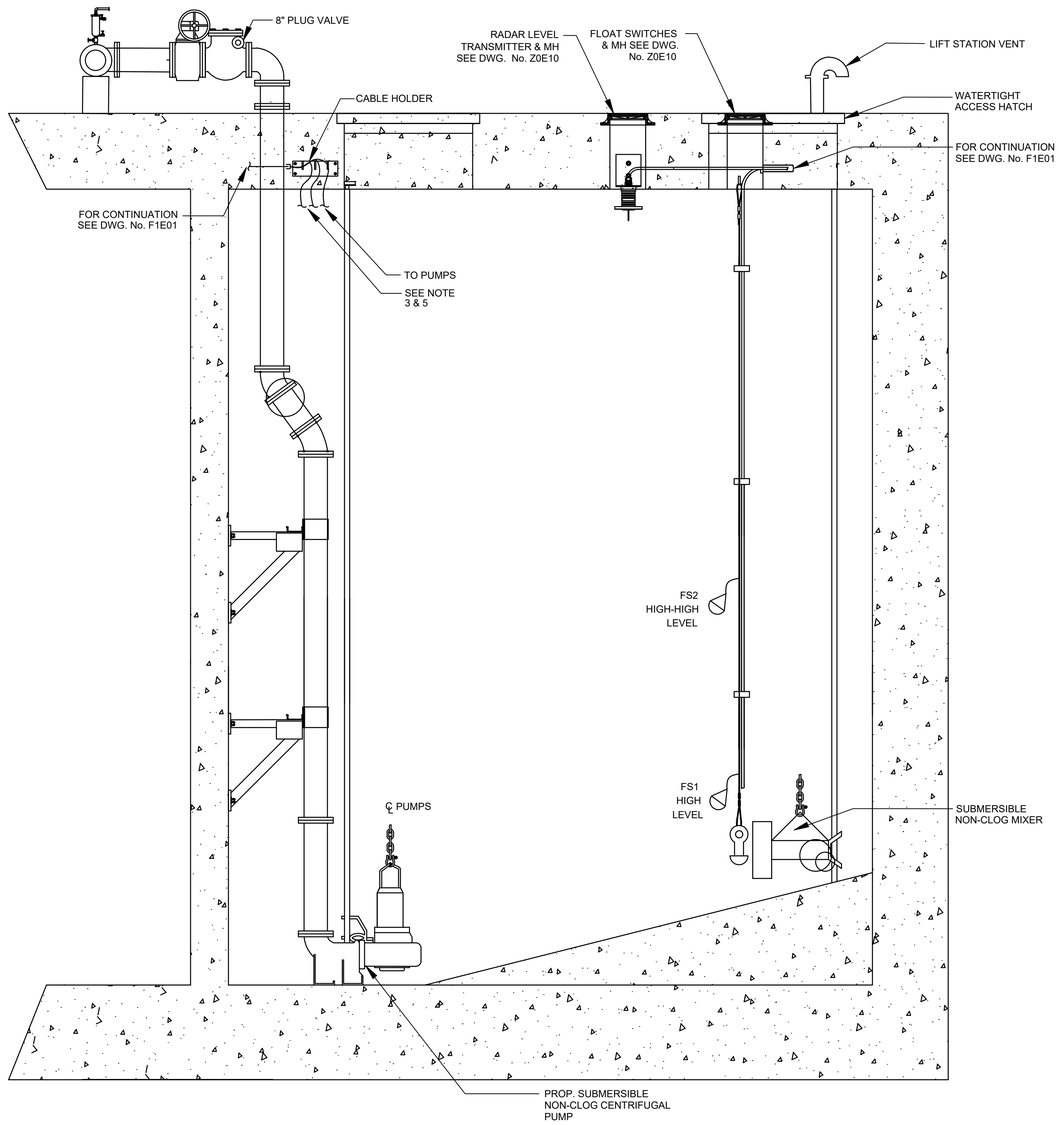
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

ELECTRICAL SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E01



N.E. SLUDGE TRANSFER LS- LIFT STATION

A - ELEVATION

SC.: 1/2"=1'-0"

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION I, GROUP C & D.
3. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
4. FOR MOTOR FEEDER AND CONTROL CABLES. INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO POWER & CONTROL PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. INSTRUMENTS SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL BE ESTABLISHED DURING CONSTRUTION.

NO.	DATE	REVISION	APP.
A	09/29/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS
LIFT STATION ELEVATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

F1E02 SHEET NO. OF 246

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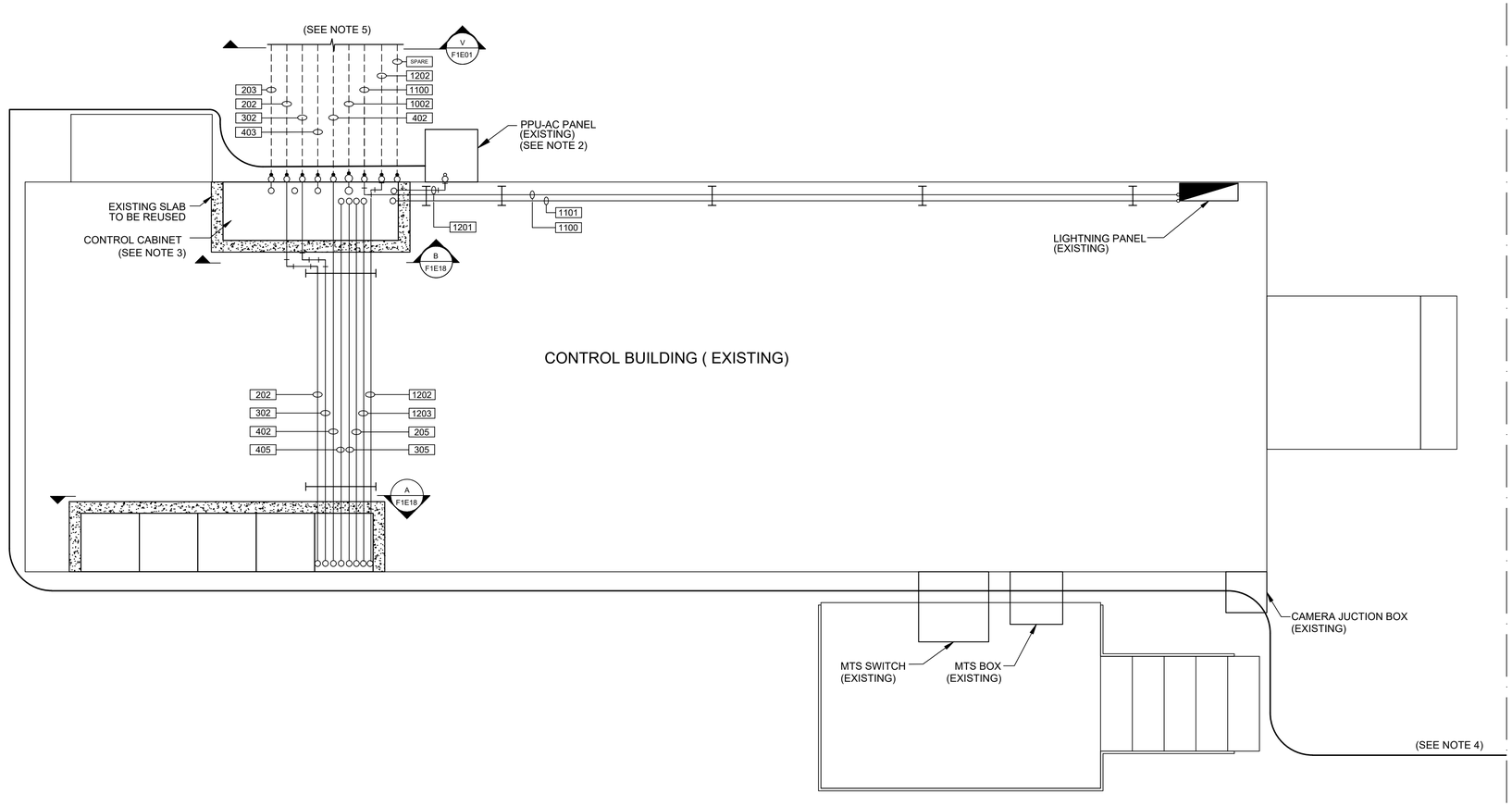
DRAWING LIMIT



DRAWING LIMIT

DRAWING LIMIT

DRAWING LIMIT

NOTES:

1. FOR CONDUIT SCHEDULE SEE DRAWING NO. F1E21.
2. FOR PPU-AC PANEL SEE DRAWING NO. F1E10.
3. FOR CONTROL CABINET DETAIL SEE DRAWING NO. F1E04.
4. CONDUIT AND EXISTING CABLE FROM THE CAMERA TO THE PPU-AC PANEL.
5. FOR DUCT BANK CONTINUATION SEE DRAWING NO. F1E01.

NO.	DATE	REVISION	APP.
A	09/29/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

N.E. SLUDGE TRANSFER LS

CONTROL BUILDING – ELECTRICAL

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

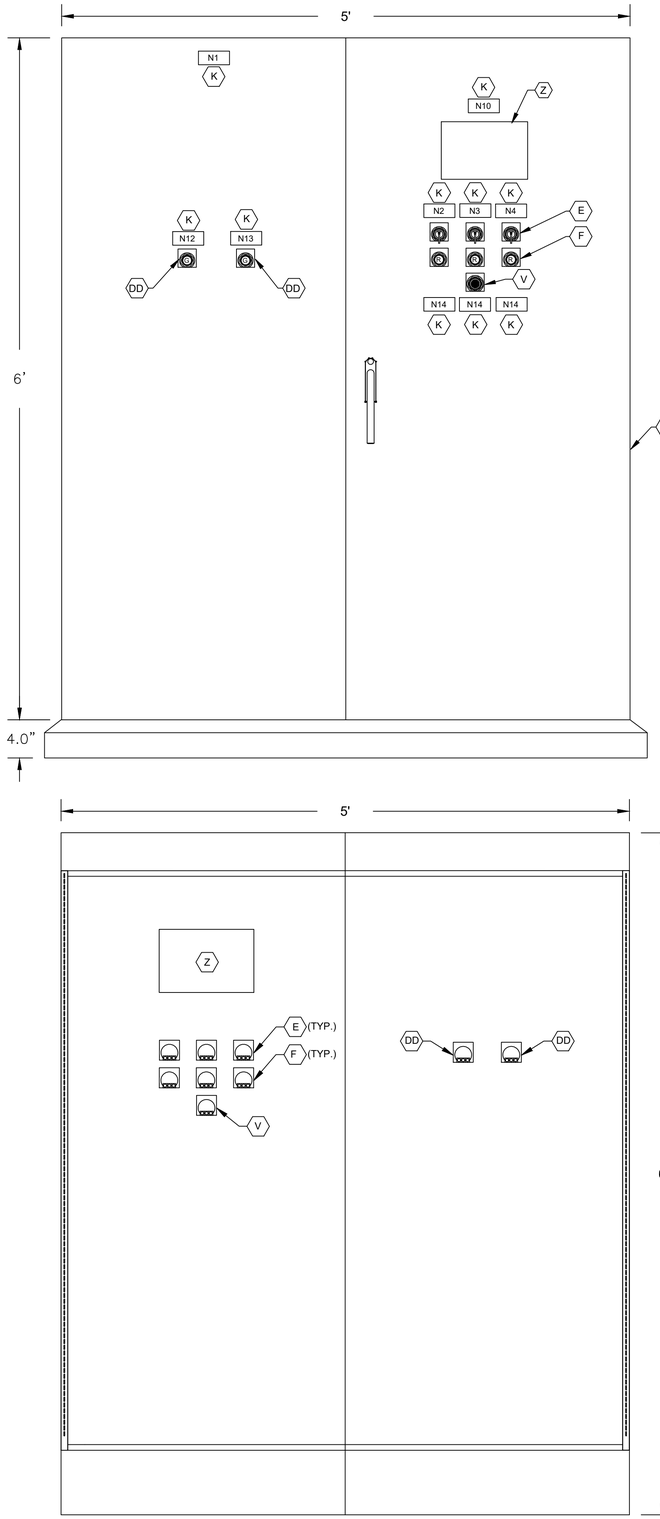
F1E03

PLOTTED: 10/28/2025 1:45 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wwsppplot01\d$\Global ProjectWise Plotting - WUS\Queue 4\queue4.dwg

EQUIPMENT AND DEVICE SCHEDULE

ITEM	QTY.	DESCRIPTION
A	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY, ATC MODEL ISO-120-AFA
B	2	ANALOG I/O SURGE SUPPRESSOR EATON MODEL IOP32
C	3	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I, MINICAS II 83 58 57 24VDC/AC
D	2	CONTROL RELAY, 3 POLE, 120VAC CONTROL COIL - TURCK C3-A30X/120AC W/S3-S BASE
E	3	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL), ALLEN-BRADLEY MODEL 800H-JR2CF
F	3	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2R
G	6	TERMINAL RAIL, STEEL GALVANIC ZINC, W: 2000 mm, H: 15 mm, D: 5.5 mm, WEIDMULLER ITEM No.0117510000
H	1	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST, HUBBELL MODEL HBL1221I
I	2	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED, HUBBELL MODEL HBL53621
J	1	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION, HOFFMAN MODEL LF120V28
K	45	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
L	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT, SIEMENS MODEL 6ES7214-1HG40-0XB0
M	21	CONTROL RELAY, 3 POLE, 24VDC CONTROL COIL - TURCK C3-A30X/24DC W/S3-S BASE
N	31	TAG CARRIER, SCHT 5 WEIDMULLER, CATALOG NO. 0292460000
O	16	END BRACKET, WEW 35/2 WEIDMULLER, CATALOG NO. 1061200000
P	1	NEMA 12 GASKETED STEEL ENCLOSURES WITHOUT VENTS 72" H x 60" W x 20" D.
Q	157	TERMINAL BLOCKS, WEIDMULLER WDU 2.5, CATALOG NO. 1020000000
R	8	WIRE DUCT 2" WIDE X 3" DEEP MINIMUM, LENGTH 6', HELLERMANN TYTON MODEL SL2X3W4
S	1	GROUND BUS
T	1	COMMUNICATION ETHERNET SWITCH, SIEMENS MODEL SCALANCE X310FE
U	*	NOT USED
V	1	PUMP ALARM RESET PUSHBUTTON, ROCKWELL MODEL 800H-AR2BF
W	3	ANALOG INPUT MODULE, 4 ANALOG INPUT , SIEMENS MODEL SIMATIC S7-1200, 6ES7231-4HD32-0XB0
X	134	FUSED TERMINAL BLOCKS, WEIDMULLER WSI 6, CATALOG NO. 1011000000
Y	1	120VAC SURGE SURGE PROTECTOR WITH ALARM CONTACT - SURGE SUPPRESSION INC MODEL SDLA3N4
Z	1	PROGRAMMING SCREEN (OIT) - SIEMENS INDUSTRY TP900 - CONFORT TOUCH PANEL
AA	*	NOT USED
BB	1	120VAC - 24VDC PLC POWER SUPPLY 5A, PHOENIX CONTACT MODEL QUINT-PS/1AC/24DC/5
CC	1	DIGITAL INPUT MODULE, 16 DIGITAL INPUT 24 VDC , SIEMENS MODEL SIMATIC S7-1200, 6ES7221-1BH32-0XB0
DD	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP, PLC" LEGEND, ALLEN-BRADLEY AB 800H-QRTH2G
EE	2	ANALOG SIGNAL ISOLATOR, TURCK MODEL IMS-AI-DLI-22-DLI/L
FF	1	LED LIGHT FOR INDOOR/OUTDOOR USE, 24 VDC, COLOR RED, FEDERAL SIGNAL MODEL LP3PL-024R.

* - AS SCHEDULED



CONTROL CABINET
FRONT DOOR ELEVATION
SC.: 1-1/2"=1'-0"

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED
N1	N.E. SLUDGE TRANSFER LS PUMP STATION
N2	PUMP NO. 1
N3	PUMP NO. 2
N4	PUMP NO. 3
N5	-
N6	-
N7	-
N8	-
N9	-
N10	PROGRAMMING SCREEN
N11	-
N12	PRIMARY PLC
N13	BACKUP PLC
N14	MOTOR DATA HORSEPOWER (OUTPUT) ---------- RPM AT FULL LOAD ---------- TIME RATING ---------- FREQUENCY ---------- NUMBER OF PHASES ---------- MODEL NUMBER ---------- RATED VOLTAGE ---------- SERVICE FACTOR ---------- FULL LOAD AMPS ---------- INSULATION CLAS ---------- NEMA DESIGN LETTER ---------- TEMPERATURE RISE ---------- NEMA FRAME SIZE ---------- DATE OF MANUFACTURE ---------- THERMO PROTECTION (IF REQUIRED) -- MOISTURE PROTECTION (IF REQUIRED)-

CONTROL PANEL BACK INNER DOOR
ELEVATION
SC.: 1-1/2"=1'-0"

NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E04

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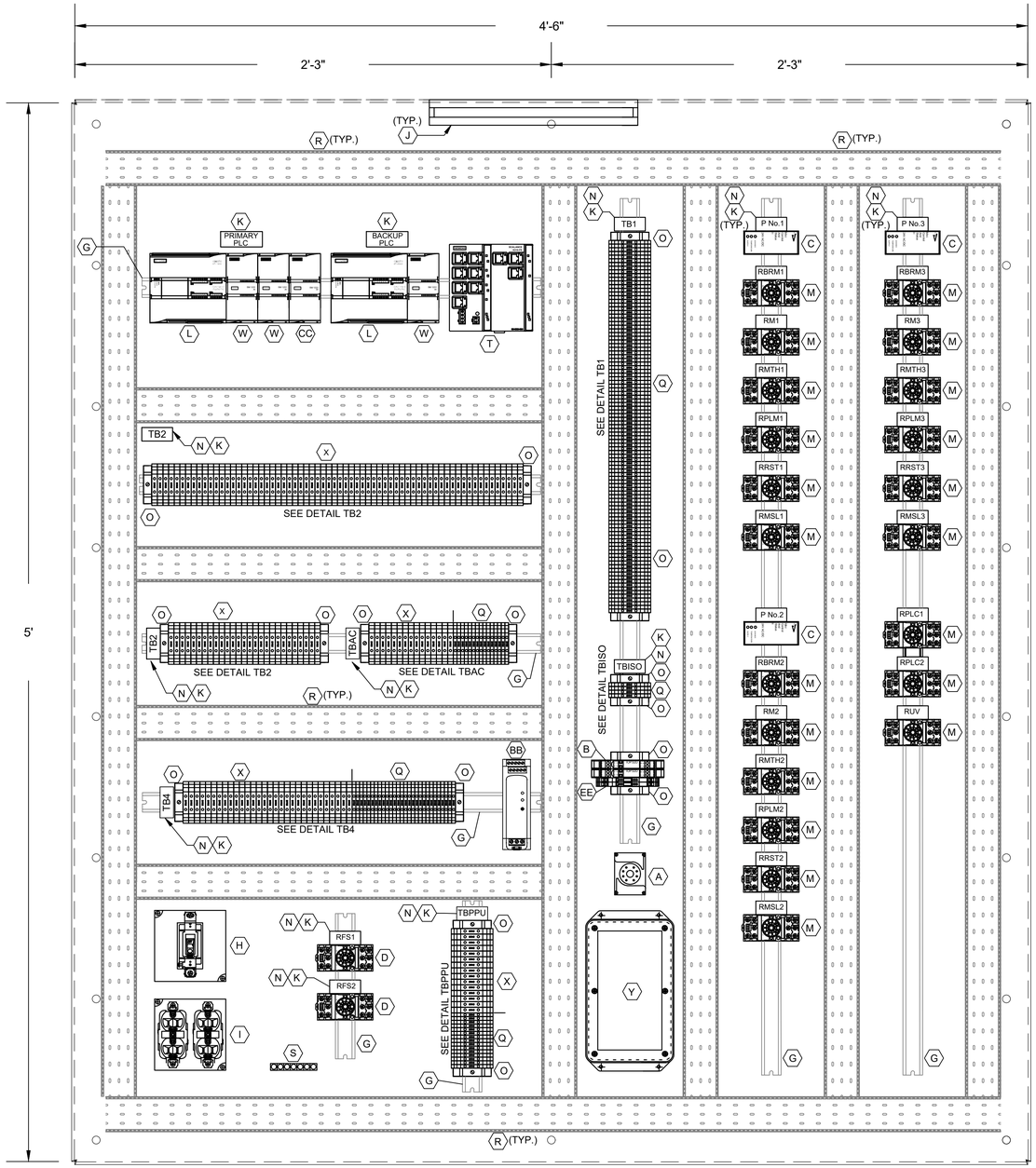


CONTROL PANEL
INTERNAL ARRANGEMENT
SC.: 3"=1'-0"

DETAIL TB1
L1A
L1N
SPARE
3
3N
SPARE
49
50
51
52
53
54
1004
1
24V-
24V-
SPARE
1002
2
11
1001
1001A
12
1003
1003A
34
3N
SPARE
SPARE
102
103
3P1
109
110
112
116
117
120
121
122
123
124
125
126
127
SPARE
SPARE
202
203
3P2
209
210
212
216
217
220
221
222
223
224
225
226
227
SPARE
SPARE
302
303
3P3
309
310
312
316
317
320
321
322
323
324
325
326
327
SPARE

DETAIL TB1 (cont.)
402
403
3P4
409
410
412
416
417
420
421
422
423
424
425
426
427

DETAIL TB2
36A
37A
50
52
54
52A
52A
54A
L+
M
35B
38B
41B
44B
47B
50B
53B
13B
13AB
13GB
L+
M
14B
14AB
14GB
119
L+
M
13
13A
13G
14
14A
14G
1M
2M
1L
3
30
32
34
37
38
41
33B
45
18B
100
112
113
114
115
117
118
119
120
121

DETAIL TB2
200
212
213
214
215
217
218
219
220
221
300
312
313
314
315
317
318
319
320
321

DETAIL TBAC
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15

DETAIL TBPPU
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15

DETAIL TB4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
23
30
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15
N16
N17
N18
N19
N20
N21
N22
N23
N24
N25

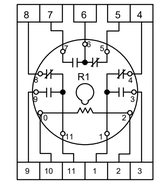
DETAIL TB-ISO
1500
1501
1503
1504

LEGEND

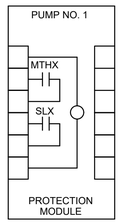
TAG	DESCRIPTION
RMTH	MOTOR HIGH TEMPERATURE ALARM RELAY
RPLM	PLC PUMP RUN RELAY
RRST	PUMP RESET AUX RELAY
RPLC	PLC MODE AUX RELAY
RM	PUMP RUN AUX RELAY
RBRM	BACKUP SYSTEM RUN RELAY
RUV	UNDER VOLTAGE RELAY
ISO	INTRINSICALLY SAFE RELAY
RFS	PUMP RUN FLOAT SWITCH RELAY
RMSL	MOTOR SEAL LEAK ALARM RELAY

NOTES:

1. SEE SHEET F1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.



RELAY DETAIL
ITEM D



PUMP PROTECTION MODULE
DETAIL, ITEM C

NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

CONTROL CABINET EQUIPMENT LAYOUT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E05

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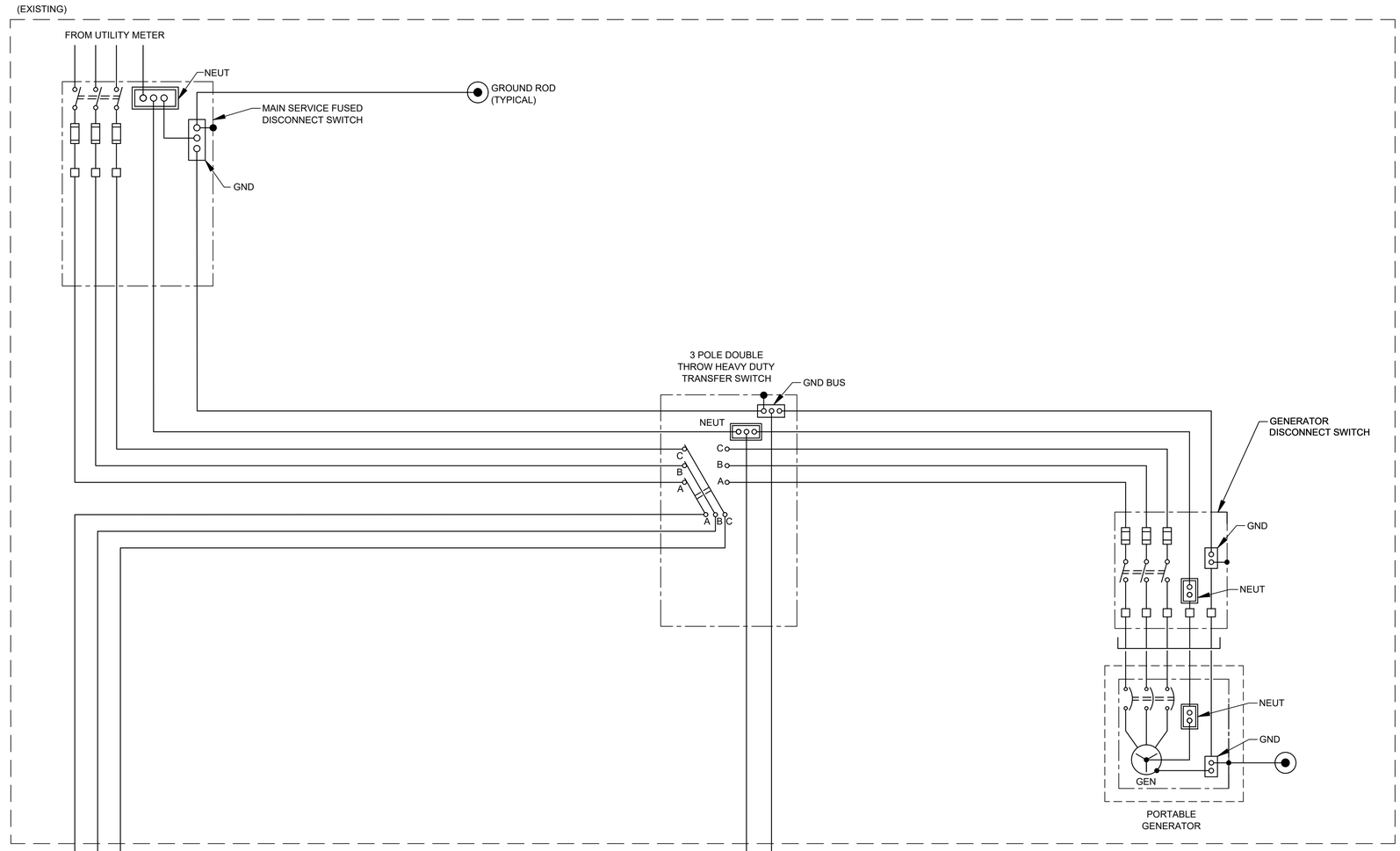

NOTES:

1. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE MOTOR CONTROL CENTER (MCC).
2. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
3. REFER TO F1E09.
4. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.

NO.	DATE	REVISION	M.S	APP.
A	06/27/25	INTERNAL REVISION		
B	10/30/25	CLIENT REVIEW	L.L.	

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

INCOMING POWER THREE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E06

PLOTTED: 10/28/2025 1:42 PM
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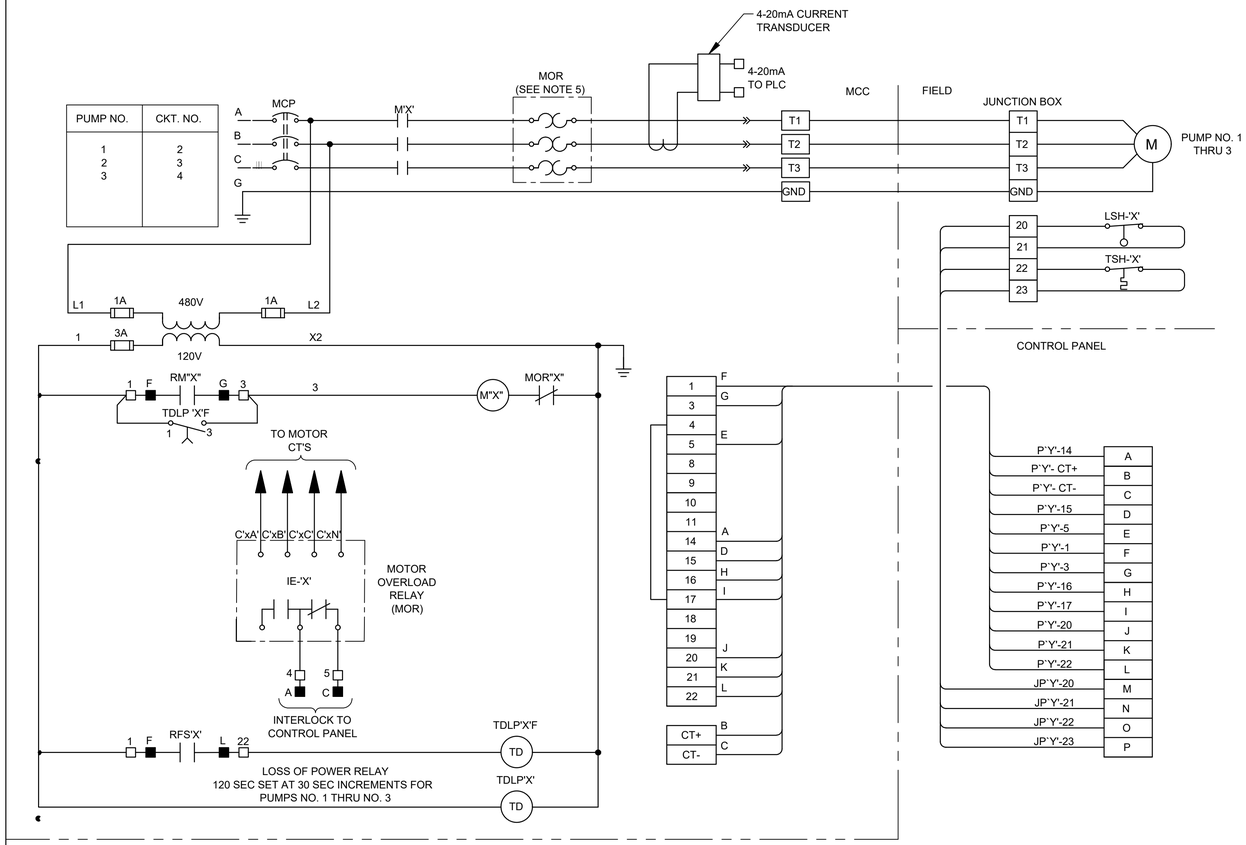

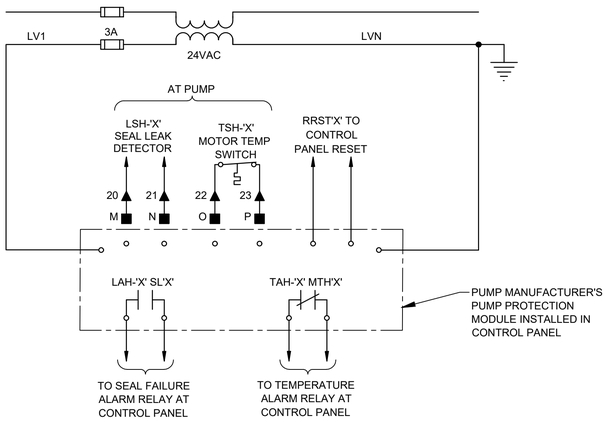

INDOOR MCC SCHEMATIC & WIRING DIAGRAM

SCHEMATIC 1 -

NOTES:

1. THE 'X' NOTATION IN SCHEMATIC DESIGNATIONS REPRESENTS APPLICABLE PUMP NO. 1, 2, 3.
2. THE 'Y" NOTATION INDICATES MCC CIRCUIT NUMBER.
3. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE MOTOR CONTROL CENTER (MCC).
4. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED. OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. (VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.)
5. MOTOR OVERLOAD RELAY.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- * DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PC INTERFACE TERMINAL

WIRE TAG OR TERMINAL LABEL	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3	FUNCTION
A	3P1	3P2	3P3	24VDC CONTROL
B	124	224	324	4-20mA CURRENT TRANSDUCER
C	125	225	325	4-20mA CURRENT TRANSDUCER
D	112	212	312	M CONTACT
E	117	217	317	PUMP OVERLOAD ALARM
F	109	209	309	RUN INTERLOCK
G	110	210	310	RUN INTERLOCK
H	102	202	302	LOSS OF POWER TIMER
I	103	203	303	LOSS OF POWER TIMER
J	126	226	326	ALARM RESET INTERLOCK
K	127	227	327	ALARM RESET INTERLOCK
L	116	216	316	FLOAT SWITCH RUN INTERLOCK
M	120	220	320	SEAL LEAK DETECTOR
N	121	221	321	SEAL LEAK DETECTOR
O	122	222	322	MOTOR TEMPERATURE SWITCH
P	123	223	323	MOTOR TEMPERATURE SWITCH

NO.	DATE	REVISION	M.S	APP.
A	06/27/25	INTERNAL REVISION	L.L.	
B	10/30/25	CLIENT REVIEW		

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

MCC SCHEMATIC AND WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E07

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PLOT STYLE: COH.ctb
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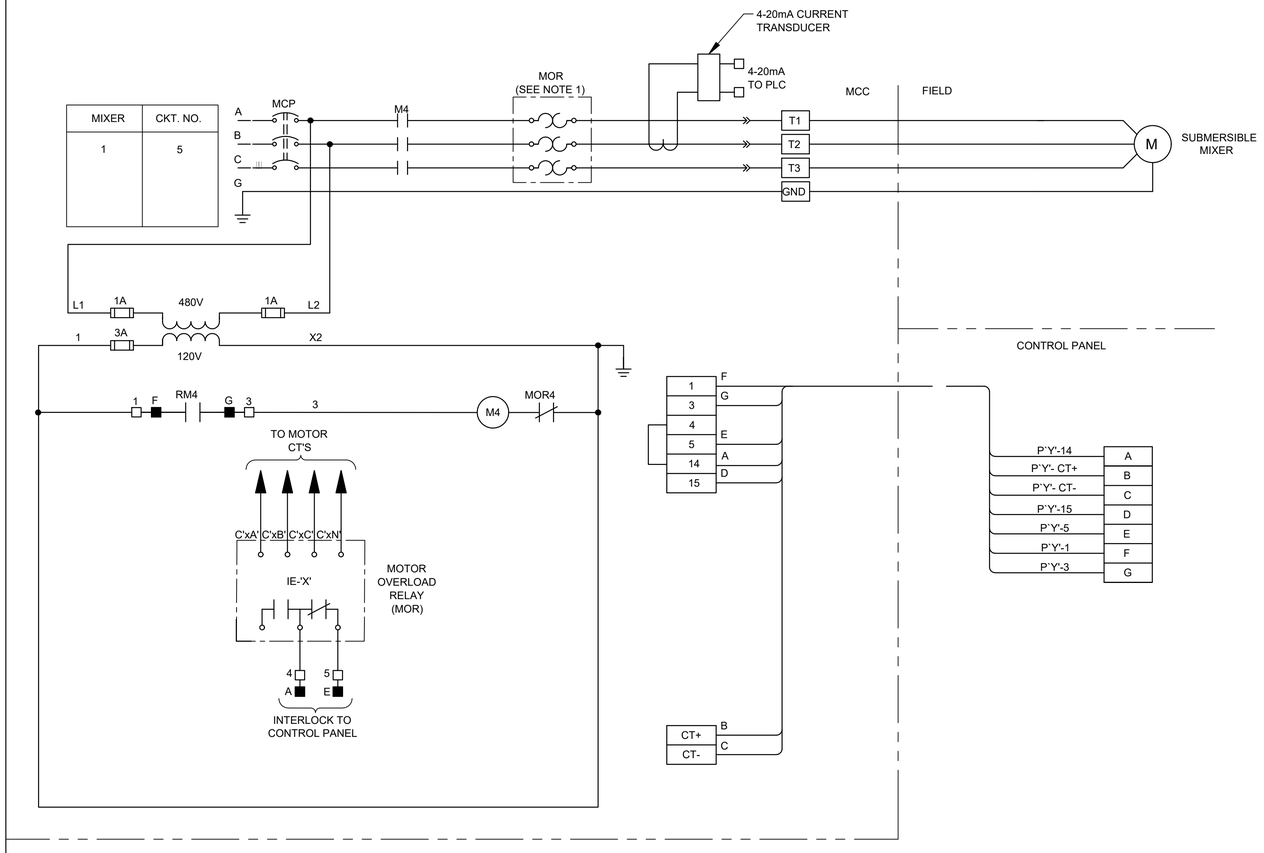


NOTES:

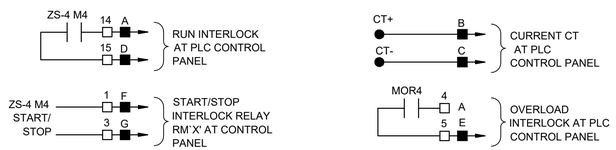
1. MOTOR OVERLOAD RELAY.
2. THE 'Y" NOTATION INDICATES MCC CIRCUIT NUMBER.
3. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE MOTOR CONTROL CENTER (MCC).
4. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED. OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. (VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.)

NO.	DATE	REVISION	APP.
A	10/22/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- * DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PC INTERFACE TERMINAL

WIRE TAG OR TERMINAL LABEL	MIXER NO.	FUNCTION
A	3P4	24VDC CONTROL
B	424	4-20mA CURRENT TRANSDUCER
C	425	4-20mA CURRENT TRANSDUCER
D	412	M CONTACT
E	417	MIXER OVERLOAD ALARM
F	409	RUN INTERLOCK
G	410	RUN INTERLOCK



INDOOR MCC SCHEMATIC & WIRING DIAGRAM

SCHEMATIC 1 / -

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

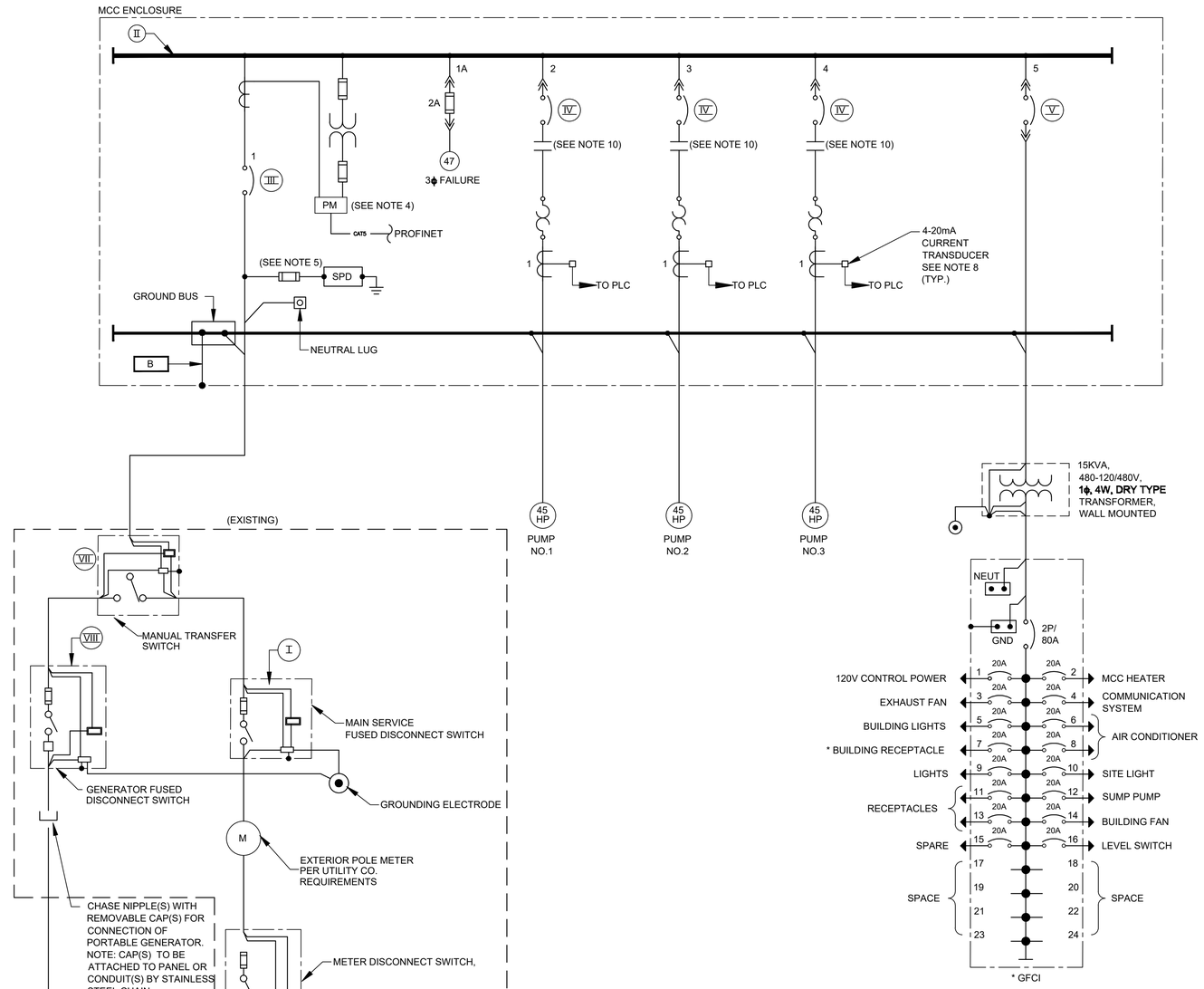
N.E. SLUDGE TRANSFER LS

MCC SCHEMATIC AND WIRING DIAGRAM SUBMERSIBLE MIXER

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E08

PLOTTED: 10/28/2025 1:52 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 5\queue5.dwg

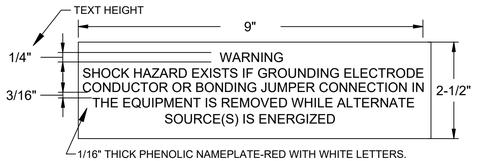


ITEM	CIRCUIT	DESCRIPTION	RATINGS FOR PUMP SIZES INDICATED 3 @ 45HP
I	--	MAIN DISCONNECT SWITCH (EXISTING)	
		OPERATING VOLTAGE	-
		CURRENT RATING	-
		CURRENT LIMITING FUSES TYPE & SIZE	-
II	--	MOTOR CONTROL CENTER MAIN BUS - 3/C COPPER	
		OPERATING VOLTAGE	480V
		CURRENT RATING	400A
		NEUTRAL SIZE & TYPE	200A LUG
		BUS BRACING	42KA SYM
III	(SEE NOTE 7) 1	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	200A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
IV	2 3 4	PUMP MOTOR STARTERS	
		QUANTITY	3
		MOUNTING (SEE NOTE 2)	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	480V
		FRAME SIZE	70A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	42KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	480V
		SIZE (SEE NOTE 9)	NEMA 2
		OVERLOAD PROTECTION TYPE	SOLID STATE MOR
		CT RATIO	50:5
V	5	LIGHTING TRANSFORMER FEEDER BREAKER	
		NO. OF POLES	2
		TYPE	MOLDED CASE
		OPERATING VOLTAGE	480V
		FRAME SIZE	150A
		TRIP SETTING	50A
		INTERRUPT CAPACITY	42KA SYM
VII	--	MANUAL TRANSFER SWITCH (EXISTING)	
		OPERATING VOLTAGE	-
		CURRENT RATING	-
VIII	--	GENERATOR FUSED DISCONNECT SWITCH (EXISTING)	
		OPERATING VOLTAGE	-
		CURRENT RATING	-
		CURRENT LIMITING FUSES TYPE & SIZE	-
IX	(SEE NOTE 6,11) 1G	GENERATOR TRANSFER SWITCH	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	200A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
MOTOR CONTROL CENTER ELEVATION LETTER			A,B
INDOOR CONTROL PANEL WIDTH (MIN)			48"
CONTROL BUILDING CONFIGURATION			CONTROL BUILDING NO.1

NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
2. DRAWOUT WHEN INSTALLED IN MCC CUBICLE.
3. CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
4. POWER MONITOR.
5. PROVIDE FUSE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
6. PROVIDE TRIP SETTING BASED ON GENERATOR SIZE. SIZES SHOWN ARE MAXIMUM.
7. PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
8. PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.
9. STARTER NEMA SIZE 2 IS MINIMUM AND NEMA SIZE 3 OR GREATER SHALL BE VACUUM TYPE.
10. STARTER NEMA SIZE 2 IS MINIMUM AND NEMA SIZE 3 OR GREATER SHALL BE VACUUM TYPE.
11. SWITCH UNIT IN MCC.

NO.	DATE	REVISION	M.S	L.L	APP.
A	06/27/25	INTERNAL REVISION			
B	10/30/25	CLIENT REVIEW			REVISION



ELECTRICAL WARNING NAMEPLATE NEW ENGRAVING

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLI*
1	PUMP NO. 1	45HP	65A
2	PUMP NO. 2	45HP	65A
3	PUMP NO. 3	45HP	65A
4	15 KVA TRANSFORMER		
SUBTOTAL			195A
25% OF LARGEST MOTOR LOAD			48.75A
MINIMUM AMPACITY @480V, 3Φ			243.75A

* BASED ON SELECTED PUMP MFG DATA

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

SINGLE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

F1E09

SHEET NO. OF 246

PLOTTED: 10/28/2025 1:52 PM
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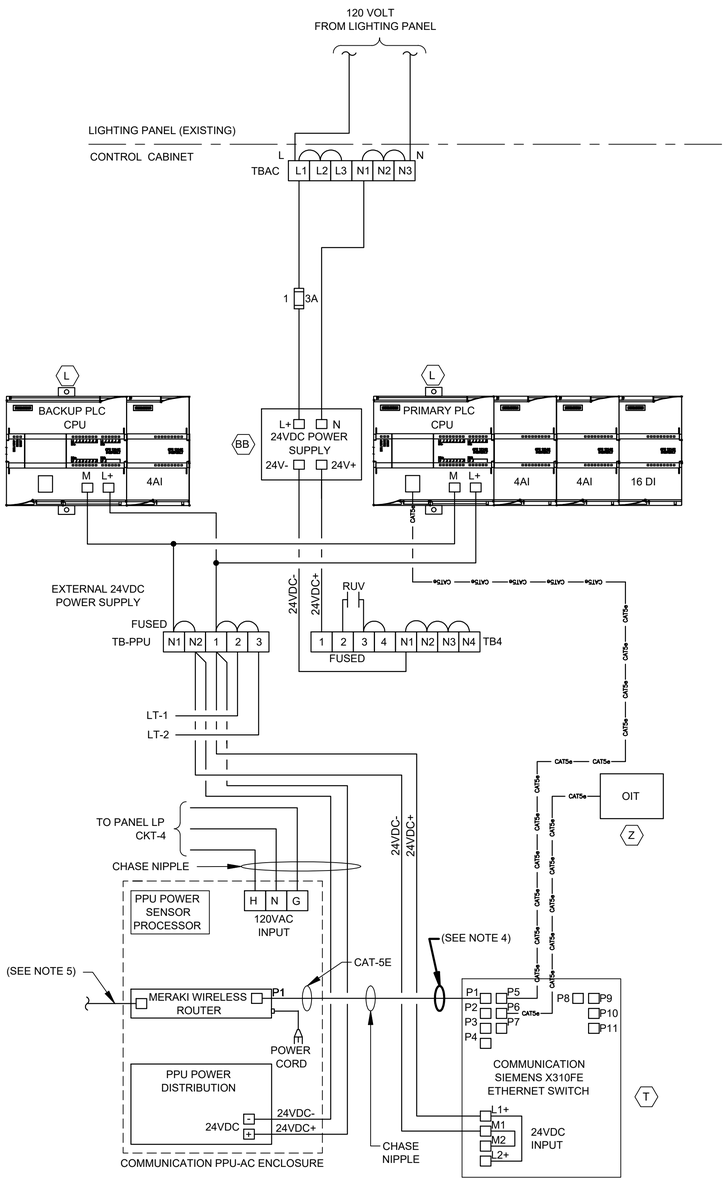
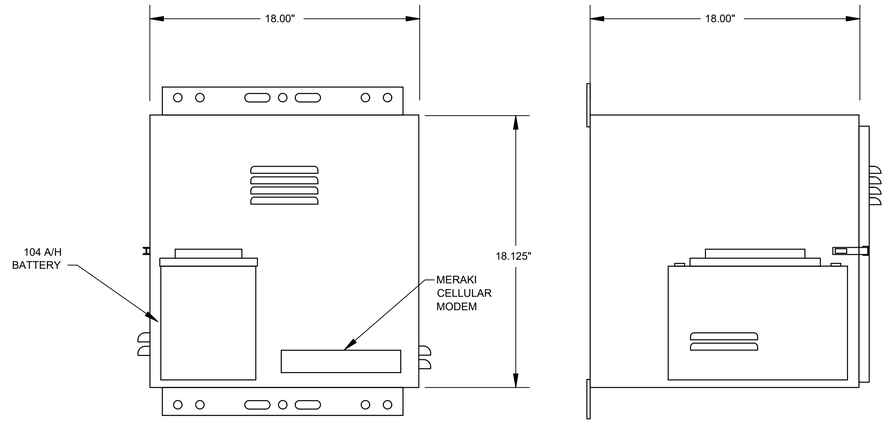


CONTROL POWER &
COMMUNICATIONS WIRING

DIAGRAM

NTS

(SEE NOTE 3)



PPU-AC
CONTROL ENCLOSURE

ELEVATION

NTS

NOTES:

1. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
2. THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
3. COMMUNICATION PPU-AC & SCADA SHALL BE PROVIDED BY CONTRACTOR INCLUDING TO RUN CONDUITS & WIRES.
4. ETHERNET CABLE FOR MERAKI CELLULAR ROUTER (P1).
5. POE CABLE TO RADIO.
6. SEE SHEET F1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.

NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

COMMUNICATION DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E10

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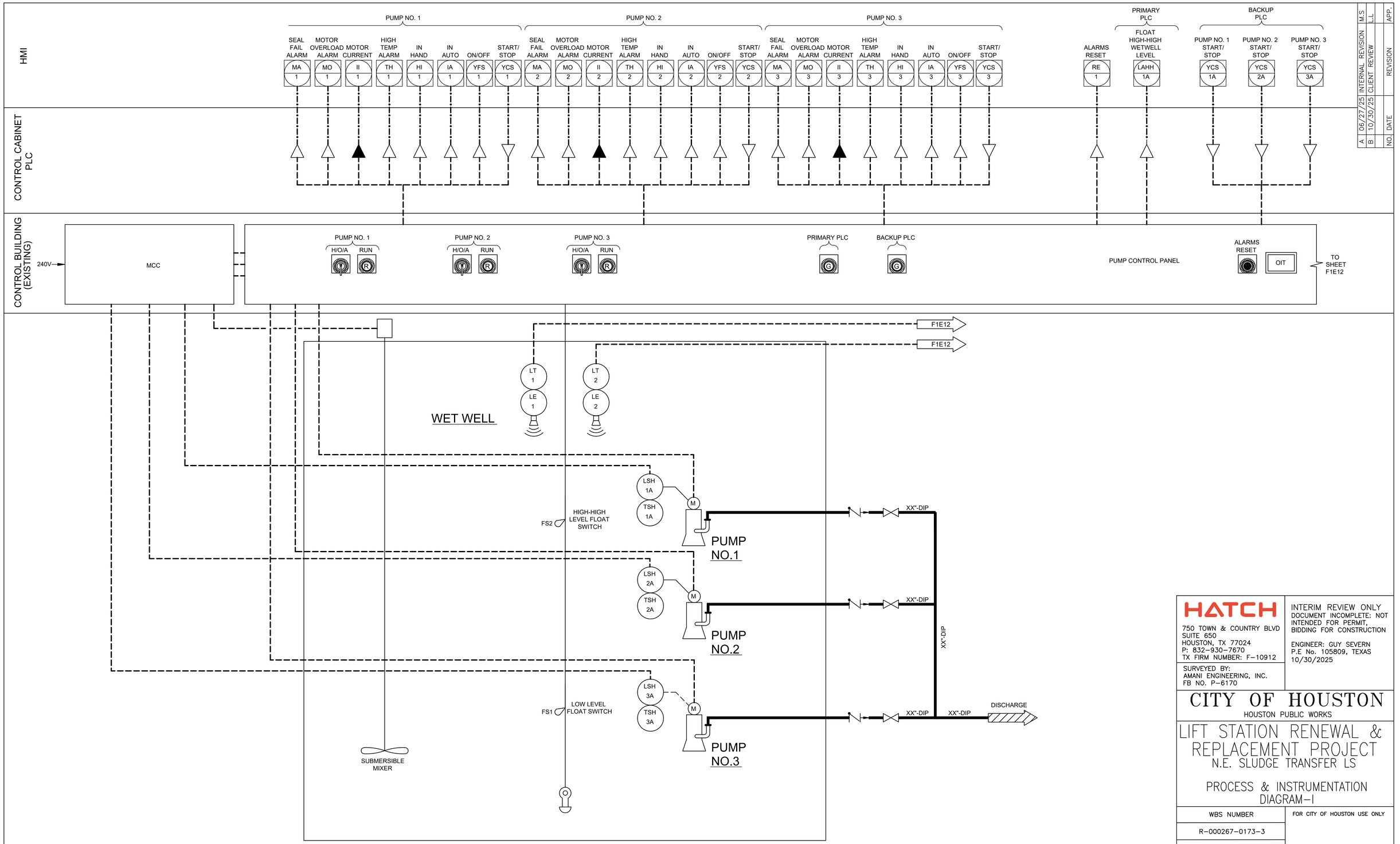

NO.	DATE	REVISION	M.S	L.L	APP.
A	06/27/25	INTERNAL REVIEW			
B	10/30/25	CLIENT REVIEW			

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PLOT STYLE: COH.ctb

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HATCH

750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

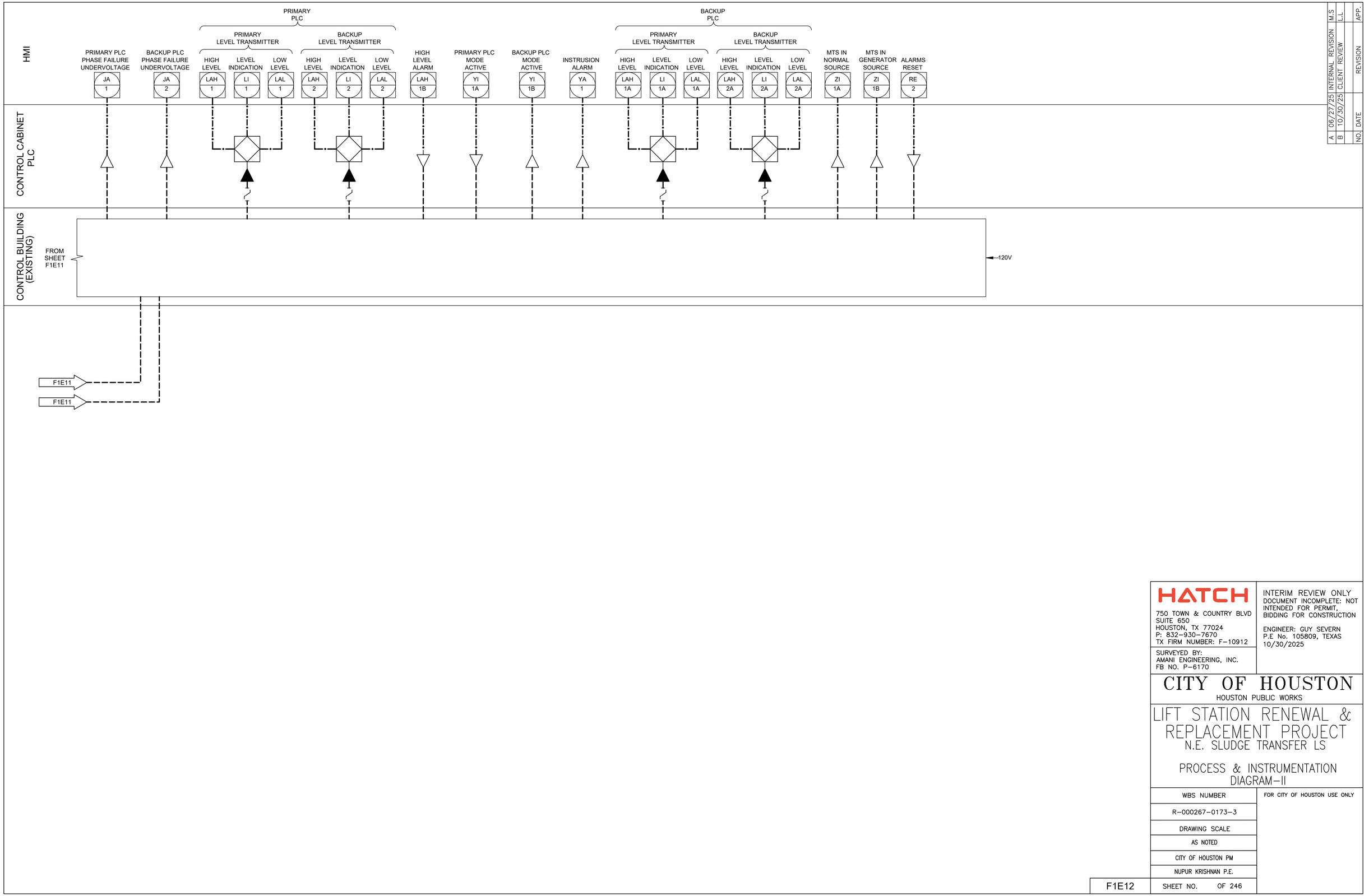
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

PROCESS & INSTRUMENTATION DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E11



NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

PROCESS & INSTRUMENTATION DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E12

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PLOT STYLE: COH.ctb
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FIELD

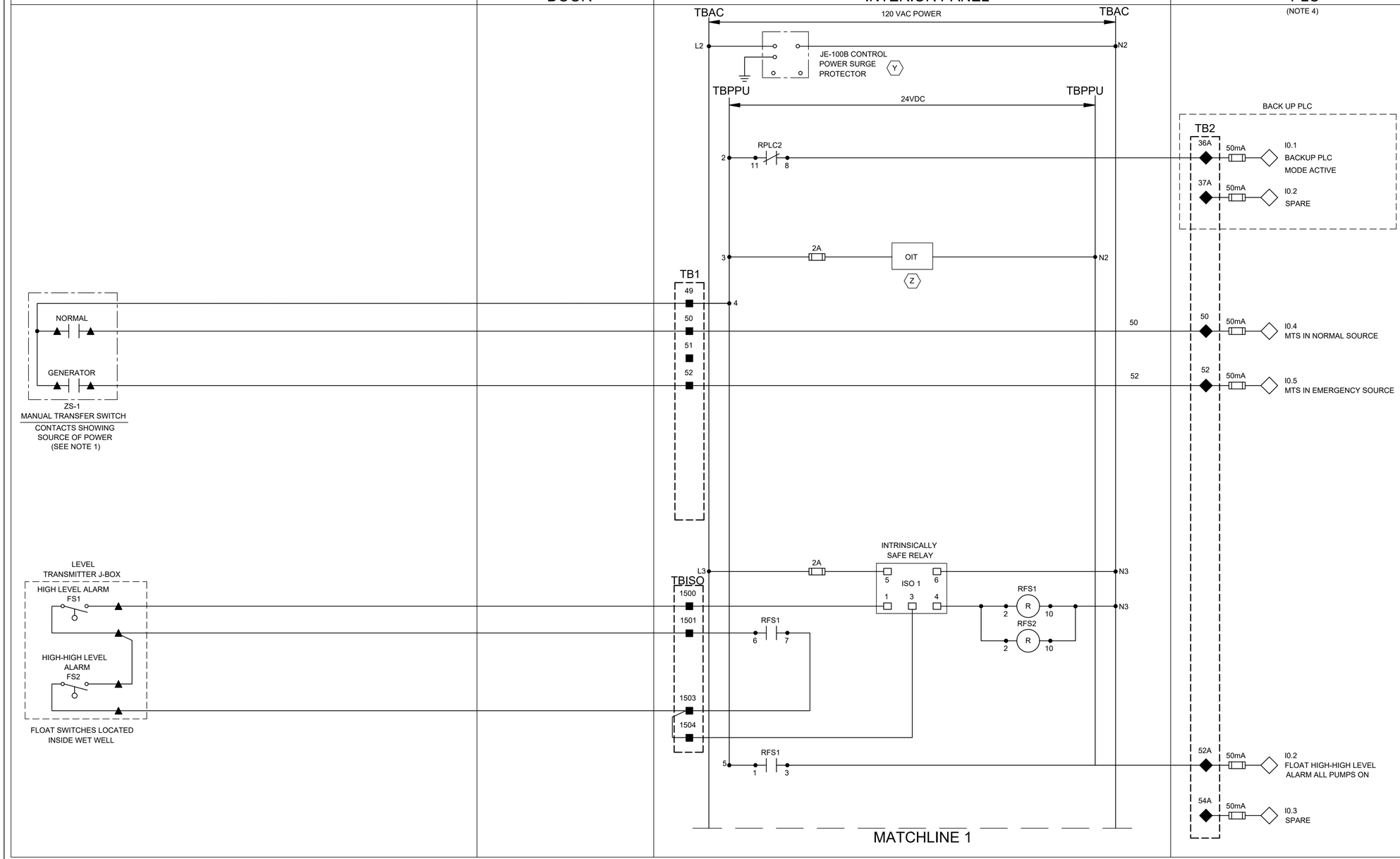
CONTROL BUILDING (EXISTING)

CONTROL CABINET

DOOR

INTERIOR PANEL

PLC (NOTE 4)



NO.	DATE	REVISION
A	06/27/25	INTERNAL REVIEW
B	10/30/25	CLIENT REVIEW

APP.	REVISION
M.S	
L.L	

NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
3. SEE SHEET F1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
4. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

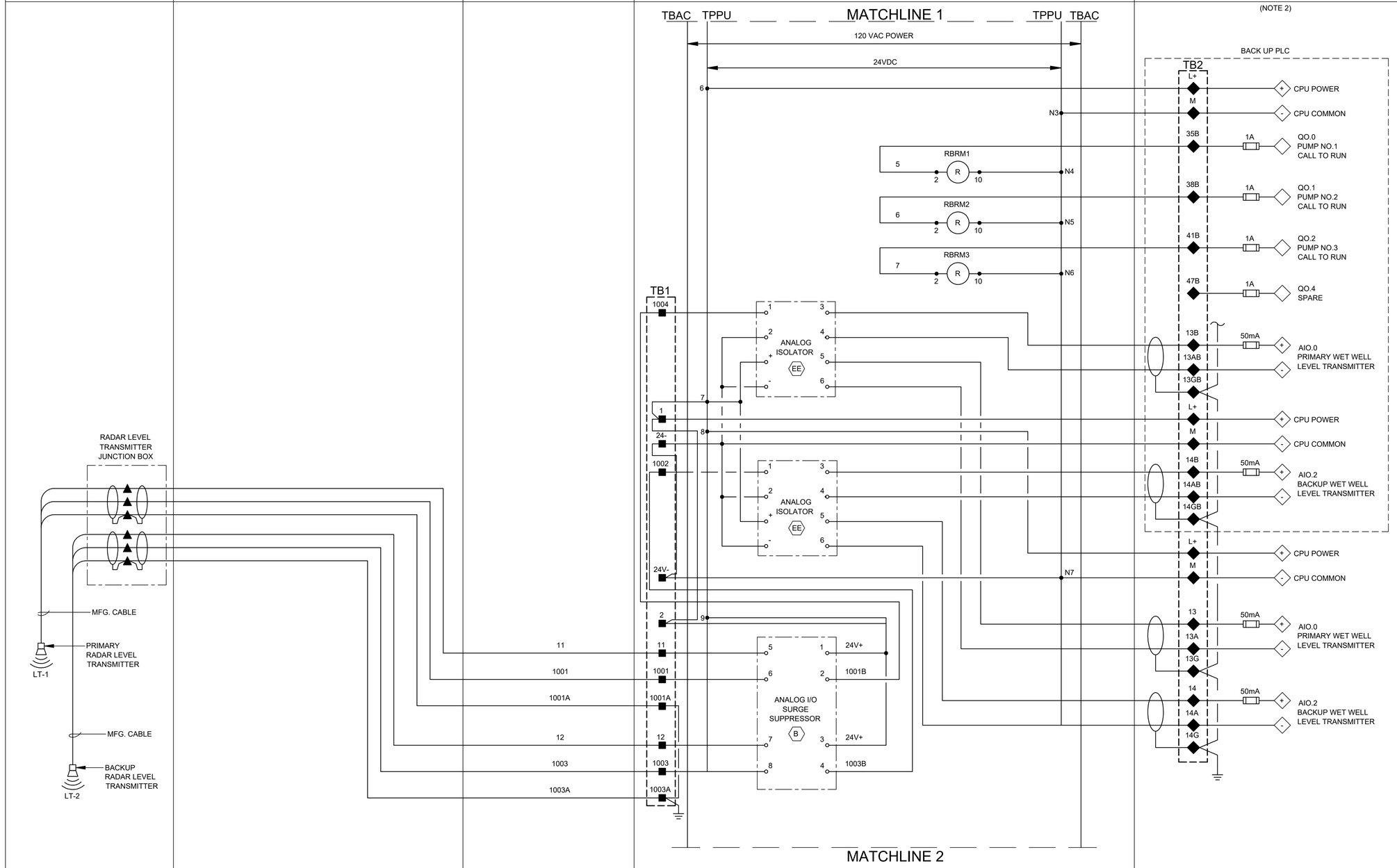
LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

CONTROL CABINET
CONTROL WIRING DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E13

FIELD	CONTROL BUILDING (EXISTING)		
	MOTOR CONTROL CENTER	CONTROL CABINET	
		DOOR	INTERIOR PANEL



PLC
(NOTE 2)

NOTES:

1. SEE SHEET F1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

CONTROL CABINET
CONTROL WIRING DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E14

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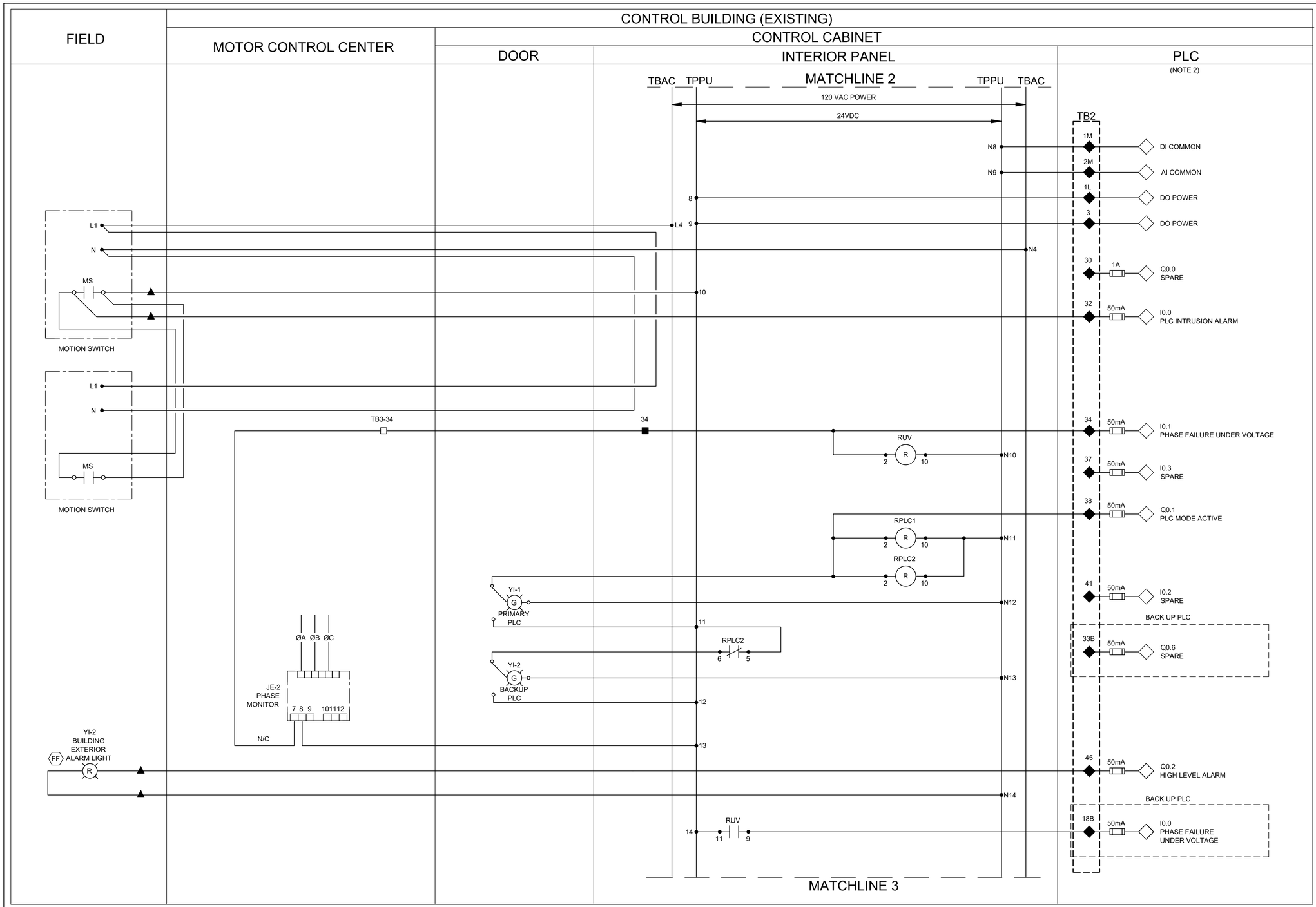

NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. SEE SHEET F1E04 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

CONTROL CABINET
CONTROL WIRING DIAGRAM-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E15

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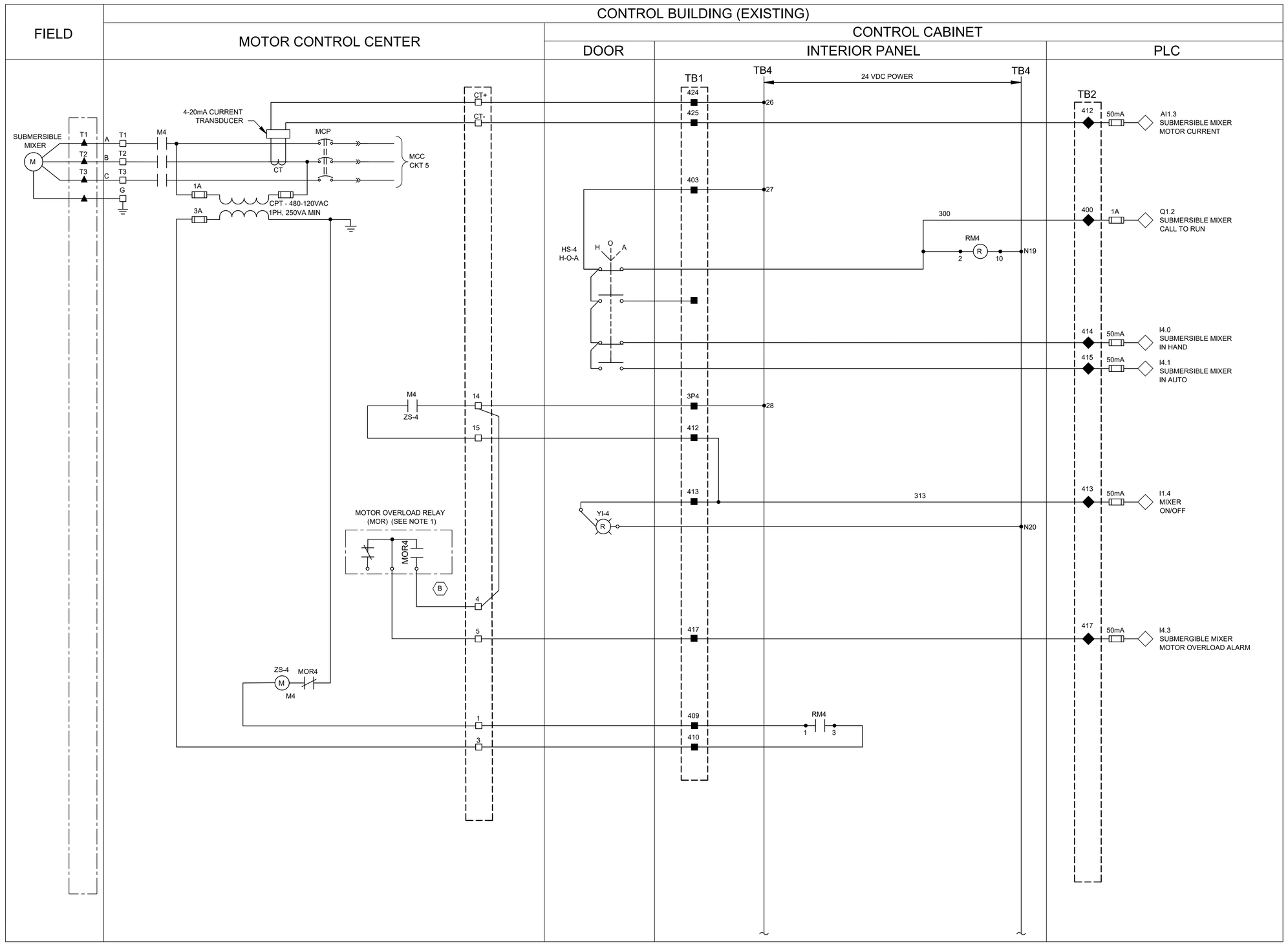

NO.	DATE	REVISION	APP.
A	10/22/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

CONTROL CABINET
CONTROL WIRING DIAGRAM-IV

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E16

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FIELD

CONTROL BUILDING (EXISTING)

MOTOR CONTROL CENTER

CONTROL CABINET

DOOR

INTERIOR PANEL

PLC

PUMP NO.1
M
T1 T2 T3 G
A B C
M1
4-20mA CURRENT TRANSDUCER
MCP
CT
MCC CKT 2
1A 1A
CPT - 480-120VAC 1PH, 250VA MIN
X1-1 3A X2-1
TDLP1F TD
TDLP1 TD
TDLP1
M1
X1-1
ZS-1 M
MOR1
TDLP1F
M1
MOR1
M2
0.5A
CPT - 120-24VAC 1PH, 50VA
3A
LAH-1 SL1
TAH-1 MTH1
RESET
PUMP PROTECTION
LSH-1 SEAL LEAK DETECTOR
TSH-1 MOTOR TEMP SWITCH
TERMINAL JUNCTION BOX
HS-1 H-O-A
HS-1A RESET
TO SHEET F1E18
TB1
TB4
24 VDC POWER
TB4
TB2
RMTH1
RMSL1
RPLMP1
RM1
RPLC1
RBRM1
RPLC1
RPLMP1
RM1
RFS1
RMSL1
YI-1 R
3N1
RRST1
RMTH1
RMTH1
RRST1
RRST1
RMSL1
RMSL1
TO 219 ON SHEET F1E18
RMTH1
RRST1
50mA
AI0.8 PUMP NO.1 MOTOR CURRENT
1A
Q0.7 PUMP NO.1 CALL TO RUN
50mA
I3.1 PUMP NO.1 IN HAND
50mA
I3.0 PUMP NO.1 IN AUTO
50mA
I3.2 PUMP NO.1 SEAL FAILURE ALARM
50mA
I0.7 PUMP NO.1 ON/OFF
50mA
I3.3 PUMP NO.1 MOTOR OVERLOAD ALARM
50mA
I0.6 ALARMS RESET
1A
Q0.4 ALARMS RESET
50mA
I1.1 PUMP NO.1 HIGH TEMPERATURE ALARM

NO.	DATE	REVISION
A	06/27/25	INTERNAL REVIEW
B	10/30/25	CLIENT REVIEW

	M.S	
	L.L	
		APP.

NOTES:

1. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

PUMP NO.1
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E17

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NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

FIELD

MOTOR CONTROL CENTER

CONTROL BUILDING (EXISTING)

CONTROL CABINET

DOOR

INTERIOR PANEL

PLC

PUMP NO.2
M
T1 A T1
T2 B T2
T3 C T3
G

4-20mA CURRENT TRANSDUCER
M1
MCP
CT
MCC CKT 3
1A
1A
CPT - 480-120VAC 1PH, 250VA MIN
X1-2
3A
X2-2
TDLP2F
TD
2 10
TDLP2
TD
2 10
TDLP2
1 3
M2
X1-2
ZS-2
M
MOR2
TDLP2F
1 3
M2
MOR2
0.5A
3A
CPT - 120-24VAC 1PH, 50VA
LSH-2
SEAL LEAK DETECTOR
LAH-2
SL2
TAH-2
MTH2
TSH-2 MOTOR TEMP SWITCH
TERMINAL JUNCTION BOX
RESET
PUMP PROTECTION MODULE

HS-2
H-O-A
H O A

TB1
224
225
202
203
16
17
18
19
1
3
209
210
216
3P2
212
213
4
5
217
20
226
21
227
3P2
220
221
222
223

TB4
24 VDC POWER
TB4
12
13
16
14
213
3N2
N10
3P2
15
N11
N12
N13
18

201 RMTH2 202 RMSL2
1 4 1 4
200 RPLMP2 N9
2 10
204 RM2
2 10
RPLC1 206 RBRM2
6 5 1 3
RPLC1 207 RPLMP2
6 7 1 3
RM2
1 3
RFS2
1 3
RMSL2
6 7
214 RRST2 215 RMTH2
1 4 6 7
216 RMTH2
2 10
217
RRST2
2 10
RMSL2
2 10
RRST2 RMSL2
11 8 11 9
RMTH2
11 9
RRST2
6 7

FROM SHEET F1E17
TO SHEET F1E19
FROM 119 ON SHEET F1E17
219
TO 319 ON SHEET F1E19

TB2
212 50mA AI1.0 PUMP NO.2 MOTOR CURRENT
200 1A Q1.0 PUMP NO.2 CALL TO RUN
214 50mA I3.5 PUMP NO.2 IN HAND
215 50mA I3.4 PUMP NO.2 IN AUTO
221 50mA I3.6 PUMP NO.2 SEAL FAILURE ALARM
213 50mA I1.2 PUMP NO.2 ON/OFF
217 50mA I3.7 PUMP NO.2 MOTOR OVERLOAD ALARM
220 50mA I1.3 PUMP NO.2 HIGH TEMPERATURE ALARM

NOTES:

1. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

PUMP NO.2
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E18

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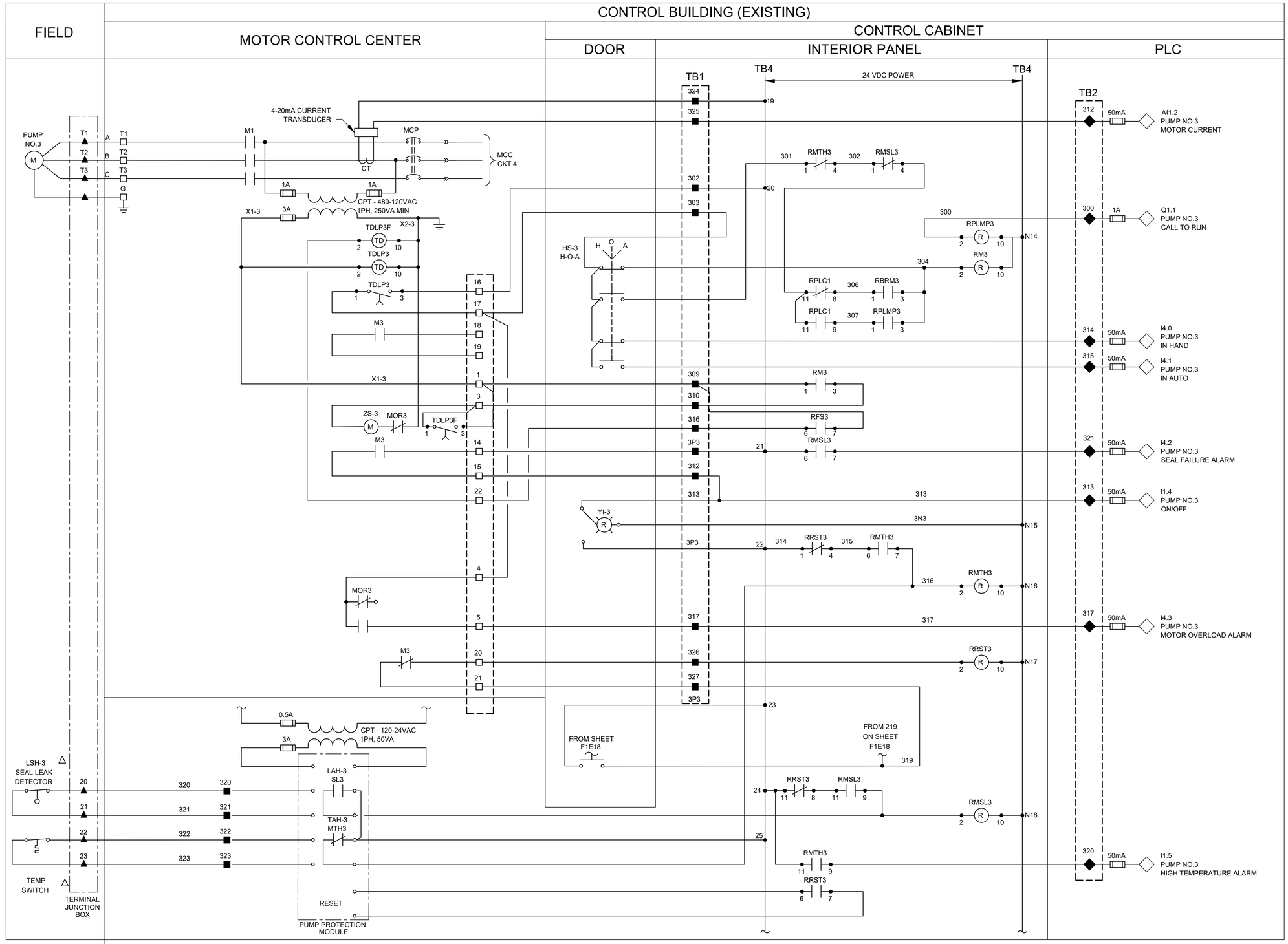

NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

PUMP NO.3 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

F1E19

SHEET NO. OF 246

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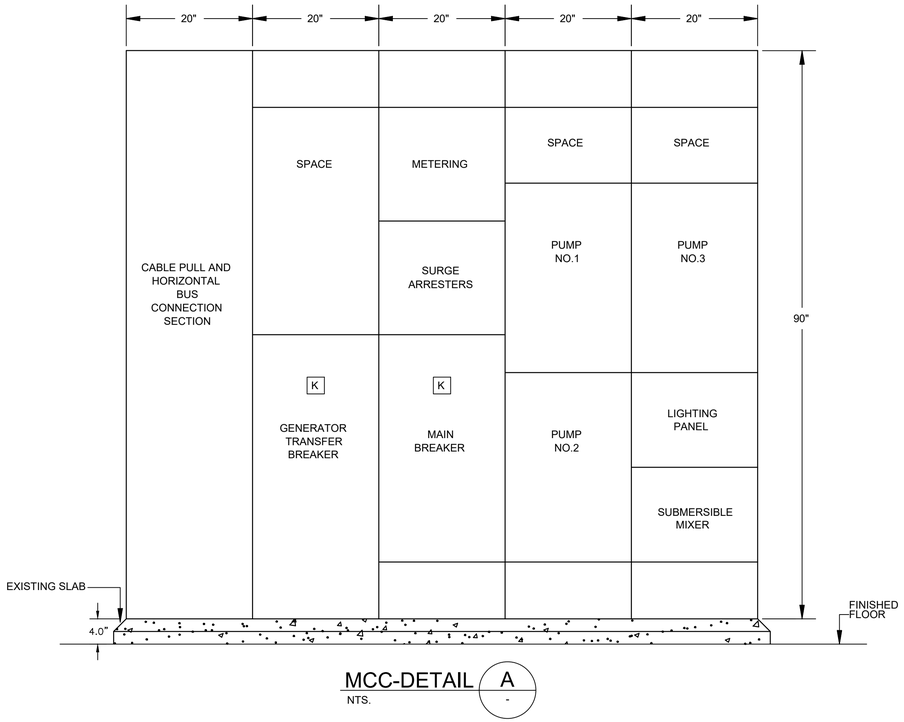
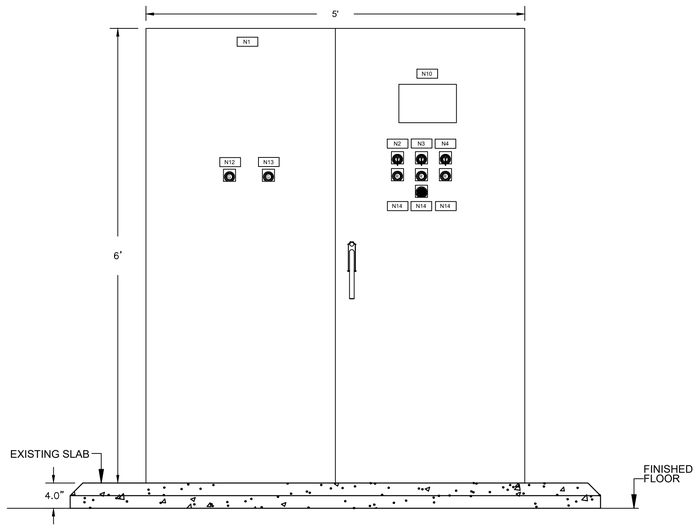


MCC-DETAIL A
NTS.



POWER & CONTROL CABINET-DETAIL B
NTS.

NO.	DATE	REVISION	APP.
A	06/27/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

MCC – POWER&CONTROL CABINET ELEVATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E20

PLOTTED: 10/28/2025 1:51 PM
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	DESCRIPTION	SERVICE		ROUTING			CONDUIT & WIRE SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
			--				
B	CONTROL CABINET BONDING JUMPER	--	--	CONTROL CABINET	GROUND FIELD	--	1#6G
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL CABINET	GROUND FIELD	--	1#6G
200	PUMP NO. 1 POWER	480VAC	50 HP	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
202	PUMP NO. 1 POWER	480VAC	50 HP	PUMP NO. 1 JUNCTION BOX	PUMP STARTER (MCC)	RIGID CONDUIT/DUCT BANK	3#4 / 1#4G, 1"C
203	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 1 JUNCTION BOX	PUMP STARTER (CONTROL CABINET)	RIGID CONDUIT/DUCT BANK	(COMBINE 201 & 301) 8#14, 1"C
205	PUMP NO. 1 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	RIGID CONDUIT	10C#14 / 1P+S#16 AWG, 1"C
300	PUMP NO. 2 POWER	480VAC	50 HP	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
302	PUMP NO. 2 POWER	480VAC	50 HP	PUMP NO. 2 JUNCTION BOX	PUMP STARTER (MCC)	RIGID CONDUIT/DUCT BANK	3#4 1#4G, 1"C
305	PUMP NO. 2 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	RIGID CONDUIT	10C#14 / 1P+S#16 AWG, 1"C
400	PUMP NO. 3 POWER	480VAC	50 HP	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	RIGID CONDUIT	MFR CABLE, 2-1/2"C (SEE NOTE 2)
401	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	RIGID CONDUIT	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
402	PUMP NO. 3 POWER	480VAC	50 HP	PUMP NO. 3 JUNCTION BOX	PUMP STARTER (MCC)	RIGID CONDUIT/DUCT BANK	3#4 1#4G, 1"C
405	PUMP NO. 3 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL CABINET	RIGID CONDUIT	10C#14 / 1P+S#16 AWG, 1"C
403	PUMP NO. 3 CONTROLS	120V	50 HP	PUMP NO. 3 JUNCTION BOX	CONTROL PANEL (CONTROL CABINET)	RIGID CONDUIT/DUCT BANK	4#14, 1"C
1000	LEVEL TRANSMITTER LT-1	24VDC	--	LEVEL TRANSMITTER LT-1	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1001	LEVEL TRANSMITTER LT-2	24VDC	--	LEVEL TRANSMITTER LT-2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	TRANSMITTER JUNCTION BOX	CONTROL CABINET	RIGID CONDUIT/DUCT BANK	COMBINE 1000/1001/1003, 4#14+2#14G / 4#14, 2"C
1003	WELL FLOAT SWITCHES	24VDC	--	TRANSMITTER JUNCTION BOX	FLOAT SWITCH NO.1 & NO.2	RIGID CONDUIT	MFR CABLE, 2-1/2" CONDUIT (SEE NOTE 2)
1100	120VAC FOR RECEPTACLE (OUTSIDE)	120V	--	LIGHTING PANEL (EXISTING)	CONTROL CABINET	RIGID CONDUIT/DUCT BANK	LX 2#12 #12G, 3/4"C
1101	120VAC CONTROL CABINET	120V	--	LIGHTING PANEL (EXISTING)	CONTROL CABINET	RIGID CONDUIT	LX , 2#12 #12G, LIGHTS & RECEPTACLE, 3/4"C LX , 2#12 #12G, POWER SUPPLY (TBAC)
1201	24VDC CONTROL CABINET	24VDC	--	PPU-AC PANEL (EXISTING)	CONTROL CABINET	RIGID CONDUIT	ETHERNET CABLE CAT-5E, 3/4"C 24VDC SUPPLY (TBPPU)
1202	SUMMERSIBLE MIXER POWER	480V	--	SUMMERSIBLE MIXER	STARTER (MCC)	RIGID CONDUIT/DUCT BANK	3#10 1#10G, 1"C
1203	SUMMERSIBLE MIXER CONTROL	24VDC	--	SUMMERSIBLE MIXER	CONTROL CABINET	RIGID CONDUIT/DUCT BANK	10C#14 / 1P+S#16 AWG, 1"C

NOTES:

1. CONDUITS LABELED "FUTURE SPACE" ARE TO BE INSTALLED AND CAPPED IN FIELD.
2. ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2".
3. ALL UNDERGROUND CONDUITS (SINGLE AND MULTI-RUN) TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.

NO.	DATE	REVISION	M.S
A	06/27/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	APP.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
N.E. SLUDGE TRANSFER LS

ELECTRICAL CONDUIT SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E21

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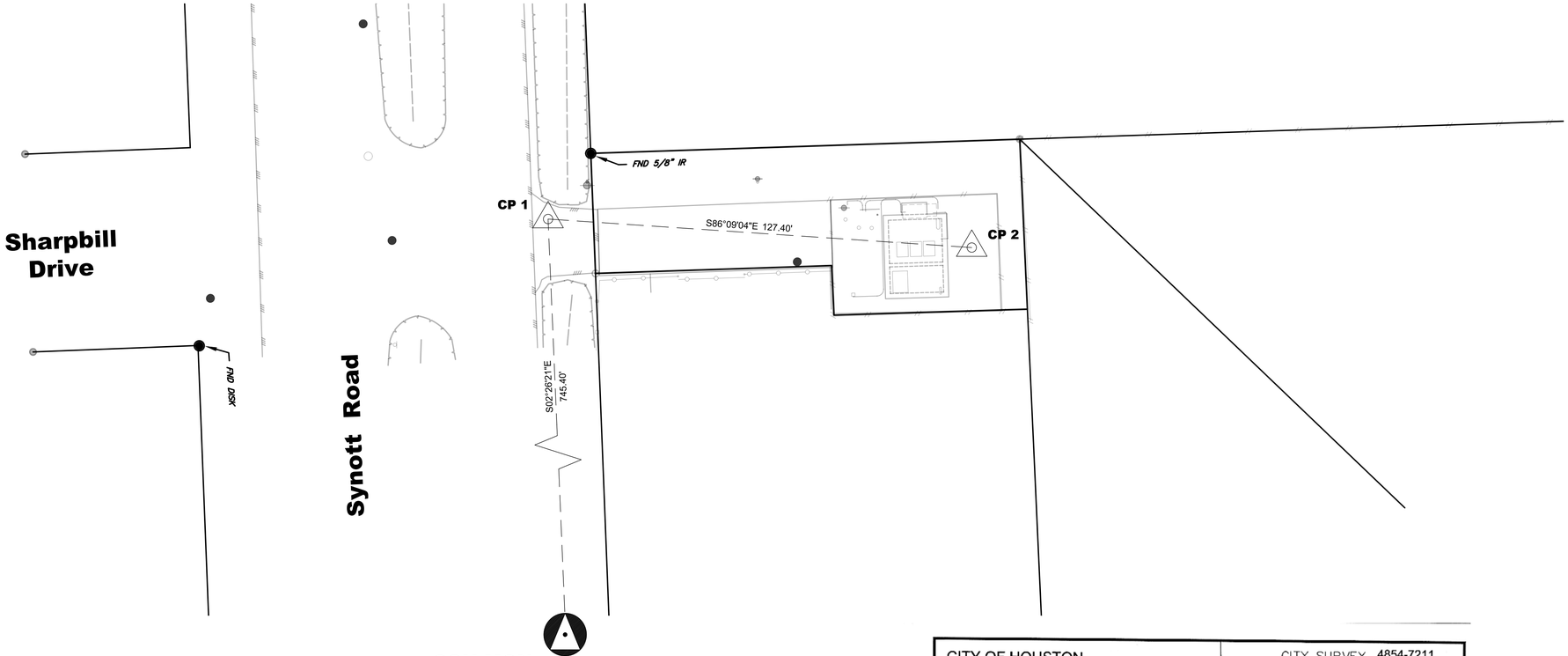


N

20 10 0 20

SCALE IN FEET
22 X 34 : 1" = 20'

NO.	DATE	REVISION	APP.

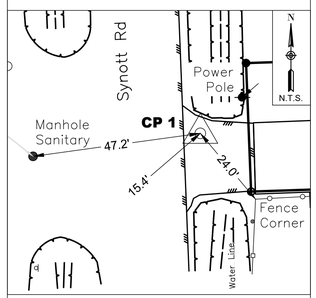
NOTES:

1. ALL BEARINGS AND COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204) NORTH AMERICAN DATUM OF 1983 (2011 ADJ) 2010 EPOCH, US SURVEY FEET. COORDINATES SHOWN HEREON ARE GRID VALUES AND ALL DISTANCES SHOWN ARE SURFACE VALUES. THE COMBINED SCALE FACTOR IS 0.99988335.
2. GRID COORDINATES/SCALE FACTOR = SURFACE COORDINATES.
3. FIELD DATA COLLECTED NOVEMBER 2024.
4. ALL ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID 18. ALL CONTROL NETWORK ELEVATIONS ARE TIED TO CITY SURVEY 4854-7211 SITE CONTROL MONUMENT USING DIFFERENTIAL LEVELING.
5. THE CONVERSION FACTOR FROM PROJECT LEVELED ELEVATION TO THE HCFCD CALLED G99 ELEVATION = +0.33'.

PROJECT BENCH MARK:

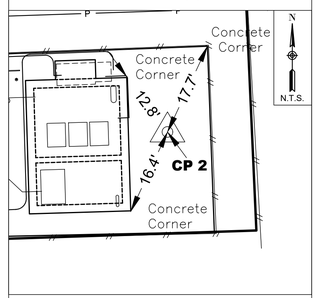
A BRASS DISK LOCATED ON THE EAST SIDE OF SYNOTT RD. APPROXIMATELY 250 FEET SOUTH OF CARVEL LN. INTERSECTION.
OBSERVED ELEVATION = 83.46' (NAVD 88 GEOID 18)
CALLED ELEVATION = 83.79' (GEOID 99)

CP 1 -- MAG NAIL



GRID NORTHING : 13,816,940.35
GRID EASTING : 3,043,133.87

CP 2 -- X-CUT

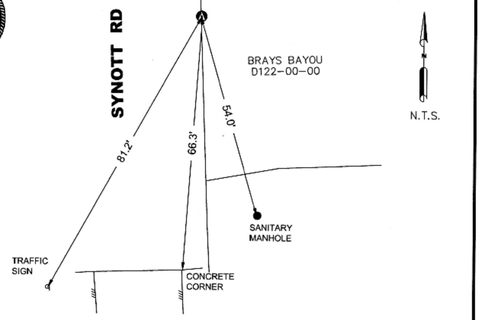


GRID NORTHING : 13,816,931.80
GRID EASTING : 3,043,260.97

CP No.	Grid Northing	Grid Easting	Elevation	Description
1	13,816,940.35	3,043,133.87	80.66	MAG NAIL
2	13,816,931.80	3,043,260.97	80.67	X-CUT

CITY OF HOUSTON

CITY SURVEY 4854-7211
SITE CONTROL MONUMENT
FLOODPLAIN RM#040585



Project WBS# R-000267-0175-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,043,165.59
Y= 13,816,195.72
Lat.= N 29° 41' 45.9121"
Lon.= W 95° 36' 52.2829"

Keymap Page: 528L
Orthometric Elevation = 83.46
Ellipsoid Height= -6.38
Geoid: GEOID 18
Datum Source & Adjustment:
2-HR STATIC GPS OBSERVATION
MADE ON MONUMENT ON 10/25/2024

Reference Frame Used: NAD_83(2011)(EPOCH: 2010.0000)
Vertical Adjustment used: NAVD 88 GEOID18
General Location: ON THE EAST SIDE OF SYNOTT RD, APPROXIMATELY 250 FEET SOUTH OF CARVEL LN INTERSECTION.
Date Set: MAY 14, 2003 Type of Mark: BRASS DISK
3 Nearest project control points (bearings and distances stated below):
1. CP #1, MAG NAIL, N 2° 26' 21" W, 745.40'
2. CP #2, X-CUT , N 7° 23' 00" E, 742.33'
3. CP #3, 60D NAIL , N 15° 29' 45" W, 761.68'

NOTE:
1. Bearings are grid bearings.
2. Combined Factor (C.F)= 0.99988335.

Surface= Grid
C.F.
Surveyed By: Amani Engineering, Inc.
11011 Richmond Avenue, Suite 700
Houston, TX 77042
Tel. (713)270-5700
Texas Registered Survey Firm 10028200

STATE OF TEXAS REGISTERED CHRISTINA I. WEAVER 6753 PROFESSIONAL LAND SURVEYOR
12-12-25

\\AEFILS01\Data\Cadd\2024\24013 - Hatch - COH FY20 Lift Stations\Monument\Synott Road #1 LS\4854-7211.dwg

F1C41

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
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WILLIAM H. REIMER III, R.P.L.S.
Surveyor
4044
Registration No.
10/23/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD. #1
SURVEY CONTROL MAP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
1" = 20'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN	
SHEET NO. OF 246	

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

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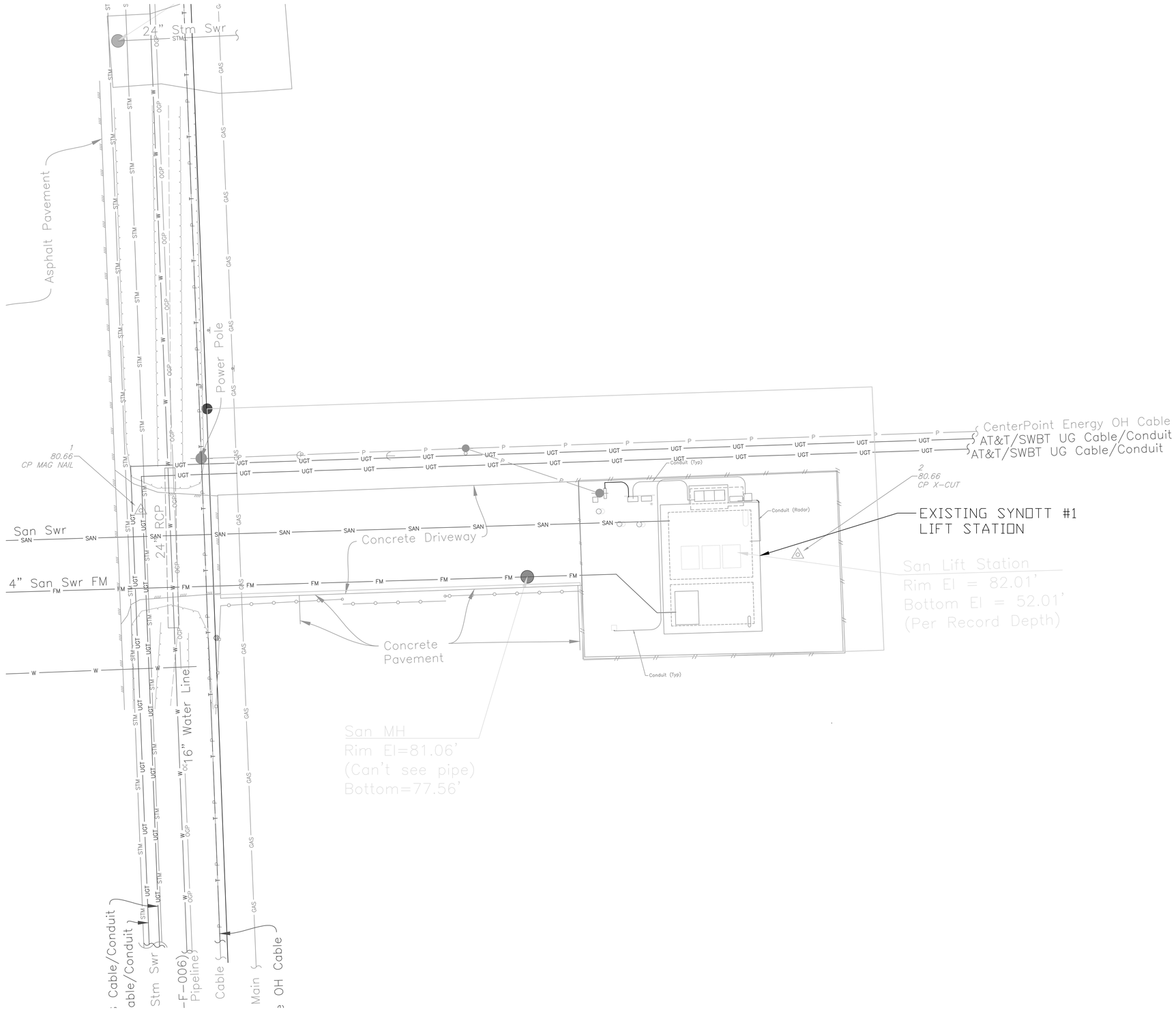

0 10 20 Feet

F1C42

N

NOTE:

1. LS SITE IS NOT LOCATED IN THE 100 YEAR FLOODPLAIN, IT IS IN THE 500 YEAR FLOODPLAIN

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD #1 LS
EXISTING TOPOGRAPHIC PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

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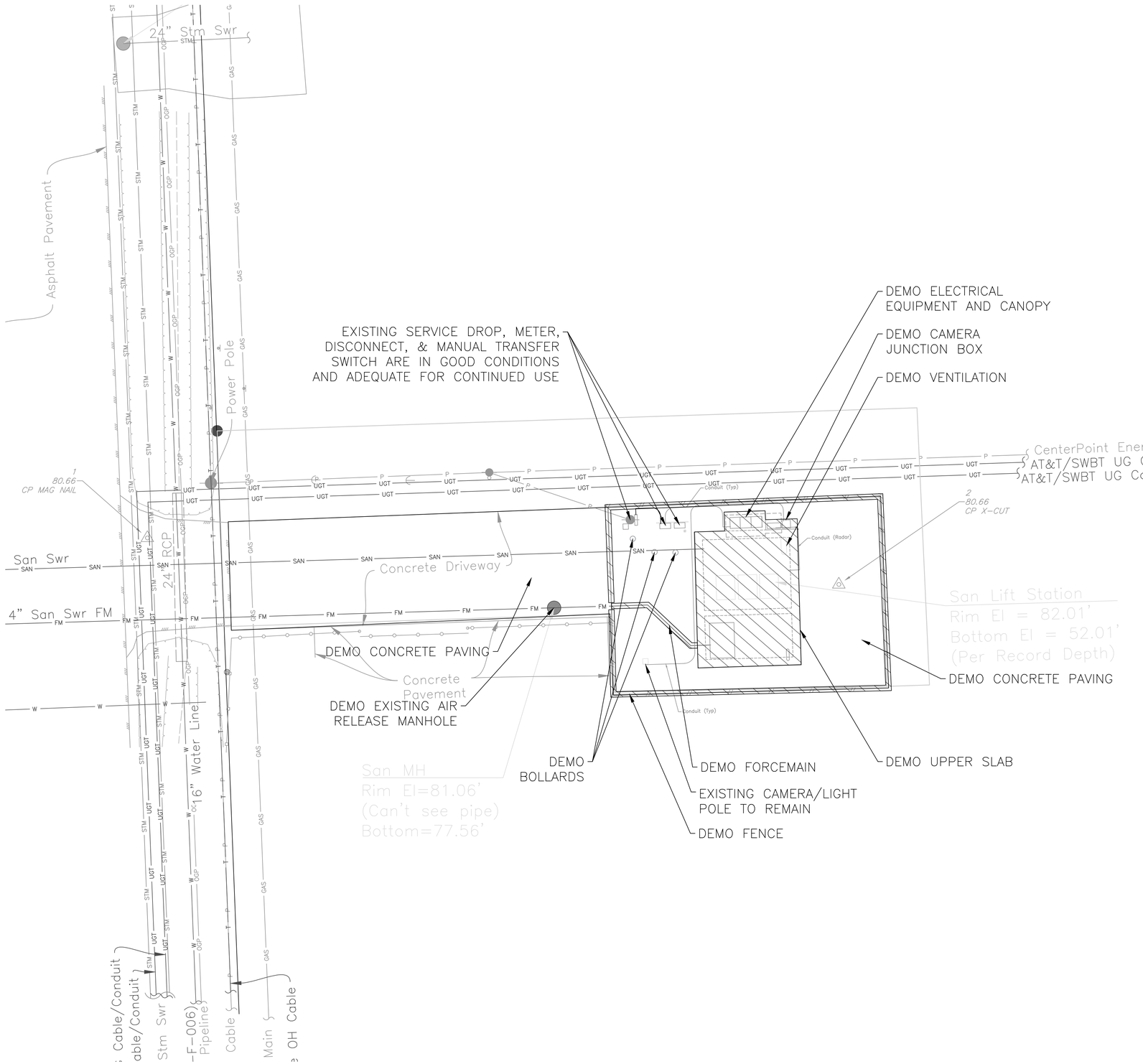

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0 10 20 Feet

F1C43

NO.	DATE	REVISION	APP.
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX
	MM/DD/YY	BRIEF DESCRIPTION	XXX

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VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

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Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: LARRY LINGUIST
P.E No. 118136,
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD #1 LS
DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

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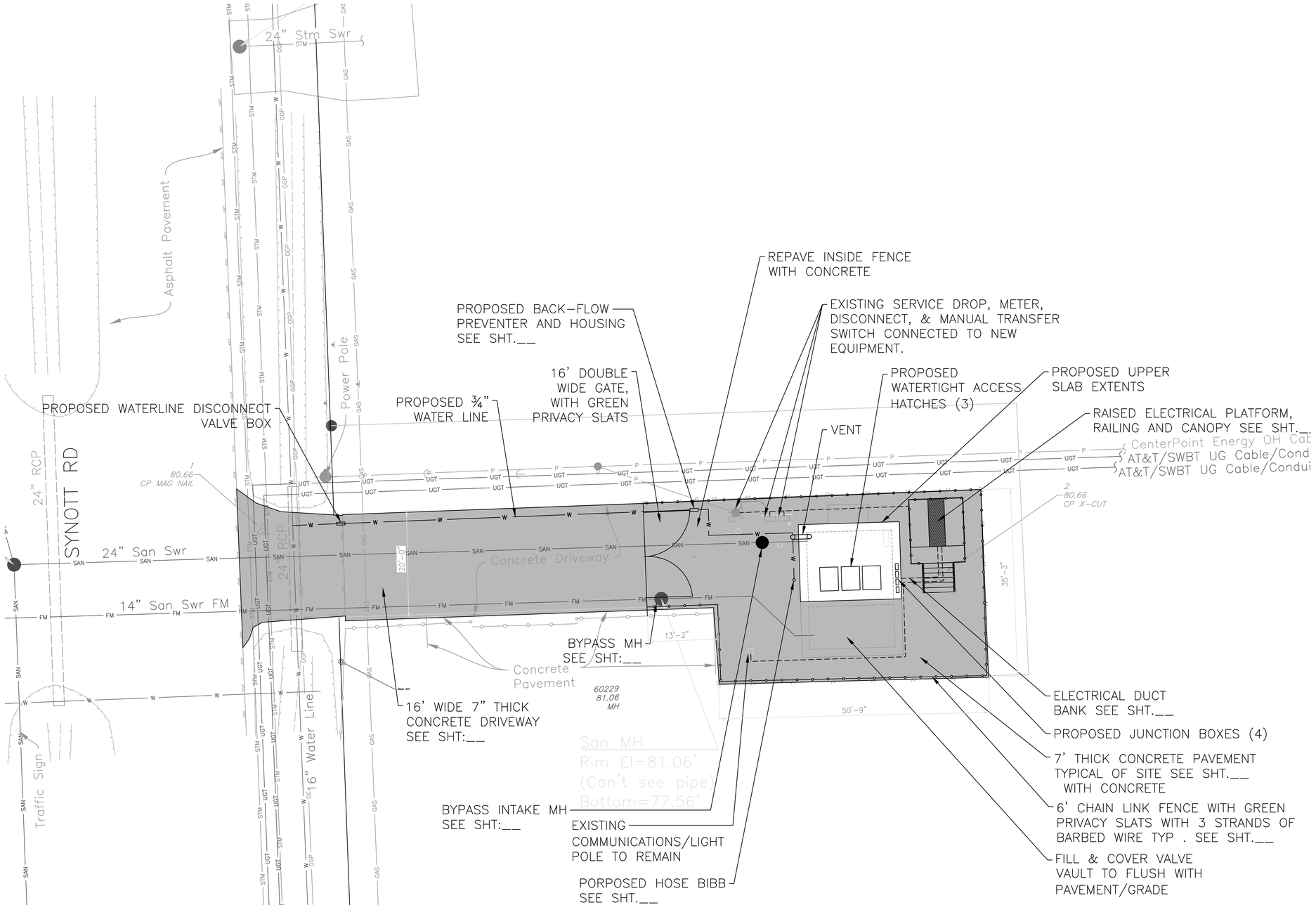
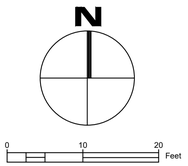




NO.	DATE	REVISION	APP.
A	06/23/25	INTERNAL REVISION	LLL

LEGEND :

PROPOSED FENCE LINE

PROPOSED CONCRETE PAVING EXTENTS

NOTES:

FLOODPLAIN

1. LS SITE IS NOT WITHIN THE 100-YEAR FLOODPLAIN BUT IS WITHIN THE 500-YEAR FLOODPLAIN.

STORMWATER

1. SITE WORK PROPOSES NO ADDITIONAL IMPERVIOUS SURFACE.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

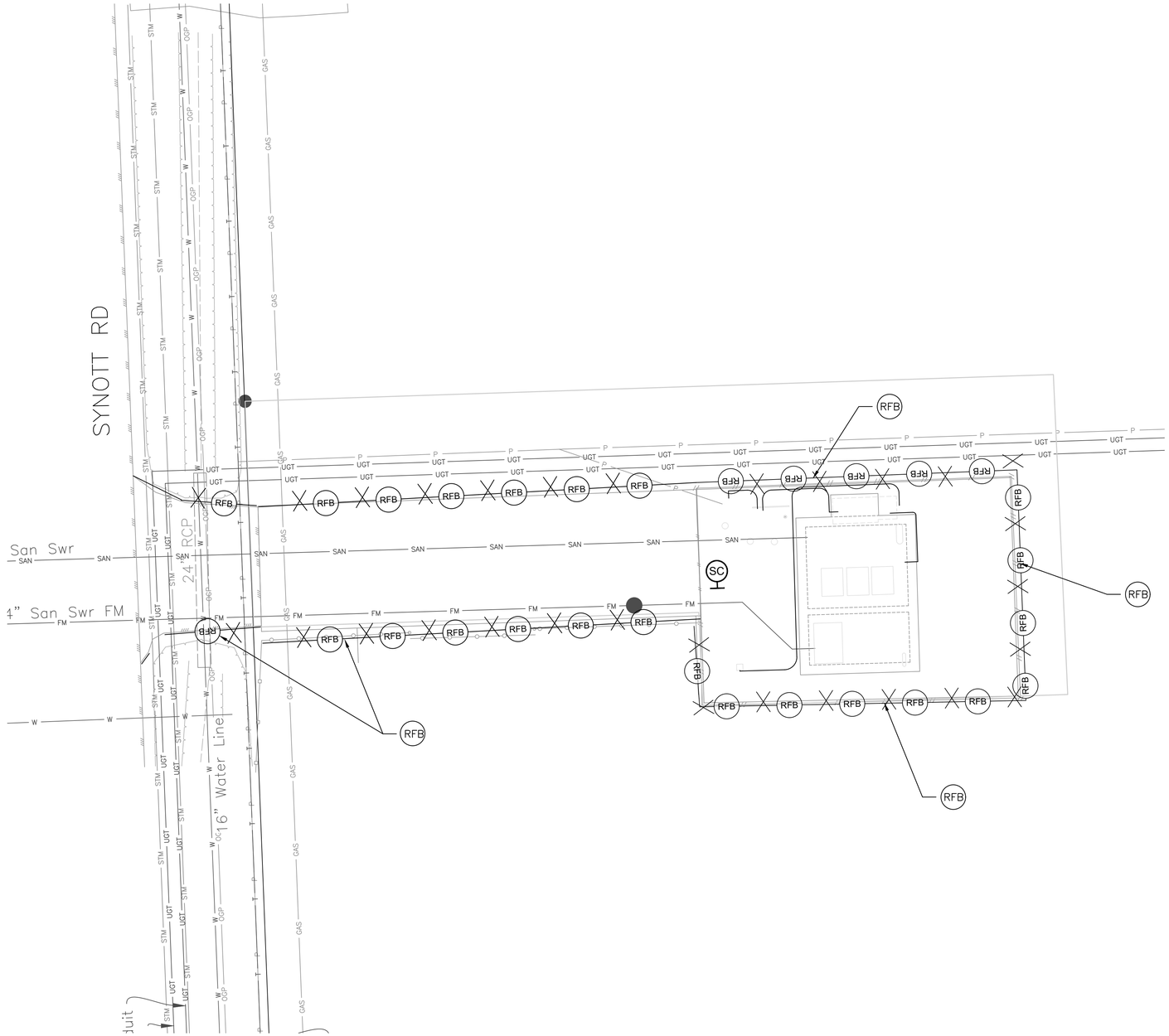
SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

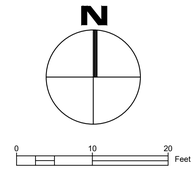
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS PROPOSED SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1C44





NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

LEGEND :

RFB — REINFORCED FILTER FABRIC BARRIER.

SC — STABILIZED CONSTRUCTION ACCESS

NOTES:

1. STORM WATER POLLUTION PLAN CONFORM TO SPECIFICATIONS AND DRAWINGS.
2. ALL DISTURBED AREAS THAT ARE NOT PAVED OR COVERED BY STRUCTURE SHALL BE SODDED OR HYDROMUCH SEEDED.
3. CONTRACTOR'S LAY DOWN/STORAGE AREA SHALL HAVE A STABILIZED CONSTRUCTION EXIT.
4. SEE SHEET SW3P–7 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
5. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
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HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS
SWPPP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1C45

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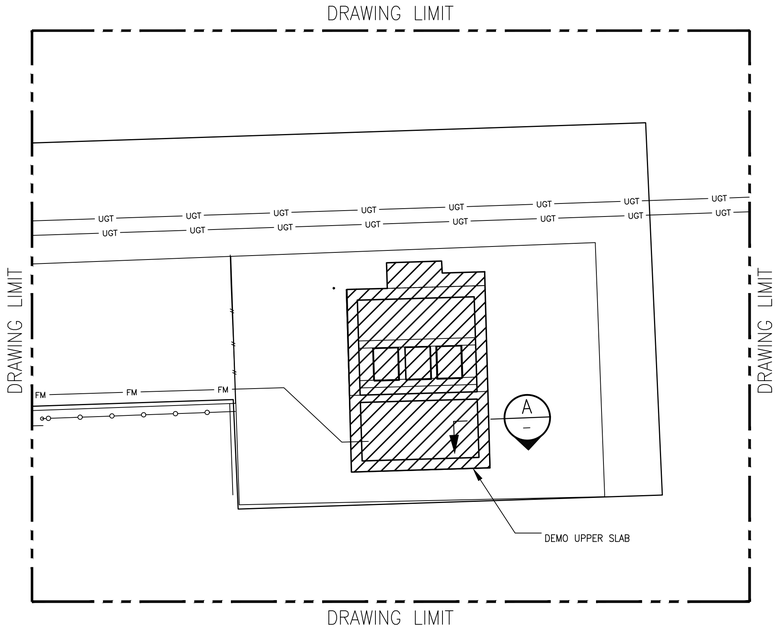
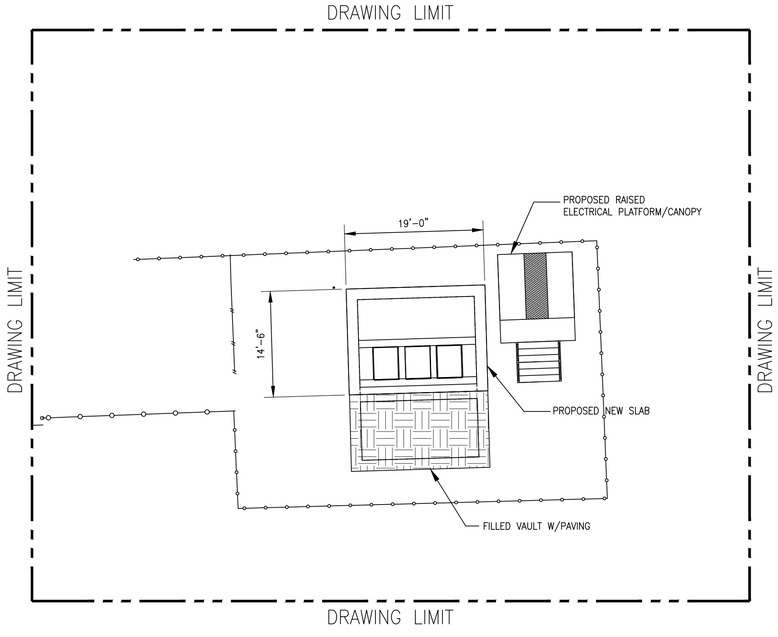
PLOT STYLE: Monochrome.ctb PLOTTED: 10/29/2025 3:00 AM



DEMO PLAN
LIFT STATION FOUNDATION



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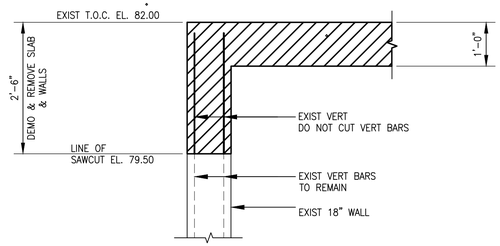
LIFT STATION FOUNDATION



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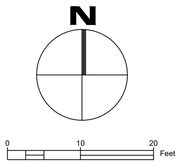

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. LS
DEMO. & CONST PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
F1S41 SHEET NO. OF 246	

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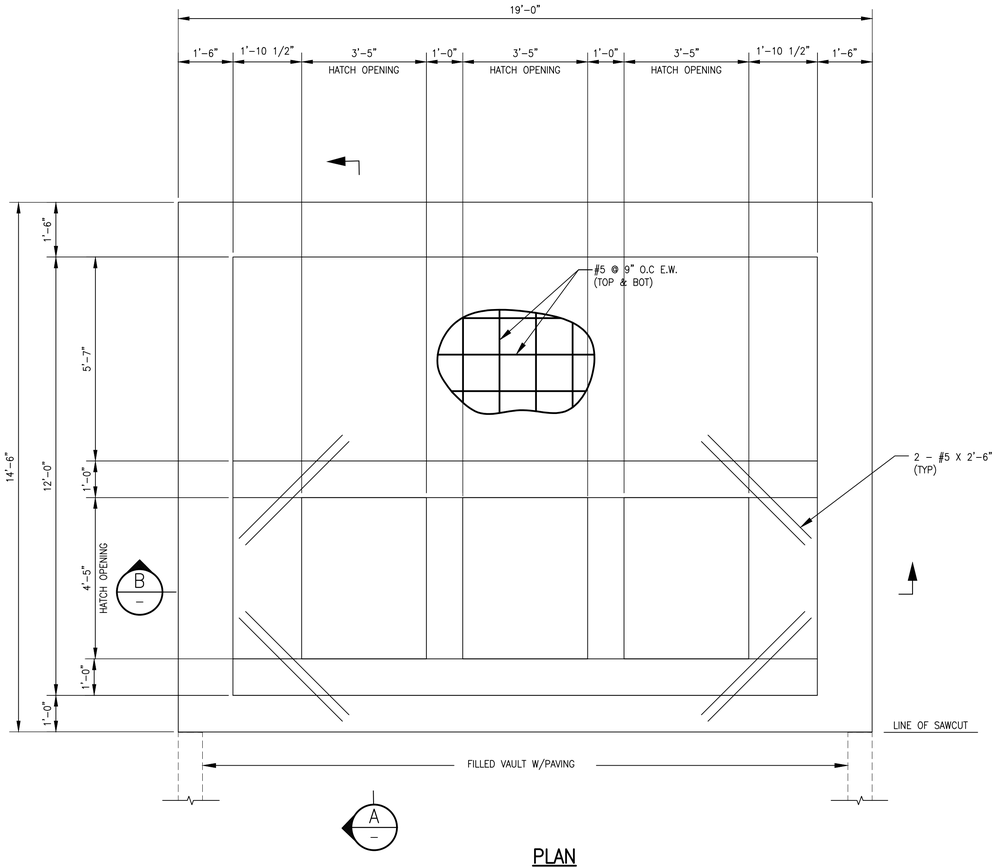
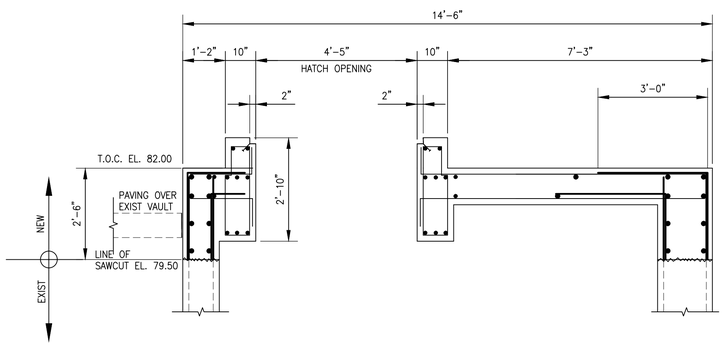


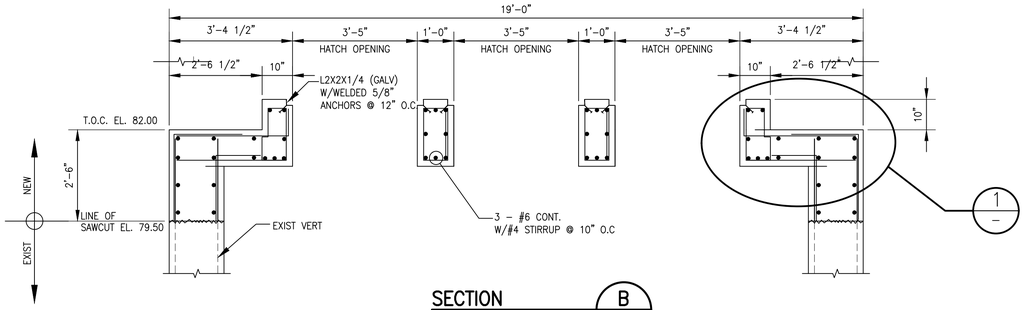
PLAN
LIFT STATION FOUNDATION
SCALE: 1/2" = 1'-0"



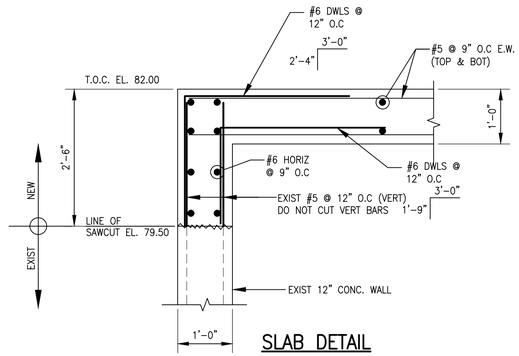
SECTION A
SCALE: 1/2" = 1'-0"

NOTE:

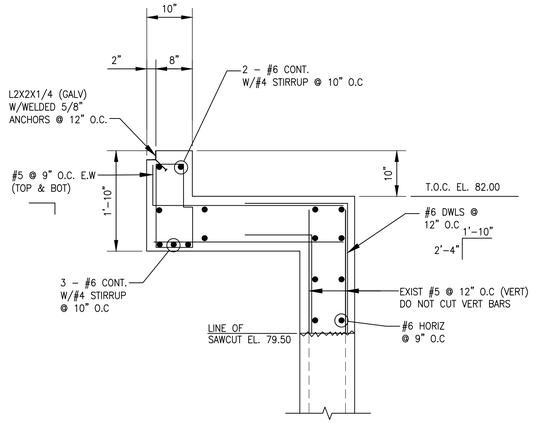
1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. REFER TO MECHANICAL/VENDOR DRAWINGS FOR WATERPROOF HATCHES/MANHOLES



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



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



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

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD #1 LS
PLAN,SECTIONS & DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

F1S42 SHEET NO. OF 246

PLOTTED: 10/29/2025 3:01 AM
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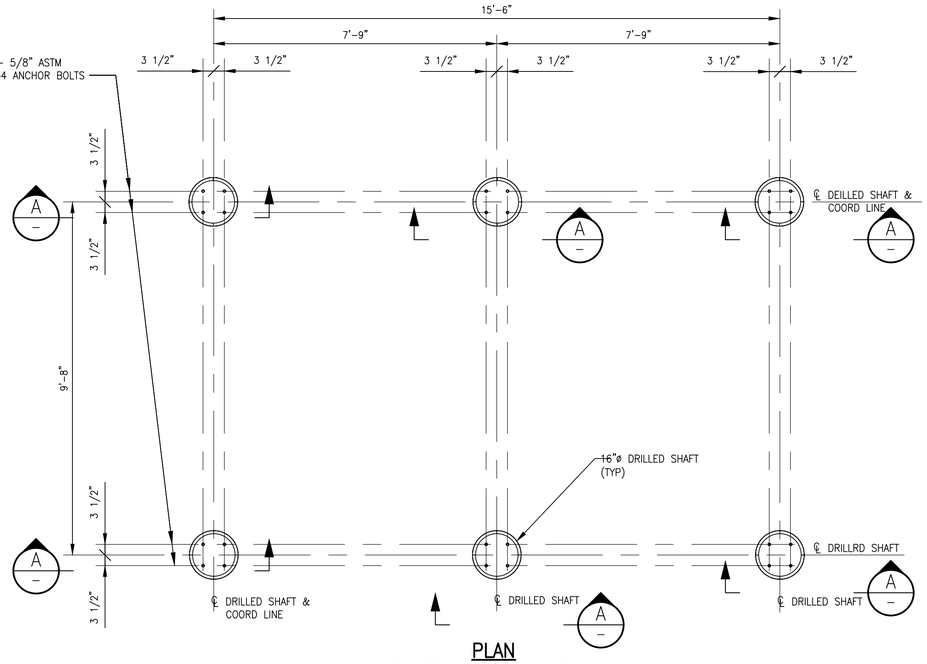
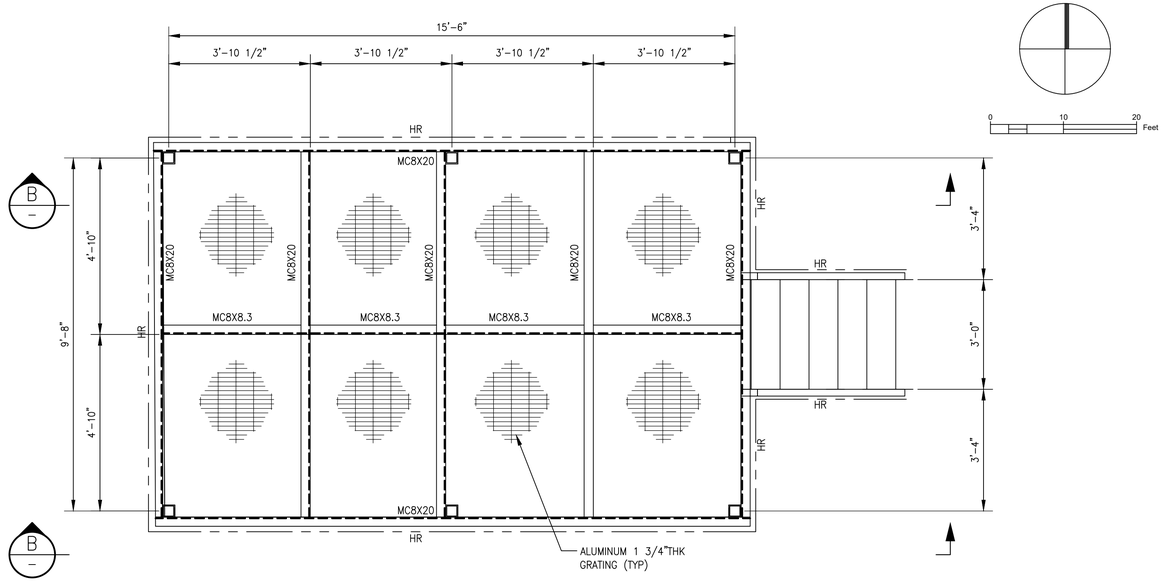
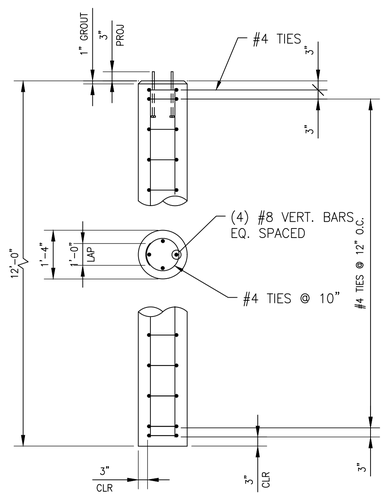


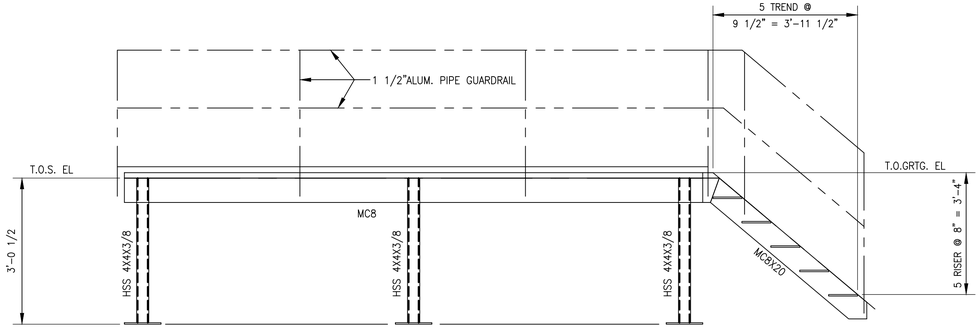
PLAN
PLATFORM FOUNDATION
SCALE: 1/2" = 1'-0"



PLAN
PLATFORM FRAMING
SCALE: 1/2" = 1'-0"



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



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

NOTE:

1. REFER TO SHEET S-1 FOR STRUCTURAL GENERAL NOTES
2. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL DIMENSION W/MEP & CIVIL PLANS PRIOR TO BIDDING WORK.
3. REFER COH STD PLATFORM DETAILS FOR ADDITIONAL REQUIMENTS

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	LL

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: CHARLES C.A. MGBEIKE
P.E. SERIAL No.: 73307
10 / 30 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. LS
ELEVA. ELEC. CAB PLTF.
PLANS & SECTIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
F1S43 SHEET NO. OF 246	

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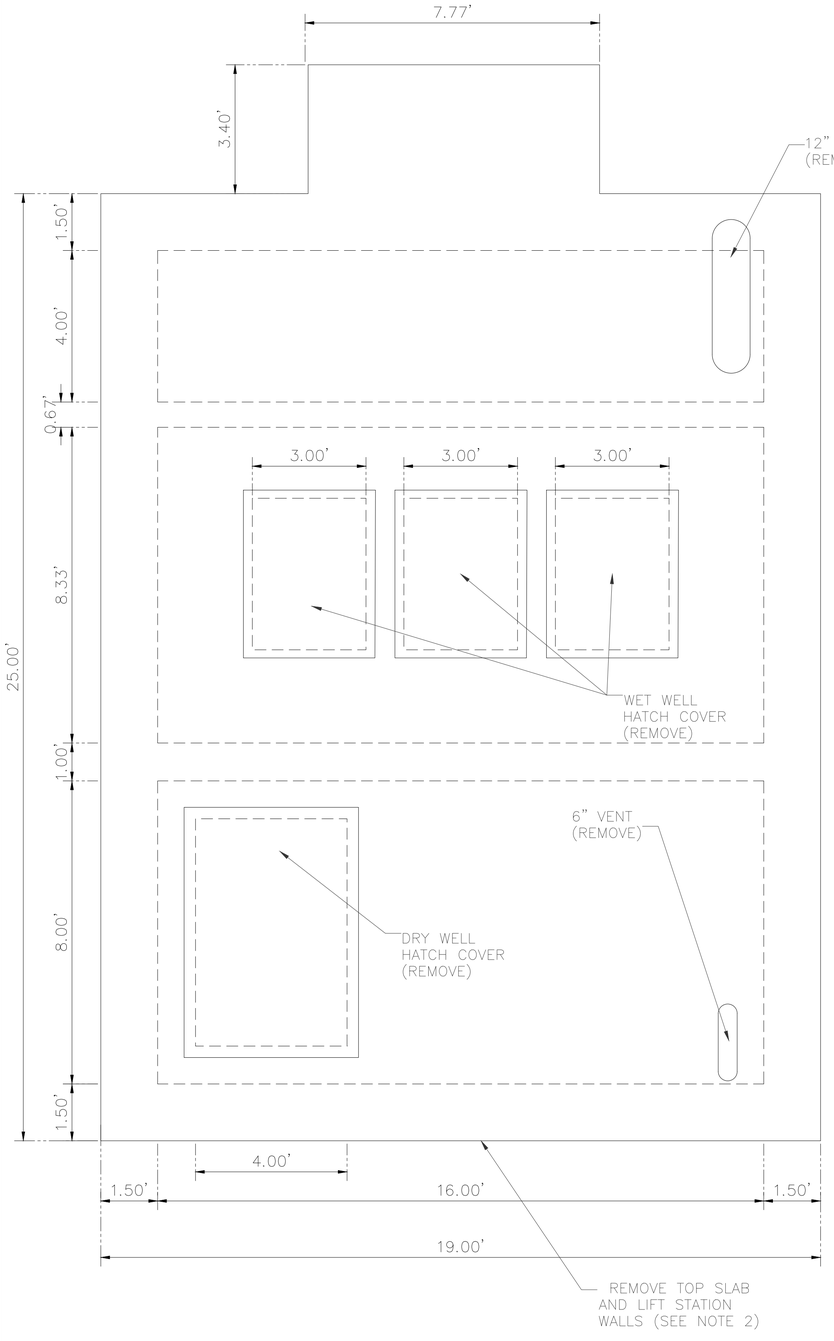
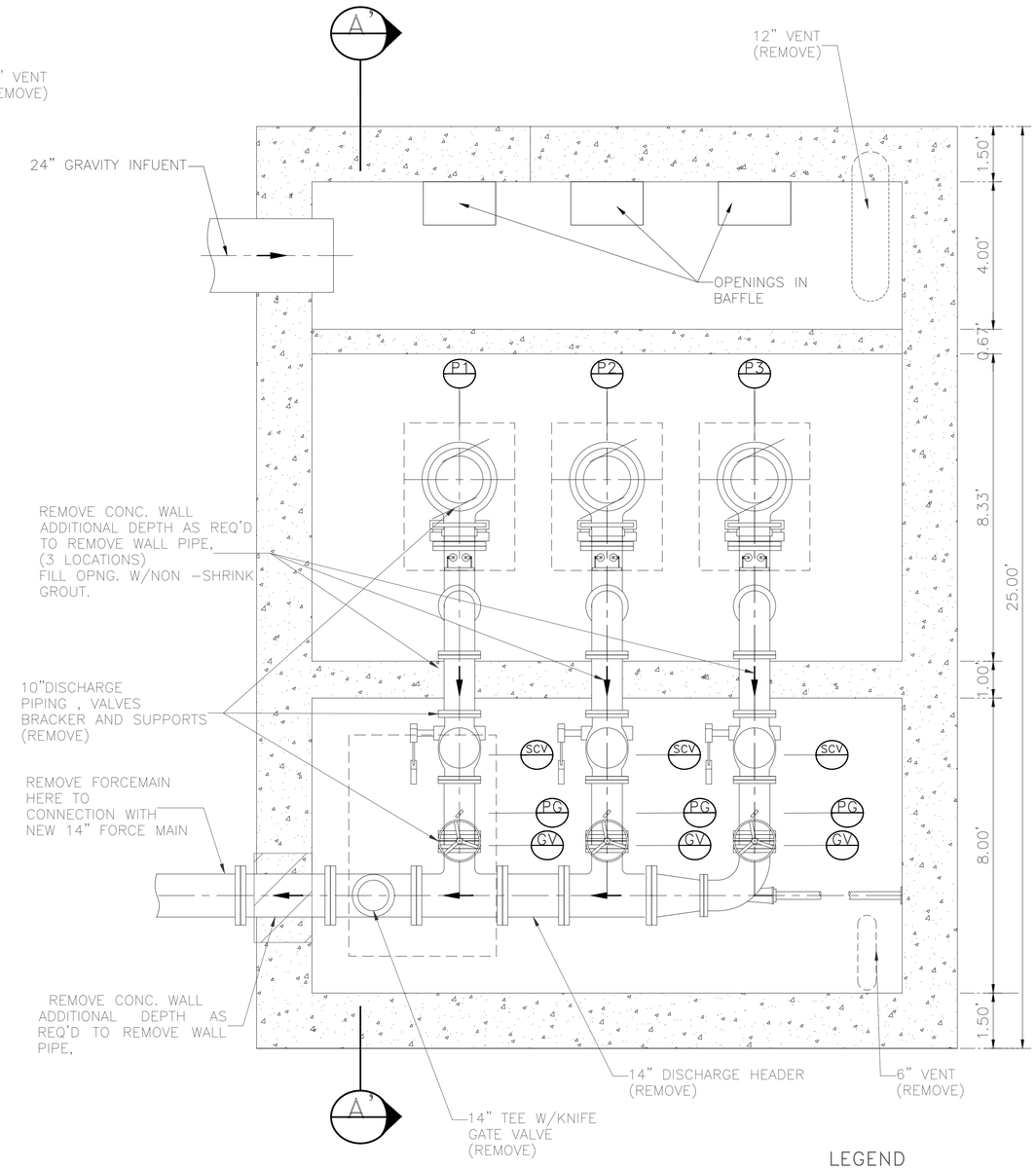


SURFACE PLAN VIEW



SECTION PLAN VIEW

LEGEND

- SCV — SWING CHECK VALVE (REMOVE)
- GV — KNIFE GATE VALVE (REMOVE)
- PG — PRESSURE GAUGE (REMOVE)
- P1 — SUBMERSIBLE PUMP (REMOVE)
- P2 — SUBMERSIBLE PUMP (REMOVE)
- P3 — SUBMERSIBLE PUMP (REMOVE)

F1M41

DEMOLITION NOTES:

1. THIS DRAWING IS BASED ON AVAILABLE RECORDS AND FIELD OBSERVATIONS. THE CONTRACTOR SHALL SATISFY HIMSELF / HERSELF OF THE ACTUAL CONDITIONS EXISTING AT THE SITE. THIS DRAWING DEPICTS PRIMARY MECHANICAL FEATURES. NOT ALL FEATURES, INCLUDING ELECTRICAL ARE NECESSARILY DEPICTED HEREON. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EXISTING EQUIPMENT WITHIN THE EXISTING STRUCTURE AS A PRECURSOR TO CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
2. DEMOLISH AND REMOVE TOP AND SIDE WALLS OF LIFT STATION TO 4-FEET BELOW LIFT STATION TOP SLAB ELEVATION. STEEL IN WALLS TO REMAIN (WHERE POSSIBLE) AND BE USED TO DEVELOP REINFORCEMENT FOR NEW TOP SLAB (REFER TO STRUCTURAL DETAILS).
3. THE CONTRACTOR SHALL NOT PROCEED WITH DEMOLITION WORK UNTIL AUTHORIZED. LIFT STATION BYPASS PUMPING MUST BE IN PLACE WITH OPERATIONAL ADEQUACY CHECKED AND CONFIRMED BY THE CITY BEFORE PROCEEDING WITH DEMOLITION WORK.
4. THE CITY OF HOUSTON WASTEWATER OPERATIONS DIVISION SHALL BE CONTACTED A MINIMUM OF 72-HRS PRIOR TO DEMOLITION. THE CITY SHALL HAVE THE FIRST RIGHT OF REFUSAL OF ANY ELECTRICAL OR MECHANICAL EQUIPMENT REMOVED FROM THE STATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND LOADING ONTO CITY TRUCKS, ALL SALVAGED MATERIALS AND EQUIPMENT DESIRED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PREMIT(S) REQUIRED FOR DEMOLITION WORK.
6. ALL ITEMS DAMAGED OR REMOVED BY THE CONTRACTOR AND NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE CITY.
7. THE CONTRACTOR MAY DISCHARGE LIQUID WASTE AND WASHDOWN TO THE CITY WASTEWATER COLLECTION SYSTEM, HOWEVER; ALL DISCHARGES MUST BE COMPLIANT WITH THE CITY'S INDUSTRUAL WASTE ORDINANCE, CHAPTER 47, ARTICLE V. THE CONTRACTOR IS ADVISED THAT A PERMIT OR TEMPORARY DISCHARGE AUTHORIZATION MAY BE REQUIRED. CONTACT THE INDUSTRIAL WASTEWATER DIVISION AT (832) 395-5800. IN LIEU OF A DISCHARGE AUTHORIZATION, THE CONTRACTOR SHALL COLLECT AND HAUL, AT CONTRACTOR EXPENSE, ALL NON-SOLID DISCHARGES TO AN APPROVED CITY FACILITY.
8. REFER TO STRUCTURAL AND ELECTRICAL DEMOLITION DRAWINGS FOR INFORMATION RELATED TO THOSE SPECIFIC ACTIVITIES.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

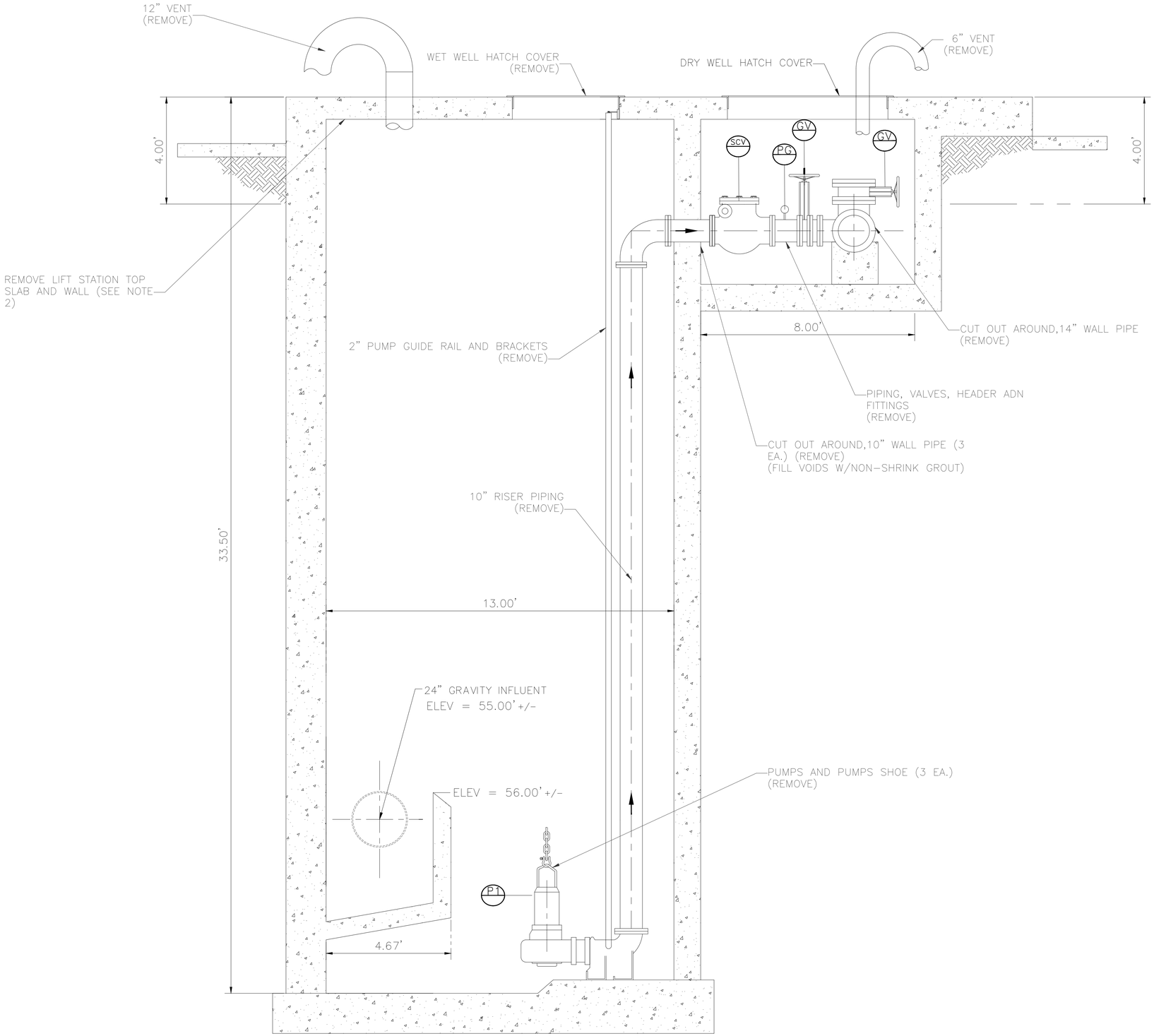
SYNOTT RD #1. LIFT STATION
SURFACE & SECTION PLAN VIEW
MECHANICAL DEMOLITION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

FILE NAME:
PLOTTED ON:

P:\Cont\2024\24013 - Hatch - COH FY26 LIft Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLAN\3-SYNOTT RD #1\LS-SYNOTT RD #1 10 2025.dwg



SECTION A'-A'

LEGEND

- SCV — SWING CHECK VALVE (REMOVE)
- GV — KNIFE GATE VALVE (REMOVE)
- PG — PRESSURE GAUGE (REMOVE)
- P1 — SUBMERSIBLE PUMP (REMOVE)
- P2 — SUBMERSIBLE PUMP (REMOVE)
- P3 — SUBMERSIBLE PUMP (REMOVE)

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

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750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD #1. LIFT STATION
STATION SECTION VIEW
MECHANICAL DEMOLITION

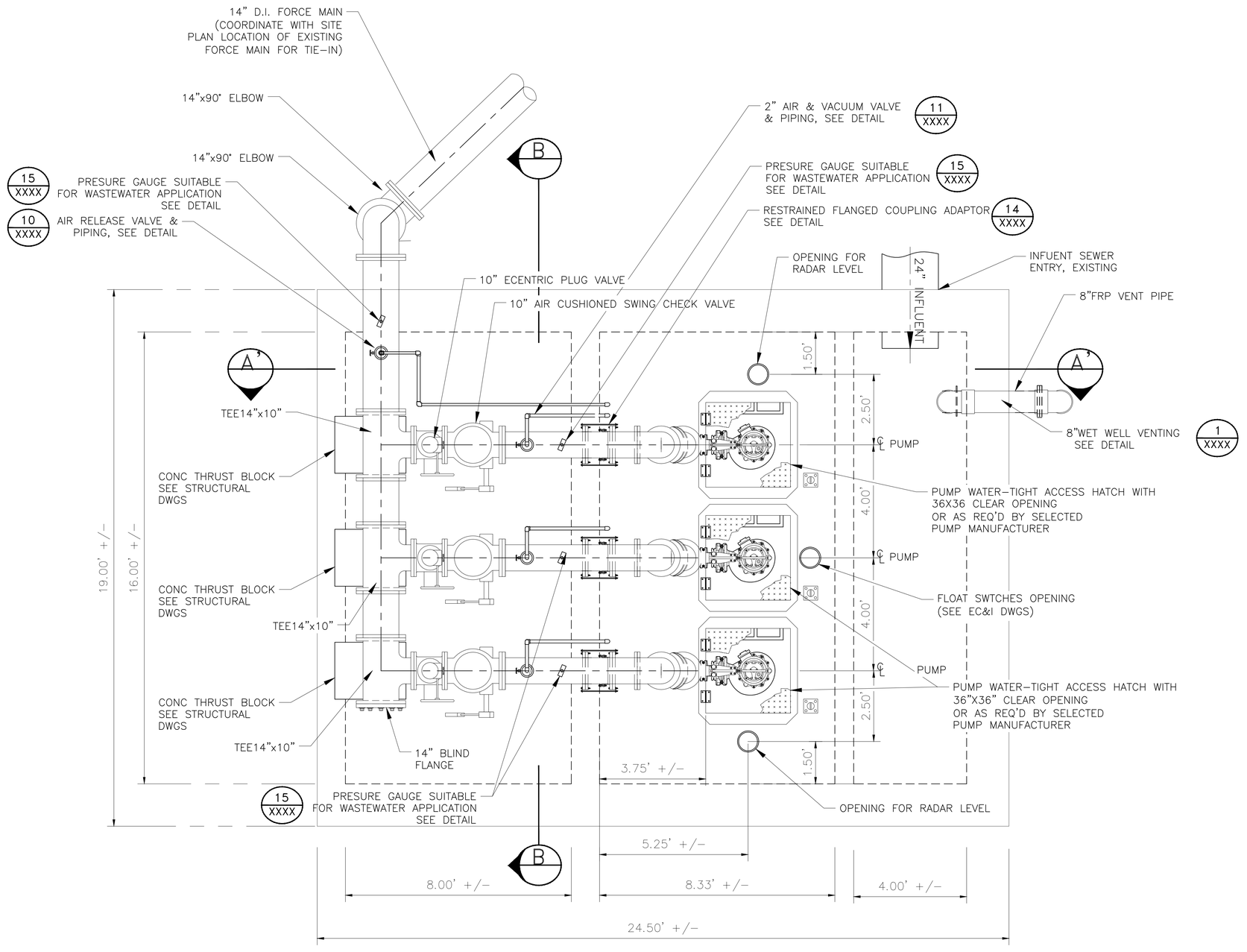
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-4	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
SHEET NO. OF 246	

F1M42

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cost\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\LIFT STATIONS MECHANICAL DEMOLITION PLAN\3-SYNOTT RD #1\LS-SYNOTT RD #1 10 2025.dwg



PLAN VIEW – GRADE

NO.	DATE	REVISION	APP.

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE; NOT INTENDED FOR PERMIT, BIDDING, OR CONSTRUCTION

DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD #1.
PLAN VIEW/GRADE

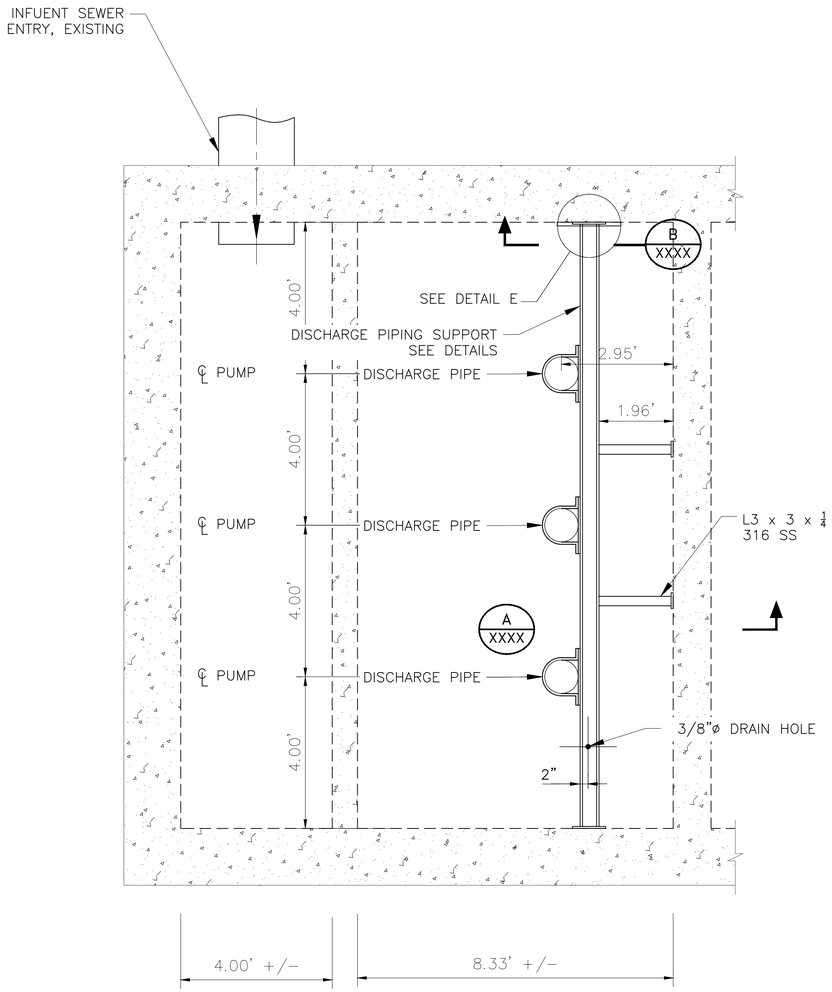
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M43 | SHEET NO. OF 246

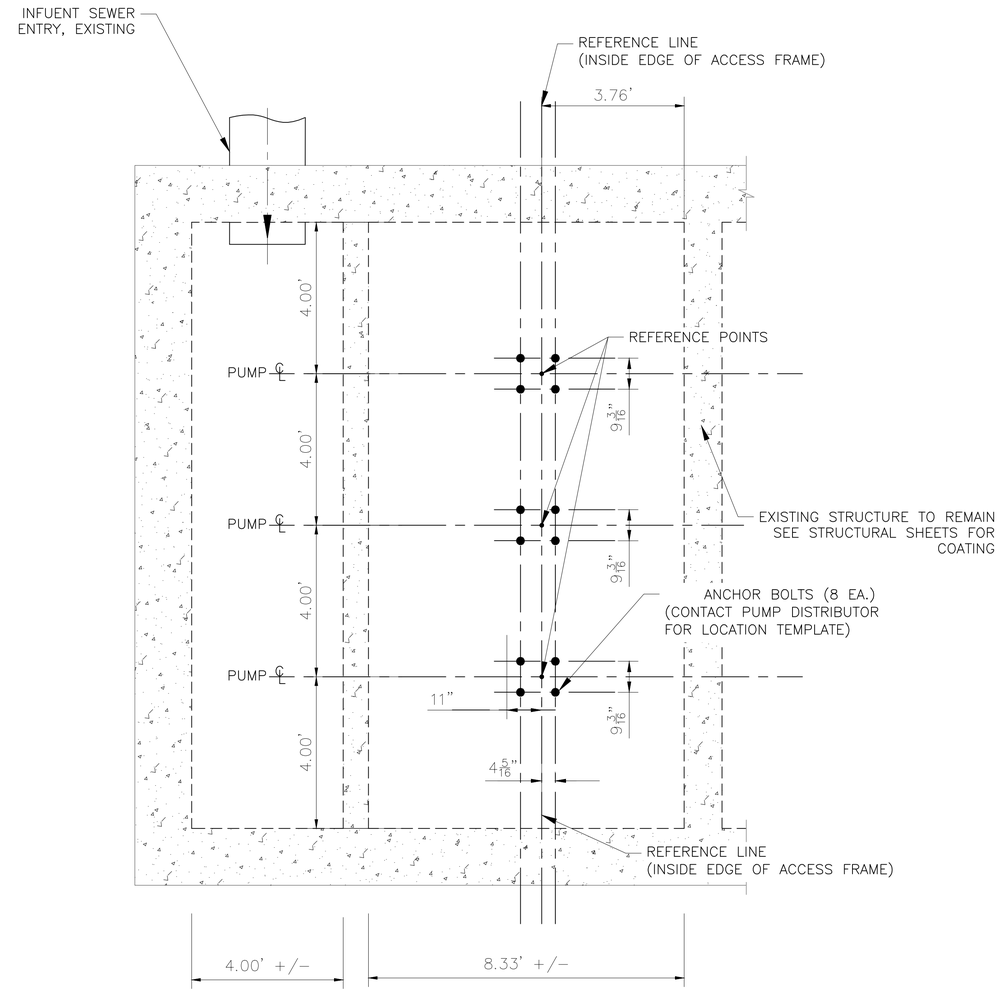
FILE NAME:
PLOTTED ON:

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

P:\Cond\2024\24013 - Hatch - COH FY26 Lift Stations\CAD_DWG\Phase II\3-Phase II SYNOTT\PHASE II_S-SYNOTT RD #1.dwg



DISCHARGE PIPING SUPPORT



BASE SECTION

NOTES:

1. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS.
4. PUMP AND ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN THE CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
5. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
6. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE OF THE WET WELL.
7. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
8. INSTALL 10" CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSE POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
9. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
10. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH.
11. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

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FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD #1.
TOP VIEW/BASE SECTION

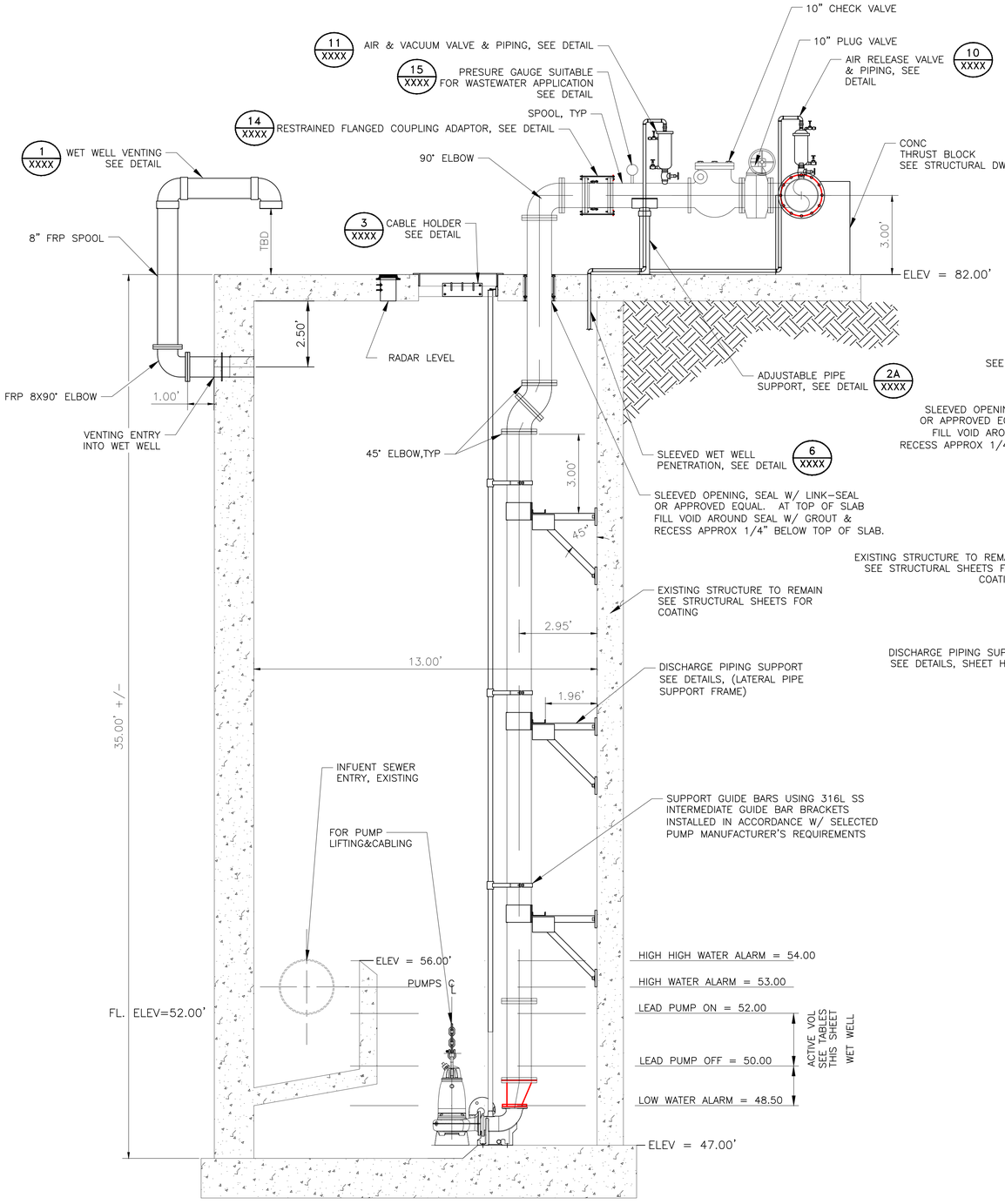
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M44 | SHEET NO. OF 246

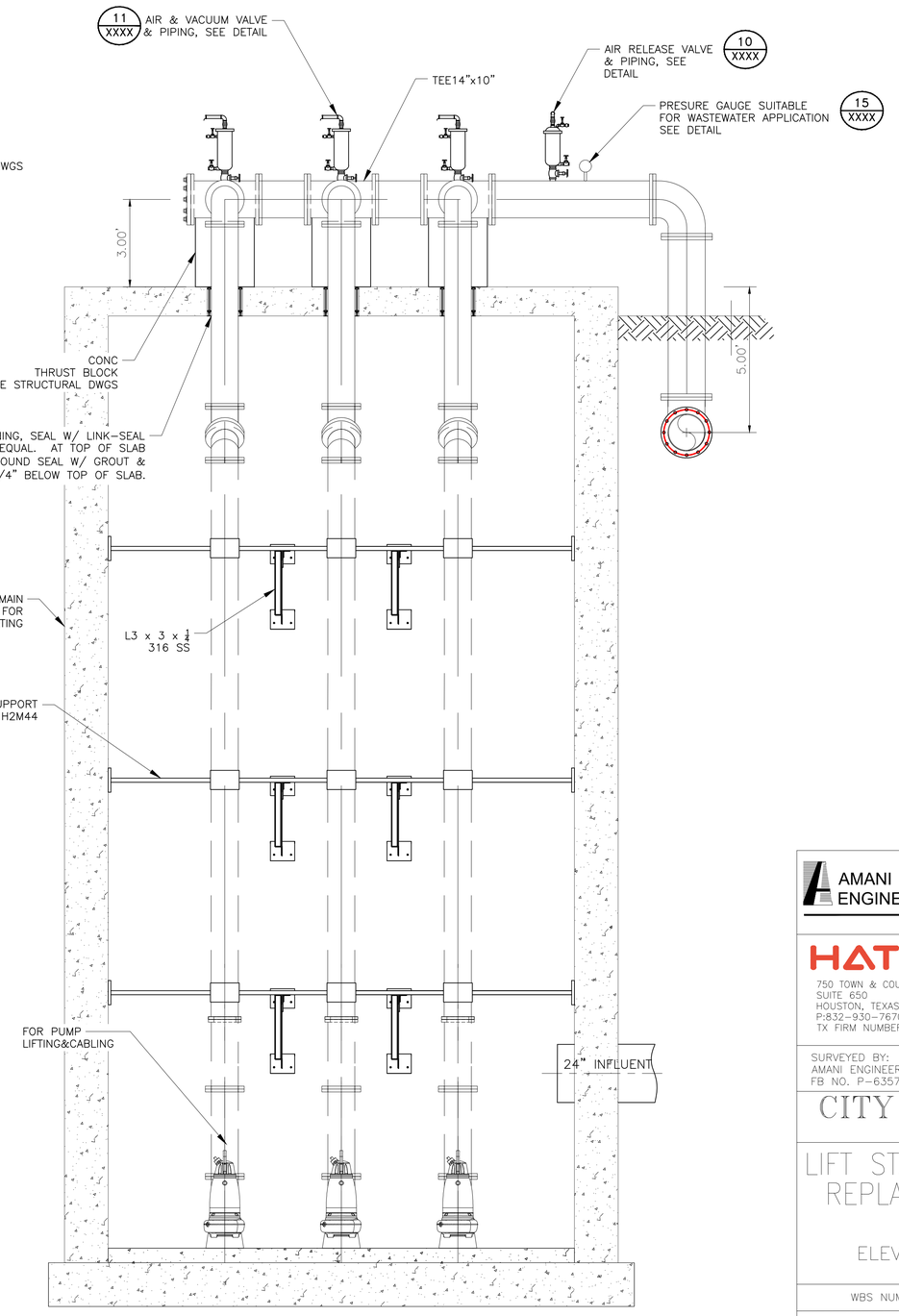
FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cordt\2024\24013 - Hatch - COH FY26 Lift Stations\CAD_DWG\Phase II\3-Phase II SYNOTT PHASE II LS-SYNOTT RD #1.dwg



SECTION A-A



SECTION B-B

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD #1.
ELEVATION SECTION A-A

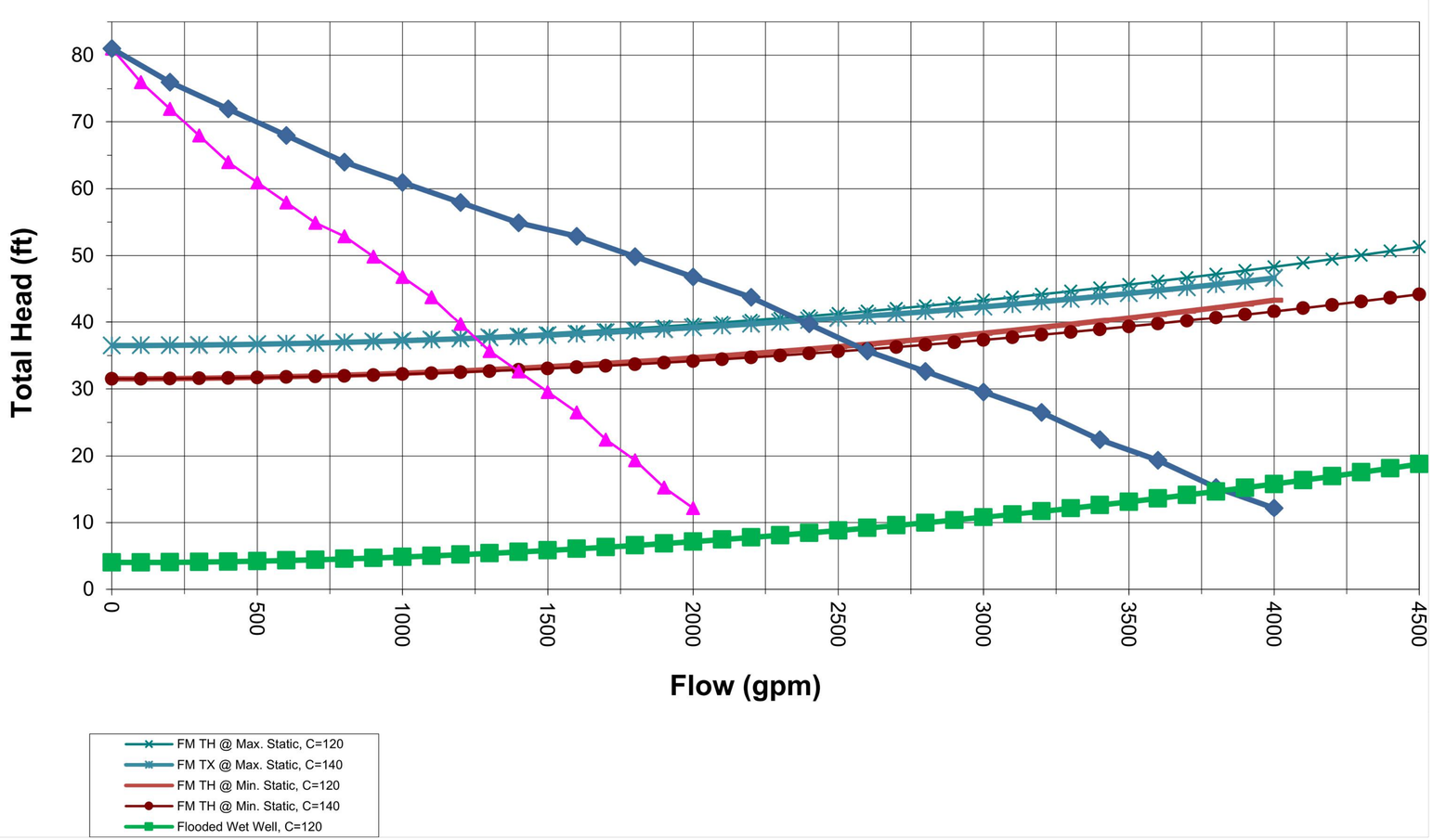
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=50'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M45 | SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cond\2024\24013 - Hatch - COH FY26 Lift Stations\CAD_DWG\Phase II\3-Phase II SYNOTT\PHASE II_IS-SYNOTT RD #1.dwg



PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3
MOTOR DATA NOMINAL SIZE (HP) MAX SPEED (RPM)	 20 1755	 20 1755	 20 1755
SOLIDS PASSAGE MIN SPHERE (IN)	 3	 3	 3
CAPACITY (GPM) DESIGN RUNOUT	 1390 1870	 1390 1870	 1390 1870
DISCHARGE HEAD (FT) DESIGN RUNOUT SHUT OFF	 33 18 81	 33 18 81	 33 18 81
EFFICIENCY (%) DESIGN	 72.3	 72.3	 72.3
NPSHR (FT) DESIGN RUNOUT	 22.4 32.8	 22.4 32.8	 22.4 32.8

STATION OPERATION TABLES

RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
50.00	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
52.00	LEAD PUMP TURNS ON	LEAD PUMP ON
53.00	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
52.75	HIGH WATER LEVEL ALARM OFF	LEAD PUMP ON
50.00	LEAD PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
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FB NO. P-6357

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DAVID L. BROWN
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48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

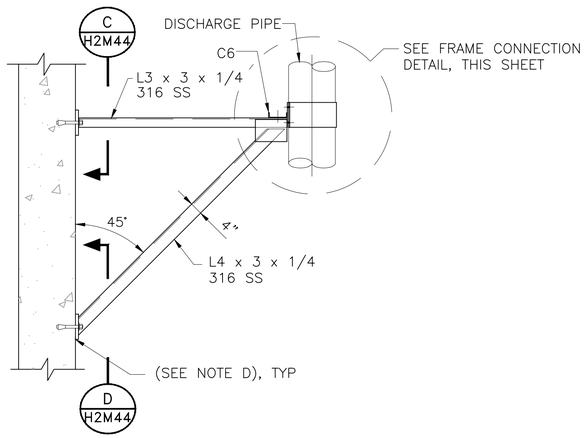
SYNOTT RD #1.
PUMP CURVE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	
F1M46	SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

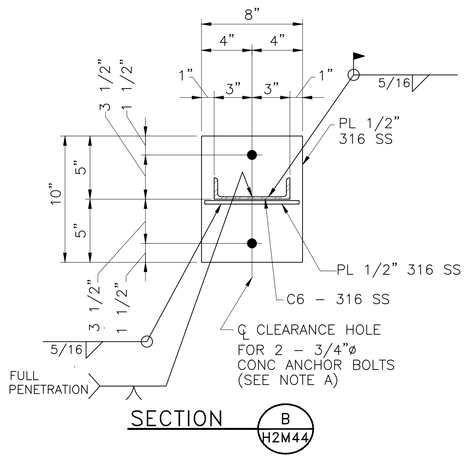
0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Civil\2024\24013 - Hatch - COH FY26 Lift Stations\CAD_DWG\Phase II\3-Phase II SYNOTT\PHASE II LS-SYNOTT RD #1.dwg

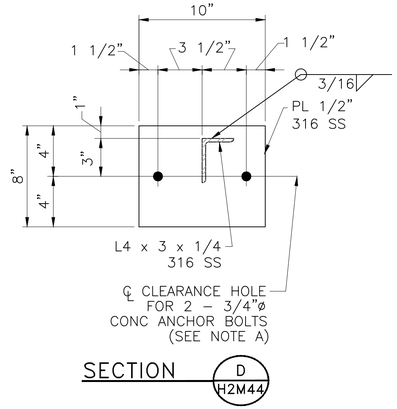


TYP LATERAL PIPE SUPPORT FRAME

SECTION A H2M44



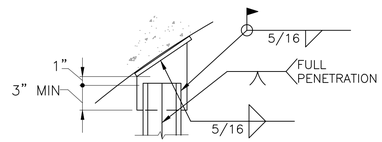
SECTION B H2M44



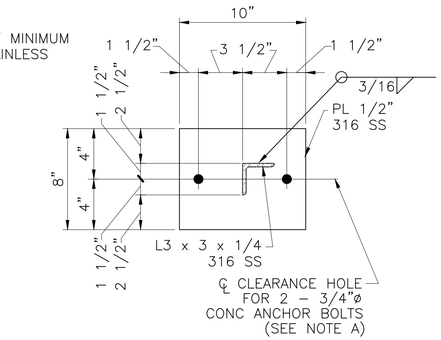
SECTION D H2M44

NOTE:

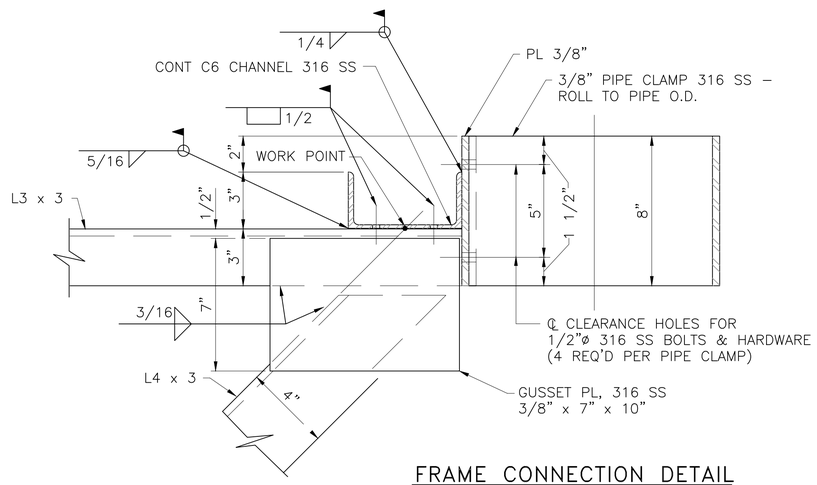
1.1 CONCRETE ANCHOR BOLTS SHALL HAVE 6" MINIMUM EMBEDMENT AND SHALL BE TYPE 316 STAINLESS STEEL, PER SPECIFICATIONS.



DETAIL E



SECTION C H2M44



FRAME CONNECTION DETAIL

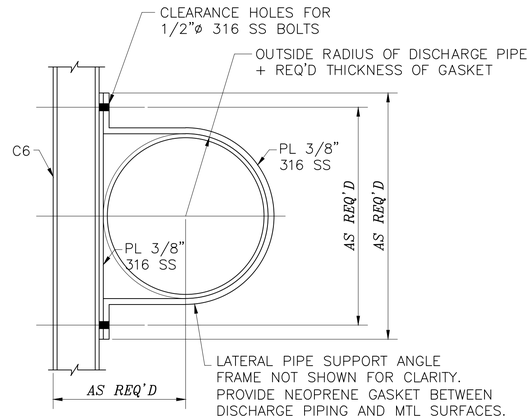
NOTES:

A. CONCRETE ANCHOR BOLTS SHALL HAVE 6" MINIMUM EMBEDMENT AND SHALL BE TYPE 316 STAINLESS STEEL, PER SPECIFICATIONS.

B. SEE STATION AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.

C. DRILL 3/8"ø HOLES, 1" OFF C OF C6 AT MIDSPAN BETWEEN LATERAL PIPE SUPPORTS TO ALLOW FOR DRAINAGE. 3 HOLES PER CHANNEL WHERE 2 LATERAL SUPPORTS REQUIRED; 2 HOLES PER CHANNEL WHERE 1 LATERAL SUPPORT REQUIRED.

D. SET 1/4" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.



PIPE CLAMP DETAIL

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD #1.
TYPICAL DATAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

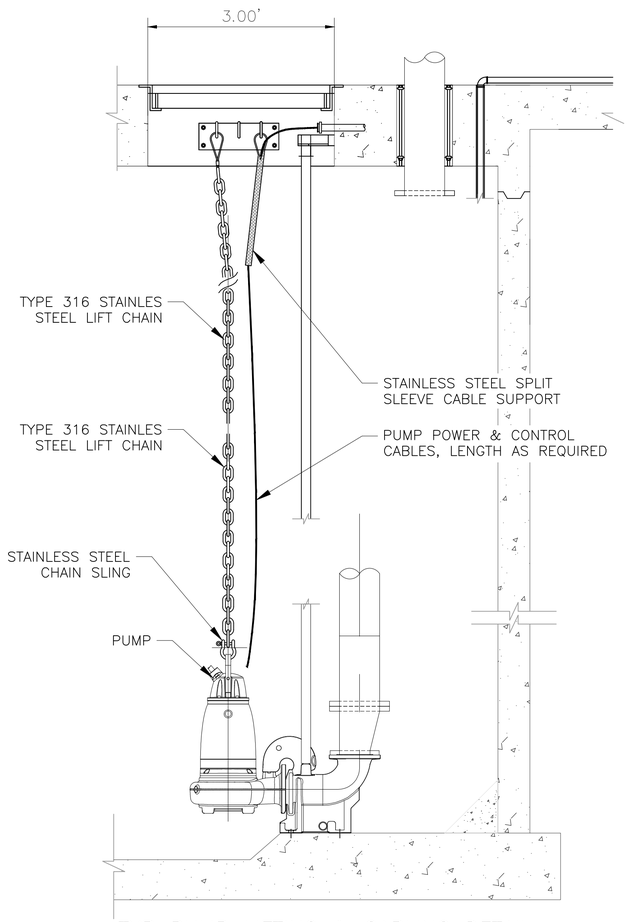
F1M47

SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

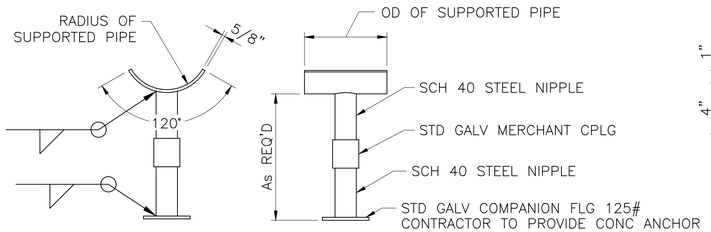
ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS
0 1 2 3

P:\Cody\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\3-Phase II SYNOTT\PHASE II LS-SYNOTT RD #1.dwg



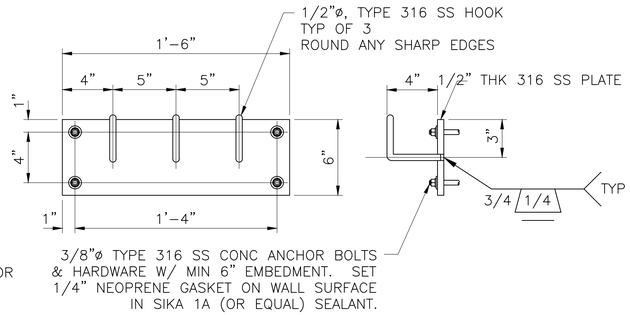
TYP PUMP LIFTING & CABLING DETAIL

3 / H2M45 DETAIL



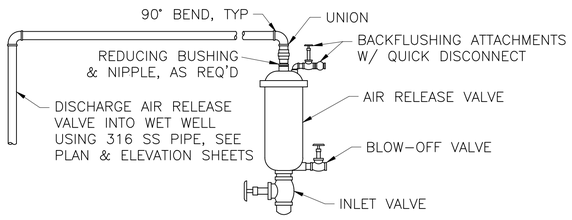
TYP ADJUSTABLE PIPE SUPPORT

DETAIL 2A / H2M45



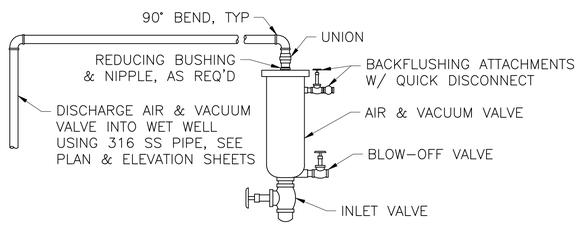
TYPICAL CABLE HOLDER ASSY

DETAIL 3 / H2M45



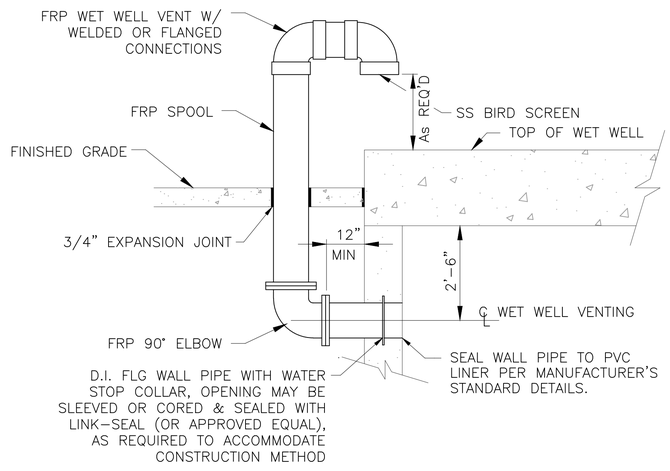
TYPICAL AIR RELEASE VALVE ASSY

DETAIL 10 / H2M45



TYPICAL AIR & VACUUM VALVE ASSY

DETAIL 11 / H2M45



TYPICAL HIGH PROFILE
WET WELL VENTING INSTALLATION

DETAIL 1 / H2M45

NO.	DATE	REVISION	APP.

AMANI ENGINEERING, INC.
11011 RICHMOND AVENUE
SUITE 700
HOUSTON, TEXAS 77024
TEL: (713) 270-5700
TBPE REG. NO. F-4528
TBPELS REG. NO. 1028200

HATCH
750 TOWN & COUNTRY BLVD.
SUITE 650
HOUSTON, TEXAS 77024
P:832-930-7670
TX FIRM NUMBER:F -10912

SURVEYED BY:
AMANI ENGINEERING,INC.
FB NO. P-6357

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DAVID L. BROWN
Engineer
48282
Registration Number
10/29/2025
Date

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD #1.
TYPICAL DATAILS

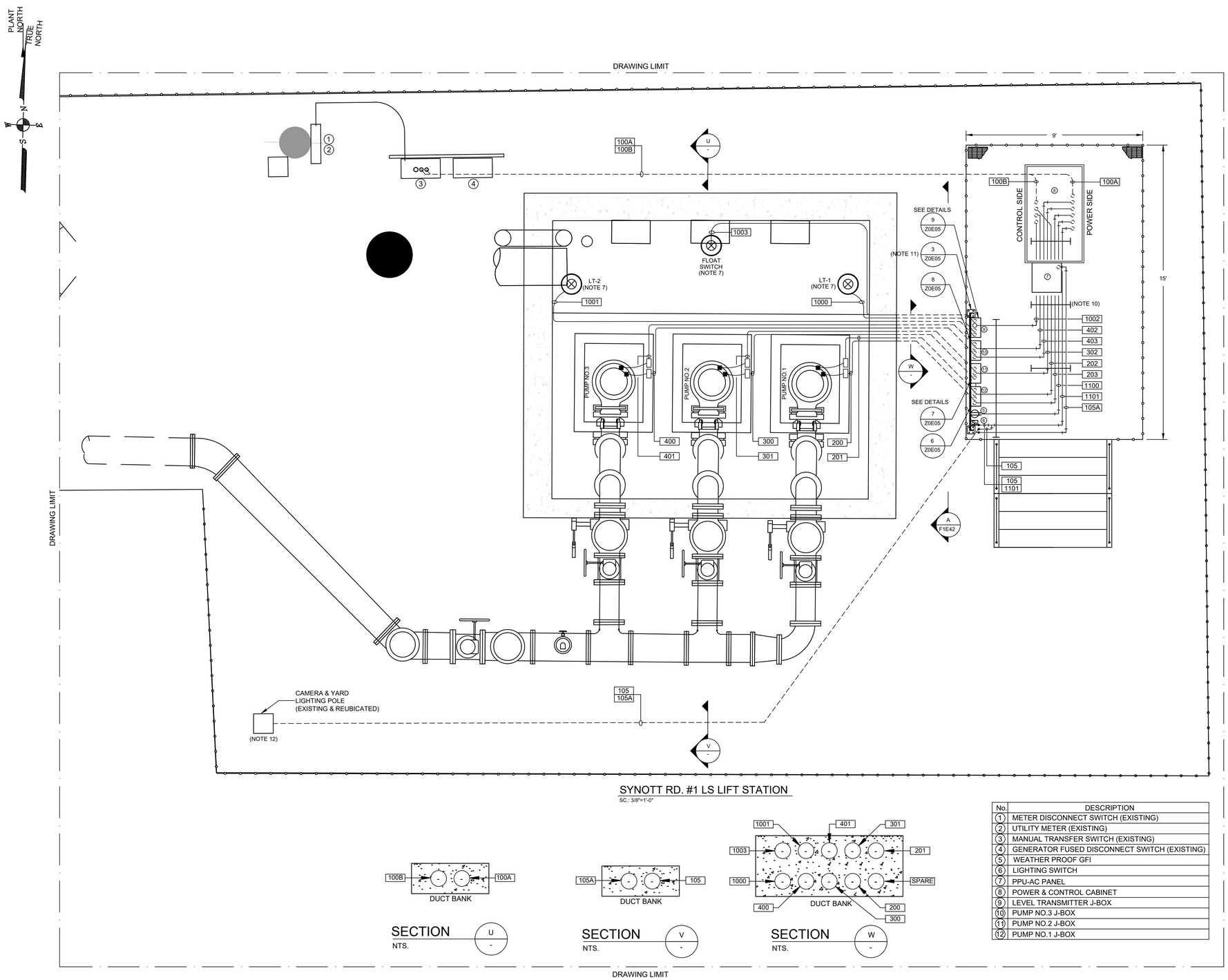
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
Scale 1"=40'	
CITY OF HOUSTON PM	
NUPUR KRISHNAN, PE	

F1M48 | SHEET NO. OF 246

FILE NAME:
PLOTTED ON:

0 1 2 3 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

P:\Cody\2024\24013 - Hatch - COH FY20 Lift Stations\CAD_DWG\Phase II\3-Phase II SYNOTT\PHASE II LS-SYNOTT RD #1.dwg



SYNOTT RD. #1 LS LIFT STATION

SC.: 3/8"=1'-0"

No.	DESCRIPTION
1	METER DISCONNECT SWITCH (EXISTING)
2	UTILITY METER (EXISTING)
3	MANUAL TRANSFER SWITCH (EXISTING)
4	GENERATOR FUSED DISCONNECT SWITCH (EXISTING)
5	WEATHER PROOF GFI
6	LIGHTING SWITCH
7	PPU-AC PANEL
8	POWER & CONTROL CABINET
9	LEVEL TRANSMITTER J-BOX
10	PUMP NO.3 J-BOX
11	PUMP NO.2 J-BOX
12	PUMP NO.1 J-BOX

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
3. WHERE JUNCTION BOXES ARE SHOWN, THEY SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. SPLICES WILL NOT BE ALLOWED EXCEPT AS PROVIDED BY NOTE 4 AND AT LIGHTING AND RECEPTACLE TERMINATIONS.
4. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO CONTROL BUILDING OR PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
7. LEVEL TRANSMITTERS AND FLOAT SWITCH SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL FIELD VERIFY.
8. INSIDE WET WELL IS CLASSIFIED AS CLASS I, DIVISION 1. OUTSIDE WET WELL WITHIN 5 FEET OF WET WELL OPENINGS ARE CLASSIFIED AS CLASS I, DIVISION 2.
9. NEW INSTRUMENT TO BE INSTALLED IN THE SAME AREA AS INSTRUMENT REMOVED.
10. CONDUITS INSTALLED UNDER THE PLATFORM AND FIXED TO UNISTRUT SUPPORT.
11. THE JUNCTION BOX RACK MUST BE AT LEAST 6' WIDE.
12. FOR LIGHT & COMMUNICATION POLE DETAILS, SEE DRAWING NO. Z0E07.

NO.	DATE	REVISION	APP.
A	09/16/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.

Signature valid for six months.

Date

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities – not to be used for conflict verification)

Signature valid for six months.

Date

Approved for AT&T underground conduit facilities only.
Signature valid for one year.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

ELECTRICAL SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E41

PLOTTED: 10/29/2025 7:53 AM
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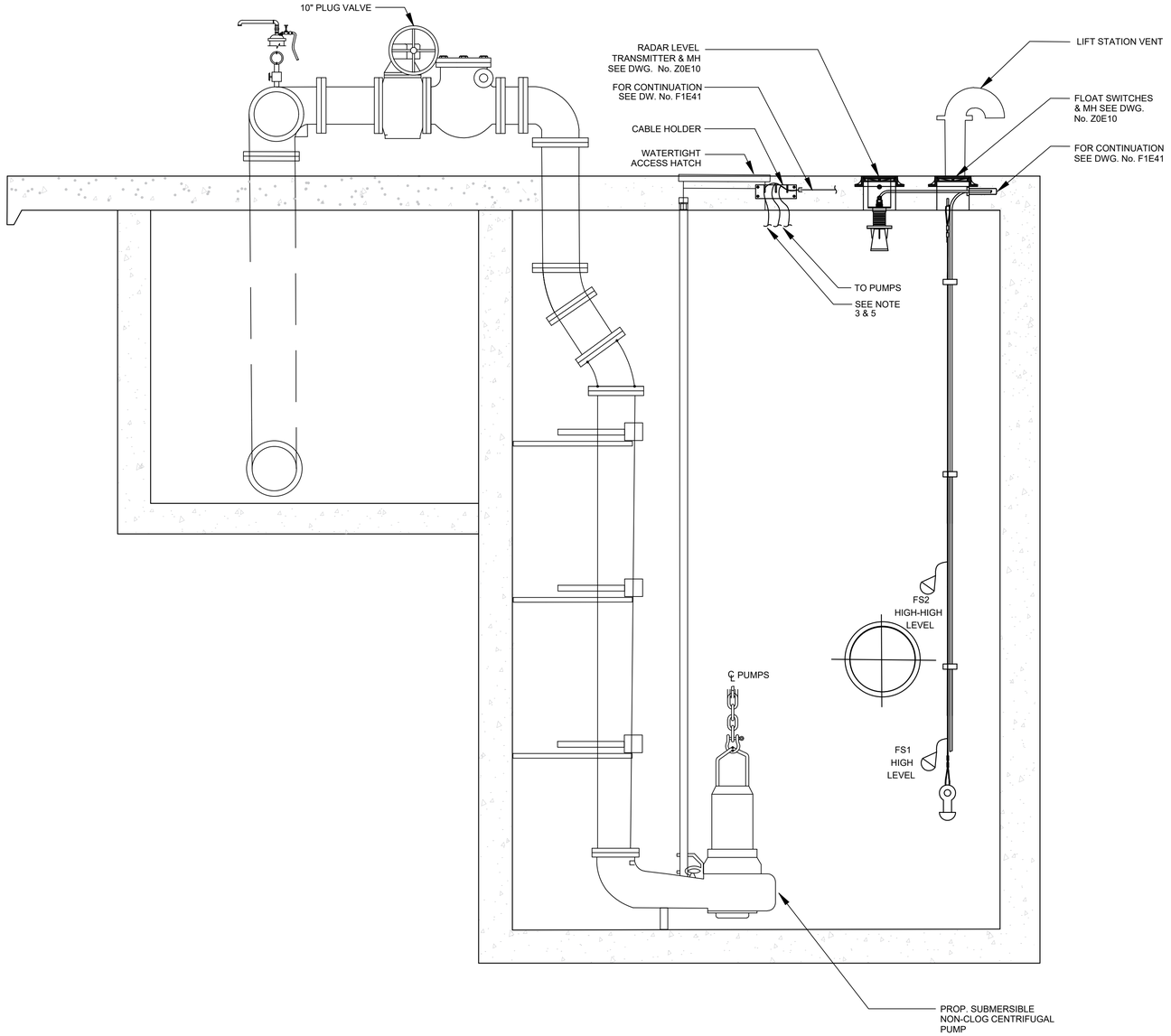

SYNOTT RD. #1 LS - LIFT STATION

A / - ELEVATION

SC.: 1/2"=1'-0"

NOTES:

1. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS.
2. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 510 OF THE NEC FOR CLASS I, DIVISION I, GROUP C & D.
3. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
4. FOR MOTOR FEEDER AND CONTROL CABLES. INSTALL TYPE CSBE CABLE SEALING FITTING AT JUNCTION BOX ENTRANCE AND EXPLOSION PROOF SEAL IN CONDUITS TO POWER & CONTROL PANEL.
5. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
6. INSTRUMENTS SHOWN IN APPROXIMATE LOCATION. ACTUAL LOCATION SHALL BE ESTABLISHED DURING CONSTRUTION.

NO.	DATE	REVISION	APP.
A	09/16/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD. #1 LS

LIFT STATION ELEVATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E42

PLOTTED: 10/29/2025 7:42 AM
PLOT STYLE: COH.ctb
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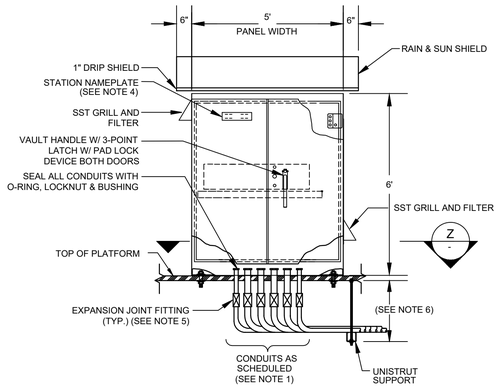
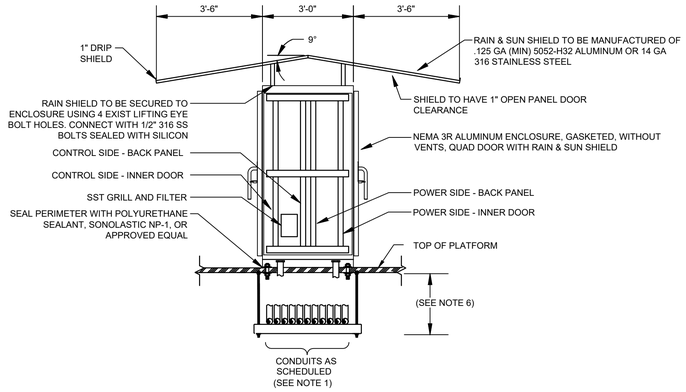


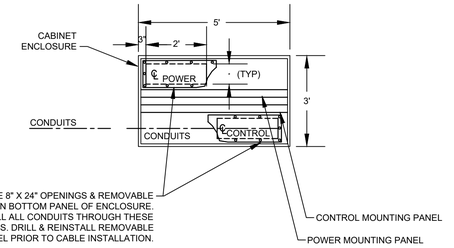
POWER & CONTROL CABINET - FRONT CONDUIT CONNECTION

SC.: NTS



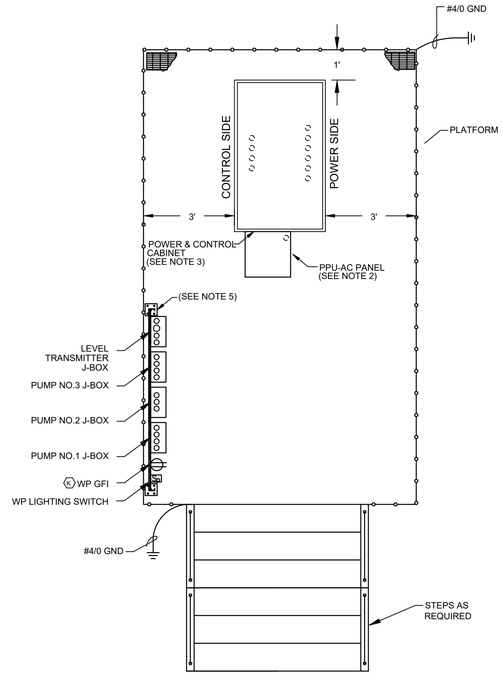
POWER & CONTROL CABINET - SIDE CONDUIT CONNECTION

SC.: NTS



SECTION Z

NTS



POWER & CONTROL CABINET ENCLOSURE ON ELEVATED PLATFORM DETAIL

SC.: NTS

NOTES:

1. FOR CONDUIT SCHEDULE SEE DRAWING NO. F1E60.
2. FOR PPU-AC PANEL SEE DRAWING NO. F1E50
3. FOR POWER & CONTROL PANEL DETAIL SEE DRAWING NO. F1E44.
4. FOR NAME PLATE SCHEDULE SEE DRAWING NO. F1E45.
5. EXPANSION JOINT FITTINGS AS REQUIRED.
6. DISTANCE TO BE DETERMINATED IN FIELD.

NO.	DATE	REVISION	APP.
A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD. #1 LS POWER & CONTROL CABINET INSTALLATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

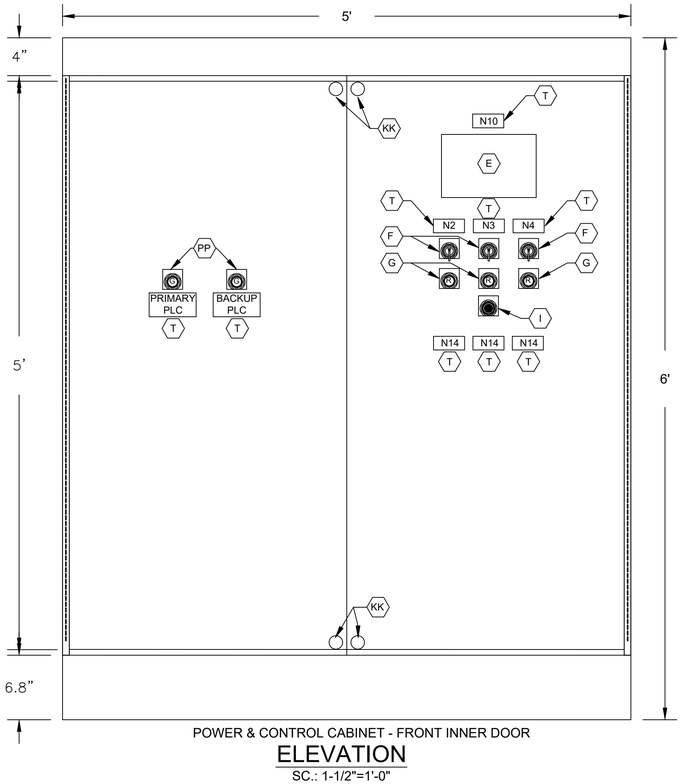
F1E43

PLOTTED: 10/29/2025 7:42 AM
PLOT STYLE: COH.ctb
FILE PATH: \\wuspplot01\d$\Global ProjectWise Plotting - WUS\Queue 5\queue5.dwg

EQUIPMENT AND DEVICE SCHEDULE

ITEM	QTY.	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 2 PHASE, 3 WIRE, 100A, 24 CKTS, SQUARE D MODEL # QP24100CP 21HX, 14.25W
B	3	NEMA MOTO STARTER, NON-REVERSING, TYPE S, SIZE 3, 90A, 30 HP AT 230 VAC, 3 PHASE, SOLID STATE, 120VAC COIL, SCHNEIDER MODEL 8536SEO1V02H30SX11
C	3	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 24VDC COIL AND 11 PIN SOCKET BASE.TURCK RELECO MODEL CT3-E30/L WITH S3-S BASE C3-A30X/24DC
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY, ATC MODEL ISO-120-AFA
E	1	PROGRAMMING SCREEN (OIT), SIEMENS INDUSTRY TP900 - COMFORT TOUCH PANEL
F	3	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL), ALLEN-BRADLEY MODEL 800H-JR2B
G	3	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2R
H	6	TERMINAL RAIL, STEEL GALVANIC ZINC, W: 2000 mm, H: 15 mm, D: 5.5 mm, WEIDMULLER ITEM No.0117510000
I	1	PUMP ALARM RESET PUSHBUTTON, ALLEN-BRADLEY MODEL 800H-AR2BF
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST, HUBBELL MODEL HBL12211, WITH METALLIC BOX 4"x4" AND STEEL METALLIC SQUARE BOX COVER DUPLEX
K	2	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED, HUBBELL MODEL HBL53621, WITH METALLIC BOX 4"x4" AND STEEL METALLIC SQUARE BOX SWITCH COVER.
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION, HOFFMAN MODEL LF120V28
M	1	240VAC, 3 PHASES SURGE PROTECTOR - SURGE SUPPRESSION INC MODEL SDLA3N2
N	39	TAG CARRIER, SCHT 5 WEIDMULLER, CATALOG NO. 0292460000
P	3	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT, PHOENIX CONTACT MODEL MCR-SL-CUC-100-I
Q	12	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS, WEIDMULLER WDU 10
R	16	WIRE DUCT 2" WIDE X 3" DEEP MINIMUM, LENGTH 6', HELLERMANN TYTON MODEL SL2X3W4
S	22	END BRACKET, WEW 35/2 WEIDMULLER, CATALOG NO. 1061200000
T	46	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
U	3	ANALOG INPUT MODULE, 4 ANALOG INPUT , SIEMENS MODEL SIMATIC S7-1200, 6ES7231-4HD32-0XB0
V	6	FUSE HOLDER & FUSES - PHASE FAILURE FERRAZ SHAWMUT, PN 30313
W	1	72"x60"x36" NEMA 3R ENCLOSURE, GASKETED, WITHOUT VENTS INCLUDING QUAD DOORS, BACKPLANES, & RAIN-SUN SHIELD MANUFACTURED OF .125 5052-H32 ALUMINUM - NEMA ENCLOSURES MFG. CORP. NE726036-12FSDDA WITH 2ea. NEAF7260P & 4 ea. NE7230SWP
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE ENVIROMENT), SQUARE D MODEL 9421LZ250H43
Y	1	MAIN CIRCUIT BREAKER POWERPacT J, 150A, 3 POLE, 100KA @ 240VAC, THERMAL MAGNETIC, SCHNEIDER MODEL JJL36200
Z	3	MOTOR CIRCUIT BREAKER POWERPacT H, 60A, 3 POLE, 100KA @ 240VAC, SCHNEIDER MODEL HJL36090
AA	164	TERMINAL BLOCKS, WEIDMULLER WDU 2.5, CATALOG NO. 1020000000
BB	3	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM, SQUARE D MODEL 9066 RA1
CC	2	ANALOG I/O SURGE SUPPRESSOR EATON MODEL IOP32D
DD	1	DIGITAL INPUT MODULE, 16 DIGITAL INPUT 24 VDC , SIEMENS MODEL SIMATIC S7-1200, 6ES7221-1BH32-0XB0
EE	1	LOW VOLTAGE PANEL CIRCUIT BREAKER POWERPacT H, 50A, 2 POLE, 600VAC, SCHNEIDER MODEL HJL26050
FF	1	GROUND BUS, SQUARE D MODEL 1630 PK9GTA
GG	1	LED LIGHT FOR INDOOR/OUTDOOR USE, 24 VDC, COLOR RED, FEDERAL SIGNAL MODEL LP3PL-024R.
HH	*	NOT USED.
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED), SQUARE D MODEL 9070T200D13
JJ	12	CARTRIDGE FUSES & FUSE HOLDER, FERRAZ SHAWMUT, PN 30313
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A, PHOENIX CONTACT MODEL QUINT-PS/1AC/24DC/5
MM	2	MOTION SWITCH, CHERRY MODEL E13-00H
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP, PLC" LEGEND, ALLEN-BRADLEY MODEL 800H-QRTH2G
QQ	21	CONTROL RELAY, 3 POLE, 24VDC CONTROL COIL - TURCK C3-A30X/24DC W/S3-S BASE
RR	2	CONTROL RELAY, 3 POLE, 120VAC CONTROL COIL - TURCK C3-A30X/120AC W/S3-S BASE
SS	1	COMMUNICATION ETHERNET SWITCH, SIEMENS MODEL SCALANCE X310FE
TT	1	120VAC SURGE SURGE PROTECTOR WITH ALARM CONTACT - SURGE SUPPRESSION INC MODEL SDLA1P1
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT, SIEMENS MODEL S7-1214C-ES7214-1HG40-0XB0
VV	1	PHASE AND UNDER VOLTAGE MONITOR, DIVERSIFIED ELECTRONICS MODEL PDB-230-ALE
WW	118	FUSED TERMINAL BLOCKS, WEIDMULLER WSI 6, CATALOG NO. 1011000000
XX	3	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I, MINICAS II 83 58 57 24VDC/AC
YY	2	ANALOG SIGNAL ISOLATOR, TURCK MODEL IMS-AI-DLI-22-DLI/L
ZZ	1	1-GANG WEATHERPROOF-IN-USE COVER, TAYMAC, MODEL MM420C.
AB	1	TAMPER/WEATHER RESISTANT GFCI RECEPTACLE, LEVITON, MODEL GFWT1-W.
AC	1	POWER DISTRIBUTION BLOCK, 3 POLE, EDISON MODEL HPB306-3
AD	1	1-GANG WEATHERPROOF BOX, 3-1/2", 2" DEPTH, ALUMINUM DIE CAST, BELL, MODEL 5320-0.
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD, HOFFMAN MODEL TFP6
AF	1	T-STAT FOR EXHAUST FAN, HOFFMAN, MODEL ATEMNOF

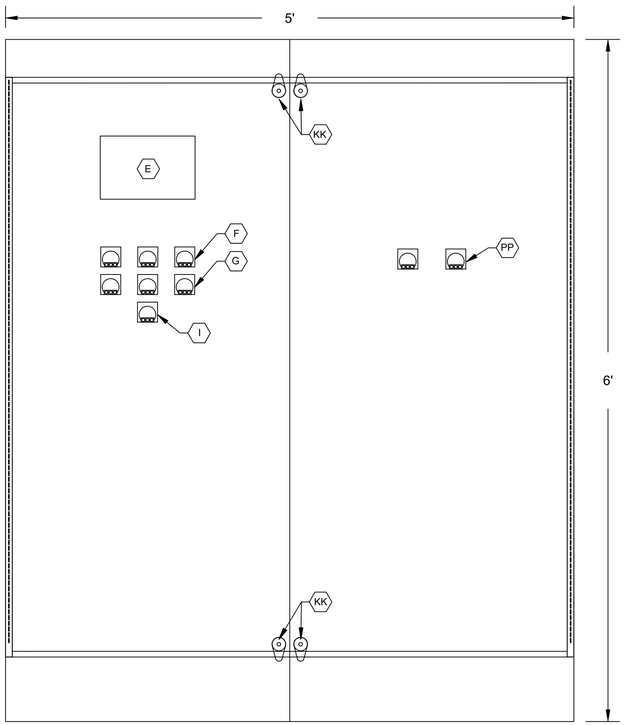
* - AS SCHEDULED



POWER & CONTROL CABINET - FRONT INNER DOOR

ELEVATION

SC.: 1-1/2"=1'-0"



POWER & CONTROL CABINET - BACK INNER DOOR

ELEVATION

SC.: 1-1/2"=1'-0"

NOTES:

1. NAMEPLATES SHALL BE MOUNTED TO PANELS USING STAINLESS STEEL HARDWARE.
2. REFER SPECIFICATIONS FOR ALL PANEL COMPONENTS.

NO.	DATE	REVISION	M.S
A	06/15/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	APP.

HATCH

750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

POWER & CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E44

PLOTTED: 10/29/2025 7:43 AM
PLOT STYLE: COH.ctb
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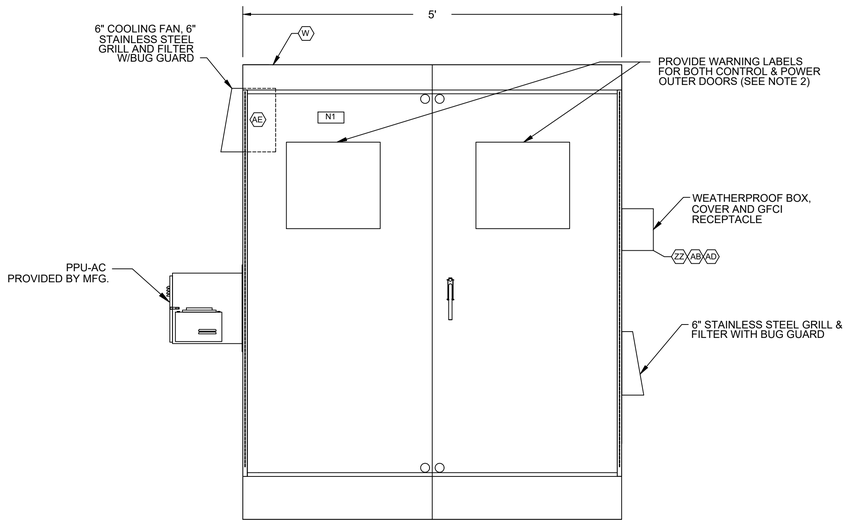
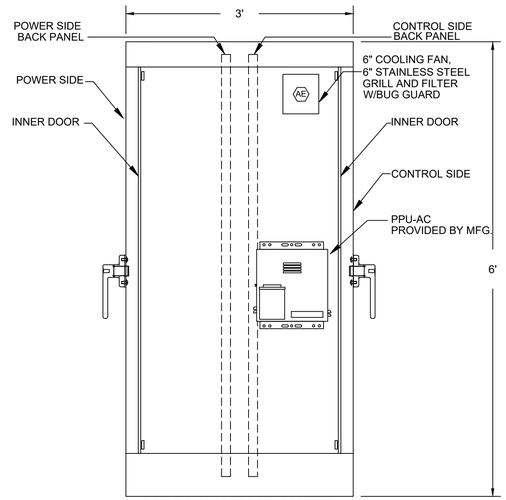


POWER & CONTROL CABINET (CONTROL SIDE)
OUTER DOOR

ELEVATION

SC.: 1"=1'-0"



POWER & CONTROL CABINET
(LEFT SIDE VIEW)

ELEVATION

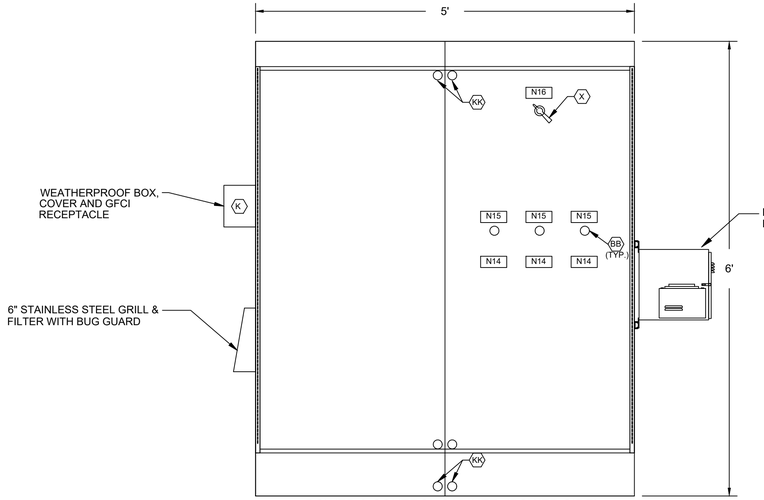
SC.: 1"=1'-0"

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED
N1	SYNOTT RD. #1 PUMP STATION
N2	PUMP NO. 1
N3	PUMP NO. 2
N4	PUMP NO. 3
N5	NOT USED.
N6	NOT USED.
N7	NOT USED.
N8	NOT USED.
N9	NOT USED.
N10	PROGRAMMING SCREEN
N11	NOT USED.
N12	PRIMARY PLC
N13	BACKUP PLC
N14	MOTOR DATA HORSEPOWER (OUTPUT) ---------- RPM AT FULL LOAD ---------- TIME RATING ---------- FREQUENCY ---------- NUMBER OF PHASES ---------- MODEL NUMBER ---------- RATED VOLTAGE ---------- SERVICE FACTOR ---------- FULL LOAD AMPS ---------- INSULATION CLAS ---------- NEMA DESIGN LETTER ---------- TEMPERATURE RISE ---------- NEMA FRAME SIZE ---------- DATE OF MANUFACTURE ---------- THERMO PROTECTION (IF REQUIRED) -- MOISTURE PROTECTION (IF REQUIRED)-
N15	EXTERNAL OVERLOAD RESET PUSH BUTTON MECHANISM
N16	MAIN BREAKER

NOTES:

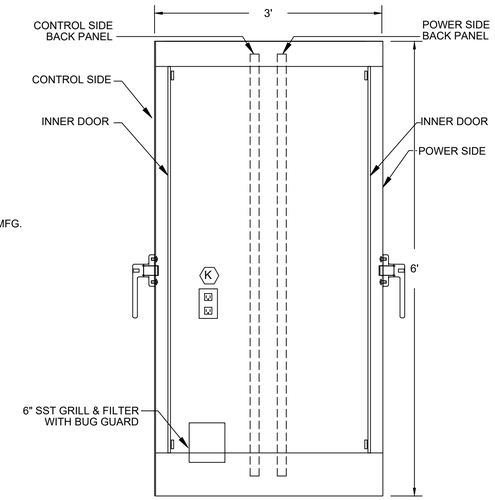
1. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. FOR ARC FLASH HAZARD WARNNG AND LABEL REQUIREMENTS REFER TO NEC SECTIONS 110.16 & 110.21



POWER & CONTROL CABINET (POWER SIDE)
INNER DOOR

ELEVATION

SC.: 1"=1'-0"
(SEE NOTE 1)



POWER & CONTROL CABINET
(RIGHT SIDE VIEW)

ELEVATION

SC.: 1"=1'-0"

NO.	DATE	REVISION	APP.
A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
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INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

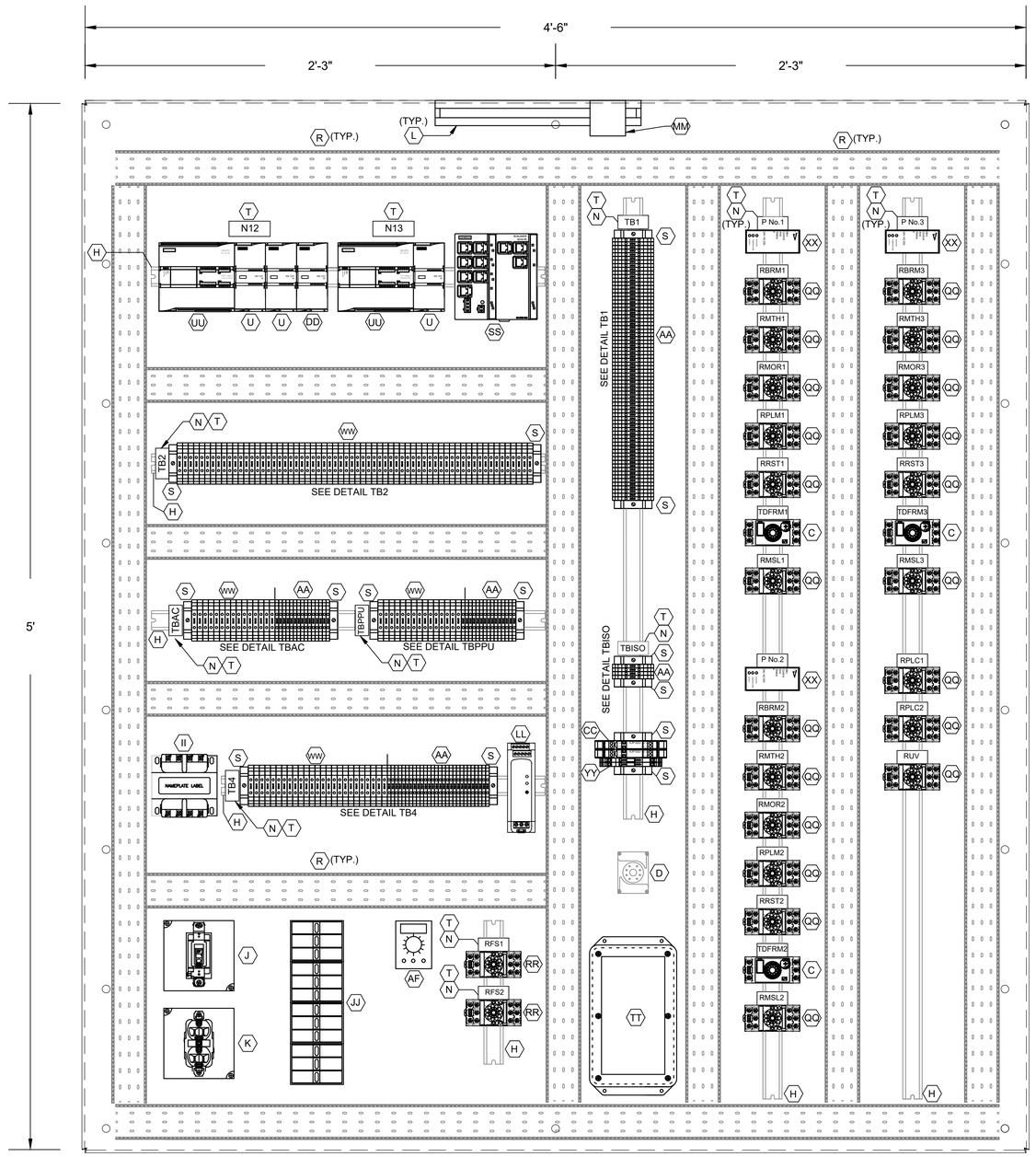
LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

POWER & CONTROL CABINET EQUIPMENT LAYOUT-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E45

PLOTTED: 10/29/2025 7:49 AM
PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 1\queue1.dwg



CONTROL PANEL ELEVATION

SC.: 3"=1'-0"

DETAIL TB1
L1A
L1N
SPARE
3A
3B
3C
49
50
51
52
53
54
1004
1
24V-
24V-
1002
2
11
1001
1001A
12
1003
1003A
1002
1004
18
3N
SPARE
36
36N
41
42
43
44
SPARE
L1A
L1N
103
104
105
106
107
108
110
113
115
116
119
SPARE
203
204
205
206
207
208
210
213
215
216
219
SPARE
303
304
305
306
307
308
310
313
315
316
319

ALL L AND N FOR EACH PUMP CONTROL TO BE FUSED

DETAIL TB2
36A
37A
50
52
54
52A
54A
L+
M
35B
38B
41B
47B
13B
13AB
13GB
L+
M
14B
14A
14GB
L+
M
13
13A
13G
14
14A
14G
17
18
18B
28
29
32
35B
33
42
44
103
104
115
109
110
118
120
121
122
123
209
210
211
218
220
222
223
309
310
316
317
318
320
322
323

DETAIL TBAC
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15

DETAIL TBPPU
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
N1
N2
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N6
N7
N8
N9
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N14
N15

DETAIL TB4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
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20
21
22
23
24
25
N1
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N3
N4
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N8
N9
N10
N11
N12
N13
N14
N15
N16
N17
N18
N19
N20
N21
N22
N23
N24
N25

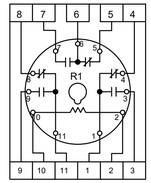
DETAIL TB-ISO
1500
1501
1503
1504

LEGEND

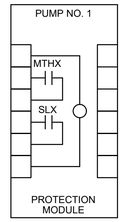
TAG	DESCRIPTION
RMTH	MOTOR HIGH TEMPERATURE ALARM RELAY
RPLM	PLC PUMP RUN RELAY
RRST	PUMP RESET AUX RELAY
RPLC	PLC MODE AUX RELAY
RMOR	MOTOR OVERLOAD ALARM RELAY
RBRM	BACKUP SYSTEM RUN RELAY
RUV	UNDER VOLTAGE RELAY
ISO	INTRINSICALLY SAFE RELAY
RFS	PUMP RUN FLOAT SWITCH RELAY
TDFRM	TIMER FLOAT SWITCH RUN RELAY
RMSL	MOTOR SEAL LEAK ALARM RELAY

NOTES:

1. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.



RELAY DETAIL ITEM RR



PUMP PROTECTION MODULE DETAIL, ITEM XX

NO.	DATE	REVISION	APP.
A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH

750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

POWER & CONTROL CABINET EQUIPMENT LAYOUT-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E46

PLOTTED: 10/29/2025 7:48 AM

PLOT STYLE: COH.ctb

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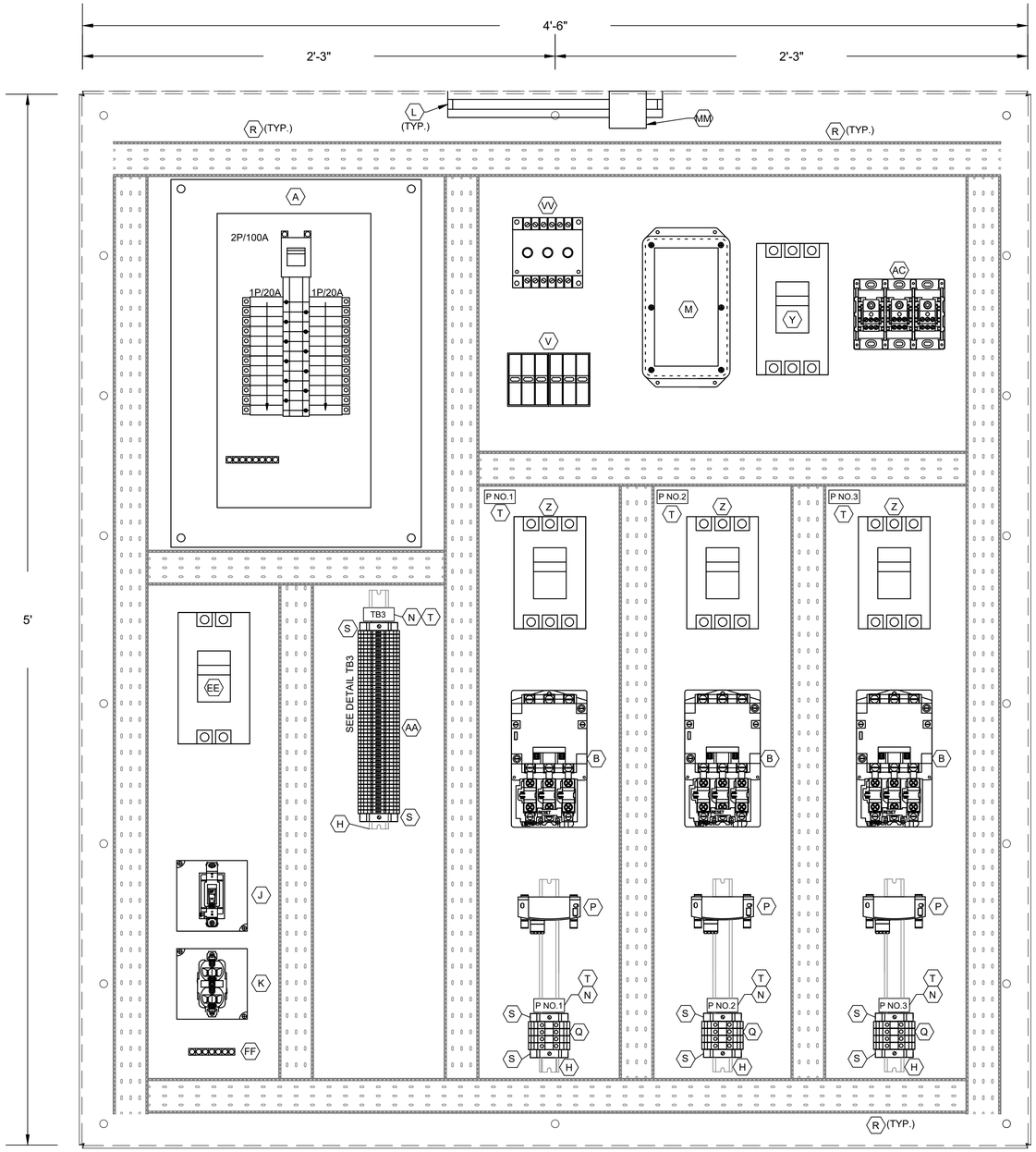

POWER PANEL
ELEVATION
SC.: 3"=1'-0"

3
18
L1A
L1N
SPARE
SPARE
103
104
105
106
107
108
110
113
115
116
119
SPARE
203
204
205
206
207
208
210
213
215
216
219
SPARE
303
304
305
306
307
308
310
313
315
316
319
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
3A
3B
3C

DETAIL TB3

NOTES:

1. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.

NO.	DATE	REVISION	APP.
A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

POWER & CONTROL CABINET
EQUIPMENT LAYOUT-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E47

PLOTTED: 10/29/2025 7:51 AM
PLOT STYLE: COH.ctb
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FIELD

POWER & CONTROL CABINET

FIELD

(EXISTING)

FROM UTILITY METER
REFER TO SHEET
F1E48 240V, 3Ø, 4W

GROUND ROD
(TYPICAL)

3 POLE DOUBLE
THROW HEAVY DUTY
TRANSFER SWITCH

METER DISCONNECT SWITCH

NEUT

GND BUS

GROUND
ROD

SURGE PROTECTOR
JE-1
(SEE NOTE 3)
SPD
M

MAIN
BREAKER
Y

PHASE
MONITOR
JE-2
VV

PLC

(SEE NOTE 3)

MCP
M1

4-20mA
CURRENT
TRANSDUCER

MOR
(SEE NOTE 5)

4-20mA
TO PLC
+
-

P

T1
T2
T3

PUMP NO.1
M

TB-3

105
106
107
108
GND

TSH-1
LSH-1

20
21
22
23
GND

GENERATOR FUSED
DISCONNECT SWITCH

NEUT
GND

MCP
M2

PUMP NO.2

TB-3

205
206
207
208
GND

TSH-2
LSH-2

PORTABLE
GENERATOR

NEUT
GND
GEN

MCP
M3

PUMP NO. 3

SURGE PROTECTOR
JE-3
(SEE NOTE 3)
SPD
TT

EE
CB

GND
NEUT
SPD

240V, 100A, 12 CKT
LIGHTING PANEL

NOTES:

1. UNLESS OTHERWISE INDICATE, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE CONTROL PANEL.
2. SEE SHEET F1E044 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
4. CONTRACTOR SHALL TERMINATE POWER & CONTROL WIRES PER MANUFACTURER'S REQUIREMENTS.
5. MOTOR OVERLOAD RELAY.

NO.	DATE	REVISION	APP.
A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L.

LEGEND

- DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- DEVICE OR FIELD TERMINAL LOCATED REMOTE
- DEVICE OR FIELD TERMINAL LOCATED AT POWER PANEL
- FIELD TERMINAL LOCATED AT CONTROL PANEL
- REMOTE TERMINAL
- DEVICE TERMINAL NO.
- PC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD. #1 LS

INCOMING POWER THREE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E48

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PLOTTED: 10/29/2025 7:42 AM
PLOT STYLE: COH.ctb
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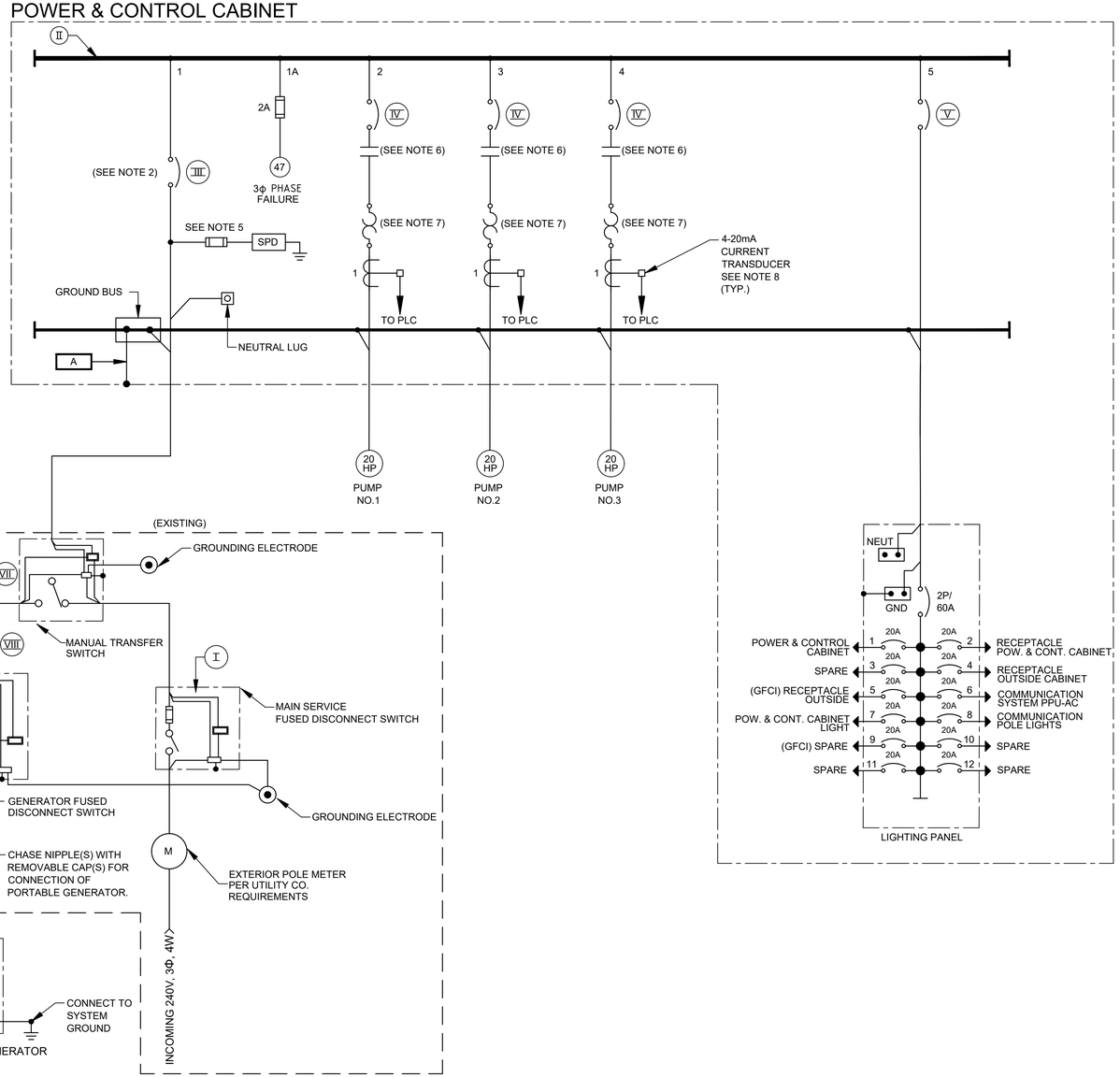
POWER & CONTROL CABINET



ITEM	CIRCUIT	DESCRIPTION	RATINGS FOR PUMP SIZES INDICATED 3 @ 20HP
I	--	MAIN DISCONNECT SWITCH (EXISTING)	
		OPERATING VOLTAGE	-
		CURRENT RATING	-
		CURRENT LIMITING FUSES TYPE & SIZE	-
II	--	POWER & CONTROL CABINET POWER DISTRIBUTION BLOCK	
		OPERATING VOLTAGE	240 VAC
		CURRENT RATING	310 A
		NEUTRAL SIZE & TYPE	
		SCCR RATING	200 kA
III	1	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	240V
		FRAME SIZE	400A
		TRIP SETTING	200A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
IV	2 3 4	PUMP MOTOR STARTERS	
		QUANTITY	3
		MOUNTING	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	240V
		FRAME SIZE	100A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	42KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	240V
		SIZE	NEMA 3
		OVERLOAD PROTECTION TYPE	SOLID STATE MOR
		CT RATIO	75:5
V	5	LIGHTING FEEDER BREAKER	
		NO. OF POLES	2
		TYPE	MOLDED CASE
		OPERATING VOLTAGE	240V
		FRAME SIZE	150A
		TRIP SETTING	50A
		INTERRUPT CAPACITY	42KA SYM
VII	--	MANUAL TRANSFER SWITCH (EXISTING)	
		OPERATING VOLTAGE	-
		CURRENT RATING	-
VIII	--	GENERATOR FUSED DISCONNECT SWITCH (EXISTING)	
		OPERATING VOLTAGE	-
		CURRENT RATING	-
		CURRENT LIMITING FUSES TYPE & SIZE	-

NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
2. PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
3. CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
4. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
5. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
6. STARTER NEMA SIZE 2 IS MINIMUM AND NEMA SIZE 3 OR GREATER SHALL BE VACUUM TYPE.
7. MOTOR OVERLOAD RELAY.
8. PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.

NO.	DATE	REVISION	APP.
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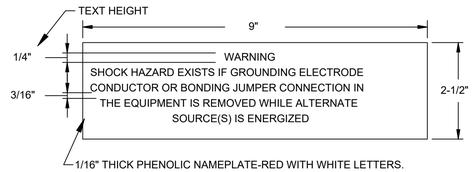
B	10/30/25	CLIENT REVIEW	L.L



ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLI*
1	PUMP NO. 1	20HP	54A
2	PUMP NO. 2	20HP	54A
3	PUMP NO. 3	20HP	54A
4	10 KVA TRANSFORMER		50A
SUBTOTAL			212A
25% OF LARGEST MOTOR LOAD			13.5A
MINIMUM AMPACITY @480V,3Φ			225.5A

* BASED ON SELECTED PUMP MFG DATA

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
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FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

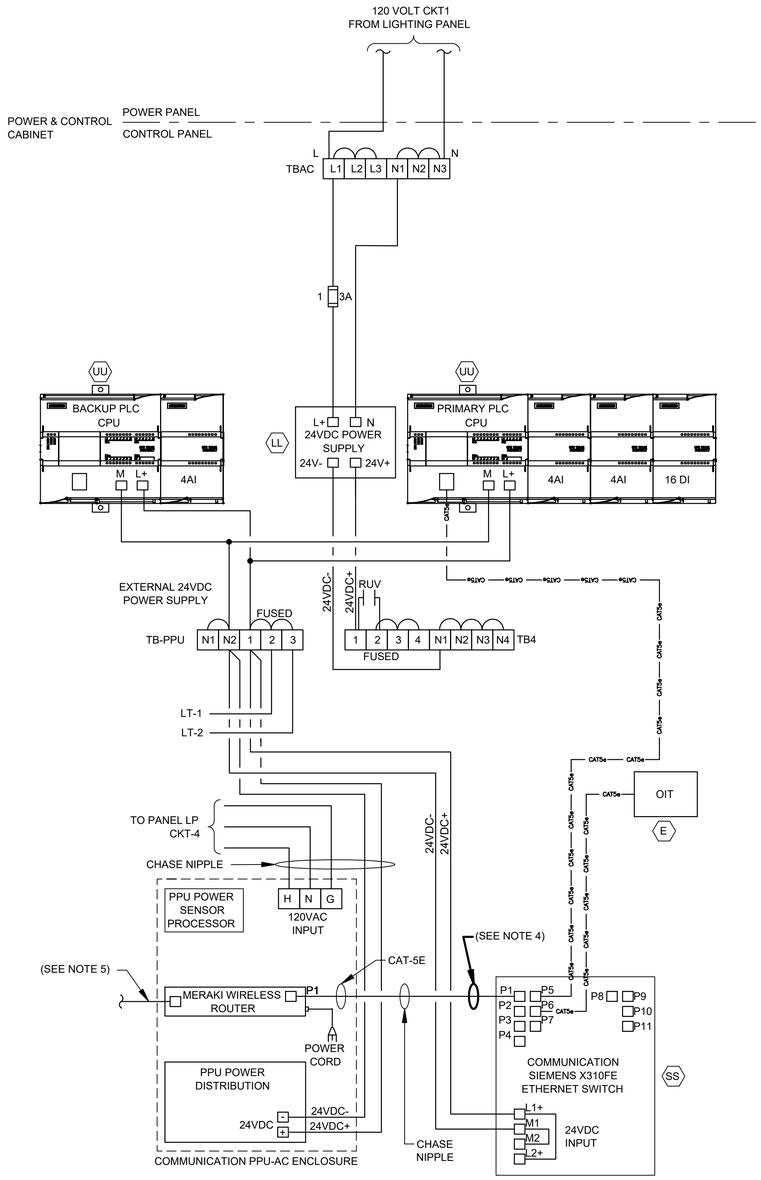
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

SINGLE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E49

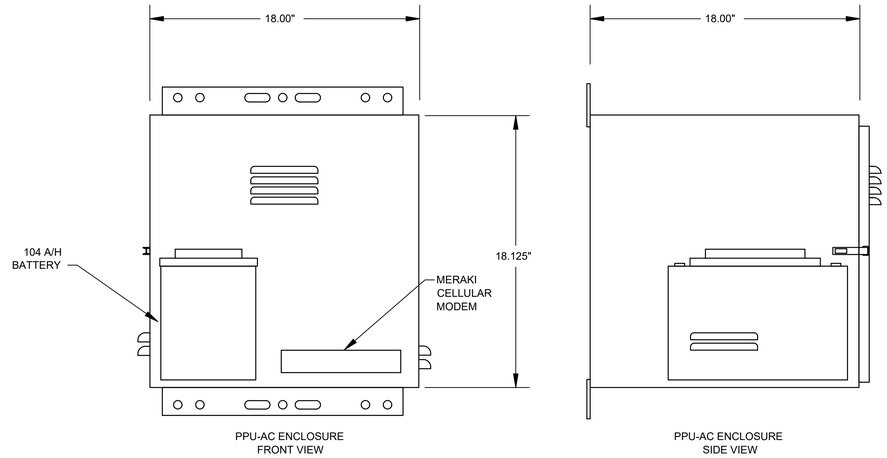


CONTROL POWER &
COMMUNICATIONS WIRING

DIAGRAM

NTS

(SEE NOTE 3)



PPU-AC ENCLOSURE
FRONT VIEW

PPU-AC ENCLOSURE
SIDE VIEW

PPU-AC
CONTROL ENCLOSURE

ELEVATION

NTS

NOTES:

1. REFER TO SPEC SECTION 16120 FOR CONDUCTOR COLOR CODE.
2. THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
3. COMMUNICATION PPU-AC & SCADA SHALL BE PROVIDED BY CONTRACTOR INCLUDING TO RUN CONDUITS & WIRES.
4. ETHERNET CABLE FOR MERAKI CELLULAR ROUTER (P1).
5. POE CABLE TO RADIO.

NO.	DATE	REVISION	M.S
A	06/15/25	INTERNAL REVISION	L.L.
B	10/30/25	CLIENT REVIEW	APP.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

COMMUNICATION DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E50

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NO.	DATE	REVISION	M.S	APP.
A	06/15/25	INTERNAL REVIEW	L.L.	
B	10/30/25	CLIENT REVIEW		

HMI

PUMP NO. 1: SEAL FAIL ALARM (MA 1), MOTOR OVERLOAD ALARM (MO 1), MOTOR CURRENT (II 1), HIGH TEMP ALARM (TH 1), IN HAND (HI 1), IN AUTO (IA 1), ON/OFF (YFS 1), START/STOP (YCS 1)

PUMP NO. 2: SEAL FAIL ALARM (MA 2), MOTOR OVERLOAD ALARM (MO 2), MOTOR CURRENT (II 2), HIGH TEMP ALARM (TH 2), IN HAND (HI 2), IN AUTO (IA 2), ON/OFF (YFS 2), START/STOP (YCS 2)

PUMP NO. 3: SEAL FAIL ALARM (MA 3), MOTOR OVERLOAD ALARM (MO 3), MOTOR CURRENT (II 3), HIGH TEMP ALARM (TH 3), IN HAND (HI 3), IN AUTO (IA 3), ON/OFF (YFS 3), START/STOP (YCS 3)

PLC: ALARMS RESET (RE 1); FLOAT HIGH-HIGH WETWELL LEVEL (LAHH 1A)

BACKUP PLC: PUMP NO. 1 START/STOP (YCS 1A); PUMP NO. 2 START/STOP (YCS 2A); PUMP NO. 3 START/STOP (YCS 3A)

POWER & CONTROL CABINET (PLC)

POWER & CONTROL CABINET

PUMP NO. 1 H/O/A, RUN
PUMP NO. 2 H/O/A, RUN
PUMP NO. 3 H/O/A, RUN
PRIMARY PLC
BACKUP PLC
ALARMS RESET
OIT
TO SHEET F1E52

F1E52
F1E52

WET WELL

LT 1 / LE 1
LT 2 / LE 2

LSH 1A / TSH 1A — FS2 HIGH-HIGH LEVEL FLOAT SWITCH — PUMP NO.1
LSH 2A / TSH 2A — PUMP NO.2
LSH 3A / TSH 3A — FS1 LOW LEVEL FLOAT SWITCH — PUMP NO.3

AIR-RELEASE
XX"-DIP
XX"-DIP
XX"-DIP
XX"-DIP
XX"-DIP
DISCHARGE

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

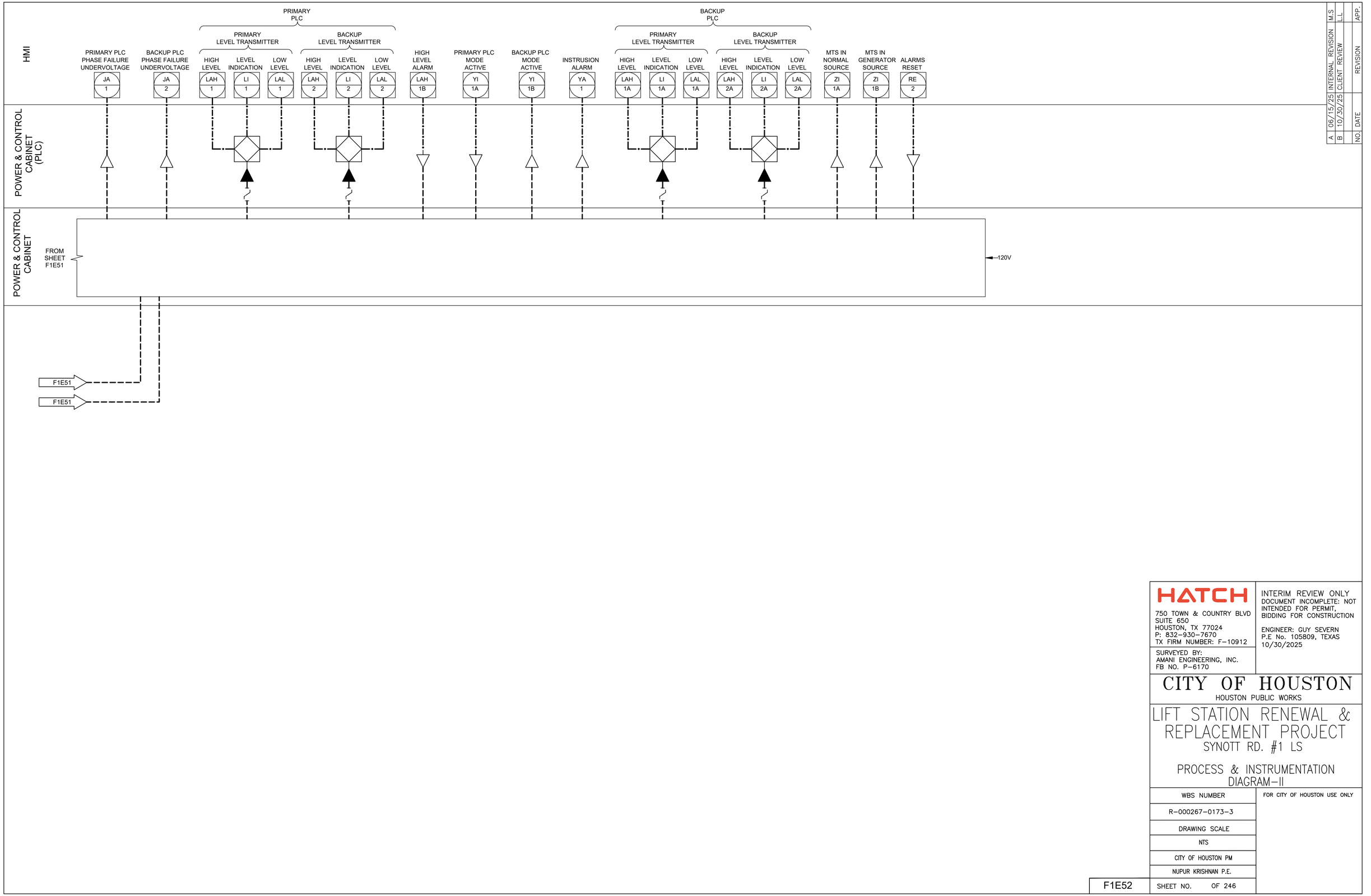
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

PROCESS & INSTRUMENTATION DIAGRAM-1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E51



NO.	DATE	REVISION	M.S	APP.
A	06/15/25	INTERNAL REVISION	L.L	
B	10/30/25	CLIENT REVIEW		

PLOTTED: 10/29/2025 7:51 AM

PLOT STYLE: COH.ctb

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HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
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CITY OF HOUSTON

HOUSTON PUBLIC WORKS

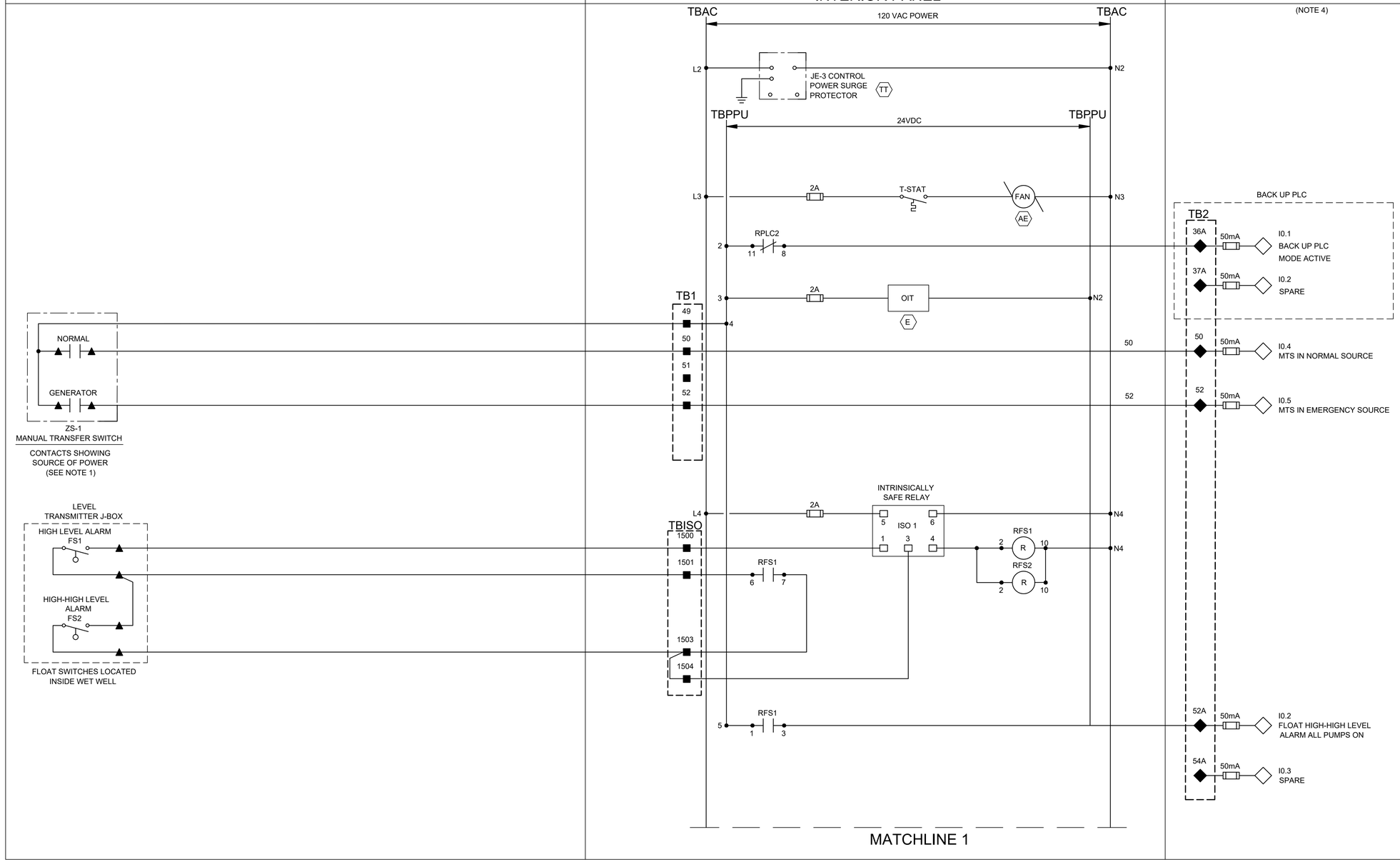
LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD. #1 LS

PROCESS & INSTRUMENTATION DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E52



NO.	DATE	REVISION	M.S	APP.
A	06/15/25	INTERNAL REVISION	L.L.	
B	10/30/25	CLIENT REVIEW		

NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
3. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
4. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E53

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PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 5\queue5.dwg

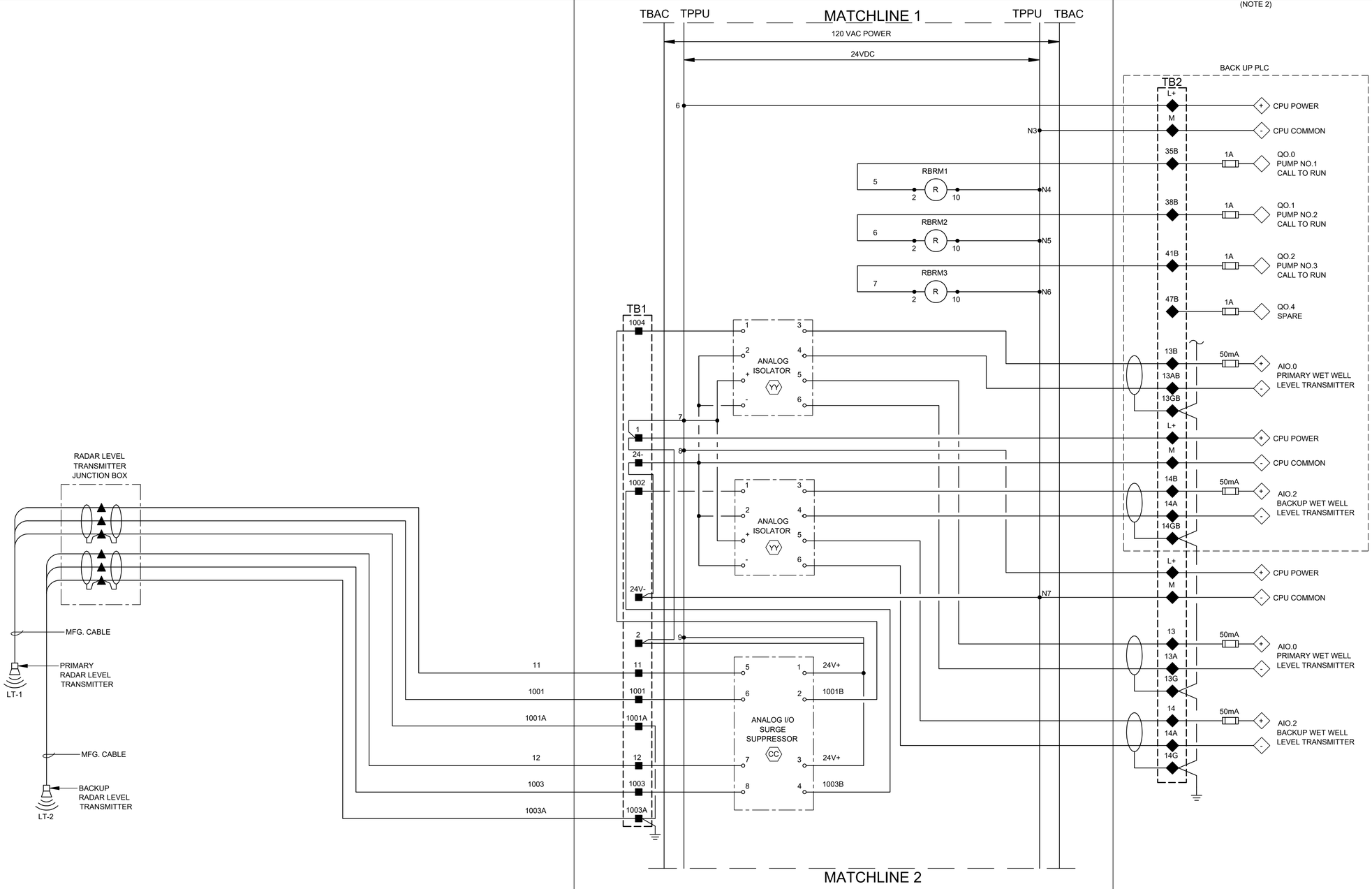
A	06/15/25	INTERNAL REVIEW	M.S
B	10/30/25	CLIENT REVIEW	L.L.
NO.	DATE	REVISION	APP.

FIELD

POWER & CONTROL CABINET

INTERIOR PANEL

PLC
(NOTE 2)



NOTES:

1. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

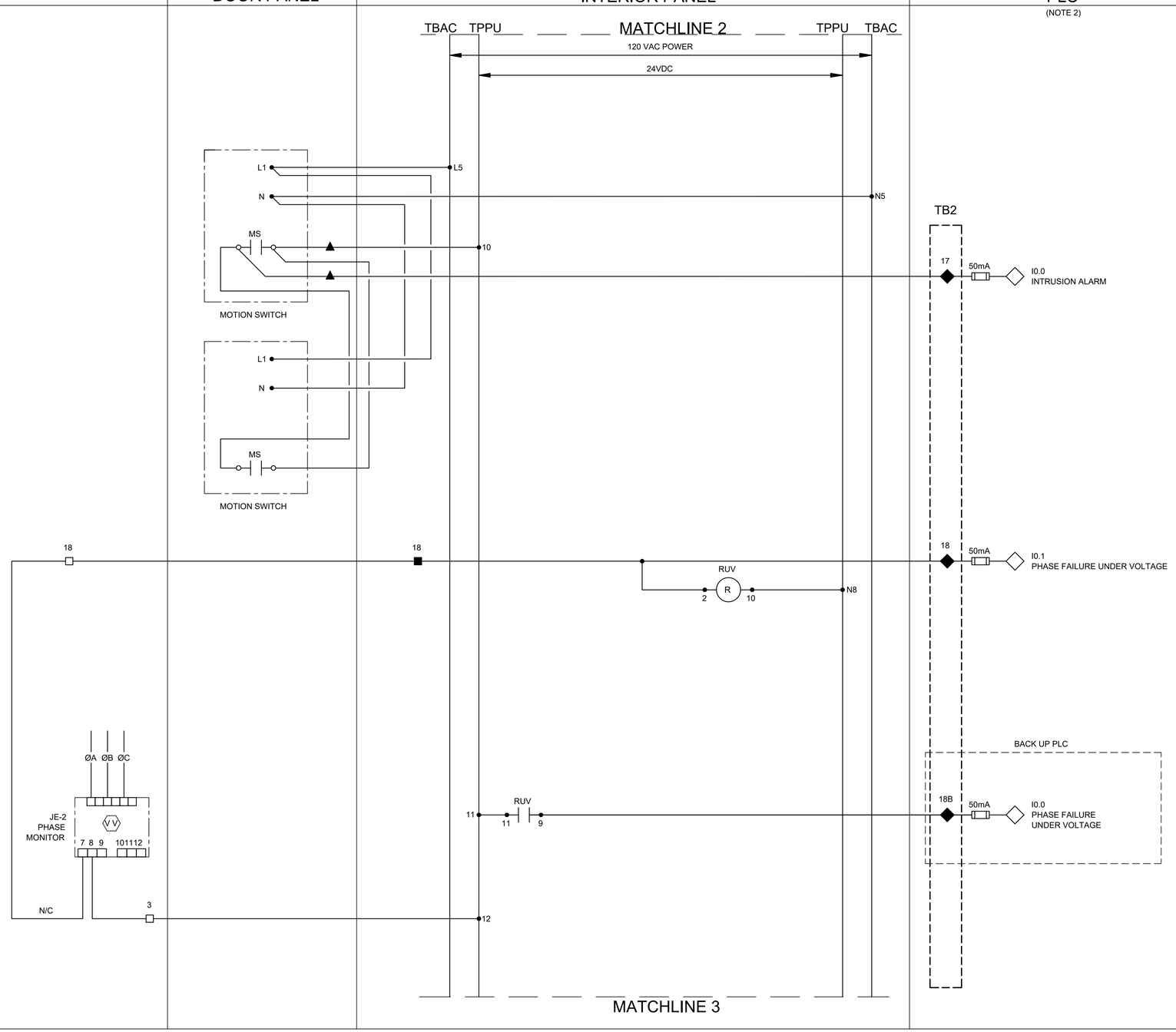
LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

POWER & CONTROL CABINET CONTROL WIRING DIAGRAM-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E54

FIELD	POWER SIDE BACK PANEL	POWER&CONTROL CABINET		
		DOOR PANEL	INTERIOR PANEL	PLC (NOTE 2)



NOTES:

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

NO.	DATE	REVISION	M.S
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B	10/30/25	CLIENT REVIEW	APP.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

POWER & CONTROL CABINET
CONTROL WIRING DIAGRAM-III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E55

PLOTTED: 10/29/2025 7:48 AM
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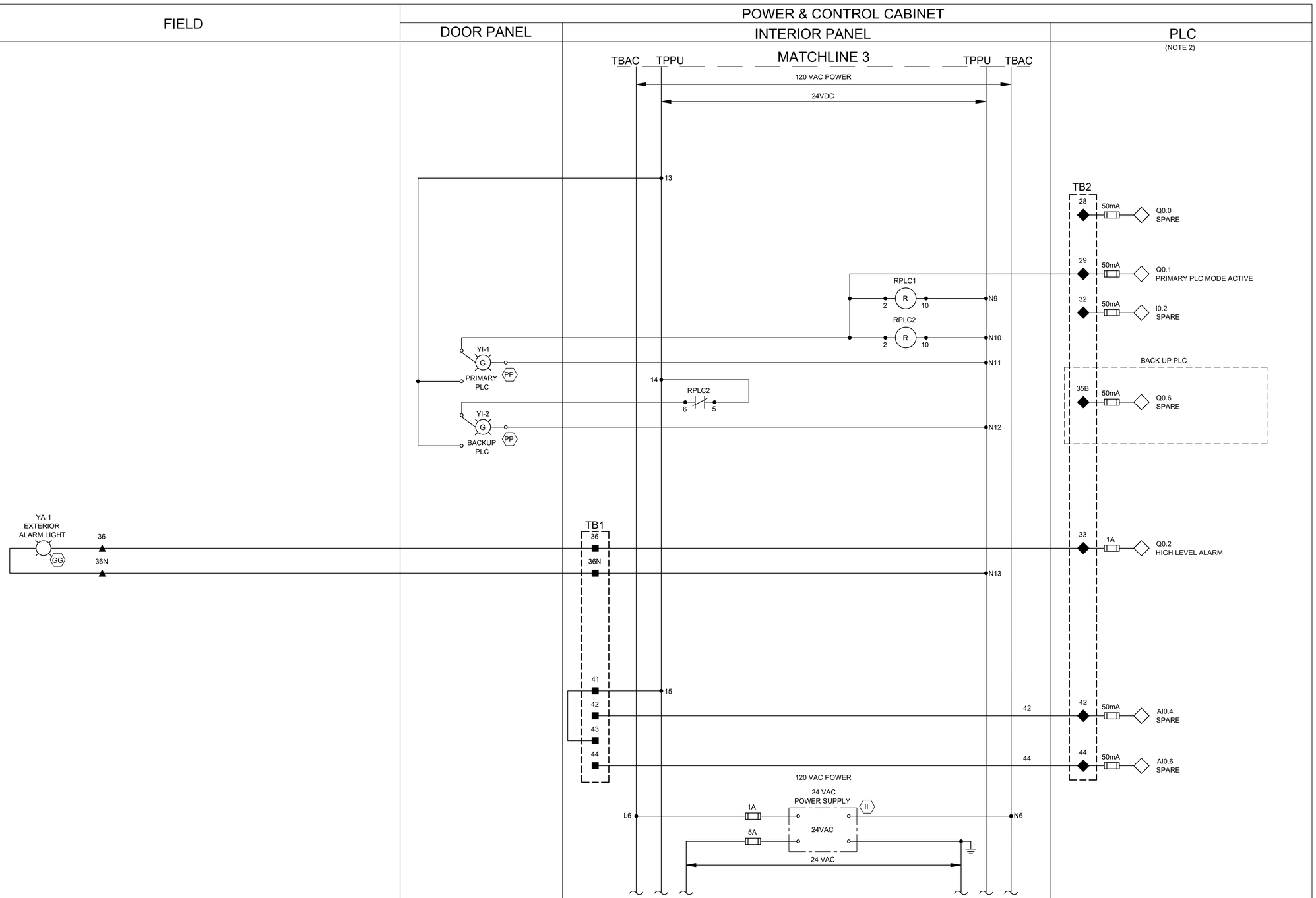

NO.	DATE	REVISION	APP.
A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

NOTES:

1. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
2. PRIMARY PLC UNLESS INDICATED OTHERWISE.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

POWER & CONTROL CABINET CONTROL WIRING DIAGRAM-IV

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E56

PLOTTED: 10/29/2025 7:45 AM
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FIELD

POWER & CONTROL CABINET

POWER SIDE BACK PANEL

DOOR PANEL

INTERIOR PANEL

PLC

TB3

TB1

TBAC

TB4

120 VAC POWER

24 VDC

24 VAC

TB2

TSH-1
MOTOR TEMP
SWITCH

LSH-1 SEAL
LEAK
DETECTOR

TERMINAL
JUNCTION BOX

PUMP
NO.1

REFER TO
SHEET F1E48

4-20mA
CURRENT
TRANSDUCER

IE-1
MOTOR OVERLOAD RELAY
(MOR) (SEE NOTE 1)

HS-1A
RESET

TO SHEET F1E58

HS-1
H-O-A

PUMP NO. 1
PROTECTION MODULE

LAH-1
SL1

TAH-1
MTH1

RRST1

RMSL1

RMTH1

RFS1

TDFRM1

RMOR1

RPLC1

RBRM1

RPLM1

YI-1
RUN

TO SHEET F1E58

Q0.4
ALARM RESET

I0.6
ALARM RESET

I1.1
PUMP NO.1
HIGH TEMP
ALARM

AI0.8
PUMP NO.1
MOTOR CURRENT

I3.3
PUMP NO.1
MOTOR OVERLOAD

I3.0
PUMP NO.1
IN HAND

I3.1
PUMP NO.1
IN AUTO

Q0.7
PUMP NO.1
PLC START/STOP

I1.0
PUMP NO.1
RUN

I3.2
PUMP NO.1
SEAL FAILURE
ALARM

L1A

L1N

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

NO.	DATE	REVISION	APP.
A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH

750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

SYNOTT RD. #1 LS

PUMP NO.1
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E57

PLOTTED: 10/29/2025 7:46 AM

PLOT STYLE: COH.ctb

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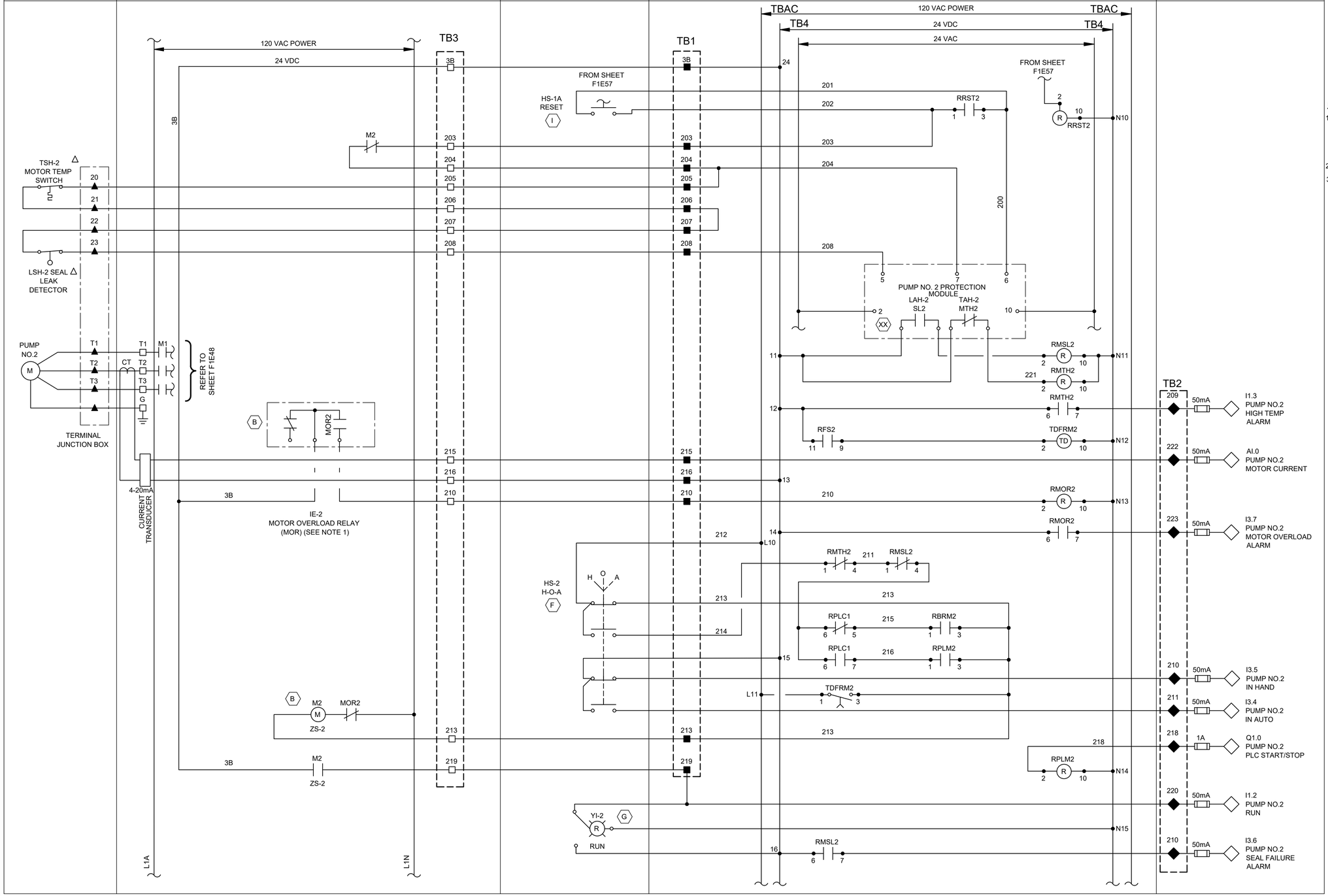
PLOT STYLE: COH.ctb
FILE PATH: \\wusppplot01\d$\Global ProjectWise Plotting - WUS\Queue 3\queue3.dwg

FIELD

POWER & CONTROL CABINET

POWER SIDE BACK PANEL | DOOR PANEL | INTERIOR PANEL | PLC



NO.	DATE	REVISION	L.L.	APP.
A	06/15/25	INTERNAL REVIEW	M.S	
B	10/30/25	CLIENT REVIEW		

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN IS NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND:

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

PUMP NO.2
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

F1E58 | SHEET NO. OF 246

A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L.
NO.	DATE	REVISION	APP.

FIELD

POWER & CONTROL CABINET

POWER SIDE BACK PANEL | DOOR PANEL | INTERIOR PANEL | PLC

120 VAC POWER
24 VDC
24 VAC
TB1
TB3
TB4
TBAC
3C
TSH-3 MOTOR TEMP SWITCH
LSH-3 SEAL LEAK DETECTOR
PUMP NO.3
TERMINAL JUNCTION BOX
REFER TO SHEET F1E48
TRANSDUCER CURRENT 4-20mA
IE-3 MOTOR OVERLOAD RELAY (MOR) (SEE NOTE 1)
HS-1A RESET
FROM SHEET F1E58
M3
MOR3
HS-3 H-O-A
PUMP NO. 3 PROTECTION MODULE
LAH-3
SL3
TAH-3
MTH3
RRST3
RMSL3
RMTH3
RFS2
TDFRM3
RMOR3
RPLC2
RBRM3
RPLM3
YI-3
RUN
ZS-3
L1A
L1N
L12
L13

TB2

309	50mA	I1.5 PUMP NO. 3 HIGH TEMPERATURE ALARM
322	50mA	AI1.2 PUMP NO. 3 MOTOR CURRENT
323	50mA	I4.3 PUMP NO. 3 MOTOR OVERLOAD ALARM
316	50mA	I4.1 PUMP NO.3 IN HAND
317	50mA	I4.0 PUMP NO.3 IN AUTO
318	1A	Q1.1 PUMP NO.3 PLC START/STOP
320	50mA	I1.4 PUMP NO. 3 RUN
310	50mA	I4.2 PUMP NO. 3 SEAL FAILURE

NOTES:

1. MOTOR OVERLOAD RELAY OUTPUT CONTACT SHOWN NORMALLY CLOSED WHEN RELAY IS DE-ENERGIZED, OPEN WHEN ENERGIZED, AND CLOSED WHEN IN ALARM. VERIFY OPERATION OF RELAY PROVIDED AND ADJUST CONNECTION OF RMOR AUXILIARY RELAYS.
2. SEE SHEET F1E44 FOR EQUIPMENT AND DEVICE SCHEDULE.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

LEGEND

- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- ✳ DEVICE OR FIELD TERMINAL LOCATED REMOTE
- □ DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ■ FIELD TERMINAL LOCATED AT CONTROL PANEL
- ▲ REMOTE TERMINAL
- ● DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

PUMP NO.3 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E59

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	DESCRIPTION	SERVICE		ROUTING			WIRE SIZE & CONDUIT
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
A	POWER & CONTROL CABINET BONDING JUMPER	--	--	POWER & CONTROL CABINET	GROUND FIELD	--	1#6G
100A	SERVICE POWER	240VAC	VARIES	MANUAL TRANSFER SWITCH (EXISTING)	POWER BACK PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT/DUCT BANK	4#4/0 / 1#6G, 2"C
100B	NORMAL/EMERGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH (EXISTING)	CONTROL BACK PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT/DUCT BANK	2#14, 3/4"C
101	GROUND ELECTRODE CONDUCTOR	--	--	POWER AREA (POWER & CONTROL CABINET)	GROUND FIELD	--	1#6G
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL AREA (POWER & CONTROL CABINET)	GROUND FIELD	--	1#6G
105	COMMUNICATION	--	--	COMMUNICATION POLE	PPU-AC PANEL	RIGID CONDUIT/DUCT BANK	ETHERNET CABLE, 3/4"C
105A	COMMUNICATION POLE LIGHT (EXISTING)	120V	--	POLE SWITCH LIGHT (EXISTING)	LIGHTING PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT/DUCT BANK	2#12 / 1#12G, 3/4"C
200	PUMP NO. 1 POWER	240VAC	20 HP	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	MFR CABLE, 2-1/2"C (SEE NOTE 2)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
202	PUMP NO. 1 POWER	240VAC	20 HP	PUMP NO. 1 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	3#4 / 1#4G, 1"C
203	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 1 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	(COMBINE 201 & 301) 8#14, 1"C
300	PUMP NO. 2 POWER	240VAC	20 HP	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	MFR CABLE, 2-1/2"C (SEE NOTE 2)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
302	PUMP NO. 2 POWER	240VAC	20 HP	PUMP NO. 2 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	3#4 1#4G, 1"C
400	PUMP NO. 3 POWER	240VAC	20 HP	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	MFR CABLE, 2-1/2"C (SEE NOTE 2)
401	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL MFR CABLE, 2-1/2"C (SEE NOTE 2)
402	PUMP NO. 3 POWER	240VAC	20 HP	PUMP NO. 3 JUNCTION BOX	PUMP STARTER (POWER & CONTROL CABINET)	RIGID CONDUIT	3#4 1#4G, 1"C
403	PUMP NO. 3 CONTROLS	120V	20 HP	PUMP NO. 3 JUNCTION BOX	CONTROL PANEL (POWER & CONTROL CABINET)	RIGID CONDUIT	4#14, 1"C
1000	LEVEL TRANSMITTER LT-1	24VDC	--	LEVEL TRANSMITTER LT-1	TRANSMITTER JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1001	LEVEL TRANSMITTER LT-2	24VDC	--	LEVEL TRANSMITTER LT-2	TRANSMITTER JUNCTION BOX	RIGID CONDUIT/DUCT BANK	INCL IN MFR CABLE, 2-1/2"C (SEE NOTE 2)
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	TRANSMITTER JUNCTION BOX	POWER & CONTROL CABINET	RIGID CONDUIT	COMBINE 1000/1001/1003, 4#14+2#14G / 4#14, 2"C
1003	WELL FLOAT SWITCHES	24VDC	--	TRANSMITTER JUNCTION BOX	FLOAT SWITCH NO.1 & NO.2	RIGID CONDUIT/DUCT BANK	MFR CABLE, 2-1/2" CONDUIT (SEE NOTE 2)
1100	120VAC FOR RECEPTACLE	120V	--	LIGHTING PANEL (POWER & CONTROL CABINET)	RECEPTACLE NEXT TO PUMP NO.3 J-BOX	RIGID CONDUIT	L5 (OUT.), 2#12 #12G, 3/4"C
1101	COMMUNICATION POLE LIGHTING SWITCH	120V	--	LIGHTING PANEL (POWER & CONTROL CABINET)	POLE SWITCH LIGHT (EXISTING)	RIGID CONDUIT	L8 (OUT.), 2#12 #12G, 3/4"C,

NOTES:

1. CONDUITS LABELED "FUTURE SPACE" ARE TO BE INSTALLED AND CAPPED IN FIELD.
2. ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2".
3. ALL UNDERGROUND CONDUITS (SINGLE AND MULTI-RUN) TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.

NO.	DATE	REVISION	APP.
A	06/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
SYNOTT RD. #1 LS

ELECTRICAL CONDUIT SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

F1E60

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PLOTTED: 10/28/2025 10:40 AM
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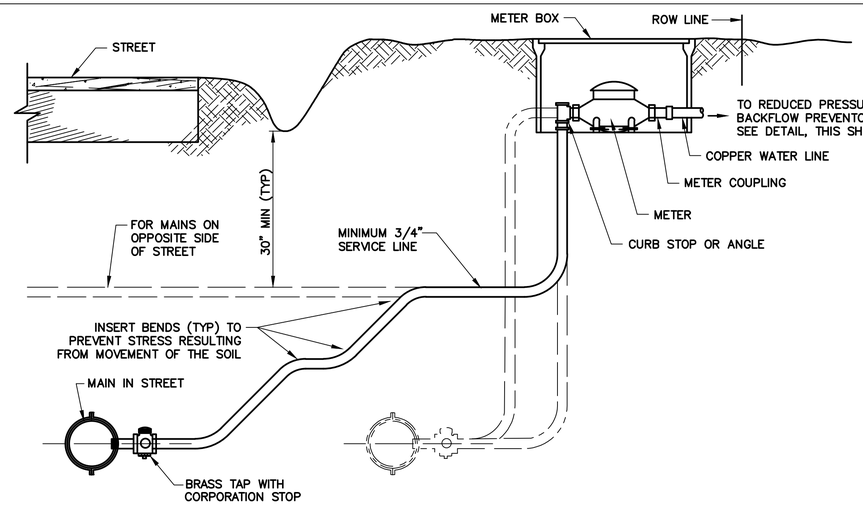
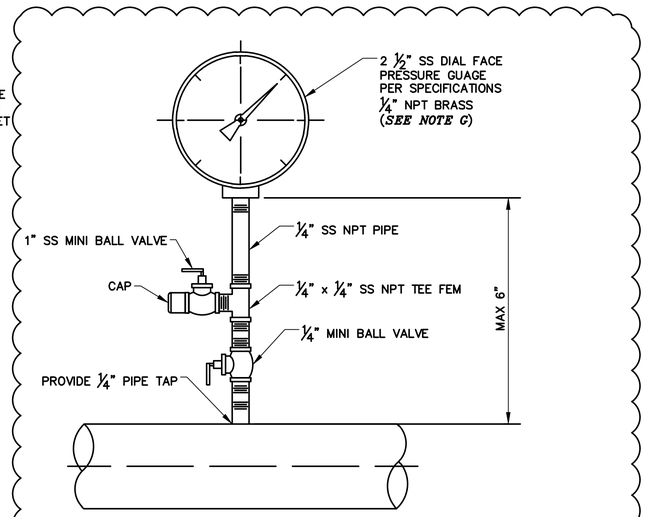


TYP WATER SERVICE LINE SECTION & METER SET DETAIL

DETAIL 15 Z0C08



1. ALL FITTINGS SHALL BE STAINLESS STEEL (316)

PRESSURE GAUGE DETAIL

DETAIL 16 Z0C08

NOTES TO DESIGN ENGINEER:

A. THESE LIFT STATION DRAWINGS ARE CONSIDERED TO BE DESIGN GUIDELINES FOR THE CONSTRUCTION OF CITY OF HOUSTON WASTEWATER SUBMERSIBLE LIFT STATIONS. THEIR INTENDED USE IS AS A FRAMEWORK FOR THE CONTRACTED DESIGN ENGINEER IN DEVELOPING SPECIFIC LIFT STATION DESIGNS.

IT IS THE RESPONSIBILITY OF THE CONTRACTED DESIGN ENGINEER TO VERIFY THE COMPLETENESS AND ACCURACY OF THE INFORMATION HEREIN CONTAINED AND TO ADJUST ACCORDING TO SPECIFIC SITE REQUIREMENTS.

B. THE DESIGN ENGINEER SHALL DETERMINE SIZE OF WATER SERVICE LINES, METER, AND BACKFLOW PREVENTER PER SPECIFIC SITE REQUIREMENTS.

C. DESIGN ENGINEER TO REVISE NOTE NO. 2 TO CONTRACTOR BY SELECTING THE APPROPRIATE COLOR OF FENCING AND SLATS. DO NOT LEAVE SELECTIONS IN "ITALIC" TEXT. SELECTION OF COLOR TO BE DETERMINED DURING PROJECT REVIEW.

D. THE DESIGN ENGINEER SHALL INCORPORATE ONLY THE NECESSARY STANDARD GUIDELINE DRAWINGS AND DETAILS INTO HIS PROJECT CONTRACT DOCUMENTATION PACKAGE, AND SHALL ADJUST PAGE NUMBERS AND CROSS REFERENCING ACCORDINGLY.

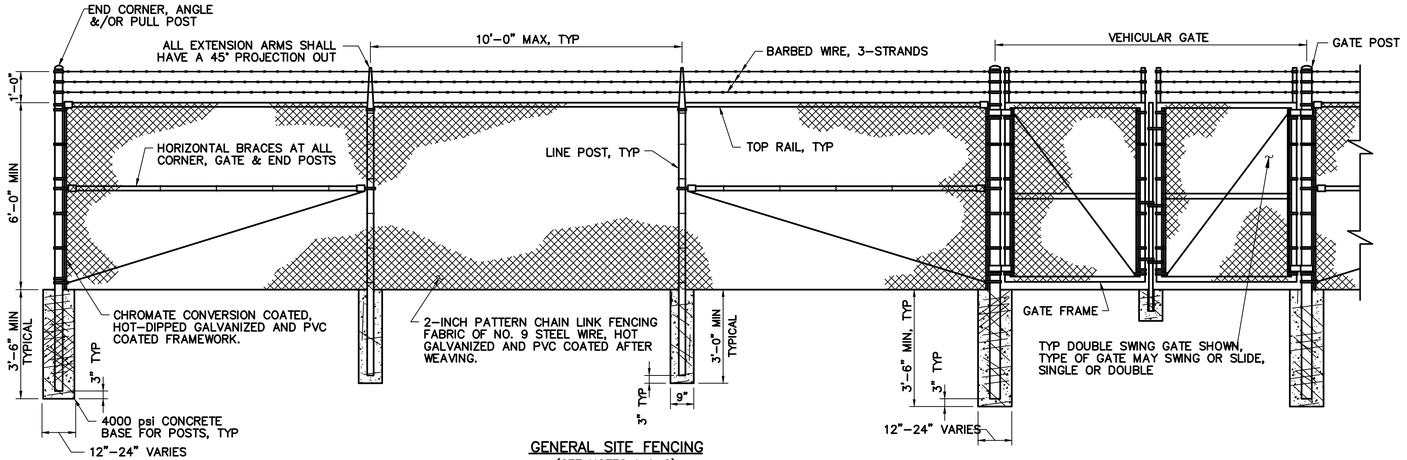
E. THE DESIGN ENGINEER SHALL CONSULT THE CITY OF HOUSTON DESIGN GUIDELINES MANUAL, THE ENGINEERING DESIGN MANUAL, AND THE MASTER SPECIFICATIONS FOR FURTHER INSTRUCTIONS AND INFORMATION PERTINENT TO THESE STANDARD DESIGN GUIDELINE DRAWINGS.

F. THE DESIGN ENGINEER SHALL REMOVE THESE NOTES, ALL REFERENCES TO THESE NOTES, AND ANY OTHER EXTRANEOUS INFORMATION FROM THE DESIGN GUIDELINE DRAWINGS. DESIGN ENGINEER SHALL PROVIDE ANY NOTES OR OTHER APPROPRIATE INFORMATION NECESSARY TO COMPLETE THE LIFT STATION DESIGN.

G. ENGINEER TO SELECT PRESSURE GUAGE TO FIT APPLICATION

NOTES:

1. ALL FENCING SHALL BE MANUFACTURED AND INSTALLED PER SPECIFICATIONS.
2. PROVIDE *(BLACK, DARK GREEN)* PVC COATED FENCE FABRIC, POSTS AND HARDWARE. PROVIDE *(REDWOOD, BLACK, DARK GREEN)* PVC FENCE SLATS. *(SEE NOTE C)*



GENERAL SITE FENCING
(SEE NOTES 1 & 2)
(SEE NOTE C)

DETAIL 17 Z0C08

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

DESIGN ENGINEER NAME ADDRESS TELEPHONE NUMBER TX FIRM NUMBER	ENGINEER'S SEAL
SURVEYED BY: FB NO. 000000	

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

CITY OF HOUSTON DESIGN GUIDELINE DRAWINGS FOR SUBMERSIBLE LIFT STATIONS

FACILITY NAME

TYPICAL SITE DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-XXXX-3	
DRAWING SCALE	
CITY OF HOUSTON PM	
JOHN DOE, P.E.	
SHEET NO. XX OF XX	

Z0C01

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
TYPICAL SITE DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
N.T.S	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

Z0C01

DocuSign Envelope ID: 9B122261-CF05-457B-9A65-2650F40B86D5

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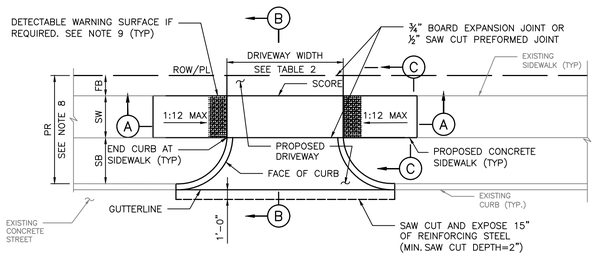
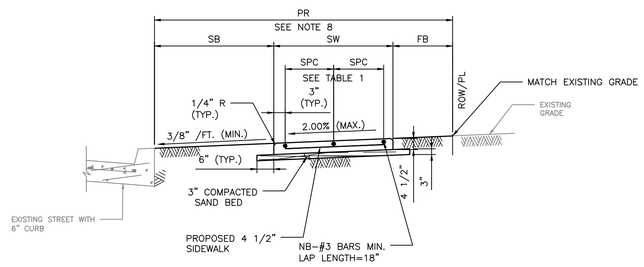
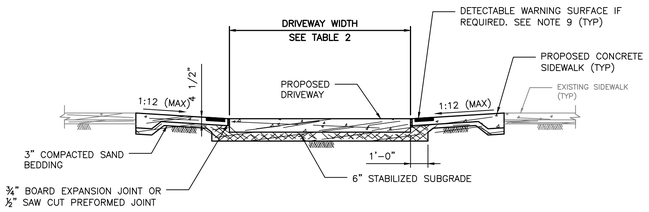
DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH ITS USE. THE ENGINEER OF RECORD FOR EACH PROJECT IS RESPONSIBLE FOR THE PROJECT DESIGN AND FOR COMPLIANCE WITH ALL APPLICABLE REGULATIONS, CODES AND STANDARDS. THE CITY OF HOUSTON'S REVIEW AND APPROVAL OF PROJECT DESIGN DOCUMENTS IS ONLY FOR THE LIMITED PURPOSE OF DETERMINING COMPLIANCE WITH CITY CRITERIA AND STANDARDS AND DOES NOT RELIEVE THE ENGINEER OF RECORD OF HIS RESPONSIBILITY FOR PROPER DESIGN. THE REVIEW PROCESS PERFORMED BY THE CITY OF HOUSTON AND ITS CONSULTANTS IS NOT INTENDED TO BE FOR THE BENEFIT OF THE ENGINEER OF RECORD, CONTRACTOR OR ANY OTHER ENTITY OTHER THAN THE CITY OF HOUSTON. THE CITY OF HOUSTON'S REVIEW, APPROVAL AND ACCEPTANCE OF THE PROJECT DESIGN DOCUMENTS DOES NOT AUTHORIZE THE USE BY ANY ENTITY AND IS NOT A WARRANTY OF ANY KIND. ANY USE MADE OF THESE PROJECT DESIGN DOCUMENTS BY ANY ENTITY OTHER THAN THE CITY OF HOUSTON FOR THE INTENDED PURPOSES IS AT THE SOLE RISK OF SUCH ENTITY AND ANY RELIANCE THEREON OR USE THEREOF BY ANY ENTITY OTHER THAN THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER, THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.



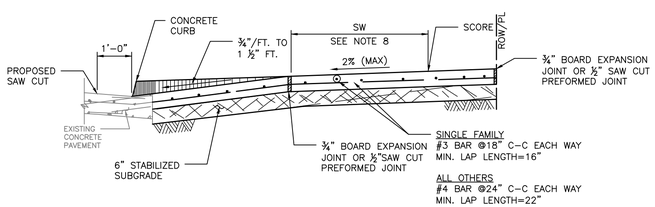
PLAN VIEW
DRIVEWAY



SECTION C–C
TYPICAL SIDEWALK SECTION



SECTION A–A
PROPOSED SIDEWALK THROUGH DRIVEWAY
WITH EXCESSIVE ELEVATION DIFFERENCE
WITH EXISTING SIDEWALK



SECTION B–B
TYPICAL DRIVEWAY SECTION

NOTES:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40–552.
2. FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
   - 2.1. EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
     - 2.1.1. THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
   - 2.2. EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
     - 2.2.1. THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
   - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
     - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
     - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. ALL JOINTS ALONG THE SIDEWALK SHALL BE CONSTRUCTED ACCORDING TO DRAWING 02752–02 AND SPECIFICATION 02752.
4. DRIVEWAYS SHALL BE MINIMUM 6" THICK FOR SINGLE FAMILY AND DUPLEXES. DRIVEWAYS SHALL BE MINIMUM 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
5. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
6. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
7. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
8. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
9. DETECTABLE WARNING SURFACES:
   - 9.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
     - 9.1.1. SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED; OR
     - 9.1.2. SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
   - 9.2. DETECTABLE WARNING SURFACES ARE OPTIONAL WHERE SIDEWALKS INTERSECT TYPE A DRIVEWAYS (SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) OR TYPE B DRIVEWAYS (SHARED ACCESS/SHARED DRIVEWAYS).
   - 9.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 3,500 PSI AND fy = 60,000 PSI
REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL			TRANSVERSE STEEL #3 BARS SPACING (IN)
		#3 BARS			
		NO. OF BARS "NB"	SPACING "SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48

TABLE 2

DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)				TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)			
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE–WAY	10	12	4	10	12(5)	16(5)	4(5)	10(5)	15	20	10	20
TWO–WAY	10(3)	24(4)	4	10	16(6)	24	4	10	24	35	10	20

(1) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLE 15.2.07.C.1.F FOR DRIVEWAYS THAT REQUIRE A VEHICLE SWEPT PATH ANALYSIS.
(2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTCILES 15.2.07.C.1.G.(1) AND 15.2.07.C.1.G.(2) FOR TYPE 1 PAE AND TYPE 2 PAE REQUIREMENTS.
(3) THE MINIMUM WIDTH FOR JOINT ACCESS DRIVEWAY IS 12 FT.
(4) REFER TO CHAPTER 42 OF THE CODE OF ORDINANCES FOR DRIVEWAY WIDTHS FOR NARROW LOTS.
(5) ONLY MURS AND COURTYARD STYLE DEVELOPMENTS ON CORNER LOTS CAN HAVE ONE–WAY DRIVEWAYS.
(6) REFER TO CHAPTER 42, SECTION 42–146 OF THE CODE OF ORDINANCES FOR EXCEPTIONS TO THE MINIMUM DRIVEWAY WIDTH FOR SHARED DRIVEWAYS.

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

APPROVED BY:	APPROVED BY:
DocuSigned by: Sukai kanwar 5EF9B0C84F5479...	DocuSigned by: HAING NGUYEN 95A28EF2DA7B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carl Haddock 3AC4168C9B1A4D6...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 02754–01B

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

DRIVEWAY DETAIL WITH 6" CURBED STREETS

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832–930–7670
TX FIRM NUMBER: F–10912

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P–6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
DRIVEWAY DETAIL

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
N.T.S	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

Z2C02

PLOTTED: 10/29/2025 9:23 AM

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NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

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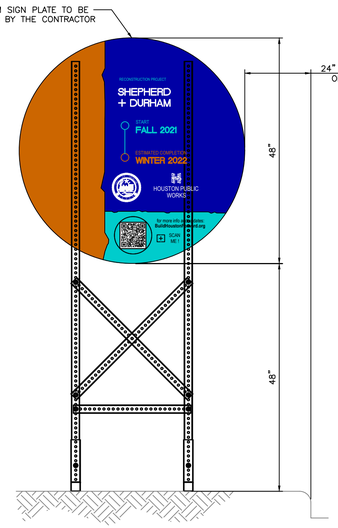
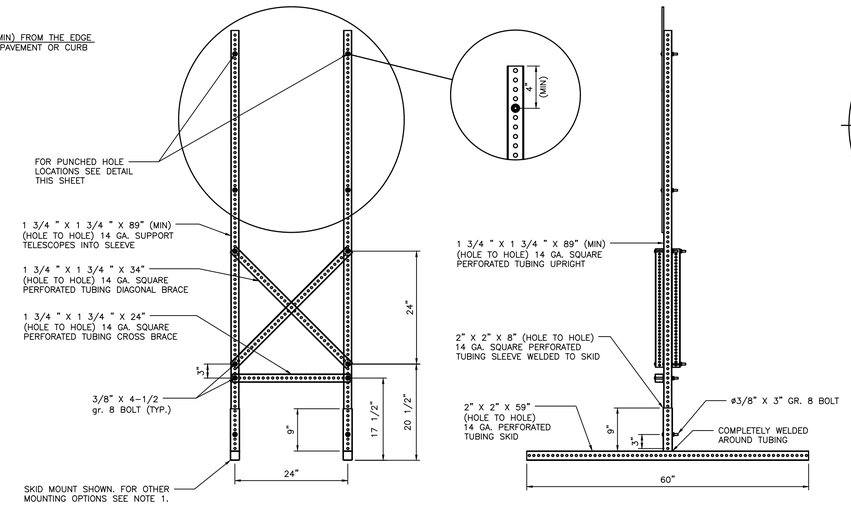


FRONT VIEW

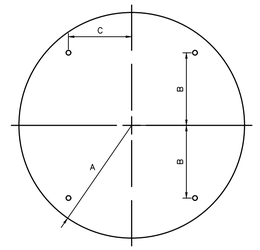
PROJECT SIGN – 48"



FRONT VIEW

SIDE VIEW

SKID MOUNTED SUPPORTS FOR 48" PROJECT SIGN



CIRCLE

A	B	C	T
24"	15"	12"	0.080"

48" SIGN PLATE HOLE DETAIL

NOTES:

1. ALLOWABLE POST INSTALLATION METHODS ARE: CONCRETE FOOTING, SURFACE MOUNTING, SKID MOUNTING AND PILE DRIVEN POSTS.
2. FOR POST INSTALLATION WITH CONCRETE FOOTING, REFER TO DETAIL 01554–01.
3. FOR SURFACE MOUNTED POST INSTALLATION, REFER TO DETAIL 01554–02.
4. FOR SKID MOUNTING REQUIREMENTS REFER TO SPECIFICATION 01582.
5. PILE DRIVEN POSTS MUST BE DRIVEN TO A MINIMUM DEPTH OF 4–FEET INTO EXISTING GROUND.
6. LAYOUT, TEXT SIZE, AND OVERALL DESIGN OF THE SIGN WILL BE THE RESPONSIBILITY OF THE BUILD HOUSTON COORDINATOR.
7. ALL SIGN POSTS, SIGN TUBING, AND SIGN FASTENERS SHALL BE GALVANIZED STEEL PER SPECIFICATION 01582.

DISCLAIMER:
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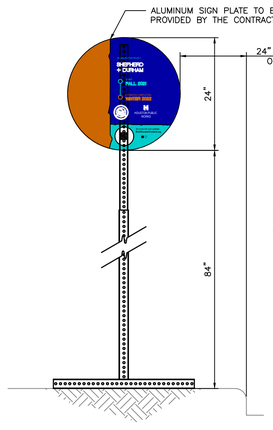
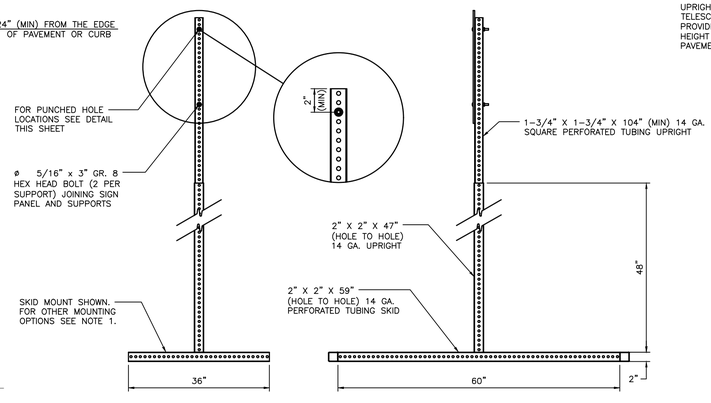


FRONT VIEW

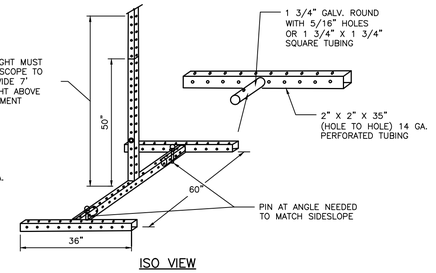
PROJECT SIGN – 24"



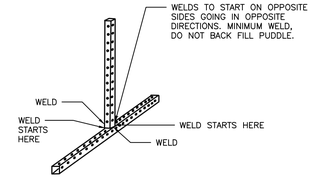
FRONT VIEW

SIDE VIEW

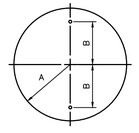
SKID MOUNTED SUPPORTS FOR 24" PROJECT SIGN



ISO VIEW



ISO VIEW



A	B	C
12"	8"	0.080"

24" SIGN PLATE HOLE DETAIL

APPROVED BY:	APPROVED BY:
Docusigned by: Sukat Kanwar	Docusigned by: Carl Hallock
CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: NOV–27–2023	DWG NO: 01582–01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONSTRUCTION SIGN BUILD HOUSTON FORWARD

DRAWING SCALE

NOT TO SCALE

FOR CITY OF HOUSTON USE ONLY

FCM Engineers, PC
3300 S. Gessner Rd. Suite 249
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P- 832-930-7670
TX FIRM NUMBER: F–10912

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ENGINEER: FRANK C. MBACHU
P.E. SERIAL No.: 108363
10 / 10 / 2025

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P–6357

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
CONSTRUCTION SIGN BUILD HOUSTON FORWARD

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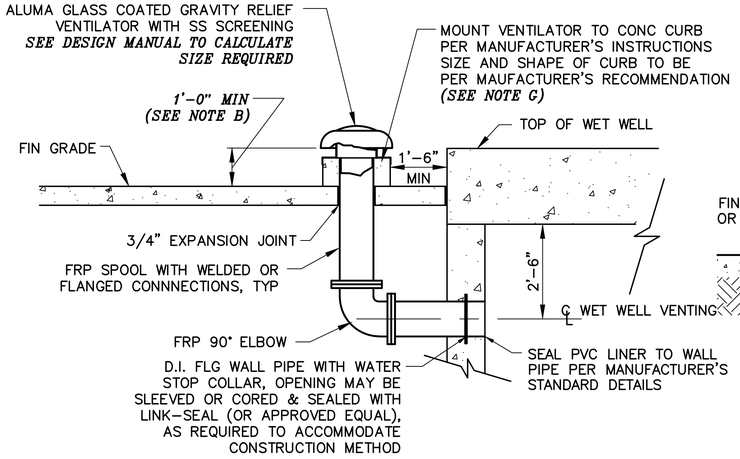
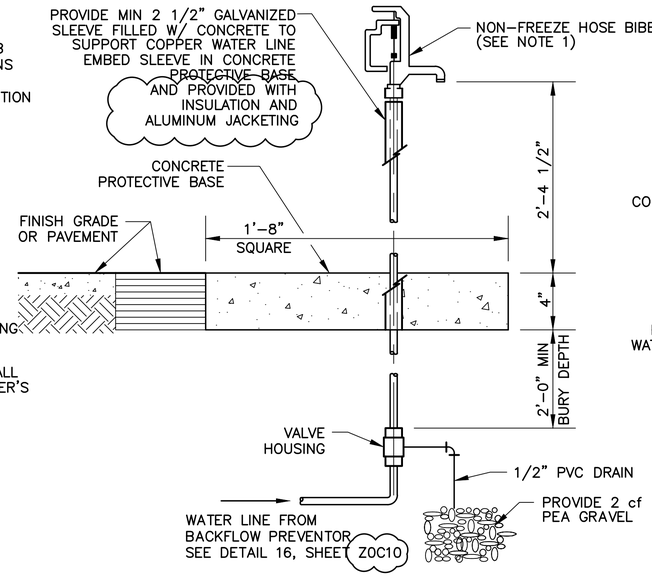


NOTE:
FOR HIGH PROFILE VENTING SEE DETAIL 1 ON SHEET Z0C02. SEE NOTE C.

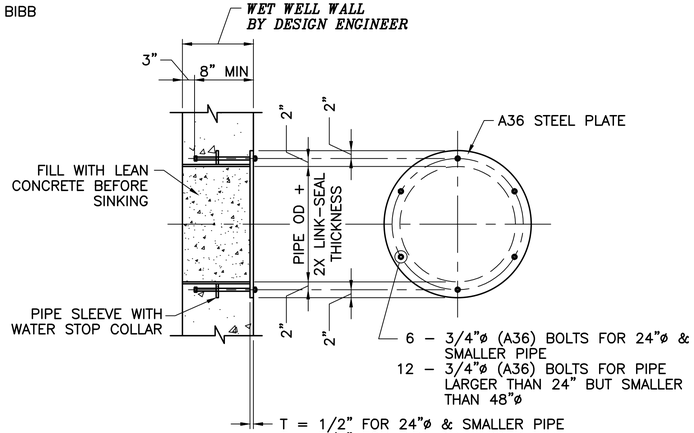
TYPICAL LOW PROFILE (PREFERRED) WET WELL VENTING INSTALLATION

DETAIL 1A Z0C07



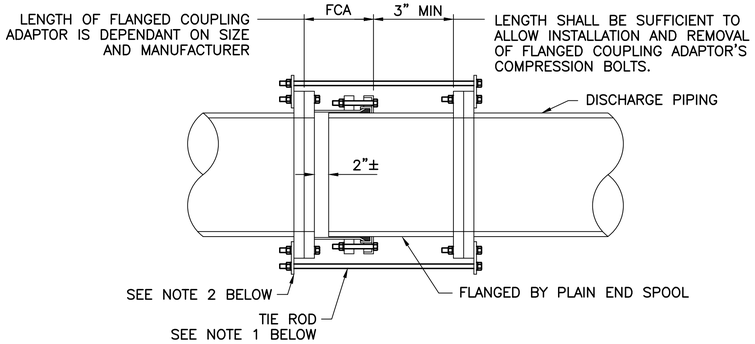
TYP NON-FREEZE HOSE BIBB DETAIL

DETAIL 12 Z0C07



TYPICAL PIPE BLOCK-OUT DETAIL FOR CAISSON CONSTRUCTION

DETAIL 13A Z0C07

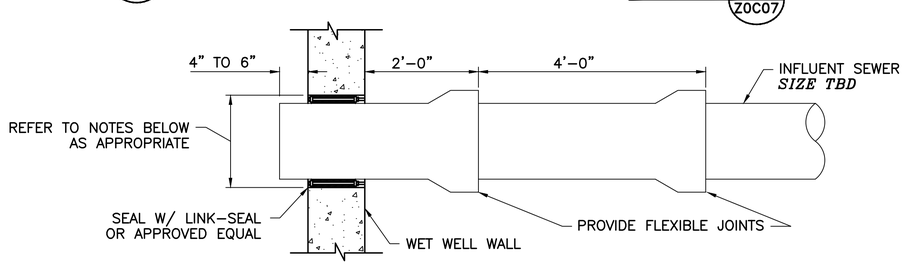


NOTES:

1. PROVIDE A NUMBER OF TIE RODS EQUAL TO 1/2 THE NUMBER OF FLANGE BOLTS. EVENLY SPACE INSTALLATION OF TIE RODS. DIAMETER OF TIE RODS TO BE EQUAL TO THE DIAMETER OF FLANGE BOLTS. LENGTH OF TIE RODS TO BE DETERMINED BY CONTRACTOR BASED ON SIZE AND MANUFACTURER OF FLANGED COUPLING ADAPTOR AND FINAL LENGTH OF SPOOL PIECE.
2. PROVIDE 316 SS TAB FOR ATTACHMENT OF TIE RODS. SIZE TO BE DETERMINED BY CONTRACTOR.
3. CONTRACTOR TO SUBMIT DETAILS DURING SHOP DRAWING SUBMISSION.
4. ALL HARDWARE SHALL BE 316 STAINLESS STEEL. TIE RODS SHOULD BE THREADED.
5. THIS RESTRAINT DOES NOT REPLACE THRUST BLOCKS TO BE PROVIDED AT OTHER LOCATIONS.

TYP FLANGED COUPLING ADAPTOR RESTRAINT DETAIL

DETAIL 14 Z0C07



FOR OPENINGS TO BE CORED (CAISSON CONSTRUCTION):

1. IDENTIFY PIPE PENETRATION LOCATION WITH 1" DIA PLASTIC PIPE SLEEVE.
2. DIAMETER OF PENETRATION OEPNING SHALL BE EQUAL TO PIPE OUTER DIAMETER PLUS 2 TIME LINK-SEAL THICKNESS.
3. PROVIDE ADDITIONAL REINFORCEMENT AROUND PENETRATION OPENING AS PER DRAWINGS Z0S03 BEFORE CASTING WALL.

FOR OPENINGS TO BE SLEEVED OR FORMED (CAISSON CONSTRUCTION):

1. IDENTIFY PIPE PENETRATION LOCATION.
2. DIAMETER OF PENETRATION OPENING SHALL BE EQUAL TO PIPE OUTER DIAMETER PLUS 2 TIMES LINK-SEAL THICKNESS. SEE "TYPICAL PIPE BLOCK-OUT DETAIL FOR CAISSON CONSTRUCTION," THIS SHEET.
3. PROVIDE ADDITIONAL REINFORCEMENT AROUND PENETRATION OPENING AS PER DRAWING Z0S03 BEFORE CASTING WALL.

FOR OPENINGS TO BE FORMED OR SLEEVED (OPEN CUT CONSTRUCTION):

1. IDENTIFY PIPE PENETRATION LOCATION.
2. DIAMETER OF PENETRATION OPENING SHALL BE EQUAL TO PIPE OUTER DIAMETER PLUS 2 TIMES LINK-SEAL THICKNESS.
3. PROVIDE ADDITIONAL REINFORCEMENT AROUND PENETRATION OPENING AS PER DRAWING Z0S03 BEFORE CASTING WALL.

TYP INFLUENT SEWER ENTRY DETAIL

DETAIL 13 Z0C07

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

INTERIM REVIEW ONLY
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ENGINEER: _____
P.E. SERIAL No.: _____

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

TYPICAL DETAILS – CIVIL

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
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CITY OF HOUSTON PM	
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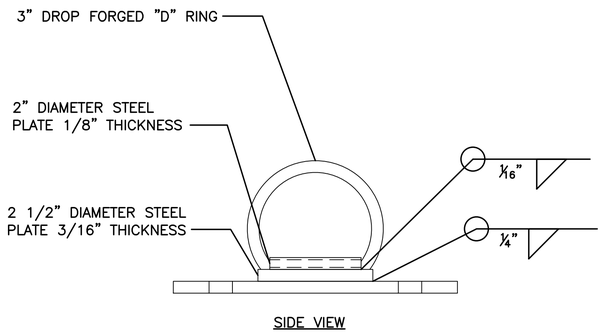
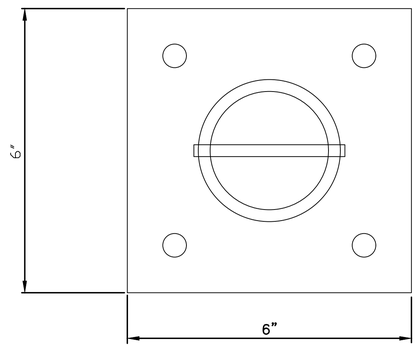
SHEET NO. OF 246	

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L



SIDE VIEW

ø9/16"



PLAN VIEW

CB SERIES FALL PROTECTION CB-1B BOLT ANCHORED

DETAIL 1 / Z0C10 — NTS

NOTES:

STEEL BASE PLATE SHALL BE ¼" HOT ROLLED STEEL PLATE THAT MEETS ASTM A-570 SPECIFICATIONS.

2 ½" DIAMETER STEEL PLATE, 3⁄16" THICK ATTACHED TO BASE PLATE USING ¼" FILLET WELD.

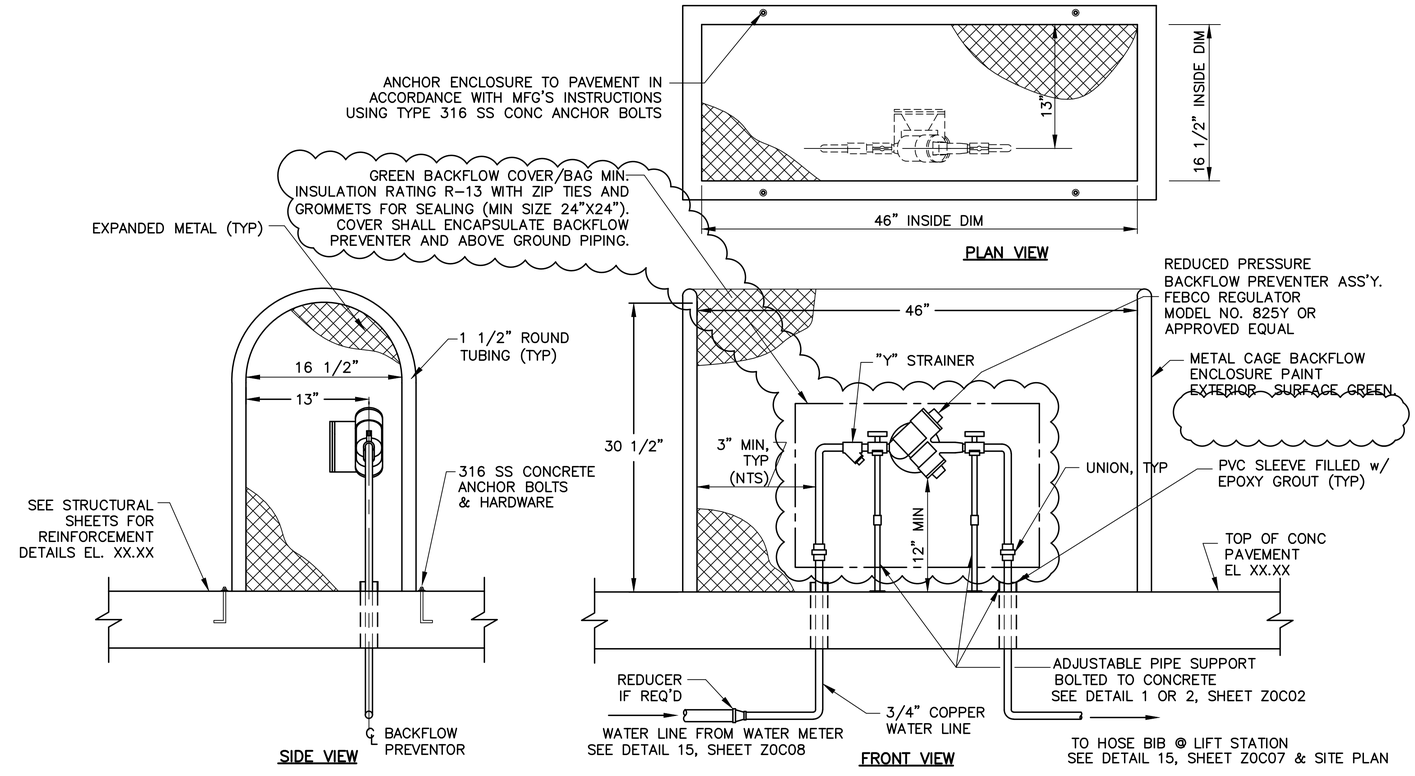
2" DIAMETER FORMED STEEL PLATE, ⅛" THICK USED TO ATTACHED "D" RING TO THE 2 ½" DIAMETER STEEL PLATE USING A 1⁄16" FILLET WELD.

BASE PLATE CAN BE BOLTED TO CONCRETE, STEEL, OR WOOD AS NEEDED PER APPLICATION.

ANCHOR BOLTS SHALL BE ½" DIAMETER ANCHOR BOLTS.

ANCHOR BOLTS SHALL SUSTAIN A MINIMUM ULTIMATE PULL-OUT LOAD OF AT LEAST 6,000 POUNDS.

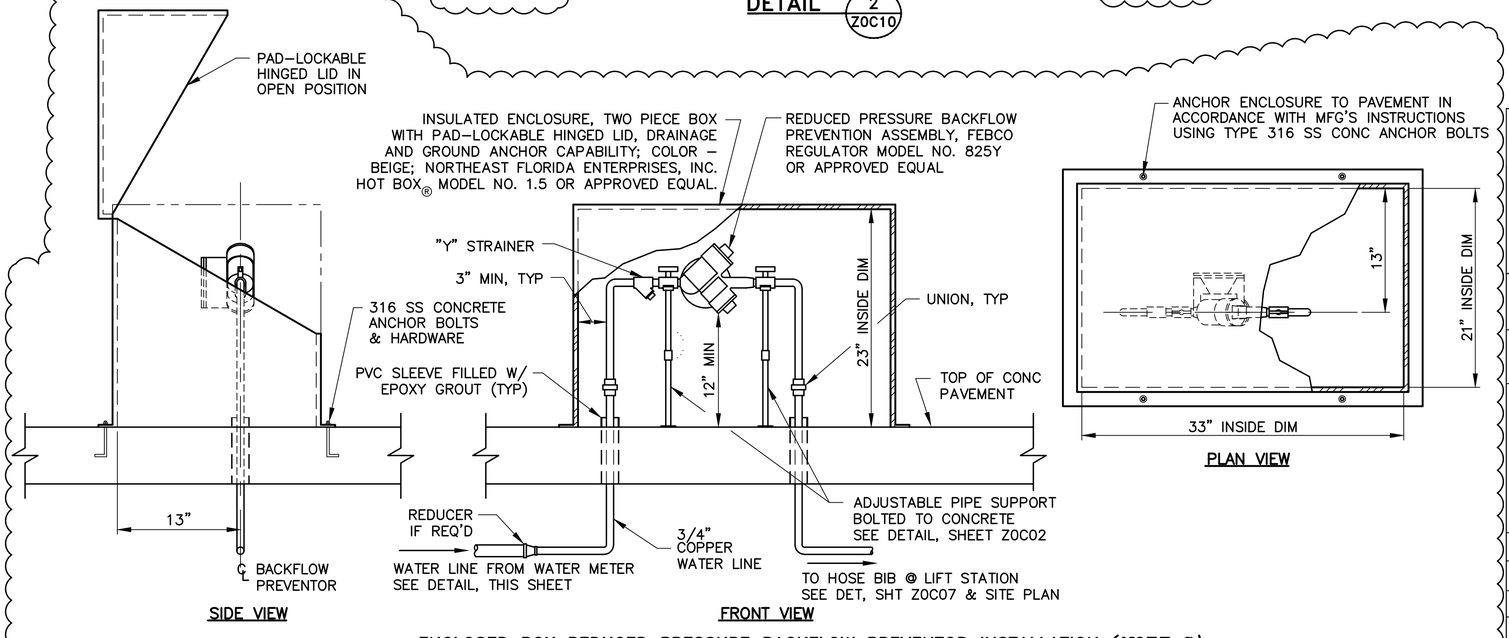
WELDING SHALL BE PERFORMED BY A CERIFIFIED WELDER USING E-70XX ROD OR WIRE FEED.



SIDE VIEW — FRONT VIEW — PLAN VIEW

OPEN CAGE REDUCED PRESSURE BACKFLOW PREVENTOR INSTALLATION *(NOTE G)*

DETAIL 2 / Z0C10



SIDE VIEW — FRONT VIEW — PLAN VIEW

ENCLOSED BOX REDUCED PRESSURE BACKFLOW PREVENTOR INSTALLATION *(NOTE G)*

DETAIL 16 / Z0C08

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P-6357

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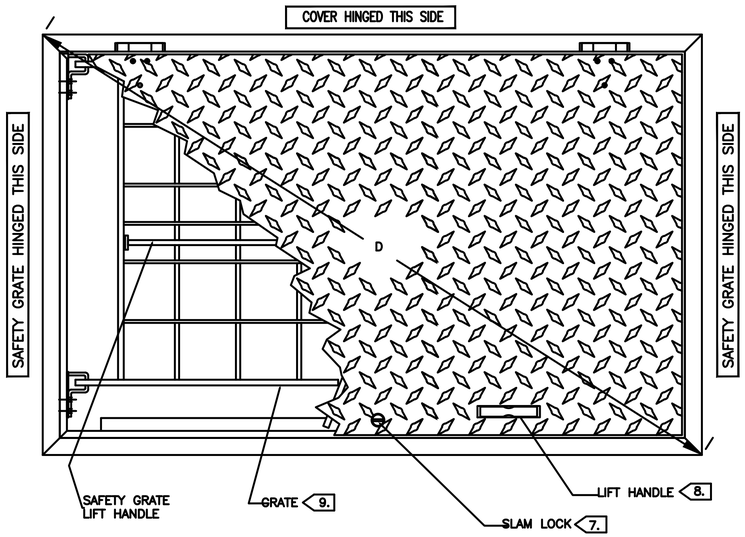
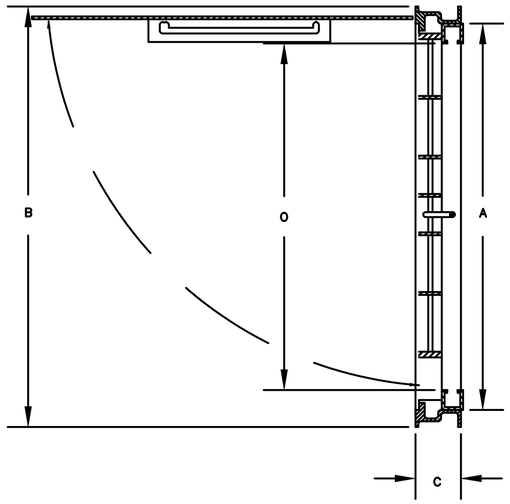
ENGINEER:
P.E. SERIAL No.:

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

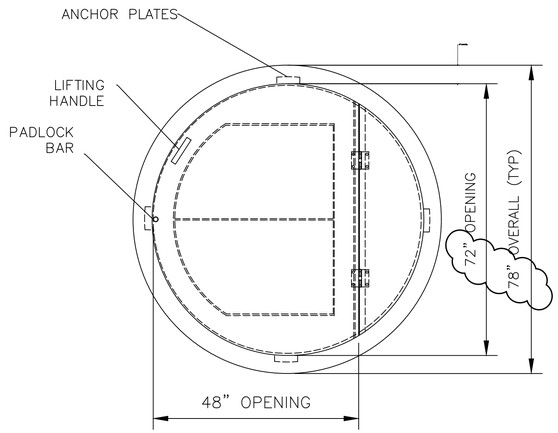
LIFT STATION RENEWAL & REPLACEMENT PROJECT
TYPICAL SITE DETAILS

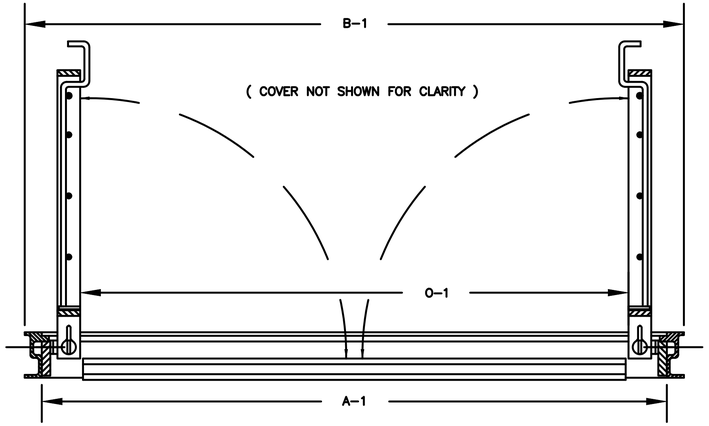
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
N.T.S	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
Z0C05 SHEET NO. OF 246	

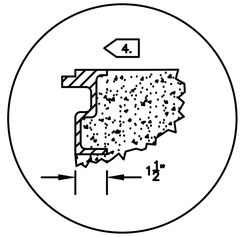




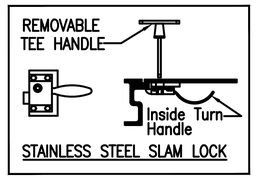
NOTE:
T.O.C. @ 46.20





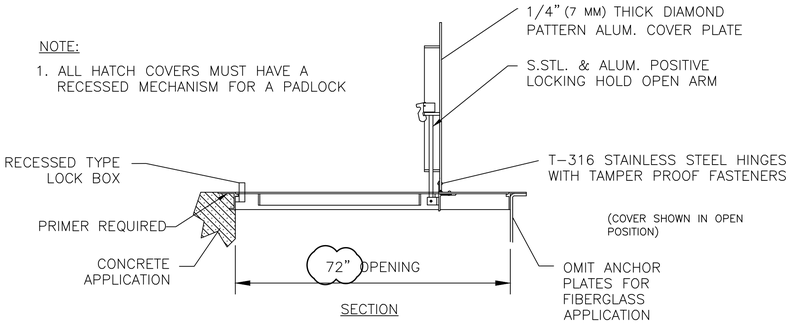


DETAIL B



DETAIL A

NOTE:
1. ALL HATCH COVERS MUST HAVE A RECESSED MECHANISM FOR A PADLOCK



SECTION

PATTERN NO.	DIMENSIONS IN INCHES		UNOBSTRUCTED CLEAR OPENING	HEIGHT	DIAGONAL
ALUMINUM	A x A1	B x B1	O x O1	C	D
FLED-AOSH	PER MANUFACTURER	PER MANUFACTURER	MATCH EXISTING	PER MANUFACTURER	PER MANUFACTURER

1.) MATERIAL SHALL BE 6061-T6 ALUMINUM FOR BARS, ANGLES, AND EXTRUSIONS. 1/4" DIAMOND PLATE SHALL BE 5086 ALUMINUM. EXTERIOR OF FRAME WHICH COMES IN CONTACT WITH CONCRETE SHALL HAVE ONE COAT FOREST GREEN PAINT.

2.) UNIT DESIGNED PEDESTRIAN RATED FOR A MINIMUM LIVE LOAD OF 300 LBS./SQ.FT.

3.) DOOR SHALL BE EQUIPPED WITH A HOLD OPEN ARM. DOOR SHALL LOCK OPEN IN THE 90 DEGREE POSITION. HOLD OPEN ARM SHALL BE FASTENED TO THE FRAME WITH A 1/2" GRADE 316 STAINLESS STEEL BOLT.

4. ANGLE FRAME SHALL BE OF EXTRUDED ALUMINUM, WITH A CONTINUOUS 1-1/2" ANCHOR FLANGE.

5.) COVER HINGES SHALL BE OF HEAVY DUTY DESIGN. MATERIAL SHALL BE GRADE 316 STAINLESS STEEL. EACH HINGE SHALL HAVE A GRADE 316 STAINLESS STEEL, 3/8" DIAMETER HINGE PIN. HINGE SHALL BE FASTENED TO ANGLE AND DIAMOND PLATE WITH GRADE 316 STAINLESS STEEL BOLTS AND NY-LOCK NUTS.

6.) ALL HARDWARE SHALL BE STAINLESS STEEL.

7. EACH HATCH SHALL BE SUPPLIED WITH A GRADE 316 STAINLESS STEEL SLAM LOCK, WITH KEY WAY PROTECTED BY A THREADED PLUG. PLUG SHALL BE FLUSH WITH THE TOP OF THE 1/4" DIAMOND PLATE. SLAM LOCK SHALL BE FASTENED WITH FOUR GRADE 316 STAINLESS STEEL BOLTS AND WASHERS.

8. EACH HATCH SHALL BE EQUIPPED WITH AN ALUMINUM LIFT HANDLE. THE LIFT HANDLE SHALL BE FLUSH WITH THE TOP OF THE 1/4" DIAMOND PLATE.

9. UNITS SHALL BE SUPPLIED WITH A HINGED SAFETY GRATES (SAFETY YELLOW) TO PROVIDE PROTECTION AGAINST FALL THROUGH AND TO CONTROL ACCESS TO THE CONFINED SPACE. (SEE SAFETY GRATE SPECIFICATIONS ON SEPARATE PAGE.)

10.) HATCH COVERS SHALL BE PAINTED FOREST GREEN TO DEMARCATE AND PREVENT VANDALISM.

LIFT STATION WET WELL AND SPLITTER BOX HATCHES

SOURCE: ITT/FLYGT

STANDARD FEATURES:

- AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
- T-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
- NON-CORROSIVE LOCKING BAR
- SINGLE LEAF CONSTRUCTION FOR MAXIMUM ACCESS
- 300 LBS. PER SQ. FT. LOAD RATING (1464 KG. PER SQ. METER LOAD RATING)
- EXTRUDED ALUMINUM FRAME
- RECESSED LIFTING HANDLE
- ANCHOR PLATES (ORDER WITHOUT FOR FIBERGLASS OR DROP-IN INSTALLATIONS)
- LIFETIME GUARANTEE
- COVERED FRAME PAINTED FOREST GREEN
- PROVIDE ACCESS HATCH DOOR WITH RECESSED (PATERNAL) TYPE PADLOCK CLIPS. EXPOSED PADLOCK CLIP NOT ALLOWED.

STANDARD SIZES

QTY.	MODEL NO.	A DIM. INCHES (MM)	B DIM. INCHES (MM)	C DIM. INCHES (MM)	UNIT WT. LBS. (KG.)
1	R1R72	48 (1219)	72 (1829)	78 (1981)	175 (79)

FORCE MAIN BYPASS MANHOLE HATCH

SOURCE: HALLIDAY PRODUCTS
PHONE: 1 (800) 298-1027

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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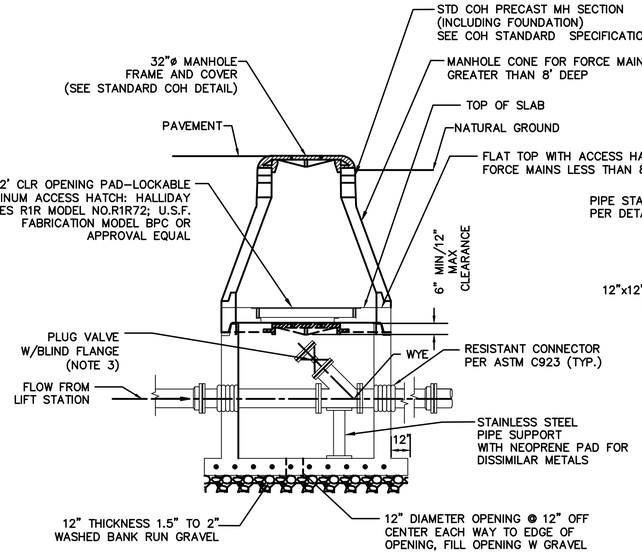
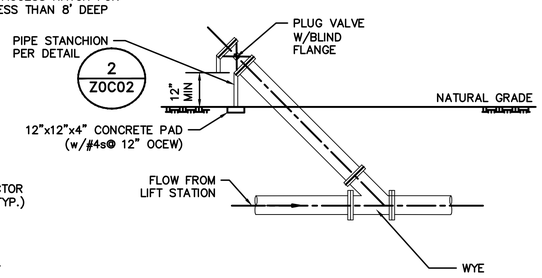
N.T.S	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

Z0C6

A	10/30/25	CLIENT REVIEW	L.L
NO.	DATE	REVISION	APP.



BELOW GROUND BYPASS DETAIL



ABOVE GROUND BYPASS DETAIL
USE OF THIS DETAIL MUST BE APPROVED BY WASTEWATER OPERATIONS.

MANHOLE SIZE *(NOTE B)*	
FORCEMAIN DIAMETER	MANHOLE DIAMETER
8"	4'–0"
18"	5'–0"
30"	8'–0"

NOTES:

1. PROVIDE LINED DUCTILE IRON PIPE, THICK, CLASS 53, FOR FORCE MAIN WITHIN 12" OF OUTSIDE FACE OF MANHOLE. JOINTS WITHIN MANHOLE MAY BE FLANGED (AS SHOWN OR GROOVED (PER ASTM 606) WITHIN MANHOLE, WITH 316 STAINLESS STEEL BOLTS.
2. MANHOLE TOP MAY BE CONCENTRIC CONE, OR FLAT TOP WITH ECCENTRIC OPENING. PROVIDE 32" FRAME AND COVER.
3. ENSURE MIN CLEARANCE OF 18" ON ALL SIDES. OFFSET VALVE ON HATCH/MH OPENING AS NEEDED TO OBTAIN CLEARANCE.

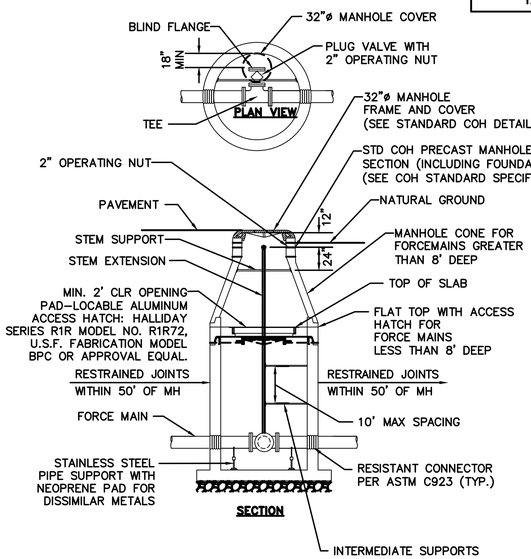
NOTES TO DESIGN ENGINEER:

A. UTILIZE DETAIL AS APPROPRIATELY PER APPLICATION. ABOVE GROUND DETAIL MUST BE LOCATED WITHIN THE LIFT STATION SITE FENCING. PIPING AND PLUG VALVE CANNOT BE PLACED ABOVE GROUND THAT IMPEDES VEHICULAR ACCESS WITHIN THE SITE.

B. CAST–IN–PLACE CONSTRUCTION OF MANHOLES LARGER THAN 8 FT WOULD BE NEEDED FOR FORCE MAIN DIAMETERS LARGER THAN 30 INCH.

BYPASS MANHOLE DETAIL
SCALE: NONE
Z0C12

MANHOLE SIZE *(NOTE A)*	
FORCEMAIN DIAMETER	MANHOLE DIAMETER
4" TO 10"	6'–0"
12" TO 18"	8'–0"



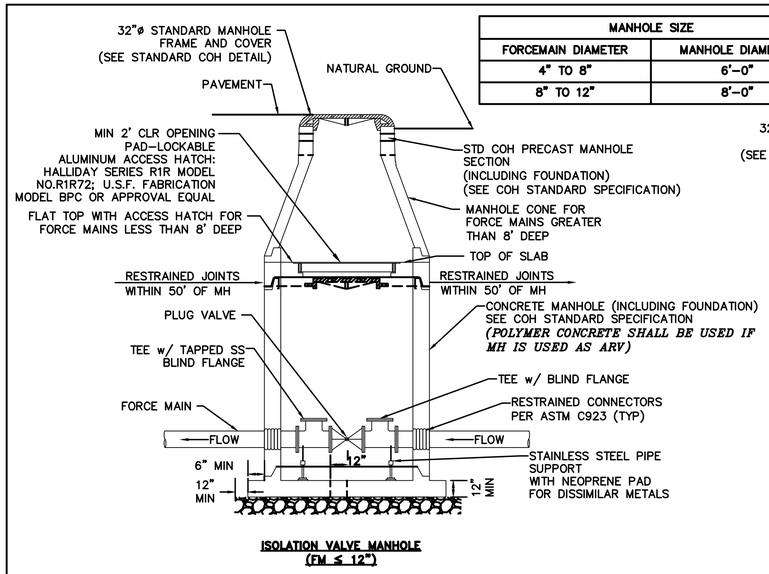
NOTES:

1. REFER TO PLAN AND PROFILE DRAWINGS FOR TEE AND VALVE SIZE.
2. PROVIDE ECCENTRIC CONE MANHOLE. ROTATE CONE SO THAT OPERATING NUT IS ACCESSIBLE FROM OPENING BUT DOES NOT LIMIT ACCESS.
3. PROVIDE LINED DUCTILE IRON PIPE, THICK, CLASS 53, FOR FORCE MAIN WITHIN 12" OF OUTSIDE FACE OF MANHOLE. JOINTS WITHIN MANHOLE MAY BE FLANGED (AS SHOWN OR GROOVED (PER ASTM 606) WITHIN MANHOLE, WITH 316 STAINLESS STEEL BOLTS.
4. ENSURE MIN CLEARANCE OF 18" ON ALL SIDES. OFFSET VALVE ON HATCH/MH OPENING AS NEEDED TO OBTAIN CLEARANCE.

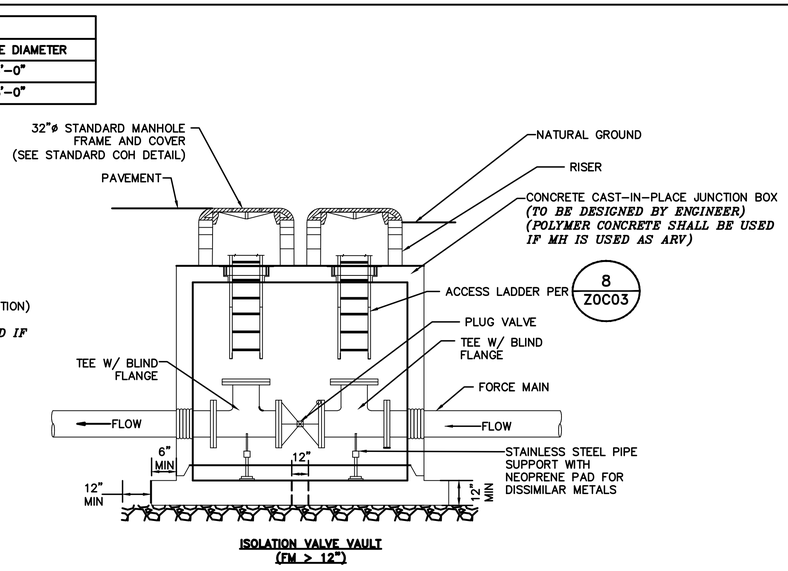
NOTES TO DESIGN ENGINEER:

A. CAST–IN–PLACE CONSTRUCTION OF MANHOLES LARGER THAN 8 FT WOULD BE NEEDED FOR FORCE MAIN DIAMETERS LARGER THAN 18 INCH.

FORCEMAIN BLOW–OFF/DRAIN MANHOLE
SCALE: NONE
Z0C12



ISOLATION VALVE MANHOLE (FM ≤ 12")



ISOLATION VALVE VAULT (FM > 12")

ISOLATION VALVE MANHOLE/ VAULT
SCALE: NONE
Z0C12

NOTES:

1. PROVIDE LINED DUCTILE IRON PIPE, THICK, CLASS 53, FOR FORCE MAIN WITHIN 12" OF OUTSIDE FACE OF MANHOLE. JOINTS WITHIN MANHOLE MAY BE FLANGED (AS SHOWN OR GROOVED (PER ASTM 606) WITHIN MANHOLE, WITH 316 STAINLESS STEEL BOLTS.
2. MANHOLE TOP MAY BE CONCENTRIC CONE, OR FLAT TOP WITH ECCENTRIC OPENING. PROVIDE 32" FRAME AND COVER. ORIENT ECCENTRIC OPENING OPPOSITE SIDE FROM AIR VALVE.
3. IF THE ISOLATION VALVE IS LOCATED ON THE HIGH POINT ALONG THE FORCE MAIN, THE ISOLATION MANHOLE MAY ALSO SERVE AS ARV MANHOLE.
4. AIR VALVE SHOULD BE LOCATED ON THE HIGHEST POINT ALONG THE BYPASS LINE CONNECTED TO ISOLATION VALVE.
5. AIR VALVE MAY BE AIR RELEASE OR AIR VACUUM RELEASE VALVE AS AS NOTED ON PLAN AND PROFILE SHEETS.
6. SEE COH STANDARD SPECIFICATION FOR AIR VALVE ASSEMBLY REQUIREMENTS, IF ARV IS REQUIRED PER PLAN AND PROFILE DRAWINGS.
7. PROVIDE VENTED MANHOLE FOR AIR AND VACUUM RELEASE VALVE INSTALLATION AND AS LOCATIONS INDICATED ON THE DRAWINGS.

NOTES TO DESIGN ENGINEER:

A. UTILIZE DETAIL AS APPROPRIATELY PER APPLICATION.

B. FOR FORCE MAINS LARGER THAN 12" THAT NEED MANHOLE BIGGER THAN PRE–CAST LIMIT OF 8 FT REQUIRE A VAULT. THE DETAIL SHOWN IS THE GENERAL CONFIGURATION. VAULT MAY BE PRECAST BY APPROVED MANUFACTURERS OR CAST IN PLACE AS DESIGNED BY ENGINEER.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832–930–7670
TX FIRM NUMBER: F–10912

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ENGINEER: _____
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CITY OF HOUSTON
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TYPICAL MANHOLE DETAILS

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DRAWING SCALE	
N.T.S	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

Z0C07

GENERAL NOTES FOR STRUCTURES

CONCRETE

1. DESIGN SHALL CONFORM TO THE LATEST BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI–318) WITH SPECIAL REQUIREMENTS OF ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI–350). THE DESIGN SHALL CONFORM TO THE LATEST VERSION OF INTERNATIONAL BUILDING CODE. ADOPTED BY THE CITY OF HOUSTON.
2. ALL REINFORCING BARS SHALL CONFORM TO ASTM A–615, GRADE 60. ARRANGEMENT AND DETAILS OF REINFORCING STEEL, INCLUDING BAR SUPPORTS AND SPACERS, SHALL BE IN ACCORDANCE WITH THE LATEST ACI DETAILING MANUAL, UNLESS OTHERWISE NOTED.
3. ALL SLAB AND BEAM REINFORCEMENT SHALL HAVE A MINIMUM EXTENSION INTO THE SUPPORT IN ACCORDANCE WITH THE LATEST ACI CODE. IF SUCH EXTENSION IS NOT POSSIBLE, BARS SHALL TERMINATE IN STANDARD HOOKS.
4. HORIZONTAL WALL REINFORCEMENT AND TEMPERATURE REINFORCEMENT SHALL LAP A MINIMUM OF 1.7Ld AT SPLICES. WALL DOWELS AND WALL BAR EXTENSIONS AND ALL STRESS SPLICES SHALL LAP A MINIMUM OF 1.7 Ld, UNLESS OTHERWISE NOTED.
5. WALL OR COLUMNS SHALL HAVE DOWELS FROM FOUNDATIONS OR CONSTRUCTION BELOW OF SAME SIZE AND SPACING AS WALL OR COLUMN VERTICAL STEEL.
6. UNLESS OTHERWISE NOTED ON THE DRAWINGS, CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL NOT BE LESS THAN THE FOLLOWING:
   - STRUCTURAL MEMBERS, FOUNDATIONS, WALLS AND SUSPENDED SLABS –– 4000 PSI
   - SLABS ON GRADE–– 4000 PSI
   - LEAN CONCRETE CLASS B (SEAL SLAB CONCRETE)––––––––––––––––– 1500 PSI
   - GROUT FILL CLASS H ––– 3000 PSI
7. UNLESS OTHERWISE SHOWN, THE COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
   - SLABS
     TOP AND BOTTOM OF FORMED SLABS––––––––––––––––––––––––––––––2"
     TOP OF WALK AND DRIVEWAY SLABS ––––––––––––––––––––––––––––2"
     SURFACES IN CONTACT WITH LIQUID ––––––––––––––––––––––––––––2"
     BOTTOM OF SLABS ON FILL OR SOIL ––––––––––––––––––––––––––––3"
   - FOOTINGS:
     TOP AND SIDES––2 1/2"
     BOTTOM––3"
   - WALLS:
     LESS THAN 12" THICK ––1 1/2"
     12" OR OVER IN THICKNESS WITH POURS LESS THAN 10 FEET HIGH––––––– 2"
     12" OR OVER IN THICKNESS WITH POURS MORE THAN 10 FEET HIGH–––––– 2 1/2"
   - BEAMS AND GIRDERS:
     COVER AT TOP, BOTTOM OR SIDES OF LONGITUDINAL REINF–––––––––––– 2"
   - COLUMNS:
     COVER FOR VERTICAL BARS––––––––––––––––––––––––––––––––––––––2"
8. HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS SHOWN OR NOTED ON THE PLANS ARE RECOMMENDED. ANY DEVIATION FROM THOSE SHOWN SHALL HAVE APPROVAL OF THE ENGINEER.
9. ANY STOP IN FRAMED CONCRETE WORK MUST BE MADE IN THE CENTER OF THE SPAN AND INCORPORATE AN APPROVED KEYWAY. REINFORCEMENT SHALL EXTEND THROUGH THESE JOINTS IF REQUIRED FOR CONTINUITY.
10. USE TYPE 'C2' JOINT FOR ALL CONSTRUCTION JOINTS IN WALLS AND SLABS BELOW GRADE AND WALLS WHICH SEPARATE AREAS OF SOIL OR LIQUID FROM PERMANENTLY DRY AREAS SUCH AS TUNNELS, GALLERIES, BASEMENT ROOMS, ETC. USE TYPE 'C1' JOINT AT ALL OTHER CONSTRUCTION JOINTS, UNLESS OTHERWISE NOTED ON DRAWINGS.
11. CONCRETE WALLS AND PARTITIONS SHALL BE POURED IN MAXIMUM LENGTHS OF 40 FEET BETWEEN VERTICAL CONSTRUCTION JOINTS.
12. ALL CONCRETE SLABS OVER 8" IN THICKNESS, REINFORCED WITH BARS, AND POURED AGAINST SOIL SHALL BE POURED IN A STRIP PATTERN OF 40 FEET OR LESS IN EACH DIRECTION.
13. ALL EXPOSED EDGES OF BEAMS, COLUMNS, SLABS AND WALLS SHALL BE CHAMFERED 3/4" UNLESS MASONRY OR OTHER MEMBERS ARE ERECTED FLUSH WITH THEM.
14. REFER TO ARCHITECTURAL, PROCESS, MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL SLEEVES, PIPES, CONDUITS AND MISCELLANEOUS ANCHORING DEVICES TO BE INCORPORATED IN THE CONSTRUCTION

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS". ALL STRUCTURAL STEEL SHALL BE ASTM A36.
2. ELEVATIONS OF STEEL BEAMS SHOWN ON FRAMING PLANS REFER TO TOP OF FLANGE, UNLESS OTHERWISE NOTED.
3. ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER ASTM A–325 BOLTS EXCEPT AS OTHERWISE SHOWN OR NOTED. ALL CONNECTIONS SHALL BE CAPABLE OF SUPPORTING ONE HALF THE MAXIMUM ALLOWABLE UNIFORM LOAD FOR INDICATED BEAM SIZE AND SPAN IN AISC MANUAL OF STEEL CONSTRUCTION, EXCEPT AS OTHERWISE NOTED.
4. FIELD CONNECTIONS SHALL BE BOLTED, EXCEPT AS OTHERWISE SHOWN OR NOTED.
5. ALL WELDING SHALL CONFORM TO THE LATEST SPECIFICATION OF THE AMERICAN WELDING SOCIETY. ALL WELDED CONNECTIONS SHALL BE MADE WITH AWS A5.1 OR A5.5 E70 XX ELECTRODE.
6. ANCHOR BOLTS AND MISC EMBEDDED STEEL––––––––––––––––––––––––––ASTM A36. ANCHOR BOLTS WHICH ARE SUBMERGED, LOCATED ABOVE A LIQUID SURFACE, OR ARE IN A CORROSIVE ATMOSPHERE––316 SS.
7.. ALL EQUIPMENT ANCHOR BOLT DIMENSIONS AND LOCATIONS SHALL BE VERIFIED FROM CERTIFIED VENDOR DRAWINGS, PRIOR TO CONSTRUCTION.

FOUNDATIONS

1. ALLOWABLE SOIL BEARING PRESSURE, EXCAVATION AND BACKFILL FOR FOUNDATIONS AND STRUCTURES SHALL BE AS RECOMMENDED PER PROJECT GEOTECHNICAL REPORT.
2. ALL EXCAVATIONS SHALL BE CARRIED OUT IN THE DRY, AND PROVISIONS SHALL BE MADE TO PREVENT THE BOTTOM OF ALL EXCAVATIONS FROM FREEZING OR FLOODING AT ALL TIMES.
3. ALL FOUNDATIONS SHALL BE CONSTRUCTED IN EXCAVATIONS FREE OF STANDING WATER.
4. BACKFILL MATERIAL, PLACING AND COMPACTION OF BACKFILL SHALL BE IN ACCORDANCE WITH THE DRAWINGS, AND THE CONTRACT SPECIFICATIONS.

DESIGN LIVE LOADS:

	POUNDS PER SQ. FT.
FIRST FLOOR CORRIDOR	100
OTHER CORRIDOR	80
ROOF	20
MECHANICAL AREAS, STAIRS, ELEVATOR LOBBIES	100

SUPERIMPOSED DEAD LOAD:

MECHANICAL AND CEILING	10
FINISHES WHEREVER SHOWN ON ARCH. DRAWINGS	AS REQUIRED

LIVE LOAD REDUCTIONS:

LIVE LOAD REDUCTIONS HAVE BEEN TAKEN FOR BEAMS, GIRDERS, AND COLUMNS. THESE REDUCTIONS HAVE BEEN TAKEN ONLY AS ALLOWED BY THE BUILDING CODE.

WIND LOADS:

ULTIMATE DESIGN WIND SPEED (3–SEC.GUST) = 139 MPH
RISK CATEGORY II
EXPOSURE CATEGORY : B

FOR EXTERIOR WINDOW WALL LIMIT OUT–OF–PLANE MOVEMENT TO L/200 AND ALLOW IN–PLANE MOVEMENT OF H/400.

HANDRAIL AND GUARDRAILS ARE DESIGNED TO RESIST A LIVE LOAD OF 50 PLF APPLIED IN ANY DIRECTION AT THE TOP AND TO TRANSFER THIS LOAD THROUGH THE SUPPORTS TO THE STRUCTURE AND TO RESIST A SINGLE CONCENTRATED LOAD OF 200 LBS APPLIED IN ANY DIRECTION.

STAIR TREADS ARE DESIGNED FOR A UNIFORM LIVE LOAD OF 100 LBS AND CONCENTRATED LOAD OF 300 LBS.

ALUMINUM

A1. STRUCTURAL ALUMINUM YIELD STRENGTHS
STRUCTURAL ALUMINUM: Fy=35 KSI
STRUCTURAL ALUMINUM IS ALLOY 6061–T6 OR 6061–T–5.

A2. DIMENSIONS:
TO CENTERLINES OF COLUMNS AND BEAMS,
TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES UNO.

A3. ELEVATIONS:
TOP OF ALUMINUM REFERS TO TOP SURFACE OR FLANGE OF MEMBER UNO.

A4. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE
FOR THE MATERIAL THICKNESS IN ACCORDANCE WITH THE LATEST EDITION OF THE "ALUMINUM DESIGN MANUAL" BY THE ALUMINUM ASSOCIATION.

A5. ALUMINUM IN CONTACT WITH DISSIMILAR MATERIALS OR CONCRETE: CONTACT
SURFACES SHALL BE PROVIDED WITH GALVANIC SEPERATION PER SPECIFICATIONS.

A6. ALL ALUMINUM SHALL BE POWDER COATED DARK GREEN.

STRUCTURAL ABBREVIATIONS

ADDITIONAL	– ADDL
ALTERNATE	– ALT
AND	– &
ANCHOR BOLT	– AB
APPROXIMATE	– APPROX
ARCHITECTURAL	– ARCH
AT	– @
BEAM	– BM
BEARING	– BRG
BELOW FINISH FLOOR	– BFF
BETWEEN	– BTWN
BOTTOM	– BOT
BOTTOM OF	– B/
BUILDING	– BLDG
CAST–IN–PLACE	– CIP
CEILING	– CLG
CENTER LINE	– CL OR ℄
CENTER TO CENTER	– C/C
CLEAR	– CLR
COLUMN	– COL
COMPRESSION	– C OR COMP
CONCRETE	– CONC
CONCRETE MASONRY UNIT	– CMU
CONNECTION (S)	– CONN(S)
CONTINUOUS	– CONT
CONSTRUCTION JOINT	– CJ
CONSTRUCTION	– CONST
DETAIL	– DET
DEAD LOAD	– DL
DEMOLITION	– DEMO
DIAGONAL	– DIAG
DIAMETER	– DIA OR ø
DIMENSION(S)	– DIM(S)
DRAWING(S)	– DWG(S)
DOUBLE	– DBL
DOWEL(S)	– DWL(S)
EACH	– EA
EACH FACE	– EF
EACH WAY	– EW
ELECTRICAL	– ELEC
ELEVATION	– EL
EMBEDMENT	– EMBED
EQUAL	– EQ
EXPANSION JOINT	– EJ
EXPANSION	– EXP
EXISTING	– EXIST OR EX
EXTERIOR	– EXT
FACE TO FACE	– F TO F
FAR SIDE	– FS
FINISHED FLOOR	– FF
FOUNDATION	– FDN
FOOTING	– FTG
GAGE OR GUAGE	– GA
GALVANIZED	– GALV
HEIGHT	– HT
HORIZONTAL	– HORIZ
HIGH POINT	– H.P.
INFORMATION	– INFO
INSIDE DIAMETER	– ID
INSIDE FACE	– IF
INTERIOR	– INT
INTERMEDIATE	– INTERM
JOINT	– JT
JOIST(S)	– JSY(S)
LOW POINT	– L.P.
LIVE LOAD	– LL
LONG	– LG
LONGITUDINAL	– LONG
MANHOLE	– MH
MAXIMUM	– MAX
MINIMUM	– MIN
MISCELLANEOUS	– MISC
NEAR SIDE	– NS
NOMINAL	– NOM
NUMBER	– NO OR # OR NOS
ON CENTER	– OC
OPENING(S)	– OPNG(S)
OPPOSITE	– OPP
OPPOSITE HAND	– OH
OUTSIDE FACE	– OF
OUTSIDE DIAMETER	– OD
OVERALL	– OA
POLYVINYL CHLORIDE	– PVC
REINFORCEMENT	– REINF.
RADIUS	– R
REINFORCED CONCRETE PIPE	– RCP
REQUIRED	– REQ'D
ROOF DRAIN	– RD
SCHEDULE(D)	– SCHED
SCTION	– SECT
SHEET	– SHT
SIMILAR	– SIM
SPACE	– SP
SPECIFICATION(S)	– SPEC(S)
SQUARE FOOT (FEET)	– SF
STAINLESS STEEL	– SS
STANDARD	– STD
STEEL	– STL
STRAIGHT	– STRA
STIRRUPS	– STIR
STRUCTURAL	– STRUCT'L
SYMMETRICAL	– SYMM
TOP	– TP
TOP OF	– T/
THICK	– THK
TOUNGE AND GROOVE	– T & G
TOP AND BOTTOM	– T & B
TOP OF BEAM	– TOB
TOP OF FOOTING	– TOF
TOP OF PIER	– TOP
TOP OF SLAB	– TOS
TOP OF WALL	– TOW
TYPICAL	– TYP
UNLESS OTHERWISE NOTED	– UON
VERTICAL	– VERT
VARIES	– VAR
WELDED WIRE FABRIC	– WWF
WITH	– W/

NO.	DATE	REVISION	APP.
A	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832–930–7670
TX FIRM NUMBER: F–10912

SURVEYED BY:
AMANI ENGINEERING, INC
FB NO. P–6357

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING OR CONSTRUCTION.

ENGINEER: _____
P.E. SERIAL No.: _____

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R–000267–0173–3	
DRAWING SCALE	
N.T.S	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

Z0S01

SYMBOLS	DESCRIPTION
52 CS	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS-CONTROL SWITCH
(E.O.) FRAME / TRIP	LOW VOLTAGE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED. LSIG IF NOTED MCP IF NOTED ERMS IF NOTED
✳ OR	COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED: ✳ FVR-FULL VOLTAGE REVERSING RVNR-REDUCED VOLTAGE NON-REVERSING 2S1W-TWO SPEED, ONE WINDING 2S2W-TWO SPEED, TWO WINDING
✳ OR	NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE ✳ AMPERE RATING NOTED IF OTHER THAN 30A
✳ OR F ✽	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, AMPERE RATING AND FUSE SIZE AS NOTED: ✳ AMPERE RATING NOTED IF OTHER THAN 30A ✽ FUSE RATING
MIS OR I	MOTOR ISOLATION SWITCH, HORSEPOWER RATED
	DRAWOUT TYPE EQUIPMENT OR DEVICE
	MEDIUM VOLTAGE CABLE TERMINATION
	MEDIUM VOLTAGE AIR INTERRUPTER SWITCH
	MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH
	MEDIUM VOLTAGE FUSED MOTOR CONTROLLER
30KVA 480V- 120/208Y K-*	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED. UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS ALL DRY TYPE TRANSFORMERS SERVICING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 13. ALL OTHER DRY TYPE TRANSFORMERS SHALL HAVE A K-4 RATING. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING
✳ A:5	CURRENT TRANSFORMER: ✳ QUANTITY A= PRIMARY AMPERES
✳ PV-SV	POTENTIAL TRANSFORMER: ✳ QUANTITY PV= PRIMARY VOLTAGE SV= SECONDARY VOLTAGE
	GENERATOR, RATINGS AND CONNECTIONS AS NOTED
100A ATS-1 N S	TRANSFER SWITCH AUTOMATIC TRANSFER SWITCH (EG ATS-1) MANUAL TRANSFER SWITCH (EG MTS-1) "N" INDICATES NORMAL SOURCE "S" INDICATES STANDBY SOURCE 100A INDICATES CONTINUOUS CURRENT RATING
✳	VARIABLE SPEED DRIVE CONTROLLER ✳ D.C.= D.C. DRIVE CONTROLLER SCR= SILICON CONTROLLED RECTIFIER VFD= VARIABLE FREQUENCY DRIVE AFD= ADJUSTABLE FREQUENCY DRIVE
	VACUUM CONTACTOR
5KW OR E	UNIT HEATER - ELECTRIC HEATING COIL AND FAN
5KW OR U	UNIT HEATER - STEAM OR WATER HEATING COIL AND FAN
M	MOTOR, NUMERAL INDICATES HORSEPOWER
SPD	SURGE PROTECTION DEVICE
VFD	VARIABLE FREQUENCY DRIVE

SYMBOLS	DESCRIPTION
VM ✳	VOLTMETER (WITH SWITCH IF 3-PHASE)
AM ✳	AMMETER (WITH SWITCH IF 3-PHASE)
*	METER ✳ WM- WATTMETER WHM- WATTHOUR METER WHDM- WATTHOUR DEMAND METER WHDR- WATTHOUR DEMAND RECORDER PF- POWER FACTOR METER RT- RUNNING TIME METER TRANSDUCER AX- CURRENT TRANSDUCER WX- WATT TRANSDUCER
#	RELAY, NO. AS INDICATED 25- SYNCHRONISM CHECK RELAY 27- UNDER VOLTAGE RELAY 38- BEARING PROTECTIVE DEVICE 40- LOSS OF EXCITATION RELAY 42- RUNNING CONTACTOR/PILOT RELAY 46- REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47- PHASE SEQUENCE VOLTAGE RELAY 49- MACHINE OR TRANSFORMER THERMAL RELAY 50- INSTANTANEOUS OVERCURRENT RELAY 50G- INSTANTANEOUS GROUND 51- TIME OVER CURRENT RELAY 51G- TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE 51N- TIME OVERCURRENT RELAY, RESIDUAL TYPE 51V- TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT 60- NEGATIVE SEQUENCE VOLTAGE RELAY 62- TIME DELAY RELAY 63- OVER PRESSURE RELAY 67- AC DIRECTIONAL OVERCURRENT RELAY 83- AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86- LOCKING-OUT RELAY 87- DIFFERENTIAL PROTECTIVE RELAY B- SUFFIX INDICATES "BUS" G- SUFFIX INDICATES "GENERATOR" GF- GROUND FAULT ST- SHUNT TRIP T- SUFFIX INDICATES "TRANSFORMER" X- SUFFIX INDICATES "AUXILIARY"
*	SPECIAL CAPACITOR ✳ SC- SURGE CAPACITOR PF- POWER FACTOR CORRECTION CAPACITOR INCLUDING INDUCTIVE LINK AS NEEDED
	PUSH BUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED
	PUSH BUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN
E-STOP	EMERGENCY STOP PUSH BUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)
✳ N	STOP PUSH BUTTON WITH RED HEAD OPERATOR (MAINTAINED CONTACT) WITH LOCKABLE OPTION ✳: E-STOP ✳: STOP
STOP START	START-STOP PUSH BUTTON CONTROL STATION (MOMENTARY CONTACT) "L" DENOTES LOCKOUT TYPE
STOP START	START-STOP PUSH BUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP
OFF ON	OFF/ON SELECTOR SWITCH
A B C ✳ (XOO) (OOX)	3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED

POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT
A	X	O	O
B	0	0	O
C	0	O	X

✳ NAMEPLATE (A/B/C)
HOA- HAND/OFF/AUTO
HOR- HAND/OFF/REMOTE
LOR- LOCAL/OFF/REMOTE
RSL- RAISE/STOP/LOWER
TOA- TEST/OFF/AUTO

NOTE: 2 POSITION MULTI-CONTACT SWITCH FOLLOWS SAME CONVENTION

M #	MOTOR STARTER COIL, NUMBER AS INDICATED
CR #	CONTROL RELAY COIL, NUMBER AS INDICATED
	RVSS: REDUCED VOLTAGE STATIC SOLID SOFT STARTER

SYMBOLS	DESCRIPTION
*	PILOT LIGHT, COLOR AS NOTED ✳ R- RED G- GREEN B- BLUE W- WHITE A- AMBER
* PTT	PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE.
TD	TIME DELAY RELAY RANGE AS NOTED SET POINT AS NOTED TDD-TIME DELAY AFTER DE-ENERGIZATION-OFF DELAY TDE-TIME DELAY AFTER ENERGIZATION-ON DELAY
	NOTC-NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED
	NCTO-NORMALLY CLOSED, TIMED OPENING WHEN ENERGIZED
	NOTO-NORMALLY OPEN, TIMED OPENING WHEN DE-ENERGIZED
	NCTC-NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED
⊗	FIELD INSTRUMENT, TAG NO. OR LOOP # AS INDICATED ✳INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS ## - INDICATES LOOP NO.
OR ⊗	LIQUID LEVEL (FLOAT) SWITCH NORMALLY OPEN, CLOSES ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL NORMALLY OPEN, CLOSES ON DROPPING LEVEL NORMALLY CLOSED, OPENS ON DROPPING LEVEL
OR ⊗	PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSES ON RISING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE NORMALLY OPEN, CLOSES ON DROPPING PRESSURE NORMALLY CLOSED, OPENS ON DROPPING PRESSURE
OR ⊗	TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSES ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON RISING TEMPERATURE NORMALLY OPEN, CLOSES ON DROPPING TEMPERATURE NORMALLY CLOSED, OPENS ON DROPPING TEMPERATURE
OR ⊗	FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSES ON INCREASED FLOW NORMALLY OPEN, CLOSES ON DROPPING FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW NORMALLY CLOSED, OPENS ON DROPPING FLOW
OR ⊗	POSITION (LIMIT) SWITCH NORMALLY OPEN NORMALLY OPEN - HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED - HELD OPEN
OR ⊗	TORQUE SWITCH NORMALLY CLOSED, OPENS ON HIGH TORQUE
	CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
	CONDUCTORS ELECTRICALLY CONNECTED
FAN	SUPPLY/EXHAUST FAN

SYMBOLS	DESCRIPTION
LA SC	LIGHTNING ARRESTER/SURGE CAPACITOR
OR	GROUND ROD GROUND ROD WELL
30A	FUSE, AMPERE RATING AS NOTED
OR HTR	HEATER
	INDUCTOR
TG	TACHOMETER GENERATOR
	CONTACT, NORMALLY OPEN (NO)
	CONTACT, NORMALLY CLOSED (NC)
	OVERLOAD RELAY HEATER
K	KEY INTERLOCK
TB	TERMINAL OR TEST BLOCK
RTD	RESISTANCE TEMPERATURE DETECTOR
VE	VIBRATION DETECTOR
DM	DAMPER MOTOR
ETM OR	ELAPSED TIME METER
MOV	MOTOR OPERATED VALVE
	PUSH BUTTON STATION, REFER TO ELECTRICAL SCHEMATIC FOR NUMBER OF DEVICES.
J	JUNCTION BOX
JP	POWER JUNCTION BOX
JI	4-20mA SIGNAL JUNCTION BOX
JC	CONTROL JUNCTION BOX
PB	PULL BOX
TC	TERMINATION CABINET
	REMOTE DEVICES
5	MOV WITHOUT INTEGRATED DISCONNECT
5	MOV WITH INTEGRATED DISCONNECT
	INDICATES LIMITS OF EQUIPMENT OR WIRING ENCLOSURE
MPR	(MPR) MOTOR PROTECTION RELAY

NO.	DATE	REVISION	M.S	L.L	APP.
A	05/15/25	INTERNAL REVIEW			
B	10/30/25	CLIENT REVIEW			

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
ELECTRICAL LEGENDS & SYMBOLS-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

Z0E01

PLOTTED: 10/28/2025 1:07 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wuspplot01\d$\Global ProjectWise Plotting - WUS\Queue 2\queue2.dwg

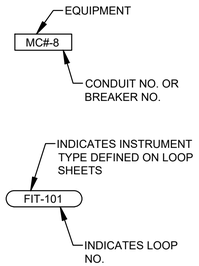
SYMBOLS	DESCRIPTION
LA-3 (A, b)	REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE FIXTURE: "A"- FIXTURE TYPE "b"- CONTROLLED BY SWITCH "b" "LA-3"- CIRCUIT 3 FROM PANEL LA
b, A, LA-3	REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE FIXTURE, NOTATIONS SAME AS ABOVE
A, LA-3 OR LA-3 (A, NS)	INDICATES LIGHT FIXTURES WHICH ARE NONSWITCHED, NOTATIONS SAME AS ABOVE "NS" - NONSWITCHED
LA-3 (A, b)	WALL MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
LA-3 (A, b)	POLE MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A, LA-3	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
A	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
A, LA-3	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE
A, LA-3	WALL OUTLET EXIT SIGN. ARROW INDICATES DIRECTION OF EGRESS, NOTATIONS SAME AS ABOVE
	CONDUIT, EXPOSED/SURFACE MOUNTED
	CONDUIT OR DUCTBANK, CONCEALED
	CONDUIT, EXPOSED/SURFACE MOUNTED, TURNING UP
	CONDUIT, EXPOSED/SURFACE MOUNTED, TURNING DOWN
	CONDUIT STUBBED OUT AND CAPPED
2(3#3/0+1#2G, 3"C)	DENOTES A QUANTITY OF 2 SETS OF THREE (3) NO.3/0 AWG CONDUCTORS AND 1 NO.AWG GROUND CONDUCTOR EACH INSTALLED IN 3" CONDUIT.
2(2/C#16TS)	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES. EACH CONSISTS OF TWO NO.16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
3(4"C)	DENOTES A QUANTITY OF THREE 4-INCH CONDUITS.
	FLEXIBLE METAL CONDUIT "WHIP" (2#12, #12G, 3/4"C UNLESS OTHERWISE NOTED) FOR RECESSED LIGHTING FIXTURES AND LIQUID TIGHT MOTOR CONNECTIONS
LP#-1,3	HOMERUN, CIRCUITS 1 AND 3 RUN TO PANEL LP-1
$b	SINGLE POLE SWITCH "b"- INDICATES SWITCH LEG SHALL CONTROL LIGHT FIXTURES WITH "b" DESIGNATION
$b^x	MULTI POLE SWITCH "x"- INDICATES NUMBER OF POLE "b"- NOTATIONS SAME AS ABOVE
$b^P	SINGLE POLE SWITCH AND PILOT LIGHT, "b"- NOTATIONS SAME AS ABOVE
$b^D	DIMMER LIGHTING CONTROL SWITCH, "b"- NOTATIONS SAME AS ABOVE
$b^TM	TIME SWITCH, "b"-NOTATIONS SAME AS ABOVE
$^M	MANUAL MOTOR STARTER /DISCONNECT
$^OS	SINGLE POLE SWITCH WITH OCCUPANCY SENSOR
$^DM	SINGLE POLE DIMMER SWITCH
$x b^xx	SWITCH ENCLOSURE "x"- NOTATIONS SAME AS ABOVE "b"- NOTATIONS SAME AS ABOVE "xx"- INDICATES ENCLOSURE TYPE
LC-1	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED

SYMBOLS	DESCRIPTION
L*-## OR L*-##	LIGHTING PANELBOARD (TYPICAL 120V/240V OR 120V/208V)
H*-## OR H*-##	DISTRIBUTION PANELBOARD (TYPICAL 277V/480V)
LA-3	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W * GFI- GROUND FAULT INTERRUPTER TYPE WP- WEATHERPROOF "LA-3"- CIRCUIT 3 FROM PANEL LA
	WELDING RECEPTACLE
	20A, 240V, 2P, 3W, RECEPTACLE
	CLASS 1, DIVISION 1, RATED TWIST LOCK RECEPTACLE, VOLTAGE AND AMPERAGE RATING AS NOTED
*	SINGLE FACE, SINGLE GANG PEDESTAL WITH 20A, 120V, 2P, 3W DUPLEX RECEPTACLE, FURNISHED AND INSTALLED UNDER DIVISION 16 UNLESS OTHERWISE NOTED. * DENOTES FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
D *	DOUBLE FACE, SINGLE GANG PEDESTAL WITH 20A, 120V, 2P, 3W DUPLEX RECEPTACLE AND 20A, 240V, 2P, 3W SINGLE RECEPTACLE, FURNISHED AND INSTALLED UNDER DIVISION 16 UNLESS OTHERWISE NOTED. * DENOTES FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
	DOUBLE RECEPTACLE, 20A, 120V, 2P, 3W MOUNTED IN BOX CURB FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS BUT INSTALLED UNDER DIVISION 16
	SINGLE GANG 20A, 120V, 3P, 3W RECEPTACLE
	QUAD RECEPTACLE
OS	OCCUPANCY SENSOR CAPABLE OF VACANCY
PC	PHOTOCELL

SYMBOLS	DESCRIPTION
COMMUNICATIONS SYSTEMS	
	TELEPHONE OUTLET
	DATA OUTLET
P	DATA INPUT/OUTPUT CABLE OUTLET. "P" DENOTES PROCESS COMPUTER SYSTEM
	VOICE/DATA OUTLET
S	PAGING SPEAKER HORN
S	PAGING SPEAKER BI-DIRECTIONAL
S	PAGING SPEAKER, CEILING MOUNTED TYPE
S	PAGING SPEAKER, WALL MOUNTED TYPE
SECURITY SYSTEMS	
SAP	SECURITY ALARM PANEL
DS	SECURITY ALARM DOOR SWITCH
KP	SECURITY ALARM KEY PAD
CR	SECURITY SYSTEM CARD ACCESS READER
WS	SECURITY ALARM WINDOW SWITCH
MD	SECURITY ALARM MOTION DETECTOR
*	SECURITY CAMERA * CCTV- CLOSED CIRCUIT TV CAMERA PTZ- PAN, TILT, ZOOM CAMERA LENS CONTROLS
GB	GLASS BREAK DETECTOR
ACP	ACCESS CONTROL PANEL
FIRE ALARM SYSTEMS	
FACP	FIRE ALARM CONTROL PANEL
SD *	SMOKE DETECTOR *: D- DENOTES DUCT SMOKE DETECTOR R- DENOTES FIXED TEMPERATURE RATE-OF-RISE TYPE.
F	FIRE ALARM MANUAL PULL STATION, MOUNT AT 4'-0"
*	ALARM HORN, MOUNT AT 7'-6" *: F- DENOTES FIRE ALARM
*	ALARM STROBE, MOUNT AT 6'-8" *: F- DENOTES FIRE ALARM
*	ALARM HORN AND STROBE LIGHT COMBINATION, MOUNT AT 6'-8" *: F- DENOTES FIRE ALARM

TAGGING		
EQUIPMENT	EQUIPMENT TAG	CONDUIT TAG
MOTOR CONTROL CENTER	MCC-1	MC1-XX
SWITCHBOARD	SWBD-1	SB1-XX
SWITCHGEAR	SWGR-1	SG1-XX
PROGRAMMABLE LOGIC CABINET	PLC-1	PL1-XX
VARIABLE FREQUENCY DRIVE	VFD-1	VF1-P
LOW VOLTAGE TRANSFORMER	TX-LX OR TX-HX	TXLX-P OR TXHX-P
SERVICE TRANSFORMER	TX-1	TX1-P
GENERATOR	GEN-1	GN1-X
LIGHTING/POWER PANELBOARD	LP/PP-XX	XX-XX
AUTOMATIC TRANSFER SWITCH	ATS-1	AT1-XX
TYPICAL TAG FOR CONDUIT FROM THIS EQUIPMENT TO DOWN STREAM LOAD FOR EXAMPLE.		

EXAMPLE LEGEND:



ABBREVIATIONS	
AC	ALTERNATING CURRENT
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AG	ABOVE GRADE
ALUM	ALUMINUM
AMP/A	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DI	DOOR INTERLOCK
DN	DOWN
DWG	DRAWING
EHH	ELECTRICAL HANDHOLE
EC	EMPTY CONDUIT
ELEC	ELECTRICAL
ELEV	ELEVATION
EM	EMERGENCY
EMH	ELECTRICAL MANHOLE
EO	ELECTRICALLY OPERATED
ERMS	ENERGY-REDUCING MAINTENANCE SWITCH
FBO	FURNISHED BY OTHERS
FO	FIBER OPTIC
FRP	FIBERGLASS REINFORCED POLYESTER
FU	FUSE
GCP	GENERATOR CONTROL PANEL
GEN	GENERATOR
G, GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GO	GATE OPERATOR
GRS	GALVANIZED RIGID STEEL
HH	HANDHOLE
HT	HEIGHT
HTP	HEAT TRACE PANEL
HZ	HERTZ
IMH	INSTRUMENT MAN HOLE
INST	INSTRUMENT
LA	LIGHTNING ARRESTER
LC	LIGHTNING CONTACTOR
LCP	LOCAL CONTROL PANEL
LGTS	LIGHTS
LP	LIGHTING PANEL
	CONTINUED ABOVE RIGHT

	CONTINUED BELOW LEFT
LSIG	LONG TIME/SHORT TIME/ INSTANTANEOUS/GROUND FAULT FEATURE INCLUDED
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MTG	MOUNTING
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
NC	NORMALLY CLOSED
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
OL	OVERLOAD
OLX	OVERLOAD CONTROL RELAY
PB	PUSH BUTTON OR PULL BOX
PCC	PUMP CONTROL CONSOLE
PPR	PHASE PROTECTIVE RELAY
PFR	PHASE FAILURE RELAY
PH	PHASE
PNLBD	PANELBOARD
PR	PAIR
PT	POTENTIAL TRANSFORMER
PTT	PUSH TO TEST TYPE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RCP	RELAY CONTROL PANEL
RECP	RECEPTACLES
RVSS	REDUCED VOLTAGE SOFT STARTER
SC	SURGE CAPACITOR
SCH	SCHEMATIC
SCCR	SHORT CIRCUIT CURRENT RATING
SEC	SECONDS OR SECONDARY
SH	SHIELDED OR SHEET
SHT	SHEET
SM	MOTOR RATED SWITCH
SN	SOLID NEUTRAL
SS	STAINLESS STEEL
ST	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TERMINATION CABINET
TEL	TELEPHONE
TO	TIME DELAY ON OPENING
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TSW	TWISTED SHIELDED WIRE
TYP	TYPICAL
UG	UNDERGROUND
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
VO	VALVE OPERATOR
W	WIRE
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

NO.	DATE	REVISION	M.S	APP.
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HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
ELECTRICAL LEGENDS & SYMBOLS-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

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PRIMARY FLOW ELEMENTS

	MAGNETIC FLOW METER
	ULTRASONIC DOPPLER FLOW METER
	ULTRASONIC TIME TRANSIT FLOW METER
	VORTEX FLOW METER
	VENTURI TUBE
	TURBINE OR PROPELLER TYPE METER
	ROTAMETER
	PITOT TUBE
	WEIR FLOW METER
	PARSHALL FLUME OR TRAPEZOIDAL FLUME
	ORIFICE PLATE
	THERMAL MASS FLOWMETER

PRIMARY LEVEL ELEMENTS

	ULTRASONIC LEVEL TRANSDUCER
	RADAR LEVEL TRANSDUCER
	PRIMARY ELEMENT PRESSURE PROBE LEVEL TRANSMITTER
	BUBBLER LEVEL TUBE ELEMENT
	CONDUCTIVE LEVEL PROBE
	FLOAT SWITCH

VALVES

	VALVE - OTHER IN-LINE TYPE NOT OTHERWISE IDENTIFIED
	THREE-WAY VALVE
	BALL VALVE
	GLOBE VALVE
	PINCH VALVE
	GATE VALVE
	NEEDLE VALVE
	DIAPHRAGM VALVE
	BUTTERFLY VALVE
	CHECK VALVE WITH FLOW DIRECTION
	PLUG VALVE
	PRESSURE-REDUCING REGULATOR INTERNAL PRESSURE TAP
	BACK PRESSURE REGULATOR INTERNAL PRESSURE TAP
	PRESSURE-REDUCING REGULATOR EXTERNAL PRESSURE TAP
	BACK PRESSURE REGULATOR EXTERNAL PRESSURE TAP

VALVES

S	SOLENOID ACTUATED VALVE
	"X" / P AIR CYLINDER / O OIL CYLINDER / H HYDRAULIC CYLINDER / E ELECTRIC MOTOR / S SOLENOID VALVE
OR NO SYMBOL	MANUAL VALVE

MISC PROCESS SYMBOLS

	ANNULAR TYPE SEAL
	CHEMICAL INJECTION POINT
	STRAINER
	DRAIN
	NORMAL OPERATING LEVEL
	UV CHAMBER
	FLOW STRAIGHTENER
	LOAD CELL
	SPRAY NOZZLE
	BLIND FLANGE
	FLANGE
	DIAPHRAGM SEAL
	PRESSURE RELIEF (OUT)
	VACUUM RELIEF (IN)

GATES

	SLUICE/SLIDE GATE
	FLOW CONTROL GATE

MOTORS

M	VARIABLE SPEED MOTOR
M	CONSTANT SPEED MOTOR

PUMPS, BLOWERS AND MISC EQUIPMENT

	CENTRIFUGAL BLOWER
	CENTRIFUGAL PUMP
	DIAPHRAGM PUMP AND MOTOR
	PROGRESSIVE CAVITY PUMP
	SUBMERSIBLE PUMP
	POSITIVE DISPLACEMENT BLOWER

PUMPS, BLOWERS AND MISC EQUIPMENT

	MIXER/FLOCCULATOR/AERATOR
	VERTICAL PUMP-1 USED WHEN DISCHARGE LINE IS IN WETWELL
	VERTICAL PUMP-2 USED WHEN DISCHARGE LINE IS EXPOSED.
	VERTICAL PUMP SHAFT USED WHEN INTAKE OF PUMP IS ENCASED.
	SUBMERSIBLE MIXER
	COMPRESSOR
	HEAT EXCHANGER
	FEED PUMP
	GRINDER/MACERATOR
	METERING PUMP
	PLUNGER PUMP
	PERISTALTIC METERING PUMP
	CENTRIFUGE
	PULSATION DAMPENER
	TURBO BLOWER

PUMPS, BLOWERS AND MISC EQUIPMENT

	ROTARY SCREEN

CONTROL ENCLOSURE, INSTRUMENTS AND SCADA

XXX / P AAA YY / BBB / CCC D / ZZZ	DIGITAL/ANALOG INSTRUMENT AAA ISA TAG (REFER TO TABLE) BBB LOOP NUMBER CCC LOOP NUMBER SUB D DIVISION NUMBER P POWER REQUIREMENT XXX DESCRIPTION (USED ON PANEL INSTRUMENTS) YY CHEMICAL ZZZ LOCATION DIGITAL/ANALOG INSTRUMENT -LOCATED IN THE FIELD -NOT INSIDE OF PANEL -VISIBLE AT FIELD LOCATION -NORMALLY OPERATOR ACCESSIBLE
XXX / P AAA YY / BBB / CCC D / ZZZ	DIGITAL/ANALOG INSTRUMENT -LOCATED ON PANEL -VISIBLE TO OPERATOR -NORMALLY OPERATOR ACCESSIBLE
XXX / P AAA YY / BBB / CCC D / ZZZ	DIGITAL/ANALOG INSTRUMENT -LOCATED INSIDE PANEL -NOT VISIBLE TO OPERATOR -NORMALLY NOT ACCESSIBLE
XXX / AAA / BBB / CCC	DISPLAY (INDICATION/CONTROLLER) AAA ISA TAG (REFER TO TABLE) BBB LOOP NUMBER CCC LOOP NUMBER SUB XXX DESCRIPTION DISPLAY (INDICATION/CONTROLLER) -LOCATED IN THE FIELD -NOT INSIDE OF PANEL -VISIBLE AT FIELD LOCATION -NORMALLY OPERATOR ACCESSIBLE
XXX / AAA / BBB / CCC	DISPLAY (INDICATION/CONTROLLER) -LOCATED ON PANEL -VISIBLE TO OPERATOR -NORMALLY OPERATOR ACCESSIBLE
XXX / AAA / BBB / CCC	DISPLAY (INDICATION/CONTROLLER) -LOCATED INSIDE PANEL -NOT VISIBLE TO OPERATOR -NORMALLY NOT ACCESSIBLE
-	INTERLOCKING RELAY

CONTROL ENCLOSURE AND SCADA

	DIGITAL INPUT
	DIGITAL OUTPUT
	ANALOG INPUT
	ANALOG OUTPUT
	SURGE SUPPRESSOR
	OPTO ISOLATOR
* / *	SIGNAL CONVERTER/ ISOLATOR */* - (INPUT/OUTPUT) * DEFINED AS FOLLOWS: E - VOLTAGE I - CURRENT P - PNEUMATIC PD - PULSE DURATION H - HYDRAULIC O - ELECTROMAGNETIC, SONIC R - RESISTANCE (ELECTRIC)

CONTROL ENCLOSURE, INSTRUMENTS AND SCADA

PLC/RTU LOGIC

FUNCTION SYMBOLS AND ABBREVIATIONS

F(X)

⊬	PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT)
- ⊬	REVERSE PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT)
Σ	SUMMING
Σ/n	AVERAGING
Δ	SUBTRACTING
√‾	EXTRACT SQUARE ROOT
÷	DIVIDE
X	MULTIPLY
S	INTEGRATE
+	BIAS POSITIVE
-	BIAS NEGATIVE
F (x)	NONLINEAR OR UNSPECIFIED FUNCTION
>	HIGH SELECT
<	LOW SELECT
⊳	HIGH LIMIT
|	LOW LIMIT

INSTRUMENT (COMMON HOUSING)	INSTRUMENT (SEPARATOR HOUSING)	INSTRUMENT (PART OF MAJOR MAJOR EQUIPMENT)

HAND SWITCH ABBREVIATIONS:

HOA	HAND/OFF/AUTO
HOR	HAND/OFF/REMOTE
LOC	LOCAL/OFF/COMPUTER
LOR	LOCAL/OFF/REMOTE
LOS	LOCKOUT STOP
OSC	OPEN/STOP/CLOSE
RSL	RAISE/STOP/LOWER
L/C	LOCAL/COMPUTER
L/R	LOCAL/REMOTE
O/C	OPEN/CLOSE
S/S	START/STOP
A/M	AUTO/MANUAL
H/C	HAND/COMPUTER
PB	PUSHBUTTON

GENERAL NOTES:

1. THIS IS A GENERAL LEGEND SHEET, SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPLY TO THIS SPECIFIC PROJECT.
2. THIS LEGEND APPLIES TO INSTRUMENTATION DIAGRAMS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
3. IN GENERAL THIS LEGEND SHEET AND THE INSTRUMENTATION DIAGRAMS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARDS FOR PRACTICES FOR INSTRUMENTATION, STANDARD S5.1 SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
4. SOME PROCESS ITEMS, SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION AND CONTROL FUNCTIONS ARE NOT SHOWN ON THE INSTRUMENTATION SHEETS.
5. SEE ELECTRICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS FOR EQUIPMENT NOT SHOWN OR NOT PROVIDED BY THE INSTRUMENTATION SUPPLIER.
6. IN THE EVENT OF DISCREPANCY BETWEEN THE PROCESS & INSTRUMENTATION DIAGRAMS AND THE LOOP DIAGRAMS, THE INFORMATION FROM THE LOOP DIAGRAMS SHALL BE USED.

NO.	DATE	REVISION
A	05/15/25	INTERNAL REVISION
B	10/30/25	CLIENT REVIEW

APP.	
M.S	
L.L	

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

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INSTRUMENTATION LEGENDS & SYMBOLS-I

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LINE SYMBOLS

	MAJOR PROCESS LINE
	MINOR PROCESS LINE
	FUTURE PROCESS LINE
	EXISTING PROCESS LINE
	HARDWIRED SIGNAL
	SOFT LINK
— L — L —	HYDRAULIC LINK
— // — // —	PNEUMATIC LINK
— x — x —	CAPILLARY TUBE OR FILLED SYSTEM SIGNAL
	ELECTROMAGNET OR SONIC SIGNAL (GUIDED)
DESCRIPTION X SHEET# Y	(USED WHEN REFERRING TO A SHEET IN THE DESIGN SET) DESCRIPTION - WHERE FLOW IS GOING SHEET# - WHAT SHEET PROCESS CONTINUES ON X - USED WHEN TWO OR MORE ARROWS ARE REFERING TO THE SAME SHEET. Y - USED WHEN TWO OR MORE ARROWS ARE REFERRING TO THE SAME SHEET.
DESCRIPTION	(USED WHEN REFERRING TO A SHEET NOT IN THE DESIGN SET) DESCRIPTION - WHERE FLOW IS GOING
CAT5e — CAT5e	CAT-5e ETHERNET CABLE
CAT6 — CAT6	CAT-6 ETHERNET CABLE
— . — . —	MODBUS PLUS CABLE
— .. —	RS-485 CABLE
RS-232 — RS-232	RS-232 CABLE
POE — POE	POWER OVER ETHERNET CABLE
T1 — T1	T1 FIBER CONNECTION
FO — FO	NON-SPECIFIC FIBER OPTIC CABLE
100 — 100	FIBER 100BASE-FX
1000 — 1000	FIBER 1000BASE-FX
	SIGNAL CROSSING
	PROCESS LINE CROSSING
	PROCESS LINE/ HARDWIRE SIGNAL CROSSING

EQUIPMENT/LOOP TAGGING

X	EQUIPMENT TAG USED TO IDENTIFY NON-INSTRUMENT EQUIPMENT
X	LOOP TAG USED TO TIE THE PROCESS FLOW DIAGRAM TO A LOOP DIAGRAM

STANDARD VALVE AND PIPING USAGE

PDIT 1	BLOCK/BLEED VALVE ARRANGEMENT
PI 1	INSTRUMENTS WITH VALVE ONLY
PI 1	INSTRUMENTS WITH DIAPHRAGM SEAL
PI 1	INSTRUMENTS WITH ANNULAR SEAL

PANEL DETAIL SYMBOLS

RUN (R)	INDICATING LIGHT -R RED (ACTIVE EQUIPMENT) -G GREEN (EQUIPMENT OFF) -W WHITE (POWER) -B BLUE (CONDITION IE BACKWASH IN PROGRESS) -A AMBER (ALARM CONDITION)
H/O/A (H)	SWITCH -L/R (LOCAL - REMOTE) -L/O/A (LOCAL - OFF - AUTO) -L/O/R (LOCAL - OFF - REMOTE) -H/O/A (HAND - OFF - AUTO) -H/O/R (HAND - OFF - REMOTE)
START	PUSHBUTTON
	HORN
	BEACON
OIT	OPERATOR INTERFACE TERMINAL

SECURITY SYSTEM SYMBOLS

CCTV	CLOSED CIRCUIT TELEVISION CAMERA
PTZ	PAN, TILT, ZOOM CAMERA

GENERAL ABBREVIATIONS

AI	ANALOG INPUT
AL	ALARM PILOT LIGHT
AO	ANALOG OUTPUT
AS	AIR SUPPLY
ASP	APPLICATION SERVICE PROVIDER
BFV	BUTTERFLY VALVE
CCTV	CLOSED CIRCUIT TELEVISION
CH4	METHANE
CL2	CHLORINE
COND	CONDUCTIVITY
COMP	COMPUTER
CP	CONTROL PANEL
CPU	CENTRAL PROCESSING UNIT
CRC	CONTROL ROOM CONSOLE
CTU	CENTRAL TELEMETRY UNIT
DCU	DISTRIBUTED CONTROL UNIT
DI	DIGITAL OR DISCRETE INPUT
DO	DISSOLVED OXYGEN OR DIGITAL OUTPUT
DPU	DISTRIBUTED PROCESSING UNIT
EPP	ETHERNET PATCH PANEL
ES	EMERGENCY STOP
ESW	ETHERNET SWITCH
ETM	ELAPSED TIME METER
FC	FAIL CLOSED
FCP	FIELD CONTROL PANEL
FCS	FILTER CONTROL STATION
FCV	FLOW CONTROL VALVE
FLP	FAIL LAST POSITION
FO	FAIL OPEN
FOPP	FIBER OPTIC PATCH PANEL
FPR	FEEDER PROTECTION RELAY
H2S	HYDROGEN SULFIDE
HMI	HUMAN MACHINE INTERFACE
JB	JUNCTION BOX
IO	INPUT/OUTPUT
IR	INFARED
LAS	LIQUID AMMONIA SULFATE
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LT	LEVEL TRANSMITTER
LPU	LOCAL PROCESSING UNIT
LTS	LOCAL TERMINAL SYSTEM
MC	MOTOR CONTROLLER
NAOCL	SODIUM HYPOCHLORIDE
NC	NORMALLY CLOSED
NH3	AMMONIA
NIM	NETWORK INTERFACE MODULE
NO	NORMALLY OPEN
MCC	MOTOR CONTROL CENTER
MM	MULTI MODE FIBER OPTIC CABLE
MPR	MOTOR PROTECTION RELAY
OIT	OPERATIONS INTERFACE TERMINAL
OL	OVERLOAD
OWS	OPERATOR WORKSTATION
PB	PUSH BUTTON
PCSI	PROCESS CONTROL SYSTEM INTEGRATOR
pH	HYDROGEN ION
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMCS	PROCESS MONITORING CONTROL SYSTEM
POLY	POLYMER
PQM	POWER QUALITY METER
PS	POWER SUPPLY
PSU	POWER SUPPLY UNIT
PV	PINCH VALVE
RBC	REMOTE BASE CONTROLLER
RIO	REMOTE INPUT OUTPUT
RTU	REMOTE TERMINAL UNIT
SCADA	SUPERVISORY CONTROL AND DATA AQUISITION
SM	SINGLE MODE FIBER OPTIC CABLE
SO2	SULFUR DIOXIDE
SOL	SOLENOID
SPD	SURGE PROTECTION DEVICE
UPS	UNINTERRUPTIBLE POWER SUPPLY
TC	TERMINATION CABINET
TURB	TURBIDITY
VIB	VIBRATION
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE

MEANINGS OF IDENTIFICATION LETTERS

THIS TABLE APPLIES ONLY TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS.

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS/ANALYTICAL		ALARM		
B	BURNER, COMBUSTION			CLOSE, STOP, DECREASE (1)	
C	CONDUCTIVITY			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL		OPEN START, INCREASE (1)	
E	VOLTAGE (EMF)		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			FAIL (1)
G	GAUGING (DIMENSIONAL)		GLASS VIEWING DEVICE		
H	HAND				HIGH OR OPEN
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE	TIME RATE OR CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW OR CLOSED
M	MOISTURE, HUMIDITY, MOTOR, MOTION	MOMENTARY		MOTOR (1)	MIDDLE OR INTERMEDIATE
N	USERS CHOICE		USER'S CHOICE		ON OR OPERATE (1)
O	USER'S CHOICE		ORIFICE (RESTRICTION)		OVERLOAD (1)
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)	PUMP (1)	
Q	QUANTITY (2)	INTEGRATE OR TOTALIZE			
R	RADIATION		RECORD		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (2)		MULTIFUNCTION (2)	MULTIFUNCTION (2)	MULTIFUNCTION (2)
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		UNCLASSIFIED (2)
X	UNCLASSIFIED (2)	X AXIS	UNCLASSIFIED (2)	UNCLASSIFIED (2)	UNCLASSIFIED (2)
Y	EVENT, STATE, PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

COMMON HMI/INSTRUMENT ISA TAGGING

ABBREVIATION	MEANING
AIT	ANALYTICAL INDICATING TRANSMITTER
AE	ANALYTICAL ELEMENT
AI	CHEMICAL RESIDUAL/INDICATION
CT	CYCLE TIMER
FIT	FLOW INDICATING TRANSMITTER
FE	FLOW ELEMENT
FI	FLOW INDICATION
FS	FLOAT SWITCH
HS	HAND SWITCH
JAL	POWER ALARM LOW
II	CURRENT INDICATION
LIT	LEVEL INDICATING TRANSMITTER
LE	LEVEL ELEMENT
LI	LEVEL INDICATION
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LAL	LEVEL ALARM LOW
LAH	LEVEL ALARM HIGH
PIT	PRESSURE INDICATING TRANSMITTER
PE	PRESSURE ELEMENT
PI	PRESSURE INDICATION
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
SI	SPEED INDICATION
SIC	SPEED INDICATING CONTROLLER
TIT	TEMPERATURE INDICATING TRANSMITTER
TE	TEMPERATURE ELEMENT
TI	TEMPERATURE INDICATION
TSH	TEMPERATURE SWITCH HIGH
WIT	WEIGHT INDICATING TRANSMITTER
WE	WEIGHT ELEMENT
WI	WEIGHT INDICATION
XA	FAULT ANNUNCIATION
YL	MISC. EVENT LIGHT (IN REMOTE)

COMMON HMI/INSTRUMENT ISA TAGGING

ABBREVIATION	MEANING
ZCH	OPEN GATE/VALVE
ZCL	CLOSE GATE/VALVE
ZSH	POSITION SWITCH HIGH
ZSL	POSITION SWITCH LOW
ZLH	VALVE/GATE OPEN
ZLL	VALVE/GATE CLOSED
ZIT	POSITION INDICATING TRANSMITTER

NO.	DATE	REVISION	APP.
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B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
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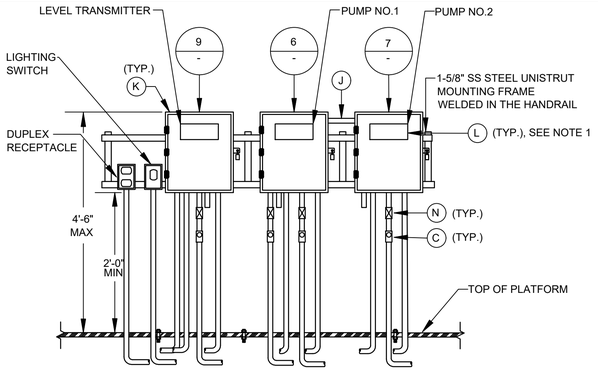
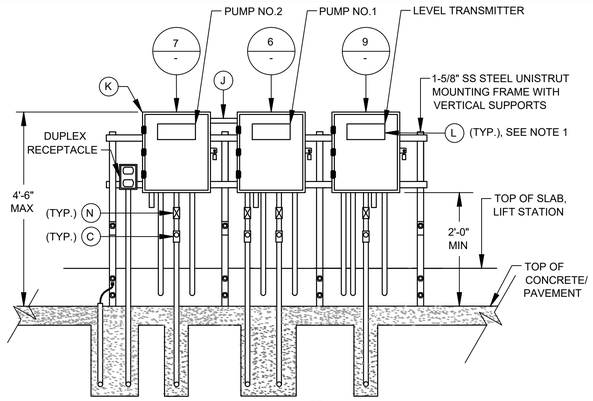
Z0E04



DETAIL 1
NTS

BROOKLET LS



DETAIL 2
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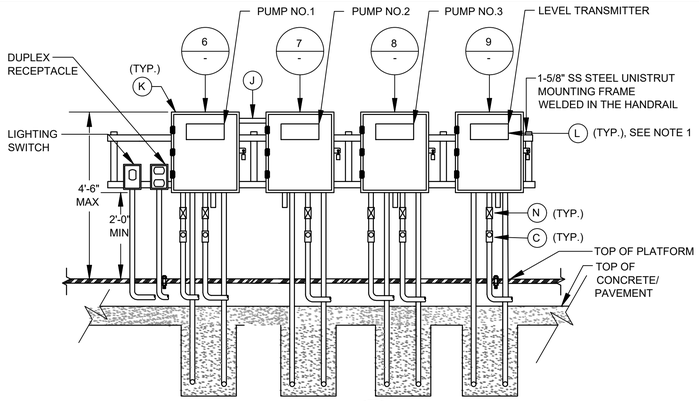
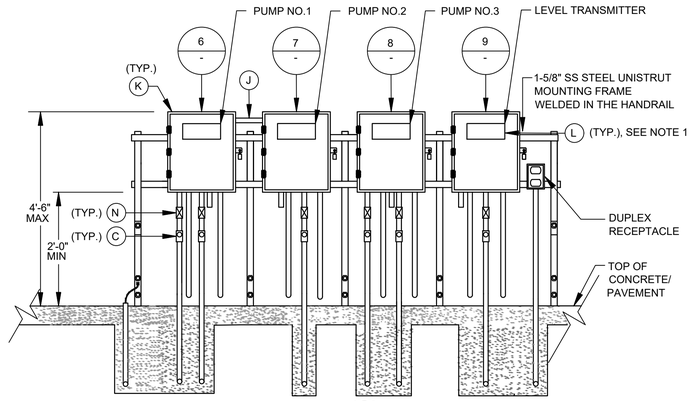
POST OAK #2 LS



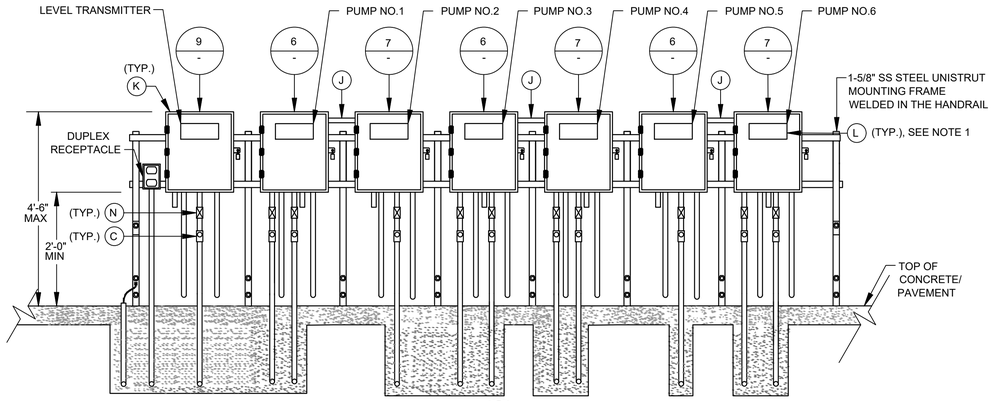
DETAIL 3
NTS
(SEE NOTE 9)

BRAESWOOD N LS & SYNOTT RD. #1 LS



DETAIL 4
NTS

N.E SLUDGE TRANSFER LS



DETAIL 5
NTS

BISSONNET #4 LS

NOTES:

1. NAMEPLATES SHALL BE MOUNTED TO JUNCTION BOXES USING 316 STAINLESS STEEL HARDWARE.
2. MAINTAIN MINIMUM SEPARATION REQUIRED UNDER NEC ARTICLE 504, BETWEEN INTRINSICALLY SAFE CONTROL WIRING AND NONINTRINSICALLY SAFE MOTOR FEEDER WIRING.
3. UNLESS OTHERWISE NOTED, ALL EXPOSED CONDUITS SHALL BE PVC COATED RIGID GALVANIZED STEEL.
4. UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS WASHERS, ETC SHALL BE TYPE 316 STAINLESS STEEL.
5. ALL UNDERGROUND CONDUITS TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.
6. PROVIDE ANTI-CORROSIVE SPRAY ON ANY BARE METAL PARTS OR EXPOSED WIRE.
7. SEE WIRING SCHEMATICS FOR TERMINALS AND WIRE NUMBERS.
8. ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2" PER CABLE.
9. DETAIL SHOWN MAY BE MODIFIED PER SITE SITUATION.
10. COORDINATE WITH WASTE WATER OPERATIONS ELECTRICAL ORGANIZATION FOR THE OPENING OF JUNCTION BOXES TO THE SIDE OF WET WELL IF REQUIRED DURING CONSTRUCTION.

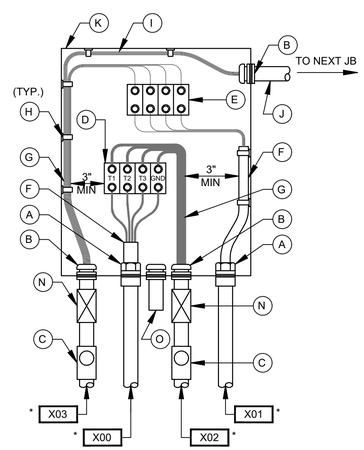
JUNCTION BOX EQUIPMENT SCHEDULE

- A - OZ GEDNEY CSBE SEAL
- B - WATERTIGHT CONDUIT HUB WITH INSULATED BUSHING
- C - CLASS I, DIV 1, EXPLOSION PROOF SEAL INSTALLED PER NEC DIV 501
- D - POWER TERMINAL BLOCK W/SCREW DOWN BOX LUGS
- E - CONTROL TERM BLOCK W/SCREW DOWN BOX LUGS
- F - MULTI-CONDUCTOR CABLE, REMOVE OUTER JACKET AS SHOWN
- G - WIRING AS SCHEDULED
- H - WIRING HARNESS PERMANENTLY AFFIXED
- I - PUMP CONTROL WIRING FROM PUMPS 2; 2 & 3; 4; OR D2, AS APPLICABLE
- J - 1 1/2" PVC COATED CONDUIT NIPPLE
- K - NEMA 4X STAINLESS STEEL JUNCTION BOX WITH GASKETED FRONT COVER, SINGLE QUARTER TURN, OIL-TIGHT LATCH AND PADLOCKING PROVISIONS, HOFFMAN D-3L16H1206 SS LF OR EQUAL. MINIMUM SIZE: 12"W X 16"H X 6"D
- L - NAMEPLATE, SEE SPECIFICATIONES (SEE NAMEPLATE SCHEDULE)
- M - MOTOR RATED SWITCH
- N - EXPANSION FITTING
- O - DRAIN VENT

*REPLACE 'X' PER NOTATION SCHEDULE

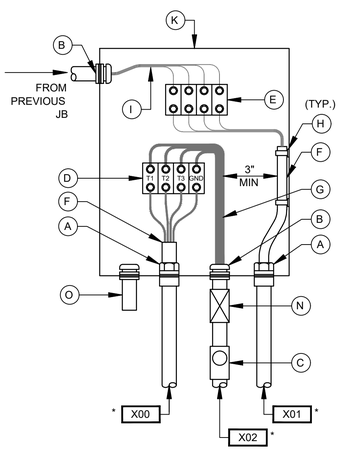
NOTATION SCHEDULE

'X'	PUMP NO.
2	1
3	2
4	3
5	4
7	5
8	6



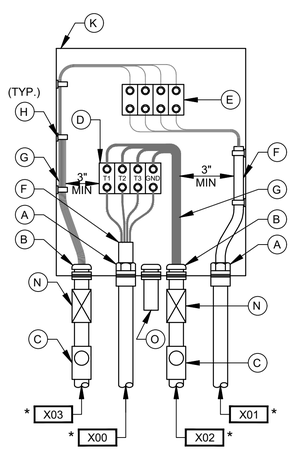
BEGINNING -JUNCTION BOX

DETAIL 6
NTS
(SEE NOTE 7)



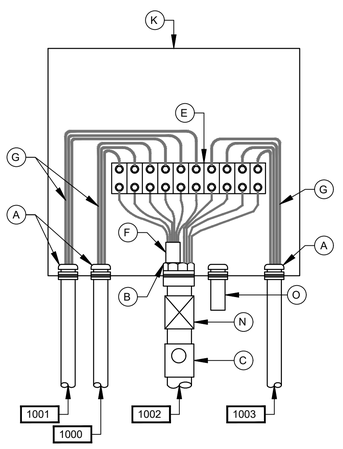
INTERMEDIATE - JUNCTION BOX

DETAIL 7
NTS
(SEE NOTE 7)



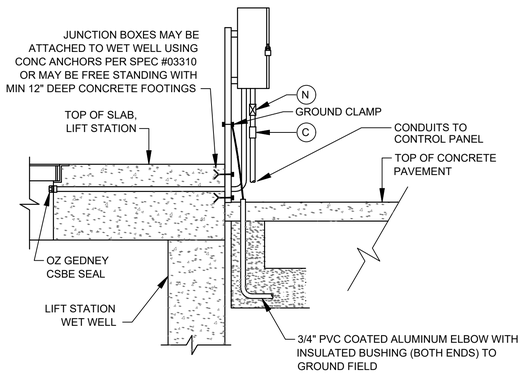
END - JUNCTION BOX

DETAIL 8
NTS
(SEE NOTE 7)



LEVEL TRANSMITTER - JUNCTION BOX

DETAIL 9
NTS
(SEE NOTE 7)



TYP SIDE VIEW FOR DETAIL 2,4,5
(SEE NOTE 10)

NO.	DATE	REVISION
A	05/15/25	INTERNAL REVISION
B	10/30/25	CLIENT REVIEW

APP.	REVISION
M.S	
L.L	

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

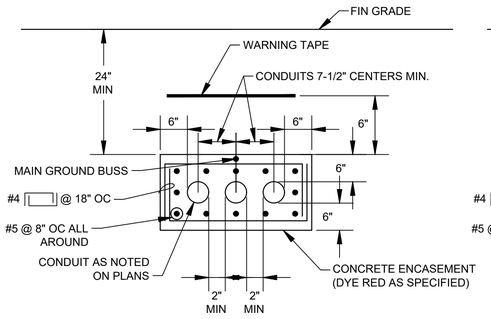
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT

TYPICAL JUNCTION BOX DETAILS

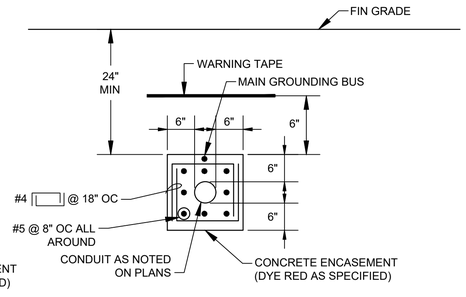
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
Z0E05	SHEET NO. OF 246

PLOTTED: 10/28/2025 1:08 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wsppplot01\d$\Global ProjectWise Plotting - WUS\Queue 5\queue5.dwg



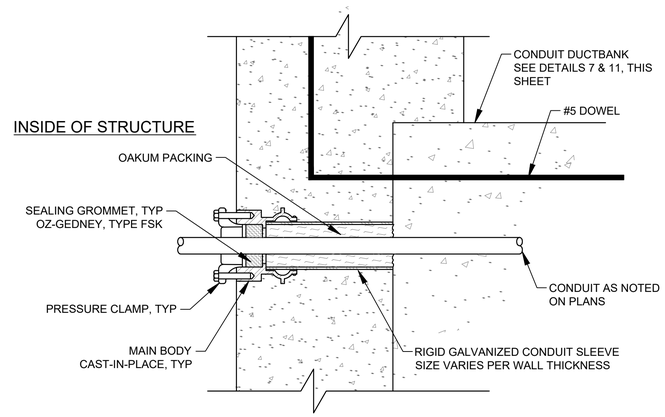
TYP MULTI-CONDUIT DUCTBANK SECTION

NOTE: TIE MAIN GROUNDING BUS TO REBAR AT A MAXIMUM INTERVAL OF EVERY 20 FEET.



TYP SINGLE-CONDUIT DUCTBANK SECTION

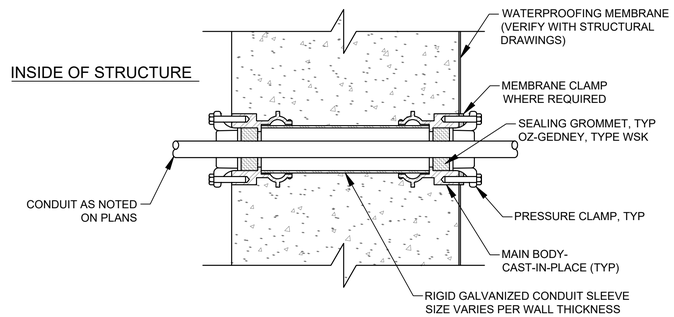
DETAIL 7 — NTS — Z0E06



NOTE: WALL SEAL SHOWN IS TYPICAL FOR EACH CONDUIT IN DUCTBANK.

SINGLE ENDED TYPE

FOR USE WHERE CONDUIT OUTSIDE THE STRUCTURE IS ENCASED IN CONCRETE

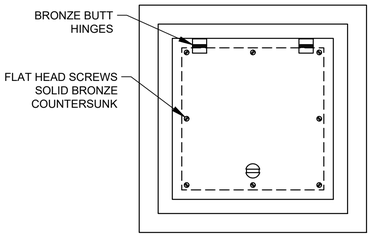


DOUBLE ENDED TYPE WITH MEMBRANE

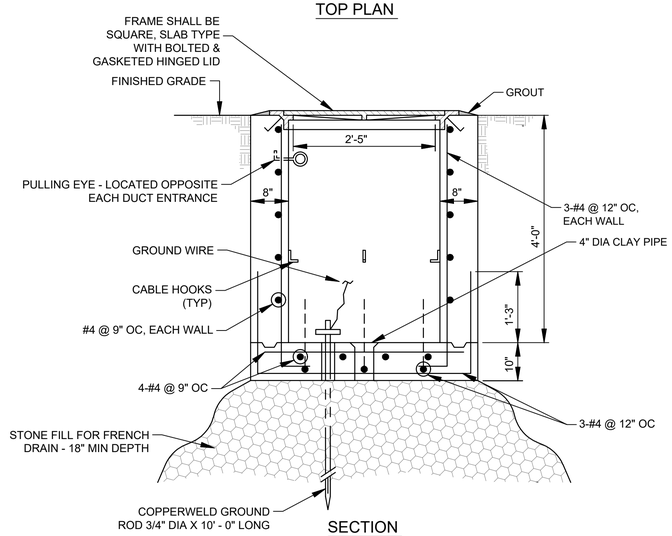
FOR USE WHERE CONDUIT OUTSIDE THE STRUCTURE IS ENCASED IN CONCRETE

TYPICAL CONDUIT SEALS

DETAIL 10 — NTS — Z0E06



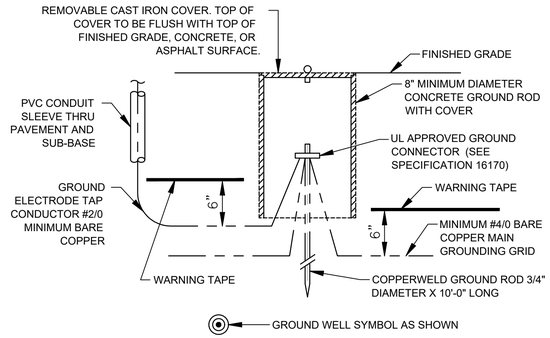
TOP PLAN



SECTION

TYPICAL ELECTRICAL HANDHOLE CONSTRUCTION

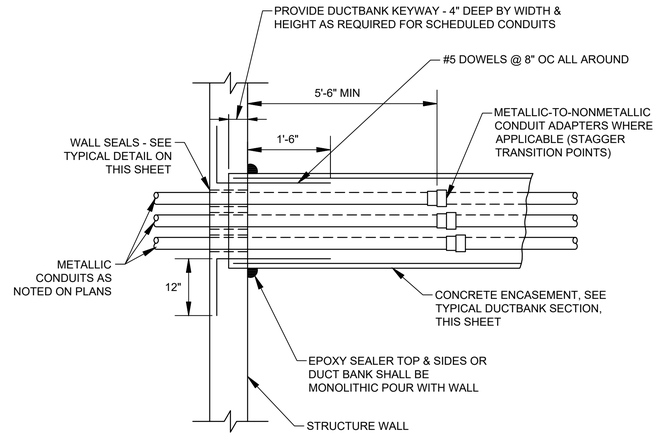
DETAIL 8 — NTS — Z0E06



TYPICAL GROUND ROD AND WELL INSTALLATION

DETAIL 9 — NTS — Z0E06

GROUND CONNECTOR SCHEDULE	
WIRE SIZE	BURNDY
#2 AWG	GAR 6426
#2/0 AWG	GAR 6426
#4/0 AWG	GAR 6429
500 kcmil	GAR 6434



PLAN

TYPICAL DUCTBANK ENTRANCE AT STRUCTURE WALL

DETAIL 11 — NTS — Z0E06

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

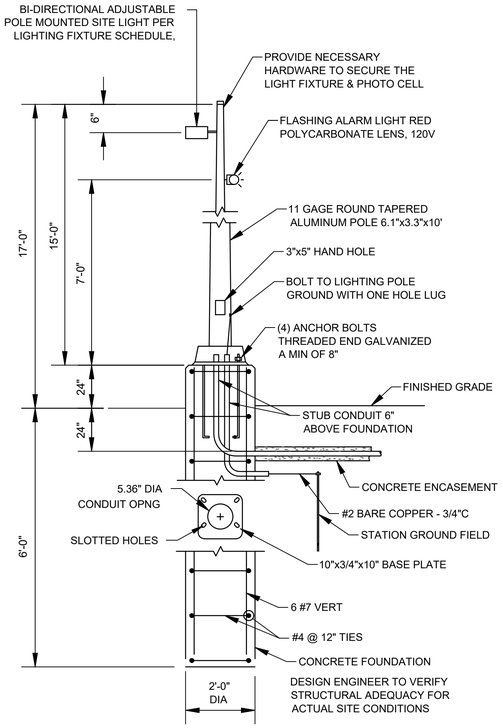
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
TYPICAL ELECTRICAL DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

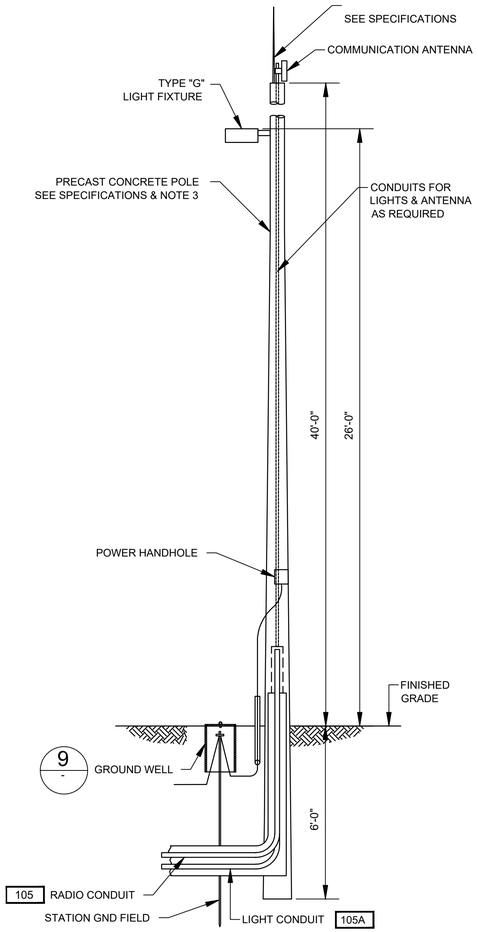
Z0E06

PLOTTED: 10/28/2025 1:04 PM
PLOT STYLE: COH.ctb
FILE PATH: \\wuspplot01\d$\Global ProjectWise Plotting - WUS\Queue 2\queue2.dwg



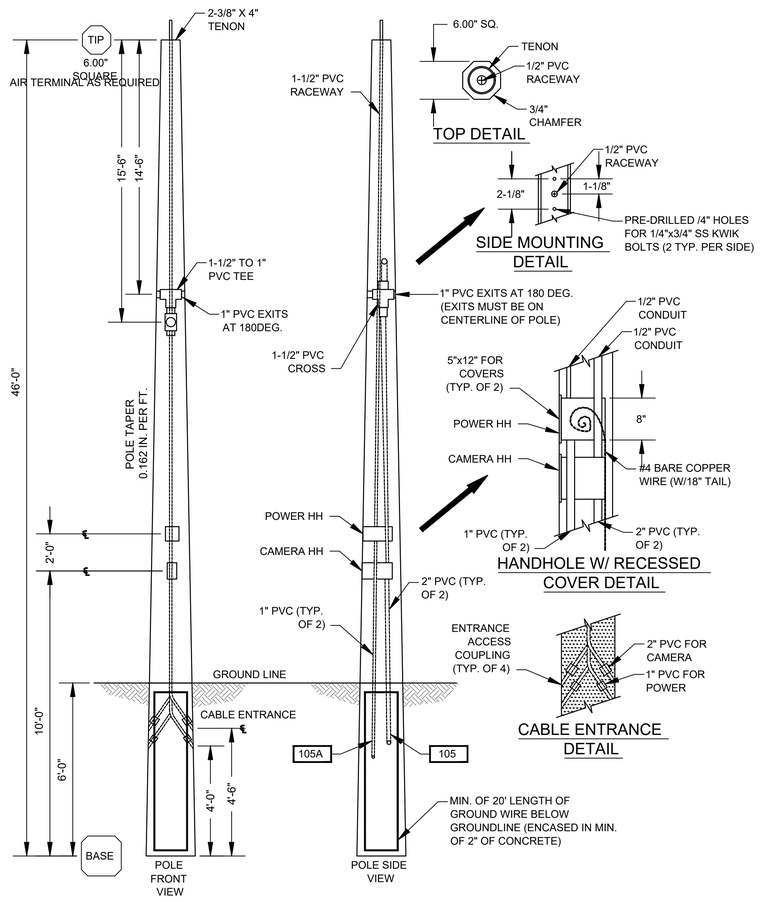
TYPICAL YARD LIGHT

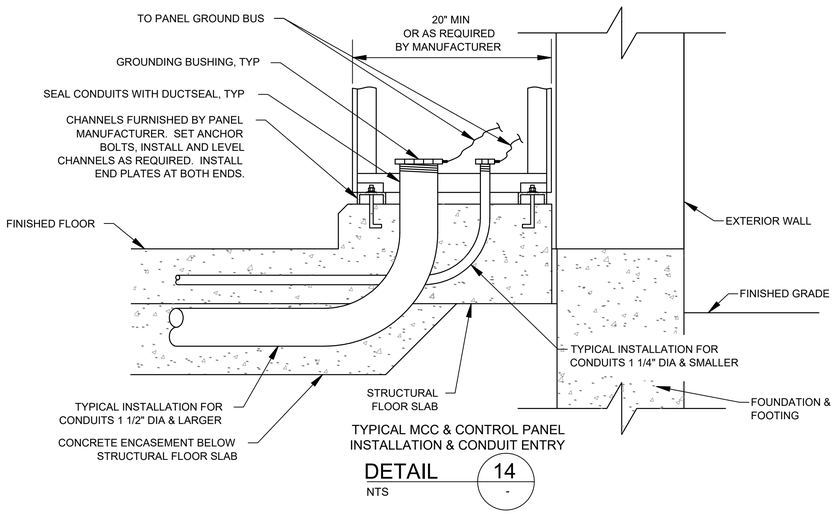
DETAIL 13 / NTS



COMMUNICATION POLE MOUNTING DETAIL

DETAIL 15 / NTS





TYPICAL MCC & CONTROL PANEL INSTALLATION & CONDUIT ENTRY

DETAIL 14 / NTS

NOTES:

1. ON GROUND WIRE TERMINATIONS, ALL PAINTED OR COATED METAL SURFACES SHALL BE REMOVED AND CLEANED TO BARE METAL. TO OBTAIN A SOUND GROUND CONNECTION. ONCE INSTALLED APPLY PROTECTIVE COATING ON BARE METAL AREAS PER MANUFACTURER REQUIREMENTS.
2. PRECAST CONCRETE POLE TO MOUNT THE RADIO RECEIVER.
3. 1" CONDUIT TO EXTEND TO THE TOP OF POLE FOR ETHERNET CABLE FOR RADIO.

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L.

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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AMANI ENGINEERING, INC.
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
ELECTRICAL YARD
LIGHT&COMM. POLE DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

Z0E07

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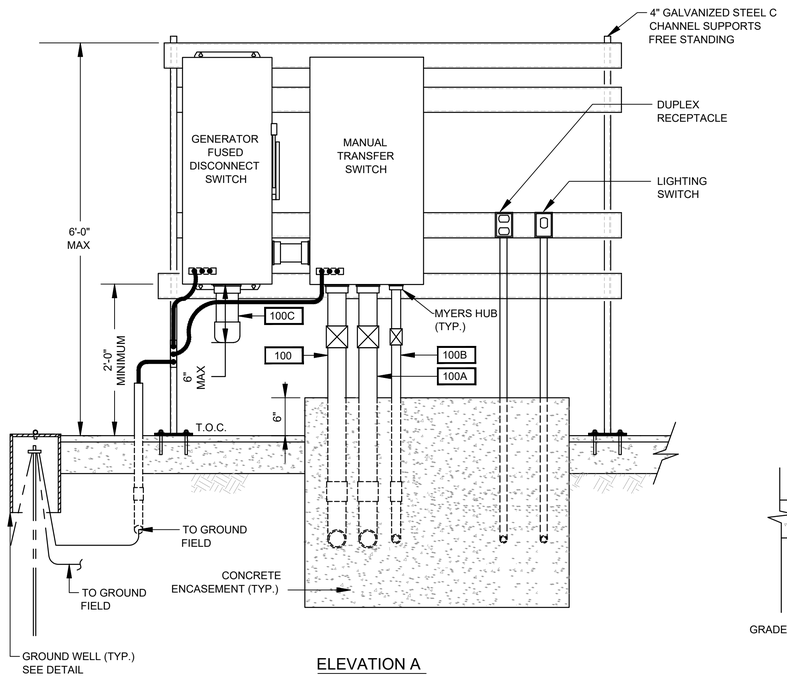
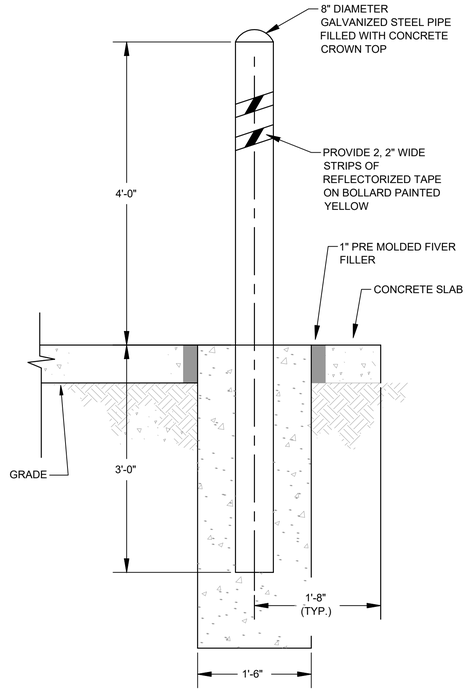


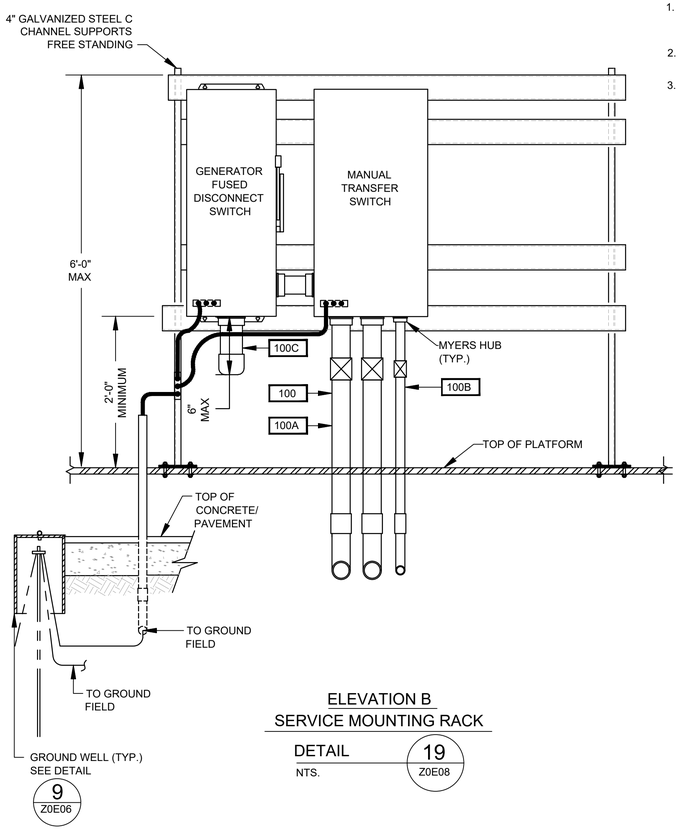
ELEVATION A
SERVICE MOUNTING RACK

DETAIL 17 Z0E08
NTS.



BOLLARD DETAIL

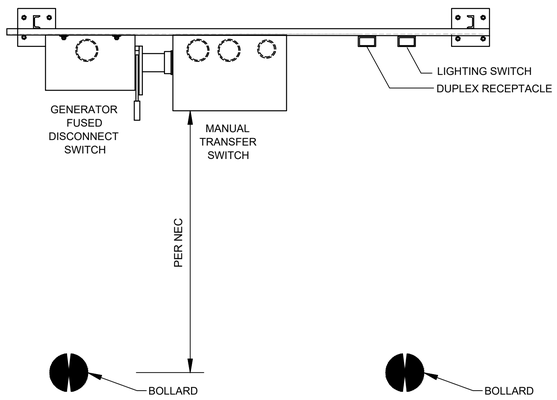
DETAIL 18 Z0E08
NTS.



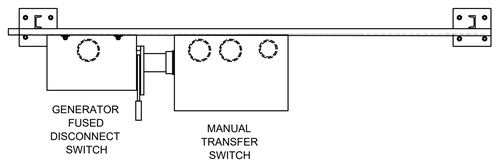
ELEVATION B
SERVICE MOUNTING RACK

DETAIL 19 Z0E08
NTS.

ELEVATION A - TOP VIEW



ELEVATION B - TOP VIEW



NOTES:

1. CHASE NIPPLE(S) WITH REMOVABLE CAP(S) FOR CONNECTION OF PORTABLE GENERATOR. NOTE: CAP(S) TO BE ATTACHED TO PANEL OR CONDUIT(S) BY STAINLESS STEEL CHAIN.
2. T.O.C DEFINED AS TOP OF PAVEMENT OR TOP OF PANEL ENCLOSURE PEDESTAL WHICHEVER IS HIGHER. (SEE NOTE B).
3. PROVIDE CENTER BOLLARD WHEN SPACE BETWEEN OUTSIDE BOLLARDS IS GREATER THEN 4'-0".

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

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AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
ELECTRICAL SERVICE RACK DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

Z0E08 SHEET NO. OF 246

PLOTTED: 10/28/2025 1:01 PM
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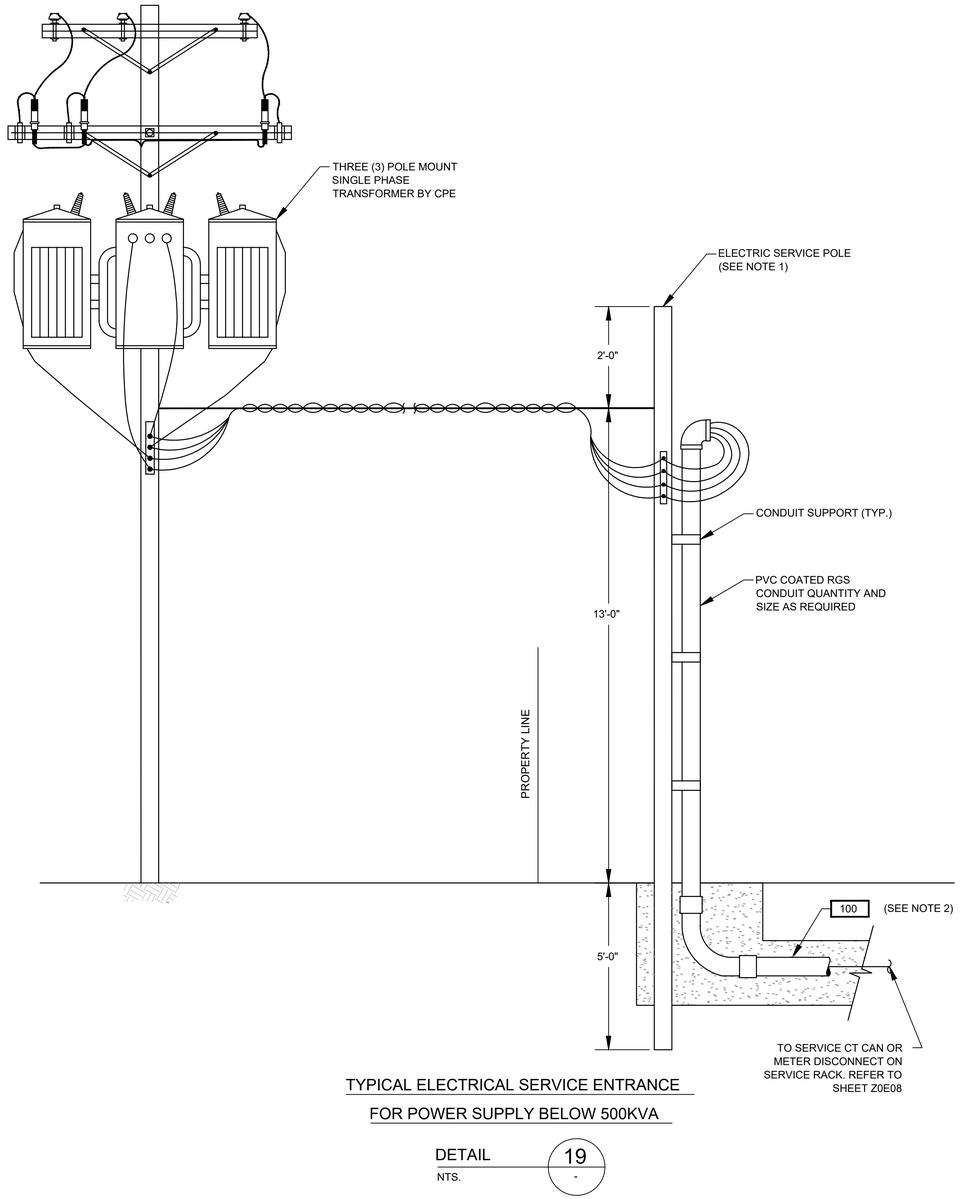

TYPICAL ELECTRICAL SERVICE ENTRANCE

FOR POWER SUPPLY BELOW 500KVA

DETAIL 19

NTS. -

NOTES:

1. WOODEN POLE 20' LONG. TOP DIAMETER 6", BOTTOM DIAMETER 8" PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.
2. ELECTRICAL SERVICE FEEDER PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. COORDINATE WITH CPE FOR THE REQUIREMENTS OF THE INSTALLATION.

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
ELECTRICAL SERVICE DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
SHEET NO. OF 246	

Z0E09

PLOTTED: 10/28/2025 1:01 PM
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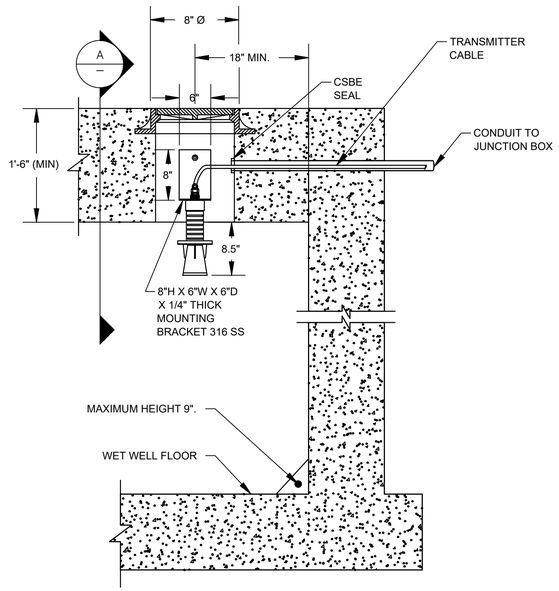
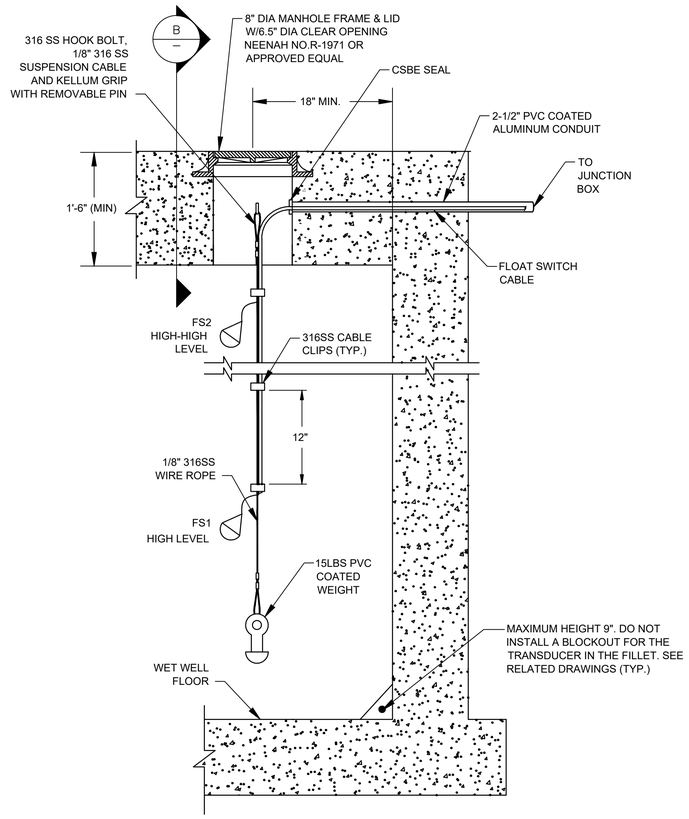


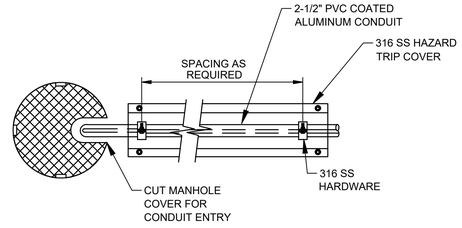
RADAR LEVEL TRANSMITTER MOUNTING
(TYP. LT-1, LT-2)

DETAIL 1
NTS -



FLOAT SWITCH MOUNTING

DETAIL 2
NTS -



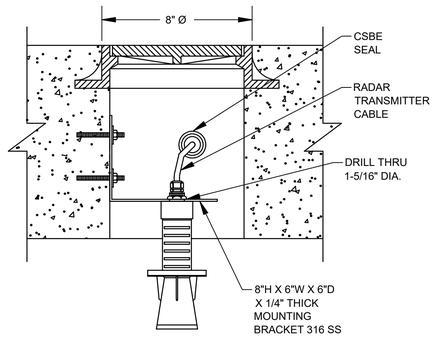
FLOAT SWITCH MOUNTING
TOP VIEW

DETAIL 3
NTS -
(SEE NOTES 3, 4 & 6)

NOTES:

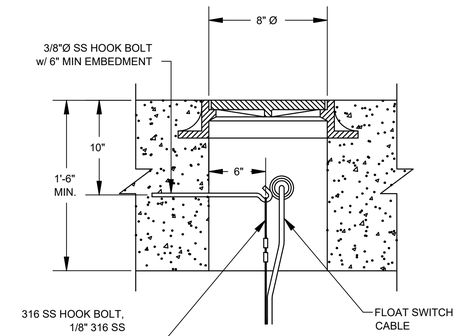
1. NEW RADAR LEVEL TRANSMITTERS FOR LT-1, LT-2.
2. NEW MANHOLES FOR RADAR LEVEL TRANSMITTERS LT-1, LT-2.
3. NEW MANHOLE FOR FLOAT SWITCHES.
4. PAINT MANHOLE LIDS AND HATCHES HUNTER GREEN.
5. NEW MANHOLE INSTALLATION.
6. RETROFIT MANHOLE INSTALLATION.

NO.	DATE	REVISION	APP.
A	05/15/25	INTERNAL REVIEW	M.S
B	10/30/25	CLIENT REVIEW	L.L



RADAR LEVEL TRANSMITTER MOUNTING
TYP. LT-1 & LT-2

SECTION A
NTS -
(SEE NOTE 1, 2, 4 & 5)



FLOAT SWITCH MOUNTING

SECTION B
NTS -
(SEE NOTES 3, 4 & 5)

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

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ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
RADAR LEVEL TRANSMITTER GAUGING SYSTEM DETAILS INSTALLATION & DETAILS-I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	
Z0E10	SHEET NO. OF 246

PLOTTED: 10/28/2025 1:01 PM
PLOT STYLE: COH.ctb
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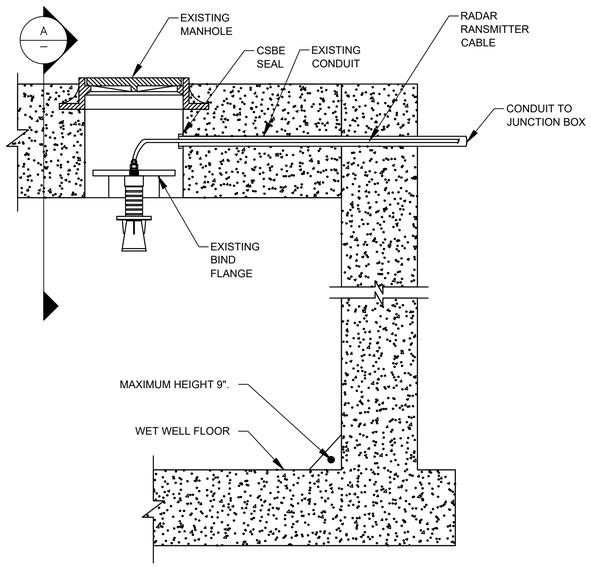
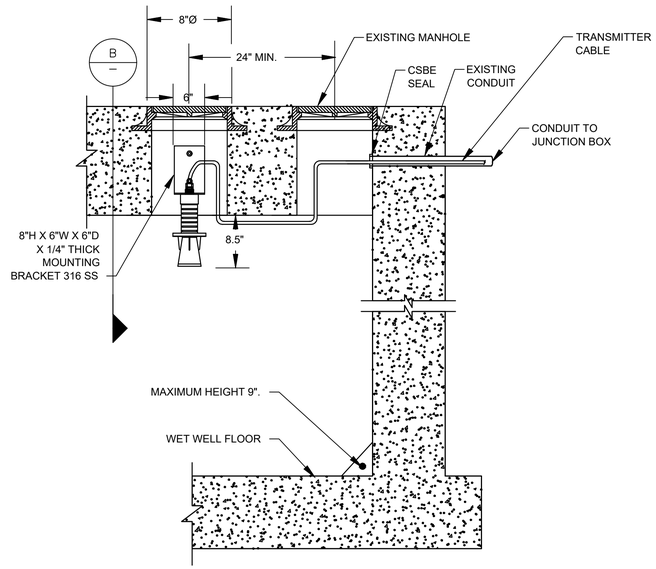


RADAR LEVEL TRANSMITTER MOUNTING
(TYP. LT-1, LT-2)

DETAIL 1
NTS -

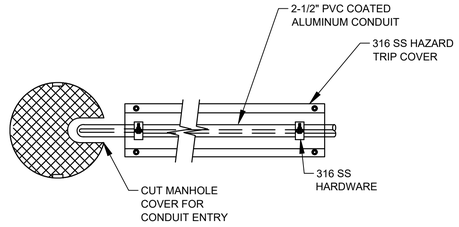
(SEE NOTES 1, 2, 4, 6 & 7)



RADAR LEVEL TRANSMITTER MOUNTING
(TYP. LT-1, LT-2)

DETAIL 2
NTS -

(SEE NOTES 1, 3, 4, 5, 6 & 8)



FLOAT SWITCH MOUNTING
TOP VIEW

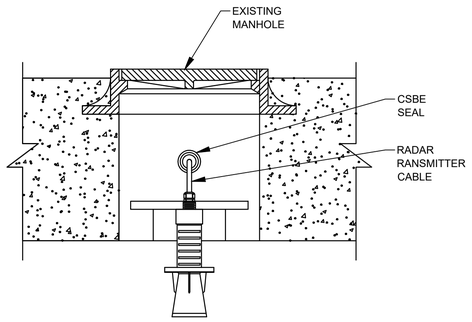
DETAIL 3
NTS -

(SEE NOTES 1, 4, 5 & 6)

NO.	DATE	REVISION	M.S
A	05/15/25	INTERNAL REVIEW	L.L
B	10/30/25	CLIENT REVIEW	APP.

NOTES:

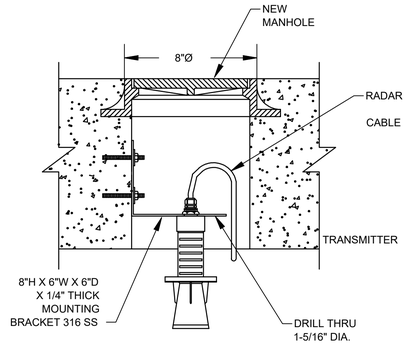
1. NEW RADAR LEVEL TRANSMITTERS FOR LT-1, LT-2.
2. EXISTING AIRCELL MANHOLES FOR RADAR LEVEL TRANSMITTERS LT-1, LT-2.
3. EXISTING SUBMERSIBLE TRANSDUCER MANHOLES FOR RADAR LEVEL TRANSMITTERS LT-1, LT-2.
4. PAINT MANHOLE LIDS AND HATCHES HUNTER GREEN.
5. NEW MANHOLE INSTALLATION.
6. RETROFIT MANHOLE INSTALLATION.
7. DEMOLISH ALL EQUIPMENT ASSOCIATED WITH AIRCELL INSIDE THE WETWELL.
8. DEMOLISH ALL EQUIPMENT ASSOCIATED WITH SUBMERSIBLE LEVEL TRANSDUCER INSIDE THE WETWELL.



RADAR LEVEL TRANSMITTER MOUNTING
TYP. LT-1 & LT-2

SECTION A
NTS -

(SEE NOTES 1, 2, 4, 6 & 7)



RADAR LEVEL TRANSMITTER MOUNTING
TYP. LT-1 & LT-2

SECTION B
NTS -

(SEE NOTES 1, 3, 4, 5, 6 & 8)

HATCH
750 TOWN & COUNTRY BLVD
SUITE 650
HOUSTON, TX 77024
P: 832-930-7670
TX FIRM NUMBER: F-10912

SURVEYED BY:
AMANI ENGINEERING, INC.
FB NO. P-6170

INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR PERMIT, BIDDING FOR CONSTRUCTION

ENGINEER: GUY SEVERN
P.E No. 105809, TEXAS
10/30/2025

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

LIFT STATION RENEWAL & REPLACEMENT PROJECT
RADAR LEVEL TRANSMITTER GAUGING SYSTEM DETAILS INSTALLATION & DETAILS-II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0173-3	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
NUPUR KRISHNAN P.E.	

Z0E11 SHEET NO. OF 246

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ELECTRICAL GENERAL NOTES

1. THE NOTES CONTAINED ON THIS SHEET ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR WHEN WORKING IN THE FIELD, AND CONTAIN EXCERPTS FROM THE SPECIFICATION SECTIONS. HOWEVER THE CONTRACTOR IS HEREBY ADVISED THAT THE CONTRACT DOCUMENTS CONSIST OF BOTH THE DRAWINGS AND THE SPECIFICATIONS, AND THAT THE CONTRACTOR MUST COMPLY FULLY WITH BOTH THE BOUND DRAWINGS AND THE BOUND SPECIFICATIONS.

2. ALL EQUIPMENT WIRING, RACEWAYS, ETC. SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL CODES, AND INDUSTRY STANDARDS (IE. UL, NEMA, IEEE, ANSI, ETC.) THE DRAWING NOTES AND DETAILS SHALL BE COMPLIED WITH IN ADDITION TO THE REQUIREMENTS IN THE SPECIFICATIONS. REFER TO EACH SPECIFICATION SECTION FOR SPECIFIC REQUIREMENTS.

3. ALL RACEWAY INSTALLATIONS SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. ALL EXPOSED RACEWAY SHALL BE INSTALLED PARALLEL TO BEAMS, CEILINGS, FLOORS AND WALLS. SEE SPECIFICATION ON RACEWAYS FOR ADDITIONAL REQUIREMENTS.

4. CONDUITS SHALL BE TERMINATED IN A NEAT MANNER AND STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWING DETAILS.

5. CONDUITS TERMINATED INTO ENCLOSURES SHALL BE PERPENDICULAR TO THE WALLS OF THE ENCLOSURE. THE USE OF SHORT SEALTIGHT ELBOW FITTINGS FOR SUCH TERMINATIONS IS NOT PERMITTED.

6. ALL RACEWAY INSTALLATIONS, CROSSING EXPANSION JOINTS OR TRANSITIONS FROM BELOW GRADE TO EXPOSED ABOVE GRADE, SHALL HAVE EXPANSION OR EXPANSION/DEFLECTION TYPE FITTINGS AS SPECIFIED FOR THE APPLICATION. SEE THE DRAWINGS AND THE SPECIFICATION ON RACEWAYS FOR THE EXACT TYPE OF FITTING TO BE USED.

7. NO CONDUIT SMALLER THAN 3/4", NOR WIRE SMALLER THAN NO. 12 AWG, SHALL BE USED UNLESS SPECIFICALLY NOTED.

8. ALL UNDERGROUND SINGLE CONDUITS AND DUCTBANKS OF MULTIPLE CONDUITS SHALL BE RIGID PVC CONDUIT ENCASED IN REINFORCED RED CONCRETE. CONCRETE DYED RED BEFORE PLACEMENT. MINIMUM SIZE IS 2 INCH. FIELD VERIFY THE ROUTING OF ALL EXISTING UNDERGROUND CONDUIT AND DUCTBANKS. COORDINATE ROUTING OF NEW CONDUIT AND DUCTBANKS TO AVOID INTERFERENCE WITH EXISTING CONDUIT, DUCTBANKS, AND OTHER UNDERGROUND UTILITIES.

9. ALL CHANGES OF DIRECTION GREATER THAN 20 DEGREES IN UNDERGROUND SINGLE, OR DUCTBANKS OF MULTIPLE CONDUITS, SHALL BE ACCOMPLISHED USING PVC COATED RIGID ALUMINUM LONG RADIUS BENDS. BENDS OF PVC CONDUIT GREATER THAN 20 DEGREES, OR THE USE OF FLEXIBLE CONDUIT OF ANY TYPE, WILL NOT BE PERMITTED. SEE THE SPECIFICATIONS FOR MORE REQUIREMENTS.

10. LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT SHALL BE USED FOR THE PRIMARY AND SECONDARY OF TRANSFORMERS, GENERATOR TERMINATIONS AND OTHER EQUIPMENT WHERE VIBRATION IS PRESENT. USE IN OTHER LOCATIONS IS NOT PERMITTED, EXCEPT FOR CONNECTIONS TO INSTRUMENTATION TRANSMITTERS, WHERE MULTIPLE PENETRATIONS ARE REQUIRED. LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT SHALL HAVE A MAXIMUM LENGTH NOT GREATER THAN THAT OF A FACTORY MANUFACTURED LONG RADIUS ELBOW OF THE CONDUIT SIZE BEING USED. THE MAXIMUM BENDING RADIUS SHALL NOT BE LESS THAN THAT SHOWN IN THE NEC CHAPTER 9, TABLE 2, "OTHER BENDS". BX OR AC TYPE PREFABRICATED CABLES WILL NOT BE PERMITTED.

11. THE WIRING DIAGRAMS, BLOCK DIAGRAMS, QUANTITY/SIZES OF WIRES/CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY APPROVED. ALL MODIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED.

12. ALL JUNCTION BOXES, PULL BOXES AND TERMINATION BOXES IN NEMA 12 AREAS SHALL BE ALUMINUM. FOR NEMA 4X AREAS SEE SPECIFICATIONS FOR BOX DETAILS AND SPECIFICATIONS.

13. SEAL ALL RACEWAYS ENTERING JUNCTION BOXES OR CONTROL PANELS CONTAINING ELECTRICAL OR INSTRUMENTATION EQUIPMENT WITH WATERTIGHT SEALANT. REFER TO THE SPECIFICATIONS FOR DETAILS.

14. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURE LOCATIONS, OR TERMINAL BOX LOCATIONS, ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER, DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.

15. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES DIMENSIONS ARE APPROXIMATE. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES OR TERMINAL BOX DIMENSIONS SHALL BE VERIFIED WITH THE EQUIPMENT SUPPLIER. ALLOW FOR LOCATION CHANGES AND INCLUDE IN THE CONTRACT PRICE. THE EXACT LOCATIONS OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF ALL CABLES AND CONDUITS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER DURING CONSTRUCTION.

16. CORING OF AN EXISTING STRUCTURE SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER. CORING THROUGH STRUCTURAL BEAMS IS STRICTLY PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER/ENGINEER.

17. THE LOCATION OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF CABLES AND CONDUITS SHALL BE COORDINATED AND APPROVED BY THE OWNER.

18. THE DUCTBANK ROUTING AS SHOWN ON THE DRAWING IS APPROXIMATE. FIELD VERIFY THE EXACT DUCTBANK ROUTING, CABLE LENGTH AND CONDUIT LENGTH.

19. PROVIDE CONDUIT SEALS FOR CONDUIT PENETRATIONS AS PER NEC AND NFPA820.

20. COORDINATE ALL WORK WITH THE OWNER.

21. LOCATE ALL UNDERGROUND UTILITIES BEFORE DIGGING. COORDINATE THE EFFORT WITH THE OWNER.

22. ALL SLOTTED CHANNEL, SLOTTED CHANNEL SUPPORT MATERIAL, WASHERS, SCREWS, NUTS, CONDUIT CLAMPS, ALL THREAD SPRING NUTS AND MISC. MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL.

23. LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS. THE MOUNTING HEIGHT SHALL BE MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.

24. CONDUIT AND WIRE FOR THE HVAC EQUIPMENT AND MISCELLANEOUS DEVICES SHALL BE:

    A. 3/4" (MIN) RIGID ALUMINUM.

    B. NO.14 XHHW CU. WIRE XHHW (MIN.).

    C. IN ACCORDANCE WITH ALL ELECTRICAL AND HVAC SPECIFICATIONS REQUIREMENTS.

25. CONDUITS AND WIRES SHOWN ON THE INTERFACE DIAGRAM SHALL BE INSTALLED BY THE CONTRACTOR. GROUPING OF CONDUIT AND WIRE MAY BE CHANGED, IF APPROVED BY THE ENGINEER AND OWNER.

26. ALL CONDULETS SHALL BE FORM 7 AND SHALL HAVE 316 SS CLAMP COVERS WITH 316 SS CLAMPS AND SCREWS. SCREW DOWN COVERS ARE UNACCEPTABLE. REFER TO THE SPECIFICATIONS FOR MORE INFORMATION.

27. ALL BARE COPPER GROUNDING CONDUCTORS SHALL BE TINNED, ALL GROUND RODS SHALL BE 3/4" BY 10' LONG. ALL EXPOSED COPPER GROUND CABLES SHALL BE GREEN INSULATED CONDUCTORS. PROVIDE XHHW INSULATION.

28. WHERE NOTES ON THE DRAWING INDICATE THAT THE CONTRACTOR SHALL FIELD-VERIFY, THE INTENT IS FOR THE CONTRACTOR TO INVESTIGATE TO THE EXTENT NECESSARY TO PROVIDE THE WORK AND MATERIALS PRIOR TO BIDDING AND INCLUDE ALL COSTS IN THE BID PRICE. THE CONTRACT PRICE SHALL NOT BE INCREASED WHEN THE CONTRACTOR HAS NOT INVESTIGATED PER THE NOTES DIRECTING THAT BE DONE.

TYPICAL ENCLOSURE TYPES BY AREA TYPE

NON-HAZARDOUS AREAS	BOXES & ENCLOSURES 1	3R	4X	4X*	12	CONDUIT
OUTDOOR; GENERAL AREAS		X	X			PVC COATED ALUMINUM
OUTDOOR; CHEMICAL AREAS				X		SCHEDULE 80 PVC
INDOOR; CHEMICAL ROOM				X		SCHEDULE 80 PVC
INDOOR; CONDITIONED SPACE					X	RIGID ALUMINUM
INDOOR; NON-CONDITIONED SHOP SPACE					X	RIGID ALUMINUM
INDOOR; NON-CONDITIONED PROCESS AREA			X			RIGID ALUMINUM
INDOOR, ADMIN BUILDING	X					EMT/RIGID ALUMINUM
CLASS I, DIVISION 1	REFER TO NEC, NFPA-820, AND CONTRACT CONSTRUCTION SPECIFICATIONS					
CLASS I, DIVISION 2	REFER TO NEC, NFPA-820, AND CONTRACT CONSTRUCTION SPECIFICATIONS					

GENERAL NOTES:

- EQUIPMENT SUCH AS MOTOR CONTROL CENTER, SWITCHGEAR, VFDS, AND OTHER STAND-ALONE MOTOR STARTERS ARE TO BE SPECIFIED UNIQUELY.
- NEMA 1 ENCLOSURES ARE TO BE NEMA 1 GASKETED.
- NEMA 4X* ENCLOSURES ARE TO BE NON-METALLIC (ie PVC) NEMA 4X
- CONDUIT INSIDE ADMIN BUILDING LOCATION IS TO BE EMT IF CONCEALED IN DRY WALL (AKA SHEET ROCK WALL): OTHERWISE RIGID ALUMINUM.
- OUTDOOR GENERAL AREAS COULD BE 3R OR 4X DEPENDING ON OWNER PREFERENCE AND WHETHER WTP OR WWTP - REFER TO DRAWINGS.

CONDUIT TYPE	LOCATION
RIGID GALVANIZED CONDUIT	NOT ACCEPTABLE FOR USE ON THIS PROJECT EXCEPT FOR THE UTILITY COMPANY'S CONDUCTORS. ALL UTILITY COMPANY'S DUCTS SHALL BE AS SPECIFIED BY UTILITY COMPANY.
PVC COATED ALUMINUM CONDUIT	ALL EMBEDDED CONDUIT BENDS, UNDERGROUND DUCTBANK OF MORE THAN 20 DEGREES, AND ALL CONDUIT STUB-UPS TO A MINIMUM OF 6" ABOVE FINISHED FLOOR OR GRADE AND IN CHLORINE AND CAUSTIC ROOMS.
LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT	RACEWAY CONNECTION TO VIBRATING EQUIPMENT ONLY, IN ALL AREAS.
RIGID NON-METALLIC, SCHEDULE 40 PVC CONDUIT	UNDERGROUND ENCASED IN RED DYE REINFORCED CONCRETE. (AS WHERE SPECIFIED)
RIGID NON-METALLIC, SCHEDULE 80 PVC CONDUIT	FOR USE IN CHLORINE AND CAUSTIC ROOMS, AND UNDERGROUND. ENCASED IN RED DYED REINFORCED CONCRETE. (AS WHERE SPECIFIED)
FLEXIBLE ALUMINUM CONDUIT	FIXTURE WHIP CONNECTION TO LIGHTING FIXTURES IN NEMA 12 AREAS (MAXIMUM 3-FT). BX OR AC TYPE PREFABRICATED CABLES ARE NOT PERMITTED.
ALUMINUM RIGID METAL CONDUIT	ALL ABOVE GRADE AREAS, EXCEPT FOR CONCRETE EMBEDDED AND THOSE AREAS ALREADY DESCRIBED IN THIS TABLE
ELECTRIC METALLIC TUBING (EMT) CONDUIT	FOR USE ONLY ON CONCEALED, ABOVE GROUND, INTERIOR ELECTRICAL WIRING IN AIR-CONDITIONED ADMINISTRATIVE BUILDINGS REMOTE TO THE PROCESS AREA, AND CLEARLY DEFINED AS SUCH ON THE DRAWINGS OR IN THE SPECIFICATIONS.

DEMOLITION NOTES

1. WITH THE GENERAL DEMOLITION AND SCHEDULE. THE DRAWINGS ARE INTENDED TO CONVEY THE GENERAL NATURE AND SCOPE OF THE DEMOLITION WORK. EVERY ITEM TO BE DEMOLISHED MAY NOT BE SHOWN. FIELD VERIFY, AND INCLUDE ALL DEMOLITION WORK IN THE CONTRACT PRICE.

2. PROVIDE TEMPORARY WIRE AND CONDUIT FOR THE EQUIPMENT WHICH MAY BE AFFECTED BY THE DEMOLITION BUT TO REMAIN IN SERVICE.

3. RELOCATE AND RECONNECT POWER AND CONTROL RACEWAYS AND CONDUCTORS TO EQUIPMENT AFFECTED BY DEMOLITION WORK.

4. ALL CONDUCTORS BEING DEMOLISHED SHALL BE DISCONNECTED AND REMOVED FROM THE LOAD TO THE SOURCE. SURFACE MOUNTED CONDUITS AND MOUNTING HARDWARE SHALL BE REMOVED. UNDERGROUND CONDUITS WHICH ARE NOT BEING REMOVED OR OTHERWISE NOT BEING MADE UNUSABLE SHALL BE CAPPED AND TAGGED AS SPARE, WITH INFORMATION CLEARLY INDICATING THE LOCATION OF THE OTHER END.

5. ALL SURFACES WHERE DEMOLISHED EQUIPMENT OR CONDUIT IS REMOVED SHALL BE CLEANED, PATCHED AND PAINTED TO MATCH THE SURROUNDING SURFACE.

6. CHECK THE FUNCTION OF EACH CONDUCTOR BEFORE REMOVING OR DISCONNECTING.

7. IF A CONDUCTOR WHICH HAS TO STAY IN SERVICE (NOT BEING DEMOLISHED) IS INSTALLED IN A COMMON CONDUIT WITH CONDUCTORS WHICH ARE BEING DEMOLISHED, THE CONTRACTOR SHALL REMOVE ALL CONDUCTORS FROM THE CONDUIT, PROVIDE NEW CONDUCTORS WHICH ARE REPLACEMENTS FOR THE CONDUCTORS THAT ARE TO REMAIN IN SERVICE AND RE-INSTALL THE NEW CONDUCTORS. AFTER THE CONDUCTORS ARE PULLED, MEGGER OR VFL TEST EACH CONDUCTOR. CONNECT BOTH ENDS OF THE NEW CONDUCTORS AND TEST THE SYSTEM FOR PROPER FUNCTION. DO NOT RE-PULL USED CONDUCTORS UNLESS SPECIFIED.

8. WHERE EQUIPMENT IS BEING RE-FED FROM A NEW SOURCE, EXISTING CONDUIT MAY BE REUSED ONLY IF THE CONDUIT AND FITTINGS ARE OF THE TYPE SPECIFIED FOR NEW WORK ON THIS CONTRACT. IF NOT, THE CONDUIT AND CONDUCTORS SHALL BE REPLACED WITH NEW MATERIAL MEETING THE SPECIFICATIONS, AT NO ADDITIONAL COST TO THE OWNER.

9. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER/ENGINEER TO FLAG EXISTING UNDERGROUND CONDUITS BEFORE DIGGING.

10. THE OWNER HAS THE RIGHT OF FIRST REFUSAL TO THE EQUIPMENT BEING REMOVED. THE CONTRACTOR SHALL DELIVER THE EQUIPMENT WHICH THE OWNER WISHES TO KEEP AT A LOCATION DESIGNATED BY THE OWNER. SEE SPECIFICATIONS.

11. DO NOT MAKE ANY MODIFICATIONS TO THE EXISTING ELECTRICAL EQUIPMENT UNTIL THE FOLLOWING HAS BEEN DONE:

    A. THE OWNER/CONTRACTOR SHALL WITNESS AND RECORD THE CONDITION OF THE EXISTING EQUIPMENT, THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.

    B. THE OWNER SHALL OPERATE THE EQUIPMENT TO DEMONSTRATE THE CURRENT CONDITIONS. THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.

    C. A WRITTEN AND PHOTOGRAPHIC RECORD OF THE OPERATION AND EXISTING CONDITION SHALL BE KEPT IN A THREE RING BINDER AT THE OWNER/CONTRACTOR TRAILER, IN FORM OF PICTURES AND INFORMATION.

    D. A FORM SHALL BE GENERATED BY THE CONTRACTOR TO RECORD THE OBSERVATIONS. BOTH PARTIES SHALL SIGN ON THE FORM.

    E. REPLACE ALL MATERIAL OR EQUIPMENT DAMAGED DURING THE COURSE OF WORK.

    F. AFTER THE CHANGES ARE MADE, THE EQUIPMENT SHALL BE INSPECTED AND RE-TESTED TO DEMONSTRATE THAT IT FUNCTIONS CORRECTLY.

    G. NO PORTION OF EXISTING CONDUCTORS SHALL BE SPLICED TO NEW CONDUCTORS FOR RE-USE WITHOUT SPECIFIC APPROVAL FROM THE OWNER/ENGINEER ON A CASE-BY-CASE BASIS.

MCC, CONTROL PANELS, PANELBOARDS

THESE NOTES APPLY TO CONTROL PANELS, MCC ETC WHICH HAS TO BE REFURBISHED, MODIFIED, DISCONNECTED & RECONNECTED OR REWORKED. SEE SECTION 16060:

THE CONTRACTOR SHALL NOT MAKE ANY MODIFICATION UNTIL THE FOLLOWING HAS BEEN DONE:

A. THE OWNER/CONTRACTOR SHALL WITNESS THE CONDITION OF THE EXISTING EQUIPMENT, THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCY.

B. THE OWNER SHALL OPERATE THE EQUIPMENT TO DEMONSTRATE THE CURRENT CONDITIONS. THE CONTRACTOR SHALL NOTE DOWN ANY DEFECTS OR DEFICIENCIES.

C. A RECORD OF THE OPERATION AND EXISTING CONDITION SHALL BE KEPT IN A THREE RING BINDER AT THE OWNER/CONTRACTOR TRAILER, IN FORM OF PICTURES AND INFORMATION.

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NO.	DATE	REVISION	APP.
A	05/30/25	INTERNAL REVISION	M.S
B	10/30/25	CLIENT REVIEW	L.L.

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750 TOWN & COUNTRY BLVD
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