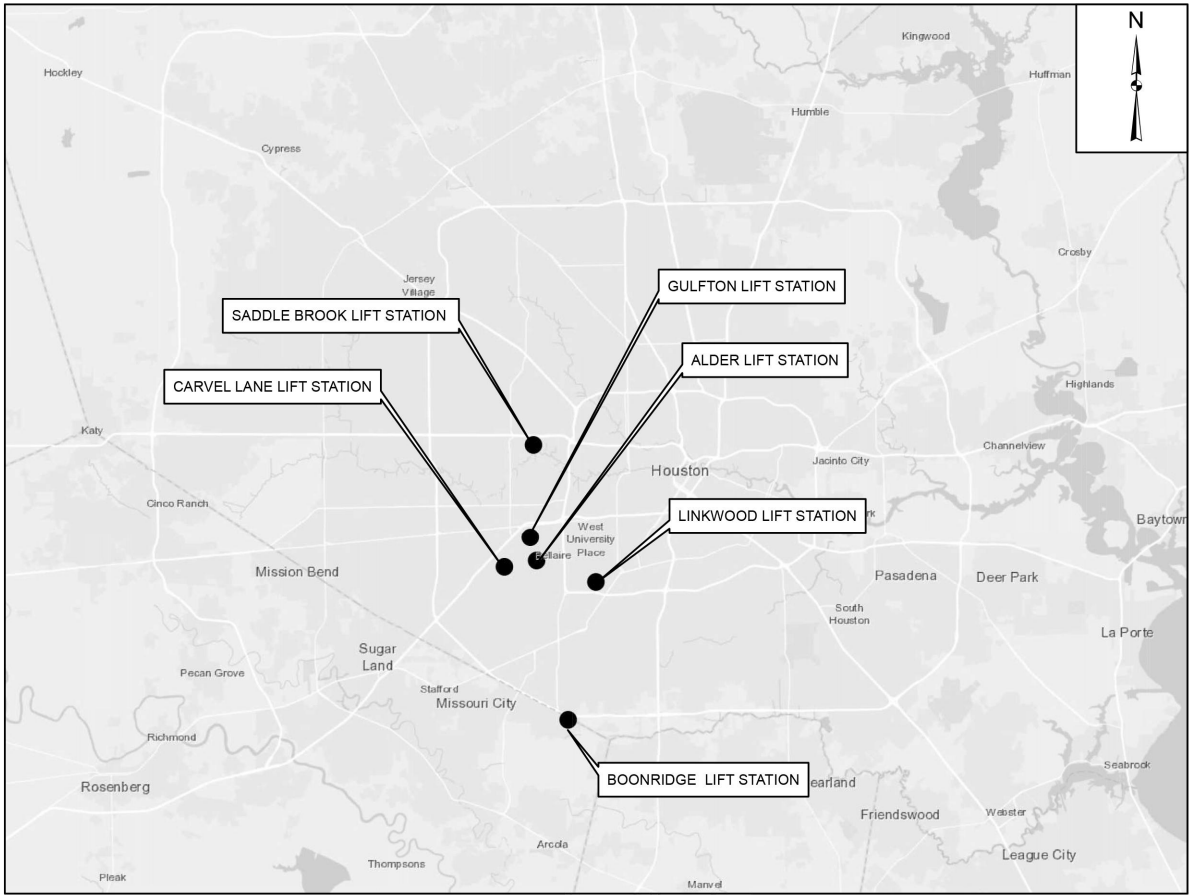


CITY OF HOUSTON

HOUSTON PUBLIC WORKS CAPITAL PROJECTS

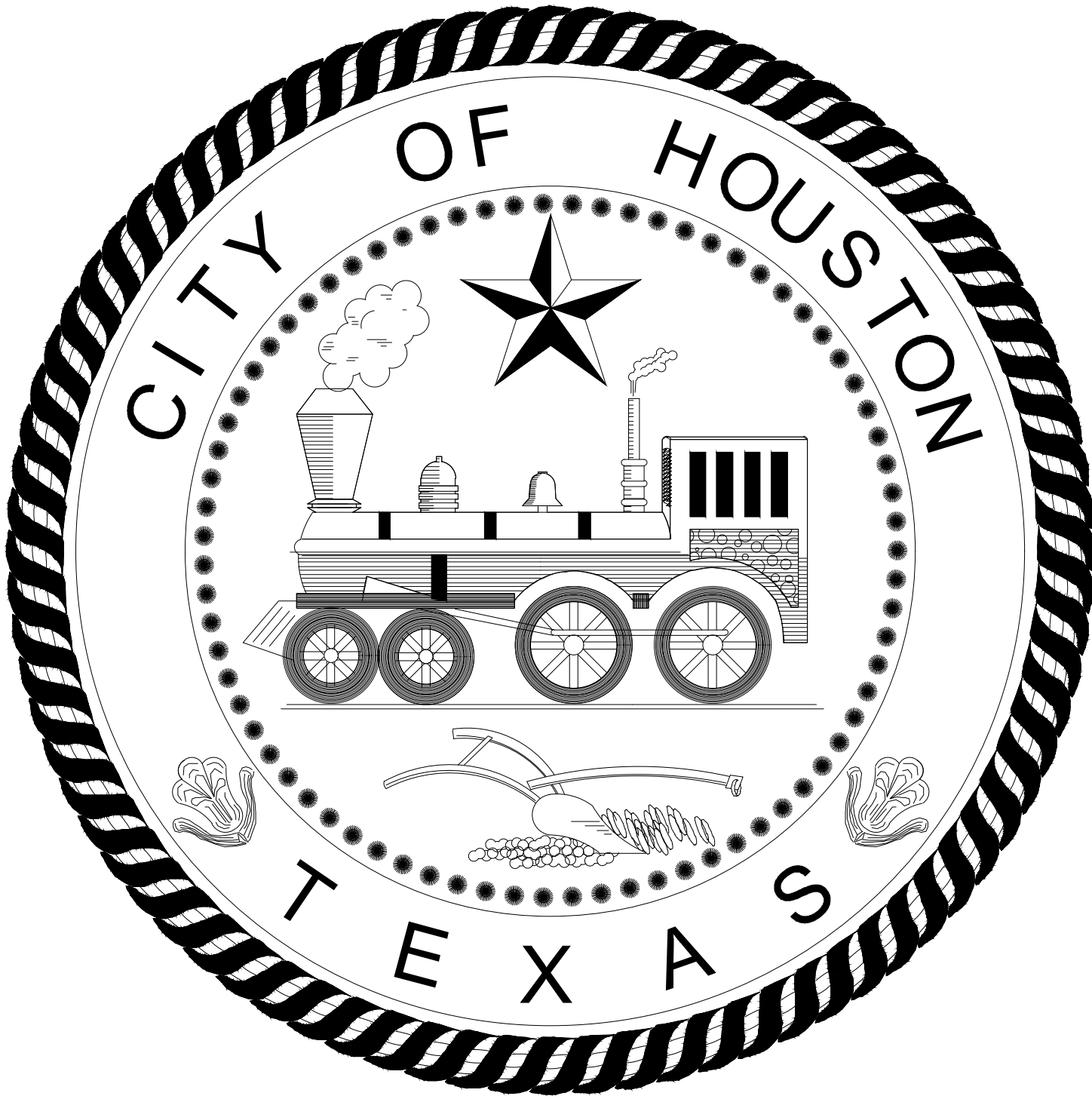
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS CARVEL LANE, GULFTON, LINKWOOD, SADDLE BROOK, ALDER, AND BOONRIDGE LIFT STATIONS



LOCATION MAP

WBS NO. R-000267-0176-3

MAY, 2026
JOB NO. 2005-2024



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
ALEJANDRA SALINAS POSITION 4
SALLIE ALCORN POSITION 5

90% SUBMITTAL

TDLR EABPR _____

NO.	DATE	REVISION	APP.
LJA Engineering, Inc. 3600 W Sam Houston Parkway S Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN-F-1386	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CAPITAL PROJECTS		SURVEY	
CITY ENGINEER		DATE	
DIRECTOR OF HOUSTON PUBLIC WORKS		DATE	
SHEET NO 1 OF 291 SHEETS		FOR CITY OF HOUSTON USE ONLY	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 (2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects CAD) SHEETS 2 index sheet_1.dwg May 07, 2026 - 2:51pm trowbridge

SHEET NO.	CATEGORY	TITLE	SHEET NO.	CATEGORY	TITLE	SHEET NO.	CATEGORY	TITLE
GENERAL			GULFTON LIFT STATION - CONTINUED			SADDLE BROOK LIFT STATION - CONTINUED		
1	G-1	COVER SHEET	87	GF-E6	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE	174	SB-E17	SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - III
2	G-2	INDEX SHEET (SHEET 1 OF 2)	88	GF-E7	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - I	175	SB-E18	SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - IV
3	G-3	INDEX SHEET (SHEET 2 OF 2)	89	GF-E8	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - II	176	SB-E19	SADDLE BROOK LIFT STATION PUMP 1 CONTROL WIRING DIAGRAM
4	G-4	GENERAL CONSTRUCTION NOTES	90	GF-E9	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - III	177	SB-E20	SADDLE BROOK LIFT STATION PUMP 2 CONTROL WIRING DIAGRAM
5	G-5	SYMBOLS	91	GF-E10	GULFTON LIFT STATION 3 PUMP OUTDOOR INCOMING POWER THREE LINE DIAGRAM	178	SB-E21	SADDLE BROOK LIFT STATION PUMP 3 CONTROL WIRING DIAGRAM
6	G-6	ABBREVIATIONS	92	GF-E11	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM	179	SB-E22	SADDLE BROOK LIFT STATION 3 PUMP (INDOOR/OUTDOOR) CONDUIT SCHEDULE FOR 480 VOLT
7	G-7	STRUCTURAL NOTES (SHEET 1 OF 2)	93	GF-E12	GULFTON LIFT STATION 3 PUMP OUTDOOR COMMUNICATION DIAGRAM	180	SB-E23	SADDLE BROOK LIFT STATION 3 PUMP (INDOOR/OUTDOOR) DEVICE RATING SCHEDULE
8	G-8	STRUCTURAL NOTES (SHEET 2 OF 2)	94	GF-E13	GULFTON LIFT STATION 3 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - I	ALDER LIFT STATION		
9	G-9	ELECTRICAL GENERAL NOTES	95	GF-E14	GULFTON LIFT STATION 3 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - II	181	AD-C1	ALDER LIFT STATION EXISTING SITE PLAN
10	G-10	ELECTRICAL LEGEND & SYMBOLS - I	96	GF-E15	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - I	182	AD-C2	ALDER LIFT STATION SITE DEMOLITION PLAN
11	G-11	ELECTRICAL LEGEND & SYMBOLS - II	97	GF-E16	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - II	183	AD-C3	ALDER LIFT STATION DEMOLITION PHOTOS
12	G-12	ELECTRICAL LIGHTING FIXTURE SCHEDULE	98	GF-E17	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - III	184	AD-C4	ALDER LIFT STATION PLAN AND PROFILE DEMOLITION PLAN
13	G-13	INSTRUMENTATION LEGENDS AND SYMBOLS - I	99	GF-E18	GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - IV	185	AD-C5	ALDER LIFT STATION STORMWATER POLLUTION PREVENTION PLAN
14	G-14	INSTRUMENTATION LEGENDS AND SYMBOLS - II	100	GF-E19	GULFTON LIFT STATION 3 PUMP OUTDOOR PUMP 1 CONTROL WIRING DIAGRAM	186	AD-C6	ALDER LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN
15	G-15	FLOODPLAIN MAPS (SHEET 1 OF 2)	101	GF-E20	GULFTON LIFT STATION 3 PUMP OUTDOOR PUMP 2 CONTROL WIRING DIAGRAM	187	AD-C7	ALDER LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS
16	G-16	FLOODPLAIN MAPS (SHEET 2 OF 2)	102	GF-E21	GULFTON LIFT STATION 3 PUMP OUTDOOR PUMP 3 CONTROL WIRING DIAGRAM	188	AD-C8	ALDER LIFT STATION TABLES AND DETAILS
SURVEY CONTROL			103	GF-E22	GULFTON LIFT STATION 3 PUMP (INDOOR/OUTDOOR) CONDUIT SCHEDULE FOR 480 VOLT	189	AD-C9	ALDER LIFT STATION RECORD DRAWINGS PLAN AND PROFILE VIEWS
17	SV-1	BOUNDARY SURVEY - CARVEL LANE LIFT STATION	104	GF-E23	GULFTON LIFT STATION 3 PUMP (INDOOR/OUTDOOR) DEVICE RATING SCHEDULE	190	AD-S1	ALDER LIFT STATION STRUCTURAL TOP OF SLAB MODIFICATIONS PLAN & DEMO
18	SV-2	SURVEY CONTROL MAP - CARVEL LANE LIFT STATION	LINKWOOD LIFT STATION			191	AD-S2	ALDER LIFT STATION STRUCTURAL TOP OF SLAB MODIFICATIONS PROPOSED DETAILS
19	SV-3	BOUNDARY SURVEY - GULFTON LIFT STATION	105	LW-C1	LINKWOOD LIFT STATION EXISTING SITE PLAN	192	AD-S3	ALDER LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM PLAN & SECTION
20	SV-4	SURVEY CONTROL MAP - GULFTON LIFT STATION	106	LW-C2	LINKWOOD LIFT STATION SITE DEMOLITION PLAN	193	AD-S4	ALDER LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM DETAIL 1
21	SV-5	BOUNDARY SURVEY - LINKWOOD LIFT STATION	107	LW-C3	LINKWOOD LIFT STATION DEMOLITION PHOTOS	194	AD-S5	ALDER LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM DETAIL 2
22	SV-6	SURVEY CONTROL MAP - LINKWOOD LIFT STATION	108	LW-C4	LINKWOOD LIFT STATION PLAN AND PROFILE DEMOLITION PLAN	195	AD-E1	ALDER LIFT STATION ELECTRICAL DEMOLITION SITE PLAN
23	SV-7	BOUNDARY SURVEY - SADDLEBROOK LIFT STATION	109	LW-C5	LINKWOOD LIFT STATION STORM WATER POLLUTION PREVENTION PLAN	196	AD-E2	ALDER LIFT STATION ELECTRICAL PROPOSED SITE PLAN
24	SV-8	SURVEY CONTROL MAP - SADDLEBROOK LIFT STATION	110	LW-C6	LINKWOOD LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN	197	AD-E3	ALDER LIFT STATION CONDUIT LAYOUT FOR LIFT STATION 2 PUMP ALTERNATIVE HIGH PROFILE CONFIGURATION
25	SV-9	BOUNDARY SURVEY - ALDER LIFT STATION	111	LW-C7	LINKWOOD LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS	198	AD-E4	ALDER LIFT STATION ELEVATION SECTION 2 PUMP CONDUIT ROUTING ALTERNATIVE HIGH PROFILE CONFIGURATION
26	SV-10	SURVEY CONTROL MAP - ALDER LIFT STATION	112	LW-C8	LINKWOOD LIFT STATION TABLES AND DETAILS	199	AD-E5	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET ENCLOSURE
27	SV-11	BOUNDARY SURVEY - BOONRIDGE LIFT STATION	113	LW-C9	LINKWOOD LIFT STATION RECORD DRAWINGS PLAN VIEW	200	AD-E6	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE
28	SV-12	SURVEY CONTROL MAP - BOONRIDGE LIFT STATION	114	LW-C10	LINKWOOD LIFT STATION RECORD DRAWINGS PROFILE VIEW	201	AD-E7	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - I
CARVEL LANE LIFT STATION			115	LW-S1	LINKWOOD LIFT STATION STRUCTURAL TOP OF SLAB MODIFICATIONS PLAN & DEMO	202	AD-E8	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - II
29	CL-C1	CARVEL LANE LIFT STATION EXISTING SITE PLAN	116	LW-S2	LINKWOOD LIFT STATION STRUCTURAL TOP OF SLAB MODIFICATIONS PROPOSED DETAILS	203	AD-E9	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - III
30	CL-C2	CARVEL LANE LIFT STATION SITE DEMOLITION PLAN	117	LW-S3	LINKWOOD LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM PLAN & SECTION	204	AD-E10	ALDER LIFT STATION 2 PUMP OUTDOOR INCOMING POWER THREE LINE DIAGRAM
31	CL-C3	CARVEL LANE LIFT STATION DEMOLITION PHOTOS	118	LW-S4	LINKWOOD LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM DETAILS 1	205	AD-E11	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM
32	CL-C4	CARVEL LANE LIFT STATION PLAN AND PROFILE DEMOLITION PLAN	119	LW-S5	LINKWOOD LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM DETAILS 2	206	AD-E12	ALDER LIFT STATION 2 PUMP OUTDOOR COMMUNICATION DIAGRAM
33	CL-C5	CARVEL LANE LIFT STATION STORM WATER POLLUTION PREVENTION PLAN	120	LW-E1	LINKWOOD LIFT STATION ELECTRICAL DEMOLITION SITE PLAN	207	AD-E13	ALDER LIFT STATION 2 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - I
34	CL-C6	CARVEL LANE LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN	121	LW-E2	LINKWOOD LIFT STATION ELECTRICAL PROPOSED SITE PLAN	208	AD-E14	ALDER LIFT STATION 2 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - II
35	CL-C7	CARVEL LANE LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS	122	LW-E3	LINKWOOD LIFT STATION CONDUIT LAYOUT FOR LIFT STATION 3 PUMP PREFERRED CONFIGURATION	209	AD-E15	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - I
36	CL-C8	CARVEL LANE LIFT STATION TABLES AND DETAILS	123	LW-E4	LINKWOOD LIFT STATION ELEVATION SECTION 3 PUMP CONDUIT ROUTING PREFERRED CONFIGURATION	210	AD-E16	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - II
37	CL-C9	CARVEL LANE LIFT STATION RECORD DRAWING PLAN VIEW	124	LW-E5	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET ENCLOSURE	211	AD-E17	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - III
38	CL-C10	CARVEL LANE LIFT STATION RECORD DRAWING PROFILE VIEW	125	LW-E6	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE	212	AD-E18	ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - IV
39	CL-S1	CARVEL LANE LIFT STATION STRUCTURAL TOP OF SLAB MODIFICATIONS PLAN & DEMO	126	LW-E7	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - I	213	AD-E19	ALDER LIFT STATION 2 PUMP OUTDOOR PUMP 1 CONTROL WIRING DIAGRAM
40	CL-S2	CARVEL LANE LIFT STATION STRUCTURAL TOP OF SLAB MODIFICATIONS PROPOSED DETAILS	127	LW-E8	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - II	214	AD-E20	ALDER LIFT STATION 2 PUMP OUTDOOR PUMP 2 CONTROL WIRING DIAGRAM
41	CL-S3	CARVEL LANE LIFT STATION STRUCTURAL - RAISED PLATFORM PLAN & SECTION	128	LW-E9	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - III	215	AD-E21	ALDER LIFT STATION 2 PUMP OUTDOOR CONDUIT SCHEDULE FOR 480 VOLT
42	CL-S4	CARVEL LANE LIFT STATION STRUCTURAL - RAISED PLATFORM DETAILS 1	129	LW-E10	LINKWOOD LIFT STATION 3 PUMP OUTDOOR INCOMING POWER THREE LINE DIAGRAM	216	AD-E22	ALDER LIFT STATION 2 PUMP OUTDOOR DEVICE RATING SCHEDULE
43	CL-S5	CARVEL LANE LIFT STATION STRUCTURAL - RAISED PLATFORM DETAILS 2	130	LW-E11	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM	BOONRIDGE LIFT STATION		
44	CL-E1	CARVEL LANE LIFT STATION ELECTRICAL DEMOLITION SITE PLAN	131	LW-E12	LINKWOOD LIFT STATION 3 PUMP OUTDOOR COMMUNICATION DIAGRAM	217	BR-C1	BOONRIDGE LIFT STATION EXISTING SITE PLAN
45	CL-E2	CARVEL LANE LIFT STATION ELECTRICAL PROPOSED SITE PLAN	132	LW-E13	LINKWOOD LIFT STATION 3 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - I	218	BR-C2	BOONRIDGE LIFT STATION SITE DEMOLITION PLAN
46	CL-E3	CARVEL LANE LIFT STATION CONDUIT LAYOUT FOR LIFT STATION 3 PUMP ALTERNATIVE HIGH PROFILE CONFIGURATION	133	LW-E14	LINKWOOD LIFT STATION 3 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - II	219	BR-C3	BOONRIDGE LIFT STATION DEMOLITION PHOTOS
47	CL-E4	CARVEL LANE LIFT STATION ELEVATION SECTION 3 PUMP CONDUIT ROUTING ALTERNATIVE HIGH PROFILE CONFIGURATION	134	LW-E15	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - I	220	BR-C4	BOONRIDGE LIFT STATION PLAN AND PROFILES DEMOLITION PLAN
48	CL-E5	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET ENCLOSURE	135	LW-E16	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - II	221	BR-C5	BOONRIDGE LIFT STATION STORMWATER POLLUTION PREVENTION PLAN
49	CL-E6	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE	136	LW-E17	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - III	222	BR-C6	BOONRIDGE LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN
50	CL-E7	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - I	137	LW-E18	LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - IV	223	BR-C7	BOONRIDGE LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS
51	CL-E8	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - II	138	LW-E19	LINKWOOD LIFT STATION PUMP 1 CONTROL WIRING DIAGRAM	224	BR-C8	BOONRIDGE LIFT STATION TABLES AND DETAILS
52	CL-E9	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - III	139	LW-E20	LINKWOOD LIFT STATION PUMP 2 CONTROL WIRING DIAGRAM	225	BR-C9	BOONRIDGE LIFT STATION PROPOSED FORCE MAIN
53	CL-E10	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR INCOMING POWER THREE LINE DIAGRAM	140	LW-E21	LINKWOOD LIFT STATION PUMP 3 CONTROL WIRING DIAGRAM	226	BR-C10	BOONRIDGE LIFT STATION RECORD DRAWINGS PLAN AND PROFILE VIEWS
54	CL-E11	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM	141	LW-E22	LINKWOOD LIFT STATION 3 PUMP (INDOOR/OUTDOOR) CONDUIT SCHEDULE FOR 480 VOLT	227	BR-S1	BOONRIDGE LIFT STATION STRUCTURAL TOP OF SLAB MODIFICATION PLAN & DEMO
55	CL-E12	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR COMMUNICATION DIAGRAM	142	LW-E23	LINKWOOD LIFT STATION 3 PUMP (INDOOR/OUTDOOR) DEVICE RATING SCHEDULE	228	BR-S2	BOONRIDGE LIFT STATION STRUCTURAL TOP OF SLAB MODIFICATIONS PROPOSED DETAILS
56	CL-E13	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - I	SADDLE BROOK LIFT STATION			229	BR-S3	BOONRIDGE LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM PLAN & SECTION
57	CL-E14	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - II	143	SB-C1	SADDLE BROOK LIFT STATION EXISTING SITE PLAN	230	BR-S4	BOONRIDGE LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM DETAIL 1
58	CL-E15	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - I	144	SB-C2	SADDLE BROOK LIFT STATION DEMOLITION PLAN	231	BR-S5	BOONRIDGE LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM DETAIL 2
59	CL-E16	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - II	145	SB-C3	SADDLE BROOK LIFT STATION DEMOLITION PHOTOS	232	BR-E1	BOONRIDGE LIFT STATION ELECTRICAL DEMOLITION SITE PLAN
60	CL-E17	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - III	146	SB-C4	SADDLE BROOK LIFT STATION PLAN AND PROFILE DEMOLITION PLAN	233	BR-E2	BOONRIDGE LIFT STATION ELECTRICAL SITE PLAN
61	CL-E18	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - IV	147	SB-C5	SADDLE BROOK LIFT STATION STORM WATER POLLUTION PREVENTION PLAN	234	BR-E3	BOONRIDGE LIFT STATION CONDUIT LAYOUT FOR LIFT STATION 2 PUMP ALTERNATIVE HIGH PROFILE CONFIGURATION
62	CL-E19	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR PUMP 1 CONTROL WIRING DIAGRAM	148	SB-C6	SADDLE BROOK LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN	235	BR-E4	BOONRIDGE LIFT STATION ELEVATION SECTION 2 PUMP CONDUIT ROUTING ALTERNATIVE HIGH PROFILE CONFIGURATION
63	CL-E20	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR PUMP 2 CONTROL WIRING DIAGRAM	149	SB-C7	SADDLE BROOK LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS	236	BR-E5	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET ENCLOSURE
64	CL-E21	CARVEL LANE LIFT STATION 3 PUMP OUTDOOR PUMP 3 CONTROL WIRING DIAGRAM	150	SB-C8	SADDLE BROOK LIFT STATION TABLES AND DETAILS	237	BR-E6	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE
65	CL-E22	CARVEL LANE LIFT STATION 3 PUMP (INDOOR/OUTDOOR) CONDUIT SCHEDULE FOR 480 VOLT	151	SB-C9	SADDLE BROOK LIFT STATION RECORD DRAWINGS PLAN VIEW	238	BR-E7	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - I
66	CL-E23	CARVEL LANE LIFT STATION 3 PUMP (INDOOR/OUTDOOR) DEVICE RATING SCHEDULE	152	SB-C10	SADDLE BROOK LIFT STATION RECORD DRAWINGS PROFILE VIEW	239	BR-E8	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - II
GULFTON LIFT STATION			153	SB-S1	SADDLE BROOK LIFT STATION TOP OF SLAB MODIFICATION PLAN & DEMO	240	BR-E9	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - III
67	GF-C1	GULFTON LIFT STATION EXISTING SITE PLAN	154	SB-S2	SADDLE BROOK LIFT STATION TOP OF SLAB MODIFICATION PROPOSED DETAILS	241	BR-E10	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR INCOMING POWER THREE LINE DIAGRAM
68	GF-C2	GULFTON LIFT STATION SITE DEMOLITION PLAN	155	SB-S3	SADDLE BROOK LIFT STATION - RAISED ELECTRICAL PLATFORM PLAN & SECTION	242	BR-E11	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM
69	GF-C3	GULFTON LIFT STATION DEMOLITION PHOTOS	156	SB-S4	SADDLE BROOK LIFT STATION - RAISED ELECTRICAL PLATFORM DETAILS 1	243	BR-E12	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR COMMUNICATION DIAGRAM
70	GF-C4	GULFTON LIFT STATION PLAN AND PROFILE DEMOLITION PLAN	157	SB-S5	SADDLE BROOK LIFT STATION - RAISED ELECTRICAL PLATFORM DETAILS 2	244	BR-E13	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - I
71	GF-C5	GULFTON LIFT STATION STORM WATER POLLUTION PREVENTION PLAN	158	SB-E1	SADDLE BROOK LIFT STATION ELECTRICAL DEMOLITION SITE PLAN	245	BR-E14	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR PROCESS & INSTRUMENTATION DIAGRAM - II
72	GF-C6	GULFTON LIFT STATION PROPOSED CIVIL SITE PLAN	159	SB-E2	SADDLE BROOK LIFT STATION ELECTRICAL PROPOSED SITE PLAN	246	BR-E15	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - I
73	GF-C7	GULFTON LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS	160	SB-E3	SADDLE BROOK LIFT STATION CONDUIT LAYOUT FOR LIFT STATION 3 PUMP ALTERNATIVE HIGH PROFILE CONFIGURATION	247	BR-E16	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - II
74	GF-C8	GULFTON LIFT STATION TABLES AND DETAILS	161	SB-E4	SADDLE BROOK LIFT STATION ELEVATION SECTION 3 PUMP CONDUIT ROUTING ALTERNATIVE HIGH PROFILE CONFIGURATION	248	BR-E17	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - III
75	GF-C9	GULFTON LIFT STATION RECORD DRAWINGS PLAN VIEW 1	162	SB-E5	SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET ENCLOSURE	249	BR-E18	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - IV
76	GF-C10	GULFTON LIFT STATION RECORD DRAWINGS PLAN VIEW 2	163	SB-E6	SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE	250	BR-E19	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR PUMP 1 CONTROL WIRING DIAGRAM
77	GF-C11	GULFTON LIFT STATION RECORD DRAWINGS PROFILE VIEW	164	SB-E7	SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - I	251	BR-E20	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR PUMP 2 CONTROL WIRING DIAGRAM
78	GF-S1	GULFTON LIFT STATION STRUCTURAL MODIFICATIONS 1	165	SB-E8	SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - II	252	BR-E21	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONDUIT SCHEDULE FOR 480 VOLT
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SHEET NO. 2 OF 291		

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
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SHEET NO. 3 OF 291		

EXISTING PLAN VIEW	
	WATER METER
	WATER VALVE (GATE)
	WATER VALVE (BUTTERFLY)
	FIRE HYDRANT/FLUSHING VALVE
	TAPPING SLEEVE & VALVE
	REDUCER
	ROUND CONNECTION
	SANITARY SEWER CLEANOUT & MANHOLE
	STORM SEWER MANHOLE
	STORM SEWER INLETS
	CULVERT PIPE AND HEADWALL
	TOP OF CURB ELEVATION
	GUTTER ELEVATION
	TOP OF PAVEMENT ELEVATION
	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
	AERIAL POWER LINE
	UNDERGROUND POWER LINE
	GAS LINE
	UNKNOWN UNDERGROUND LINE
	OIL PIPELINE
	UNDERGROUND TELECOMM LINE W/VAULT
	AERIAL TELECOMM LINE
	RAILROAD LINE
	WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	SANITARY SEWER FORCE MAIN
	RECLAIMED WATER LINE
	NON-POTABLE WATER LINE
	GAS METER
	GAS VALVE
	PROPANE LINE
	STEAM LINE
	MISC UNDERGROUND PIPELINE LABEL

PROPOSED PLAN VIEW	
	WATER METER
	WATER VALVE (GATE)
	WATER VALVE (BUTTERFLY)
	FIRE HYDRANT/FLUSHING VALVE
	TAPPING SLEEVE & VALVE
	REDUCER
	ROUND CONNECTION
	SANITARY SEWER CLEANOUT & MANHOLE
	STORM SEWER MANHOLE
	STORM SEWER INLETS
	CULVERT PIPE AND HEADWALL
	TOP OF CURB ELEVATION
	GUTTER ELEVATION
	TOP OF PAVEMENT ELEVATION
	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
	AERIAL POWER LINE
	UNDERGROUND POWER LINE
	GAS LINE
	UNKNOWN UNDERGROUND LINE
	OIL PIPELINE
	UNDERGROUND TELCOMM LINE W/ VAULT
	AERIAL TELECOMM LINE
	RAILROAD LINE
	WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	SANITARY SEWER FORCE MAIN
	RECLAIMED WATER LINE
	NON-POTABLE WATER LINE
	GAS METER
	GAS VALVE
	PROPANE LINE
	STEAM LINE
	MISC UNDERGROUND PIPELINE LABEL
	MATCH LINE

EXISTING PLAN VIEW	
	PAVING HEADER
	BUILDING, RESIDENTIAL
	BUILDING, COMMERCIAL
	TREE
	HEDGE
	IRON PIPE OR IRON ROD MONUMENT
	POINT OF INTERSECTION (PI)
	POINT OF CURVE (PC)
	POINT OF TANGENCY (PT)
	POWER POLE
	POWER POLE W/DOWN GUY

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 NATURAL GROUND
	SOUTH OR WEST NATURAL GROUND
	NORTH OR EAST CULVERT
	SOUTH OR WEST CULVERT
	CENTERLINE OF ROW
	CENTERPOINT ENERGY CONDUIT
	GAS LINE
	WESTERN UNION
	AT&T CONDUIT
	WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	SANITARY SEWER FORCE MAIN
	RECLAIMED WATER LINE
	NON-POTABLE WATER LINE

	CENTERPOINT ENERGY MANHOLE
	AT&T MANHOLE
	WATER LINE MANHOLE
	SANITARY SEWER MANHOLE & CLEANOUT
	STORM SEWER MANHOLE
	STORM SEWER INLET

PROPOSED PLAN VIEW	
	PAVING HEADER
	BUILDING, RESIDENTIAL
	BUILDING, COMMERCIAL
	TREE
	HEDGE
	IRON PIPE OR IRON ROD MONUMENT
	POINT OF INTERSECTION (PI)
	POINT OF CURVE (PC)
	POINT OF TANGENCY (PT)
	POWER POLE
	POWER POLE W/DOWN GUY

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 NATURAL GROUND
	SOUTH OR WEST NATURAL GROUND
	NORTH OR EAST CULVERT
	SOUTH OR WEST CULVERT
	CENTERLINE OF ROW
	CENTERPOINT ENERGY CONDUIT
	GAS LINE
	WESTERN UNION
	AT&T CONDUIT
	WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	SANITARY SEWER FORCE MAIN
	RECLAIMED WATER LINE
	NON-POTABLE WATER LINE

	CENTERPOINT ENERGY MANHOLE
	AT&T MANHOLE
	WATER LINE MANHOLE
	SANITARY SEWER MANHOLE & CLEANOUT
	STORM SEWER MANHOLE
	STORM SEWER INLET

MISC STANDARD ELEMENTS	
	COH NORTH ARROW
	COH BAR SCALE
	REVISION CLOUD/DELTA

VIEW TITLE	
	SECTION CALLOUT
	DETAIL CALLOUT

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\7 STRCT NOTES_1.dwg May 07, 2026-1:20pm trowbridge

GENERAL

- 1) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION METHODS AND THE STABILITY OF ALL STRUCTURES IN THE CONSTRUCTION ZONE DURING CONSTRUCTION.
- 2) THE CONTRACTOR SHALL COORDINATE AND VERIFY ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 3) THE CONTRACTOR SHALL REFER TO THE PROJECT GEOTECHNICAL REPORT TO FAMILIARIZE THEMSELVES WITH SUBSURFACE CONDITIONS AND TO ENSURE COMPLIANCE WITH THE RECOMMENDATIONS FOR SITE PREPARATION ALONG WITH FILL REQUIREMENTS.

CONCRETE

- 1) DESIGN SHALL CONFORM TO THE LATEST BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI-318).
- 2) UNLESS STATED OTHERWISE, ALL CONCRETE SHALL BE GOVERNED BY SECTION 03310 (STRUCTURAL CONCRETE) OF THE CITY OF HOUSTON'S PUBLIC WORKS GUIDE SPECIFICATIONS.

ITEM	CONCRETE CLASS	COMPRESSIVE STRENGTH AT 28 DAYS SHALL NOT BE LESS THAN
STRUCTURAL MEMBERS (WALLS, SLABS, CULVERTS)	AB	4000 PSI
SEAL SLABS AND OTHER NON-REINFORCED ITEMS	BB	1500 PSI
DUCT BANKS & OTHER MISC CONCRETE	CB	3000 PSI
WHERE SHOWN ON PLANS	DB	5000 PSI

- 3) 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 LATEST ACI DETAILING MANUAL (ACI 315), UNLESS OTHERWISE NOTED ON THE PLANS.
- 4) 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.
- 5) MINIMUM REINFORCING BARS DEVELOPMENT LENGTH (Ld) AND LAP SPLICES SHALL BE AS FOLLOWS :

REINFORCING DEVELOPMENT AND SPLICE LENGTHS (f'c ≥ 3,600 psi)						
BAR SIZE	DEVELOPMENT LENGTH				SPLICE LENGTH	
	TOP BAR	OTHER	HOOK		TOP BAR	OTHER
	L _{d-top}	L _d	L _{dh}	L _{ext}	L _{st-top}	L _{st}
#3	1'-3"	1'-0"	0'-8"	0'-6"	1'-7"	1'-4"
#4	1'-7"	1'-3"	0'-10"	0'-8"	2'-1"	1'-7"
#5	2'-0"	1'-6"	1'-0"	0'-10"	2'-7"	2'-0"
#6	2'-5"	1'-10"	1'-3"	1'-0"	3'-1"	2'-5"
#7	2'-9"	2'-2"	1'-5"	1'-2"	3'-7"	2'-9"
#8	3'-2"	2'-5"	1'-7"	1'-4"	4'-1"	3'-2"
#9	3'-11"	3'-0"	1'-10"	1'-7"	5'-1"	3'-11"
#10	4'-10"	3'-9"	2'-1"	1'-10"	6'-3"	4'-10"
#11	5'-9"	4'-5"	2'-3"	2'-0"	7'-6"	5'-9"

- 6) NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL WALLS UNTIL WALLS HAVE ATTAINED THE SPECIFIED STRENGTH.
- 7) HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS SHOWN ON THE PLANS ARE RECOMMENDED. ANY DEVIATION FROM CONSTRUCTION JOINTS INDICATED ON THE DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
- 8) USE TYPE C2 JOINT FOR ALL CONSTRUCTION JOINTS IN WALL 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 THE DRAWINGS.
- 9) CONCRETE WALLS AND PARTITIONS SHALL BE POURED IN MAXIMUM LENGTHS OF 40 FEET BETWEEN VERTICAL CONSTRUCTION JOINTS.
- 10) 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.
- 11) 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.
- 12) REFER TO ARCHITECTURAL, PROCESS, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ALL SLEEVES, PIPES, CONDUITS AND MISCELLANEOUS ANCHORING DEVICES TO BE INCORPORATED IN THE CONSTRUCTION.

- 13) CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS UNLESS OTHERWISE INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER.

SLABS		CLEAR COVER
	TOP & BOTTOM OF FORMED SLABS	2"
	SURFACE IN CONTACT WITH LIQUID	2"
	BOTTOM OF SLABS ON FILL OR SOIL	3"
FOOTINGS		
	TOP & FORMED FOOTINGS	2"
	BOTTOM & UNFORMED SIDES	3"
WALLS		
	LESS THAN 12" THICKNESS	1 ½"
	12" OR OVER IN THICKNESS	2"
BEAMS & GIRDERS		
	STIRRUPS	2"
	PRINCIPAL REINFORCEMENT	2 ½"
COLUMNS		
	TIES	2"
	VERTICAL REINFORCEMENT	2 ½"

- 14) ALL EXPOSED EDGES SHALL BE CAST WITH A ¾" CHAMFER UNLESS MASONRY OR OTHER MEMBERS ARE ERECTED FLUSH WITH THEM; OR NOTED OTHERWISE ON THE DRAWINGS.
- 15) CONTRACTOR TO PROVIDE ENGINEER SHOP DRAWINGS SHOWING REINFORCING LAYOUT, BAR SIZES AND DIMENSIONS.

FOUNDATIONS

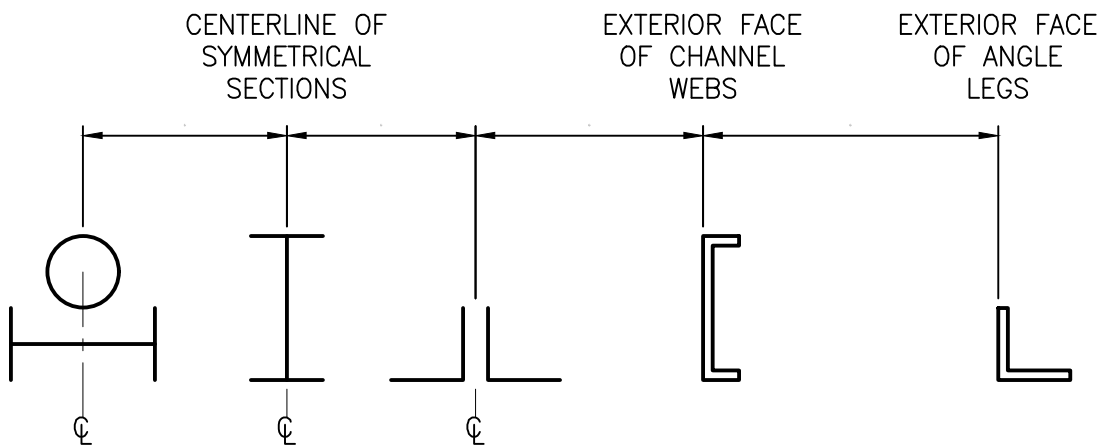
- 1) ALLOWABLE SOIL BEARING PRESSURE, EXCAVATION AND BACKFILL FOR FOUNDATIONS AND STRUCTURES SHALL BE AS RECOMMENDED IN THE GEOTECHNICAL REPORT IF PROVIDED.
- 2) ALL EXCAVATIONS SHALL BE CARRIED OUT IN THE DRY, AND PROVISIONS SHALL BE MADE TO PREVENT THE BOTTOM OF ALL EXCAVATIONS FROM FREEZING OR FLOODING 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, ALONG WITH CITY SPECIFICATIONS.

STRUCTURAL STEEL

- 1) STRUCTURAL STEEL SHALL CONFORM TO THE LATEST AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
- 2) ELEVATIONS OF STEEL BEAMS SHOWN ON FRAMING PLANS REFER TO TOP OF FLANGE UNLESS NOTED OTHERWISE.
- 3) ALL BOLTED CONNECTIONS SHALL BE MADE WITH ¾" DIAMETER ASTM F3125 GRADE A325 BOLTS EXCEPT AS OTHERWISE SHOWN OR 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 MISCELLANEOUS EMBEDDED STEEL SHALL BE HOT DIPPED GALVANIZED. ANCHOR BOLTS, WHICH ARE SUBMERGED, LOCATED ABOVE LIQUID SURFACE, OR ARE IN CORROSIVE ATMOSPHERE SHALL BE 316 STAINLESS STEEL.
- 7) ALL EQUIPMENT ANCHOR BOLTS, DIMENSIONS AND LOCATIONS SHALL BE VERIFIED FROM CERTIFIED VENDOR DRAWINGS, PRIOR TO CONSTRUCTION.
- 8) ALL EXPOSED FERROUS METAL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
- 9) CONTRACTOR TO PROVIDE ENGINEER SHOP DRAWINGS SHOWING STEEL FABRICATION DETAILS AND DIMENSIONS.
- 10) UNLESS NOTED OTHERWISE, STEEL SECTIONS SHALL BE AS FOLLOWS:

APPLICABLE ASTM SPECIFICATIONS FOR STRUCTURAL SHAPES		
SECTION	STANDARD	YIELD
ALL WIDE FLANGES	ASTM A992	Fy = 50 KSI
ALL CHANNELS	ASTM A36	Fy = 36 KSI
ALL PLATE, ANGLES & TIE RODS	ASTM A36	Fy = 36 KSI
RECTANGULAR HSS	ASTM A500 GR. B	Fy = 46 KSI
ROUND HSS	ASTM A500 GR. B	Fy = 42 KSI
PIPE	ASTM A53 GR. B	Fy = 35 KSI

- 11) DIMENSION LINES TO STEEL SECTIONS USE THE FOLLOWING CONVENTIONS:



STEEL BAR GRATING

- 1) ALL METAL BAR GRATING SHALL BE IN COMPLIANCE WITH THE ANSI/NAAMM METAL BAR GRATING MANUAL MBG 531-17 AND THE SPECIFICATIONS SET FORTH THEREIN.
- 2) METAL BAR GRATING WELDS SHALL BE IN COMPLIANCE WITH THE ANSI/NAAMM WELDING STANDARDS FOR FABRICATION OF STEEL, STAINLESS STEEL AND ALUMINUM BAR GRATING MBG 533-09.
- 3) ALL METAL GRATING IS TO BE HOT DIPPED GALVANIZED PER ASTM A123 AFTER FABRICATION UNLESS NOTED OTHERWISE.
- 4) ALL METAL BAR GRATING SHALL HAVE A STANDARD TRIM BAND UNLESS NOTED OTHERWISE.
- 5) ALL CUTOUTS WHERE MORE THAN ONE BEARING BAR IS CUT AND BEARING BARS ARE NOT SUPPORTED SHALL BE LOAD BANDED.
- 6) IF MORE THAN 1 INCH OF CLEAR SPACE EXISTS BETWEEN A GRATING OPENING AND PENETRATING ITEM, THEN BANDING SHOULD BE 1/4 INCH X 5 INCH TOE PLATE UNLESS NOTED OTHERWISE.
- 7) GRATING ANCHORAGES AND ATTACHMENT CLIPS TO BE PER MANUFACTURERS SPECIFICATIONS.
- 8) CONTRACTOR TO PROVIDE ENGINEER SHOP DRAWINGS SHOWING GRATING PANEL LAYOUT, IDENTIFICATION OF REMOVABLE VERSUS FIXED PANELS, DIRECTION OF SPANS, AND FASTENER TYPES.

DRILLED SHAFTS

- 1) 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.
- 2) ALL FOUNDATIONS SHALL BE CONSTRUCTED IN EXCAVATIONS FREE OF STANDING WATER.
- 3) DRILLED SHAFT INSTALLATION SHALL COMPLY WITH CHAPTER 4 OF THE FHWA PUBLICATION GEC 010 'DRILLED SHAFT CONSTRUCTION PROCEDURES' AND LRFD DESIGN METHODS AND TXDOT SPEC ITEM 416 'DRILLED SHAFT FOUNDATIONS'.
- 4) DRILLED SHAFTS SHOULD BE CHECKED FOR SIZE AND DEPTH PRIOR TO THE PLACEMENT OF CONCRETE. PRECAUTIONS SHOULD BE TAKEN DURING THE PLACEMENT OF THE PIER REINFORCEMENT CONCRETE IN DRILLED SHAFTS TO PREVENT THE LOOSE EXCAVATED MATERIAL FROM FALLING INTO THE EXCAVATION.
- 5) IF SHALLOW OR PERCHED GROUNDWATER IS ENCOUNTERED AT THE TIME OF CONSTRUCTION, DRILLED SHAFT CONSTRUCTION SHOULD UTILIZE EITHER THE WET CONSTRUCTION METHOD USING DRILLING SLURRY OR THE CASING CONSTRUCTION METHOD TO FACILITATE PROPER DRILLED SHAFT INSTALLATION. THESE ITEMS ARE INCIDENTAL TO THE DRILLED SHAFT INSTALLATION AND NO ADDITIONAL FUNDS ARE AVAILABLE.
- 6) DRILLED SHAFTS IN CLOSE PROXIMITY: DO NOT EXCAVATE A SHAFT WITHIN TWO SHAFT DIAMETERS (CLEAR SPACE) OF AN OPEN SHAFT, OR ONE IN WHICH CONCRETE HAS BEEN PLACED IN THE PRECEDING 24 HOURS.

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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
STRUCTURAL NOTES (SHEET 1 OF 2)	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 7 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS 8 STRCT NOTES_2.dwg May 07, 2026 - 1:20pm trowbridge

SPECIAL INSPECTION NOTES:

1. SPECIAL INSPECTIONS AND TESTING SHALL BE DONE IN ACCORDANCE WITH CHAPTER 17 OF THE 2021 INTERNATIONAL BUILDING CODE (IBC)
2. SPECIAL INSPECTION WORK IS NOT INCLUDED IN THE DESIGN OR STRUCTURAL ENGINEER'S SCOPE OF SERVICES.
3. THE OWNER WILL ENGAGE A TESTING AGENCY TO CONDUCT SPECIAL TESTS AND INSPECTIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
4. SPECIAL INSPECTORS SHALL BE QUALIFIED PER THE REQUIREMENTS LISTED IN IBC SECTION 1704.2.1.
5. ALL INSPECTION REPORTS SHALL BE COPIED TO THE STRUCTURAL ENGINEER AND A FINAL LETTER OF COMPLIANCE SHALL BY PROVIDED TO THE AGENCY HAVING JURISDICTION (AHJ) BY THE TESTING AGENCY.
6. SPECIAL INSPECTION SHALL INCLUDE THE FOLLOWING CATEGORIES:

- SITE PREPARATION
- FOUNDATIONS
- CONCRETE
- WOOD (NOT REQUIRED)
- OPEN WEB STEEL JOISTS AND JOIST GIRDERS (IF APPLICABLE)
- WELDING OF STRUCTURAL STEEL (INCLUDING PEMB STRUCTURES IF APPLICABLE)
- STEEL ELEMENTS OF COMPOSITE CONSTRUCTION (NOT REQUIRED)
- BOLTING OF STRUCTURAL STEEL (INCLUDING PEMB STRUCTURE)
- STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL
- MASONRY

7. REFERENCE TABLES ON THIS SHEET FOR SPECIFIC INSPECTION REQUIREMENTS AND INSPECTION TYPES (CONTINUOUS OR PERIODIC) FOR EACH CATEGORY.
8. IT IS ALSO RECOMMENDED THAT THE SPECIAL INSPECTORS SHOULD BE EMPLOYED BY AN AGENCY ACCREDITED BY ANY NATIONALLY RECOGNIZED ACCREDITING BODY SUCH AS AASHTO, A2LA, NVLAP, ICC ETC.

DEFINITIONS:

ACI – AMERICAN CONCRETE INSTITUTE
ADSC–IAFD – ADSC: THE INTERNATIONAL ASSOCIATION OF FOUNDATION DRILLING
AISC – AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASNT – AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING
ASTM – AMERICAN SOCIETY FOR TESTING MATERIALS
AWS – AMERICAN WELDING SOCIETY
CWII – CERTIFIED WELDING INSPECTOR
CRSI – CONCRETE REINFORCING STEEL INSTITUTE
IBC – INTERNATIONAL BUILDING CODE
PCI – PRECAST/PRESTRESSED CONCRETE INSTITUTE
PTI – POST–TENSIONING INSTITUTE

9. TESTING AND INSPECTION DIRECTED BY ASTM E329 GUIDELINES WHERE NOTED ON THE TESTING & INSPECTION REQUIREMENTS TABLES.
10. THE SPECIAL INSPECTOR CANNOT BE AN EMPLOYEE OF THE CONTRACTOR.

11. WHERE STRUCTURAL MEMBERS AND ASSEMBLIES ARE SHOP FABRICATED, THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR INSPECTION CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO THE CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS.

EXCEPTION 1 – THE FABRICATOR IS REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION BY THE AHJ.

EXCEPTION 2 – SPECIAL INSPECTIONS SHALL NOT BE REQUIRED WHERE THE WORK IS PERFORMED ON THE PREMISES OF A FABRICATOR THAT IS ENROLLED IN A NATIONALLY ACCEPTED INSPECTIONS PROGRAM ACCEPTABLE TO THE REGISTERED DESIGN PROFESSIONAL IN CHARGE. AT THE COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL UPON REQUEST AND TO THE REGISTERED DESIGN PROFESSIONAL. THE CERTIFICATE OF COMPLIANCE SHALL STATE THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE NATIONALLY ACCEPTED INSPECTIONS PROGRAM.

DEFERRED SUBMITTAL NOTES: *IMPORTANT*

1. THIS PROJECT INCLUDES CONSTRUCTION ITEMS REQUIRING DEFERRED SUBMITTALS. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO PRE–CAST BUILDINGS, STEEL STAIRCASE UNITS, AND FALL PROTECTION (RAILS) PLEASE REFERENCE INDIVIDUAL SHEETS FOR VARIOUS DEFERRED SUBMITTAL ELEMENTS.
2. ALL DEFERRED SUBMITTAL ITEMS SHALL BE FABRICATED OR CONSTRUCTED BY VENDORS AND SUPPLIERS ON THE CITY OF HOUSTON'S CURRENT LIST OF REGISTERED FABRICATORS APPROVED TO PROVIDE STRUCTURAL ELEMENTS.

TABLE 1705.2.3
REQUIRED SPECIAL INSPECTIONS OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD*
1. Installation of open-web steel joists and joist girders.			
a. End connections – welding or bolted.	—	X	SJI specifications listed in Section 2207.1.
b. Bridging – horizontal or diagonal.	—	—	—
1. Standard bridging.	—	X	SJI specifications listed in Section 2207.1.
2. Bridging that differs from the SJI specifications listed in Section 2207.1.	—	X	—

TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD*	IBC REFERENCE
1. Inspect reinforcement, including prestressing tendons, and verify placement.	—	X	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	—
2. Reinforcing bar welding:				
a. Verify weldability of reinforcing bars other than ASTM A706;	—	X	AWS D1.4 ACI 318: 26.6.4	—
b. Inspect single-pass fillet welds, maximum $\frac{5}{16}$ ”; and	—	X		
c. Inspect all other welds.	X	—		
3. Inspect anchors cast in concrete.	—	X	ACI 318: 17.8.2	—
4. Inspect anchors post-installed in hardened concrete members. ^b				
a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	X	—	ACI 318: 17.8.2.4	—
b. Mechanical anchors and adhesive anchors not defined in 4.a.	—	X	ACI 318: 17.8.2	
5. Verify use of required design mix.	—	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C31 ASTM C172 ACI 318: 26.5, 26.12	—
7. Inspect concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 26.5	—
8. Verify maintenance of specified curing temperature and techniques.	—	X	ACI 318: 26.5.3-26.5.5	—
9. Inspect prestressed concrete for:				
a. Application of prestressing forces; and	X	—	ACI 318: 26.10	—
b. Grouting of bonded prestressing tendons.	X	—		
10. Inspect erection of precast concrete members.	—	X	ACI 318: 26.9	—
11. For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category C, D, E or F, inspect such connections and reinforcement in the field for:				
a. Installation of the embedded parts	X	—		
b. Completion of the continuity of reinforcement across joints.	X	—	ACI 550.5	—
c. Completion of connections in the field.	X	—		
12. Inspect installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.	—	X	ACI 318: 26.13.1.3	—
13. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 26.11.2	—
14. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: 26.11.1.2(b)	—

For SE: 1 inch = 25.4 mm.

- a. Where applicable, see Section 1705.13.
- b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with 17.8.2 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.

TABLE 1705.6
REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify materials below <i>shallow foundations</i> are adequate to achieve the design bearing capacity.	—	X
2. Verify excavations are extended to proper depth and have reached proper material.	—	X
3. Perform classification and testing of compacted fill materials.	—	X
4. During fill placement, verify use of proper materials and procedures in accordance with the provisions of the approved geotechnical report. Verify densities and lift thicknesses during placement and compaction of compacted fill.	X	—
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	—	X

TABLE 1705.7
REQUIRED SPECIAL INSPECTIONS AND TESTS OF DRIVEN DEEP FOUNDATION ELEMENTS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify element materials, sizes and lengths comply with the requirements.	X	—
2. Determine capacities of test elements and conduct additional load tests, as required.	X	—
3. Inspect driving operations and maintain complete and accurate records for each element.	X	—
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element.	X	—
5. For steel elements, perform additional special inspections in accordance with Section 1705.2.	In accordance with Section 1705.2	
6. For concrete elements and concrete-filled elements, perform tests and additional special inspections in accordance with Section 1705.3.	In accordance with Section 1705.3	
7. For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge.	In accordance with Statement of Special Inspections	

TABLE 1705.8
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Inspect drilling operations and maintain complete and accurate records for each element.	X	—
2. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes.	X	—
3. For concrete elements, perform tests and additional <i>special inspections</i> in accordance with Section 1705.3.	In accordance with Section 1705.3	

ISSUE	DATE	DESCRIPTION

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TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

STRUCTURAL NOTES
(SHEET 2 OF 2)

WBS NUMBER

R-000267-0176-3

SCALE:

NTS

CITY OF HOUSTON PM

NAWARAJ PANTA, P.E.

SHEET NO. 8 OF 291

FOR CITY OF HOUSTON USE ONLY

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 UNDERGROUND GROUNDING CONDUCTORS SHALL BE BARE TIN-PLATED COPPER, 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.
29. REFER TO SPECIFICATION SECTION 16110 RACEWAYS BOXES ENCLOSURES AND FITTINGS FOR INSTALLATION REQUIREMENTS.

TYPICAL ENCLOSURE TYPES BY AREA

NON-HAZARDOUS AREAS	BOXES & ENCLOSURES					
	1	3R	4X	4X*	12	
OUTDOOR; GENERAL AREAS		X	X			
OUTDOOR; CHEMICAL AREAS				X		
INDOOR; CHEMICAL ROOM				X		
INDOOR; CONDITIONED SPACE					X	
INDOOR; NON-CONDITIONED SHOP SPACE					X	
INDOOR; NON-CONDITIONED PROCESS AREA			X			
INDOOR, ADMIN BUILDING	X					
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					
<u>GENERAL NOTES:</u>						
- 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 - 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 BUILDINGS.

*REFER TO DESIGN GUIDE LINE SPECIFICATIONS.

DEMOLITION NOTES

1. COORDINATE THE DEMOLITION OF ELECTRICAL CONDUIT, WIRE, EQUIPMENT AND DEVICES 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.

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL EXTERIOR EXPOSED CONDUITS SHALL BE PVC COATED ALUMINUM.
2. UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS WASHERS, ETC SHALL BE TYPE 316 STAINLESS STEEL.
3. THE ENCLOSURES WITH ELECTRICAL CIRCUITS SHALL BE A MINIMUM OF 5 FEET FROM ANY CLASSIFIED AREA, OTHERWISE EXPLOSION PROOF TYPE ENCLOSURES SHALL BE USED.
4. THE RECEPTACLES SHALL BE EXPLOSION PROOF TYPE IF INSTALLED WITHIN 5 FEET OF CLASSIFIED AREA.
5. TRANSMITTER CABLE MUST BE THE SAME LENGTH REGARDLESS OF ITS LOCATION FROM TERMINAL/JUNCTION BOX.
6. FOR ALL TERMINAL/JUNCTION BOXES AROUND VALVE VAULTS AND WETWELLS SHOW EXPANSION AND LOOP. ENGINEERING DESIGN MANUAL, AND THE MASTER.
7. PROVIDE NEMA 6P TYPE JUNCTION BOX WHERE IS INSTALLED IN FLOOD ZONE.
8. WHERE THE LIFT STATION IS WITHIN THE FLOOD ZONE, REMOVE ALL RECEPTACLES THAT MAY BE SHOWN ON PLANS.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ELECTRICAL
GENERAL NOTES

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 9 OF 291	

SYMBOLS	DESCRIPTION
	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS-CONTROL SWITCH
	LOW VOLTAGE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED. LSIG IF NOTED MCP IF NOTED ERMS IF NOTED
	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
	NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A
	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, AMPERE RATING AND FUSE SIZE AS NOTED: * AMPERE RATING NOTED IF OTHER THAN 30A ★ FUSE RATING
	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
	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
	CURRENT TRANSFORMER: * QUANTITY A= PRIMARY AMPERES
	POTENTIAL TRANSFORMER: * QUANTITY PV= PRIMARY VOLTAGE SV= SECONDARY VOLTAGE
	GENERATOR, RATINGS AND CONNECTIONS AS NOTED
	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
	UNIT HEATER - ELECTRIC HEATING COIL AND FAN
	UNIT HEATER - STEAM OR WATER HEATING COIL AND FAN
	MOTOR, NUMERAL INDICATES HORSEPOWER
	SURGE PROTECTION DEVICE
	VARIABLE FREQUENCY DRIVE

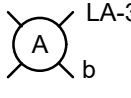
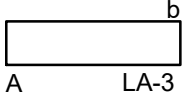
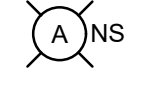
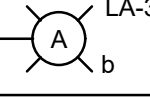
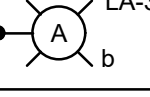
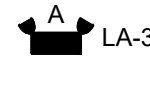
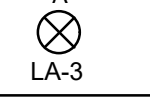
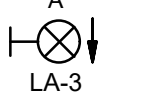
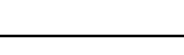
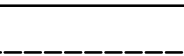
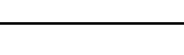
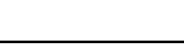
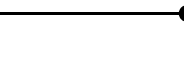
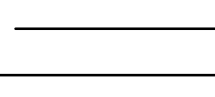
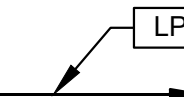
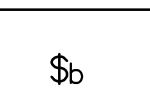
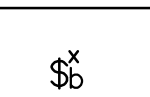
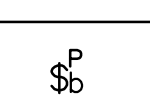
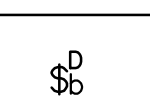
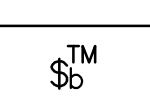
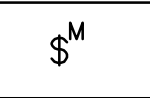
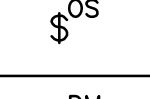
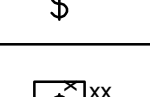
SYMBOLS	DESCRIPTION																
	VOLTMETER (WITH SWITCH IF 3-PHASE)																
	AMMETER (WITH SWITCH IF 3-PHASE)																
	METER * WM- WATTMETER WHM- WATT HOUR METER WHDM- WATT HOUR DEMAND METER WHDR- WATT HOUR DEMAND RECORDER PF- POWER FACTOR METER RT- RUNNING TIME METER TRANSDUCER AX- 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																
	EMERGENCY STOP PUSH BUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)																
	STOP PUSH BUTTON WITH RED HEAD OPERATOR (MAINTAINED CONTACT) WITH LOCKABLE OPTION * : E-STOP * : STOP																
	START-STOP PUSH BUTTON CONTROL STATION (MOMENTARY CONTACT) "L" DENOTES LOCKOUT TYPE																
	START-STOP PUSH BUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP																
	OFF/ON SELECTOR SWITCH																
	3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED <table border="1"><thead><tr><th>POSITION</th><th>TOP CONTACT</th><th>MIDDLE CONTACT</th><th>BOTTOM CONTACT</th></tr></thead><tbody><tr><td>A</td><td>X</td><td>O</td><td>O</td></tr><tr><td>B</td><td>O</td><td>O</td><td>O</td></tr><tr><td>C</td><td>O</td><td>O</td><td>X</td></tr></tbody></table> * 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	POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT	A	X	O	O	B	O	O	O	C	O	O	X
POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT														
A	X	O	O														
B	O	O	O														
C	O	O	X														
	MOTOR STARTER COIL, NUMBER AS INDICATED																
	CONTROL RELAY COIL, NUMBER AS INDICATED																
	RVSS: REDUCED VOLTAGE STATIC SOLID SOFT STARTER																

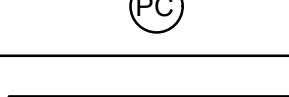
SYMBOLS	DESCRIPTION
	PILOT LIGHT, COLOR AS NOTED * R- RED G- GREEN B- BLUE W- WHITE A- AMBER
	PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE.
	TIME DELAY RELAY RANGE AS NOTED SET POINT AS NOTED TDD-TIME DELAY AFTER DE-ENERGIZATION-OFF DELAY TDE-TIME DELAY AFTER ENERGIZATION-ON DELAY NOTC-NORMALLY 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.
	LIQUID LEVEL (FLOAT) SWITCH NORMALLY OPEN, CLOSSES ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL NORMALLY OPEN, CLOSSES ON DROPPING LEVEL NORMALLY CLOSED, OPENS ON DROPPING LEVEL
	PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSSES ON RISING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE NORMALLY OPEN, CLOSSES ON DROPPING PRESSURE NORMALLY CLOSED, OPENS ON DROPPING PRESSURE
	TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSSES ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON RISING TEMPERATURE NORMALLY OPEN, CLOSSES ON DROPPING TEMPERATURE NORMALLY CLOSED, OPENS ON DROPPING TEMPERATURE
	FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSSES ON INCREASED FLOW NORMALLY OPEN, CLOSSES ON DROPPING FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW NORMALLY CLOSED, OPENS ON DROPPING FLOW
	POSITION (LIMIT) SWITCH NORMALLY OPEN NORMALLY OPEN - HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED - HELD OPEN
	TORQUE SWITCH NORMALLY CLOSED, OPENS ON HIGH TORQUE
	CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
	CONDUCTORS ELECTRICALLY CONNECTED
	SUPPLY/EXHAUST FAN

SYMBOLS	DESCRIPTION
	LIGHTNING ARRESTER/SURGE CAPACITOR
	GROUND ROD
	GROUND ROD WELL
	FUSE, AMPERE RATING AS NOTED
	HEATER
	INDUCTOR
	TACHOMETER GENERATOR
	CONTACT, NORMALLY OPEN (NO)
	CONTACT, NORMALLY CLOSED (NC)
	OVERLOAD RELAY HEATER
	KEY INTERLOCK
	TERMINAL OR TEST BLOCK
	RESISTANCE TEMPERATURE DETECTOR
	VIBRATION DETECTOR
	DAMPER MOTOR
	ELAPSED TIME METER
	MOTOR OPERATED VALVE
	PUSH BUTTON STATION, REFER TO ELECTRICAL SCHEMATIC FOR NUMBER OF DEVICES.
	JUNCTION BOX
	POWER JUNCTION BOX
	4-20mA SIGNAL JUNCTION BOX
	CONTROL JUNCTION BOX
	PULL BOX
	TERMINATION CABINET
	REMOTE DEVICES
	MOV WITHOUT INTEGRATED DISCONNECT
	MOV WITH INTEGRATED DISCONNECT
	INDICATES LIMITS OF EQUIPMENT OR WIRING ENCLOSURE
	(MPR) MOTOR PROTECTION RELAY

GENERAL NOTE
THIS IS A STANDARD LEGEND.
SOME SYMBOLS MAY NOT
APPEAR ON THE DRAWINGS.

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ELECTRICAL LEGENDS & SYMBOLS - I		
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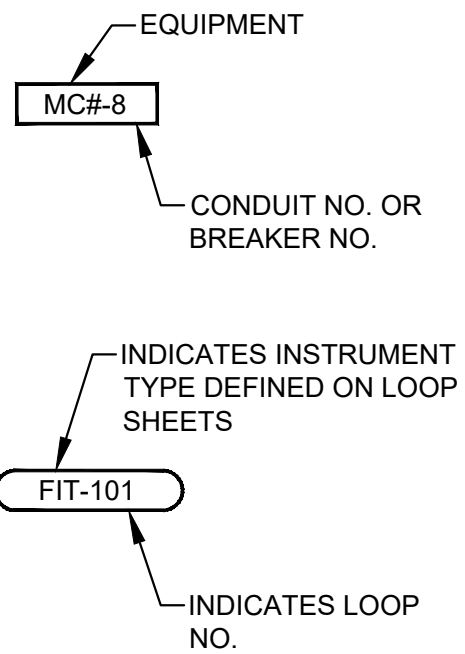
SYMBOLS	DESCRIPTION
 LA-3	REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE FIXTURE: "A"- FIXTURE TYPE "b"- CONTROLLED BY SWITCH "b" "LA-3"- CIRCUIT 3 FROM PANEL LA
 LA-3	REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE FIXTURE, NOTATIONS SAME AS ABOVE
 OR  LA-3NS	INDICATES LIGHT FIXTURES WHICH ARE NONSWITCHED, NOTATIONS SAME AS ABOVE "NS" - NONSWITCHED
 LA-3	WALL MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
 LA-3	POLE MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
 LA-3	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
 LA-3	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS, NOTATIONS SAME AS ABOVE
 LA-3	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE
 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
	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
 \$x	MULTI POLE SWITCH "x"- INDICATES NUMBER OF POLE "b"- NOTATIONS SAME AS ABOVE
 \$P	SINGLE POLE SWITCH AND PILOT LIGHT, "b"- NOTATIONS SAME AS ABOVE
 \$D	DIMMER LIGHTING CONTROL SWITCH, "b"- NOTATIONS SAME AS ABOVE
 \$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
 \$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
 OR  L*##	LIGHTING PANELBOARD (TYPICAL 120V/240V OR 120V/208V)
 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
 D*	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
	OCCUPANCY SENSOR CAPABLE OF VACANCY
	PHOTOCELL
	QUICK CONNECT TERMINALS

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.		

SYMBOLS	DESCRIPTION
COMMUNICATIONS SYSTEMS	
	TELEPHONE OUTLET
	DATA OUTLET
	DATA INPUT/OUTPUT CABLE OUTLET. "P" DENOTES PROCESS COMPUTER SYSTEM
	VOICE/DATA OUTLET
	PAGING SPEAKER HORN
	PAGING SPEAKER BI-DIRECTIONAL
	PAGING SPEAKER, CEILING MOUNTED TYPE
	PAGING SPEAKER, WALL MOUNTED TYPE
SECURITY SYSTEMS	
	SECURITY ALARM PANEL
	SECURITY ALARM DOOR SWITCH
	SECURITY ALARM KEY PAD
	SECURITY SYSTEM CARD ACCESS READER
	SECURITY ALARM WINDOW SWITCH
	SECURITY ALARM MOTION DETECTOR
	SECURITY CAMERA * CCTV- CLOSED CIRCUIT TV CAMERA PTZ- PAN, TILT, ZOOM CAMERA LENS CONTROLS
	GLASS BREAK DETECTOR
	ACCESS CONTROL PANEL
FIRE ALARM SYSTEMS	
	FIRE ALARM CONTROL PANEL
	SMOKE DETECTOR * D- DENOTES DUCT SMOKE DETECTOR R- DENOTES FIXED TEMPERATURE RATE-OF-RISE TYPE.
	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

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
FBO	MAINTENANCE SWITCH
FO	FURNISHED BY OTHERS
FRP	FIBER OPTIC
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

LSIG	CONTINUED BELOW LEFT 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
NEC	NATIONAL ELECTRICAL CODE
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
PPU	PERPETUAL POWER UNIT
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

GENERAL NOTE

THIS IS A STANDARD LEGEND.
SOME SYMBOLS MAY NOT
APPEAR ON THE DRAWINGS.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386	
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
ELECTRICAL LEGENDS & SYMBOLS – II	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 11 OF 291	

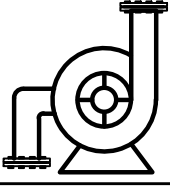
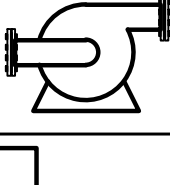
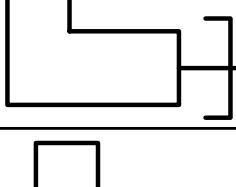
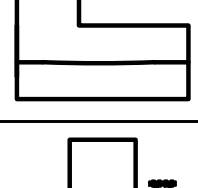
LUMINAIRE SCHEDULE							
FIXTURE TYPE	VOLTAGE	LAMP TYPE	TOTAL INPUT WATTS	TOTAL OUTPUT LUMENS	MOUNT	DESCRIPTION	MAKE/MODEL
A	120/277V UNIVERSAL DRIVER	LED	25	3,000	RECESSED GRID	2'X4' LAY-IN T-GRID DIRECT/INDIRECT TROFFER FIXTURE, STEEL HOUSING, POWDER COATED, WHITE COATING, RATED UP TO 25°C OPERATING TEMPERATURE, COLOR TEMPERATURE OF 4000K, 70CRI.	LITHONIA 2ALL SERIES 2'X4' TROFFER 2ALL4-30L-LP480 PHILLIPS DAY-BRITE COFFAIRE CF-S-24-G-30L-40-U
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-40K-80CRI-VAPCMB DAY-BRITE CFI VAPORLUME LED V2 V2WPB70L840-4-UNV TBK OR WBK ACESSORY & FKR-126
B2	120/277V UNIVERSAL DRIVER	LED	62	6000	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-6000L-PCL-WD-MVOLT-40K-80CRI DAY-BRITE CFI VAPORLUME LED V2 V2WPB70L840-4-UNV TBK OR WBK ACESSORY & FKR-126
B3	120/277V UNIVERSAL DRIVER	LED	62	6000	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-6000L-PCL-WD-MVOLT-40K-80CRI DAY-BRITE CFI VAPORLUME LED V2 V2WPB70L840-4-UNV TBK ACESSORY
B4	120/277V UNIVERSAL DRIVER	LED	84	10000	SUSPENDED	LINEAR LED LUMINAIRE, UV-STABILIZED, IMPACT-RESISTANT, FROSTED POLYCARBONATE HOUSING, -29°C TO 40°C OPERATING TEMPERATURE, 5000K COLOR TEMPERATURE, 80CRI, UV-STABILIZED, INJECTION-MOLDED, IMPACT-RESISTANT CLEAR POLYCARBONATE LENS, UL 1598 WET LOCATION LISTED.	LITHONIA CSS LED SERIES CSS-L96-AL04-MVOLT-50K-80CRI-WG
C	120/277V UNIVERSAL DRIVER	LED	27.6	3,000	RECESSED CEILING	RECESSED DOWNLIGHT LUMINAIRE, METAL FORMED ALUMINUM CONSTRUCTION, 3500K COLOR TEMPERATURE, 80CRI, ALUMINUM SEMI-SPECULAR CLEAR REFLECTOR, MEDIUM LIGHT (50° BEAM) DISTRIBUTION, 1% TO 100% DIMMING (0-10V).	EATON PORTFOLIO SERIES LD4B3D010EU4B300080354LBMH1
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
E	120/277V UNIVERSAL DRIVER WITH EMERGENCY BATTERY PACK	LED	1.2	536	WALL 8-FT ABOVE FLOOR	LED STANDBY EMERGENCY LUMINAIRE, WHITE ENGINEERING GRADE THERMOPLASTIC HOUSING, 16°C TO 32°C OPERATING TEMPERATURE, IMPACT RESISTANT, CORROSION-PROOF, DAMP LOCATION RATED, EMERGENCY BATTERY PACK INCLUDED.	LITHONIA ELM6 LED SERIES LV-S-W1R-120/277-EL-N-UM-DL
F	208V UNIVERSAL DRIVER WITH EMERGENCY BATTERY PACK	LED	62	-	POLE MOUNT	HIGH EFFICIENCY LED UNIT WITH PRISMATIC BOROSILICATE GLASS; UL LISTED FOR WET LOCATION USE WITH 208VAC PHOTO CELL	HUBBLE SERIES EML EMLC-50W-30D4 WITH PHOTO CELL OR EQUAL
G	MVOLT (120/277 UNIVERSAL DRIVER)	LED	70	8,708	POLE MOUNTED	LED AREA LUMINAIRE, POWDER COATED DIE-CAST ALUMINUM HOUSING, -29°C TO 40°C OPERATING TEMPERATURE, 4000K COLOR TEMPERATURE, UL 1598 WET LOCATION LISTED.	LITHONIA LIGHTING D-SERIES POLE MOUNT DSX1 LED P2 40K T4M MVOLT RPA FAO DDBXD
H	MVOLT (120/277 UNIVERSAL DRIVER)	LED	30	-	STANCHION MOUNT	BODY MOUNTING MODULES AND GUARD-COPPER-FREE AL WITH CORRO-FREE EPOXY POWDER COAT. SUITABLE FOR CLASS I, DIVISION I HAZARDOUS LOCATIONS.	CROUSE-HINDS EV LED J4C701
J	120/277V UNIVERSAL DRIVER WITH EMERGENCY BATTERY PACK	LED	22	-	WALL/COLUMN MOUNT	EMERGENCY EFFICIENT 40% REDUCTION IN ENERGY. HIGH QUALITY LED LEAD FREE ENVIRONMENTALLY FRIENDLY EXPLOSION PROOF SUITABLE FOR ZONES 1 AND 2.	CROUSE-HINDS EV35UD LED SPU. EV/AB OR EQUAL
X	120/277V UNIVERSAL DRIVER WITH EMERGENCY BATTERY PACK	LED	18.2	N/A	UNIVERSAL	EMERGENCY EXIT SIGN, CAST-ALUMINUM, NEMA-4X, CLEAR UV-STABLE POLYCARBONATE COVER, SINGLE WHITE POLYCARBONATE, FACELATE WITH DIRECTIONAL CHEVRON KNOCKOUTS, WHITE HOUSING, UNIVERSAL MOUNT, SEALED MAINTENANCE-FREE NICKEL CADMIUM BATTERY WITH 90 MINUTE CAPACITY.	LITHONIA LIGHTING LV EL N LED SERIES LV-S-W-2-R-120/277-EL N-UM-4X
TPA	N/A	N/A	N/A	N/A	BASE MOUNTED POLE	ROUND STRAIGHT ALUMINUM POLE, 4" DIAMETER WITH 2-3/8" TENON, 8' POLE WITH LOW PROFILE BASE COVER, HANDHOLE WITH RECESSED COVER, RATED FOR 150 MPH. MATCH TENON TO LUMINAIRE TYPE.	LITHONIA LIGHTING FLORIDA RATED POLE RSALP 8 4C T20 VD DNA
TPB	N/A	N/A	N/A	N/A	BASE MOUNTED POLE	ROUND STRAIGHT ALUMINUM POLE, 4" DIAMETER WITH 2-3/8" TENON, 12' POLE WITH LOW PROFILE BASE COVER, HANDHOLE WITH RECESSED COVER, RATED FOR 150 MPH. MATCH TENON TO LUMINAIRE TYPE.	LITHONIA LIGHTING FLORIDA RATED POLE RSALP 12 4C T20 VD DNA
TPC	N/A	N/A	N/A	N/A	BASE MOUNTED POLE	ROUND STRAIGHT ALUMINUM POLE, 5" DIAMETER WITH 2-3/8" TENON, 16' POLE WITH LOW PROFILE BASE COVER, HANDHOLE WITH RECESSED COVER, RATED FOR 150 MPH. MATCH TENON TO LUMINAIRE TYPE.	LITHONIA LIGHTING FLORIDA RATED POLE RSALP 16 5C T20 VD DNA

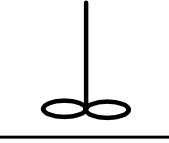
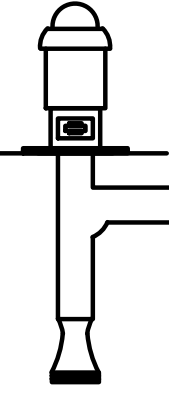
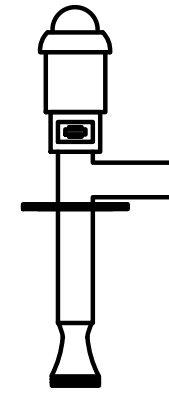
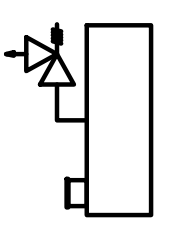
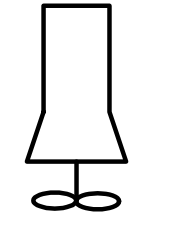
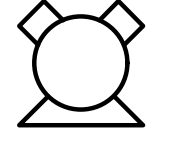
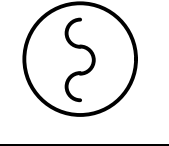
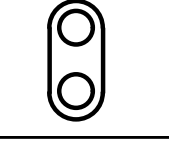
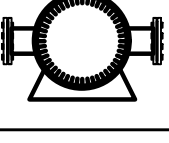
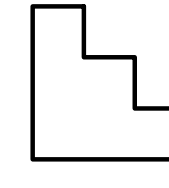
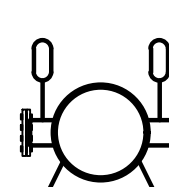
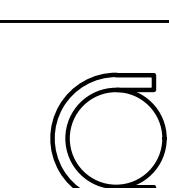
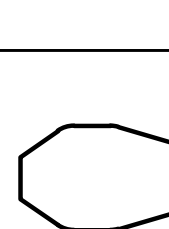
FIXTURE TYPE	VOLTAGE	LAMP TYPE	TOTAL INPUT WATTS	TOTAL OUTPUT LUMENS	MOUNT	DESCRIPTION	MAKE/MODEL
TPD	N/A	N/A	N/A	N/A	BASE MOUNTED POLE	SQUARE STRAIGHT ALUMINUM POLE, 6" WIDTH, 30' POLE WITH LOW PROFILE BASE COVER, HANDHOLE WITH RECESSED COVER, RATED FOR 150 MPH.	LITHONIA LIGHTING FLORIDA RATED POLE SSA 30 6J DM19 VD DNA

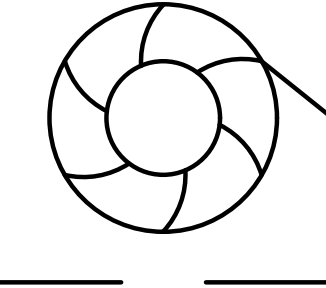
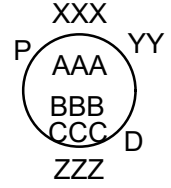
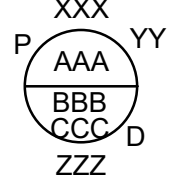
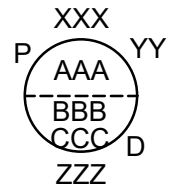
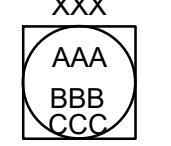
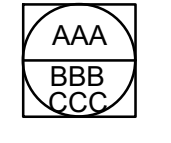
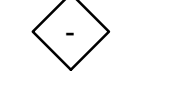
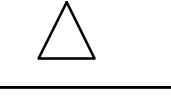
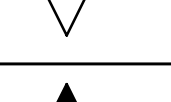
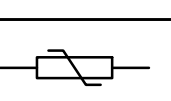
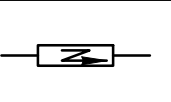
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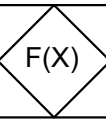
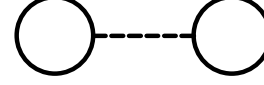
PRIMARY FLOW ELEMENTS	
	MAGNETIC FLOW METER
	ULTRASONIC DOPPLER FLOW METER
	ULTRASONIC TIME TRANSIT FLOW METER
	VORTEX FLOW METER
	VENTURI TUBE
	TURBINE OR PROPELLER TYPE METER
	ROTAMETER
	PITOT TUBE
	WEIR FLOW METER
	PARSHALL FLUME OR TRAPEZOIDAL FLUME
	ORIFICE PLATE
	THERMAL MASS FLOWMETER
PRIMARY 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												
	SOLENOID ACTUATED VALVE											
	<table><tr><th>"X"</th></tr><tr><td>P</td><td>AIR CYLINDER</td></tr><tr><td>O</td><td>OIL CYLINDER</td></tr><tr><td>H</td><td>HYDRAULIC CYLINDER</td></tr><tr><td>E</td><td>ELECTRIC MOTOR</td></tr><tr><td>S</td><td>SOLENOID VALVE</td></tr></table>	"X"	P	AIR CYLINDER	O	OIL CYLINDER	H	HYDRAULIC CYLINDER	E	ELECTRIC MOTOR	S	SOLENOID 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	
	VARIABLE SPEED MOTOR
	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																	
	DIGITAL/ANALOG INSTRUMENT <table><tr><td>AAA</td><td>ISA TAG (REFER TO TABLE)</td></tr><tr><td>BBB</td><td>LOOP NUMBER</td></tr><tr><td>CCC</td><td>LOOP NUMBER SUB</td></tr><tr><td>D</td><td>DIVISION NUMBER</td></tr><tr><td>P</td><td>POWER REQUIREMENT</td></tr><tr><td>XXX</td><td>DESCRIPTION (USED ON PANEL INSTRUMENTS)</td></tr><tr><td>YY</td><td>CHEMICAL</td></tr><tr><td>ZZZ</td><td>LOCATION</td></tr></table> DIGITAL/ANALOG INSTRUMENT -LOCATED IN THE FIELD -NOT INSIDE OF PANEL -VISIBLE AT FIELD LOCATION -NORMALLY OPERATOR ACCESSIBLE	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
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	INTERLOCKING RELAY																
CONTROL ENCLOSURE AND SCADA																	
	DIGITAL INPUT																
	DIGITAL OUTPUT																
	ANALOG INPUT																
	ANALOG OUTPUT																
	SURGE SUPPRESSOR																
	OPTO ISOLATOR																
	SIGNAL CONVERTER/ISOLATOR */P - (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 k PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT) - k REVERSE PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT) Σ SUMMING Σh 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 b HIGH LIMIT l LOW LIMIT	
	INSTRUMENT (COMMON HOUSING)	INSTRUMENT (SEPARATOR HOUSING)
		INSTRUMENT (PART OF MAJOR EQUIPMENT)
		

GENERAL NOTES:

- THIS IS A GENERAL LEGEND SHEET, SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPLY TO THIS SPECIFIC PROJECT.
- THIS LEGEND APPLIES TO INSTRUMENTATION DIAGRAMS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
- 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.
- 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.
- SEE ELECTRICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS FOR EQUIPMENT NOT SHOWN OR NOT PROVIDED BY THE INSTRUMENTATION SUPPLIER.
- IN THE EVENT OF DISCREPANCY BETWEEN THE PROCESS & INSTRUMENTATION DIAGRAMS AND THE LOOP DIAGRAMS, THE INFORMATION FROM THE LOOP DIAGRAMS SHALL BE USED.

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 NOTE
THIS IS A STANDARD LEGEND.
SOME SYMBOLS MAY NOT
APPEAR ON THE DRAWINGS.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES		
SURVEYED BY: FB NO. 00000		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
INSTRUMENTATION LEGENDS & SYMBOLS – I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 13 OF 291		

LINE SYMBOLS	
	MAJOR PROCESS LINE
	MINOR PROCESS LINE
	FUTURE PROCESS LINE
	EXISTING PROCESS LINE
	HARDWIRED SIGNAL
	SOFT LINK
	HYDRAULIC LINK
	PNEUMATIC LINK
	CAPILLARY TUBE OR FILLED SYSTEM SIGNAL
	ELECTROMAGNET OR SONIC SIGNAL (GUIDED)
	(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 REFERRING TO THE SAME SHEET. Y - USED WHEN TWO OR MORE ARROWS ARE REFERRING TO THE SAME SHEET.
	(USED WHEN REFERRING TO A SHEET NOT IN THE DESIGN SET) DESCRIPTION - WHERE FLOW IS GOING
	CAT-5e ETHERNET CABLE
	CAT-6 ETHERNET CABLE
	MODBUS PLUS CABLE
	RS-485 CABLE
	RS-232 CABLE
	POWER OVER ETHERNET CABLE
	T1 FIBER CONNECTION
	NON-SPECIFIC FIBER OPTIC CABLE
	FIBER 100BASE-FX
	FIBER 1000BASE-FX
	SIGNAL CROSSING
	PROCESS LINE CROSSING
	PROCESS LINE/ HARDWIRE SIGNAL CROSSING

EQUIPMENT/LOOP TAGGING	
	EQUIPMENT TAG USED TO IDENTIFY NON-INSTRUMENT EQUIPMENT
	LOOP TAG USED TO TIE THE PROCESS FLOW DIAGRAM TO A LOOP DIAGRAM
STANDARD VALVE AND PIPING USAGE	
	BLOCK/BLEED VALVE ARRANGEMENT
	INSTRUMENTS WITH VALVE ONLY
	INSTRUMENTS WITH DIAPHRAGM SEAL
	INSTRUMENTS WITH ANNULAR SEAL
PANEL DETAIL SYMBOLS	
	INDICATING LIGHT -R RED (ACTIVE EQUIPMENT) -G GREEN (EQUIPMENT OFF) -W WHITE (POWER) -B BLUE (CONDITION IE BACKWASH IN PROGRESS) -A AMBER (ALARM CONDITION)
	SWITCH -I/R (LOCAL - REMOTE) -I/O/A (LOCAL - OFF - AUTO) -I/O/R (LOCAL - OFF - REMOTE) -H/O/A (HAND - OFF - AUTO) -H/O/R (HAND - OFF - REMOTE)
	PUSHBUTTON
	PUSHBUTTON
	HORN
	BEACON
	OPERATOR INTERFACE TERMINAL
SECURITY SYSTEM SYMBOLS	
	CLOSED CIRCUIT TELEVISION CAMERA
	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	INFRARED
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 ACQUISITION
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
PPU	PERPETUAL POWER UNIT
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)

GENERAL NOTE

THIS IS A STANDARD LEGEND.
SOME SYMBOLS MAY NOT
APPEAR ON THE DRAWINGS.

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

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
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Houston, Texas 77042

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Fax 713.953.5026
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Tx Firm No. 13481

THIS DOCUMENT IS RELEASED FOR THE
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OF: JAMES E. THOMPSON, JR.,
TEXAS P.E. #70302
DATE: 12/10/2025
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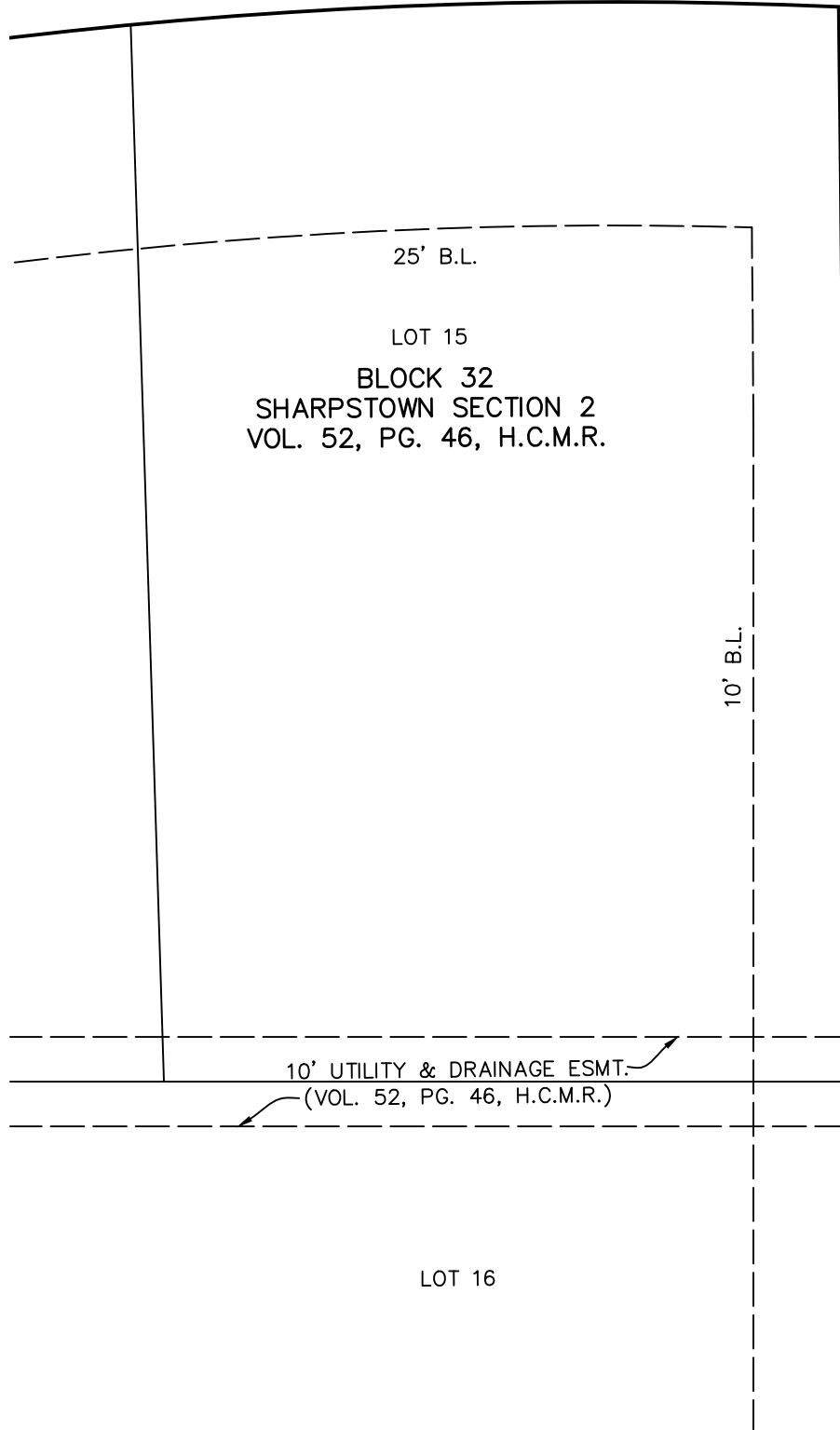
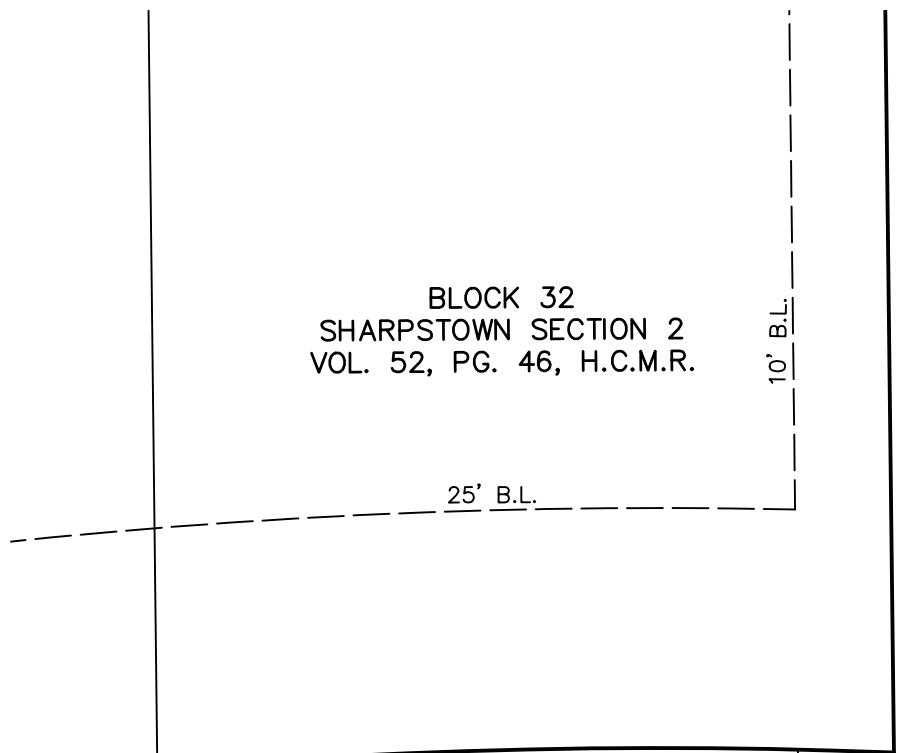
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

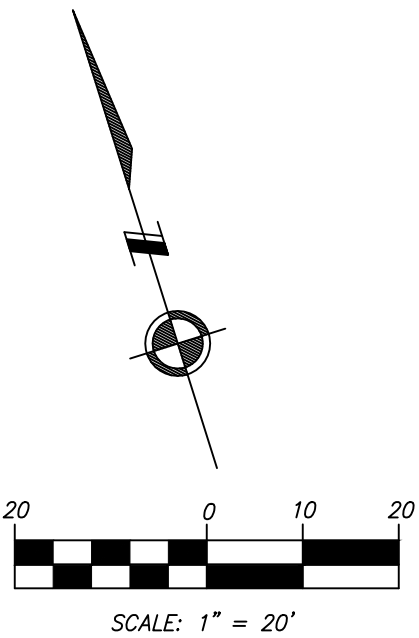
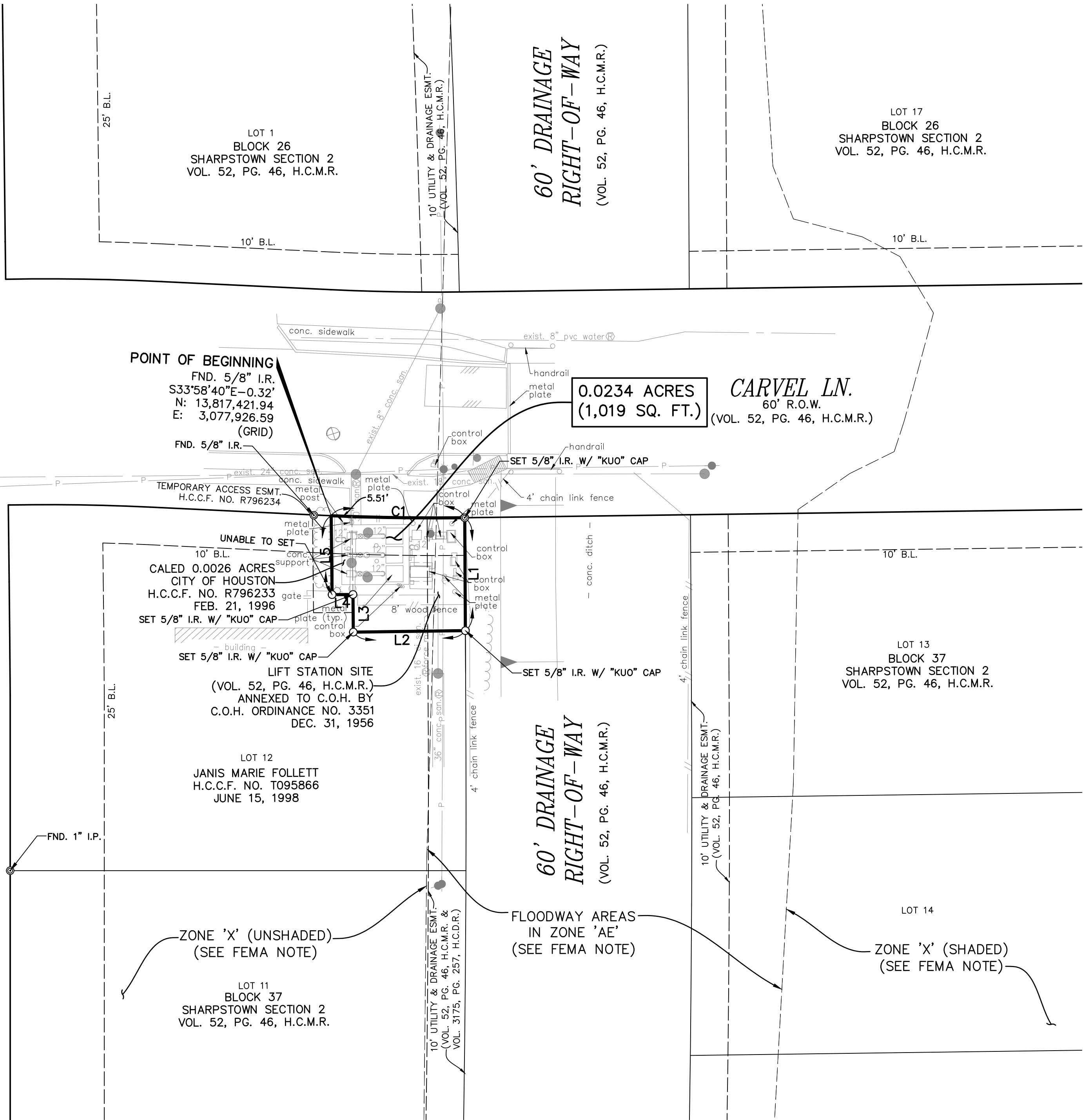
INSTRUMENTATION LEGENDS
& SYMBOLS – II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 14 OF 291	



SANDPIPER DR.
60' R.O.W.
(VOL. 52, PG. 46, H.C.M.R.)

WILLIAM J. BROWN SURVEY, ABSTRACT NO. 132



LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S17°09'06"W	30.01'
L2	N73°17'35"W	29.78'
L3	N16°59'19"E	10.00'
L4	N72°56'03"W	5.56'
L5	N16°47'43"E	20.97'

CURVE TABLE			
CURVE	LENGTH	RADIUS	DELTA
C1	35.51'	630.00'	31°3'46"

ABBREVIATIONS

R-PROPERTY LINE
Z-LAND HOOK
A.E.-AERIAL EASEMENT
B.L.-BUILDING LINE
DR.-DRIVE
FND.-FOUND
F.C. NO.-FILM CODE NUMBER
H.C.C.F. NO.-HARRIS COUNTY CLERK'S FILE NUMBER
H.C.D.R.-HARRIS COUNTY DEED RECORDS
H.C.M.R.-HARRIS COUNTY MAP RECORDS
O.P.R.O.R.P.H.C.-OFFICIAL PUBLIC RECORDS OF REAL PROPERTY HARRIS COUNTY
I.P.-IRON PIPE
I.R.-IRON ROD
RD.-ROAD
R.O.W.-RIGHT OF WAY
S.S.E.-SANITARY SEWER EASEMENT
STM. S.E.-STORM SEWER EASEMENT
U.E.-UTILITY EASEMENT
VOL., PG.-VOLUME AND PAGE
W.L.E.-WATER LINE EASEMENT

LEGEND:

/// ASPHALT SYMBOL
B OR BB INLET
C INLET
CLEANOUT
DOWN GUY
E INLET
ELEC MANHOLE
FIRE HYDRANT
GAS METER
GAS VALVE
GRATE INLET
GRATE INLET
MAIL BOX
MANHOLE
PLANTER
POWER POLE
POWER POLE W/LT.
SIGN
SIGNAL POLE
STREET LIGHT
TREE
TREE STUMP
TREE-CREPE MYRTLE
TREE-PINE
WATER METER
WATER VALVE
BRUSH ROW
DITCH/SWALE CENTER LINE
FENCE
GAS LINE
GUARD RAIL
HEDGE ROW OR TREE LINE
HIGH BANK
OVERHEAD POWER LINE
SANITARY SEWER LINE
STORM LINE
TELEPHONE LINE
UG STREET LIGHT CABLE
WATER LINE



VICINITY MAP KEYMAP: 530 M
N.T.S.

NOTES:

1. THIS MAP WAS PREPARED WITH THE BENEFIT OF A CURRENT LIMITED TITLE CERTIFICATE PREPARED BY COURTHOUSE SPECIALISTS; JOB NO. 2545771A; EFFECTIVE DATE: JULY 15, 2025.
2. ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.
3. THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.
4. EXISTING UNDERGROUND UTILITY INFORMATION (TYPE, SIZE & OWNERSHIP) ARE SHOWN APPROXIMATELY BASED ON THE AVAILABLE RECORD DRAWINGS AND FIELD VERIFICATION (WHERE FEASIBLE) WITHOUT PROBING AND EXCAVATION. NO WARRANTY IS MADE AS TO THE ACCURACY OR COMPLETENESS OF UTILITY LOCATION SHOWN ON THE DRAWING. CAUTION SHOULD BE EXERCISED WHEN EXCAVATING OR BORE AND JACKING IN THE VICINITY OF UNDERGROUND UTILITIES. OWNERS OF THE UTILITIES SHOULD BE NOTIFIED PRIOR SUCH ACTIVITIES. CALL UTILITY COORDINATING COMMITTEE AT 713-223-4567, AT LEAST 48 HOURS PRIOR TO EXCAVATING IN THE STREET RIGHT-OF-WAY.
5. A METES AND BOUNDS DESCRIPTION HAS BEEN PREPARED IN ASSOCIATION WITH THIS EXHIBIT.
6. ALL SET 5/8 INCH IRON RODS ARE WITH CAP STAMPED "KUO".

FEMA NOTE:

ACCORDING TO F.I.R.M MAP NUMBER 48201C0835L; FOR HARRIS COUNTY, TEXAS AND INCORPORATED AREAS (MAP REVISED JUNE 18, 2007). THE SUBJECT AREA IS LOCATED IN:

1. ZONE 'X' (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
2. ZONE 'X' (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.
3. ZONE 'AE' (HATCH PATTERN), FLOODWAY AREAS IN ZONE 'AE'. THE FLOODWAY IS THE CHANNEL OF A STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS.

CARVEL LANE LIFT STATION
0.0234 ACRES (1,019 SQ. FT.)
BEING ALL OF A LIFT STATION SITE,
RECORDED UNDER VOL. 52, PG. 46, H.C.M.R.
AND ALL OF A CALLED 0.0026 ACRES TRACT
RECORDED UNDER H.C.C.F. NO. R796233
SITUATED IN THE
WILLIAM J. BROWN SURVEY, A-132
HARRIS COUNTY, TEXAS

OWNER: CITY OF HOUSTON

KUO & ASSOCIATES
ENGINEERING + SURVEYING
10300 Westoffice Dr., Suite 800
Houston, Texas 77042
Tel: 713-975-0709 Fax: 713-975-0920
www.kuasassociates.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600

HOUSTON PUBLIC WORKS

APPROVAL DATE: _____
SURVEY SECTION RIGHT OF WAY SECTION

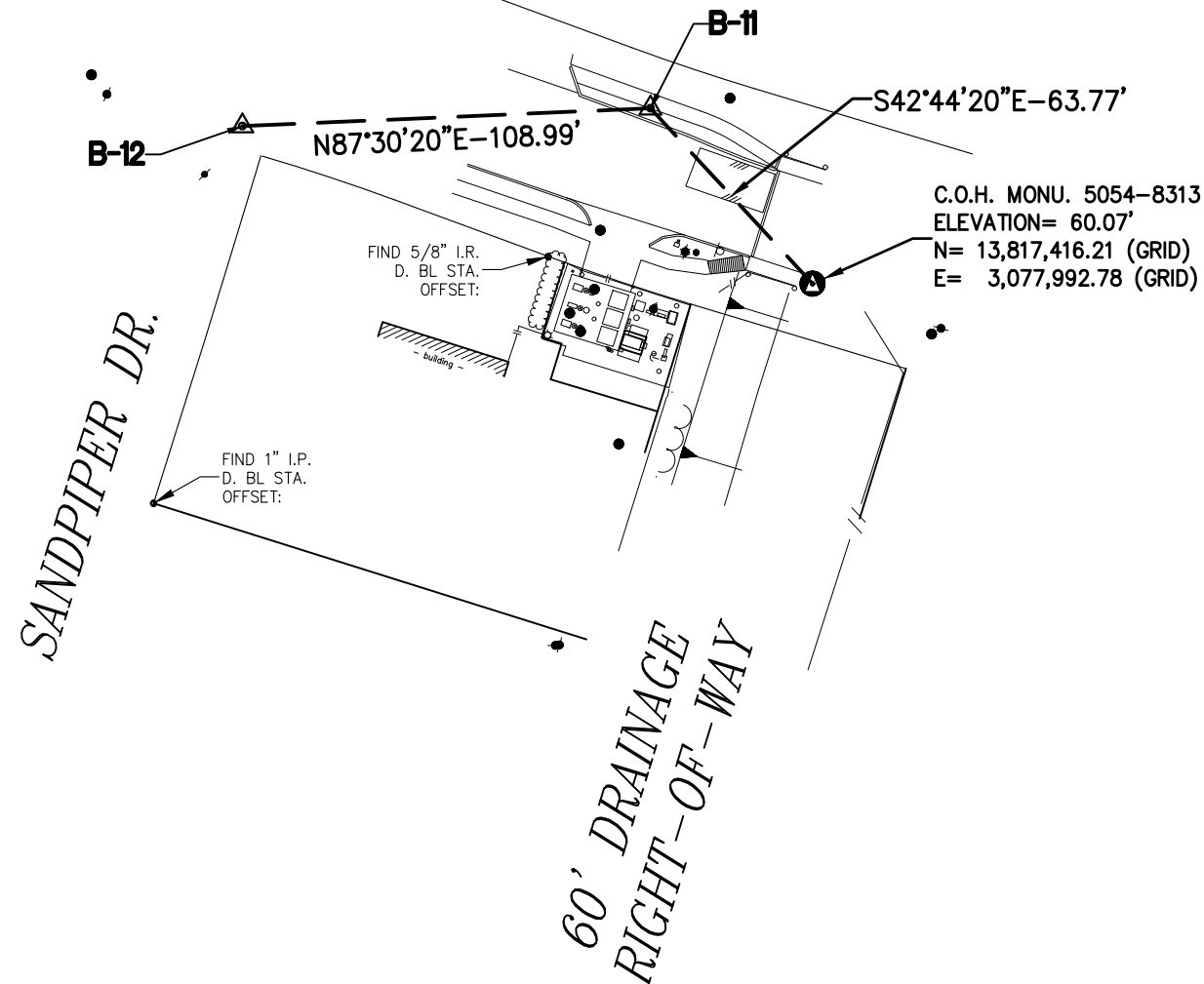
KEYMAP NO: 530 M	FACET NO. 5054 B
PARCEL NO.	
JOB NO.	
WBS NO. R-00267-0176-3	
ILMS NO.	
SHEET 17 OF 291	

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY MADE ON THE GROUND UNDER MY SUPERVISION ON AUGUST, 2025.

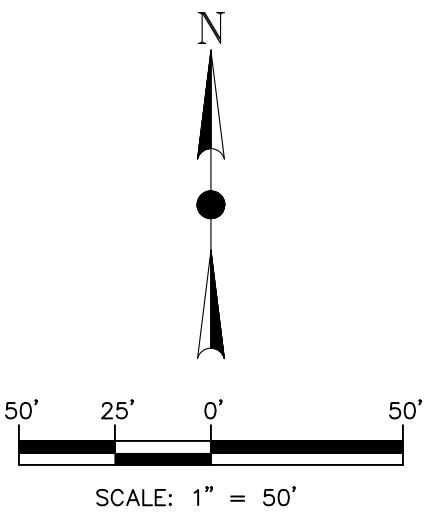
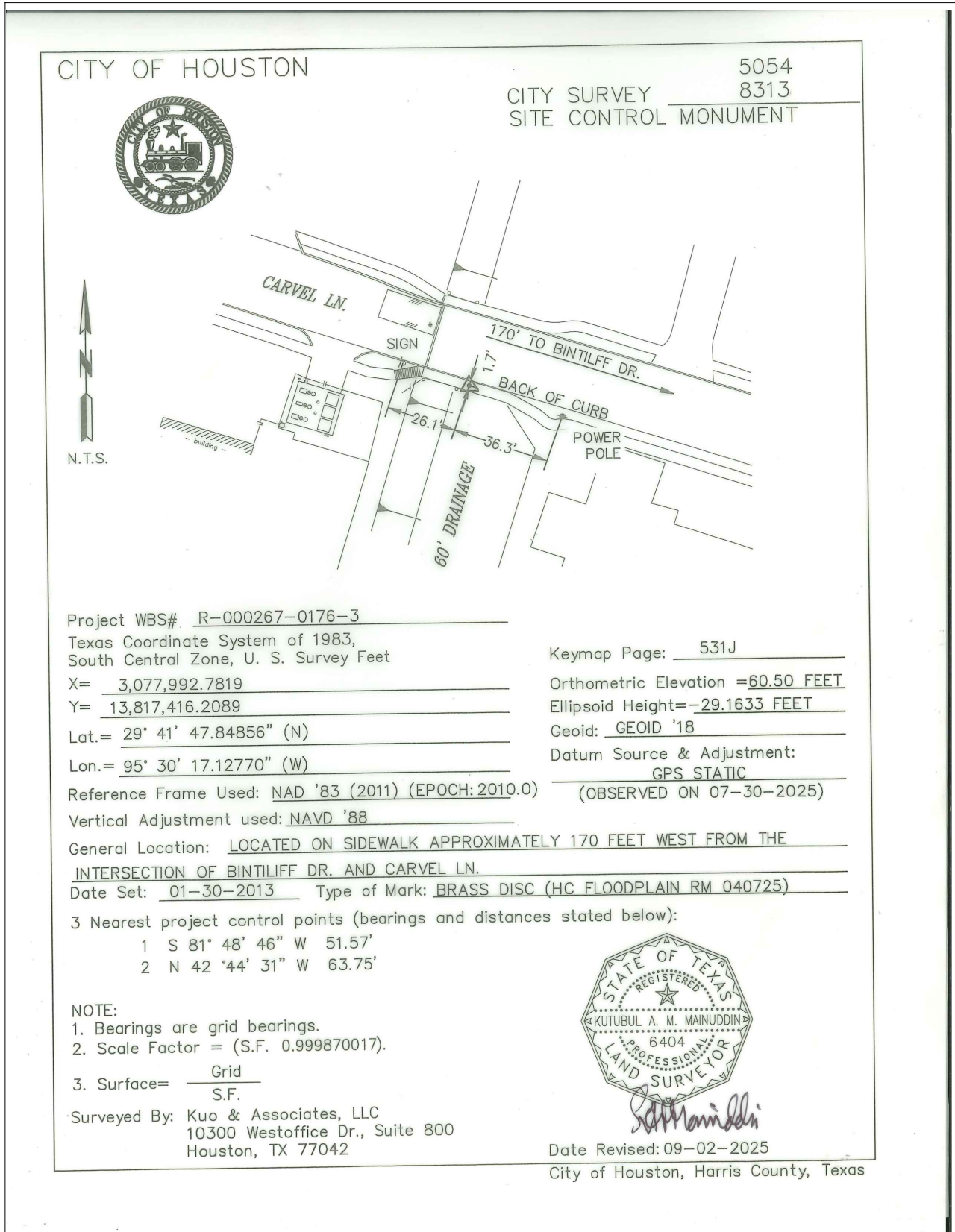
THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1A CONDITION 3, LAND TITLE SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.

Kutubul A. M. Mainuddin
04/23/26
KUTUBUL A. M. MAINUDDIN, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS, NO. 6404





SURVEY BASELINE POINTS DATA (TEMPORARY BENCHMARK)						
POINT No.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION	DESCRIPTION
B-11	13,819,259.32	3,078,349.67	13,817,463.05	3,077,949.54	60.29'	SET 'X' CUT ON CONC.
B-12	13,819,254.58	3,078,240.78	13,817,458.31	3,077,840.66	59.36'	SET 'X' CUT ON CONC.



BENCHMARK:

CITY OF HOUSTON MONUMENT 5054-8313 (ALSO FLOODPLAIN REFERENCE MARK 040725) IS A BRASS DISK ON SOUTH SIDEWALK ON CARVEL LN BRIDGE, LOCATED APPROXIMATELY 170 FEET WEST FROM THE INTERSECTION OF BINTLUFF DR

ELEV. 60.07 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED SEPTEMBER 2, 2025.

VERTICAL DATUM ADJUSTMENT:

THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040725) PUBLISHED DATUM NAVD. 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.43'.

NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.43 FT

NOTE:

ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.

THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.

LEGEND:

- B-X** SURVEY CONTROL POINT NUMBER
C-X DESIGN BASELINE POINT NUMBER
 SURVEY CONTROL POINT
 DESIGN BASELINE POINT
 CITY OF HOUSTON MONUMENT
S. BL: SURVEY BASELINE

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



10300 Westoffice Dr., Suite 800, Houston, Texas 77042
Tel: 713-975-8186; Fax: 713-975-6920; www.kuassociates.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF

RICARDO A. VAZQUEZ, R.P.L.S.
TEXAS REG. NO.: 4902

ON 04/23/2026
IT IS NOT TO BE USED FOR PERMIT, BIDDING OR CONSTRUCTION PURPOSES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

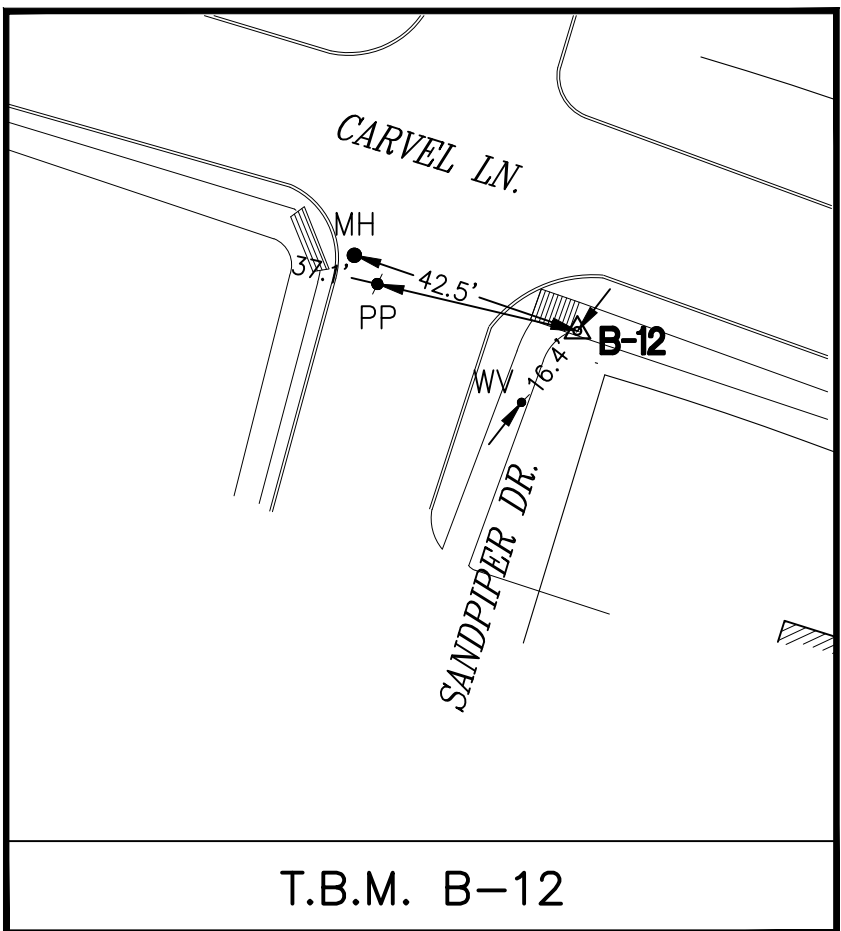
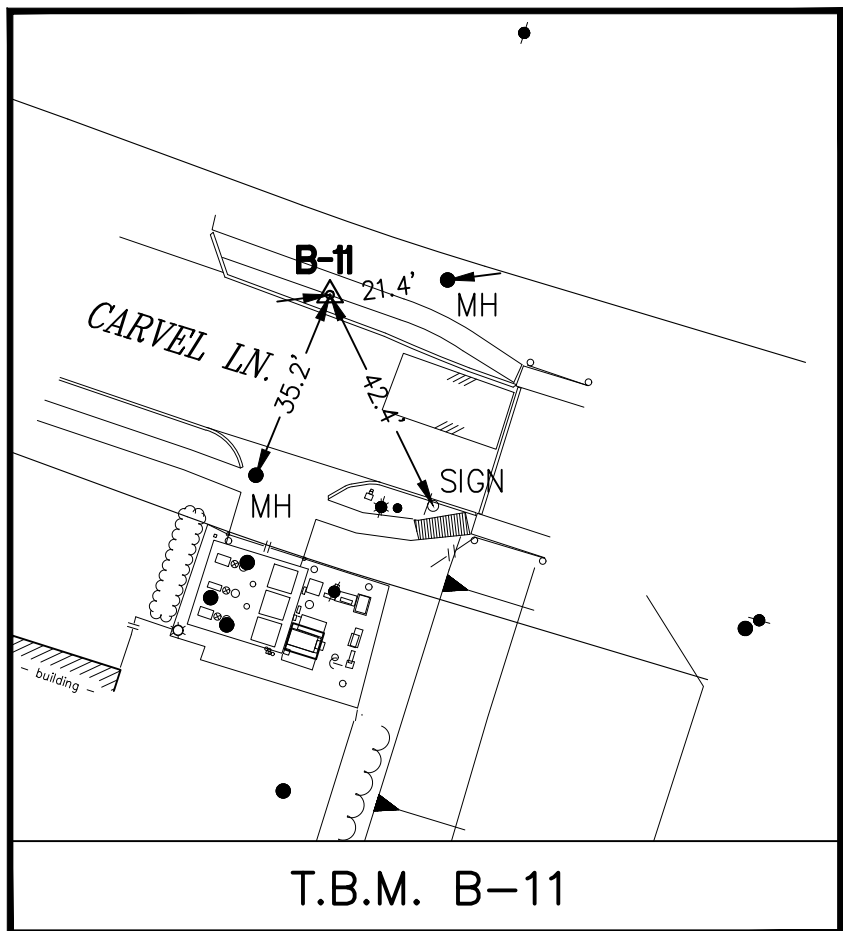
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SURVEY CONTROL MAP - CARVEL LANE LIFT STATION

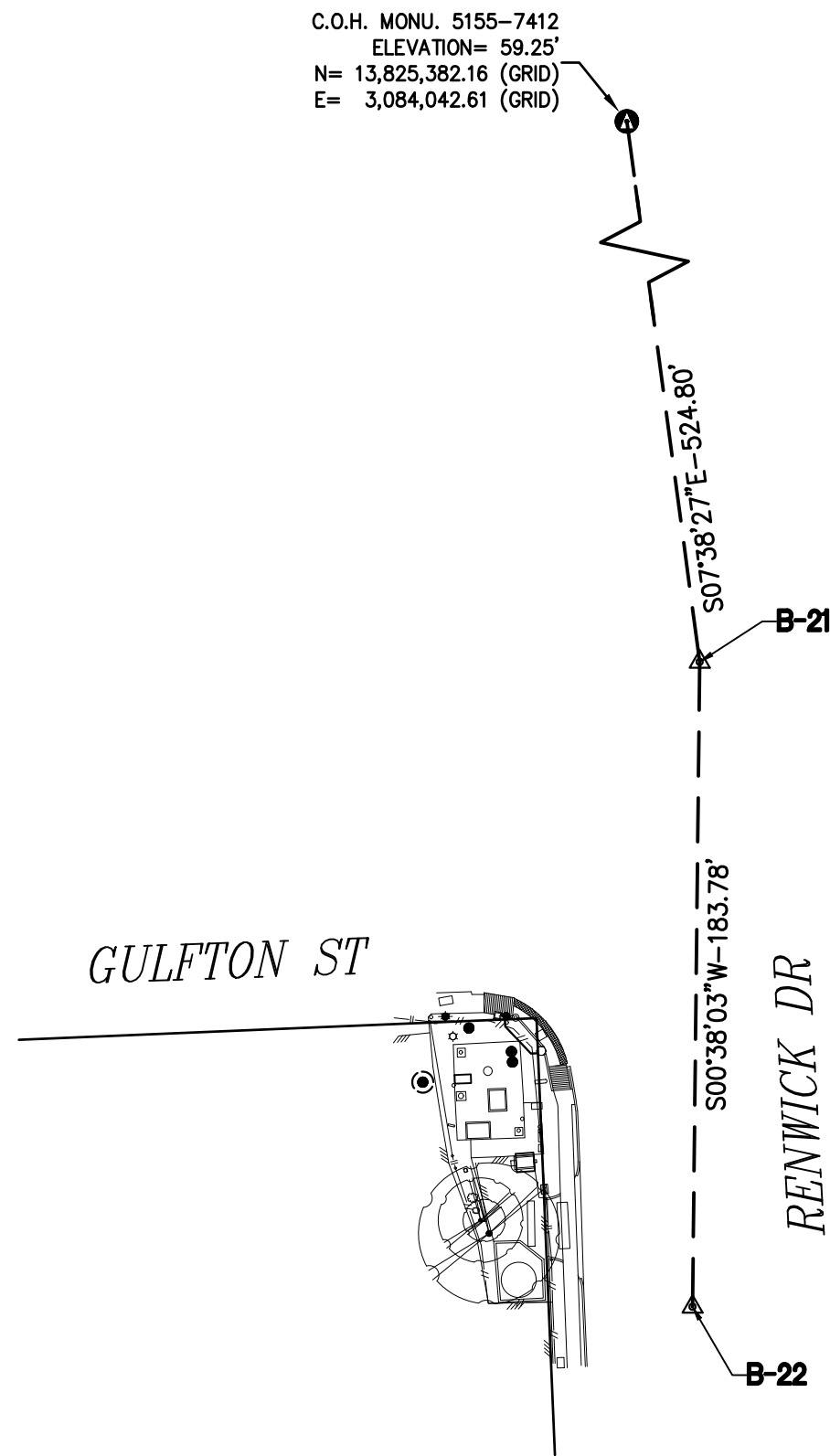
DWG. NO.	WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
	R-000267-0176-3	
SV-2	SCALE:	
	AS SHOWN	
	CITY OF HOUSTON PM	
	NAWARAJ PANTA, P.E.	
	SHEET NO. 18 OF 291	

- EXIST. TOPOGRAPHIC LEGEND**
- | | |
|------------------|----------------------------|
| ASPHALT SYMBOL | PLANTER |
| B OR BB INLET | POWER POLE |
| BUSH | POWER POLE W/LT. |
| C INLET | SIGN |
| CLEANOUT | SIGNAL POLE |
| brick column | SPRINKLER VALVE |
| DOWN GUY | SPRINKLER HEAD |
| E INLET | STREET LIGHT/FLOOD LIGHT |
| ELEC MANHOLE | STREET LIGHT/PARKING LIGHT |
| FIRE HYDRANT | TREE |
| GAS METER | TREE STUMP |
| GAS VALVE | TREE-CREPE MYRTLE |
| GATE | TREE-PINE |
| GRATE INLET | WATER METER |
| GRATE INLET | WATER VALVE |
| MAIL BOX | IRRIGATION CONTROL VALVE |
| STORM MANHOLE | |
| SANITARY MANHOLE | |

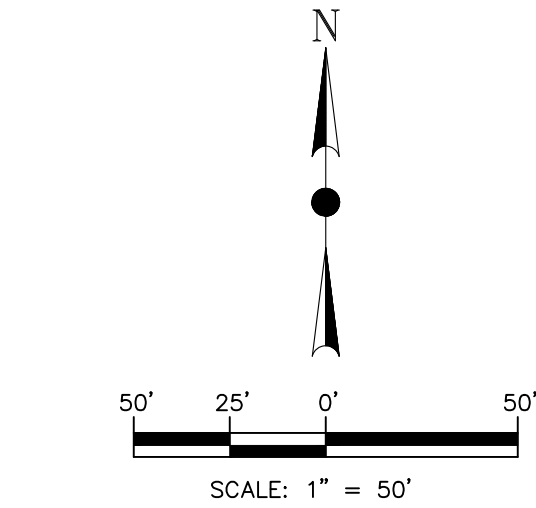
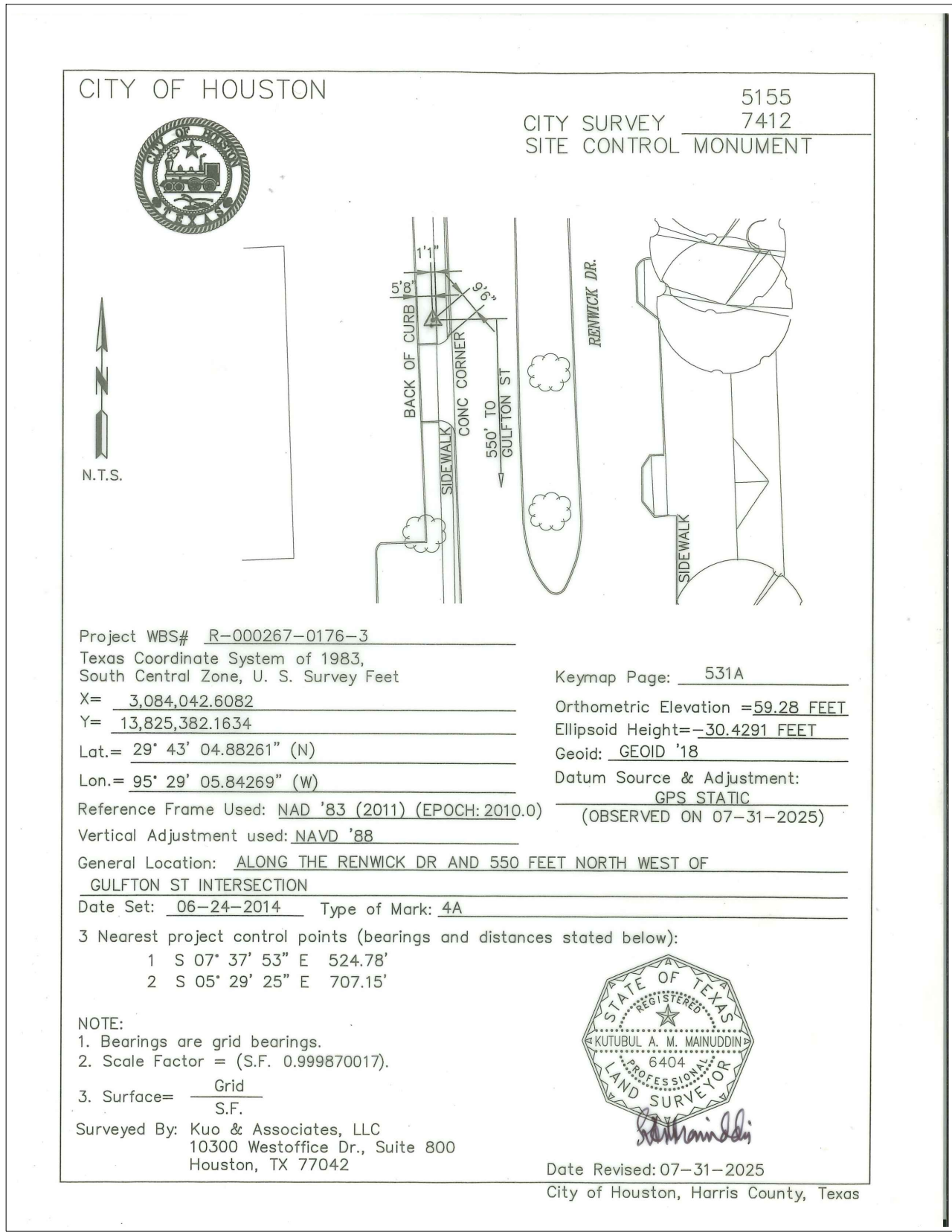
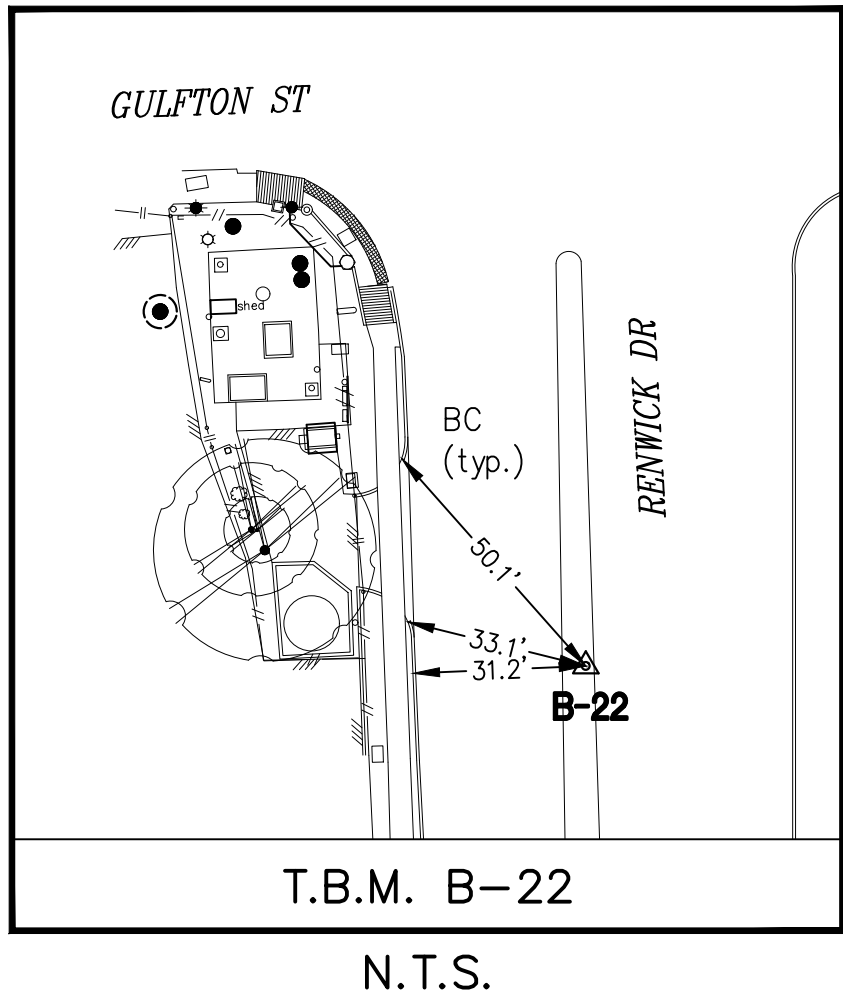
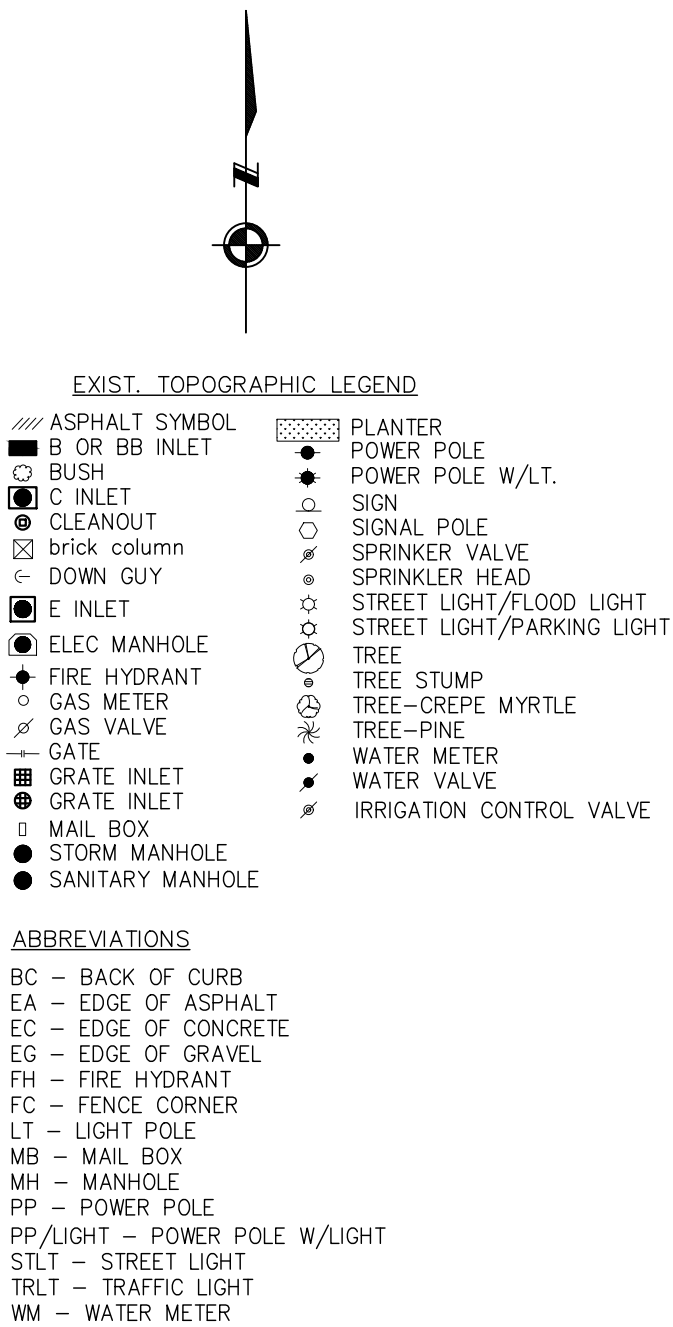
- ABBREVIATIONS**
- BC - BACK OF CURB
EA - EDGE OF ASPHALT
EC - EDGE OF CONCRETE
EG - EDGE OF GRAVEL
FH - FIRE HYDRANT
FC - FENCE CORNER
LT - LIGHT POLE
MB - MAIL BOX
MH - MANHOLE
PP - POWER POLE
PP/LIGHT - POWER POLE W/LIGHT
STLT - STREET LIGHT
TRLT - TRAFFIC LIGHT
WM - WATER METER



FND. 5/8" I.R.



SURVEY BASELINE POINTS DATA (TEMPORARY BENCHMARK)						
POINT No.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION	DESCRIPTION
B-21	13,826,659.33	3,084,513.22	13,824,862.10	3,084,112.29	60.90'	SET 'X' CUT ON CONC.
B-22	13,826,475.56	3,084,511.19	13,824,678.35	3,084,110.26	60.56'	SET 1/2" I.R. W/CAP



BENCHMARK:

CITY OF HOUSTON MONUMENT 5155-7412, A BRASS DISK IN CONCRETE, LOCATED AT WEST SIDE OF RENWICK DR APPROXIMATELY 590 FEET NORTH FROM THE INTERSECTION OF GULFTON ST

ELEV. 59.25 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 31, 2025.

VERTICAL DATUM ADJUSTMENT:

THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040750) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.03'.

NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.03 FT

NOTE:

ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.

THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.

LEGEND:

B-X SURVEY CONTROL POINT NUMBER

C-X DESIGN BASELINE POINT NUMBER

△ SURVEY CONTROL POINT

● DESIGN BASELINE POINT

○ CITY OF HOUSTON MONUMENT

S. BL: SURVEY BASELINE ---

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



ENGINEERING + SURVEYING
10300 Westoffice Dr., Suite 800, Houston, Texas 77042
Tel: 713-975-8182, Fax: 713-975-0020, www.kuoassociates.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600

THIS DOCUMENT IS RELEASED
FOR THE PURPOSE OF
INTERIM REVIEW UNDER THE
AUTHORITY OF

RICARDO A. VAZQUEZ, R.P.L.S.
TEXAS REG. NO.: 4902

ON 04/23/2026
IT IS NOT TO BE USED FOR
PERMIT, BIDDING OR
CONSTRUCTION PURPOSES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

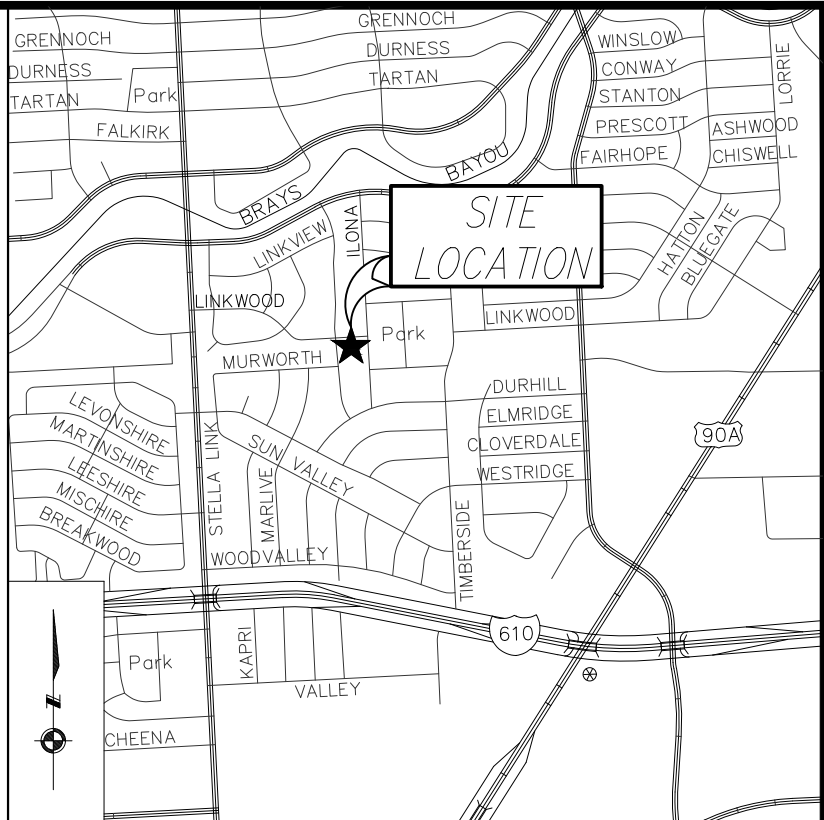
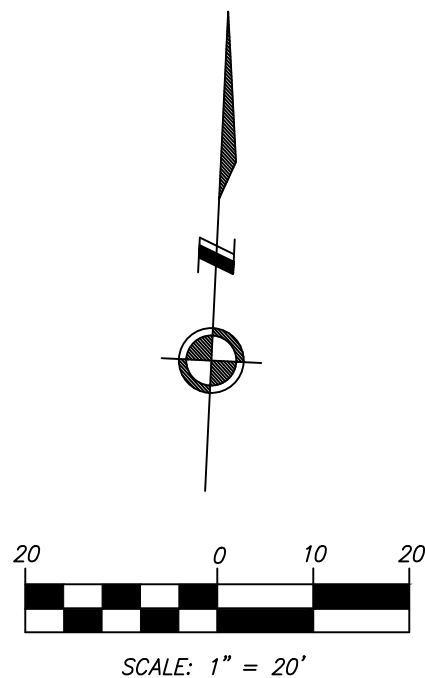
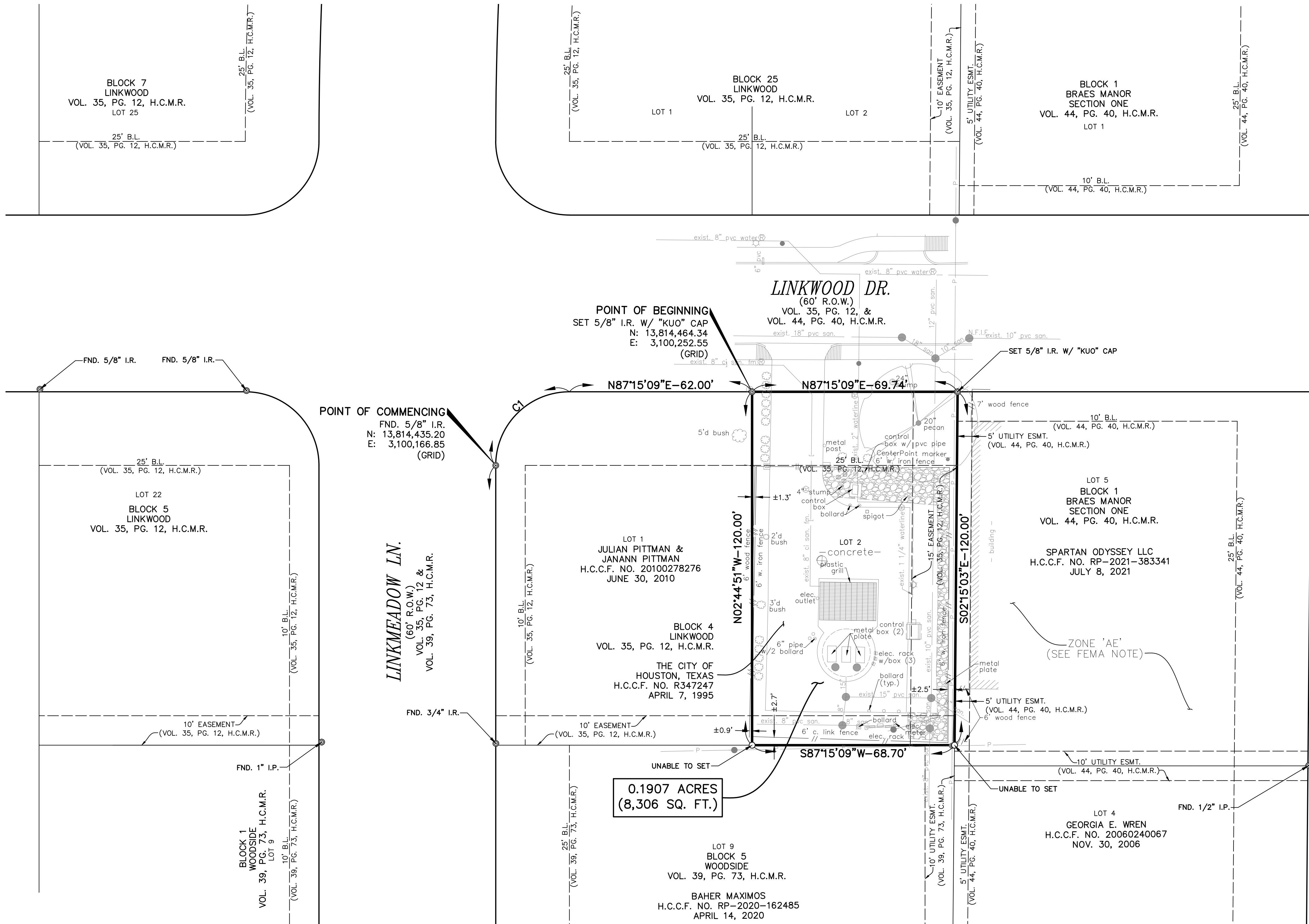
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SURVEY CONTROL MAP - GULFTON LIFT STATION

DWG. NO.	WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
	R-000267-0176-3	
	SCALE:	
	AS SHOWN	
	CITY OF HOUSTON PM	
SV-4	NAWARAJ PANTA, P.E.	SHEET NO. 20 OF 291

Apr 23 2025 3:26PM gmt
C:\Users\mainuddin\OneDrive\Documents\Projects\Linkwood\Linkwood.LS.dwg
Include Xref(s): Topo-0100-Linkwood.LS.dwg

PLEASANT W. ROSE SURVEY, ABSTRACT NO. 645



- NOTES:**
1. THIS MAP WAS PREPARED WITH THE BENEFIT OF A CURRENT LIMITED TITLE CERTIFICATE PREPARED BY COURTHOUSE SPECIALISTS; JOB NO. 2545771A-4; EFFECTIVE DATE: JULY 15, 2025.
 2. ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.
 3. THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.
 4. EXISTING UNDERGROUND UTILITY INFORMATION (TYPE, SIZE & OWNERSHIP) ARE SHOWN APPROXIMATELY BASED ON THE AVAILABLE RECORD DRAWINGS AND FIELD VERIFICATION (WHERE FEASIBLE) WITHOUT PROBING AND EXCAVATION. NO WARRANTY IS MADE AS TO THE ACCURACY OR COMPLETENESS OF UTILITY LOCATION SHOWN ON THE DRAWING. CAUTION SHOULD BE EXERCISED WHEN EXCAVATING OR BORE AND JACKING IN THE VICINITY OF UNDERGROUND UTILITIES. OWNERS OF THE UTILITIES SHOULD BE NOTIFIED PRIOR SUCH ACTIVITIES. CALL UTILITY COORDINATING COMMITTEE AT 713-223-4567, AT LEAST 48 HOURS PRIOR TO EXCAVATING IN THE STREET RIGHT-OF-WAY.
 5. ALL SET 5/8 INCH IRON RODS ARE WITH CAP STAMPED "KUO".
 6. A METES AND BOUNDS DESCRIPTION OF EVEN DATE HAS BEEN PREPARED IN ASSOCIATION WITH THIS EXHIBIT.

FEMA NOTE:

ACCORDING TO F.I.R.M. MAP NUMBER 48201C0870M FOR HARRIS COUNTY, TEXAS AND INCORPORATED AREAS (MAP REVISED MAY 2, 2019), THE SUBJECT AREA IS LOCATED IN:

ZONE 'AE', SPECIAL FLOOD HAZARD AREAS (WITH BFE OR DEPT)

ABBREVIATIONS

R--PROPERTY LINE
Z--LAND HOOK
A.E.--AERIAL EASEMENT
B.L.--BUILDING LINE
DR.--DRIVE
FND.--FOUND
F.C. NO.--FILM CODE NUMBER
H.C.C.F. NO.--HARRIS COUNTY CLERK'S FILE NUMBER
H.C.D.R.--HARRIS COUNTY DEED RECORDS
H.C.M.R.--HARRIS COUNTY MAP RECORDS
O.P.R.O.R.P.H.C.--OFFICIAL PUBLIC RECORDS OF REAL PROPERTY HARRIS COUNTY

- LEGEND:**
- ASPHALT SYMBOL
 - B OR BB INLET
 - C INLET
 - CLEANOUT
 - DOWN GUY
 - E INLET
 - ELEC MANHOLE
 - FIRE HYDRANT
 - GAS METER
 - GAS VALVE
 - GRATE INLET
 - GRATE INLET
 - MAIL BOX
 - MANHOLE
 - PLANTER
 - POWER POLE
 - POWER POLE W/LT.
 - SIGN
 - SIGNAL POLE
 - STREET LIGHT
 - TREE
 - TREE STUMP
 - TREE--CREPE MYRTLE
 - TREE--PINE
 - WATER METER
 - WATER VALVE
 - BRUSH ROW
 - DITCH/SWALE CENTER LINE
 - FENCE
 - GAS LINE
 - GUARD RAIL
 - HEDGE ROW OR TREE LINE
 - HIGH BANK
 - OVERHEAD POWER LINE
 - SANITARY SEWER LINE
 - STORM LINE
 - TELEPHONE LINE
 - UG STREET LIGHT CABLE
 - WATER LINE

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY MADE ON THE GROUND UNDER MY SUPERVISION ON AUGUST, 2025.

THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1A CONDITION 3, LAND TITLE SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.

Kutubul A. M. Mainuddin
04/23/26
KUTUBUL A. M. MAINUDDIN, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS, NO. 6404



CURVE TABLE				
CURVE	LENGTH	RADIUS	DELTA	CHORD DIRECTION
C1	39.27'	25.00'	90°00'00"	N42°15'09"E--35.36'

LINKWOOD LIFT STATION
0.1907 ACRES (8,306 SQ. FT.)
BEING ALL OF LOT 2, BLOCK 4 OF
LINKWOOD SUBDIVISION, A PLAT RECORDED
UNDER VOL. 35, PG. 12, H.C.M.R.
SITUATED IN THE
PLEASANT W. ROSE SURVEY, A-645
HARRIS COUNTY, TEXAS

OWNER: CITY OF HOUSTON

KUO & ASSOCIATES
ENGINEERING + SURVEYING
10300 Westoffice Dr., Suite 800
Houston, Texas 77042
Tel: 713-975-0109, Fax: 713-975-0920
www.kuasurveys.com
TBPES Engineering Firm Reg. No. F-4578
TBPES Surveying Firm Reg. No. 10075600

HOUSTON PUBLIC WORKS

APPROVAL _____ DATE: _____

SURVEY SECTION _____ RIGHT OF WAY SECTION _____

KEYMAP NO: 532 N FACET NO. 5254 C

PARCEL NO. _____

JOB NO. _____

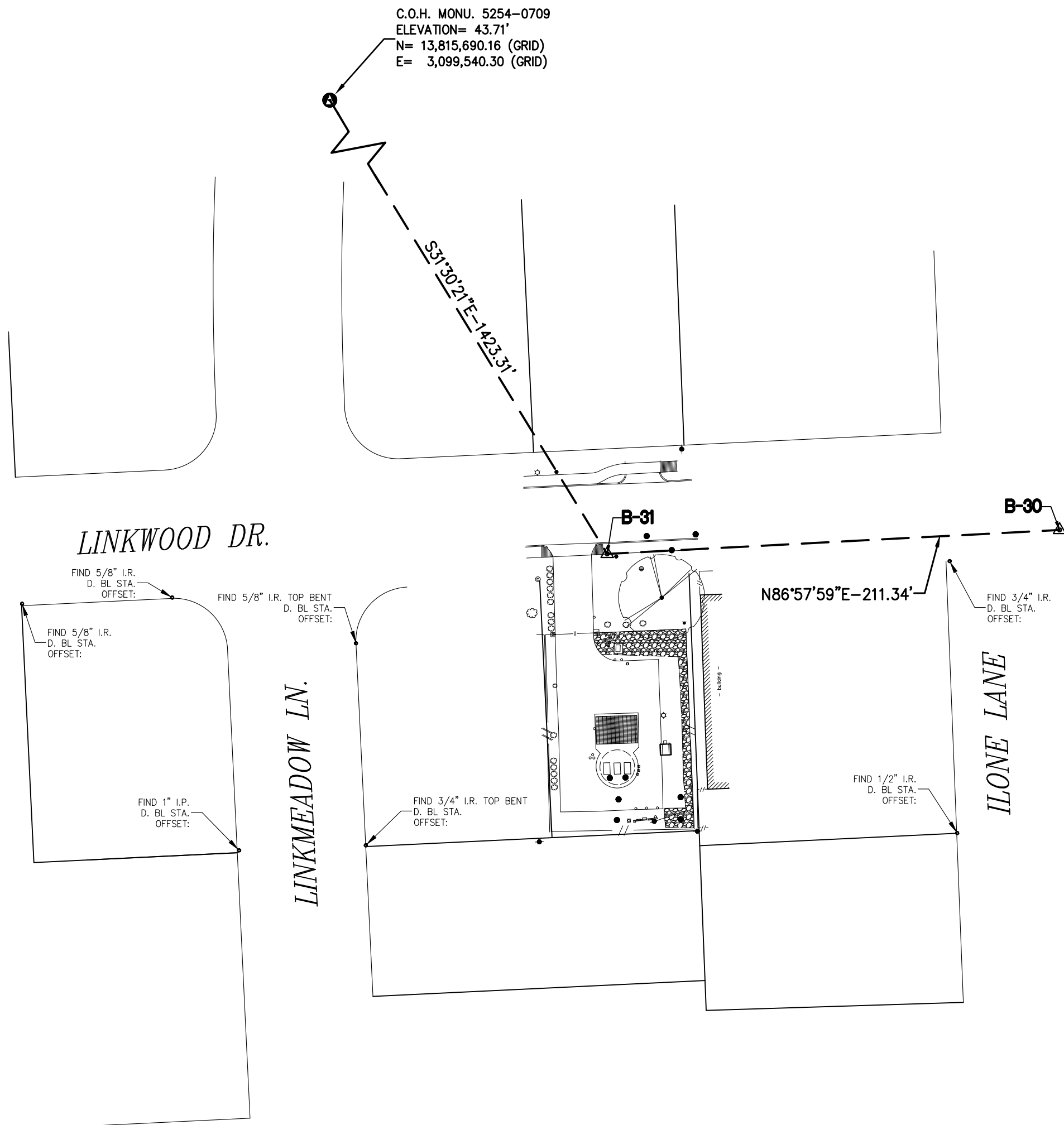
WBS NO. R-000267-0176-3

ILMS NO. _____

SHEET 21 OF 291

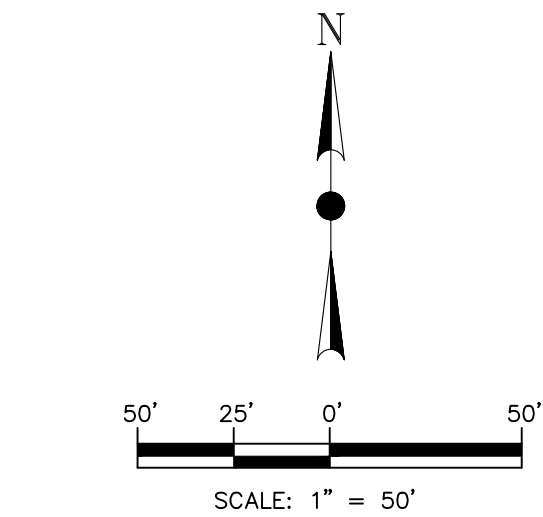
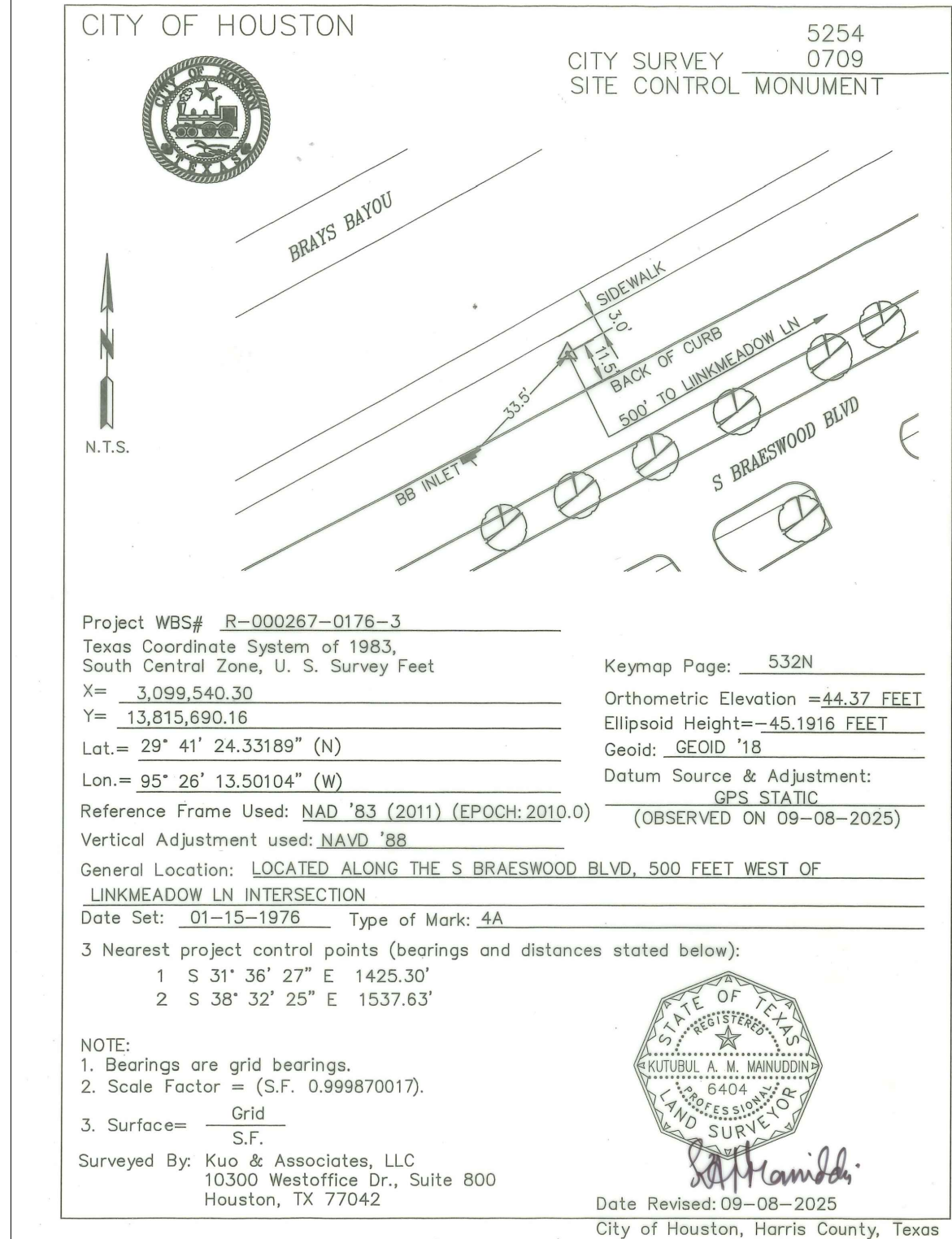
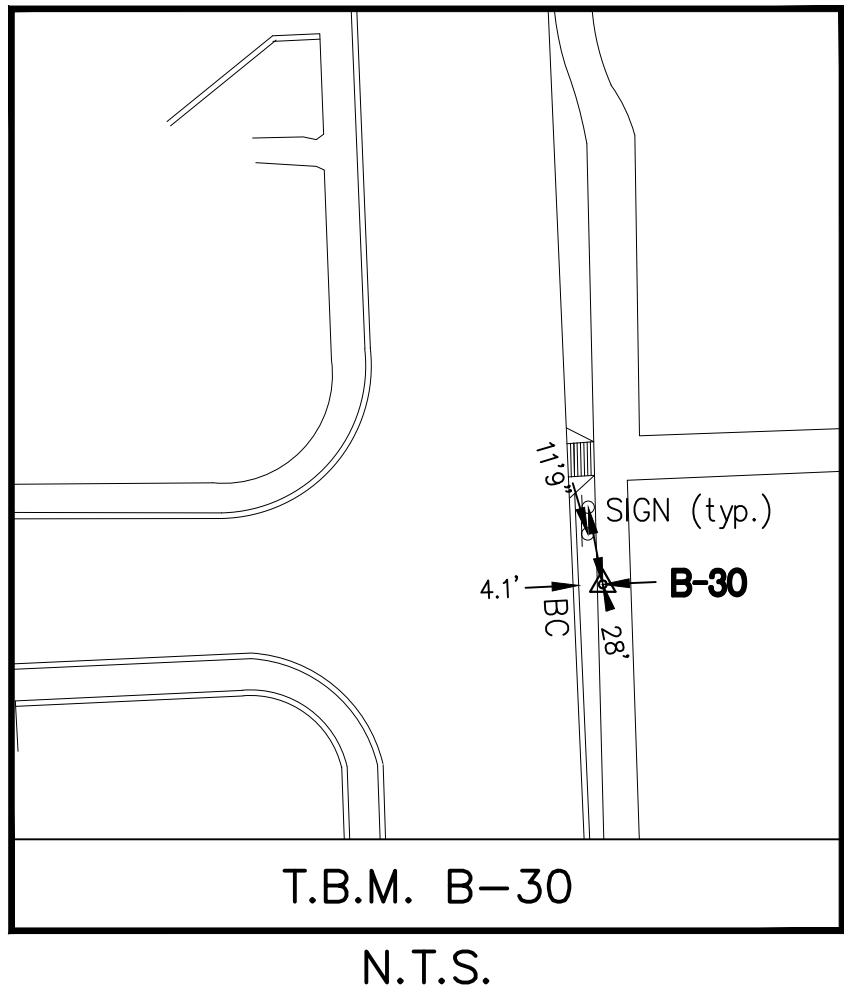
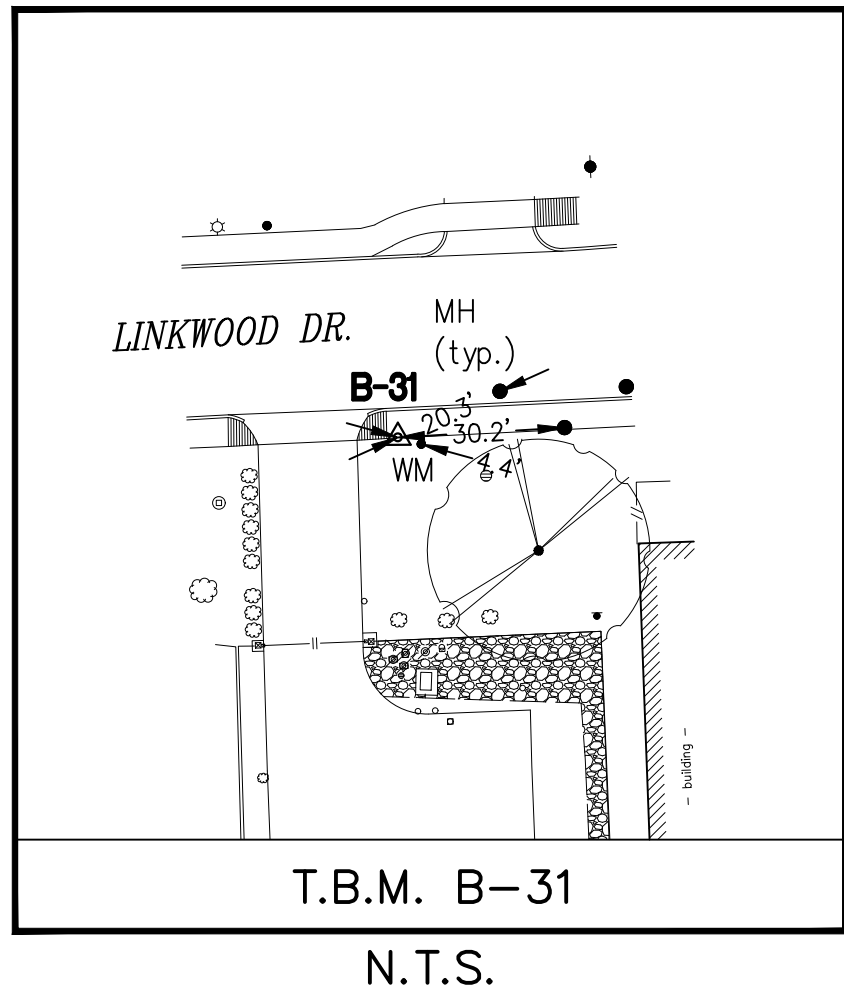
DWG. NO.
SV-5

SIMS BAYOU WWTP - SLUDGE PROCESSING FACILITY
3. L:\PROJECTS\01009 (COT) LS R-000267-0176-3 LIA\1-0 SURVEY-DESIGN Production\01_SURVEY\4-01-08 Dwg Working\SCM\Linkwood LS\SCM-01009-Linkwood LS.dwg Apr 23, 2026-2:41pm silu



SURVEY BASELINE POINTS DATA (TEMPORARY BENCHMARK)						
POINT No.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION	DESCRIPTION
B-30	13,816,283.94	3,100,898.09	13,814,488.05	3,100,495.03	46.98'	SET 'X' CUT ON CONC.
B-31	13,816,272.75	3,100,687.05	13,814,476.87	3,100,284.01	47.70'	SET 'X' CUT ON CONC.

- EXIST. TOPOGRAPHIC LEGEND
- | | |
|---------------------|------------------------------|
| //// ASPHALT SYMBOL | PLANTER |
| ■ B OR BB INLET | ● POWER POLE |
| ○ BUSH | ● POWER POLE W/LT. |
| ● C INLET | ○ SIGN |
| ⊙ CLEANOUT | ○ SIGNAL POLE |
| ⊠ brick column | ○ SPRINKLER VALVE |
| ⊖ DOWN GUY | ○ SPRINKLER HEAD |
| ● E INLET | ○ STREET LIGHT/FLOOD LIGHT |
| ⊙ ELEC MANHOLE | ○ STREET LIGHT/PARKING LIGHT |
| ● FIRE HYDRANT | ○ TREE |
| ○ GAS METER | ○ TREE STUMP |
| ⊗ GAS VALVE | ○ TREE-ORANGE MYRTLE |
| ⊕ GATE | ○ TREE-PINE |
| ⊙ GRATE INLET | ○ WATER METER |
| ⊙ MAIL BOX | ○ WATER VALVE |
| ● STORM MANHOLE | ○ IRRIGATION CONTROL VALVE |
| ● SANITARY MANHOLE | |
- ABBREVIATIONS
- BC - BACK OF CURB
EA - EDGE OF ASPHALT
EC - EDGE OF CONCRETE
EG - EDGE OF GRAVEL
FH - FIRE HYDRANT
FC - FENCE CORNER
LT - LIGHT POLE
MB - MAIL BOX
MH - MANHOLE
PP - POWER POLE
PP/LIGHT - POWER POLE W/LIGHT
STLT - STREET LIGHT
TRLT - TRAFFIC LIGHT
WM - WATER METER



BENCHMARK:
CITY OF HOUSTON MONUMENT 5254-0709, A BRASS DISK IN CONCRETE, LOCATED ON BRAESWOOD DR IN LINE WITH EAST SIDE OF DRIVEWAY AT 3723 HOUSE.
ELEV. 43.71 FEET NAVD 1988 (GEOID '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED SEPTEMBER 8, 2025.

VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040145) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.66'.
NAVD 1988, 2001 ADJ. ELEVATION
=NAVD 1988 (GEOID '18) ELEVATION + 0.66 FT

NOTE:
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- LEGEND:**
- B-X** SURVEY CONTROL POINT NUMBER
C-X DESIGN BASELINE POINT NUMBER
▲ SURVEY CONTROL POINT
● DESIGN BASELINE POINT
● CITY OF HOUSTON MONUMENT
S. BL: SURVEY BASELINE

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

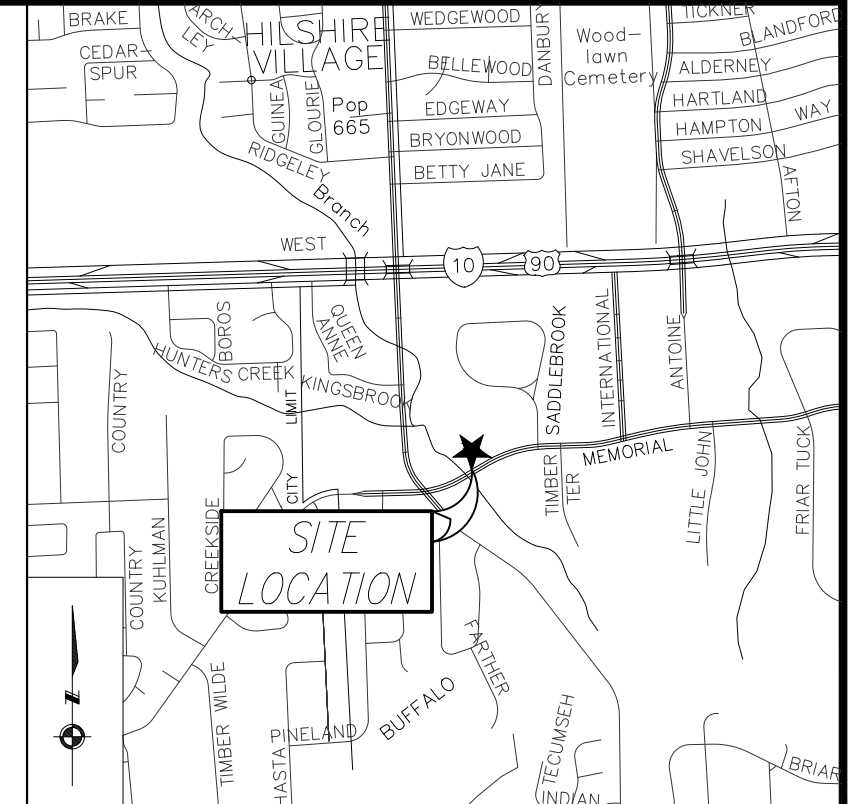
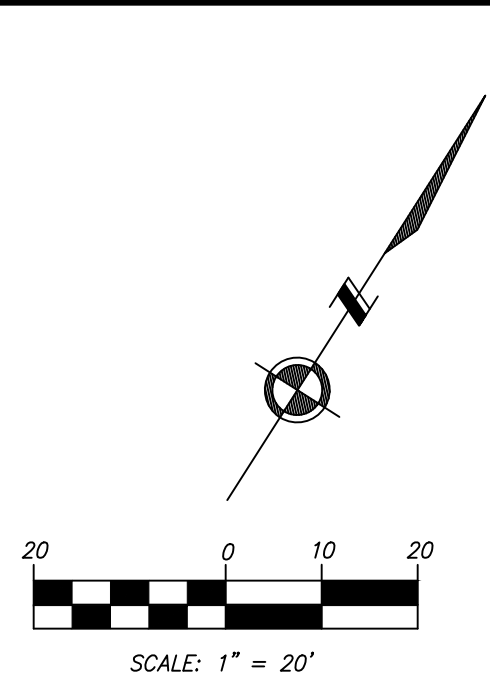
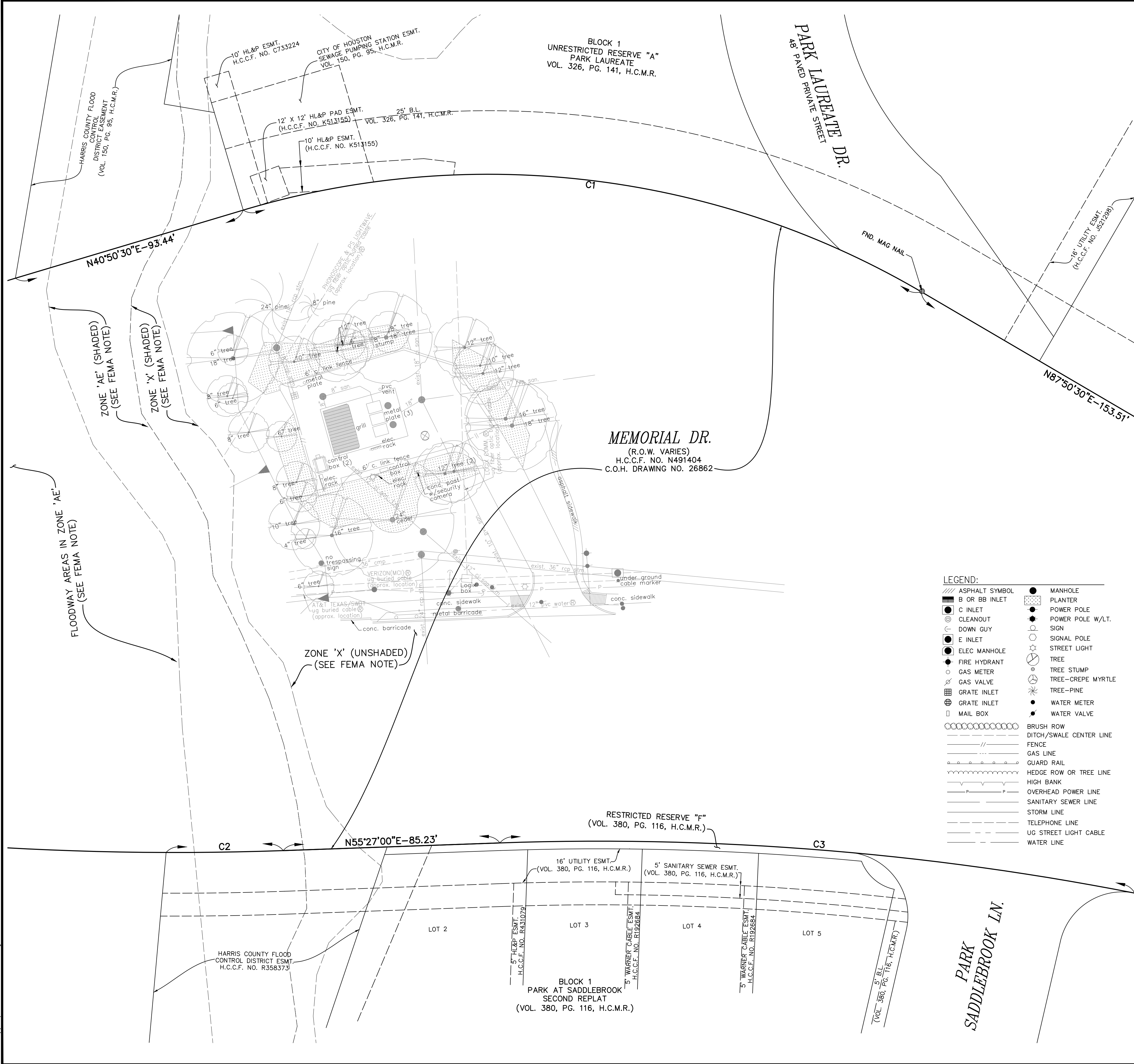
KUO & ASSOCIATES
ENGINEERING + SURVEYING
10300 Westoffice Dr., Suite 800, Houston, Texas 77042
Tel: 713.975.6160, Fax: 713.975.6020, www.kuossociates.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600

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RICARDO A. VAZQUEZ, R.P.L.S.
TEXAS REG. NO.: 4902
ON 04/23/2026
IT IS NOT TO BE USED FOR PERMIT, BIDDING OR CONSTRUCTION PURPOSES

SURVEYED BY: KUO & ASSOC.
FB NO. P-6409

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
SURVEY CONTROL MAP - LINKWOOD LIFT STATION	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS SHOWN	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
DWG. NO.	
SV-6	SHEET NO. 22 OF 291

Apr 23 2026 3:26PM gmt
L:\S-000267-0176-3 LIA\A-0 SURVEY-DESIGN Production\01_SURVEY-01-08 Dwg Working\FROM BMD-01009-Saddle Brook LS.dwg
Include Xref(0): From 01009-Saddlebrook LS.dwg



VICINITY MAP
N.T.S.
KEYMAP: 491 B
491 F

- NOTES:**
1. ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.
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- FEMA NOTE:**
- ACCORDING TO F.I.R.M. MAP NUMBER 48201C0665M FOR HARRIS COUNTY, TEXAS AND INCORPORATED AREAS (MAP REVISED JUNE 9, 2014), THE SUBJECT AREA IS LOCATED IN:
1. ZONE 'X' (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
 2. ZONE 'X' (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.
 3. ZONE 'AE' (SHADED), SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT; BASE FLOOD ELEVATION DETERMINED.
 4. ZONE 'AE' (HATCH PATTERN), FLOODWAY AREAS IN ZONE 'AE'. THE FLOODWAY IS THE CHANNEL OF A STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS.

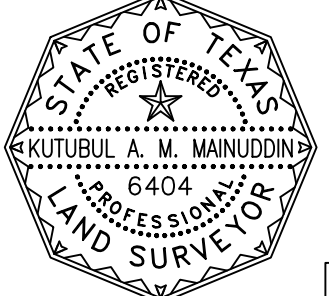
- ABBREVIATIONS**
- R-PROPERTY LINE
 - Z-LAND HOOK
 - A.E.-AERIAL EASEMENT
 - B.L.-BUILDING LINE
 - DR.-DRIVE
 - FND.-FOUND
 - F.C. NO.-FILM CODE NUMBER
 - H.C.C.F. NO.-HARRIS COUNTY CLERK'S FILE NUMBER
 - H.C.D.R.-HARRIS COUNTY DEED RECORDS
 - H.C.M.R.-HARRIS COUNTY MAP RECORDS
 - O.P.R.O.R.P.H.C.-OFFICIAL PUBLIC RECORDS OF REAL PROPERTY HARRIS COUNTY
 - I.P.-IRON PIPE
 - I.R.-IRON ROD
 - RD.-ROAD
 - R.O.W.-RIGHT OF WAY
 - S.S.E.-SANITARY SEWER EASEMENT
 - STM. S.E.-STORM SEWER EASEMENT
 - U.E.-UTILITY EASEMENT
 - VOL., PG.-VOLUME AND PAGE
 - W.L.E.-WATER LINE EASEMENT

CURVE TABLE				
CURVE	LENGTH	RADIUS	DELTA	CHORD DIRECTION
C1	276.03'	336.50'	46°59'58"	N84°20'31"E-268.36'
C2	46.02'	1,195.95'	2°12'18"	N56°33'09"E-46.02'
C3	250.73'	1,096.05'	13°06'25"	N61°59'59"E-250.19'

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY MADE ON THE GROUND UNDER MY SUPERVISION ON AUGUST, 2025.

THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS' STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1A CONDITION 3, LAND TITLE SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.

S. Mainuddin 04/23/26
KUTUBUL A. M. MAINUDDIN, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS, NO. 6404



EXISTING R.O.W. MAP FOR
SADDLE BROOK LIFT STATION

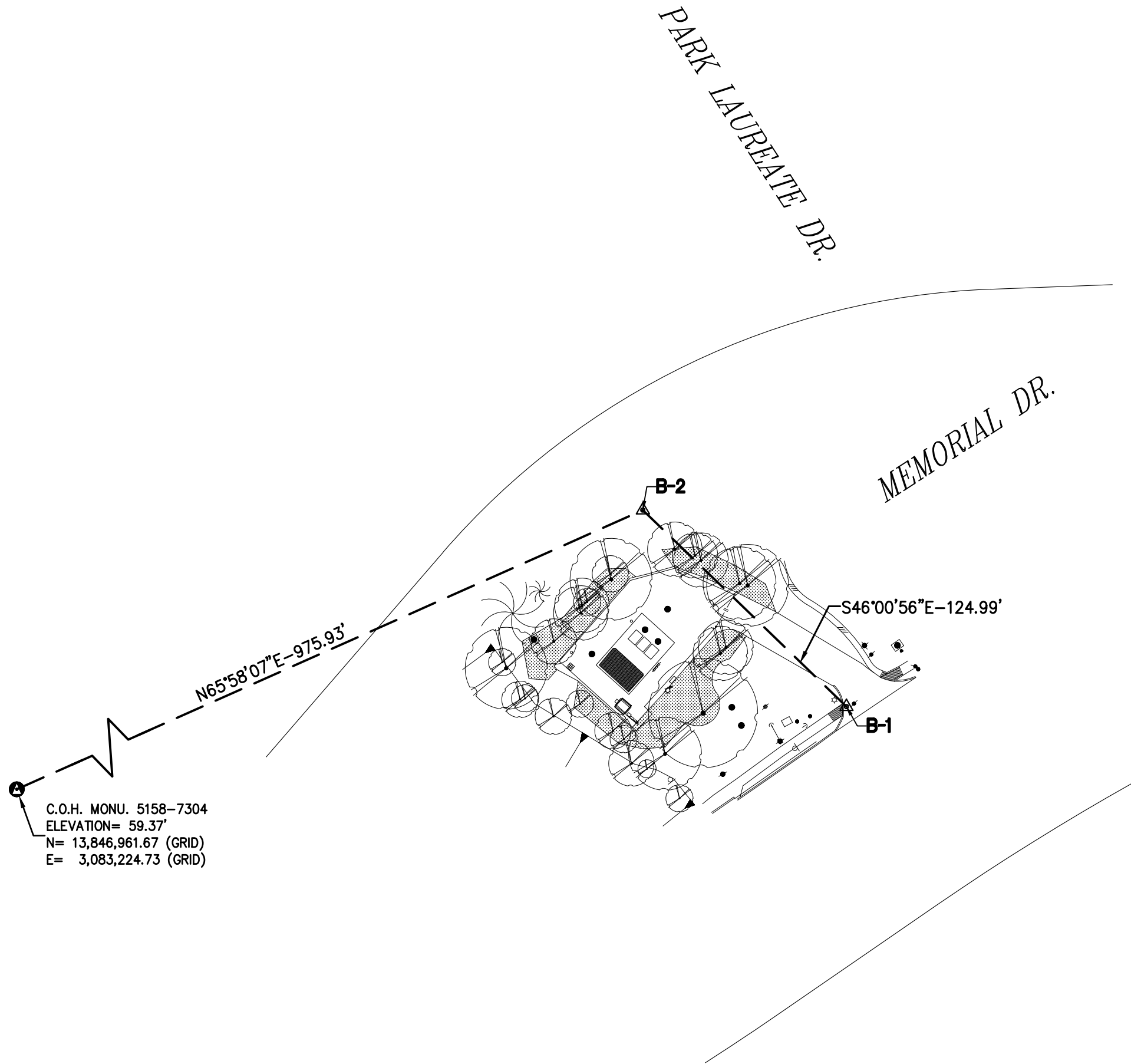
KUO & ASSOCIATES
ENGINEERING + SURVEYING
10300 Westoffice Dr., Suite 800
Houston, Texas 77042
Tel: 713-975-0709, Fax: 713-975-0920
www.kuossurveys.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600

HOUSTON PUBLIC WORKS

APPROVAL	DATE: _____
SURVEY SECTION	RIGHT OF WAY SECTION
KEYMAP NO: 491 B & F	FACET NO. 5158 C
PARCEL NO.	
JOB NO.	
WBS NO. R-000267-0176-3	
ILMS NO.	
SHEET 23 OF 291	

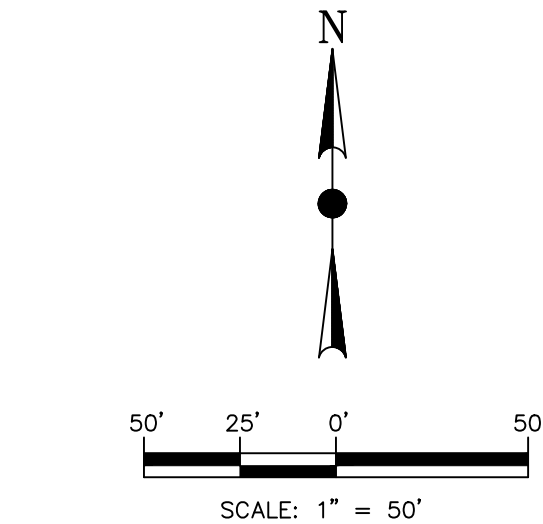
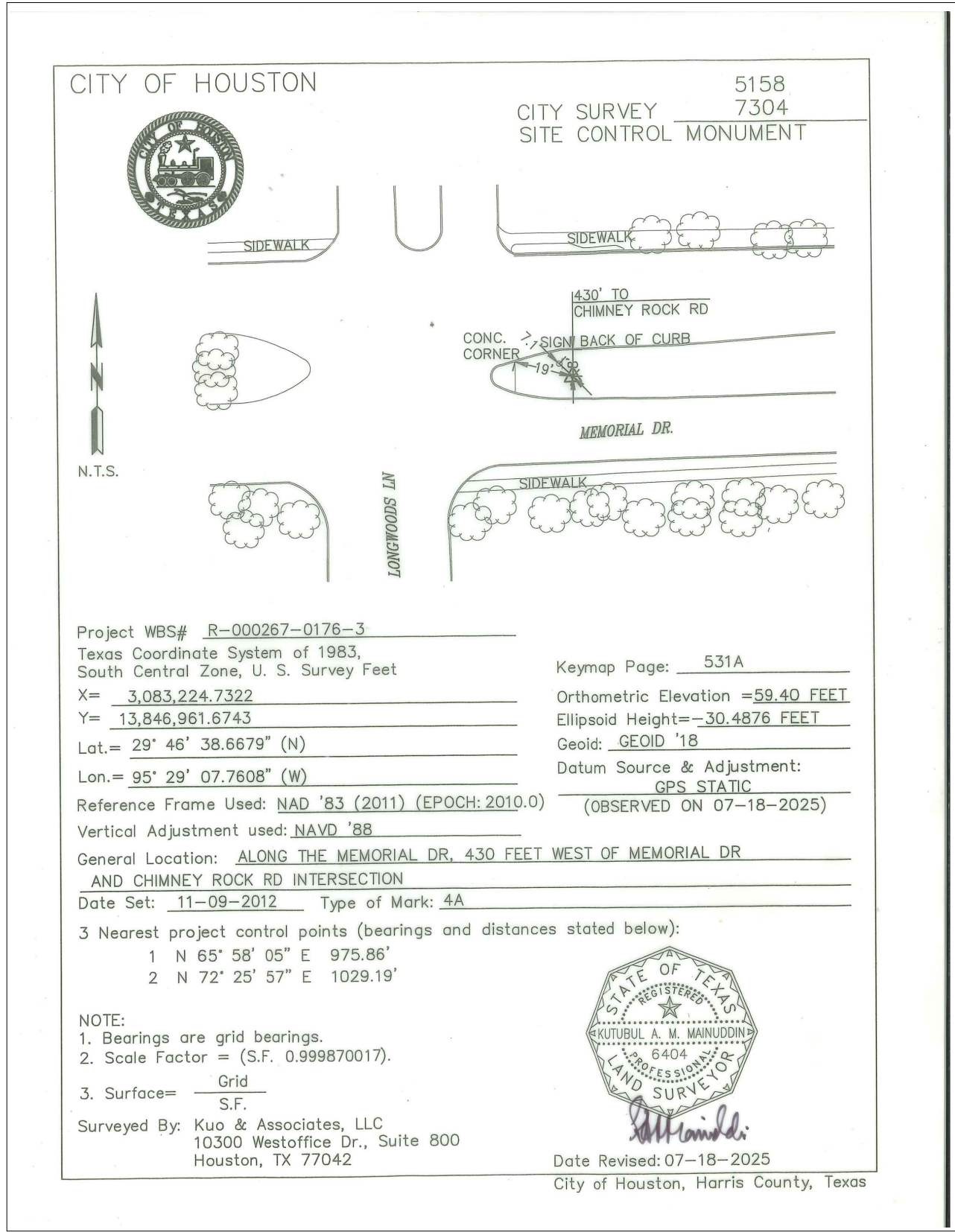
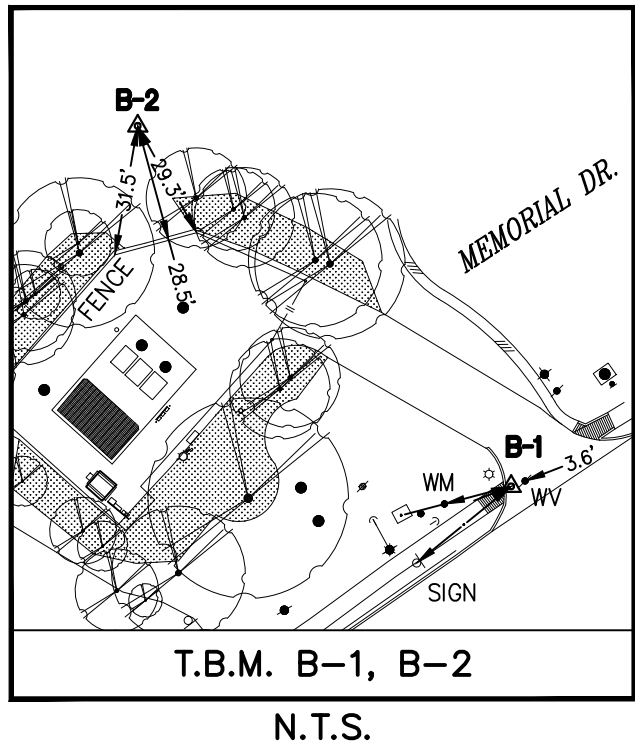
DWG. NO.
SV-7

SIMS BAYOU WWTP - SLUDGE PROCESSING FACILITY
3. L:\PROJECTS\01009 (COP) LS R-000267-0176-3 LJA\1-0 SURVEY-DESIGN Production\01_SURVEY\4-01-08 Dwg Working\SCM Saddlebrook LS.dwg Apr 23, 2026-2:34pm silu



SURVEY BASELINE POINTS DATA (TEMPORARY BENCHMARK)						
POINT No.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION	DESCRIPTION
B-1	13,849,072.39	3,084,606.76	13,847,272.25	3,084,205.81	57.90'	SET 'X' CUT ON CONC.
B-2	13,849,159.20	3,084,516.82	13,847,359.04	3,084,115.89	57.48'	SET 1/2" I.R. W/CAP

- EXIST. TOPOGRAPHIC LEGEND
- | | |
|---------------------|----------------------------|
| //// ASPHALT SYMBOL | PLANTER |
| B OR BB INLET | POWER POLE |
| ○ BUSH | POWER POLE W/LT. |
| ● C INLET | SIGN |
| ⊙ CLEANOUT | SIGNAL POLE |
| ⊠ brick column | SPRINKLER VALVE |
| - DOWN GUY | SPRINKLER HEAD |
| ⊙ E INLET | STREET LIGHT/FLOOD LIGHT |
| ● ELEC MANHOLE | STREET LIGHT/PARKING LIGHT |
| ● FIRE HYDRANT | TREE |
| ○ GAS METER | TREE STUMP |
| ○ GAS VALVE | TREE-CREPE MYRTLE |
| - GATE | TREE-PINE |
| ▨ GRATE INLET | WATER METER |
| ⊙ GRATE INLET | WATER VALVE |
| ○ MAIL BOX | IRRIGATION CONTROL VALVE |
| ● STORM MANHOLE | |
| ● SANITARY MANHOLE | |
- ABBREVIATIONS
- BC - BACK OF CURB
EA - EDGE OF ASPHALT
EC - EDGE OF CONCRETE
EG - EDGE OF GRAVEL
FH - FIRE HYDRANT
FC - FENCE CORNER
LT - LIGHT POLE
MB - MAIL BOX
MH - MANHOLE
PP - POWER POLE
PP/LIGHT - POWER POLE W/LIGHT
STLT - STREET LIGHT
TRLT - TRAFFIC LIGHT
WM - WATER METER



BENCHMARK:

CITY OF HOUSTON MONUMENT 5158-7304, A BRASS DISK IN CONCRETE, LOCATED AT THE MEDIAN OF MEMORIAL DR APPROXIMATELY 440 FEET WEST FROM THE INTERSECTION OF CHIMNEY ROCK RD.

ELEV. 59.37 FEET NAVD 1988 (GEOD '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 18, 2025.

VERTICAL DATUM ADJUSTMENT:

THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040750) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOD '18) IS 0.03'.

NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOD '18) ELEVATION + 0.03 FT

NOTE:

ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.

THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.

LEGEND:

- B-X** SURVEY CONTROL POINT NUMBER
C-X DESIGN BASELINE POINT NUMBER
△ SURVEY CONTROL POINT
● DESIGN BASELINE POINT
⊙ CITY OF HOUSTON MONUMENT
S. BL: SURVEY BASELINE — — —

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

KUO & ASSOCIATES
ENGINEERING + SURVEYING
10300 Westoffice Dr., Suite 800, Houston, Texas 77042
Tel: 713.975.6180, Fax: 713.975.6020, www.kuasurveys.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF
RICARDO A. VAZQUEZ, R.P.L.S.
TEXAS REG. NO.: 4902
ON 04/23/2026
IT IS NOT TO BE USED FOR PERMIT, BIDDING OR CONSTRUCTION PURPOSES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

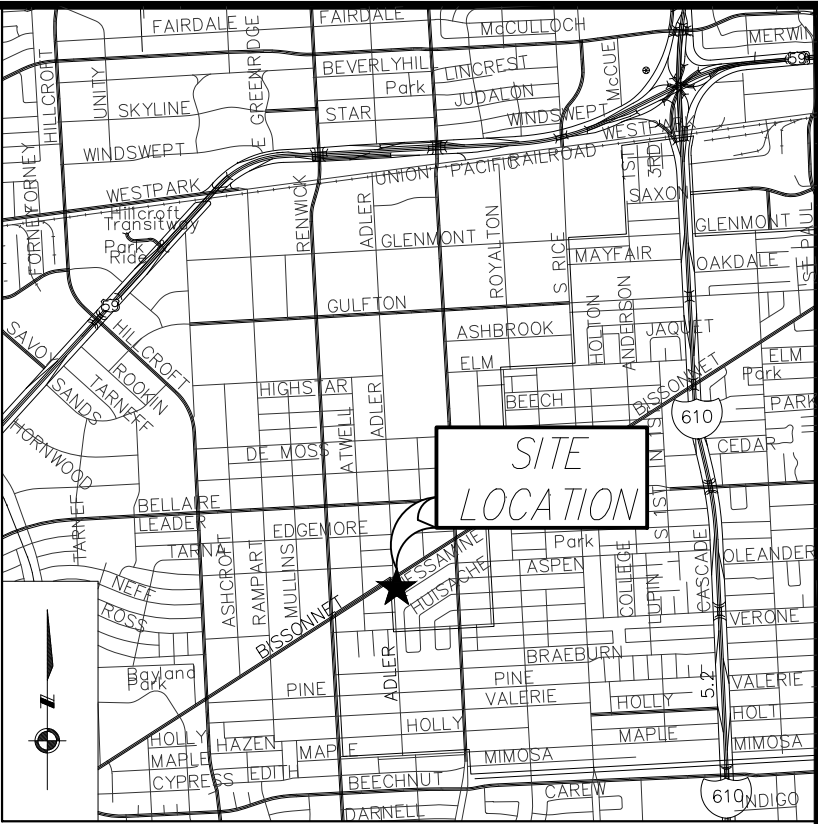
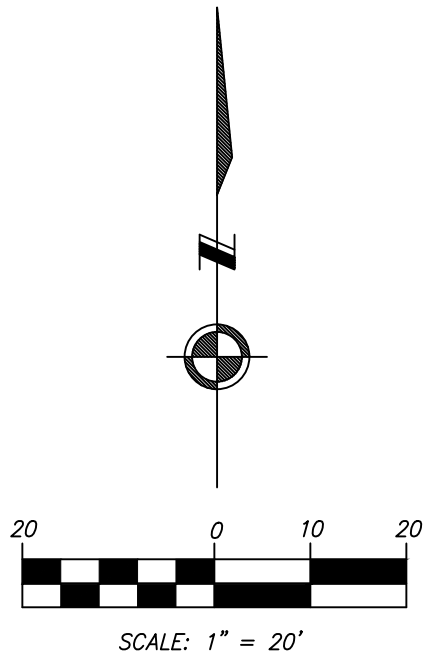
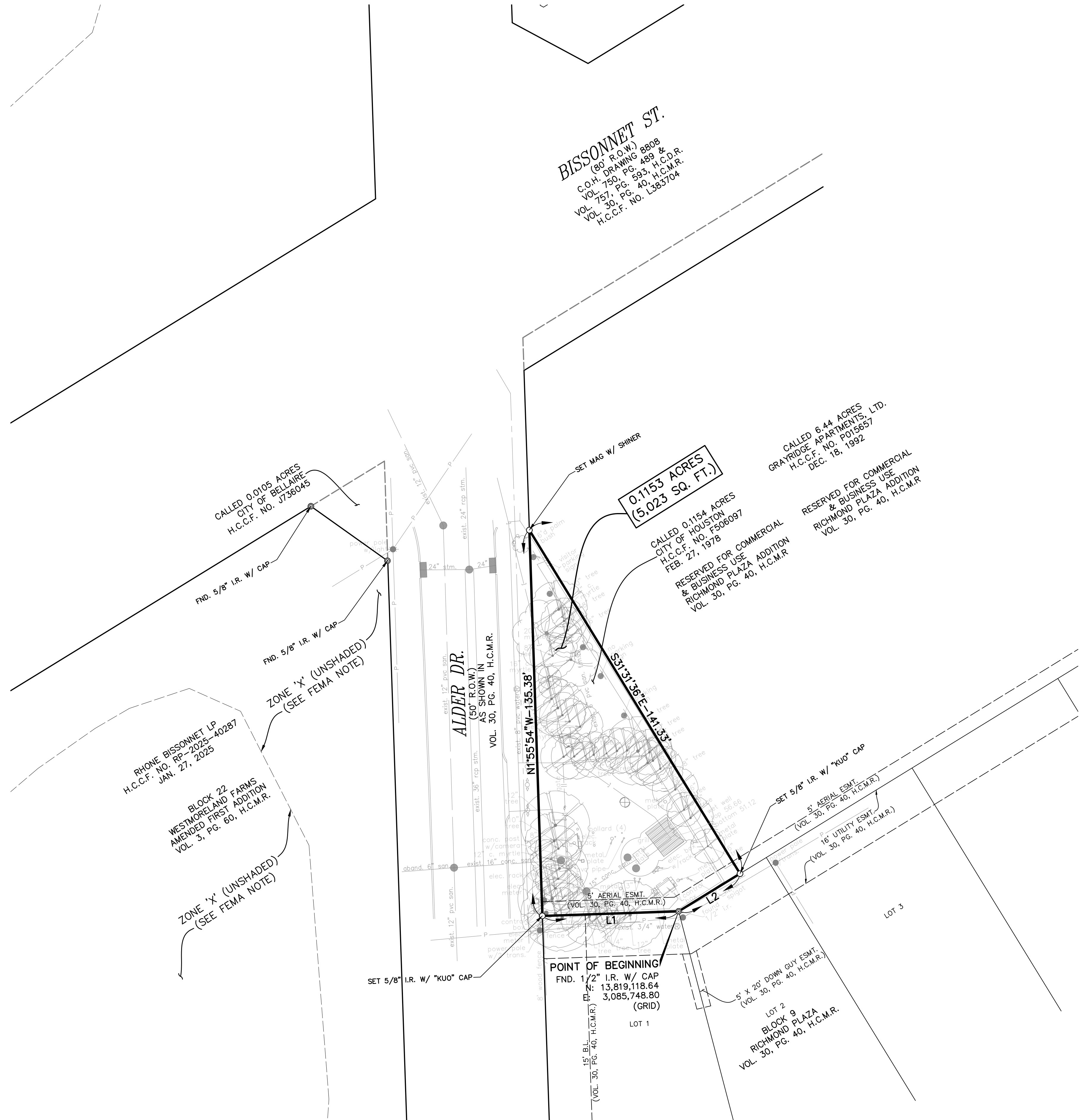
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SURVEY CONTROL MAP - SADDLE BROOK LIFT STATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS SHOWN	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 24 OF 291	

DWG. NO.
SV-8

WILLIAM J. BROWN SURVEY, ABSTRACT NO. 132



VICINITY MAP KEYMAP: 531 K
N.T.S.

NOTES:

1. THIS MAP WAS PREPARED WITH THE BENEFIT OF A CURRENT LIMITED TITLE CERTIFICATE PREPARED BY COURTHOUSE SPECIALISTS; JOB NO. 2545771A-6; EFFECTIVE DATE: JULY 15, 2025.
2. ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.
3. THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.
4. EXISTING UNDERGROUND UTILITY INFORMATION (TYPE, SIZE & OWNERSHIP) ARE SHOWN APPROXIMATELY BASED ON THE AVAILABLE RECORD DRAWINGS AND FIELD VERIFICATION (WHERE FEASIBLE) WITHOUT PROBING AND EXCAVATION. NO WARRANTY IS MADE AS TO THE ACCURACY OR COMPLETENESS OF UTILITY LOCATION SHOWN ON THE DRAWING. CAUTION SHOULD BE EXERCISED WHEN EXCAVATING OR BORE AND JACKING IN THE VICINITY OF UNDERGROUND UTILITIES. OWNERS OF THE UTILITIES SHOULD BE NOTIFIED PRIOR SUCH ACTIVITIES. CALL UTILITY COORDINATING COMMITTEE AT 713-223-4567, AT LEAST 48 HOURS PRIOR TO EXCAVATING IN THE STREET RIGHT-OF-WAY.
5. A METES AND BOUNDS DESCRIPTION OF EVEN DATE HAS BEEN PREPARED IN ASSOCIATION WITH THIS EXHIBIT.

ABBREVIATIONS

R--PROPERTY LINE
Z--LAND HOOK
A.E.--AERIAL EASEMENT
B.L.--BUILDING LINE
DR--DRIVE
FND--FOUND
F.C. NO.--FILM CODE NUMBER
H.C.C.F. NO.--HARRIS COUNTY CLERK'S FILE NUMBER
H.C.D.R.--HARRIS COUNTY DEED RECORDS
H.C.M.R.--HARRIS COUNTY MAP RECORDS
O.P.R.O.R.P.H.C.--OFFICIAL PUBLIC RECORDS OF REAL PROPERTY HARRIS COUNTY
I.P.--IRON PIPE
I.R.--IRON ROD
RD--ROAD
R.O.W.--RIGHT OF WAY
S.S.E.--SANITARY SEWER EASEMENT
STM. S.E.--STORM SEWER EASEMENT
U.E.--UTILITY EASEMENT
VOL., PG.--VOLUME AND PAGE
W.L.E.--WATER LINE EASEMENT

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S88°04'06"W	47.83'
L2	S58°27'26"W	25.27'

LEGEND:

- | | |
|-----------------------------|---------------------|
| //// ASPHALT SYMBOL | ● MANHOLE |
| ■ B OR BB INLET | □ PLANTER |
| ● C INLET | ● POWER POLE |
| ⊙ CLEANOUT | ● POWER POLE W/LT. |
| ⊖ DOWN GUY | ○ SIGN |
| ● E INLET | ○ SIGNAL POLE |
| ● ELEC MANHOLE | ☆ STREET LIGHT |
| ● FIRE HYDRANT | ⊙ TREE |
| ○ GAS METER | ⊙ TREE STUMP |
| ⌵ GAS VALVE | ⊙ TREE-CREEP MYRTLE |
| ⊞ GRATE INLET | ⌵ TREE-PINE |
| ⊞ GRATE INLET | ● WATER METER |
| □ MAIL BOX | ● WATER VALVE |
| ⊞ BRUSH ROW | |
| --- DITCH/SWALE CENTER LINE | |
| --- FENCE | |
| --- GAS LINE | |
| --- GUARD RAIL | |
| --- HEDGE ROW OR TREE LINE | |
| --- HIGH BANK | |
| --- OVERHEAD POWER LINE | |
| --- SANITARY SEWER LINE | |
| --- STORM LINE | |
| --- TELEPHONE LINE | |
| --- UG STREET LIGHT CABLE | |
| --- WATER LINE | |

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY MADE ON THE GROUND UNDER MY SUPERVISION ON AUGUST, 2025.

THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1A CONDITION 3, LAND TITLE SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.

Kutubul A. M. Mainuddin
KUTUBUL A. M. MAINUDDIN, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
STATE OF TEXAS, NO. 6404



FEMA NOTE:

ACCORDING TO F.I.R.M MAP NUMBER 48201C0855L FOR HARRIS COUNTY, TEXAS AND INCORPORATED AREAS (MAP REVISED JUNE 18, 2007), THE SUBJECT AREA IS LOCATED IN:

1. ZONE 'X' (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
2. ZONE 'AE' (SHADED), SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT; BASE FLOOD ELEVATION DETERMINED.

ALDER LIFT STATION
0.1153 ACRES (5,023 SQ. FT.)
BEING ALL OF A CALLED 0.1154 ACRES
TRACT RECORDED UNDER
H.C.C.F. NO. F506097
SITUATED IN THE WILLIAM J. BROWN
SURVEY, A-132
HARRIS COUNTY, TEXAS

OWNER: CITY OF HOUSTON



10300 Westoffice Dr., Suite 800
Houston, Texas 77042
Tel: 713-975-0709 Fax: 713-975-0920
www.kuasassociates.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600



HOUSTON PUBLIC WORKS

APPROVAL DATE: _____

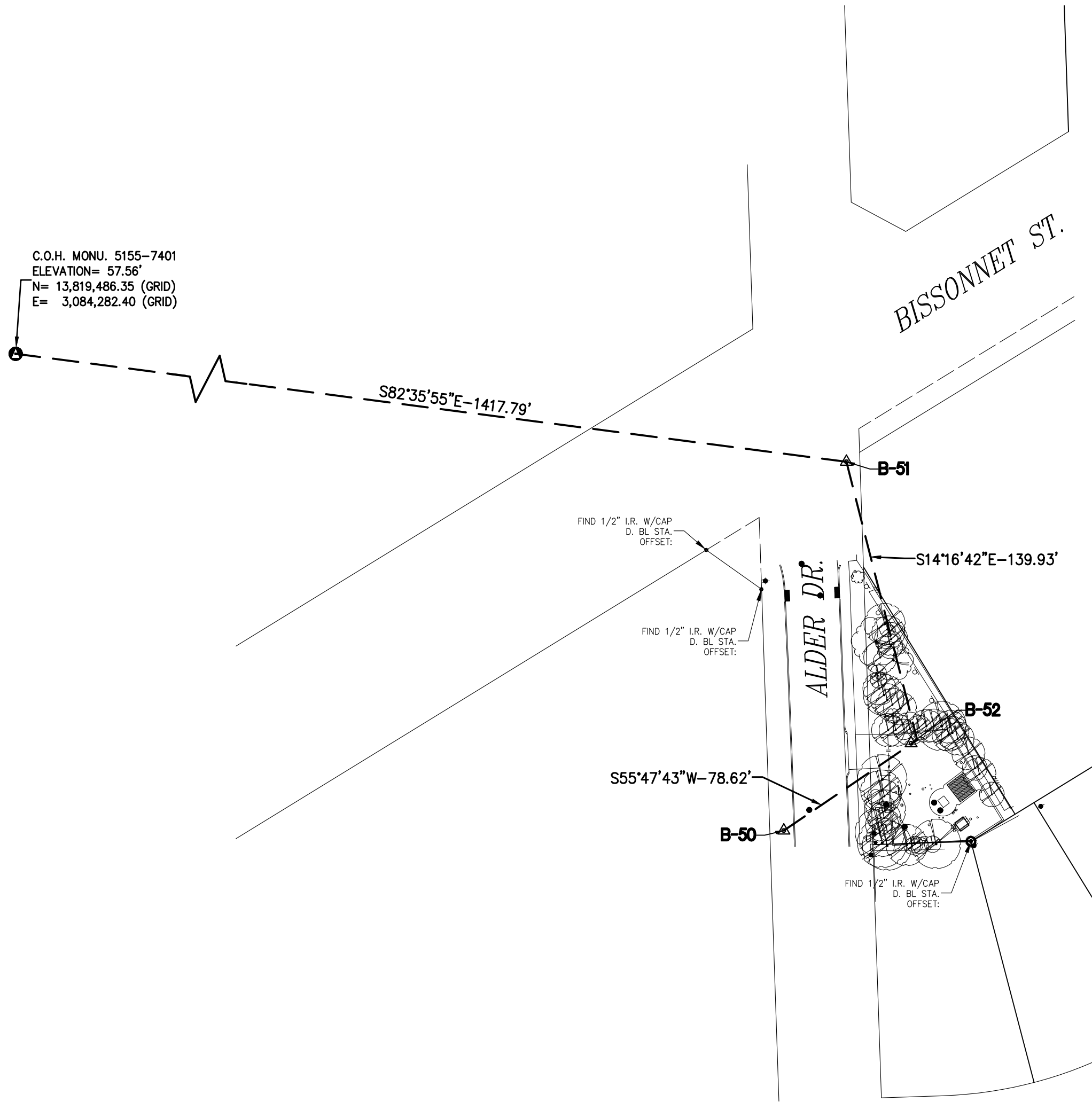
SURVEY SECTION RIGHT OF WAY SECTION

KEYMAP NO: 531 K FACET NO. 5154 A

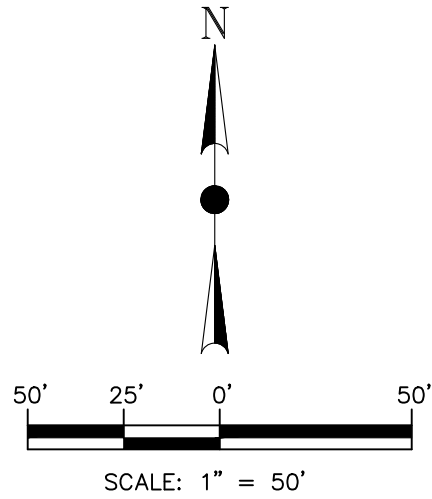
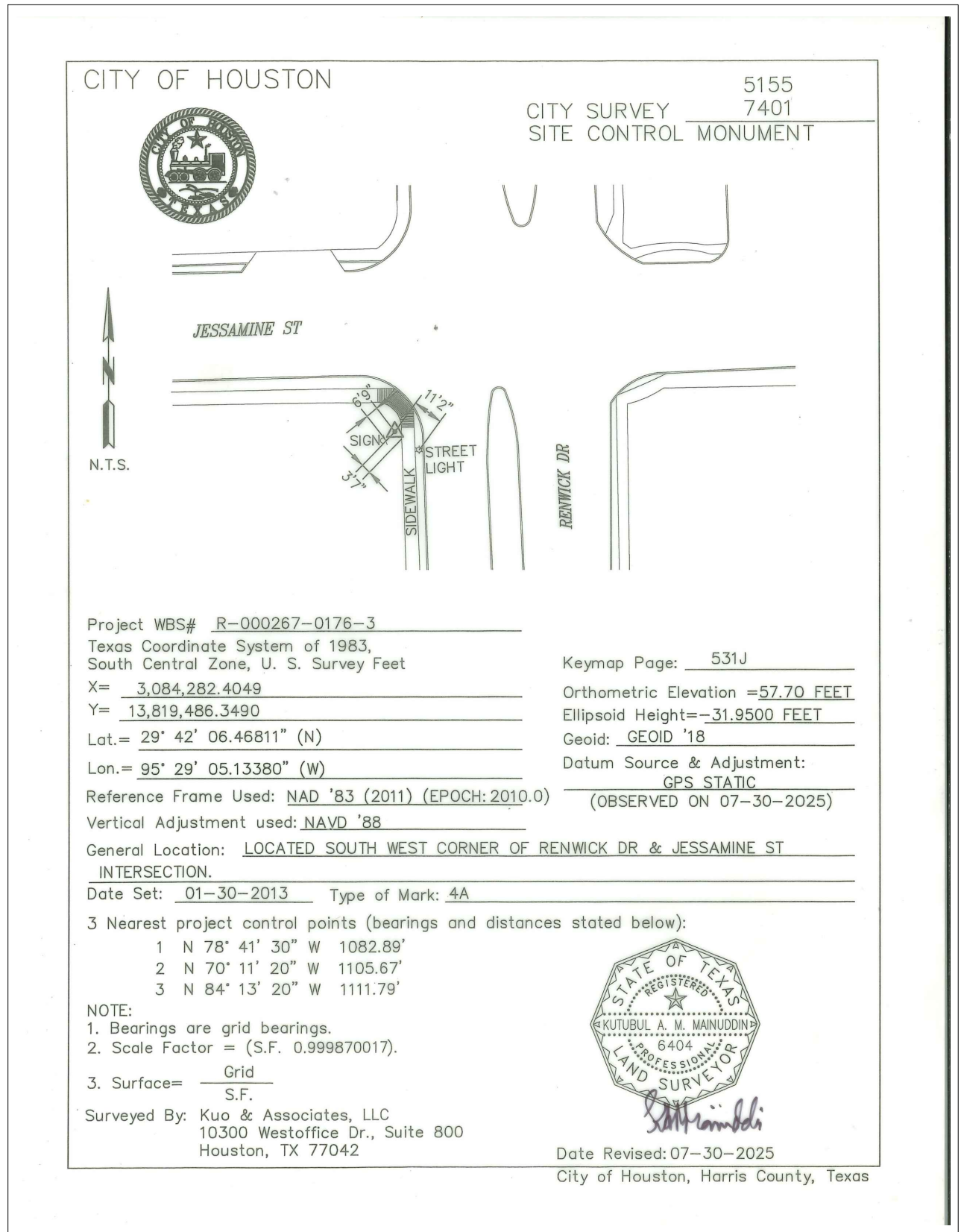
PARCEL NO.	
JOB NO.	
WBS NO. R-00267-0176-3	
ILMS NO.	
SHEET 25 OF 291	

DWG. NO.
SV-9

SIMS BAYOU WWTP - SLUDGE PROCESSING FACILITY
3. L:\PROJECTS\01009 (Coh LS R-000267-0176-3 LJA)\1-0 SURVEY-DESIGN Production\01_SURVEY\4-01-08 Dwg Working\SCM Alder LS\SCM-01009-Alder LS.dwg Apr 23, 2026 - 2:38pm silu



SURVEY BASELINE POINTS DATA (TEMPORARY BENCHMARK)						
POINT No.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION	DESCRIPTION
B-50	13,820,920.35	3,086,058.74	13,819,123.87	3,085,657.61	54.64'	SET 1/2" I.R. W/CAP
B-51	13,821,100.15	3,086,089.25	13,819,303.64	3,085,688.12	54.13'	SET 'X' CUT ON CONC.
B-52	13,820,962.90	3,086,120.77	13,819,166.41	3,085,719.63	55.30'	SET 'X' CUT ON CONC.



BENCHMARK:
CITY OF HOUSTON MONUMENT 5155-7401, A BRASS DISK IN CONCRETE, LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF JESSAMINE ST AND RENWICK DR.
ELEV. 57.56 FEET NAVD 1988 (GEOID '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 30, 2025.

VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040735) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.14'.
NAVD 1988, 2001 ADJ. ELEVATION
=NAVD 1988 (GEOID '18) ELEVATION + 0.14 FT

NOTE:
ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.
THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.

- LEGEND:**
- B-X SURVEY CONTROL POINT NUMBER
 - C-X DESIGN BASELINE POINT NUMBER
 - ▲ SURVEY CONTROL POINT
 - DESIGN BASELINE POINT
 - CITY OF HOUSTON MONUMENT
 - S. BL. SURVEY BASELINE

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

KUO & ASSOCIATES
ENGINEERING + SURVEYING
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Tel: 713-975-8189, Fax: 713-975-6020, www.kuasurveys.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600

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RICARDO A. VAZQUEZ, R.P.L.S.
TEXAS REG. NO.: 4902
ON 04/23/2026
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

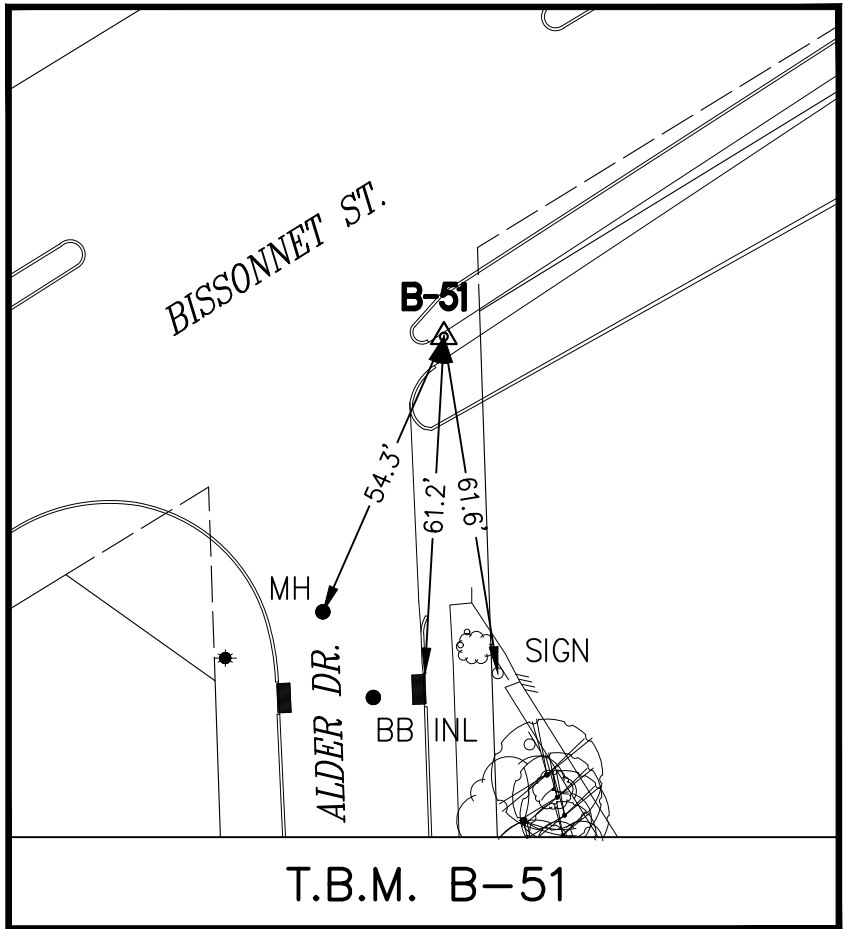
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SURVEY CONTROL MAP - ALDER LIFT STATION

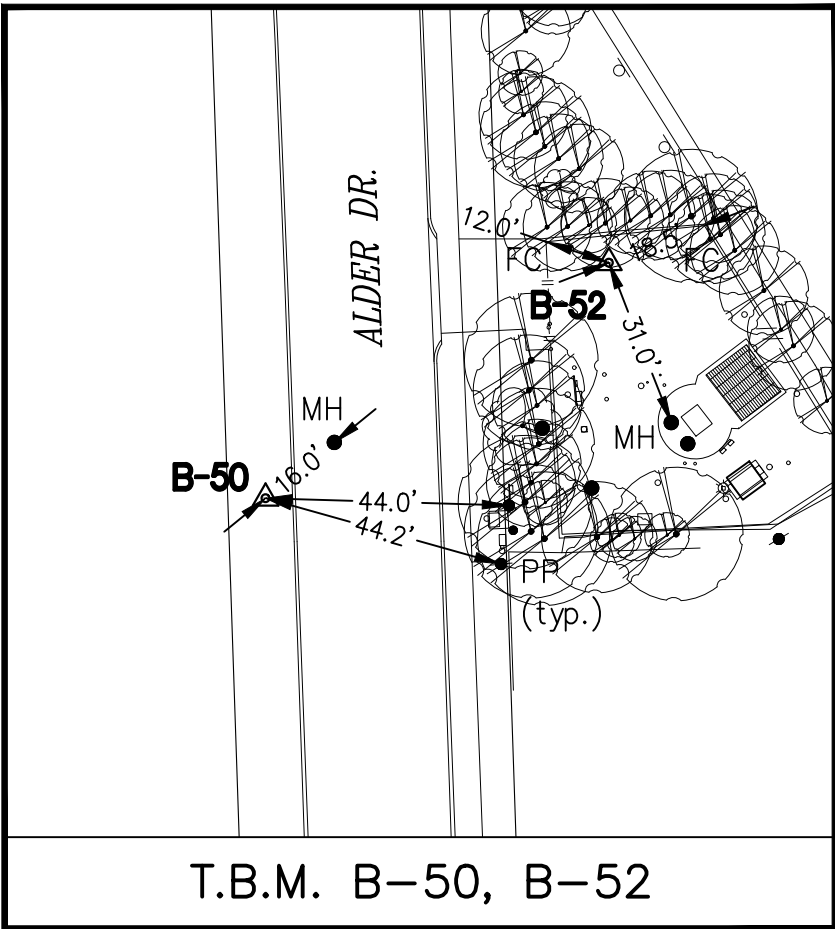
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS SHOWN	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 26 OF 291	

DWG. NO.
SV-10

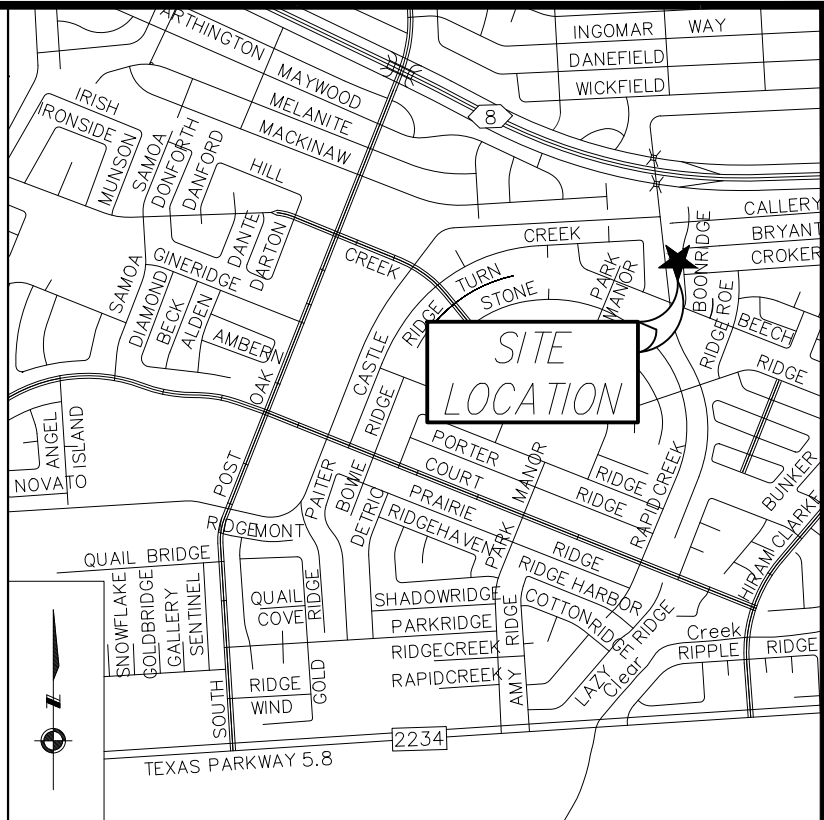
- EXIST. TOPOGRAPHIC LEGEND**
- | | |
|--------------------|------------------------------|
| /// ASPHALT SYMBOL | ● PLANTER |
| ■ B OR BB INLET | ● POWER POLE |
| ○ C INLET | ● POWER POLE W/LT. |
| □ CLEANOUT | ● SIGN |
| ▣ brick column | ● SIGNAL POLE |
| ⋈ DOWN GUY | ● SPRINKLER VALVE |
| ● E INLET | ● SPRINKLER HEAD |
| ● ELEC MANHOLE | ● STREET LIGHT/FLOOD LIGHT |
| ● FIRE HYDRANT | ● STREET LIGHT/PARKING LIGHT |
| ○ GAS METER | ● TREE |
| ⋈ GAS VALVE | ● TREE STUMP |
| ⋈ GATE | ● TREE-CREPE MYRTLE |
| ▣ GRATE INLET | ● TREE-PINE |
| ⊕ GRATE INLET | ● WATER METER |
| ○ MAIL BOX | ● WATER VALVE |
| ● STORM MANHOLE | ● IRRIGATION CONTROL VALVE |
| ● SANITARY MANHOLE | |
- ABBREVIATIONS**
- BC - BACK OF CURB
EA - EDGE OF ASPHALT
EC - EDGE OF CONCRETE
EG - EDGE OF GRAVEL
FH - FIRE HYDRANT
FC - FENCE CORNER
LT - LIGHT POLE
MB - MAIL BOX
MH - MANHOLE
PP - POWER POLE
PP/LIGHT - POWER POLE W/LIGHT
STLT - STREET LIGHT
TRLT - TRAFFIC LIGHT
WM - WATER METER



N.T.S.



N.T.S.



NOTES: N.T.S.

- FEMA NOTE:

2. ZONE 'X' (SHADED), AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	N04°11'54"W	33.23' (33.06')
L2	N86°01'46"E	111.17' (110.90')
L3	S87°29'04"W	110.24' (110.02')

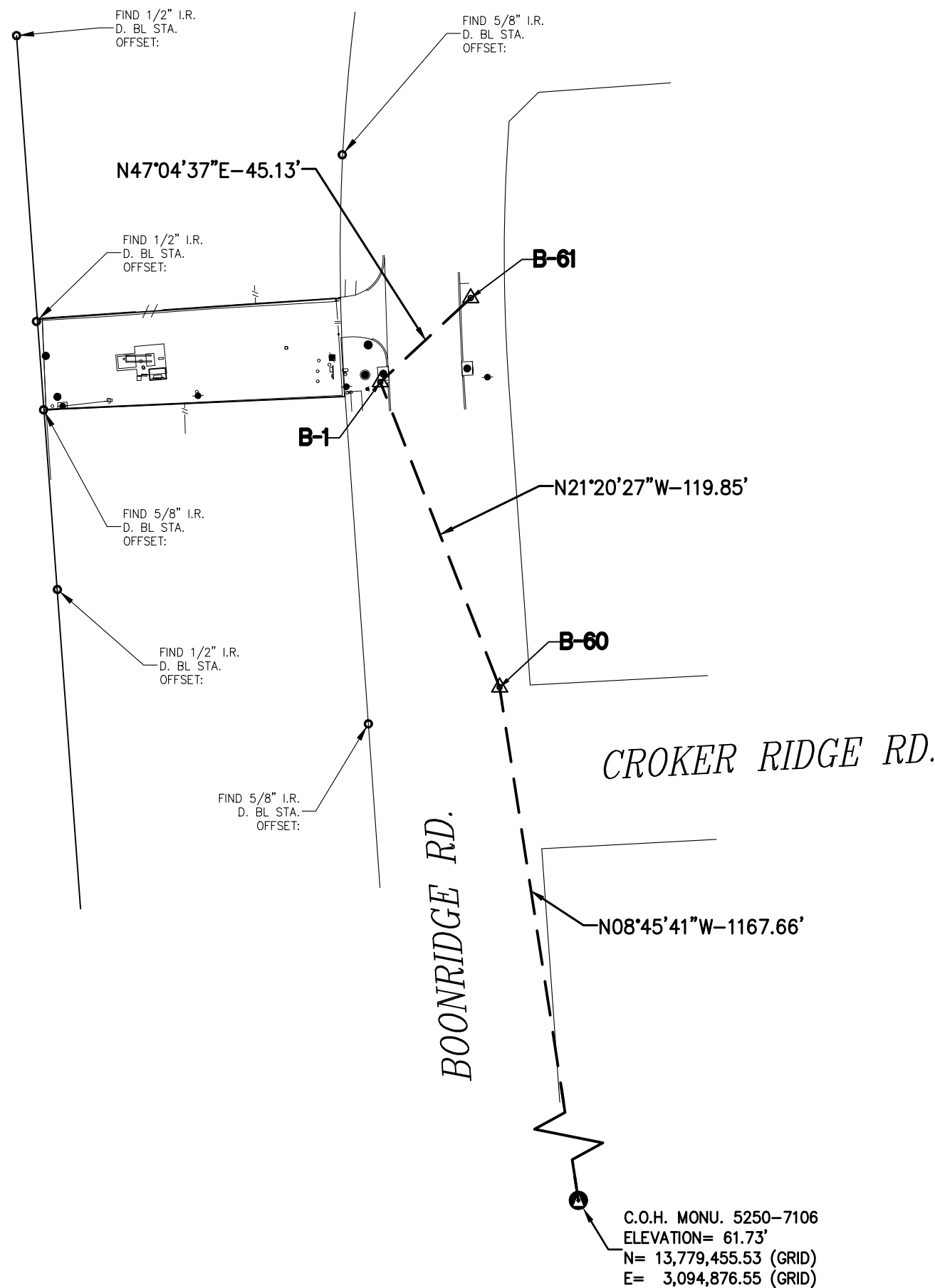
CURVE TABLE				
CURVE	ARC LENGTH	RADIUS	DELTA	CHORD DIRECTION
C1	36.04' (34.99')	730.00'	02°49'44"	S02°38'41"E-36.04'

	ASPHALT SYMBOL		MANHOLE
	B OR BB INLET		PLANTER
	C INLET		POWER POLE
	CLEANOUT		POWER POLE W/LT.
	DOWN GUY		SIGN
	E INLET		SIGNAL POLE
	ELEC MANHOLE		STREET LIGHT
	FIRE HYDRANT		TREE
	GAS METER		TREE STUMP
	GAS VALVE		TREE-CREPE MYRTLE
	GRATE INLET		TREE-PINE
	GRATE INLET		WATER METER
	MAIL BOX		WATER VALVE
	BRUSH ROW		
	DITCH/SWALE CENTER LINE		
	FENCE		
	GAS LINE		
	GUARD RAIL		
	HEDGE ROW OR TREE LINE		
	HIGH BANK		
	OVERHEAD POWER LINE		
	SANITARY SEWER LINE		
	STORM LINE		
	TELEPHONE LINE		
	UG STREET LIGHT CABLE		
	WATER LINE		

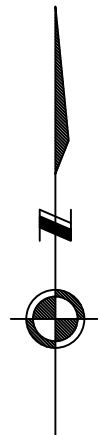
THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1A CONDITION 3, LAND TITLE SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.

DWG. NO.	WBS NO.
SV-11	ILMS NO.
	SHEET 27 OF 291

120' FORT BEND COUNTY
DRAINAGE RIGHT-OF-WAY



SURVEY BASELINE POINTS DATA (TEMPORARY BENCHMARK)						
POINT No.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION	DESCRIPTION
B-1	13,782,512.42	3,095,057.55	13,780,720.92	3,094,655.25	61.34'	SET 'X' CUT ON BOX
B-60	13,782,400.78	3,095,101.17	13,780,609.30	3,094,698.86	61.83'	SET 1/2" I.R. W/CAP
B-61	13,782,543.15	3,095,090.60	13,780,751.65	3,094,688.29	62.21'	SET 5/8" I.R. W/CAP



EXIST. TOPOGRAPHIC LEGEND

- /// ASPHALT SYMBOL

B OR BB INLET

BUSH

C INLET

CLEANOUT

brick column

DOWN GUY

E INLET

ELEC MANHOLE

FIRE HYDRANT

GAS METER

GAS VALVE

GATE

GRATE INLET

GRATE INLET

MAIL BOX

STORM MANHOLE

SANITARY MANHOLE
- PLANTER

POWER POLE

POWER POLE W/LT.

SIGN

SIGNAL POLE

SPRINKLER VALVE

SPRINKLER HEAD

STREET LIGHT/FLOOD LIGHT

STREET LIGHT/PARKING LIGHT

TREE

TREE STUMP

TREE-CREPE MYRTLE

TREE-PINE

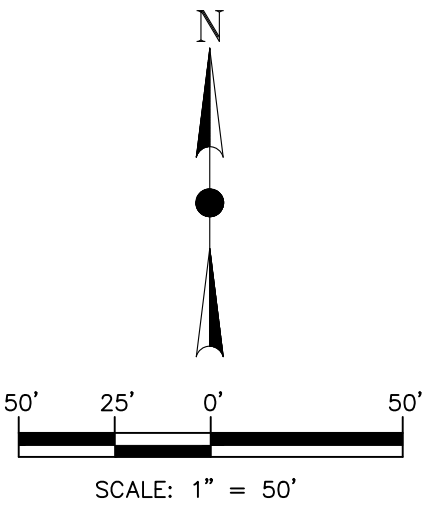
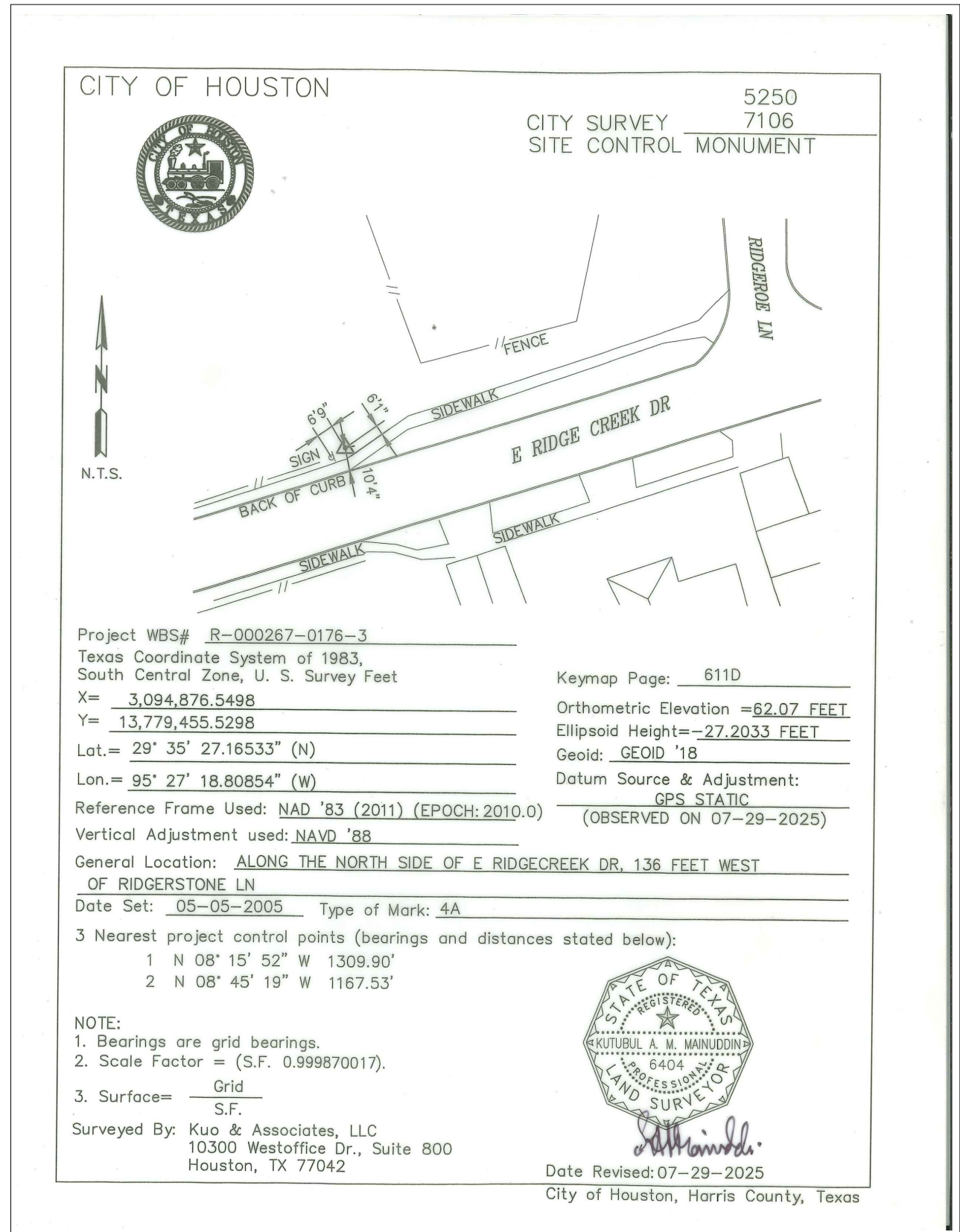
WATER METER

WATER VALVE

IRRIGATION CONTROL VALVE

ABBREVIATIONS

- BC - BACK OF CURB
- EA - EDGE OF ASPHALT
- EC - EDGE OF CONCRETE
- EG - EDGE OF GRAVEL
- FH - FIRE HYDRANT
- FC - FENCE CORNER
- LT - LIGHT POLE
- MB - MAIL BOX
- MH - MANHOLE
- PP - POWER POLE
- PP/LIGHT - POWER POLE W/LIGHT
- STLT - STREET LIGHT
- TRLT - TRAFFIC LIGHT
- WM - WATER METER



BENCHMARK:

CITY OF HOUSTON MONUMENT 5250-7106, A BRASS DISK IN CONCRETE, LOCATED ON THE NORTH SIDE OF EAST RIDGECREEK DR APPROXIMATELY 135 FEET WEST FROM THE INTERSECTION OF RIDGEROE LN.

ELEV. 61.73 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 29, 2025.

NOTE:

THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 010220) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.34'.

NAVD 1988, 2001 ADJ. ELEVATION
=NAVD 1988 (GEOID '18) ELEVATION + 0.34 FT

NOTE:

ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. ALL DISTANCES ARE IN SURFACE.

THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.

LEGEND:

- B-X SURVEY CONTROL POINT NUMBER
- C-X DESIGN BASELINE POINT NUMBER
- ▲ SURVEY CONTROL POINT
- DESIGN BASELINE POINT
- ⊙ CITY OF HOUSTON MONUMENT
- S. BL. SURVEY BASELINE - - - -

ISSUE

DATE

DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

KUO & ASSOCIATES

ENGINEERING + SURVEYING

10300 Westoffice Dr., Suite 800, Houston, Texas 77042
Tel: 713-975-6169, Fax: 713-975-6020, www.kuasurveys.com
TBPELS Engineering Firm Reg. No. F-4578
TBPELS Surveying Firm Reg. No. 10075600

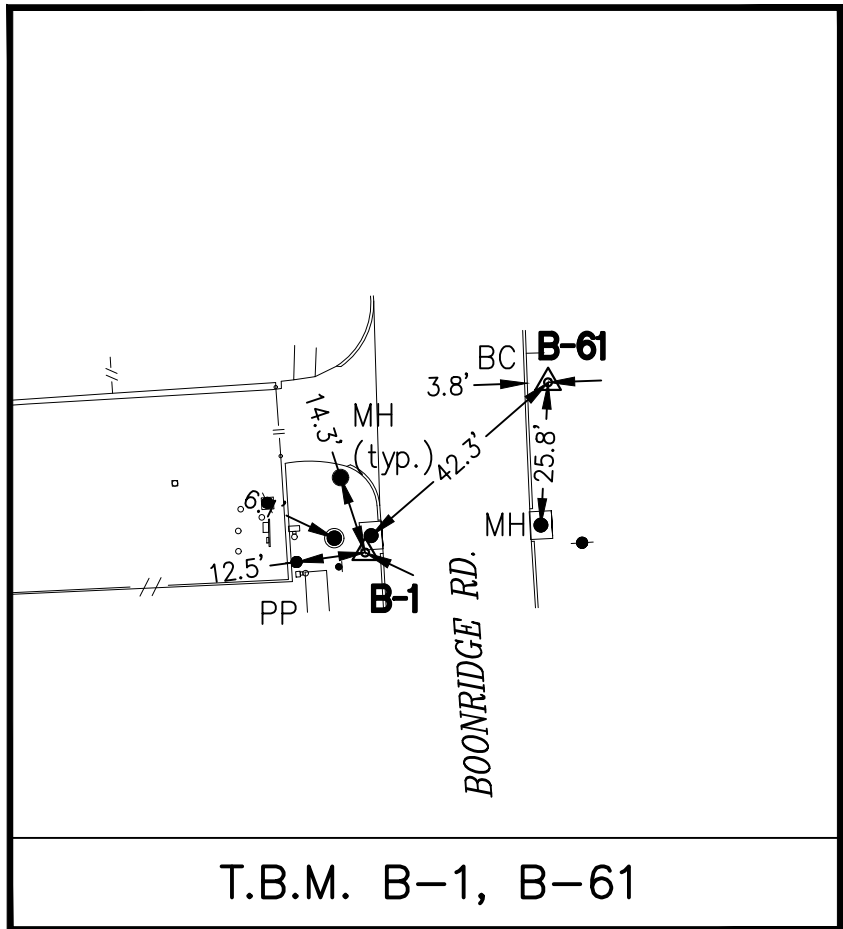
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF

RICARDO A. VAZQUEZ, R.P.L.S.
TEXAS REG. NO.: 4902

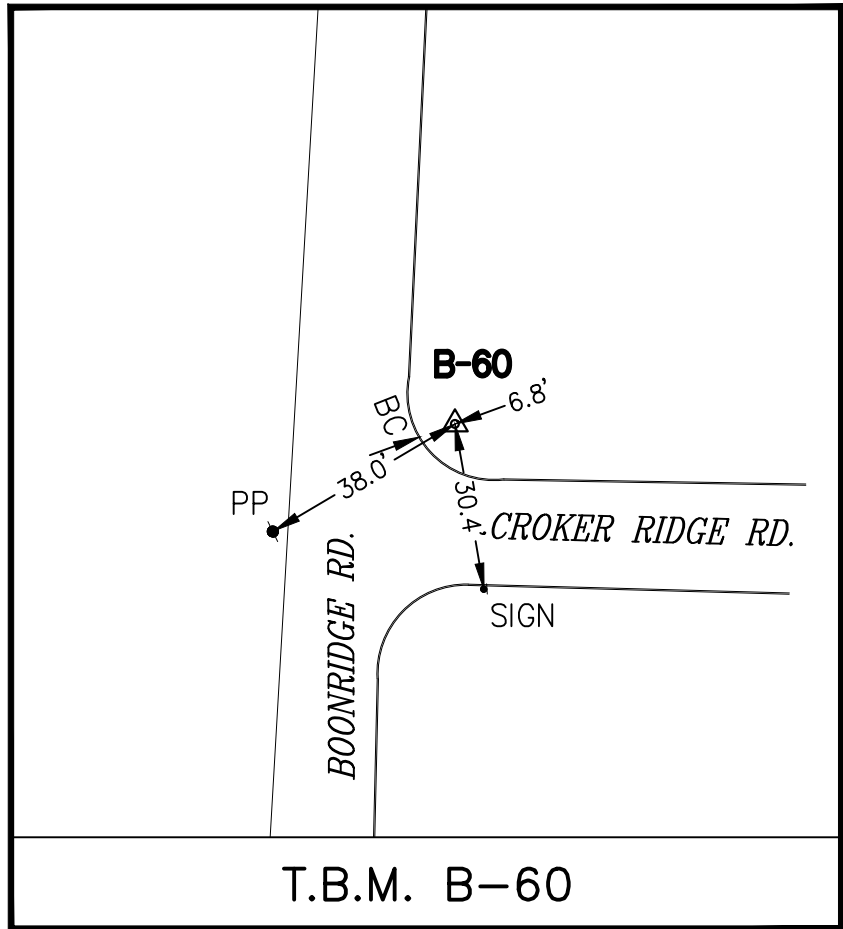
ON 04/23/2026
IT IS NOT TO BE USED FOR PERMIT, BIDDING OR CONSTRUCTION PURPOSES

SURVEYED BY: KUO & ASSOC.

FB NO. P-6409



N.T.S.

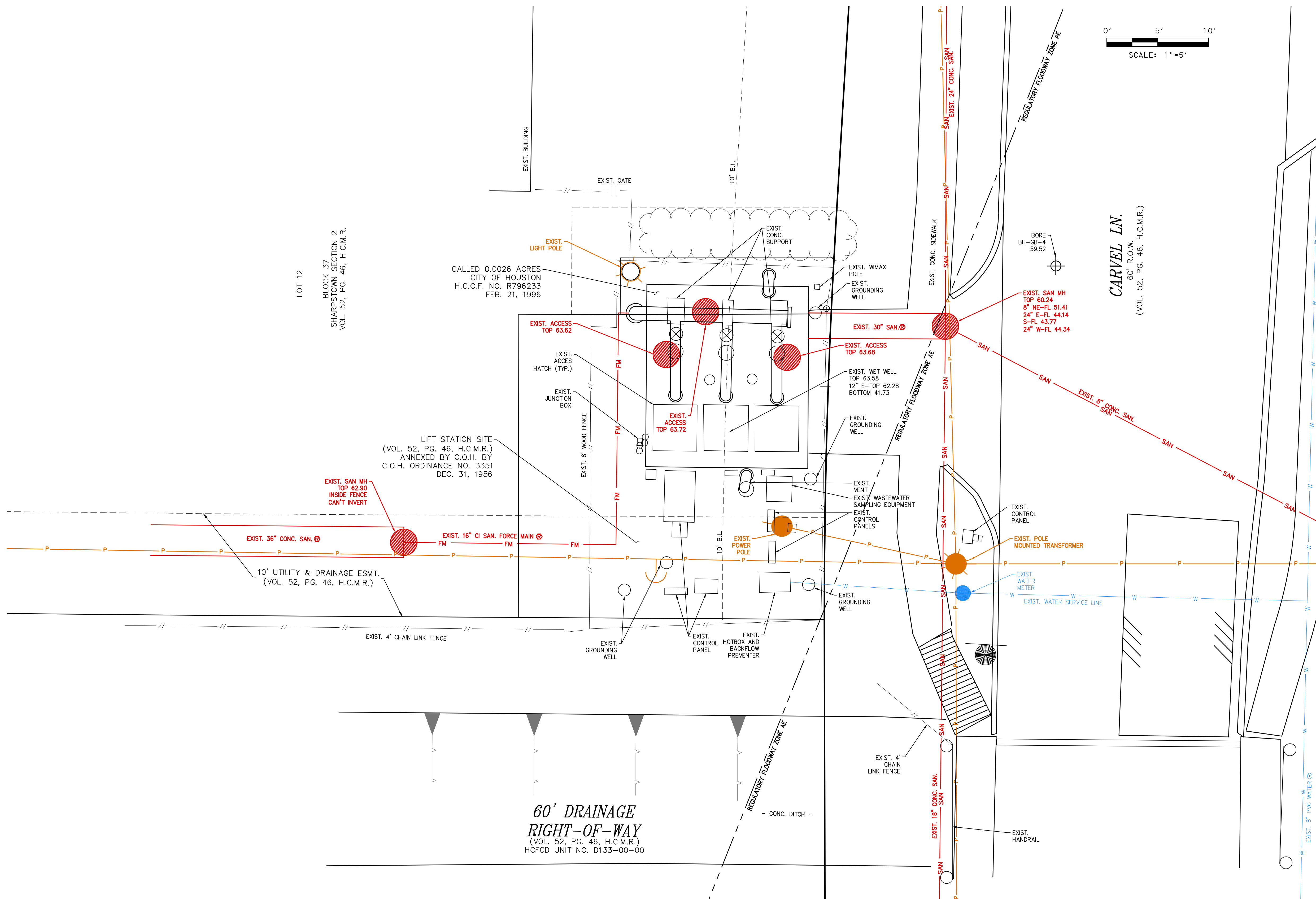


N.T.S.

DWG. NO.
SV-12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS SHOWN	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 28 OF 291	

BH ID	SURVEY POINT NO.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION (FT)
CARVEL LS						
BH—GB—4	42810	13819238.8300	3078333.7800	13817442.5600	3077933.6500	59.5200



BENCHMARK:
 CITY OF HOUSTON MONUMENT ----- (ALSO FLOODPLAIN
 REFERENCE MARK 040725) IS A BRASS DISK ON SOUTH SIDEWALK
 ON CARVEL LN BRIDGE, LOCATED APPROXIMATELY 170 FEET WEST
 FROM THE INTERSECTION OF BINTLIF DR
 ELEV. 59.89 FEET NAVD 1988 (GEOD '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE
 TO THE CORRS DATED SEPTEMBER 2, 2025.
I.B.M. #11:
 SET "X" CUT ON CONCRETE SIDEWALK AT NORTH SIDE OF CARVEL LN
 ACROSS THE DRIVEWAY TO CARVEL LIFT STATION
 ELEV. 59.86 FEET
VERTICAL DATUM ADJUSTMENT:
 THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE
 MARKS (RM 040725) PUBLISHED DATUM NAVD 1988, 2001
 ADJUSTMENT AND DATUM NAVD 1988, (GEOD '18) IS 0.43'.
 NAVD 1988, 2001 ADJ. ELEVATION = NAVD 1988 (GEOD '18)
 ELEVATION + 0.43 FT
HORIZONTAL DATUM:
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 PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE
 COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE
 CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF
 0.998970017.

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.	

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

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc. 
3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026
--	---

SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409	IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
---	---

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION EXISTING SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 29 OF 291	

NOTES:

- SEE DRAWING CL-C4 FOR LIFT STATION PLAN AND PROFILE DEMOLITION.
- CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES AND THE DISPOSAL FACILITY.
- NOTIFY THE CITY 48 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE THE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE
- CITY TO HAVE THE RIGHT OF FIRST REFUSAL. DELIVER SALVAGE ITEMS TO THE CITY OF HOUSTON FACILITY WITHIN CITY, OTHER ITEMS TO BE DISPOSED OF BY THE CONTRACTOR AT THE EXPENSE OF THE CONTRACTOR.
- REFER TO LEAD AND ASBESTOS MATERIAL TESTING REPORTS FOR ANY SPECIAL HANDLING AND/OR DISPOSAL REQUIREMENTS.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PIPING, VALVES, PUMPS AND MATERIALS IN WET WELL UNLESS OTHERWISE STATED.
- PROVIDE TEMPORARY PLUG FOR THE EXISTING 30 INCH SANITARY SEWER LEADING TO THE LIFT STATION DURING DEMOLITION/CONSTRUCTION. CONTRACTOR TO FIELD VERIFY INFLUENT SANITARY SEWER SIZE
- EXISTING UTILITY LOCATIONS WERE DEVELOPED FROM BEST INFORMATION AVAILABLE. CONTRACTOR IS TO FIELD VERIFY EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. ALL SHOP DRAWINGS USE TO HAVE FIELD VERIFIED FACILITY, STRUCTURAL, AND UTILITY LOCATIONS INDICATED.
- CONTRACTOR SHALL NOT BEGIN DEMOLITION OF LIFT STATION OR SANITARY SEWER UNTIL DIVERSION PUMPING IS OPERATIONAL. SEE SPECIFICATION 01506 FOR DIVERSION PUMPING REQUIREMENTS, INCLUDING CAPACITY.
- CONTRACTOR SHALL PROTECT PAVEMENT, INCLUDING DRIVEWAY, NOT SHOWN TO BE REMOVED. RESTORE TO EQUAL OR BETTER CONDITION IF DAMAGED.
- CONTRACTOR TO COORDINATE WITH THE CITY OF HOUSTON FOR REMOVAL OF THE WASTEWATER SAMPLING EQUIPMENT CURRENTLY ON SITE
- THE SOUND PRODUCED BY THE ERECTION, EXCAVATION, CONSTRUCTION, OR DEMOLITION OF ANY BUILDING OR STRUCTURE, INCLUDING THE USE OF ANY NECESSARY TOOLS OR EQUIPMENT, CONDUCTED BETWEEN THE HOURS OF 7 A.M. AND 8 P.M., WILL NOT PRODUCE A SOUND EXCEEDING 85 DB(A) WHEN MEASURED FROM THE PROPERTY LINE OF THE RESIDENTIAL PROPERTY WHEN THE SOUND IS BEING RECEIVED.

LEGEND

 ITEM TO BE DEMOLISHED OR REMOVED

LOT 12

BLOCK 37
SHARPSTOWN SECTION 2
VOL. 52, PG. 46, H.C.M.R.

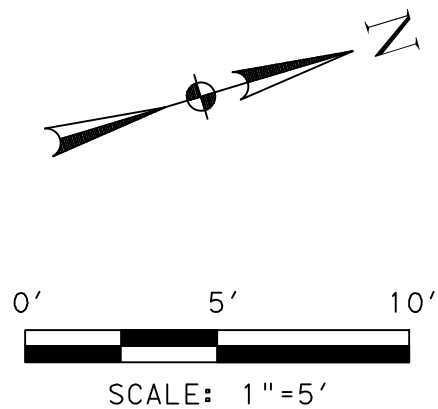
LIFT STATION SITE
(VOL. 52, PG. 46, H.C.M.R.)
ANNEXED BY C.O.H. BY
C.O.H. ORDINANCE NO. 3351
DEC. 31, 1956

10' UTILITY & DRAINAGE ESMT.
(VOL. 52, PG. 46, H.C.M.R.)

REMOVE EXIST. FORCE MAIN
TO 1'-0" FROM PROPERTY LINE,
OR LOCATION OF NEW FENCE
LINE. CONTRACTOR TO FIELD
VERIFY LOCATION OF EXISTING
FORCE MAIN TO TIE INTO

REMOVE EXIST. CONTROL PANELS
REMOVE EXIST. HOT BOX AND
BACKFLOW PREVENTER

60' DRAINAGE
RIGHT-OF-WAY
(VOL. 52, PG. 46, H.C.M.R.)
HCFCD UNIT NO. D133-00-00



CARVEL LN.
60' R.O.W.
(VOL. 52, PG. 46, H.C.M.R.)

BORE
BH-GB-4
59.52

BENCHMARK:
CITY OF HOUSTON MONUMENT _____ (ALSO FLOODPLAIN
REFERENCE MARK 040725) IS A BRASS DISK ON SOUTH SIDEWALK
ON CARVEL LN BRIDGE, LOCATED APPROXIMATELY 170 FEET WEST
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ELEV. 59.89 FEET NAVD 1988 (GEOD '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE
TO THE CORS DATED SEPTEMBER 2, 2025.

T.B.M. #11:
SET 'X' CUT ON CONCRETE SIDEWALK AT NORTH SIDE OF CARVEL LN
ACROSS THE DRIVEWAY TO CARVEL LIFT STATION

ELEV. 59.86 FEET

VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE
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ELEVATION + 0.43 FT

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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 to 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.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE
PURPOSE OF INTERIM REVIEW UNDER THE
AUTHORITY

OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

IT IS NOT TO BE ISSUED FOR CONSTRUCTION,
BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

**CARVEL LANE LIFT STATION
SITE DEMOLITION PLAN VIEW**

WBS NUMBER

R-000267-0176-3

SCALE:

1"=5'

CITY OF HOUSTON PM

NAWARAJ PANTA, P.E.

SHEET NO. 30 OF 291

CL-C2



NOTES

1. CONTRACTOR TO REFER TO SHEETS CL-C2 AND CL-C4 FOR DEMOLITION DETAILS
2. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS

LEGEND



ITEM TO BE DEMOLISHED
OR REMOVED

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
---	--	--

SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026
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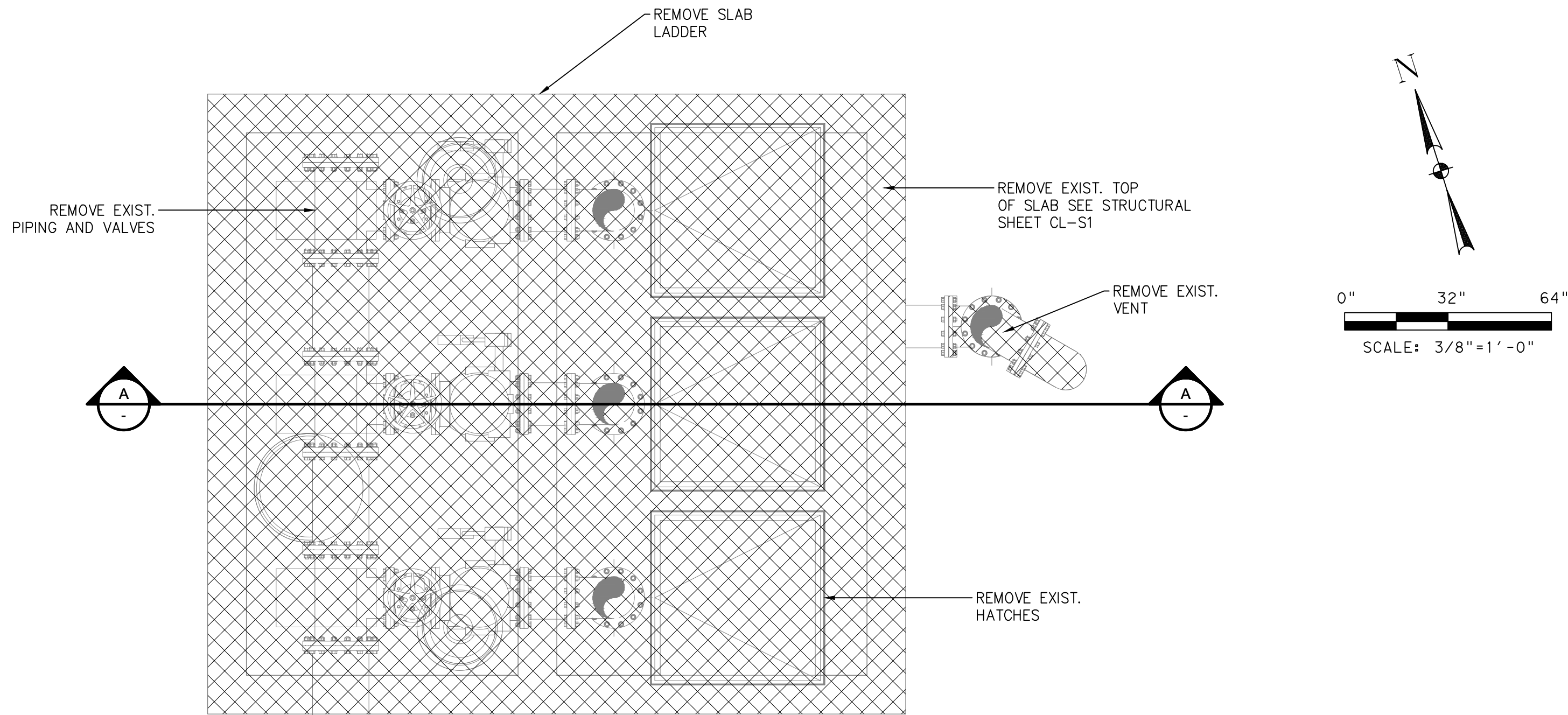
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
--

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
--

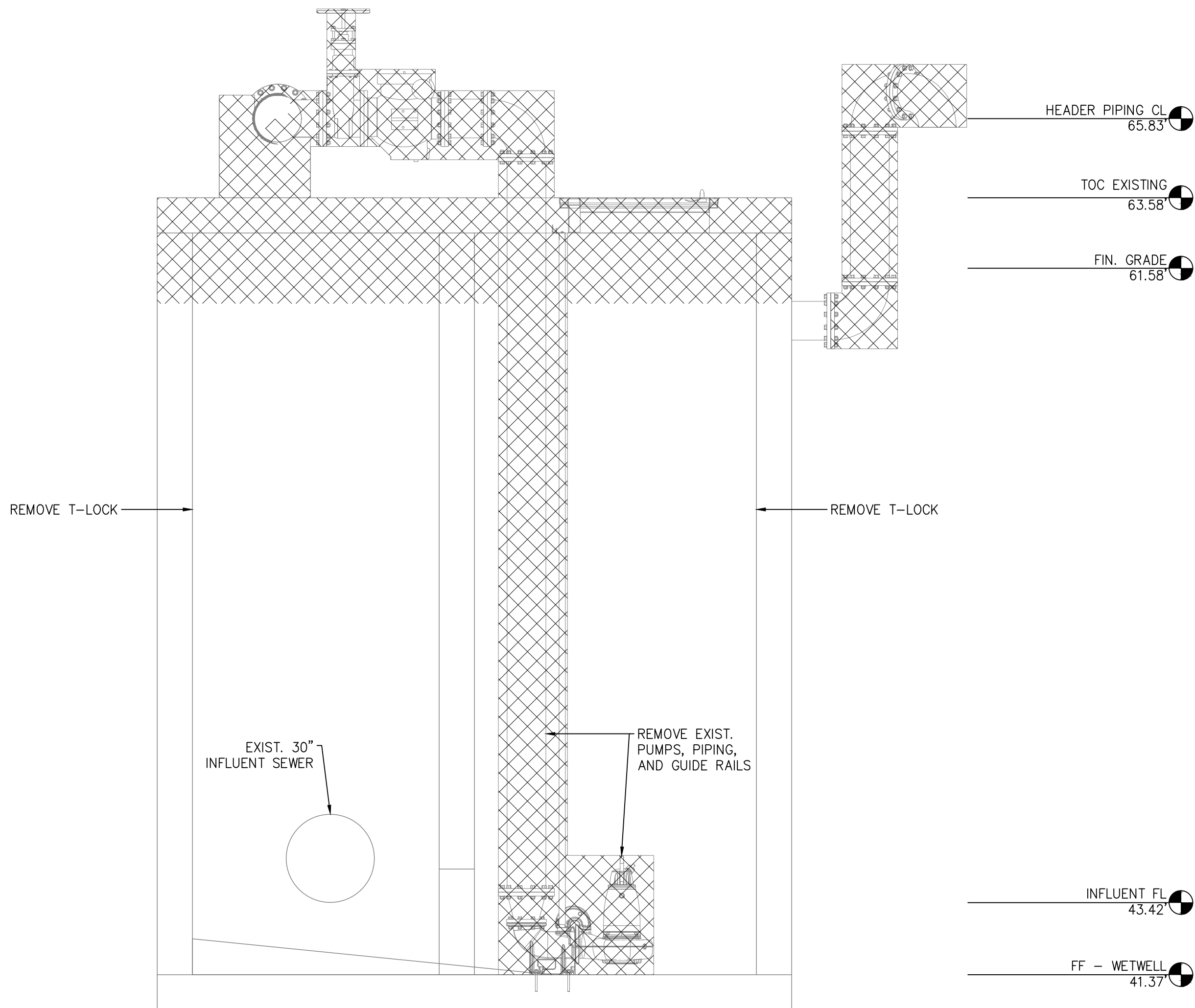
CARVEL LANE LIFT STATION DEMOLITION PHOTOS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 31 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2023 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD) - SHEETS 32 CARVEL LS DEMO PANDP.dwg May 07, 2026-1:21pm throwbridge



1 PLAN VIEW @ GRADE
3/8" = 1'-0"



2 SECTION A
3/8" = 1'-0"

NOTES:

- THIS DRAWING IS A REPRODUCTION OF THE EXISTING LIFT STATION CONSTRUCTION DRAWINGS AND INTENDED TO PROVIDE GENERAL INFORMATION FOR STATION DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL WORK REQUIRED FOR DEMOLITION AND REMOVAL OF STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS.
- THE CITY OF HOUSTON HAS THE FIRST RIGHT OF REFUSAL OF ANY EQUIPMENT OR MATERIAL REMOVED. CONTACT FARID SADEGHIAN, P.E. AT 832-395-4985 AT LEAST 72 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE. THE CONTRACTOR SHALL DELIVER ALL SALVAGED ITEMS TO A LOCATION, WITHIN THE CITY, DETERMINED BY THE CITY. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL OTHER EQUIPMENT AND MATERIAL NOT IDENTIFIED FOR SALVAGE.
- WHEN REMOVING EXISTING PUMPS, CONTRACTOR SHALL LEAVE AS MUCH WIRE/CABLE AS POSSIBLE IN ORDER FOR THE CITY TO REUSE THE PUMPS.
- CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF HEALTH (DEPARTMENT) ON A FORM SPECIFIED BY THE DEPARTMENT OF ANY ASBESTOS ABATEMENT ACTIVITY, RENOVATION, OR OPERATIONS AND MAINTENANCE ACTIVITY AFFECTING ASBESTOS-CONTAINING BUILDING MATERIALS, OR ANY DEMOLITION IN FACILITIES OR PUBLIC BUILDINGS.
- CONTRACTOR SHALL SUBMIT PROOF OF SUBMISSION OR REQUIRED ASBESTOS/DEMOLITION NOTIFICATION FORM TO THE TEXAS DEPARTMENT OF STATE HEALTH SERVICES TO COH CONSTRUCTION PM. THE NOTIFICATION TO THE STATE MUST BE PROVIDED A MINIMUM OF TEN DAYS PRIOR TO THE STARTUP OF ANY DEMOLITION ACTIVITIES AT THE SITE.
- CONCRETE SLAB AND WALLS INDICATED SHALL BE REMOVED AS SHOWN ON THE PLANS PURSUANT TO SPECIFICATION SECTION 02220.

- ALL REMAINING WALL OPENINGS IN THE VALVE VAULT SHALL BE SEALED WITH NON-SHRINK GROUT.
- THE CONTRACTOR SHALL COORDINATE WITH CENTERPOINT ENERGY TO DISCONNECT ELECTRICAL POWER AS NEEDED.
- THE EXISTING WET WELL SHALL BE CLEANED OF ALL DEBRIS, WASTEWATER, AND OTHER RESIDUES.
- THE CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE OF TEXAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF TRANSPORTATION, DISPOSAL, AND TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES, AND BY THE DISPOSAL FACILITY.
- PRIOR TO THE CLEANOUT AND CLEANING OF THE EXISTING LIFT STATION WET WELL, CONTRACTOR TO SUBMIT PROOF TO COH CONSTRUCTION PM THAT TRANSPORTER/HAULER TO BE USED FOR THE TRANSPORT OF THE CONTENTS OF THE WET WELL (I.E., SOLIDS, GRIT, SEWAGE SLUDGE, AND DOMESTIC SLUDGE, ETC.) IS REGISTERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AS A SLUDGE TRANSPORTER AND THE TRANSPORTER'S REGISTRATION IS CURRENT AND VALID DURING THE PERIOD OF PERFORMANCE.
- CONTRACTOR SHALL OBTAIN CITY OF HOUSTON DEMOLITION PERMIT (SEE FORM CE 1075 REV. 01/01/2015 FOR GUIDELINES) OR SUBMIT PROOF OF NON-APPLICABILITY TO COH CONSTRUCTION PROJECT MANAGER PRIOR TO THE STARTUP OF DEMOLITION ACTIVITIES AT THE SITE. THE CONTRACTOR SHALL OBTAIN ANY STATE DEMOLITION PERMITS REQUIRED.

LEGEND



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION PLAN AND PROFILE DEMOLITION PLAN	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 32 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - 12a coh 123 lift stations rehabilitation and reconstruction\Cadd_DWG\Full Set\Ver1.34 CARVEL LANE LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN.dwg May 05, 2025 - 1:08pm elwis

KEY NOTES:

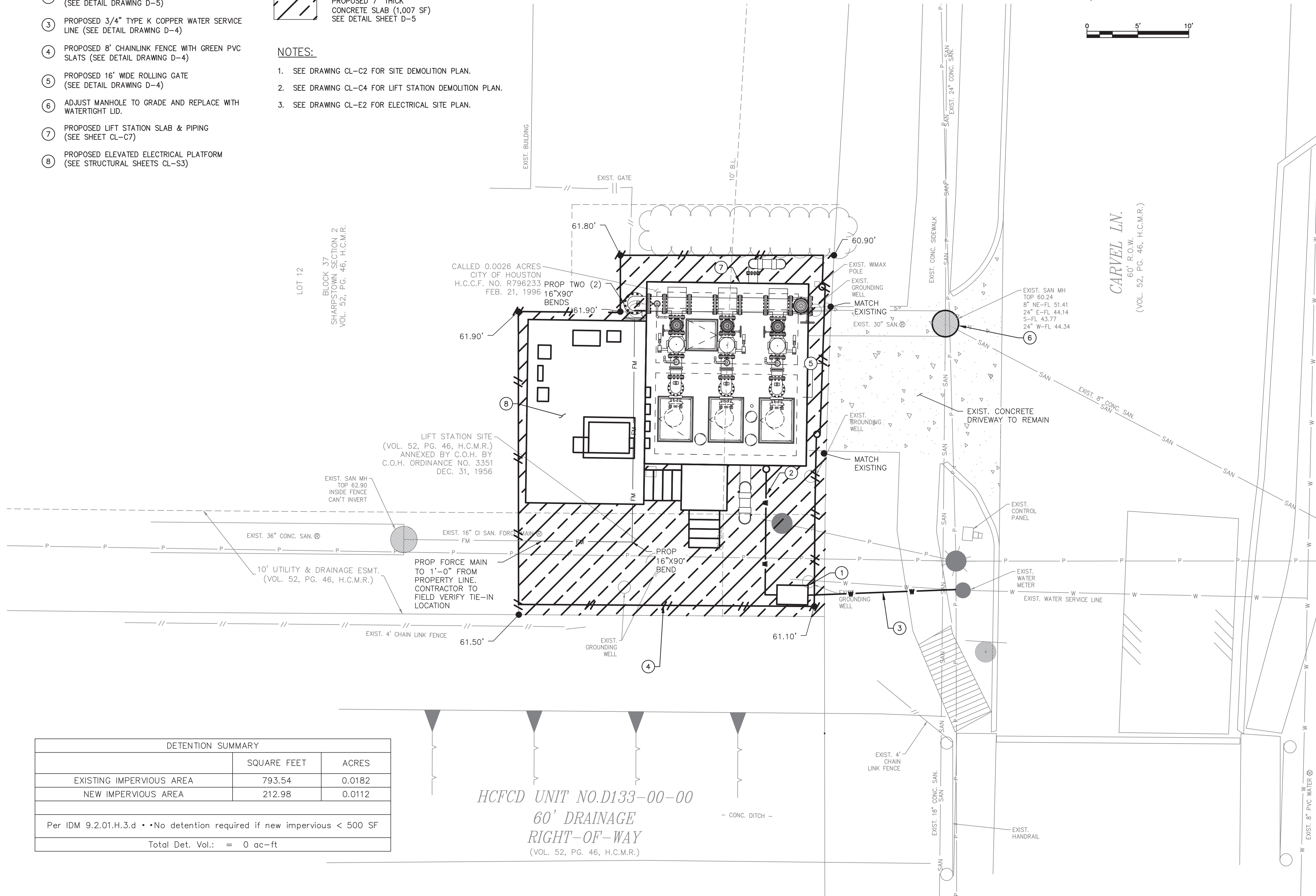
- PROPOSED REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER (SEE DETAIL DRAWING D-4)
- PROPOSED 3/4" NON-FREEZE HOSE BIB (SEE DETAIL DRAWING D-5)
- PROPOSED 3/4" TYPE K COPPER WATER SERVICE LINE (SEE DETAIL DRAWING D-4)
- PROPOSED 8' CHAINLINK FENCE WITH GREEN PVC SLATS (SEE DETAIL DRAWING D-4)
- PROPOSED 16' WIDE ROLLING GATE (SEE DETAIL DRAWING D-4)
- ADJUST MANHOLE TO GRADE AND REPLACE WITH WATERTIGHT LID.
- PROPOSED LIFT STATION SLAB & PIPING (SEE SHEET CL-C7)
- PROPOSED ELEVATED ELECTRICAL PLATFORM (SEE STRUCTURAL SHEETS CL-S3)

LEGEND:

- EXISTING CONCRETE DRIVEWAY TO REMAIN
- PROPOSED 7" THICK CONCRETE SLAB (1,007 SF) SEE DETAIL SHEET D-5

NOTES:

- SEE DRAWING CL-C2 FOR SITE DEMOLITION PLAN.
- SEE DRAWING CL-C4 FOR LIFT STATION DEMOLITION PLAN.
- SEE DRAWING CL-E2 FOR ELECTRICAL SITE PLAN.



DETENTION SUMMARY		
	SQUARE FEET	ACRES
EXISTING IMPERVIOUS AREA	793.54	0.0182
NEW IMPERVIOUS AREA	212.98	0.0112
Per IDM 9.2.01.H.3.d • No detention required if new impervious < 500 SF		
Total Det. Vol.: = 0 ac-ft		

HCFC UNIT NO.D133-00-00
60' DRAINAGE
RIGHT-OF-WAY
(VOL. 52, PG. 46, H.C.M.R.)

BENCHMARK:
CITY OF HOUSTON MONUMENT _____ (ALSO FLOODPLAIN REFERENCE MARK 040725) IS A BRASS DISK ON SOUTH SIDEWALK ON CARVEL LN BRIDGE, LOCATED APPROXIMATELY 170 FEET WEST FROM THE INTERSECTION OF BINTLUFF DR

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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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3600 W. Sam Houston Parkway S.
Suite 600
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Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

AMANI ENGINEERING, INC.
11011 RICHMOND AVE., SUITE 700
HOUSTON, TEXAS 77042
TEL: (713) 270-5700
Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-00

PRELIMINARY

FOR INTERIM REVIEW ONLY
THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

MAHESH DUTTA 114252
NAME P.E. NO.
DATE 4/2/2026
TBPELS FIRM #F-4528

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

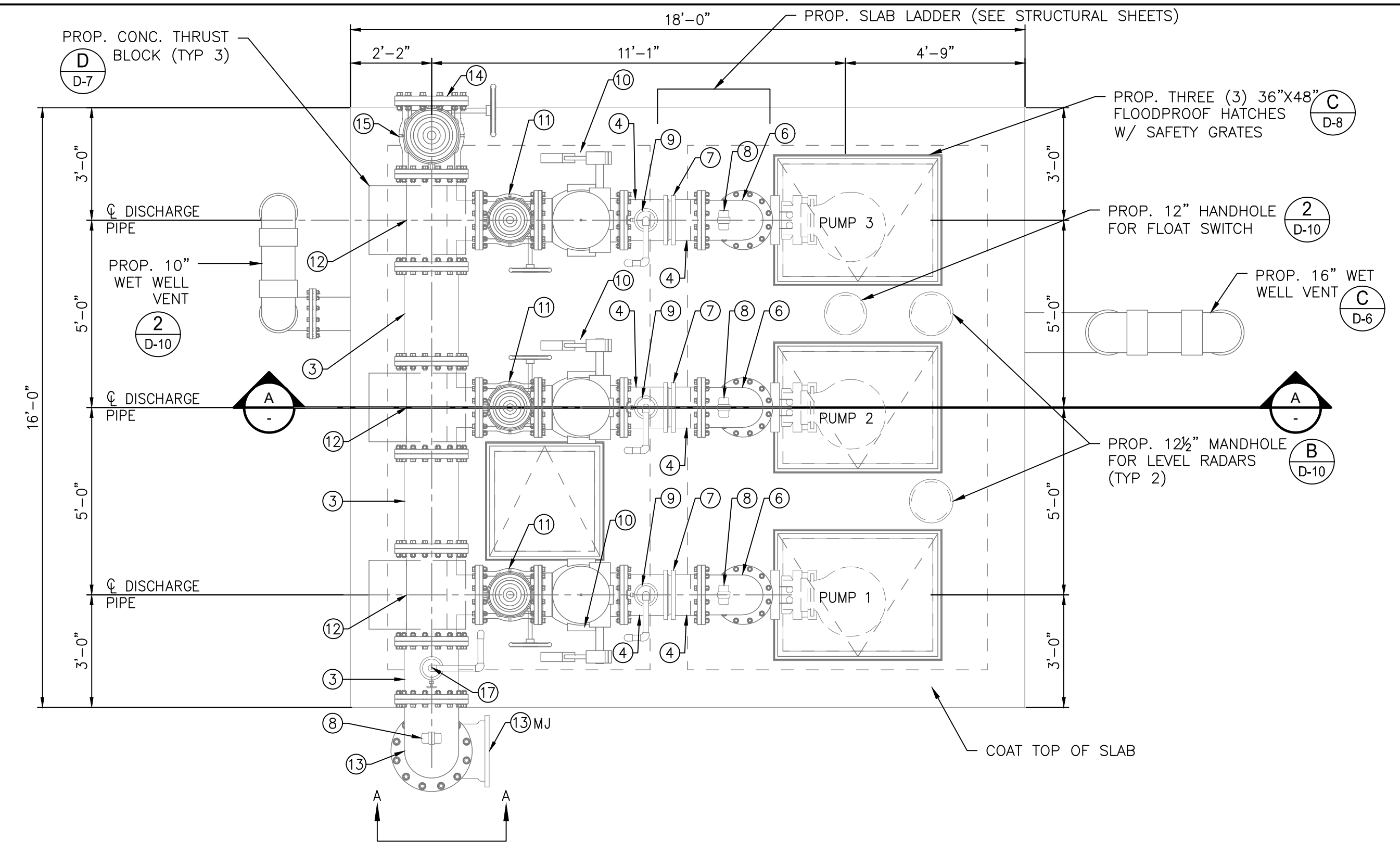
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

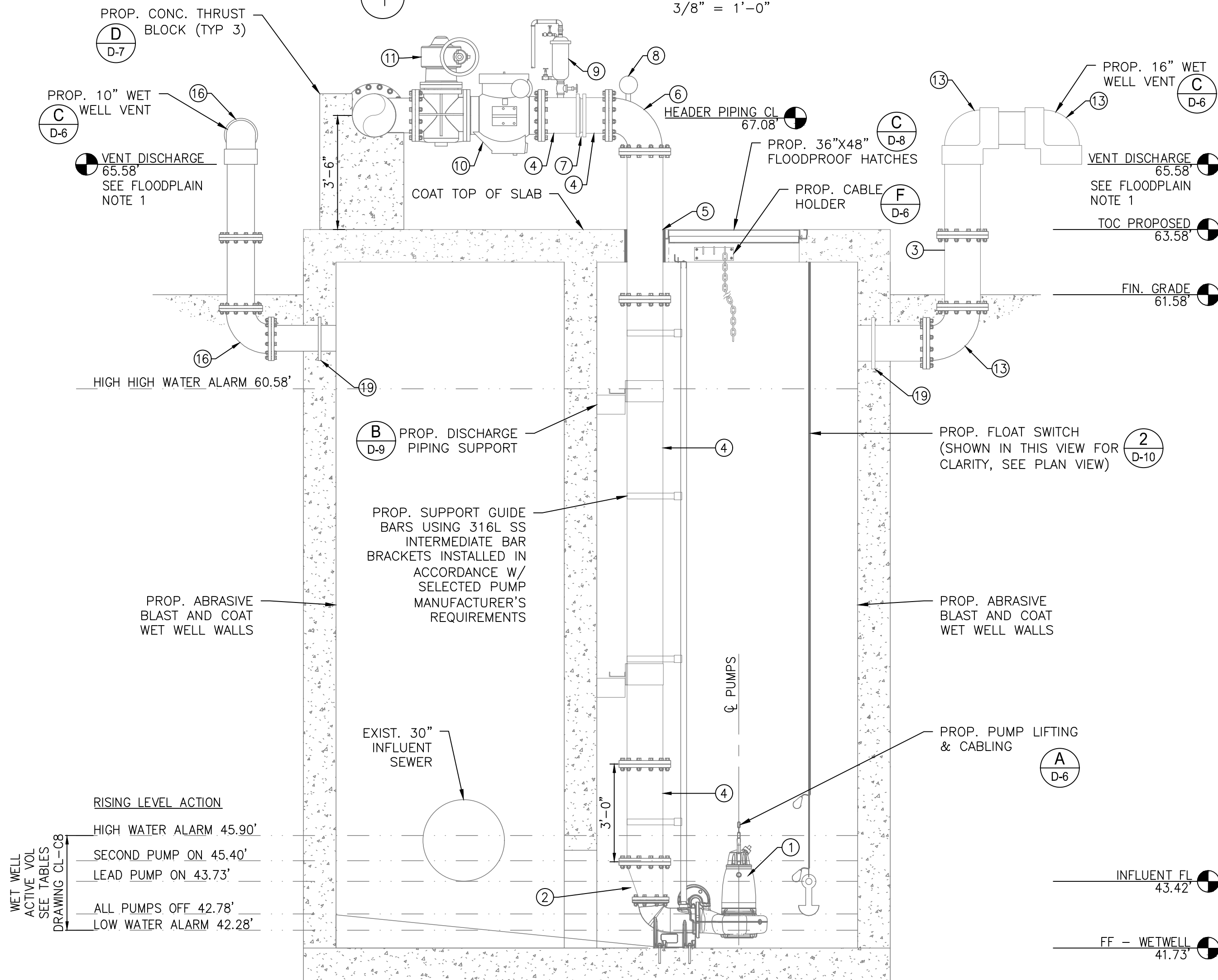
CARVEL LANE LIFT STATION
PROPOSED CIVIL SITE AND
GRADING PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 34 OF 291	

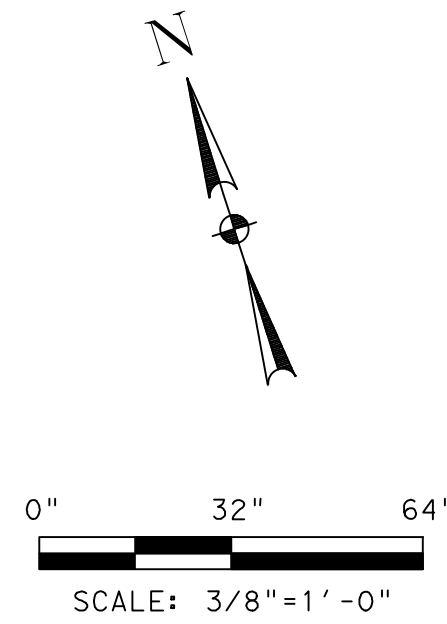
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\35 CARVEL PROP PLAN.dwg May 07, 2026-1:21pm trowbridge



1 PLAN VIEW @ GRADE
3/8" = 1'-0"



2 SECTION A
3/8" = 1'-0"

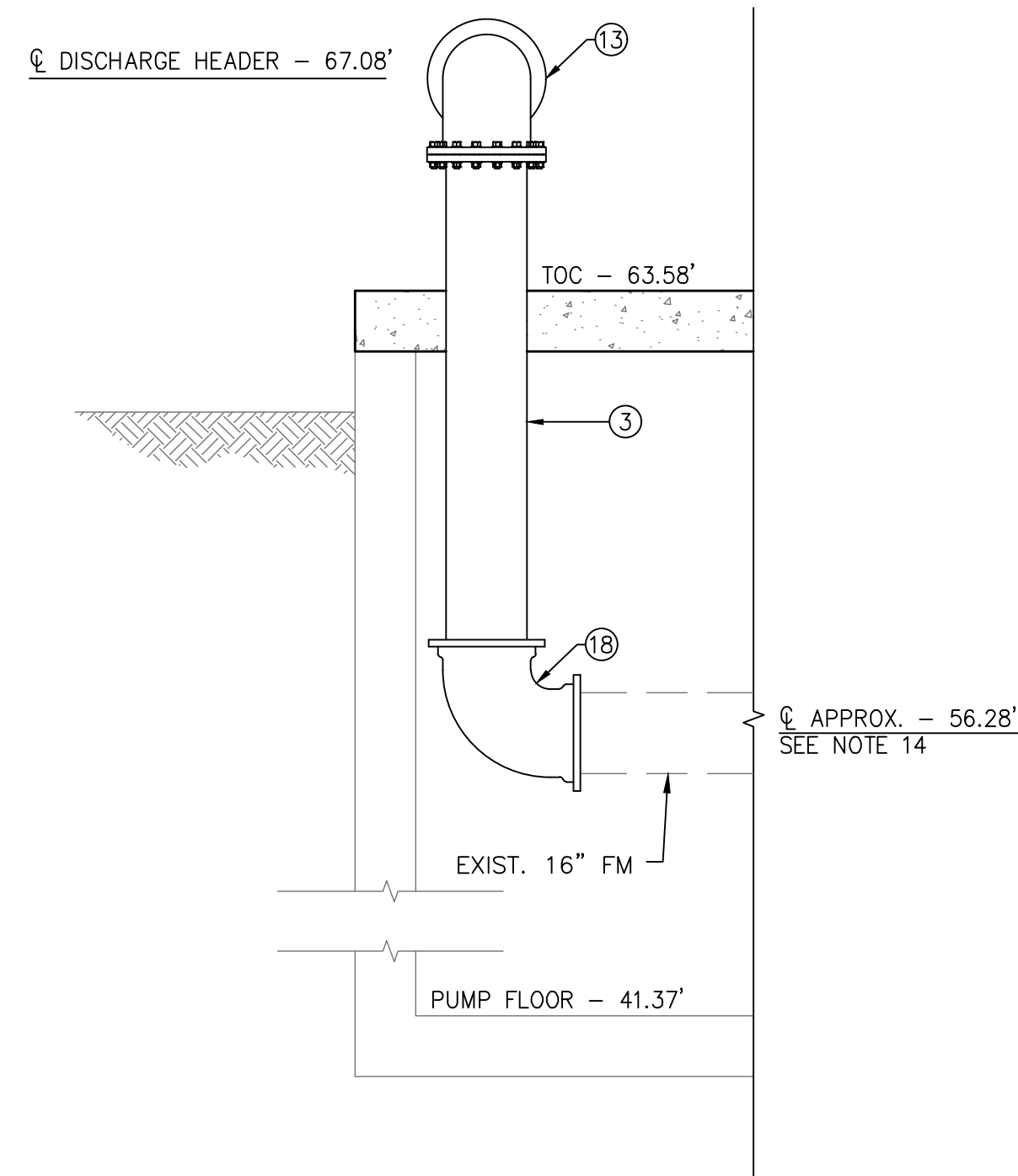


FLOODPLAIN NOTES:

- ELEVATION HAS BEEN SET TO MEET THE 100-YR +1' ELEVATION (62.5') OR A MINIMUM OF 2 FEET ABOVE THE TOP OF SLAB
- HATCHES ARE FLOODPROOF HATCHES TO MEET FLOODPLAIN REQUIREMENTS
- PLATFORMS ARE SET TO AN ELEVATION OF 500-YR +3'. SEE STRUCTURAL SHEETS FOR DETAILS.

NOTES:

- DIMENSIONS NOTED ARE RELATIVE TO THE PUMP SIZE AND MANUFACTURER SELECTED. CONTRACTOR SHALL VERIFY.
- SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
- PUMP ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
- CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS, AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
- ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE THE WET WELL.
- LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH. LABEL CHECK VALVES WITH THE CORRESPONDING VALVE NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING ADHERED TO THE TOP OF THE CHECK VALVE.
- CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES
- CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS
- INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
- INSTALL CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSED POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
- ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
- UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.
- CONTRACTOR TO BLAST AND RECOAT THE WET WELL AND TOP SLAB.
- CONTRACTOR TO FIELD VERIFY THE FLOW LINE AND DEPTH OF THE EXISTING FORCE MAIN FOR TIE IN



A SECTION A-A
3/8" = 1'-0"

KEY NOTES	ITEM	QTY
1	PUMP	3
2	ECCENTRIC REDUCER (12"x8")	3
3	SPOOL PIECE (16")	4
4	SPOOL PIECE (12")	12
5	SLEEVED PENETRATION (12")	3
6	90° ELBOW (12")	3
7	RESTRAINED FLANGED COUPLING ADAPTER (12")	3
8	PRESSURE GAUGE	4
9	2" AIR AND VACUUM VALVE AND PIPING	3
10	CHECK VALVE (12")	3
11	PLUG VALVE (12")	3
12	TEE (16"x12")	3
13	90° ELBOW (16")	5
14	BLIND FLANGE	1
15	PLUG VALVE (16")	1
16	90° ELBOW (10")	3
17	3" AIR AND VACUUM VALVE AND PIPING	1
18	90° MJ ELBOW (16")	1
19	WALL PIPE (10")	2

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

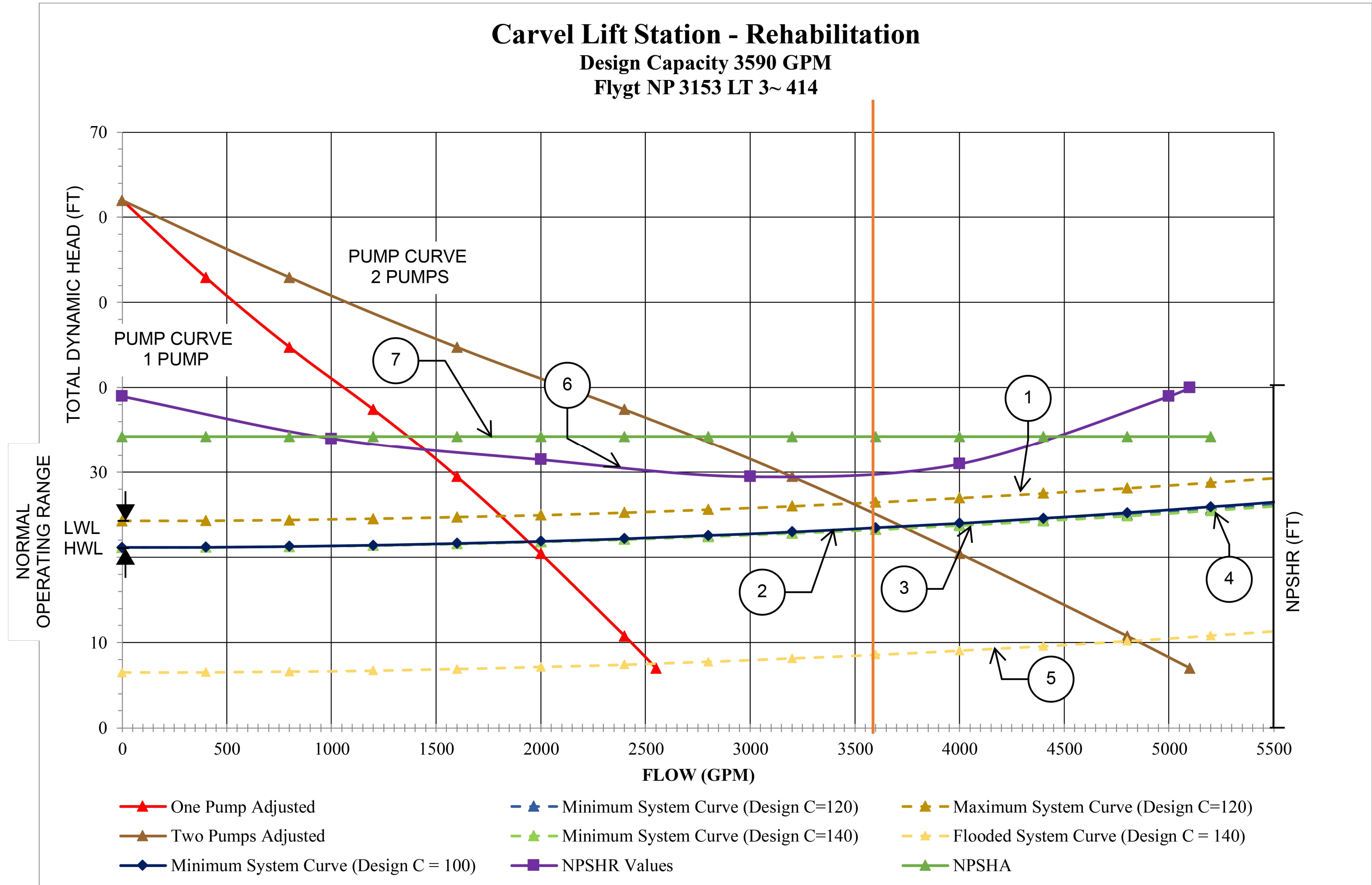
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 35 OF 291	

CL-C7

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD) - SHEETS 36 CARVEL TABLES.dwg May 07, 2026 - 1:21pm trowbridge



PUMP CURVE NOTES:

1. LOW NORMAL OPERATING LEVEL
C=120 - DESIGN
2. HIGH NORMAL OPERATING
LEVEL C=100 - INFORMATION ONLY (TCEQ)
3. HIGH NORMAL OPERATING LEVEL
C=120 - DESIGN
4. HIGH NORMAL OPERATING LEVEL
C=140 - INFORMATION ONLY
5. EMERGENCY FLOODED OPERATING LEVEL
C=140 - MAXIMUM DISCHARGE
6. NET POSITIVE HEAD SUCTION REQUIRED (NPSHR)
BASED ON NORMAL OPERATING WATER LEVEL
7. NET POSITIVE SUCTION HEAD AVAILABLE (NPSHA)

PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3
MOTOR DATA			
NOMINAL SIZE (HP)	17	17	17
MAX SPEED (RPM)	1,800	1,800	1,800
SOLIDS PASSAGE			
MIN SPHERE (IN)	3	3	3
CAPACITY (GPM)			
DESIGN	1,860	1,860	1,860
RUNOUT	2,550	2,550	2,550
DISCHARGE HEAD (FT)			
DESIGN	25.00	25.00	25.00
RUNOUT	7.00	7.00	7.00
SHUT OFF	62.00	62.00	62.00
EFFICIENCY (%)			
DESIGN	74.80	74.80	74.80
NPSHR (FT)			
DESIGN	30.10	30.10	30.10
RUNOUT	40.00	40.00	40.00
PUMP CYCLE TIME	6 MIN	6 MIN	6 MIN
CUMULATIVE CAPACITY (GPM)	1,860	3,590	4,320

STATION OPERATION TABLES

RISING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
1.05	42.78	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
2.05	43.73	LEAD PUMP TURNS ON	LEAD PUMP ON
3.67	45.40	SECOND PUMP TURNS ON	LEAD & SECOND PUMPS ON
4.17	45.90	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
18.85	60.58	HIGH HIGH LEVEL ALARM (FLOAT ON LEVEL)	FIRM PUMPS ON (FLOATS)

FALLING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
5.30	46.47	FLOAT OFF LEVEL	FIRM PUMPS OFF (FLOATS)
4.17	45.90	HIGH WATER LEVEL ALARM OFF	LEAD & SECOND PUMPS ON
3.67	45.40	LEAD PUMP TURNS OFF	SECOND PUMP ON
1.05	42.78	SECOND PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP
0.55	42.28	LOW LEVEL ALARM	–

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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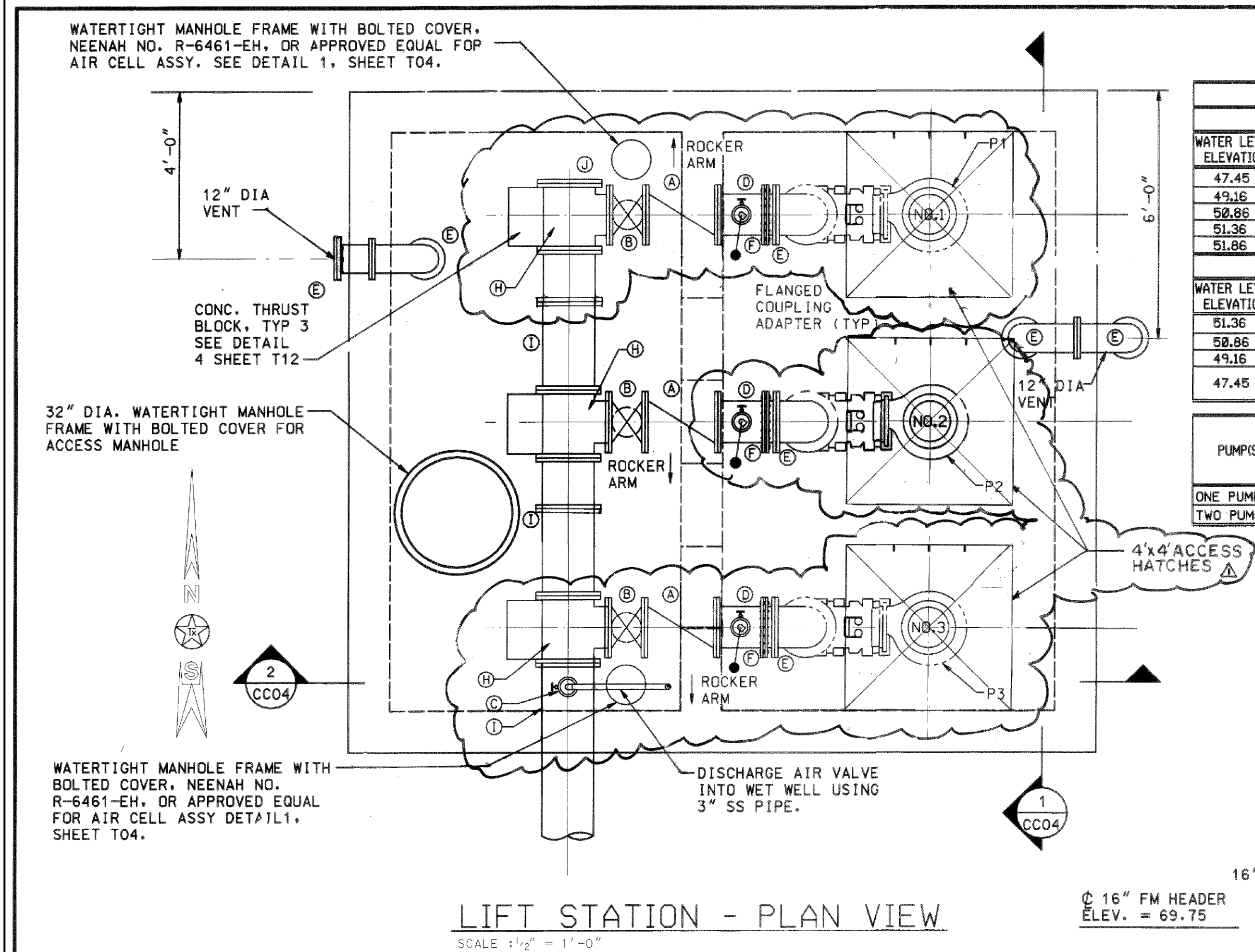
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION
TABLES AND DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 36 OF 291	



STATION OPERATION TABLES							
RISING LEVEL CYCLE							
WATER LEVEL ELEVATION	ACTION		PUMP(S) IN OPERATION				
47.45	PUMPS OFF LEVEL - NO ACTION		ALL PUMPS ARE OFF				
49.16	LEAD PUMP TURNS ON		LEAD PUMP ON				
50.86	SECOND PUMP TURNS ON		LEAD & SECOND PUMP ON				
51.36	HIGH WATER ALARM ON		HIGH WATER ALARM SOUND				
51.86	BACK-UP PUMP ON		ALL PUMPS ON				
FALLING LEVEL CYCLE							
WATER LEVEL ELEVATION	ACTION		PUMP(S) IN OPERATION				
51.36	BACK-UP PUMP TURNS OFF		ALL PUMPS ON				
50.86	HIGH-WATER LEVEL ALARM OFF		LEAD & SECOND PUMP ON				
49.16	SECOND PUMP TURNS OFF		LEAD PUMP ON				
47.45	LEAD PUMP TURNS OFF		ALL PUMPS STOPPED - STANDBY PUMP SWITCHES TO LEAD PUMP				
PUMP(S) IN OPERATION			OPERATING CAPACITY		PUMP SPEED RPM	PUMP PASSES SPHERE (INCHES)	MIN PUMP DISCHARGE ELBOW SIZE IN X OUT
			TOTAL GPM	T.D. HEAD IN FEET			
ONE PUMP ALONE			1795	20	1160	4	8 X 12
TWO PUMPS IN PARALLEL			3575	20			

PUMP SCHEDULE		
NO.	DESCRIPTION	
P1	PROPOSED 1795 GPM @ 20' TDH 1160 RPM	
P2	PROPOSED 1795 GPM @ 20' TDH 1160 RPM	
P3	PROPOSED 1795 GPM @ 20' TDH 1160 RPM	

PROPOSED VALVE & FITTINGS		
KEY	QTY.	DESCRIPTION
A	3	12" CHECK VALVE
B	3	12" ISOLATION VALVE
C	1	3" AIR RELEASE VALVE
D	3	2" AIR & VACUUM VALVE
E	9	12" 90° ELBOW
F	6	12" PIPE SPOOL
H	3	16" x 12" TEE
I	3	16" PIPE SPOOL
J	1	16" BLIND FLANGE

GENERAL NOTES TO SHEET

- 1. CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATING EQUIPMENT & PIPING COMPONENTS.**
- 2. REHABILITATE WET PIT.**
- 3. CONTRACTOR TO INSTALL HATCHES IN TOP SLAB ABOVE SUBMERISIBLE PUMPS PER MANUFACTURER'S SPECIFICATIONS.**

CAUTION: UNDERGROUND GAS FACILITIES

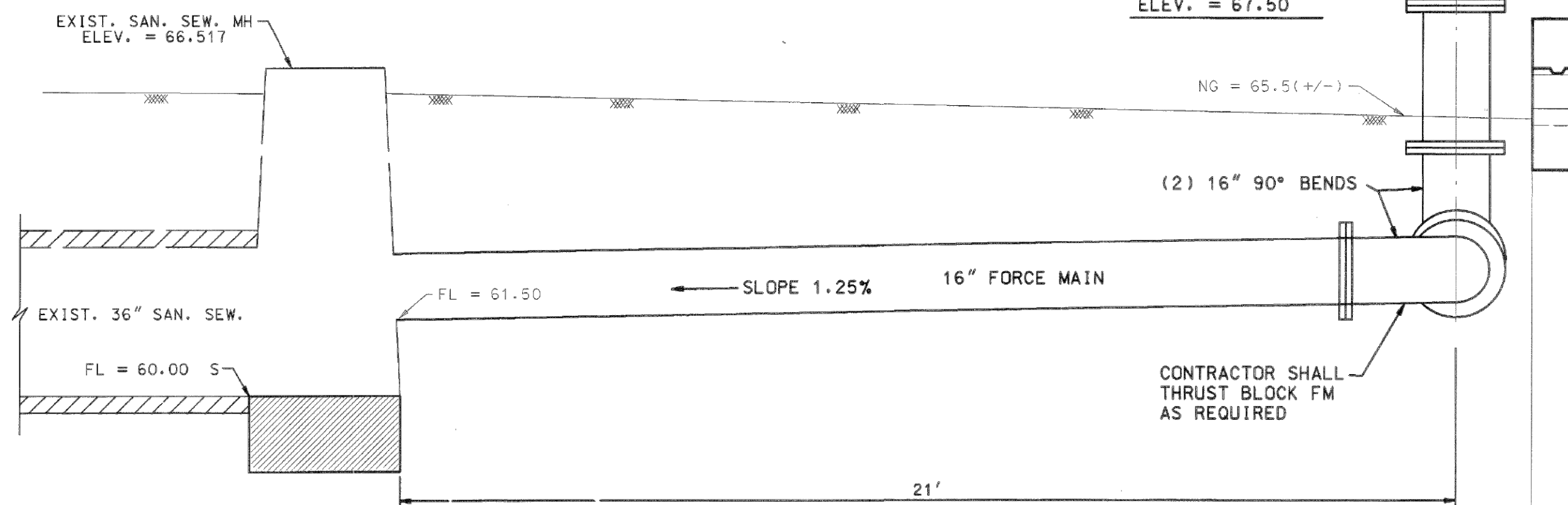
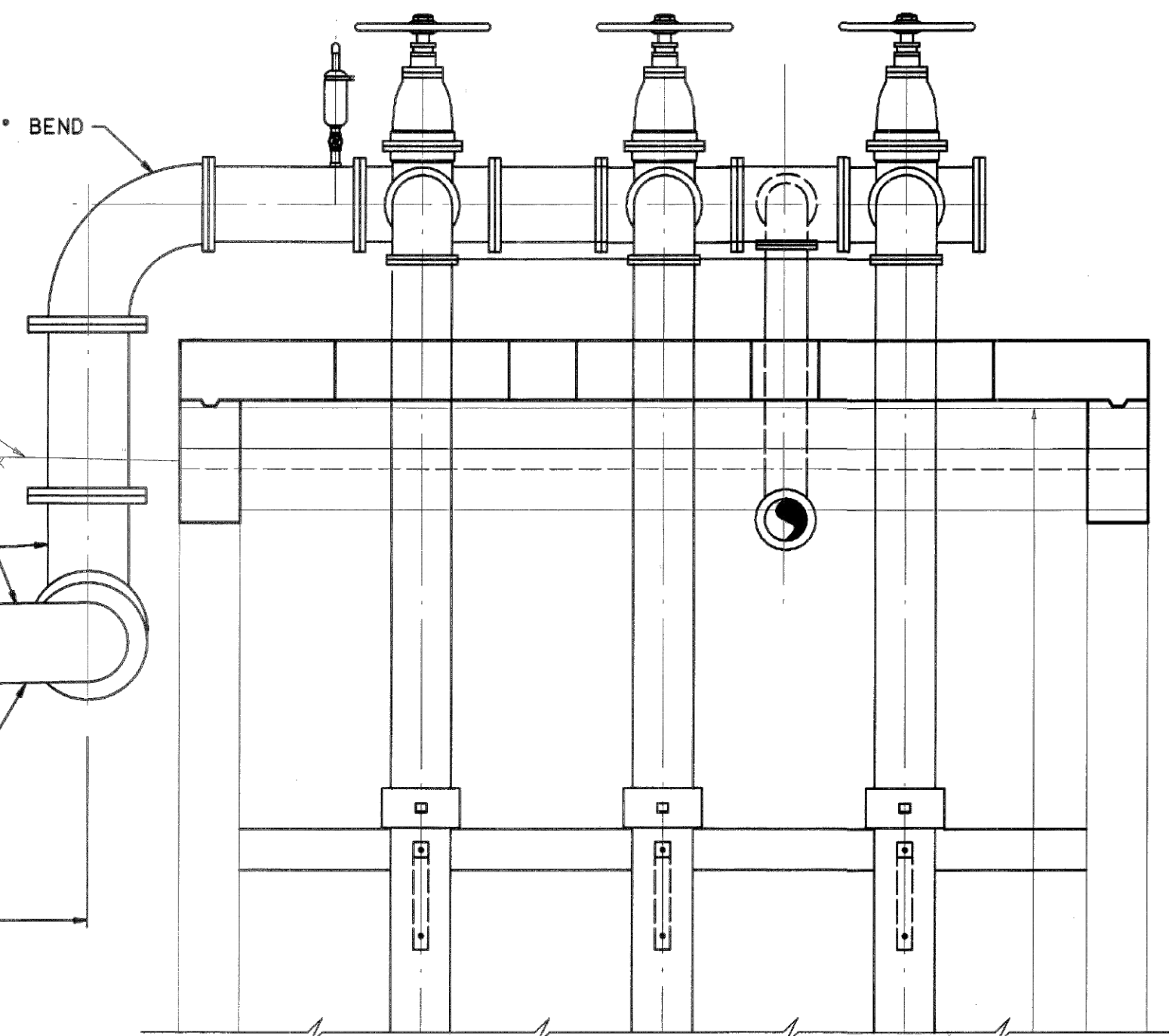
LOCATION OF ENTEX MAIN LINES (TO INCLUDE UTILITY TRANSMISSION AND/OR INDUSTRIAL SUPPLY CORPORATION GAS MAINS) CANNOT BE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. THE CONTRACTOR SHALL CONTACT THE UTILITY CORPORATION TO DETERMINE THE EXACT LOCATION OF 1-800-669-8344. A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO ALLOW TIME TO BEGINNING AN EXACT LOCATION. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK AND AGREE TO BE FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

NOTE:

OVERHEAD LINES MAY EXIST ON THE PROPERTY. WE HAVE NOT ATTEMPTED TO MARK THOSE LINES SINCE THEY ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE, FORBIDS ALL UTILITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTORS ARE RESPONSIBLE FOR LOCATING, MARKING, OR SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CAUSES BOTH PERSONAL AND CIVIL LIABILITY TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL H&P AT (713) 228-7400.

NOTE:

THE LOCATION OF SOUTHWESTERN BELL TELEPHONE CO. UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES.



PROPOSED 16" FORCE MAIN PROFILE
SCALE : 1/2" = 1'-0"

RECORD DRAWING

[illegible]

PLANNING AND DEVELOPMENT	
<i>Wendell Harris</i> CITY ENGINEER	<i>9/8/95</i> DATE
<i>James S. Helf</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING	<i>9/1/95</i> DATE
SUBMITTED: TPG	DESIGNED BY: SGB
SCALE: 1/2" = 1'-0"	DRAWN BY: VNC/WNT
DATE: AUGUST, 1995	SHEET NO. CC03 OF 48 SHEETS
SURVEY BY: DAB	DWG. NO.
F.B. NO. N/A	32040

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

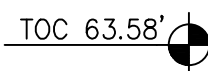
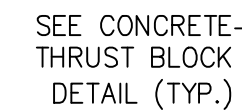
CARVEL LANE LIFT STATION
LIFT STATION RECORD DRAWING
PLAN VIEW

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NTS	
CITY OF HOUSTON PM	
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SHEET NO. 37 OF 291	

 DEMOLITION AREA

DEMOLITION NOTES

1. CONTRACTOR TO DEMOLISH AND HAUL OFF EXISTING CONCRETE PUMP TOP SLAB, ALONG WITH PUMP STATION AND VAULT WALLS IN HATCHED DEMOLITION REGION.
2. THE LIFT STATION'S EXISTING CONCRETE WALLS SHALL BE BROKEN BACK TO EXPOSE THE TOP 2FT OF EXISTING REBAR, WHICH IS TO BE PRESERVED AND RE-USED.
3. EXISTING REBAR IN THE BROKEN BACK REGION TO BE CLEANED OF CONCRETE DEBRIS AND STRAIGHTENED SO THAT PROPOSED REBAR MAY BE LAPPED INTO IT.



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3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

SUED ON:
Y 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

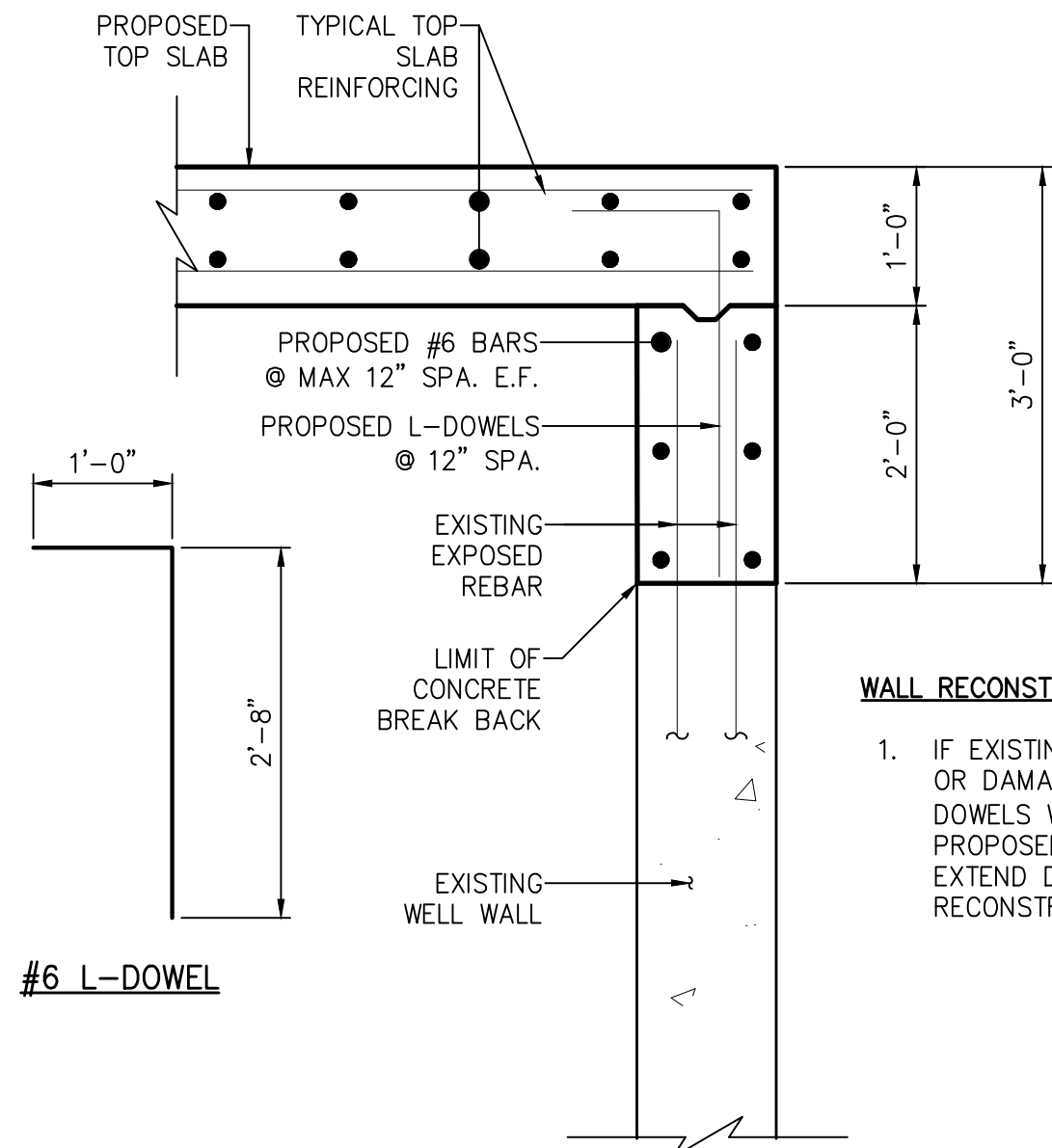
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

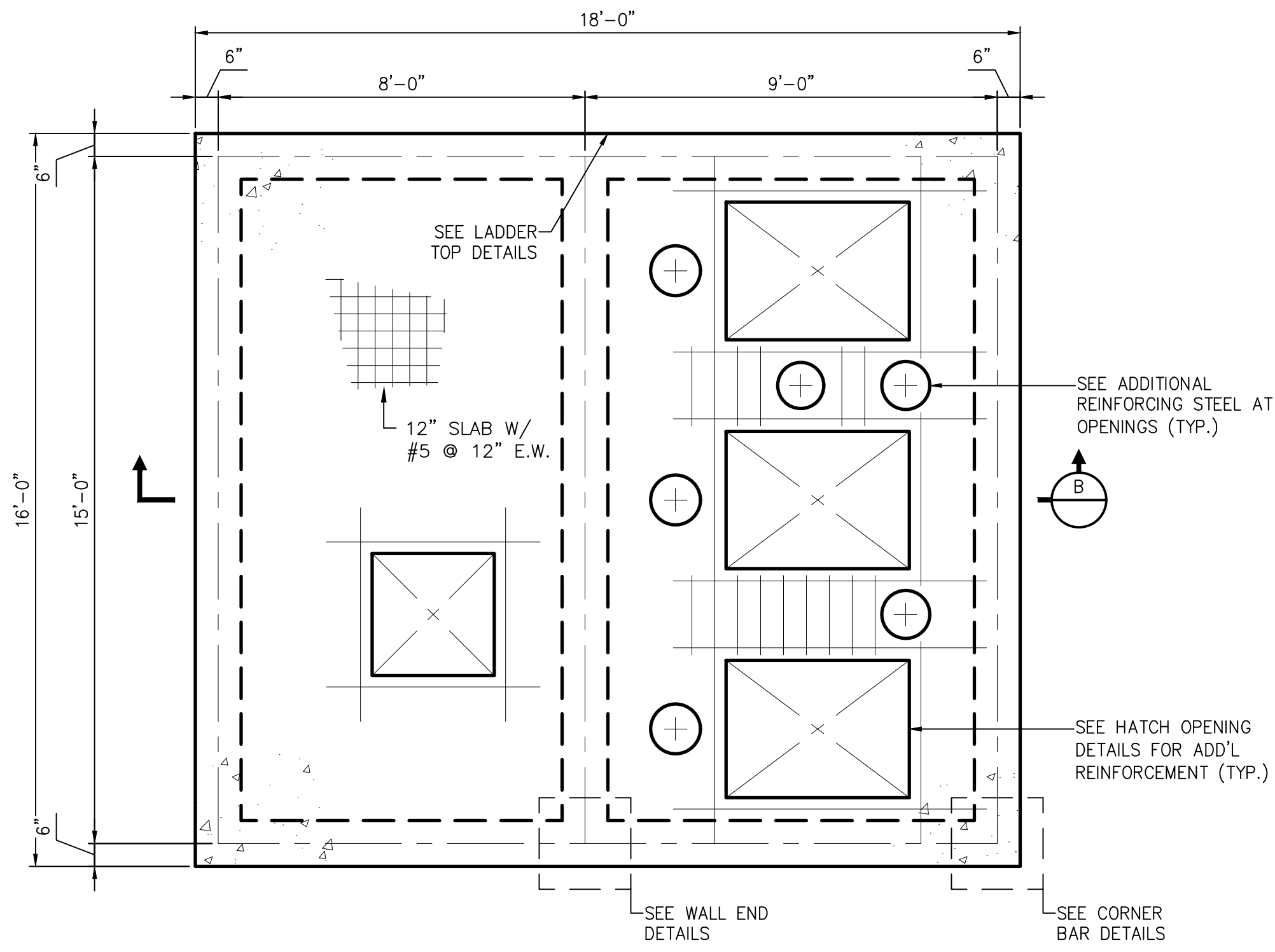
CARVEL LANE LIFT STATION
STRUCTURAL
TOP OF SLAB MODIFICATIONS
PLAN & DEMO

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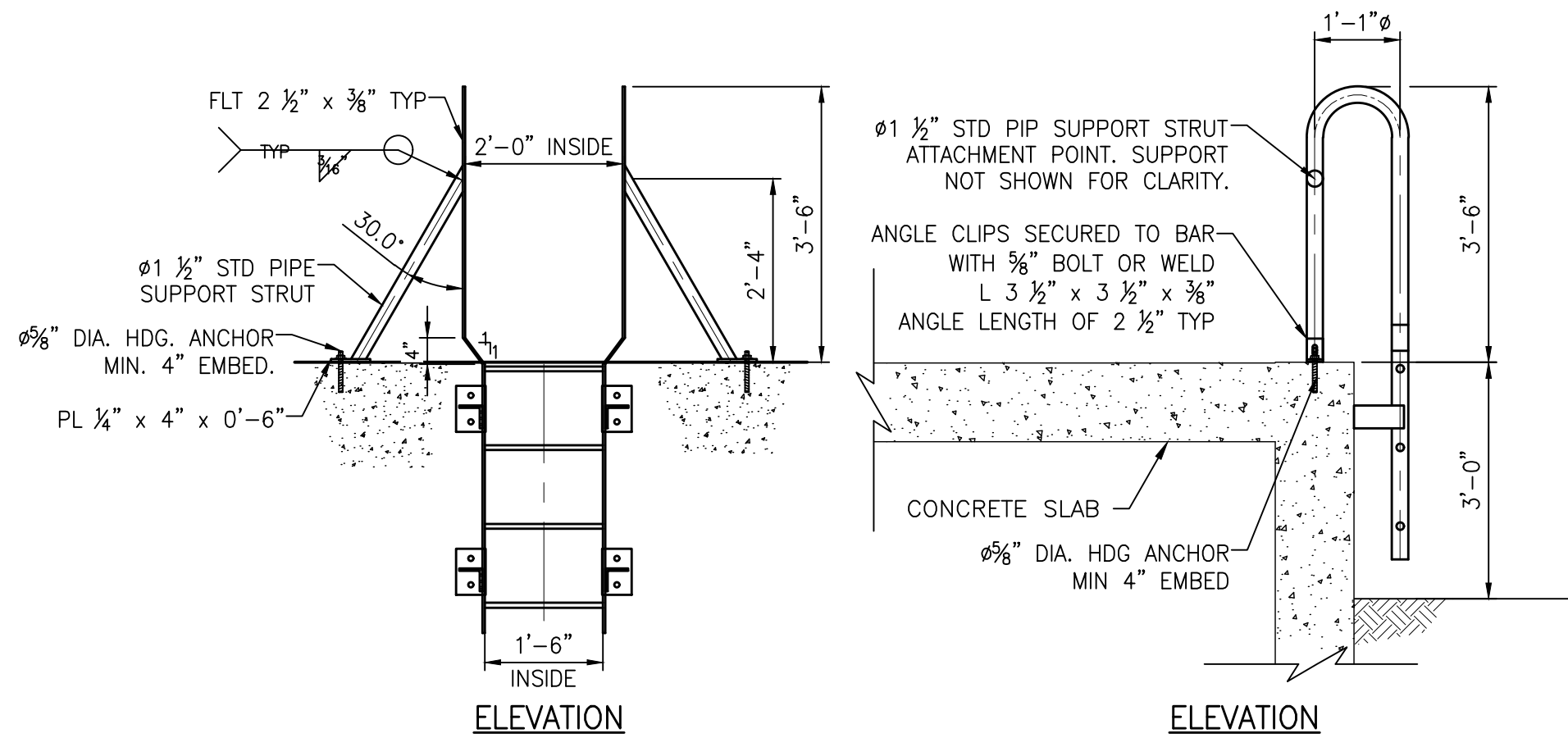
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD) SHEETS 40 CARVEL STRCT SLAB DETAILS.dwg May 07, 2026 - 1:22pm trowbridge



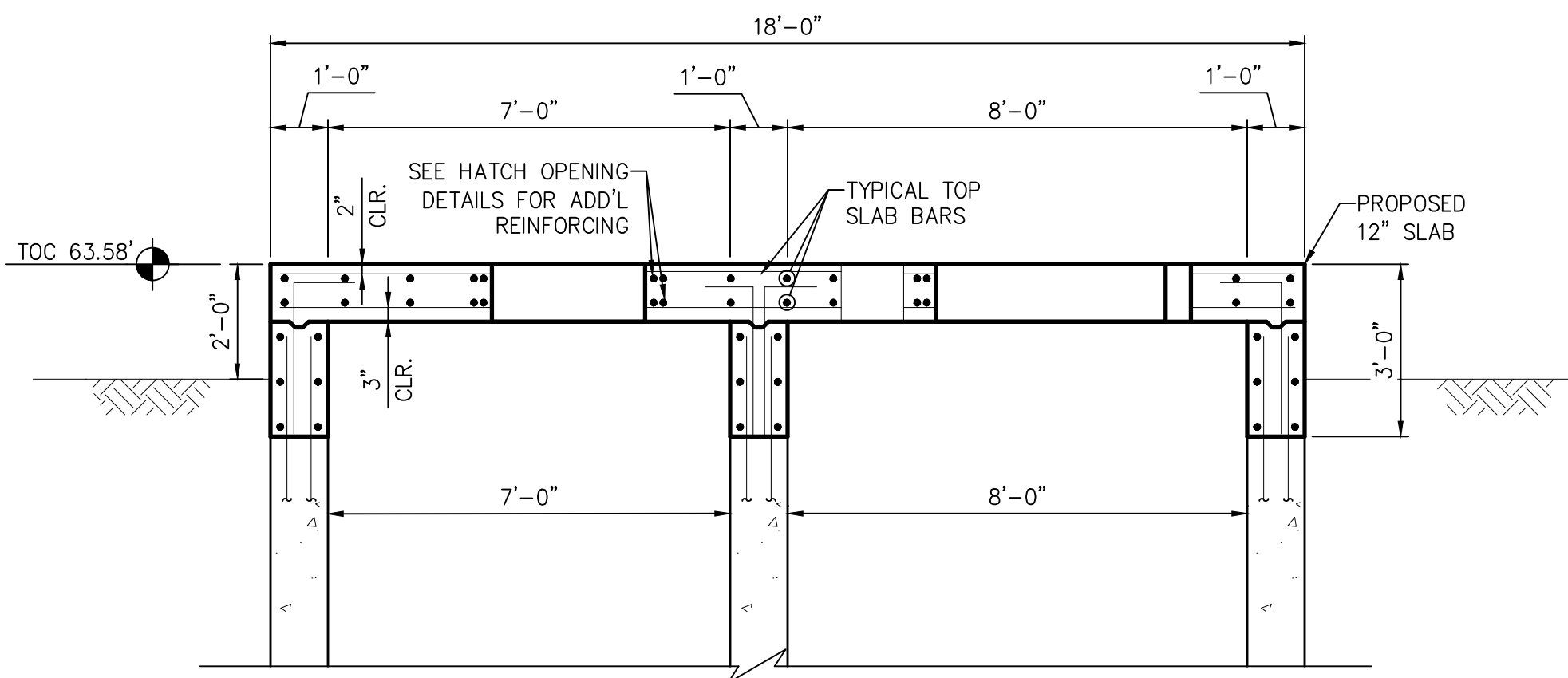
C TYPICAL RECONSTRUCTED WELL WALL SECTION
NTS



A PROPOSED TOP SLAB PLAN VIEW
NTS



D LADDER TOP DETAILS
NTS



B PROPOSED ELEVATION VIEW
NTS

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

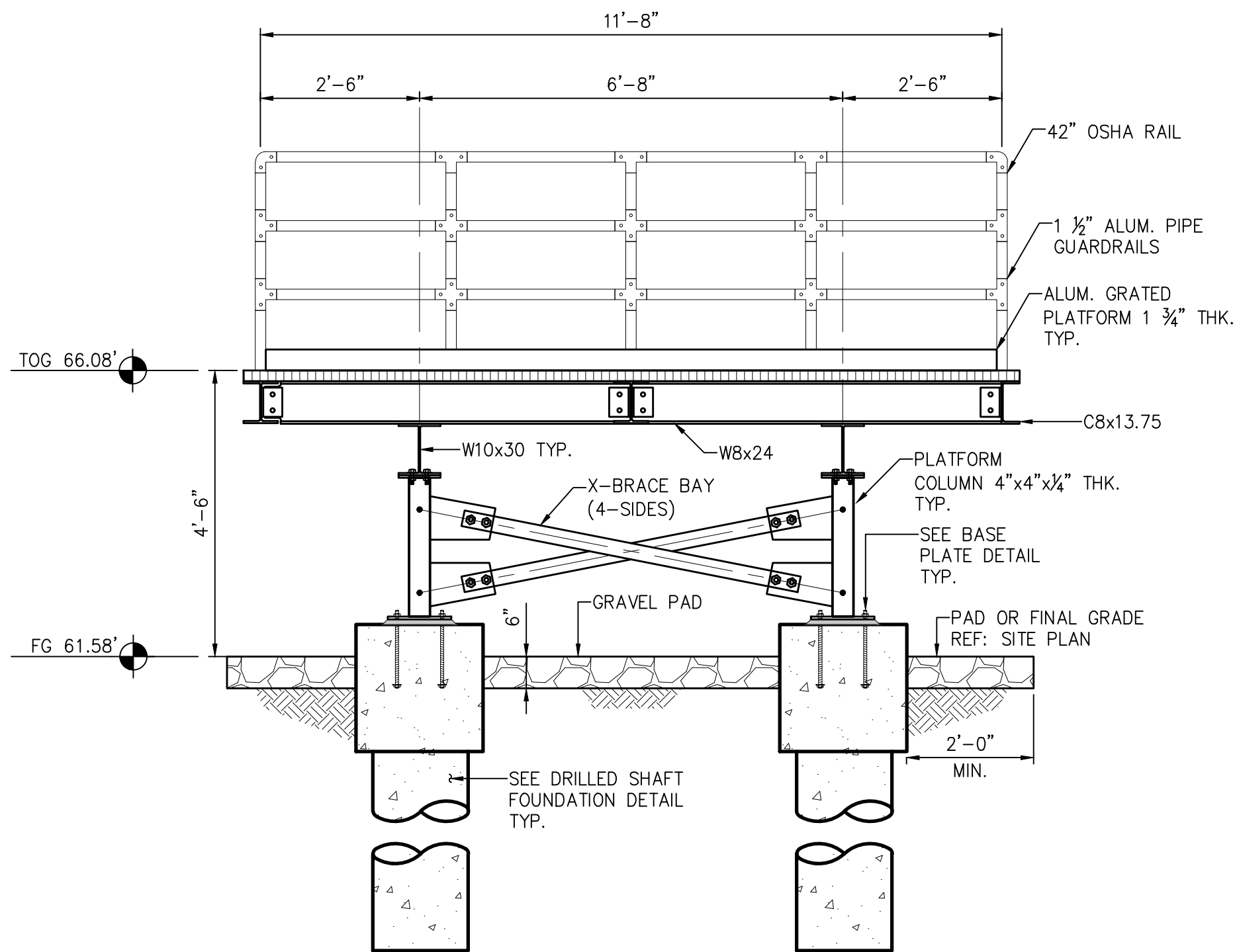
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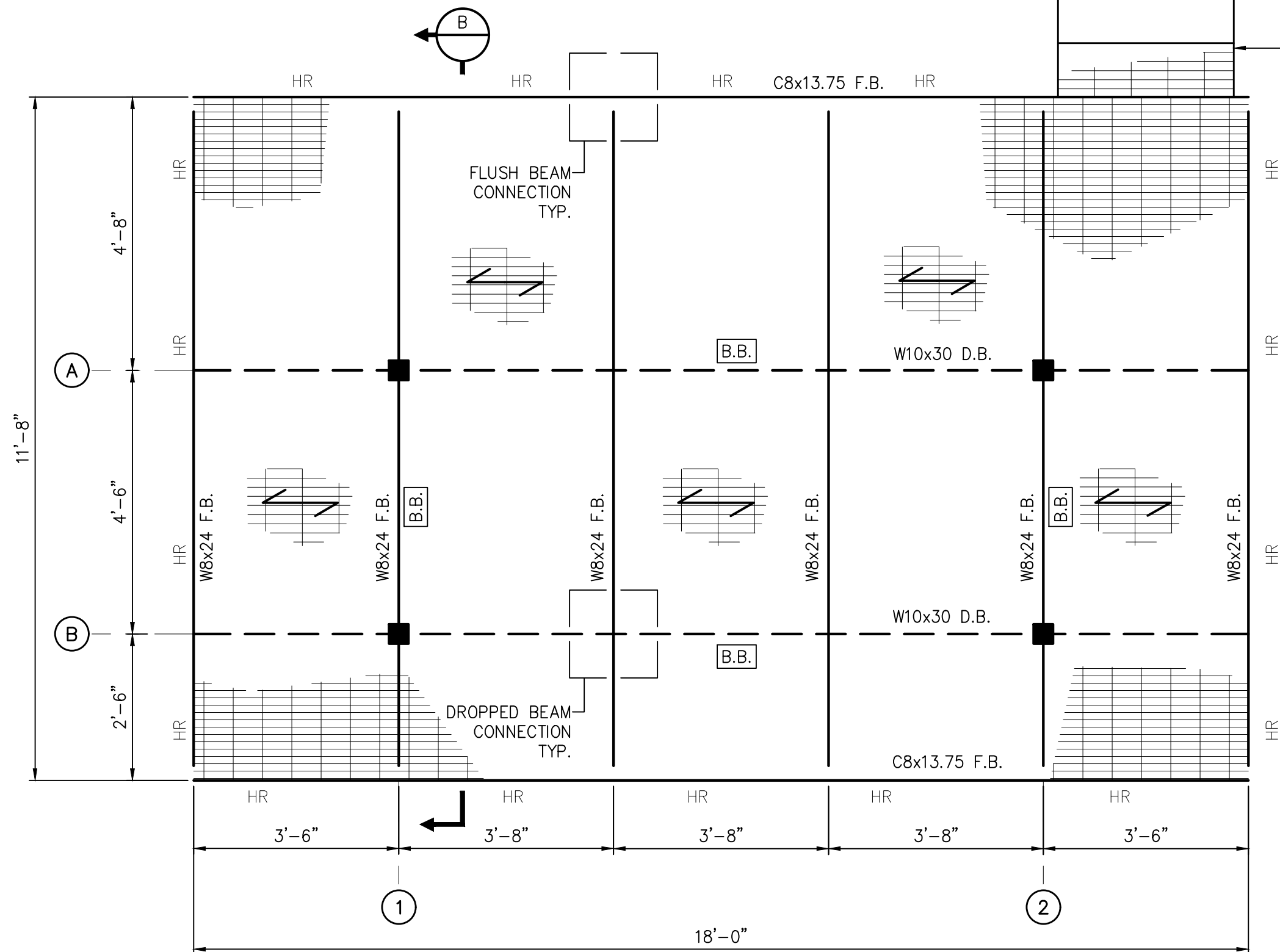
**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

**CARVEL LANE LIFT STATION
STRUCTURES
TOP OF SLAB MODIFICATIONS
PROPOSED DETAILS**

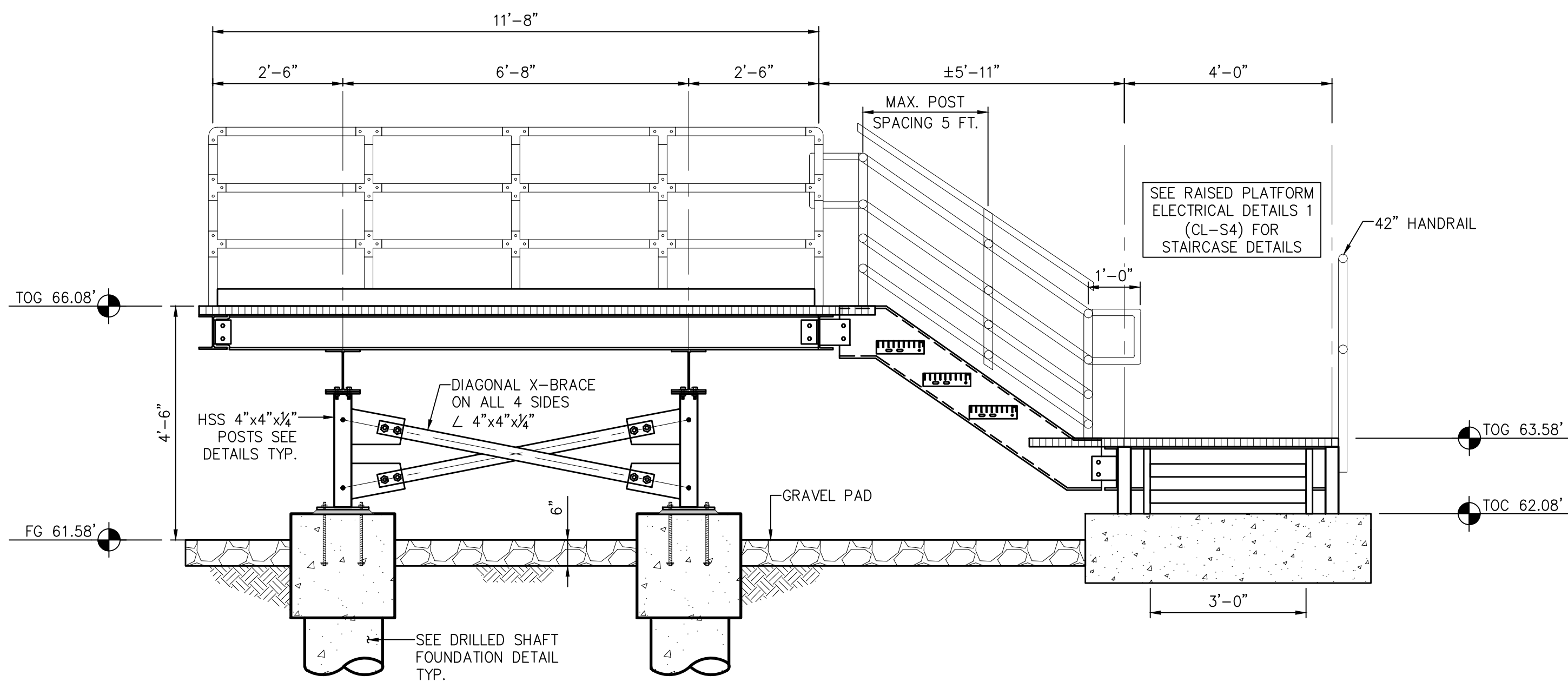
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B PLATFORM ELEVATION SECTION
NTS

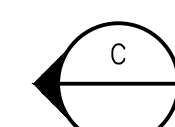


A PLATFORM FRAMING PLAN
NTS



B PLATFORM ELEVATION SECTION
NTS

SEE PROPOSED TOP
SLAB PLAN VIEW FOR
DETAILS (CL-S1)



IMPORTANT NOTES:

1. PROPOSED PLATFORM GEOMETRY HAS BEEN LAID OUT WITH THE BEST INFORMATION AVAILABLE. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO FABRICATING STEEL.
2. BEAM & JOIST SPACING MAY CHANGE BASED UPON FINAL VENDOR DRAWINGS FROM ELECTRICAL & MECHANICAL SUPPLIERS. DO NOT BEGIN FABRICATION WORK UNTIL APPROVED ELECTRICAL & MECHANICAL DRAWINGS HAVE BEEN RETURNED TO CONTRACTOR.
3. CONTRACTOR TO COORDINATE ANY FRAMING CHANGES WITH STEEL FABRICATOR AND INCLUDE THOSE CHANGES ON THE STEEL FABRICATION SUBMITTAL.

ABBREVIATIONS:

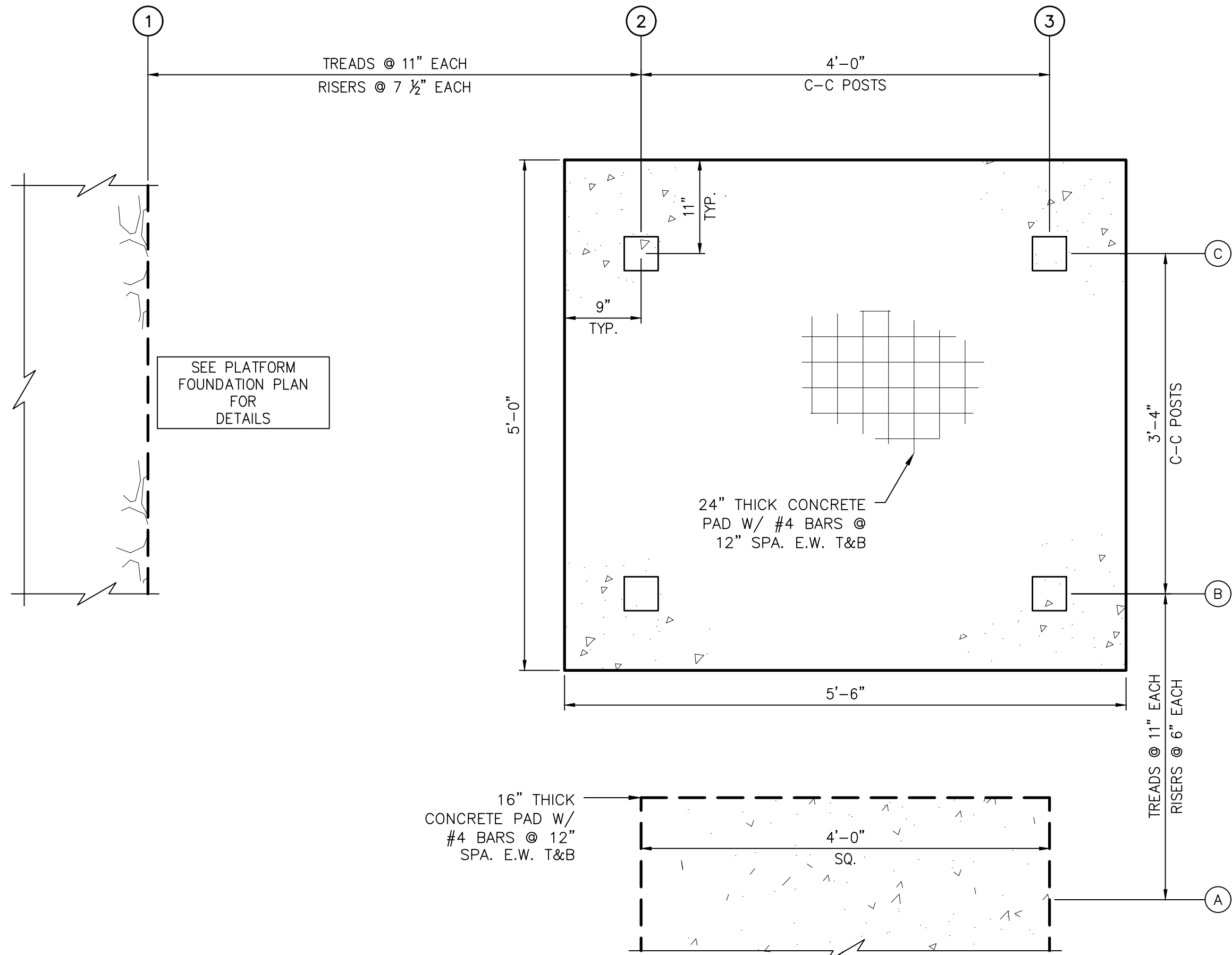
D.B. = DROPPED BEAM
F.B. = FLUSH BEAM
B.B. = X-BRACED COLUMN BAY
HR = 42" OSHA HANDRAIL

ISSUE	DATE	DESCRIPTION

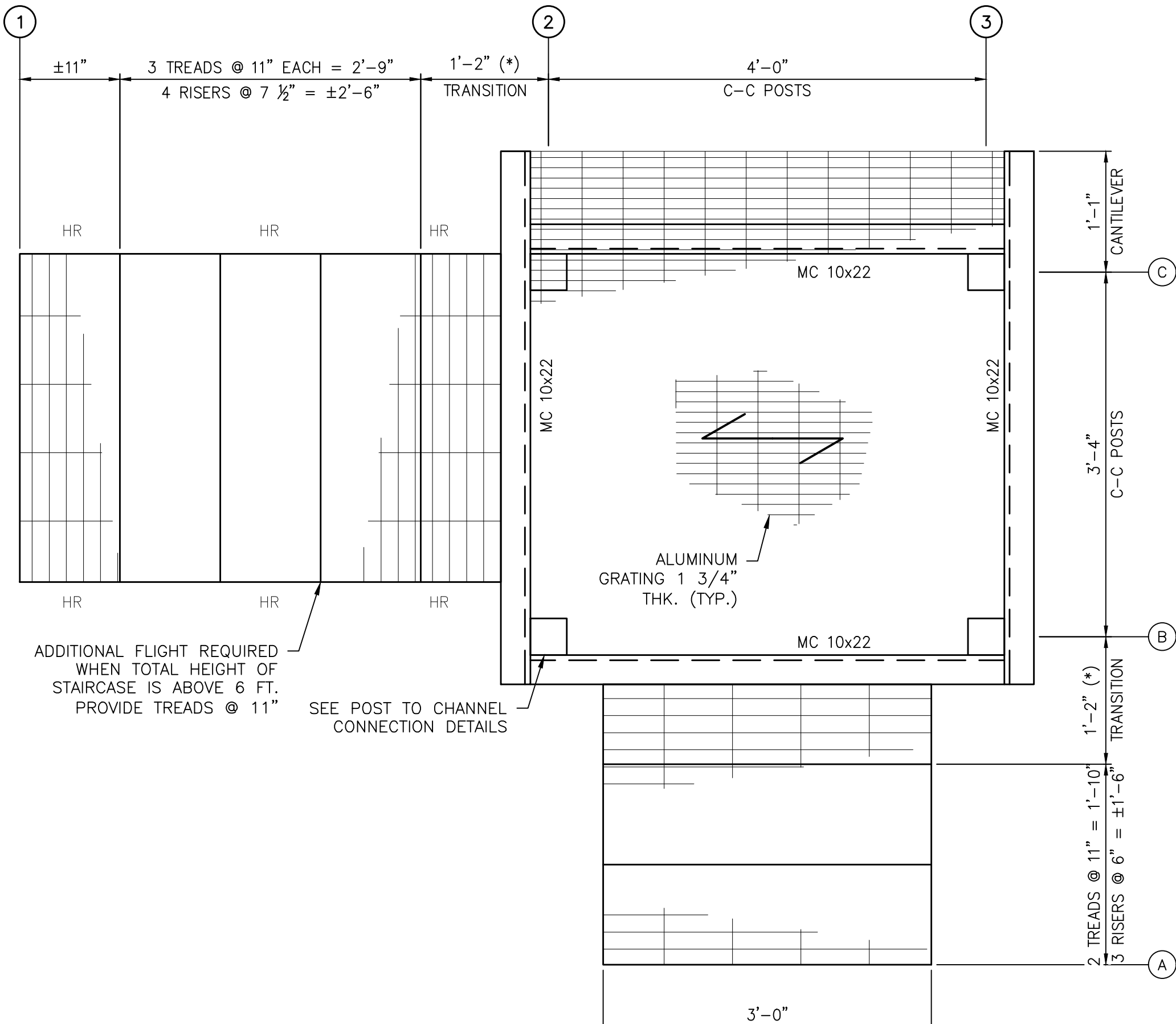
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		

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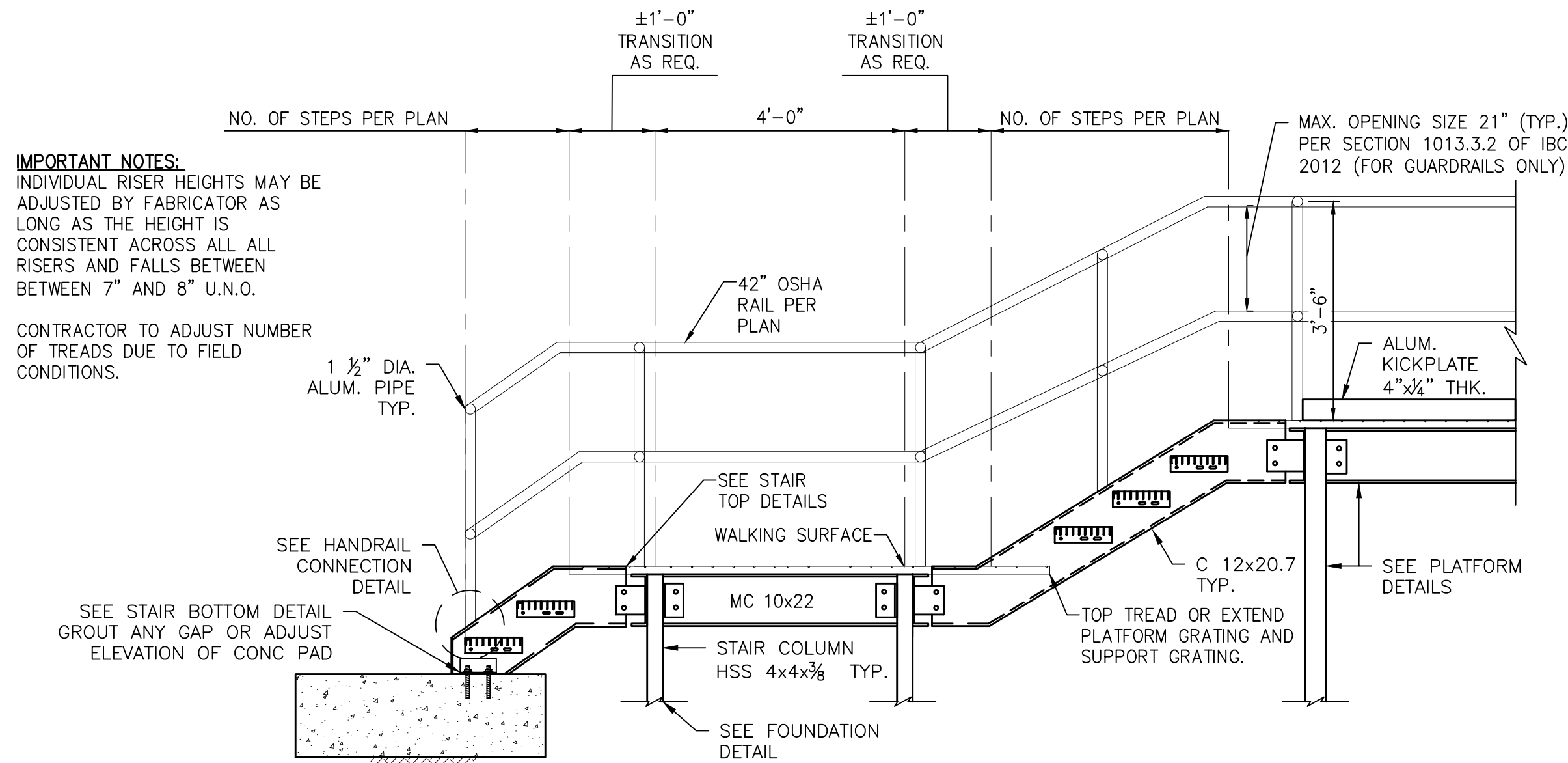
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION	
STRUCTURAL -	
RAISED ELECTRICAL PLATFORM	
PLAN & SECTION	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SCALE:	
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SHEET NO. 41 OF 291	



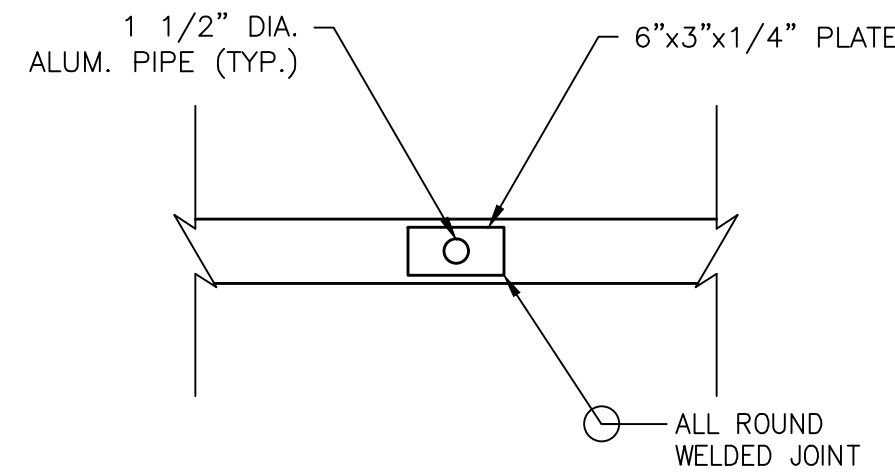
B STAIRCASE FOUNDATION PLAN
NTS



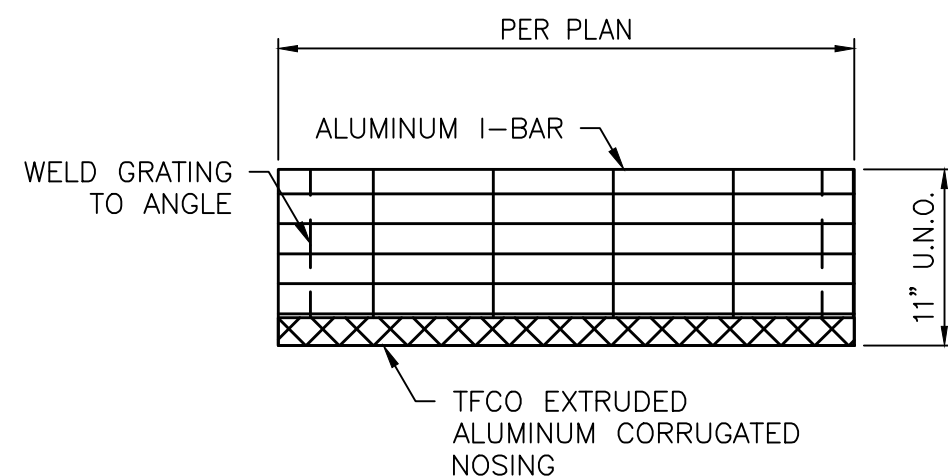
A STAIRCASE FRAMING PLAN
NTS



C STAIRCASE TO PLATFORM ELEVATION SECTION
NTS



D TOP MOUNTED HANDRAIL
NTS



E STAIR TREAD CONNECTION
NTS

IMPORTANT NOTES:
INDIVIDUAL RISER HEIGHTS MAY BE ADJUSTED BY FABRICATOR AS LONG AS THE HEIGHT IS CONSISTENT ACROSS ALL RISERS AND FALLS BETWEEN 7" AND 8" U.N.O.

CONTRACTOR TO ADJUST NUMBER OF TREADS DUE TO FIELD CONDITIONS.

MAX. OPENING SIZE 21" (TYP.) PER SECTION 1013.3.2 OF IBC 2012 (FOR GUARDRAILS ONLY)

* STAIRCASE ROTATED FOR CLARITY. REF. SHEET CL-S3 FOR ORIENTATION *

ISSUE	DATE	DESCRIPTION

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3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

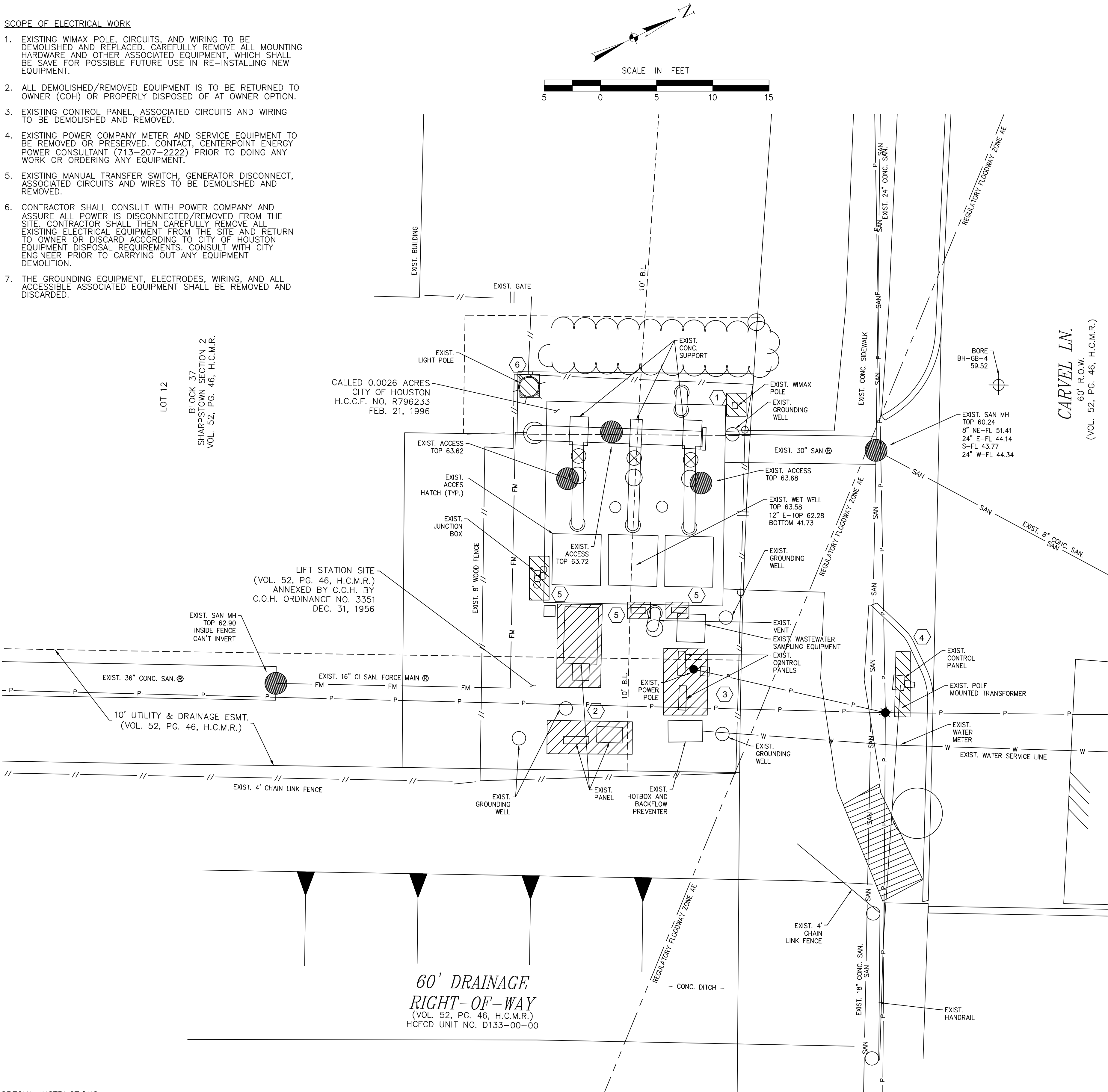
ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM DETAILS 1	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 42 OF 291	

SCOPE OF ELECTRICAL WORK

- EXISTING WIMAX POLE, CIRCUITS, AND WIRING TO BE DEMOLISHED AND REPLACED. CAREFULLY REMOVE ALL MOUNTING HARDWARE AND OTHER ASSOCIATED EQUIPMENT, WHICH SHALL BE SAVE FOR POSSIBLE FUTURE USE IN RE-INSTALLING NEW EQUIPMENT.
- ALL DEMOLISHED/REMOVED EQUIPMENT IS TO BE RETURNED TO OWNER (COH) OR PROPERLY DISPOSED OF AT OWNER OPTION.
- EXISTING CONTROL PANEL, ASSOCIATED CIRCUITS AND WIRING TO BE DEMOLISHED AND REMOVED.
- EXISTING POWER COMPANY METER AND SERVICE EQUIPMENT TO BE REMOVED OR PRESERVED. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT.
- EXISTING MANUAL TRANSFER SWITCH, GENERATOR DISCONNECT, ASSOCIATED CIRCUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- CONTRACTOR SHALL CONSULT WITH POWER COMPANY AND ASSURE ALL POWER IS DISCONNECTED/REMOVED FROM THE SITE. CONTRACTOR SHALL THEN CAREFULLY REMOVE ALL EXISTING ELECTRICAL EQUIPMENT FROM THE SITE AND RETURN TO OWNER OR DISCARD ACCORDING TO CITY OF HOUSTON EQUIPMENT DISPOSAL REQUIREMENTS. CONSULT WITH CITY ENGINEER PRIOR TO CARRYING OUT ANY EQUIPMENT DEMOLITION.
- THE GROUNDING EQUIPMENT, ELECTRODES, WIRING, AND ALL ACCESSIBLE ASSOCIATED EQUIPMENT SHALL BE REMOVED AND DISCARDED.

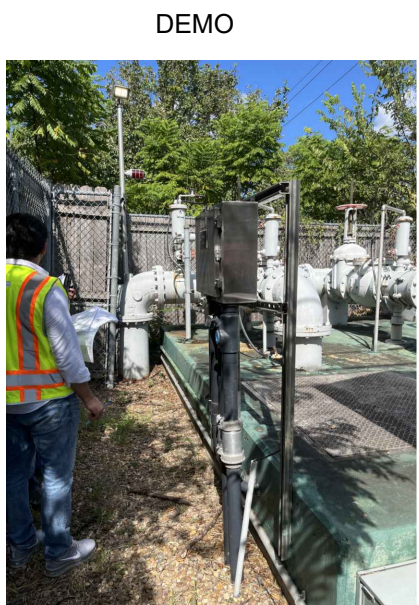


SPECIAL INSTRUCTIONS

- CONTRACTOR SHALL CONSULT WITH CITY ENGINEER IN CASE OF UNCERTAINTY OF STATUS OF EQUIPMENT TO BE DEMOLISHED TO DETERMINE WHAT, IF ANY EQUIPMENT, SHALL BE PRESERVED. SPECIFICALLY, THE ELECTRIC SERVICE METERING, SERVICE POLE, AND GROUNDING EQUIPMENT SHALL BE CAREFULLY EVALUATED SO AS TO PRESERVE ANY EQUIPMENT THAT MAY BE DEEMED REUSABLE.

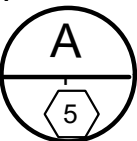
NOTES BY SYMBOL "⬡#":

- EXISTING WIMAX POLE, CONDUITS AND WIRES TO BE DEMOLISHED AND REPLACED. SEE SPECIAL INSTRUCTIONS. IF TO BE REMOVED, OBSERVE ALL REQUIRED APPLICABLE CODES AND ORDINANCES IN DISPOSAL OF ALL EQUIPMENT.
- EXISTING LIFT STATION CONTROL PANEL, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING MTS, GENERATOR DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING MAIN SERVICE DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING ELECTRICAL EQUIPMENT AND DEVICE(PUMP J-BOXES) IN LIFT STATION TO BE DEMOLISHED AND REMOVED.
- EXISTING LIGHT POLE TO BE DEMOLISHED AND REPLACED WITH NEW POLE LIGHT.



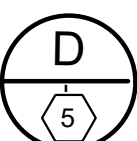
EXISTING LIFT STATION MAIN DISCONNECT

NTS



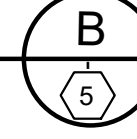
EXISTING WIMAX CONTROLLER

NTS



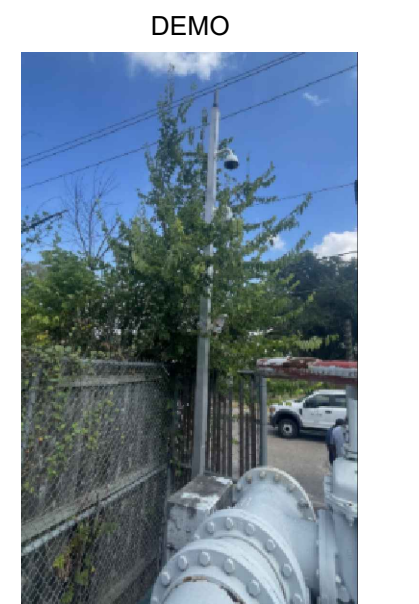
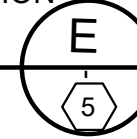
EXISTING LIFT STATION AUTO TRANSFER SWITCH

NTS



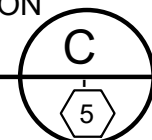
EXISTING LIFT STATION CONTROL PANEL

NTS



EXISTING LIFT STATION WIMAX POLE

NTS



EXISTING LIFT STATION CONTROL PANEL AND WIMAX CONTROLLER

NTS



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481
OF: JAMES E. THOMPSON, JR.
TEXAS P.E. #70302

DATE: 05/01/2026
SURVEYED BY: KUO ASSOC
FB NO. P-6409
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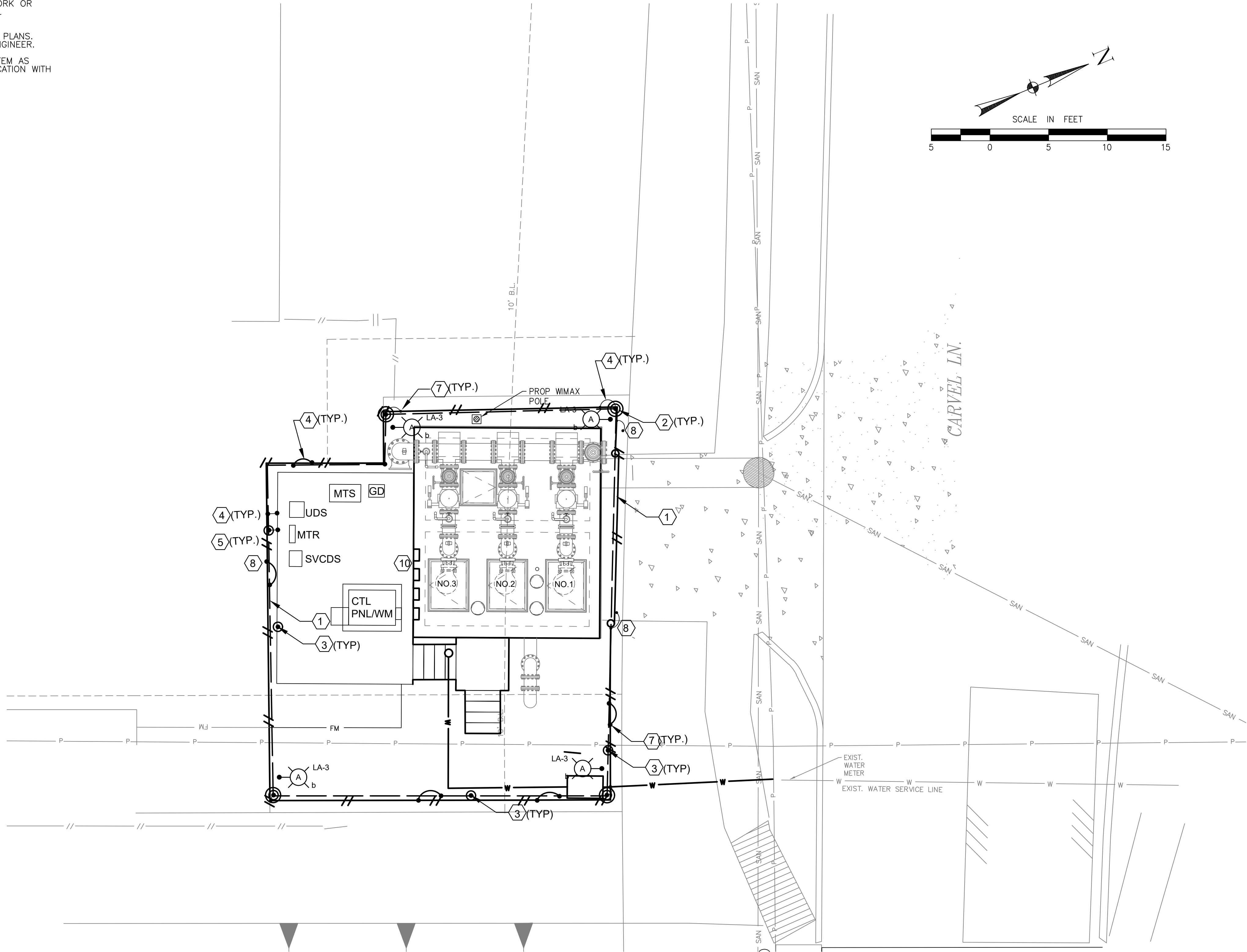
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**CARVEL LANE
LIFT STATION ELECTRICAL
DEMOLITION SITE PLAN**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 44 OF 291	

SCOPE OF ELECTRICAL WORK

1. PROVIDE AND INSTALL NEW ELECTRICAL EQUIPMENT FOR LIFT STATION AS SHOWN ON PLANS AND SPECIFICATIONS.
2. EXISTING WI MAX POLE TO BE REMOVED AND DEMOLISHED. CAREFULLY PRESERVE POLE AND MOUNTING HARDWARE EQUIPMENT FOR POSSIBLE RE-USE.
3. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS GE-17, DETAIL SHEET.
4. PROVIDE NEW YARD LIGHTS AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.
5. PROVIDE NEW GROUNDING ELECTRODE SYSTEM AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.



SPECIAL INSTRUCTIONS

1. ALL WIMAX ELECTRICAL CONNECTIONS TO THE NEW WIMAX POLE SHALL BE UNDERGROUND, AND SHALL BE ROUTED IN A DIRECT MANNER TO THE WIMAX CONTROL PANEL LOCATED AT THE MAIN CONTROL PANEL. A QUARTZITE J-BOX, 18"x18"x12", SHALL BE PROVIDED AT THE WIMAX POLE BASE ADJACENT TO THE WIMAX POLE. MAKE FINAL CONNECTION IN A WORKMANLIKE MANNER. ALL WIRE CONNECTIONS SHALL BE POTTED (SUITABLE FOR CONTINUOUS SUBMERSION).
2. GROUNDING RING TO BE 3/0 AWG BARE COPPER STRANDED WIRE BURIED 3'0" BELOW GRADE. SAMPLE INSPECTION POINTS TO BE FIELD LOCATED TO COMPLY WITH PROPERTY LINES AND EASEMENT REQUIREMENTS.
3. TIE UNDERGROUND GROUND RING SHALL BE BONDED TO ALL FENCE SECTIONS AND AREAS WITH APPROVED GROUND CLAMPS. ALL GROUND CONNECTORS SHALL BE UL APPROVED AND CERTIFIED FOR THE APPLICATION.
4. POLE LIGHTS, SERVICE RACK CONTROL PANEL, AND UNDERGROUND CONDUITS, WIRES, AND JUNCTION BOXES SHALL BE FIELD LOCATED IF DIRECTED BY CITY ENGINEER.

LEGEND

- UDS - UTILITY DISC SWITCH
MTR - PWR CO METER
SVCDS - ELEC SVC DISC
MTS - MANUAL TRANSFER SWITCH
GD - GENERATOR DISCONNECT
CTL PNL/WM - CONTROL PANEL/WIMAX

NOTES BY SYMBOL "#":

- 1 MAIN BURIED GROUND LOOP, #4/0 BARE COPPER CONDUCTOR.
- 2 GROUND TEST WELL.
- 3 GROUND ROD.
- 4 #4/0 BARE COPPER BONDING CONDUCTOR.
- 5 BOND REBAR IN CONCRETE FOOTER OR SLAB TO MAIN BURIED GROUND LOOP.
- 6 #2/0 BARE COPPER BONDING CONDUCTOR.
- 7 THERMOWELD CABLE CONNECTION.
- 8 PROVIDE FLEX BONDING JUMPER ACROSS GATE HINGES.
- 9 PROVIDE GROUND LOOP CONNECTION TO ELECTRICAL PLATFORM
- 10 JUNCTION BOXES SHALL BE MOUNTED ON WET WELL. PROVIDE NEMA 6P 316 STAINLESS STEEL CONSTRUCTION.

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.

ISSUE DATE DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



Engineers, PC

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

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY

OF: JAMES E. THOMPSON, JR,
TEXAS P.E. #70302

DATE: 12/10/2025

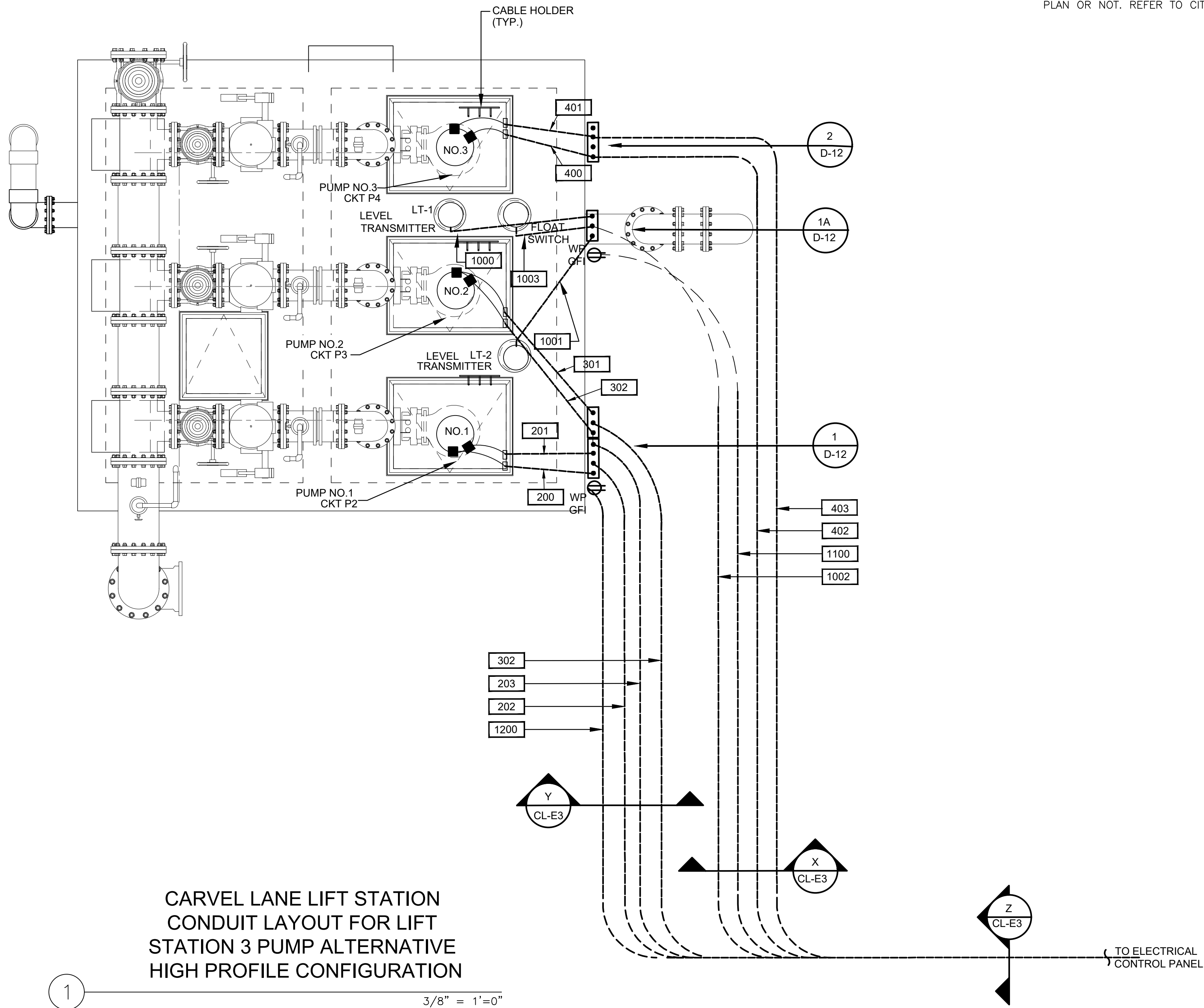
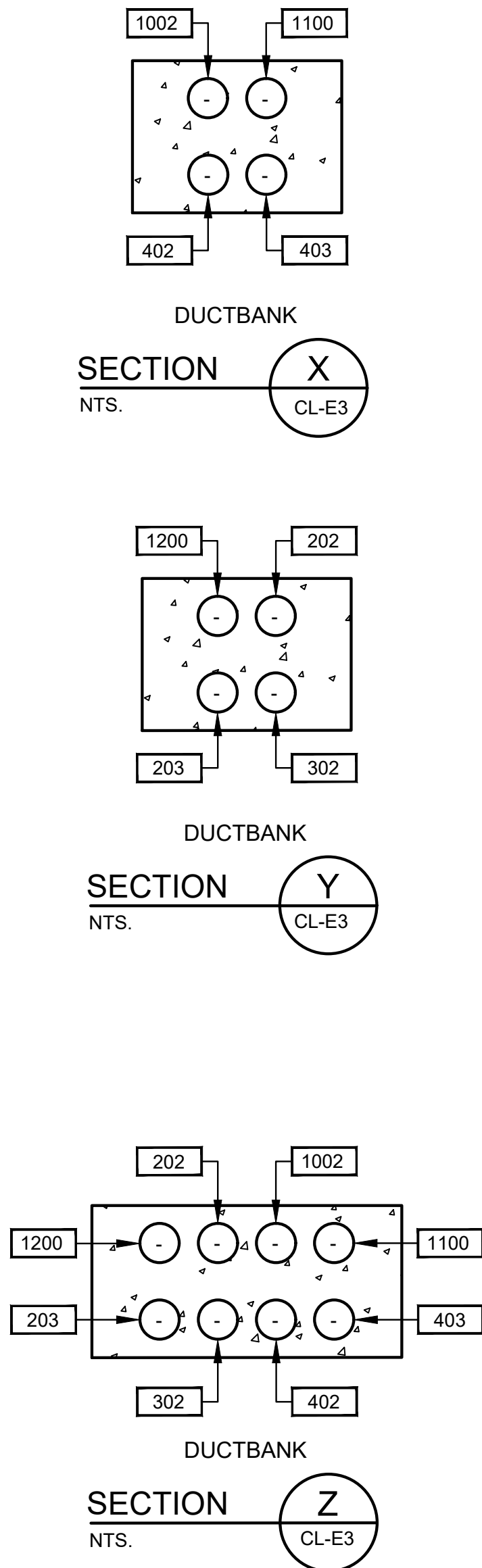
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION
ELECTRICAL PROPOSED SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 45 OF 291	



CARVEL LANE LIFT STATION
CONDUIT LAYOUT FOR LIFT
STATION 3 PUMP ALTERNATIVE
HIGH PROFILE CONFIGURATION

SPECIAL INSTRUCTIONS:

- JUNCTION BOXES SHALL BE MOUNTED ON TOP-OF-SLAB. PROVIDE NEMA 6P, 316 STAINLESS STEEL PANEL CONSTRUCTION. JUNCTION BOX SPACING AT WET WELL SHALL ACCOMMODATE ACCESS TO PLATFORM.

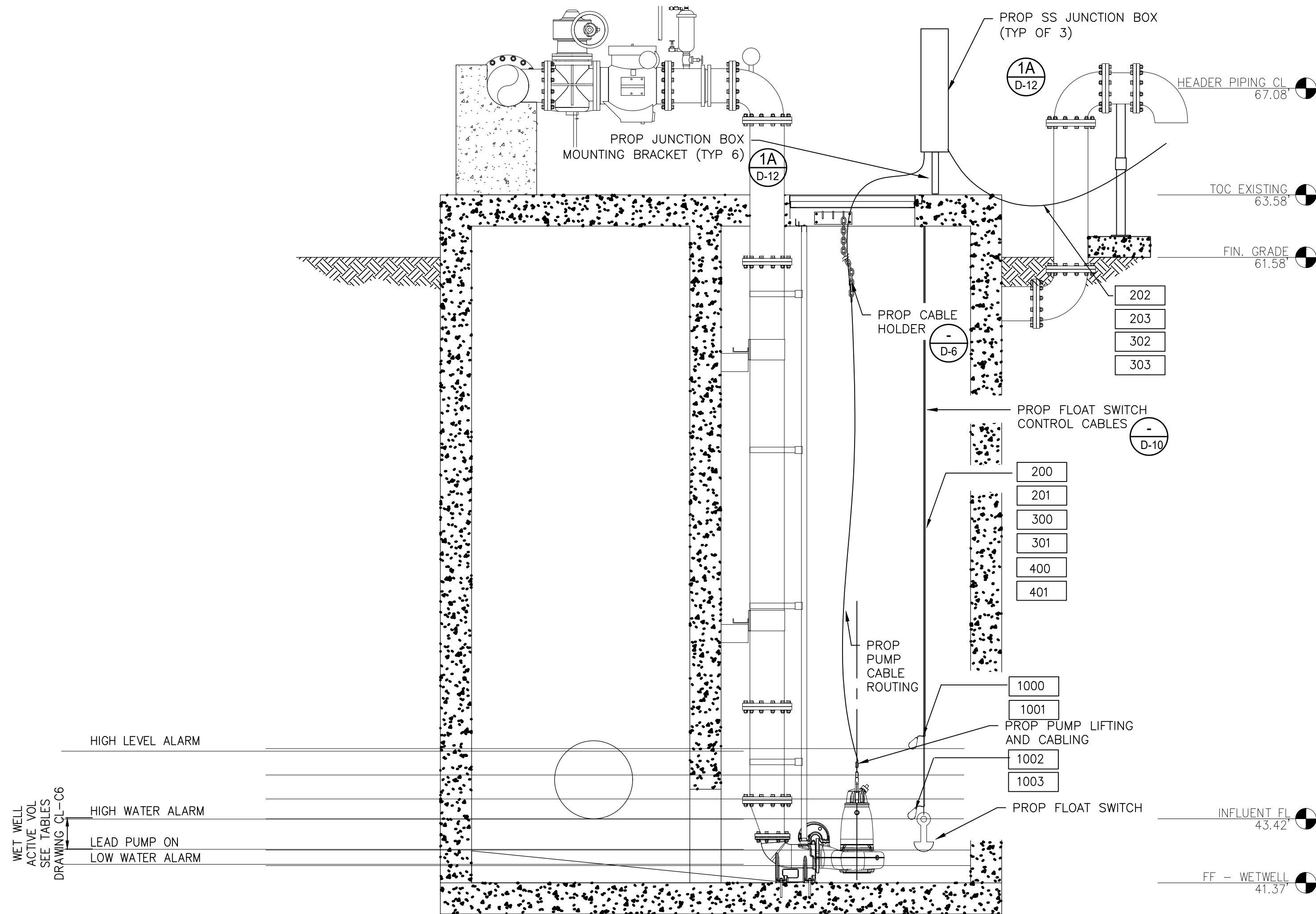
NOTES:

- WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
- ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
- ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
- THE ELECTRICAL INSTALLATION WITHIN THE VALVE VAULT SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
- ALL CONDUITS AND CONDUCTOR SIZES AND ROUTING SHALL BE FIELD VERIFIED WITH ACTUAL EQUIPMENT ON SITE PRIOR TO DOING ANY WORK. COORDINATE WITH CITY ENGINEER.
- ALL EQUIPMENT MOUNTING LOCATIONS SHALL BE FIELD VERIFIED WITH CITY ENGINEER PRIOR TO INSTALLATION.
- GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS. FOR "SITE AREA GROUNDING", PROVIDE ADDITIONAL GROUNDS FOR ANY LOCATION WHERE ADDITIONAL GROUNDING IS NEEDED WHETHER SHOWN ON PLAN OR NOT. REFER TO CITY ENGINEER.

NOTES (CONT):

- JUNCTION BOXES SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. JUNCTION BOXES SHALL CONTAIN NO CIRCUITS OTHER THAN THOSE IDENTIFIED ON PLANS.
- FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTINGS AT JUNCTION BOX ENTRANCES AND EXPLOSION PROOF SEALS IN CONDUITS TO CONTROL PANEL.
- TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL, ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
- ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
- LEVEL TRANSMITTERS SHOWN ARE APPROXIMATE. LEVEL TRANSMITTERS SHALL BE FIELD LOCATED.
- 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.
- ALL RECEPTACLES INSTALLED WITHIN 5 FEET OF CLASSIFIED AREAS SHALL BE EXPLOSION PROOF TYPE.
- PROVIDE GFCI OUTLETS FOR UTILITY SERVICE EQUIPMENT PER APPLICABLE CODE REQUIREMENTS AND STANDARD PLANS. PROVIDE HEAVY DUTY IN-USE COVERS.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
CARVEL LANE LIFT STATION CONDUIT LAYOUT FOR LIFT STATION 3 PUMP ALTERNATIVE HIGH PROFILE CONFIGURATION		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 46 OF 291		



CARVEL LANE LIFT STATION
ELEVATION SECTION 3 PUMP
CONDUIT ROUTING ALTERNATIVE
HIGH PROFILE CONFIGURATION

1 3/8" = 1'=0"

NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL ELECTRICAL CONTROL CABINETS SHALL BE RAISED TO 500 YEAR FLOOD ELEVATION + 3 FEET.
6. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT AND CONDUCTOR SIZES AND ENTRY LOCATIONS AND CONSULT WITH CITY ENGINEER PRIOR TO DOING ANY WORK.
7. ALL ELECTRICAL INSTALLATIONS SHALL BE FIELD LOCATED WITH ASSISTANCE OF CITY ENGINEER.
8. JUNCTION BOX LOCATION SHOWN DIAGRAMMATIC FOR DRAWING CLARITY. JUNCTION BOXES SHALL BE FIELD LOCATED AT WET WELLS WITH ASSISTANCE OF CITY ENGINEER. JUNCTION BOXES SHALL BE NEMA 6P 316 SS.

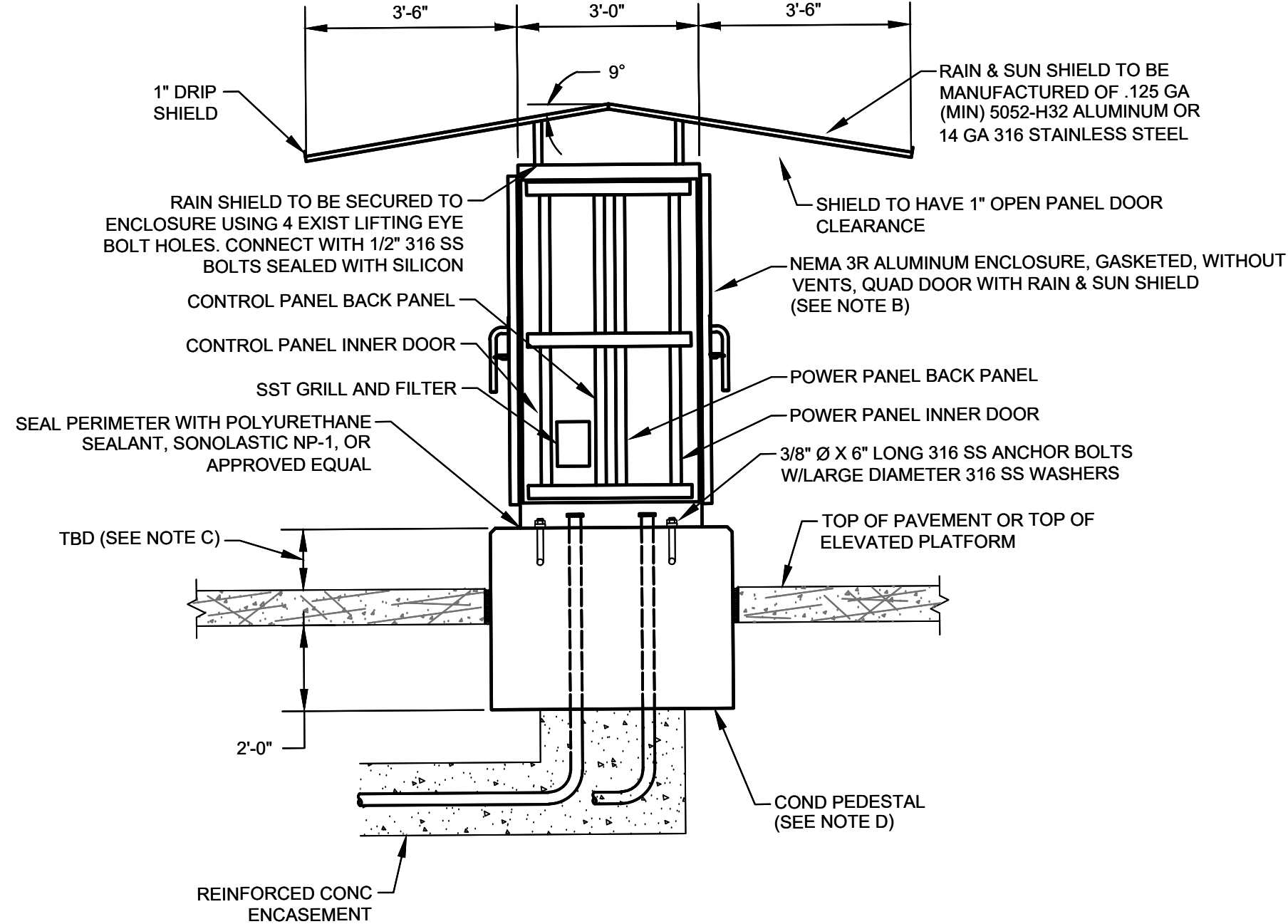
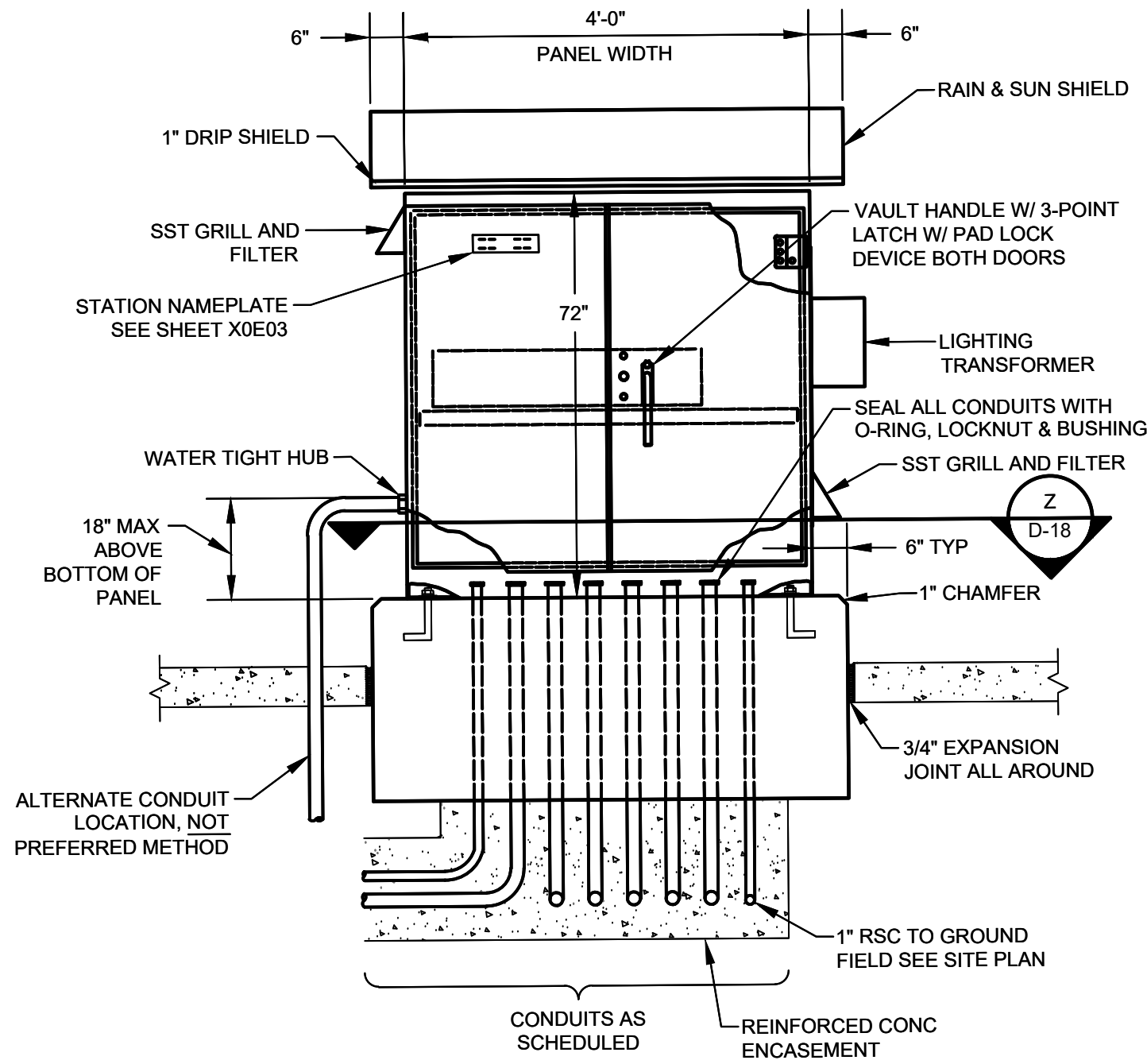
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

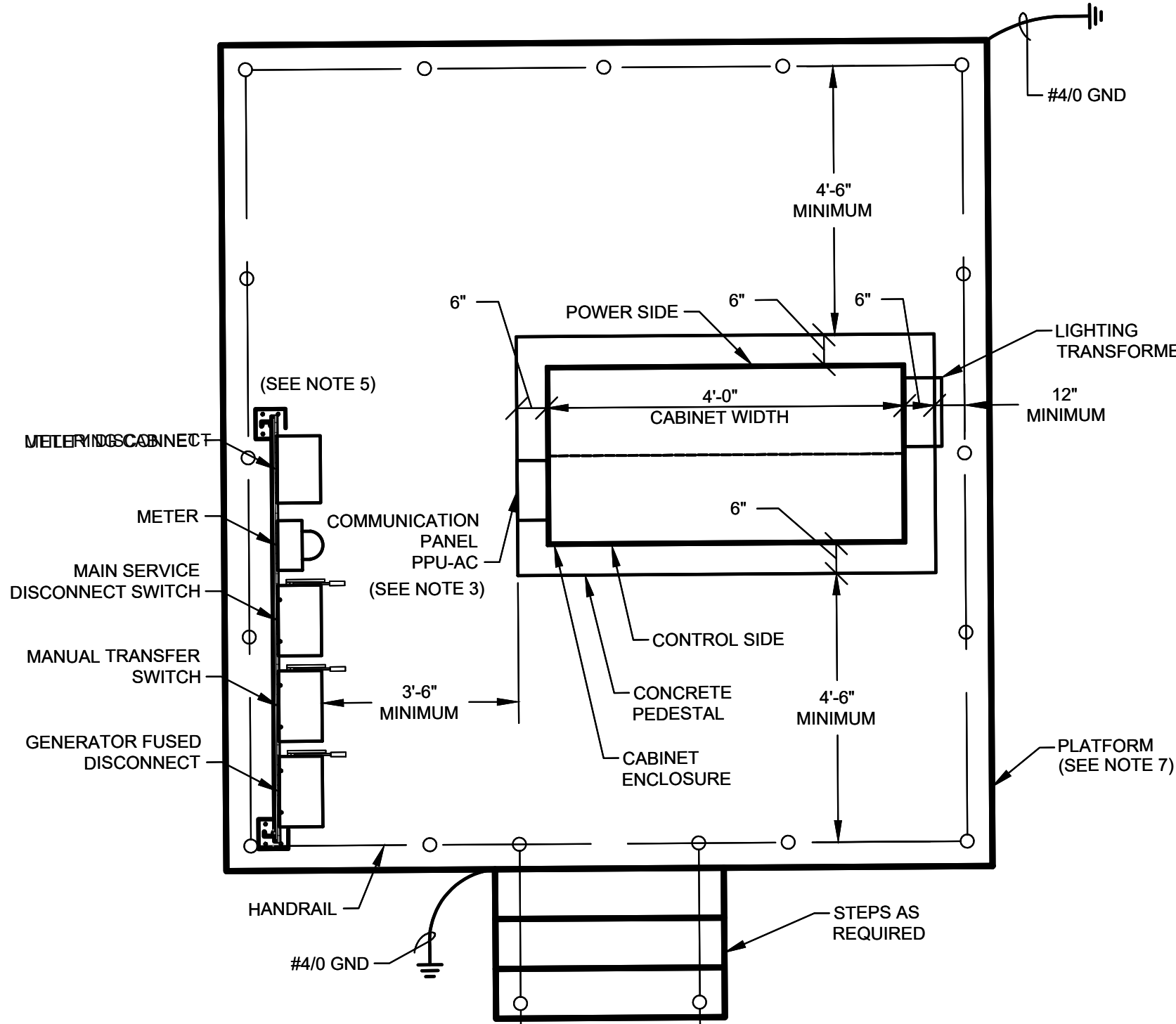
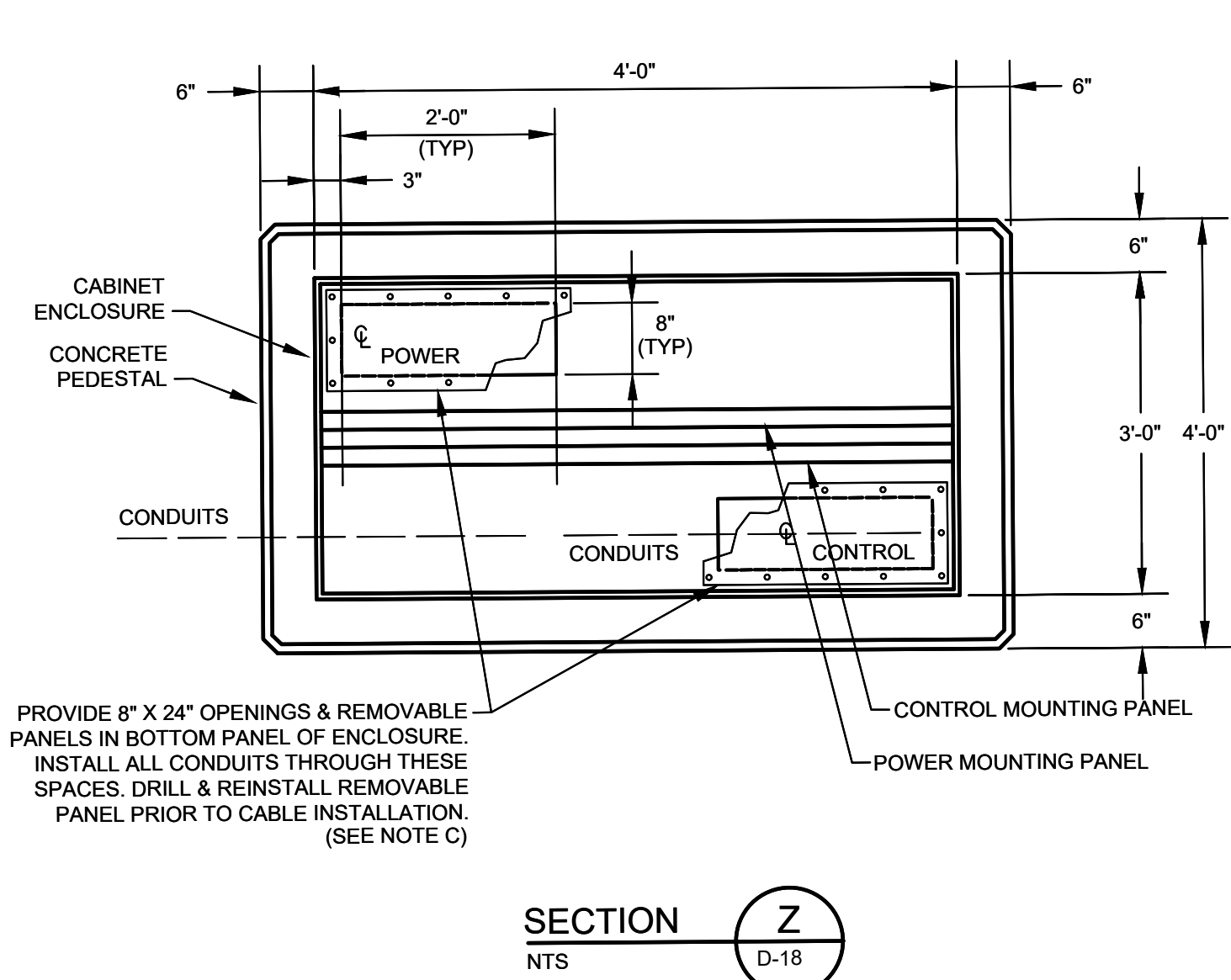
CARVEL LANE LIFT STATION
ELEVATION SECTION 3 PUMP
CONDUIT ROUTING ALTERNATIVE
HIGH PROFILE CONFIGURATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 47 OF 291	

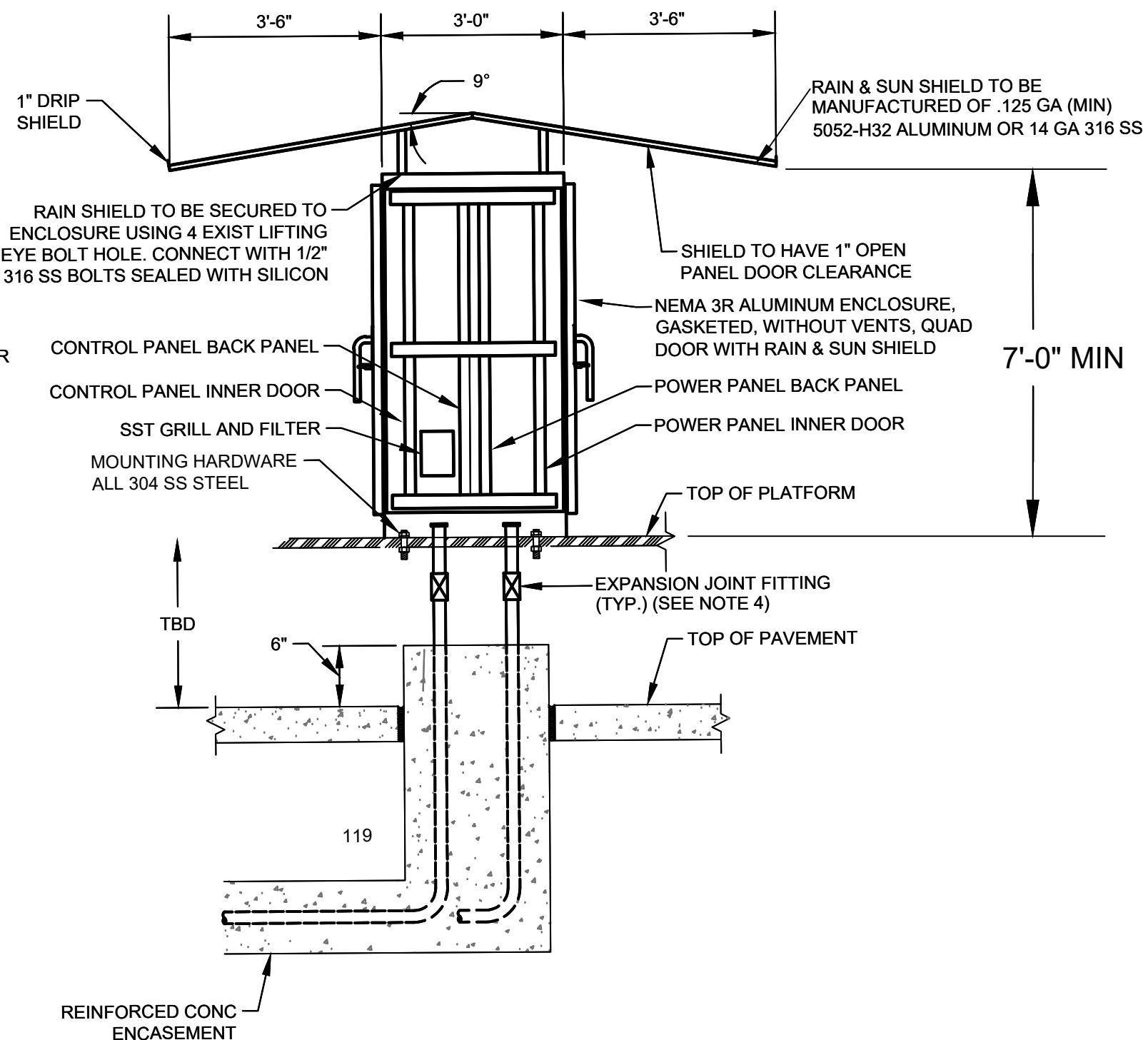


- NOTES:**
- SEE SHEET X0E02 FOR EQUIPMENT SCHEDULE.
 - REFER TO SPECIFICATION SECTION 13325 PROCESS CONTROL SYSTEMS CONTROL PANELS FOR PANEL DIMENSIONS.
 - COMMUNICATION PANEL TO BE INSTALLED ABOVE SERVICE RACK ELEVATION.
 - EXPANSION JOINT FITTINGS AS REQUIRED.
 - REFER TO SERVICE RACK FOR DETAIL.
 - ROOF STRUCTURE SHALL NOT EXTEND TO A POINT LOWER THAN 7'-0" ABOVE PLATFORM OF SLAB.
 - REFER TO STRUCTURAL DRAWINGS "ZOS04, ZOS05, & ZOS06" FOR PLATFORM DETAIL.
 - THE CONTROL PANEL DOORS SHALL FACE NORTH AND SOUTH WHERE FEASIBLE.
 - ROOF STRUCTURE SHALL EXTEND NO LOWER THAN 7'-0" FROM LOWEST EDGE OF ROOF STRUCTURE TO SLAB OR PLATFORM.

CONTROL CABINET ENCLOSURE WITH CONCRETE PEDESTAL FOUNDATION
(SEE NOTE 6)



CONTROL CABINET ENCLOSURE ON ELEVATED PLATFORM DETAIL
(PLATFORM ELEVATION AS REQUIRED BY NOTE D)



CONTROL CABINET ENCLOSURE WITH PLATFORM
(SEE NOTE 6)

ISSUE	DATE	DESCRIPTION

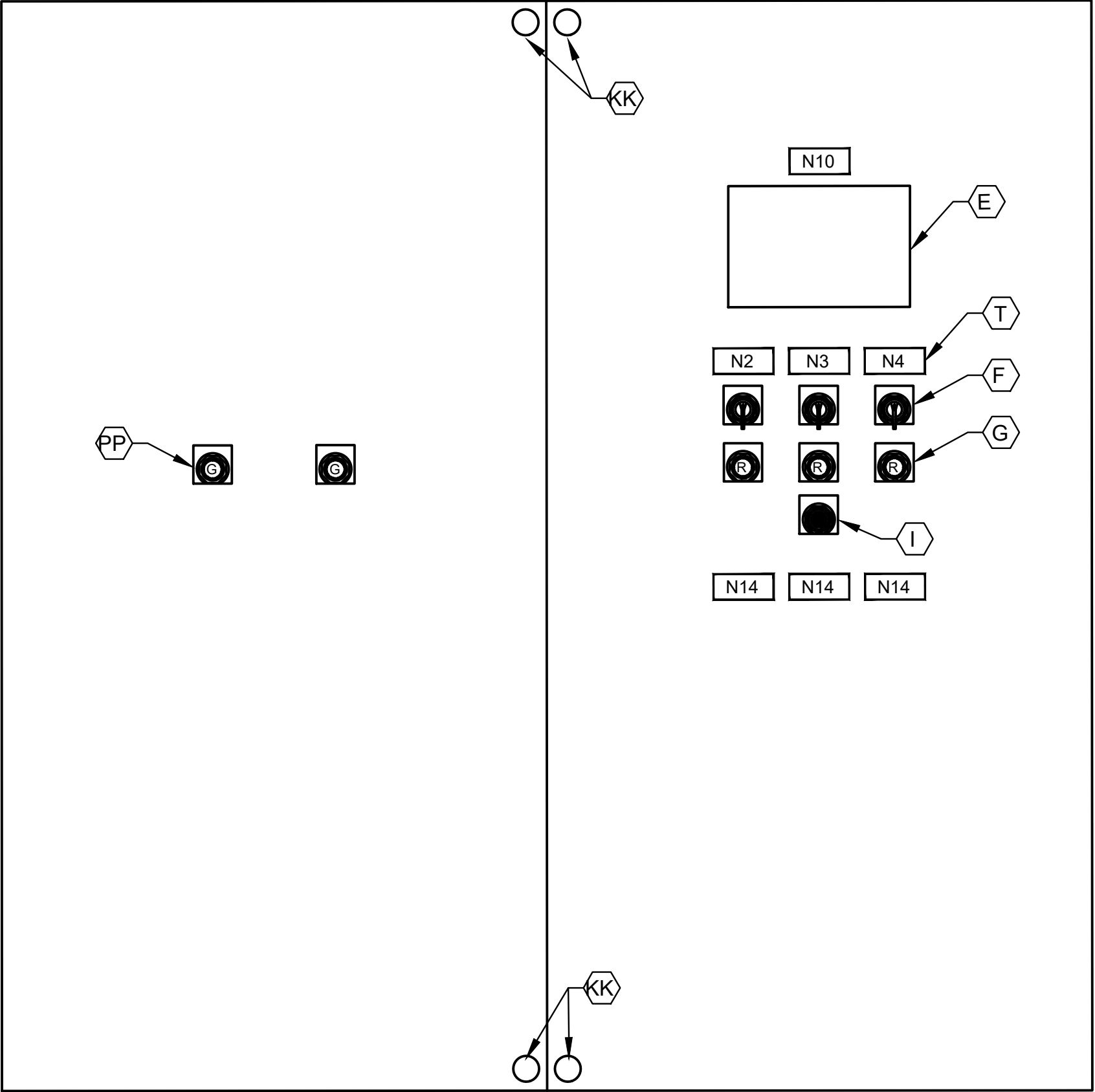
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET ENCLOSURE	
WBS NUMBER R-000267-0176-3	FOR CITY OF HOUSTON USE ONLY
SCALE: 1"=5'	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 48 OF 291	
CL-E5	

EQUIPMENT AND DEVICE SCHEDULE		
ITEM	QUANTITY	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 1 PHASE, 3 WIRE, 100A, 12 CKTS
B	3	FULL VOLTAGE, NON-REVERSING, SINGLE SPEED, AUTOMATIC MOTOR STARTER W/120 VOLT CONTROL COIL, NEMA SIZE AS SCHEDULED.
C	3	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 120VAC COIL AND 11 PIN SOCKET BASE.
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY
E	1	PROGRAMMING SCREEN (OIT)
F	3	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL)
G	3	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND
H	1	PERPETUAL POWER UNIT (PPU)
I	1	PUMP ALARM RESET PUSHBUTTON
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST
K	3	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION.
M	1	SURGE PROTECTOR - INCOMING POWER
N	*	NOT USED.
P	3	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT.
Q	12	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS
R	1	WIRE DUCT 2" WIDE X 2" DEEP MINIMUM
S	*	NOT USED.
T	*	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
U	3	SOLID STATE MOTOR OVERLOAD RELAY
V	6	FUSE HOLDER & FUSES - PHASE FAILURE
W	1	NEMA 3R GASKETED ALUMINUM ENCLOSURE WITHOUT VENTS
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE FOR ENVIRONMENT)
Y	1	THERMAL-MAGNETIC MOLDED CASE MAIN CIRCUIT BREAKER, SIZE AS SCHEDULED
Z	3	ADJUSTABLE INSTANTENOUS TRIP MOTOR CIRCUIT PROTECTOR, SIZE AS SCHEDULED
AA	*	TERMINAL BLOCKS
BB	3	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM
CC	2	ANALOG I/O SURGE SUPPRESSOR
DD	1	WIRE DUCT 2" WIDE x 2" DEEP MINIMUM
EE	1	THERMAL-MAGNETIC MODLED CASE CIRCUIT BREAKER FOR LIGHTING TRANSFORMER, SIZE AS SCHEDULED
FF	1	GROUND BUS
GG	1	10 KVA, 480 - 240/120V,1ϕ, 3W DRY TYPE TRANSFORMER
HH	*	NOT USED.
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED)
JJ	11	CARTRIDGE FUSES & FUSE HOLDER
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A
MM	2	MOTION SWITCH
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP PLC" LEGEND
QQ	*	NOT USED
RR	*	NOT USED
SS	1	COMMUNICATION ETHERNET SWITCH
TT	1	POWER SURGE PROTECTOR - CONTROL POWER
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT
VV	1	PHASE AND UNDER VOLTAGE MONITOR
WW	*	FUSED TERMINAL BLOCKS
XX	3	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I
YY	2	ANALOG SIGNAL ISOLATOR
ZZ	3	POWER FACTOR CORRECTION CAPACITOR NEMA 3R STAINLESS STEEL
AB	-	NOT USED.
AC	1	POWER DISTRIBUTION BLOCK
AD	1	NEUTRAL LUG
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD
AF	1	T-STAT FOR EXHAUST FAN

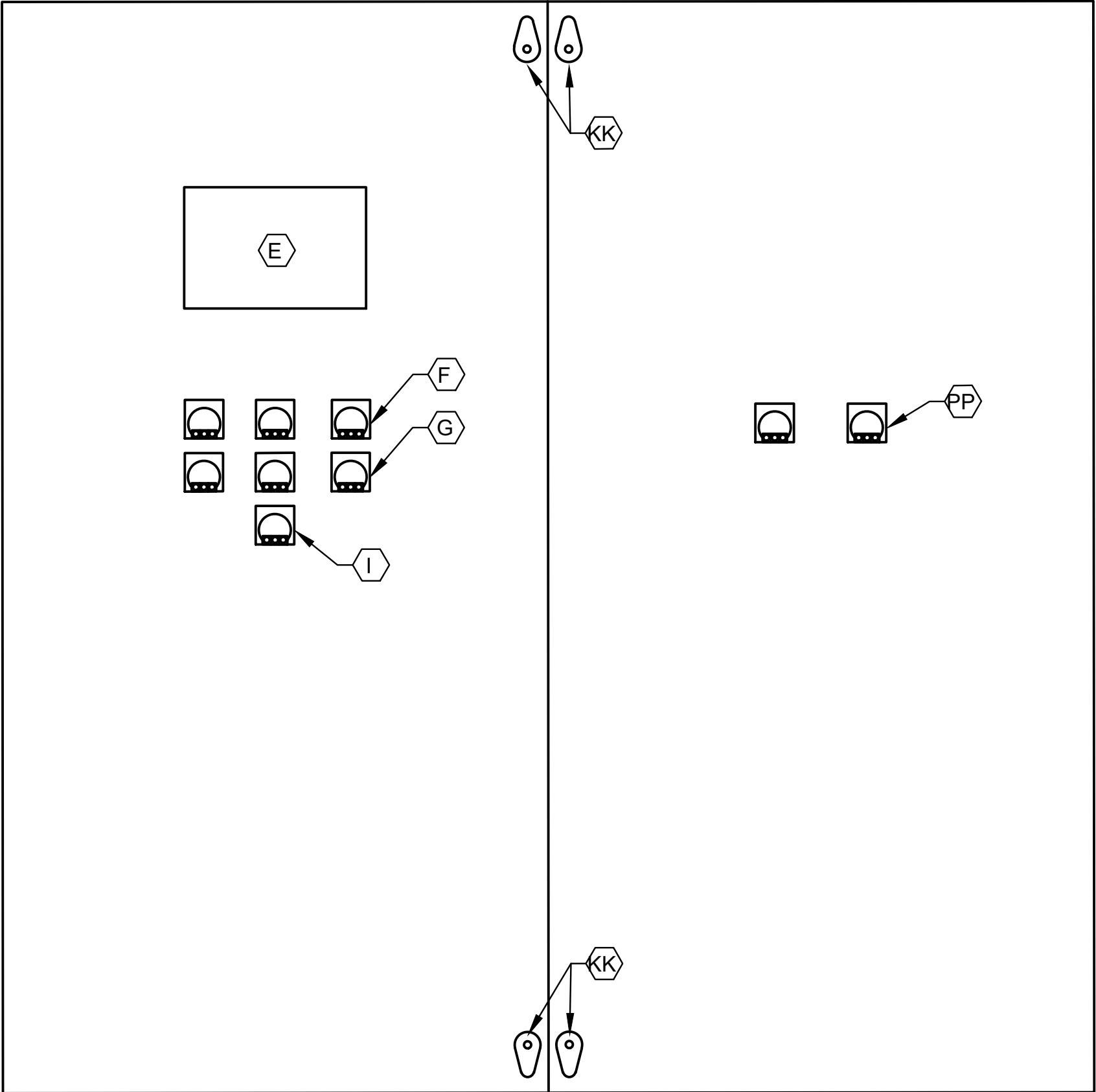
* - AS SCHEDULED



CONTROL PANEL FRONT INNER DOOR

ELEVATION

NTS



CONTROL PANEL BACK INNER DOOR

ELEVATION

NTS

NOTES:

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

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

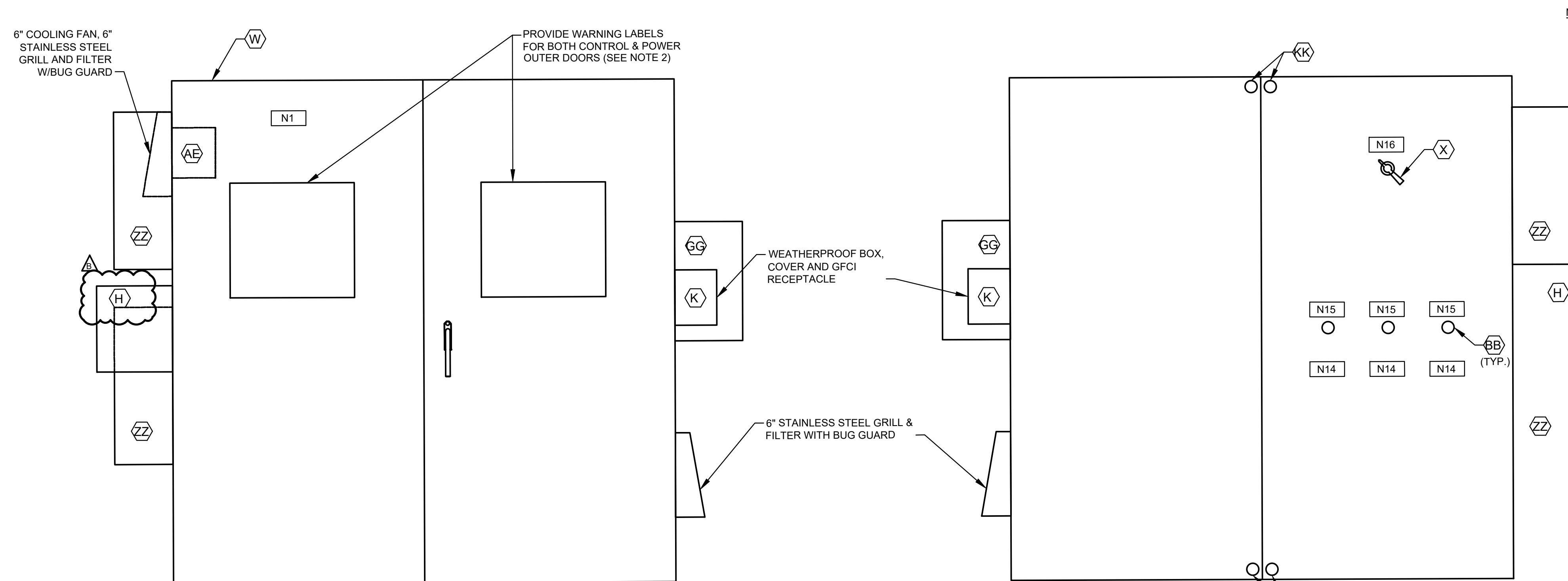
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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

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DATE: 12/10/2025
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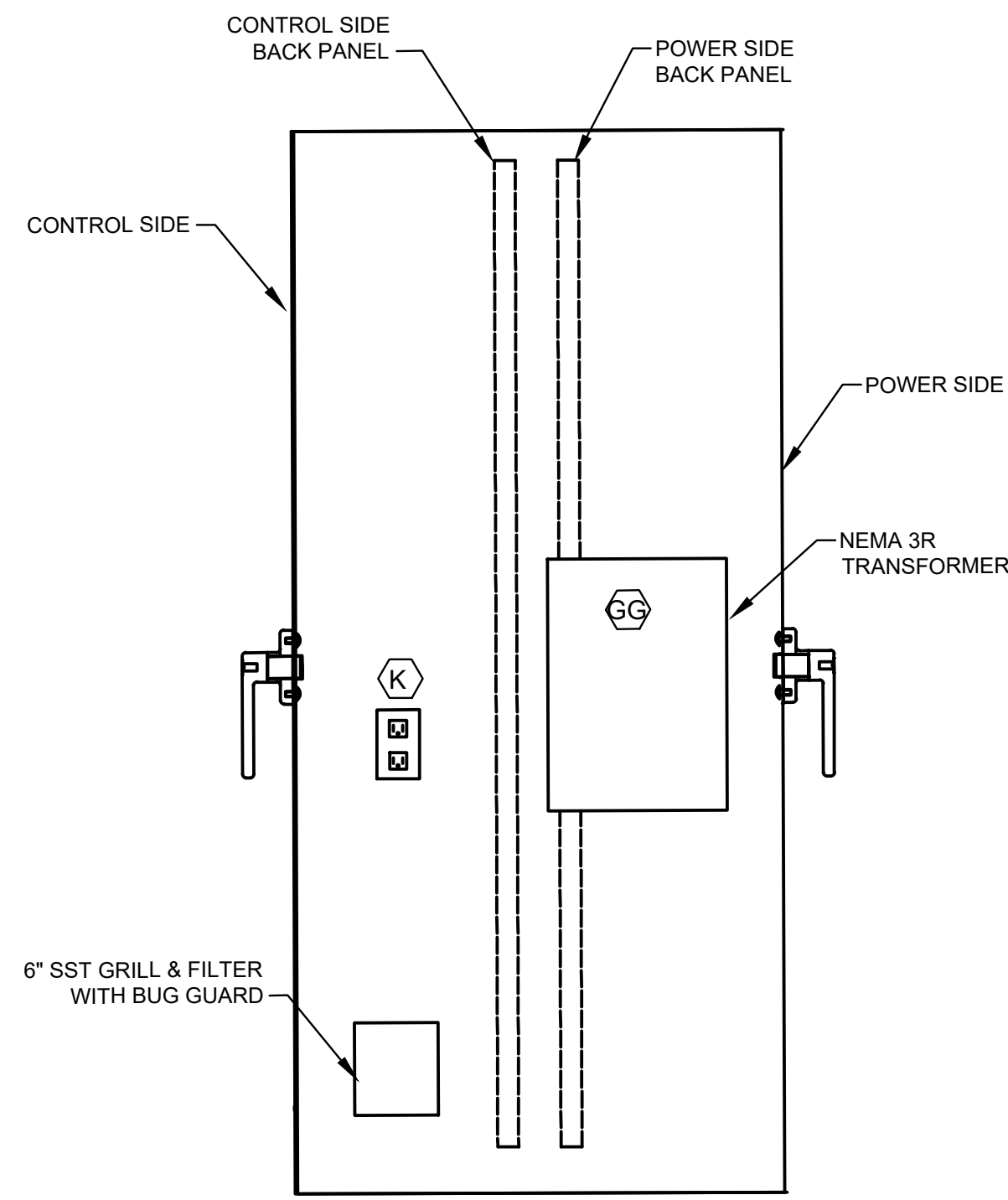
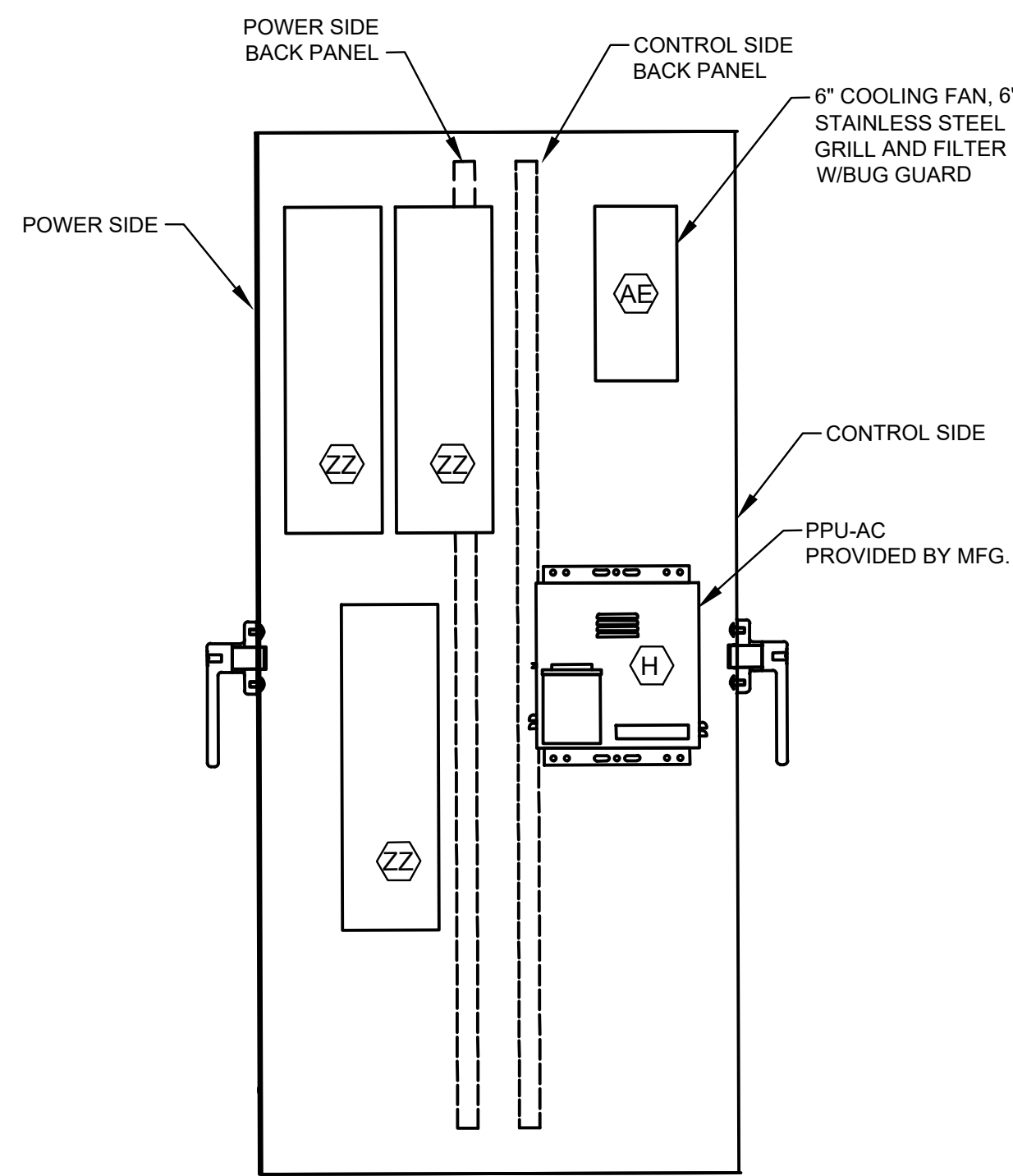
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 49 OF 291	



- NOTES:
1. SEE SHEET CL-E6 FOR EQUIPMENT SCHEDULE.
 2. REFER TO NEC SECTIONS 110.16 & 110.21

NAMEPLATE SCHEDULE

DESIGNATION		ENGRAVED	DESIGNATION	ENGRAVED
N1	PUMP STATION DESIGNATION		N8	NOT USED.
N2	PUMP NO. 1		N9	NOT USED.
N3	PUMP NO. 2		N10	PROGRAMMING SCREEN
N4	PUMP NO. 3		N11	NOT USED.
N5	NOT USED.		N12	PRIMARY PLC
N6	NOT USED.		N13	BACKUP PLC
N7	NOT USED.		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	



ISSUE	DATE	DESCRIPTION

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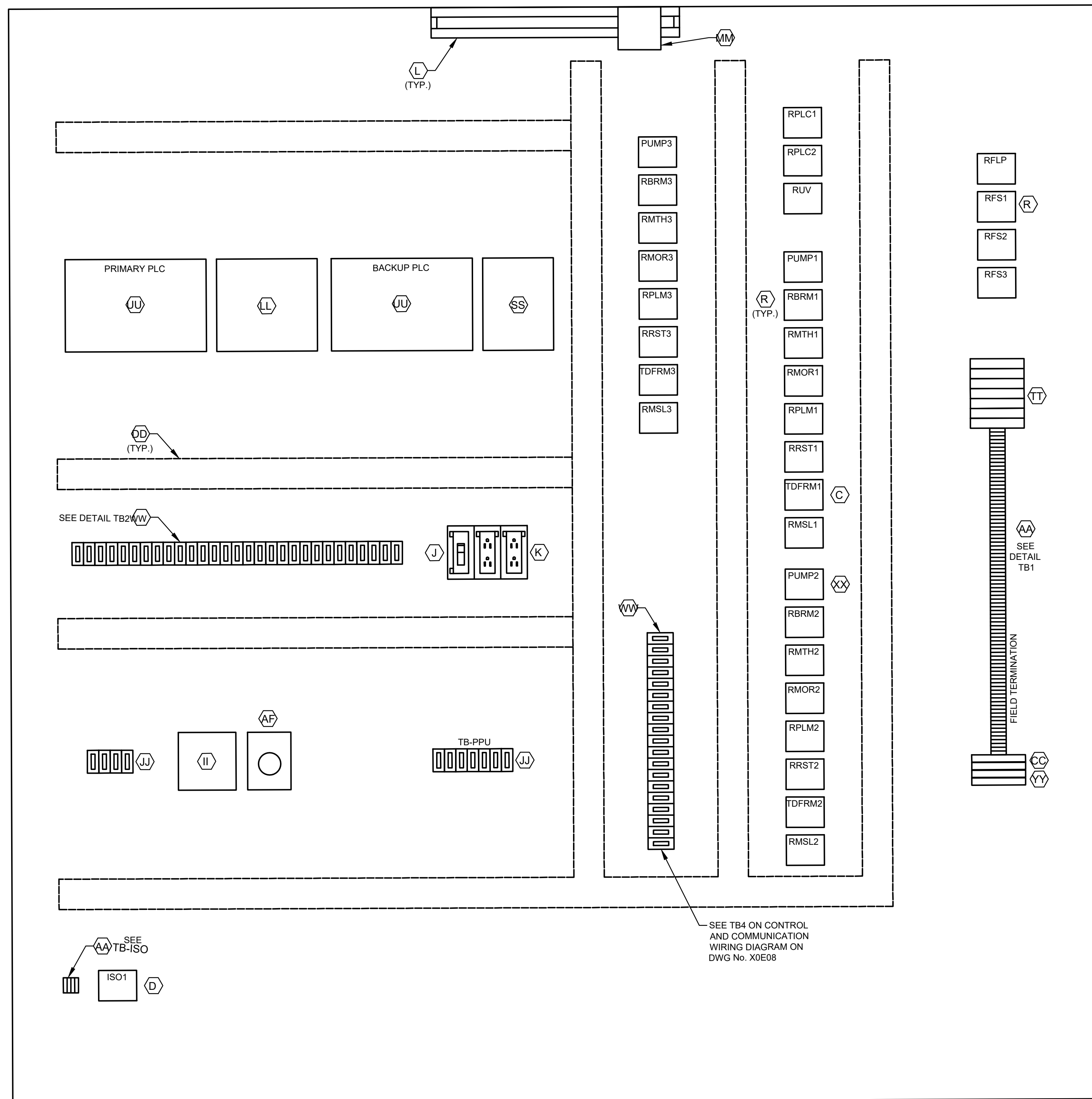
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION 3
PUMP OUTDOOR CONTROL
CABINET EQUIPMENT LAYOUT - I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
7 SHEET NO. 50 OF 291	



CONTROL PANEL
ELEVATION

DETAIL TB1
ALL L AND N FOR
EACH PUMP
CONTROL TO BE
FUSED

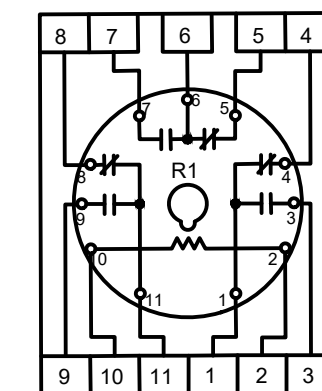
L1A
L1N
SPARE
3
3N
SPARE
49
50
51
52
53
54
1004
1
24V-
24V-
1002
2
1001
1001A
12
1003
1003A
1002
1004
18
3N
SPARE
36
36N
41
42
43
44
SPARE
L1A
L1N
103
104
105
106
107
108
110
113
115
116
119
SPARE
203
204
205
206
207
208
210
213
215
216
219
SPARE
303
304
305
306
307
308
310
313
315
316
319

36A
37A
50
52
54
52A
54A
L+
M
35B
38B
41B
47B
13AB
13GB
L+
M
14B
14AB
14GB
L+
M
13
13A
13G
14
14A
14G
SPARE
18
SPARE
28
29
32
35B
33
42
44
SPARE
103
104
115
109
110
118
120
121
122
123
SPARE
209
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211
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SPARE
309
310
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317
318
320
322
323

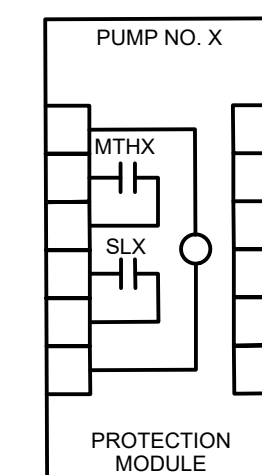
DETAIL TB2

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 LOCK ALARM RELAY
RFLP	FLOAT LOCKOUT PUMP RELAY



RELAY DETAIL
ITEM C



PUMP PROTECTION MODULE
DETAIL, ITEM XX

NOTE: REPLACE "X" WITH
APPROPRIATE PUMP NO.

1500
1501
1503
1504

NOTES:

1. SEE SHEET CL-E6 FOR EQUIPMENT SCHEDULE.

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3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
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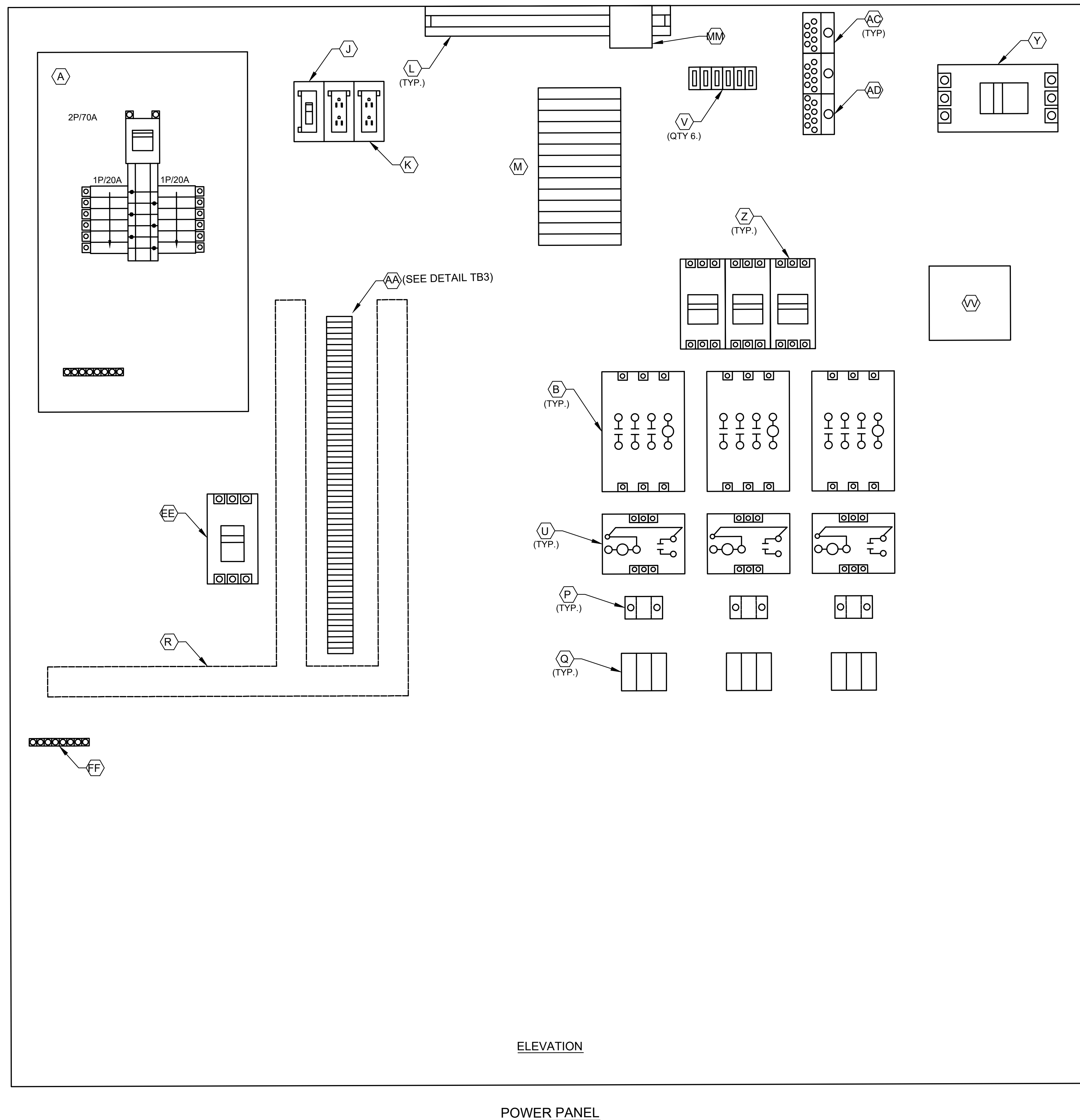
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION
3 PUMP OUTDOOR CONTROL
CABINET EQUIPMENT LAYOUT - II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 51 OF 291	



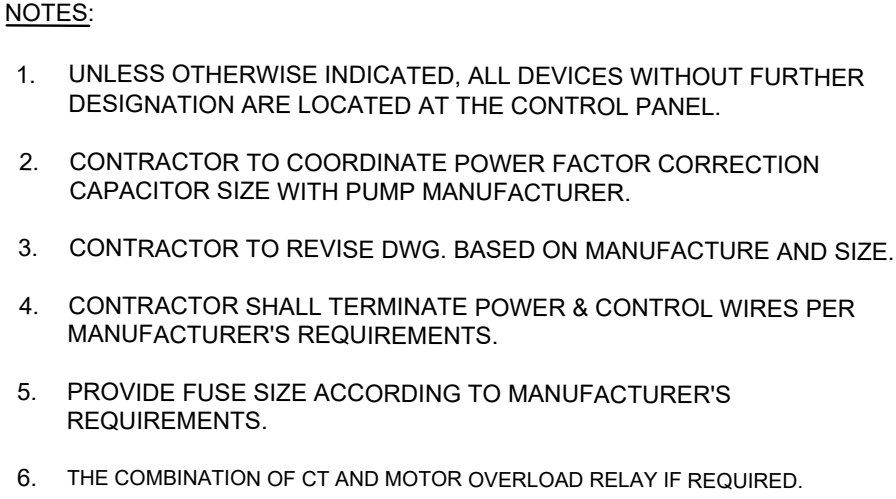
NOTES:

1. SEE SHEET CL-E6 FOR EQUIPMENT SCHEDULE.

[illegible]

DETAIL TB3

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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - III		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
3/4" = 1'-0"		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 52 OF 291		



ISSUE	DATE	DESCRIPTION

ISSUE	DATE	DESCRIPTION
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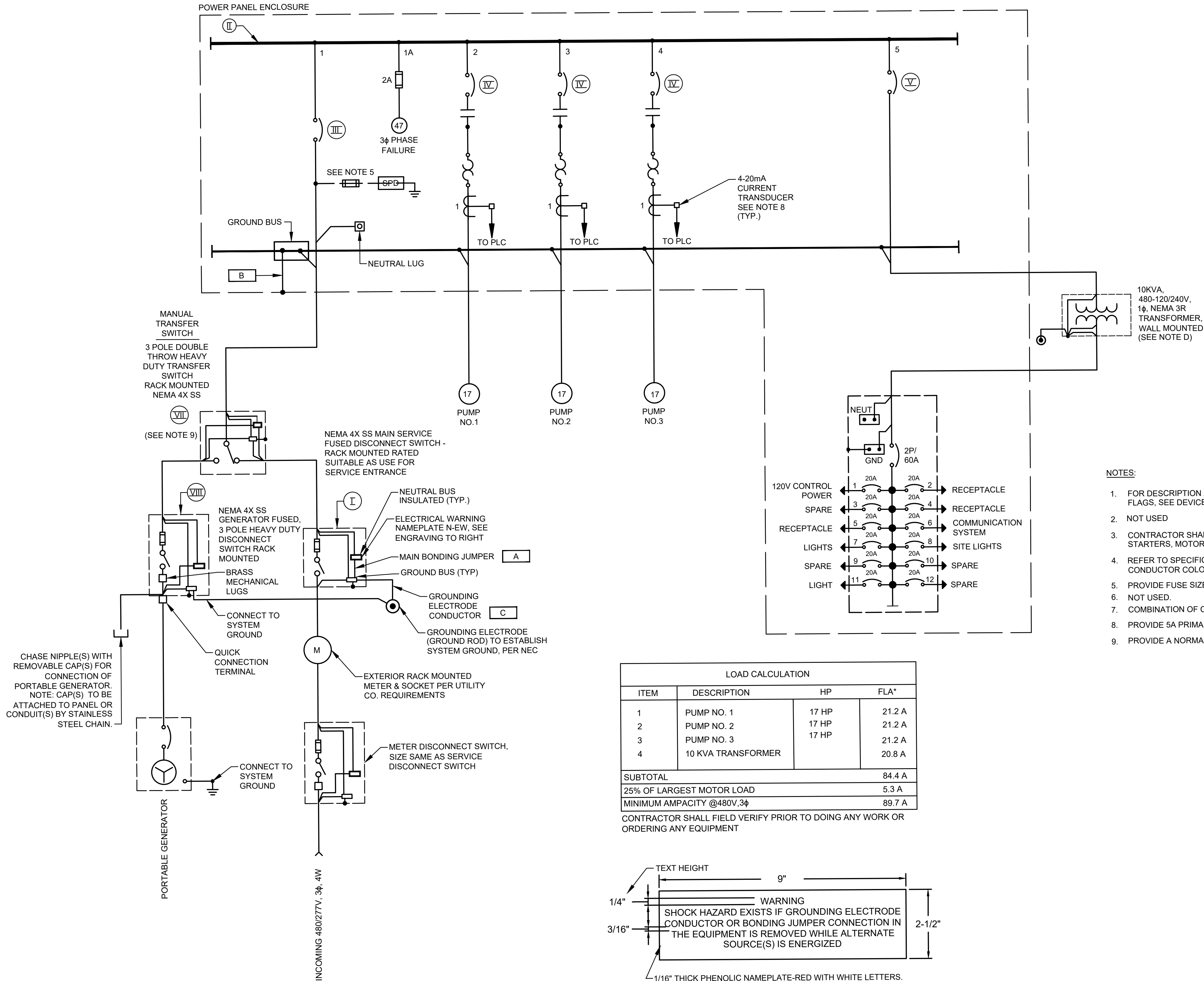
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION
3 PUMP OUTDOOR INCOMING
POWER THREE LINE DIAGRAM

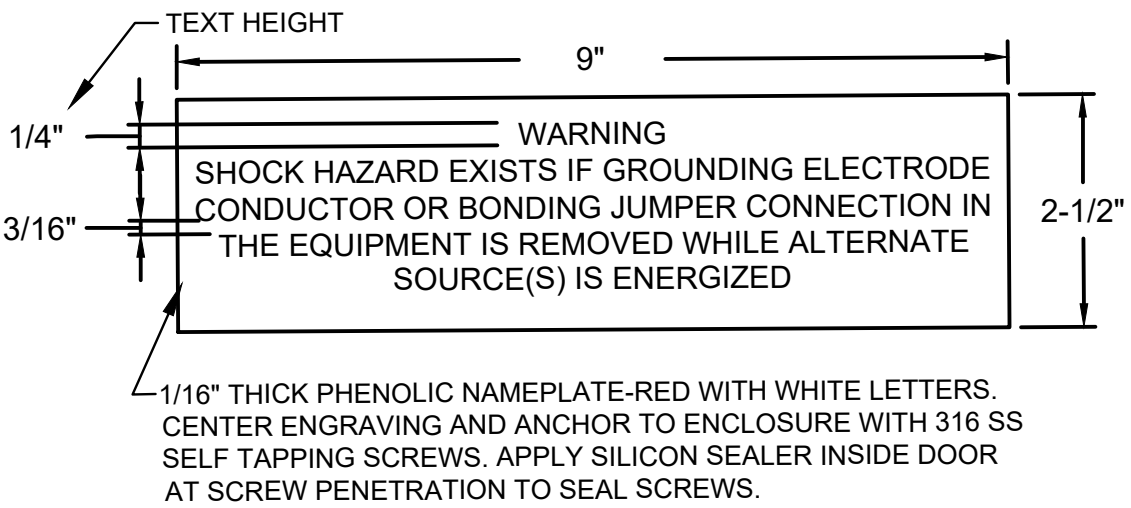
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 53 OF 291	



- NOTES:**
- FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
 - NOT USED
 - CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
 - REFER TO SPECIFICATION SECTION 16120 LOW-VOLTAGE WIRES AND CABLES FOR CONDUCTOR COLOR CODE.
 - PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 - NOT USED.
 - COMBINATION OF CT AND OVERLOAD RELAY IF REQUIRED.
 - PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.
 - PROVIDE A NORMALLY OPEN (NO) AUXILIARY CONTACT FOR BOTH ON POSITIONS.

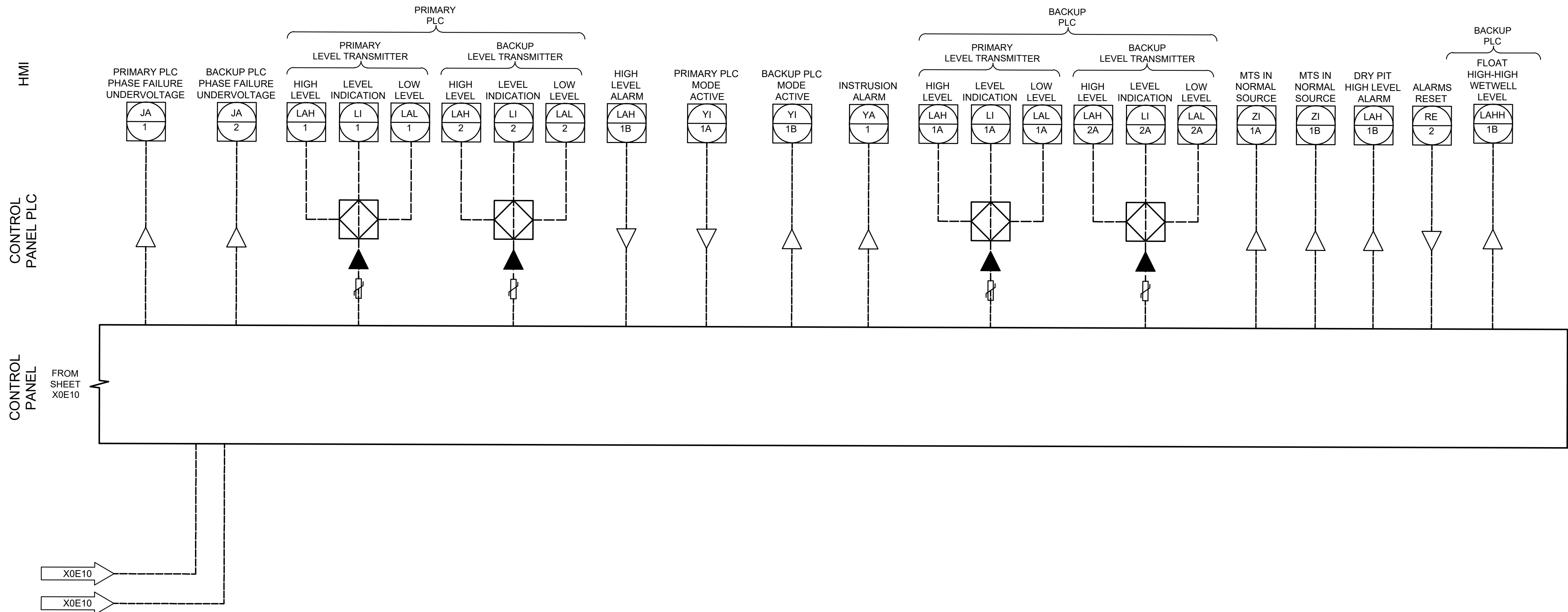
LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLA*
1	PUMP NO. 1	17 HP	21.2 A
2	PUMP NO. 2	17 HP	21.2 A
3	PUMP NO. 3	17 HP	21.2 A
4	10 KVA TRANSFORMER		20.8 A
SUBTOTAL			84.4 A
25% OF LARGEST MOTOR LOAD			5.3 A
MINIMUM AMPACITY @480V, 3 ϕ			89.7 A

CONTRACTOR SHALL FIELD VERIFY PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT



ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

ISSUE	DATE	DESCRIPTION
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FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 54 OF 291		



ISSUE	DATE	DESCRIPTION

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3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

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FRN - F-1386

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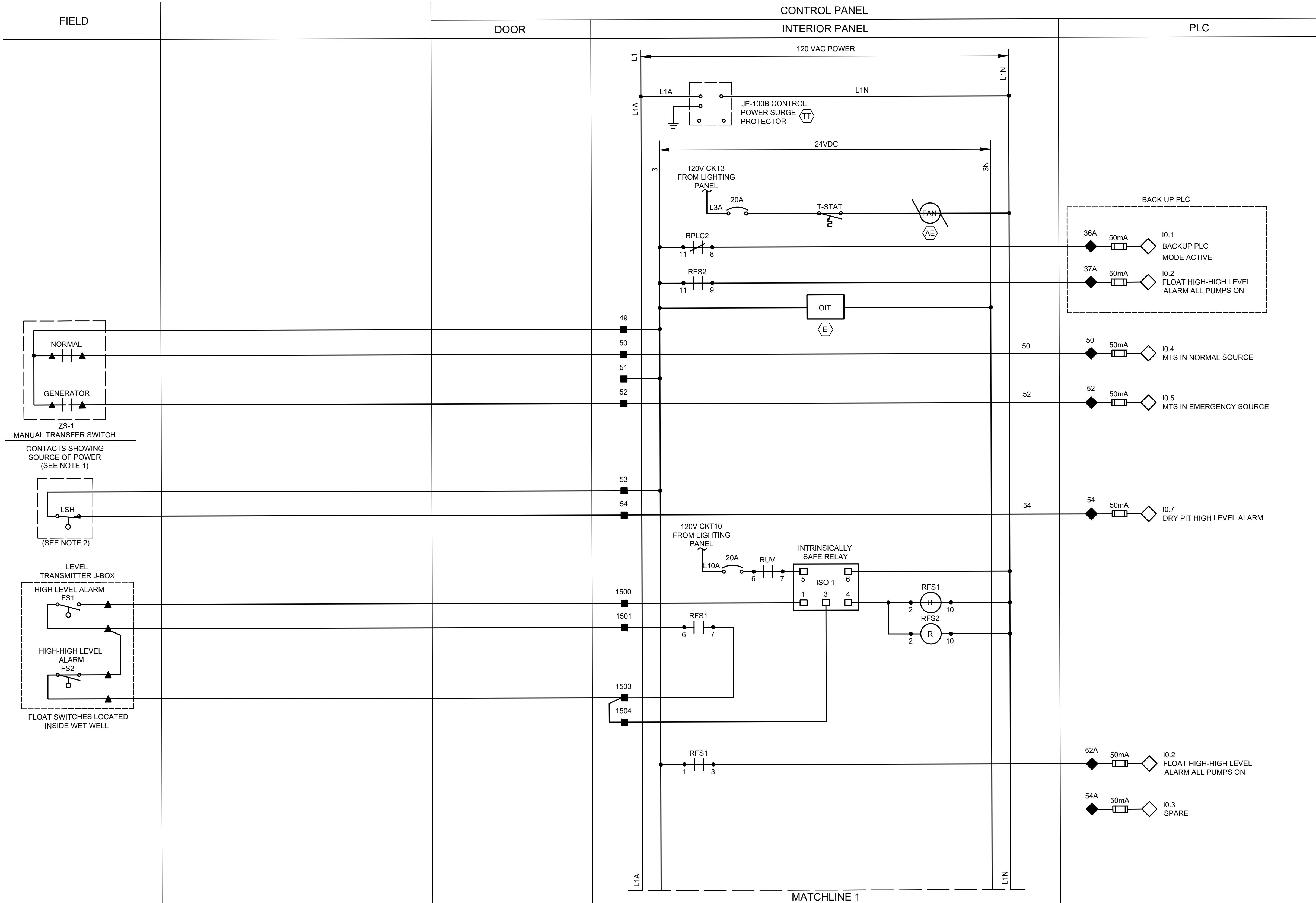
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION
3 PUMP OUTDOOR PROCESS
AND INSTRUMENTATION
DIAGRAM - II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 57 OF 291	



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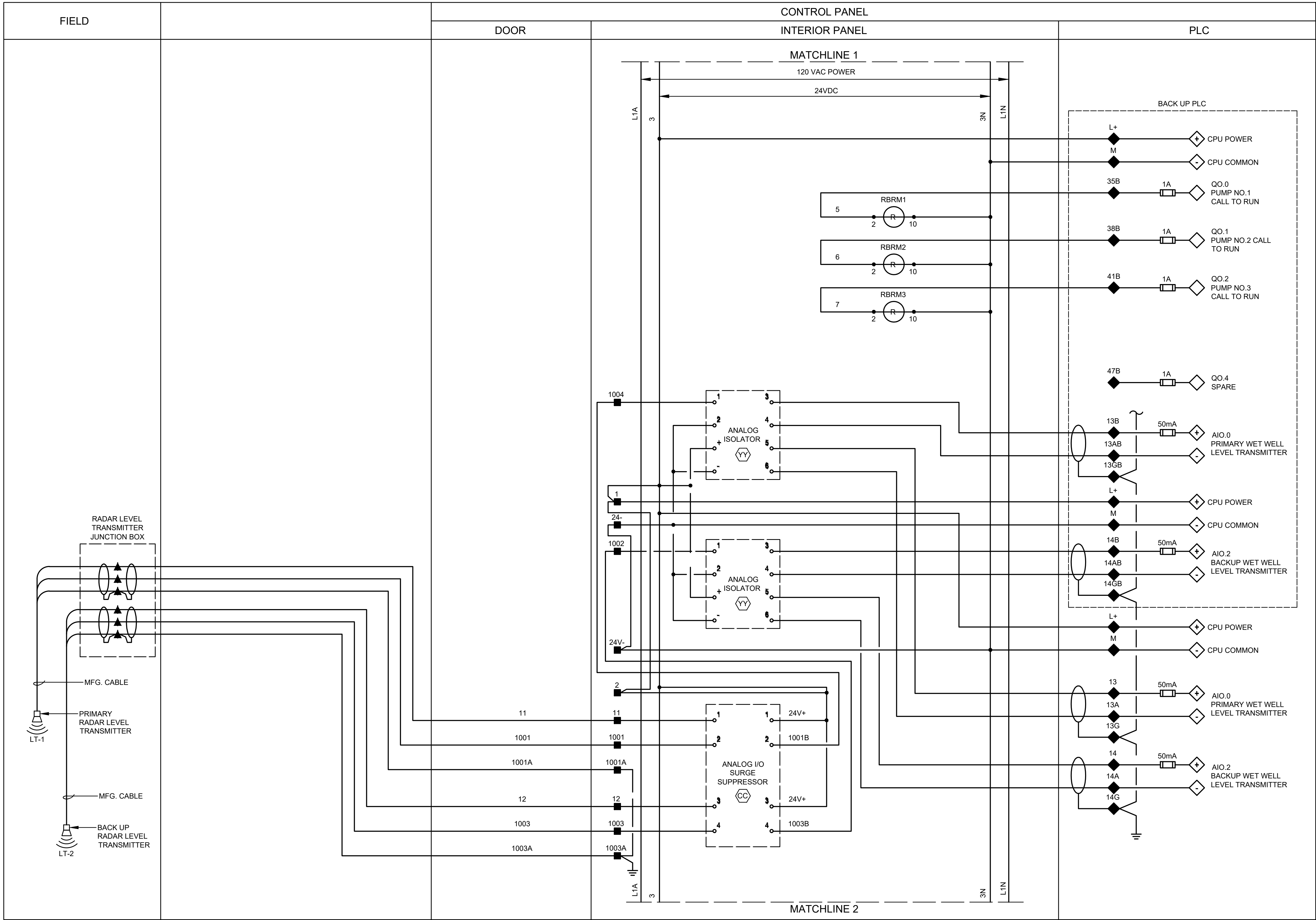
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION
3 PUMP OUTDOOR CONTROL
PANEL CONTROL WIRING
DIAGRAM - I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 58 OF 291	



LEGEND

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

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Houston, Texas 77042

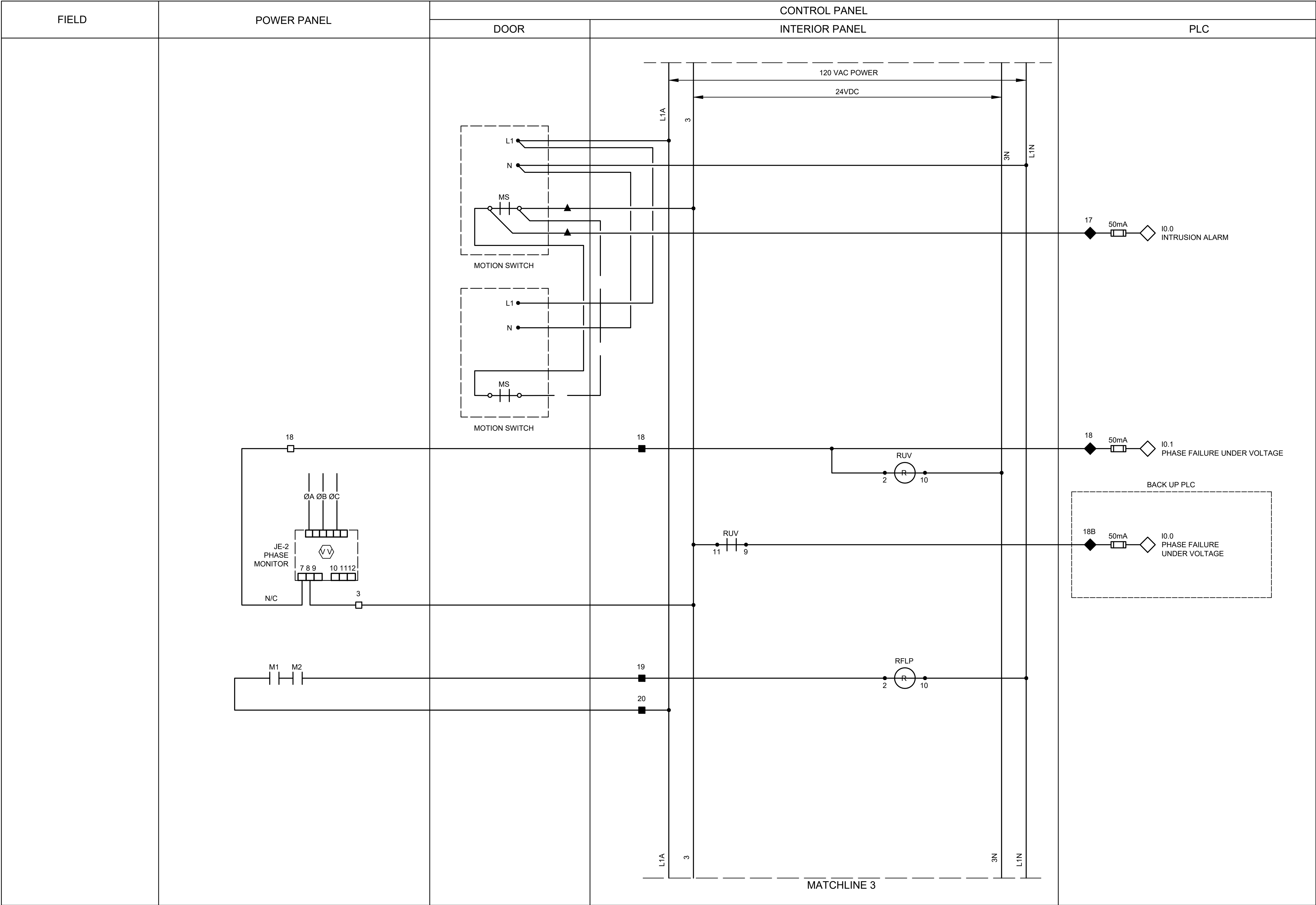
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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Suite 249
Houston, Texas 77063
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SURVEYED BY: KUO ASSOC
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - II	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 59 OF 291	



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

NOTES:

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL.

ISSUE	DATE	DESCRIPTION

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Suite 600
Houston, Texas 77042

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Suite 249
Houston, Texas 77063
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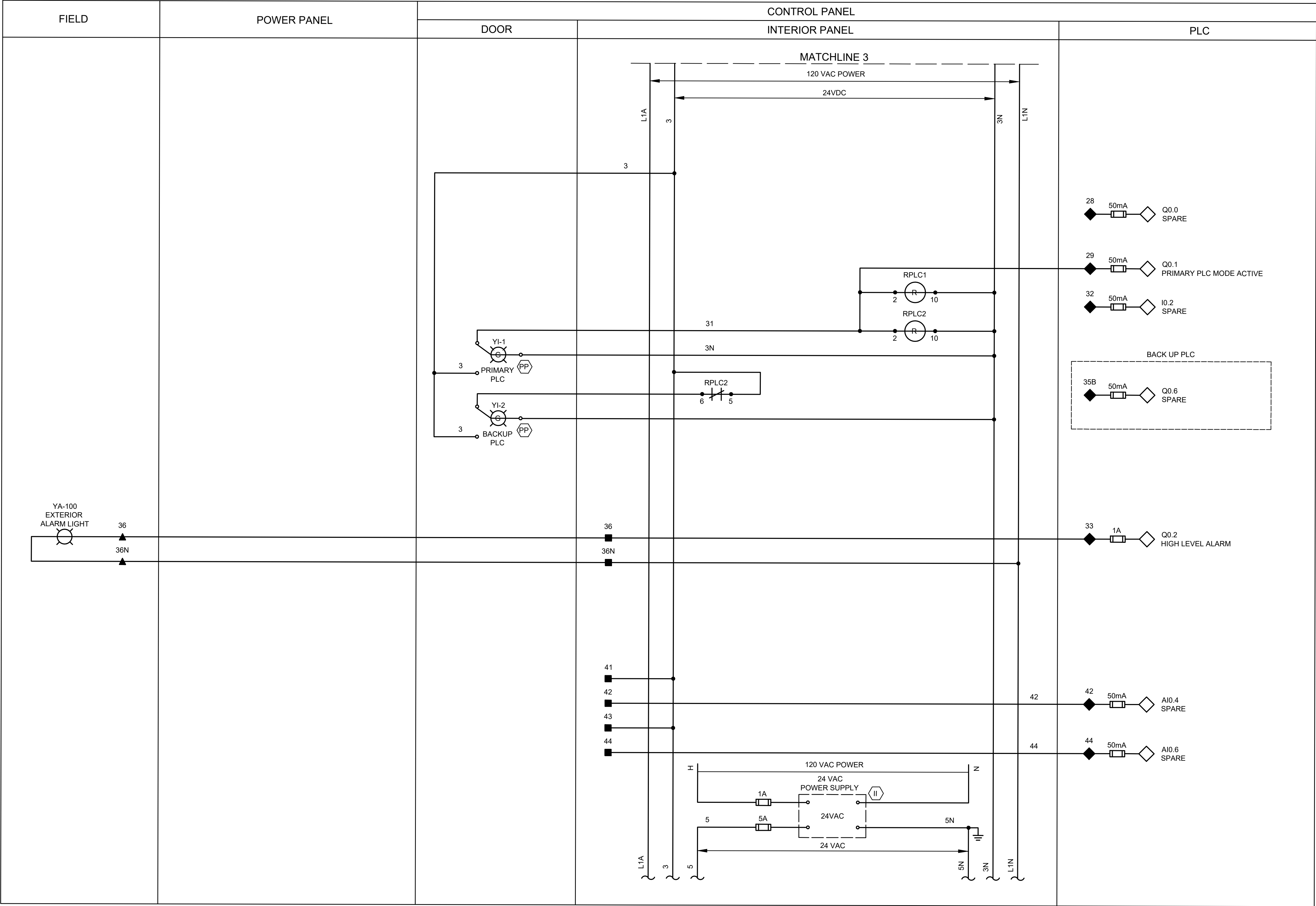
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DATE: 12/10/2025

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - III	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 60 OF 291	



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

ISSUE	DATE	DESCRIPTION

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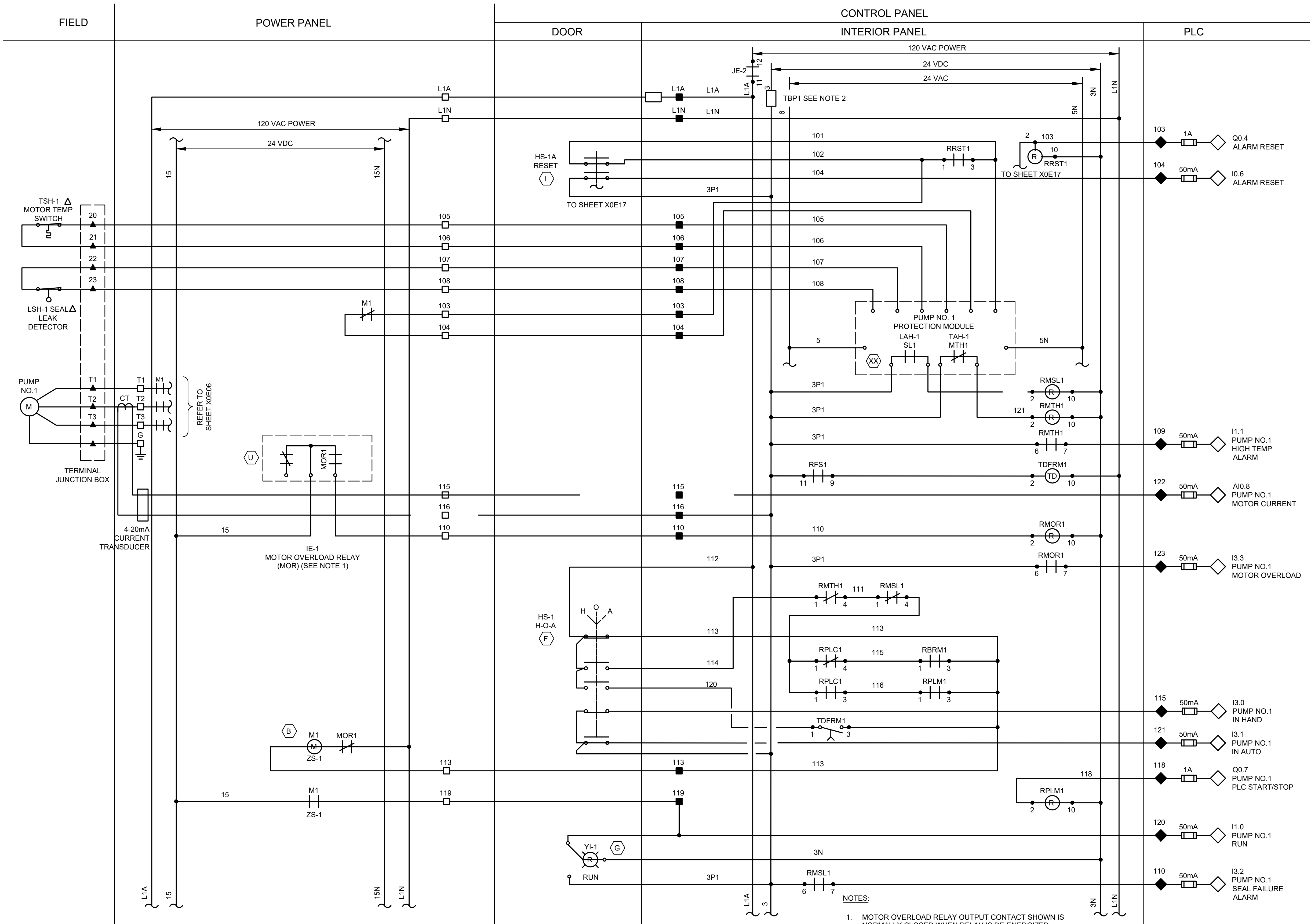
LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION	
3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - IV	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 61 OF 291	



LEGEND

- ▲ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
- DEVICE TERMINAL NO.
- ◆ PLC INTERFACE TERMINAL
- * DEVICE OR FIELD TERMINAL LOCATED REMOTE
- FIELD TERMINAL LOCATED AT CONTROL PANEL
- DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL
- ▲ REMOTE TERMINAL

NOTES:

- 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.
- FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. CL-E11.
- ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
- EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

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Houston, Texas 77042

Phone 713.953.5200
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Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

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DATE: 12/10/2025
IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

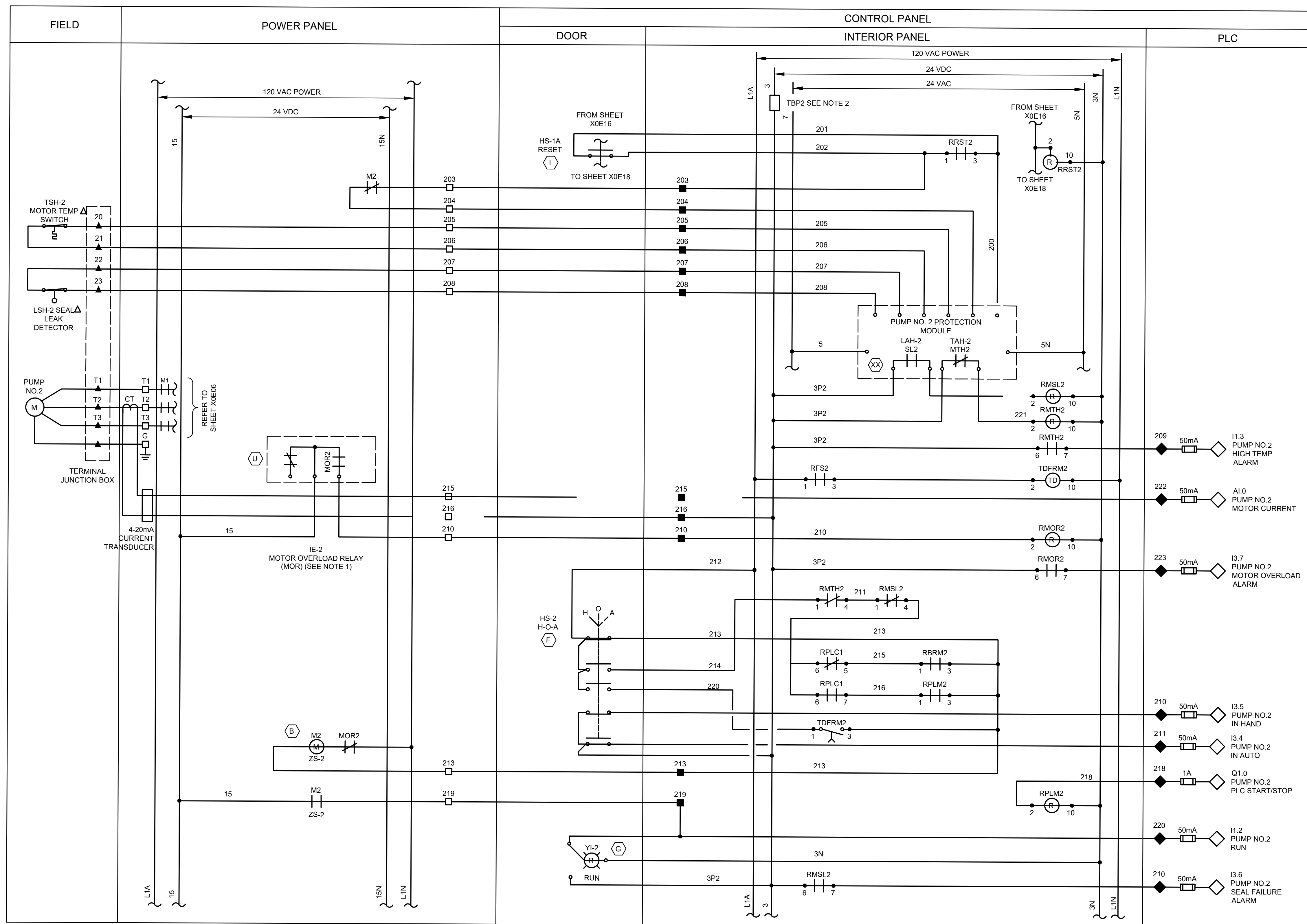
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SURVEYED BY: KUO ASSOC
FB NO. P-6409

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION
3 PUMP OUTDOOR PUMP 1
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 62 OF 291	



LEGEND

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

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. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. X0E08.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
4. EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



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

OF: JAMES E. THOMPSON, JR,
TEXAS P.E. #70302

DATE: 12/10/2025

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FB NO. P-6409

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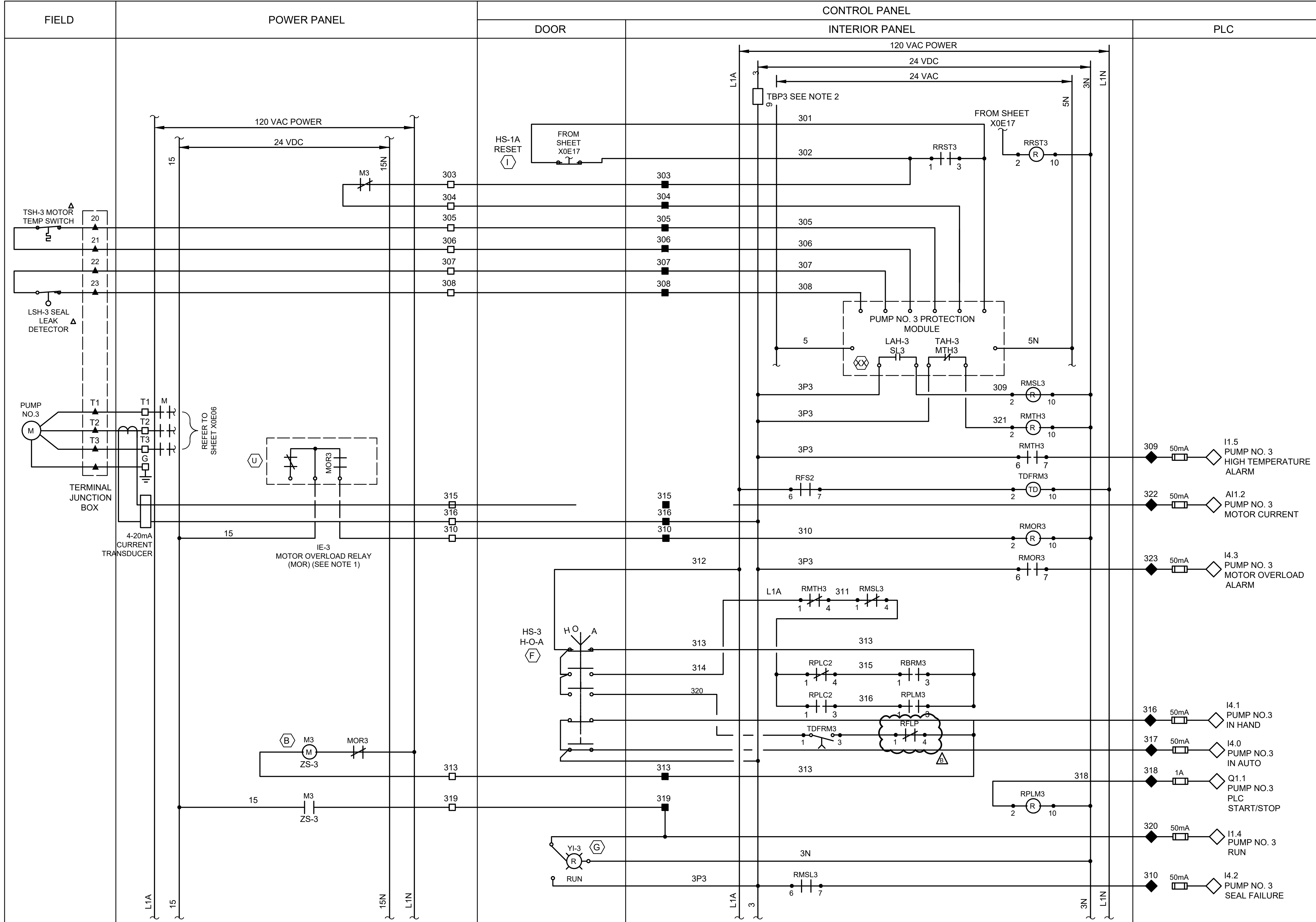
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION 3 PUMP OUTDOOR PUMP 2 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 63 OF 291	



LEGEND

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

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3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
4. EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

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Engineers, PC

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TEXAS P.E. #70302

DATE: 12/10/2025

SURVEYED BY: KUO ASSOC

FB NO. P-6409

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION 3 PUMP OUTDOOR PUMP 3 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 64 OF 291	

	DESCRIPTION	SERVICE		ROUTING			CONDUIT & WIRE SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
A	MAIN BONDING JUMPER	--	--	MAIN FUSED DISCONNECT NEUTRAL	MAIN FUSED DISCONNECT GROUND	--	#2 AWG
B	EQUIPMENT BONDING JUMPER	--	--	MCC/POWER PANEL ENCLOSURE	POWER/CONTROL PANEL & EQUIPMENT GROUND BUS	--	#2 AWG
C	GROUNDING ELECTRODE CONDUCTOR	--	--	GROUNDING ELECTRODE	MAIN SERVICE FUSED DISCONNECT	--	#2 AWG
100	SERVICE ENTRANCE	480V	VARIES	UTILITY POWER SERVICE	METER DISCONNECT		3#4/0, 1-4G AWG 2-1/2"C
100A	MCC SERVICE POWER	480V	VARIES	MANUAL TRANSFER SWITCH	MCC OR POWER PANEL	--	
100B	NORMAL/EMERRGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH	CONTROL PANEL	--	3#4/0, 1-4G AWG 3"C
100C	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	PORTABLE GENERATOR	CAPPED CONDUITS	
*100	SERVICE ENTRANCE	480V	VARIES	UTILITY POWER SERVICE	CT CAN	--	
*100A	SERVICE POWER	480V	VARIES	SERVICE DISCONNECT	MAIN BREAKER IN MCC	--	
*100B	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	GENERATOR TRANSFER SWITCH IN MCC	--	3#4/0, 1-4G AWG 2-1/2"C
*100C	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	PORTABLE GENERATOR	CAPPED CONDUITS	#2 AWG
101	GROUND ELECTRODE CONDUCTOR	--	--	POWER PANEL	GROUND FIELD	--	#2 AWG
102	GROUND ELECTRODE CONDUCTOR	--	--	BUILDING STEEL	GROUND FIELD	--	#2 AWG
103	BUILDING GROUNDING	--	--	BUILDING REBAR	LIGHTNING GROUND ROD	--	#2 AWG
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL PANEL OR MOTOR CONTROL CENTER	GROUND FIELD	--	3#8, 1-4G AWG 1-1/2"C
105	COMMUNICATION	--	--	COMMUNICATION POLE	CONTROL PANEL	--	2-1"C., 3/12,1-#12G
105A	COMMUNICATION POLE LIGHT	120V	--	COMMUNICATION POLE	LIGHTING PANEL CKT #6 & CKT #4	--	MFGR'S STD CABLE 2-1/2"
200	PUMP NO. 1 POWER	480V	HP AS NOTED	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	--	
202	PUMP NO. 1 POWER	480V	HP AS NOTED	PUMP NO. 1 JUNCTION BOX	PUMP STARTER	--	COMBINE 200 & 300 TAG WIRING
203	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 1 JUNCTION BOX	PUMP STARTER	--	
205	PUMP NO. 1 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
206	PUMP NO. 1 CAPACITOR	480V	TBD	PUMP NO. 1 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	MFGR'S STD CABLE 2-1/2"
300	PUMP NO. 2 POWER	480V	HP AS NOTED	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	--	
302	PUMP NO. 2 POWER	480V	HP AS NOTED	PUMP NO. 2 JUNCTION BOX	PUMP STARTER	--	
305	PUMP NO. 2 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
306	PUMP NO. 2 CAPACITOR	480V	TBD	PUMP NO. 2 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	MFGR'S STD CABLE 2-1/2"
400	PUMP NO. 3 POWER	480V	HP AS NOTED	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
401	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	--	
402	PUMP NO. 3 POWER	480V	HP AS NOTED	PUMP NO. 3 JUNCTION BOX	PUMP STARTER	--	
403	COMBINED PUMP CONTROLS	120V	HP AS NOTED	PUMP NO. 3 JUNCTION BOX	CONTROL PANEL	--	
405	PUMP NO. 3 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
406	PUMP NO. 3 CAPACITOR	480V	TBD	PUMP NO. 3 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	
600	LIGHTING TRANSFORMER FEEDER	480V	--	MOTOR CONTROL CENTER	LIGHTING TRANSFORMER	--	#4 AWG
601	LIGHTING PANEL GROUND	--	--	LIGHTING PANEL	GROUND FIELD	--	#4 AWG
602	LIGHTING PANEL FEEDER	120/240V	--	LIGHTING TRANSFORMER	LIGHTING PANEL	--	#4 AWG
900	INTRUSION ALARM	24VDC	--	MOTION SWITCH	CONTROL PANEL	--	
1000	LEVEL TRANSMITTER	24VDC	--	TRANSMITTER JUNCTION BOX	TRANSMITTER JUNCTION BOX	--	
1001	LEVEL TRANSMITTER	24VDC	--	TRANSMITTER JUNCTION BOX	TRANSMITTER JUNCTION BOX	--	
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	CONTROL PANEL	TRANSMITTER JUNCTION BOX	--	
1003	WELL FLOAT SWITCHES	24VDC	--	TRANSMITTER JUNCTION BOX	FLOAT SWITCH NO.1 & NO.2	--	
1004	FLOAT SWITCH	120V	--	SUMP PUMP MOTOR STARTER	FLOAT SWITCH	--	
1100	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO TRANSMITTER J-BOX	--	
1200	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO PUMP NO. 1 J-BOX	--	

NOTES:

- CONDUITS LABELED "FUTURE SPACE" ARE TO BE INSTALLED AND CAPPED IN FIELD.
- ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2"
- ALL UNDERGROUND CONDUITS (SINGLE AND MULTI-RUN) TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.
- CONDUITS LABELED "FUTURE SPACE" ARE THOSE TO BE INSTALLED AND CAPPED IN FIELD.
- A CSBE TYPE SEAL SHALL BE NOT SMALLER THAN 2-1/2". CSBE SEALS ARE NOT MANUFACTURED SMALLER THAN 2-1/2".
- GENERATOR CONDUIT SHALL BE A MINIMUM OF 3" CONDUIT.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302		DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
SURVEYED BY: KUO ASSOC FB NO. P-6409		

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
CARVEL LANE LIFT STATION	
3 PUMP INDOOR/OUTDOOR	
CONDUIT SCHEDULE FOR 480 VOLTS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
N.T.S	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 65 OF 291	

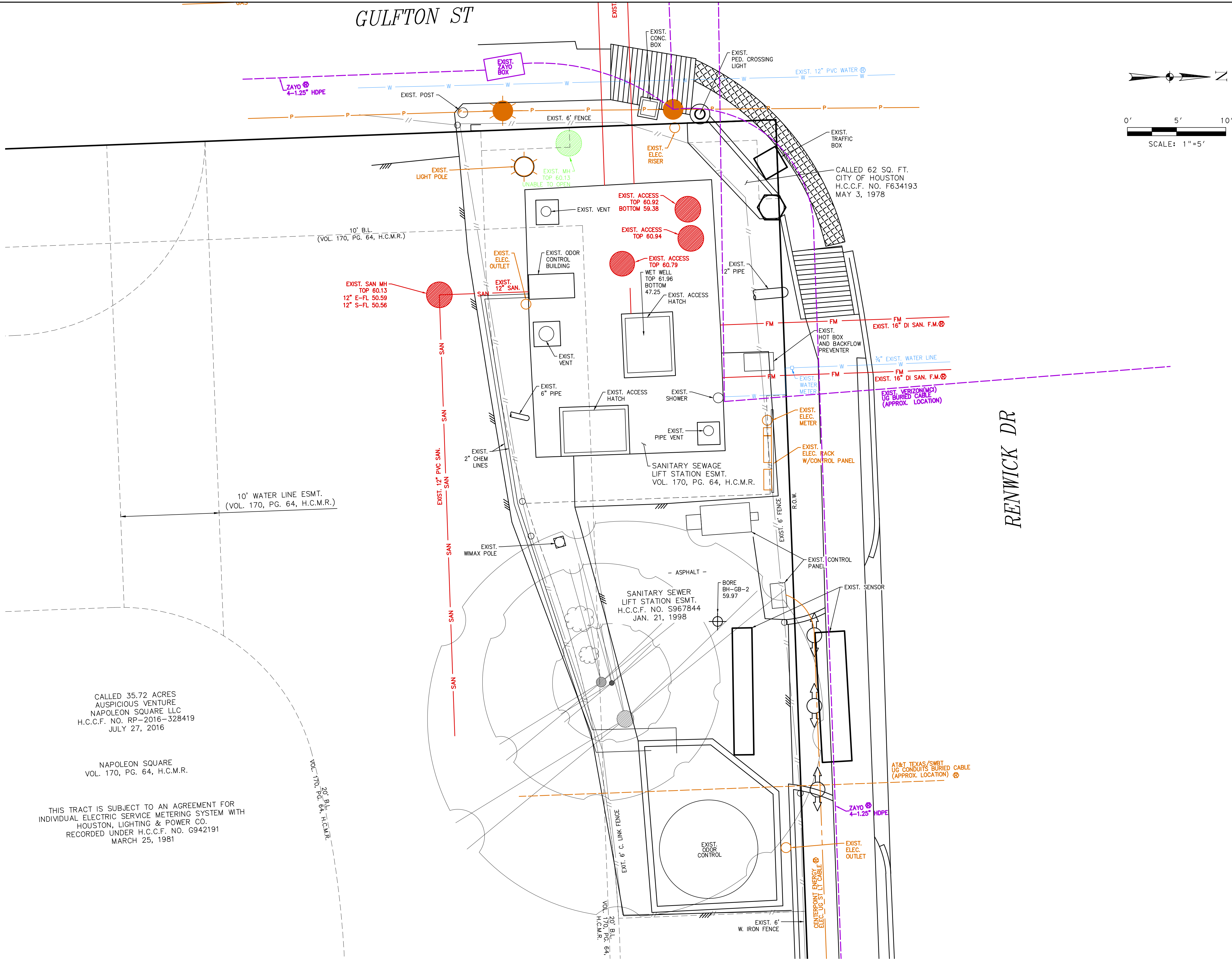
			RATINGS FOR PUMP SIZES
ITEM	CIRCUIT	DESCRIPTION	3 @ 17HP
I	--	MAIN DISCONNECT SWITCH	
		OPERATING VOLTAGE	480V
		CURRENT RATING	200A
		CURRENT LIMITING	CLASS J
		FUSES TYPE & SIZE	150A
II	--	MOTOR CONTROL CENTER MAIN BUS - 3/C COPPER	
		OPERATING VOLTAGE	
		CURRENT RATING	
		NEUTRAL SIZE & TYPE	
		BUS BRACING	
III	1 (SEE NOTE 1)	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
		PUMP MOTOR STARTERS	
		QUANTITY	3
IV	2 3 5	MOUNTING (SEE NOTE 3)	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	480V
		FRAME SIZE	100A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	42KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	480V
		SIZE (SEE NOTE 4)	NEMA 2
		OVERLOAD PROTECTION	AMPS, MOTOR NAMEPLATE
		TYPE	MFGR SPEC
		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	CLASS J
		FUSES TYPE & SIZE	150A
IX	1G (SEE NOTE 2)	GENERATOR TRANSFER SWITCH	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE

NOTES:

- WHERE GENERATOR SERVICE IS ANTICIPATED, PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
- PROVIDE TRIP SETTING BASED ON GENERATOR SIZE. BREAKERS TO BE SIZED AT MAXIMUM ALLOWBLE SIZE.
- STARTERS TO BE MOUNTED IN CONTROL CABINET ADJACENT TO PLC AND ASSOCIATED RELAY EQUIUPMENT.
- STARTERS TO BE NEMA RATED FOR FULL VOLTAGE STARTING.

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SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS CARVEL LANE LIFT STATION 3 PUMP INDOOR/OUTDOOR DEVICE RATING SCHEDULE		
WBS NUMBER		FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 66 OF 291		

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
w. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\67 GULFTON LS EXIST.dwg May 07, 2026--1:22pm trowbridge



CALLLED 35.72 ACRES
AUSPICIOUS VENTURE
NAPOLEON SQUARE LLC
H.C.C.F. NO. RP-2016-328419
JULY 27, 2016

NAPOLEON SQUARE
VOL. 170, PG. 64, H.C.M.R.

THIS TRACT IS SUBJECT TO AN AGREEMENT FOR
INDIVIDUAL ELECTRIC SERVICE METERING SYSTEM WITH
HOUSTON, LIGHTING & POWER CO.
RECORDED UNDER H.C.C.F. NO. G942191
MARCH 25, 1981

BH ID	SURVEY POINT NO.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION (FT)
GULFTON LS						
BH-GB-2	42806	13826506.38	3084462.62	13824709.17	3084061.69	59.97

GF-C1

BENCHMARK:
CITY OF HOUSTON MONUMENT 5155-7412, A BRASS DISK IN CONCRETE, LOCATED AT WEST SIDE OF RENWICK DR APPROXIMATELY 590 FEET NORTH FROM THE INTERSECTION OF GULFTON ST

ELEV. 59.28 FEET NAVD 1988 (GEOD '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 31, 2025.

I.B.M. #21:
SET "X" CUT ON CONCRETE LOCATED ON THE NORTH MEDIAN NOSE OF THE INTERSECTION OF GULFTON ST AND RENWICK DR.

ELEV. 60.90 FEET

VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARKS (RM 040750) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOD '18) IS 0.03'.

NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOD '18) ELEVATION + 0.03 FT

HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY
OF: ANA K. TREJO
P.E.# 125772
DATE: 05/01/2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

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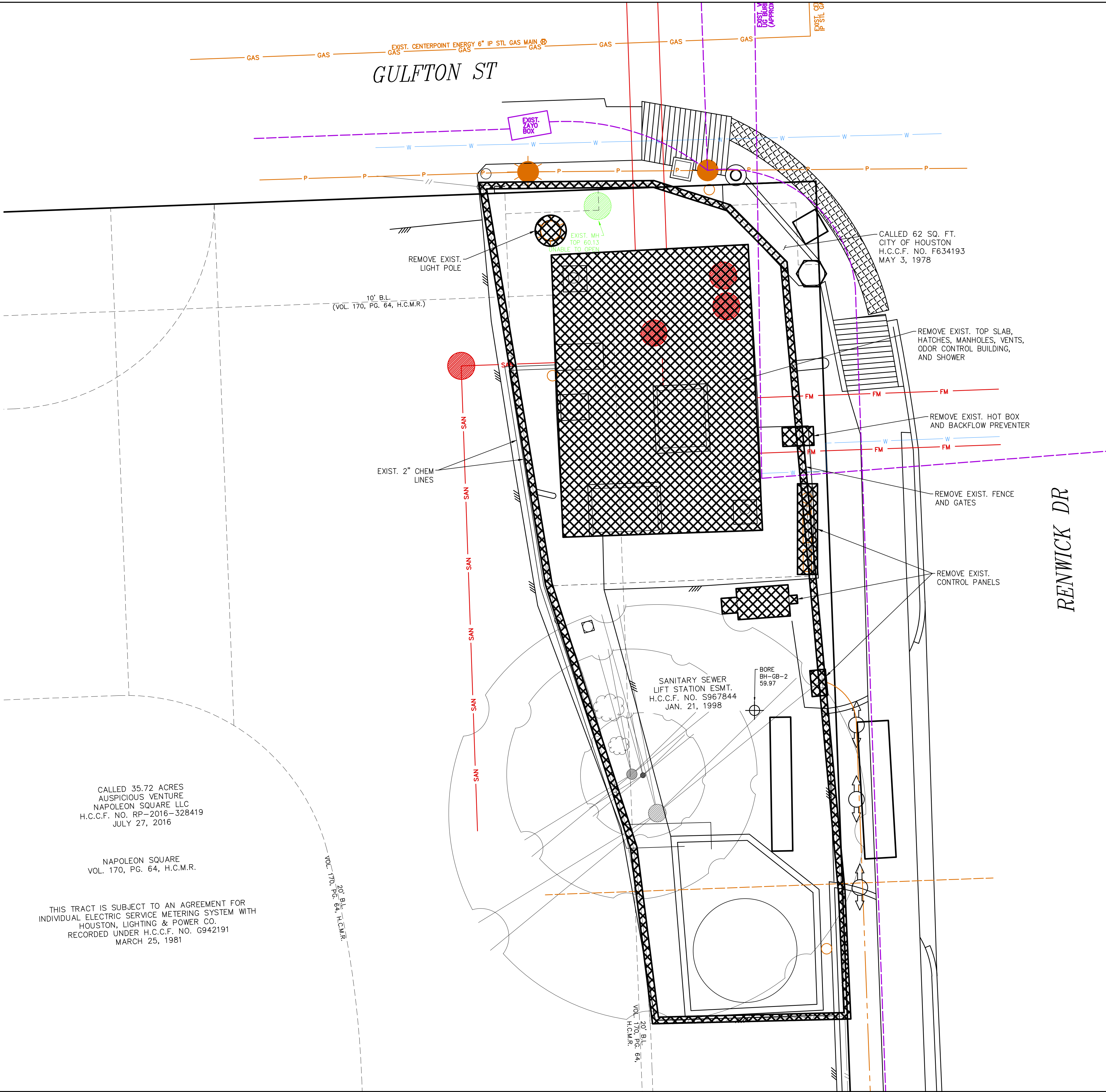
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**GULFTON LIFT STATION
EXISTING SITE PLAN**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 67 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\68 GULFTON LS DEMO.dwg May 07, 2026--1:22pm throwbridge



- NOTES:
- SEE DRAWING GF-C4 FOR LIFT STATION PLAN AND PROFILE DEMOLITION.
 - CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES AND THE DISPOSAL FACILITY.
 - NOTIFY THE CITY 48 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE THE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE
 - CITY TO HAVE THE RIGHT OF FIRST REFUSAL. DELIVER SALVAGE ITEMS TO THE CITY OF HOUSTON FACILITY WITHIN CITY, OTHER ITEMS TO BE DISPOSED OF BY THE CONTRACTOR AT THE EXPENSE OF THE CONTRACTOR.
 - REFER TO LEAD AND ASBESTOS MATERIAL TESTING REPORTS FOR ANY SPECIAL HANDLING AND/OR DISPOSAL REQUIREMENTS.
 - CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PIPING, VALVES, PUMPS, STAIRS AND MATERIALS IN WET WELL UNLESS OTHERWISE STATED.
 - PROVIDE TEMPORARY PLUG FOR THE EXISTING 12 INCH AND 36 INCH SANITARY SEWER LEADING TO THE LIFT STATION DURING DEMOLITION/CONSTRUCTION. CONTRACTOR TO FIELD VERIFY INFLUENT SANITARY SEWER SIZE
 - EXISTING UTILITY LOCATIONS WERE DEVELOPED FROM BEST INFORMATION AVAILABLE. CONTRACTOR IS TO FIELD VERIFY EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. ALL SHOP DRAWINGS USE TO HAVE FIELD VERIFIED FACILITY, STRUCTURAL, AND UTILITY LOCATIONS INDICATED.
 - CONTRACTOR SHALL NOT BEGIN DEMOLITION OF LIFT STATION UNTIL DIVERSION PUMPING IS OPERATIONAL. SEE SPECIFICATION 01506 FOR DIVERSION PUMPING REQUIREMENTS, INCLUDING CAPACITY.
 - CONTRACTOR SHALL PROTECT PAVEMENT, INCLUDING DRIVEWAY, NOT SHOWN TO BE REMOVED. RESTORE TO EQUAL OR BETTER CONDITION IF DAMAGED.
 - CONTRACTOR SHALL COORDINATE WITH THE CITY OF HOUSTON FOR THE REMOVAL OF THE EXISTING BYPASS PUMPS AND PIPING
 - THE SOUND PRODUCED BY THE ERECTION, EXCAVATION, CONSTRUCTION, OR DEMOLITION OF ANY BUILDING OR STRUCTURE, INCLUDING THE USE OF ANY NECESSARY TOOLS OR EQUIPMENT, CONDUCTED BETWEEN THE HOURS OF 7 A.M. AND 8 P.M., WILL NOT PRODUCE A SOUND EXCEEDING 85 DB(A) WHEN MEASURED FROM THE PROPERTY LINE OF THE RESIDENTIAL PROPERTY WHEN THE SOUND IS BEING RECEIVED.

LEGEND

 ITEM TO BE DEMOLISHED OR REMOVED

BENCHMARK:
CITY OF HOUSTON MONUMENT 5155-7412, A BRASS DISK IN CONCRETE, LOCATED AT WEST SIDE OF RENWICK DR APPROXIMATELY 590 FEET NORTH FROM THE INTERSECTION OF GULFTON ST

ELEV. 59.28 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 31, 2025.

I.B.M. #21:
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ELEV. 60.90 FEET

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= NAVD 1988 (GEOID '18) ELEVATION + 0.03 FT

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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.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY
OF: ANA K. TREJO
P.E.# 125772
DATE: 05/01/2026
IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

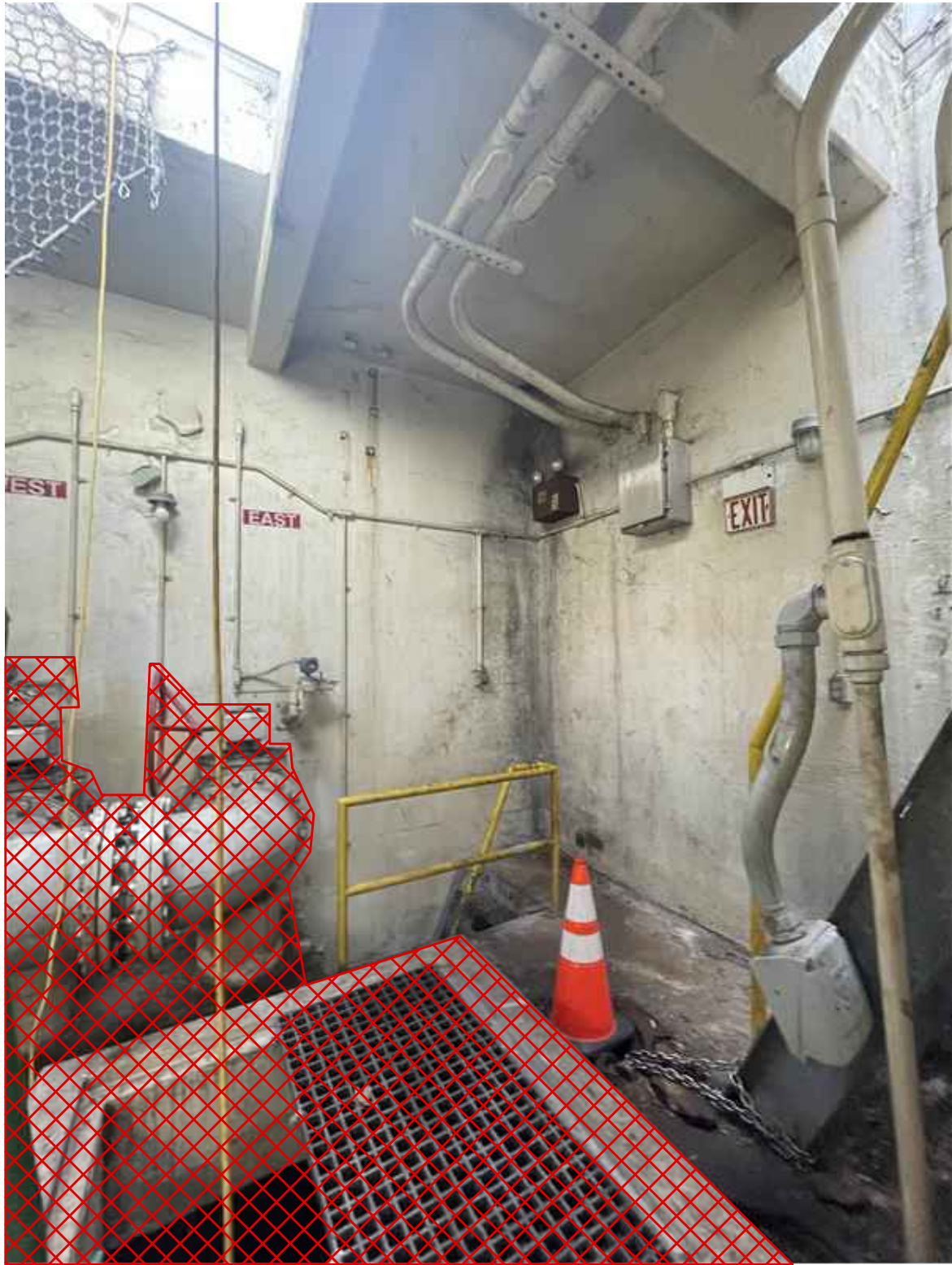
SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
SITE DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 68 OF 291	



- NOTES
1. CONTRACTOR TO REFER TO SHEETS GF-C2 AND GF-C4 FOR DEMOLITION DETAILS
 2. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS

LEGEND

ITEM TO BE DEMOLISHED
OR REMOVED

ISSUE	DATE	DESCRIPTION

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3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
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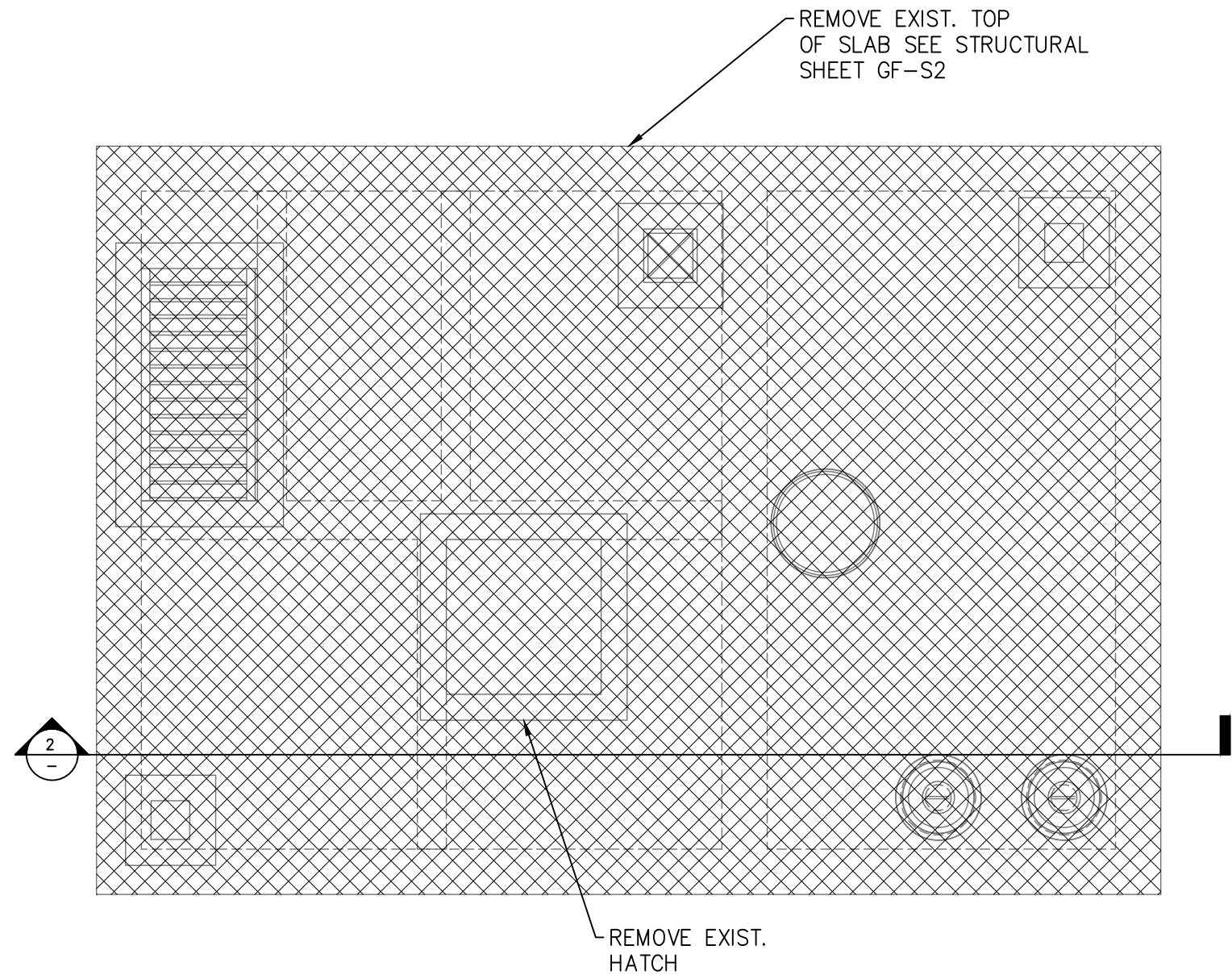
SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

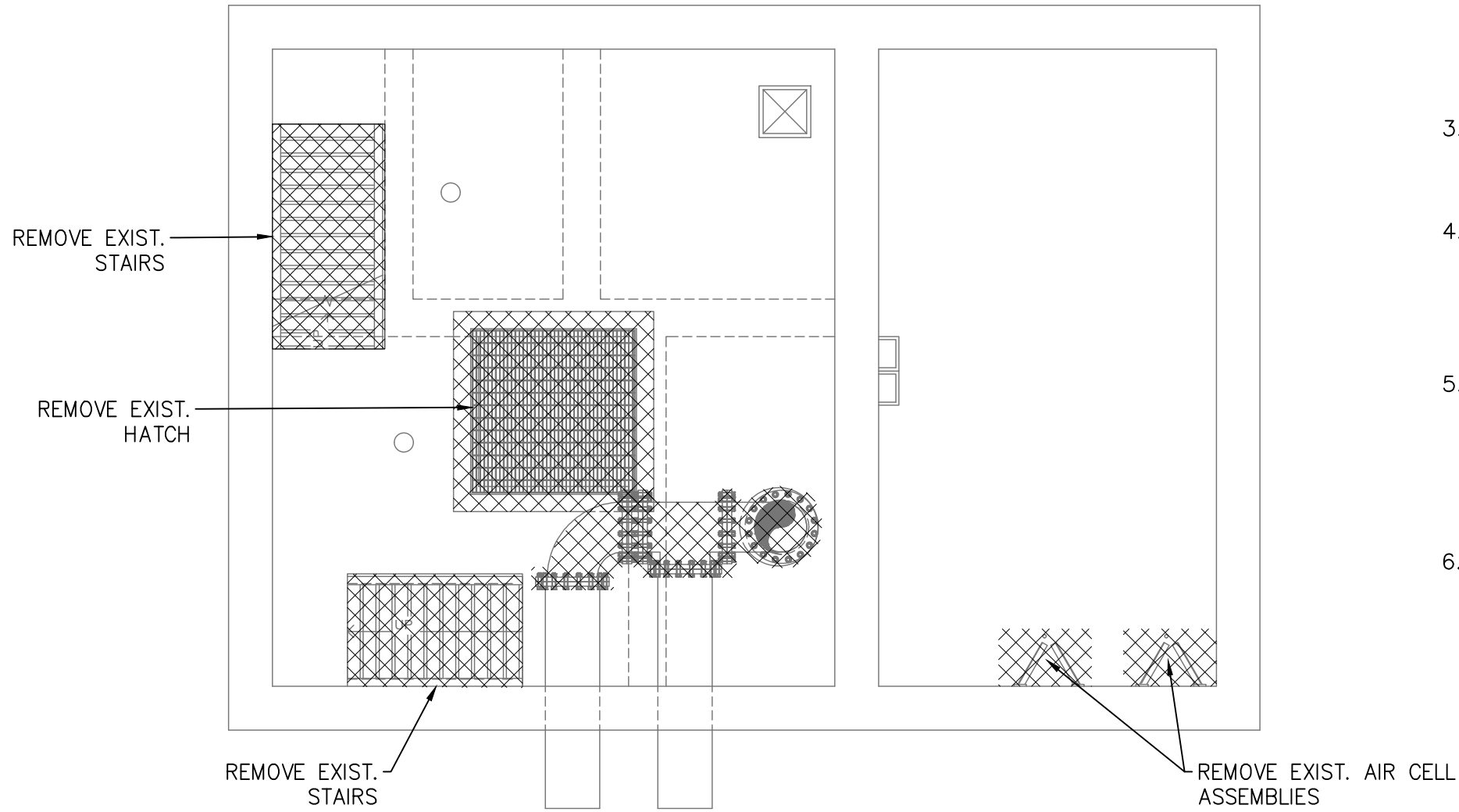
LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
DEMOLITION PHOTOS

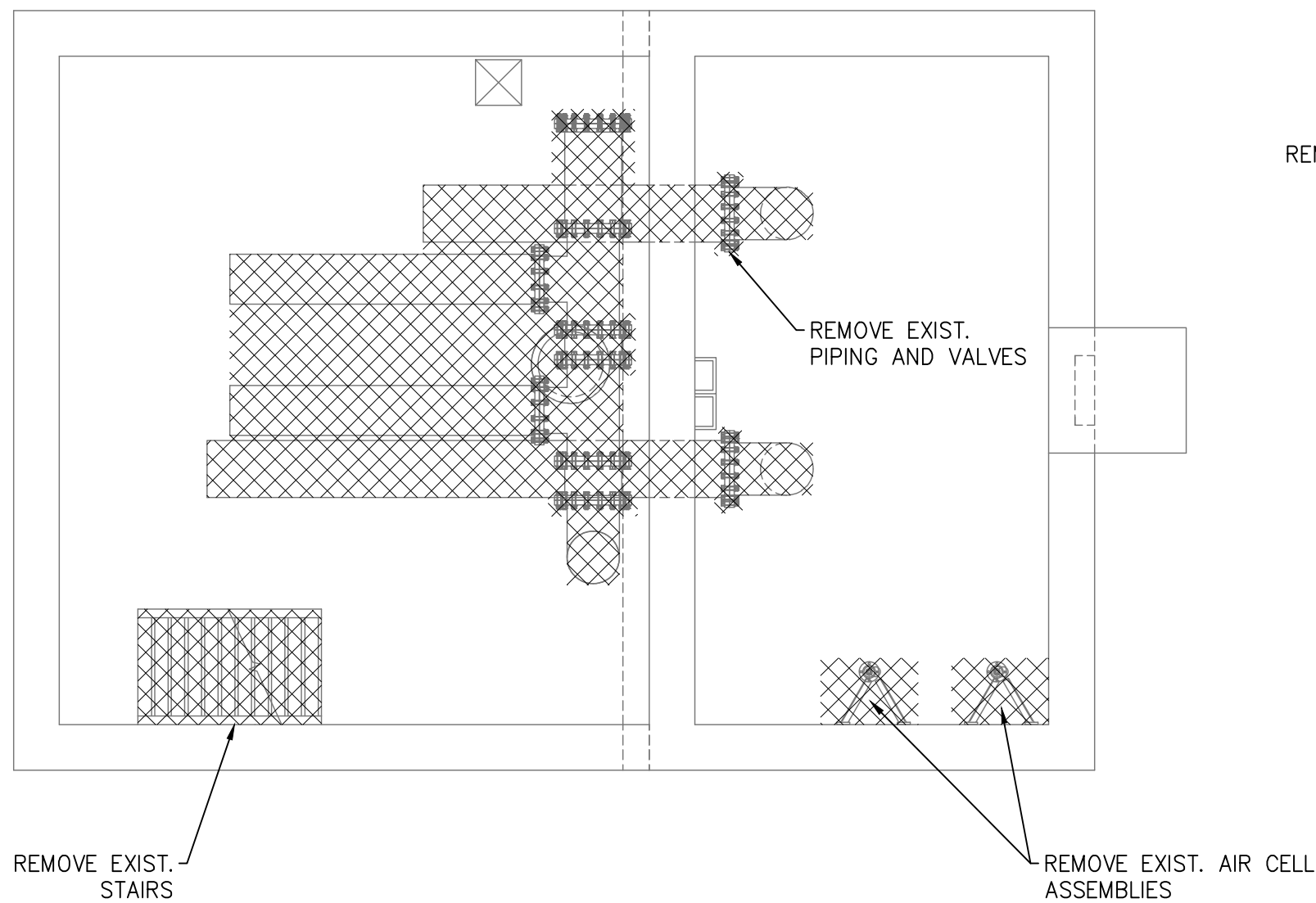
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 69 OF 291	



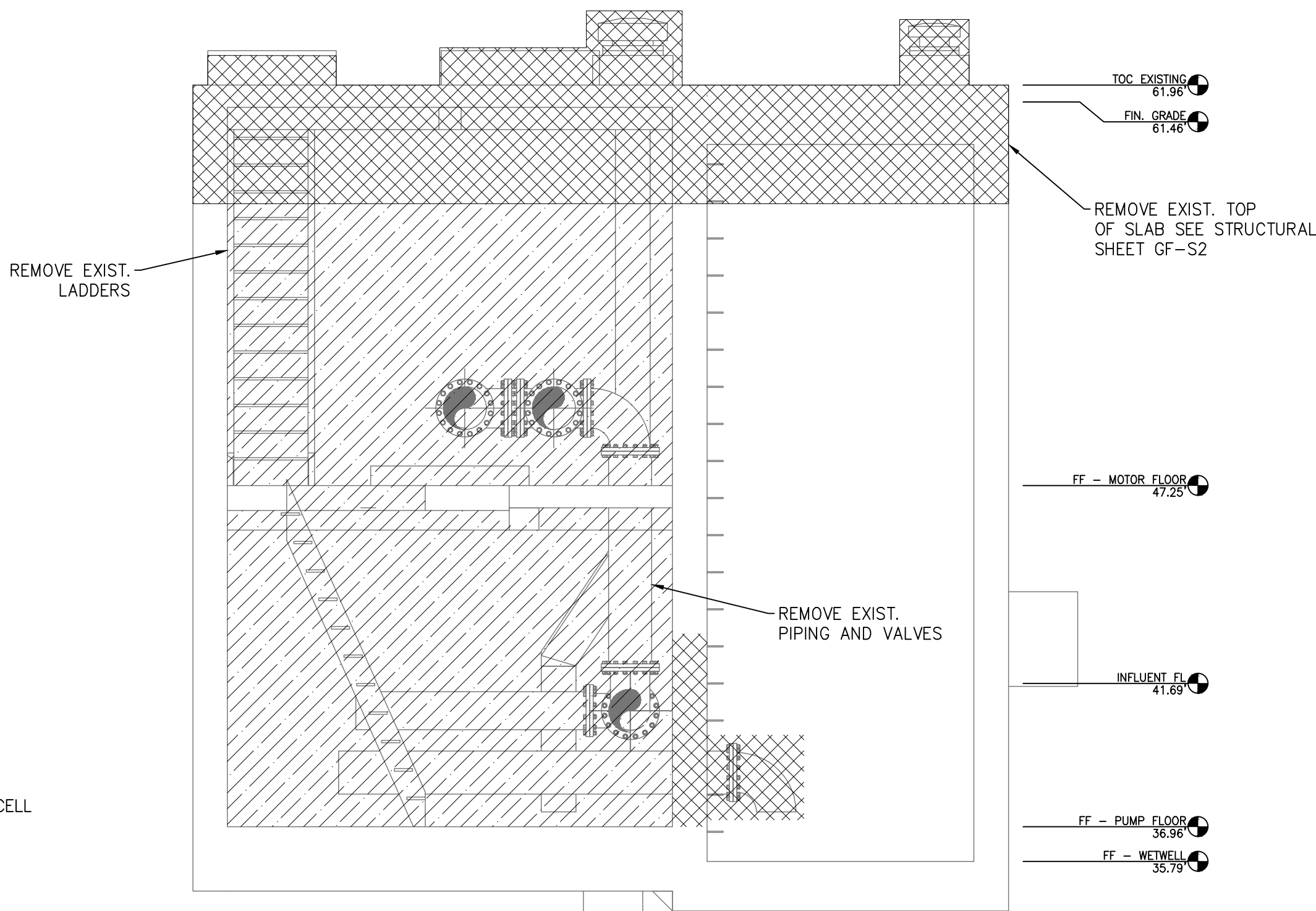
1 PLAN VIEW @ GRADE
1/4" = 1'=0"



2 PLAN VIEW @ MOTOR ROOM
1/4" = 1'=0"



3 PLAN VIEW @ PUMP ROOM
1/4" = 1'=0"



2 ELEVATION 2
1/4" = 1'=0"

NOTES:

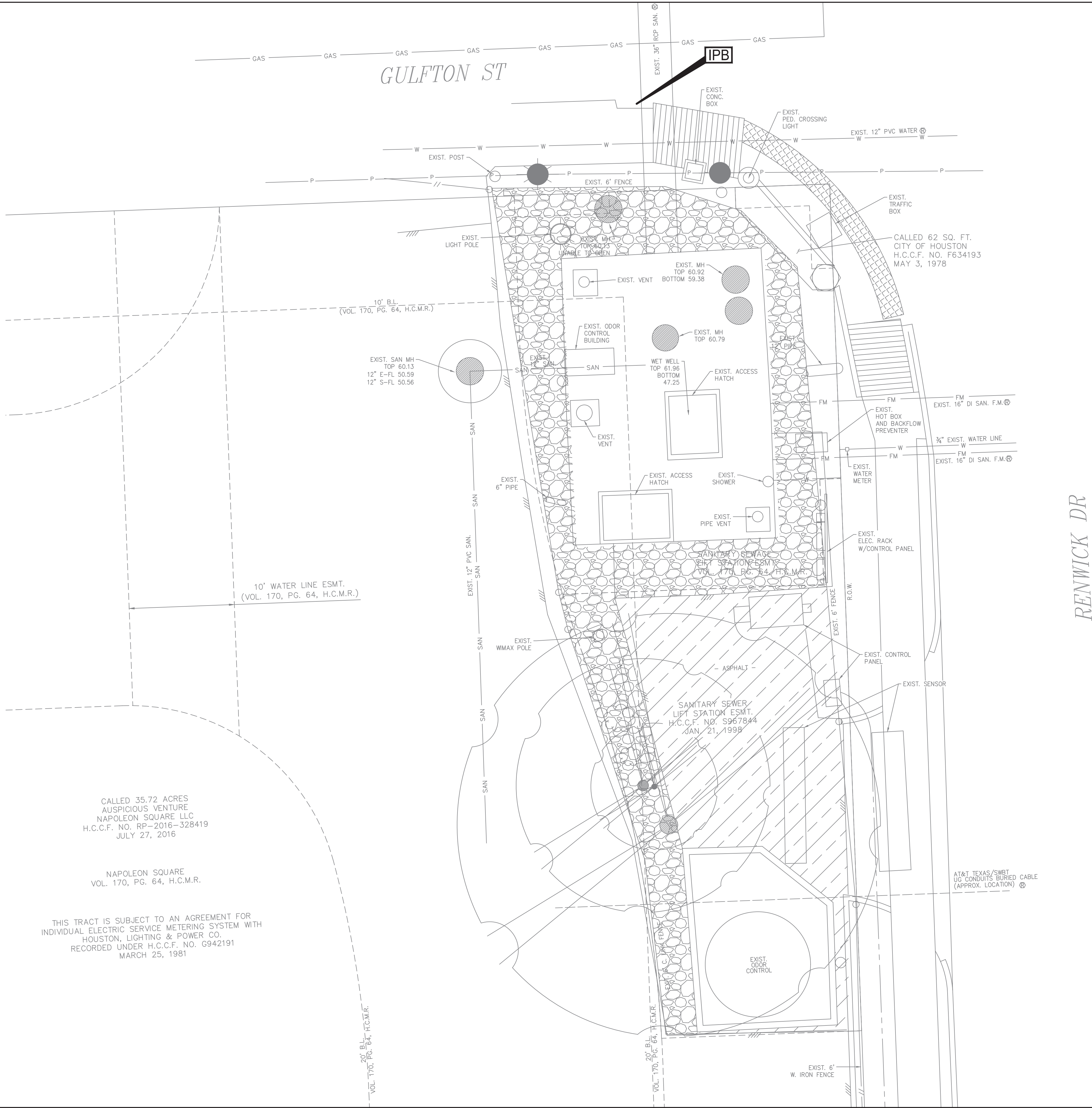
- THIS DRAWING IS A REPRODUCTION OF THE EXISTING LIFT STATION CONSTRUCTION DRAWINGS AND INTENDED TO PROVIDE GENERAL INFORMATION FOR STATION DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL WORK REQUIRED FOR DEMOLITION AND REMOVAL OF STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS.
- THE CITY OF HOUSTON HAS THE FIRST RIGHT OF REFUSAL OF ANY EQUIPMENT OR MATERIAL REMOVED. CONTACT FARID SADEGHIAN, P.E. AT 832-395-4985 AT LEAST 72 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE. THE CONTRACTOR SHALL DELIVER ALL SALVAGED ITEMS TO A LOCATION, WITHIN THE CITY, DETERMINED BY THE CITY. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL OTHER EQUIPMENT AND MATERIAL NOT IDENTIFIED FOR SALVAGE.
- WHEN REMOVING EXISTING PUMPS, CONTRACTOR SHALL LEAVE AS MUCH WIRE/CABLE AS POSSIBLE IN ORDER FOR THE CITY TO REUSE THE PUMPS.
- CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF HEALTH (DEPARTMENT) ON A FORM SPECIFIED BY THE DEPARTMENT OF ANY ASBESTOS ABATEMENT ACTIVITY, RENOVATION, OR OPERATIONS AND MAINTENANCE ACTIVITY AFFECTING ASBESTOS-CONTAINING BUILDING MATERIALS, OR ANY DEMOLITION IN FACILITIES OR PUBLIC BUILDINGS.
- CONTRACTOR SHALL SUBMIT PROOF OF SUBMISSION OR REQUIRED ASBESTOS/DEMOLITION NOTIFICATION FORM TO THE TEXAS DEPARTMENT OF STATE HEALTH SERVICES TO COH CONSTRUCTION PM. THE NOTIFICATION TO THE STATE MUST BE PROVIDED A MINIMUM OF TEN DAYS PRIOR TO THE STARTUP OF ANY DEMOLITION ACTIVITIES AT THE SITE.
- CONCRETE SLAB AND WALLS INDICATED ON THIS PLAN SHALL BE REMOVED TO 5 FEET BELOW FINISHED GRADE AS PER SPECIFICATION SECTION 02220.
- ALL REMAINING WALL OPENINGS IN THE VALVE VAULT SHALL BE SEALED WITH NON-SHRINK GROUT.
- CONTRACTOR SHALL BACKFILL THE ABANDONED AND DEMOLISHED VALVE VAULT. BACKFILL SHALL BE FLOWABLE FILL AND COMPACTED PROPERLY UP TO THE PROPOSED CONCRETE DISCHARGE ASSEMBLY PAD.
- THE CONTRACTOR SHALL COORDINATE WITH CENTERPOINT ENERGY TO DISCONNECT ELECTRICAL POWER AS NEEDED.
- THE EXISTING WET WELL SHALL BE CLEANED OF ALL DEBRIS, WASTEWATER, AND OTHER RESIDUES.
- THE CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE OF TEXAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF TRANSPORTATION, DISPOSAL, AND TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES, AND BY THE DISPOSAL FACILITY.
- PRIOR TO THE CLEANOUT AND CLEANING OF THE EXISTING LIFT STATION WET WELL, CONTRACTOR TO SUBMIT PROOF TO COH CONSTRUCTION PM THAT TRANSPORTER/HAULER TO BE USED FOR THE TRANSPORT OF THE CONTENTS OF THE WET WELL (I.E., SOLIDS, GRIT, SEWAGE SLUDGE, AND DOMESTIC SLUDGE, ETC.) IS REGISTERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AS A SLUDGE TRANSPORTER AND THE TRANSPORTER'S REGISTRATION IS CURRENT AND VALID DURING THE PERIOD OF PERFORMANCE.
- CONTRACTOR SHALL OBTAIN CITY OF HOUSTON DEMOLITION PERMIT (SEE FORM CE 1075 REV. 01/01/2015 FOR GUIDELINES) OR SUBMIT PROOF OF NON-APPLICABILITY TO COH CONSTRUCTION PROJECT MANAGER PRIOR TO THE STARTUP OF DEMOLITION ACTIVITIES AT THE SITE. THE CONTRACTOR SHALL OBTAIN ANY STATE DEMOLITION PERMITS REQUIRED.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
GULFTON LIFT STATION PLAN AND PROFILE DEMOLITION PLAN	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1/4" = 1'=0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 70 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - 1/2 co. 1923 lift stations rehabilitation and reconstruction\Cadd_DWG\Full Set\Xref\71 G STORM WATER POLLUTION PREVENTION PLAN.dwg May 05, 2025-1:08pm elevs



CALLLED 35.72 ACRES
AUSPICIOUS VENTURE
NAPOLEON SQUARE LLC
H.C.C.F. NO. RP-2016-328419
JULY 27, 2016

NAPOLEON SQUARE
VOL. 170, PG. 64, H.C.M.R.

THIS TRACT IS SUBJECT TO AN AGREEMENT FOR
INDIVIDUAL ELECTRIC SERVICE METERING SYSTEM WITH
HOUSTON, LIGHTING & POWER CO.
RECORDED UNDER H.C.C.F. NO. G942191
MARCH 25, 1981

LEGEND:

-  INLET PROTECTION BARRIER
-  REINFORCED FILTER FABRIC BARRIER
-  EXIST STORM INLET

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

AMANI ENGINEERING, INC.
11011 RICHMOND AVE., SUITE 700
HOUSTON, TEXAS 77042
TEL: (713) 270-5700
Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-00

PRELIMINARY

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WERE PREPARED BY OR UNDER THE
SUPERVISION OF:

MAHESH DUTTA 114252
NAME P.E. NO.
DATE 4/2/2026
TYPELS FIRM #F-4528

SURVEYED BY:
KUO & ASSOCIATES
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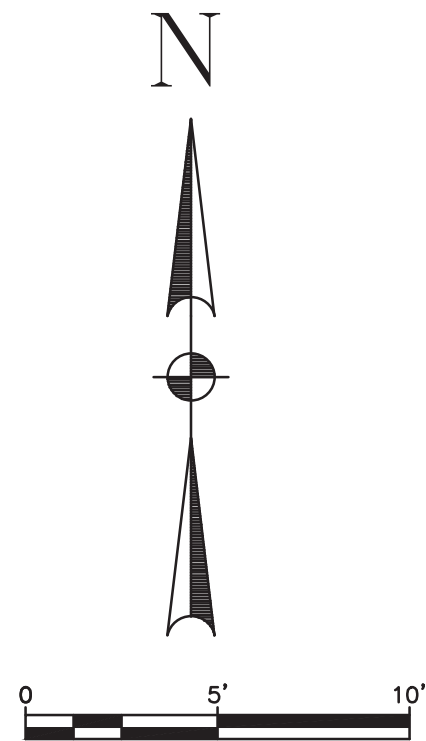
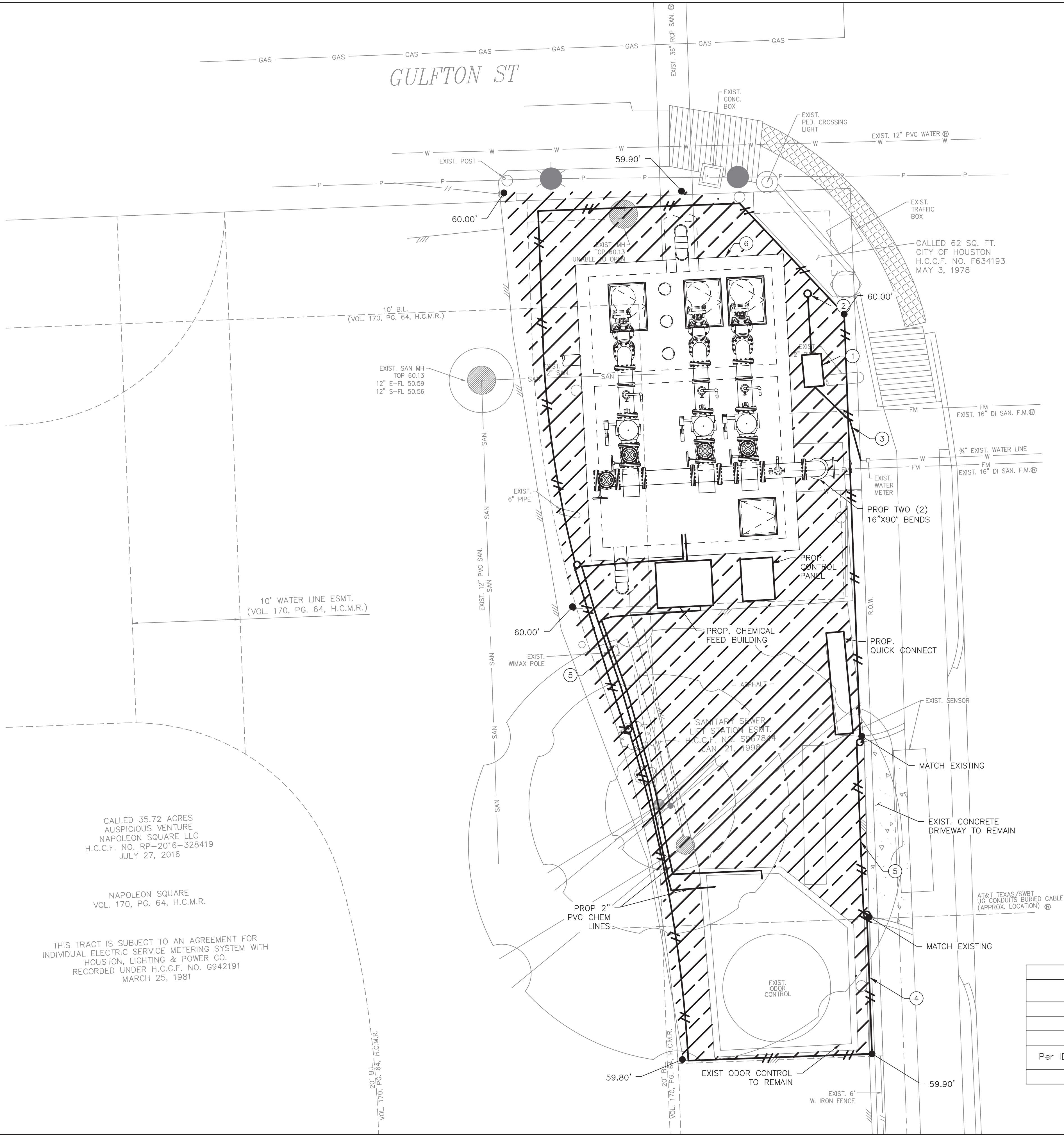
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
STORM WATER POLLUTION
PREVENTION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 71 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - 1/2 csh 1923 lift stations rehabilitation and reconstruction\Cadd_DWG\Full Set\Ver72 GULFTON LIFT STATION PROPOSED CIVIL SITE PLAN.dwg May 05, 2026-1:09pm elevs



- KEY NOTES:**
- PROPOSED REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER (SEE DETAIL DRAWING D-4)
 - PROPOSED 3/4" NON-FREEZE HOSE BIB (SEE DETAIL DRAWING D-5)
 - PROPOSED 3/4" TYPE K COPPER WATER SERVICE LINE (SEE DETAIL DRAWING D-4)
 - PROPOSED 6' CHAINLINK FENCE WITH 3 BARBED WIRE STRANDS AND GREEN PVC SLATS (SEE DETAIL DRAWING D-4)
 - PROPOSED 16" WIDE ROLLER GATE (SEE DETAIL DRAWING D-4)
 - PROPOSED LIFT STATION SLAB & PIPING (SEE SHEET GF-C7)

- LEGEND:**
- EXISTING CONCRETE DRIVEWAY TO REMAIN
 - PROPOSED 7" THICK CONCRETE SLAB (1,640 SF) SEE DETAIL SHEET D-5

- NOTES:**
- SEE DRAWING GF-C2 FOR SITE DEMOLITION PLAN.
 - SEE DRAWING GF-C4 FOR LIFT STATION DEMOLITION PLAN.
 - SEE DRAWING GF-E2 FOR ELECTRICAL SITE PLAN.

DETENTION SUMMARY		
	SQUARE FEET	ACRES
EXISTING IMPERVIOUS AREA	1639.70	0.0376
NEW IMPERVIOUS AREA	0.00	0.0000
Per IDM 9.2.01.H.3.d • No detention required if new impervious < 500 SF		
Total Det. Vol.: = 0 ac-ft		

BENCHMARK:
CITY OF HOUSTON MONUMENT 5155-7412, A BRASS DISK IN CONCRETE, LOCATED AT WEST SIDE OF RENWICK DR APPROXIMATELY 590 FEET NORTH FROM THE INTERSECTION OF GULFTON ST
ELEV. 59.28 FEET NAVD 1988 (GEOID '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORRS DATED JULY 31, 2025.
T.B.M. #21:
SET "X" CUT ON CONCRETE LOCATED ON THE NORTH MEDIAN NOSE OF THE INTERSECTION OF GULFTON ST AND RENWICK DR.
ELEV. 60.90 FEET
VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040750) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.03'.
NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.03 FT
HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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MAHESH DUTTA 114252
NAME P.E. NO.
DATE 4/2/2026
TBPELS FIRM #F-4528

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

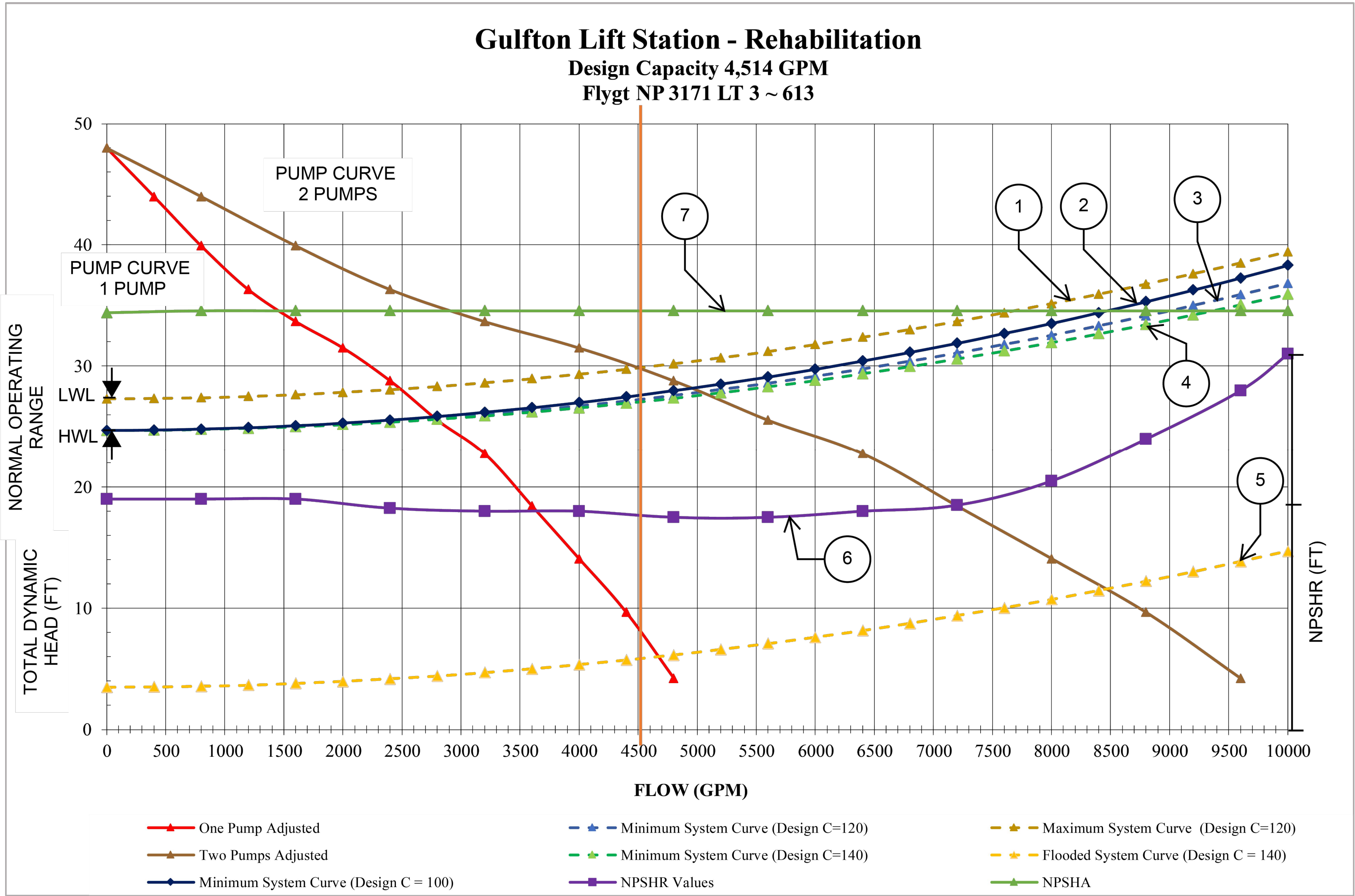
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
PROPOSED CIVIL SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 72 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2/2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS 74 GULFTON LS TABLES.dwg May 07, 2026 - 1:23pm trowbridge



PUMP CURVE NOTES:

1. LOW NORMAL OPERATING LEVEL
C=120 - DESIGN
2. HIGH NORMAL OPERATING
LEVEL C=100 - INFORMATION ONLY (TCEQ)
3. HIGH NORMAL OPERATING LEVEL
C=120 - DESIGN
4. HIGH NORMAL OPERATING LEVEL
C=140 - INFORMATION ONLY
5. EMERGENCY FLOODED OPERATING LEVEL
C=140 - MAXIMUM DISCHARGE
6. NET POSITIVE HEAD SUCTION REQUIRED (NPSHR)
BASED ON NORMAL OPERATING WATER LEVEL
7. NET POSITIVE SUCTION HEAD AVAILABLE (NPSHA)

PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3
MOTOR DATA			
NOMINAL SIZE (HP)	25	25	25
MAX SPEED (RPM)	1,160	1,160	1,160
SOLIDS PASSAGE			
MIN SPHERE (IN)	3	3	3
CAPACITY (GPM)			
DESIGN	2,660	2,660	2,660
RUNOUT	5,000	5,000	5,000
DISCHARGE HEAD (FT)			
DESIGN	29.35	29.35	29.35
RUNOUT	4.00	4.00	4.00
SHUT OFF	48.00	48.00	48.00
EFFICIENCY (%)			
DESIGN	76.08	76.08	76.08
NPSHR (FT)			
DESIGN	17.56	17.56	17.56
RUNOUT	31.00	31.00	31.00
PUMP CYCLE TIME	6 MIN	6 MIN	6 MIN
CUMULATIVE CAPACITY (GPM)	2,660	4,514	6,100

STATION OPERATION TABLES

RISING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
1.18	38.14	PUMPS OFF LEVEL - NO ACTION	ALL PUMPS ARE OFF
2.18	39.14	LEAD PUMP TURNS ON	LEAD PUMP ON
3.29	40.25	SECOND PUMP TURNS ON	LEAD & SECOND PUMPS ON
3.79	40.75	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
17.50	54.46	HIGH HIGH LEVEL ALARM (FLOAT ON LEVEL)	FIRM PUMPS ON (FLOATS)
FALLING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
4.79	41.75	FLOAT OFF LEVEL	FIRM PUMPS OFF (FLOATS)
3.79	40.75	HIGH WATER LEVEL ALARM OFF	LEAD & SECOND PUMPS ON
3.29	40.25	LEAD PUMP TURNS OFF	SECOND PUMP ON
1.18	38.14	SECOND PUMP TURNS OFF	ALL PUMPS STOPPED - STANDBY PUMP SWITCHES TO LEAD PUMP
0.50	37.46	LOW LEVEL ALARM	-

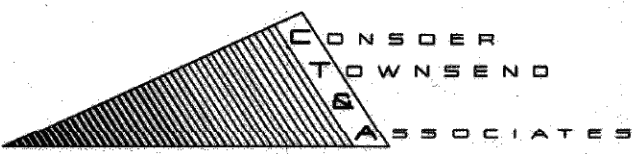
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION TABLES AND DETAILS		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 74 OF 291		

1. (a) $\frac{1}{2} \ln 2$

1. ALL DIMENSIONS AND INFORMATION UNATTAINABLE FROM FIELD INVESTIGATION ARE FROM C.O.H. DRAWINGS NUMBERED 16145, DATED 1970/1971.
2. FOR NEW OPENINGS IN EXISTING SLAB, SEE TYPICAL DETAIL FOR PATCHING, SHEET 29.

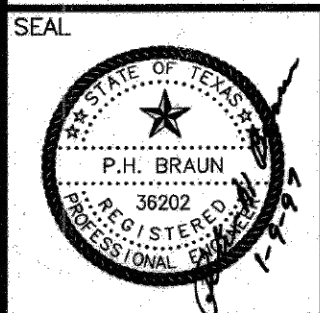


FOR REFERENCE ONLY

	
ENGINEERING PLANNING MANAGEMENT	
GULFTON LIFT STATION PROPOSED PLAN VIEW @ GRADE	
W.W. FILE NO. 4276-12	
TITLE GULFTON AND BERING LIFT STATION REHABILITATION	
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP	
SECTION APPROVALS	
<i>Ward</i> WATER ENGINEERING 1/14/99	<i>Phyllis</i> TRAFFIC AND SIGNAL ENGINEERING 1/14/99
<i>W. J. Jones</i> WASTEWATER ENGINEERING 1/10/97	<i>Lawrence</i> STREET & BRIDGE ENGINEERING 1/14/99
<i>M. K. Krum</i> STORM SEWER ENGINEERING 1/14/97	<i>Small E. N. III</i> CONSTRUCTION 1/14/99
OTHER DEPARTMENT	
PLANNING AND DEVELOPMENT <i>Curtis</i> CITY ENGINEER 1/15/97	SPONSOR DEPARTMENT <i>Joe</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING 1/15/97
SUBMITTED: SCALE: 3/8" = 1'-0" DATE: DECEMBER, 1998 SURVEY BY: N/A F.B. NO.: N/A	DESIGNED BY: DRAWN BY: SHEET NO. 14 OF 66 CITY DWG. NO. 33012

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION RECORD DRAWINGS PLAN VIEW 1		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 75 OF 291		

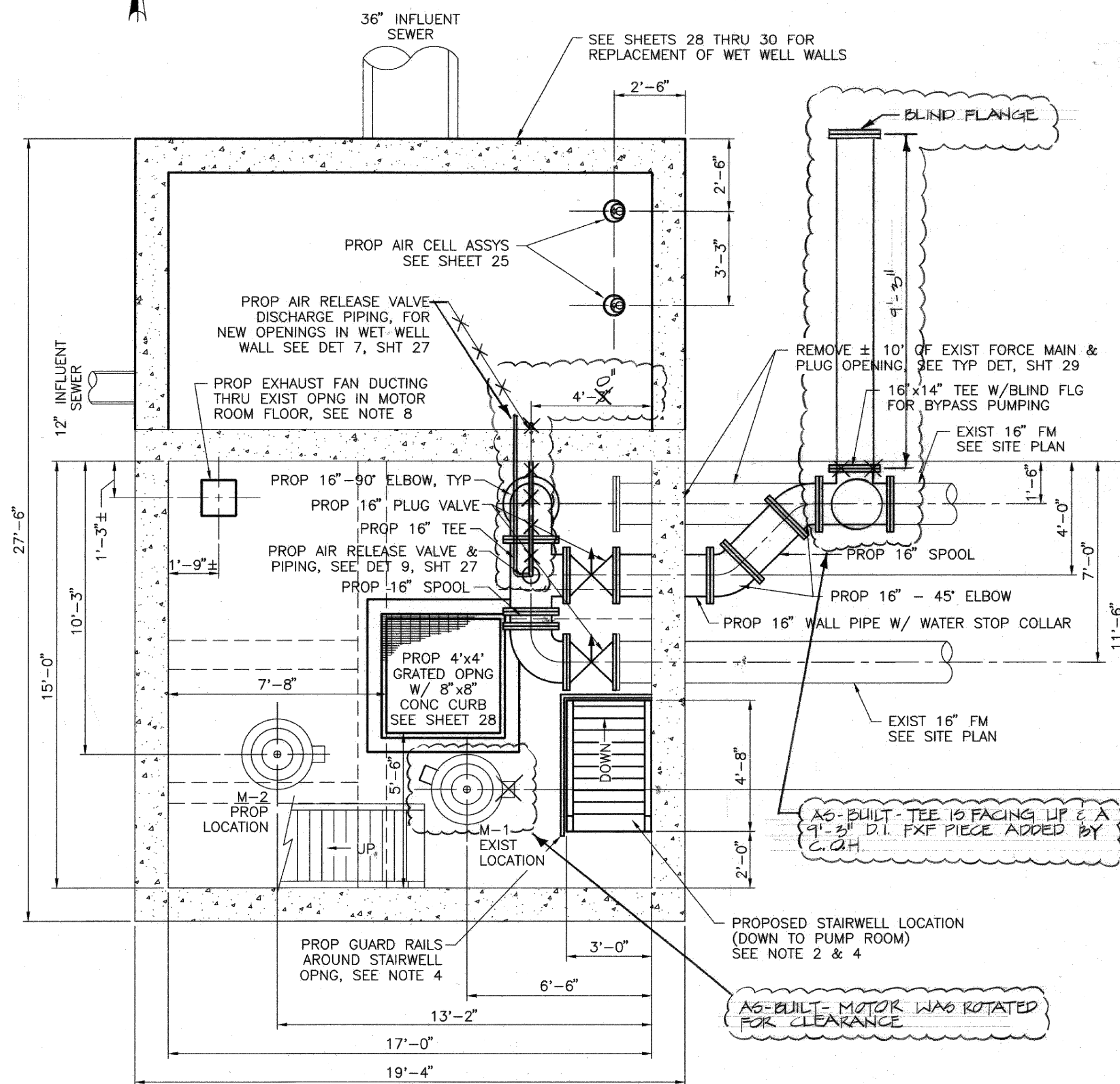
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS



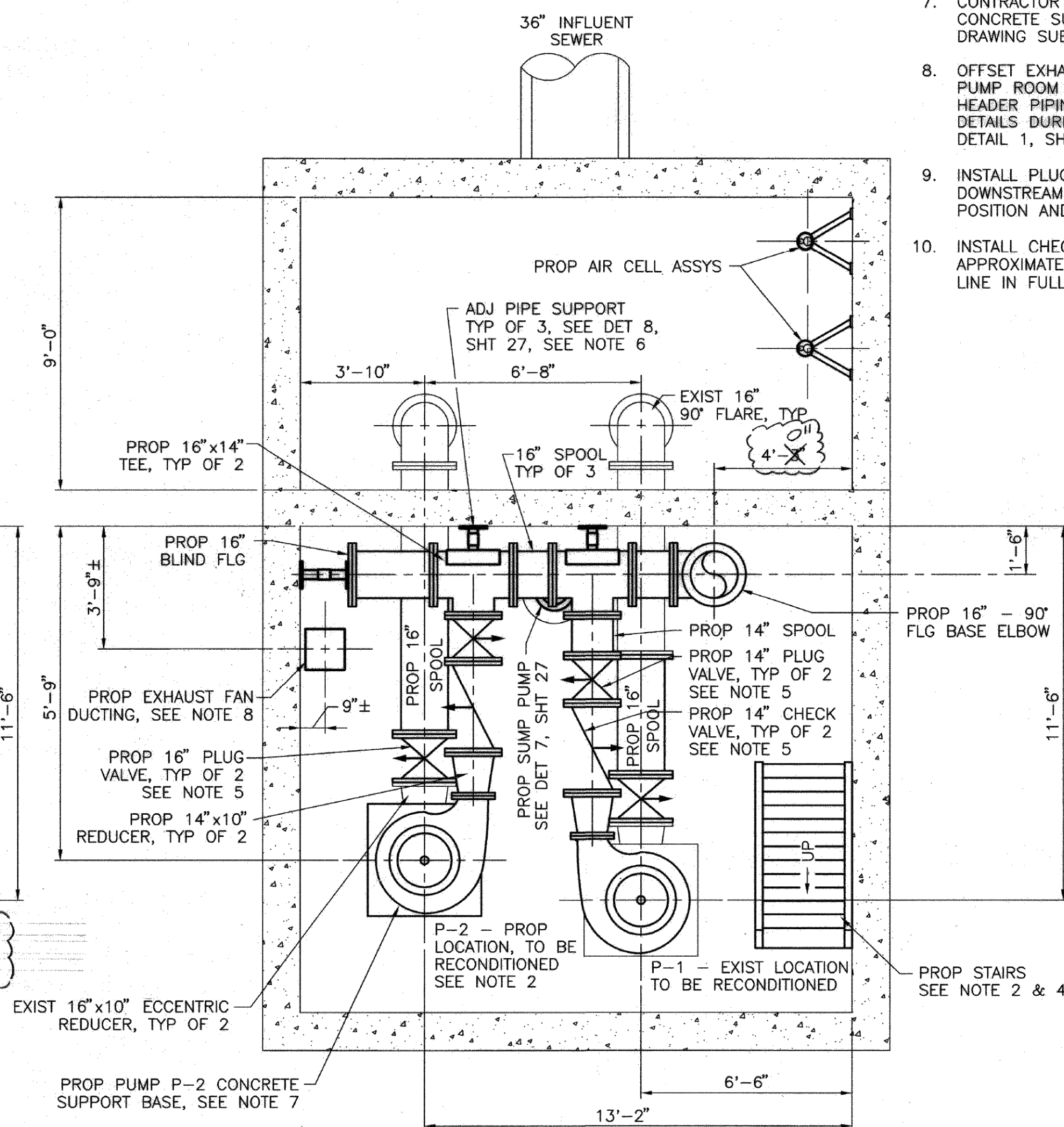
CADD DWG. FILE NO. :
GFTPSHT1.DWG (Scale: 1=32)

GF-C9

1. CONTRACTOR TO PROVIDE DETAILED DRAWINGS OF STAIRS AND GUARD RAILS DURING SHOP DRAWING SUBMISSION.
2. CONTRACTOR TO PROVIDE 1 REVERSE ARM 14" PLUG VALVE, 1 REVERSE ARM 16" PLUG VALVE, AND 1 REVERSE ARM 14" CHECK VALVE TO MAINTAIN CLEARANCES BETWEEN PIPING FOR MAINTENANCE PERSONNEL. THE ARROW SYMBOL (←) ON THE VALVE SYMBOL INDICATES VALVE ARM DIRECTION.
3. ANCHOR ADJUSTABLE PIPE SUPPORTS TO CONCRETE WALL USING 3/8" SS CONCRETE ANCHOR BOLTS. CONTRACTOR TO SUBMIT DETAILS DURING SHOP DRAWING SUBMISSION.
4. CONTRACTOR TO PROVIDE VALVE, PUMP AND PIPING CONCRETE SUPPORT PEDESTAL DETAILS DURING SHOP DRAWING SUBMISSION.
5. OFFSET EXHAUST FAN DUCTING BETWEEN MOTOR AND PUMP ROOM FLOORS TO AVOID INTERFERENCE WITH HEADER PIPING AND SUPPORTS. CONTRACTOR TO PROVIDE DETAILS DURING SHOP DRAWING SUBMISSION. SEE DETAIL 1, SHEET 26.
6. INSTALL PLUG VALVES SO THAT SEAT IS FACING DOWNSTREAM; AND SO THAT SHAFT IS IN THE HORIZONTAL POSITION AND VALVE OPENS BY RISING UPWARDS.
7. INSTALL CHECK VALVES SO THAT WEIGHT LEVER ARM IS APPROXIMATELY 45° ABOVE THE VALVE HORIZONTAL CENTER LINE IN FULL OPEN POSITION.



PROP PLAN VIEW @ MOTOR ROOM FLOOR



PROP PLAN VIEW @ PUMP ROOM FLOOR

 TOWNSEND ASSOCIATES ENGINEERING PLANNING MANAGEMENT	
GULFTON LIFT STATION PROPOSED PLAN VIEW @ MOTOR & PUMP ROOM FLOORS	
W.W. FILE NO. 4276-12	
GULFTON AND BERING LIFT STATION REHABILITATION	
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP	
SECTION APPROVALS	
<i>W. W. Jones</i> 1-14-97 WATER ENGINEERING	<i>Robert J. [Signature]</i> TRAFFIC AND SIGNAL ENGINEERING
<i>W. W. Jones</i> 1/10/97 WASTEWATER ENGINEERING	<i>Samuel [Signature]</i> 1/14/97 STREET & BRIDGE ENGINEERING
<i>M. [Signature]</i> 1/14/97 STORM SEWER ENGINEERING	<i>Samuel J. [Signature]</i> 1/14/97 CONSTRUCTION
OTHER DEPARTMENT	
PLANNING AND DEVELOPMENT	SPONSOR DEPARTMENT
<i>Anthony [Signature]</i> CITY ENGINEER	1/13/97 DATE
<i>Jim [Signature]</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING	1/15/97 DATE
SUBMITTED: SCALE: 3/8" = 1'-0" DATE: DECEMBER, 1996	DESIGNED BY: DRAWN BY: SHEET NO. 15 OF 66 SHEETS
SURVEY BY: N/A F B NO. N/A	CITY DWG. NO. 33012

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 
3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - E-1386

b6 b7C b7D	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026
------------------	---

SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409	DATE: 05/07/2020 IT IS NOT TO BE ISSUED FOR CONSTRUCTION BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

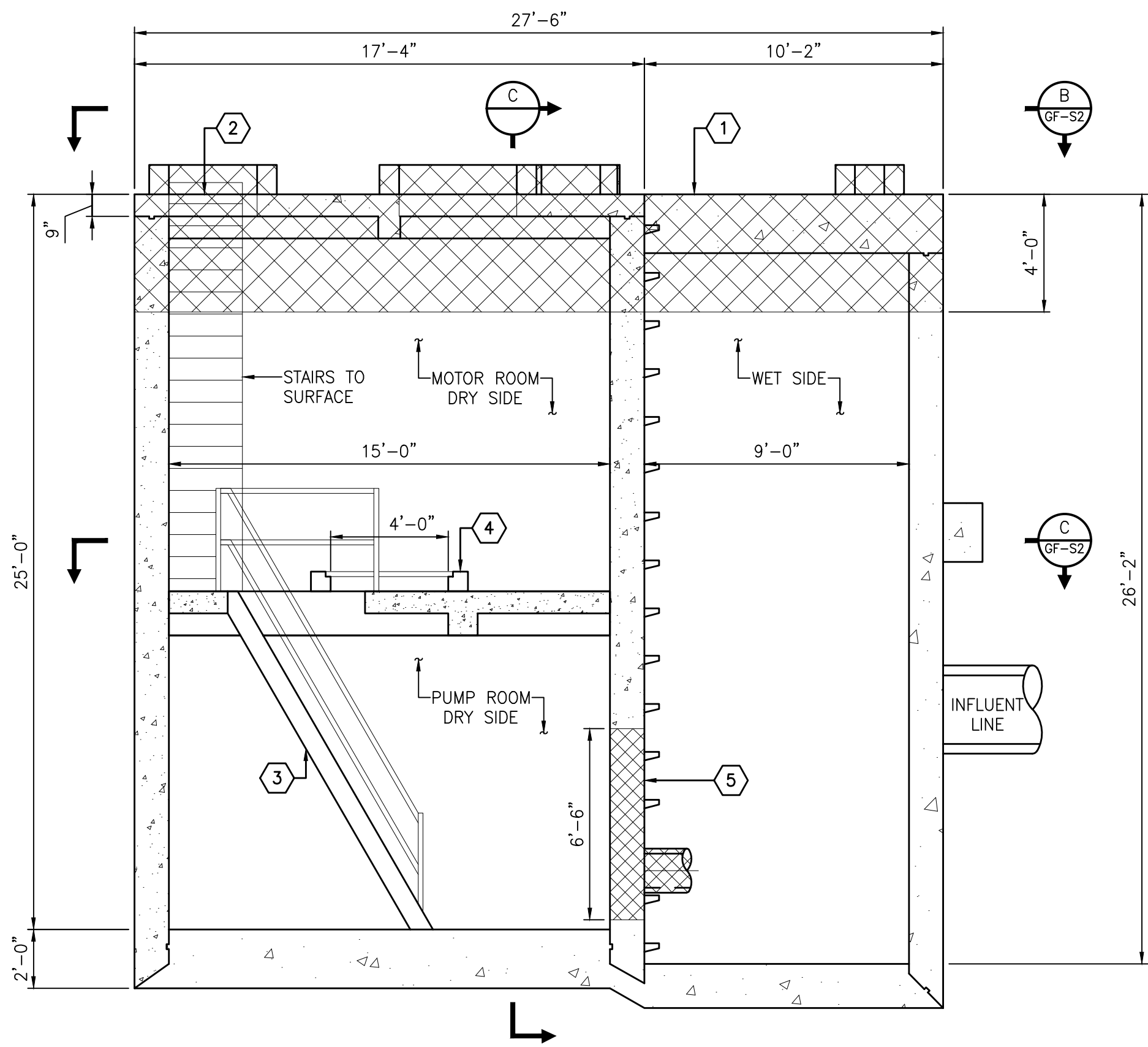
GULFTON LIFT STATION
RECORD DRAWINGS
PLAN VIEW 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 76 OF 291	

FOR REFERENCE ONLY

GF-C10

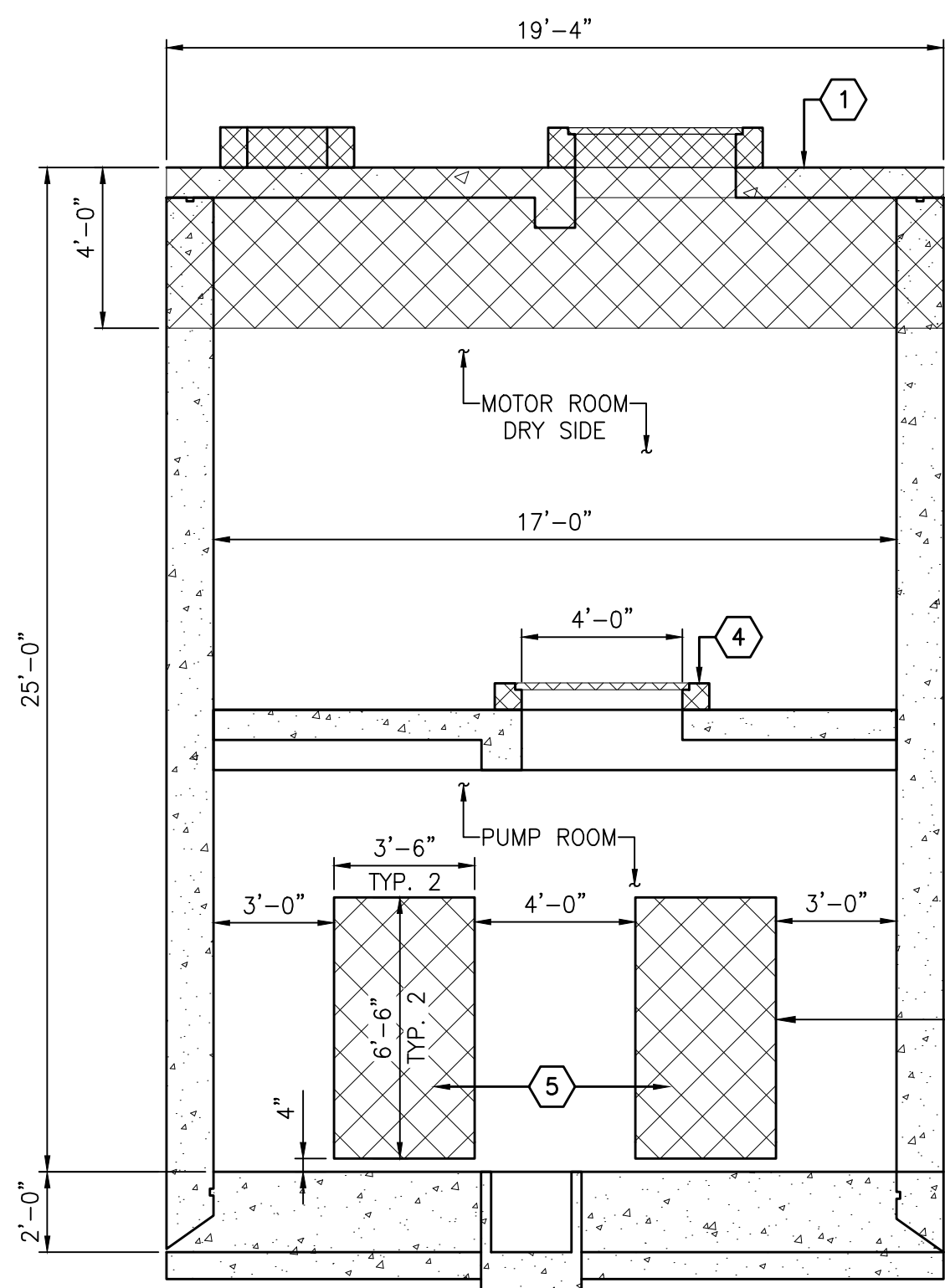
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\78 GULFTON LS STRCT MODS_1.dwg May 07, 2026-1:23pm trowbridge



A EXISTING ELEVATION & DEMOLITION
NTS

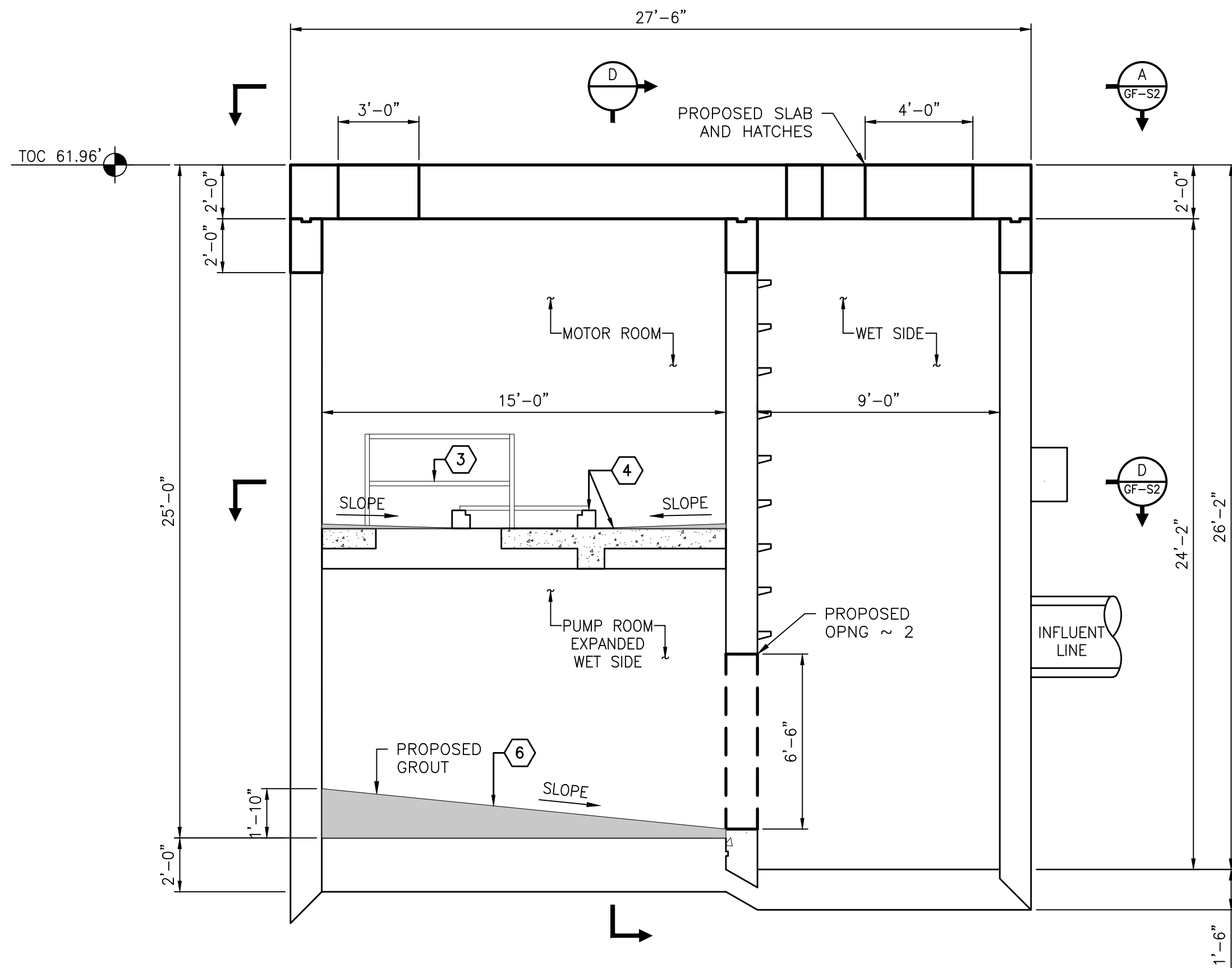
LEGEND:

- DEMOLITION AREA
- GROUT REGION

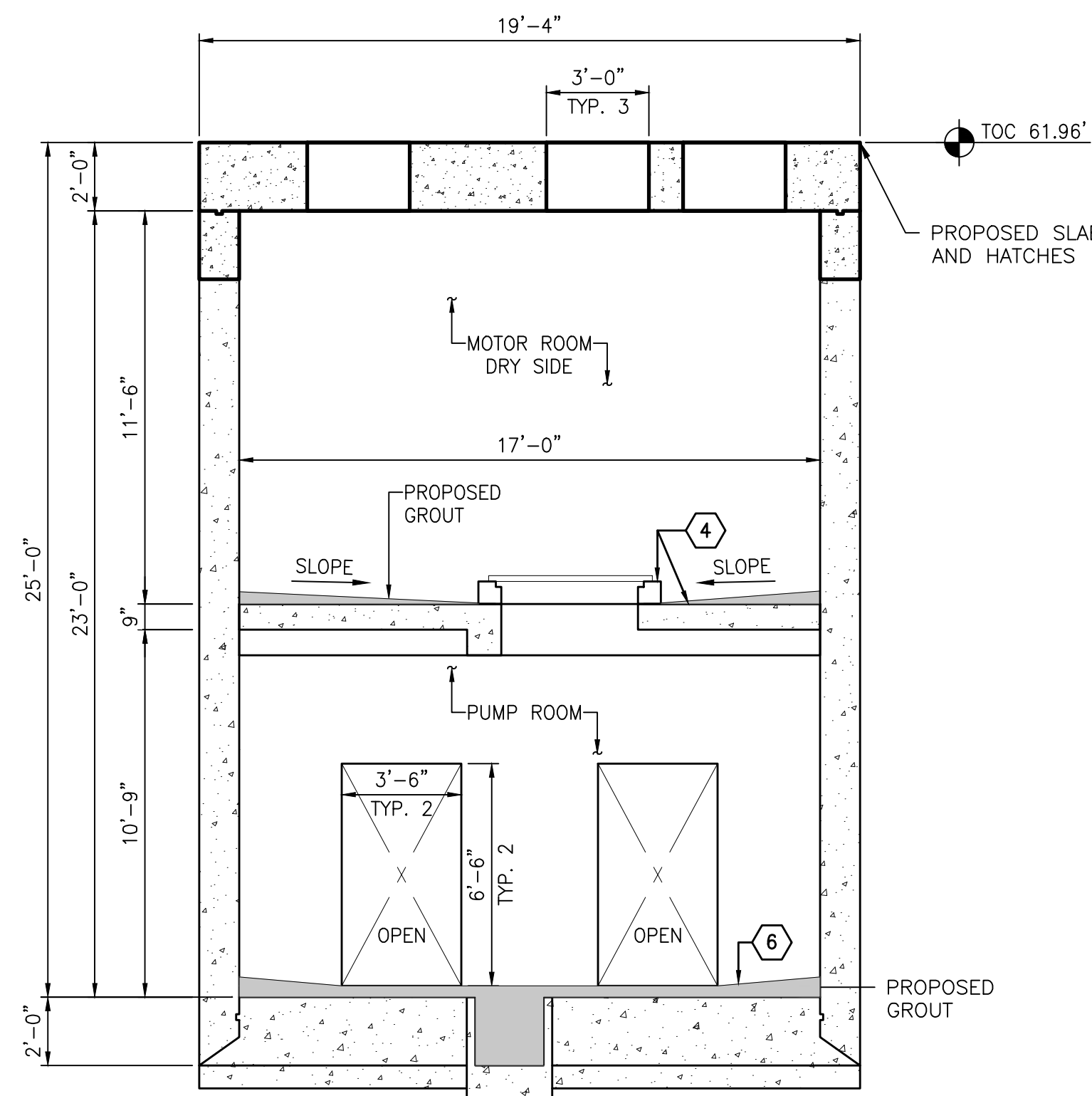


C EXISTING ELEVATION & DEMOLITION SECTION
NTS

SAW CUT HOLES INTO CONCRETE WALL AS SHOWN. GRIND DOWN EXPOSED REBAR ENDS A MINIMUM OF 1" BELOW THE SURFACE AND BACKFILL THE DIMPLES WITH HIGH STRENGTH EPOXY GROUT. TYP.



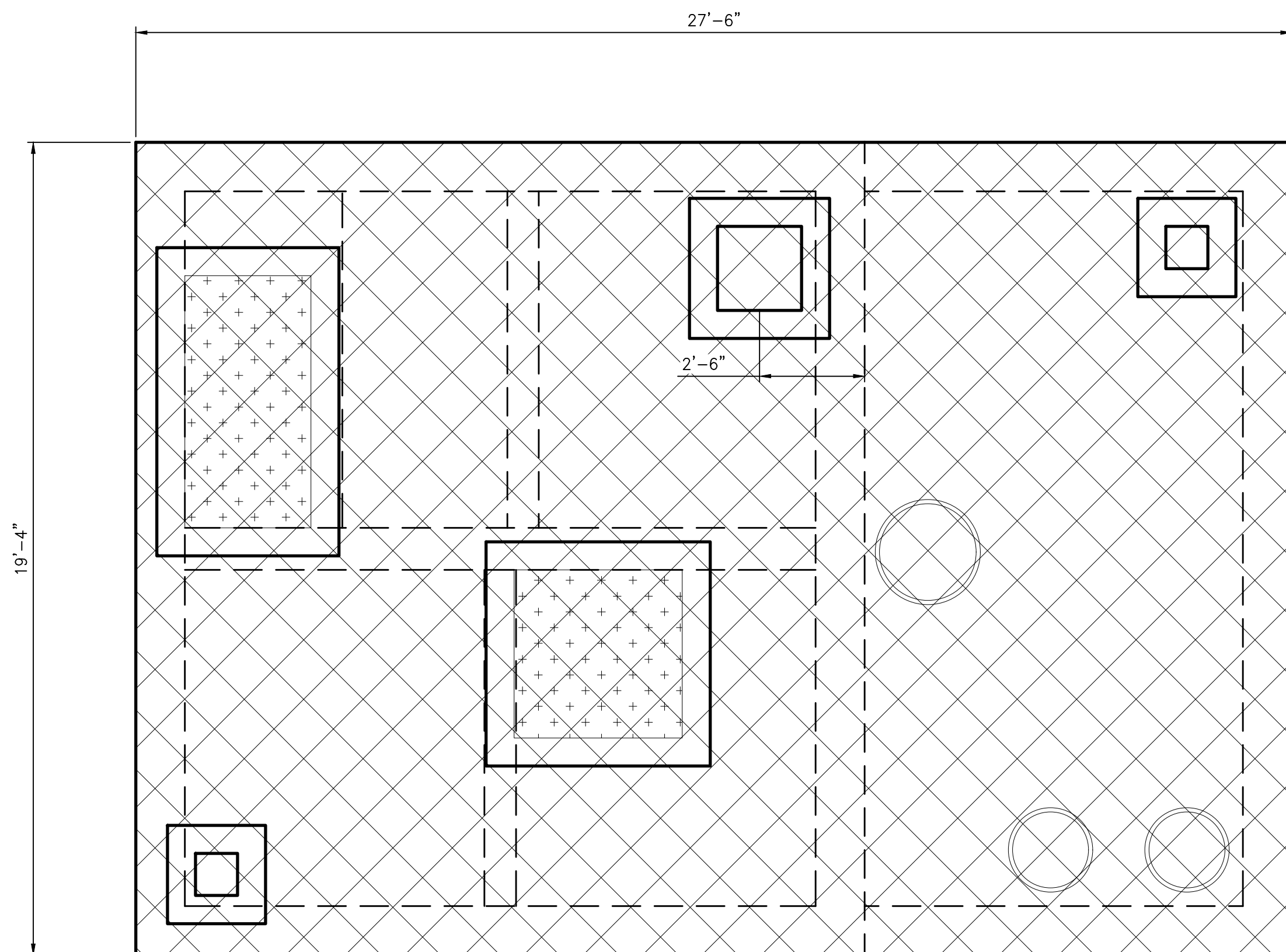
B PROPOSED ELEVATION
NTS



D PROPOSED ELEVATION SECTION
NTS

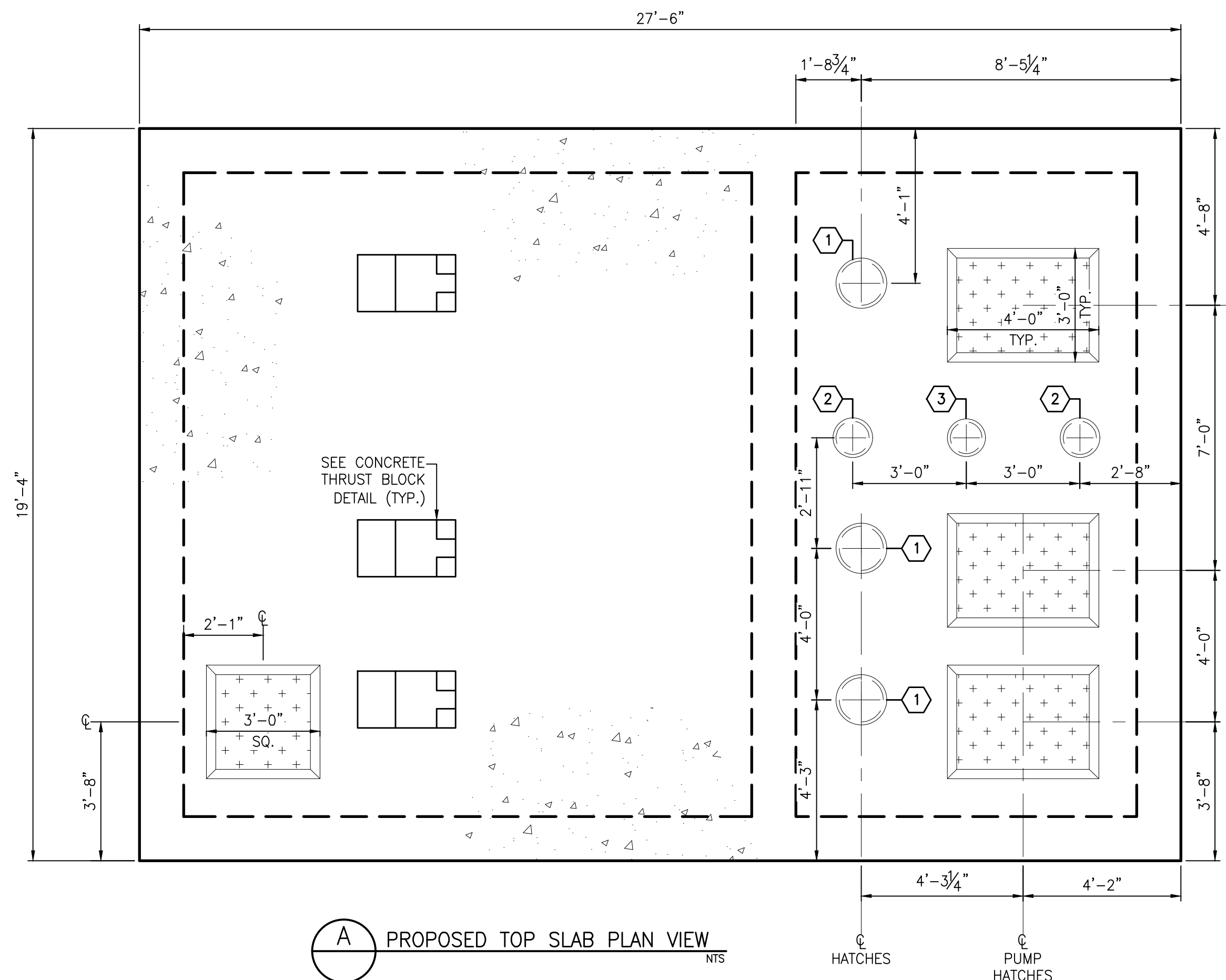
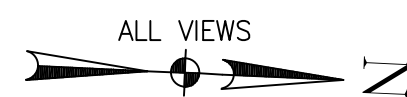
- OVERVIEW STRUCTURAL NARRATIVE
- THE NARRATIVE BELOW IS AN OVERVIEW OF THE STRUCTURAL MODIFICATIONS. PLEASE REFERENCE INDIVIDUAL SHEETS FOR DETAILED MODIFICATION.
- THE NARRATIVE BELOW COVERS THE STRUCTURAL ITEMS ONLY. PLEASE REFER TO THE MECHANICAL & ELECTRICAL SHEETS FOR DISCIPLINE SPECIFIC ITEMS.
- THE EXISTING WELL'S TOP SLAB COVERING BOTH THE WET & DRY SIDE CHAMBERS IS TO BE REMOVED & REPLACED IN ITS ENTIRETY.
 - THE EXISTING STEEL STAIR CASE FROM THE SURFACE WILL BE DEMOLISHED AND REMOVED.
 - THE EXISTING STEEL STAIR CASE FROM THE MOTOR ROOM DOWN TO THE PUMP ROOM WILL BE DEMOLISHED AND REMOVED. THE RAILING ASSOCIATED WITH THIS STAIR CASE WILL BE REPLACED.
 - THE EXISTING MOTOR ROOM SLAB IS TO BE MODIFIED.
 - EXISTING CURB TO BE MODIFIED & GRATING TO BE REMOVED AND REPLACED WITH AN ALTERNATE SETUP
 - EXISTING PIPE HOLES TO BE COVERED WITH STEEL PLATES.
 - FLOOR TO BE GROUTED SO THAT ANY FLUIDS DRAIN INTO THE LOWER PUMP ROOM REGION. ON THE MOTOR ROOM SLAB, THE MAXIMUM GROUT THICKNESS IS 3".
 - AT THE PUMP ROOM (DRY SIDE WELL BOTTOM), HOLES TO BE CUT IN THE PARTITION WALL SEPARATING THE WET FROM DRY SIDE. THE END RESULT WILL BE AN EXPANSION OF THE WET SIDE INTO THE PUMP ROOM.
 - THE PUMP ROOM FLOOR WILL ALSO BE GROUTED TO ESTABLISH DRAINAGE INTO THE EXISTING WET SIDE.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
THIS DOCUMENT IS ISSUED FOR INTERIM REVIEW AND IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMITTING PURPOSES. JOEL B. HUBER, P.E. TEXAS P.E. #134590 ISSUED ON: MAY 07 2026		
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION STRUCTURAL MODIFICATIONS 1		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 78 OF 291		



EXISTING TOP SLAB PLAN VIEW

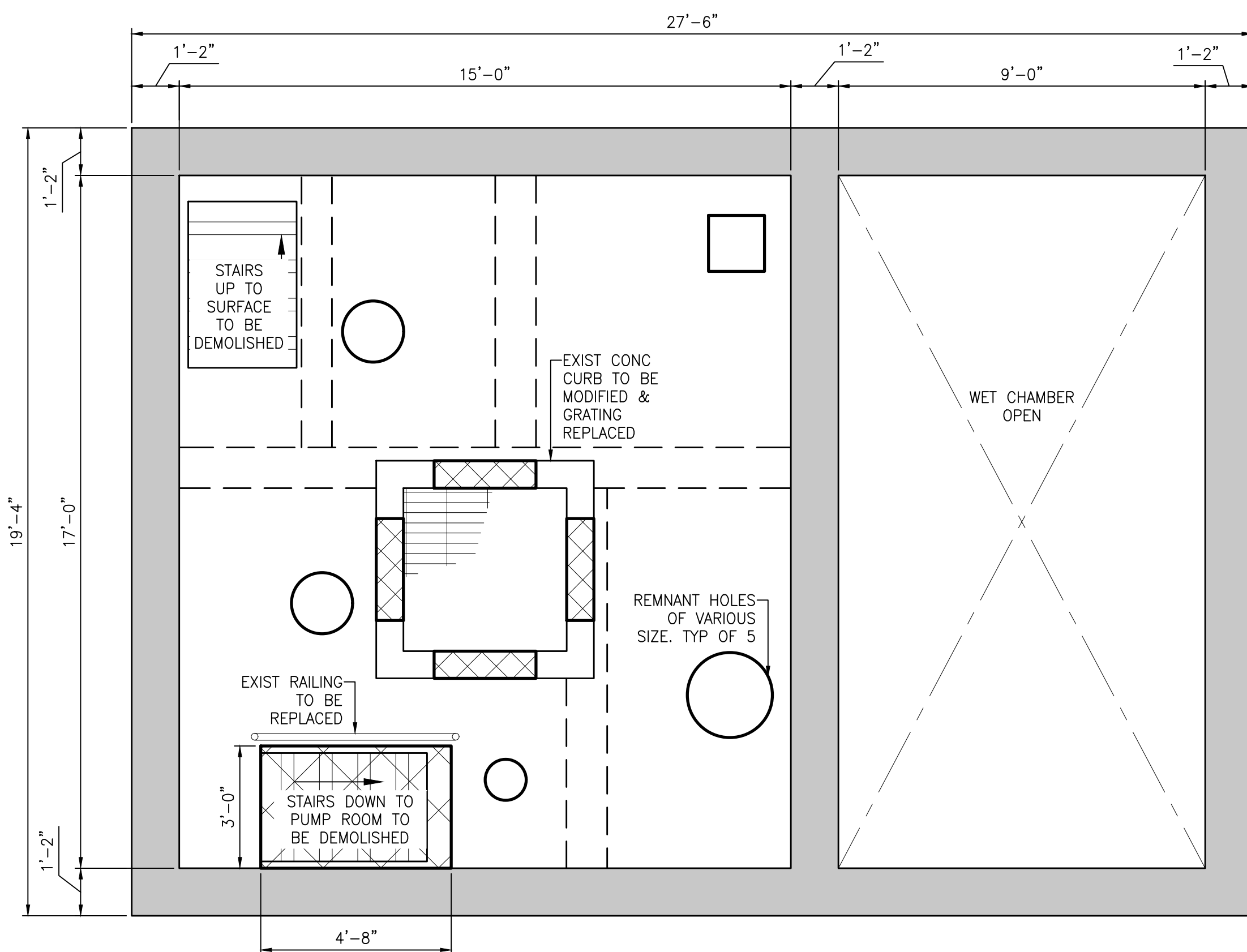
LEGEND:

 DEMOLITION AREA

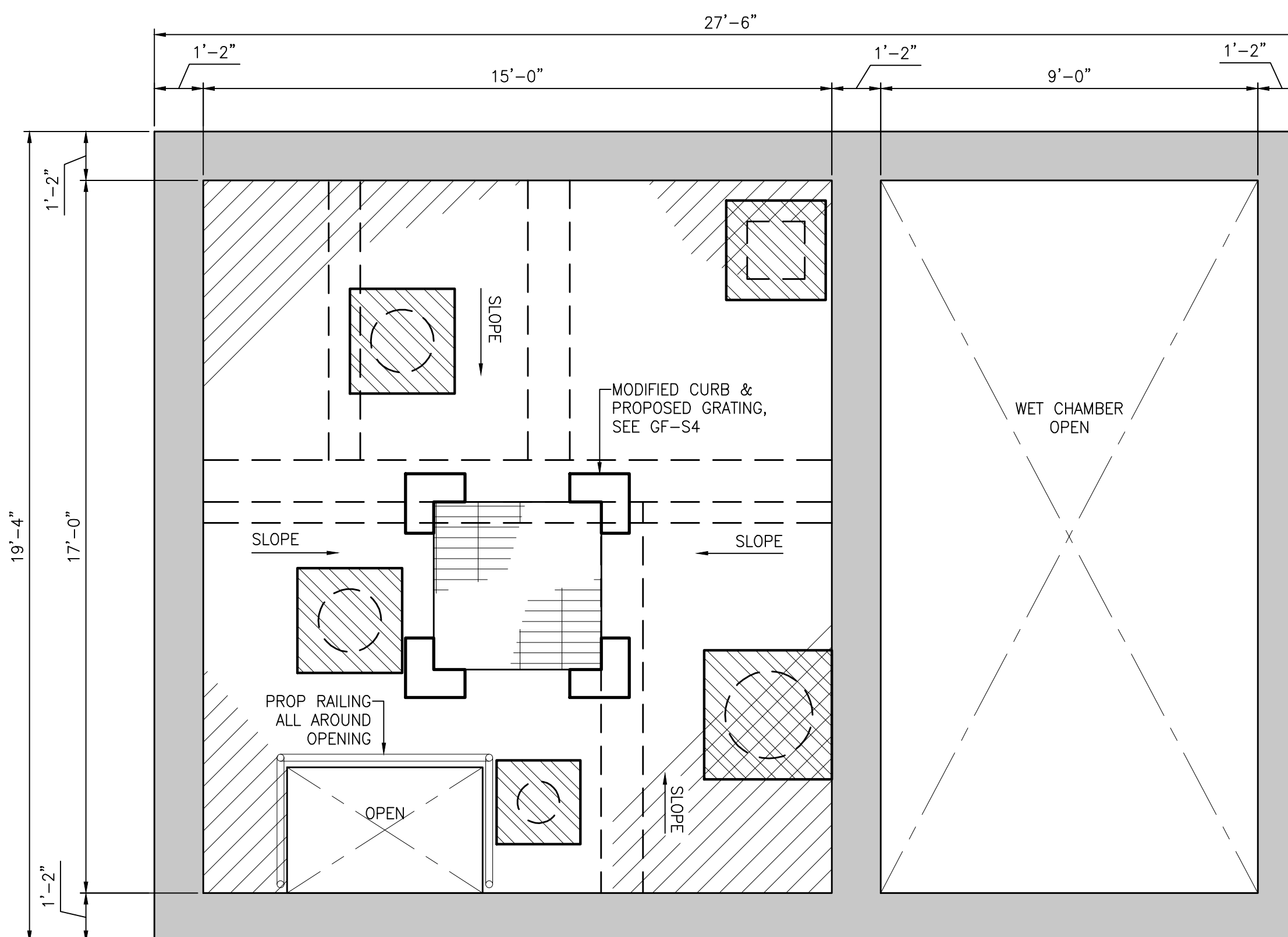
PROPOSED TOP SLAB PLAN VIEW

KEY NOTES:

- 1 Ø16" CLEAR OPENING W/ HATCH
REF: MECH. (TYPE OF 3)
- 2 Ø12 1/2" CLEAR OPENING W/
HATCH REF: MECH. (TYPE OF 2)
- 3 Ø12" CLEAR OPENING W/ HATCH
REF: MECH.



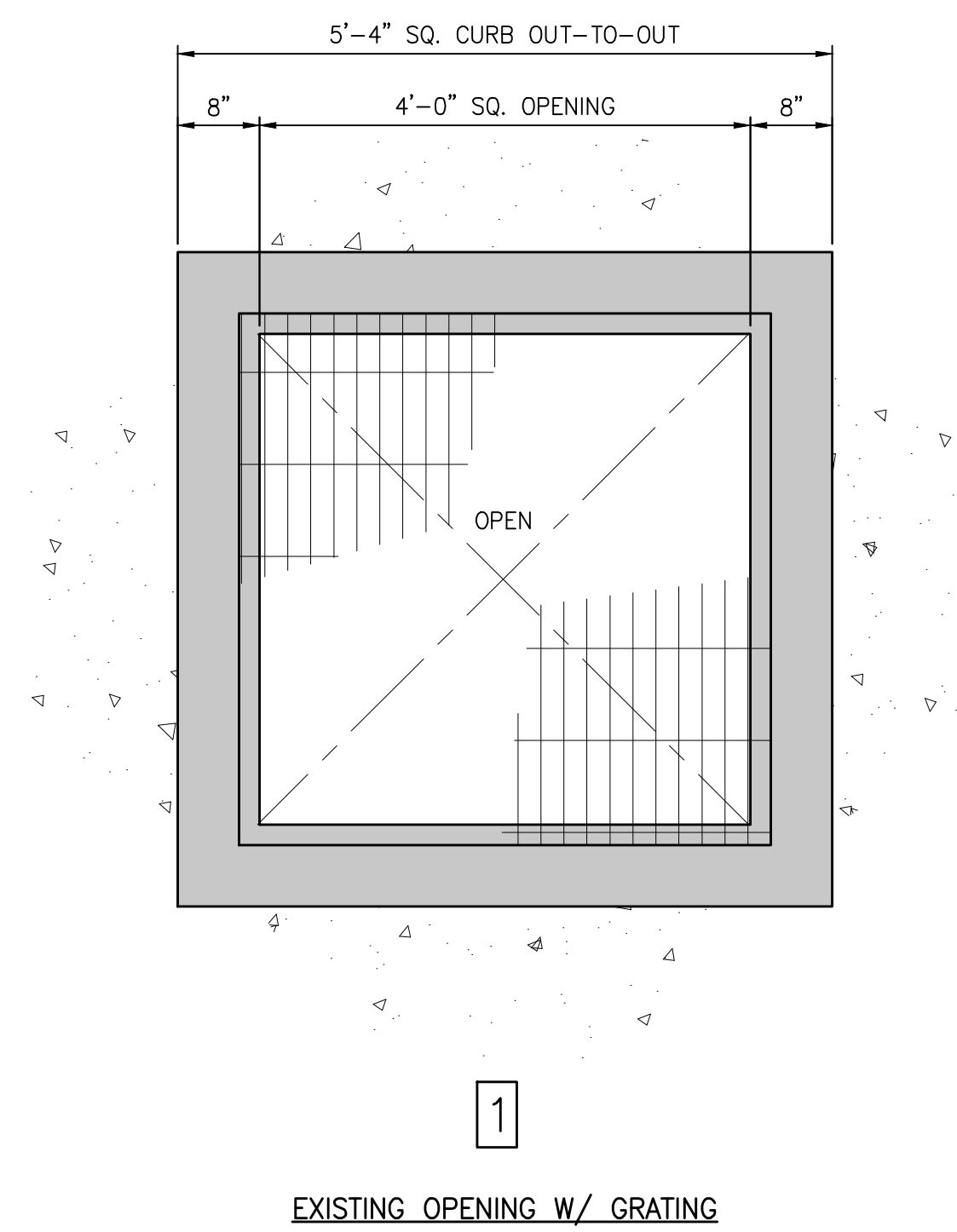
EXISTING MOTOR ROOM SLAB



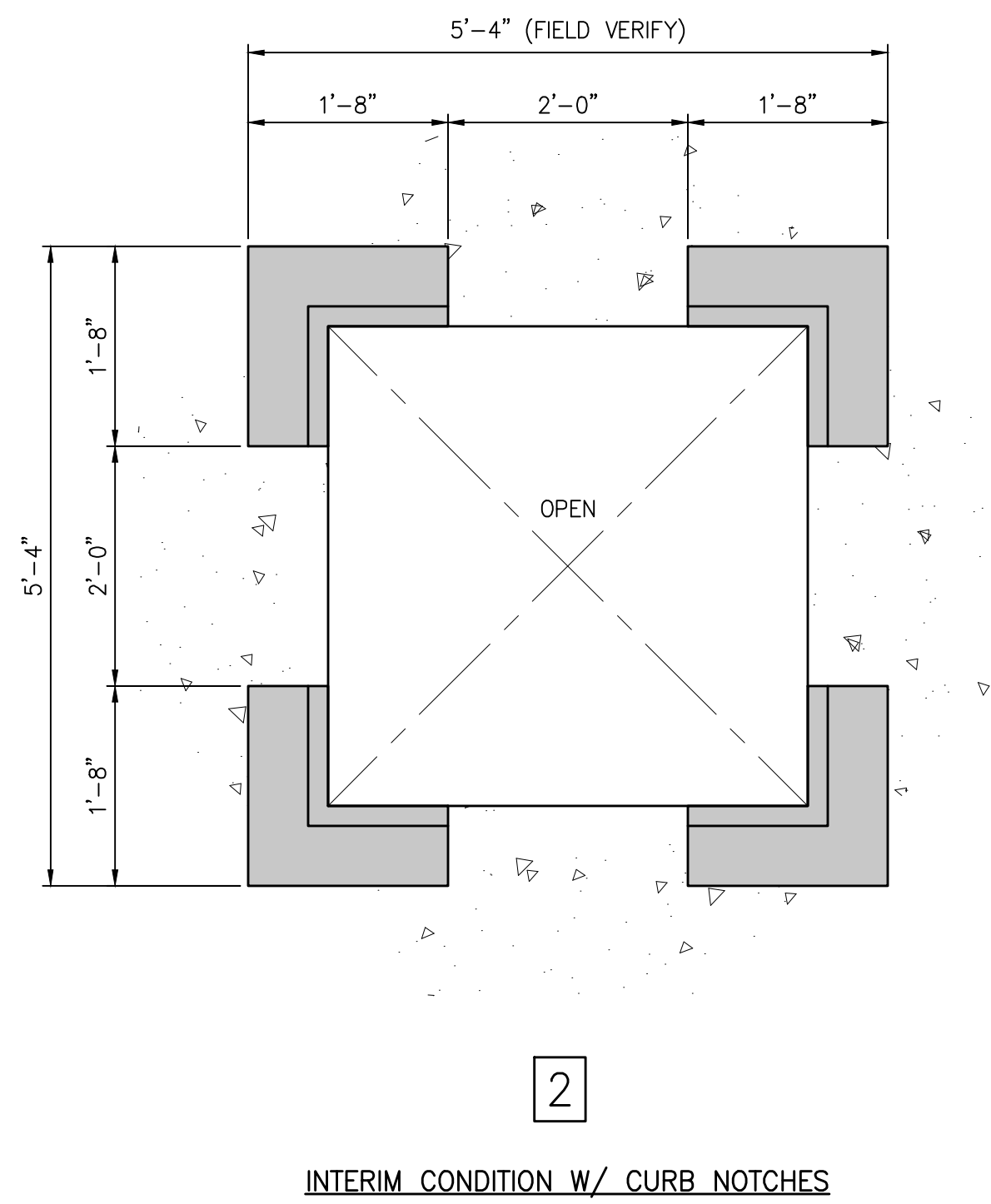
D PROPOSED MOTOR ROOM SLAB

 ENTIRE FLOOR
GROUTED TO DRAIN.
SEE DETAILS

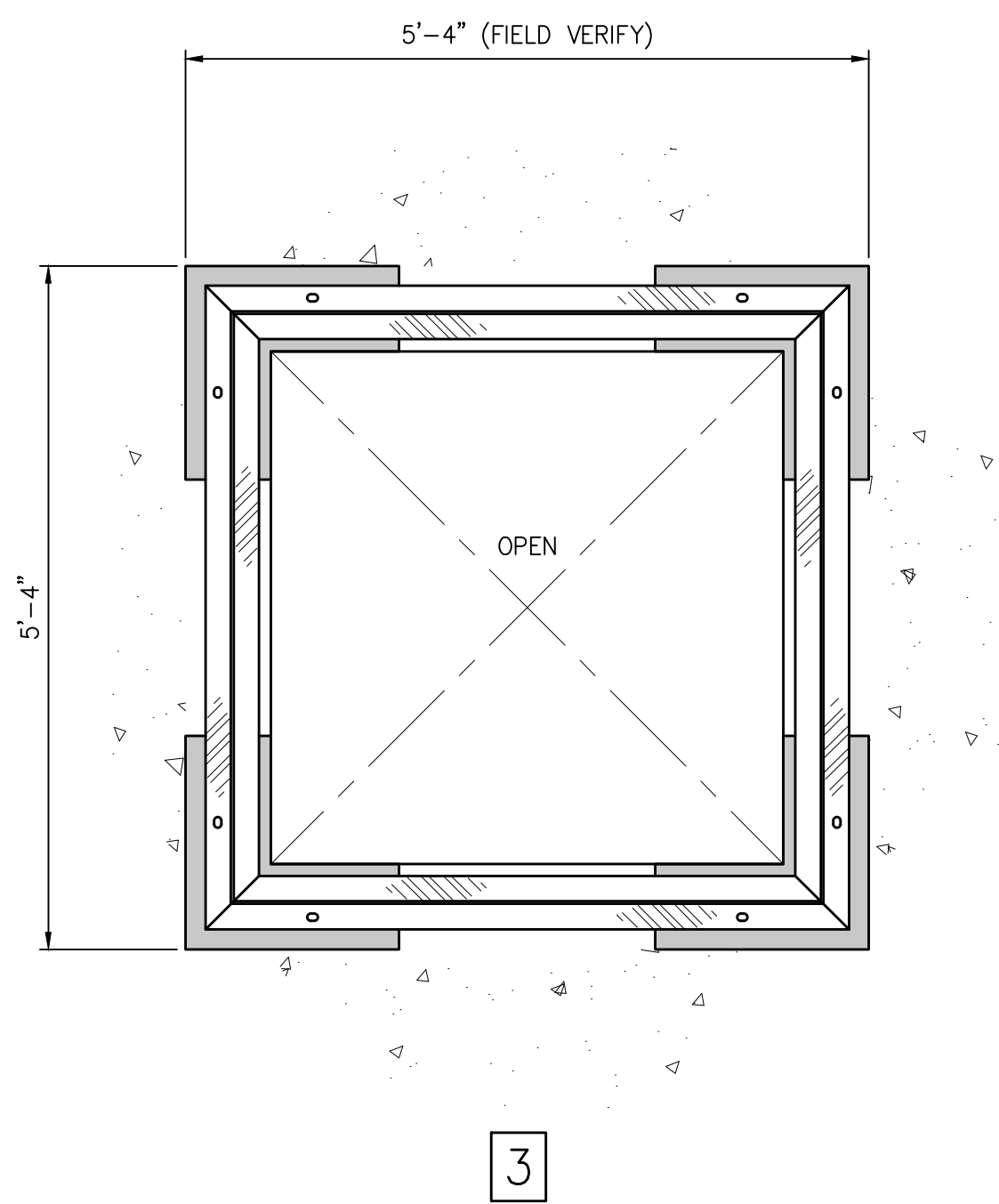
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LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION STRUCTURAL MODIFICATIONS 2		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 79 OF 291		



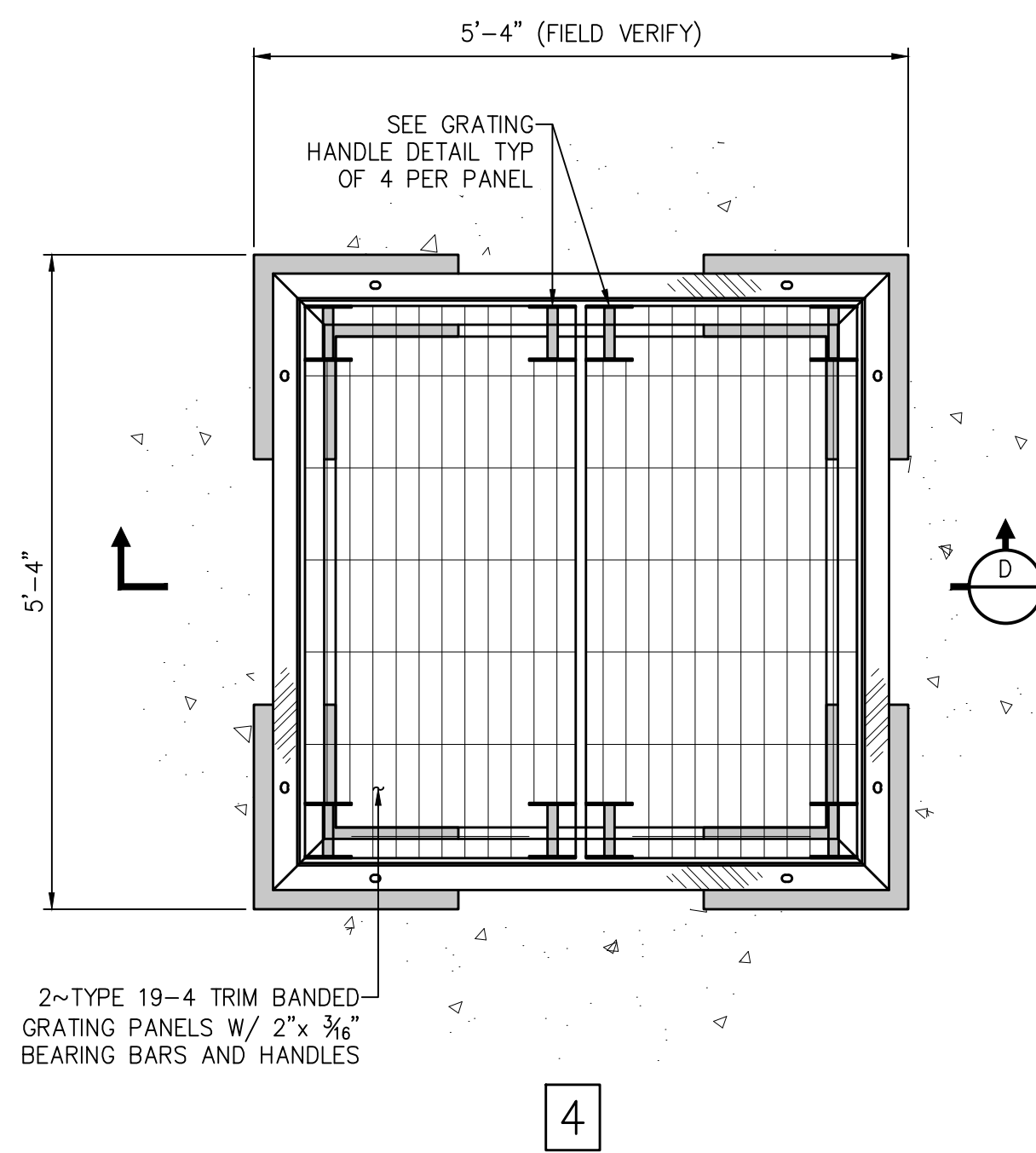
EXISTING OPENING W/ GRATING



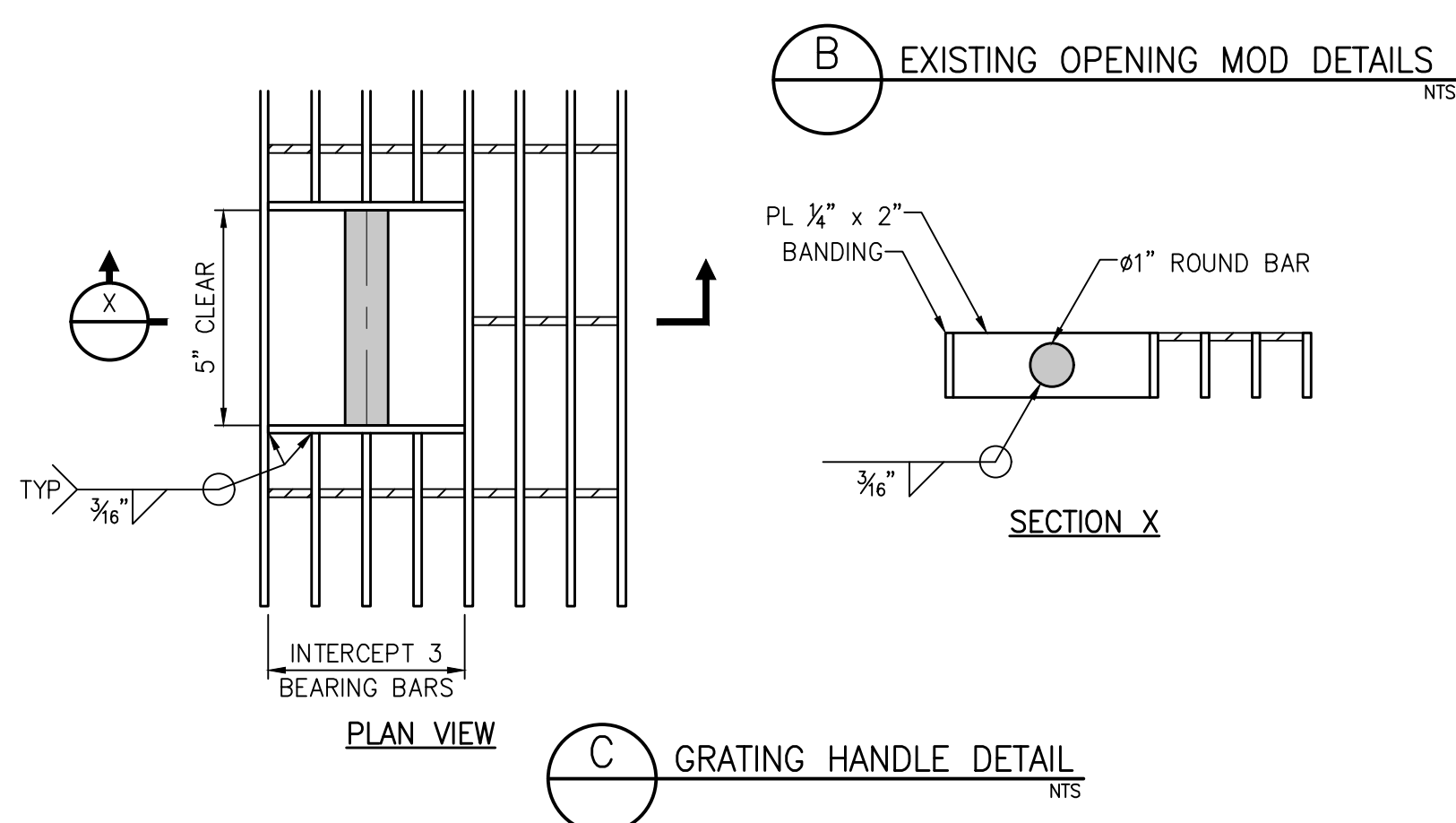
INTERIM CONDITION W/ CURB NOTCHES



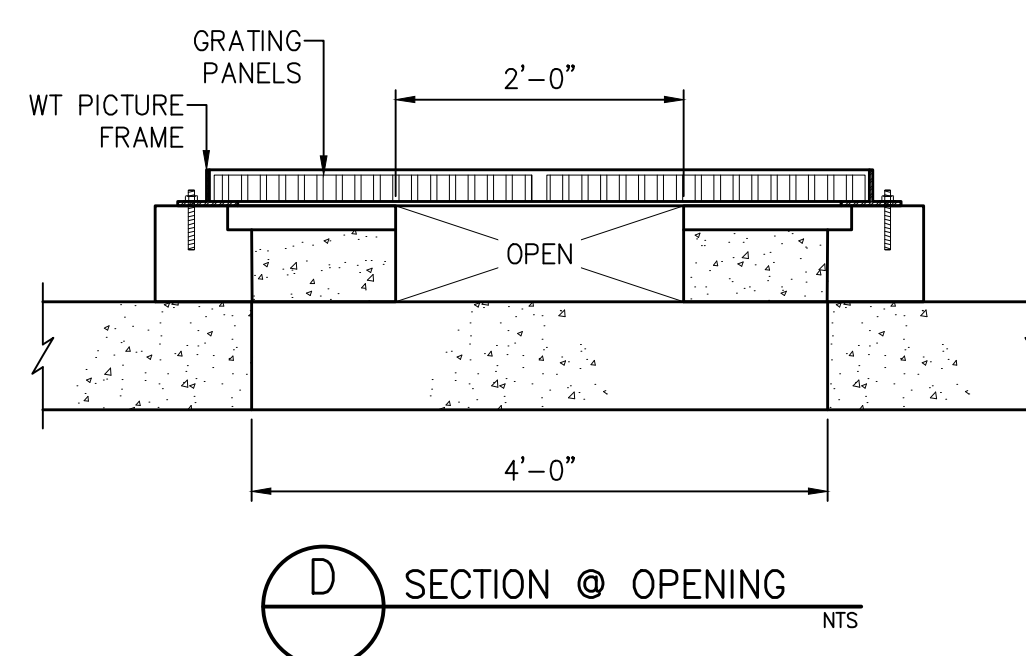
STEEL PICTURE FRAME INSTALLED



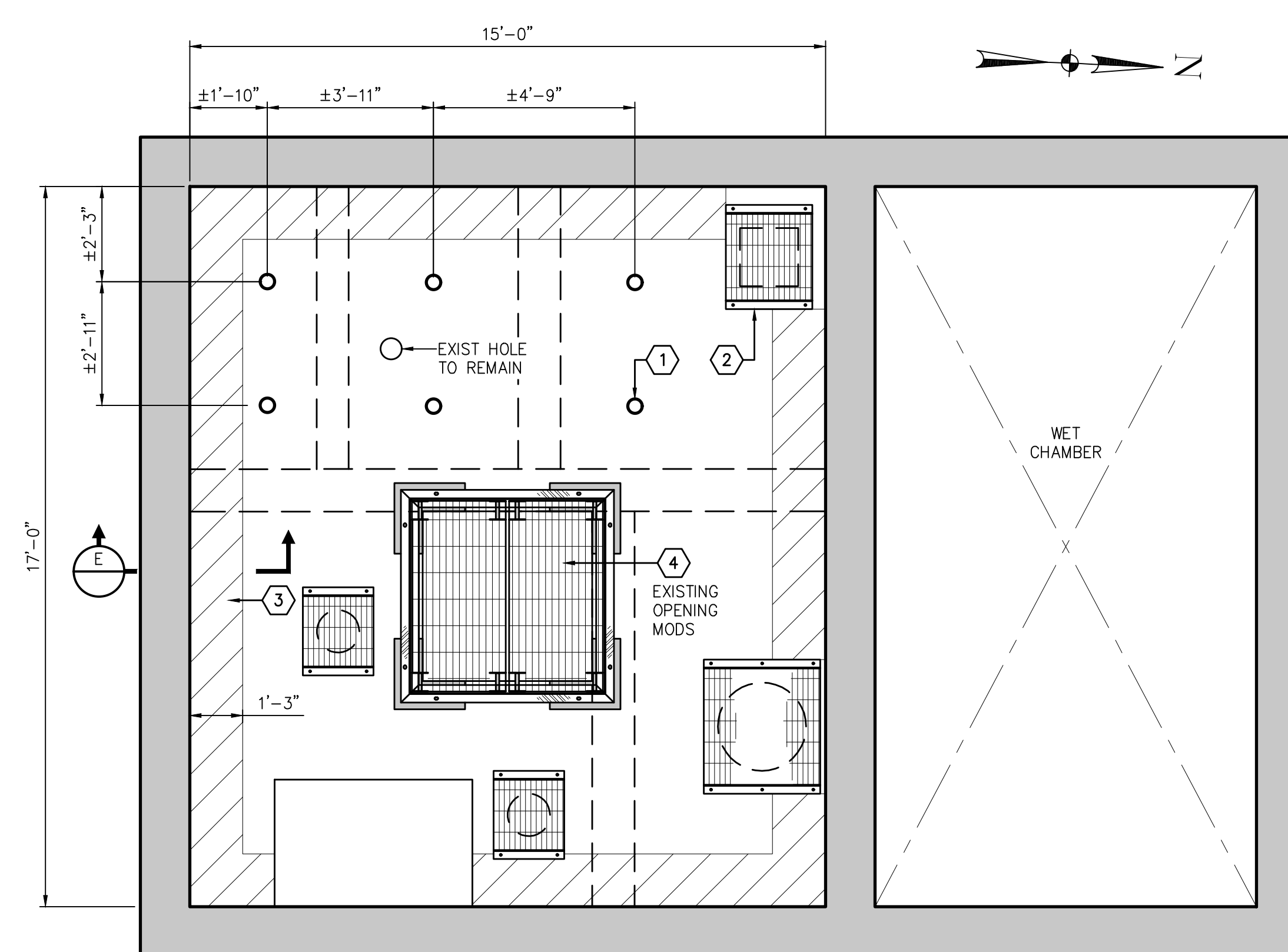
FINAL CONDITION
REMOVABLE GRATING PANELS INSTALLED



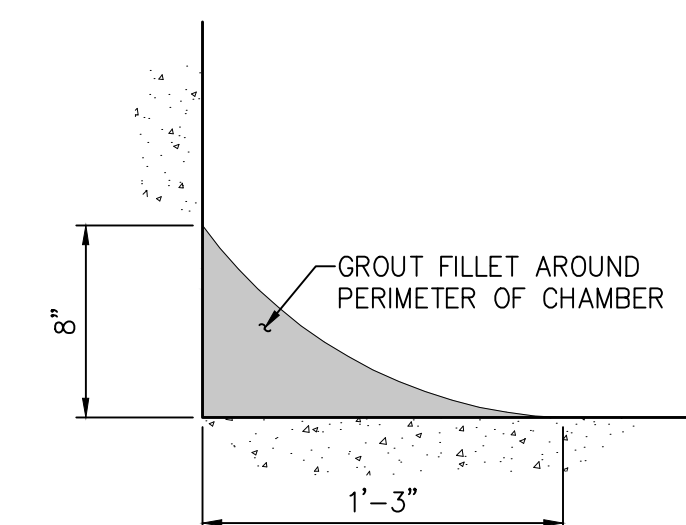
GRATING HANDLE DETAIL



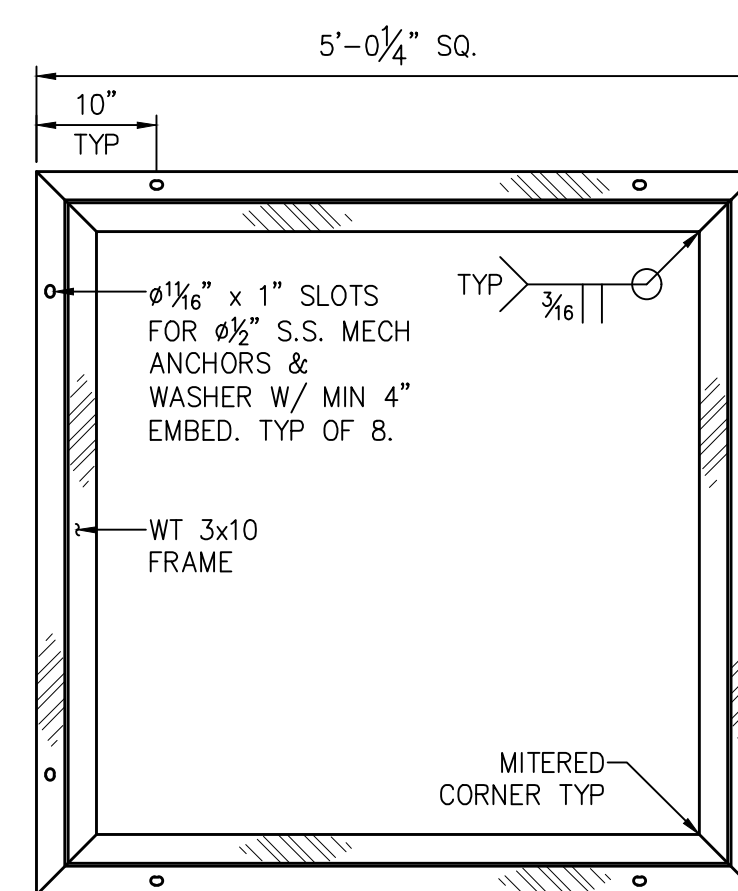
SECTION @ OPENING



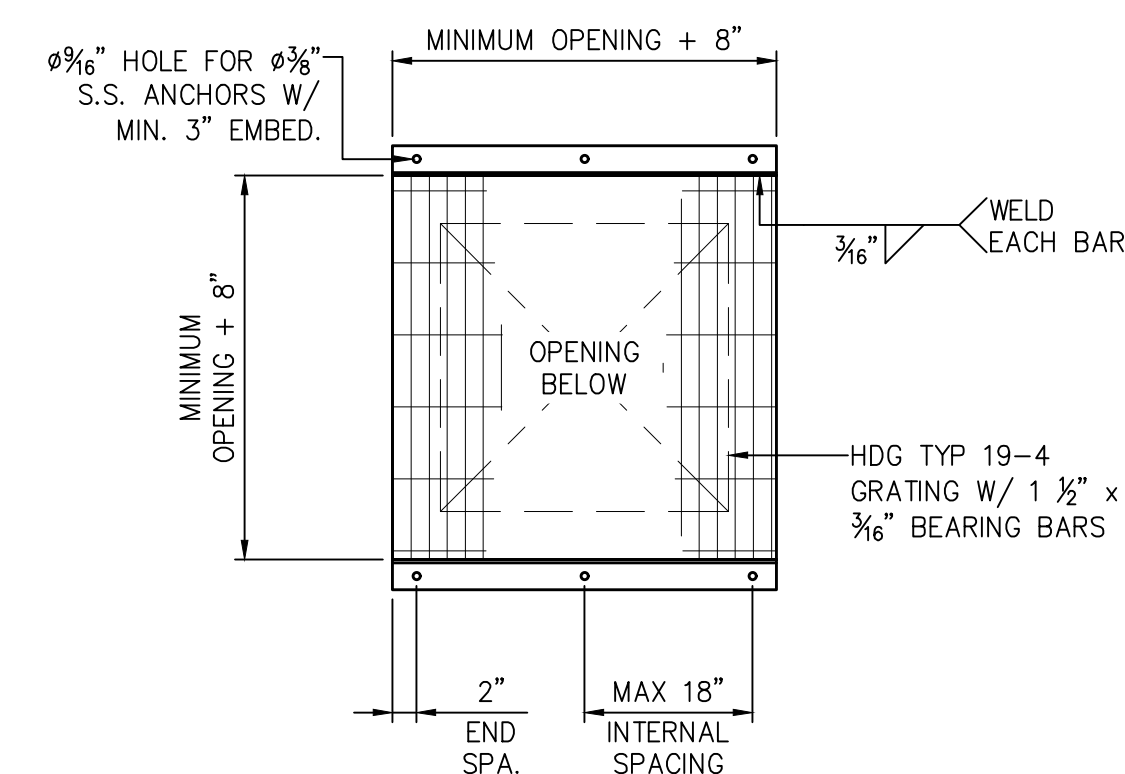
PROPOSED MOTOR ROOM SLAB



SECTION - GROUT FILLET



PICTURE FRAME DETAILS



\ FIXED STEEL GRATINGS - HOLE COVERING

- MOTOR ROOM SLAB MODIFICATIONS**
- 1** CORE DRILL $\emptyset 3"$ HOLES TO PROVIDE FREE FLOW OF AIR & WATER THROUGH SLAB. (TYPE OF 6)
- 2** FABRICATE AND INSTALL GALVANIZED FIXED STEEL GRATINGS OVER EXISTING HOLES THAT ARE LARGER THAN 4" ACROSS. FIELD MEASURE HOLES AND SEE GRATING DETAIL THIS SHEET. FIELD VERIFY OPENING DIMENSIONS PRIOR TO FABRICATION. (ESTIMATED QUANTITY OF 4)
- NOTE: AT THE EXISTING OPENINGS, GRIND DOWN ANY ABANDONED PIPES OR OTHER OBSTRUCTIONS THAT WOULD PREVENT THE FREE FLOW OF AIR AND WATER THROUGH THE OPENING.
- 3** INSTALL A FILLET OF GROUT AROUND THE PERIMETER OF CHAMBER AS SHOWN. MAXIMUM GROUT THICKNESS OF 3" (MIN. 3000 PSI GROUT).
- NOTE: INSTALL FIXED GRATING PANELS PRIOR TO GROUTING OR CHIP OUT GROUT AS REQUIRED SO THAT THE GRATING PANELS CAN BE INSTALLED.
- 4** MODIFY EXISTING 4'X4' OPENING AS SHOWN ON DETAILS. THE EXISTING GRATING WILL BE REMOVED, NOTCHES WILL BE CUT INTO THE EXISTING CURB, AND REMOVABLE GRATING WILL BE INSTALLED.

LEGEND

GROUT REGION

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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CONSTRUCTION, BIDDING,
OR PERMITTING PURPOSES.

JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON LIFT STATION STRUCTURAL MODIFICATIONS 4

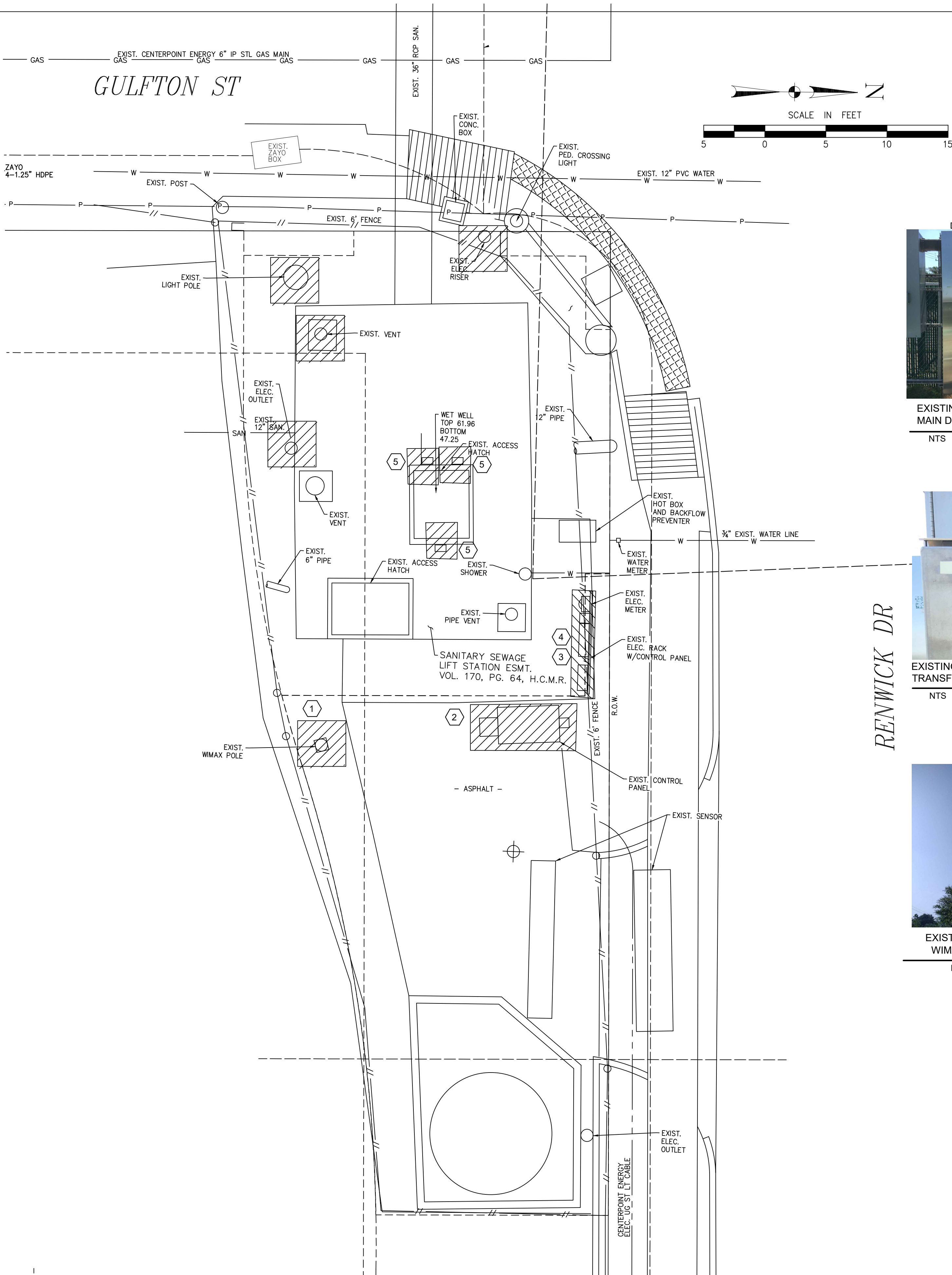
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 81 OF 291	

SCOPE OF ELECTRICAL WORK

1. EXISTING WIMAX POLE, CIRCUITS, AND WIRING TO BE DEMOLISHED AND REPLACED. CAREFULLY REMOVE ALL MOUNTING HARDWARE AND OTHER ASSOCIATED EQUIPMENT, WHICH SHALL BE SAVE FOR POSSIBLE FUTURE USE IN RE-INSTALLING NEW EQUIPMENT.
2. ALL DEMOLISHED/REMOVED EQUIPMENT IS TO BE RETURNED TO OWNER (COH) OR PROPERLY DISPOSED OF AT OWNER OPTION. FOR ADDITIONAL REQUIREMENTS, SEE NOTE SHEET G-9.
3. EXISTING CONTROL PANEL, ASSOCIATED CIRCUITS AND WIRING TO BE DEMOLISHED AND REMOVED.
4. EXISTING POWER COMPANY METER AND SERVICE EQUIPMENT TO BE REMOVED OR PRESERVED. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS D-27, DETAIL SHEET.
5. EXISTING MANUAL TRANSFER SWITCH, GENERATOR DISCONNECT, ASSOCIATED CIRCUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
6. CONTRACTOR SHALL CONSULT WITH POWER COMPANY AND ASSURE ALL POWER IS DISCONNECTED/REMOVED FROM THE SITE. CONTRACTOR SHALL THEN CAREFULLY REMOVE ALL EXISTING ELECTRICAL EQUIPMENT FROM THE SITE AND RETURN TO OWNER OR DISCARD ACCORDING TO CITY OF HOUSTON EQUIPMENT DISPOSAL REQUIREMENTS. CONSULT WITH CITY ENGINEER PRIOR TO CARRYING OUT ANY EQUIPMENT DEMOLITION.
7. THE GROUNDING EQUIPMENT, ELECTRODES, WIRING, AND ALL ACCESSIBLE ASSOCIATED EQUIPMENT SHALL BE REMOVED AND DISCARDED.

SPECIAL INSTRUCTIONS

1. CONTRACTOR SHALL CONSULT WITH CITY ENGINEER IN CASE OF UNCERTAINTY OF STATUS OF EQUIPMENT, SHALL BE DEMOLISHED TO DETERMINE WHAT, IF ANY EQUIPMENT, SHALL BE PRESERVED. SPECIFICALLY, THE ELECTRIC SERVICE METERING, SERVICE POLE, AND GROUNDING EQUIPMENT SHALL BE CAREFULLY EVALUATED SO AS TO PRESERVE ANY EQUIPMENT THAT MAY BE DEEMED REUSABLE.



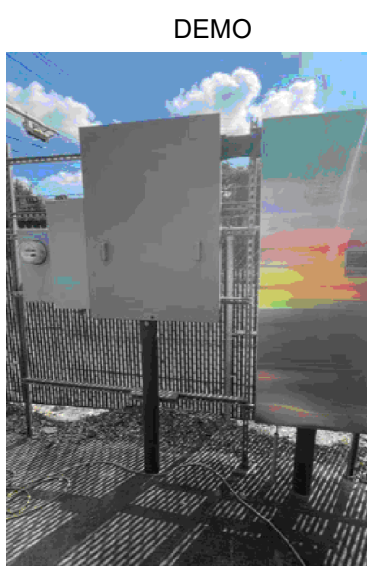
NOTES BY SYMBOL "⬡" # ":

- 1 EXISTING WIMAX POLE, CONDUITS AND WIRES TO BE DEMOLISHED AND REPLACED. SEE SPECIAL INSTRUCTIONS. IF TO BE REMOVED, OBSERVE ALL REQUIRED APPLICABLE CODES AND ORDINANCES IN DISPOSAL OF ALL EQUIPMENT.
- 2 EXISTING LIFT STATION CONTROL PANEL, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- 3 EXISTING MTS, GENERATOR DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- 4 EXISTING MAIN SERVICE DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- 5 EXISTING ELECTRICAL EQUIPMENT AND DEVICE(PUMP J-BOXES) IN LIFT STATION TO BE DEMOLISHED AND REMOVED.



EXISTING LIFT STATION MAIN DISCONNECT

NTS



EXISTING ELECTRICAL SERVICE PANELS

NTS



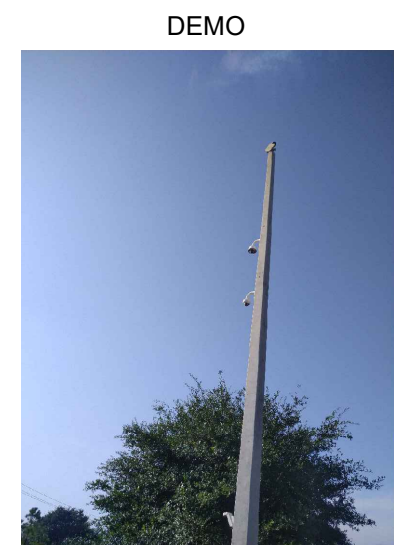
EXISTING LIFT STATION TRANSFER SWITCH

NTS



EXISTING LIFT STATION CONTROL PANEL

NTS



EXISTING LIFT STATION WIMAX POLE

NTS



EXISTING PUMP MOTOR DISCONNECT SWITCHES

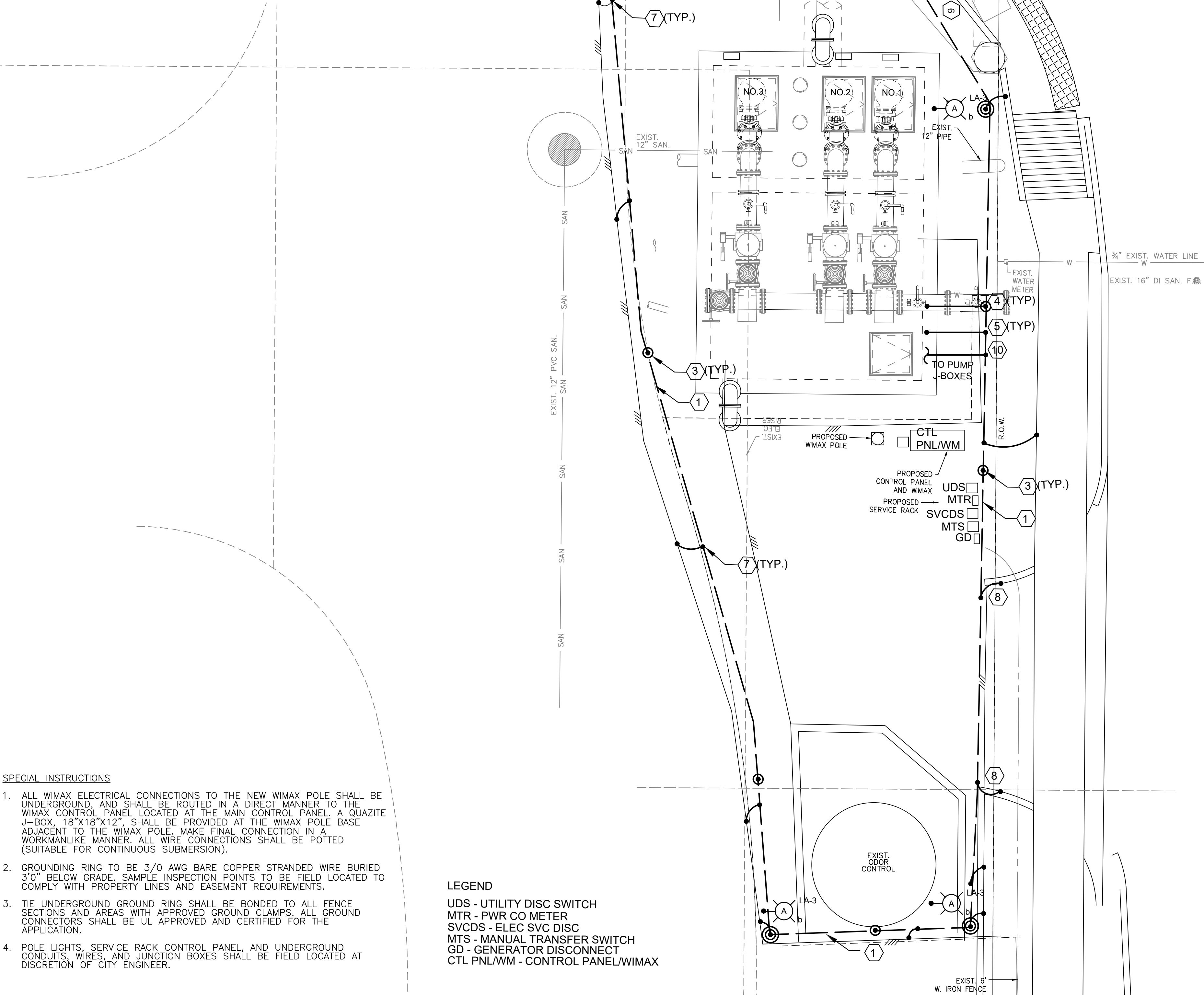
NTS

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES		
SURVEYED BY: KUO ASSOC FB NO. P-6409		

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
GULFTON LIFT STATION ELECTRICAL DEMOLITION SITE PLAN	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 82 OF 291	

SCOPE OF ELECTRICAL WORK

1. PROVIDE AND INSTALL NEW ELECTRICAL EQUIPMENT FOR LIFT STATION AS SHOWN ON PLANS AND SPECIFICATIONS.
2. EXISTING WI MAX POLE TO BE REMOVED AND DEMOLISHED. CAREFULLY PRESERVE POLE AND MOUNTING HARDWARE EQUIPMENT FOR RE-USE.
3. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS GE-17, DETAIL SHEET.
4. PROVIDE NEW YARD LIGHTS AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.
5. PROVIDE NEW GROUNDING ELECTRODE SYSTEM AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH OWNER'S REPRESENTATIVE AND CITY ENGINEER.
6. PROVIDE AND INSTALL NEW CONDUITS AND CONDUCTORS FOR ALL NEW EQUIPMENT PER PLANS AND SPECIFICATIONS.



SPECIAL INSTRUCTIONS

1. ALL WIMAX ELECTRICAL CONNECTIONS TO THE NEW WIMAX POLE SHALL BE UNDERGROUND, AND SHALL BE ROUTED IN A DIRECT MANNER TO THE WIMAX CONTROL PANEL LOCATED AT THE MAIN CONTROL PANEL. A QUAZITE J-BOX, 18"x18"x12", SHALL BE PROVIDED AT THE WIMAX POLE BASE ADJACENT TO THE WIMAX POLE. MAKE FINAL CONNECTION IN A WORKMANLIKE MANNER. ALL WIRE CONNECTIONS SHALL BE POTTED (SUITABLE FOR CONTINUOUS SUBMERSION).
2. GROUNDING RING TO BE 3/0 AWG BARE COPPER STRANDED WIRE BURIED 3'0" BELOW GRADE. SAMPLE INSPECTION POINTS TO BE FIELD LOCATED TO COMPLY WITH PROPERTY LINES AND EASEMENT REQUIREMENTS.
3. TIE UNDERGROUND GROUND RING SHALL BE BONDED TO ALL FENCE SECTIONS AND AREAS WITH APPROVED GROUND CLAMPS. ALL GROUND CONNECTORS SHALL BE UL APPROVED AND CERTIFIED FOR THE APPLICATION.
4. POLE LIGHTS, SERVICE RACK CONTROL PANEL, AND UNDERGROUND CONDUITS, WIRES, AND JUNCTION BOXES SHALL BE FIELD LOCATED AT DISCRETION OF CITY ENGINEER.

LEGEND

- UDS - UTILITY DISC SWITCH
MTR - PWR CO METER
SVCDS - ELEC SVC DISC
MTS - MANUAL TRANSFER SWITCH
GD - GENERATOR DISCONNECT
CTL PNL/WIM - CONTROL PANEL/WIMAX

NOTES BY SYMBOL " # - ":

- 1 MAIN BURIED GROUND LOOP, #4/0 BARE COPPER CONDUCTOR.
- 2 GROUND TEST WELL.
- 3 GROUND ROD.
- 4 #4/0 BARE COPPER BONDING CONDUCTOR.
- 5 BOND REBAR IN CONCRETE FOOTER OR SLAB TO MAIN BURIED GROUND LOOP.
- 6 #2/0 BARE COPPER BONDING CONDUCTOR.
- 7 THERMOWELD CABLE CONNECTION.
- 8 PROVIDE FLEX BONDING JUMPER ACROSS GATE CONNECTIONS.
- 9 PROVIDE GROUND LOOP CONNECTION TO ELECTRICAL PLATFORM
- 10 JUNCTION BOXES SHALL BE INSTALLED AT WET WELLS AS SHOWN ON PLANS AND MAY BE RELOCATED BY CITY ENGINEER AS NEEDED. JUNCTION BOXES SHALL BE NEMA 6P 316 STAINLESS STEEL

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.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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

SURVEYED BY: KUO ASSOC
FB NO. P-6409

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OF: JAMES E. THOMPSON, JR,
TEXAS P.E. #70302

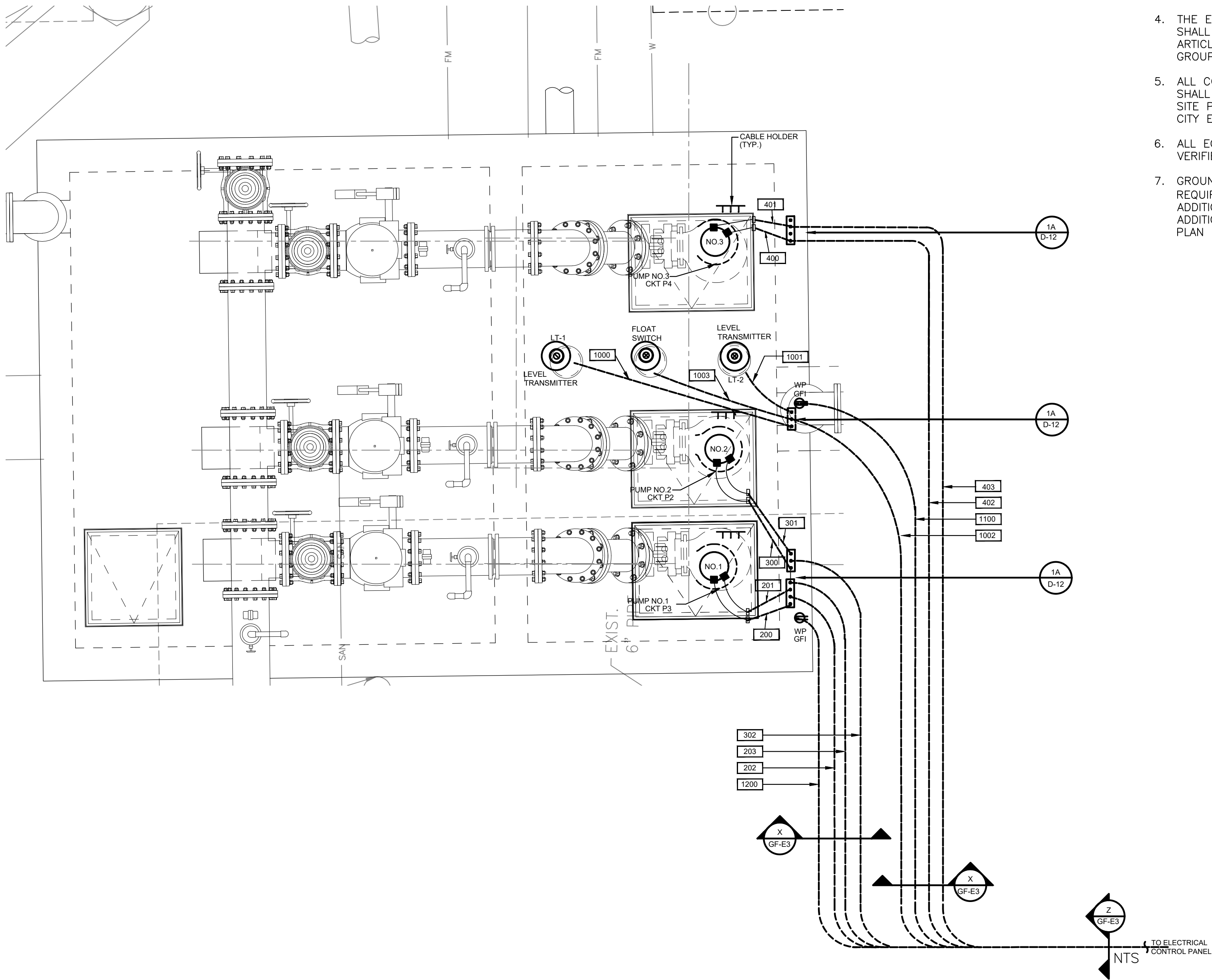
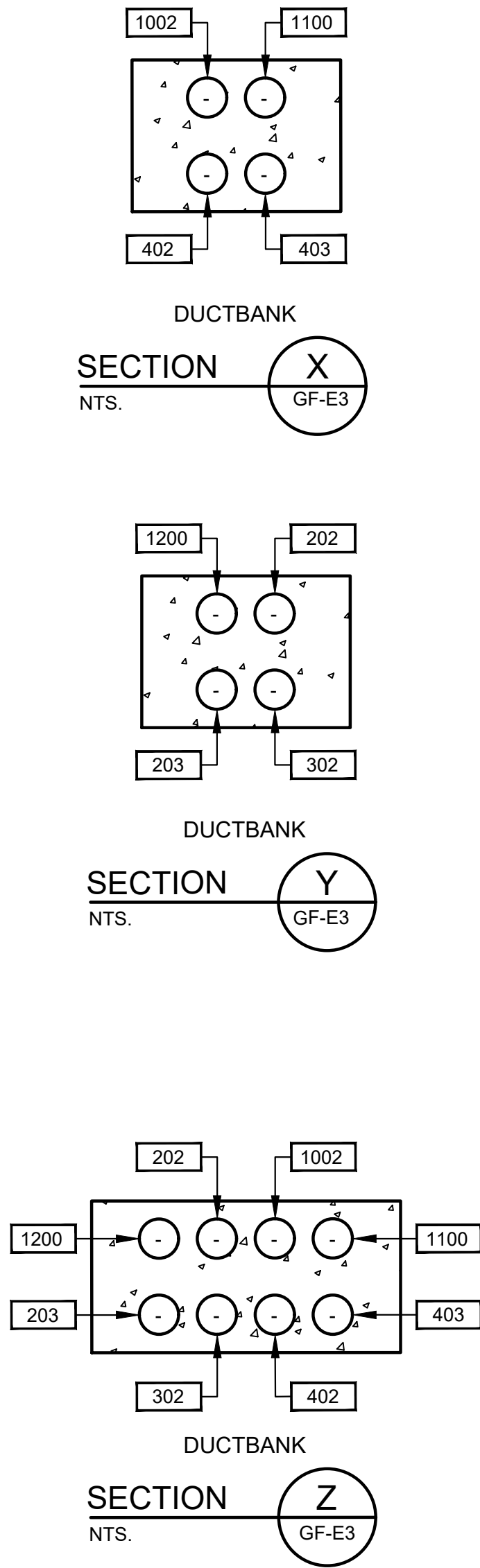
DATE: 12/10/2025
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON
LIFT STATION ELECTRICAL
PROPOSED SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 83 OF 291	



GULFTON LIFT STATION
CONDUIT LAYOUT FOR LIFT
STATION 3 PUMP ALTERNATIVE
HIGH PROFILE CONFIGURATION

1 3/8" = 1'-0"

SPECIAL INSTRUCTIONS:

1. JUNCTION BOXES SHALL BE MOUNTED ON TOP-OF-SLAB. PROVIDE NEMA 6P, 316 STAINLESS STEEL PANEL CONSTRUCTION.

NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE VALVE VAULT SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL CONDUITS AND CONDUCTOR SIZES AND ROUTING SHALL BE FIELD VERIFIED WITH ACTUAL EQUIPMENT ON SITE PRIOR TO DOING ANY WORK. COORDINATE WITH CITY ENGINEER.
6. ALL EQUIPMENT MOUNTING LOCATIONS SHALL BE FIELD VERIFIED WITH CITY ENGINEER PRIOR TO INSTALLATION.
7. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS. FOR "SITE AREA GROUNDING", PROVIDE ADDITIONAL GROUNDS FOR ANY LOCATION WHERE ADDITIONAL GROUNDING IS NEEDED WHETHER SHOWN ON PLAN OR NOT. REFER TO CITY ENGINEER.

NOTES (CONT):

8. JUNCTION BOXES SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. JUNCTION BOXES SHALL CONTAIN NO CIRCUITS OTHER THAN THOSE IDENTIFIED ON PLANS.
9. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTINGS AT JUNCTION BOX ENTRANCES AND EXPLOSION PROOF SEALS IN CONDUITS TO CONTROL PANEL.
10. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
11. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
12. LEVEL TRANSMITTERS SHOWN ARE APPROXIMATE. LEVEL TRANSMITTERS SHALL BE FIELD LOCATED.
13. 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.
14. ALL RECEPTACLES SHALL BE EXPLOSION PROOF TYPE IF INSTALLED WITHIN 5 FEET OF CLASSIFIED AREA.
15. PROVIDE GFCI OUTLETS FOR UTILITY SERVICE EQUIPMENT PER APPLICABLE CODE REQUIREMENTS AND STANDARD PLANS. PROVIDE HEAVY DUTY IN-USE COVERS.

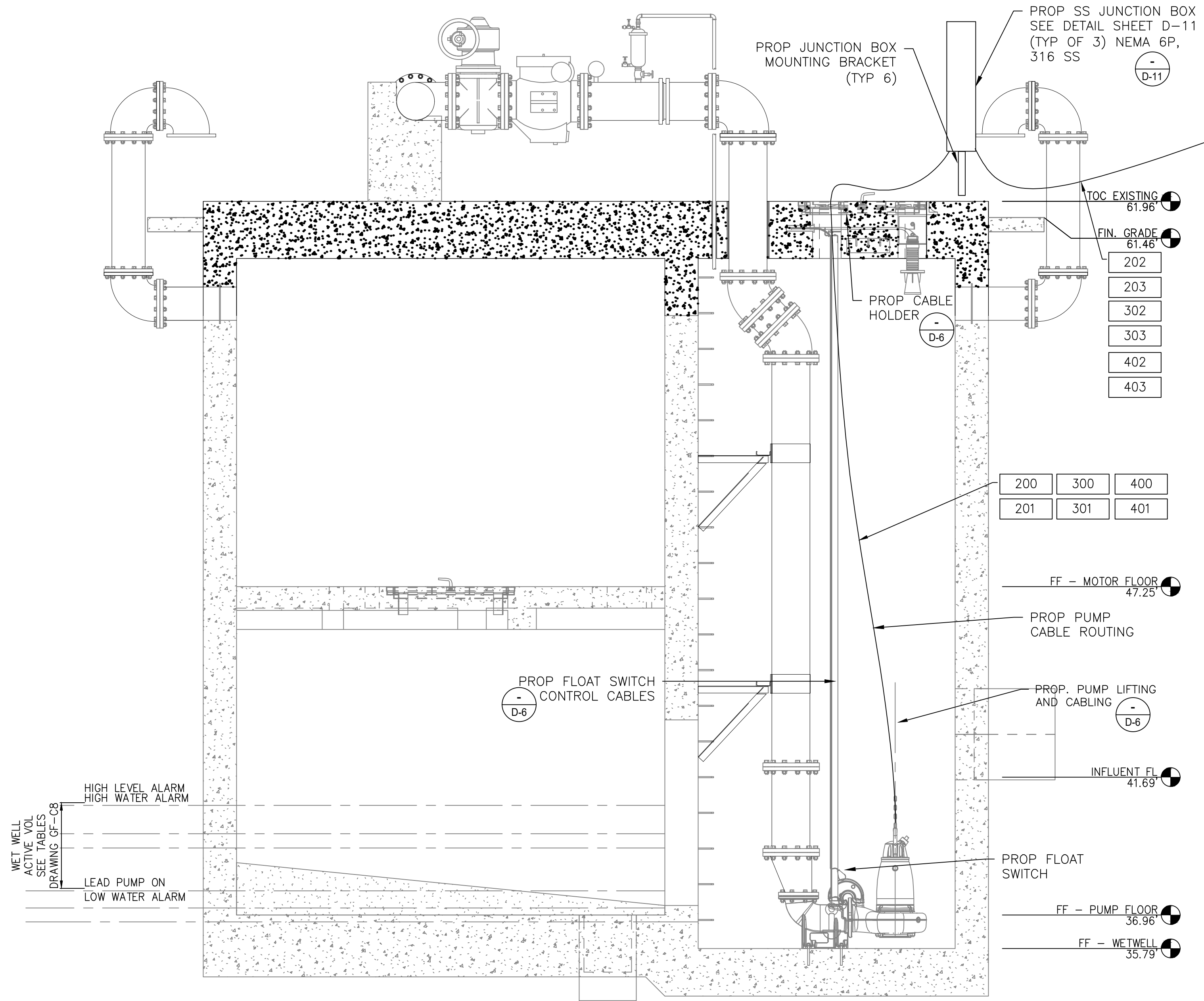
ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302
SURVEYED BY: KUO ASSOC FB NO. P-6409		DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
CONDUIT LAYOUT FOR LIFT
STATION 3 PUMP ALTERNATIVE
HIGH PROFILE CONFIGURATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.84 OF 291	



GULFTON LIFT STATION
ELEVATION SECTION 3 PUMP
CONDUIT ROUTING ALTERNATIVE
HIGH PROFILE CONFIGURATION

1 3/8" = 1'=0"

NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL ELECTRICAL CONTROL CABINETS SHALL BE RAISED TO 500 YEAR FLOOD ELEVATION + 3 FEET.
6. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT AND CONDUCTOR SIZES AND ENTRY LOCATIONS AND CONSULT WITH CITY ENGINEER PRIOR TO DOING ANY WORK.
7. ALL ELECTRICAL INSTALLATIONS SHALL BE FIELD LOCATED WITH ASSISTANCE OF CITY ENGINEER.
8. JUNCTION BOX LOCATION SHOWN DIAGRAMMATIC FOR DRAWING CLARITY. JUNCTION BOXES SHALL BE FIELD LOCATED AT WET WELLS WITH ASSISTANCE OF CITY ENGINEER. JUNCTION BOXES SHALL BE NEMA 6P 316 SS.

ISSUE	DATE	DESCRIPTION

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Houston, Texas 77042

LJA
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Fax 713.953.5026
FRN - F-1386

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Houston, Texas 77063
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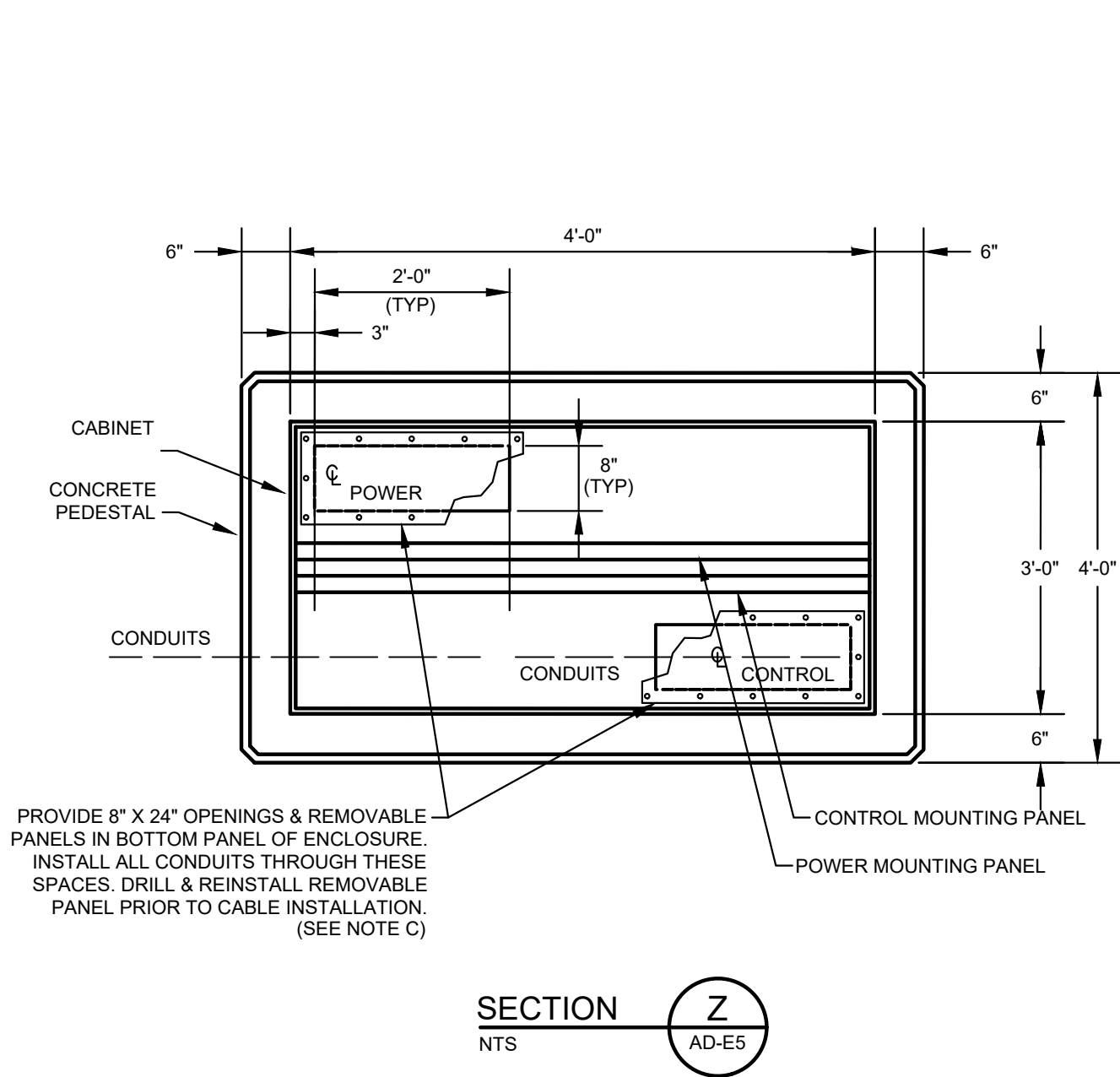
SURVEYED BY: KUO ASSOC
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

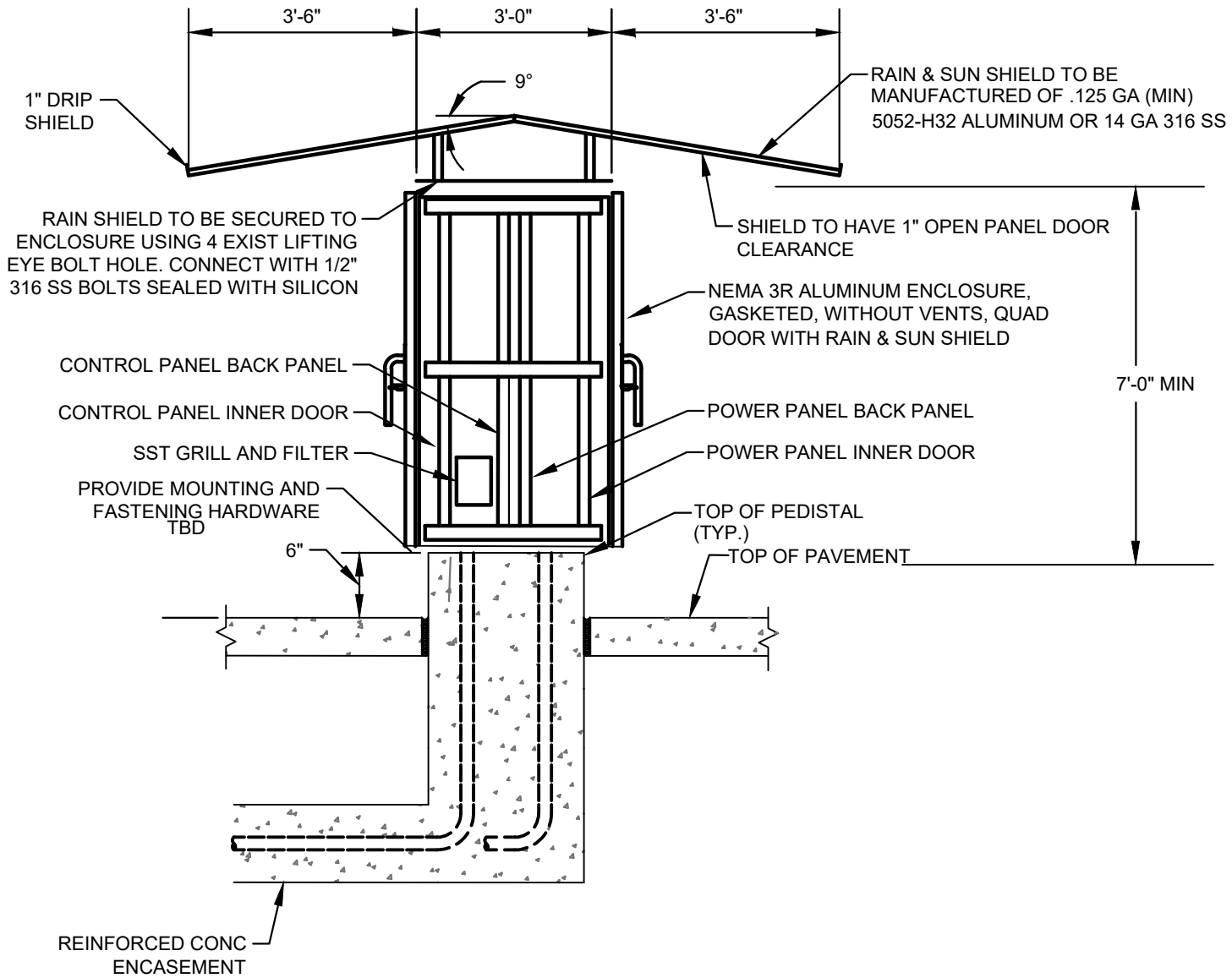
GULFTON LIFT STATION
ELEVATION SECTION 3 PUMP
CONDUIT ROUTING ALTERNATIVE
HIGH PROFILE CONFIGURATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 85 OF 291	



ELECTRICAL NOTES

- CONTRACTOR SHALL VERIFY AND ADJUST, AS REQUIRED, SIZE OF REMOVABLE PANEL IN CABINET. OPENING SHALL BE SUFFICIENT TO ACCOMMODATE ALL REQUIRED CONDUITS.
- THIS LIFT STATION IS LOCATED IN AN AREA THAT IS DESIGNATED BY THE CITY OF HOUSTON ORDINANCE AND THE RELATED TSARP MAPS AS BEING IN A FLOOD HAZARD ZONE. THE ELEVATION OF THE TOP OF THE CONCRETE PEDESTAL ON WHICH THE CONTROL PANEL IS MOUNTED SHALL BE ONE (1) FOOT ABOVE THE TOP OF CONCRETE OF THE ELEVATED CONCRETE PLATFORM. MINIMUM CLEARANCE DISTANCES BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE HAND RAIL AROUND THE PERIMETER OF THE ELEVATED CONCRETE PLATFORM AND BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE MANUAL TRANSFER SWITCH ARE NOTED IN THE DETAILS.
- CONTRACTOR SHALL ENSURE THE ELECTRICAL EQUIPMENT INSTALLATION FINISHED FLOOR MEETS THE REQUIREMENTS OF THE LATEST VERSION OF THE COH CODE OF ORDINANCE, CHAPTER 19 FLOOD PLAIN.
- THE CONTROL PANEL DOORS SHALL FACE NORTH AND SOUTH WHERE FEASIBLE
- PROVIDE MINIMUM OF 7'-0" CLEARANCE BETWEEN EDGE OF DRIP SHIELD COVER AND TOP OF PLATFORM.



CONTROL CABINET ENCLOSURE WITH PLATFORM
(SEE NOTE 6)

NOTES:

- SEE SHEET AD-E6 FOR EQUIPMENT SCHEDULE.
- REFER TO SPECIFICATION SECTION 13325 PROCESS CONTROL SYSTEMS CONTROL PANELS FOR PANEL DIMENSIONS.
- COMMUNICATION PANEL TO BE INSTALLED ABOVE SERVICE RACK ELEVATION.
- PROVIDE AND INSTALL MANUFACTURER'S STANDARD INTERFACE ATTACHING HARDWARE, ALL NEMA 4X SS CONSTRUCTION. PROVIDE ISOLATION MOUNTS IF INCLUDED IN MANUFACTURER'S SUGGESTER INSTALLATION INSTRUCTIONS.
- REFER TO SERVICE RACK FOR DETAIL.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
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Fax 713.953.5026
FRN - F-1386

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

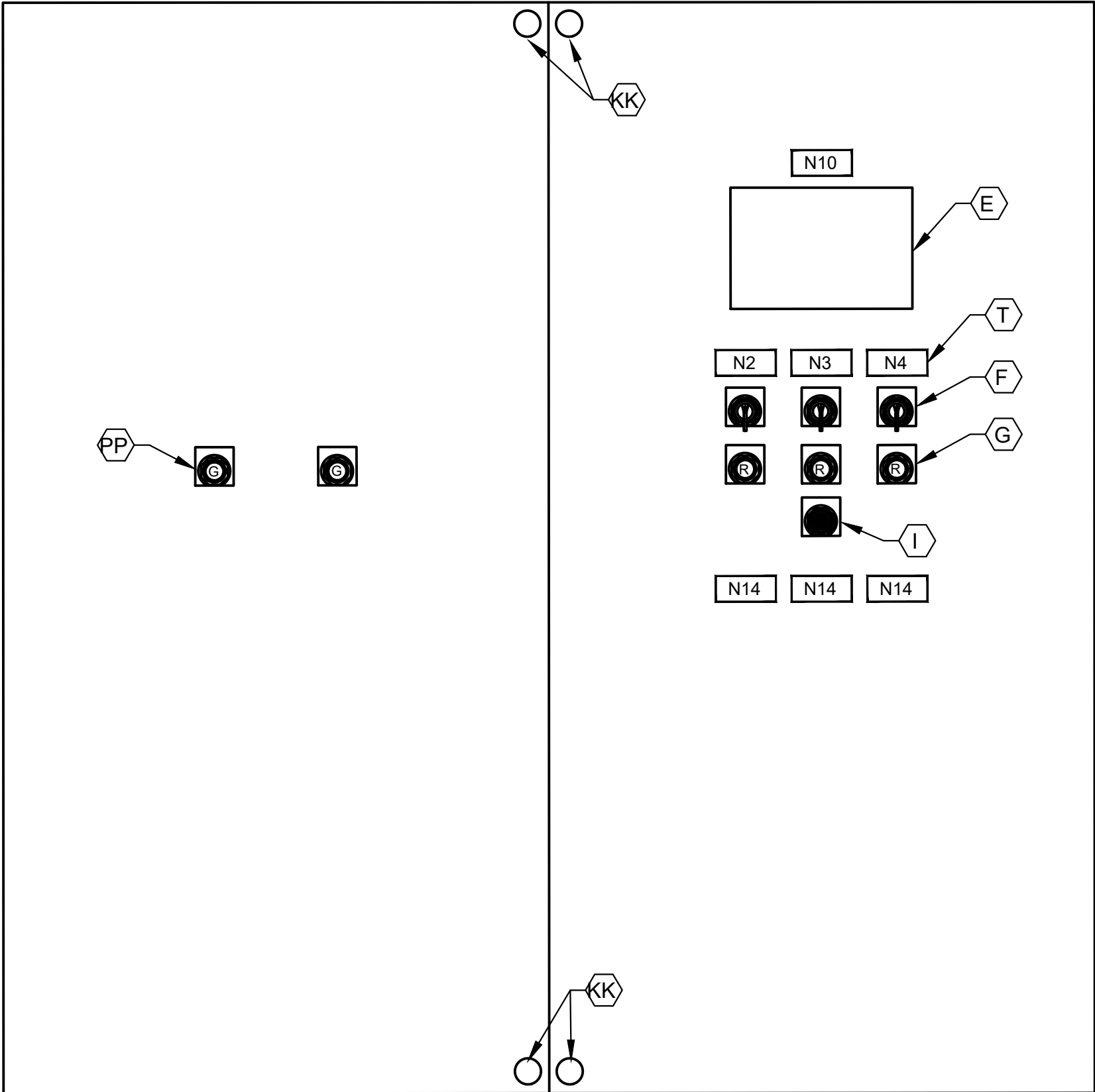
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**GULFTON LIFT STATION
3 PUMP OUTDOOR CONTROL
CABINET ENCLOSURE**

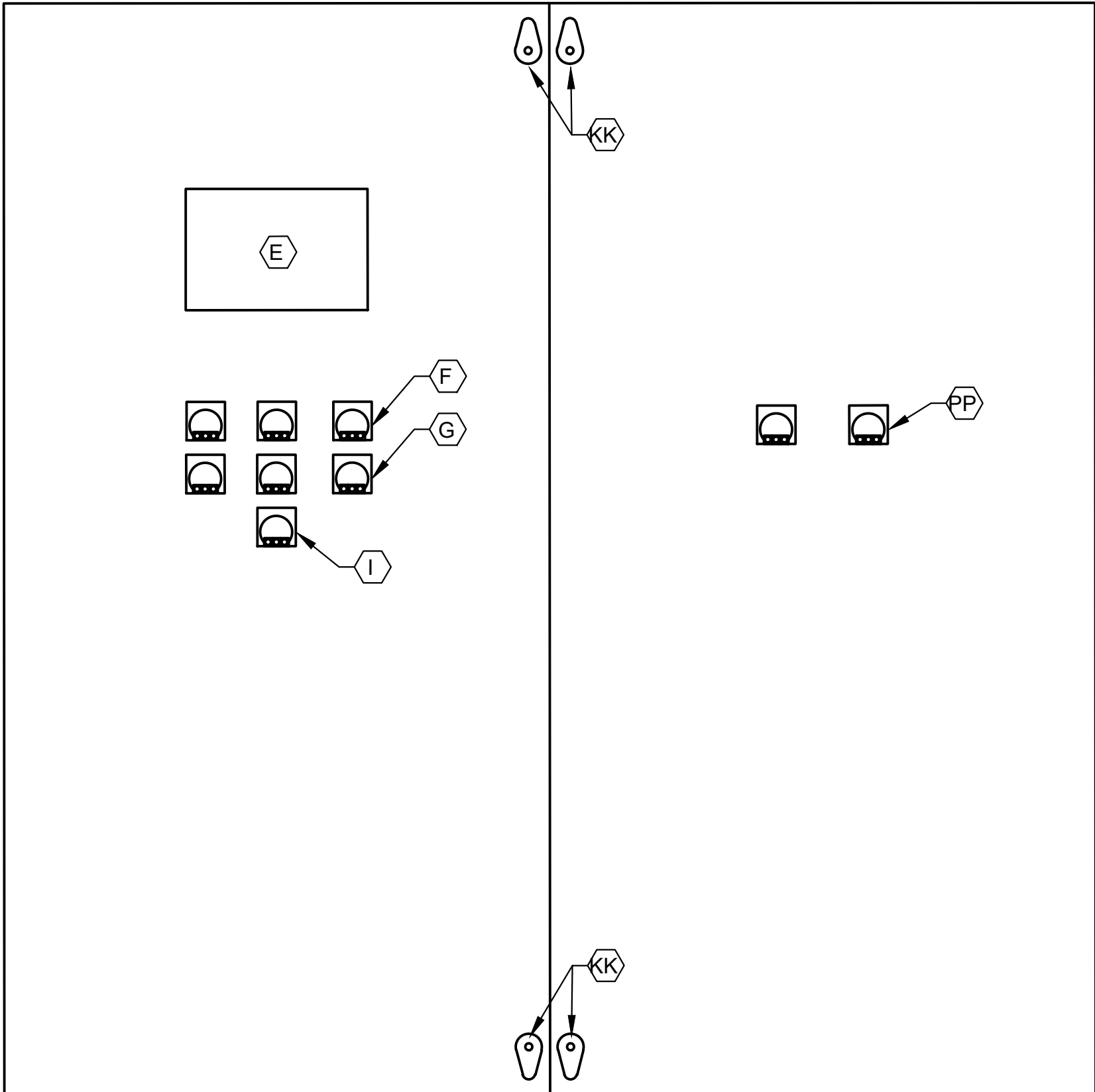
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 86 OF 291	

EQUIPMENT AND DEVICE SCHEDULE		
ITEM	QUANTITY	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 1 PHASE, 3 WIRE, 100A, 12 CKTS
B	3	FULL VOLTAGE, NON-REVERSING, SINGLE SPEED, AUTOMATIC MOTOR STARTER W/120 VOLT CONTROL COIL, NEMA SIZE AS SCHEDULED.
C	3	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 120VAC COIL AND 11 PIN SOCKET BASE.
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY
E	1	PROGRAMMING SCREEN (OIT)
F	3	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL)
G	3	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND
H	1	PERPETUAL POWER UNIT (PPU)
I	1	PUMP ALARM RESET PUSHBUTTON
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST
K	3	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION.
M	1	SURGE PROTECTOR - INCOMING POWER
N	*	NOT USED.
P	3	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT.
Q	12	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS
R	1	WIRE DUCT 2" WIDE X 2" DEEP MINIMUM
S	*	NOT USED.
T	*	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
U	3	SOLID STATE MOTOR OVERLOAD RELAY
V	6	FUSE HOLDER & FUSES - PHASE FAILURE
W	1	NEMA 3R GASKETED ALUMINUM ENCLOSURE WITHOUT VENTS
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE FOR ENVIRONMENT)
Y	1	THERMAL-MAGNETIC MOLDED CASE MAIN CIRCUIT BREAKER, SIZE AS SCHEDULED
Z	3	ADJUSTABLE INSTANTENOUS TRIP MOTOR CIRCUIT PROTECTOR, SIZE AS SCHEDULED
AA	*	TERMINAL BLOCKS
BB	3	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM
CC	2	ANALOG I/O SURGE SUPPRESSOR
DD	1	WIRE DUCT 2" WIDE x 2" DEEP MINIMUM
EE	1	THERMAL-MAGNETIC MODLED CASE CIRCUIT BREAKER FOR LIGHTING TRANSFORMER, SIZE AS SCHEDULED
FF	1	GROUND BUS
GG	1	10 KVA, 480 - 240/120V,1ϕ, 3W DRY TYPE TRANSFORMER
HH	*	NOT USED.
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED)
JJ	11	CARTRIDGE FUSES & FUSE HOLDER
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A
MM	2	MOTION SWITCH
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP PLC" LEGEND
QQ	*	NOT USED
RR	*	NOT USED
SS	1	COMMUNICATION ETHERNET SWITCH
TT	1	POWER SURGE PROTECTOR - CONTROL POWER
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT
VV	1	PHASE AND UNDER VOLTAGE MONITOR
WW	*	FUSED TERMINAL BLOCKS
XX	3	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I
YY	2	ANALOG SIGNAL ISOLATOR
ZZ	3	POWER FACTOR CORRECTION CAPACITOR NEMA 3R STAINLESS STEEL
AB	-	NOT USED.
AC	1	POWER DISTRIBUTION BLOCK
AD	1	NEUTRAL LUG
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD
AF	1	T-STAT FOR EXHAUST FAN

* - AS SCHEDULED



CONTROL PANEL FRONT INNER DOOR
ELEVATION
NTS

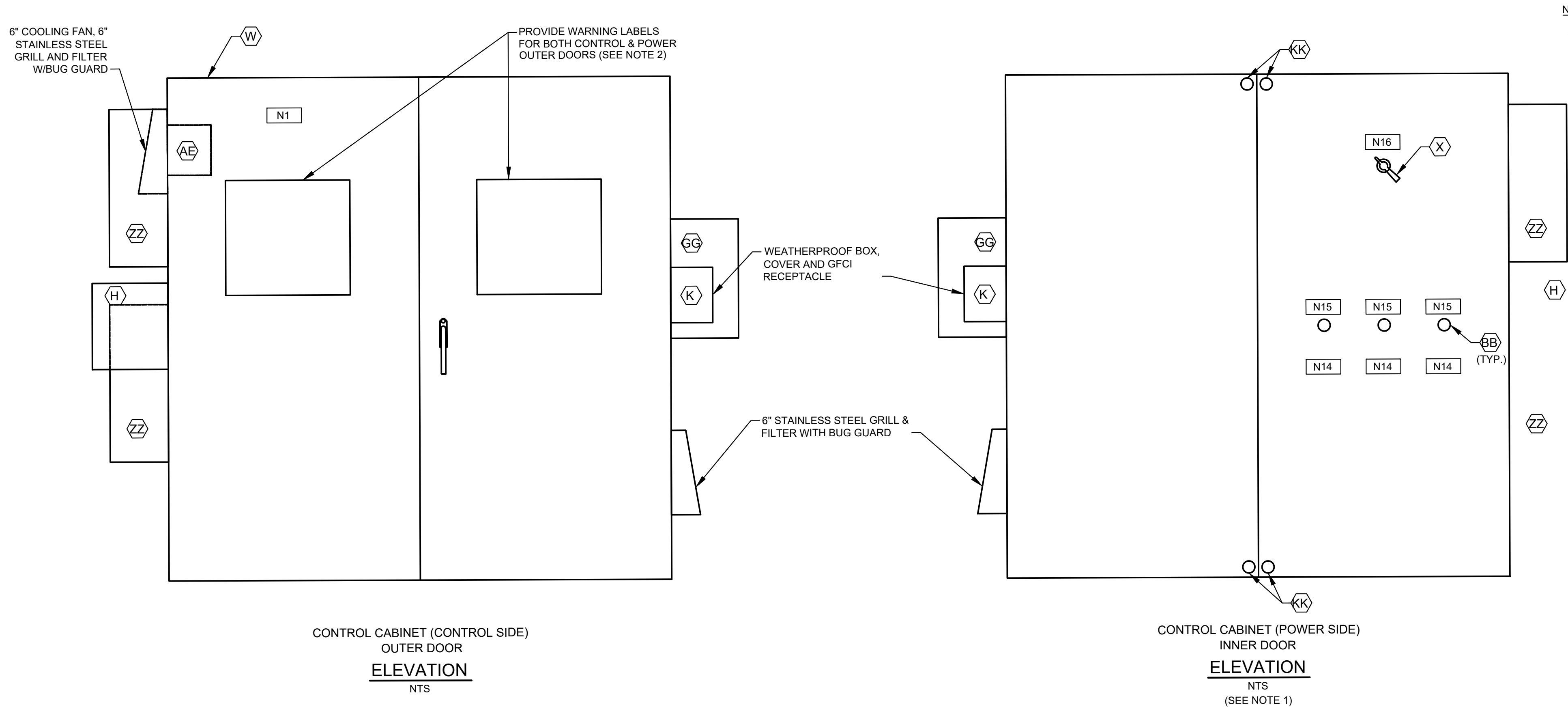


CONTROL PANEL BACK INNER DOOR
ELEVATION
NTS

NOTES:

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

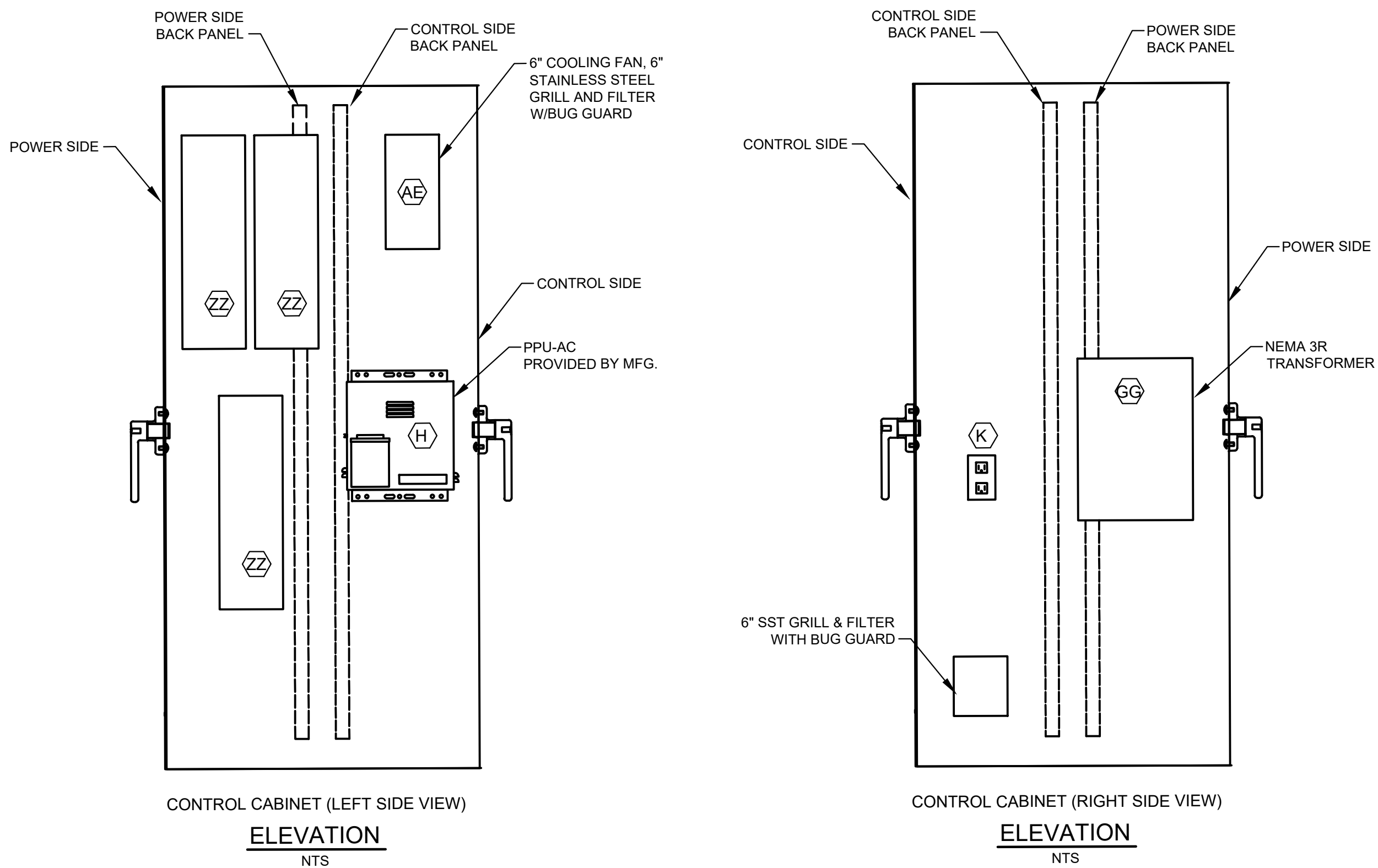
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FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 87 OF 291		



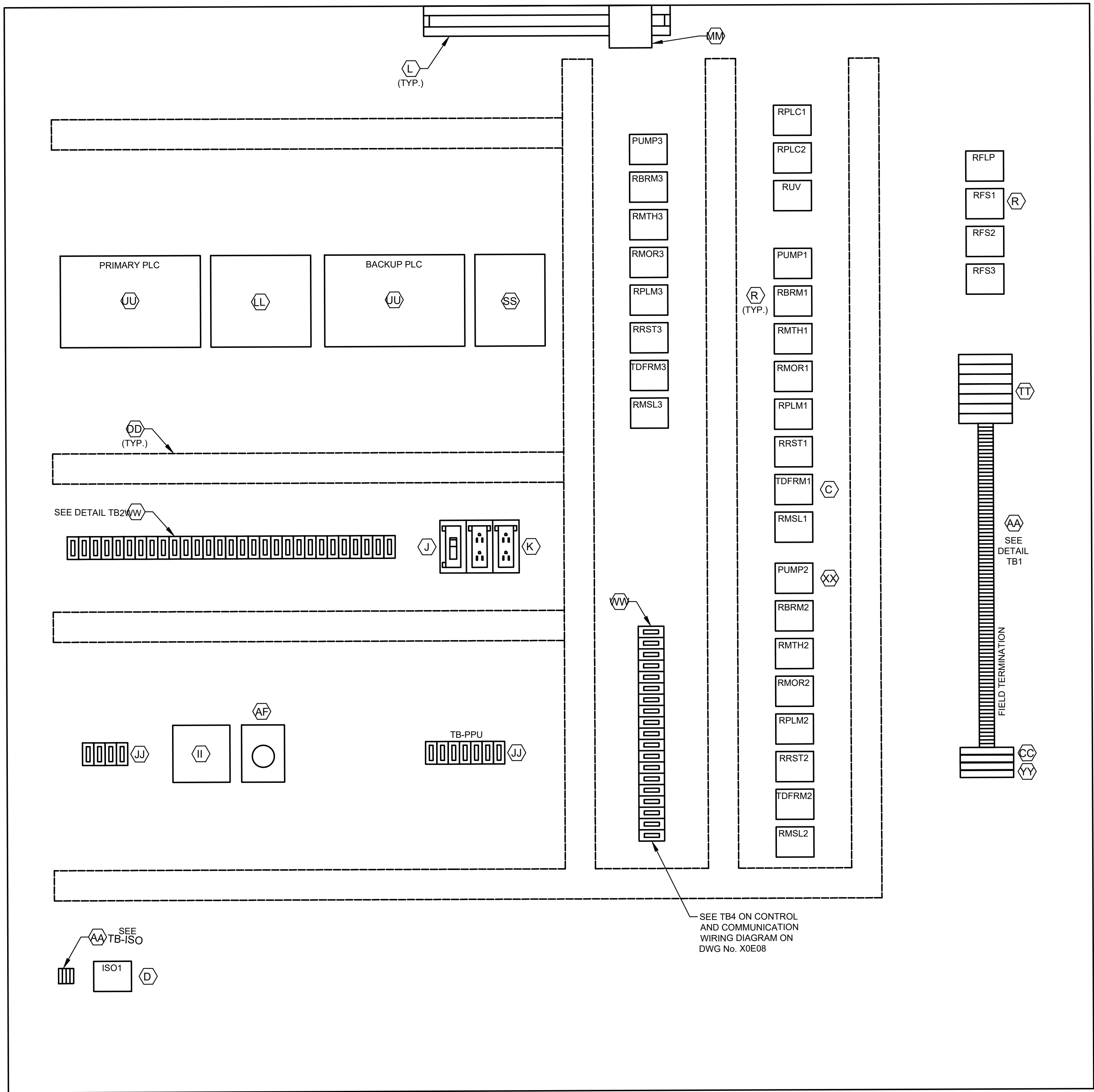
- NOTES:
- SEE SHEET GF-E6 FOR EQUIPMENT SCHEDULE.
 - REFER TO NEC SECTIONS 110.16 & 110.21

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED	DESIGNATION	ENGRAVED
N1	PUMP STATION DESIGNATION	N8	NOT USED
N2	PUMP NO. 1	N9	NOT USED
N3	PUMP NO. 2	N10	PROGRAMMING SCREEN
N4	PUMP NO. 3	N11	NOT USED
N5	NOT USED	N12	PRIMARY PLC
N6	NOT USED	N13	BACKUP PLC
N7	NOT USED	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



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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 88 OF 291		



CONTROL PANEL
ELEVATION

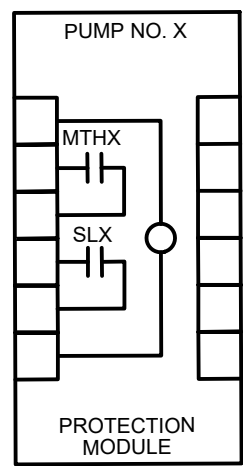
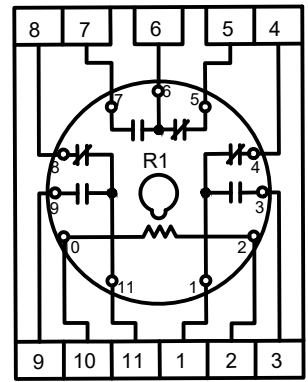
L1A
L1N
SPARE
3
3N
SPARE
49
50
51
52
53
54
1004
1
24V-
24V-
1002
2
11
1001
1001A
12
1003
1003A
1002
1004
18
3N
SPARE
36
36N
41
42
43
44
SPARE
L1A
L1N
103
104
105
106
107
108
110
113
115
116
119
SPARE
203
204
205
206
207
208
210
213
215
216
219
SPARE
303
304
305
306
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308
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313
315
316
319

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
13
13A
13G
14
14A
14G
SPARE
18
SPARE
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
309
310
316
317
318
320
322
323

DETAIL TB2

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 LOCK ALARM RELAY
RFLP	FLOAT LOCKOUT PUMP RELAY



PUMP PROTECTION MODULE
DETAIL, ITEM XX
NOTE: REPLACE "X" WITH
APPROPRIATE PUMP NO.

1500
1501
1503
1504

DETAIL TB-ISO

NOTES:

- SEE SHEET GF-E8 FOR EQUIPMENT SCHEDULE.

ISSUE	DATE	DESCRIPTION

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3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

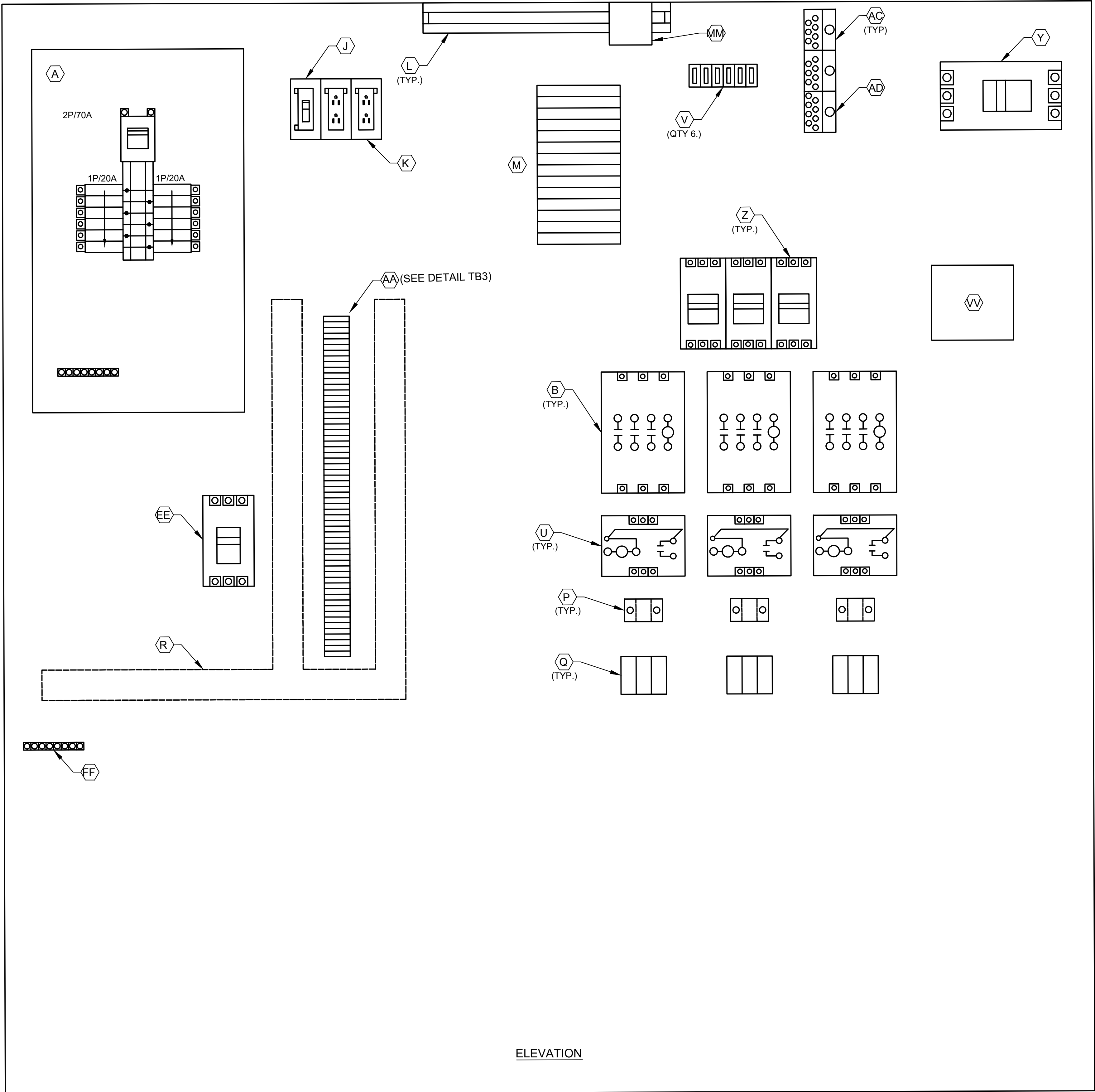
Phone 713.953.5200
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT - II	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 89 OF 291	



POWER PANEL

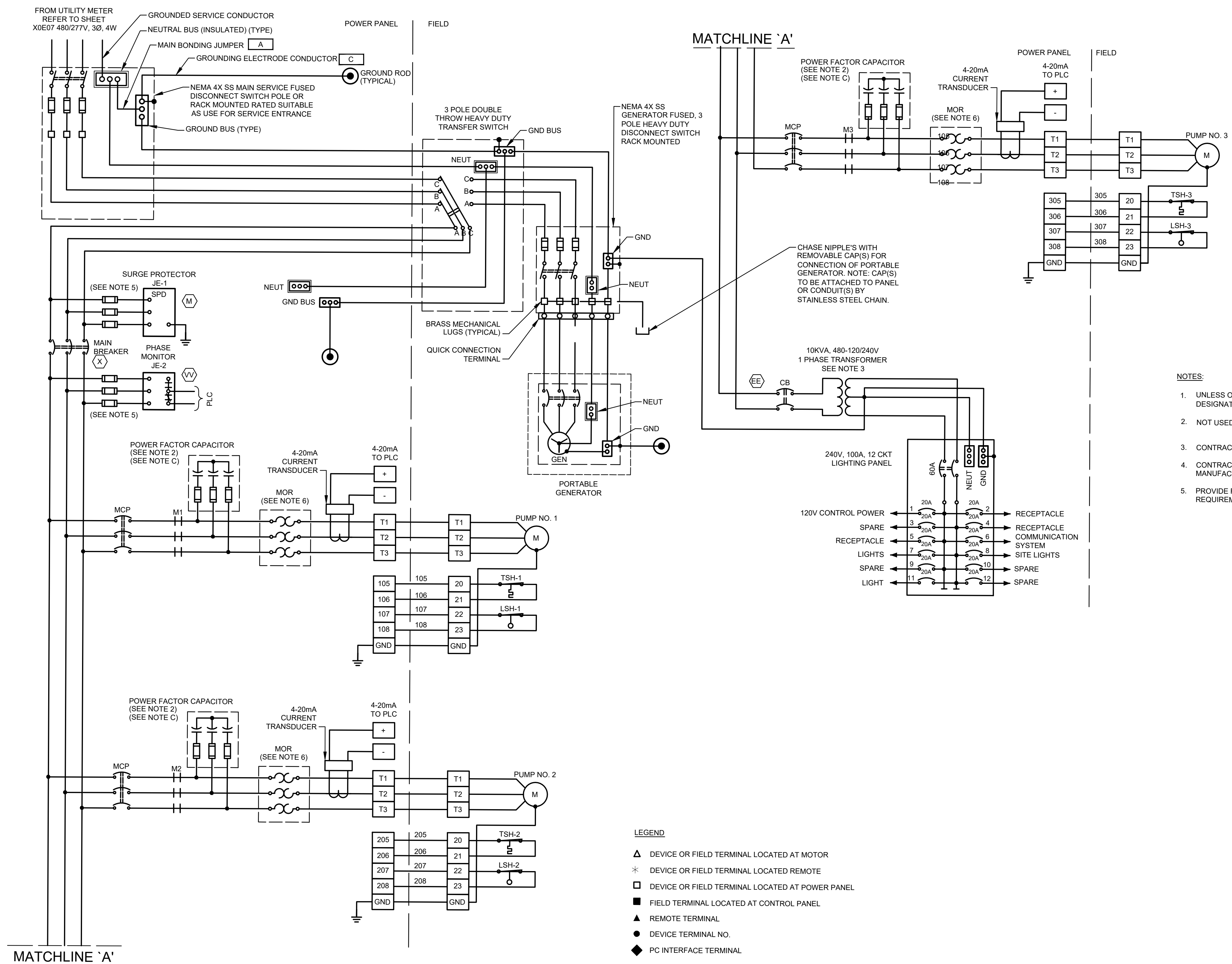
NOTES:

- SEE SHEET GF-E6 FOR EQUIPMENT SCHEDULE.

3
18
L1A
L1N
SPARE
SPARE
103
104
105
106
107
108
110
113
115
116
119
SPARE
203
204
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215
216
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SPARE
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316
319
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE

DETAIL TB3

ISSUE	DATE	DESCRIPTION
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 Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT-III		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
3/4"=1'-0"		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 90 OF 291		



- NOTES:**
1. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE CONTROL PANEL.
 2. NOT USED
 3. CONTRACTOR TO REVISE DWG. BASED ON MANUFACTURE AND SIZE.
 4. CONTRACTOR SHALL TERMINATE POWER & CONTROL WIRES PER MANUFACTURER'S REQUIREMENTS.
 5. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.

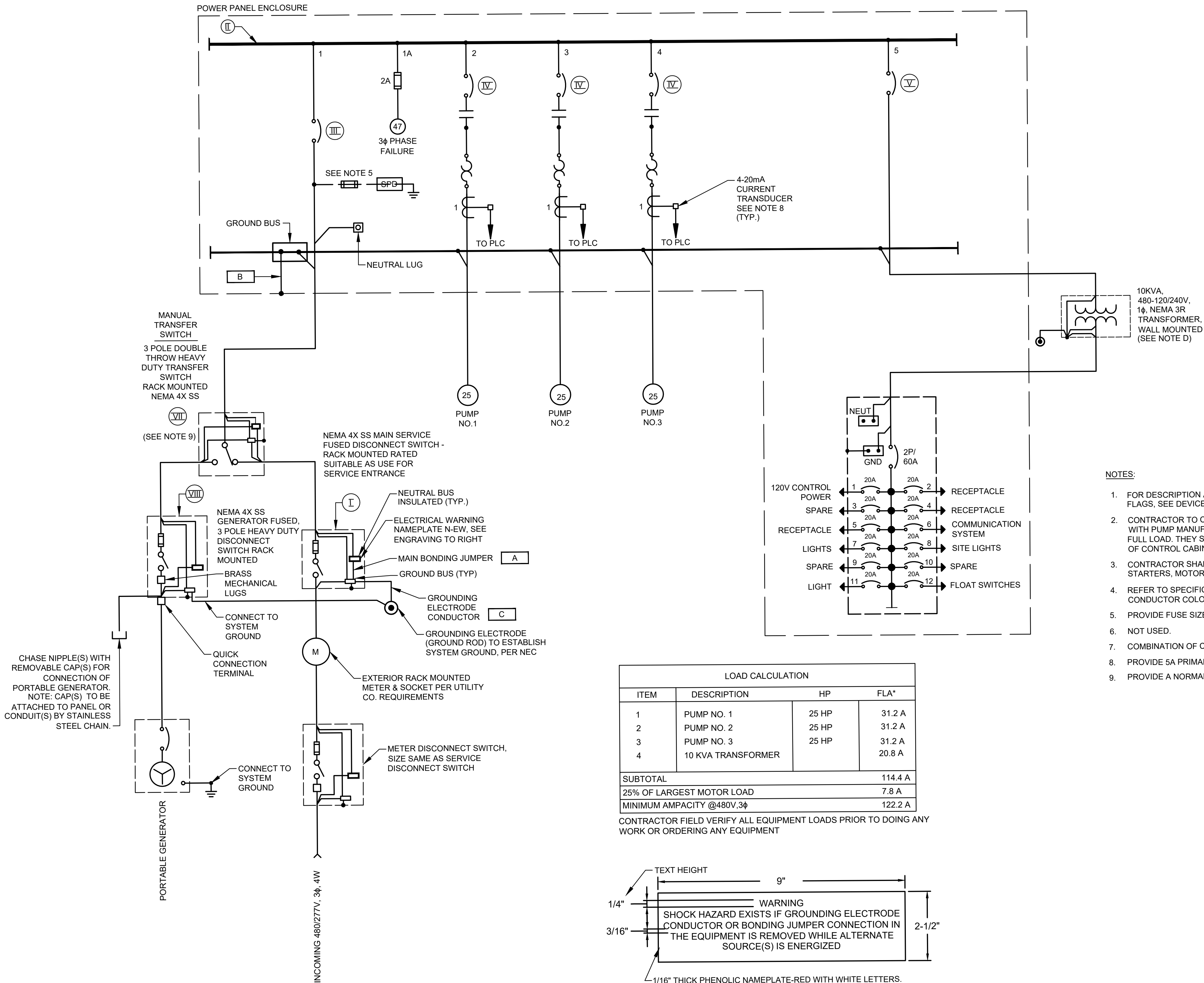
ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
3 PUMP OUTDOOR INCOMING
POWER THREE LINE DIAGRAM

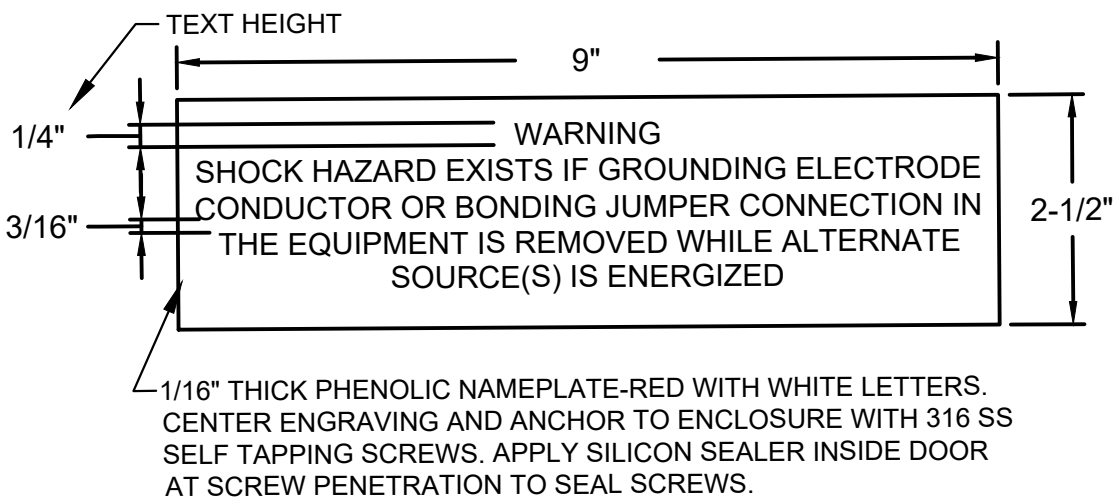
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R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 91 OF 291	



- NOTES:**
1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
 2. CONTRACTOR TO COORDINATE POWER FACTOR CORRECTION CAPACITOR SIZE WITH PUMP MANUFACTURER. MINIMUM 95% POWER FACTOR CORRECTION AT FULL LOAD. THEY SHALL BE IN A NEMA 3R ENCLOSURE AND MOUNTED OUTSIDE OF CONTROL CABINET.
 3. CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
 4. REFER TO SPECIFICATION SECTION 16120 LOW-VOLTAGE WIRES AND CABLES FOR CONDUCTOR COLOR CODE.
 5. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 6. NOT USED.
 7. COMBINATION OF CT AND OVERLOAD RELAY IF REQUIRED.
 8. PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.
 9. PROVIDE A NORMALLY OPEN (NO) AUXILIARY CONTACT FOR BOTH ON POSITIONS.

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLA*
1	PUMP NO. 1	25 HP	31.2 A
2	PUMP NO. 2	25 HP	31.2 A
3	PUMP NO. 3	25 HP	31.2 A
4	10 KVA TRANSFORMER		20.8 A
SUBTOTAL			114.4 A
25% OF LARGEST MOTOR LOAD			7.8 A
MINIMUM AMPACITY @480V.3ø			122.2 A

CONTRACTOR FIELD VERIFY ALL EQUIPMENT LOADS PRIOR TO DOING ANY
WORK OR ORDERING ANY EQUIPMENT



ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

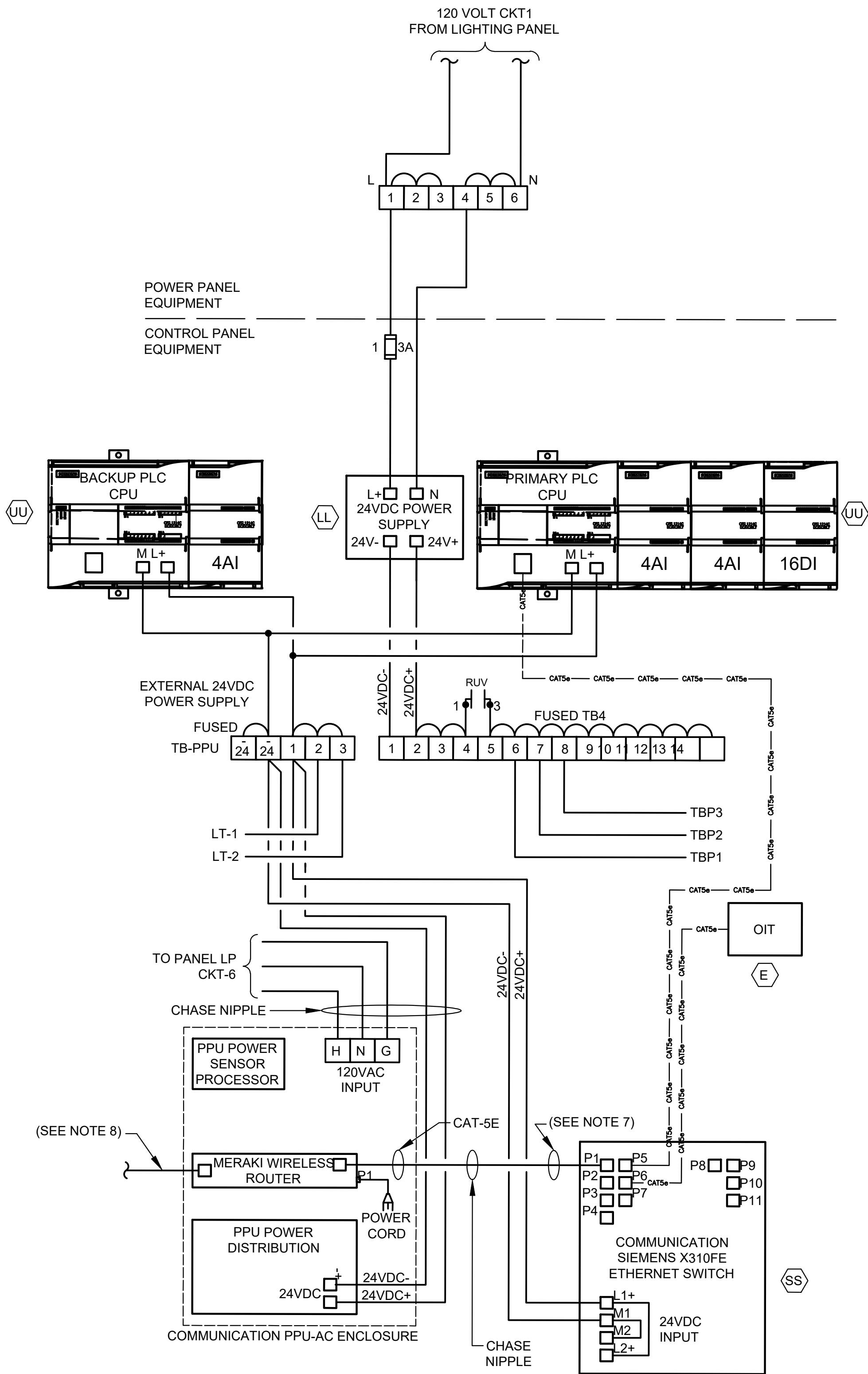
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM

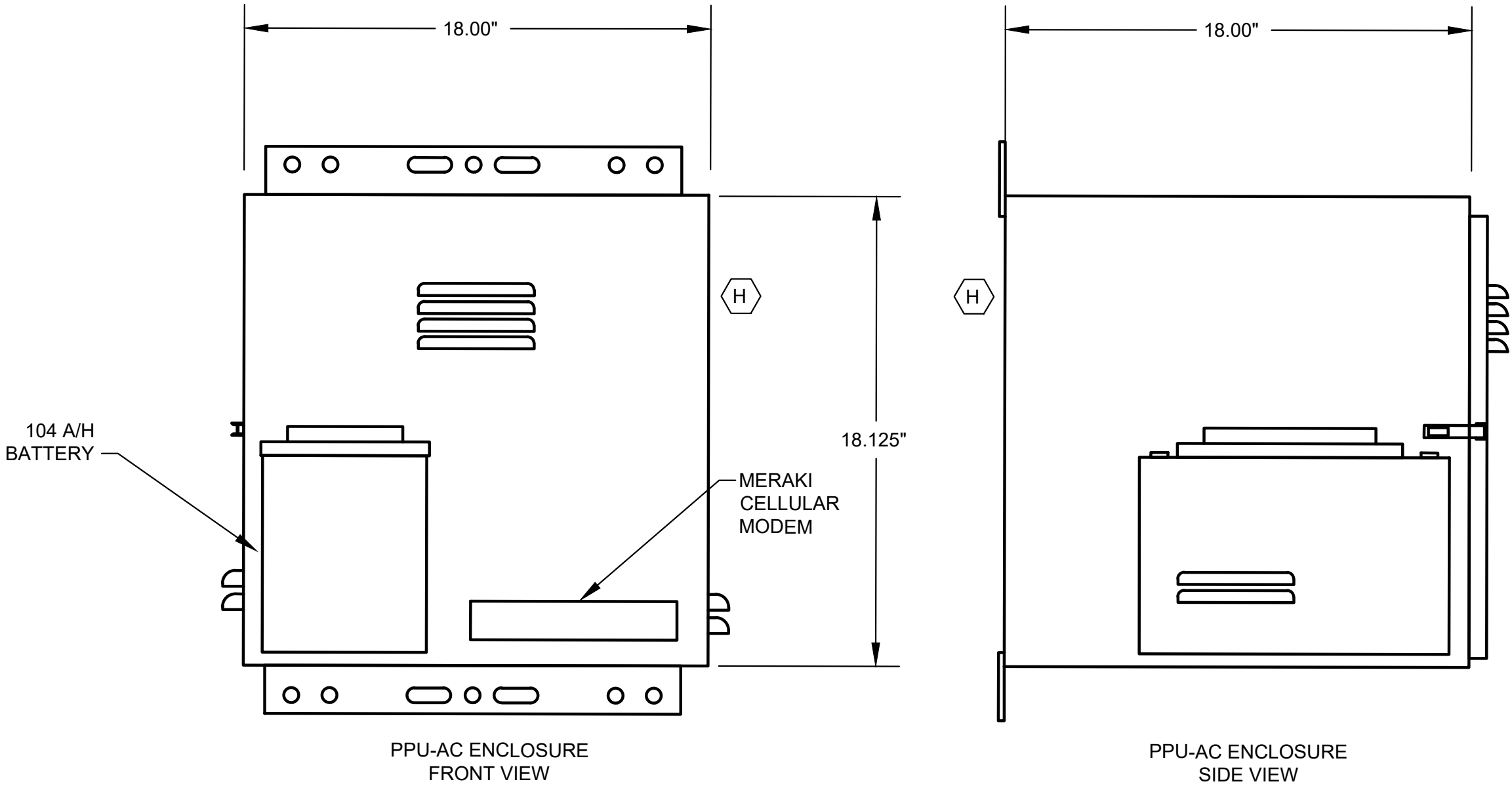
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 92 OF 291	



CONTROL POWER & COMMUNICATIONS WIRING
DIAGRAM
NTS
(SEE NOTE 8)

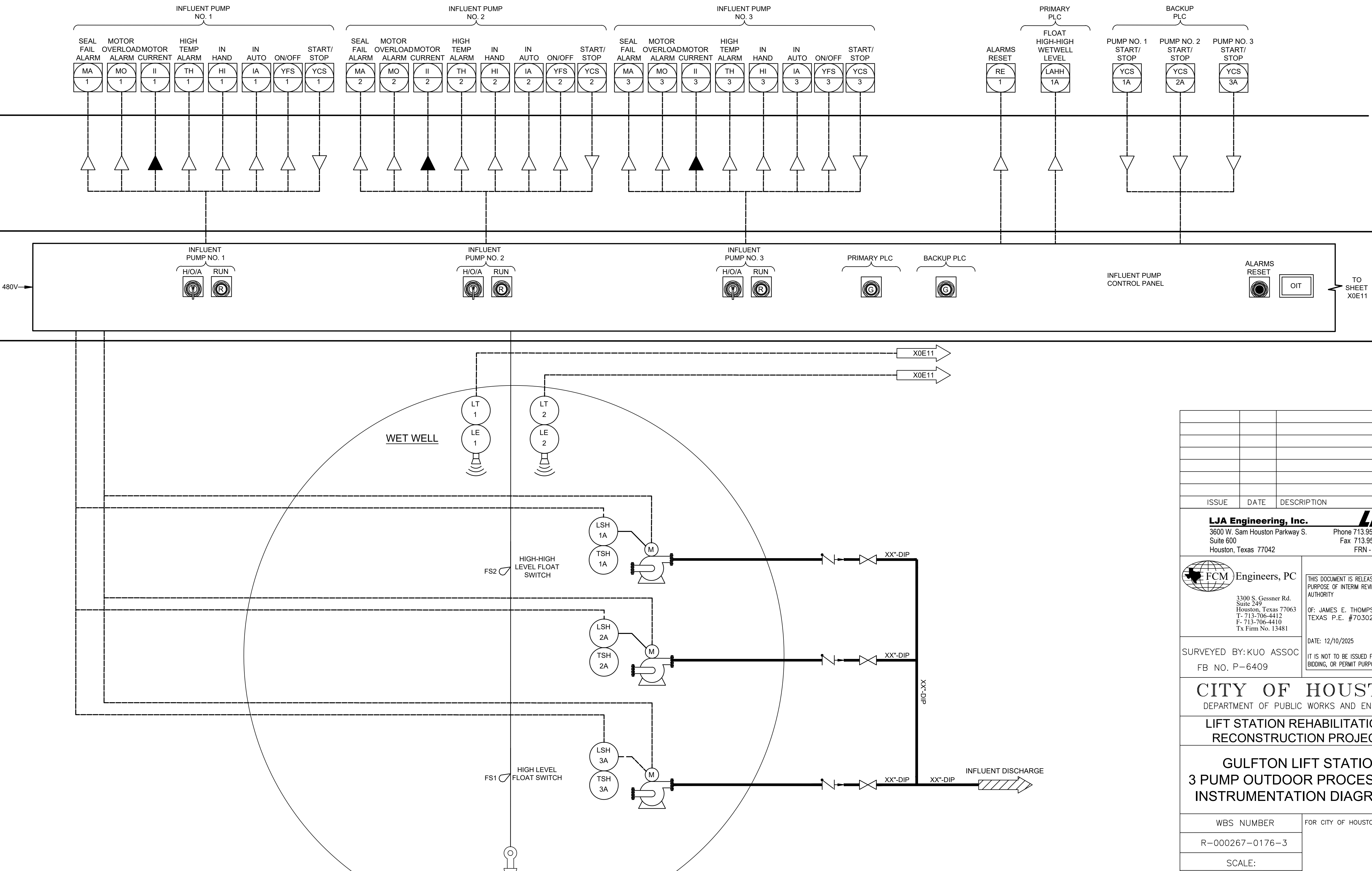
NOTES:

- FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ITEM TAG, SEE DEVICE RATINGS SCHEDULE.
- REFER TO SPECIFICATION SECTION 16120 LOW-VOLTAGE WIRES AND CABLES FOR CONDUCTOR COLOR CODE.
- THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
- NOT USED.
- NOT USED.
- COMMUNICATION PPU-AC & SCADA SHALL BE PROVIDED BY CONTRACTOR INCLUDING TO RUN CONDUITS & WIRES.
- ETHERNET CABLE FOR MERAKI CELLULAR ROUTER (P1).
- POE CABLE TO RADIO.
- COORDINATE WITH VENDOR TO PROVIDE PROPER VENTILATION WHERE APPLICABLE.

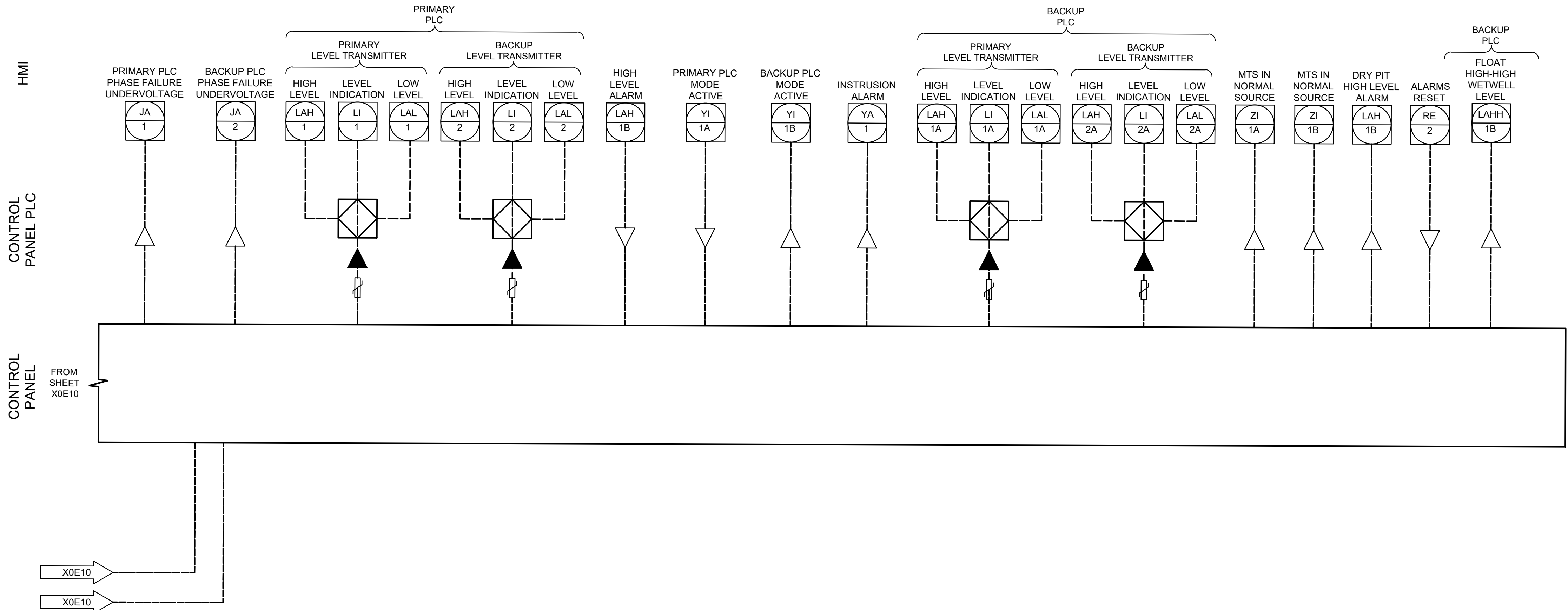


PPU-AC CONTROL ENCLOSURE
ELEVATION
NTS
(SEE NOTE 9)

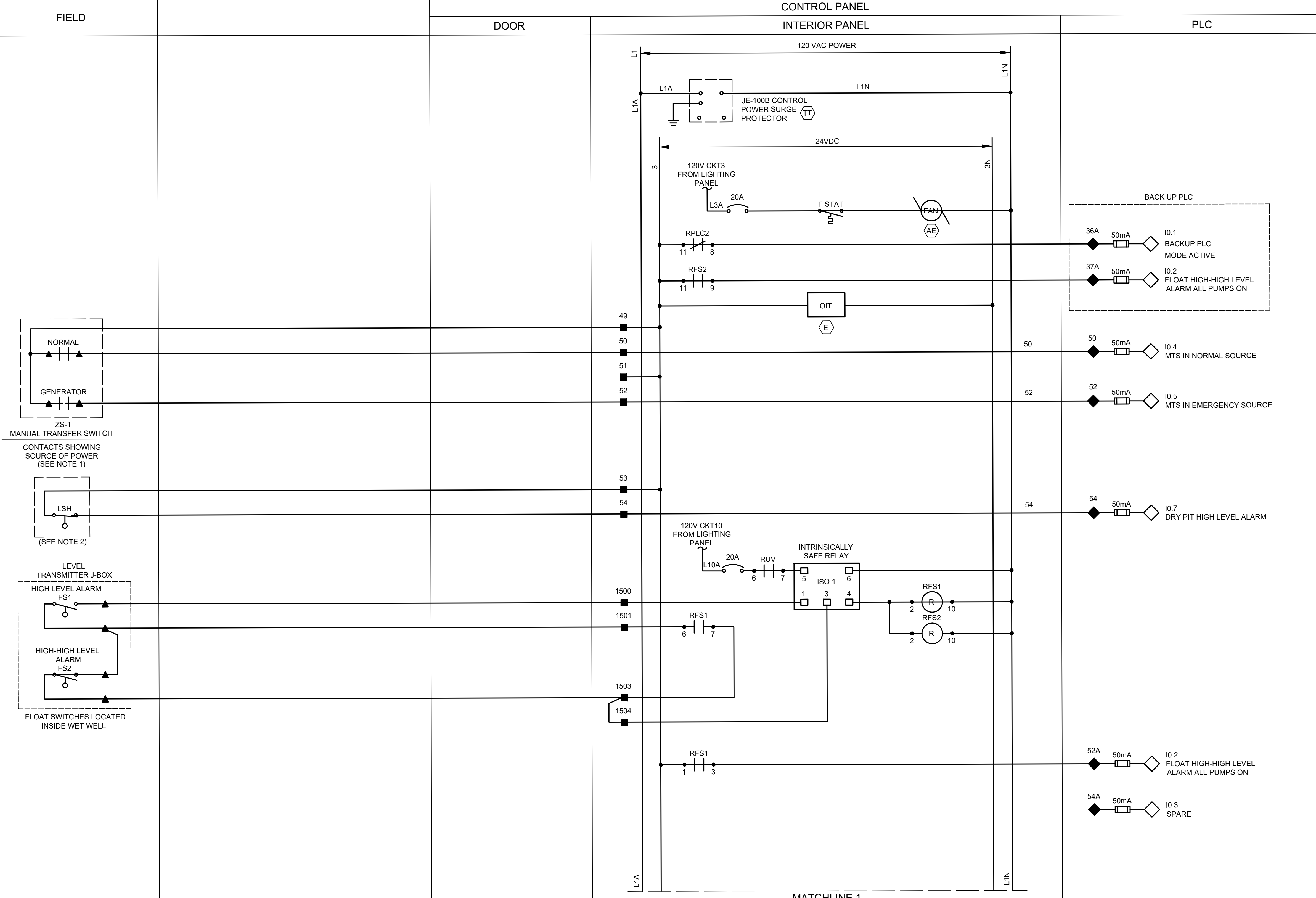
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION 3 PUMP OUTDOOR COMMUNICATION DIAGRAM		
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R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 93 OF 291		



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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS GULFTON LIFT STATION 3 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM - I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
3/4"=1'-0"		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 94 OF 291		



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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION 3 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM - II		
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SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 95 OF 291		



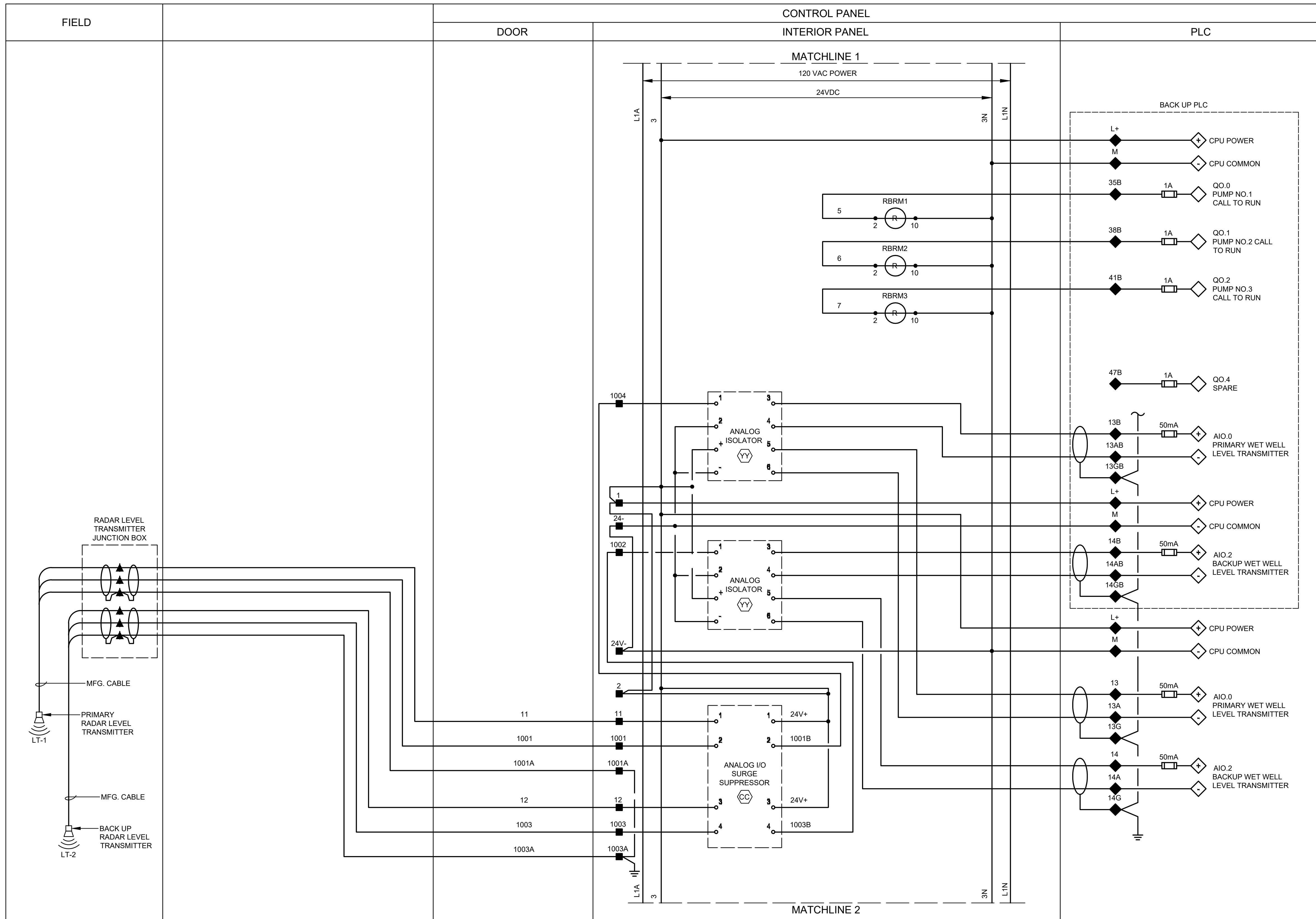
LEGEND

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

NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. DRY/WET PIT APPLICATION ONLY.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - I		
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R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 96 OF 291		



LEGEND

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

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LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



Engineers, PC

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TEXAS P.E. #70302

DATE: 12/10/2025

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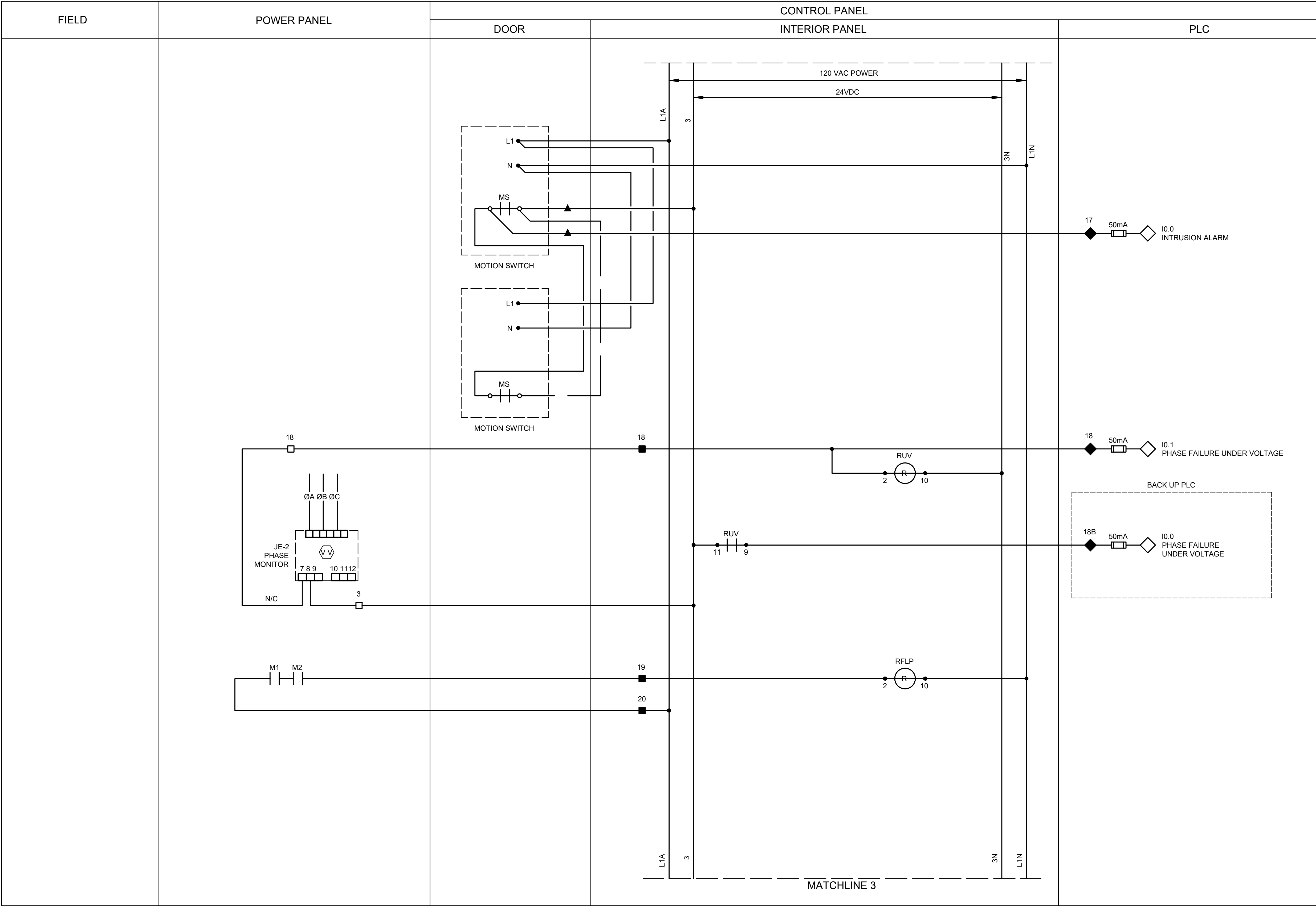
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
3 PUMP OUTDOOR CONTROL
PANEL CONTROL WIRING
DIAGRAM - II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 97 OF 291	



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

NOTES:

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL.

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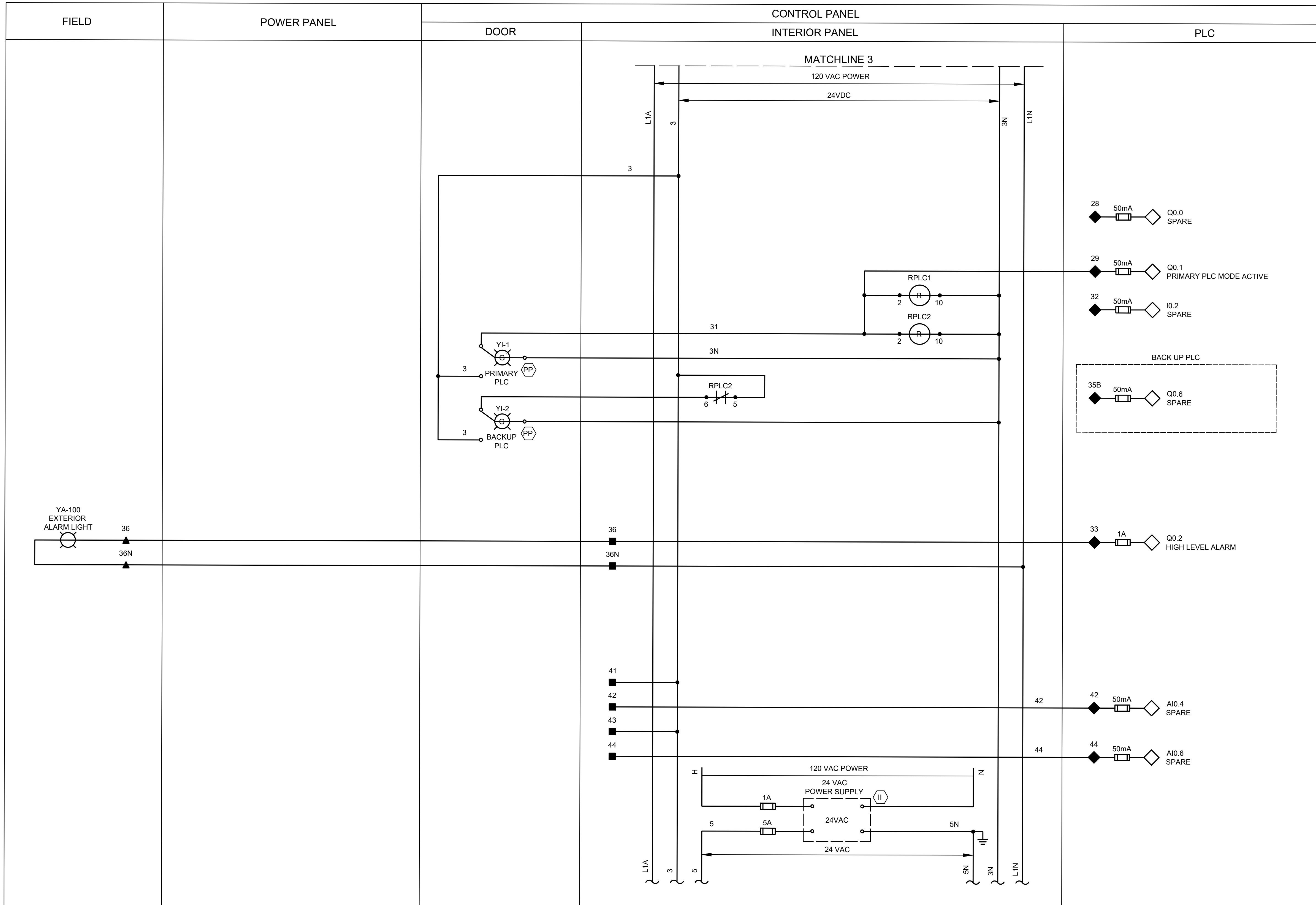
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
GULFTON LIFT STATION
3 PUMP OUTDOOR CONTROL
PANEL CONTROL
WIRING DIAGRAM - III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 98 OF 291	



LEGEND

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

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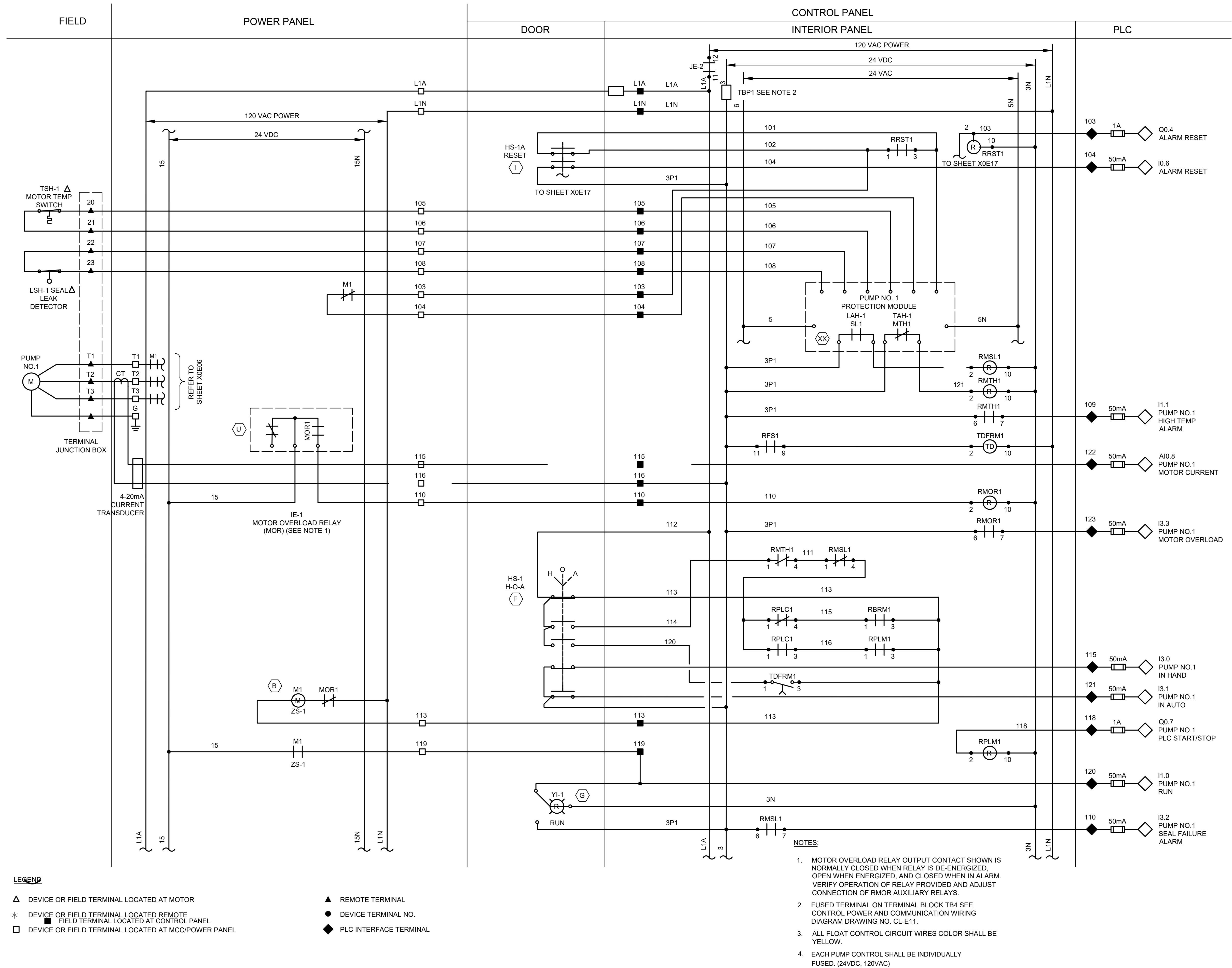
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
3 PUMP OUTDOOR CONTROL
PANEL CONTROL
WIRING DIAGRAM - IV

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 99 OF 291	



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3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

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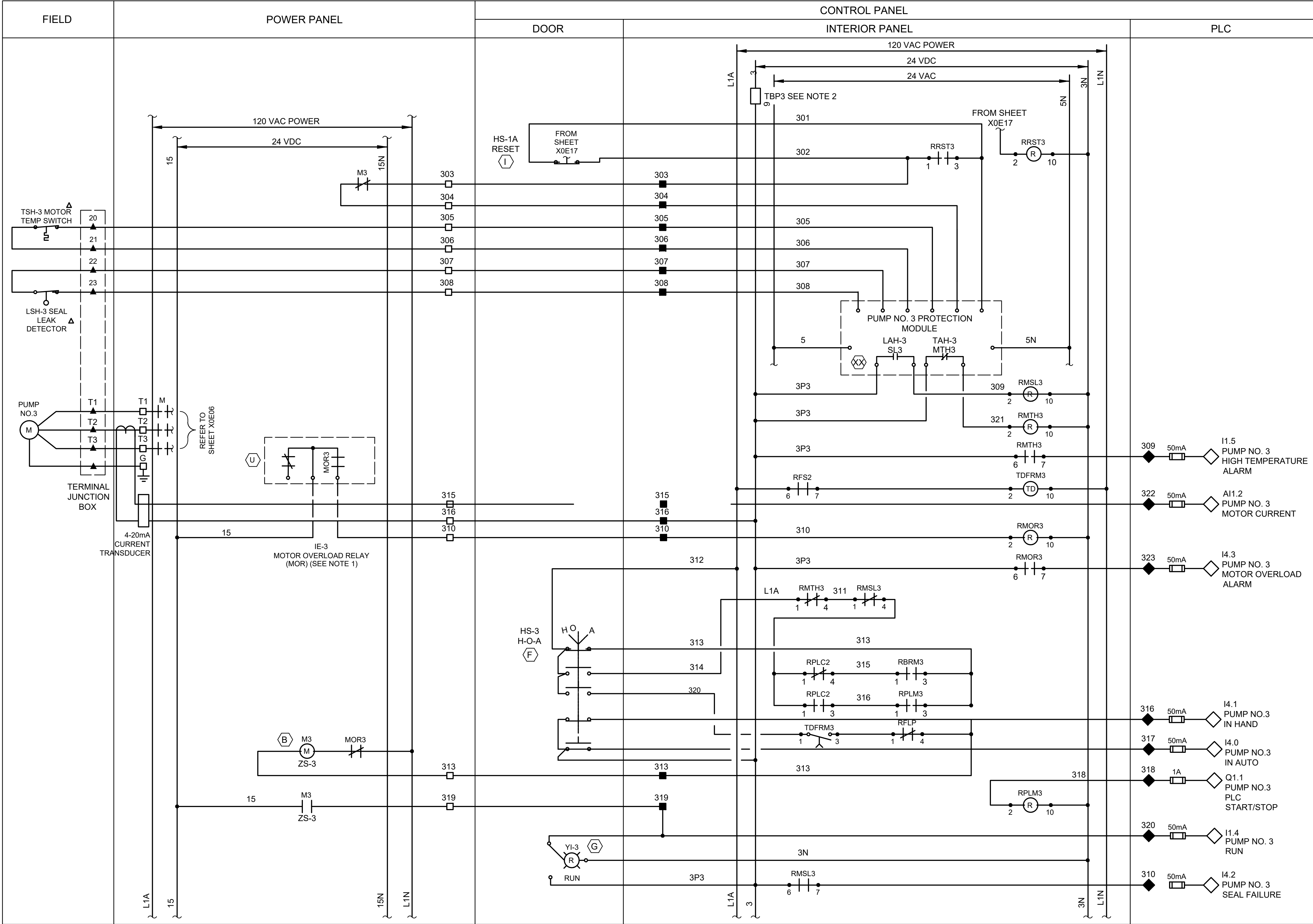
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**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

GULFTON LIFT STATION 3 PUMP OUTDOOR PUMP 1 CONTROL WIRING DIAGRAM

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SHEET NO.100 OF 291	

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SCALE:	
1"=5'	
CITY OF HOUSTON PM	
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SHEET NO. 101 OF 291	



LEGEND

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

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 T84 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM. DRAWING NO. X0E08.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
4. EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

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GULFTON LIFT STATION 3 PUMP OUTDOOR PUMP 3 CONTROL WIRING DIAGRAM		
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1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.102 OF 291		

	DESCRIPTION	SERVICE		ROUTING			CONDUIT & WIRE SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
A	MAIN BONDING JUMPER	--	--	MAIN FUSED DISCONNECT NEUTRAL	MAIN FUSED DISCONNECT GROUND	--	#2 AWG
B	EQUIPMENT BONDING JUMPER	--	--	MCC/POWER PANEL ENCLOSURE	POWER/CONTROL PANEL & EQUIPMENT GROUND BUS	--	#2 AWG
C	GROUNDING ELECTRODE CONDUCTOR	--	--	GROUNDING ELECTRODE	MAIN SERVICE FUSED DISCONNECT	--	#2 AWG
100	SERVICE ENTRANCE	480V	VARIES	UTILITY POWER SERVICE	METER DISCONNECT		3#4/0, 1-4G AWG 2-1/2"C
100A	MCC SERVICE POWER	480V	VARIES	MANUAL TRANSFER SWITCH	MCC OR POWER PANEL	--	
100B	NORMAL/EMERRGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH	CONTROL PANEL	--	3#4/0, 1-4G AWG 3"C
100C	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	PORTABLE GENERATOR	CAPPED CONDUITS	
*100	SERVICE ENTRANCE	480V	VARIES	UTILITY POWER SERVICE	CT CAN	--	
*100A	SERVICE POWER	480V	VARIES	SERVICE DISCONNECT	MAIN BREAKER IN MCC	--	
*100B	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	GENERATOR TRANSFER SWITCH IN MCC	--	3#4/0, 1-4G AWG 2-1/2"C
*100C	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	PORTABLE GENERATOR	CAPPED CONDUITS	#2 AWG
101	GROUND ELECTRODE CONDUCTOR	--	--	POWER PANEL	GROUND FIELD	--	#2 AWG
102	GROUND ELECTRODE CONDUCTOR	--	--	BUILDING STEEL	GROUND FIELD	--	#2 AWG
103	BUILDING GROUNDING	--	--	BUILDING REBAR	LIGHTNING GROUND ROD	--	#2 AWG
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL PANEL OR MOTOR CONTROL CENTER	GROUND FIELD	--	3#8, 1-4G AWG 1-1/2"C
105	COMMUNICATION	--	--	COMMUNICATION POLE	CONTROL PANEL	--	2-1"C., 3/12,1-#12G
105A	COMMUNICATION POLE LIGHT	120V	--	COMMUNICATION POLE	LIGHTING PANEL CKT #6 & CKT #4	--	MFGR'S STD CABLE 2-1/2"
200	PUMP NO. 1 POWER	480V	HP AS NOTED	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	--	
202	PUMP NO. 1 POWER	480V	HP AS NOTED	PUMP NO. 1 JUNCTION BOX	PUMP STARTER	--	COMBINE 200 & 300 TAG WIRING
203	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 1 JUNCTION BOX	PUMP STARTER	--	
205	PUMP NO. 1 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
206	PUMP NO. 1 CAPACITOR	480V	TBD	PUMP NO. 1 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	MFGR'S STD CABLE 2-1/2"
300	PUMP NO. 2 POWER	480V	HP AS NOTED	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	--	
302	PUMP NO. 2 POWER	480V	HP AS NOTED	PUMP NO. 2 JUNCTION BOX	PUMP STARTER	--	
305	PUMP NO. 2 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
306	PUMP NO. 2 CAPACITOR	480V	TBD	PUMP NO. 2 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	MFGR'S STD CABLE 2-1/2"
400	PUMP NO. 3 POWER	480V	HP AS NOTED	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
401	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	--	
402	PUMP NO. 3 POWER	480V	HP AS NOTED	PUMP NO. 3 JUNCTION BOX	PUMP STARTER	--	
403	COMBINED PUMP CONTROLS	120V	HP AS NOTED	PUMP NO. 3 JUNCTION BOX	CONTROL PANEL	--	
405	PUMP NO. 3 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
406	PUMP NO. 3 CAPACITOR	480V	TBD	PUMP NO. 3 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	
600	LIGHTING TRANSFORMER FEEDER	480V	--	MOTOR CONTROL CENTER	LIGHTING TRANSFORMER	--	#4 AWG
601	LIGHTING PANEL GROUND	--	--	LIGHTING PANEL	GROUND FIELD	--	#4 AWG
602	LIGHTING PANEL FEEDER	120/240V	--	LIGHTING TRANSFORMER	LIGHTING PANEL	--	#4 AWG
900	INTRUSION ALARM	24VDC	--	MOTION SWITCH	CONTROL PANEL	--	
1000	LEVEL TRANSMITTER	24VDC	--	TRANSMITTER JUNCTION BOX	TRANSMITTER JUNCTION BOX	--	
1001	LEVEL TRANSMITTER	24VDC	--	TRANSMITTER JUNCTION BOX	TRANSMITTER JUNCTION BOX	--	
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	CONTROL PANEL	TRANSMITTER JUNCTION BOX	--	
1003	WELL FLOAT SWITCHES	24VDC	--	TRANSMITTER JUNCTION BOX	FLOAT SWITCH NO.1 & NO.2	--	
1004	FLOAT SWITCH	120V	--	SUMP PUMP MOTOR STARTER	FLOAT SWITCH	--	
1100	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO TRANSMITTER J-BOX	--	
1200	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO PUMP NO. 1 J-BOX	--	

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.
4. CONDUITS LABELED "FUTURE SPACE" ARE THOSE TO BE INSTALLED AND CAPPED IN FIELD.
5. A CSBE TYPE SEAL SHALL BE NOT SMALLER THAN 2-1/2". CSBE SEALS ARE NOT MANUFACTURED SMALLER THAN 2-1/2".
6. GENERATOR CONDUIT SHALL BE A MINIMUM OF 3" CONDUIT.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386 Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		
SURVEYED BY: KUO ASSOC FB NO. P-6409		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS GULFTON LIFT STATION 3 PUMP INDOOR/OUTDOOR CONDUIT SCHEDULE FOR 480 VOLTS		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
N.T.S		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.103 OF 291		

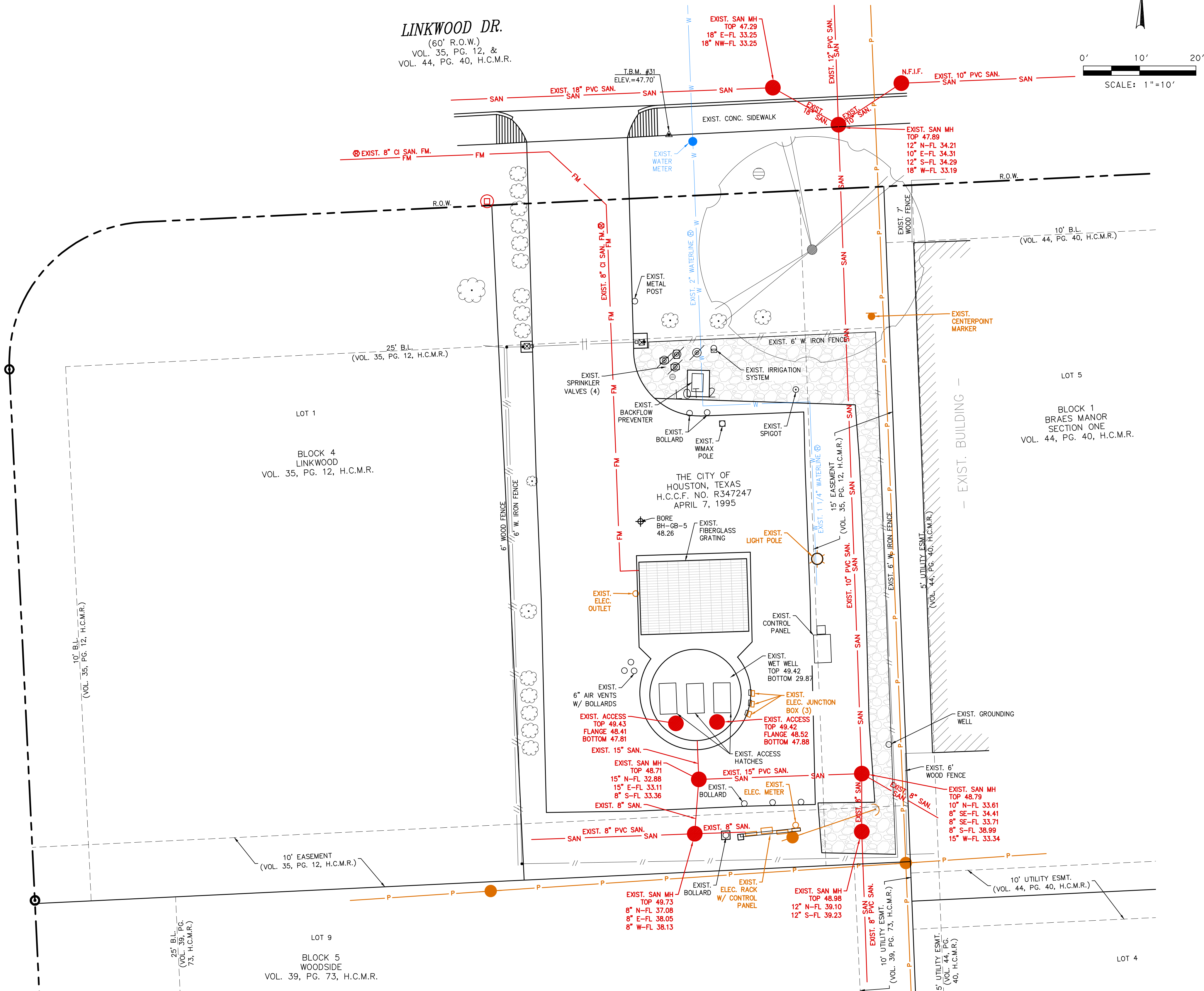
			RATINGS FOR PUMP SIZES
ITEM	CIRCUIT	DESCRIPTION	3 @ 25HP
I	--	MAIN DISCONNECT SWITCH	
		OPERATING VOLTAGE	480V
		CURRENT RATING	200A
		CURRENT LIMITING	CLASS J
		FUSES TYPE & SIZE	150A
II	--	MOTOR CONTROL CENTER MAIN BUS - 3/C COPPER	
		OPERATING VOLTAGE	
		CURRENT RATING	
		NEUTRAL SIZE & TYPE	
		BUS BRACING	
III	(SEE NOTE 1) 1	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
IV	2 3 5	PUMP MOTOR STARTERS	
		QUANTITY	3
		MOUNTING (SEE NOTE 3)	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	480V
		FRAME SIZE	100A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	42KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	480V
		SIZE (SEE NOTE 4)	NEMA 2
		OVERLOAD PROTECTION	AMPS, MOTOR NAMEPLATE
		TYPE	MFGR SPEC
		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	CLASS J
		FUSES TYPE & SIZE	150A
IX	(SEE NOTE 2) 1G	GENERATOR TRANSFER SWITCH	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE

NOTES:

- WHERE GENERATOR SERVICE IS ANTICIPATED, PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
- PROVIDE TRIP SETTING BASED ON GENERATOR SIZE. BREAKERS TO BE SIZED AT MAXIMUM ALLOWBLE SIZE.
- STARTERS TO BE MOUNTED IN CONTROL CABINET ADJACENT TO PLC AND ASSOCIATED RELAY EQUIPMENT.
- STARTERS TO BE NEMA RATED FOR FULL VOLTAGE STARTING.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
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SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
GULFTON LIFT STATION 3 PUMP INDOOR/OUTDOOR DEVICE RATING SCHEDULE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
N.T.S		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.104 OF 291		

LINKMEADOW LN.
(60' R.O.W.)
VOL. 35, PG. 12 &
VOL. 39, PG. 73, H.C.M.R.



BH ID	SURVEY POINT NO.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION (FT)
LINKWOOD LS						
BH-GB-5	42802	13816204.05	3100682.02	13814408.18	3100278.98	48.26

BENCHMARK:
CITY OF HOUSTON MONUMENT 5254-0709, A BRASS DISK IN CONCRETE, LOCATED ON BRAESWOOD DR IN LINE WITH EAST SIDE OF DRIVEWAY AT 3723 HOUSE.

ELEV. 44.37 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED SEPT. 8, 2025.

T.B.M. #31:
SET "X" CUT ON CONCRETE LOCATED APPROXIMATELY 180 FEET WEST OF THE INTERSECTION OF LINKWOOD DR AND LLONA LN.

ELEV. 47.70 FEET

VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040145) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.66.

NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.66 FT

HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY
OF: ANA K. TREJO
P.E.# 125772
DATE: 05/01/2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

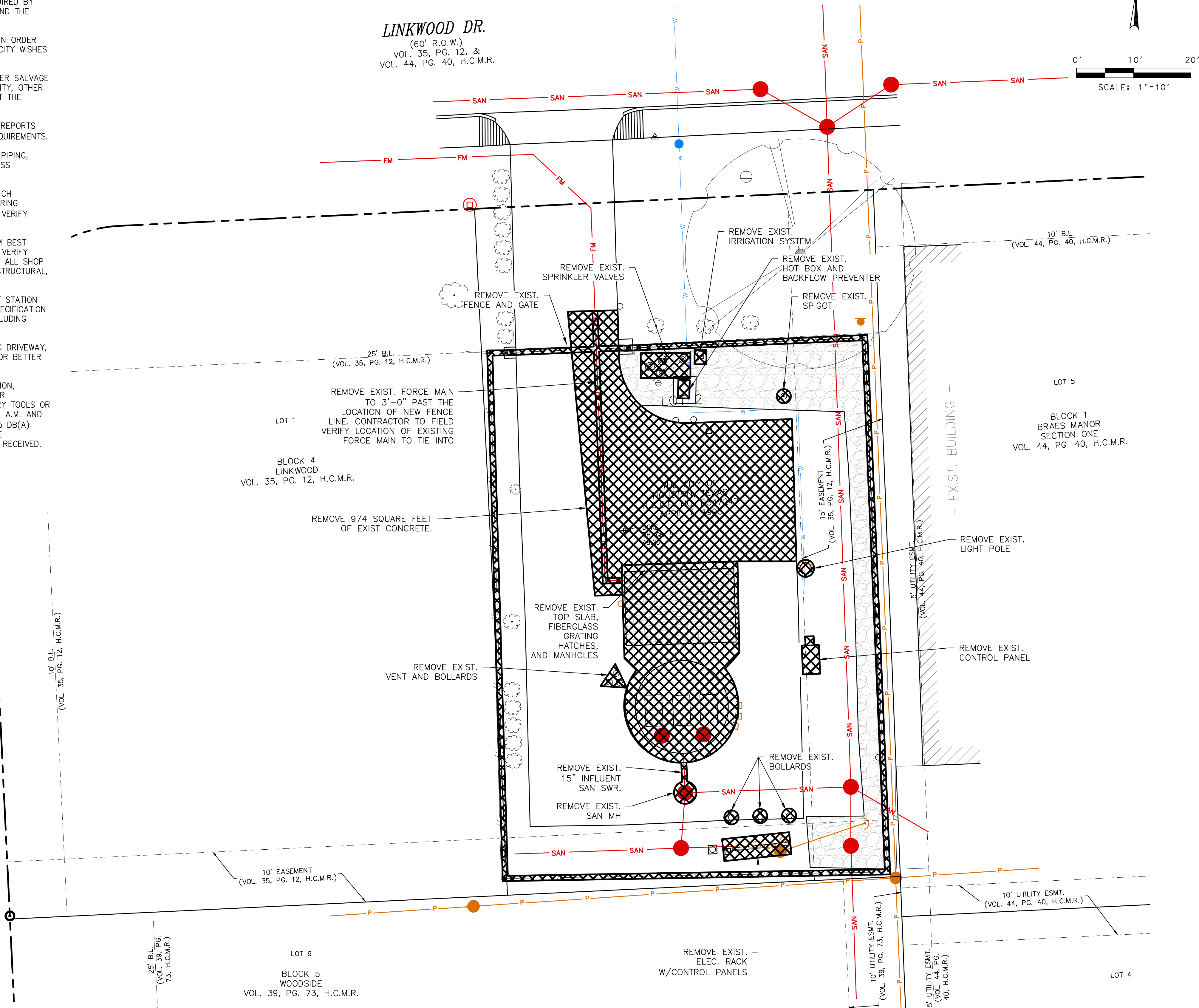
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION
EXISTING SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.105 OF 291	

- SEE DRAWING LW-C4 FOR LIFT STATION PLAN AND PROFILE DEMOLITION.
2. CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES AND THE DISPOSAL FACILITY.
3. NOTIFY THE CITY 48 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE THE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE
4. CITY TO HAVE THE RIGHT OF FIRST REFUSAL. DELIVER SALVAGE ITEMS TO THE CITY OF HOUSTON FACILITY WITHIN CITY, OTHER ITEMS TO BE DISPOSED OF BY THE CONTRACTOR AT THE EXPENSE OF THE CONTRACTOR.
5. REFER TO LEAD AND ASBESTOS MATERIAL TESTING REPORTS FOR ANY SPECIAL HANDLING AND/OR DISPOSAL REQUIREMENTS.
6. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PIPING, VALVES, PUMPS AND MATERIALS IN WET WELL UNLESS OTHERWISE STATED.
7. PROVIDE TEMPORARY PLUG FOR THE EXISTING 15 INCH SANITARY SEWER LEADING TO THE LIFT STATION DURING DEMOLITION/CONSTRUCTION. CONTRACTOR TO FIELD VERIFY INFLUENT SANITARY SEWER SIZE
8. EXISTING UTILITY LOCATIONS WERE DEVELOPED FROM BEST INFORMATION AVAILABLE. CONTRACTOR IS TO FIELD VERIFY EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. ALL SHOP DRAWINGS USE TO HAVE FIELD VERIFIED FACILITY, STRUCTURAL, AND UTILITY LOCATIONS INDICATED.
9. CONTRACTOR SHALL NOT BEGIN DEMOLITION OF LIFT STATION UNTIL DIVERSION PUMPING IS OPERATIONAL. SEE SPECIFICATION 01506 FOR DIVERSION PUMPING REQUIREMENTS, INCLUDING CAPACITY.
10. CONTRACTOR SHALL PROTECT PAVEMENT, INCLUDING DRIVEWAY, NOT SHOWN TO BE REMOVED. RESTORE TO EQUAL OR BETTER CONDITION IF DAMAGED.
11. THE SOUND PRODUCED BY THE ERECTION, EXCAVATION, CONSTRUCTION, OR DEMOLITION OF ANY BUILDING OR STRUCTURE, INCLUDING THE USE OF ANY NECESSARY TOOLS OR EQUIPMENT, CONDUCTED BETWEEN THE HOURS OF 7 A.M. AND 8 P.M., WILL NOT PRODUCE A SOUND EXCEEDING 85 DB(A) WHEN MEASURED FROM THE PROPERTY LINE OF THE RESIDENTIAL PROPERTY WHEN THE SOUND IS BEING RECEIVED.

LINKMEADOW LN.
(60' R.O.W.)
VOL. 35, PG. 12 &
VOL. 39, PG. 73, H.C.M.R.



BENCHMARK:

CITY OF HOUSTON MONUMENT 5254-0709, A BRASS DISK IN CONCRETE, LOCATED ON BAEWSDOWN DR IN LINE WITH EAST SIDE OF DRIVEWAY AT 3723 HOUSE.

ELEV. 44.37 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED SEPT. 8, 2025.

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ELEV. 47.70 FEET

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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.

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

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 
3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE
PURPOSE OF INTERIM REVIEW UNDER THE
AUTHORITY
OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

IT IS NOT TO BE ISSUED FOR CONSTRUCTION,
BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION SITE DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 106 OF 291	



- NOTES
1. CONTRACTOR TO REFER TO SHEETS LW-C2 AND LW-C4 FOR DEMOLITION DETAILS
 2. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS

LEGEND

ITEM TO BE DEMOLISHED
OR REMOVED

LW-C3

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
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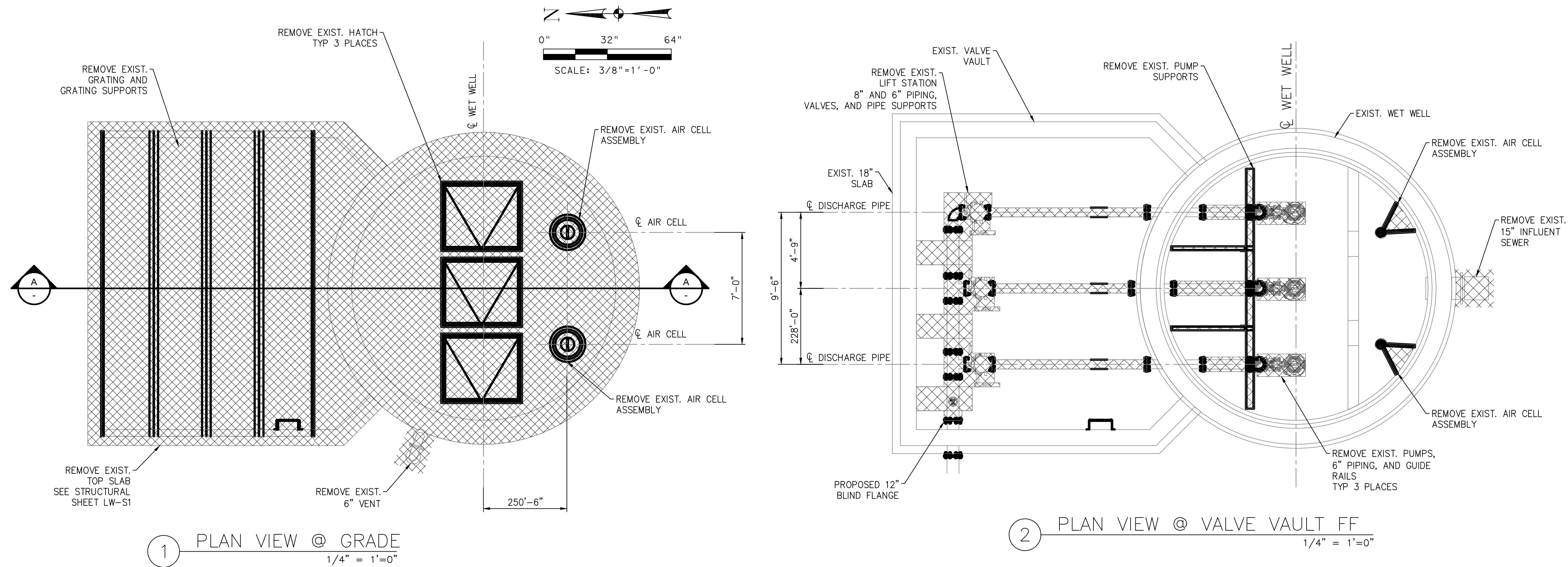
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION
DEMOLITION PHOTOS

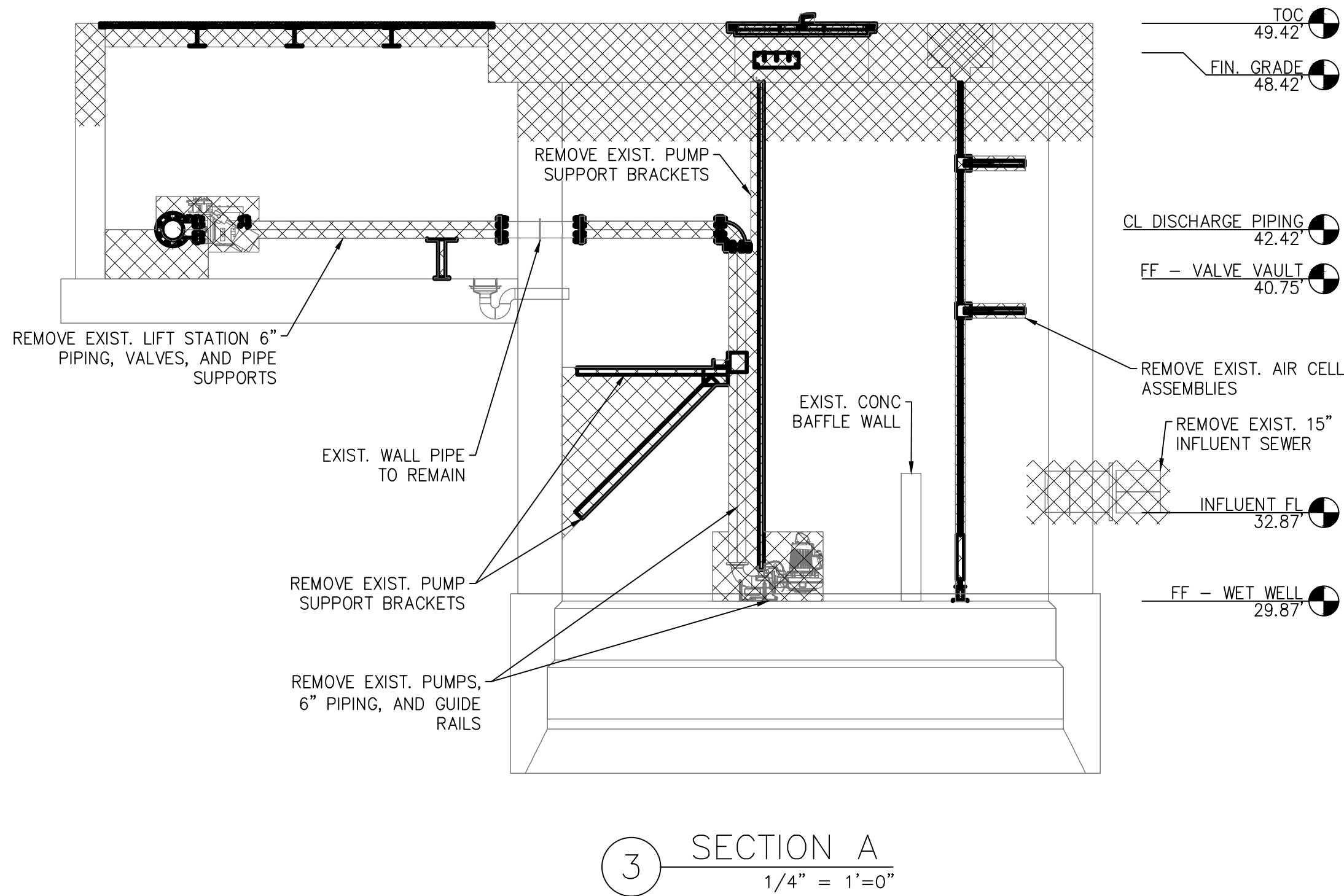
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.107 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects\CAD\ - SHEETS\JOB LINKWOOD LS PANDP DEMO.dwg May 07, 2025-1:24pm trowbridge



- NOTES:
- THIS DRAWING IS A REPRODUCTION OF THE EXISTING LIFT STATION CONSTRUCTION DRAWINGS AND INTENDED TO PROVIDE GENERAL INFORMATION FOR STATION DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL WORK REQUIRED FOR DEMOLITION AND REMOVAL OF STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS.
 - THE CITY OF HOUSTON HAS THE FIRST RIGHT OF REFUSAL OF ANY EQUIPMENT OR MATERIAL REMOVED. CONTACT FARID SADEGHIAN, P.E. AT 832-395-4985 AT LEAST 72 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE. THE CONTRACTOR SHALL DELIVER ALL SALVAGED ITEMS TO A LOCATION, WITHIN THE CITY, DETERMINED BY THE CITY. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL OTHER EQUIPMENT AND MATERIAL NOT IDENTIFIED FOR SALVAGE.
 - WHEN REMOVING EXISTING PUMPS, CONTRACTOR SHALL LEAVE AS MUCH WIRE/CABLE AS POSSIBLE IN ORDER FOR THE CITY TO REUSE THE PUMPS.
 - CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF HEALTH (DEPARTMENT ON A FORM SPECIFIED BY THE DEPARTMENT OF ANY ASBESTOS ABATEMENT ACTIVITY, RENOVATION, OR OPERATIONS AND MAINTENANCE ACTIVITY AFFECTING ASBESTOS-CONTAINING BUILDING MATERIALS, OR ANY DEMOLITION IN FACILITIES OR PUBLIC BUILDINGS.
 - CONTRACTOR SHALL SUBMIT PROOF OF SUBMISSION OR REQUIRED ASBESTOS/DEMOLITION NOTIFICATION FORM TO THE TEXAS DEPARTMENT OF STATE HEALTH SERVICES TO COH CONSTRUCTION PM. THE NOTIFICATION TO THE STATE MUST BE PROVIDED A MINIMUM OF TEN DAYS PRIOR TO THE STARTUP OF ANY DEMOLITION ACTIVITIES AT THE SITE.
 - CONCRETE SLAB AND WALLS INDICATED ON THIS PLAN SHALL BE REMOVED TO 5 FEET BELOW FINISHED GRADE AS PER SPECIFICATION SECTION 02220.
 - ALL REMAINING WALL OPENINGS IN THE VALVE VAULT SHALL BE SEALED WITH NON-SHRINK GROUT.
 - CONTRACTOR SHALL BACKFILL THE ABANDONED AND DEMOLISHED VALVE VAULT. BACKFILL SHALL BE FLOWABLE FILL AND COMPACTED PROPERLY UP TO THE PROPOSED CONCRETE DISCHARGE ASSEMBLY PAD.
 - THE CONTRACTOR SHALL COORDINATE WITH CENTERPOINT ENERGY TO DISCONNECT ELECTRICAL POWER AS NEEDED.
 - THE EXISTING WET WELL SHALL BE CLEANED OF ALL DEBRIS, WASTEWATER, AND OTHER RESIDUES.
 - THE CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE OF TEXAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF TRANSPORTATION, DISPOSAL, AND TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES, AND BY THE DISPOSAL FACILITY.
 - PRIOR TO THE CLEANOUT AND CLEANING OF THE EXISTING LIFT STATION WET WELL, CONTRACTOR TO SUBMIT PROOF TO COH CONSTRUCTION PM THAT TRANSPORTER/HAULER TO BE USED FOR THE TRANSPORT OF THE CONTENTS OF THE WET WELL (I.E., SOLIDS, GRIT, SEWAGE SLUDGE, AND DOMESTIC SLUDGE, ETC.) IS REGISTERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AS A SLUDGE TRANSPORTER AND THE TRANSPORTER'S REGISTRATION IS CURRENT AND VALID DURING THE PERIOD OF PERFORMANCE.
 - CONTRACTOR SHALL OBTAIN CITY OF HOUSTON DEMOLITION PERMIT (SEE FORM CE 1075 REV. 01/01/2015 FOR GUIDELINES) OR SUBMIT PROOF OF NON-APPLICABILITY TO COH CONSTRUCTION PROJECT MANAGER PRIOR TO THE STARTUP OF DEMOLITION ACTIVITIES AT THE SITE. THE CONTRACTOR SHALL OBTAIN ANY STATE DEMOLITION PERMITS REQUIRED.

LEGEND



LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386	
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
LINKWOOD LIFT STATION PLAN AND PROFILE DEMOLITION PLAN	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1/4"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.108 OF 291	



 INLET PROTECTION BARRIER
 REINFORCED FILTER FABRIC BARRIER
 EXIST STORM INLET

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

	AMANI ENGINEERING, INC.	PRELIMINARY FOR INTERIM REVIEW ONLY THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT DING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF: MAHESH DUTTA NAME: P. E. NO. 4/2/2026 DATE: TRPCLS FORM #F-4528
	11011 RICHMOND AVE., SUITE 700 HOUSTON, TEXAS 77042 TEL: (713) 270-5700 Texas Registered Engineering Firm No. F-4528 Texas Registered Surveying Firm No. 1100282-00	
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION STORM WATER POLLUTION PREVENTION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.109 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - Jp coh 123 lift stations rehabilitation and reconstruction\Cadd_DWG\Full Set\Xref\110 LINKWOOD LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN.dwg May 05, 2025-1:09pm elevs

KEY NOTES:

- 1 PROPOSED REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER (SEE DETAIL DRAWING D-4)
- 2 PROPOSED 3/4" NON-FREEZE HOSE BIB (SEE DETAIL DRAWING D-5)
- 3 PROPOSED 3/4" TYPE K COPPER WATER SERVICE LINE (SEE DETAIL DRAWING D-4)
- 4 PROPOSED 8' WROUGHT IRON FENCE AND BRICK COLUMNS
- 5 PROPOSED 16' WIDE DOUBLE SWING WROUGHT IRON GATE
- 6 PROPOSED LIFT STATION SLAB & PIPING (SEE SHEET LW-C7)
- 7 PROPOSED ELEVATED ELECTRICAL PLATFORM (SEE STRUCTURAL SHEET LW-S3)
- 8 REPLACE SUBSIDED CONCRETE PAVING (SEE DETAIL D-5)
- 9 PROPOSED ON-SITE 4' BYPASS MANHOLE (SEE DETAIL D-2)
- 10 REHAB EXIST MANHOLE PER COH SPEC. 02555 AND ADD WATERTIGHT LIDS
- 11 REMOVE AND REPLACE EXIST MANHOLE WITH PROPOSED 5' VENTED MANHOLE WITH WATERTIGHT LID.
- 12 REMOVE AND REPLACE EXISTING SHRUBBERY WITH EVERGREEN NATIVE SHRUBS
- 13 PROPOSED 6 LF OF 18" SANITARY SEWER
- 14 PROPOSED 48 LF OF 8" DIP SANITARY FORCE MAIN
- 15 PROPOSED 90° BEND 8" DIP SANITARY FORCE MAIN

LINKMEADOW LN.
(60' R.O.W.)
VOL. 35, PG. 12, &
VOL. 39, PG. 73, H.C.M.R.

10' B.L.
(VOL. 35, PG. 12, H.C.M.R.)

LOT 1
BLOCK 4
LINKWOOD
VOL. 35, PG. 12, H.C.M.R.

LOT 9
BLOCK 5
WOODSIDE
VOL. 39, PG. 73, H.C.M.R.

(60' R.O.W.)
VOL. 35, PG. 12, &
VOL. 44, PG. 40, H.C.M.R.

LINKWOOD DR.

T.B.M. #31
ELEV.=47.70'

EXIST. 18" PVC SAN.

18" NW-FL 33.25

EXIST. 12" PV

N.F.I.F.

EXIST. 10" PVC SAN.

EXIST. SAN MH
TOP 47.89
12" N-FL 34.21
10" E-FL 34.31
12" S-FL 34.29
18" W-FL 33.19

LOT 5

BLOCK 1
BRAES MANOR
SECTION ONE
VOL. 44, PG. 40, H.C.M.R.

LEGEND:

- EXISTING GRAVEL PAVING TO REMAIN
- EXISTING CONCRETE PAVING TO REMAIN
- PROPOSED 7" THICK CONCRETE SLAB (974 SF) SEE DETAIL SHEET D-5
- EXISTING GRASS AREA TO REMAIN

NOTES:

1. SEE DRAWING LW-C2 FOR SITE DEMOLITION PLAN.
2. SEE DRAWING LW-C4 FOR LIFT STATION DEMOLITION PLAN.
3. SEE DRAWING LW-E2 FOR ELECTRICAL SITE PLAN.



0 10' 20'

BENCHMARK:

CITY OF HOUSTON MONUMENT 5254-0709, A BRASS DISK IN CONCRETE, LOCATED ON BRAESWOOD DR IN LINE WITH EAST SIDE OF DRIVEWAY AT 3723 HOUSE.

ELEV. 44.37 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED SEPT. 8, 2025.

T.B.M. #31:

SET "X" CUT ON CONCRETE LOCATED APPROXIMATELY 180 FEET WEST OF THE INTERSECTION OF LINKWOOD DR AND LLONA LN.

ELEV. 47.70 FEET

VERTICAL DATUM ADJUSTMENT:

THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040145) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.66.

NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.66 FT

HORIZONTAL DATUM:

ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.

ISSUE DATE DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

AMANI
ENGINEERING, INC.

11011 RICHMOND AVE., SUITE 700
HOUSTON, TEXAS 77042
TEL: (713) 270-5700
Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-50

PRELIMINARY

FOR INTERIM REVIEW ONLY
THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

MAHESH DUTTA 114252
NAME P.E. NO.
DATE 4/2/2026
TBPELS FIRM #F-4528

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION
PROPOSED CIVIL SITE AND GRADING PLAN

WBS NUMBER

R-000267-0176-3

SCALE:

1"=10'

CITY OF HOUSTON PM

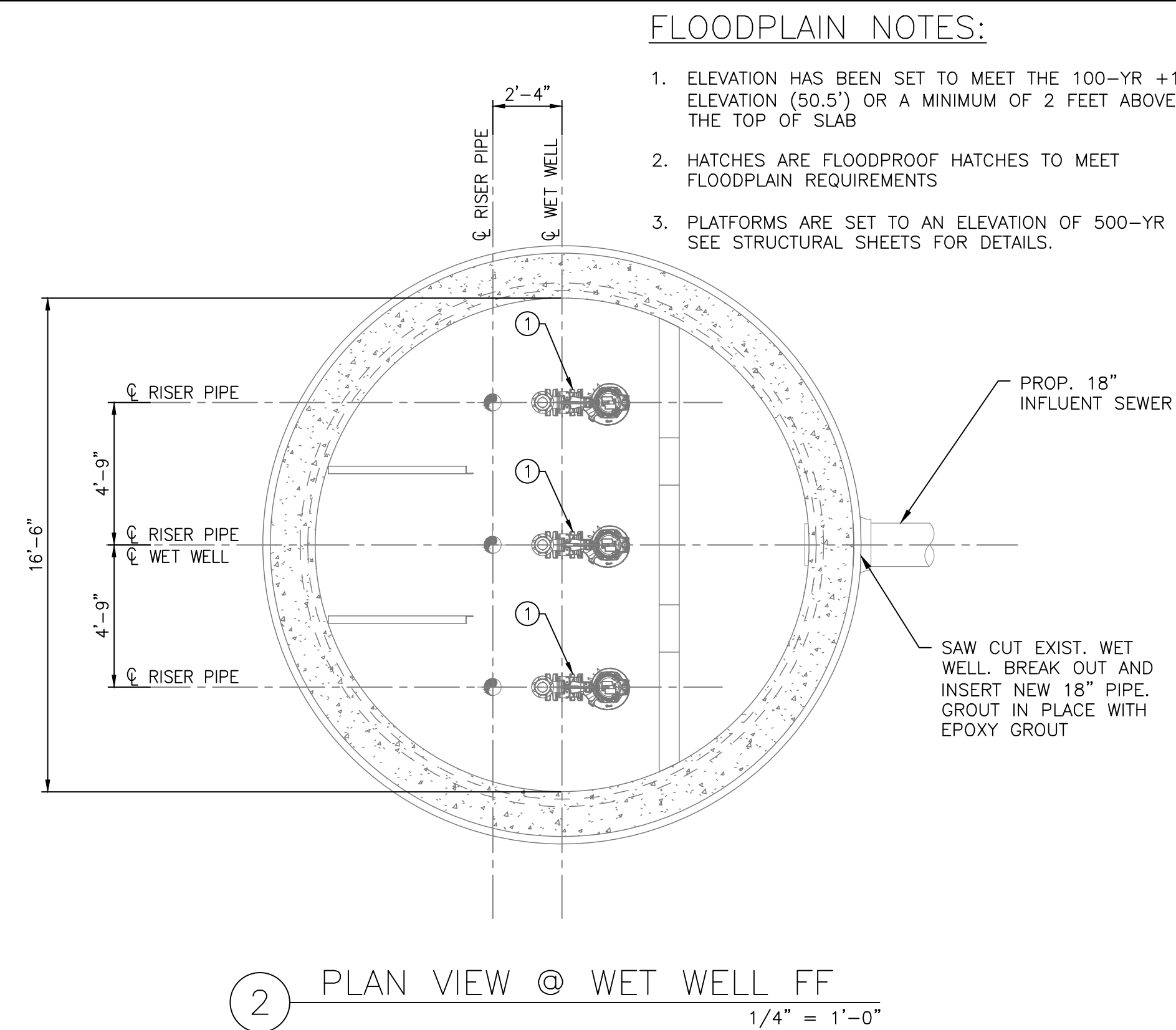
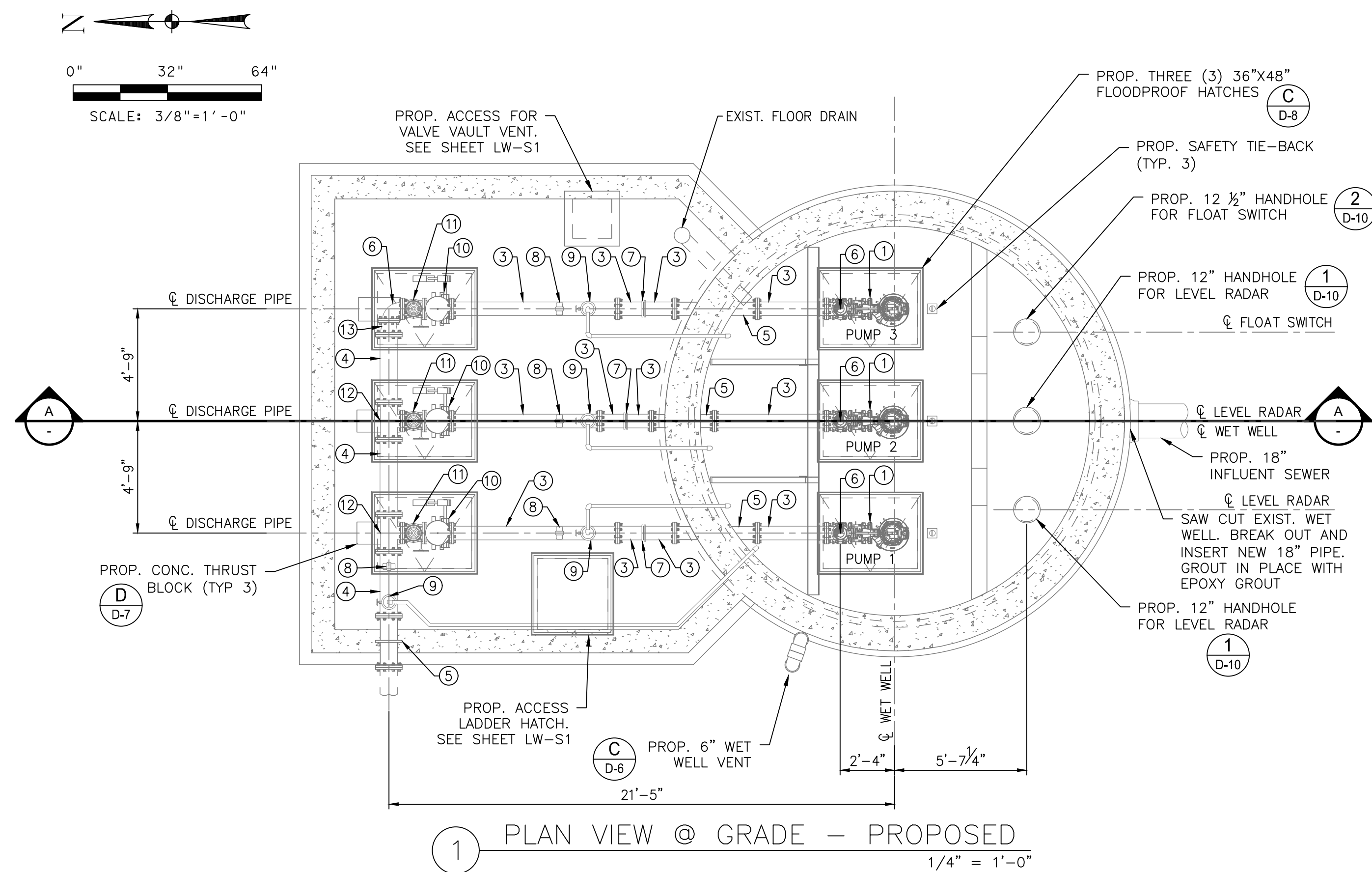
NAWARAJ PANTA, P.E.

SHEET NO.110 OF 291

LW-C6

DETENTION SUMMARY

	SQUARE FEET	ACRES
EXISTING IMPERVIOUS AREA	4923.75	0.1130
NEW IMPERVIOUS AREA	0.00	0.0000
Per IDM 9.2.01.H.3.d • No detention required if new impervious < 500 SF		
Total Det. Vol.: = 0 ac-ft		

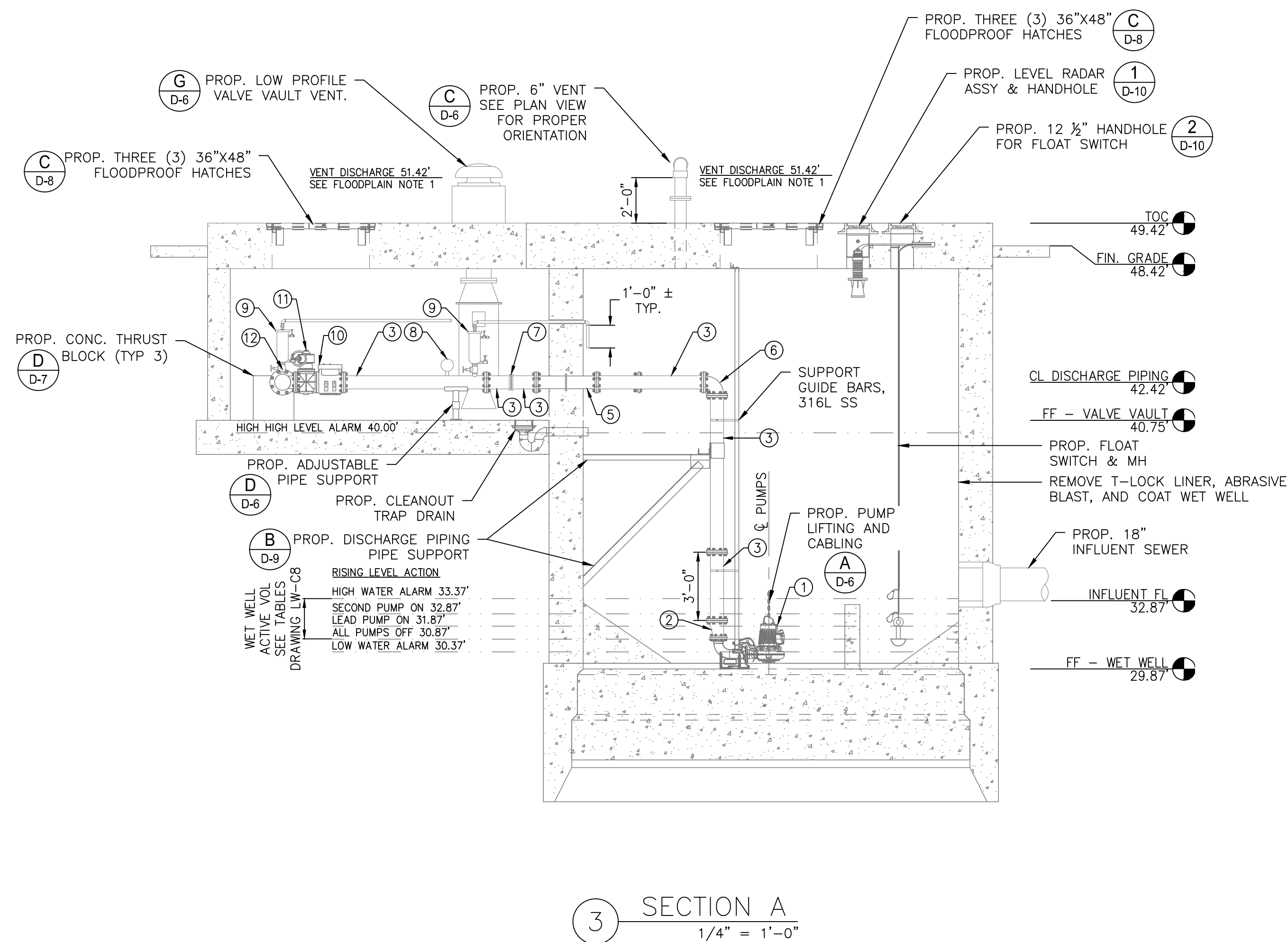


FLOODPLAIN NOTES:

1. ELEVATION HAS BEEN SET TO MEET THE 100-YR +1' ELEVATION (50.5') OR A MINIMUM OF 2 FEET ABOVE THE TOP OF SLAB
2. HATCHES ARE FLOODPROOF HATCHES TO MEET FLOODPLAIN REQUIREMENTS
3. PLATFORMS ARE SET TO AN ELEVATION OF 500-YR +3'. SEE STRUCTURAL SHEETS FOR DETAILS.

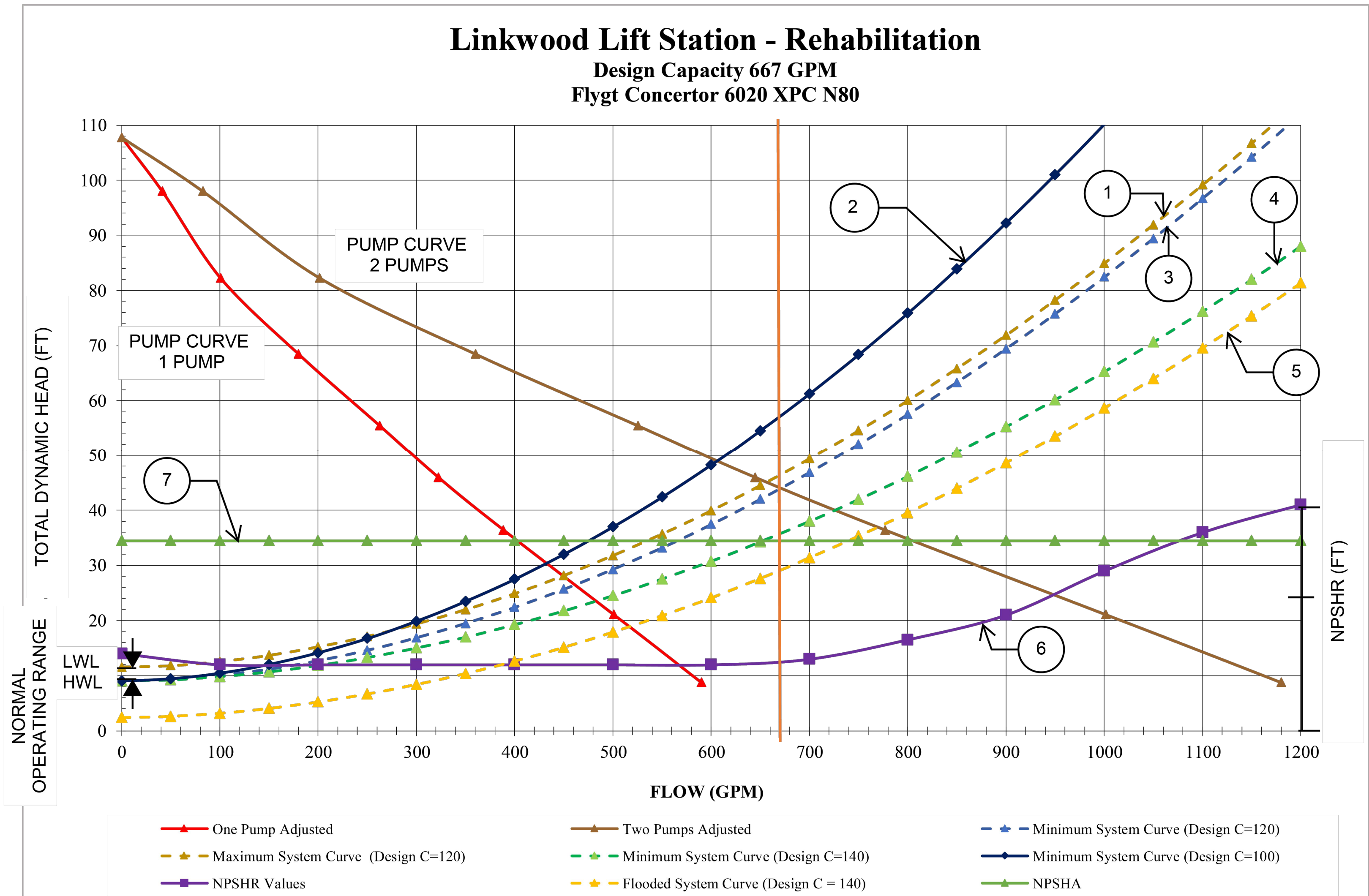
NOTES:

1. DIMENSIONS NOTED ARE RELATIVE TO THE PUMP SIZE AND MANUFACTURER SELECTED. CONTRACTOR SHALL VERIFY.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. PUMP ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
4. CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS, AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
5. ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VITACUALT STYLE COUPLINGS MAY BE PERMITTED INSIDE THE WET WELL.
6. LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH. LABEL CHECK VALVES WITH THE CORRESPONDING VALVE NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING ADHERED TO THE TOP OF THE CHECK VALVE.
7. CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES
8. CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS
9. INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
10. INSTALL CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45' BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSED POSITION: AND APPROXIMATELY 45' ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
11. ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
12. UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.
13. CONTRACTOR TO BLAST AND RECOAT THE WET WELL AND TOP SLAB.



KEY NOTES	ITEM	QTY
1	PUMP	3
2	ECCENTRIC REDUCER (6"x4")	3
3	SPOOL PIECE (6")	18
4	SPOOL PIECE (8")	3
5	WALL PIPE (6")	3
6	90° ELBOW (6")	4
7	RESTRAINED FLANGED COUPLING ADAPTER (6")	3
8	PRESSURE GAUGE	4
9	2" AIR AND VACUUM VALVE AND PIPING	4
10	CHECK VALVE (6")	3
11	PLUG VALVE (6")	3
12	TEE (8"x6")	2
13	ECCENTRIC REDUCER (8"x6")	1

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects\CAD\Drawings\112 LINKWOOD LS TABLES.dwg May 07, 2026-1:24pm throwbridge



PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3
MOTOR DATA			
NOMINAL SIZE (HP)	10	10	10
MAX SPEED (RPM)	3,213	3,213	3,213
SOLIDS PASSAGE			
MIN SPHERE (IN)	3	3	3
CAPACITY (GPM)			
DESIGN	450	450	450
RUNOUT	570	570	570
DISCHARGE HEAD (FT)			
DESIGN	45.00	45.00	45.00
RUNOUT	8.00	8.00	8.00
SHUT OFF	108.00	108.00	108.00
EFFICIENCY (%)			
DESIGN	68.28	68.28	68.28
NPSHR (FT)			
DESIGN	12.38	12.38	12.38
RUNOUT	41.00	41.00	41.00
PUMP CYCLE TIME	6 MIN	6 MIN	6 MIN
CUMULATIVE CAPACITY (GPM)	450	667	780

STATION OPERATION TABLES

RISING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
1.00	30.87	PUMPS OFF LEVEL - NO ACTION	ALL PUMPS ARE OFF
2.00	31.87	LEAD PUMP TURNS ON	LEAD PUMP ON
3.00	32.87	SECOND PUMP TURNS ON	LEAD & SECOND PUMPS ON
3.50	33.37	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
10.13	40.00	HIGH HIGH LEVEL ALARM (FLOAT ON LEVEL)	FIRM PUMPS ON (FLOATS)

FALLING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
4.50	34.37	FLOAT OFF LEVEL	FIRM PUMPS OFF (FLOATS)
3.50	33.37	HIGH WATER LEVEL ALARM OFF	LEAD & SECOND PUMPS ON
3.00	32.87	LEAD PUMP TURNS OFF	SECOND PUMP ON
2.00	31.87	SECOND PUMP TURNS OFF	ALL PUMPS STOPPED - STANDBY PUMP SWITCHES TO LEAD PUMP
0.50	30.37	LOW LEVEL ALARM	-

PUMP CURVE NOTES:

1. LOW NORMAL OPERATING LEVEL C=120 - DESIGN
2. HIGH NORMAL OPERATING LEVEL C=100 - INFORMATION ONLY (TCEQ)
3. HIGH NORMAL OPERATING LEVEL C=120 - DESIGN
4. HIGH NORMAL OPERATING LEVEL C=140 - INFORMATION ONLY
5. EMERGENCY FLOODED OPERATING LEVEL C=140 - MAXIMUM DISCHARGE
6. NET POSITIVE HEAD SUCTION REQUIRED (NPSHR) BASED ON NORMAL OPERATING WATER LEVEL
7. NET POSITIVE SUCTION HEAD AVAILABLE (NPSHA)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY

OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

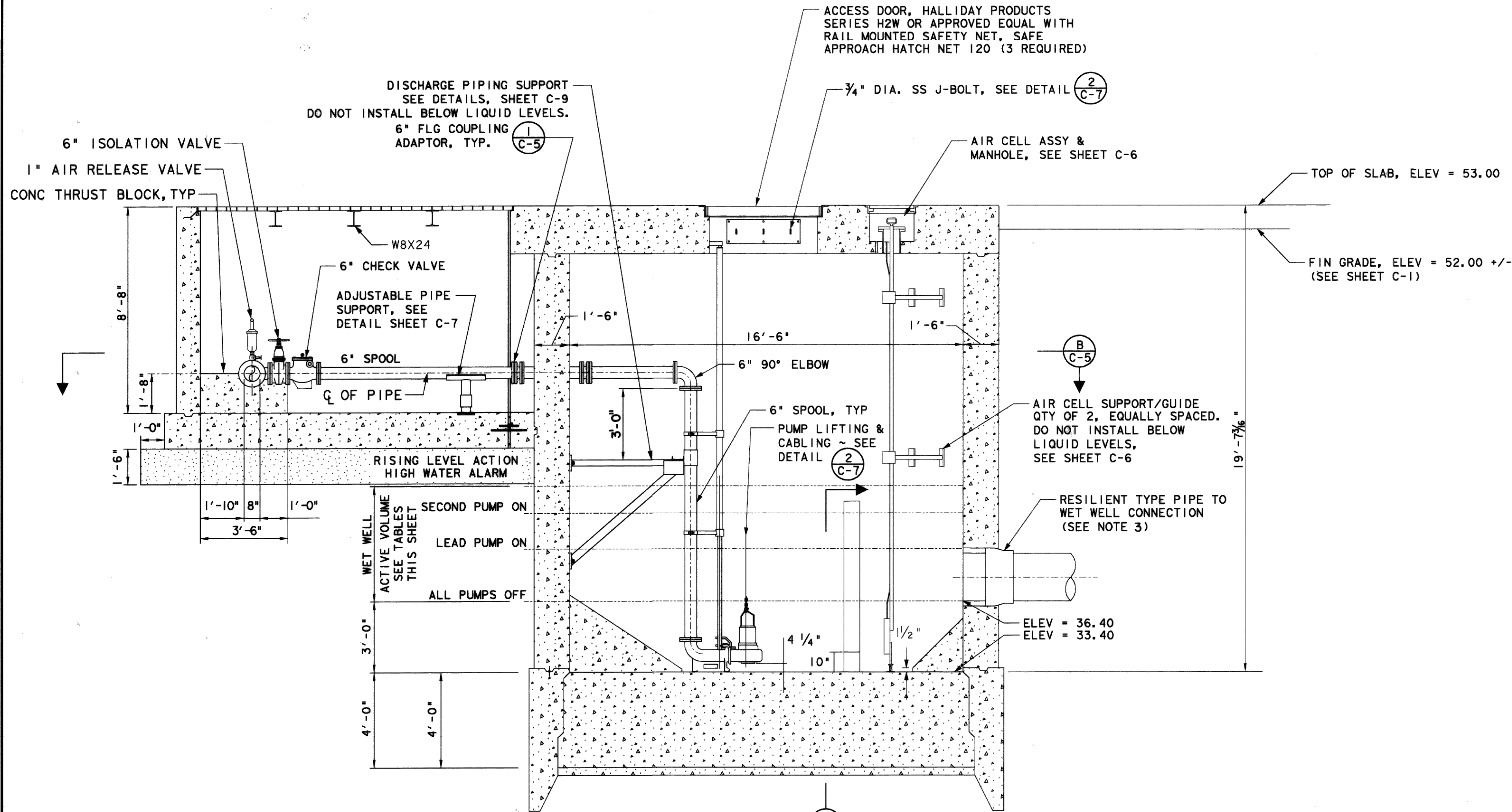
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**LINKWOOD LIFT STATION
TABLES AND DETAILS**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 112 OF 291	

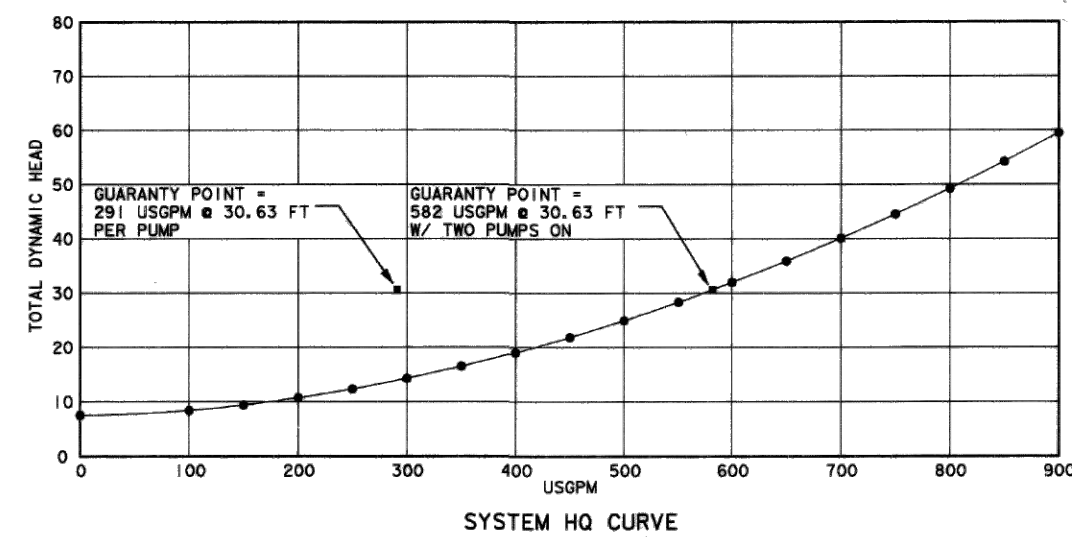
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CADD) SHEETS\114 LINKWOOD LIFT STATION RECORD - PROF.dwg May 07, 2025 - 1:24pm trowbridge



A SECTION
ALL WET WELL FILLETS
NOT SHOWN FOR CLARITY

STATION OPERATION TABLES		
RISING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
36.40	PUMPS OFF LEVEL-NO ACTION	ALL PUMPS ARE OFF
37.23	LEAD PUMP TURNS ON	LEAD PUMP ON
37.54	SECOND PUMP TURNS ON	LEAD & SECOND PUMP ON
38.86	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
FALLING LEVEL CYCLE		
WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
37.54	HIGH WATER LEVEL ALARM OFF	ALL PUMPS ON
37.23	LEAD PUMP TURNS OFF	SECOND PUMP ON
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PUMP(S) IN OPERATION	OPERATING CAPACITY TOTAL GPM	T.D. HEAD IN FEET	PUMP SPEED RPM	PUMP PASSES SPHERE (INCHES)	MIN PUMP DISCHARGE ELBOW SIZE IN X OUT
ONE PUMP ALONE	488	21.50	1750	3"	-X6"
TWO PUMPS IN PARALLEL	670	30.00	1750	3"	-X6"



LINKWOOD LIFT STATION	
PROJECT NO.	R-1224-08-3
SHEET NAME	C - 4
TITLE	SECTION A 3-PUMP LIFT STATION WITH VALVE VAULT
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP	
SECTION APPROVALS	
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STORM SEWER DESIGN <i>[Signature]</i> 8-3-95	STREET, BRIDGE & R.O.W. <i>[Signature]</i> 8-3-95
WASTEWATER DESIGN <i>[Signature]</i> 8-3-95	CONSTRUCTION <i>[Signature]</i> 8-3-95
OTHER DEPARTMENTS	
PLANNING AND DEVELOPMENT <i>[Signature]</i> 9/3/95	CITY ENGINEER DATE
DIRECTOR OF PUBLIC WORKS AND ENGINEERING <i>[Signature]</i> 9/6/95	DATE
SUBMITTED:	DESIGNED BY: K.D.H.
SCALE: 3/8" = 1'-0"	DRAWN BY: CADD
DATE: SEPTEMBER, 1995	SHT. NO. 28 OF 103 SHTS.
SURVEY BY: ESOR, INC.	DWG. NO. 31927
F.B. NO.	

REV. NO.	DESCRIPTION	APP'D	DATE

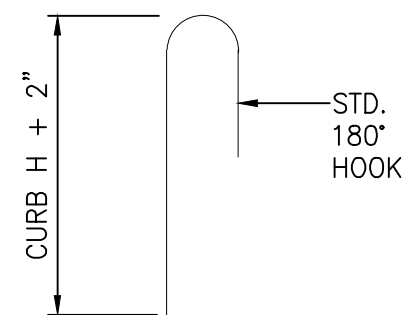
C/e Consultants, Inc.
Civil Engineers and Land Surveyors
4638 SOUTHWEST FREEWAY
SUITE 430
HOUSTON, TEXAS 77057
713-860-9605

C/e JOB No. : 93013 - 03, 93013 - 04
CADD DWG. FILE NO. :
44CLSI02.DGN

FOR REFERENCE ONLY

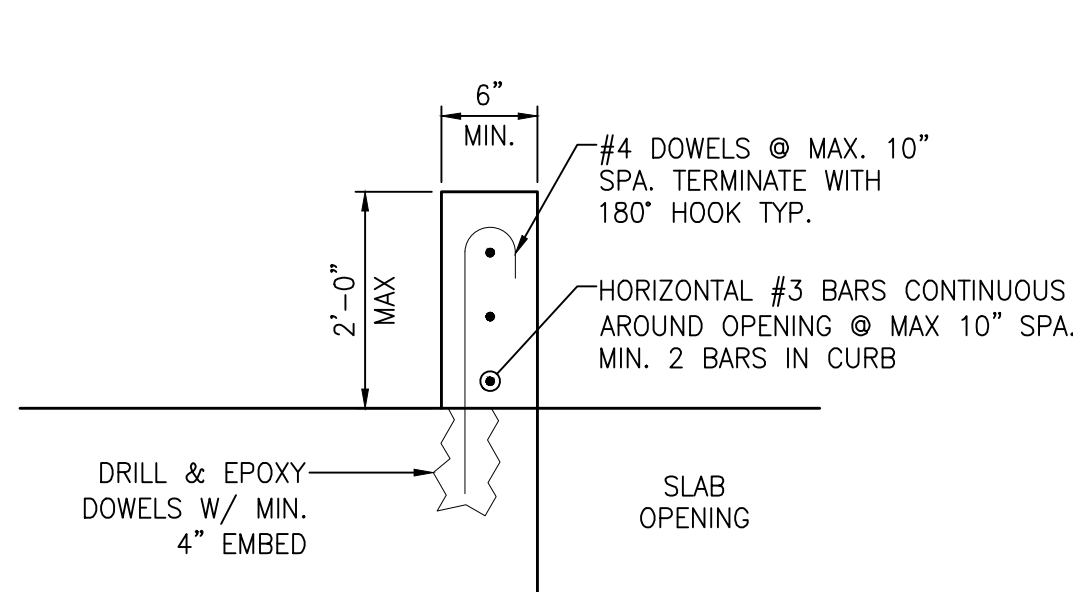
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<table><tr><td>ISSUE</td><td>DATE</td><td>DESCRIPTION</td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></table>			ISSUE	DATE	DESCRIPTION																															
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<table><tr><td colspan="2">LJA Engineering, Inc.</td></tr><tr><td colspan="2">3600 W. Sam Houston Parkway S. Phone 713.953.5200</td></tr><tr><td colspan="2">Suite 600 Fax 713.953.5026</td></tr><tr><td colspan="2">Houston, Texas 77042 FRN - F-1386</td></tr></table>			LJA Engineering, Inc.		3600 W. Sam Houston Parkway S. Phone 713.953.5200		Suite 600 Fax 713.953.5026		Houston, Texas 77042 FRN - F-1386																											
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SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409																																				
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING																																				
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS																																				
LINKWOOD LIFT STATION RECORD DRAWINGS PROFILE VIEW																																				
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R-000267-0176-3																																				
SCALE:																																				
NTS																																				
CITY OF HOUSTON PM																																				
NAWARAJ PANTA, P.E.																																				
SHEET NO. 114 OF 291																																				

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2025 Lift Station Rehabilitation and Reconstruction Projects\CAD\Drawings\116 LW-S2.dwg May 07, 2026--1:24pm tthrowbridge

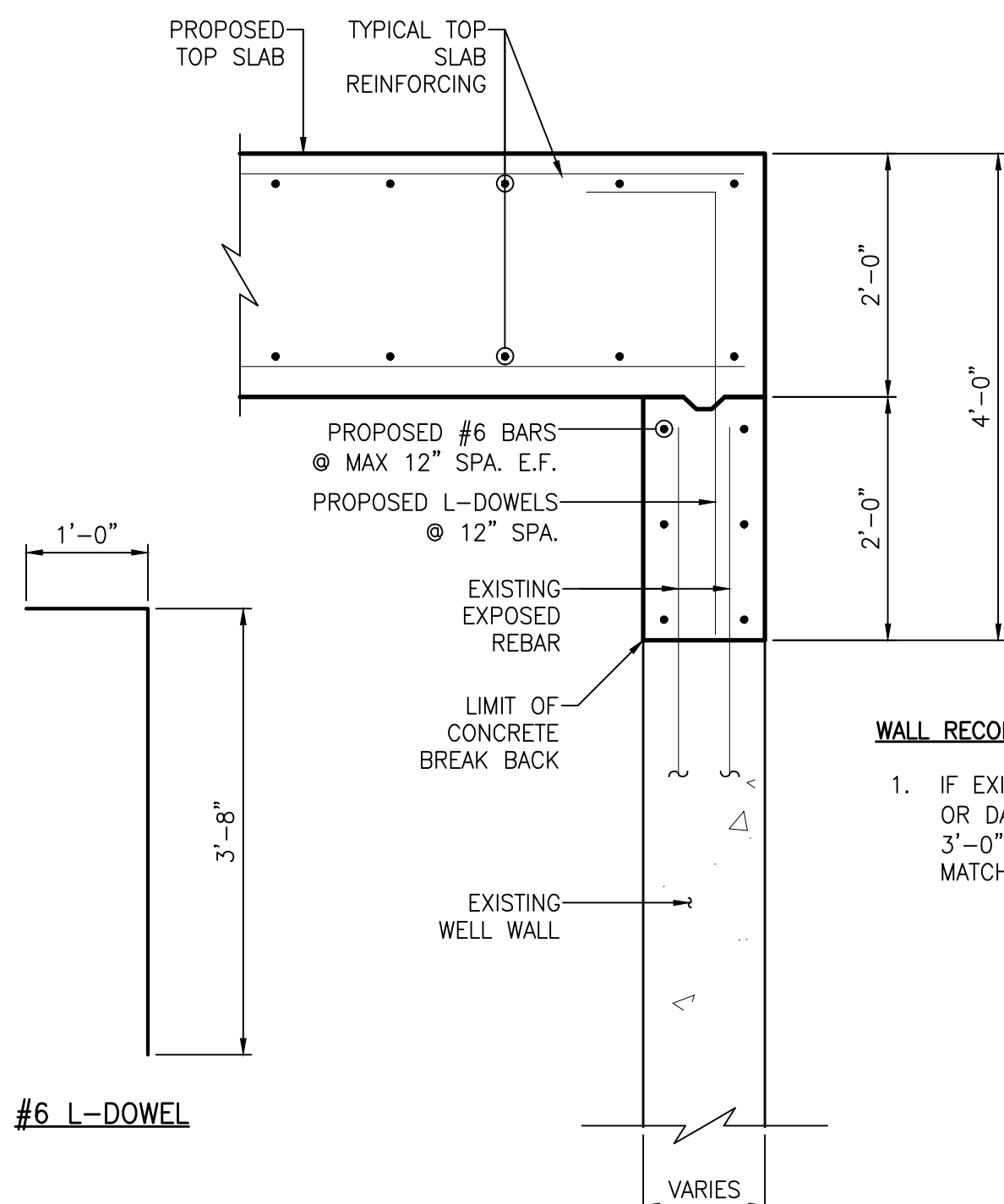
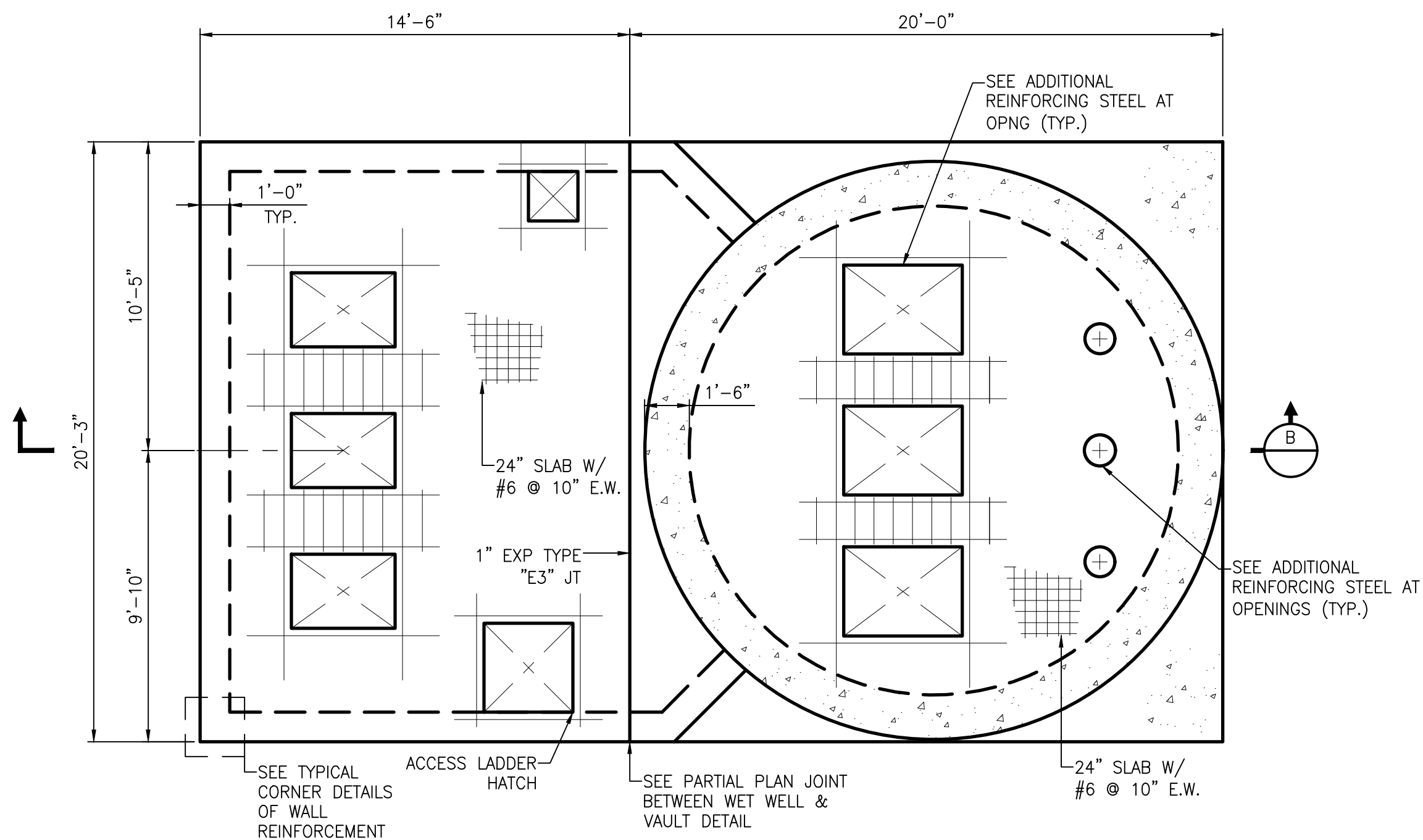


#4 DOWELS D

**CURB THICKNESS MAY
BE ADJUSTED AS
REQUIRED BY
MANUFACTURER



CURB SECTION X-X AT OPENING



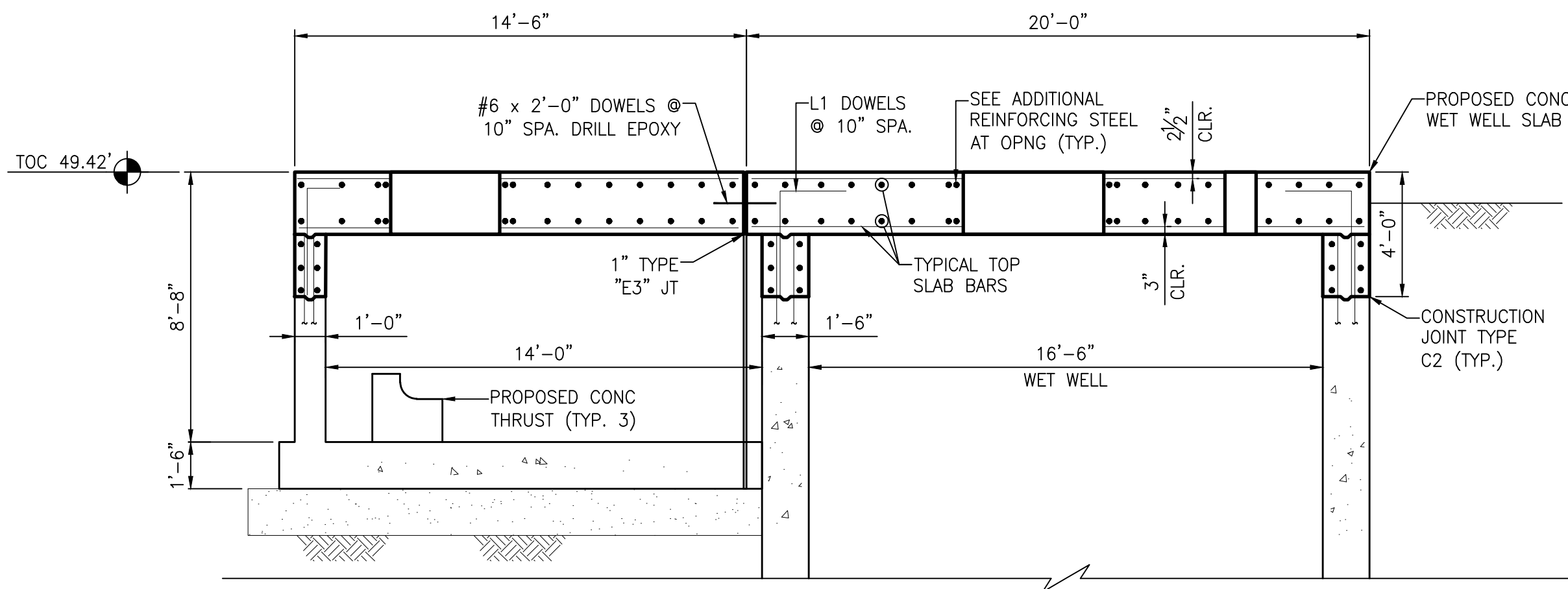
#6 L-DOWEL

TYPICAL



WALL RECONSTRUCTION NOTES:

1. IF EXISTING BARS ARE NOT LONG ENOUGH
OR DAMAGES, THEN DRILL & EPOXY #6 x
3'-0" DOWELS WITH MIN. 8" EMBEDMENT.
MATCH PROPOSED WALL BAR SPACING.



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042



Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

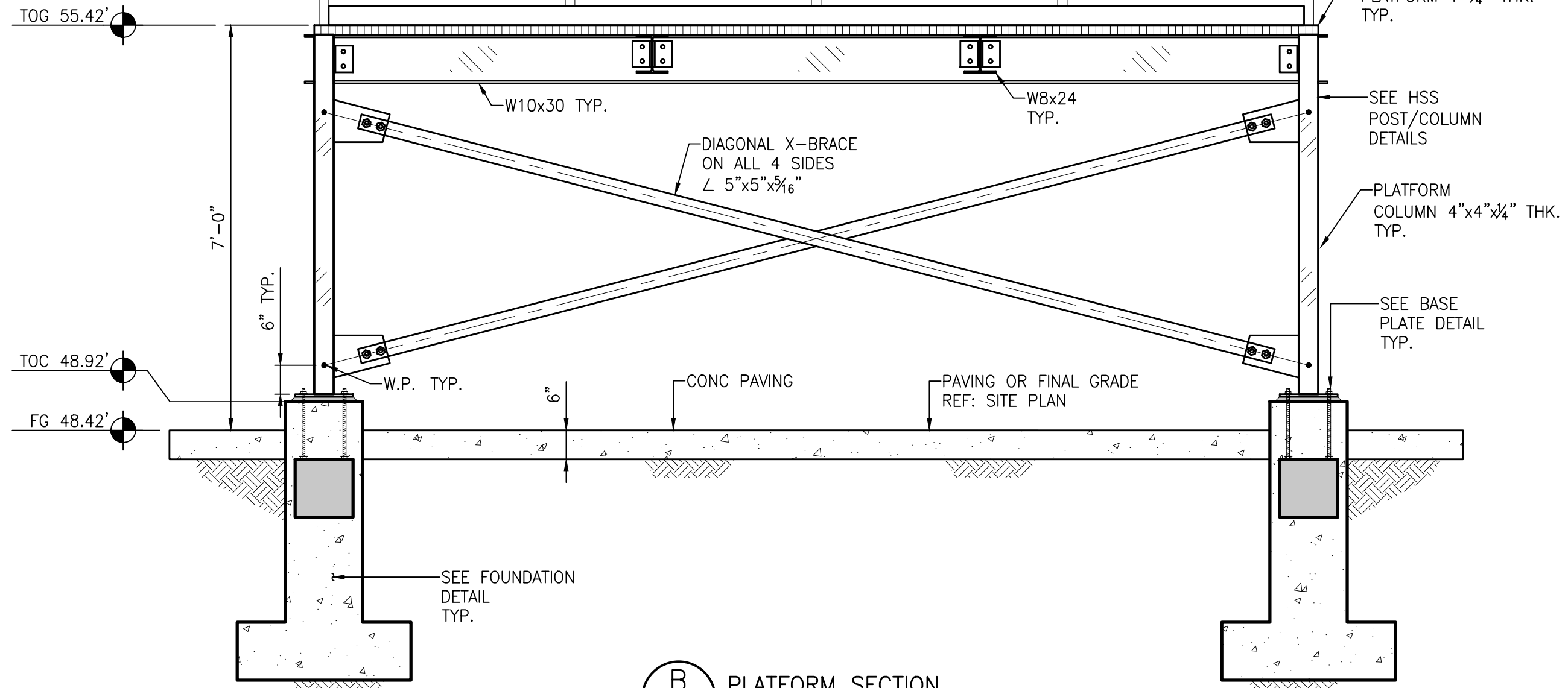
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

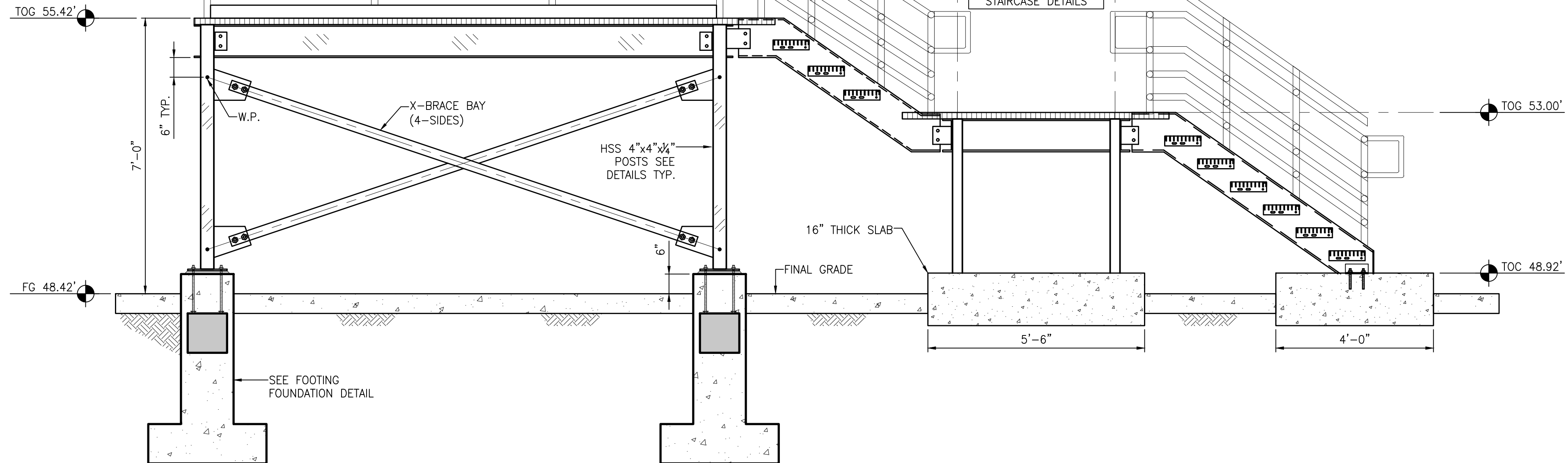
**LINKWOOD LIFT STATION
STRUCTURAL
TOP OF SLAB MODIFICATIONS
PROPOSED DETAILS**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 116 OF 291	

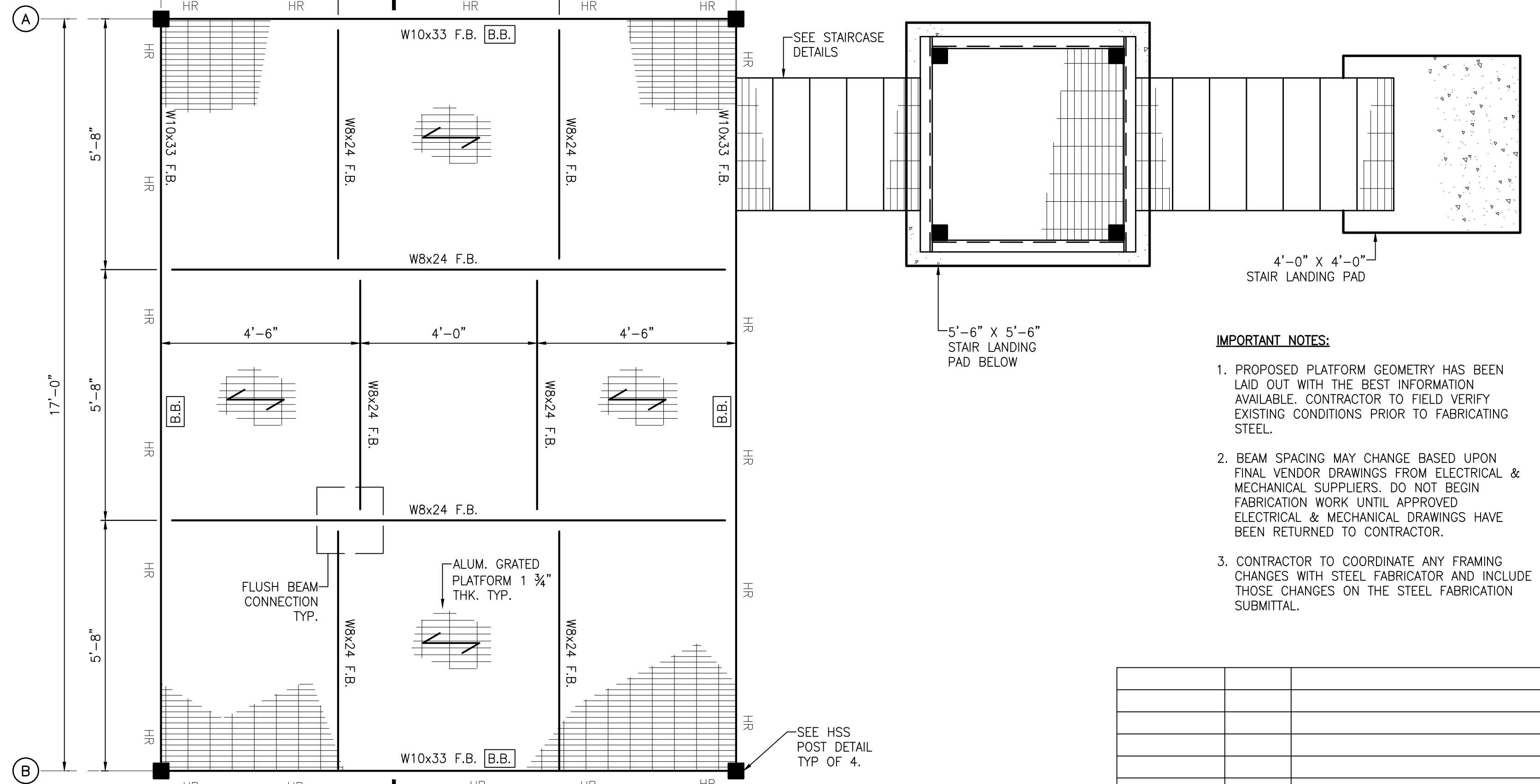
LW-S2




 PLATFORM SECTION
 NTS



C PLATFORM ELEVATION NTS



A PLATFORM FRAMING PLAN

ABBREVIATIONS:

F.B. = FLUSH BEAM
B.B. = X-BRACED COLUMN BAY
HR = 42" OSHA HANDRAIL

IMPORTANT NOTES:

1. PROPOSED PLATFORM GEOMETRY HAS BEEN LAID OUT WITH THE BEST INFORMATION AVAILABLE. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO FABRICATING STEEL.
2. BEAM SPACING MAY CHANGE BASED UPON FINAL VENDOR DRAWINGS FROM ELECTRICAL & MECHANICAL SUPPLIERS. DO NOT BEGIN FABRICATION WORK UNTIL APPROVED ELECTRICAL & MECHANICAL DRAWINGS HAVE BEEN RETURNED TO CONTRACTOR.
3. CONTRACTOR TO COORDINATE ANY FRAMING CHANGES WITH STEEL FABRICATOR AND INCLUDE THOSE CHANGES ON THE STEEL FABRICATION SUBMITTAL.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
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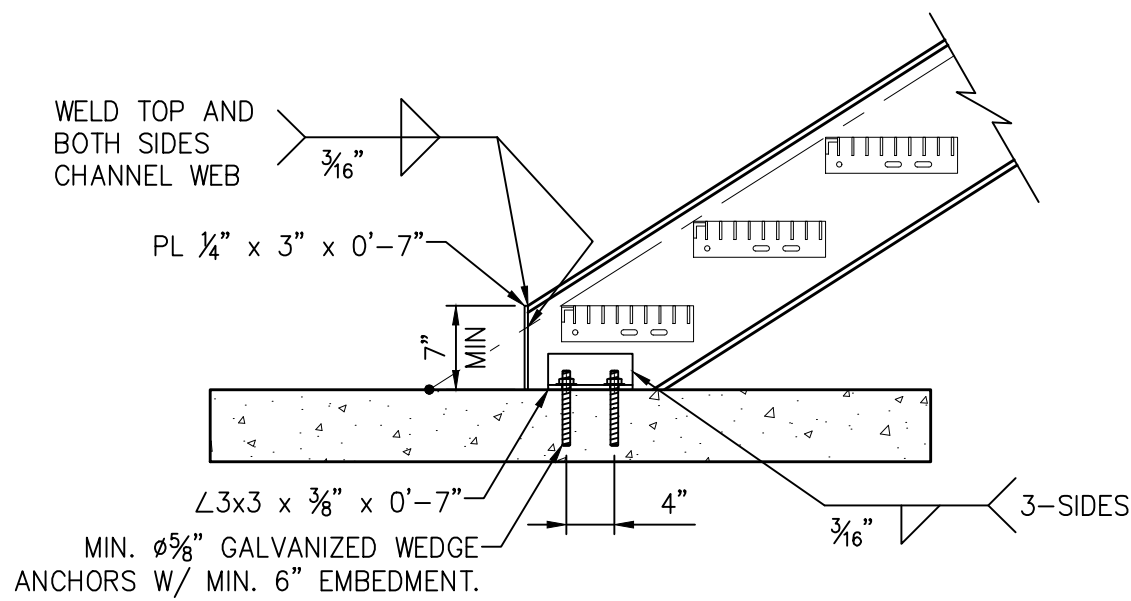
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

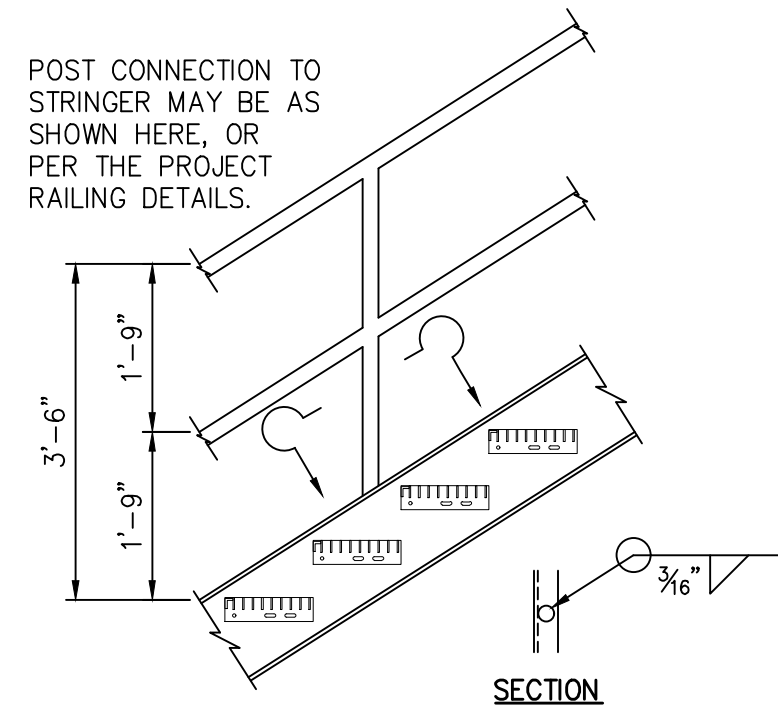
LINKWOOD LIFT STATION
STRUCTURAL -
RAISED ELECTRICAL PLATFORM
PLAN & SECTION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.117 OF 291	

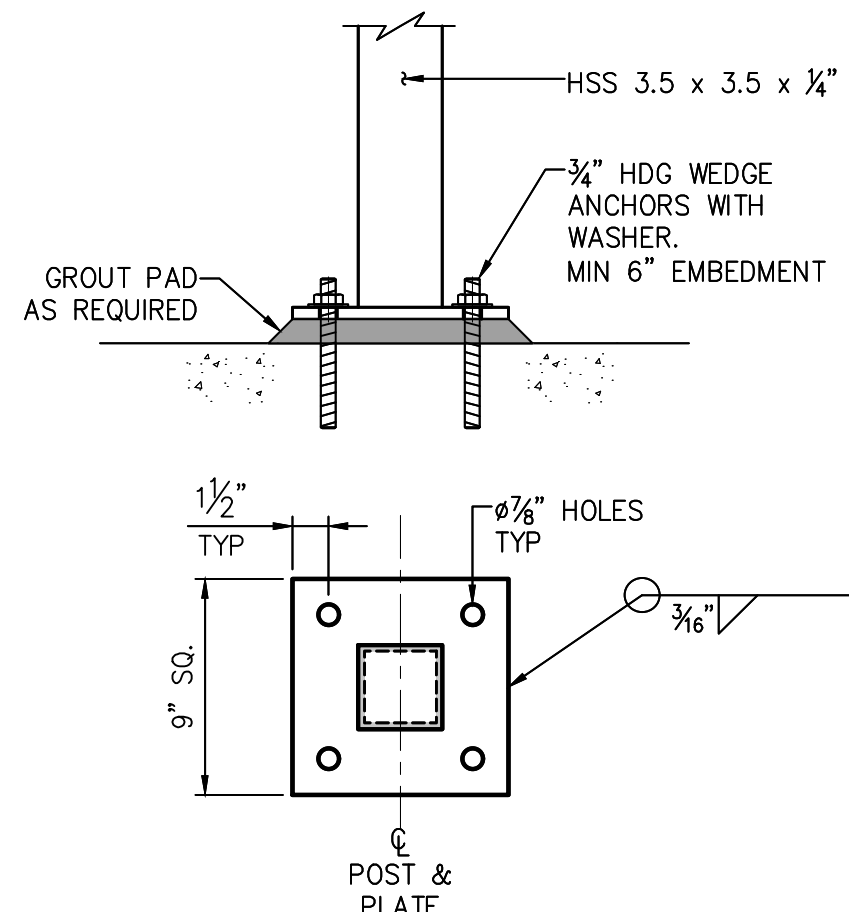
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
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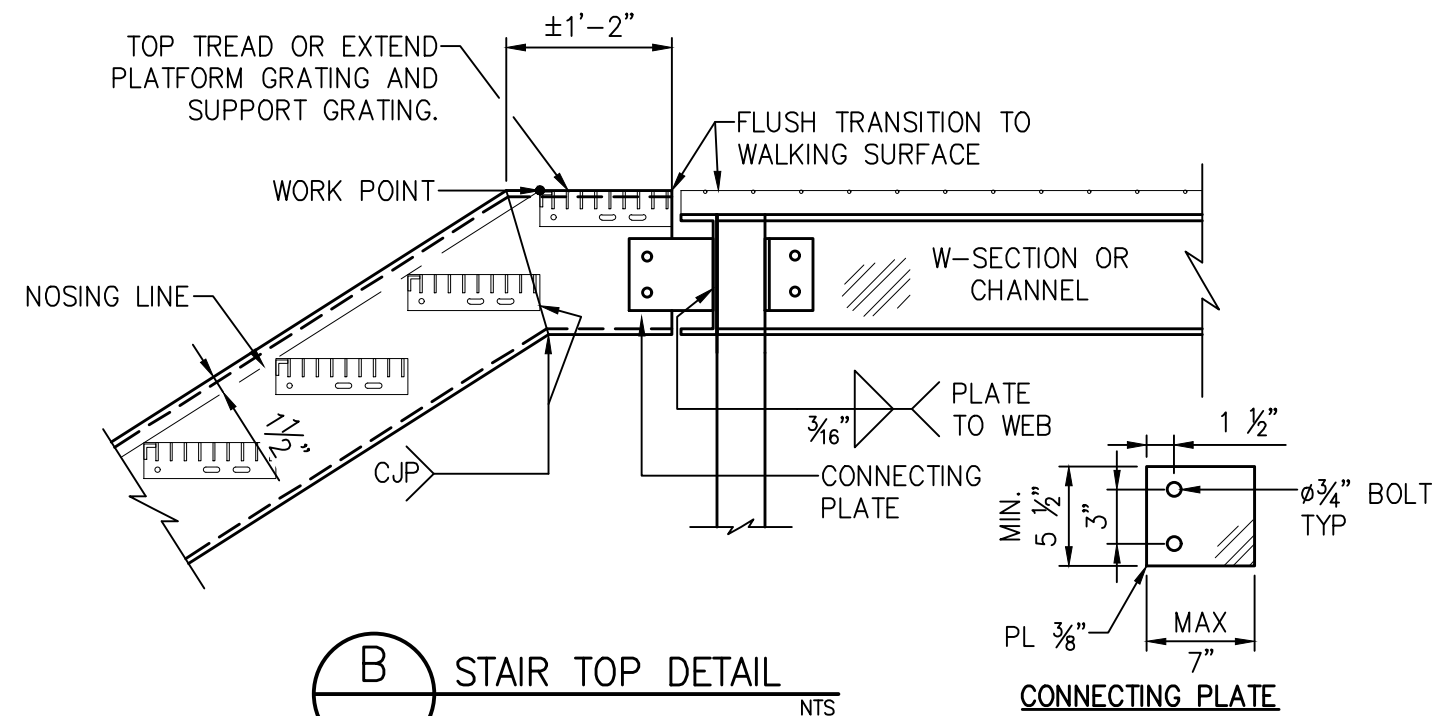
C STAIR BOTTOM DETAIL
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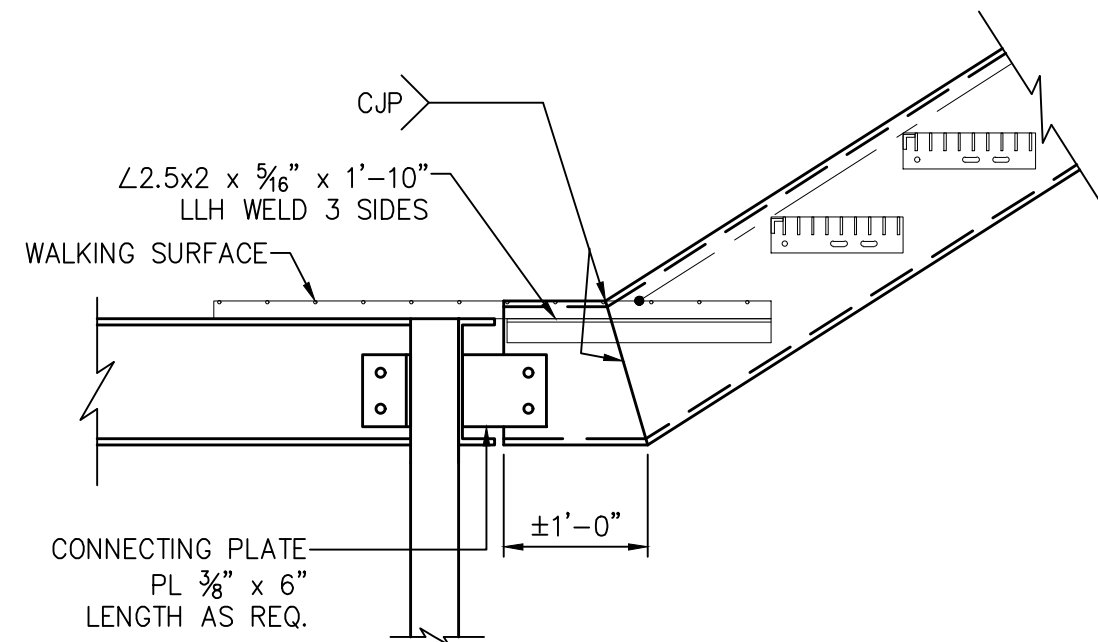
D POST CONNECTION TO STRINGER
NTS



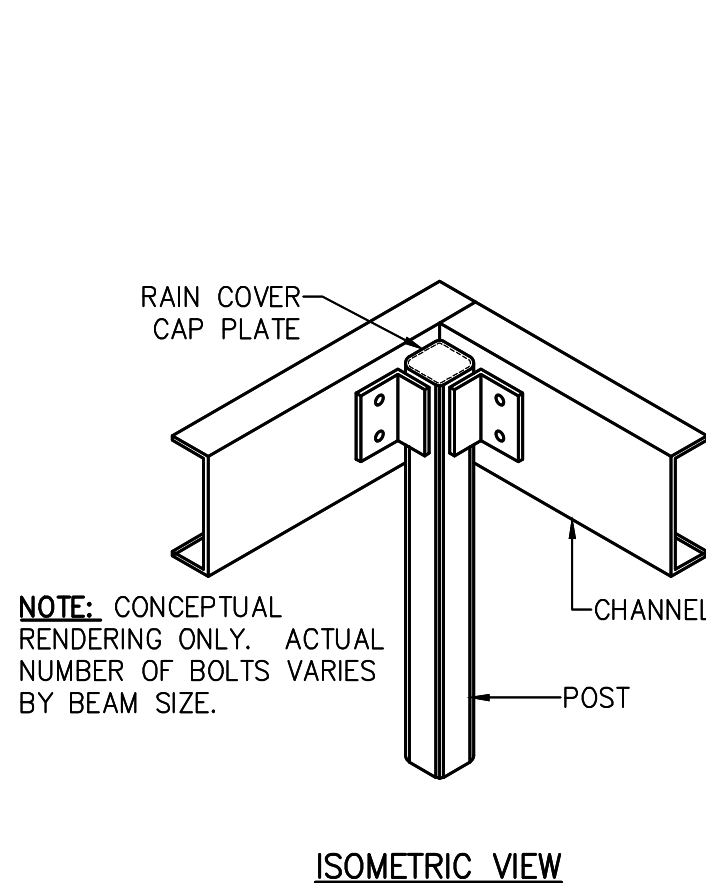
F STAIRCASE PLATFORMS
BASE PLATE DETAIL
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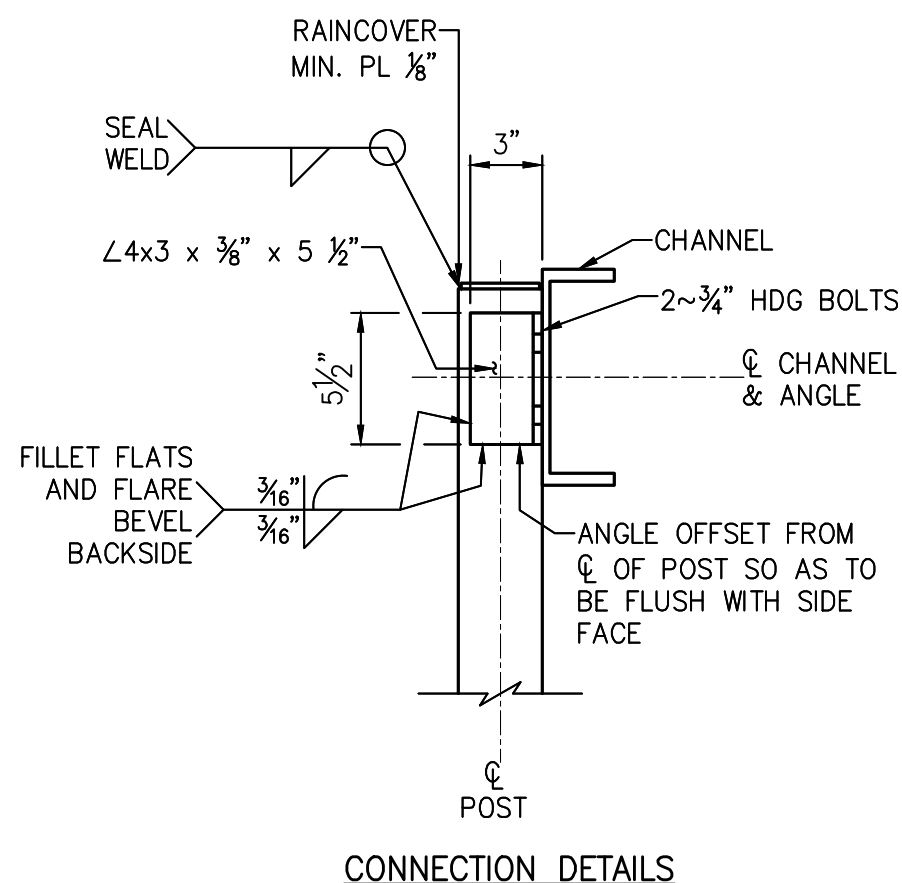
B STAIR TOP DETAIL
NTS



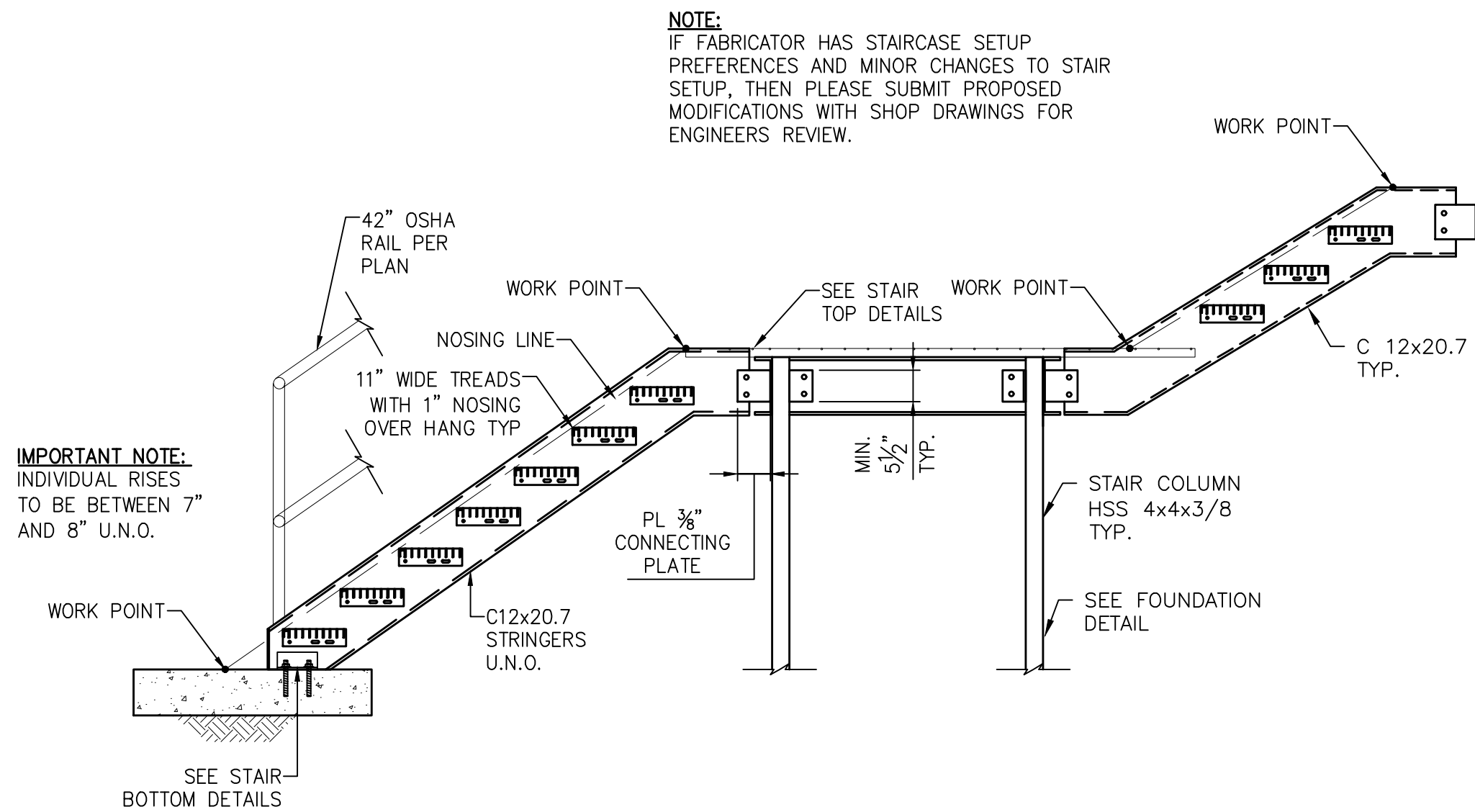
E INTERMEDIATE LANDING DETAIL
NTS



G POST TO CHANNEL CONNECTION
NTS



H TYPICAL DIAGONAL BRACES
NTS



A TYPICAL STAIR FLIGHT DETAILS
NTS

NOTE:
IF FABRICATOR HAS STAIRCASE SETUP
PREFERENCES AND MINOR CHANGES TO STAIR
SETUP, THEN PLEASE SUBMIT PROPOSED
MODIFICATIONS WITH SHOP DRAWINGS FOR
ENGINEERS REVIEW.

IMPORTANT NOTE:
INDIVIDUAL RISES
TO BE BETWEEN 7" AND 8" U.N.O.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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OR PERMITTING PURPOSES.

JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

**LINKWOOD LIFT STATION
STRUCTURAL -
RAISED ELECTRICAL PLATFORM
DETAILS 2**

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R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 119 OF 291	

LW-S5

SCOPE OF ELECTRICAL WORK

- EXISTING WIMAX POLE, CIRCUITS, AND WIRING TO BE DEMOLISHED AND REPLACED. CAREFULLY REMOVE ALL MOUNTING HARDWARE AND OTHER ASSOCIATED EQUIPMENT, WHICH SHALL BE SAVE FOR POSSIBLE FUTURE USE IN RE-INSTALLING NEW EQUIPMENT.
- ALL DEMOLISHED/REMOVED EQUIPMENT IS TO BE RETURNED TO OWNER (COH) OR PROPERLY DISPOSED OF AT OWNER OPTION. FOR ADDITIONAL REQUIREMENTS, SEE NOTE SHEET C-9.
- EXISTING CONTROL PANEL, ASSOCIATED CIRCUITS AND WIRING TO BE DEMOLISHED AND REMOVED.
- EXISTING POWER COMPANY METER AND SERVICE EQUIPMENT TO BE REMOVED OR PRESERVED. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS D-27, DETAIL SHEET.
- EXISTING MANUAL TRANSFER SWITCH, GENERATOR DISCONNECT, ASSOCIATED CIRCUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- CONTRACTOR SHALL CONSULT WITH POWER COMPANY AND ASSURE ALL POWER IS DISCONNECTED/REMOVED FROM THE SITE. CONTRACTOR SHALL THEN CAREFULLY REMOVE ALL EXISTING ELECTRICAL EQUIPMENT FROM THE SITE AND RETURN TO OWNER OR DISCARD ACCORDING TO CITY OF HOUSTON EQUIPMENT DISPOSAL REQUIREMENTS. CONSULT WITH CITY ENGINEER PRIOR TO CARRYING OUT ANY EQUIPMENT DEMOLITION.
- THE GROUNDING EQUIPMENT, ELECTRODES, WIRING, AND ALL ACCESSIBLE ASSOCIATED EQUIPMENT SHALL BE REMOVED AND DISCARDED.



EXISTING LIFT STATION CONTROL PANEL
NTS



EXISTING LIFT STATION ELECTRIC SERVICE
NTS



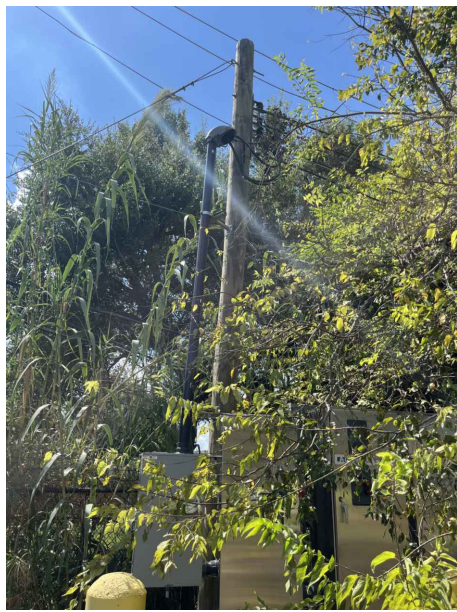
EXISTING LIFT STATION J-BOX (TYP OF 3)
NTS



EXISTING GENERATOR PLUG AND DISCONNECT SWITCH
NTS



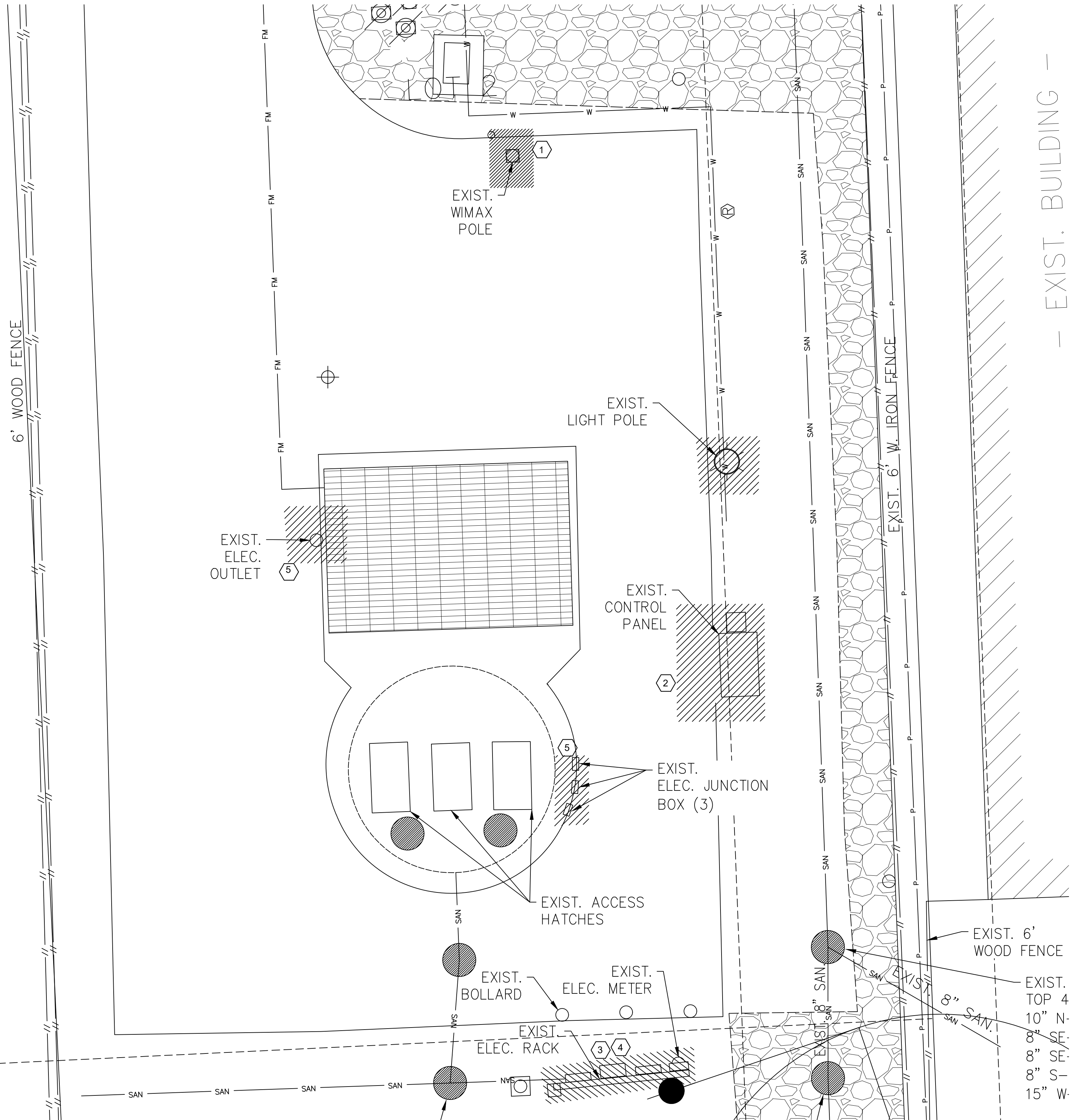
EXISTING LIFT STATION MAIN DISCONNECT
NTS



EXISTING WIMAX POLE
NTS

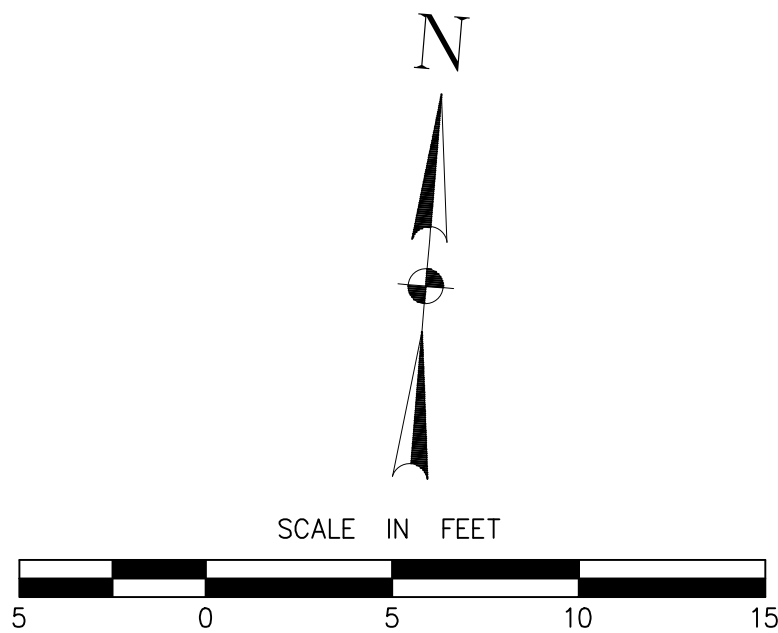
SPECIAL INSTRUCTIONS

- CONTRACTOR SHALL CONSULT WITH CITY ENGINEER IN CASE OF UNCERTAINTY OF STATUS OF EQUIPMENT TO BE DEMOLISHED TO DETERMINE WHAT, IF ANY EQUIPMENT, SHALL BE PRESERVED. SPECIFICALLY, THE ELECTRIC SERVICE METERING, SERVICE POLE, AND GROUNDING EQUIPMENT SHALL BE CAREFULLY EVALUATED SO AS TO PRESERVE ANY EQUIPMENT THAT MAY BE DEEMED REUSABLE.



NOTES BY SYMBOL "1" #

- EXISTING WIMAX POLE, CONDUITS AND WIRES TO BE REMOVED AND RETURNED TO OWNER OR DISCARD AT OWNER'S OPTION. IF DISCARDING, OBSERVE ALL APPLICABLE CODES AND ORDINANCES.
- EXISTING LIFT STATION CONTROL PANEL, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING MTS, GENERATOR DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING MAIN SERVICE DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING ELECTRICAL EQUIPMENT AND DEVICE(PUMP J-BOXES) IN LIFT STATION TO BE DEMOLISHED AND REMOVED.



ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
LINKWOOD LIFT STATION ELECTRICAL DEMOLITION SITE PLAN		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.120 OF 291		

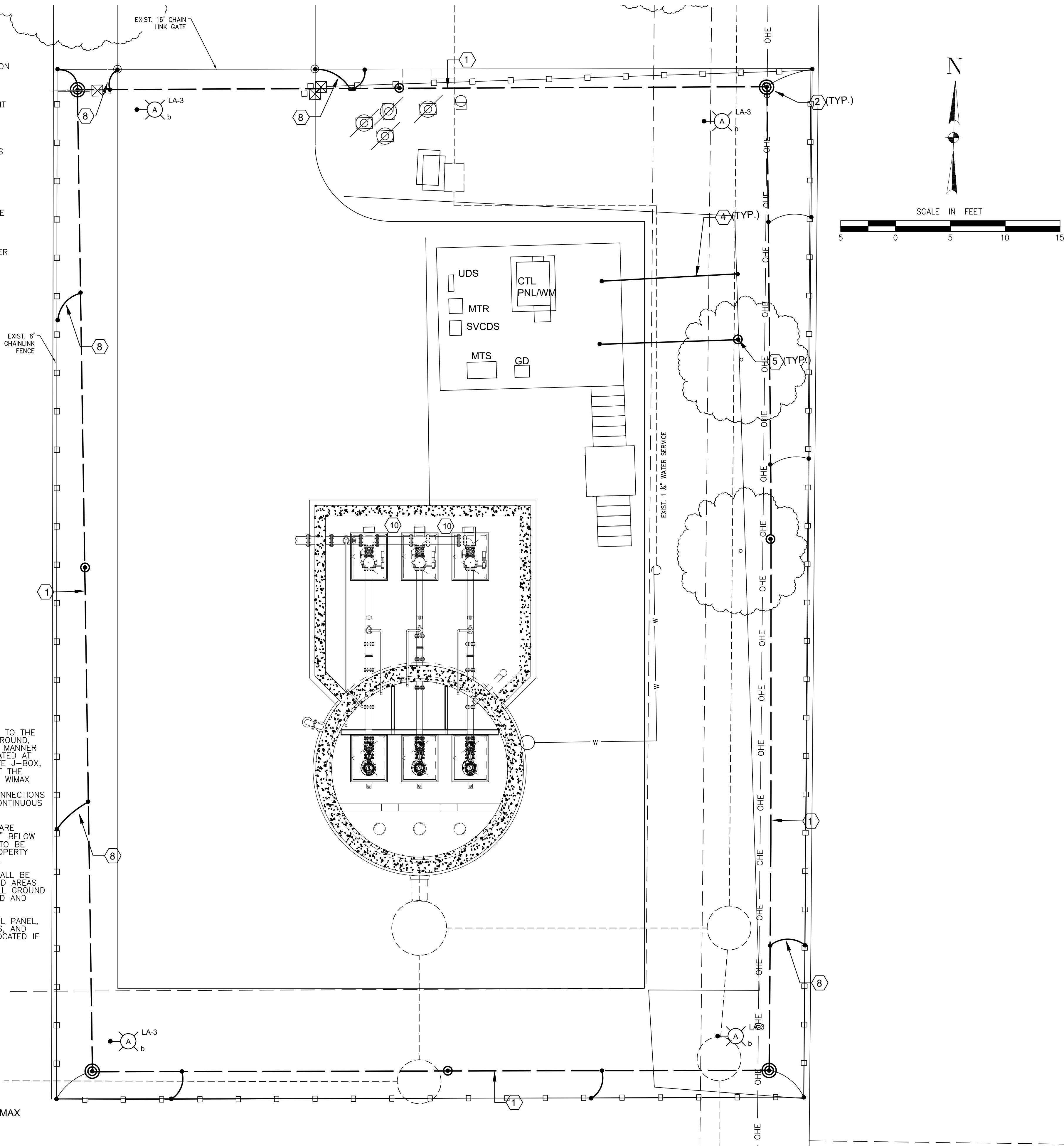
- SCOPE OF ELECTRICAL WORK
1. PROVIDE AND INSTALL NEW ELECTRICAL EQUIPMENT FOR LIFT STATION AS SHOWN ON PLANS AND SPECIFICATIONS.
 2. EXISTING W1 MAX POLE TO BE REMOVED AND DEMOLISHED. CAREFULLY PRESERVE POLE AND MOUNTING HARDWARE EQUIPMENT FOR RE-USE.
 3. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS GE-17, DETAIL SHEET.
 4. PROVIDE NEW YARD LIGHTS AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.
 5. PROVIDE NEW GROUNDING ELECTRODE SYSTEM AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH OWNER'S REPRESENTATIVE AND CITY ENGINEER.
 6. PROVIDE AND INSTALL NEW CONDUITS AND CONDUCTORS FOR ALL NEW EQUIPMENT PER PLANS AND SPECIFICATIONS.

SPECIAL INSTRUCTIONS

1. ALL WIMAX ELECTRICAL CONNECTIONS TO THE NEW WIMAX POLE SHALL BE UNDERGROUND, AND SHALL BE ROUTED IN A DIRECT MANNER TO THE WIMAX CONTROL PANEL LOCATED AT THE MAIN CONTROL PANEL. A QUAZITE J-BOX, 18"x18"x12", SHALL BE PROVIDED AT THE WIMAX POLE BASE ADJACENT TO THE WIMAX POLE. MAKE FINAL CONNECTION IN A WORKMANLIKE MANNER. ALL WIRE CONNECTIONS SHALL BE POTTED (SUITABLE FOR CONTINUOUS SUBMERSION).
2. GROUNDING RING TO BE 3/0 AWG BARE COPPER STRANDED WIRE BURIED 3'0" BELOW GRADE. SAMPLE INSPECTION POINTS TO BE FIELD LOCATED TO COMPLY WITH PROPERTY LINES AND EASEMENT REQUIREMENTS.
3. TIE UNDERGROUND GROUND RING SHALL BE BONDED TO ALL FENCE SECTIONS AND AREAS WITH APPROVED GROUND CLAMPS. ALL GROUND CONNECTORS SHALL BE UL APPROVED AND CERTIFIED FOR THE APPLICATION.
4. POLE LIGHTS, SERVICE RACK CONTROL PANEL, AND UNDERGROUND CONDUITS, WIRES, AND JUNCTION BOXES SHALL BE FIELD LOCATED IF DIRECTED BY CITY ENGINEER.

LEGEND

UDS - UTILITY DISC SWITCH
MTR - PWR CO METER
SVCDS - ELEC SVC DISC
MTS - MANUAL TRANSFER SWITCH
GD - GENERATOR DISCONNECT
CTL PNL/WM - CONTROL PANEL/WIMAX



NOTES BY SYMBOL "1/2" #/":

- 1 MAIN BURIED GROUND LOOP, #4/0 BARE COPPER CONDUCTOR.
- 2 GROUND TEST WELL.
- 3 GROUND ROD.
- 4 #4/0 BARE COPPER BONDING CONDUCTOR.
- 5 BOND REBAR IN CONCRETE FOOTER OR SLAB TO MAIN BURIED GROUND LOOP.
- 6 #2/0 BARE COPPER BONDING CONDUCTOR.
- 7 THERMOWELD CABLE CONNECTION.
- 8 PROVIDE FLEX BONDING JUMPER ACROSS GATE CONNECTIONS.
- 9 PROVIDE GROUND LOOP CONNECTION TO ELECTRICAL PLATFORM
- 10 JUNCTION BOXES SHALL BE INSTALLED AT WET WELLS AS SHOWN ON PLANS AND MAY BE RELOCATED BY CITY ENGINEER AS NEEDED. JUNCTION BOXES SHALL BE NEMA 6P 316 STAINLESS STEEL

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.

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386



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

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OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302

DATE: 12/10/2025

SURVEYED BY: KUO ASSOC
FB NO. P-6409

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD
LIFT STATION ELECTRICAL
PROPOSED SITE PLAN

WBS NUMBER

R-000267-0176-3

SCALE:

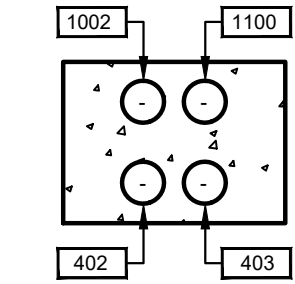
1"=5'

CITY OF HOUSTON PM

NAWARAJ PANTA, P.E.

SHEET NO.121 OF 291

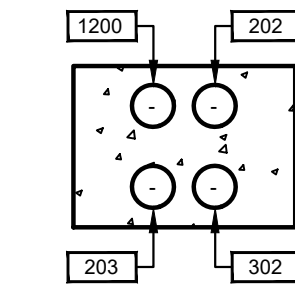
LW-E2



DUCTBANK

SECTION (X)

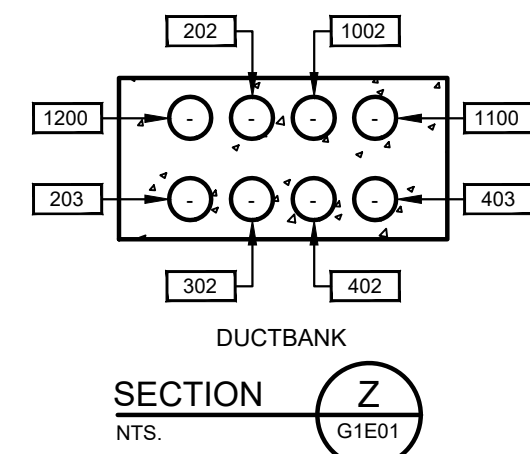
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DUCTBANK

SECTION Y

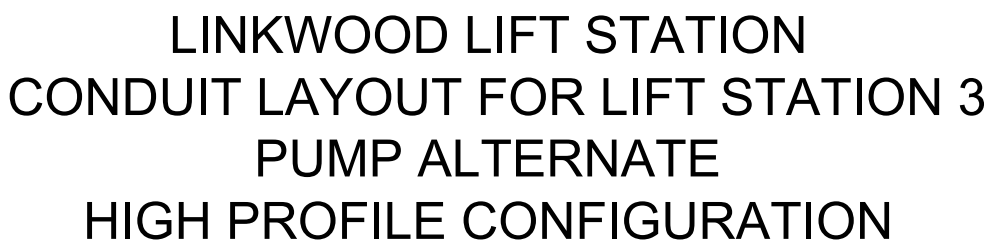
NTS



DUCTBANK

SECTION 7

NTS


$$\frac{3}{4}'' = 1'-0''$$

NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATICALLY ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE VALVE VAULT SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL CONDUITS AND CONDUCTOR SIZES AND ROUTING SHALL BE FIELD VERIFIED WITH ACTUAL EQUIPMENT ON SITE PRIOR TO DOING ANY WORK. COORDINATE WITH CITY ENGINEER.
6. ALL EQUIPMENT MOUNTING LOCATIONS SHALL BE FIELD VERIFIED WITH CITY ENGINEER PRIOR TO INSTALLATION.
7. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS. FOR "SITE AREA GROUNDING", PROVIDE ADDITIONAL GROUNDS FOR ANY LOCATION WHERE ADDITIONAL GROUNDING IS NEEDED WHETHER SHOWN ON PLAN OR NOT. REFER TO CITY ENGINEER.
8. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.

NOTES (CONT):

9. JUNCTION BOXES SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. JUNCTION BOXES SHALL COMPLY WITH ALL REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. JUNCTION BOXES SHALL NOT BE USED FOR CIRCUITS OTHER THAN THOSE IDENTIFIED ON PLANS.
10. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTINGS AT JUNCTION BOX ENTRANCES AND EXPLOSION PROOF SEALS IN CONDUITS TO CONTROL PANEL.
11. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
12. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
13. LEVEL TRANSMITTERS SHOWN ARE APPROXIMATE. LEVEL TRANSMITTERS SHALL BE FIELD LOCATED.
14. 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.
15. ALL RECEPTACLES SHALL BE EXPLOSION PROOF TYPE IF INSTALLED WITHIN 5 FEET OF CLASSIFIED AREA.
16. CONTRACTOR SHALL ASSURE ALL JUNCTION BOXES ARE MOUNTED ABOVE THE FLOOD PLANE.
17. PROVIDE GFCI OUTLETS FOR UTILITY SERVICE EQUIPMENT PER APPLICABLE CODE REQUIREMENTS AND STANDARD PLANS. PROVIDE HEAVY DUTY IN-USE COVERS.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042



Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



Engineers PC

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

THIS DOCUMENT IS RELEASED FOR THE
PURPOSE OF INTERIM REVIEW UNDER THE
AUTHORITY

OF: JAMES E. THOMPSON, JR.
TEXAS P.F. #70302

DATE: 12/10/2025

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SURVEYED BY: KUO ASSOC
FR NO P-6409

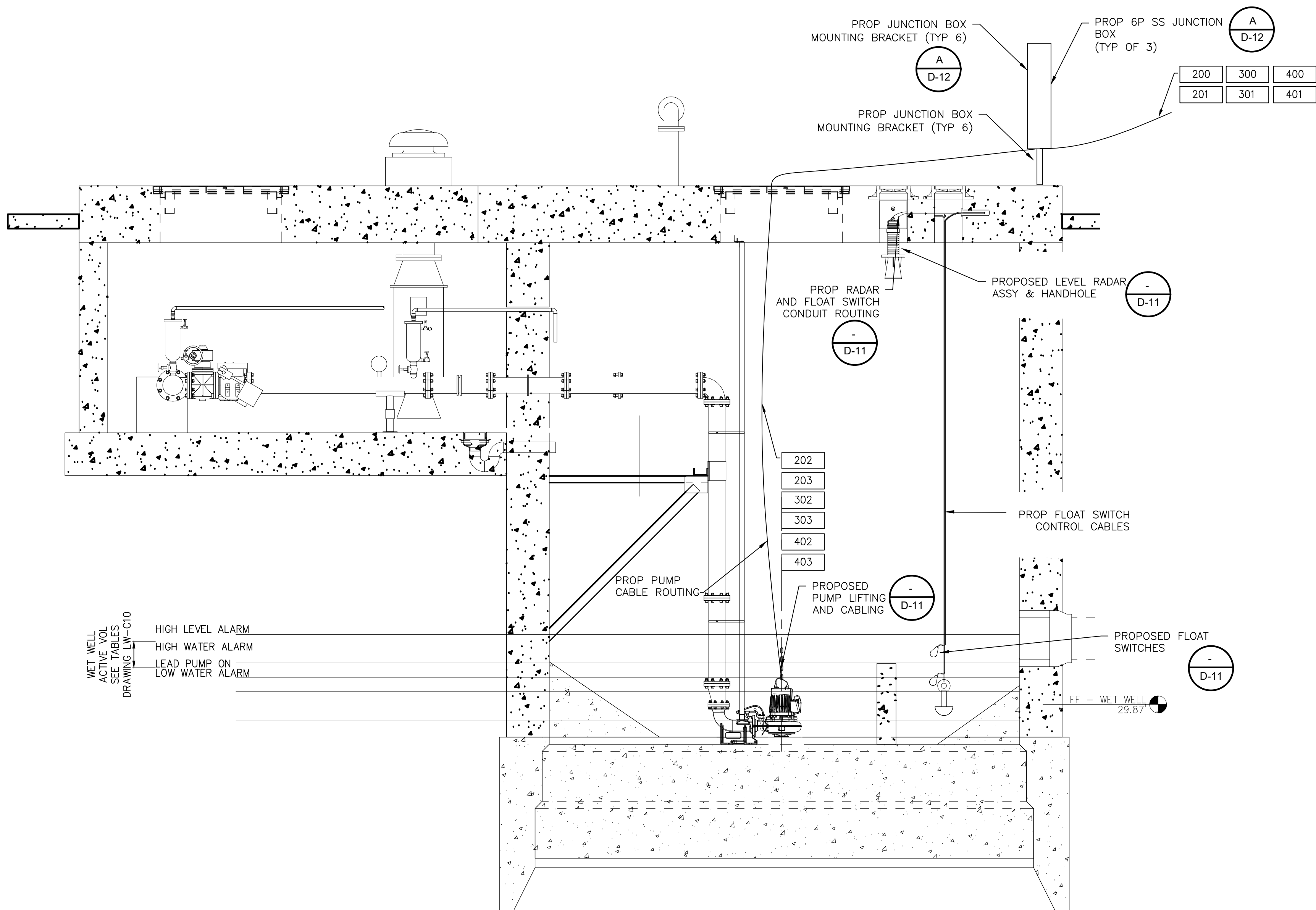
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION CONDUIT LAYOUT FOR LIFT STATION 3 PUMP ALTERNATE HIGH PROFILE CONFIGURATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO 122 OF 291	

LW-E3



LINKWOOD LIFT STATION
ELEVATED SECTION 3 PUMP
CONDUIT ROUTING ALTERNATIVE
HIGH PROFILE CONFIGURATION

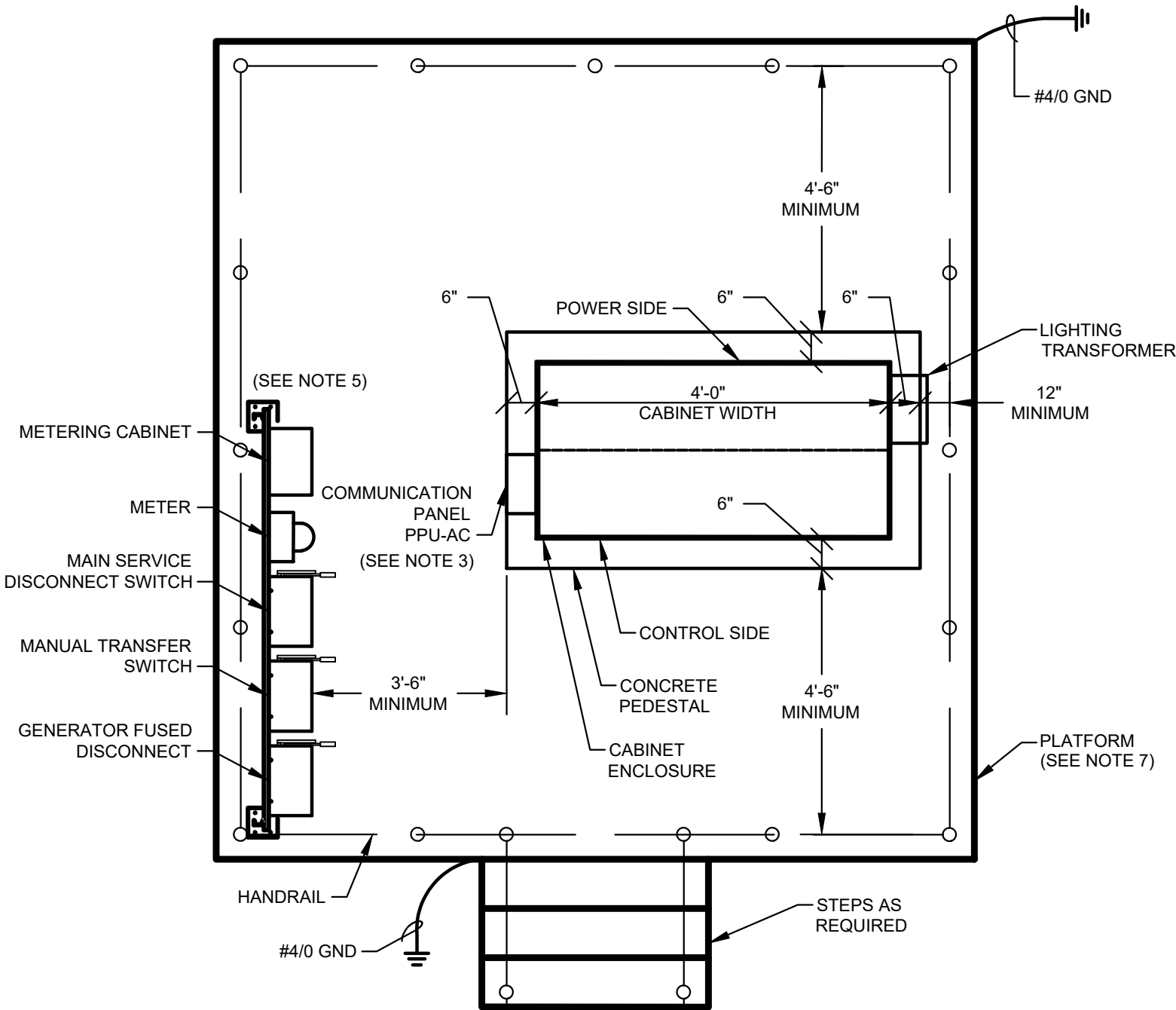
3/8" = 1'-0"

NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL ELECTRICAL CONTROL CABINETS SHALL BE RAISED TO 500 YEAR FLOOD ELEVATION + 3 FEET.
6. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT AND CONDUCTOR SIZES AND ENTRY LOCATIONS AND CONSULT WITH CITY ENGINEER PRIOR TO DOING ANY WORK.
7. ALL ELECTRICAL INSTALLATIONS SHALL BE FIELD LOCATED WITH ASSISTANCE OF CITY ENGINEER.
8. JUNCTION BOX LOCATION SHOWN DIAGRAMMATIC FOR DRAWING CLARITY. JUNCTION BOXES SHALL BE FIELD LOCATED AT WET WELLS WITH ASSISTANCE OF CITY ENGINEER. JUNCTION BOXES SHALL BE NEMA 6P 316 SS.

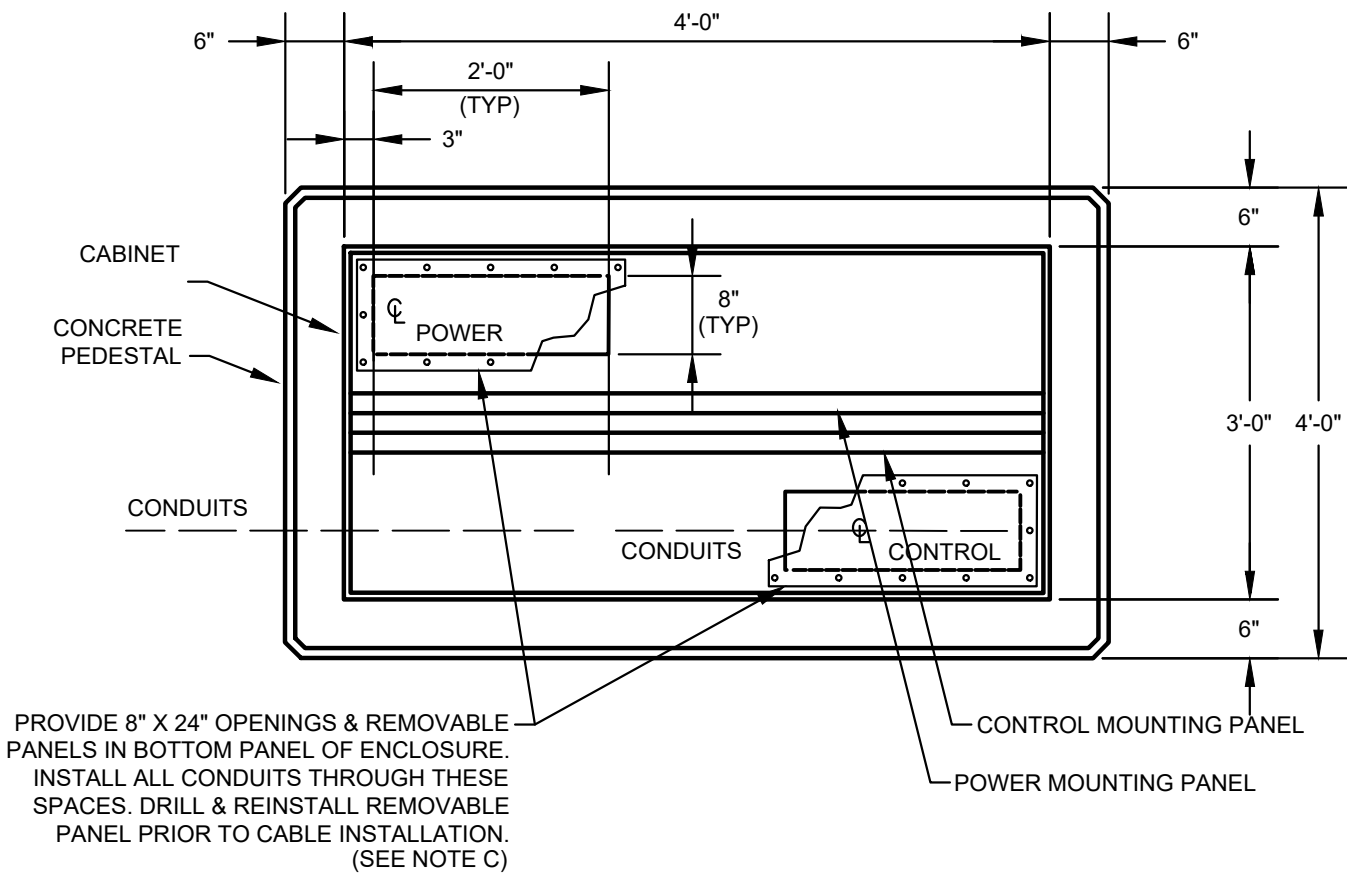
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LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386 LJA		
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES		
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
LINKWOOD LIFT STATION ELEVATED SECTION 3 PUMP CONDUIT ROUTING ALTERNATIVE HIGH PROFILE CONFIGURATION	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
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3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.123 OF 291	

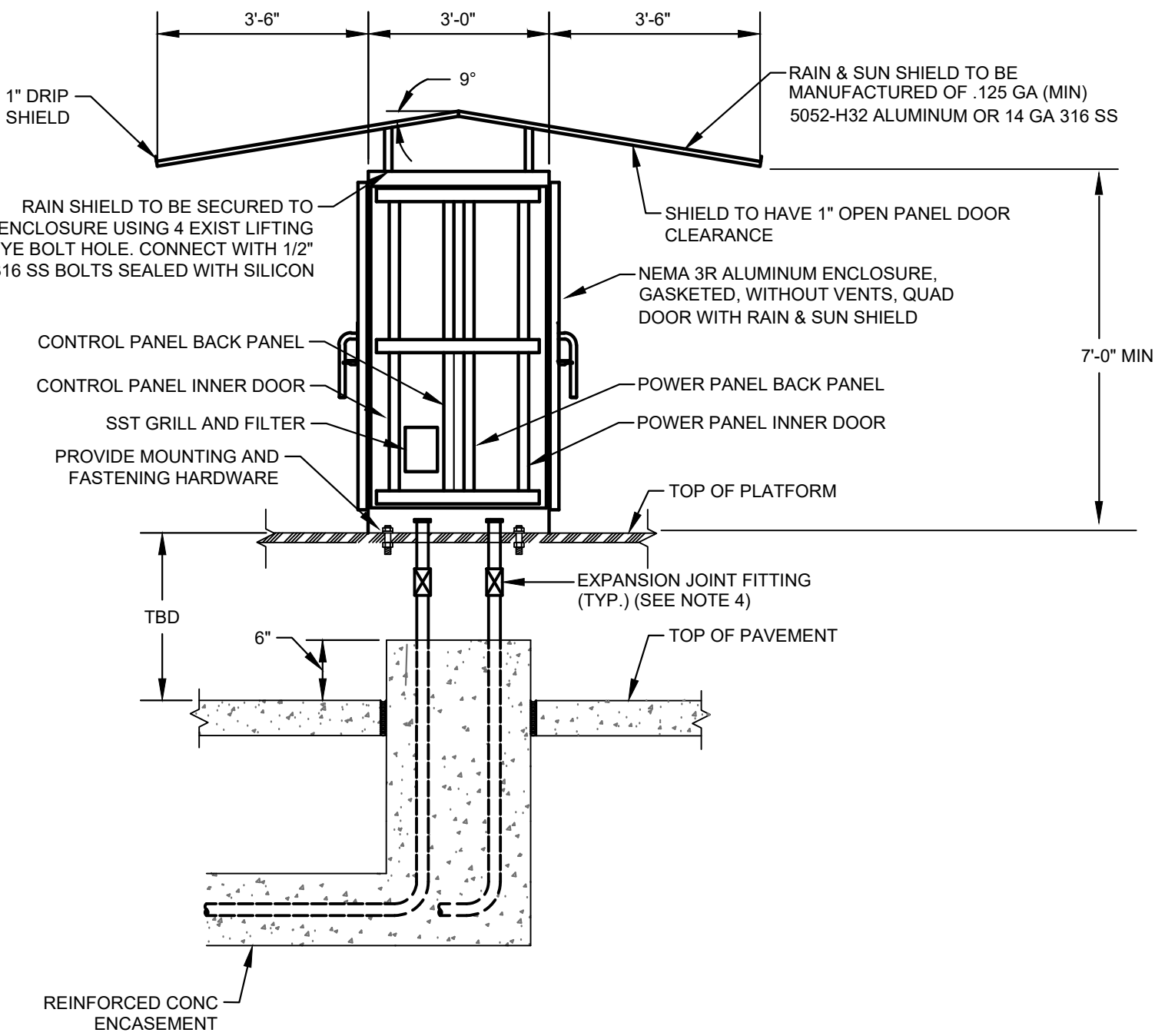


CONTROL CABINET ENCLOSURE ON ELEVATED PLATFORM DETAIL

(PLATFORM ELEVATION AS REQUIRED BY NOTE D)



SECTION Z
AD-E5



CONTROL CABINET ENCLOSURE WITH PLATFORM
(SEE NOTE 6)

NOTES

1. SEE SHEET AD-E6 FOR EQUIPMENT SCHEDULE.
2. REFER TO SPECIFICATION SECTION 13325 PROCESS CONTROL SYSTEMS CONTROL PANELS FOR PANEL DIMENSIONS.
3. COMMUNICATION PANEL TO BE INSTALLED ABOVE SERVICE RACK ELEVATION.
4. EXPANSION JOINT FITTINGS SHALL BE PROVIDED AS REQUIRED.
5. REFER TO SERVICE RACK FOR DETAIL.
6. REFER TO STRUCTURAL DRAWINGS "ZOS04, ZOS05, & ZOS06" FOR PLATFORM DETAIL.

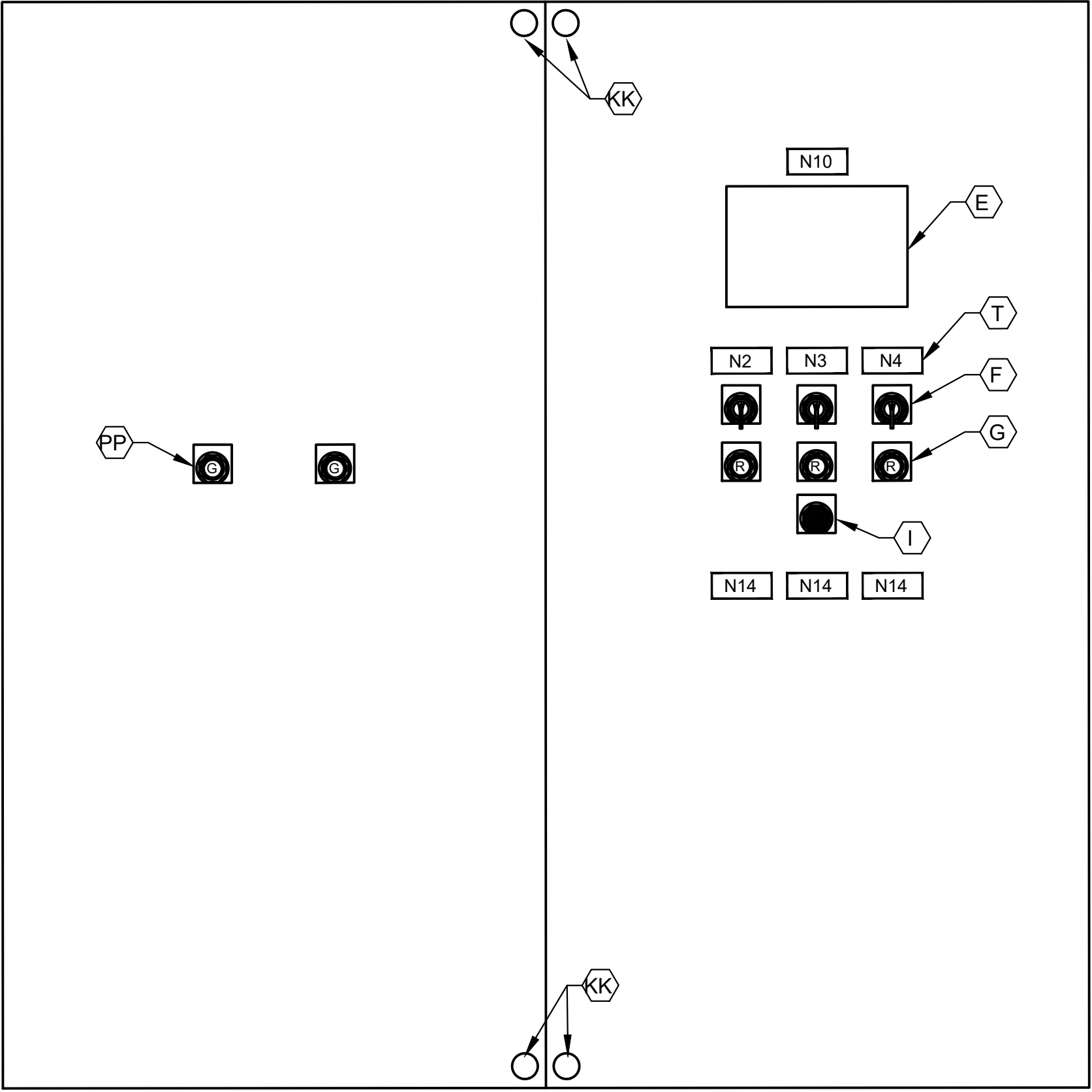
ELECTRICAL NOTES

1. CONTRACTOR SHALL VERIFY AND ADJUST, AS REQUIRED, SIZE OF REMOVABLE PANEL IN CABINET. OPENING SHALL BE SUFFICIENT TO ACCOMMODATE ALL REQUIRED CONDUITS.
2. THIS LIFT STATION IS LOCATED IN AN AREA THAT IS DESIGNATED BY THE CITY OF HOUSTON ORDINANCE AND THE RELATED TS&P MAPS AS BEING IN A FLOOD HAZARD ZONE. THE ELEVATION OF THE TOP OF CONCRETE PEDESTAL ON WHICH THE CONTROL PANEL IS MOUNTED SHALL BE ONE (1) FOOT ABOVE THE TOP OF CONCRETE OF THE ELEVATED CONCRETE PLATFORM. MINIMUM CLEARANCE DISTANCES BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE HAND RAIL AROUND THE PERIMETER OF THE ELEVATED CONCRETE PLATFORM AND BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE MANUAL TRANSFER SWITCH ARE NOTED IN THE DETAILS.
3. CONTRACTOR SHALL ENSURE THE ELECTRICAL EQUIPMENT INSTALLATION FINISHED FLOOR MEETS THE REQUIREMENTS OF THE LATEST VERSION OF THE COH CODE OF ORDINANCE, CHAPTER 19 FLOOD PLAIN.
4. THE CONTROL PANEL DOORS SHALL FACE NORTH AND SOUTH WHERE FEASIBLE.
5. PROVIDE MINIMUM OF 7'-0" CLEARANCE BETWEEN EDGE OF DRIP SHIELD COVER AND TOP OF PLATFORM.

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET ENCLOSURE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.124 OF 291		

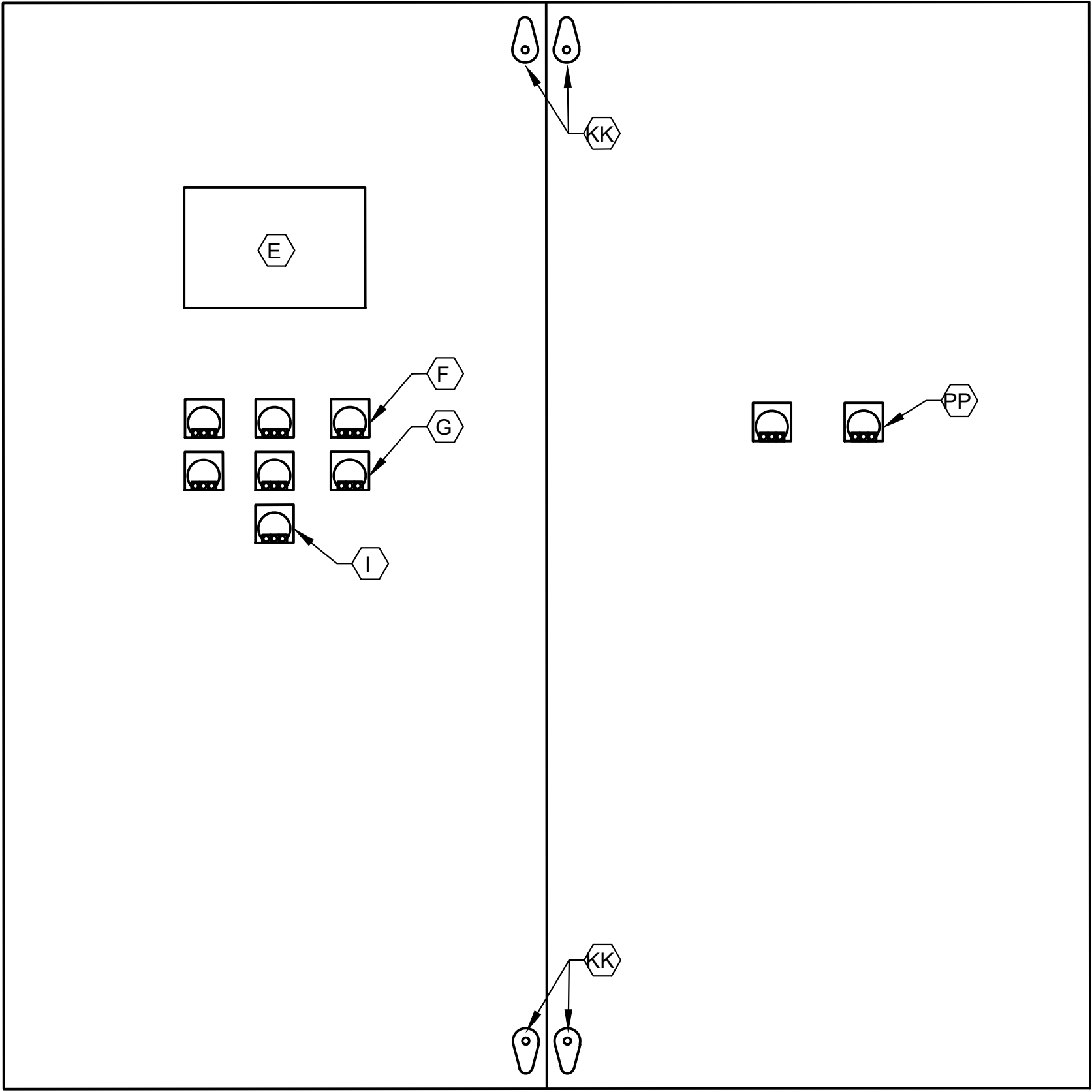
EQUIPMENT AND DEVICE SCHEDULE		
ITEM	QUANTITY	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 1 PHASE, 3 WIRE, 100A, 12 CKTS
B	3	FULL VOLTAGE, NON-REVERSING, SINGLE SPEED, AUTOMATIC MOTOR STARTER W/120 VOLT CONTROL COIL, NEMA SIZE AS SCHEDULED.
C	3	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 120VAC COIL AND 11 PIN SOCKET BASE.
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY
E	1	PROGRAMMING SCREEN (OIT)
F	3	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL)
G	3	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND
H	1	PERPETUAL POWER UNIT (PPU)
I	1	PUMP ALARM RESET PUSHBUTTON
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST
K	3	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION.
M	1	SURGE PROTECTOR - INCOMING POWER
N	*	NOT USED.
P	3	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT.
Q	12	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS
R	1	WIRE DUCT 2" WIDE X 2" DEEP MINIMUM
S	*	NOT USED.
T	*	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
U	3	SOLID STATE MOTOR OVERLOAD RELAY
V	6	FUSE HOLDER & FUSES - PHASE FAILURE
W	1	NEMA 3R GASKETED ALUMINUM ENCLOSURE WITHOUT VENTS
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE FOR ENVIRONMENT)
Y	1	THERMAL-MAGNETIC MOLDED CASE MAIN CIRCUIT BREAKER, SIZE AS SCHEDULED
Z	3	ADJUSTABLE INSTANTENOUS TRIP MOTOR CIRCUIT PROTECTOR, SIZE AS SCHEDULED
AA	*	TERMINAL BLOCKS
BB	3	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM
CC	2	ANALOG I/O SURGE SUPPRESSOR
DD	1	WIRE DUCT 2" WIDE x 2" DEEP MINIMUM
EE	1	THERMAL-MAGNETIC MODLED CASE CIRCUIT BREAKER FOR LIGHTING TRANSFORMER, SIZE AS SCHEDULED
FF	1	GROUND BUS
GG	1	10 KVA, 480 - 240/120V,1ϕ, 3W DRY TYPE TRANSFORMER
HH	*	NOT USED.
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED)
JJ	11	CARTRIDGE FUSES & FUSE HOLDER
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A
MM	2	MOTION SWITCH
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP PLC" LEGEND
QQ	*	NOT USED
RR	*	NOT USED
SS	1	COMMUNICATION ETHERNET SWITCH
TT	1	POWER SURGE PROTECTOR - CONTROL POWER
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT
VV	1	PHASE AND UNDER VOLTAGE MONITOR
WW	*	FUSED TERMINAL BLOCKS
XX	3	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I
YY	2	ANALOG SIGNAL ISOLATOR
ZZ	3	POWER FACTOR CORRECTION CAPACITOR NEMA 3R STAINLESS STEEL
AB	-	NOT USED.
AC	1	POWER DISTRIBUTION BLOCK
AD	1	NEUTRAL LUG
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD
AF	1	T-STAT FOR EXHAUST FAN

* - AS SCHEDULED



CONTROL PANEL FRONT INNER DOOR

ELEVATION



CONTROL PANEL BACK INNER DOOR

ELEVATION

NOTES

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

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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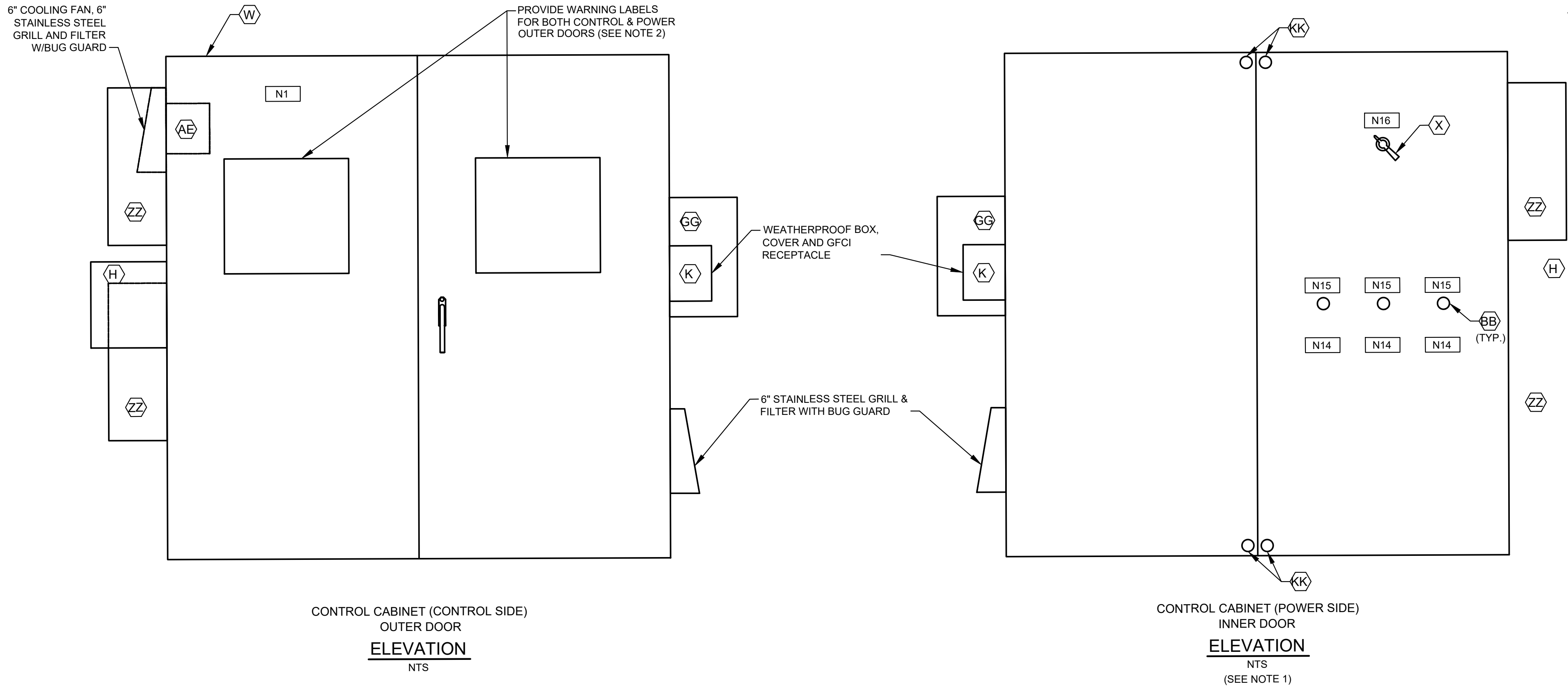
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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

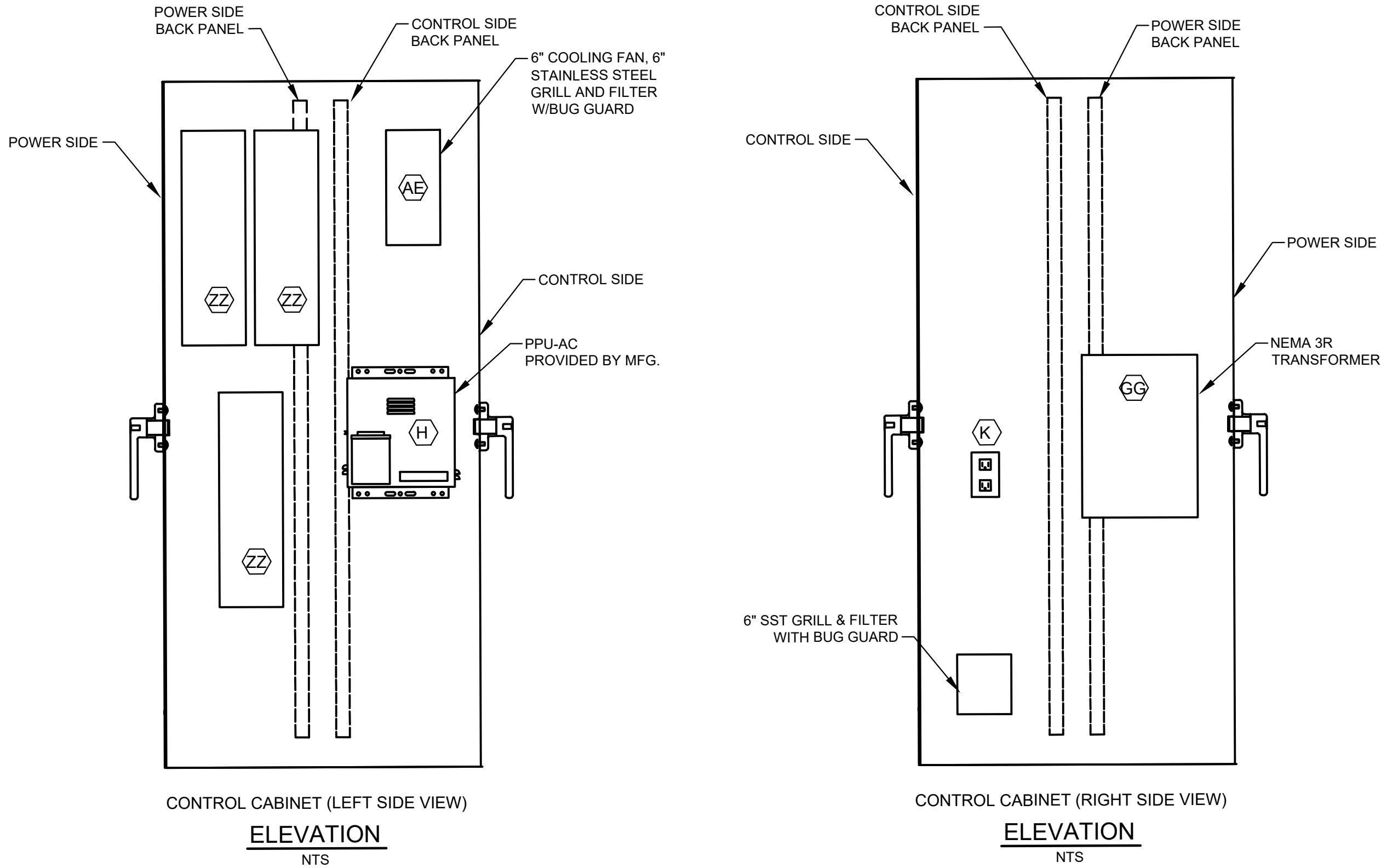
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.125 OF 291	

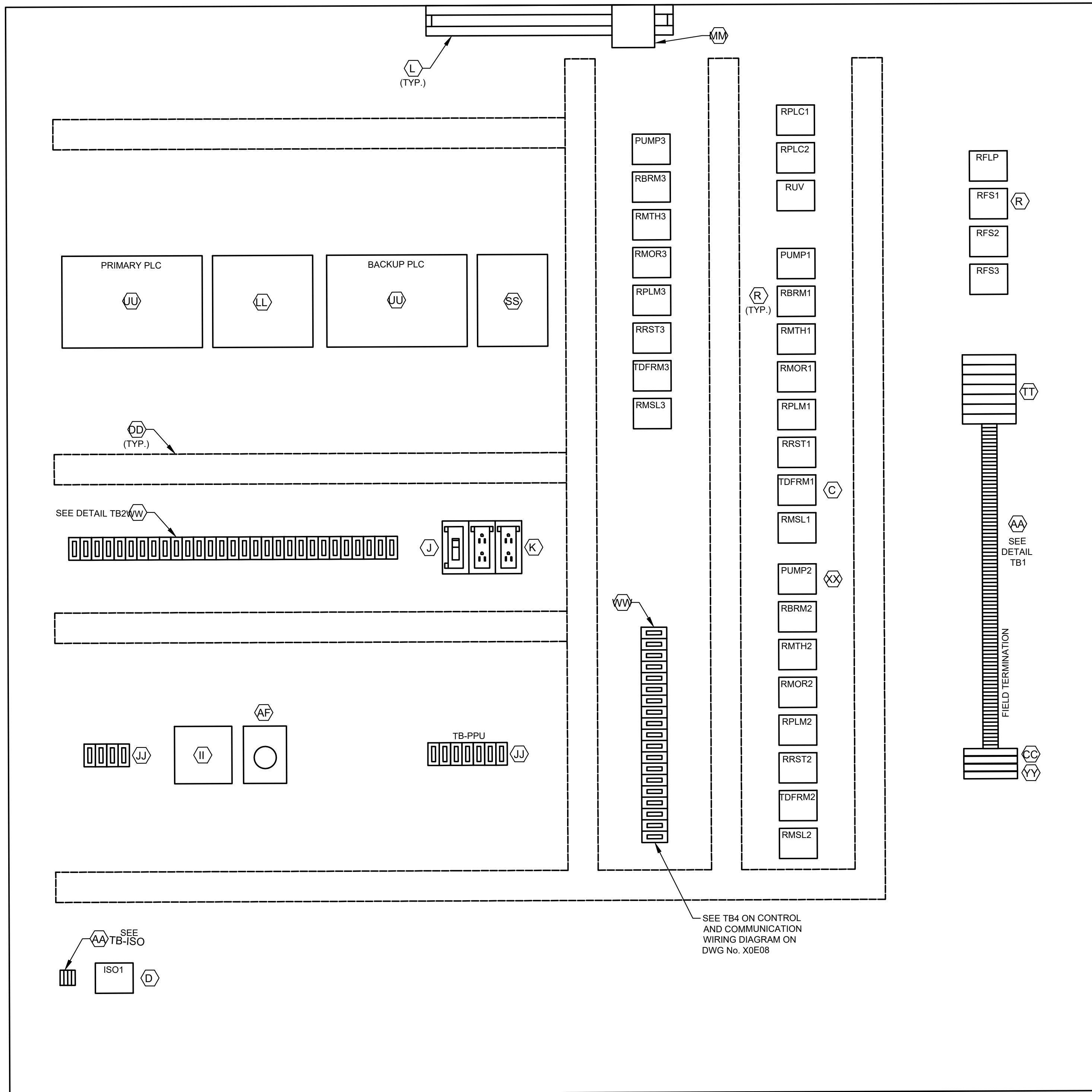


DESIGNATION		NAMEPLATE SCHEDULE	
DESIGNATION	ENGRAVED	DESIGNATION	ENGRAVED
N1	PUMP STATION DESIGNATION	N8	NOT USED.
N2	PUMP NO. 1	N9	NOT USED.
N3	PUMP NO. 2	N10	PROGRAMMING SCREEN
N4	PUMP NO. 3	N11	NOT USED.
N5	NOT USED.	N12	PRIMARY PLC
N6	NOT USED.	N13	BACKUP PLC
N7	NOT USED.	N14	MOTOR DATA
			HORSEPOWER (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 LW-E6 FOR EQUIPMENT SCHEDULE
 2. REFER TO NEC SECTIONS 110.16 & 110.21

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT- I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 126 OF 291		



CONTROL PANE ELEVATION

L1A
L1N
SPARE
3
3N
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
SPARE
303
304
305
306
307
308
310
313
315
316
319

DETAIL TB1
ALL L AND N FOR
EACH PUMP
CONTROL TO BE
FUSED

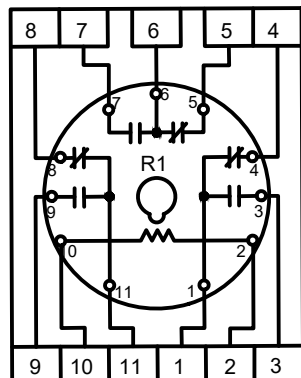
36A
37A
50
52
54
52A
54A
L+
M
35B
38B
41B
47B
13B
13AB
13GB
L+
M
14B
14AB
14GB
L+
M
13
13A
13G
14
14A
14G
SPARE
18
SPARE
28
29
32
35B
33
42
44
SPARE
103
104
115
109
110
118
120
121
122
123
SPARE
209
210
211
218
220
222
223
SPARE
309
310
316
317
318
320
322
323

DETAIL TB2

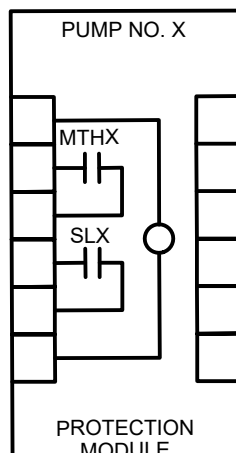
1500
1501
1503
1504

DETAIL TB-ISC

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 LOCK ALARM RELAY
RFLP	FLOAT LOCKOUT PUMP RELAY



RELAY DETAIL
ITEM C



PUMP PROTECTION MODULE
DETAIL, ITEM XX
NOTE: REPLACE "X" WITH
APPROPRIATE PUMP NO.

NOTE: REPLACE "X" WITH
APPROPRIATE PUMP NO.

NOTES

1. SEE SHEET LW-E6 FOR EQUIPMENT SCHEDULE

LJA Engineering, Inc. 
3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 ERN - E-1386



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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT

11

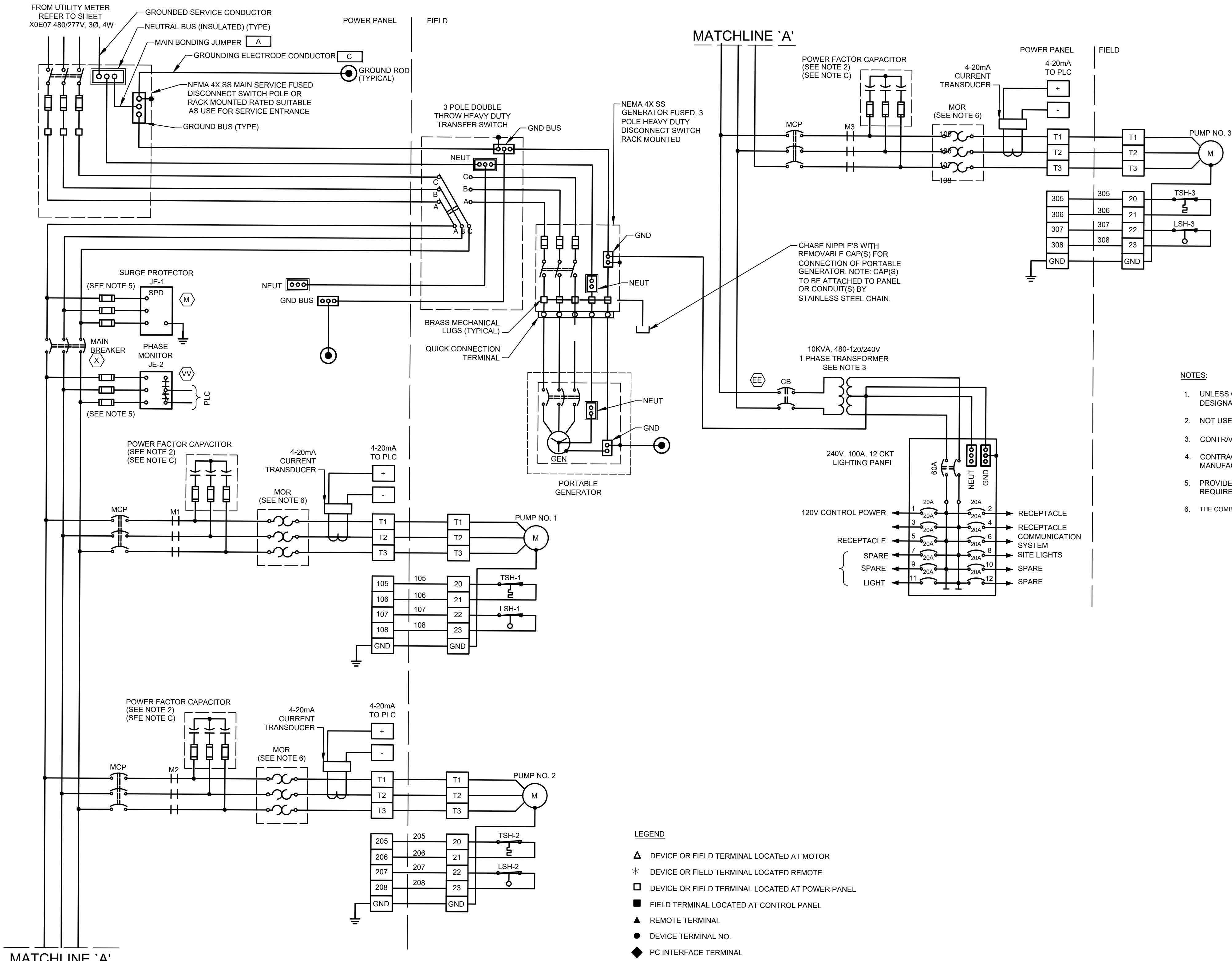
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SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.127 OF 291	



1. SEE SHEET LW-E6 FOR EQUIPMENT SCHEDULE.

DETAIL TB3

ISSUE	DATE	DESCRIPTION
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT-III		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
3/4"=1'-0"		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 128 OF 291		



- NOTES:**
1. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE CONTROL PANEL.
 2. NOT USED
 3. CONTRACTOR TO REVISE DWG. BASED ON MANUFACTURE AND SIZE.
 4. CONTRACTOR SHALL TERMINATE POWER & CONTROL WIRES PER MANUFACTURER'S REQUIREMENTS.
 5. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
 6. THE COMBINATION OF CT AND MOTOR OVERLOAD RELAY IF REQUIRED.

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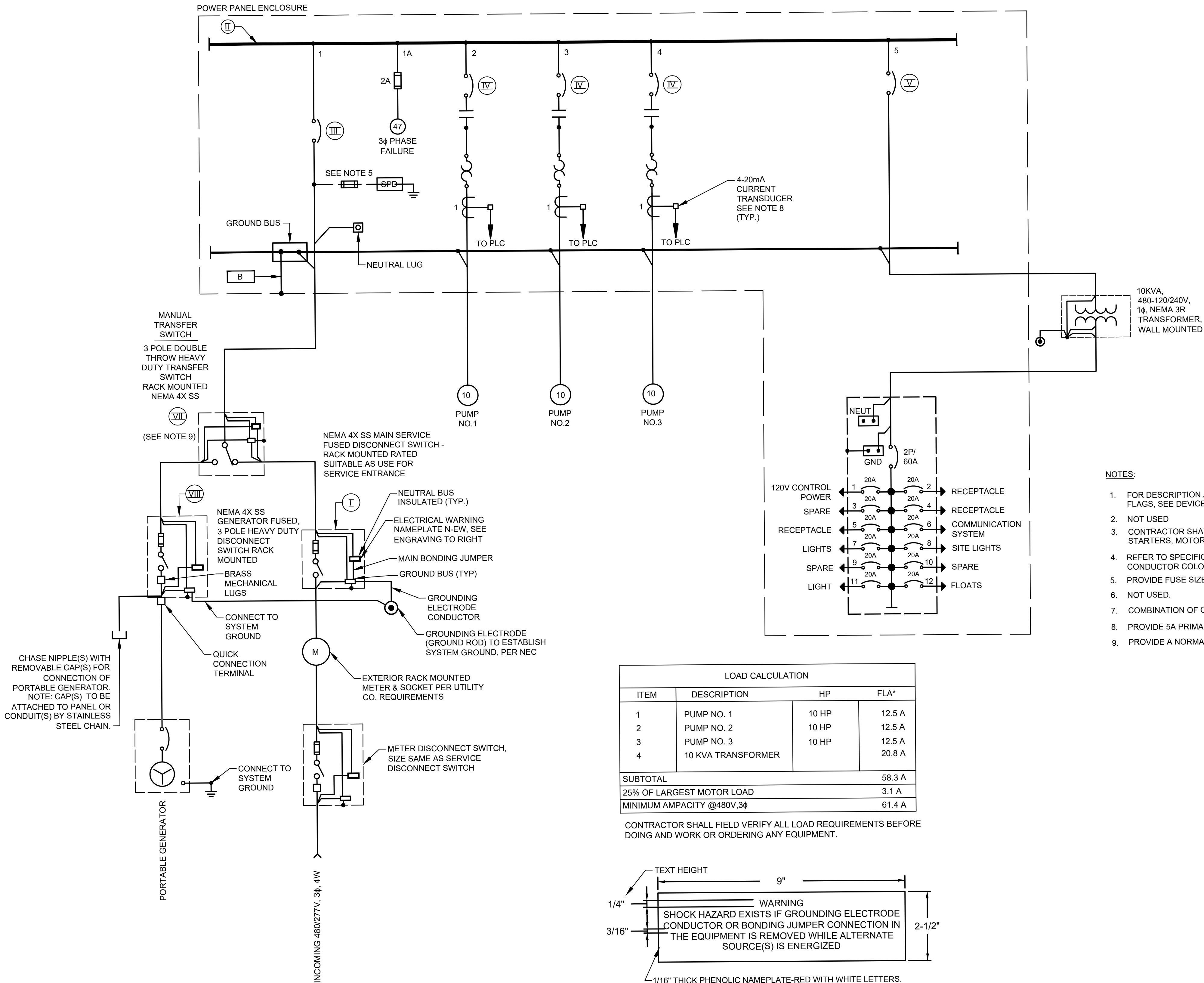
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION 3 PUMP OUTDOOR INCOMING POWER THREE LINE DIAGRAM

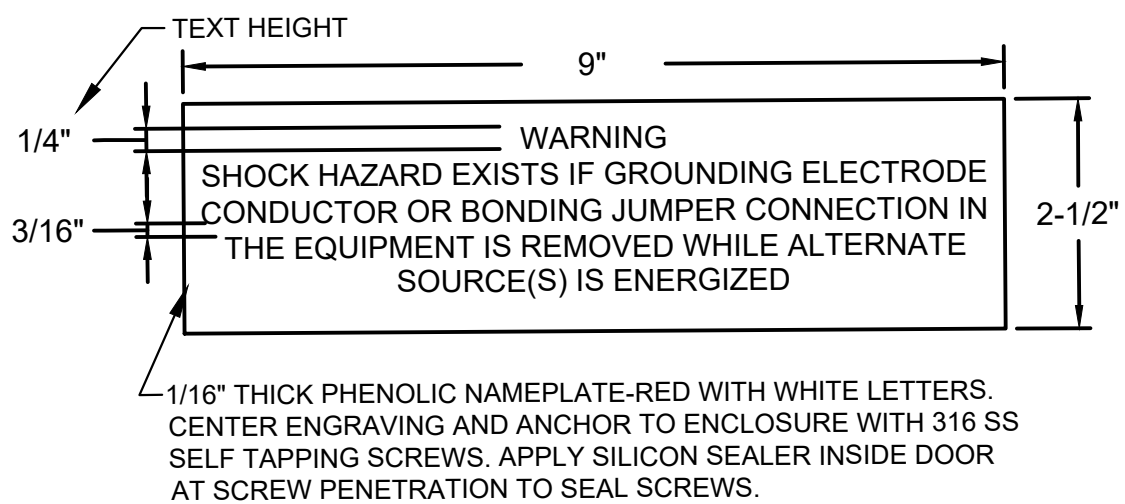
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R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 129 OF 291	



- NOTES:**
1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
 2. NOT USED
 3. CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
 4. REFER TO SPECIFICATION SECTION 16120 LOW-VOLTAGE WIRES AND CABLES FOR CONDUCTOR COLOR CODE.
 5. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 6. NOT USED.
 7. COMBINATION OF CT AND OVERLOAD RELAY IF REQUIRED.
 8. PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.
 9. PROVIDE A NORMALLY OPEN (NO) AUXILIARY CONTACT FOR BOTH ON POSITIONS.

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLA*
1	PUMP NO. 1	10 HP	12.5 A
2	PUMP NO. 2	10 HP	12.5 A
3	PUMP NO. 3	10 HP	12.5 A
4	10 KVA TRANSFORMER		20.8 A
SUBTOTAL			58.3 A
25% OF LARGEST MOTOR LOAD			3.1 A
MINIMUM AMPACITY @480V,3φ			61.4 A

CONTRACTOR SHALL FIELD VERIFY ALL LOAD REQUIREMENTS BEFORE DOING AND WORK OR ORDERING ANY EQUIPMENT.



ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

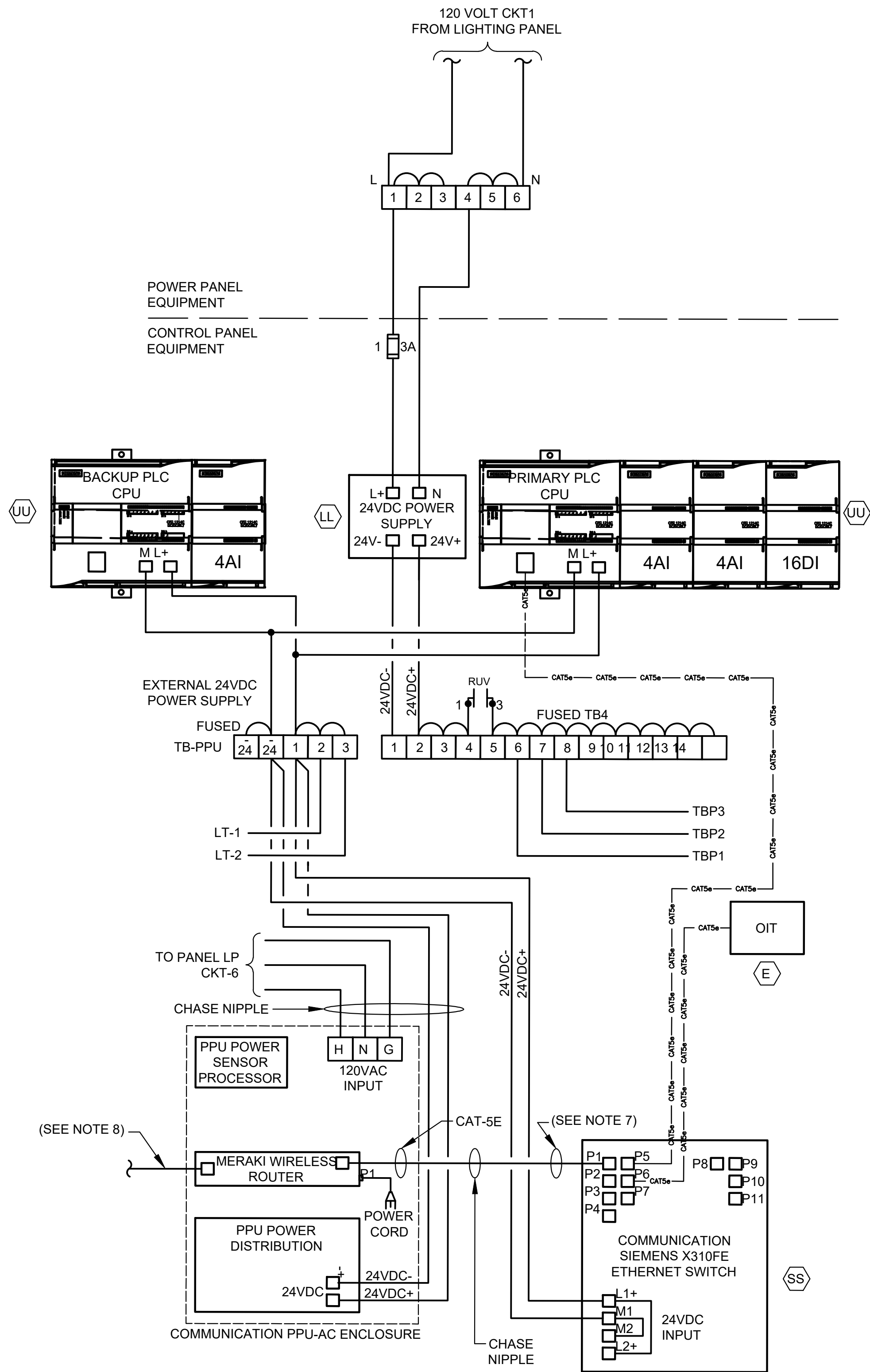
ISSUE	DATE	DESCRIPTION			
LJA Engineering, Inc.			LJA		
3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042			Phone 713.953.5200 Fax 713.953.5026 FRN - U-1386		
 FCM Engineers, PC			THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW ONLY AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302		
3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T: 713-706-4412 F: 713-706-4410 Tx Firm No. 13481			DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES		
SURVEYED BY: KUO ASSOC					
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

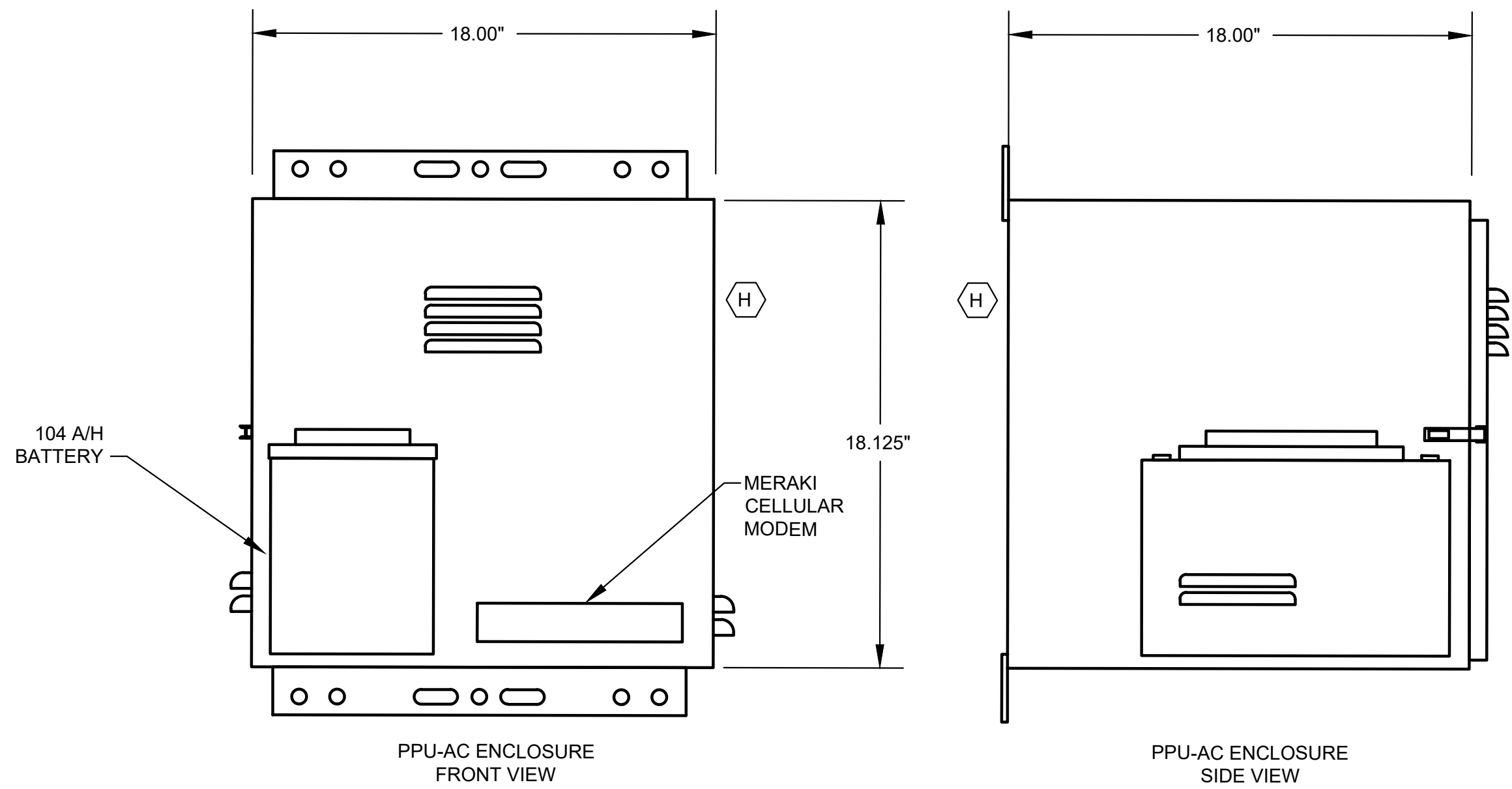
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.130 OF 291	



CONTROL POWER &
COMMUNICATIONS WIRING
DIAGRAM
NTS
(SEE NOTE 8)

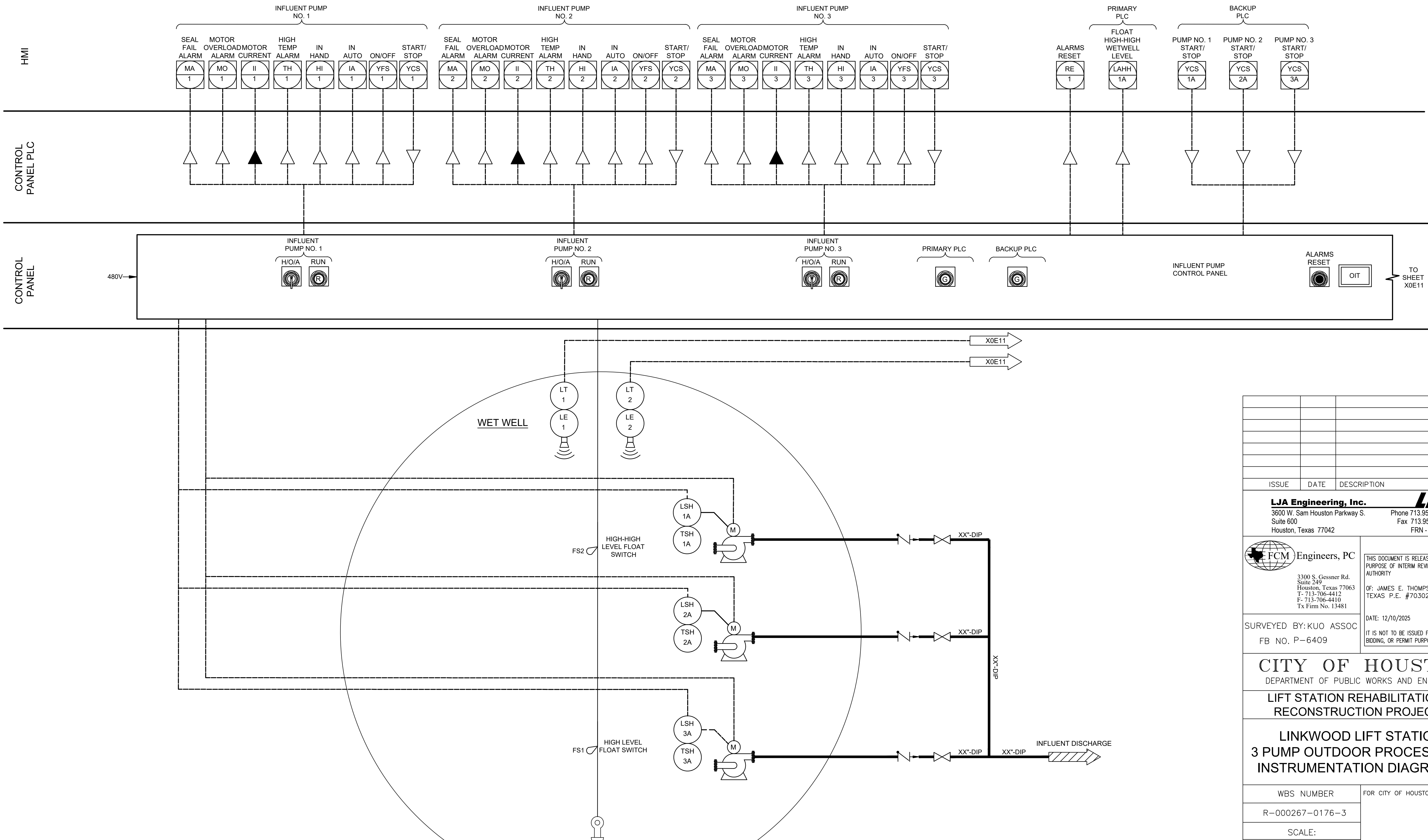


PPU-AC
CONTROL ENCLOSURE
ELEVATION
NTS
(SEE NOTE 9)

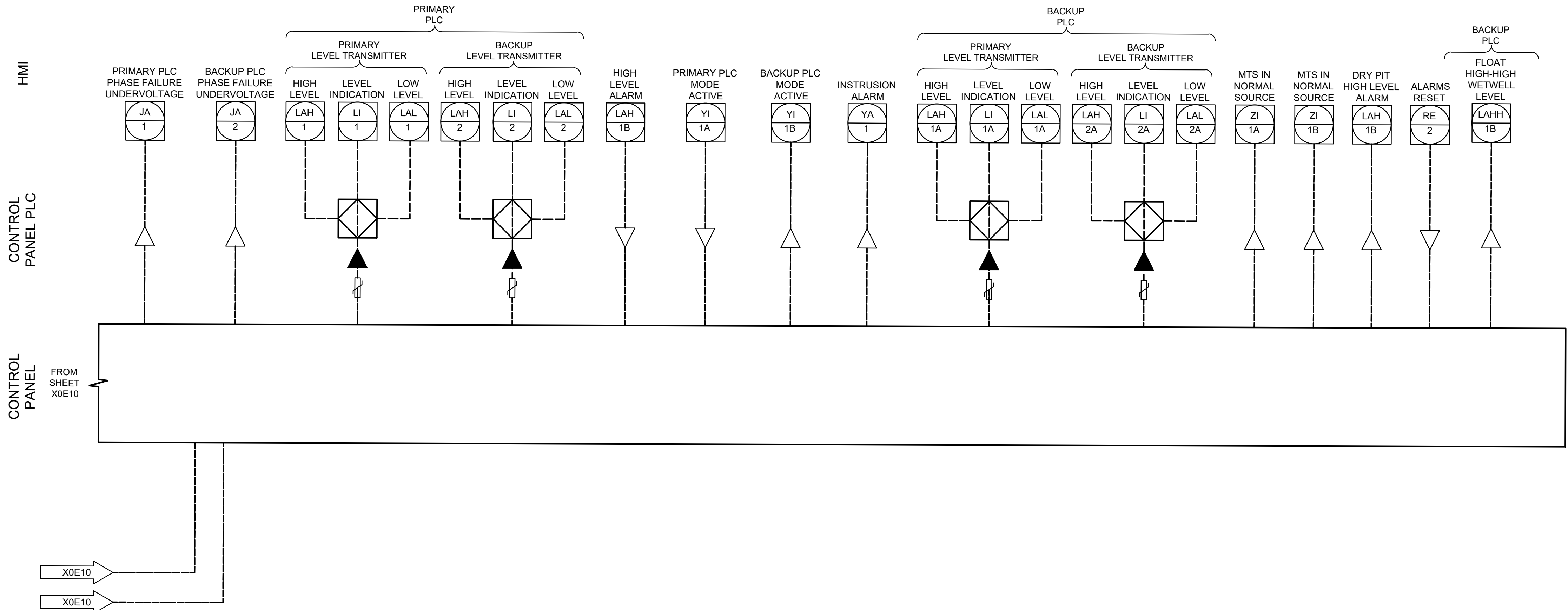
NOTES:

1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ITEM TAG, SEE DEVICE RATINGS SCHEDULE.
2. REFER TO SPECIFICATION SECTION 16120 LOW-VOLTAGE WIRES AND CABLES FOR CONDUCTOR COLOR CODE.
3. THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
4. NOT USED.
5. NOT USED.
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.
9. COORDINATE WITH VENDOR TO PROVIDE PROPER VENTILATION WHERE APPLICABLE.

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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS LINKWOOD LIFT STATION 3 PUMP OUTDOOR COMMUNICATION DIAGRAM		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 131 OF 291		

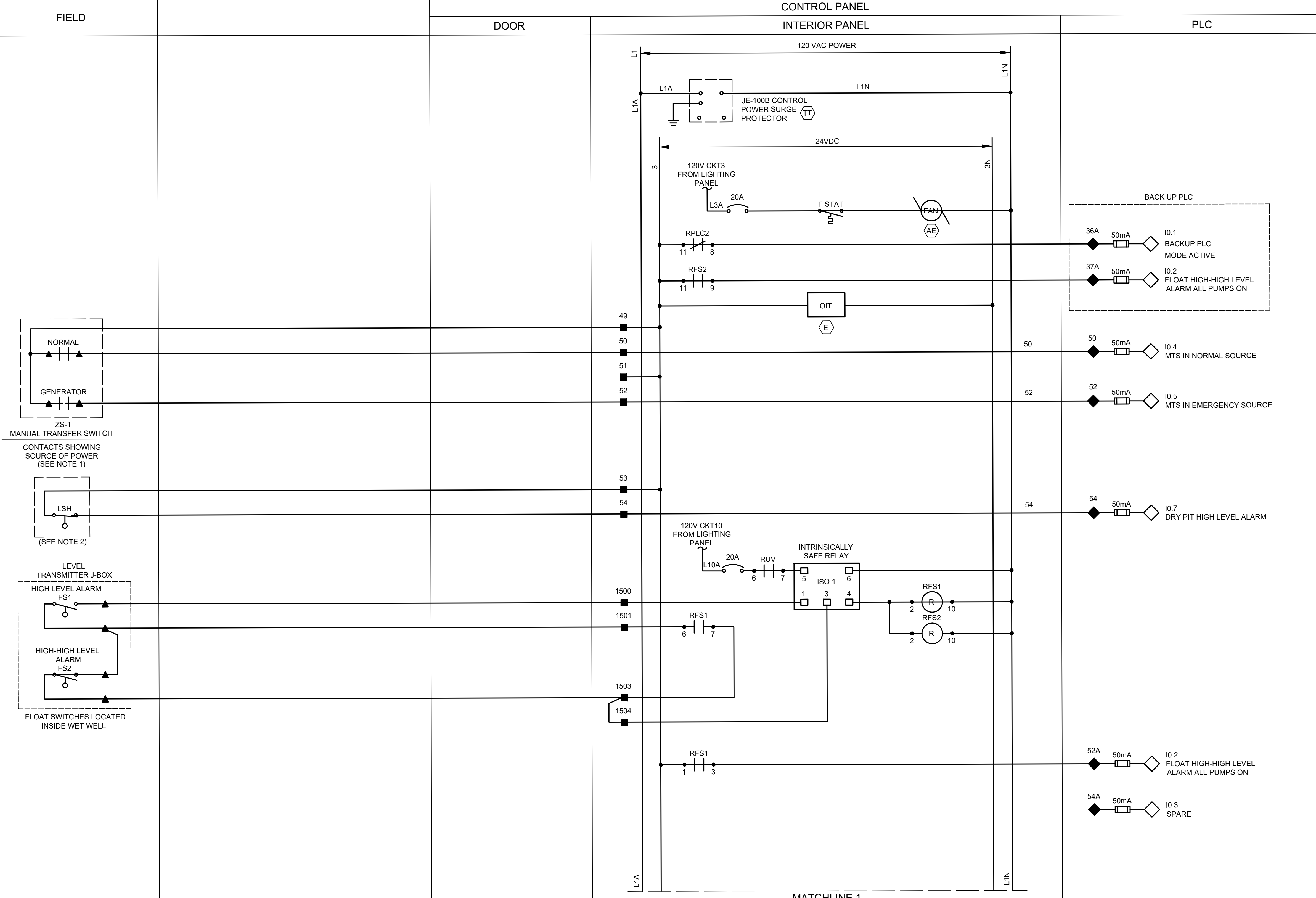


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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
LINKWOOD LIFT STATION 3 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM - I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
3/4"=1'-0"		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.132 OF 291		



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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
LINKWOOD LIFT STATION 3 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM - II	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 133 OF 291	



NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. DRY/WET PIT APPLICATION ONLY.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA

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Fax 713.953.5026
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Engineers, PC

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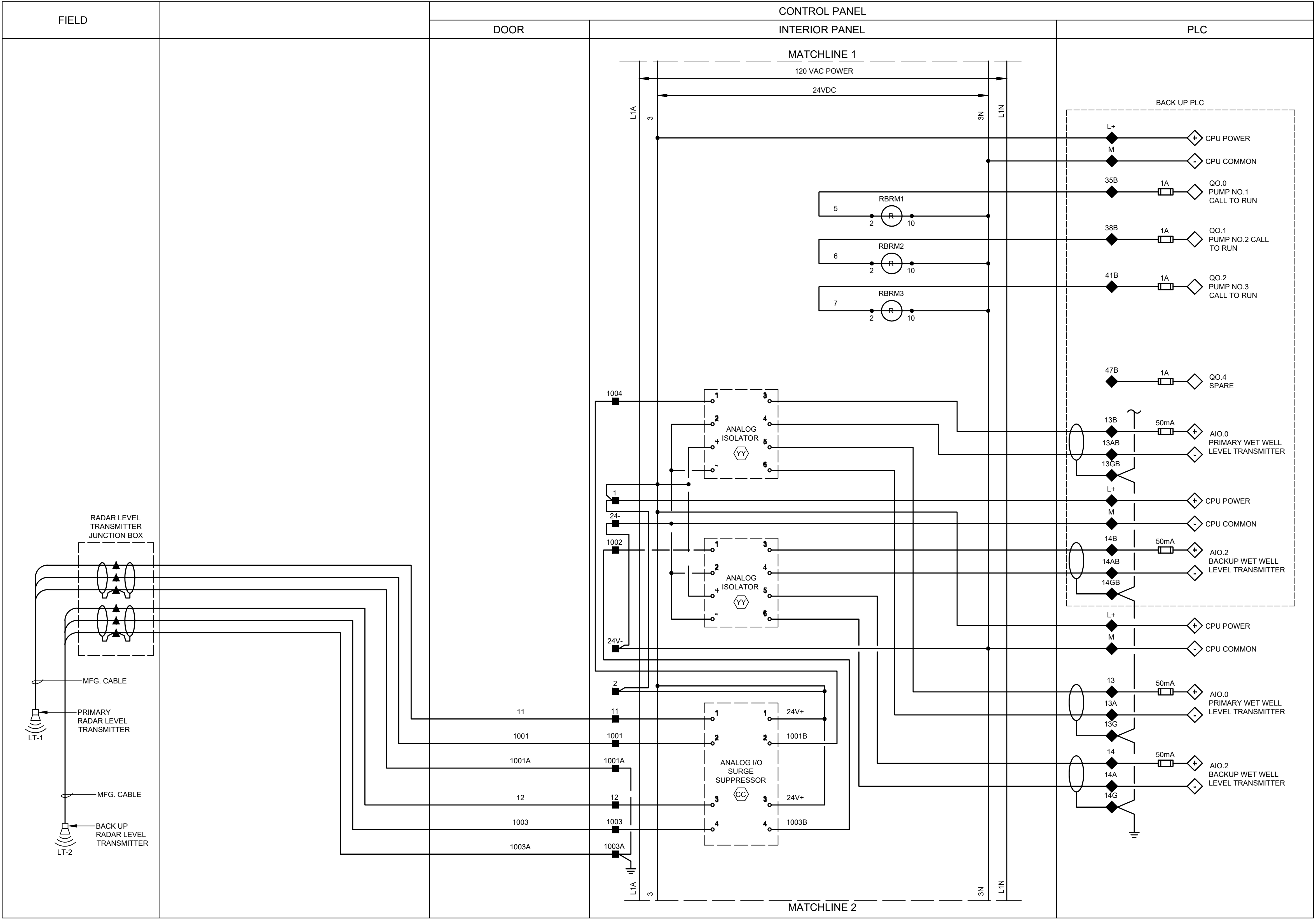
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - I

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.134 OF 291	



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

ISSUE	DATE	DESCRIPTION

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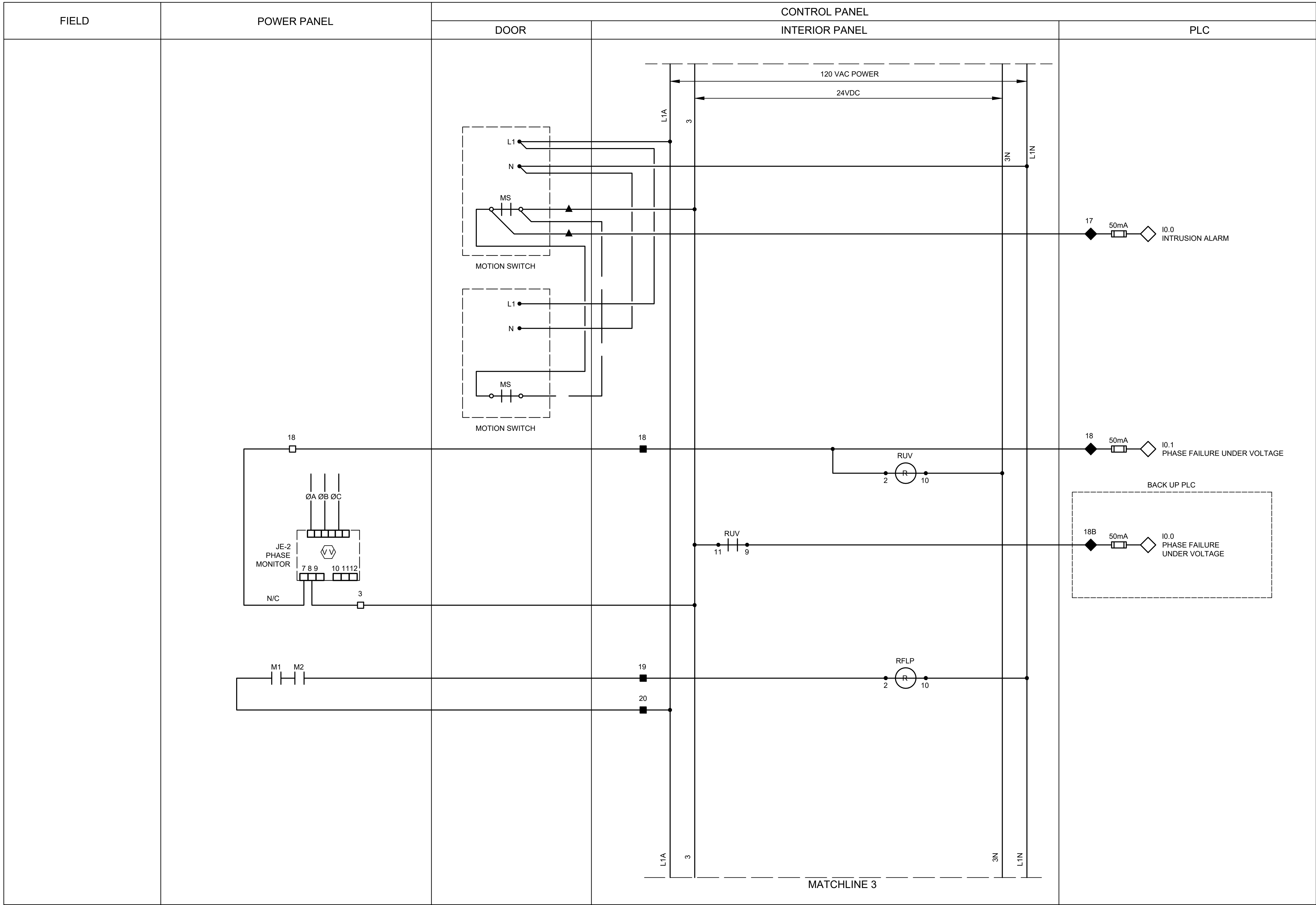
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.135 OF 291	



LEGEND

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

NOTES:

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL

[illegible]

LJA Engineering, Inc.

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Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



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TEXAS P.E. #70302

DATE: 12/10/2025

SURVEYED BY: KUO ASSOC

FB NO. P-6409

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION
3 PUMP OUTDOOR CONTROL
PANEL CONTROL
WIRING DIAGRAM - III

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 136 OF 291	

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

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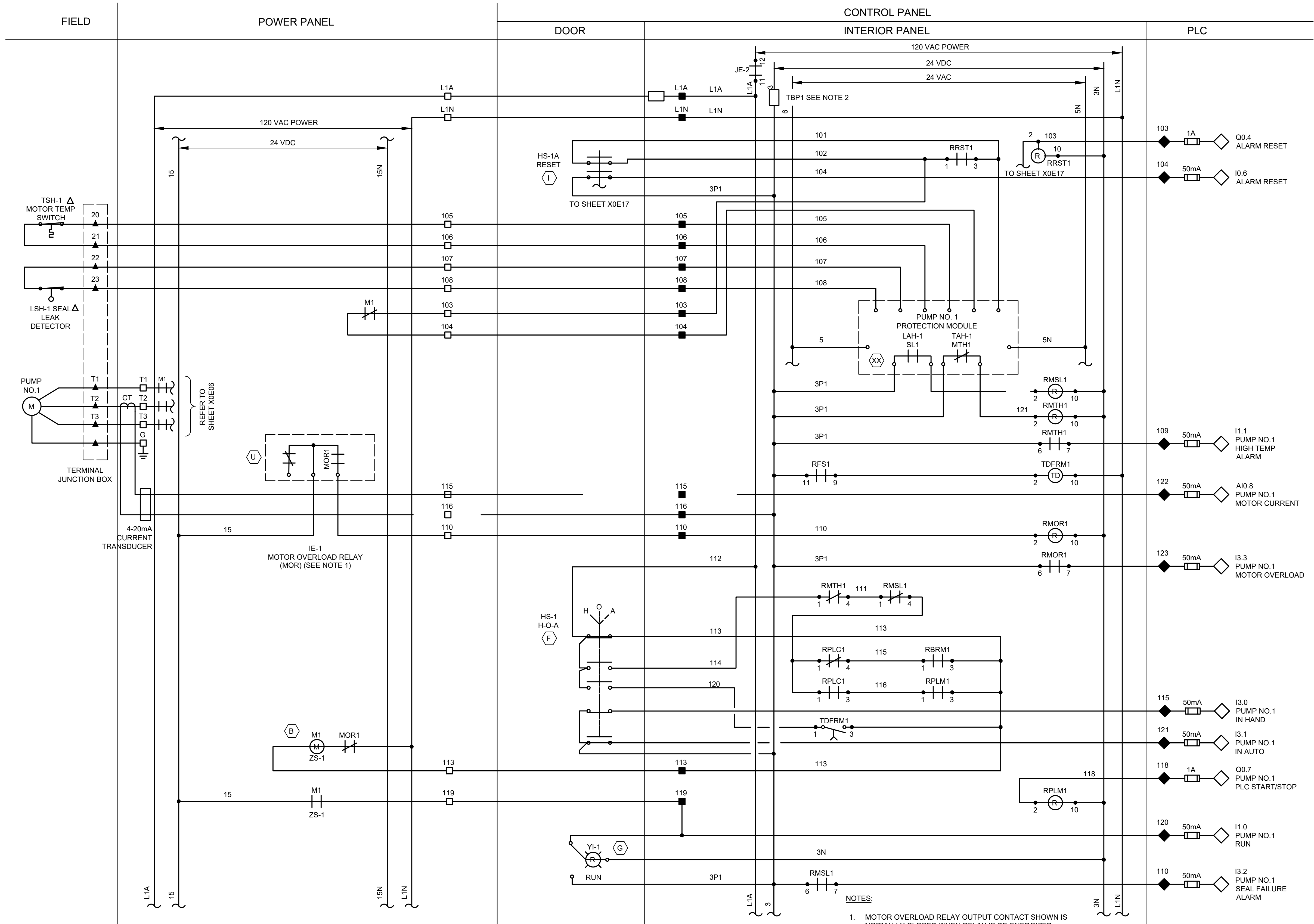
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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LINKWOOD LIFT STATION

LINKWOOD LIFT STATION
3 PUMP OUTDOOR CONTROL
PANEL CONTROL
WIRING DIAGRAM - IV

	WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
	R-000267-0176-3	
	SCALE:	
	1"=5'	
	CITY OF HOUSTON PM	
	NAWARAJ PANTA, P.E.	
8	SHEET NO.137 OF 291	



- ## 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. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. CL-E11.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
4. EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
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LJA
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Fax 713.953.5026
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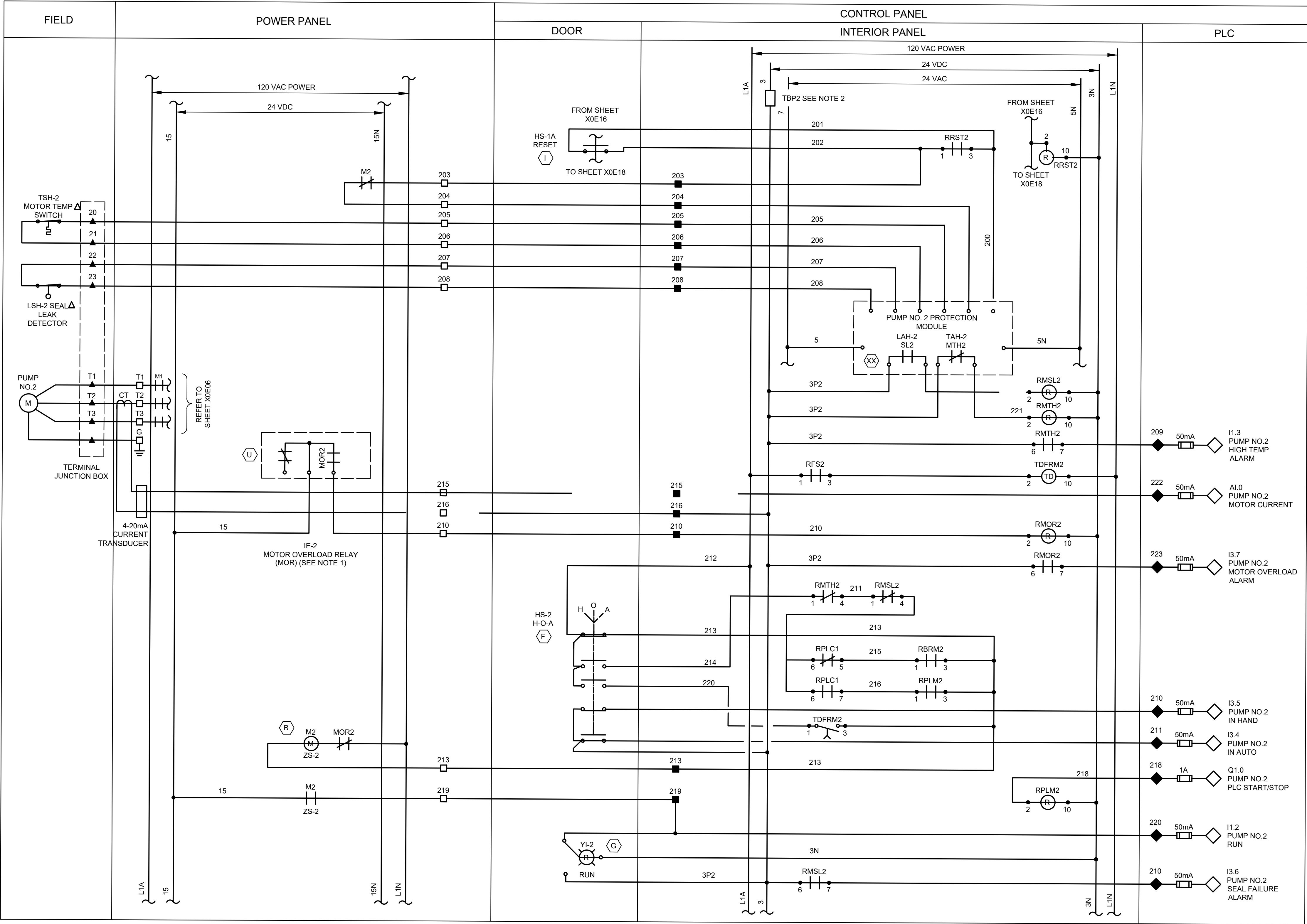
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION 3 PUMP OUTDOOR PUMP 1 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.138 OF 291	



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

- NOTES:**
- 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.
 - FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. X0E08.
 - ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
 - EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED, (24VDC, 120VAC)

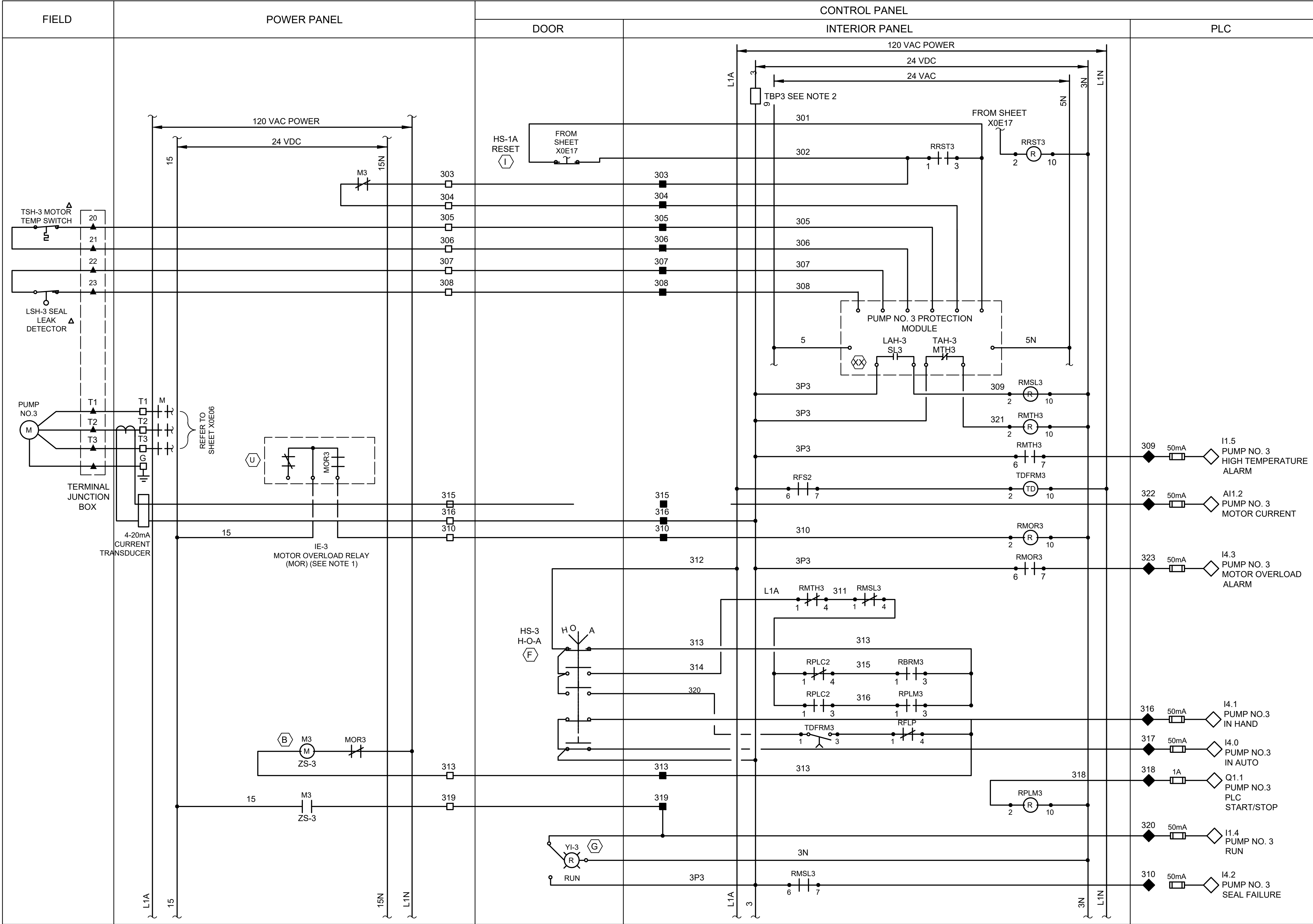
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**LINKWOOD LIFT STATION
3 PUMP OUTDOOR PUMP 2
CONTROL WIRING DIAGRAM**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	



LEGEND

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

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 T84 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM. DRAWING NO. X0E08.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
4. EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

LINKWOOD LIFT STATION 3 PUMP OUTDOOR PUMP 3 CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 140 OF 291	

	DESCRIPTION	SERVICE		ROUTING			CONDUIT & WIRE SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
A	MAIN BONDING JUMPER	--	--	MAIN FUSED DISCONNECT NEUTRAL	MAIN FUSED DISCONNECT GROUND	--	#2 AWG
B	EQUIPMENT BONDING JUMPER	--	--	MCC/POWER PANEL ENCLOSURE	POWER/CONTROL PANEL & EQUIPMENT GROUND BUS	--	#2 AWG
C	GROUND ED ELECTRODE CONDUCTOR	--	--	GROUNDING ELECTRODE	MAIN SERVICE FUSED DISCONNECT	--	#2 AWG
100	SERVICE ENTRANCE	480V	VARIES	UTILITY POWER SERVICE	METER DISCONNECT		3#4/0, 1-4G AWG 2-1/2"C
100A	MCC SERVICE POWER	480V	VARIES	MANUAL TRANSFER SWITCH	MCC OR POWER PANEL	--	
100B	NORMAL/EMERRGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH	CONTROL PANEL	--	3#4/0, 1-4G AWG 3"C
100C	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	PORTABLE GENERATOR	CAPPED CONDUITS	
*100	SERVICE ENTRANCE	480V	VARIES	UTILITY POWER SERVICE	CT CAN	--	
*100A	SERVICE POWER	480V	VARIES	SERVICE DISCONNECT	MAIN BREAKER IN MCC	--	
*100B	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	GENERATOR TRANSFER SWITCH IN MCC	--	3#4/0, 1-4G AWG 2-1/2"C
*100C	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	PORTABLE GENERATOR	CAPPED CONDUITS	#2 AWG
101	GROUND ELECTRODE CONDUCTOR	--	--	POWER PANEL	GROUND FIELD	--	#2 AWG
102	GROUND ELECTRODE CONDUCTOR	--	--	BUILDING STEEL	GROUND FIELD	--	#2 AWG
103	BUILDING GROUNDING	--	--	BUILDING REBAR	LIGHTNING GROUND ROD	--	#2 AWG
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL PANEL OR MOTOR CONTROL CENTER	GROUND FIELD	--	3#8, 1-4G AWG 1-1/2"C
105	COMMUNICATION	--	--	COMMUNICATION POLE	CONTROL PANEL	--	2-1"C., 3/12,1-#12G
105A	COMMUNICATION POLE LIGHT	120V	--	COMMUNICATION POLE	LIGHTING PANEL CKT #6 & CKT #4	--	MFGR'S STD CABLE 2-1/2"
200	PUMP NO. 1 POWER	480V	HP AS NOTED	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	--	
202	PUMP NO. 1 POWER	480V	HP AS NOTED	PUMP NO. 1 JUNCTION BOX	PUMP STARTER	--	COMBINE 200 & 300 TAG WIRING
203	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 1 JUNCTION BOX	PUMP STARTER	--	
205	PUMP NO. 1 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
206	PUMP NO. 1 CAPACITOR	480V	TBD	PUMP NO. 1 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	MFGR'S STD CABLE 2-1/2"
300	PUMP NO. 2 POWER	480V	HP AS NOTED	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	--	
302	PUMP NO. 2 POWER	480V	HP AS NOTED	PUMP NO. 2 JUNCTION BOX	PUMP STARTER	--	
305	PUMP NO. 2 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
306	PUMP NO. 2 CAPACITOR	480V	TBD	PUMP NO. 2 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	MFGR'S STD CABLE 2-1/2"
400	PUMP NO. 3 POWER	480V	HP AS NOTED	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
401	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	--	
402	PUMP NO. 3 POWER	480V	HP AS NOTED	PUMP NO. 3 JUNCTION BOX	PUMP STARTER	--	
403	COMBINED PUMP CONTROLS	120V	HP AS NOTED	PUMP NO. 3 JUNCTION BOX	CONTROL PANEL	--	
405	PUMP NO. 3 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
406	PUMP NO. 3 CAPACITOR	480V	TBD	PUMP NO. 3 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	
600	LIGHTING TRANSFORMER FEEDER	480V	--	MOTOR CONTROL CENTER	LIGHTING TRANSFORMER	--	#4 AWG
601	LIGHTING PANEL GROUND	--	--	LIGHTING PANEL	GROUND FIELD	--	#4 AWG
602	LIGHTING PANEL FEEDER	120/240V	--	LIGHTING TRANSFORMER	LIGHTING PANEL	--	#4 AWG
900	INTRUSION ALARM	24VDC	--	MOTION SWITCH	CONTROL PANEL	--	
1000	LEVEL TRANSMITTER	24VDC	--	TRANSMITTER JUNCTION BOX	TRANSMITTER JUNCTION BOX	--	
1001	LEVEL TRANSMITTER	24VDC	--	TRANSMITTER JUNCTION BOX	TRANSMITTER JUNCTION BOX	--	
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	CONTROL PANEL	TRANSMITTER JUNCTION BOX	--	
1003	WELL FLOAT SWITCHES	24VDC	--	TRANSMITTER JUNCTION BOX	FLOAT SWITCH NO.1 & NO.2	--	
1004	FLOAT SWITCH	120V	--	SUMP PUMP MOTOR STARTER	FLOAT SWITCH	--	
1100	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO TRANSMITTER J-BOX	--	
1200	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO PUMP NO. 1 J-BOX	--	

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.
4. CONDUITS LABELED "FUTURE SPACE" ARE THOSE TO BE INSTALLED AND CAPPED IN FIELD.
5. A CSBE TYPE SEAL SHALL BE NOT SMALLER THAN 2-1/2". CSBE SEALS ARE NOT MANUFACTURED SMALLER THAN 2-1/2".
6. GENERATOR CONDUIT SHALL BE A MINIMUM OF 3" CONDUIT.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES		
SURVEYED BY: KUO ASSOC FB NO. P-6409		

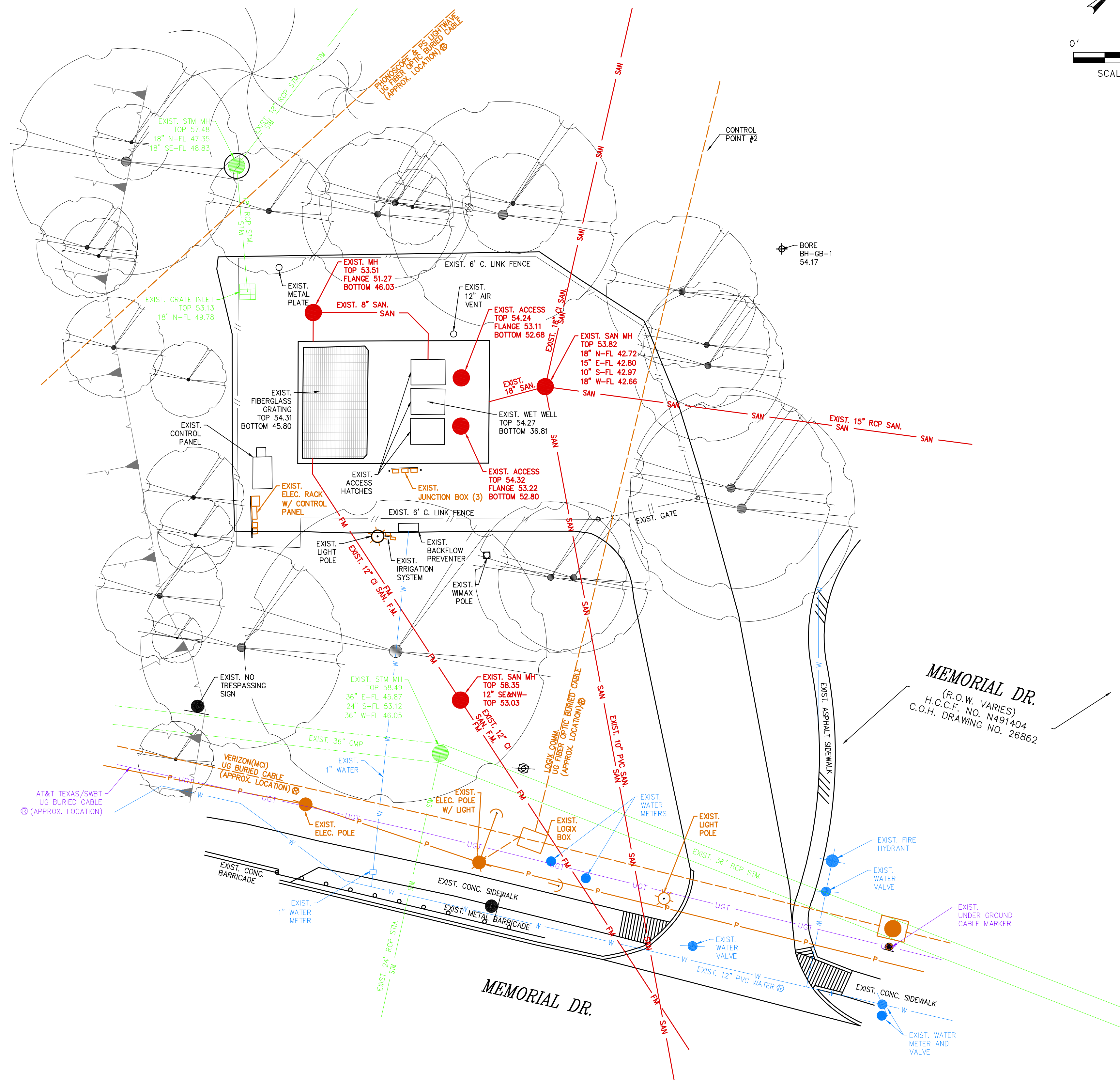
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
LINKWOOD LIFT STATION 3 PUMP INDOOR/OUTDOOR CONDUIT SCHEDULE FOR 480 VOLTS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
N.T.S	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.141OF 291	

			RATINGS FOR PUMP SIZES
ITEM	CIRCUIT	DESCRIPTION	3 @ 10 HP
I	--	MAIN DISCONNECT SWITCH	
		OPERATING VOLTAGE	480V
		CURRENT RATING	200A
		CURRENT LIMITING	CLASS J
		FUSES TYPE & SIZE	150A
II	--	MOTOR CONTROL CENTER MAIN BUS - 3/C COPPER	
		OPERATING VOLTAGE	
		CURRENT RATING	
		NEUTRAL SIZE & TYPE	
		BUS BRACING	
III	(SEE NOTE 1) 1	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
IV	2 3 5	PUMP MOTOR STARTERS	
		QUANTITY	3
		MOUNTING (SEE NOTE 3)	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	480V
		FRAME SIZE	100A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	42KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	480V
		SIZE (SEE NOTE 4)	NEMA 2
		OVERLOAD PROTECTION	AMPS MOTOR NAMEPLATE
		TYPE	MFGR SPEC
V	5	CT RATIO	50:5
		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	CLASS J
		FUSES TYPE & SIZE	150A
IX	(SEE NOTE 2) 1G	GENERATOR TRANSFER SWITCH	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE

NOTES:

- WHERE GENERATOR SERVICE IS ANTICIPATED,
PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED
WITH GENERATOR/TRANSFER BREAKER.
- PROVIDE TRIP SETTING BASED ON GENERATOR SIZE.
BREAKERS TO BE SIZED AT MAXIMUM ALLOWBLE SIZE.
- STARTERS TO BE MOUNTED IN CONTROL CABINET
ADJACENT TO PLC AND ASSOCIATED RELAY EQUIUPMENT.
- STARTERS TO BE NEMA RATED FOR FULL VOLTAGE
STARTING.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302	DATE: 12/10/2025	
SURVEYED BY: KUO ASSOC FB NO. P-6409		IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
LINKWOOD LIFT STATION 3 PUMP INDOOR/OUTDOOR DEVICE SCHEDULE		
WBS NUMBER		FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3		
SCALE:		
N.T.S		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.142 OF 291		



BH ID	SURVEY POINT NO.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION (FT)
SADDLEBROOK LS						
BH—GB—1	42808	13849104.22	3084536.44	13847304.07	3084135.51	54.17

BENCHMARK:
CITY OF HOUSTON MONUMENT 5158-7304, A BRASS DISK IN CONCRETE, LOCATED APPROXIMATELY 440 FEET WEST FROM THE INTERSECTION OF CHIMNEY ROCK RD AND MEMORIAL DR.

ELEV. 59.40 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 18, 2025.

T.B.M. #1:
SET "X" CUT ON CONCRETE LOCATED AT NORTH SIDE OF MEMORIAL DR APPROXIMATELY 200 FEET SOUTHWEST OF THE INTERSECTION OF PARK LAURETTE DR.

ELEV. 57.90 FEET

VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARKS (RM 040750) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.03".

NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.03 FT

HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83, THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.	

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE
PURPOSE OF INTERIM REVIEW UNDER THE
AUTHORITY

OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

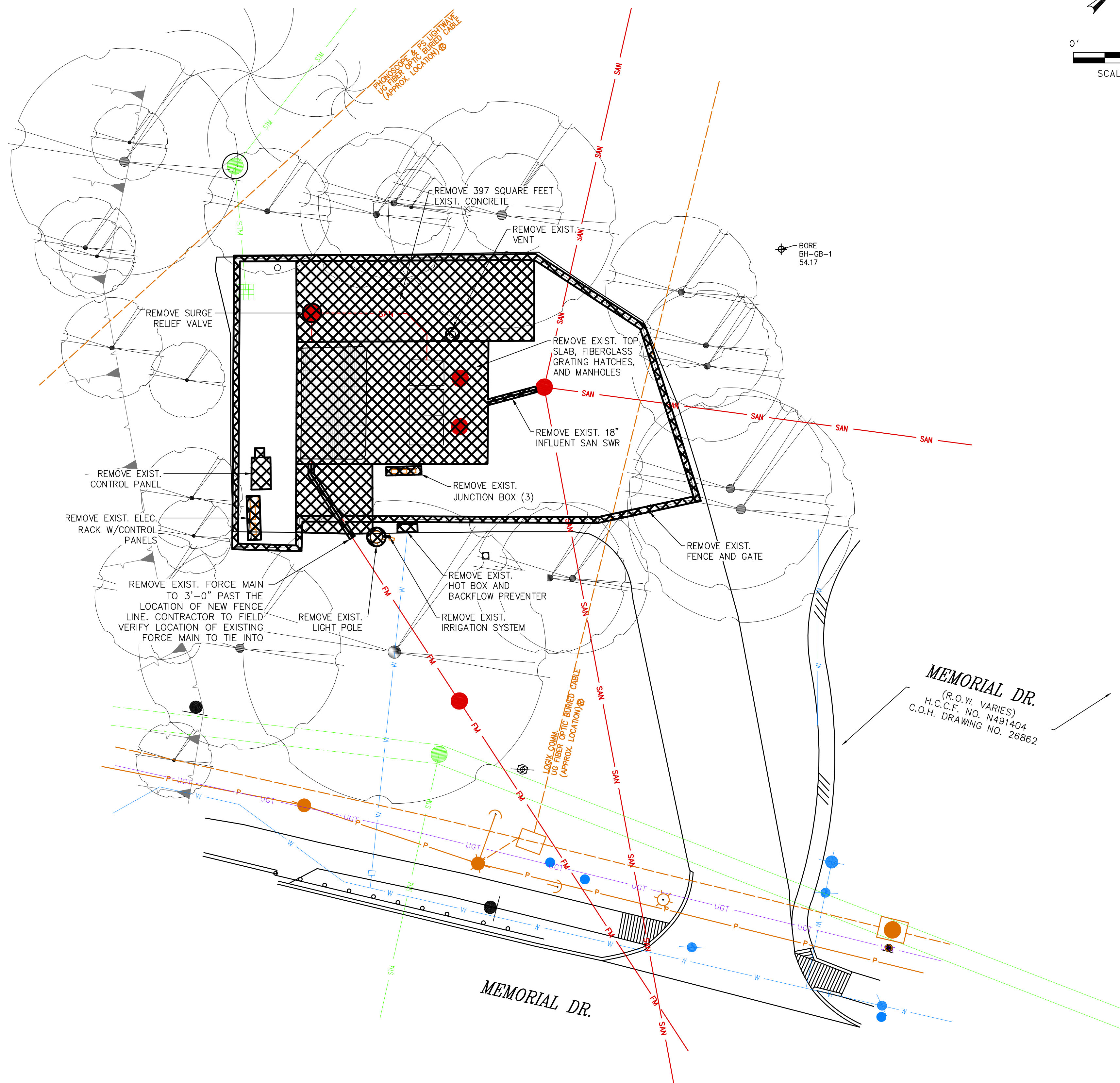
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION EXISTING SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.143 OF 291	



1. SEE DRAWING SB-C4 FOR LIFT STATION PLAN AND PROFILE DEMOLITION.
2. CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES AND THE DISPOSAL FACILITY.
3. NOTIFY THE CITY 48 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE THE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE
4. CITY TO HAVE THE RIGHT OF FIRST REFUSAL. DELIVER SALVAGE ITEMS TO THE CITY OF HOUSTON FACILITY WITHIN CITY. OTHER ITEMS TO BE DISPOSED OF BY THE CONTRACTOR AT THE EXPENSE OF THE CONTRACTOR.
5. REFER TO LEAD AND ASBESTOS MATERIAL TESTING REPORTS FOR ANY SPECIAL HANDLING AND/OR DISPOSAL REQUIREMENTS.
6. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PIPING, VALVES, PUMPS AND MATERIALS IN WET WELL UNLESS OTHERWISE STATED.
7. PROVIDE TEMPORARY PLUG FOR THE EXISTING 18 INCH SANITARY SEWER LEADING TO THE LIFT STATION DURING DEMOLITION/CONSTRUCTION. CONTRACTOR TO FIELD VERIFY INFLUENT SANITARY SEWER SIZE
8. EXISTING UTILITY LOCATIONS WERE DEVELOPED FROM BEST INFORMATION AVAILABLE. CONTRACTOR IS TO FIELD VERIFY EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. ALL SHOP DRAWINGS USE TO HAVE FIELD VERIFIED FACILITY, STRUCTURAL, AND UTILITY LOCATIONS INDICATED.
9. CONTRACTOR SHALL NOT BEGIN DEMOLITION OF LIFT STATION UNTIL DIVERSION PUMPING IS OPERATIONAL. SEE SPECIFICATION 01506 FOR DIVERSION PUMPING REQUIREMENTS, INCLUDING CAPACITY.
10. CONTRACTOR SHALL PROTECT PAVEMENT, INCLUDING DRIVEWAY, NOT SHOWN TO BE REMOVED. RESTORE TO EQUAL OR BETTER CONDITION IF DAMAGED.
11. CONTRACTOR TO COORDINATE WITH THE CITY OF HOUSTON FOR REMOVAL OF THE WASTEWATER SAMPLING EQUIPMENT CURRENTLY ON SITE
12. THE SOUND PRODUCED BY THE ERECTION, EXCAVATION, CONSTRUCTION, OR DEMOLITION OF ANY BUILDING OR STRUCTURE, INCLUDING THE USE OF ANY NECESSARY TOOLS OR EQUIPMENT, CONDUCTED BETWEEN THE HOURS OF 7 A.M. AND 8 P.M., SHALL NOT PRODUCE A SOUND EXCEEDING 85 dB(A) WHEN MEASURED FROM THE PROPERTY LINE OF THE RESIDENTIAL PROPERTY WHEN THE SOUND IS BEING RECEIVED.

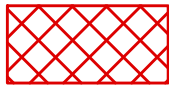
ITEM TO BE DEMOLISHED
OR REMOVED

SHEET NO.144 OF 291



- NOTES
1. CONTRACTOR TO REFER TO SHEETS SB-C2 AND SB-C4 FOR DEMOLITION DETAILS
 2. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS
 3. PHOTOS TAKEN PRIOR TO FENCE AND GATE INSTALLATION

LEGEND

 ITEM TO BE DEMOLISHED OR REMOVED

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY
OF: ANA K. TREJO
P.E.# 125772
DATE: 05/01/2026
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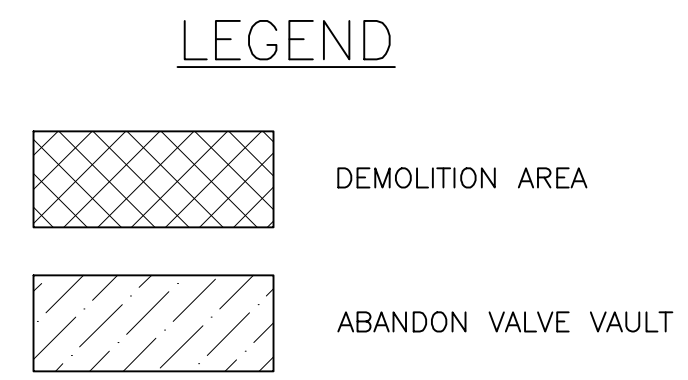
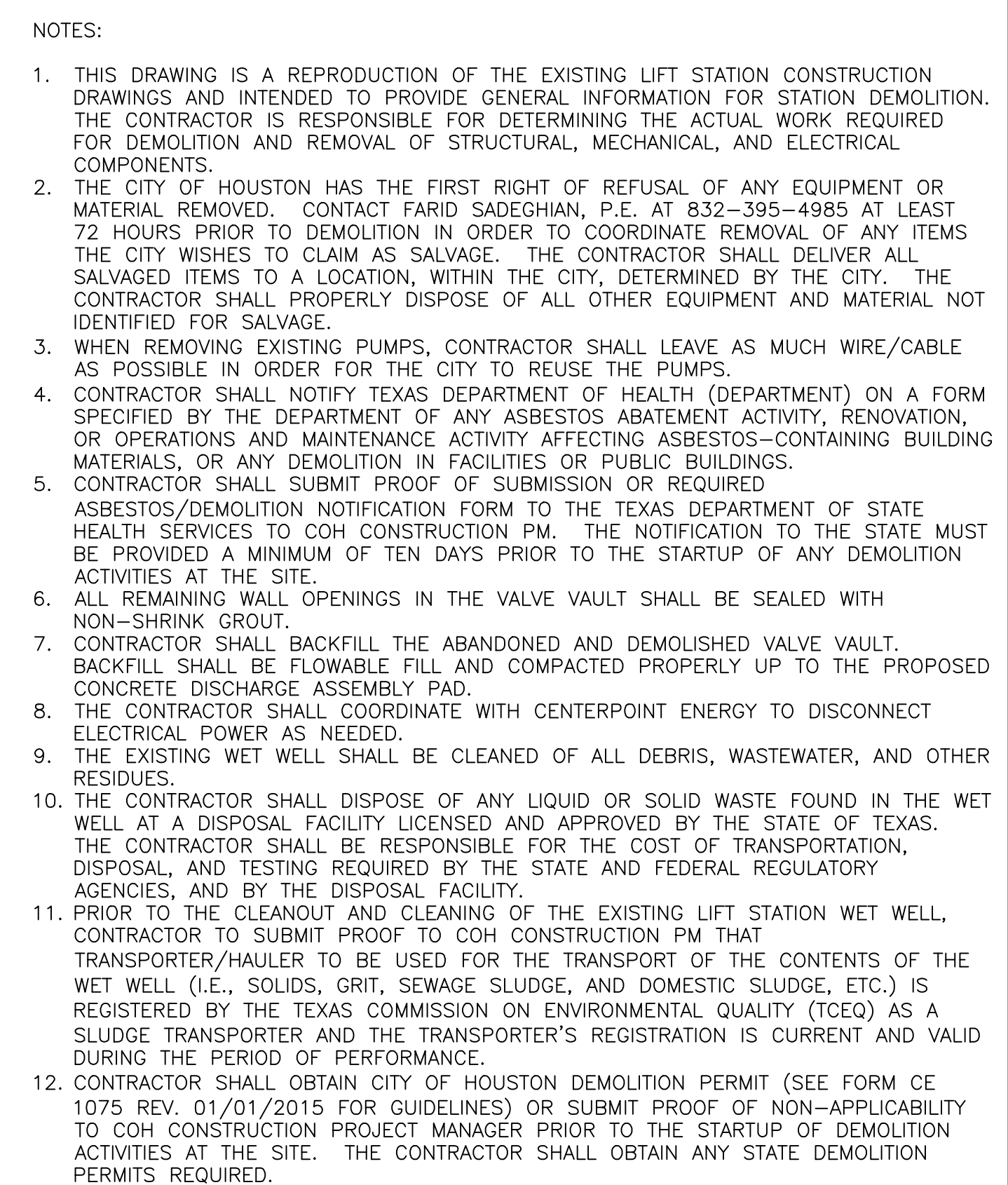
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FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION
DEMOLITION PHOTOS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.145 OF 291	



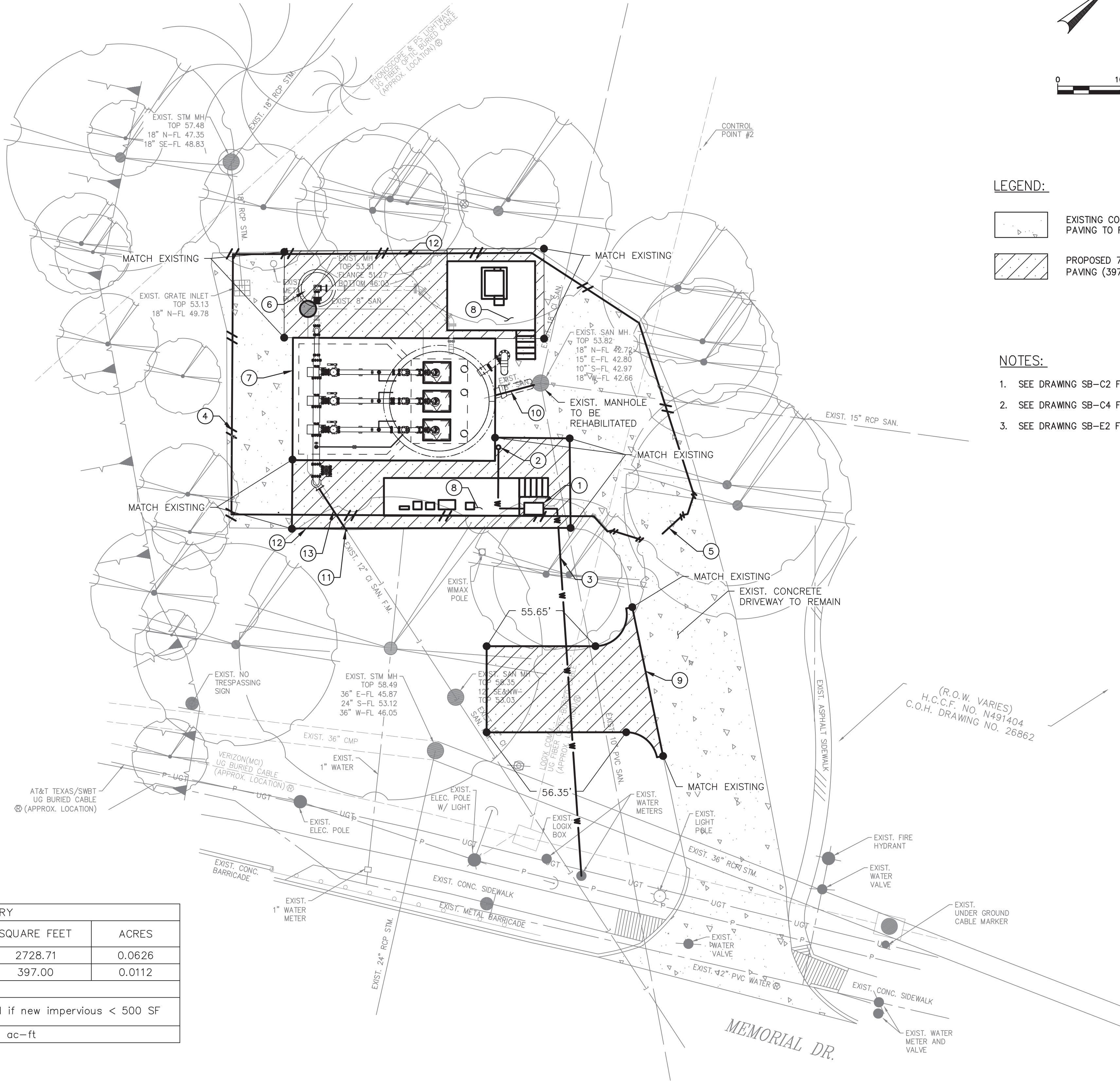
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LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION PLAN AND PROFILE DEMOLITION PLAN		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1/4"=1'-0"		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.146 OF 291		

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - JB coh 1923 lift stations rehabilitation and reconstruction\Cadd_DWG\Full Set\Xref\148 SADDLE BROOK LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN.dwg May 05, 2025 - 2:15pm elevs

KEY NOTES:

- PROPOSED REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER (SEE DETAIL DRAWING D-4)
- PROPOSED 3/4" NON-FREEZE HOSE BIB (SEE DETAIL DRAWING D-5)
- PROPOSED 3/4" TYPE K COPPER WATER SERVICE LINE (SEE DETAIL DRAWING D-4)
- EXISTING 6' CHAINLINK FENCE WITH 3 BARBED WIRE STRANDS AND PROPOSED GREEN PVC SLATS (SEE DETAIL DRAWING D-4)
- PROPOSED 16' WIDE DOUBLE SWING GATE (SEE DETAIL DRAWING D-4)
- REMOVE AND REPLACE SURGE RELIEF VALVE (SEE DETAIL SHEET D-5)
- PROPOSED LIFT STATION SLAB & PIPING (SEE SHEET SB-C7)
- PROPOSED ELEVATED ELECTRICAL PLATFORM (SEE STRUCTURAL SHEET SB-S3)
- PROPOSED 7 "THICK CONCRETE TURNAROUND (SEE DETAIL SHEET D-5)
- PROPOSED 8 LF OF 21" SANITARY SEWER
- PROPOSED DIP WET CONNECTION ONTO EXISTING SANITARY FORCE MAIN
- REPLACE SUBSIDED CONCRETE (SEE DETAIL SHEET D-5)
- PROPOSED 5 LF OF 12" DIP SANITARY FORCE MAIN

DETENTION SUMMARY		
	SQUARE FEET	ACRES
EXISTING IMPERVIOUS AREA	2728.71	0.0626
NEW IMPERVIOUS AREA	397.00	0.0112
Per IDM 9.2.01.H.3.d • No detention required if new impervious < 500 SF		
Total Det. Vol.: = 0 ac-ft		



LEGEND:

- EXISTING CONCRETE PAVING TO REMAIN
- PROPOSED 7" CONCRETE PAVING (397 SF)

NOTES:

- SEE DRAWING SB-C2 FOR SITE DEMOLITION PLAN.
- SEE DRAWING SB-C4 FOR LIFT STATION DEMOLITION PLAN.
- SEE DRAWING SB-E2 FOR ELECTRICAL SITE PLAN.

BENCHMARK:
CITY OF HOUSTON MONUMENT 5158-7304, A BRASS DISK IN CONCRETE, LOCATED APPROXIMATELY 440 FEET WEST FROM THE INTERSECTION OF CHIMNEY ROCK RD AND MEMORIAL DR.

ELEV. 59.40 FEET NAVD 1988 (GEOD '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 18, 2025.

T.B.M. #1:
SET "X" CUT ON CONCRETE LOCATED AT NORTH SIDE OF MEMORIAL DR APPROXIMATELY 200 FEET SOUTHWEST OF THE INTERSECTION OF PARK LAUREATE DR.

ELEV. 57.90 FEET

VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040750) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOD '18) IS 0.03'.

NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOD '18) ELEVATION + 0.03 FT

HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

AMANI ENGINEERING, INC.
11011 RICHMOND AVE., SUITE 700 HOUSTON, TEXAS 77042
TEL: (713) 270-5700
Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-00

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MAHESH DUTTA 114252
NAME P.E. NO.
DATE 4/2/2026
TBPELS FIRM #F-4528

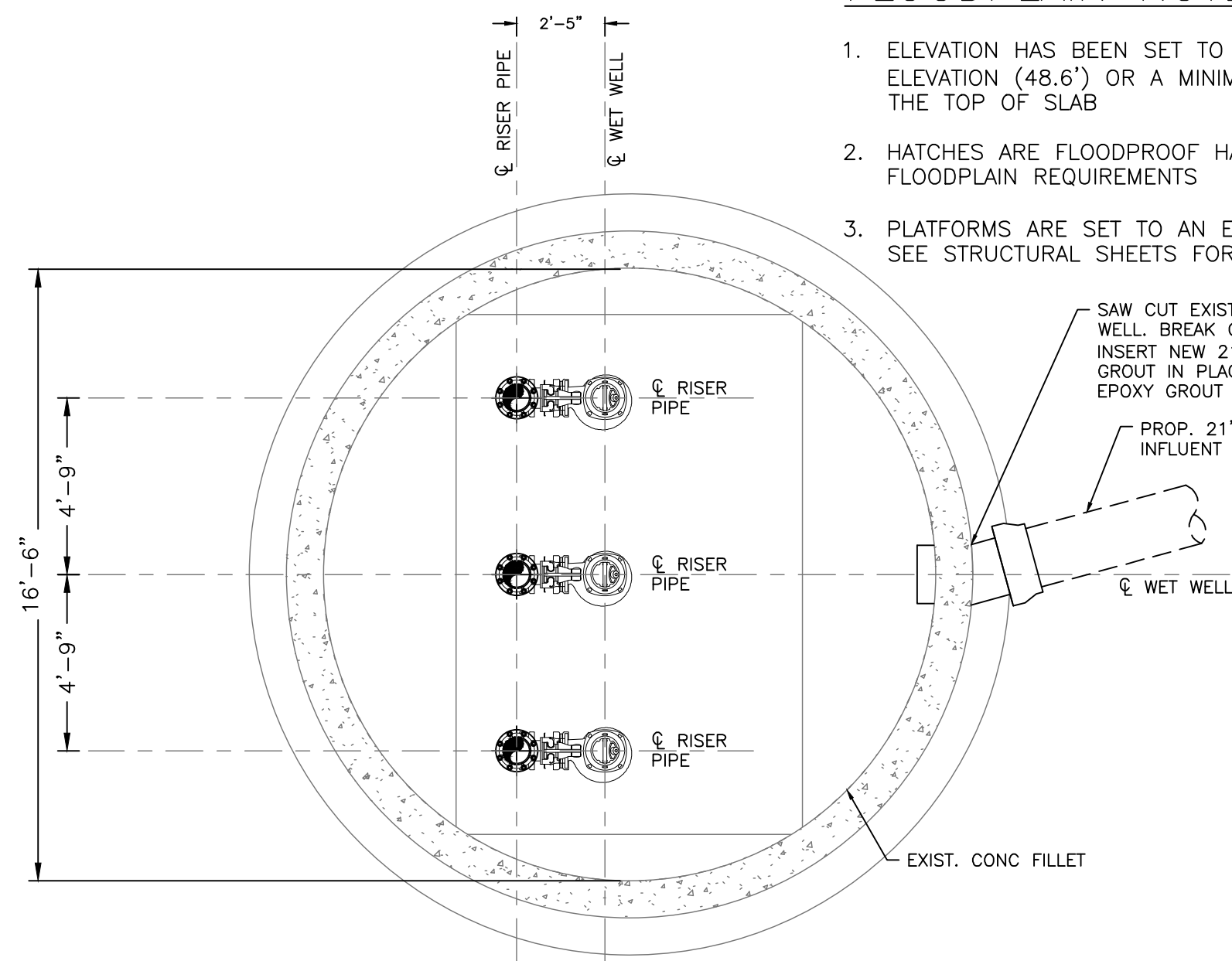
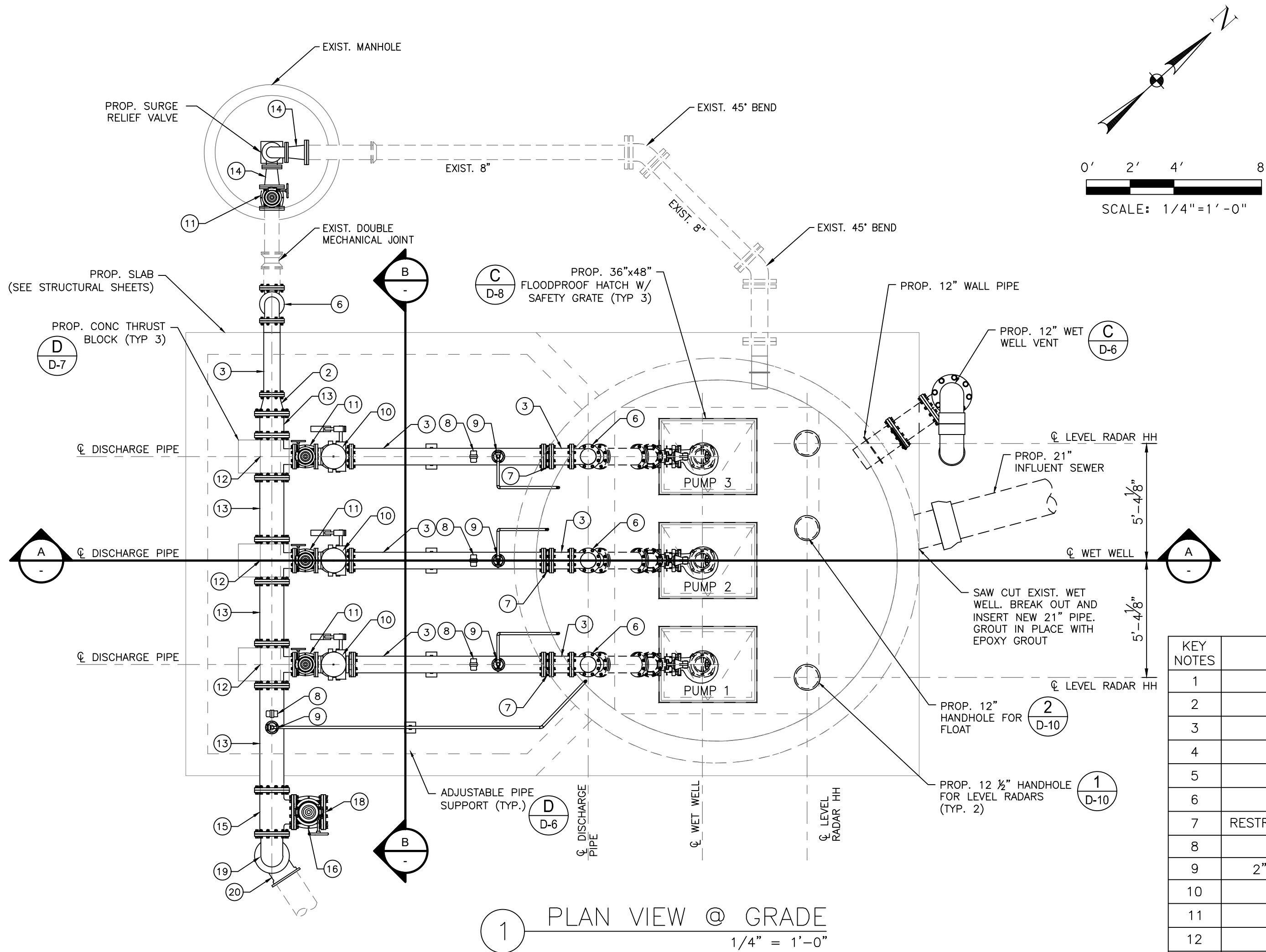
SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

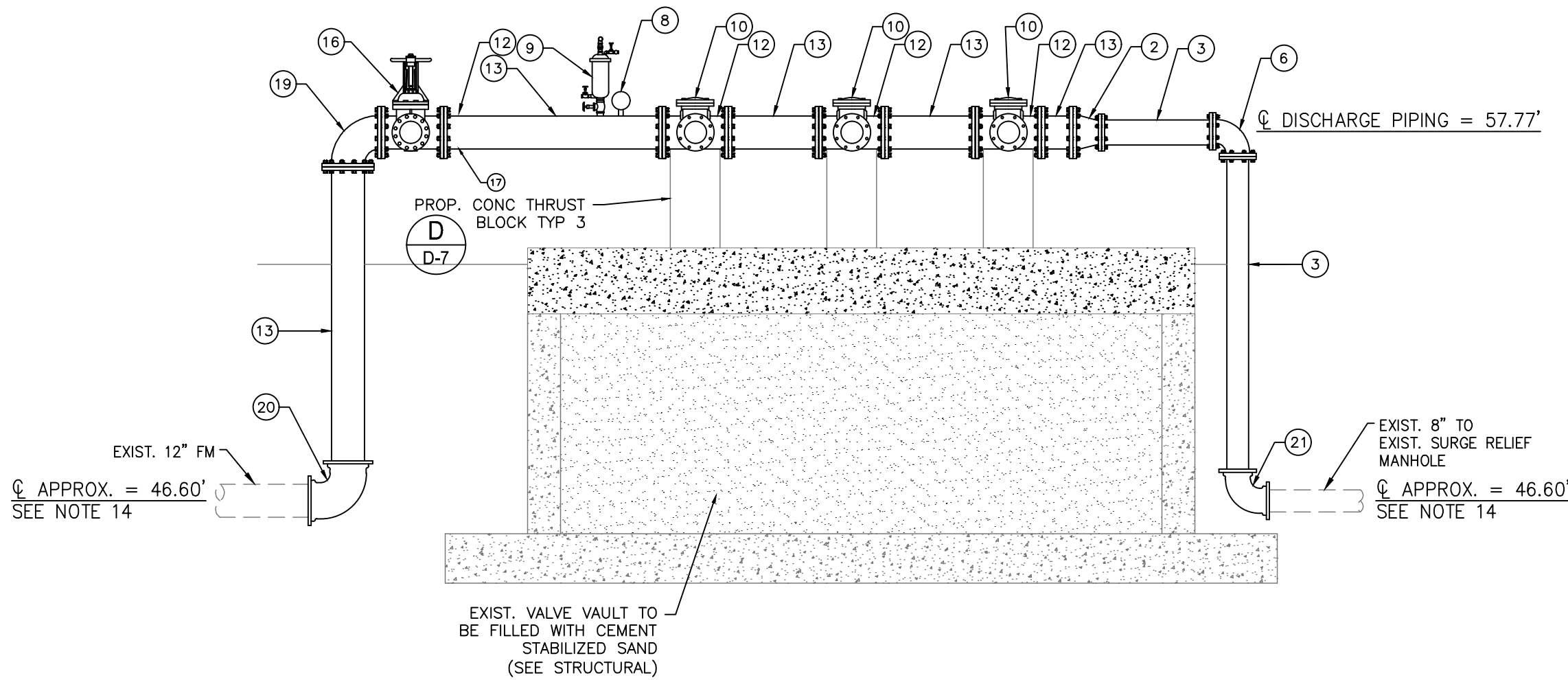
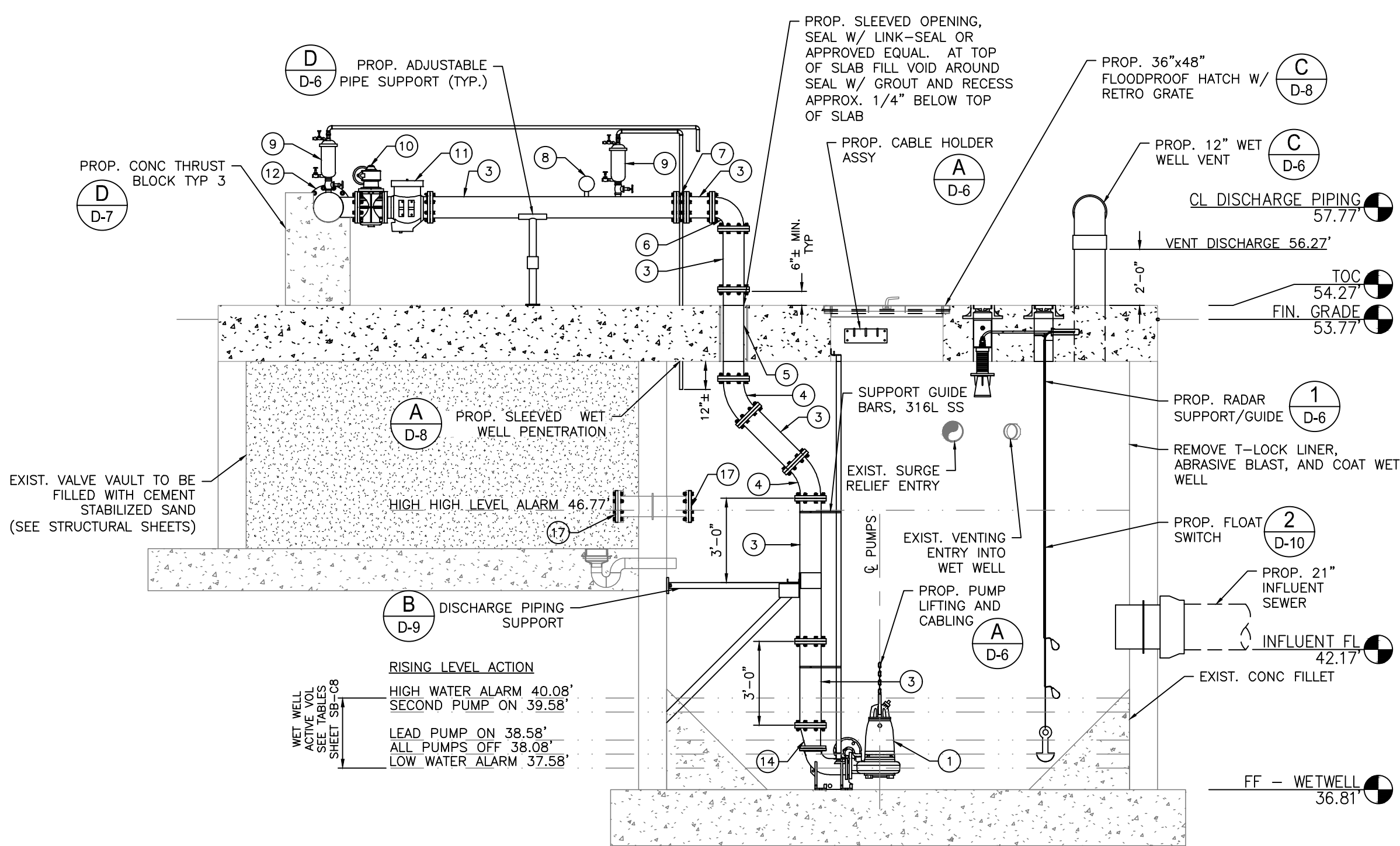
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION
PROPOSED CIVIL SITE AND GRADING PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.148 OF 291	



KEY NOTES	ITEM	QTY
1	PUMP	3
2	ECCENTRIC REDUCER (12"x8")	1
3	SPOOL PIECE (8")	19
4	45° ELBOW (8")	6
5	SLEEVED OPENING (8")	3
6	90° ELBOW (8")	5
7	RESTRAINED FLANGED COUPLING ADAPTER (8")	3
8	PRESSURE GAUGE	4
9	2" AIR AND VACUUM VALVE AND PIPING	4
10	CHECK VALVE (8")	3
11	PLUG VALVE (8")	4
12	TEE (12"x8")	3
13	SPOOL PIECE (12")	4
14	ECCENTRIC REDUCER (8"x6")	5
15	TEE (12"x12")	1
16	PLUG VALVE (12")	1
17	BLIND FLANGE (8")	2
18	BLIND FLANGE (12")	1
19	90° ELBOW (12")	2
20	90° MJ ELBOW (12")	1
21	90° MJ ELBOW (8")	1



FLOODPLAIN NOTES:

- ELEVATION HAS BEEN SET TO MEET THE 100-YR +1' ELEVATION (48.6') OR A MINIMUM OF 2 FEET ABOVE THE TOP OF SLAB
- HATCHES ARE FLOODPROOF HATCHES TO MEET FLOODPLAIN REQUIREMENTS
- PLATFORMS ARE SET TO AN ELEVATION OF 500-YR +3'. SEE STRUCTURAL SHEETS FOR DETAILS.

NOTES:

- DIMENSIONS NOTED ARE RELATIVE TO THE PUMP SIZE AND MANUFACTURER SELECTED. CONTRACTOR SHALL VERIFY.
- SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
- PUMP ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
- CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS, AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
- ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE THE WET WELL.
- LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH. LABEL CHECK VALVES WITH THE CORRESPONDING VALVE NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING ADHERED TO THE TOP OF THE CHECK VALVE.
- CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES
- CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS
- INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
- INSTALL CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSED POSITION; AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
- ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
- UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.
- CONTRACTOR TO BLAST AND RECOAT THE WET WELL AND TOP SLAB.
- CONTRACTOR TO FIELD VERIFY THE FLOW LINE AND DEPTH OF THE EXISTING FORCE MAIN FOR TIE IN

LEGEND



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY

OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

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CITY OF HOUSTON

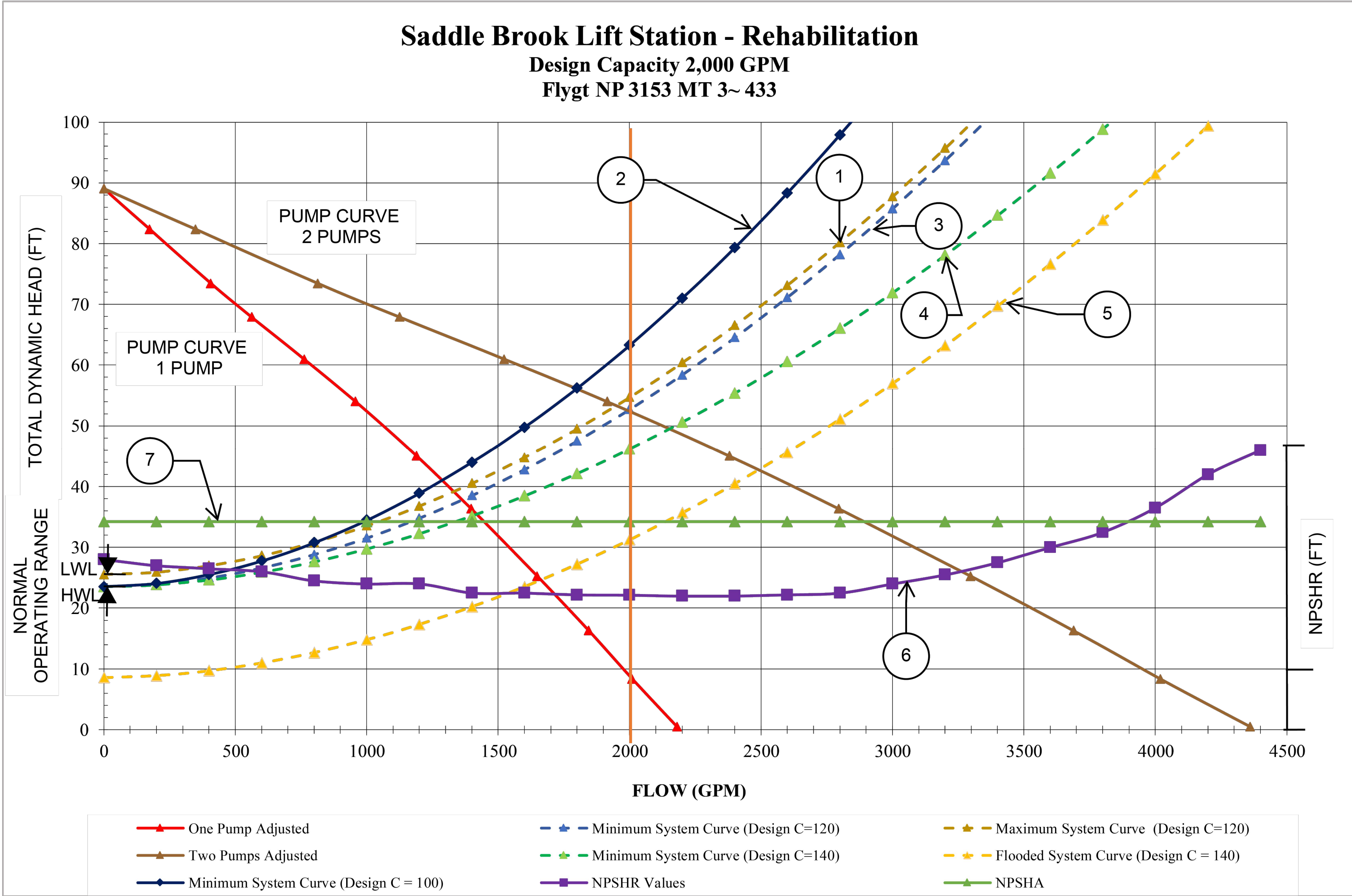
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1/4"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 149 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects\CAD\Drawings\150 SADDLEBROOK LS TABLES.dwg May 07, 2026 - 1:25pm trowbridge



PUMP CURVE NOTES:

1. LOW NORMAL OPERATING LEVEL
C=120 - DESIGN
2. HIGH NORMAL OPERATING
LEVEL C=100 - INFORMATION ONLY (TCEQ)
3. HIGH NORMAL OPERATING LEVEL
C=120 - DESIGN
4. HIGH NORMAL OPERATING LEVEL
C=140 - INFORMATION ONLY
5. EMERGENCY FLOODED OPERATING LEVEL
C=140 - MAXIMUM DISCHARGE
6. NET POSITIVE HEAD SUCTION REQUIRED (NPSHR)
BASED ON NORMAL OPERATING WATER LEVEL
7. NET POSITIVE SUCTION HEAD AVAILABLE (NPSHA)

PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3
MOTOR DATA			
NOMINAL SIZE (HP)	20	20	20
MAX SPEED (RPM)	1,760	1,760	1,760
SOLIDS PASSAGE			
MIN SPHERE (IN)	3	3	3
CAPACITY (GPM)			
DESIGN	1,330	1,330	1,330
RUNOUT	2,180	2,180	2,180
DISCHARGE HEAD (FT)			
DESIGN	52.00	52.00	52.00
RUNOUT	0.50	0.50	0.50
SHUT OFF	89.00	89.00	89.00
EFFICIENCY (%)			
DESIGN	77.61	77.61	77.61
NPSHR (FT)			
DESIGN	22.14	22.14	22.14
RUNOUT	46.00	46.00	46.00
PUMP CYCLE TIME	6 MIN	6 MIN	6 MIN
CUMULATIVE CAPACITY (GPM)	1,330	2,000	2,525

STATION OPERATION TABLES

RISING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
1.27	38.08	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
1.77	38.58	LEAD PUMP TURNS ON	LEAD PUMP ON
2.77	39.58	SECOND PUMP TURNS ON	LEAD & SECOND PUMPS ON
3.27	40.08	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
9.96	46.77	HIGH HIGH LEVEL ALARM (FLOAT ON LEVEL)	FIRM PUMPS ON (FLOATS)

FALLING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
4.27	41.08	FLOAT OFF LEVEL	FIRM PUMPS OFF (FLOATS)
3.27	40.08	HIGH WATER LEVEL ALARM OFF	LEAD & SECOND PUMPS ON
2.77	39.58	LEAD PUMP TURNS OFF	SECOND PUMP ON
1.27	38.08	SECOND PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP
0.77	37.58	LOW LEVEL ALARM	–

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

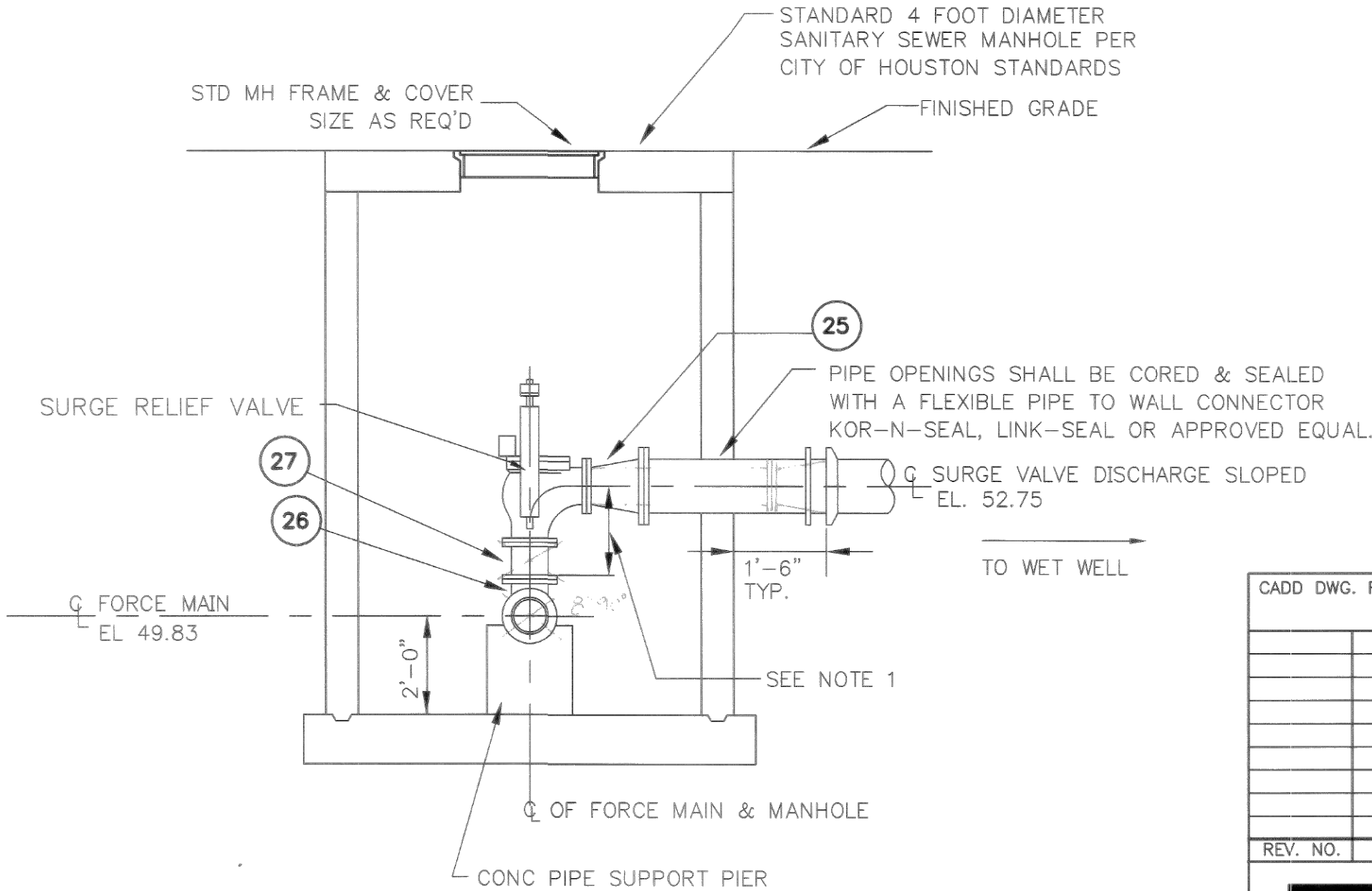
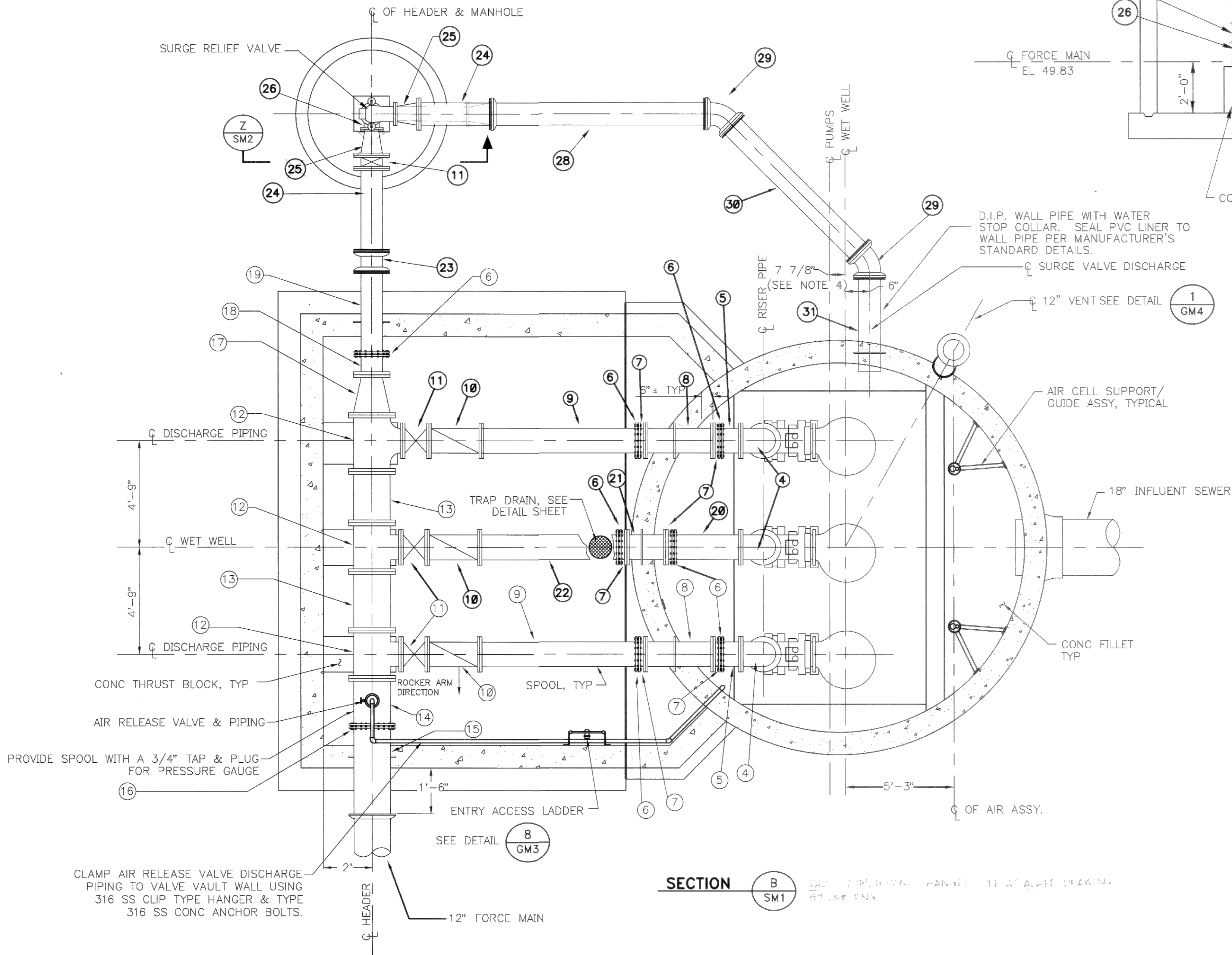
SADDLE BROOK LIFT STATION
TABLES AND DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.150 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD) SHEETS\151 SADDLEBROOK LIFT STATION RECORD DWG.dwg May 07, 2026 1:25pm trowbridge

NOTES:

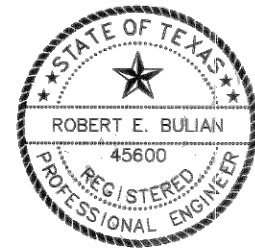
1. THE SURGE RELIEF VALVE DISCHARGE PIPE CENTERLINE DIMENSION SHALL BE ADJUSTED TO ACCOMMODATE THE VALVE SUPPLIED.
2. SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
3. DIMENSIONS NOTED ARE RELATIVE TO THE PUMP SIZE AND MANUFACTURER SELECTED. CONTRACTOR SHALL CONFIRM.
4. DIMENSIONS NOTED ARE RELATIVE TO THE PUMP SIZE. SAME SECTION DWG.



SECTION Z SM2

PIPE & FITTING SCHEDULE

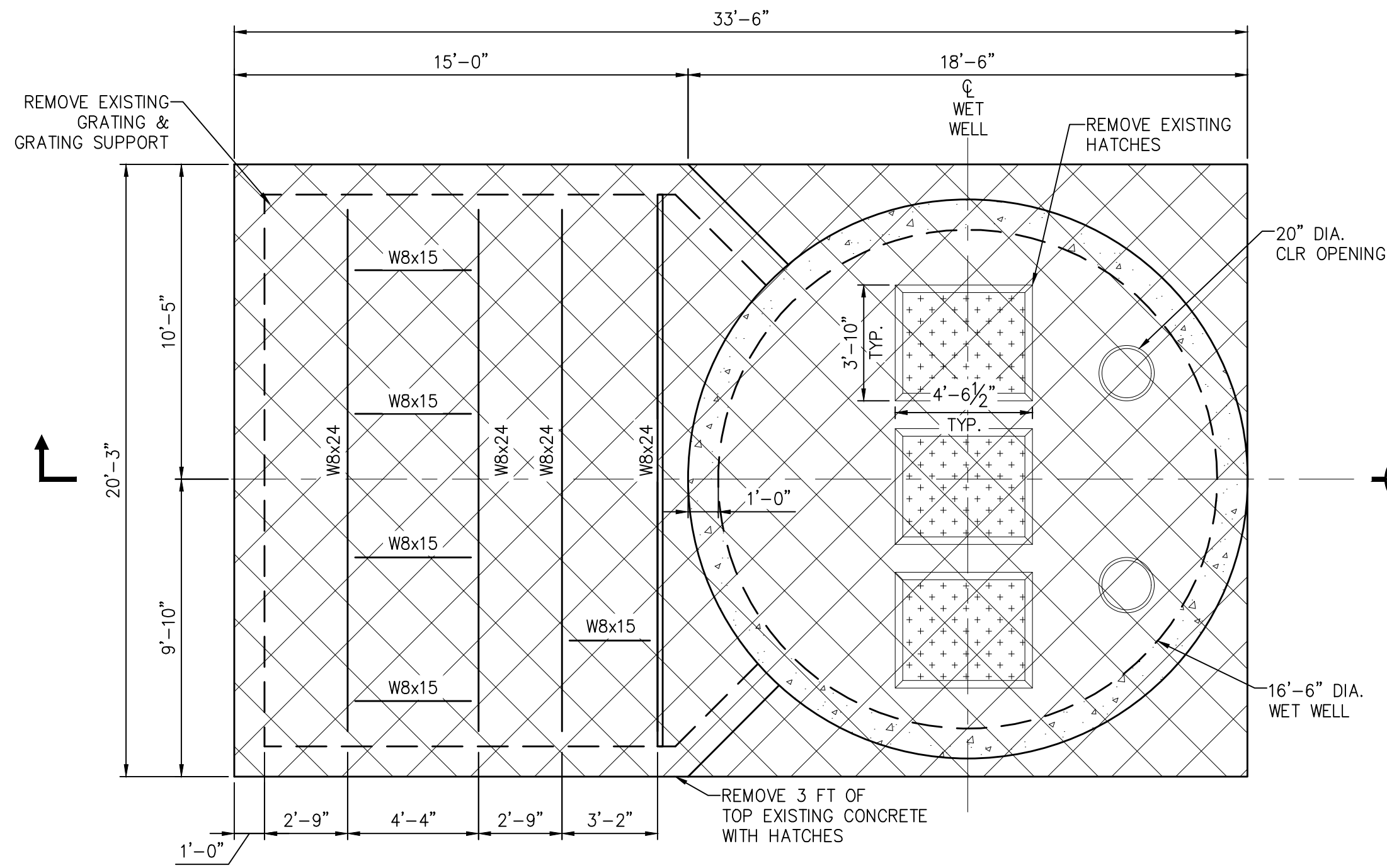
MARK	SIZE	TYPE	DESCRIPTION
1	8"	FE	MFG. BASE
2	8"	FE/FE	SPOOL
3	8"	FE/FE	SPOOL
4	8"	FE/FE	90° BEND
5	8"	FE/FE	SPOOL
6	8"	FE/FE	FLANGE ADAPTOR
7	8"	FE/FE	SPOOL
8	8"	FE/FE	WALL PIPE
9	8"	FE/FE	SPOOL
10	8"	FE/FE	CHECK VALVE
11	8"	FE/FE	PLUG VALVE
12	12"X12"X8"	FE/FE	TEE
13	12"	FE/FE	SPOOL
14	12"	FE/PE	SPOOL W/ 3/4" TAP
15	12"	FE/PE	WALL PIPE
16	12"	FE/PE	FLANGE ADAPTOR
17	12"X8"	FE/FE	REDUCER
18	8"	FE/PE	SPOOL
19	8"	FE/PE	WALL PIPE
20	8"	FE/PE	SPOOL
21	8"	FE/FE	WALL PIPE
22	8"	FE/FE	SPOOL
23	8"	MJ/MJ	DOUBLE MECHANICAL JOINT
24	8"	FE/FE	SPOOL
25	8"X6"	FE/FE	REDUCER OF SPOOL
26	6"X4"	FE/FE	90° BEND
27	6"	FE/FE	SPOOL 3/4" REDUCER
28	6"	MJ/PE	SPOOL
29	6"	MJ/MJ	45° BEND
30	6"	FE/PE	SPOOL
31	8"	FE/PE	WALL PIPE



CADD DWG. FILE NO. : 502MSD10.DWG	
REV. NO.	DESCRIPTION APP'D DATE
CLAUNCH & MILLER, INC. Engineering Consultants 2701 Kirby Drive, Suite 900 • Houston, Texas 77096 • (713) 524-7013	
CMI PROJECT NO. 94-021A	GHWWP PROJECT NO. R-1220-13-3
SADDLEBROOK LIFT STATION	
MECHANICAL PLAN AND SURGE VALVE SECTION 4450-2	
PRIVATE UTILITY LINES SHOWN	
ENTEX, INC.	DATE
SOUTHWESTERN BELL TELEPHONE CO. VALID FOR ONE YEAR ONLY	DATE
HOUSTON LIGHTING & POWER CO.	DATE
APPROVAL ONLY FOR CROSSING UNDERGROUND DUCT LINES UNLESS NOTED. VALID FOR ONE YEAR ONLY	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP	
SECTION APPROVALS	
WATER ENGINEERING	TRAFFIC AND SIGNAL ENGINEERING
WASTEWATER ENGINEERING	STREET & BRIDGE ENGINEERING
STORM SEWER ENGINEERING	CONSTRUCTION
OTHER DEPARTMENTS	
PLANNING AND DEVELOPMENT	SPONSOR DEPARTMENT
CITY ENGINEER	DATE
DIRECTOR OF PUBLIC WORKS AND ENGINEERING	DATE
SUBMITTED: CMI	DESIGNED BY: BULJAN
SCALE: AS NOTED	DRAWN BY: FULLER
DATE: AUGUST, 1996	SHEET NO. 54 OF 86 SHEETS
SURVEY BY: N/A	CITY DWG. NO.
F.B. NO.	32821

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
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SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION RECORD DRAWINGS PLAN VIEW		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 151 OF 291		

FOR REFERENCE ONLY



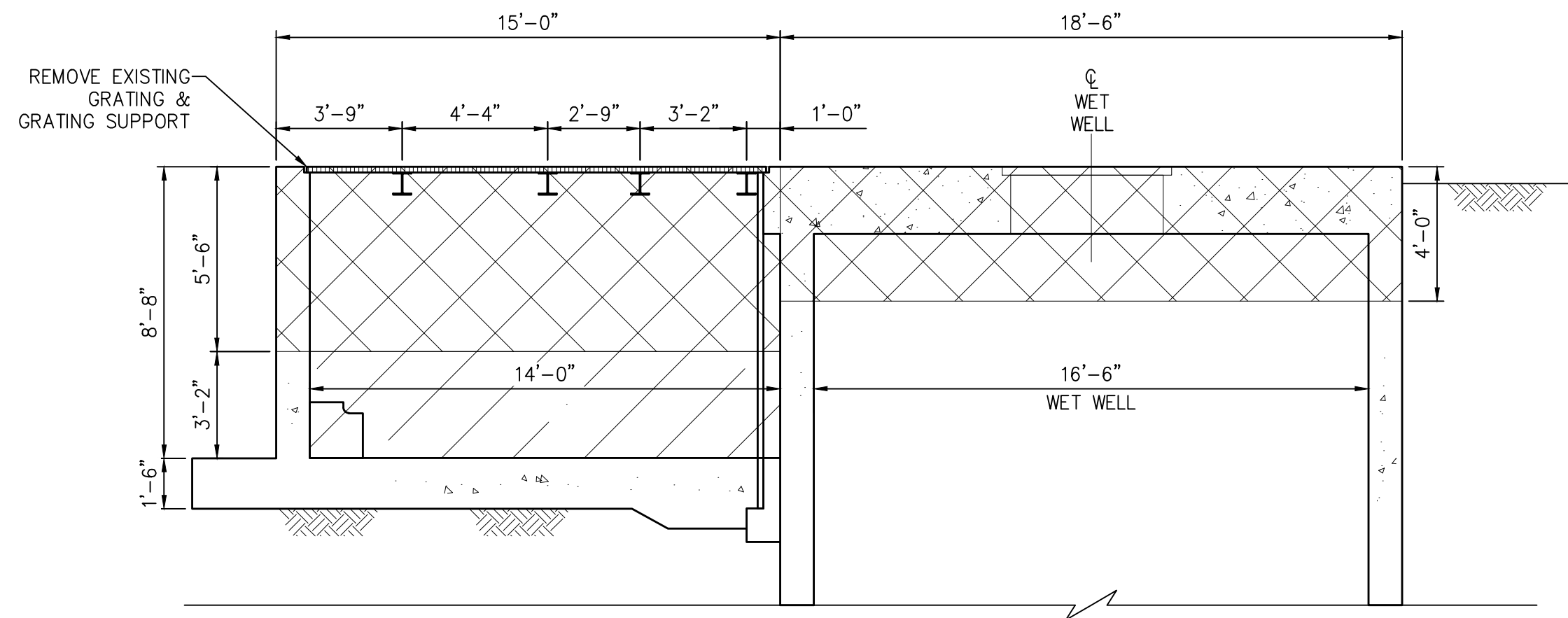
C EXISTING TOP SLAB PLAN VIEW
NTS

LEGEND:

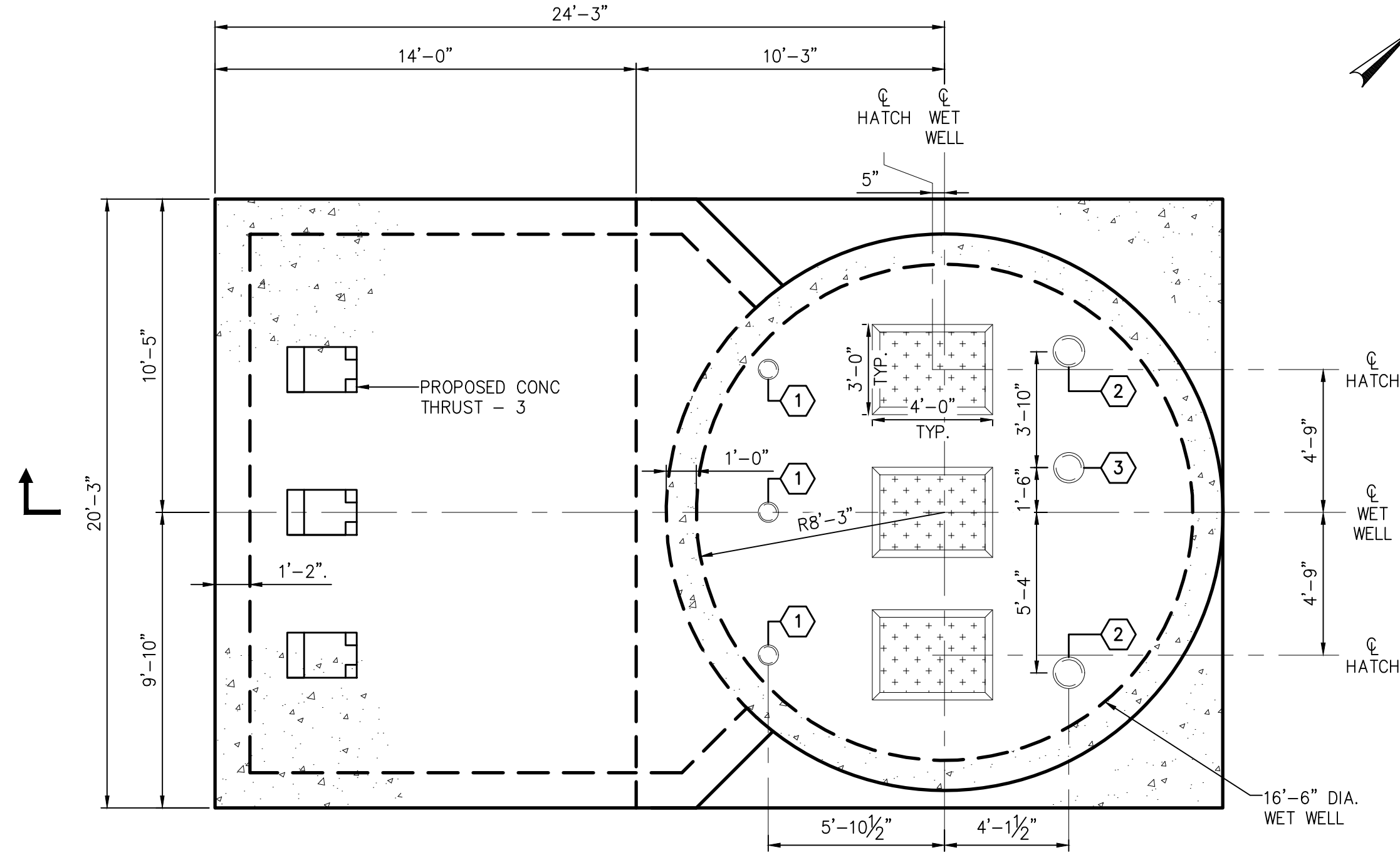
- DEMOLITION AREA
- ABANDON VALVE VAULT
- PROPOSED CEMENT STABILIZED SAND

DEMOLITION NOTES:

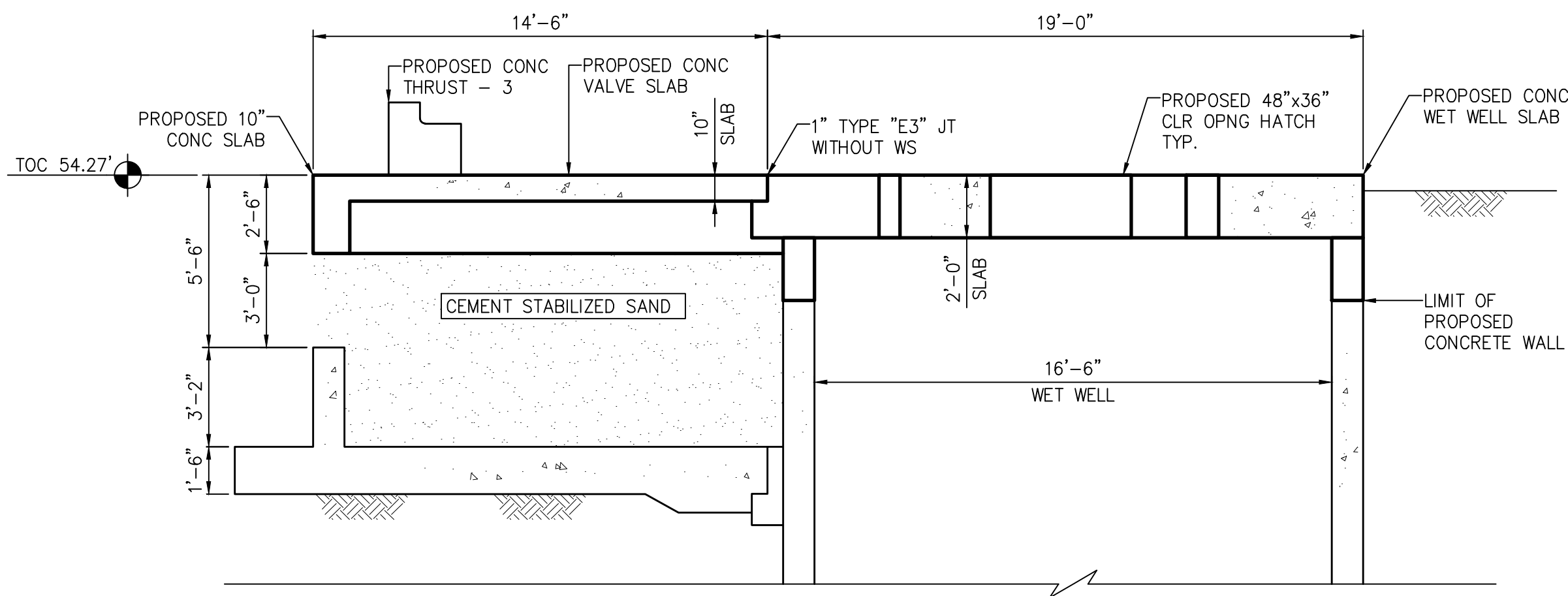
- CONTRACTOR TO DEMOLISH AND HAUL OFF EXISTING STEEL PLATFORM OVER VALVE VAULT, ALONG WITH THE STEEL GRATING.
- CONTRACTOR TO DEMOLISH AND HAUL OFF EXISTING CONCRETE PUMP TOP SLAB, ALONG WITH PUMP STATION AND VAULT WALLS. REFERENCE HATCHED REGIONS ON THIS SHEET ON BREAKING BACK CONCRETE.
- CONTRACTOR TO REMOVE AND HAUL OFF ANY CONCRETE REMNANTS LOCATED INSIDE THE VALVE VAULT.



D EXISTING ELEVATION VIEW
NTS



A PROPOSED TOP SLAB PLAN VIEW
NTS



B PROPOSED ELEVATION VIEW
NTS

NOTE:

- ABANDONED VALVE VAULT TO BE FILLED WITH CEMENT STABILIZED SAND. REFERENCE HATCHED REGION FOR LIMITS.

KEY NOTES:

- Ø8" CLEAR OPENING W/ HATCH REF: MECH. (TYP OF 3)
- Ø12 ½" CLEAR OPENING W/ HATCH REF: MECH. (TYPE OF 2)
- Ø12" CLEAR OPENING W/ HATCH REF: MECH.

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
SADDLE BROOK LIFT STATION
STRUCTURAL
TOP OF SLAB MODIFICATION
PLAN & DEMO

WBS NUMBER

R-000267-0176-3

SCALE:

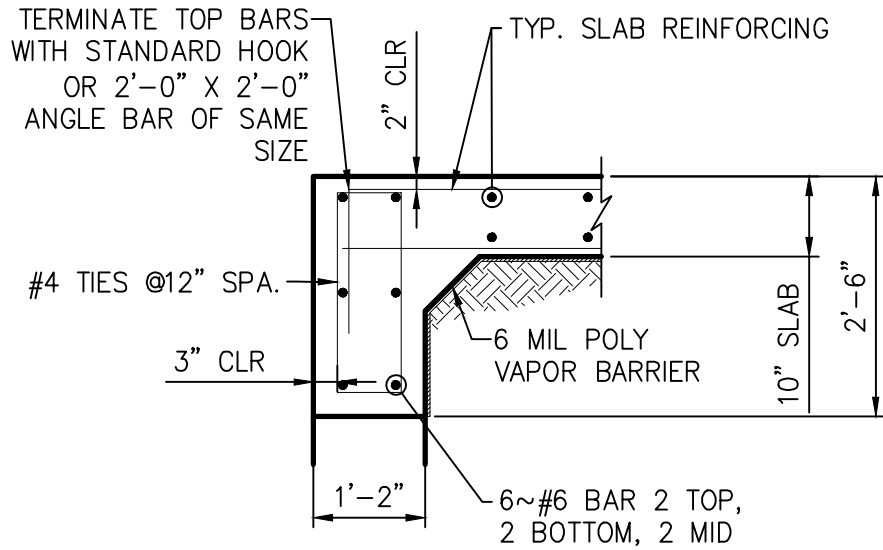
NTS

CITY OF HOUSTON PM

NAWARAJ PANTA, P.E.

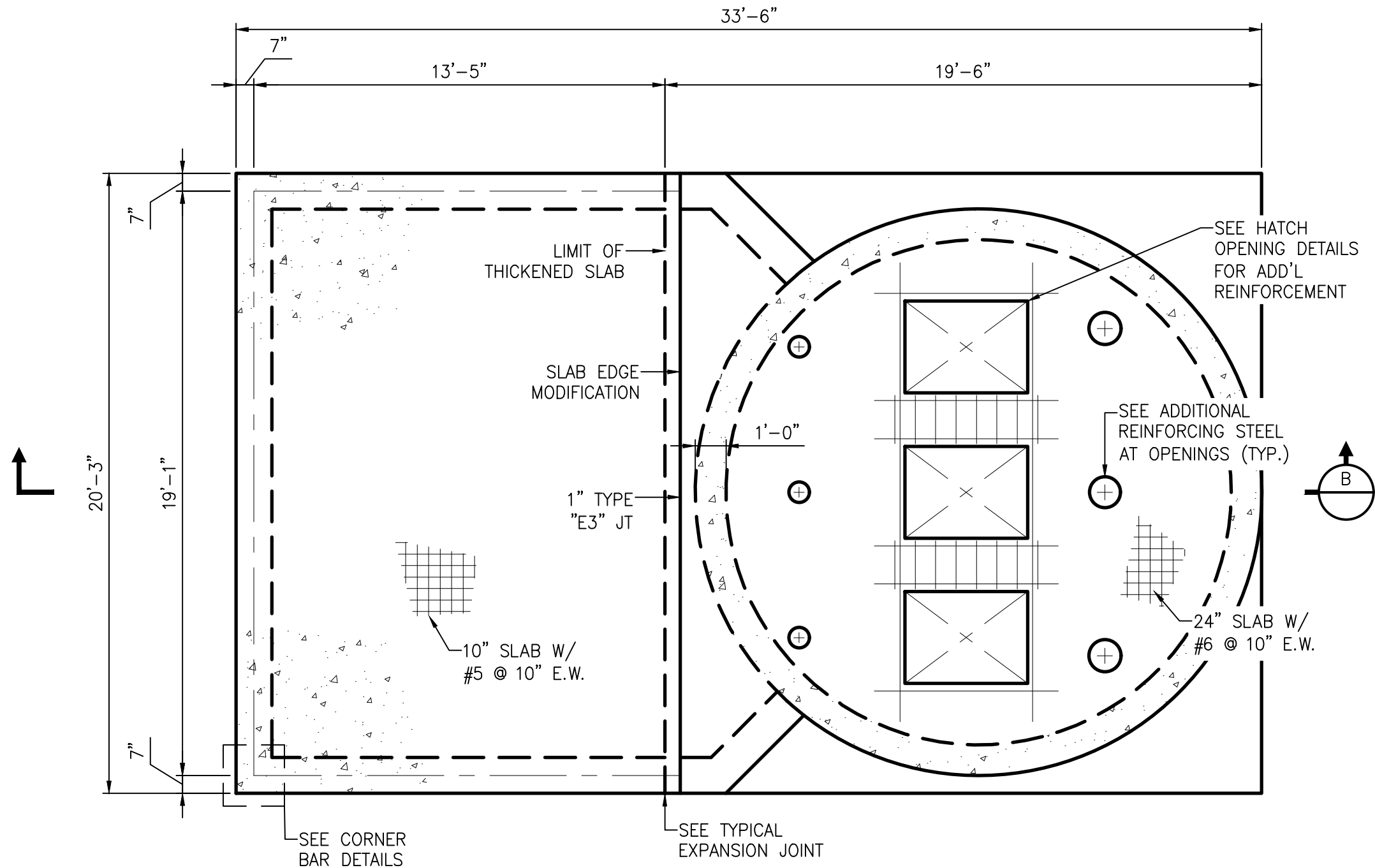
SHEET NO.153 OF 291

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land\2025\2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects\CAO\154-SB-S2.dwg May 07, 2026--1:25pm trowbridge

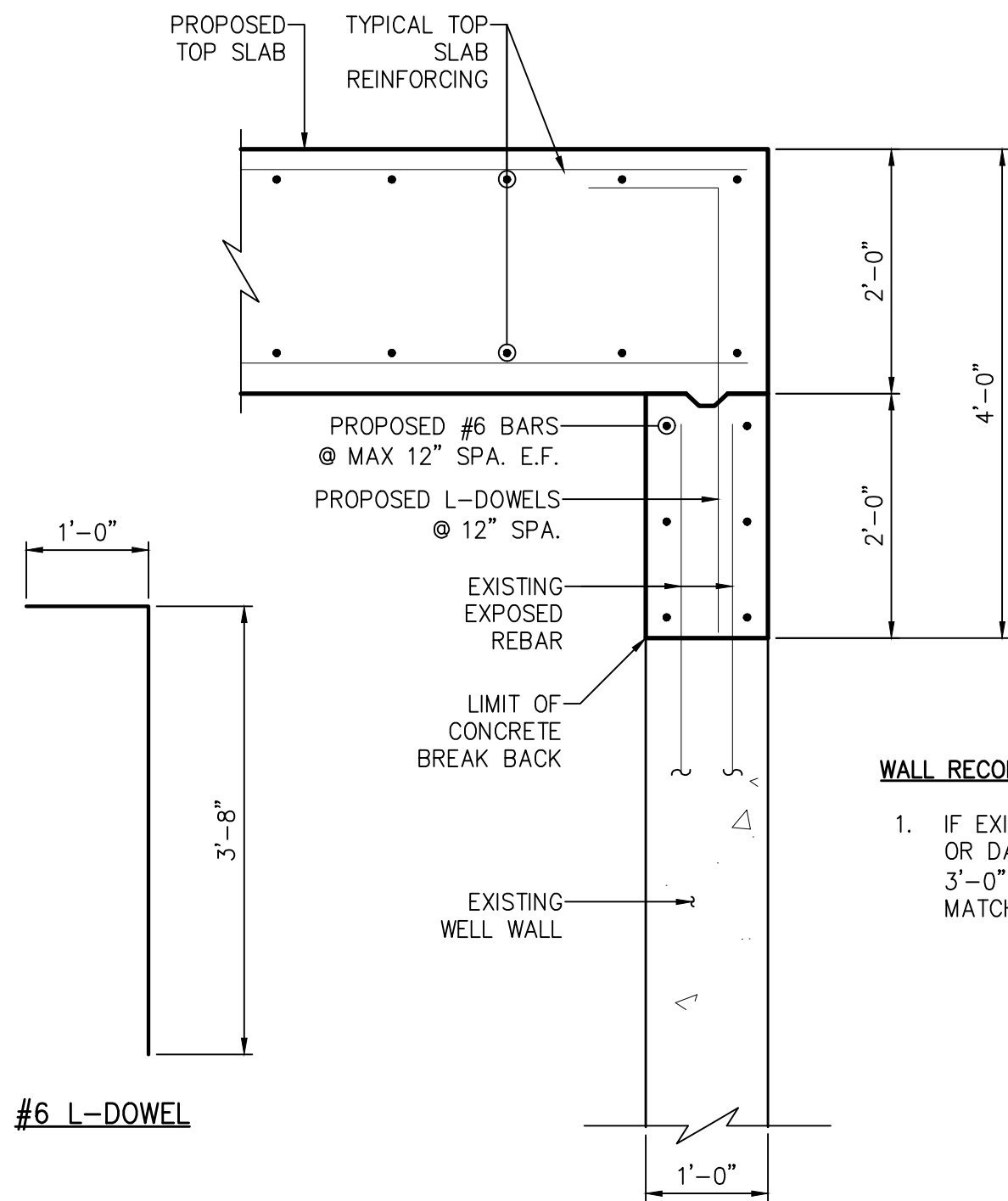


PERIMETER

C GRADE BEAM DETAILS
NTS



A PROPOSED TOP SLAB PLAN VIEW
NTS

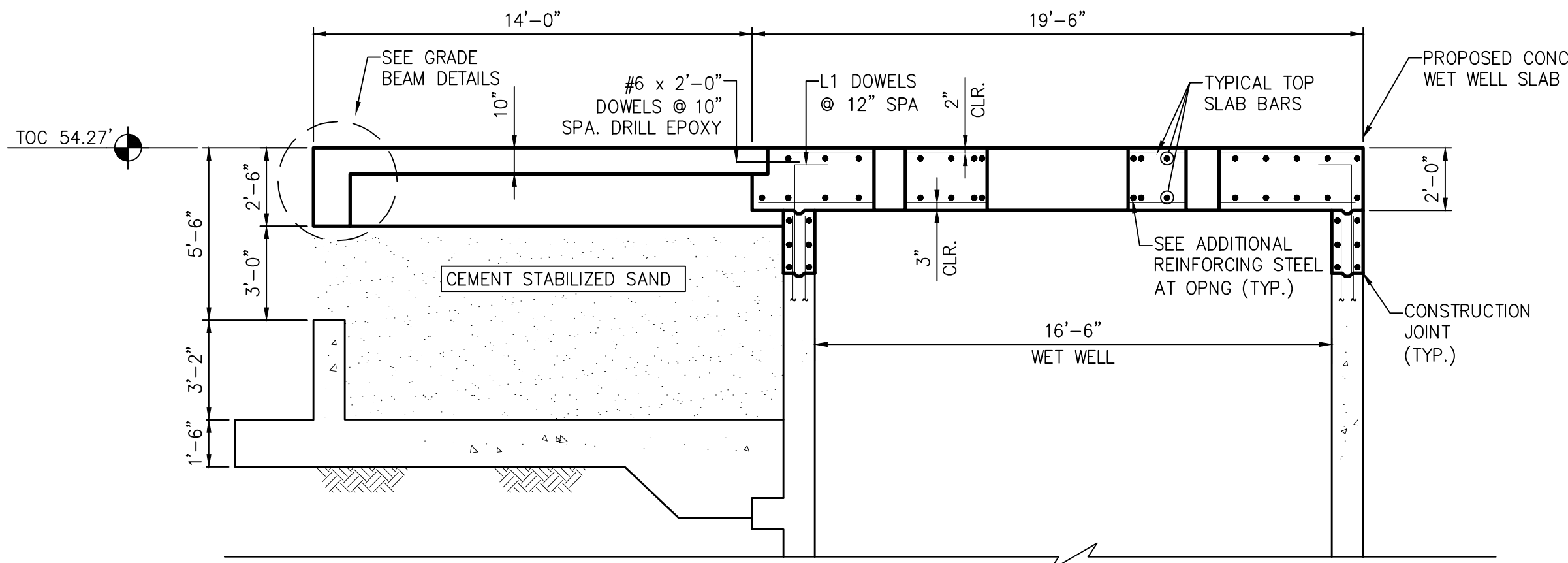


TYPICAL

D RECONSTRUCTED WELL WALL SECTION
NTS

WALL RECONSTRUCTION NOTES:

1. IF EXISTING BARS ARE NOT LONG ENOUGH OR DAMAGES, THEN DRILL & EPOXY #6 x 3'-0" DOWELS WITH MIN. 8" EMBEDMENT. MATCH PROPOSED WALL BAR SPACING.



B PROPOSED ELEVATION VIEW
NTS

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Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		

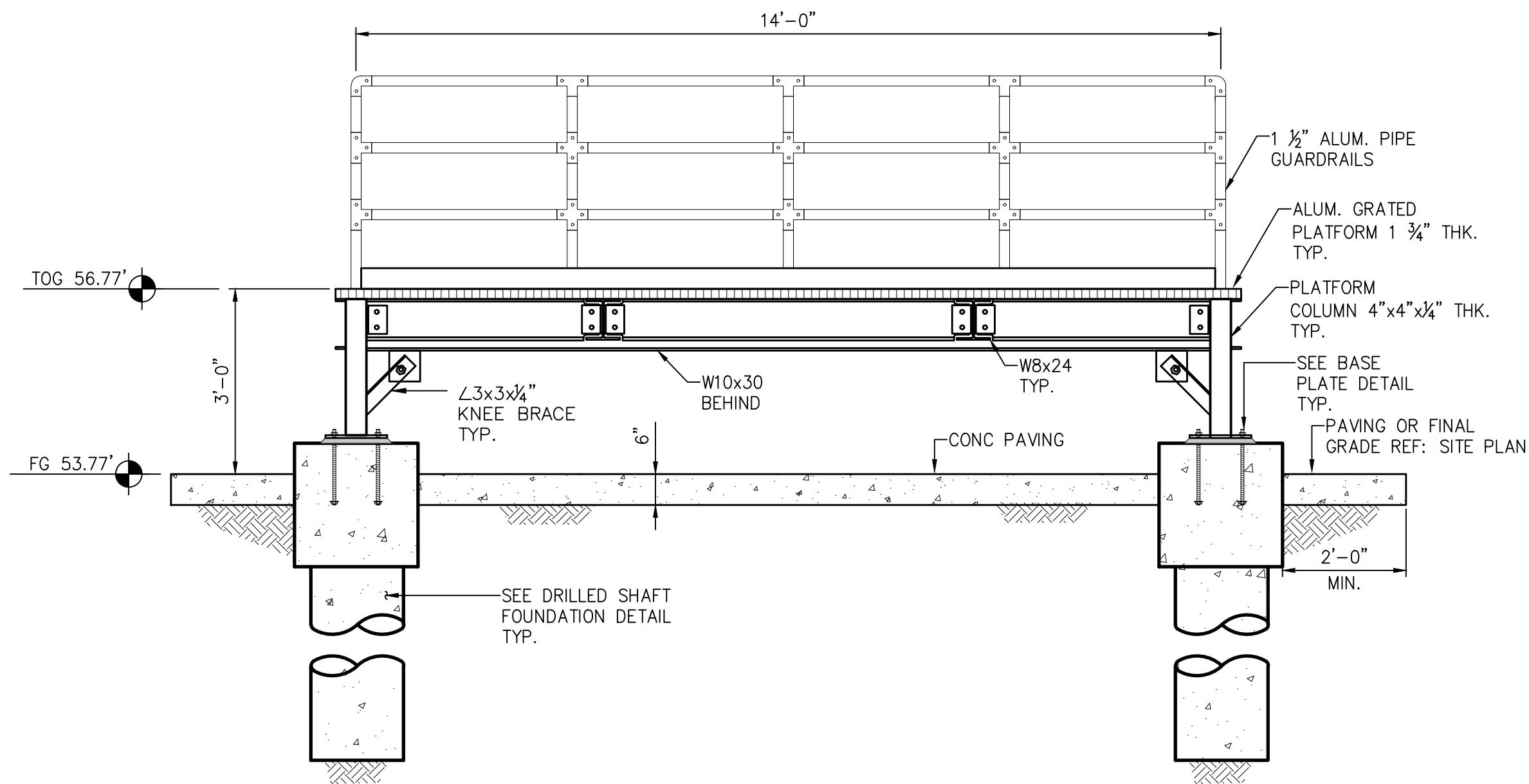
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

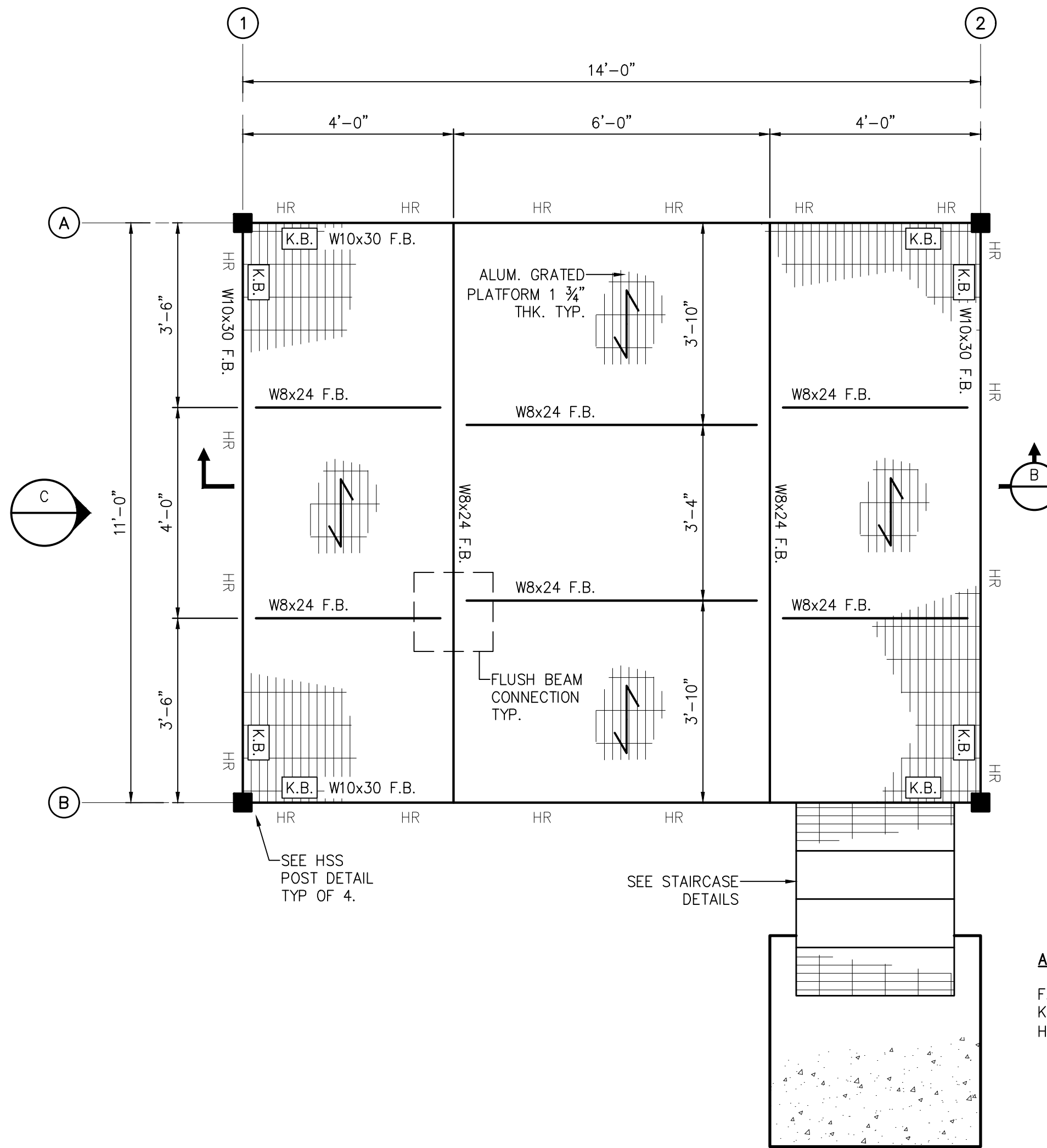
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION
TOP OF SLAB MODIFICATION
PROPOSED DETAILS

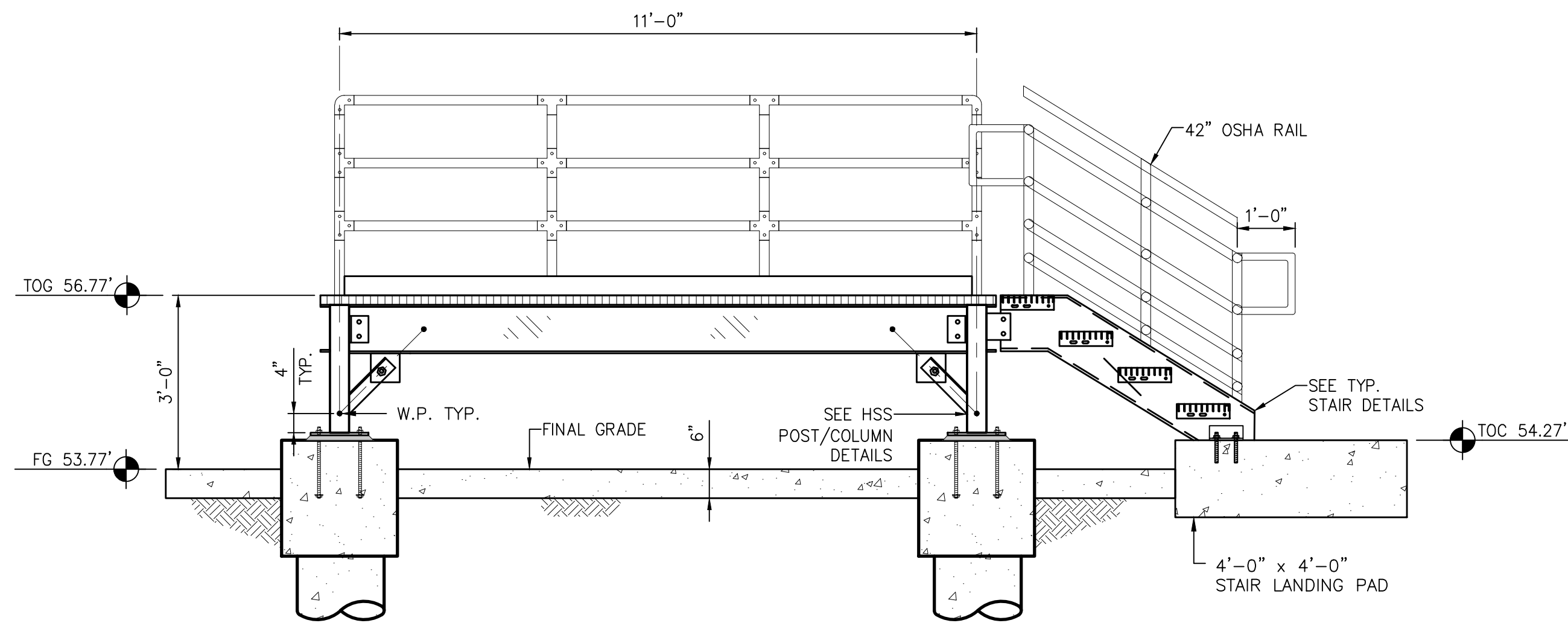
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.154 OF 291	



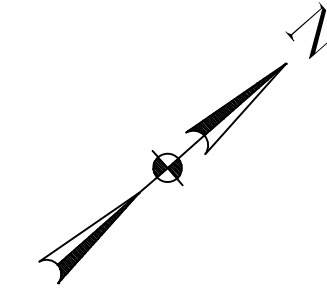
B PLATFORM 1 SECTION
NTS



A PLATFORM 1 FRAMING PLAN
NTS



C PLATFORM 1 ELEVATION
NTS

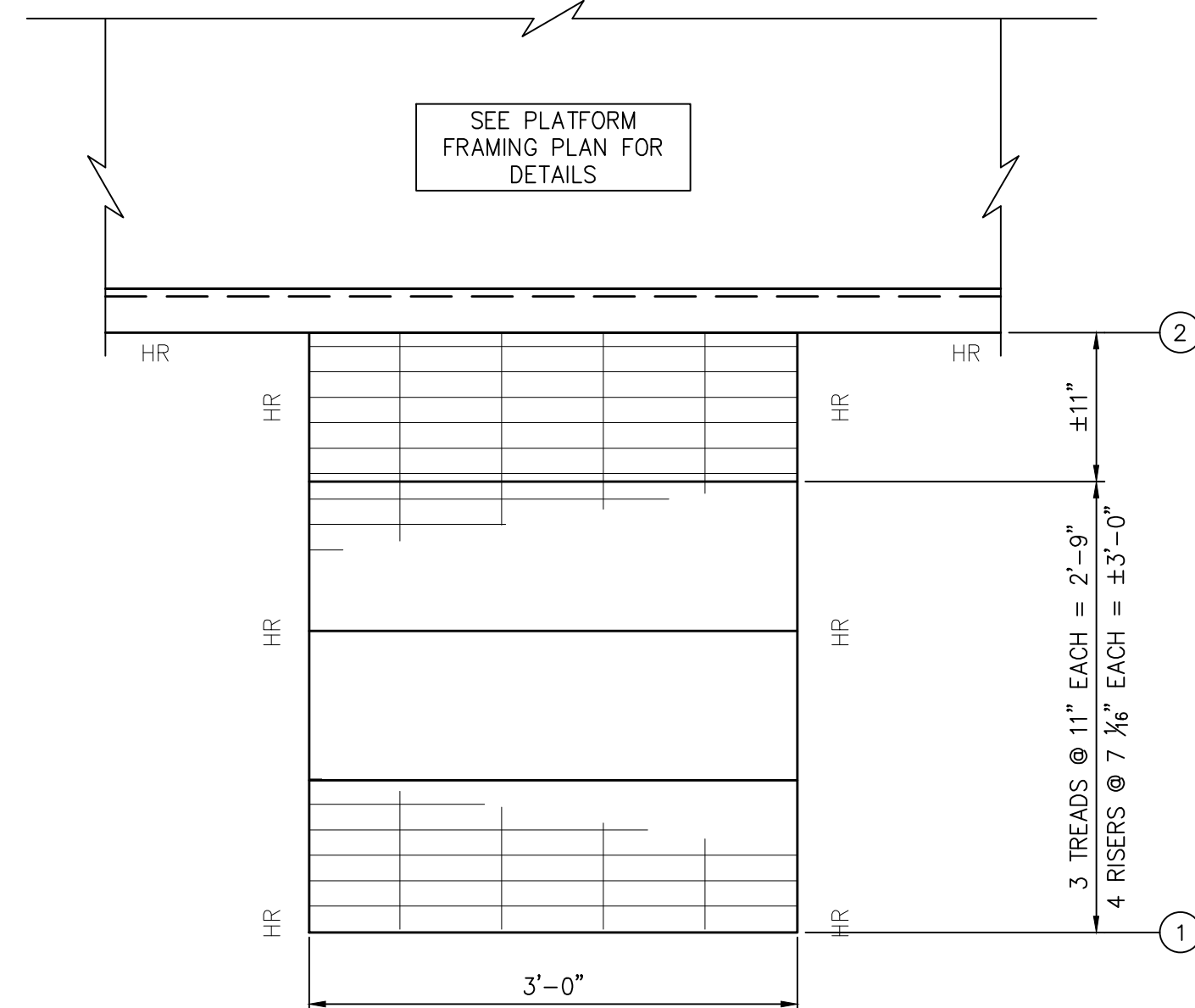


ABBREVIATIONS:
F.B. = FLUSH BEAM
K.B. = KNEE BRACE
HR = 42" OSHA HANDRAIL

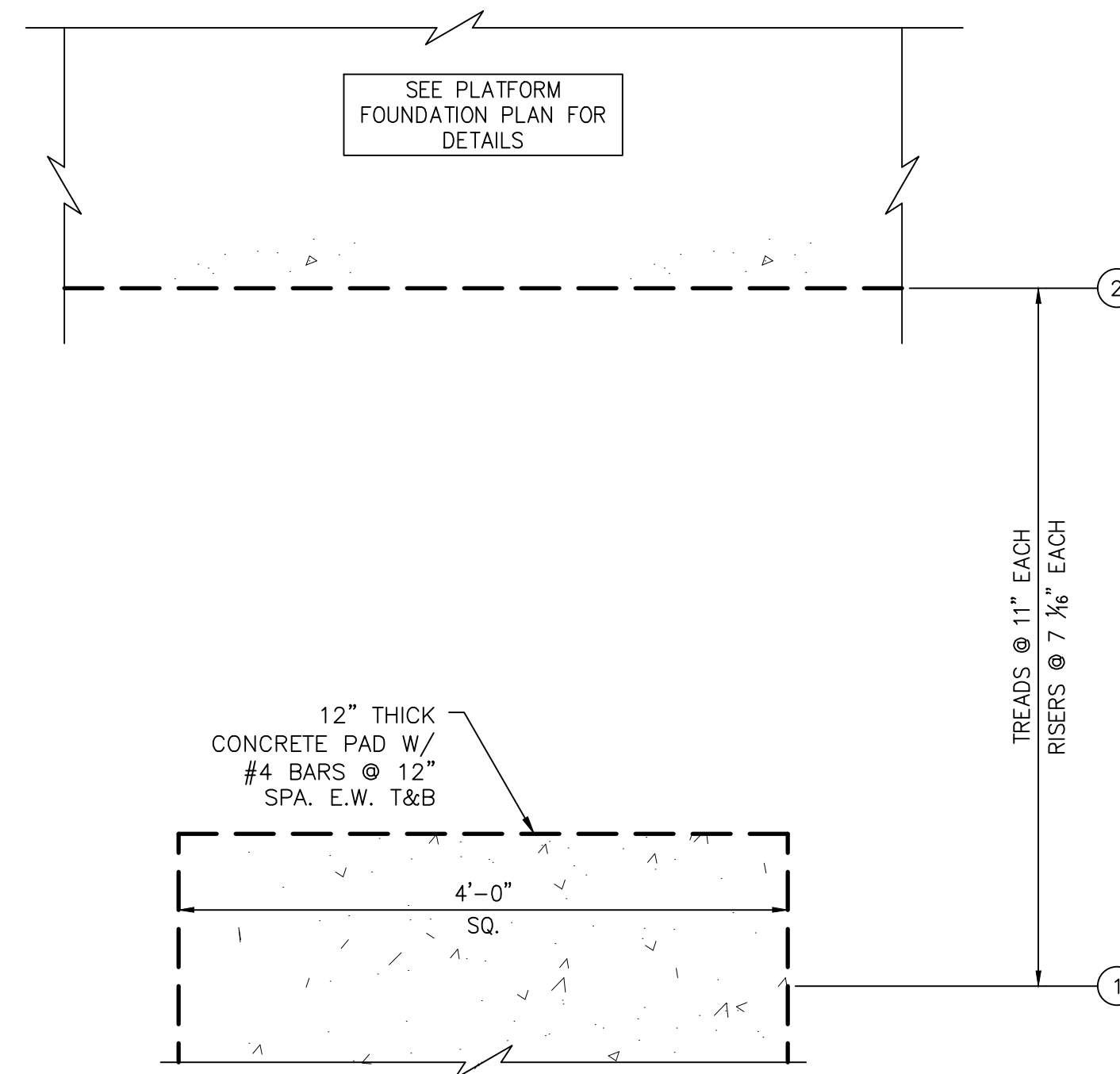
IMPORTANT NOTES:

1. PROPOSED PLATFORM GEOMETRY HAS BEEN LAID OUT WITH THE BEST INFORMATION AVAILABLE. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO FABRICATING STEEL.
2. BEAM SPACING MAY CHANGE BASED UPON FINAL VENDOR DRAWINGS FROM ELECTRICAL & MECHANICAL SUPPLIERS. DO NOT BEGIN FABRICATION WORK UNTIL APPROVED ELECTRICAL & MECHANICAL DRAWINGS HAVE BEEN RETURNED TO CONTRACTOR.
3. CONTRACTOR TO COORDINATE ANY FRAMING CHANGES WITH STEEL FABRICATOR AND INCLUDE THOSE CHANGES ON THE STEEL FABRICATION SUBMITTAL.

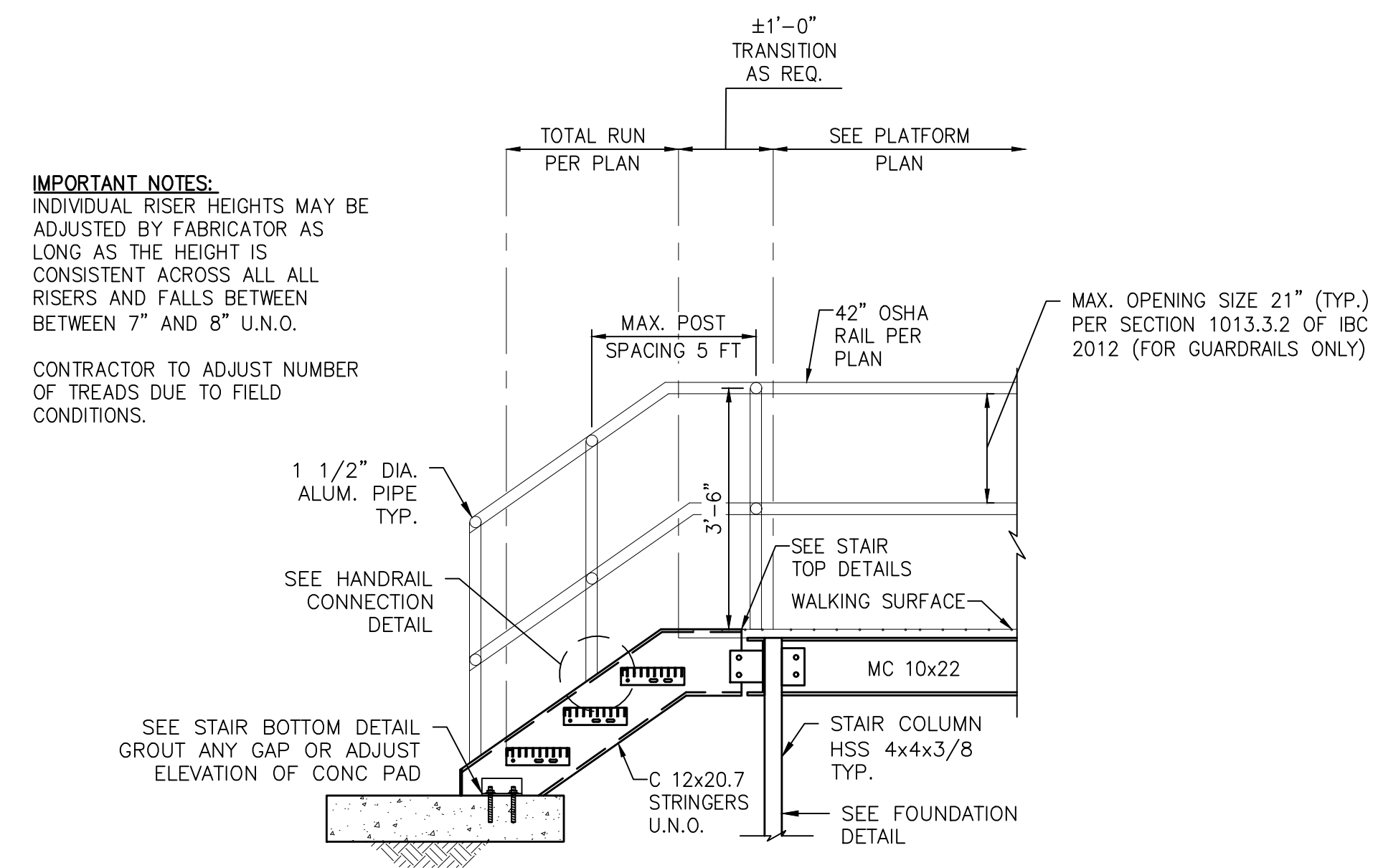
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SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION - RAISED ELECTRICAL PLATFORM PLAN & SECTION		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.155 OF 291		



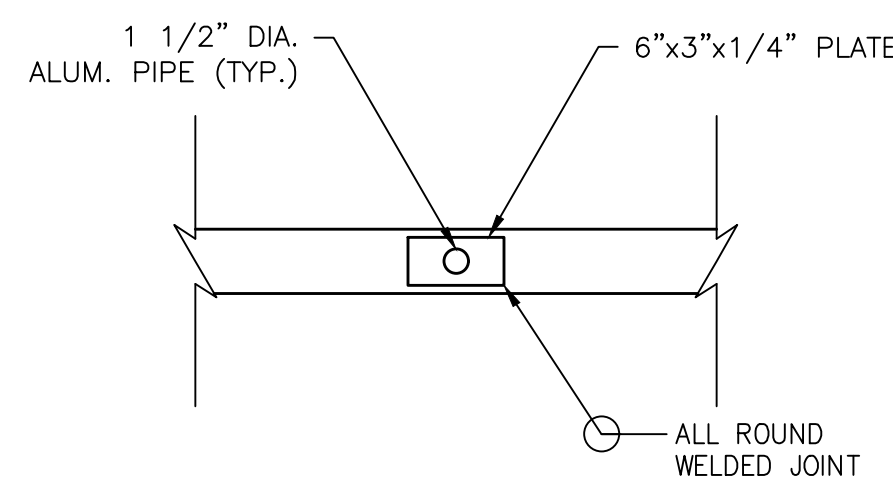
C STAIRCASE FRAMING PLAN



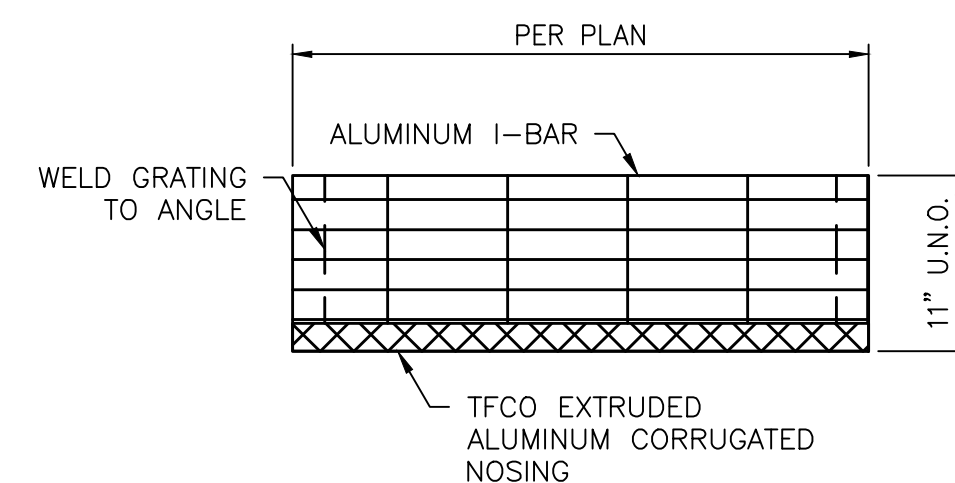

 STAIRCASE FOUNDATION PLAN
 NTS



A PLATFORM ELEVATION SECTION



 TOP MOUNTED HANDRAIL NTS



 STAIR TREAD CONNECTION
 NTS

ISSUE	DATE	DESCRIPTION

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3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

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CONSTRUCTION, BIDDING,
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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

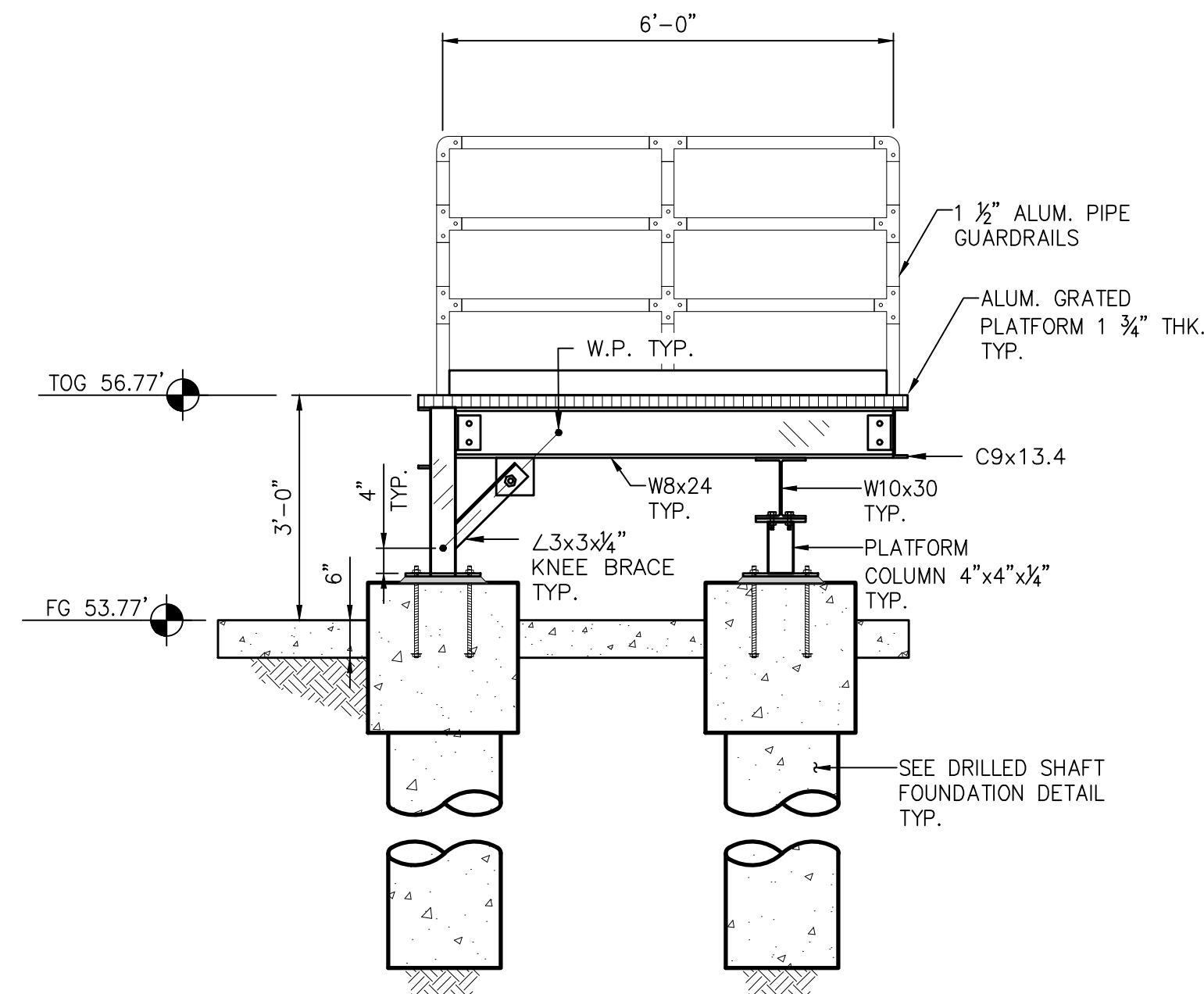
SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

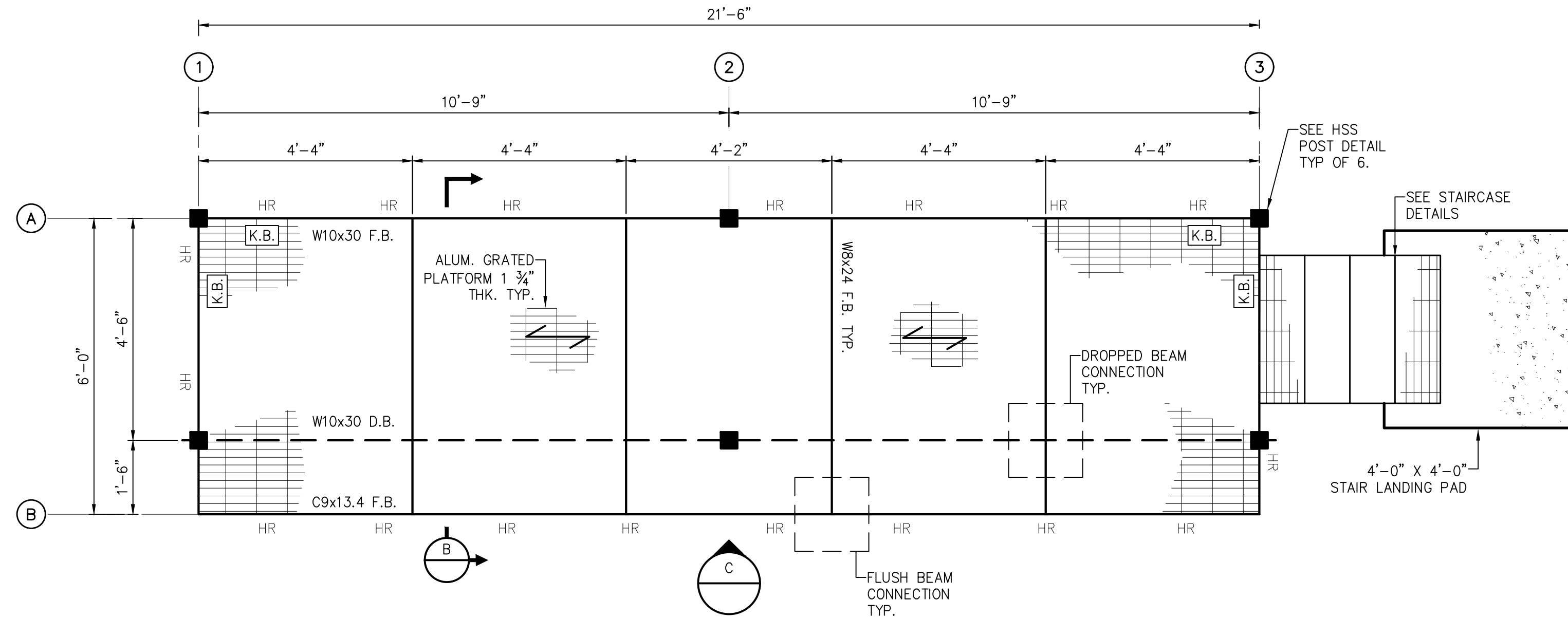
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION - RAISED ELECTRICAL PLATFORM DETAILS 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.156 OF 291	

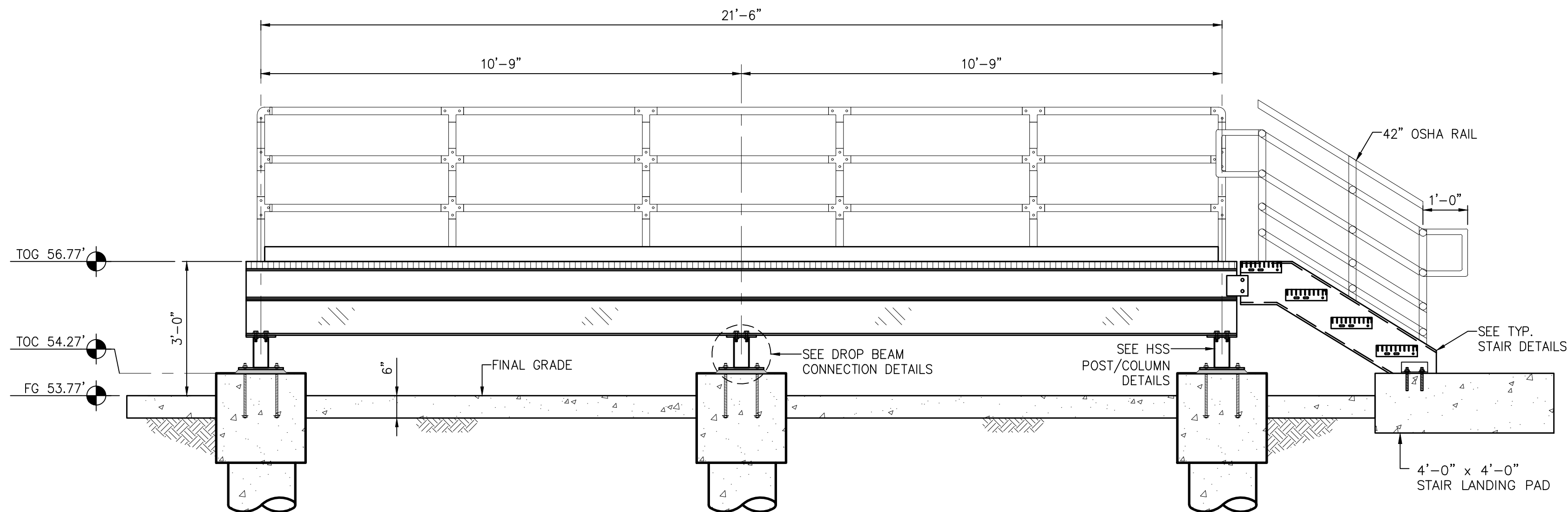


B PLATFORM 2 SECTION
NTS



A PLATFORM 2 FRAMING PLAN
NTS

ABBREVIATIONS:
D.B. = DROPPED BEAM
F.B. = FLUSH BEAM
K.B. = KNEE BRACE
HR = 42" OSHA HANDRAIL



C PLATFORM 2 ELEVATION
NTS

IMPORTANT NOTES:

1. PROPOSED PLATFORM GEOMETRY HAS BEEN LAID OUT WITH THE BEST INFORMATION AVAILABLE. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO FABRICATING STEEL.
2. BEAM & JOIST SPACING MAY CHANGE BASED UPON FINAL VENDOR DRAWINGS FROM ELECTRICAL & MECHANICAL SUPPLIERS. DO NOT BEGIN FABRICATION WORK UNTIL APPROVED ELECTRICAL & MECHANICAL DRAWINGS HAVE BEEN RETURNED TO CONTRACTOR.
3. CONTRACTOR TO COORDINATE ANY FRAMING CHANGES WITH STEEL FABRICATOR AND INCLUDE THOSE CHANGES ON THE STEEL FABRICATION SUBMITTAL.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		THIS DOCUMENT IS ISSUED FOR INTERIM REVIEW AND IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMITTING PURPOSES. JOEL B. HUBER, P.E. TEXAS P.E. #134590 ISSUED ON: MAY 07 2026

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
SADDLE BROOK LIFT STATION - RAISED ELECTRICAL PLATFORM DETAILS 2	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.157 OF 291	

SCOPE OF ELECTRICAL WORK

1. EXISTING WIMAX POLE, CIRCUITS, AND WIRING TO BE DEMOLISHED AND REPLACED. CAREFULLY REMOVE ALL MOUNTING HARDWARE AND OTHER ASSOCIATED EQUIPMENT, WHICH SHALL BE SAVE FOR POSSIBLE FUTURE USE IN RE-INSTALLING NEW EQUIPMENT.
2. ALL DEMOLISHED/REMOVED EQUIPMENT IS TO BE RETURNED TO OWNER (COH) OR PROPERLY DISPOSED OF AT OWNER OPTION.
3. EXISTING CONTROL PANEL, ASSOCIATED CIRCUITS AND WIRING TO BE DEMOLISHED AND REMOVED.
4. EXISTING POWER COMPANY METER AND SERVICE EQUIPMENT TO BE REMOVED OR PRESERVED. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT.
5. EXISTING MANUAL TRANSFER SWITCH, GENERATOR DISCONNECT, ASSOCIATED CIRCUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
6. CONTRACTOR SHALL CONSULT WITH POWER COMPANY AND ASSURE ALL POWER IS DISCONNECTED/REMOVED FROM THE SITE. CONTRACTOR SHALL THEN CAREFULLY REMOVE ALL EXISTING ELECTRICAL EQUIPMENT FROM THE SITE AND RETURN TO OWNER OR DISCARD ACCORDING TO CITY OF HOUSTON EQUIPMENT DISPOSAL REQUIREMENTS. CONSULT WITH CITY ENGINEER PRIOR TO CARRYING OUT ANY EQUIPMENT DEMOLITION.
7. THE GROUNDING EQUIPMENT, ELECTRODES, WIRING, AND ALL ACCESSIBLE ASSOCIATED EQUIPMENT SHALL BE REMOVED AND DISCARDED.

UG FIBER OPTIC
(APPROX. LOCATIONS)



EXISTING LIFT STATION
J-BOX (TYP OF 3)

NTS



EXISTING LIFT STATION
CONTROL PANEL

NTS

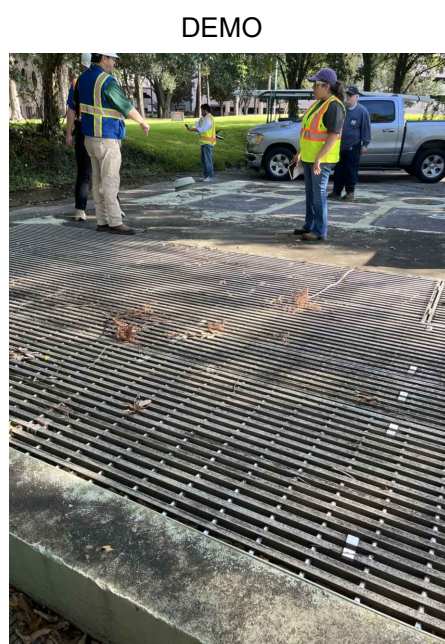


The diagram shows a circle containing the letter 'B' and a triangle containing the letter 'E'.



EXISTING LIFT STATION SERVICE EQUIPMENT

NTS



EXISTING LIFT STATION
SERVICE SITE

NTS



EXISTING LIFT STATION
WIMAX CONTROL PANEL

NTS



EXISTING LIFT STATION
WIMAX POLE

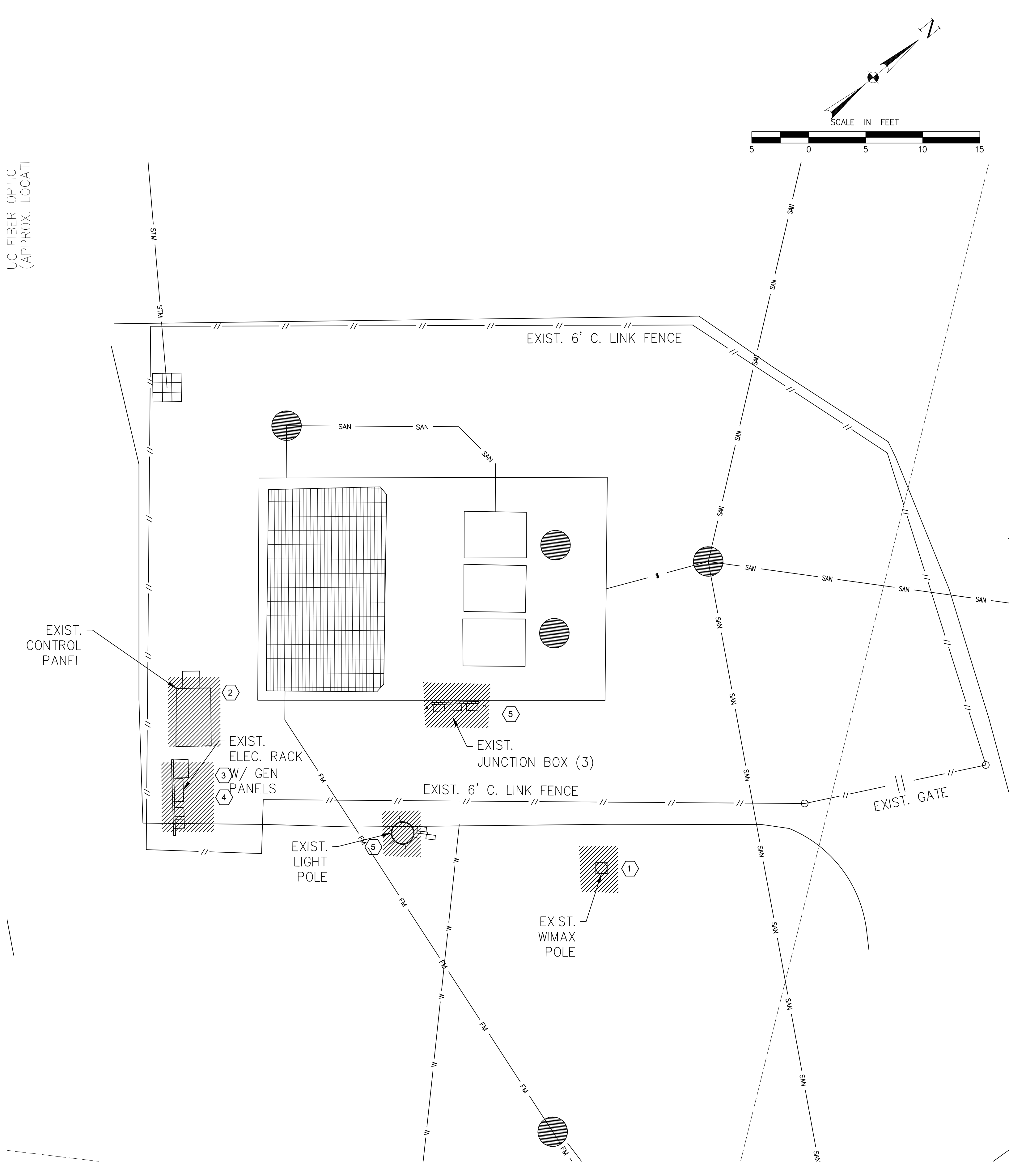
NTS

F

5

SPECIAL INSTRUCTIONS

1. CONTRACTOR SHALL CONSULT WITH CITY ENGINEER IN CASE OF UNCERTAINTY OF STATUS OF EQUIPMENT TO BE DEMOLISHED TO DETERMINE WHAT, IF ANY EQUIPMENT, SHALL BE PRESERVED. SPECIFICALLY, THE ELECTRIC SERVICE METERING, SERVICE POLE, AND GROUNDING EQUIPMENT SHALL BE CAREFULLY EVALUATED SO AS TO PRESERVE ANY EQUIPMENT THAT MAY BE DEEMED REUSABLE.



NOTES BY SYMBOL "":

- 1 EXISTING WIMAX POLE, CONDUITS AND WIRES TO BE DEMOLISHED AND REPLACED. SEE SPECIAL INSTRUCTIONS. IF TO BE REMOVED, OBSERVE ALL REQUIRED APPLICABLE CODES AND ORDINANCES IN DISPOSAL OF ALL EQUIPMENT.
- 2 EXISTING LIFT STATION CONTROL PANEL, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- 3 EXISTING MTS. GENERATOR DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- 4 EXISTING MAIN SERVICE DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- 5 EXISTING ELECTRICAL EQUIPMENT AND DEVICE(PUMP J-BOXES) IN LIFT STATION TO BE DEMOLISHED AND REMOVED.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



Engineers, PC

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

THIS DOCUMENT IS RELEASED FOR THE
PURPOSE OF INTERIM REVIEW UNDER THE
AUTHORITY

OF: JAMES E. THOMPSON, JR.
TEXAS P.E. #70302

DATE: 12/10/2025

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SURVEYED BY: KUO ASSOC
FB NO. P-6409

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

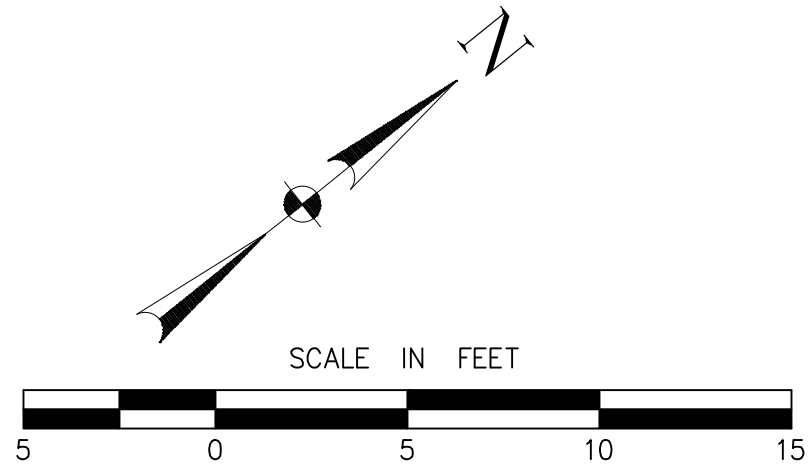
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION ELECTRICAL DEMOLITION SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 158 OF 291	

SCOPE OF ELECTRICAL WORK

1. PROVIDE AND INSTALL NEW ELECTRICAL EQUIPMENT FOR LIFT STATION AS SHOWN ON PLANS AND SPECIFICATIONS.
2. EXISTING WIMAX POLE TO BE REMOVED AND DEMOLISHED. CAREFULLY PRESERVE POLE AND MOUNTING HARDWARE EQUIPMENT FOR RE-USE.
3. CONTACT CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS GE-17, DETAIL SHEET.
4. PROVIDE NEW YARD LIGHTS AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.
5. PROVIDE NEW GROUNDING ELECTRODE SYSTEM AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH OWNER'S REPRESENTATIVE AND CITY ENGINEER.
6. PROVIDE AND INSTALL NEW CONDUITS AND CONDUCTORS FOR ALL NEW EQUIPMENT PER PLANS AND SPECIFICATIONS.



NOTES BY SYMBOL "⬡#":

- 1 MAIN BURIED GROUND LOOP, #4/0 BARE COPPER CONDUCTOR.
- 2 GROUND TEST WELL.
- 3 GROUND ROD.
- 4 #4/0 BARE COPPER BONDING CONDUCTOR.
- 5 BOND REBAR IN CONCRETE FOOTER OR SLAB TO MAIN BURIED GROUND LOOP.
- 6 #2/0 BARE COPPER BONDING CONDUCTOR.
- 7 THERMOWELD CABLE CONNECTION.
- 8 PROVIDE FLEX BONDING JUMPER ACROSS GATE CONNECTIONS.
- 9 PROVIDE GROUND LOOP CONNECTION TO ELECTRICAL PLATFORM
- 10 JUNCTION BOXES SHALL BE INSTALLED AT WET WELLS AS SHOWN ON PLANS AND MAY BE RELOCATED BY CITY ENGINEER AS NEEDED. JUNCTION BOXES SHALL BE NEMA 6P 316 STAINLESS STEEL

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.

ISSUE	DATE	DESCRIPTION
-------	------	-------------

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3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

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Fax 713.953.5026
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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK
LIFT STATION ELECTRICAL
PROPOSED SITE PLAN

WBS NUMBER

R-000267-0176-3

SCALE:

1"=5'

CITY OF HOUSTON PM

NAWARAJ PANTA, P.E.

SB-E2

SHEET NO.159 OF 291

SADDLE BROOK
LIFT STATION ELECTRICAL
PROPOSED SITE PLAN

1"=5'

SPECIAL INSTRUCTIONS

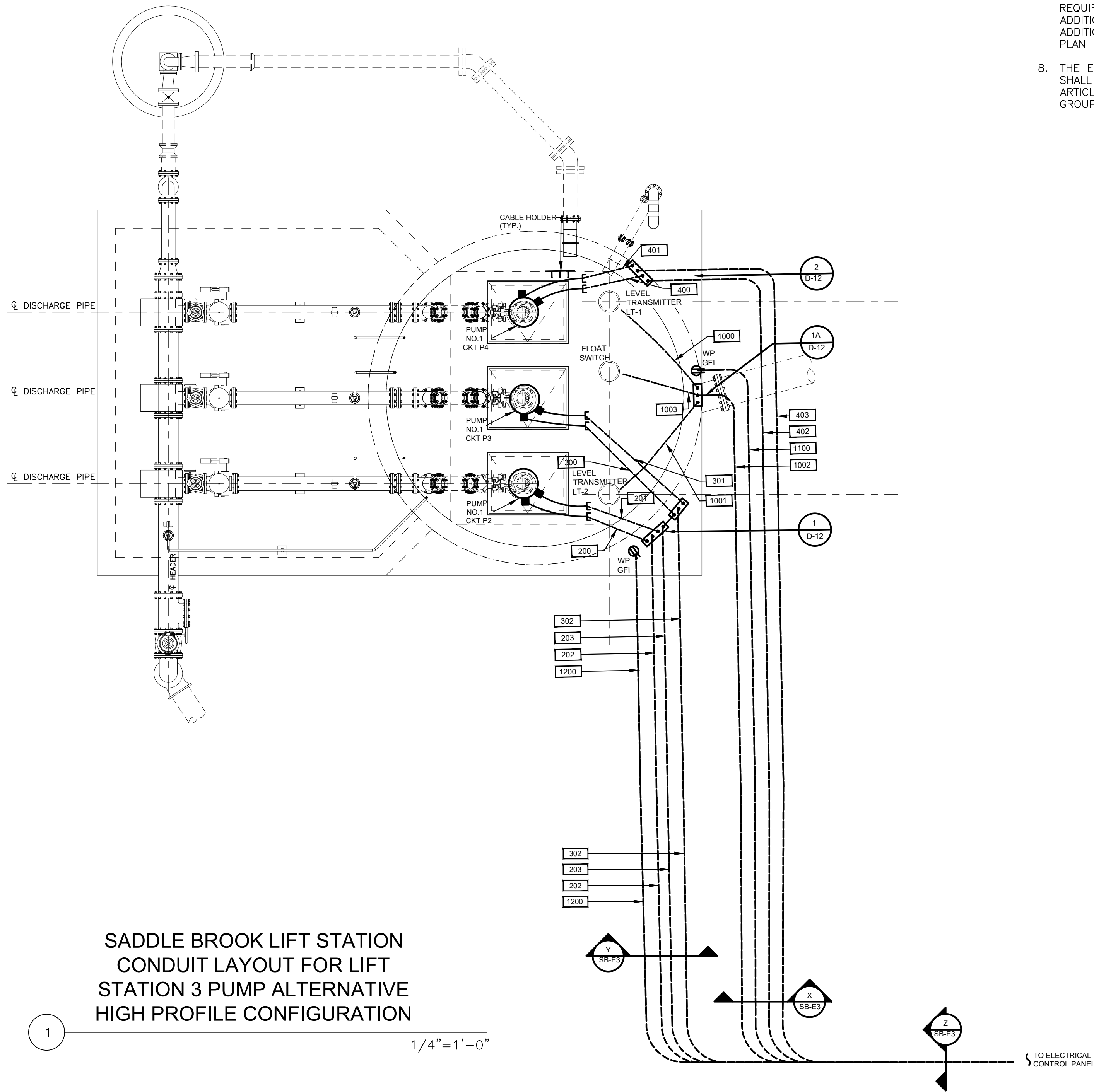
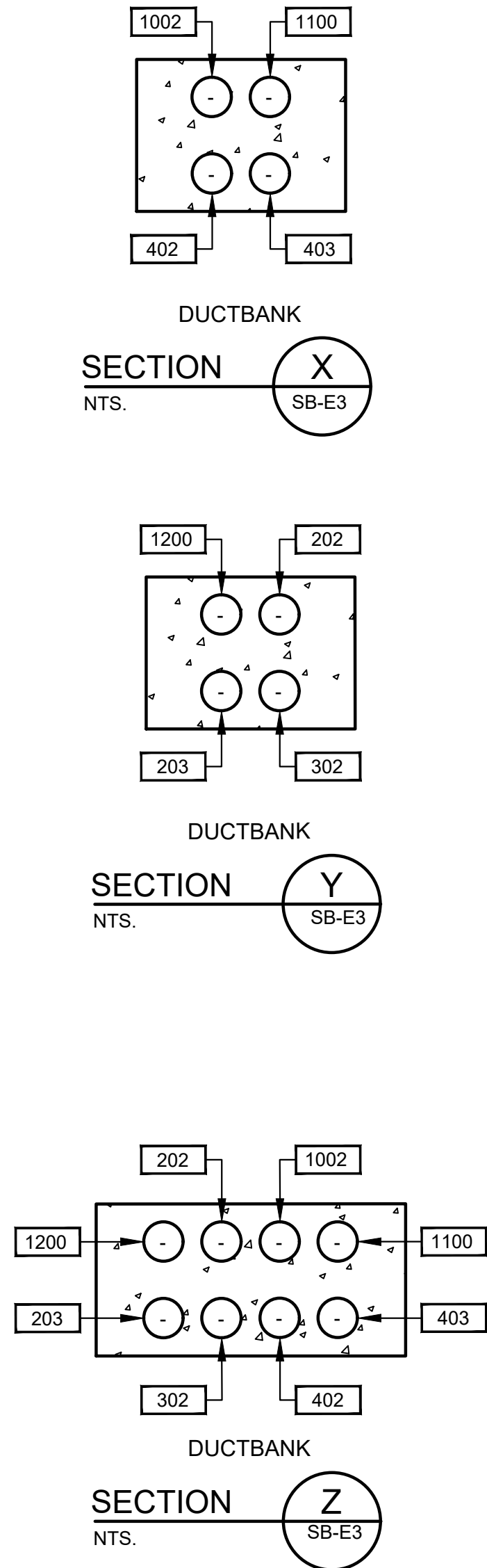
1. ALL WIMAX ELECTRICAL CONNECTIONS TO THE NEW WIMAX POLE SHALL BE UNDERGROUND, AND SHALL BE ROUTED IN A DIRECT MANNER TO THE WIMAX CONTROL PANEL LOCATED AT THE MAIN CONTROL PANEL. A QUARTZITE J-BOX, 18"x18"x12", SHALL BE PROVIDED AT THE WIMAX POLE BASE ADJACENT TO THE WIMAX POLE. MAKE FINAL CONNECTION IN A WORKMANLIKE MANNER. ALL WIRE CONNECTIONS SHALL BE POTTED (SUITABLE FOR CONTINUOUS SUBMERSION).
2. GROUNDING RING TO BE 3/0 AWG BARE COPPER STRANDED WIRE BURIED 3'0" BELOW GRADE. SAMPLE INSPECTION POINTS TO BE FIELD LOCATED TO COMPLY WITH PROPERTY LINES AND EASEMENT REQUIREMENTS.
3. TIE UNDERGROUND GROUND RING SHALL BE BONDED TO ALL FENCE SECTIONS AND AREAS WITH APPROVED GROUND CLAMPS. ALL GROUND CONNECTORS SHALL BE UL APPROVED AND CERTIFIED FOR THE APPLICATION.
4. POLE LIGHTS, SERVICE RACK CONTROL PANEL, AND UNDERGROUND CONDUITS, WIRES, AND JUNCTION BOXES SHALL BE FIELD LOCATED IF DIRECTED BY CITY ENGINEER.

LEGEND

UDS - UTILITY DISC SWITCH
MTR - PWR CO METER
SVCDS - ELEC SVC DISC
MTS - MANUAL TRANSFER SWITCH
GD - GENERATOR DISCONNECT
CTL PNL/WM - CONTROL PANEL/WIMAX

SPECIAL INSTRUCTIONS:

1. JUNCTION BOXES SHALL BE MOUNTED ON TOP-OF-SLAB. PROVIDE NEMA 6P, 316 STAINLESS STEEL PANEL CONSTRUCTION.



NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE VALVE VAULT SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL CONDUITS AND CONDUCTOR SIZES AND ROUTING SHALL BE FIELD VERIFIED WITH ACTUAL EQUIPMENT ON SITE PRIOR TO DOING ANY WORK. COORDINATE WITH CITY ENGINEER.
6. ALL EQUIPMENT MOUNTING LOCATIONS SHALL BE FIELD VERIFIED WITH CITY ENGINEER PRIOR TO INSTALLATION.
7. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS. FOR "SITE AREA GROUNDING", PROVIDE ADDITIONAL GROUNDS FOR ANY LOCATION WHERE ADDITIONAL GROUNDING IS NEEDED WHETHER SHOWN ON PLAN OR NOT. REFER TO CITY ENGINEER.
8. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.

NOTES (CONT):

9. JUNCTION BOXES SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. JUNCTION BOXES SHALL CONTAIN NO CIRCUITS OTHER THAN THOSE IDENTIFIED ON PLANS.
10. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTINGS AT JUNCTION BOX ENTRANCES AND EXPLOSION PROOF SEALS IN CONDUITS TO CONTROL PANEL.
11. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
12. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
13. LEVEL TRANSMITTERS SHOWN ARE APPROXIMATE. LEVEL TRANSMITTERS SHALL BE FIELD LOCATED.
14. 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.
15. ALL RECEPTACLES SHALL BE EXPLOSION PROOF TYPE IF INSTALLED WITHIN 5 FEET OF CLASSIFIED AREA.
16. ALL JUNCTION BOXES ARE TO BE MOUNTED AT THE WET WELL AND BE NEMA 6P, 316 STAINLESS STEEL.
17. PROVIDE GFCI OUTLETS FOR UTILITY SERVICE EQUIPMENT PER APPLICABLE CODE REQUIREMENTS AND STANDARD PLANS. PROVIDE HEAVY DUTY IN-USE COVERS.

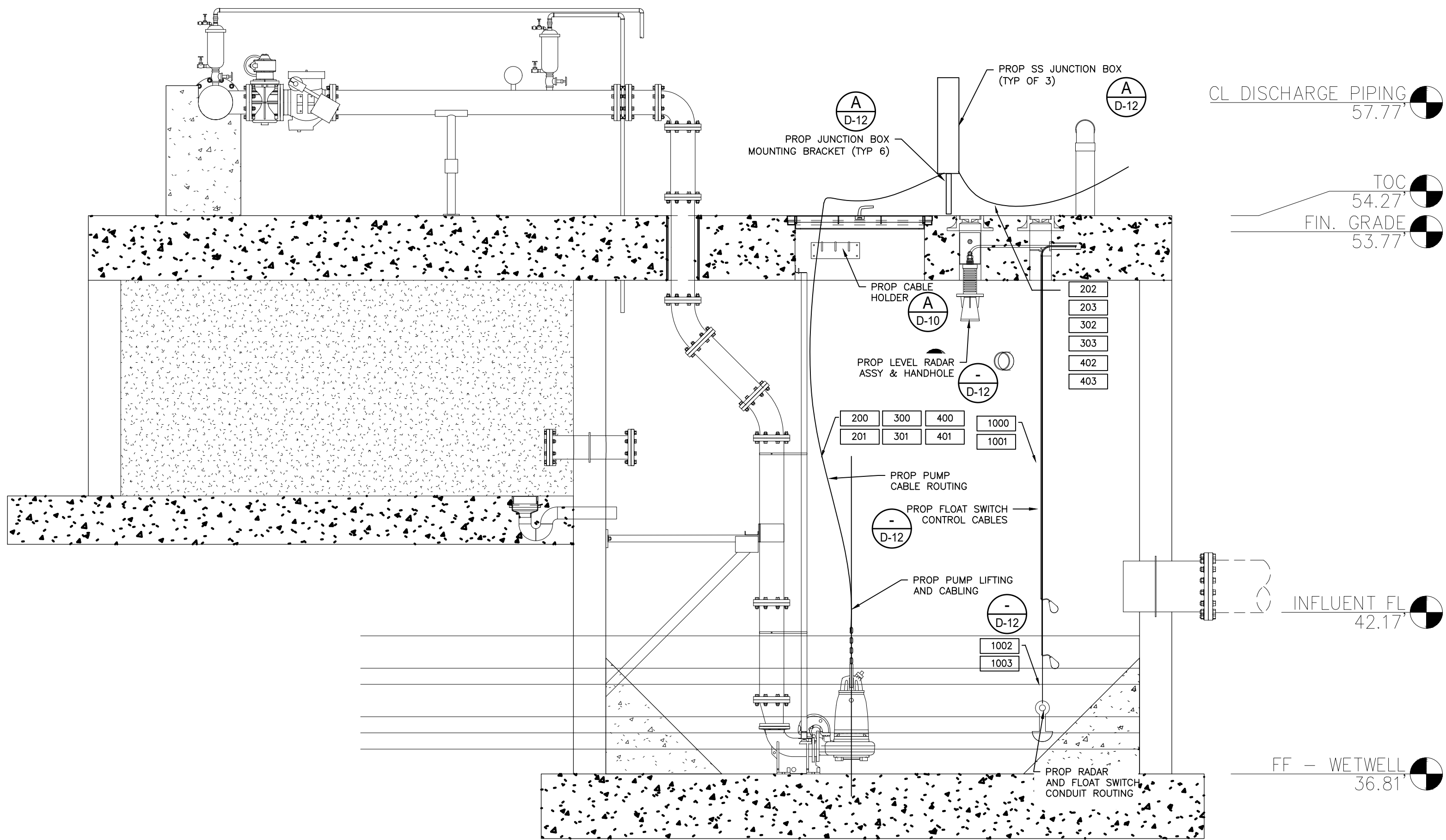
ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		
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DATE: 12/10/2025		
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SURVEYED BY: KUO ASSOC FB NO. P-6409		

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION
CONDUIT LAYOUT FOR LIFT
STATION 3 PUMP ALTERNATIVE
HIGH PROFILE CONFIGURATION

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1/4"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.160 OF 291	



SADDLE BROOK LIFT STATION
ELEVATED SECTION 3 PUMP
CONDUIT ROUTING ALTERNATE
HIGH PROFILE CONFIGURATION

1 ————— 3/8" = 1'-0"

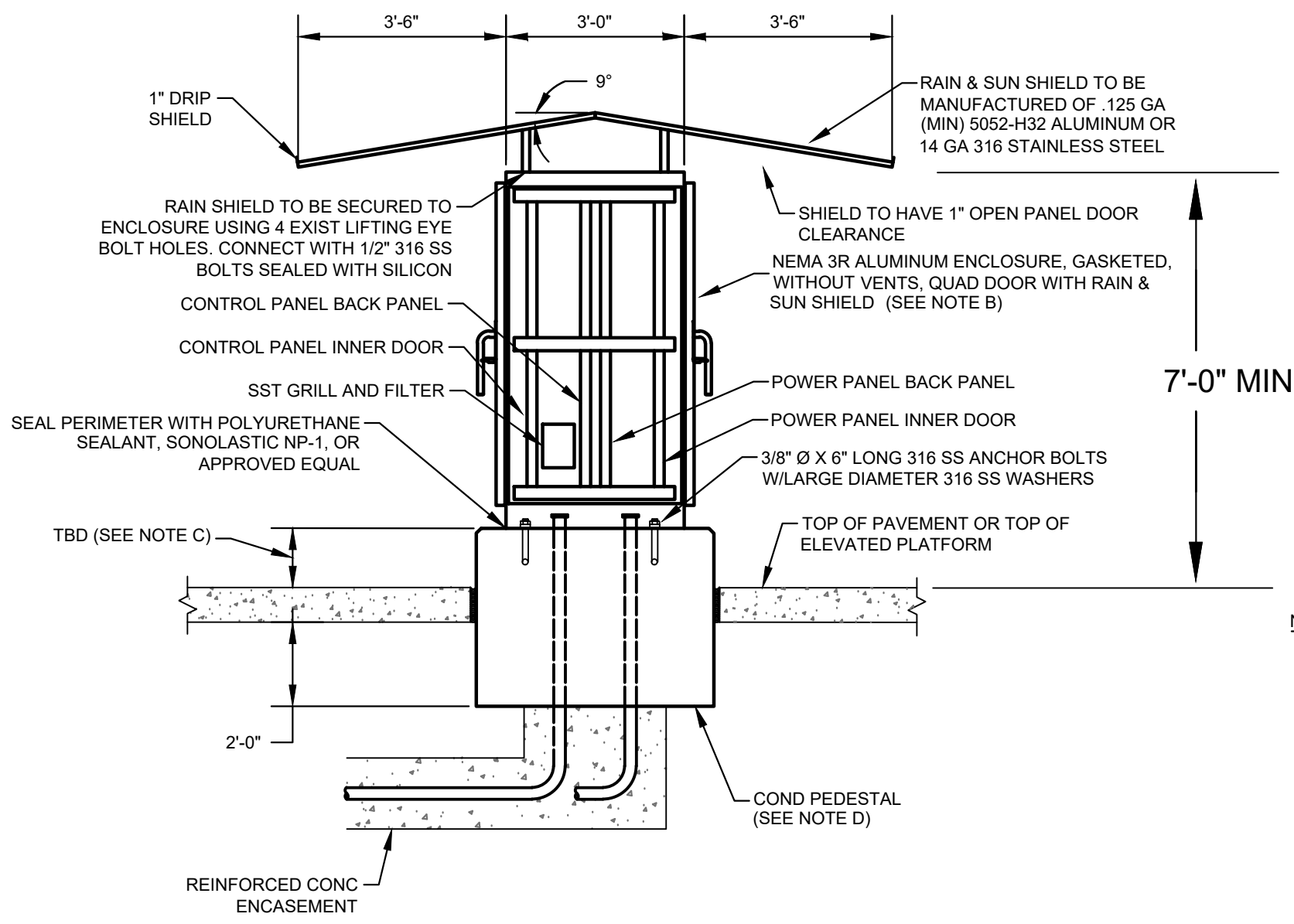
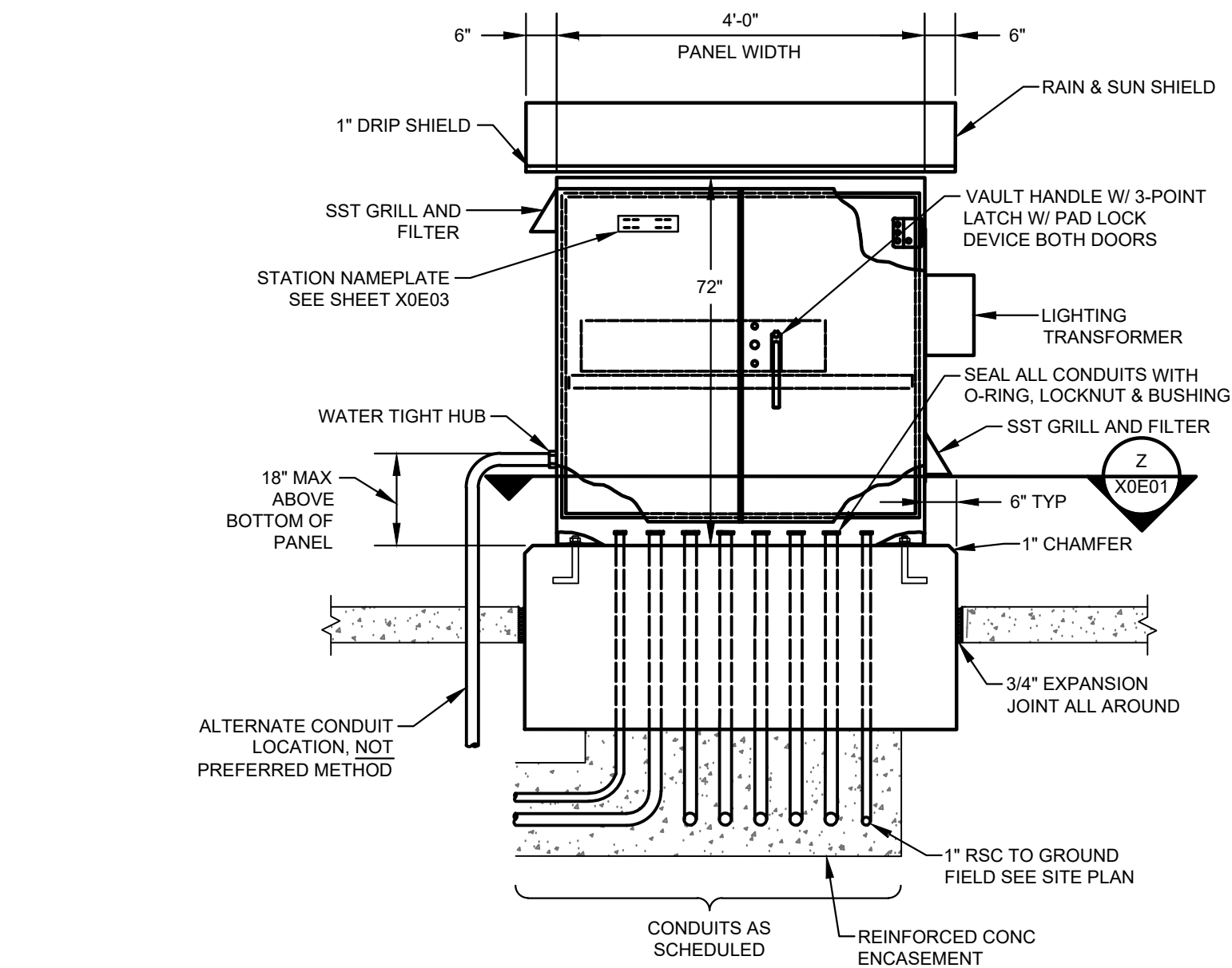
NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL ELECTRICAL CONTROL CABINETS SHALL BE RAISED TO 500 YEAR FLOOD ELEVATION + 3 FEET.
6. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT AND CONDUCTOR SIZES AND ENTRY LOCATIONS AND CONSULT WITH CITY ENGINEER PRIOR TO DOING ANY WORK.
7. ALL ELECTRICAL INSTALLATIONS SHALL BE FIELD LOCATED WITH ASSISTANCE OF CITY ENGINEER.
8. JUNCTION BOX LOCATION SHOWN DIAGRAMMATIC FOR DRAWING CLARITY. JUNCTION BOXES SHALL BE FIELD LOCATED AT WET WELLS WITH ASSISTANCE OF CITY ENGINEER. JUNCTION BOXES SHALL BE NEMA 6P 316 SS.

ISSUE	DATE	DESCRIPTION

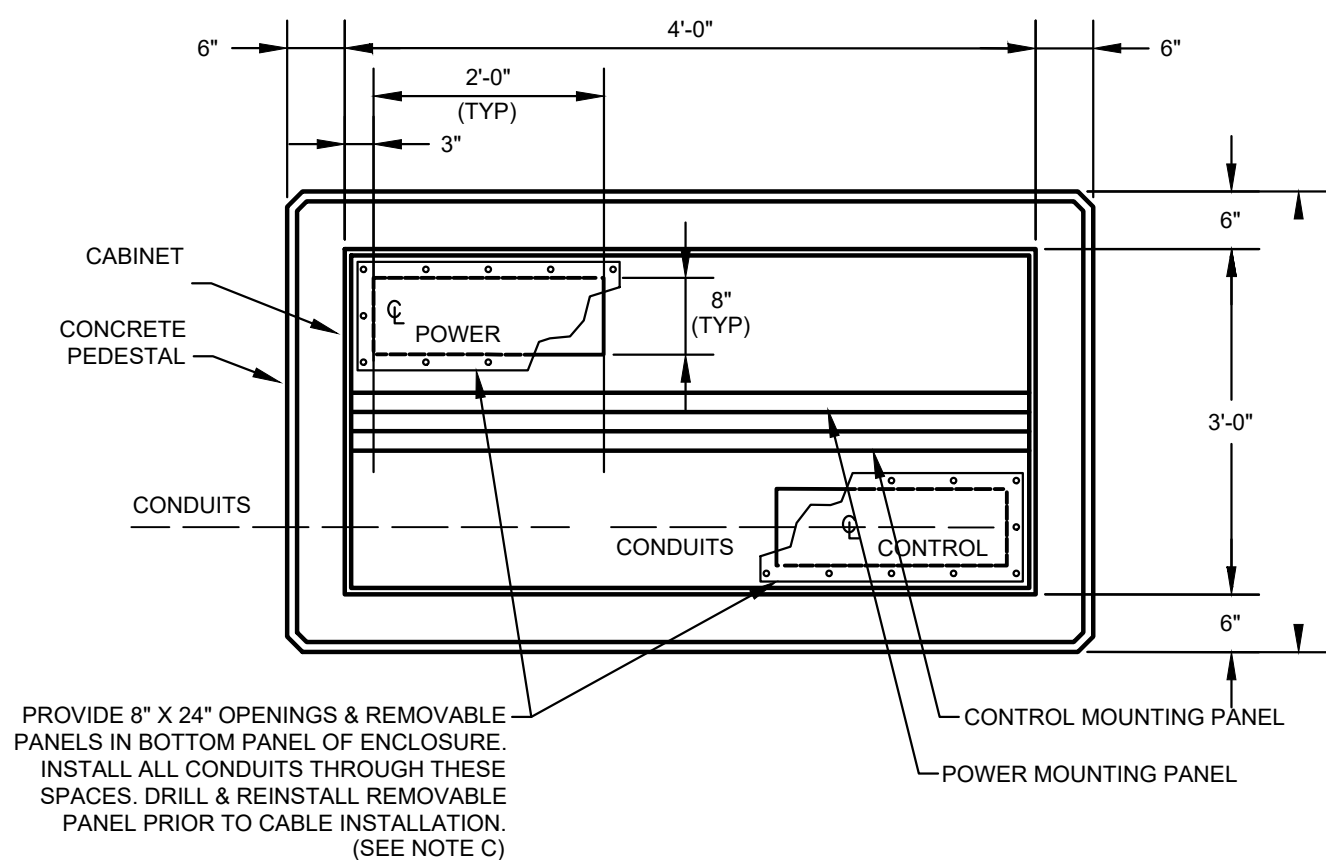
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		LJA
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
SURVEYED BY: KUO ASSOC FB NO. P-6409		

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
SADDLE BROOK LIFT STATION ELEVATED SECTION 3 PUMP CONDUIT ROUTING ALTERNATE HIGH PROFILE CONFIGURATION	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1/4"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 161 OF 291	



- NOTES:
- SEE SHEET X0E02 FOR EQUIPMENT SCHEDULE.
 - REFER TO SPECIFICATION SECTION 13325 PROCESS CONTROL SYSTEMS CONTROL PANELS FOR PANEL DIMENSIONS.
 - COMMUNICATION PANEL TO BE INSTALLED ABOVE SERVICE RACK ELEVATION.
 - EXPANSION JOINT FITTINGS TO BE PROVIDED AS REQUIRED.
 - REFER TO SERVICE RACK FOR DETAIL.
 - NOT USED
 - REFER TO STRUCTURAL DRAWINGS "ZOS04, ZOS05, & ZOS06" FOR PLATFORM DETAIL.

CONTROL CABINET ENCLOSURE WITH CONCRETE PEDESTAL FOUNDATION
(SEE NOTE 6)



SECTION Z
NTS X0E01

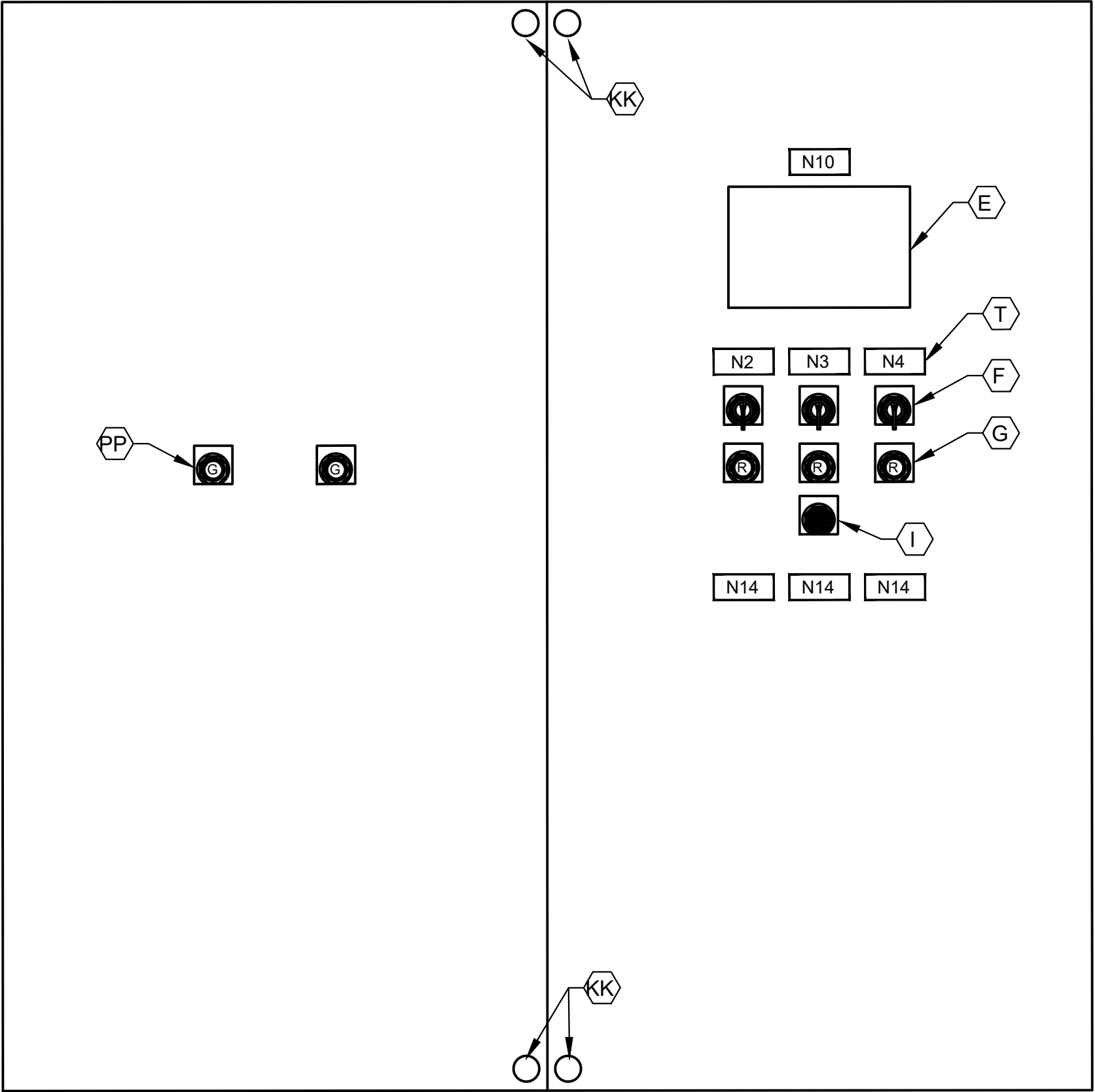
ELECTRICAL NOTES

- CONTRACTOR SHALL VERIFY AND ADJUST, AS REQUIRED, SIZE OF REMOVABLE PANEL IN CABINET. OPENING SHALL BE SUFFICIENT TO ACCOMMODATE ALL REQUIRED CONDUITS.
- THIS LIFT STATION IS LOCATED IN AN AREA THAT IS DESIGNATED BY THE CITY OF HOUSTON ORDINANCE AND THE RELATED TSARP MAPS AS BEING IN A FLOOD HAZARD ZONE. THE ELEVATION OF THE TOP OF THE CONCRETE PEDESTAL ON WHICH THE CONTROL PANEL IS MOUNTED SHALL BE ONE (1) FOOT ABOVE THE TOP OF CONCRETE OF THE ELEVATED CONCRETE PLATFORM. MINIMUM CLEARANCE DISTANCES BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE HAND RAIL AROUND THE PERIMETER OF THE ELEVATED CONCRETE PLATFORM AND BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE MANUAL TRANSFER SWITCH ARE NOTED IN THE DETAILS.
- CONTRACTOR SHALL ENSURE THE ELECTRICAL EQUIPMENT INSTALLATION FINISHED FLOOR MEETS THE REQUIREMENTS OF THE LATEST VERSION OF THE COH CODE OF ORDINANCE, CHAPTER 19 FLOOD PLAIN.
- THE CONTROL PANEL DOORS SHALL FACE NORTH AND SOUTH WHERE FEASIBLE
- PROVIDE MINIMUM OF 7'-0" CLEARANCE BETWEEN EDGE OF DRIP SHIELD COVER AND TOP OF PLATFORM.

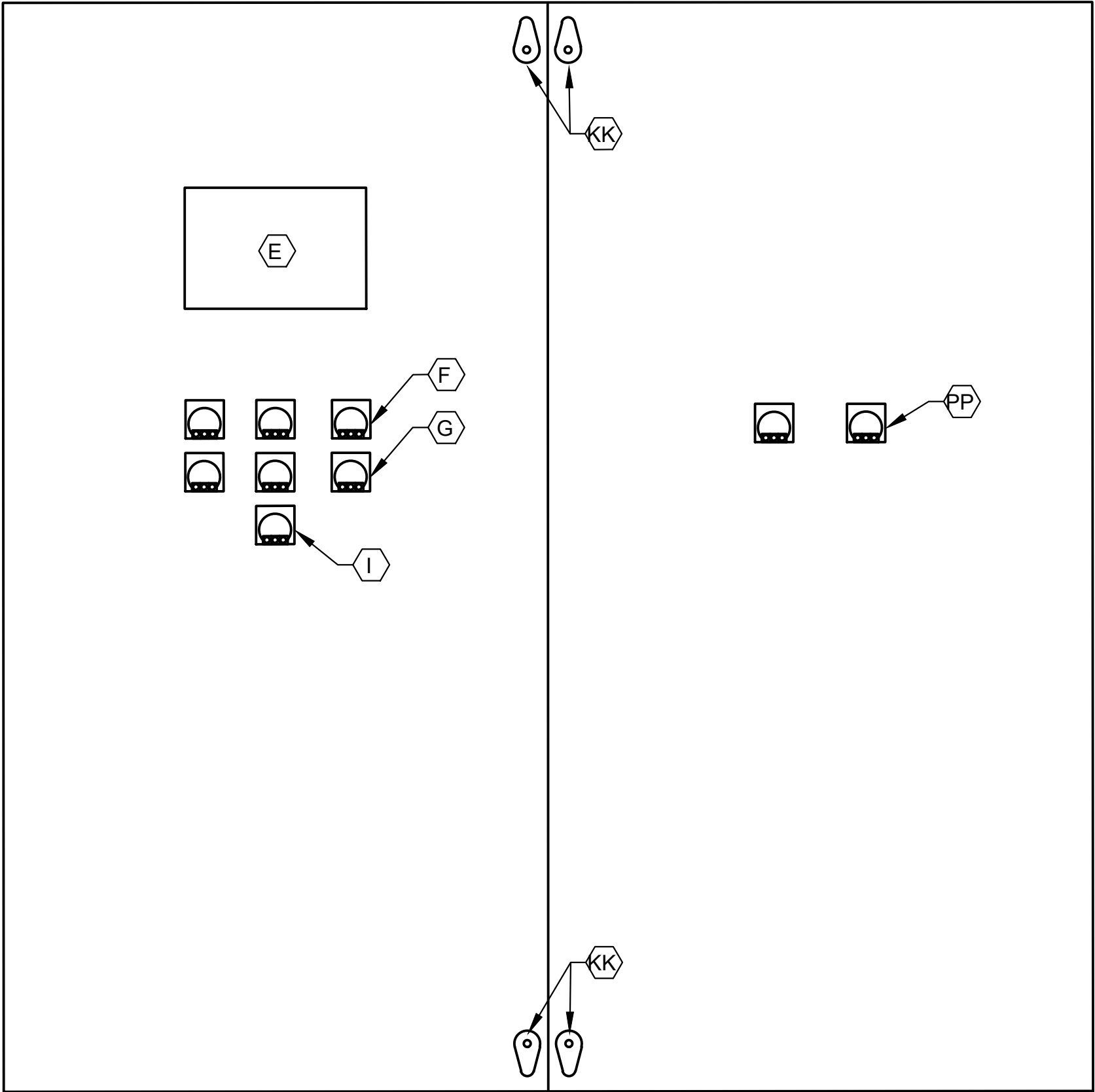
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET ENCLOSURE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.163 OF 291		

EQUIPMENT AND DEVICE SCHEDULE		
ITEM	QUANTITY	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 1 PHASE, 3 WIRE, 100A, 12 CKTS
B	3	FULL VOLTAGE, NON-REVERSING, SINGLE SPEED, AUTOMATIC MOTOR STARTER W/120 VOLT CONTROL COIL, NEMA SIZE AS SCHEDULED.
C	3	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 120VAC COIL AND 11 PIN SOCKET BASE.
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY
E	1	PROGRAMMING SCREEN (OIT)
F	3	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL)
G	3	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND
H	1	PERPETUAL POWER UNIT (PPU)
I	1	PUMP ALARM RESET PUSHBUTTON
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST
K	3	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION.
M	1	SURGE PROTECTOR - INCOMING POWER
N	*	NOT USED.
P	3	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT.
Q	12	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS
R	1	WIRE DUCT 2" WIDE X 2" DEEP MINIMUM
S	*	NOT USED.
T	*	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
U	3	SOLID STATE MOTOR OVERLOAD RELAY
V	6	FUSE HOLDER & FUSES - PHASE FAILURE
W	1	NEMA 3R GASKETED ALUMINUM ENCLOSURE WITHOUT VENTS
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE FOR ENVIRONMENT)
Y	1	THERMAL-MAGNETIC MOLDED CASE MAIN CIRCUIT BREAKER, SIZE AS SCHEDULED
Z	3	ADJUSTABLE INSTANTENOUS TRIP MOTOR CIRCUIT PROTECTOR, SIZE AS SCHEDULED
AA	*	TERMINAL BLOCKS
BB	3	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM
CC	2	ANALOG I/O SURGE SUPPRESSOR
DD	1	WIRE DUCT 2" WIDE x 2" DEEP MINIMUM
EE	1	THERMAL-MAGNETIC MODLED CASE CIRCUIT BREAKER FOR LIGHTING TRANSFORMER, SIZE AS SCHEDULED
FF	1	GROUND BUS
GG	1	10 KVA, 480 - 240/120V,1 ϕ , 3W DRY TYPE TRANSFORMER
HH	*	NOT USED.
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED)
JJ	11	CARTRIDGE FUSES & FUSE HOLDER
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A
MM	2	MOTION SWITCH
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP PLC" LEGEND
QQ	*	NOT USED
RR	*	NOT USED
SS	1	COMMUNICATION ETHERNET SWITCH
TT	1	POWER SURGE PROTECTOR - CONTROL POWER
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT
VV	1	PHASE AND UNDER VOLTAGE MONITOR
WW	*	FUSED TERMINAL BLOCKS
XX	3	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I
YY	2	ANALOG SIGNAL ISOLATOR
ZZ	3	POWER FACTOR CORRECTION CAPACITOR NEMA 3R STAINLESS STEEL
AB	-	NOT USED.
AC	1	POWER DISTRIBUTION BLOCK
AD	1	NEUTRAL LUG
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD
AF	1	T-STAT FOR EXHAUST FAN

* - AS SCHEDULED



CONTROL PANEL FRONT INNER DOOR
ELEVATION

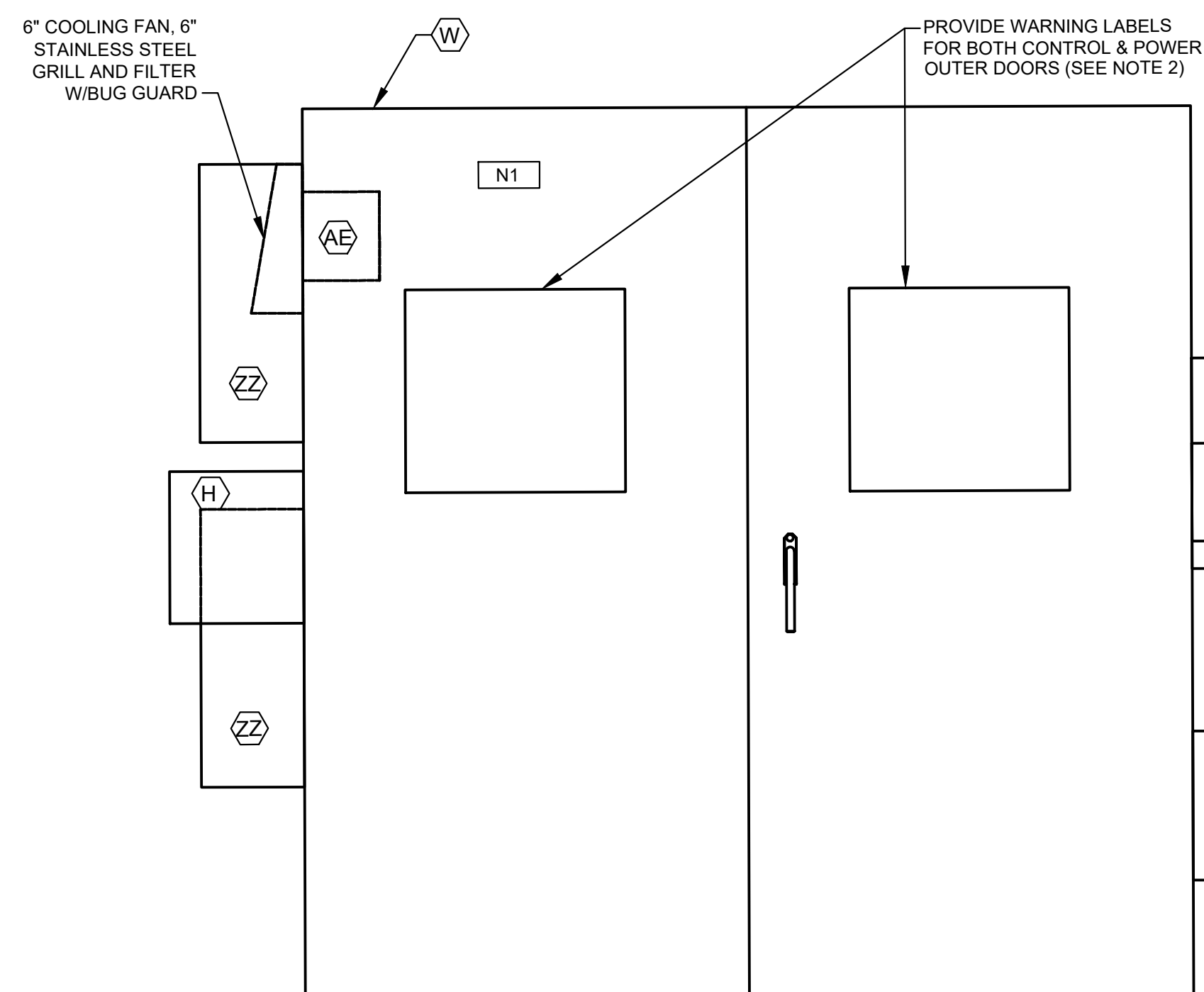


CONTROL PANEL BACK INNER DOOR
ELEVATION

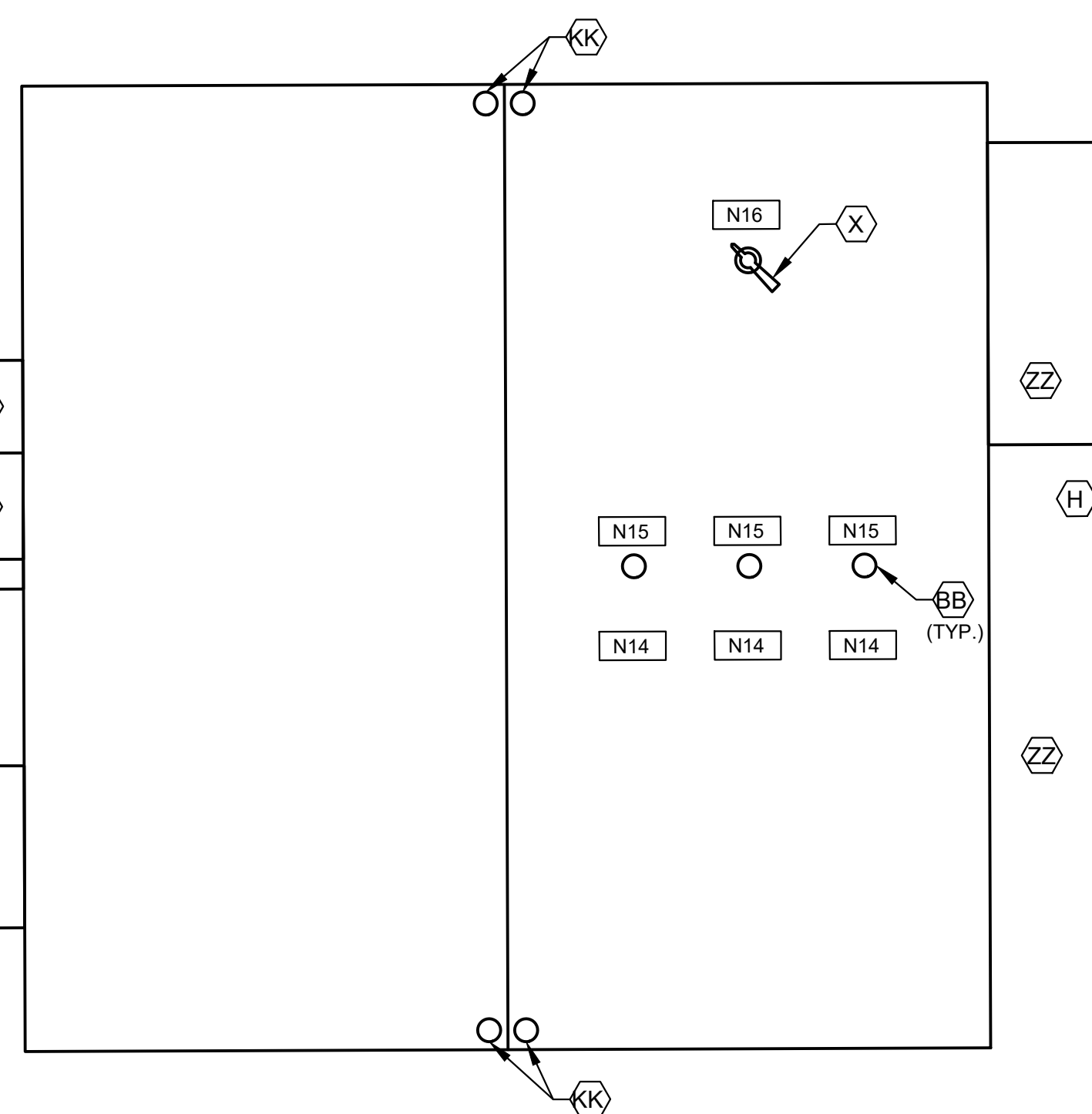
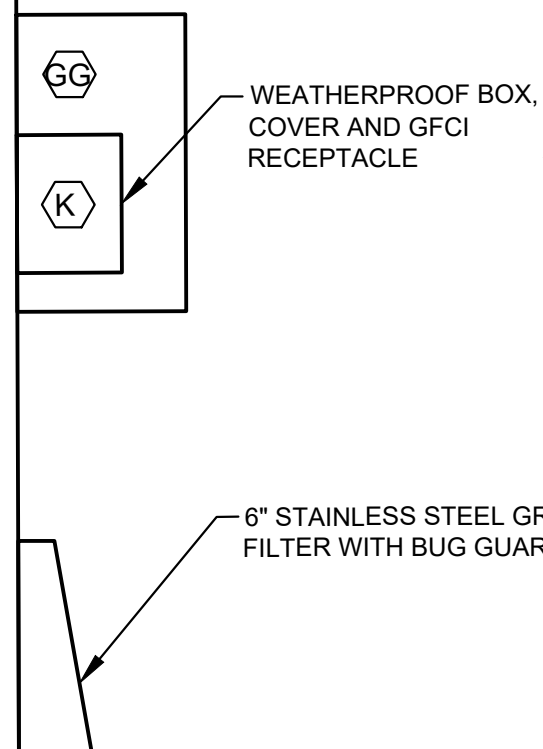
NOTES:

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

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT AND SCHEDULE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.163 OF 291		



CONTROL CABINET (CONTROL SIDE)
OUTER DOOR
ELEVATION
NTS

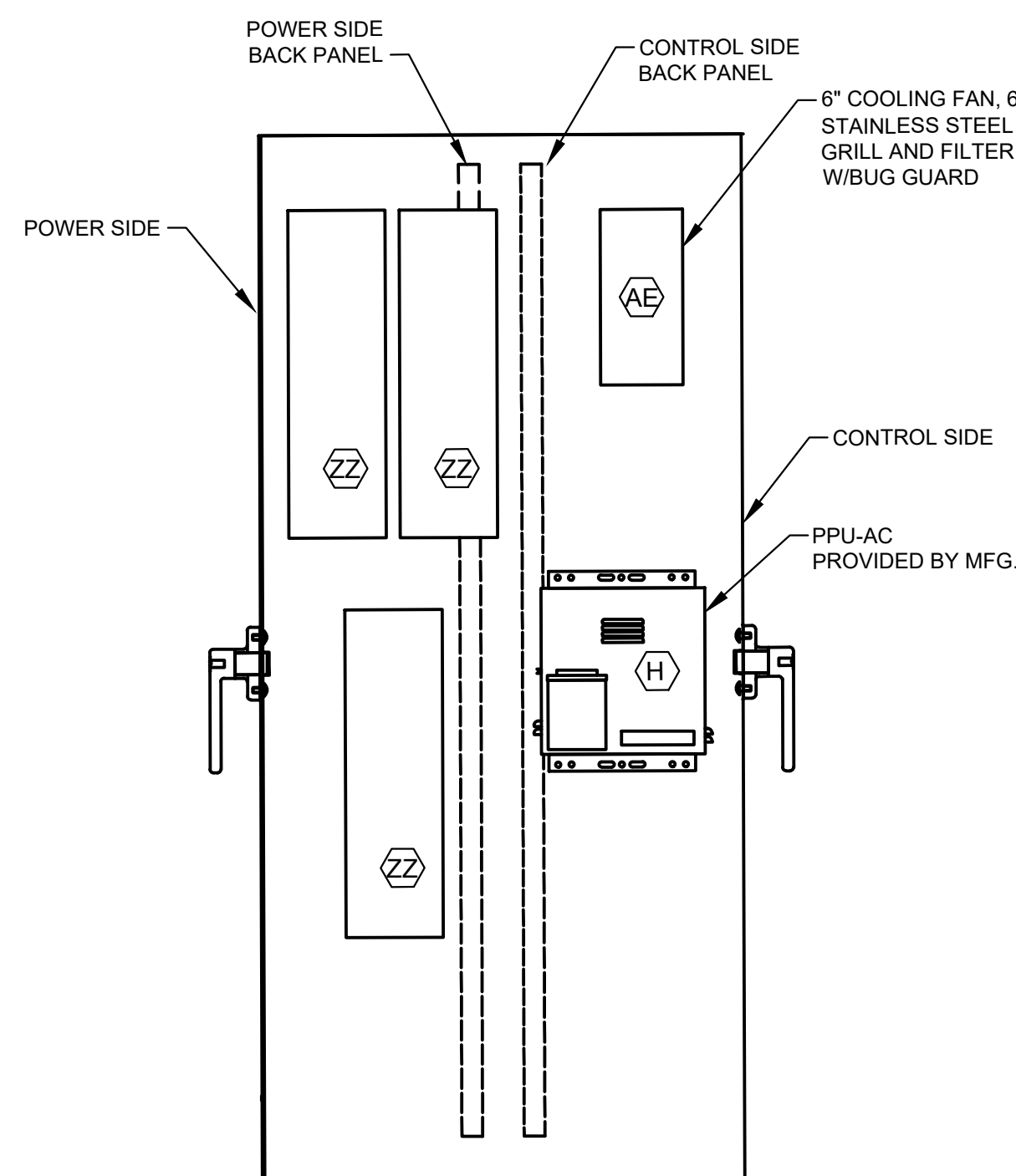


CONTROL CABINET (POWER SIDE)
INNER DOOR
ELEVATION
NTS
(SEE NOTE 1)

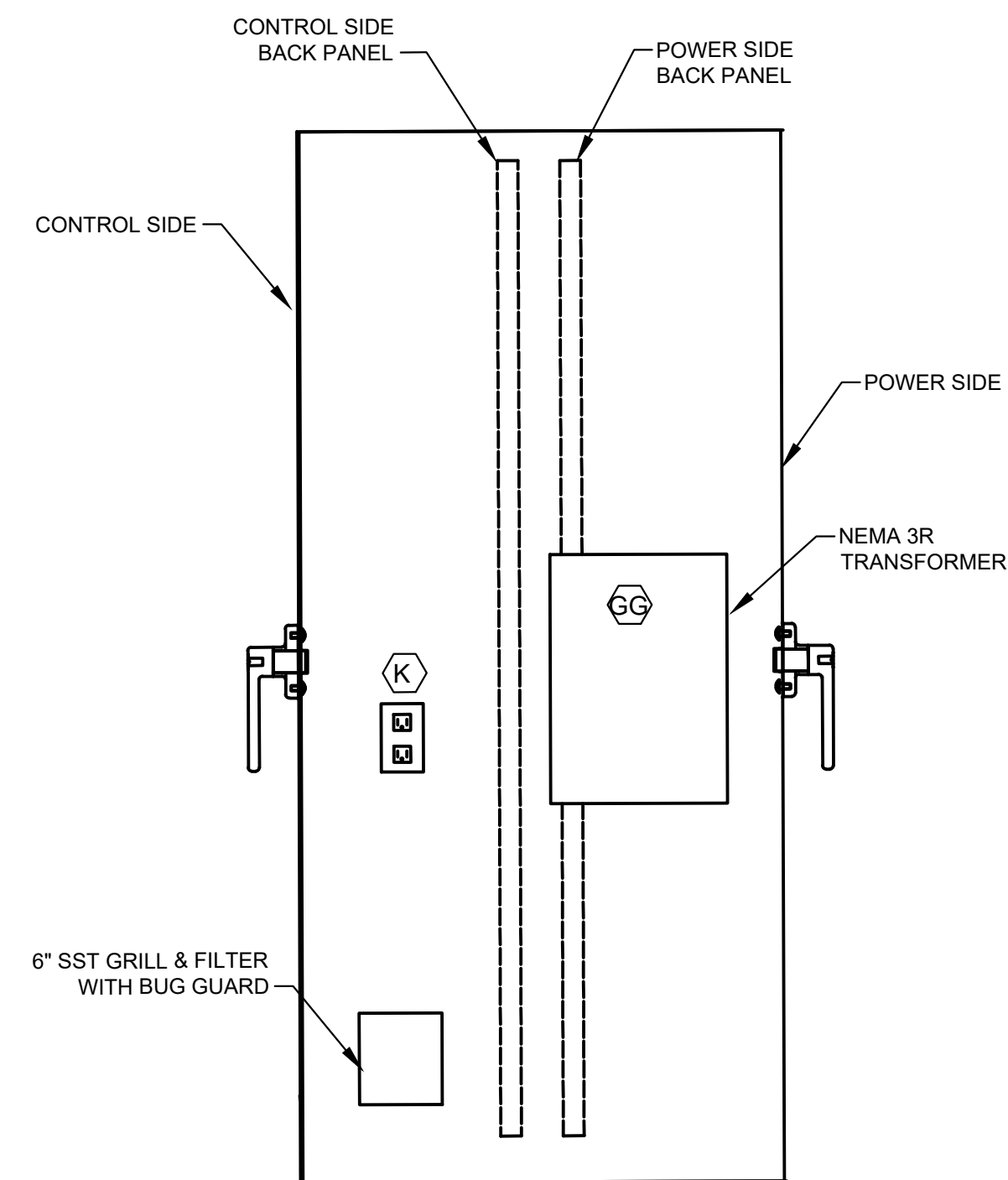
- NOTES:
1. SEE SHEET SB-E6 FOR EQUIPMENT SCHEDULE.
 2. REFER TO NEC SECTIONS 110.16 & 110.21

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED	DESIGNATION	ENGRAVED
N1	PUMP STATION DESIGNATION	N8	NOT USED.
N2	PUMP NO. 1	N9	NOT USED.
N3	PUMP NO. 2	N10	PROGRAMMING SCREEN
N4	PUMP NO. 3	N11	NOT USED.
N5	NOT USED.	N12	PRIMARY PLC
N6	NOT USED.	N13	BACKUP PLC
N7	NOT USED.	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



CONTROL CABINET (LEFT SIDE VIEW)
ELEVATION
NTS

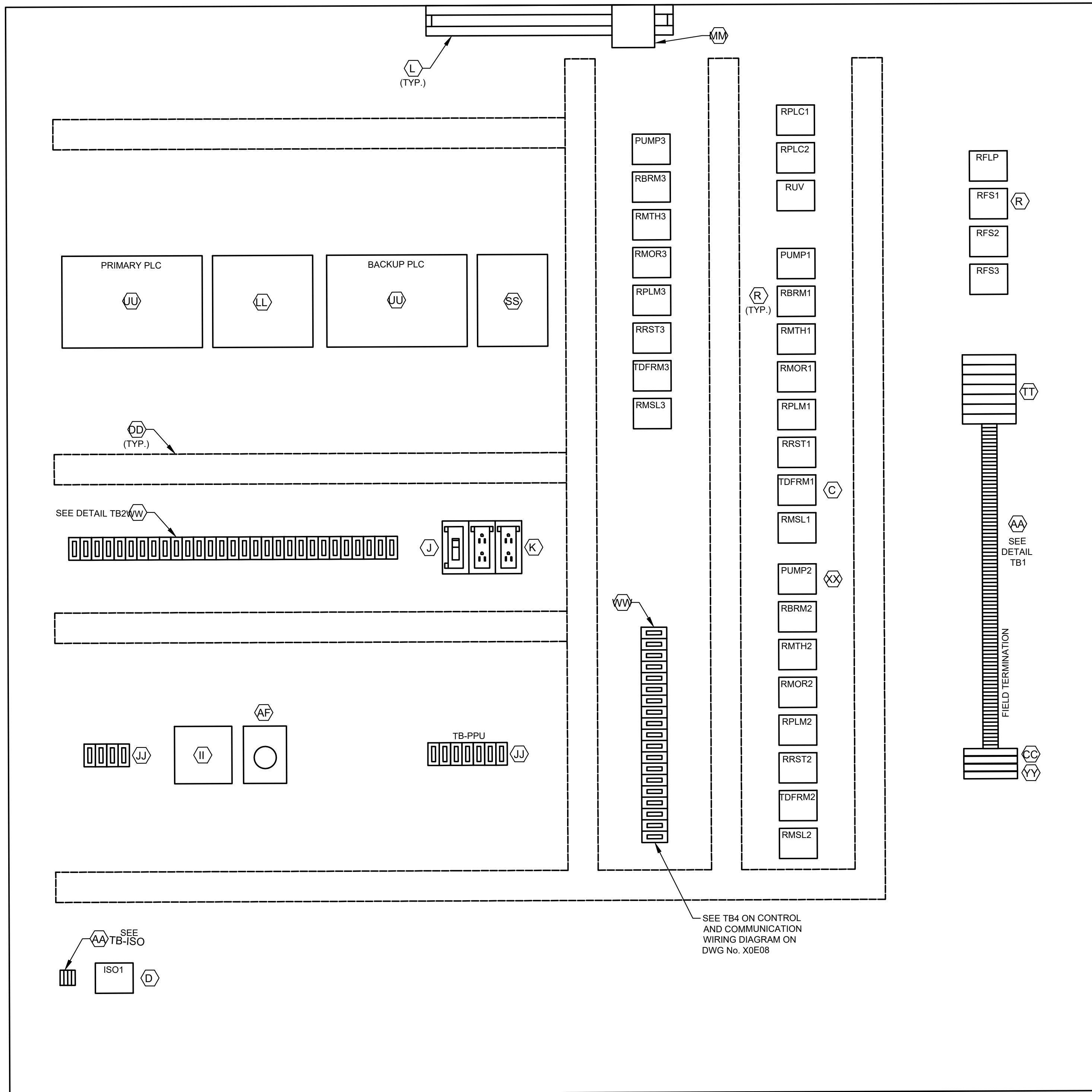


CONTROL CABINET (RIGHT SIDE VIEW)

ELEVATION

NTS

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LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT- I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.164 OF 291		



CONTROL PANE ELEVATION

DETAIL TB1
ALL L AND N FOR
EACH PUMP
CONTROL TO BE
FUSED

L1A
L1N
SPARE
3N
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
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213
215
216
219
SPARE
303
304
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306
307
308
310
313
315
316
319

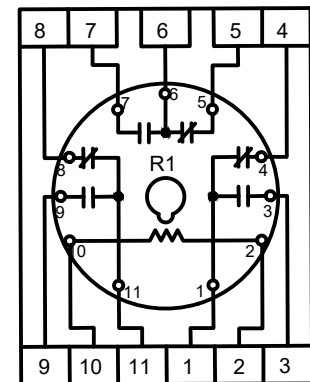
36A
37A
50
52
54
52A
54A
L+
M
35B
41B
47B
13B
13AB
13GB
L+
M
14B
14AB
14GB
L+
M
13
13A
13G
14
14A
14G
SPARE
18
SPARE
28
29
32
35B
33
42
44
SPARE
103
104
115
109
110
118
120
121
122
123
SPARE
209
210
211
218
220
222
223
SPARE
309
310
316
317
318
320
322
323

DETAIL TB2

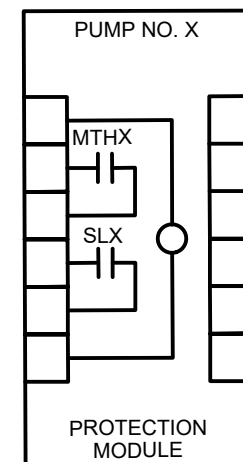
DETAIL TB-ISO

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 LOCK ALARM RELAY
RFLP	FLOAT LOCKOUT PUMP RELAY



RELAY DETAIL
ITEM C



PUMP PROTECTION MODUL
DETAIL, ITEM XX

NOTE: REPLACE "X" WITH
APPROPRIATE PUMP NO.

NOTES

1. SEE SHEET SB-E6 FOR EQUIPMENT SCHEDULE

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386



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

THIS DOCUMENT IS RELEASED FOR THE
PURPOSE OF INTERIM REVIEW UNDER THE
AUTHORITY

OF: JAMES E. THOMPSON, JR.
TEXAS P.E. #70302

DATE: 12/10/2025

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SURVEYED BY: KUO ASSOC
FB NO. P-6409

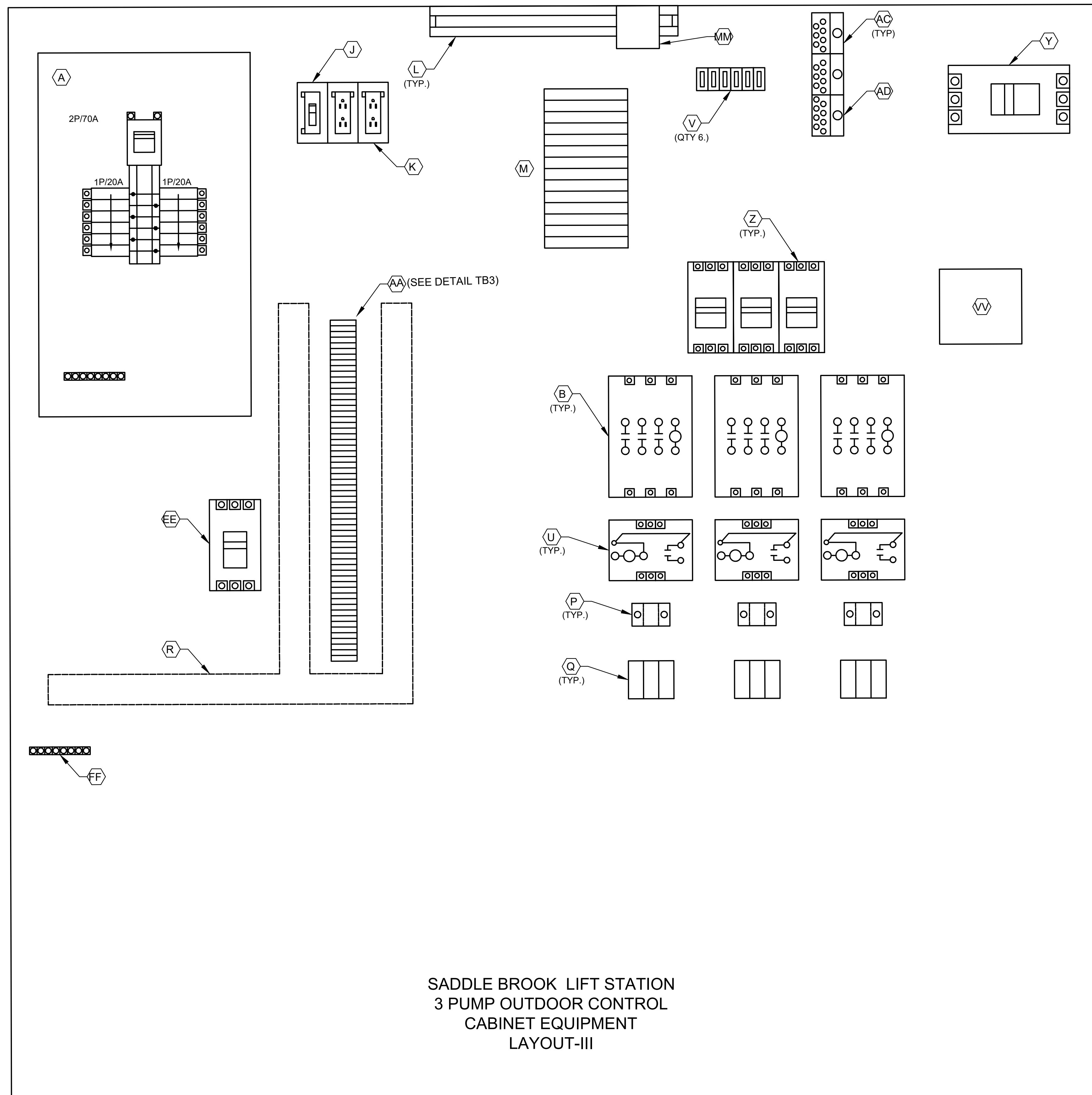
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT

-11-

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 165 OF 291	



POWER PANEL

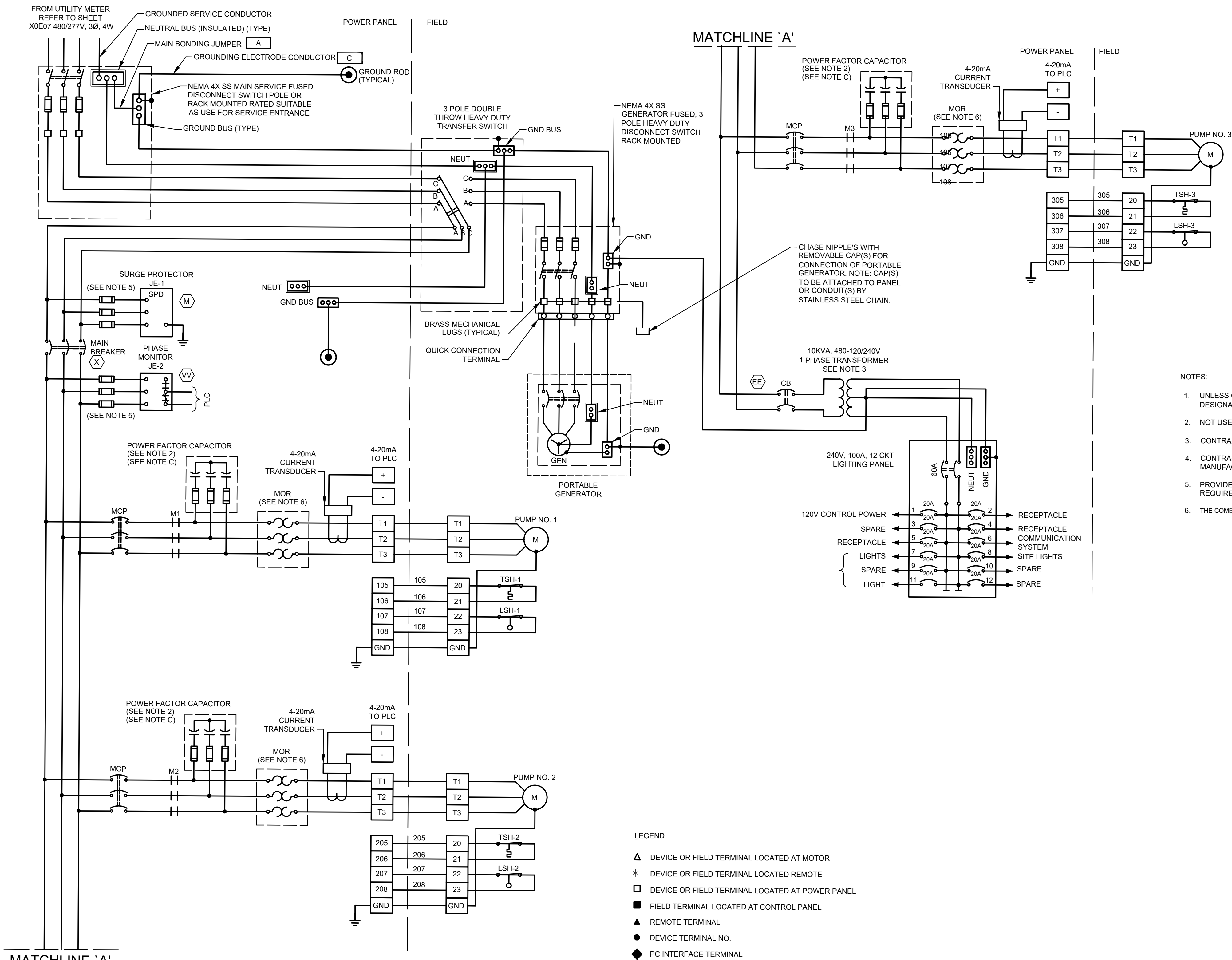
NOTES:

1. SEE SHEET SB-E6 FOR EQUIPMENT SCHEDULE.

[illegible]

DETAIL TB3

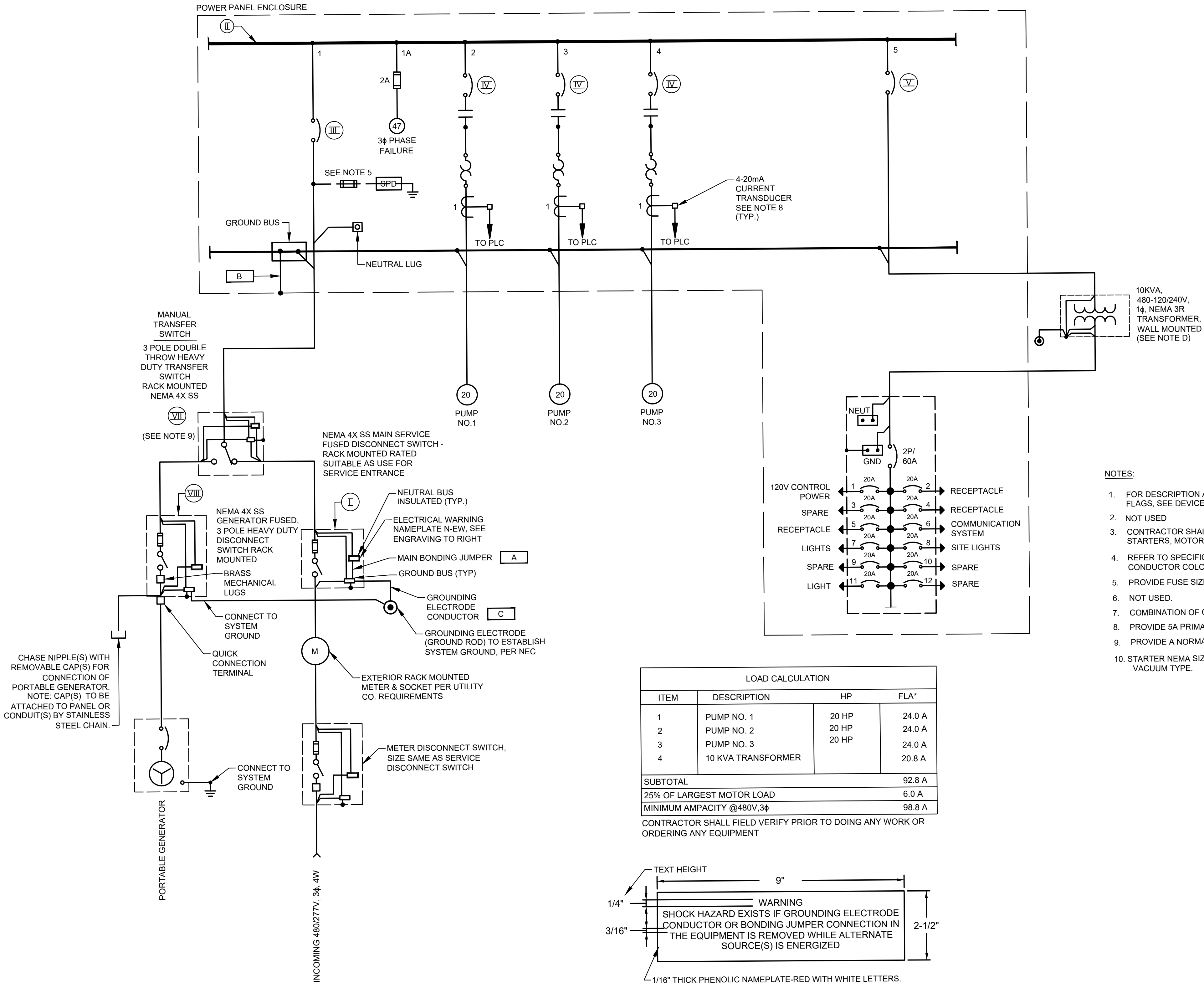
ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
 Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT-III		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
3/4" = 1'-0"		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.166 OF 291		



- NOTES:
1. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE CONTROL PANEL.
 2. NOT USED
 3. CONTRACTOR TO REVISE DWG. BASED ON MANUFACTURE AND SIZE.
 4. CONTRACTOR SHALL TERMINATE POWER & CONTROL WIRES PER MANUFACTURER'S REQUIREMENTS.
 5. PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
 6. THE COMBINATION OF CT AND MOTOR OVERLOAD RELAY IF REQUIRED.

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FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		
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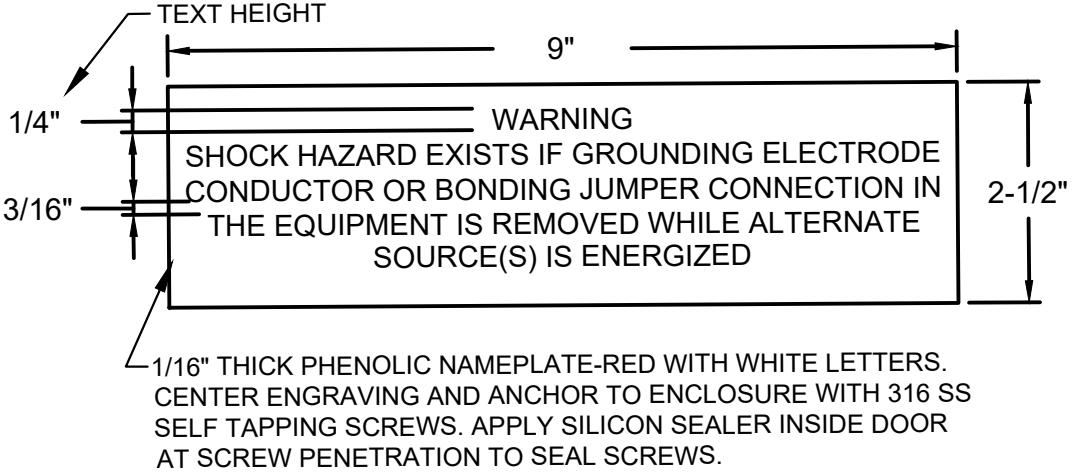
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR INCOMING POWER THREE LINE DIAGRAM	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.167 OF 291	



- NOTES:
- FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ROMAN NUMERAL FLAGS, SEE DEVICE RATINGS SCHEDULE.
 - NOT USED
 - CONTRACTOR SHALL VERIFY ACTUAL AMPERAGES OF MOTORS AND SIZE STARTERS, MOTOR CIRCUIT PROTECTORS, ETC. ACCORDINGLY.
 - REFER TO SPECIFICATION SECTION 16120 LOW-VOLTAGE WIRES AND CABLES FOR CONDUCTOR COLOR CODE.
 - PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 - NOT USED.
 - COMBINATION OF CT AND OVERLOAD RELAY IF REQUIRED.
 - PROVIDE 5A PRIMARY TO 4-20mA CURRENT TRANSDUCER.
 - PROVIDE A NORMALLY OPEN (NO) AUXILIARY CONTACT FOR BOTH ON POSITIONS.
 - STARTER NEMA SIZE 2 IS MINIMUM AND NEMA SIZE 3 OR GREATER SHALL BE VACUUM TYPE.

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLA*
1	PUMP NO. 1	20 HP	24.0 A
2	PUMP NO. 2	20 HP	24.0 A
3	PUMP NO. 3	20 HP	24.0 A
4	10 KVA TRANSFORMER		20.8 A
SUBTOTAL			92.8 A
25% OF LARGEST MOTOR LOAD			6.0 A
MINIMUM AMPACITY @480V,3φ			98.8 A

CONTRACTOR SHALL FIELD VERIFY PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT



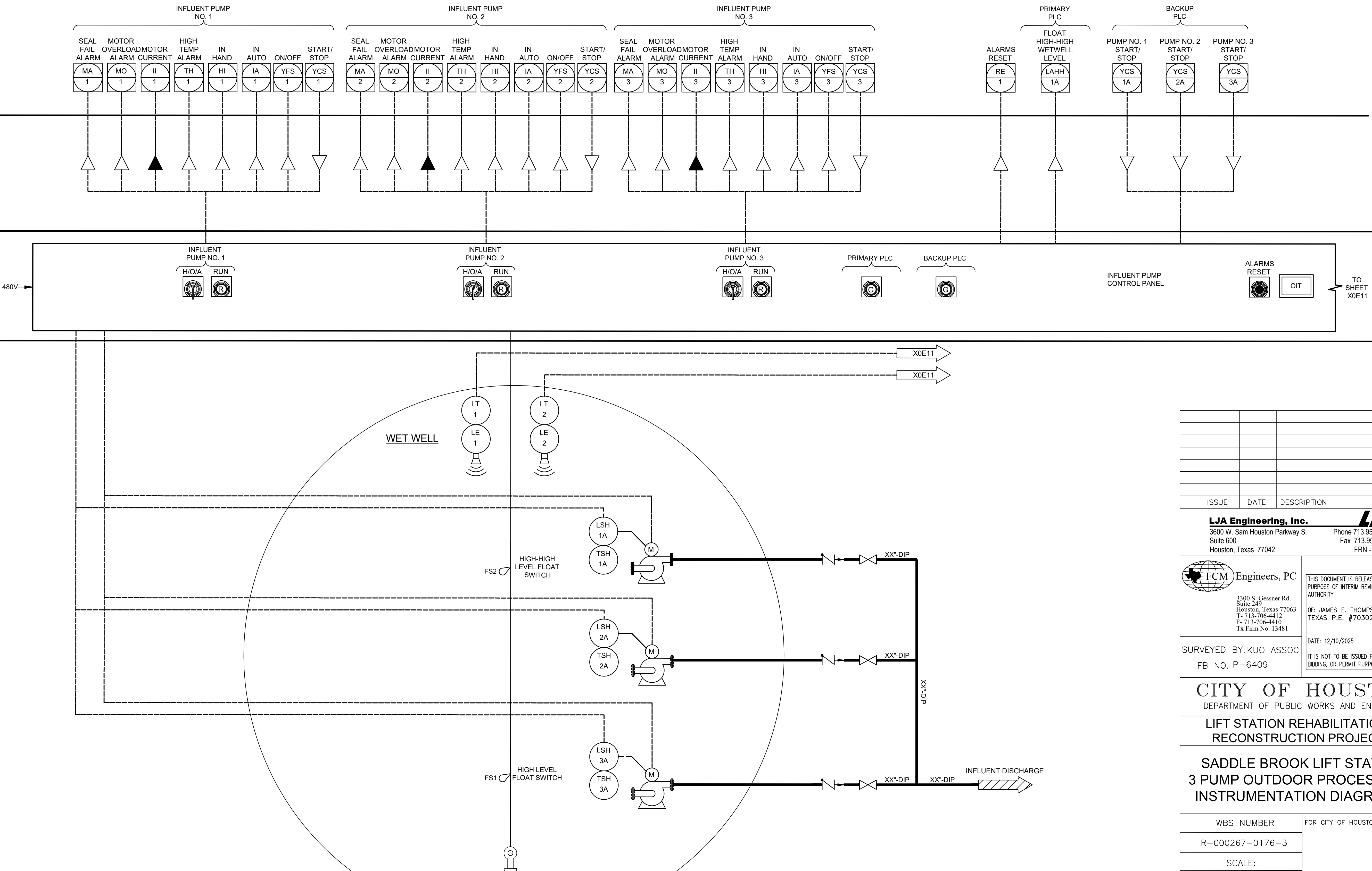
ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302		
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SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.168 OF 291		

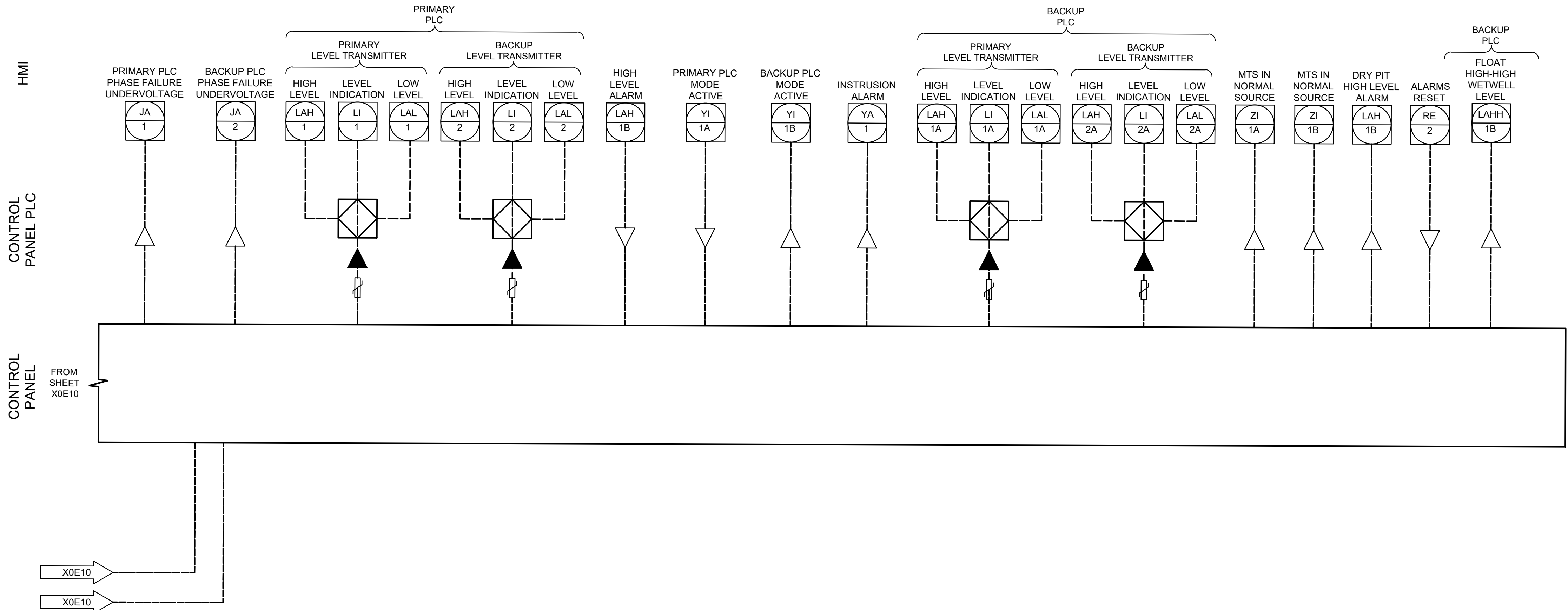
-
- The technical drawings illustrate the dimensions and components of the PPU-AC Enclosure. The **FRONT VIEW** shows a rectangular unit with a width of 18.00" and a height of 18.125". It features a top panel with four circular indicators and two elongated slots, and a bottom panel with identical features. The front face includes a central ventilation grille, a 104 A/H BATTERY on the left, and a MERAKI CELLULAR MODEM on the right. A hexagonal symbol 'H' is located on the right side. The **SIDE VIEW** shows the enclosure's profile, maintaining the 18.00" width and 18.125" height. It highlights the depth of the unit and the placement of the battery and modem on the front face. A hexagonal symbol 'H' is also present on the side panel.

SB-E12

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
 Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR COMMUNICATION DIAGRAM		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.169OF 291		

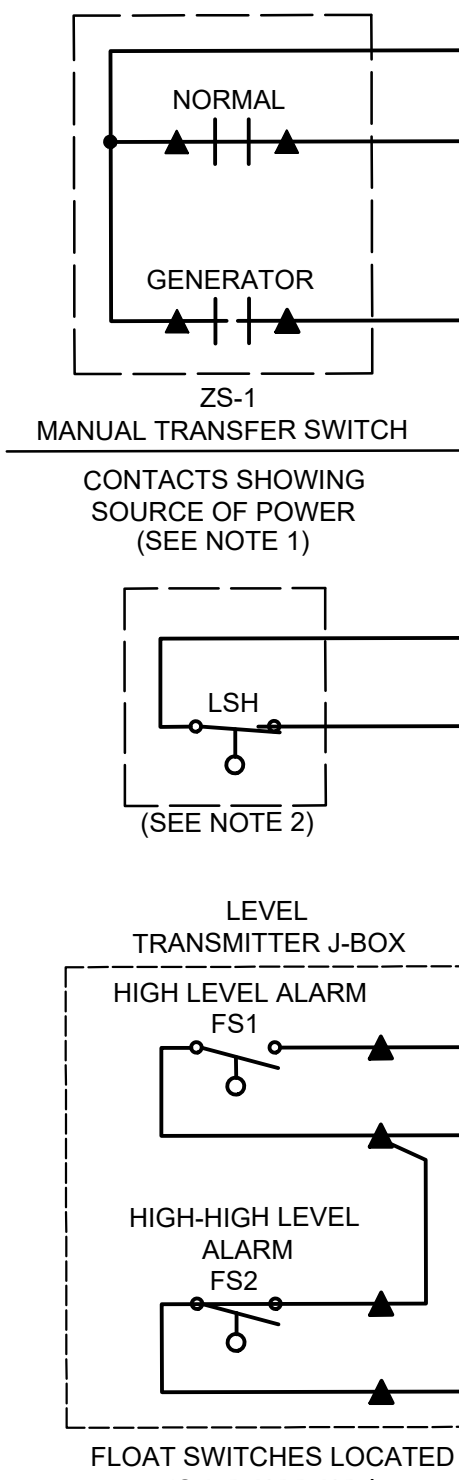


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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM - I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
3/4" = 1' - 0"		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 170 OF 291		



ISSUE	DATE	DESCRIPTION
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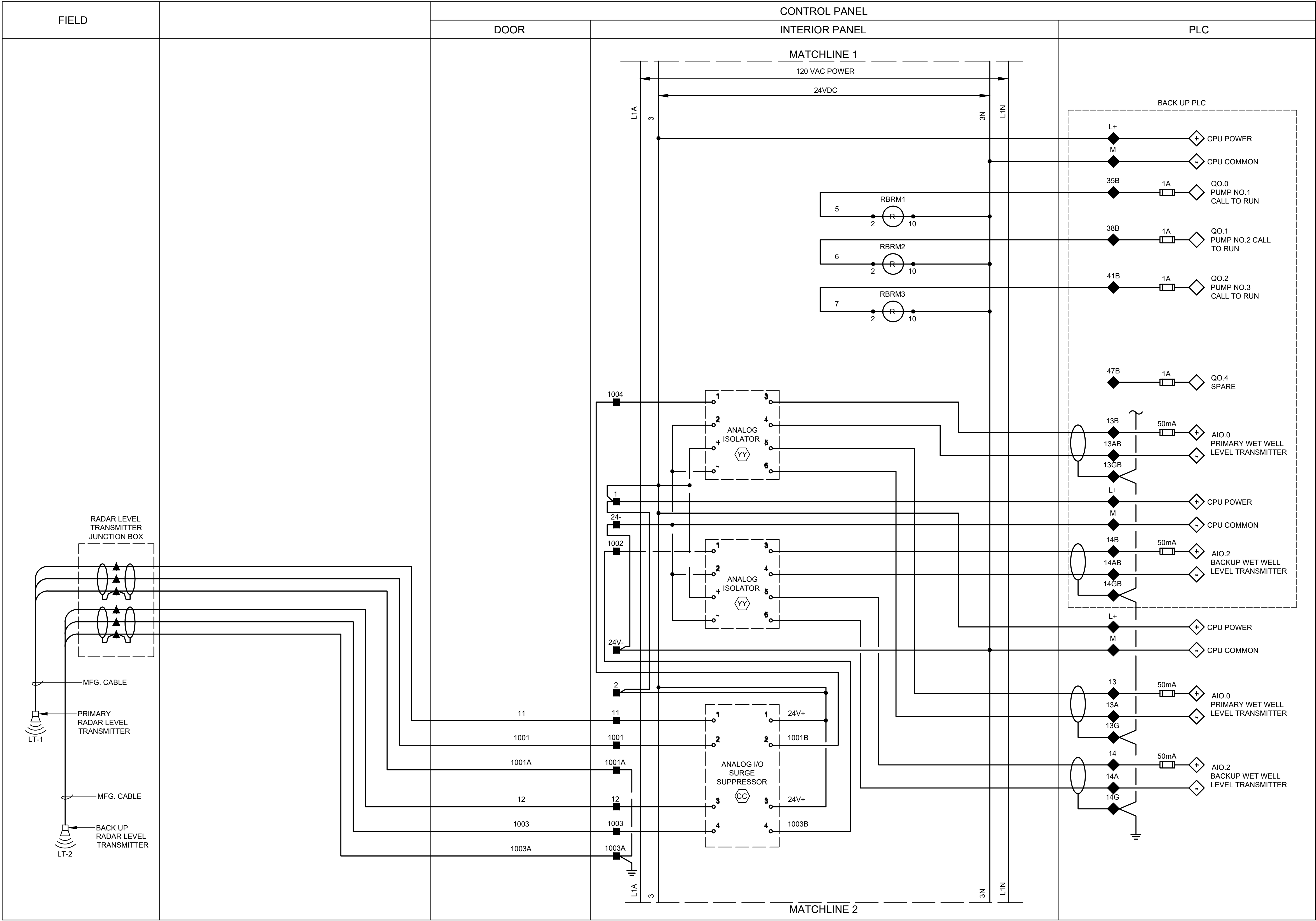
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM - II	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 171 OF 291	



- | | | | |
|---|---|---|------------------------|
|  | DEVICE OR FIELD TERMINAL LOCATED AT MOTOR |  | REMOTE TERMINAL |
|  | DEVICE OR FIELD TERMINAL LOCATED REMOTE |  | DEVICE TERMINAL NO. |
|  | DEVICE OR FIELD TERMINAL LOCATED AT MCC/POWER PANEL |  | PLC INTERFACE TERMINAL |
|  | FIELD TERMINAL LOCATED AT CONTROL PANEL | | |

- NOTES:**
1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
 2. DRY/WET PIT APPLICATION ONLY.
 3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION 3 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM - I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=5'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.172 OF 291		



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

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
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T- 713-706-4412
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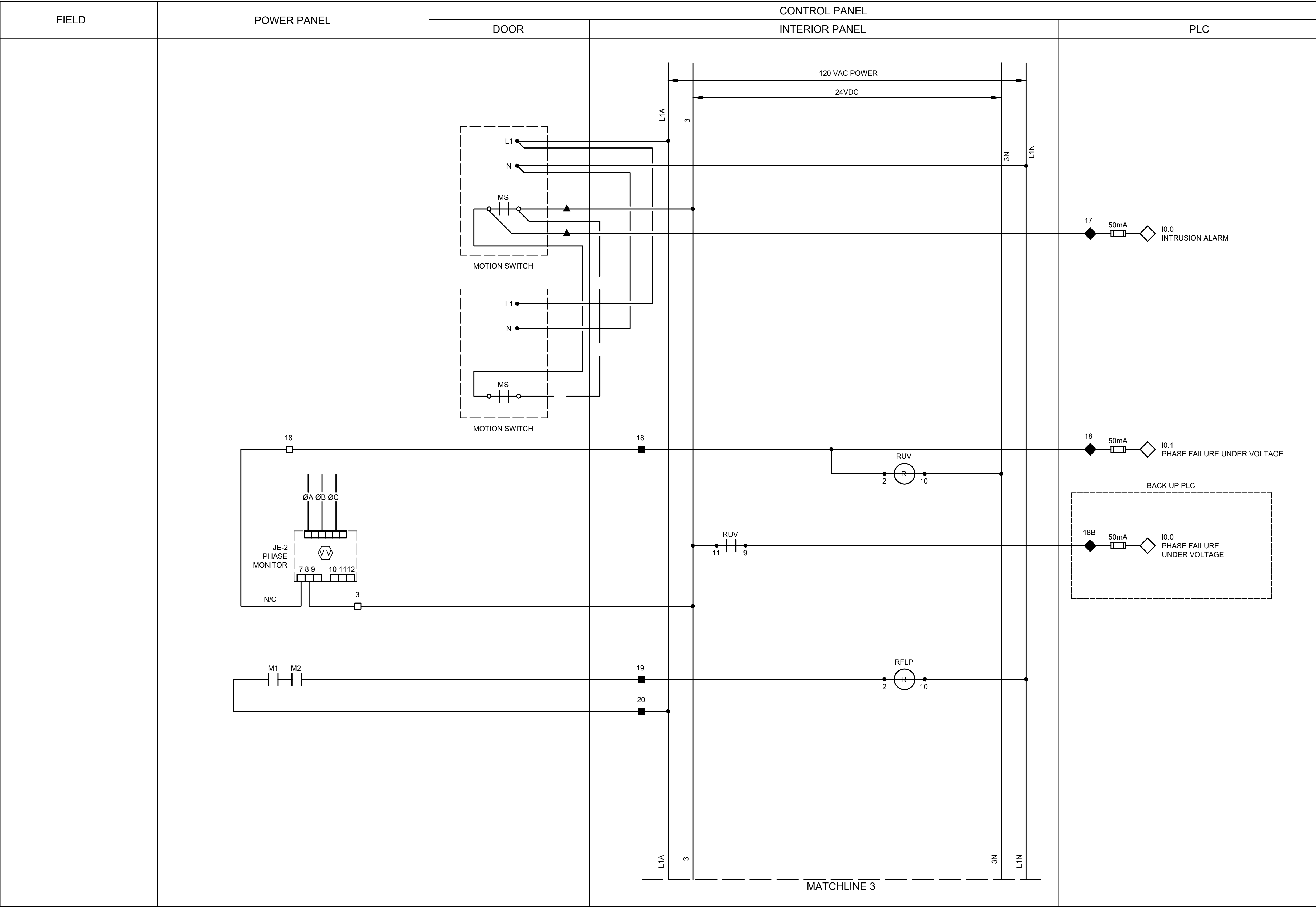
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION
3 PUMP OUTDOOR CONTROL
PANEL CONTROL WIRING
DIAGRAM - II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.173 OF 291	



- 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

- NOTES:**
1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL.

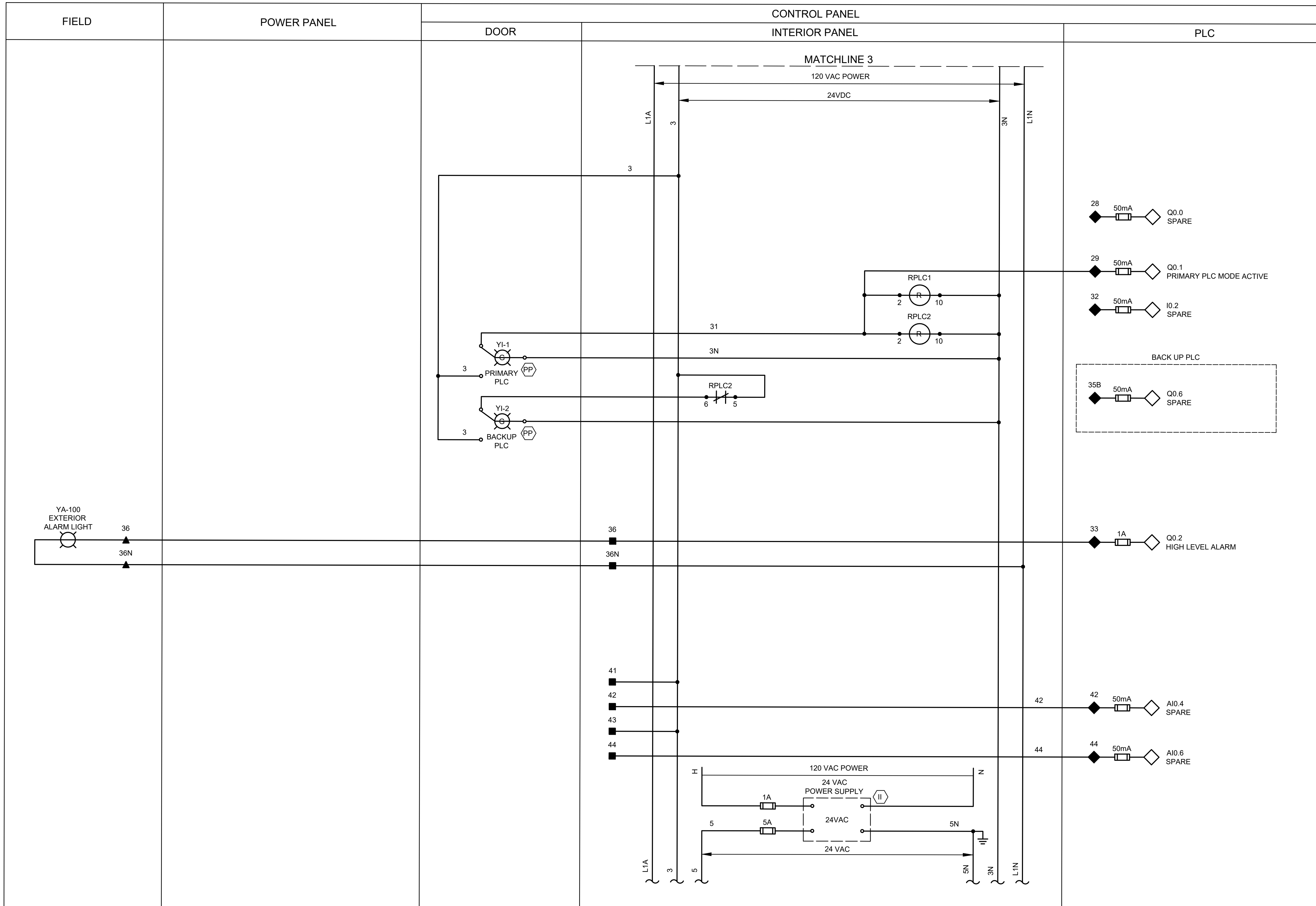
ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		
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SURVEYED BY: KUO ASSOC FB NO. P-6409		

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**SADDLE BROOK LIFT STATION
3 PUMP OUTDOOR CONTROL
PANEL CONTROL
WIRING DIAGRAM - III**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.174 OF 291	



LEGEND

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

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #73032
---	--

SURVEYED BY: KUO ASSOC FB NO. P-6409	DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

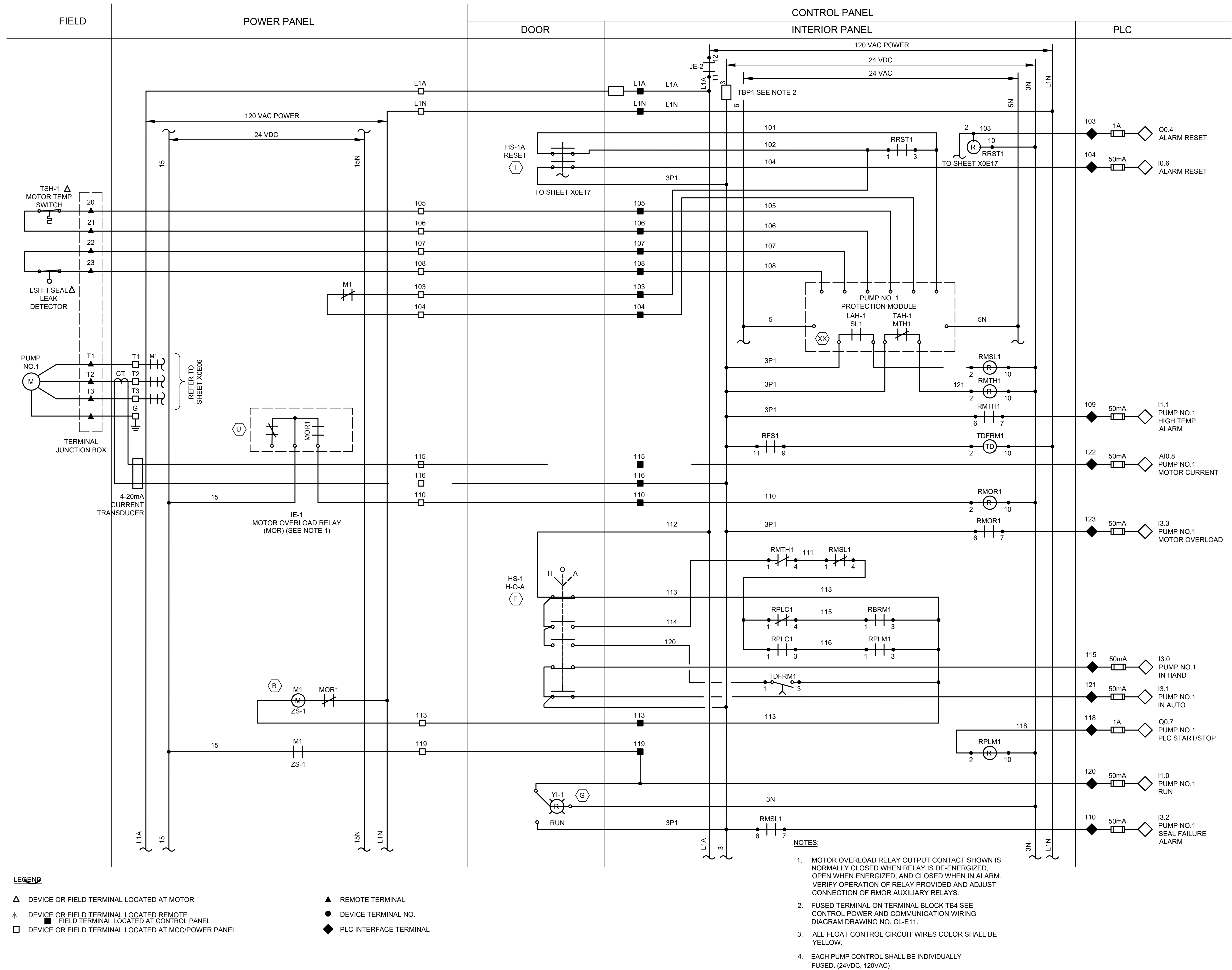
SADDLE BROOK LIFT STATION

3 PUMP OUTDOOR CONTROL

PANEL CONTROL

WIRING DIAGRAM - IV

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 175 OF 291	



ISSUE	DATE	DESCRIPTION			
LJA Engineering, Inc.			LJA		
3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042			Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
 FCM Engineers, PC			THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW ONLY AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302		
3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T: 713-706-4412 F: 713-706-4410 Tx Frn No. 13481			DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES		
SURVEYED BY: KUO ASSOC					
FB NO. P-6409					

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

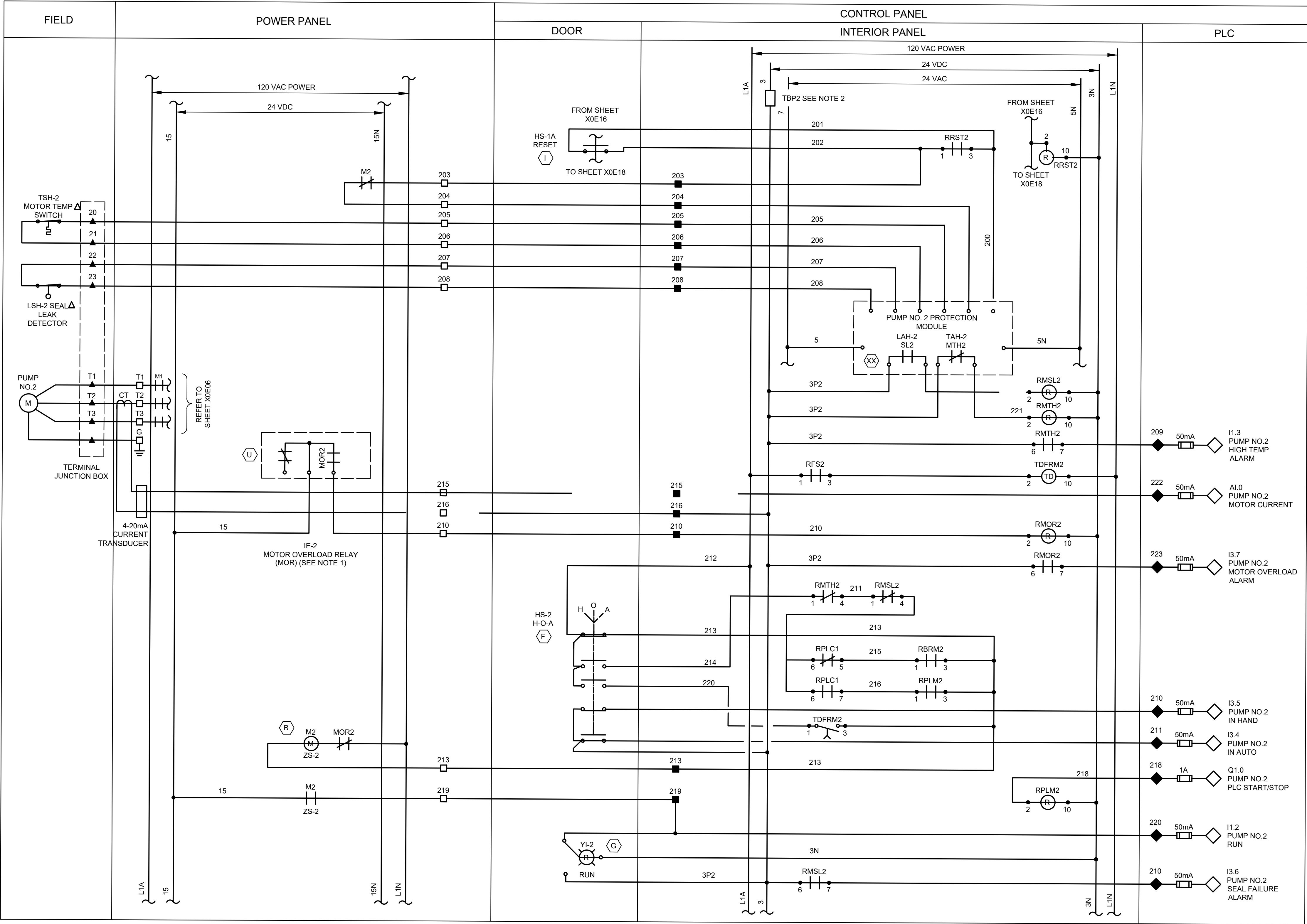
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION

3 PUMP OUTDOOR PUMP 1

CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.176 OF 291	



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

NOTES:

- 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.
- FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. X0E08.
- ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
- EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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

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DATE: 12/10/2025
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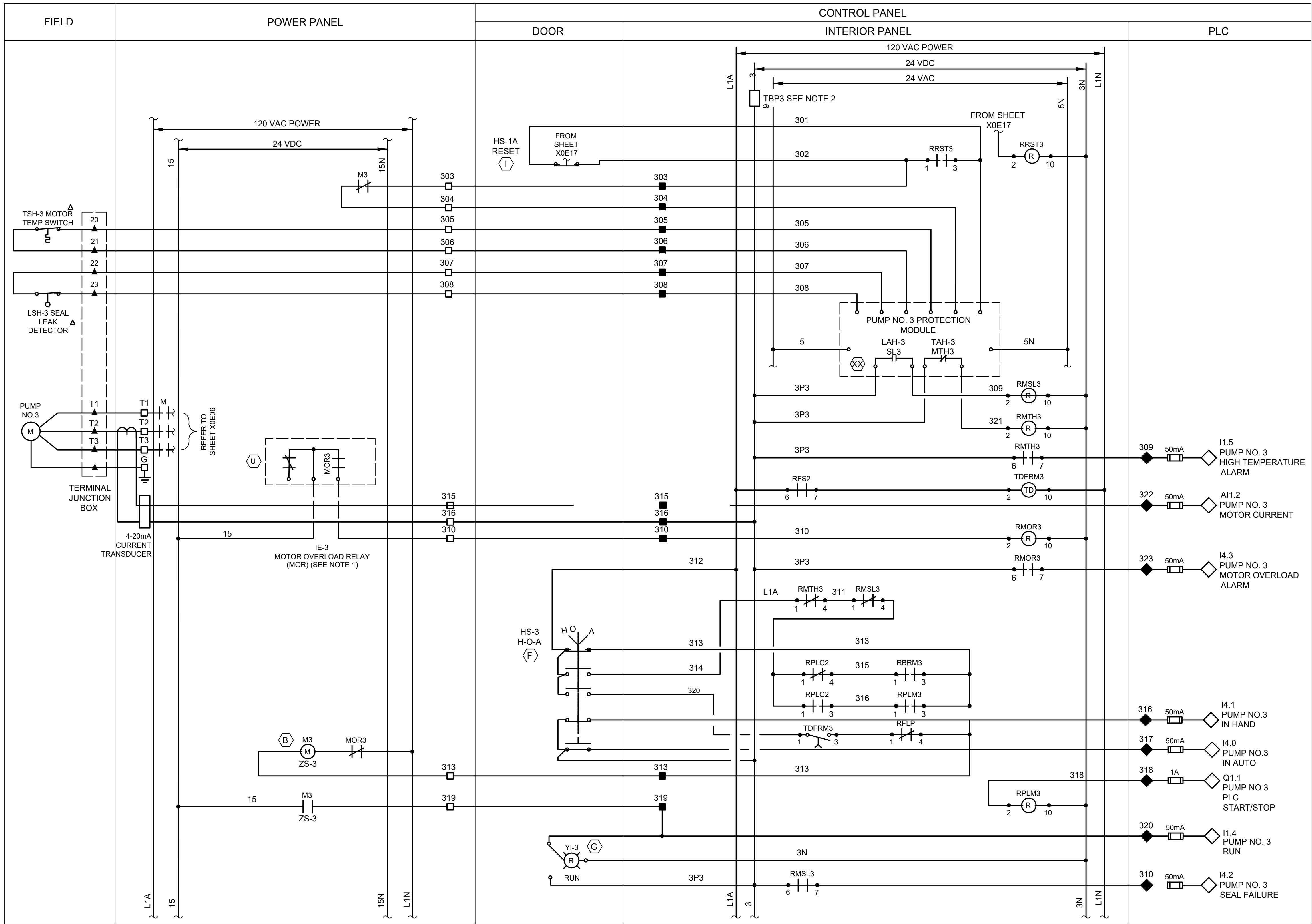
SURVEYED BY: KUO ASSOC
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

SADDLE BROOK LIFT STATION
3 PUMP OUTDOOR PUMP 2
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 177 OF 291	



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

NOTES:

- 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.
- FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM. DRAWING NO. X0E08.
- ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
- EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
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Tx Firm No. 13481

SURVEYED BY: KUO ASSOC
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**SADDLE BROOK LIFT STATION
3 PUMP OUTDOOR PUMP 3
CONTROL WIRING DIAGRAM**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 178 OF 291	

	DESCRIPTION	SERVICE		ROUTING			#2 AWG CONDUIT & WIRE SIZE
		VOLTAGE	AMPS OR HP	FROM	TO	VIA	
A	MAIN BONDING JUMPER	--	--	MAIN FUSED DISCONNECT NEUTRAL	MAIN FUSED DISCONNECT GROUND	--	
B	EQUIPMENT BONDING JUMPER	--	--	MCC/POWER PANEL ENCLOSURE	POWER/CONTROL PANEL & EQUIPMENT GROUND BUS	--	#2 AWG
C	GROUND ED ELECTRODE CONDUCTOR	--	--	GROUNDING ELECTRODE	MAIN SERVICE FUSED DISCONNECT	--	#2 AWG
100	SERVICE ENTRANCE	480V	VARIES	UTILITY POWER SERVICE	METER DISCONNECT		#2 AWG
100A	MCC SERVICE POWER	480V	VARIES	MANUAL TRANSFER SWITCH	MCC OR POWER PANEL	--	3#4/0, 1-4G AWG 2-1/2"C
100B	NORMAL/EMERRGENCY POWER STATUS	24VDC	--	MANUAL TRANSFER SWITCH	CONTROL PANEL	--	
100C	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	PORTABLE GENERATOR	CAPPED CONDUITS	3#4/0, 1-4G AWG 3"C
*100	SERVICE ENTRANCE	480V	VARIES	UTILITY POWER SERVICE	CT CAN	--	
*100A	SERVICE POWER	480V	VARIES	SERVICE DISCONNECT	MAIN BREAKER IN MCC	--	
*100B	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	GENERATOR TRANSFER SWITCH IN MCC	--	
*100C	EMERGENCY POWER	480V	VARIES	GENERATOR DISCONNECT	PORTABLE GENERATOR	CAPPED CONDUITS	3#4/0, 1-4G AWG 2-1/2"C
101	GROUND ELECTRODE CONDUCTOR	--	--	POWER PANEL	GROUND FIELD	--	#2 AWG
102	GROUND ELECTRODE CONDUCTOR	--	--	BUILDING STEEL	GROUND FIELD	--	#2 AWG
103	BUILDING GROUNDING	--	--	BUILDING REBAR	LIGHTNING GROUND ROD	--	#2 AWG
104	GROUND ELECTRODE CONDUCTOR	--	--	CONTROL PANEL	GROUND FIELD	--	#2 AWG
105	COMMUNICATION	--	--	COMMUNICATION POLE	CONTROL PANEL	--	3#8, 1-4G AWG 1-1/2"C
105A	COMMUNICATION POLE LIGHT	120V	--	COMMUNICATION POLE	LIGHTING PANEL CKT #6 & CKT #4	--	2-1"C., 3/12,1-#12G
200	PUMP NO. 1 POWER	480V	20	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	--	MFGR'S STD CABLE 2-1/2"
201	PUMP NO. 1 CONTROLS	120V	--	PUMP NO. 1	PUMP NO. 1 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
202	PUMP NO. 1 POWER	480V	20	PUMP NO. 1 JUNCTION BOX	PUMP STARTER	--	
203	COMBINED PUMP CONTROLS	120V	--	PUMP NO. 1 JUNCTION BOX	PUMP STARTER	--	COMBINE 200 & 300 TAG WIRING
205	PUMP NO. 1 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
206	PUMP NO. 1 CAPACITOR	480V	TBD	PUMP NO. 1 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	
300	PUMP NO. 2 POWER	480V	20	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	--	MFGR'S STD CABLE 2-1/2"
301	PUMP NO. 2 CONTROLS	120V	--	PUMP NO. 2	PUMP NO. 2 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
302	PUMP NO. 2 POWER	480V	20	PUMP NO. 2 JUNCTION BOX	PUMP STARTER	--	
305	PUMP NO. 2 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
306	PUMP NO. 2 CAPACITOR	480V	TBD	PUMP NO. 2 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	
400	PUMP NO. 3 POWER	480V	20	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	--	MFGR'S STD CABLE 2-1/2"
401	PUMP NO. 3 CONTROLS	120V	--	PUMP NO. 3	PUMP NO. 3 JUNCTION BOX	--	4/14,1#12G (IF NOT PROVIDED IN MFGR'S CABLE)
402	PUMP NO. 3 POWER	480V	20	PUMP NO. 3 JUNCTION BOX	PUMP STARTER	--	
403	COMBINED PUMP CONTROLS	120V	20	PUMP NO. 3 JUNCTION BOX	CONTROL PANEL	--	
405	PUMP NO. 3 CONTROLS	120V	--	STARTER IN MOTOR CONTROL CENTER	CONTROL PANEL	--	
406	PUMP NO. 3 CAPACITOR	480V	TBD	PUMP NO. 3 MOTOR STARTER	POWER FACTOR CORRECTION CAPACITOR	--	
600	LIGHTING TRANSFORMER FEEDER	480V	--	MOTOR CONTROL CENTER	LIGHTING TRANSFORMER	--	
601	LIGHTING PANEL GROUND	--	--	LIGHTING PANEL	GROUND FIELD	--	#4 AWG
602	LIGHTING PANEL FEEDER	120/240V	--	LIGHTING TRANSFORMER	LIGHTING PANEL	--	#4 AWG
900	INTRUSION ALARM	24VDC	--	MOTION SWITCH	CONTROL PANEL	--	#4 AWG
1000	LEVEL TRANSMITTER	24VDC	--	TRANSMITTER JUNCTION BOX	TRANSMITTER JUNCTION BOX	--	
1001	LEVEL TRANSMITTER	24VDC	--	TRANSMITTER JUNCTION BOX	TRANSMITTER JUNCTION BOX	--	
1002	COMBINED LEVEL TRANSMITTERS & FLOAT SWITCH	24VDC	--	CONTROL PANEL	TRANSMITTER JUNCTION BOX	--	
1003	WELL FLOAT SWITCHES	24VDC	--	TRANSMITTER JUNCTION BOX	FLOAT SWITCH NO.1 & NO.2	--	
1004	FLOAT SWITCH	120V	--	SUMP PUMP MOTOR STARTER	FLOAT SWITCH	--	
1100	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO TRANSMITTER J-BOX	--	
1200	120VAC FOR RECEPTACLE	--	--	LIGHTING PANEL	RECEPTACLE NEXT TO PUMP NO. 1 J-BOX	--	

NOTES:

- CONDUITS LABELED "FUTURE SPACE" ARE TO BE INSTALLED AND CAPPED IN FIELD.
- ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2".
- ALL UNDERGROUND CONDUITS (SINGLE AND MULTI-RUN) TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.
- CONDUITS LABELED "FUTURE SPACE" ARE THOSE TO BE INSTALLED AND CAPPED IN FIELD.
- A CSBE TYPE SEAL SHALL BE NOT SMALLER THAN 2-1/2". CSBE SEALS ARE NOT MANUFACTURED SMALLER THAN 2-1/2".
- GENERATOR CONDUIT SHALL BE A MINIMUM OF 3" CONDUIT.

(FIELD VERIFY ALL CONDUIT AND WIRES AND UPDATE AS REQUIRED)

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
SURVEYED BY: KUO ASSOC FB NO. P-6409		

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
SADDLE BROOK LIFT STATION 3 PUMP INDOOR/OUTDOOR CONDUIT SCHEDULE FOR 480 VOLTS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.179 OF 291	

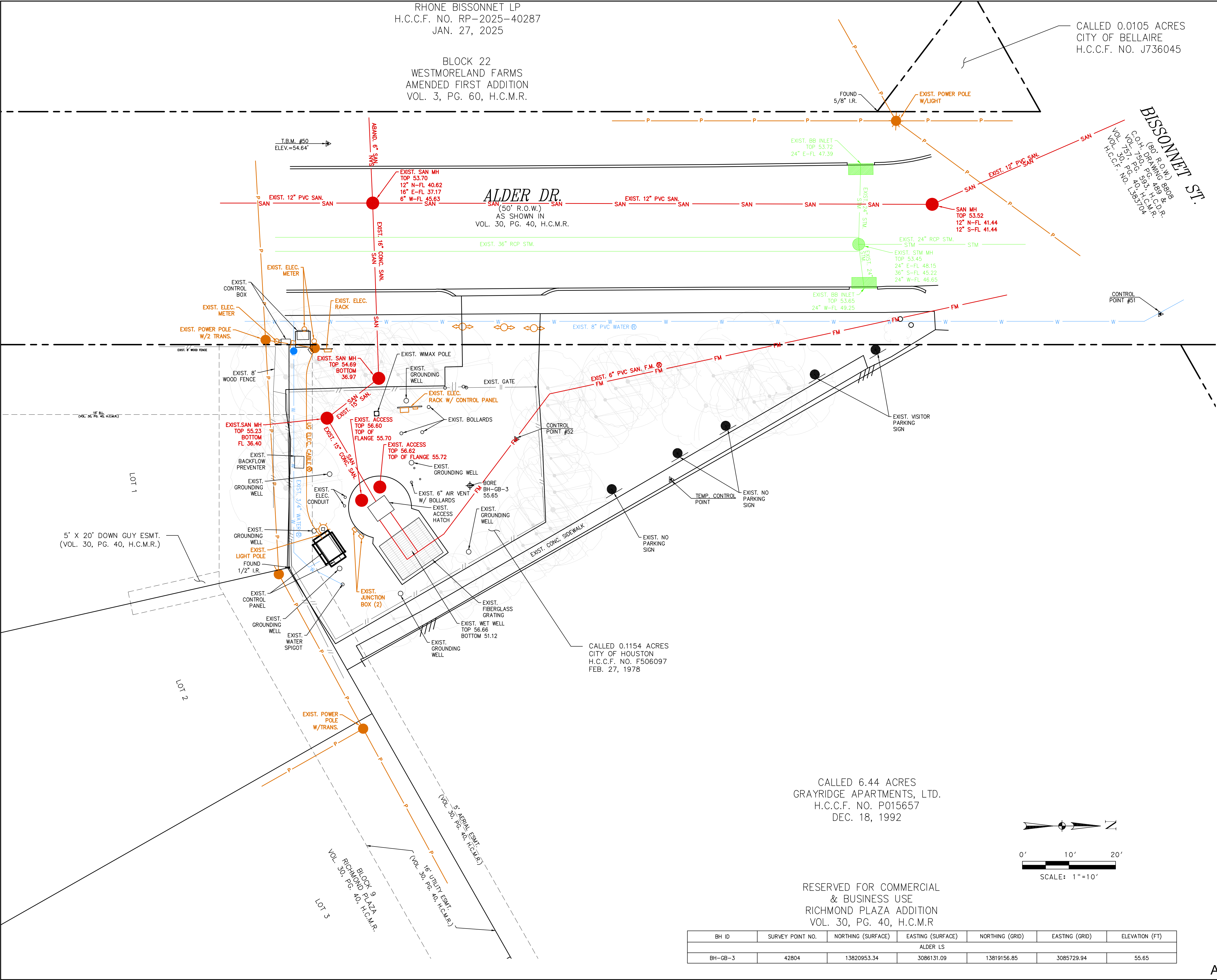
			RATINGS FOR PUMP SIZES
ITEM	CIRCUIT	DESCRIPTION	3 @ 20HP
I	--	MAIN DISCONNECT SWITCH	
		OPERATING VOLTAGE	480V
		CURRENT RATING	200A
		CURRENT LIMITING	CLASS J
		FUSES TYPE & SIZE	150A
II	--	MOTOR CONTROL CENTER MAIN BUS - 3/C COPPER	
		OPERATING VOLTAGE	
		CURRENT RATING	
		NEUTRAL SIZE & TYPE	
		BUS BRACING	
III	1 (SEE NOTE 1)	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
IV	2 3 5	PUMP MOTOR STARTERS	
		QUANTITY	3
		MOUNTING (SEE NOTE 3)	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	480V
		FRAME SIZE	100A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	42KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	480V
		SIZE (SEE NOTE 4)	NEMA 2
		OVERLOAD PROTECTION	AMPS, MOTOR NAMEPLATE
		TYPE	MFGR SPEC
		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	CLASS J
		FUSES TYPE & SIZE	150A
IX	1G (SEE NOTE 2)	GENERATOR TRANSFER SWITCH	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	200A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE

NOTES:

- WHERE GENERATOR SERVICE IS ANTICIPATED, PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
- PROVIDE TRIP SETTING BASED ON GENERATOR SIZE. BREAKERS TO BE SIZED AT MAXIMUM ALLOWBLE SIZE.
- STARTERS TO BE MOUNTED IN CONTROL CABINET ADJACENT TO PLC AND ASSOCIATED RELAY EQUIPMENT.
- STARTERS TO BE NEMA RATED FOR FULL VOLTAGE STARTING.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
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SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
SADDLE BROOK LIFT STATION 3 PUMP INDOOR/OUTDOOR DEVICE RATING SCHEDULE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
N.T.S		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 180 OF 291		

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD) - SHEETS\181 ALDER LS EXIST.dwg May 07, 2026-1:26pm trowbridge



BENCHMARK:
CITY OF HOUSTON MONUMENT 5155-7401, A BRASS DISK IN CONCRETE, LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF JESSAMINE ST AND RENWICK DR.
ELEV. 57.71 FEET NAVD 1988 (GEOID '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 30, 2025.

T.B.M. #50:
SET 1/2 INCH IRON ROD WITH CAP LOCATED AT WEST SIDE OF ALDER DR APPROXIMATELY 175 FEET SOUTH FROM THE INTERSECTION OF BISSONNET ST
ELEV. 54.64 FEET

VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040735) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.14'.
NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.14 FT

HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY
OF: ANA K. TREJO
P.E.# 125772
DATE: 05/01/2026
IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

SURVEYED BY:	FB NO. P-6409
KUO & ASSOCIATES	

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

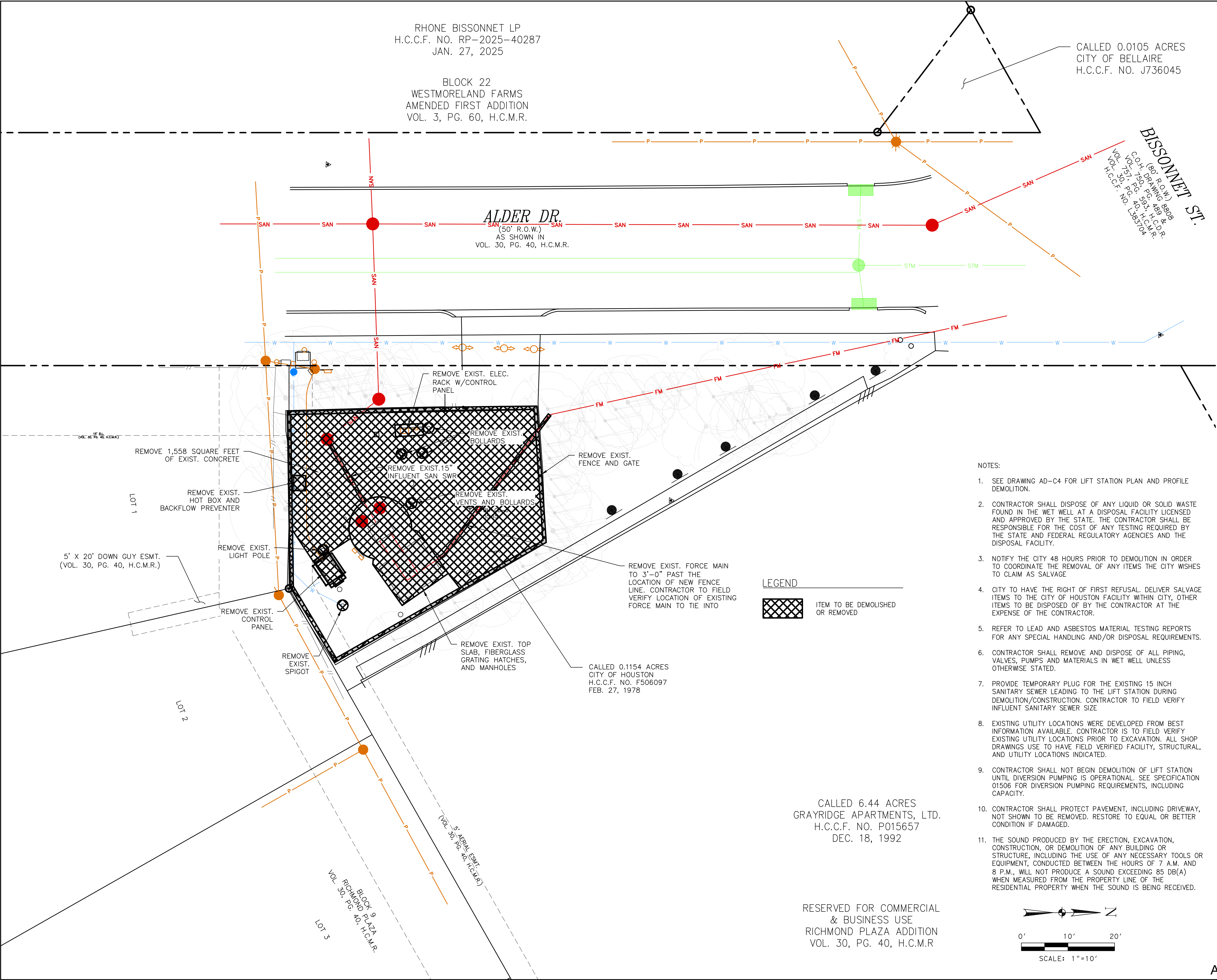
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ALDER LIFT STATION EXISTING SITE PLAN

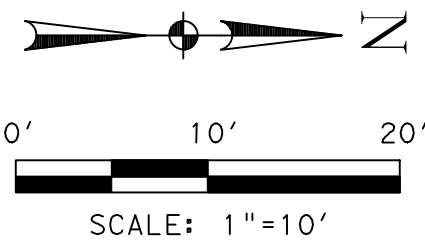
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1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 181 OF 291	

AD-C1

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects\CAD\1-SHEETS\182 ALDER LS DEMO.dwg May 07, 2025-1:26pm trowbridge



- NOTES:
- SEE DRAWING AD-C4 FOR LIFT STATION PLAN AND PROFILE DEMOLITION.
 - CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES AND THE DISPOSAL FACILITY.
 - NOTIFY THE CITY 48 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE THE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE
 - CITY TO HAVE THE RIGHT OF FIRST REFUSAL. DELIVER SALVAGE ITEMS TO THE CITY OF HOUSTON FACILITY WITHIN CITY. OTHER ITEMS TO BE DISPOSED OF BY THE CONTRACTOR AT THE EXPENSE OF THE CONTRACTOR.
 - REFER TO LEAD AND ASBESTOS MATERIAL TESTING REPORTS FOR ANY SPECIAL HANDLING AND/OR DISPOSAL REQUIREMENTS.
 - CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PIPING, VALVES, PUMPS AND MATERIALS IN WET WELL UNLESS OTHERWISE STATED.
 - PROVIDE TEMPORARY PLUG FOR THE EXISTING 15 INCH SANITARY SEWER LEADING TO THE LIFT STATION DURING DEMOLITION/CONSTRUCTION. CONTRACTOR TO FIELD VERIFY INFLUENT SANITARY SEWER SIZE
 - EXISTING UTILITY LOCATIONS WERE DEVELOPED FROM BEST INFORMATION AVAILABLE. CONTRACTOR IS TO FIELD VERIFY EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. ALL SHOP DRAWINGS USE TO HAVE FIELD VERIFIED FACILITY, STRUCTURAL, AND UTILITY LOCATIONS INDICATED.
 - CONTRACTOR SHALL NOT BEGIN DEMOLITION OF LIFT STATION UNTIL DIVERSION PUMPING IS OPERATIONAL. SEE SPECIFICATION 01506 FOR DIVERSION PUMPING REQUIREMENTS, INCLUDING CAPACITY.
 - CONTRACTOR SHALL PROTECT PAVEMENT, INCLUDING DRIVEWAY, NOT SHOWN TO BE REMOVED. RESTORE TO EQUAL OR BETTER CONDITION IF DAMAGED.
 - THE SOUND PRODUCED BY THE ERECTION, EXCAVATION, CONSTRUCTION, OR DEMOLITION OF ANY BUILDING OR STRUCTURE, INCLUDING THE USE OF ANY NECESSARY TOOLS OR EQUIPMENT, CONDUCTED BETWEEN THE HOURS OF 7 A.M. AND 8 P.M., WILL NOT PRODUCE A SOUND EXCEEDING 85 DB(A) WHEN MEASURED FROM THE PROPERTY LINE OF THE RESIDENTIAL PROPERTY WHEN THE SOUND IS BEING RECEIVED.



AD-C2

BENCHMARK:
CITY OF HOUSTON MONUMENT 5155-7401, A BRASS DISK IN CONCRETE, LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF JESSAMINE ST AND RENWICK DR.
ELEV. 57.71 FEET NAVD 1988 (GEOID '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 30, 2025.
T.B.M. #50:
SET 1/2 INCH IRON ROD WITH CAP LOCATED AT WEST SIDE OF ALDER DR APPROXIMATELY 175 FEET SOUTH FROM THE INTERSECTION OF BISSONNET ST
ELEV. 54.64 FEET
VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARK'S (RM 040735) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.14'.
NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.14 FT
HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY
OF: ANA K. TREJO
P.E.# 125772
DATE: 05/01/2026
IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ALDER LIFT STATION
SITE DEMOLITION PLAN

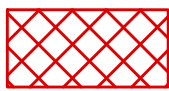
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.182 OF 291	



NOTES

1. CONTRACTOR TO REFER TO SHEETS AD-C2 AND AD-C4 FOR DEMOLITION DETAILS
2. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS

LEGEND



ITEM TO BE DEMOLISHED
OR REMOVED

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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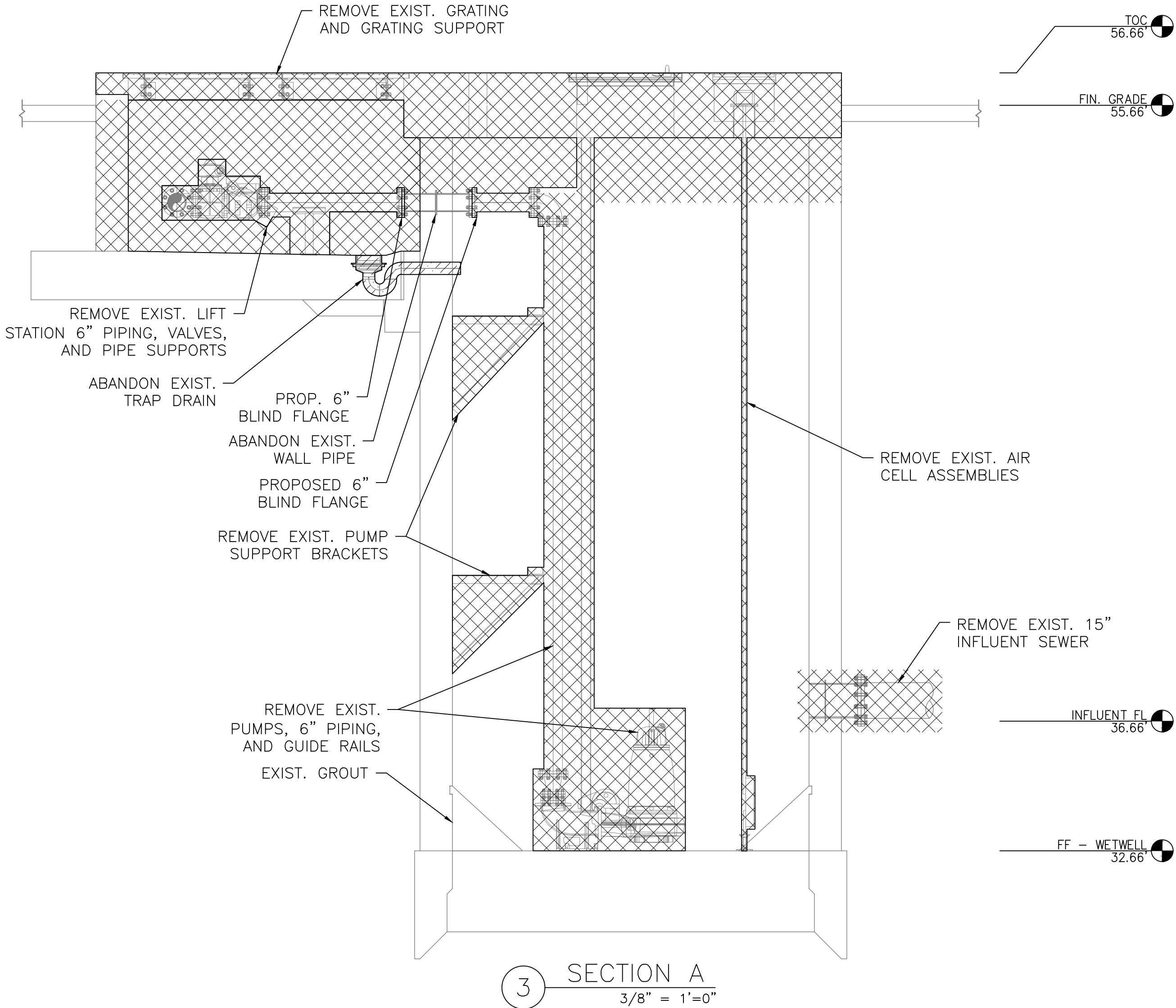
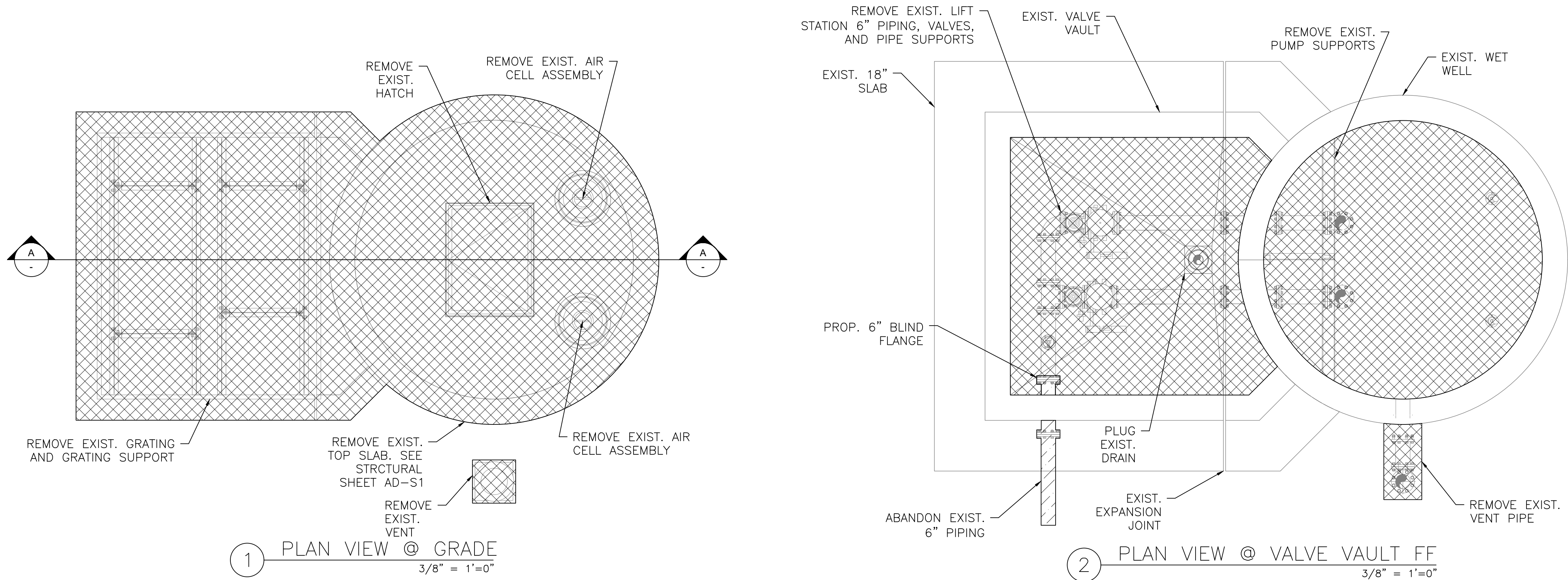
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

ALDER LIFT STATION
DEMOLITION PHOTOS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.183 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2025 Lift Station Rehabilitation and Reconstruction Projects\CAD\184 - SHEETS\184 - ALDER LS PANDA DEMO.dwg May 07, 2026--1:26pm trowbridge



LEGEND



NOTES:

- THIS DRAWING IS A REPRODUCTION OF THE EXISTING LIFT STATION CONSTRUCTION DRAWINGS AND INTENDED TO PROVIDE GENERAL INFORMATION FOR STATION DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL WORK REQUIRED FOR DEMOLITION AND REMOVAL OF STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS.
- THE CITY OF HOUSTON HAS THE FIRST RIGHT OF REFUSAL OF ANY EQUIPMENT OR MATERIAL REMOVED. CONTACT FARID SADEGHIAN, P.E. AT 832-395-4985 AT LEAST 72 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE. THE CONTRACTOR SHALL DELIVER ALL SALVAGED ITEMS TO A LOCATION, WITHIN THE CITY, DETERMINED BY THE CITY. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL OTHER EQUIPMENT AND MATERIAL NOT IDENTIFIED FOR SALVAGE.
- WHEN REMOVING EXISTING PUMPS, CONTRACTOR SHALL LEAVE AS MUCH WIRE/CABLE AS POSSIBLE IN ORDER FOR THE CITY TO REUSE THE PUMPS.
- CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF HEALTH (DEPARTMENT) ON A FORM SPECIFIED BY THE DEPARTMENT OF ANY ASBESTOS ABATEMENT ACTIVITY, RENOVATION, OR OPERATIONS AND MAINTENANCE ACTIVITY AFFECTING ASBESTOS-CONTAINING BUILDING MATERIALS, OR ANY DEMOLITION IN FACILITIES OR PUBLIC BUILDINGS.
- CONTRACTOR SHALL SUBMIT PROOF OF SUBMISSION OR REQUIRED ASBESTOS/DEMOLITION NOTIFICATION FORM TO THE TEXAS DEPARTMENT OF STATE HEALTH SERVICES TO COH CONSTRUCTION PM. THE NOTIFICATION TO THE STATE MUST BE PROVIDED A MINIMUM OF TEN DAYS PRIOR TO THE STARTUP OF ANY DEMOLITION ACTIVITIES AT THE SITE.
- ALL REMAINING WALL OPENINGS IN THE VALVE VAULT SHALL BE SEALED WITH NON-SHRINK GROUT.
- CONTRACTOR SHALL BACKFILL THE ABANDONED AND DEMOLISHED VALVE VAULT. BACKFILL SHALL BE FLOWABLE FILL AND COMPACTED PROPERLY UP TO THE PROPOSED CONCRETE DISCHARGE ASSEMBLY PAD.
- THE CONTRACTOR SHALL COORDINATE WITH CENTERPOINT ENERGY TO DISCONNECT ELECTRICAL POWER AS NEEDED.
- THE EXISTING WET WELL SHALL BE CLEANED OF ALL DEBRIS, WASTEWATER, AND OTHER RESIDUES.
- THE CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE OF TEXAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF TRANSPORTATION, DISPOSAL, AND TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES, AND BY THE DISPOSAL FACILITY.
- PRIOR TO THE CLEANOUT AND CLEANING OF THE EXISTING LIFT STATION WET WELL, CONTRACTOR TO SUBMIT PROOF TO COH CONSTRUCTION PM THAT TRANSPORTER/HAULER TO BE USED FOR THE TRANSPORT OF THE CONTENTS OF THE WET WELL (I.E., SOLIDS, GRIT, SEWAGE SLUDGE, AND DOMESTIC SLUDGE, ETC.) IS REGISTERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AS A SLUDGE TRANSPORTER AND THE TRANSPORTER'S REGISTRATION IS CURRENT AND VALID DURING THE PERIOD OF PERFORMANCE.
- CONTRACTOR SHALL OBTAIN CITY OF HOUSTON DEMOLITION PERMIT (SEE FORM CE 1075 REV. 01/01/2015 FOR GUIDELINES) OR SUBMIT PROOF OF NON-APPLICABILITY TO COH CONSTRUCTION PROJECT MANAGER PRIOR TO THE STARTUP OF DEMOLITION ACTIVITIES AT THE SITE. THE CONTRACTOR SHALL OBTAIN ANY STATE DEMOLITION PERMITS REQUIRED.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		

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SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

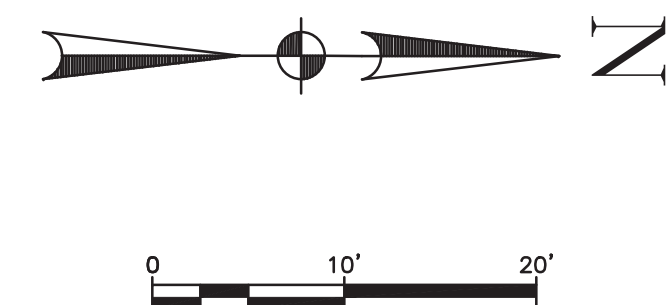
ALDER LIFT STATION PLAN AND PROFILE DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.184 OF 291	

BLOCK 22
WESTMORELAND FARMS
AMENDED FIRST ADDITION
VOL. 3, PG. 60, H.C.M.R.

BISSONNET ST.
(80, R.O.W.) 8808
C.O.H. DRAWING 489 &
750, PG. H.C.D.R.
PG. 593, H.C.M.R.
40, 383704

 INLET PROTECTION BARRIER
 REINFORCED FILTER FABRIC BARRIER
 EXIST STORM INLET



RESERVED FOR COMMERCIAL
& BUSINESS USE
RICHMOND PLAZA ADDITION
VOL. 30, PG. 40, H.C.M.R

AD-C5

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
 AMANI ENGINEERING, INC. 11011 RICHMOND AVE., SUITE 700 HOUSTON, TEXAS 77042 TEL: (713) 270-5700 Texas Registered Engineering Firm No. F-4528 Texas Registered Surveying Firm No. 100282-00		PRELIMINARY FOR INTERIM REVIEW ONLY THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT, BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF: MAHESH DUTTA 114252 NAME P.E. NO. DATE 4/2/2026 TPELS FIRM #F-4528
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION STORM WATER POLLUTION PREVENTION PLAN		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=10'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.185 OF 291		

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - 1/2 csh 1923 lift stations rehabilitation and reconstruction\0400_DWG\FULL Set\Xref\186 ALDER LIFT STATION PROPOSED CIVIL SITE AND GRADING PLAN.dwg May 06, 2026-1:11pm elevis

KEY NOTES:

- 1 PROPOSED REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER (SEE DETAIL DRAWING D-4)
- 2 PROPOSED 3/4" NON-FREEZE HOSE BIB (SEE DETAIL DRAWING D-5)
- 3 INSTALL NEW TYPE K COPPER TUBING SERVICE LINE USING 8"x3/4" TAPPING SADDLE W/CORPORATION STOP AND WATER METER
- 4 PROPOSED 8' CHAINLINK FENCE WITH GREEN PVC SLATS (SEE DETAIL DRAWING D-4)
- 5 PROPOSED 16' WIDE ROLLING GATE (SEE DETAIL DRAWING D-4)
- 6 PROPOSED 4' FM BYPASS MANHOLE (SEE DETAIL SHEET D-3)
- 7 PROPOSED LIFT STATION SLAB & PIPING (SEE SHEET AD-C7)
- 8 PROPOSED ELEVATED ELECTRICAL PLATFORM (SEE STRUCTURAL SHEETS AD-S3)
- 9 REPLACE SUBSIDED CONCRETE PAVING (SEE DETAIL D-5)
- 10 PROPOSED 45' BEND 6" PVC SANITARY FORCE MAIN
- 11 PROPOSED 49 LF 6" PVC SANITARY FORCE MAIN
- 12 PROPOSED 16 LF 18" SANITARY SEWER

RHONE BISSONNET LP
H.C.C.F. NO. RP-2025-40287
JAN. 27, 2025

BLOCK 22
WESTMORELAND FARMS
AMENDED FIRST ADDITION
VOL. 3, PG. 60, H.C.M.R.

ALDER DR.
(50' R.O.W.)
AS SHOWN IN
VOL. 30, PG. 40, H.C.M.R.

CALLED 0.0105 ACRES
CITY OF BELLAIRE
H.C.C.F. NO. J736045

BISSONNET ST.
(60' R.O.W.)
C.O.L. DRAWING 8808
VOL. 30, PG. 40, H.C.M.R.
H.C.C.F. NO. L385104

BENCHMARK:

CITY OF HOUSTON MONUMENT 5155-7401, A BRASS DISK IN CONCRETE, LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF JESSAMINE ST AND RENWICK DR.

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* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 30, 2025.

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SET 1/2 INCH IRON ROD WITH CAP LOCATED AT WEST SIDE OF ALDER DR APPROXIMATELY 175 FEET SOUTH FROM THE INTERSECTION OF BISSONNET ST

ELEV. 54.64 FEET

VERTICAL DATUM ADJUSTMENT:

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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.

ISSUE DATE DESCRIPTION

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3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

AMANI
ENGINEERING, INC.

11011 RICHMOND AVE., SUITE 700
HOUSTON, TEXAS 77042
TEL: (713) 270-5700
Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-00

PRELIMINARY

FOR INTERIM REVIEW ONLY
THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL PERMIT BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

MAHESH DUTTA 114252
NAME P.E. NO.
DATE 4/2/2026
TBP&S FIRM #F-4528

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

ALDER LIFT STATION
PROPOSED CIVIL SITE AND
GRADING PLAN

WBS NUMBER

R-000267-0176-3

SCALE:

1"=10'

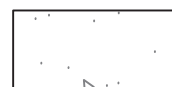
CITY OF HOUSTON PM

NAWARAJ PANTA, P.E.

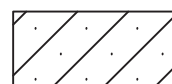
SHEET NO.186 OF 291

FOR CITY OF HOUSTON USE ONLY

LEGEND:



EXISTING CONCRETE
PAVING TO REMAIN



PROPOSED 7" THICK CONCRETE
PAVING (1,558 SF)

NOTES:

1. SEE DRAWING AD-C2 FOR SITE DEMOLITION PLAN.
2. SEE DRAWING AD-C4 FOR LIFT STATION DEMOLITION PLAN.
3. SEE DRAWING AD-E2 FOR ELECTRICAL SITE PLAN.

DETENTION SUMMARY		
	SQUARE FEET	ACRES
EXISTING IMPERVIOUS AREA	2247.99	0.0516
NEW IMPERVIOUS AREA	0.00	0.0000
Per IDM 9.2.01.H.3.d • •No detention required if new impervious < 500 SF		
Total Det. Vol.: = 0 ac-ft		

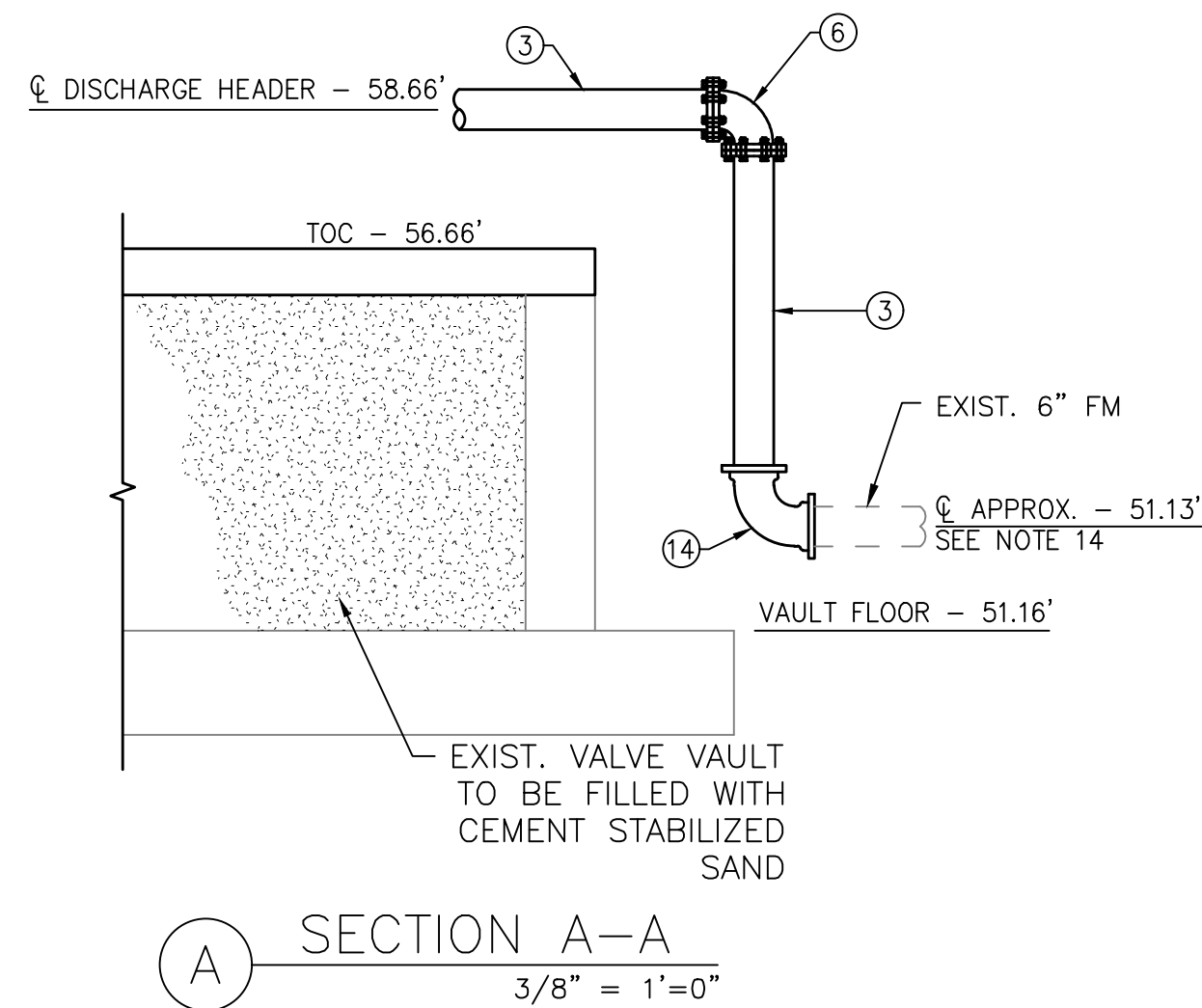
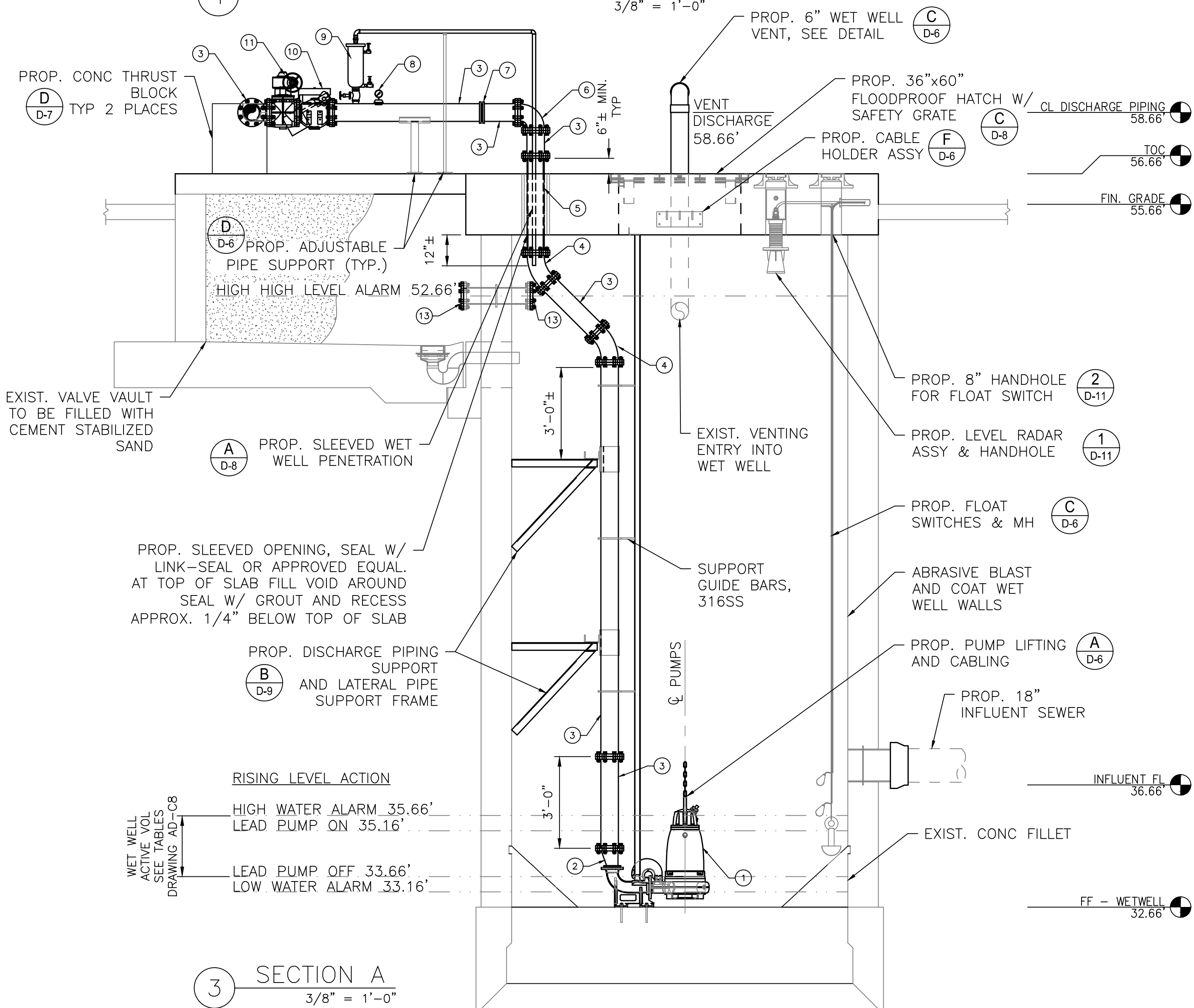
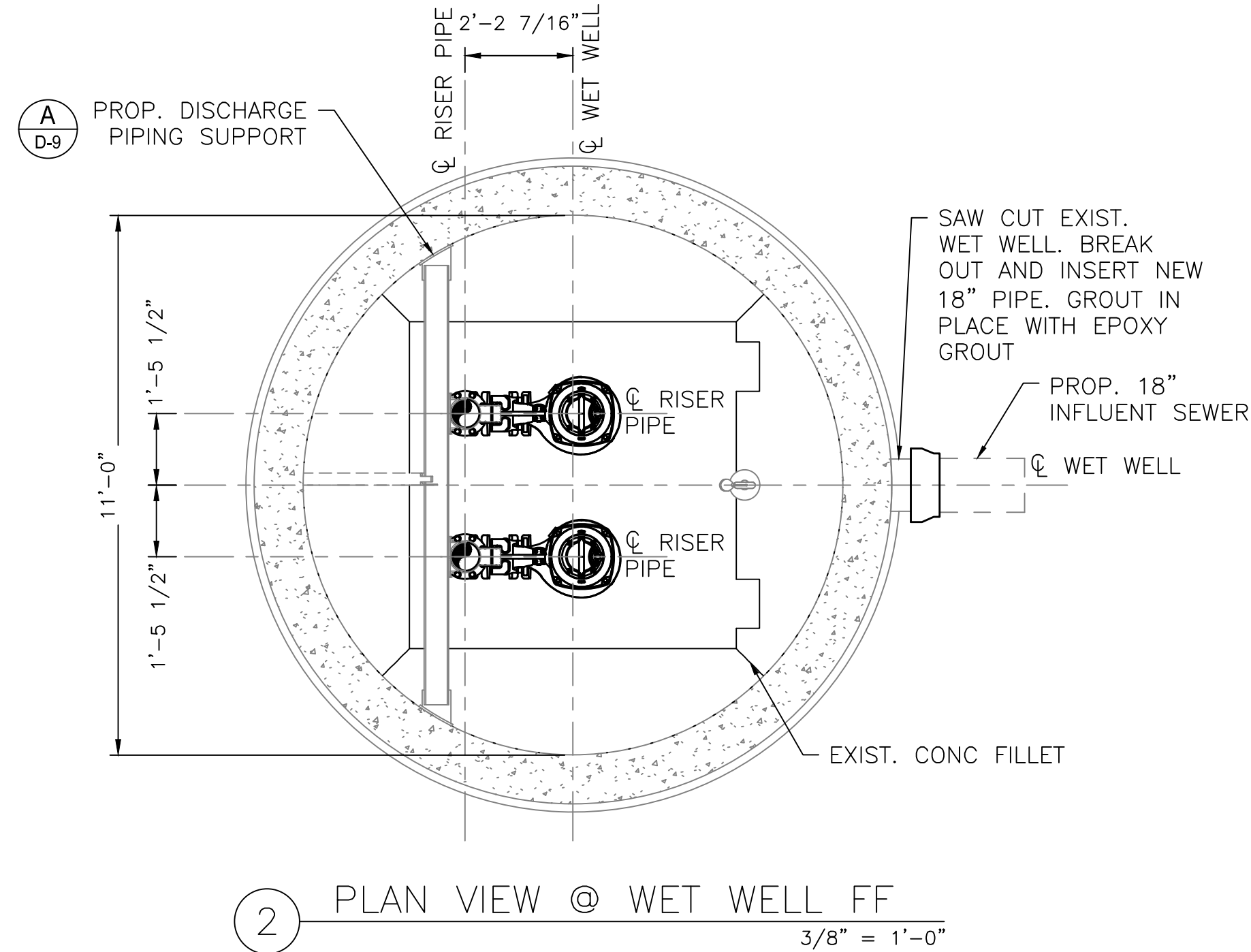
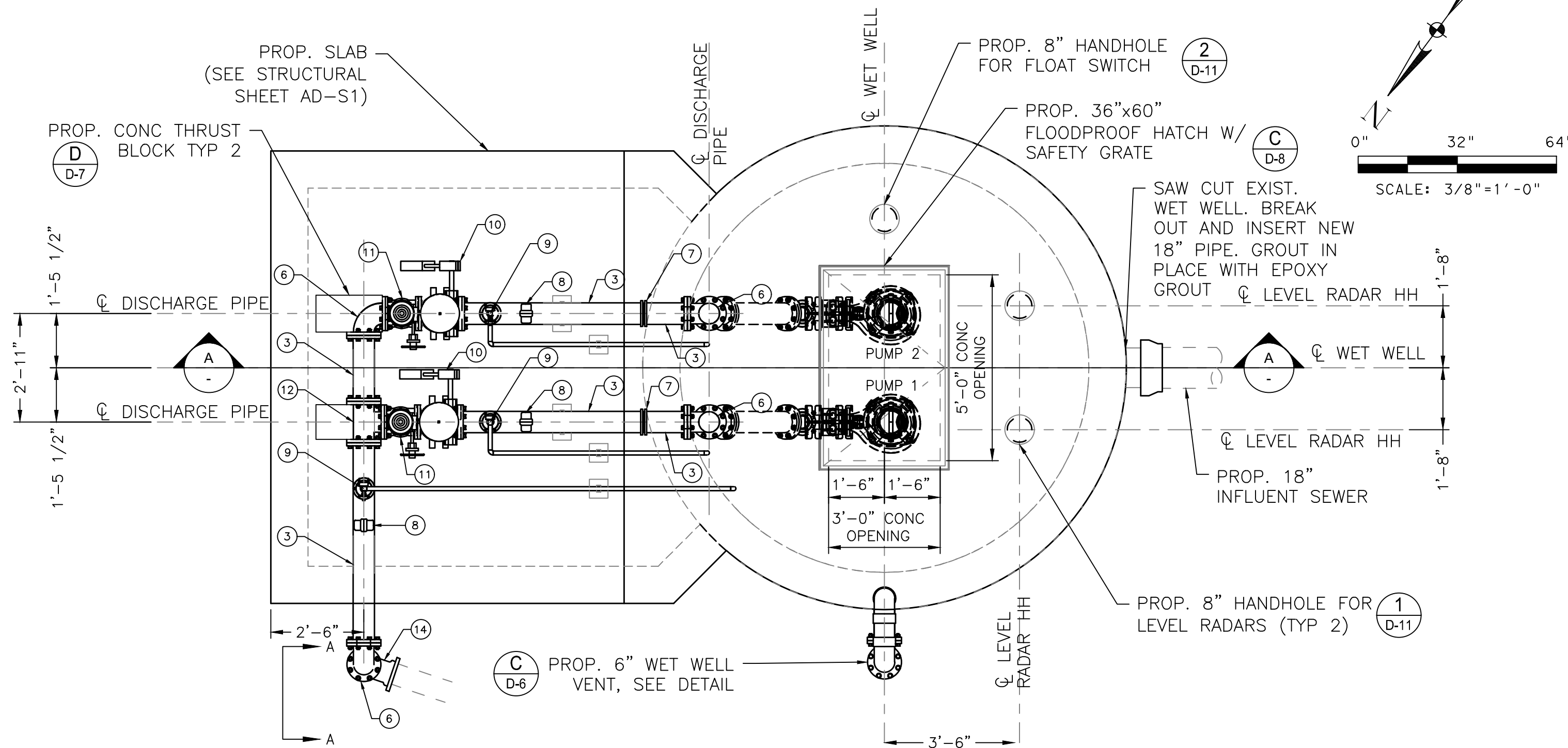
CALLED 6.44 ACRES
GRAYRIDGE APARTMENTS, LTD.
H.C.C.F. NO. P015657
DEC. 18, 1992

RESERVED FOR COMMERCIAL
& BUSINESS USE
RICHMOND PLAZA ADDITION
VOL. 30, PG. 40, H.C.M.R.



AD-C6

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2/2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\187 ALDER LS PROFILE.dwg May 07, 2026-2:05pm trowbridge



KEY NOTES	ITEM	QTY
1	PUMP	2
2	ECCENTRIC REDUCER (6"x4")	2
3	SPOOL PIECE (6")	14
4	45° ELBOW (6")	4
5	SLEEVED PENETRATION (6")	2
6	90° ELBOW (6")	5
7	RESTRAINED FLANGED COUPLING ADAPTER (6")	2
8	PRESSURE GAUGE	3
9	2" AIR AND VACUUM VALVE AND PIPING	3
10	CHECK VALVE (6")	2
11	PLUG VALVE (6")	2
12	TEE (6")	1
13	BLIND FLANGE (6")	2
14	90° MJ ELBOW (6")	1

NOTES:

- DIMENSIONS NOTED ARE RELATIVE TO THE PUMP SIZE AND MANUFACTURER SELECTED. CONTRACTOR SHALL VERIFY.
- SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
- PUMP ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
- CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS, AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
- ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE THE WET WELL.
- LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH. LABEL CHECK VALVES WITH THE CORRESPONDING VALVE NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING ADHERED TO THE TOP OF THE CHECK VALVE.
- CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES
- CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS
- INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
- INSTALL CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSED POSITION; AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
- ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
- UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.
- CONTRACTOR TO BLAST AND RECOAT THE WET WELL AND TOP SLAB.
- CONTRACTOR TO FIELD VERIFY THE FLOW LINE AND DEPTH OF THE EXISTING FORCE MAIN FOR TIE IN

FLOODPLAIN NOTES:

- ELEVATION HAS BEEN SET TO MEET THE 100-YR +1' ELEVATION (57.3') OR A MINIMUM OF 2 FEET ABOVE THE TOP OF SLAB
- HATCHES ARE FLOODPROOF HATCHES TO MEET FLOODPLAIN REQUIREMENTS
- PLATFORMS ARE SET TO AN ELEVATION OF 500-YR +3'. SEE STRUCTURAL SHEETS FOR DETAILS.

LEGEND

PROPOSED CEMENT STABILIZED SAND

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

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FB NO. P-6409

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

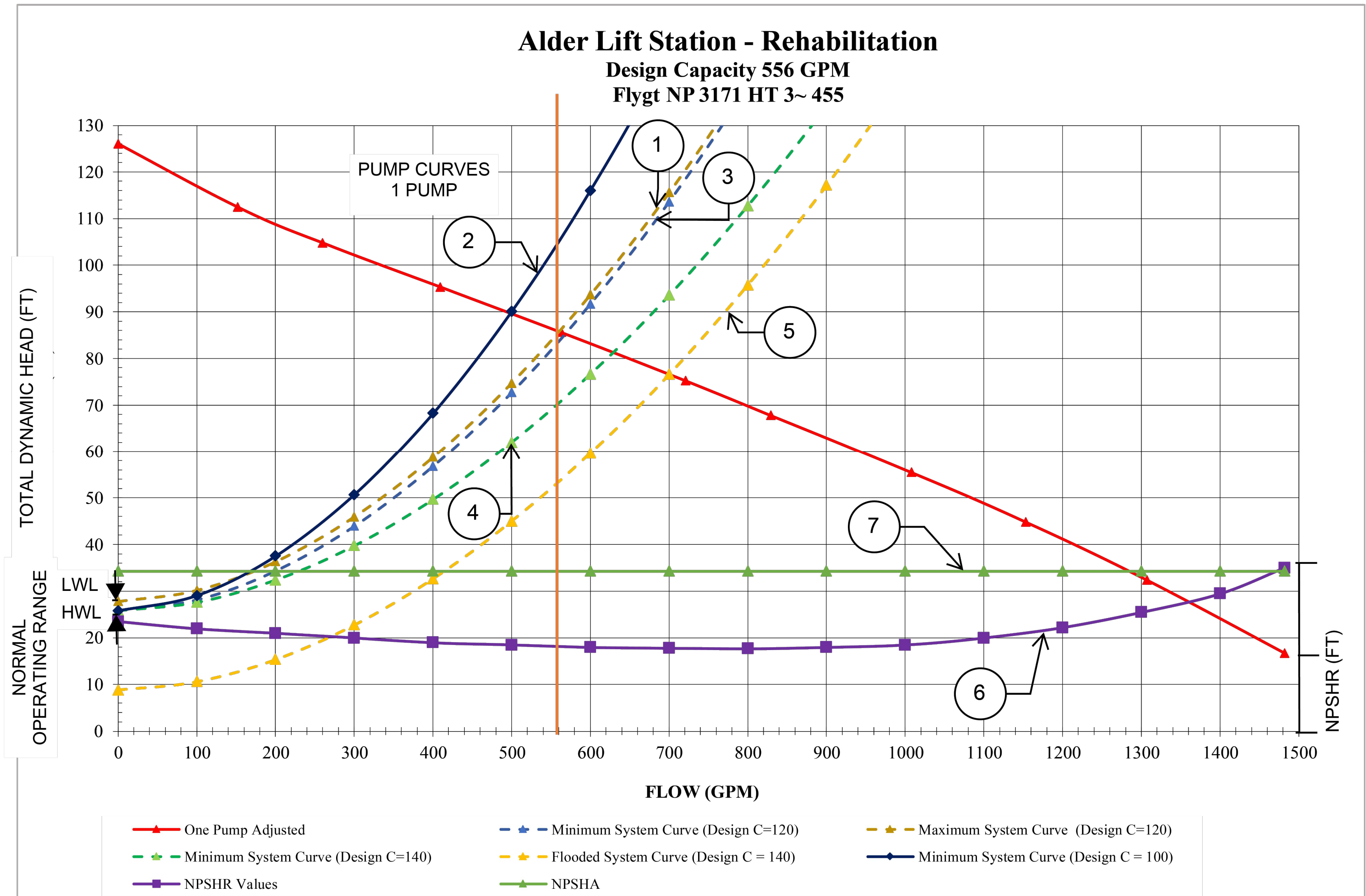
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ALDER LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.187 OF 291	

AD-C7

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2025 Lift Station Rehabilitation and Reconstruction Projects\CAD\Drawings\18B ALDER TABLES.dwg May 07, 2026 - 1:26pm trowbridge



PUMP CURVE NOTES:

1. LOW NORMAL OPERATING LEVEL
C=120 - DESIGN
2. HIGH NORMAL OPERATING
LEVEL C=100 - INFORMATION ONLY (TCEQ)
3. HIGH NORMAL OPERATING LEVEL
C=120 - DESIGN
4. HIGH NORMAL OPERATING LEVEL
C=140 - INFORMATION ONLY
5. EMERGENCY FLOODED OPERATING LEVEL
C=140 - MAXIMUM DISCHARGE
6. NET POSITIVE HEAD SUCTION REQUIRED (NPSHR)
BASED ON NORMAL OPERATING WATER LEVEL
7. NET POSITIVE SUCTION HEAD AVAILABLE (NPSHA)

PUMP DATA TABLE

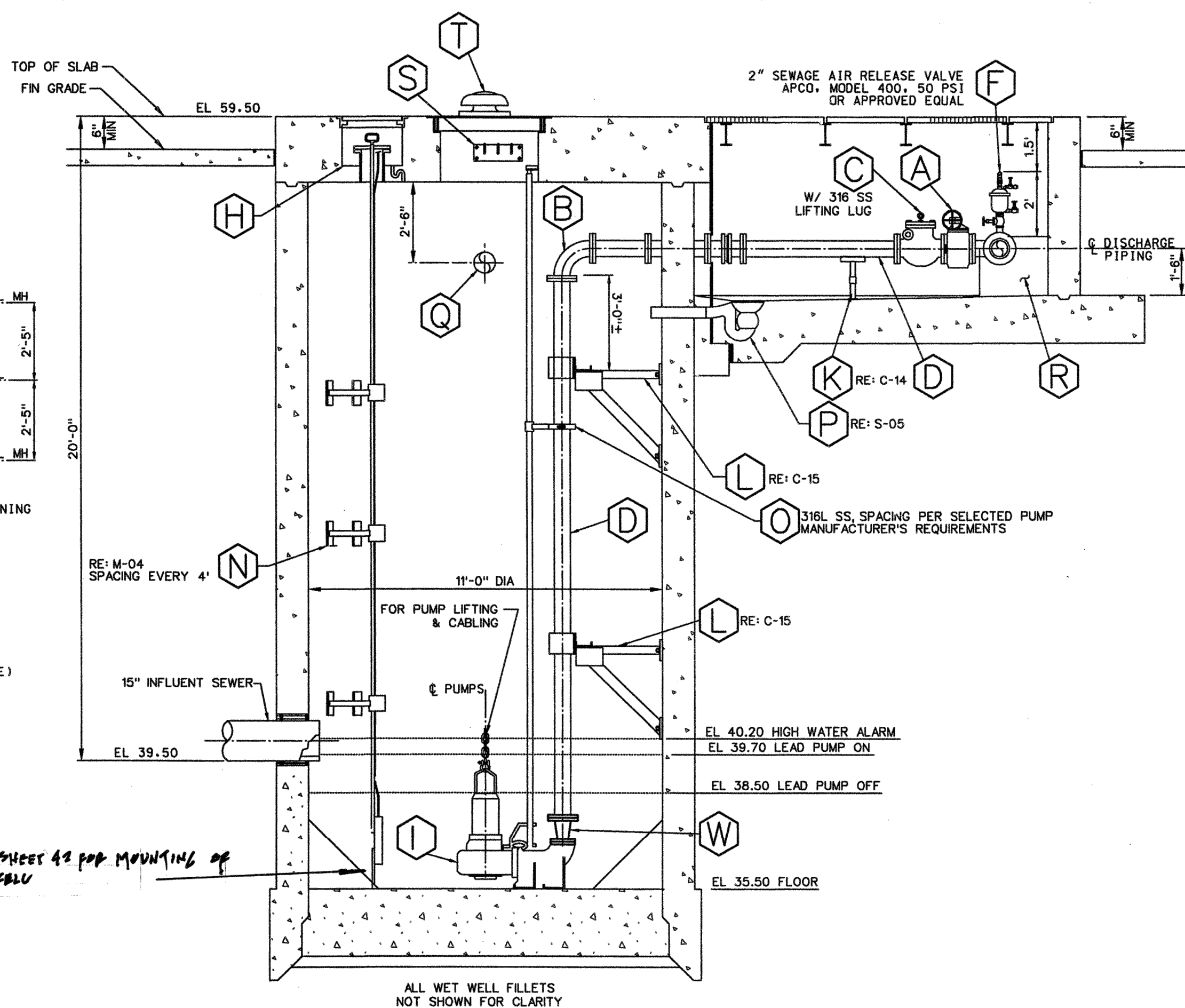
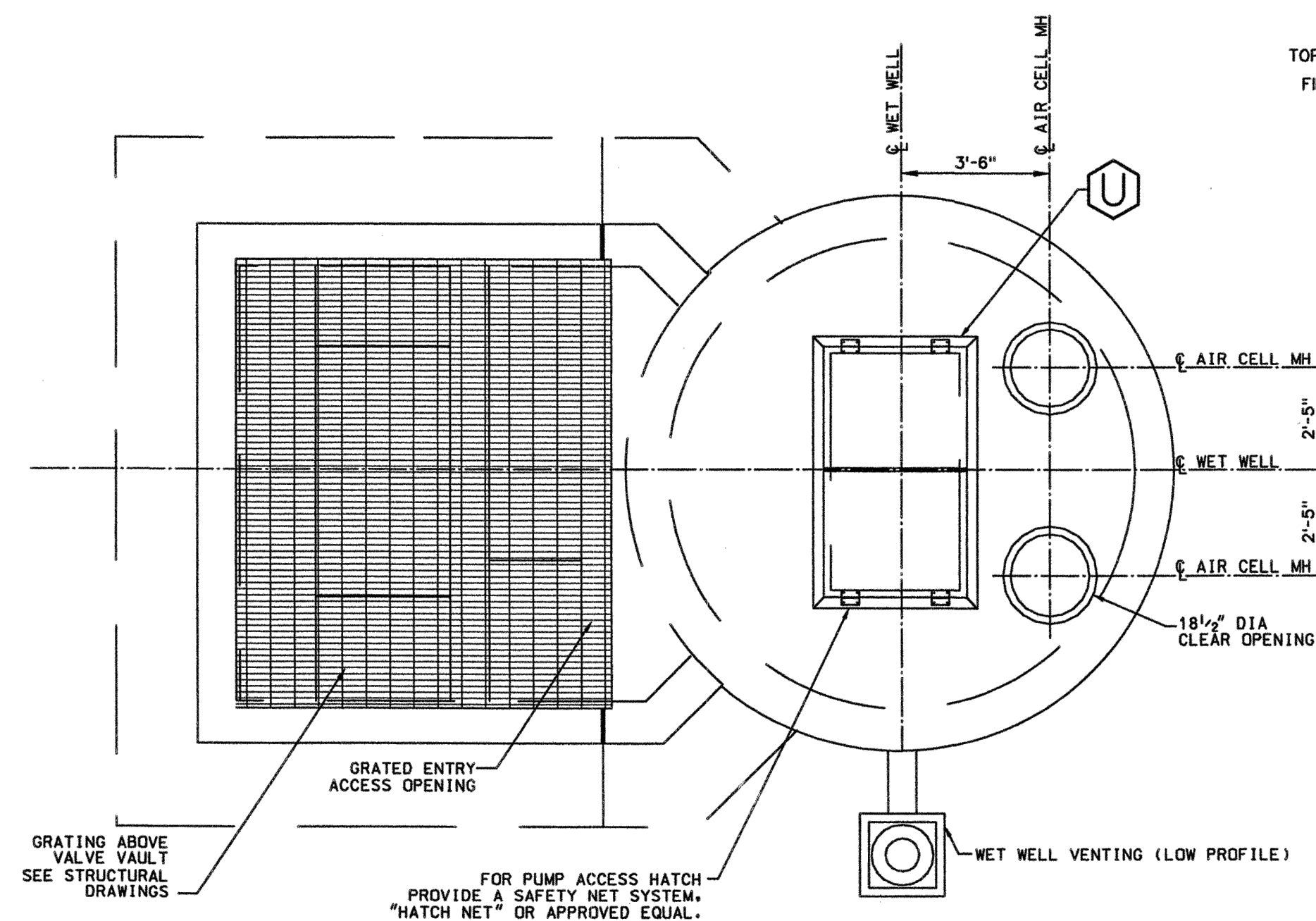
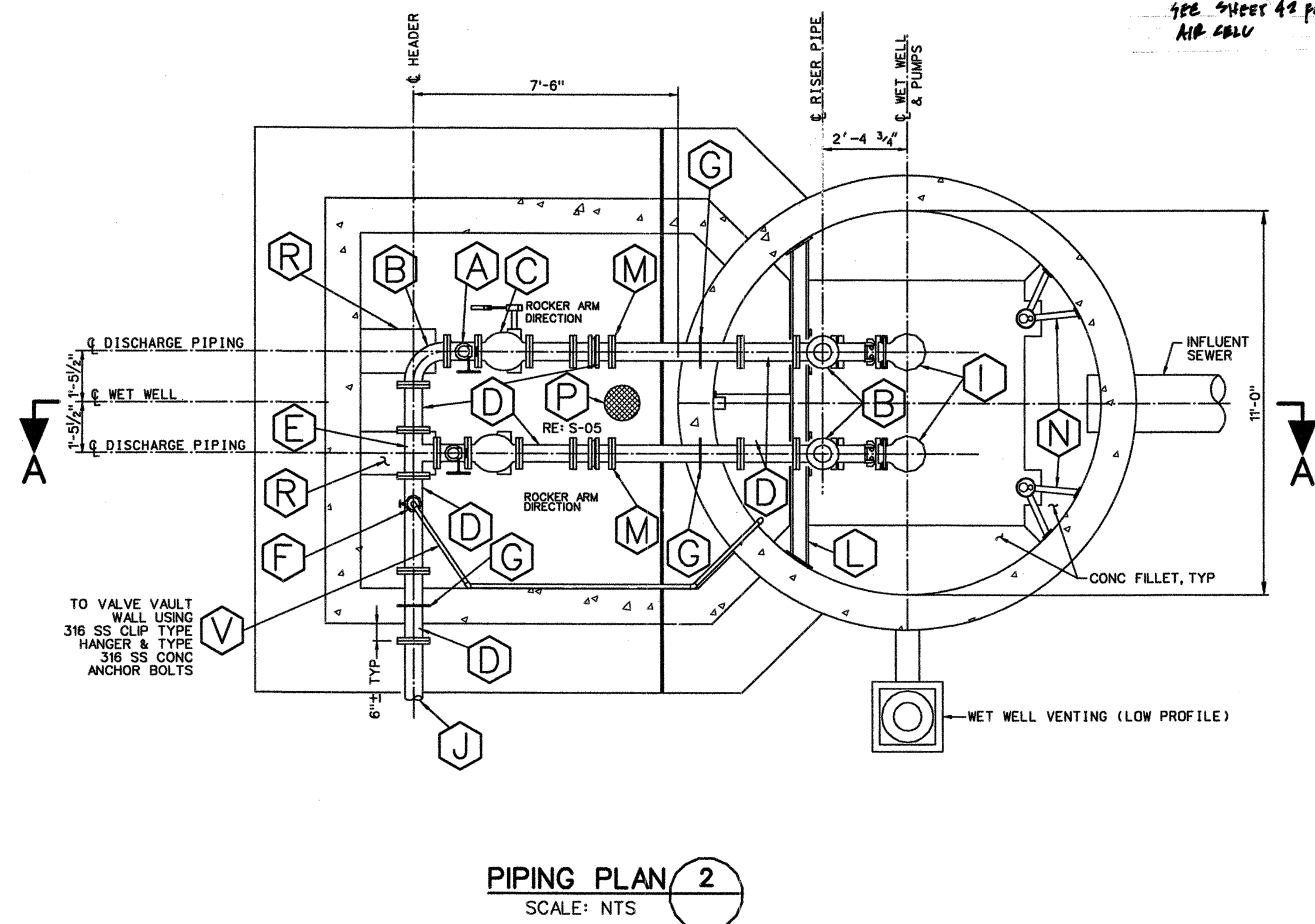
PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2
MOTOR DATA		
NOMINAL SIZE (HP)	25	25
MAX SPEED (RPM)	1,755	1,755
SOLIDS PASSAGE		
MIN SPHERE (IN)	3	3
CAPACITY (GPM)		
DESIGN	556	556
RUNOUT	1,490	1,490
DISCHARGE HEAD (FT)		
DESIGN	85.00	85.00
RUNOUT	16.00	16.00
SHUT OFF	126.00	126.00
EFFICIENCY (%)		
DESIGN	70.76	70.76
NPSHR (FT)		
DESIGN	17.96	17.96
RUNOUT	35.00	35.00
PUMP CYCLE TIME	6 MIN	6 MIN
CUMULATIVE CAPACITY (GPM)	556	640

STATION OPERATION TABLES

RISING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
1.00	33.66	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
2.50	35.16	LEAD PUMP TURNS ON	LEAD PUMP ON
3.00	35.66	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
20.00	52.66	HIGH HIGH LEVEL ALARM (FLOAT ON LEVEL)	FIRM PUMPS ON (FLOATS)

FALLING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
4.00	36.66	FLOAT OFF LEVEL	FIRM PUMPS OFF (FLOATS)
3.00	35.66	HIGH WATER LEVEL ALARM OFF	LEAD PUMP ON
1.00	33.66	LEAD PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP
0.50	33.16	LOW LEVEL ALARM	–

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LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
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SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION TABLES AND DETAILS		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.188 OF 291		



KEY NOTE SCHEDULE		
ITEM	QUAN	DESCRIPTION
A	2	PROP 6" PLUG VALVE W/ LEVER OPERATOR. PLUG AXIS IS TO BE HORIZONTAL WITH PLUG OPENING UPWARDS AND SEAT FACING UPSTREAM.
B	3	PROP 6" X 90° ELBOW, FLG
C	2	PROP 6" LEVER & WEIGHT CHECK VALVE.
D	8	PROP 6" PIPE (THK. CL. 53 DIP)
E	1	PROP 6"x6" TEE
F	1	PROP 2" NPT SEWAGE AIR RELEASE VALVE W/ BLOWOFF VALVE (APCO MODEL 400 OR EQUAL).
G	3	PROP FLANGED PIPE WITH WATER STOP COLLAR
H	2	PROP AIR CELL ASSEMBLY & MANHOLE
I	2	PROP SUBMERSIBLE PUMP, RE: SHT M-03 & SPEC SECT 1131
J	2	PROP 6" FORCE MAIN, RE: SHT. C-05 FOR CONTINUATION.
K	2	PROP ADJUSTABLE PIPE SUPPORT, RE: M-05.1

- ## NOTES:
1. INFLUENT ENTRY INTO WET WELL SHALL BE EITHER A-LOK (PRECAST METHOD), OR CORED WITH A FLEXIBLE PIPE TO WALL CONNECTOR: KOR-N-SEAL, LINK-SEAL, OR APPROVED EQUIVALENT.
 2. LATERAL SUPPORT FOR DISCHARGE PIPING TO BE PROVIDED AT INTERVALS OF 10'-0" MAXIMUM. DO NOT INSTALL LATERAL SUPPORTS BELOW LIQUID LEVELS.
 3. ALL DISCHARGE AND HEADER PIPING SHALL BE SCREW FLANGED, DUCTILE IRON PIPE CLASS 53.
 4. ALL STEEL COMPONENTS, INCLUDING SUPPORTS, FLANGE BOLTS, CONCRETE ANCHOR BOLTS, ETC., SHALL BE TYPE 316 STAINLESS STEEL (TYPE 304 STAINLESS STEEL OUTSIDE OF WET WELL).
 5. ALL THE ITEMS IN THE WET WELL SHALL BE ACCESSIBLE FROM THE HATCH COVER.
 6. LIFT STATION DESIGN IS BASED UPON NOMINAL 4" PUMP, 6" VALVES AND PIPING AS THE SIZES RECOMMENDED FOR THIS STANDARD STATION.
 7. LIFT STATION LAYOUT DIMENSIONS BASED ON USING ITT FLYGT PUMPS MODEL CP-3140-481-MT
 8. 100 YEAR FLOOD PLAIN ELEV. = 58.00
 9. BURIED FLANGE CONNECTIONS SHALL HAVE STAINLESS STEEL NUTS, BOLTS AND WASHERS.

[illegible][illegible]

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

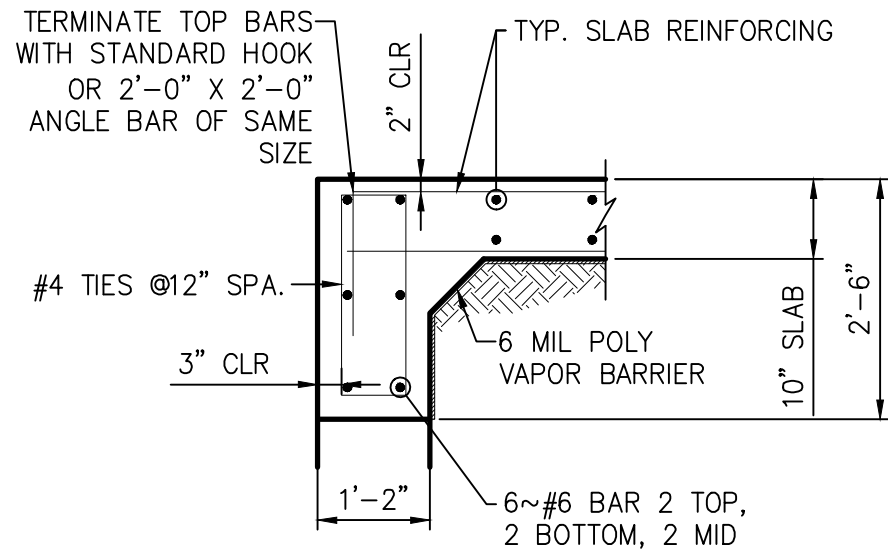
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

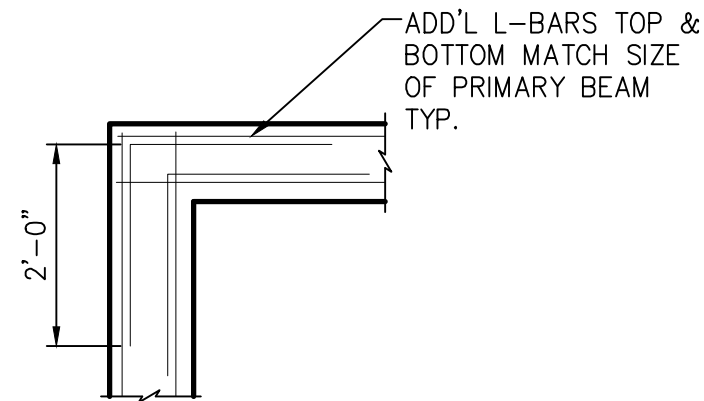
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ALDER LIFT STATION
RECORD DRAWINGS
PLAN AND PROFILE VIEWS

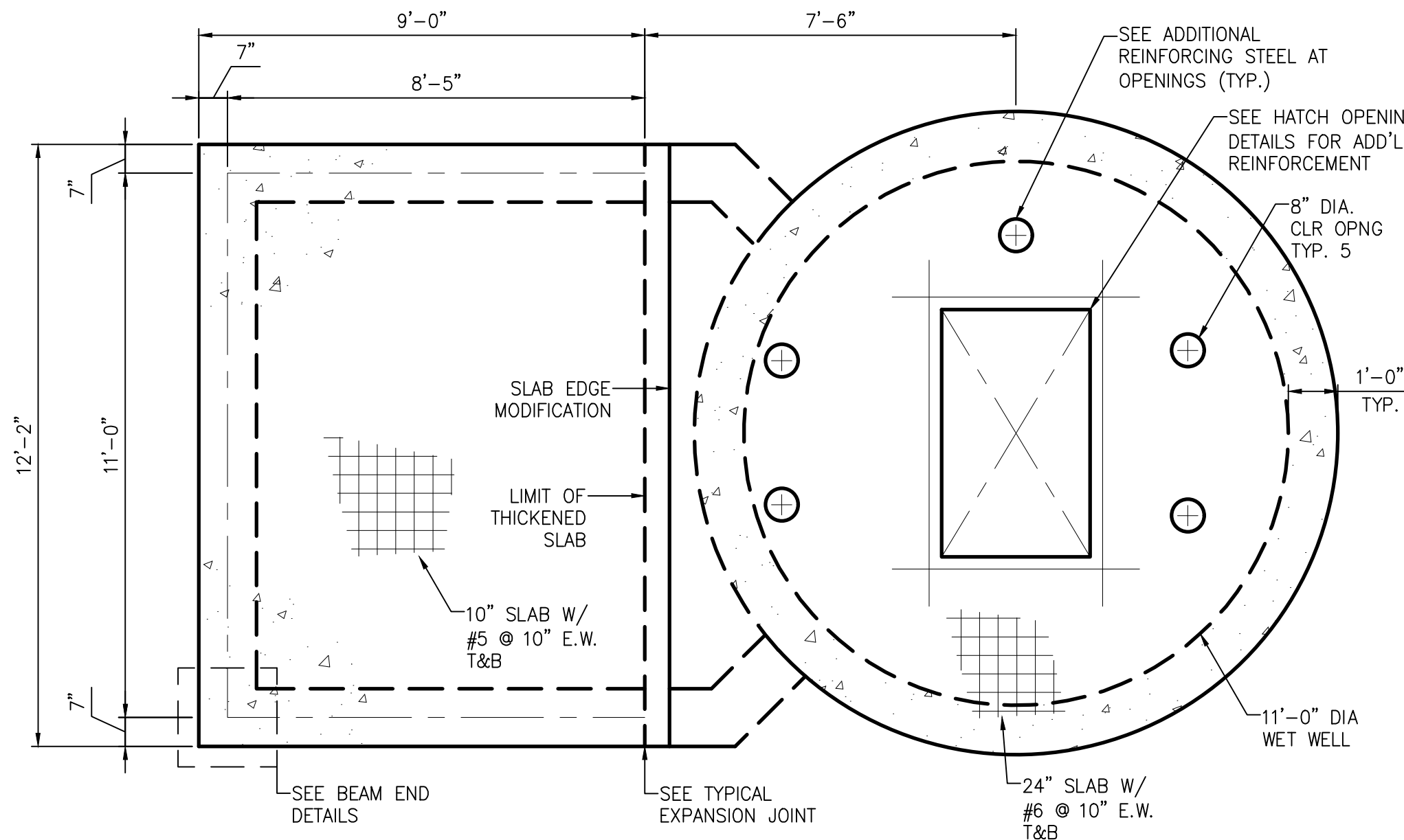
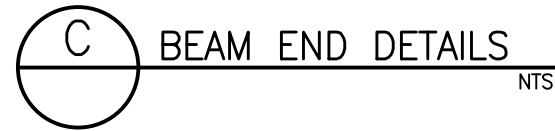
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CITY OF HOUSTON PM	
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SHEET NO.189 OF 291	



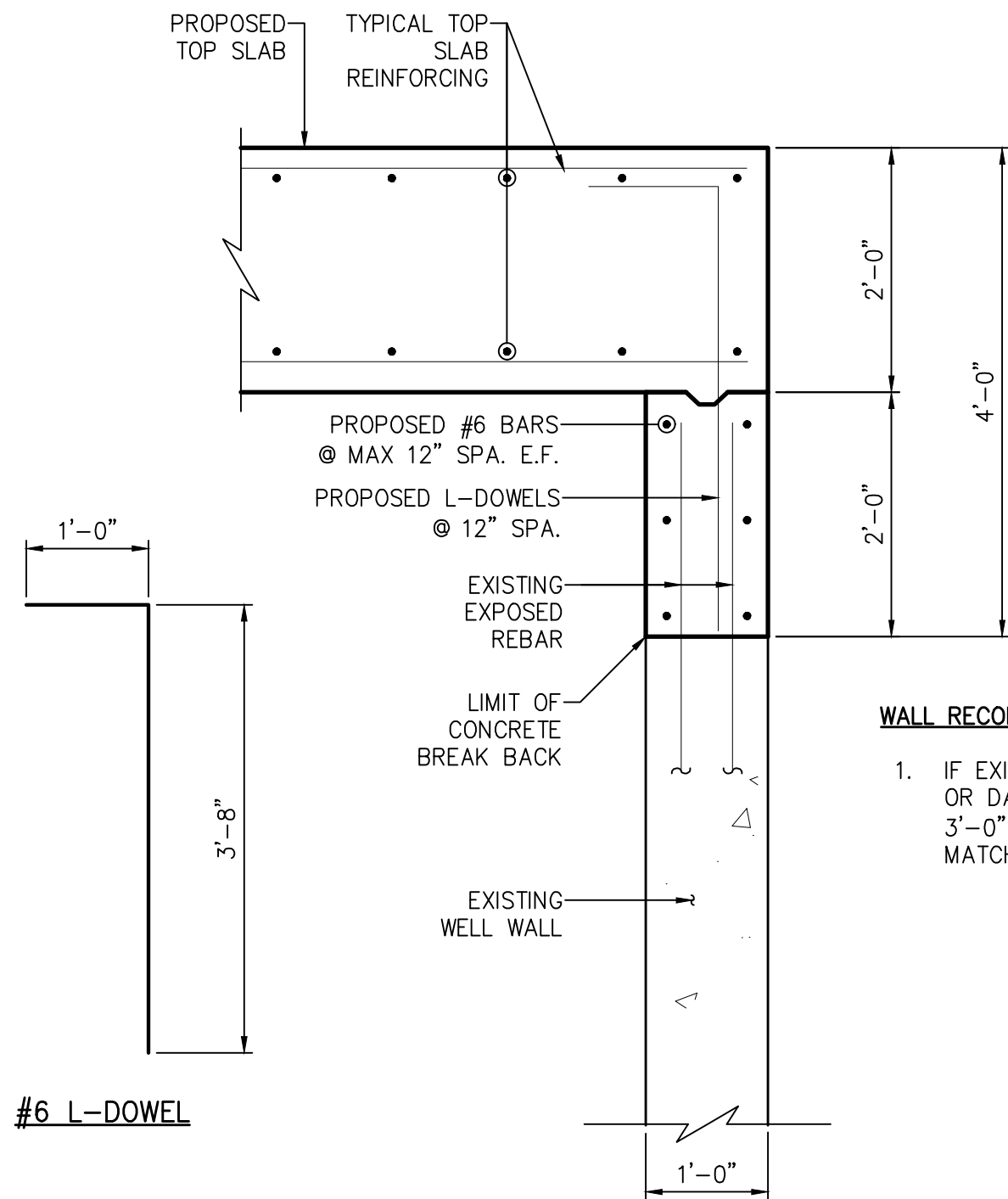
PERIMETER



CORNER



A PROPOSED TOP SLAB PLAN VIEW NTS

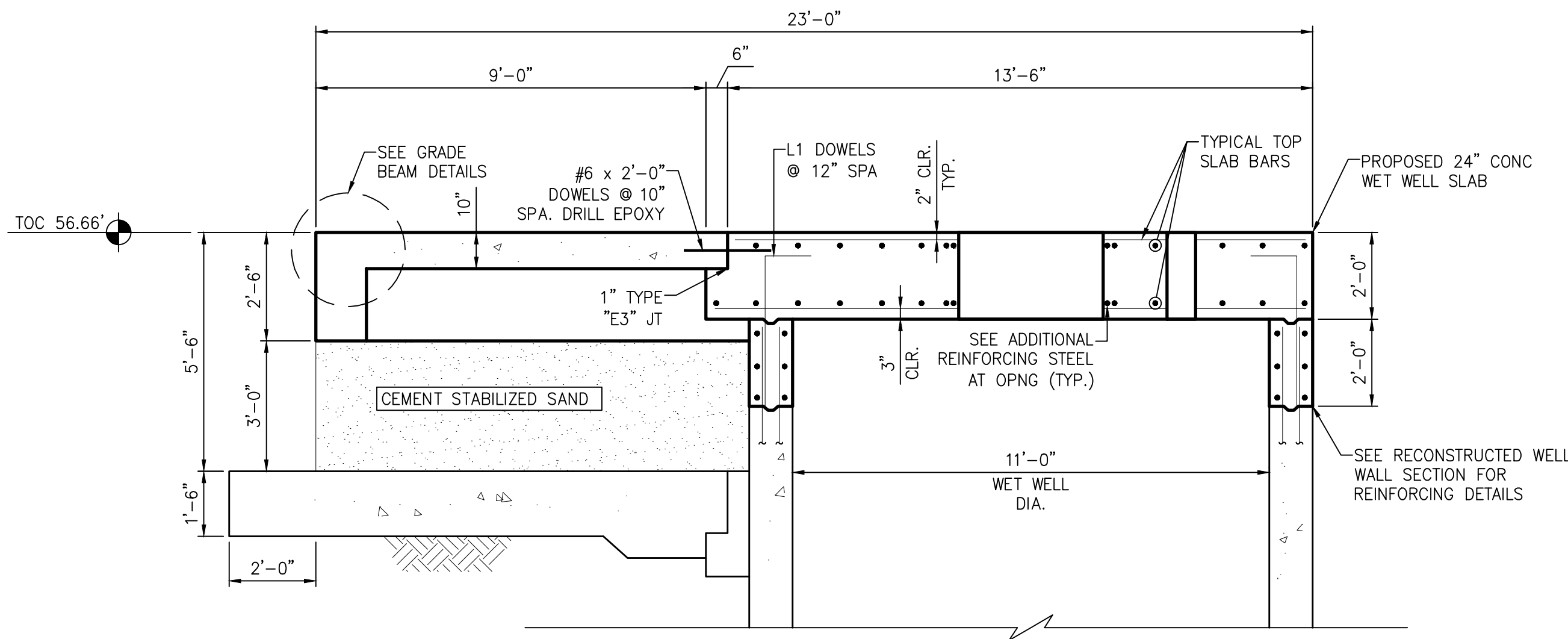


TYPICAL

E RECONSTRUCTED WELL WALL SECTION NTS

WALL RECONSTRUCTION NOTES:

1. IF EXISTING BARS ARE NOT LONG ENOUGH OR DAMAGES, THEN DRILL & EPOXY #6 x 3'-0" DOWELS WITH MIN. 8" EMBEDMENT. MATCH PROPOSED WALL BAR SPACING.



B PROPOSED ELEVATION VIEW NTS

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

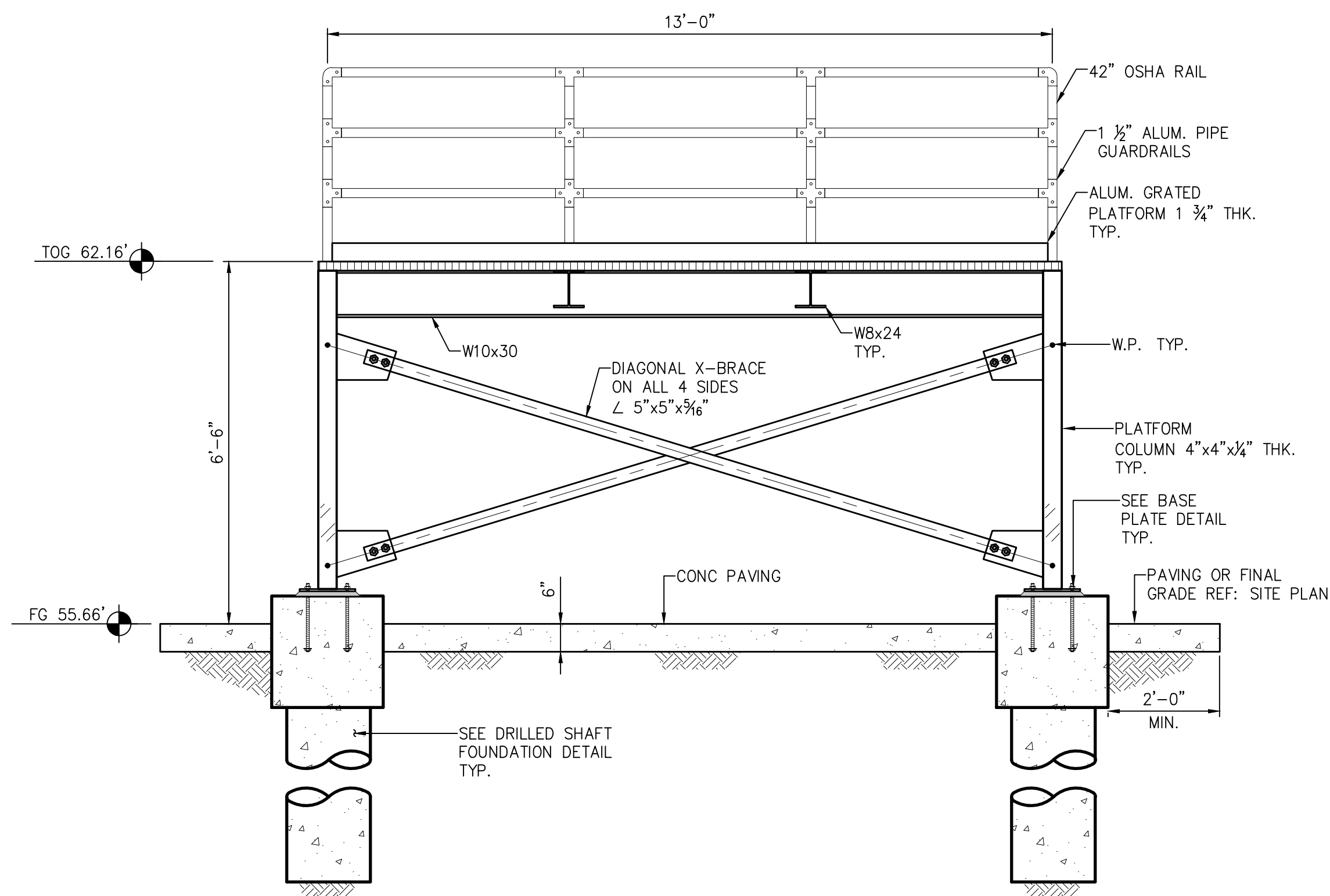
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

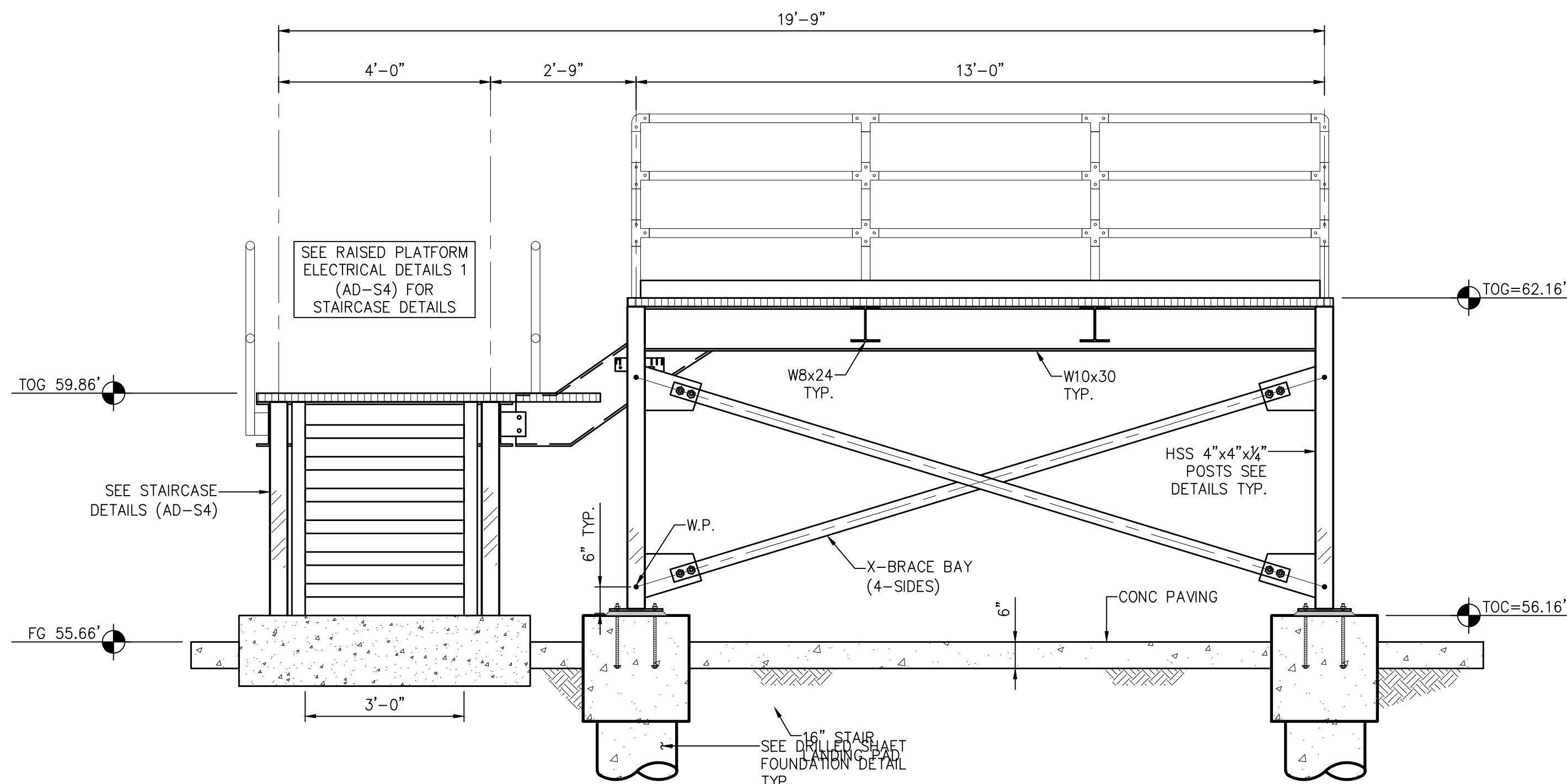
**ALDER LIFT STATION
STRUCTURAL TOP OF SLAB
MODIFICATIONS
PROPOSED DETAILS**

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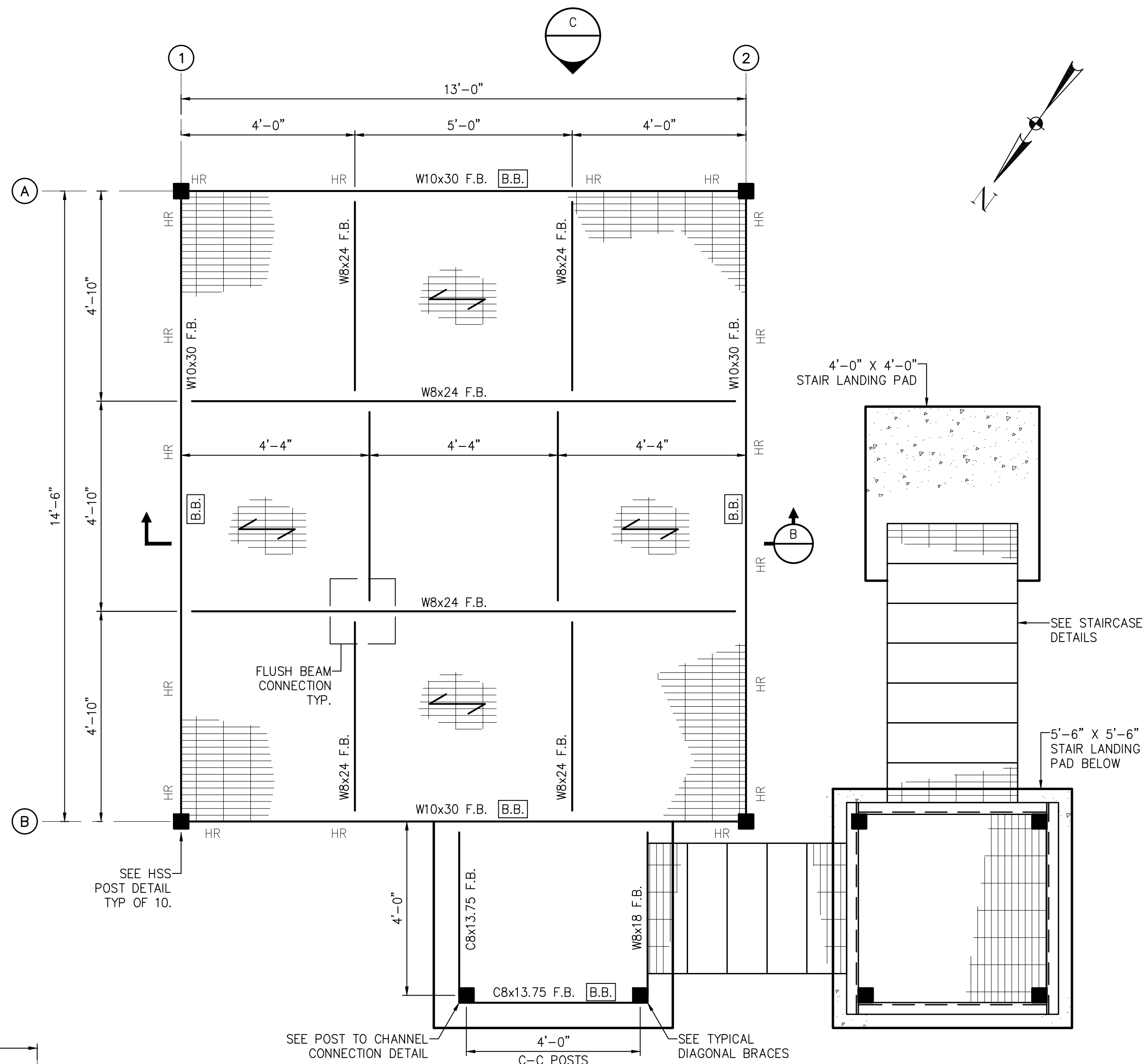
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\ad\2025\2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects\CAD\1-SHEETS\192 AD-S3.dwg May 07, 2026--1:27pm trowbridge



B PLATFORM SECTION
NTS



C PLATFORM ELEVATION
NTS



A PLATFORM FRAMING PLAN
NTS

IMPORTANT NOTES:

1. PROPOSED PLATFORM GEOMETRY HAS BEEN LAID OUT WITH THE BEST INFORMATION AVAILABLE. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO FABRICATING STEEL.
2. BEAM SPACING MAY CHANGE BASED UPON FINAL VENDOR DRAWINGS FROM ELECTRICAL & MECHANICAL SUPPLIERS. DO NOT BEGIN FABRICATION WORK UNTIL APPROVED ELECTRICAL & MECHANICAL DRAWINGS HAVE BEEN RETURNED TO CONTRACTOR.
3. CONTRACTOR TO COORDINATE ANY FRAMING CHANGES WITH STEEL FABRICATOR AND INCLUDE THOSE CHANGES ON THE STEEL FABRICATION SUBMITTAL.

ABBREVIATIONS:

F.B. = FLUSH BEAM
B.B. = X-BRACED COLUMN BAY
HR = 42" OSHA HANDRAIL

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

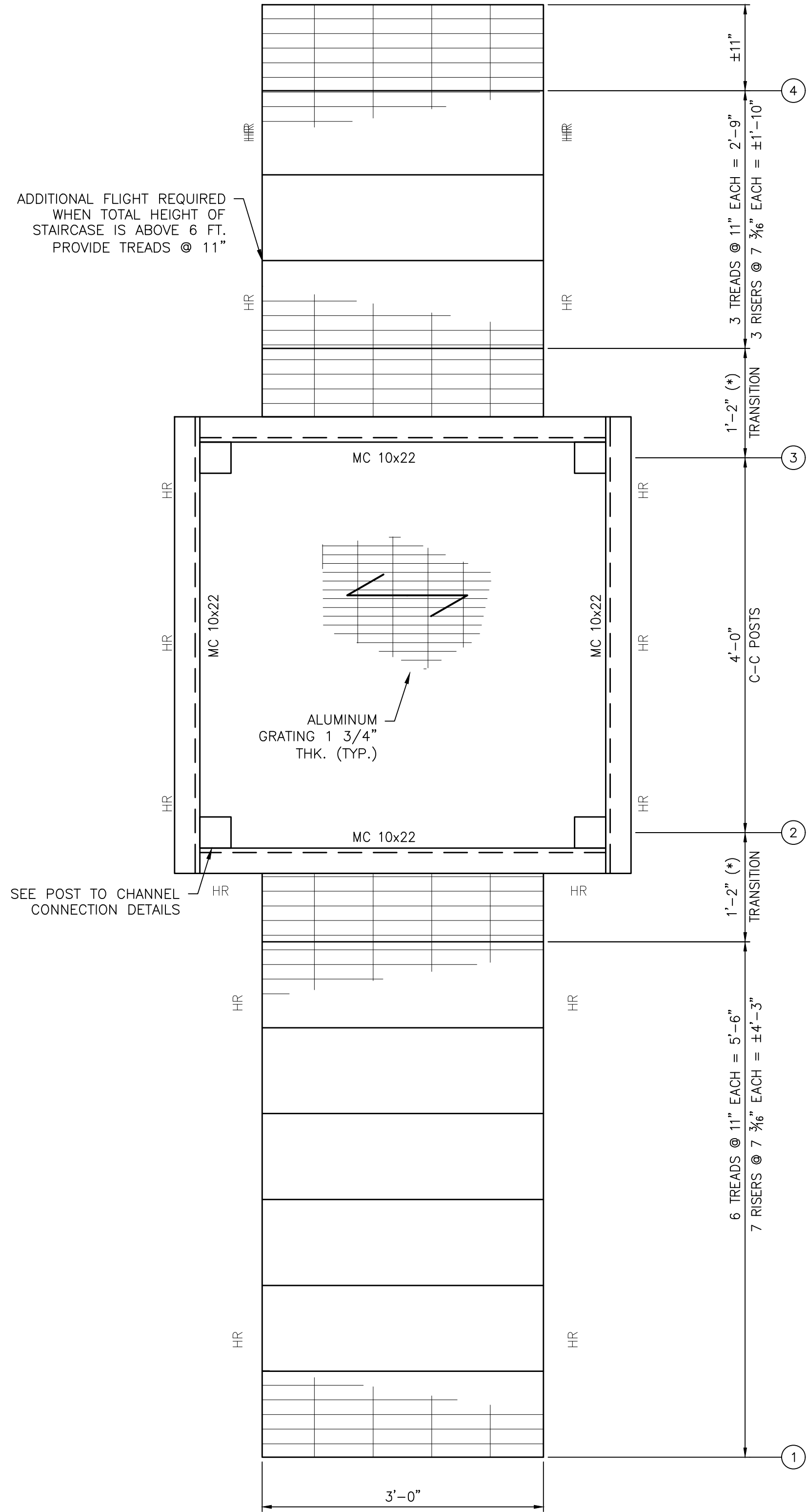
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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

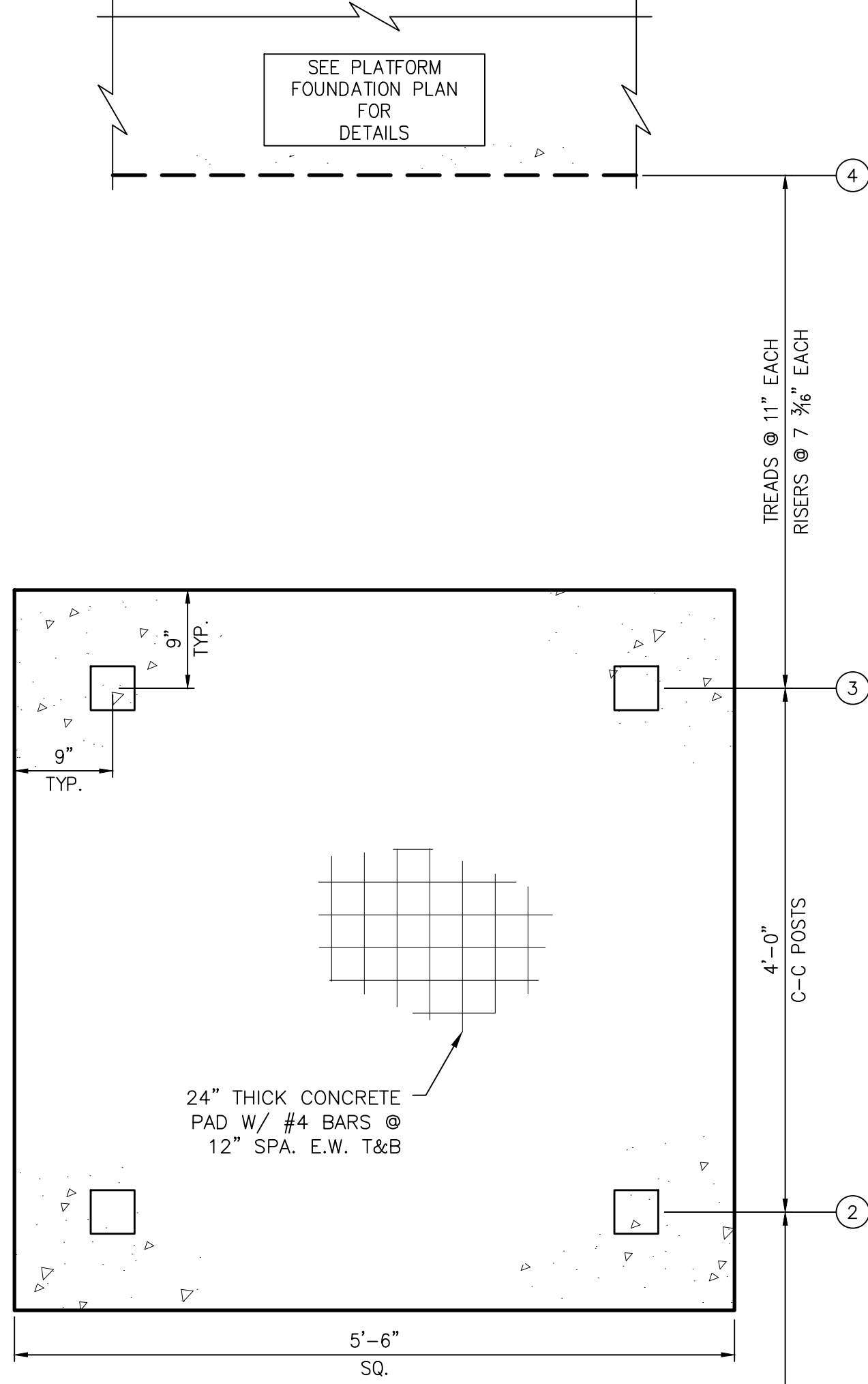
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**ALDER LIFT STATION
STRUCTURAL -
RAISED ELECTRICAL PLATFORM
PLAN & SECTION**

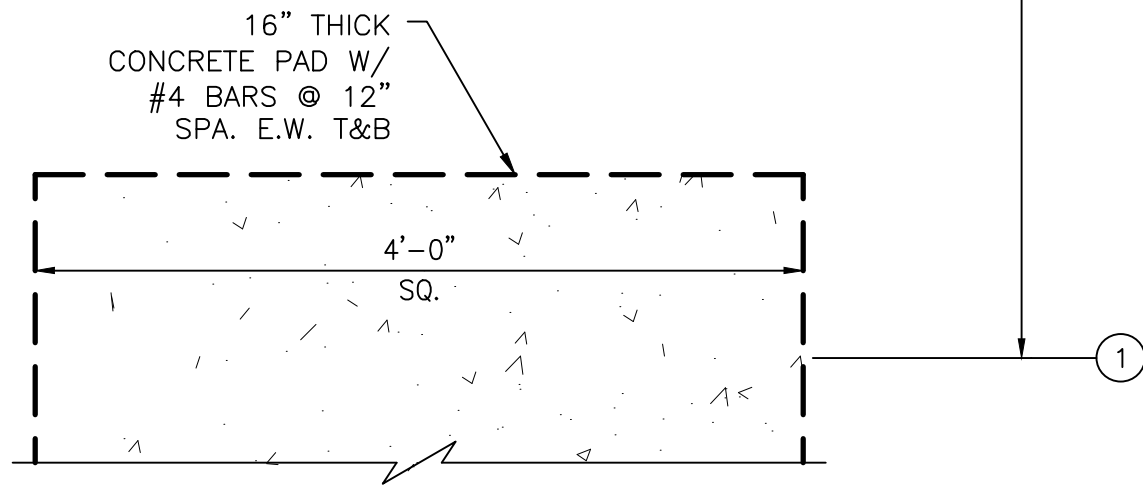
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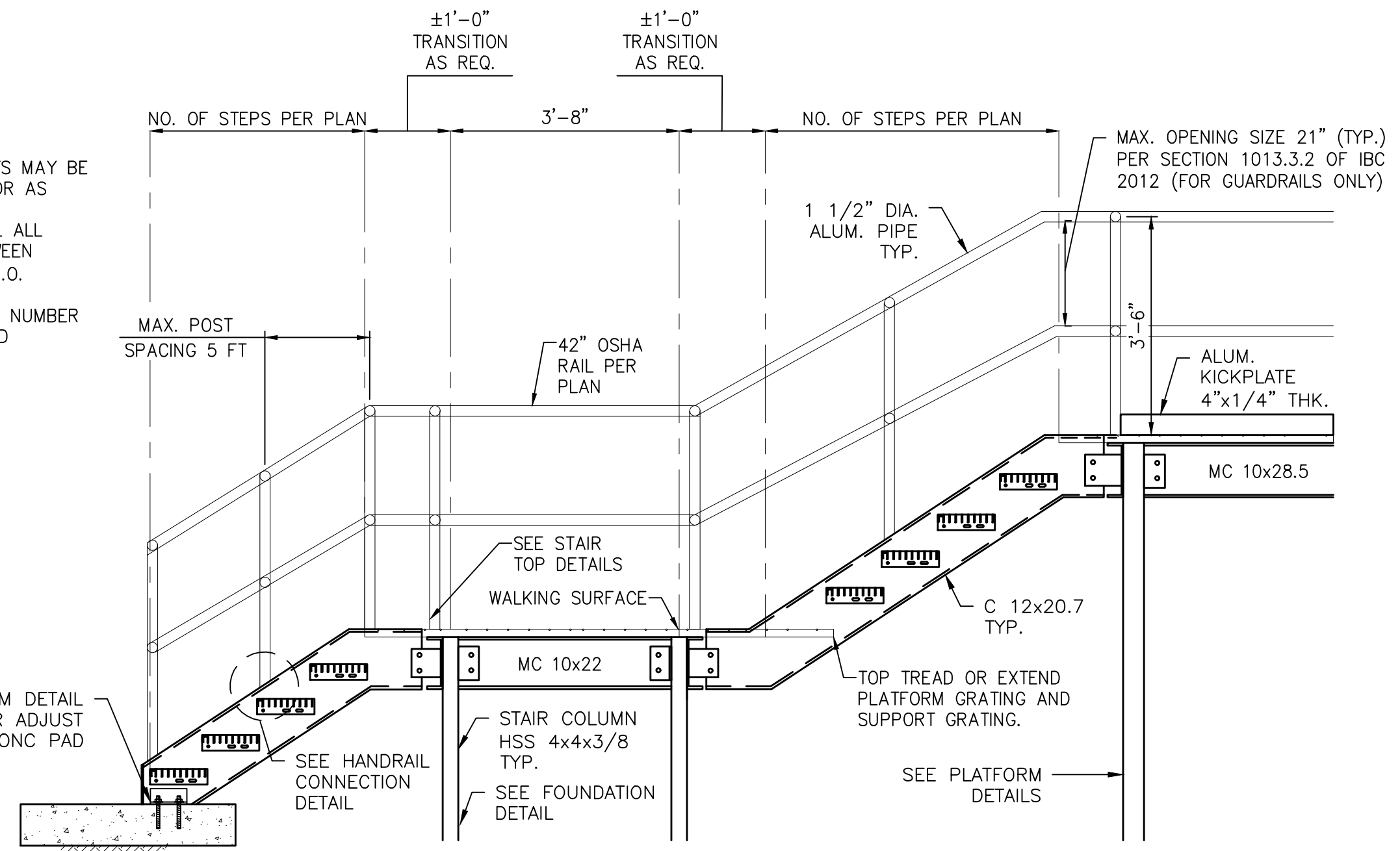
⑤ STAIRCASE FRAMING PLAN
NTS



⑥ STAIRCASE FOUNDATION PLAN
NTS

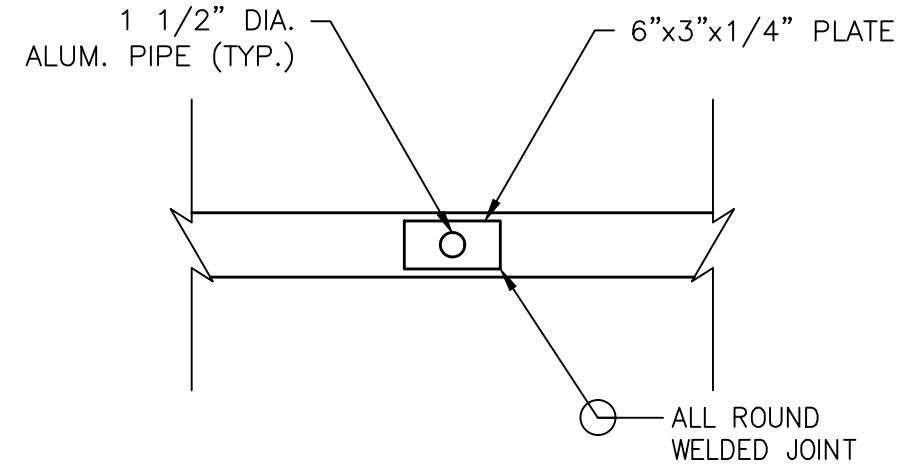


IMPORTANT NOTES:
INDIVIDUAL RISER HEIGHTS MAY BE ADJUSTED BY FABRICATOR AS LONG AS THE HEIGHT IS CONSISTENT ACROSS ALL RISERS AND FALLS BETWEEN 7" AND 8" U.N.O.
CONTRACTOR TO ADJUST NUMBER OF TREADS DUE TO FIELD CONDITIONS.

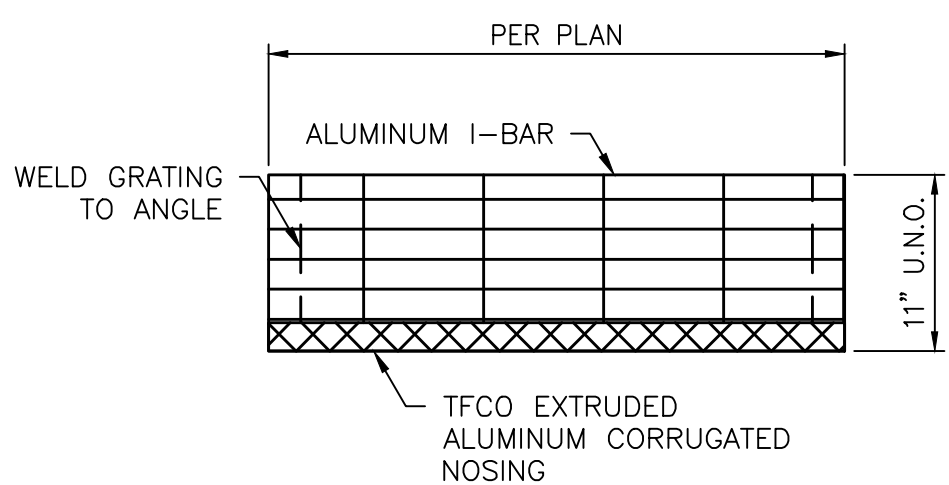


* STAIRCASE ROTATED FOR CLARITY. REF. SHEET AD-S3 FOR ORIENTATION *

⑦ PLATFORM ELEVATION SECTION
NTS



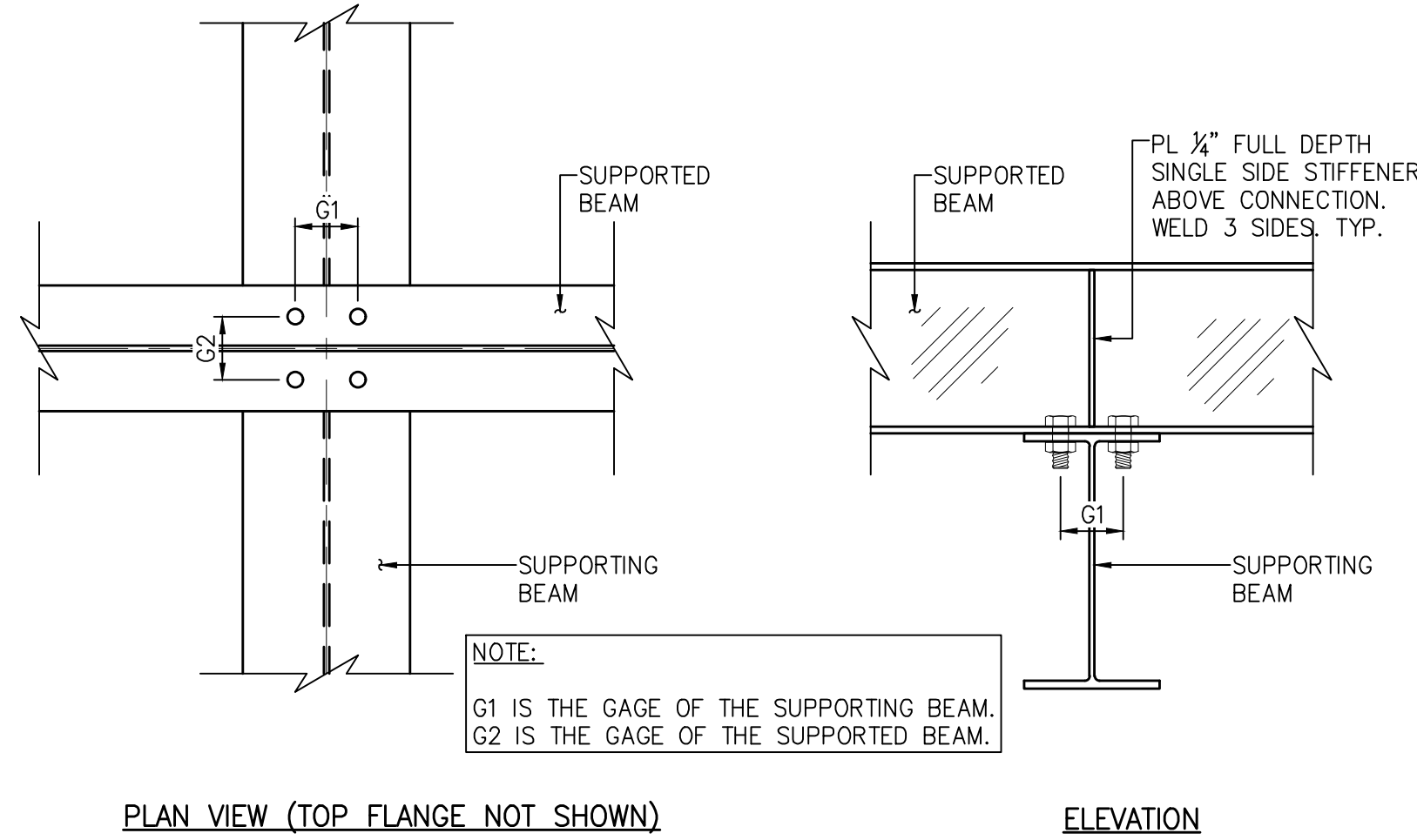
⑧ TOP MOUNTED HANDRAIL
NTS



⑨ STAIR TREAD CONNECTION
NTS

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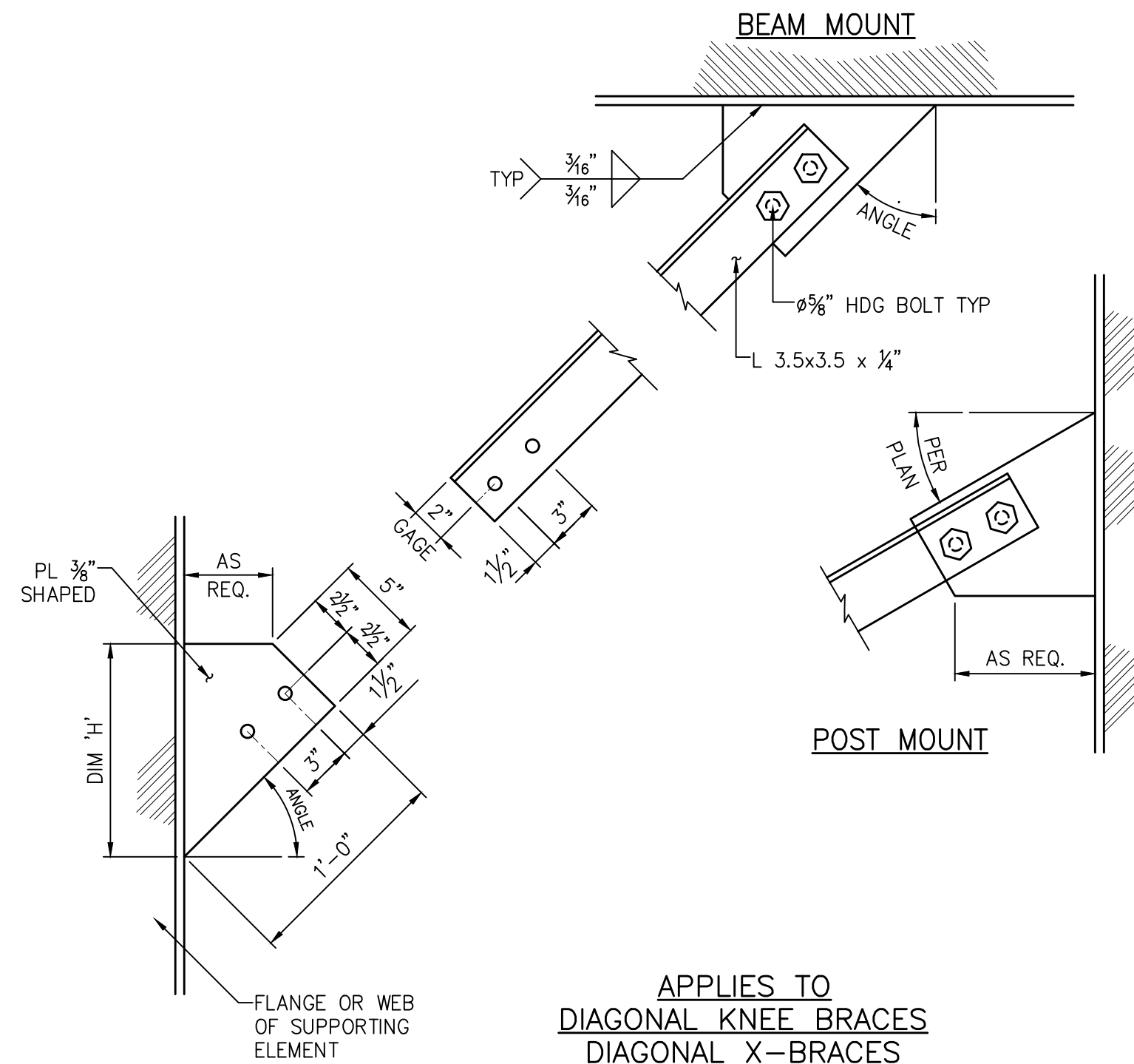
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
ALDER LIFT STATION STRUCTURAL - RAISED ELECTRICAL PLATFORM DETAIL 1	
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CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.193 OF 291	



PLAN VIEW (TOP FLANGE NOT SHOWN)

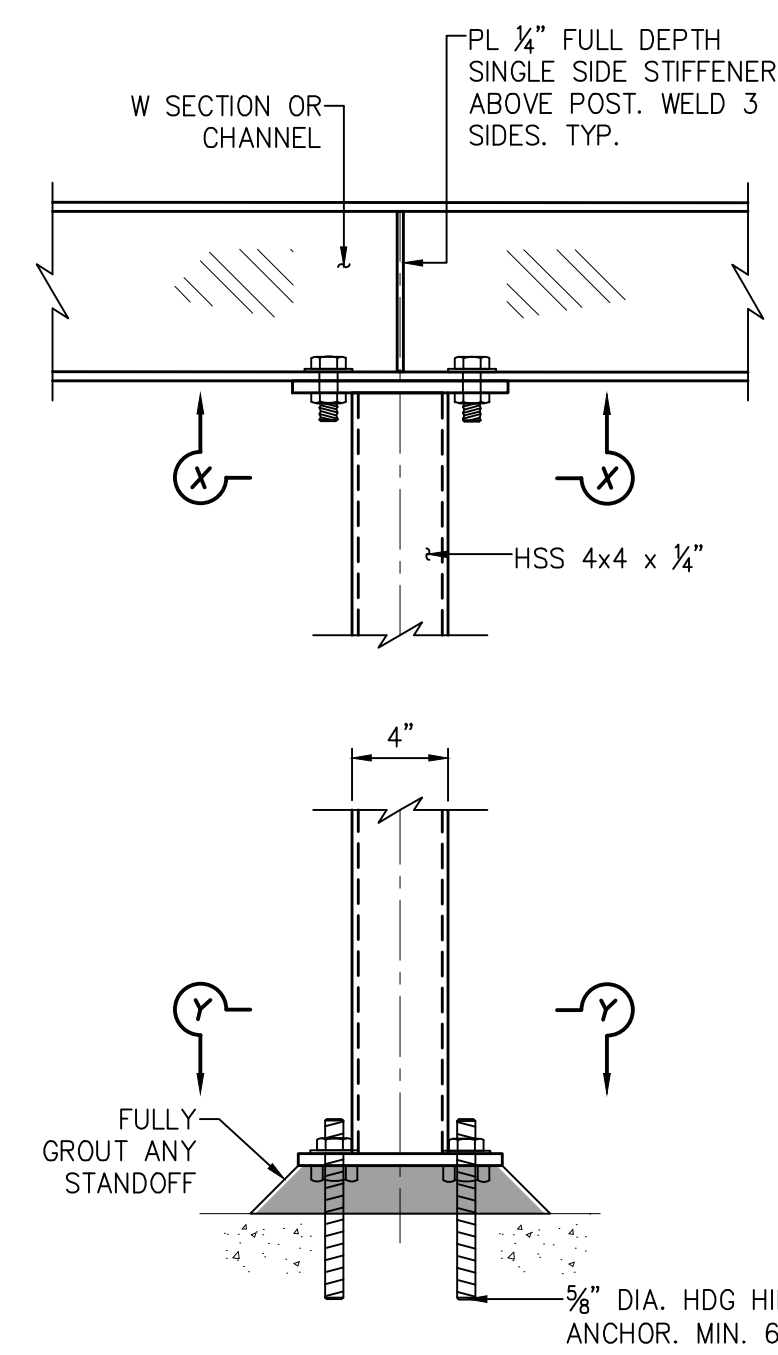
ELEVATION

C DROP BEAM CONNECTION DETAILS
NTS



APPLIES TO
DIAGONAL KNEE BRACES
DIAGONAL X-BRACES

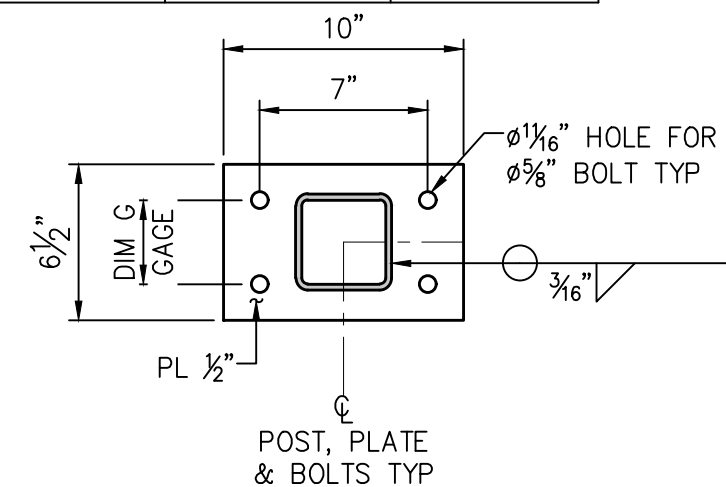
B TYPICAL DIAGONAL BRACE & GUSSET PLATE DETAIL
NTS



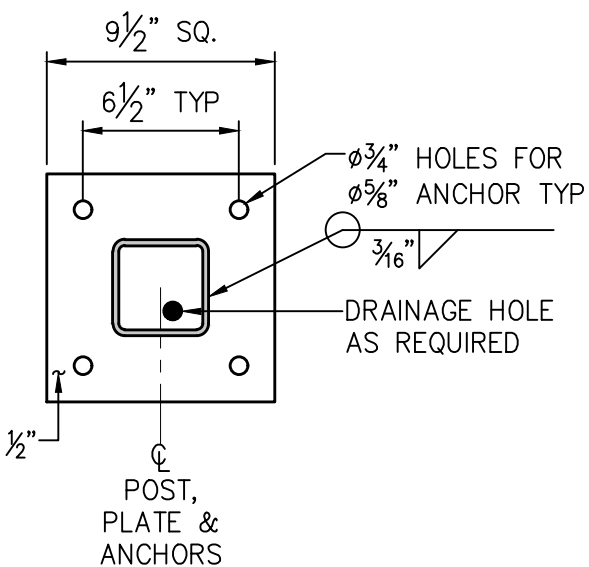
MAIN PLATFORM
POSTS - NOT
THE STAIRCASES

A HSS POST / COLUMN DETAILS
NTS

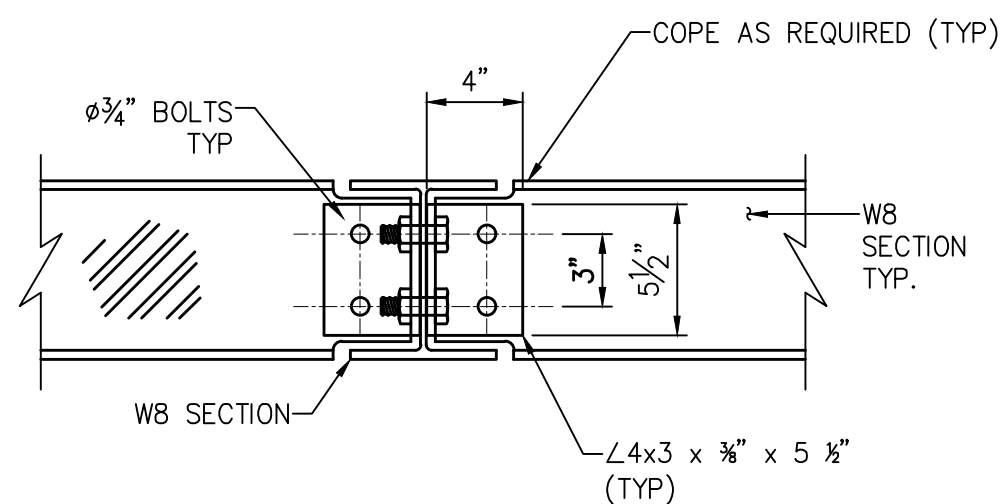
POST CAP PLATE BOLT SPACING		
BEAM SIZE	GAGE G	BOLT SIZE
W8x18	2 3/4"	ø5/8"
W8x24	4"	ø5/8"
W10x30	2 3/4"	ø5/8"



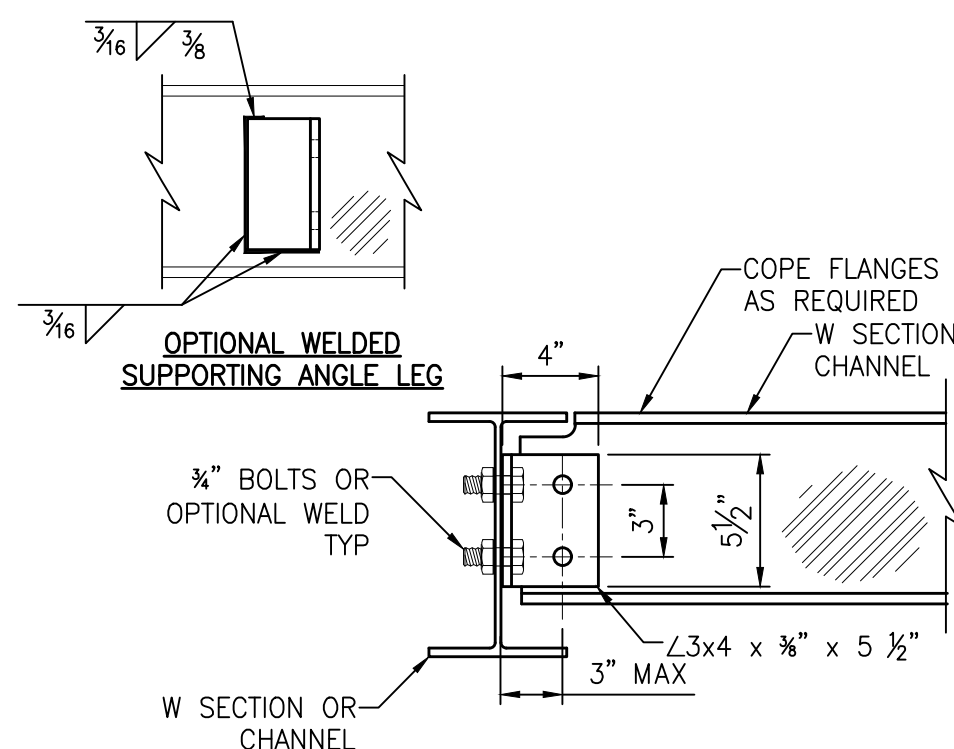
SECTION X-X TYPICAL TOP PLATE



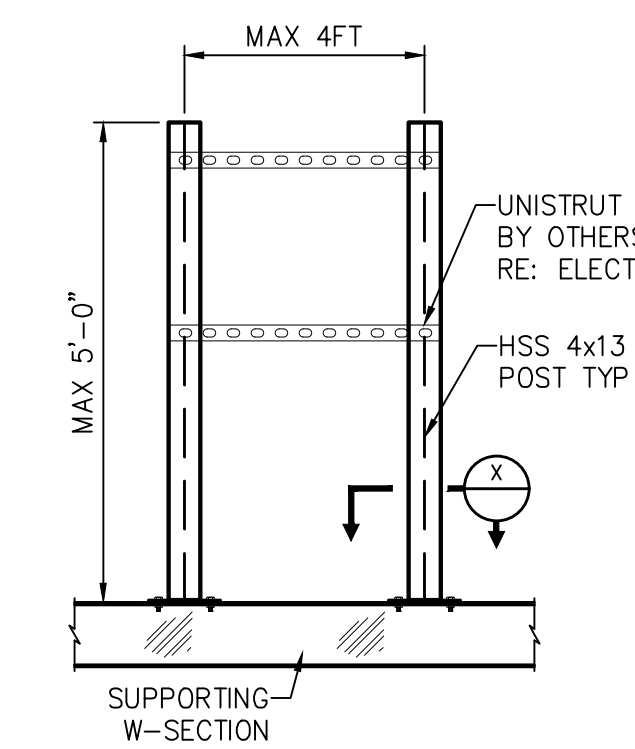
SECTION Y-Y TYPICAL BASEPLATE



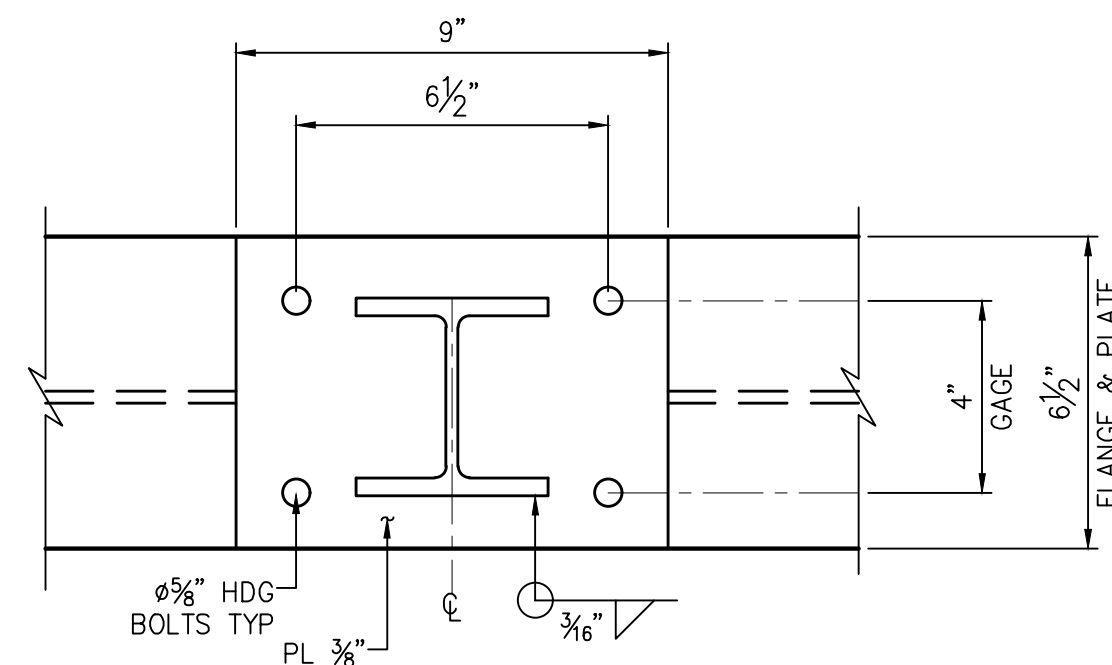
D W SECTION DUAL SINGLE ANGLE CONNECTION
NTS



E W-SECTION OR CHANNEL CONNECTION DETAIL
NTS



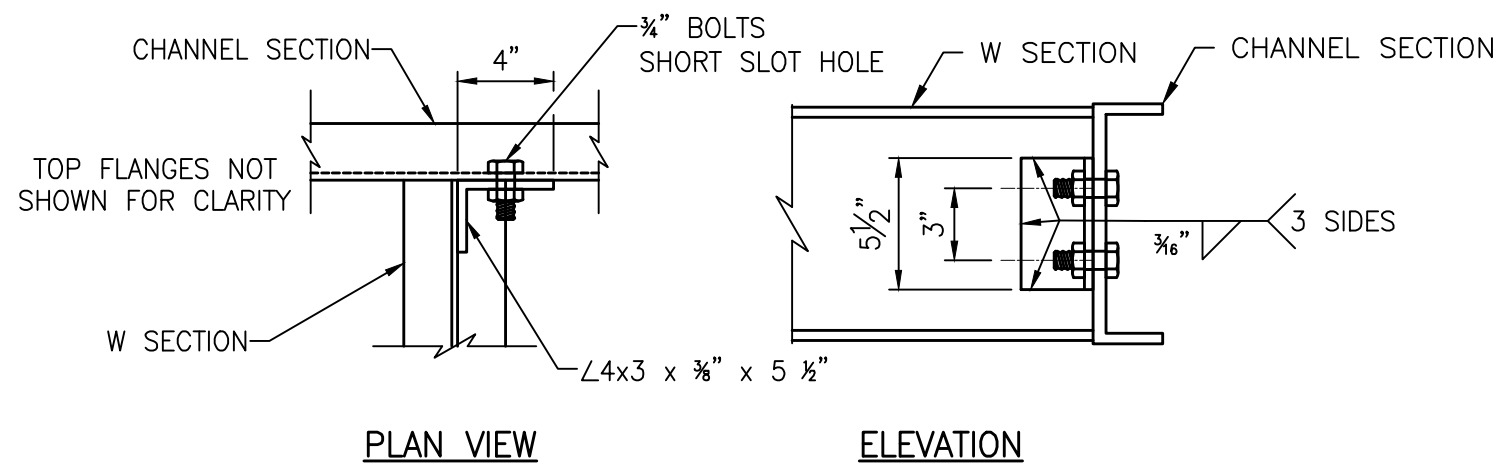
F MISC. ELECTRICAL GEAR POST
NTS



SECTION X - PLAN @ BASEPLATE

IMPORTANT NOTE:

IF GALVANIZED STEEL IS FIELD WELDED OR DAMAGED DURING INSTALLATION, THEN FIELD WELDS AND DAMAGED REGIONS SHALL BE CLEANED AND LIBERALLY COATED WITH A ZINC RICH PAINT FOR CORROSION RESISTANCE.



PLAN VIEW

ELEVATION

G W SECTION TO CHANNEL @ BEAM END CONNECT DETAIL
NTS

ISSUE	DATE	DESCRIPTION
-------	------	-------------

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**ALDER LIFT STATION
STRUCTURAL
RAISED ELECTRICAL PLATFORM
DETAILS 2**

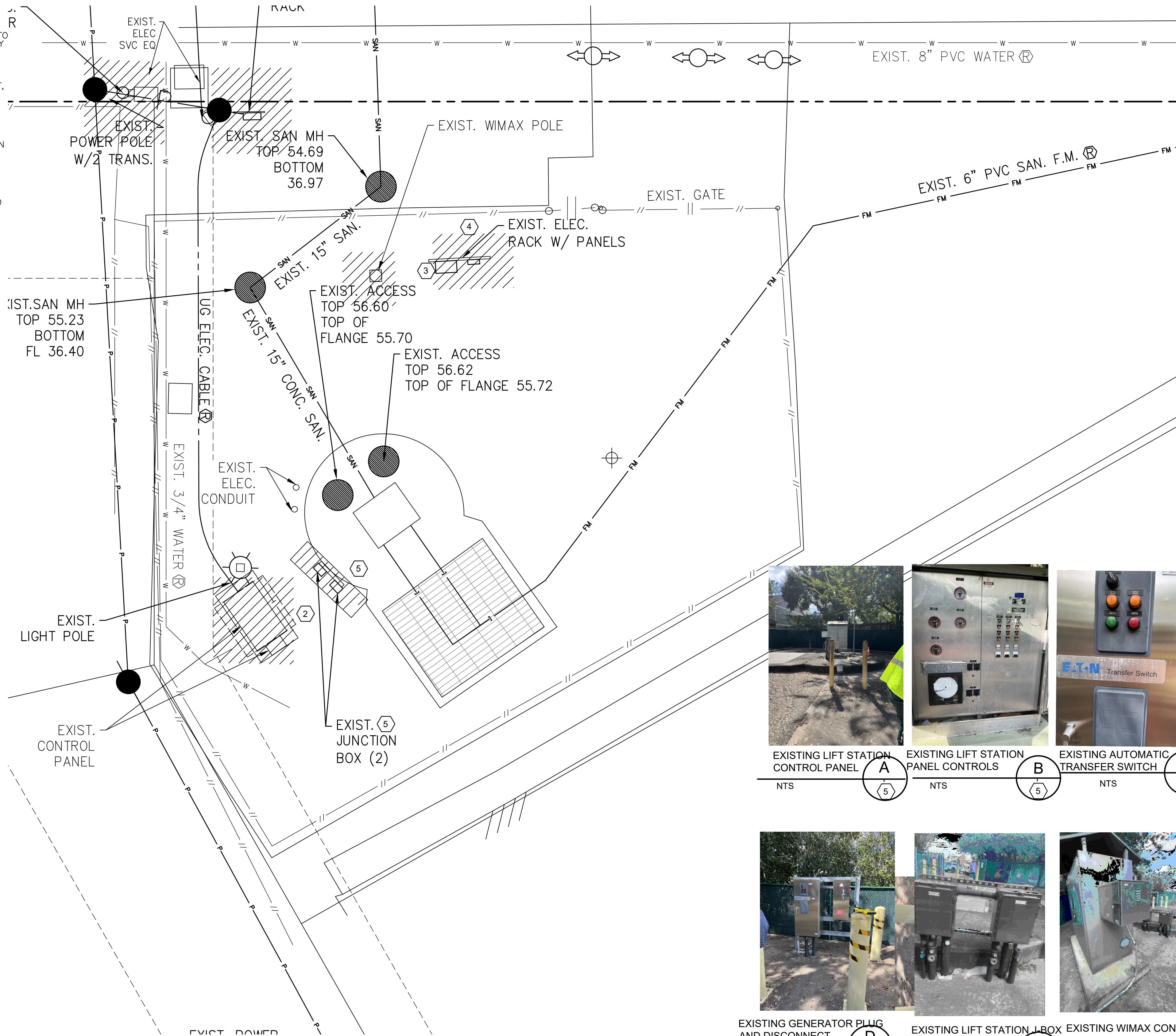
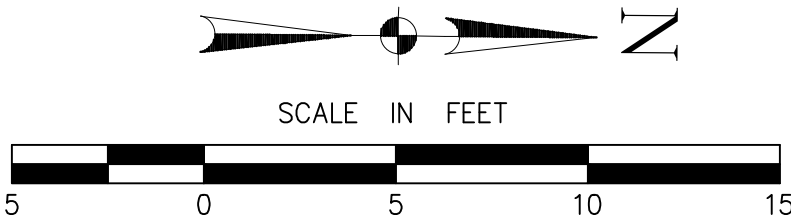
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SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.194 OF 291	

SCOPE OF ELECTRICAL WORK

- EXISTING WIMAX POLE, CIRCUITS, AND WIRING TO BE DEMOLISHED AND REPLACED. CAREFULLY REMOVE ALL MOUNTING HARDWARE AND OTHER ASSOCIATED EQUIPMENT, WHICH SHALL BE SAVE FOR POSSIBLE FUTURE USE IN RE-INSTALLING NEW EQUIPMENT.
- ALL DEMOLISHED/REMOVED EQUIPMENT IS TO BE RETURNED TO OWNER (COH) OR PROPERLY DISPOSED OF AT OWNER OPTION. FOR ADDITIONAL REQUIREMENTS, SEE NOTE SHEET G-9.
- EXISTING CONTROL PANEL, ASSOCIATED CIRCUITS AND WIRING TO BE DEMOLISHED AND REMOVED.
- EXISTING POWER COMPANY METER AND SERVICE EQUIPMENT TO BE REMOVED OR PRESERVED. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS D-27, DETAIL SHEET.
- EXISTING MANUAL TRANSFER SWITCH, GENERATOR DISCONNECT, ASSOCIATED CIRCUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- CONTRACTOR SHALL CONSULT WITH POWER COMPANY AND ASSURE ALL POWER IS DISCONNECTED/REMOVED FROM THE SITE. CONTRACTOR SHALL THEN CAREFULLY REMOVE ALL EXISTING ELECTRICAL EQUIPMENT FROM THE SITE AND RETURN TO OWNER OR DISCARD ACCORDING TO CITY OF HOUSTON EQUIPMENT DISPOSAL REQUIREMENTS. CONSULT WITH CITY ENGINEER PRIOR TO CARRYING OUT ANY EQUIPMENT DEMOLITION.
- THE GROUNDING EQUIPMENT, ELECTRODES, WIRING, AND ALL ACCESSIBLE ASSOCIATED EQUIPMENT SHALL BE REMOVED AND DISCARDED.

NOTES BY SYMBOL "⬡#":

- EXISTING WIMAX POLE, CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED OR RETURNED TO OWNER AT OWNER'S OPTION. IF REMOVED, ASSURE DISPOSAL IS IN ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
- EXISTING LIFT STATION CONTROL PANEL, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING MTS, GENERATOR DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING MAIN SERVICE DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING ELECTRICAL EQUIPMENT AND DEVICE(PUMP J-BOXES) IN LIFT STATION TO BE DEMOLISHED AND REMOVED.



EXISTING LIFT STATION
CONTROL PANEL
NTS



EXISTING LIFT STATION
PANEL CONTROLS
NTS



EXISTING AUTOMATIC
TRANSFER SWITCH
NTS



EXISTING GENERATOR PLUG
AND DISCONNECT
NTS



EXISTING LIFT STATION J-BOX
(TYP OF 3)
NTS



EXISTING WIMAX CONTROL BOX
NTS

SPECIAL INSTRUCTIONS

- CONTRACTOR SHALL CONSULT WITH CITY ENGINEER IN CASE OF UNCERTAINTY OF STATUS OF EQUIPMENT TO BE DEMOLISHED TO DETERMINE WHAT, IF ANY EQUIPMENT, SHALL BE PRESERVED. SPECIFICALLY, THE ELECTRIC SERVICE, METERING, SERVICE POLE, AND GROUNDING EQUIPMENT SHALL BE CAREFULLY EVALUATED SO AS TO PRESERVE ANY EQUIPMENT THAT MAY BE DEEMED REUSABLE.

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LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
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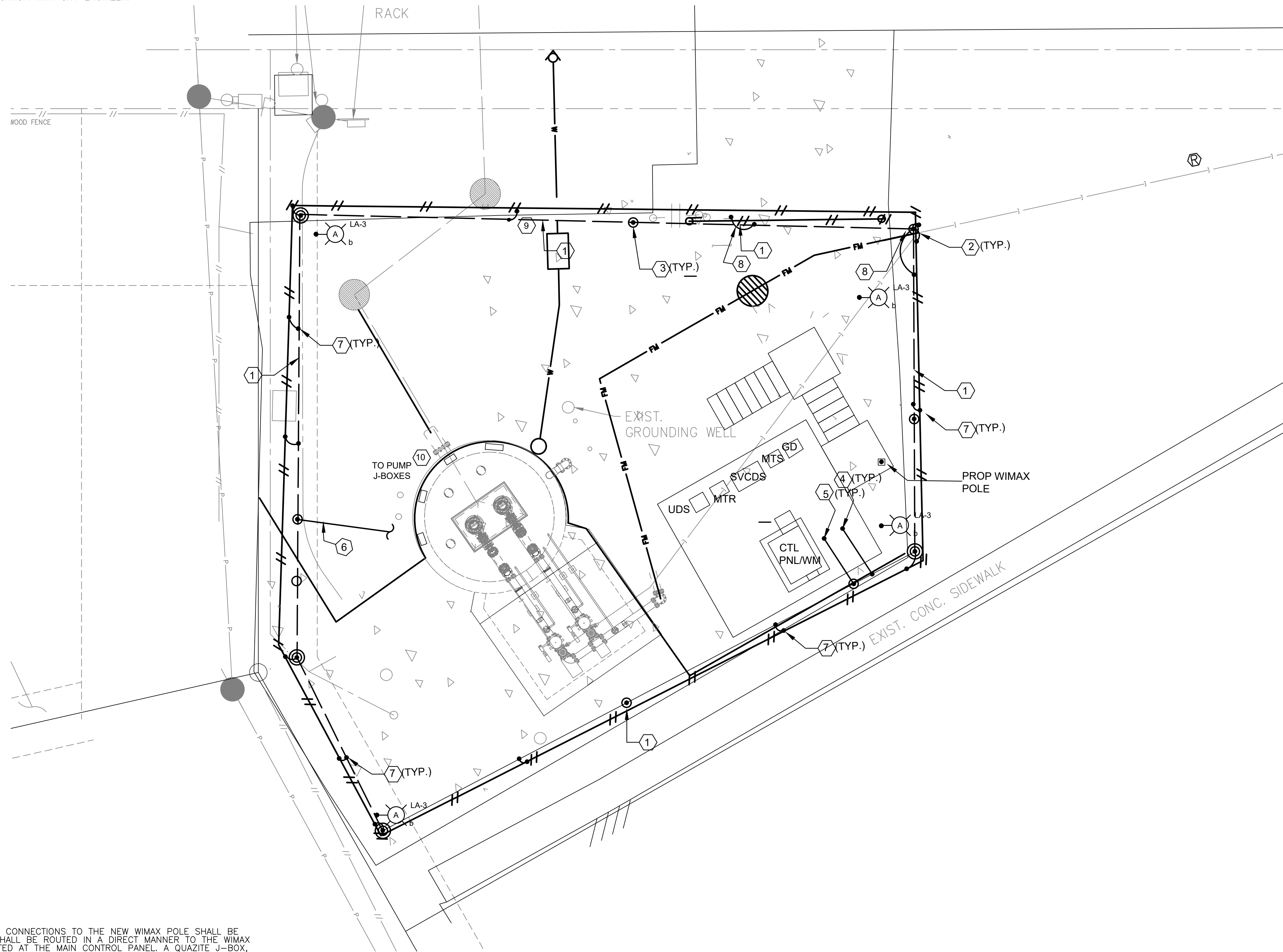
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ALDER LIFT STATION
ELECTRICAL DEMOLITION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 195 OF 291	

SCOPE OF ELECTRICAL WORK

1. PROVIDE AND INSTALL NEW ELECTRICAL EQUIPMENT FOR LIFT STATION AS SHOWN ON PLANS AND SPECIFICATIONS.
2. EXISTING W/ MAX POLE TO BE REMOVED AND DEMOLISHED. CAREFULLY PRESERVE POLE AND MOUNTING HARDWARE EQUIPMENT FOR POSSIBLE RE-USE.
3. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS GE-17, DETAIL SHEET.
4. PROVIDE NEW YARD LIGHTS AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.
5. PROVIDE NEW GROUNDING ELECTRODE SYSTEM AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.

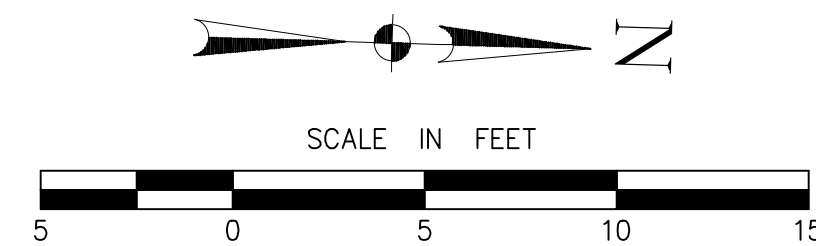


SPECIAL INSTRUCTIONS

1. ALL WIMAX ELECTRICAL CONNECTIONS TO THE NEW WIMAX POLE SHALL BE UNDERGROUND, AND SHALL BE ROUTED IN A DIRECT MANNER TO THE WIMAX CONTROL PANEL LOCATED AT THE MAIN CONTROL PANEL. A QUAZITE J-BOX, 18"x18"x12", SHALL BE PROVIDED AT THE WIMAX POLE BASE ADJACENT TO THE WIMAX POLE. MAKE FINAL CONNECTION IN A WORKMANLIKE MANNER. ALL WIRE CONNECTIONS SHALL BE POTTED (SUITABLE FOR CONTINUOUS SUBMERSION).
2. GROUNDING RING TO BE 3/0 AWG BARE COPPER STRANDED WIRE BURIED 3'0" BELOW GRADE. SAMPLE INSPECTION POINTS TO BE FIELD LOCATED TO COMPLY WITH PROPERTY LINES AND EASEMENT REQUIREMENTS.
3. TIE UNDERGROUND GROUND RING SHALL BE BONDED TO ALL FENCE SECTIONS AND AREAS WITH APPROVED GROUND CLAMPS. ALL GROUND CONNECTORS SHALL BE UL APPROVED AND CERTIFIED FOR THE APPLICATION.
4. POLE LIGHTS, SERVICE RACK CONTROL PANEL, AND UNDERGROUND CONDUITS, WIRES, AND JUNCTION BOXES SHALL BE FIELD LOCATED IF DIRECTED BY CITY ENGINEER.

LEGEND

UDS - UTILITY DISC SWITCH
MTR - PWR CO METER
SVCDS - ELEC SVC DISC
MTS - MANUAL TRANSFER SWITCH
GD - GENERATOR DISCONNECT
CTL PNL/WM - CONTROL PANEL/WIMAX



NOTES BY SYMBOL "":

- 1 MAIN BURIED GROUND LOOP, #4/0 BARE COPPER CONDUCTOR.
- 2 GROUND TEST WELL.
- 3 GROUND ROD.
- 4 #4/0 BARE COPPER BONDING CONDUCTOR.
- 5 BOND REBAR IN CONCRETE FOOTER OR SLAB TO MAIN BURIED GROUND LOOP.
- 6 #2/0 BARE COPPER BONDING CONDUCTOR.
- 7 THERMOWELDED CABLE CONNECTION.
- 8 PROVIDE FLEX BONDING JUMPER ACROSS GATE HINGES.
- 9 PROVIDE GROUND LOOP CONNECTION TO ELECTRICAL PLATFORM
- 10 JUNCTION BOXES SHOWN ON PLATFORM TO MEET EQUIPMENT MOUNTING HEIGHT REQUIREMENTS. THEY MAY BE RELOCATED TO WET WELL AT DISCRETION OF CITY ENGINEER.

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.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



Engineers, PC

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

THIS DOCUMENT IS RELEASED FOR THE
PURPOSE OF INTERIM REVIEW UNDER THE
AUTHORITY

OF: JAMES E. THOMPSON, JR,
TEXAS P.E. #70302

DATE: 12/10/2025

SURVEYED BY: KUO ASS
FB NO. P-6409

IT IS NOT TO BE ISSUED FOR CONSTRUCTION,
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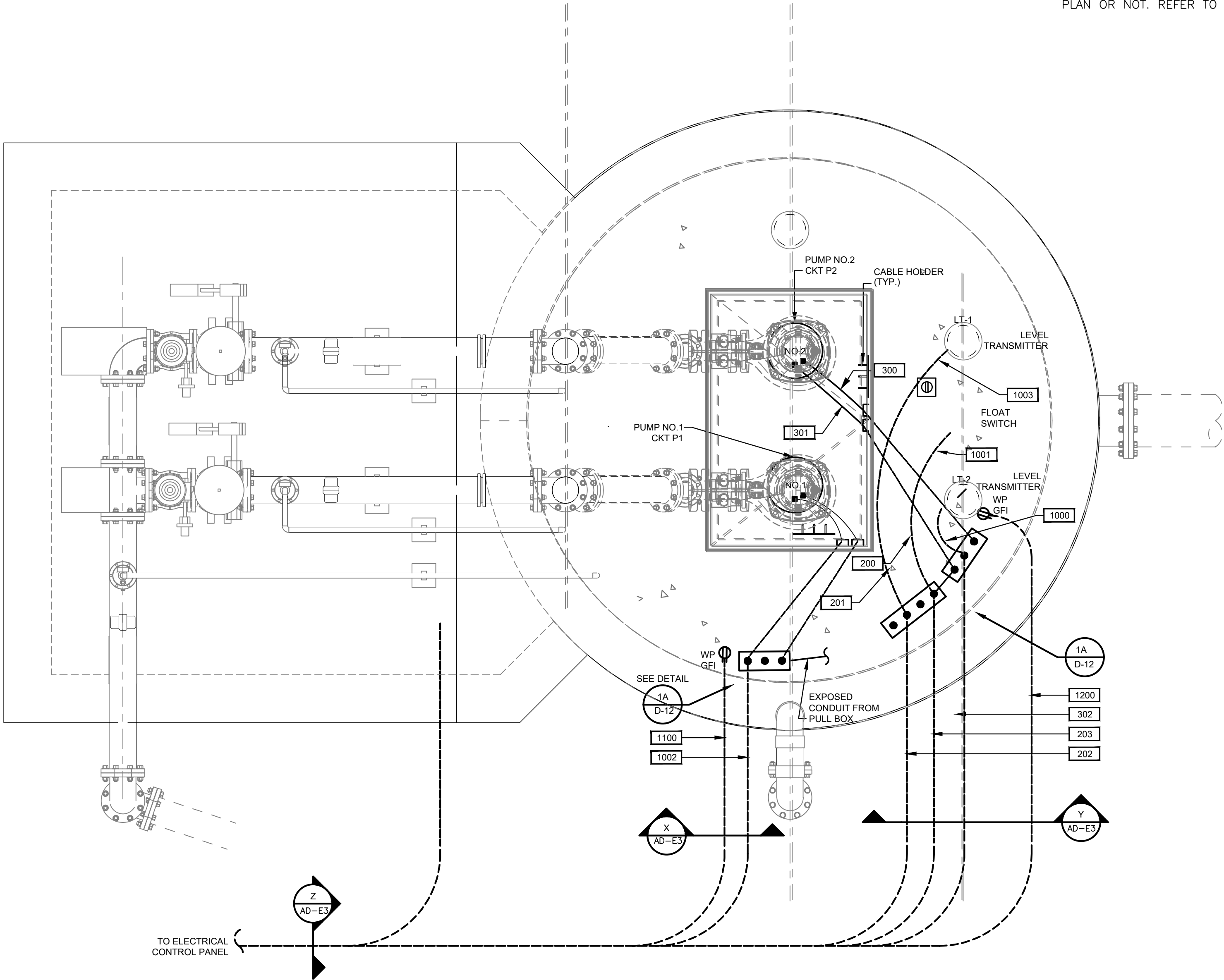
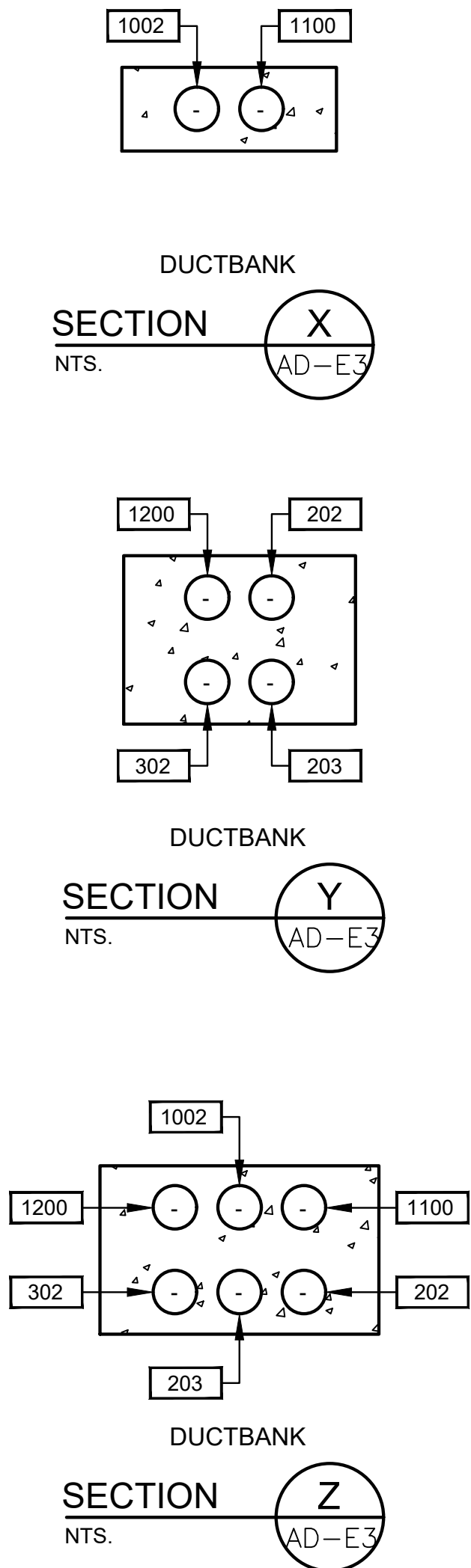
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ALDER LIFT STATION
ELECTRICAL PROPOSED SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.196 OF 291	



ALDER LIFT STATION
PLAN VIEW @ GRADE - PROPOSED

SPECIAL INSTRUCTIONS:

1. JUNCTION BOXES SHALL BE MOUNTED ON TOP OF-SLAB PROVIDE NEMA 6P PANEL CONSTRUCTION.

NOTES:

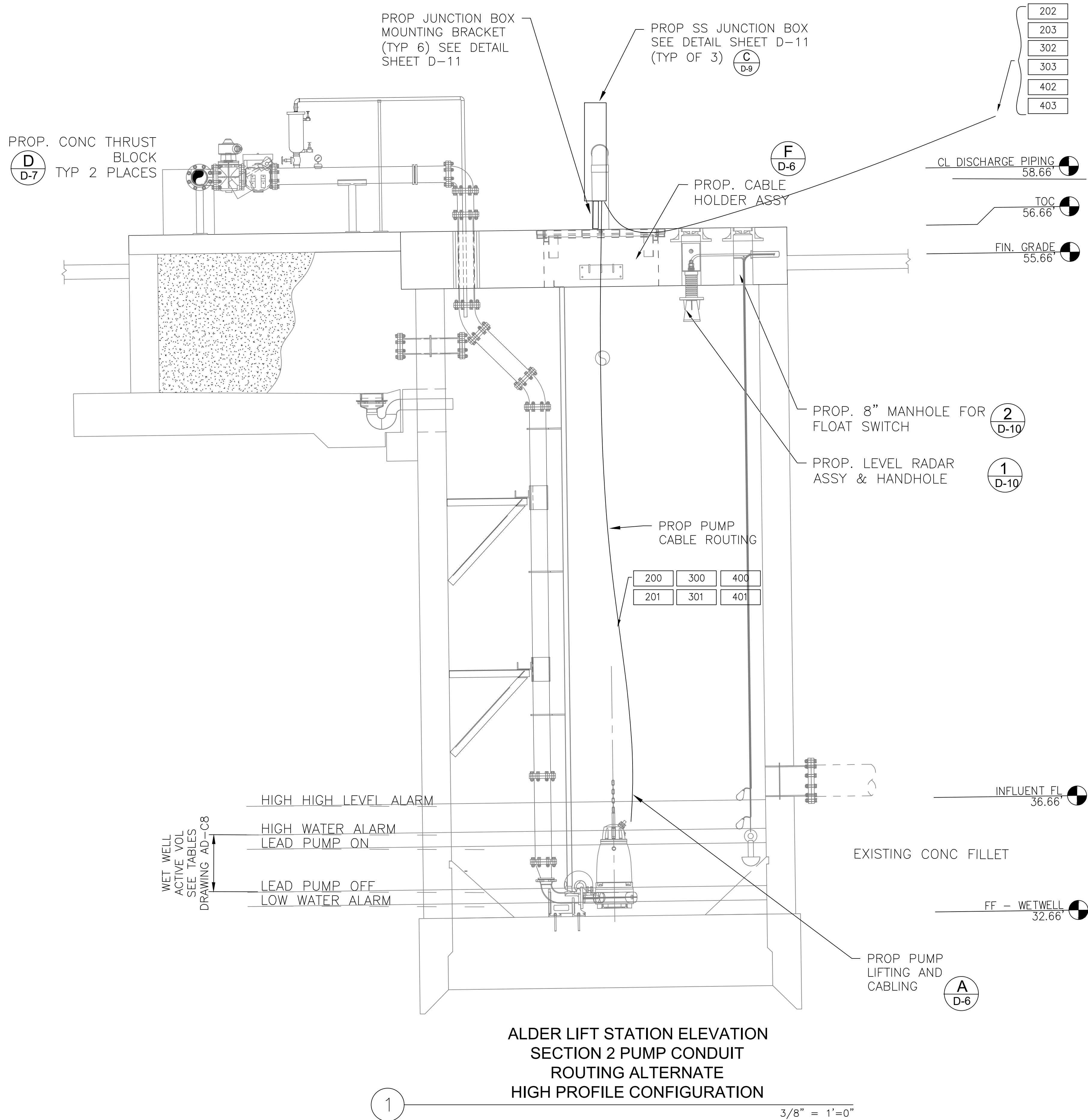
1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE VALVE VAULT SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL CONDUITS AND CONDUCTOR SIZES AND ROUTING SHALL BE FIELD VERIFIED WITH ACTUAL EQUIPMENT ON SITE PRIOR TO DOING ANY WORK. COORDINATE WITH CITY ENGINEER.
6. ALL EQUIPMENT MOUNTING LOCATIONS SHALL BE FIELD VERIFIED WITH CITY ENGINEER PRIOR TO INSTALLATION.
7. GROUNDING SHALL BE PER N.E.C. MINIMUM REQUIREMENTS. FOR "SITE AREA GROUNDING", PROVIDE ADDITIONAL GROUNDS FOR ANY LOCATION WHERE ADDITIONAL GROUNDING IS NEEDED WHETHER SHOWN ON PLAN OR NOT. REFER TO CITY ENGINEER.

NOTES (CONT):

8. JUNCTION BOXES SHALL BE USED FOR PULLING OR TERMINATION PURPOSES ONLY. JUNCTION BOXES SHALL CONTAIN NO CIRCUITS OTHER THAN THOSE IDENTIFIED ON PLANS.
9. FOR MOTOR FEEDER AND CONTROL CABLES, INSTALL TYPE CSBE CABLE SEALING FITTINGS AT JUNCTION BOX ENTRANCES AND EXPLOSION PROOF SEALS IN CONDUITS TO CONTROL PANEL.
10. TERMINATE PUMP POWER & CONTROL CONDUITS WITH CSBE SEAL. ATTACH STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT ON EACH POWER AND CONTROL CABLE.
11. ALL PUMP POWER AND CONTROL CABLE LEADS MUST BE THE SAME LENGTH REGARDLESS OF PUMP LOCATION FROM TERMINAL/JUNCTION BOX.
12. LEVEL TRANSMITTERS SHOWN ARE APPROXIMATE. LEVEL TRANSMITTERS SHALL BE FIELD LOCATED.
13. 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.
14. ALL RECEPTACLES SHALL BE EXPLOSION PROOF TYPE IF INSTALLED WITHIN 5 FEET OF CLASSIFIED AREA.
15. PROVIDE GFCI OUTLETS FOR UTILITY SERVICE EQUIPMENT PER APPLICABLE CODE REQUIREMENTS AND STANDARD PLANS. PROVIDE HEAVY DUTY IN-USE COVERS.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES		
SURVEYED BY: KUO ASSOC FB NO. P-6409		

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
ALDER LIFT STATION CONDUIT LAYOUT FOR LIFT STATION 2 PUMP ALTERNATE HIGH PROFILE CONFIGURATION	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.197 OF 291	



NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL ELECTRICAL CONTROL CABINETS SHALL BE RAISED TO 500 YEAR FLOOD ELEVATION + 3 FEET.
6. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT AND CONDUCTOR SIZES AND ENTRY LOCATIONS AND CONSULT WITH CITY ENGINEER PRIOR TO DOING ANY WORK.
7. ALL ELECTRICAL INSTALLATIONS SHALL BE FIELD LOCATED WITH ASSISTANCE OF CITY ENGINEER.
8. JUNCTION BOX LOCATION SHOWN DIAGRAMMATIC FOR DRAWING CLARITY. JUNCTION BOXES SHALL BE FIELD LOCATED AT WET WELLS WITH ASSISTANCE OF CITY ENGINEER. JUNCTION BOXES SHALL BE NEMA 6P 316 SS.

ISSUE	DATE	DESCRIPTION

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3600 W. Sam Houston Parkway S.
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Houston, Texas 77042

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Phone 713.953.5200
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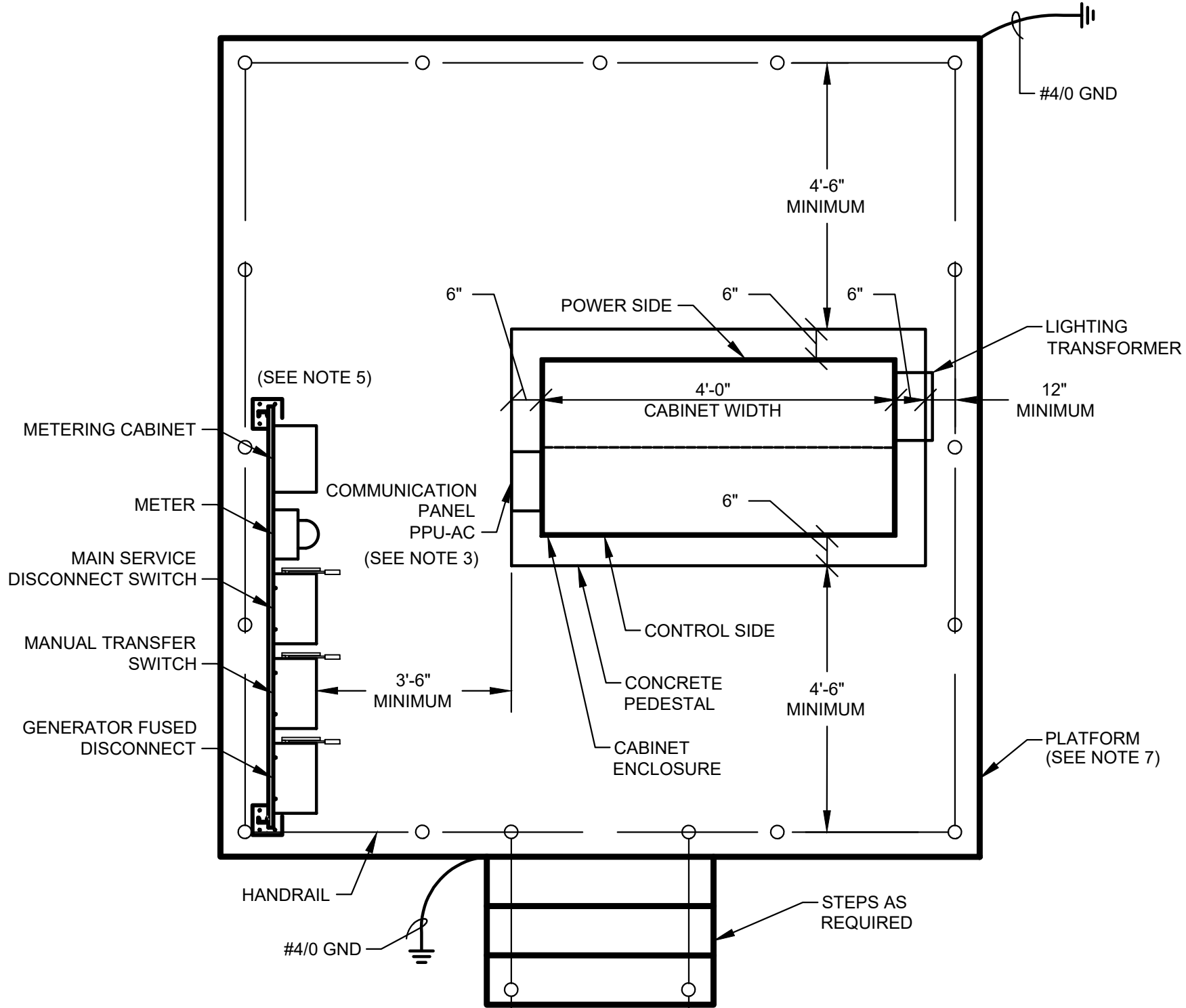
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

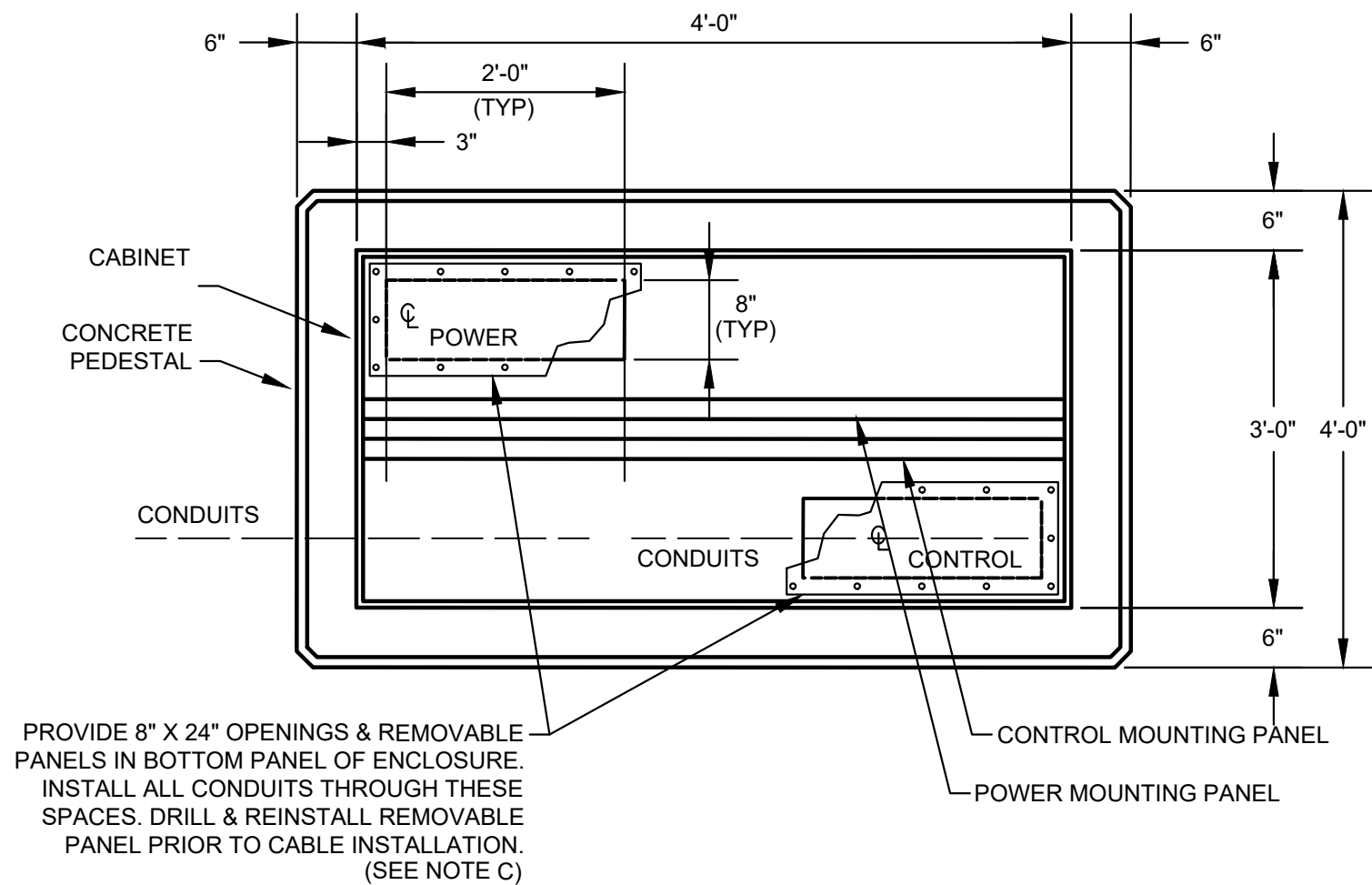
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ALDER LIFT STATION ELEVATION
SECTION 2 PUMP CONDUIT
ROUTING ALTERNATE
HIGH PROFILE CONFIGURATION

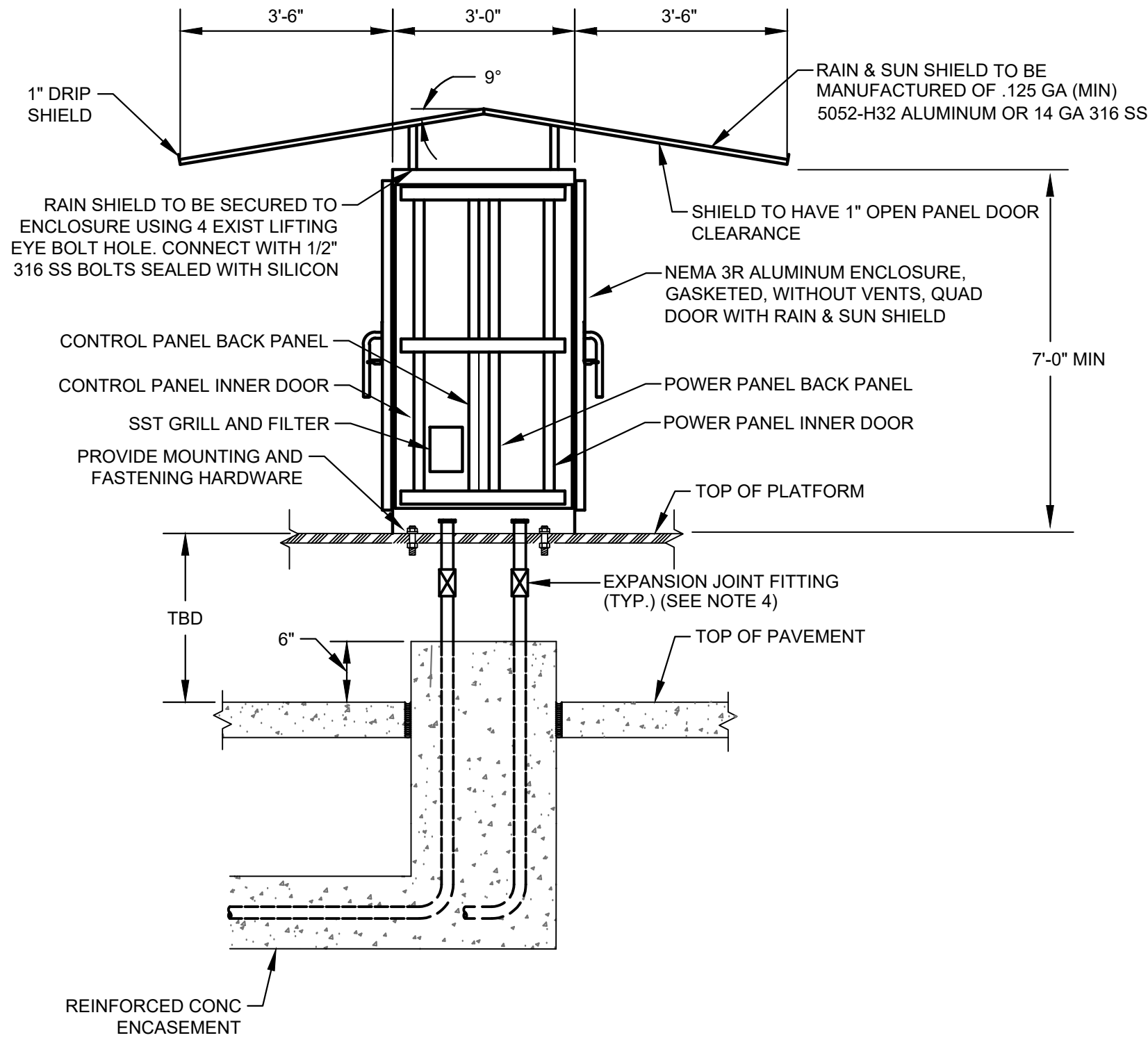
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=1'	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.198 OF 291	



CONTROL CABINET ENCLOSURE ON ELEVATED PLATFORM DETAIL
(PLATFORM ELEVATION AS REQUIRED BY NOTE D)



SECTION Z
NTS AD-E5



CONTROL CABINET ENCLOSURE WITH PLATFORM
(SEE NOTE 6)

- NOTES:
- SEE SHEET AD-E6 FOR EQUIPMENT SCHEDULE.
 - REFER TO SPECIFICATION SECTION 13325 PROCESS CONTROL SYSTEMS CONTROL PANELS FOR PANEL DIMENSIONS.
 - COMMUNICATION PANEL TO BE INSTALLED ABOVE SERVICE RACK ELEVATION.
 - EXPANSION JOINT FITTINGS SHALL BE PROVIDED AS REQUIRED.
 - REFER TO SERVICE RACK FOR DETAIL.
 - REFER TO STRUCTURAL DRAWINGS "ZOS04, ZOS05, & ZOS06" FOR PLATFORM DETAIL.

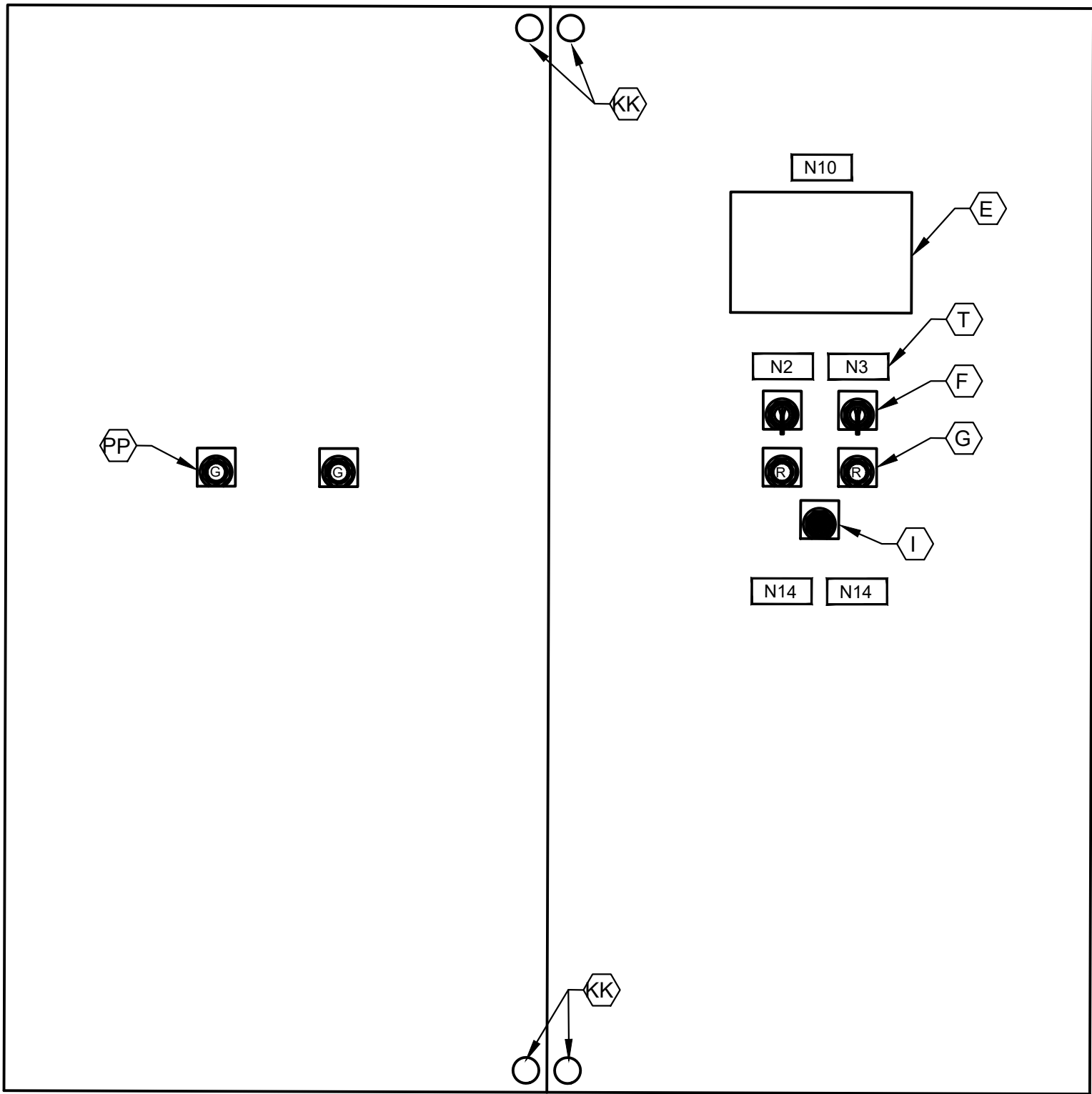
ELECTRICAL NOTES

- CONTRACTOR SHALL VERIFY AND ADJUST, AS REQUIRED, SIZE OF REMOVABLE PANEL IN CABINET. OPENING SHALL BE SUFFICIENT TO ACCOMMODATE ALL REQUIRED CONDUITS.
- THIS LIFT STATION IS LOCATED IN AN AREA THAT IS DESIGNATED BY THE CITY OF HOUSTON ORDINANCE AND THE RELATED TSARP MAPS AS BEING IN A FLOOD HAZARD ZONE. THE ELEVATION OF THE TOP OF THE CONCRETE PEDESTAL ON WHICH THE CONTROL PANEL IS MOUNTED SHALL BE ONE (1) FOOT ABOVE THE TOP OF CONCRETE OF THE ELEVATED CONCRETE PLATFORM. MINIMUM CLEARANCE DISTANCES BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE HAND RAIL AROUND THE PERIMETER OF THE ELEVATED CONCRETE PLATFORM AND BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE MANUAL TRANSFER SWITCH ARE NOTED IN THE DETAILS.
- CONTRACTOR SHALL ENSURE THE ELECTRICAL EQUIPMENT INSTALLATION FINISHED FLOOR MEETS THE REQUIREMENTS OF THE LATEST VERSION OF THE COH CODE OF ORDINANCE, CHAPTER 19 FLOOD PLAIN.
- THE CONTROL PANEL DOORS SHALL FACE NORTH AND SOUTH WHERE FEASIBLE
- PROVIDE MINIMUM OF 7'-0" CLEARANCE BETWEEN EDGE OF DRIP SHIELD COVER AND TOP OF PLATFORM.

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET ENCLOSURE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 190	OF 291	

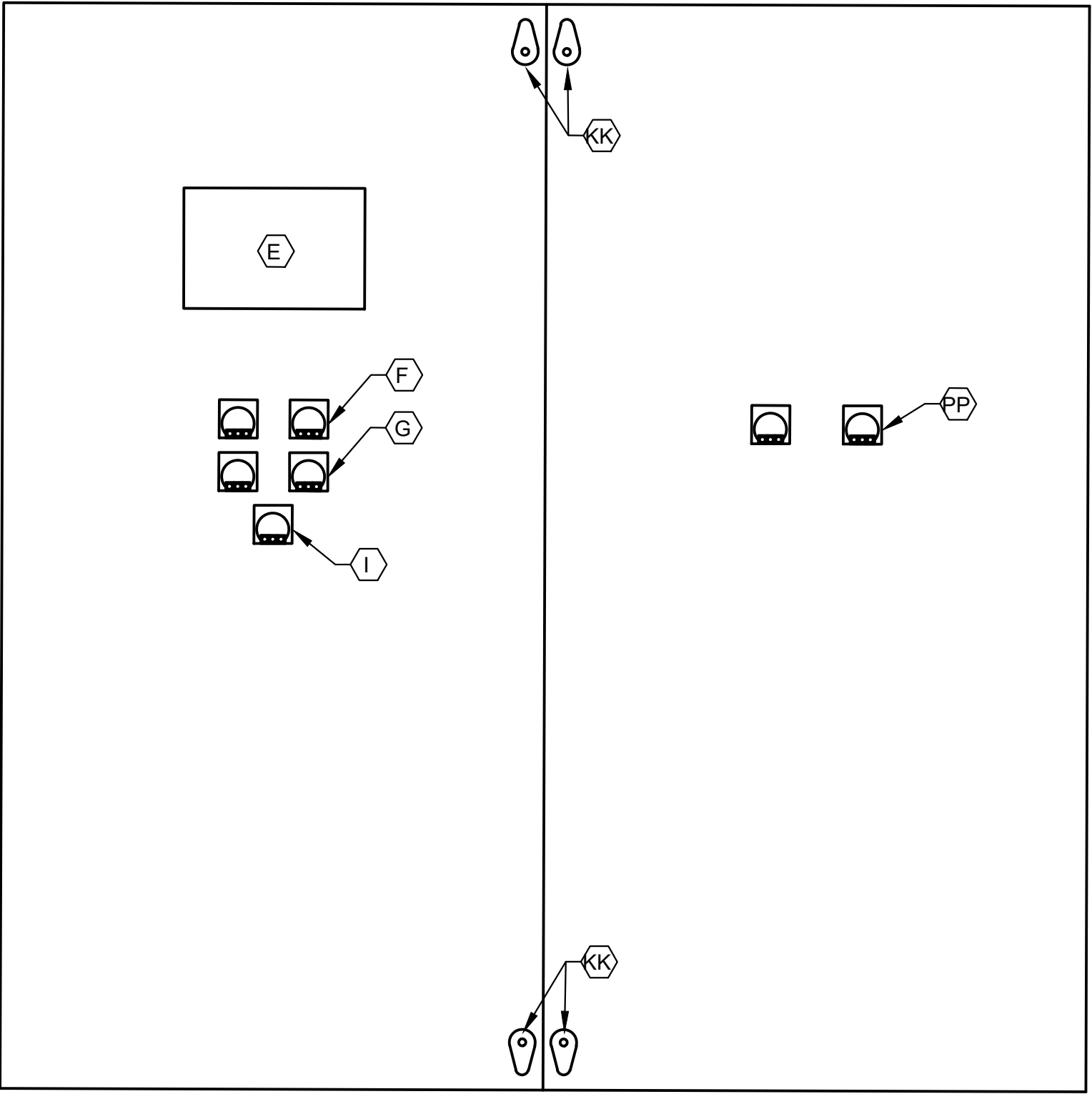
EQUIPMENT AND DEVICE SCHEDULE		
ITEM	QUANTITY	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 1 PHASE, 3 WIRE, 100A, 12 CKTS
B	2	FULL VOLTAGE, NON-REVERSING, SINGLE SPEED, AUTOMATIC MOTOR STARTER W/120 VOLT CONTROL COIL, NEMA SIZE AS SCHEDULED.
C	2	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 120VAC COIL AND 11 PIN SOCKET BASE.
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY
E	1	PROGRAMMING SCREEN (OIT)
F	2	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL)
G	2	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND
H	1	PERPETUAL POWER UNIT (PPU)
I	1	PUMP ALARM RESET PUSHBUTTON
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST
K	3	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION.
M	1	SURGE PROTECTOR - INCOMING POWER
N	*	NOT USED.
P	2	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT.
Q	12	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS
R	1	WIRE DUCT 2" WIDE X 2" DEEP MINIMUM
S	*	NOT USED.
T	*	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
U	2	SOLID STATE MOTOR OVERLOAD RELAY
V	6	FUSE HOLDER & FUSES - PHASE FAILURE
W	1	NEMA 3R GASKETED ALUMINUM ENCLOSURE WITHOUT VENTS
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE FOR ENVIRONMENT)
Y	1	THERMAL-MAGNETIC MOLDED CASE MAIN CIRCUIT BREAKER, SIZE AS SCHEDULED
Z	2	ADJUSTABLE INSTANTENOUS TRIP MOTOR CIRCUIT PROTECTOR, SIZE AS SCHEDULED
AA	*	TERMINAL BLOCKS
BB	2	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM
CC	2	ANALOG I/O SURGE SUPPRESSOR
DD	1	WIRE DUCT 2" WIDE x 2" DEEP MINIMUM
EE	1	THERMAL-MAGNETIC MODLED CASE CIRCUIT BREAKER FOR LIGHTING TRANSFORMER, SIZE AS SCHEDULED
FF	1	GROUND BUS
GG	1	10 KVA, 480 - 240/120V,1ϕ, 3W DRY TYPE NEMA 3R ENCLOSURE TRANSFORMER
HH	*	NOT USED.
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED)
JJ	11	CARTRIDGE FUSES & FUSE HOLDER
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A
MM	2	MOTION SWITCH
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP PLC" LEGEND
QQ	*	NOT USED
RR	*	NOT USED
SS	1	COMMUNICATION ETHERNET SWITCH
TT	1	POWER SURGE PROTECTOR - CONTROL POWER
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT
VV	1	PHASE AND UNDER VOLTAGE MONITOR
WW	*	FUSED TERMINAL BLOCKS
XX	2	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I
YY	2	ANALOG SIGNAL ISOLATOR
ZZ	2	POWER FACTOR CORRECTION CAPACITOR NEMA 3R STAINLESS STEEL
AB	-	NOT USED.
AC	1	POWER DISTRIBUTION BLOCK
AD	1	NEUTRAL LUG
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD
AF	1	T-STAT FOR EXHAUST FAN

* - AS SCHEDULED

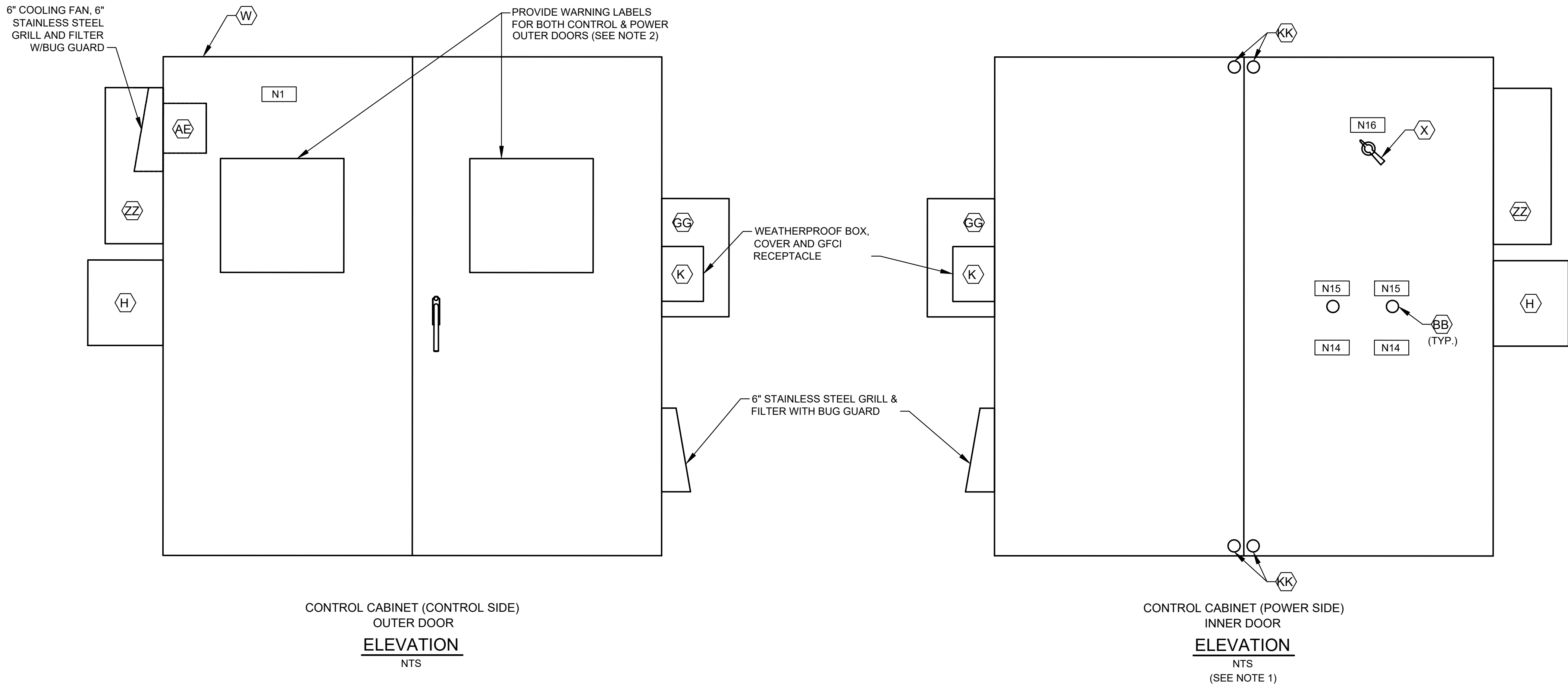


NOTES:

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



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LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 249 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NONE		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.200 OF 291		

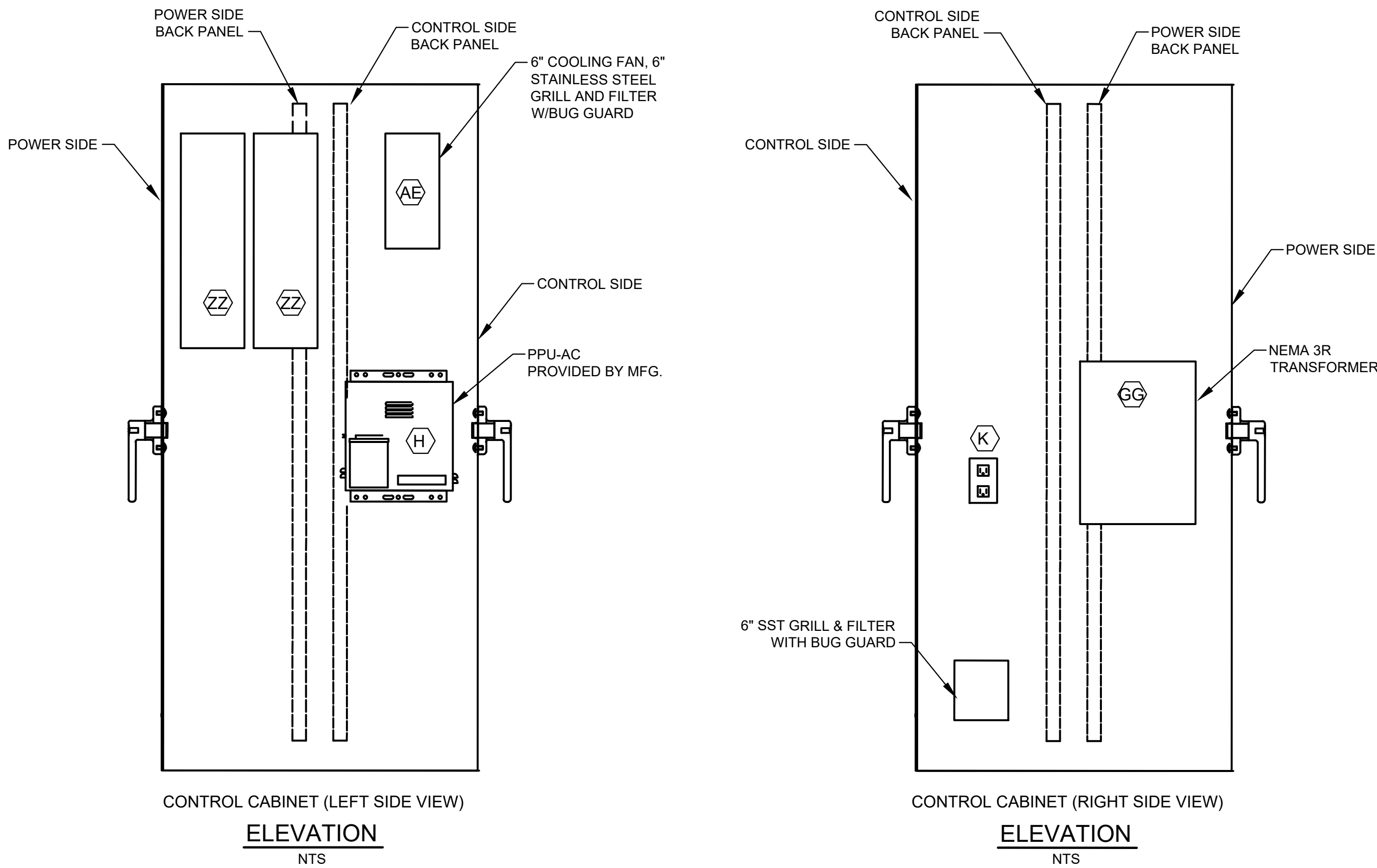


NAMEPLATE SCHEDULE

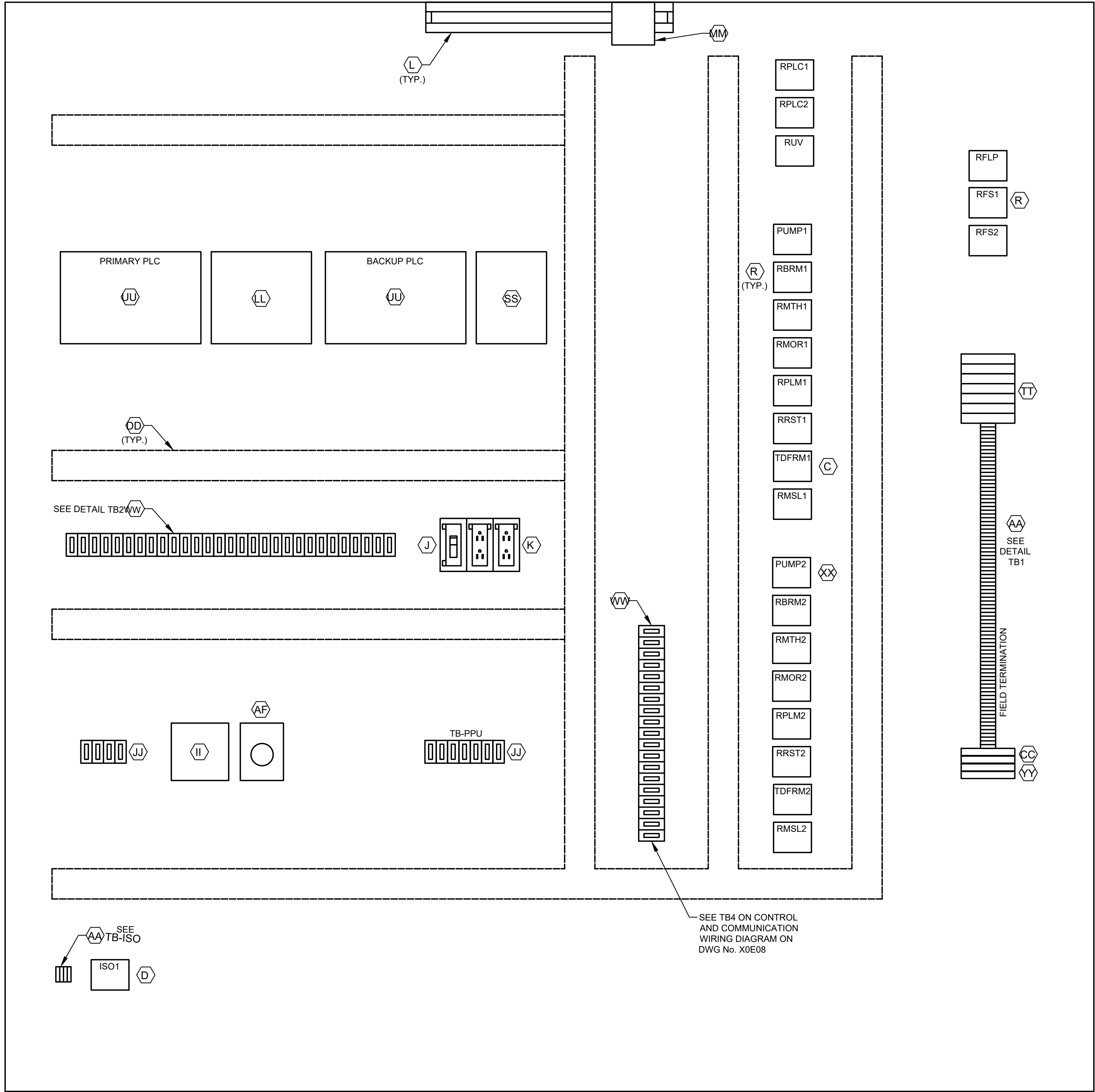
DESIGNATION	ENGRAVED	DESIGNATION	ENGRAVED
N1	PUMP STATION DESIGNATION	N8	NOT USED.
N2	PUMP NO. 1	N9	NOT USED.
N3	PUMP NO. 2	N10	PROGRAMMING SCREEN
N4	NOT USED.	N11	NOT USED.
N5	NOT USED.	N12	PRIMARY PLC
N6	NOT USED.	N13	BACKUP PLC
N7	NOT USED.	N14	MOTOR DATA
			HORSEPOWER (OUTPUT)
			RPM AT FULL LOAD
			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)-
			EXTERNAL OVERLOAD RESET PUSH BUTTON MECHANISM
		N15	MAIN BREAKER
		N16	

NOTES:

- SEE SHEET AD-E6 FOR EQUIPMENT SCHEDULE.
- REFER TO NEC SECTIONS 110.16 & 110.21



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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 201 OF 291		



CONTROL PANEL
ELEVATION

L1A
L1N
SPARE
3
3N
SPARE
49
50
51
52
53
54
1004
1
24V-
24V-
1002
2
11
1001
1001A
12
1003
1003A
1002
1004
18
3N
19
20
36
36N
41
42
43
44
L1A
L1N
103
104
105
106
107
108
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116
119
SPARE
203
204
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219

DETAIL TB1

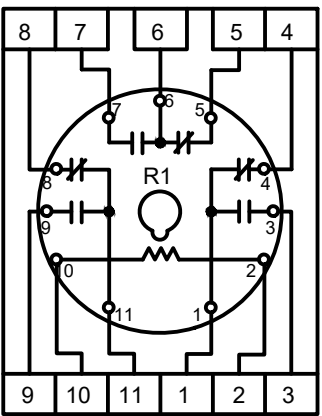
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M
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M
14B
14AB
14GB
L+
M
13
13A
13G
14
14A
14G
SPARE
18
SPARE
28
29
32
35B
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SPARE
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DETAIL TB2

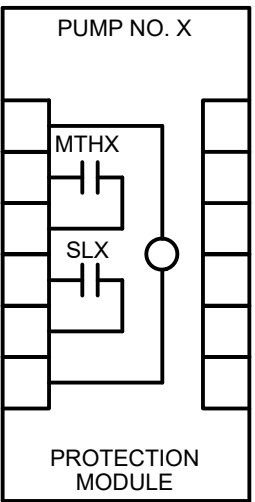
1500
1501
1503
1504

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
RFLP	FLOAT LOCKOUT PUMP RELAY



RELAY DETAIL
ITEM C



PUMP PROTECTION MODULE
DETAIL, ITEM XX

NOTE: REPLACE "X" WITH
APPROPRIATE PUMP NO.

ALL L AND N FOR
EACH PUMP
CONTROL TO BE
FUSED

NOTES:

1. SEE SHEET AD-E6 FOR EQUIPMENT SCHEDULE.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481
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AUTHORITY
OF: JAMES E. THOMPSON, JR.,
TEXAS P.E. #70302
DATE: 12/10/2025
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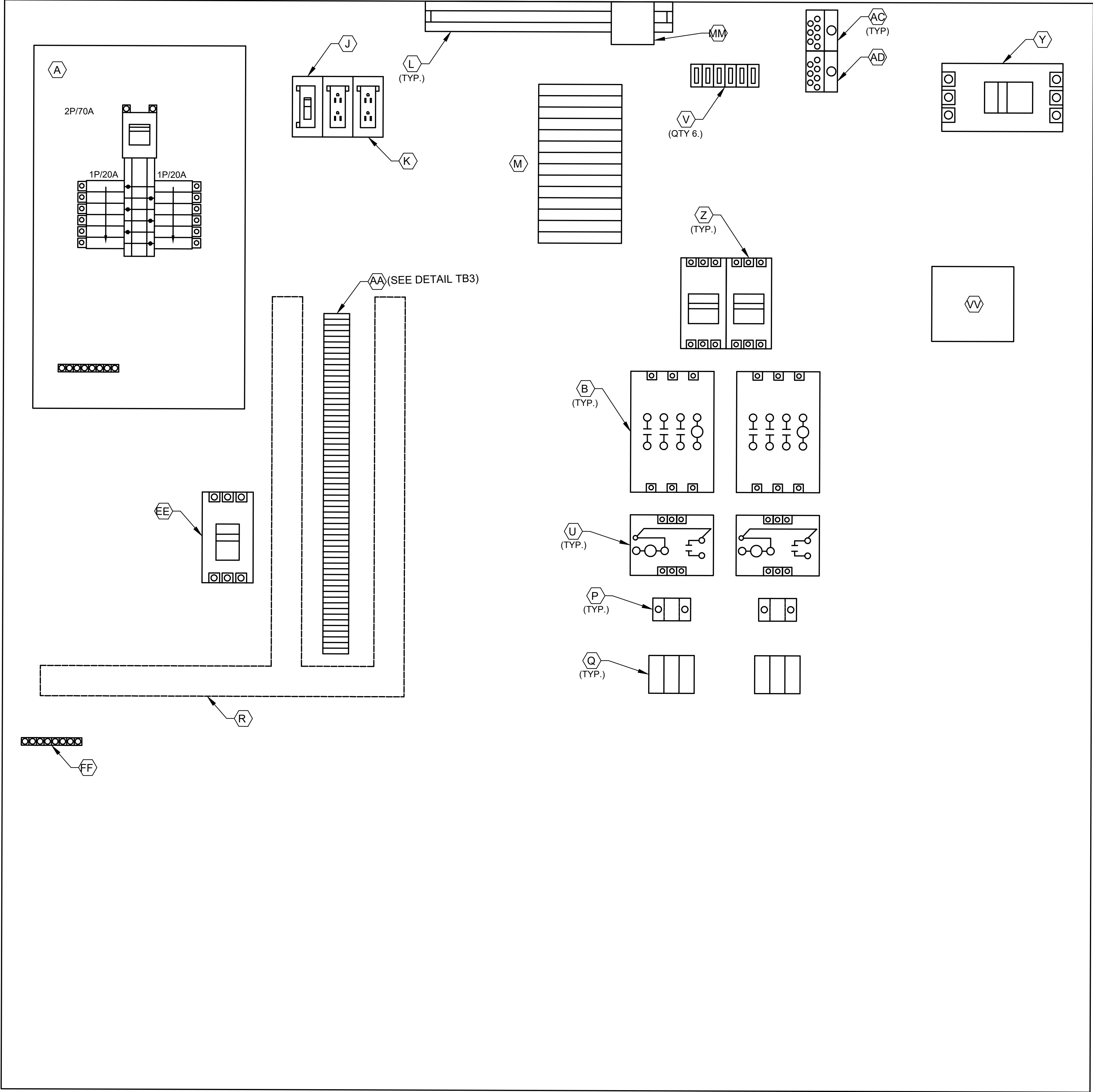
SURVEYED BY: KUO ASSOC
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

**ALDER LIFT STATION 2 PUMP
OUTDOOR CONTROL CABINET
EQUIPMENT LAYOUT II**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.202OF 291	



POWER PANEL
ELEVATION

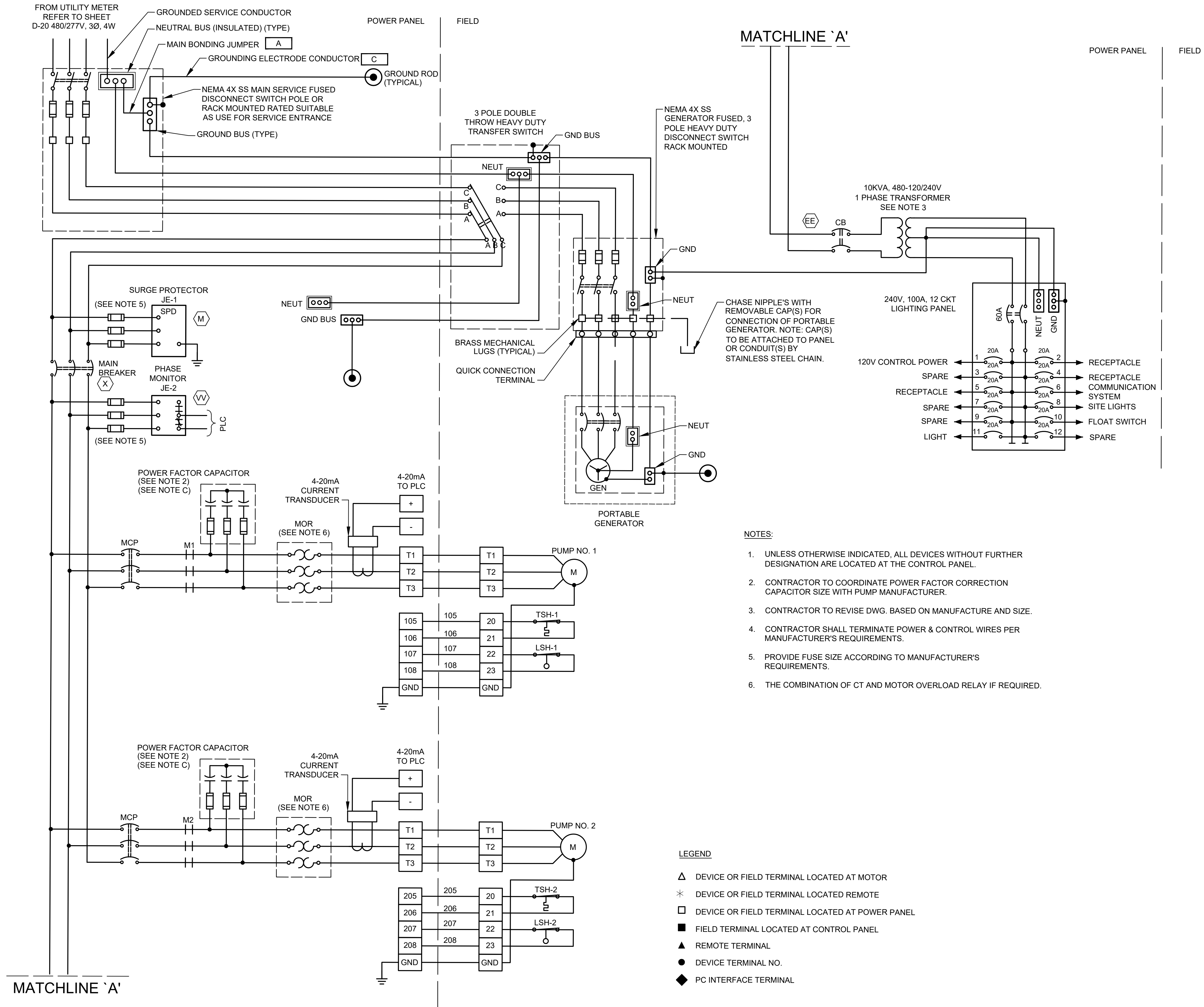
NOTES:

1. SEE SHEET AD-E6 FOR EQUIPMENT SCHEDULE.

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

DETAIL TB3

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc.		LJA
3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
	Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT III		
WBS NUMBER		FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 203 OF 291		



LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 47063 T: 713-706-4412 F: 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

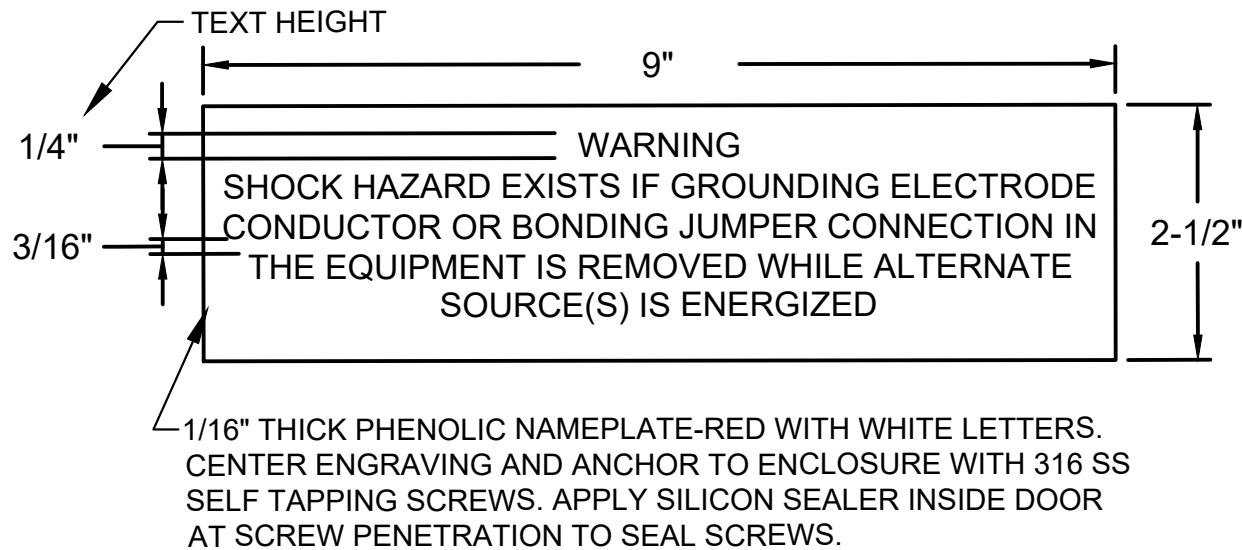
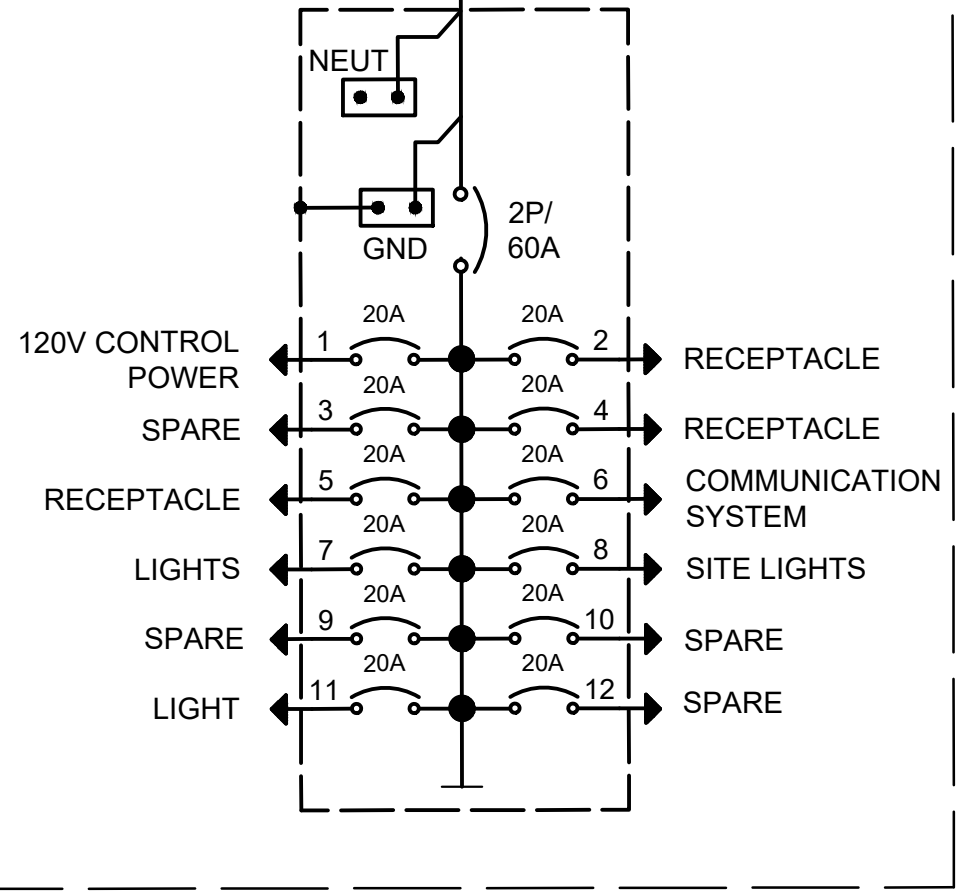
ALDER LIFT STATION 2 PUMP OUTDOOR INCOMING POWER THREE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.204 OF 291	

-
- 10KVA,
480-120/240V,
1 ϕ , NEMA 3R
TRANSFORMER,
WALL MOUNTED

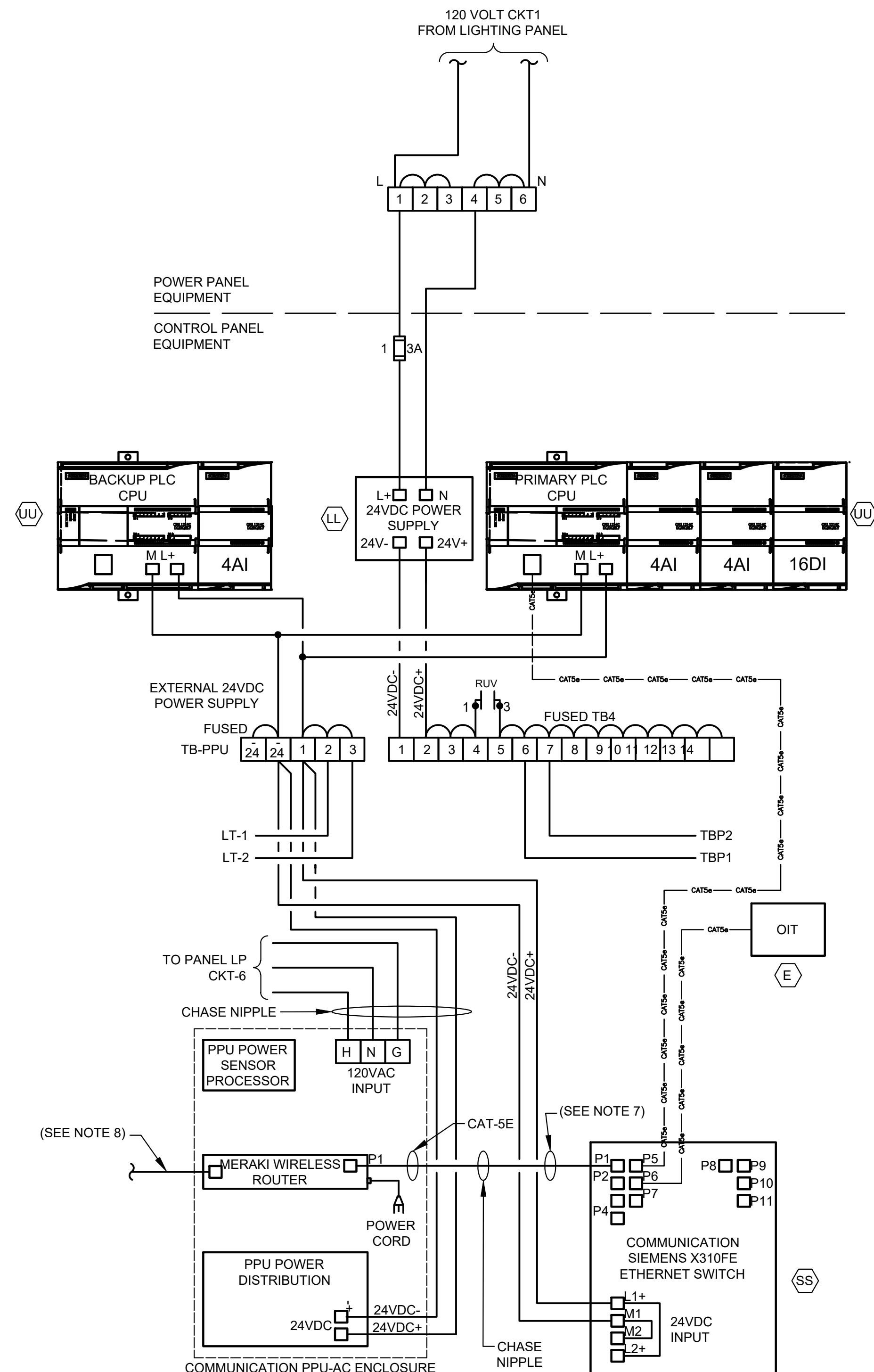
LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLA*
1	PUMP NO. 1	25HP	31.2A
2	PUMP NO. 2	25HP	31.2A
3	10 KVA TRANSFORMER		20.8A
SUBTOTAL			85.2A
25% OF LARGEST MOTOR LOAD		25HP	7.8A
MINIMUM AMPACITY @480V,3ø			93.0A

* BASED ON SELECTED PUMP MFG DATA - CONTRACTOR TO FIELD VERIFY



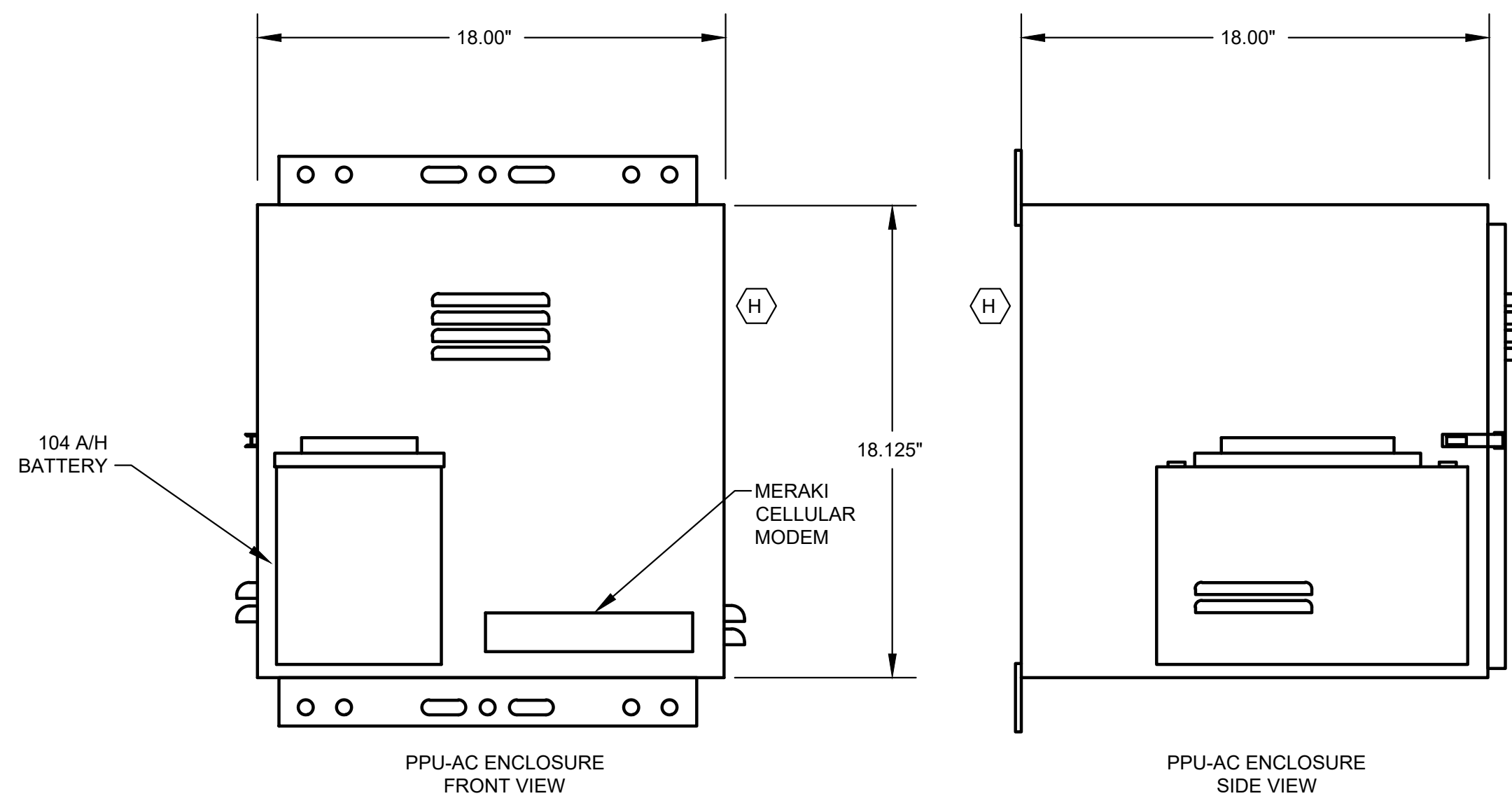
ELECTRICAL WARNING NAMEPLATE N-EW ENGRAVING

ISSUE	DATE	DESCRIPTION
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 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.205 OF 291		



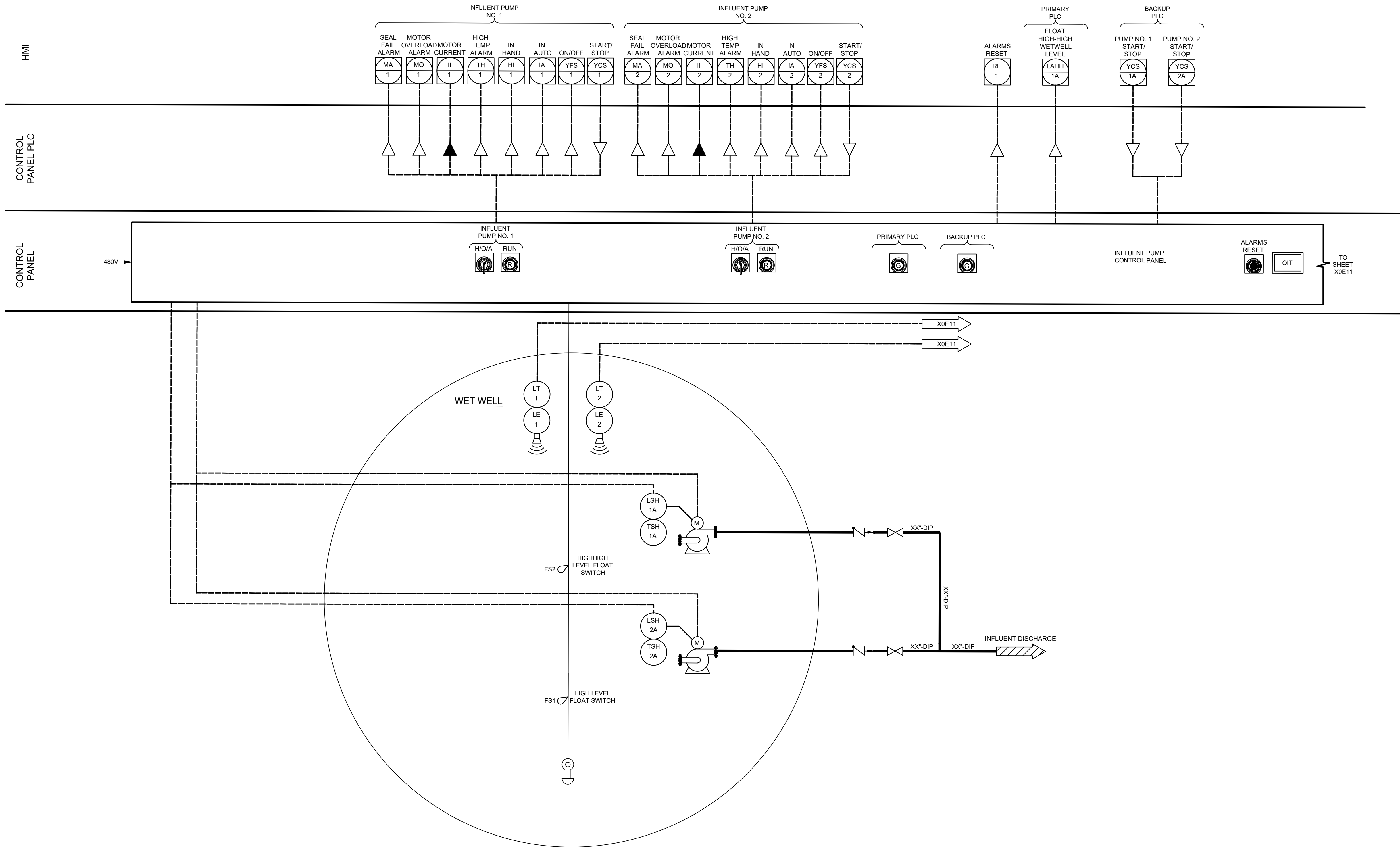
CONTROL POWER &
COMMUNICATIONS WIRING
DIAGRAM
NTS
(SEE NOTE 8)

- NOTES:**
1. FOR DESCRIPTION AND RATINGS OF ITEMS INDICATED WITH ITEM OR ROMAN NUMERAL TAG, SEE DEVICE RATINGS SCHEDULE SHEET AD-E21.
 2. REFER TO SPECIFICATION SECTION 16120 LOW-VOLTAGE WIRES AND CABLES FOR CONDUCTOR COLOR CODE.
 3. THE PLC POWER SUPPLY SHALL FEED THE 24VDC I/O.
 4. NOT USED.
 5. NOT USED.
 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.
 9. COORDINATE WITH VENDOR TO PROVIDE PROPER VENTILATION WHERE APPLICABLE.



PPU-AC
CONTROL ENCLOSURE
ELEVATION
NTS
(SEE NOTE 9)

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION 2 PUMP OUTDOOR COMMUNICATION DIAGRAM		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 206 OF 291		



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
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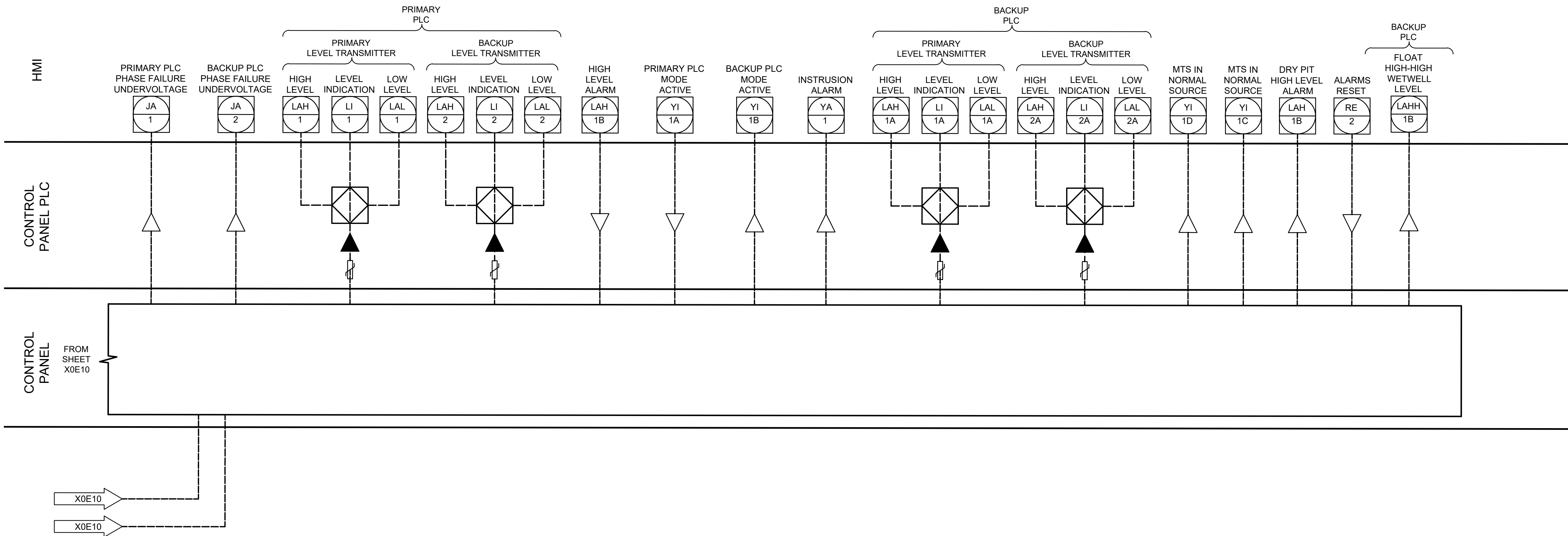
**Engineers, PC**
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T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

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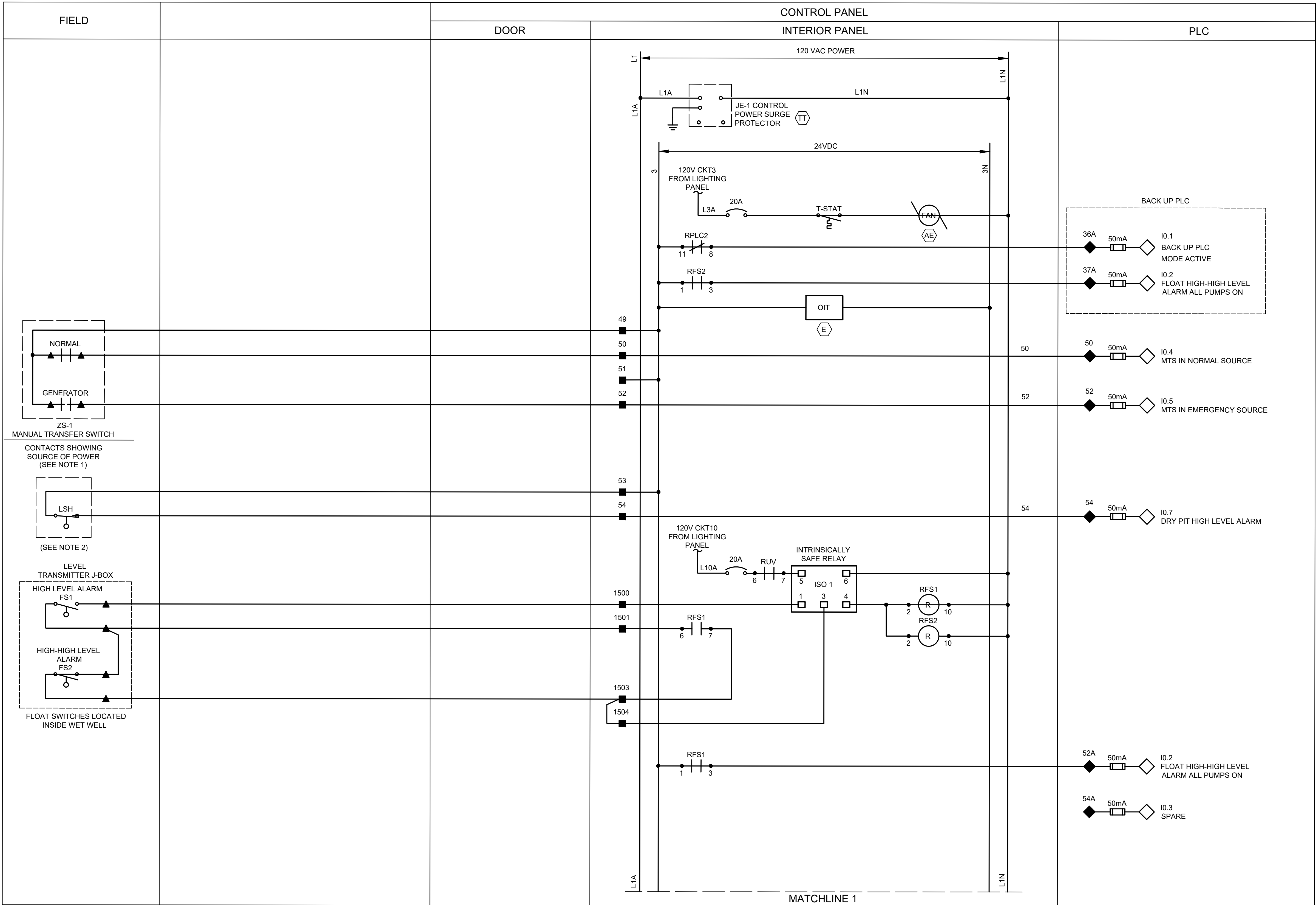
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FB NO. P-6409

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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
ALDER LIFT STATION 2 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM I	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.207 OF 291	



ISSUE	DATE	DESCRIPTION
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FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302		DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION 2 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM II		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.208OF 291		



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
NOTE: EACH PUMP CONTROL CIRCUIT SHALL BE INDIVIDUALLY FUSED, (24 VAC, 120 VAC)

NOTES:

1. PROVIDE MANUAL TRANSFER SWITCH DRY CONTACT.
2. DRY/WET PIT APPLICATION ONLY.
3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

**Engineers, PC**
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Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

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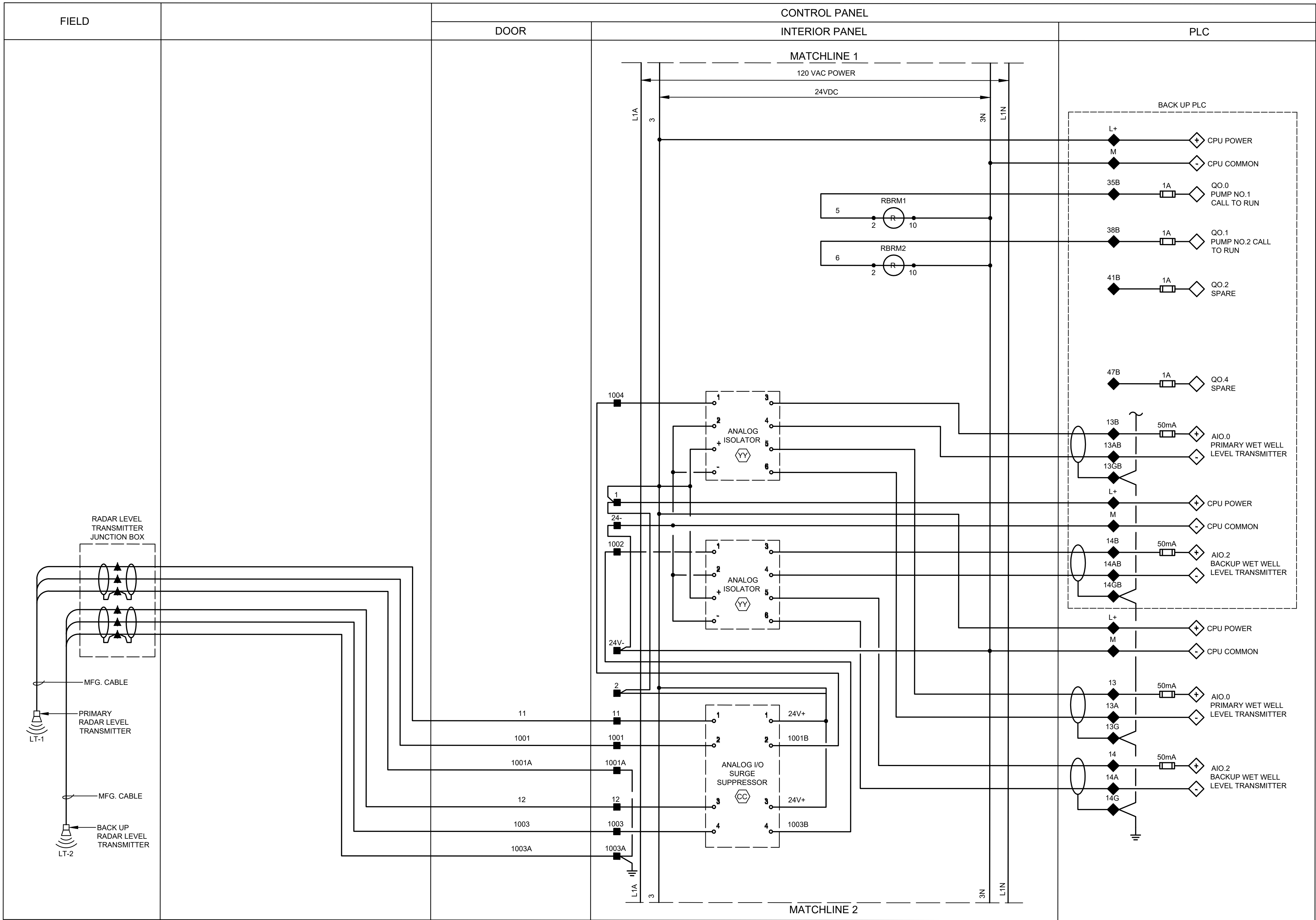
SURVEYED BY: KUO ASSOC	DATE: 12/10/2025
FB NO. P-6409	IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**ALDER LIFT STATION 2 PUMP
OUTDOOR CONTROL PANEL
CONTROL WIRING DIAGRAM I**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.209OF 291	



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3600 W. Sam Houston Parkway S.
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Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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

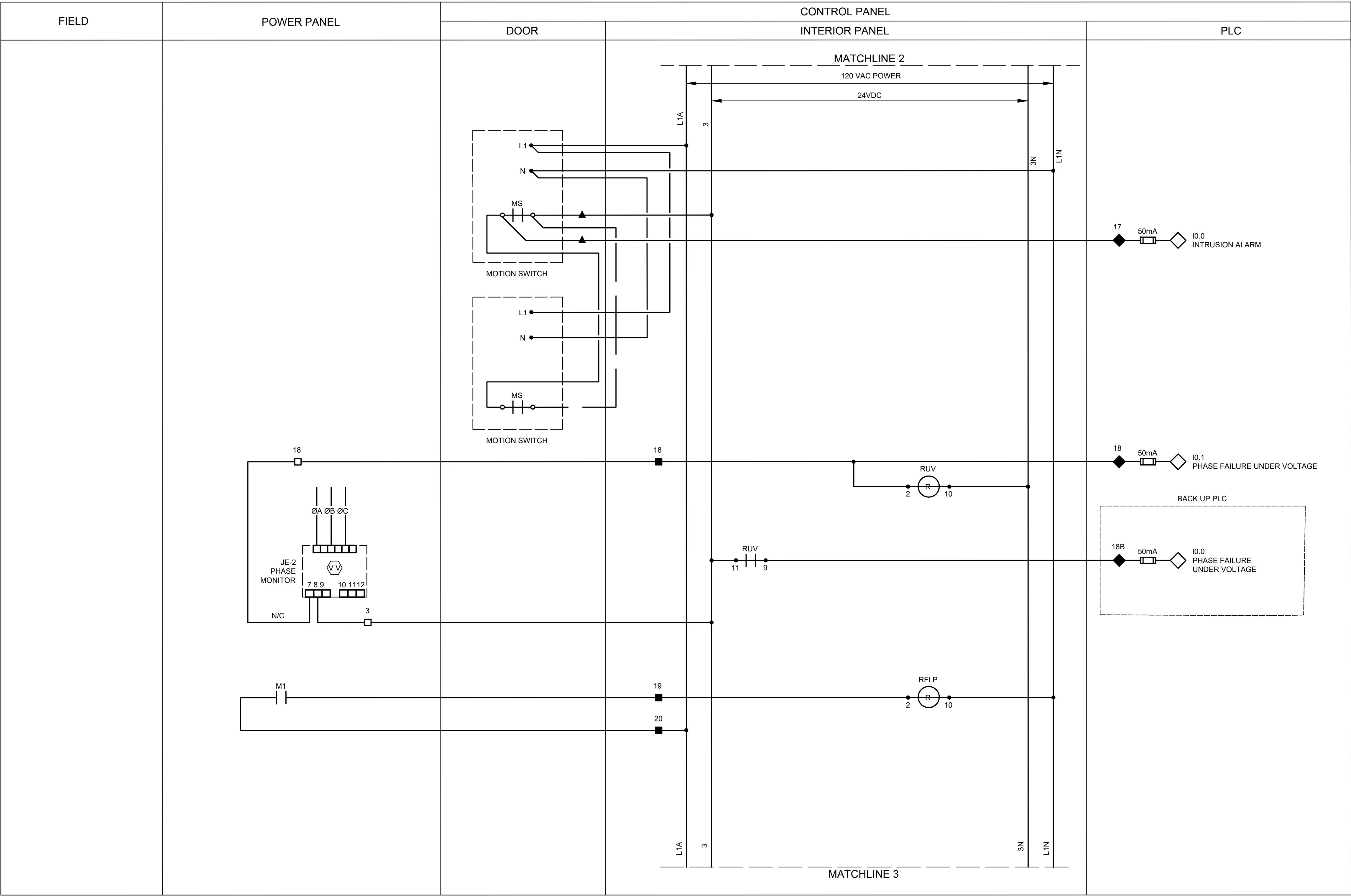
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SURVEYED BY: KUO ASSOC
FB NO. P-6409

DATE: 12/10/2025

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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM II	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.210OF 291	



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

NOTES:

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL.
2. EACH PUMP CONTROL CIRCUIT SHALL BE INDIVIDUALLY FUSED, (24 VAC, 120 VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

**Engineers, PC**
3300 S. Gessner Rd.
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T- 713-706-4412
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Tx Firm No. 13481

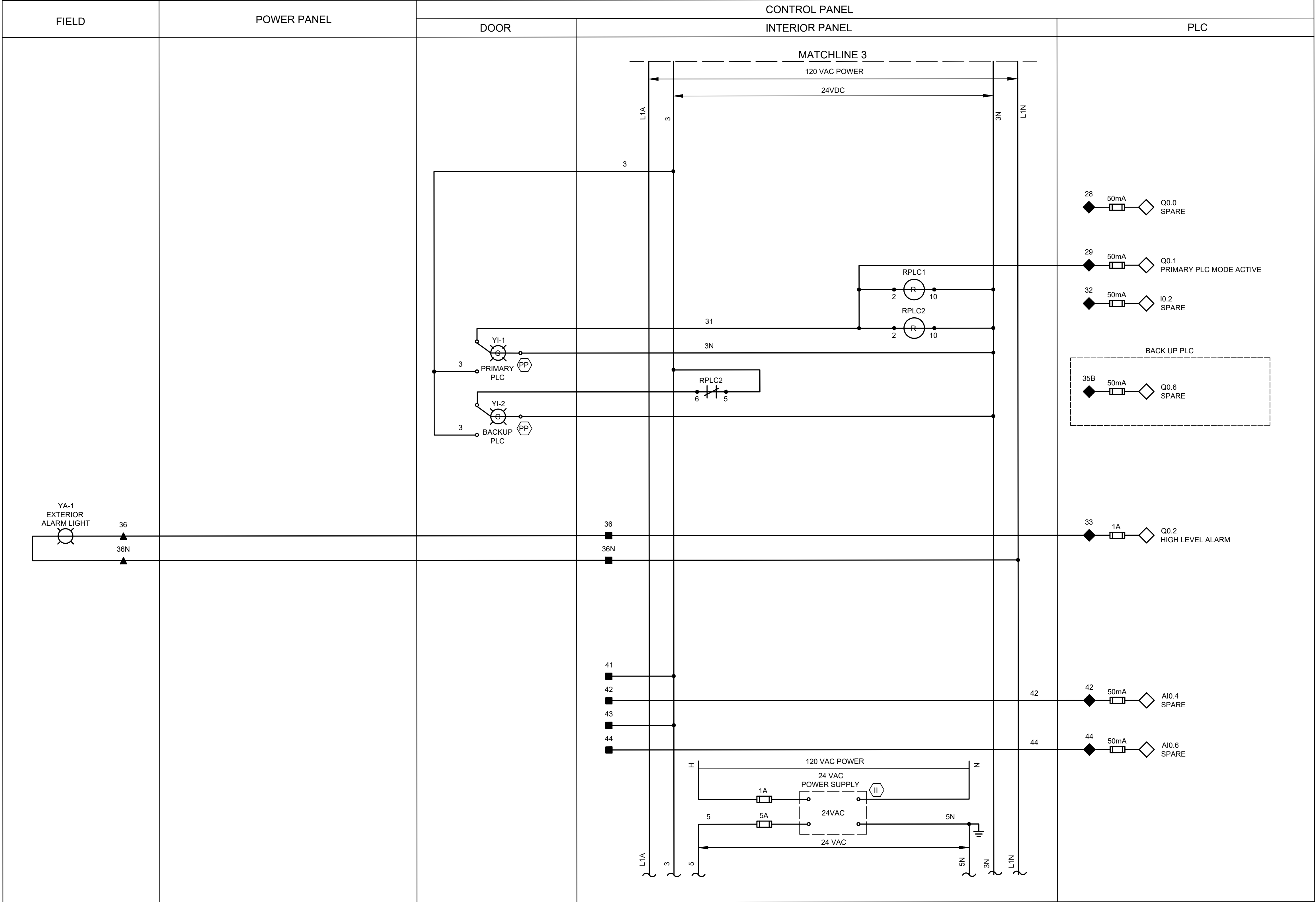
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SURVEYED BY: KUO ASSOC
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM III	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.211 OF 291	

PLOTTED: 7/1/2025 3:37 PM



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

EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

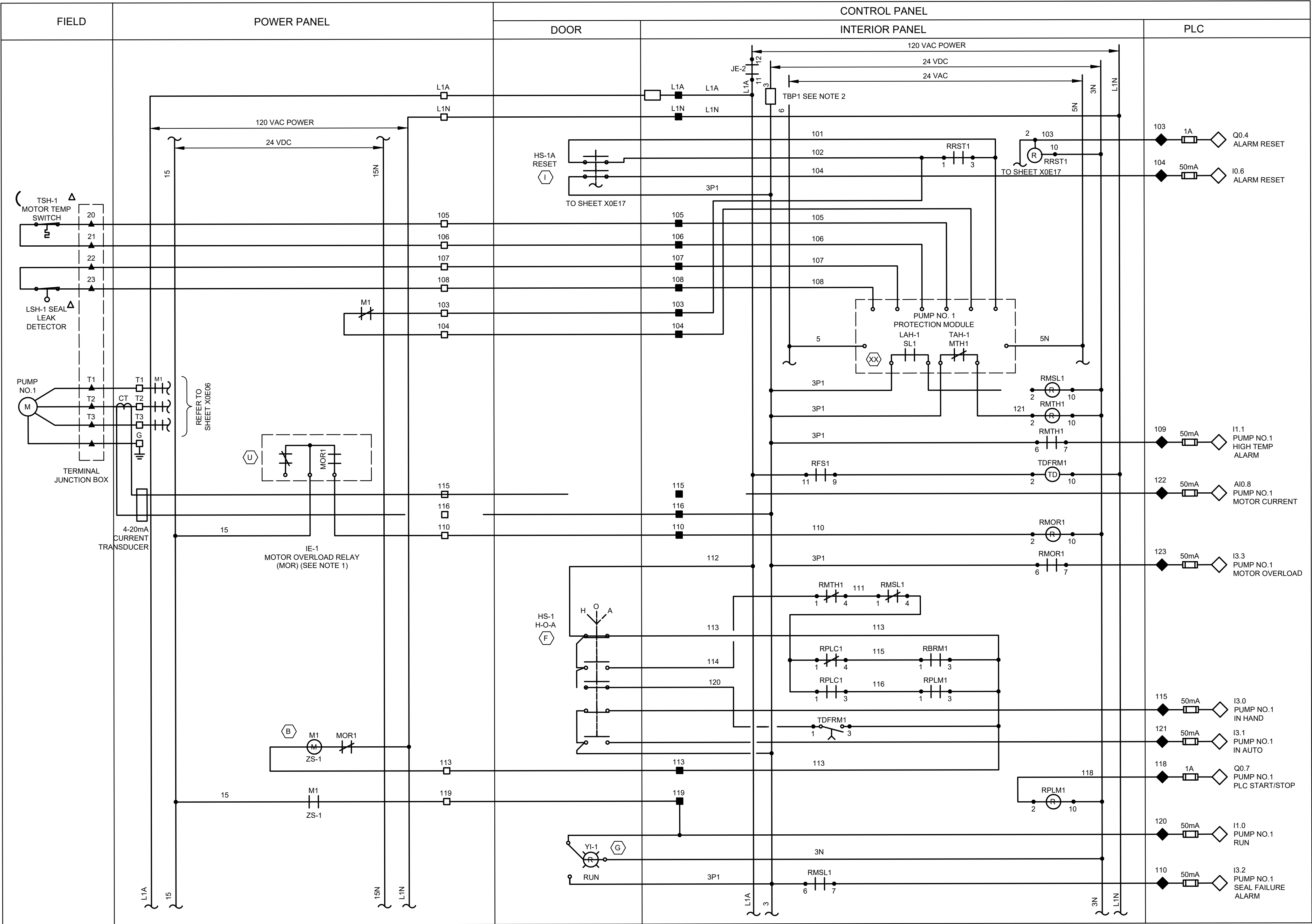
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Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

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OF: JAMES E. THOMPSON, JR.,
TEXAS P.E. #70302
DATE: 12/10/2025
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
ALDER LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM IV	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.212 OF 291	

PLOTTED: 7/1/2025 3:38 PM



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

NOTES:

- 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.
- FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. AD-E12.
- NOTE: EACH PUMP CONTROL CIRCUIT SHALL BE INDIVIDUALLY FUSED, (24 VAC, 120 VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
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Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

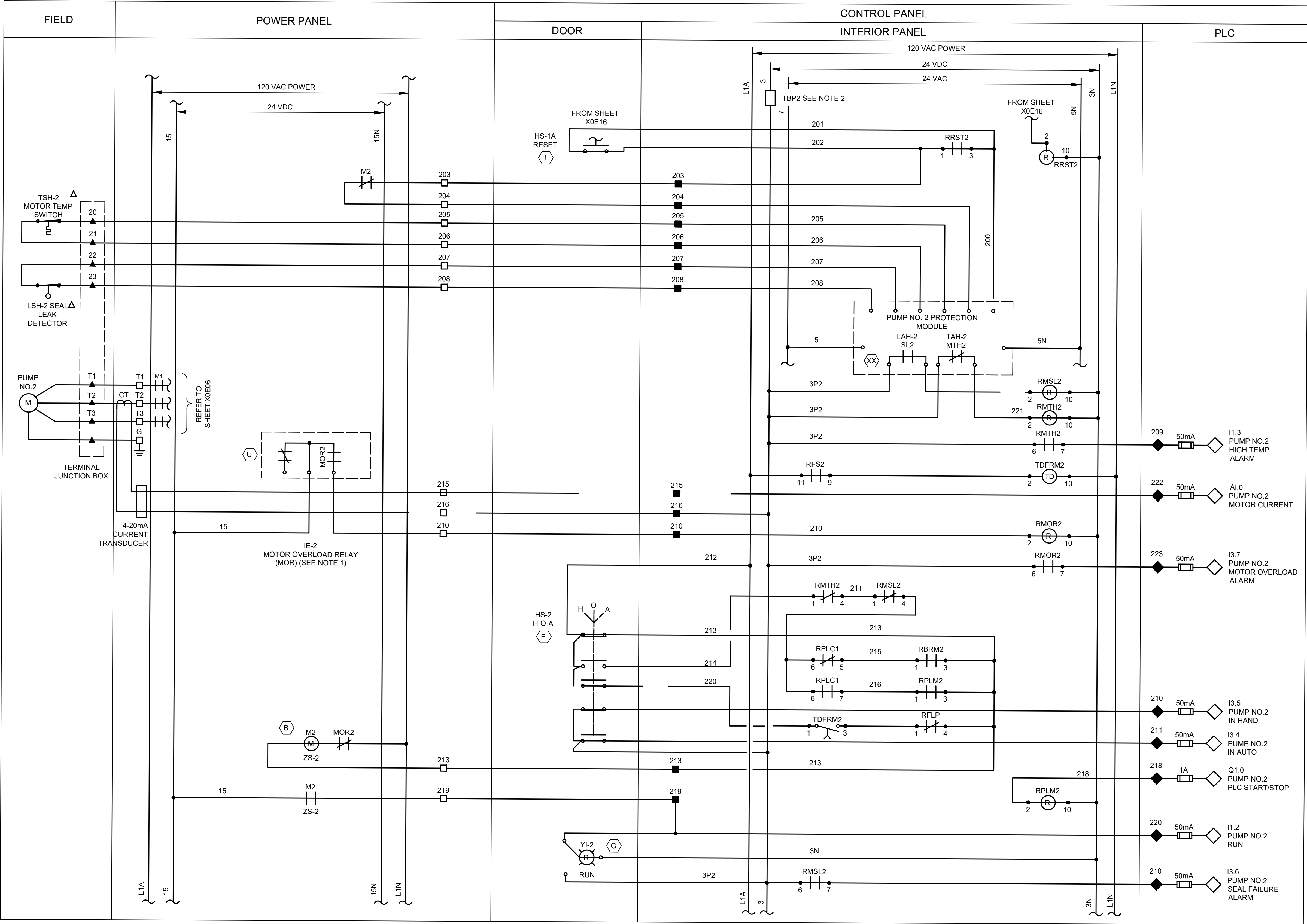
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**ALDER LIFT STATION
2 PUMP OUTDOOR PUMP 1
CONTROL WIRING DIAGRAM**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.213OF 291	



LEGEND:

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

NOTES:

- 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.
- FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. X0E08.
- ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW.
- EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**ALDER LIFT STATION
2 PUMP OUTDOOR PUMP 2
CONTROL WIRING DIAGRAM**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 214 OF 291	

			RATINGS FOR PUMP SIZES
ITEM	CIRCUIT	DESCRIPTION	2 @ 25HP
I	--	MAIN DISCONNECT SWITCH	
		OPERATING VOLTAGE	600V
		CURRENT RATING	200A
		CURRENT LIMITING	CLASS J
		FUSES TYPE & SIZE	150A
II	--	MOTOR CONTROL CENTER MAIN BUS - 3/C COPPER	
		OPERATING VOLTAGE	480V
		CURRENT RATING	200A
		NEUTRAL SIZE & TYPE	100A LUG
		BUS BRACING	42KA SYM
III	1	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	225A
		TRIP SETTING	150A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
IV	2 3	PUMP MOTOR STARTERS	
		QUANTITY	2
		MOUNTING	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	480V
		FRAME SIZE	70A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	65KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	480V
		SIZE	NEMA 2
		OVERLOAD PROTECTION	SOLID
		TYPE	STATE MOR
V	4	LIGHTING TRANSFORMER FEEDER BREAKER	
		NO. OF POLES	2
		TYPE	MOLDED CASE
		OPERATING VOLTAGE	480V
		FRAME SIZE	150A
		TRIP SETTING	30A
		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	CLASS J
		FUSES TYPE & SIZE	150A

NOTES:

- WHERE GENERATOR SERVICE IS ANTICIPATED, PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
- PROVIDE TRIP SETTING BASED ON GENERATOR SIZE. BREAKERS TO BE SIZED AT MAXIMUM ALLOWBLE SIZE.
- STARTERS TO BE MOUNTED IN CONTROL CABINET ADJACENT TO PLC AND ASSOCIATED RELAY EQUIUPMENT.
- STARTERS TO BE NEMA RATED FOR FULL VOLTAGE STARTING.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
ALDER LIFT STATION 2 PUMP OUTDOOR DEVICE RATING SCHEDULE		
WBS NUMBER		FOR CITY OF HOUSTON USE ONLY
R-00Q267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.216 OF 291		

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\217 BOON LS EXIST- SURVEY.dwg May 07, 2026-1:27pm trowbridge



BH ID	SURVEY POINT NO.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION (FT)
BOONRIDGE LS						
BH-G8-6	42800	13782524.30	3094999.17	13780732.80	3094596.87	63.42

BENCHMARK:
CITY OF HOUSTON MONUMENT 5250-7106, A BRASS DISK IN CONCRETE, LOCATED ON THE NORTH SIDE OF EAST RIDGECREEK DR APPROXIMATELY 135 FEET WEST FROM THE INTERSECTION OF RIDGEROUE LN.
ELEV. 62.07 FEET NAVD 1988 (GEOID '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORRS DATED JULY 29, 2025.
I.B.M. #1:
SET "X" ON TOP OF C-INLET LOCATED AT WEST SIDE OF BOONRIDGE RD APPROX. 130 FT FROM THE INTERSECTION OF BRYANT RIDGE RD.
ELEV. 61.34 FEET
VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARKS (RM 010220) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOID '18) IS 0.34'.
NAVD 1988, 2001 ADJ. ELEVATION
= NAVD 1988 (GEOID '18) ELEVATION + 0.34 FT
HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.

ISSUE	DATE	DESCRIPTION
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LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY
OF: ANA K. TREJO
P.E.# 125772
DATE: 05/01/2026
IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

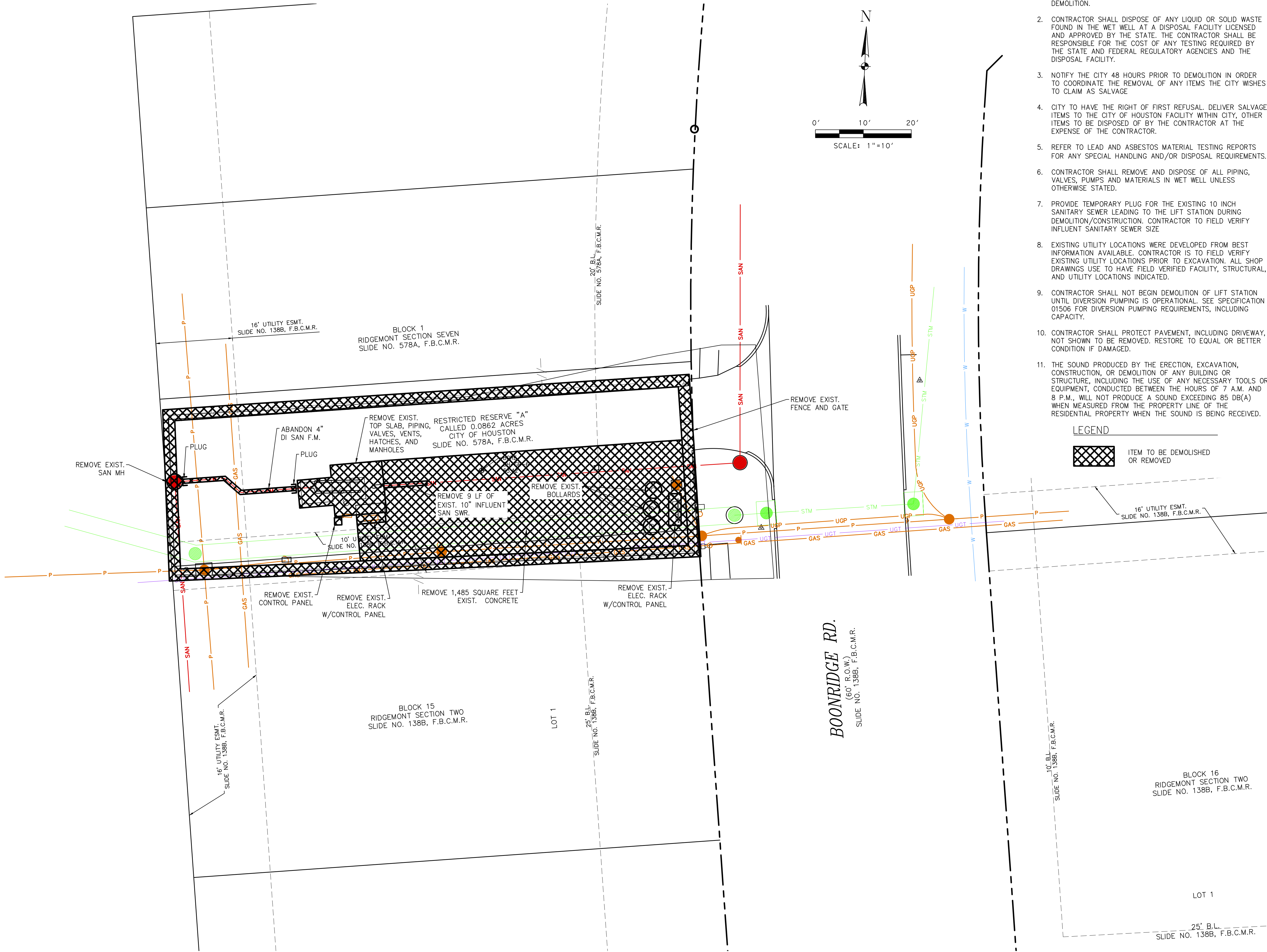
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION EXISTING SITE PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 217 OF 291	

BR-C1



- NOTES:
- SEE DRAWING BR-C4 FOR LIFT STATION PLAN AND PROFILE DEMOLITION.
 - CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES AND THE DISPOSAL FACILITY.
 - NOTIFY THE CITY 48 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE THE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE
 - CITY TO HAVE THE RIGHT OF FIRST REFUSAL. DELIVER SALVAGE ITEMS TO THE CITY OF HOUSTON FACILITY WITHIN CITY, OTHER ITEMS TO BE DISPOSED OF BY THE CONTRACTOR AT THE EXPENSE OF THE CONTRACTOR.
 - REFER TO LEAD AND ASBESTOS MATERIAL TESTING REPORTS FOR ANY SPECIAL HANDLING AND/OR DISPOSAL REQUIREMENTS.
 - CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PIPING, VALVES, PUMPS AND MATERIALS IN WET WELL UNLESS OTHERWISE STATED.
 - PROVIDE TEMPORARY PLUG FOR THE EXISTING 10 INCH SANITARY SEWER LEADING TO THE LIFT STATION DURING DEMOLITION/CONSTRUCTION. CONTRACTOR TO FIELD VERIFY INFLUENT SANITARY SEWER SIZE
 - EXISTING UTILITY LOCATIONS WERE DEVELOPED FROM BEST INFORMATION AVAILABLE. CONTRACTOR IS TO FIELD VERIFY EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. ALL SHOP DRAWINGS USE TO HAVE FIELD VERIFIED FACILITY, STRUCTURAL, AND UTILITY LOCATIONS INDICATED.
 - CONTRACTOR SHALL NOT BEGIN DEMOLITION OF LIFT STATION UNTIL DIVERSION PUMPING IS OPERATIONAL. SEE SPECIFICATION 01506 FOR DIVERSION PUMPING REQUIREMENTS, INCLUDING CAPACITY.
 - CONTRACTOR SHALL PROTECT PAVEMENT, INCLUDING DRIVEWAY, NOT SHOWN TO BE REMOVED. RESTORE TO EQUAL OR BETTER CONDITION IF DAMAGED.
 - THE SOUND PRODUCED BY THE ERECTION, EXCAVATION, CONSTRUCTION, OR DEMOLITION OF ANY BUILDING OR STRUCTURE, INCLUDING THE USE OF ANY NECESSARY TOOLS OR EQUIPMENT, CONDUCTED BETWEEN THE HOURS OF 7 A.M. AND 8 P.M., WILL NOT PRODUCE A SOUND EXCEEDING 85 DB(A) WHEN MEASURED FROM THE PROPERTY LINE OF THE RESIDENTIAL PROPERTY WHEN THE SOUND IS BEING RECEIVED.

LEGEND

 ITEM TO BE DEMOLISHED OR REMOVED

BENCHMARK:
CITY OF HOUSTON MONUMENT 5250-7106, A BRASS DISK IN CONCRETE, LOCATED ON THE NORTH SIDE OF EAST RIDGECREEK DR APPROXIMATELY 135 FEET WEST FROM THE INTERSECTION OF RIDGEROE LN.
ELEV. 62.07 FEET NAVD 1988 (GEOD '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 29, 2025.
I.B.M. #1:
SET "X" ON TOP OF C-INLET LOCATED AT WEST SIDE OF BOONRIDGE RD APPROX. 130 FT FROM THE INTERSECTION OF BRYANT RIDGE RD.
ELEV. 61.34 FEET
VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARKS (RM 010220) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOD '18) IS 0.34'.
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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.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**BOONRIDGE LIFT STATION
SITE DEMOLITION PLAN**

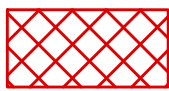
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 218 OF 291	



NOTES

- 1. CONTRACTOR TO REFER TO SHEETS BR-C2 AND BR-C4 FOR DEMOLITION DETAILS
- 2. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS

LEGEND



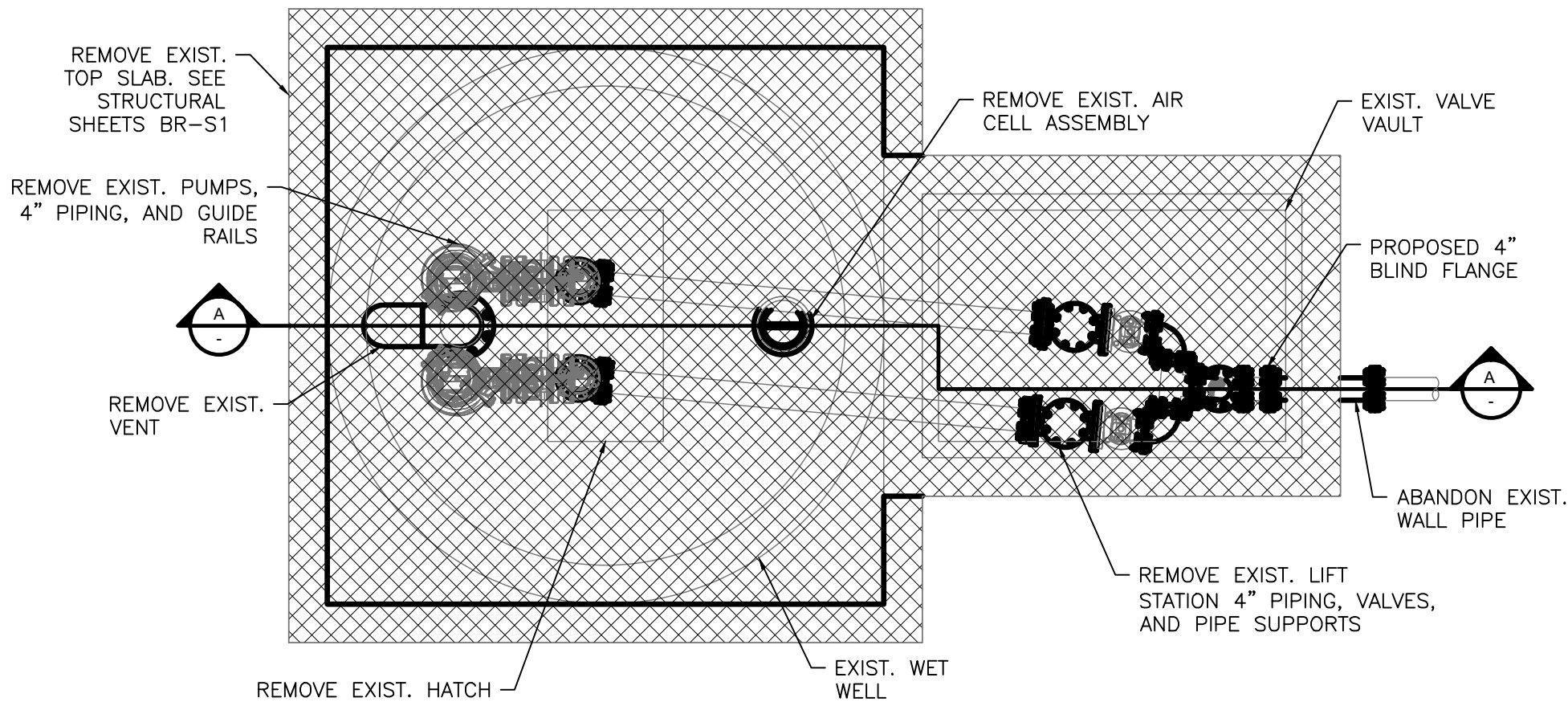
ITEM TO BE DEMOLISHED
OR REMOVED

BR-C3

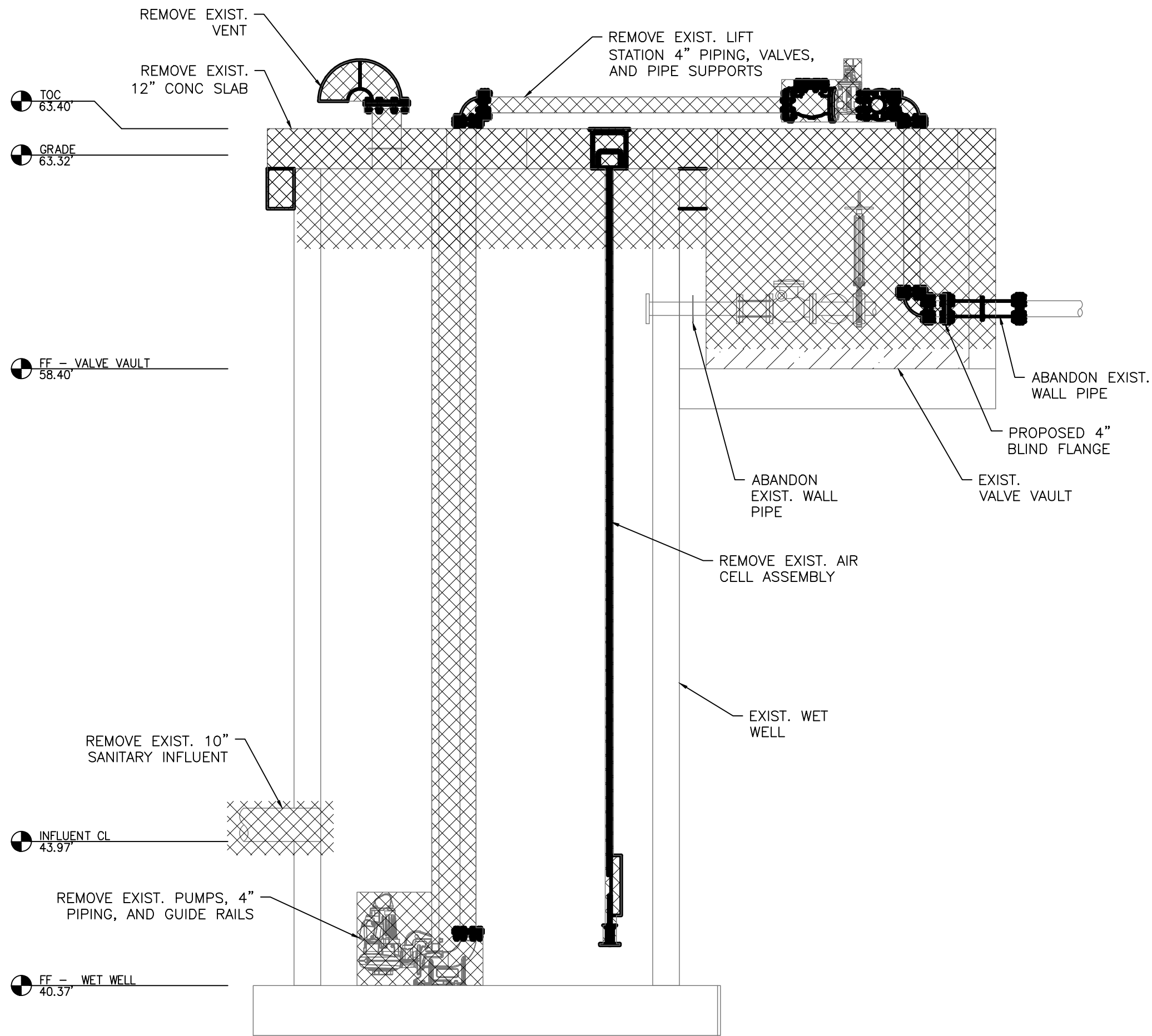
ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
BOONRIDGE LIFT STATION DEMOLITION PHOTOS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.219OF 291	



1 PLAN VIEW @ GRADE
3/8" = 1'=0"



2 SECTION A
3/8" = 1'=0"

LEGEND



NOTES:

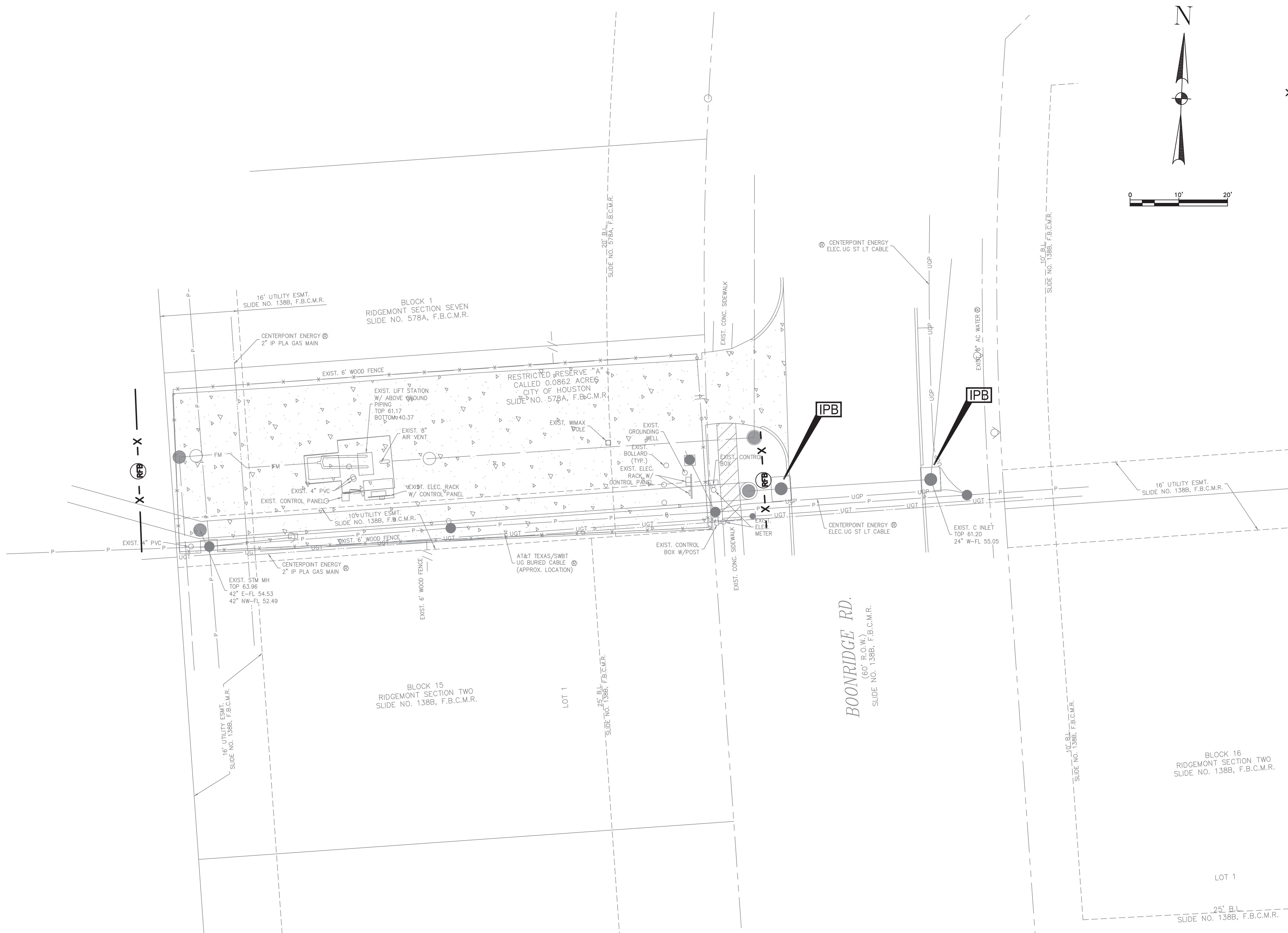
- THIS DRAWING IS A REPRODUCTION OF THE EXISTING LIFT STATION CONSTRUCTION DRAWINGS AND INTENDED TO PROVIDE GENERAL INFORMATION FOR STATION DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL WORK REQUIRED FOR DEMOLITION AND REMOVAL OF STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS.
- THE CITY OF HOUSTON HAS THE FIRST RIGHT OF REFUSAL OF ANY EQUIPMENT OR MATERIAL REMOVED. CONTACT FARID SADEGHIAN, P.E. AT 832-395-4985 AT LEAST 72 HOURS PRIOR TO DEMOLITION IN ORDER TO COORDINATE REMOVAL OF ANY ITEMS THE CITY WISHES TO CLAIM AS SALVAGE. THE CONTRACTOR SHALL DELIVER ALL SALVAGED ITEMS TO A LOCATION, WITHIN THE CITY, DETERMINED BY THE CITY. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL OTHER EQUIPMENT AND MATERIAL NOT IDENTIFIED FOR SALVAGE.
- WHEN REMOVING EXISTING PUMPS, CONTRACTOR SHALL LEAVE AS MUCH WIRE/CABLE AS POSSIBLE IN ORDER FOR THE CITY TO REUSE THE PUMPS.
- CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF HEALTH (DEPARTMENT) ON A FORM SPECIFIED BY THE DEPARTMENT OF ANY ASBESTOS ABATEMENT ACTIVITY, RENOVATION, OR OPERATIONS AND MAINTENANCE ACTIVITY AFFECTING ASBESTOS-CONTAINING BUILDING MATERIALS, OR ANY DEMOLITION IN FACILITIES OR PUBLIC BUILDINGS.
- CONTRACTOR SHALL SUBMIT PROOF OF SUBMISSION OR REQUIRED ASBESTOS/DEMOLITION NOTIFICATION FORM TO THE TEXAS DEPARTMENT OF STATE HEALTH SERVICES TO COH CONSTRUCTION PM. THE NOTIFICATION TO THE STATE MUST BE PROVIDED A MINIMUM OF TEN DAYS PRIOR TO THE STARTUP OF ANY DEMOLITION ACTIVITIES AT THE SITE.
- ALL REMAINING WALL OPENINGS IN THE VALVE VAULT SHALL BE SEALED WITH NON-SHRINK GROUT.
- CONTRACTOR SHALL BACKFILL THE ABANDONED AND DEMOLISHED VALVE VAULT. BACKFILL SHALL BE FLOWABLE FILL AND COMPACTED PROPERLY UP TO THE PROPOSED CONCRETE DISCHARGE ASSEMBLY PAD.
- THE CONTRACTOR SHALL COORDINATE WITH CENTERPOINT ENERGY TO DISCONNECT ELECTRICAL POWER AS NEEDED.
- THE EXISTING WET WELL SHALL BE CLEANED OF ALL DEBRIS, WASTEWATER, AND OTHER RESIDUES.
- THE CONTRACTOR SHALL DISPOSE OF ANY LIQUID OR SOLID WASTE FOUND IN THE WET WELL AT A DISPOSAL FACILITY LICENSED AND APPROVED BY THE STATE OF TEXAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF TRANSPORTATION, DISPOSAL, AND TESTING REQUIRED BY THE STATE AND FEDERAL REGULATORY AGENCIES, AND BY THE DISPOSAL FACILITY.
- PRIOR TO THE CLEANOUT AND CLEANING OF THE EXISTING LIFT STATION WET WELL, CONTRACTOR TO SUBMIT PROOF TO COH CONSTRUCTION PM THAT TRANSPORTER/HAULER TO BE USED FOR THE TRANSPORT OF THE CONTENTS OF THE WET WELL (I.E., SOLIDS, GRIT, SEWAGE SLUDGE, AND DOMESTIC SLUDGE, ETC.) IS REGISTERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AS A SLUDGE TRANSPORTER AND THE TRANSPORTER'S REGISTRATION IS CURRENT AND VALID DURING THE PERIOD OF PERFORMANCE.
- CONTRACTOR SHALL OBTAIN CITY OF HOUSTON DEMOLITION PERMIT (SEE FORM CE 1075 REV. 01/01/2015 FOR GUIDELINES) OR SUBMIT PROOF OF NON-APPLICABILITY TO COH CONSTRUCTION PROJECT MANAGER PRIOR TO THE STARTUP OF DEMOLITION ACTIVITIES AT THE SITE. THE CONTRACTOR SHALL OBTAIN ANY STATE DEMOLITION PERMITS REQUIRED.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Phone 713.953.5200 Suite 600 Fax 713.953.5026 Houston, Texas 77042 FRN - F-1386		
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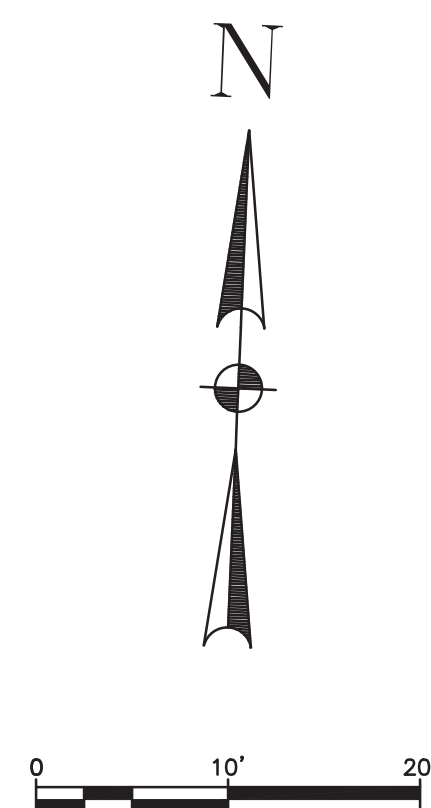
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
BOONRIDGE LIFT STATION PLAN AND PROFILES DEMOLITION PLAN	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.220OF 291	



LEGEND:

	INLET PROTECTION BARRIER
	REINFORCED FILTER FABRIC BARRIER
	EXIST STORM INLET
	EXIST STORM C-INLET



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

 **AMANI
ENGINEERING, INC.**

11011 RICHMOND AVE., SUITE 700
HOUSTON, TEXAS 77042
TEL: (713) 270-5700

Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-

PRELIMINARY

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THESE DOCUMENTS ARE FOR INTERIM
REVIEW AND NOT INTENDED FOR
REGULATORY APPROVAL, PERMIT, BIDDING
OR CONSTRUCTION PURPOSES. THEY
WERE PREPARED BY OR UNDER THE
SUPERVISION OF:

MAHESH DUTTA 114252
NAME P.E. NO.
DATE 4/2/2026
TRIPLE S FIRM #E-4528

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

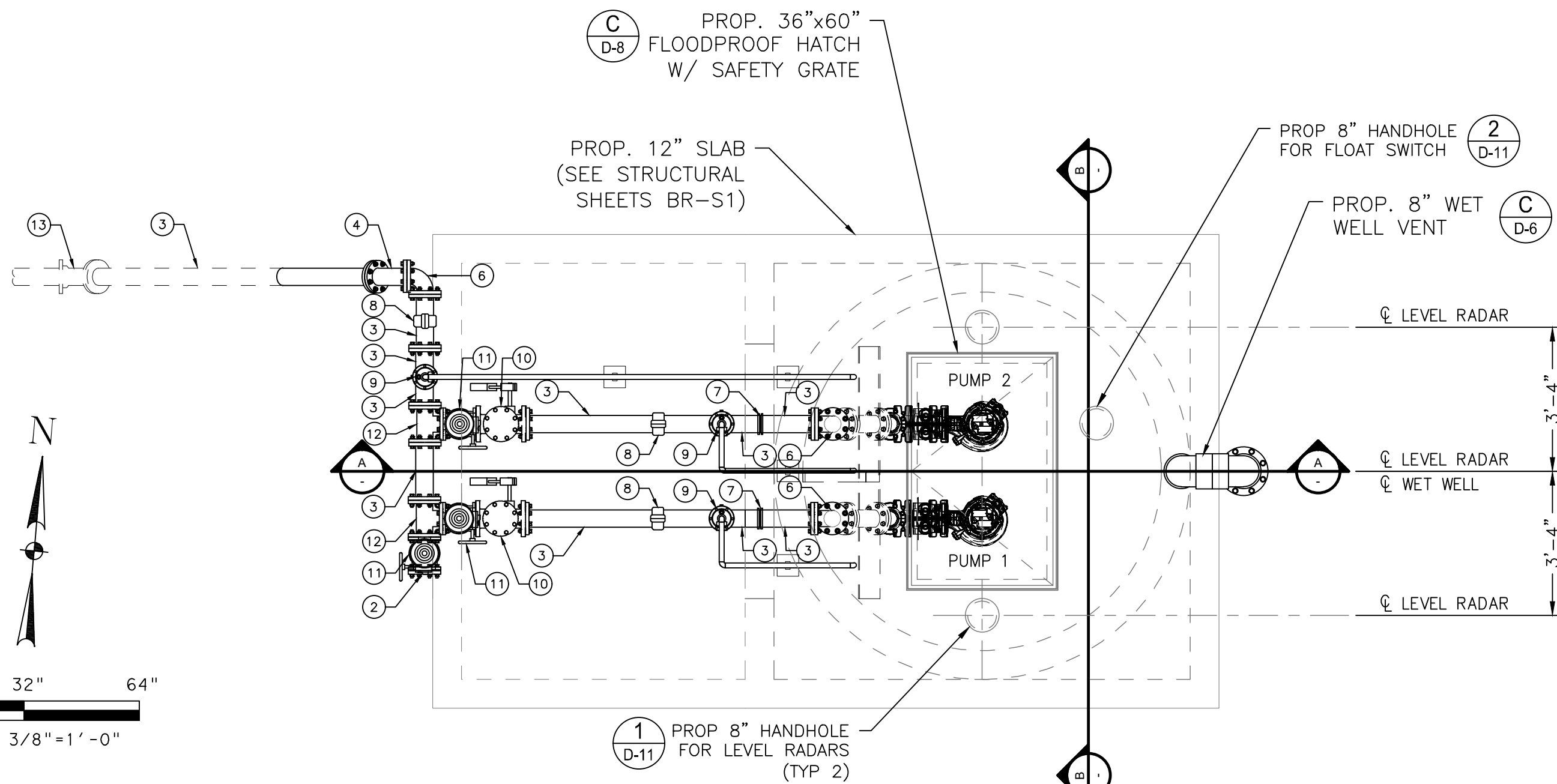
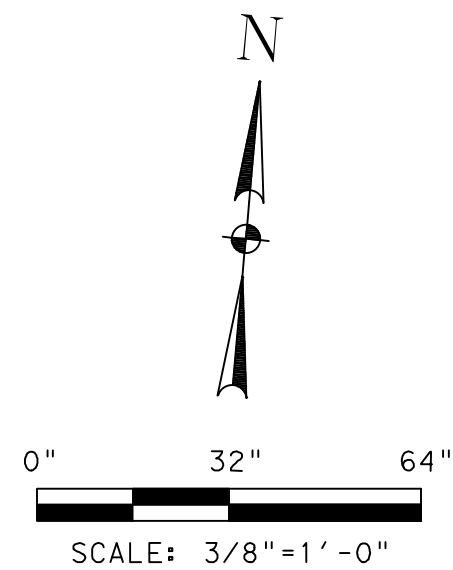
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION STORM WATER POLLUTION PREVENTION PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 221 OF 291	

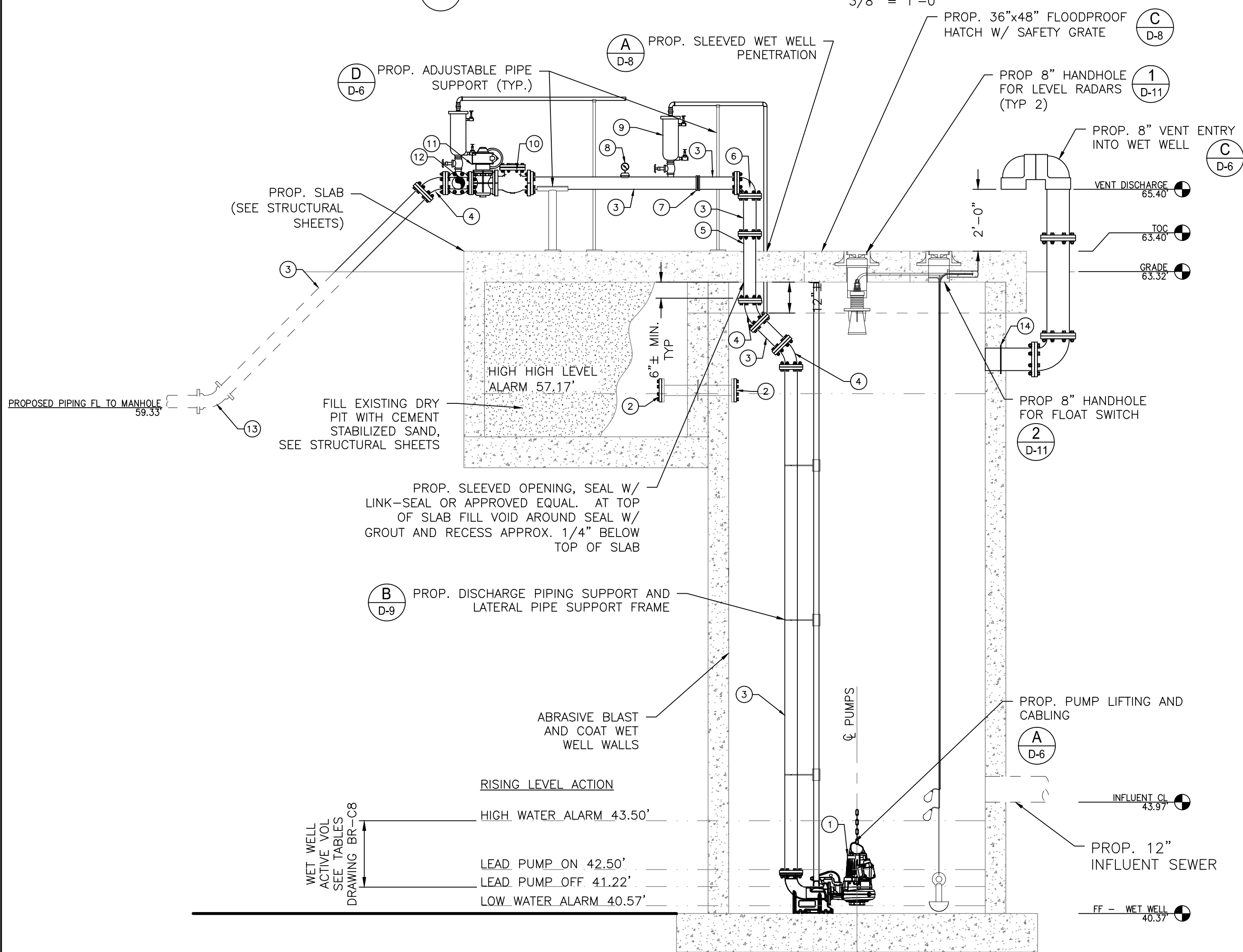
BR-C5

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2/2025 2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\223 BOON LS PROP PLAN.dwg May 07, 2025-2:07pm trowbridge



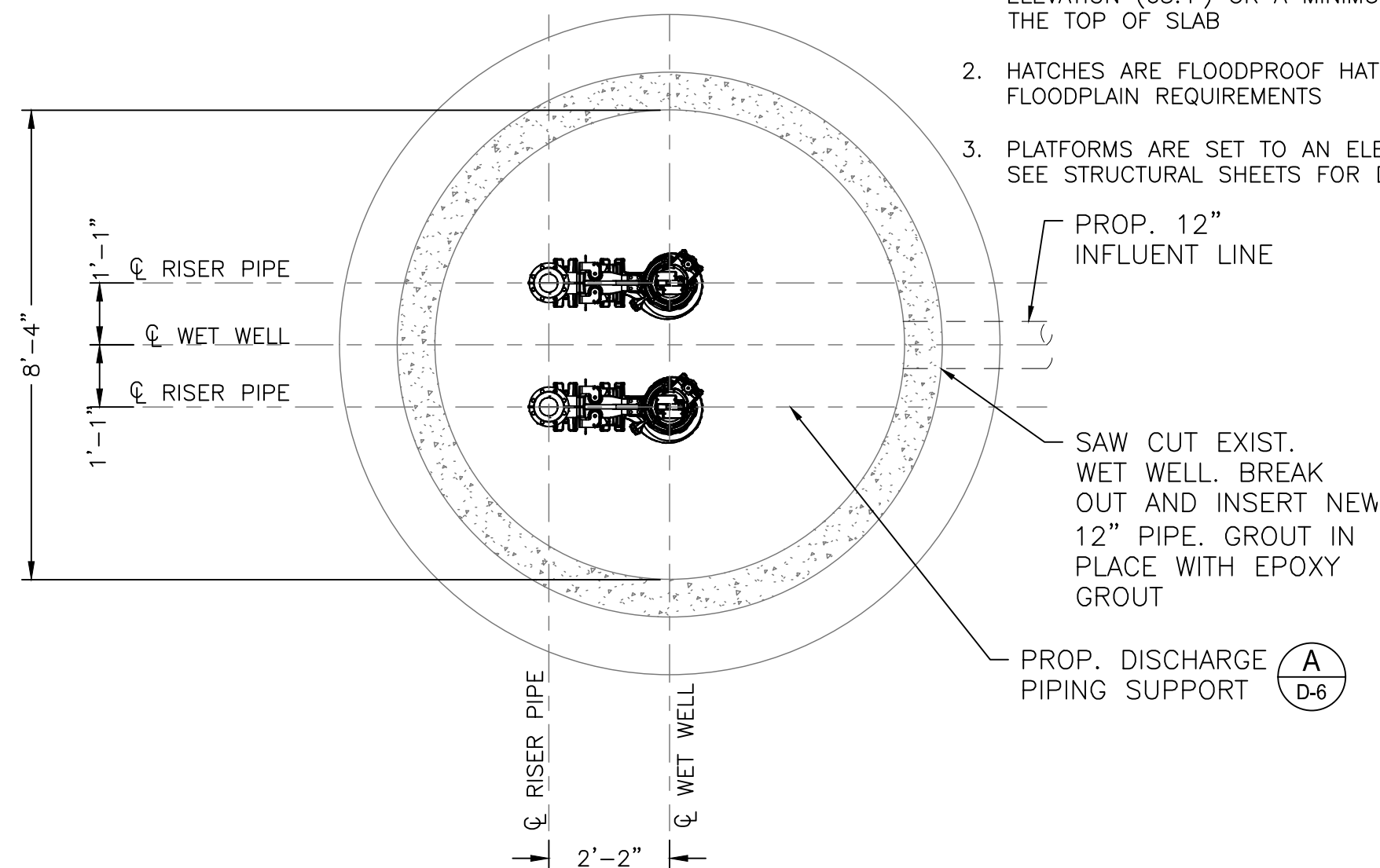
1 PLAN VIEW @ GRADE - PROPOSED

3/8" = 1'-0"



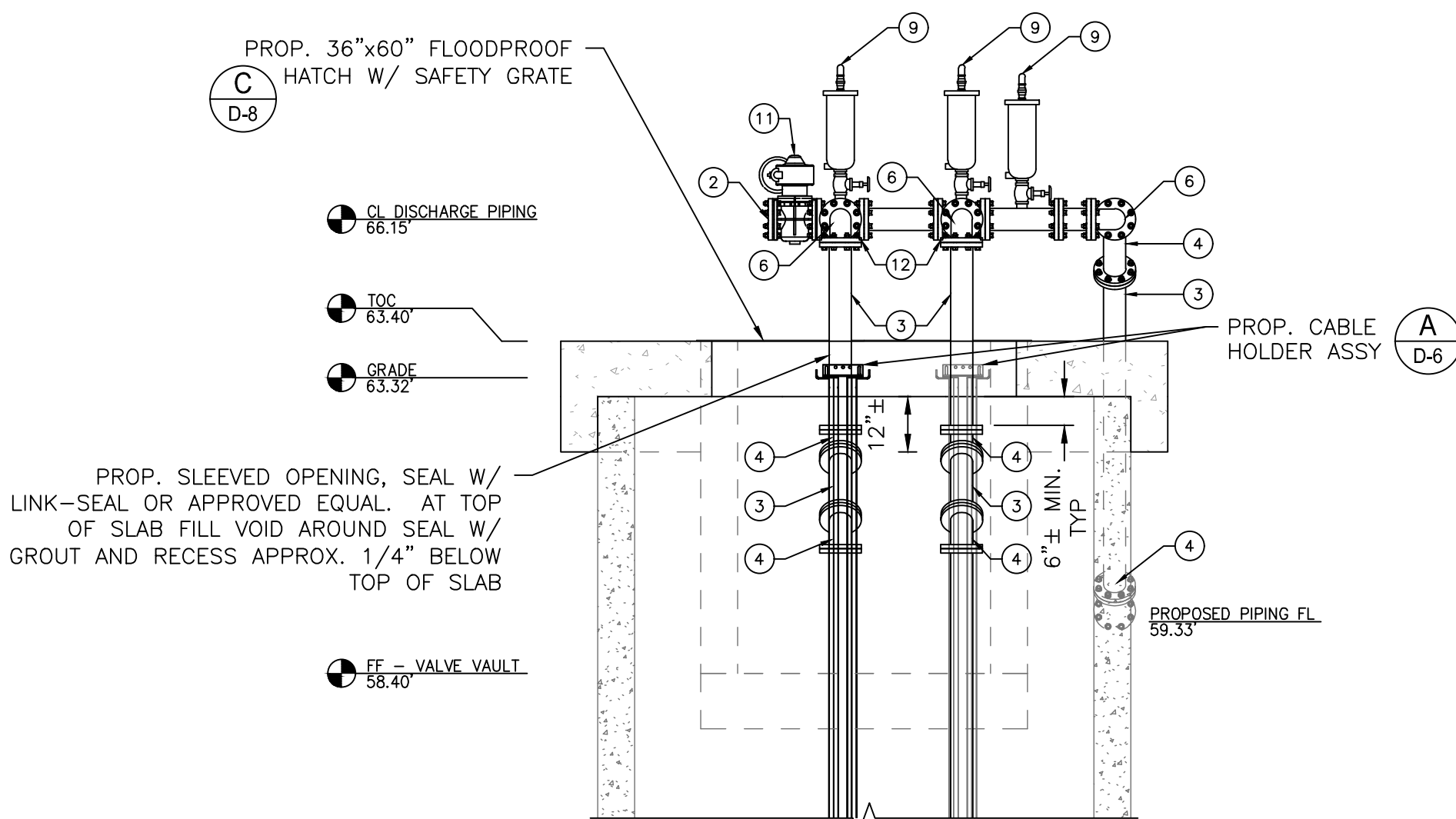
3 SECTION A

3/8" = 1'-0"



2 PLAN VIEW @ WET WELL FF

3/8" = 1'-0"



4 SECTION B

3/8" = 1'-0"

KEY NOTES	ITEM	QTY
1	PUMP	2
2	BLIND FLANGE	5
3	SPOOL PIECE (4")	14
4	45° ELBOW (4")	6
5	SLEEVED PENETRATION (4")	2
6	90° ELBOW (4")	3
7	RESTRAINED FLANGED COUPLING ADAPTER (4")	2
8	PRESSURE GAUGE	3
9	2" AIR AND VACUUM VALVE AND PIPING	3
10	CHECK VALVE (4")	2
11	PLUG VALVE (4")	3
12	TEE (4")	2
13	45° MJ ELBOW (4")	1
14	WALL PIPE (8")	1

FLOODPLAIN NOTES:

- ELEVATION HAS BEEN SET TO MEET THE 100-YR +1' ELEVATION (65.4') OR A MINIMUM OF 2 FEET ABOVE THE TOP OF SLAB
- HATCHES ARE FLOODPROOF HATCHES TO MEET FLOODPLAIN REQUIREMENTS
- PLATFORMS ARE SET TO AN ELEVATION OF 500-YR +3'. SEE STRUCTURAL SHEETS FOR DETAILS.

NOTES:

- DIMENSIONS NOTED ARE RELATIVE TO THE PUMP SIZE AND MANUFACTURER SELECTED. CONTRACTOR SHALL VERIFY.
- SEE DETAIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS AND INFORMATION NOT SHOWN.
- PUMP ANCHOR BOLTS ARE TO BE ADHESIVE TYPE, AND EMBEDDED IN CONCRETE SLAB. CONTRACTOR TO SUBMIT DESIGN OF PUMP ANCHOR BOLTS AND PATTERN, INCLUDING CALCULATIONS, DURING SHOP DRAWING SUBMISSION.
- CONTRACTOR TO PROVIDE ADHESIVE ANCHORS IN LIEU OF WEDGE ANCHORS FOR ALL SUBMERGED CONDITIONS, AND SUBMIT DESIGN OF ANCHOR BOLTS DURING SHOP DRAWING SUBMISSION.
- ALL PIPING IN THE WET WELL SHALL BE FLANGED. NO FLANGED COUPLING ADAPTORS, OR VICTAULIC STYLE COUPLINGS SHALL BE PERMITTED INSIDE THE WET WELL.
- LABEL HATCHES WITH THE CORRESPONDING PUMP NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING WELDED TO THE HATCH. LABEL CHECK VALVES WITH THE CORRESPONDING VALVE NUMBER USING A 12-INCH BY 12-INCH 316SS PLATE ENGRAVED WITH 6-INCH LETTERING ADHERED TO THE TOP OF THE CHECK VALVE.
- CONTRACTOR TO VERIFY DIMENSIONS REQUIRED TO INSTALL AND OPERATE VALVES
- CONTRACTOR TO CONFIRM SIZE AND LOCATION OF THE WET WELL HATCHES PER HATCH AND PUMP MANUFACTURER'S REQUIREMENTS
- INSTALL PLUG VALVES TO OPEN UPWARD AND TO CLOSE TO A SEATING POSITION.
- INSTALL CHECK VALVES SO THAT THE WEIGHT LEVER POSITION IS APPROXIMATELY 45° BELOW THE VALVE HORIZONTAL CENTER LINE IN THE CLOSED POSITION: AND APPROXIMATELY 45° ABOVE THE HORIZONTAL CENTER LINE IN THE FULL OPEN POSITION.
- ACCESS HATCHES SHALL BE FOREST GREEN. SAFETY GRATING SHALL BE FURNISHED WITH SAFETY ORANGE POWDER COAT FINISH.
- UV PROTECTIVE COATINGS ARE REQUIRED BY THE CITY OF HOUSTON ON ALL VENT PIPES.
- CONTRACTOR TO BLAST AND RECOAT THE WET WELL AND TOP SLAB.

LEGEND



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

THIS DOCUMENT IS RELEASED FOR THE
PURPOSE OF INTERIM REVIEW UNDER THE
AUTHORITY
OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

IT IS NOT TO BE ISSUED FOR CONSTRUCTION,
BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

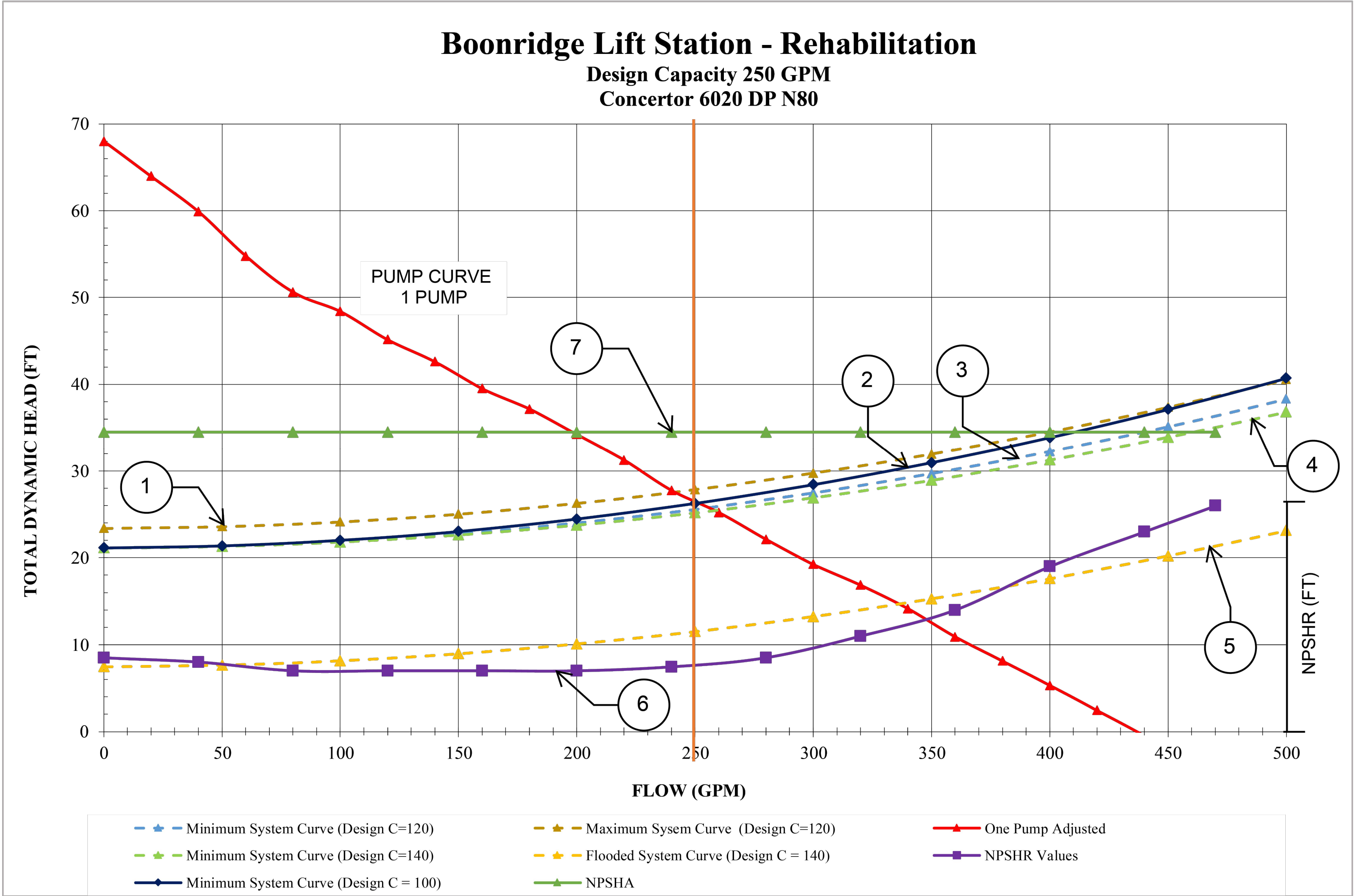
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION PROPOSED PLAN AND ELEVATIONS SECTIONS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.223OF 291	

BR-C7

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects\CAD\Drawings\224 BOON LS TABLE.dwg May 07, 2025-1:28pm hrowbridge



PUMP CURVE NOTES:

1. LOW NORMAL OPERATING LEVEL
C=120 - DESIGN
2. HIGH NORMAL OPERATING
LEVEL C=100 - INFORMATION ONLY (TCEQ)
3. HIGH NORMAL OPERATING LEVEL
C=120 - DESIGN
4. HIGH NORMAL OPERATING LEVEL
C=140 - INFORMATION ONLY
5. EMERGENCY FLOODED OPERATING LEVEL
C=140 - MAXIMUM DISCHARGE
6. NET POSITIVE HEAD SUCTION REQUIRED (NPSHR)
BASED ON NORMAL OPERATING WATER LEVEL
7. NET POSITIVE SUCTION HEAD AVAILABLE (NPSHA)

PUMP DATA TABLE

PUMP CHARACTERISTICS	PUMP NO. 1	PUMP NO. 2
MOTOR DATA		
NOMINAL SIZE (HP)	5.5	5.5
MAX SPEED (RPM)	2,611	2,611
SOLIDS PASSAGE		
MIN SPHERE (IN)	3	3
CAPACITY (GPM)		
DESIGN	250	250
RUNOUT	440	440
DISCHARGE HEAD (FT)		
DESIGN	26.20	26.20
RUNOUT	2.00	2.00
SHUT OFF	68.00	68.00
EFFICIENCY (%)		
DESIGN	65.00	65.00
NPSHR (FT)		
DESIGN	7.45	7.45
RUNOUT	26.00	26.00
PUMP CYCLE TIME	6 MIN	6 MIN
CUMULATIVE CAPACITY (GPM)	250	400

STATION OPERATION TABLES

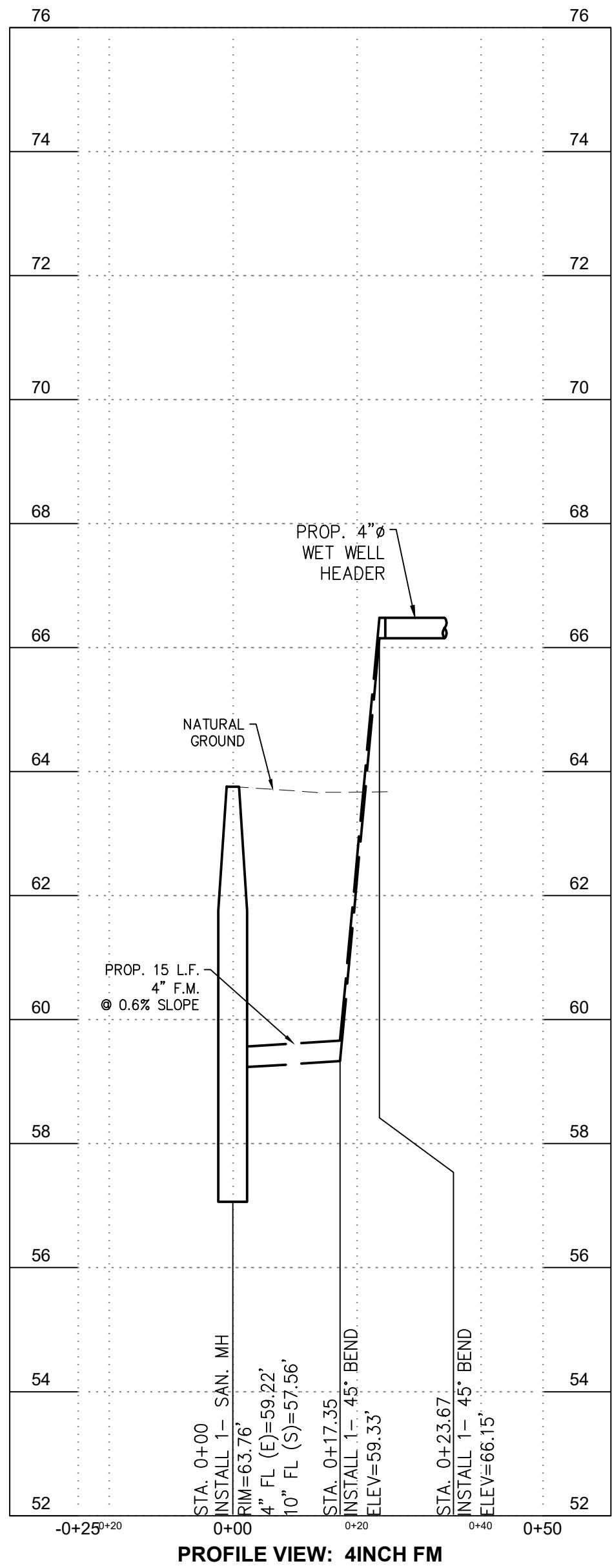
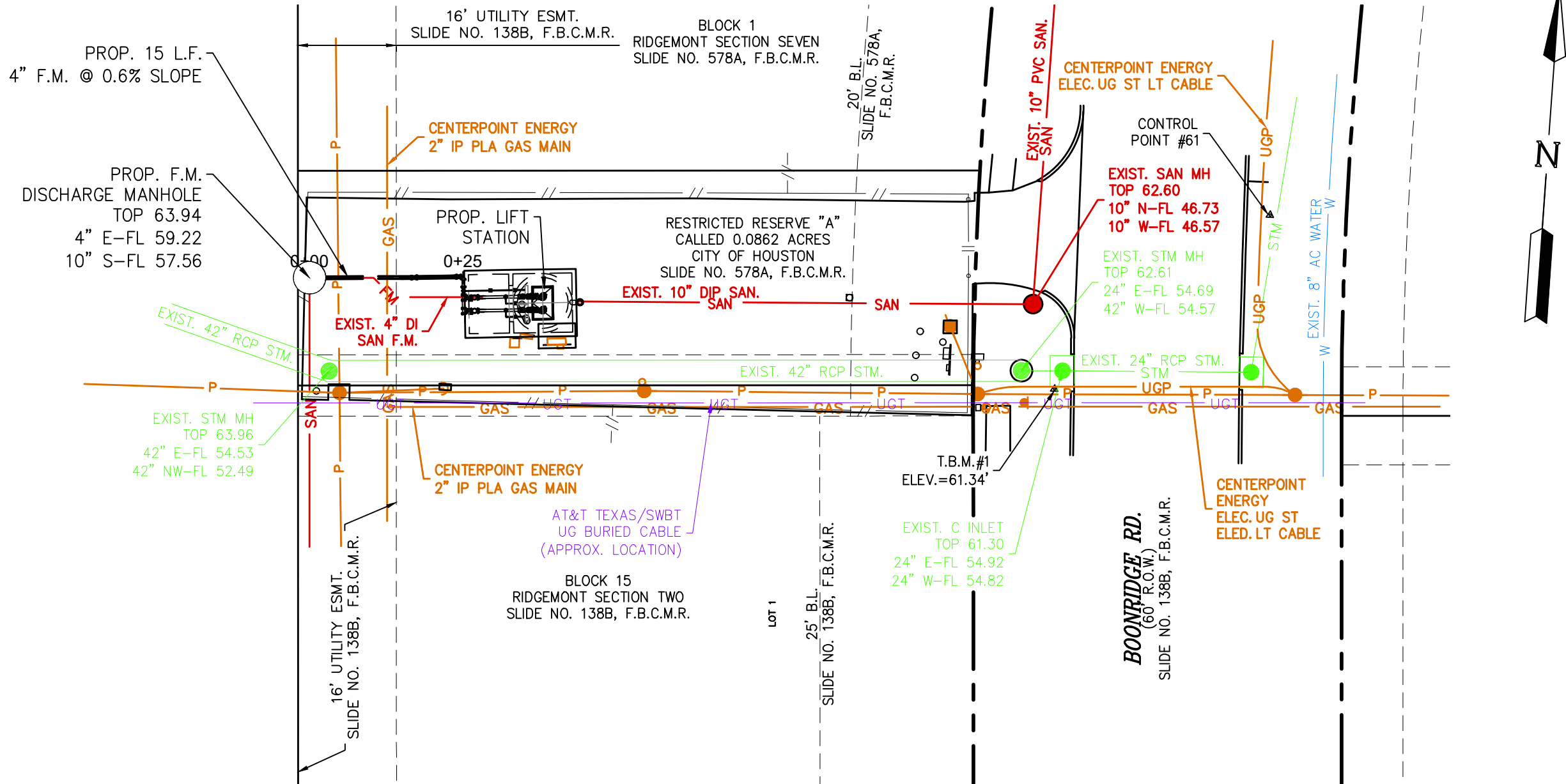
RISING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
0.87	41.25	PUMPS OFF LEVEL – NO ACTION	ALL PUMPS ARE OFF
2.13	42.50	LEAD PUMP TURNS ON	LEAD PUMP ON
3.13	43.50	HIGH WATER ALARM ON	HIGH WATER ALARM SOUND
16.80	57.17	HIGH HIGH LEVEL ALARM (FLOAT ON LEVEL)	FIRM PUMPS ON (FLOATS)
FALLING LEVEL CYCLE			
WATER LEVEL DEPTH	WATER LEVEL ELEVATION	ACTION	PUMP(S) IN OPERATION
4.13	44.50	FLOAT OFF LEVEL	FIRM PUMPS OFF (FLOATS)
3.13	43.50	HIGH WATER LEVEL ALARM OFF	LEAD PUMP ON
0.85	41.22	LEAD PUMP TURNS OFF	ALL PUMPS STOPPED – STANDBY PUMP SWITCHES TO LEAD PUMP
0.50	40.87	LOW LEVEL ALARM	–

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: ANA K. TREJO P.E.# 125772 DATE: 05/01/2026 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
BOONRIDGE LIFT STATION TABLES AND DETAILS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 224 OF 291	

120' FORT BEND COUNTY
DRAINAGE RIGHT-OF-WAY
SLIDE NO. 85A, F.B.C.M.R.



BENCHMARK:
CITY OF HOUSTON MONUMENT 5250-7106, A BRASS DISK IN CONCRETE, LOCATED ON THE NORTH SIDE OF EAST RIDGECREEK DR APPROXIMATELY 135 FEET WEST FROM THE INTERSECTION OF RIDGEROE LN.
ELEV. 62.07 FEET NAVD 1988 (GEOD '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED JULY 29, 2025.
I.B.M. #1:
SET "IX" ON TOP OF C-INLET LOCATED AT WEST SIDE OF BOONRIDGE RD APPROX. 130 FT FROM THE INTERSECTION OF BRYANT RIDGE RD.
ELEV. 61.34 FEET
VERTICAL DATUM ADJUSTMENT:
THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARKS (RM 010220) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988, (GEOD '18) IS 0.34'.
NAVD 1988, 2001 ADJ. ELEVATION = NAVD 1988 (GEOD '18) ELEVATION + 0.34 FT
HORIZONTAL DATUM:
ALL HORIZONTAL COORDINATES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83. THE COORDINATES & DISTANCES SHOWN ARE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A SCALE FACTOR OF 0.999870017.

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.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042
Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

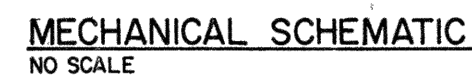
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY
OF: ANA K. TREJO
P.E.# 125772
DATE: 05/01/2026
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

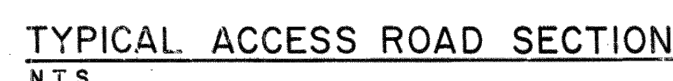
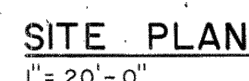
**BOONRIDGE LIFT STATION
PROPOSED FORCE MAIN**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
H:1"=20' V:1"=2'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 225 OF 291	



MECHANICAL NOTES

- ### STRUCTURAL NOTES



Unit	SHIELD	Scale:	AS NOTED	Date	OCT., 1982
Designed	P. A. K.	Checked	A.A.A.	Job No.	3342-200 Contract
Drawn	P. A. K.	Approved	B.28	Sheet	16 of 17

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 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

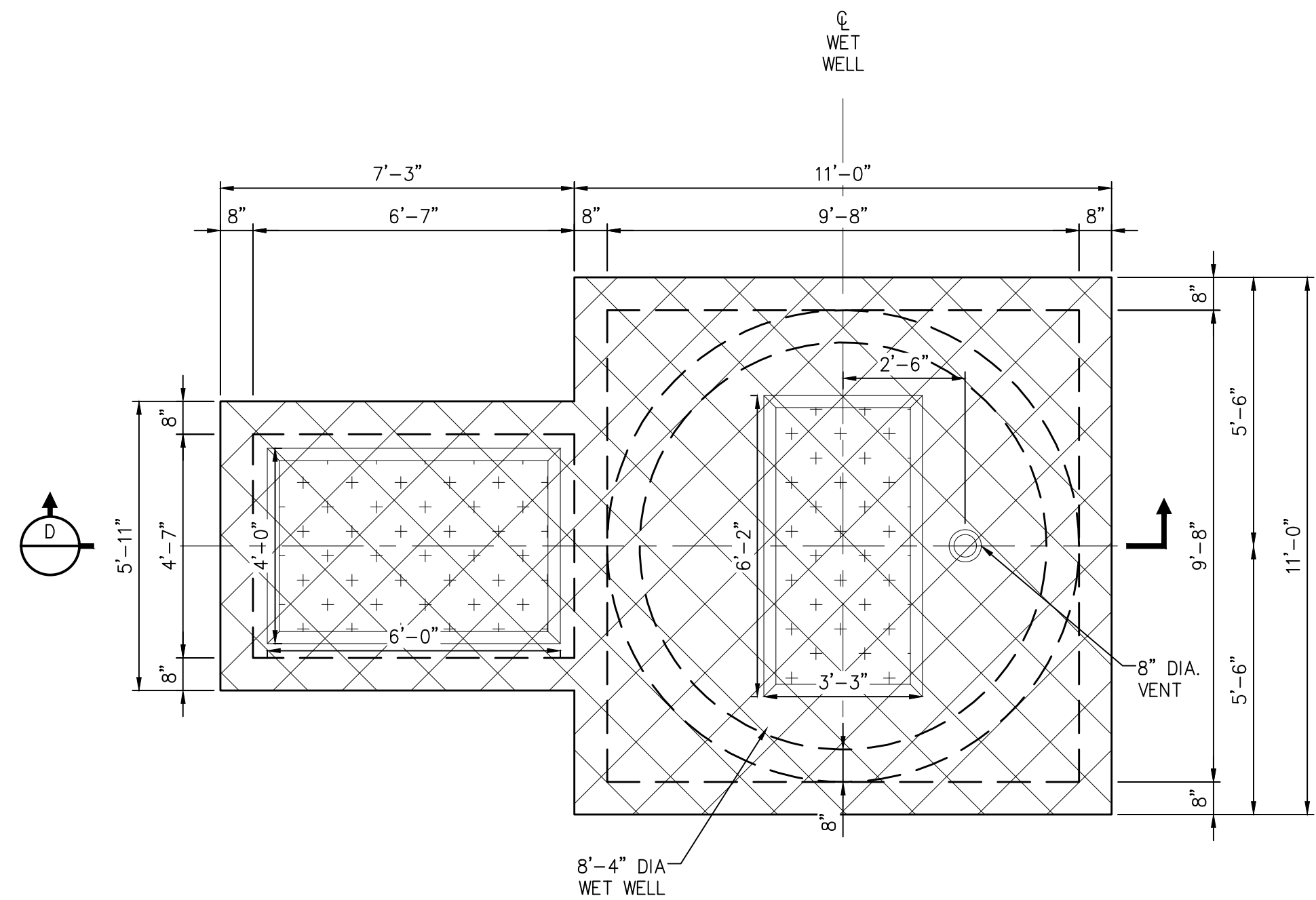
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SCALE:

OF HOUSTON PM

NAWARAJ PANTA P.F.

SHEET NO. 226 OF 291



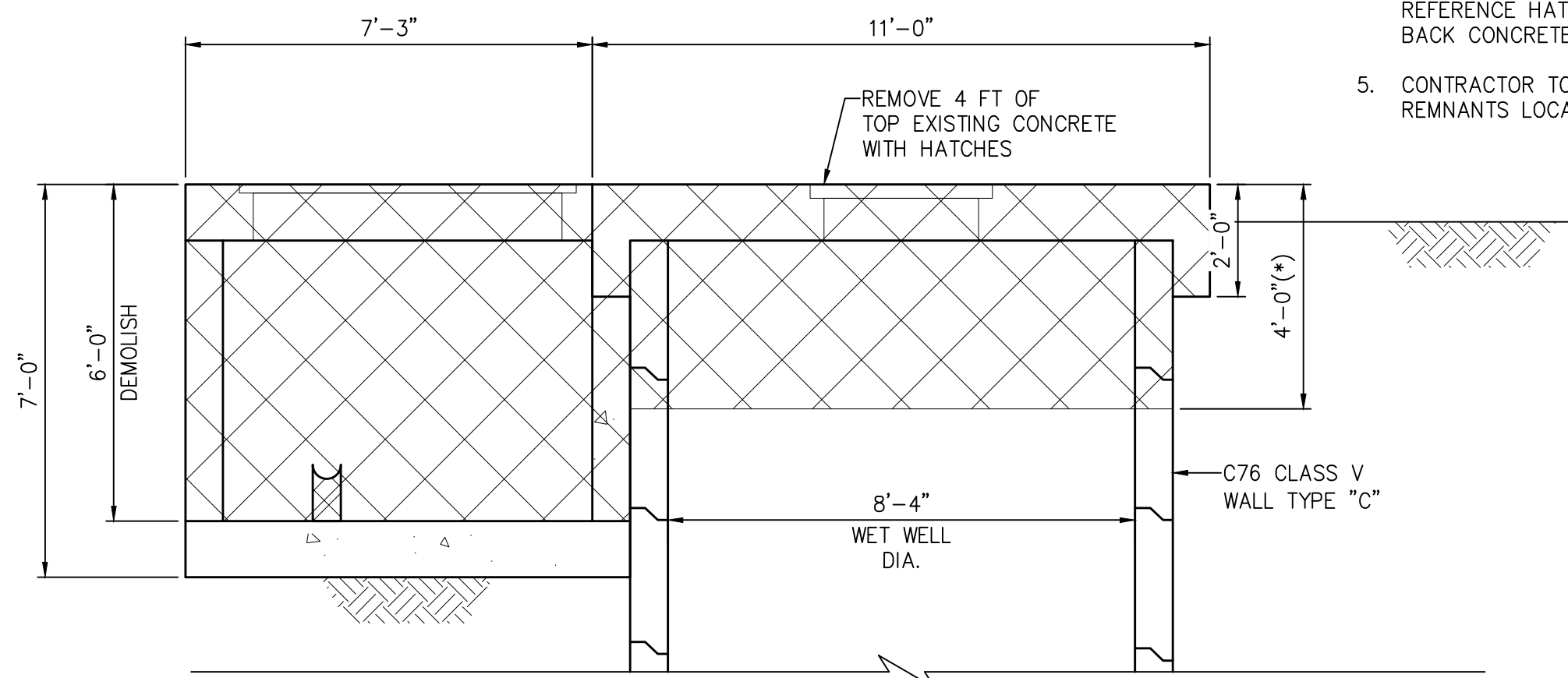
C EXISTING TOP SLAB PLAN VIEW
NTS

LEGEND:

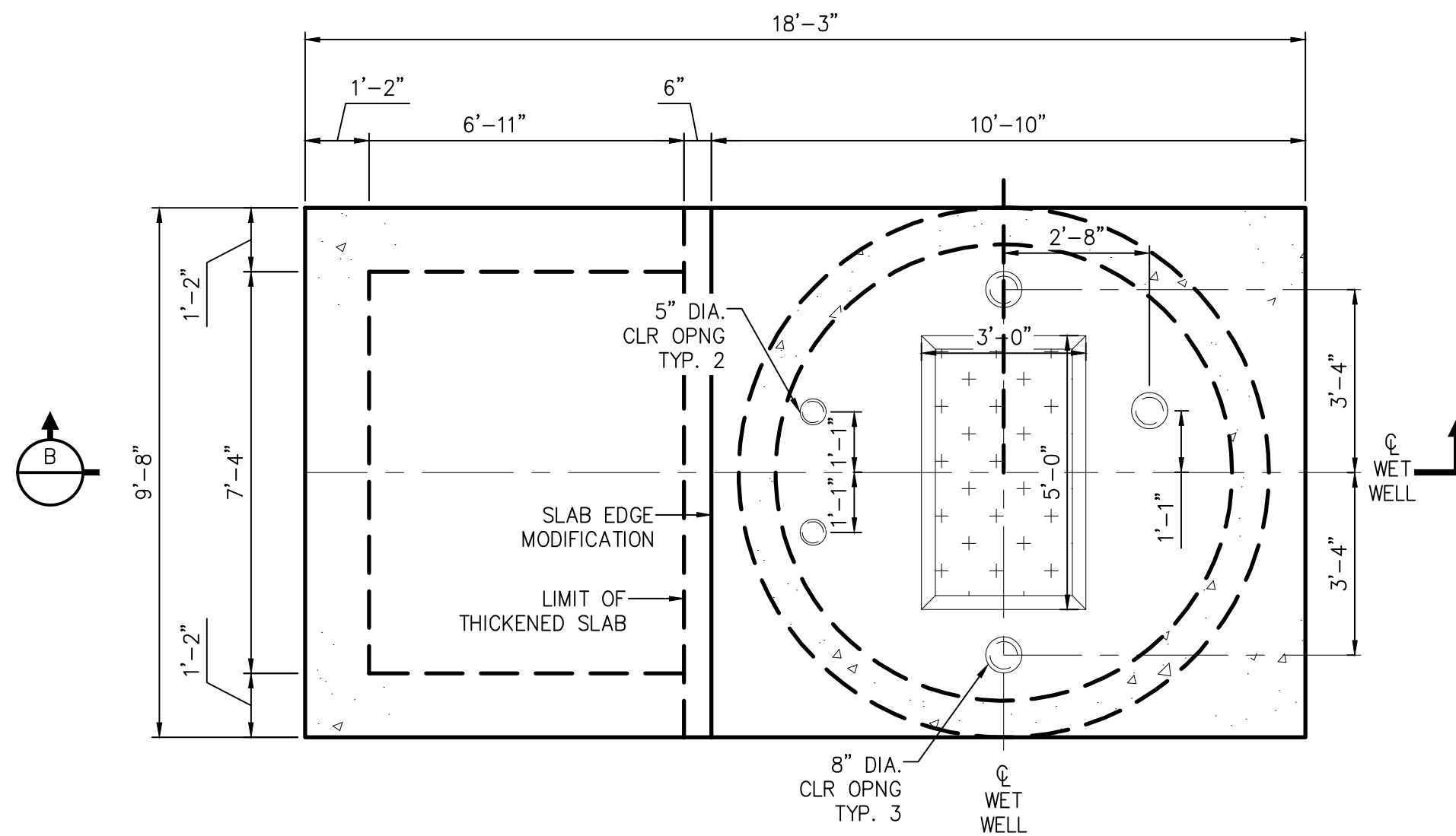
- DEMOLITION AREA
- PROPOSED CEMENT STABILIZED SAND

DEMOLITION NOTES:

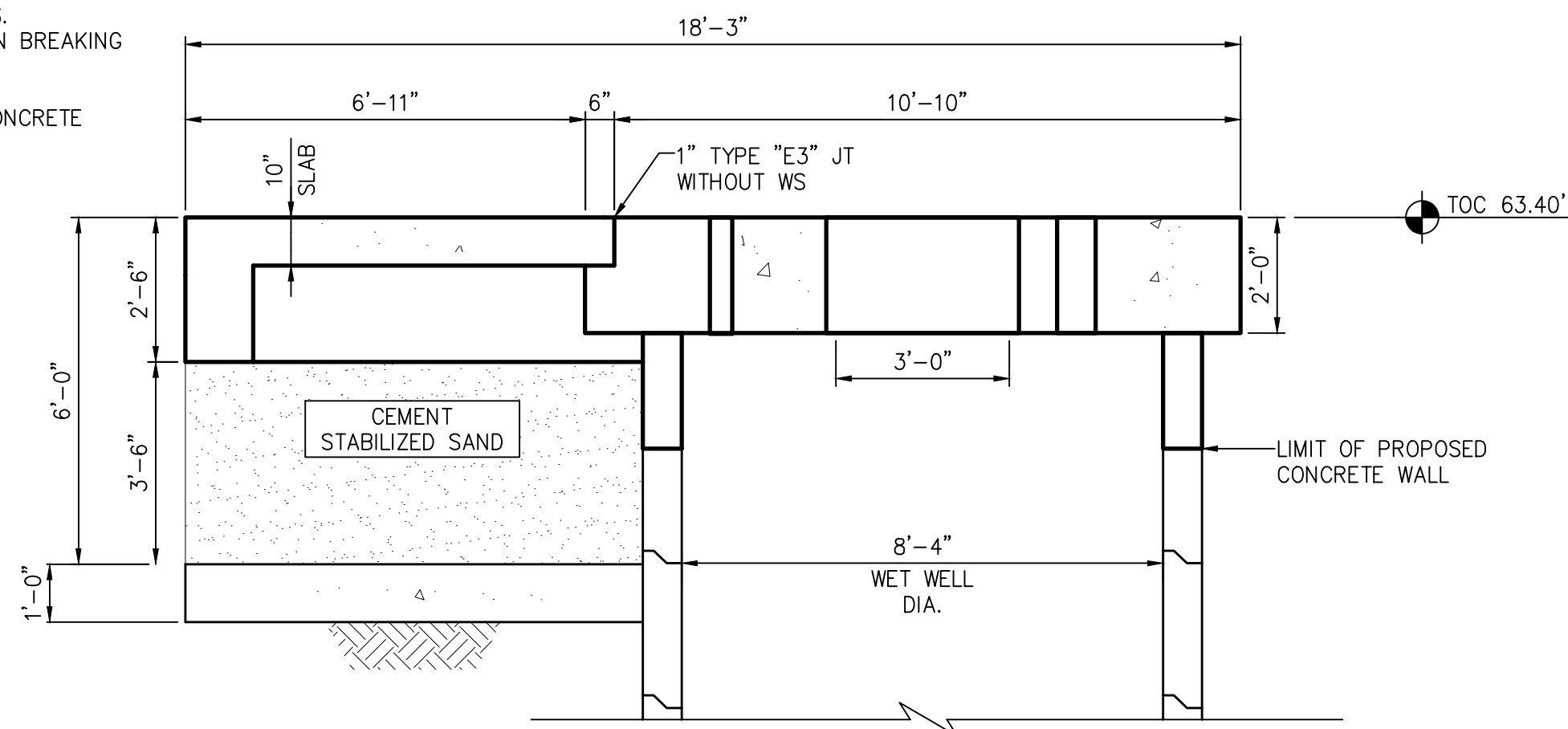
- CONTRACTOR TO PROVIDE TEMPORARY DEBRIS PROTECTION SYSTEM INSIDE WET WELL PRIOR TO DEMOLITION.
- CONTRACTOR TO PROVIDE AND VERIFY EXCAVATION AND BACKFILL LIMITS PRIOR TO DEMOLITION WITH DESIGN ENGINEER.
- CONTRACTOR TO REMOVE AND HAUL OFF EXISTING STEEL GRATING OVER VALVE VAULT.
- CONTRACTOR TO SAWCUT AND HAUL OFF EXISTING CONCRETE PUMP TOP SLAB, ALONG WELL AND VAULT WALLS. REFERENCE HATCHED REGIONS ON THIS SHEET ON BREAKING BACK CONCRETE.
- CONTRACTOR TO REMOVE AND HAUL OFF ANY CONCRETE REMNANTS LOCATED INSIDE THE VALVE VAULT.



D EXISTING ELEVATION VIEW
NTS



A PROPOSED TOP SLAB PLAN VIEW
NTS



B PROPOSED ELEVATION VIEW
NTS



IMPORTANT NOTES:

- EXISTING PUMP STATION GEOMETRY HAS BEEN LAID OUT WITH THE BEST INFORMATION AVAILABLE FROM RECORD DRAWINGS. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR TO CONFIRM SIZE AND LOCATION OF PROPOSED ACCESS HATCHES AND CLEAR OPENINGS ON TOP SLAB PRIOR TO CONSTRUCTION.

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042



Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

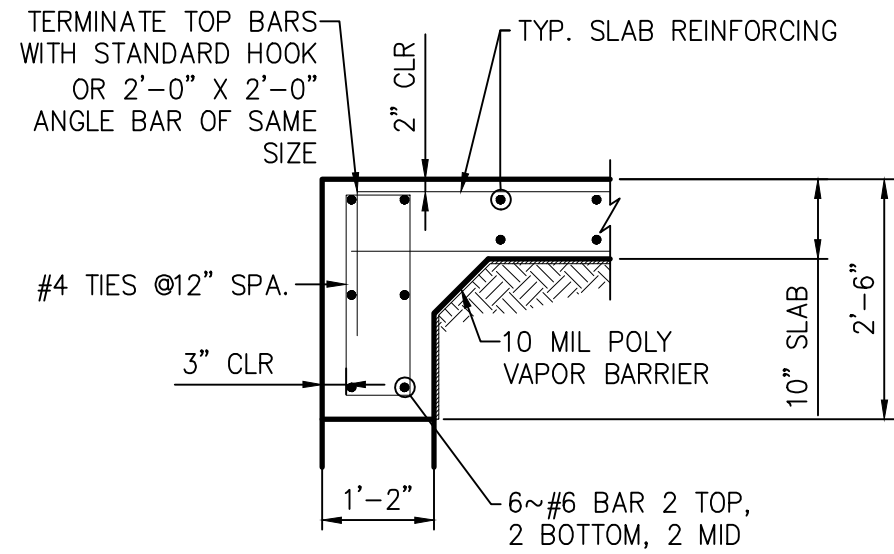
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

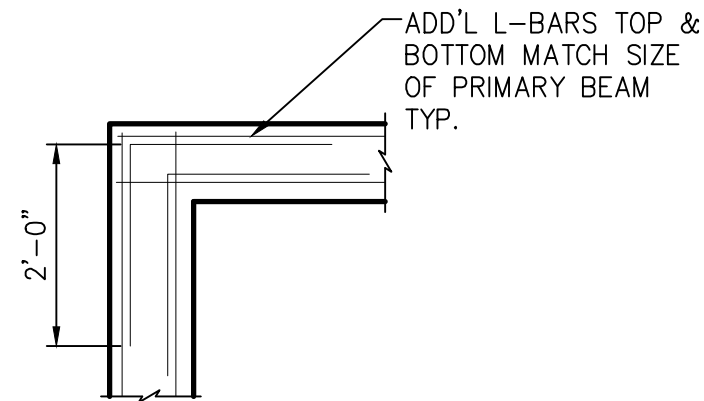
BOONRIDGE LIFT STATION
STRUCTURAL
TOP OF SLAB MODIFICATION
PLAN & DEMO

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 227 OF 291	

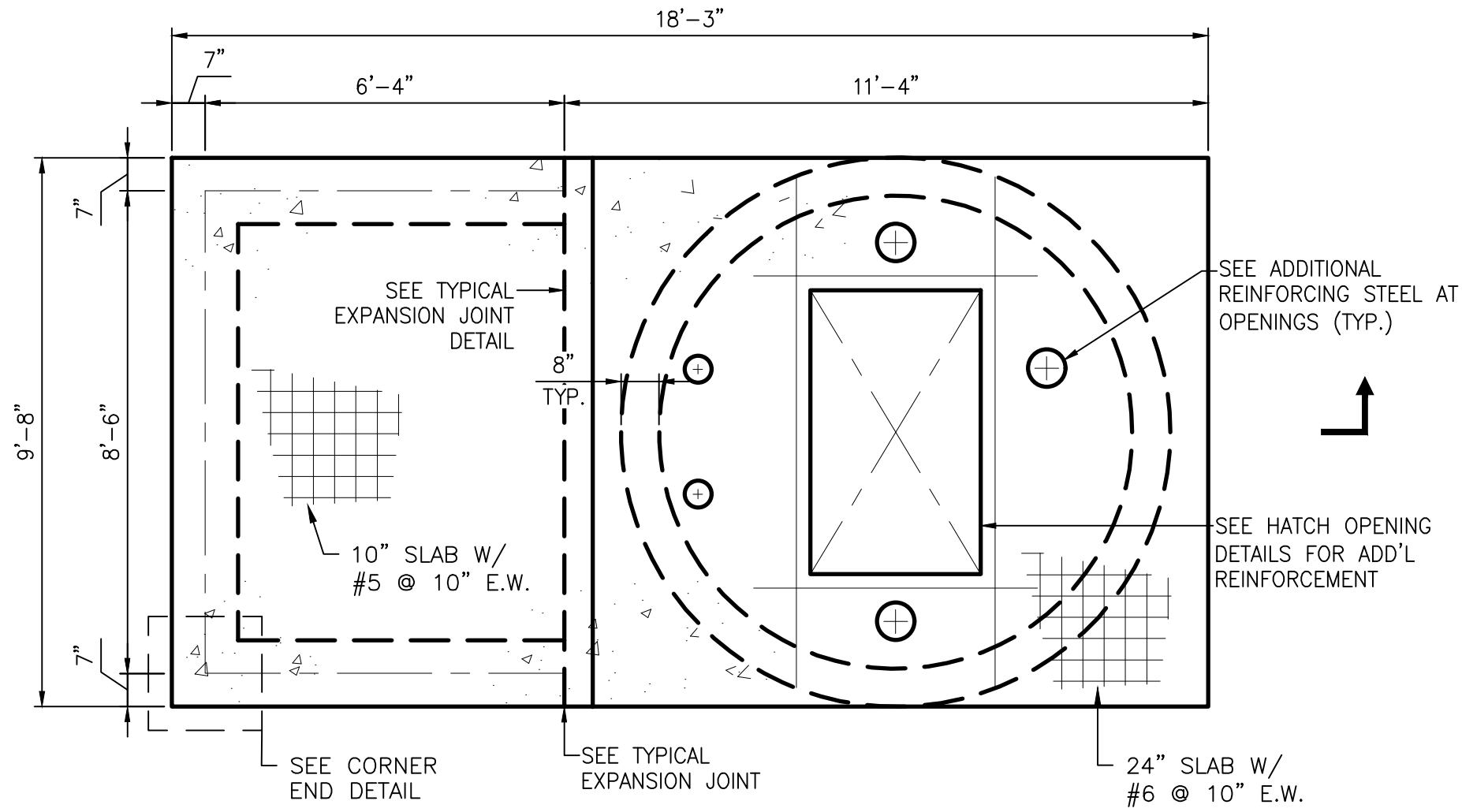
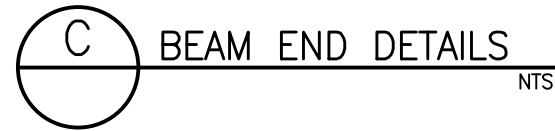
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2/2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS 228 BR-S2.dwg May 07, 2026--1:28pm throwbridge



PERIMETER

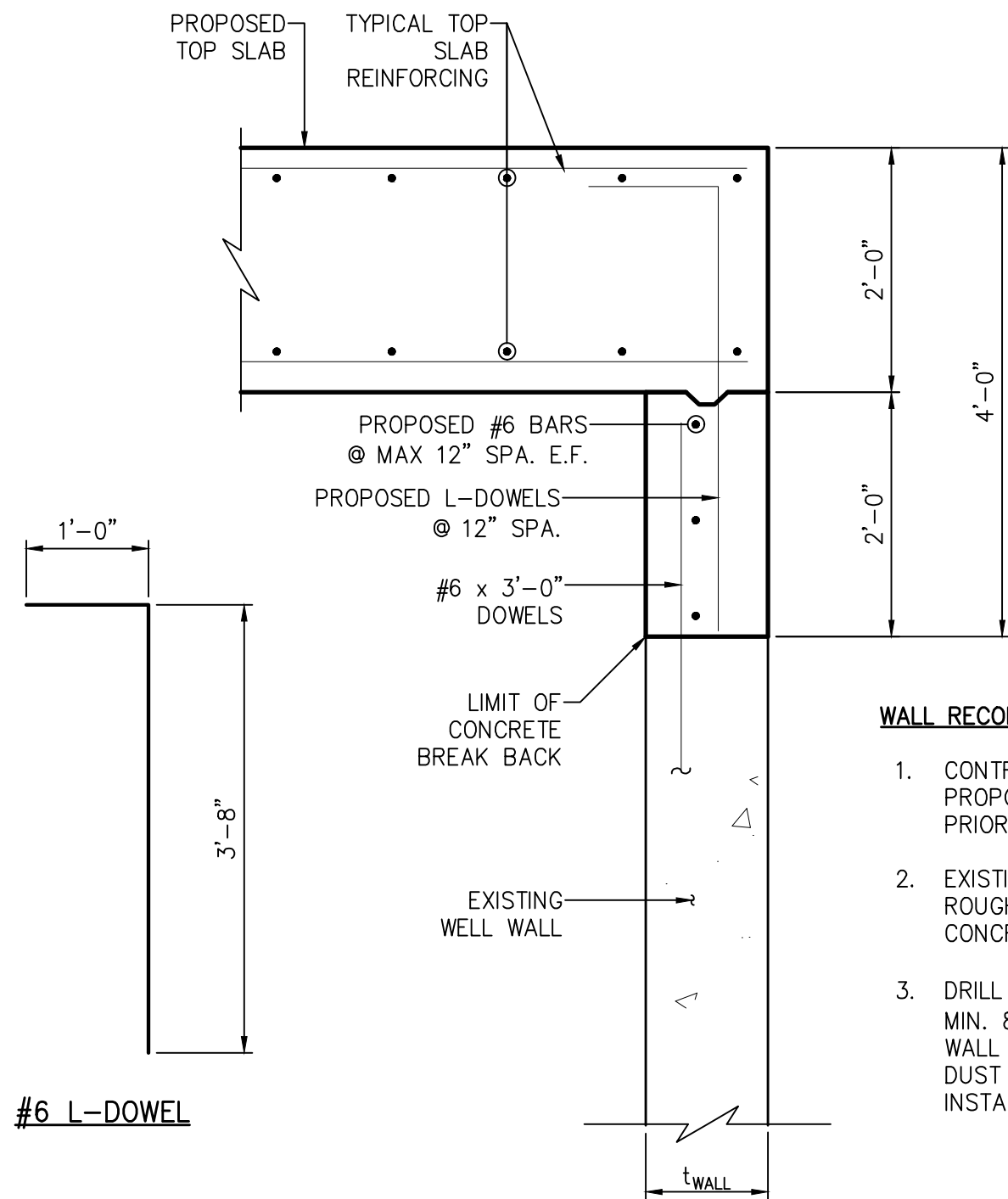


CORNER



A PROPOSED TOP SLAB PLAN VIEW

NTS



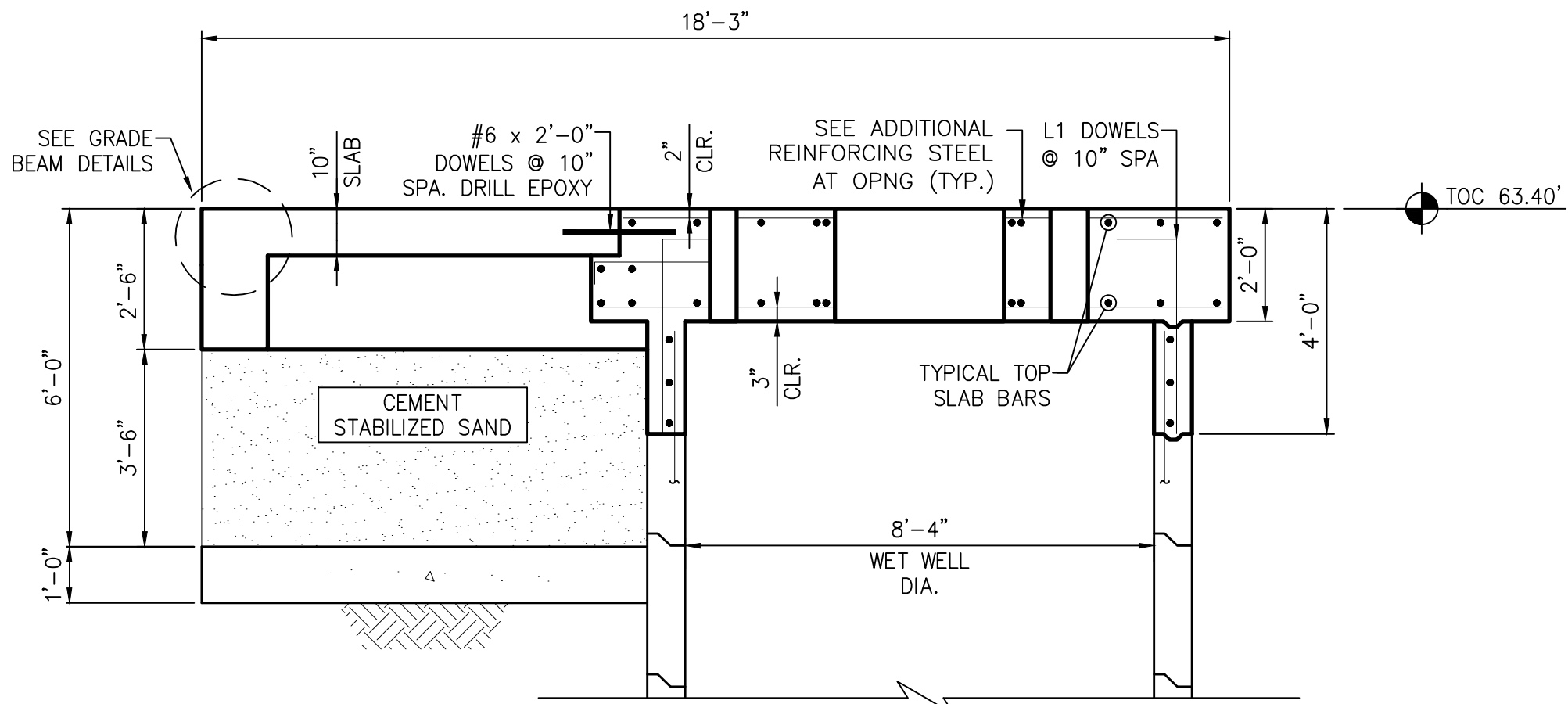
WALL RECONSTRUCTION NOTES:

1. CONTRACTOR TO VERIFY AND MATCH PROPOSED WALL THICKNESS TO EXISTING PRIOR TO CONCRETE POUR.
2. EXISTING CONCRETE SURFACE TO BE ROUGHENED PRIOR TO PROPOSED CONCRETE WALL POUR.
3. DRILL & EPOXY #6 x 3'-0" DOWELS WITH MIN. 8" EMBEDMENT. MATCH PROPOSED WALL BAR SPACING. CLEAN SURFACE FROM DUST & DEBRIS PRIOR TO EPOXY INSTALLATION.

TYPICAL

E RECONSTRUCTED WELL WALL SECTION

NTS



B PROPOSED ELEVATION VIEW

NTS



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

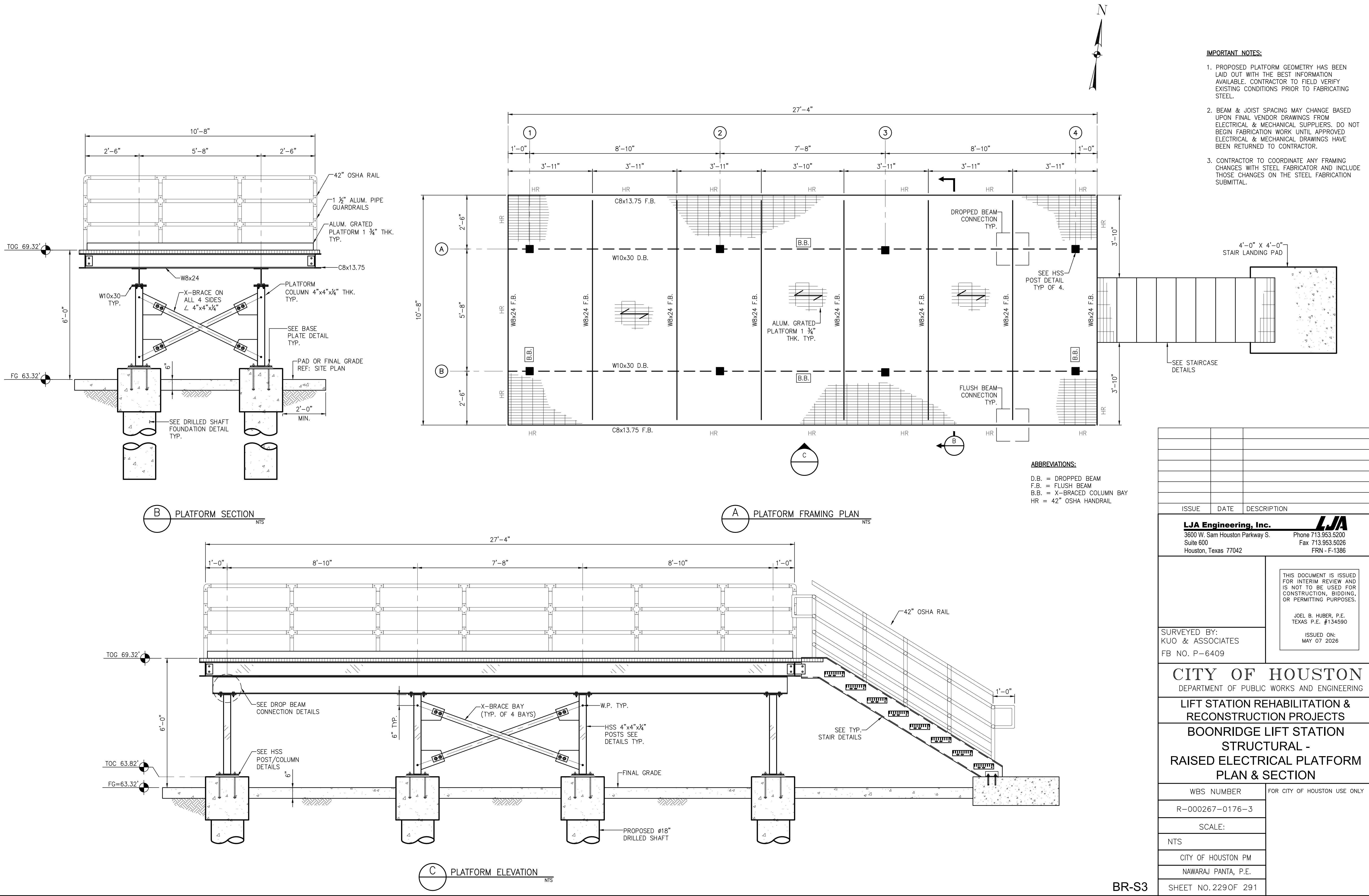
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

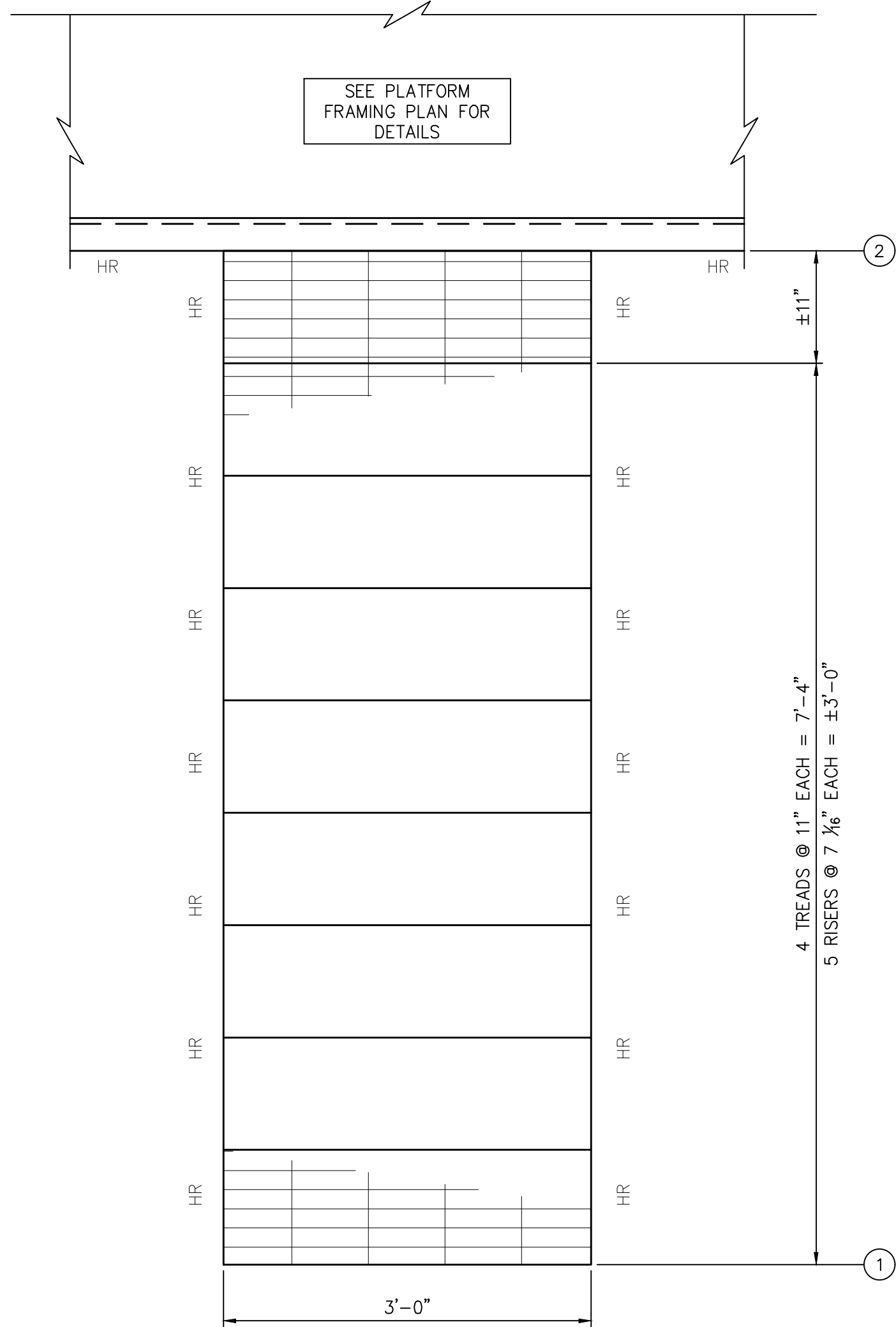
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**BOONRIDGE LIFT STATION
STRUCTURAL
TOP OF SLAB MODIFICATIONS
PROPOSED DETAILS**

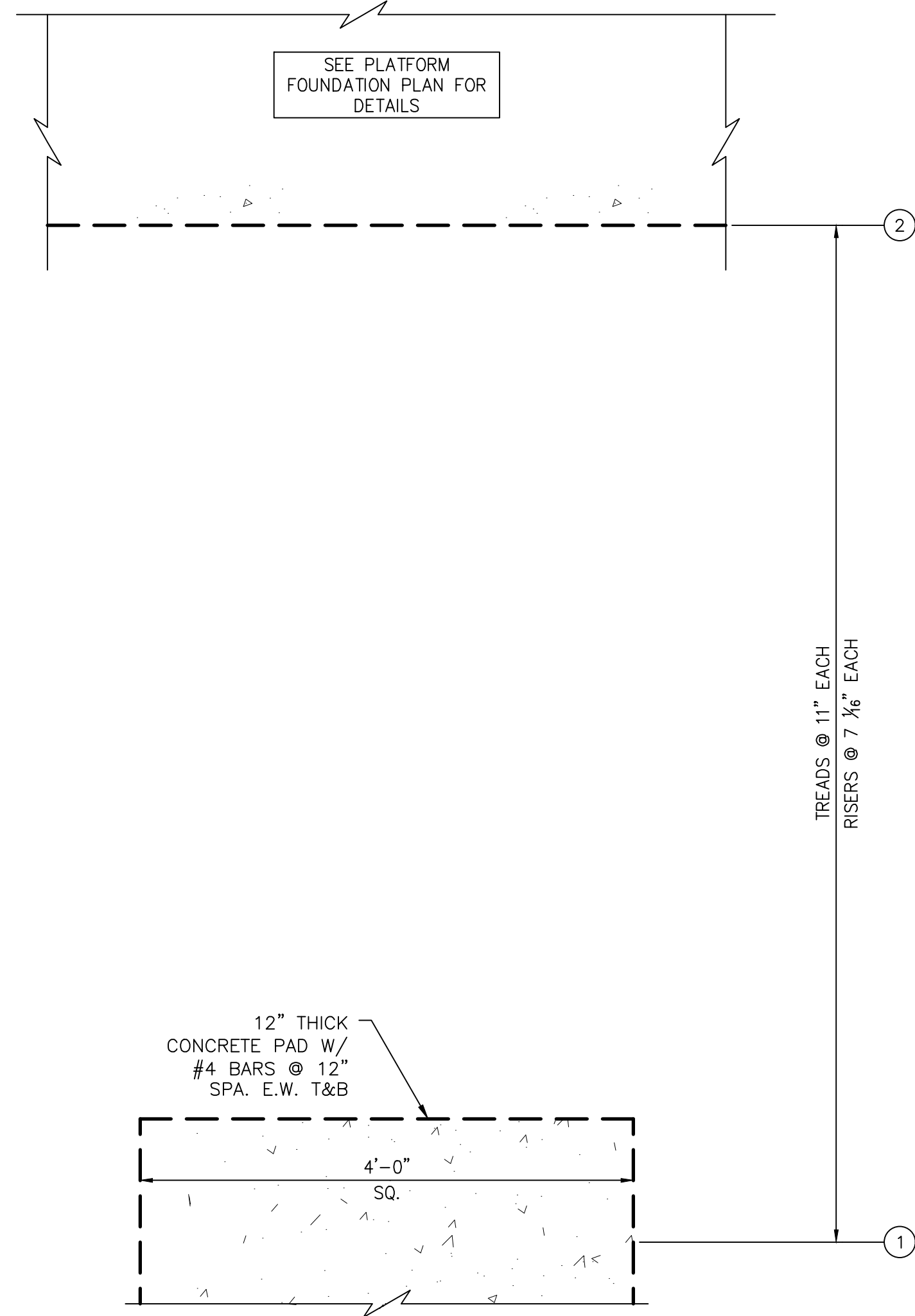
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.228OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W:\Land\2025\2024 - 2025 Lift Station Rehabilitation and Reconstruction Projects\CAD\Drawings\229 BR-S3.dwg May 07, 2026--1:28pm trowbridge



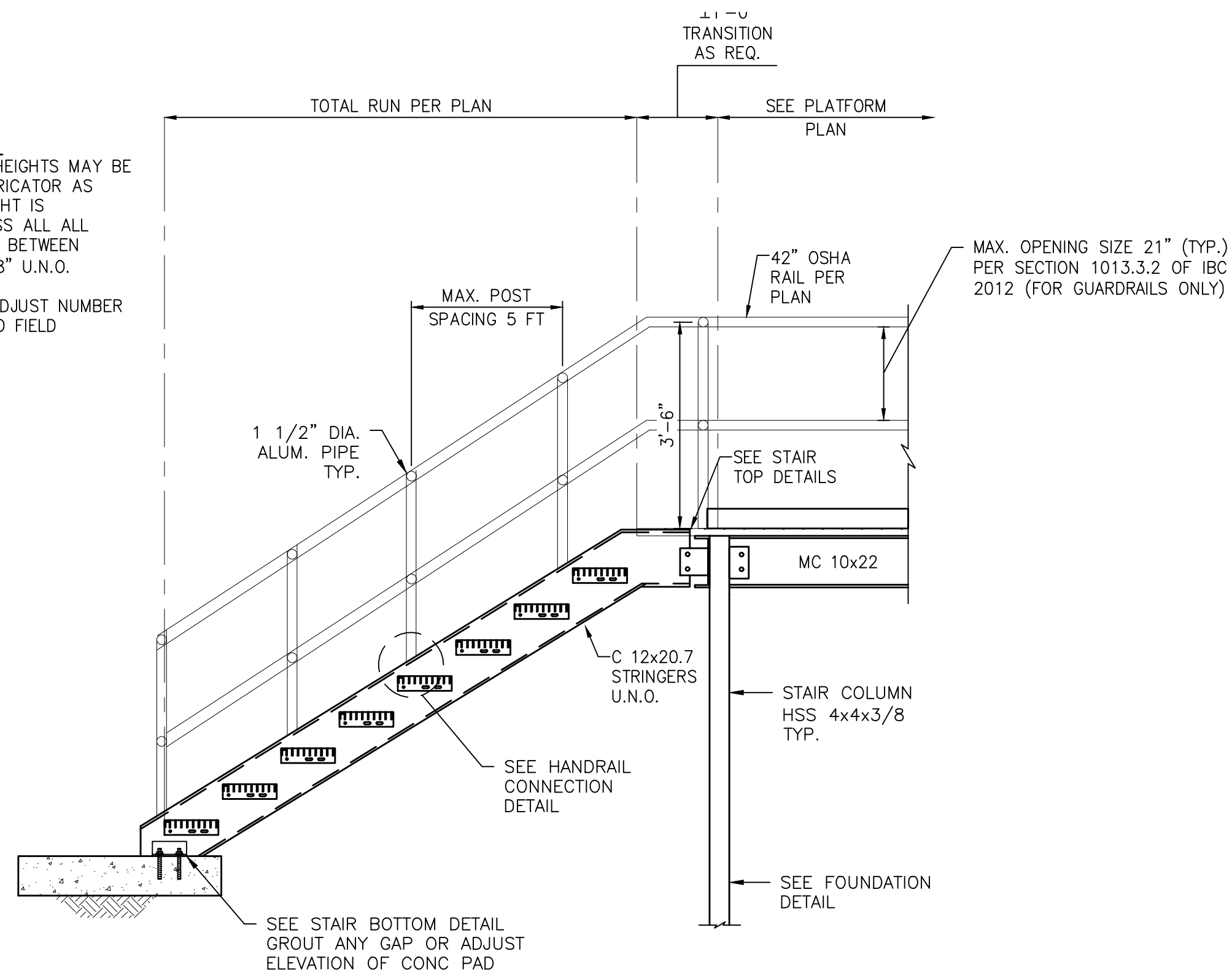


C STAIRCASE FRAMING PLAN
NTS

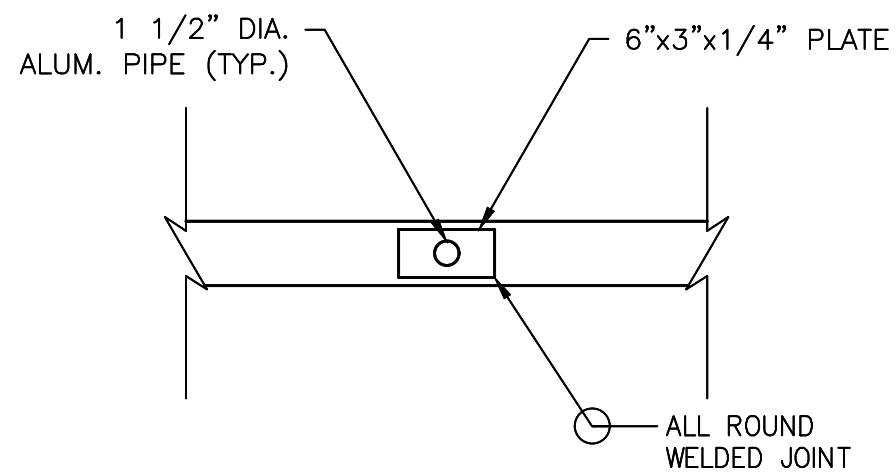


B STAIRCASE FOUNDATION PLAN
NTS

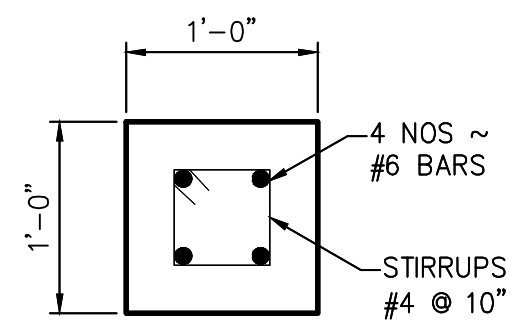
IMPORTANT NOTES:
INDIVIDUAL RISER HEIGHTS MAY BE ADJUSTED BY FABRICATOR AS LONG AS THE HEIGHT IS CONSISTENT ACROSS ALL RISERS AND FALLS BETWEEN 7" AND 8" U.N.O.
CONTRACTOR TO ADJUST NUMBER OF TREADS DUE TO FIELD CONDITIONS.



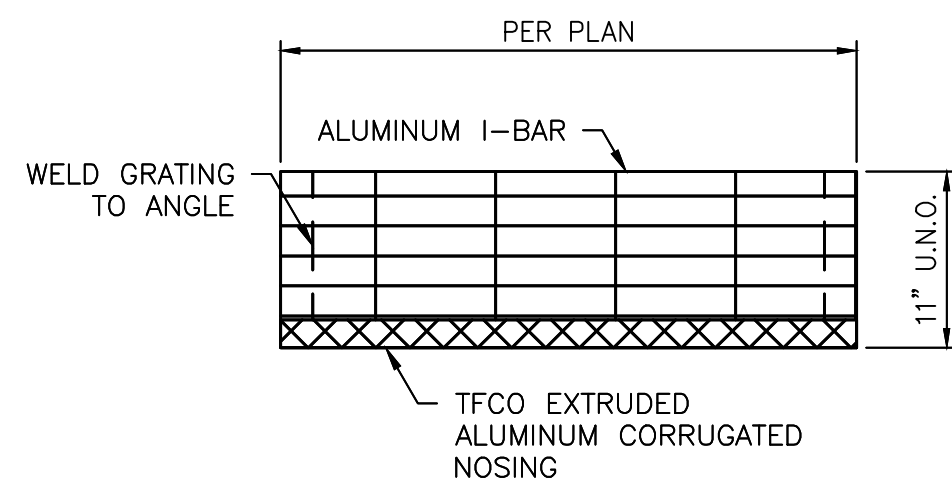
A PLATFORM ELEVATION SECTION
NTS



C TOP MOUNTED HANDRAIL
NTS



B GRADE BEAM DETAILS
NTS



D STAIR TREAD CONNECTION
NTS

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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JOEL B. HUBER, P.E.
TEXAS P.E. #134590

ISSUED ON:
MAY 07 2026

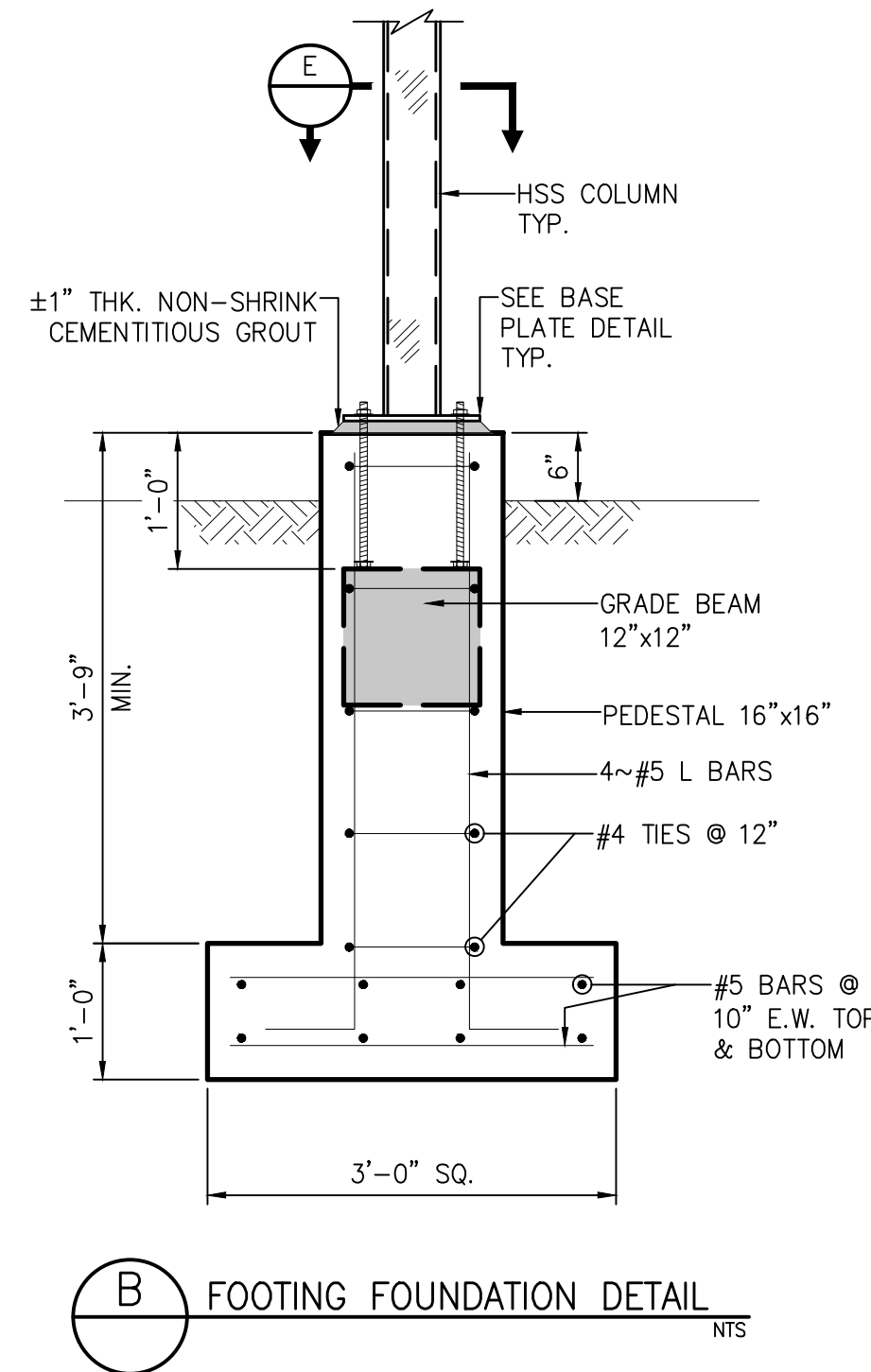
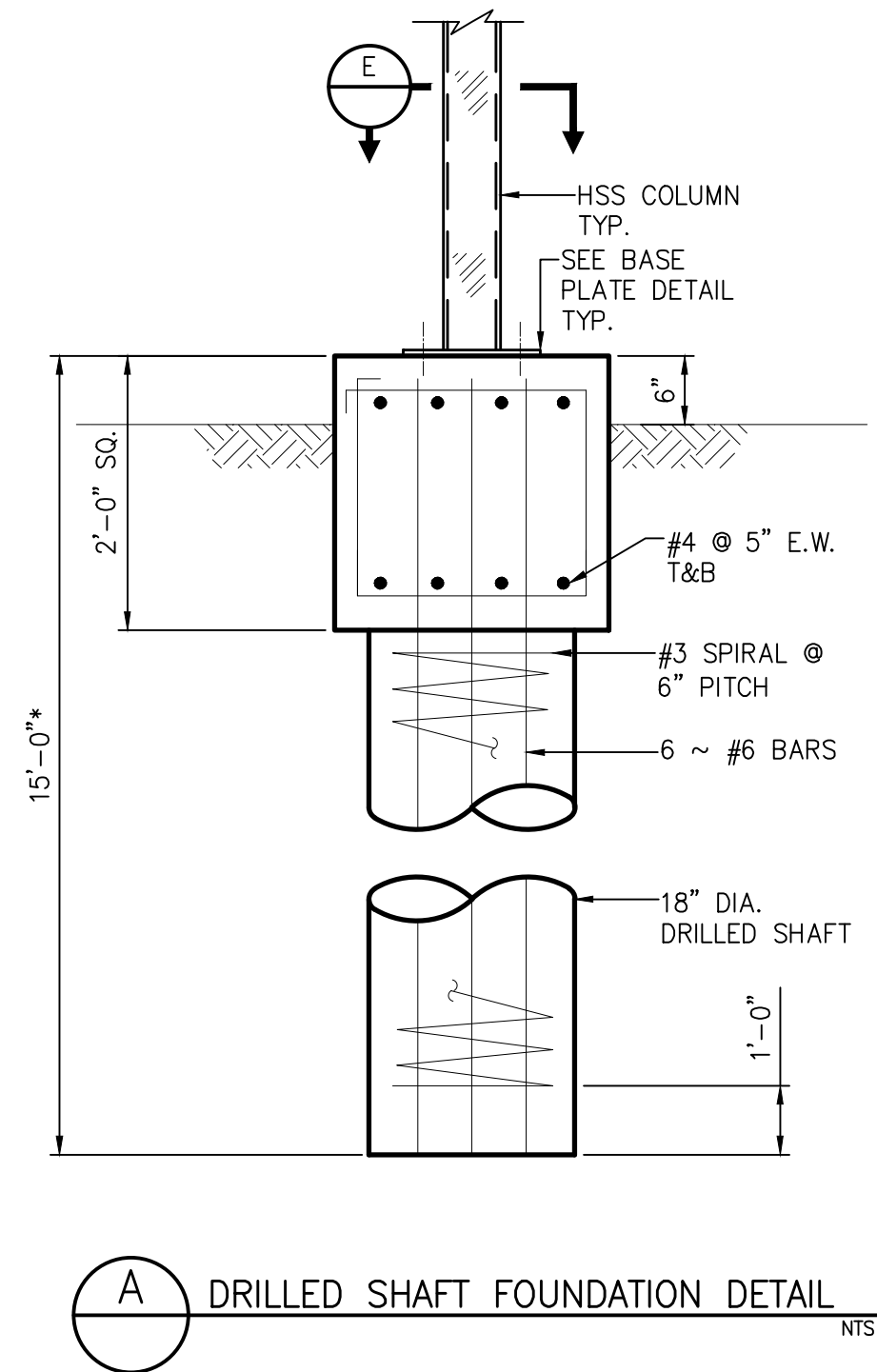
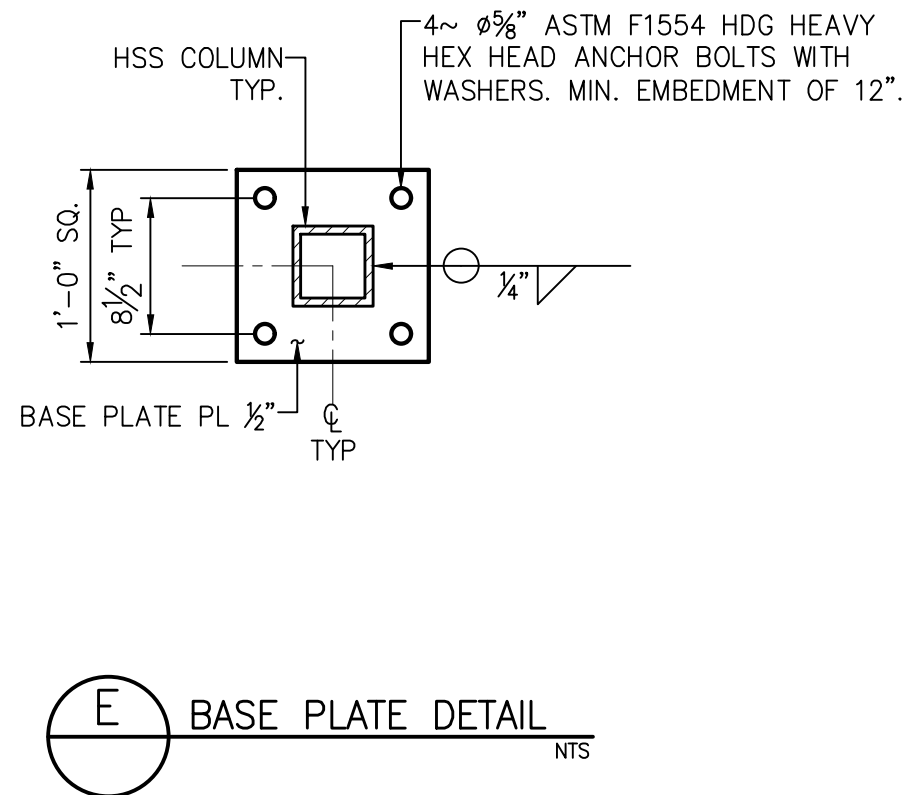
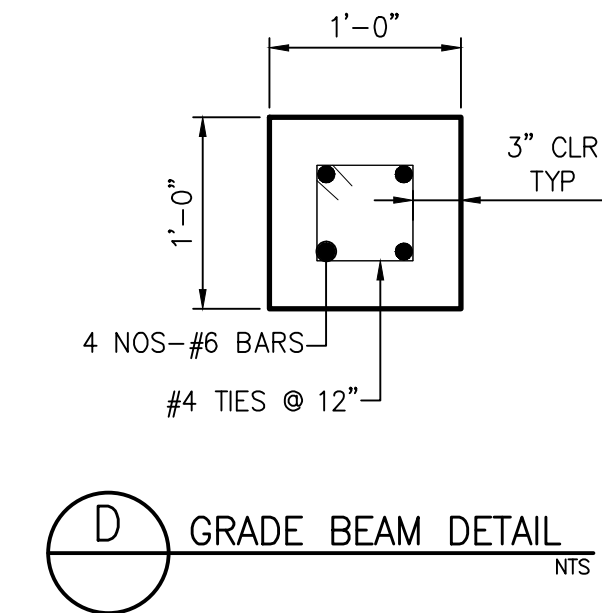
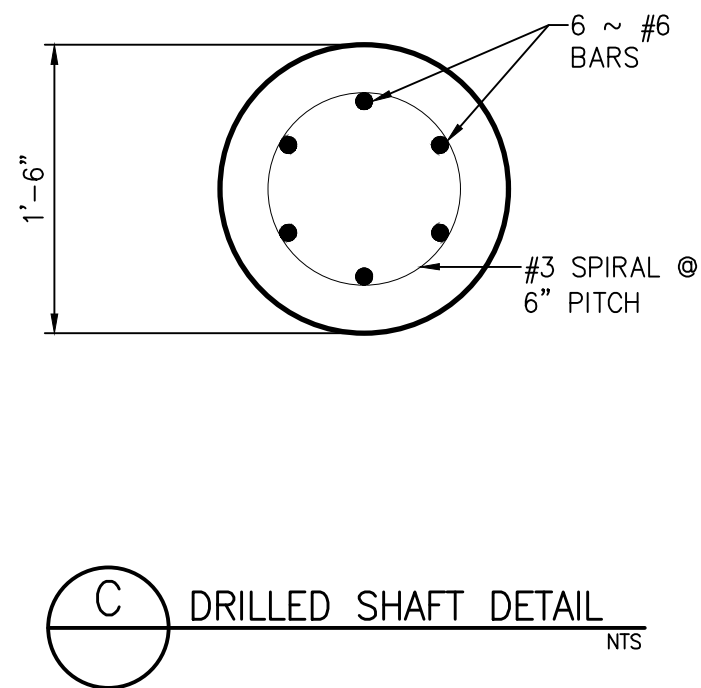
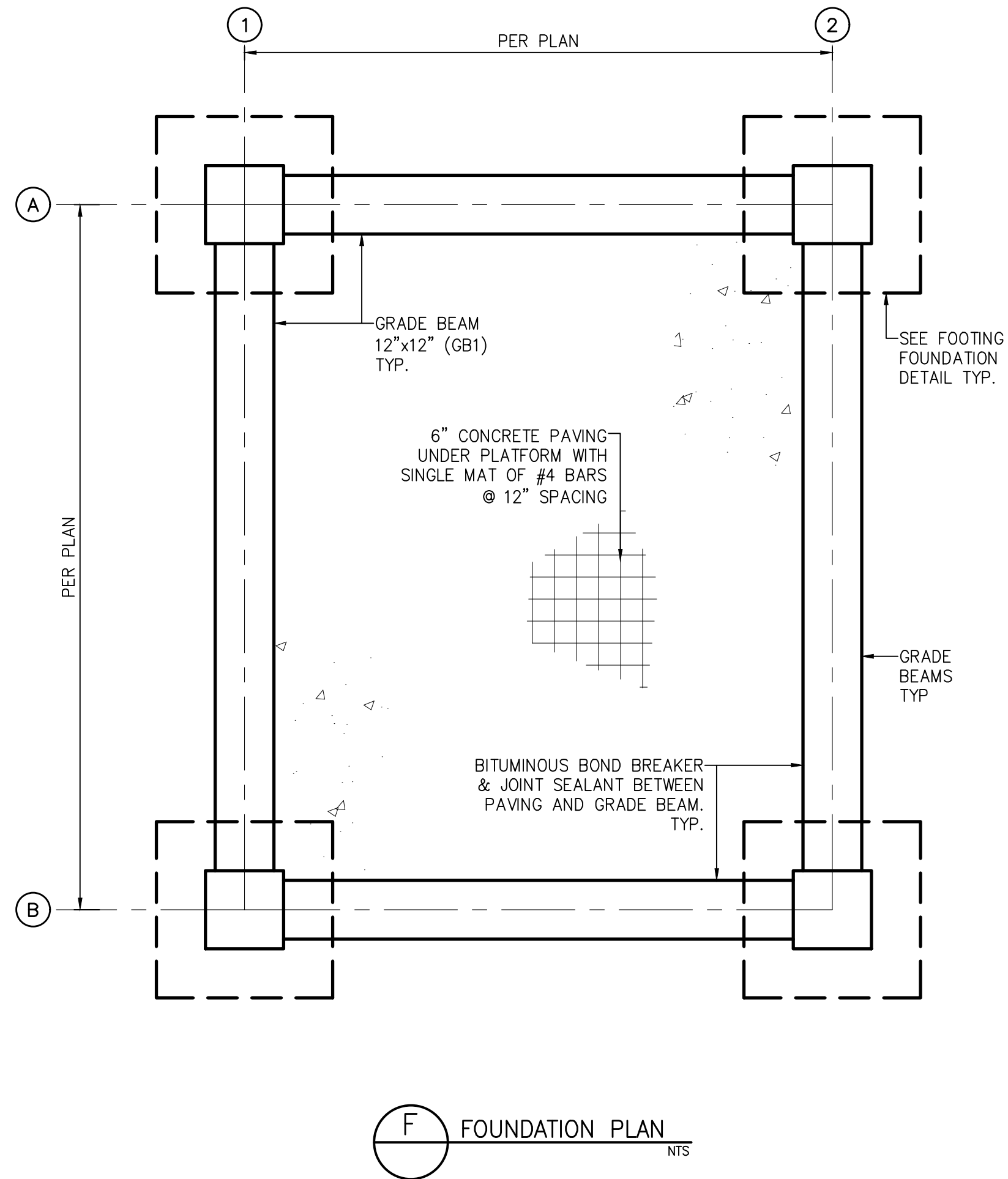
SURVEYED BY:
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FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION
STRUCTURAL -
RAISED ELECTRICAL PLATFORM
DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.230OF 291	



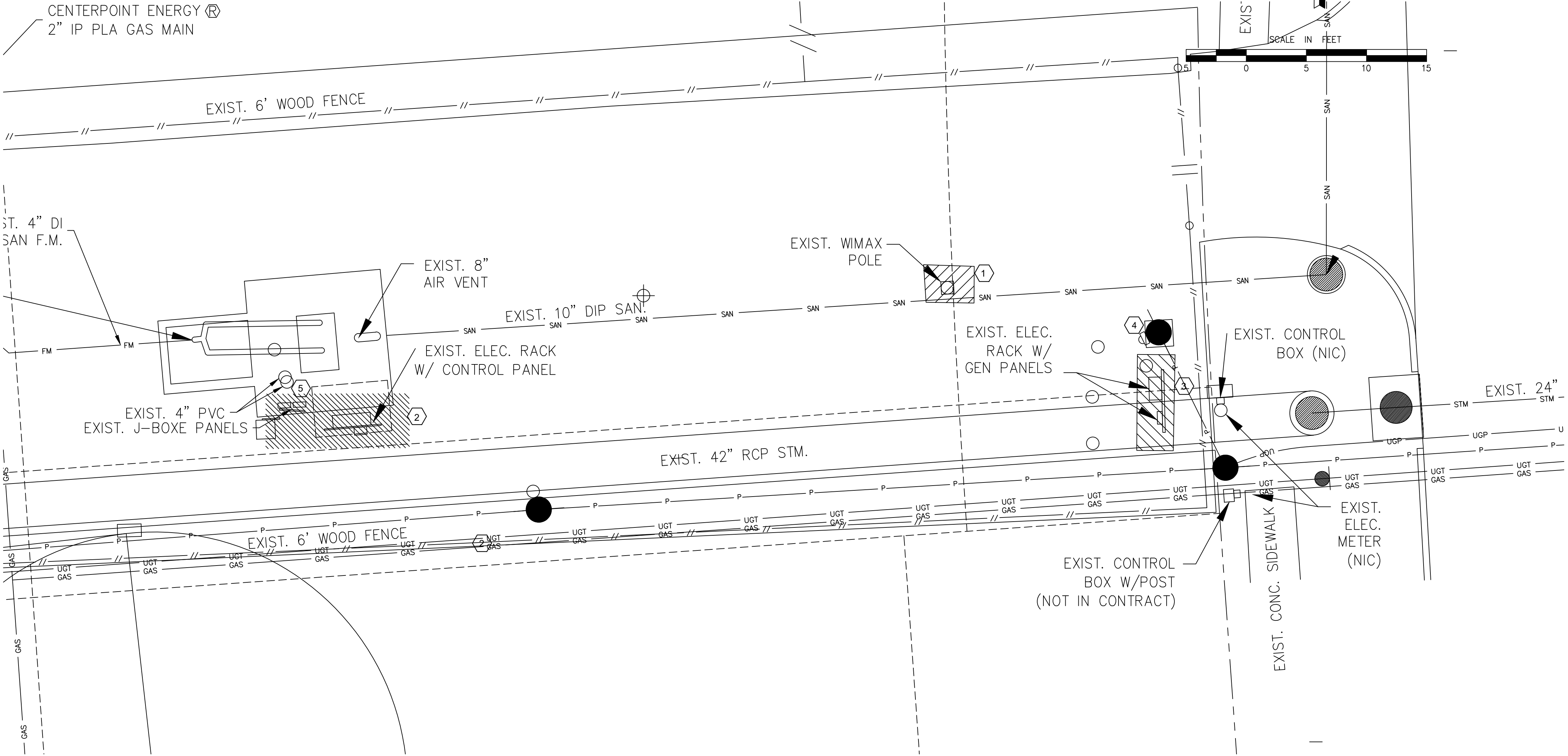
ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
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SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
BOONRIDGE LIFT STATION STRUCTURAL FOUNDATION DETAILS		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
NTS		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 231OF 291		

SCOPE OF ELECTRICAL WORK

- EXISTING WIMAX POLE, CIRCUITS, AND WIRING TO BE DEMOLISHED AND REPLACED. CAREFULLY REMOVE ALL MOUNTING HARDWARE AND OTHER ASSOCIATED EQUIPMENT, WHICH SHALL BE SAVE FOR POSSIBLE FUTURE USE IN RE-INSTALLING NEW EQUIPMENT.
- ALL DEMOLISHED/REMOVED EQUIPMENT IS TO BE RETURNED TO OWNER (COH) OR PROPERLY DISPOSED OF AT OWNER OPTION.
- EXISTING CONTROL PANEL, ASSOCIATED CIRCUITS AND WIRING TO BE DEMOLISHED AND REMOVED.
- THE GROUNDING EQUIPMENT, ELECTRODES, WIRING, AND ALL ACCESSIBLE ASSOCIATED EQUIPMENT SHALL BE REMOVED AND DISCARDED.

SCOPE OF ELECTRICAL WORK (CONT)

- EXISTING POWER COMPANY METER AND SERVICE EQUIPMENT TO BE REMOVED OR PRESERVED. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT.
- EXISTING MANUAL TRANSFER SWITCH, GENERATOR DISCONNECT, ASSOCIATED CIRCUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- CONTRACTOR SHALL CONSULT WITH POWER COMPANY AND ASSURE ALL POWER IS DISCONNECTED/REMOVED FROM THE SITE. CONTRACTOR SHALL THEN CAREFULLY REMOVE ALL EXISTING ELECTRICAL EQUIPMENT FROM THE SITE AND RETURN TO OWNER OR DISCARD ACCORDING TO CITY OF HOUSTON EQUIPMENT DISPOSAL REQUIREMENTS. CONSULT WITH CITY ENGINEER PRIOR TO CARRYING OUT ANY EQUIPMENT DEMOLITION.

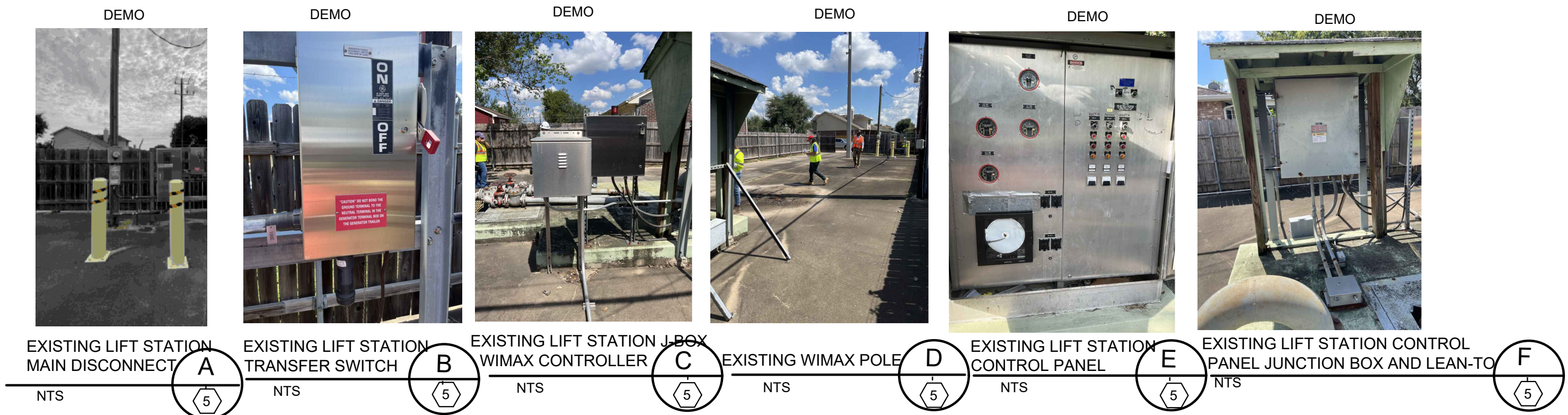


NOTES BY SYMBOL "1/5":

- EXISTING WIMAX POLE, CONDUITS AND WIRES TO BE DEMOLISHED AND REPLACED. SEE SPECIAL INSTRUCTIONS. IF TO BE REMOVED, OBSERVE ALL REQUIRED APPLICABLE CODES AND ORDINANCES IN DISPOSAL OF ALL EQUIPMENT.
- EXISTING LIFT STATION CONTROL PANEL, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING MTS, GENERATOR DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING MAIN SERVICE DISCONNECT, ASSOCIATED CONDUITS AND WIRES TO BE DEMOLISHED AND REMOVED.
- EXISTING ELECTRICAL EQUIPMENT AND DEVICE(PUMP J-BOXES) IN LIFT STATION TO BE DEMOLISHED AND REMOVED.

SPECIAL INSTRUCTIONS

- CONTRACTOR SHALL CONSULT WITH CITY ENGINEER IN CASE OF UNCERTAINTY OF STATUS OF EQUIPMENT TO BE DEMOLISHED TO DETERMINE WHAT, IF ANY EQUIPMENT, SHALL BE PRESERVED. SPECIFICALLY, THE ELECTRIC SERVICE METERING, SERVICE POLE, AND GROUNDING EQUIPMENT SHALL BE CAREFULLY EVALUATED, SO AS TO PRESERVE ANY EQUIPMENT THAT MAY BE DEEMED REUSABLE.



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
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Tx Firm No. 13481

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TEXAS P.E. #70302
DATE: 12/10/2025
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**BOONRIDGE LIFT STATION
ELECTRICAL DEMOLITION PLAN**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.232 OF 291	

1. PROVIDE AND INSTALL NEW ELECTRICAL EQUIPMENT FOR LIFT STATION AS SHOWN ON PLANS AND SPECIFICATIONS.
2. EXISTING W/ MAX POLE TO BE REMOVED AND DEMOLISHED. CAREFULLY PRESERVE POLE AND MOUNTING HARDWARE EQUIPMENT FOR POSSIBLE RE-USE.
3. CONTACT, CENTERPOINT ENERGY POWER CONSULTANT (713-207-2222) PRIOR TO DOING ANY WORK OR ORDERING ANY EQUIPMENT. SEE ADDITIONAL REQUIREMENTS GE-17, DETAIL SHEET.
4. PROVIDE NEW YARD LIGHTS AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.
5. PROVIDE NEW GROUNDING ELECTRODE SYSTEM AS SHOWN ON PLANS. COORDINATE EXACT LOCATION WITH CITY ENGINEER.



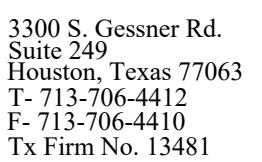
- NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811
AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES
CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR
OBLIGATION TO CALL 811

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.	

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

LJA Engineering, Inc.
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Suite 600
Houston, Texas 77042



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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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R-000267-0176-3

SCALE:

$$1''=5'$$

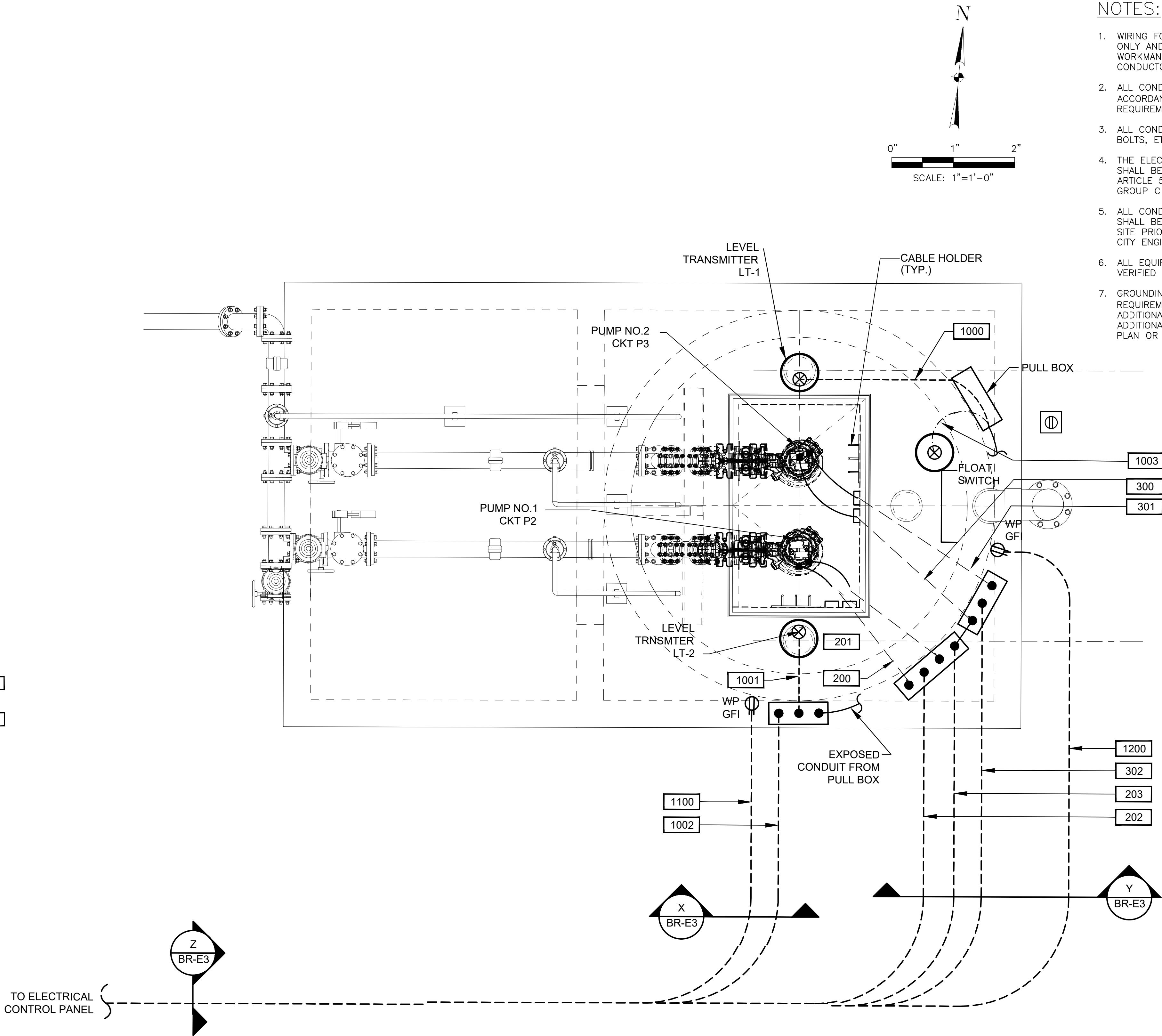
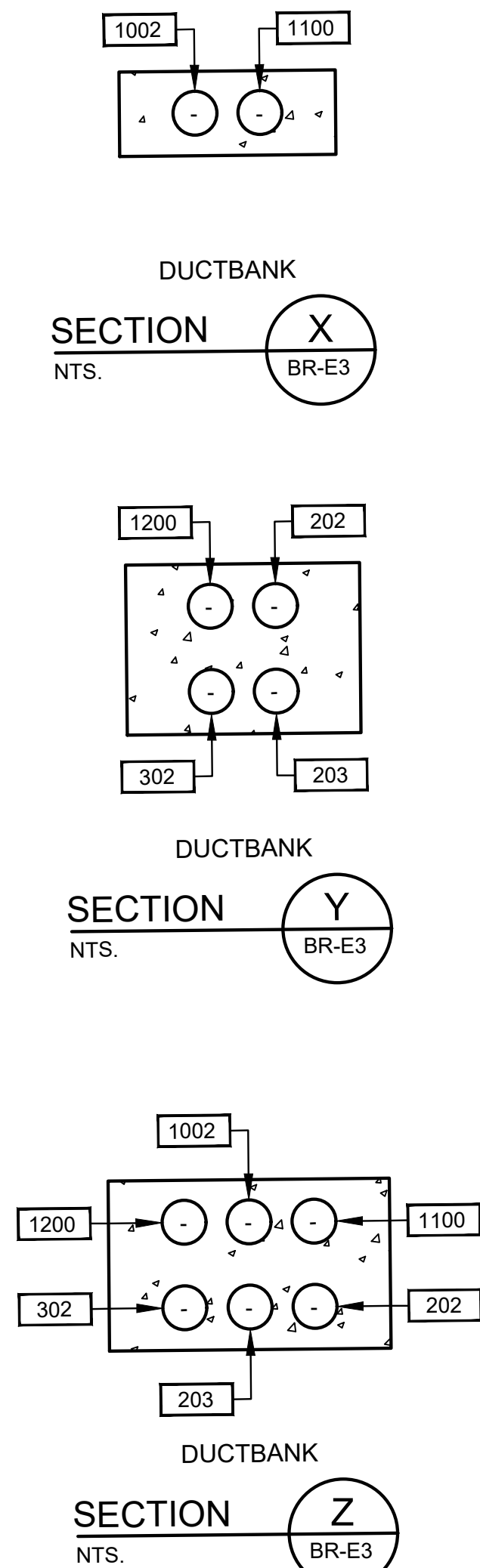
CITY OF HOUSTON PM

NAWARAJ PANTA, P.E.

SHEET NO. 233 OF 291

1. ALL WIMAX ELECTRICAL CONNECTIONS TO THE NEW WIMAX POLE SHALL BE UNDERGROUND, AND SHALL BE ROUTED IN A DIRECT MANNER TO THE WIMAX CONTROL PANEL LOCATED AT THE MAIN CONTROL PANEL. A QUAZITE J-BOX, 18"x18"x12", SHALL BE PROVIDED AT THE WIMAX POLE BASE ADJACENT TO THE WIMAX POLE. MAKE FINAL CONNECTION IN A WORKMANLIKE MANNER. ALL WIRE CONNECTIONS SHALL BE POTTED (SUITABLE FOR CONTINUOUS SUBMERSION).
2. GROUNDING RING TO BE 3/0 AWG BARE COPPER STRANDED WIRE BURIED 3'0" BELOW GRADE. SAMPLE INSPECTION POINTS TO BE FIELD LOCATED TO COMPLY WITH PROPERTY LINES AND EASEMENT REQUIREMENTS.
3. TIE UNDERGROUND GROUND RING SHALL BE BONDED TO ALL FENCE SECTIONS AND AREAS WITH APPROVED GROUND CLAMPS. ALL GROUND CONNECTORS SHALL BE UL APPROVED AND CERTIFIED FOR THE APPLICATION.
4. POLE LIGHTS, SERVICE RACK CONTROL PANEL, AND UNDERGROUND CONDUITS, WIRES, AND JUNCTION BOXES SHALL BE FIELD LOCATED IF DIRECTED BY CITY ENGINEER.

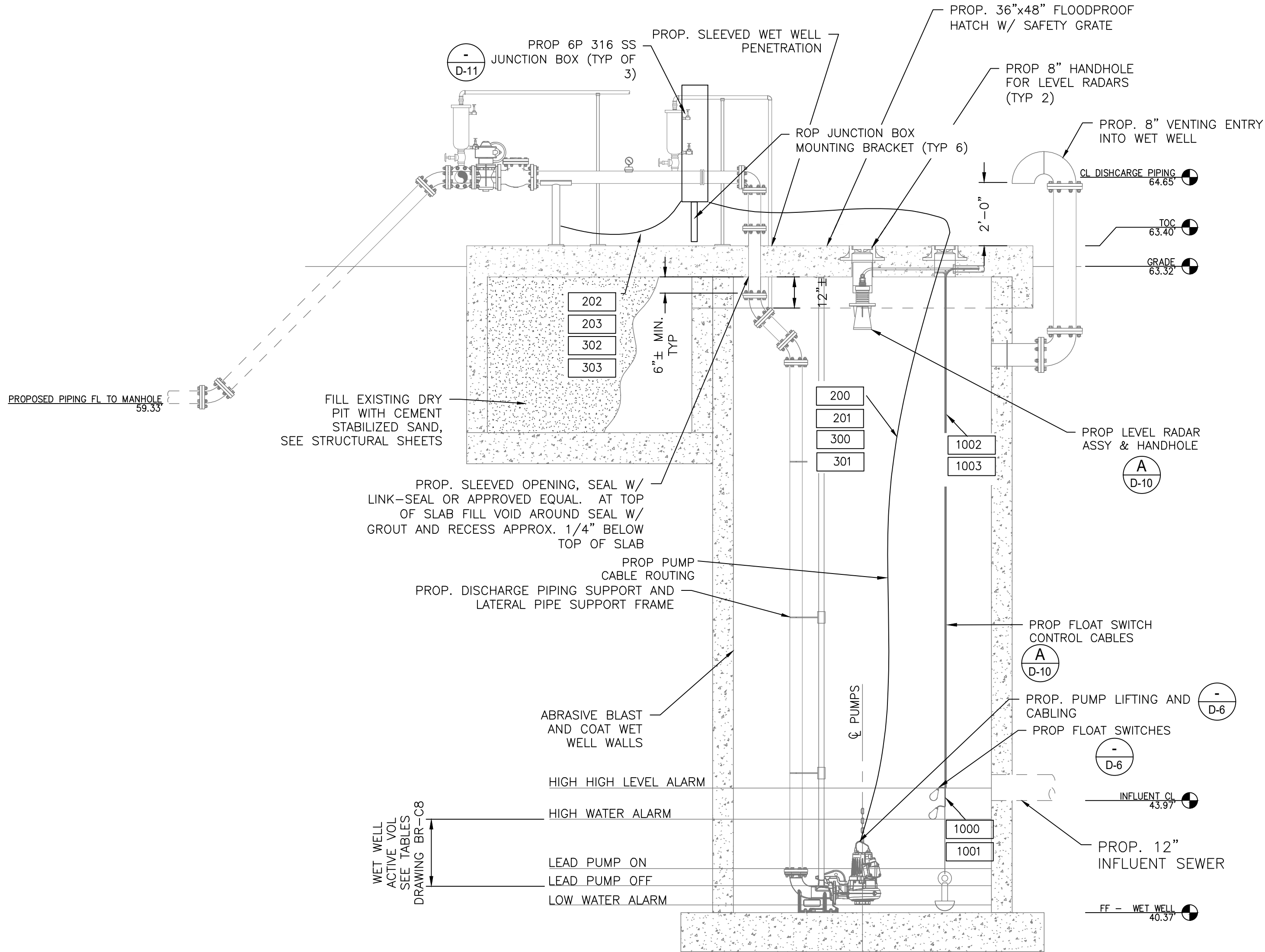
UDS - UTILITY DISC SWITCH
MTR - PWR CO METER
SVCDS - ELEC SVC DISC
MTS - MANUAL TRANSFER SWITCH
GD - GENERATOR DISCONNECT
CTL PNL/WM - CONTROL PANEL/WMAX



BOONRIDGE LIFT STATION
PLAN VIEW @ GRADE- PROPOSED

SPECIAL INSTRUCTIONS:

1. JUNCTION BOXES SHALL BE MOUNTED ON TOP-OF-SLAB. PROVIDE NEMA 6P PANEL CONSTRUCTION.



1 HIGH PROFILE CONFIGURATION $3/8" = 1'=0"$

NOTES:

1. WIRING FOR PUMPS AND ACCESSORIES IS DIAGRAMMATIC ONLY AND ROUTING SHALL IN AN EXPEDITIOUS AND WORKMANLIKE MANNER. COORDINATE ALL CONDUIT AND CONDUCTOR ROUTING WITH CITY ENGINEER.
2. ALL CONDUIT AND WIRING SHALL BE SUPPORTED IN ACCORDANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. NO EXCEPTIONS.
3. ALL CONDUIT SUPPORTS AND SUPPORT DEVICES, NUTS, BOLTS, ETC. SHALL BE 316 STAINLESS STEEL.
4. THE ELECTRICAL INSTALLATION WITHIN THE WET WELL SHALL BE EXPLOSION PROOF IN ACCORDANCE WITH ARTICLE 501 OF THE NEC FOR CLASS I, DIVISION 1, GROUP C & D.
5. ALL ELECTRICAL CONTROL CABINETS SHALL BE RAISED TO 500 YEAR FLOOD ELEVATION + 3 FEET.
6. CONTRACTOR SHALL FIELD VERIFY ALL CONDUIT AND CONDUCTOR SIZES AND ENTRY LOCATIONS AND CONSULT WITH CITY ENGINEER PRIOR TO DOING ANY WORK.
7. ALL ELECTRICAL INSTALLATIONS SHALL BE FIELD LOCATED WITH ASSISTANCE OF CITY ENGINEER.
8. JUNCTION BOX LOCATION SHOWN DIAGRAMMATIC FOR DRAWING CLARITY. JUNCTION BOXES SHALL BE FIELD LOCATED AT WET WELLS WITH ASSISTANCE OF CITY ENGINEER. JUNCTION BOXES SHALL BE NEMA 6P 316 SS.

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Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

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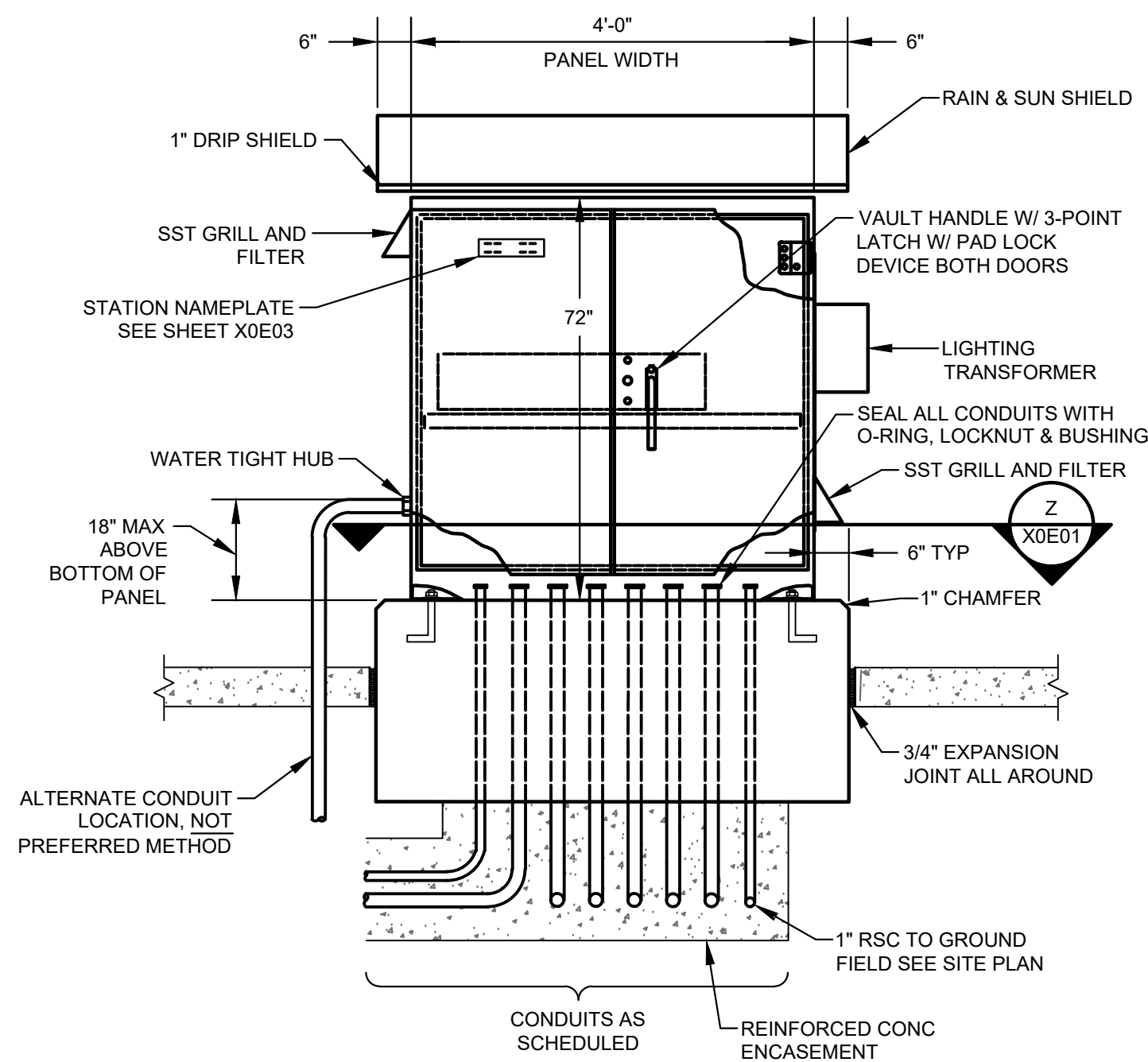
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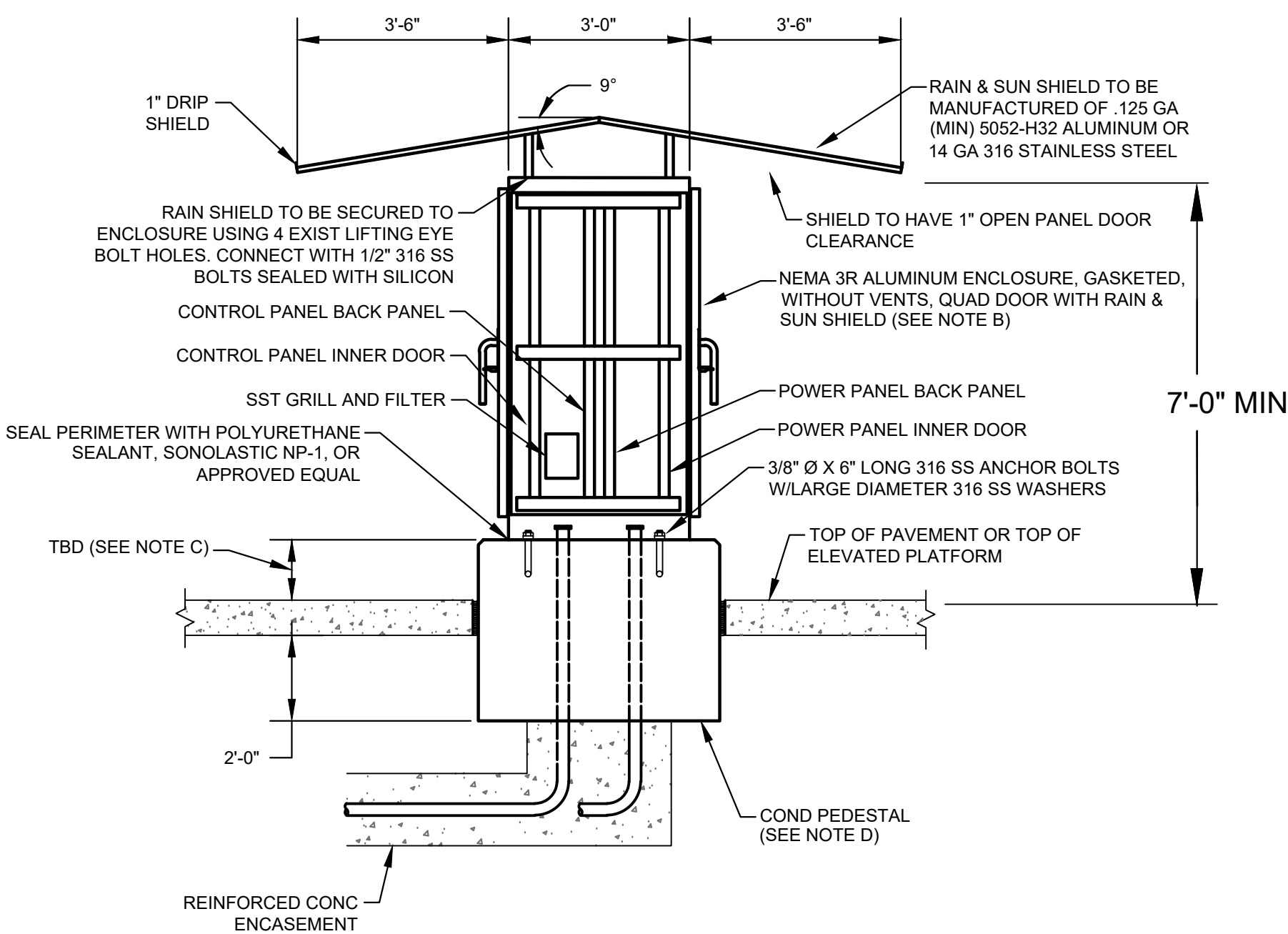
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION
ELEVATED SECTION 2 PUMP
CONDUIT ROUTING ALTERNATIVE
HIGH PROFILE CONFIGURATION

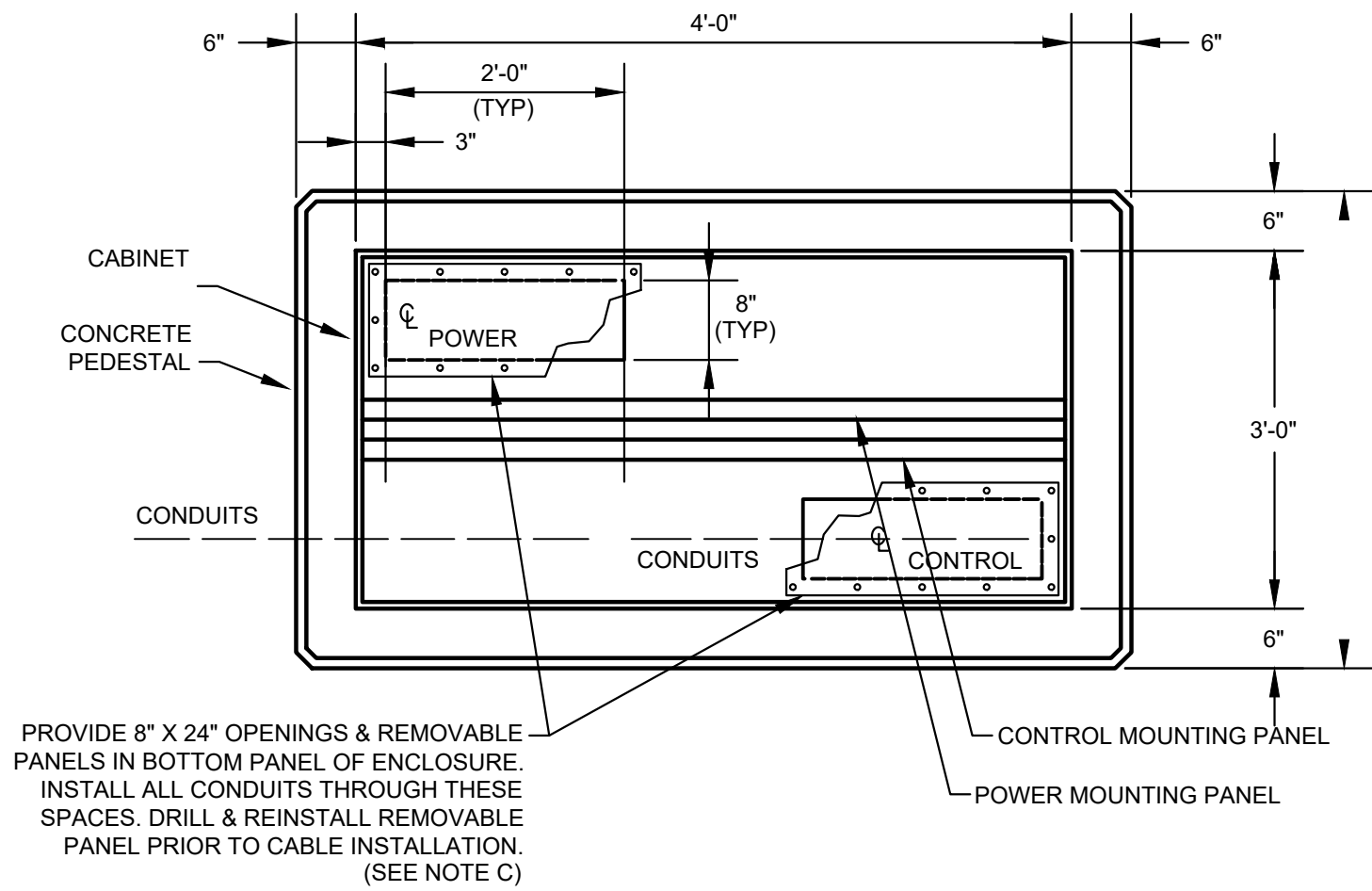
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
3/8"=1'-0"	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.235OF 291	



CONTROL CABINET ENCLOSURE WITH CONCRETE PEDESTAL FOUNDATION
(SEE NOTE 6)



- NOTES:
- SEE SHEET X0E02 FOR EQUIPMENT SCHEDULE.
 - REFER TO SPECIFICATION SECTION 13325 PROCESS CONTROL SYSTEMS CONTROL PANELS FOR PANEL DIMENSIONS.
 - COMMUNICATION PANEL TO BE INSTALLED ABOVE SERVICE RACK ELEVATION.
 - EXPANSION JOINT FITTINGS TO BE PROVIDED AS REQUIRED.
 - REFER TO SERVICE RACK FOR DETAIL.
 - NOT USED
 - REFER TO STRUCTURAL DRAWINGS "ZOS04, ZOS05, & ZOS06" FOR PLATFORM DETAIL.



SECTION
NTS

Z
X0E01

ELECTRICAL NOTES

- CONTRACTOR SHALL VERIFY AND ADJUST, AS REQUIRED, SIZE OF REMOVABLE PANEL IN CABINET. OPENING SHALL BE SUFFICIENT TO ACCOMMODATE ALL REQUIRED CONDUITS.
- THIS LIFT STATION IS LOCATED IN AN AREA THAT IS DESIGNATED BY THE CITY OF HOUSTON ORDINANCE AND THE RELATED TSARP MAPS AS BEING IN A FLOOD HAZARD ZONE. THE ELEVATION OF THE TOP OF THE CONCRETE PEDESTAL ON WHICH THE CONTROL PANEL IS MOUNTED SHALL BE ONE (1) FOOT ABOVE THE TOP OF CONCRETE OF THE ELEVATED CONCRETE PLATFORM. MINIMUM CLEARANCE DISTANCES BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE HAND RAIL AROUND THE PERIMETER OF THE ELEVATED CONCRETE PLATFORM AND BETWEEN THE SIDE WALLS OF THE CONCRETE PEDESTAL AND THE MANUAL TRANSFER SWITCH ARE NOTED IN THE DETAILS.
- CONTRACTOR SHALL ENSURE THE ELECTRICAL EQUIPMENT INSTALLATION FINISHED FLOOR MEETS THE REQUIREMENTS OF THE LATEST VERSION OF THE COH CODE OF ORDINANCE, CHAPTER 19 FLOOD PLAIN.
- THE CONTROL PANEL DOORS SHALL FACE NORTH AND SOUTH WHERE FEASIBLE
- PROVIDE MINIMUM OF 7'-0" CLEARANCE BETWEEN EDGE OF DRIP SHIELD COVER AND TOP OF PLATFORM.

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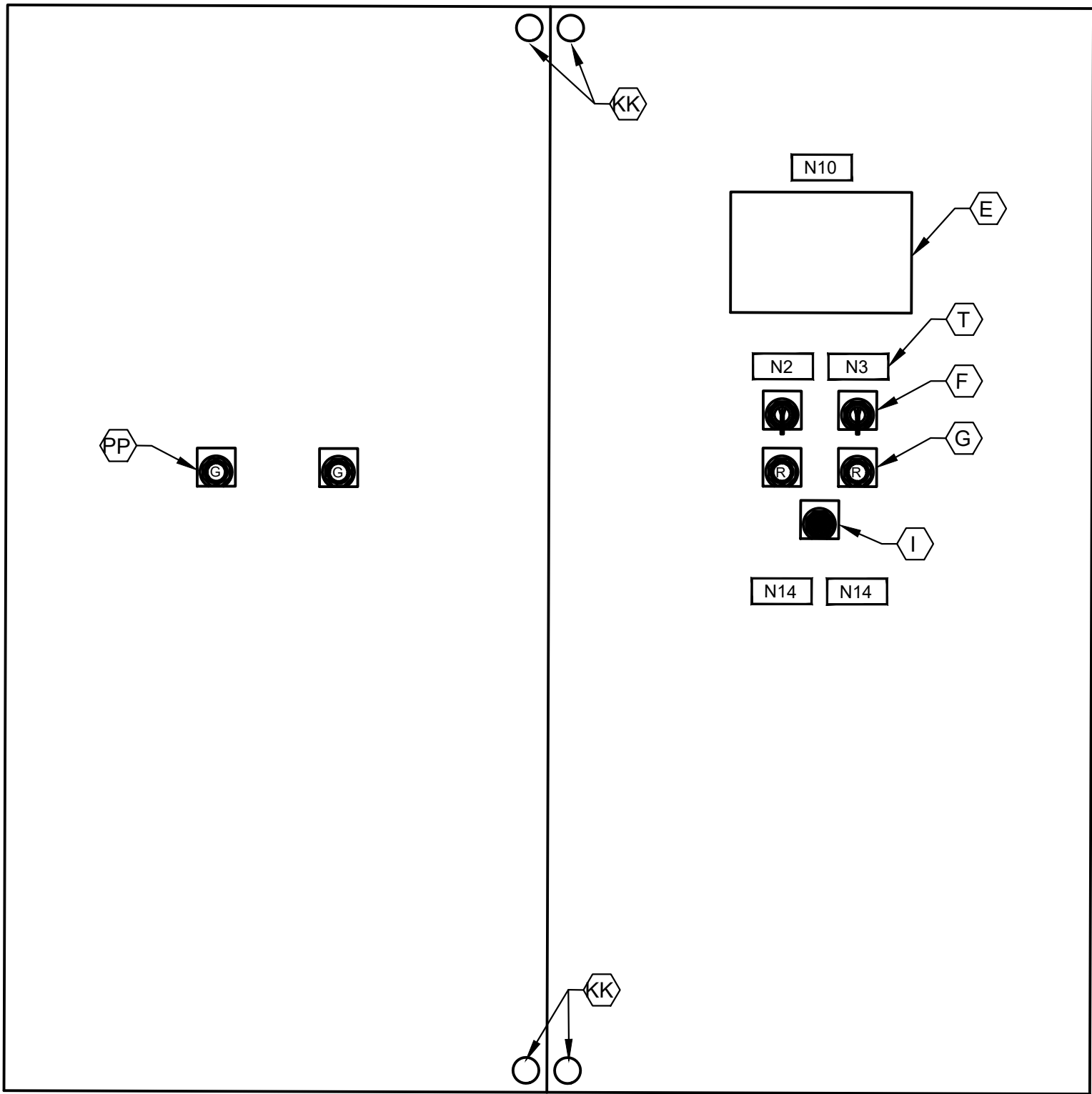
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET ENCLOSURE	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.236 OF 291	

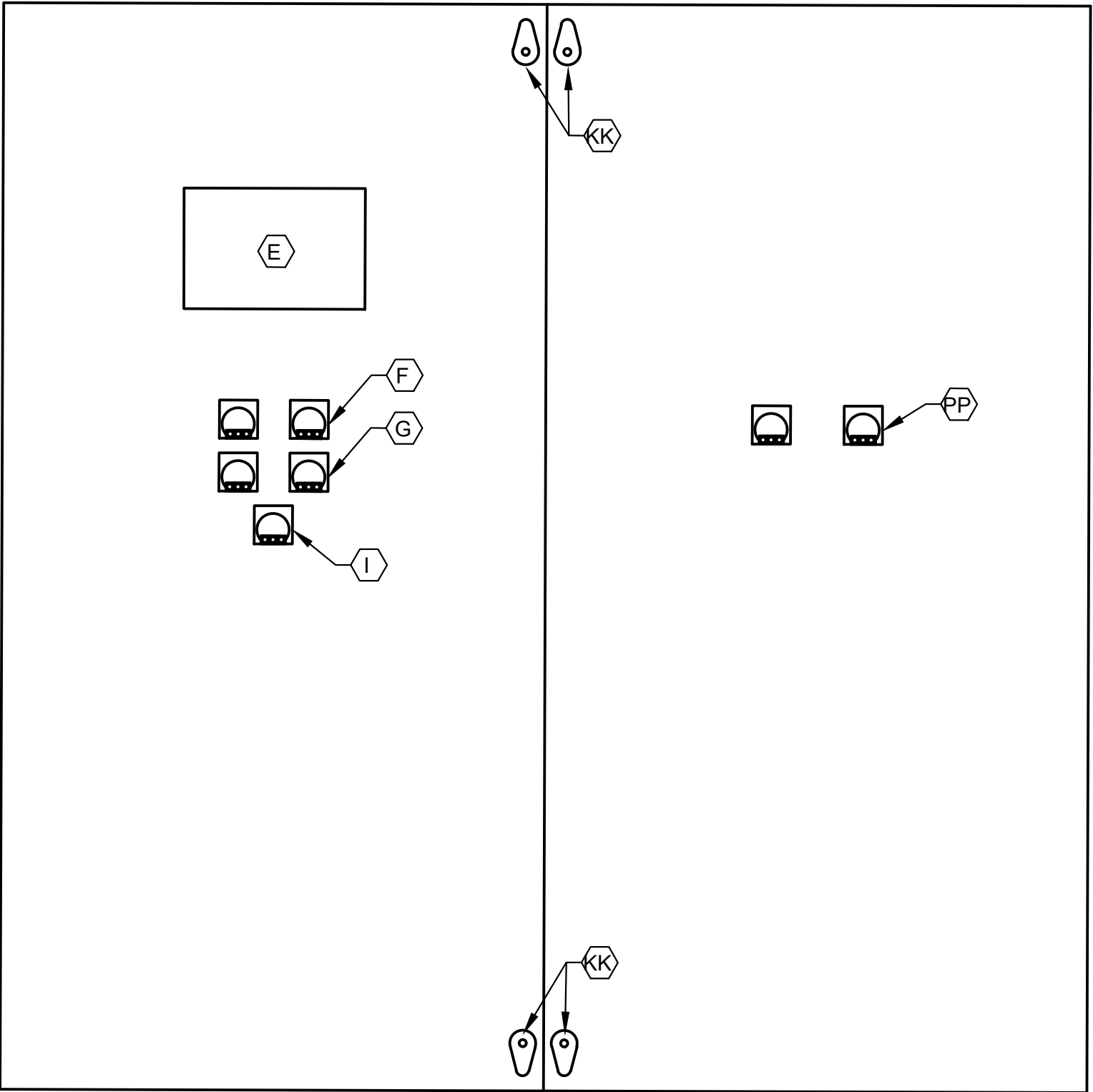
EQUIPMENT AND DEVICE SCHEDULE		
ITEM	QUANTITY	DESCRIPTION
A	1	PANEL BOARD, 120/240V, 1 PHASE, 3 WIRE, 100A, 12 CKTS
B	2	FULL VOLTAGE, NON-REVERSING, SINGLE SPEED, AUTOMATIC MOTOR STARTER W/120 VOLT CONTROL COIL, NEMA SIZE AS SCHEDULED.
C	2	TIME DELAY RELAY WITH THREE FORM C CONTACTS, 120VAC COIL AND 11 PIN SOCKET BASE.
D	1	SINGLE CHANNEL INTRINSICALLY SAFE RELAY
E	1	PROGRAMMING SCREEN (OIT)
F	2	HAND-OFF-AUTO SWITCH, 3 POSITION, HEAVY-DUTY, OILTIGHT WITH 2 SETS OF CONTACT BLOCKS (PUMP CONTROL)
G	2	INDICATING LIGHT, HEAVY DUTY, OILTIGHT, RED, 24 VDC, LED, WITH "RUN" LEGEND
H	1	PERPETUAL POWER UNIT (PPU)
I	1	PUMP ALARM RESET PUSHBUTTON
J	2	SWITCH FOR CABINET LIGHT, 120V, 20A, SPST
K	3	DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUNDED
L	2	24" LED STRIP LIGHT 120V SUITABLE FOR ZERO DEGREE OPERATION.
M	1	SURGE PROTECTOR - INCOMING POWER
N	*	NOT USED.
P	2	CURRENT TRANSFORMER, RATIO AS SCHEDULED W/4-20mA OUTPUT.
Q	12	TERMINAL BLOCKS, SIZED FOR MOTOR POWER REQUIREMENTS
R	1	WIRE DUCT 2" WIDE X 2" DEEP MINIMUM
S	*	NOT USED.
T	*	NAMEPLATES, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
U	2	SOLID STATE MOTOR OVERLOAD RELAY
V	6	FUSE HOLDER & FUSES - PHASE FAILURE
W	1	NEMA 3R GASKETED ALUMINUM ENCLOSURE WITHOUT VENTS
X	1	DOOR MOUNTED ROTARY HANDLE DISCONNECT SWITCH (SUITABLE FOR ENVIRONMENT)
Y	1	THERMAL-MAGNETIC MOLDED CASE MAIN CIRCUIT BREAKER, SIZE AS SCHEDULED
Z	2	ADJUSTABLE INSTANTENOUS TRIP MOTOR CIRCUIT PROTECTOR, SIZE AS SCHEDULED
AA	*	TERMINAL BLOCKS
BB	2	EXTERNAL OVERLOAD RESET PUSHBUTTON MECHANISM
CC	2	ANALOG I/O SURGE SUPPRESSOR
DD	1	WIRE DUCT 2" WIDE x 2" DEEP MINIMUM
EE	1	THERMAL-MAGNETIC MODLED CASE CIRCUIT BREAKER FOR LIGHTING TRANSFORMER, SIZE AS SCHEDULED
FF	1	GROUND BUS
GG	1	10 KVA, 480 - 240/120V,1ϕ, 3W DRY TYPE NEMA 3R ENCLOSURE TRANSFORMER
HH	*	NOT USED.
II	1	120VAC - 24VAC POWER SUPPLY (AS REQUIRED)
JJ	11	CARTRIDGE FUSES & FUSE HOLDER
KK	8	QUARTER TURN CAPTIVE DOOR CLOSURE
LL	1	120VAC - 24VDC PLC POWER SUPPLY 5A
MM	2	MOTION SWITCH
NN	*	NOT USED
PP	2	INDICATING LED LIGHT, HEAVY DUTY, OILTIGHT, GREEN, 24 VDC, LED WITH " PRIMARY PLC" & "BACKUP PLC" LEGEND
QQ	*	NOT USED
RR	*	NOT USED
SS	1	COMMUNICATION ETHERNET SWITCH
TT	1	POWER SURGE PROTECTOR - CONTROL POWER
UU	2	PROGRAMMABLE LOGIC CONTROLLER WITH EXPANSION UNIT
VV	1	PHASE AND UNDER VOLTAGE MONITOR
WW	*	FUSED TERMINAL BLOCKS
XX	2	PUMP PROTECTION MODULE RATED FOR CLASS I, DIVISION I
YY	2	ANALOG SIGNAL ISOLATOR
ZZ	2	POWER FACTOR CORRECTION CAPACITOR NEMA 3R STAINLESS STEEL
AB	-	NOT USED.
AC	1	POWER DISTRIBUTION BLOCK
AD	1	NEUTRAL LUG
AE	1	6" EXHAUST FAN, 120V, STAINLESS FILTERS & GRILL PACKAGE W/BUG GUARD
AF	1	T-STAT FOR EXHAUST FAN

* - AS SCHEDULED



CONTROL PANEL FRONT INNER DOOR

ELEVATION
NTS



CONTROL PANEL BACK INNER DOOR

ELEVATION

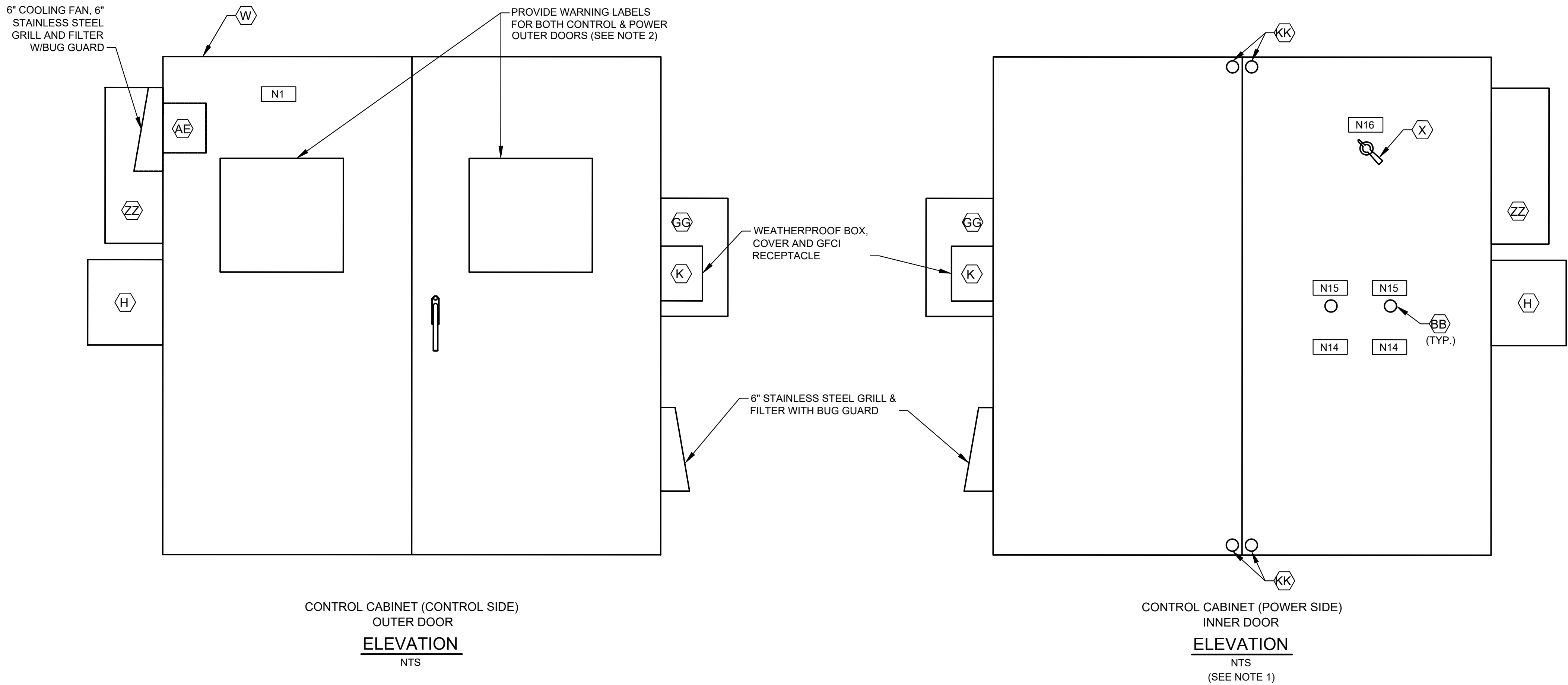
NOTES:

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

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT & SCHEDULE	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
N.T.S	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.237 OF 291	

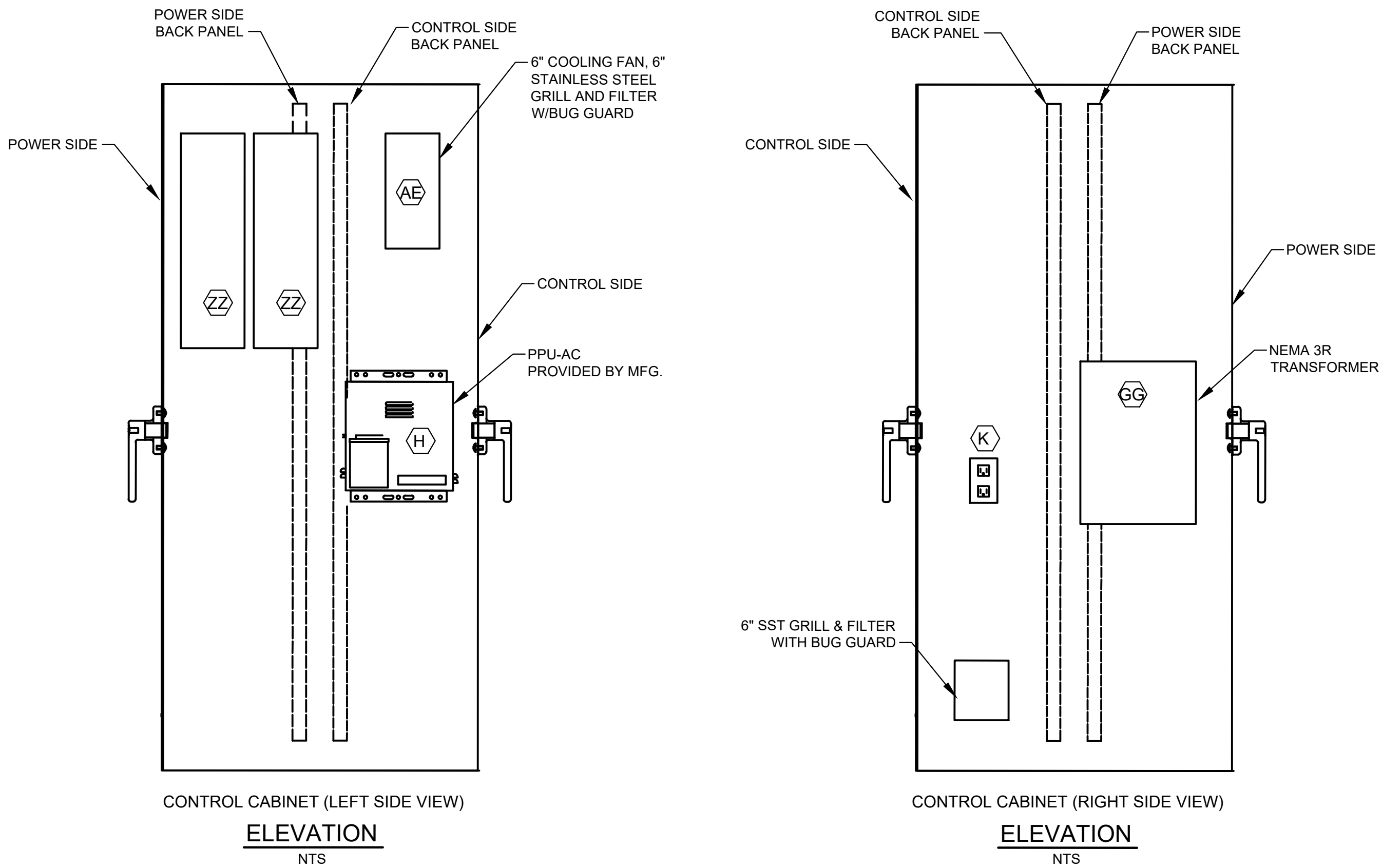


NAMEPLATE SCHEDULE

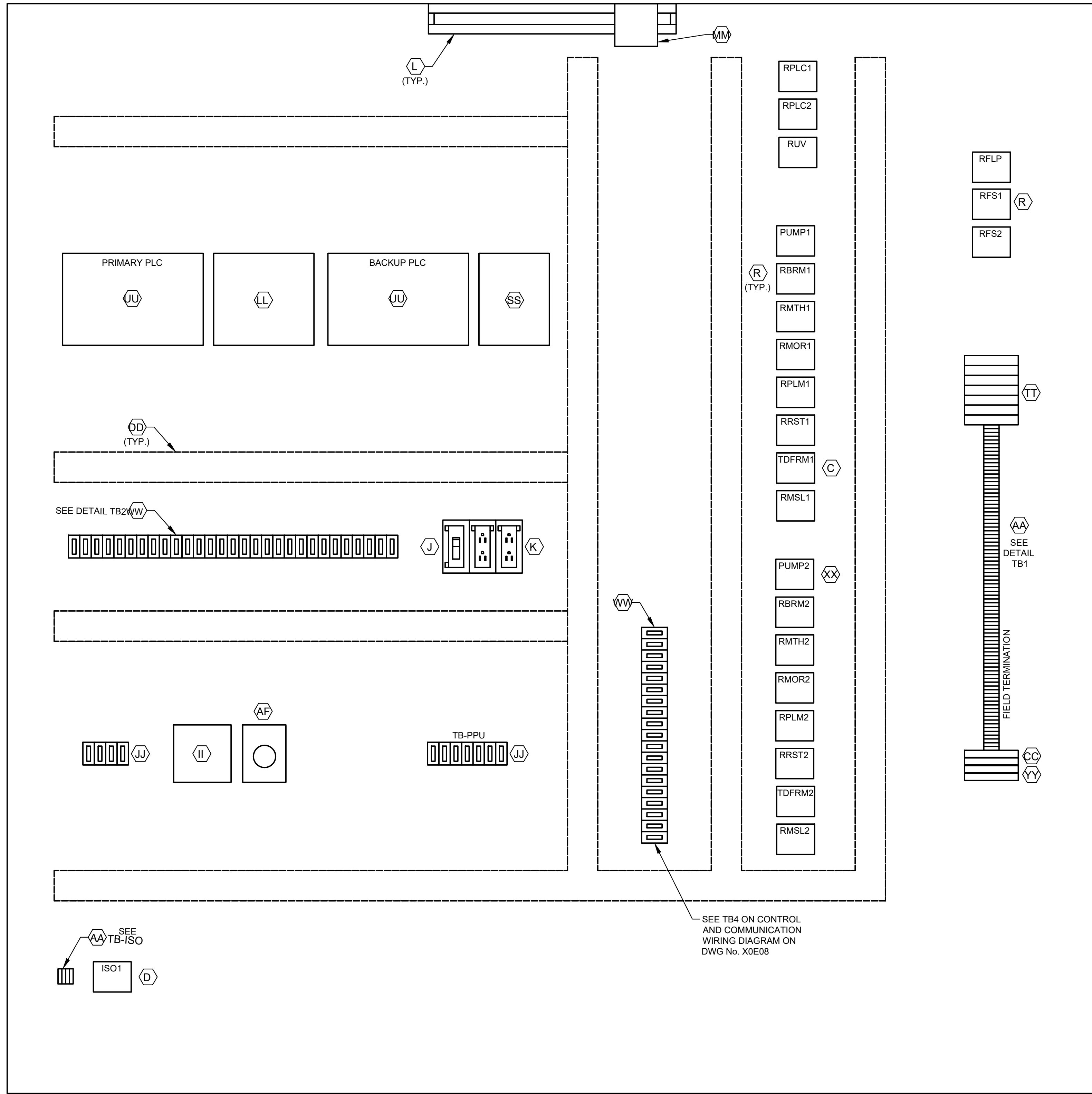
DESIGNATION	ENGRAVED	DESIGNATION	ENGRAVED
N1	PUMP STATION DESIGNATION	N8	NOT USED.
N2	PUMP NO. 1	N9	NOT USED.
N3	PUMP NO. 2	N10	PROGRAMMING SCREEN
N4	NOT USED.	N11	NOT USED.
N5	NOT USED.	N12	PRIMARY PLC
N6	NOT USED.	N13	BACKUP PLC
N7	NOT USED.	N14	MOTOR DATA
			HORSEPOWER (OUTPUT)
			RPM AT FULL LOAD
			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)-
			EXTERNAL OVERLOAD RESET PUSH BUTTON MECHANISM
		N15	
		N16	MAIN BREAKER

NOTES:

- SEE SHEET BR-E6 FOR EQUIPMENT SCHEDULE.
- REFER TO NEC SECTIONS 110.16 & 110.21



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SCALE:		
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SHEET NO.238OF 291		



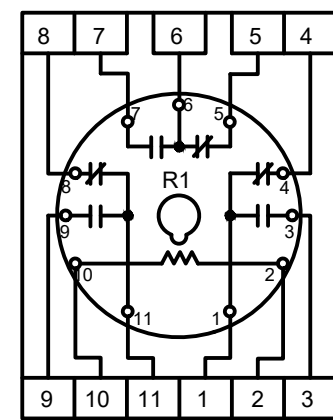
CONTROL PANEL ELEVATION

L1A
L1N
SPARE
3
3N
SPARE
49
50
51
52
53
54
1004
1
24V-
24V-
1002
2
11
1001
1001A
12
1003
1003A
1002
1004
18
3N
19
20
36
36N
41
42
43
44
L1A
L1N
103
104
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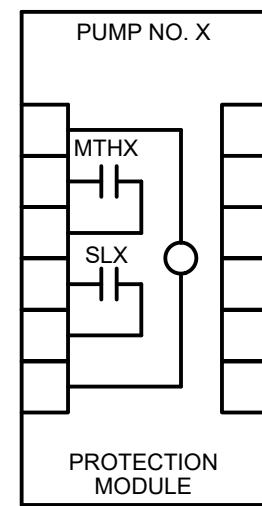
36A
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L+
M
35B
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L+
M
14B
14AB
14GB
L+
M
13
13A
13G
14
14A
14G
SPARE
18
SPARE
28
29
32
35B
33
42
44
SPARE
103
104
115
109
110
118
120
121
122
123
SPARE
209
210
211
218
220
222
223

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
RFLP	FLOAT LOCKOUT PUMP RELAY



RELAY DETAIL
ITEM C



PUMP PROTECTION MODULE
DETAIL, ITEM XX

NOTE: REPLACE "X" WITH
APPROPRIATE PUMP NO.

DETAIL TB1 DETAIL TB2 DETAIL TB-ISO
ALL L AND N FOR
EACH PUMP
CONTROL TO BE
FUSED

NOTES:

1. SEE SHEET BR-E6 FOR EQUIPMENT SCHEDULE.

ISSUE	DATE	DESCRIPTION

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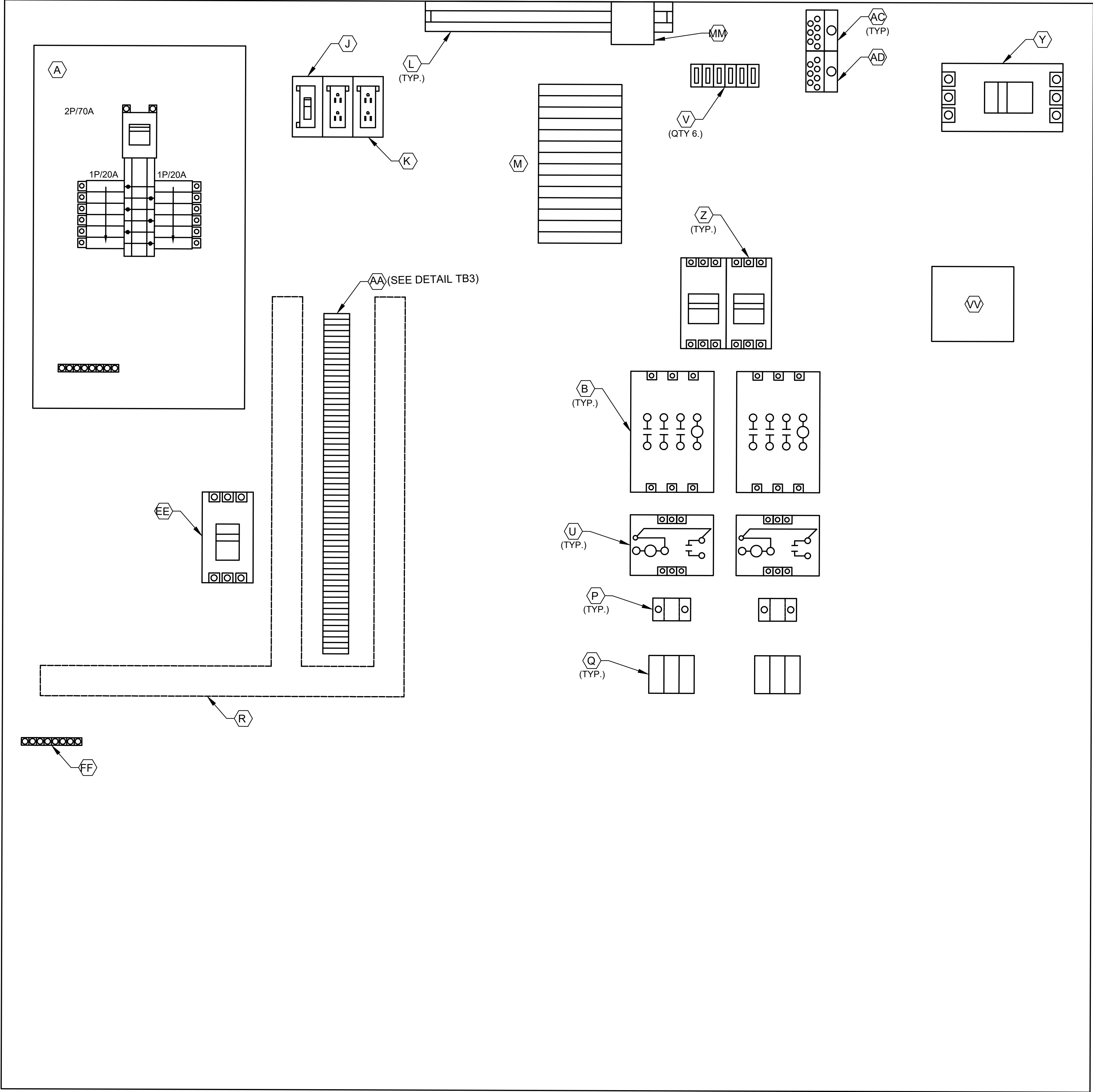
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION
2 PUMP OUTDOOR CONTROL
CABINET EQUIPMENT LAYOUT II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.239 OF 291	



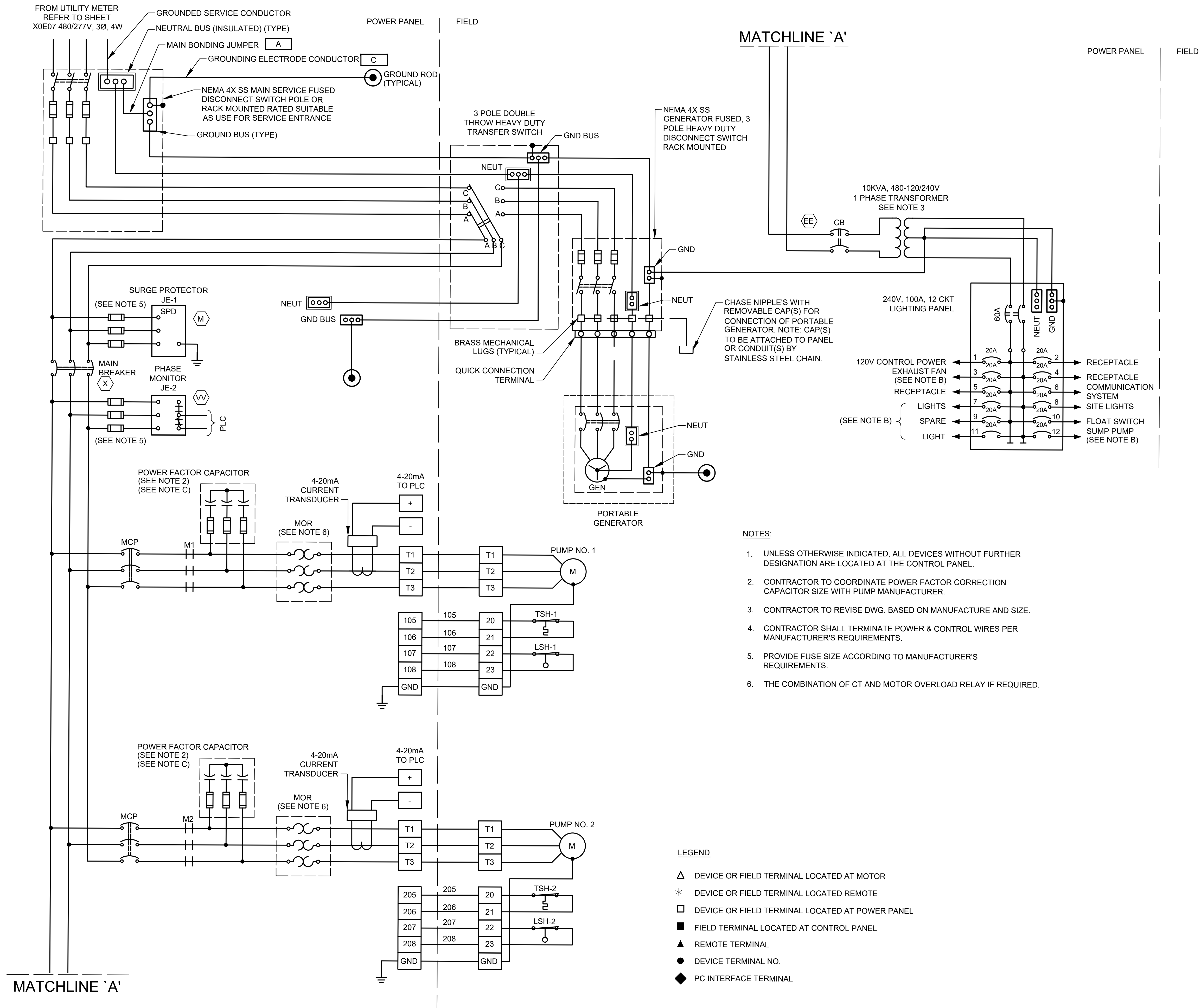
POWER PANEL
ELEVATION

NOTES:
1. SEE SHEET BR-E6 FOR EQUIPMENT SCHEDULE.

3
18
L1A
L1N
SPARE
SPARE
103
104
105
106
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SPARE
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208
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213
215
216
219
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE

DETAIL TB3

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 249 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
 Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
SURVEYED BY: KUO ASSOC FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL CABINET EQUIPMENT LAYOUT III		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.240OF 291		



NOTES:

- UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE CONTROL PANEL.
- CONTRACTOR TO COORDINATE POWER FACTOR CORRECTION CAPACITOR SIZE WITH PUMP MANUFACTURER.
- CONTRACTOR TO REVISE DWG. BASED ON MANUFACTURE AND SIZE.
- CONTRACTOR SHALL TERMINATE POWER & CONTROL WIRES PER MANUFACTURER'S REQUIREMENTS.
- PROVIDE FUSE SIZE ACCORDING TO MANUFACTURER'S REQUIREMENTS.
- THE COMBINATION OF CT AND MOTOR OVERLOAD RELAY IF REQUIRED.

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

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

FCM Engineers, PC
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Suite 249
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TEXAS P.E. #70302

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FB NO. P-6409

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

**BOONRIDGE LIFT STATION
2 PUMP OUTDOOR INCOMING
POWER THREE LINE DIAGRAM**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 2410F 291	

-
- 10KVA,
480-120/240V,
1φ, NEMA 3R
TRANSFORMER,
WALL MOUNTED
(SEE NOTE D)

LOAD CALCULATION			
ITEM	DESCRIPTION	HP	FLA*
1	PUMP NO. 1	5.5HP	6.9A
2	PUMP NO. 2	5.5HP	6.9A
3	10 KVA TRANSFORMER		20.8A
SUBTOTAL			34.6A
25% OF LARGEST MOTOR LOAD			1.7A
MINIMUM AMPACITY @480V,3φ			35.6A

* BASED ON SELECTED PUMP MFG DATA
(CONTRACTOR SHALL FIELD VERIFY ALL DATA)

ISSUE	DATE	DESCRIPTION

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Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386

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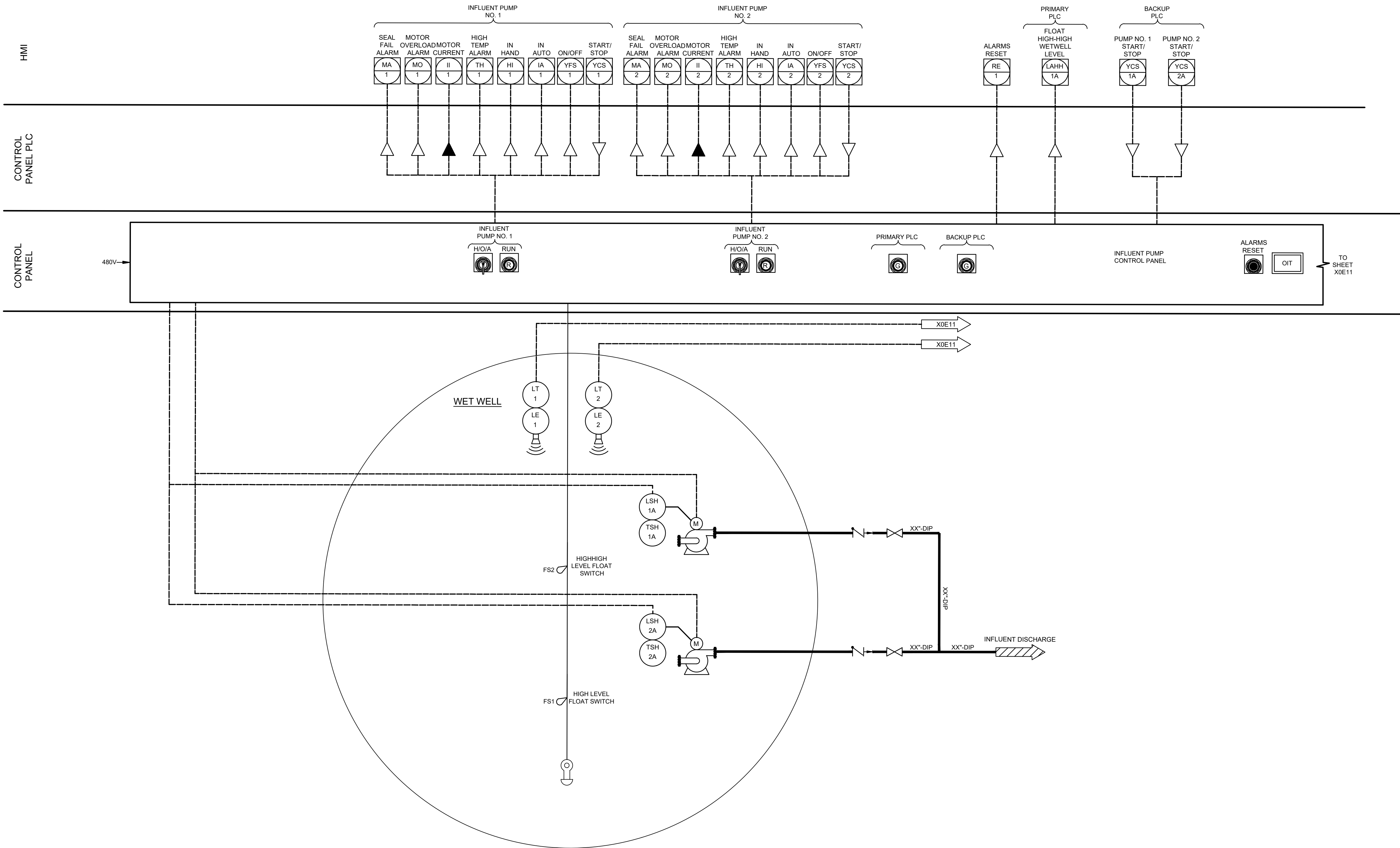
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL SINGLE LINE DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 242 OF 291	



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Suite 600
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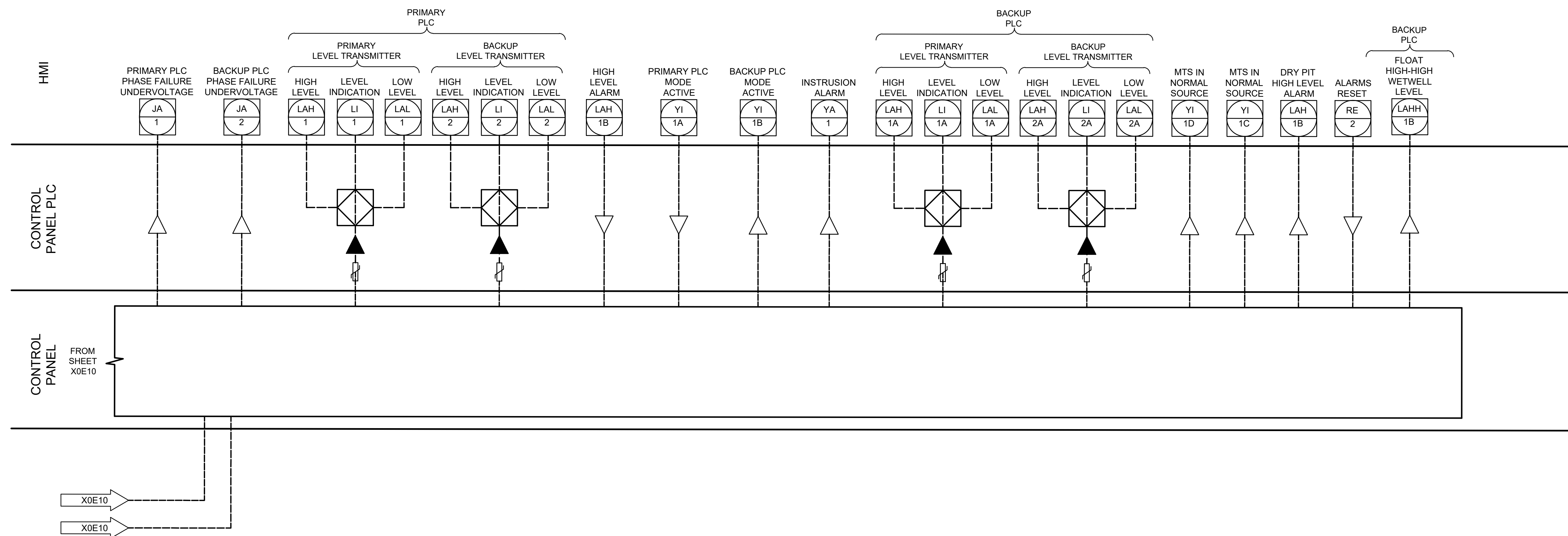
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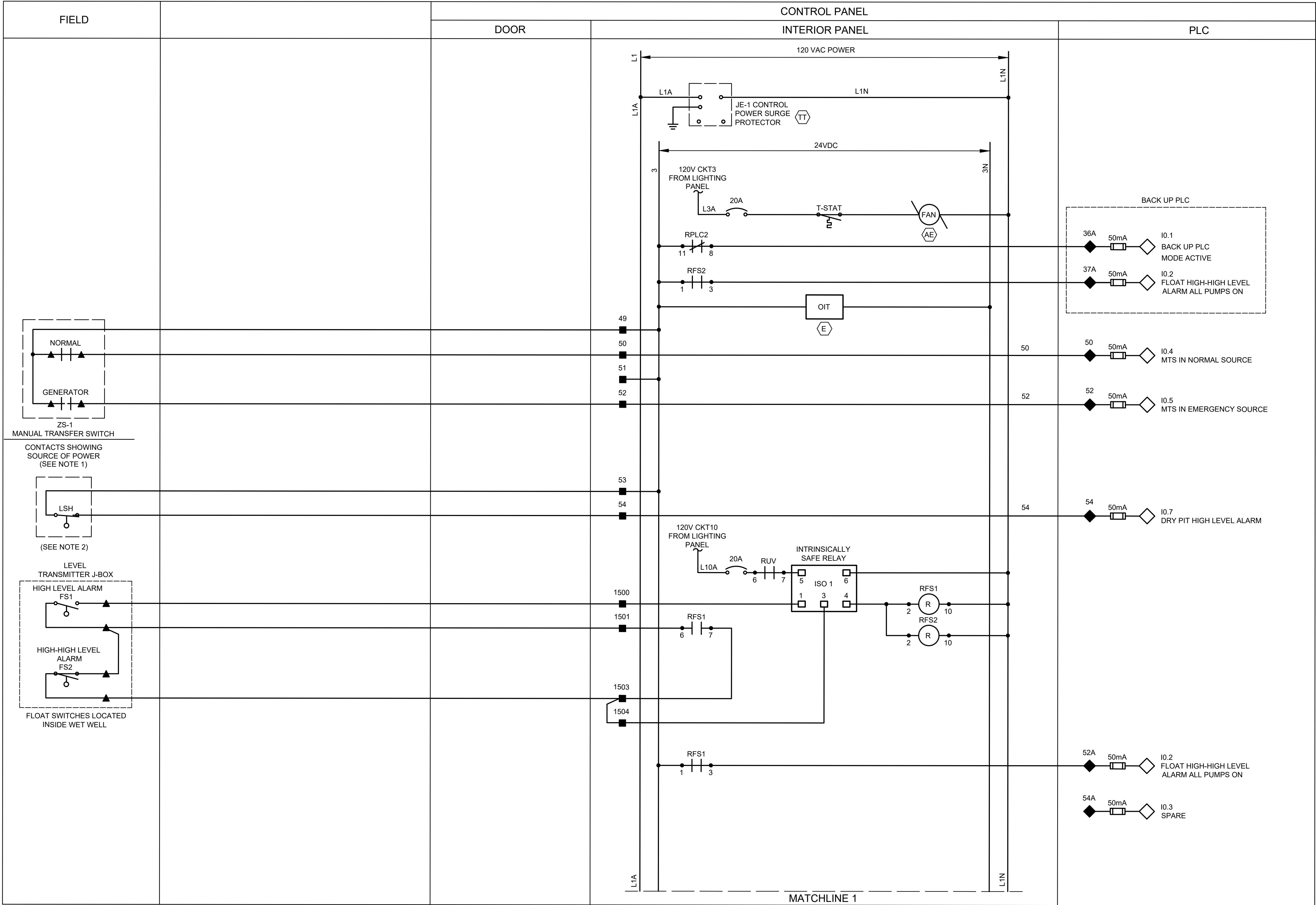
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DATE: 12/10/2025
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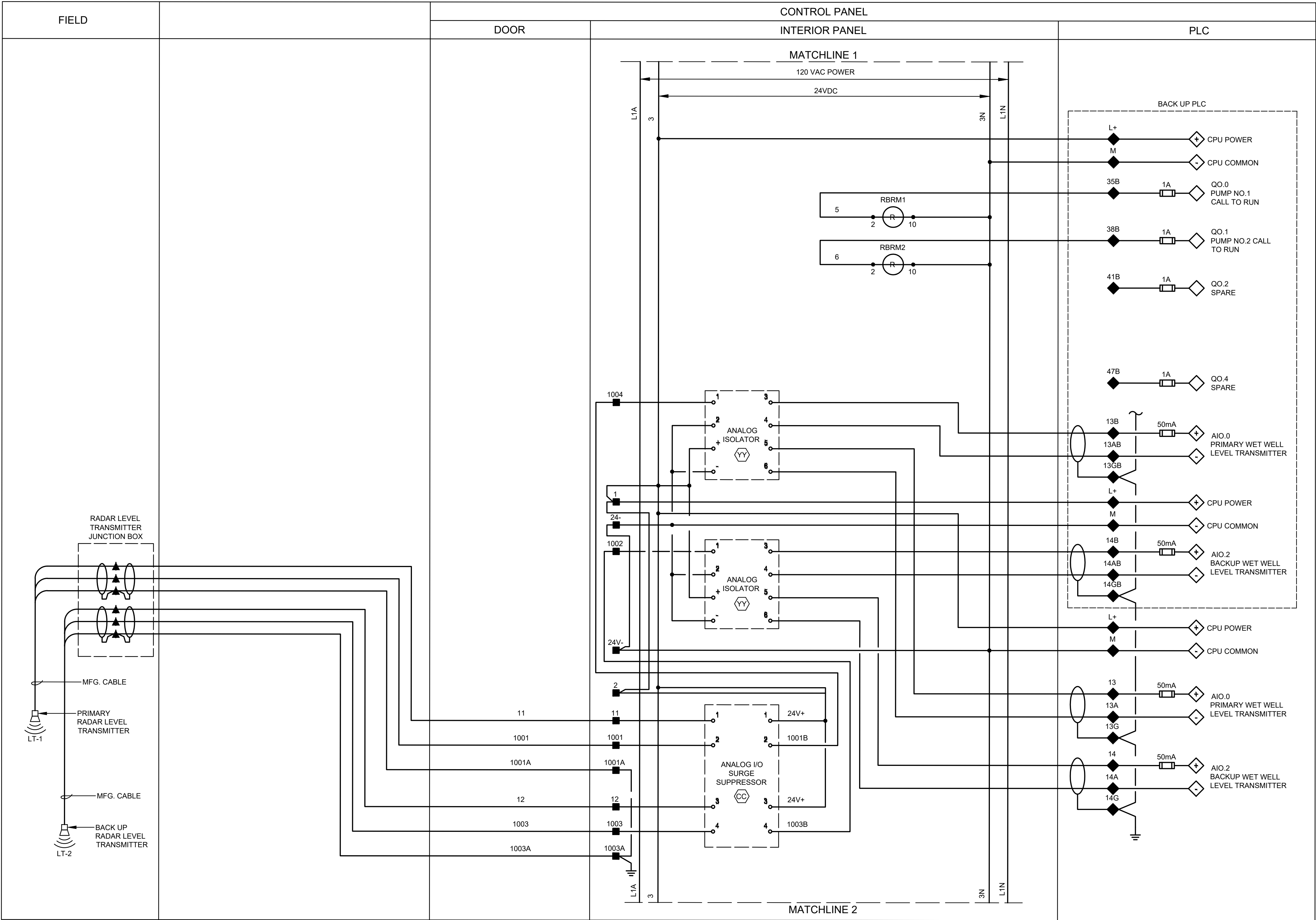
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
BOONRIDGE LIFT STATION 2 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM I	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.244 OF 291	



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 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
BOONRIDGER LIFT STATION 2 PUMP OUTDOOR PROCESS AND INSTRUMENTATION DIAGRAM II		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 245 OF 291		



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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.246 OF 291		



LEGEND

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

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc. 

3600 W. Sam Houston Parkway S. Phone 713.953.5200
Suite 600 Fax 713.953.5026
Houston, Texas 77042 FRN - F-1386



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TEXAS P.E. #70302

DATE: 12/10/2025

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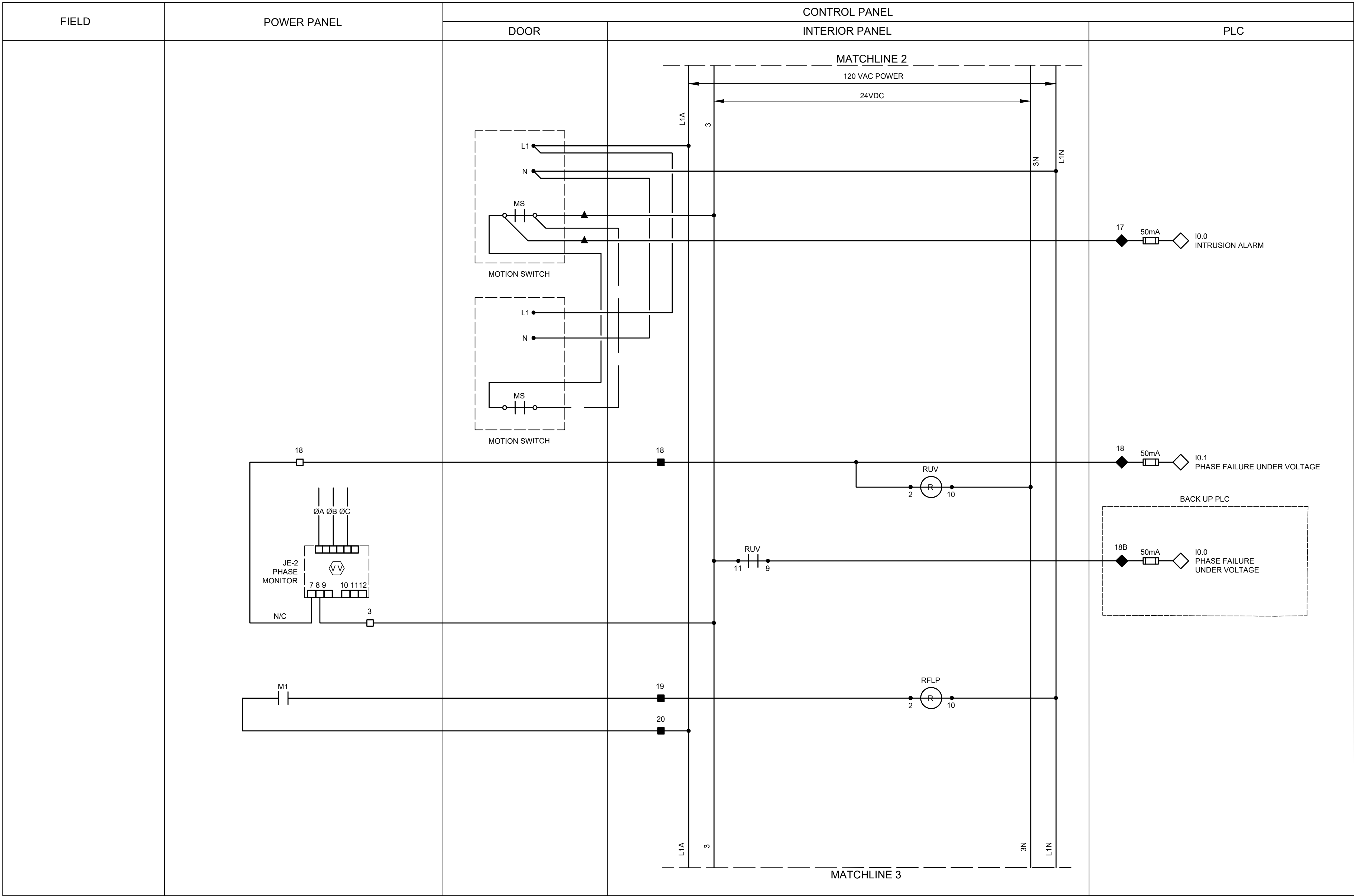
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM II

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 247 OF 291	



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

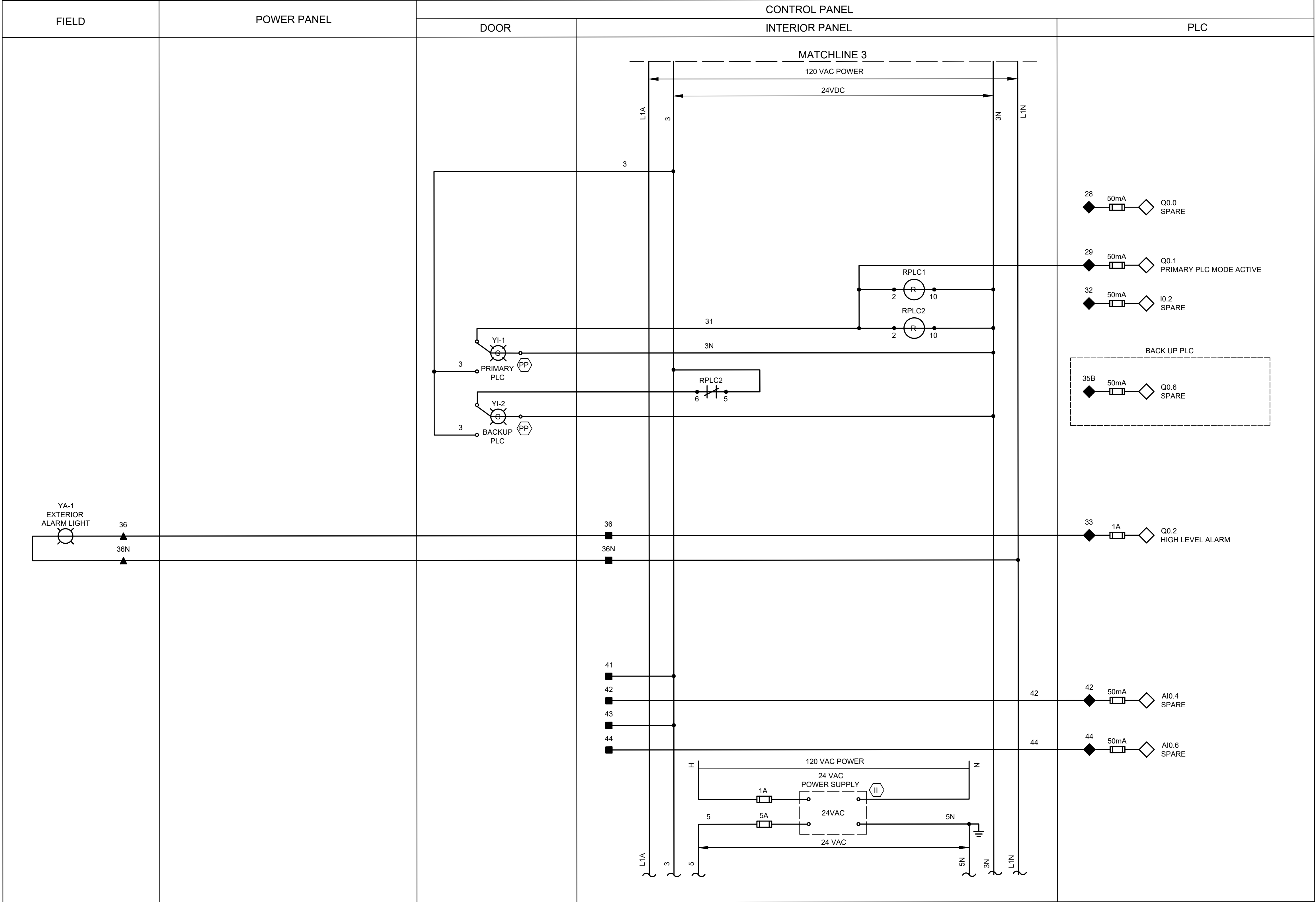
NOTES

1. PROVIDE ONE LIMIT SWITCH PER EXTERIOR CONTROL PANEL AND POWER PANEL DOOR, WIRED IN PARALLEL

BR-E17

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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONTROL PANEL CONTROL WIRING DIAGRAM III		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
AS NOTED		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.248OF 291		

PLOTTED: 7/1/2025 3:37 PM



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

EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S. Suite 249
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

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DATE: 12/10/2025

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FB NO. P-6409

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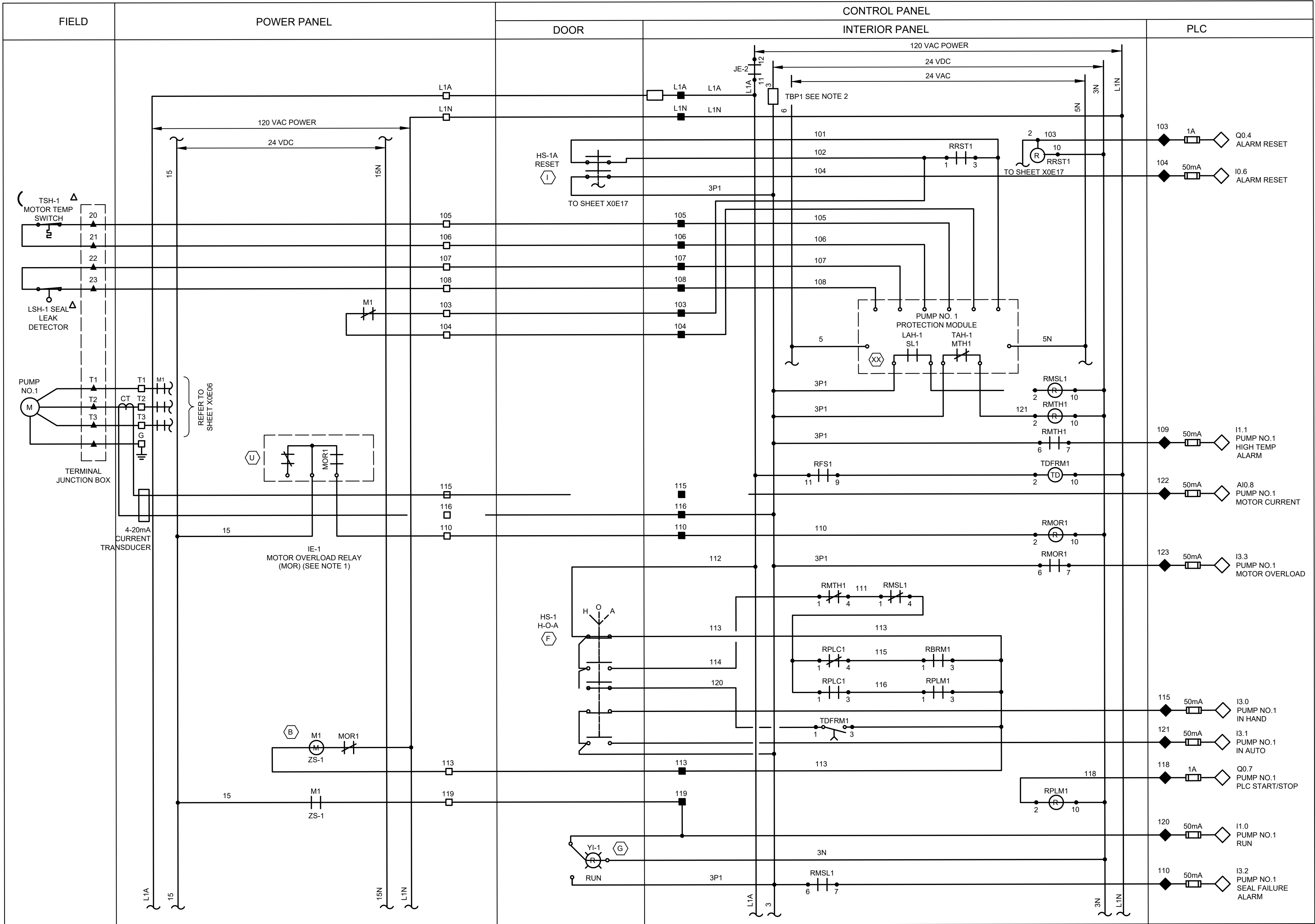
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**BOONRIDGE LIFT STATION
2 PUMP OUTDOOR CONTROL
PANEL CONTROL
WIRING DIAGRAM IV**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 249 OF 291	

PLOTTED: 7/1/2025 3:38 PM



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

NOTES:

- 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.
- FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. AD-E12.
- NOTE: EACH PUMP CONTROL CIRCUIT SHALL BE INDIVIDUALLY FUSED, (24 VAC, 120 VAC)

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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T- 713-706-4412
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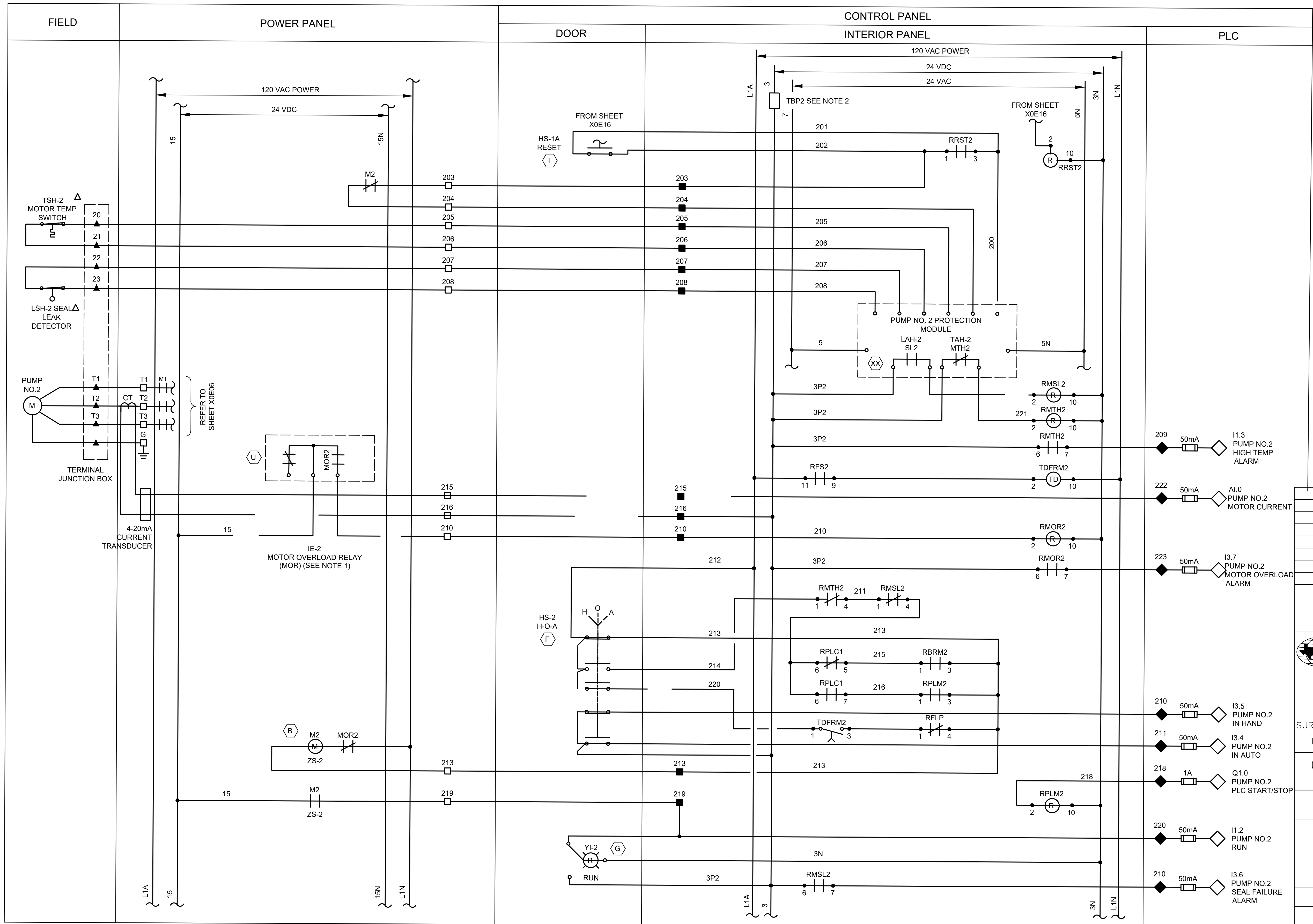
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

BOONRIDGE LIFT STATION
2 PUMP OUTDOOR PUMP 1
CONTROL WIRING DIAGRAM

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
AS NOTED	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.250 OF 291	



LEGEND

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

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. | 3. ALL FLOAT CONTROL CIRCUIT WIRES COLOR SHALL BE YELLOW. |
| 2. FUSED TERMINAL ON TERMINAL BLOCK TB4 SEE CONTROL POWER AND COMMUNICATION WIRING DIAGRAM DRAWING NO. X0E08. | 4. EACH PUMP CONTROL SHALL BE INDIVIDUALLY FUSED. (24VDC, 120VAC) |

BR-E20

T			
D	ISSUE	DATE	DESCRIPTION
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	SURVEYED BY: KUO ASSOC FB NO. P-6409		
	CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
OP	LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
	BOONRIDGE LIFT STATION 2 PUMP OUTDOOR PUMP 2 CONTROL WIRING DIAGRAM		
	WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
	R-000267-0176-3		
	SCALE:		
	AS NOTED		
	CITY OF HOUSTON PM		
	NAWARAJ PANTA, P.E.		
	SHEET NO. 251 OF 291		

[illegible]

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.
4. GENERATOR CONDUIT SHALL BE A MINIMUM OF 3" CONDUIT.

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
BOONRIDGE LIFT STATION 2 PUMP OUTDOOR CONDUIT SCHEDULE FOR 480 VOLT		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
N.T.S		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.252OF 291		

			RATINGS FOR PUMP SIZES
ITEM	CIRCUIT	DESCRIPTION	2 @ 5 HP
I	--	MAIN DISCONNECT SWITCH	
		OPERATING VOLTAGE	600V
		CURRENT RATING	200A
		CURRENT LIMITING	CLASS J
		FUSES TYPE & SIZE	100A
II	--	MOTOR CONTROL CENTER MAIN BUS - 3/C COPPER	
		OPERATING VOLTAGE	480V
		CURRENT RATING	200A
		NEUTRAL SIZE & TYPE	100A LUG
		BUS BRACING	42KA SYM
III	1	MAIN BREAKER	
		3 POLE - TYPE	MOLDED CASE
		MOUNTING	FIXED
		OPERATING VOLTAGE	480V
		FRAME SIZE	225A
		TRIP SETTING	100A
		INTERRUPT CAPACITY	42KA SYM
		OPTIONS	NONE
IV	23	PUMP MOTOR STARTERS	
		QUANTITY	2
		MOUNTING	FIXED
		SHORT CIRCUIT PROTECTION	
		3 POLE - TYPE	MCP
		OPERATING VOLTAGE	480V
		FRAME SIZE	30A
		TRIP SETTING	FIELD ADJ
		INTERRUPT CAPACITY	65KA SYM
		MOTOR STARTING CONTACTOR	
		3 POLE - TYPE	AIR
		OPERATING VOLTAGE	480V
		SIZE	NEMA 2
		OVERLOAD PROTECTION	SOLID
		TYPE	STATE MOR
V	4	LIGHTING TRANSFORMER FEEDER BREAKER	
		NO. OF POLES	2
		TYPE	MOLDED CASE
		OPERATING VOLTAGE	480V
		FRAME SIZE	150A
		TRIP SETTING	30A
		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	CLASS J
		FUSES TYPE & SIZE	100A

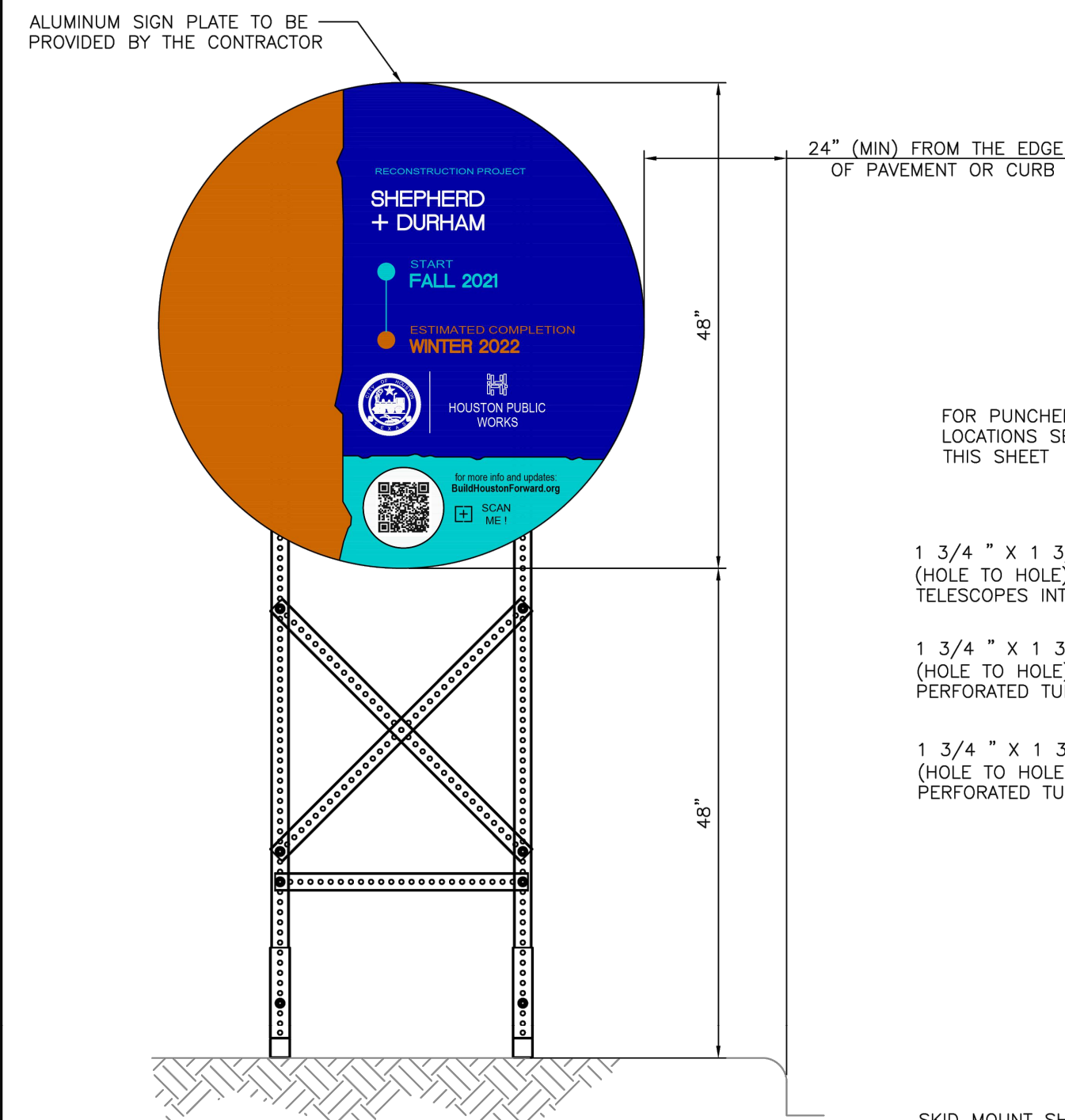
NOTES:

- WHERE GENERATOR SERVICE IS ANTICIPATED, PROVIDE BREAKER WITH KIRK KEY INTER-CONNECTED WITH GENERATOR/TRANSFER BREAKER.
- PROVIDE TRIP SETTING BASED ON GENERATOR SIZE. BREAKERS TO BE SIZED AT MAXIMUM ALLOWBLE SIZE.
- STARTERS TO BE MOUNTED IN CONTROL CABINET ADJACENT TO PLC AND ASSOCIATED RELAY EQUIPMENT.
- STARTERS TO BE NEMA RATED FOR FULL VOLTAGE STARTING.

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Engineers, PC 3300 S. Gessner Rd. Suite 240 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR, TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
BOONRDIGE LIFT STATION 2 PUMP OUTDOOR DEVICE RATING SCHEDULE		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
N.T.S		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.253 OF 291		

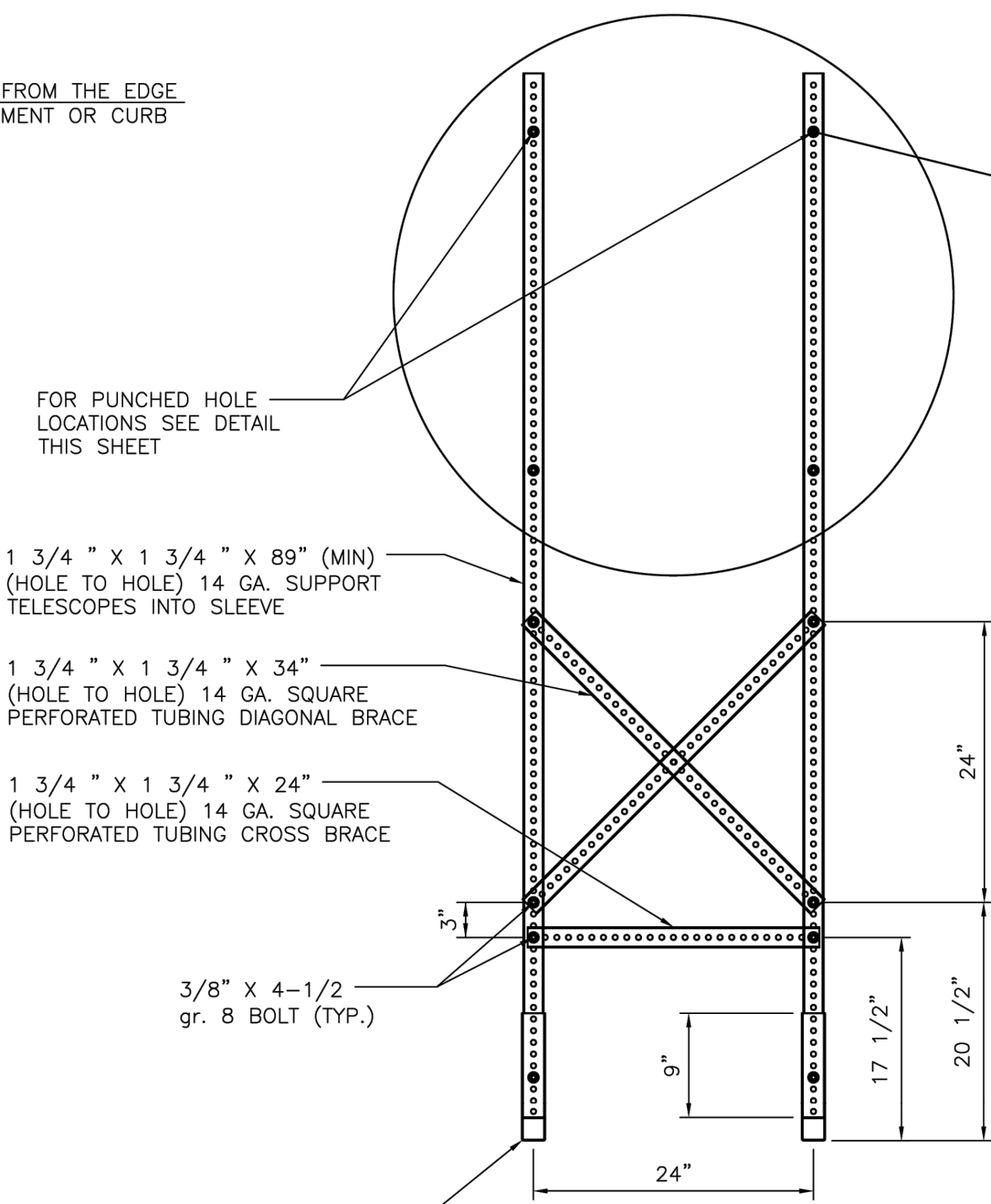
DISCLAIMER:
THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

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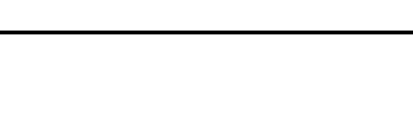
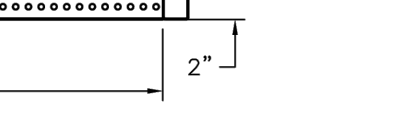
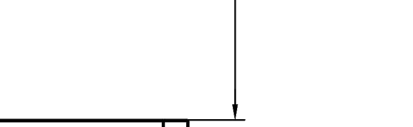
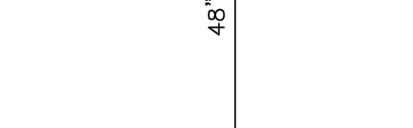
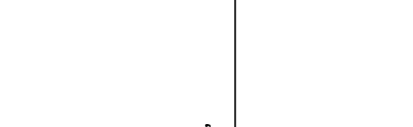
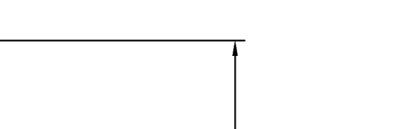
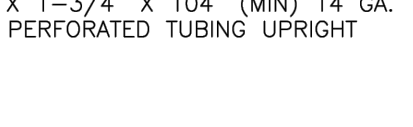
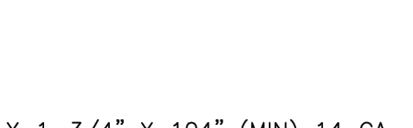
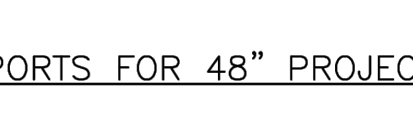
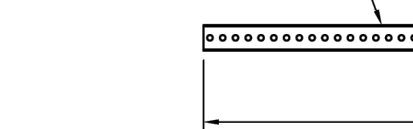
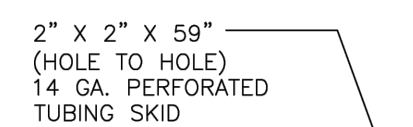
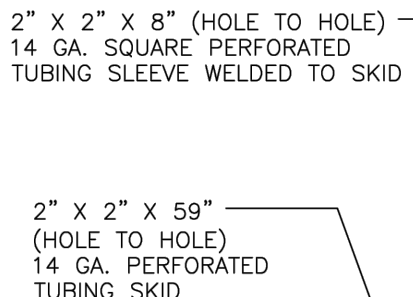
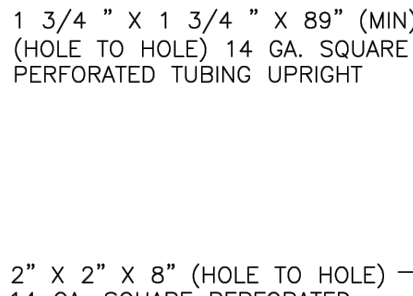
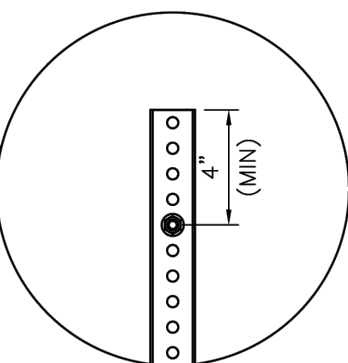
FRONT VIEW

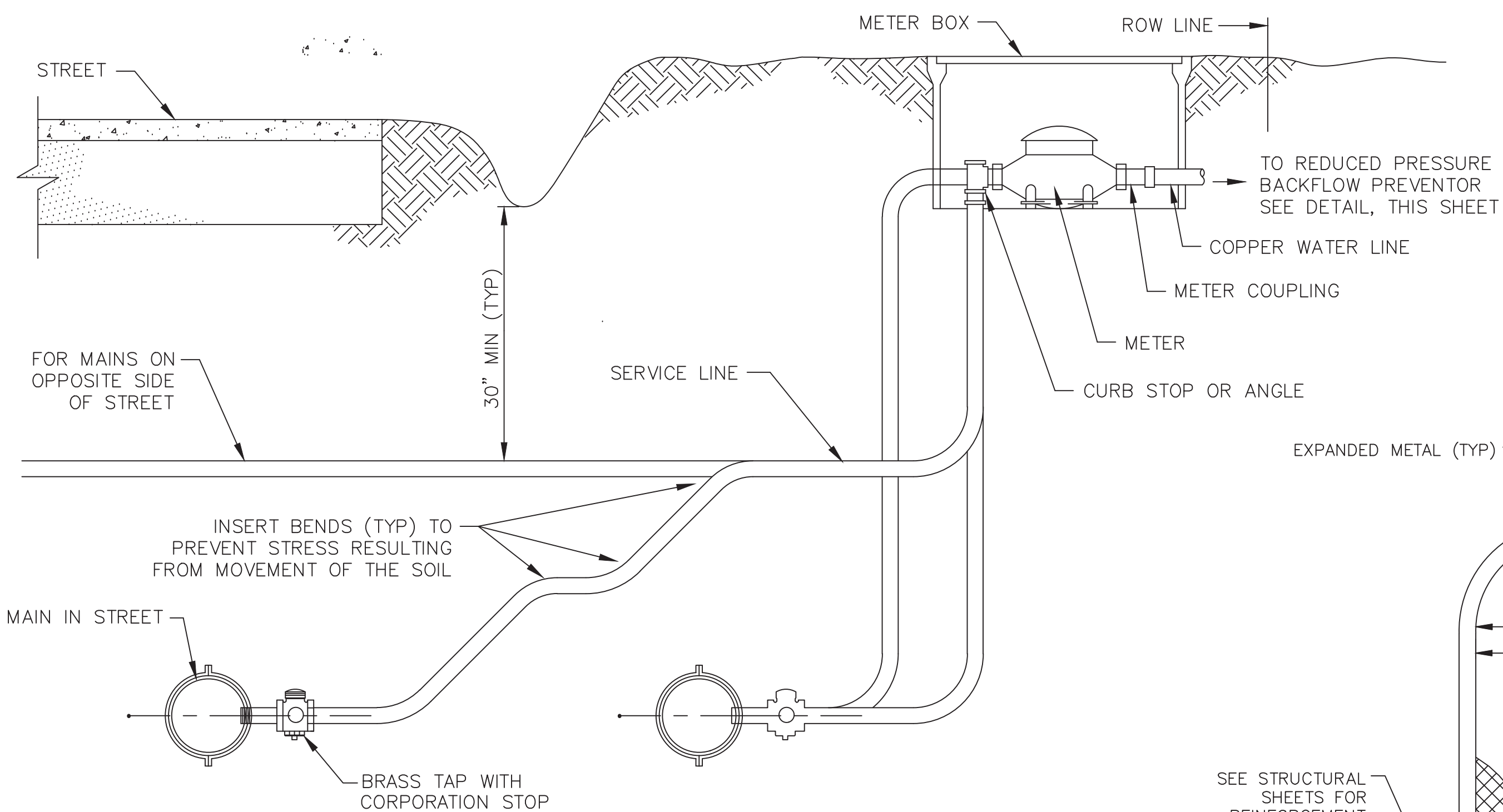
PROJECT SIGN - 48"



FRONT VIEW

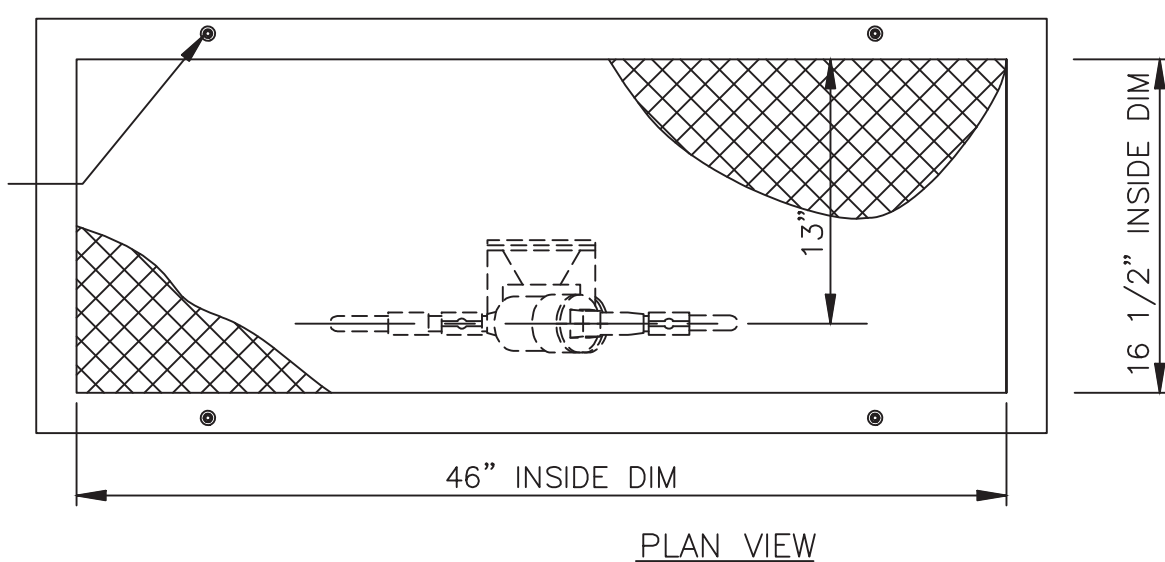
SKID MOUNTED SUPPORTS FOR 48" PROJECT SIGN



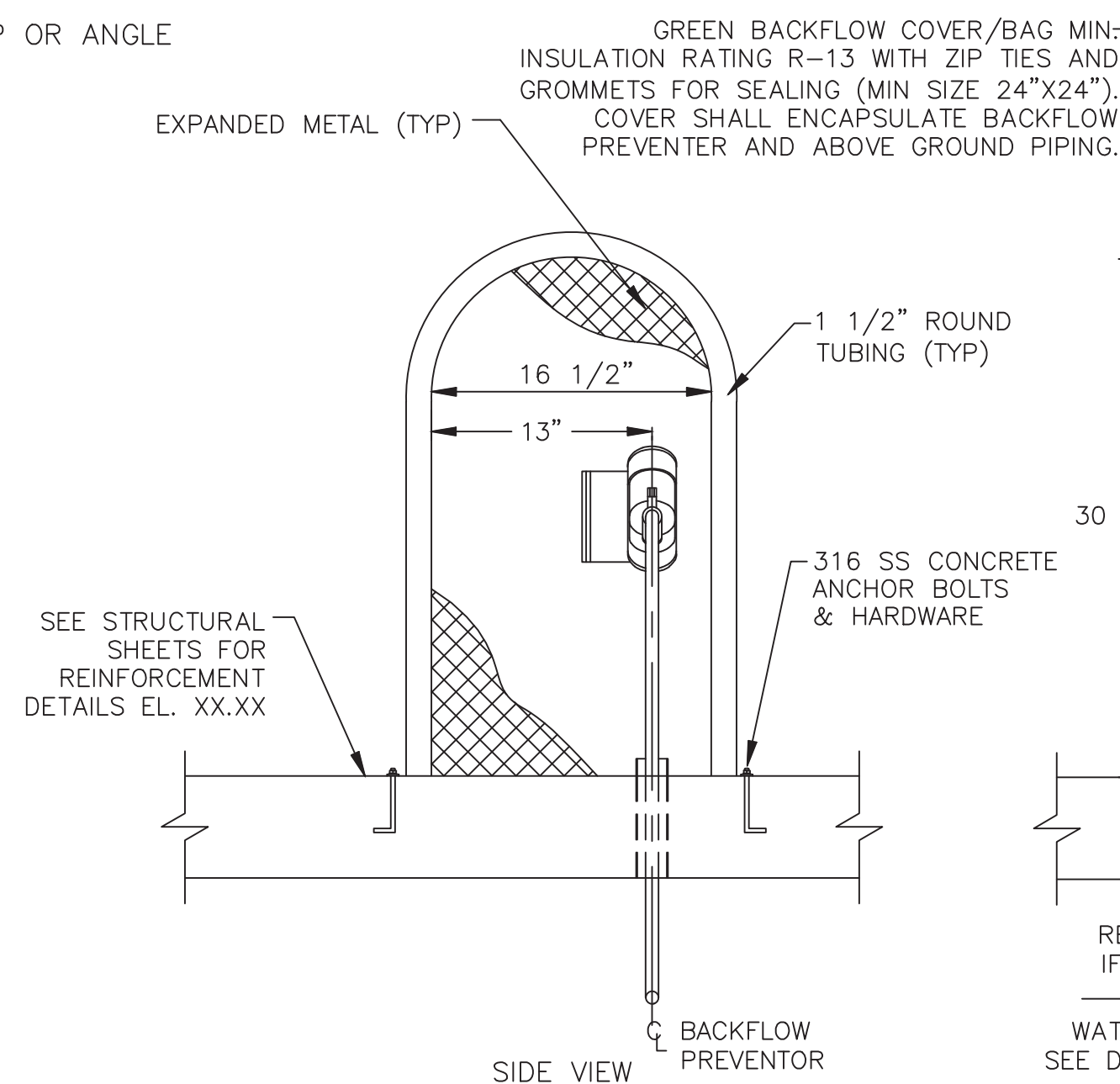


TYP WATER SERVICE LINE SECTION & METER SET DETAIL

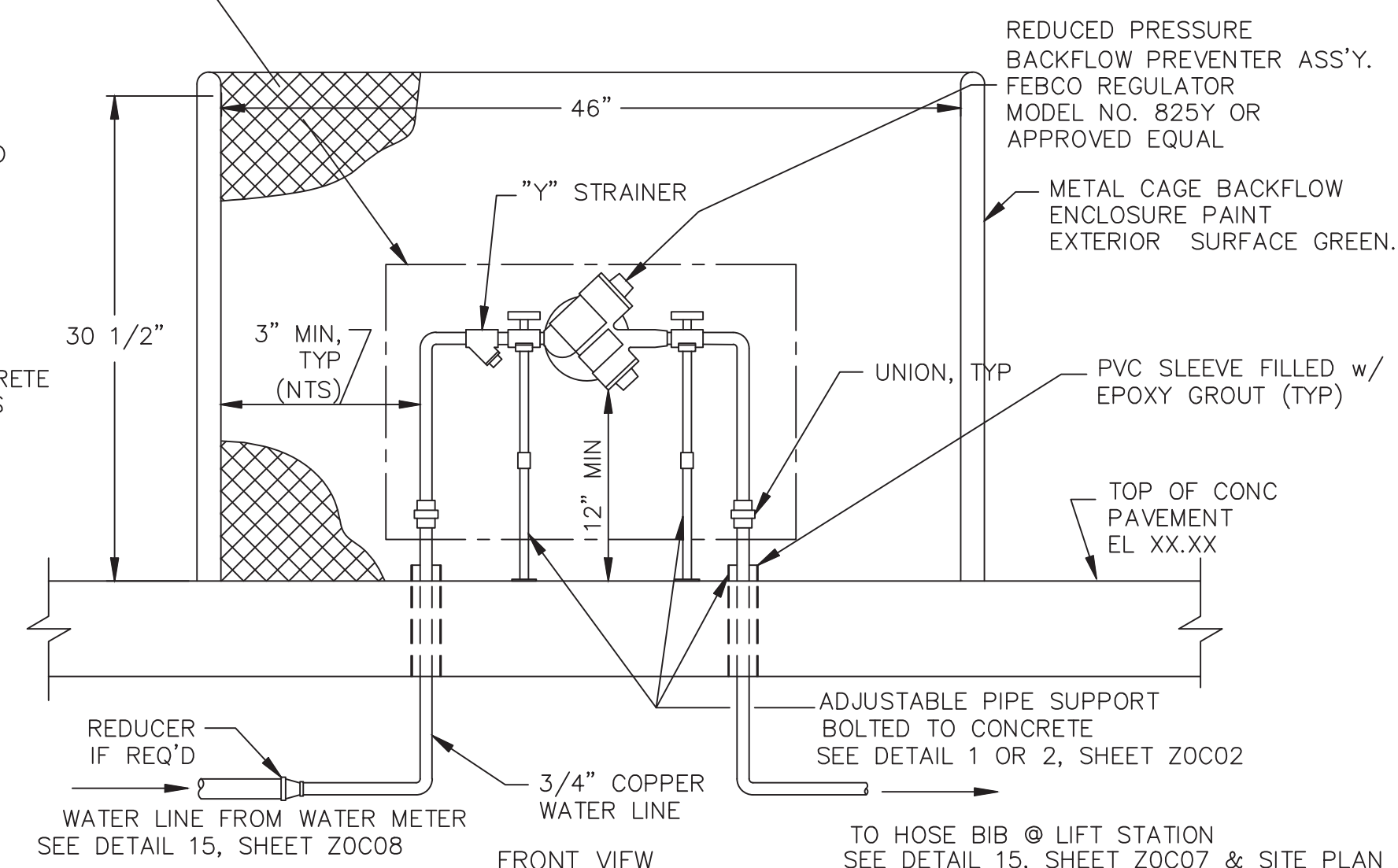
DETAIL 1
D-4



PLAN VIEW



SIDE VIEW

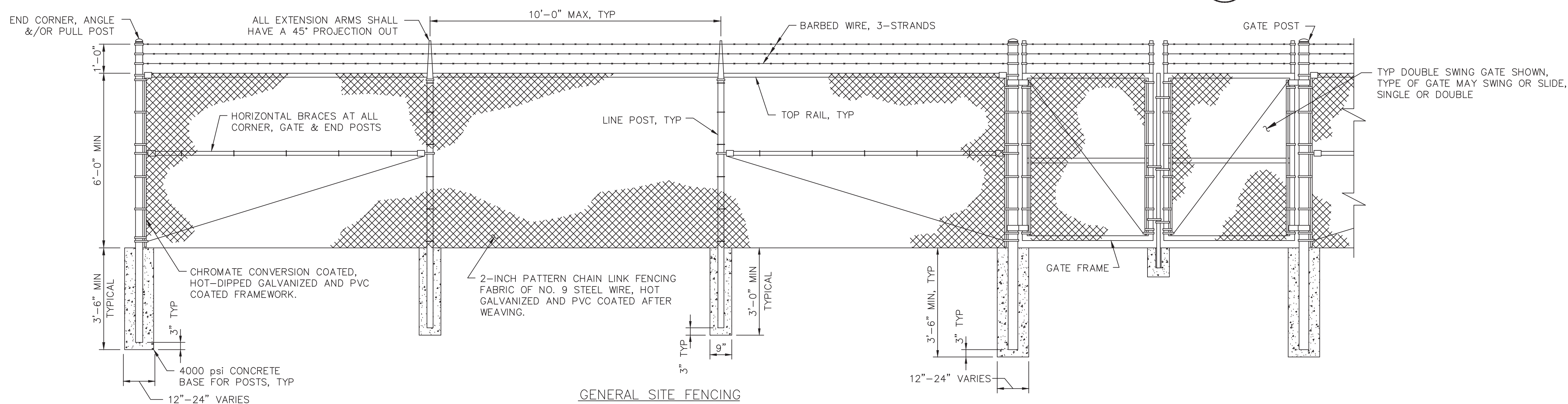


FRONT VIEW

TO HOSE BIB @ LIFT STATION
SEE DETAIL 15, SHEET ZOC07 & SITE PLAN

OPEN CAGE REDUCED PRESSURE BACKFLOW PREVENTER INSTALLATION

DETAIL 2
D-4



GENERAL SITE FENCING
(SEE NOTES 1 & 2)

DETAIL 3
D-4

- NOTES:
1. ALL FENCING SHALL BE MANUFACTURED AND INSTALLED PER SPECIFICATIONS.
 2. PROVIDE DARK GREEN PVC COATED FENCE FABRIC, POSTS AND HARDWARE. PROVIDE DARK GREEN PVC FENCE SLATS

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
ERN - F-1386

**AMANI
ENGINEERING, INC.**
11011 RICHMOND AVE., SUITE 700
HOUSTON, TEXAS 77042
TEL: (713) 270-5700
Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-0

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KUO & ASSOCIATES
FB NO. P-6409

MAHESH DUTTA 114252
NAME P.E. NO.
DATE 4/2/2026
TDCI & EIDM AE 4539

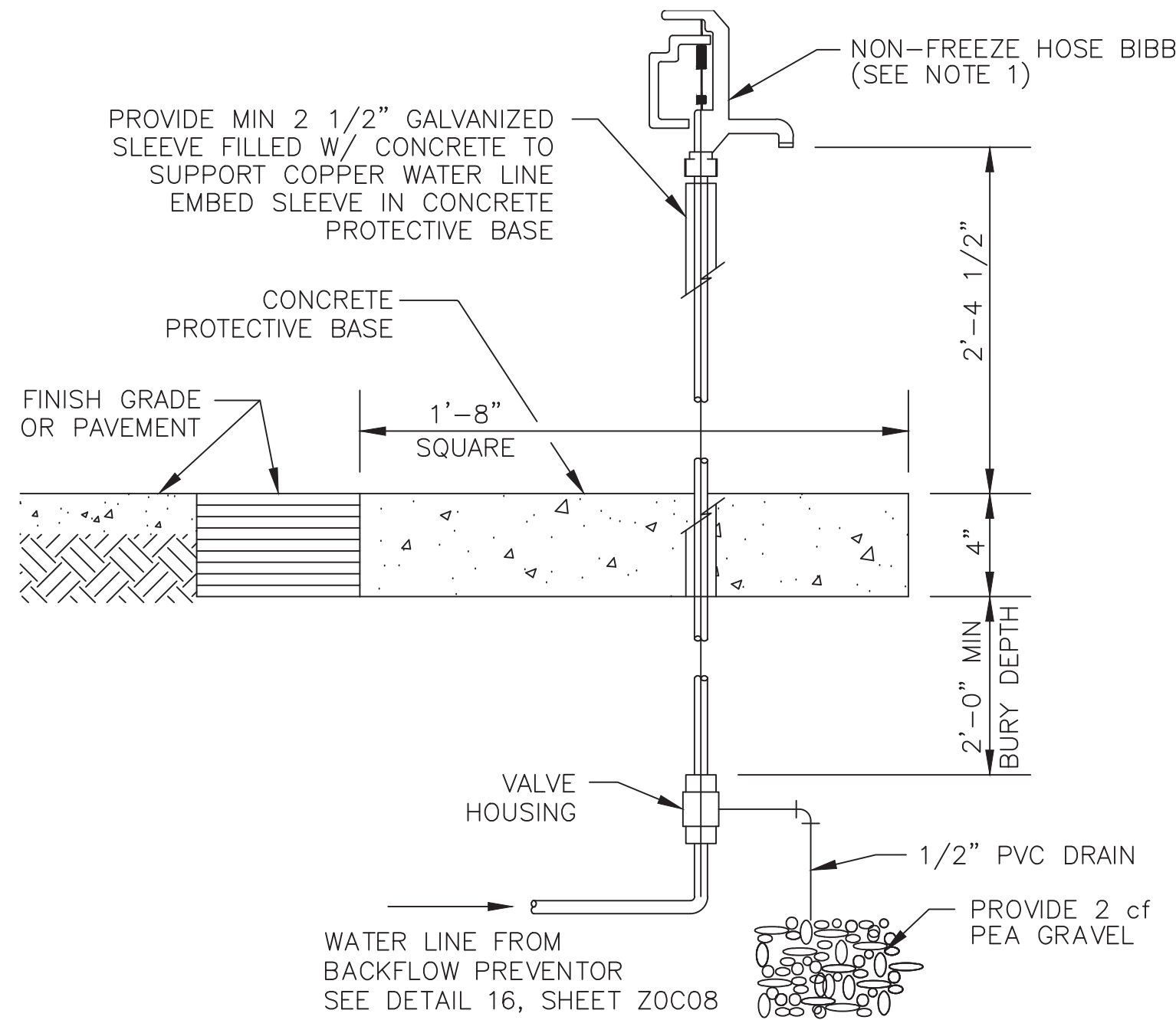
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CIVIL STANDARD DETAILS 1

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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - Jls coh 1923 lift stations rehabilitation and reconstruction\Cad_DWG\Full Set\Xref\258 CIVIL STANDARD DETAILS 2.dwg May 05, 2025-1:12pm dlewis

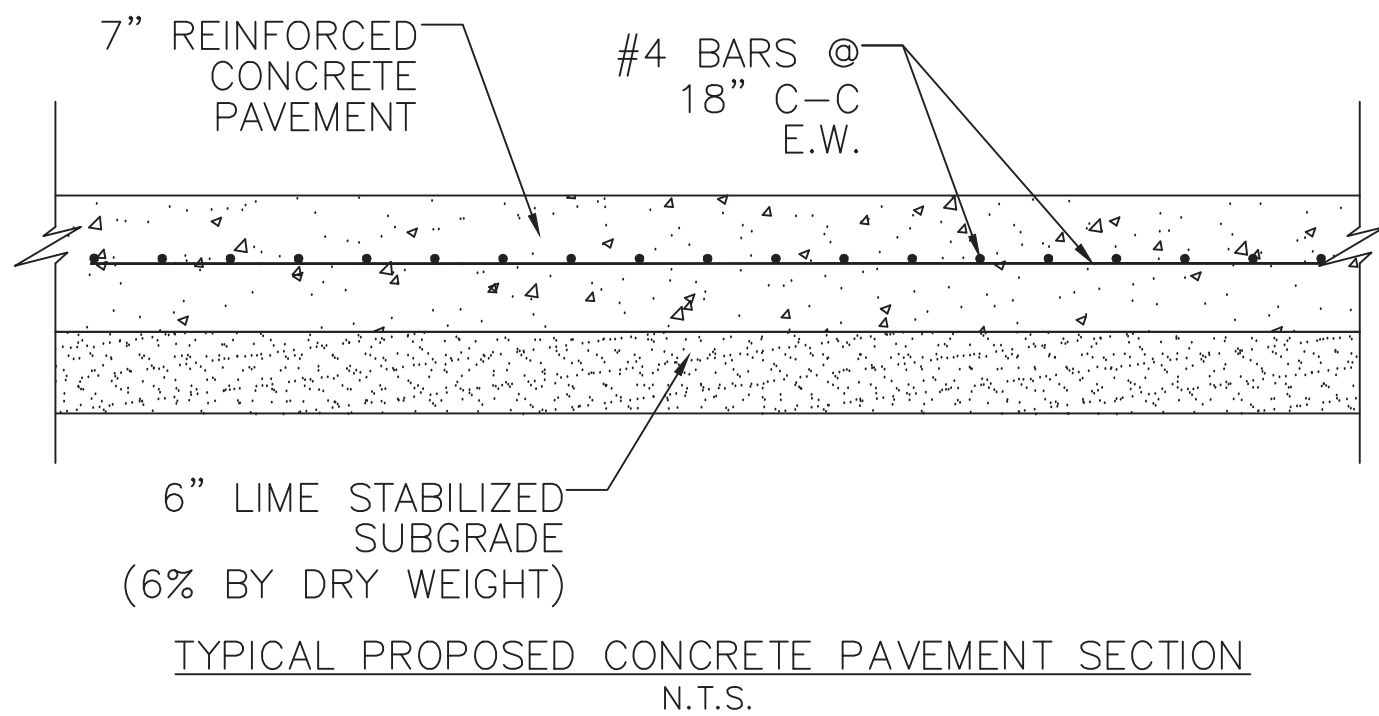
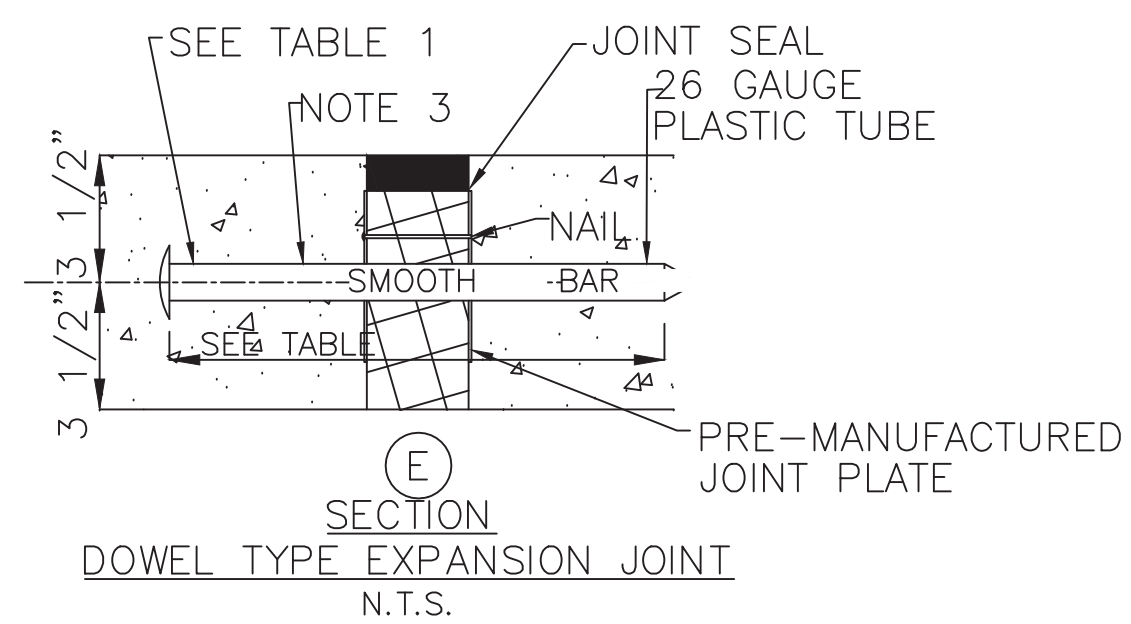
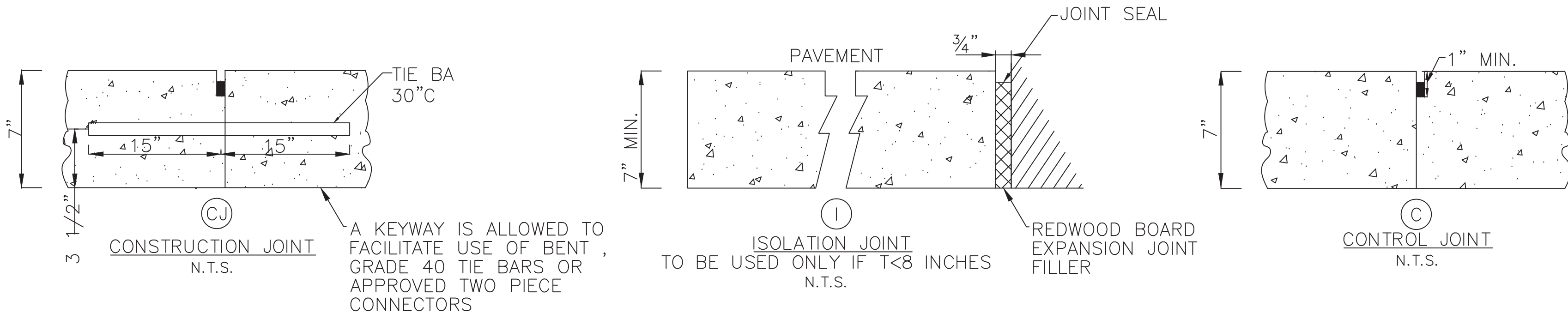


TYP NON-FREEZE HOSE BIBB DETAIL

DETAIL 4
D-5

NOTE:

1. PROVIDE WARNING SIGN WHEN HOSE BIBB IS USED FOR POTABLE WATER.



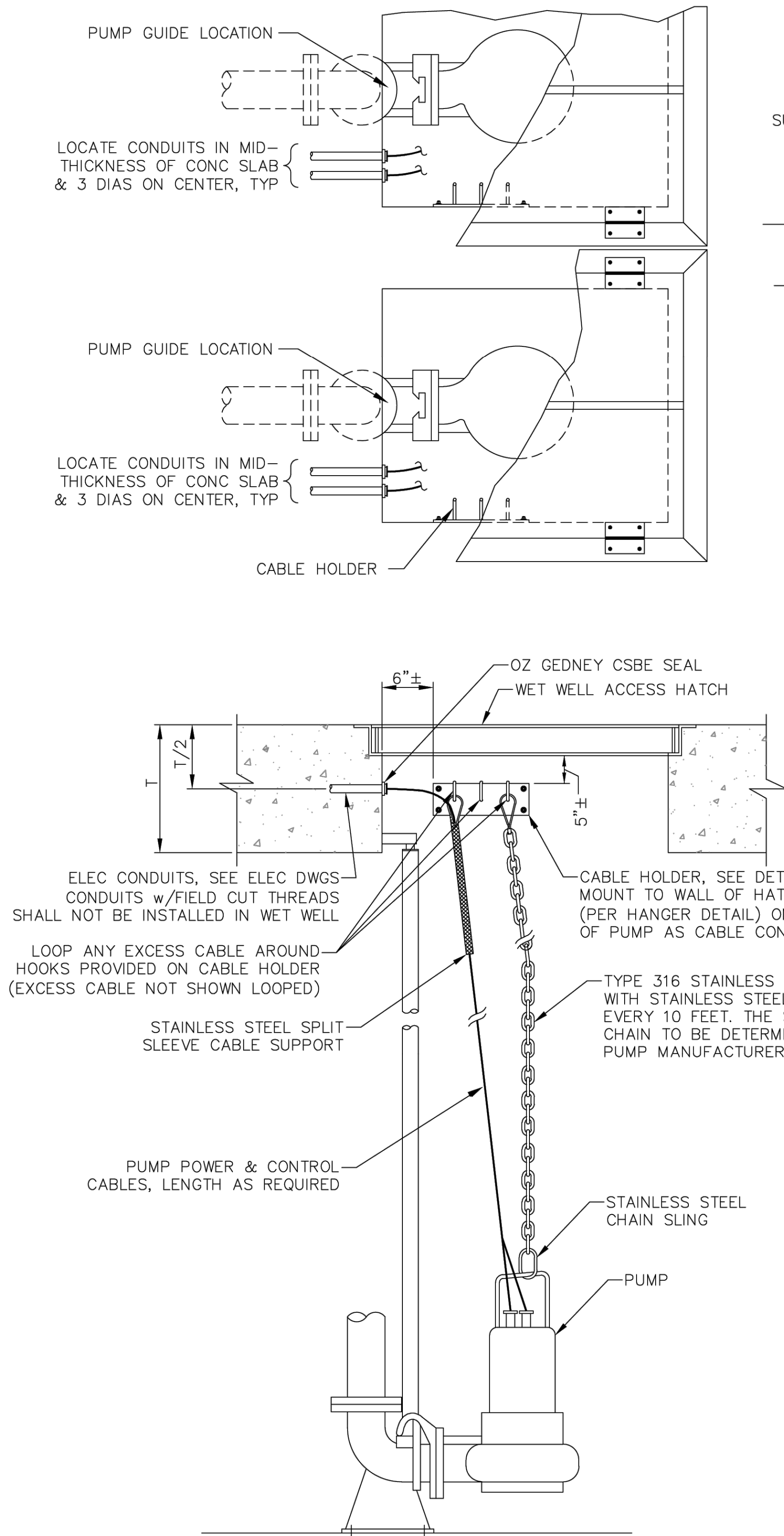
DETAIL 5
D-5

ISSUE	DATE	DESCRIPTION

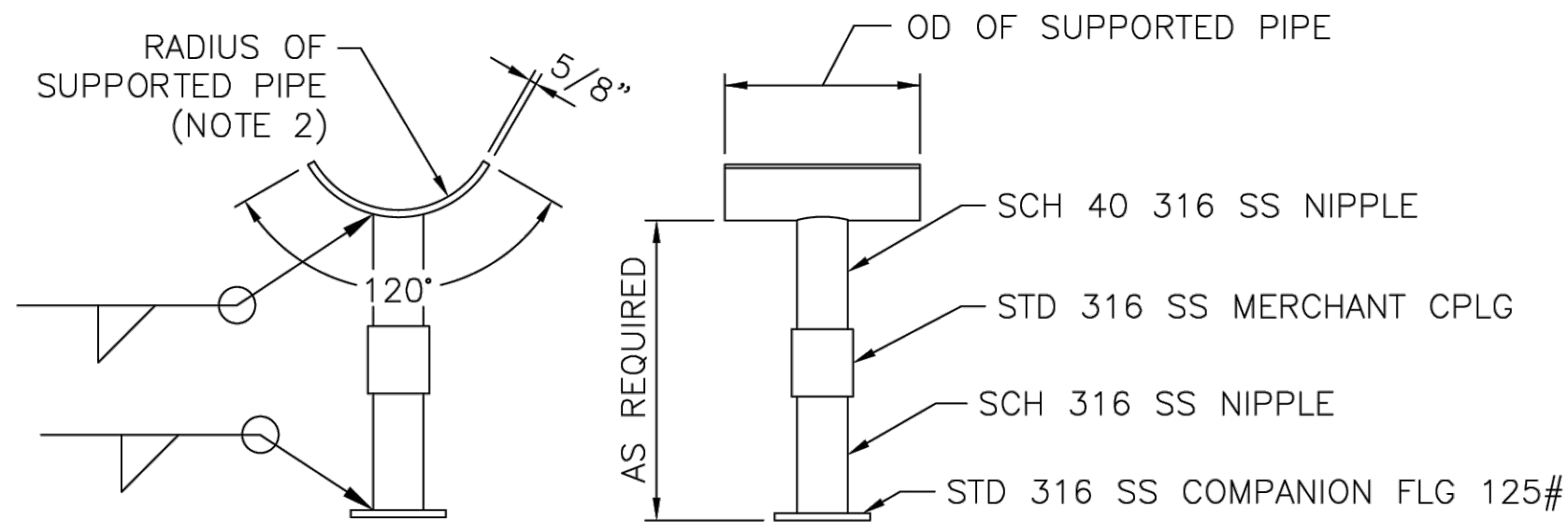
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		PRELIMINARY FOR INTERIM REVIEW ONLY THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL PERMIT BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF: NAME: MAHESH DUTTA P.E. NO. 114252 DATE: 4/2/2026 TBEPLS FIRM #F-4528
AMANI ENGINEERING, INC. 11011 RICHMOND AVE., SUITE 700 HOUSTON, TEXAS 77042 TEL: (713) 270-5700 Texas Registered Engineering Firm No. F-4528 Texas Registered Surveying Firm No. 100282-00		
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CIVIL STANDARD DETAILS 2	
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SHEET NO. 258 OF 291	

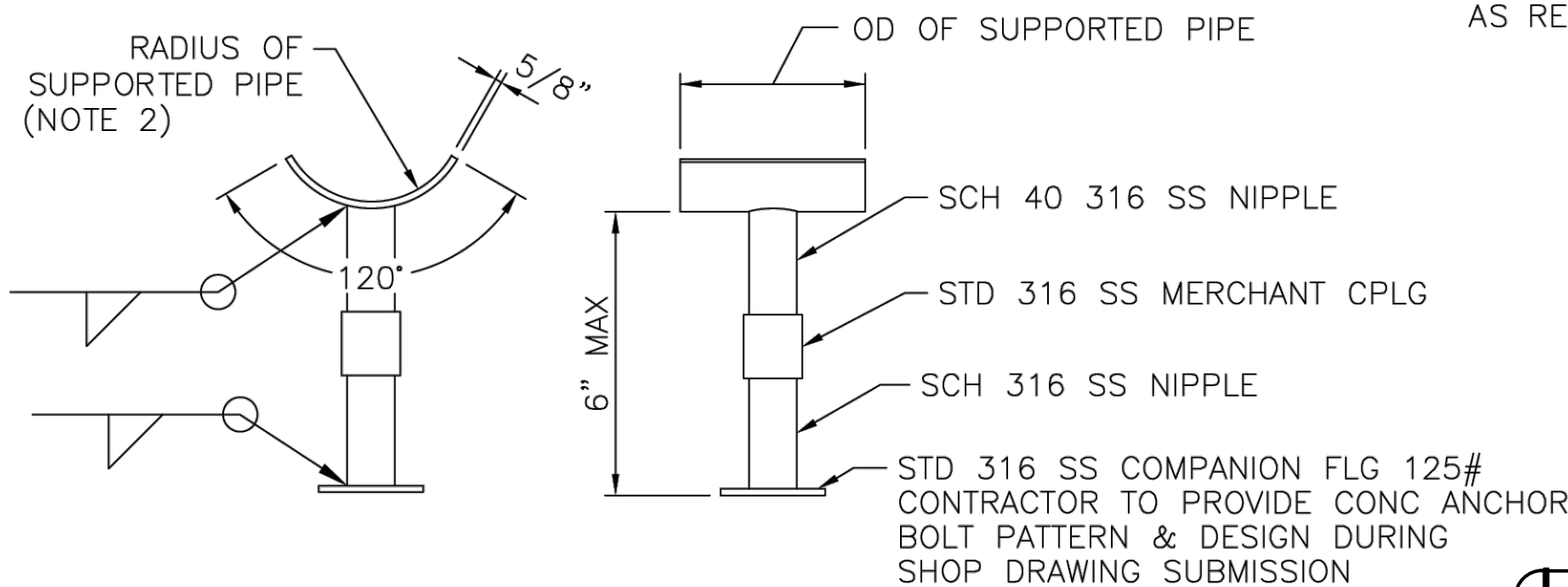
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
W. Land 2/2024 - 2023 Lift Station Rehabilitation and Reconstruction Projects (CAD)_SHEETS\259 MECH DTL'S_1.dwg May 07, 2026-1:29pm trowbridge



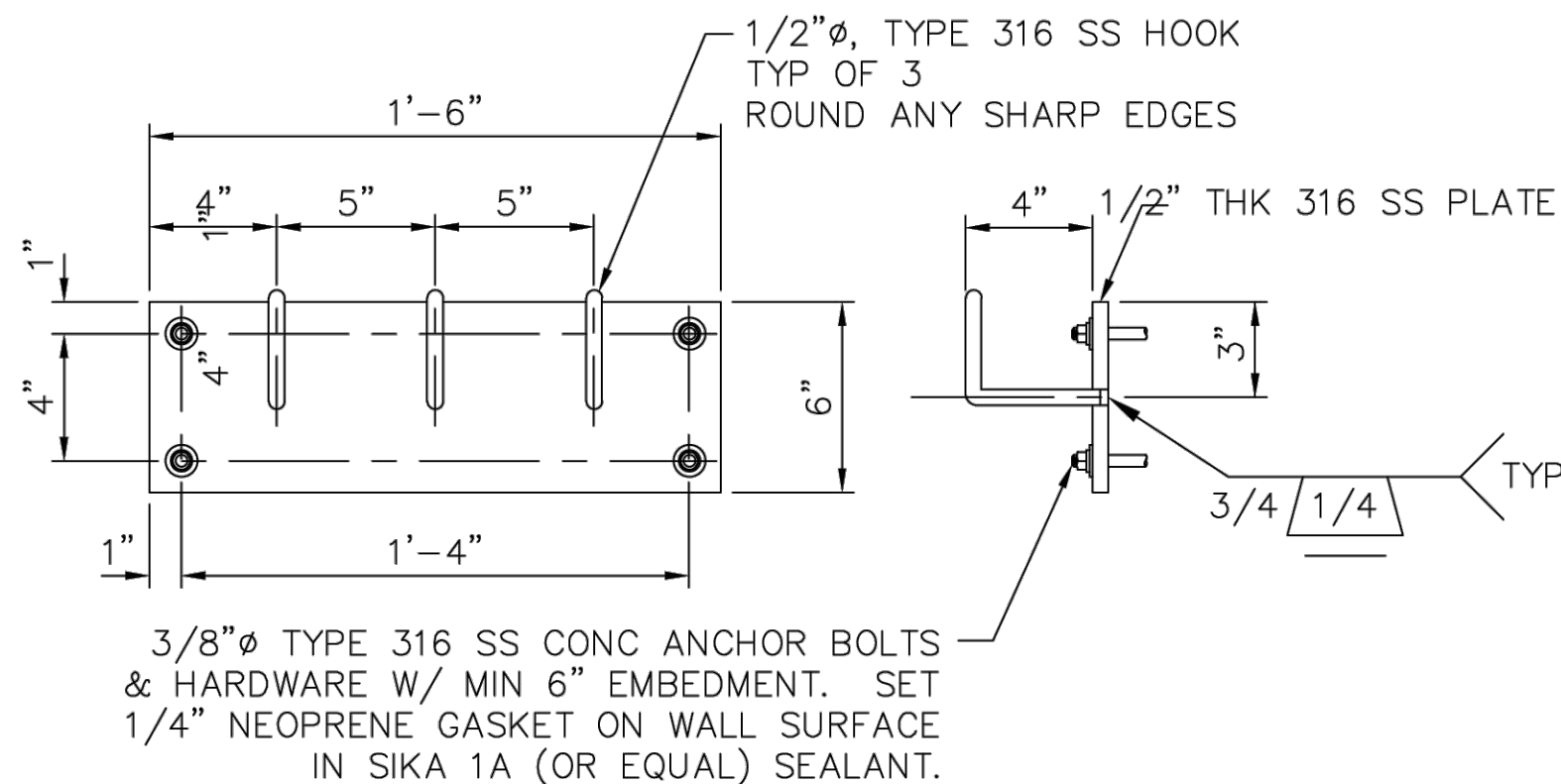
A TYP PUMP LIFTING & CABLING DETAIL



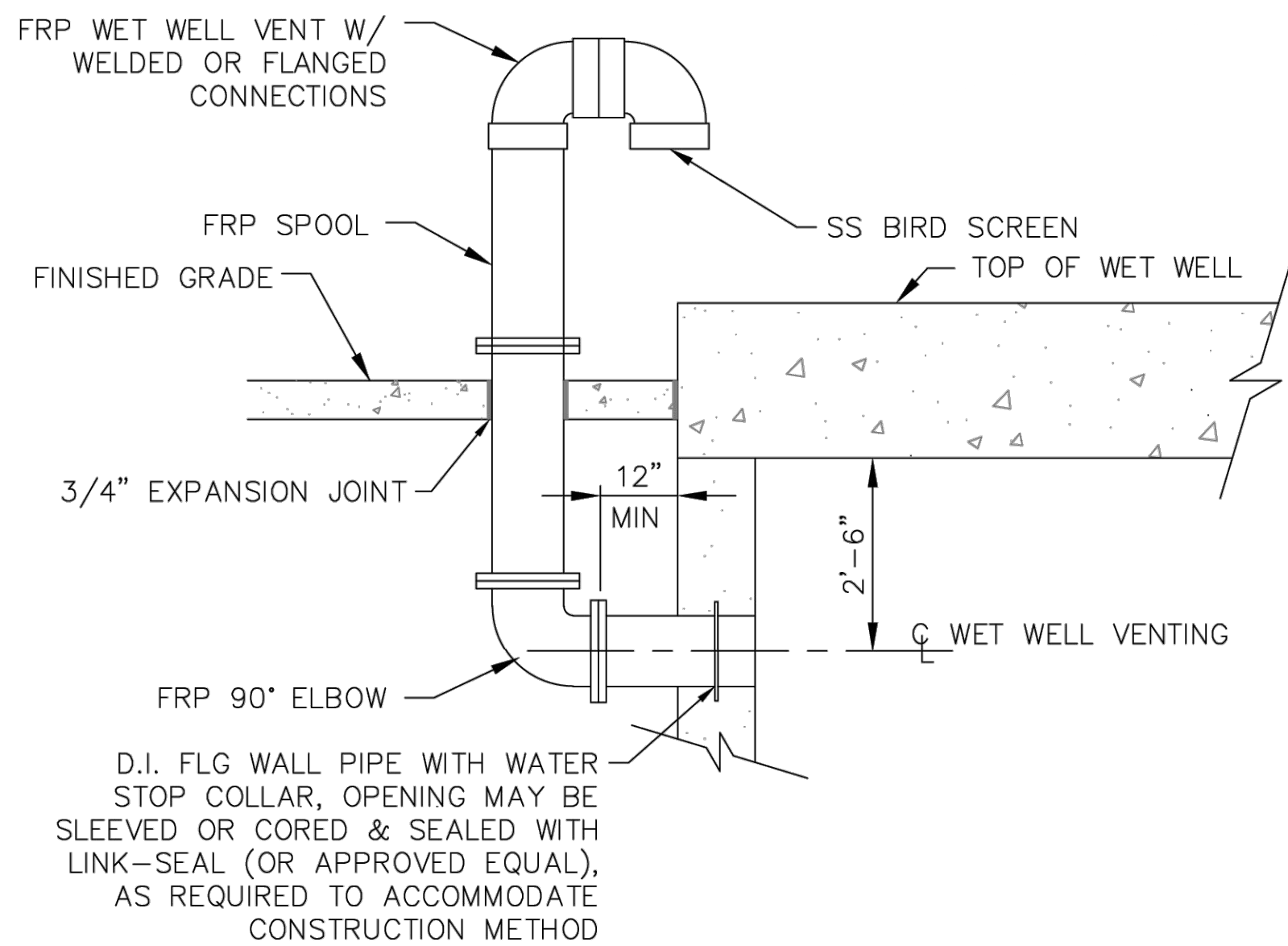
B TYP ADJUSTABLE PIPE SUPPORT



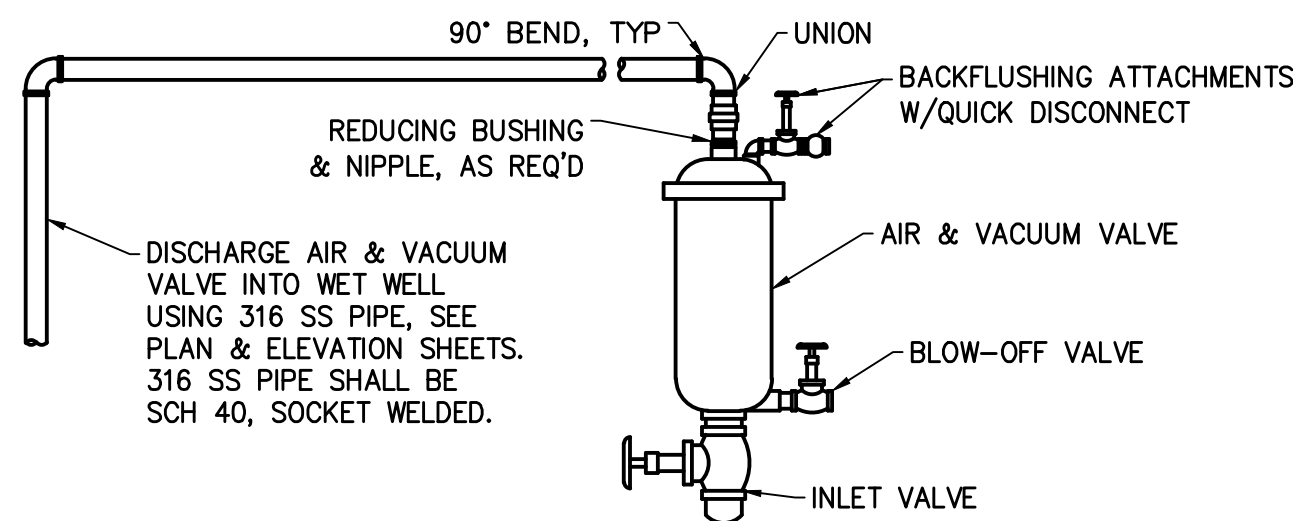
D TYP ADJUSTABLE PIPE SUPPORT
FOR USE WITH CONC PIPE SUPPORT PIER
SEE TYP CONC PIPE SUPPORT PIER DETAIL, SHT ZOS02



F TYPICAL CABLE HOLDER ASSY



C TYPICAL HIGH PROFILE
WET WELL VENTING INSTALLATION



E TYPICAL AIR & VACUUM VALVE ASSY

NOTES:

1. ADJUSTABLE PIPE SUPPORT ASSEMBLY TO BE 316SS.
2. PROVIDE MEANS OF PREVENTING DISSIMILAR METAL CONTACT.

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LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
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AUTHORITY

OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

SURVEYED BY:
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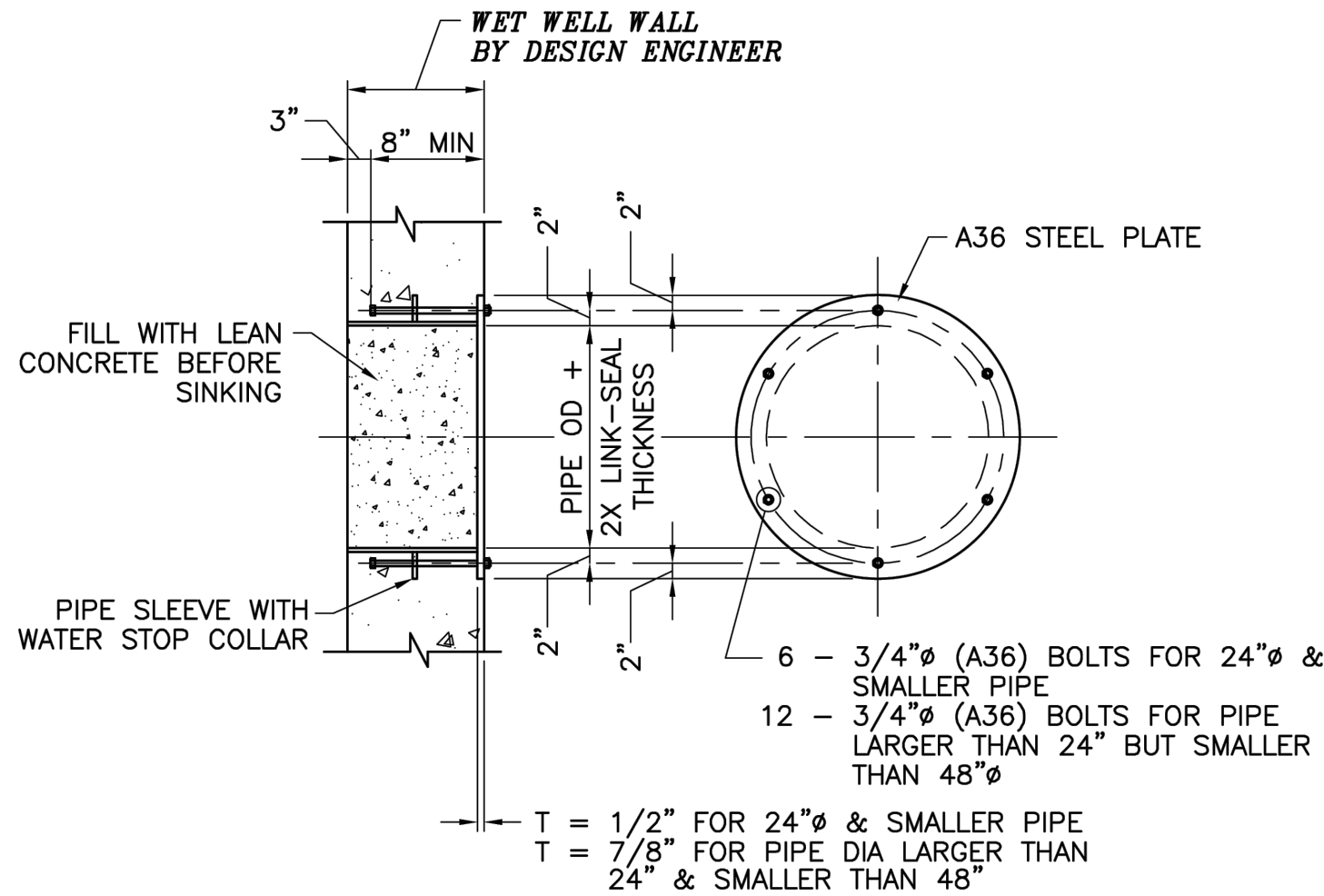
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

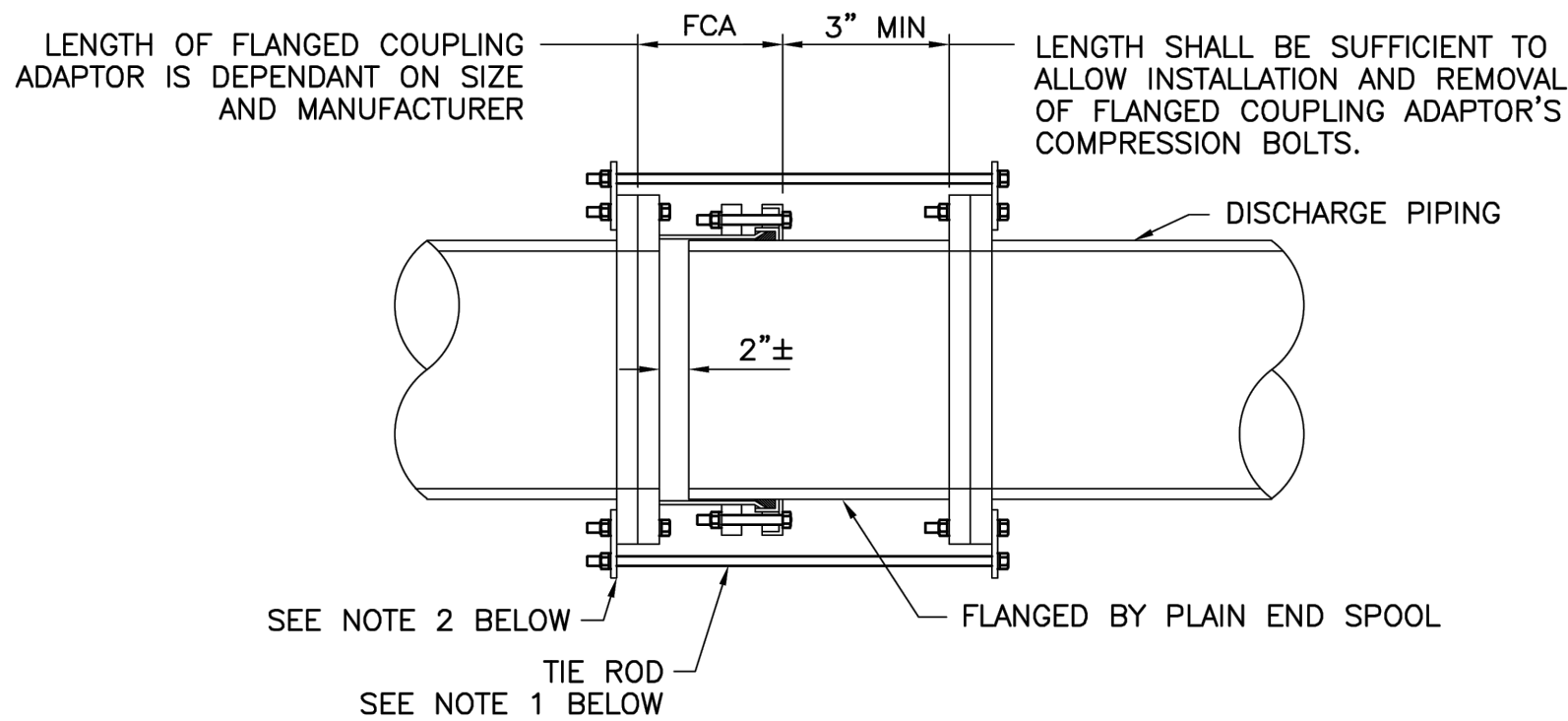
MECHANICAL DETAILS 1

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TYPICAL PIPE BLOCK-OUT DETAIL
FOR CAISSON CONSTRUCTION

DETAIL 13A

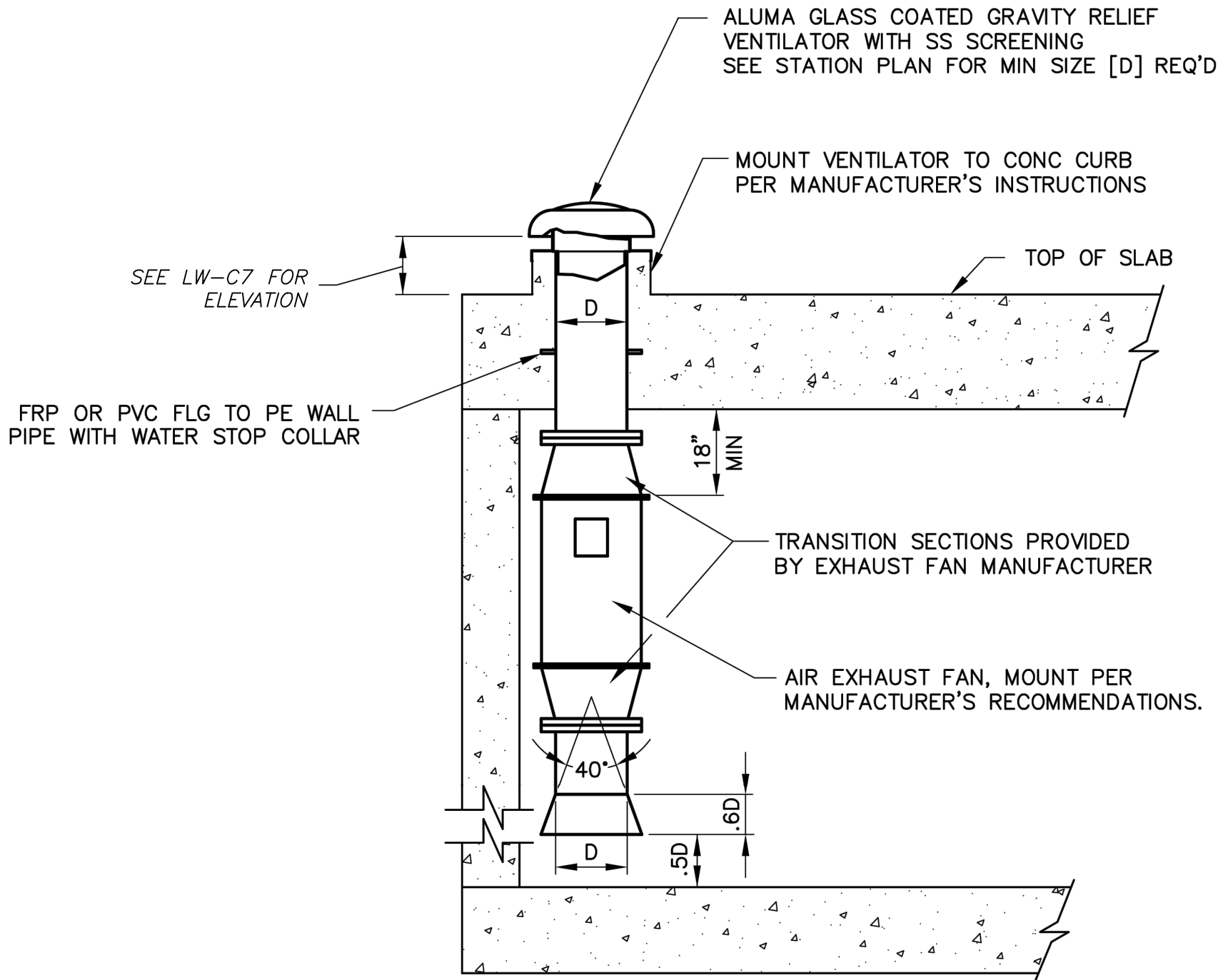


NOTES:

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.

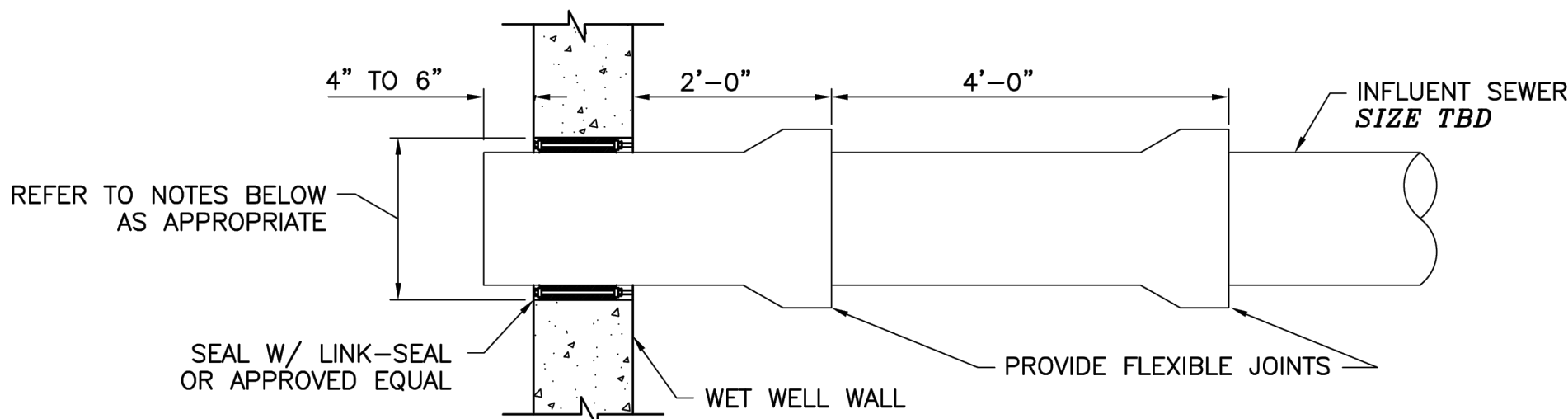
TYP FLANGED COUPLING ADAPTOR
RESTRAINT DETAIL

DETAIL 14



TYP LOW PROFILE
VALVE VAULT VENTING INSTALLATION

DETAIL 9



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 ZOS03 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 ZOS03 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 ZOS03 BEFORE CASTING WALL.

TYP INFLUENT SEWER ENTRY DETAIL

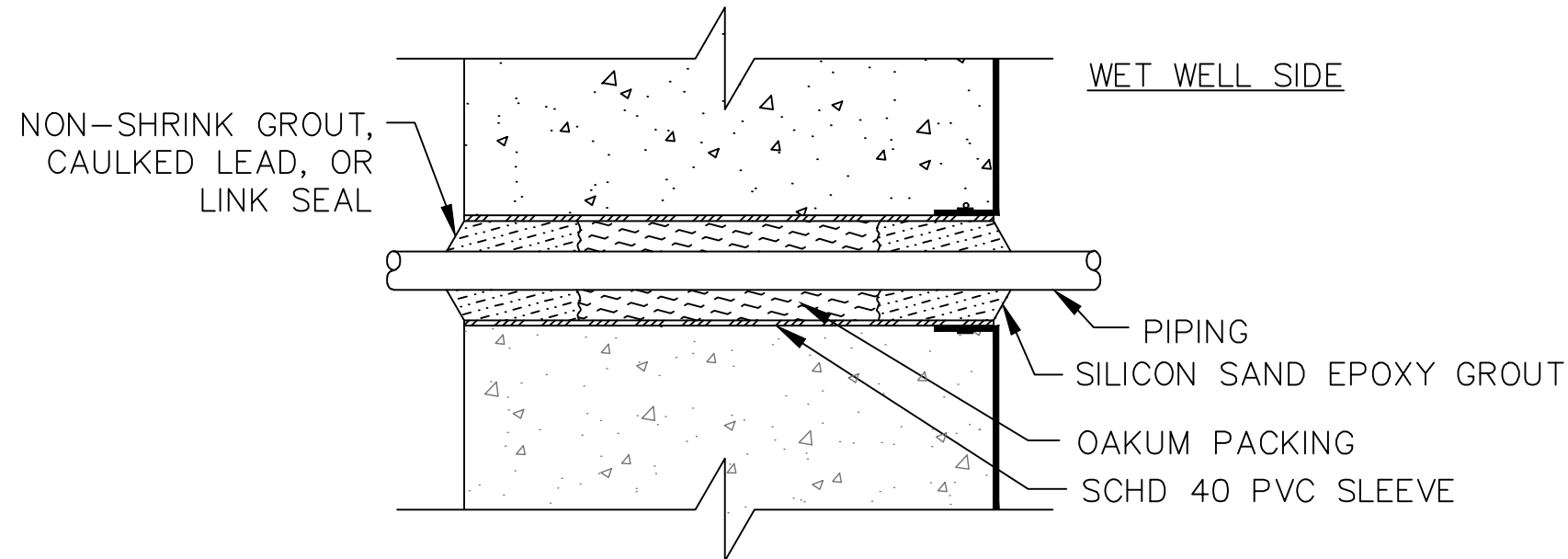
DETAIL 13

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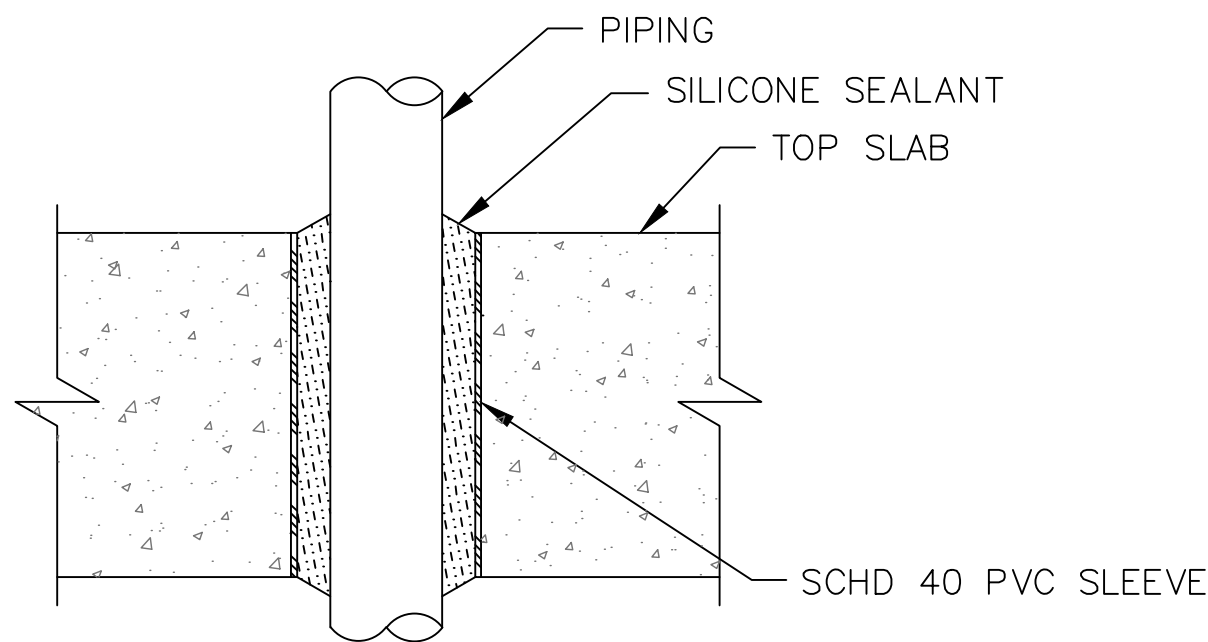
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
MECHANICAL DETAILS 2	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
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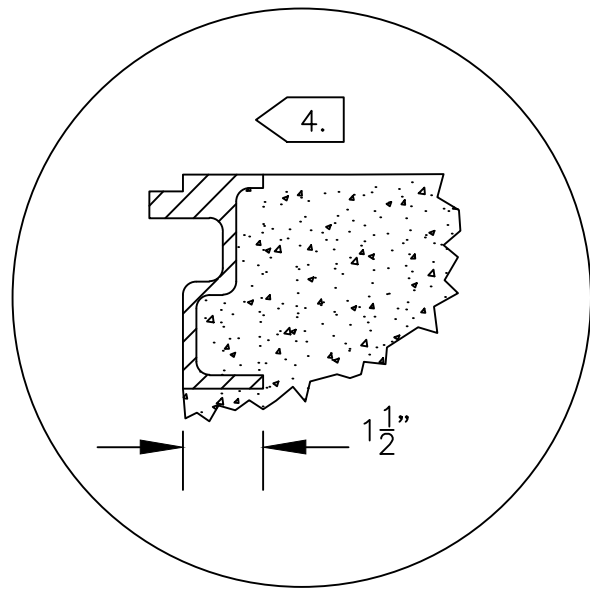
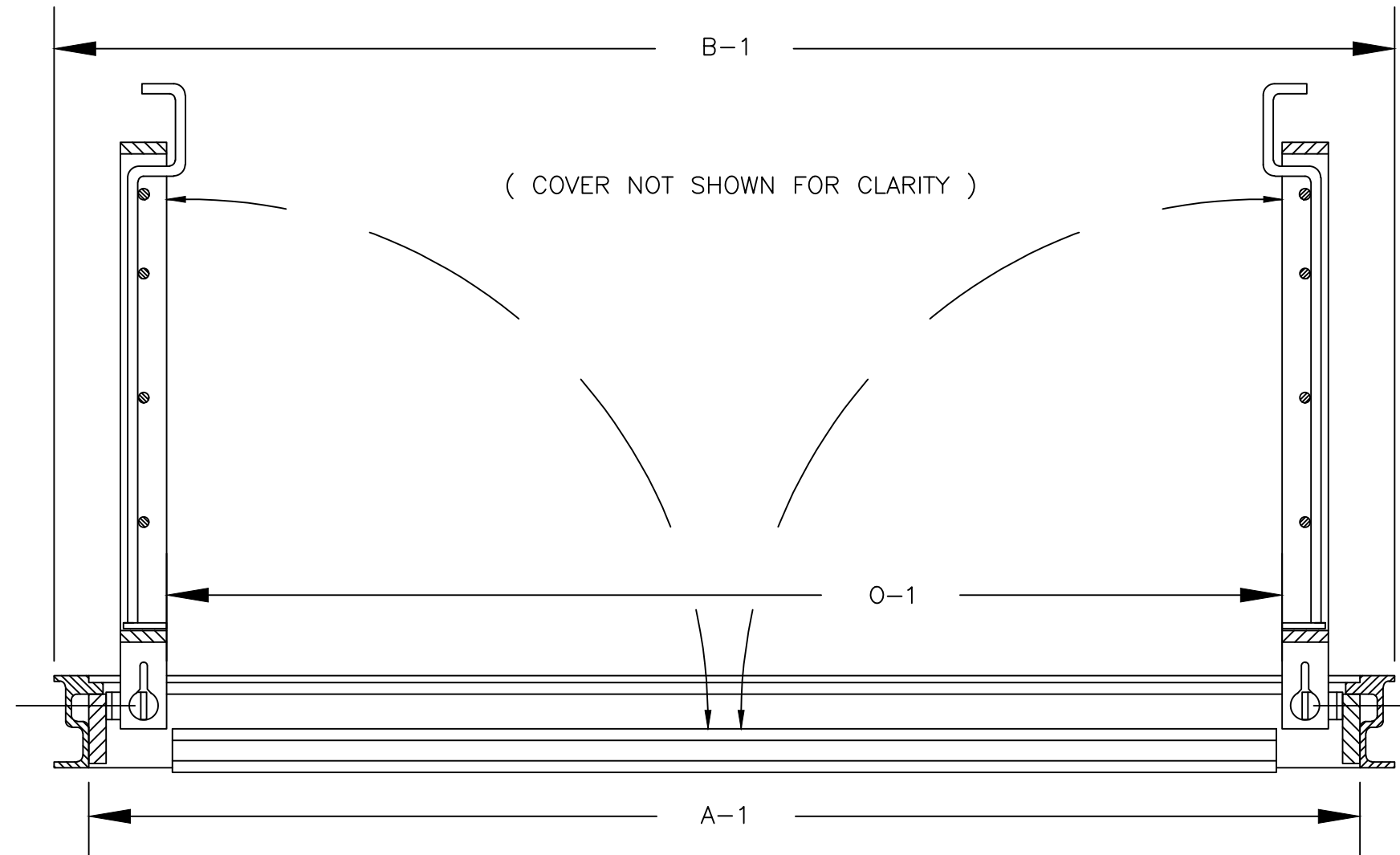
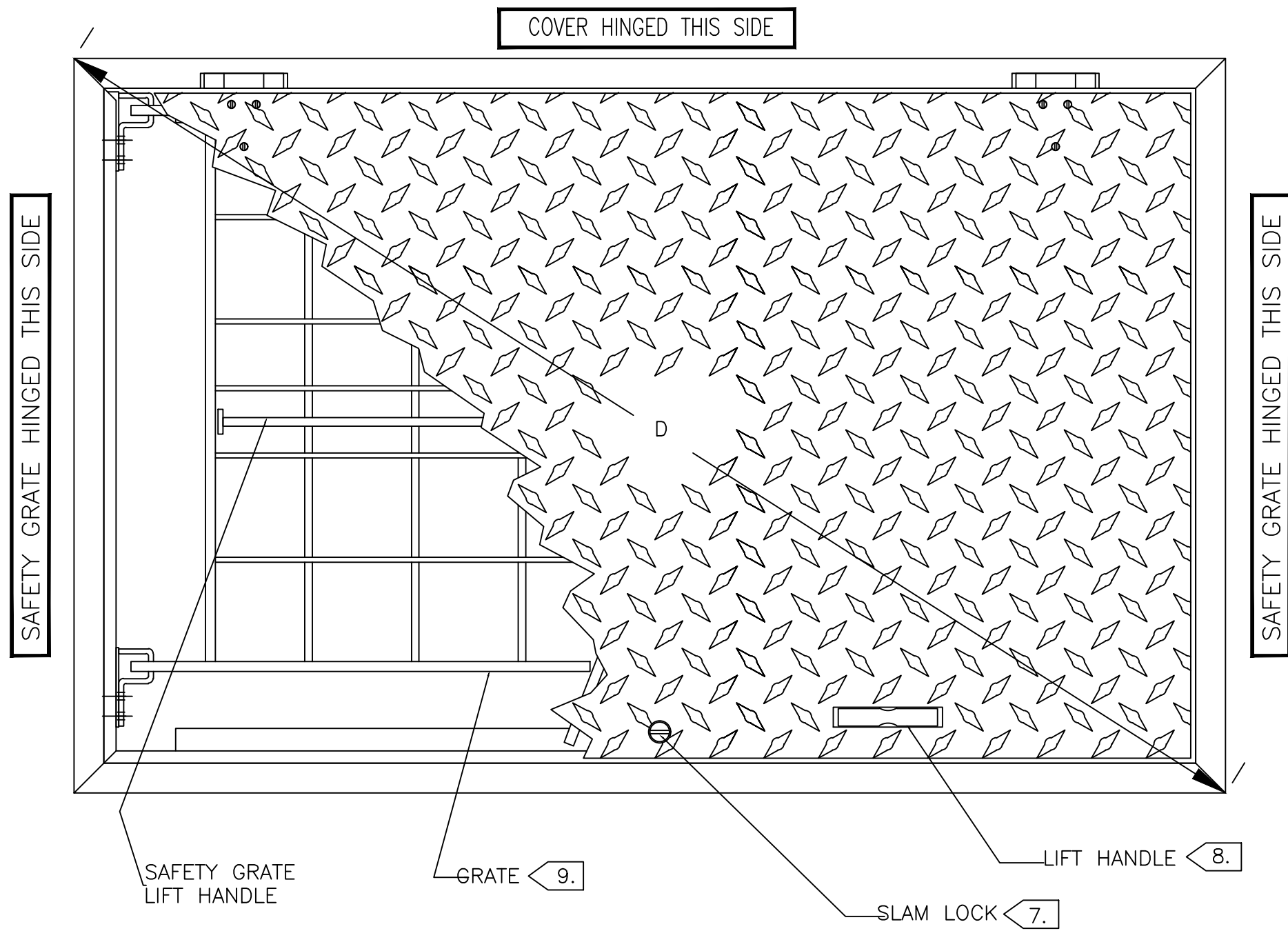
NOTE:
SLEEVED WET WELL PENETRATION IS NOT TO BE USED FOR CONDUIT INSTALLATION. SEE ELECTRICAL DETAIL SHEETS FOR CONDUIT PENETRATIONS.

A SLEEVED WET WELL PENETRATION FOR PIPING 4"Ø & SMALLER

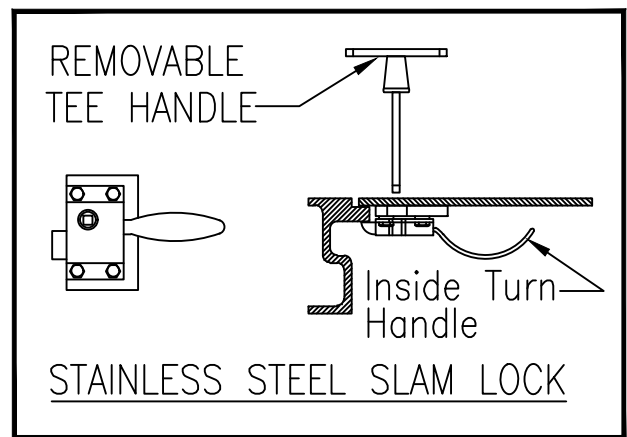


NOTE:
SLEEVED SLAB PENETRATION IS NOT TO BE USED FOR WET WELL PENETRATIONS.

B SLEEVED SLAB PENETRATION



DETAIL B



DETAIL A

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

- 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.
- UNIT DESIGNED PEDESTRIAN RATED FOR A MINIMUM LIVE LOAD OF 300 LBS./SQ.FT.
- 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.
- ANGLE FRAME SHALL BE OF EXTRUDED ALUMINUM, WITH A CONTINUOUS 1-1/2" ANCHOR FLANGE.
- 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.
- ALL HARDWARE SHALL BE STAINLESS STEEL.

- 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.
- 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.
- UNITS SHALL BE SUPPLIED WITH A HINGED SAFETY GRATES ALUMINUM TO PROVIDE PROTECTION AGAINST FALL THROUGH AND TO CONTROL ACCESS TO THE CONFINED SPACE.
- HATCH COVERS SHALL BE PAINTED FOREST GREEN TO DEMARCAT AND PREVENT VANDALISM.

C LIFT STATION WET WELL AND SPLITTER BOX HATCHES

SOURCE: ITT/FLYGT

SERIES F1R ACCESS DOOR

STANDARD FEATURES:

- 625 LNB. PER SQ. FT. LOAD RATING (3051 KB PER SQ. METER LOAD RATING)
- FLOODTIGHT UP TO 10FT COLUMN OF WATER
- EXTRUDED ALUMINUM ANGLE FRAME
- AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE.
- TYPE-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE.
- STAINLESS STEEL PRESSURE LOCKS (1 TO ACCEPT PADLOCK)
- 1/4" (7MM) X 1 1/2" (38MM) EPDM/NEOPRENE GASKET
- SINGLE LEAF CONSTRUCTION
- LIFETIME GURANTEE

PROTECTIVE GRATING PANEL:

STANDARD FEATURES:

- ALUMINUM 1" BAR CONSTRUCTION
- ALL T-316 STAINLESS STEEL HARDWARE
- LOCKABLE WITH OWNER-SUPPLIED PADLOCK
- HINGED WITH POSITIVE LATCH TO MAINTAIN UPRIGHT POSITION
- LOAD RATED CONSISTENT WITH ACCESS COVER
- VIEW AREA FOR OBSERVATION AND LIMITED MAINTENANCE
- SAFETY ORANGE POWDER-COATED FINISH
- NUTRIL W/ STAINLESS STEEL SPRING NUTS (300 LB. PER SQUARE FEET [1464 KG. PER METER] LOADED DOORS ONLY)
- LIFETIME GUARANTEE

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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OF: ANA K. TREJO
P.E.# 125772

DATE: 05/01/2026

SURVEYED BY:
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FB NO. P-6409

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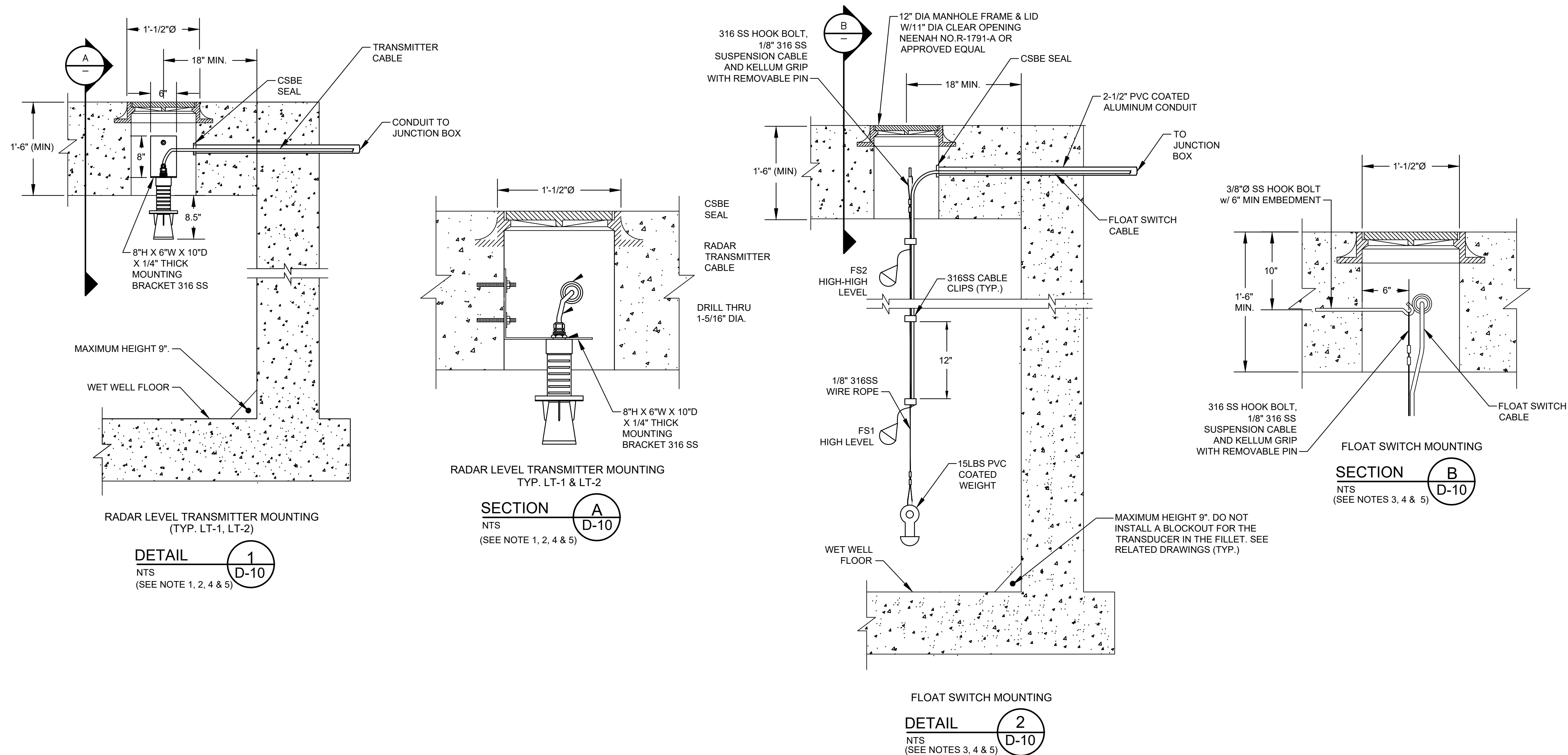
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

MECHANICAL DETAILS 3

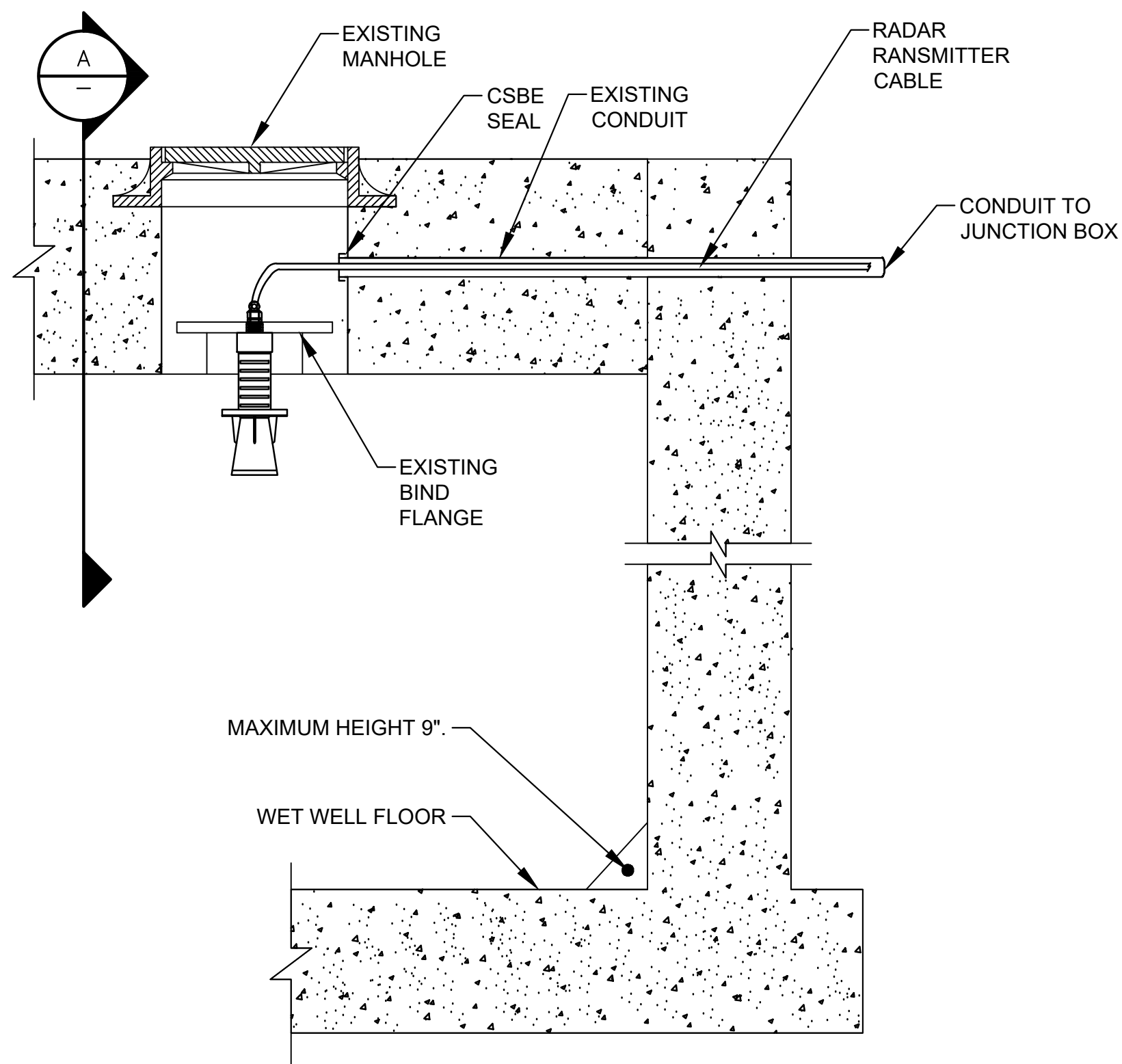
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
NTS	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 2610F 291	



NOTES:

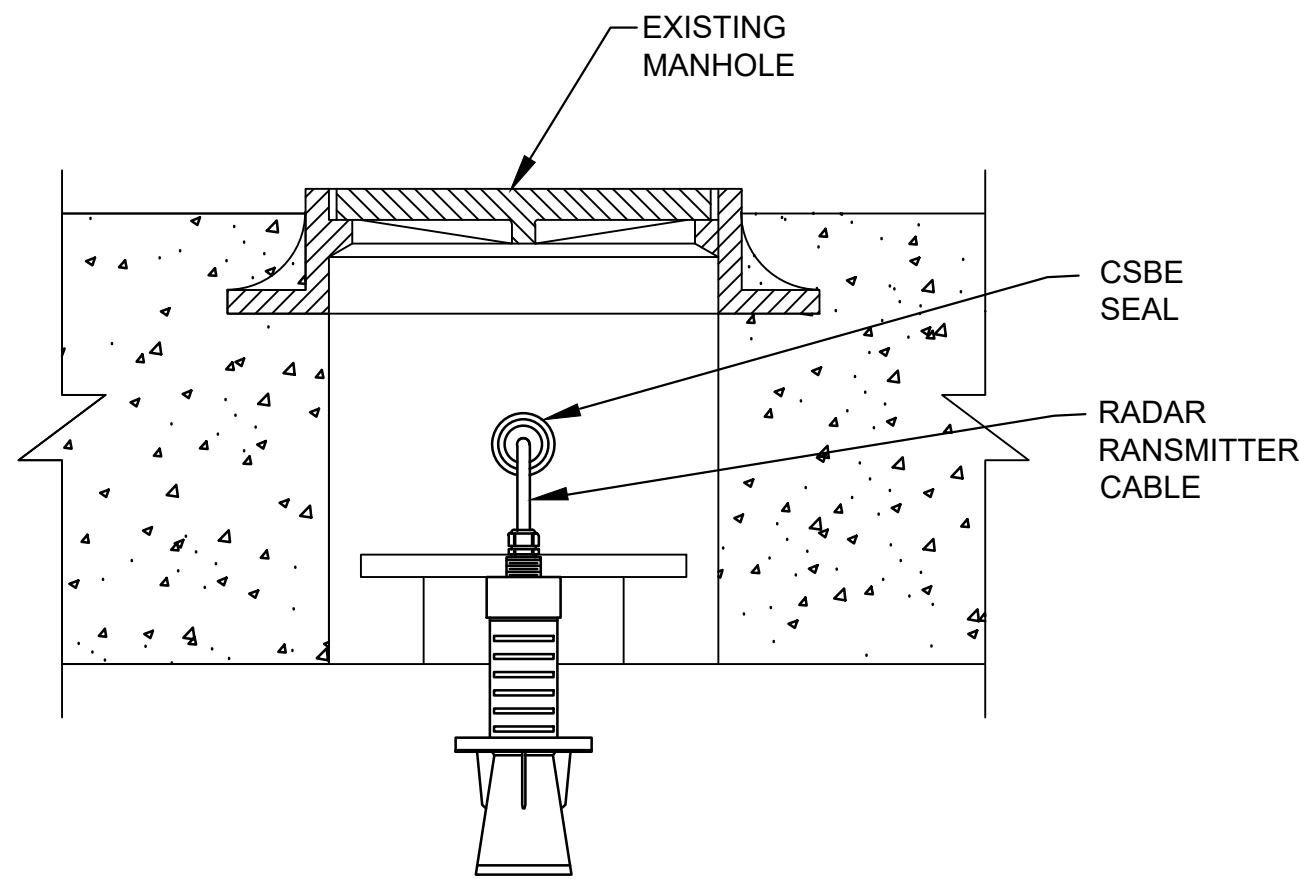
1. NEW RADAR LEVEL TRANSMITTERS FOR LT-1, LT-2.
2. NEW MANHOLES FOR RADAR LEVEL TRANSMITTERS LT-1, LT-2.
3. NEW MANHOLE FOR FLOAT SWITCHES.
4. PAINT MANHOLE LIDS AND HATCHES HUNTER GREEN.
5. NEW MANHOLE INSTALLATION.
6. INSIDE WET WELL IS CLASSIFIED AS CLASS I, DIVISION 1. OUTSIDE WET WELL WITHIN 5 FEET OF WET WELL OPENINGS ARE CLASSIFIED AS CLASS I, DIVISION 2.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 800 Houston, Texas 77042		LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
 FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481	THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302	
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409	DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
RADAR LEVEL TRANSMITTER GAUGING SYSTEM INSTALLATION & DETAILS I		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 263 OF 291		



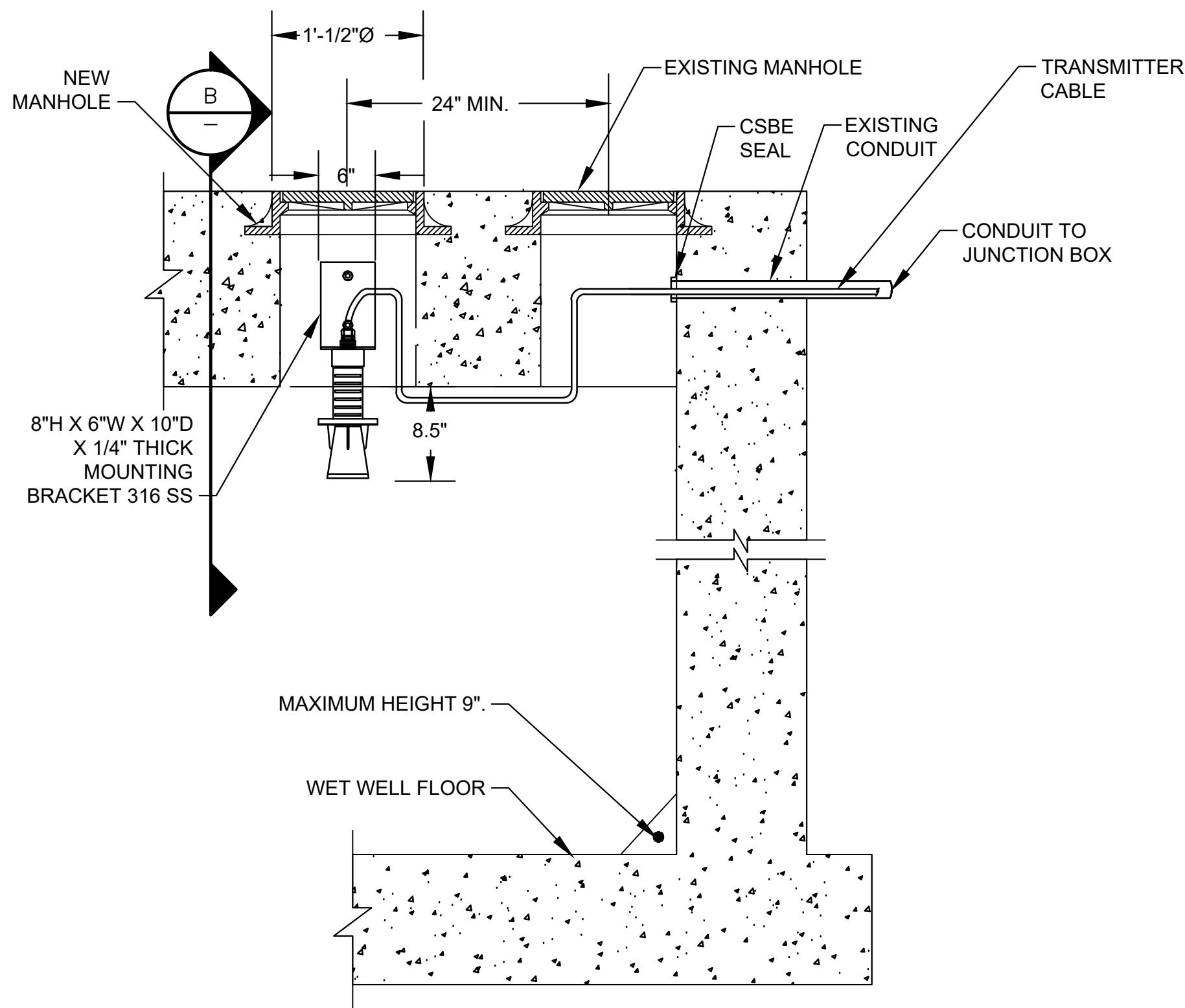
RADAR LEVEL TRANSMITTER MOUNTING
(TYP. LT-1, LT-2)

DETAIL 1
NTS
(SEE NOTES 1, 2, 4,)



RADAR LEVEL TRANSMITTER MOUNTING
TYP. LT-1 & LT-2

SECTION A
NTS
(SEE NOTES 1, 2, 4,)



RADAR LEVEL TRANSMITTER MOUNTING
(TYP. LT-1, LT-2)

DETAIL 2
NTS
(SEE NOTES 1, 3, 4, 5,)

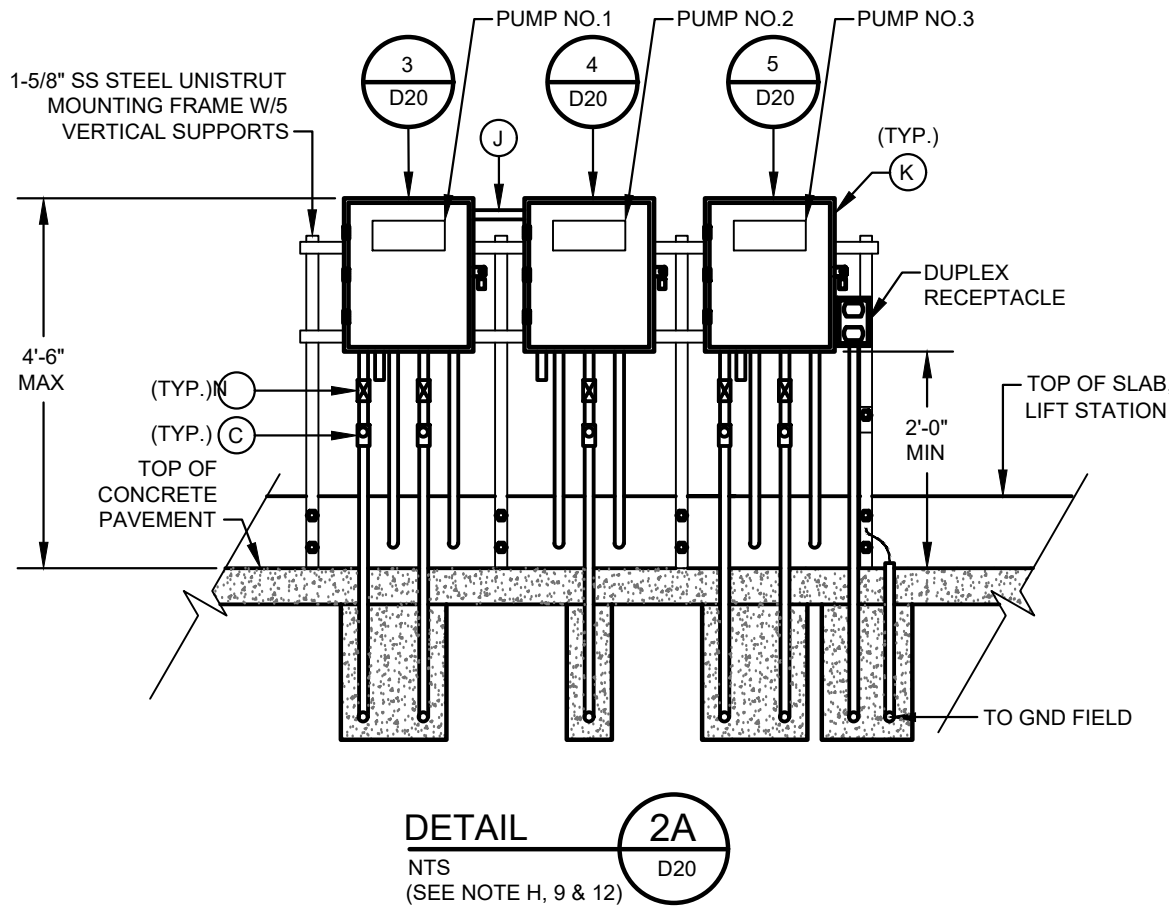
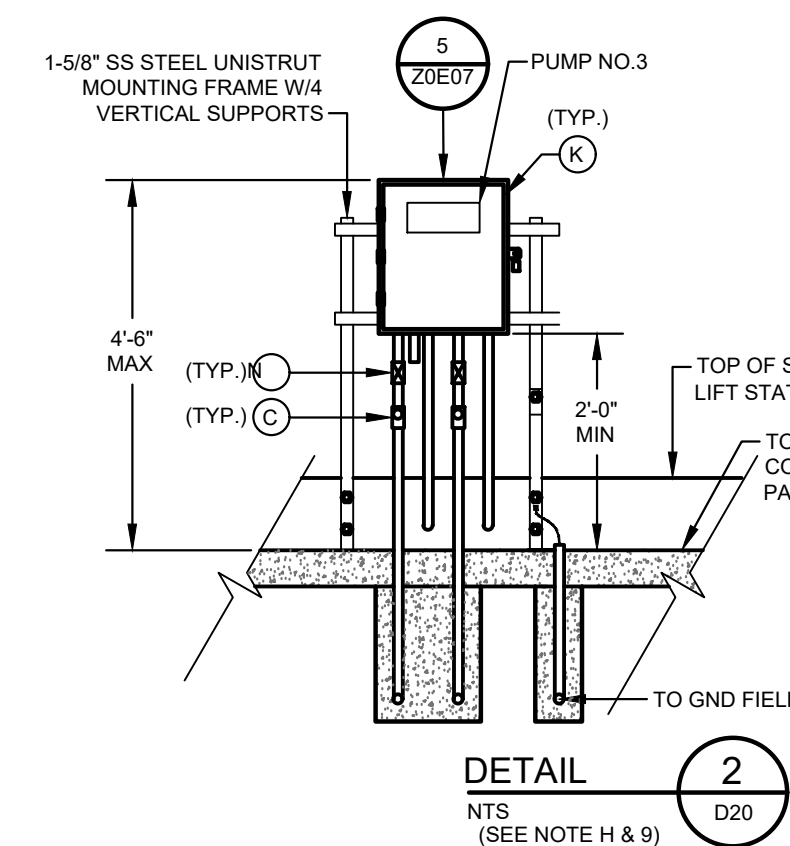
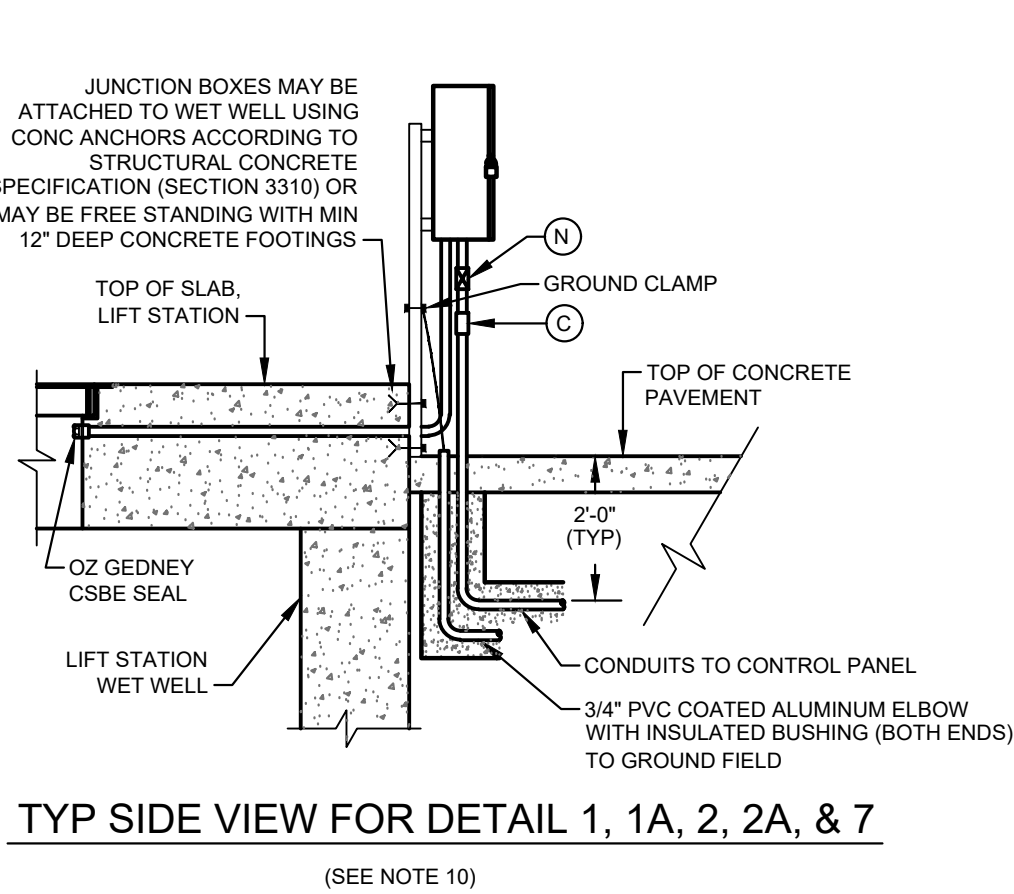
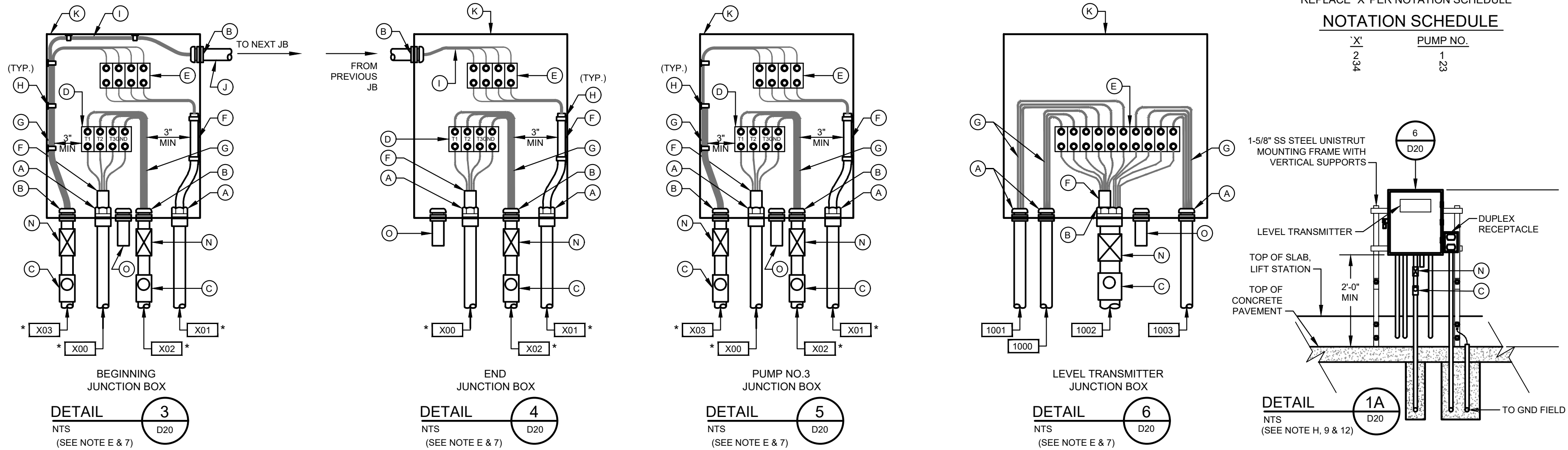
NOTES:

1. NEW RADAR LEVEL TRANSMITTERS FOR LT-1, LT-2.
2. RADAR LEVEL TRANSMITTERS LT-1, LT-2.
3. TRANSDUCER MANHOLES FOR RADAR LEVEL TRANSMITTERS LT-1, LT-2.
4. PAINT MANHOLE LIDS AND HATCHES HUNTER GREEN.
5. NEW MANHOLE INSTALLATION.
6. 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.

ISSUE	DATE	DESCRIPTION

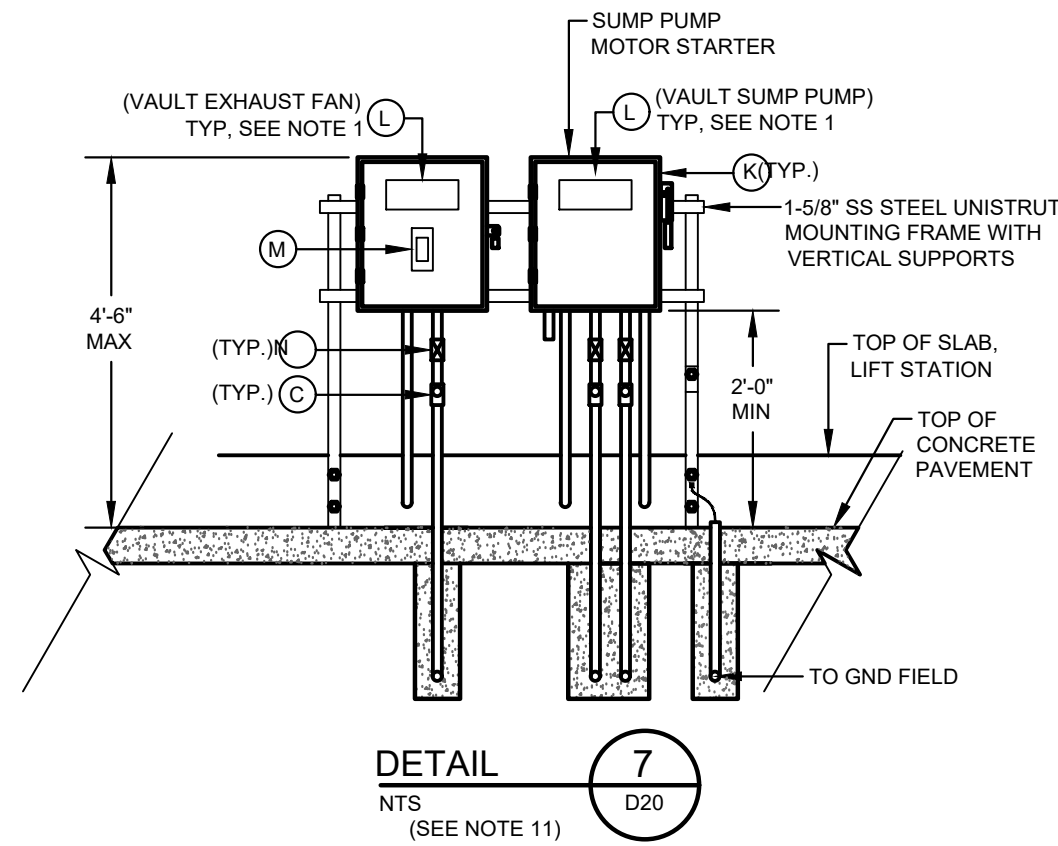
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
 Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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RADAR LEVEL TRANSMITTER GAUGING SYSTEM INSTALLATION & DETAILS-II	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SCALE:	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	



JUNCTION BOX EQUIPMENT SCHEDULE

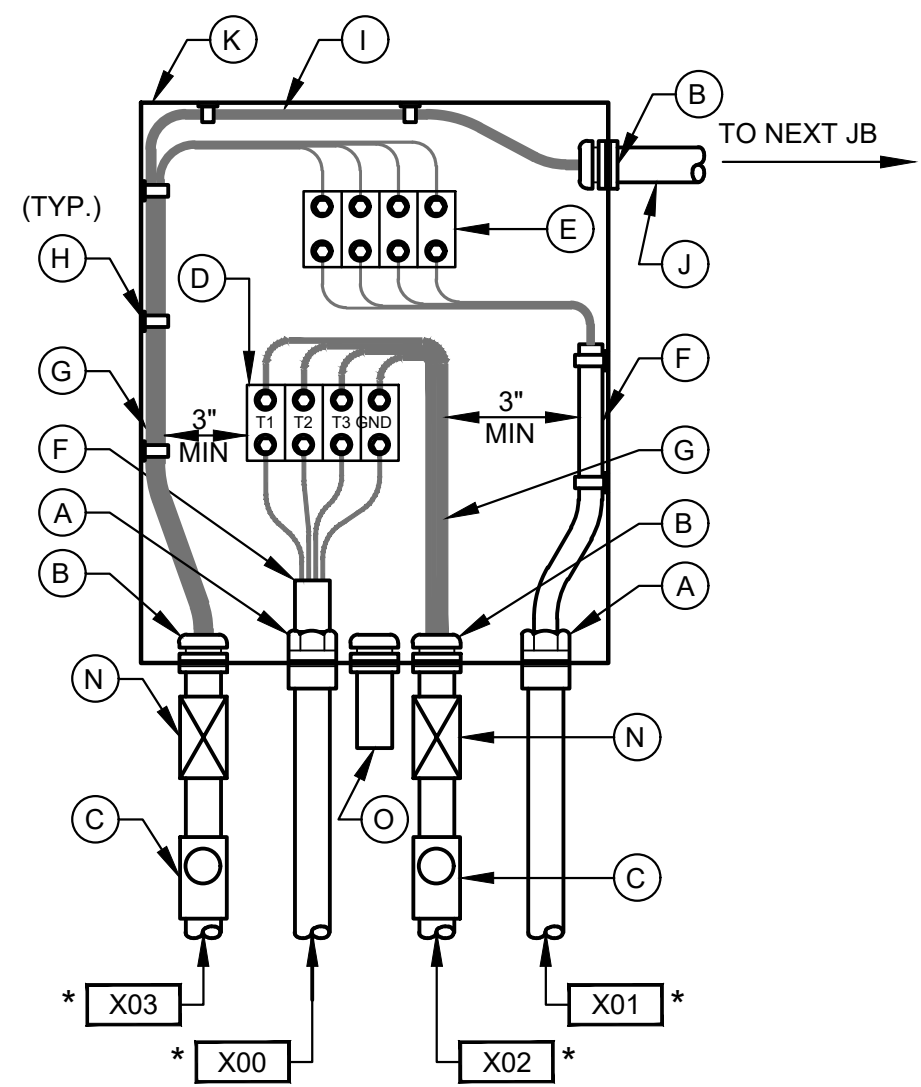
- (A) OZ GEDNEY CSBE SEAL
 - (B) WATERTIGHT CONDUIT HUB WITH INSULATED BUSHING
 - (C) CLASS 1, DIV 1, EXPLOSION PROOF SEAL INSTALLED PER NEC DIV 901
 - (D) POWER TERMINAL BLOCK W/SCREW DOWN BOX LUGS
 - (E) CONTROL TERM BLOCK W/SCREW DOWN BOX LUGS
 - (F) MULTI-CONDUCTOR CABLE, REMOVE OUTER JACKET AS SHOWN
 - (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.
 - (L) MINIMUM SIZE: 12"W X 16"H X 6"D NAMEPLATE, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE)
 - (M) MOTOR RATED SWITCH
 - (N) EXPANSION FITTING
 - (O) DRAIN VENT
- DETAIL 1 (SEE NOTE H, 9 & 12)



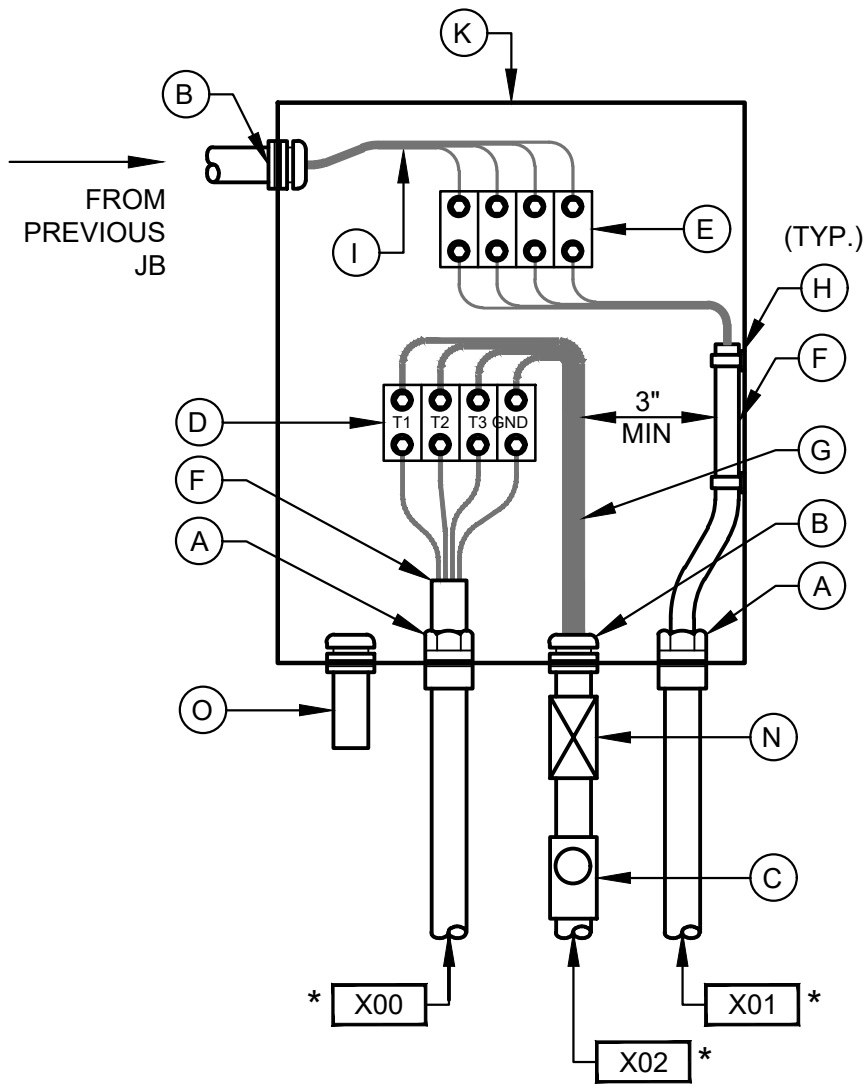
NOTES:

1. UNLESS OTHERWISE NOTED, ALL EXTERIOR EXPOSED CONDUITS SHALL BE PVC COATED ALUMINUM.
2. UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS WASHERS, ETC SHALL BE TYPE 316 STAINLESS STEEL.
3. THE ENCLOSURES WITH ELECTRICAL CIRCUITS SHALL BE A MINIMUM OF 5 FEET FROM ANY CLASSIFIED AREA, OTHERWISE EXPLOSION PROOF TYPE ENCLOSURES SHALL BE USED.
4. THE RECEPTACLES SHALL BE EXPLOSION PROOF TYPE IF INSTALLED WITHIN 5 FEET OF CLASSIFIED AREA.

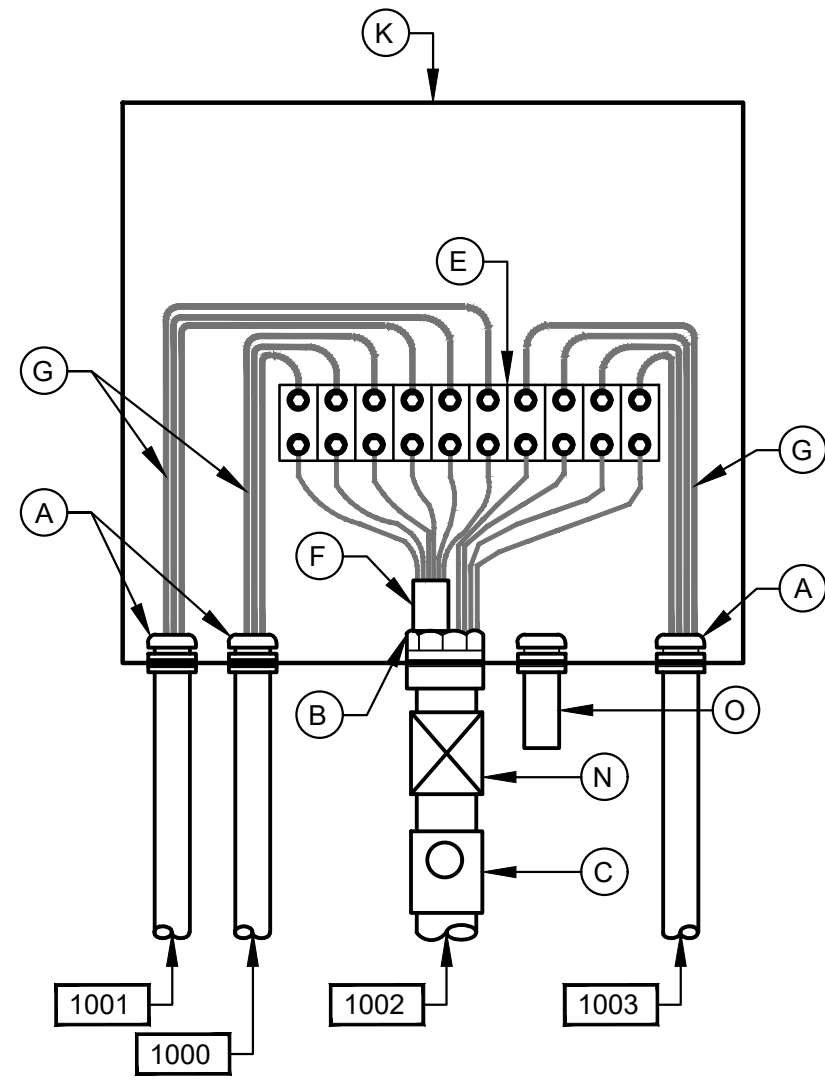
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LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
3 PUMP (INDOOR/OUTDOOR) TYPICAL JUNCTION BOX DETAILS		
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SCALE:		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
D-12	SHEET NO. 265 OF 291	



BEGINNING JUNCTION BOX
DETAIL 3
NTS
(SEE NOTE E & 7)



END JUNCTION BOX
DETAIL 4
NTS
(SEE NOTE E & 7)

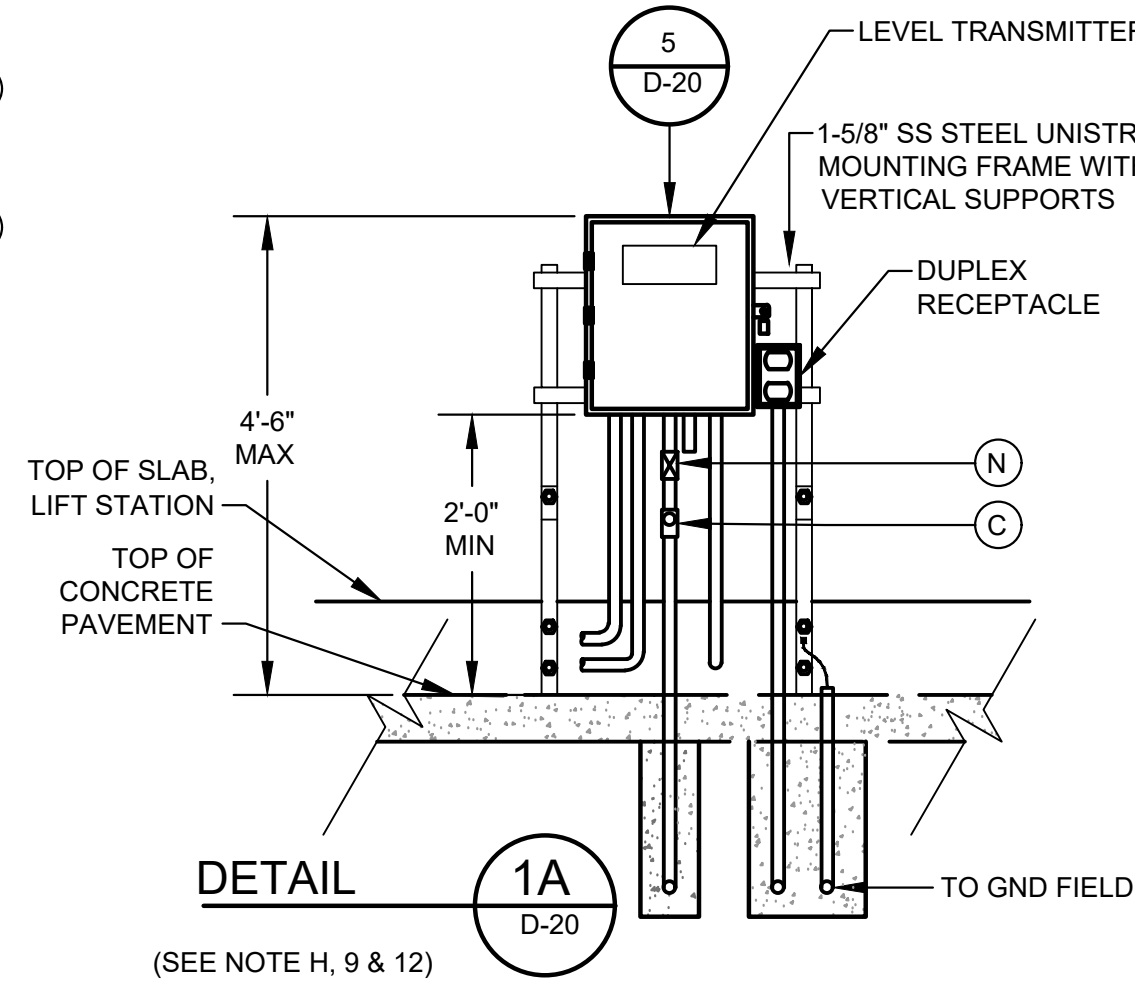


LEVEL TRANSMITTER JUNCTION BOX
DETAIL 5
NTS
(SEE NOTE E & 7)

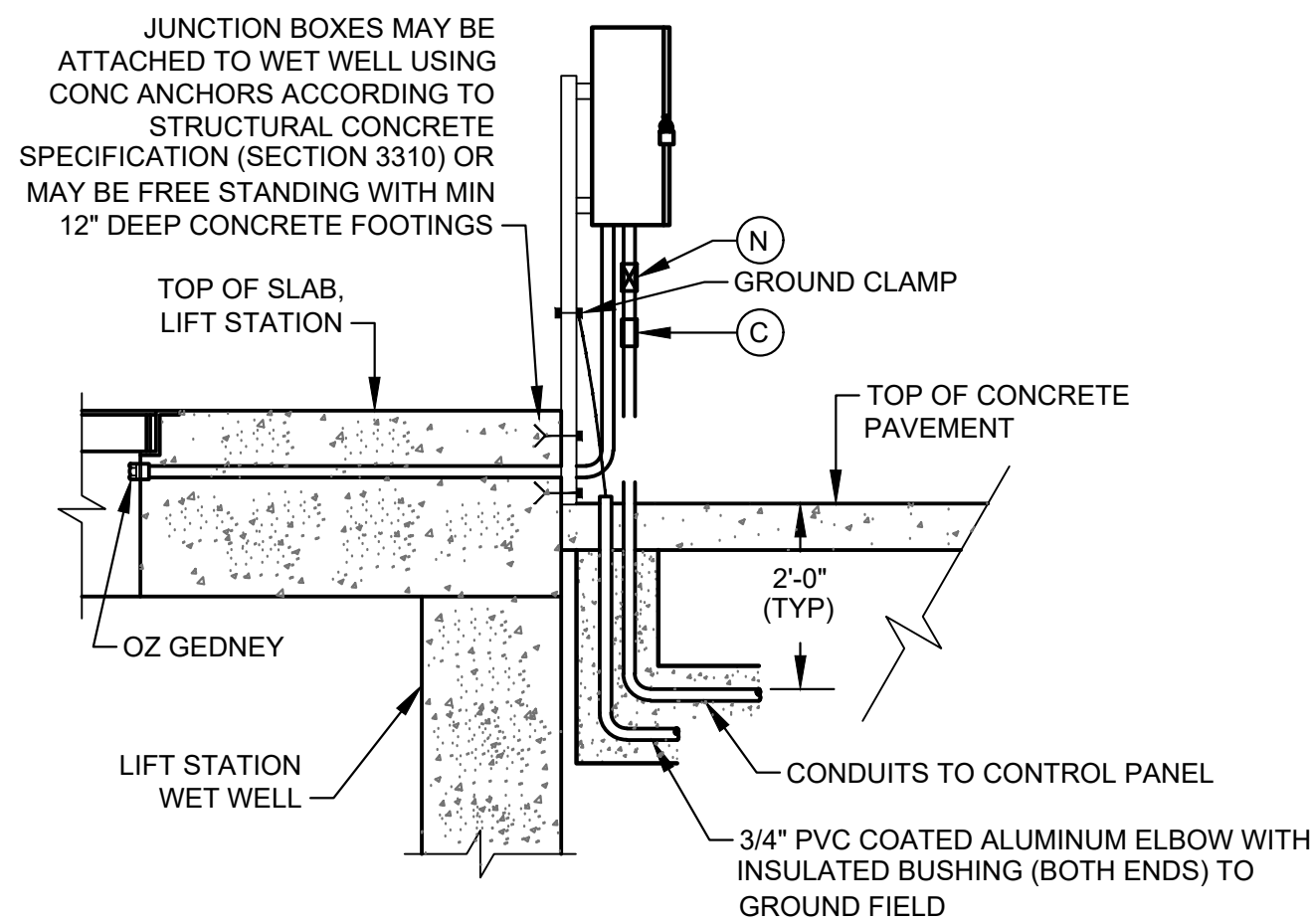
* REPLACE 'X' PER NOTATION SCHEDULE

NOTATION SCHEDULE

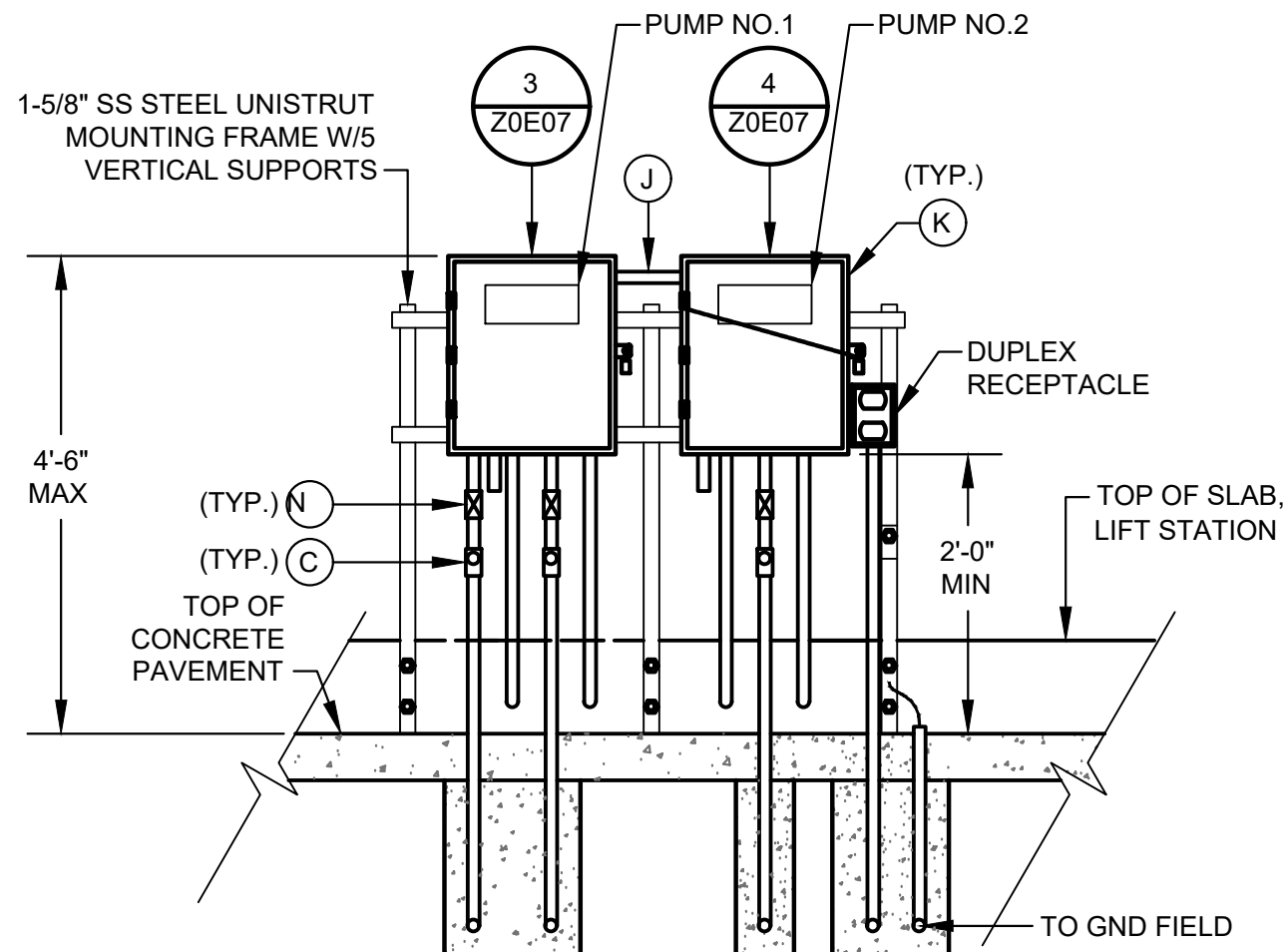
'X'	PUMP NO.
S	1
S	2



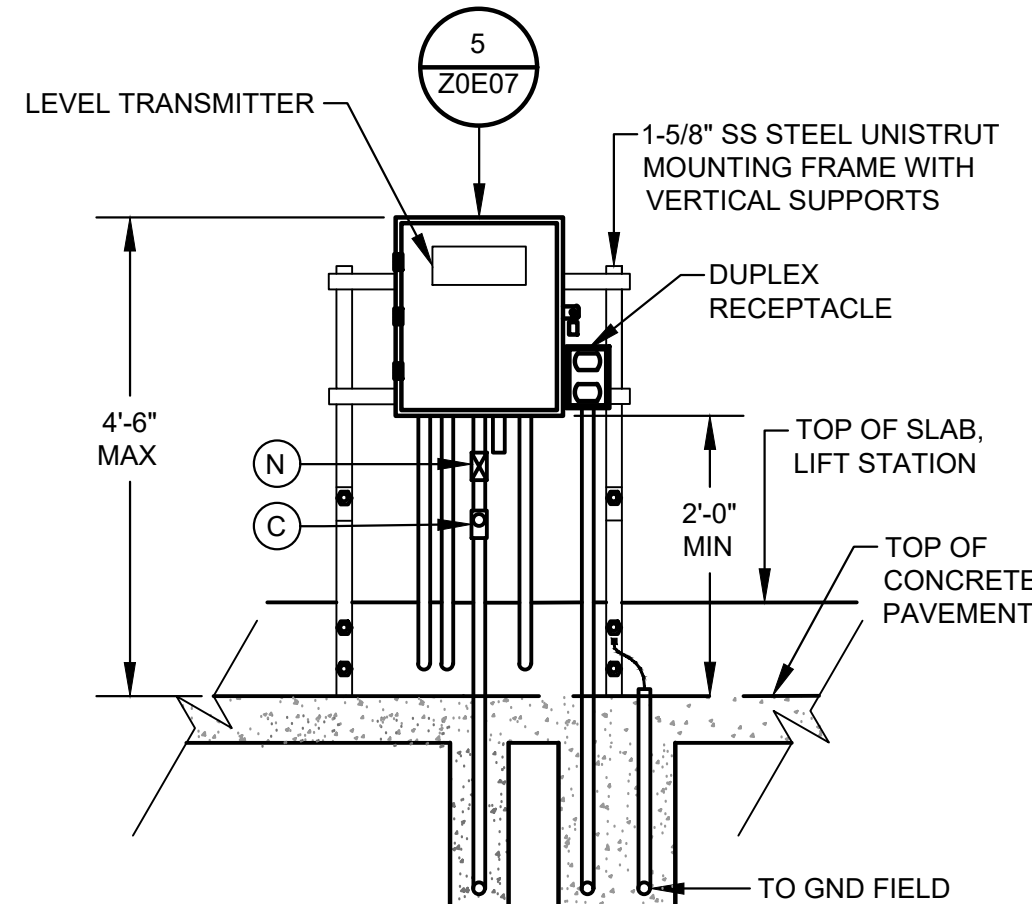
DETAIL 1A
D-20
(SEE NOTE H, 9 & 12)



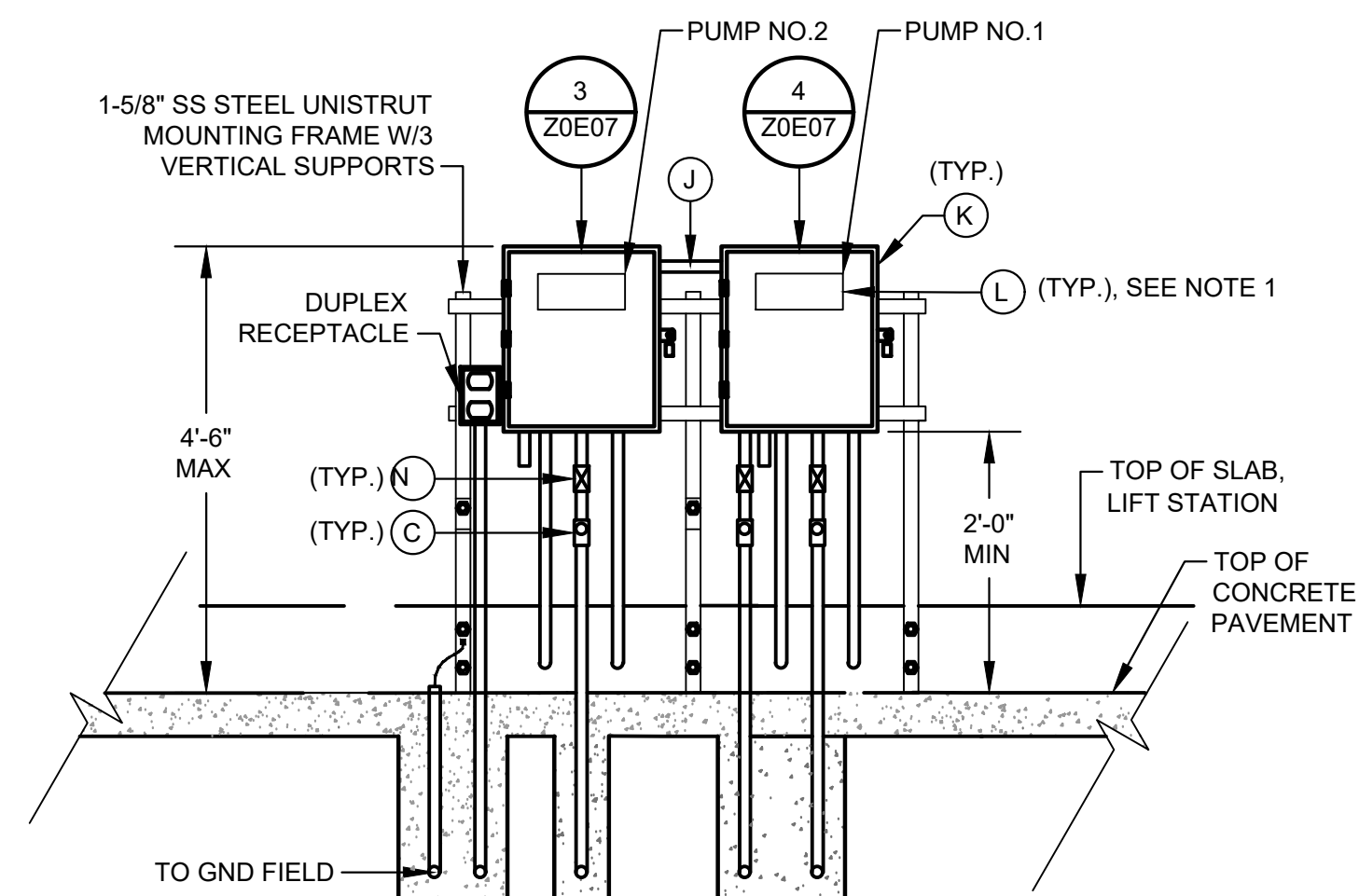
TYP SIDE VIEW FOR DETAIL 1, 1A, 1B, 2, & 6
(SEE NOTE 10)



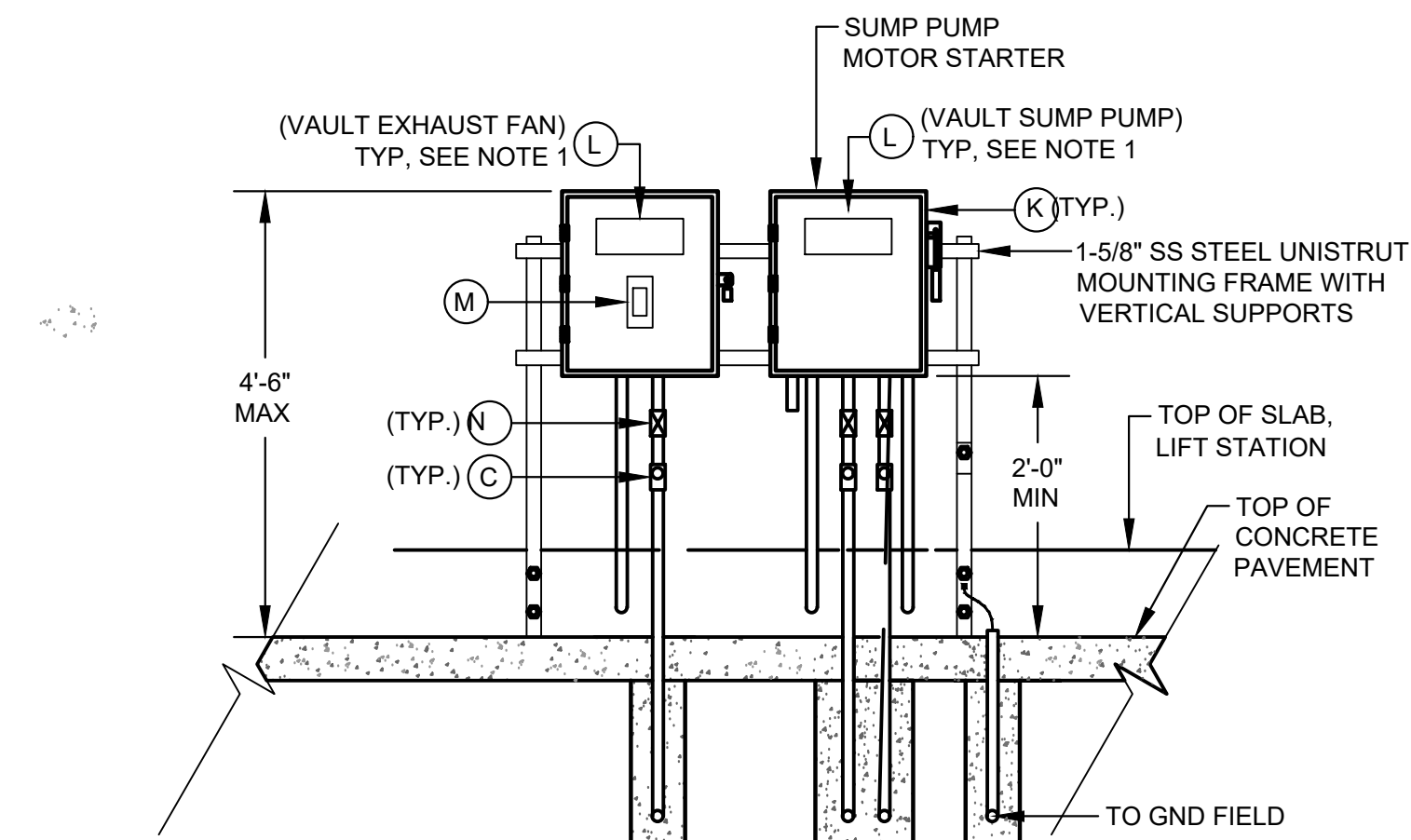
DETAIL 2
NTS
(SEE NOTE H, 9 & 12)



DETAIL 1B
D-20
(SEE NOTE H, 9 & 12)



DETAIL 1
NTS
(SEE NOTE H, 9 & 12)



DETAIL 6
NTS
(SEE NOTE 11)

NOTES:

- NAMEPLATES SHALL BE MOUNTED TO JUNCTION BOXES USING 316 STAINLESS STEEL HARDWARE.
- MAINTAIN MINIMUM SEPARATION REQUIRED UNDER NEC ARTICLE 504, BETWEEN INTRINSICALLY SAFE CONTROL WIRING AND NON INTRINSICALLY SAFE MOTOR FEEDER WIRING.
- UNLESS OTHERWISE NOTED, ALL EXTERIOR EXPOSED CONDUITS SHALL BE PVC COATED ALUMINUM.
- UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS WASHERS, ETC SHALL BE TYPE 316 STAINLESS STEEL.
- ALL UNDERGROUND CONDUITS TO BE ENCASED IN REINFORCED CONCRETE DUCTBANK.
- PROVIDE ANTI-CORROSIVE SPRAY ON ANY BARE METAL PARTS OR EXPOSED WIRE.
- SEE WIRING SCHEMATICS FOR TERMINALS AND WIRE NUMBERS.
- ANY CONDUIT REQUIRING A CSBE SEAL, SHALL BE A MINIMUM SIZE OF 2 1/2" PER CABLE.
- DETAIL SHOWN MAY BE MODIFIED PER SITE SITUATION.
- COORDINATE WITH WASTE WATER OPERATIONS ELECTRICAL ORGANIZATION FOR THE OPENING OF JUNCTION BOXES TO THE SIDE OF WET WELL IF REQUIRED DURING CONSTRUCTION.
- THE ENCLOSURES WITH ELECTRICAL CIRCUITS SHALL BE A MINIMUM OF 5 FEET FROM ANY CLASSIFIED AREA, OTHERWISE EXPLOSION PROOF TYPE ENCLOSURES SHALL BE USED.
- THE RECEPTACLES SHALL BE EXPLOSION PROOF TYPE IF INSTALLED WITHIN 5 FEET OF CLASSIFIED AREA.

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 NAMEPLATE, SEE SPECIFICATIONS (SEE NAMEPLATE SCHEDULE) |
| (L) | MOTOR RATED SWITCH |
| (M) | EXPANSION FITTING |
| (N) | EXPANSION FITTING |
| (O) | DRAIN VENT |

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

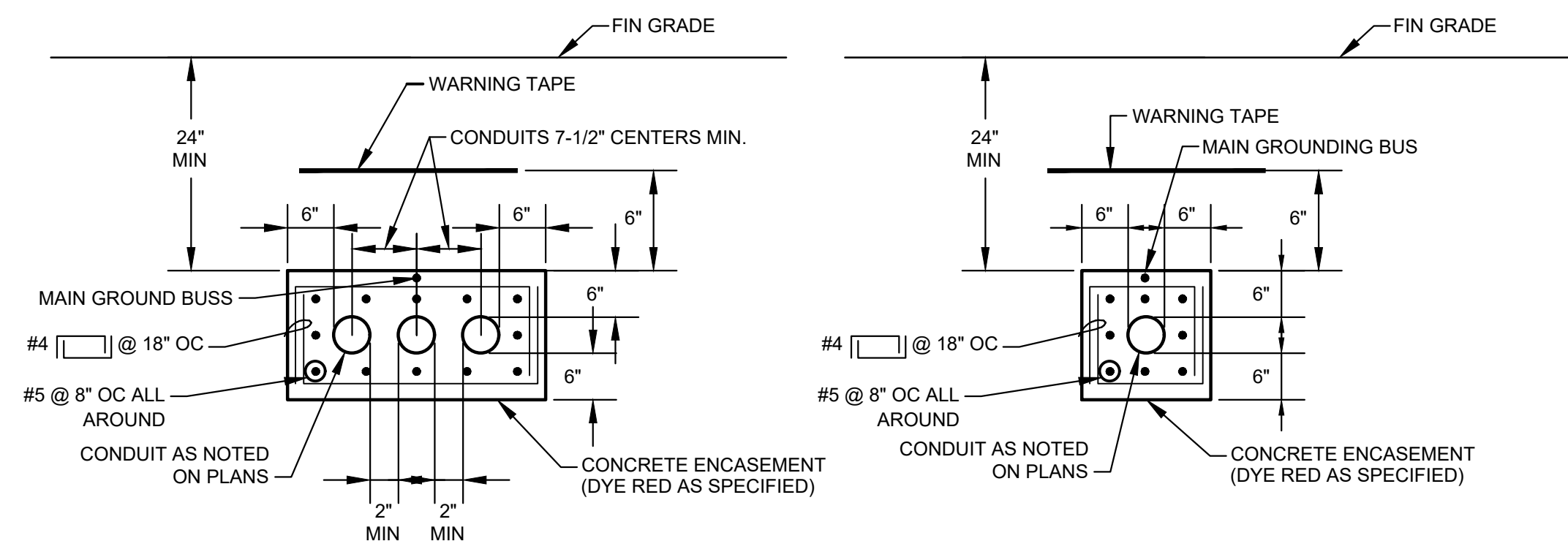
FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481
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CITY OF HOUSTON
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

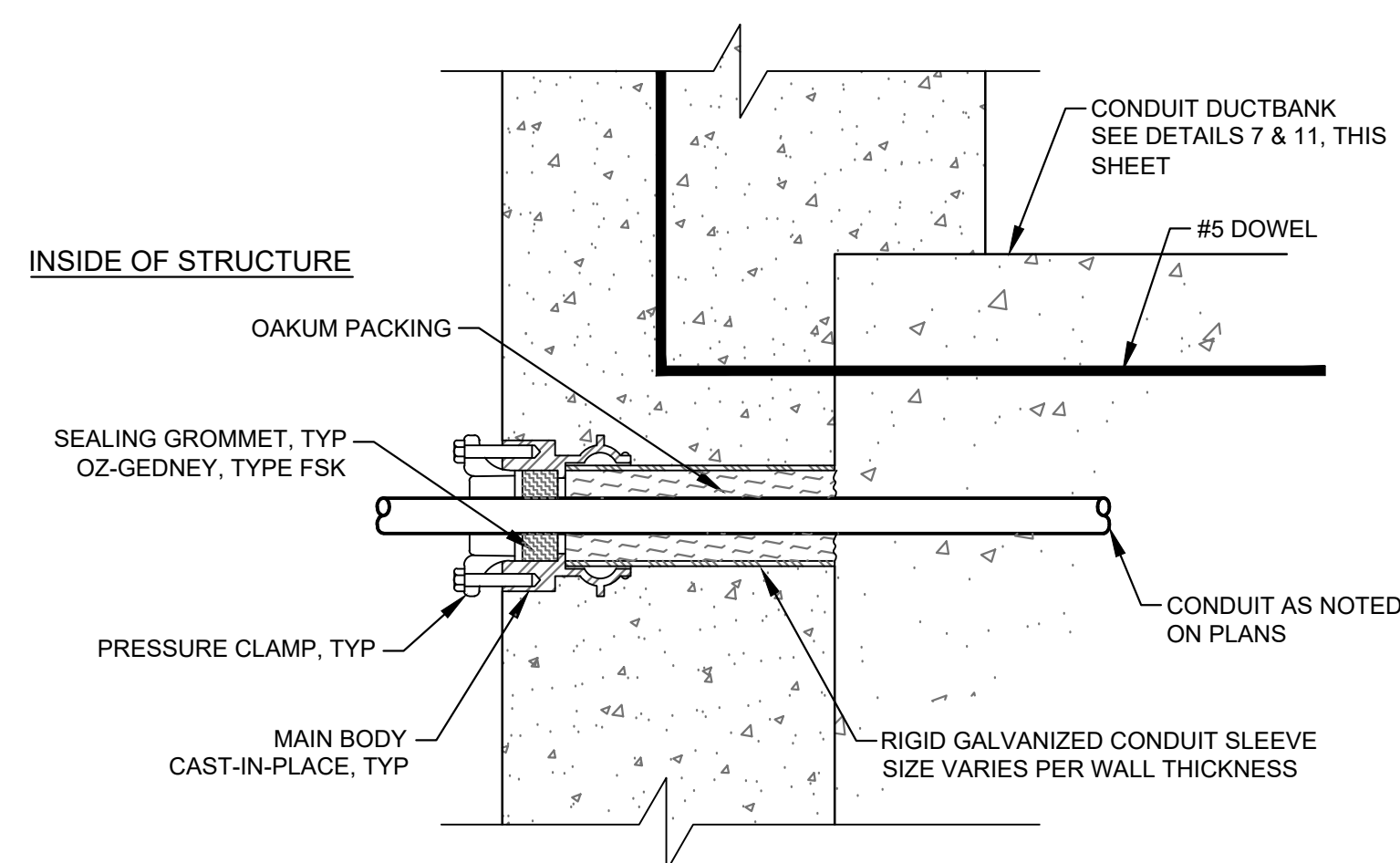
**2 PUMP OUTDOOR
TYPICAL JUNCTION BOX DETAILS**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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NAWARAJ PANTA, P.E.	
SHEET NO. 266 OF 291	



TYP MULTI-CONDUIT DUCTBANK SECTION

NOTE: TIE MAIN GROUNDING BUS TO REBAR AT A MAXIMUM INTERVAL OF EVERY 20 FEET.

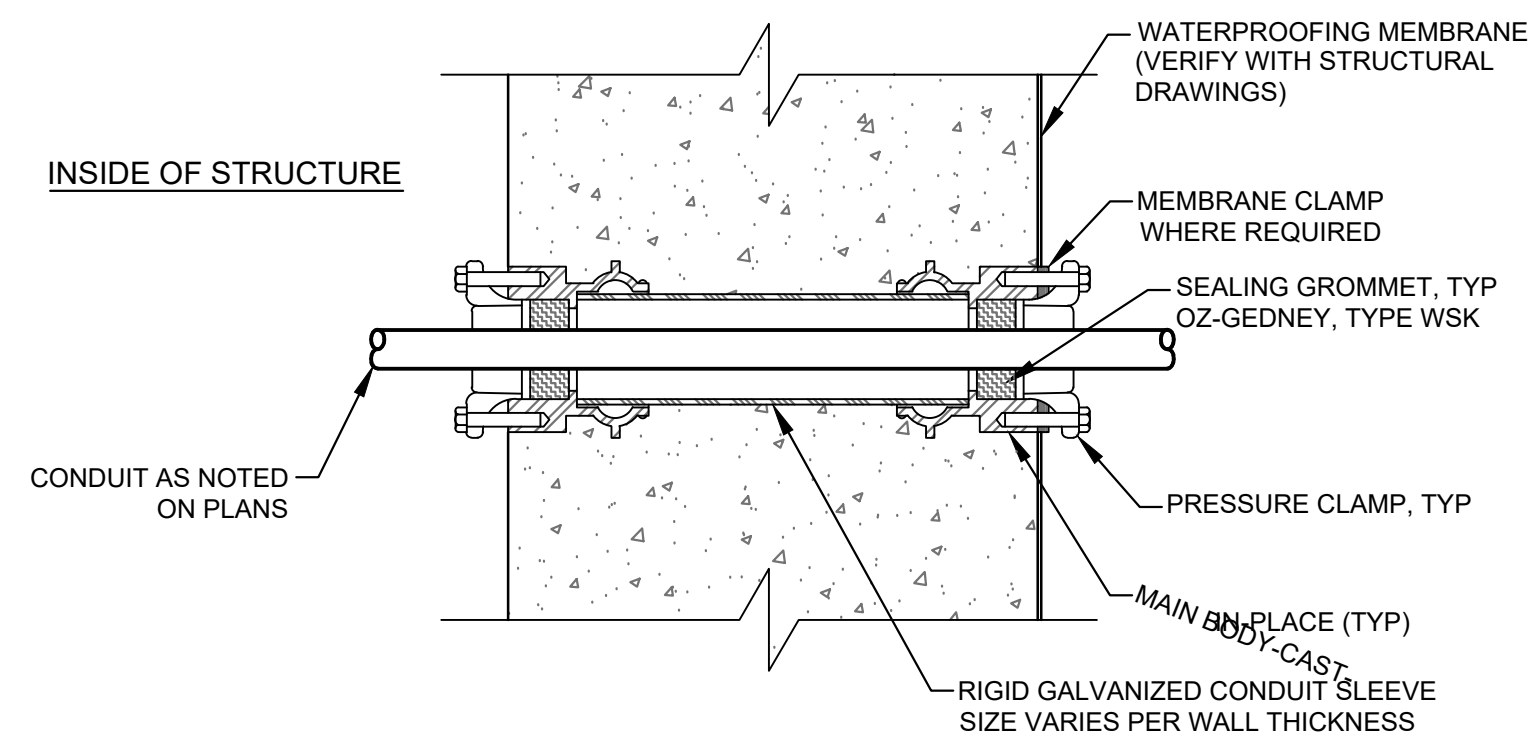


NOTE:

WALL SEAL SHOWN IS TYPICAL FOR EACH CONDUIT IN DUCTBANK

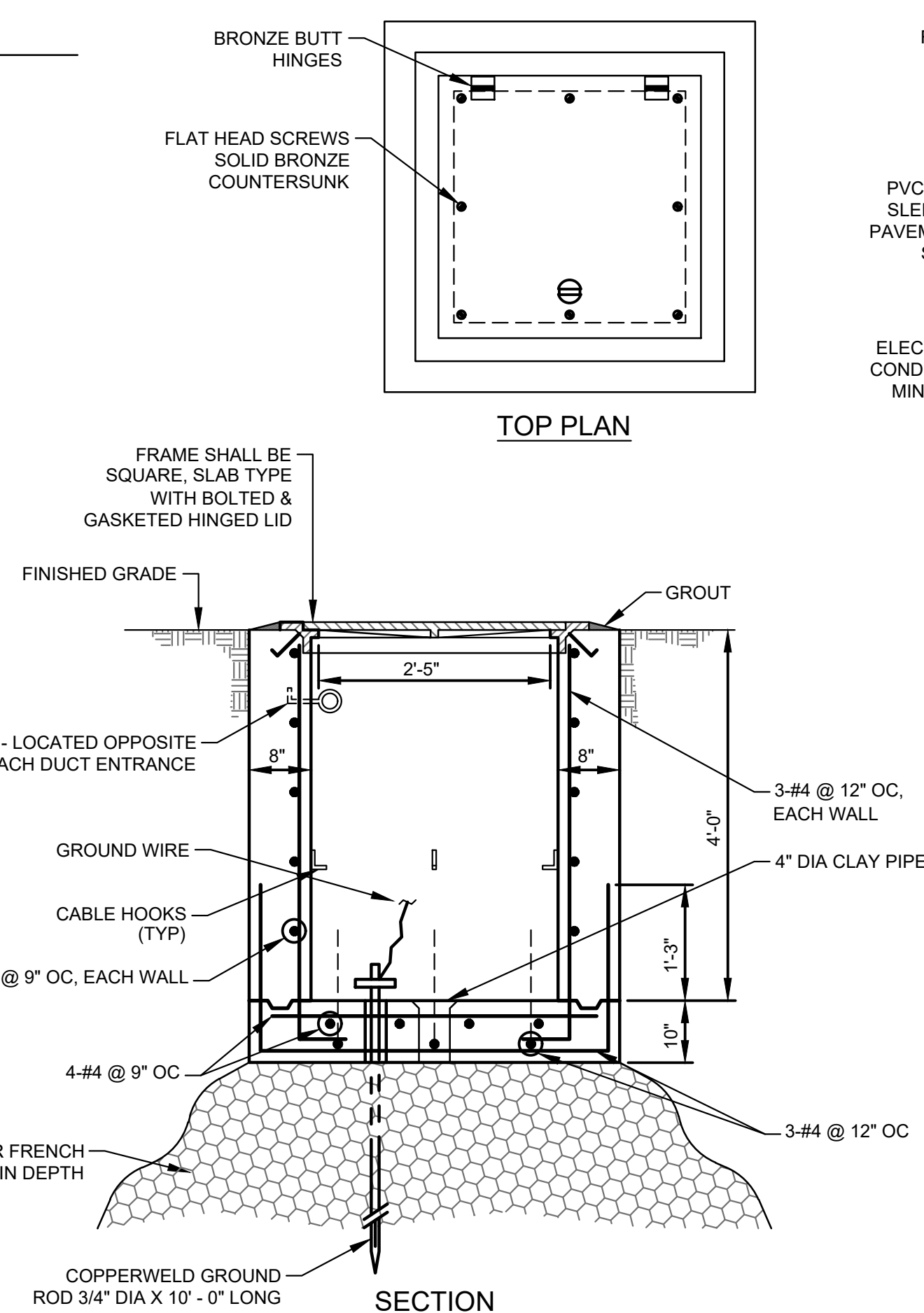
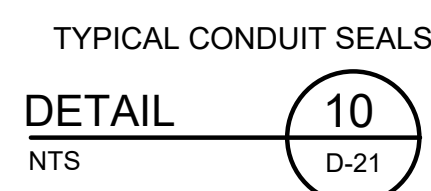
SINGLE ENDED TYPE

FOR USE WHERE CONDUIT OUTSIDE THE
STRUCTURE IS ENCASED IN CONCRETE

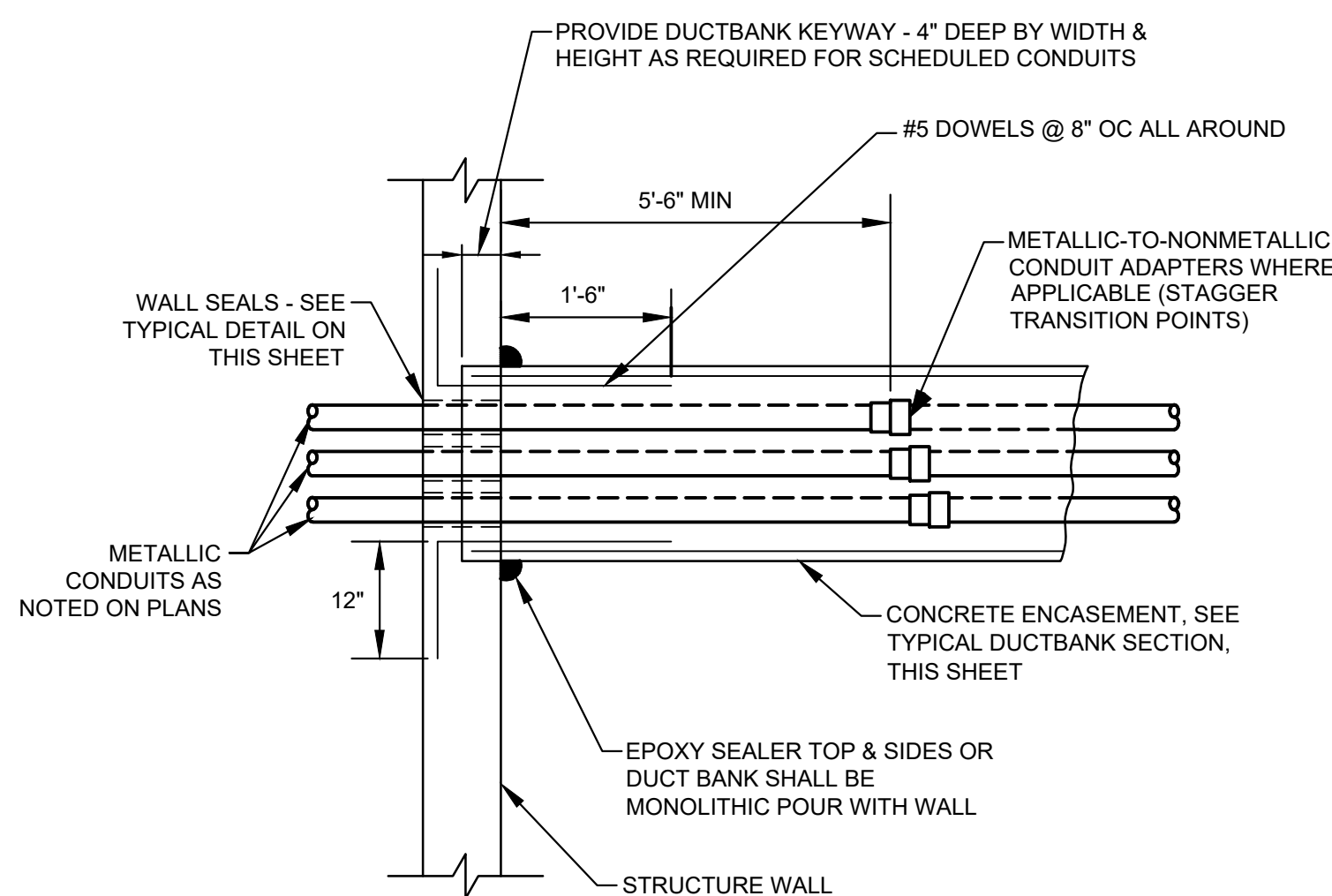
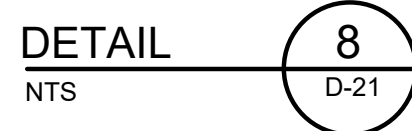


DOUBLE ENDED TYPE WITH MEMBRANE

FOR USE WHERE CONDUIT OUTSIDE THE
STRUCTURE IS ENCASED IN CONCRETE

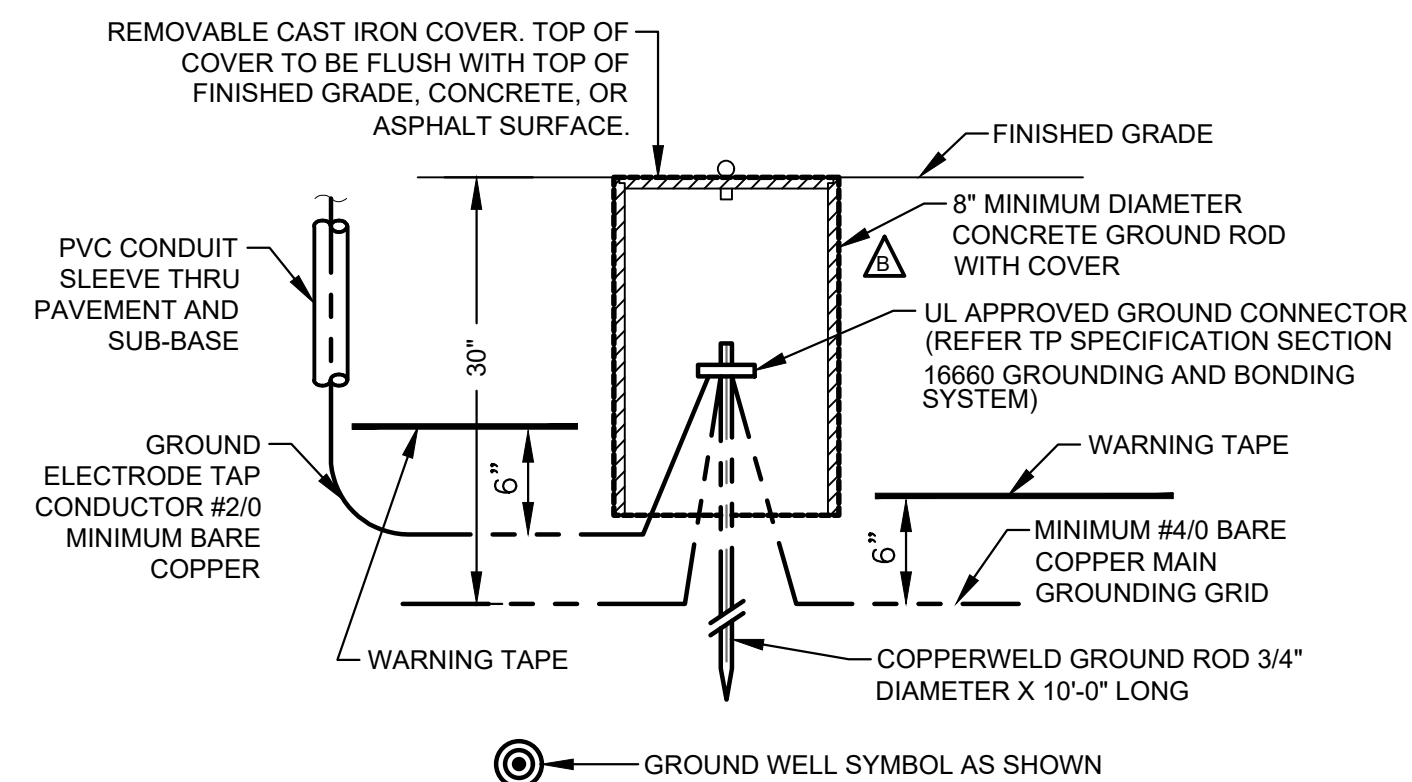
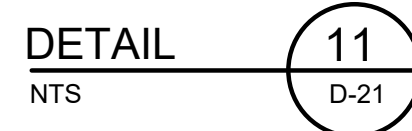


TYPICAL ELECTRICAL HANDHOLE CONSTRUCTION

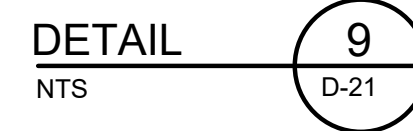


PLAN

TYPICAL DUCTBANK ENTRANCE AT STRUCTURE WALL



TYPICAL GROUND ROD AND WELL INSTALLATION



GROUND CONNECTOR SCHEDULE	
WIRE SIZE	BURNDY
#2 AWG	GAR 6426
#2/0 AWG	GAR 6426
#4/0 AWG	GAR 6429
500 kcmil	GAR 6434

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386



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

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AUTHORITY

OF: JAMES E. THOMPSON, JR
TEXAS P.E. #70302

DATE: 12/10/2025

SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

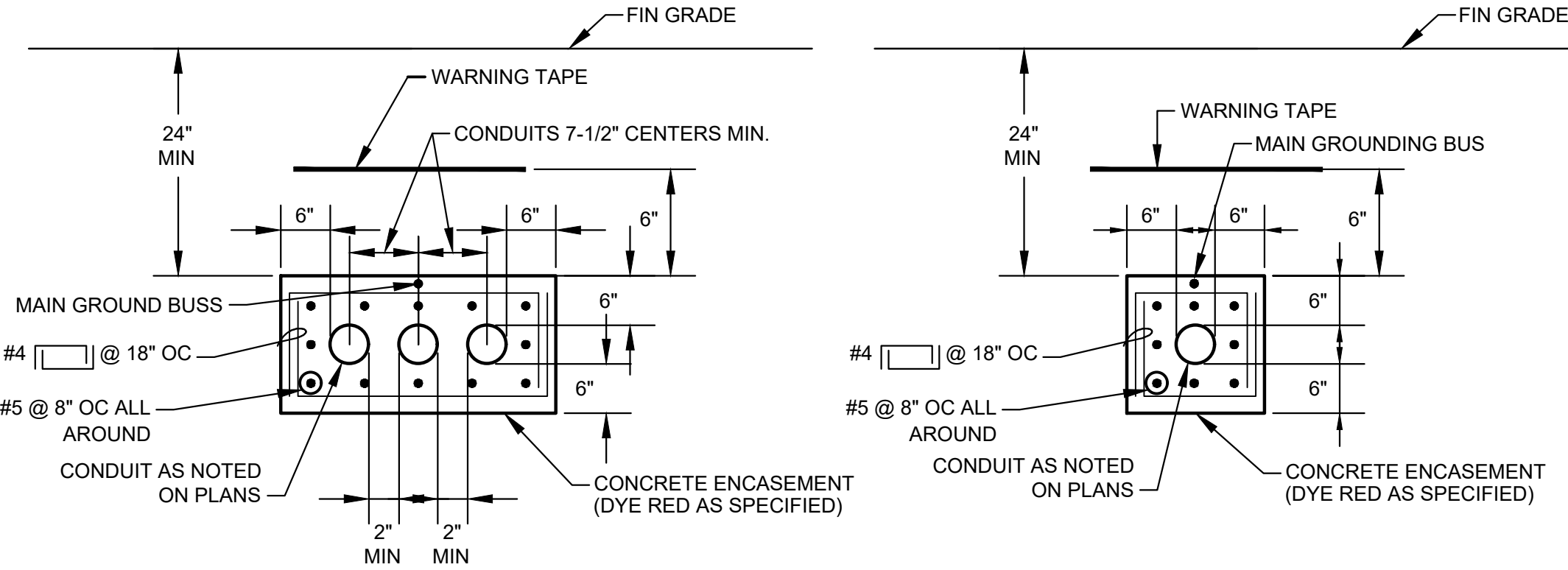
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LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

3 PUMP (INDOOR/OUTDOOR) TYPICAL ELECTRICAL DETAILS

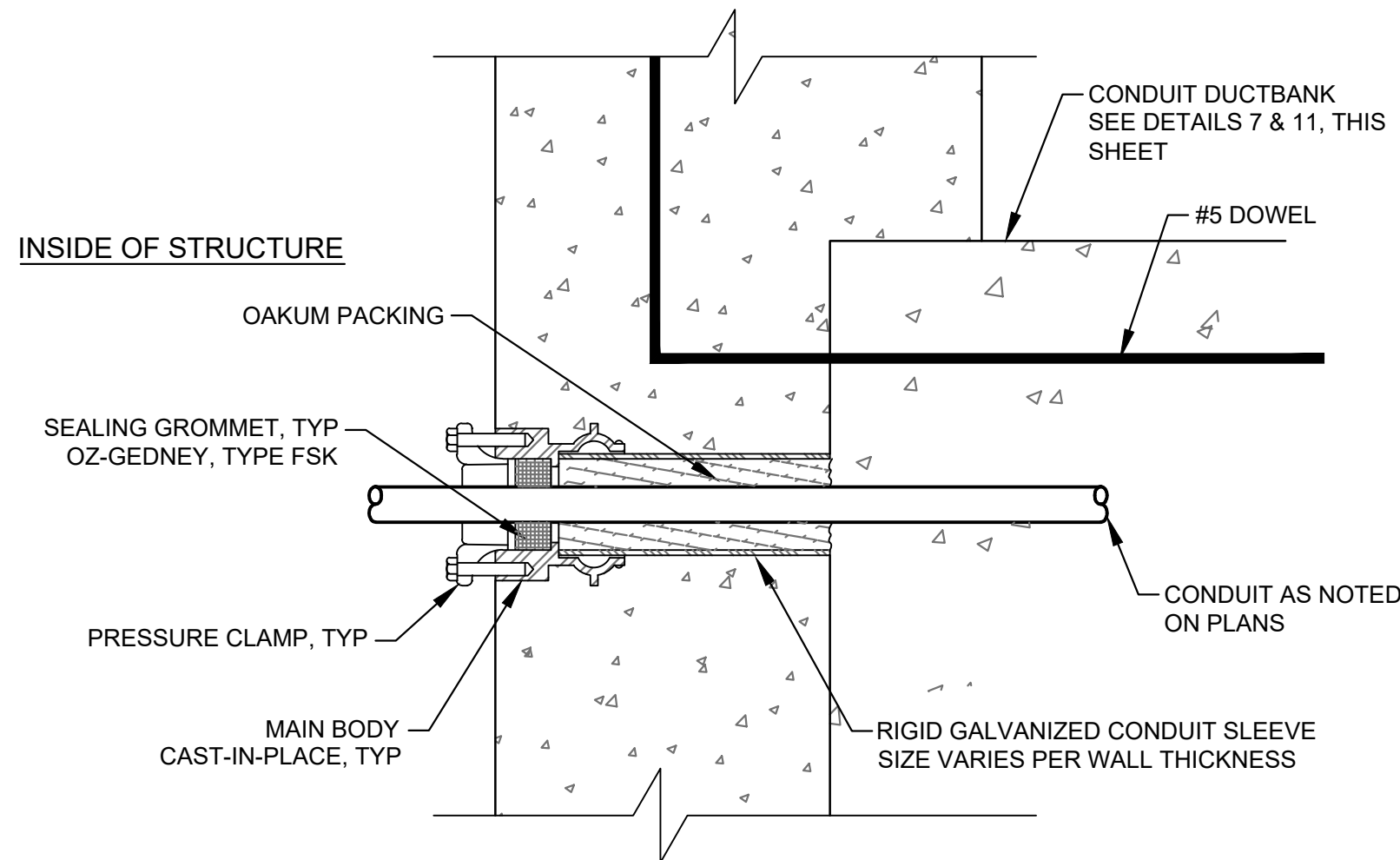
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SCALE:	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 267 OF 291	



TYP MULTI-CONDUIT DUCTBANK SECTION

NOTE: TIE MAIN GROUNDING BUS TO REBAR AT A MAXIMUM INTERVAL OF EVERY 20 FEET.

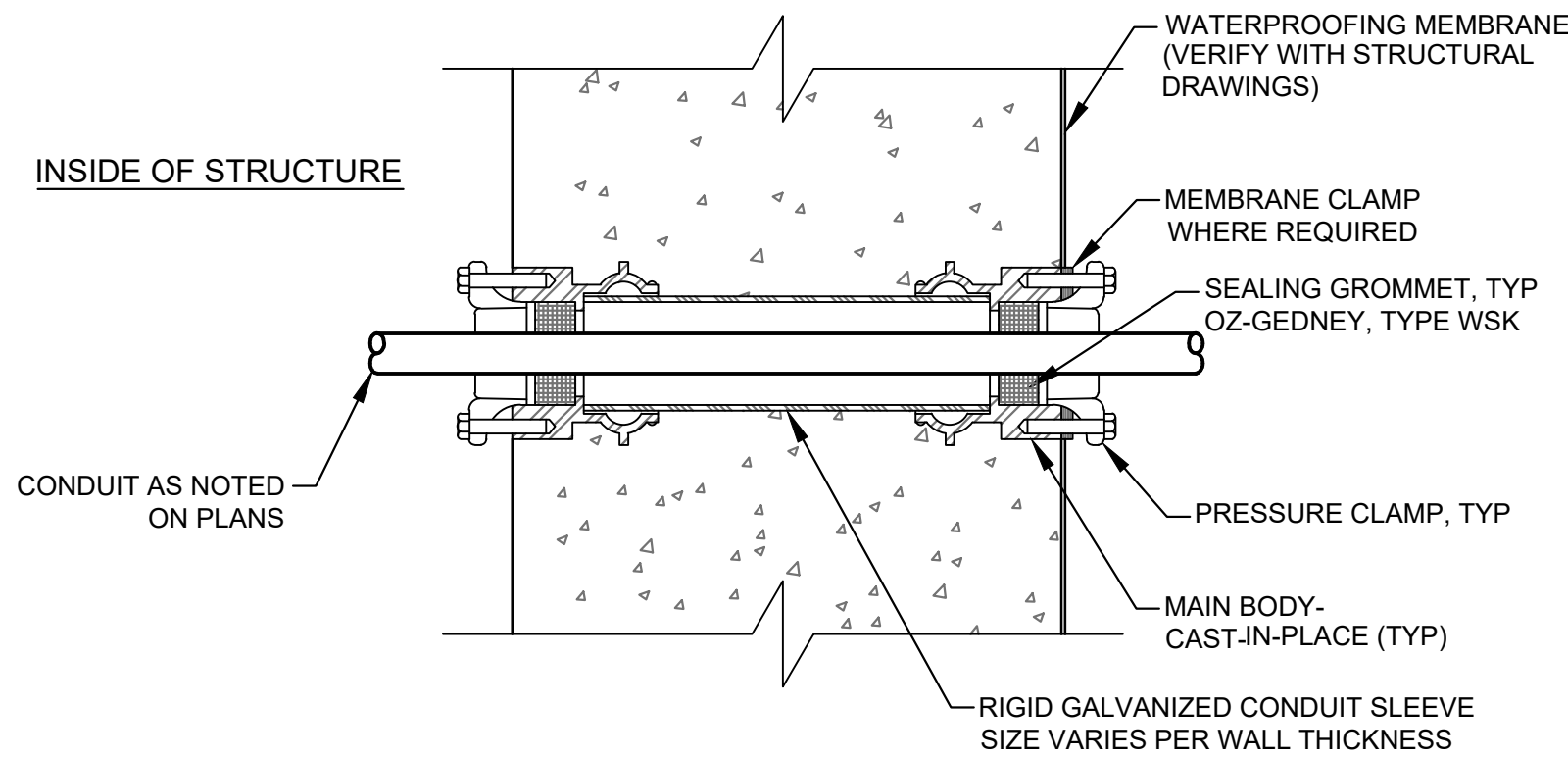
DETAIL 7
NTS D-15



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

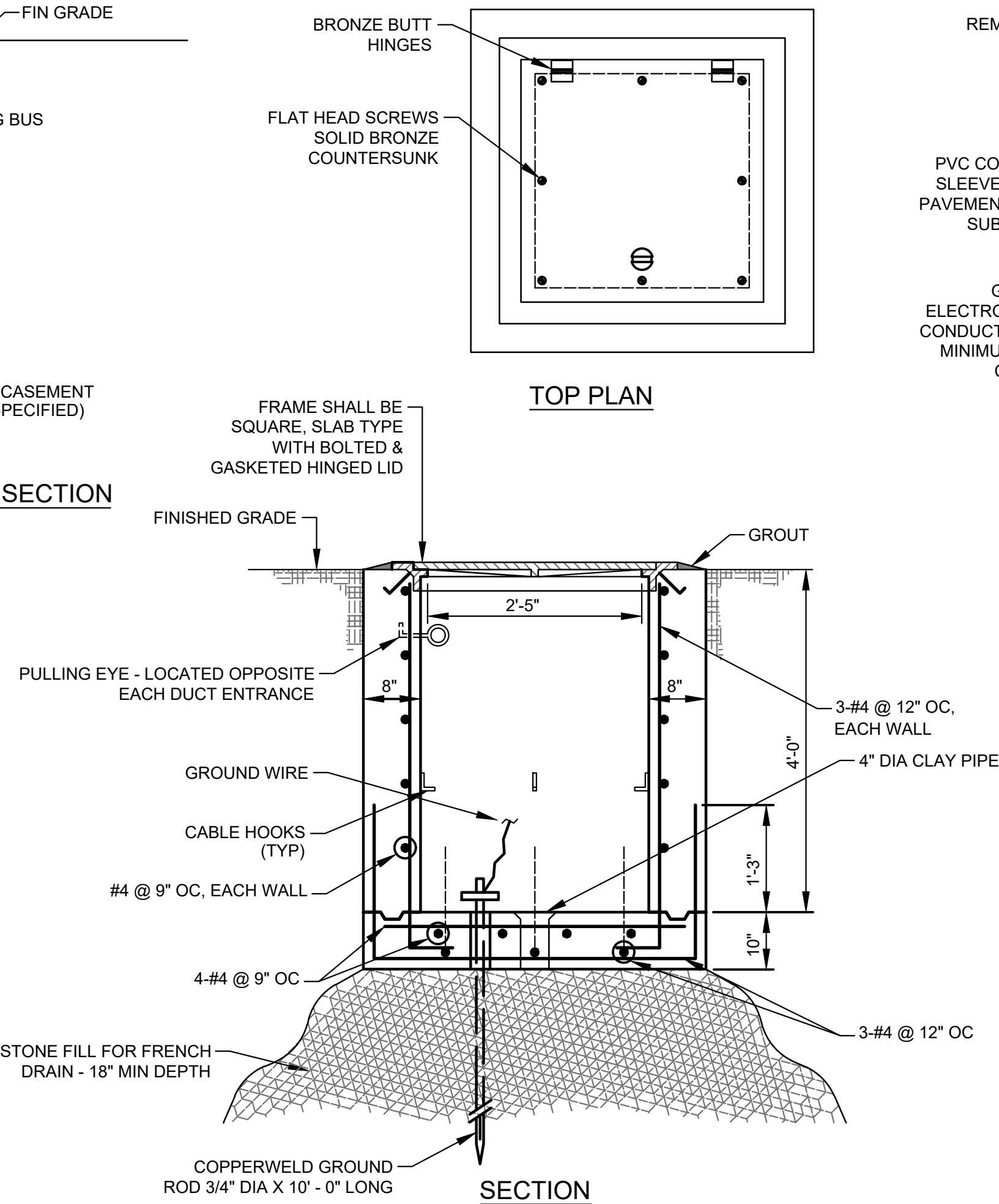


DOUBLE ENDED TYPE WITH MEMBRANE

FOR USE WHERE CONDUIT OUTSIDE THE STRUCTURE IS ENCASED IN CONCRETE

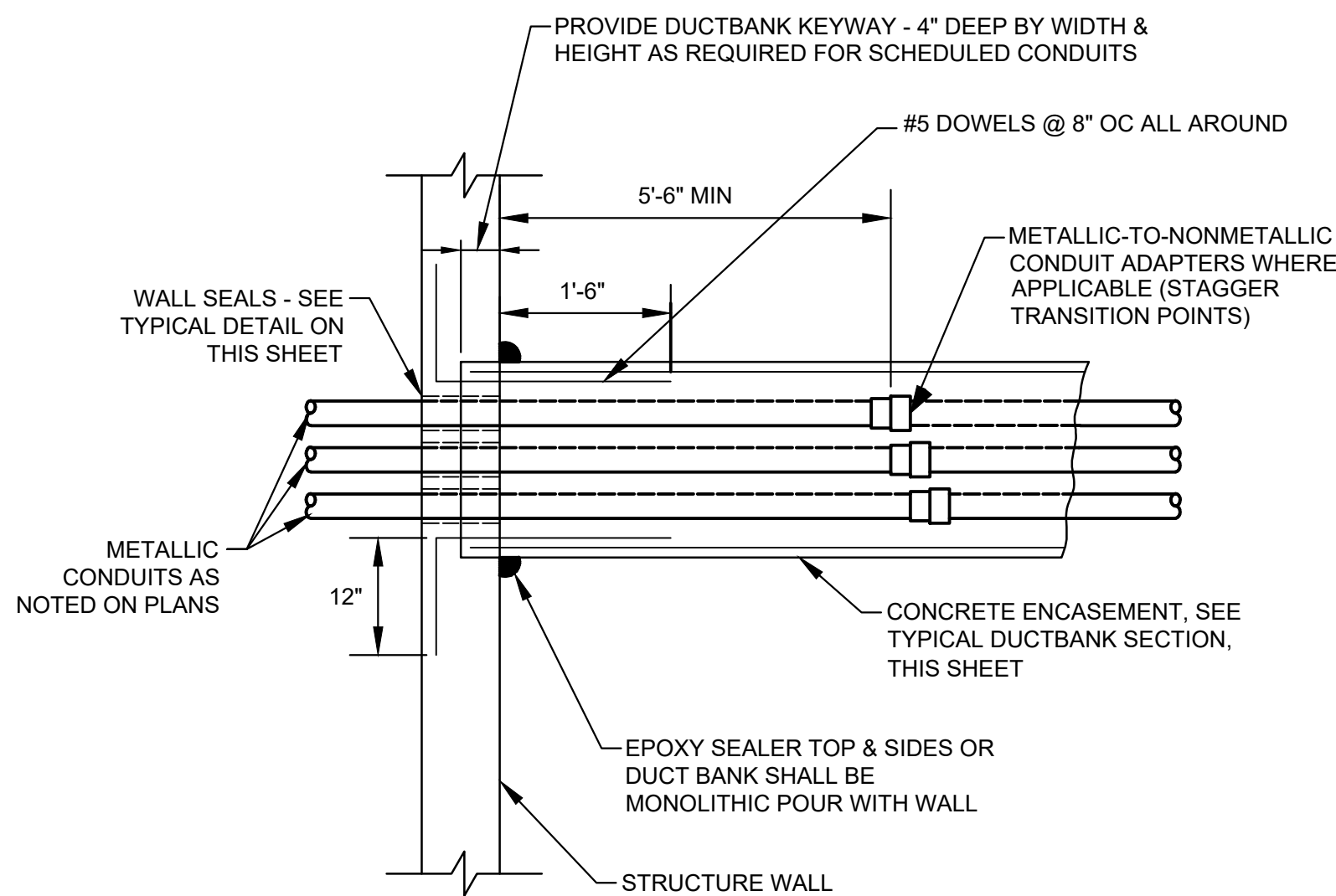
TYPICAL CONDUIT SEALS

DETAIL 10
NTS D-15



TYPICAL ELECTRICAL HANDHOLE CONSTRUCTION

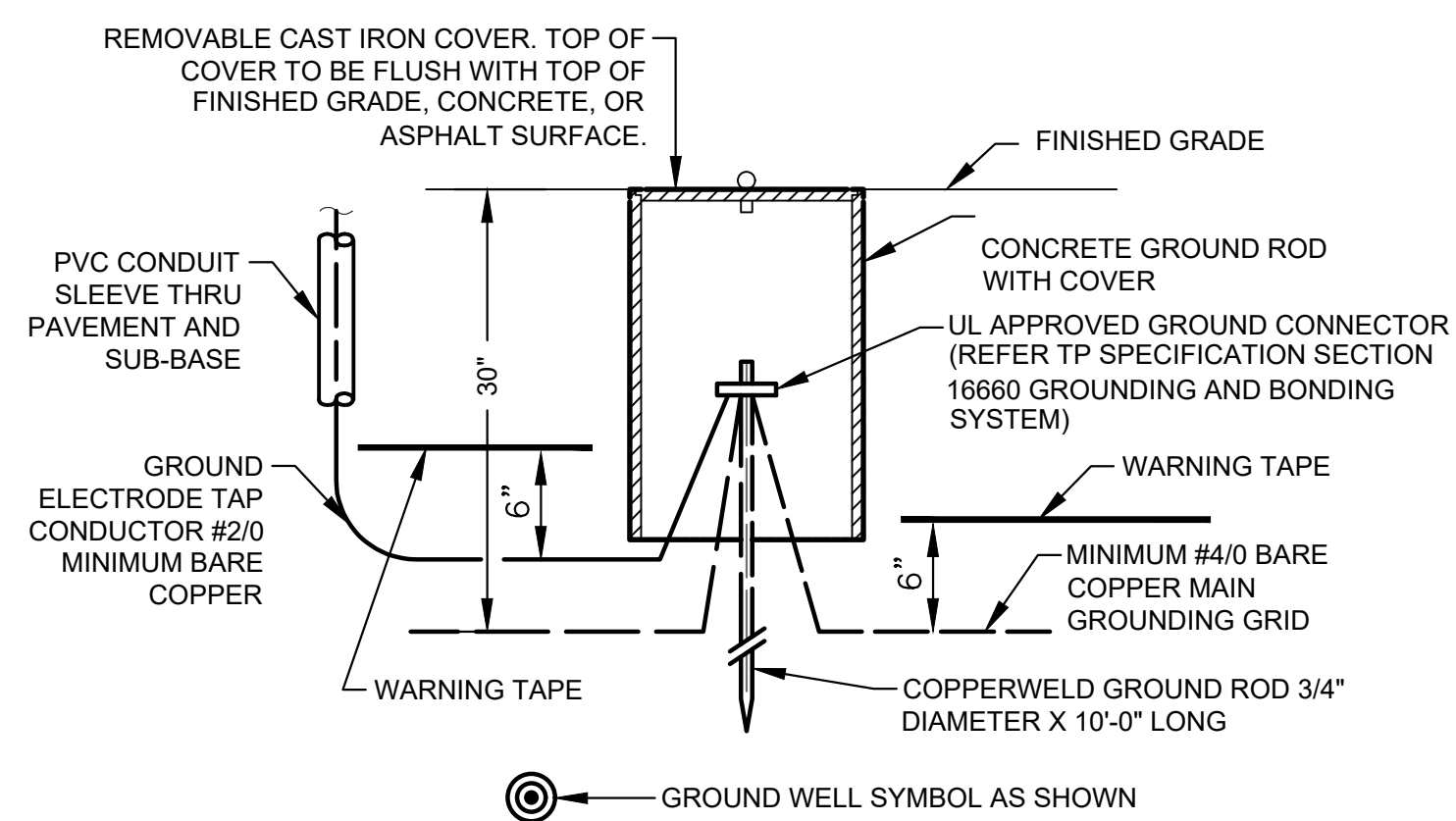
DETAIL 8
NTS D-15



PLAN

TYPICAL DUCTBANK ENTRANCE AT STRUCTURE WALL

DETAIL 11
NTS D-15



TYPICAL GROUND ROD AND WELL INSTALLATION

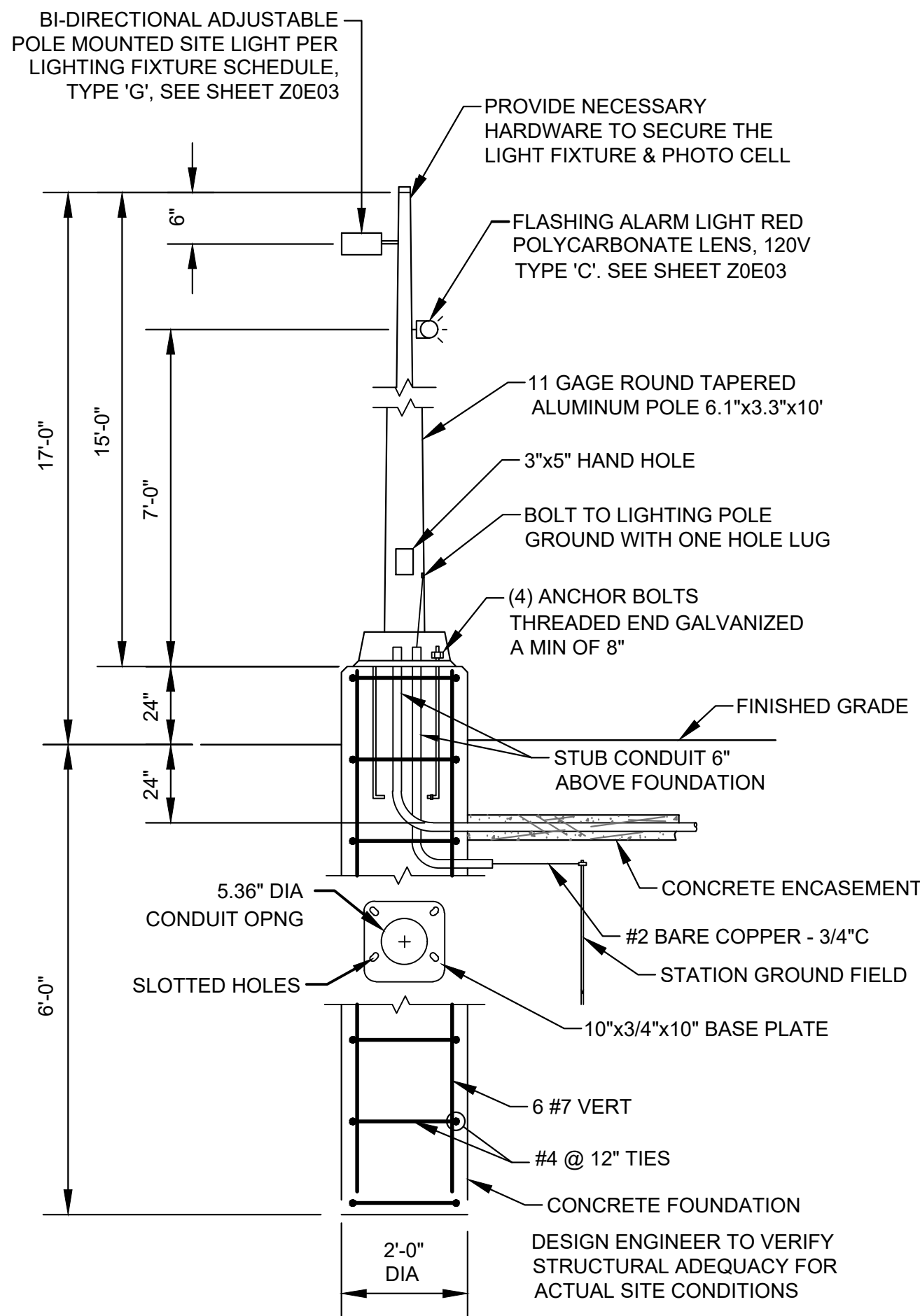
DETAIL 9
NTS D-15

GROUND CONNECTOR SCHEDULE	
WIRE SIZE	BURNDY
#2 AWG	GAR 6426
#2/0 AWG	GAR 6426
#4/0 AWG	GAR 6429
500 kcmil	GAR 6434

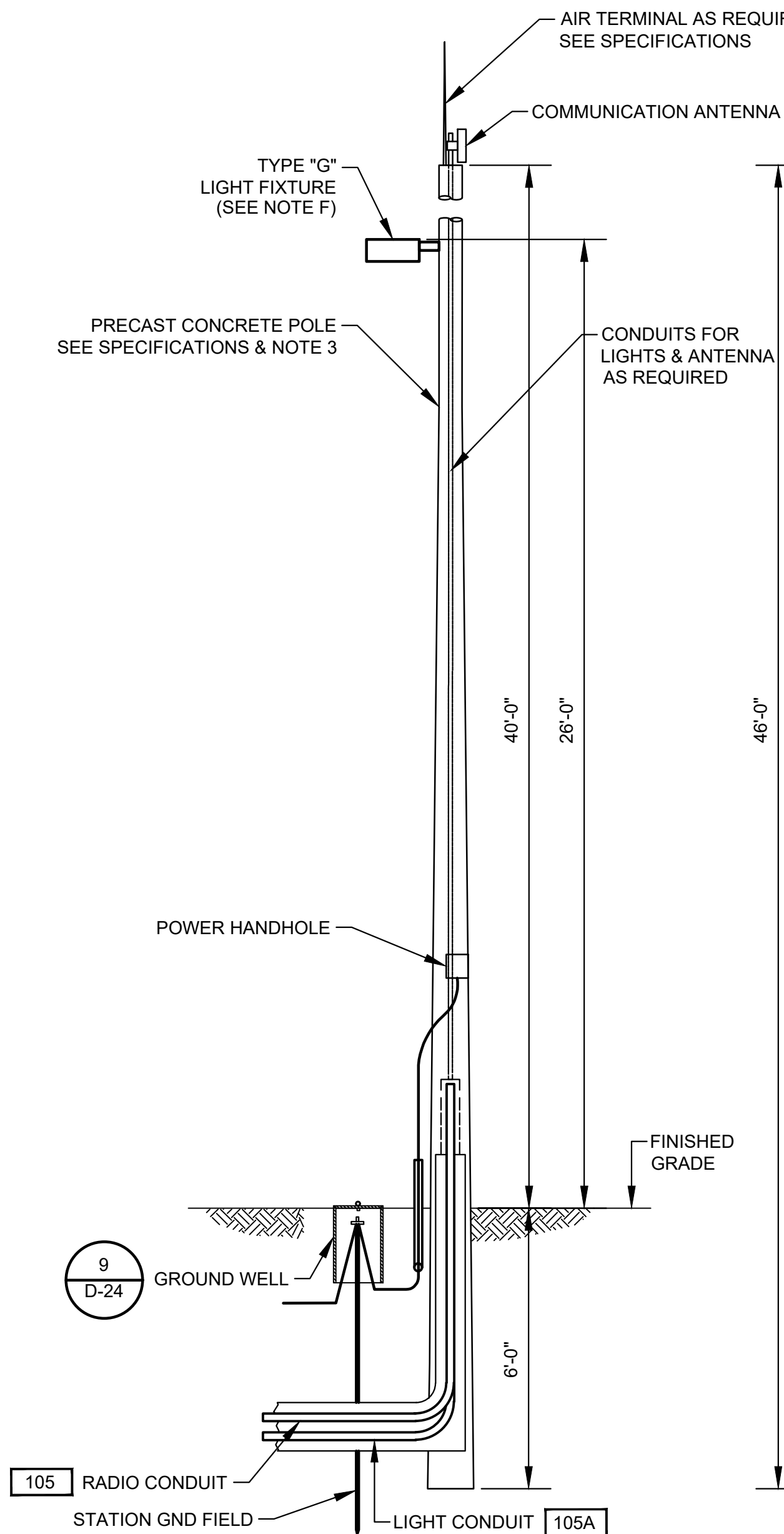
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FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T: 713-706-4412 F: 713-706-4410 Tx Firm No. 13481		THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302 DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
2 PUMP OUTDOOR TYPICAL ELECTRICAL DETAILS		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 268 OF 291		

NOTES:

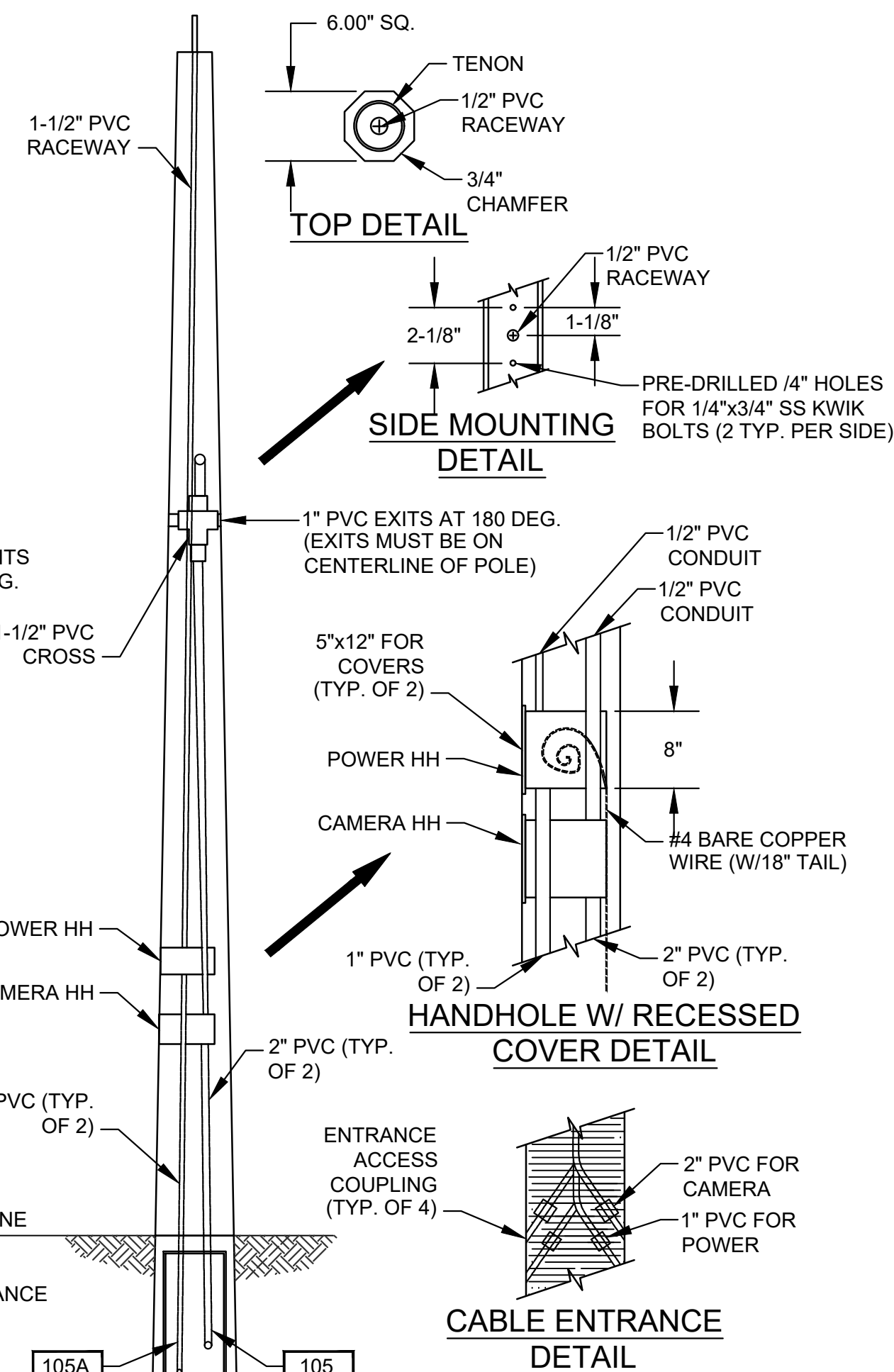
1. ON GROUND WIRE TERMINATIONS, ALL PAINTED OR COATED METAL SURFACES SHALL BE REMOVED AND CLEANED TO BARE METAL. TO OBTAIN A SOUND GROUND CONNECTION. ONCE INSTALLED APPLY PROTECTIVE COATING ON BARE METAL AREAS PER MANUFACTURER REQUIREMENTS.
2. PRECAST CONCRETE POLE TO MOUNT THE RADIO RECEIVER.
3. 1" CONDUIT TO EXTEND TO THE TOP OF POLE FOR ETHERNET CABLE FOR RADIO.
- B. SERVICE SHOULD BE CONSTRUCTED ACCORDING TO UTILITY SERVICE STANDARDS BOOK. 200A, 3 PHASE, 480V.



TYPICAL YARD LIGHT
DETAIL 13
NTS D-24



COMMUNICATION POLE MOUNTING DETAIL
DETAIL 15
NTS D-24



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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

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SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

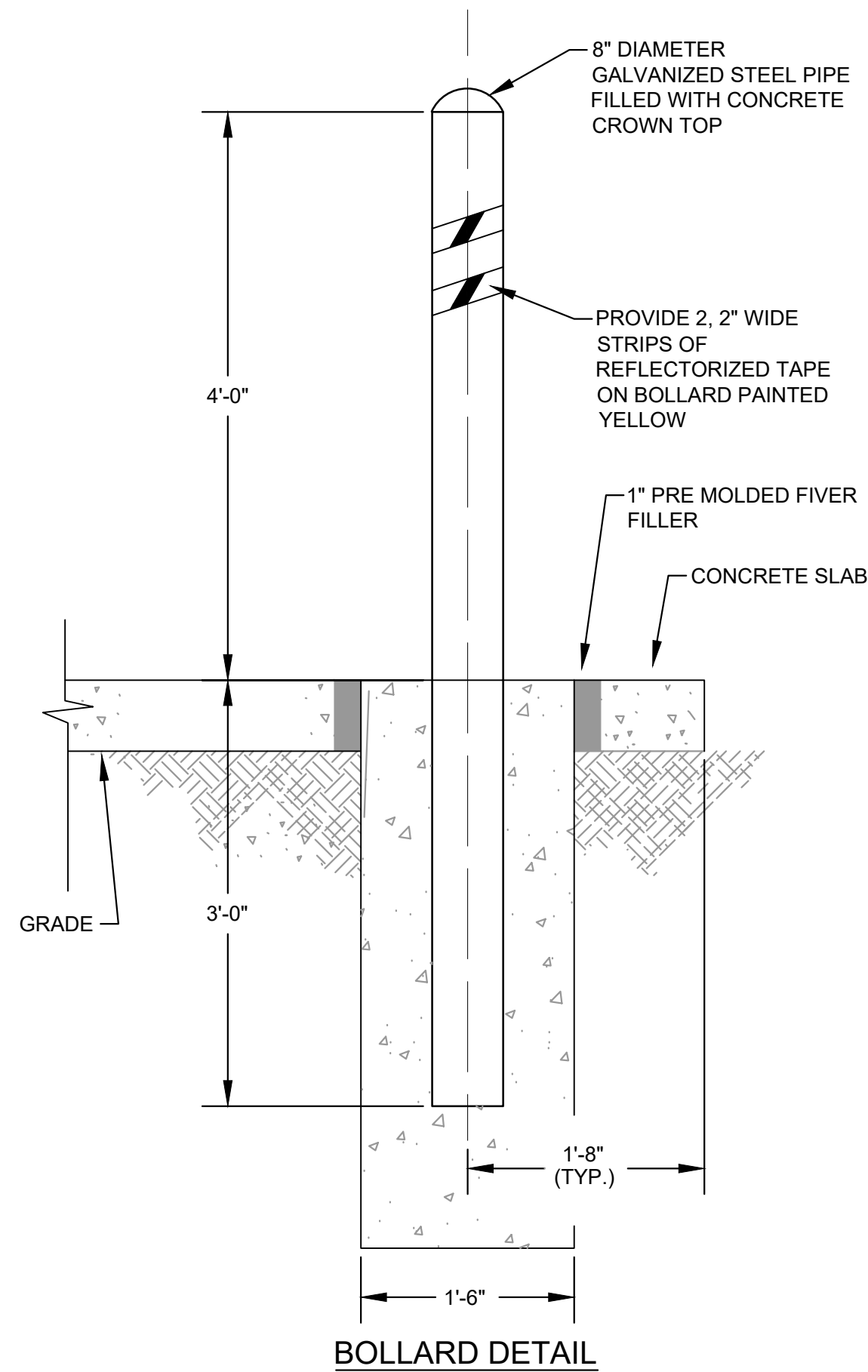
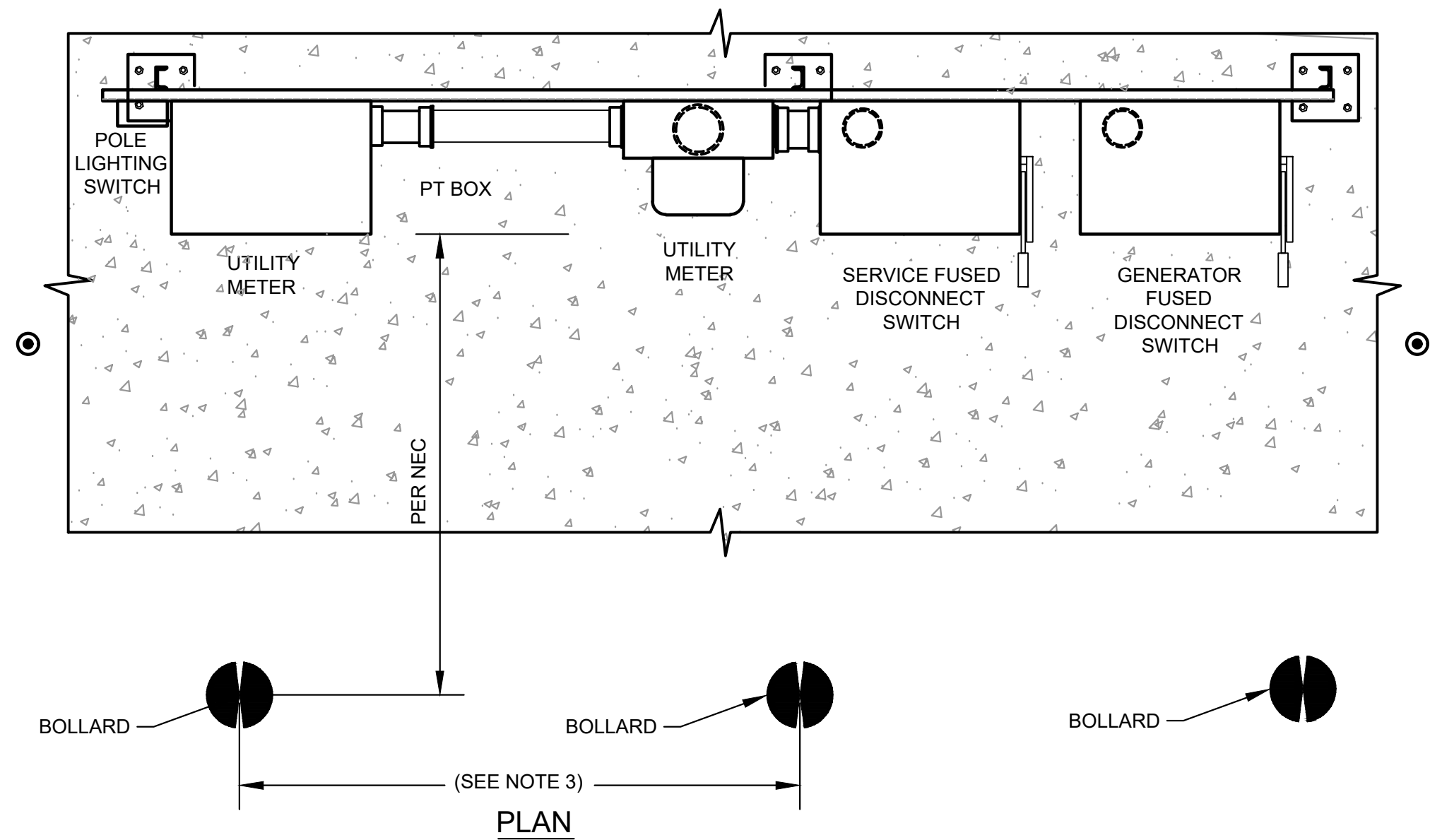
DATE: 12/10/2025
IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

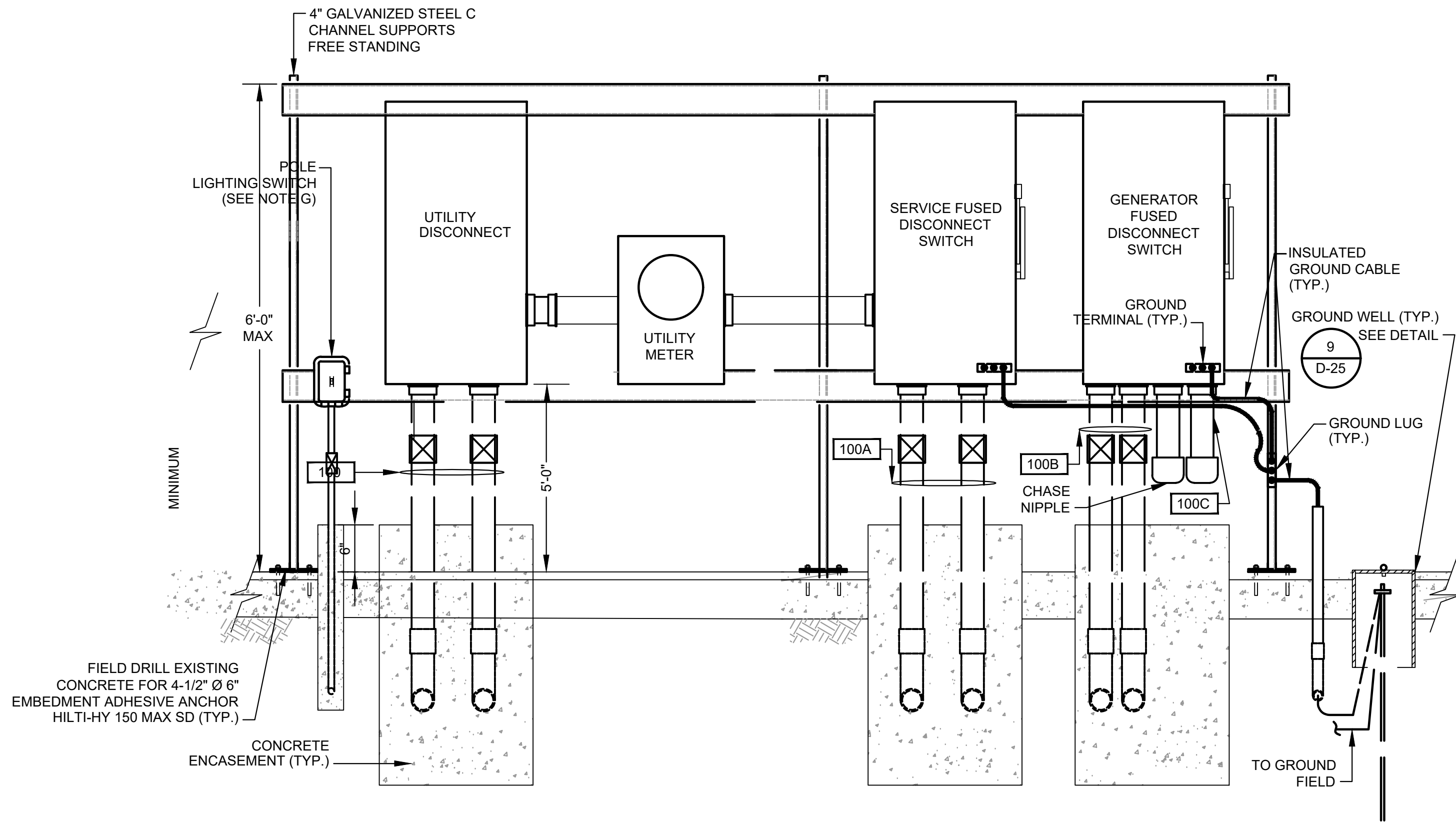
2 PUMP OUTDOOR
ELECTRICAL YARD
LIGHT/COMM POLE DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 270 OF 291	



BOLLARD DETAIL

DETAIL 22
NTS. D-25



ELEVATION B

SERVICE MOUNTING RACK

DETAIL 21
NTS. D-25

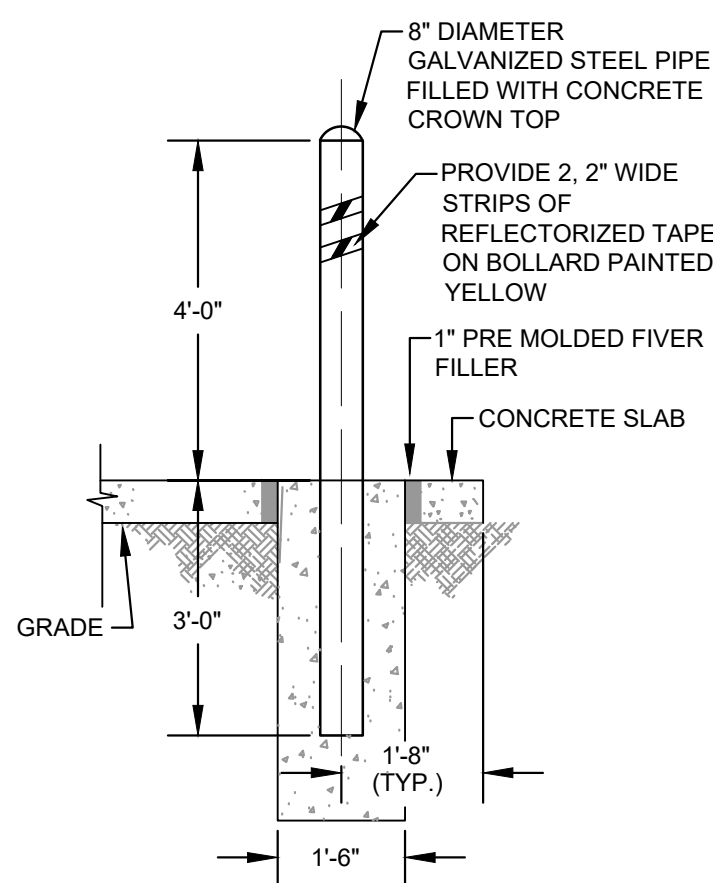
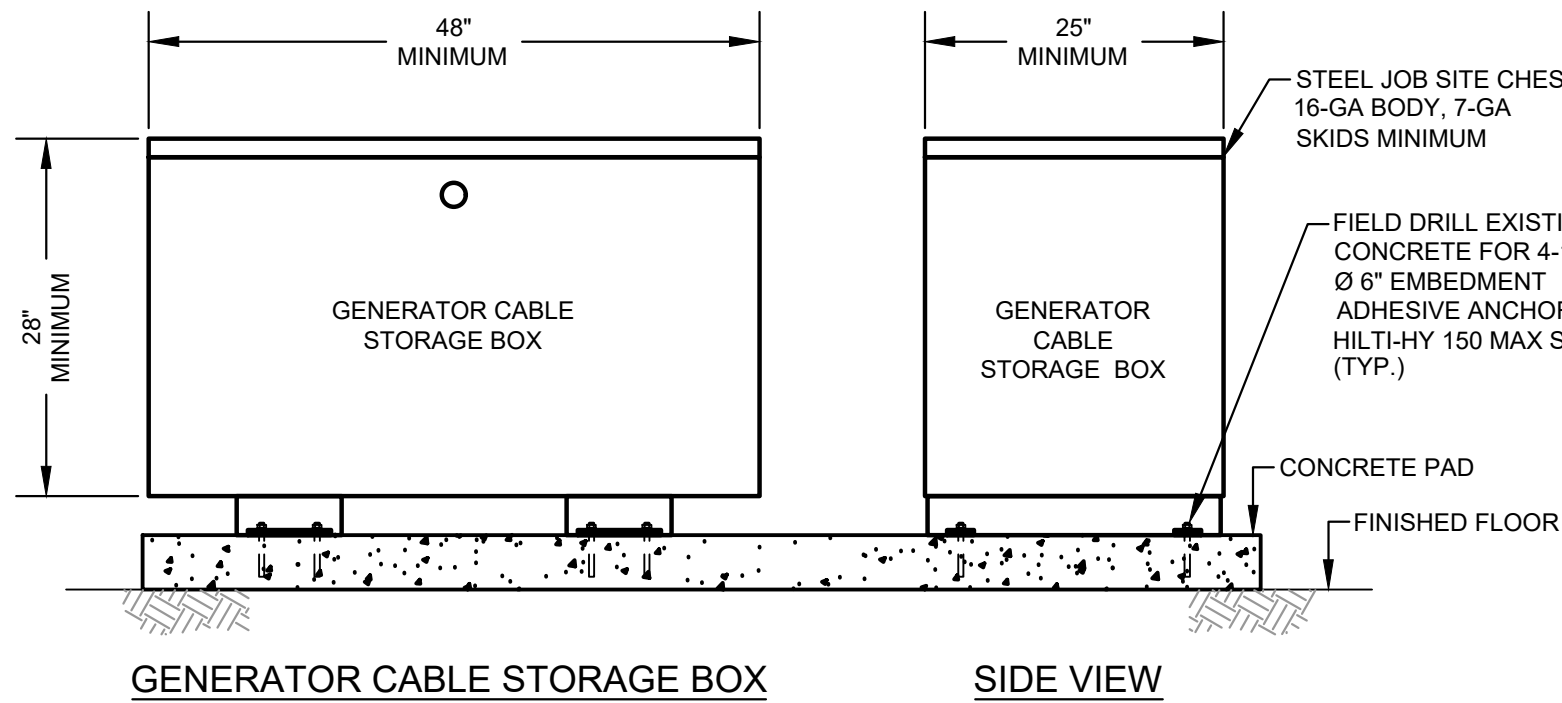
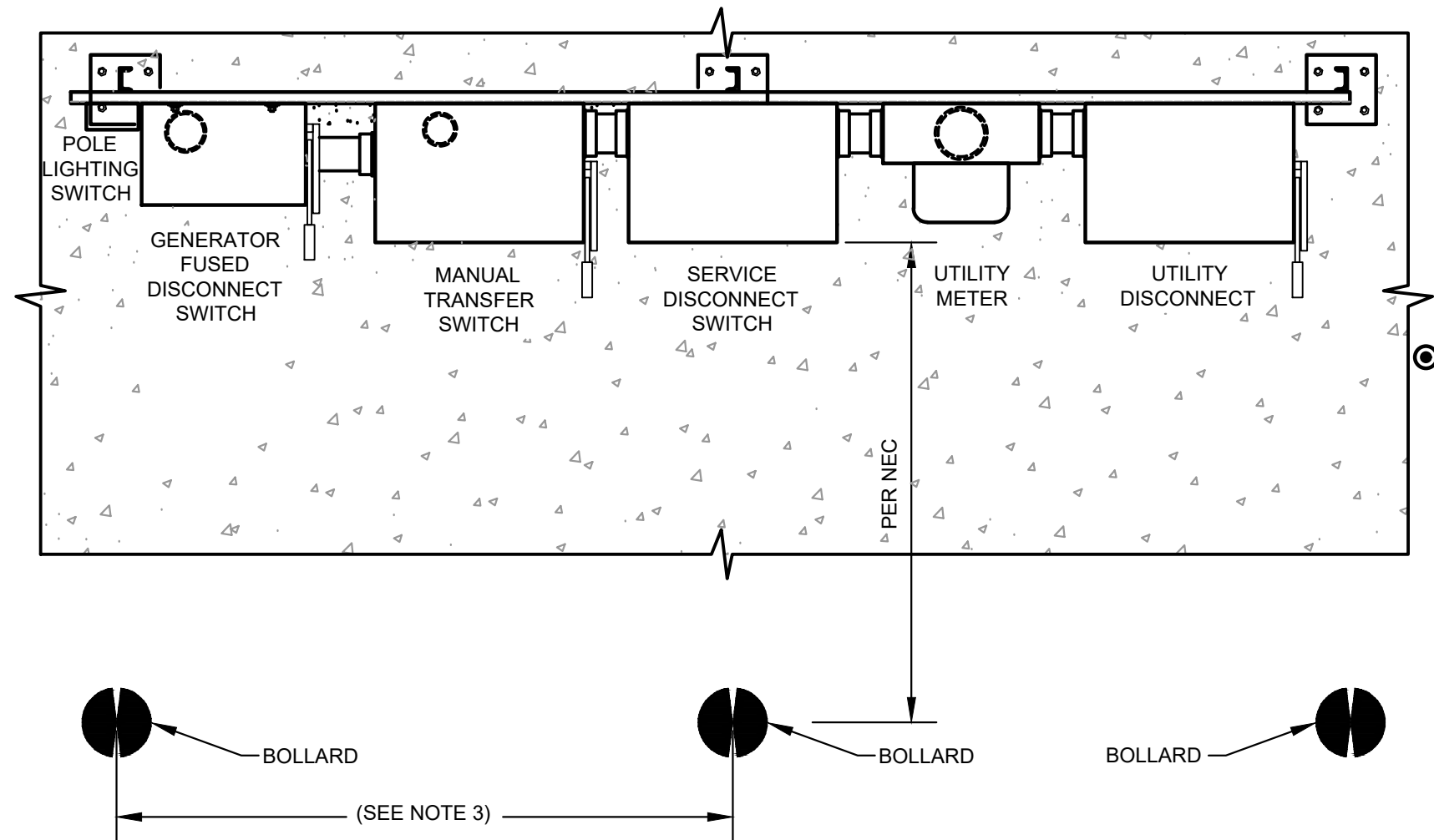
NOTES:

- 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.
- T.O.C DEFINED AS TOP OF PAVEMENT OR TOP OF PANEL ENCLOSURE PEDESTAL WHICHEVER IS HIGHER. (SEE NOTE B).
- PROVIDE CENTER BOLLARD WHEN SPACE BETWEEN OUTSIDE BOLLARDS IS GREATER THEN 4'-0".
- PROVIDE NOT LESS THAN 2'-0" DISTANCE FROM TOP OF FINISHED GRADE TO TOP OF CONCRETE PEDESTAL. FINAL DIMENSION SHALL LOCATE TOP OF CONCRETE PEDESTAL AT NOT LESS THAN 1'-0" ABOVE 100 YEAR FLOOD PLAIN ELEVATION. WHEN THE TOP OF THE CONCRETE PEDESTAL IS GREATER THAN 2'-0" ABOVE FINISHED GRADE, THE CONTRACTOR SHALL PROVIDE A WORK PLATFORM.
- SERVICE SHALL BE CONSTRUCTED ACCORDING TO UTILITY SERVICE STANDARDS MANUAL. 200A, 3 PHASE, 480V. SERVICE SHALL BE CONSTRUCTED USING THE STUB POLE AND UNISTRUT RACK ASSEMBLY DETAIL.
- CONTRACTOR SHALL CONTACT POWER COMPANY FOR INSTRUCTIONS PRIOR TO ORDERING ANY EQUIPMENT OR DOING ANY WORK.

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FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481		
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CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
3 PUMP (INDOOR/OUTDOOR) ELECTRICAL SERVICE RACK DETAILS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
D-18 SHEET NO. 271 OF 291	



DETAIL 20
NTS. D-26

BOLLARD DETAIL

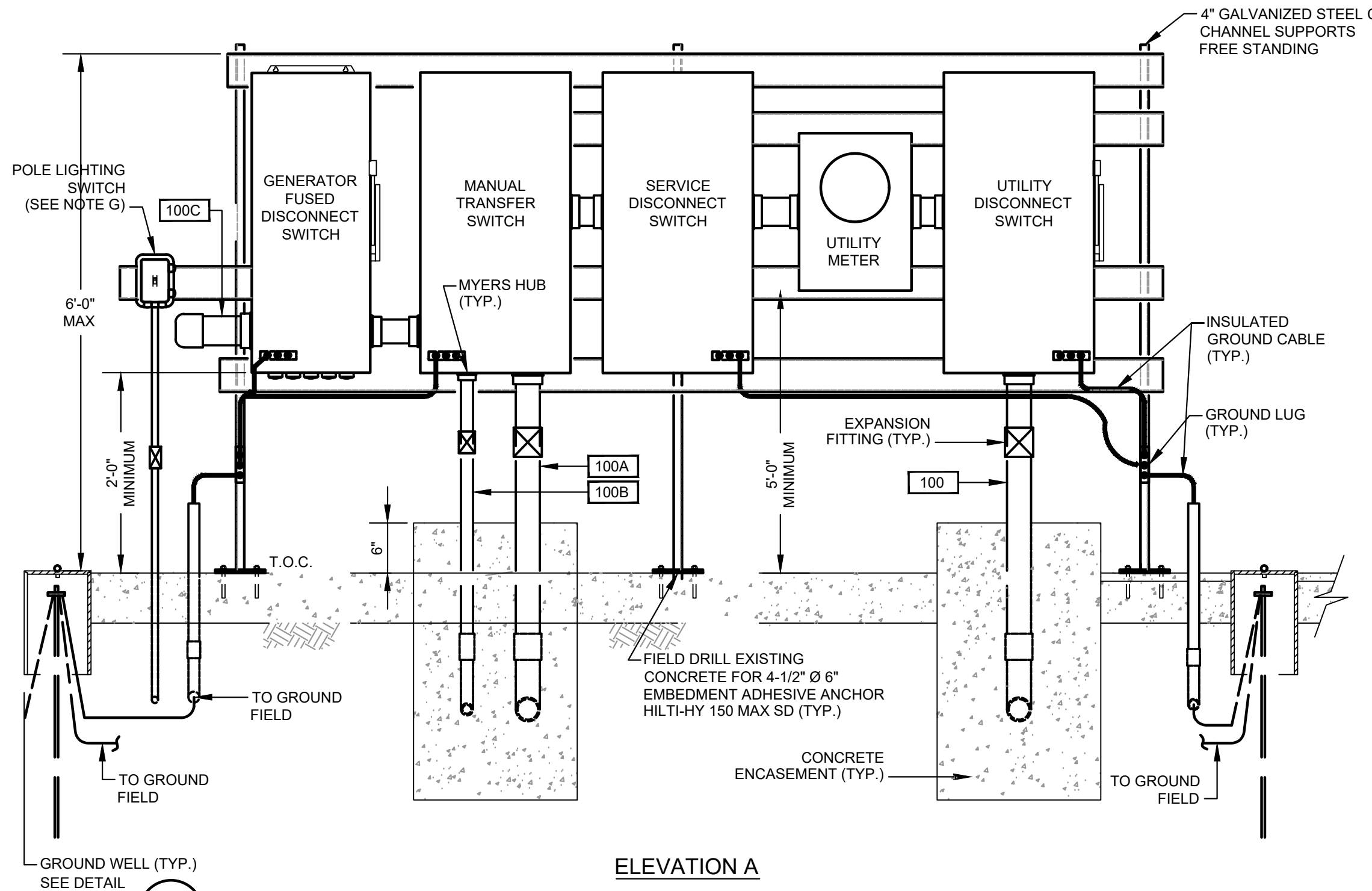
DETAIL 21
NTS. D-26

ALLOWABLE DEVICE AMPACITY CHART DLO RHW-2 CAM-LOK CONNECTOR CABLE		
CABLE SIZE AWG	AMPS	CABLE LENGTH
#1	220	65 FEET
4/0	400	65 FEET

QUICK CONNECT
FOR GENRATOR
PHOTOGRAPH 1
NTS. Z0E11

QUICK CONNECT
FOR GENRATOR
PHOTOGRAPH 2
NTS. Z0E11

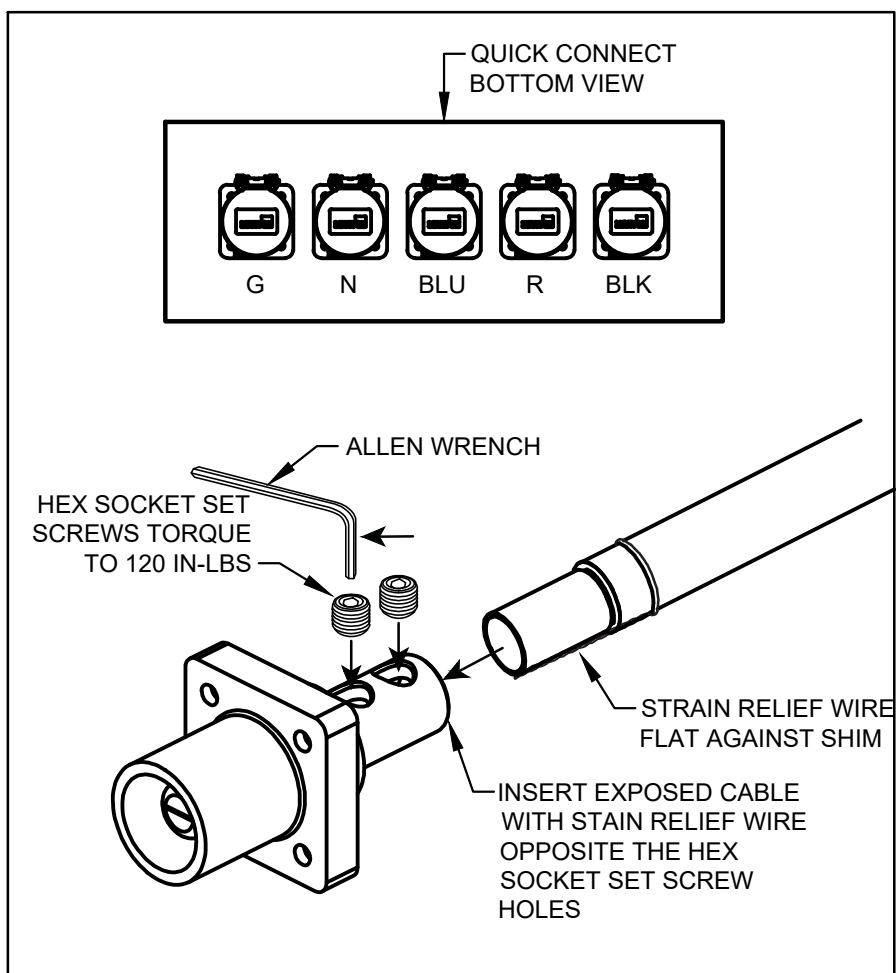
- NOTES
- CHASE NIPPLE(S) WITH REMOVABLE CAP(S) FOR CONNECTION OF PORTABLE GENERATOR. NOTE: CAP(S) TO BE ATTACHED TO PANEL OR CONDUIT(S) BY STAINLESS STEEL CHAIN.
 - T.O.C DEFINED AS TOP OF PAVEMENT OR TOP OF PANEL ENCLOSURE PEDESTAL WHICHEVER IS HIGHER. (SEE NOTE B).
 - PROVIDE CENTER BOLLARD WHEN SPACE BETWEEN OUTSIDE BOLLARDS IS GREATER THEN 4'-0".
 - SERVICE SHALL BE CONSTRUCTED ACCORDING TO UTILITY SERVICE STANDARDS BOOK, 200A, 3 PHASE, 480V AND ALL 400A AND ABOVE SERVICE SHALL BE CONSTRUCTED USING THE STUB POLE AND UNISTRUT RACK ASSEMBLY DETAIL.



ELEVATION A

400A AND LESS SERVICE MOUNTING RACK

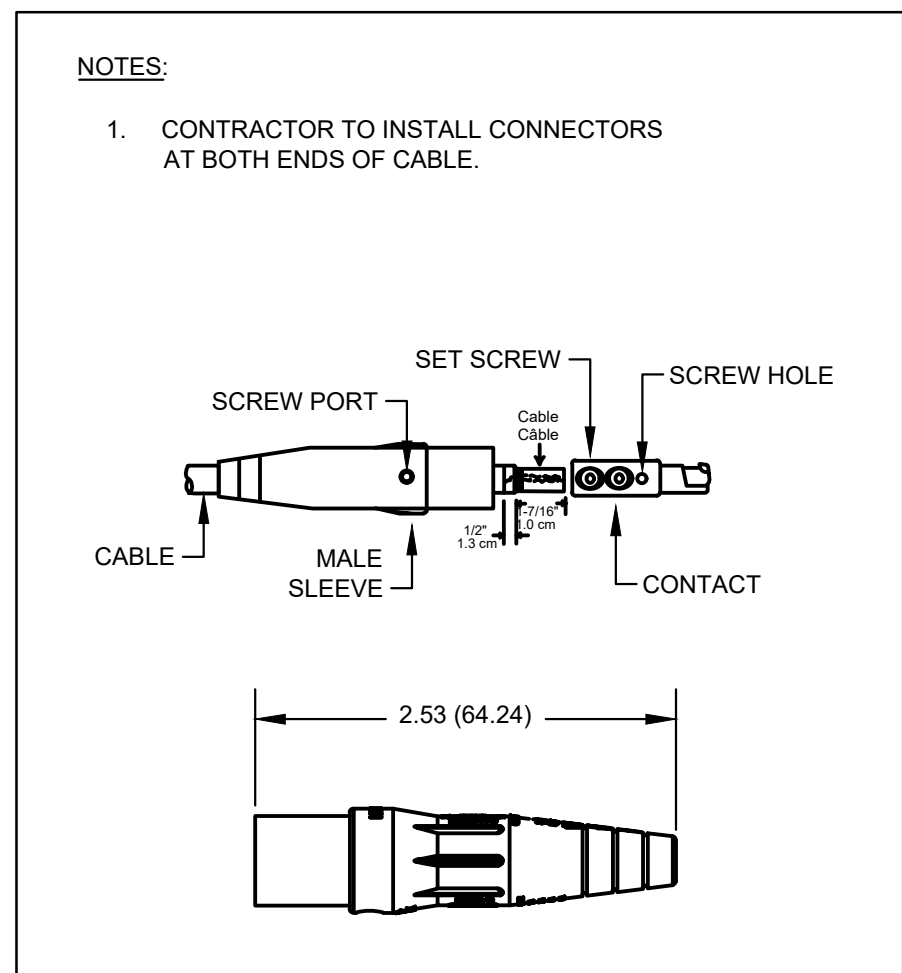
DETAIL 17
NTS. D-26



400A AND LESS FEMALE PLUG CABLE TERMINATION

DETAIL 18
NTS. D-26

REFER TO PHOTO NO.1



400A AND LESS MALE PLUG CABLE TERMINATION

DETAIL 19
NTS. D-26

REFER TO PHOTO NO.2

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

FCM Engineers, PC
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
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DATE: 12/10/2025

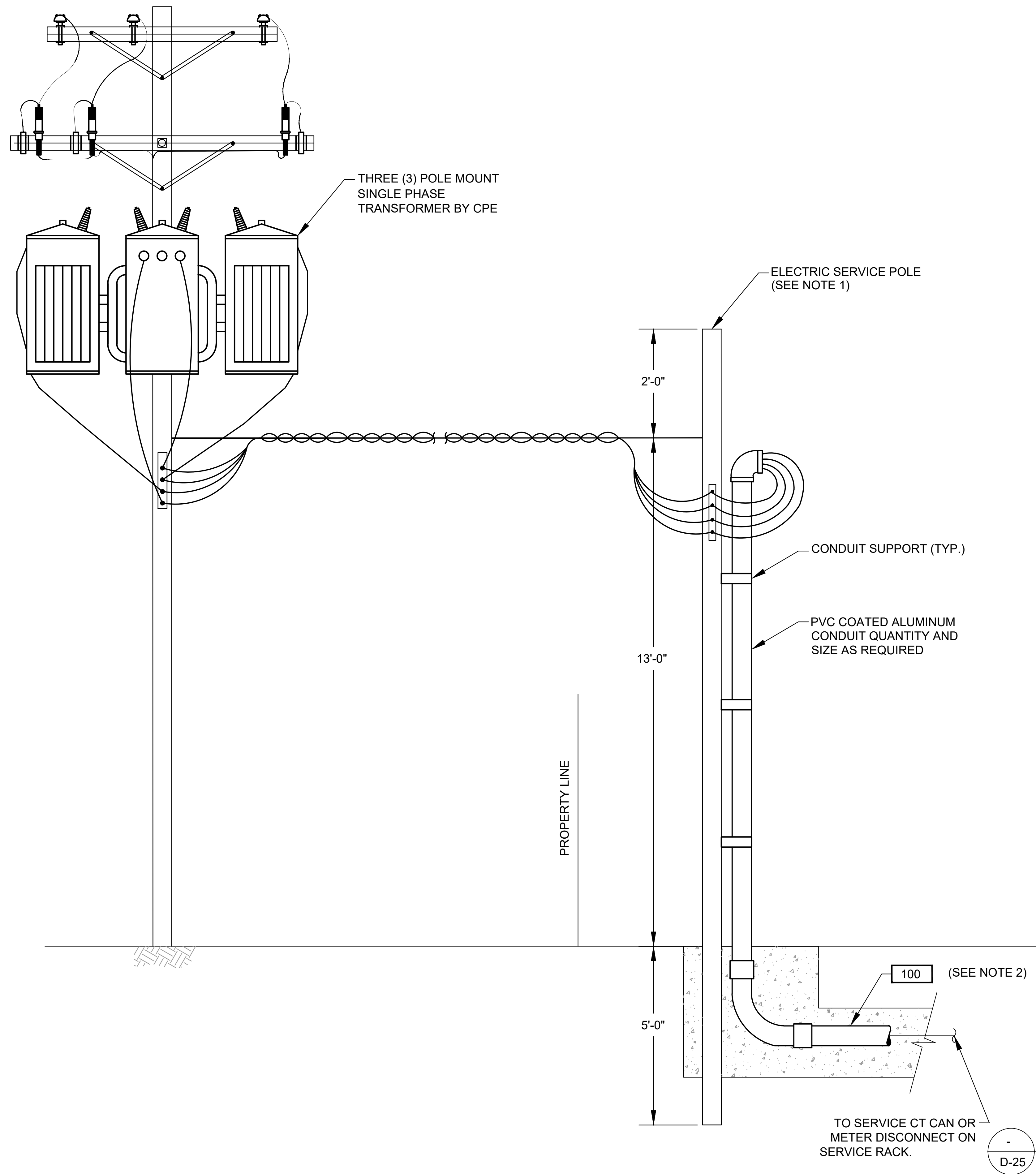
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

**2 PUMP OUTDOOR
ELECTRICAL SERVICE RACK DETAILS**

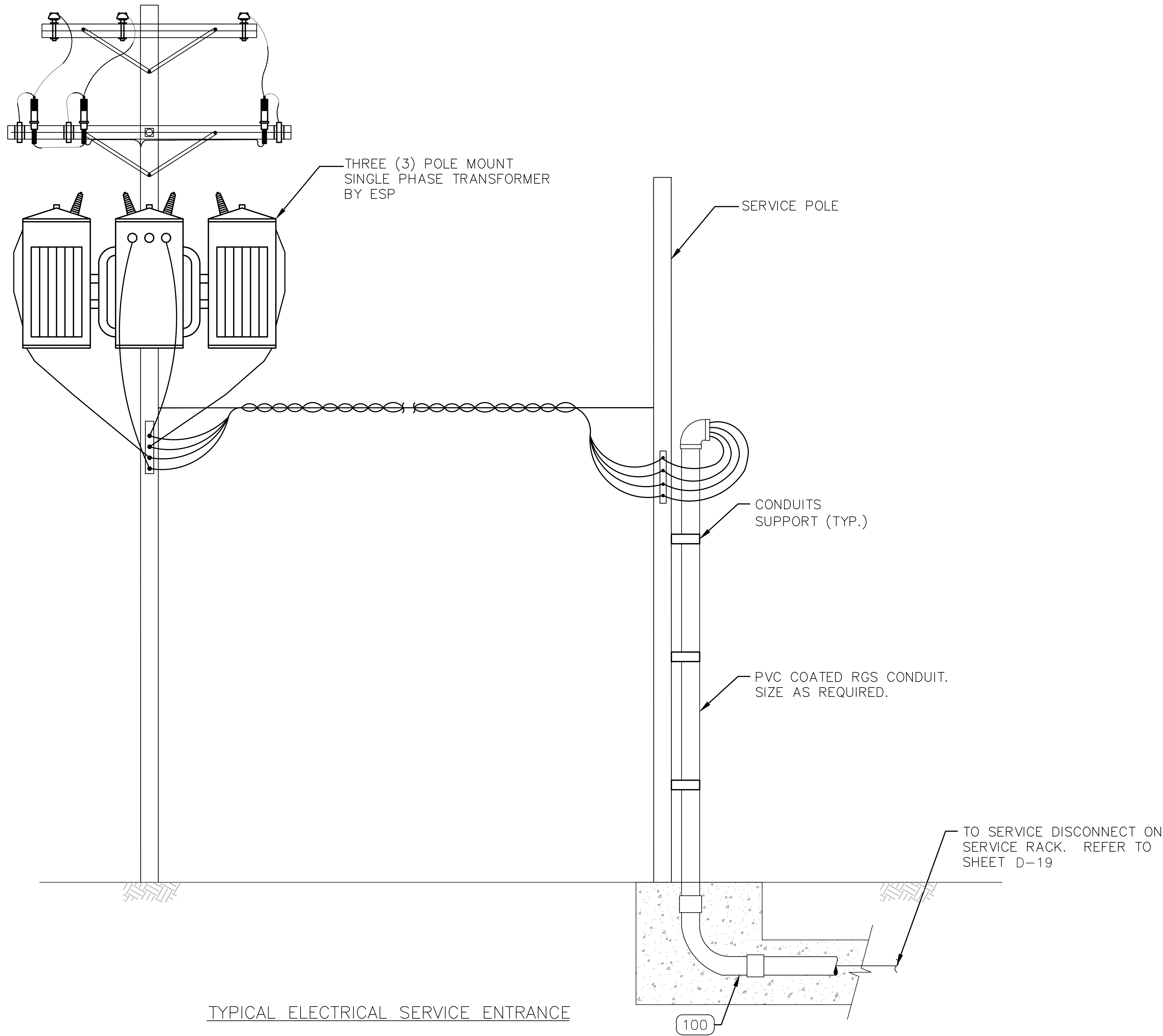
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 272 OF 291	



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.
- C. THE DESIGN ENGINEER SHALL CONSULT THE SERVICE STANDARD OF ELECTRICAL SERVICE PROVIDER (CPE). PRIOR TO DESIGNING SERVICE ENTRANCE.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 LJA Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
FCM Engineers, PC 3300 S. Gessner Rd. Suite 249 Houston, Texas 77063 T- 713-706-4412 F- 713-706-4410 Tx Firm No. 13481 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JAMES E. THOMPSON, JR., TEXAS P.E. #70302		
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		DATE: 12/10/2025 IT IS NOT TO BE ISSUED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
3 PUMP INDOOR/OUTDOOR ELECTRICAL SERVICE DETAILS		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.		
SHEET NO. 273 OF 291		



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

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

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TEXAS P.E. #70302
DATE: 12/10/2025
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FB NO. P-6409

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS	
2 PUMP OUTDOOR ELECTRICAL SERVICE DETAILS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 274 OF 291	



- 

 SYMBOL

INLET PROTECTION BARRIER
(FOR STAGE II INLETS)
BAGGED GRAVEL BARRIER



- ### FILTER FABRIC BARRIER

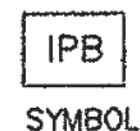


- SC
SYMBOL

STABILIZED CONSTRUCTION ACCESS



CONSTRUCTION NOTE:
1. SEE CONSTRUCTION NOTES
FOR RFB.



(NOT TO SCALE)

APPROVED: *DWK*
DIRECTOR OF PUBLIC
WORKS AND ENGINEERING

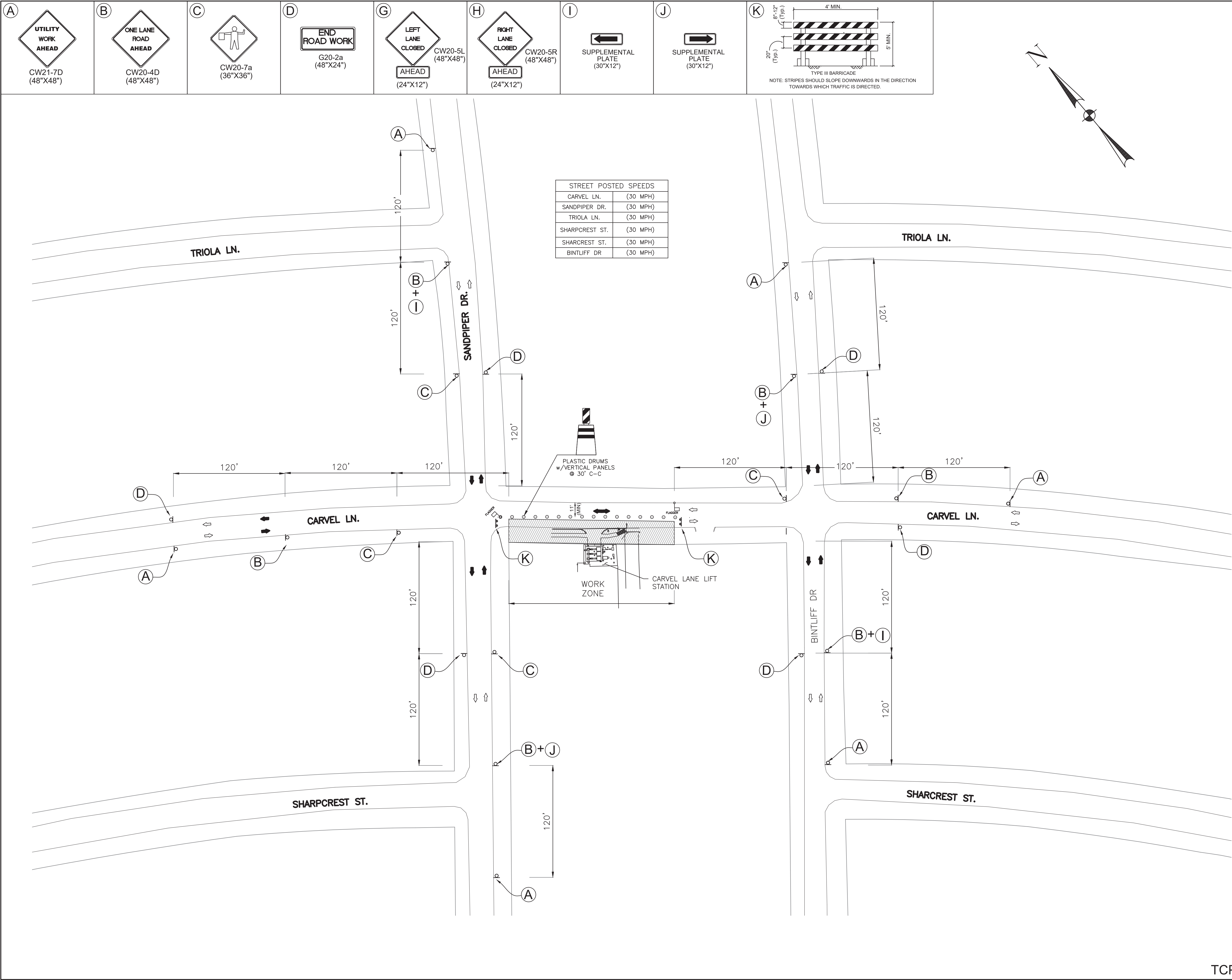
DWG NO: 01571-01

LJA
Phone 713.953.5200
Fax 713.953.5026
FRN - E-1386

PRELIMINARY

SHEET NO.275 OF 291

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P: Cadd\2024\24012 - J5 coh 1923 lift stations rehabilitation and reconstruction\Cadd_DWG\Full Set\Xref\277 CARVEL LANE LIFT STATION TRAFFIC CONTROL PLAN.dwg May 05, 2025-1:13pm elewis



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Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
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NAME: MAHESH DUTTA P.E. NO. 114252
DATE: 4/2/2026
TYPELS FIRM #F-4528

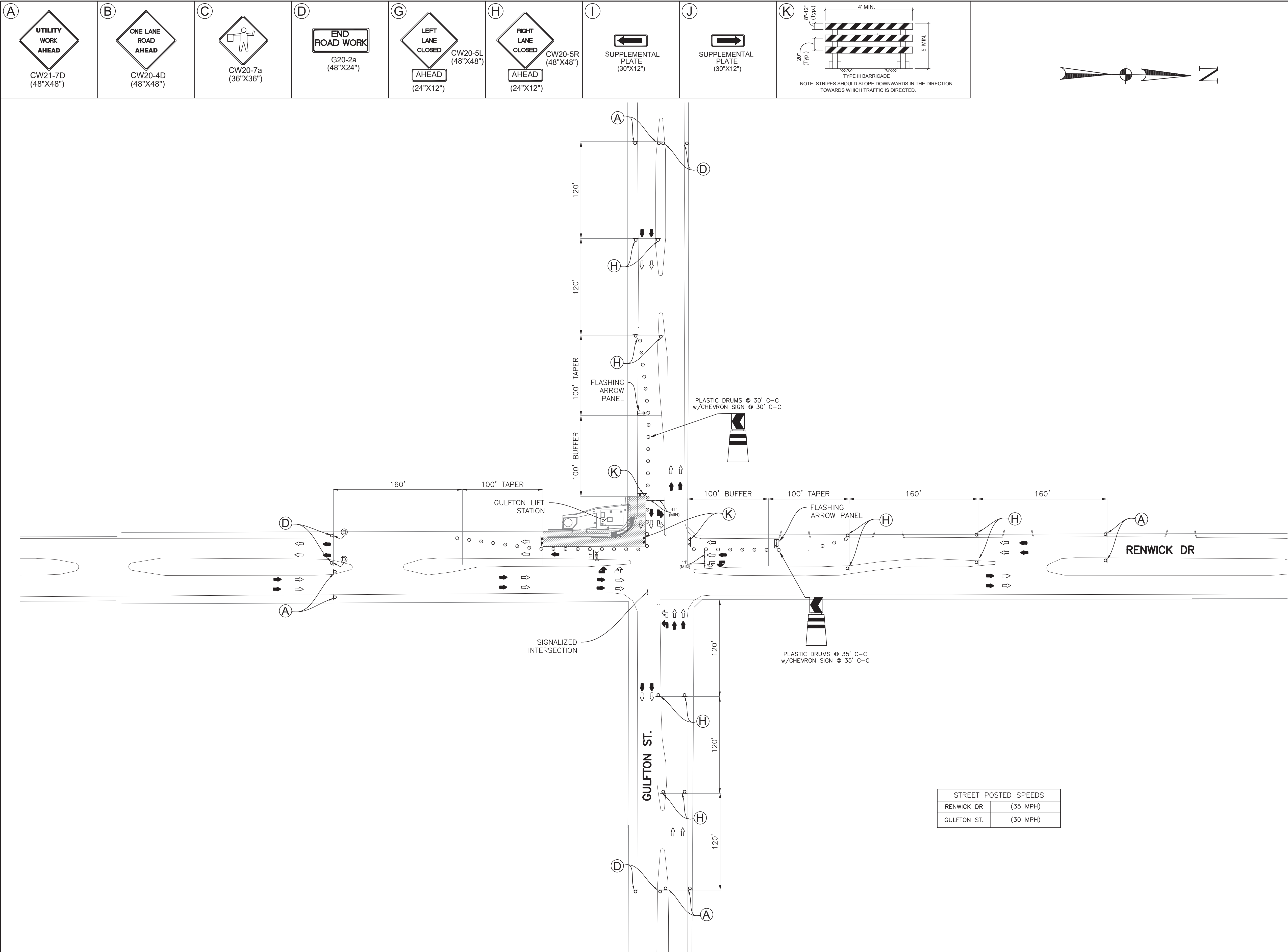
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

CARVEL LANE LIFT STATION TRAFFIC CONTROL PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=50'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 277 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P: Cadd\2024\24012 - 1p coh 1923 lift stations rehabilitation and reconstruction\Cadd_DWG\Full Set\Xref\278 GULFTON LIFT STATION TRAFFIC CONTROL PLAN.dwg May 06, 2026 -1:13pm elewis



- LEGEND
- EXISTING TRAFFIC PATTERN
 - PROPOSED TRAFFIC PATTERN
 - PLASTIC DRUMS
 - FLAGGER
 - WORK ZONE
 - TYPE III BARRICADE
 - FLASHING ARROW BOARD

NOTE:
DAY TIME WORKING HOURS ONLY.
CONTRACTOR SHALL OPEN THE LANES FOR TRAFFIC
DURING NON-WORKING HOURS.

LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042			Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386
AMANI ENGINEERING, INC. 11011 RICHMOND AVE., SUITE 700 HOUSTON, TEXAS 77042 TEL: (713) 270-5700 Texas Registered Engineering Firm No. F-4528 Texas Registered Surveying Firm No. 100282-00		PRELIMINARY FOR INTERIM REVIEW ONLY THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF: NAME: MAHESH DUTTA P.E. NO. 114252 DATE: 4/2/2026 TYPED BY: FRN	
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409			

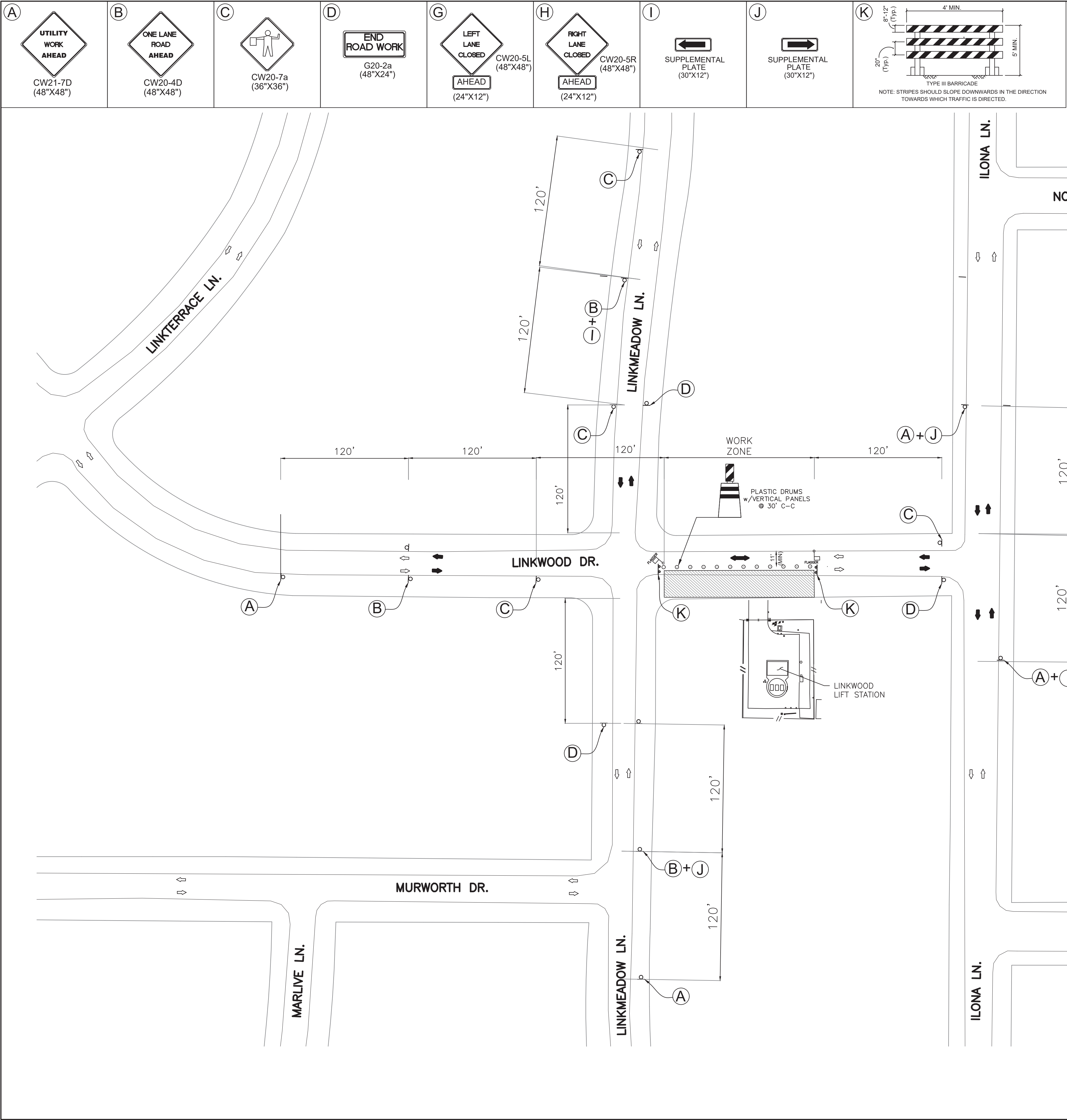
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

GULFTON LIFT STATION
TRAFFIC CONTROL PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=60'	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 278 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - Jls coh 1923 lift stations rehabilitation and reconstruction\Cadd_DWG\Full Set\Xref\279 LINKWOOD LIFT STATION TRAFFIC CONTROL PLAN.dwg May 06, 2026--1:14pm elewis



STREET POSTED SPEEDS	
MURWORTH DR.	(30 MPH)
MARLIVE LN.	(30 MPH)
LINKMEADOW LN.	(30 MPH)
LINKWOOD DR.	(30 MPH)
ILONA LN.	(30 MPH)
LINKTERRACE LN.	(30 MPH)
NORRIS DR.	(30 MPH)

- LEGEND
- EXISTING TRAFFIC PATTERN
 - PROPOSED TRAFFIC PATTERN
 - PLASTIC DRUMS
 - FLAGGER
 - WORK ZONE
 - TYPE III BARRICADE
 - FLASHING ARROW BOARD

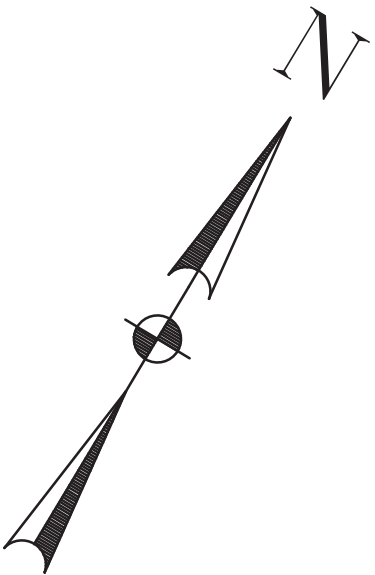
NOTE:
DAY TIME WORKING HOURS ONLY.
CONTRACTOR SHALL OPEN THE LANES FOR TRAFFIC
DURING NON-WORKING HOURS.

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
AMANI ENGINEERING, INC. 11011 RICHMOND AVE., SUITE 700 HOUSTON, TEXAS 77042 TEL: (713) 270-5700 Texas Registered Engineering Firm No. F-4528 Texas Registered Surveying Firm No. 100282-00		PRELIMINARY FOR INTERIM REVIEW ONLY THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT DURING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF: NAME: MAHESH DUTTA P.E. NO.: 114252 DATE: 4/2/2026 TYPED BY: FB NO. P-6409
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
LINKWOOD LIFT STATION TRAFFIC CONTROL PLAN		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=50'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO. 279 OF 291		

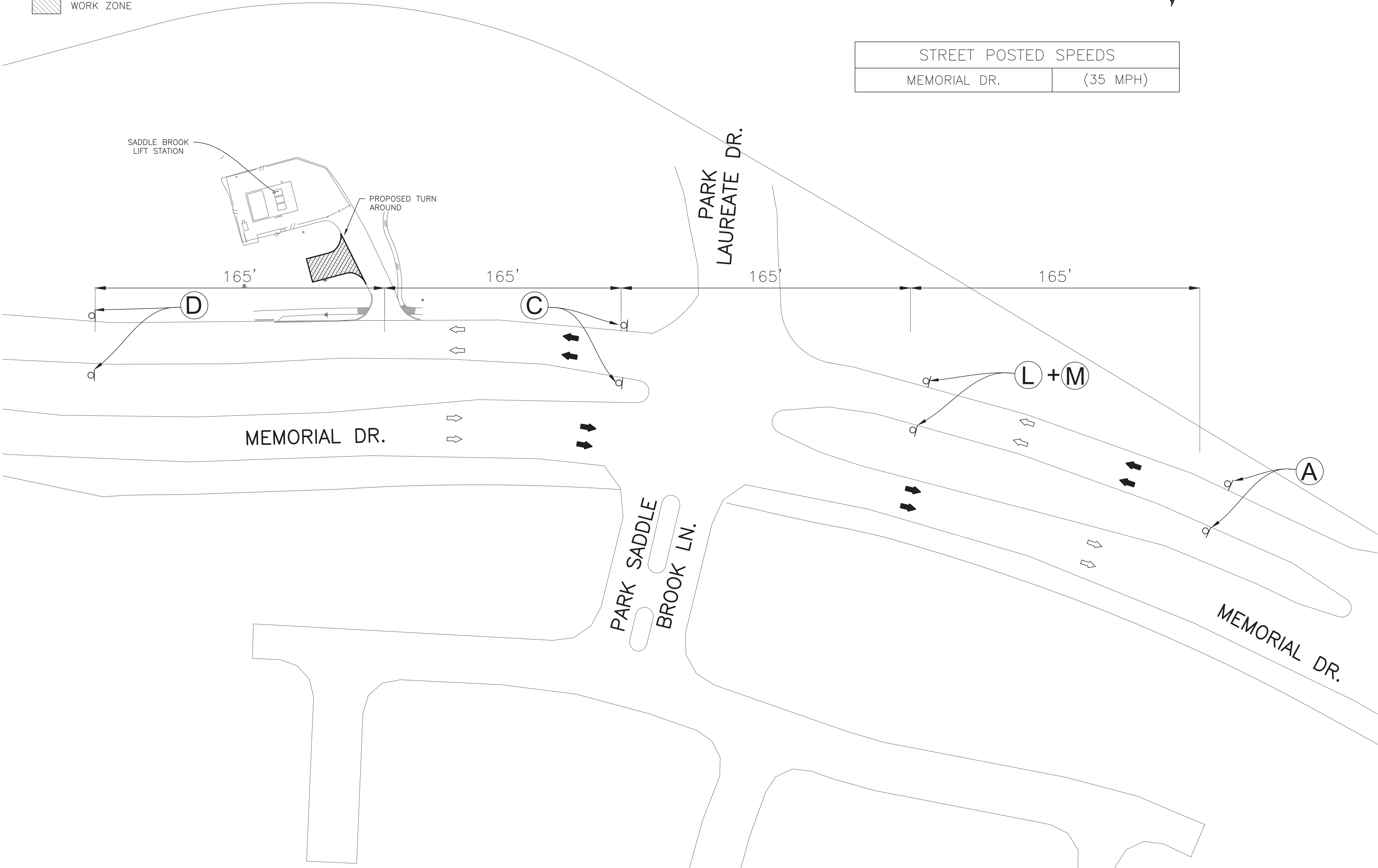
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
P:\Cadd\2024\24012 - J5 coh 1923 lift stations rehabilitation and reconstruction\Cadd_DWG\F-01 Saddle Brook Lift Station Traffic Control Plan.dwg May 06, 2026--1:14pm elewis

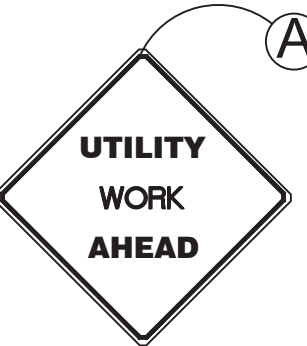
LEGEND

- EXISTING TRAFFIC PATTERN
- PROPOSED TRAFFIC PATTERN
- PLASTIC DRUMS
- FLAGGER
- WORK ZONE



STREET POSTED SPEEDS	
MEMORIAL DR.	(35 MPH)

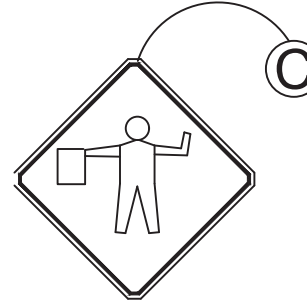




CW21-7D
(48"X48")



CW20-4D
(48"X48")



CW20-7a
(36"X36")



G20-2a
(48"X24")



CW27-1T
(48"X48")



CW3-4
(36"X36")

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042


Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

**AMANI ENGINEERING, INC.**
11011 RICHMOND AVE., SUITE 700
HOUSTON, TEXAS 77042
TEL: (713) 270-5700
Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-00

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NAME: MAHESH DUTTA P.E. NO. 114252
DATE: 4/2/2026
TBP&S FIRM #F-4528

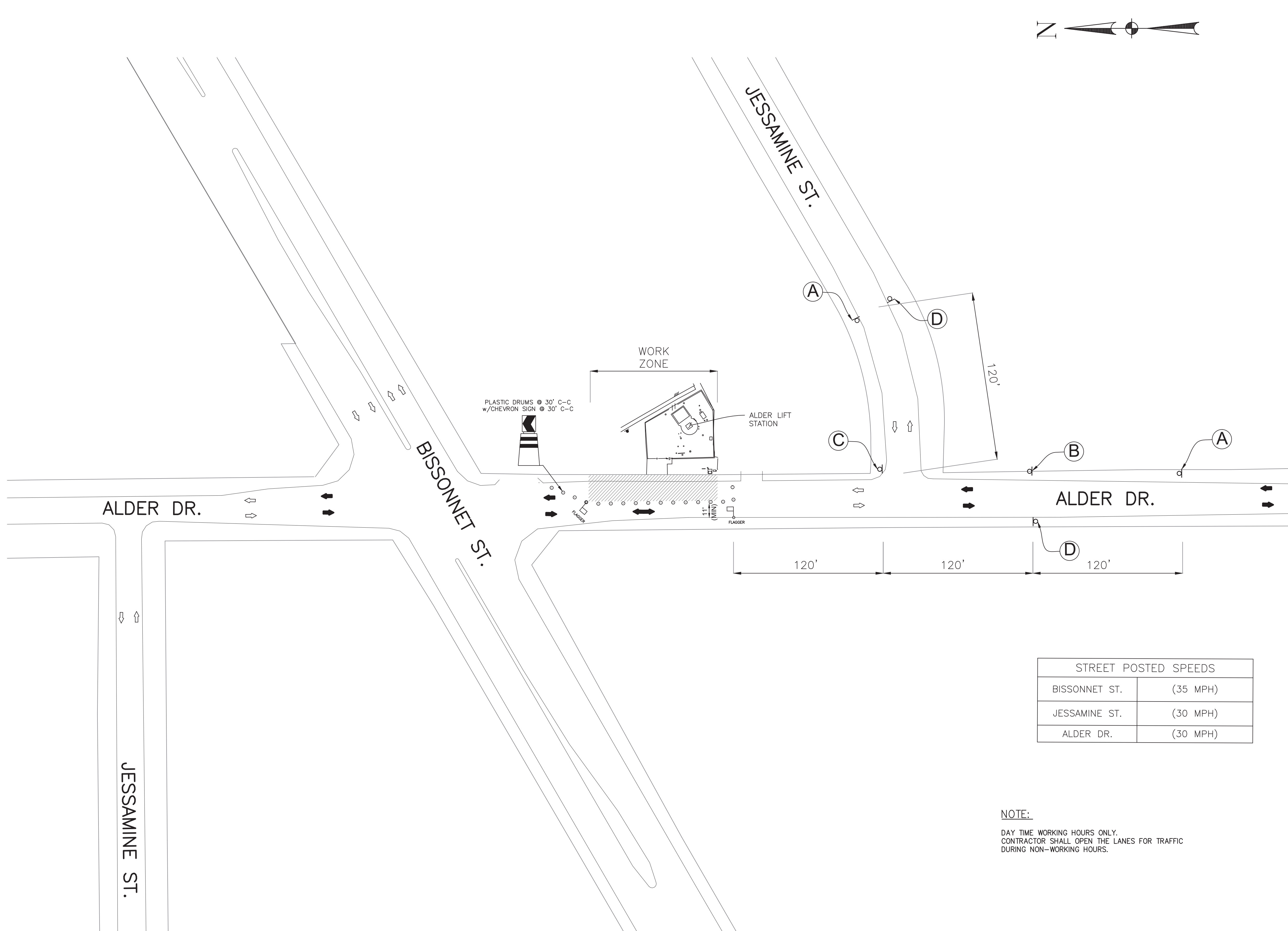
SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

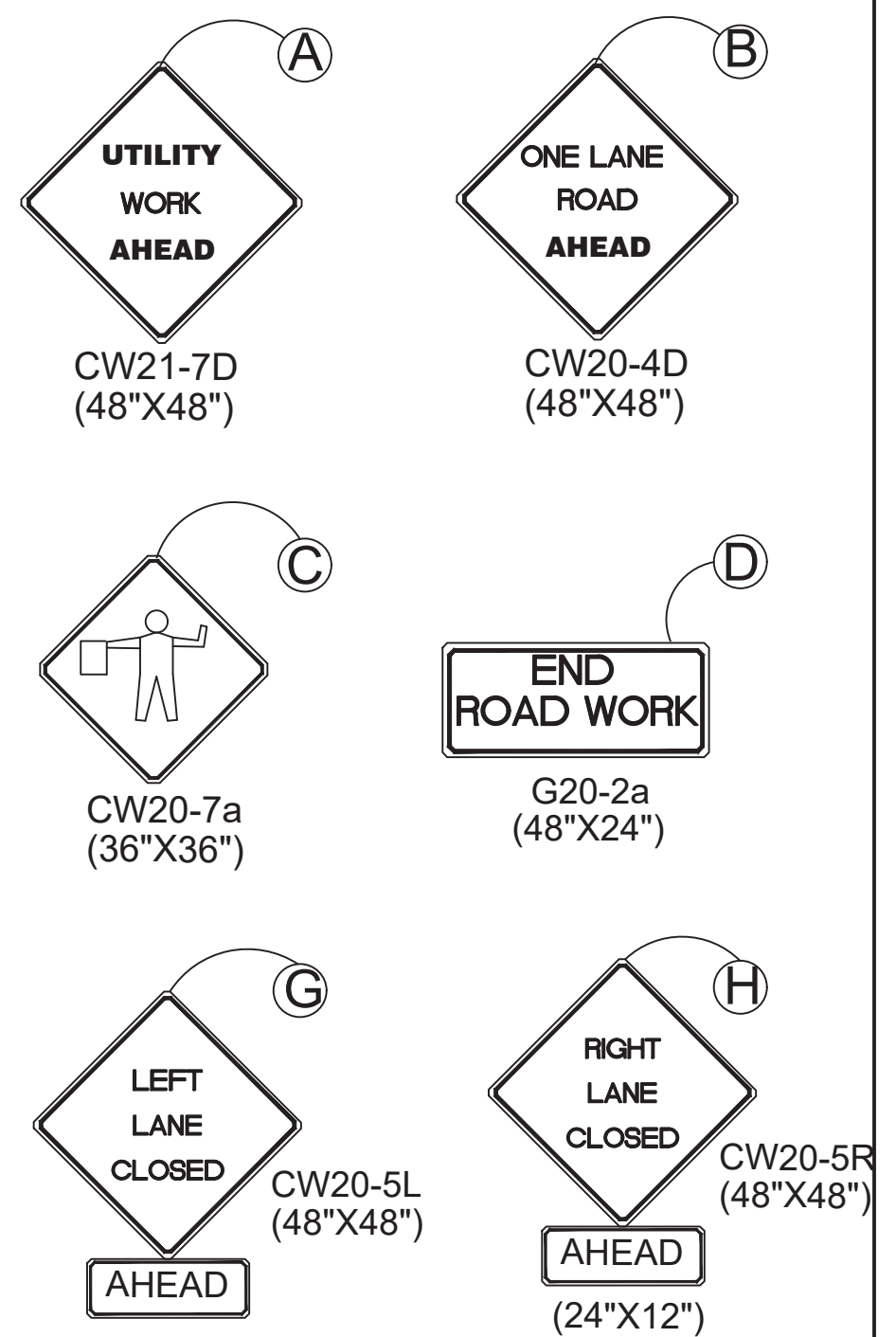
SADDLE BROOK LIFT STATION
TRAFFIC CONTROL PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=30'	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO. 280 OF 291	



NOTE:

DAY TIME WORKING HOURS ONLY.
CONTRACTOR SHALL OPEN THE LANES FOR TRAFFIC
DURING NON-WORKING HOURS.



ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
Suite 600
Houston, Texas 77042

LJA
Phone 713.953.5200
Fax 713.953.5026
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11011 RICHMOND AVE., SUITE 700 HOUSTON, TEXAS 77042 TEL: (713) 270-5700 Texas Registered Engineering Firm No. F-4528 Texas Registered Surveying Firm No. 100282-00	
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

ALDER LIFT STATION TRAFFIC CONTROL PLAN

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=40'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO. 281 OF 291	

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 THE CONSTRUCTION OF THIS PROJECT. THE DESIGNER ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

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GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) LATEST EDITION WITH REVISIONS DURING THE ENTIRE CONSTRUCTION PERIOD.
2. ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM THE LATEST VERSION OF THE TMUTCD.
3. NO LANES SHALL BE CLOSED DURING THE HOURS OF 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM MONDAY THRU FRIDAY WITHOUT APPROVAL OF THE CITY TRAFFIC ENGINEER.
4. NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00 PM TO 7:00 AM.
5. CONTRACTOR SHALL MAINTAIN APPROVED NUMBER OF THROUGH LANES OF TRAFFIC IN EACH DIRECTION DURING CONSTRUCTION WORKING HOURS. TRAFFIC CONTROL PLANS SHALL INCLUDE ONE-WAY AND/OR DETOUR PLANS. CONTRACTOR SHALL MAINTAIN ADA COMPLIANT PEDESTRIAN ACCESS TO BUS STOPS AND ADEQUATE BUS ACCESS TO ALL THE BUS STOPS.
6. CONTRACTOR SHALL MAINTAIN TRAFFIC LANES AND DETOURS ACCORDING TO TRAFFIC CONTROL PLANS DURING WORKING HOURS.
7. CONTRACTOR SHALL COVER OPEN PAVEMENT EXCAVATIONS FOR MINOR UTILITY WORK WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS, AND OPEN LANES FOR NORMAL TRAFFIC FLOW WHEN FEASIBLE.
8. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF "TRAFFIC CONTROL PLANS" DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT AN ALTERNATE SET OF TRAFFIC CONTROL PLANS TO THE CITY OF HOUSTON PROJECT MANAGER FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION. THESE PLANS SHALL BE DRAWN TO SCALE ON REPRODUCIBLE MYLARS AND SHALL BE SEALED BY A LICENSED ENGINEER IN THE STATE OF TEXAS. OFFICE OF CITY ENGINEER, MOBILITY PERMITS SECTION REPRESENTATIVE APPROVAL IS REQUIRED TO ACCEPT THE PROPOSED CHANGES.
9. CONTRACTOR SHALL SECURE LANE/SIDEWALK/BICYCLE FACILITY CLOSURE PERMITS FROM OFFICE OF CITY ENGINEER (MOBILITY PERMIT SECTION AT <https://gehuh.houstontx.gov>) BEFORE IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE APPLICATION MUST BE SUBMITTED AT LEAST TEN DAYS PRIOR TO THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN AND/OR BEGINNING CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS, CONSTRUCTION SEQUENCING, AND CONSTRUCTION SCHEDULE WITH THE APPLICATION.
10. CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES.
11. DURING PAVEMENT SURFACE RESTORATION PROJECTS, THE CONTRACTOR SHALL NOT OPEN CLOSED LANES UNTIL THE PAVEMENT SURFACE HAS CURED ENOUGH TO ALLOW VEHICULAR TRAFFIC ACCORDING TO CITY OF HOUSTON STANDARD SPECIFICATIONS.
12. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND COORDINATING ALL CONSTRUCTION ACTIVITIES WITH STAKE HOLDERS IN THE VICINITY INCLUDING EMERGENCY RESPONSE AGENCIES SUCH AS HOUSTON POLICE DEPARTMENT, HOUSTON FIRE DEPARTMENT, AND METROPOLITAN TRANSIT AUTHORITY.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ISSUING ALL WORK DIRECTIVES TO ALL SUB-CONTRACTORS, UTILITY COMPANIES, AND ALL OTHER ENTITIES PERFORMING CONSTRUCTION WORK ASSOCIATED WITH THE PROJECT.
14. NOTHING IN THESE NOTES OR PLANS SHALL RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT; INCLUDING SAFETY OF ALL MODES OF TRANSPORTATION, PERSONS, AND PROPERTY, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS.
15. THE OFFICE OF CITY ENGINEER (MOBILITY PERMITS GROUP) PER THE DIRECTION OF THE CITY TRAFFIC ENGINEER HAVE THE RIGHT TO DEMAND THE INSTALLATION OF ADDITIONAL TRAFFIC CONTROL DEVICES OR MODIFICATIONS OF THESE PLANS AND NOTES, AS DEEMED NECESSARY TO PROMOTE THE SAFE AND ORDERLY FLOW OF TRAFFIC, INCLUDING PEDESTRIANS AND BICYCLES, THROUGH THE CONSTRUCTION WORK ZONE. THE CONTRACTOR SHALL COMPLY WITH THESE ADDITIONAL REQUESTS OR MODIFICATIONS WITH DUE DILIGENCE.
16. ALL EXISTING TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE MAINTAINED IN VISIBLE LOCATIONS DURING CONSTRUCTION UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER. THE CONTRACTOR SHALL RESTORE OR REPLACE (AT THE DISCRETION OF THE CITY TRAFFIC ENGINEER) ANY PAVEMENT MARKING OR SIGNING DAMAGE DURING CONSTRUCTION OPERATIONS, INCLUDING RAISED PAVEMENT MARKERS (RPMs).
17. WHEN ENTERING OR LEAVING ROADWAYS CARRYING PUBLIC TRAFFIC, THE CONTRACTOR'S EQUIPMENT, WHETHER EMPTY OR LOADED SHALL IN ALL CASES YIELD TO PUBLIC TRAFFIC WITH THE ASSISTANCE OF CONTRACTOR PROVIDED CERTIFIED FLAGGER/PEACE OFFICER.
18. ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL CONES AND/OR DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAYS, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER.
19. SPILLAGE RESULTING FROM HAULING OPERATIONS ALONG OR ACROSS ANY PUBLIC TRAVELED WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
20. THE CONTRACTOR SHALL SUBMIT AN APPLICATION FOR TEMPORARY PARKING RESTRICTIONS IF THERE ARE PARKING METERS LOCATED AT THE PROPOSED LANE CLOSURES FROM PARKING MANAGEMENT DIVISION (832-393-8690) AT LEAST TEN BUSINESS DAYS BEFORE IMPLEMENTATION OF LANE CLOSURES. IN ADDITION, TEMPORARY NO PARKING SIGNS SHALL BE POSTED 24 HOURS PRIOR TO COMMENCEMENT OF WORK.
21. ADDITIONAL OFF DUTY OFFICERS/FLAGGERS MAY BE REQUESTED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED AT THE DISCRETION OF THE CITY PROJECT MANAGER EVEN IF THEY ARE NOT SPECIFICALLY IDENTIFIED ON THE PROJECT PLANS.
22. THE CONTRACTOR SHALL REPLACE WITHIN 72 HOURS, ALL TRAFFIC SIGNAL LOOP DETECTORS DAMAGED DURING CONSTRUCTION.
23. IN GENERAL, A SOLAR POWERED FLASHING ARROW BOARD SHALL BE REQUIRED ON ALL MAJOR THOROUGHFARE LANES CLOSURES. EXCEPTIONS TO FLASHING ARROW BOARDS AND/OR IMPLEMENTATION ON RESIDENTIAL LANE CLOSURES SHALL BE APPROVED BY CITY TRAFFIC ENGINEER.
24. APPROVED TRAFFIC CONTROL PLAN SHALL BE IN PLACE BEFORE STARTING ANY EXCAVATION.
25. WATER FILLED BARRIERS CAN BE USED AS INSTRUCTED BY THE ENGINEER AND APPROVED BY THE CITY FOR PROJECTS WHERE SPACE IS LIMITED AND HEAVY EQUIPMENT TO PLACE CONCRETE BARRIERS IS NOT FEASIBLE. WATER FILLED BARRIERS SHALL NOT BE USED ON ROADWAYS WITH A POSTED SPEED LIMIT MORE THAN 45 MPH.
26. WATER FILLED BARRIERS MUST BE INSTALLED AND MAINTAINED PER THE MANUFACTURER'S REQUIREMENTS AND ROUTINELY INSPECTED FOR DEFECTS.
27. IF WATER FILLED BARRIER IS PROVIDED, USE ENVIRONMENTALLY SAFE ANTI-FREEZING AGENT IN THE WATER WHEN IT IS APPLICABLE PER MANUFACTURER SPECIFICATIONS AND RECOVER AGENT WHEN THE BARRIER IS DRAINED.

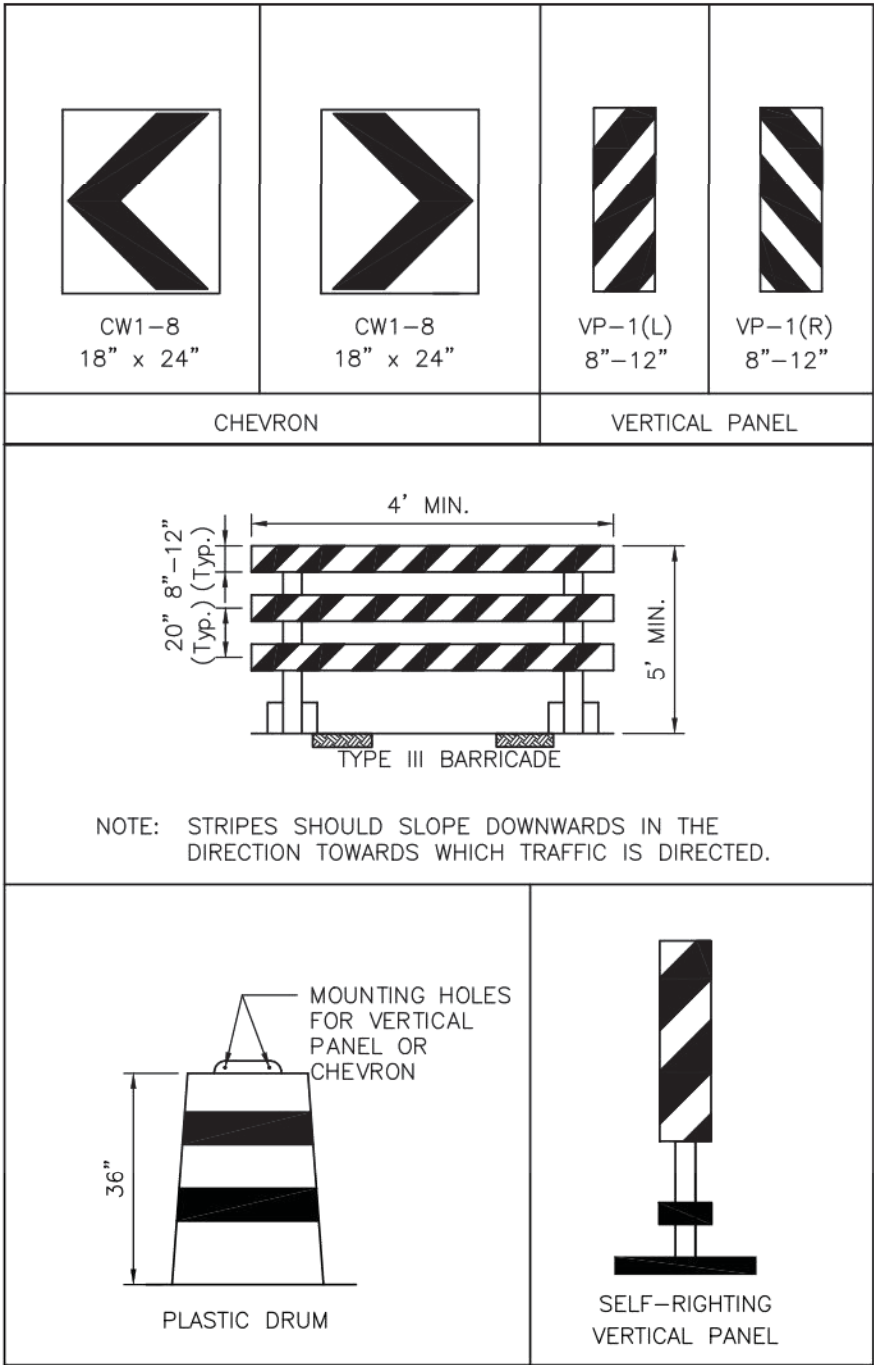
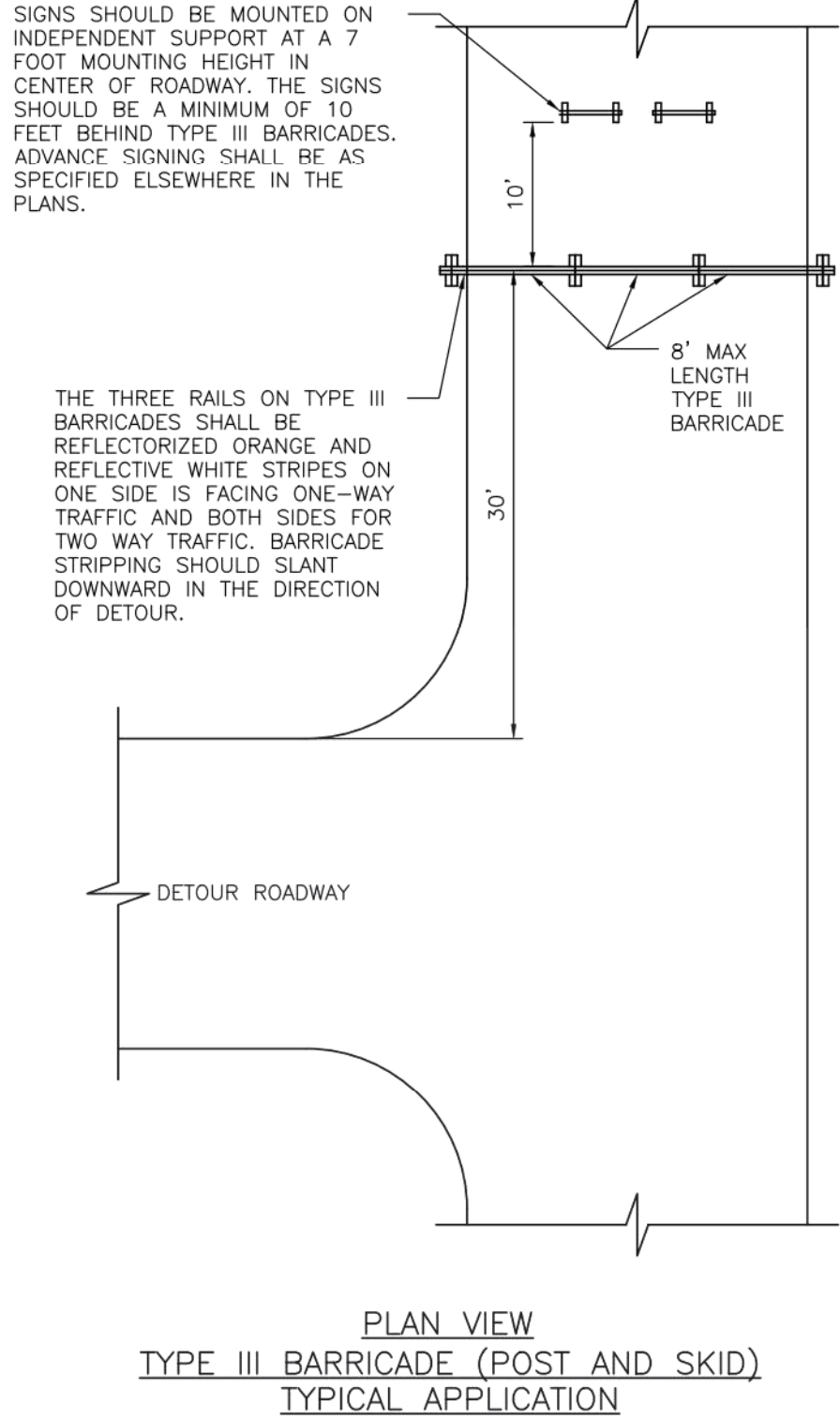
28. DISPOSE OF WATER AND AGENT PROPERLY. DO NOT DRAIN WATER FILLED BARRIER INTO OR ACROSS AN EXISTING TRAVEL LANE.
29. PROVIDE BARRIER UNITS THAT ARE CAPABLE OF BEING LIFTED AND MOVED WHEN FILLED IF DRAINING IS NOT POSSIBLE.
30. PROVIDE WATER FILLED BARRIER THAT ACTS AS ITS OWN FREE STANDING, NON-REDIRECTIVE END TREATMENT.
31. WHEN WATER FILLED BARRIERS ARE USED TO CHANNELIZE PEDESTRIANS, THEY MUST HAVE A CONTINUOUS DETECTABLE BOTTOM FOR USERS OF LONG CANES AND THE TOP OF THE UNIT SHALL NOT BE LESS THAN 32 INCHES IN HEIGHT.
32. ANY CLOSURE OF A PEDESTRIAN OR BICYCLE FACILITY SHALL REQUIRE THE SHORTEST DETOUR THAT MAINTAINS THE SAFETY OF PEDESTRIAN AND/OR BICYCLISTS.

SPACING FOR CHANNELIZING DEVICES

- A. PLASTIC DRUMS ON MERGING TAPER @ 30' C - C WITH CHEVRON SIGN @ 60' C - C AND WARNING LIGHTS FOR OVERNIGHT CLOSURE.
- B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 30' C - C (RETURN TAPER AND BARRICADE ARE OPTIONAL AND DIVIDED ROADWAY SECTION)
- C. PLASTIC DRUMS ON RADI @ 35' C -C.
- D. PLASTIC DRUMS ON TANGENT @ 35' C - C WITH VERTICAL PANEL AT 70' C - C AND APPROVED WARNING LIGHT @ 70' C - C (FOR OVERNIGHT CLOSURE).
- E. PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C - C WITH VERTICAL PANEL AT 40' C - C AND APPROVED WARNING LIGHT @ 40' C - C (FOR OVERNIGHT CLOSURE).
- F. CONCRETE TRAFFIC BARRIER (CTB) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB) WITH APPROVED REFLECTORS @ 10' C - C IF PAVEMENT DROP IS GREATER THAN 1 FOOT.
- G. PLASTIC DRUMS W/GUARD RAIL MOUNTED.
- H. SELF- RIGHTING VERTICAL PANEL SPACING.
 - 4 LANES TO 2 LANES UNDIVIDED ROADWAY SECTION @ 20' C - C.
 - 4 LANES DIVIDED ROADWAY TO ONE SIDE TWO WAY ROADWAY @ 20' C - C.
 - LEFT LANE AND RIGHT LANE STORAGE BAYS @ 15' C - C.
- I. SPACING SHOWN ON TRAFFIC CONTROL SHALL SUPERSEDE THE ABOVE SPACING.
- J. SPACING MAY BE ADJUSTED TO PROVIDE DRIVEWAYS, INTERSECTIONS AND /OR MEDIAN OPENINGS.

TABLE C3 – TYPICAL SIGN SPACING, TAPER LENGTHS, AND SUGGESTED SPACING OF CHANNELIZATION DEVICES						
POSTED SPEED (MPH)	SIGN SPACING "X" (FEET)	MIN. DESIRABLE TAPER LENGTH "L"			SUGGESTED MAXIMUM SPACING OF DEVICE	
		10' OFFSET	11' OFFSET	12' OFFSET	ON A TAPER	ON A TANGENT
30	120'	150'	165'	180'	30'	60'-75'
35	160'	205'	225'	245'	35'	70'-90'
40	240'	265'	295'	320'	40'	80'-100'
45	320'	450'	495'	540'	45'	90'-110'
50	400'	500'	550'	600'	50'	100'-125'
55	500'	550'	605'	660'	55'	110'-140'

TABLE C4 – STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED	
POSTED SPEED (MPH)	DISTANCE "D" (FEET)
30	200
35	250
40	305
45	360
50	425
55	495



CHANNELIZATION AND BARRICADES

LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

APPROVED BY: DocuSigned by: Sulal Kassar 507 08020116476	APPROVED BY: DocuSigned by: LEAH NGUYEN 507 08020116476
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carl Hubbard 507 08020116476	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP NOTES CHANNELIZING DEVICES AND BARRICADES	
	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386		
AMANI ENGINEERING, INC. 11011 RICHMOND AVE., SUITE 700 HOUSTON, TEXAS 77042 TEL: (713) 270-5700 Texas Registered Engineering Firm No. F-4528 Texas Registered Surveying Firm No. 100282-00		PRELIMINARY FOR INTERIM REVIEW ONLY THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT DROWING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF: MAHESH DUTTA 114252 NAME P.E. NO. DATE 4/2/2026 TBPELS FIRM #F-4528
SURVEYED BY: KUO & ASSOCIATES FB NO. P-6409		
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS		
TCP NOTES		
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	
R-000267-0176-3		
SCALE:		
1"=40'		
CITY OF HOUSTON PM		
NAWARAJ PANTA, P.E.		
SHEET NO.283 OF 291		

DISCLAIMER:
THE USE OF THIS STANDARD IS COVERED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THE CONSTRUCTION OF LIFT STATIONS. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

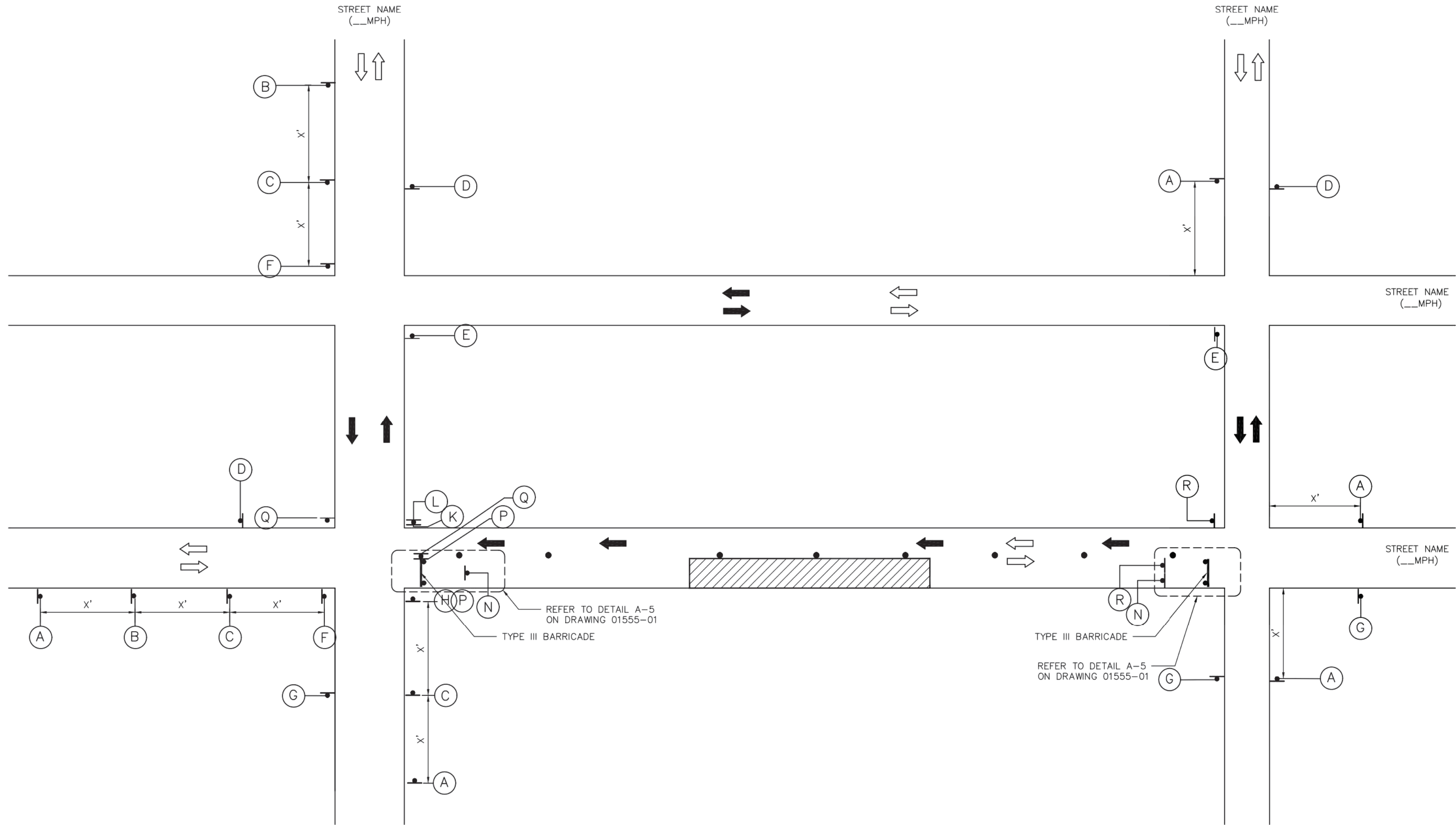
A ROAD WORK AHEAD CW20-1	B ROAD CLOSED AHEAD CW20-3	C DETOUR AHEAD CW20-2	D END ROAD WORK G20-2	E STREET NAME DETOUR M4-9R	F STREET NAME DETOUR M4-9L	G END DETOUR M4-8a	H STREET NAME DETOUR M4-9T	I RIGHT LANE CLOSED [AHEAD] CW20-5(2) CW16-3	J LEFT LANE CLOSED [AHEAD] CW20-5(1) CW16-3
K ONE WAY R6-2(L)	L ONE WAY R6-2(R)	M DO NOT ENTER R5-1	N ROAD CLOSED R11-2	O DETOUR M4-10(L)	P R3-1	Q R3-2	R BEGIN ONE WAY R6-6		

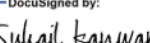
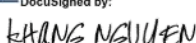
LEGEND:

-  SIGN
-  FLAGGER
-  APPROVED CHANNELIZATION DEVICE
-  BARRICADE
-  FLASHING ARROW PANEL
-  AREA UNDER CONSTRUCTION
-  EXISTING TRAVEL WAY
-  TRAFFIC CONTROL PLAN
DETOUR TRAVEL WAY

NOTES:

- A 10' MINIMUM LANE WIDTH FOR EMERGENCY SHALL BE MADE AVAILABLE AND MAINTAINED BY THE CONTRACTOR AT ALL TIMES.
- FOR DIMENSIONS REFER TO SHEET 01555-01.
- INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.



APPROVED BY:  Suhail Kananwar CITY ENGINEER	APPROVED BY:  Khanh Nguyen CITY TRAFFIC ENGINEER
APPROVED BY:  Carl Hubbard DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-05
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP TYPICAL DETOUR ROUTING WITH ONE LANE CLOSURE (ONE BLOCK)	
	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
NOT TO SCALE	

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.
3600 W. Sam Houston Parkway S.
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FRN - F-1386

AMANI ENGINEERING, INC.
11011 RICHMOND AVE., SUITE 700
HOUSTON, TEXAS 77042
TEL: (713) 270-5700
Texas Registered Engineering Firm No. F-4528
Texas Registered Surveying Firm No. 100282-00

PRELIMINARY
FOR INTERIM REVIEW ONLY
THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL PERMIT BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:
MAHESH DUTTA
NAME
P.E. NO. 114252
DATE 4/2/2026
TBP&S FIRM WF-4528

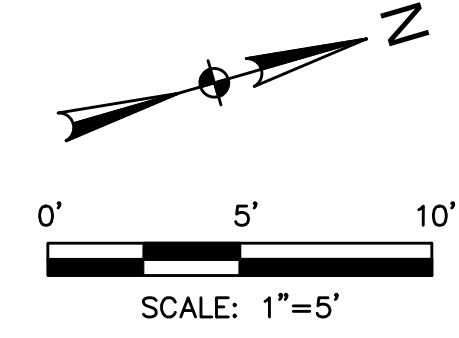
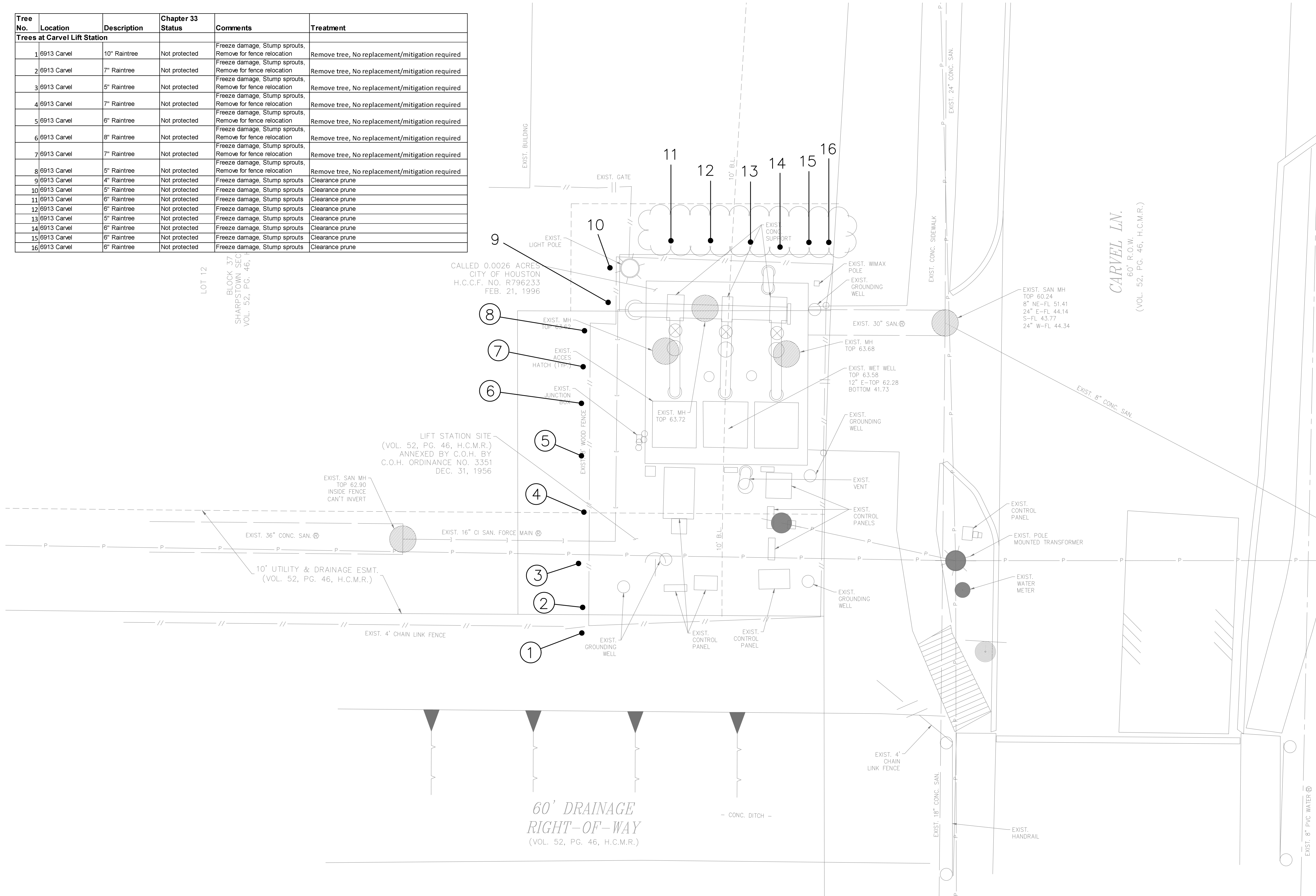
SURVEYED BY:
KUO & ASSOCIATES
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

TCP TYPICAL DETAILS	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
CITY OF HOUSTON PM NAWARAJ PANTA, P.E.	
SHEET NO.284 OF 291	

LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS
C:\Users\Ned\Desktop\Upcoming Projects\LJA Lift Station\19 CARVEL L3 EXIST-SURVEY.dwg Apr 17, 2026-4:37pm Ned

Tree No.	Location	Description	Chapter 33 Status	Comments	Treatment
Trees at Carvel Lift Station					
1	6913 Carvel	10" Raintree	Not protected	Freeze damage, Stump sprouts, Remove for fence relocation	Remove tree, No replacement/mitigation required
2	6913 Carvel	7" Raintree	Not protected	Freeze damage, Stump sprouts, Remove for fence relocation	Remove tree, No replacement/mitigation required
3	6913 Carvel	5" Raintree	Not protected	Freeze damage, Stump sprouts, Remove for fence relocation	Remove tree, No replacement/mitigation required
4	6913 Carvel	7" Raintree	Not protected	Freeze damage, Stump sprouts, Remove for fence relocation	Remove tree, No replacement/mitigation required
5	6913 Carvel	6" Raintree	Not protected	Freeze damage, Stump sprouts, Remove for fence relocation	Remove tree, No replacement/mitigation required
6	6913 Carvel	8" Raintree	Not protected	Freeze damage, Stump sprouts, Remove for fence relocation	Remove tree, No replacement/mitigation required
7	6913 Carvel	7" Raintree	Not protected	Freeze damage, Stump sprouts, Remove for fence relocation	Remove tree, No replacement/mitigation required
8	6913 Carvel	5" Raintree	Not protected	Freeze damage, Stump sprouts, Remove for fence relocation	Remove tree, No replacement/mitigation required
9	6913 Carvel	4" Raintree	Not protected	Freeze damage, Stump sprouts	Clearance prune
10	6913 Carvel	5" Raintree	Not protected	Freeze damage, Stump sprouts	Clearance prune
11	6913 Carvel	6" Raintree	Not protected	Freeze damage, Stump sprouts	Clearance prune
12	6913 Carvel	6" Raintree	Not protected	Freeze damage, Stump sprouts	Clearance prune
13	6913 Carvel	5" Raintree	Not protected	Freeze damage, Stump sprouts	Clearance prune
14	6913 Carvel	6" Raintree	Not protected	Freeze damage, Stump sprouts	Clearance prune
15	6913 Carvel	6" Raintree	Not protected	Freeze damage, Stump sprouts	Clearance prune
16	6913 Carvel	6" Raintree	Not protected	Freeze damage, Stump sprouts	Clearance prune



TREE PRESERVATION PLAN LEGEND	
	TREE NUMBER/LOCATION
	TREE TO BE REMOVED
	TREE PROTECTION FENCE

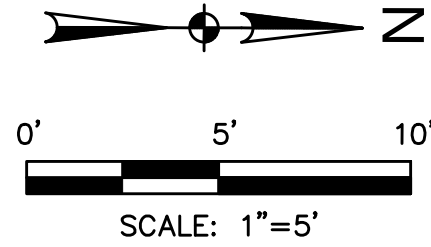
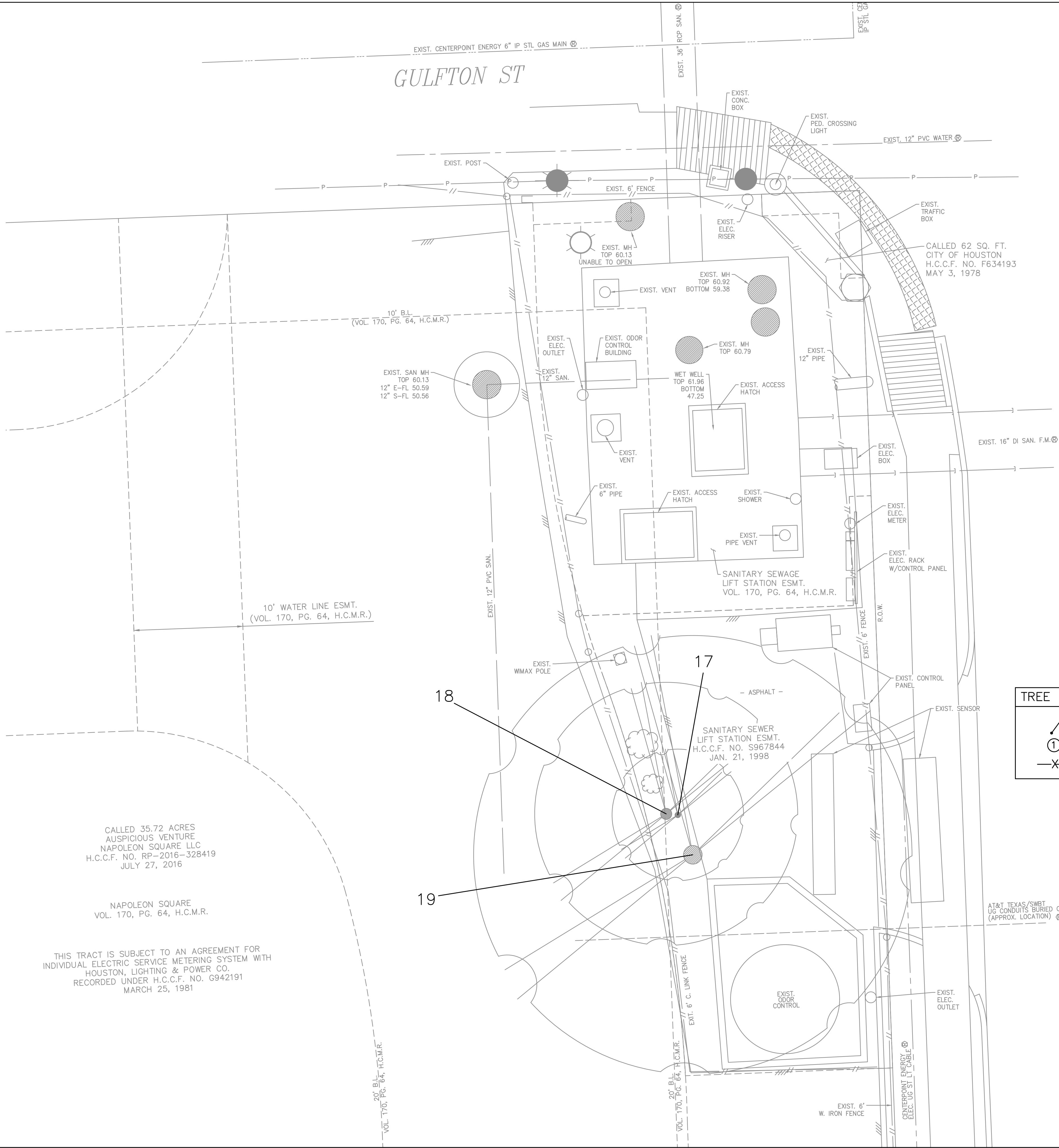
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281-391-0022 ckoehl@koehlurbanforestry.com

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SURVEYED BY:
KUO & ASSOC.
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

TREE PROTECTION PLAN	
SHEET 1 OF 7	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=5'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.285 OF 291	



- NOTE:**
- 1.THIS TREE PROTECTION PLAN WAS DEVELOPED WITH INFORMATION PROVIDED BY DESIGN ENGINEER IN DRAWINGS DATED NOVEMBER 2025. THE PLAN CONSIDERS ALL FITTINGS, VERTICAL OFFSETS AND AREAS OF NECESSARY EXCAVATION. CHANGES MADE TO DESIGN MAY COMPROMISE THE TREE PROTECTION PLAN. REFER SPECIFICATIONS 01562 AND 02915.
 - 2.CN KOEHL URBAN FORESTRY, INC. HAS NOT BEEN CONTRACTED TO COMPLETE ANY TREE RISK ASSESSMENTS ON THIS PROJECT--THIS TPP INCLUDES PROTECTION MEASURES FOR SPECIES OF TREES PROTECTED BY APPLICABLE ORDINANCE ONLY. CN KOEHL URBAN FORESTRY, INC. DOES NOT GUARANTEE CONDITION OR STRUCTURAL INTEGRITY OF ANY TREE LOCATED ON OR ADJACENT TO THIS PROJECT.
 - 3.IN AREAS WHERE INDIVIDUAL TREES HAVE NOT BEEN TIED IN BY SURVEY, APPROXIMATE LOCATION IS INDICATED ON TPP WITH A DOT AND TREE NUMBER. ACCURACY OF REPRESENTED LOCATION IS NOT GUARANTEED BY CN KOEHL URBAN FORESTRY, INC.
 - 4.THE CONTRACTOR'S ARBORIST WILL MARK LOCATIONS OF TREES TO BE PLANTED AND OBTAIN APPROVAL BY CITY ENGINEER AND CITY FORESTER BEFORE PURCHASING OR EXCAVATING PLANTING HOLE OF EACH TREE.

Tree No.	Location	Description	Chapter 33 Status	Comments	Treatment
Trees at Gulfton Lift Station					
17	5901 Gulfton	Stump	Not protected	Removed by HPW maintenance	
18	5901 Gulfton	Stump	Not protected	Removed by HPW maintenance	
19	5901 Gulfton	Stump	Not protected	Removed by HPW maintenance	

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Urban Forestry, Inc.

210 Stone Bush Ct. • Katy, Texas 77493

281-391-0022 ckoehl@koehlurbanforestry.com

APPROVED:

ISSUE	DATE	DESCRIPTION
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LJA Engineering, Inc.

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LJA

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Fax 713.953.5026
FRN - F-1386

SURVEYED BY:
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS**

TREE PROTECTION PLAN
SHEET 2 OF 7

WBS NUMBER

FOR CITY OF HOUSTON USE ONLY

R-000267-0176-3

SCALE:

1"=5'

CITY OF HOUSTON PM

NAWARAJ PANTA, P.E.

SHEET NO.286 OF 291

TPP-2

- NOTE:
- 1.THIS TREE PROTECTION PLAN WAS DEVELOPED WITH INFORMATION PROVIDED BY DESIGN ENGINEER IN DRAWINGS DATED NOVEMBER 2025. THE PLAN CONSIDERS ALL FITTINGS, VERTICAL OFFSETS AND AREAS OF NECESSARY EXCAVATION. CHANGES MADE TO DESIGN MAY COMPROMISE THE TREE PROTECTION PLAN. REFER SPECIFICATIONS 01562 AND 02915.
 - 2.CN KOEHL URBAN FORESTRY, INC. HAS NOT BEEN CONTRACTED TO COMPLETE ANY TREE RISK ASSESSMENTS ON THIS PROJECT--THIS TPP INCLUDES PROTECTION MEASURES FOR SPECIES OF TREES PROTECTED BY APPLICABLE ORDINANCE ONLY. CN KOEHL URBAN FORESTRY, INC. DOES NOT GUARANTEE CONDITION OR STRUCTURAL INTEGRITY OF ANY TREE LOCATED ON OR ADJACENT TO THIS PROJECT.
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 - 4.THE CONTRACTOR'S ARBORIST WILL MARK LOCATIONS OF TREES TO BE PLANTED AND OBTAIN APPROVAL BY CITY ENGINEER AND CITY FORESTER BEFORE PURCHASING OR EXCAVATING PLANTING HOLE OF EACH TREE.

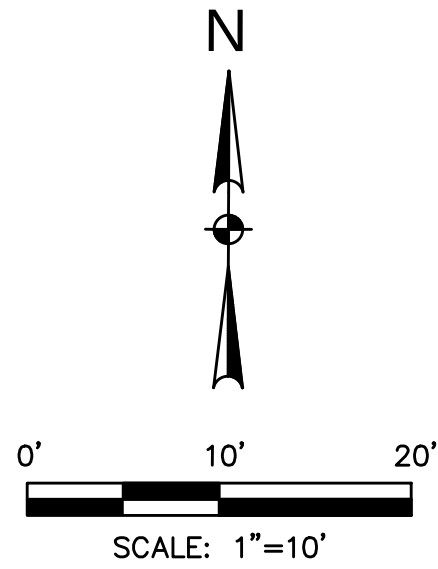
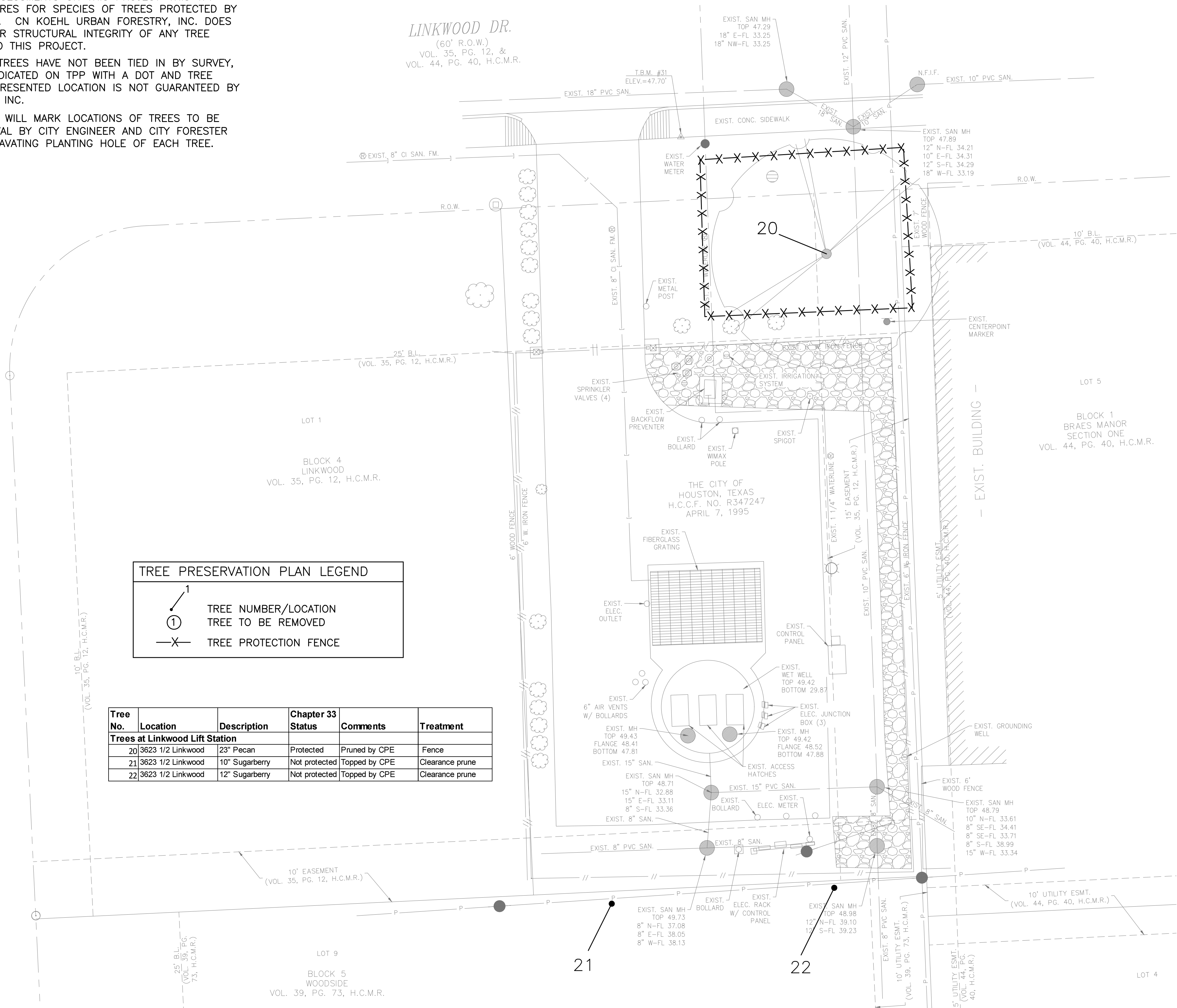
LINKMEADOW LN.
(60' R.O.W.)
VOL. 35, PG. 12 &
VOL. 39, PG. 73, H.C.M.R.

TREE PRESERVATION PLAN LEGEND

① TREE NUMBER/LOCATION
TREE TO BE REMOVED
-X- TREE PROTECTION FENCE

Tree No.	Location	Description	Chapter 33 Status	Comments	Treatment
Trees at Linkwood Lift Station					
20	3623 1/2 Linkwood	23" Pecan	Protected	Pruned by CPE	Fence
21	3623 1/2 Linkwood	10" Sugarberry	Not protected	Topped by CPE	Clearance prune
22	3623 1/2 Linkwood	12" Sugarberry	Not protected	Topped by CPE	Clearance prune

LINKWOOD DR.
(60' R.O.W.)
VOL. 35, PG. 12, &
VOL. 44, PG. 40, H.C.M.R.



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FRN - F-1386

SURVEYED BY:
KUO & ASSOC.
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

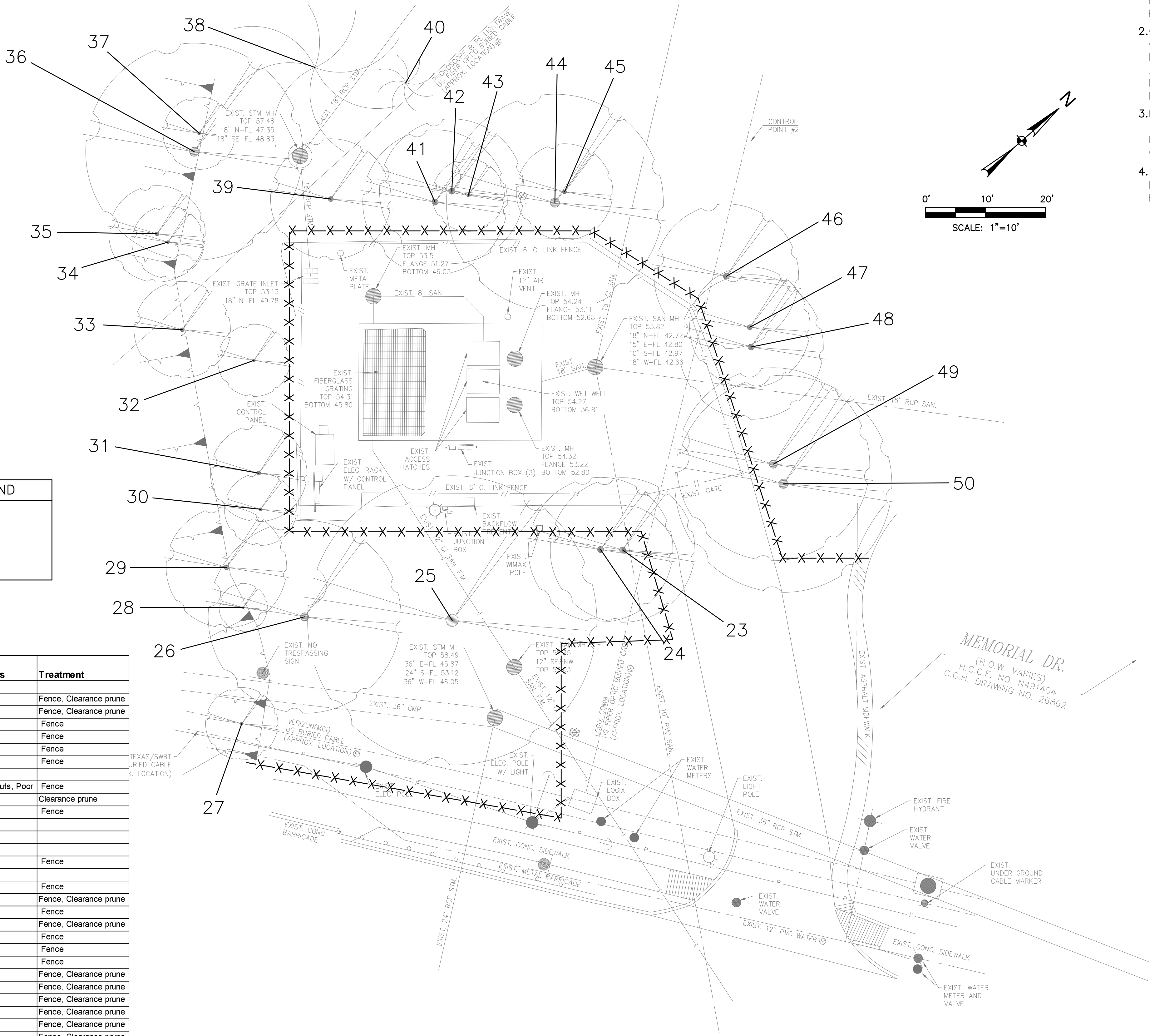
LIFT STATION REHABILITATION & RECONSTRUCTION PROJECTS

TREE PROTECTION PLAN
SHEET 3 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.287 OF 291	

Tree No.	Location	Description	Chapter 33 Status	Comments	Treatment
Trees at Saddle Brook Lift Station					
23	10040 Memorial Drive	10" Live Oak	Protected		Fence, Clearance prune
24	10040 Memorial Drive	11" Live Oak	Protected		Fence, Clearance prune
25	10040 Memorial Drive	21" Baldcypress	Protected		Fence
26	10040 Memorial Drive	15" Baldcypress	Protected		Fence
27	10040 Memorial Drive	13" Boxelder	Not protected		Fence
28	10040 Memorial Drive	4" American Elm	Protected		Fence
29	10040 Memorial Drive	12" Sugarberry	Not protected		
30	10040 Memorial Drive	6" Live Oak	Protected	Stump sprouts, Poor	Fence
31	10040 Memorial Drive	10" Sugarberry	Not protected		Clearance prune
32	10040 Memorial Drive	4" American Elm	Protected		Fence
33	10040 Memorial Drive	12" Sugarberry	Not protected		
34	10040 Memorial Drive	5" Sugarberry	Not protected		
35	10040 Memorial Drive	8" Sugarberry	Not protected		
36	10040 Memorial Drive	13" American Elm	Protected		Fence
37	10040 Memorial Drive	7" Boxelder	Not protected		
38	10040 Memorial Drive	18" Pine	Protected		Fence
39	10040 Memorial Drive	14" Live Oak	Protected		Fence, Clearance prune
40	10040 Memorial Drive	10" Pine	Protected		Fence
41	10040 Memorial Drive	12" Live Oak	Protected		Fence, Clearance prune
42	10040 Memorial Drive	11" Live Oak	Protected		Fence
43	10040 Memorial Drive	9" Live Oak	Protected		Fence
44	10040 Memorial Drive	10" Live Oak	Protected	Leaning	Fence
45	10040 Memorial Drive	15" Live Oak	Protected		Fence, Clearance prune
46	10040 Memorial Drive	12" Live Oak	Protected		Fence, Clearance prune
47	10040 Memorial Drive	10" Live Oak	Protected		Fence, Clearance prune
48	10040 Memorial Drive	11" Live Oak	Protected		Fence, Clearance prune
49	10040 Memorial Drive	12" Live Oak	Protected		Fence, Clearance prune
50	10040 Memorial Drive	15" Live Oak	Protected		Fence, Clearance prune

TREE PRESERVATION PLAN LEGEND	
	TREE NUMBER/LOCATION
	TREE TO BE REMOVED
	TREE PROTECTION FENCE



- NOTE:
- 1.THIS TREE PROTECTION PLAN WAS DEVELOPED WITH INFORMATION PROVIDED BY DESIGN ENGINEER IN DRAWINGS DATED NOVEMBER 2025. THE PLAN CONSIDERS ALL FITTINGS, VERTICAL OFFSETS AND AREAS OF NECESSARY EXCAVATION. CHANGES MADE TO DESIGN MAY COMPROMISE THE TREE PROTECTION PLAN. REFER SPECIFICATIONS 01562 AND 02915.
 - 2.CN KOEHL URBAN FORESTRY, INC. HAS NOT BEEN CONTRACTED TO COMPLETE ANY TREE RISK ASSESSMENTS ON THIS PROJECT-THIS TPP INCLUDES PROTECTION MEASURES FOR SPECIES OF TREES PROTECTED BY APPLICABLE ORDINANCE ONLY. CN KOEHL URBAN FORESTRY, INC. DOES NOT GUARANTEE CONDITION OR STRUCTURAL INTEGRITY OF ANY TREE LOCATED ON OR ADJACENT TO THIS PROJECT.
 - 3.IN AREAS WHERE INDIVIDUAL TREES HAVE NOT BEEN TIED IN BY SURVEY, APPROXIMATE LOCATION IS INDICATED ON TPP WITH A DOT AND TREE NUMBER. ACCURACY OF REPRESENTED LOCATION IS NOT GUARANTEED BY CN KOEHL URBAN FORESTRY, INC.
 - 4.THE CONTRACTOR'S ARBORIST WILL MARK LOCATIONS OF TREES TO BE PLANTED AND OBTAIN APPROVAL BY CITY ENGINEER AND CITY FORESTER BEFORE PURCHASING OR EXCAVATING PLANTING HOLE OF EACH TREE.

C.N. Koehl

Urban Forestry, Inc.

210 Stone Bush Ct. • Katy, Texas 77493

281-391-0022 ckoehl@koehlurbanforestry.com

APPROVED:

ISSUE	DATE	DESCRIPTION

LJA Engineering, Inc.

3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042

Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

SURVEYED BY:
KUO & ASSOC.
FB NO. P-6409

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LIFT STATION REHABILITATION &
RECONSTRUCTION PROJECTS

TREE PROTECTION PLAN
SHEET 4 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.288 OF 291	

BLOCK 22
WESTMORELAND FARMS
AMENDED FIRST ADDITION
VOL. 3, PG. 60, H.C.M.R.

BISSENET ST.

C.N. Koehl
Urban Forestry, Inc.
210 Stone Bush Ct. • Katy, Texas 77493

ISSUE	DATE	DESCRIPTION
LJA Engineering, Inc. 3600 W. Sam Houston Parkway S. Suite 600 Houston, Texas 77042		 Phone 713.953.5200 Fax 713.953.5026 FRN - F-1386

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TREE PROTECTION PLAN

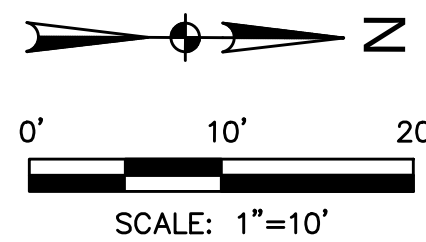
SHEET 5 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
R-000267-0176-3	
SCALE:	
1"=10'	
CITY OF HOUSTON PM	
NAWARAJ PANTA, P.E.	
SHEET NO.289 OF 291	

Tree No.	Location	Description	Chapter 33 Status	Comments	Treatment
Trees at Alder Lift Station					
51	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
52	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
53	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
54	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
55	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
56	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
57	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
58	7275 1/2 Alder	10" Sugarberry	Not protected		Clearance prune
59	7275 1/2 Alder	9" Sugarberry	Not protected		Clearance prune
60	7275 1/2 Alder	10" Sugarberry	Not protected		Clearance prune
61	7275 1/2 Alder	12" Sugarberry	Not protected		Clearance prune
62	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
63	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
64	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
65	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune
66	7275 1/2 Alder	7" Sweet Viburnum	Not protected		Clearance prune

CALLED 6.44 ACRES
 GRAYRIDGE APARTMENTS, LTD.
 H.C.C.F. NO. P015657
 DEC. 18, 1992

RESERVED FOR COMMERCIAL
& BUSINESS USE
RICHMOND PLAZA ADDITION
VOL. 30, PG. 40, H.C.M.R

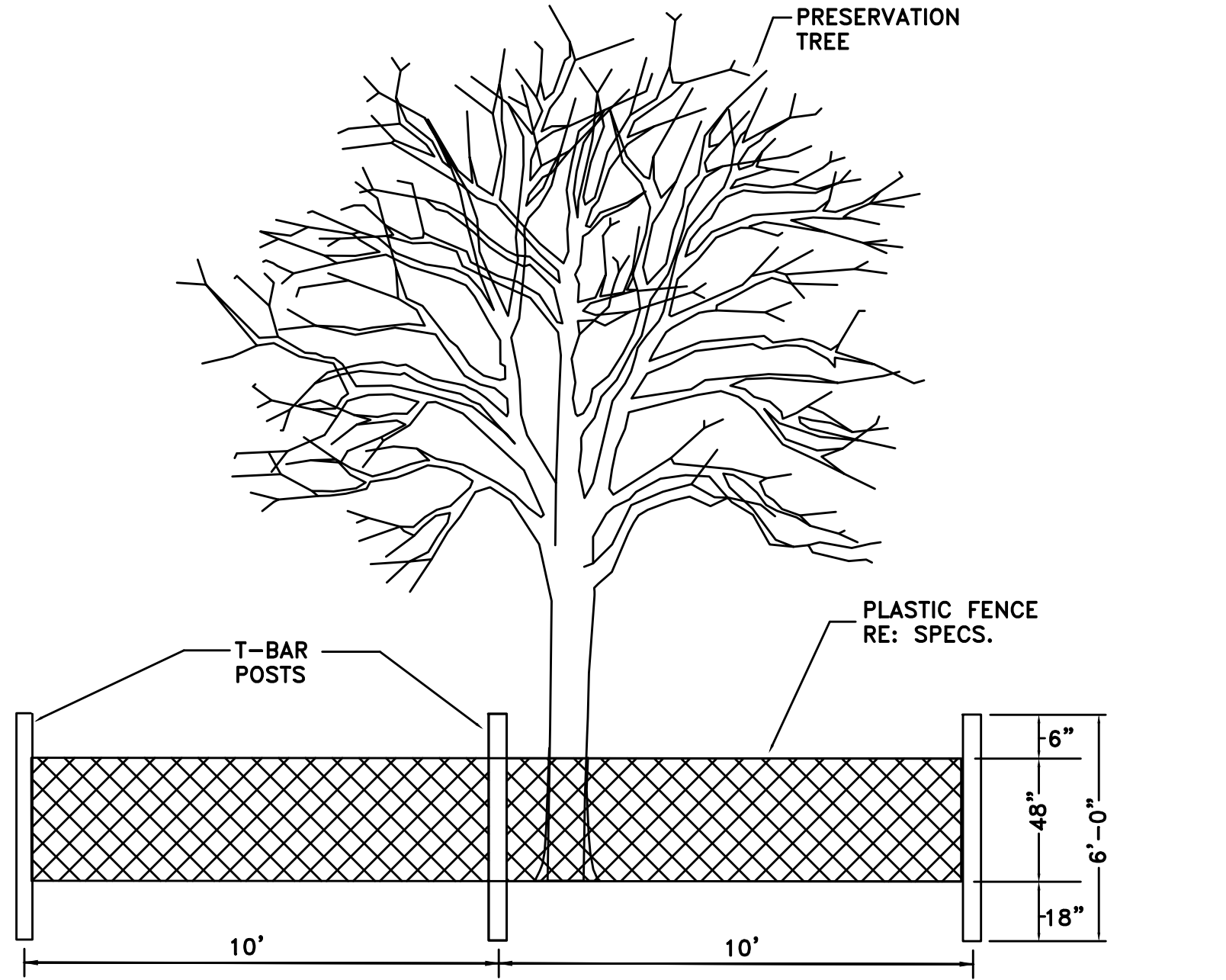


TPP-5

C:\Users\Ned\Desktop\UPCOMING PROJECTS\LJA LIFTSTATION\88 ALDER LS EXIST.dwg

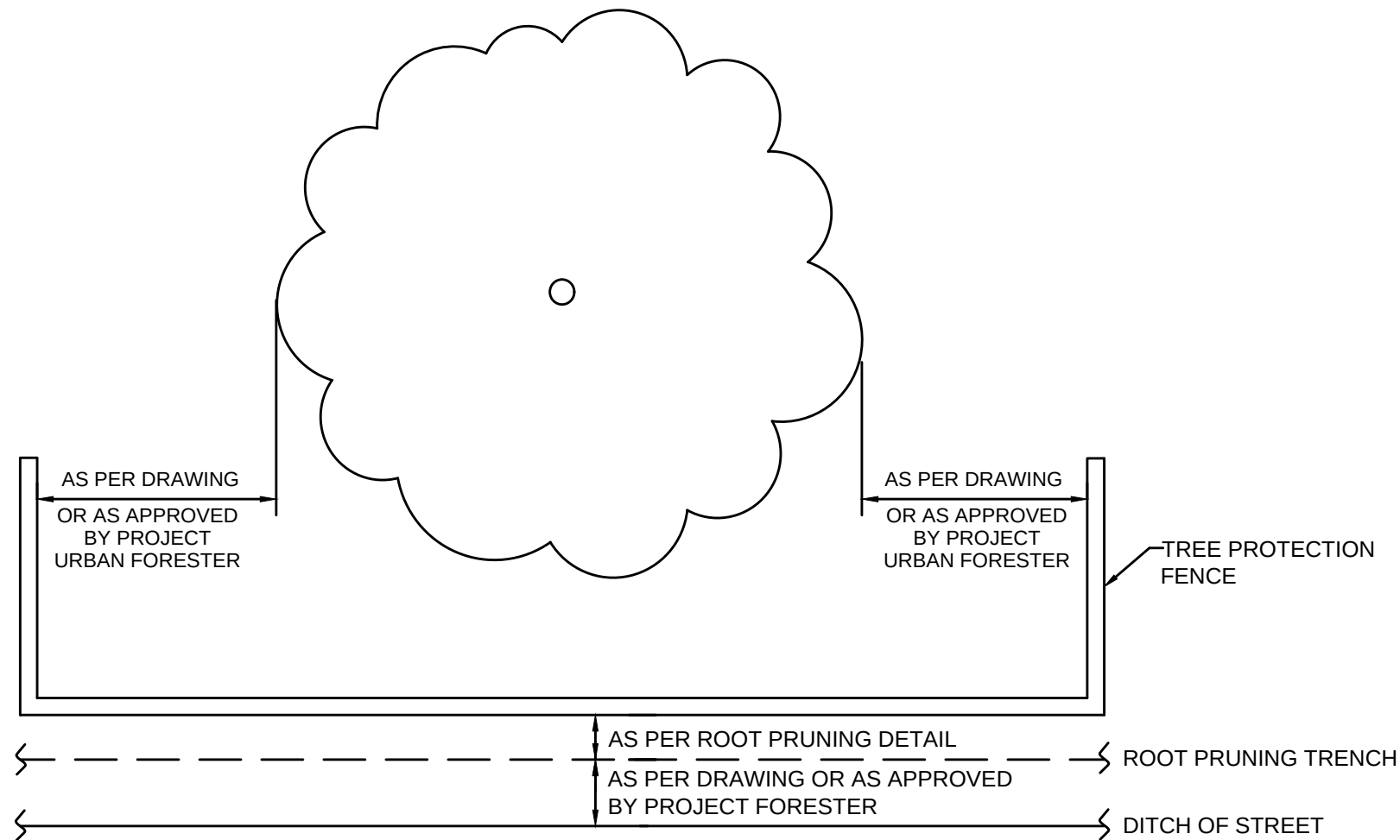
Tree Removal List				
Tree No.	Location	Description		Replacement requirement
1	6913 Cavel	10" Raintree		0
2	6913 Cavel	7" Raintree		0
3	6913 Cavel	5" Raintree		0
4	6913 Cavel	7" Raintree		0
5	6913 Cavel	6" Raintree		0
6	6913 Cavel	8" Raintree		0
7	6913 Cavel	7" Raintree		0
8	6913 Cavel	5" Raintree		0
TOTAL REPLACEMENT INCHES REQUIRED				0

Tree Replacement List			
Quantity	Caliper Size	Species	Container/Tree Spade size
TOTAL REPLACEMENT INCHES INCLUDED IN PLAN			0
NOTE: Tree replacement locations are not shown on plans. Contractor must coordinate with City of Houston Urban Forestry and Houston Public Works prior to PURCHASING trees. This project may not have adequate room for all required replacement trees without creating regulatory sign or traffic/pedestrian visibility issues. Number of trees and planting locations will be determined by City of Houston Urban Forestry in construction phase. Trees that are planted are to be maintained and watered for 2 years following planting per standard spec 02915. Timing of planting may be delayed in periods of drought with mandatory water restrictions in place-timing to be coordinated with City of Houston Urban Forestry. Trees in esplanade groupings to be planted in common bed with 4" of hardwood mulch between trees.			
Trees are to be maintained and watered for 2 years following planting per standard spec 02915. Timing of planting may be delayed in periods of drought with mandatory water restrictions in place-timing to be coordinated with City of Houston Forestry.			
Tree replacement locations shall comply with Houston Public Works spec sections 02811, 02911, 02912, 02915, 02921 & 02922. In general trees along sides of street right of ways shall be no closer than 3' to back of curb or 20' from another tree. Trees in medians shall be no closer than 6' back of curb, 75' from an intersection, 50' to a median cut, or 20' from another tree. Contractor to coordinate locations with City Forestry and HPW prior to PURCHASING trees. All replacement trees called out on plans may not be planted on project relative to coordination with listed parties.			
Cash Allowance Due Parks from HPW for Balance of Mitigation Not Planted on Project			
	Required Mitigation total	Mitigation rate/inch	
0-5.99"	\$	297.98	\$ -
6-11.99"		496.64	\$ -
12" +		662.19	\$ -
		TOTAL REQUIRED MITIGATION FEE	\$ -



TREE PROTECTION FENCING DETAIL A

NOT TO SCALE



TREE PROTECTION FENCING DETAIL B

NOT TO SCALE

C.N. Koehl

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TREE PROTECTION PLAN
SHEET 7 OF 7

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