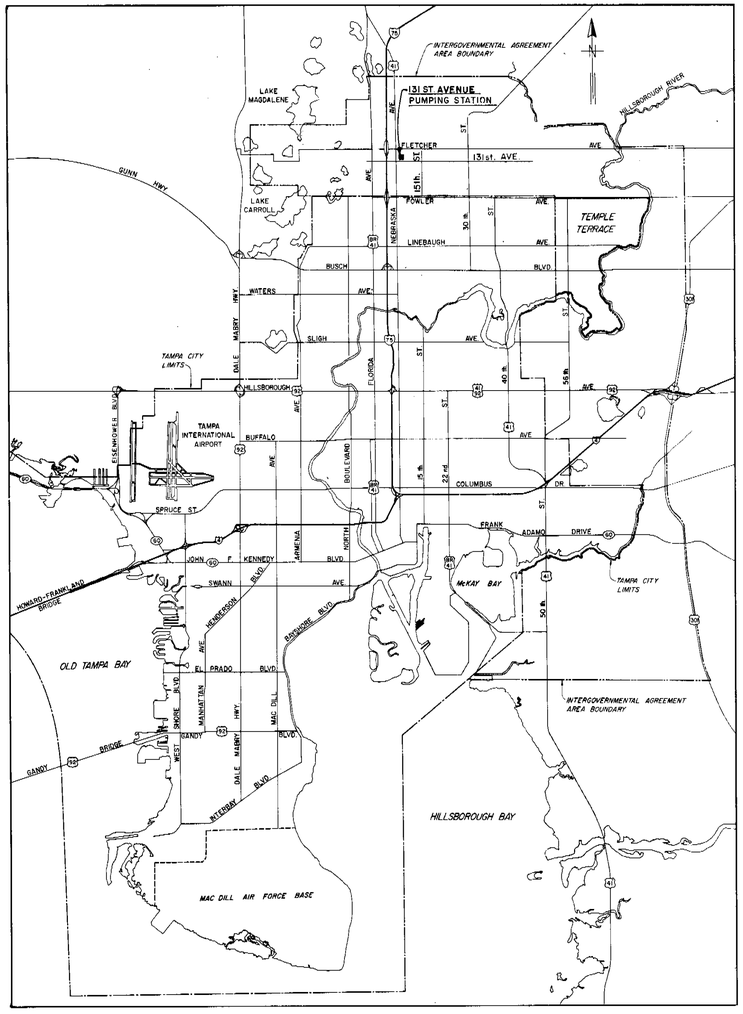
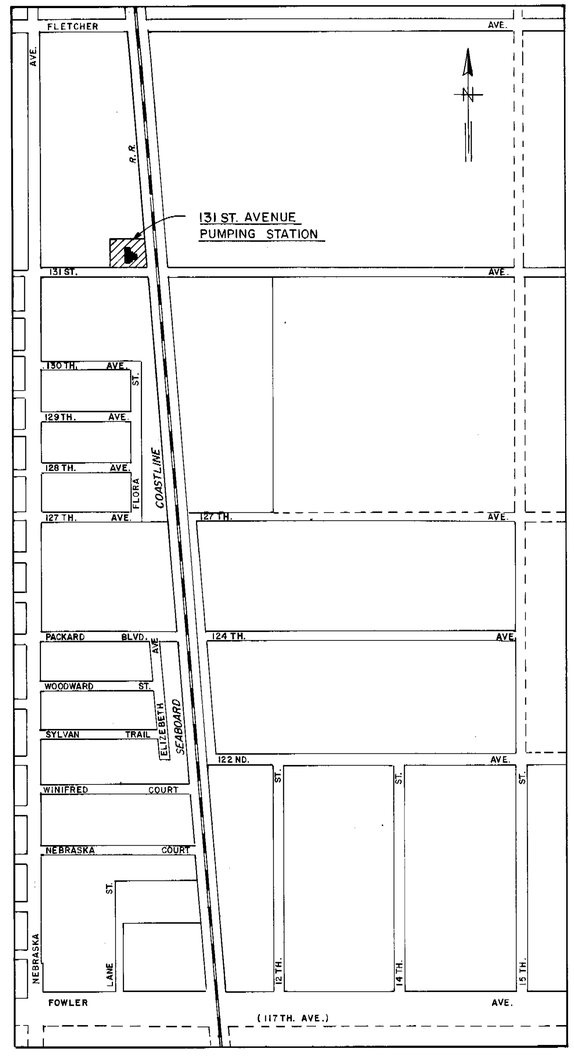


LOCATION MAP

SCALE: 1" = 8,000'



AREA MAP

SCALE: 1" = 400'

INDEX

SHEET NO.	TITLE
1.	LOCATION MAP, AREA MAP AND INDEX
	EQUIPMENT
2.	SITE PLAN, TOP FLOOR PLAN
3.	INTERMEDIATE FLOOR PLAN, DETAILS
4.	LOWER FLOOR PLAN, SECTIONS AND DETAILS
5.	SECTIONS AND DETAILS
6.	PIPING DIAGRAMS
	STRUCTURAL
7.	LOWER FLOOR PLAN, SECTIONS
8.	INTERMEDIATE FLOOR PLAN, SECTIONS
9.	TOP FLOOR PLAN, SECTIONS
10.	ROOF FRAMING PLAN, CRANE GIRDER PLAN AND DETAILS
11.	SECTION
12.	FRAME ELEVATION AND DETAILS, SECTIONS
13.	SECTIONS
14.	SECTIONS
15.	GENERAL NOTES AND TYPICAL DETAILS
16.	TYPICAL DETAILS
	ARCHITECTURAL
17.	TOP FLOOR PLAN
18.	ROOF PLAN, DETAILS
19.	ELEVATIONS AND DETAILS
20.	DETAILS
	VENTILATING
21.	TOP FLOOR PLAN
22.	INTERMEDIATE AND LOWER FLOOR PLANS
23.	SECTION
24.	SECTION, EQUIPMENT SCHEDULES
	ELECTRICAL
25.	SITE PLAN AND LEGEND
26.	ONE LINE DIAGRAMS
27.	SEWAGE PUMP NO. 1 CONTROL
28.	SEWAGE PUMP NO. 3 CONTROL
29.	MISCELLANEOUS CONTROL DIAGRAMS
30.	TOP AND INTERMEDIATE FLOOR PLANS
31.	LOWER FLOOR PLAN, LIGHTING SCHEDULE
32.	SECTION, CONDUIT AND WIRE SCHEDULE
	LANDSCAPING
33.	131 ST. AVENUE PUMPING STATION LANDSCAPING PLAN
34.	13TH STREET PUMPING STATION LANDSCAPING PLAN
35.	25TH STREET PUMPING STATION LANDSCAPING PLAN
AD-3-1.	GROUT HOLES LOCATION PLAN AND DETAIL

PAUL E. LANGDON, JR. No. 15473 CERTIFICATE STATE OF FLORIDA REGISTERED ENGINEER

NOTE:

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RECORD DRAWING

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED	JBV
DRAWN	KZK
CHECKED	JBV

APPROVED
SUPT., DEPT. OF SANITARY SEWERS — DATE 4-3-74
GREELEY AND HANSEN, ENGINEERS — DATE 4-3-74

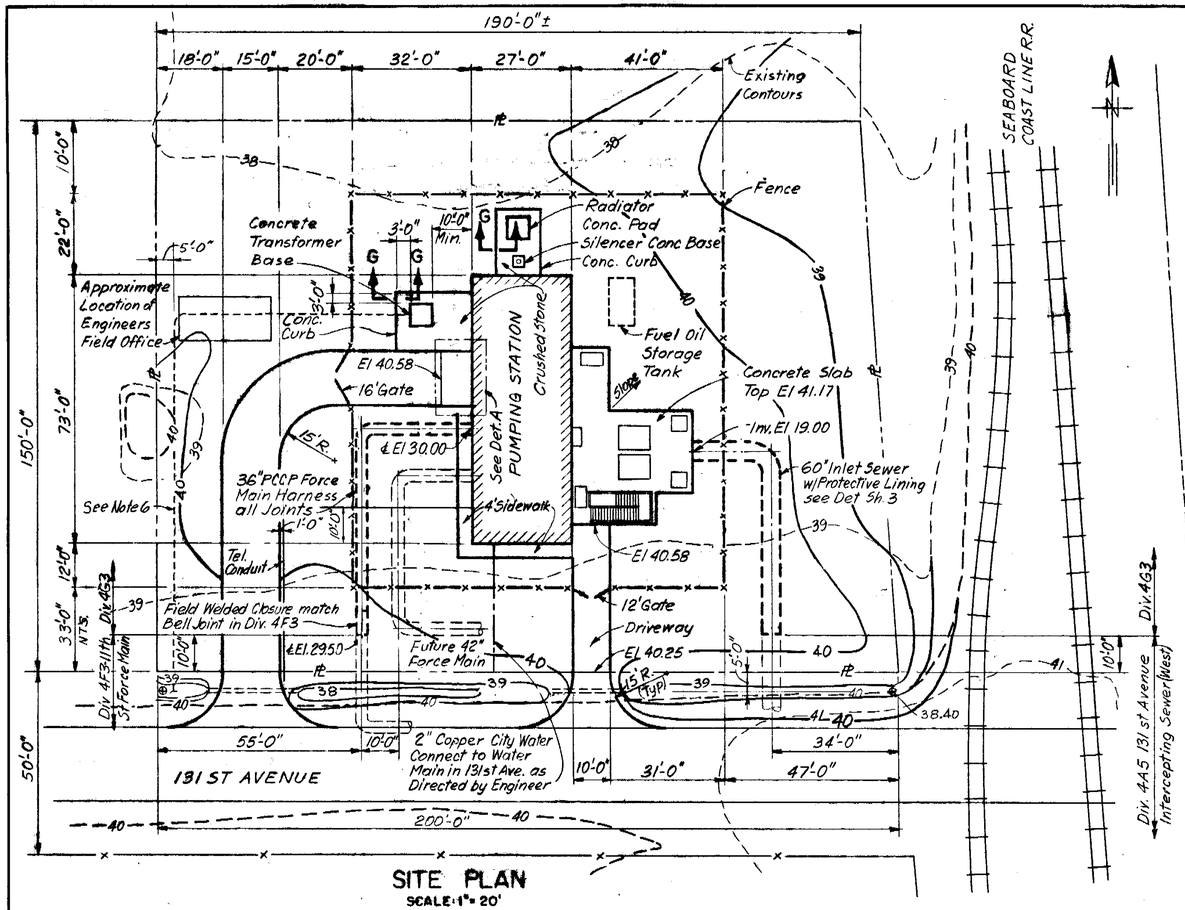
NO.	DATE	APP.	REVISION
	Mar.78	JDP	Plans Updated

SCALE
8,000 0 8,000 16,000 FT. — 1" = 8,000 FT.
400 0 400 800 FT. — 1" = 400 FT.

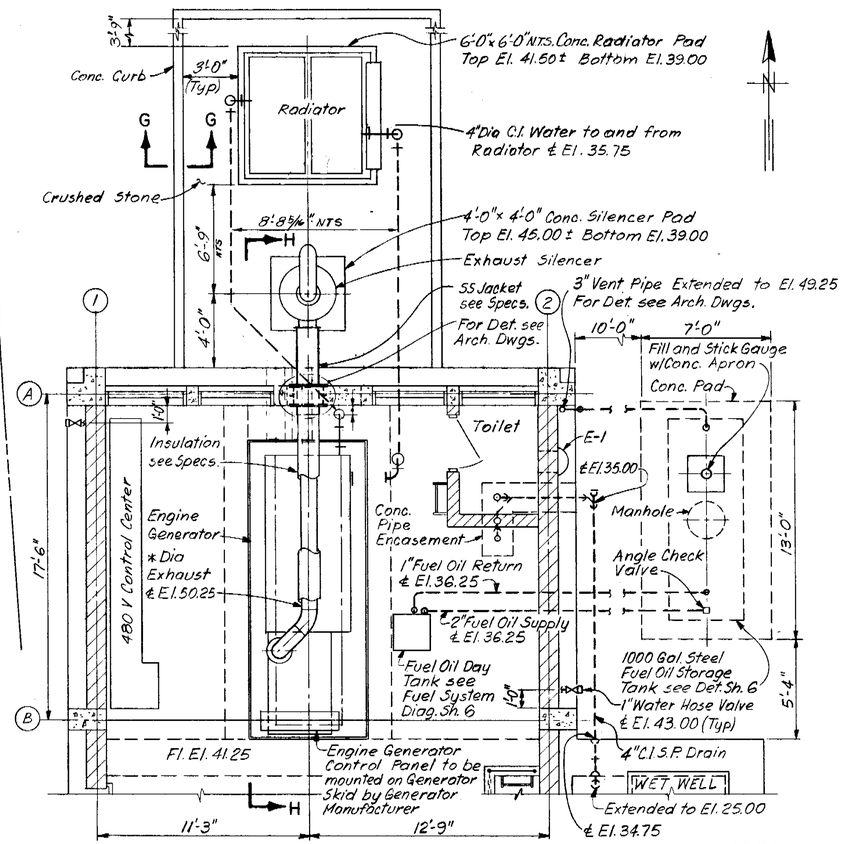
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131ST. AVENUE PUMPING STATION

LOCATION MAP, AREA MAP AND INDEX

PROJ. NO. S 202-70-30D-7-4G3
SHEET 1 OF 35
DATE AUGUST, 1972 | REV 0



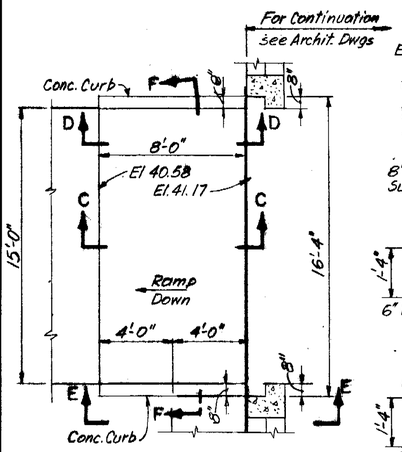
SITE PLAN
SCALE: 1" = 20'



PART PLAN TOP FLOOR
SCALE: 1/4" = 1'-0"

NOTES:

1. Finish Grade at Building to be El. 40.58 with Uniform Slopes to South ℄ at El. 40.00 and to match Existing Grades at East, North and West ℄ except as noted.
2. Existing and Future Facilities to be constructed under Other Divisions shown in Light Lines. Facilities included in this Division are shown in heavy Lines.
3. Locations, Elevations and Dimensions of Existing Utilities, Conduits, Process Piping, Other Underground Piping, Structures and other Features are shown according to the best Information available at the Time of the preparation of these Plans but Do Not purport to be absolutely correct. The Contractor shall verify the Locations, Elevations and Dimensions of All Existing Utilities, Structures and Other Features affecting His Work prior to Construction.
4. The Contractor shall provide at least 48 Hours Notice to the City in order to permit the Location of Existing Underground Utilities, Conduits, Process Piping and Other Underground Piping and Structures in advance of Construction.
5. Site Dimensions are to Outside of Structure Walls.
6. Location of Power Line to be established in the Field by the Engineer based on TECO requirements.



DETAIL A
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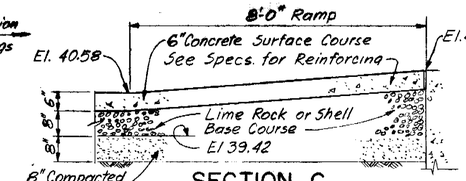
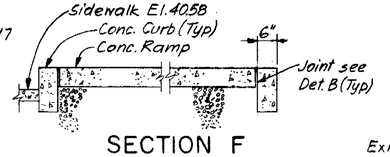


SECTION C
SCALE: 1/2" = 1'-0"



SECTION F
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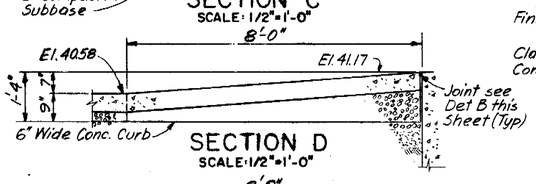
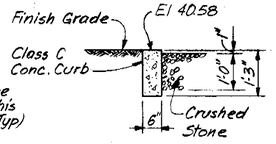


SECTION D
SCALE: 1/2" = 1'-0"



SECTION G
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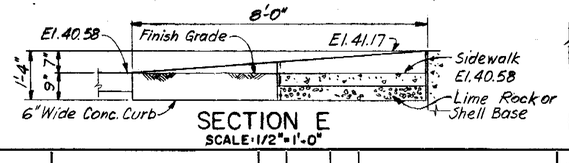

SECTION E
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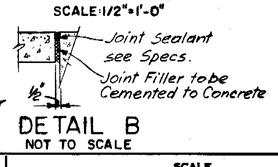
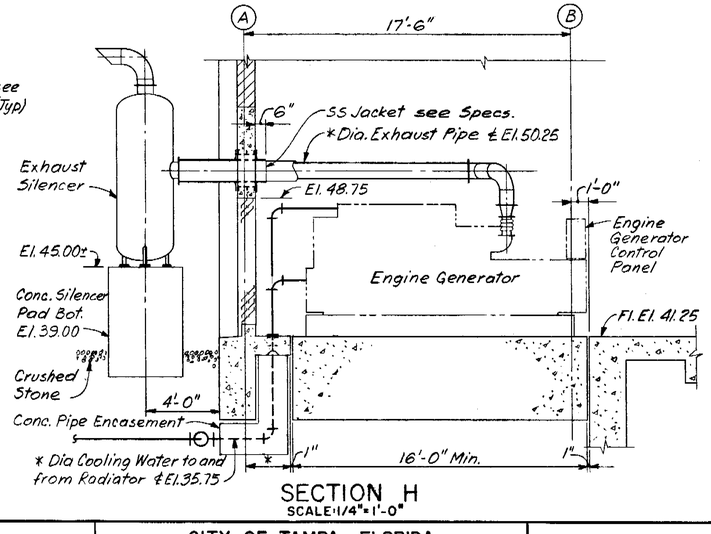


DETAIL B
NOT TO SCALE



SECTION H
SCALE: 1/4" = 1'-0"

NOTE:

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RECORD DRAWING

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GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JBV DRAWN KZK CHECKED JBV	APPROVED DATE SUPT., DEPT. OF SANITARY SEWERS DATE GREELEY AND HANSEN, ENGINEERS	NO.	DATE	APP.	REVISION
			2	9/81	DSH	Rec. Dwg. Revisions
			1	Dec. 78	KEV.	Added Addendum No. 1
				Mar. 78	JRP	Plans Updated

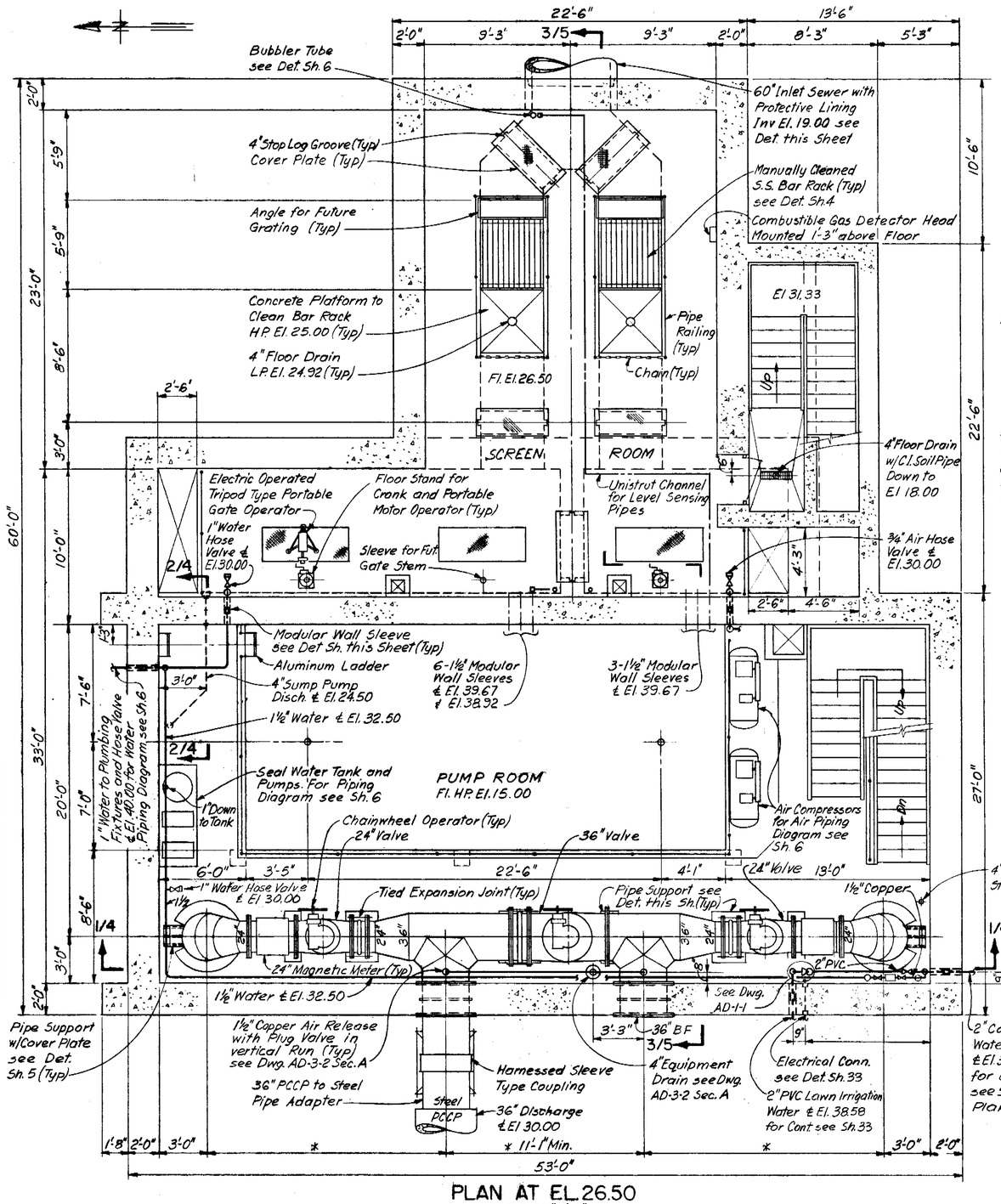
SCALE
20 0 20 40 FT 1" = 20'
4 0 4 8 FT 1/4" = 1'-0"
0 1 2 3 4 5 FT 1/2" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

EQUIPMENT
SITE PLAN
TOP FLOOR PLAN

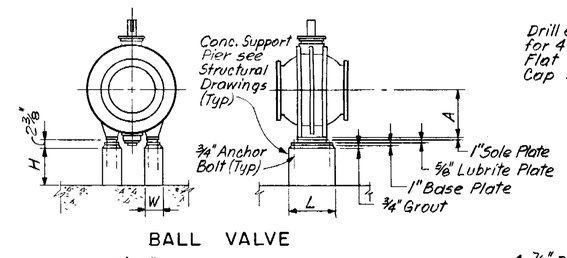
PROJ. NO. S 202-70-30D-7-4G3
SHEET 2 OF 35
DATE AUGUST, 1972 REV. 1

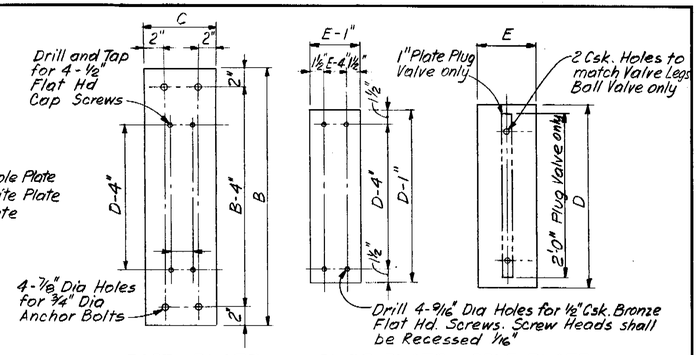
173-34



PLAN AT EL. 26.50

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





BALL VALVE SUPPORT DIMENSIONS

Valve size	& El	Floor El	Location	A	B	C	D	E	W	W1	L	H
24"	30.00	26.50	Top Disch. Header	2'-0 1/8"	1'-10 3/8"	6 1/8"	1'-2 5/8"	5 1/2"	1'-0"	–	2'-2 3/8"	1'-2 1/2"
30"	18.50	15.00	Low Disch Hdr. & Pumps	2'-5 3/4"	2'-1 1/8"	7 1/2"	1'-5 1/8"	6 1/2"	1'-0"	–	2'-5 1/16"	8 3/8"
36"	30.00	26.50	Top Disch. Header	2'-10 3/4"	2'-3 3/4"	7 1/2"	1'-7 3/4"	6 1/2"	1'-0"	–	2'-7 3/4"	3 7/16"

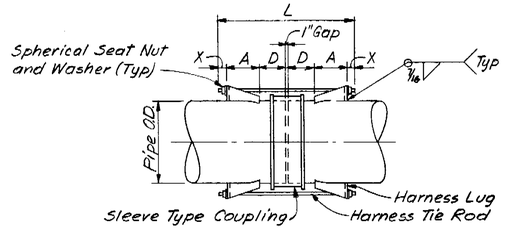
PLUG VALVE AND EXP. JOINT SUPPORT DIMENSIONS (Deleted see DWG. AD-3-3)

24"	30.00	26.50	Top Disch. Header	1'-6"	2'-1"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-8 5/8"
30"	18.50	15.00	Low Disch. Hdr. & Pumps	1'-9 3/8"	2'-1 7/8"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-5 1/4"
36"	18.50	15.00	Low Disch. Hdr. & Pumps	2'-1"	2'-1 7/8"	10"	2'-2"	10"	–	*	3'-2"	1'-1 7/8"
36"	30.00	26.50	Top Disch. Header	2'-1"	2'-1 7/8"	10"	2.2"	10"	1'-2"	*	3'-2"	1'-1 7/8"

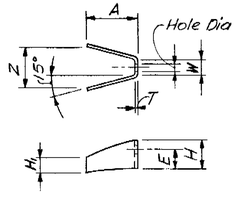
NOTES:
1. * Dimensions shall be determined after Final Selection of Equipment.
2. Plug Valves, Ball Valves or Cone Valves may be used. Ball Valves shall have Single Seats unless shown otherwise.
3. For Cone Valve Support Details see Sh. 5

PIPING SUPPORT DETAILS

NOT TO SCALE

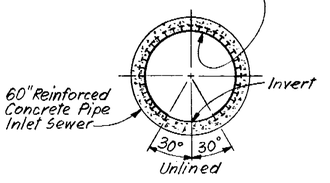


HARNESS ASSEMBLY



LUG DETAIL

Protective Lining shall cover Inside Pipe Walls over an Arc of 300° Lining Connections to Adjacent Pipe shall Conform to the Recomendations of the Lining Manufacturer



60" INLET SEWER PROTECTIVE LINING DETAIL

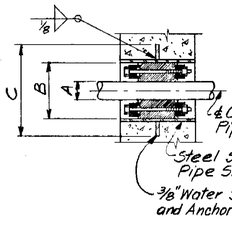
NOT TO SCALE

TYPE A HARNESSED SLEEVE TYPE COUPLING JOINT FOR STEEL PIPE-SHEDULE

Nom. Pipe Size	Wall Thickness	OD of Pipe	Test Press. PSIG	Middle Ring Length	Middle Ring Thkns.	Harness Tie Rod No.	Tie Rod Dia	Harness Lug X	Harness Lug L	Harness Lug A	Harness Lug W	Harness Lug Z	Harness Lug T	Harness Lug E	Harness Lug H	Harness Lug H1	Harness Lug D	Hole	Coupling Service
36"	3/8"	36.75"	110	10"	1/2"	2	1 3/4"	2 1/4"	48 3/32"	10 1/8"	3 1/16"	8 3/8"	1/2"	4"	5 7/8"	2 1/2"	11 1/2"	1 3/8"	Raw Sewage

HARNESSED SLEEVE TYPE COUPLING JOINT DETAILS

NOT TO SCALE



MODULAR WALL SLEEVE SEALING SHEDULE

SERVICE	NOM. SIZE	PIPE OD "A"	NOM. SLEEVE	SLEEVE I.D. "C"	LINK SEAL MODEL	LINKS PER SEAL	"B"	CARRIER PIPE MATERIAL
Lawn Irrigation Supp.	2"	2.375"	4"	4.026"	LS 300 C	6	9	PVC
Level Sensing	3/8"	0.5"	1 1/2"	1.610"	LS 200 C	3	7"	Copper
Air	3/4"	0.875"	2"	2.067"	LS 200 C	4	7"	Copper
Water Hose Pipe	1"	1.125"	2 1/2"	2.969"	LS 200 C	5	7"	Copper
Fuel Oil Return	1"	1.315"	2 1/2"	2.469"	LS 200 C	5	7"	Steel
Fuel Oil Supply	2"	2.375"	4"	4.026"	LS 300 C	6	9"	Steel
City Water Main	2"	2.125"	3 1/2"	3.549"	LS 300 C	5	8 1/2"	Copper

MODULAR WALL SLEEVE SEALING DETAIL

NOT TO SCALE

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED JBV
DRAWN LPD, KZK
CHECKED JBV

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	9/81	DSH	Rec. Dwg Revisions
1	Dec. 78	KEL	Added Addendum No. 1 & 3
	Mar. 78	JRP	Plans Updated

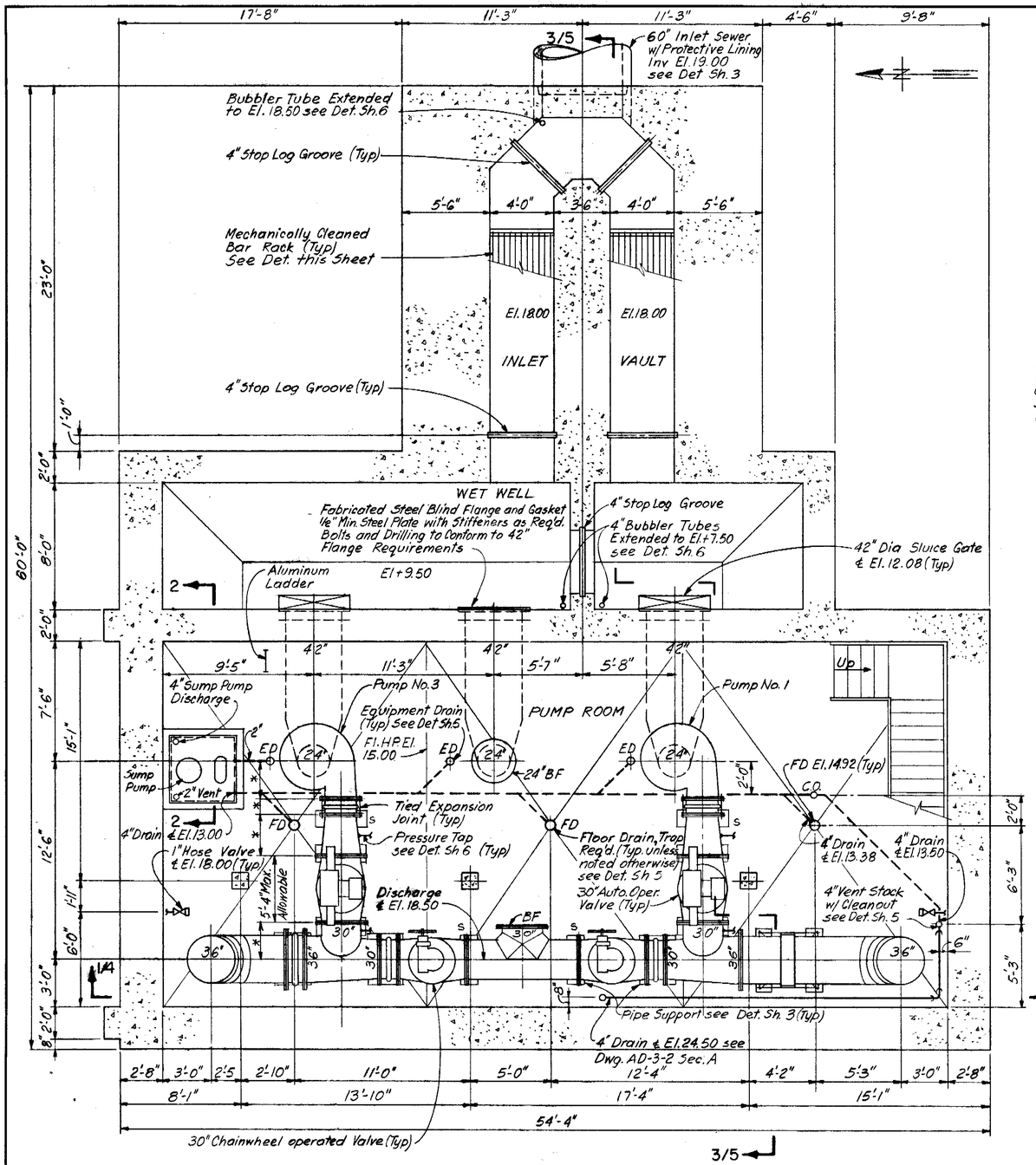
SCALE
4 0 4 8 FT 1/4"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

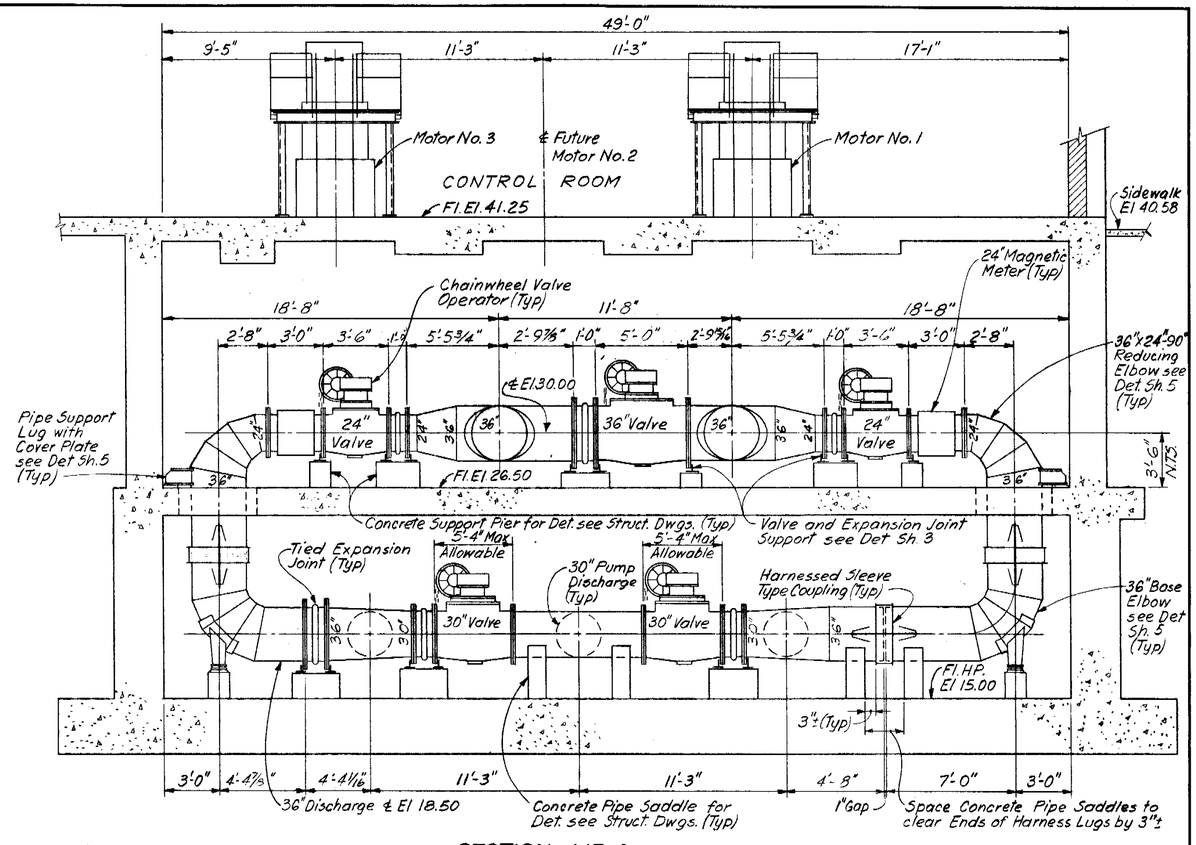
EQUIPMENT
INTERMEDIATE FLOOR PLAN
DETAILS

PROJ. NO. S 202-70-30D-7-4G3
SHEET 3 OF 35
DATE: AUGUST, 1972 REV. 1

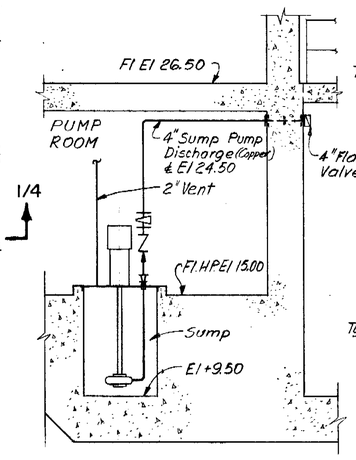
173-40



PLAN AT EL 15.00
SCALE: 1/4" = 1'-0"



SECTION 1/3,4
SCALE: 1/4" = 1'-0"



SECTION 2/3,4
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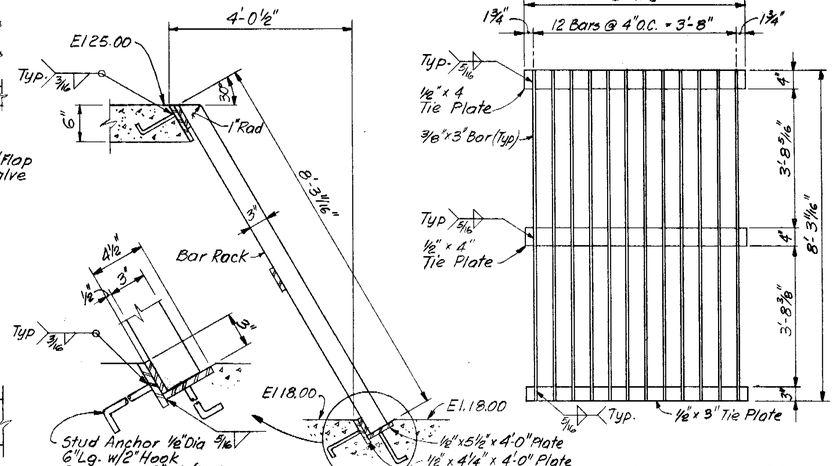

BAR RACK DETAILS
NOT TO SCALE

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED J B V
DRAWN LPD, KZK
CHECKED J B V

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	9/81	DSH	Rec. Dwg. Revisions
1	Dec. 78	KEV	Added Addendum No. 3
	Mar. 73	JRP	Plans Updated

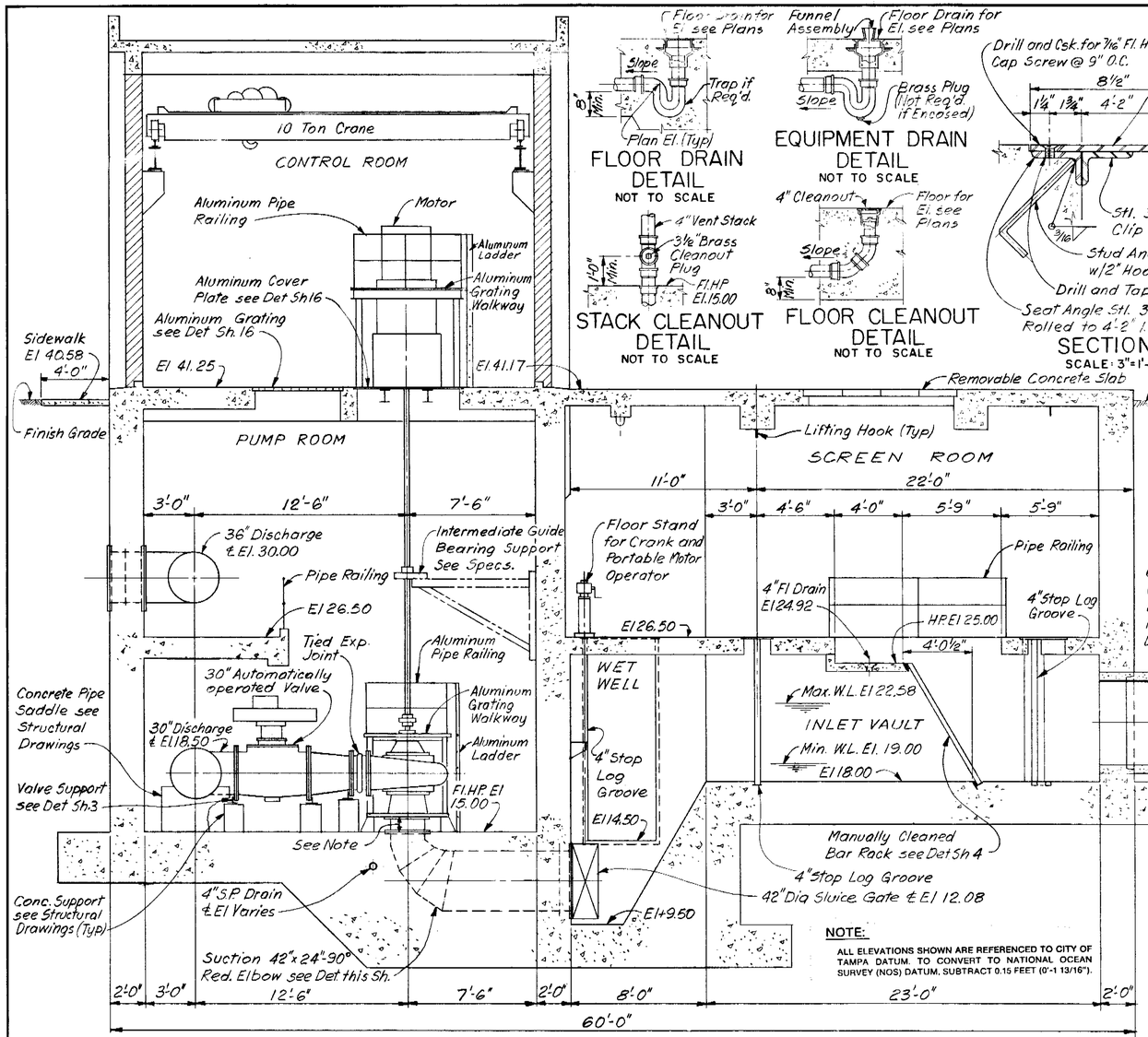
SCALE
4 0 4 8 FT 1/4" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

EQUIPMENT
LOWER FLOOR PLAN
SECTIONS AND DETAILS

PROJ. NO. S 202-70-303 - 7 - 463
SHEET 4 OF 35
DATE AUGUST, 1972 REV. 1

173 - 711



NOTE:
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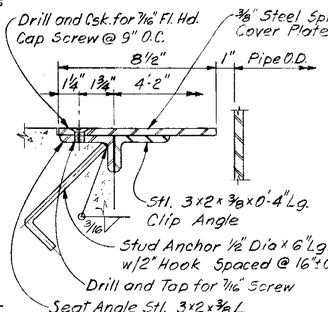
SECTION 3/13,4
SCALE: 1/4"=1'-0"

FLOOR DRAIN DETAIL
NOT TO SCALE

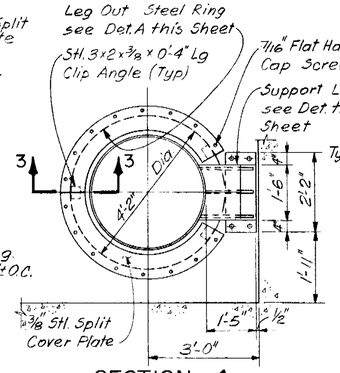
EQUIPMENT DRAIN DETAIL
NOT TO SCALE

STACK CLEANOUT DETAIL
NOT TO SCALE

FLOOR CLEANOUT DETAIL
NOT TO SCALE



SECTION 3
SCALE: 3"=1'-0"



SECTION 4
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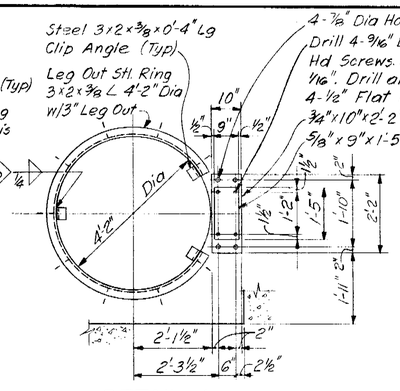
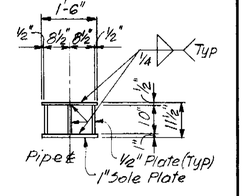
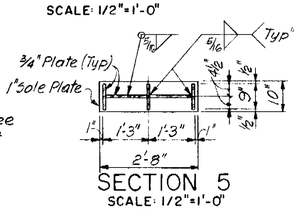


DETAIL A
SCALE: 1/2"=1'-0"

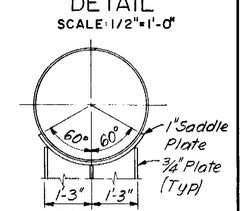


SUPPORT LUG DETAIL
SCALE: 1/2"=1'-0"

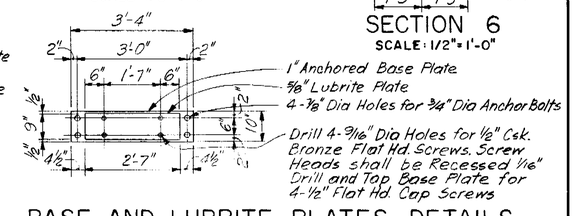


PIPE SUPPORT AND STEEL ELBOW DETAILS
SCALE: 1/2"=1'-0"

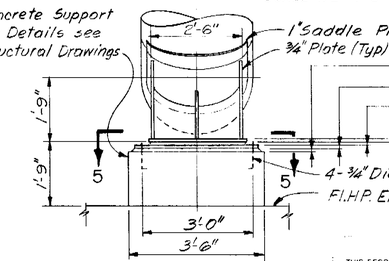
SECTION 5
SCALE: 1/2"=1'-0"



SECTION 6
SCALE: 1/2"=1'-0"

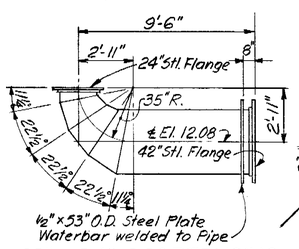


BASE AND LUBRITE PLATES DETAILS
SCALE: 1/2"=1'-0"

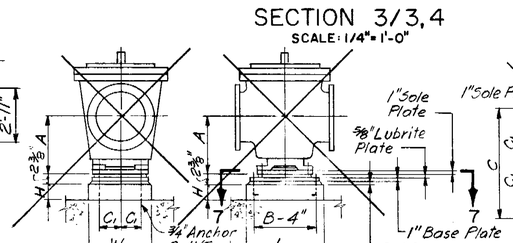


RECORD DRAWING

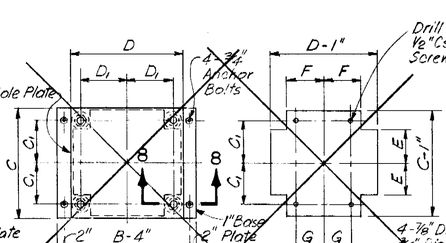
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION, WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.



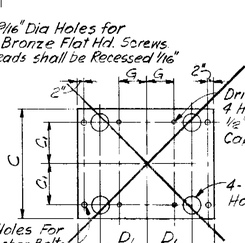
42" x 24"-90° REDUCING ELBOW DETAIL
NOT TO SCALE



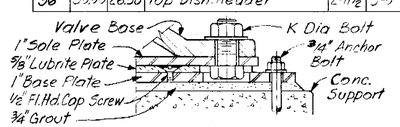
CONE VALVE SUPPORT DETAILS
NOT TO SCALE



SECTION 7 LUBRITE PLATE



BASE PLATE



SECTION 8

CONE VALVE SUPPORT DIMENSIONS Deleted see Dwg. AD-3-3

Valve Size	℄ El	Floor El	Location	A	B	C	C₁	D	D₁	E	F	G	W	L	H	J Hole	K Bolt
24"	30.00	26.50	Top Disch. Header	2'-0⅜"	3'-4"	1'-8"	8"	2'-7⅛"	1'-2"	5½"	11⅛"	3"	2'-0"	4'-1"	1'-2"	4"	1½"
30"	18.50	15.00	Low Disch. Hdr & Pumps	2'-10"	3'-2"	2'-6"	10"	2'-6"	1'-0⅛"	7"	9½"	6½"	2'-10"	3'-10"	4⅝"	5"	2"
36"	30.00	26.50	Top Disch. Header	2'-11½"	3'-3"	2'-11⅛"	1'-1⅛"	3'-0"	1'-3"	10½"	1'-0"	9"	3'-4"	4'-4"	3⅛"	5"	2"

NOTE: Fabricated Steel Pump Suction Nozzle Extension to be provided by Pump Manufacturer to suit Pump ℄ El. 18.50 and Suction Pipe Flange at Floor.

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JBV DRAWN LPD, KZK CHECKED JBV	APPROVED DATE SUPT., DEPT. OF SANITARY SEWERS DATE GREELEY AND HANSEN, ENGINEERS	NO.	DATE	APP.	REVISION
			2	9/81	JBV	Rec. Dwg. Revisions
			1	Dec. 78	KEL	Added Addendum No.1
				Mar. 78	JRP	Plans Updated

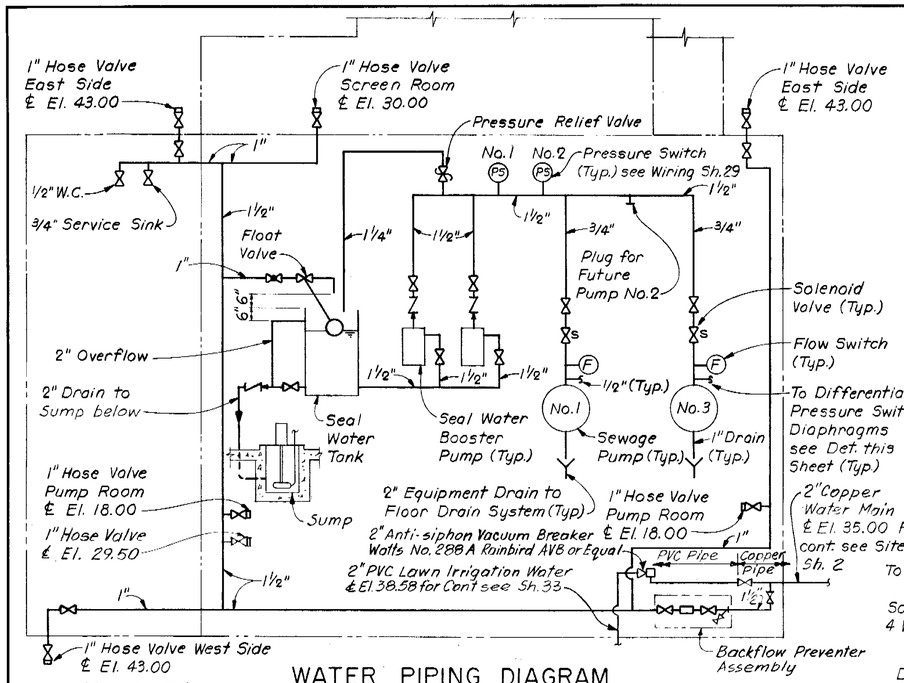
SCALE
4 0 4 8 FT 1/4"=1'-0"
1 0 1 2 3 4 5 FT 1/2"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

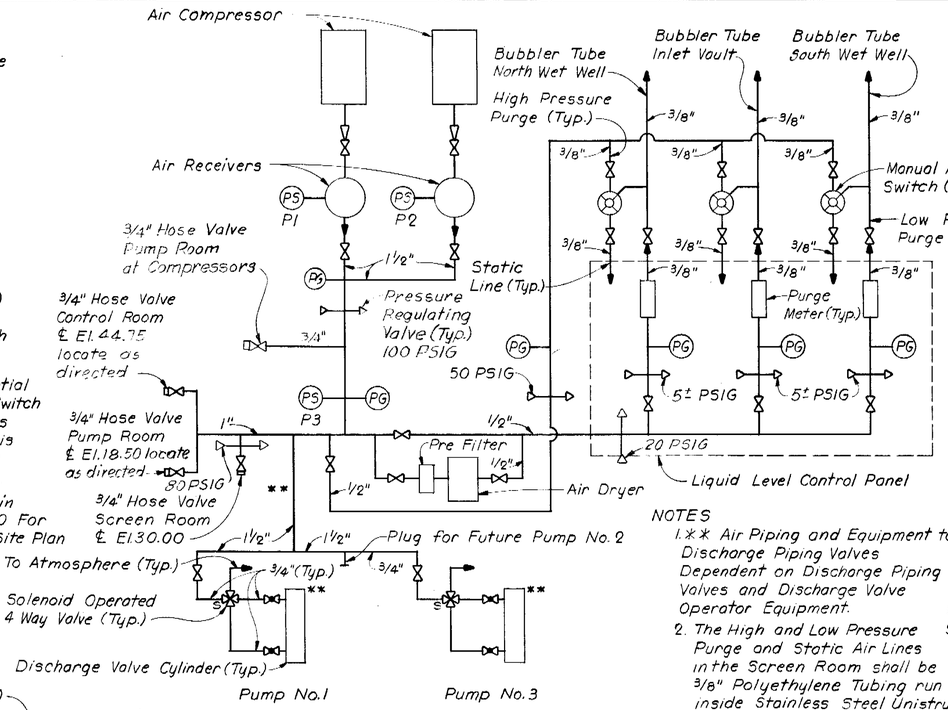
EQUIPMENT
SECTIONS AND DETAILS

PROJ. NO. S 202-70-30D-7-463
SHEET 5 OF 35
DATE AUGUST, 1972 REV. 1

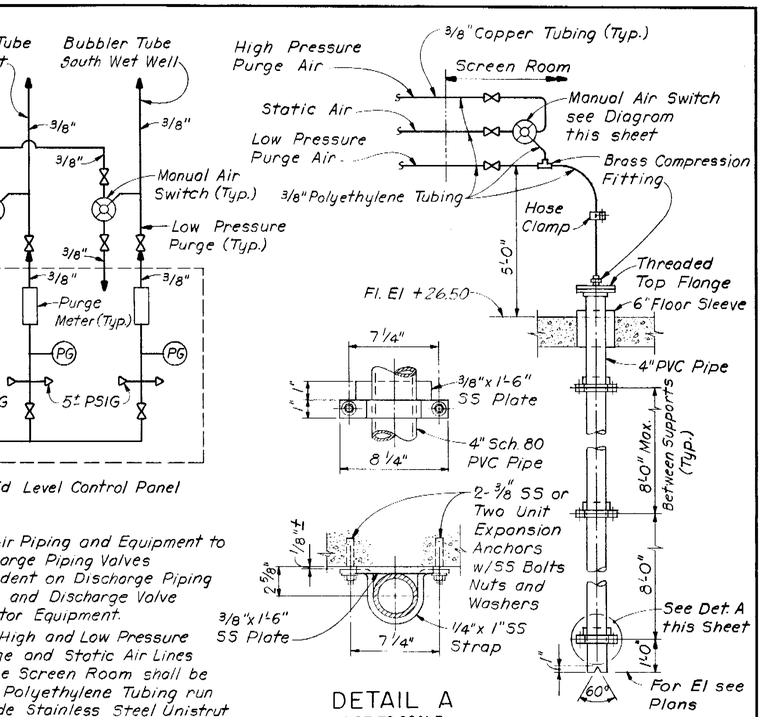
173-422



WATER PIPING DIAGRAM
NO SCALE



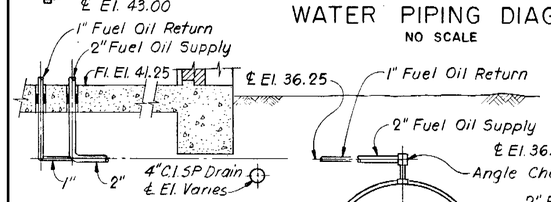
AIR PIPING DIAGRAM
NO SCALE

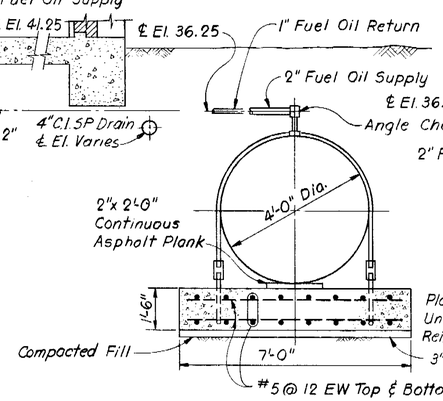


NOTES
1. ** Air Piping and Equipment to Discharge Piping Valves Dependent on Discharge Piping Valves and Discharge Valve Operator Equipment.
2. The High and Low Pressure Purge and Static Air Lines in the Screen Room shall be 3/8" Polyethylene Tubing run inside Stainless Steel Unistrut type Support.

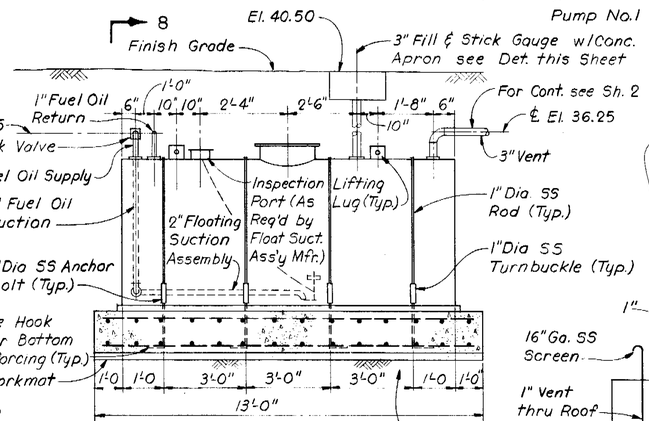
DETAIL A
NOT TO SCALE

BUBBLER TUBE DETAIL
NOT TO SCALE



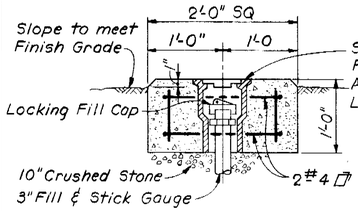


SECTION 8

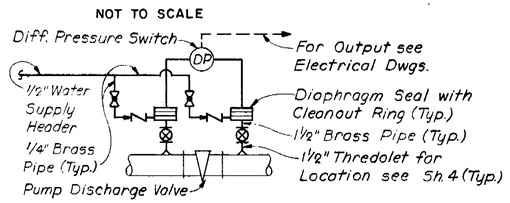


8 ELEVATION

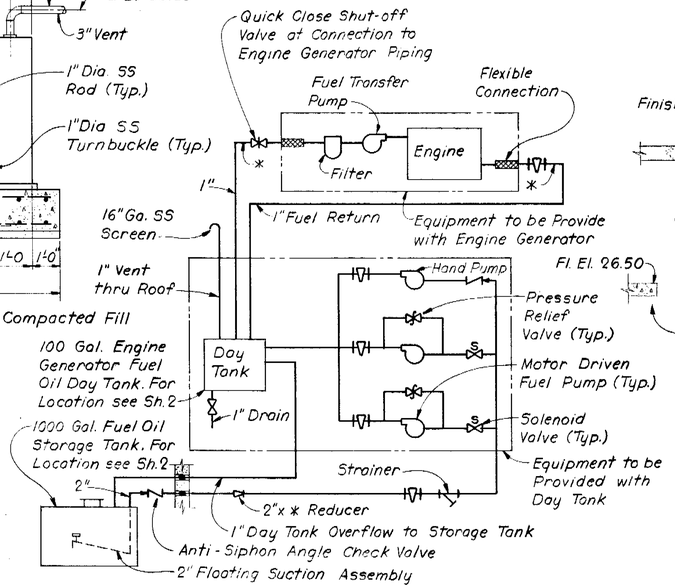
FUEL OIL STORAGE TANK DETAILS
NOT TO SCALE



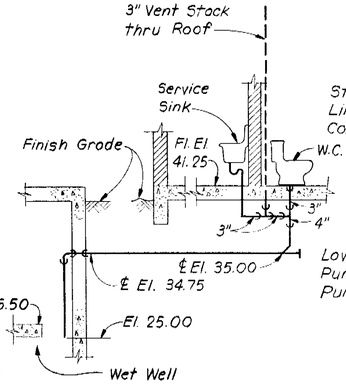
FILL LINE AND STICK GAUGE DETAIL
SCALE: 1"=1'-0"



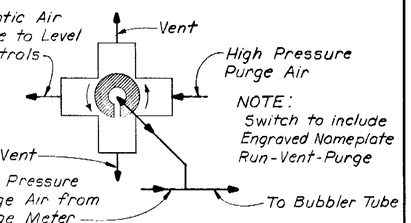
DIFFERENTIAL PRESSURE SWITCH DETAIL
NO SCALE



ENGINE GENERATOR FUEL SYSTEM DIAGRAM
NO SCALE



WASTE AND VENT PIPE DIAGRAM
NO SCALE



MANUAL AIR SWITCH DIAGRAM
NO SCALE

LEGEND
- Plug Valve
- Gate Valve
- Globe Valve
- Hose Valve
- Ball Valve
- Check Valve
- Solenoid Valve
- Pressure Relief Valve
- Pressure Regulating Valve
- (PS) Pressure Switch
- (PG) Pressure Gauge
- (DP) Differential Pressure Switch
- (F) Flow Switch
- * Dimensions shall be established after Final Selection of Equipment.

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED JBV
DRAWN LPD, KZK
CHECKED JBV
APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

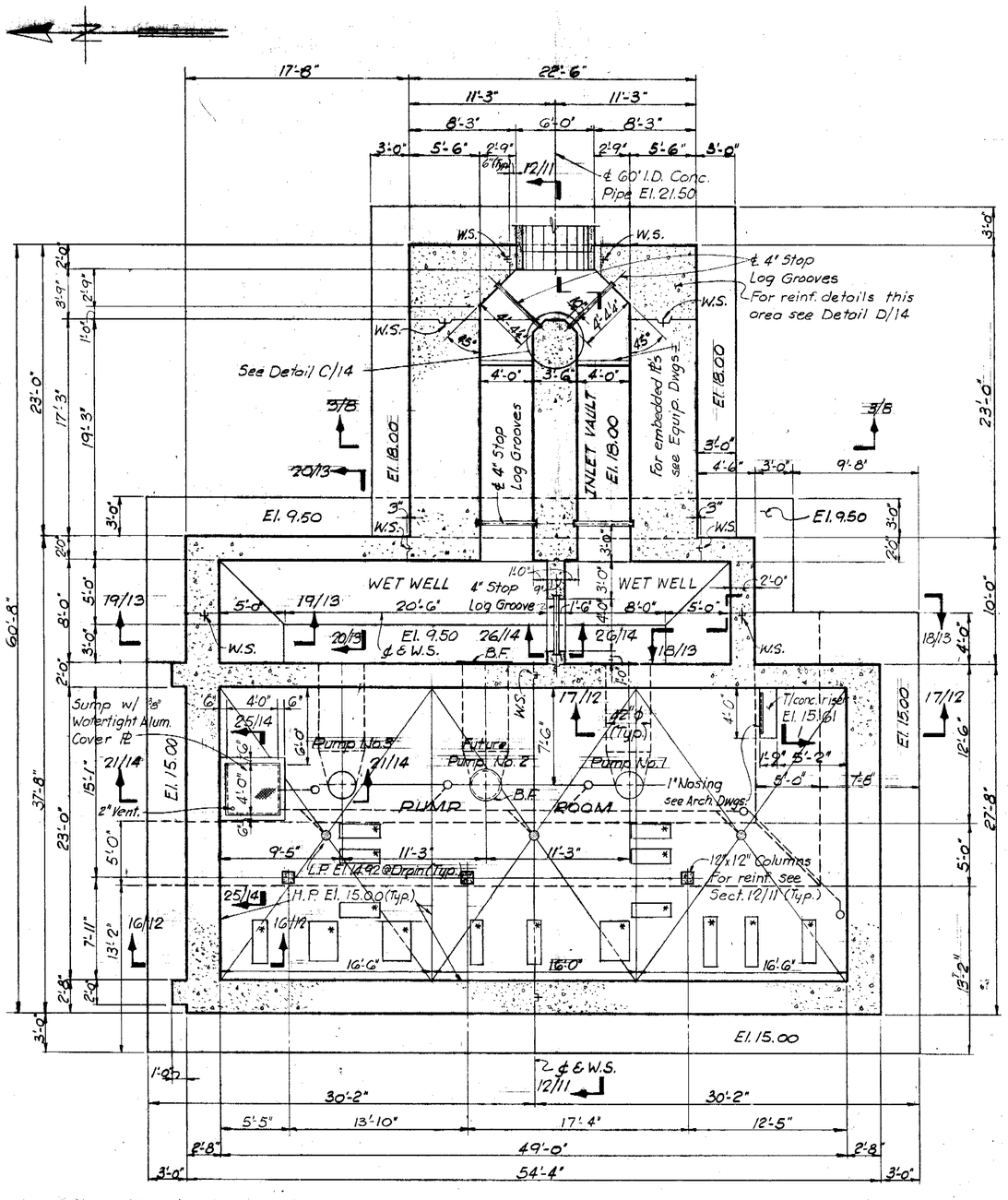
NO.	DATE	APP.	REVISION
2	9/81	JSH	Rec. Dwg. Revisions
1	Dec. 78	KEV	Added Addendum No. 1 & 3
	Mar 78	JRP	Plans Updated

SCALE
NO SCALE

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131ST AVENUE PUMPING STATION

EQUIPMENT
PIPING DIAGRAMS

PROJ. NO. S 202-70-30D-7-4G3
SHEET 6 OF 35
DATE AUGUST, 1972 REV. 1



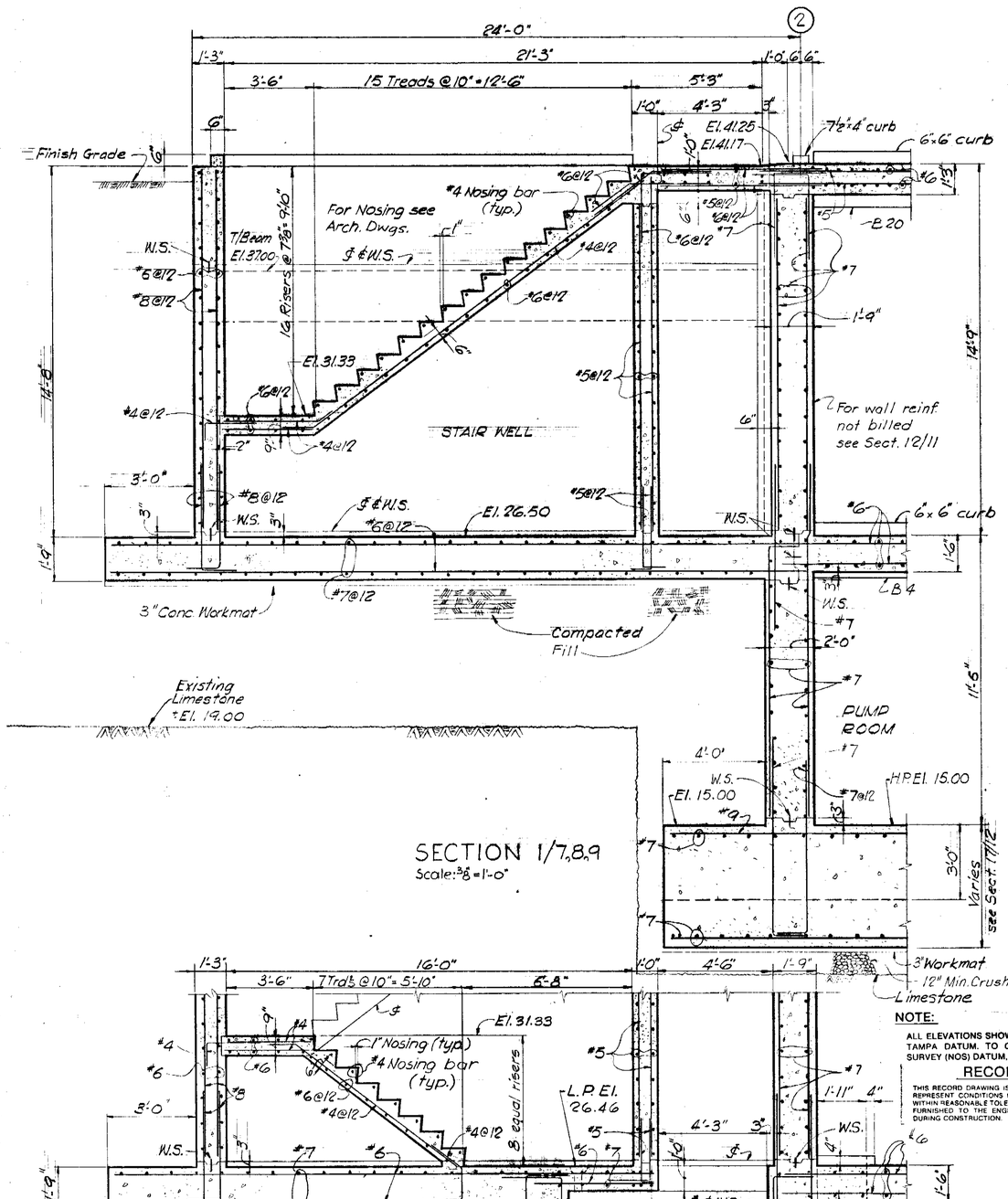
* Size and location of equipment pads and dimensions shown thus (*) to be determined after selection of equipment. See also Equipment Dwgs.

SECTIONAL PLAN AT EL. 22.00

Scale: 3/16" = 1'-0"

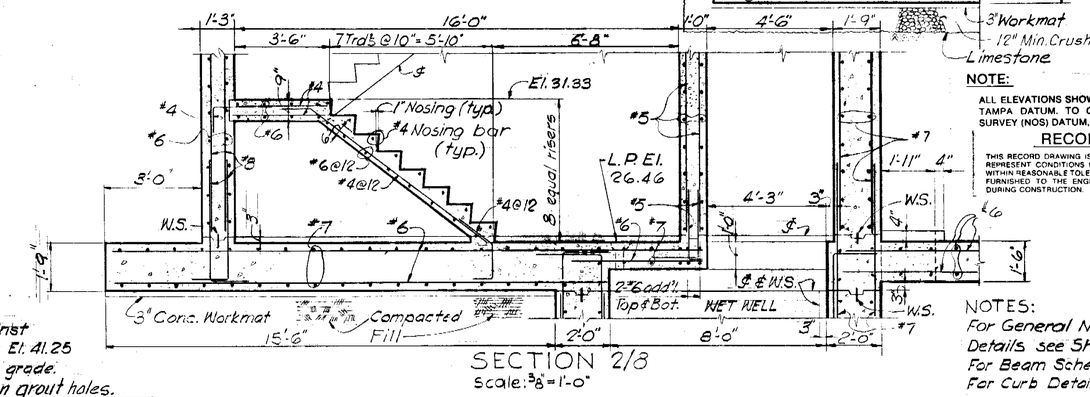
T/conc. El. as noted or shown
℄ denotes Construction Joint
"W.S." denotes Waterstop

NOTES:
1. The Substructure is stable against hydrostatic uplift with floor at El. 41.25 in place with ground water at grade.
2. See AD 3-1 for location of foundation grout holes.



SECTION 1/7,8,9

Scale: 3/8" = 1'-0"



SECTION 2/8

Scale: 3/8" = 1'-0"

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING

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NOTES:
For General Notes and Typical Details, see Sh. 15 & 16
For Beam Schedule see Sh. 9
For Curb Details see Arch. Dwgs.

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED	PYL, JJF	APPROVED	DATE — SUPT., DEPT. OF SANITARY SEWERS
DRAWN	LT, PYL		
CHECKED	SST		DATE — GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
	9/81	DSH	Rec. Dwg Revisions
	Mar 78	JRP	Plans Updated

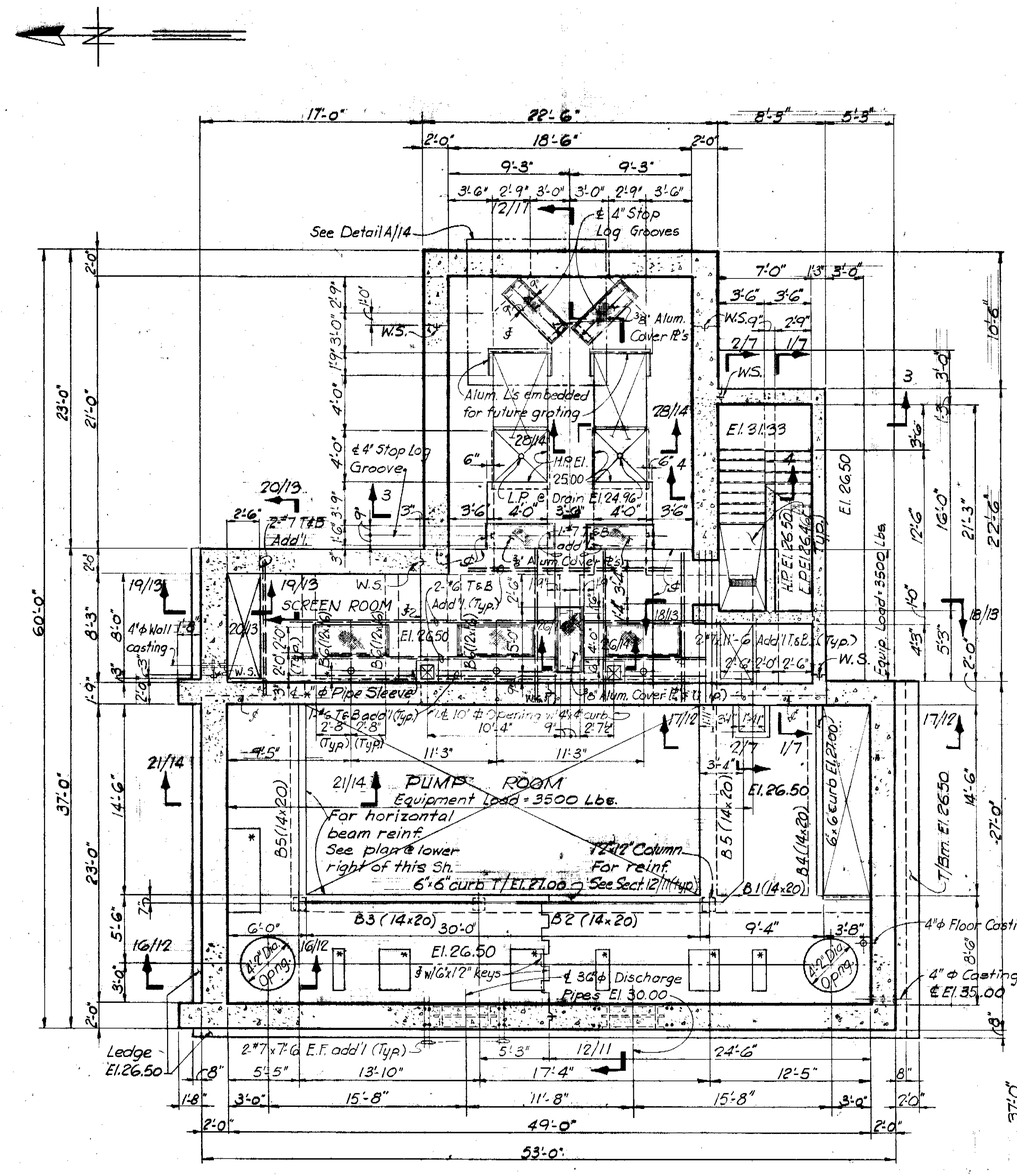
SCALE
4 0 4 8 12 FT 3/16" = 1'-0"
1 0 1 2 3 4 5 6 7 FT 3/8" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

STRUCTURAL LOWER FLOOR PLAN SECTIONS

PROJ. NO. S202-70-30D-7-4G3
SHEET 7 OF 35
DATE AUGUST, 1972 | REV. 0

173-44



Live Load = 150 P.S.F. unless otherwise shown

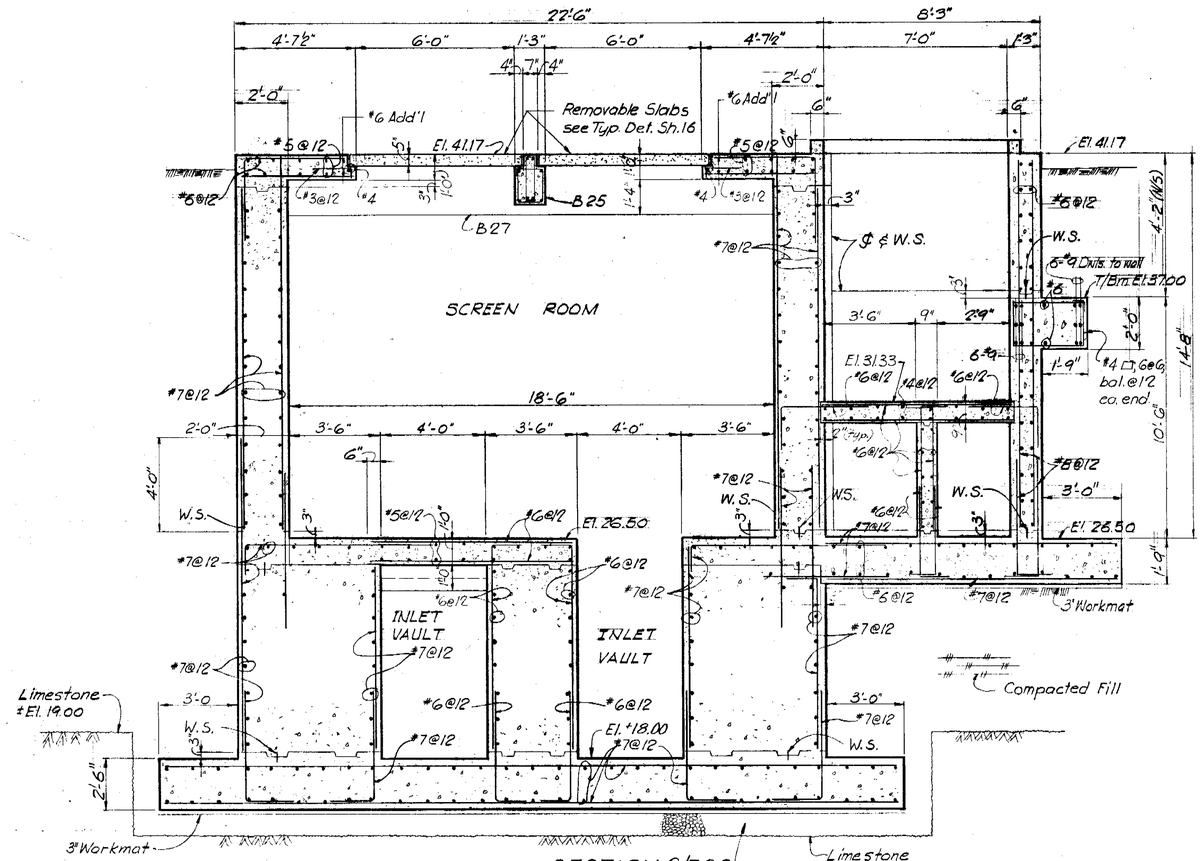
SECTIONAL PLAN AT EL. 34.00

Scale: 3/16" = 1'-0"

T/conc. El. 26.50 unless shown or noted

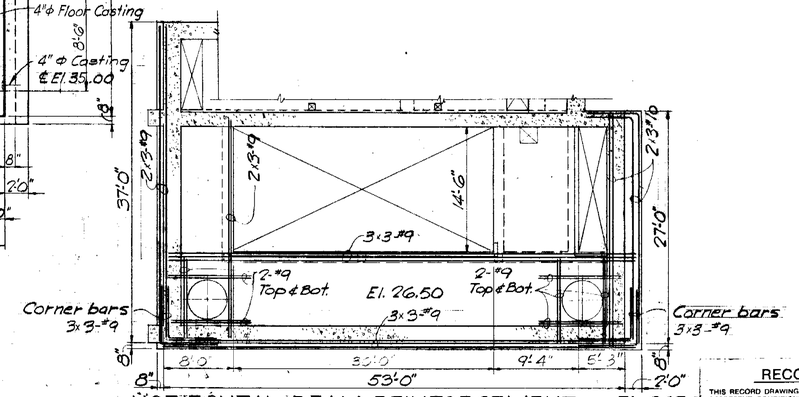
℄ denotes Construction Joint

* Size and location of equipment pads and dimensions shown thus (*) to be determined after selection of equipment. See also Equip. Dwgs.



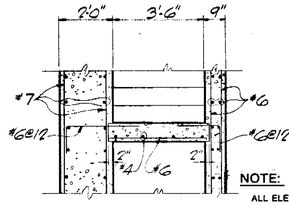
SECTION 3/7,8,9

Scale: 3/8" = 1'-0"



HORIZONTAL BEAM REINFORCEMENT AT EL. 26.50

No Scale



SECTION 4

Scale: 3/8" = 1'-0"

NOTES:
For General Notes and Typical Details see Sheets 15 & 16
For Beam Schedule see Sh. 9
For Curb Details see Arch. Dwgs.

RECORD DRAWING

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED PYL
DRAWN LT, PYL
CHECKED SSP

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
1	9/81	DSH	Rec. Dwg. Revisions
	Mar 78	JRP	Plans Updated

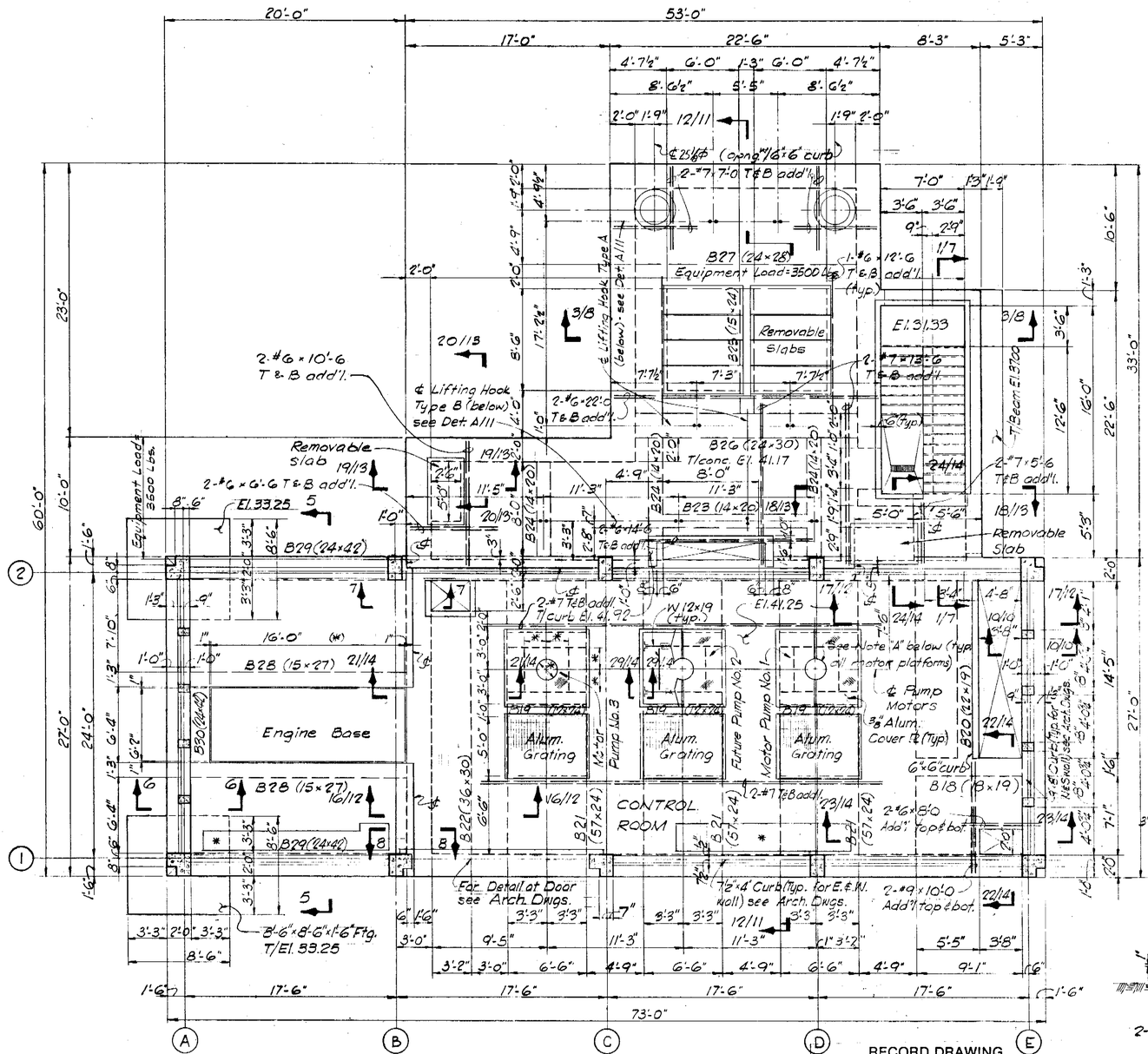
SCALE
4 0 4 8 12 FT 3/16" = 1'-0"
1 0 1 2 3 4 5 6 7 FT 3/8" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

STRUCTURAL INTERMEDIATE FLOOR PLAN SECTIONS

PROJ. NO. S202-70-30D-1-4G3
SHEET 8 OF 35
DATE AUGUST, 1972 | REV. 0

173-45



NOTE:

ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

Live Load = 150 P.S.F. unless otherwise shown

FLOOR PLAN AT EL. 41.25

Scale = 3/16" = 1'-0"

T/conc. El. 41.25 unless shown or noted

℄ denotes Construction Joint

Note "A":
Arrangement of plates and supports around motors shall be modified as required to accommodate proposed motor platform construction.

RECORD DRAWING

THIS RECORD DRAWING IS NOT WARRANTED BUT IT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

* Size & location of equipment pads & dimensions shown thus (*) to be determined after selection of equip. See also Equipment Dwgs.

BEAM SCHEDULE

Location	Mark	Size W×D	Bot. Bars	Top Bars A	Top Bars B	Top Bars C	Stirrups Size	Stirrups Spacing from supp. ea. end	Width of support	Remarks
Floor Beams at El. 26.50	B1	14×20	3-#9	3-#9	3-#8		#4	@6		
	B2	14×20	3-#8		3-#8	3-#9	#4	8@6, bal. @12		
	B3	14×20	3-#9		3-#8	3-#8	#4	8@6, bal. @12		Extend "C" bars into slab.
	B4	14×20	3-#7	3-#8	3-#7	3-#7	#4	8@6, bal. @12		Extend "C" bars into B1
	B5	14×20	3-#7	3-#8	3-#7	3-#7	#4	8@6, bal. @12		Extend "C" bars into B1 or B3
	B6	12×16	3-#6	3-#6 A1			#3	@12		"A1" bars ea. end
Floor Beams at El. 41.25	B18	18×19	3-#9	3-#9	3-#9		#3	@6		Extend "B" bars into B21
	B19	12×24	3-#7		3-#6	3-#6	#3	@12		Extend "C" bars into supports
	B20	22×19	4-#9	4-#9	3-#9	4-#9	#3	8@6, bal. @12		Extend "C" bars into B23
	B21	57×24	6-#10	6-#7	6-#6		#3	4@6, bal. @12		"A" bars E.E.
	B22	36×30	6-#10	6-#7	6-#6		#3	4@6, bal. @12		"A" bars E.E.
Floor Beams at El. 41.17	B23	14×20	4-#7		2-#7		#3	@9	2'-0" 2'-9"	
	B24	14×20	3-#8	2-#8 A1			#3	@9		"A1" bars ea. end
	B25	15×24	4-#8		4-#8	4-#8	#3	3@6, bal. @10		Extend "C" bars past support. See Sect. 3/8
	B26	24×30	6-#10	5-#8	5-#8		#3	8@6, bal. @12		"A" bars E.E.
	B27	24×28	5-#11	5-#8	5-#8		#4	4@6, bal. @12		"A" bars E.E.
**Grade Beams at El. 41.25	B28	15×27	3-#9	3-#6	3-#6		#4	@12		"A" bars E.E.
	B29	24×42	3-#9		3-#7	3-#7	#4	@12		Extend bot. bars over support
	B30	24×42	4-#11		4-#7		#4	@12	#7 corner bars	Extend bot. "B" bars to lap with corner bars.
Roof Beams at El. 61.75	B31	12×23½	3-#6	3-#6	3-#6		#3	@12		
	B32	12×23½	3-#6		3-#6	3-#6	#3	@12		
Struts at El. 53.75	B33	12×29½	3-#9	3-#8	3-#8		#3	@12		"A" bars E.E.
	B34	12×29½	3-#6	3-#6	3-#6		#3	@12		
	B35	12×29½	3-#6		3-#6	3-#6	#3	@12		

**Note: B28, B29, B30 are grade beams; the depths listed are from the bottom of slab (El. 40.25)

SECTION 5

Scale: 3/8" = 1'-0"

SECTION 6

Scale: 3/8" = 1'-0"

SECTION 7

Scale: 3/8" = 1'-0"

SECTION 8

Scale: 3/8" = 1'-0"

NOTES:
For General Notes and Typical Details see Sheets 15 & 16
For Curb Details see Arch. Dwgs.

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED EP, JJF DRAWN LT, PYL CHECKED SSP	APPROVED SUPT., DEPT. OF SANITARY SEWERS ____ DATE ____ GREELEY AND HANSEN, ENGINEERS ____ DATE ____	

NO.	DATE	APP.	REVISION
1	9/81	DSH	Rec. Dwg. Revisions
	Mar78	JRP	Plans Updated

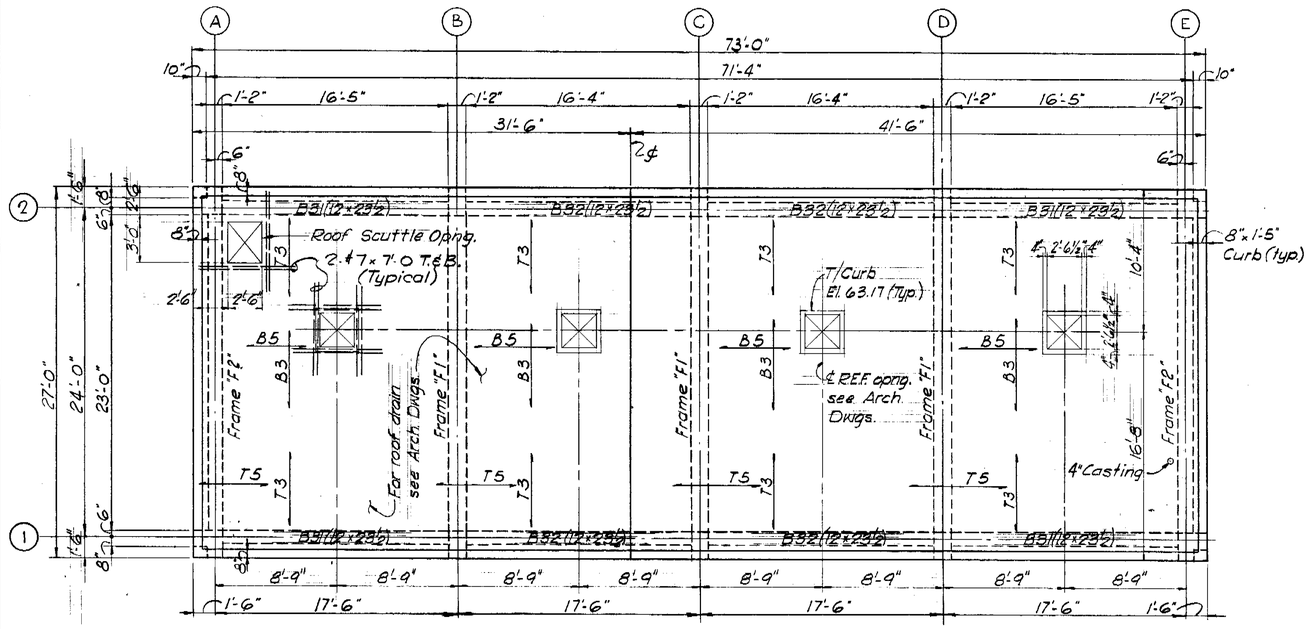
SCALE
4 0 4 8 12 FT 3/16" = 1'-0"
1 0 1 2 3 4 5 6 7 FT 3/8" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

STRUCTURAL TOP FLOOR PLAN SECTIONS

PROJ. NO. S202-70-300-7-4G3
SHEET 9 OF 35
DATE AUGUST, 1972
REV. 0

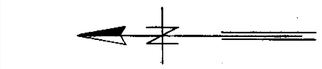
173-446

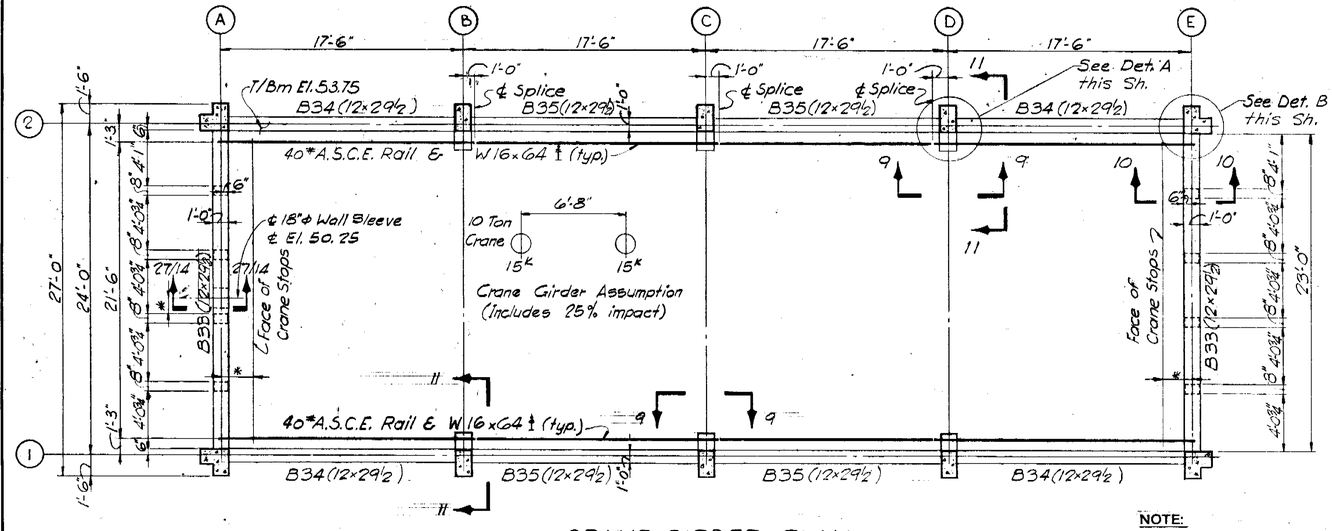


Live load 30 P.S.F.

ROOF FRAMING PLAN

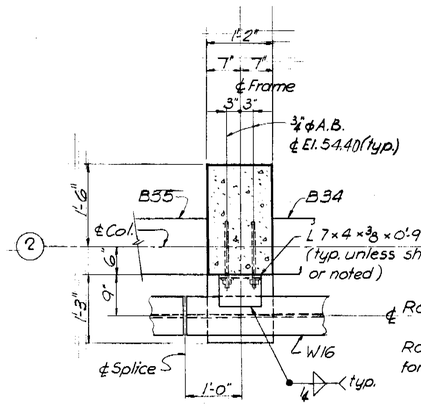
Scale: 3/16" = 1'-0"
T/conc. El. 61.75
Slab thickness 8" unless shown or noted
¢ designates Construction Joint





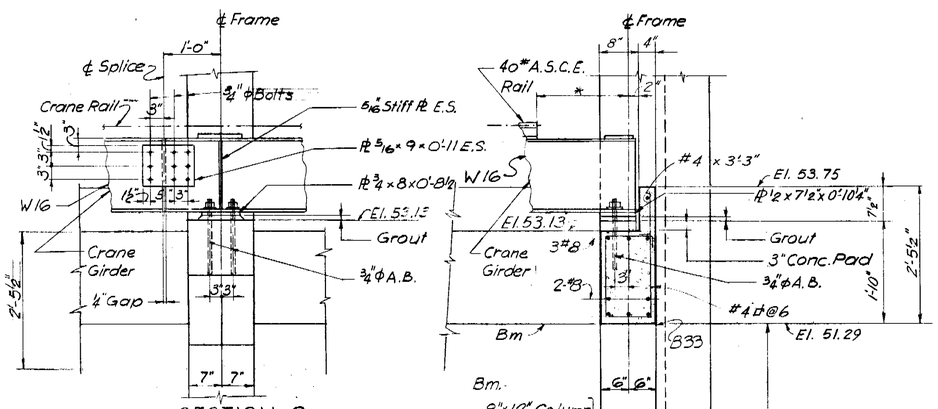
CRANE GIRDER PLAN

Scale: 3/16" = 1'-0"
T/Crane Rail El. 55.75
Crane Stops by Crane Mfgr.

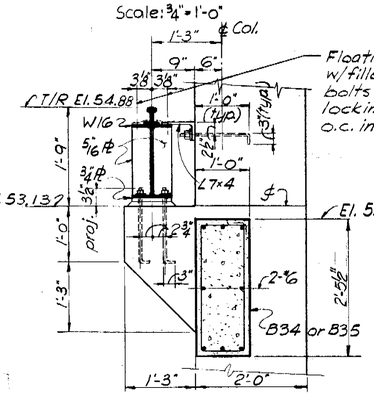


DETAIL A
Scale: ¾" = 1'-0"

DETAIL B
Scale: ¾" = 1'-0"



SECTION 9
Scale: ¾" = 1'-0"



SECTION 11
Scale: ¾" = 1'-0"

SECTION 10
Scale: ¾" = 1'-0"

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

Dimensions shown thus (*) to be determined after selection of equipment.

RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

NOTES:
For General Notes and Typical Details see Sheets 15 & 16
For Beam Schedule see Sh. 9

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED EP
DRAWN LT
CHECKED SSP

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
1	9/81	DSH	Rec. Dwg. Revisions
	Mar 78	JFP	Plans Updated

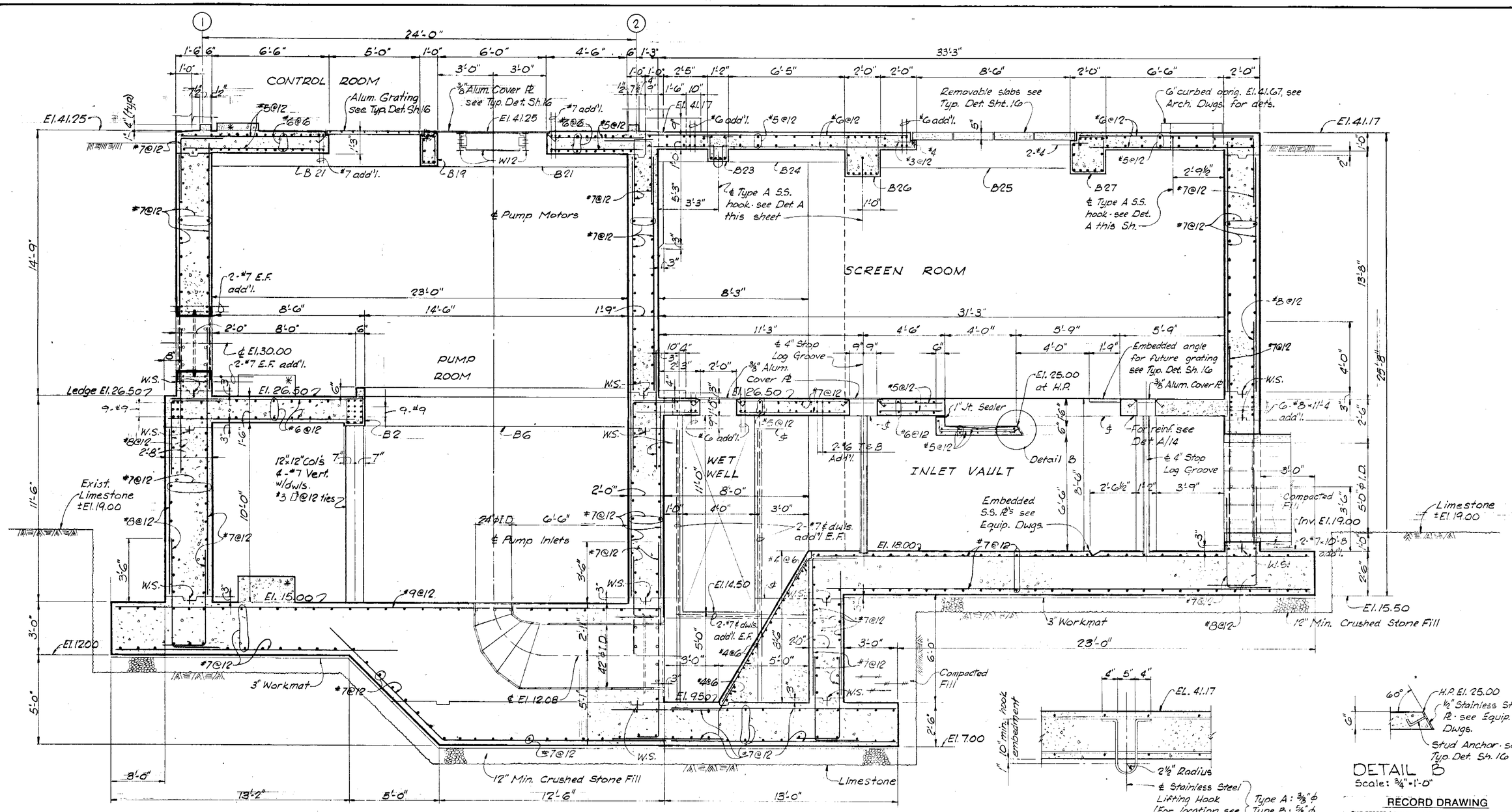
SCALE
4 0 4 8 12 FT 3/16" = 1'-0"
1 0 1 2 3 FT 3/4" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

STRUCTURAL
ROOF FRAMING PLAN
CRANE GIRDER PLAN AND DETAILS

PROJ. NO. S202-70-30D-7-4G3
SHEET 10 OF 35
DATE AUGUST, 1972 | REV. 0

173-47



SECTION 12/7,8,9
Scale: 3/8"=1'-0"

DETAIL A/9
Scale: 1"=1'-0"

DETAIL B
Scale: ¾"=1'-0"

RECORD DRAWING

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NOTE:

ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

℄ Size and location of equipment pads and dimensions shown thus (℄) to be determined after selection of equipment.

NOTES:
For General Notes and Typical Details see Sh. 15 & 16
For Beam Schedule see Sh. 9

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED PYL, JJF
DRAWN LT, PYL
CHECKED SSP

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
1	9/81	DSH	Rec. Dwg. Revisions
	Mar-78	JRD	Plans Updated

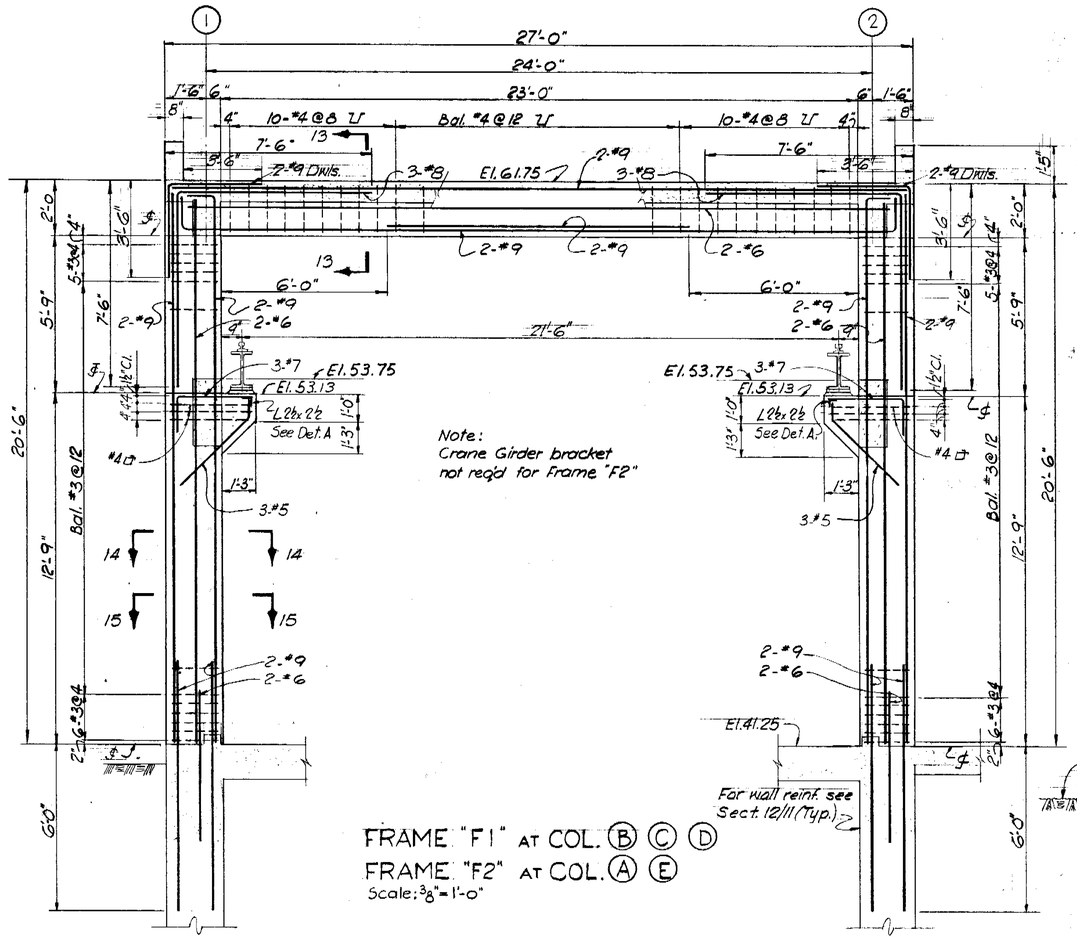
SCALE: 0 1 2 3 4 5 6 7 FT — 3/8"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

STRUCTURAL SECTION

PROJ. NO. S202-70-30D-7-463
SHEET 11 OF 35
DATE AUGUST, 1972 REV. 0

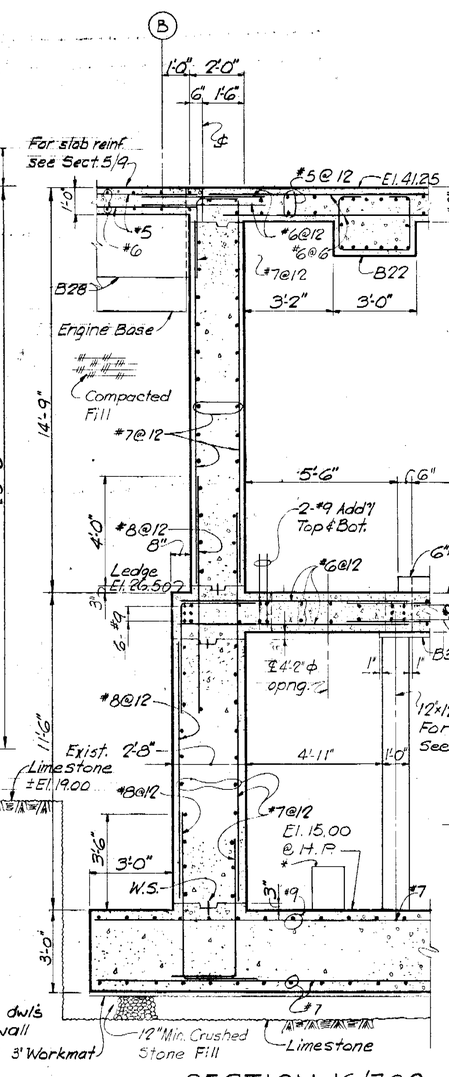
173-48



SECTION 13
Scale: 3/4"=1'-0"

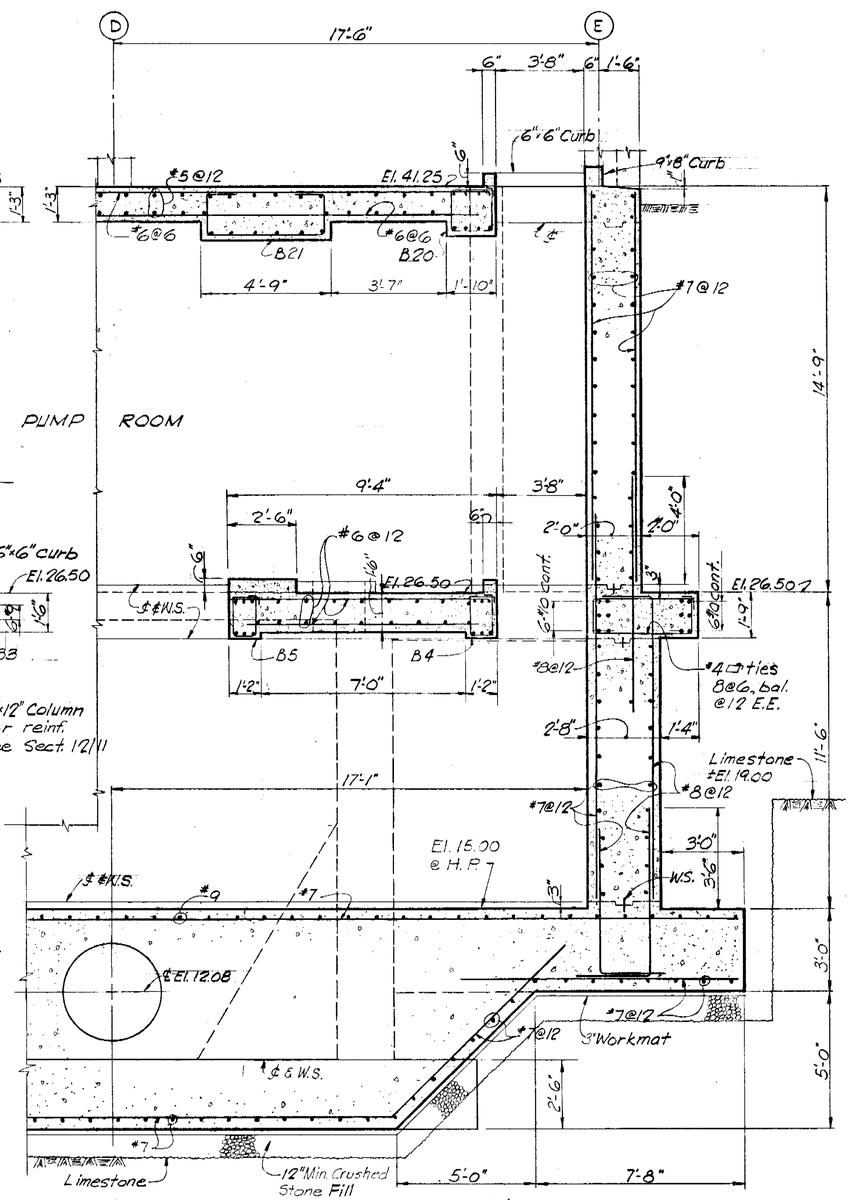
SECTION 14
Scale: 3/4"=1'-0"

SECTION 15
Scale: 3/4"=1'-0"



SECTION 16/7,8,9
Scale: 3/8"=1'-0"

DETAIL A
No scale



SECTION 17/7,8,9
Scale: 3/8"=1'-0"

RECORD DRAWING

THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION

NOTES:
For General Notes and Typical Details see Sheets 15 & 16
For Beam Schedule see Sh. 9

NOTE:
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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED PYL, CYC
DRAWN LT, PYL
CHECKED SSP

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN ENGINEERS

NO.	DATE	APP.	REVISION
1	9/81	DSH	Rec. Dwg. Revisions
	Mar 78	JRP	Manis Updated

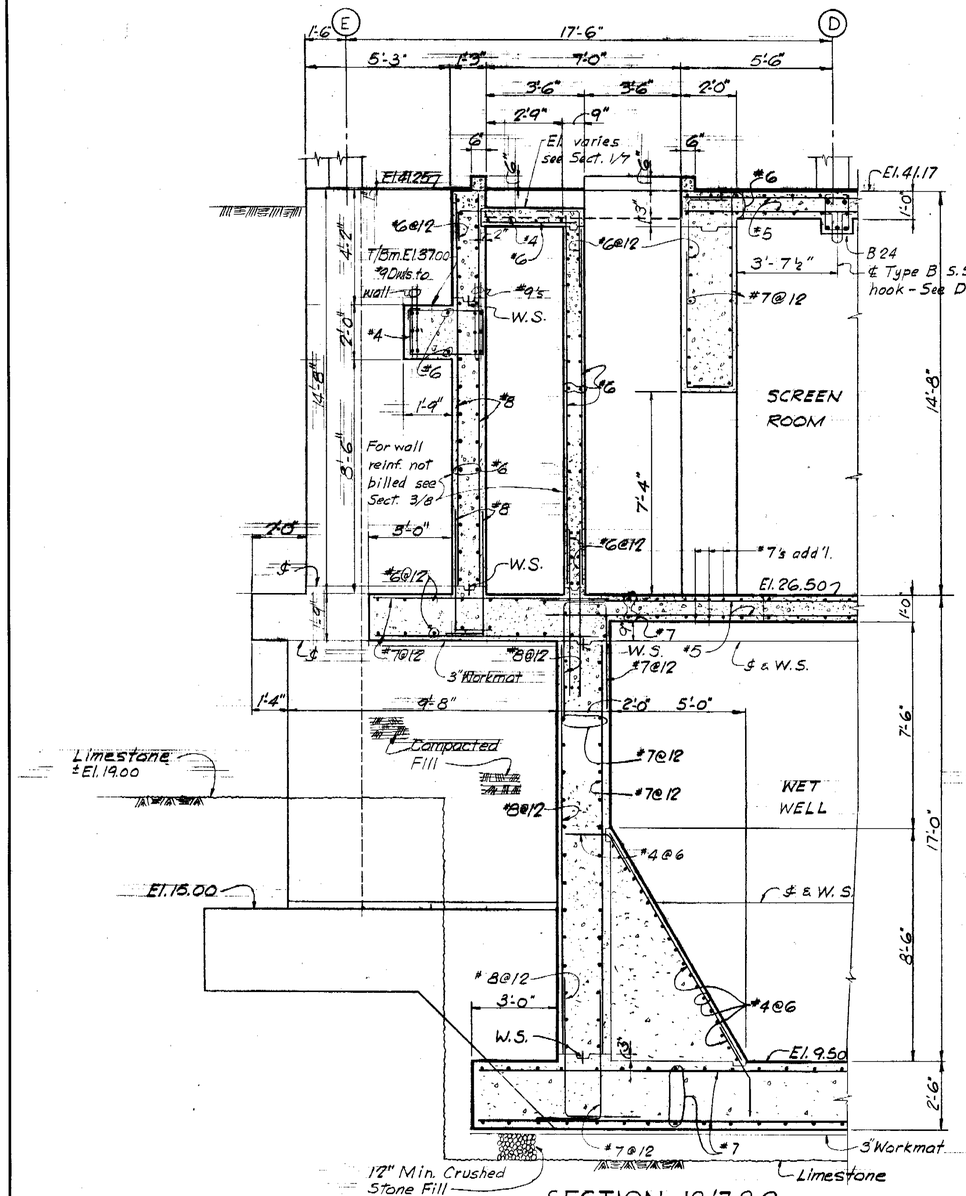
SCALE
1 0 1 2 3 4 5 6 7 FT 3/8"=1'-0"
1 0 1 2 3 FT 3/4"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

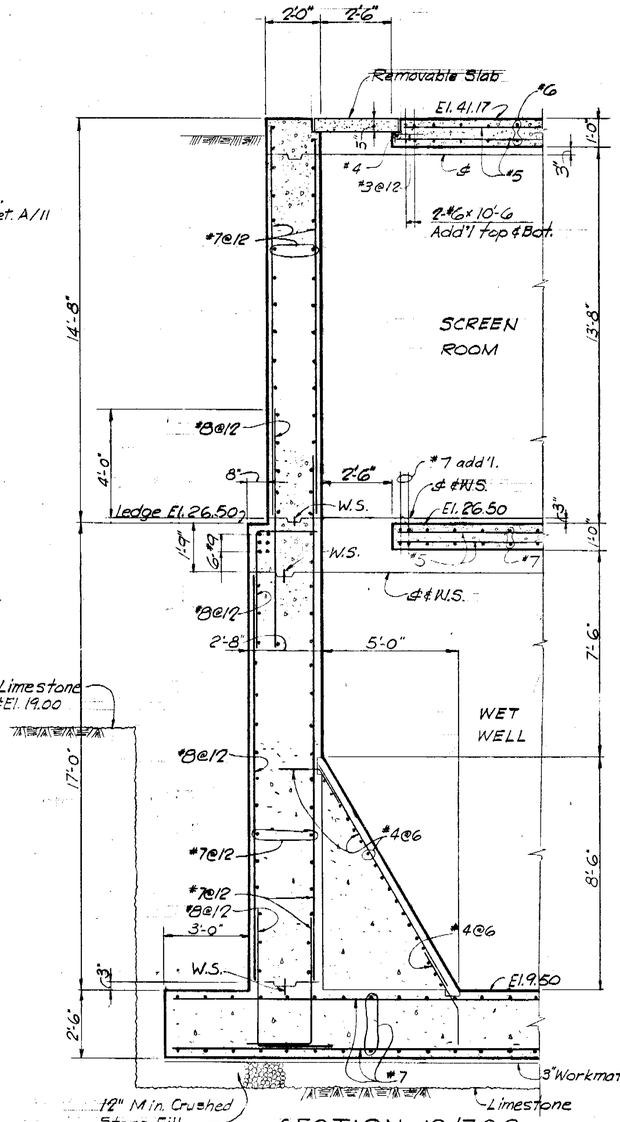
STRUCTURAL
FRAME ELEVATION AND DETAILS
SECTIONS

PROJ. NO. S202-70-30D-7-4G3
SHEET 12 OF 35
DATE AUGUST, 1972 REV. 0

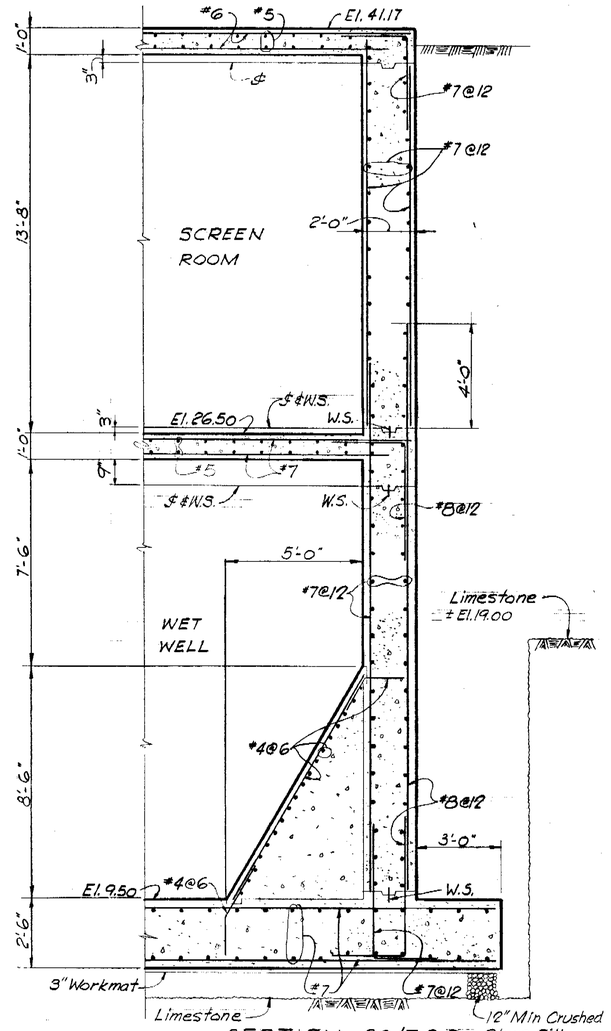
173-40



SECTION 18/7,8,9
Scale: 3/8"=1'-0"



SECTION 19/7,8,9
Scale: 3/8"=1'-0"



SECTION 20/7,8,9
Scale: 3/8"=1'-0"

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

NOTE:
For General Notes and Typical Details see Sheets 15 & 16.
For Beam Schedule see Sh. 9

RECORD DRAWING
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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED PYL,JJF
DRAWN PYL,LT
CHECKED SSP

APPROVED
_____ DATE _____
SUPT., DEPT. OF SANITARY SEWERS
_____ DATE _____
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
1	10/81	DSH	Rec. Dwg. Revision
	Mar 78	JRP	Plans Updated

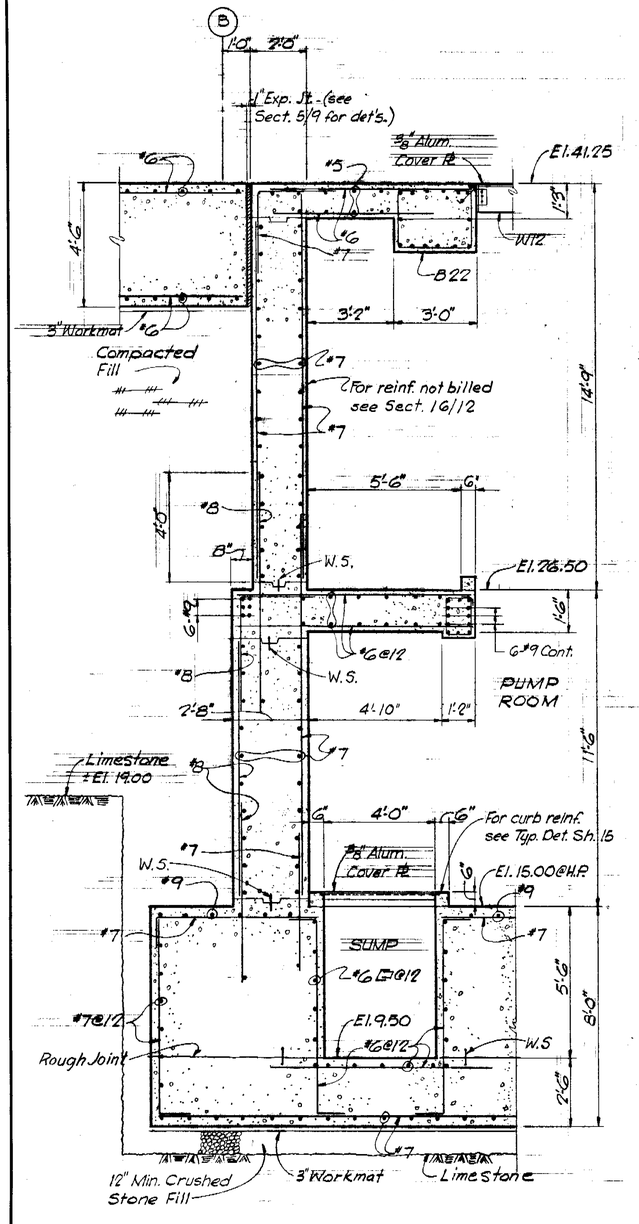
SCALE
0 1 2 3 4 5 6 7 FT 3/8"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

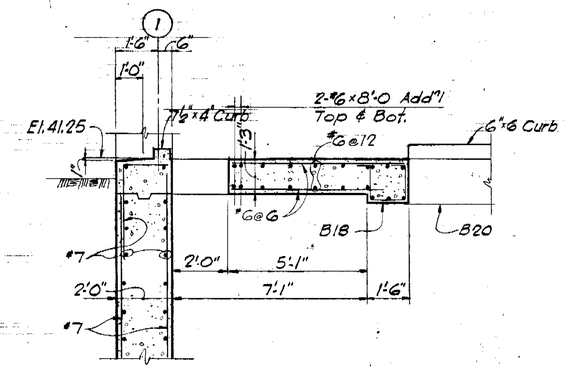
STRUCTURAL SECTIONS

PROJ. NO. S 202-70-300-7-463
SHEET 13 OF 35
DATE AUGUST, 1972 REV. 0

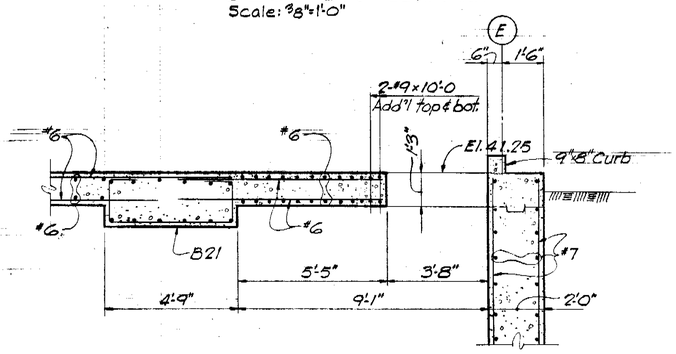
173-50



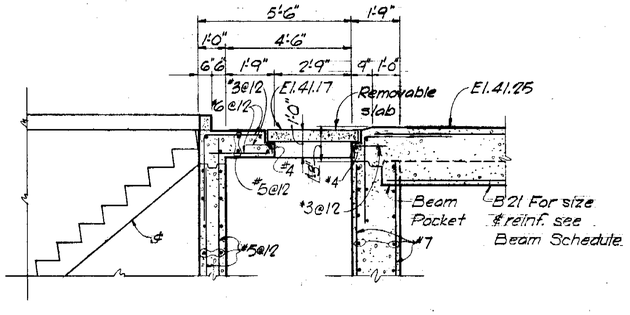
SECTION 21/7,8,9
Scale: 3/8"=1'-0"



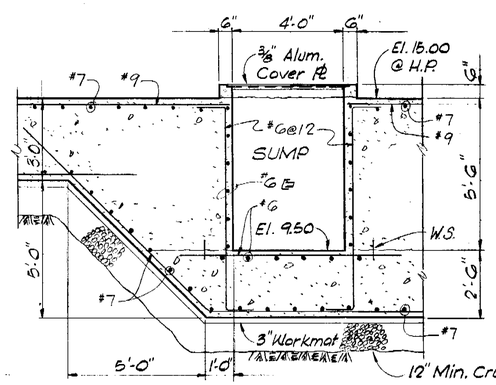
SECTION 22/9
Scale: 3/8"=1'-0"



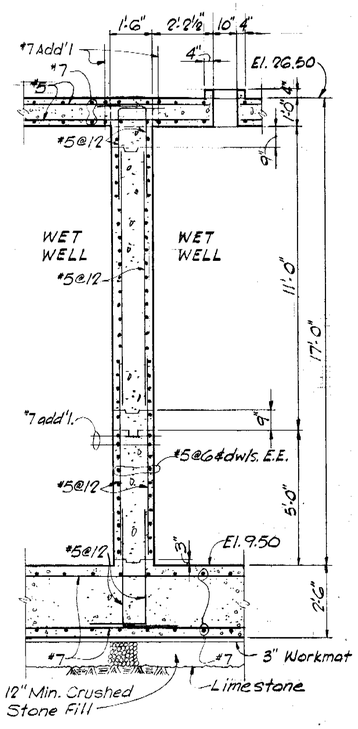
SECTION 23/9
Scale: 3/8"=1'-0"



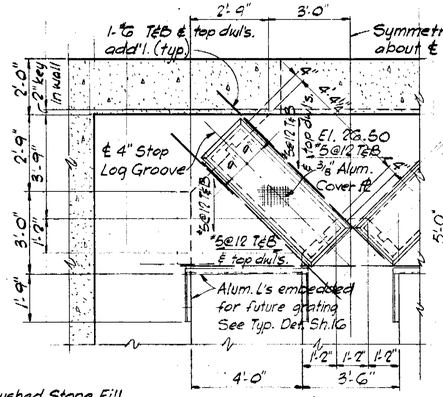
SECTION 24/9
Scale: 3/8"=1'-0"



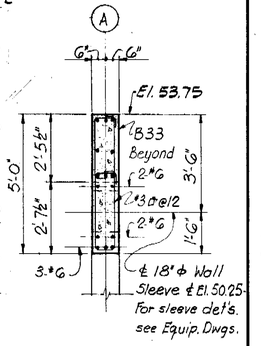
SECTION 25/7
Scale: 3/8"=1'-0"



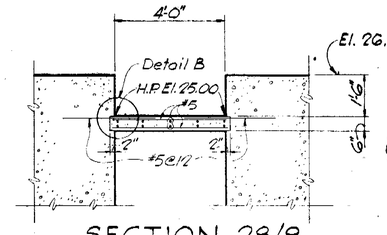
SECTION 26/7,8
Scale: 3/8"=1'-0"



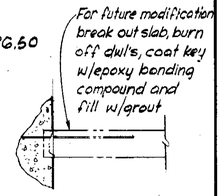
DETAIL A/8
Scale: 3/8"=1'-0"



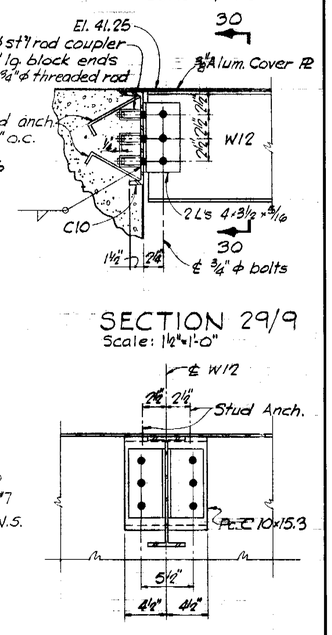
SECTION 27/10
Scale: 3/8"=1'-0"



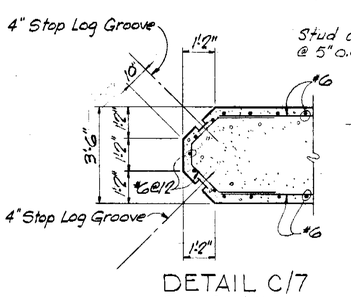
SECTION 28/8
Scale: 3/8"=1'-0"



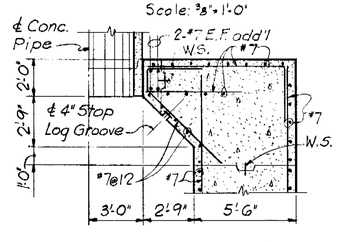
DETAIL B
Scale: 3/4"=1'-0"



SECTION 29/9
Scale: 1 1/2"=1'-0"



DETAIL C/7
Scale: 3/8"=1'-0"



DETAIL D/7
Scale: 1/4"=1'-0"

SECTION 30
Scale: 1 1/2"=1'-0"

NOTE:

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RECORD DRAWING

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NOTES:
For General Notes and Typical Details see Sheets 15 & 16
For Beam Schedule see Sh. 9

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED PYL DRAWN PYL CHECKED SSP	APPROVED DATE SUPT., DEPT. OF SANITARY SEWERS DATE GREELEY AND HANSEN, ENGINEERS	NO. 1 — DATE 10/81 — APP. DSH — REVISION: Rec. Dwg. Revisions Mar. 78 — JRP — Plans Updated

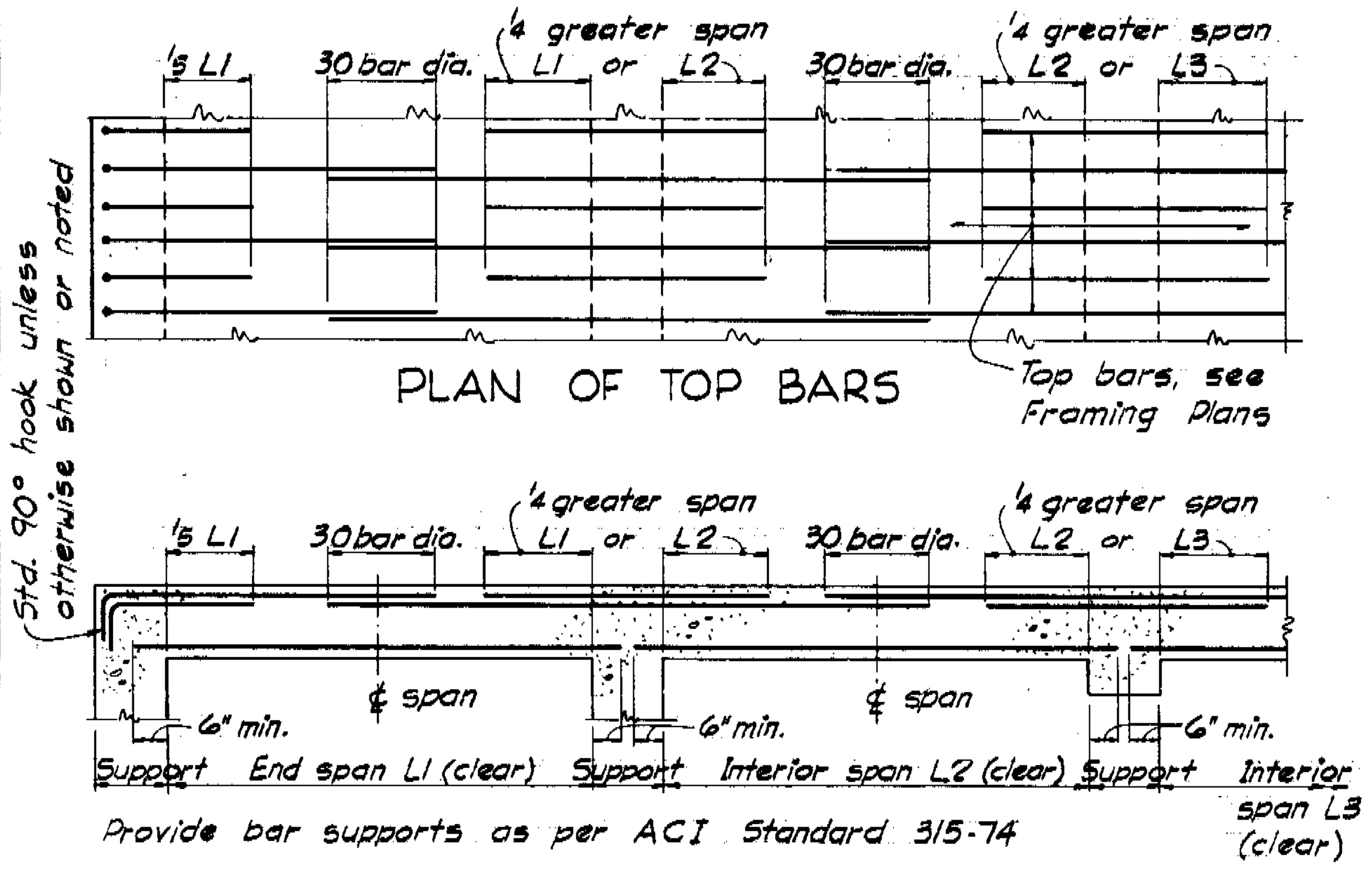
SCALE: 0 1 2 3 4 5 6 7 FT — 3/8"=1'-0"; 0 1 FT — 1-1/2"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

STRUCTURAL SECTIONS

PROJ. NO. S 202-70-30D-7-4G3
SHEET 14 OF 35
DATE AUGUST, 1972 REV. 0

173-51



1

TYPICAL CONCRETE SLAB BAR PLACING DIAGRAM

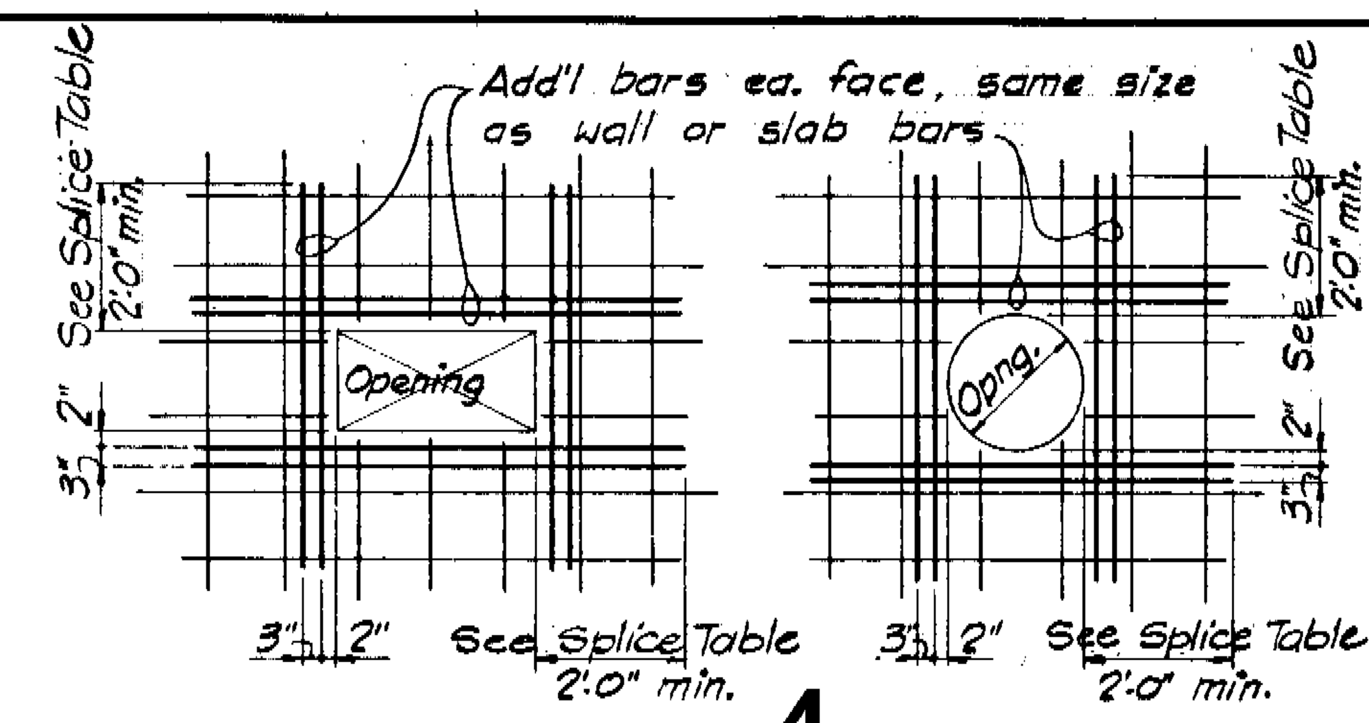
SLAB REINFORCING SCHEDULE		
Top bars	Bottom bars	Size & spacing
T1	B1	#4@12
T2	B2	#4@9
T3	B3	#5@12
T4	B4	#5@9
T5	B5	#6@12
T6	B6	#7@12
T7	B7	#8@12
T8	B8	#6@6
T9	B9	#8@9
T10	B10	#7@6
T11	B11	#8@6
T12	B12	#5@6
T13	B13	#4@6

2

TEMPERATURE REINFORCING SCHEDULE	
Thickness of slab	Size & Spacing Ea. Face
6"	#4@12
7"	#4@12
8"	#4@12
9"	#5@12
10"	#5@12
11"	#5@12
12"	#6@12

Note:
Unless otherwise shown or noted all one way slabs shall have temperature reinforcement at each face placed perpendicular to principal reinforcement.

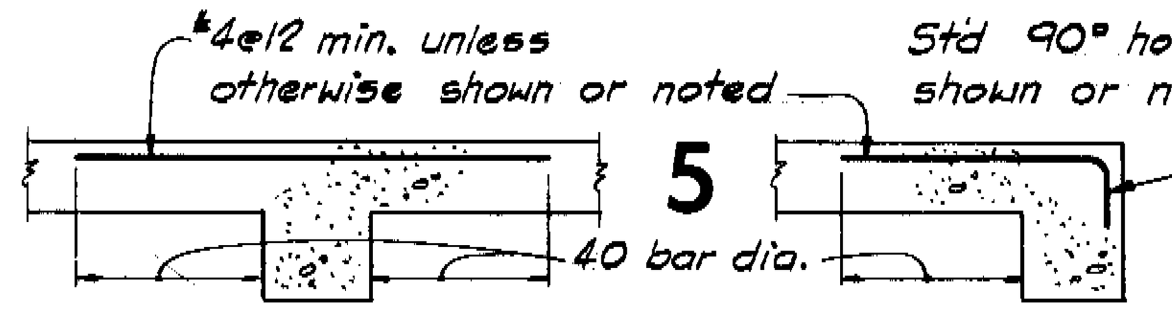
3



4

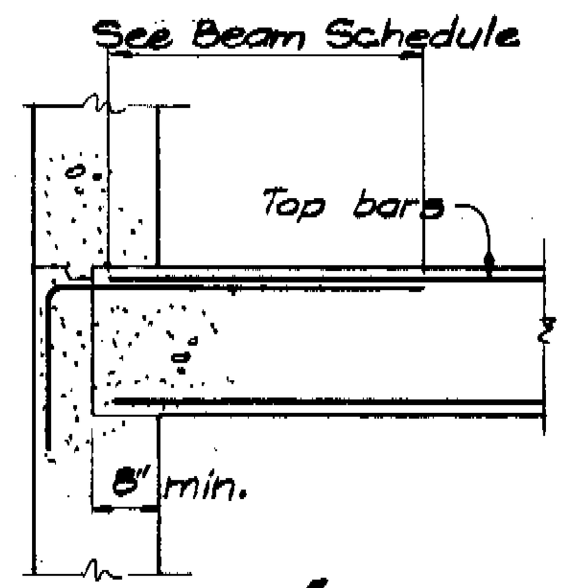
Note:
Openings in walls and slabs with a dimension in excess of 24 inches shall be built as detailed on the drawings or as directed. Bars to be hooked where 2'0" minimum embedment is not possible.

ADDITIONAL REINFORCING AT OPENINGS IN WALLS OR SLABS



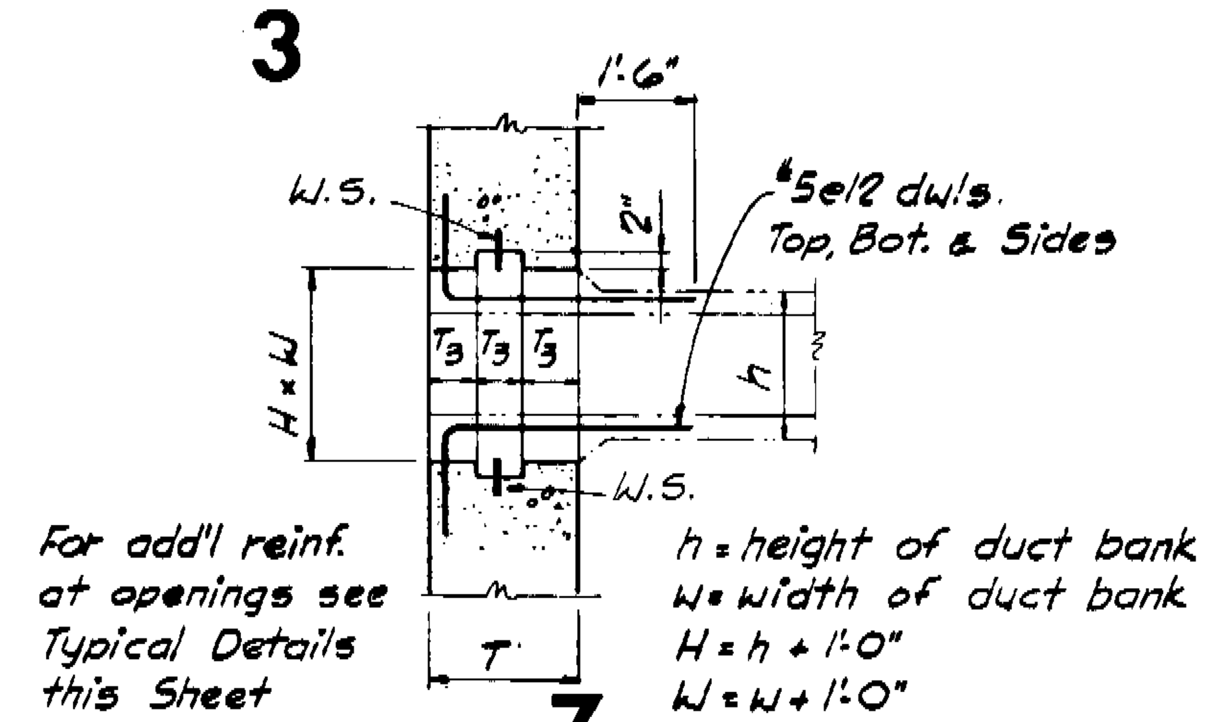
5

TYPICAL DETAIL WHERE PRINCIPAL SLAB REINFORCING IS PARALLEL TO ADJACENT BEAMS OR WALLS



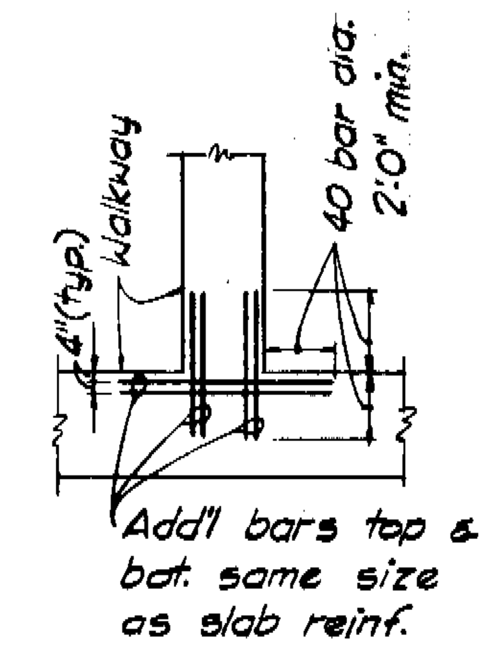
6

TYP. BEAM POCKET DETAIL



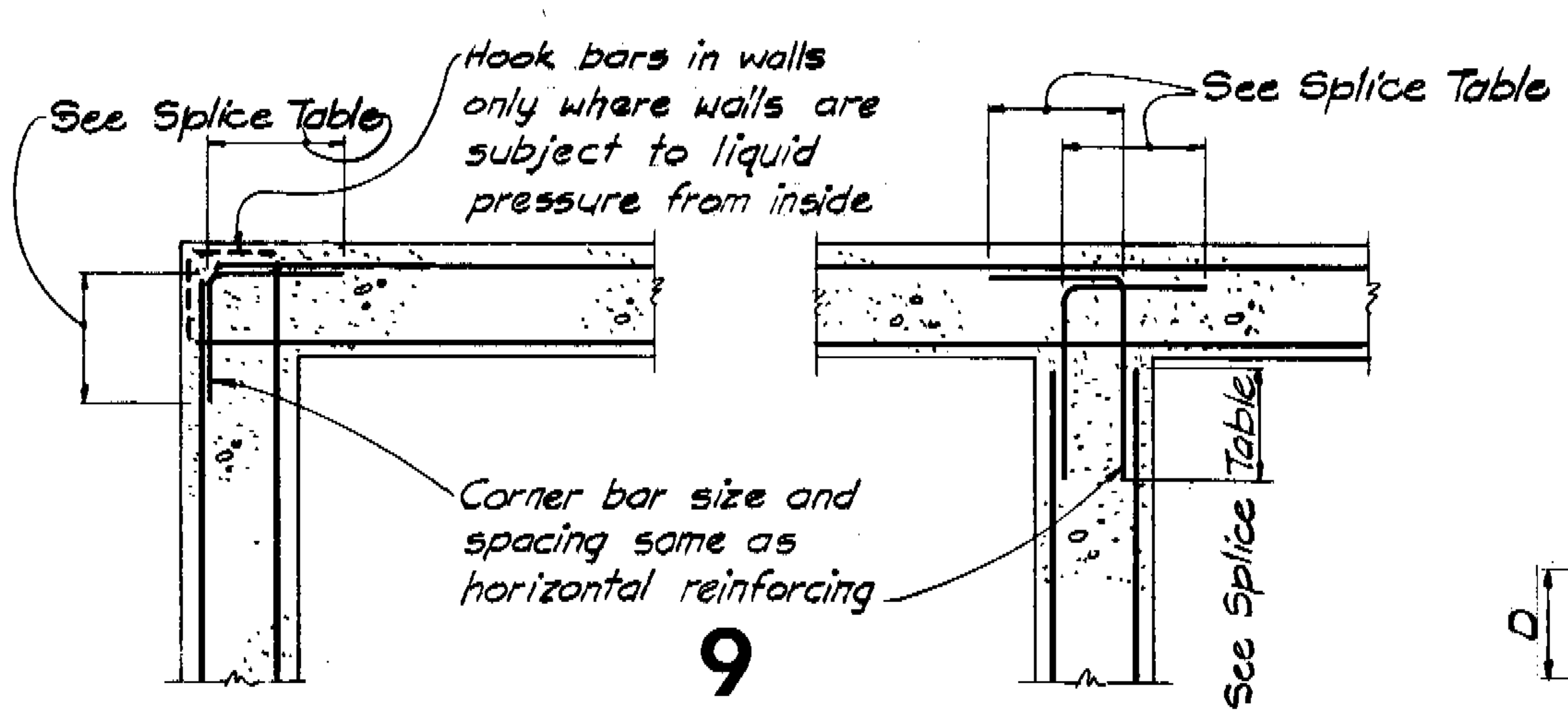
7

DETAIL OF OPENING FOR ELECTRIC DUCTS



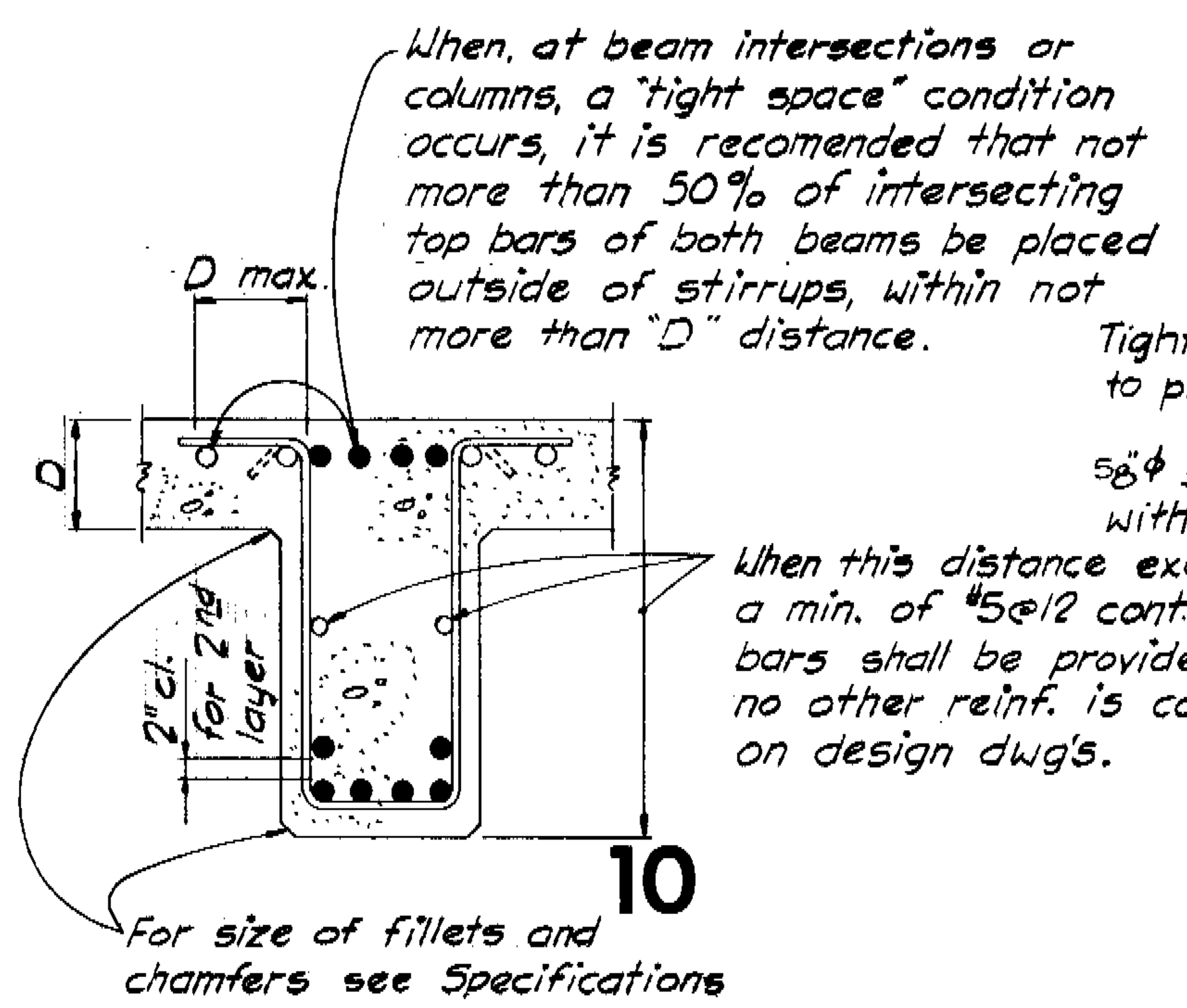
8

ADDITIONAL REINFORCING AT WALKWAY INTERSECTIONS



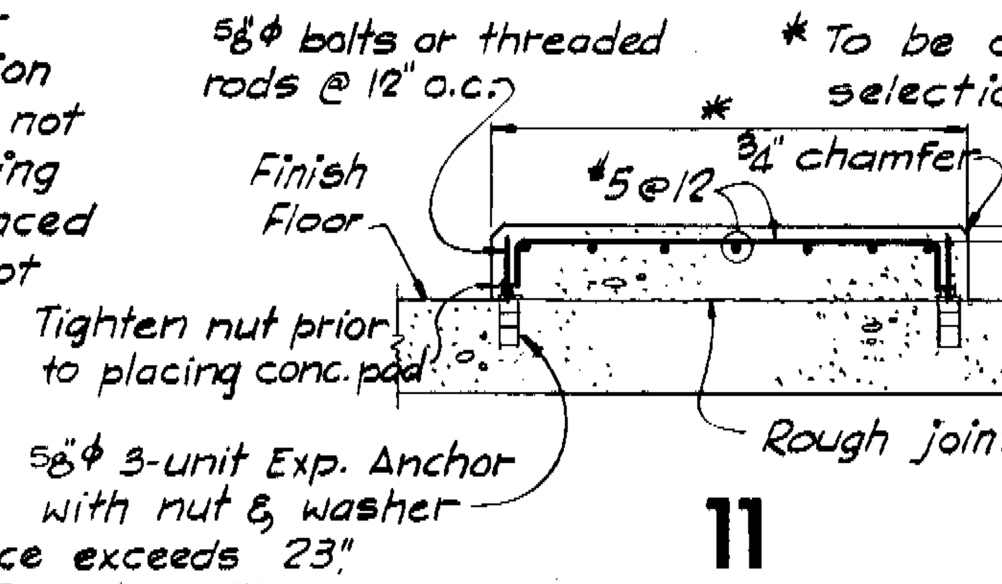
9

TYPICAL CORNER BAR DETAILS



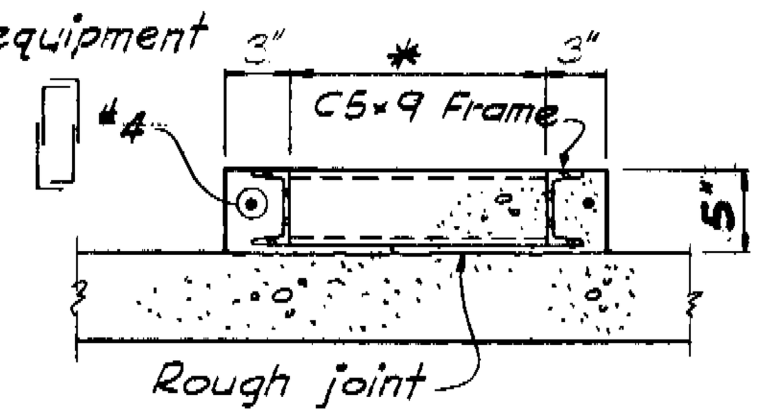
10

TYPICAL BEAM INTERSECTION DETAIL



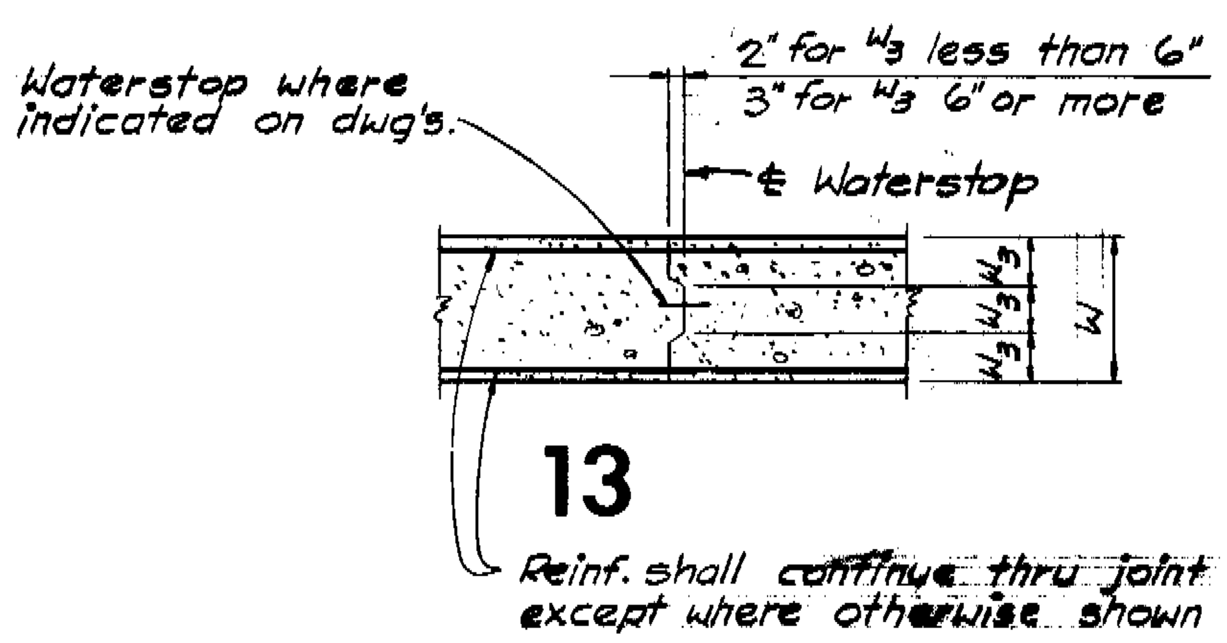
11

TYP. EQUIPMENT PAD DETAIL



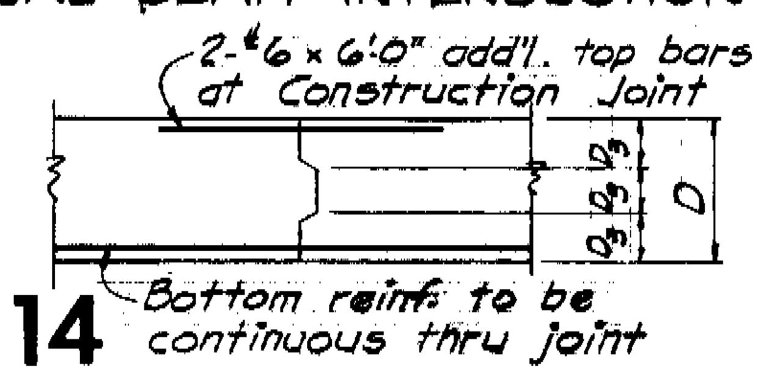
12

TYPICAL ELECTRICAL EQUIPMENT PAD DETAIL



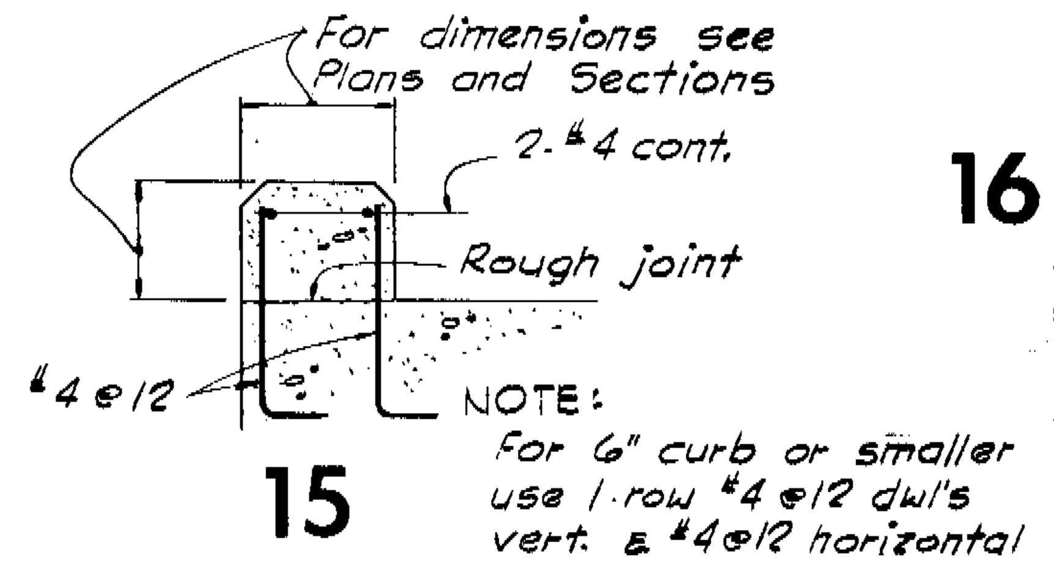
13

TYPICAL WALL AND SLAB CONSTRUCTION JOINT DETAIL



14

TYPICAL BEAM CONSTRUCTION JOINT DETAIL



15

TYP. CURB DETAIL

16 Numbers shown thus on this Sheet are for reference only, and do not designate Details identified on other Contract Drawings.

NOTE: ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

GENERAL NOTES

1. Limestone to be excavated to approx. [illegible] minimum below the bottom of [illegible] and the space filled with compacted crushed stone [illegible].
2. For compacted fill, backfill and crushed stone fill, see Spec's.
3. Backfill shall not be placed against any substructure wall until forms have been stripped from adjacent slab or unless walls have been properly braced, and in no case sooner than 28 days after placing of wall concrete.
4. For compressive strength of concrete see specifications.
5. Exposed corners shall have 3/4" chamfer and re-entrant corners shall have 3/4" flat fillet unless otherwise noted.
6. All reinforcing shall meet as a minimum the requirements of A.S.T.M. Des: A615, Grade 40.
7. All reinforcing shall be detailed according to the Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI Standard 315-74)
8. Concrete cover for reinforcing bars:
   a. Concrete deposited directly against soil and footings (bottom, sides & ends) - 3". Concrete deposited against concrete workmat - 2".
   b. Slab - Troweled surface - 1 1/2"; Elsewhere - 1"
   c. Beams and Columns - 2" (see f)
   d. Walls 12" or more thick - 2" (see f); Less than 12": #6 bars or larger - 2" (see f); #5 bars or smaller - 1 1/2" (see f)
   e. Footings (top surface) and base slabs - 2 1/2"
   f. Add 1/2" for surfaces contacting, or exposed to water or sewage.
9. All reinforcing shall be lapped in accordance with the lap splice table given below unless otherwise shown or noted.
10. The actual placement of reinforcing shall be as shown on the approved shop drawings.
11. For sleeves, wall castings, openings in walls and slabs; and other items embedded in concrete and not shown; and equipment bases, see Architectural, Equipment, Electrical, Plumbing and Ventilating Drawings.
12. All structural steel shall be detailed, fabricated and erected in accordance with the latest A.I.S.C. specifications.
13. Structural steel shall conform to ASTM A36. Bolts shall be 3/4"φ friction type high strength bolts conforming to ASTM A325. Electrodes for welding shall be E70XX.
14. All details and sections shown on drawings are intended to be typical and shall be construed to apply to any similar situation elsewhere.
15. Size and location of concrete bases and anchor bolts shall be arranged for equipment furnished and in accordance with approved shop drawings.
16. All curbed and other openings in floors, roofs, walls and equipment bases for duct work, piping and other equipment shall be in accordance with approved shop drawings.
17. REINFORCING BAR LAP SPLICE TABLE

Bar Size		#3	#4	#5	#6	#7	#8	#9	#10	#11
		SPLICE LENGTH - INCHES*								
Top Bars**	"B"	12	12	15	21	28	37	47	59	73
	"C"	12	12	19	27	37	48	61	78	95
Other Bars	"B"	12	12	12	15	20	27	34	43	52
	"C"	12	12	14	20	27	35	44	56	68

* For splices spaced closer than 6", increase lap length 25%.
** Top bars are all horizontal reinforcing placed so that more than 12 inches of concrete is cast in the member below the bar.
A. Unless specified otherwise, all lap splices shall conform to the table above.
B. Unless specified otherwise, the length of lap for splices shall be length "B" where no more than 1/2 of the bars are lap spliced and length "C" where more than 1/2 of the bars are lap spliced.

18. Construction joints with or without waterstops shall be installed where shown on drawings. No such joint shall be added or omitted without prior approval of the Engineer. Such joints shall be installed as shown on any view even if they are not shown on all views of any particular area.

GREELEY AND HANSEN ENGINEERS, 222 S. RIVERSIDE PLAZA, CHICAGO, ILLINOIS 60606	DESIGNED E.P. / DRAWN J.E.B. / CHECKED E.P.	APPROVED ____ DATE ____ SUPT., DEPT. OF SANITARY SEWERS; ____ DATE ____ GREELEY AND HANSEN, ENGINEERS

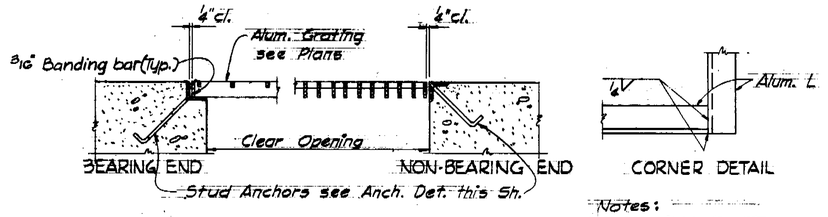
NO.	DATE	APP.	REVISION
1	10/81	JSH	Rec. Dwg. Revision
	Mar78	JRP	Plans Updated

SCALE: NONE

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

STRUCTURAL GENERAL NOTES AND TYPICAL DETAILS

PROJ. NO. S202-70-30D-7-4G3
SHEET 15 OF 35
DATE AUGUST, 1972 REV. 0

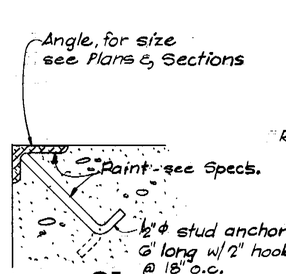


Notes:
Vertical leg to be flush with fin. floor, cut if req'd.
Aluminum surfaces in contact with conc. to be painted - see Specs.

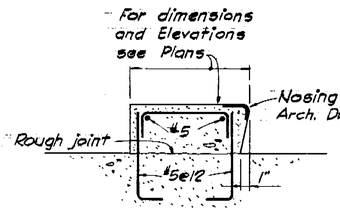
ALUMINUM GRATING		
Bearing bars spaced 1" apart		Frame
Span	Size *	Angle - Aluminum
Less than 4'-1"	1¾" x 3/16"	2x2 x¼
4'-1" thru 5'-0"	2¼" x 3/16"	2½ 2½ x¼
5'-1" thru 6'-0"	2¾" x 3/16"	3x3 x¼
6'-1" thru 7'-6"	3¼" x 3/16"	3½ x 3½ x¼

* Or equivalent extruded section of the depth shown

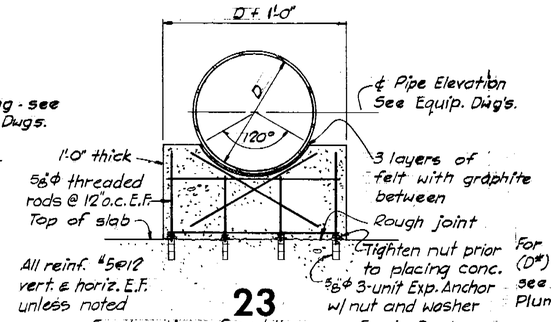
20 ALUMINUM GRATING DETAILS



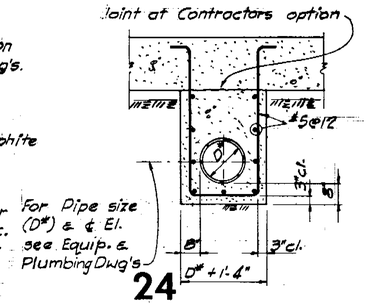
21 TYPICAL ANGLE ANCHORAGE DETAIL



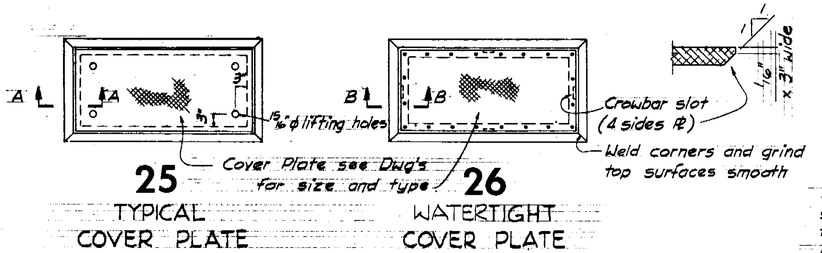
22 TYP. CONCRETE RISER DETAIL



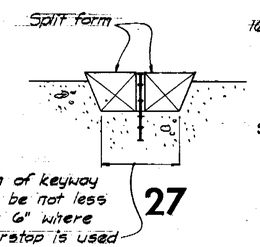
23 TYP. CONCRETE SADDLE DETAIL
For location of saddles see Equip. Dwg's.



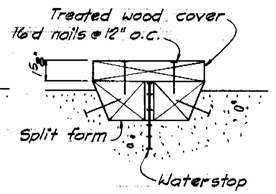
24 TYPICAL PIPE ENCASEMENT DETAIL



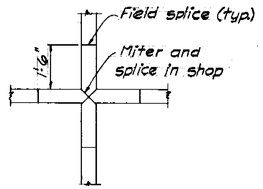
25 TYPICAL COVER PLATE
26 WATERTIGHT COVER PLATE



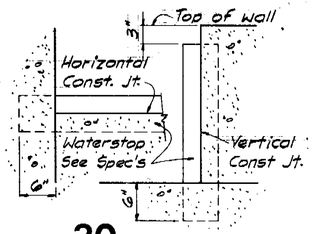
27 KEYWAY AT WATERSTOP



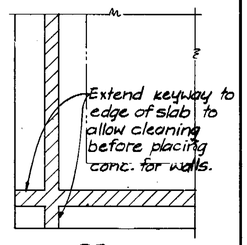
28 WATERSTOP PROTECTION DETAIL



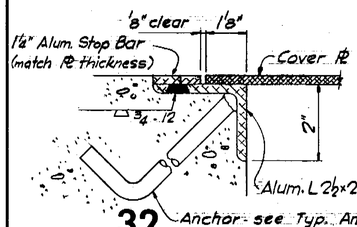
29 WATERSTOP DETAIL AT INTERSECTIONS



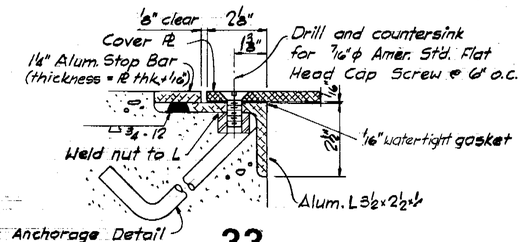
30 EMBEDMENT OF WATERSTOP AT TERMINATION OF CONST. JOINT



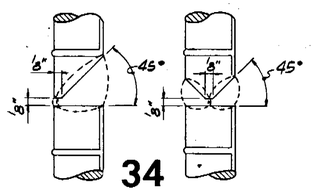
31 TYPICAL KEYWAY IN SLABS



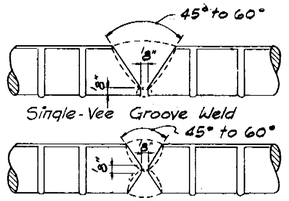
32 SECTION A-A



33 SECTION B-B

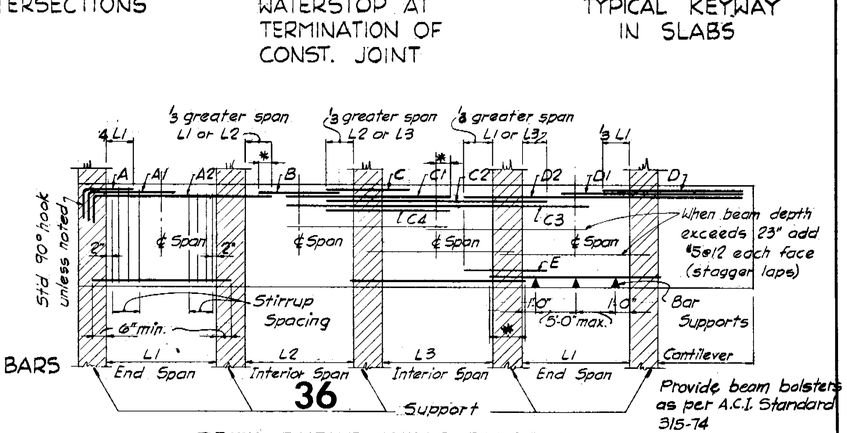


34 BUTT SPLICES - VERTICAL

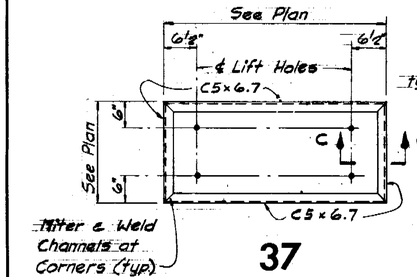


35 BUTT SPLICES - HORIZONTAL

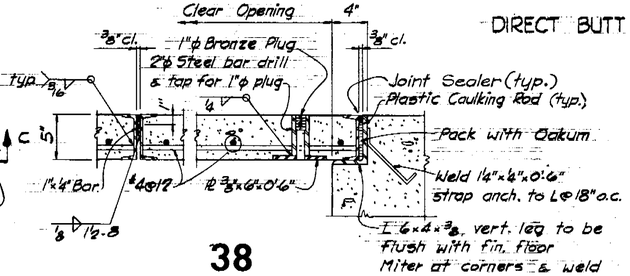
DIRECT BUTT SPLICE WELDING DETAILS FOR REINFORCING BARS



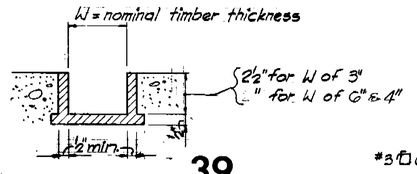
36 BEAM BAR PLACING DIAGRAM
* For splice length see Lap Splice Table on Sht. 15



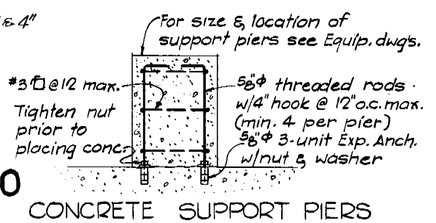
37 REMOVABLE SLAB



38 SECTION C-C



39 CAST IRON STOP LOG GROOVE DETAIL



40 CONCRETE SUPPORT PIERS

NOTE:
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RECORD DRAWING
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41 Numbers shown thus on this Sheet are for reference only, and do not designate Details identified on other Contract Drawings.

GREELEY AND HANSEN ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED B.N.
DRAWN J.B.
CHECKED E.P.

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
1	10/81	DSH	Rec. Dwg. Revision
	Mar. 78	JRP	Plans Updated

SCALE
NONE

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131ST. AVENUE PUMPING STATION

STRUCTURAL
TYPICAL DETAILS

PROJ. NO. S202-70-30D-7-463
SHEET 16 OF 35
DATE AUGUST, 1972 REV. 0

173-3


ROOF 'RELIEF' DETAIL SCALE: 1 1/2"=1'-0"
SHEET METAL FLASHING AROUND PIPE
CONTINUOUS 'CLEAT'
STAINLESS STEEL COPING COVER WITH CONCEALED JOINT COVERS
12"x3/4"x8'-0" LONG PLYWOOD VENT BOARD - FASTENED TO PARAPET @16" O.C.
5"φx10" LONG PIPE (RELIEF) CAST IN CONC. PARAPET, SEE NORTH & SOUTH ELEVATIONS AND ROOF PLAN FOR LOCATIONS
WOOD NAILER W/1/2"φ A.B.x14" LONG @16" O.C.
POWER DRIVEN ANCHORS
4" WOOD CANT STRIP
BUILT-UP ROOFING
LIGHT WEIGHT INSULATED CONCRETE FILL
AIR SPACE
DRIP
VAPOR BARRIER
1/2" SELF EXPANDING CORK JOINT FILLER CAULK BOTH SIDES CONTINUOUS
'FLUTED' PORTION OF CONCRETE BLOCK
CONTINUOUS 6 GUAGE STAINLESS STEEL DOVETAIL ANCHOR SLOTS WITH 6 GUAGE STAINLESS STEEL DOVETAIL ANCHORS @ 32" O.C. HORIZONTALLY
SECTION THRU PARAPET (ROOF CONSTRUCTION) SCALE: 1"=1'-0"
3/8"x4"x3'-4" LONG BEARING PL.
PLUMBING VENT UP THRU ROOF
LADDER (ALUM) & SCUTTLE ABOVE SEE DETAIL SHEET 18
1/4" POURED IN PLACE OR PRECAST CONC. ROOF SLAB
6"x4"x3/8" ALUM. TRIM ANGLE
ALUMINUM LADDER (2 1/2"x3/4" STRINGERS AND 1" ROUND RUNGS 12" ON CENTER APART)
SECTION TAKEN ABOVE TOILET ROOF SCALE: 1/4"=1'-0"
ALUM SPLICE BAR
3/8"φ S.S. BOLT
PLUG WELD GRIND SMOOTH
SOLDER PLUG
REMOVABLE POST DETAIL SCALE: 3"=1'-0"
1 1/4" ALUMINUM PIPE RAILING AND POSTS
SPLICE BAR TAPPED TO RECEIVE 1/4" S.S. COUNTERSUNK SCREWS W/FLAT HEAD (TYPICAL)
1" ALUM SPLICE BAR X5" LONG AT REMOVABLE RAILING
SEE REMOVABLE POST DETAIL
2" DIAMETER STEEL PIPE SLEEVE 6" LONG WITH 3"x3"x1/4" STEEL PLATE WELDED TO BOTTOM; FILL SLEEVE WITH NEAT CEMENT GROUT PACKING & SOLDER CAULK
REMOVABLE RAILING DETAIL SCALE: 1 1/2"=1'-0"
MECHANICAL OPENING FOR SUPPLY FAN. EXACT DIMENSION TO BE DETERMINED AFTER SELECTION OF EQUIPMENT
FOR DETAIL, SEE SHEET 19
REMOVABLE CONC. SLABS.
SCREEN ROOM BELOW
T/SLAB EL. 41'-2"
REMOVABLE RAILINGS & POST SEE DETS. THIS SHEET
EL. 51'-4"
6"x6" CONCRETE CURB WITH ALUM. RAILINGS & POSTS.
METAL NOSING
ASH HOIST
DOOR BELOW
REMOVABLE SLAB
CONTINUOUS FIXED LOUVERS W/DAMPER DIVIDED IN TWO SEE SHEET 20, SECT. C
96"x18" MECHANICAL OPENING
PLAIN FACED CONC. BLOCK
EXHAUST FAN (E-1) BOTTOM EL. 47'-3"
2" VENT STACK
TOILET
VENT
6"x6" CURB WITH ALUMINUM RAILING, CHAIN & SNAP HOOK.
ACCESS OPENING
℄ CRANE RAIL
ALUMINUM LADDER
MOTOR PUMP 3
FUTURE MOTOR PUMP NO. 2
MOTOR PUMP NO. 1
ENGINE GENERATOR PAD
CONTROL CENTER
T/S EL. 41'-3"
CONTROL ROOM
METALLIC HARDENED FLOOR FINISH
THRESHOLD
4" C.I. VENT STACK
PLENUM
DAMPER W/EXTENDED CRANK OPERATOR AND WORM GEAR UNIT
2'-0" FLOOR OPENING
DOWNSPOUT NOZZLE
EL. 41.17
EL. 40.58
SIDE WALK
OVERHEAD DOOR W/PASS DOOR (3'x7')
15'-0" WIDE ROADWAY
DRIVEWAY
LOUVER
℄-℄ CRANE RAILS
73'-0"
PLAN AT FL. EL. 41'-3" SCALE: 1/4"=1'-0"
LOUVER COMBINATION SEE SHEET 20, SECTIONS A & C.
EXTR. ALUM. SILL
CONCRETE CURB (8"x9")
4" HIGH VINYL BASE
FACE OF BEAM
CONCRETE BLOCK
'FLUTED' PORTION OF CONCRETE BLOCK
'FLUTED' CONCRETE BLOCK (STACKED BOND) (TYPICAL).
WATERPROOFING COURSE (WPC)
CONCRETE CURB (4"x7 1/2")
SECTION THRU INTERIOR FLOOR CURBS SCALE: 1"=1'-0"
GENERAL NOTES
1. ALL CONCRETE ABOVE THE MAIN (CONTROL ROOM) FLOOR SHALL BE ARCHITECTURAL CONCRETE.
2. DIMENSIONS ARE GIVEN TO CONCRETE BEAMS OR CONCRETE COLUMNS - 'FLUTED' PORTION OF CONCRETE BLOCK SHALL PROJECT BEYOND FACE OF BEAMS.
PAINTING NOTES:
ITEMS TO BE FIELD PAINTED:
1. ALL CONCRETE MASONRY UNITS, INTERIOR AND EXTERIOR
2. ALL INTERIOR CONCRETE SURFACES ABOVE CONTROL ROOM FLOOR AREA NOT INCLUDING FLOORS.
3. ALL EXTERIOR CONCRETE SURFACES ABOVE CONTROL ROOM FLOOR.
4. FOR ADDITIONAL PAINTING AND TYPES OF COATINGS SEE "PAINTING" SECTION IN THE SPECIFICATIONS
DOOR AND FRAME NOTES
EXTERIOR DOORS
DR NO. 1 ALUM. 'WICKET' (PASS) DOOR IN KOOLING OR OVERHEAD DOOR (LHR) 3'-0"x7'-2" WITH HEAVY ALUM. (ANGULAR) FRAME.
DR NO. 2 ALUM. DOOR (RHR) 3'-0"x7'-2"x1 3/4" ALUMINUM FRAME 3'-4"x7'-4"x6 3/8" LINTEL: 6"x4"x3/8" (4/24#) ALUMINUM ANGLE x4'-8" LONG AND PLATE 1/2"x14"x4'-8" LONG.
DR NO. 3 ALUM. DOOR (LHR) 3'-0"x7'-2"x1 3/4" WITH ALUM. FRAME 3'-4"x7'-4"x5 3/8" NO LINTEL REQUIRED
INTERIOR DOORS
DR NO. 4 ALUM. DOOR 2'-4"x6'-6"x1 3/4" W/ALUM. FRAME 2'-8"x6'-8"x4 1/2" WITH 4'-0" LONG REINFORCED BLOCK LINTEL
DR NO. 5 24"x24" STAINLESS STEEL ACCESS DOOR LOCATION TO BE CO-ORDINATED WITH POSITION OF DAMPER OPERATOR. DOOR TO BE PROVIDED WITH AN AIR TIGHT GASKET. DET. ON SHEET - 18.
NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").
RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED JFK
DRAWN MRN
CHECKED JFK

APPROVED
SUPT., DEPT. OF SANITARY SEWERS — DATE
GREELEY AND HANSEN, ENGINEERS — DATE

NO.	DATE	APP.	REVISION
2	10/81	DSH	Rec. Dwg. Revisions
1	Dec.78	KEL	Added Addendum No. 1
	Mar.78	JRP	Plans Updated

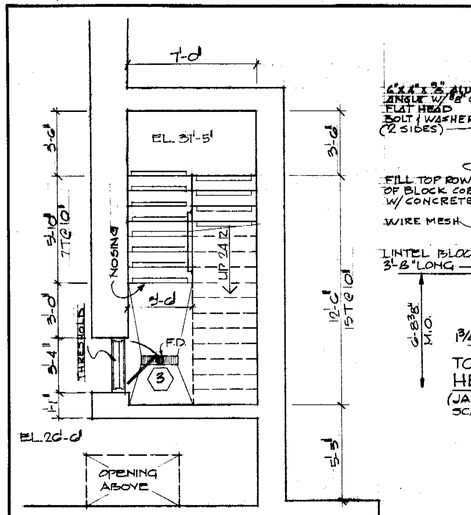
SCALE: 1/4"=1'-0" (0–8 FT); 1"=1'-0" (FT); 1 1/2"=1'-0" (FT)

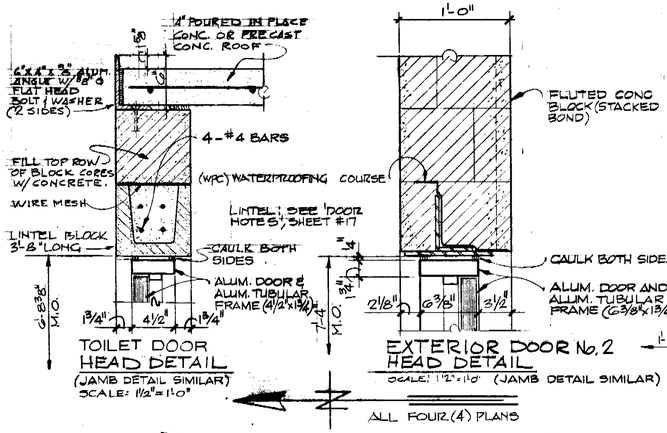
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

ARCHITECTURAL
TOP FLOOR PLAN

PROJ. NO. S 202-70-30D-7-4G3
SHEET 17 OF 35
DATE AUGUST, 1972 REV. 1

173-54

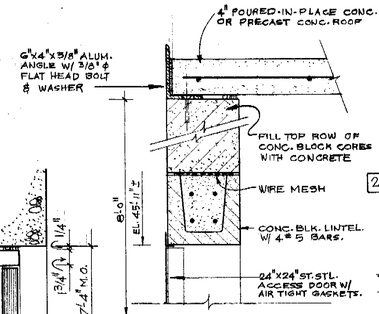




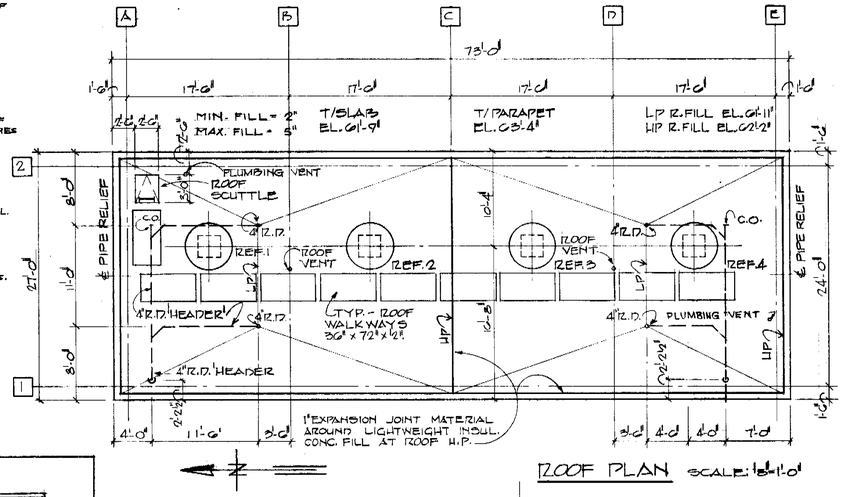
TOILET DOOR HEAD DETAIL
(JAMB DETAIL SIMILAR)
SCALE: 1 1/2" = 1'-0"

EXTERIOR DOOR No. 2 HEAD DETAIL
SCALE: 1 1/2" = 1'-0" (JAMB DETAIL SIMILAR)

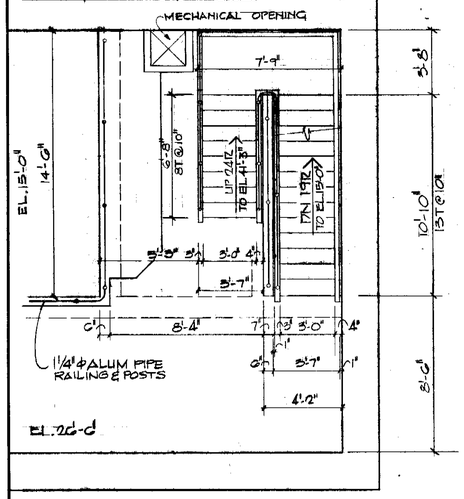
ALL FOUR (4) PLANS

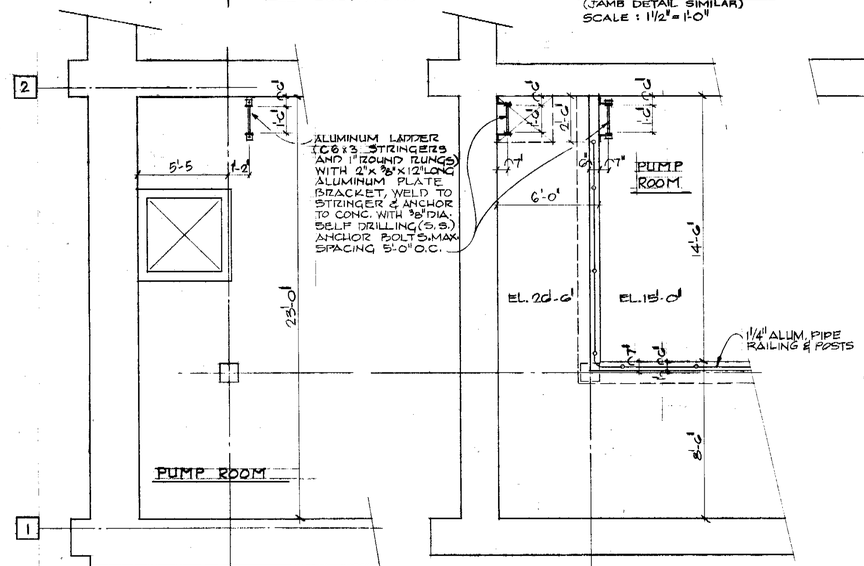


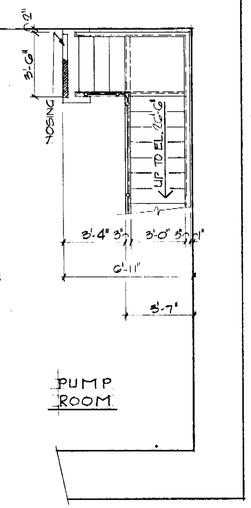
PLENUM DOOR HEAD DETAIL
SCALE: 1 1/2" = 1'-0"

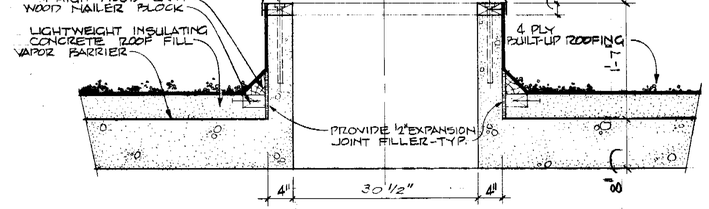


ROOF PLAN SCALE: 1/8"=1'-0"

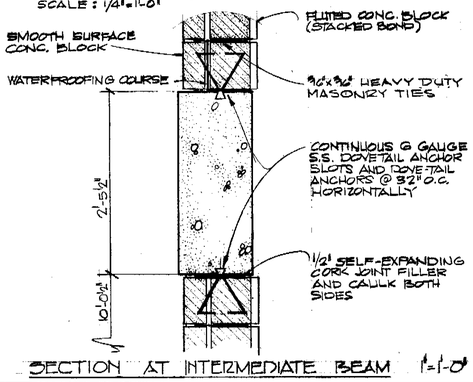






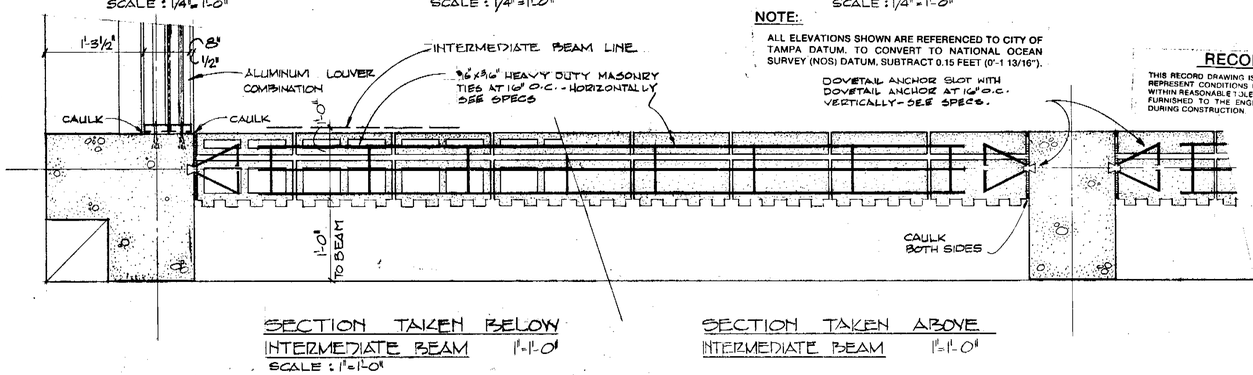


SECTION THRU ROOF EXHAUST FAN
SCALE: 1" = 1'-0"



PLAN AT EL. 34'-0"
SCALE: 1/4" = 1'-0"

SECTION AT INTERMEDIATE BEAM 1"=1'-0"



PLAN AT EL. 15'-0"
SCALE: 1/4" = 1'-0"

PLAN AT EL. 26'-6"
SCALE: 1/4" = 1'-0"

SECTION TAKEN BELOW
INTERMEDIATE BEAM 1"=1'-0"
SCALE: 1"=1'-0"

SECTION TAKEN ABOVE
INTERMEDIATE BEAM 1"=1'-0"

PLAN AT EL. 15'-0"
SCALE: 1/4" = 1'-0"

NOTE:
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DOVETAIL ANCHOR SLOT WITH DOVETAIL ANCHOR AT 16" O.C. VERTICALLY - SEE SPECS.

EXTERIOR DOOR NO. 3 HEAD DETAIL
(JAMB DETAIL SIMILAR)
SCALE: 1 1/2" = 1'-0"

RECORD DRAWING
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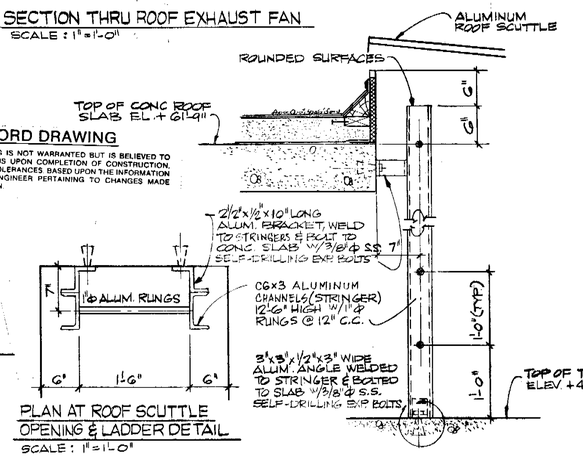


PLAN AT ROOF SCUTTLE OPENING & LADDER DETAIL
SCALE: 1" = 1'-0"

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JFK DRAWN MRN CHECKED JFK	APPROVED DATE SUPT., DEPT. OF SANITARY SEWERS DATE GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	10/81	DSH	Rec Dwg. Revisions
1	Dec. 78	KEL	Added Addendum No. 1
	Mar. 78	JRP	Plans Updated

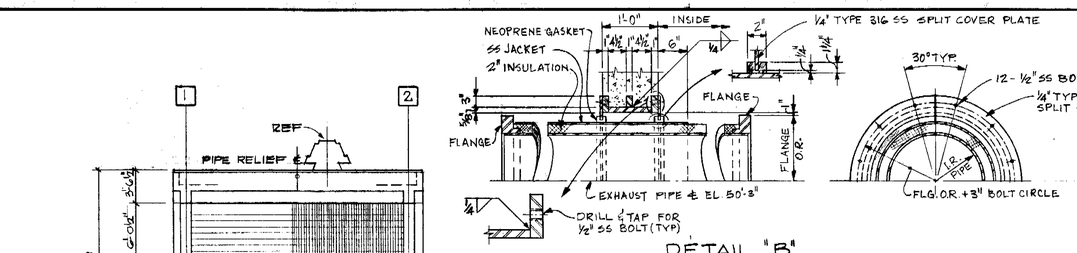
SCALE
8 0 8 16 FT 1/8" = 1'-0"
0 2 FT 1" = 1'-0"
0 FT 1 1/2" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

ARCHITECTURAL ROOF PLAN DETAILS

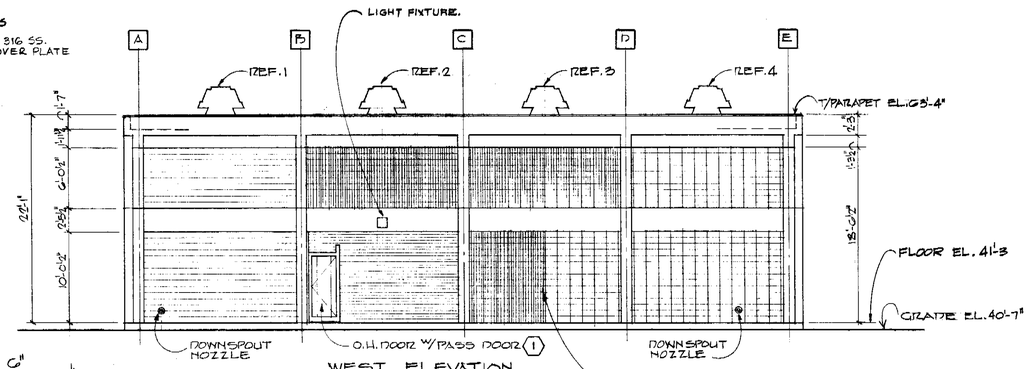
PROJ. NO. S 202-70-30 D-7-4G3
SHEET 18 OF 35
DATE AUGUST, 1972 REV. 1

173-55

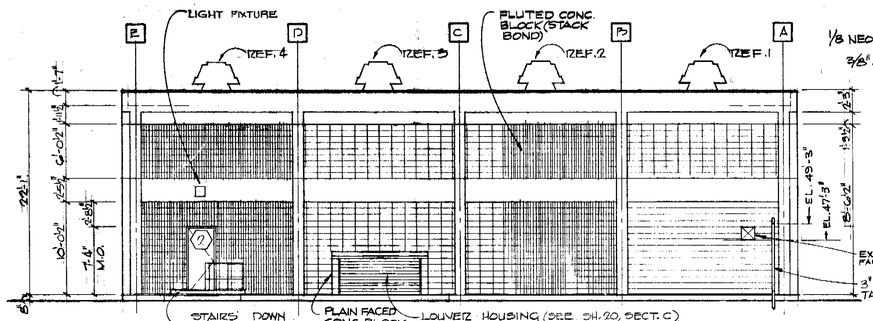


DETAIL "B"
SCALE: 3/4" = 1'-0"

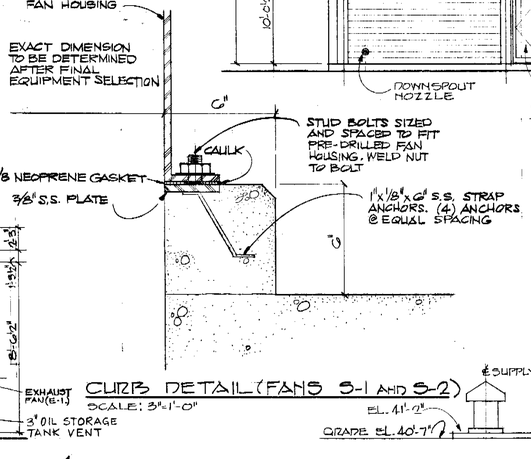
SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



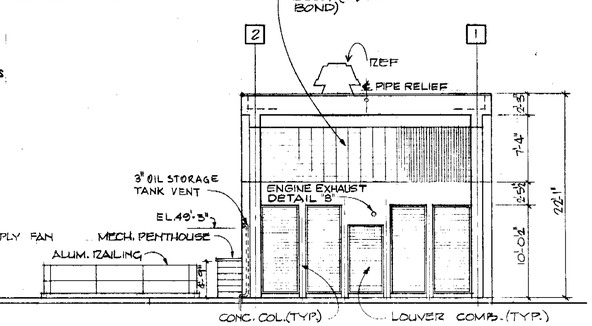
WEST ELEVATION
SCALE: 1/8" = 1'-0"

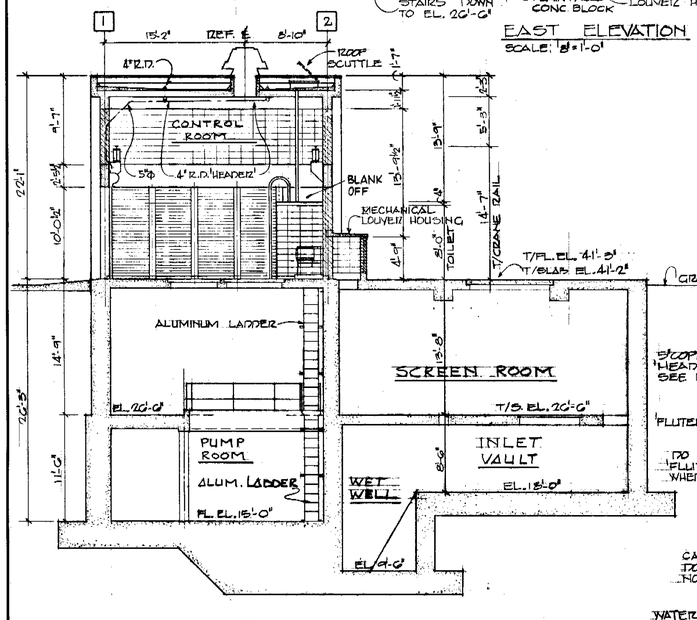


EAST ELEVATION
SCALE: 1/8" = 1'-0"

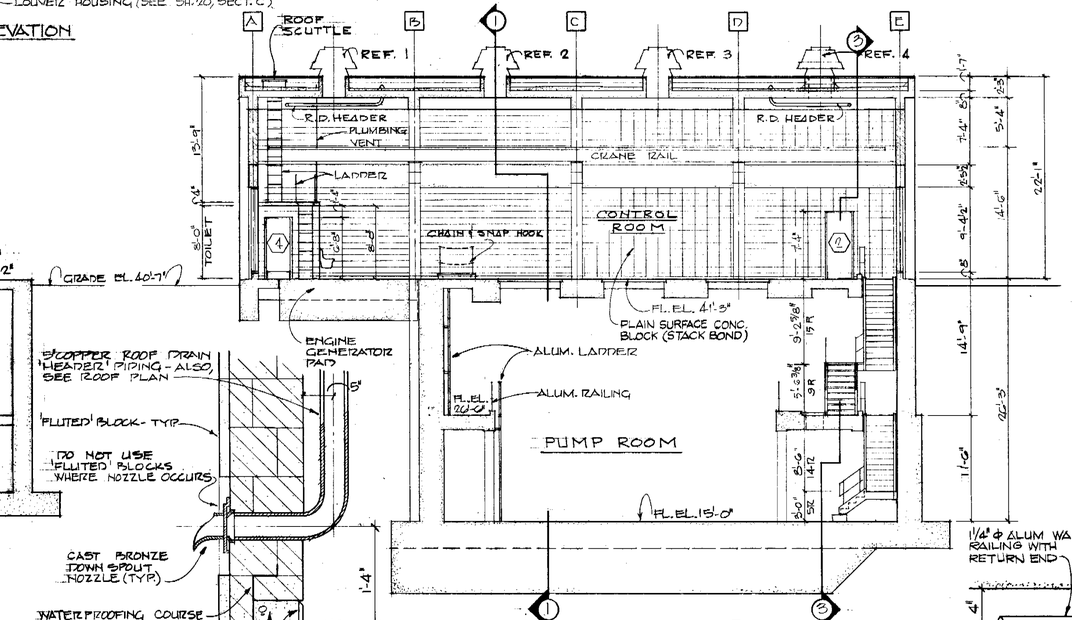


CURB DETAIL (FANS S-1 AND S-2)
SCALE: 3" = 1'-0"



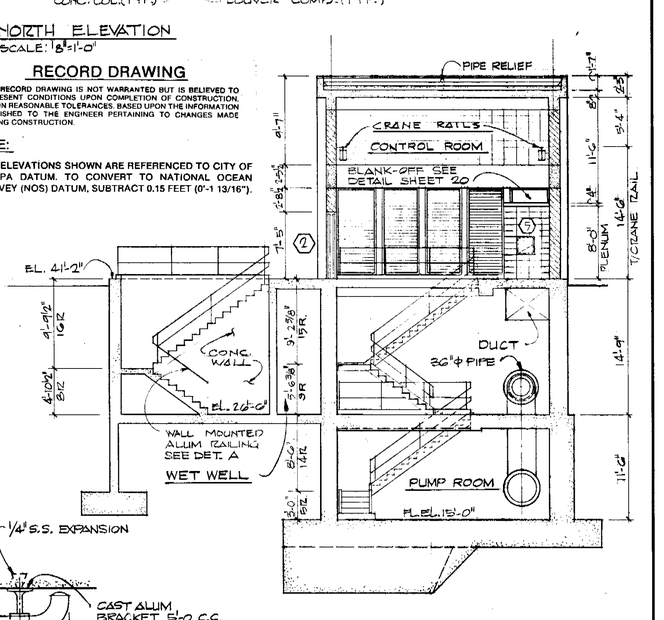


SECTION (1) LOOKING NORTH
SCALE: 1/8" = 1'-0"



LONGITUDINAL SECTION (2) LOOKING EAST
SCALE: 1/8" = 1'-0"

DOWNSPOUT NOZZLE 1" = 1'-0"



NORTH ELEVATION
SCALE: 1/8" = 1'-0"

RECORD DRAWING

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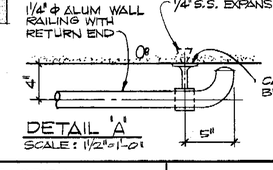

DETAIL 'A'
SCALE: 1 1/2" = 1'-0"

SECTION (3) LOOKING SOUTH
SCALE: 1/8" = 1'-0"

2	10/81	WSH	Rec. Dwg. Revisions
1	Dec. 78	V.E.L.	Added Addendum No. 1
	Mar. 78	J.R.P.	Plans Updated
NO.	DATE	APP.	REVISION

SCALE: 8 0 8 16 FT — 1/8" = 1'-0"

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED JFK
DRAWN MRN
CHECKED JFK

APPROVED
_____ DATE _____
SUPT., DEPT. OF SANITARY SEWERS
_____ DATE _____
GREELEY AND HANSEN, ENGINEERS

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

ARCHITECTURAL ELEVATIONS AND DETAILS

PROJ. NO. S 202-70-30 D-7-463
SHEET 19 OF 35
DATE AUGUST, 1972 REV. 1

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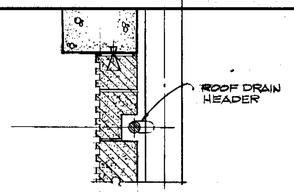
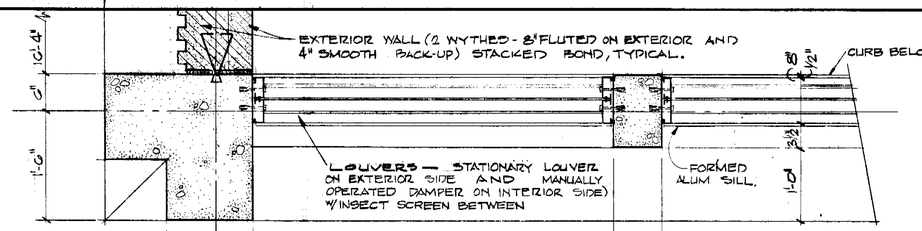
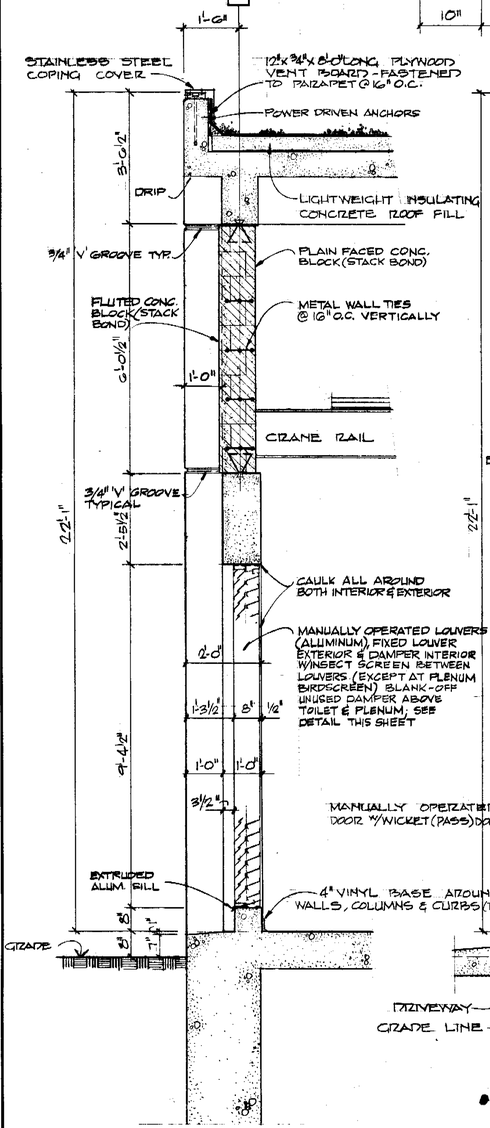
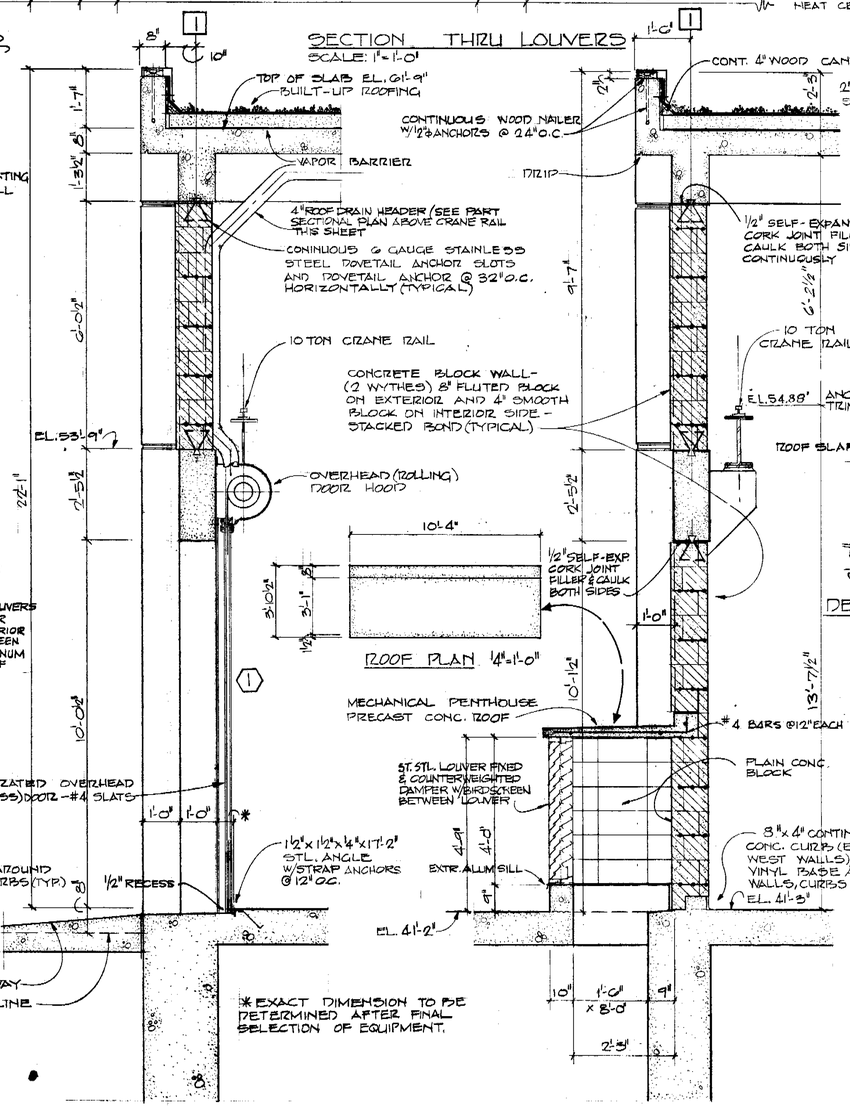


SECTION ABOVE CRANE RAIL THRU ROOF DRAIN
SCALE: 1/2"=1'-0"



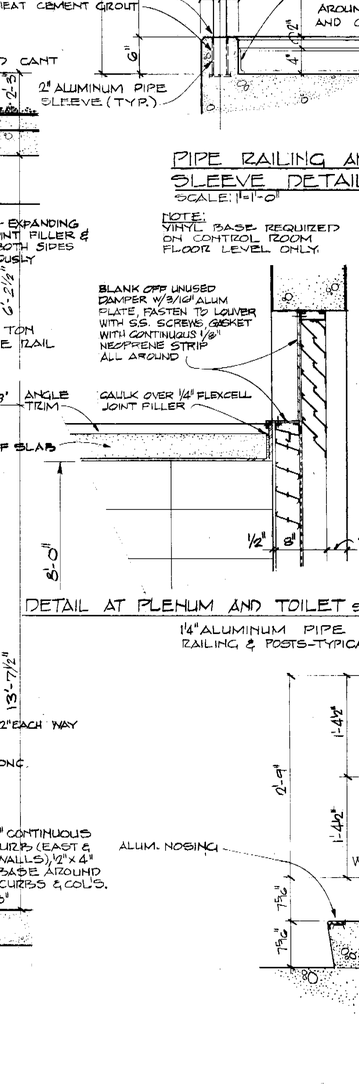


SECTION (A) THRU NORTH WALL (SOUTH WALL SIMILAR)
SCALE: ½"=1'-0"



SECTION (B) THRU WEST WALL (TAKEN AT OVERHEAD DOOR)
SCALE: ½"=1'-0"

ROOF PLAN ¼"=1'-0"

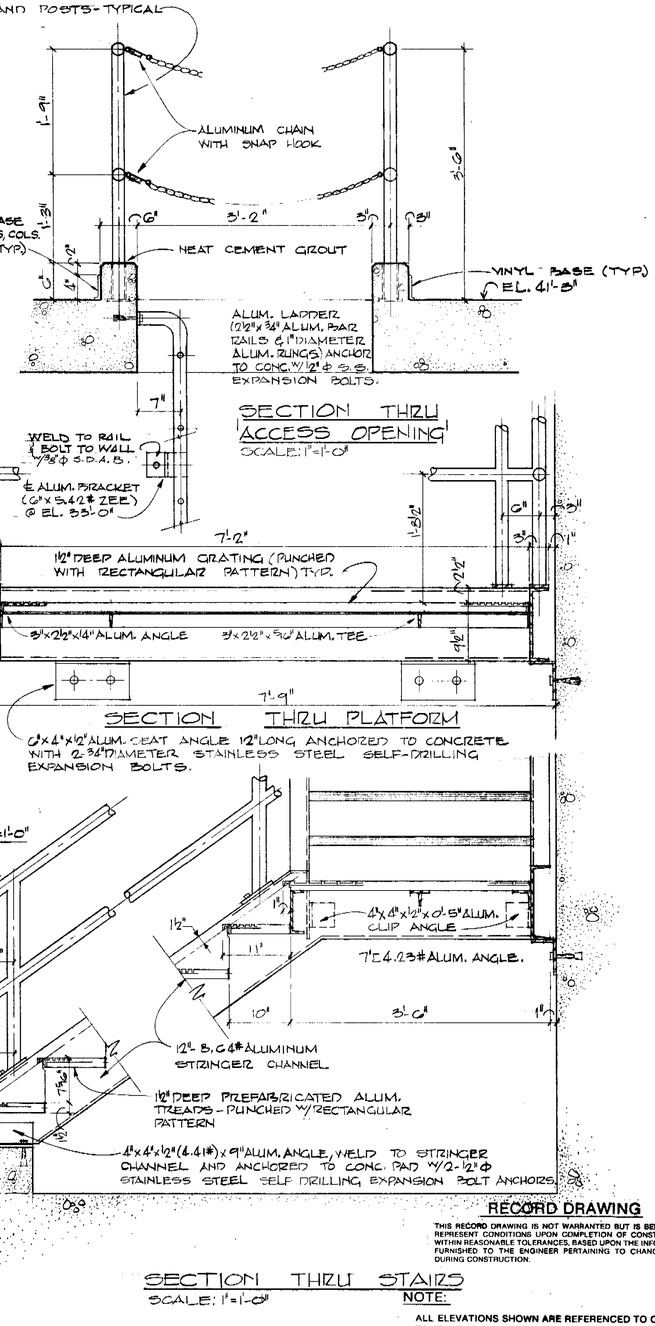


SECTION (C) THRU EAST WALL AT MECH. PENTHOUSE
SCALE: ½"=1'-0"

PIPE RAILING AND SLEEVE DETAIL
SCALE: 1"=1'-0"

NOTE: VINYL BASE REQUIRED ON CONTROL ROOM FLOOR LEVEL ONLY.

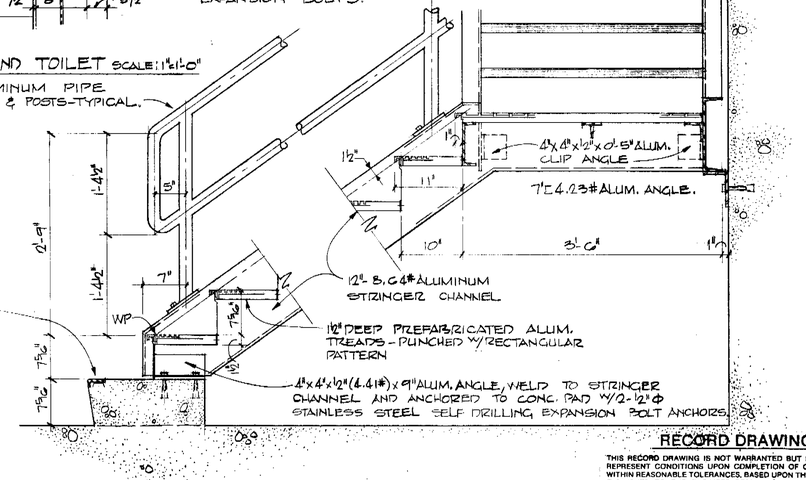
DETAIL AT PLENUM AND TOILET SCALE: 1"=1'-0"



SECTION THRU ACCESS OPENING
SCALE: 1"=1'-0"

SECTION THRU PLATFORM

6"x4"x½" ALUM. SEAT ANGLE 12" LONG, ANCHORED TO CONCRETE WITH 2-¾" DIAMETER STAINLESS STEEL SELF-DRILLING EXPANSION BOLTS.



SECTION THRU STAIRS
SCALE: 1"=1'-0"

RECORD DRAWING

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NOTE:

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STAIR DETAILS

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED JFK
DRAWN MRN
CHECKED JFK

APPROVED _____ DATE _____
SUPT., DEPT. OF SANITARY SEWERS
_____ DATE _____
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	10/31	DSH	Rec. Dwg. Revisions
1	Dec. 78	WEL	Added Addendum No. 1
	Mar. 78	JRP	Plans Updated

SCALE
0 2' 3 4 5 FT 1/2"=1'-0"
0 1 2 FT 1"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

ARCHITECTURAL DETAILS

PROJ. NO. S 202-70-30D-7-463
SHEET 20 OF 35
DATE AUGUST, 1972 REV. 1

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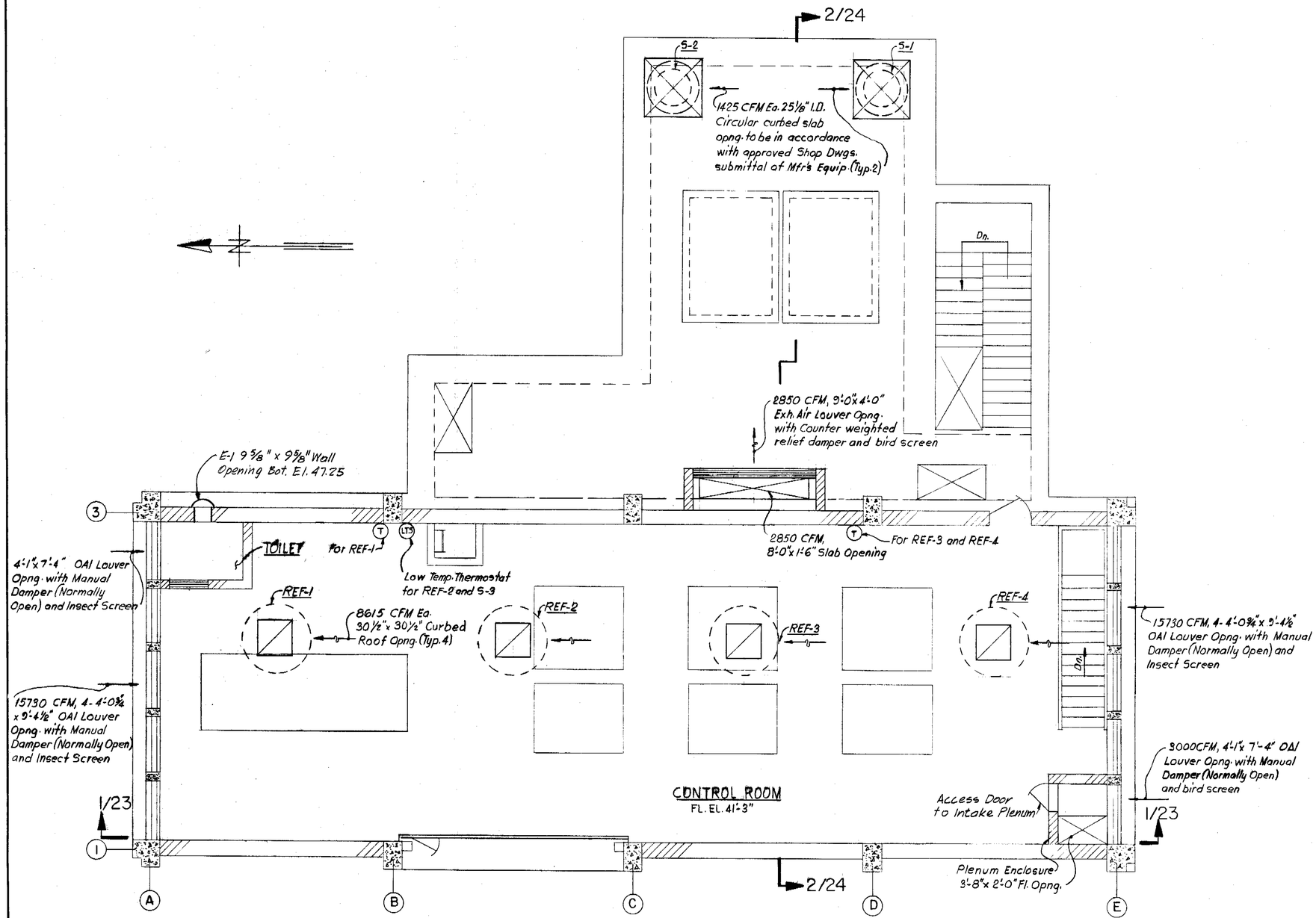

TOP FLOOR PLAN-FL. EL. 41'-3"

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

NOTE:

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RECORD DRAWING

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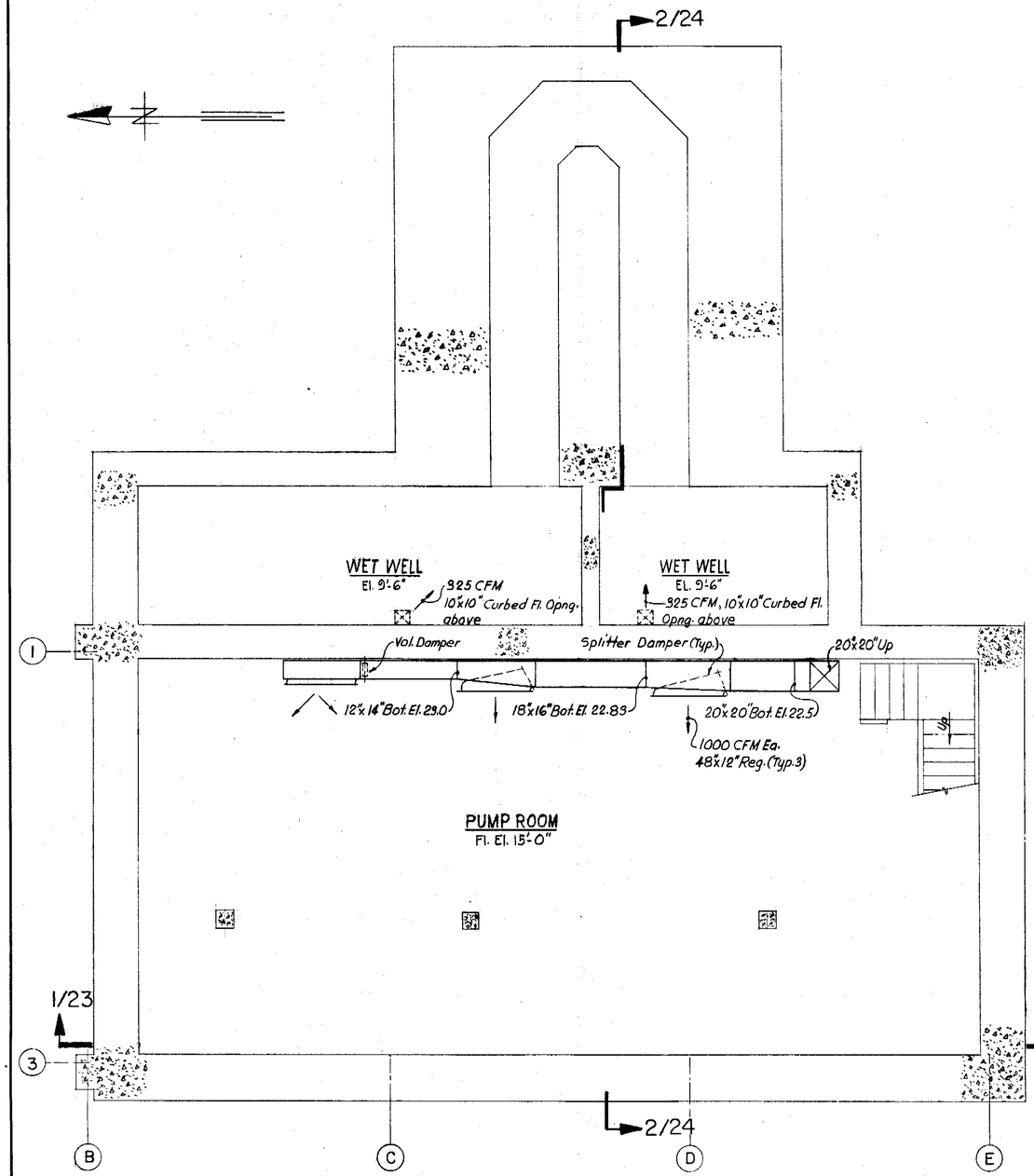
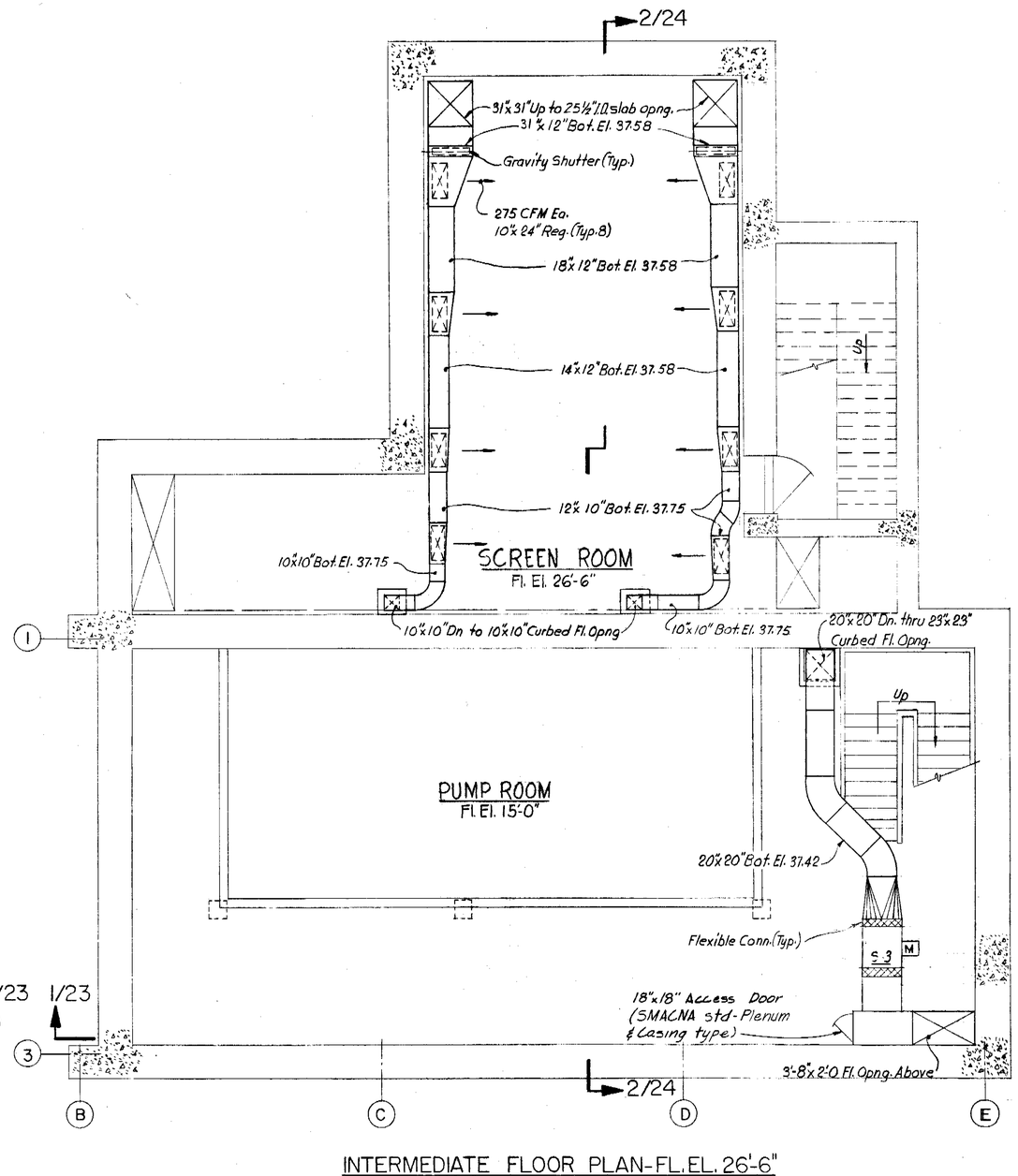
GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED FSS, RV DRAWN DUG CHECKED FSS	APPROVED _____ DATE _____ SUPT., DEPT OF SANITARY SEWERS _____ DATE _____ GREELEY AND HANSEN ENGINEERS	NO.	DATE	APP.	REVISION	SCALE 0 4 8 1/4"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4G3 131 ST. AVENUE PUMPING STATION	VENTILATING TOP FLOOR PLAN	PROJ. NO. S202-70-30D-7-4G3 SHEET 21 OF 35 DATE AUGUST, 1972 REV. 0
			1	10/81	DSH	Rec. Dwg. Revisions				
				Mar. 78	JRP	Plans Updated				

*K & E CO. 17-0153

173-53



LOWER FLOOR PLAN - FL. EL. 15'-0"
SCALE: 1/4"=1'-0"



INTERMEDIATE FLOOR PLAN - FL. EL. 26'-6"
SCALE: 1/4"=1'-0"

NOTE:
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RECORD DRAWING
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GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED FSS, RV DRAWN DUG CHECKED FSS	APPROVED DATE SUPT., DEPT OF SANITARY SEWERS DATE GREELEY AND HANSEN ENGINEERS	NO.	DATE	APP.	REVISION
			1	10/8/81	DSH	Rec. Dwg. Revisions
				Mar. 78	JRP	Plans Updated

SCALE: 4 0 4 8 FT — 1/4"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

VENTILATING
INTERMEDIATE AND
LOWER FLOOR PLAN

PROJ. NO. S202-70-30D-7-4G3
SHEET 22 OF 35
DATE AUGUST, 1972 | REV. 0

*K & E CO. 17-0153

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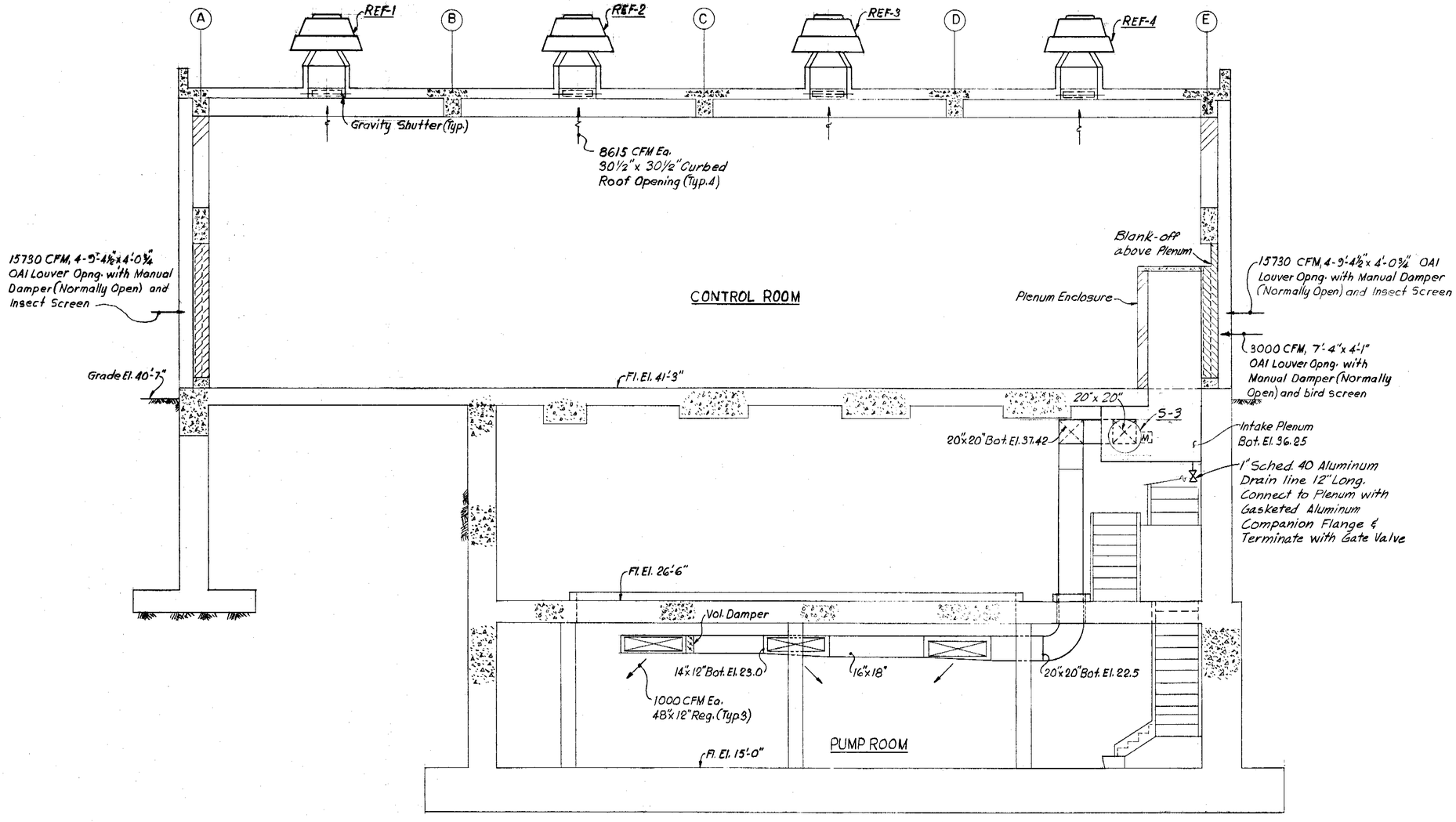

SECTION 1/21,22

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

NOTE:

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RECORD DRAWING

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED FSS, RV
DRAWN DUG
CHECKED FSS

APPROVED
_____ DATE _____
SUPT., DEPT OF SANITARY SEWERS
_____ DATE _____
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
1	10/81	DSH	Rec. Dwg. Revisions
	Mar. 78	JRP	Plans Updated

SCALE
4' 0 4 8 FT
1/4" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

VENTILATING
SECTIONS

PROJ. NO. S202-70-30D-7-463
SHEET 23 OF 35
DATE AUGUST, 1972 | REV. 0

*K & E CO. 17-0153

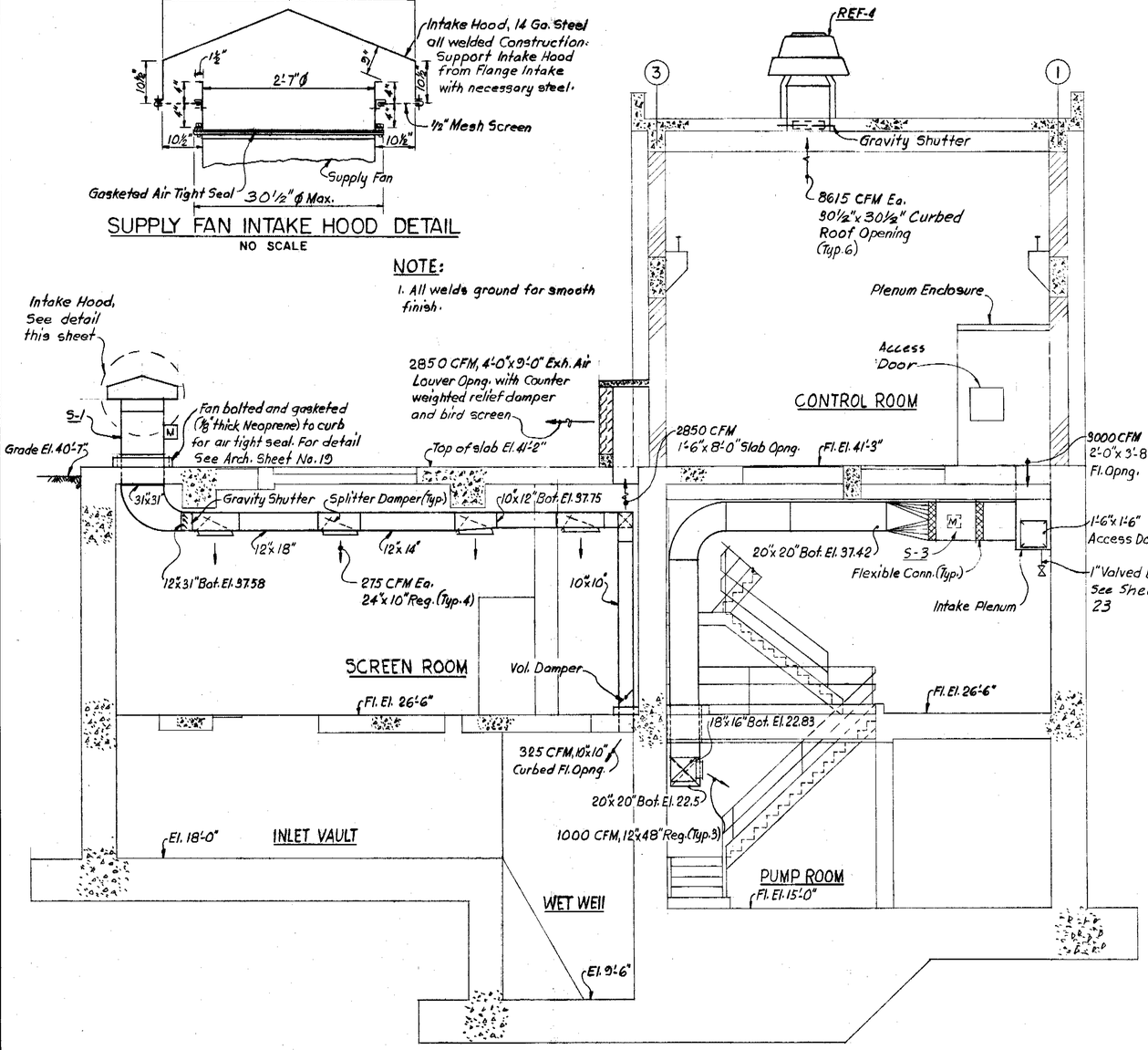
173-60

SUPPLY FAN INTAKE HOOD DETAIL

NO SCALE

NOTE:

1. All welds ground for smooth finish.



SECTION 2/21,22

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

SUPPLY FAN SCHEDULE

Item	No. Req'd	Location	Area Served	✳ Equipment Identification	Type	CFM	Static Press. In.(H_2O)	Max Fan RPM	Drive	Motor Data HP	RPM	V	ϕ	~	Remarks
S-1	1	Roof Slab Screen Rm.	Screen Rm. and Wet Well	CTB-20	Centrifugal In-Line	3190	2½	at High Speed 1510	V-Belt	3	1800/900	460	3	60	2 Speed, single winding motor. Fan rating based on high speed
S-2	1	Roof Slab Screen Rm.	Screen Rm. and Wet Well	CTB-20	Centrifugal In-Line	3190	2½	at High Speed 1510	V-Belt	3	1800/900	460	3	60	2 Speed, single winding motor. Fan rating based on high speed.
S-3	1	Pump Room	Pump Room	CTB-18	Centrifugal In-Line	3407	¾	1322	V-Belt	1½	1725	460	3	60	

✳✳ E-1 Toilet Exhaust Fan shall be Model No. CWF-67, 150 CFM @ ¼" S.P., Direct driven by 1/10 Hp. Motor, 1550 RPM, 1 ϕ 60 Cy 115 V, 2740 FPM Tip speed with Gravity Shutter and Disconnect Switch

✳✳ REF-1, REF-2, REF-3 and REF-4 Roof Exhaust Fans shall be Model No. CRF-300, 8615 CFM each @ ¼ S.P. driven by 1½ HP Motor, 570 RPM, 3ϕ, 60 ~, 460 V, 4477 FPM Tip Speed with Gravity Shutter and Disconnect Switch.

Roof curbed openings to be in accordance with approved Shop Drawings submittal of Manufacturer's Equipment. See Arch. Drawings for Curb details.

✳ Equipment identification model number is based on ILG Industries, Inc. and the equipment shall be as manufactured by ILG Industries, Inc., HK Porter Company Inc., "Centrifan", or equal.

✳✳ Equipment identification Model No. is based on ILG Industries, Inc. and the equipment shall be as manufactured by ILG Industries, Inc.; Penn Ventilator Company, Inc., "Domex"; Swartwout Division, Zurn Industries, Inc., "Fiber-Aire", or equal.

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RECORD DRAWING

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED FSS, RV
DR DUG
CHECKED FSS

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	10/81	OSH	Rec. Dwg. Revisions
1	Dec. 78	REV.	Added Addendum No. 1
	Mar. 78	JRP	Plans Updated

SCALE 4 0 4 8 1/4" = 1'-0"

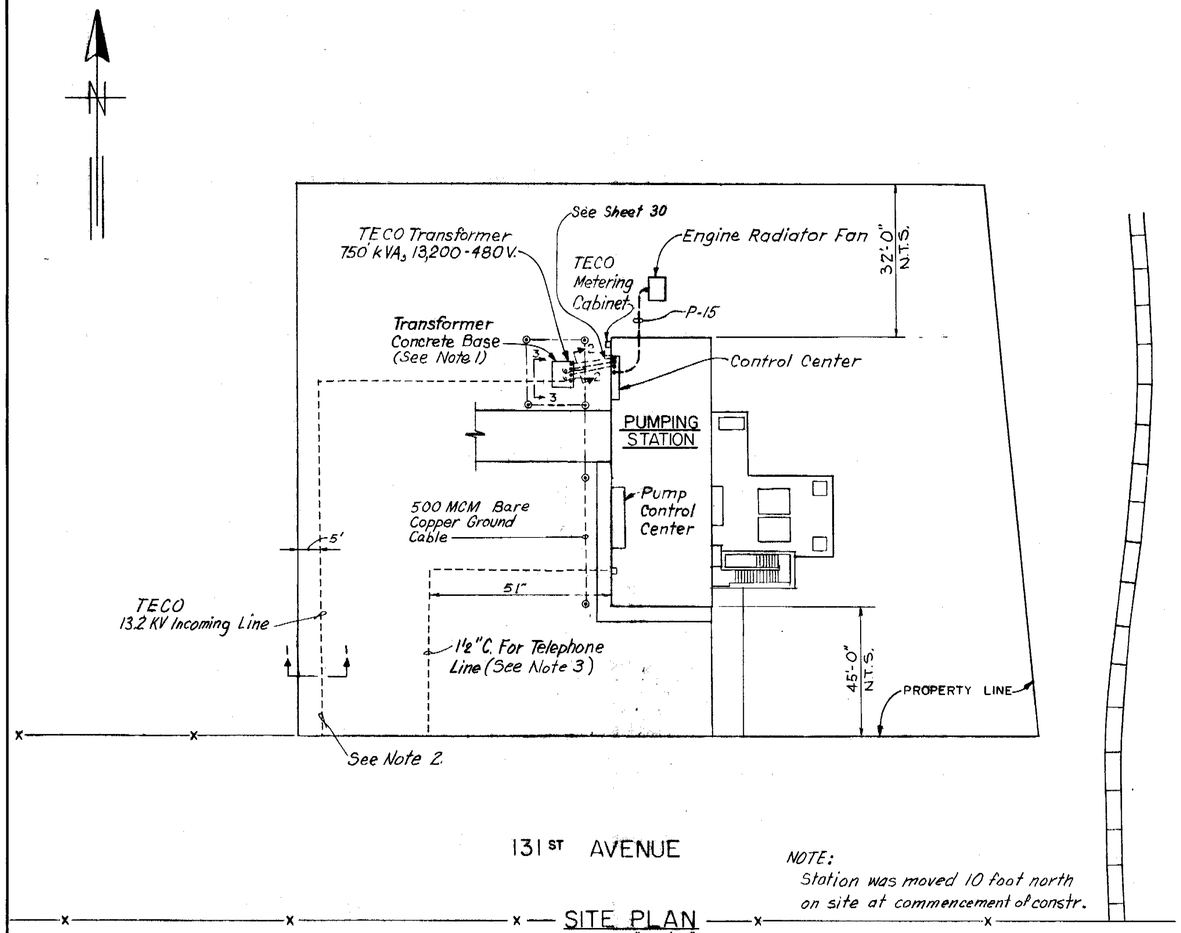
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

VENTILATING
SECTIONS
EQUIPMENT SCHEDULES

PROJ. NO. S202-70-30D-7-463
SHEET 24 OF 35
DATE AUGUST, 1972 REV. 1

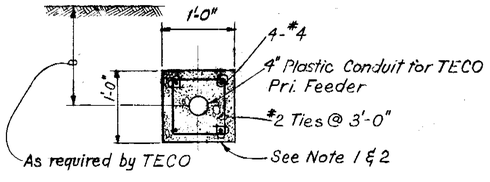
K & E CO. 17-0153

173-51

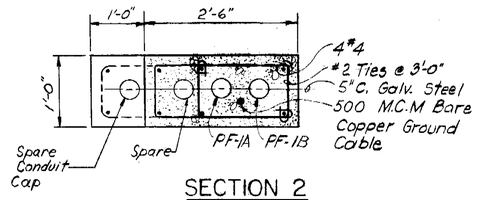


SITE PLAN
SCALE: 1"= 20'-0"

NOTE:
Station was moved 10 foot north on site at commencement of constr.



SECTION 1
NOT TO SCALE



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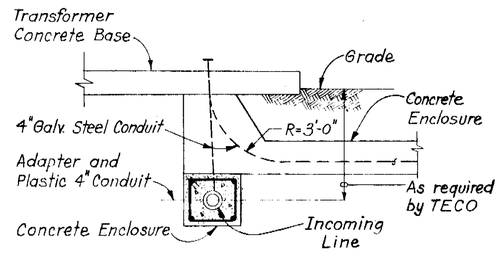
NOT TO SCALE



SECTION 3
NOT TO SCALE

PAUL E. LANGDON, JR. CERTIFICATE No. 15473 STATE OF FLORIDA REGISTERED ENGINEER

LEGEND

TECO – Tampa Electric Company
M – Contactor Operating Coil
PSR – Phase Sequence and Undervoltage Relay
SAL – MD Drive Alarm Contact (Closes on TG Failure)
SS – Selector Switch
ES – Emergency Stop Push Button
SI – Speed Indicator
GSR – Ground Fault Sensing Relay
ETM – Elapsed Time Meter
TMR – Timer

FU – Fuse
LS – Limit Switch
LSS – Suction Sluice Gate Limit Switch
OL – Overload Relay
LLC – Liquid Level Control
DPS – Differential Pressure Switch
DVS – Pump Discharge Valve Solenoid Control Valve
SWS – Seal Water Solenoid Valve
LEL – Lower Explosion Limit
AR, CR – Control Relay

PDT – Pump Transfer Duty Switch
TR – Timing Relay
TO – Time Opening
TC – Time Closing

LI – Liquid Level Indicator
DT – Transfer Duty Switch
VIB – Vibration Sensing Switch
POT – Manual Speed Adjusting Potentiometer
Ψ – Thermistors
SF – Seal Water Flow Switch
LTS – Low Temperature Thermostat
TG – Tachometer Generator
MG – Controller for Thermal Protection
MDC – Magnetic Drive Contactor
MD – Magnetic Drive
MCP – Motor Circuit Protector
ES – Emergency Stop

△ – Located remotely from Control Center
S/L – Start-Stop/Lockout P.B. Station
——— – Exposed Conduit
- - - – Embedded Conduit, or under Slab
—·—·— – Grounding Conductor
– Duplex Receptacle
– Single Receptacle
– Clock Outlet
– 480 Volt-3 Phase-Receptacle
R – Indicating Light, R-red, G-green, B-blue, A-amber
– Mercury Vapor Light Fixture

– Fluorescent Light Fixture
$ – Light Switch
$3 – Light Switch 3 Way
$PL – Light Switch with Pilot Light

Y – Furnished with Equipment
– Ground Rod

X – Explosion-Proof
P – Pressure Switch
F – Float Switch
T – Thermostat
SV – Solenoid Valve

WP – Weatherproof
PC – Photo Cell
ALT – Alternator
HL – High Water Level Switch

50A – Circuit Breaker with Thermal-Magnetic Trip rated 50 A.

1200A/1000A S – 1200 A Frame Circuit Breaker with Solid State Sensor, rated to monitor 1000 A

MCP 3E M – Across the Line Motor Circuit Protector (MCP) Combination Starter with Control Transformer and Overload Relays (M-Operating Coil)

MCP 3E H – Combination two Speed Motor Starter with Control Transformer and Overload Relays

NOTES:
1 – Transformer Concrete Base, Underground Conduit & Grounding shall be in Accordance with TECO Requirements.
2 – Terminate in Accordance with TECO Requirements.
3 – Conduit for the Telephone Line shall be installed and terminated in accordance with the Telephone Co. Requirements.

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION, WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

GREELEY AND HANSEN ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED KK
DRAWN FS
CHECKED OA

APPROVED
SUPT., DEPT. OF SANITARY SEWERS DATE
GREELEY AND HANSEN, ENGINEERS DATE

NO.	DATE	APP.	REVISION
1	10/91	DSH	Rec Dwg. Revisions
	Mar 78	JRP	Plans Updated

SCALE
20 0 20 40 FT
1"= 20'

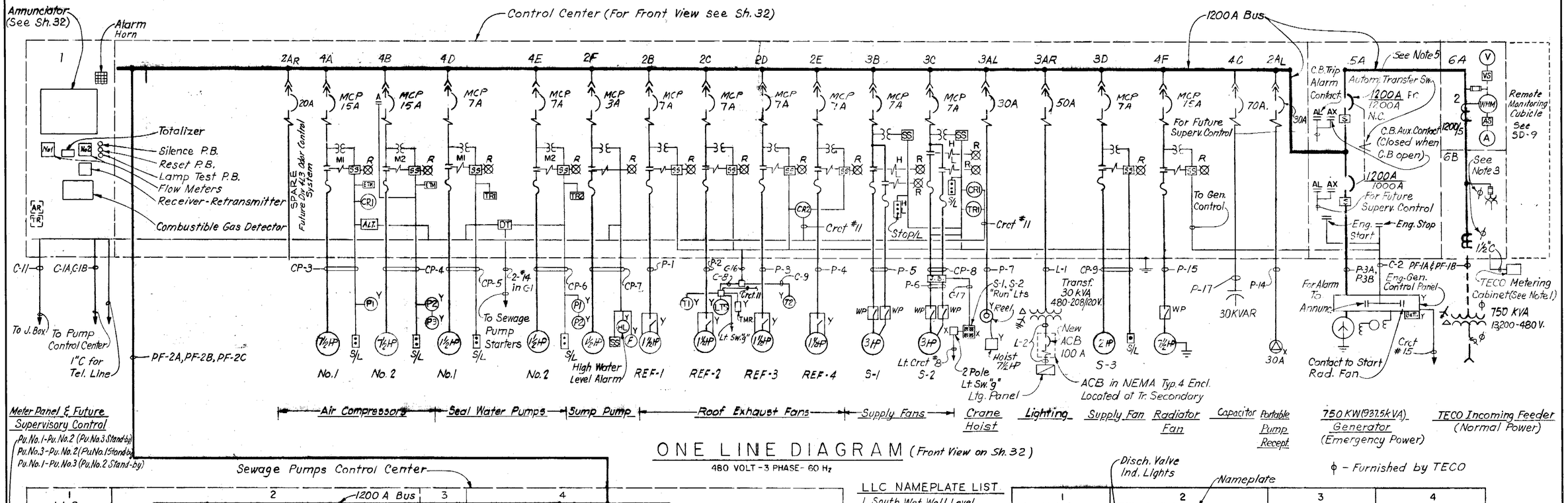
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

ELECTRICAL SITE PLAN AND LEGEND

PROJ. NO. S202-70-300-7-463
SHEET 25 OF 35
DATE AUGUST, 1972 REV. 0

ONE LINE DIAGRAM (Front View on Sh. 32)

480 VOLT - 3 PHASE - 60 Hz



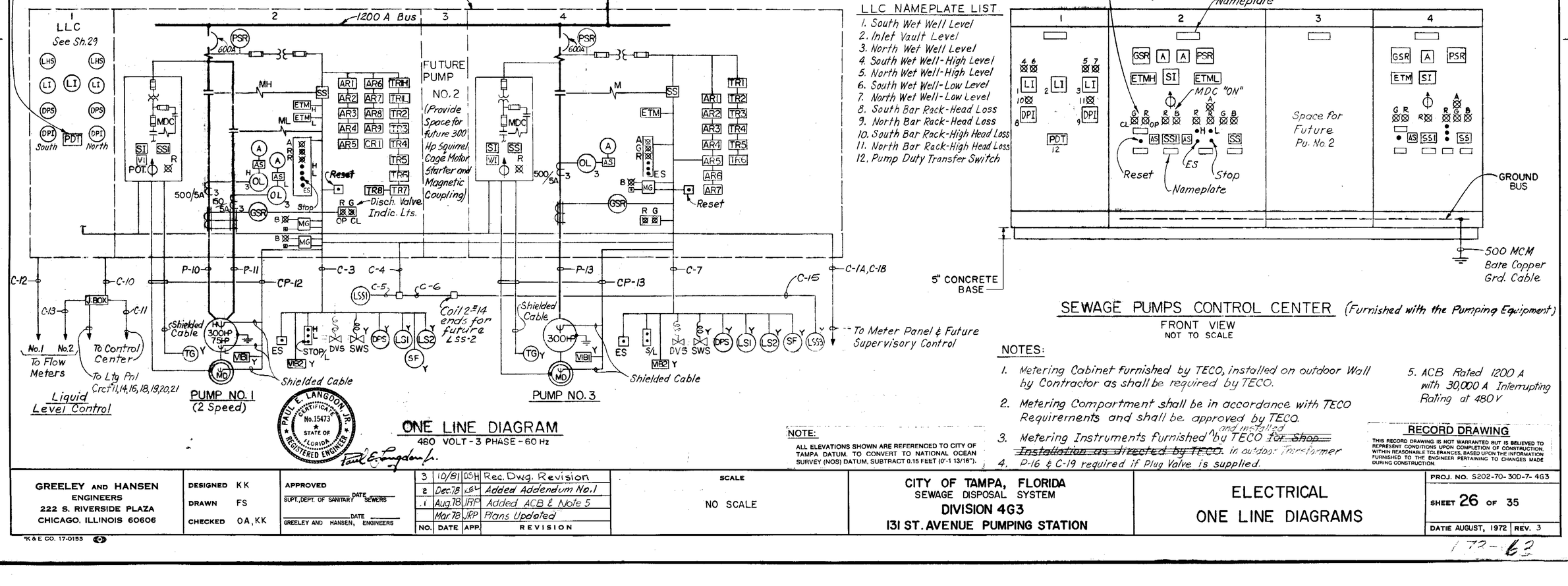
Meter Panel & Future Supervisory Control

Pu. No. 1 - Pu. No. 2 (Pu. No. 3 Stand-by)
Pu. No. 3 - Pu. No. 2 (Pu. No. 1 Stand-by)
Pu. No. 1 - Pu. No. 3 (Pu. No. 2 Stand-by)

ϕ - Furnished by TECO

LLC NAMEPLATE LIST

1. South Wet Well Level
2. Inlet Vault Level
3. North Wet Well Level
4. South Wet Well-High Level
5. North Wet Well-High Level
6. South Wet Well-Low Level
7. North Wet Well-Low Level
8. South Bar Rack-Head Loss
9. North Bar Rack-Head Loss
10. South Bar Rack-High Head Loss
11. North Bar Rack-High Head Loss
12. Pump Duty Transfer Switch



SEWAGE PUMPS CONTROL CENTER (Furnished with the Pumping Equipment)

FRONT VIEW
NOT TO SCALE

NOTES:

1. Metering Cabinet furnished by TECO, installed on outdoor Wall by Contractor as shall be required by TECO.
2. Metering Compartment shall be in accordance with TECO Requirements and shall be approved by TECO.
3. Metering Instruments furnished by TECO ~~for Shop Installation as directed by TECO~~ and installed in outdoor Transformer
4. P-16 & C-19 required if Plug Valve is supplied.
5. ACB Rated 1200 A with 30,000 A Interrupting Rating at 480 V

NOTE:

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RECORD DRAWING

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PAUL E. LANGDON, JR. CERTIFICATE No. 15473 STATE OF FLORIDA REGISTERED ENGINEER

Paul E. Langdon Jr.

ONE LINE DIAGRAM
480 VOLT - 3 PHASE - 60 Hz

3	10/81	DSH	Rec. Dwg. Revision	
2	Dec 78	KK	Added Addendum No. 1	
1	Aug 78	JRP	Added ACB & Note 5	
	Mar 78	JRP	Plans Updated	
NO.	DATE	APP.	REVISION	

GREELEY AND HANSEN ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED KK
DRAWN FS
CHECKED OA, KK

APPROVED
SUPT., DEPT. OF SANITARY SEWERS DATE
GREELEY AND HANSEN, ENGINEERS DATE

SCALE
NO SCALE

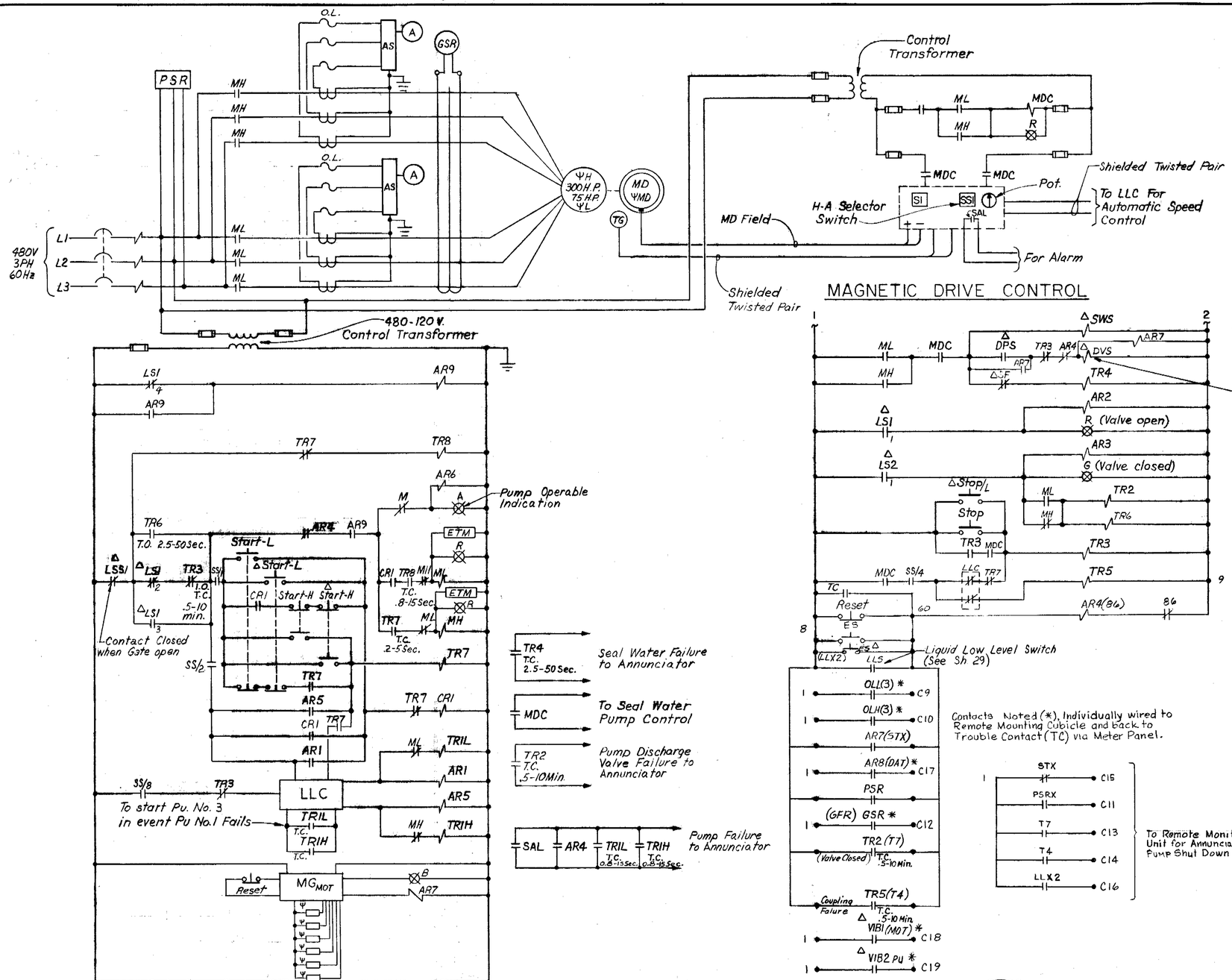
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

ELECTRICAL
ONE LINE DIAGRAMS

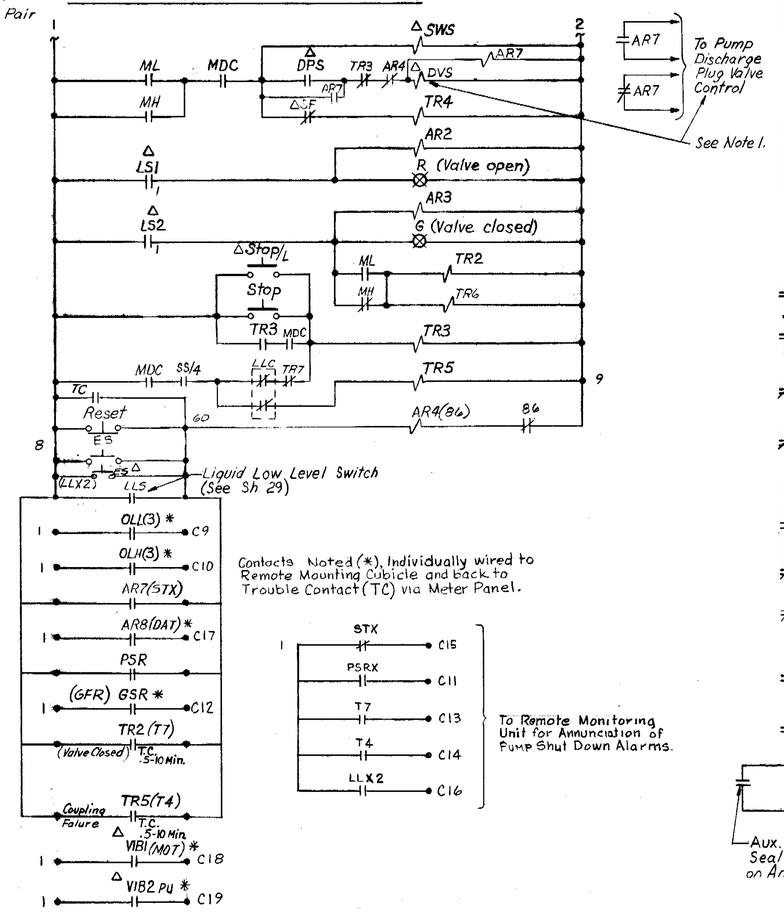
PROJ. NO. S202-70-300-7-463
SHEET 26 OF 35
DATE AUGUST, 1972 REV. 3

*K & E CO. 17-0153

172-62

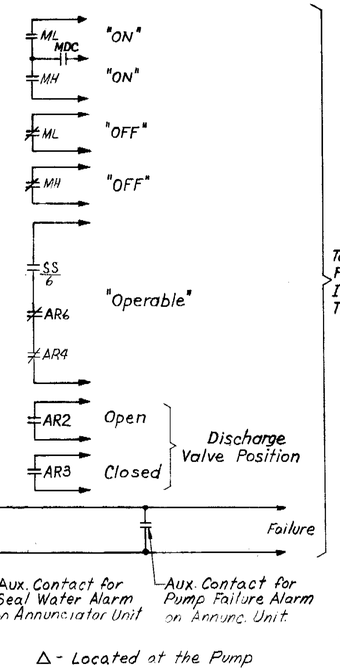


MAGNETIC DRIVE CONTROL



SS DEVELOPMENT		
Contact	Hand	Auto.
1	x	
2		x
3	x	
4		x
5	x	
6		x
7	x	
8		x

LS	Contact	DISCHARGE VALVE POSITION		
		Fully Closed	Intermed. Position	Fully Open
LS1	1		x	x
	2	x		
	3		x	x
	4	x		
LS2	1	x	x	
	2			x
	3	x	x	
	4			x



△ - Located at the Pump

PUMP NO. 1 SCHEMATIC CONTROL DIAGRAM

PAUL E. LANGDON JR. CERTIFICATE No. 15473 STATE OF FLORIDA REGISTERED ENGINEER

NOTE:

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED KK OA
DRAWN FS
CHECKED OA

APPROVED
SUPT., DEPT. OF SANITARY SEWERS — DATE
GREELEY AND HANSEN, ENGINEERS — DATE

NO.	DATE	APP.	REVISION
1	10/81	DSH	Rec. Dwg. Revisions
	Mar.78	JRP	Plans Updated

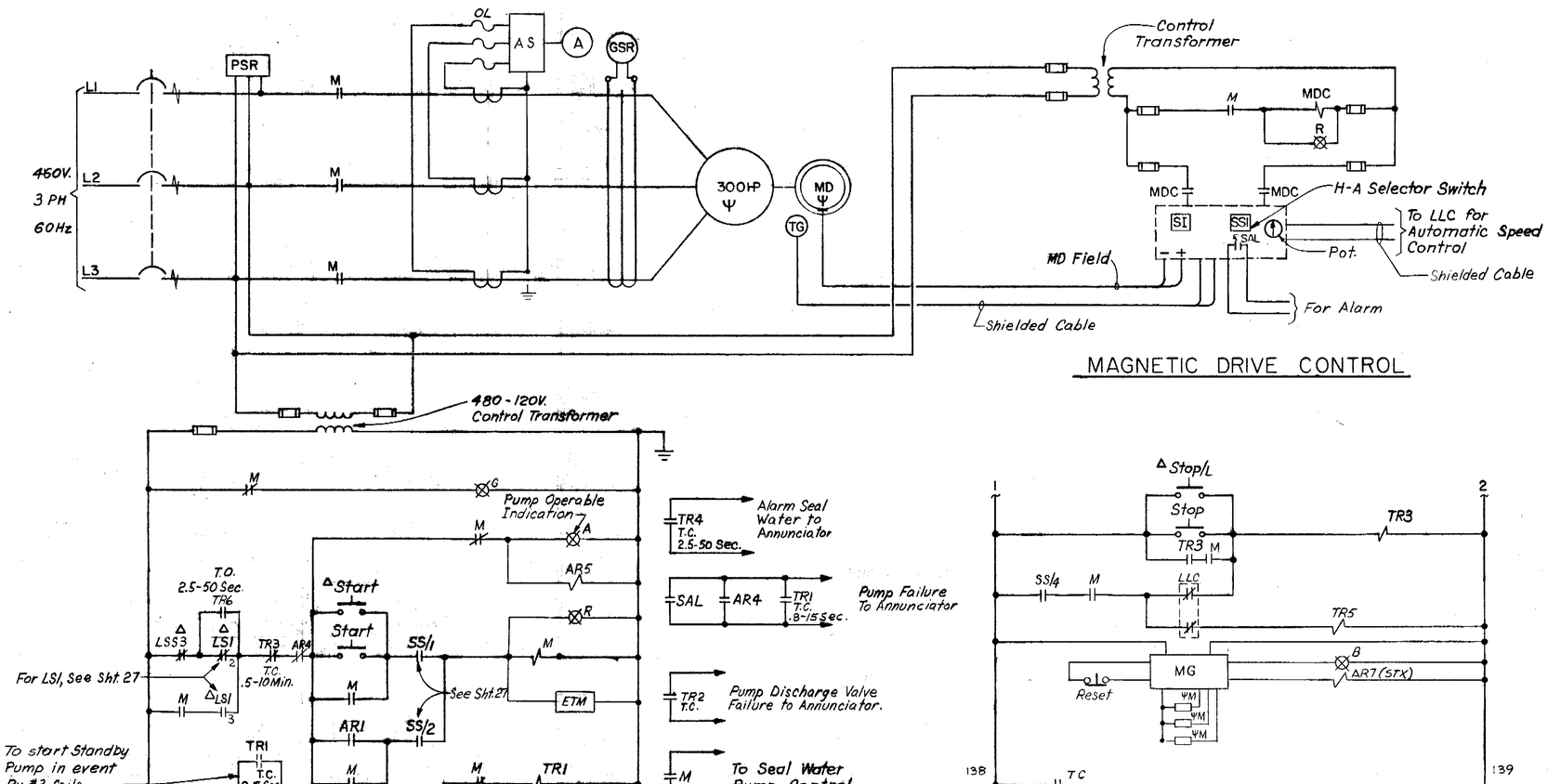
SCALE: NO SCALE

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

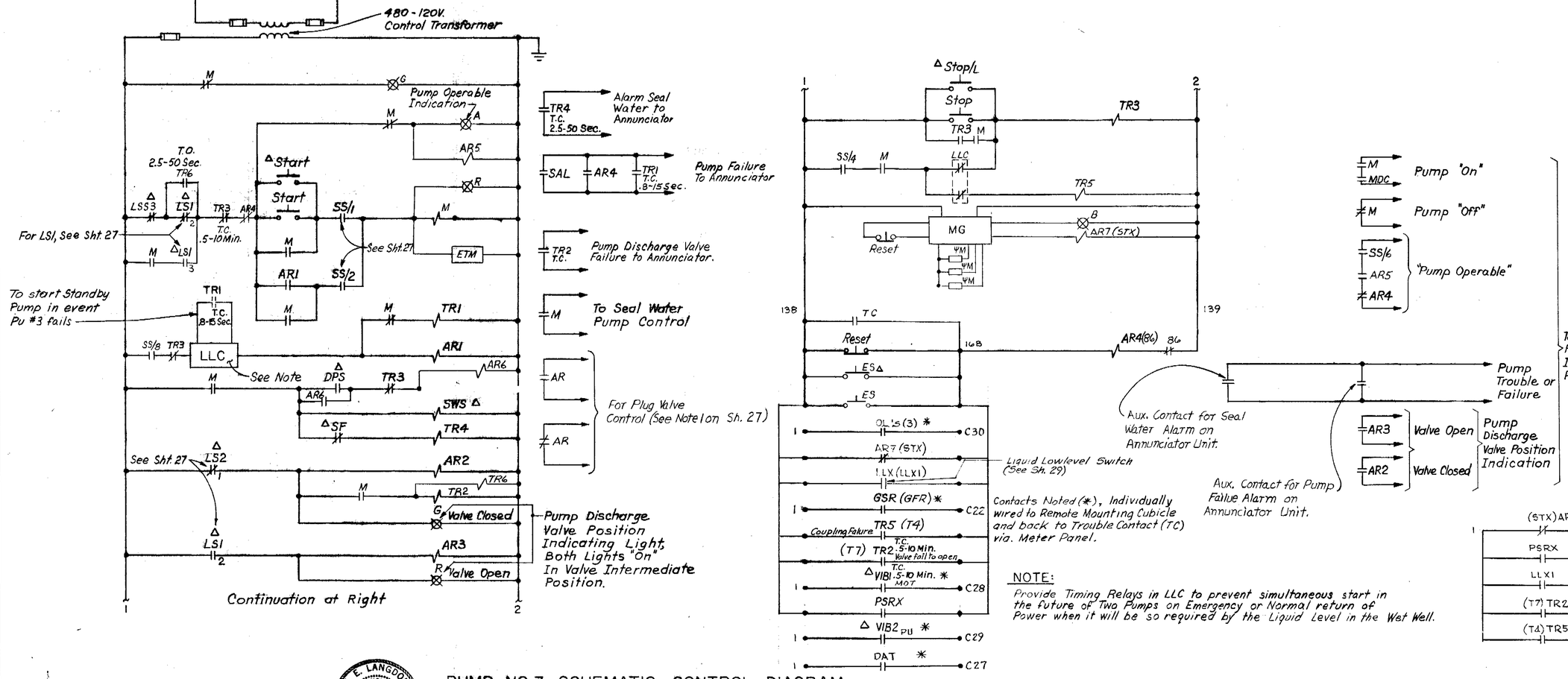
ELECTRICAL
SEWAGE PUMP NO. 1 CONTROL

PROJ. NO. S 202-70-30D-7-463
SHEET 27 OF 35
DATE AUGUST, 1972 REV. 1

173-64



MAGNETIC DRIVE CONTROL



NOTE:
Provide Timing Relays in LLC to prevent simultaneous start in the future of Two Pumps on Emergency or Normal return of Power when it will be so required by the Liquid Level in the Wet Well.

PUMP NO.3 SCHEMATIC CONTROL DIAGRAM

PAUL E. LANGDON, JR. CERTIFICATE No. 15473 STATE OF FLORIDA REGISTERED ENGINEER

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RECORD DRAWING
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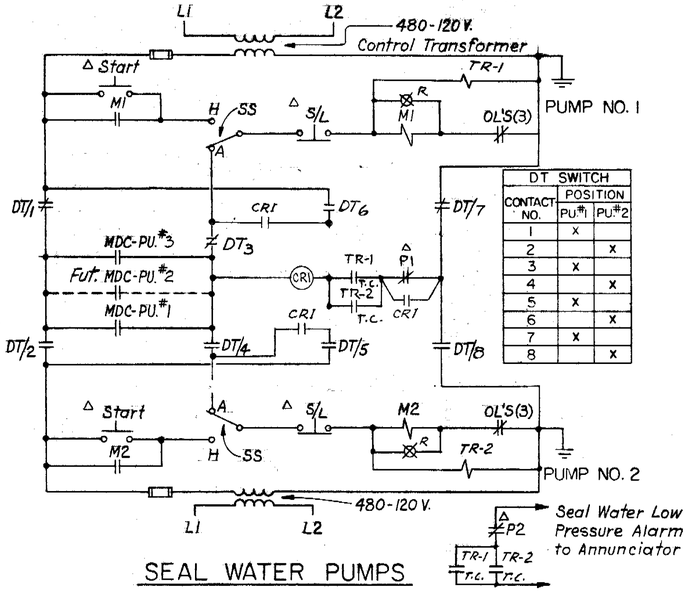
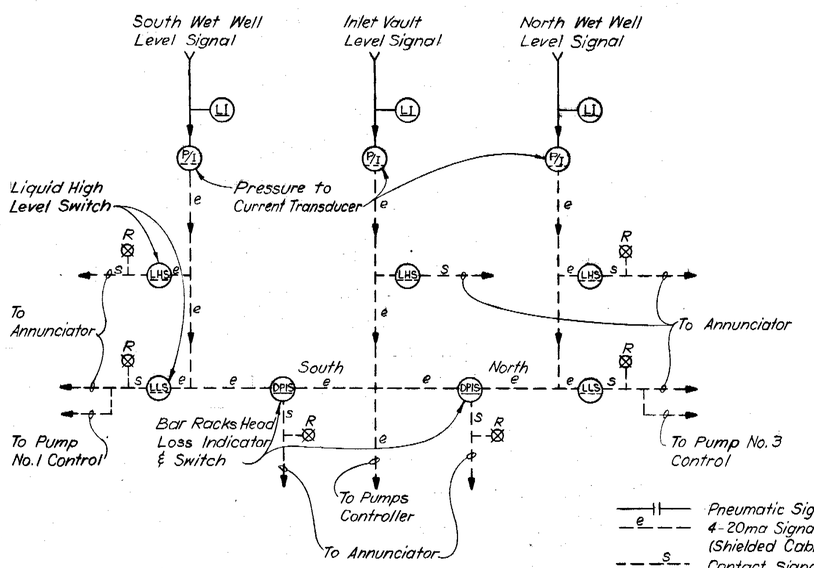
GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED KK, OA DRAWN FS CHECKED OA	APPROVED _____ DATE _____ SUPT., DEPT. OF SANITARY SEWERS _____ DATE _____ GREELEY AND HANSEN, ENGINEERS	NO.	DATE	APP	REVISION
			2	10/81	DSH	Rec. Dwg. Revisions
			1	Dec. 78	KBL	Added Addendum No. 1
				Mar. 78	JPP	Plans Updated
SCALE: NO SCALE	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 463 131 ST. AVENUE PUMPING STATION	ELECTRICAL SEWAGE PUMP NO. 3 CONTROL	PROJ. NO. S 202-70-30 D-7=463 SHEET 28 OF 35 DATE AUGUST, 1972 REV. 2			

123-45

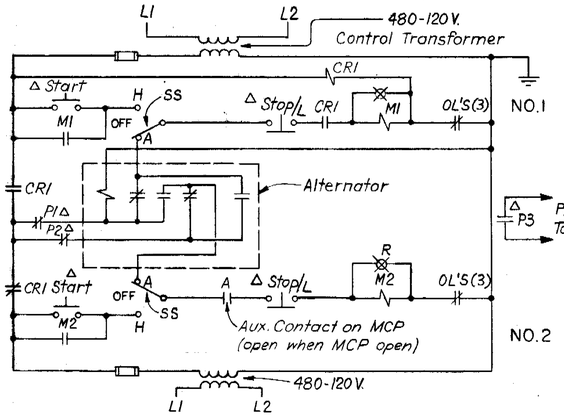


DT SWITCH		
CONTACT NO.	POSITION PU#1	PU#2
1	x	
2		x
3	x	
4		x
5	x	
6		x
7	x	
8		x

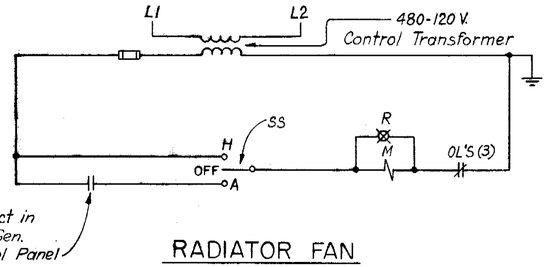
SEAL WATER PUMPS



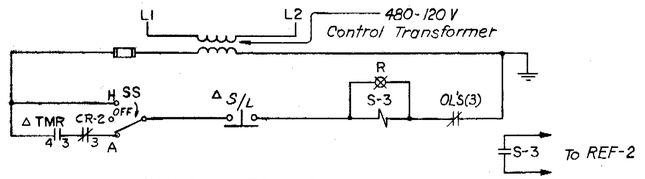
LIQUID LEVEL CONTROL DIAGRAM



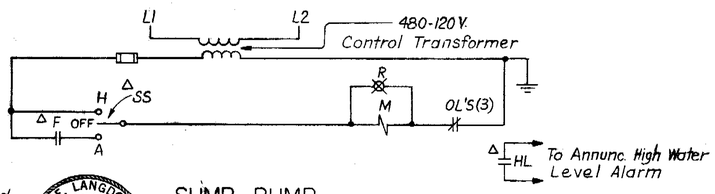
AIR COMPRESSORS NO.1 & 2



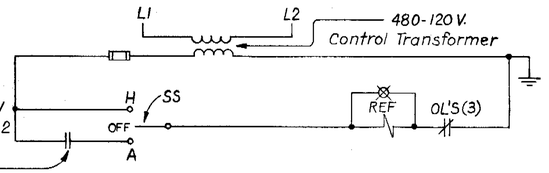
RADIATOR FAN



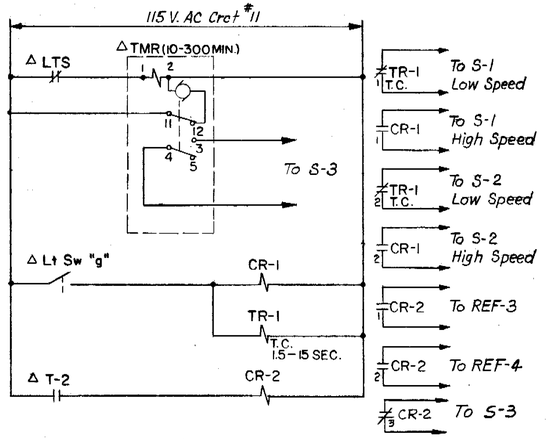
SUPPLY FAN S-3



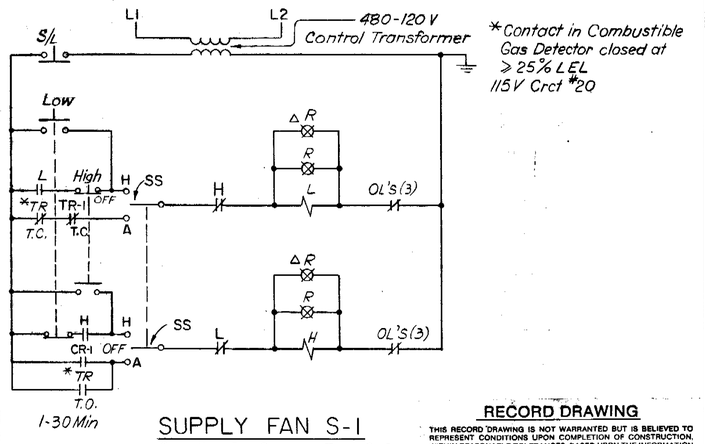
SUMP PUMP



ROOF EXHAUST FANS REF-1 & TO REF-4



VENT SYSTEM TIMER & RELAYS



SUPPLY FAN S-1
Similar for Supply Fan S-2

NOTE:
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RECORD DRAWING
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PAUL E. LANGDON JR. CERTIFICATE No.15473 STATE OF FLORIDA REGISTERED ENGINEER

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED KK
DRAWN FS
CHECKED OA, KK

APPROVED _____ DATE _____
SUPT., DEPT. OF SANITARY SEWERS
_____ DATE _____
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
1	10/81	DSH	Rec.Dwg.Revisions
	Mar.78	JRP	Plans Updated

SCALE
NO SCALE

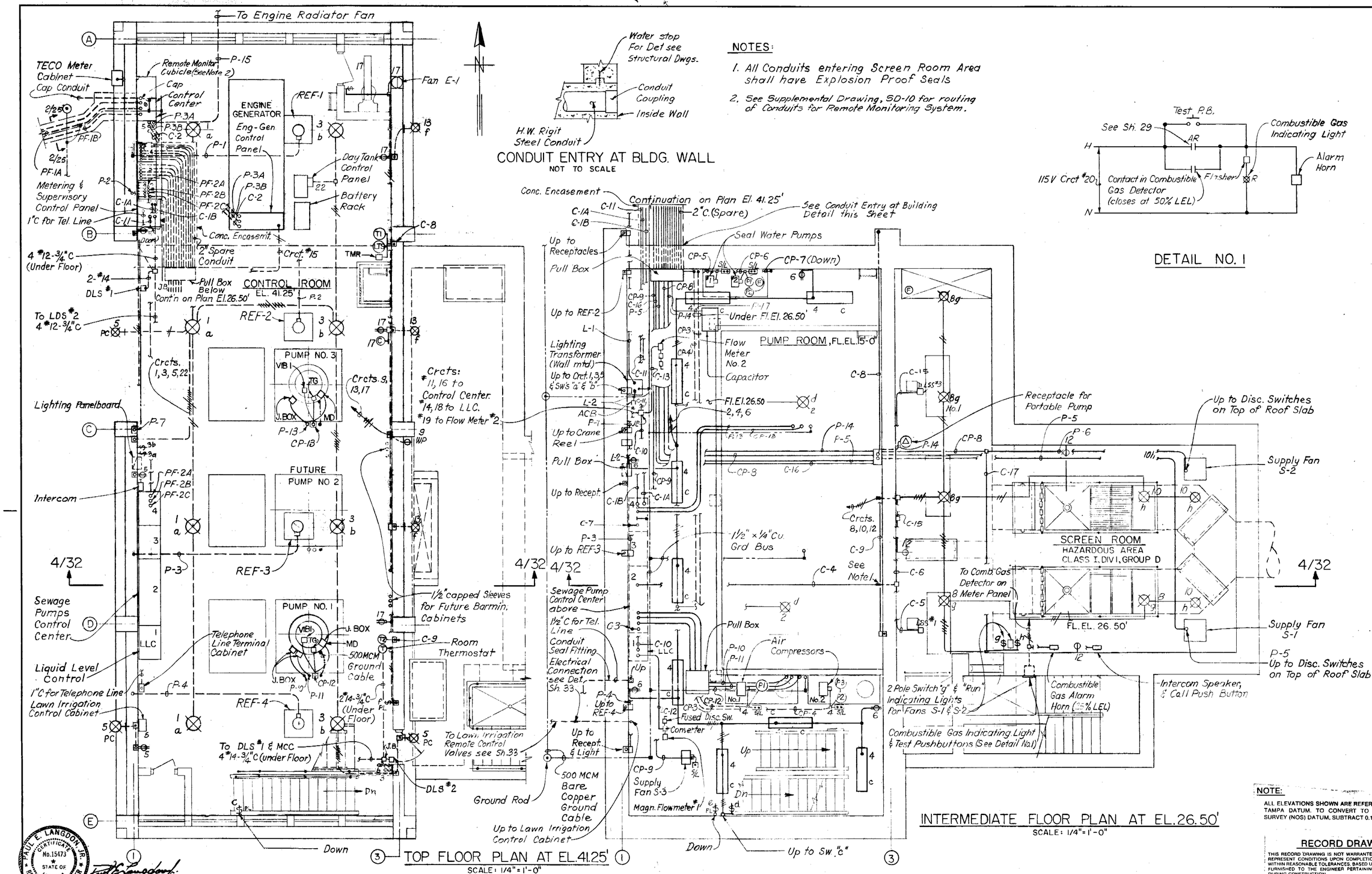
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

ELECTRICAL
MISCELLANEOUS CONTROL DIAGRAMS

PROJ. NO. S202-70-30 D-7-463
SHEET 29 OF 35
DATE AUGUST, 1972 REV. 1

*K & E CO. 17-0153

173



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PAUL E. LANGDON JR. CERTIFICATE No. 15473 STATE OF FLORIDA REGISTERED ENGINEER

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED KK
DRAWN FS
CHECKED OA, KK

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
3	10/81	DSH	Rec. Mtg. Revisions
2	Aug. 78	JRP	Added ACB
1	7-14-78	JRP	Revised Conduits & Wiring
	Mar. 78	JRP	Plans Updated

SCALE 0 4 8 FT 1/4" = 1'-0"

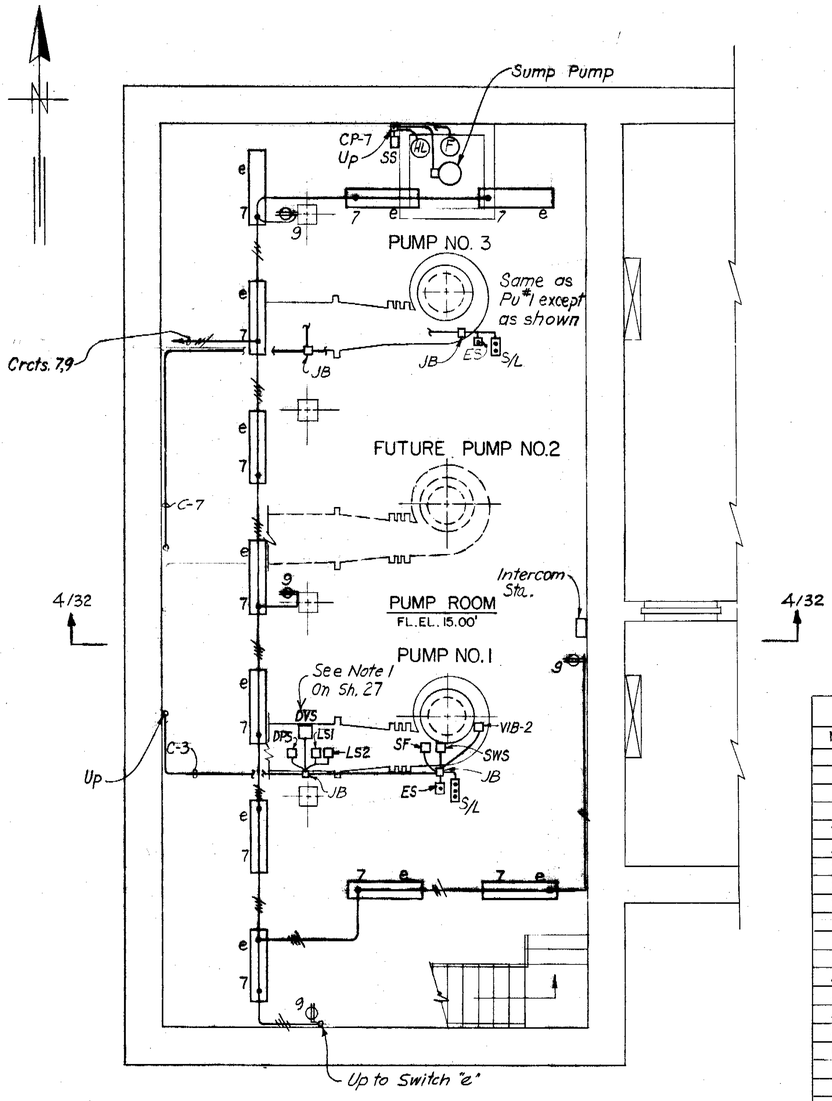
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

ELECTRICAL
TOP AND INTERMEDIATE FLOOR PLANS

PROJ. NO. S202-70-30D-7-463
SHEET 30 OF 35
DATE AUGUST, 1972 REV. 3

*K & E CO. 17-0153

113-67-4



LOWER FLOOR PLAN AT EL. 15.00'

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

REMOTE MONITORING CUBICLE	
NO.	ANNUNCIATOR NAMEPLATE
1A	PUMP No. 1 OVERLOAD RELAY - LOW SPEED
1B	PUMP No. 1 OVERLOAD RELAY - HIGH SPEED
1C	PUMP No. 1 PHASE SEQUENCE RELAY
1D	PUMP No. 1 GROUND FAULT RELAY
2A	PUMP No. 1 PUMP DISCHARGE VALVE FAIL TO OPEN
2B	PUMP No. 1 E.C.C. FAILURE
2C	PUMP No. 1 MOTOR STATOR HIGH TEMPERTURE
2D	PUMP No. 1 SOUTH WET WELL LOW LEVEL
3A	PUMP No. 1 ECC. HIGH DISCHARGE AIR TEMPERTURE
3B	PUMP No. 1 MOTOR EXCESSIVE VIBRATION
3C	PUMP No. 1 PUMP EXCESSIVE VIBRATION
3D	PUMP No. 3 OVERLOAD RELAY
4A	PUMP No. 3 PHASE SEQUENCE RELAY
4B	PUMP No. 3 GROUND FAULT RELAY
4C	PUMP No. 3 MOTOR STATOR HIGH TEMPERTURE
4D	PUMP No. 3 NORTH WET WELL LOW LEVEL
5A	PUMP No. 3 PUMP DISCHARGE VALVE FAIL TO OPEN
5B	PUMP No. 3 E.C.C. FAILURE
5C	PUMP No. 3 E.C.C. HIGH DISCHARGE AIR TEMPERTURE
5D	PUMP No. 3 MOTOR EXCESSIVE VIBRATION
6A	PUMP No. 3 PUMP EXCESSIVE VIBRATION
6B-6D	SPARE

SCHEDULE OF LIGHTING PANEL 208/120 V, 3 PHASE, 60 Hz

CRCT. NO.	LOCATION	FLOOR EL.	MTG. HT.	FIXT. TYPE	LIGHTS MOTORS	REC.	TOTAL WATTS	REMARKS
1	Control Room	41'-3	Ceiling	H-1	4@450		1800	3 Way Switches
2	Pump Room	15'-0"	20'-0"	H-1	2@450		900	
3	Control Room	41'-3"	Ceiling	H-1	4@450		1800	3 Way Switches
4	Intermediate Floor	26'-6"	9'-0"	B-1	9@100		900	
5	Exterior Lights - West	41'-3"	10'-6"	H-3	2@200			With Photo Cell
	Exterior Lights - East	41'-3"	10'-6"	H-4	1@285			With Photo Cell
	Control Room	41'-3"	2'-0"			3		
	Control Room	41'-3"	5'-0"		100		1385	Lawn Irrig. Contr. Cab.
6	Intermediate Floor	26'-6"	3'-0"			4	800	
7	Lower Floor	15'-0"	9'-0"	B-1	11@100		1100	
8	Screen Room	26'-6	11'-0"	A-1	5@200		1000	Explosion Proof
9	Pump Room	15'-0"	3'-0"	-	-	4		
	Exterior - East	41'-3"	3'-0"	-	-	1	1000	Weatherproof
10	Screen Room	26'-6"	11'-0"	A-1	3@200		600	Explosion Proof
11	Control Room	41'-3"	-	-	-	-	150	Vent Relays
12	Screen Room	26'-6	3'-0"	-	-	3	600	Explosion Proof
13	Exterior Lgts. - East	41'-3"	10'-6"	H-2	3@285		855	
14	Control Room	41'-3"	-	-	-	-	1000	Liquid Level Cont. Panel LLC
15	Control Room	41'-3"	-	-	-	-	1000	Battery Charger
16	Control Room	41'-3"	-	-	-		500	Annunciator and Future Supery. System
17	Toilet Room	41'-3"	Ceiling	B-2	1@50			Fan E-1
	Control Room	41'-3"	2'-0"	-	-	4	750	(1) Clock outlet mtd 80"
18	Control Room	41'-3"	-	-	-	-	800	Flowmeter No. 1
19	Control Room	41'-3"	-	-	-	-	800	Flowmeter No. 2
20	Control Room	41'-3"	-	-	-	-	300	Combustible Gas Detector
21	Control Room	41'-3"	-	-	-	-	200	Intercom
22	Control Room	41'-3"	-	-	-	-	1200	Day Tank Control Panel
23	Spare		-	-	-	-		
24	Intermediate Floor	26'6"	-	-	-	-		Air Dryer
25	Spare		-	-	-	-		
26	Control Room	41'3"	-	-	-	-		DSS installed lights MCC
27/30	Spares							

~ - Handle "Lock-In" device

⏚ - Circuit Breaker with ground fault Interrupter

NOTE:
Minimum Conductor size for Lighting shall be size 12. Minimum Conduit size for Lighting shall be 3/4"-in

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING
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PAUL E. LANGDON JR. CERTIFICATE No. 15473 STATE OF FLORIDA REGISTERED ENGINEER

Paul E. Langdon Jr.

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED KK
DRAWN LPF, FS
CHECKED OA

APPROVED
SUPT., DEPT. OF SANITARY SEWERS DATE
GREELEY AND HANSEN, ENGINEERS DATE

NO.	DATE	APP.	REVISION
3	10/81	DSH	Rec. Dwg. Revisions
2	Dec 78	JRP	Added Addendum No. 1
1	Aug. 78	JRP	Added Note
	Mar. 78	JRP	Plans Updated

SCALE
4 0 4 8 FT
1/4"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

ELECTRICAL
LOWER FLOOR PLAN
LIGHTING SCHEDULE

PROJ. NO. S202-70-300-7-4G3
SHEET 31 OF 35
DATE AUGUST, 1972 REV. 3

K & E CO. 17-0153

ANNUNCIATOR NAMEPLATE LIST

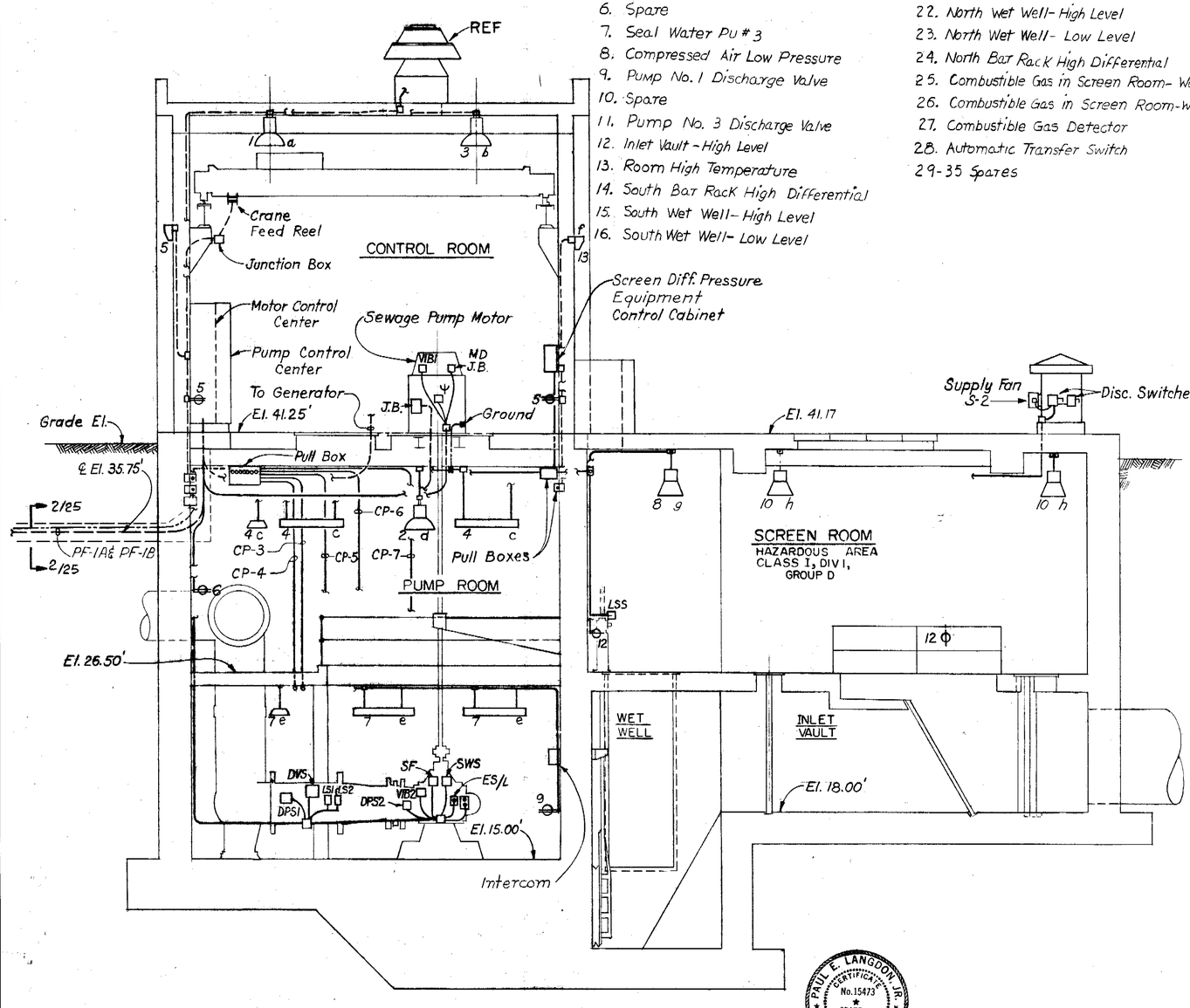
(LOCATED IN MOTOR CONTROL CENTER)

1. Sewage Pump No. 1
2. Spare
3. Sewage Pump No. 3
4. Seal Water Low Pressure
5. Seal Water PU # 1
6. Spare
7. Seal Water Pu # 3
8. Compressed Air Low Pressure
9. Pump No. 1 Discharge Valve
10. Spare
11. Pump No. 3 Discharge Valve
12. Inlet Vault - High Level
13. Room High Temperature
14. South Bar Rack High Differential
15. South Wet Well - High Level
16. South Wet Well - Low Level
17. Sump High Water Level
18. Spare
19. Engine - Generator
20. Door Security Switches
21. Engine Generator Day Tank
22. North Wet Well - High Level
23. North Wet Well - Low Level
24. North Bar Rack High Differential
25. Combustible Gas in Screen Room - Warning Low (25% LEL)
26. Combustible Gas in Screen Room - Warning High (50% LEL)
27. Combustible Gas Detector
28. Automatic Transfer Switch

29-35 Spares

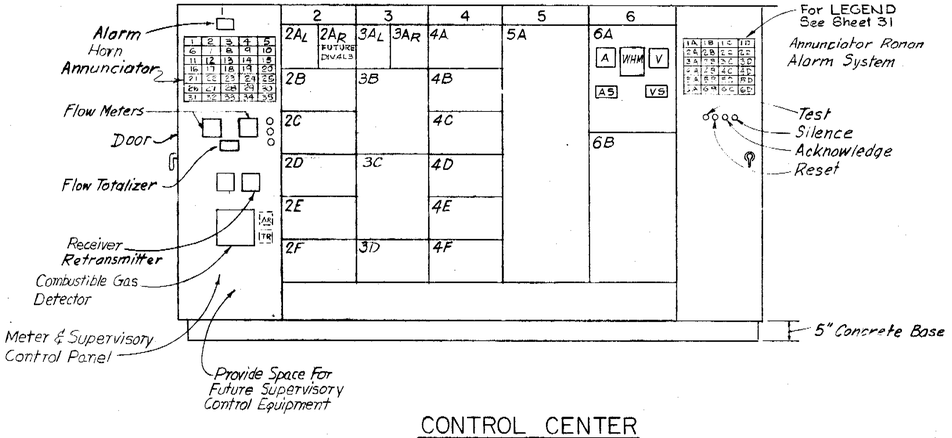
SCHEDULE OF CONDUIT AND WIRE

CONDUIT NUMBERS	COND. SIZE	WIRE NO. & GAUGE	REMARKS
P-10, P-13	4"	3-750 MCM	
PF-1A, PF-1B	5"	3-750 MCM, 1-350 MCM, 3 PH.	
P-11	3"	3-350 MCM	
C-11	2"	12-#12, 12-#14, 2 P.-#16	2 P.#16 twisted shielded
C-10	1½"	4-#12, 12-#14, 1 P.-#16	1 P.#16 twisted shielded
C-3, C-7	1½"	24-#14	
C-2	1½"	12-#14	or as required by Cont. Syst. Mfr.
C-1A, C-1B	1½"	3.0-#14	
PF-2A, PF-2B, PF-2C	3"	3-500 MCM	
C-6	¾"	4-#14	
CP-4, CP-6	1"	3-#12, 8-#14	
L-2	1½"	4-#2	
CP-12	2½"	2-#6, 2-#14, 2 P.-#16	¾ P.#16 shielded cables
CP-13	2"	2-#6, 2-#14, 2 P.-#16	¾ P.#16 shielded cables
C-8, C-4	¾"	6-#14	
C-17	¾"	10-#14	
P-15	¾"	4-#10	1-#10 Grd.
CP-8	1½"	6-#12, 10-#14	
C-19	1"	12-#14	
L-1, P-17	1"	3-#6	
CP-3	¾"	3-#12, 6-#14	
CP-5, CP-7	¾"	3-#12, 4-#14	
C-16	¾"	8-#14	
P-5, P-6	¾"	6-#12	
P-14,	¾"	3-#3	
C-12, C-13	¾"	2-#12, 1 P.#16	1 P.#16 Twisted Shielded
C-5, C-15	¾"	2-#14	
P-1, P-2, P-3, P-4, P-7, P-16	¾"	3-#12	
C-9	¾"	2-#14	
CP-9	¾"	3-#12, 2-#14	
P-3A, P-3B	4"	3-500 MCM	



SECTION 4/30, 31

SCALE 1/4" = 1'-0"



CONTROL CENTER

FRONT VIEW

NOT TO SCALE

PAUL E. LANGDON, JR. CERTIFICATE No. 15473 STATE OF FLORIDA REGISTERED ENGINEER

Paul E. Langdon

NOTE:

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RECORD DRAWING

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED KK
DRAWN FS
CHECKED OA, KK

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	10-81	JSH	Rec. Dwg. Revisions
1	Dec. 78	JRP	Added Addendum No. 1
	Mar. 78	JRP	Plans Updated

SCALE 1/4" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131 ST. AVENUE PUMPING STATION

ELECTRICAL SECTION AND CONDUIT AND WIRE SCHEDULE

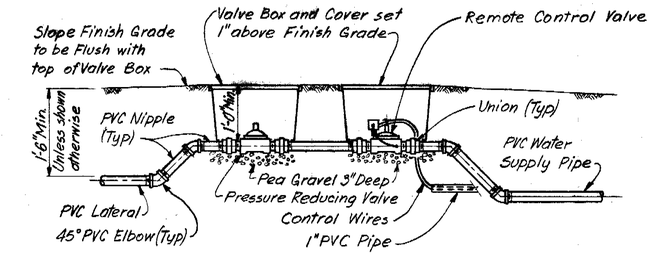
PROJ. NO. S 202-70-30D-7-463

SHEET 32 OF 35

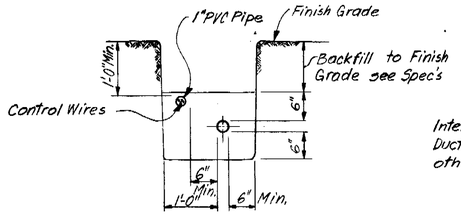
DATE AUGUST, 1972 REV. 2

*K & E CO. 17-0153

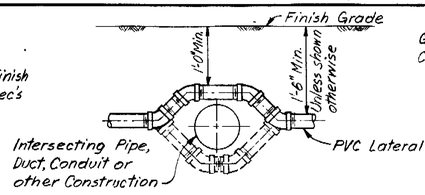
173-12



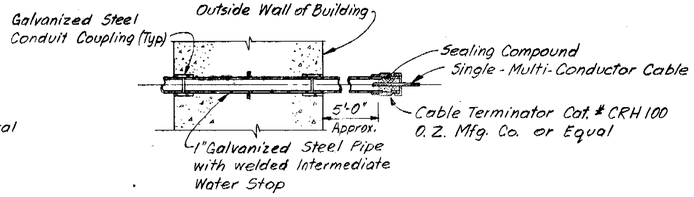
REMOTE CONTROL & PRESSURE REDUCING VALVES CONNECTION DETAILS
Not to Scale



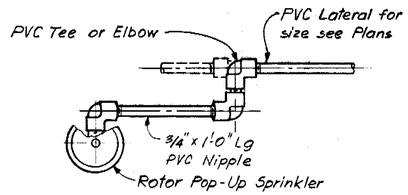
TYPICAL WATER SUPPLY TRENCH SECTION
Not to Scale



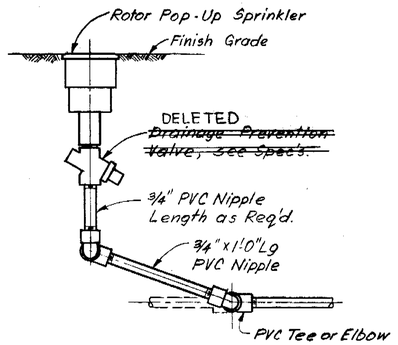
TYPICAL INSTALLATION OF LAWN IRRIGATION WATER LATERAL
Not to Scale



ELECTRICAL CONNECTION DETAIL
Not to Scale

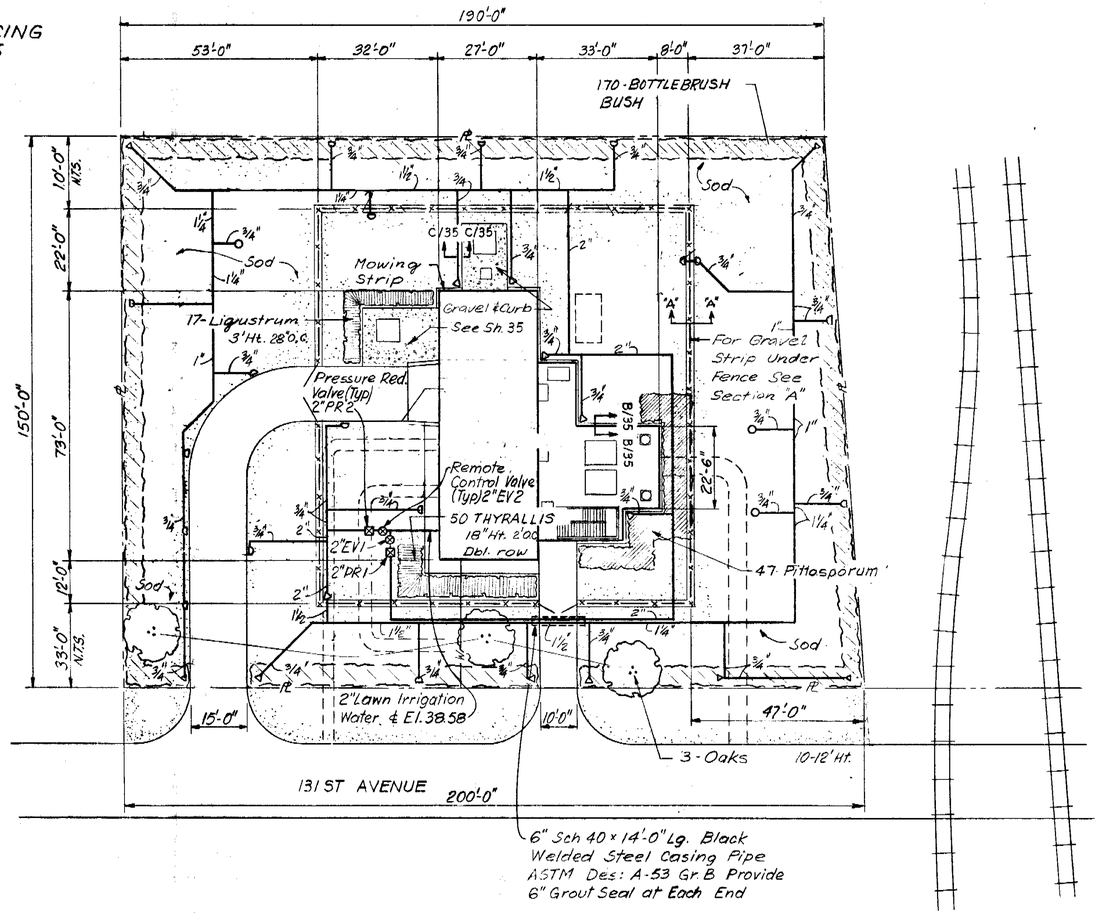


PLAN

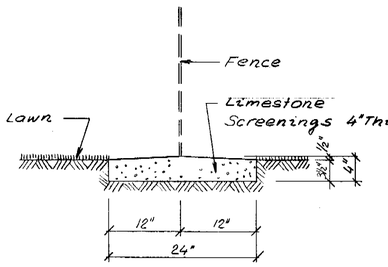


ELEVATION

ROTOR POP-UP SPRINKLER SWING JOINT RISER DETAIL
Not to Scale



LANDSCAPE DEVELOPMENT PLAN
Scale : 1"=20'



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

NOTE:
For Typical Tree Planting Details see Sheet 34.

LAWN IRRIGATION SCHEDULE

Station No.	GPM per Station	Valve Size & No. Remote Control	Valve Size & No. Press. Reducing	Sprinkler Symbol	Sprinkler Pattern	Sprinkler Qty	Min. Rad.	Max. Rad.	GPM @ 30 PSI	Remarks
1	52.7	2" EV1	2" PR1	○	Full Circle	1	15'	38'	3.1	
				⌓	½ Circle	9				
				△	¼ Circle	7				
2	52.7	2" EV2	2" PR2	○	Full Circle	2				
				⌓	½ Circle	9				
				△	¼ Circle	6				

PLANT MATERIAL LIST

COMMON NAME	BOTANICAL NAME	SIZE	QUANTITY	REMARKS
~~Australian Pine~~	Casuarina Equisetifolia	5' Ht.	26	
~~Weeping Fig~~	Ficus Benjamina	10-12' Ht.	4	Multi Stem
Schefflera	~~Brassaia Actinophylla~~	~~18" Ht.~~	1	Multi Stem
Bottlebrush	~~Callistemon Rigidus~~	8-9' Ht.	3	
Ligustrum	~~Ligustrum Lucidum~~	~~3' Ht.~~	17	
~~Confederate Jasmine~~	Trachelospermum Jas.	3 Gal.	~~50~~	
~~Pittosporum~~	Pittosporum Tobira	18" Ht.	47	

NOTE:
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RECORD DRAWING
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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED MW
DRAWN MW
CHECKED MW

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	10/81	DSH	Rec. Dwg. Revisions
1	Jul. 78	JRP	Lawn Irrigation Piping Added

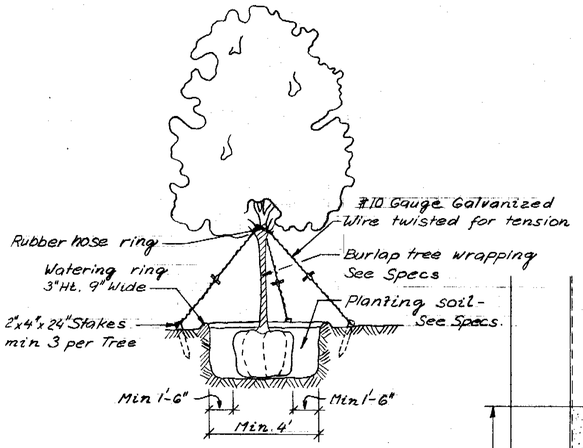
SCALE
20 0 20 40 FT 1"= 20'
0 2 FT 1"= 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 463
131ST. AVENUE PUMPING STATION

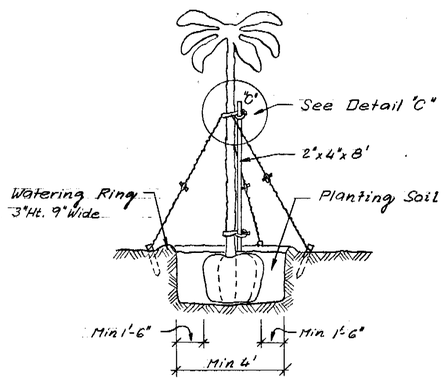
LANDSCAPING
131 ST. AVENUE PUMPING STATION
LANDSCAPING PLAN

PROJ. NO. S 202-70-30D-7-463
SHEET 33 OF 35
DATE MARCH, 1978 REV. 2

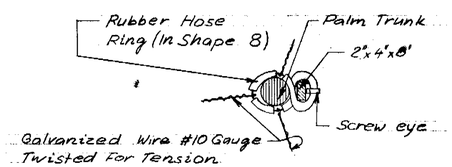
173-70



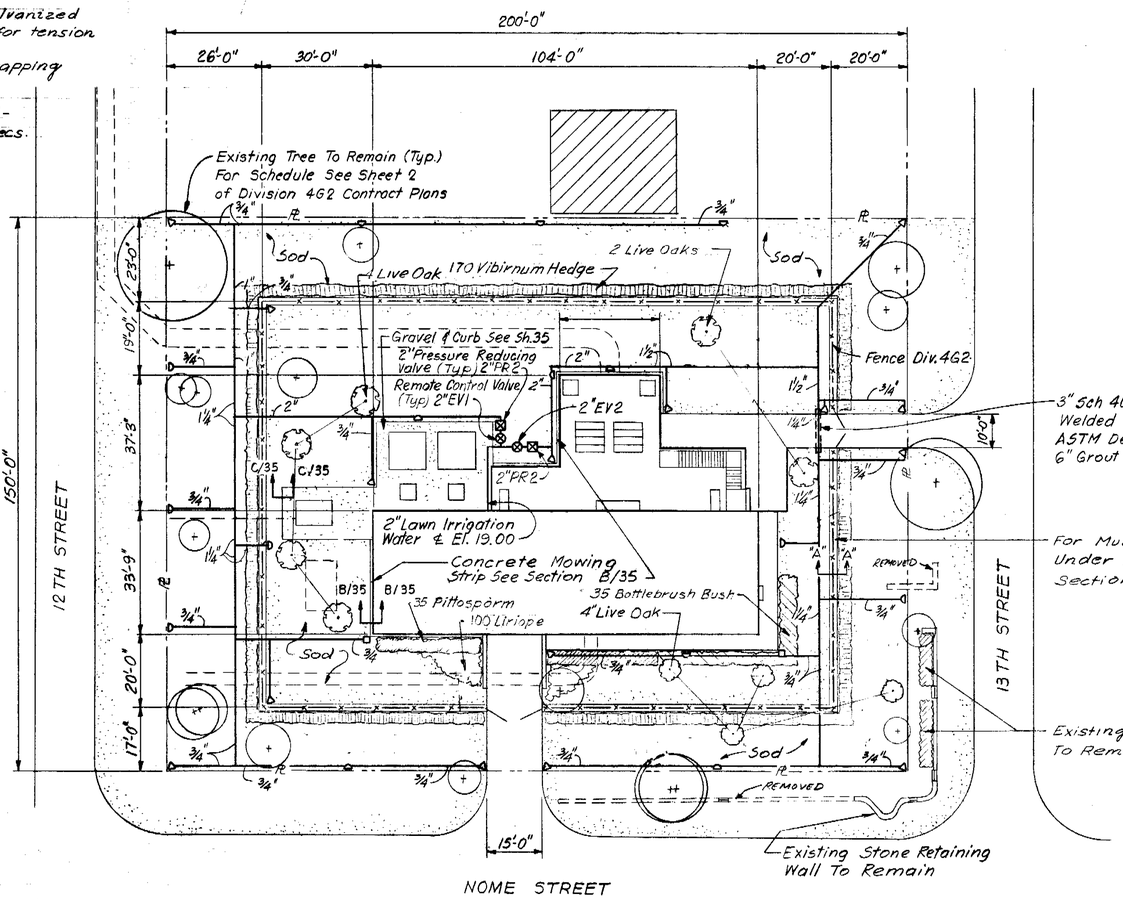
TYPICAL TREE PLANTING DETAIL
Scale 1/4" = 1'-0"



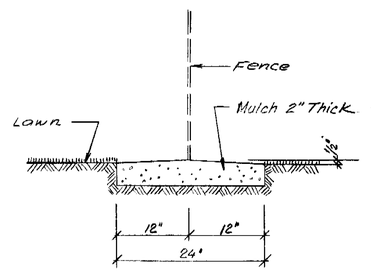
TYPICAL PALM PLANTING DETAIL
Scale 1/4" = 1'-0"



DETAIL "C"
No scale



LANDSCAPE DEVELOPMENT PLAN
scale 1"=20'



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

NOTES:
1. For Typical Details of Lawn Irrigation Sprinkler, Valve, Piping and Control Wiring Installation see Sheet 33
2. For Details of Site Work for 13th Street Pumping Station see Contract Drawings for Division 4G2

LAWN IRRIGATION SCHEDULE

Station No.	GPM per Station	Valve Size & No. Remote Control	Valve Size & No. Press. Reducing	Sprinkler Symbol	Sprinkler Pattern	Sprinkler Qty.	Sprinkler Min. Rad.	Sprinkler Max. Rad.	Sprinkler GPM @ 30 PSI	Remarks
1	49.6	2"EV1	2"PR1	⌓	1/2 Circle	9	15'	38'	3.1	
				△	1/4 Circle	6				
				□	3/4 Circle	1				
2	49.6	2"EV2	2"PR2	⌓	1/2 Circle	5				
				△	1/4 Circle	9				
				□	3/4 Circle	2				

PLANT MATERIAL LIST

COMMON NAME	BOTANICAL NAME	SIZE	QUANITY	REMARKS
Senegal Date Palm	Phoenix Reclinata	14' Ct	1	5-Stem
Palatka Holly	Ilex Opaca Var. Pal	8-9' Ht.	13	
Native Sabal Palm	Sabal Palmetto	12' C.t.	3	
Native Sabal Palm	Sabal Palmetto	10' C.t.	3	
Native Sabal Palm	Sabal Palmetto	8' C.t.	4	
Confederate Jasmine	Trachelospermum Jas.	3 Gal.	30	

NOTE:
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RECORD DRAWING
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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED MW
DRAWN MW
CHECKED MW

APPROVED
_____ DATE _____
SUPT., DEPT. OF SANITARY SEWERS
_____ DATE _____
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	10/81	D.S.H	Rec. Dwg. Revisions
1	Jul. 78	J.R.P	Lawn Irrigation Piping Added

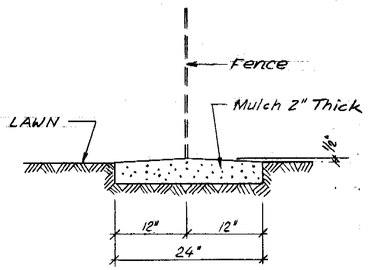
SCALE
20 0 20 40 FT 1" = 20'
4 0 4 8 FT 1/4" = 1'-0"
1 0 2 FT 1" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131ST. AVENUE PUMPING STATION

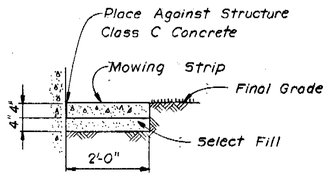
LANDSCAPING
13TH STREET PUMPING STATION
LANDSCAPING PLAN

PROJ. NO. S 202-70-30D -7- 4G3
SHEET 34 OF 35
DATE MARCH, 1978 REV. 2

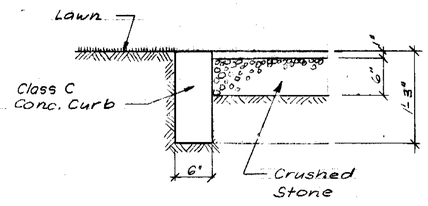
173-76



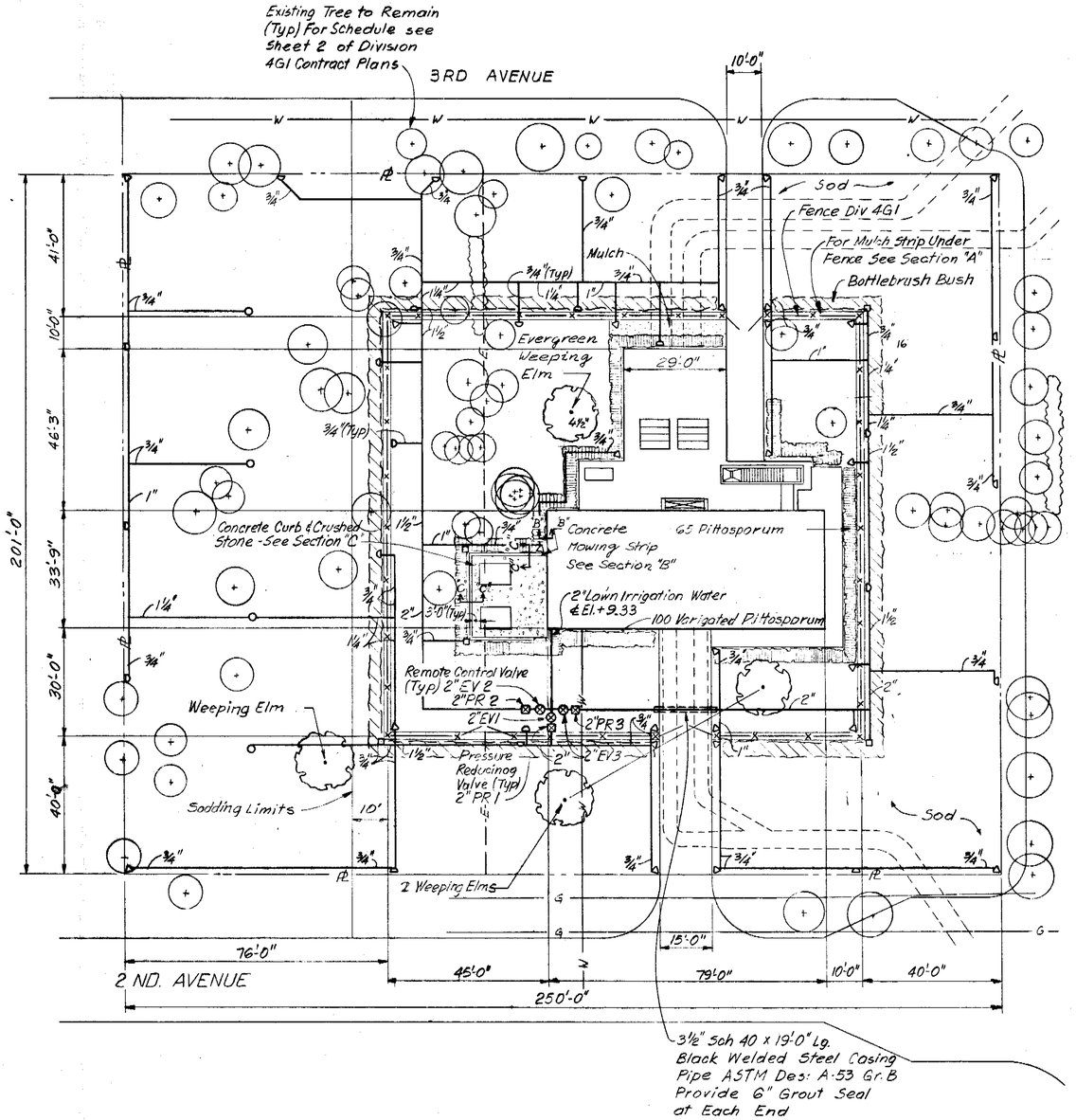
SECTION "A"
Scale 1" = 1'-0"



SECTION B/33,34
Not To Scale



SECTION "C"
Scale 1" = 1'-0"



LANDSCAPE DEVELOPMENT PLAN
Scale: 1" = 20'

NOTES:
1. For Typical Tree Planting Details see Sheet 34.
2. For Typical Details of Lawn Irrigation Sprinkler, Valve, Piping and Control Wiring Installation see Sheet 33.
3. For Details of Site Work for 25th Street Pumping Station see Contract Drawings For Division 4G1.

LAWN IRRIGATION SCHEDULE

Station No.	GPM per Station	Valve Size & No. Remote Control	Valve Size & No. Press. Reduc.	Sprinkler Symbol	Sprinkler Pattern	Sprinkler Qty.	Min. Rad	Max. Rad	GPM @ 30 PSI	Remarks
1	58.9	2" EV 1	2" PR 1	○	Full Circle	4	15'	38'	3.1	
				⌓	1/2 Circle	8				
				△	1/4 Circle	6				
				□	3/4 Circle	1				
2	55.8	2" EV 2	2" PR 2	⌓	1/2 Circle	9				
				△	1/4 Circle	7				
				□	3/4 Circle	2				
3	68.2	2" EV 3	2" PR 3	⌓	1/2 Circle	6				
				△	1/4 Circle	14				
				□	3/4 Circle	2				

PLANT MATERIAL LIST

COMMON NAME	BOTANICAL NAME	SIZE	QUANTITY	REMARKS
Evergreen Weeping Elm	Ulmus Paru. Sempervirens	4½" Cal.	1	Reformed Type
Punk Tree	Melaleuca Quinquenervia	16' Ht.	1	Multi Stem
Punk Tree	Melaleuca Quinquenervia	14' Ht.	3	Multi Stem
Punk Tree	Melaleuca Quinquenervia	12' Ht.	4	Multi Stem
Punk Tree	Melaleuca Quinquenervia	10' Ht.	1	Multi Stem
Schefflera	Brassaia Actinophylla	18' Ht.	1	Multi Stem
Schefflera	Brassaia Actinophylla	16' Ht.	1	Multi Stem
Schefflera	Brassaia Actinophylla	15' Ht.	1	Multi Stem
Schefflera	Brassaia Actinophylla	12' Ht.	2	Multi Stem
Weeping Fig	Ficus Benjamina	7-8' Ht.	11	
Red Maple	Acer Rubrum	7" Cal.	1	
Red Maple	Acer Rubrum	6" Cal.	2	
Confederate Jasmine	Trachelospermum Jas.	3 Gal.	100	
Dwarf Yaupon Holly	Ilex Vomitoria Nana	18" Ht.	65	

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GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED MW
DRAWN MW
CHECKED MW

APPROVED
_____ DATE _____
SUPT., DEPT. OF SANITARY SEWERS
_____ DATE _____
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION
2	10/81	JDSH	Rec. Dwg. Revisions
1	Jul. 78	JRP	Lawn Irrigation Piping Added

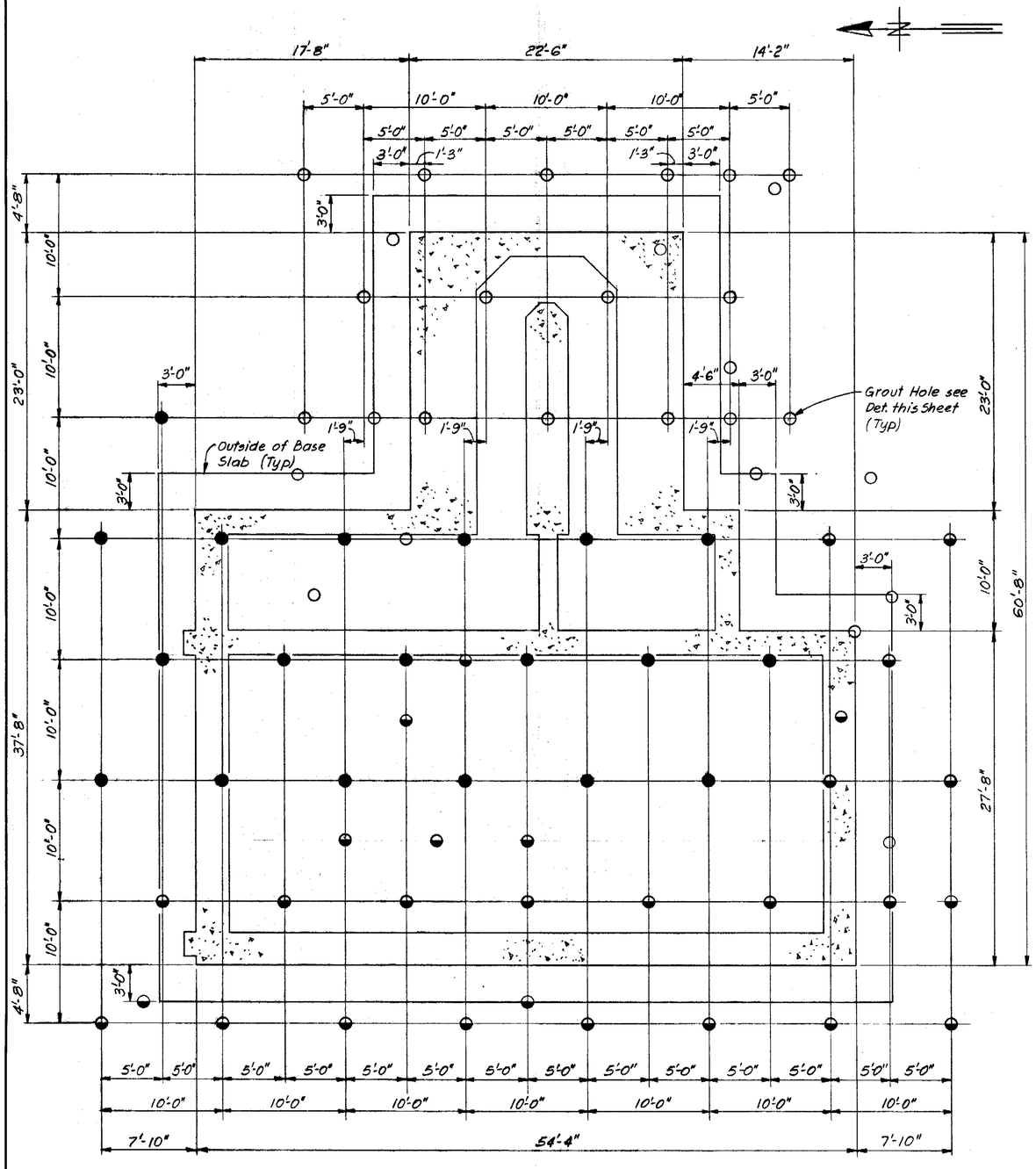
SCALE
20 0 20 40 FT — 1" = 20'
1 0 1 2 FT — 1" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131ST. AVENUE PUMPING STATION

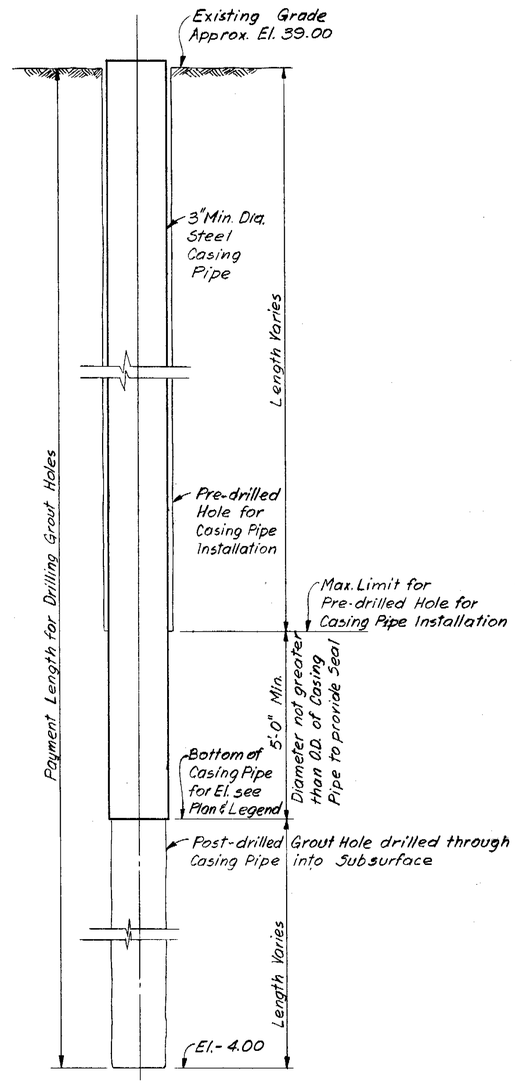
LANDSCAPING
25TH STREET PUMPING STATION
LANDSCAPING PLAN

PROJ. NO. S 202-70-30D -7-4G3
SHEET 35 OF 35
DATE MARCH, 1978 REV. 2

173-72



GROUT HOLES LOCATION PLAN
SCALE: 3/16" = 1'-0"



GROUT HOLE DETAIL
NOT TO SCALE

LEGEND
- ○ Bottom of Casing Pipe El. 14.25
- ◒ Bottom of Casing Pipe El. 10.75
- ● Bottom of Casing Pipe El. +5.75

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION, WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

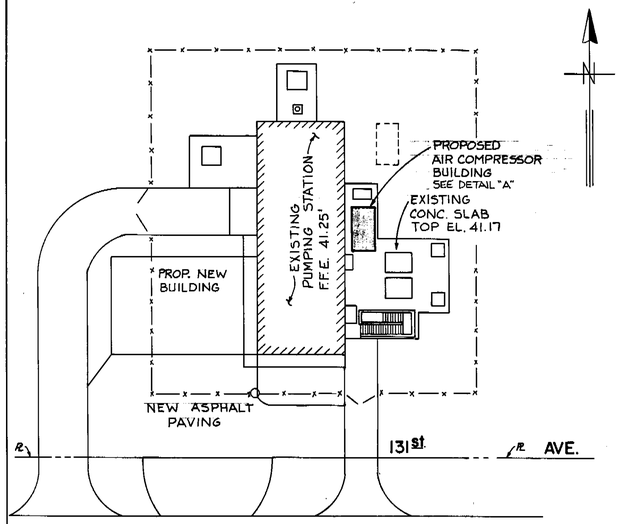
GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JRP DRAWN RN CHECKED JRP	APPROVED DATE SUPT., DEPT. OF SANITARY SEWERS DATE GREELEY AND HANSEN, ENGINEERS	1 | 10/81 | DSH | Rec. Dwg Revisions NO. | DATE | APP. | REVISION	SCALE 4 0 4 8 12 FT 3/16" = 1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4G3 131 ST. AVENUE PUMPING STATION

GROUT HOLES LOCATION PLAN AND DETAIL

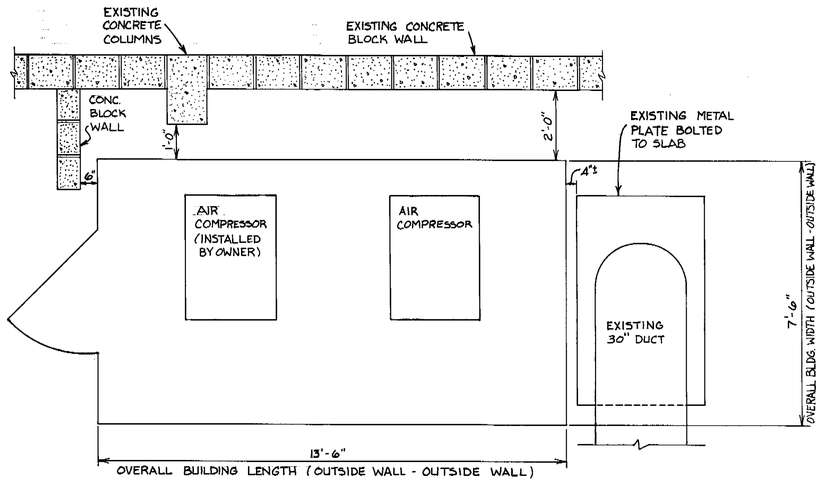
PROJ. NO. S 202-70-30D-7-4G3
AD-3-1
DATE AUGUST, 1978 | REV. 0

173-122 1 36

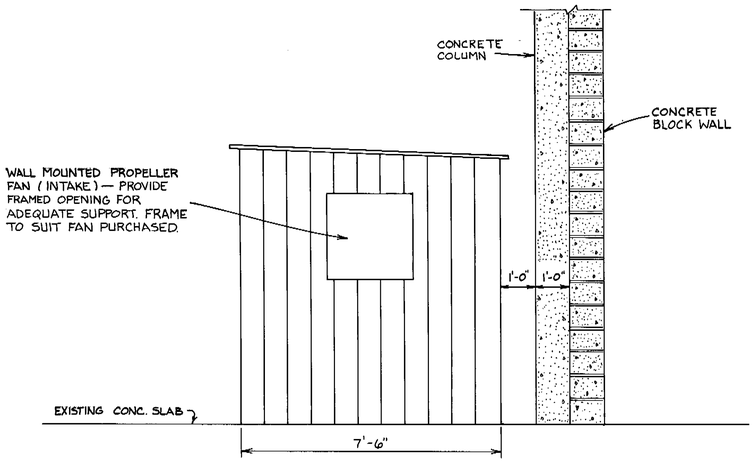
A F 50179



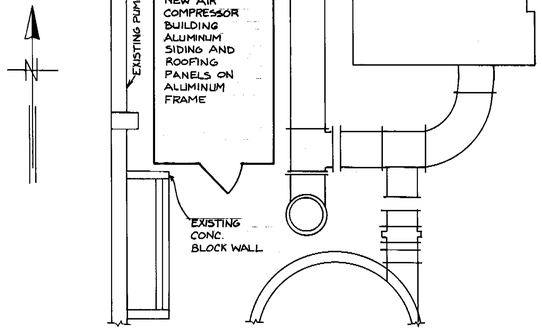
SITE PLAN
NOT TO SCALE



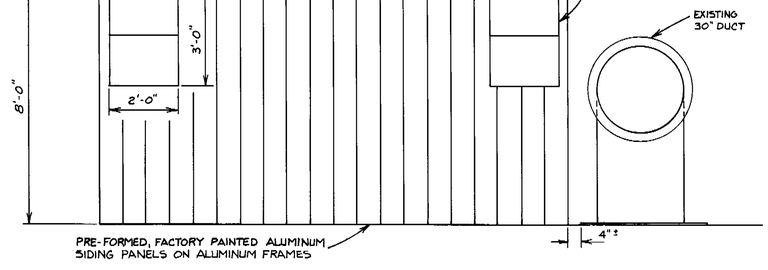
COMPRESSOR BLDG. FLOOR PLAN
1/2" = 1' - 0"



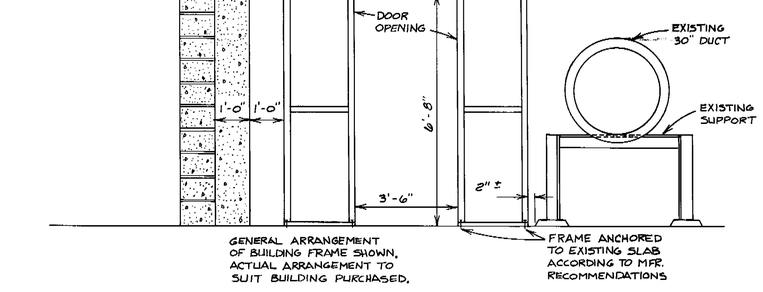
NORTH ELEVATION
1/2" = 1' - 0"



DETAIL "A"
NOT TO SCALE



EAST ELEVATION
(WEST ELEVATION SIMILAR W/O WINDOWS)
1/2" = 1' - 0"



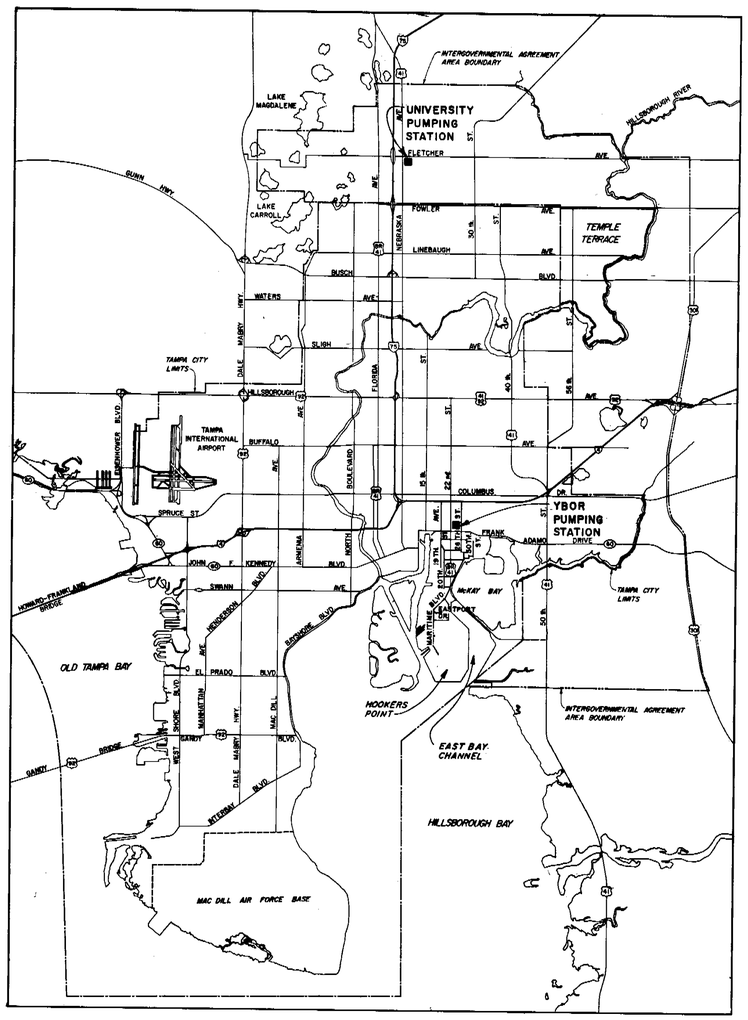
SOUTH ELEVATION (FRAMEWORK)
1/2" = 1' - 0"

K & E 19-1253

	ANDREW T. CRONBERG, P.E. # 32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: B.G. DRN: R.A.R. CKD: DATE:	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	No. / DATE / REVISIONS: 1, 2, 3, 4, 5	SCALE AS SHOWN	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA	AIR COMPRESSOR BUILDING 131st. AVE. PUMPING STATION	SHEET SD-1 OF

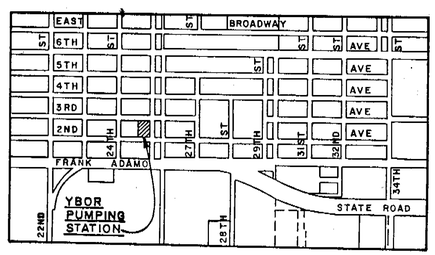
C173-73d

C173-73d

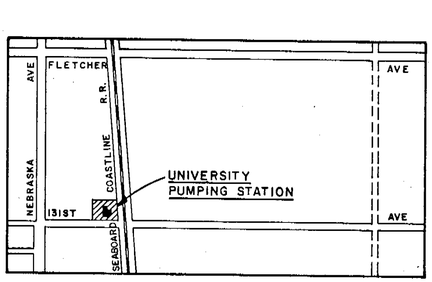


LOCATION MAP

SCALE: 1" = 8000'



YBOR
PUMPING STATION



UNIVERSITY
PUMPING STATION

AREA MAPS

NOT TO SCALE

INDEX

SHEET NO.	TITLE
1.	LOCATION MAP, AREA MAPS AND INDEX
2.	SYMBOL LEGEND AND GENERAL DETAILS
3.	ODOR CONTROL FACILITIES - PLATFORM AND LADDER DETAILS
4.	YBOR PUMPING STATION - PLANS, SECTIONS AND DIAGRAMS
5.	YBOR PUMPING STATION - PLANS, SECTIONS AND DIAGRAMS
6.	YBOR PUMPING STATION - SECTIONS
7.	YBOR PUMPING STATION - SECTIONS
8.	UNIVERSITY PUMPING STATION - PLANS, SECTIONS, DETAILS AND DIAGRAMS
9.	UNIVERSITY PUMPING STATION - PLANS, SECTIONS, DETAILS AND DIAGRAMS
10.	YBOR AND UNIVERSITY PUMPING STATIONS - ELECTRICAL

PAUL E. LANGDON JR. CERTIFICATE No.15473 STATE OF FLORIDA REGISTERED ENGINEER

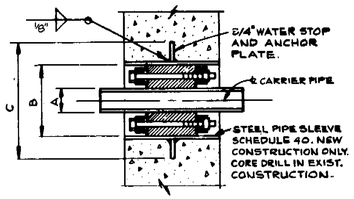
GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JRP DRAWN ATK CHECKED JRP	APPROVED DATE SUPT., DEPT. OF SANITARY SEWERS DATE 9/24/85 GREELEY AND HANSEN, ENGINEERS	NO.	DATE	APP.	REVISION	SCALE AS SHOWN	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	LOCATION MAP, AREA MAPS AND INDEX	PROJ. NO. SHEET 1 OF 10 DATE JULY 1985 REV. 0

173-37a

PIPING SYMBOL	DESCRIPTION
	Gate valve (1)
	Gate valve (2)
	Butterfly valve (1)
	Butterfly valve (2)
	Plug valve (1)
	Plug valve (2)
	Ball valve (1)
	Ball valve (2)
	Globe valve (1)
	Globe valve (2)
	Angle globe valve (1)
	Angle globe valve (2)
	Diaphragm valve (1)
	Diaphragm valve (2)
	Three way valve (1)
	Three way valve (2)
	Four way valve (1)
	Four way valve (2)
	Pressure relief vlave (1)
	Pressure relief valve (2)
	Check valve
	Pressure reducing valve
	Hose valve
	Flanged joint
	Blind flange
	Bell and spigot joint
	Mechanical joint

PIPING SYMBOL	DESCRIPTION
	Cross
	Cross (Branch up)
	Tee
	Tee (Branch up)
	Tee (Branch down)
	45° Elbow
	45° Elbow (Up)
	45° Elbow (Down)
	90° Elbow
	90° Elbow (Up)
	90° Elbow (Down)
	Side outlet elbow (Up)
	Side outlet elbow (Down)
	Lateral
	Reducer concentric-plan and elevation eccentric-plan
	Reducer eccentric-elevation
	Union (Screwed)
	Sleeve type coupling
H H	Sleeve type coupling (Harnessed)
	Expansion joint-metal bellows type
	Expansion joint-rubber bellows type
	Strainer
M M	Meter (Magnetic type)
	Venturi meter

PIPING SYMBOL	DESCRIPTION
	Wall sleeve
	Wall sleeve with modular type seal
	Flanged wall pipe with intermediate collar
	Bell and bell wall pipe with intermediate collar
	Mechanical joint wall pipe with intermediate collar
	Bell and flanged wall pipe with intermediate collar
	Mechanical joint and flanged wall pipe with intermediate collar



MODULAR WALL SLEEVE SEALING DETAIL

DUCTILE IRON DISCHARGE PIPE		CORE DRILL DIA	STEEL PIPE AND WATERSTOP		MODULAR WALL SLEEVE (SEE NOTE)	
NOM. I.D.	O.D.		PIPE I.D.	WATERSTOP O.D.	LINK SEAL MOD. NO.	NO. OF LINKS
4"	4.5"	8.0"	–	–	LS-475-C	7
2"	2.375"	4.0"	–	–	LS-300-C	6

NOTE:
MODULAR WALL SLEEVE SHALL BE LINK SEAL OR EQUAL.

VALVE OPERATOR

TYPE	SYMBOL *
Manual	None
Chainwheel	C
Motor (Electric)	M
Pneumatic Cylinder	P

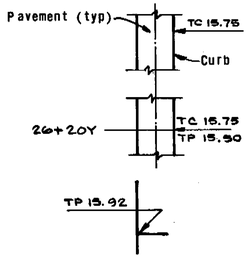
NOTES:
(1) Valve stem perpendicular to paper.
(2) Valve stem parallel to paper.

Where the symbol * is shown on the drawings in place of dimensions or elevations determine these dimensions or elevations after selection of equipment.

Where the symbol ** is shown on the drawings adjacent to dimensions or elevations, the Contractor must verify such dimensions or elevations by field measurement.

LEGEND

EXISTING OR OTHER DIVISIONS	NEW	
		Superstructure
		Tank and other structures
		Pavement with curb
		Pavement without curb
		Property line
		Fence
		Easement line
		Railroad tracks
+8	+8 Indicates finished grade	Contour
		Graded swale
+8.2	+8.5 Indicates finished grade	Spot elevation
		Small piping
		Storm sewer
		Large pipes and conduits
HV AND LV E/D	HV AND LV E/D	High and/or low voltage electrical duct
		Direct burial valve * B.V.-Butterfly valve G.V.-Gate valve P.V.-Plug valve
		Concrete thrust block
		Fire hydrant
		Manhole
		Storm water inlet (lawn or pavet area type)
		Storm water inlet - curb
8+00X, 28+00Y ℄ 8+92Y	9+00X, 28+00Y ℄ 8+92Y	Plant coordinates ℄ coordinates



Top of curb elevation arrow side only

Top of curb elevation top of pavement elevation at the curb and plant coordinate

Top of pavement elevation

CREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED JRP
DRAWN AH
CHECKED JRP

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION

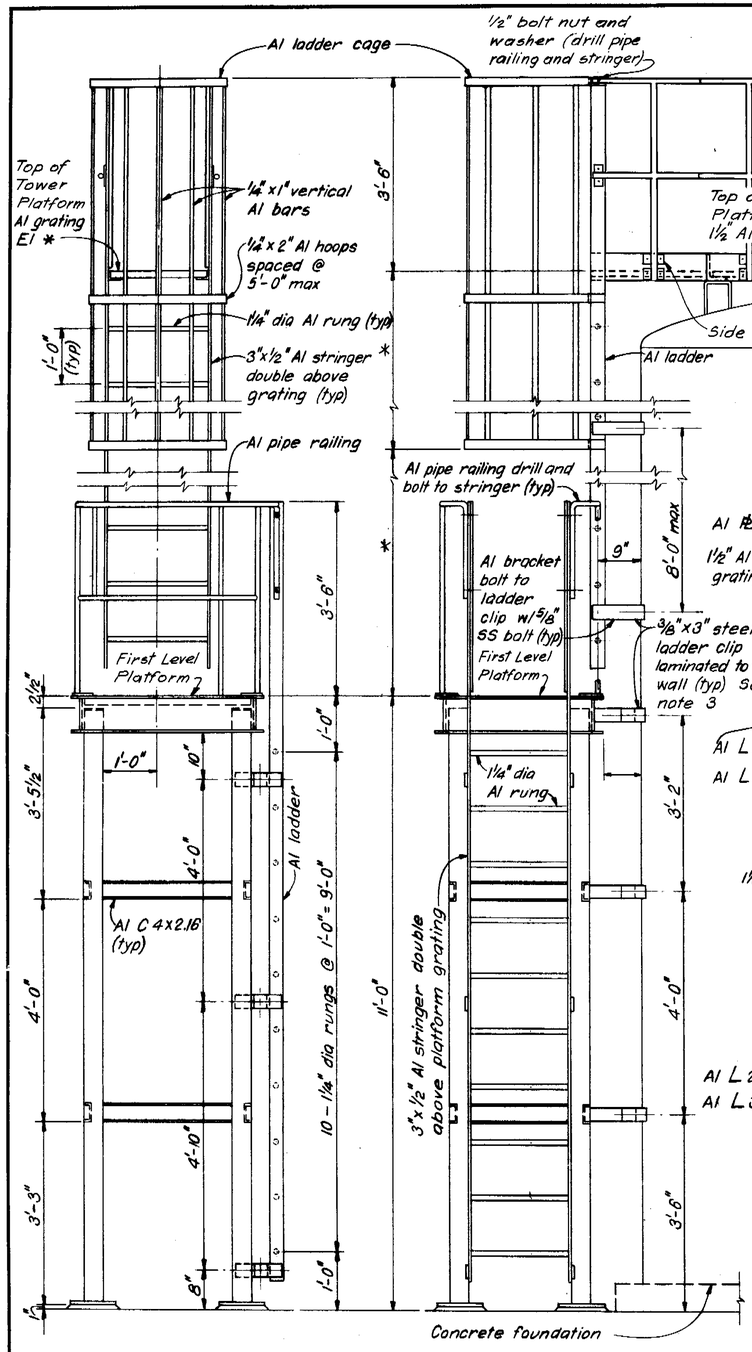
SCALE
NOT TO SCALE

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4L5
PUMPING STATIONS
ODOR CONTROL MODIFICATIONS

SYMBOL LEGEND AND GENERAL DETAILS

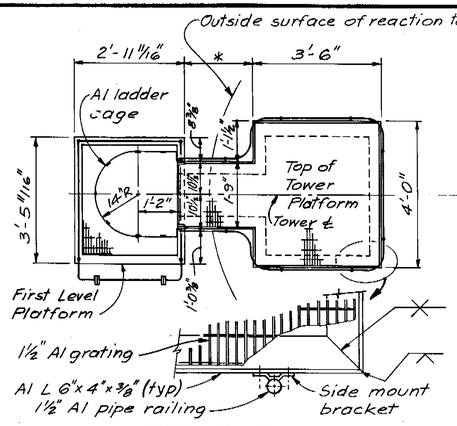
PROJ. NO.
SHEET 2 OF 10
DATE JULY 1985 REV. 0

1173-37b

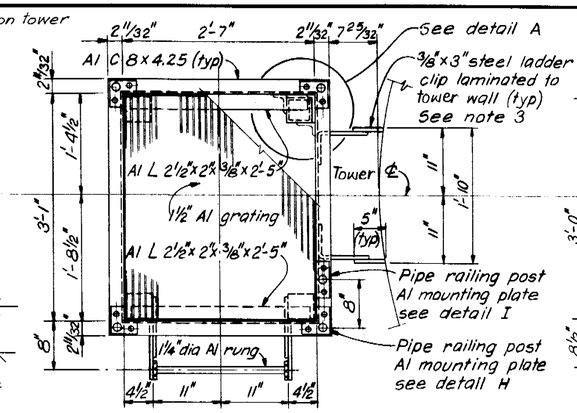


FRONT ELEVATION
SCALE : 3/4" = 1'-0"

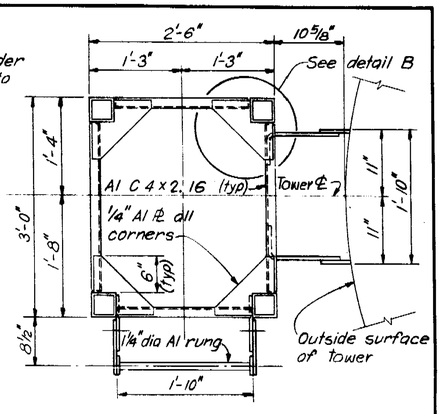
SIDE ELEVATION
SCALE : 3/4" = 1'-0"



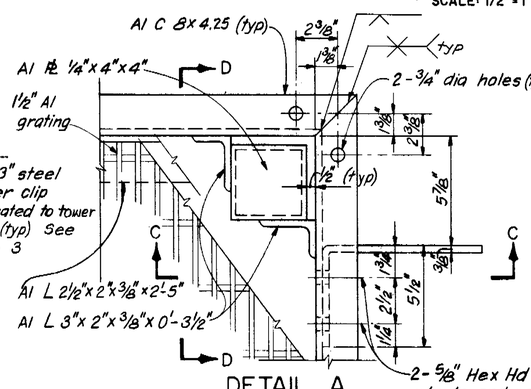
TOP PLAN
SCALE: 1/2" = 1'-0"



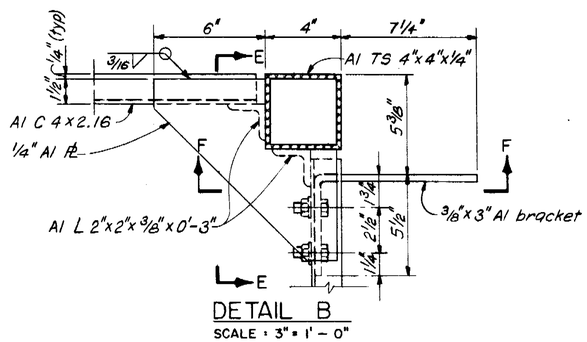
FIRST LEVEL PLATFORM PLAN
SCALE: 1" = 1'-0"



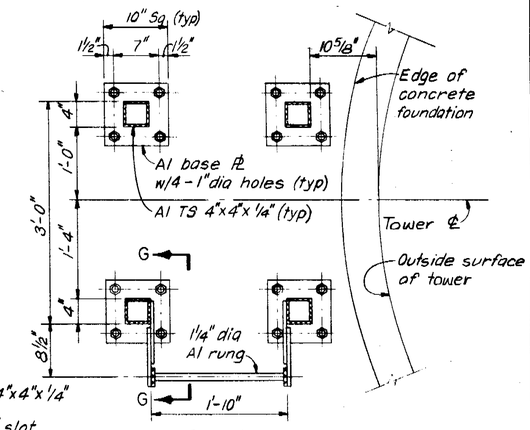
SECTIONAL PLAN
SCALE: 1" = 1'-0"



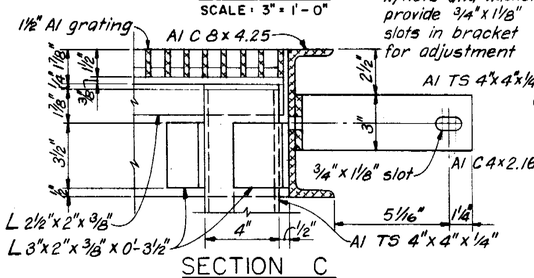
DETAIL A
SCALE: 3" = 1'-0"



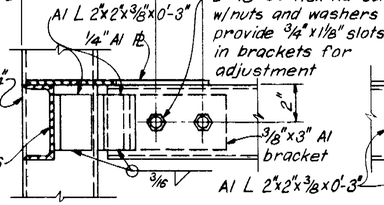
DETAIL B
SCALE: 3" = 1'-0"



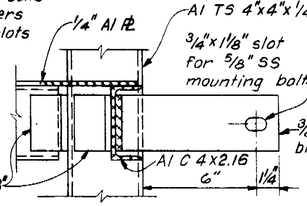
BASE PLAN
SCALE: 1" = 1'-0"



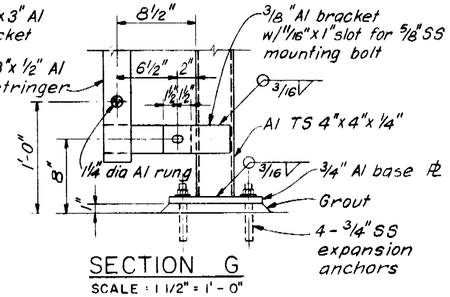
SECTION C
SCALE: 3" = 1'-0"



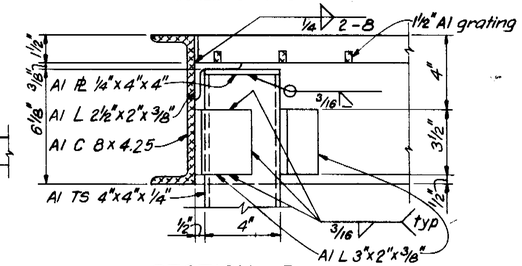
SECTION E
SCALE: 3" = 1'-0"



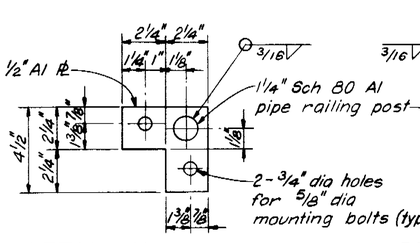
SECTION F
SCALE: 3" = 1'-0"



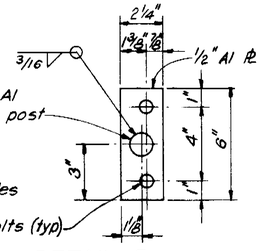
SECTION G
SCALE: 1 1/2" = 1'-0"



SECTION D
SCALE: 3" = 1'-0"



DETAIL H
PIPE RAILING POST
MOUNTING PLATE
SCALE: 3" = 1'-0"



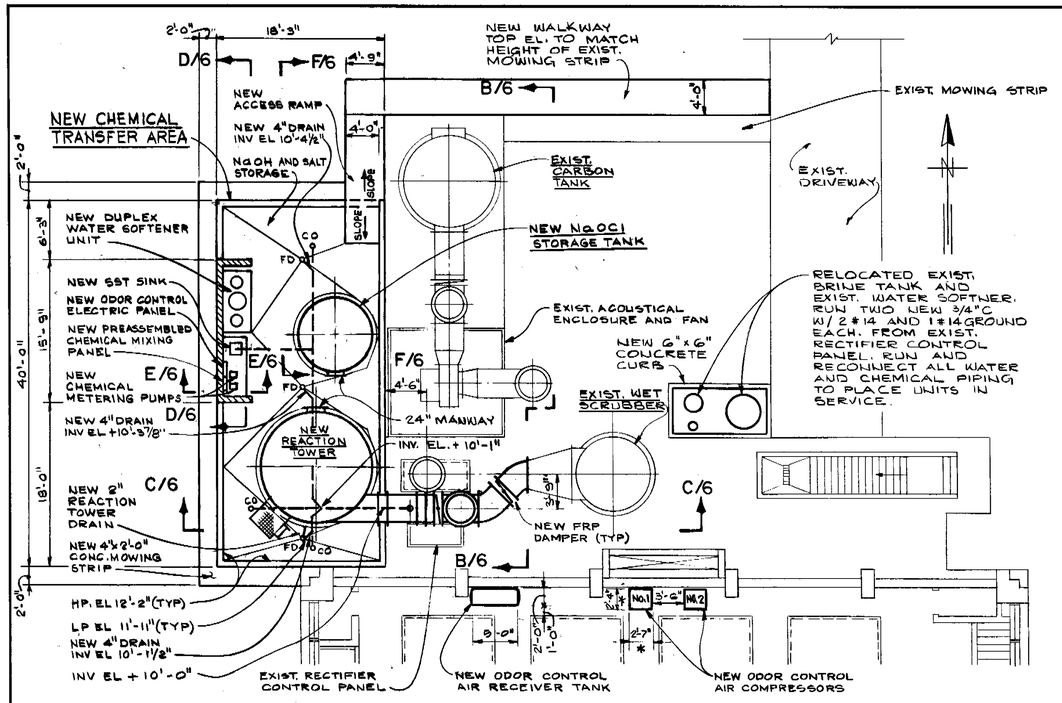
DETAIL I
PIPE RAILING POST
MOUNTING PLATE
SCALE: 3" = 1'-0"

NOTES:

1. Arrangement for reaction tower is as shown on Plan

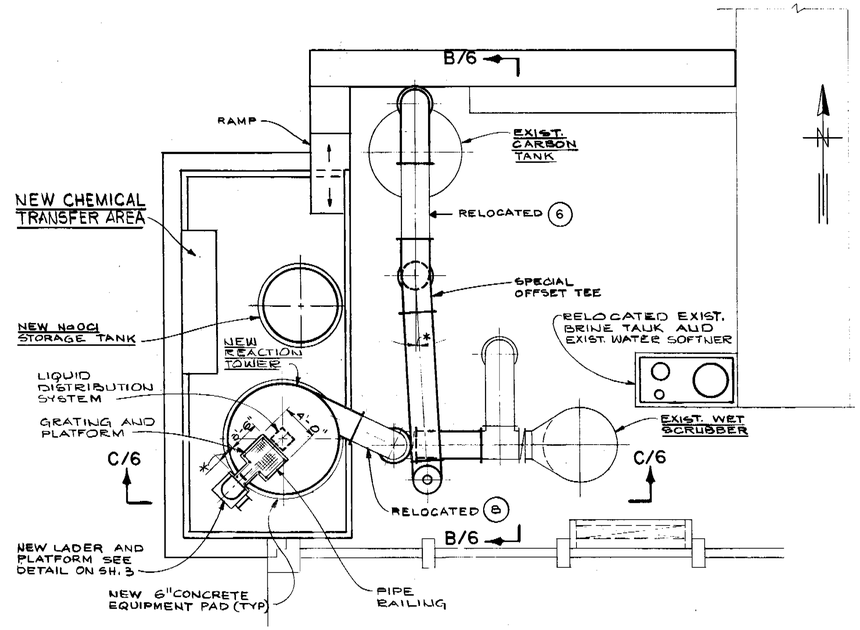
GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED RN DRAWN SK CHECKED KSY REB	APPROVED DATE SUPT., DEPT. OF SANITARY SEWERS DATE GREELEY AND HANSEN, ENGINEERS	NO.	DATE	APP.	REVISION	SCALE 0 2 3 FT 3/4"=1'-0"; 0 1 2 FT 1"=1'-0"; 0 1/2 1 FT 3"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4&5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	ODOR CONTROL FACILITIES PLATFORM AND LADDER DETAILS	PROJ. NO. SHEET 3 OF 10 DATE JULY 1985 REV. 0

173-37C



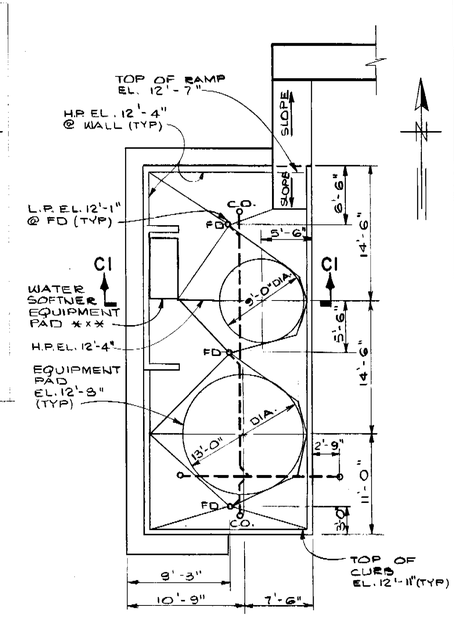
YBOR PUMPING STATION – PLAN AT EL 22'-0"

SCALE: 1/8" = 1'-0"



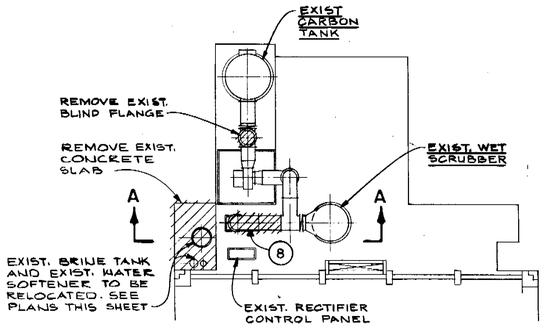
YBOR PUMPING STATION – TOP PLAN

SCALE: 1/8" = 1'-0"



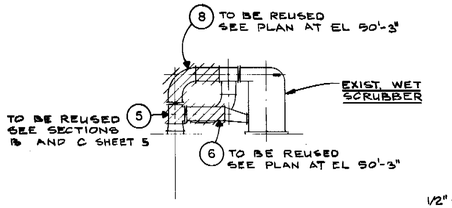
PART PLAN AT EL 12'-11"

SCALE: 1/8" = 1'-0"



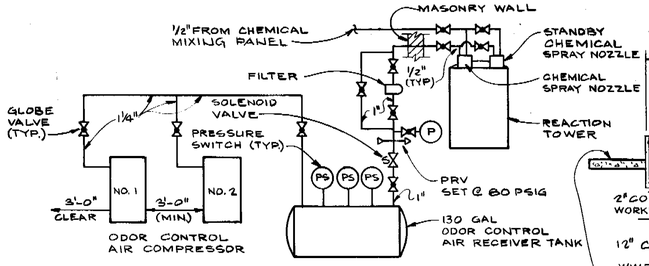
DEMOLITION PLAN

SCALE: 1/16" = 1'-0"



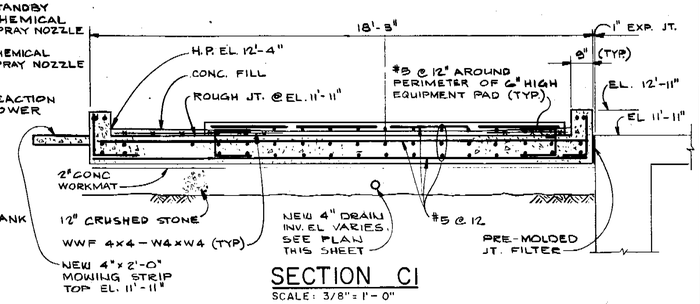
DEMOLITION SECTION A

SCALE: 1/16" = 1'-0"



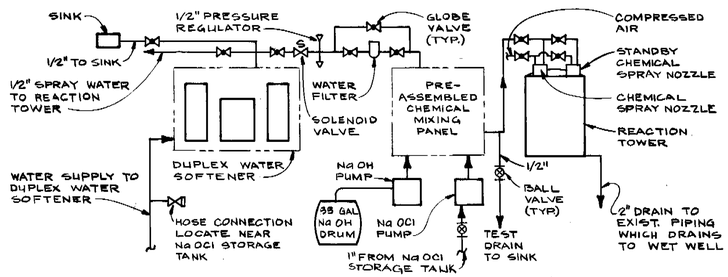
ODOR CONTROL COMPRESSED AIR DIAGRAM

NO SCALE



SECTION C1

SCALE: 3/8" = 1'-0"



ODOR CONTROL CHEMICAL SYSTEM DIAGRAM

NO SCALE

NOTES:

1. DUCTWORK DESIGNATED WITH A CIRCLED NUMBER IS EXISTING. SEE PEPCON DWG'S: 20.8-161 THROUGH 20.8-167 FOR EXISTING LOCATIONS.
2. EXISTING DUCTWORK DESIGNATED 5, 6, AND 8 IS TO BE RELOCATED AS SHOWN ON THESE DRAWINGS.
3. EACH FLANGED CONNECTION IN DUCTWORK REQUIRES A 1/8-INCH THICK GASKET.
4. ALL NEW DUCT WORK SHALL BE PIGMENTED WHITE AND SHALL MATCH CONSTRUCTION OF EXISTING DUCT IN ALL RESPECTS.
5. THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE HIGH PRESSURE AIR COMPRESSOR EQUIPMENT.

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED MPV JRP
DRAWN SK
CHECKED JRP
APPROVED

NO.	DATE	APP	REVISION

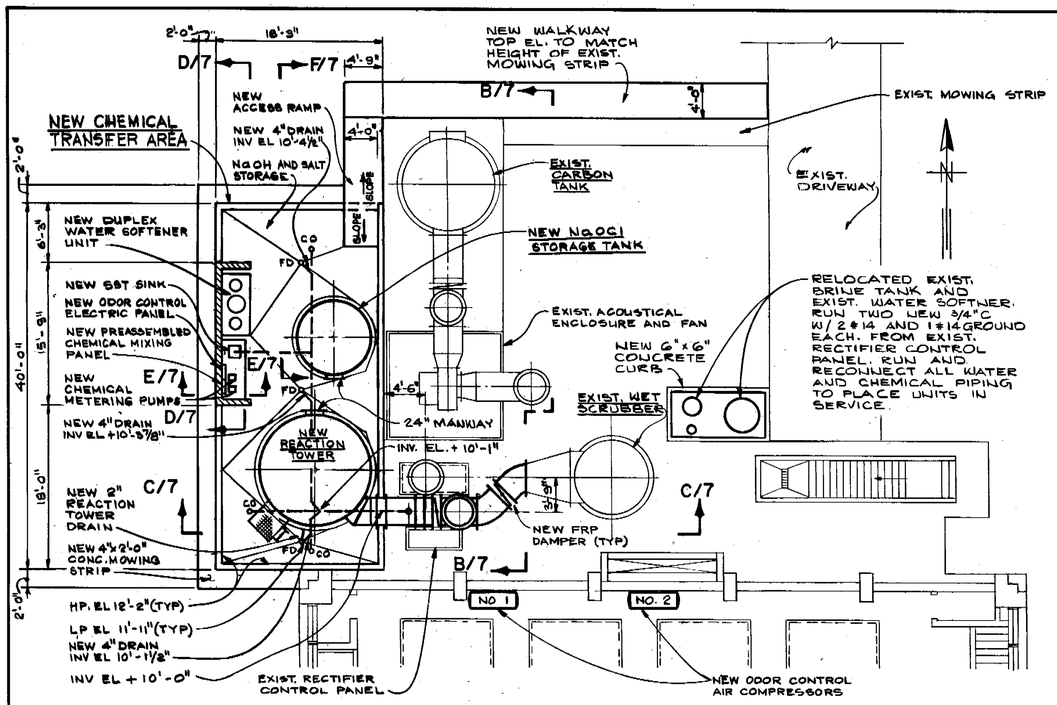
SCALE
1/16" = 1'-0"
1/8" = 1'-0"
3/8" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4L5
PUMPING STATIONS
ODOR CONTROL MODIFICATIONS

YBOR PUMPING STATION
PLANS, SECTIONS, DIAGRAMS

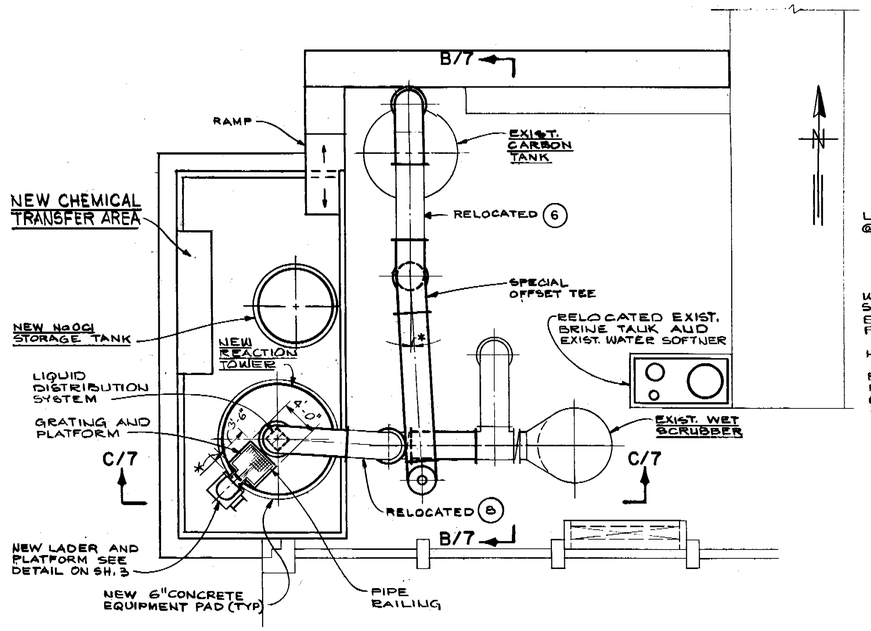
PROJ NO.
DWG
SHEET 4 OF 10
DATE JULY 1985
REV 0

173-37d



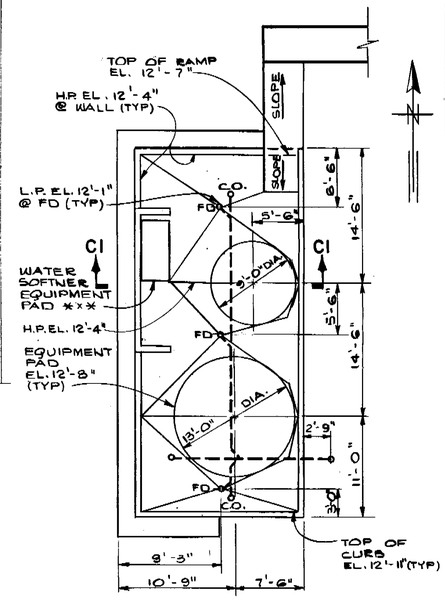
YBOR PUMPING STATION – PLAN AT EL 22'-0"

SCALE: 1/8" = 1'-0"



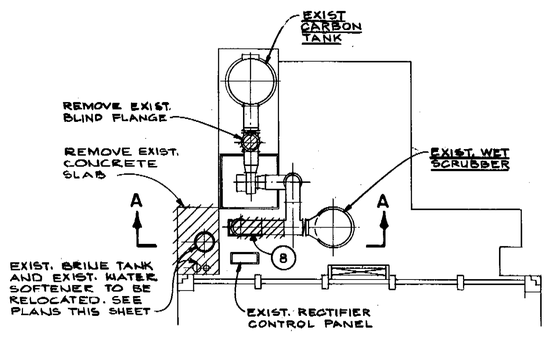
YBOR PUMPING STATION – TOP PLAN

SCALE: 1/8" = 1'-0"



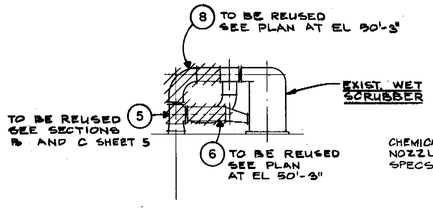
PART PLAN AT EL 12'-11"

SCALE: 1/8"=1'-0"



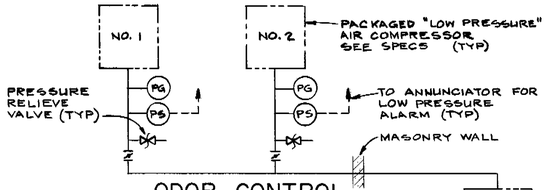
DEMOLITION PLAN

SCALE: 1/16" = 1'-0"



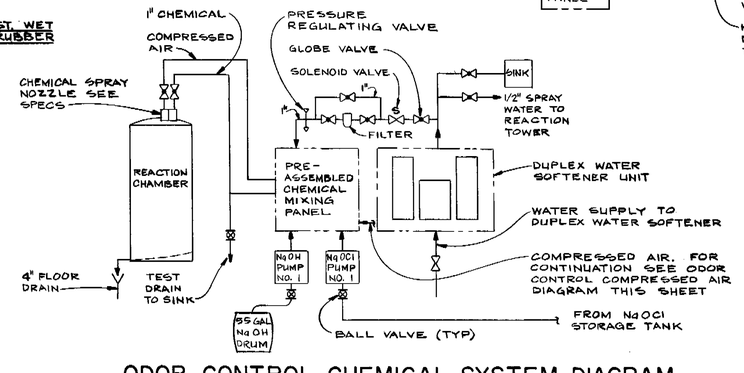
DEMOLITION SECTION A

SCALE: 1/16" = 1'-0"



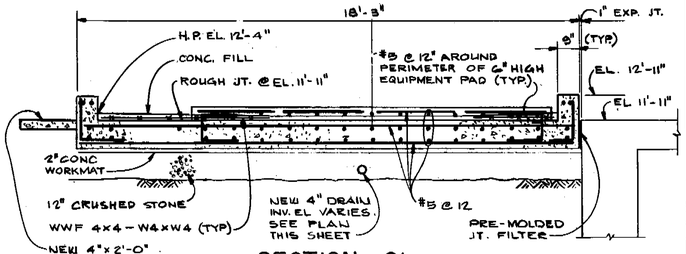
ODOR CONTROL CHEMICAL AIR DIAGRAM

NO SCALE



ODOR CONTROL CHEMICAL SYSTEM DIAGRAM

NO SCALE



SECTION CI

SCALE: 3/8"= 1'-0"

NOTES:

1. DUCTWORK DESIGNATED WITH A CIRCLED NUMBER IS EXISTING. SEE PEPCON DWG'S: 20.8-161 THROUGH 20.8-167 FOR EXISTING LOCATIONS.
2. EXISTING DUCTWORK DESIGNATED 5, 6, AND 8 IS TO BE RELOCATED AS SHOWN ON THESE DRAWINGS.
3. EACH FLANGED CONNECTION IN DUCTWORK REQUIRES A 1/8-INCH THICK GASKET.
4. ALL NEW DUCT WORK SHALL BE PIGMENTED WHITE AND SHALL MATCH CONSTRUCTION OF EXISTING DUCT IN ALL RESPECTS.
5. THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE LOW PRESSURE AIR COMPRESSOR EQUIPMENT.

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN SK CHECKED JRP	APPROVED	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS
NO. DATE APP REVISION	SCALE 16 0 16 32 FT 1/16"=1'-0"; 8 0 8 16 FT 1/8"=1'-0"; 1 0 2 3 4 5 6 7 FT 3/8"=1'-0"		YBOR PUMPING STATION PLANS, SECTIONS, DIAGRAMS

PROJ NO.
DWG
SHEET 5 OF 10
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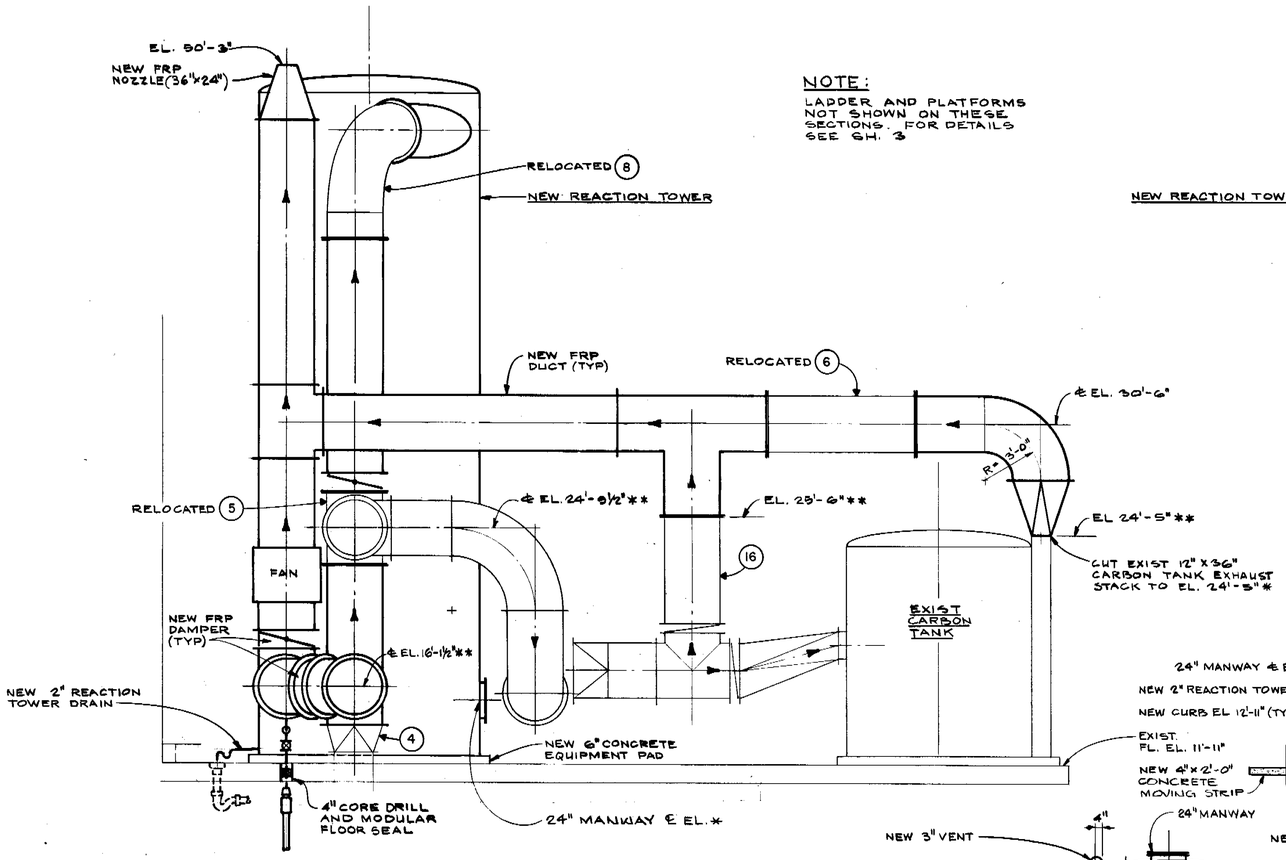
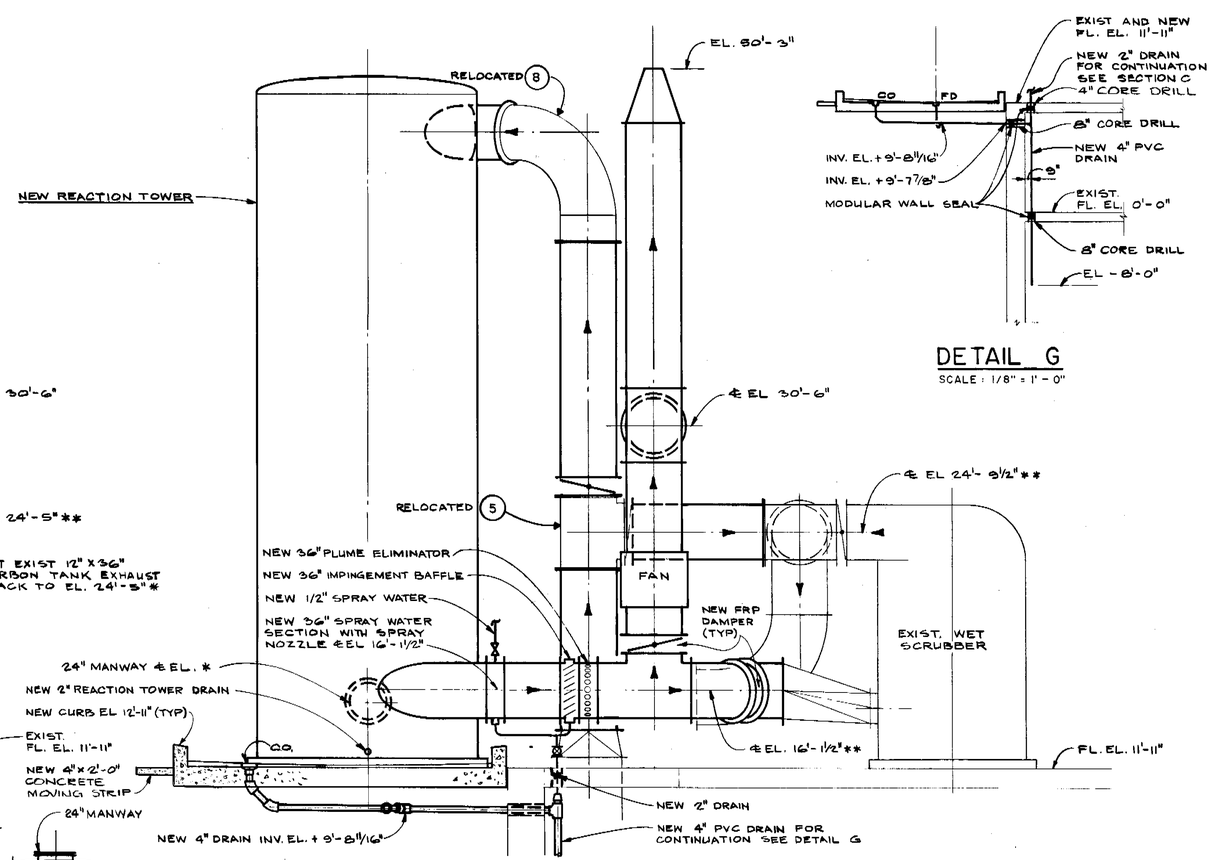


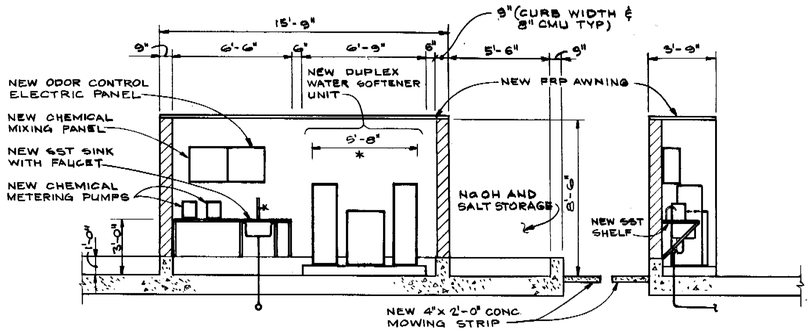
NOTE:
LADDER AND PLATFORMS NOT SHOWN ON THESE SECTIONS. FOR DETAILS SEE SH. 3

SECTION B/4
SCALE: 1/4" = 1'-0"

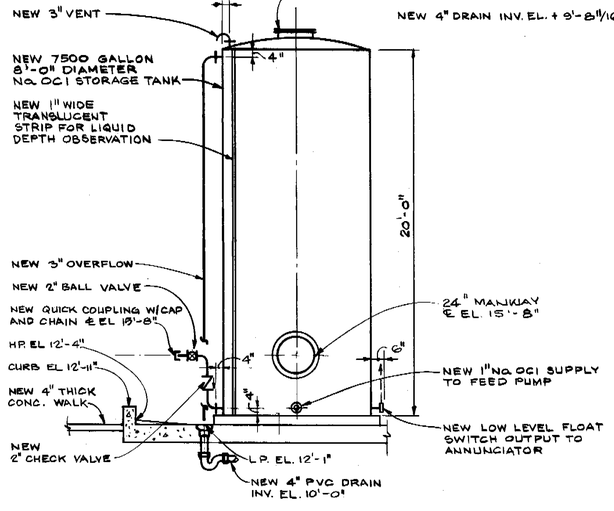


SECTION C/4
SCALE: 1/4" = 1'-0"

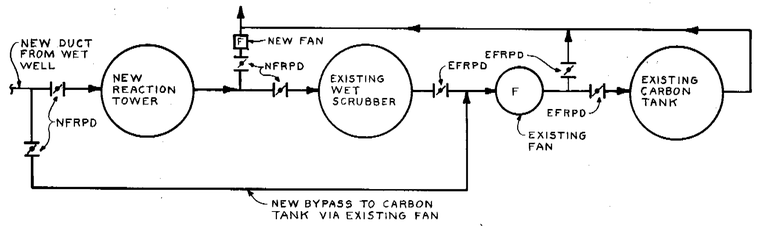
DETAIL G
SCALE: 1/8" = 1'-0"



SECTION D/4
SCALE: 1/4" = 1'-0"



SECTION F/4
SCALE: 1/4" = 1'-0"



NOTE:
SEE PLANS AND SECTIONS FOR LOCATION OF NEW AND EXISTING DUCTWORK

LEGEND
NFRPD - NEW FRP DAMPER
EFRPD - EXISTING FRP DAMPER

YBOR PUMPING STATION ODOR CONTROL FLOW DIAGRAM
NO SCALE

NOTE: THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE HIGH PRESSURE AIR COMPRESSOR EQUIPMENT

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN SK CHECKED JRP	APPROVED	NO. DATE APP REVISION	SCALE 8 0 8 16 FT 1/8"=1'-0"; 4 0 4 8 FT 1/4"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 415 PUMPING STATIONS ODOR CONTROL MODIFICATIONS

YBOR PUMPING STATION
SECTIONS

PROJ NO.
SHEET 6 OF 10
DATE JULY 1985 REV 0

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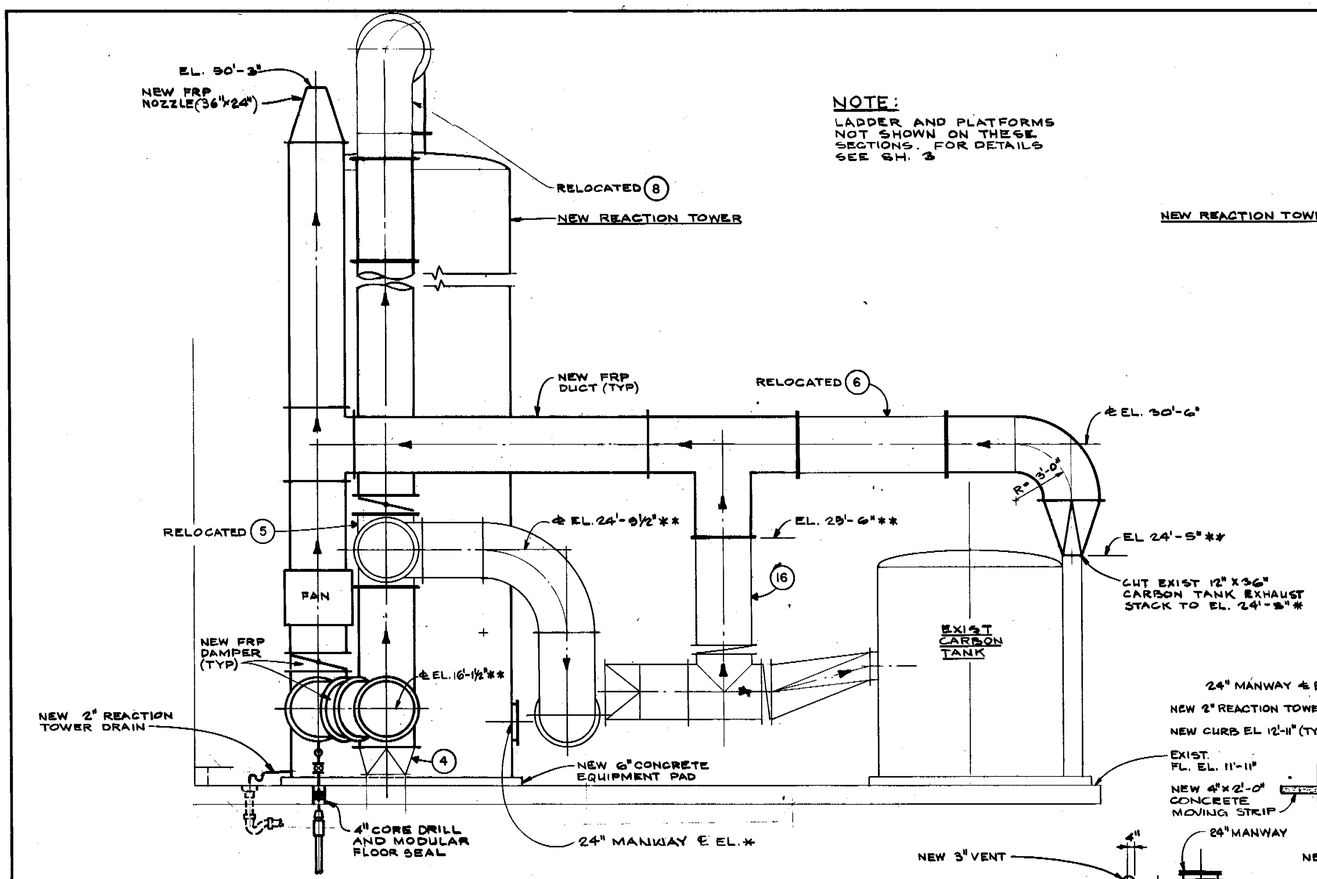
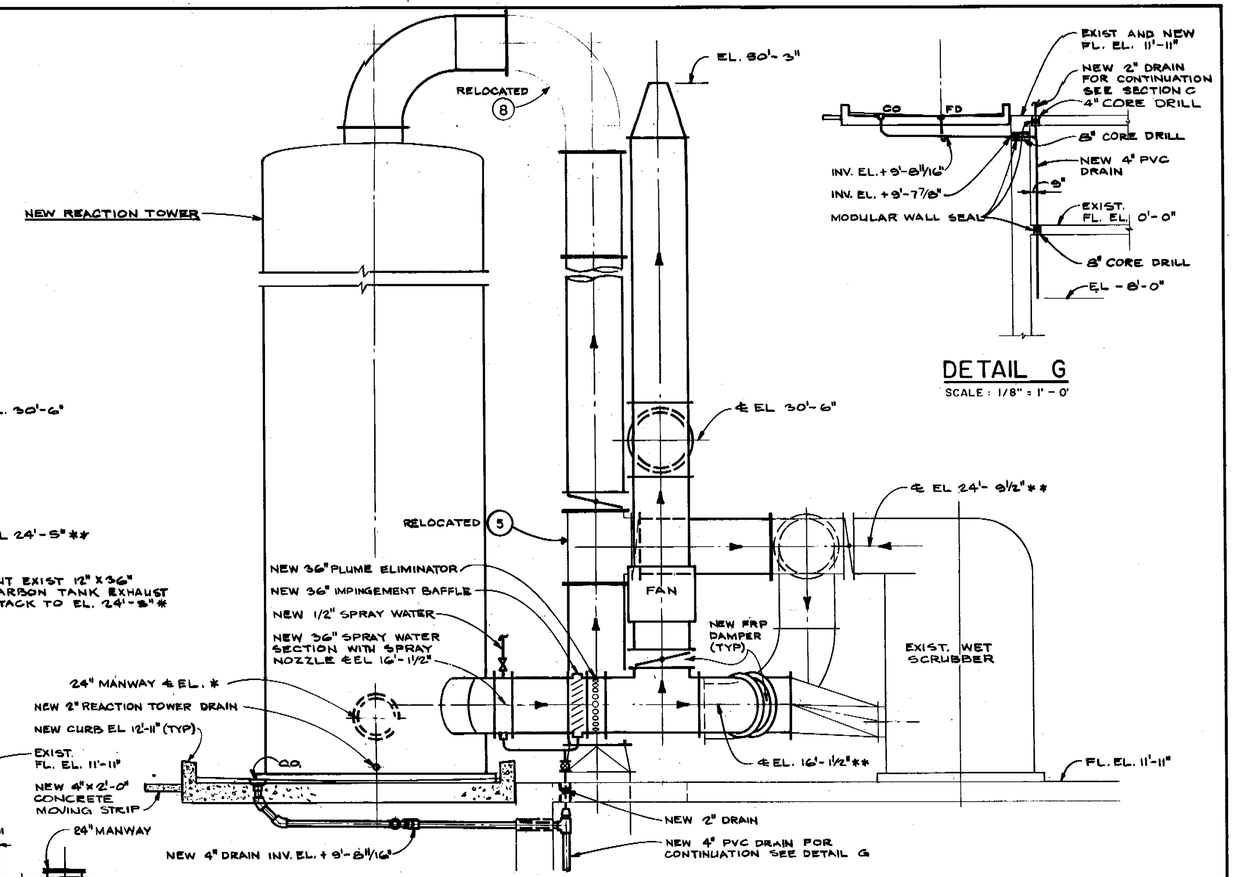


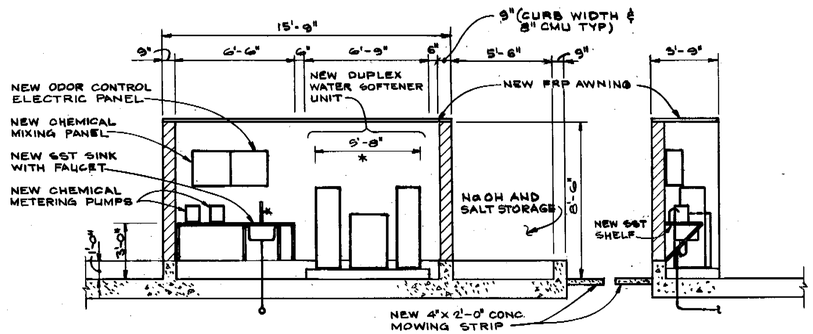
NOTE:
LADDER AND PLATFORMS NOT SHOWN ON THESE SECTIONS. FOR DETAILS SEE SH. 3

SECTION B/5
SCALE : 1/4" = 1'-0"

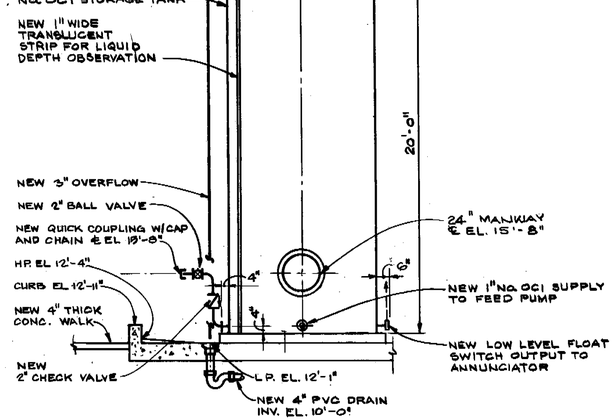


SECTION C/5
SCALE : 1/4" = 1'-0"

DETAIL G
SCALE : 1/8" = 1'-0"

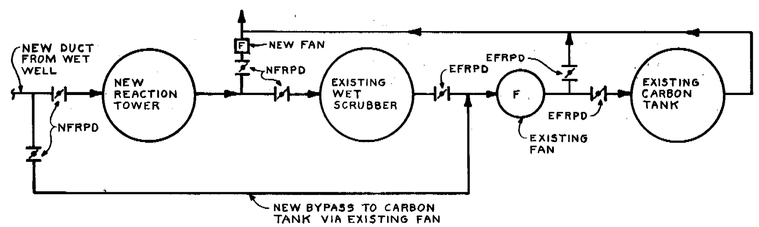


SECTION D/5
SCALE : 1/4" = 1'-0"



SECTION E/5
SCALE : 1/4" = 1'-0"

SECTION F/5
SCALE : 1/4" = 1'-0"



NOTE:
SEE PLANS AND SECTIONS FOR LOCATION OF NEW AND EXISTING DUCTWORK

LEGEND
NFRPD- NEW FRP DAMPER
EFRPD- EXISTING FRP DAMPER

YBOR PUMPING STATION ODOR CONTROL FLOW DIAGRAM
NO SCALE

NOTE: THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE LOW PRESSURE AIR COMPRESSOR EQUIPMENT

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN SK CHECKED JRP	APPROVED	NO. DATE APP REVISION
SCALE 8 0 8 16 FT 1/8"=1'-0"; 4 0 4 8 FT 1/4"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	YBOR PUMPING STATION SECTIONS	PROJ NO. SHEET 7 OF 10 DATE JULY 1985 REV 0

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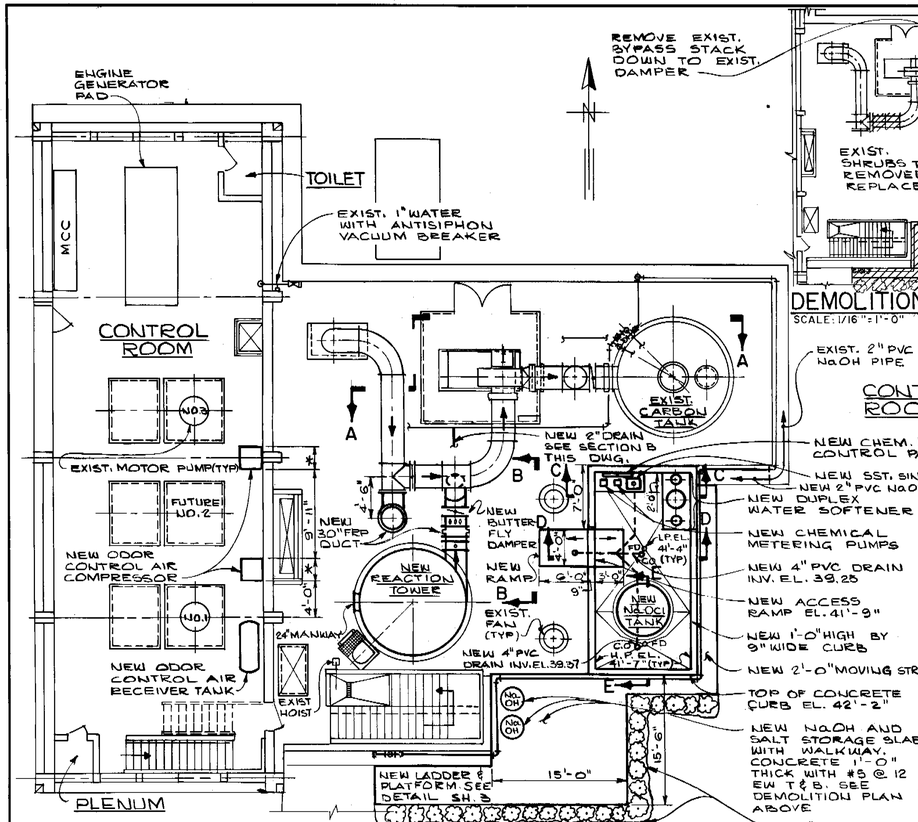
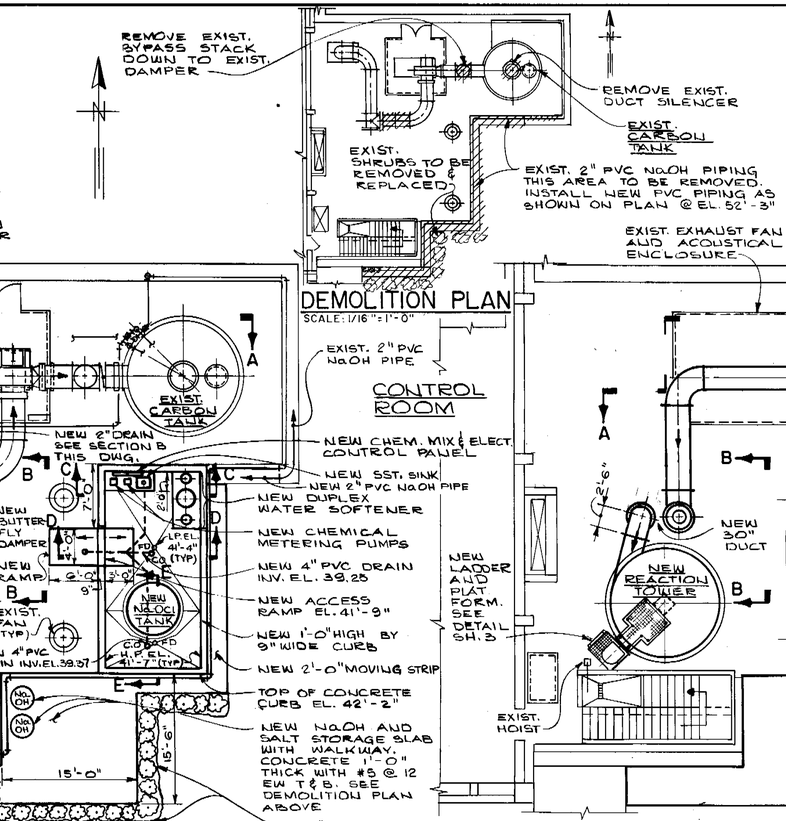


UNIVERSITY PUMPING STATION - PLAN - AT EL. 52'-3"

SCALE: 1/8" = 1'-0"



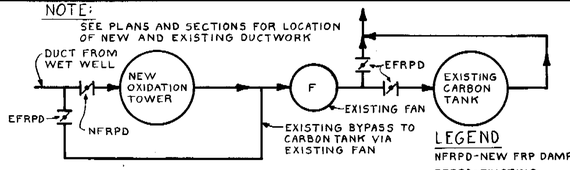
DEMOLITION PLAN

SCALE: 1/16" = 1'-0"

UNIVERSITY PUMPING STATION - PLAN - AT EL. 64'-2¾"

SCALE: 1/8" = 1'-0"

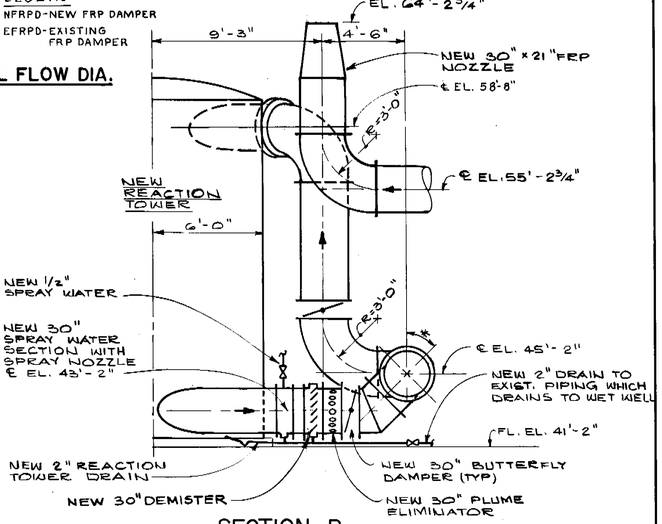
NOTE:
SEE PLANS AND SECTIONS FOR LOCATION OF NEW AND EXISTING DUCTWORK



LEGEND
NFRPD-NEW FRP DAMPER
EFRPD-EXISTING FRP DAMPER

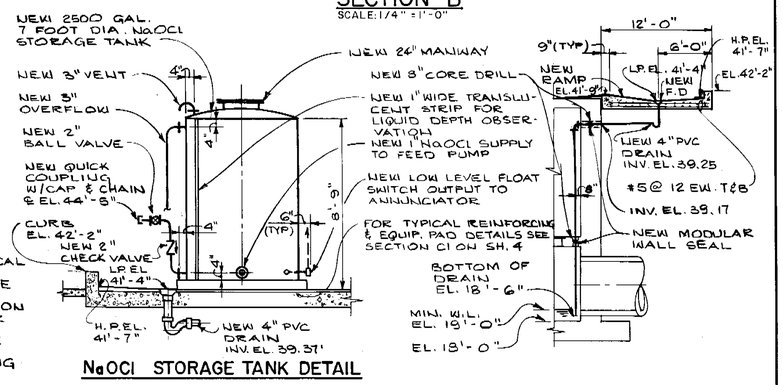
UNIVERSITY PUMPING STA. ODOR CONTROL FLOW DIA.

NO SCALE



SECTION B

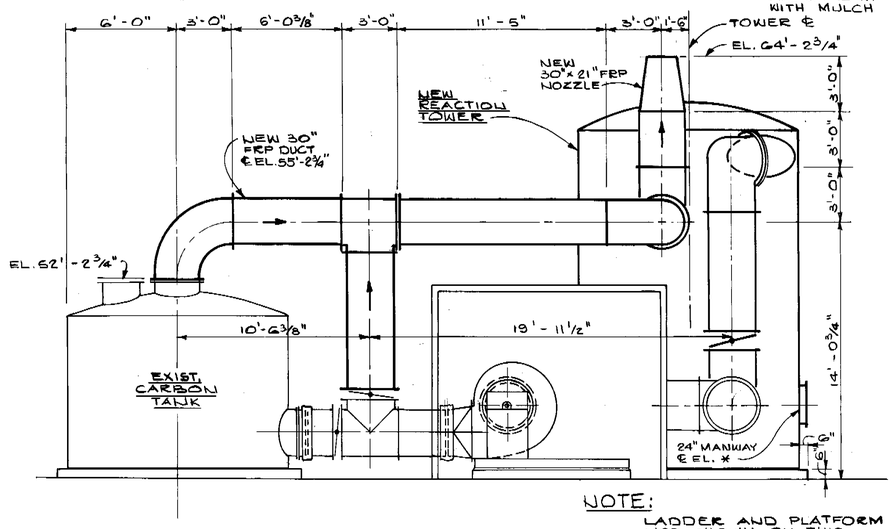
SCALE: 1/4" = 1'-0"



NaOCl STORAGE TANK DETAIL

SECTION D

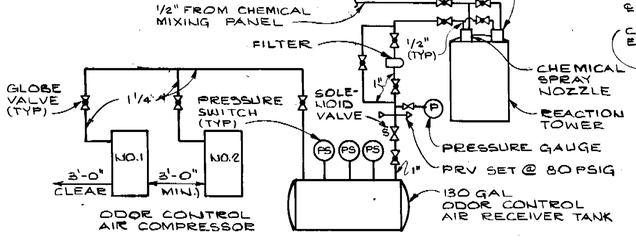
SCALE: 1/8" = 1'-0"



NOTE:
LADDER AND PLATFORM NOT SHOWN ON THIS SECTION. SEE SH. 3 FOR DETAIL

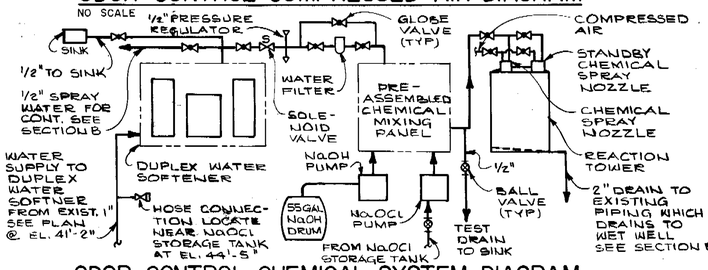
SECTION A

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



ODOR CONTROL COMPRESSED AIR DIAGRAM

NO SCALE

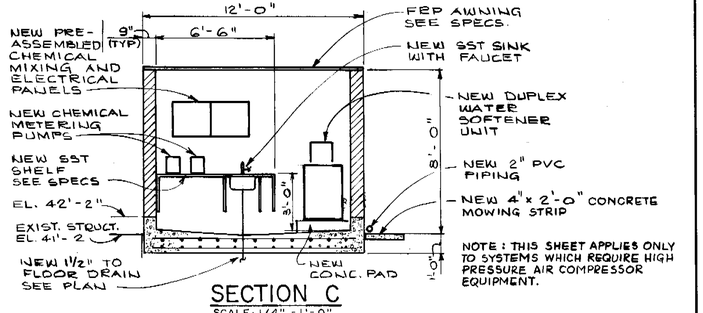


ODOR CONTROL CHEMICAL SYSTEM DIAGRAM

NO SCALE

SECTION E

SCALE: 3/8" = 1'-0"



NOTE: THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE HIGH PRESSURE AIR COMPRESSOR EQUIPMENT.

SECTION C

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

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN ATK CHECKED JRP	APPROVED

NO.	DATE	APP	REVISION

SCALE
8 0 8 16 FT — 1/8" = 1'-0"
4 0 4 8 FT — 1/4" = 1'-0"
0 1 2 3 4 5 6 7 FT — 3/8" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4L5
PUMPING STATIONS
ODOR CONTROL MODIFICATIONS

UNIVERSITY PUMPING STATION
PLANS, SECTIONS, DETAILS AND DIAGRAMS

PROJ NO.
SHEET 8 OF 10
DATE JULY 1985 REV 0

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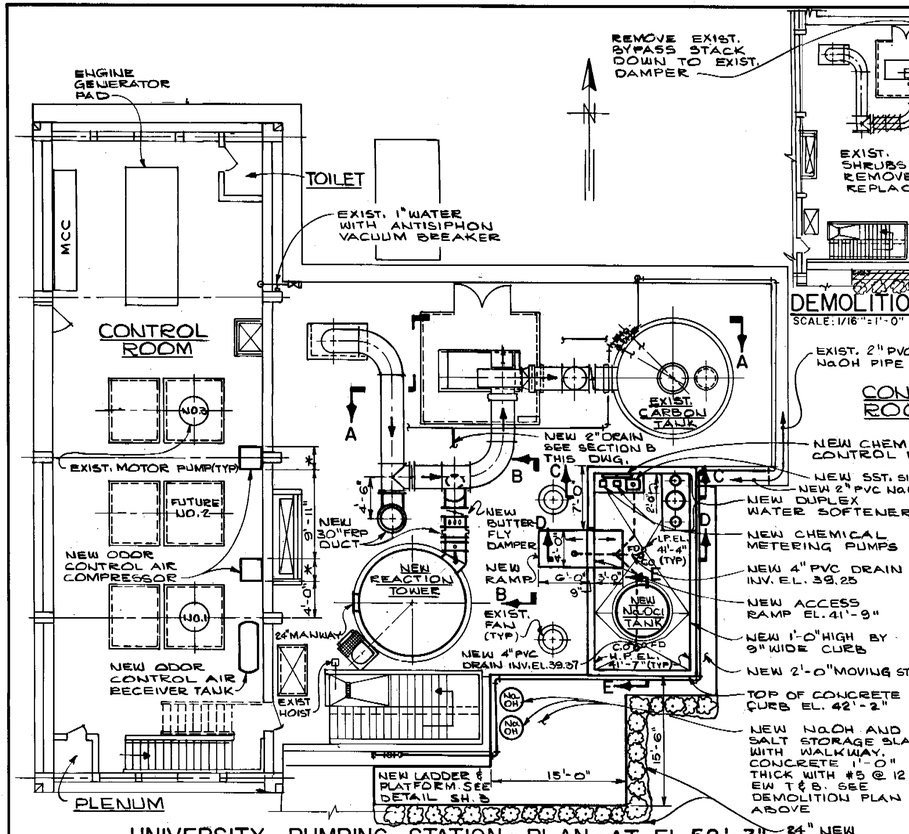


UNIVERSITY PUMPING STATION - PLAN - AT EL. 52'-3"

SCALE: 1/8" = 1'-0"

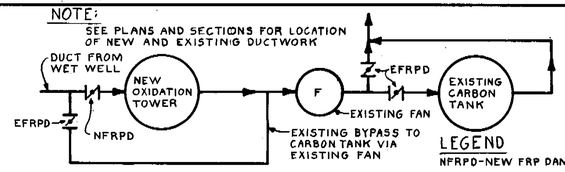
DEMOLITION PLAN

SCALE: 1/16" = 1'-0"

UNIVERSITY PUMPING STATION - PLAN - AT EL. 64'-2¾"

SCALE: 1/8" = 1'-0"

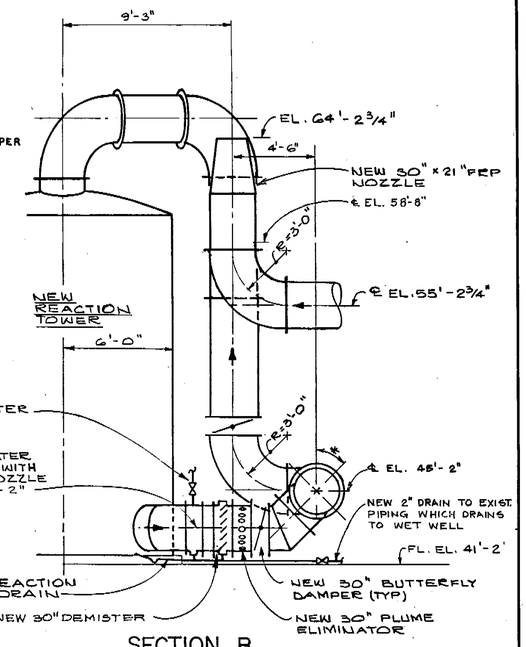
NOTE:
SEE PLANS AND SECTIONS FOR LOCATION OF NEW AND EXISTING DUCTWORK



LEGEND
NFRPD-NEW FRP DAMPER
EFRPD-EXISTING FRP DAMPER

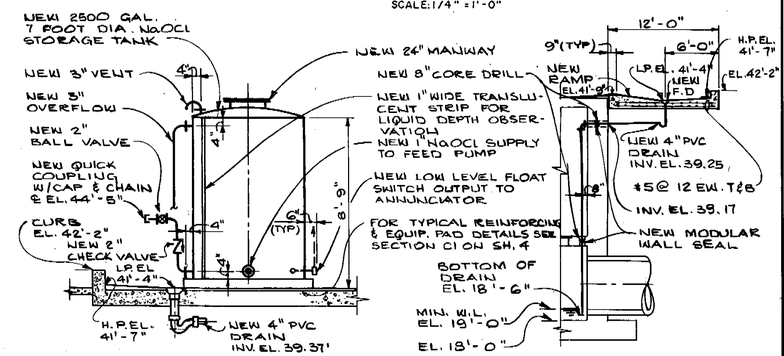
UNIVERSITY PUMPING STA. ODOR CONTROL FLOW DIA.

NO SCALE

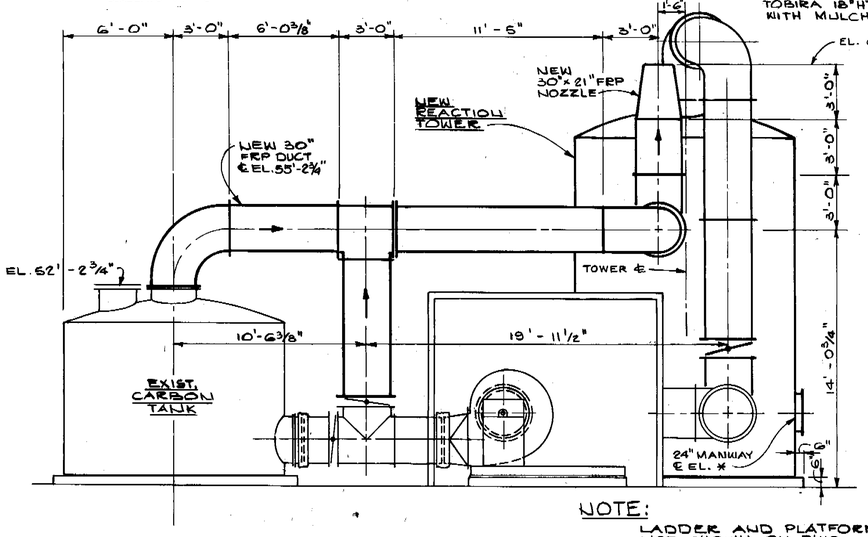


SECTION B

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



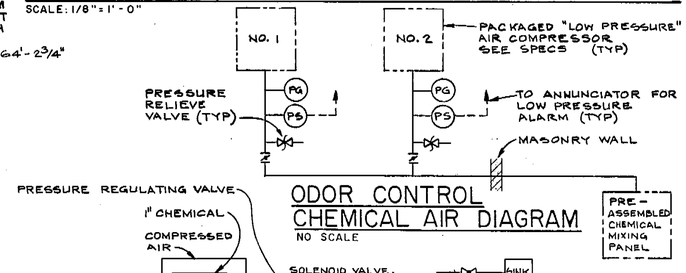
NaOCl STORAGE TANK DETAIL



SECTION A

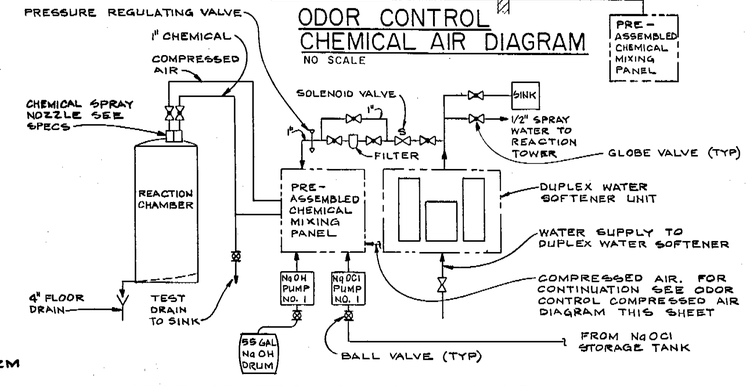
SCALE: 1/4" = 1'-0"

NOTE:
LADDER AND PLATFORM NOT SHOWN ON THIS SECTION. SEE SH. 5 FOR DETAIL



ODOR CONTROL CHEMICAL AIR DIAGRAM

NO SCALE



PRE-ASSEMBLED CHEMICAL MIXING PANEL

ODOR CONTROL CHEMICAL SYSTEM DIAGRAM

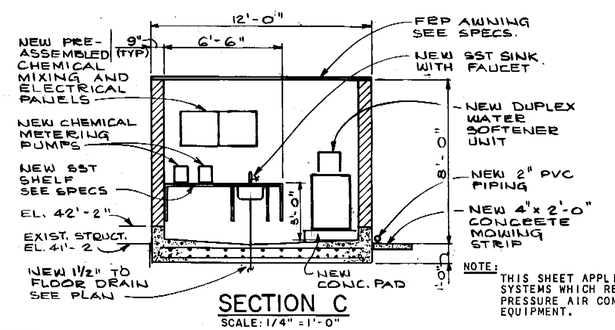
NO SCALE

SECTION E

SCALE: 3/8" = 1'-0"

SECTION D

SCALE: 1/8" = 1'-0"



SECTION C

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

NOTE: THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE LOW PRESSURE AIR COMPRESSOR EQUIPMENT.

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN ATK CHECKED JRP	APPROVED	NO. DATE APP REVISION
SCALE 8 0 8 16 FT — 1/8"=1'-0"; 4 0 4 8 FT — 1/4"=1'-0"; 0 1 2 3 4 5 6 7 FT — 3/8"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4&5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	UNIVERSITY PUMPING STATION PLANS, SECTIONS, DETAILS AND DIAGRAMS	PROJ NO. SHEET 9 OF 10 DATE JULY 1985 REV 0

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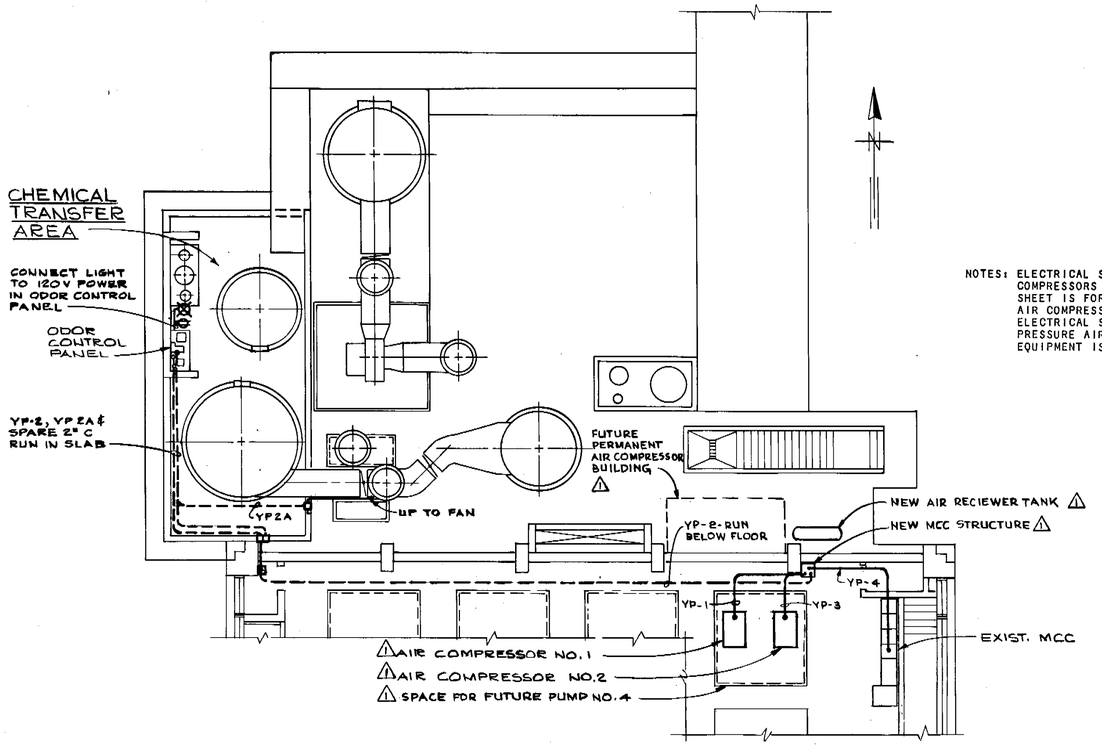
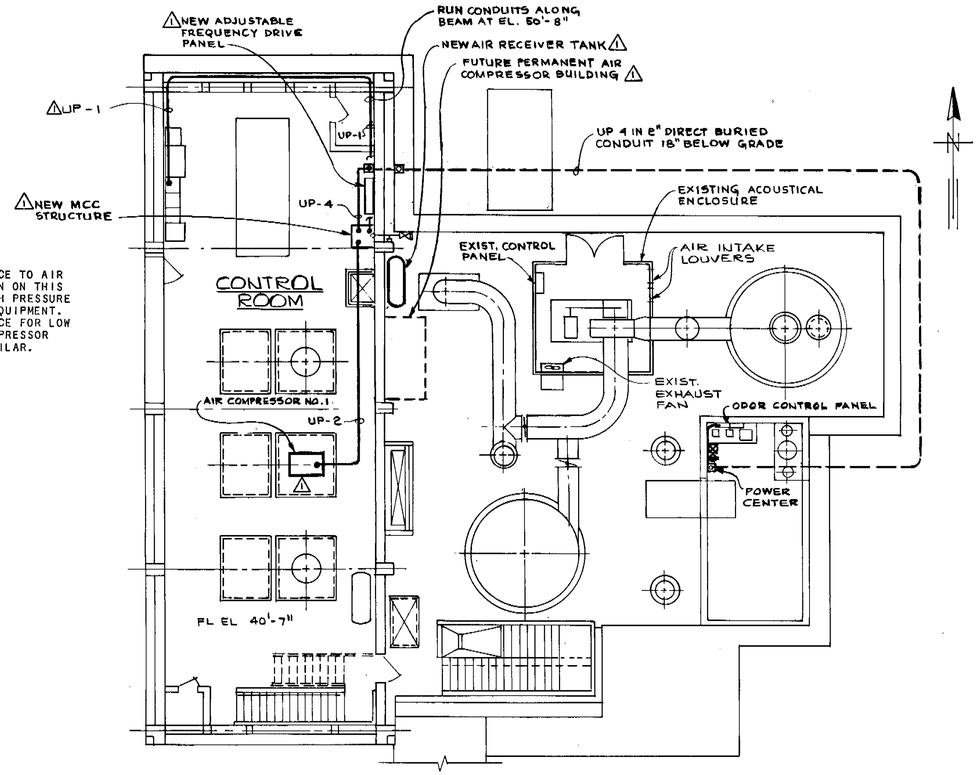


NOTES: ELECTRICAL SERVICE TO AIR COMPRESSORS SHOWN ON THIS SHEET IS FOR HIGH PRESSURE AIR COMPRESSOR EQUIPMENT. ELECTRICAL SERVICE FOR LOW PRESSURE AIR COMPRESSOR EQUIPMENT IS SIMILAR.

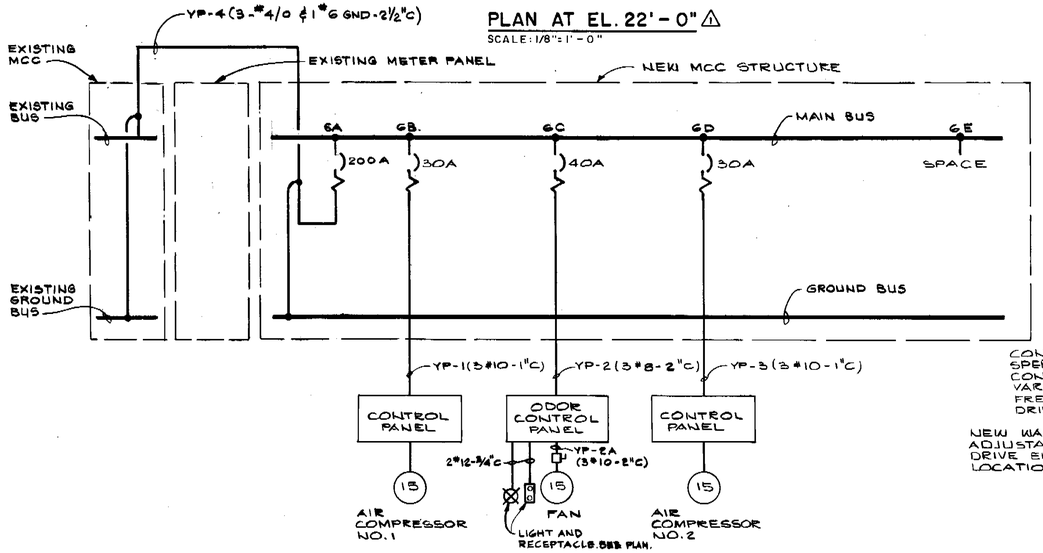
PLAN AT EL. 22'-0" ⚠

SCALE: 1/8"=1'-0"



PLAN AT EL. 52'-3" ⚠

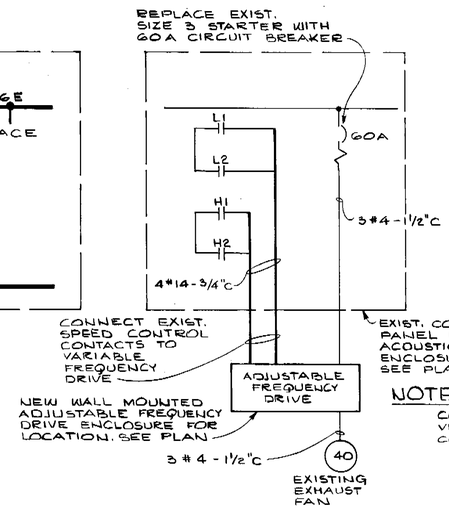
SCALE: 1/8"=1'-0"



MCC PARTIAL ONE LINE DIAGRAM

480 VOLT, 3 PHASE, 60 HERTZ

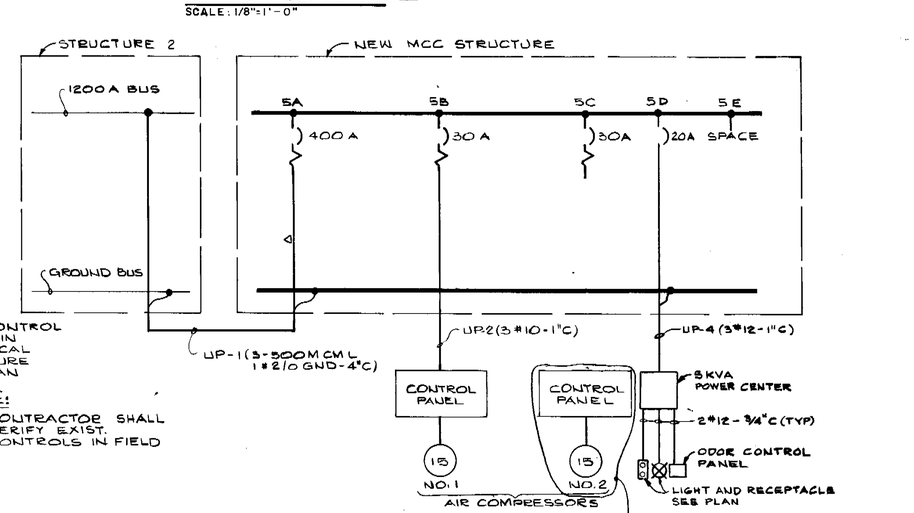
YBOR PUMPING STATION



PARTIAL ONE LINE DIAGRAM OF EXISTING CONTROL CENTER AND NEW ADJUSTABLE FREQUENCY DRIVE

UNIVERSITY PUMPING STATION

NOTE: CONTRACTOR SHALL VERIFY EXIST. CONTROLS IN FIELD



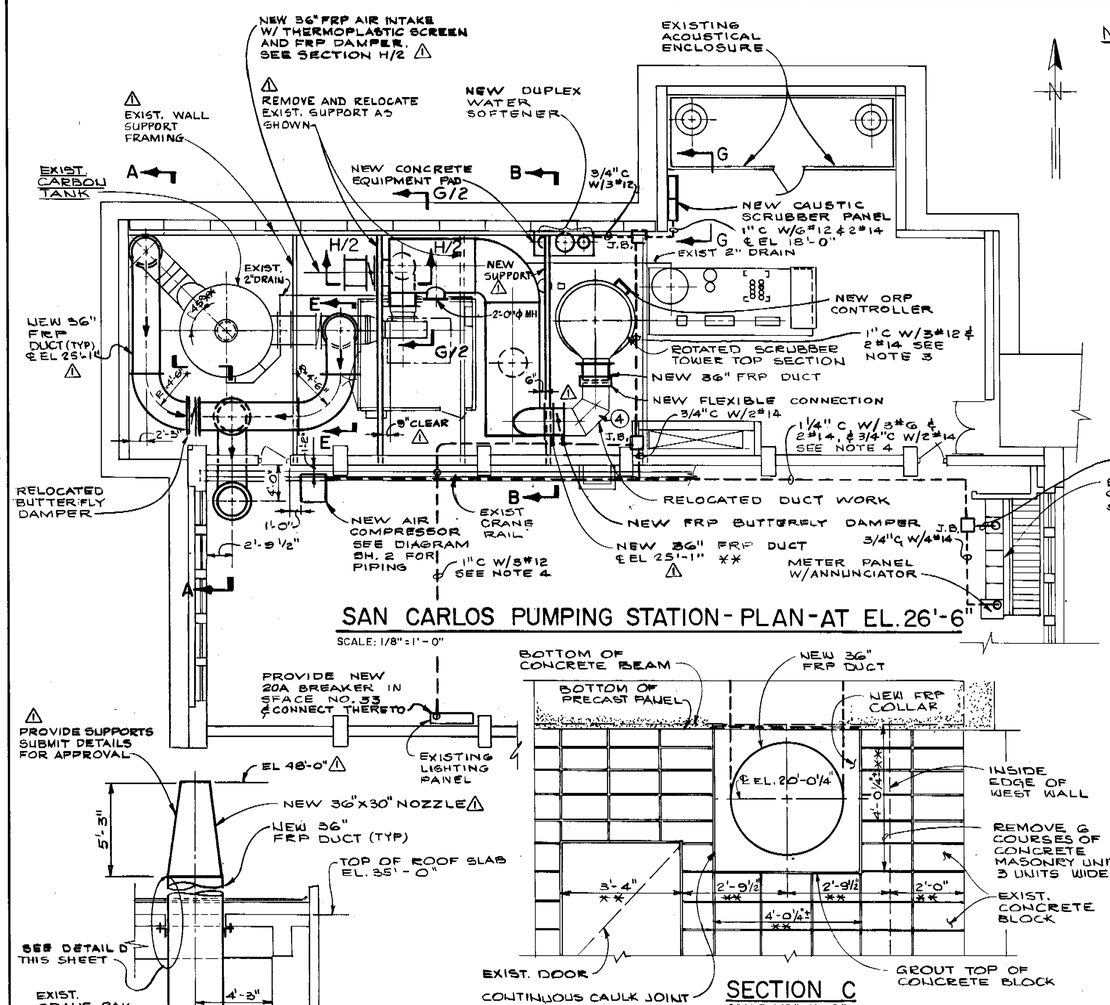
MCC PARTIAL ONE LINE DIAGRAM

480 VOLT, 3 PHASE, 60 HERTZ

⚠ UNIVERSITY PUMPING STATION

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED BBK DRAWN AK CHECKED BBK JRP	APPROVED	⚠ 5.18.87 JRP AIR COMPRESSORS & MCC'S NO. DATE APP REVISION
SCALE: NO SCALE	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	YBOR AND UNIVERSITY PUMPING STATION ELECTRICAL	PROJ NO. DWG SHEET 10 OF 10 DATE JULY 1985 REV 1

173-37j

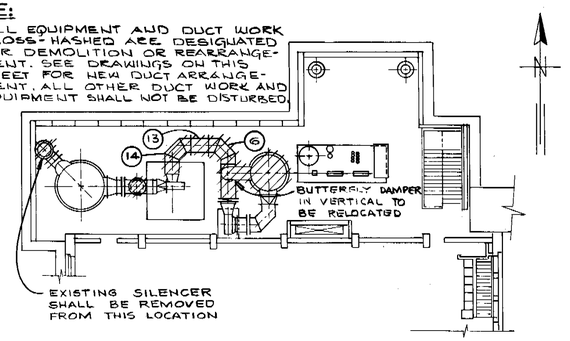


SAN CARLOS PUMPING STATION - PLAN AT EL. 26'-6"

SCALE: 1/8" = 1'-0"

NOTE:

ALL EQUIPMENT AND DUCT WORK CROSS-HASHED ARE DESIGNATED FOR DEMOLITION OR REARRANGEMENT. SEE DRAWINGS ON THIS SHEET FOR NEW DUCT ARRANGEMENT. ALL OTHER DUCT WORK AND EQUIPMENT SHALL NOT BE DISTURBED.

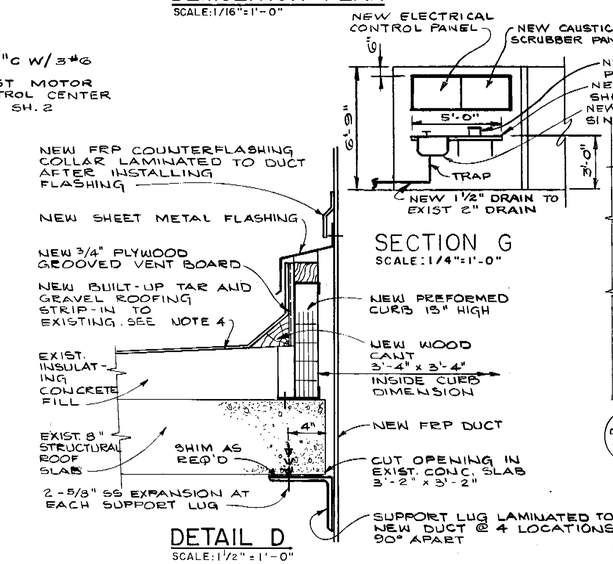


DEMOLITION PLAN

SCALE: 1/16" = 1'-0"

NOTES:

1. ALL NEW WORK IS SHOWN IN BOLD LINE WORK. ALL EXISTING OR RELOCATED EQUIPMENT OR STRUCTURE IS SHOWN IN LIGHT LINE WORK.
2. ALL NEW WIRING AND DEVICES FOR THE NEW ORP CONTROLLER SHALL BE MOUNTED AND INSTALLED ON THE EXISTING NaOCl WET SCRUBBER TOWER AND IN THE COMBINATION RECTIFIER CONTROL PANEL-MCC IN ACCORDANCE WITH DIRECTIONS FROM PEPCON AND AS APPROVED BY THE ENGINEER.
3. ALL CONDUIT OUTSIDE OF THE PUMPING STATION SHALL BE RUN 7'-0" MIN. ABOVE SLAB AT EL. 11.92 SHALL BE NEATLY GROUPED AND SHALL BE WELL SUPPORTED PER SPEC. #-35.04 AND AS APPROVED BY THE ENGINEER. ROUTING OF CONDUIT SHALL BE AS APPROVED BY THE ENGINEER.
4. ALL CONDUIT INSIDE OF THE PUMPING STATION SHALL BE RUN ALONG WALLS, UP TO THE CEILING OR OTHERWISE, AS APPROVED BY THE ENGINEER, SO AS TO BE CLEAR OF ANY INTERFERENCES WITH EQUIPMENT, DOORWAYS AND THE LIKE.
5. DUCT WORK DESIGNATED WITH A CIRCLED NUMBER 9 IS EXISTING. SEE PEPCON DWG'S: 20.8-190 THROUGH 20.8-192.
6. ROOFING SHALL BE 20 YEARS BONDABLE 4-PLY BUILT-UP TAR AND GRAVEL AS MANUFACTURED BY THE KOPPERS CO. OR EQUAL. INSTALLATION SHALL BE IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. EACH FLANGED CONNECTION IN THE DUCTWORK REQUIRES A 1/8-INCH THICK GASKET.
8. ALL NEW DUCTWORK SHALL BE PIGMENTED WHITE AND SHALL MATCH CONSTRUCTION OF EXISTING DUCT IN ALL RESPECTS.
9. DIMENSIONS OR ELEVATIONS DESIGNATED THUS ** SHALL BE VERIFIED BY FIELD MEASUREMENT PRIOR TO SUBMITTAL OF SHOP DRAWINGS. OTHER DIMENSIONS DEPENDENT UPON SUCH DIMENSIONS OR ELEVATIONS SHALL BE MODIFIED AS REQUIRED AND APPROVED IF FIELD MEASUREMENTS DIFFER FROM THOSE SHOWN. SUCH REQUIRED MODIFICATIONS SHALL BE AT NO CHANGE IN CONTRACT PRICE.

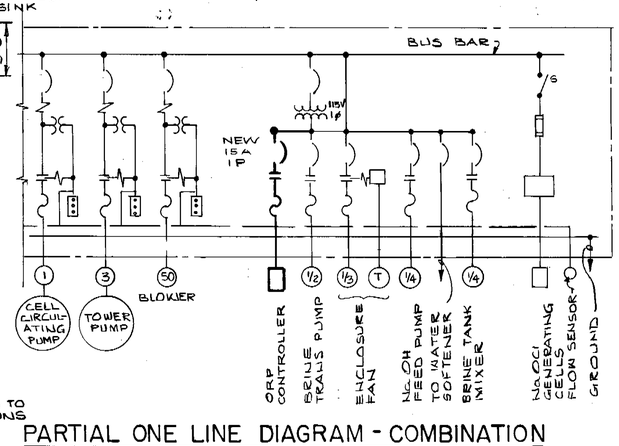


SECTION G

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

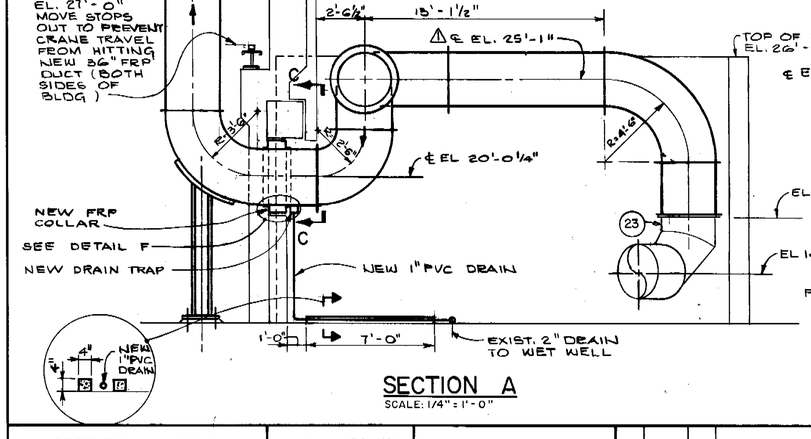
DETAIL D

SCALE: 1½" = 1'-0"



PARTIAL ONE LINE DIAGRAM - COMBINATION RECTIFIER CONTROL PANEL - MCC

NO SCALE

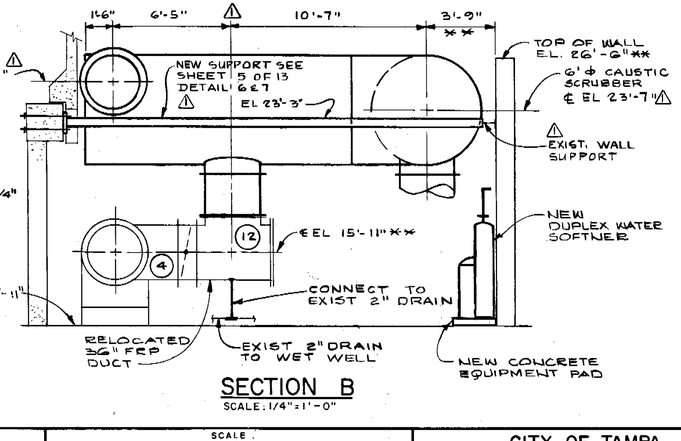


SECTION A

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

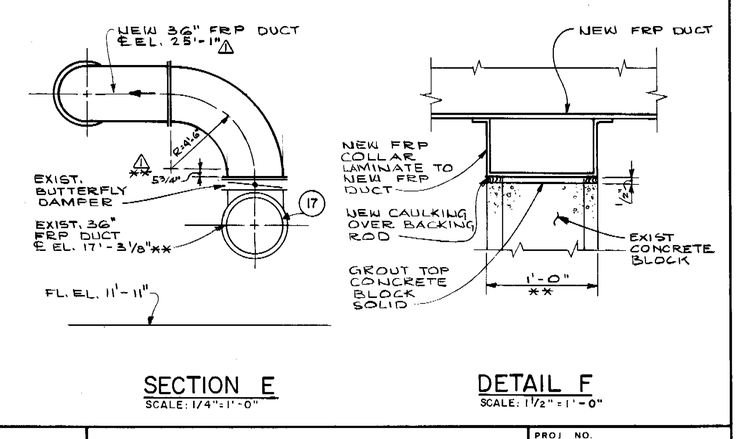
SECTION C

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



SECTION B

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



SECTION E

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

DETAIL F

SCALE: 1½" = 1'-0"

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JRP MPV DRAWN ATK CHECKED JRP	APPROVED	SCALE: 16 0 16 32 FT 1/16"=1'-0"; 8 0 8 16 FT 1/8"=1'-0"; 4 0 4 8 FT 1/4"=1'-0"

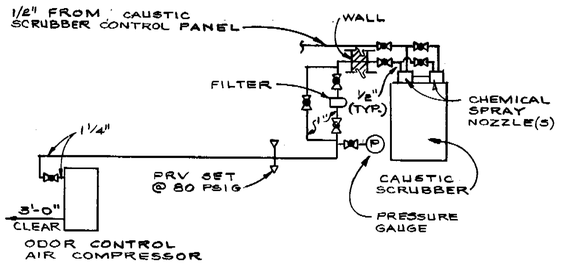
NO.	DATE	APP	REVISION
1	JAN 1987	JRP	AS SHOWN

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIV. 4L-3 ODOR CONTROL EQUIPMENT FOR THREE PUMPING STATIONS

SUPPLEMENTARY DRAWING NO. SD-3

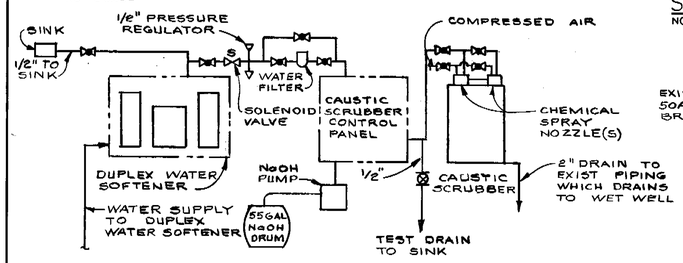
PROJ NO.
SHEET 1 OF 2
DATE JUNE, 1986 REV 1

1173-37k



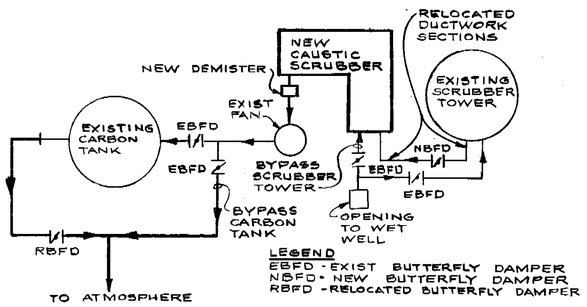
ODOR CONTROL COMPRESSED AIR DIAGRAM

NO SCALE



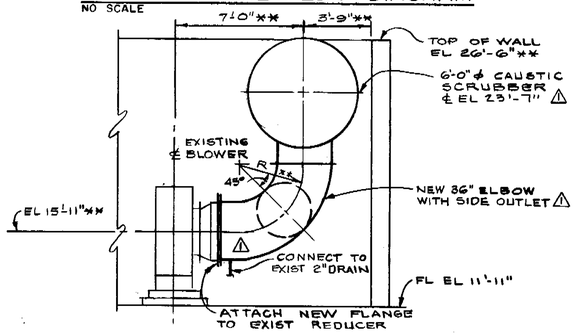
CAUSTIC SCRUBBER SYSTEM DIAGRAM

NO SCALE



ODOR CONTROL FLOW DIAGRAM

NO SCALE

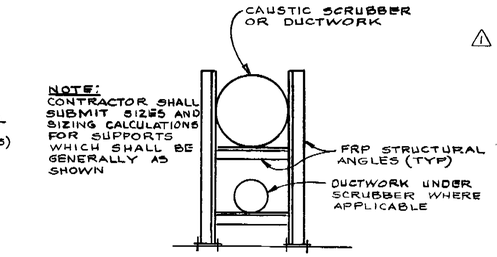


SECTION G/1

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

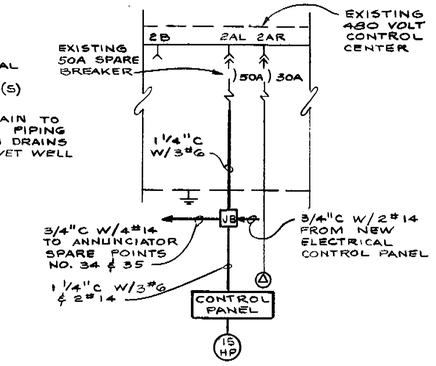
DUCTWORK AND CAUSTIC SCRUBBER SUPPORT DETAIL

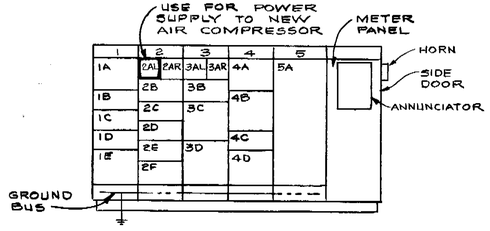
NO SCALE



PARTIAL ONE LINE DIAGRAM

NO SCALE

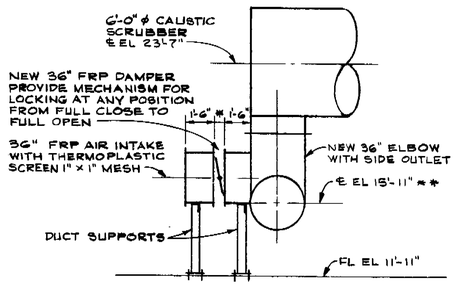




CONTROL CENTER

FRONT VIEW

NOT TO SCALE



⚠ SECTION H/1

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

SPECIFICATIONS

1. GENERAL

Unless shown or specified otherwise, all Workmanship and Materials shall conform to the Division 4L3 Contract Documents.

2. CAUSTIC SCRUBBER

The new Caustic Scrubber shall be designed to neutralize all acids and acidic compounds present in the treated air stream from the existing NaOCl Wet Scrubber Tower. The new Caustic Scrubber shall be of the size and shape shown, arranged to fit in the available space and have a retention time of approximately 3 seconds based upon an air flow rate of 12,300 cfm. The new Caustic Scrubber shall be designed to use a "once through" solution of NaOH and softened water to neutralize all acids and acidic compounds in the 12,300 cfm air stream based upon 100 percent humidity and an inlet pH range of 1.0 to 6.0. The pH of the spent chemical to drain shall be in the range of 7.5 to 8.0 Softened water consumption shall not exceed 1.0 gpm. The new Caustic Scrubber shall be constructed of FRP meeting the requirements of the Workmanship and Materials section headed "Duct work and Dampers" and shall be chemically resistant to the caustic solution. The new Caustic Scrubber shall be equipped with a chemical distribution device or devices, as required, to supply the caustic solution so as to cause intimate contact between the chemical and the air stream to provide the required acid neutralization. The new Caustic Scrubber shall be as manufactured and supplied by QUAD Environmental Technologies Corp., Highland Park, IL, or equal.

3. AIR COMPRESSOR

The new Air Compressor, shall be of the rotary screw type, having a minimum rated capacity of not less than 68 cfm at 110 psig, driven by a 15 HP 460 volt, 3 phase, 60 hertz electric motor. Final capacity and pressure requirements shall be as required by the manufacturer supplier of the new Caustic Scrubber. The new air compressor shall be a completely factory assembled package, housed in an acoustical enclosure, and shall be Model SK 18 as manufactured by Kaeser Compressors, Fredericksburg, VA, or equal.

An air compressor malfunction shutdown alarm contact shall be provided. The malfunction shutdown alarm contact shall be wired to a spare alarm point of the existing pumping station annuncistor.

4. CHEMICAL METERING PUMP

The chemical metering pump shall be positive displacement, diaphragm type pump. Output volume shall be adjustable while pump is in operation from zero to maximum capacity. Adjustment shall be by means of readily accessible dial knobs, one for changing stroke length and the other for changing stroke frequency. Both knobs shall be located opposite the liquid handling end. Control of metering pump shall be selectable between internal and external pulsing by means of a 3-position HAND-OFF-AUTO switch. When in the HAND position, metering pump capacity shall be manually adjustable by means of the pump mounted knobs. When in the AUTO position, metering pump capacity shall be automatically adjusted by the automatic chemical pacing controls specified hereinafter. The chemical metering pump shall be capable, without a hydraulically backed diaphragm, of injecting chemicals against pressures up to 100 psig.

The size and capacity of the chemical metering pump shall be determined by the caustic scrubber manufacturer-supplier to provide the required quantity of NaOH to neutralize the compounds specified above under the heading "Caustic Scrubber."

The pump drive shall be totally enclosed with splash proof control panel and no exposed moving parts. Solid state electronic pulser shall be fully encapsulated. Electronics shall be housed in chemical resistant enclosure at the rear of the pump for maximum protection against chemical spillage. The chemical metering pumps shall be 120 volt, single phase 60 hertz.

Chemical metering pump housing shall be of chemically resistant glass fiber reinforced thermoplastic with a glass fiber reinforced polypropylene solenoid carrier. All exposed fasteners shall be stainless steel. Chemical metering pump valves shall be ball type, with ceramic balls seating on combination valve seat and seal ring. Valve seat and seal ring shall be renewable by replacing only the combination seat-seal ring. Pump head shall be of PVC material. Fittings and connections at pump head shall be PVC and/or polypropylene.

5. CAUSTIC SCRUBBER CONTROL PANEL

The Caustic Scrubber Control Panel shall be provided complete with all required piping, gauges, regulators, meters, valves and all other such devices requred to dilute and deliver the required quanatity of liquid chemicals to the caustic scrubber. The Panel shall be arranged for wall mounting as shown and shall have fittings properly labeled and ready for field connection to water, chemicals and discharge piping.

6. ELECTRICAL CONTROL PANEL

The electrical control panel shall be a NEMA 3R enclosure constructed of minimum 12 gauge Type 304 stainless steel and shall be adequately reinforced to support all components mounted therein without distortion, bowing or deflection. The electrical control panel shall be provided with a continuously hinged (vertical along left side) door with a heavy duty handle with a hasp for padlock and a 3 point catch mechanism.

Devices to be provided in the electrical control panel shall include, but may not be limited to the following:

- Power disconnect switch with system On indicator light.
- Water On/Off switch and On indicator light (controls water solenoid valve).
- A chemical system power switch with On indicator light (provides power to metering pump and automatic chemical pacing controls).

7. AUTOMATIC CHEMICAL PACING CONTROLS

Automatic chemical pacing controls shall be furnished to provide reliable automatic adjustment of the chemical feed rates of the chemical metering pump so that the pH of the spent chemical to drain is in the range of 7.5 to 8.0. It is the sole responsibility of the Caustic Scrubber manufacturer to design, select and furnish such automatic chemical pacing controls. The automatic chemical pacing controls and a complete description of operation including wiring diagrams and schematics shall be submitted to the Engineer for approval.

8. PIPING, VALVES, GAUGES, SWITCHES AND OTHER DEVICES

Piping for water and compressed air shall be copper pipe and fittings meeting the requirements of the Workmanship and Materials section headed "Miscellaneous Pipe and Fitting". All pipe and fittings for chemical service shall be of plastic pipe of the proper type and formulation for the chemical service employed.

Valves for water and compressed air shall be of the types shown and shall meet the requirements of the Workmanship and Materials section headed "Valves." Valves in chemical pipiines shall be of plastic of the proper type and formulation for the chemical service employed.

Gauges, switches and all other devices shown or required shall be constructed of corrosion resistant materials such as plastic or stainless steel and shall be suitable in all respects for the service employed.

A liquid level switch shall be provided to shut down the NaOH chemical metering pump when liquid level in the drum is low and provide a low level alarm signal to a spare alarm point in the existing pumping station annuncistor. The switch shall be an encapsulated reed type activated by a formed polypropylene float mounted in a PVC float tube. The switch assembly shall be mounted in a corrosion resistant glass reinforced polypropylene housing.

9. BUTTERFLY DAMPER

Butterfly dampers shall be constructed of glass fiber reinforced polyester (FRP). Dampers shall be "Xerxes" 36-inch FRP damper with stainless steel shaft stubs and teflon shaft bushings and locking external position handle, or equal. Dampers shall be provided with hand wheel operators, or when mounted more than 6'0" above the slab, with chain wheel operators.

10. DEMISTER

All demister device constructed of plastic shall be installed in the duct work as shown. The demister shall be designed to effectively remove moisture from the air stream. Head loss through the demister device shall not exceed 0.2 inches water column. A one inch PVC drain connection shall be provided in the bottom of the duct as shown, and be piped to the existing drain system.

11. ORP CONTROLLER

A new ORP Controller shall be provided for the existing NaOCl Wet Scrubber Tower. The ORP controller and associated ORP probe shall continuously check the oxidant concentration of the scrubbing solution. The controller shall adjust the dc output of the existing system rectifier to produce the required amount of sodium hypochlorite solution. The ORP probe shall be equipped with continuous cleaning capacity. The ORP probe and controller shall be as manufactured by the Pacific Engineering and Production Co. of Nevada.

12. WATER SOFTENER

The new water softener shall be Culligan Duplex model HD-45 or equal. Supply piping to the new water softener shall be connected to the existing hard water supply as directed by the Engineer.

13. SINK AND FAUCET

Stainless steel sink shall have overall dimension of 25 inches long, 22 inches wide and 10 inches deep, single bowl compartment, as manufactured by the Elkay Manufacturing Company, or equal. The basin shall be constructed of Type 302, 20-gauge stainless steel, with not less than 1-1/2-inch wide rim on all four sides. All inside corners of sink compartment, vertically and horizontally, shall be rounded to 1-inch radius, and corner intersections shall be spherical coves. The bottom of the sink compartment shall be pitched to a waste opening in a manner assuring complete drainage. The waste outlet shall be a center outlet. Exposed surfaces of the sinks shall receive a No. 4 finish. Overflows, plugs, strainers, tailpieces and related items shall be included.

The water faucet shall be one handle deck mount type with goose neck Model LK-2085-13L as manufactured by Elkay or equal."

14. SPARE PARTS

The following spare parts shall be provided:

a. One complete set of V-belts for the air compressor.
b. One complete NaOH chemical metering pump.

15. MANUFACTURER'S REPRESENTATIVE

The services of a qualified representative of the various manufacturers shall be provided to inspect the installation of the equipment, make any necessary adjustments, place it in initial trouble-free operation, and instruct the operating personnel in its operation and maintenance.

⚠ 16. BLOWER MODIFICATIONS

The existing blower is a New York Blower, Model FE30, driven by a 50 HP, 1770 RPM, 460 V, 3 phase electric motor via 3 V-Belts on a 10.3-inch driver sheave and a 9.25-inch driven sheave at 50.7-inch centers, producing a fan speed of 1969 RPM and delivering 12,300 cfm of air at 14 inches W.C. static pressure.

Blower modifications include changing the blower drive sheaves and belts to produce a fan speed of 2100 RPM in order to deliver approximately 22,300 cfm of air at 3 inches W.C. static pressure.

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JRP DCH	APPROVED	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIV. 4L-3 ODOR CONTROL EQUIPMENT FOR THREE PUMPING STATIONS
	DRAWN EAJ		
	CHECKED JRP		

NO.	DATE	APP	REVISION
⚠	JAN 1987	JRP	AS SHOWN

SCALE 4 0 4 8 FT 1/4"=1'-0"

SUPPLEMENTARY DRAWING NO. SD-3

PROJ NO.

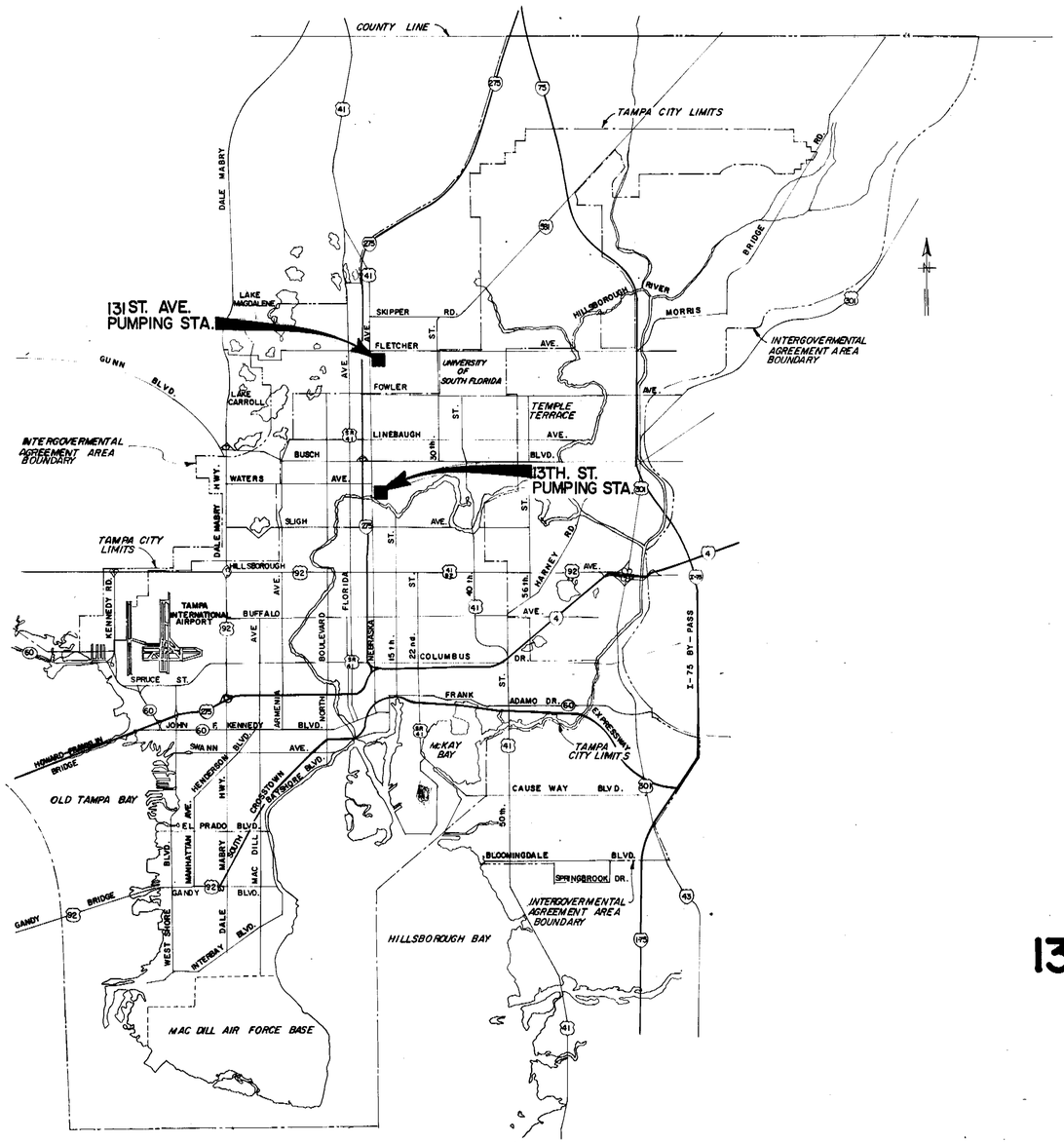
SHEET 2 OF 2

DATE JUNE, 1986 REV 1

173-371

AP 30178

LOCATION MAP



CITY OF TAMPA

CITY OF TAMPA FLORIDA • ORGANIZED JULY 15 1887 • MASCOTTE

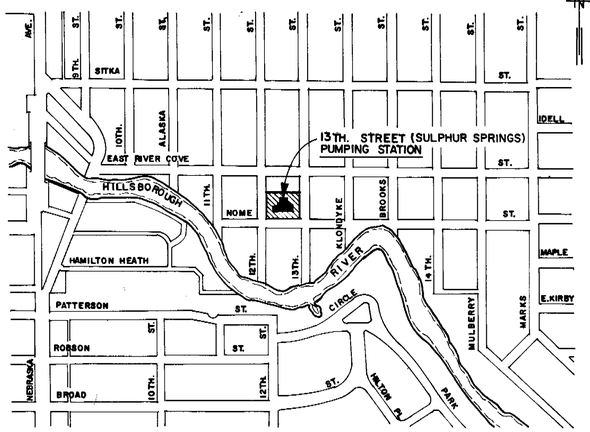
DEPARTMENT of SANITARY SEWERS
SEWAGE DISPOSAL SYSTEM
PLANS

FOR ROOF MODIFICATION ACCESS COVERS OF

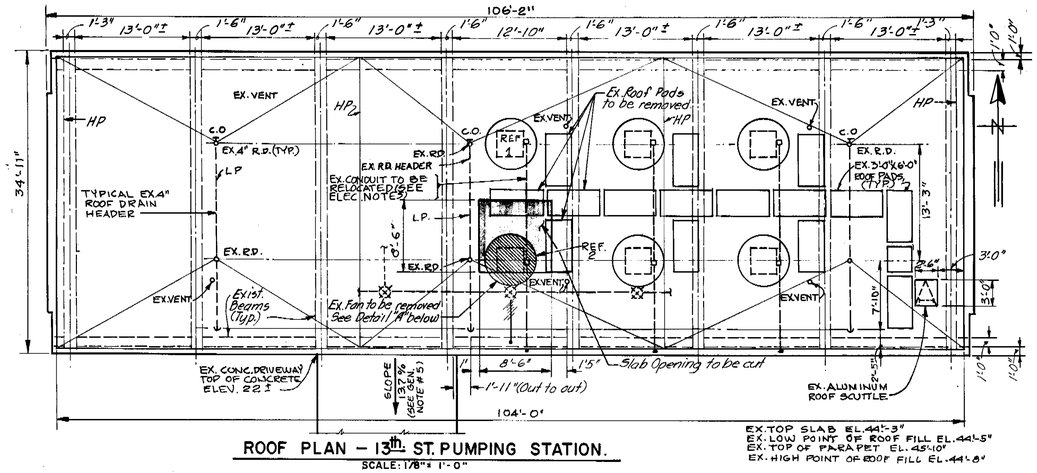
13th. ST. AND 131st. AVE. PUMPING STATIONS

	ANDREW T. CRONBERG, P.E. #32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: A. H. DRN: E.R. CKD: D W DATE: 7-10-84	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	No	DATE	REVISIONS	SCALE 1" = approximately 1/ miles	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA RENEWAL & REPLACEMENT SEWAGE DISPOSAL SYSTEM	TITLE SHEET & LOCATION MAP	SHEET 1 OF
				1						
				2						
				3						
				4						
				5						

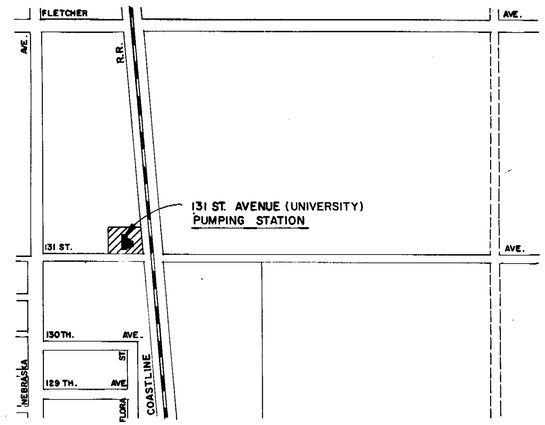
C173-735(87)



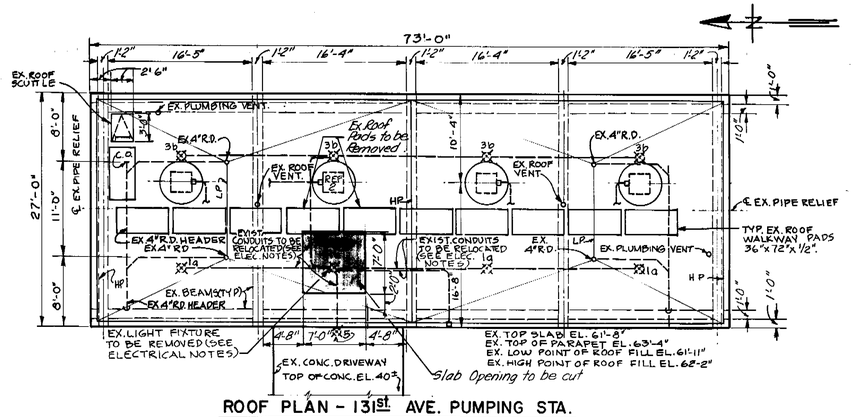
SITE PLAN
13TH. ST. PUMPING STATION
SCALE: 1" = 400'-0"



ROOF PLAN – 13th. ST. PUMPING STATION.
SCALE: 1/8" = 1'-0"

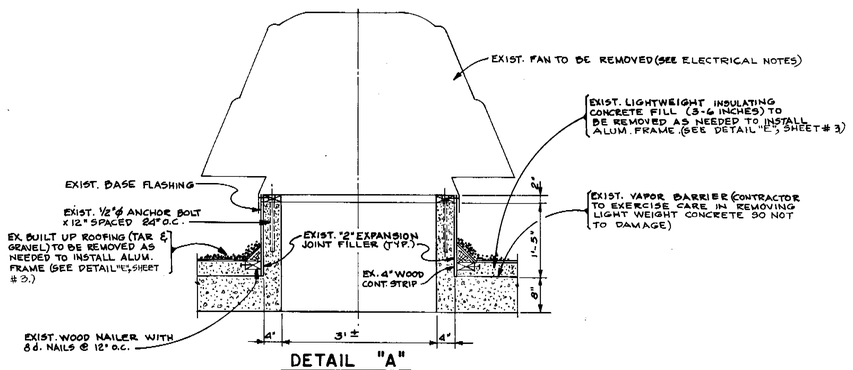


SITE PLAN
131 ST. STREET PUMPING STATION
SCALE: 1" = 400'-0"



ROOF PLAN – 131st. AVE. PUMPING STA.
SCALE: 1/8" = 1'-0"

EXISTING 8" ROOF SLAB REINFORCING SCHEDULE	
13TH. ST.	#4 @ 12" o.c. T/B (North/South) #5 @ 12" o.c. T/B (East/West)
131 ST. AVE.	#6 @ 12" o.c. T/B (North/South) #5 @ 12" o.c. T/B (East/West)



DETAIL "A"
EXISTING EXHAUST FAN TO BE REMOVED
13th. ST. PUMPING STA. ONLY
(TOP OF SLAB EL. 44'-3")
NOT TO SCALE

GENERAL NOTES

1. Slab openings to be wet saw cut. Due to the sensitive nature of the existing electrical and mechanical equipment, no water, dust or debris shall be permitted to enter the pumping station structures. To avoid this, the contractor shall construct a temporary structure directly beneath the slab opening area and may use the existing cranes to serve as platforms. The structure shall be completely sealed to the satisfaction of the Engineer. Refer to General Electrical note No. 4.
2. The contractor shall be liable for any damage to existing equipment or structures.
3. During periods when the contractor is absent from the construction site(s), the slab opening area(s) shall be covered and sealed to prevent rain, dust or debris from entering the pumping station structure(s).
4. During the wet saw cut operation, the contractor shall block off the area on the ground level floor beneath the slab opening area. The contractor shall either post warning signs or station an employee to prevent anyone from walking in this area during the cutting and removal operation.
5. Locations and elevations of existing concrete driveways have been shown to illustrate available areas for crane access. Due to the steep slope (13.7%) at the 13th St. Pumping station, special provisions may have to be made to attain a level surface for the crane.
6. The existing roof slab reinforcing schedule, elevations (City of Tampa Datum) and dimensions shown are based on the best information available, but don't purport to be absolutely correct. Contractor shall verify the locations, elevations and dimensions of all existing utilities, structures and other features affecting his work prior to construction.

ELECTRICAL NOTES

GENERAL

1. All workmanship and materials shall comply with NEC and City of Tampa Code.
2. Only copper conductors shall be used. The bonding characteristics of the new conduit shall equal the characteristics of those existing.
3. Aluminum conduit is to be used where exposed. PVC or Rigid Galvanized conduit is to be used if embedded in concrete.
4. Conduits that are to be cut must be sealed in the junction boxes on all sides of the cutting operations to prevent leakage of water (from the wet saw cut operation) into the remainder of the electrical system. After completion of the wet saw cut operation, the contractor shall blow out all water from the conduits and dry them out. Refer to General note No 2 above.
5. The contractor shall submit, to the Engineer, the procedure and Final routing of conduits for approval.
6. The light fixture (131st Ave.) and fan (13th St.) shall be removed, without damage, and delivered to the Electrical Division of Hookers Point AWTP, 2700 Maritime Blvd., Tampa.
7. All electrical work shall be performed by a licensed electrician.

13th ST.

REF. #1 and #2 Fans are each powered by three AWG #12 conductors carrying 480 V power. Prior to starting the roof cutting operation, remove the existing REF #2 conductors between the REF #2 fan and the contactor and the existing REF #1 conductors between the REF #1 fan and the existing nearest junction box or pull box on the wall of the control room.

After completion of the saw cut operation, reroute new conduit around the roof slab opening. Install three new AWG #12 copper conductors from the pull box or junction box (referenced above) to the existing REF #1 fan and verify correct rotation of fan blades.

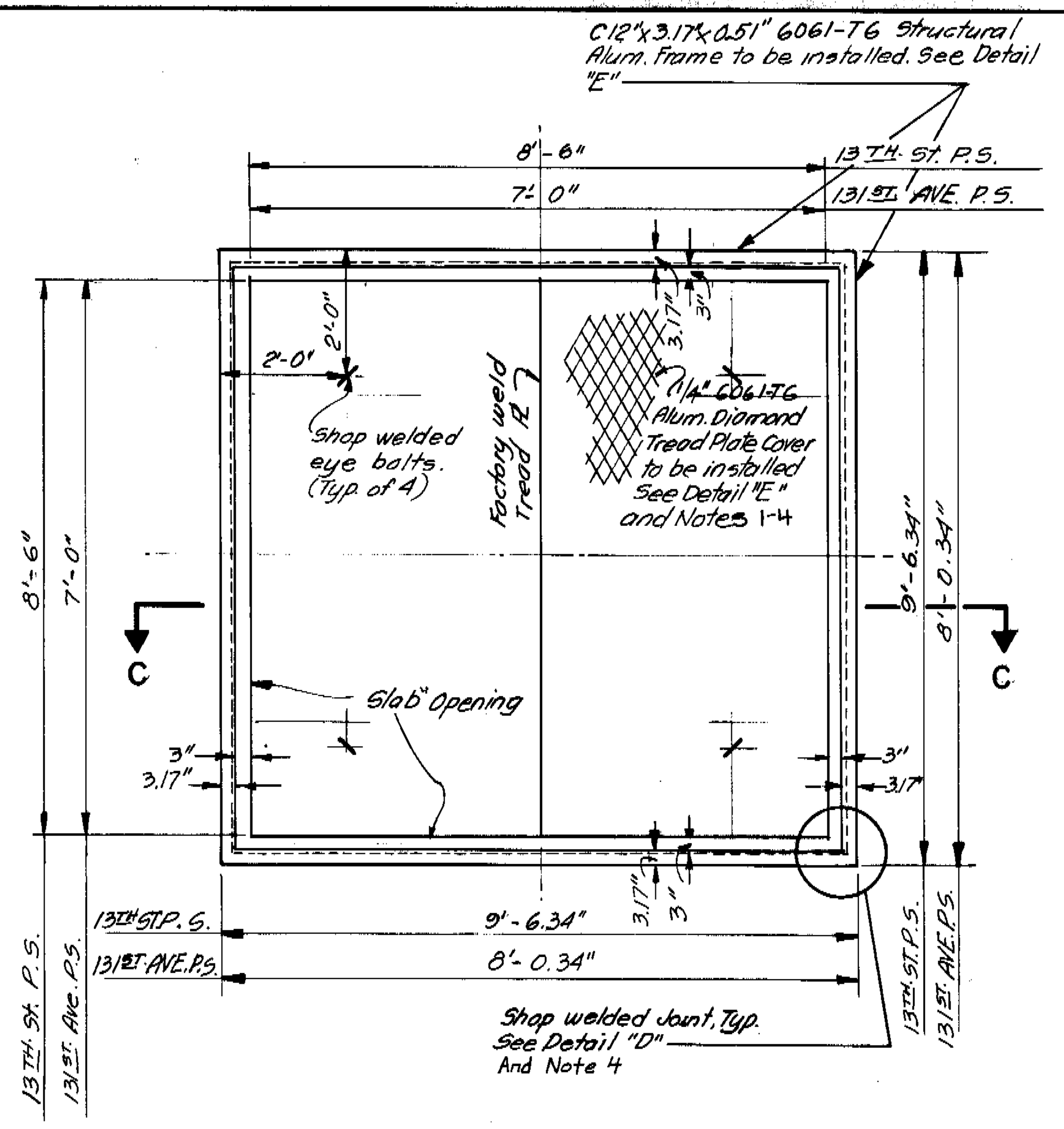
131st AVE.

Lighting circuit #1a and #5 may be inoperative during the cutting operation. In an effort to keep the remainder of the lighting system operative, one acceptable method is to run a temporary cable from the 277/480V lighting panel to the overhead light fixture (3b) junction box located just east of REF #2 Fan. Exercise caution not to obstruct the existing overhead crane. This temporary cable would substitute for 9 #1 conductors existing within the ceiling conduit. After completion of the cutting operation and continuity of the conduits has been reestablished, new respective conductors shall be connected to the original terminations. Assure that all light fixtures perform per original schedule.

ANDREW T. CRONBERG, P.E. #32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: A.H. DRN: E.R. CKD: DW DATE: 7-10-86	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	NO.	DATE	REVISIONS	SCALE AS SHOWN	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA RENEWAL & REPLACEMENT SEWAGE DISPOSAL SYSTEM	ROOF MODIFICATION ACCESS COVERS 13th. ST. & 131st. AVE. PUMPING STATIONS	SHEET 2 OF

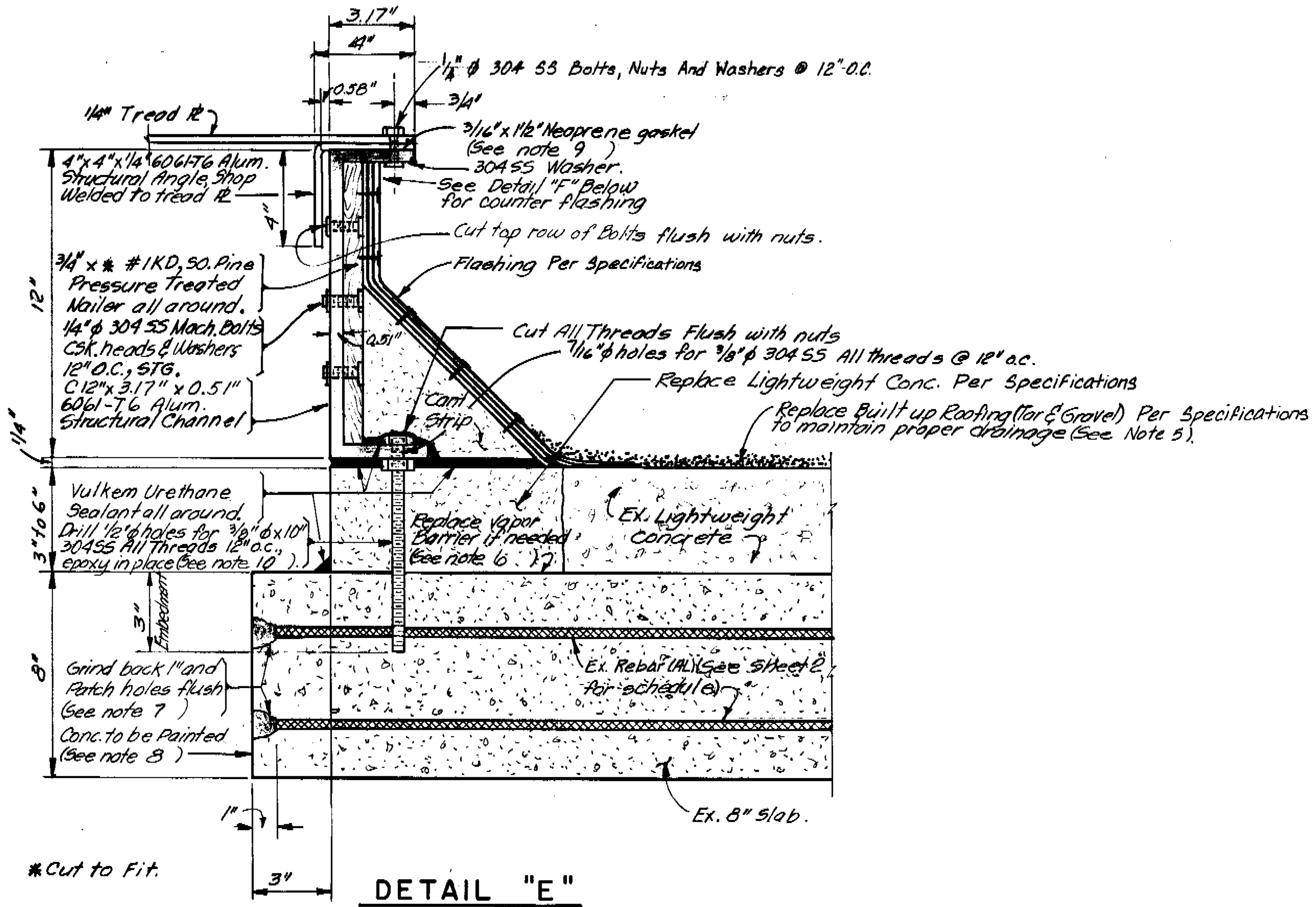
K & E 19-1253

C173-734 (87)



PLAN ALUM. FRAME AND COVER

NOT TO SCALE

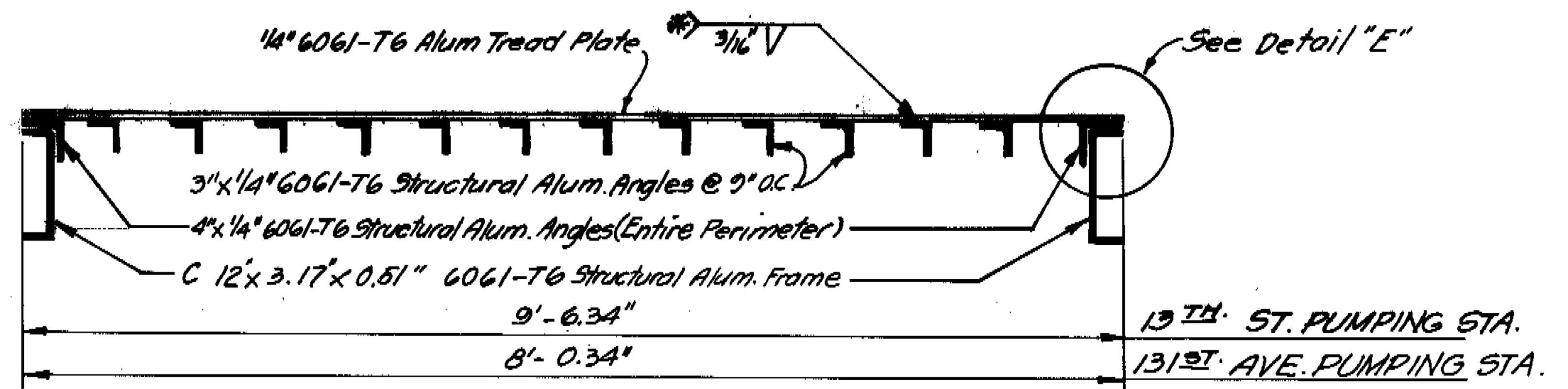


DETAIL "E"

SCALE: 3" = 1'-0"

NOTES

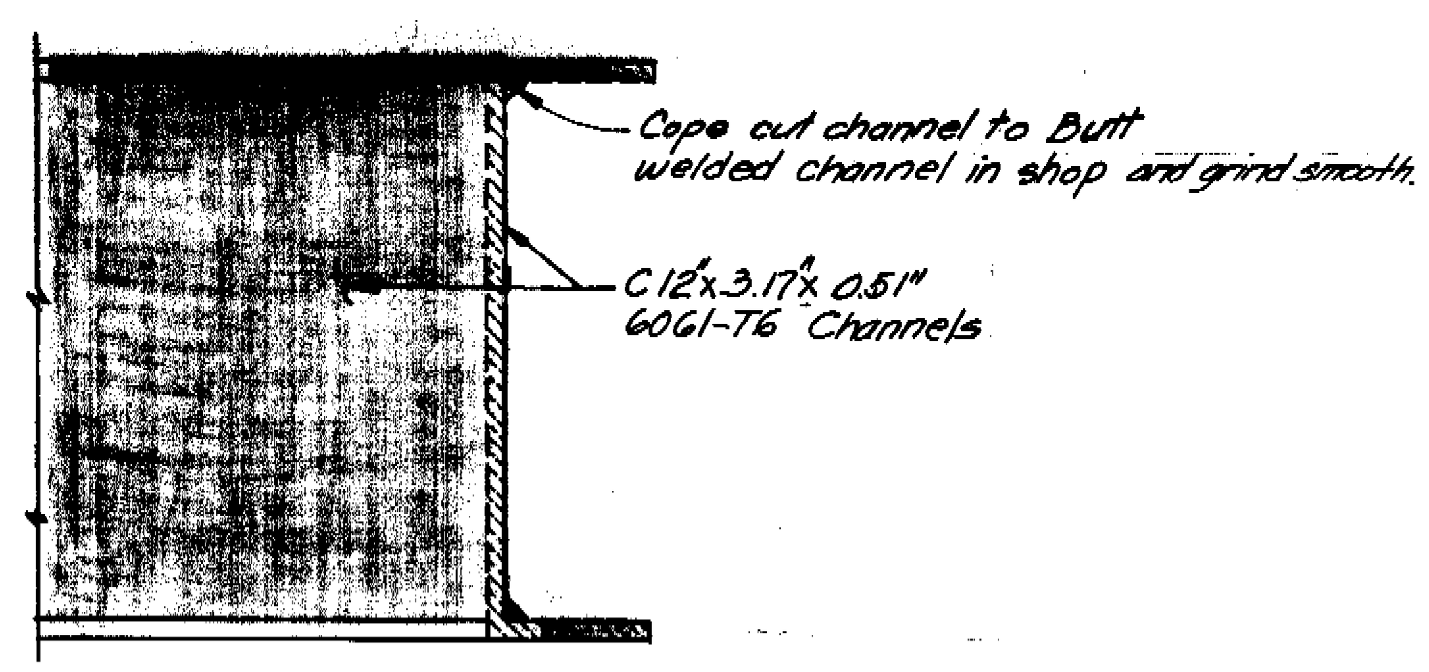
1. Shop drawings For both the aluminum access frame and cover and for the frame installation must be approved by the Engineer prior to fabrication and erection. All changes or substitutions must be approved by the Engineer.
2. All aluminum shall be structural 6061-T6
3. All Fasteners, nuts and washers shall be A304 SS
4. All welds shall be ground smooth, cleaned and free from grease. Welded areas shall receive 2 coats of heat resistant silver metalic enamel.
5. The contracter shall be responsible for the water tightness of the frame and cover installation and for procuring proper slopes for drainage. Prior to acceptance the contracter shall demonstrate, to the satisfaction of the Engineer, that these conditions have been met. One acceptable method would be to construct a temporary bulkhead around the access cover and submerse it for a period of 2 hours in the presence of the Engineer. Conditions for acceptance are no leaks nor puddling.
6. If the existing vapor barrier is damaged while chipping away the existing lightweight concrete, it shall be replaced per specifications.
7. Grind back existing rebar 1 in. and patch holes flush with Sika, High Mod L.V. epoxy. Sand surface flush with face prior to painting.
8. Concrete, exposed by the cutting operation, shall be painted. All chipped areas shall be filled with non-shrink grout and a 1.75 mil thickness coat of Koppers Company concrete surfacer shall be applied. Contractor to match color and texture of existing by using an existing sample.
9. 3/16" thick by 1 1/2" wide neoprene gasket shall be adhered to the flange of the channels with 3M 1300L neoprene adhesive. If the gasket is cut or damaged in any way from handling, it shall be replaced by the contractor.
10. Epoxy shall be Sika, High Mod L.V.



SECTION C-C

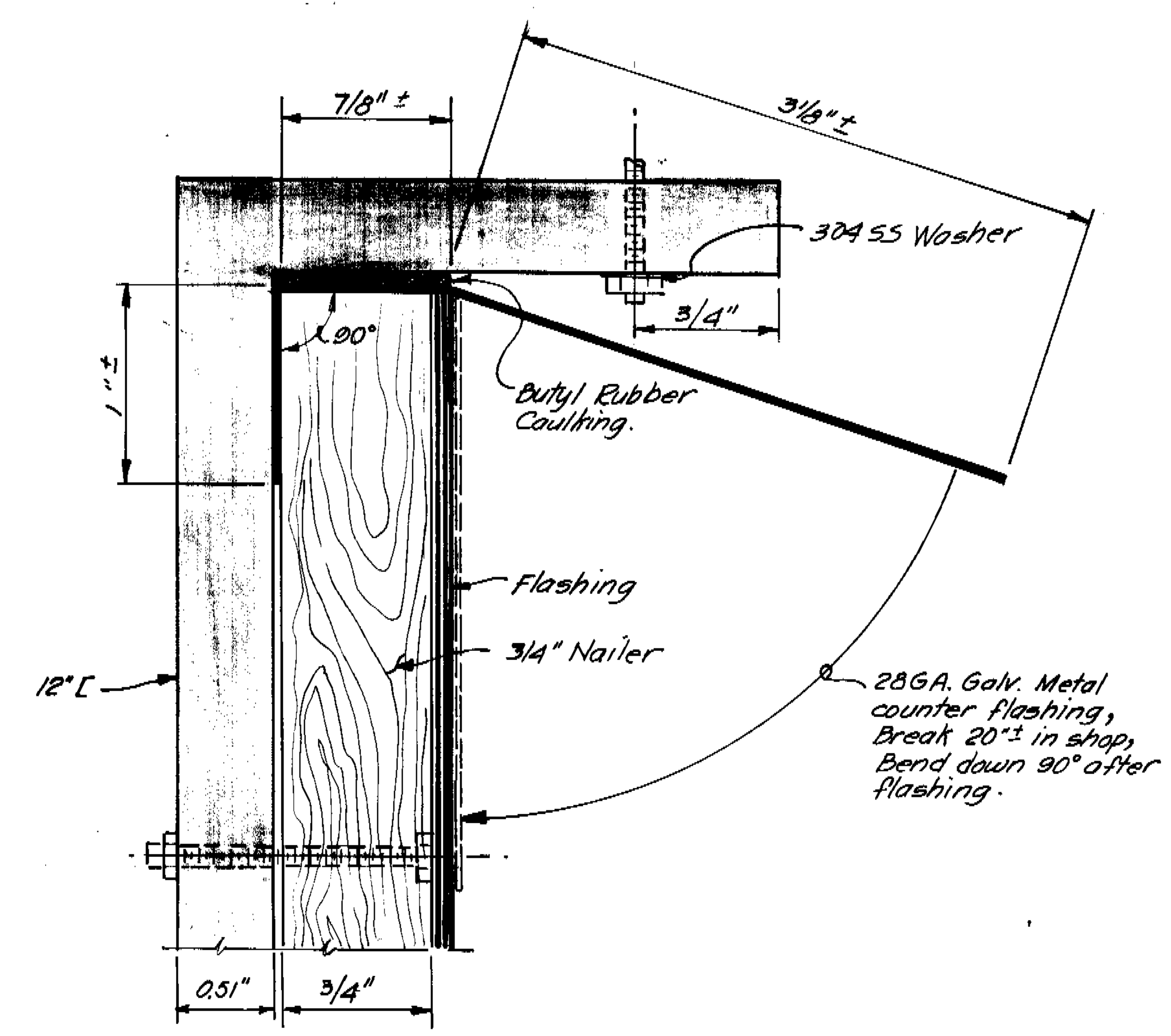
NOT TO SCALE

* Stitch weld all angles with 4045 Alloy Welding wire. Welds shall be 2"± 3" long, skip 4"-6" & staggered (both sides). (See note 4)



DETAIL "D"

SCALE: 3" = 1'-0"



DETAIL "F"

COUNTER FLASHING

SCALE: 1 1/2" = 1"

ANDREW T. CRONBERG, P.E. # 32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: A.H. DRN: E.R. CKD: DW DATE: 7-10-86	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	No. 1 2 3 4 5 — DATE — REVISIONS	SCALE AS SHOWN	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA RENEWAL & REPLACEMENT SEWAGE DISPOSAL SYSTEM

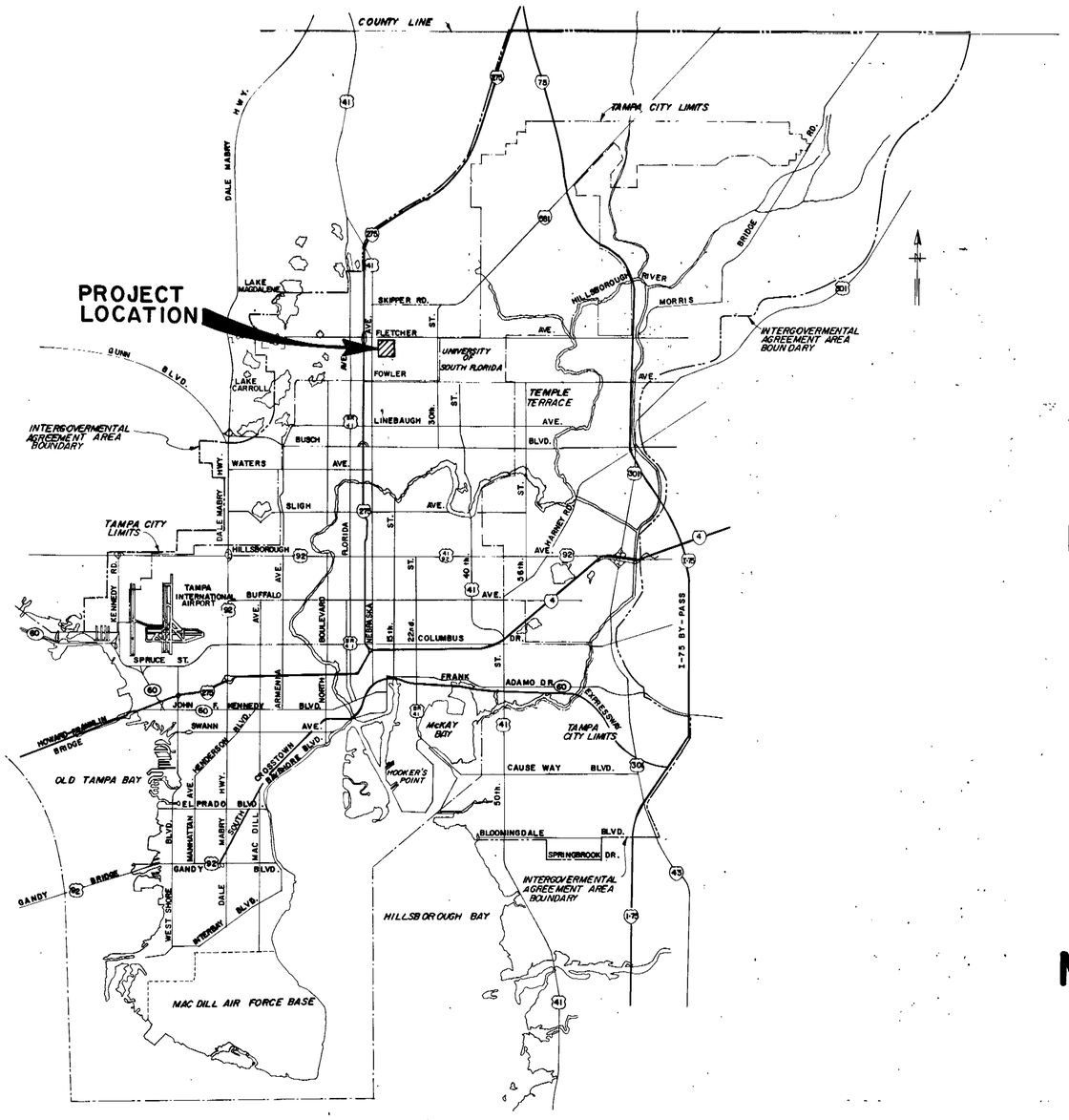
ROOF MODIFICATION ACCESS COVERS
13th ST. & 131st AVE. PUMPING STATIONS

SHEET 3 OF

C173-73U(87)

CITY OF TAMPA

LOCATION MAP



DEPARTMENT of SANITARY SEWERS
SEWAGE DISPOSAL SYSTEM
PLANS

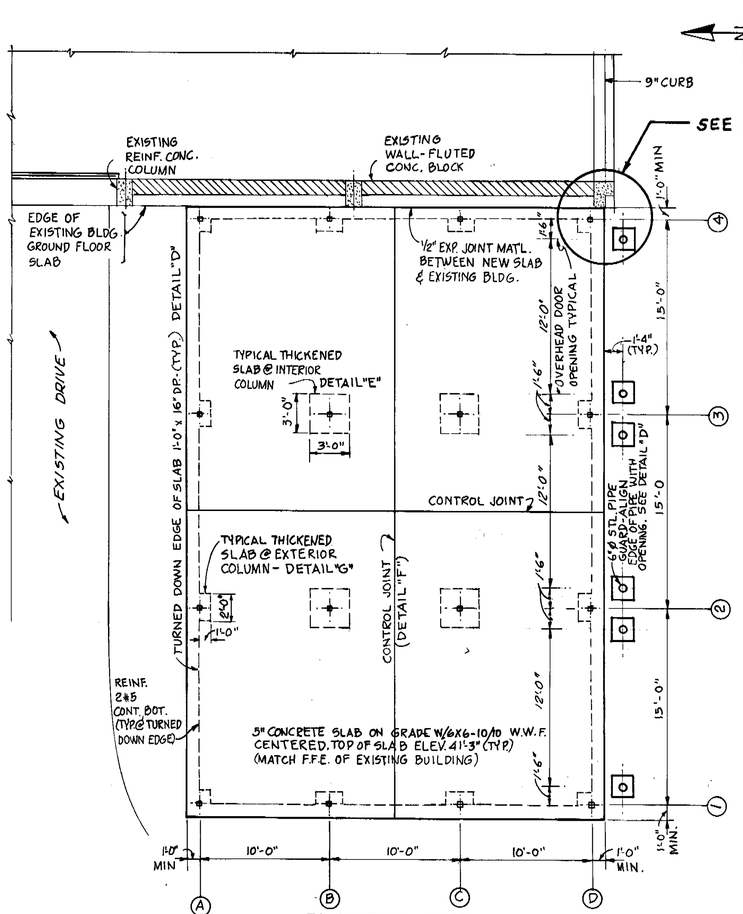
FOR THE CONSTRUCTION OF

131 AVE. PUMPING STATION
MOBILE GENERATOR STORAGE BUILDING

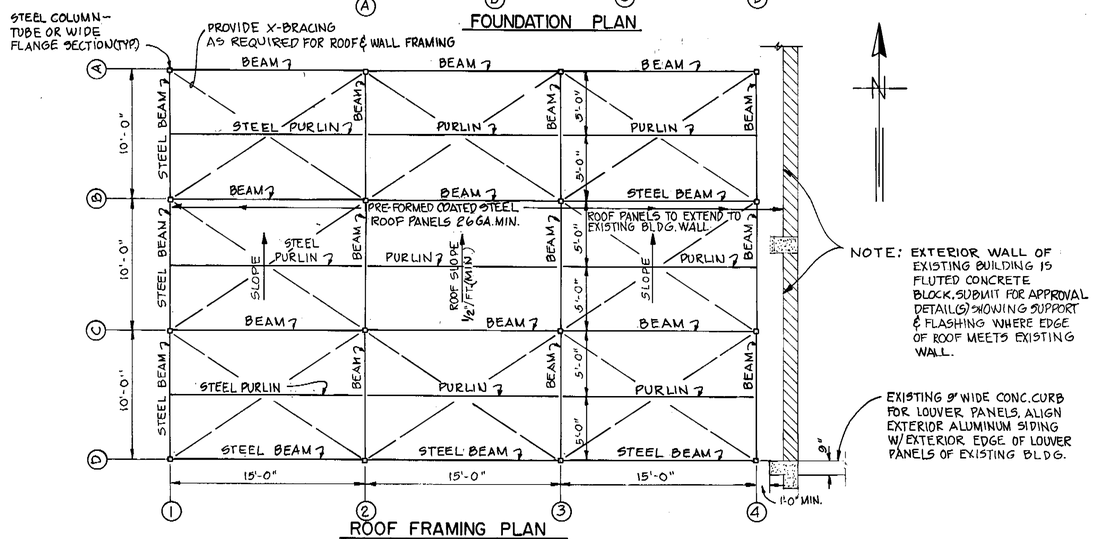
	ANDREW T. CRONBERG, P.E. # 32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: B.G. DRN: E.R. CKD: DW DATE: 7-22-87	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	No. / DATE / REVISIONS 1 2 3 4 5	SCALE 1" = approximately 1½ miles	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA RENEWAL & REPLACEMENT SEWAGE DISPOSAL SYSTEM	TITLE SHEET & LOCATION MAP	SHEET 1 OF 3

C173-73a

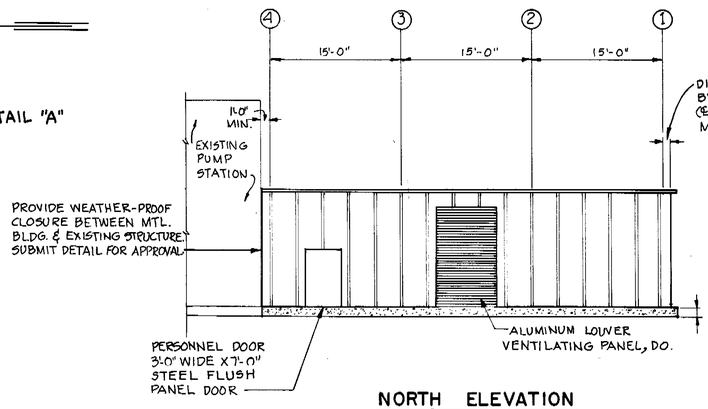
AF 30179



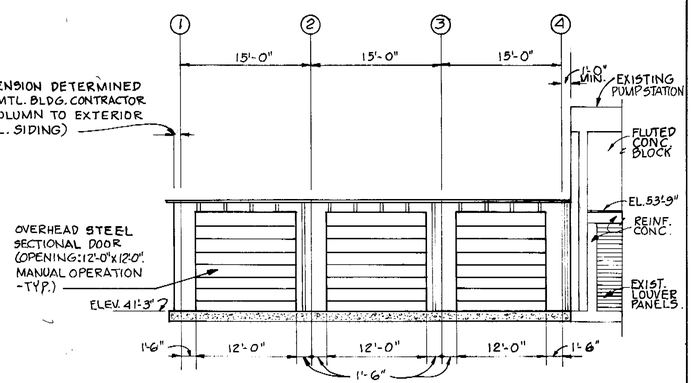
FOUNDATION PLAN



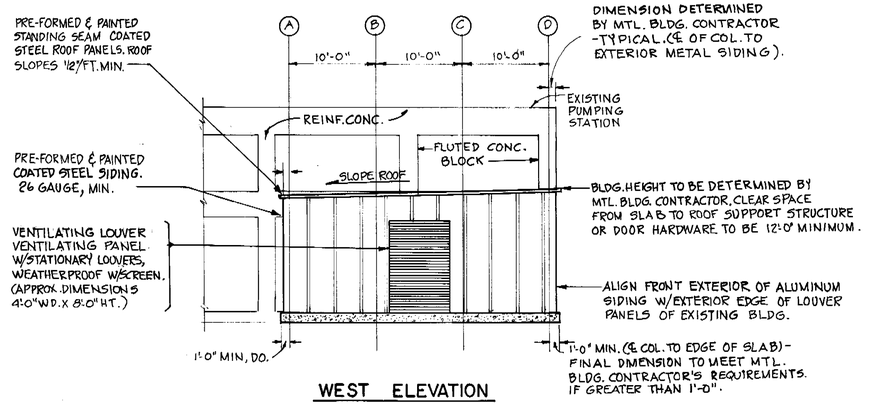
ROOF FRAMING PLAN



NORTH ELEVATION



SOUTH ELEVATION



WEST ELEVATION

DESIGN CRITERIA

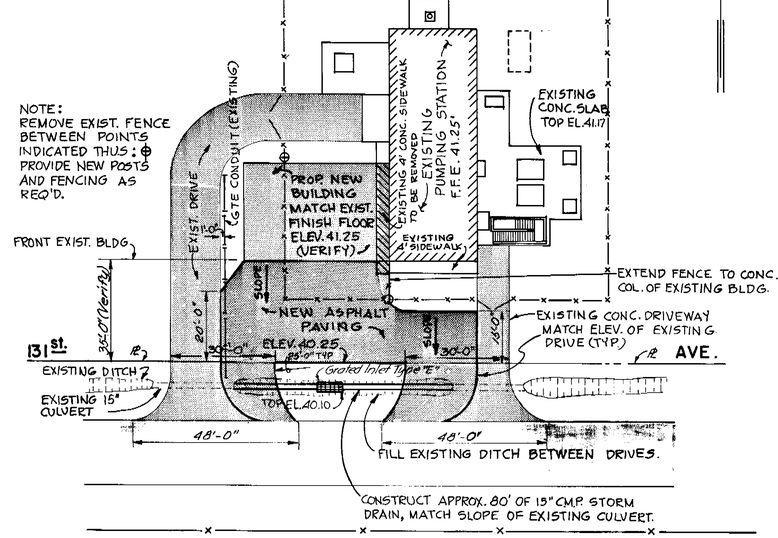
MATERIAL STRENGTHS

CONCRETE (ALL)	3000 P.S.I. @ 28 DAYS
REINFORCING STEEL	ASTM A615, GRADE 60
STRUCTURAL STEEL	ASTM A36 (MIN)
DESIGN SOIL PRESSURE	2000 P.S.F.

LOADS

ROOF LIVE LOAD	20 P.S.F.
MINIMUM ROOF DEAD LOAD	12 P.S.F.
WIND LOAD	110 M.P.H., WIND
HORIZONTAL LOAD ON BLDG.	31.2 P.S.F.
HORIZONTAL LOAD ON WALL ELEMENTS	26A P.S.F.
UPLIFT	24D P.S.F.

(DESIGN FOR UPLIFT SHALL DISREGARD ROOF LIVE LOAD AND USE A REDUCED ROOF DEAD LOAD OF 3 P.S.F.)



SITE PLAN

ANDREW T. CRONBERG, P.E. # 32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: R. G. DRN: Elo. CKD: DW DATE: 7-22-87	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	No.	DATE	REVISIONS	SCALE NOT TO SCALE
			1			
			2			
			3			
			4			
			5			

DEPARTMENT of SANITARY SEWERS
CITY of TAMPA, FLORIDA
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

131st. AVE. PUMPING STA.
MOBILE GENERATOR STORAGE BUILDING

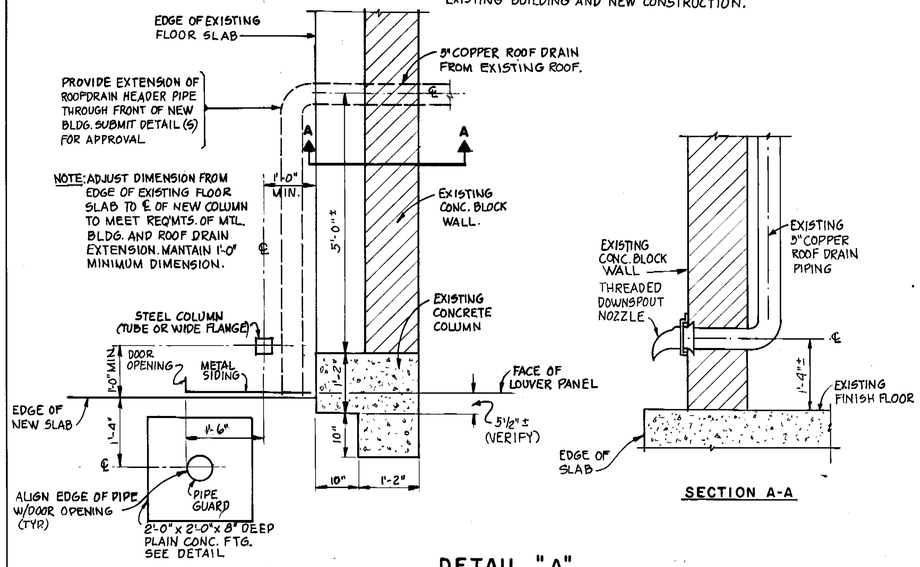
SHEET 2 OF 3

C 173-736

K & E 19-1233

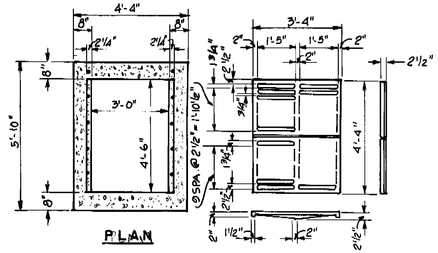
AP 30179

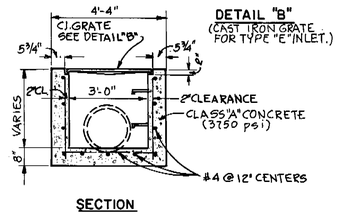
NOTE:
ALIGN NEW MTL. SIDING WITH FACE OF EXISTING LOUVER PANEL OF EXISTING BLDG. PROVIDE WEATHER PROOF CLOSURE BETWEEN EXISTING BUILDING AND NEW CONSTRUCTION.



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

(WHERE NEW CONSTRUCTION MEETS EXISTING BUILDING)





DETAIL "B"
(CAST IRON GRATE FOR TYPE "E" INLET.)

TYPE "E" INLETS
NOT TO SCALE

DETAIL "C"

NOTES

1.- WHILE OVERALL BUILDING DIMENSIONS, SIZE AND LOCATION OF OVERHEAD DOORS, AND BUILDING ORIENTATION SHOULD BE MAINTAINED AS SHOWN IN THESE DRAWINGS, ALTERNATE ARRANGEMENTS ON ROOF FRAMING PLAN MAY BE SUBMITTED TO THE CITY FOR REVIEW; HOWEVER, THE CITY IS NOT OBLIGATED TO APPROVE SUCH ALTERNATES.

2.- A MINIMUM OF 1'-0" FROM THE CENTERLINE OF THE EXTERIOR COLUMNS TO THE EDGE OF THE SLAB SHALL BE MAINTAINED. IF THIS DIMENSION IS LESS THAN WHAT IS REQUIRED FOR THE BUILDING'S CONSTRUCTION, THE CONTRACTOR SHALL DETERMINE ALTERNATE DIMENSIONS GREATER THAN 1'-0".

3.- DIMENSIONS AND ELEVATIONS PERTAINING TO THE EXISTING BUILDING ARE ACCORDING TO THE BEST INFORMATION AVAILABLE. DIMENSIONS AND ELEVATIONS CRITICAL TO THE DESIGN OF NEW CONSTRUCTION SHOULD BE VERIFIED BY CONTRACTOR.

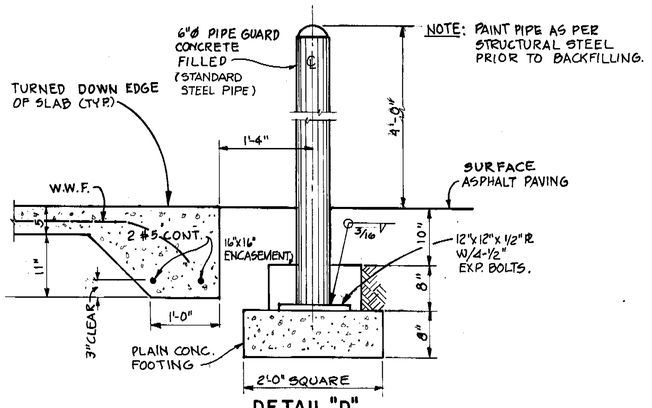
4.- VENTILATING LOUVER PANELS HAVE BEEN SIZED TO PROVIDE MORE THAN ADEQUATE VENTILATION. ALTERNATE AND EQUIVALENT ARRANGEMENTS OF LOUVER PANELS MAY BE SUBMITTED TO TO THE CITY FOR REVIEW; HOWEVER, THE CITY IS NOT OBLIGATED TO APPROVE SUCH ALTERNATES.

5.- DRIVEWAY AND PAVED AREA SHALL BE PAVED WITH 1" THICK TYPE T ASPHALTIC CONCRETE ON 6" THICK LIMEROCK BASE.

6.- ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM SUBTRACT 0.15 FEET (0'-1 3/16").

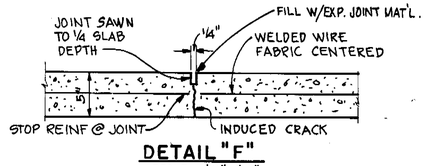
7.- GRATED STORMWATER INLET TYPE "E" SHALL BE FLORIDA D.O.T. STANDARD.

8.- SHOP DRAWINGS DETAILING STEEL FRAMING SHALL BE SUBMITTED TO THE CITY FOR APPROVAL. SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY ENGINEER WITH PROFESSIONAL REGISTRATION IN THE STATE OF FLORIDA.



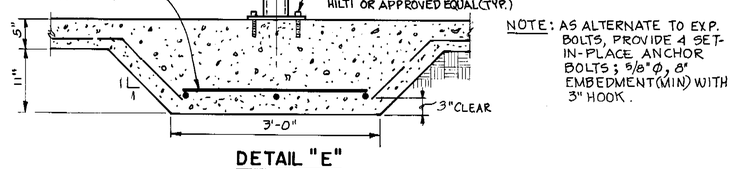
DETAIL "D"
SCALE: 1" = 1'-0"

(PIPE GUARD)



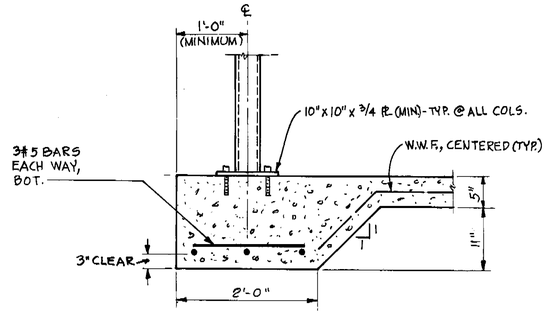
DETAIL "F"
SCALE: 1 ½" = 1'-0"

(CONTROL JOINT)



DETAIL "E"
SCALE: 1" = 1'-0"

(HAUNCHED SLAB @ INTERIOR COLUMN)



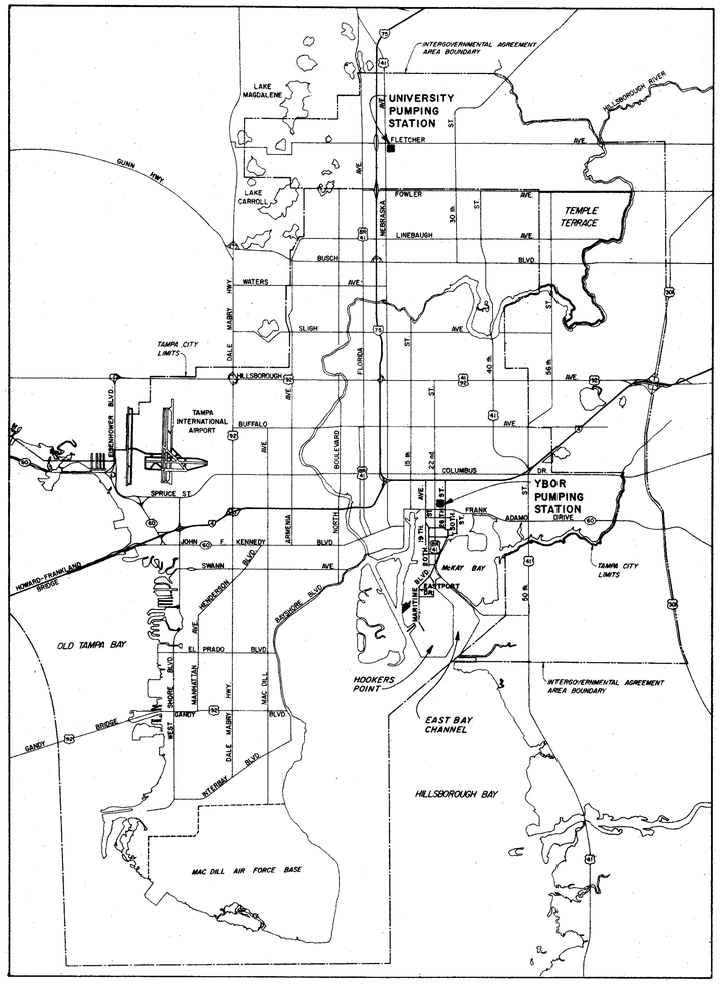
DETAIL "G"
SCALE: 1" = 1'-0"

(HAUNCHED SLAB @ EXTERIOR COLUMN)

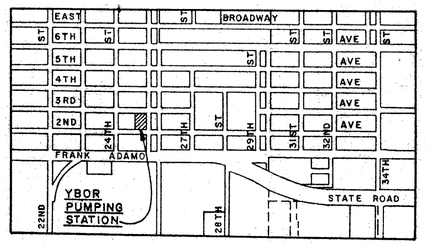
ANDREW T. CRONBERG, P.E. # 32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: R.G. DRN: Elo. CKD: DW DATE: 7-22-84	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	No. 1 2 3 4 5 — DATE — REVISIONS	SCALE AS SHOWN	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA RENEWAL & REPLACEMENT SEWAGE DISPOSAL SYSTEM	131st. AVE. PUMPING STA. MOBILE GENERATOR STORAGE BUILDING DETAILS C173-73c	SHEET 3 OF 3

K & E 19-1253

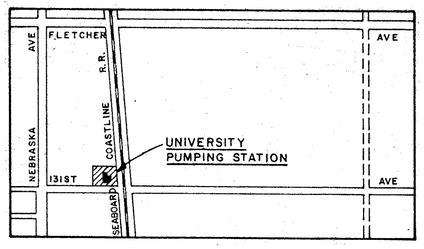
C173-73c



LOCATION MAP
SCALE: 1" = 8000'



YBOR
PUMPING STATION



UNIVERSITY
PUMPING STATION

AREA MAPS
NOT TO SCALE

INDEX

SHEET NO.	TITLE
1.	LOCATION MAP, AREA MAPS AND INDEX
2.	SYMBOL LEGEND AND GENERAL DETAILS
3.	ODOR CONTROL FACILITIES - PLATFORM AND LADDER DETAILS
4.	YBOR PUMPING STATION - PLANS, SECTIONS AND DIAGRAMS
5.	YBOR PUMPING STATION - PLANS, SECTIONS AND DIAGRAMS
6.	YBOR PUMPING STATION - SECTIONS
7.	YBOR PUMPING STATION - SECTIONS
8.	UNIVERSITY PUMPING STATION - PLANS, SECTIONS, DETAILS AND DIAGRAMS
9.	UNIVERSITY PUMPING STATION - PLANS, SECTIONS, DETAILS AND DIAGRAMS
10.	YBOR AND UNIVERSITY PUMPING STATIONS - ELECTRICAL

PAUL E. LANGDON, JR. CERTIFICATE No. 15473 STATE OF FLORIDA REGISTERED ENGINEER

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED JRP
DRAWN ATK
CHECKED JRP

APPROVED
DATE
SUPT., DEPT. OF SANITARY SEWERS
DATE 8/13/85
GREELEY AND HANSEN, ENGINEERS

NO.	DATE	APP.	REVISION

SCALE
AS SHOWN

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4L5
PUMPING STATIONS
ODOR CONTROL MODIFICATIONS

LOCATION MAP, AREA MAPS AND INDEX

PROJ. NO.
SHEET 1 OF 10
DATE JULY 1985 REV. 0

304-14

PIPING SYMBOL	DESCRIPTION
	Gate valve (1)
	Gate valve (2)
	Butterfly valve (1)
	Butterfly valve (2)
	Plug valve (1)
	Plug valve (2)
	Ball valve (1)
	Ball valve (2)
	Globe valve (1)
	Globe valve (2)
	Angle globe valve (1)
	Angle globe valve (2)
	Diaphragm valve (1)
	Diaphragm valve (2)
	Three way valve (1)
	Three way valve (2)
	Four way valve (1)
	Four way valve (2)
	Pressure relief vlave (1)
	Pressure relief valve (2)
	Check valve
	Pressure reducing valve
	Hose valve
	Flanged joint
	Blind flange
	Bell and spigot joint
	Mechanical joint

PIPING SYMBOL	DESCRIPTION
	Cross
	Cross (Branch up)
	Tee
	Tee (Branch up)
	Tee (Branch down)
	45° Elbow
	45° Elbow (Up)
	45° Elbow (Down)
	90° Elbow
	90° Elbow (Up)
	90° Elbow (Down)
	Side outlet elbow (Up)
	Side outlet elbow (Down)
	Lateral
	Reducer concentric-plan and elevation eccentric-plan
	Reducer eccentric-elevation
	Union (Screwed)
	Sleeve type coupling
H H	Sleeve type coupling (Harnessed)
	Expansion joint-metal bellows type
	Expansion joint-rubber bellows type
	Strainer
M M	Meter (Magnetic type)
	Venturi meter

PIPING SYMBOL	DESCRIPTION
	Wall sleeve
	Wall sleeve with modular type seal
	Flanged wall pipe with intermediate collar
	Bell and bell wall pipe with intermediate collar
	Mechanical joint wall pipe with intermediate collar
	Bell and flanged wall pipe with intermediate collar
	Mechanical joint and flanged wall pipe with intermediate collar

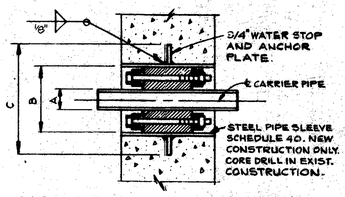
VALVE OPERATOR

TYPE	SYMBOL *
Manual	None
Chainwheel	C
Motor (Electric)	M
Pneumatic Cylinder	P

NOTES:
(1) Valve stem perpendicular to paper.
(2) Valve stem parallel to paper.

Where the symbol * is shown on the drawings in place of dimensions or elevations determine these dimensions or elevations after selection of equipment.

Where the symbol ** is shown on the drawings adjacent to dimensions or elevations, the Contractor must verify such dimensions or elevations by field measurement.



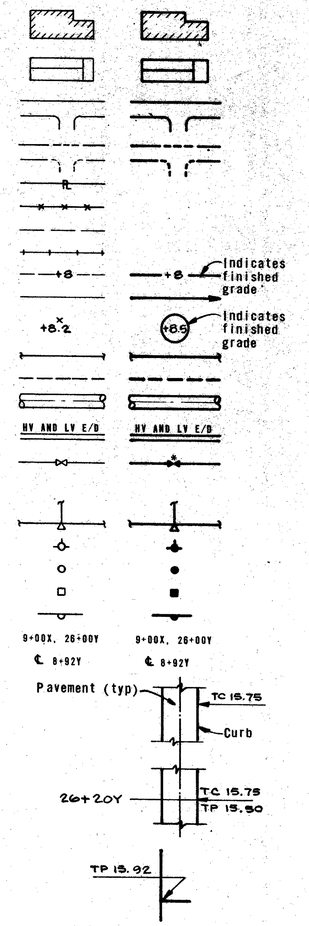
MODULAR WALL SLEEVE SEALING DETAIL

DUCTILE IRON DISCHARGE PIPE		CORE DRILL DIA.	STEEL PIPE AND WATERSTOP		MODULAR WALL SLEEVE (SEE NOTE)	
NOM. I.D.	O.D.		PIPE I.D.	WATERSTOP O.D.	LINK SEAL MOD. NO.	NO. OF LINKS
4"	4.5"	8.0"	–	–	LS-475-C	7
2"	2.375"	4.0"	–	–	LS-300-C	6

NOTE:
MODULAR WALL SLEEVE SHALL BE LINK SEAL OR EQUAL.

LEGEND

EXISTING OR OTHER DIVISIONS | NEW



- Superstructure
- Tank and other structures
- Pavement with curb
- Pavement without curb
- Property line
- Fence
- Easement line
- Railroad tracks
- Contour
- Graded swale
- Spot elevation
- Small piping
- Storm sewer
- Large pipes and conduits
- High and/or low voltage electrical duct
- Direct burial valve * B.V.-Butterfly valve G.V.-Gate valve P.V.-Plug valve
- Concrete thrust block
- Fire hydrant
- Manhole
- Storm water inlet (lawn or pavet area type)
- Storm water inlet - curb
- Plant coordinates
- ℄ coordinates
- Top of curb elevation arrow side only
- Top of curb elevation top of pavement elevation at the curb and plant coordinate
- Top of pavement elevation

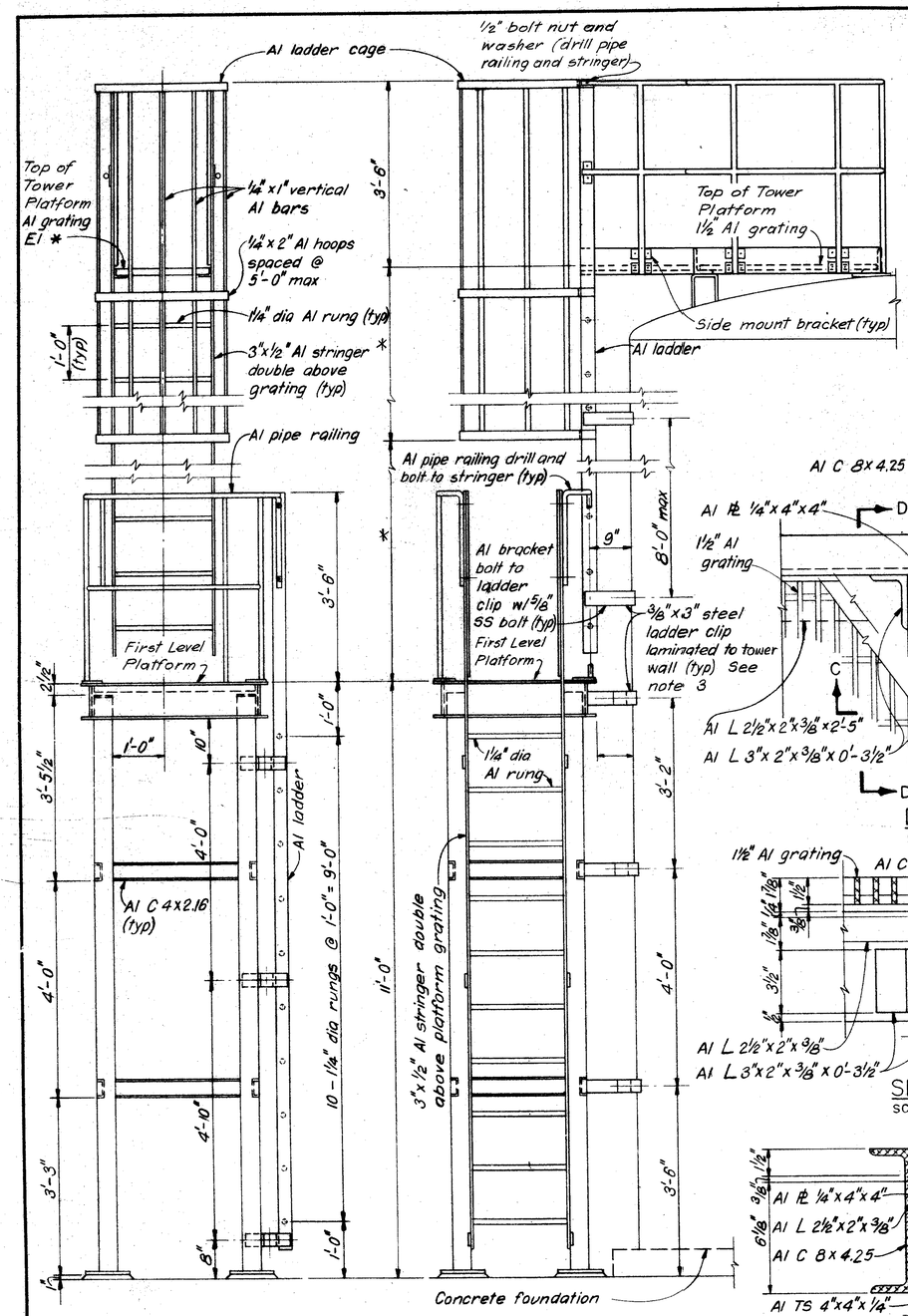
+8 Indicates finished grade

+8.5 Indicates finished grade

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JRP DRAWN AH CHECKED JRP	APPROVED _____ DATE _____ SUPT., DEPT. OF SANITARY SEWERS _____ DATE _____ GREELEY AND HANSEN, ENGINEERS	NO.	DATE	APP.	REVISION
SCALE: NOT TO SCALE	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	SYMBOL LEGEND AND GENERAL DETAILS	PROJ. NO.	SHEET 2 OF 10 DATE JULY 1985 REV. 0		

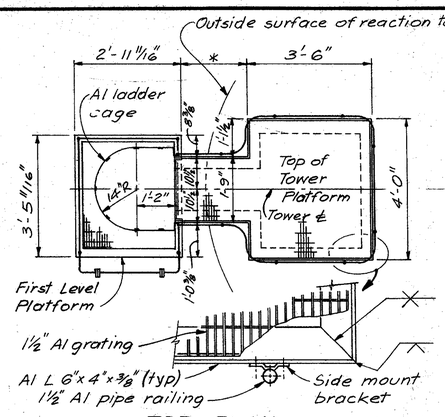
304-15

304-15

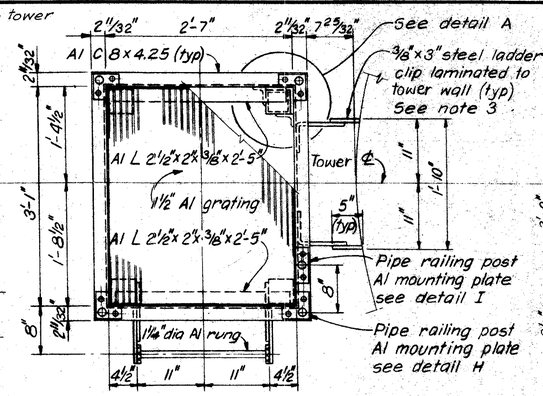


FRONT ELEVATION
SCALE : 3/4" = 1'-0"

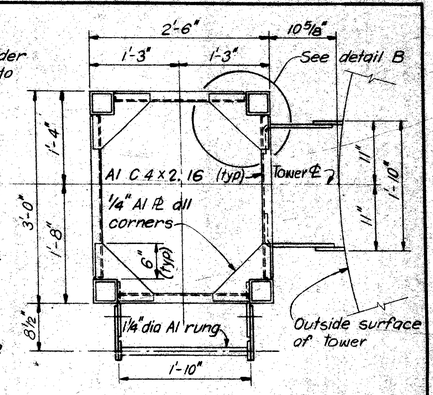
SIDE ELEVATION
SCALE : 3/4" = 1'-0"



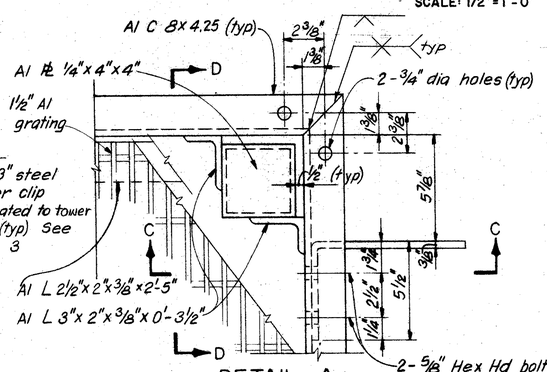
TOP PLAN
SCALE: 1/2" = 1'-0"



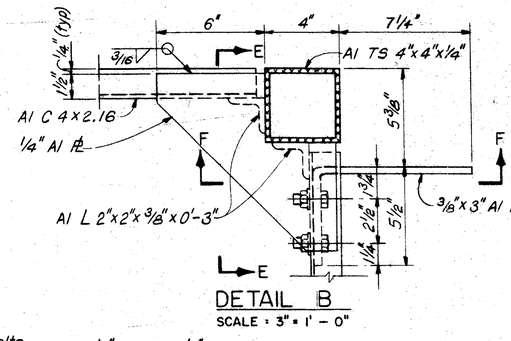
FIRST LEVEL PLATFORM PLAN
SCALE: 1" = 1'-0"



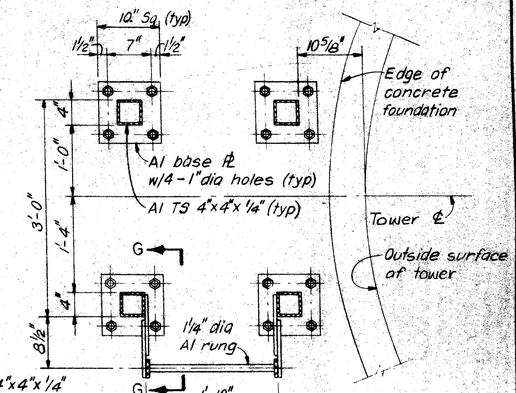
SECTIONAL PLAN
SCALE : 1" = 1'-0"



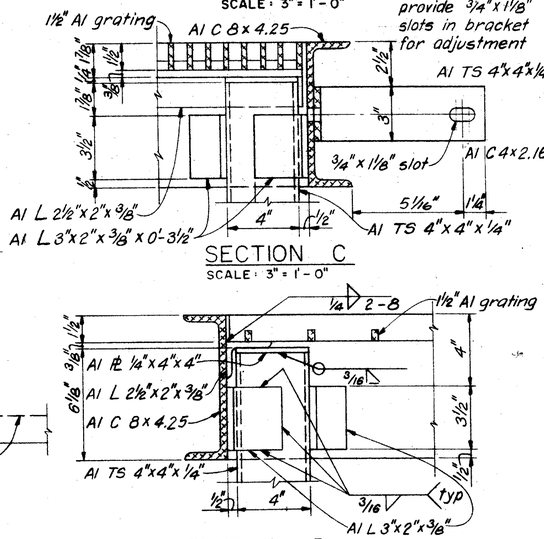
DETAIL A
SCALE : 3" = 1'-0"



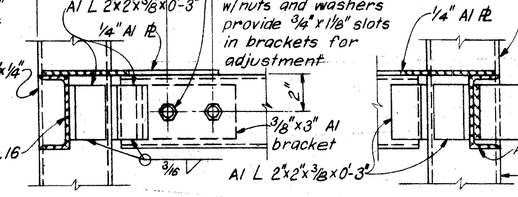
DETAIL B
SCALE : 3" = 1'-0"



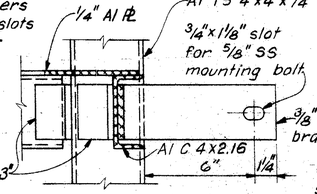
BASE PLAN
SCALE : 1" = 1'-0"



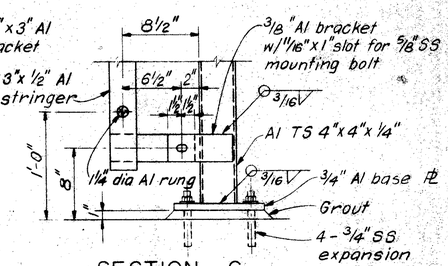
SECTION C
SCALE : 3" = 1'-0"



SECTION E
SCALE : 3" = 1'-0"

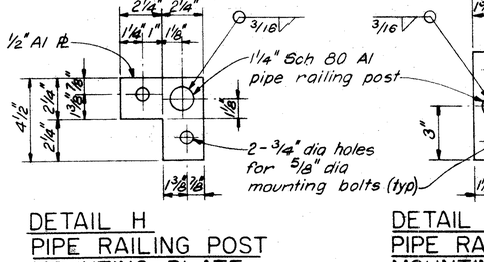


SECTION F
SCALE : 3" = 1'-0"

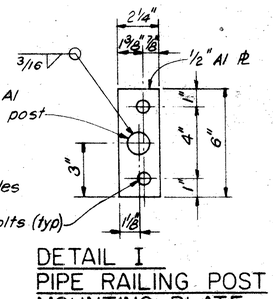


SECTION G
SCALE : 1 1/2" = 1'-0"

SECTION D
SCALE : 3" = 1'-0"



DETAIL H
PIPE RAILING POST
MOUNTING PLATE
SCALE : 3" = 1'-0"



DETAIL I
PIPE RAILING POST
MOUNTING PLATE
SCALE : 3" = 1'-0"

NOTES :

1. Arrangement for reaction tower is as shown on Plan

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED RN DRAWN SK CHECKED KSY REB	APPROVED DATE SUPT., DEPT. OF SANITARY SEWERS DATE GREELEY AND HANSEN, ENGINEERS	NO.	DATE	APP.	REVISION	SCALE 0 2 3 FT 3/4"=1'-0"; 0 1 2 FT 1"=1'-0"; 0 1/2 1 FT 3"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4L5
PUMPING STATIONS
ODOR CONTROL MODIFICATIONS

ODOR CONTROL FACILITIES PLATFORM AND LADDER DETAILS

PROJ. NO.
SHEET 3 OF 10
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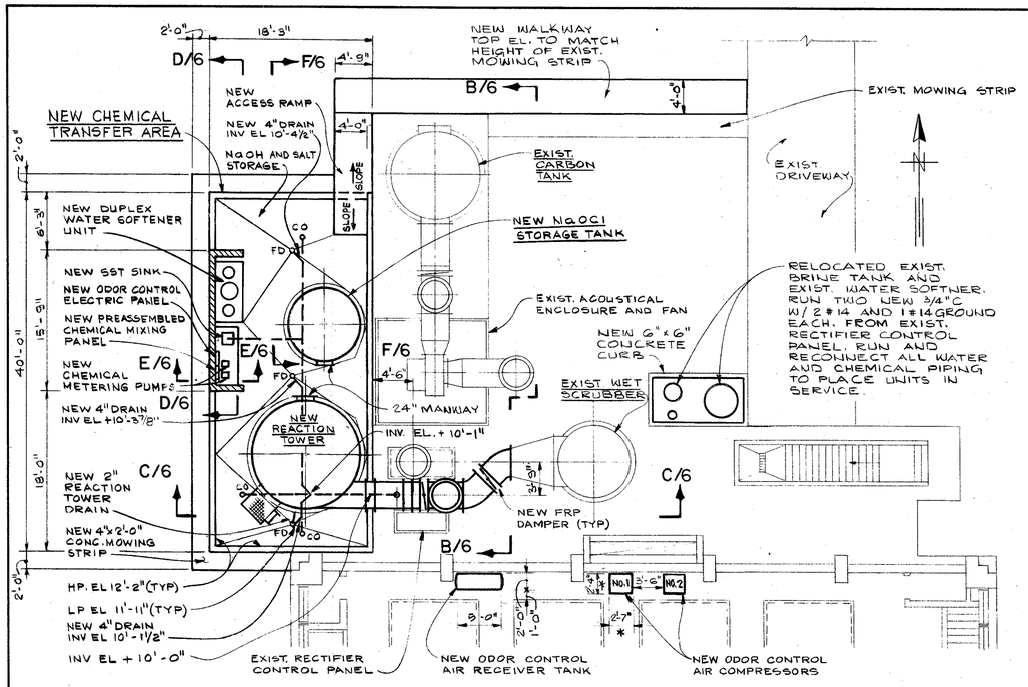
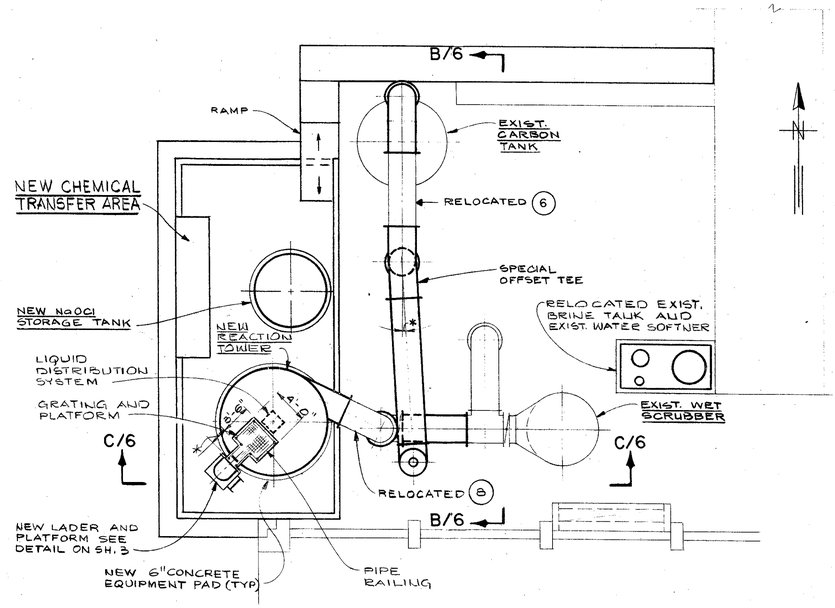


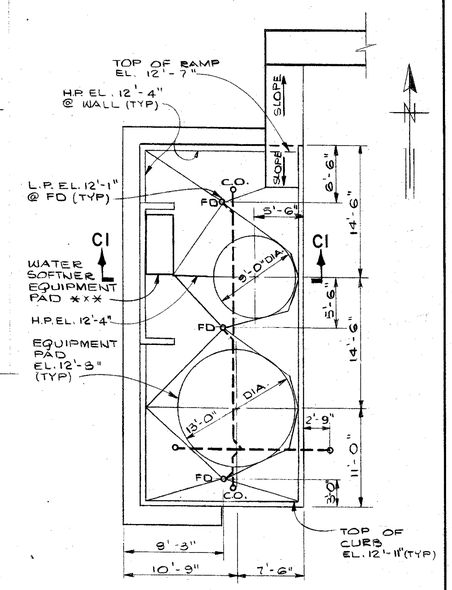
YBOR PUMPING STATION – PLAN AT EL 22'-0"

SCALE: 1/8" = 1'-0"



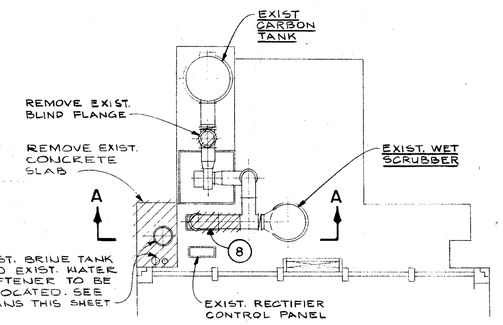
YBOR PUMPING STATION – TOP PLAN

SCALE: 1/8" = 1'-0"



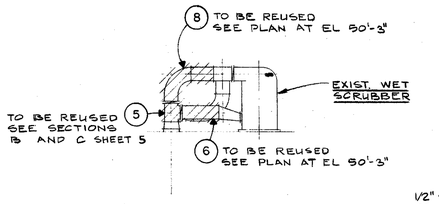
PART PLAN AT EL 12'-11"

SCALE: 1/8"=1'-0"



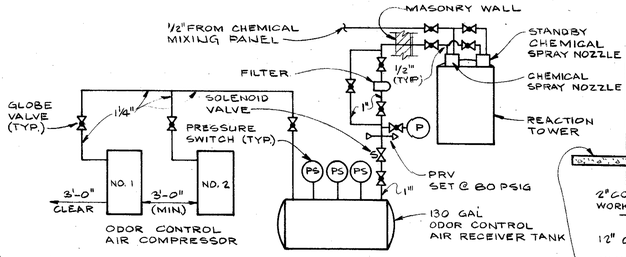
DEMOLITION PLAN

SCALE: 1/16" = 1'-0"



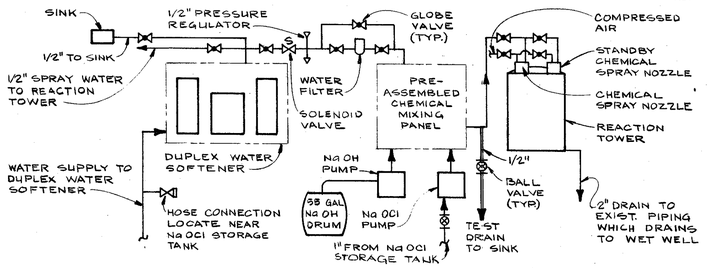
DEMOLITION SECTION A

SCALE: 1/16" = 1'-0"



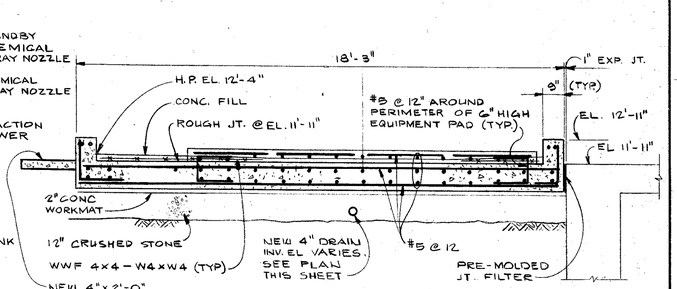
ODOR CONTROL COMPRESSED AIR DIAGRAM

NO SCALE



ODOR CONTROL CHEMICAL SYSTEM DIAGRAM

NO SCALE



SECTION CI

SCALE: 3/8" = 1'-0"

NOTES:

1. DUCTWORK DESIGNATED WITH A CIRCLED NUMBER IS EXISTING. SEE PEPCON DWG'S: 20.8-161 THROUGH 20.8-167 FOR EXISTING LOCATIONS.
2. EXISTING DUCTWORK DESIGNATED 5, 6, AND 8 IS TO BE RELOCATED AS SHOWN ON THESE DRAWINGS.
3. EACH FLANGED CONNECTION IN DUCTWORK REQUIRES A 1/8-INCH THICK GASKET.
4. ALL NEW DUCT WORK SHALL BE PIGMENTED WHITE AND SHALL MATCH CONSTRUCTION OF EXISTING DUCT IN ALL RESPECTS.
5. THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE HIGH PRESSURE AIR COMPRESSOR EQUIPMENT.

GREELEY AND HANSEN
ENGINEERS
222 S. RIVERSIDE PLAZA
CHICAGO, ILLINOIS 60606

DESIGNED MPV JRP
DRAWN SK
CHECKED JRP
APPROVED

NO.	DATE	APP	REVISION

SCALE
16 0 16 32 FT 1/16"=1'-0"
8 0 8 16 FT 1/8"=1'-0"
1 0 1 2 3 4 5 6 7 FT 3/8"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4L5
PUMPING STATIONS
ODOR CONTROL MODIFICATIONS

YBOR PUMPING STATION
PLANS, SECTIONS, DIAGRAMS

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DWG
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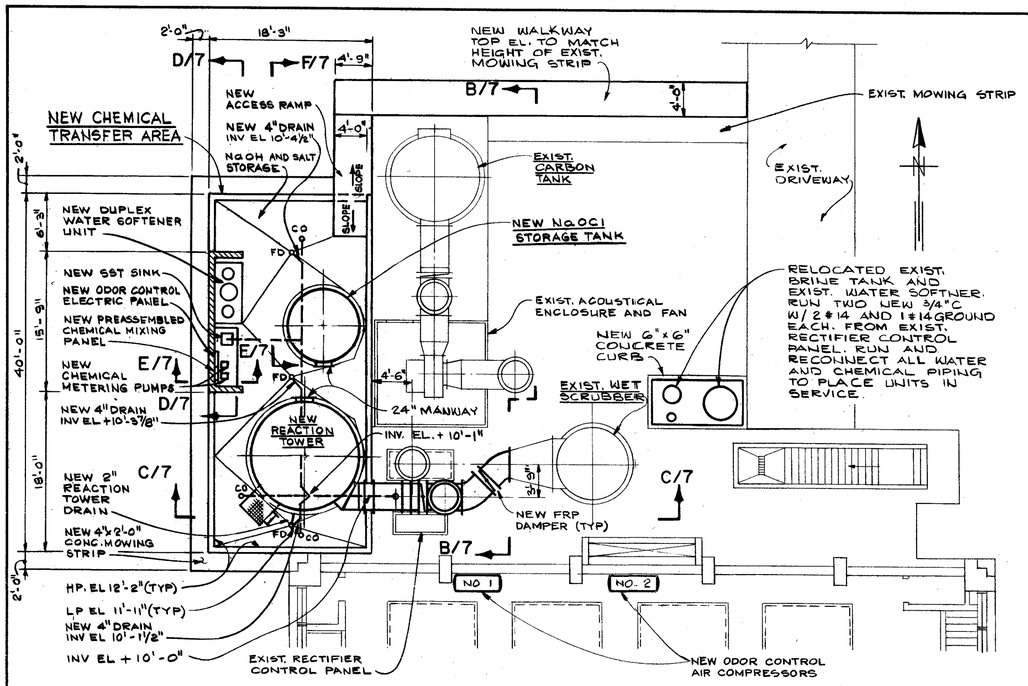
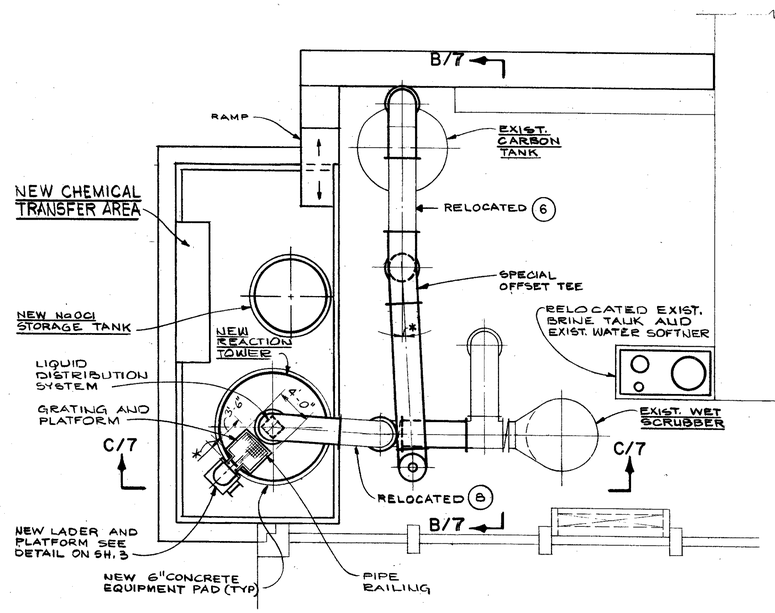


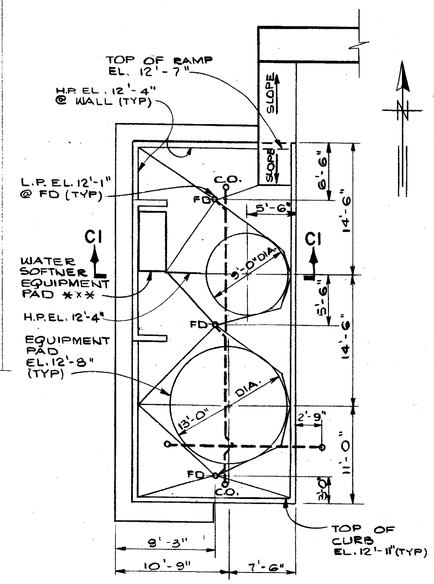
YBOR PUMPING STATION - PLAN AT EL 22'-0"

SCALE: 1/8" = 1'-0"



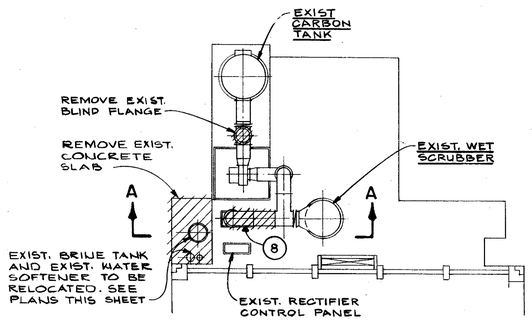
YBOR PUMPING STATION - TOP PLAN

SCALE: 1/8" = 1'-0"



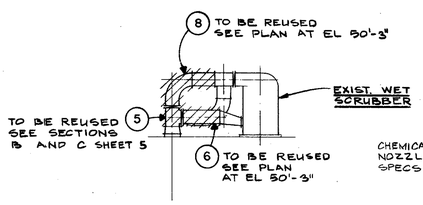
PART PLAN AT EL 12'-11"

SCALE: 1/8"=1'-0"



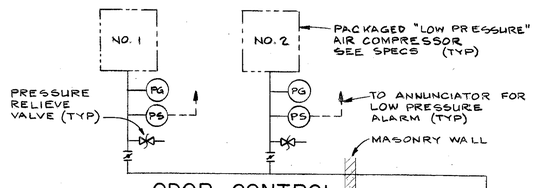
DEMOLITION PLAN

SCALE: 1/16" = 1'-0"



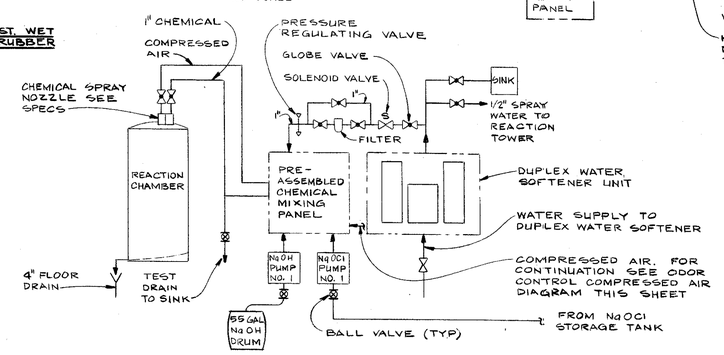
DEMOLITION SECTION A

SCALE: 1/16" = 1'-0"



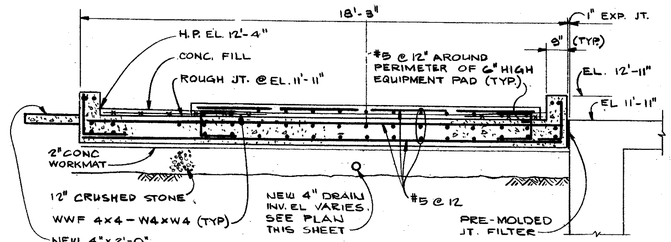
ODOR CONTROL CHEMICAL AIR DIAGRAM

NO SCALE



ODOR CONTROL CHEMICAL SYSTEM DIAGRAM

NO SCALE



SECTION CI

SCALE: 3/8" = 1'-0"

NOTES:

1. DUCTWORK DESIGNATED WITH A CIRCLED NUMBER IS EXISTING. SEE PEPCON DWG'S: 20.8-161 THROUGH 20.8-167 FOR EXISTING LOCATIONS.
2. EXISTING DUCTWORK DESIGNATED 5 , 6 , AND 8 IS TO BE RELOCATED AS SHOWN ON THESE DRAWINGS.
3. EACH FLANGED CONNECTION IN DUCTWORK REQUIRES A 1/8-INCH THICK GASKET.
4. ALL NEW DUCT WORK SHALL BE PIGMENTED WHITE AND SHALL MATCH CONSTRUCTION OF EXISTING DUCT IN ALL RESPECTS.
5. THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE LOW PRESSURE AIR COMPRESSOR EQUIPMENT.

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN SK CHECKED JRP	APPROVED	NO. DATE APP REVISION	SCALE 16 0 32 FT 1/16"=1'-0"; 8 0 8 16 FT 1/8"=1'-0"; 1 0 1 2 3 4 5 6 7 FT 3/8"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4 L 5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS

YBOR PUMPING STATION
PLANS, SECTIONS, DIAGRAMS

PROJ NO.
DWG
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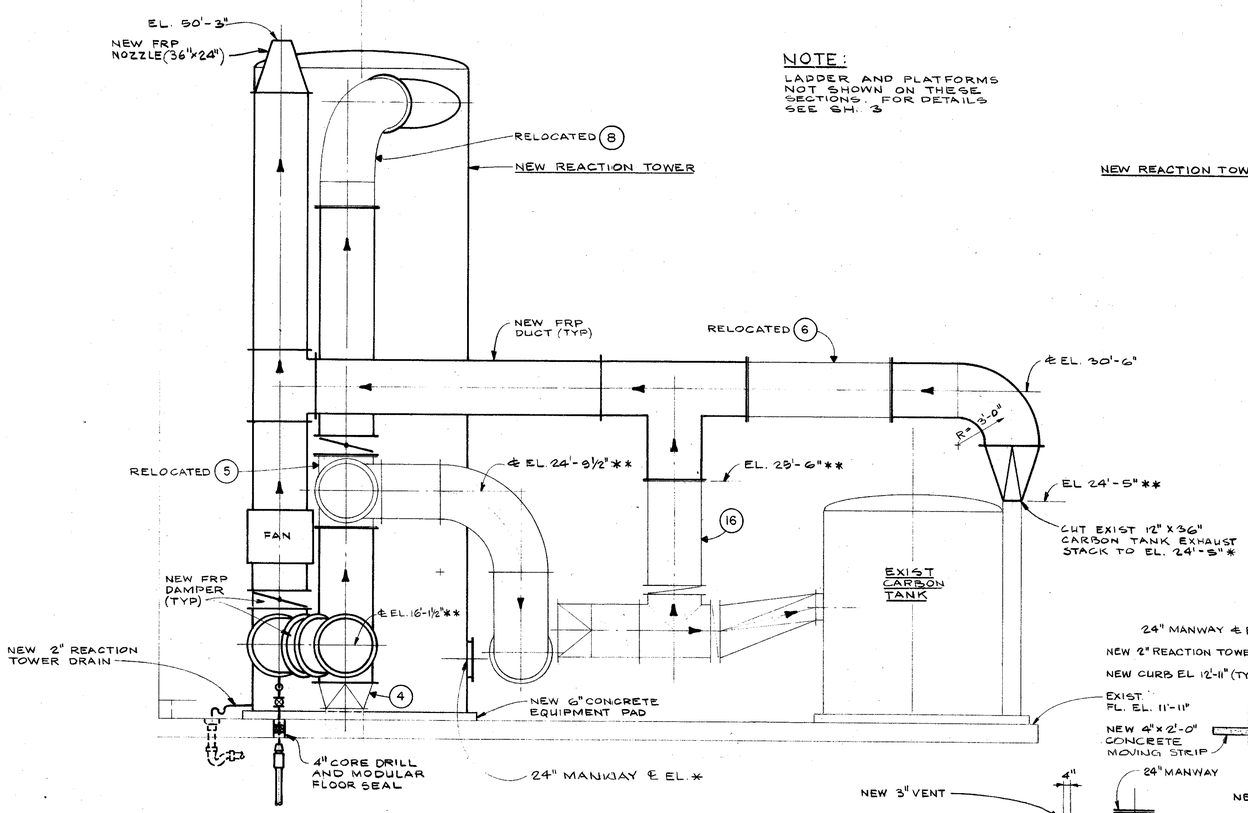
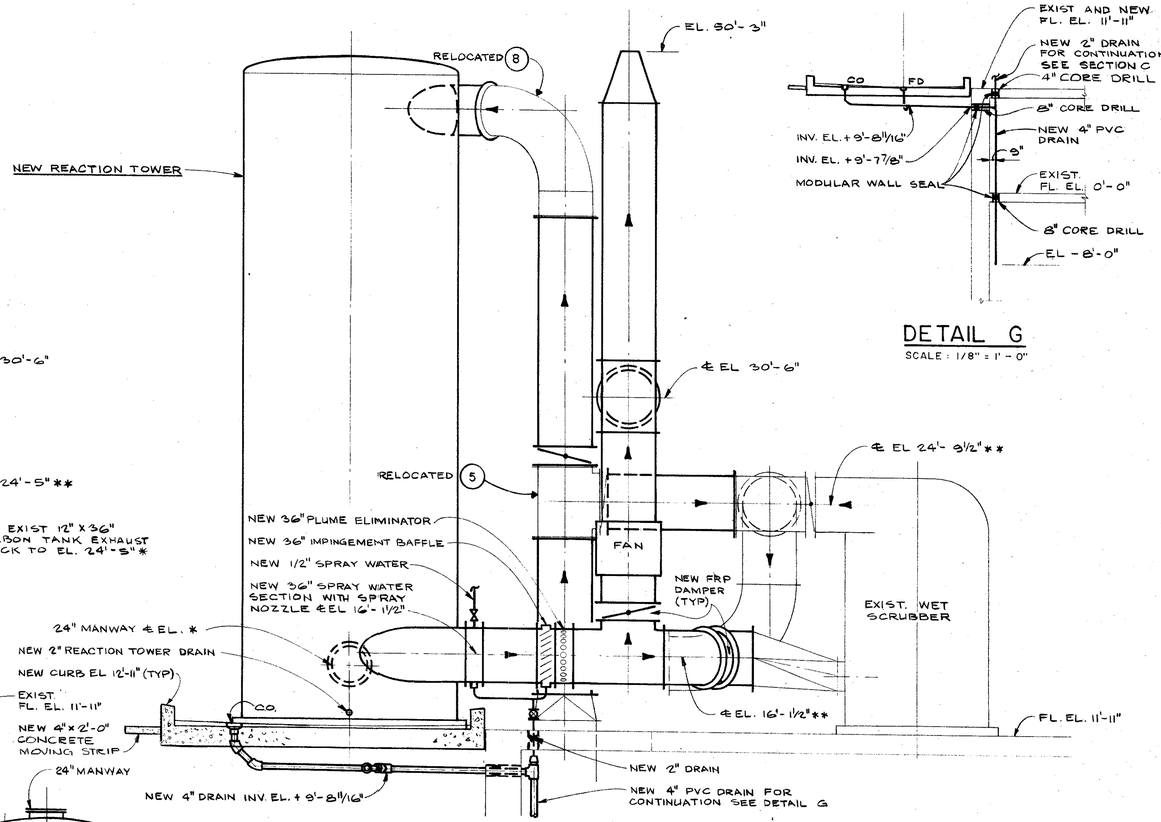


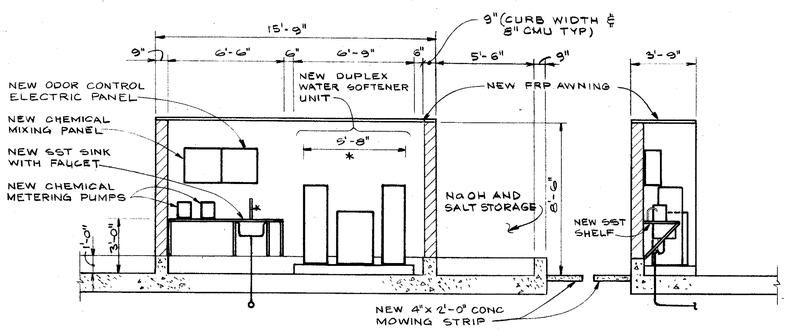
NOTE:
LADDER AND PLATFORMS NOT SHOWN ON THESE SECTIONS. FOR DETAILS SEE SH. 3

SECTION B/4
SCALE: 1/4" = 1'-0"

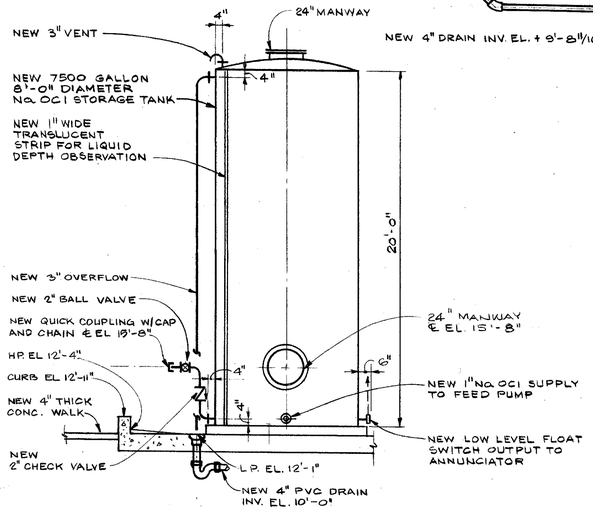


SECTION C/4
SCALE: 1/4" = 1'-0"

DETAIL G
SCALE: 1/8" = 1'-0"

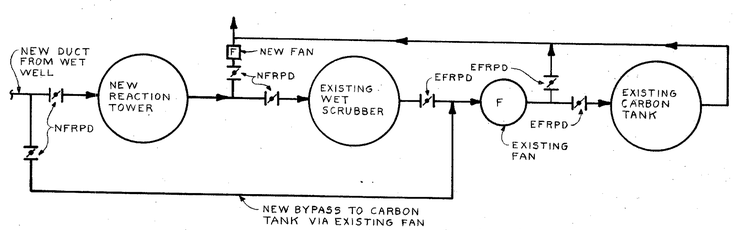


SECTION D/4
SCALE: 1/4" = 1'-0"



SECTION E/4
SCALE: 1/4" = 1'-0"

SECTION F/4
SCALE: 1/4" = 1'-0"



NOTE:
SEE PLANS AND SECTIONS FOR LOCATION OF NEW AND EXISTING DUCTWORK

LEGEND
NFRPD - NEW FRP DAMPER
EFRPD - EXISTING FRP DAMPER

YBOR PUMPING STATION ODOR CONTROL FLOW DIAGRAM
NO SCALE

NOTE: THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE HIGH PRESSURE AIR COMPRESSOR EQUIPMENT

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN SK CHECKED JRP	APPROVED	NO. DATE APP REVISION	SCALE 8 0 8 16 FT 1/8"=1'-0"; 4 0 4 8 FT 1/4"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	YBOR PUMPING STATION SECTIONS	PROJ NO. SHEET 6 OF 10 DATE JULY 1985 REV 0

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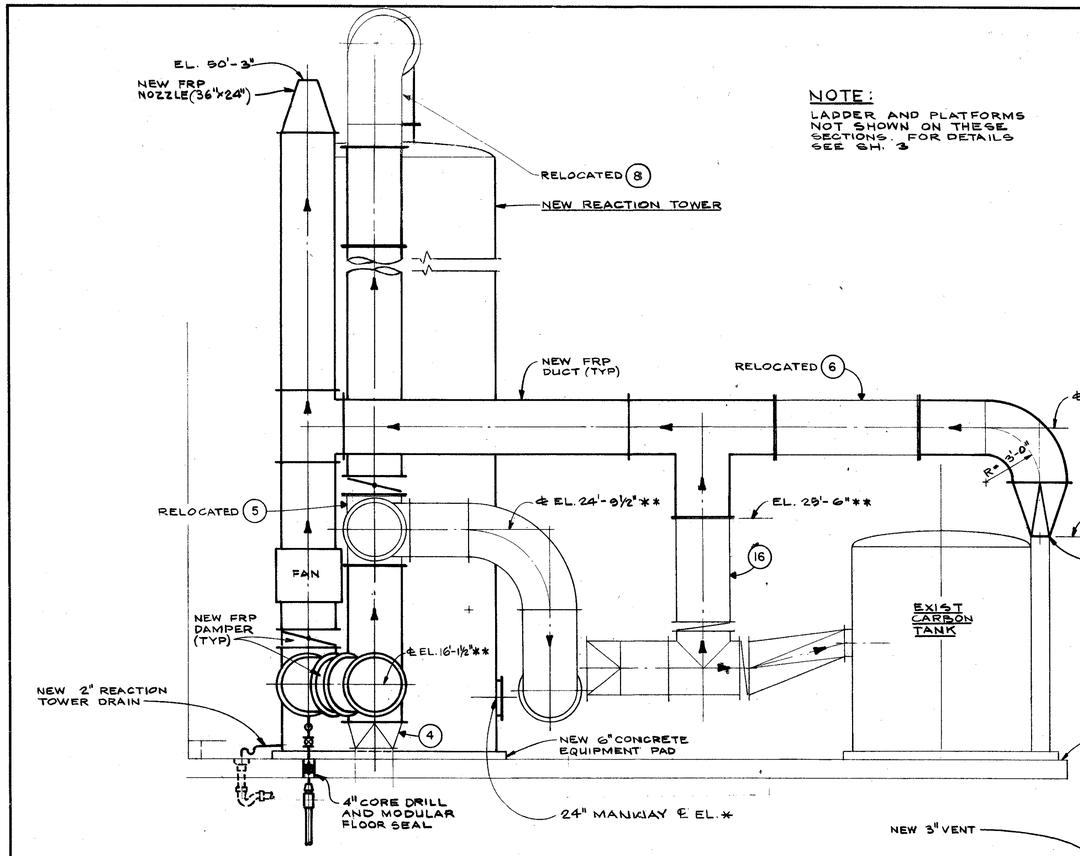
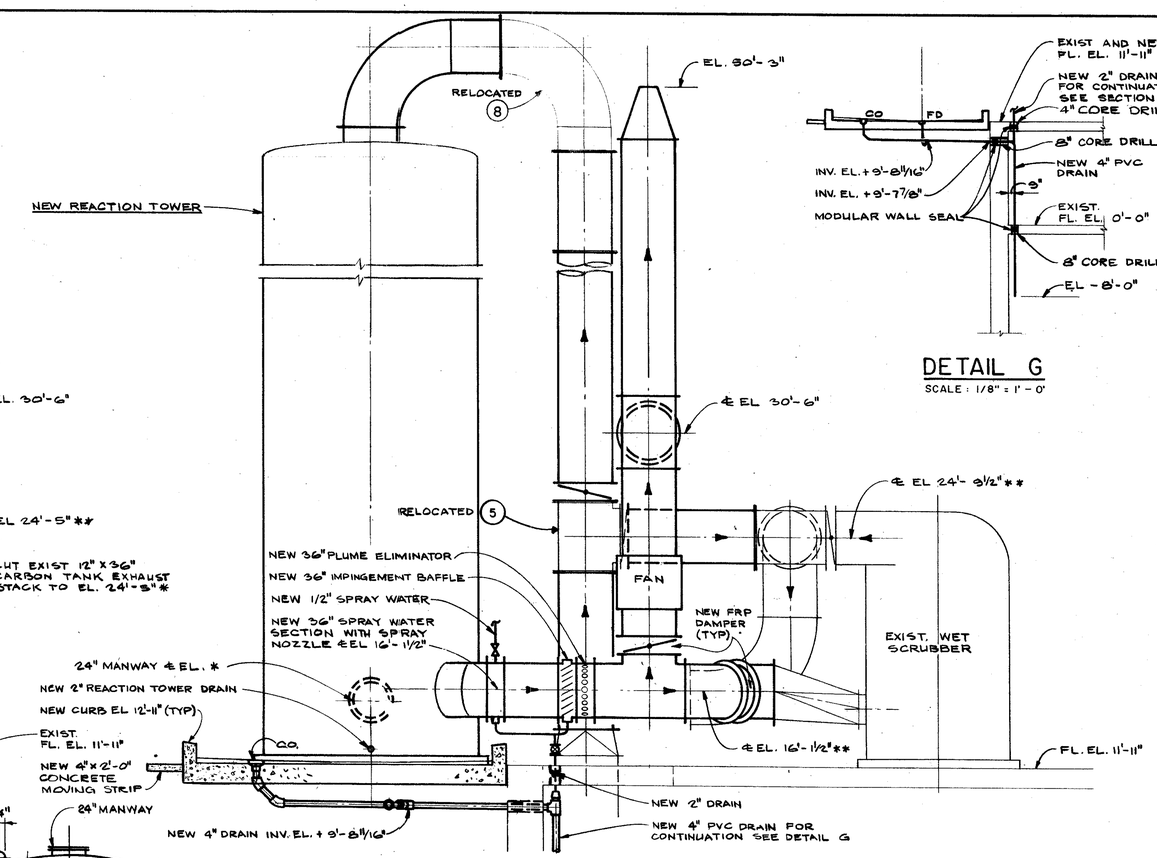
NOTE:
LADDER AND PLATFORMS NOT SHOWN ON THESE SECTIONS. FOR DETAILS SEE SH. 3

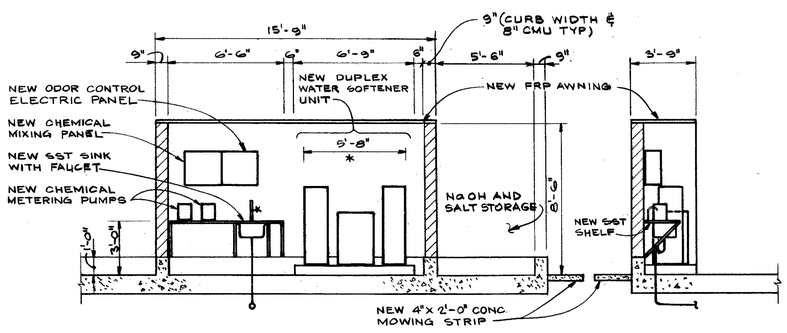


SECTION B/5
SCALE: 1/4" = 1'-0"



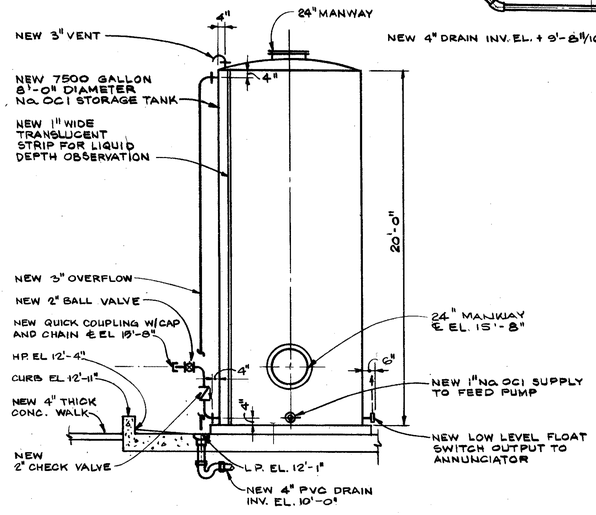
SECTION C/5
SCALE: 1/4" = 1'-0"

DETAIL G
SCALE: 1/8" = 1'-0"

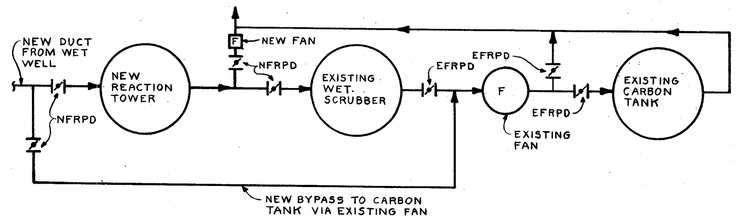


SECTION D/5
SCALE: 1/4" = 1'-0"

SECTION E/5
SCALE: 1/4" = 1'-0"



SECTION F/5
SCALE: 1/4" = 1'-0"



NOTE:
SEE PLANS AND SECTIONS FOR LOCATION OF NEW AND EXISTING DUCTWORK

LEGEND
NFRPD - NEW FRP DAMPER
EFRPD - EXISTING FRP DAMPER

YBOR PUMPING STATION ODOR CONTROL FLOW DIAGRAM

NO SCALE

NOTE: THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE LOW PRESSURE AIR COMPRESSOR EQUIPMENT

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN SK CHECKED JRP	APPROVED	NO. DATE APP REVISION	SCALE 8 0 8 16 FT 1/8"=1'-0"; 4 0 4 8 FT 1/4"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	YBOR PUMPING STATION SECTIONS	PROJ NO. SHEET 7 OF 10 DATE JULY 1985 REV 0

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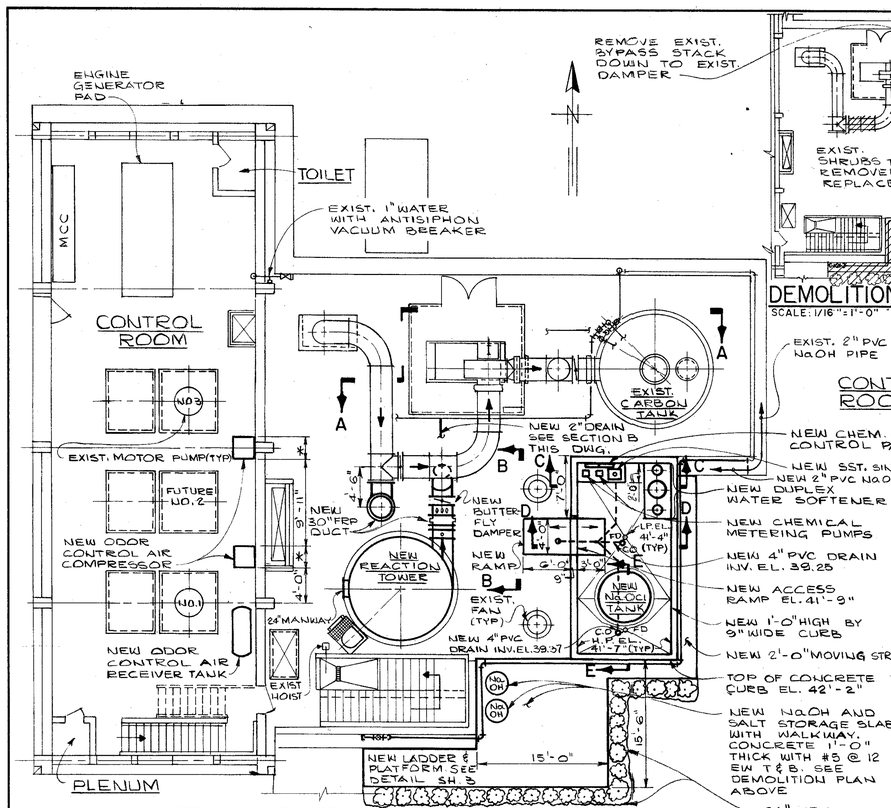
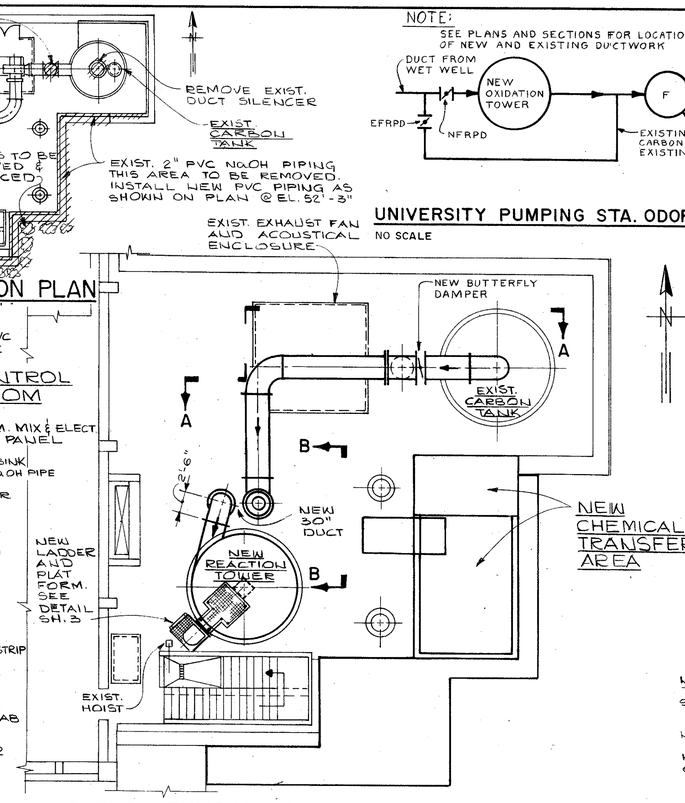


UNIVERSITY PUMPING STATION - PLAN - AT EL. 52'-3"

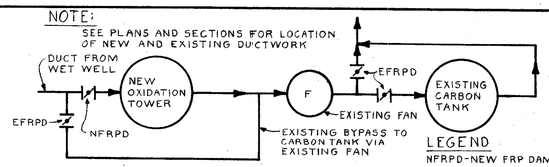
SCALE: 1/8" = 1'-0"



UNIVERSITY PUMPING STATION - PLAN - AT EL. 64'-2¾"

SCALE: 1/8" = 1'-0"

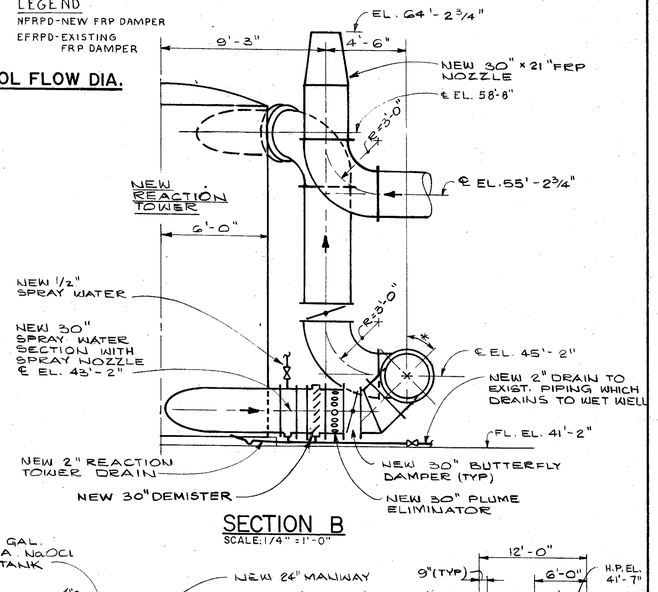
NOTE:
SEE PLANS AND SECTIONS FOR LOCATION OF NEW AND EXISTING DUCTWORK



LEGEND
NFRPD-NEW FRP DAMPER
EFRPD-EXISTING FRP DAMPER

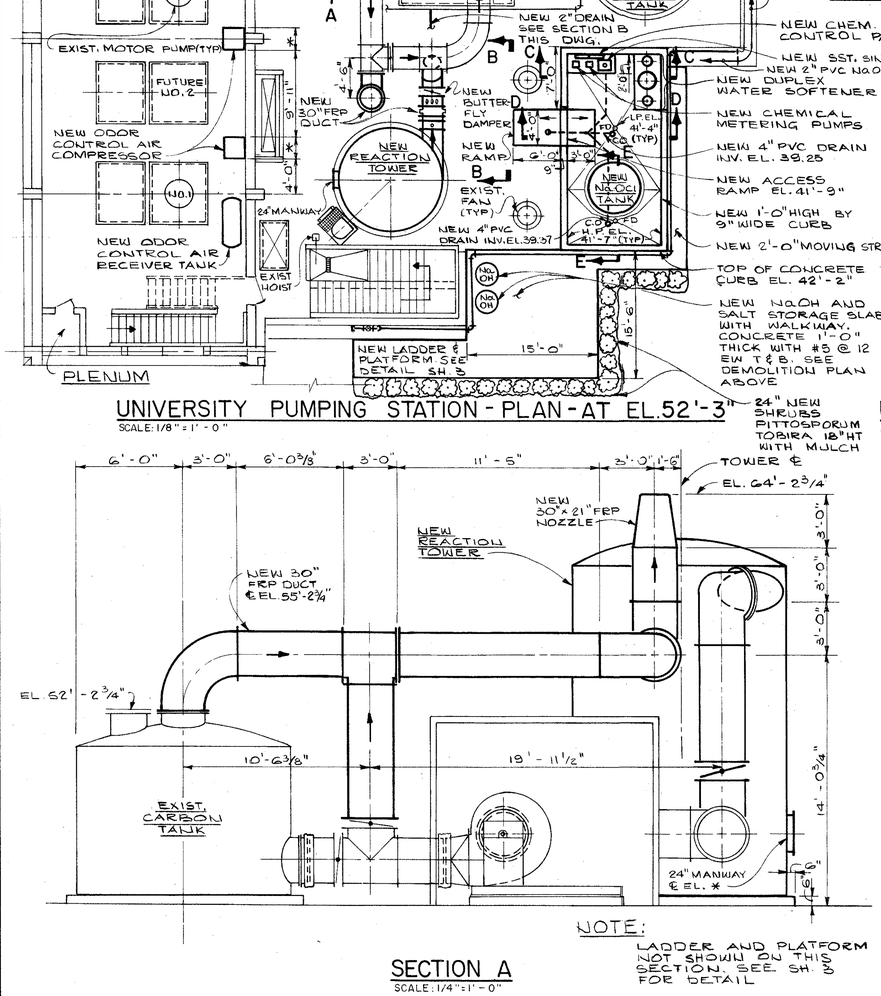
UNIVERSITY PUMPING STA. ODOR CONTROL FLOW DIA.

NO SCALE



SECTION B

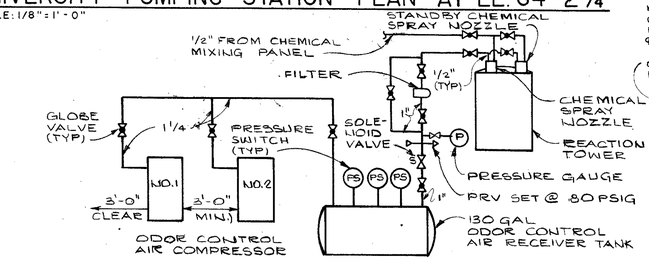
SCALE: 1/4" = 1'-0"



NOTE:
LADDER AND PLATFORM NOT SHOWN ON THIS SECTION. SEE SH. 3 FOR DETAIL

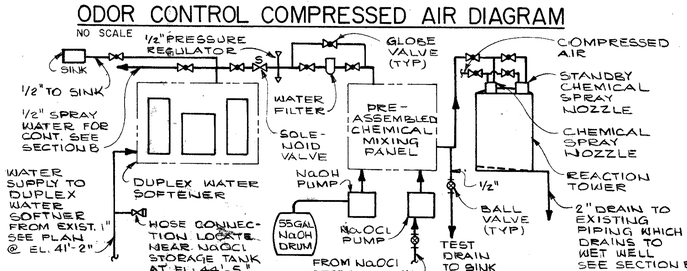
SECTION A

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



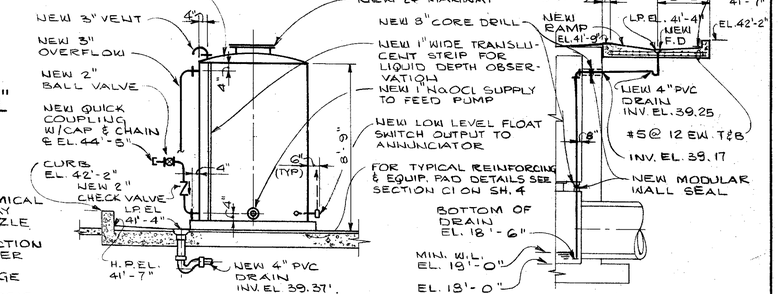
ODOR CONTROL COMPRESSED AIR DIAGRAM

NO SCALE



ODOR CONTROL CHEMICAL SYSTEM DIAGRAM

NO SCALE



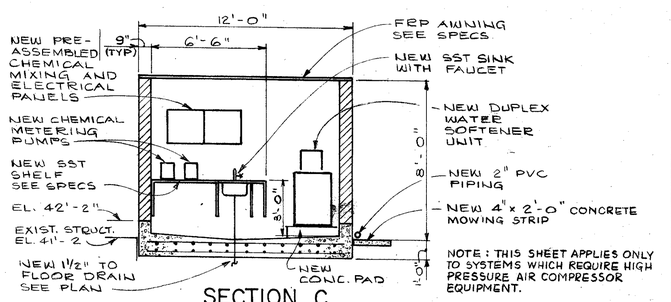
NaOCl STORAGE TANK DETAIL

SECTION E

SCALE: 3/8" = 1'-0"

SECTION D

SCALE: 1/8" = 1'-0"



NOTE: THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE HIGH PRESSURE AIR COMPRESSOR EQUIPMENT.

SECTION C

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

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN ATK CHECKED JRP	APPROVED	NO. DATE APP REVISION	SCALE 8 0 8 16 FT 1/8"=1'-0"; 4 0 4 8 FT 1/4"=1'-0"; 0 1 2 3 4 5 6 7 FT 3/8"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS

UNIVERSITY PUMPING STATION
PLANS, SECTIONS, DETAILS AND DIAGRAMS

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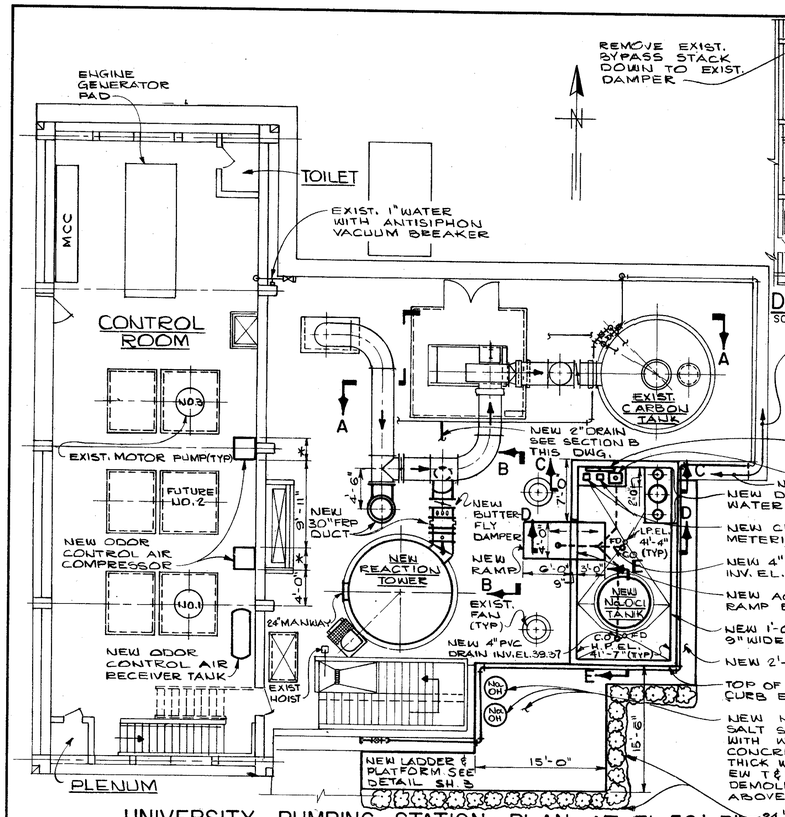
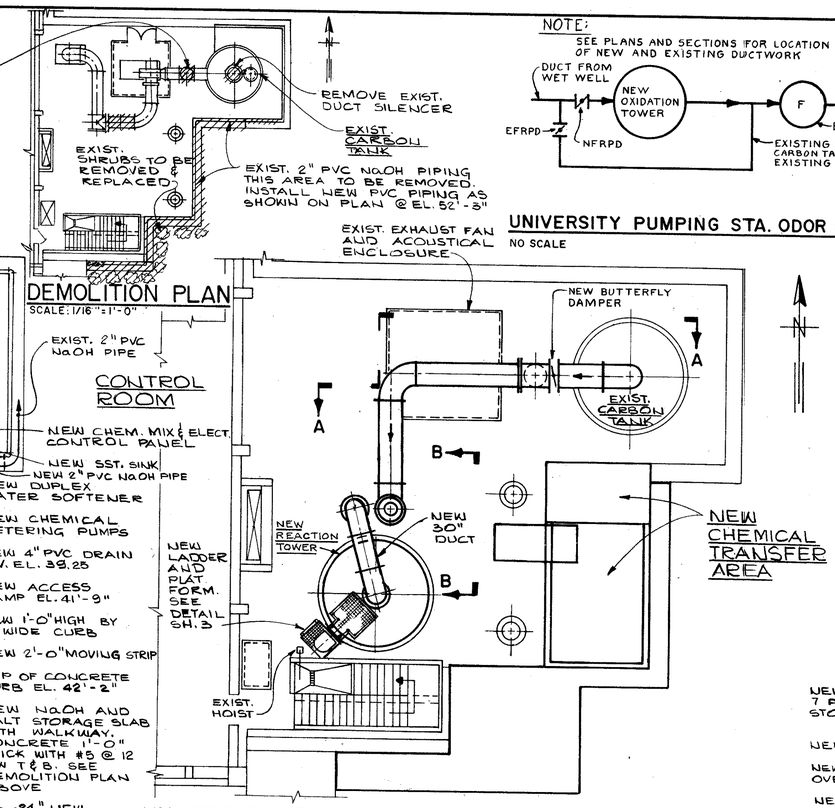


UNIVERSITY PUMPING STATION - PLAN - AT EL. 52'-3"

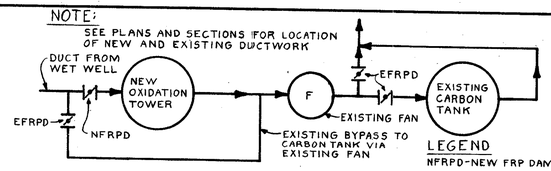
SCALE: 1/8" = 1'-0"



UNIVERSITY PUMPING STATION - PLAN - AT EL. 64'-2¾"

SCALE: 1/8" = 1'-0"

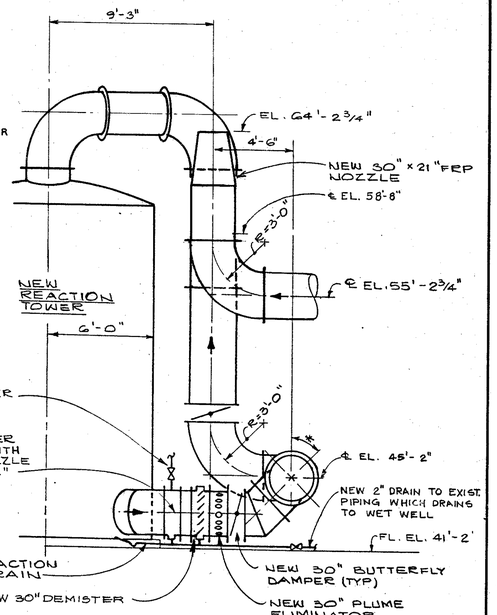
NOTE:
SEE PLANS AND SECTIONS FOR LOCATION OF NEW AND EXISTING DUCTWORK



LEGEND
NFRPD-NEW FRP DAMPER
EFRPD-EXISTING FRP DAMPER

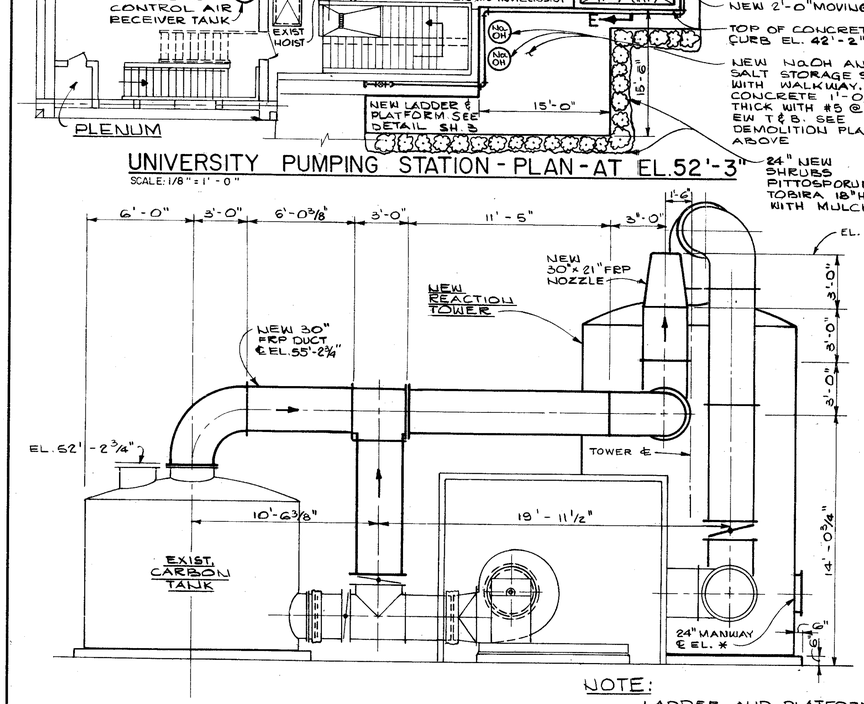
UNIVERSITY PUMPING STA. ODOR CONTROL FLOW DIA.

NO SCALE



SECTION B

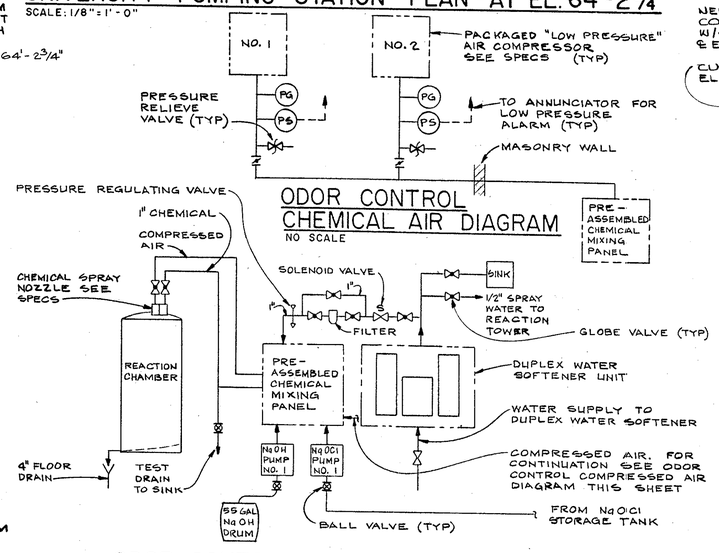
SCALE: 1/4" = 1'-0"



NOTE:
LADDER AND PLATFORM NOT SHOWN ON THIS SECTION. SEE SH. 3 FOR DETAIL

SECTION A

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

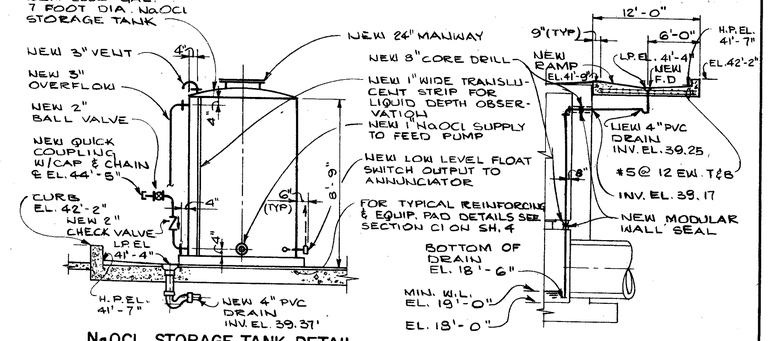


ODOR CONTROL CHEMICAL AIR DIAGRAM

NO SCALE

ODOR CONTROL CHEMICAL SYSTEM DIAGRAM

NO SCALE



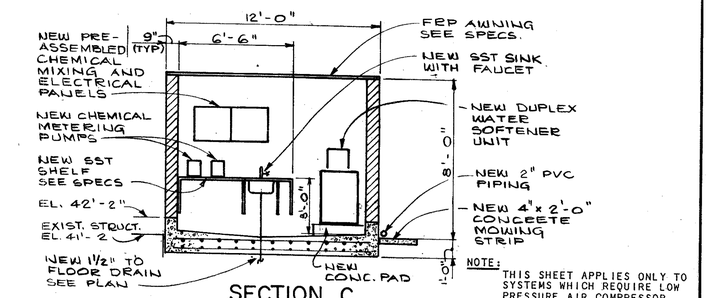
NaOCl STORAGE TANK DETAIL

SECTION E

SCALE: 3/8" = 1'-0"

SECTION D

SCALE: 1/8" = 1'-0"



SECTION C

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

NOTE:
THIS SHEET APPLIES ONLY TO SYSTEMS WHICH REQUIRE LOW PRESSURE AIR COMPRESSOR EQUIPMENT.

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED MPV JRP DRAWN ATK CHECKED JRP	APPROVED	NO. DATE APP. REVISION	SCALE 8 0 8 16 FT 1/8"=1'-0"; 4 0 4 8 FT 1/4"=1'-0"; 0 1 2 3 4 5 6 7 FT 3/8"=1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS

UNIVERSITY PUMPING STATION
PLANS, SECTIONS, DETAILS AND DIAGRAMS

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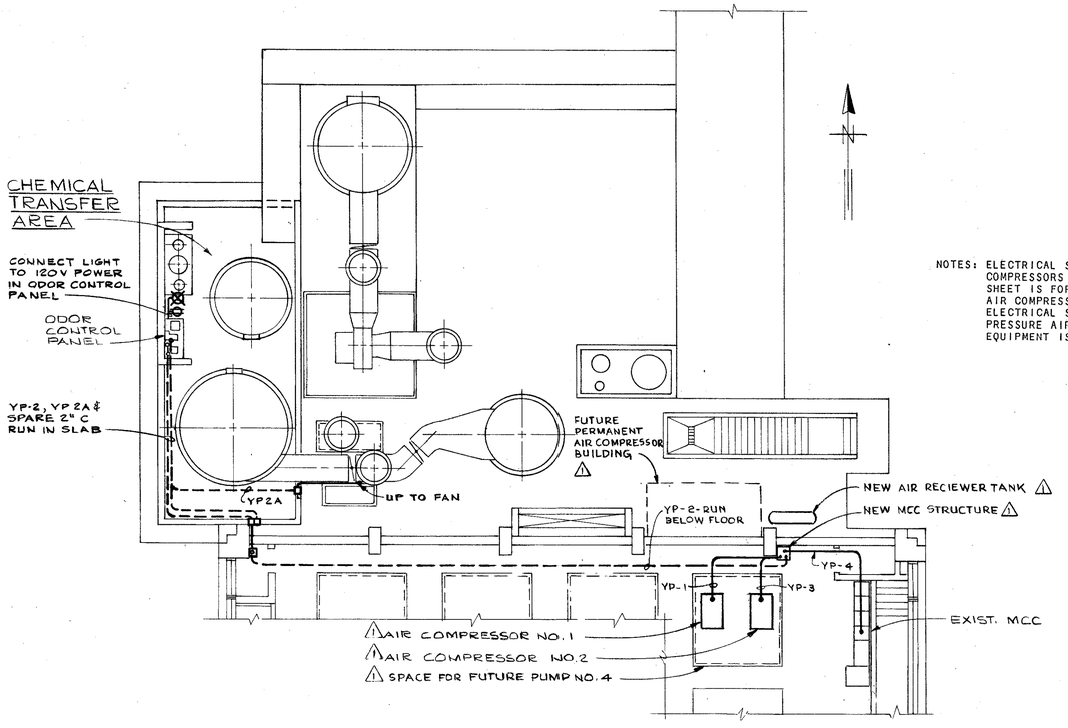
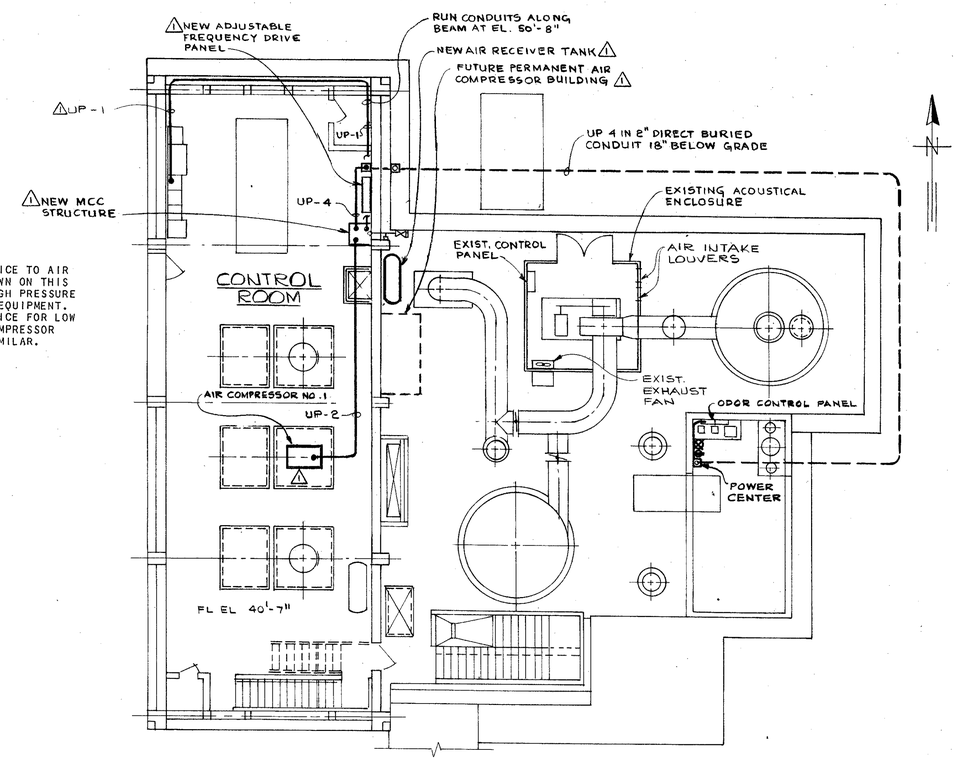
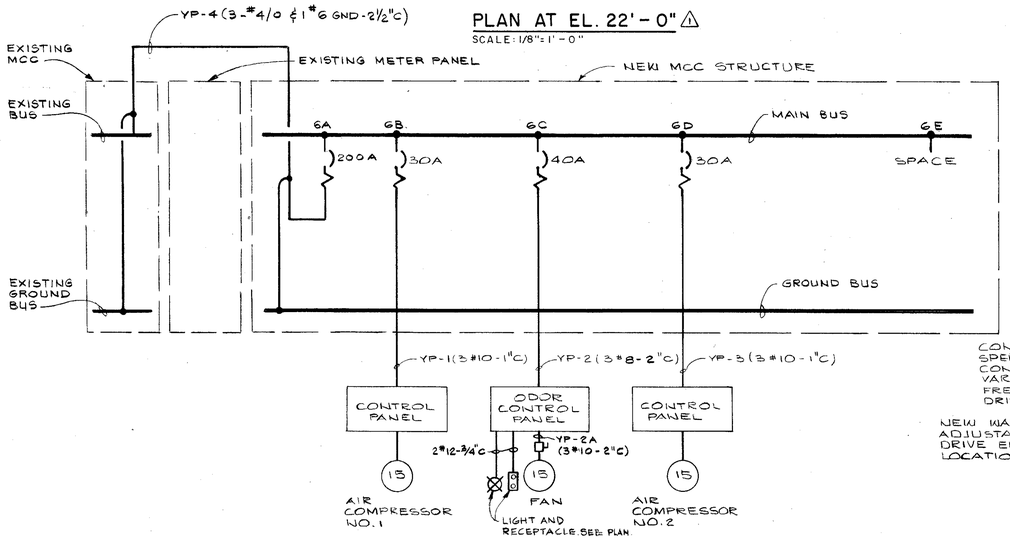


NOTES: ELECTRICAL SERVICE TO AIR COMPRESSORS SHOWN ON THIS SHEET IS FOR HIGH PRESSURE AIR COMPRESSOR EQUIPMENT. ELECTRICAL SERVICE FOR LOW PRESSURE AIR COMPRESSOR EQUIPMENT IS SIMILAR.



PLAN AT EL. 22'-0" ⚠

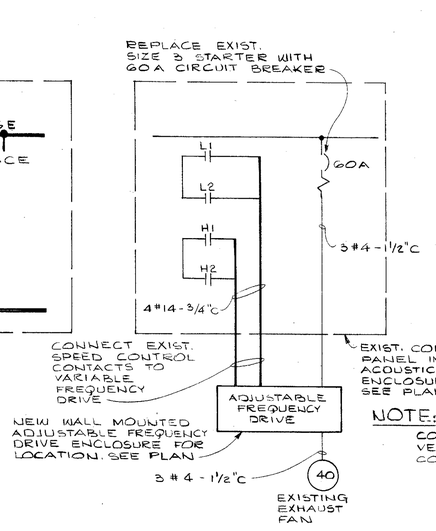
SCALE: 1/8"=1'-0"



MCC PARTIAL ONE LINE DIAGRAM

480 VOLT, 3 PHASE, 60 HERTZ

YBOR PUMPING STATION



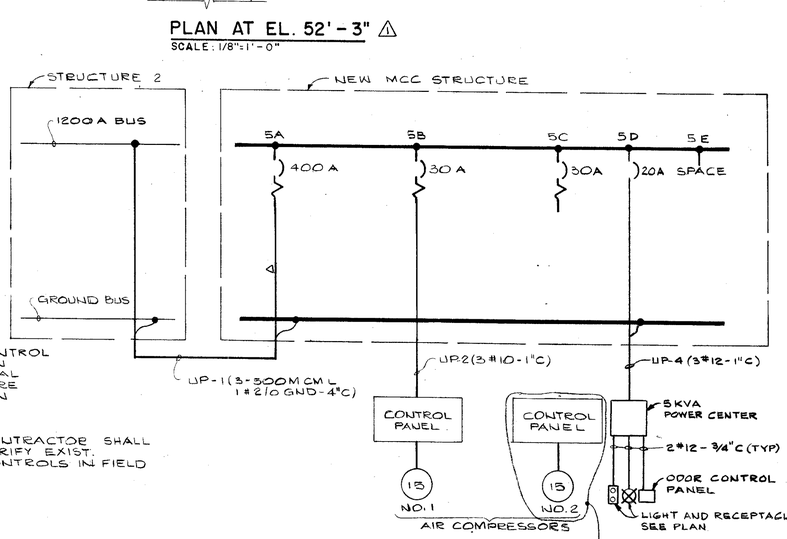
NOTE:
CONTRACTOR SHALL VERIFY EXIST. CONTROLS IN FIELD

PARTIAL ONE LINE DIAGRAM OF EXISTING CONTROL CENTER AND NEW ADJUSTABLE FREQUENCY DRIVE

UNIVERSITY PUMPING STATION

PLAN AT EL. 52'-3" ⚠

SCALE: 1/8"=1'-0"



MCC PARTIAL ONE LINE DIAGRAM

480 VOLT, 3 PHASE, 60 HERTZ

⚠ UNIVERSITY PUMPING STATION

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED BBK DRAWN AK CHECKED BBK JRP	APPROVED	⚠ 5.18.87 JRP AIR COMPRESSORS & MCC'S NO. DATE APP REVISION
SCALE: NO SCALE	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM DIVISION 4L5 PUMPING STATIONS ODOR CONTROL MODIFICATIONS	YBOR AND UNIVERSITY PUMPING STATION ELECTRICAL	PROJ NO. DWG SHEET 10 OF 10 DATE JULY 1985 REV 1

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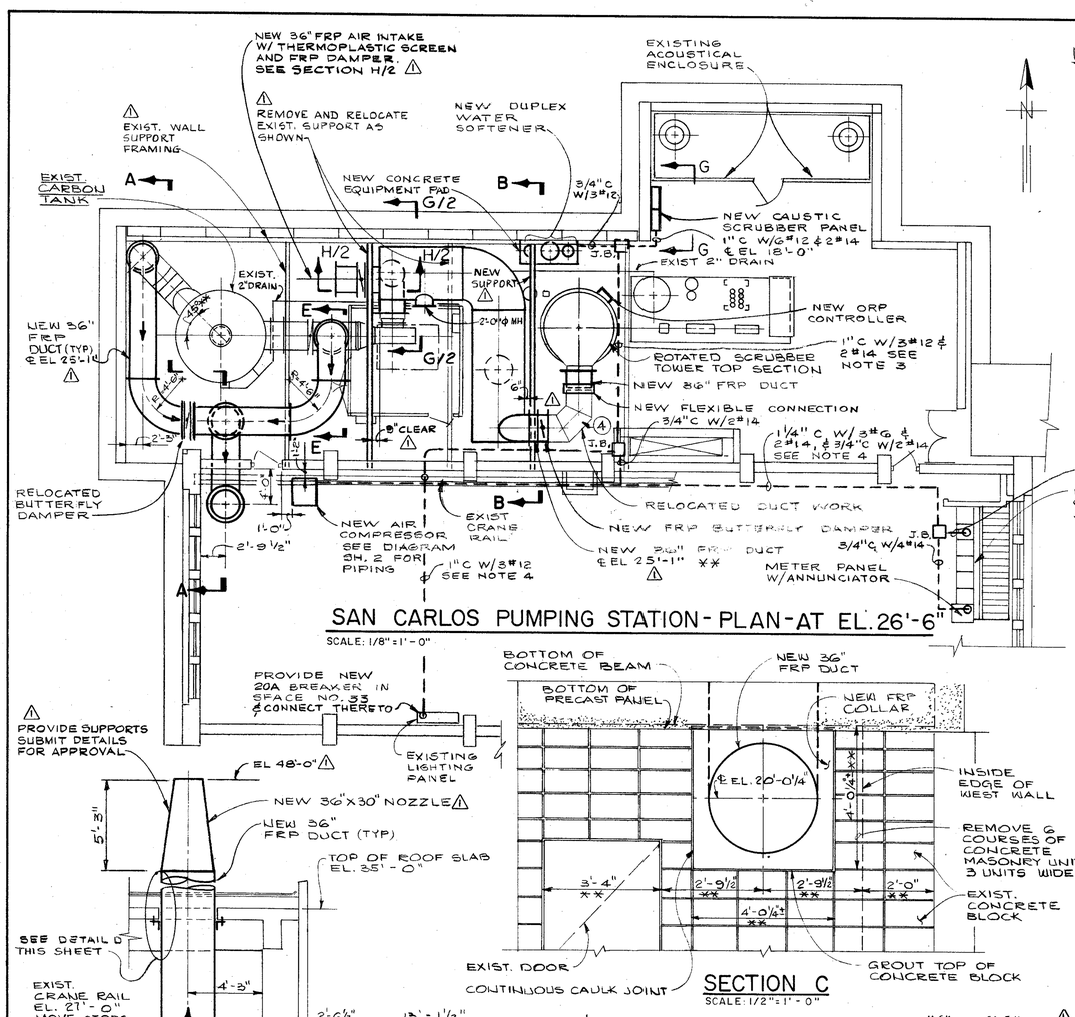
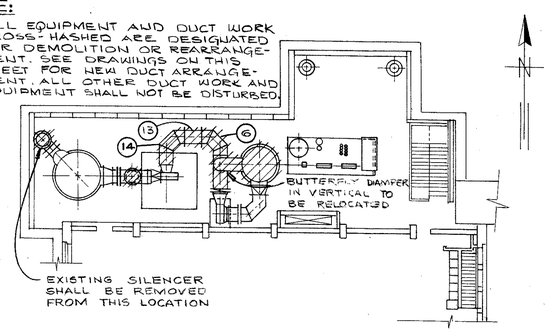


SAN CARLOS PUMPING STATION - PLAN - AT EL. 26'-6"

SCALE: 1/8" = 1'-0"

NOTE:

ALL EQUIPMENT AND DUCT WORK CROSS-HASHED ARE DESIGNATED FOR DEMOLITION OR REARRANGEMENT. SEE DRAWINGS ON THIS SHEET FOR NEW DUCT ARRANGEMENT. ALL OTHER DUCT WORK AND EQUIPMENT SHALL NOT BE DISTURBED.



DEMOLITION PLAN

SCALE: 1/16" = 1'-0"

NOTES:

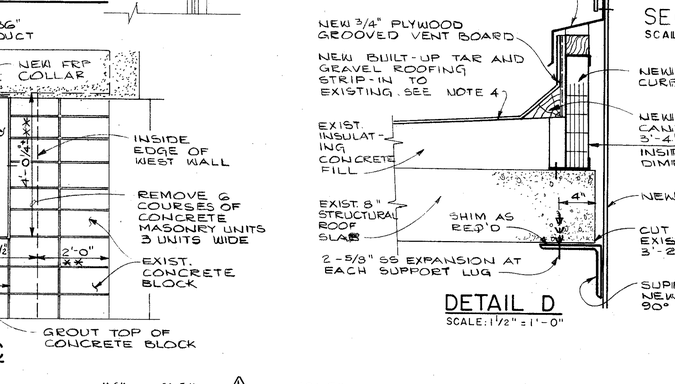
1. ALL NEW WORK IS SHOWN IN BOLD LINE WORK. ALL EXISTING OR RELOCATED EQUIPMENT OR STRUCTURE IS SHOWN IN LIGHT LINE WORK.
2. ALL NEW WIRING AND DEVICES FOR THE NEW ORP CONTROLLER SHALL BE MOUNTED AND INSTALLED ON THE EXISTING NaOCl WET SCRUBBER TOWER AND IN THE COMBINATION RECTIFIER CONTROL PANEL-MCC IN ACCORDANCE WITH DIRECTIONS FROM PEPCON AND AS APPROVED BY THE ENGINEER.
3. ALL CONDUIT OUTSIDE OF THE PUMPING STATION SHALL BE RUN 7'-0" MIN. ABOVE SLAB AT EL. 11.92 SHALL BE NEATLY GROUPED AND SHALL BE WELL SUPPORTED PER SPEC, W-35.04 AND AS APPROVED BY THE ENGINEER, ROUTING OF CONDUIT SHALL BE AS APPROVED BY THE ENGINEER.
4. ALL CONDUIT INSIDE OF THE PUMPING STATION SHALL BE RUN ALONG WALLS, UP TO THE CEILING OR OTHERWISE, AS APPROVED BY THE ENGINEER, SO AS TO BE CLEAR OF ANY INTERFERENCES WITH EQUIPMENT, DOORWAYS AND THE LIKE.
5. DUCT WORK DESIGNATED WITH A CIRCLED NUMBER 9 IS EXISTING. SEE PEPCON DWG'S: 20.8-190 THROUGH 20.8-192.
6. ROOFING SHALL BE 20 YEARS BONDABLE 4-PLY BUILT-UP TAR AND GRAVEL AS MANUFACTURED BY THE KOPPERS CO. OR EQUAL. INSTALLATION SHALL BE IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. EACH FLANGED CONNECTION IN THE DUCTWORK REQUIRES A 1/8-INCH THICK GASKET.
8. ALL NEW DUCTWORK SHALL BE PIGMENTED WHITE AND SHALL MATCH CONSTRUCTION OF EXISTING DUCT IN ALL RESPECTS.
9. DIMENSIONS OR ELEVATIONS DESIGNATED THUS ** SHALL BE VERIFIED BY FIELD MEASUREMENT PRIOR TO SUBMITTAL OF SHOP DRAWINGS. OTHER DIMENSIONS DEPENDENT UPON SUCH DIMENSIONS OR ELEVATIONS SHALL BE MODIFIED AS REQUIRED AND APPROVED IF FIELD MEASUREMENTS DIFFER FROM THOSE SHOWN. SUCH REQUIRED MODIFICATIONS SHALL BE AT NO CHANGE IN CONTRACT PRICE.

SECTION A

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

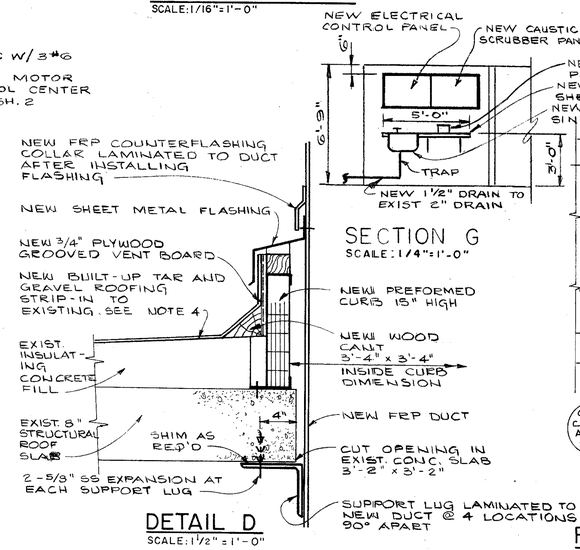
SECTION C

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



SECTION B

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

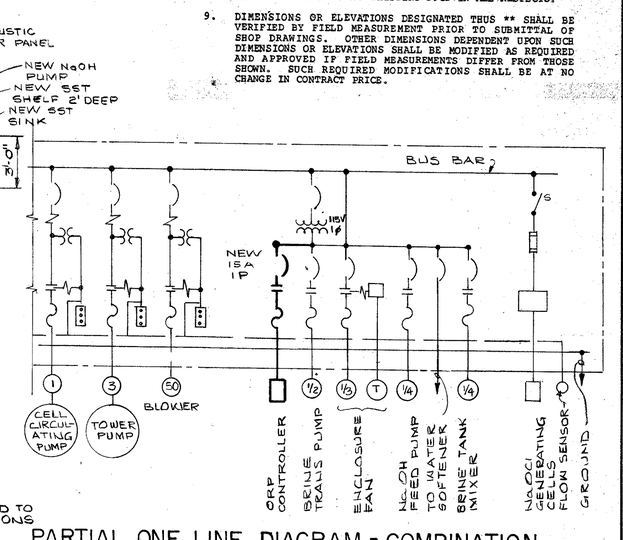


SECTION G

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

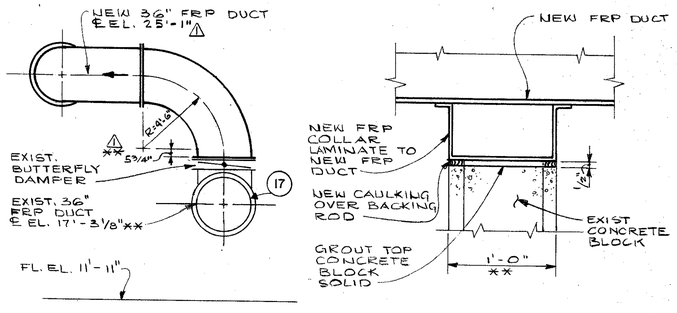
DETAIL D

SCALE: 1½" = 1'-0"



PARTIAL ONE LINE DIAGRAM - COMBINATION RECTIFIER CONTROL PANEL - MCC

NO SCALE



SECTION E

DETAIL F

SCALE: 1½" = 1'-0"

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JRP MPV DRAWN ATK CHECKED JRP	APPROVED	NO. 1 DATE JAN 1987 APP JRP REVISION AS SHOWN

SCALE: 16 0 16 32 FT — 1/16"=1'-0"; 8 0 8 16 FT — 1/8"=1'-0"; 4 0 4 8 FT — 1/4"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIV. 4L-3 ODOR CONTROL EQUIPMENT FOR THREE PUMPING STATIONS

SUPPLEMENTARY DRAWING NO. SD-3

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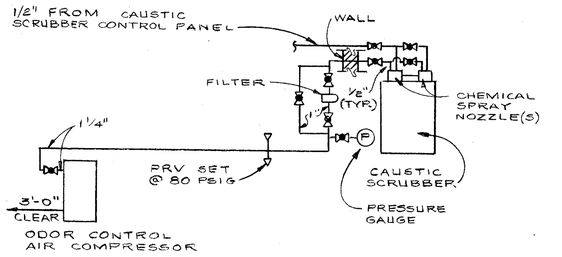
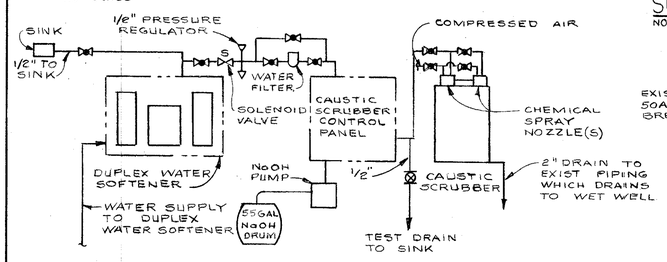


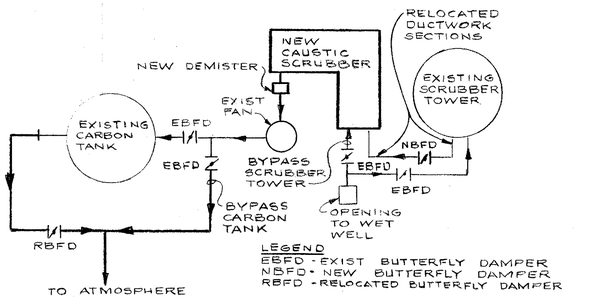
ODOR CONTROL COMPRESSED AIR DIAGRAM

NO SCALE



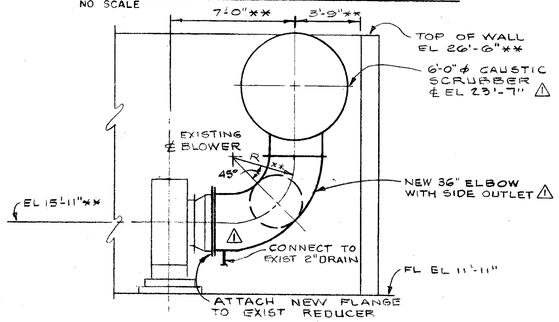
CAUSTIC SCRUBBER SYSTEM DIAGRAM

NO SCALE



ODOR CONTROL FLOW DIAGRAM

NO SCALE

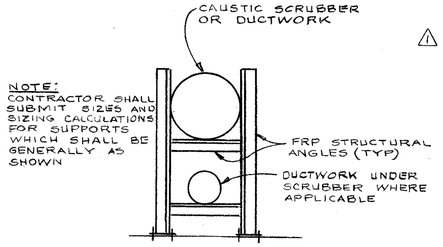


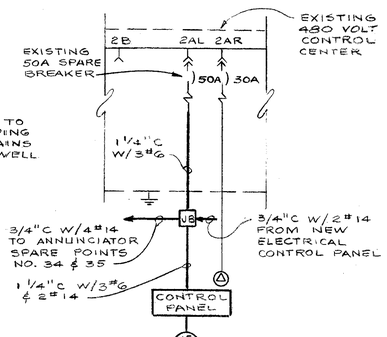
SECTION G/1

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

DUCTWORK AND CAUSTIC SCRUBBER SUPPORT DETAIL

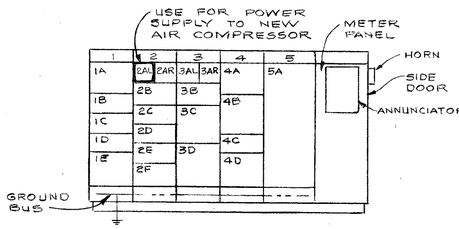
NO SCALE





PARTIAL ONE LINE DIAGRAM

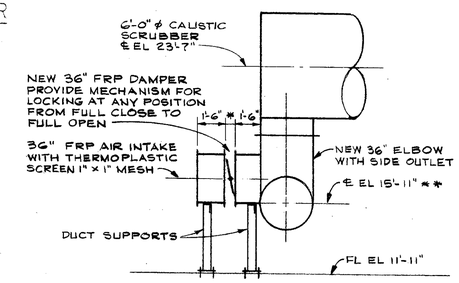
NO SCALE



CONTROL CENTER

FRONT VIEW

NOT TO SCALE



⚠ SECTION H/1

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

16. BLOWER MODIFICATIONS

The existing blower is a New York Blower, Model FE30, driven by a 50 HP, 1770 RPM, 460 V, 3 phase electric motor via 3 V-Belts on a 10.3-inch driver sheave and a 9.25-inch driven sheave at 50.7-inch centers, producing a fan speed of 1969 RPM and delivering 12,300 cfm of air at 14 inches W.C. static pressure.

Blower modifications include changing the blower drive sheaves and belts to produce a fan speed of 2100 RPM in order to deliver approximately 22,300 cfm of air at 3 inches W.C. static pressure.

SPECIFICATIONS

1. GENERAL

Unless shown or specified otherwise, all Workmanship and Materials shall conform to the Division 4L3 Contract Documents.

2. CAUSTIC SCRUBBER

The new Caustic Scrubber shall be designed to neutralize all acids and acidic compounds present in the treated air stream from the existing NaOCl Wet Scrubber Tower. The new Caustic Scrubber shall be of the size and shape shown, arranged to fit in the available space and have a retentiion time of approximately 3 seconds based upon an air flow rate of 12,300 cfm. The new Caustic Scrubber shall be designed to use a "once through" solution of NaOH and softened water to neutralize all acids and acidic compounds in the 12,300 cfm air stream based upon 100 percent humidity and an inlet pH range of 1.0 to 6.0. The pH of the spent chemical to drain shall be in the range of 7.5 to 8.0 Softened water consumption shall not exceed 1.0 gpm. The new Caustic Scrubber shall be constructed of FRP meeting the requirements of the Workmanship and Materials section headed "Duct work and Dampers" and shall be chemically resistant to the caustic solution. The new Caustic Scrubber shall be equipped with a chemical distribution device or devices, as required, to supply the caustic solution so as to cause intimate contact between the chemical and the air stream to provide the required acid neutralization. The new Caustic Scrubber shall be as manufactured and supplied by QUAD Environmental Technologies Corp., Highland Park, IL, or equal.

3. AIR COMPRESSOR

The new Air Compressor, shall be of the rotary screw type, having a minimum rated capacity of not less than 68 cfm at 110 psig, driven by a 15 HP 460 volt, 3 phase, 60 hertz electric motor. Final capacity and pressure requirements shall be as required by the manufacturer supplier of the new Caustic Scrubber. The new air compressor shall be a completely factory assembled package, housed in an acoustical enclosure, and shall be Model SK 18 as manufactured by Kaeser Compressors, Fredericksburg, VA, or equal.

An air compressor malfunction shutdown alarm contact shall be provided. The malfunction shutdown alarm contact shall be wired to a spare alarm point of the existing pumping station annunciator.

4. CHEMICAL METERING PUMP

The chemical metering pump shall be positive displacement, diaphragm type pump. Output volume shall be adjustable while pump is in operation from zero to maximum capacity. Adjustment shall be by means of readily accessible dial knobs, one for changing stroke length and the other for changing stroke frequency. Both knobs shall be located opposite the liquid handling end. Control of metering pump shall be selectable between internal and external pulsing by means of a 3-position HAND-OFF-AUTO switch. When in the HAND position, metering pump capacity shall be manually adjustable by means of the pump mounted knobs. When in the AUTO position, metering pump capacity shall be automatically adjusted by the automatic chemical pacing controls specified hereinafter. The chemical metering pump shall be capable, without a hydraulically backed diaphragm, of injecting chemicals against pressures up to 100 psig.

The size and capacity of the chemical metering pump shall be determined by the caustic scrubber manufacturer-supplier to provide the required quantity of NaOH to neutralize the compounds specified above under the heading "Caustic Scrubber."

The pump drive shall be totally enclosed with splash proof control panel and no exposed moving parts. Solid state electronic pulser shall be fully encapsulated. Electronics shall be housed in chemical resistant enclosure at the rear of the pump for maximum protection against chemical spillage. The chemical metering pumps shall be 120 volt, single phase 60 hertz.

Chemical metering pump housing shall be of chemically resistant glass fiber reinforced thermoplastic with a glass fiber reinforced polypropylene solenoid carrier. All exposed fasteners shall be stainless steel. Chemical metering pump valves shall be ball type, with ceramic balls seating on combination valve seat and seal ring. Valve seat and seal ring shall be renewable by replacing only the combination seat-seal ring. Pump head shall be of PVC material. Fittings and connections at pump head shall be PVC and/or polypropylene.

5. CAUSTIC SCRUBBER CONTROL PANEL

The Caustic Scrubber Control Panel shall be provided complete with all required piping, gauges, regulators, meters, valves and all other such devices required to dilute and deliver the required quanatity of liquid chemicals to the caustic scrubber. The Panel shall be arranged for wall mounting as shown and shall have fittings properly labeled and ready for field connection to water, chemicals and discharge piping.

6. ELECTRICAL CONTROL PANEL

The electrical control panel shall be a NEMA 3R enclosure constructed of minimum 12 gauge Type 304 stainless steel and shall be adequately reinforced to support all components mounted therein without distortion, bowing or deflection. The electrical control panel shall be provided with a continuously hinged (vertical along left side) door with a heavy duty handle with a hasp for padlock and a 3 point catch mechanism.

Devices to be provided in the electrical control panel shall include, but may not be limited to the following:

- Power disconnect switch with system On indicator light.
- Water On/Off switch and On indicator light (controls water solenoid valve).
- A chemical system power switch with On indicator light (provides power to metering pump and automatic chemical pacing controls).

All push buttons, selector switches and indicator lights shall be mounted on the Electrical Control Panel door and shall be suitable in all respects for outdoor service. All other devices shall be mounted within the panel. A wiring harness from door mounted devices shall be provided to permit the door to open a full 180 degrees. All required devices shall be neatly arranged on the Electrical Panel door and within the panel, as specified, and detailed drawings and schematics shall be submitted for approval.

7. AUTOMATIC CHEMICAL PACING CONTROLS

Automatic chemical pacing controls shall be furnished to provide reliable automatic adjustment of the chemical feed rates of the chemical metering pump so that the pH of the spent chemical to drain is in the range of 7.5 to 8.0. It is the sole responsibility of the Caustic Scrubber manufacturer to design, select and furnish such automatic chemical pacing controls. The automatic chemical pacing controls and a complete description of operation including wiring diagrams and schematics shall be submitted to the Engineer for approval.

8. PIPING, VALVES, GAUGES, SWITCHES AND OTHER DEVICES

Piping for water and compressed air shall be copper pipe and fittings meeting the requirements of the Workmanship and Materials section headed "Miscellaneous Pipe and Fitting". All pipe and fittings for chemical service shall be of plastic pipe of the proper type and formulation for the chemical service employed.

Valves for water and compressed air shall be of the types shown and shall meet the requirements of the Workmanship and Materials section headed "Valves." Valves in chemical piplines shall be of plastic of the proper type and formulation for the chemical service employed.

Gauges, switches and all other devices shown or required shall be constructed of corrosion resistant materials such as plastic or stainless steel and shall be suitable in all respects for the service employed.

A liquid level switch shall be provided to shut down the NaOH chemical metering pump when liquid level in the drum is low and provide a low level alarm signal to a spare alarm point in the existing pumping station annunciator. The switch shall be an encapsulated reed type activated by a foamed polypropylene float mounted in a PVC float tube. The switch assembly shall be mounted in a corrosion resistant glass reinforced polypropylene housing.

9. BUTTERFLY DAMPER

Butterfly dampers shall be constructed of glass fiber reinforced polyester (FRP). Dampers shall be "Xerxes" 36-inch FRP damper with stainless steel shaft stubs and teflon shaft bushings and locking external position handle, or equal. Dampers shall be provided with hand wheel operators, or when mounted more than 6'0" above the slab, with chain wheel operators.

10. DEMISTER

All demister device constructed of plastic shall be installed in the duct work as shown. The demister shall be designed to effectively remove moisture from the air stream. Head loss through the demister device shall not exceed 0.2 inches water column. A one inch PVC drain connection shall be provided in the bottom of the duct as shown, and be piped to the existing drain system.

11. ORP CONTROLLER

A new ORP Controller shall be provided for the existing NaOCl Wet Scrubber Tower. The ORP controller and associated ORP probe shall continuously check the oxidant concentration of the scrubbing solution. The controller shall adjust the dc output of the existing system rectifier to produce the required amount of sodium hypochlorite solution. The ORP probe shall be equipped with continuous cleaning capacity. The ORP probe and controller shall be as manufactured by the Pacific Engineering and Production Co. of Nevada.

12. WATER SOFTENER

The new water softener shall be Culligan Duplex model HB-45 or equal. Supply piping to the new water softener shall be connected to the existing hard water supply as directed by the Engineer.

13. SINK AND FAUCET

Stainless steel sink shall have overall dimension of 25 inches long, 22 inches wide and 10 inches deep, single bowl compartment, as manufactured by the Elkay Manufacturing Company, or equal. The basin shall be constructed of Type 302, 20-gauge stainless steel, with not less than 1-1/2-inch wide rim on all four sides. All inside corners of sink compartment, vertically and horizontally, shall be rounded to 1-inch radius, and corner intersections shall be spherical coves. The bottom of the sink compartment shall be pitched to a waste opening in a manner assuring complete drainage. The waste outlet shall be a center outlet. Exposed surfaces of the sinks shall receive a No. 4 finish. Overflows, plugs, strainers, tailpieces and related items shall be included.

The water faucet shall be one handle deck mount type with goose neck Model LK-2085-13L as manufactured by Elkay or equal."

14. SPARE PARTS

The following spare parts shall be provided:

a. One complete set of V-belts for the air compressor.
b. One complete NaOH chemical metering pump.

15. MANUFACTURER'S REPRESENTATIVE

The services of a qualified representative of the various manufacturers shall be provided to inspect the installation of the equipment, make any necessary adjustments, place it in initial trouble-free operation, and instruct the operating personnel in its operation and maintenance.

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED JRP DCH DRAWN EAJ CHECKED JRP	APPROVED	⚠ 1 JAN 1987 JRP AS SHOWN NO. DATE APP REVISION

SCALE: 4 0 4 8 FT — 1/4" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIV. 4L-3 ODOR CONTROL EQUIPMENT FOR THREE PUMPING STATIONS

SUPPLEMENTARY DRAWING NO. SD-3

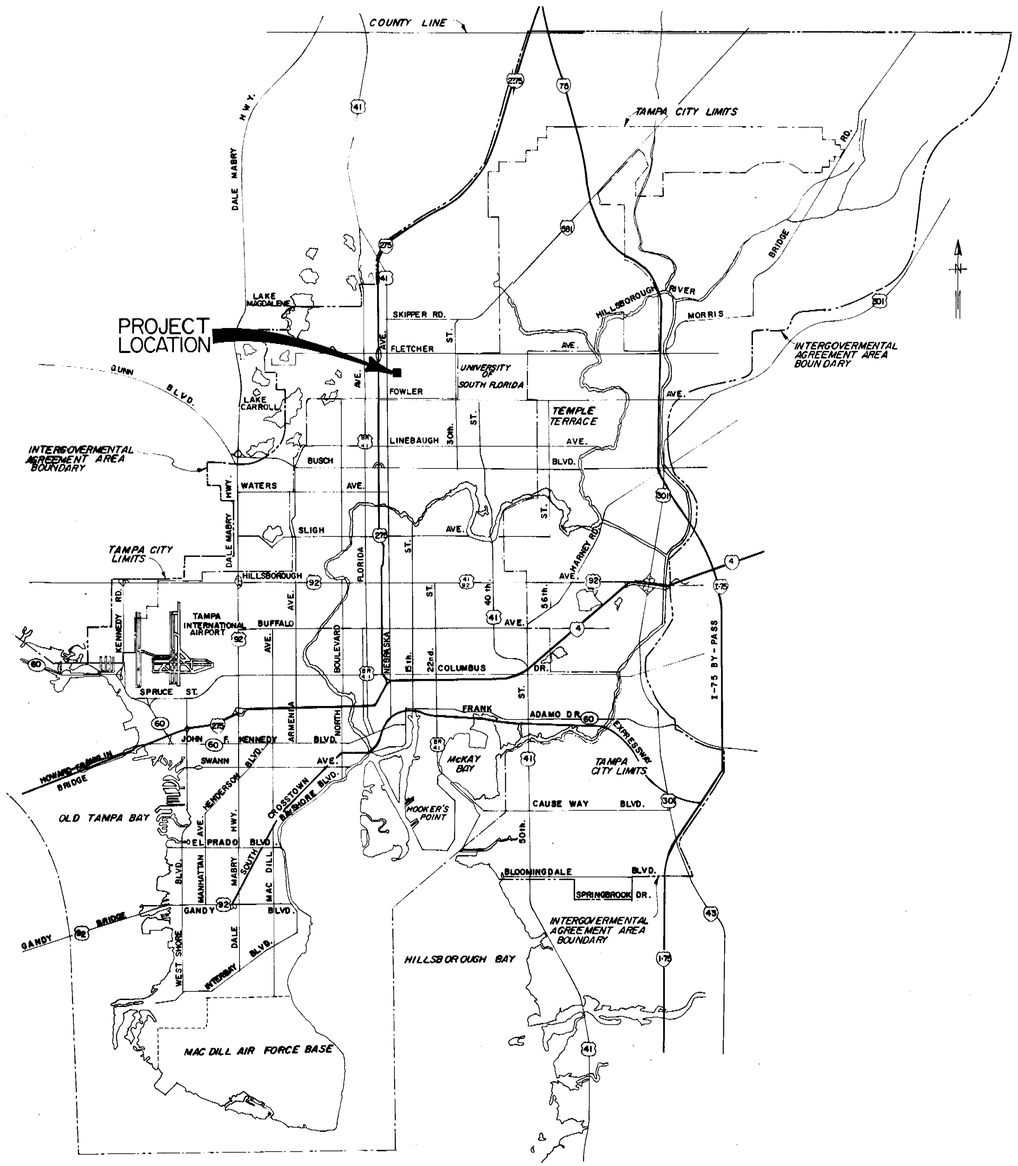
PROJ NO.
SHEET 2 OF 2
DATE JUNE, 1986 REV 1

304-25

AP 30179

CITY OF TAMPA

LOCATION MAP



DEPARTMENT of SANITARY SEWERS

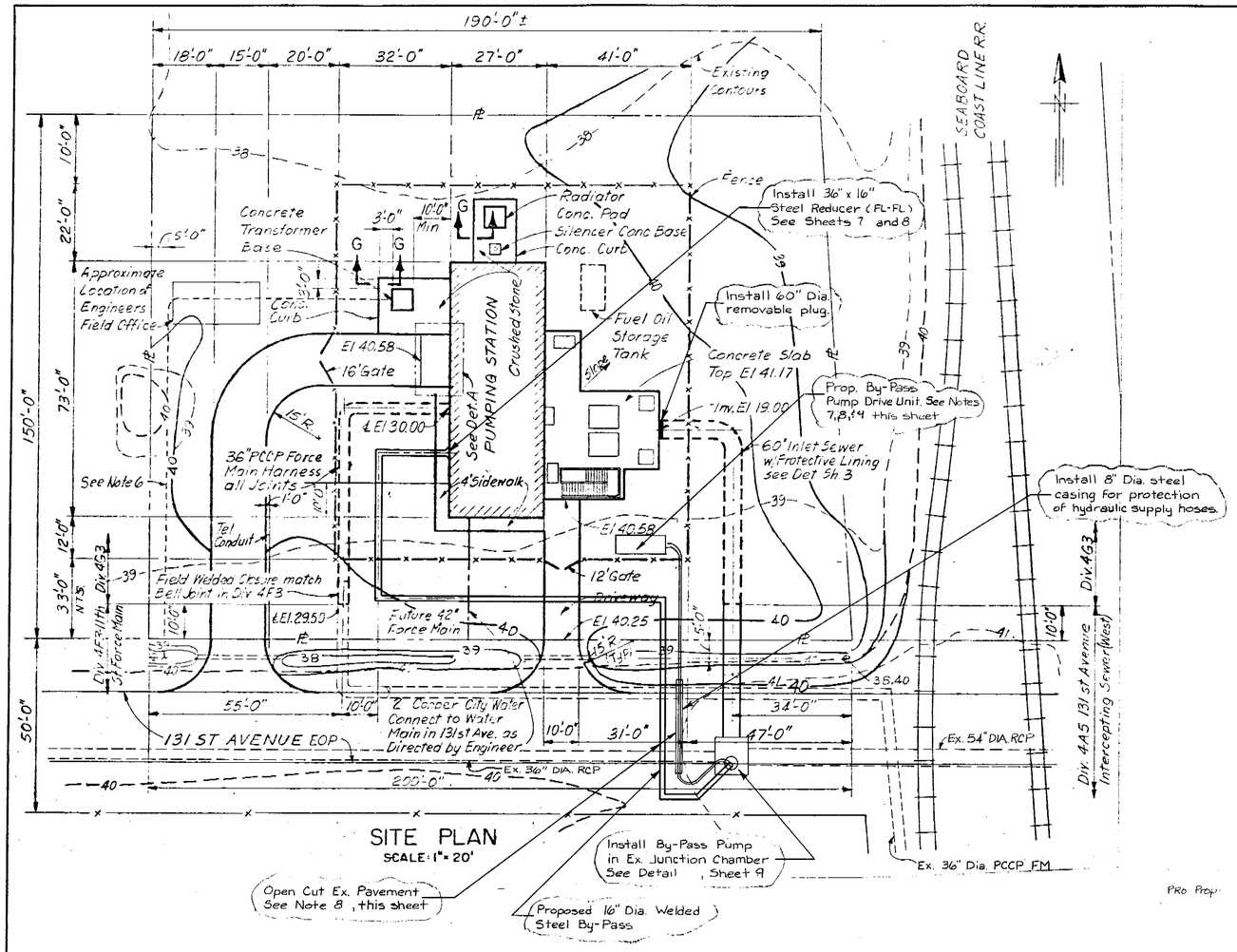
131st AVE. (UNIVERSITY)

PUMP STATION

WETWELL LINING

	ANDREW T. CRONBERG, P.E. # 32580 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: DRN: E. R. CKD: DW DATE: 7-13-87	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	NO. / DATE / REVISIONS 1 2 3 4 5	SCALE 1" = approximately 1½ miles	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA RENEWAL & REPLACEMENT	TITLE SHEET & LOCATION MAP	SHEET 1 OF 9

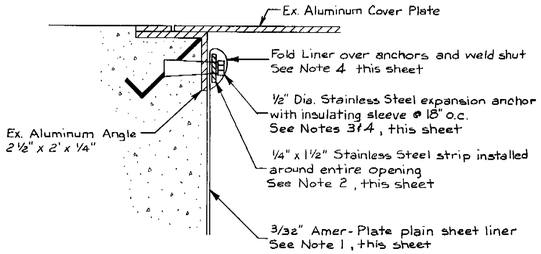
K & E 19-1253



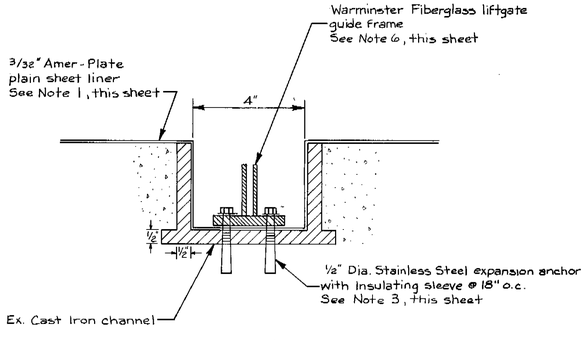
SITE PLAN
SCALE: 1" = 20'

NOTES:

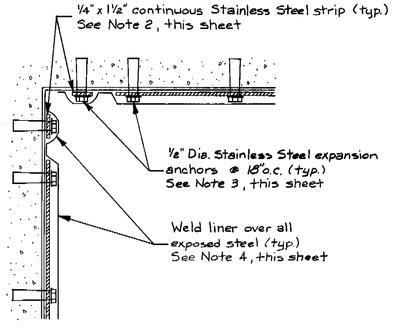
1. Proposed Liner shall be 3/32" thick "Amer-Plate" plain sheet liner as manufactured by Ameron or approved equal. Installation of liner shall be performed in strick conformance with manufactures instructions for "Installing Plain Sheet Amer-Plate" unless otherwise approved by the City of Tampa, Sanitary Sewer Design Division.
2. Type 316 Stainless Steel strips 1/4" x 1 1/2" shall be installed as shown on drawings for support of Amer-Plate Liner.
3. Mechanical Anchors shall be, type 316 Stainless Steel, 1/2" Dia. Hilti heavy duty expansion anchors model HSL-M8 or approved equal. Anchors shall be installed no greater than 18" o.c. and in strick conformance with manufactures specifications. If at any time the steel reinforcement of the Pump station structure is hit during the installation of expansion anchors, the hole is to be filled with epoxy and the anchor location shifted to avoid the steel reinforcement. When installing anchors through existing aluminum angles or cast iron stop log channels insulating sleeves shall be used to prevent contact of dissimular metals.
4. All Stainless Steel strips and anchor bolts shall be welded over with Amer-plate liner to prevent entry of water and gases.
5. Contractor will be responsible for proper preparation of concrete and metal surfaces prior to installation of Amer-Plate liner as recommended by liner manufactuer.
6. Lift gate grooves to be installed in existing channels shall be surface mounted type as manufactured by Warminster Fiberglass or approved equal. Contracter shall supply to the Sewer Department 5' Warminster Fiberglass lift gates or approved equal. Exact size of lift gate shall be determined at time of construction.
7. Contractor will be responsable for by-passing of sewage as necessary in order to install lining. Contractor may submit, for approval, alternate schemes of by-pass pumping other than that shown on plans. Average Daily Flow = 4.5 mgd @ 17.6 Ft. of Head Peak Flow = 8 mgd @ 22.7 Ft. of Head
8. Contractor must maintain traffic at all times. All pavement disturbed by construction shall be replaced with 12" limerock compacted to 98% modified proctor and 2" of Type SI asphalt.
9. Contractor will be required to have a diesel powered back up pump on-site during by-pass pumping



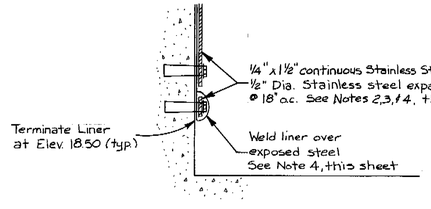
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

ANDREW T. CRONBERG, P.E. #32560
CHIEF ENGINEER

DES:
DRN:
CKD: DW

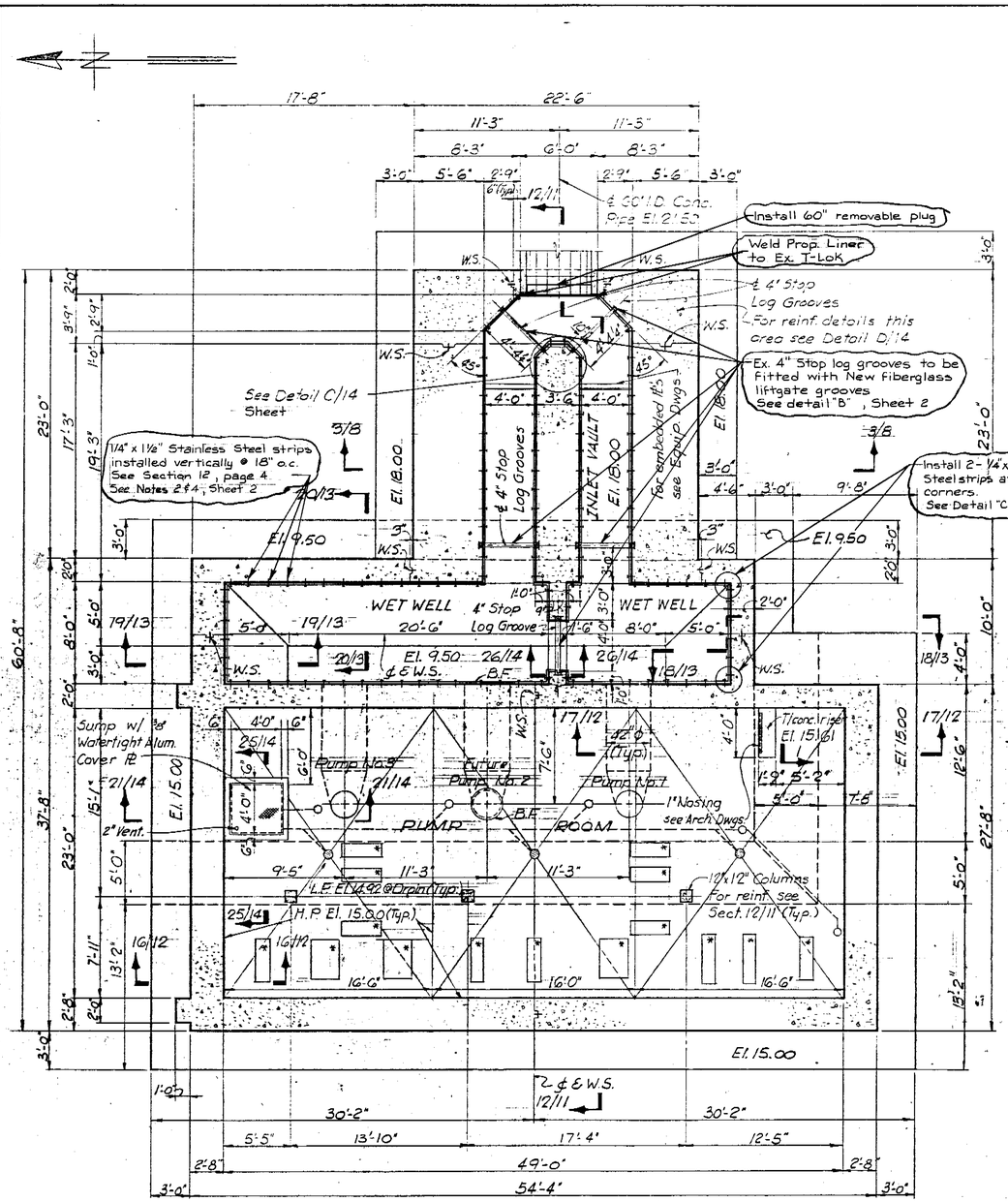
APPROVED BY:
JACK P. MORRISS, P.E.
DIRECTOR

SCALE
20 0 20 40 FT — 1" = 20'
4 0 4 8 FT — 1/4" = 1'-0"
1 0 1 2 3 4 5 FT

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131ST AVENUE PUMPING STATION

EQUIPMENT
SITE PLAN
TOP FLOOR PLAN

PROJ. NO. S 202-70-30D-7-4G3
SHEET 2 OF 9



* Size and location of equipment pods and dimensions shown thus (*) to be determined after selection of equipment. See also Equipment Dwgs.

SECTIONAL PLAN AT EL. 22.00

Scale: 3/16" = 1'-0"

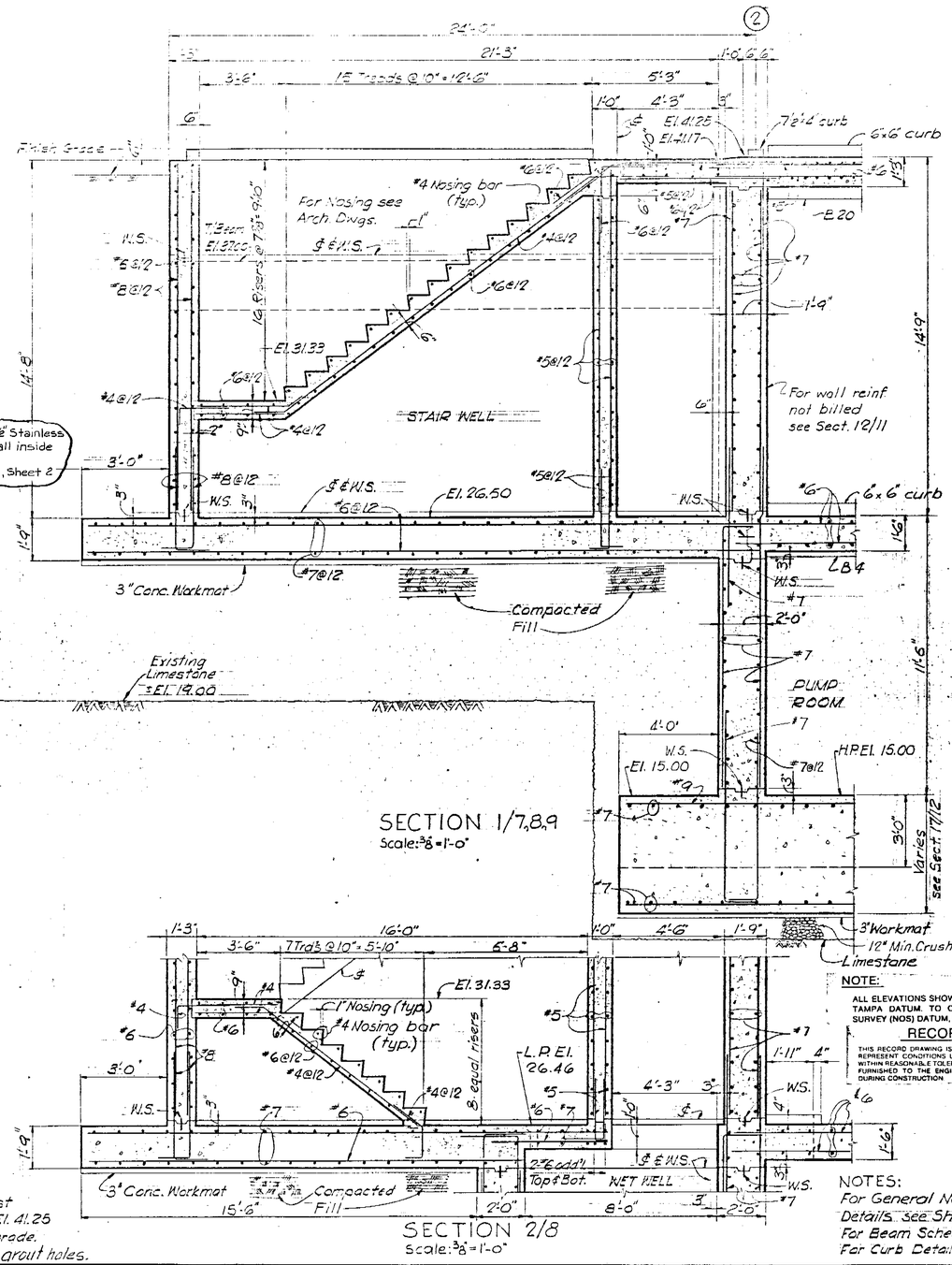
T/conc. El. as noted or shown

℄ denotes Construction Joint

W.S. denotes Waterstop

NOTES:

1. The Substructure is stable against hydrostatic uplift with floor at El. 41.25 in place with ground water at grade.
2. See AD 3-1 for location of foundation grout holes.



NOTE:

ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING

THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES. BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION

NOTES:

For General Notes and Typical Details, see Sh. 15 & 16

For Beam Schedule see Sh. 9

For Curb Details see Arch. Dwgs.

These record drawings are used for identifying those areas of the Wet Well to be lined.

DV 7-13-87

ANDREW T. CRONBERG, P.E. # 32560
CHIEF ENGINEER
DEPARTMENT of SANITARY SEWERS

APPROVED BY:

JACK P. MORRISS, P.E.
DIRECTOR
DEPARTMENT of SANITARY SEWERS

SCALE

4 0 4 8 12 FT 3/16" = 1'-0"

0 1 2 3 4 5 6 7 FT 3/8" = 1'-0"

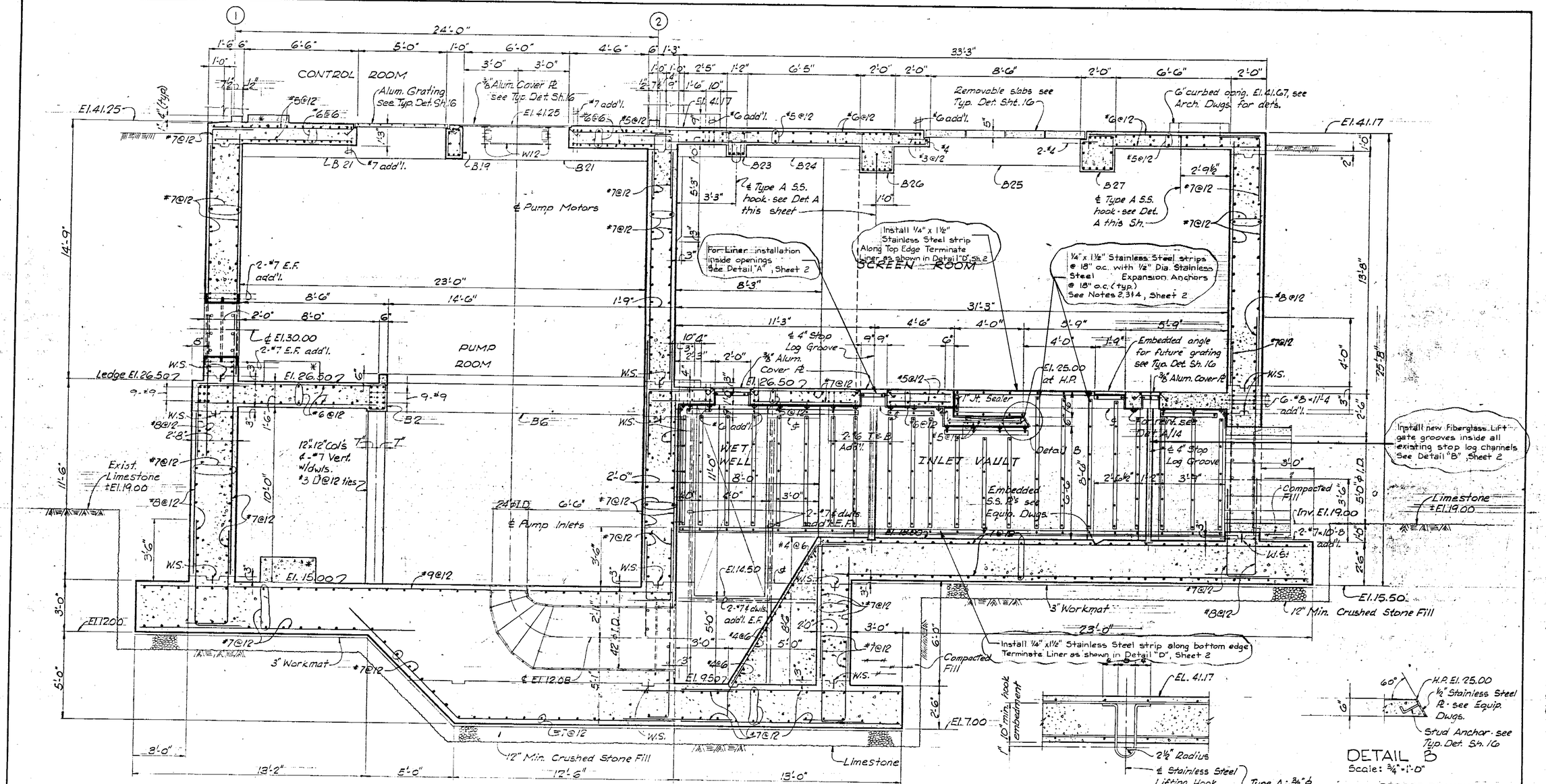
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

STRUCTURAL LOWER FLOOR PLAN SECTIONS

PROJ. NO. S202-70-30D-7-4G3

SHEET 3 OF 9

DATE AUGUST, 1972 REV. 0



SECTION 12/7,8,9
Scale: 3/8" = 1'-0"

DETAIL A/9
Scale: 1" = 1'-0"

DETAIL B
Scale: 3/4" = 1'-0"

* Size and location of equipment pads and dimensions shown thus (*) to be determined after selection of equipment.

RECORD DRAWING

THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

NOTE:

ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

NOTES:
For General Notes and Typical Details see Sh. 15 & 16
For Beam Schedule see Sh. 9

These record drawings are used for identifying those areas of the Wet Well to be lined. DW 7-13-84

ANDREW T. CRONBERG, P.E. #32560
CHIEF ENGINEER
DEPARTMENT of SANITARY SEWERS

APPROVED BY:
JACK P. MORRISS, P.E.
DIRECTOR
DEPARTMENT of SANITARY SEWERS

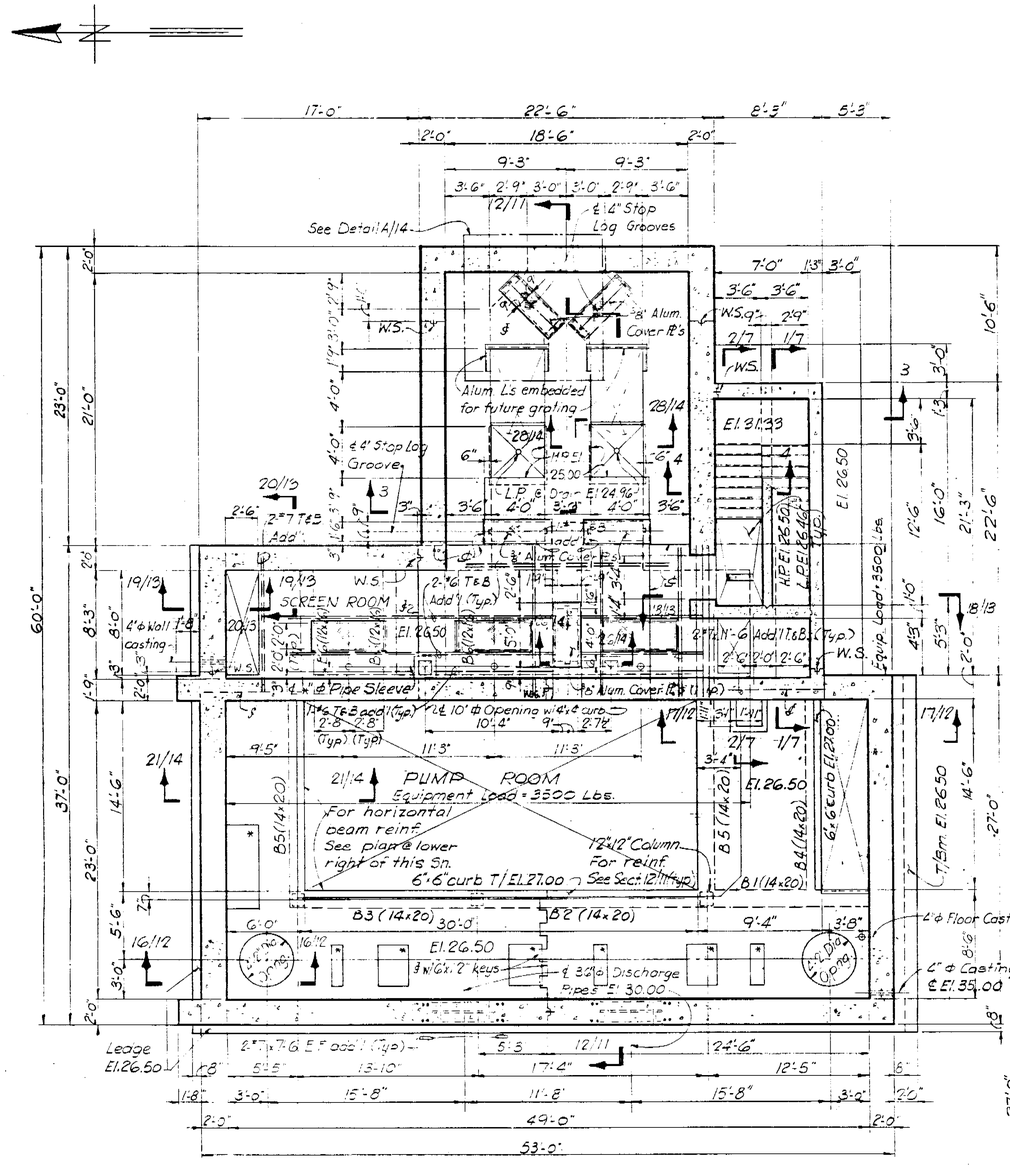
SCALE
1 0 1 2 3 4 5 6 7 FT
3/8" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

STRUCTURAL SECTION

PROJ. NO. S202-70-30D-7-4G3
SHEET 4 OF 9
DATE AUGUST, 1972 | REV. 0.

173-4-2A



Live Load = 150 P.S.F. unless otherwise shown

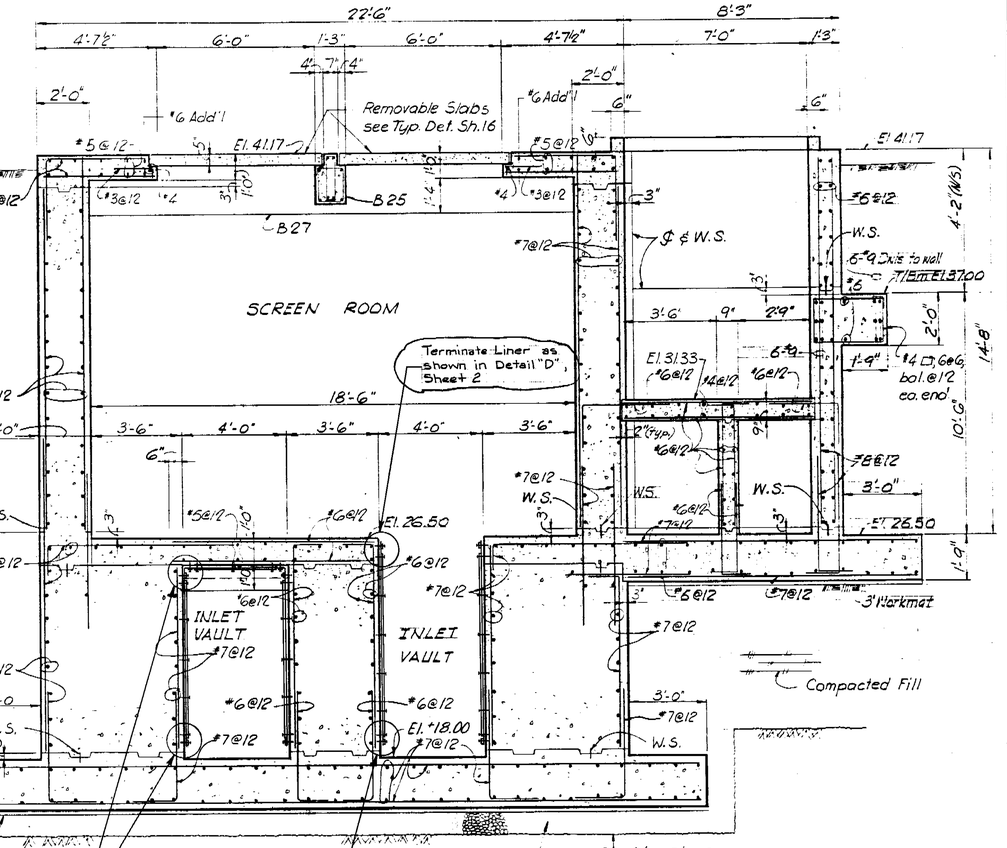
SECTIONAL PLAN AT EL. 34.00

Scale: 3/16" = 1'-0"

T/ conc. El. 26.50 unless shown or noted

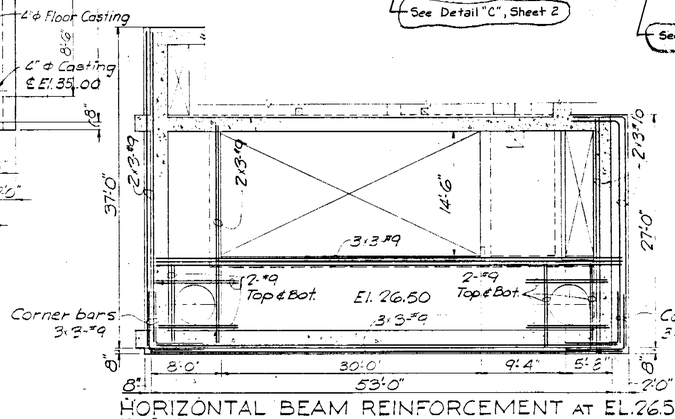
℄ denotes Construction Joint

* Size and location of equipment pads and dimensions shown thus (*) to be determined after selection of equipment. See also Equip. Dwgs



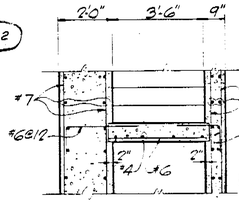
SECTION 3/7,8,9

Scale: 3/8" = 1'-0"



HORIZONTAL BEAM REINFORCEMENT AT EL. 26.50

Not Scale



NOTE:

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SECTION 4

Scale: 3/8" = 1'-0"

RECORD DRAWING

THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

NOTES:

For General Notes and Typical Details see Sheets 15 & 16

For Beam Schedule see Sh. 9

For Curb Details see Arch. Dwgs.

These record drawings are used for identifying those areas of the Wet Well to be lined.

DW 5-13-83

ANDREW T. CRONBERG, P.E. # 32660
CHIEF ENGINEER
DEPARTMENT of SANITARY SEWERS

APPROVED BY:

JACK P. MORRISS, P.E.
DIRECTOR
DEPARTMENT of SANITARY SEWERS

SCALE
4 0 4 8 12 FT 3/16" = 1'-0"
1 0 1 2 3 4 5 6 7 FT 3/8" = 1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

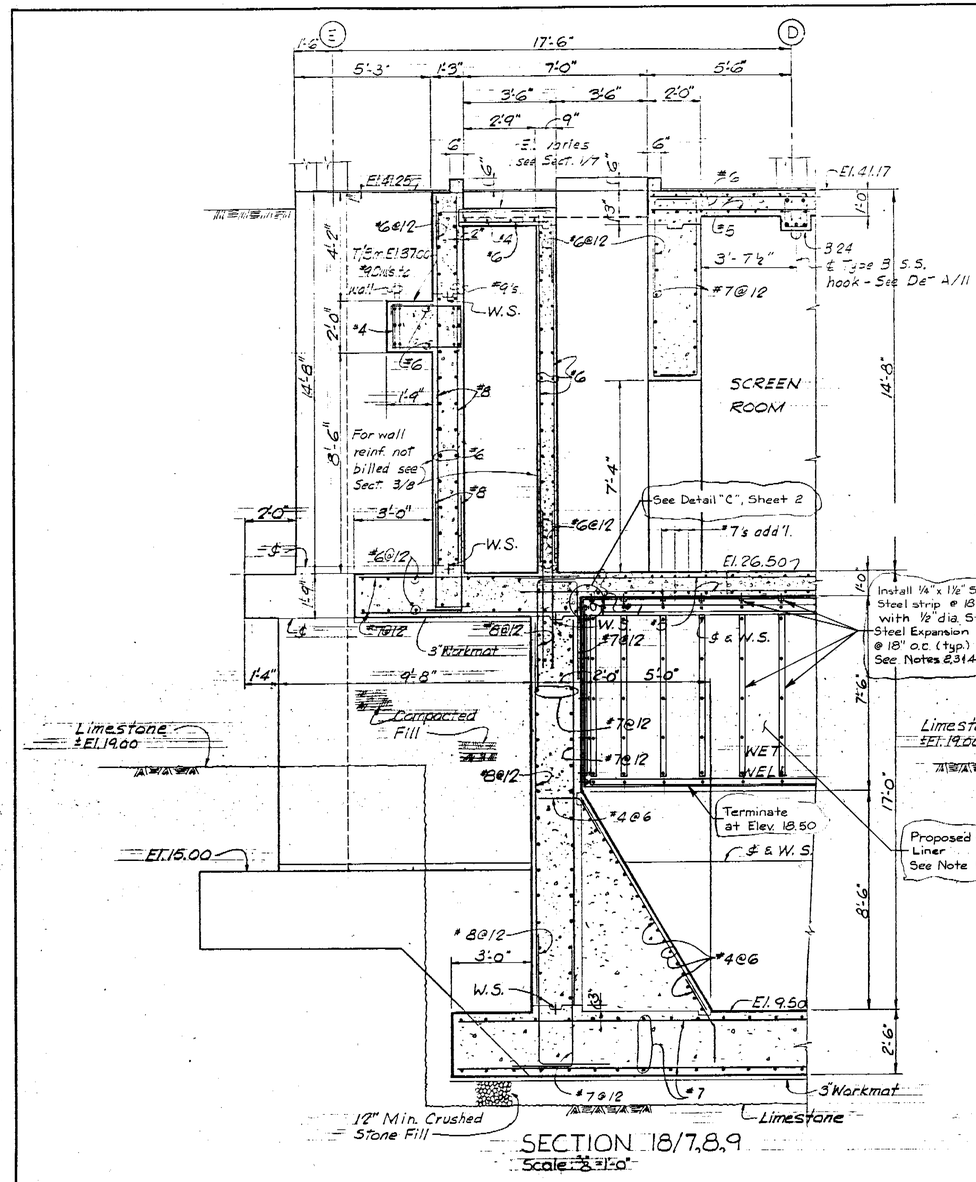
STRUCTURAL INTERMEDIATE FLOOR PLAN SECTIONS

PROJ. NO. S202-70-30D-7-4G3

SHEET 5 OF 9

DATE AUGUST, 1972 | REV. 0

173-45A



NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

NOTE:
For General Notes and Typical Details see Sheets 5 & 6
For Beam Schedule see Sh. 9

RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION

These record drawings are used for identifying those areas of the Wet Well to be Tined.
DW 9-13-84

ANDREW T. CRONBERG, P.E. #32560
CHIEF ENGINEER
DEPARTMENT of SANITARY SEWERS

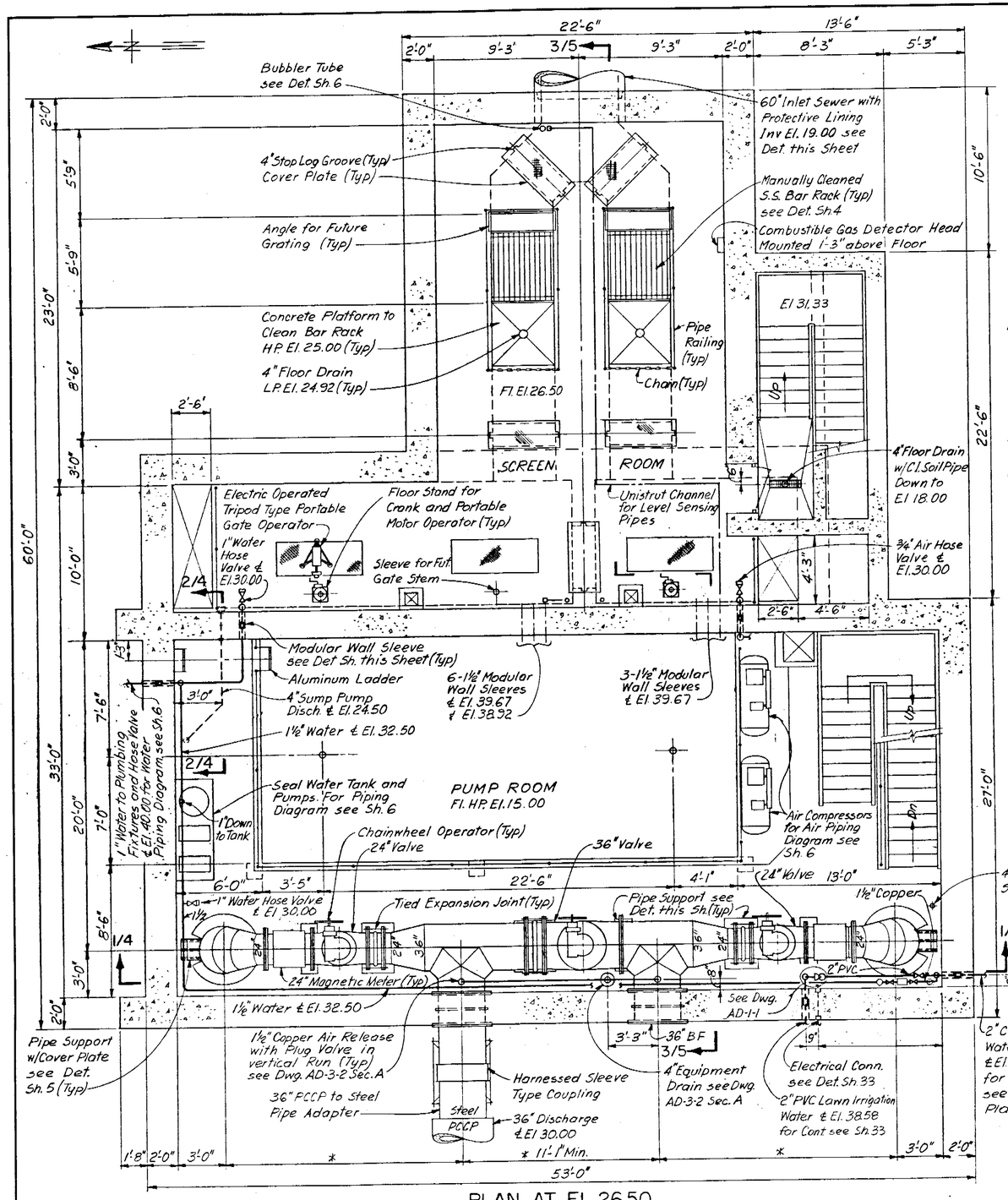
APPROVED BY:
JACK P. MORRISS, P.E.
DIRECTOR
DEPARTMENT of SANITARY SEWERS

SCALE 0 1 2 3 4 5 6 7 FT 3/8"=1'-0"

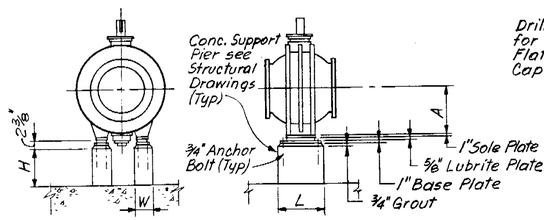
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3
131 ST. AVENUE PUMPING STATION

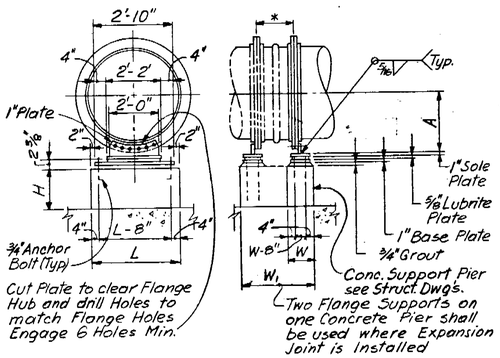
STRUCTURAL SECTIONS

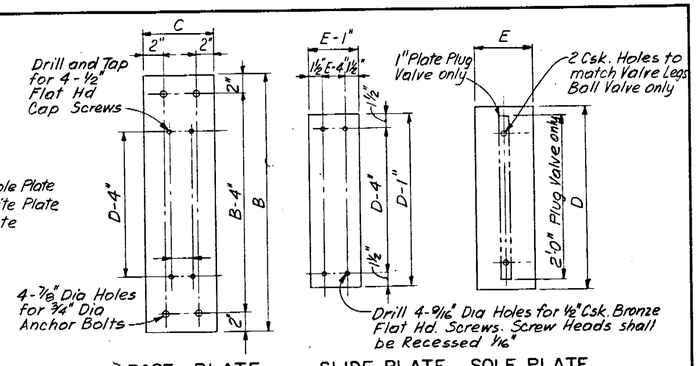
PROJ. NO. S 202-70-30D-7-4G3
SHEET 6 OF 9
DATE AUGUST, 1972 REV. 0



PLAN AT EL. 26.50
SCALE: 1/4"=1'-0"







BALL VALVE SUPPORT DIMENSIONS

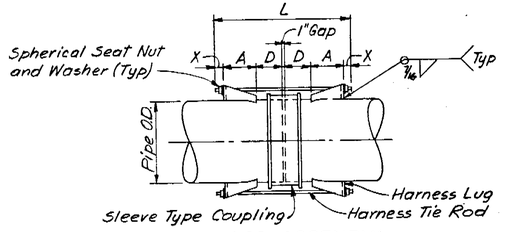
Valve size	& El	Floor El	Location	A	B	C	D	E	W	W1	L	H
24"	30.00	26.50	Top Disch. Header	2'-0⅛"	1'-10⅜"	6½"	1'-2⅝"	5½"	1'-0"	–	2'-2⅝"	1'-2½"
30"	18.50	15.00	Low Disch. Hdr. & Pumps	2'-5¾"	2'-1⅛"	7½"	1'-5⅛"	6½"	1'-0"	–	2'-5⅛"	8⅞"
36"	30.00	26.50	Top Disch. Header	2'-10¾"	2'-3¾"	7½"	1'-7¾"	6½"	1'-0"	–	2'-7¾"	3⅛"

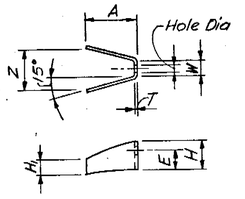
PLUG VALVE AND EXP. JOINT SUPPORT DIMENSIONS — Deleted see DWG. AD-3-3

24"	30.00	26.50	Top Disch. Header	1'-6"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-8⅝"
30"	18.50	15.00	Low Disch. Hdr. & Pumps	1'-9⅜"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-5¼"
36"	18.50	15.00	Low Disch. Hdr. & Pumps	2'-1"	2'-10"	10"	2'-2"	10"	–	*	3'-2"	1'-1⅝"
36"	30.00	26.50	Top Disch. Header	2'-1"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-1⅝"

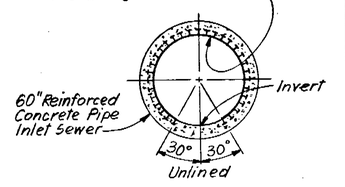
NOTES:
1. * Dimensions shall be determined after Final Selection of Equipment.
2. Plug Valves, Ball Valves or Cone Valves may be used. Ball Valves shall have Single Seats unless shown otherwise.
3. For Cone Valve Support Details see Sh. 5

PIPING SUPPORT DETAILS
NOT TO SCALE





Protective Lining shall cover Inside Pipe Walls over an Arc of 300° Lining Connections to Adjacent Pipe shall Conform to the Recomendations of the Lining Manufacturer

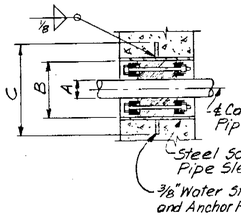


60" INLET SEWER PROTECTIVE LINING DETAIL
NOT TO SCALE

TYPE A HARNESSED SLEEVE TYPE COUPLING JOINT FOR STEEL PIPE - SHEDULE

Nom. Pipe Size	Wall Thickness	OD of Pipe	Test Press. PSIG	Middle Ring		Harness Tie Rod		Harness Lug Min. Dimensions								Coupling Service
				Length	Thkns	No.	Dia	X	L	A	W	Z	T	E	H	H1	D	Hole	
36"	⅜"	36.75	110	10"	½"	2	1¾"	2¼"	48¾"	10⅛"	3⅞"	8⅝"	½"	4"	5⅞"	2½"	11⅛"	1⅜"	Raw Sewage

HARNESSED SLEEVE TYPE COUPLING JOINT DETAILS
NOT TO SCALE



MODULAR WALL SLEEVE SEALING SHEDULE

SERVICE	NOM. SIZE	PIPE O.D. 'A'	NOM. SLEEVE	SLEEVE I.D. 'B'	LINK SEAL MODEL	LINKS PER SEAL	C	CARRIER PIPE MATERIAL
Lawn Irrigation Supp.	2"	2.375"	4"	4.026"	LS 300 C	6	9	P.V.C.
Level Sensing	⅜"	0.5"	1½"	1.610"	LS 200 C	3	7"	Copper
Air	¾"	0.875"	2"	2.067"	LS 200 C	4	7"	Copper
Water Hose Pipe	1"	1.125"	2½"	2.469"	LS 200 C	5	7"	Copper
Fuel Oil Return	1"	1.315"	2½"	2.469"	LS 200 C	5	7"	Steel
Fuel Oil Supply	2"	2.375"	4"	4.026"	LS 300 C	6	9"	Steel
City Water Main	2"	2.125"	3½"	3.548"	LS 300 C	5	8½"	Copper

MODULAR WALL SLEEVE SEALING DETAIL
NOT TO SCALE

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

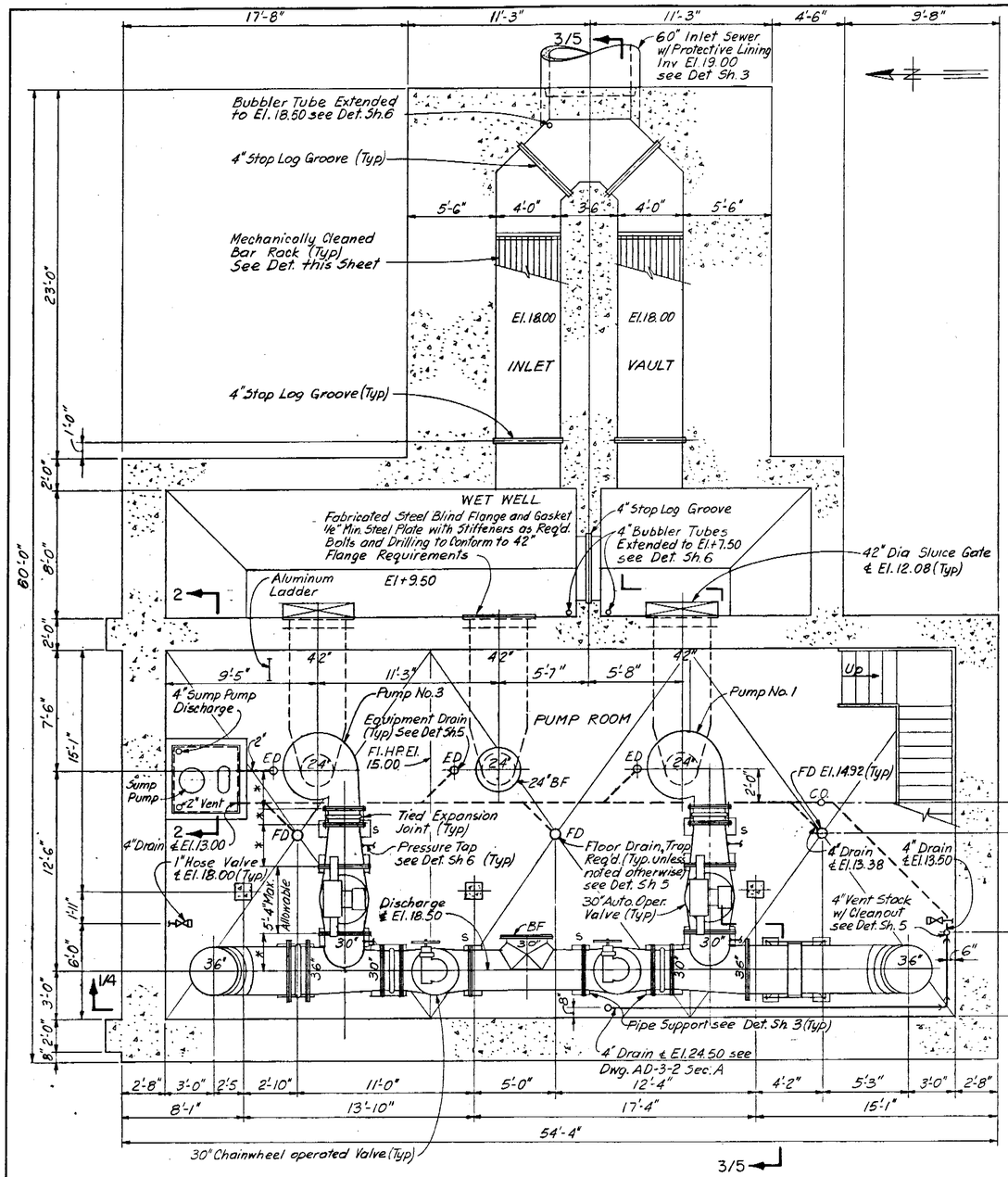
RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

SCALE
4 0 4 8 FT 1/4"=1'-0"

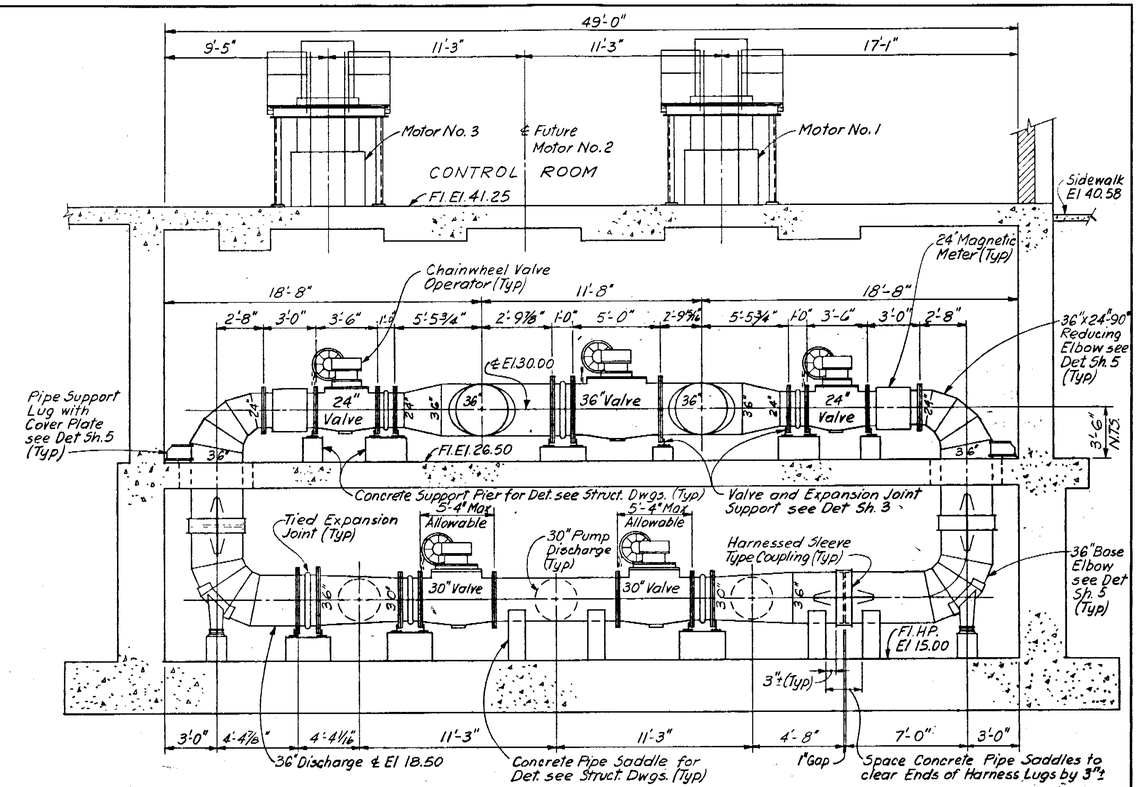
CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4G3

EQUIPMENT
INTERMEDIATE FLOOR PLAN
DETAILS

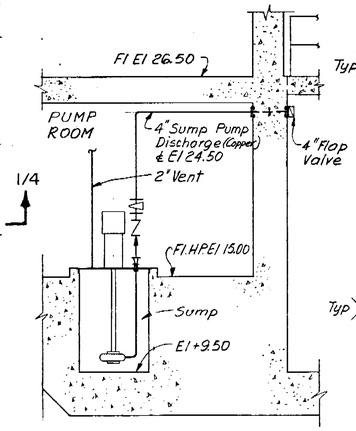
PROJ. NO. S 202-70-30D-7-4G3
SHEET 7 OF 9



PLAN AT EL 15.00
SCALE: 1/4"=1'-0"



SECTION 1/3,4
SCALE: 1/4"=1'-0"



SECTION 2/3,4
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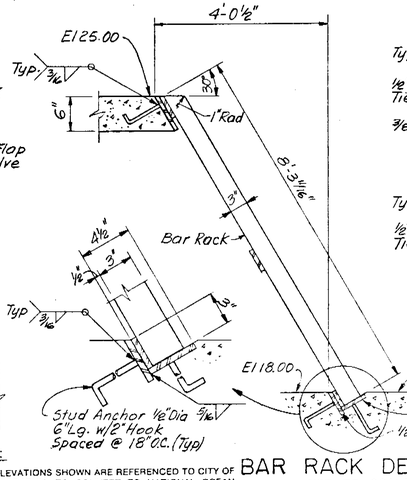
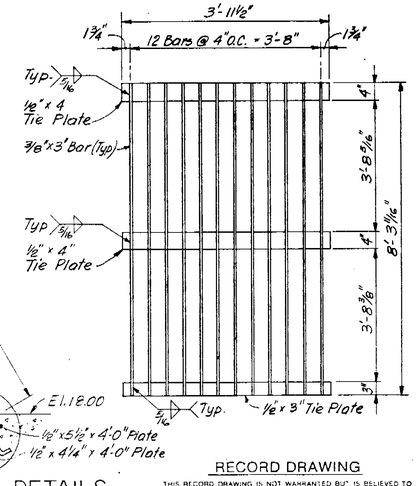




BAR RACK DETAILS
NOT TO SCALE

NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING
THIS RECORD DRAWING IS NOT WARRANTED, BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

SCALE
4 0 4 8 FT
1/4"=1'-0"

CITY OF TAMPA, FLORIDA
SEWAGE DISPOSAL SYSTEM
DIVISION 4&3
131 ST. AVENUE PUMPING STATION

EQUIPMENT
LOWER FLOOR PLAN
SECTIONS AND DETAILS

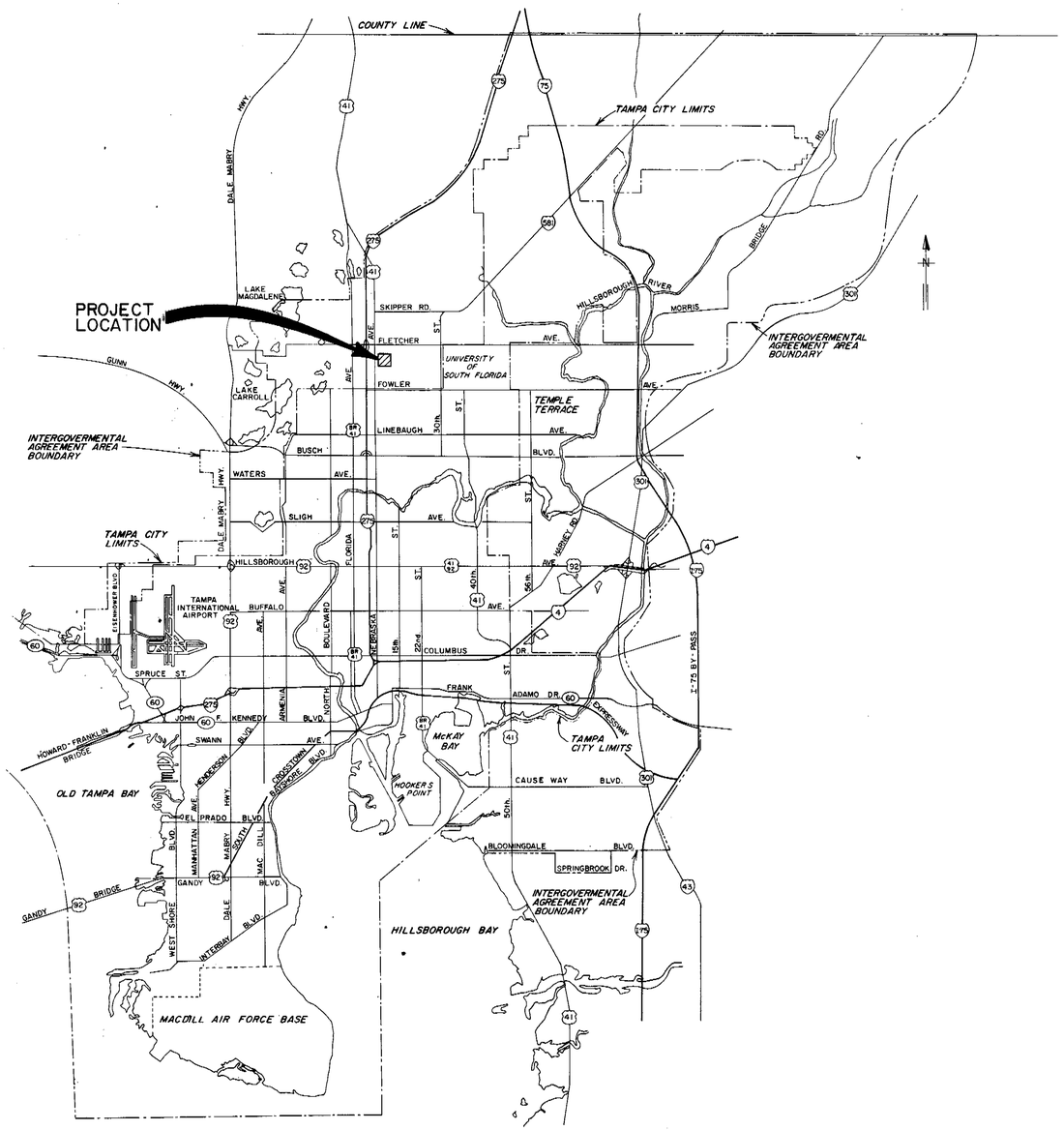
PROJ. NO. S 202-70-30D-7-4&3
SHEET 8 OF 9
DATE AUGUST, 1972 REV. 1

173-7A

A-F 30179

CITY OF TAMPA

LOCATION MAP



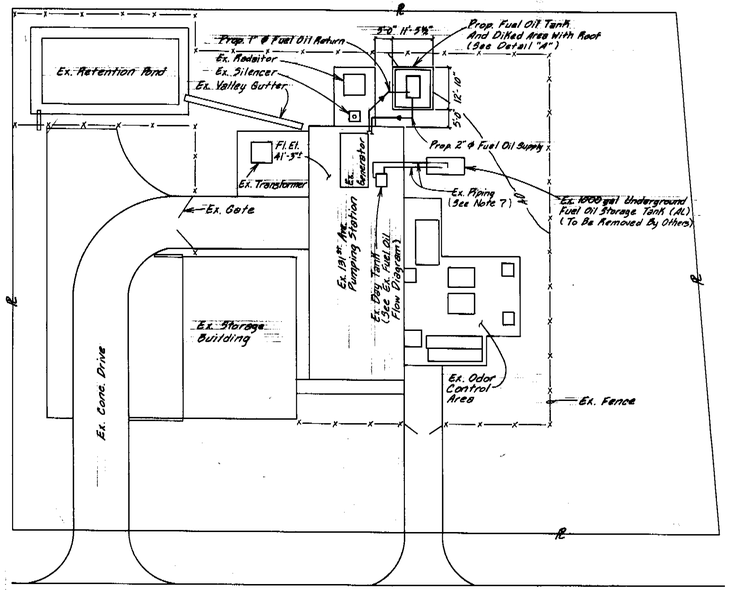
CITY OF TAMPA FLORIDA • ORGANIZED JULY 15 1887 • MASCOTTE

DEPARTMENT of SANITARY SEWERS
PLANS
FOR THE CONSTRUCTION OF
FUEL OIL TANK
REPLACEMENT for
131st AVE. PUMPING STATION
CONTRACT # 8-161

	ANDREW T. CRONBERG, P.E. # 32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: A.H. DRN: Elo/RAR CKD: JW DATE: 7-7-80	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	No. DATE REVISIONS 1 2 3 4 5	SCALE 1" = approximately 1½ miles	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA RENEWAL & REPLACEMENT	TITLE SHEET & LOCATION MAP	SHEET 1 OF

A-E 9-253

173-73e



SITE PLAN

SCALE 1" = 20'

NOTES

1. The Fuel Oil Tank, Diked Area, Piping and Venting Have Been Designed and Shall Be Fabricated and Constructed In Full Compliance With NFPA 30-87 As Enforced By the City of Tampa Fire Marshal And With DER 17-61. The Atmospheric Tank Will Store No. 2 Diesel Fuel Oil Which Is An NFPA Class II Combustible Liquid With A Minimum Rated Flash Point of 125°F.

2. The Tank Shall Be Built, Installed and Bear The Seal of UL142-1981, "Standard For Steel Aboveground Tanks For Flammable and Combustible Liquids." The Saddles Shall Be Continuously Welded To The Tank At The Factory To Prevent The Intrusion of Any Moisture Between The Two Surfaces. Stitch Welding Shall Not Be Permitted. The Tank and Saddles Shall Be Field Coated Per Specifications Prior To Anchoring.

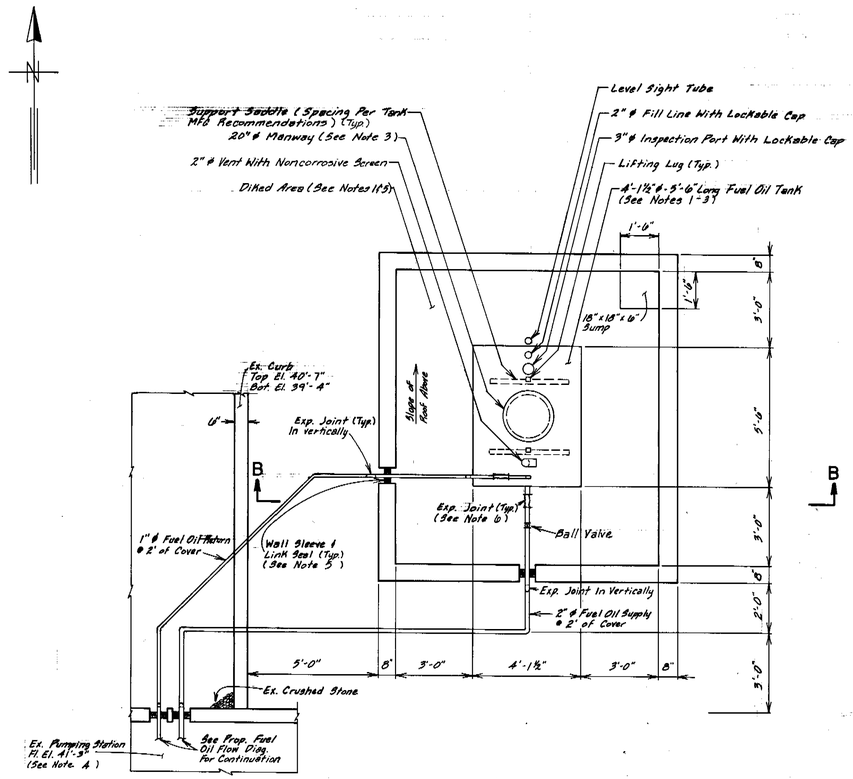
3. The Tank Shall Be Provided With A Devise That Will Relieve Excessive Internal Pressure Caused By Exposure Fires Per NFPA 30-87-2-2.5, "Emergency Relief Venting For Fire Exposure For Aboveground Tanks". Such Device May Be A Self-Closing Manhole Cover, or One Using Long Bolts That Permit The Cover To Lift Under Internal Pressure, or An Additional or Larger Relief Valve or Valves.

4. The Finished Top of Tank Elevation Is Critical To The Installation To Prevent Siphoning To The Fuel Injectors. The Contractor Shall Establish The Floor Elevation of The Pumping Station As The Benchmark And Add 4'-0" To This To Establish The Top of Tank Elevation. After Tank And Saddle Selection, Shop Drawings Shall Be Submitted Detailing Exact Elevations For The Top of Tank, Top of Slab And Ground Elevation Assuming That The Pumping Station Slab Elevation Is 41'-3".

5. The Contractor Shall Submit Shop Drawings To Make The Link Seal Wall Penetrations Liquid Tight And Shall Fill Void Spaces With Non-Shrink Grout. The Pumping Station Penetration Area Shall Be Spot Painted To Match Existing In Color And Texture. The Top Slab Shall Be Sloped A Minimum of 1% Towards The Sump.

6. Piping Shall Be Schedule 40 Black Steel, Shall Be Hot Tape Wrapped Where Buried And Painted Where Exposed. Flanged Flexible Expansion Joints With S.S. Shrouds Shall Be Provide As Shown To Protect Against Excessive Stresses Arising From Settlement, Expansion or Contraction.

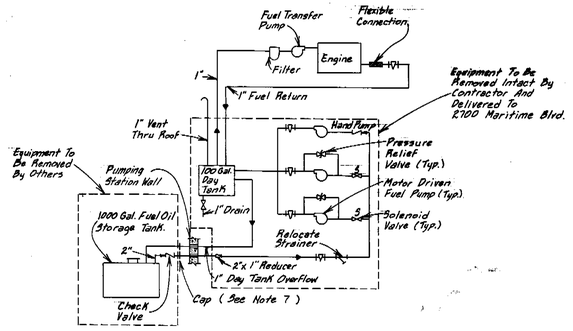
7. The Existing Piping From The Day Tank To The Buried Tank Is Routed Through The Floor Slab. The Piping Shall Be Ground 1" Below The Floor And Filled With A Flowable Non-Shrink Grout. Buried Piping Shall Be Terminated And Capped As Close As Possible To The East Wall of The Pumping Station.



DETAIL A

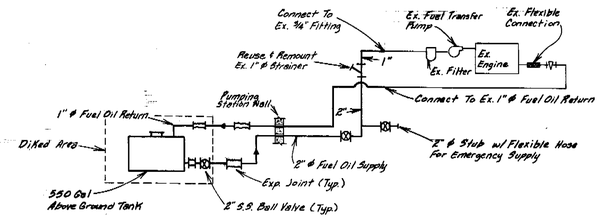
PLAN AT EL. 46' - 3"

SCALE 3/8" = 1'-0"



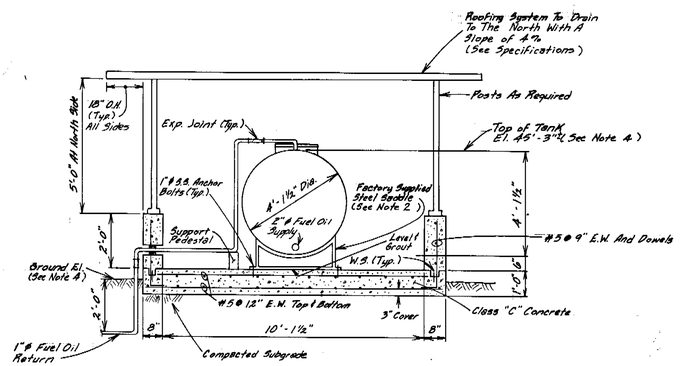
EXISTING FUEL OIL FLOW DIAGRAM

NOT TO SCALE



PROPOSED FUEL OIL FLOW DIAGRAM

NOT TO SCALE



SECTION B-B

SCALE 3/8" = 1'-0"

WORK ORDER # 4171

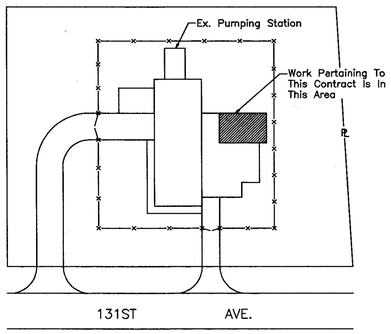
ANDREW T. CRONBERG, P.E. #32560 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: A.H. DRN: R.A.R. CKD: DW DATE: 7-7-88	APPROVED BY JACK P. MORRISS, P.E. DIRECTOR DEPARTMENT of SANITARY SEWERS	No. DATE REVISIONS 1 2 3 4 5	SCALE AS SHOWN	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA

FUEL OIL TANK REPLACEMENT
131st AVE. PUMPING STATION

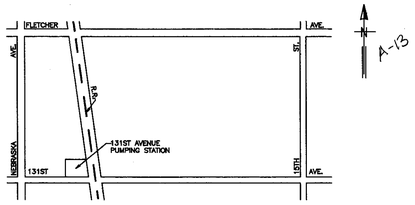
SHEET 2 OF

173-73f

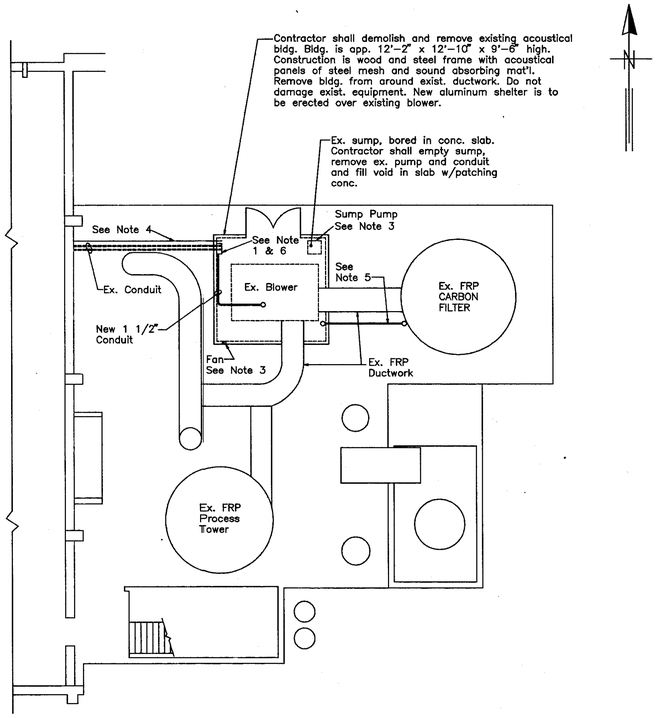
K & E 19-1263



SITE PLAN



PROJECT LOCATION



PLAN – EXISTING ODOR CONTROL FACILITIES AT 131ST AVE. PUMPING STATION

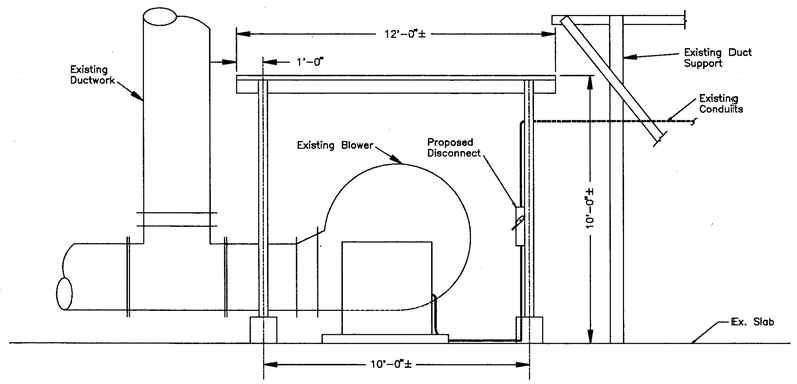
SCALE: 1/8" = 1'-0"

ELECTRICAL NOTES

1. Existing blower control cabinet is to be removed.
2. Existing control conduit shall be plugged at LB, wire of sufficent length for future pulls shall be left in LB. Wire ends shall be taped.
3. Enclosure vent fan and sump and the receptacle and conduit for them shall be removed.
4. Air pipe shall be capped immediately outside of the pump station, and all exterior air equipment and piping shall be removed.
5. Remove 3/4" conduit with 1–#10 wire that runs to carbon filter (process tank).
6. Install a new; 100 AMP, stainless steel enclosed; circuit breaker type disconnect.
7. Existing blower motor is 40hp, 460 volt, 47 fla.
8. The existing motor feeder conduit and conductors may be reused if found in good condition and in conformance with the 1987 NEC–Article 430; otherwise, new equipment shall be provided and installed. No splices shall be allowed in conduits. A minimum #8AWG, green, equipment grounding conductor shall be provided and installed.

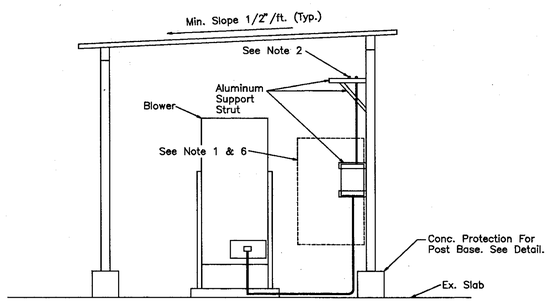
———— Conduit to be Installed

- - - - - - - - - - Existing Conduit



PROPOSED ALUMINUM SHELTER – NORTH ELEVATION

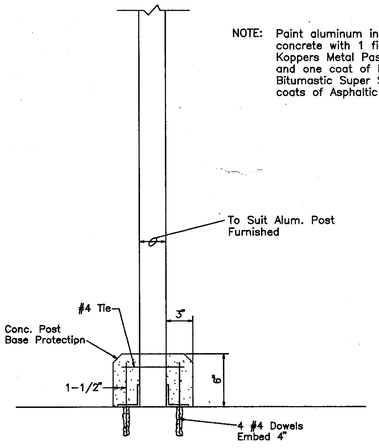
SCALE: 3/8" = 1'-0"



PROPOSED ALUMINUM SHELTER EAST ELEVATION

SCALE: 3/8" = 1'-0"

NOTE: Paint aluminum in contact with concrete with 1 field coat of Koppers Metal Passivator No. 40 and one coat of Koppers Bitumastic Super Service or two coats of Asphaltic varnish.



POST BASE DETAIL

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

304-13

304-13

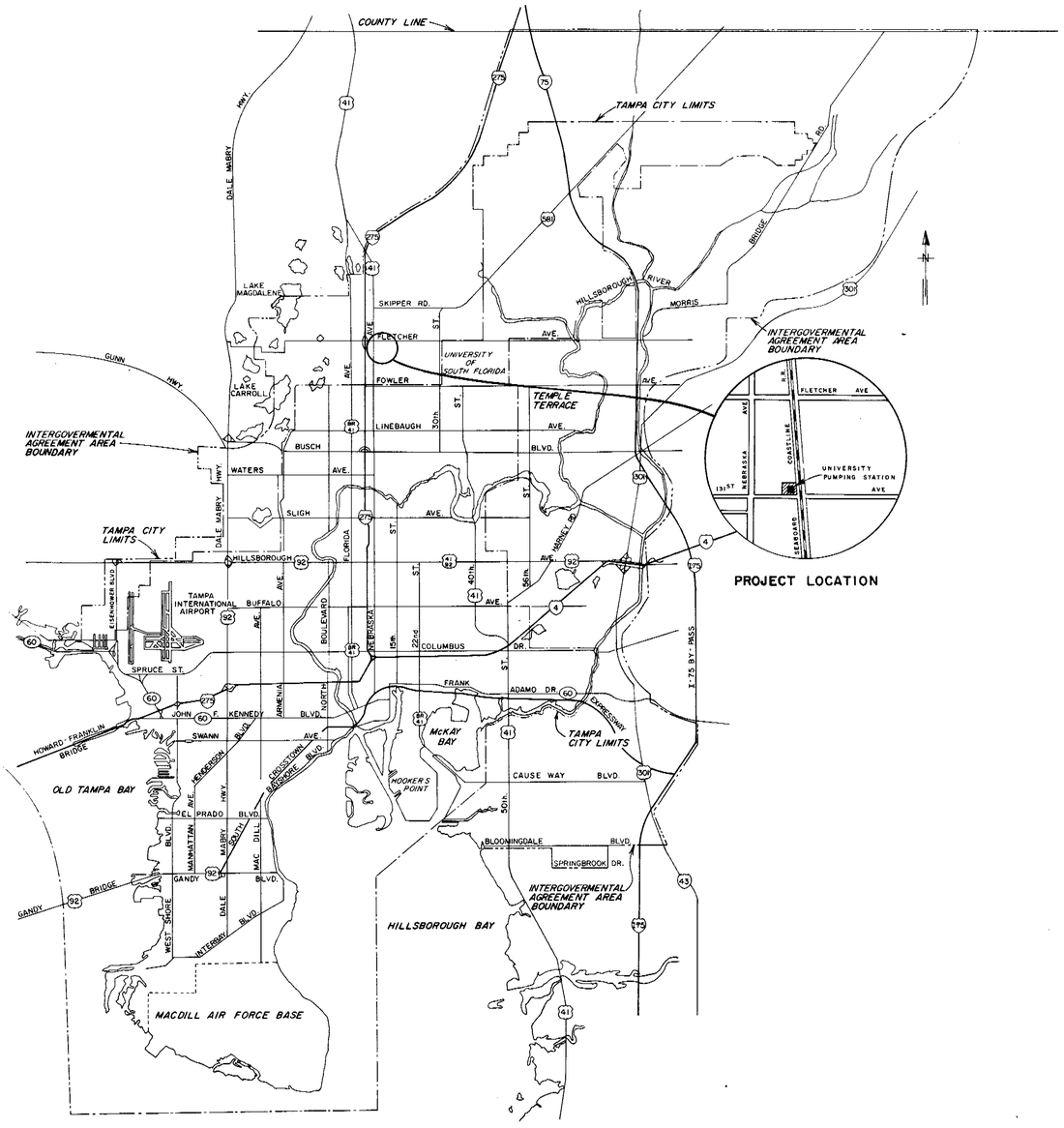
ROMAN D. KORCHAK, P.E. #42626 ELECTRICAL SECTION HEAD DEPARTMENT OF SANITARY SEWERS	HENRY DORZBACK, P.E. #39449 CHIEF ENGINEER DEPARTMENT OF SANITARY SEWERS	RALPH L. METCALF II, P.E. DIRECTOR DEPARTMENT OF SANITARY SEWERS	DES: R.G. DRN: R.A.R. CKD: A.H. DATE: 3-7-91	No. / DATE / REVISIONS: 1, 2, 3, 4, 5	SCALE AS SHOWN	CITY OF TAMPA FLORIDA DEPARTMENT OF SANITARY SEWERS RENEWAL & REPLACEMENT SEWAGE DISPOSAL SYSTEM	4WIP PUMPING STATIONS ENCLOSURE REPLACEMENT UNIVERSITY (131ST AVE.) PUMPING STATION	DESIGN W.O. 4286 CONSTRUCTION W.O.	SHEET 4 OF 4

AF 30179

CITY OF TAMPA

CITY OF TAMPA FLORIDA
MASCOTTE
ORGANIZED JULY 15 1887

LOCATION MAP



DEPARTMENT of SANITARY SEWERS

PLANS FOR

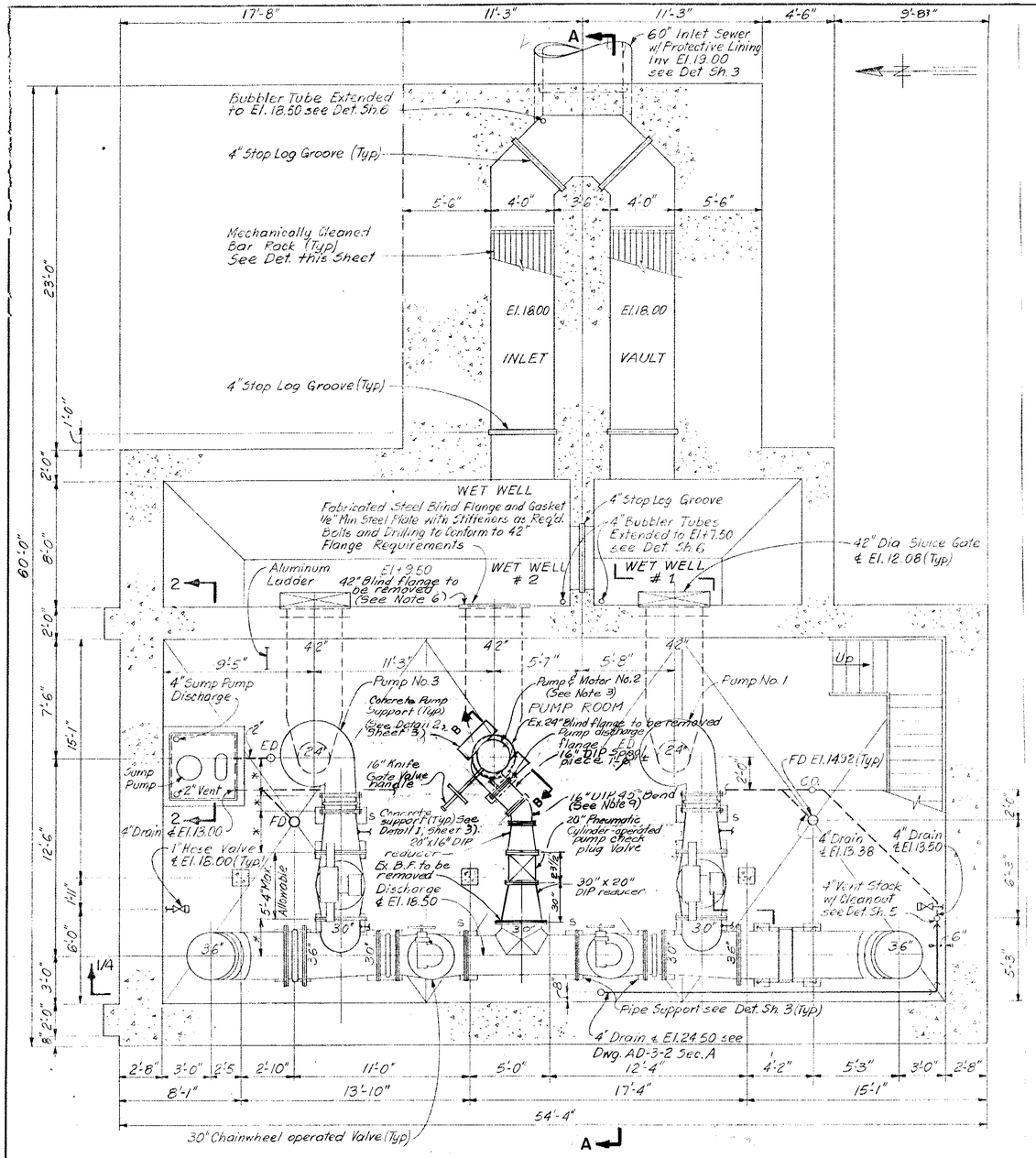
UNIVERSITY PUMPING STATION
PUMP ADDITION

CONTRACT C92

ROMAN KORCHAK, PE # 42626 ELECTRICAL SECTION HEAD DEPARTMENT of SANITARY SEWERS	HENRY DORZBACK, PE # 33449 CHIEF ENGINEER DEPARTMENT of SANITARY SEWERS	DES: JH DRN: Elo/RAR/CP CKD: A.H. DATE: 11/19/01	APPROVED BY RALPH L METCALF II, PE DIRECTOR DEPARTMENT of SANITARY SEWERS	NO. / DATE / REVISIONS	SCALE 1" = approximately 1½ miles	DEPARTMENT of SANITARY SEWERS CITY of TAMPA, FLORIDA RENEWAL & REPLACEMENT SEWAGE DISPOSAL SYSTEM	TITLE SHEET & LOCATION MAP	SHEET 1 OF

K&E 19-1293

173-419



PLAN AT EL 15.00
SCALE: 1/4"=1'-0"

NOTES

1. The Contractor shall verify all dimensions prior to submittal of piping layout drawings and ordering materials to assure proper fit of piping arrangement.
2. The Contractor is responsible for installing, leveling and aligning Motor and Pump. Procedures for installation, as outlined in the Hydraulic Institute Standards, most current edition, shall be adhered to.
3. Pump shall be 16" Fairbanks Morse Model B5741 or approved equal (See specifications). Pump discharge position shall be placed accordingly to fit the existing piping arrangement. See electrical specifications for Motor information.
4. Anchor bolts shall be submitted after selection of equipment. Anchor bolts shall be double nutted and finished with non-Shrink grout.
5. Air supply for Pneumatically operated valves shall be from existing station air. Arrangement of piping and connections to existing pipes shall be made by the contractor under the direction of D.S.S. personnel.
6. The D.S.S. will furnish Stop Logs to be used to divert the flow from Wet Well #2 to Wet Well #1 in order to remove the blind flange from intake No.2. The Contractor shall install and remove the Stop Logs and supply the pump and related equipment and piping for pumping down Wet Well #2. The Contractor shall furnish a temporary bulkhead, Pumping equipment and piping to handle any leakage from the stop logs that may occur.
7. Steel reducer shall be fabricated to suit the dimensions after selection of equipment and shall be A36 with a minimum thickness.
8. Concrete Pedestal shop drawings including flange support details shall be required.
9. The Contractor shall field verify the dimension from the pump suction center line to the discharge piping center line. The 45° bend may need to be fabricated steel to suit the dimensions.

HENRY DORZBACK, PE #30949
CHIEF ENGINEER
DEPARTMENT of SANITARY SEWERS

DES: JH
DRN: CP/GW
CKD: A.H.
DATE: 11/19/91

APPROVED BY
RALPH L. METCALF II, PE
DIRECTOR
DEPARTMENT of SANITARY SEWERS

No	DATE	REVISIONS
1		
2		
3		
4		
5		

SCALE
AS SHOWN

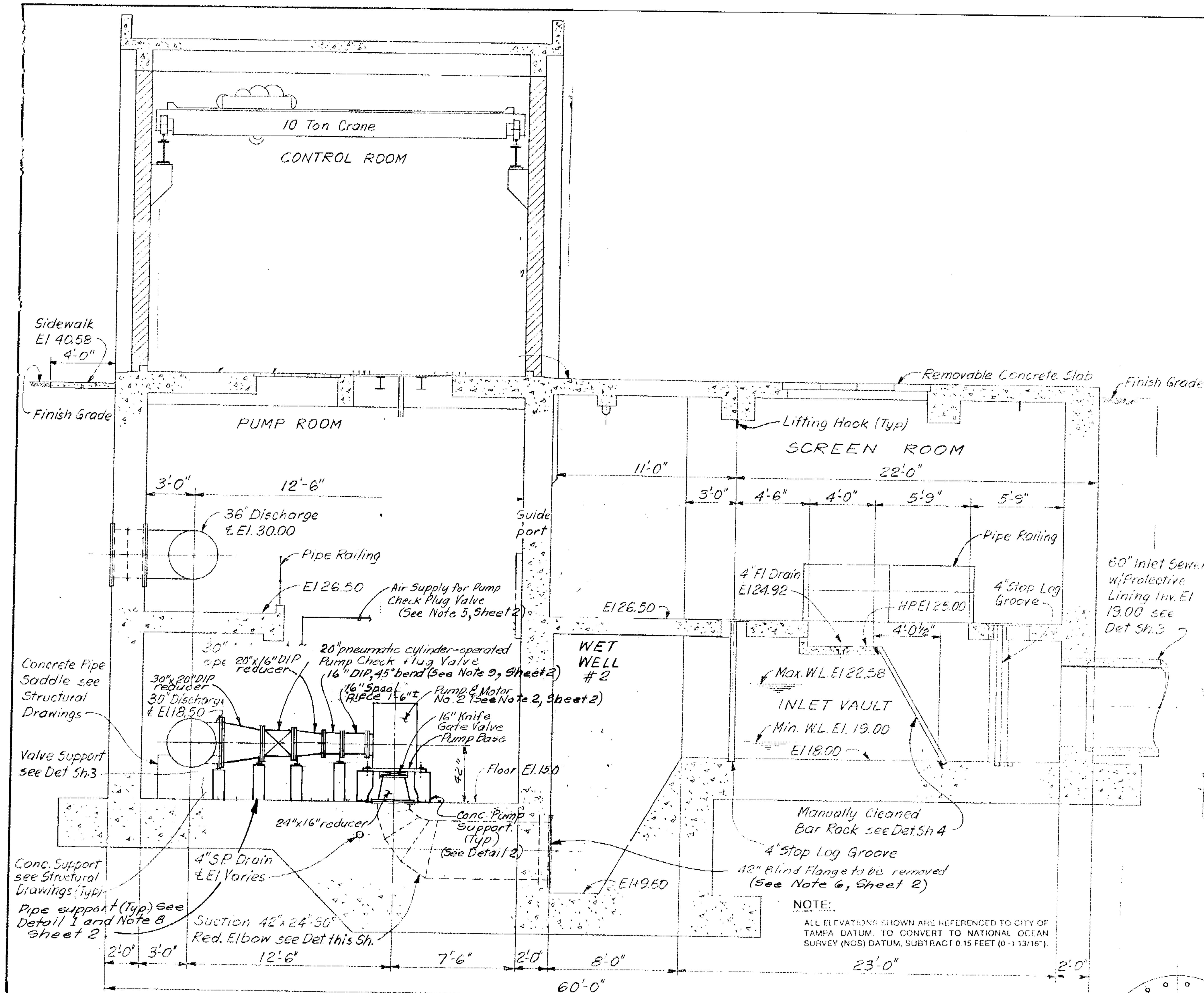
DEPARTMENT of SANITARY SEWERS
CITY of TAMPA, FLORIDA
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

• UNIVERSITY PUMPING STATION PUMP ADDITION •

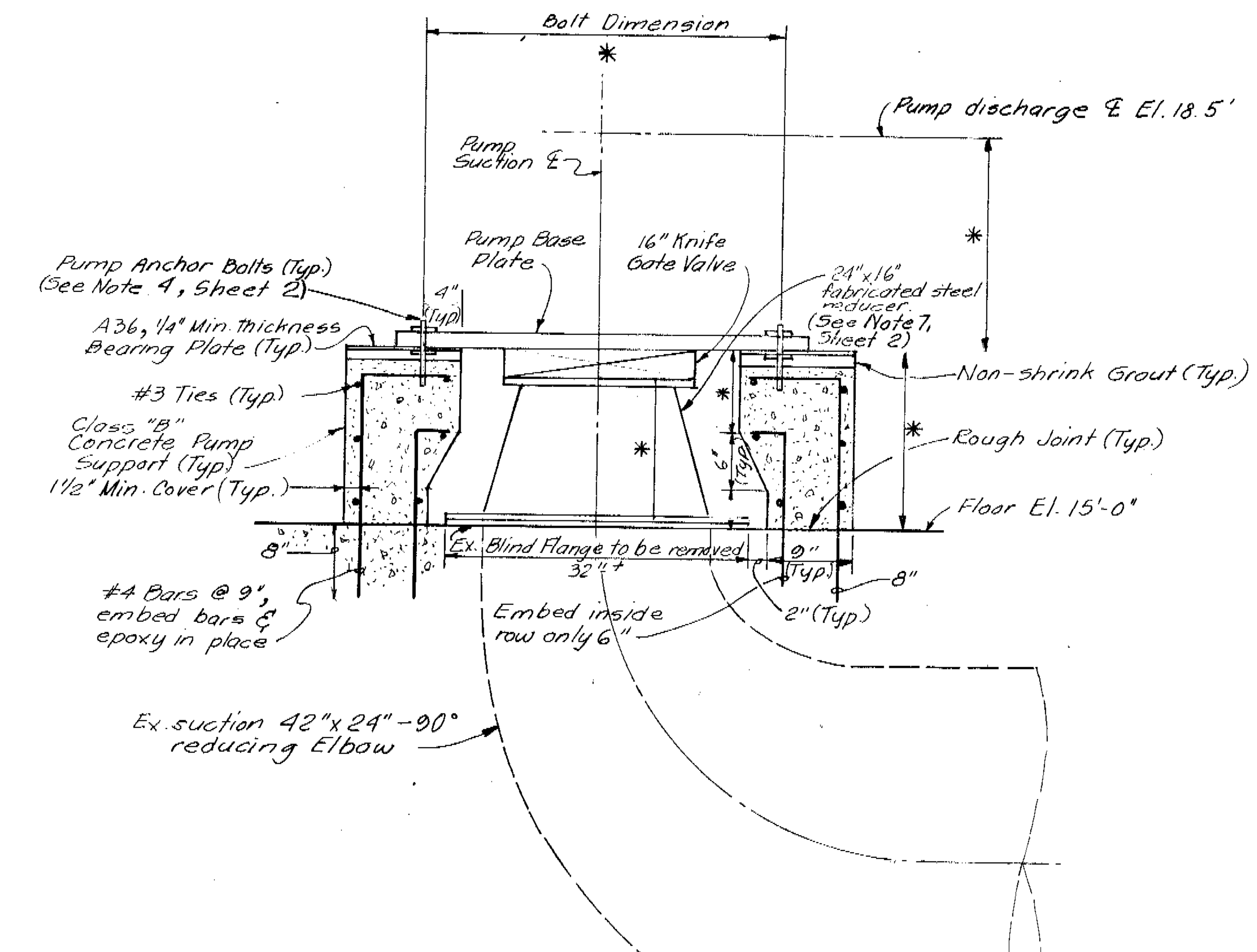
PLAN VIEW

SHEET 2 OF 6

173-41b

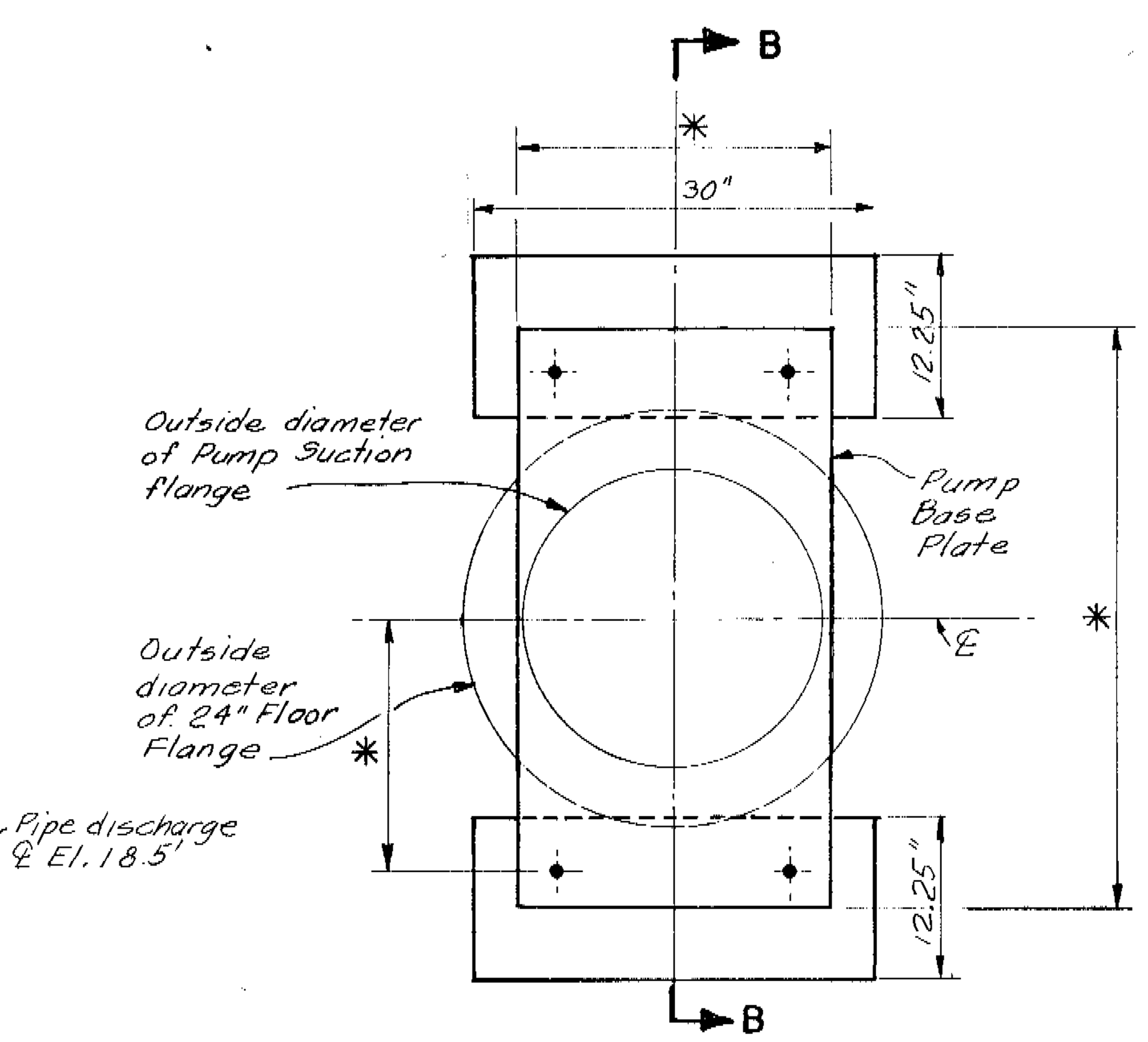


SECTION A-A
SCALE: 1/4" = 1'-0"



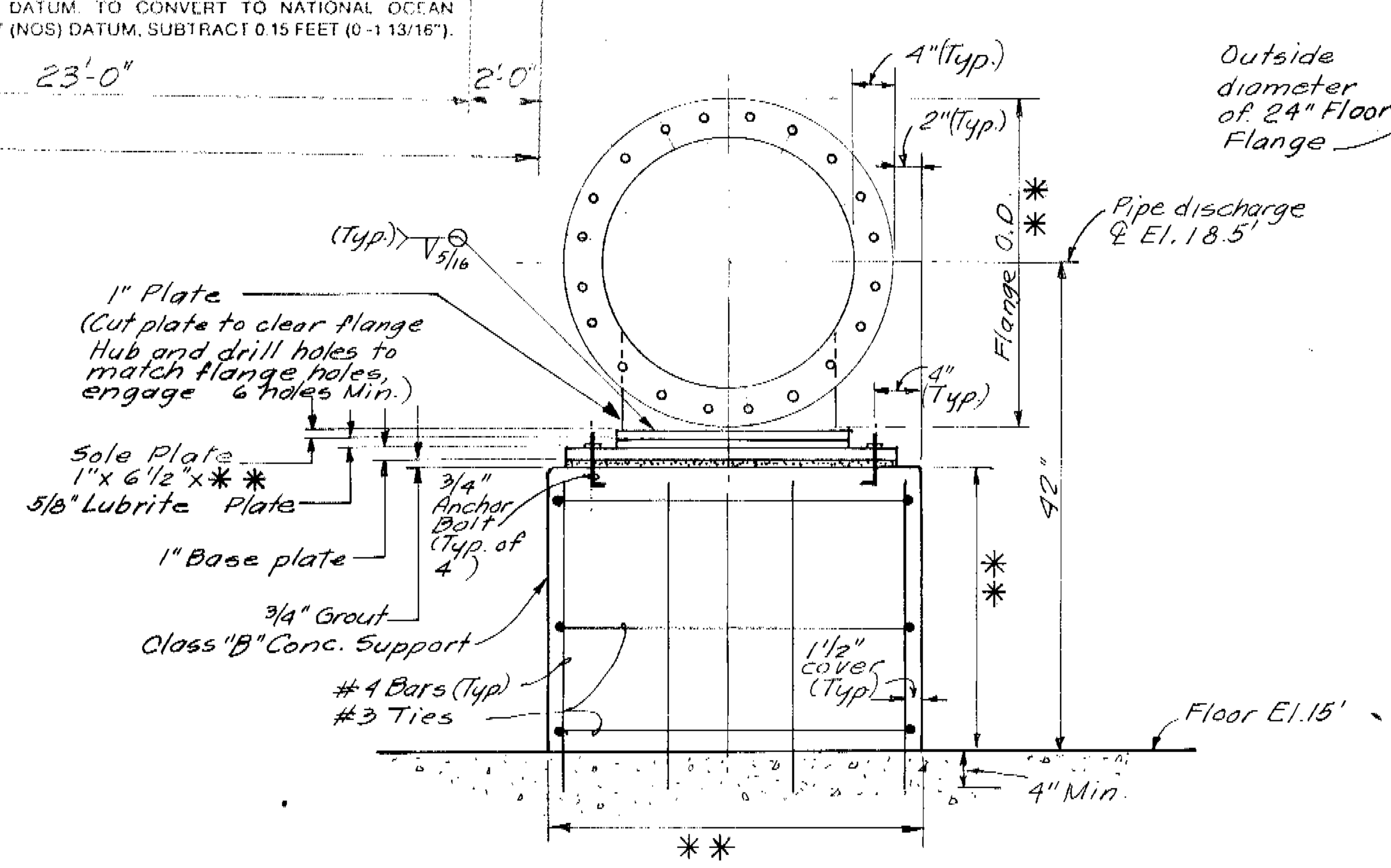
PUMP SUPPORT
SECTION B-B
SCALE: 1" = 1'-0"

* Dimensions shall be determined after final selection of equipment.



PUMP SUPPORT
PLAN VIEW

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

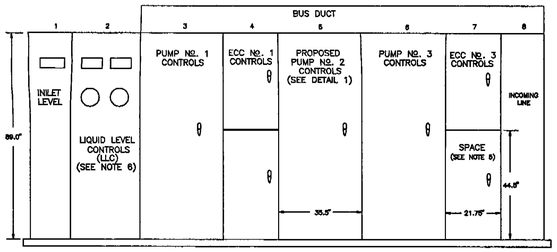


FLANGE SUPPORT
DETAIL 1
N.T.S.

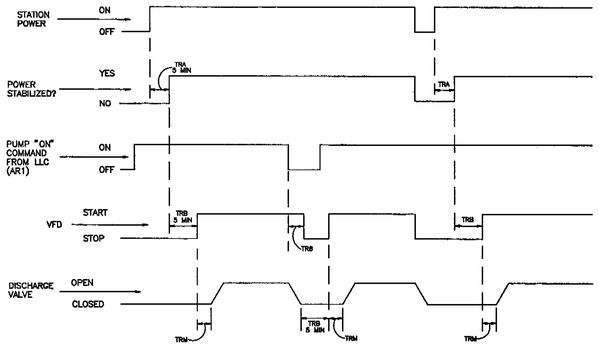
** Dimension dependent on pipe diameter

Henry L. Dorzback; HENRY DORZBACK, P.E. #39449, CHIEF ENGINEER, DEPARTMENT of SANITARY SEWERS	DES: JH; DRN: CG/Elo; CKD: A.H.; DATE: 11/19/91	APPROVED BY: Ralph L. Metcalf II; RALPH L. METCALF II, P.E., DIRECTOR, DEPARTMENT of SANITARY SEWERS	No. / DATE / REVISIONS: 1, 2, 3, 4, 5
SCALE: AS SHOWN	DEPARTMENT of SANITARY SEWERS, CITY of TAMPA, FLORIDA, RENEWAL & REPLACEMENT, SEWAGE DISPOSAL SYSTEM	UNIVERSITY PUMPING STATION, PUMP ADDITION, SECTION AND DETAILS	SHEET 3 OF 6

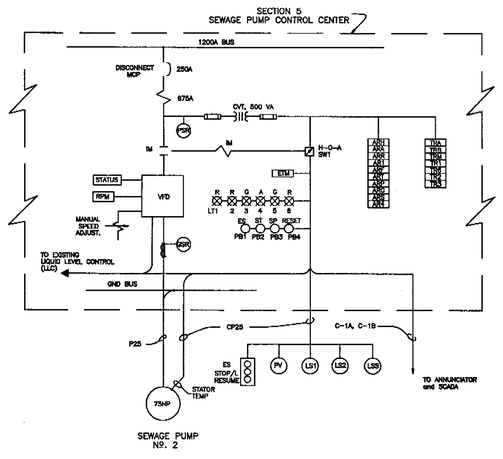
173-41C



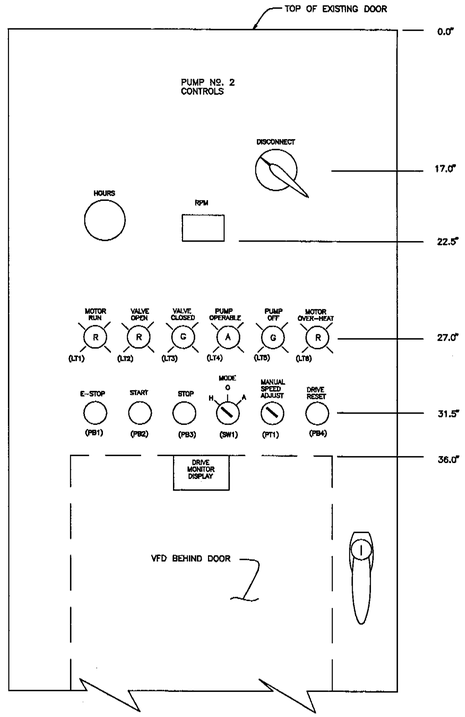
EXISTING SEWAGE PUMPS CONTROL CENTER (FRONT ELEVATION)



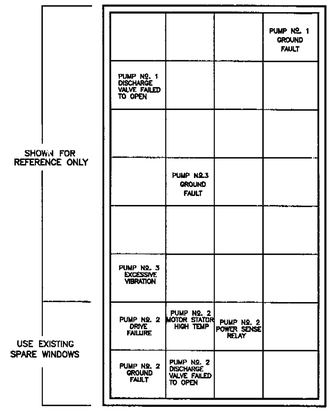
SEWAGE PUMP NO. 2 (TIMING DIAGRAM)



ONE LINE DIAGRAM - PUMP NO. 2 (480V - 3 PHASE - 60HZ)



DETAIL 1, PUMP NO. 2 CONTROLS (FRONT DOOR LAYOUT)



EXISTING ANNUNICATOR NO. 2 - MODIFICATIONS (SUPPLY AND INSTALL CIRCUITRY AND LEGENDS AS SHOWN)

PARTS SCHEDULE (SCHEMATIC ON SHEET 5)

SYMBOL	DESCRIPTION	MANUFACTURER	MODEL	REMARKS
PSR	3 PHASE POWER SENSE RELAY	TIMEMARK	C263	480V INPUT
MCP	MOTOR CIRCUIT PROTECTOR, WITH DOOR OPERATOR LOCKABLE IN "OFF" POSITION	WESTINGHOUSE	HMCP250C5	250 AMP FRAME 450-900 AMP MAG TRIP, 65KAIC @ 480 VAC
VFD	VARIABLE FREQUENCY DRIVE	ALLEN-BRADLEY	1336VT-B100-EDT	VARIABLE TORQUE PWM DRIVE 124 AMP RATING (SEE SPECIFICATIONS)
PT1	MANUAL SPEED POTENTIOMETER 2500 OHM	ALLEN-BRADLEY	BULLETIN 800H UR19	NEMA 4/4X MTG AND GRADUATED MARKING LEGEND LABELED - "SPEED"
RPM	UNIVERSAL DIGITAL INDICATOR	ACTION INSTRUMENTS	V508	3½ DIGIT, AC POWERED
SC1 SC2	SIGNAL CONVERTER	MOORE INDUSTRIES	SCT	FULL ISOLATION, AC POWERED W/ INPUTS / OUTPUTS AS REQ'D
IM	ISOLATION CONTRACTOR 3 POLE	ALLEN-BRADLEY	BULLETIN 100 -B180ND3	180 AMP RATING IEC CONTRACTOR
GSR	GROUND FAULT DETECTION	ALLEN-BRADLEY	BULLETIN 1409 -EGRD RELAY and 1409-N2 SENSOR	460 V, 124 AMP FULL LOAD MAXIMUM, W/ HIGH CURRENT INHIBIT
CVT	CONTROL VOLTAGE TRANSFORMER	SQUARE D	CLASS 9070 #K500D1	500 VA, 240/480-120V
AR 1,4, A-F,G,H P,R,S,T	CONTROL RELAYS	ALLEN-BRADLEY	BULLETIN 700 TYPE F #700-F220A1	IEC, 660V MAX CONTACTS AS REQ'D
TR 1,2,3, A,B,M	TIMING RELAY "ON-DELAY"	AMERACE CORP.	AGASTAT 701•	•TIMING RANGE and INSTANT TRANSFER SWITCH AS SHOWN OR REQ'D
TR6	TIMING RELAY "OFF-DELAY"	AMERACE CORP.	AGASTAT 702•	•TIMING RANGE AS SHOWN OR REQ'D
SW1	THREE POSITION SWITCH	ALLEN-BRADLEY	BULLETIN 800T #800T-J2A	LEGEND: MODE, HAND-OFF-AUTO
PB1	RED MUSHROOM HEAD PUSHBUTTON	ALLEN-BRADLEY	BULLETIN 800T #800T-D6A	LEGEND: EMERG, STOP
PB2 PB4	BLACK FLUSH HEAD PUSHBUTTON	ALLEN-BRADLEY	BULLETIN 800T #800T-AB2	LEGEND: START & RESET
PB3	RED EXTENDED HEAD PUSHBUTTON	ALLEN-BRADLEY	BULLETIN 800T #800T-B6A	LEGEND: STOP
LT-1, 2,6	RED PUSH-TO-TEST PILOT LIGHT	ALLEN-BRADLEY	BULLETIN 800T #800T-PT16R	TRANSFORMER TYPE, 120V
LT-3,5	GREEN PUSH-TO-TEST PILOT LIGHT	ALLEN-BRADLEY	BULLETIN 800T #800T-PT16G	TRANSFORMER TYPE, 120V
LT-4	AMBER PUSH-TO-TEST PILOT LIGHT	ALLEN-BRADLEY	BULLETIN 800T #800T-PT16A	TRANSFORMER TYPE, 120V
	TERMINAL BLOCK	ALLEN-BRADLEY	BULLETIN 1492 -H2K024	LOW VOLTAGE SUPPRESSOR TYPE
			1492-CA2	STANDARD TERMINAL BLOCKS

NOTES

1. EXISTING FACILITIES ARE EITHER MARKED "EXISTING" OR ARE PRESENTED AS SCREENED LINES (LOWER CONTRAST). ITEMS INCLUDED IN THIS CONTRACT ARE IN BOLD LINE.
2. ALL ELECTRICAL WORK SHALL BE PERFORMED PER THE 1990 NATIONAL ELECTRICAL CODE (NEC) AND CHAPTER 5 OF THE CITY CODE.
3. ALL ELECTRICAL COMPONENTS AND SYSTEMS UTILIZED SHALL BE LISTED AND LABELED BY U.L. OR AN EQUIVALENT TESTING LABORATORY - WHERE APPLICABLE.
4. SECTION 5 OF THE EXISTING SEWAGE PUMPS CONTROL CENTER SHALL BE MODIFIED AS SHOWN TO HOUSE THE CONTROLS AND VARIABLE FREQUENCY DRIVE (VFD) FOR THE PROPOSED SEWAGE PUMP NO. 2. THE INSIDE DIMENSIONS ARE 81"x36"x20".
5. THE LOWER HALF OF SECTION 7 OF THE SEWAGE PUMPS CONTROL CENTER MAY BE USED TO HOUSE ADDITIONAL PUMP NO. 2 CONTROLS, IF NECESSARY.
6. THE ROBICON CORP LIQUID LEVEL CONTROLS (LLC) IN SECTION 2 OF THE SEWAGE PUMPS CONTROL CENTER SHALL BE MODIFIED TO FACILITATE PUMP NO. 2 CONTROL. A "VARIABLE SPEED BOARD" AND AN "ON - OFF BOARD" SHALL BE BE PROVIDED AND INSTALLED BY THE CONTRACTOR.
7. THE EXISTING ANNUNCIATOR NO. 2 SHALL BE MODIFIED AS SHOWN. EXISTING CONDUITS C-1A AND C-1B AND ANY SPARE CONDUCTORS THEREIN MAY BE UTILIZED TO MECHANIZE THIS DESIGN.
8. EXISTING CONDUIT SLEEVES THROUGH THE FLOOR OF THE SEWAGE PUMPS CONTROL CENTER SHALL BE UTILIZED IN THE P25 AND CP25 MECHANIZATION. CORE DRILL THE INTERMEDIATE FLOOR, AS REQUIRED, TO TERMINATE CONDUITS AT PUMP ROOM ELEVATION.
9. DYNAMICALLY BALANCE THE PUMP SYSTEM TO MEET INDUSTRY STANDARD GUIDE LINES. ENSURE THAT THE NATURAL FREQUENCY OF THE PUMP SYSTEM IS NOT WITHIN 25% OF THE POSSIBLE OPERATING SPEEDS.

CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT NUMBER	SIZE	CONDUCTOR QUANTITY and SIZE	FROM	TO	REMARKS
P25	2	3 - 1/0 1 - #4 GND	PUMP CONTROL CENTER, SECTION 5	T.B. AT PUMP NO. 2 MOTOR	POWER LEADS
CP25	1	26 - #14 2 - #12 GND	PUMP CONTROL CENTER, SECTION 5	T.B. AT PUMP NO. 2 MOTOR	MOTOR and DISCHARGE VALVE CONTROL WIRING
C1A or C1B	EXIST'G	(ADDITIONAL) 20 - #14 1 - 2C. SHLD	PUMP CONTROL CENTER, SECTION 7	METERING and SCADA PANEL	ANNUNCIATOR/ RTU WIRING
—o—	—o—	2 - 2C. SHLD 2 - #14	PUMP CONTROL CENTER, SECTION 2	PUMP CONTROL CENTER, SECTION 5	LEVEL CONTROLS

LEGEND

- DISCONNECTING DEVICE
- MCP 30 90 — MOTOR CIRCUIT PROTECTOR, 30 AMPERE CONTINUOUS RATING, 90 AMPERE MAGNETIC TRIP SETTING
- CVT — CONTROL POWER TRANSFORMER
- FUSE
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
  (OR TIME DELAY RELAY, INSTANT TRANSFER SWITCH)
- (M) — MOTOR STARTER COIL
- MOL — MOTOR THERMAL OVERLOAD
- (R) — PILOT LIGHT (RED LENS)
- TERMINAL STRIP
- ETM — HOUR METER
- STOP — STOP PUSHBUTTON WITH PROVISIONS FOR PADLOCK
- OFF 1 3 — 3 POSITION SELECTION SWITCH
- LS1 — LIMIT SWITCH, NORMALLY OPEN
- LS3 — LIMIT SWITCH, NORMALLY CLOSED
- PSI — PRESSURE SWITCH, NORMALLY OPEN
- MTR — 3 PHASE MOTOR
- △ — MOUNTED NEAR EQUIPMENT OR MOTOR (LOCAL)
- NEUTRAL
- STOP / L — PUSHBUTTON WITH PROVISIONS FOR LOCK. (N.O.)
- N.C. PUSHBUTTON
- ES STOP/L RESUME — LOCAL CONTROL STATION ES - EMERGENCY STOP
- GSR — GROUND SENSE RELAY
- TWISTED PAIR SHIELDED CABLE
- TR — NORMALLY CLOSED "ON DELAY" TIMING RELAY
- TR — NORMALLY OPEN "ON DELAY" TIMING RELAY
- TR — INSTANT CLOSE - DELAY OPEN TIMING RELAY (OFF DELAY)
- TR — INSTANT OPEN - DELAY CLOSE TIMING RELAY (OFF DELAY)

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
DEPARTMENT OF SANITARY SEWERS

HENRY DÖRZBACK, P.E.
CHIEF ENGINEER
DEPARTMENT OF SANITARY SEWERS

RALPH L. METCALF II, P.E.
DIRECTOR
DEPARTMENT OF SANITARY SEWERS

DES: RK
DRN: CS
CKD:
DATE:

No.	DATE	REVISIONS
1		
2		
3		
4		
5		

NO SCALE

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPIOSAL SYSTEM

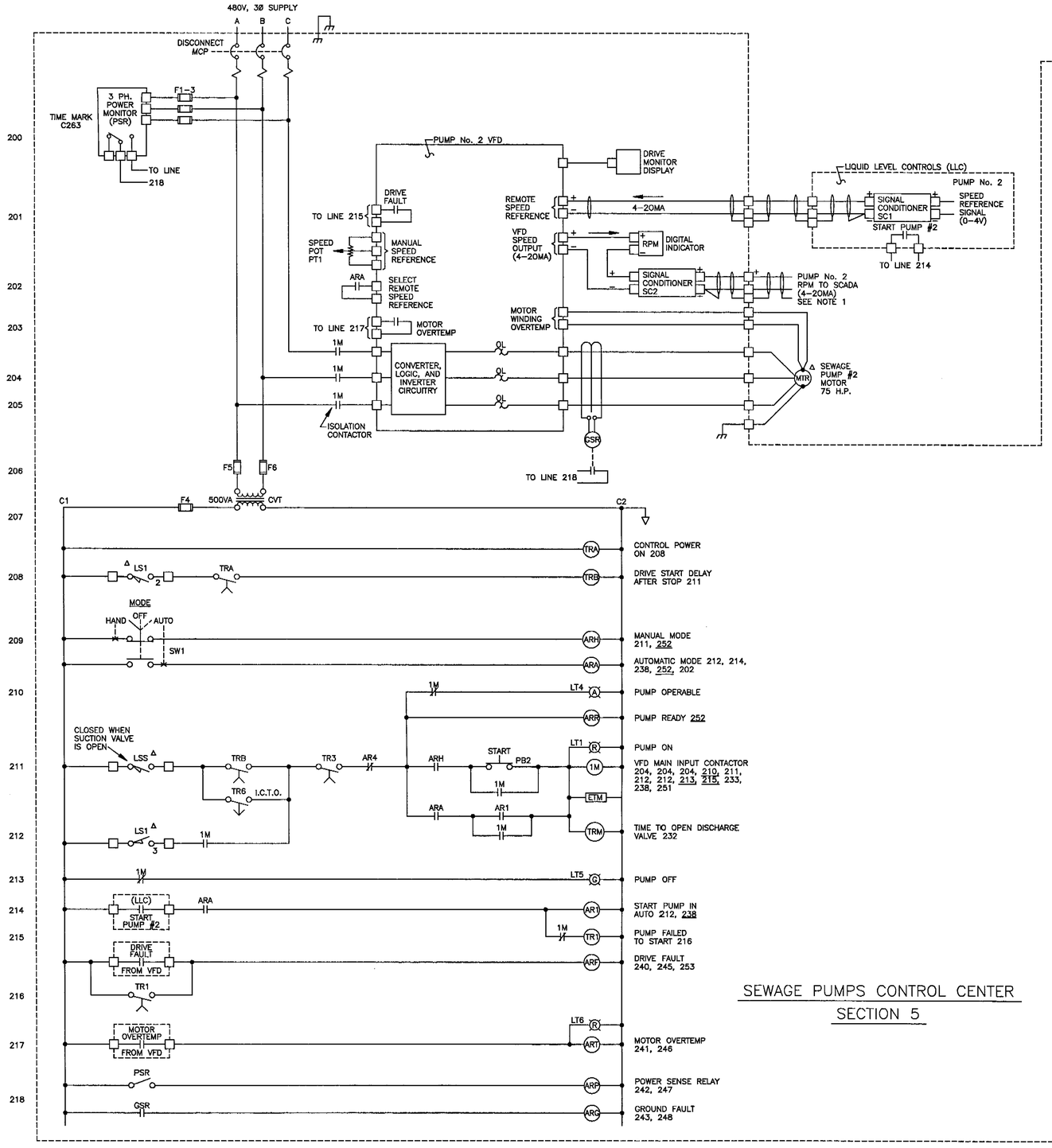
• UNIVERSITY PUMPING STATION PUMP ADDITION •

ELECTRICAL

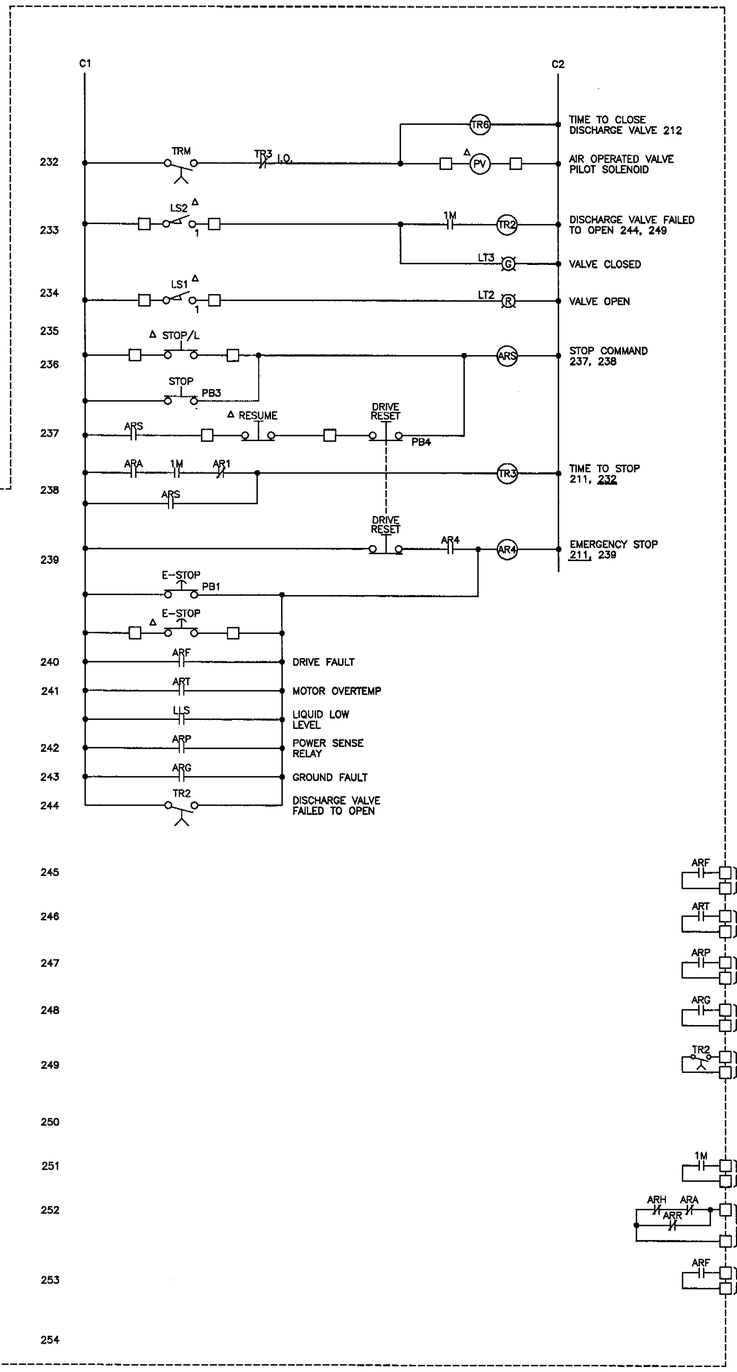
DESIGN W.O. 4297
CONSTRUCTION W.O.

SHEET 4 OF 6

173-41d



SEWAGE PUMPS CONTROL CENTER
SECTION 5



LS	CONTACT	DISCHARGE VALVE POSITION		
		FULLY CLOSED	INTERMED POSITION	FULLY OPEN
LS1	1		X	X
	2	X		
	3		X	X
	4	X		
LS2	1	X	X	
	2			X
	3	X	X	
	4			X

NOTE

1. CONTRACTOR TO SUPPLY AND INSTALL CONDUITS AND CONDUCTORS TO THE EXISTING SCADA R.T.U. THE CITY'S INSTRUMENTATION SECTION IS TO MAKE THE FINAL R.T.U. CONNECTIONS.

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ELECTRICAL SECTION HEAD
DEPARTMENT OF SANITARY SEWERS

HENRY DORZBACK, P.E.
CHIEF ENGINEER
DEPARTMENT OF SANITARY SEWERS

RALPH L. METCALF II, P.E.
DIRECTOR
DEPARTMENT OF SANITARY SEWERS

DES: R.K.
DRN: R.A.R.
CKD:
DATE:

No.	DATE	REVISIONS
1		
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SCALE
NO SCALE

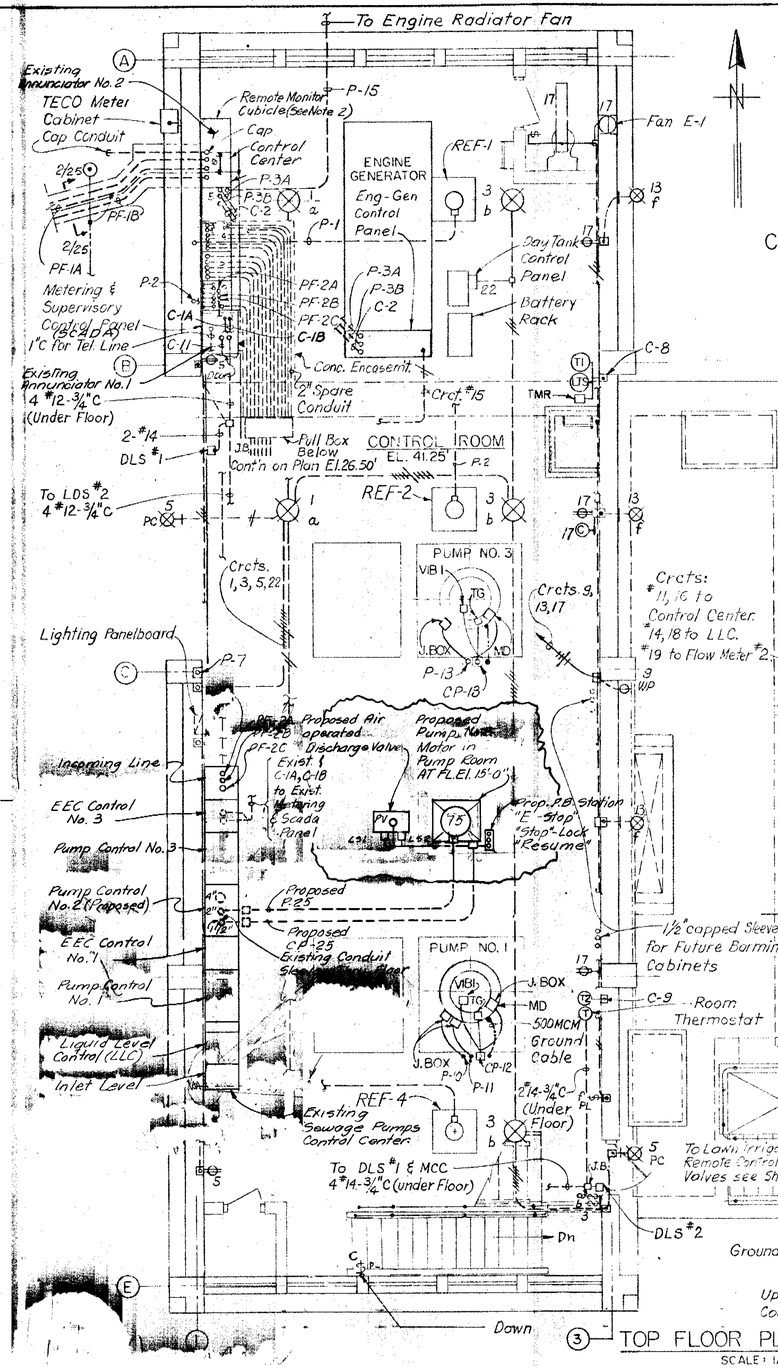
CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

UNIVERSITY PUMPING STATION PUMP ADDITION
PUMP No. 2 SCHEMATIC CONTROL DIAGRAM

DESIGN W.O. 4297
CONSTRUCTIOIN W.O.

SHEET 5 OF 8

173-41e



NOTE:

ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

RECORD DRAWING

THIS RECORD DRAWING IS NOT WARRANTED BUT IS BELIEVED TO REPRESENT CONDITIONS UPON COMPLETION OF CONSTRUCTION, WITHIN REASONABLE TOLERANCES, BASED UPON THE INFORMATION FURNISHED TO THE ENGINEER PERTAINING TO CHANGES MADE DURING CONSTRUCTION.

ROMAN KORCHAK, P.E. # 42626
ELECTRICAL SECTION HEAD
DEPARTMENT of SANITARY SEWERS

HENRY DORZBACK, P.E.
CHIEF ENGINEER
DEPARTMENT of SANITARY SEWERS

DES: R. K.
DRN: Clr.
CKD:
DATE:

APPROVED BY

RALPH L. METCALF II, P.E.
DIRECTOR
DEPARTMENT of SANITARY SEWERS

No.	DATE	REVISIONS
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5		

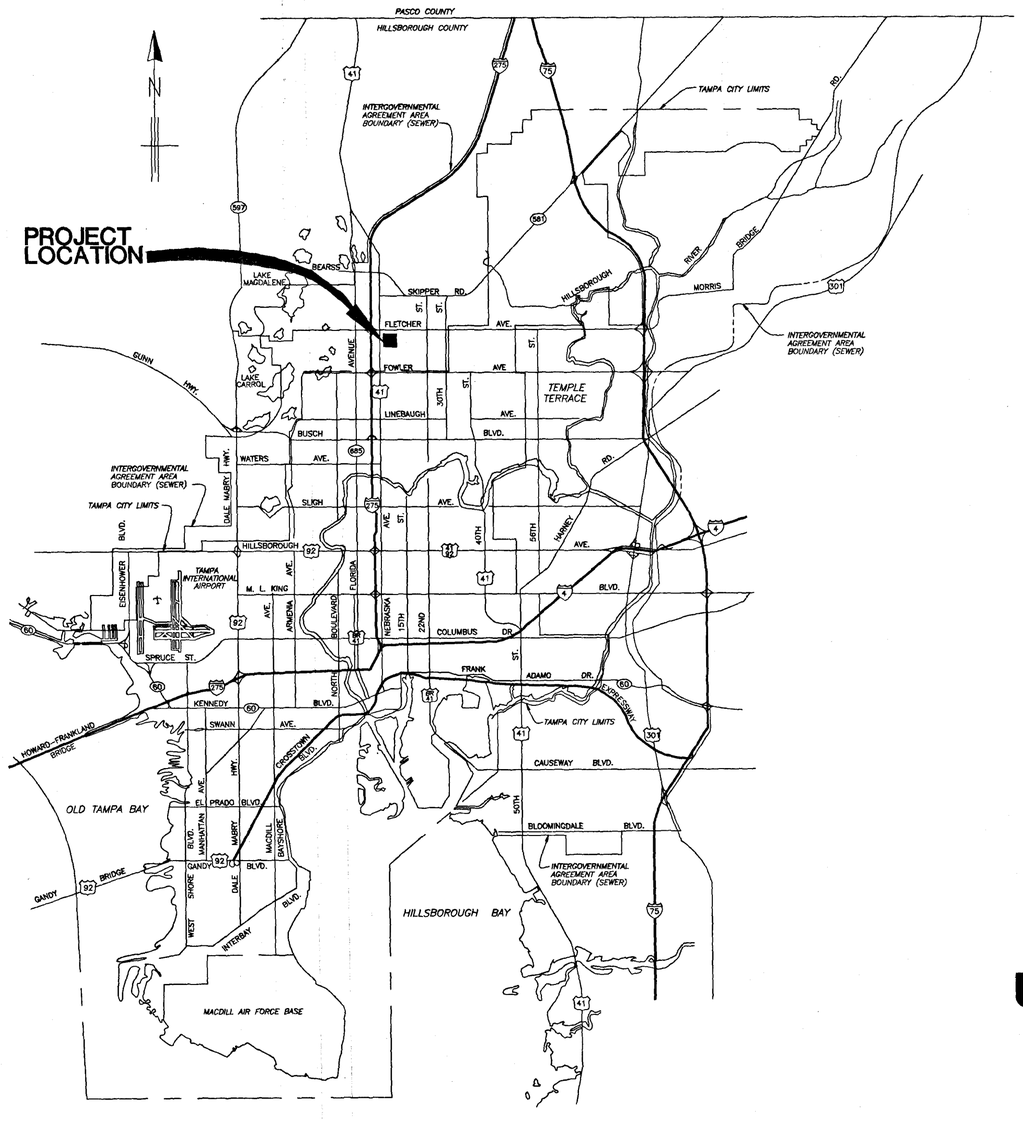
SCALE
As shown

DEPARTMENT of SANITARY SEWERS
CITY of TAMPA, FLORIDA
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

• UNIVERSITY PUMPING STATION PUMP ADDITION •
POWER PLAN

SHEET 6 OF 6

LOCATION MAP



CITY of TAMPA

CITY OF TAMPA FLORIDA
MASCOTTE
ORGANIZED JULY 15 1887

DEPARTMENT OF SANITARY SEWERS

SEWAGE DISPOSAL SYSTEM

PLANS FOR

UNIVERSITY PUMPING STATION TRUCK ACCESS

CONTRACT NO. F-94

HENRY DORZBACK, P.E. #39449
CHIEF ENGINEER
DEPARTMENT OF SANITARY SEWERS

RALPH L. METCALF II, P.E.
DIRECTOR
DEPARTMENT OF SANITARY SEWERS

DES: J.P.W.
DRN: CL
CKD: A.H.
DATE: 5/20/94

No.	DATE	REVISIONS
1		
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CITY of TAMPA, FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

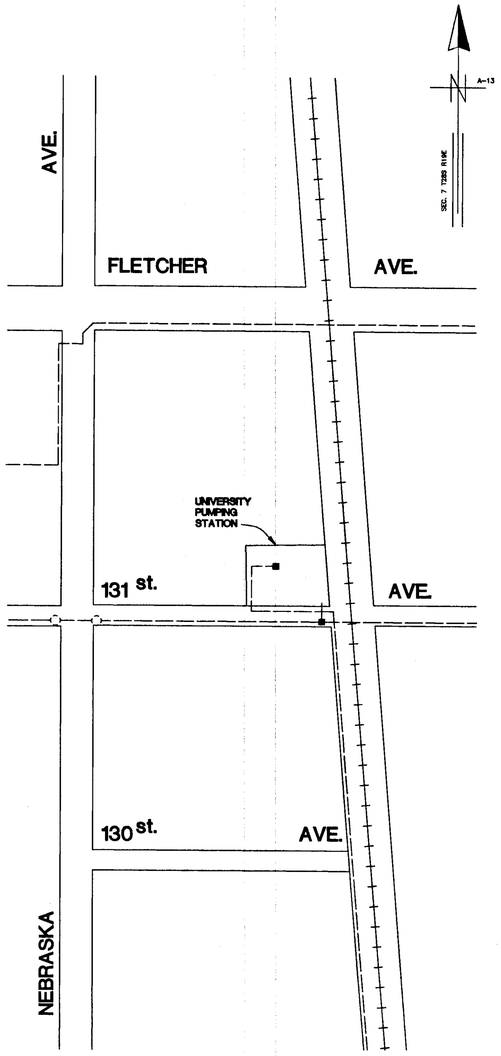
TITLE SHEET

DESIGN W.O. 4312
CONSTRUCTION W.O.

SHEET 1 OF 4

282-3

PROJECT MAP



INDEX

	STREET	FROM	TO
1	COVER SHEET		
2	PROJECT MAP		
3	PLAN		
4	DETAIL SHEET		

ABBREVIATIONS

Top of Pipe	T.P.
Invert Elevation	Inv. El.
Right of Way	R/W
Manhole	MH or M.H.
Polyvinyl Chloride Pipe	P.V.C.P.
Vetrified Clay Pipe	V.C.P.
Ductile Iron Pipe	D.I.P.
Reinforced Concrete Pipe	R.C.P.
Concrete Pipe	C.P.
Approximate Location	A.L.
Bench Mark	B.M.
Point of Intersection	P.I.
Survey Line	℄

LEGEND

EXISTING FEATURES & STRUCTURES

SEWERS	Up to 36" & Smaller	36" & Larger
Force Main		
Ex. San. Sewer & Manhole		
Storm Sewer & Manhole		
Proposed Sanitary Sewer		

OTHER FEATURES

- Right of Way Line — R/W Line
- Property Line — ℄
- Curb Line
- Water Line
- Gas Line
- Electrical Cable of Duct
- Telephone Cable or Duct
- TV Cable
- Valve
- Hydrant
- Catch Basin, Grate
- Power Pole
- Telephone Pole
- Valve Vault
- Water Meter
- Electrical Manhole or Vault
- Fire Alarm Box
- Fire Alarm Cable — F — F —
- Telephone Manhole or Vault
- Telephone Booth — T.B.
- Guy Pole
- Guy Wire
- Building Limit — 1236
- Fence
- Trees
  - Conifer — 6"
  - Palm — 8"
  - Oak — 10"
  - Other — 12"
  - Shrub
- Railroad Tracks
- Marsh
  - Fresh
  - Salt
- Hedge
- Bridge or Culvert
- Property Corners
  - Iron Pipe
  - Concrete Monument
- Open Ditches
- Section Boundary
- Service Connections — (Not. unk.)
  - Existing Wye (Location Unknown)
  - Existing Wye
  - Proposed Wye

STATION #2

C:\ACAD\DWGS\PC\4312-2

HENRY DORZBACK, P.E. #39449
CHIEF ENGINEER
DEPARTMENT OF SANITARY SEWERS

RALPH L. METCALF II, P.E.
DIRECTOR
DEPARTMENT OF SANITARY SEWERS

DES: J.P.W.
DRN: EE
CKD: R.H.
DATE: 5/11/94

No.	DATE	REVISIONS
1		
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3		
4		
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CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

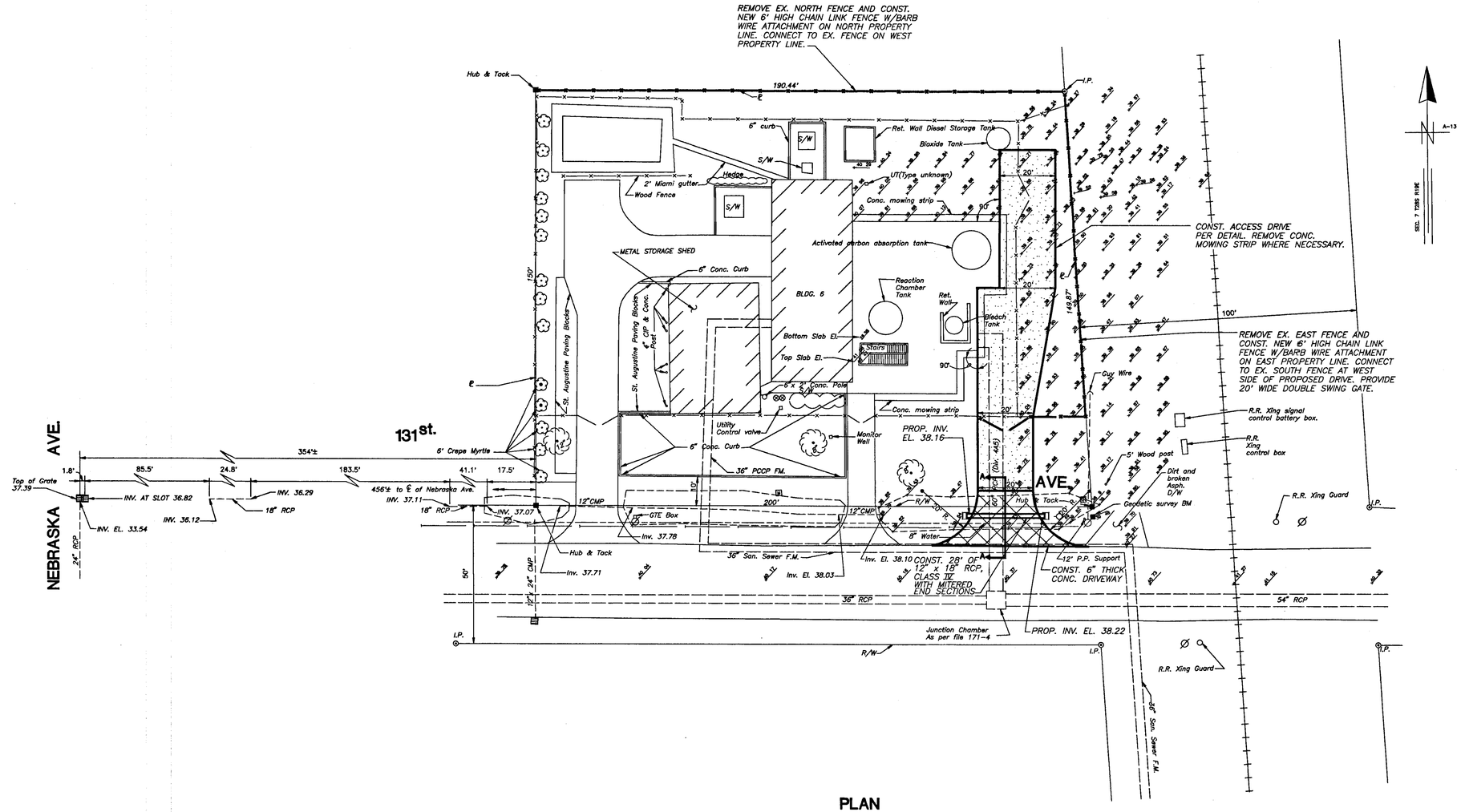
PROJECT MAP, LEGEND & INDEX

DESIGN W.O. 4312
CONSTRUCTION W.O.

SHEET 2 OF 4

282-4

282-4



PLAN

LEGEND

- EXISTING ELEVATION
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED ACCESS DRIVE

HENRY DORZBACK, P.E. #39449
CHIEF ENGINEER
DEPARTMENT OF SANITARY SEWERS

RALPH L. METCALF II, P.E.
DIRECTOR
DEPARTMENT OF SANITARY SEWERS

DES: J.P.W.
DRN: CL
CKD: H.D.
DATE: 5/20/94

No.	DATE	REVISIONS
1		
2		
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SCALE
20 0 20 40
1" = 20'

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

UNIVERSITY PUMPING STATION
TRUCK ACCESS

DESIGN W.O. 4312
CONSTRUCTION W.O.

SHEET 3 OF 4

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282-5

Ⓐ CONCRETE RIBBON CURB. NOT NECCESSARY WHEN ADJACENT TO EXISTING CONCRETE SLAB.

Ⓑ PRECAST CONCRETE TURF BLOCK PAVING UNITS. BACKFILLED WITH FDOT #57 COARSE AGGREGATE.

Ⓒ 1 1/2" OF UNCOMPACTED CONCRETE SAND, TO BE COMPACTED TO 1" AFTER TURF BLOCK PAVING UNITS ARE INSTALLED. DO NOT USE MASON SAND.

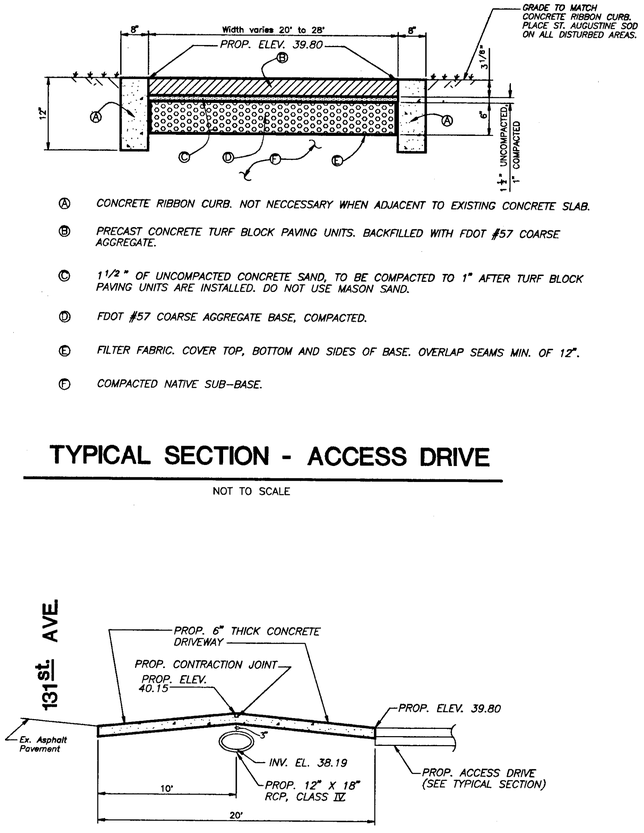
Ⓓ FDOT #57 COARSE AGGREGATE BASE, COMPACTED.

Ⓔ FILTER FABRIC. COVER TOP, BOTTOM AND SIDES OF BASE. OVERLAP SEAMS MIN. OF 12".

Ⓕ COMPACTED NATIVE SUB-BASE.

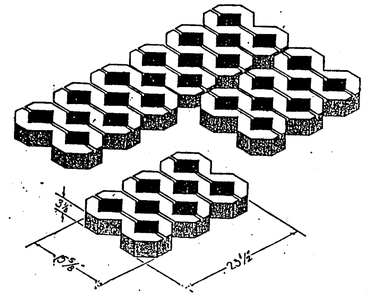
TYPICAL SECTION - ACCESS DRIVE

NOT TO SCALE



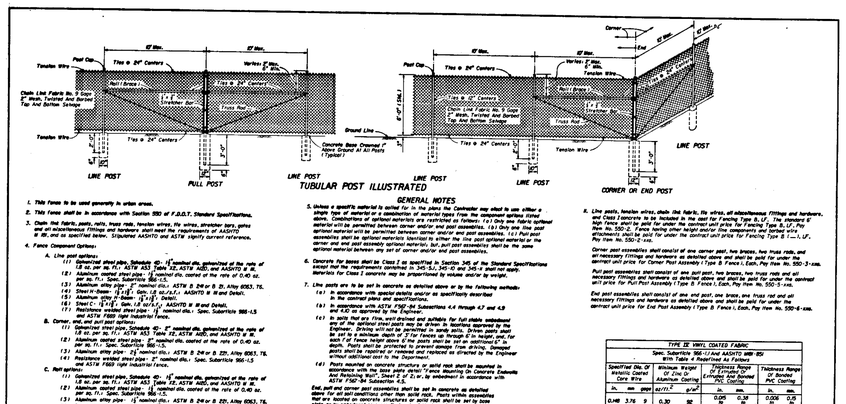
SECTION A-A

NOT TO SCALE



TURF BLOCK PAVING UNITS

NOT TO SCALE



LINE POST — PULL POST — TUBULAR POST ILLUSTRATED — LINE POST — LINE POST — CORNER OR END POST

GENERAL NOTES

1. This Fence to be used generally in urban areas.
2. This Fence shall be in accordance with Section 550 of F.D.O.T. Standard Specifications.
3. Cloth, line fabric, posts, rails, truss rods, tension wires, tie wires, stretcher bars, gates and all miscellaneous fittings and hardware shall meet the requirements of AASHTO M 181, and as specified below. Stipulated AASHTO and ASTM identify current reference.
4. Fence Component Options:
   - A. Line post options:
     - (1) Galvanized steel pipe, Schedule 40 - 2" nominal dia. galvanized at the rate of 1.8 oz. per sq. ft.) ASTM A53 Table 2, ASTM A120, and AASHTO M 181.
     - (2) Aluminum coated steel pipe - 2" nominal dia. coated at the rate of 0.40 oz. per sq. ft.) - Spec. Subarticle 966-1.5.
     - (3) Aluminum alloy pipe - 2" nominal dia.) ASTM B 241 or B 221, Alloy 6063, T6.
     - (4) Steel H-Beam - 1 1/4" x 1 1/4" Galv. (1.8 oz./s.f.) AASHTO M 181 and Detail.
     - (5) Aluminum alloy H-Beam - 1 1/4" x 1 1/4" Detail.
     - (6) Steel C - 1 1/4" x 1 1/4" Galv. (1.8 oz/s.f.) AASHTO M 181 and Detail.
     - (7) Steel U.S.S. Sections - Galv. pipe - 1 1/2" nominal dia.) - Spec. Subarticle 966-1.5 and ASTM F1083 Type I industrial fence.
   - B. Corner, end, and pull post options:
     - (1) Galvanized steel pipe, Schedule 40 - 4" nominal dia. galvanized at the rate of 1.8 oz. per sq. ft.) - ASTM A53 Table 2, ASTM A120, and AASHTO M 181.
     - (2) Aluminum coated steel pipe - 4" nominal dia. coated at the rate of 0.40 oz. per sq. ft.) - Spec. Subarticle 966-1.5.
     - (3) Aluminum alloy pipe - 4" nominal dia.) ASTM B 241 or B 221, Alloy 6063, T6.
     - (4) Resistance welded steel pipe - 3" nominal dia.) - Spec. Subarticle 966-1.5 and ASTM F1083 Type I industrial fence.
   - C. Rail options:
     - (1) Galvanized steel pipe, Schedule 40 - 1 1/2" nominal dia. galvanized at the rate of 1.8 oz. per sq. ft.) - ASTM A53 Table 2, ASTM A120, and AASHTO M 181.
     - (2) Aluminum coated steel pipe - 1 1/2" nominal dia.) - ASTM B 241 or B 221, Alloy 6063, T6.
     - (3) Aluminum alloy pipe - 1 1/2" nominal dia.) - Spec. Subarticle 966-1.5.
     - (4) Resistance welded steel pipe - 1 1/2" nominal dia.) - Spec. Subarticle 966-1.5 and ASTM F1083 Type I industrial fence.
   - D. Chain link fabric options:
     - (1) No. 9 gage steel wire (2" mesh) galvanized at the rate of 1.8 oz. per sq. ft. - AASHTO M 181.
     - (2) Polyvinyl Chloride Coated Fabric: See Table Below.
     - (3) Aluminum coated steel wire: AASHTO M 181.
   - E. Tension wire options:
     - (1) No. 7 gage steel wire galvanized at the rate of 1.8 oz. per sq. ft.) AASHTO M 181.
     - (2) Aluminum alloy wire conforming to the requirements of ASTM B 211, Alloy 6052, Temper T81 or T91, with a min. diameter of 0.207" or larger.
     - (3) No. 7 gage aluminum coated steel wire coated at the rate of 0.40 oz. per sq. ft.) AASHTO M 181.
   - F. Tie wire and top ring options:
     - (1) No. 9 gage steel wire galvanized at the rate of 1.8 oz. per sq. ft.
     - (2) Aluminum alloy wire conforming to the requirements of ASTM B 211, Alloy 6052, Temper T81 or T91, with a wire diameter of 0.047" or larger.
     - (3) No. 7 gage aluminum coated steel wire coated at the rate of 0.40 oz. per sq. ft.
5. Unless a specific material is called for in the plans the Contractor may elect to use either a single type of material or a combination of material types from the component options listed above. Considerations of optional materials are restricted as follows: (a) Only one fabric optional material may be used between corner and/or end post assemblies. (b) Only one line post optional material will be used between corner and/or end post assemblies. (c) Pull post assemblies shall be optional materials identical to those of the line post optional material or the corner and end post assembly optional materials, but, pull post assemblies shall be the same optional material between any set of corner and/or end post assemblies.
6. Concrete for items shall be Class I as specified in Section 346 of the Standard Specifications for Road and Bridge Construction published in 345 S.J., 340 O and 340-1 shall not apply. Batches for Class I concrete may be proportioned by volume and/or by weight.
7. Line posts are to be set in concrete as detailed above or by the following methods:
   - (a) In accordance with special details and/or as specifically described in the contract plans and specifications.
   - (b) In accordance with ASTM F567-94 Subsections 4.4 through 4.7 and 4.9 and F.O.D. as approved by the Engineer.
   - (c) In soils that are firm, well-drained and suitable: For full stable embankment (F.S.E.) areas, post holes may be driven in lieu of excavation, when approved by the Engineer. Driving will not be permitted in rock. Driven holes shall be 1" to 2" smaller than the nominal dimension of the post to be set and, for each 1" of fence height above 6' the depth shall be set an additional 6". In depth. Posts shall be protected to prevent damage from driving. Damaged posts shall be removed and replaced as directed by the Engineer without additional cost to the Department.
   - (d) Posts mounted on concrete structures or solid rock shall be mounted in accordance with the base plate details "Fence Mounting On Concrete Endwalls And Retaining Wall", Sheet 5 of 5) or, by embedment in accordance with Section 550 of F.D.O.T. Standard Specifications.

   End, pull and corner post assemblies shall be set in concrete as detailed above for all soil conditions other than solid rock. Posts within assemblies that are located on concrete structures or solid rock shall be set by base plate or by embedment as prescribed under (d) above, for that condition.

   Line and assembly posts set in concrete bases shall be set an additional 3" in depth for each 1'-6" fence height greater than 6'.
8. Pull posts shall be used at breaks in vertical grades of 15° or more, or at approximately 330' centers except that this maximum interval may be modified by the Engineer on curves where the degree of curvature is greater than 3°.
9. Corner posts are to be installed at all horizontal breaks in fence of 15° or more and as required at vertical breaks over 15° as determined by the Engineer.
10. Unless sliding gates or special gates are called for in the plans, all gates shall be chain link swing gates including all hardware requirements described above as approved by the Engineer. Payment shall include the furnishing of all gates, all necessary hardware for installation and any additional length and/or size for gates over the standard. Gates shall be paid for under the contract unit price for Fence Gates, Type B, Each, Pay Item No. 550-70-nnn.
11. Unless otherwise specified in the plans, chain link fabric, tie wires, all attachments fittings and hardware, and Class I concrete to be furnished in the cost for Fencing Type B, 6'-0". The standard 6' high fence shall be paid for under the contract unit price for Fencing Type B, 6'-0", Per Foot, Pay Item No. 550-2. Fence having other height and/or the components and gates and attachments shall be paid for under the contract unit price for Fencing Type B 1—.1, LF, Pay Item No. 550-2-nnn.

    Corner post assemblies shall consist of one corner post, two braces, two truss rods, and all necessary fittings and hardware as detailed above and shall be paid for under the contract unit price for Corner Post Assembly I Type B Fence I, Each, Pay Item No. 550-3-nnn.

    Pull post assemblies shall consist of one pull post, two braces, two truss rods and all necessary fittings and hardware, as detailed above and shall be paid for under the contract unit price for Pull Post Assembly I Type B Fence I, Each, Pay Item No. 550-5-nnn.

    End post assemblies shall consist of one end post, two braces, two truss rod and all necessary fittings and hardware as detailed above and shall be paid for under the contract unit price for End Post Assembly I Type B Fence I, Each, Pay Item No. 550-6-nnn.
12. Line posts are to be installed at spacings not to exceed 10'-0" centers.
13. Fence shall be installed with the bottom of the fabric 2" above the ground line.
14. Gates shall be installed at locations shown in the plans or as directed by the Engineer.
15. Fence shall be erected on the right-of-way line unless otherwise directed by the Engineer.
16. Fence shall be erected to follow the ground line.
17. Fence shall be erected to provide a drive 1'0 over the top of posts and in either multiple or single gate installations.

Attachments to be paid for under the contract unit price for Fencing, Type B 1 With Barb Wire Attachment) LF, Pay Item No. 550-2-nnn.

TYPE IV VINYL COATED FABRIC Spec. Subarticle 966-1.1 And AASHTO M181-B5 With Table 4 Modified As Follows						
Specified Dia. Of Metallic Coated Core Wire		Minimum Weight Of Zinc Or Aluminum Coating		Thickness Range Of Bonded Or Extruded And Bonded PVC Coating		Thickness Range Of Bonded PVC Coating
in.	mm	gage	oz/ft.²	g/m²	in.	mm
0.148	3.76	9	0.30	92	0.015 to 0.025	0.38 to 0.64

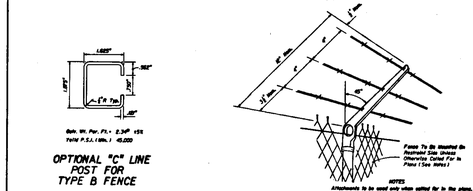
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION — ROAD DESIGN

FENCE TYPE B

Designed by	Drawn by	Checked by	Approved by

Project No. — Sheet No. 10 — Total Sheets 2 of 2 — 452

F.A.P.A. Approvals — 8/31/92



15" x 15" H-BEAM (STEEL) — (ALUM)

	Area	I_x	R_x	Area	I_x	R_x
Section Of Beams		488	.69		488	.69
Moment Of Inertia		488	.69		488	.69
Rad. Of Gyration		779	.371		779	.371
Surface Area		776 SF/FT			776 SF/FT	
Tensile Strength PSI (Min.)		30,000			20,000	
Yielding Point PSI (Min.)		18,000			15,000	

OPTIONAL H-BEAM LINE POST FOR TYPE B FENCE

OPTIONAL "C" LINE POST FOR TYPE B FENCE

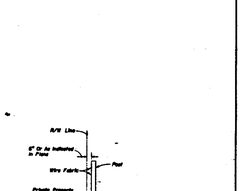
NOTES

Attachments to be used only when called for in the plans.
Attachments to extend in direction of roadway, Unless otherwise noted for in plans, direction of roadway will be as follows:
(a.) Outward from adjacent business right of way line.
(b.) Outward on residential right of way line.
(c.) Outward from utilities and boundary facilities located within highway right of way.
(d.) Outward from lateral ditches, outfalls, connection basins, canals, borrow areas and similar support facilities.
(e.) Inward on pedestrian ways.

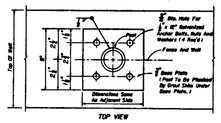
The use of barb wire shall be limited to provide a drive 1'0 over the top of posts and in either multiple or single gate installations.

Attachments to be paid for under the contract unit price for Fencing, Type B 1 With Barb Wire Attachment) LF, Pay Item No. 550-2-nnn.

BARB WIRE ATTACHMENT



FENCE POSITION AT LOCATIONS WITHOUT FRONTAGE ROADS
(REFER TO DETAIL PLANS FOR FENCE POSITION AT LOCATIONS WITH FRONTAGE ROADS)



BASE PLATE REMOVAL FOR LINE, PULL, END AND CORNER POSTS AND SHALL BE CONSIDERED AN INTEGRAL PART OF THE REMOVING POSTS FOR BASIS OF PAYMENT

FENCE MOUNTING ON CONCRETE ENDWALL AND RETAINING WALLS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION — ROAD DESIGN

FENCE TYPE B

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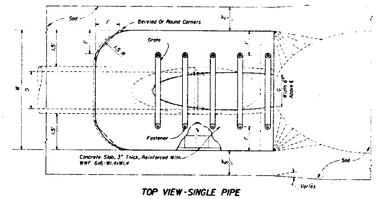
Project No. — Sheet No. 10 — Total Sheets 2 of 2 — 452

F.A.P.A. Approvals

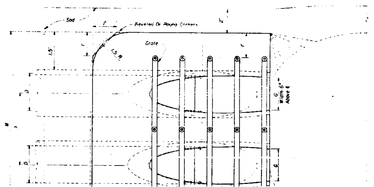
DIMENSIONS & QUANTITIES

D	X	A	B	C	E	I	G	W Single Pipe	W Double Pipe	W Triple Pipe	W Quad Pipe	N	GRATE SIZES Standard Weight Pipe	GRATE SIZES Extra Strong Pipe	CONCRETE (Cu. Yds.) Single Pipe	CONCRETE (Cu. Yds.) Double Pipe	CONCRETE (Cu. Yds.) Triple Pipe	CONCRETE (Cu. Yds.) Quad Pipe	SODDING (Sq. Yds.) Single Pipe	SODDING (Sq. Yds.) Double Pipe	SODDING (Sq. Yds.) Triple Pipe	SODDING (Sq. Yds.) Quad Pipe
12"	2'-7"	2.2'	4.09'	6.38'	4.65'	5'	4.2'	4.5'	7.1'	9.7'	12.4'	12"			1.4	2.1	2.8	3.5	10	15	20	25
18"	3'-10"	2.76'	5.42'	7.48'	5.03'	9'	4.8'	4.92'	7.71'	10.56'	13.41'	12"			1.5	2.3	3.1	3.9	11	16	22	27
24"	5'-1"	3.53'	7.08' A	9.77'	7.03' A	13'	5.4'	5.33'	8.36'	12.33'	15.31'	12"			1.73	2.66	3.59	4.52	12	19	25	31
30"	6'-3"	4.35'	9.25'	11.99'	9.03'	17'	6.06'	6.08'	10.01'	14.56'	18.83'	12"			2.05	3.16	4.27	5.38	14	22	30	38
36"	7'-6"	5.12'	10.92'	14.18'	11.03'	21'	6.72'	6.84'	11.27'	16.42'	21.58'	12"	24"	5"	2.34	3.61	4.88	6.15	16	25	34	43
42"	8'-8"	5.9'	12.75'	16.40'	13.03'	25'	7.38'	7.59'	12.53'	18.25'	23.97'	12"	24"	5"	2.65	4.09	5.53	6.97	18	28	38	48
48"	10'-0"	6.78'	14.58'	18.61'	15.03'	29'	8.04'	8.35'	13.78'	20.07'	26.36'	12"	24"	5"	2.96	4.57	6.18	7.79	20	31	42	53
54"	11'-3"	7.56'	16.42'	20.82'	17.03'	33'	8.7'	9.11'	15.04'	21.91'	28.78'	12"	24"	5"	3.28	5.05	6.82	8.59	22	34	46	58
60"	12'-6"	8.34'	18.25'	23.03'	19.03'	37'	9.36'	9.87'	16.29'	23.72'	31.15'	12"	24"	5"	3.59	5.53	7.47	9.41	24	37	50	63
66"	13'-9"	9.12'	20.09'	25.24'	21.03'	41'	10.02'	10.63'	17.55'	25.55'	33.55'	12"	24"	5"	3.91	6.02	8.13	10.24	26	40	54	68
72"	15'-0"	9.9'	21.92'	27.45'	23.03'	45'	10.68'	11.39'	18.8'	27.38'	35.96'	12"	24"	5"	4.24	6.52	8.8	11.08	28	43	58	73

A 4:42" Dimensions permitted to allow use of 42" standard pipe beams.
A 0 45:00" Dimensions permitted to allow use of 45° standard pipe angles.
Δ ◇ Concrete slab shall be deepened to form bridge across crown of pipe. See section below.

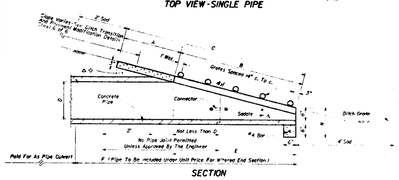


TOP VIEW - SINGLE PIPE



TOP VIEW - MULTIPLE PIPE

Note: See Sheets 5 and 6 for details and general notes.



*Cooper, 1 Pipe For Pipes 0" And Smaller 2x For Pipes 24" And Larger.

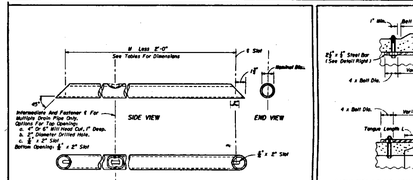
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION — ROAD DESIGN

SIDE DRAIN MITERED END SECTION SINGLE AND MULTIPLE ROUND CONCRETE PIPE

Designed by	Drawn by	Checked by	Approved by

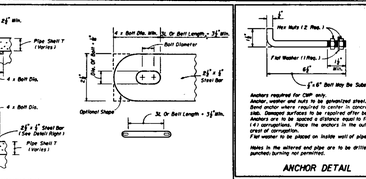
Project No. — Sheet No. 10 — Total Sheets 1 of 6 — 273

F.A.P.A. Approvals



GRATE DETAIL FOR SINGLE & MULTIPLE DRAIN PIPE

See General Notes, Sheet 6.



All bars, bolts, nuts and washers are to be galvanized steel. Bolt diameters shall be 3/4" for 0" to 36" pipe and 1" for 42" to 60" pipe.
Two connectors required per joint, located 60° right and left of bottom center of pipe.
Bolt holes in pipe shell are to be drilled.

CONCRETE PIPE CONNECTOR DETAIL

ANCHOR DETAIL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION — ROAD DESIGN

SIDE DRAIN MITERED END SECTION DETAILS FOR CONCRETE & CORRUGATED METAL PIPE

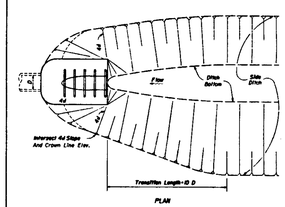
Designed by	Drawn by	Checked by	Approved by

Project No. — Sheet No. 10 — Total Sheets 5 of 6 — 273

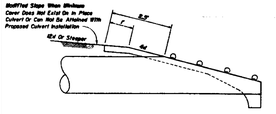
F.A.P.A. Approvals

GENERAL NOTES

1. Unless otherwise designated in the plans, concrete pipe mitered end sections may be used with any type of side drain pipe; corrugated sheet pipe mitered end sections may be used with any type of side drain pipe except aluminum pipe; and, corrugated aluminum mitered end sections may be used with any type of side drain pipe except sheet pipe. When bituminous coated metal pipe is specified for side drain pipe, mitered end sections shall also be of bituminous coated metal. Place the anchors in the outside trough of corrugations.
2. Concrete pipe used in the assembly of mitered end sections shall be of selective lengths to avoid excessive cutting.
3. Corrugated metal pipe galvanizing that is damaged during bending and perforating for mitered end section shall be repaired.
4. That portion of corrugated metal pipe in direct contact with the concrete slab shall be bituminous coated prior to placing of the concrete.
5. Corrugated polyethylene pipe (CPE) for side drain application of 6", 8" or 24" diameter shall utilize either corrugated metal or concrete mitered end sections. When used in conjunction with corrugated metal mitered end sections, connection shall be by either a formed metal band specifically designated to join CPE pipe and metal pipe or other adapter approved by the State Drainage Engineer. When used in conjunction with a concrete mitered end section, connection shall be by concrete jacket constructed in accordance with Index No. 280.
6. Where existing multiple side drain pipes are spaced other than the dimensions shown in this detail, or have non-uniform centers, the mitered end sections will be constructed either separately as single pipe mitered end sections or collectively as multiple pipe end sections as directed by the Engineer, however, mitered end sections will be paid for each, based on each independent pipe end.
7. In addition to the requirements of Section 430-4, side drain culverts shall comply with the bedding and backfill requirements shown on Index No. 280.
8. The reinforced concrete slab shall be constructed for all sizes of side drain pipe and cast in place with Class I concrete.
9. Round pipe size 30" or greater, pipe-arch size 35" x 24" or greater and elliptical pipe 48" x 30" or greater shall be grated unless exempted in the plans. Smaller sizes of pipe shall be grated only when called for in plans. The lower grate on trailing downstream ends on divided highways shall be omitted.
10. Grates are to be fabricated from steel ASTM A 53, Grade B, pipe. The lower grate on all traffic approach ends shall be Schedule 80 and all remaining grates shall be Schedule 40.
    Grates subject to salt free and corrosive free environment may be fabricated from galvanized pipe, with bars welded required during fabrication required as specified in Section 962, Standard Specifications, or fabricated from black pipe, and hot dipped galvanized after fabrication in accordance with ASTM A 123.
    Grates subject to salt water or highly corrosive environment shall be hot dipped galvanized after fabrication in accordance with ASTM A 123.
11. Ditch transitions shall be used on all grades in excess of 3% as directed by the Engineer.
12. The project engineer shall contact the District Drainage Engineer for possible alternate treatment prior to constructing side drain mitered end sections where a minimum spacing of 30' will not result between the toe points of the mitered end sections.
13. The cost of all pipe (s), grates, fasteners, reinforcing, connectors, anchors, concrete, sealants, jackets and coupling bands shall be included in the cost for the mitered end section. Sodding shall be paid for separately under the contract unit price for Sodding, SY, Pay Item No. 570-1-nnn
14. Mitered end sections shall be paid for under the contract unit price for Mitered End Section (SD-1, Each, Pay Item No. 430-984-bxx, based on each independent pipe end.



DITCH TRANSITION



PERMISSIBLE PAVEMENT MODIFICATION FOR CLASS I TURNOUTS

DESIGN NOTES

1. In critical hydraulic locations, grates shall not be used until potential debris transport has been conducted by the drainage engineer and appropriate adjustments made. Ditch grades in excess of 3% or pipe with less than 1.5' of cover and grades in excess of 1% will require such an evaluation (General Note 9).
2. The design engineer shall determine, highly corrosive locations and specify in the plans when the grates shall be hot dipped galvanized after fabrication (General Note 10).
3. The design engineer shall determine and designate in the plans which alternate types of mitered end section will not be permitted. The restriction shall be based on corrosive or structural requirements.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION — ROAD DESIGN

SIDE DRAIN MITERED END SECTION GENERAL NOTES

Designed by	Drawn by	Checked by	Approved by

Project No. — Sheet No. 10 — Total Sheets 6 of 6 — 273

F.A.P.A. Approvals

HENRY DORZBACK, P.E. #39449 CHIEF ENGINEER DEPARTMENT OF SANITARY SEWERS	RALPH L. METCALF II, P.E. DIRECTOR DEPARTMENT OF SANITARY SEWERS	DES: J.P.W. DRN: CL CKD: A.H. DATE: 5/24/94	AS SHOWN

No.	DATE	REVISIONS
1		
2		
3		
4		
5		

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAIL SYSTEM

UNIVERSITY PUMPING STATION TRUCK ACCESS DETAILS

DESIGN W.O. 4312
CONSTRUCTION W.O.

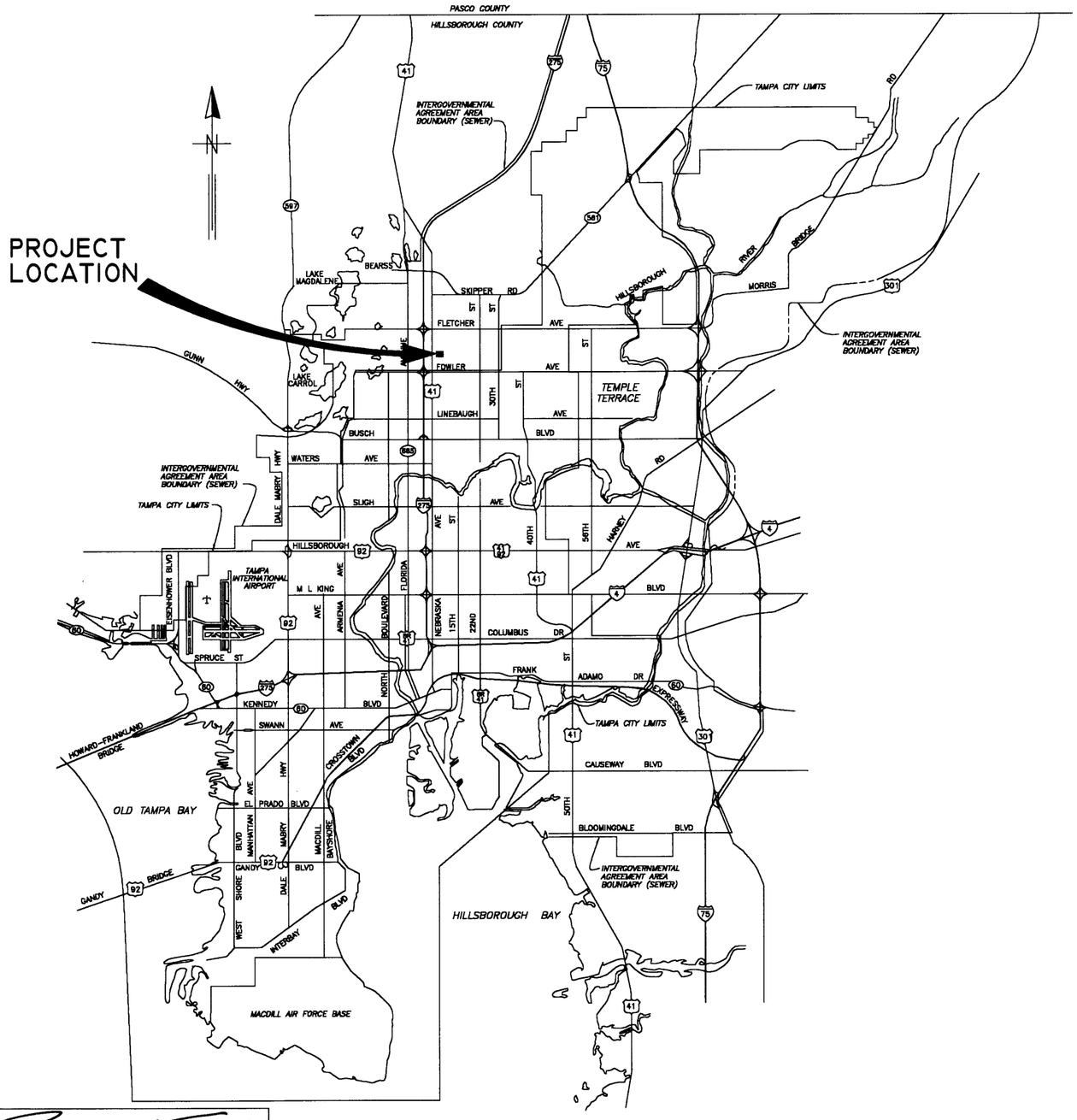
SHEET 4 OF 4

282-6

282-6

B29-36

LOCATION MAP



CITY of TAMPA

CITY OF TAMPA FLORIDA
MASCOTTE
ORGANIZED JULY 15 1887

DEPARTMENT OF SANITARY SEWERS
SEWAGE DISPOSAL SYSTEM

PLANS FOR

131ST AVENUE PUMPING STATION
ODOR CONTROL REHABILITATION

CONTRACT II-02

131st AVE PUMPING STA ODOR CONTROL REHAB 1

ROMAN D KORCHAK, PE #42626
ELECTRICAL SECTION HEAD
DEPARTMENT OF SANITARY SEWERS

HENRY DORZBACK, P.E. #39449
CHIEF ENGINEER
DEPARTMENT OF SANITARY SEWERS

RALPH L. METCALF II, P.E.
DIRECTOR
DEPARTMENT OF SANITARY SEWERS

DES: CL
DRN: MPL
CKD: A.H.
DATE: 6-02

No.	DATE	REVISIONS
3		
2		
1		

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

COVER SHEET

W.O. 5165
SHEET 1 OF 15

NOTES

1) The Contractor shall arrange the work to minimize the time that the pumping station will not have an odor control system in operation. The existing odor control system shall remain in operation until the construction of the proposed system is completed. The Contractor shall then connect the new system to the opening in the wet well and place the existing system out of operation. The existing system shall remain intact until all performance tests on the new system have been successfully completed.

2) The Contractor is responsible for obtaining all field measurements and verifying the locations, elevations, and dimensions of all existing piping, structures, and other features affecting his work prior to submittal of shop drawings or starting construction.

3) All equipment, piping, structures, etc. indicated for removal shall be removed and either delivered to the Howard F. Curren Treatment Plant or properly disposed by the Contractor. In general, all items constructed of metal or aluminum shall remain the property of the City and shall be delivered to the treatment plant. The existing bleach storage tank and caustic storage tank shall also be delivered to the treatment plant. The Contractor shall dispose all other items.

4) The existing carbon tank contains approximately 2–ft of activated carbon. The Contractor shall be responsible for removing the carbon and properly disposing it. The carbon may be delivered to the treatment plant if no other suitable disposal site can be found.

5) The existing concrete pedestals for the scrubber tower, bleach tank, carbon tank, and blower shall be removed flush with the existing floor. All rebar or anchor bolts cast into the existing floor that are remaining after the removal of the concrete pedestals and other equipment shall be ground back a minimum of 1–inch and the hole filled with epoxy or grout. Areas of the floor that are disturbed by the removal of the concreteb pedestals and other equipment shall be made smooth.

6) The existing air compressor building and the two air compressors inside the building shall be removed. Air piping between the air compressors and the existing odor control system shall also be removed. Air piping that extends into the building and that is connected to the pumping station air system shall be capped at a suitable location inside the pumping station.

7) The Contractor shall submit a detailed layout of the proposed equipment and the containment area for the approval by the Engineer. The equipment shall be arranged to provide maximum access to all components. The dimensions of the proposed containment area shall be sufficient to accommodate all components of new odor control system and provide a minimum 4–ft between the containment walls and each system component. Height of containment curb shall be as required to provide a containment volume that is 110% of the volume of the ~~largest chemical storage vessel~~ Sump of the largest scrubber tower. (Per addendum 2)

8) Soil below the proposed concrete containment area shall be compacted to 95% maximum density per AASHTO T–180.

9) The existing concrete containment curb shall be removed and reconstructed as required to suit the proposed odor control equipment. Width and height of new containment curb shall match the existing curb. New curb shall be constructed of 4000 psi concrete and shall be reinforced with one #4 bar installed parallel to the curb. Curb shall be anchored to the existing concrete slab using #4 dowel @18" O.C. drilled and epoxied into the existing concrete (4–inch minimum embedment). New concrete shall be bonded to existing concrete using a high strength bonding agent.

10) Locations and number of floor drains shown on the plans for the proposed containment area are approximate. Contractor may adjust locations and provide additional drains to suit the layout of the selected equipment and ensure proper drainage. Floor drains and clean–outs shall be constructed of PVC. Floor drain piping shall be schedule 80 PVC and shall have a minimum slope of 1/8" per foot. Drain piping shall be connected to the existing drain piping located inside the wet well as shown on the plans. If the connection requires removing a portion of the existing concrete mower strip or containment curb, the concrete shall be removed and repaired as follows: Existing concrete shall be removed by saw–cutting the perimeter of the area to be removed. Mower strip shall be repaired with 4000 psi concrete reinforced with #4 @ 12" O.C.E.W. Thickness of the new concrete shall match the existing concrete. Containment curb shall be replaced in accordance with note 9.

11) The scrubber tower, blower, and chemical recirculation pumps, for the odor control system shall be securely mounted to concrete house keeping pads. The pads shall be constructed of 4000 psi concrete reinforced with 4"X4"–W6XW6 WWF. The pads shall be a minimum of 6–inches high and shall have sufficient length and width to completely support the proposed equipment. The pads shall be anchored to the concrete floor by providing No. 4 dowels at 12" O.C.E.W. drilled and epoxied or cast into the concrete floor (minimum 4–inches embedment).

12) All ductwork shall be constructed of fiberglass reinforced plastic (FRP). The ductwork and exhaust stack shall be supported and anchored as required to withstand a 120 mph wind load and all other loads that may be imposed on the ductwork. Hangers and supports shall be constructed of either vinylester FRP or 316 stainless steel. All guy wires, fasteners, bolts, nuts, washers, anchors, etc. shall be constructed of 316 stainless steel. The Contractor shall submit shop drawings for the supports and hangers.

13) The existing wet well intake duct transition piece shall be removed and replaced from the connection to the existing above ground ductwork to the first flanged joint below the wet well ceiling. Remaining ductwork through the wet well floor shall remain. New transition piece shall be constructed of FRP. The configuration and dimensions of the new transition piece shall be as required to connect to the remaining ductwork in the wet well and to the new ductwork for the proposed odor control system. The intake duct shall also be equipped with a flange to seal the annular space between the duct and the opening in the wet well ceiling. Contractor shall submit shop drawings for the transition piece before starting construction.

14) The Contractor shall install chemical storage tank fill pipes to allow the tanks to be filled form the location shown on the plans. Fill pipe shall be constructed of CPVC and shall have a minimum diameter of 2–inches. Ball valves and check valves shall be constructed of CPVC and shall be equipped with unions for removal. Anchors, supports, and hangers used to secure the pipe shall be constructed of FRP or stainless steel. Fill pipes shall connect to the top of the storage tanks. Contractor shall submit layout of the fill pipes prior to beginning construction.

15) Contractor shall install a new 2–inch water line and 2–inch backflow preventer assembly to provide make–up water to the new odor control. The new water line shall be connected to the existing 2–inch water line downstream of the existing backflow prevent located on the south side of the pumping station (see sheet 3). Water line shall be constructed of schedule 80 CPVC and shall be installed with a minimum of 30–inches of cover. Grassed areas disturbed by the installation shall be re–sodded. If the installation requires removal of the existing concrete driveway, the concrete shall be removed by saw–cutting along the trench edges. Concrete driveway shall be replaced with 4000 psi concrete reinforced with 4"x4" W6xW6 WWF. Existing turf block driveway shall be removed and replaced in kind. Back flow preventer assembly shall meet City of Tampa Water Department standards. Existing 1–inch water supply shall be removed and capped.

16) During the construction, the Bioxide tank and feed system must remain in operation. If the construction requires relocation of the tank, the Contractor shall coordinate the relocation with Treatment Plant personnel. The relocation and connections for the feed system shall be performed by others.

17) Contractor shall remove and replace the existing emergency eyewash/shower system. Location of new system shall be determined by the Engineer at the time of construction.

18) Contractor to provide 3/4" water supply line and a Walts #8 hose valve/vacuum breaker with 3/4" hose thread for washdown purposes in the new containment area. Water supply shall be connected to the new 2" water line.

13st AVE PUMP STA ODOR CONTROL REHAB

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

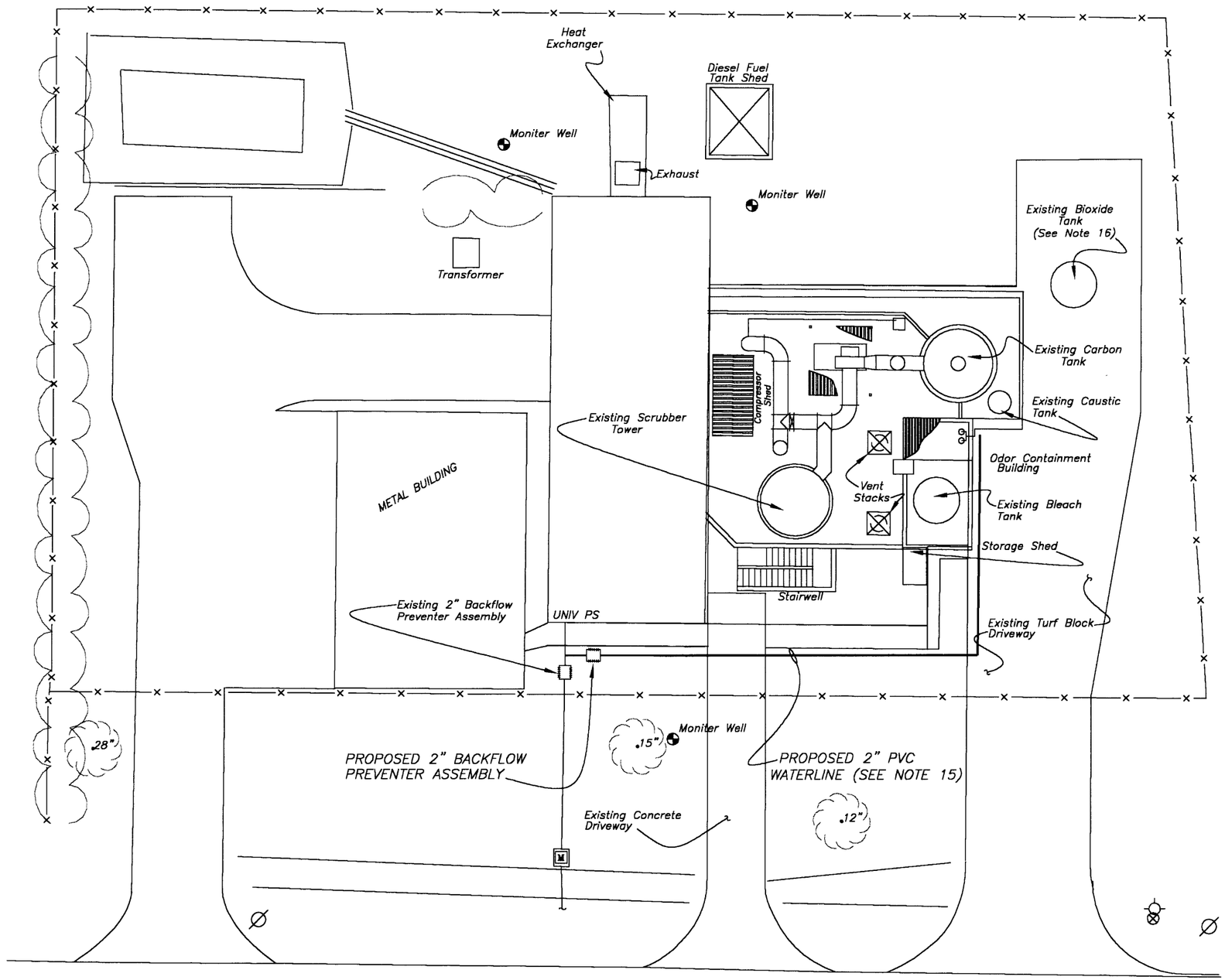
DES: CL
DRN: MPL
CKD: Att
DATE: 6-02

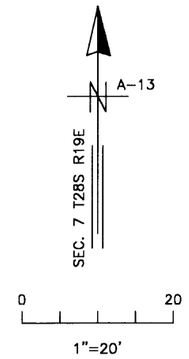
CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131ST AVENUE PUMPING STATION
ODOR CONTROL REHABILITATION

W.O. 5165
SHEET 2 OF 15

B29-38





131ST AVE

13st AVE PUMP STA ODOR CONTROL REHAB 20

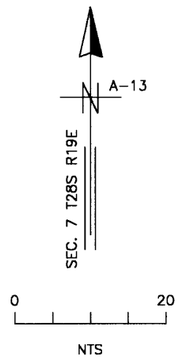
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

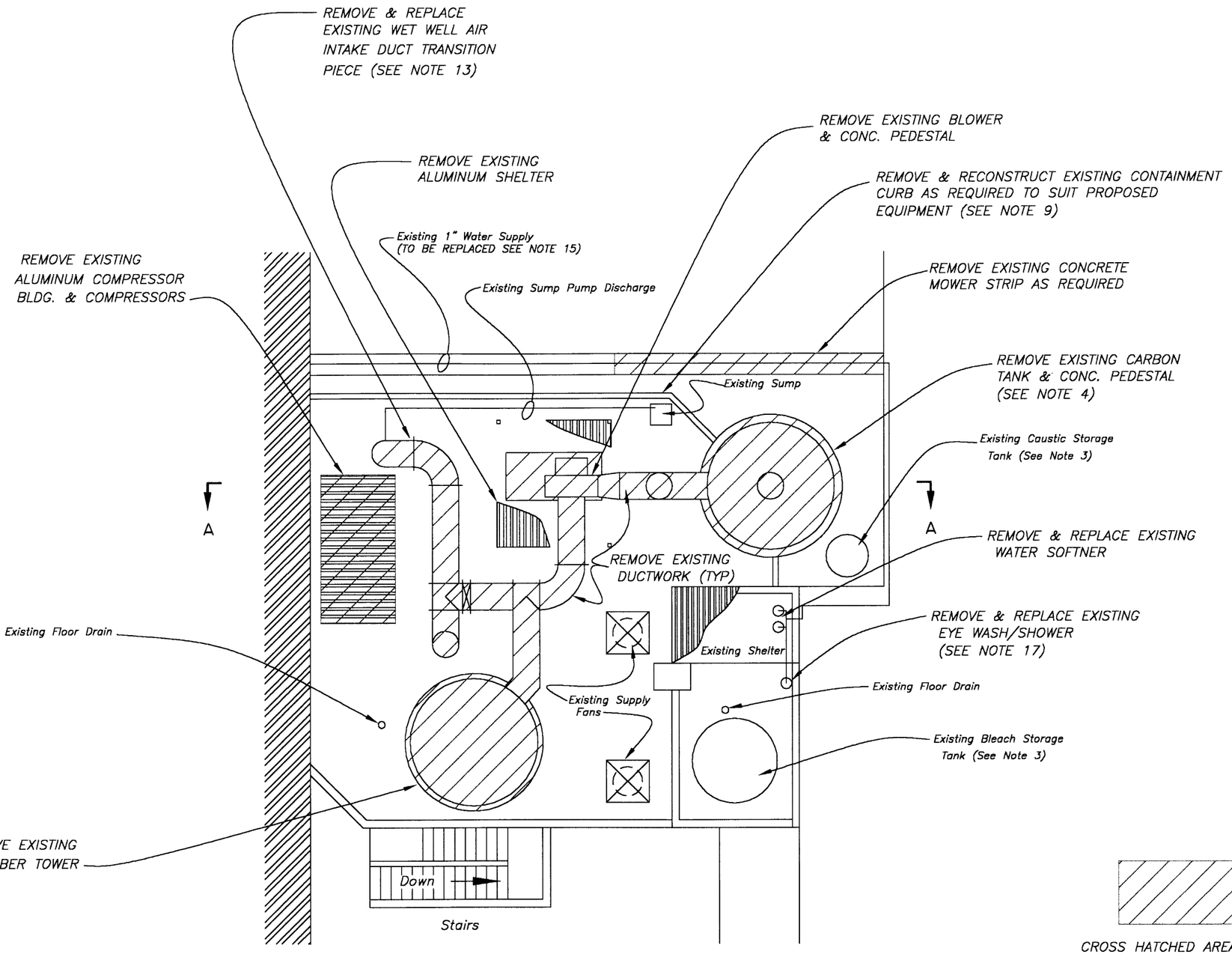
DES: CL
DRN: MPL
CKD: AHH
DATE: 6-02

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131ST AVENUE PUMPING STATION
ODOR CONTROL REHABILITATION
EXISTING SITE PLAN

W.O. 5165
SHEET 3 OF 15





CROSS HATCHED AREAS INDICATE STRUCTURES & EQUIPMENT TO BE REMOVED

PLAN

13st AVE PUMP STA ODOR CONTROL REHAB

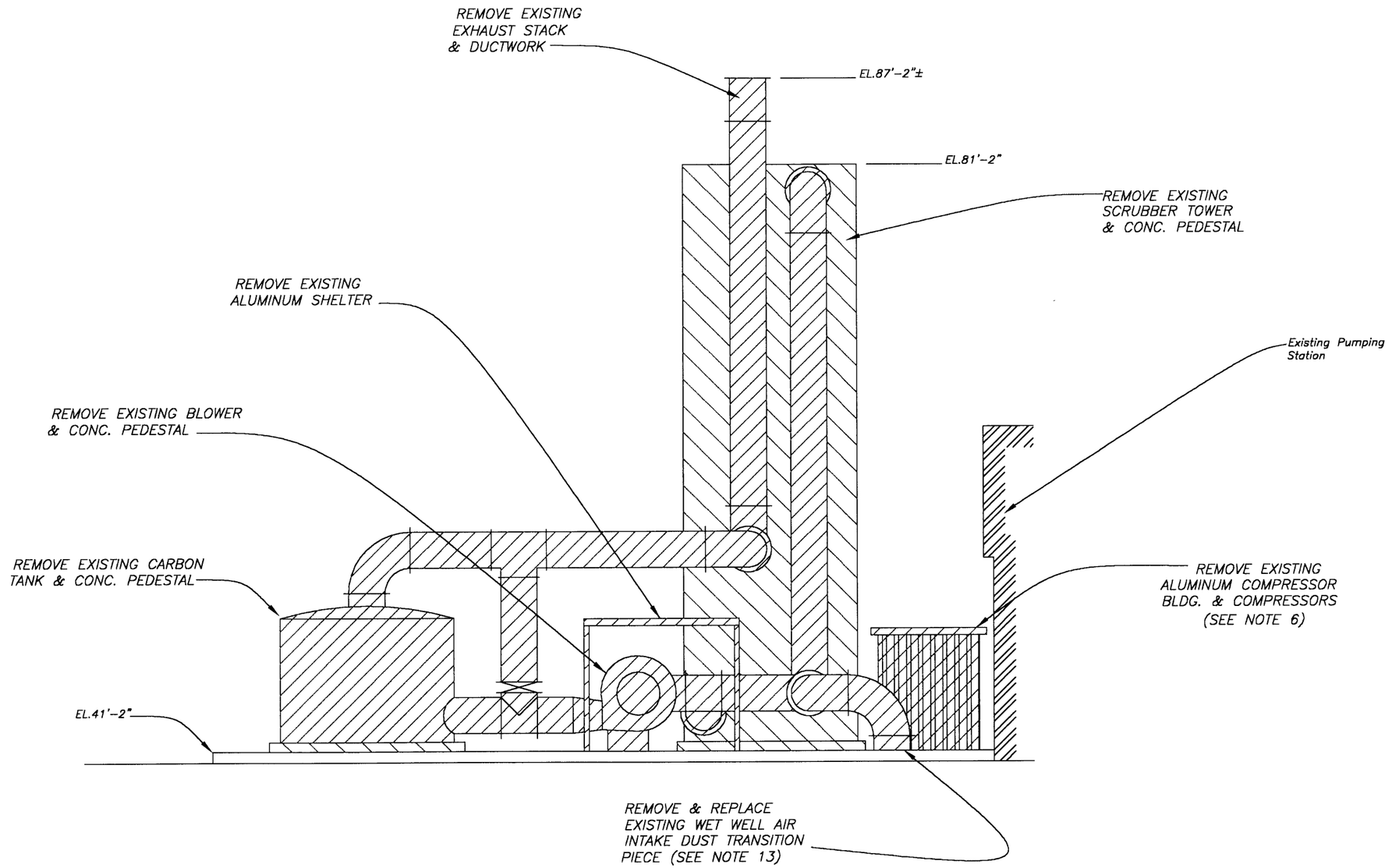
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: CL
DRN: MPL
CKD: AHH
DATE: 6-02

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131ST AVENUE PUMPING STATION ODOR CONTROL REHABILITATION DEMOLITION PLAN VIEW

W.O. 5165
SHEET 4 OF 15



SECTION A-A
Scale 1/8" = 1'

13st AVE PUMP STA ODOR CONTROL REHAB

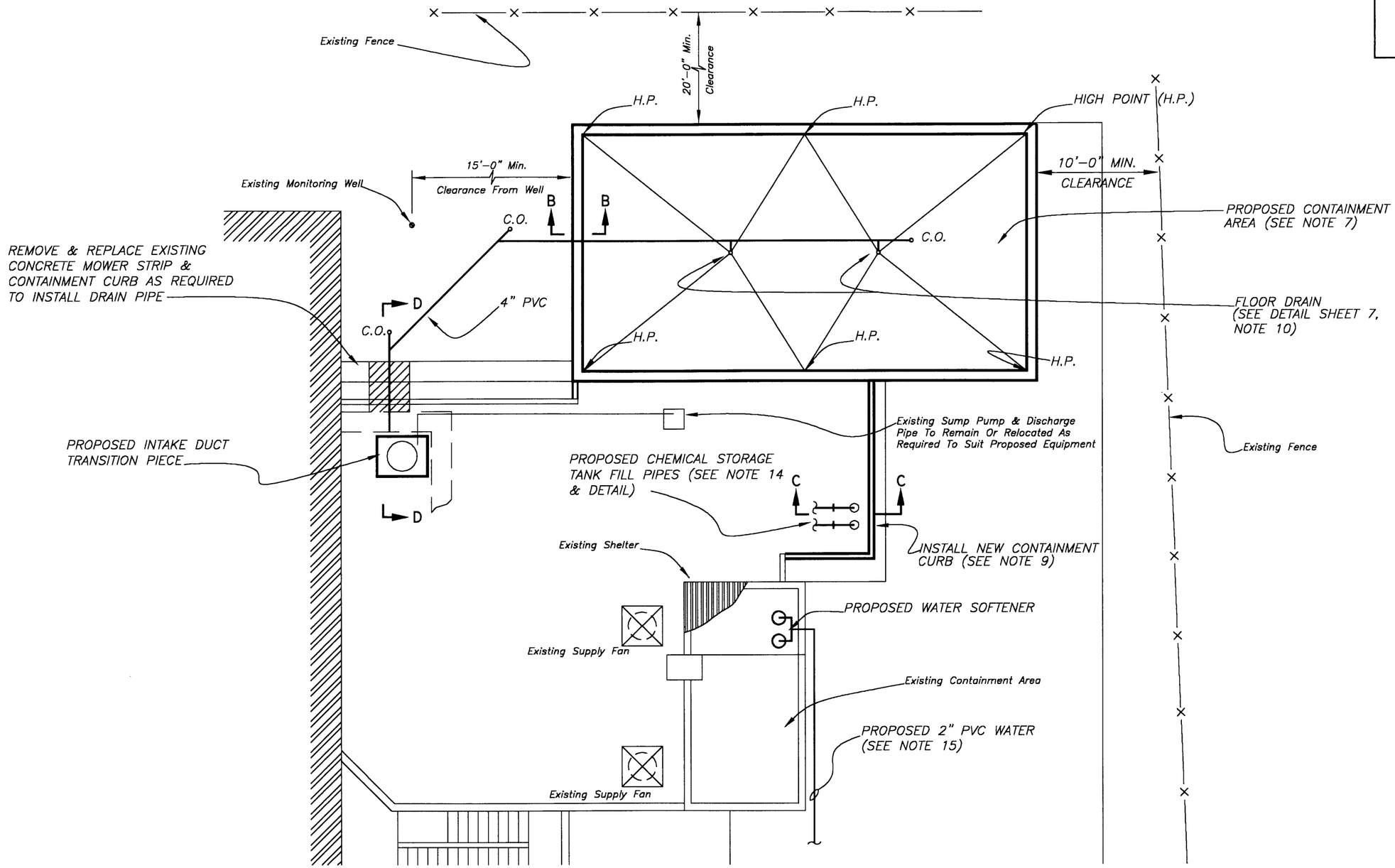
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: CL
DRN: MPL
CKD: AHH
DATE: 6-02

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131ST AVENUE PUMPING STATION
ODOR CONTROL REHABILITATION
DEMOLITION SECTION A-A

W.O. 5165
SHEET 5 OF 15



PLAN
Scale 3/32" = 1'

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

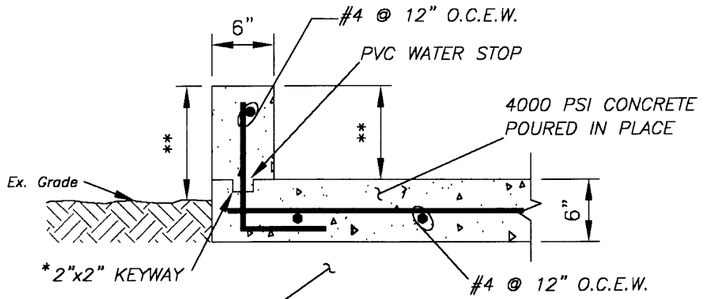
DES: CL
DRN: MPL
CKD: AHH
DATE: 6-02

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

13IST AVENUE PUMPING STATION
ODOR CONTROL REHABILITATION
PROPOSED PLAN

W.O. 5165
SHEET 6 OF 15

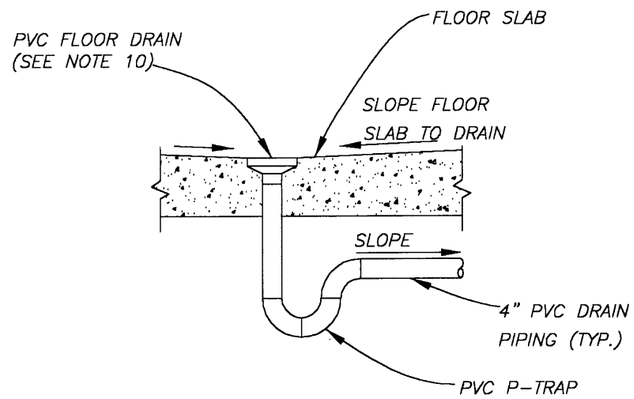
13st AVE PUMP STA ODOR CONTROL REHAB



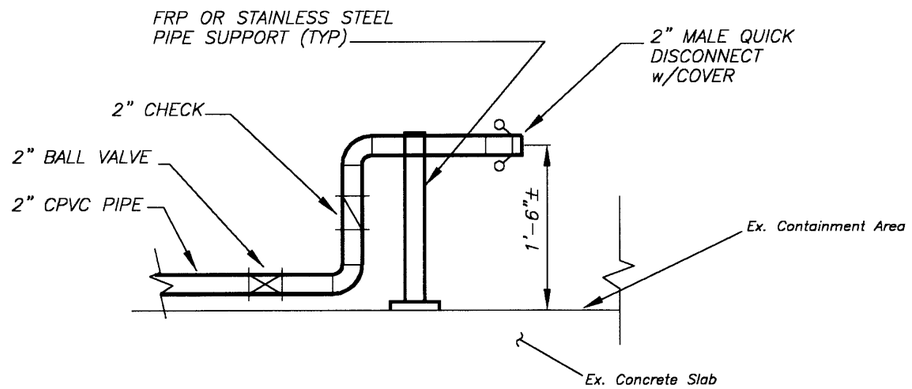
SECTION B-B
N.T.S.

*KEYWAY AND WATER STOP ONLY REQUIRED IF CURB AND SLAB ARE CONSTRUCTED WITH SEPARATE CONCRETE POURS.

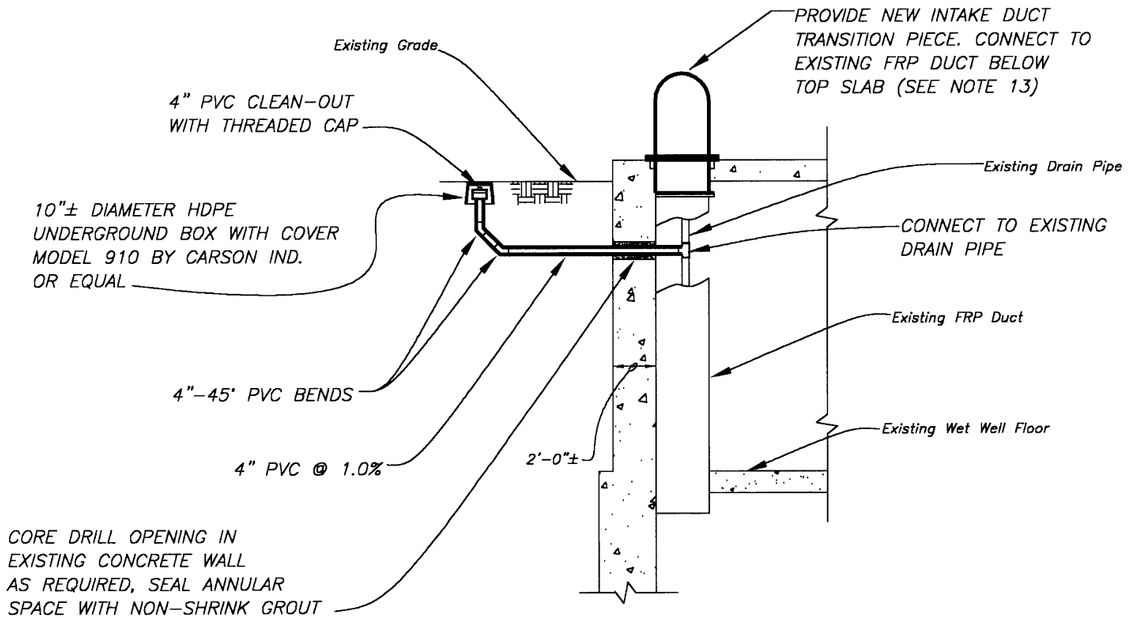
**SEE NOTE 7



FLOOR DRAIN DETAIL
N.T.S.



SECTION C-C
N.T.S.



SECTION D-D
N.T.S.

13st AVE PUMP STA ODOR CONTROL REHAB

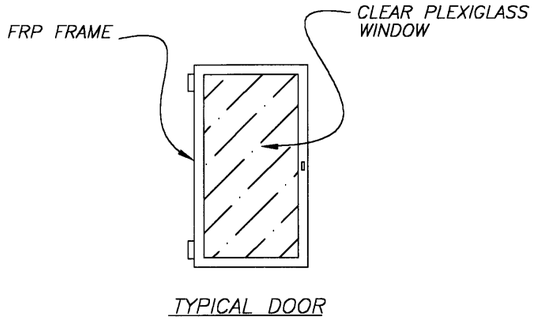
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: CL
DRN: MPL
CKD: AHH
DATE: 6-02

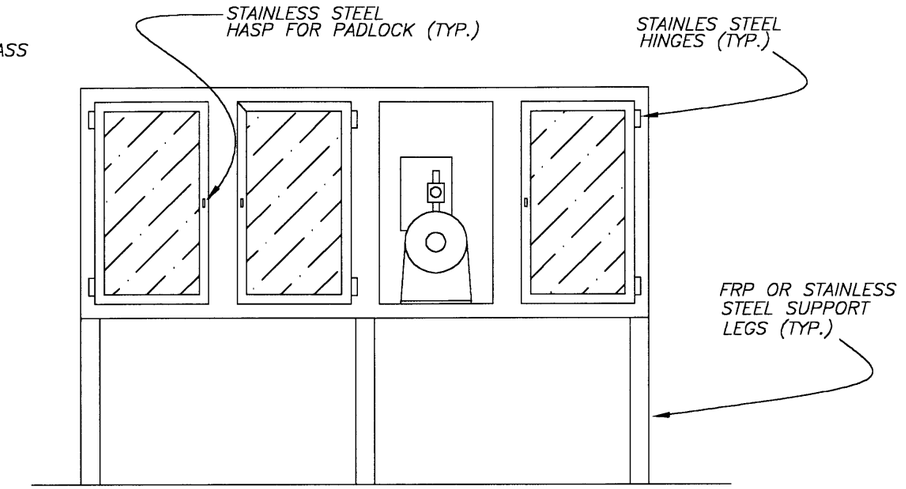
CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

13IST AVENUE PUMPING STATION ODOR CONTROL REHABILITATION DETAILS & SECTIONS

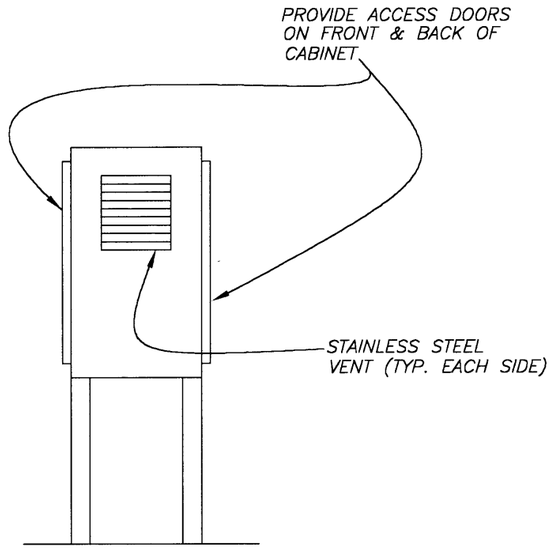
W.O. 5165
SHEET 7 OF 15



TYPICAL DOOR



FRONT VIEW



SIDE VIEW

ENCLOSURE/CABINET FOR CHEMICAL METERING PUMPS

NOTES

1) These drawings are intended to show the general layout and design of the chemical metering pump enclosures/cabinet. Dimensions of the enclosures/cabinet shall be determined by the Contractor based on final selected equipment. Enclosure/cabinet shall either be designed to house all metering pumps or seperate cabinets shall be provided to house the metering pumps for the sodium hypochlorite supply system and the metering pumps for the sodium hydrocide supply system.

2) Enclosures shall be constructed of chemical resistant FRP with a minimum thickness of 1/4–inch. Enclosures shall be weather proof and shall be designed to support the chemical metering pumps and a windload of 120 mph.

13st AVE PUMP STA ODOR CONTROL REHAB

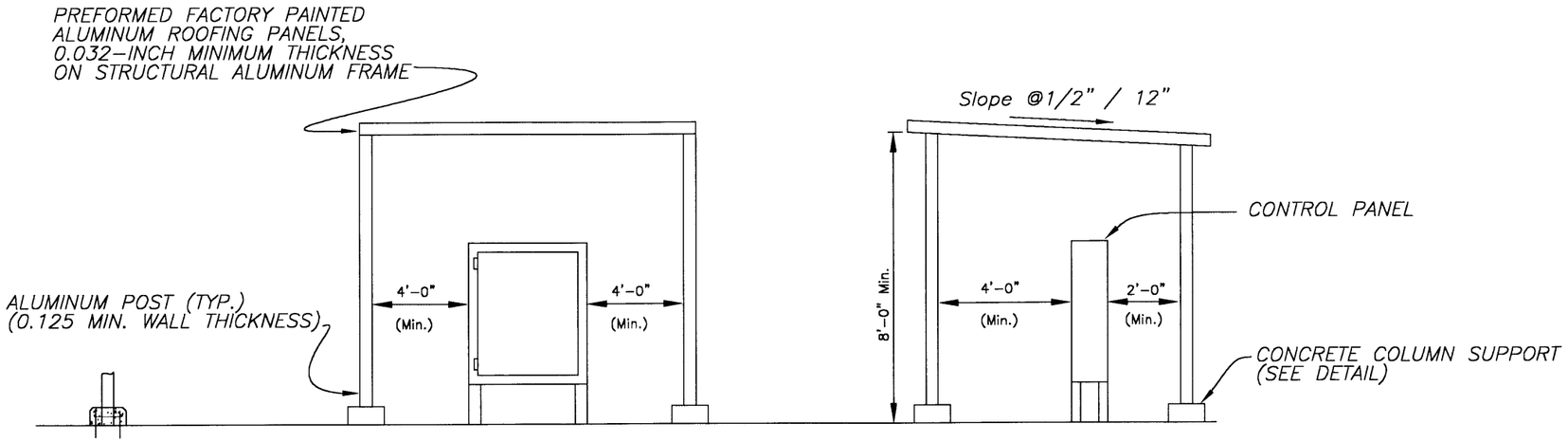
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: CL
DRN: MPL
CKD: A.H.
DATE: 6-02

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

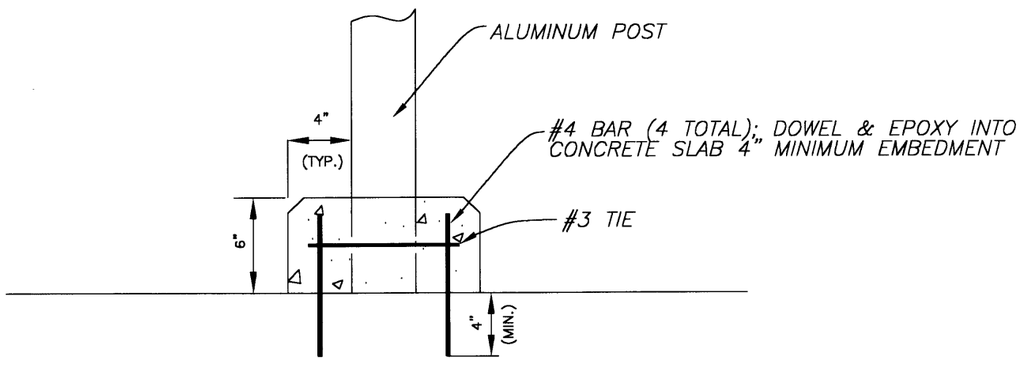
131ST AVENUE PUMPING STATION
ODOR CONTROL REHABILITATION
PUMP CABINET

W.O. 5165
SHEET 8 OF 15



ALUMINUM AWNING DETAIL

N.T.S.



CONCRETE COLUMN SUPPORT

N.T.S.

NOTES

1) Drawings for the aluminum awning are intended to show the general concept and minimum dimension for the structure. The Contractor shall provide final design in accordance with the Contract Specifications and the Southern Building Code. Contractor shall submit design and details of the structure prior to purchasing materials and fabrication.

2) Structural aluminum beams and posts shall be manufactured structural shapes of Alloy 6061–T6, 6063, or other alloy approved by the Aluminum Association for structural purposes.

3) All metal surfaces that contact concrete surfaces shall be coated with 2–coats of coal tar epoxy applied to the metal surface.

4) Fasteners for aluminum structural members and roofing panels shall either be stainless steel or aluminum. Plated or coated steel fasteners shall not be used.

13st AVE PUMP STA ODOR CONTROL REHAB

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

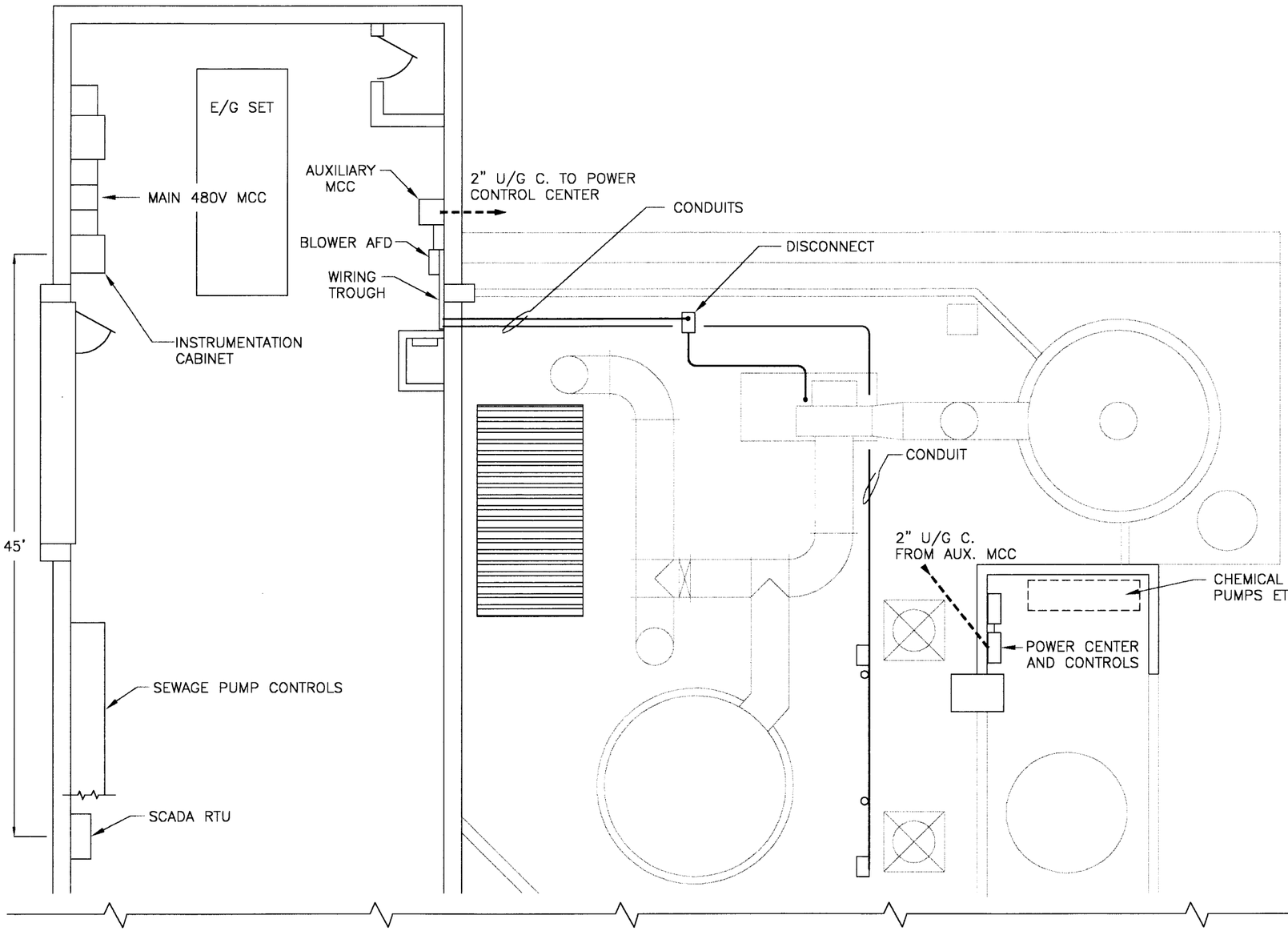
DES: CL
DRN: MPL
CKD: AH
DATE: 6-02

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

13IST AVENUE PUMPING STATION
ODOR CONTROL REHABILITATION
AWNING DETAIL

W.O. 5165
SHEET 9 OF 15

B29-45



Scale 1/8" = 1'-0"

NOTES:

1. THIS DRAWING IS PROVIDED TO OUTLINE, IN GENERAL TERMS, THE EXISTING ODOR CONTROL FACILITIES.
2. THE CONTRACTOR SHALL FIELD VERIFY ALL ELECTRICAL EQUIPMENT AND INTERCONNECTIONS THAT MAY BE OF CONSEQUENCE IN THE EXECUTION OF THIS CONTRACT.

131st AVE PUMP STA. ODOR CONTROL REHAB 1/8"

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

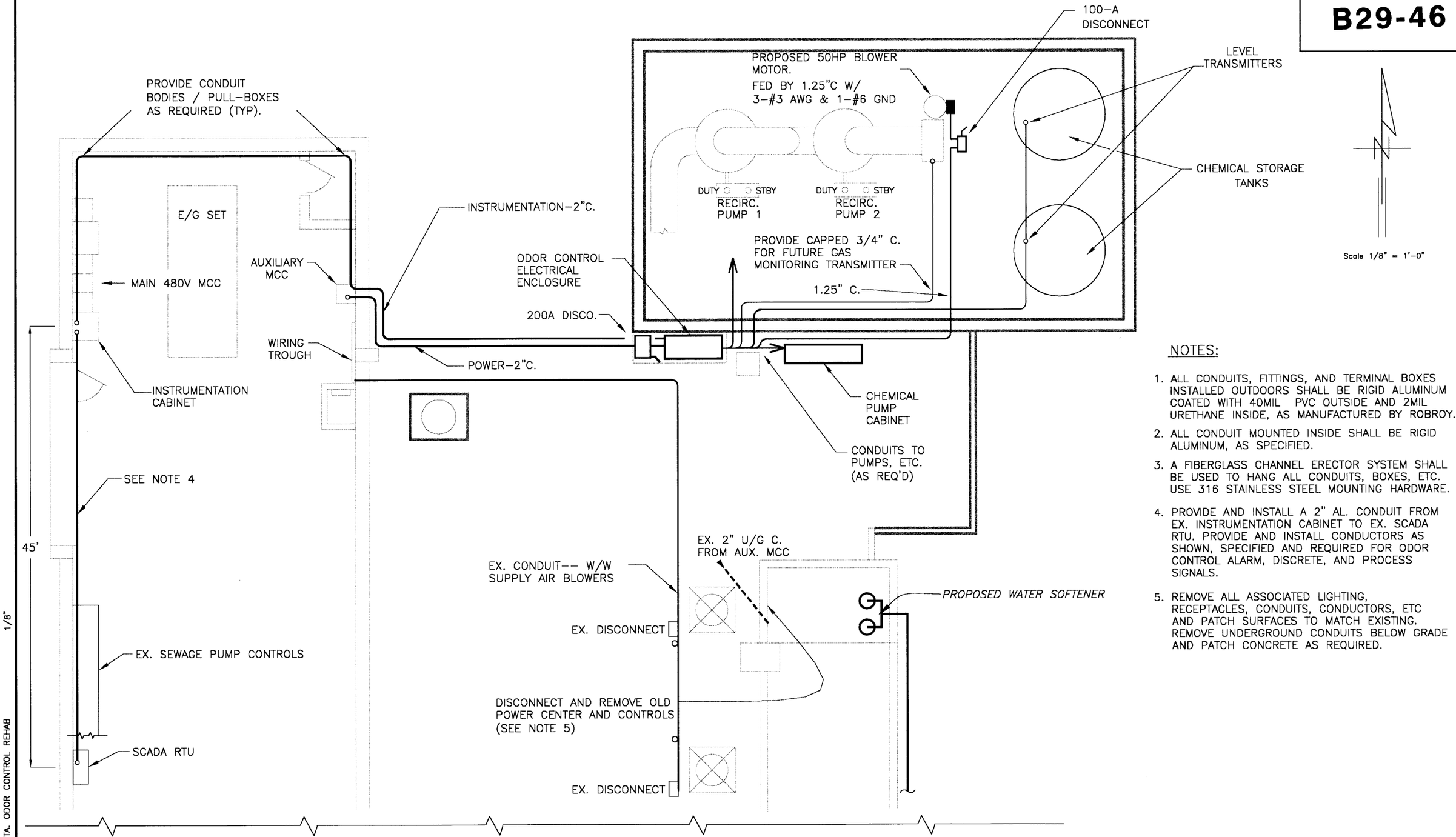
DES: RK
DRN: RK
CKD:
DATE:

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131ST AVE. PUMPING STATION ODOR CONTROL REHABILITATION EXISTING SITE PLAN

W.O. 5165
SHEET E-1 OF 15

B29-46



Scale 1/8" = 1'-0"

NOTES:

1. ALL CONDUITS, FITTINGS, AND TERMINAL BOXES INSTALLED OUTDOORS SHALL BE RIGID ALUMINUM COATED WITH 40MIL PVC OUTSIDE AND 2MIL URETHANE INSIDE, AS MANUFACTURED BY ROBROY.
2. ALL CONDUIT MOUNTED INSIDE SHALL BE RIGID ALUMINUM, AS SPECIFIED.
3. A FIBERGLASS CHANNEL ERECTOR SYSTEM SHALL BE USED TO HANG ALL CONDUITS, BOXES, ETC. USE 316 STAINLESS STEEL MOUNTING HARDWARE.
4. PROVIDE AND INSTALL A 2" AL. CONDUIT FROM EX. INSTRUMENTATION CABINET TO EX. SCADA RTU. PROVIDE AND INSTALL CONDUCTORS AS SHOWN, SPECIFIED AND REQUIRED FOR ODOR CONTROL ALARM, DISCRETE, AND PROCESS SIGNALS.
5. REMOVE ALL ASSOCIATED LIGHTING, RECEPTACLES, CONDUITS, CONDUCTORS, ETC AND PATCH SURFACES TO MATCH EXISTING. REMOVE UNDERGROUND CONDUITS BELOW GRADE AND PATCH CONCRETE AS REQUIRED.

131st AVE PUMP STA. ODOR CONTROL REHAB 1/8"

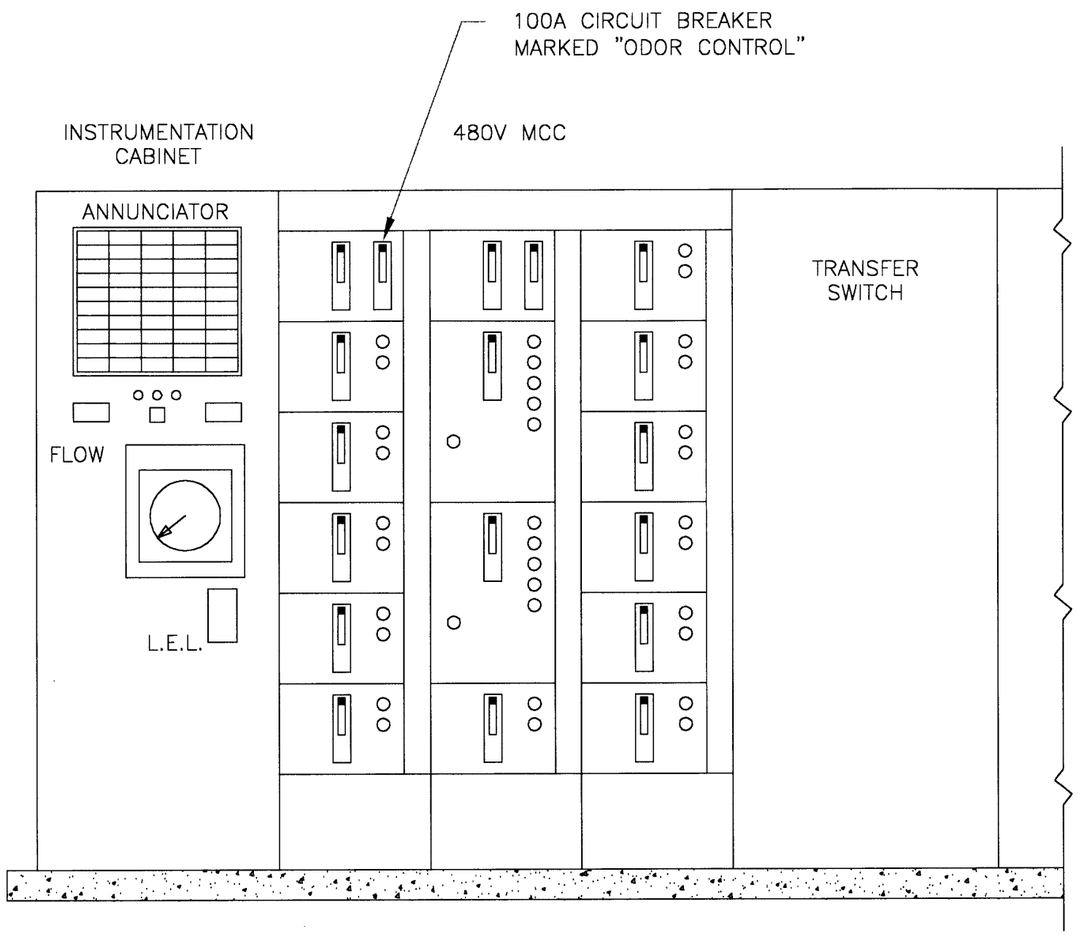
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: RK
DRN: RK
CKD:
DATE:

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

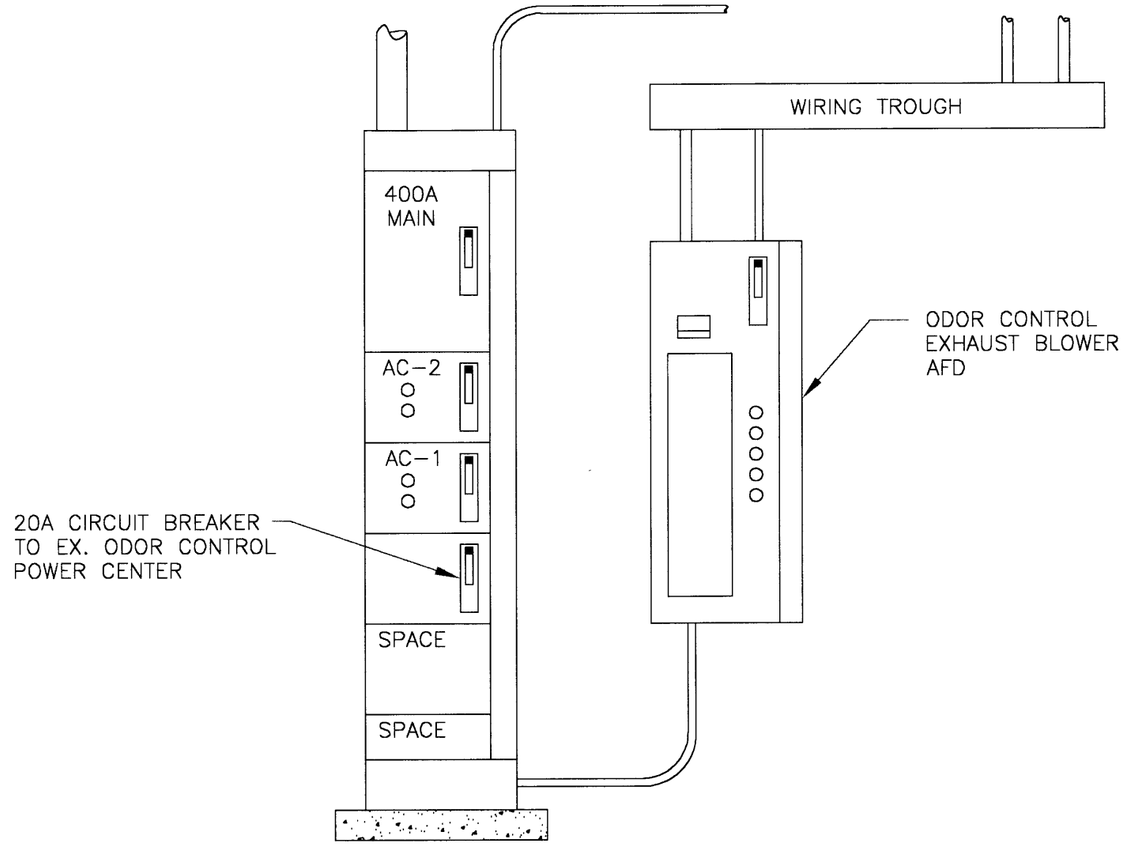
131ST AVE. PUMPING STATION ODOR CONTROL REHABILITATION PROPOSED SITE PLAN

W.O. 5165
SHEET E-2 OF 15



MAIN 480V MCC

(LOCATED ON WEST WALL)



AUXILIARY 480V MCC STRUCTURE

(LOCATED ON EAST WALL)

NOTES:

1. THIS DRAWING IS PROVIDED TO OUTLINE, IN GENERAL TERMS, THE EXISTING ODOR CONTROL FACILITIES.

2. THE CONTRACTOR SHALL FIELD VERIFY ALL ELECTRICAL EQUIPMENT AND INTERCONNECTIONS THAT MAY BE OF CONSEQUENCE IN THE EXECUTION OF THIS CONTRACT.

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

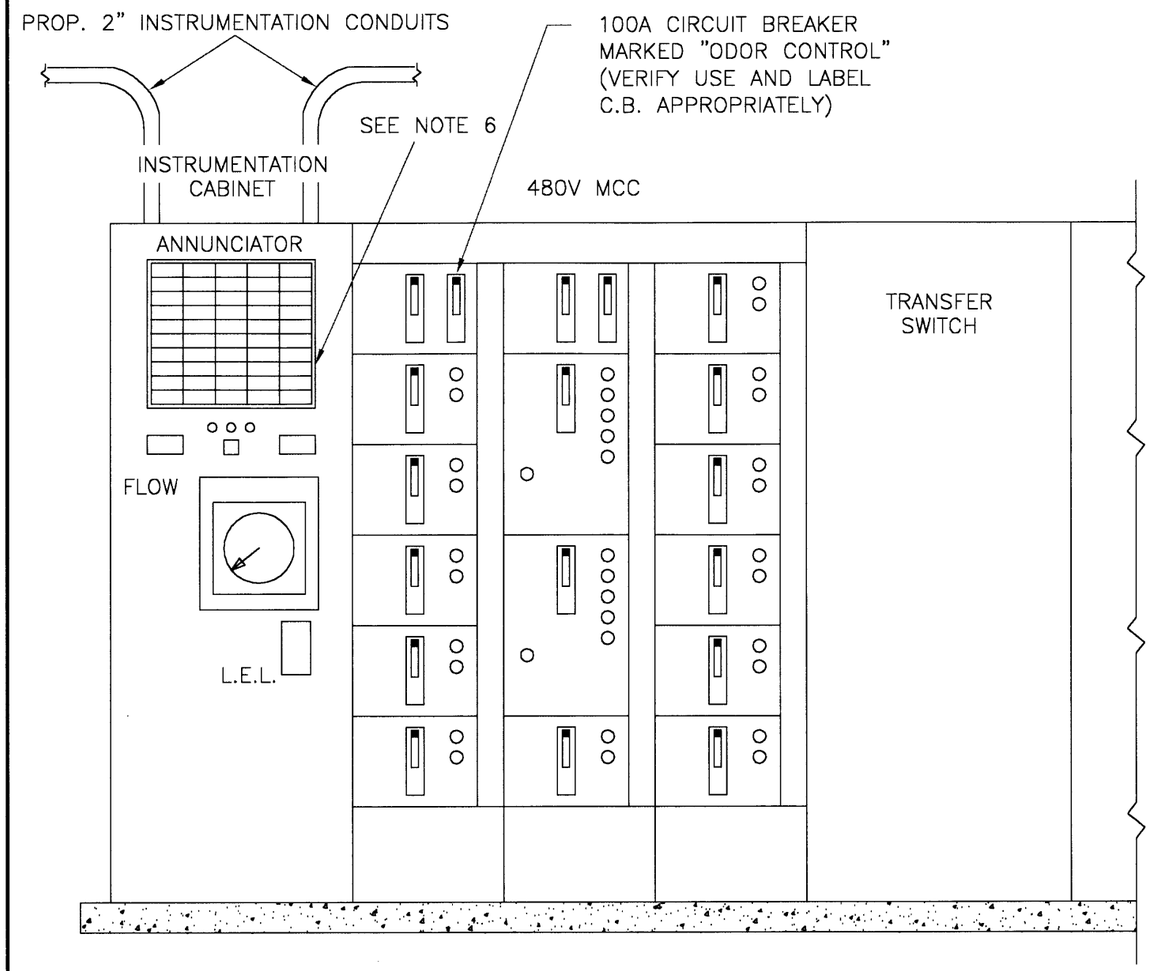
DES: RK
DRN: RK
CKD:
DATE:

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131ST AVE. PUMPING STATION
ODOR CONTROL REHABILITATION
EXISTING MCC

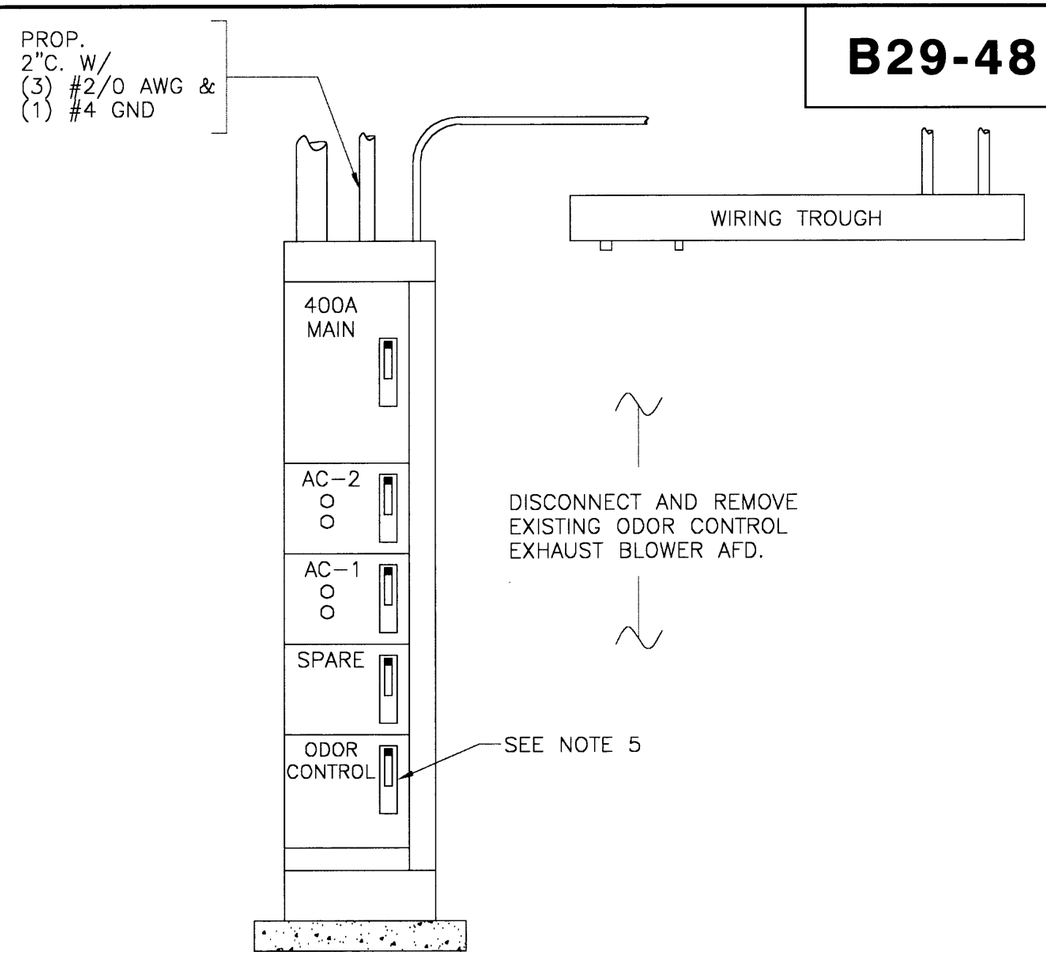
W.O. 5165
SHEET E-3 OF 15

131st AVE PUMP STA. ODOR CONTROL REHAB 20



MAIN 480V MCC

(LOCATED ON WEST WALL)



AUXILIARY 480V MCC STRUCTURE

(LOCATED ON EAST WALL)

NOTES:

1. ALL CONDUITS, FITTINGS, AND TERMINAL BOXES INSTALLED OUTDOORS SHALL BE RIGID ALUMINUM COATED WITH 40MIL PVC OUTSIDE AND 2MIL URETHANE INSIDE, AS MANUFACTURED BY ROBROY.
2. ALL CONDUIT MOUNTED INSIDE SHALL BE RIGID ALUMINUM, AS SPECIFIED.
3. A FIBERGLASS CHANNEL ERECTOR SYSTEM SHALL BE USED TO HANG ALL CONDUITS, BOXES, ETC. USE 316 STAINLESS STEEL MOUNTING HARDWARE.
4. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY TO EXECUTE THIS CONTRACT.
5. PROVIDE NEW ODOR CONTROL SYSTEM FEEDER CIRCUIT BREAKER AS SHOWN, SPECIFIED, OR REQUIRED. MINIMUM INTERRUPTING CAPACITY SHALL BE 50KA @ 480V. MODIFY MCC CUBICLES AS REQUIRED. REMAINING CUBICLES SHALL BE MARKED AS SHOWN.
6. MODIFY EXISTING ANNUNCIATOR WINDOWS AND ALARM ELECTRONICS TO FACILITATE PROPOSED "ODOR CONTROL STAGE-1 FAULT", "ODOR CONTROL STAGE-2 FAULT", AND "EXHAUST BLOWER FAULT" INDICATION. CITY INSTRUMENTATION PERSONNEL WILL MAKE FINAL SCADA RTU CONNECTION.

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

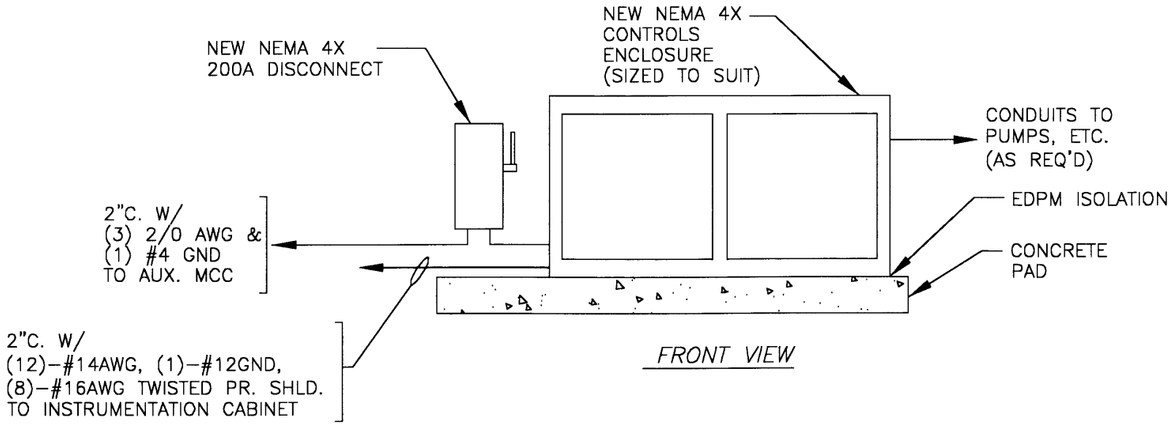
DES: RK
DRN: RK
CKD:
DATE:

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131st AVE. PUMPING STATION
ODOR CONTROL REHABILITATION
PROPOSED MCC MODIFICATIONS

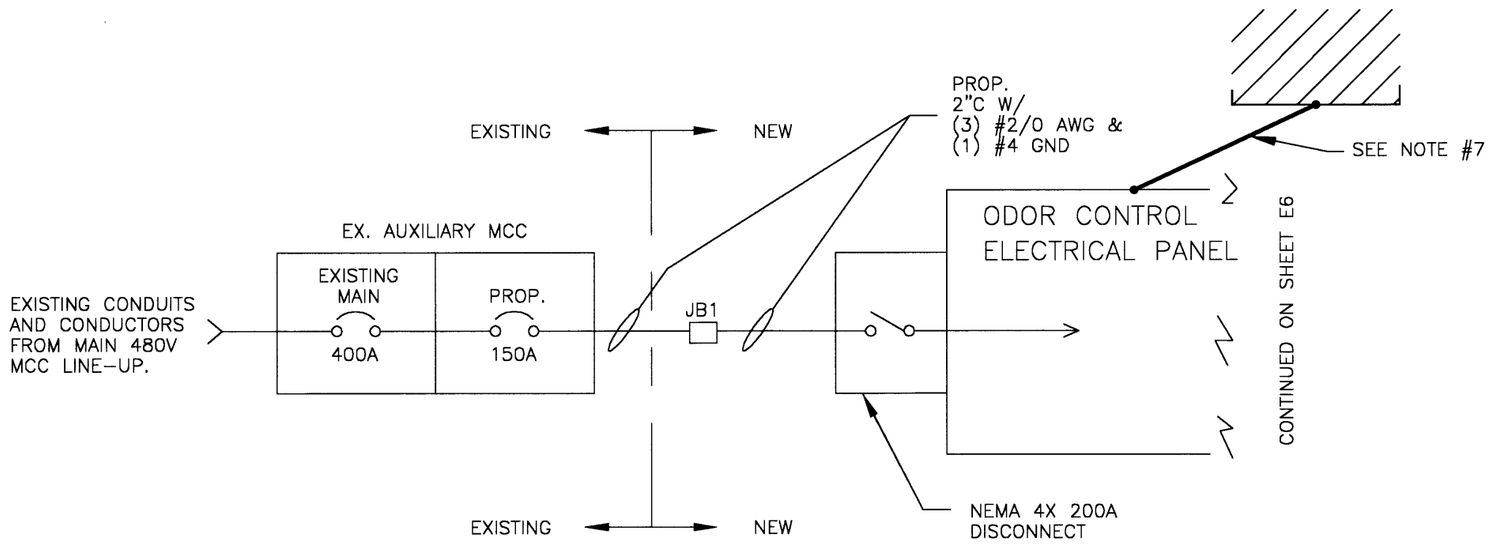
W.O. 5165
SHEET E-4 OF 15

131st AVE PUMP STA. ODOR CONTROL REHAB 20



NEW ODOR CONTROL ELECTRICAL ENCLOSURE

NO SCALE



ELEMENTARY ONE LINE DIAGRAM

NO SCALE

NOTES FOR SHEETS E5 AND E6:

1. ALL MOTOR RATINGS, CONDUIT & CONDUCTOR SIZES, AND RELATED CONTROL EQUIPMENT SHOWN ARE APPROXIMATE. ACTUAL COMPONENTS SHALL BE DETERMINED BY THE ODOR CONTROL EQUIPMENT DESIGNER/SUPPLIER AND ELECTRICAL CONTRACTOR. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
2. ALL CONDUITS SHALL ENTER BOXES, ENCLOSURES, ETC., FROM THE BOTTOM, IF PRACTICABLE; OTHERWISE, THE HUB AREA SHALL BE PROTECTED FROM STANDING WATER USING ALTERNATE, APPROVED, TECHNIQUES.
3. IF A PROGRAMMABLE LOGIC CONTROLLER (PLC) IS USED IN THE MECHANIZATION OF THIS DESIGN, IT SHALL BE A G.E. FANUC, AS SPECIFIED.
4. ALL ELECTRICAL EQUIPMENT, CONTROLS, AND INSTRUMENTATION SHALL BE AS SHOWN, SPECIFIED OR REQUIRED.
5. TANK LEVEL TRANSMITTERS SHALL BE SUBMERSIBLE PRESSURE SENSOR TYPE AS MANUFACTURED BY DEVAR. DIGITAL PANEL METERS SHALL BE 3.5 DIGIT WITH TRANSMITTER EXCITATION OUTPUT-- NEWPORT 202A-P-E, OR EQUAL. PROVIDE NEMA 4X COVERS. PROVIDE 4-20MA SIGNAL ISOLATORS/AMPLIFIERS FOR SCADA SIGNALS.
6. MODIFY EXISTING ANNUNCIATOR WINDOWS AND ALARM ELECTRONICS TO FACILITATE PROPOSED "ODOR CONTROL STAGE-1 FAULT", "ODOR CONTROL STAGE-2 FAULT", AND "EXHAUST BLOWER FAULT" INDICATION. PROVIDE 4-20MA SIGNALS TO SCADA FOR PH-1, PH-2, ORP-2, NaOH LEVEL, AND NaOCl LEVEL. CITY INSTRUMENTATION PERSONNEL WILL MAKE FINAL SCADA RTU CONNECTIONS.
7. BOND THE PROPOSED CONTROL CABINET SHELTER TO THE CONTROL CABINET USING MINIMUM #4AWG STRANDED CONDUCTORS. ENSURE THAT ALL METAL SHELTER COMPONENTS ARE ADEQUATELY BONDED TOGETHER.

131st AVE PUMP STA. ODOR CONTROL REHAB 1

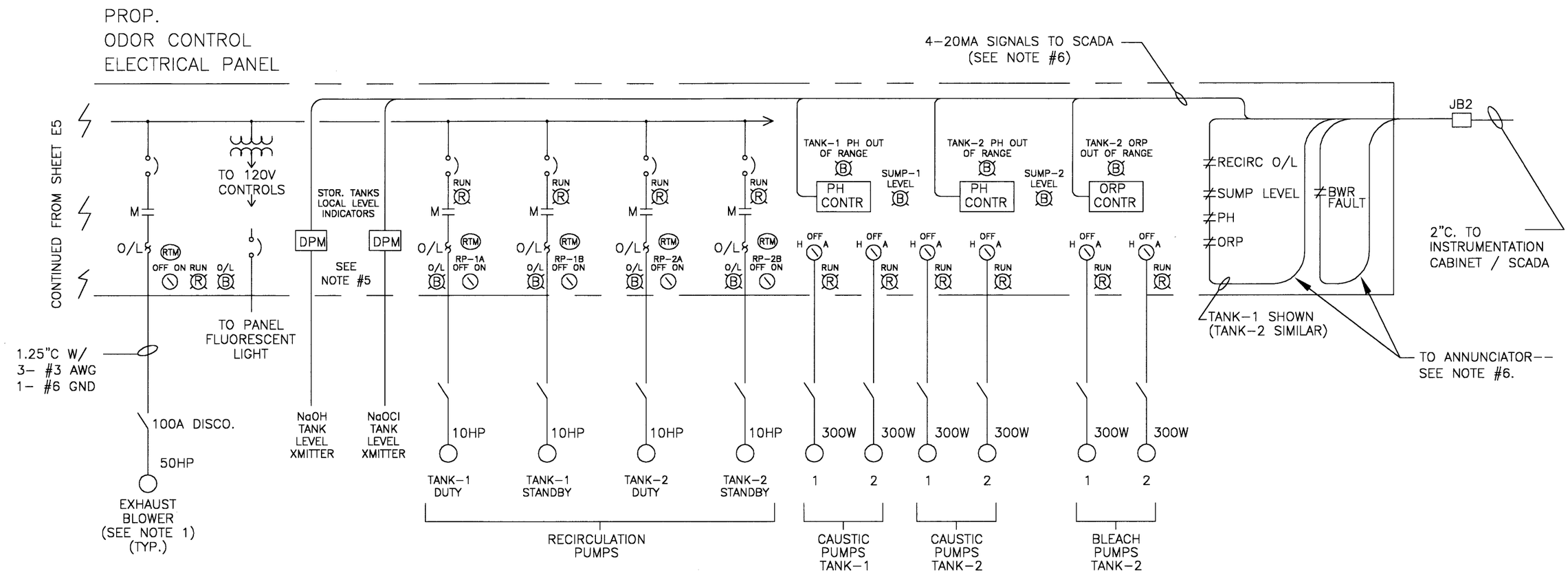
No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

DES: RK
DRN: RK
CKD:
DATE:

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131ST AVE. PUMPING STATION
ODOR CONTROL REHABILITATION
ELECTRICAL DETAILS

W.O. 5165
SHEET E-5 OF 15



ELEMENTARY ONE LINE DIAGRAM

NO SCALE

SEE NOTES ON SHEET E5

131st AVE PUMP STA. ODOR CONTROL REHAB 1

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

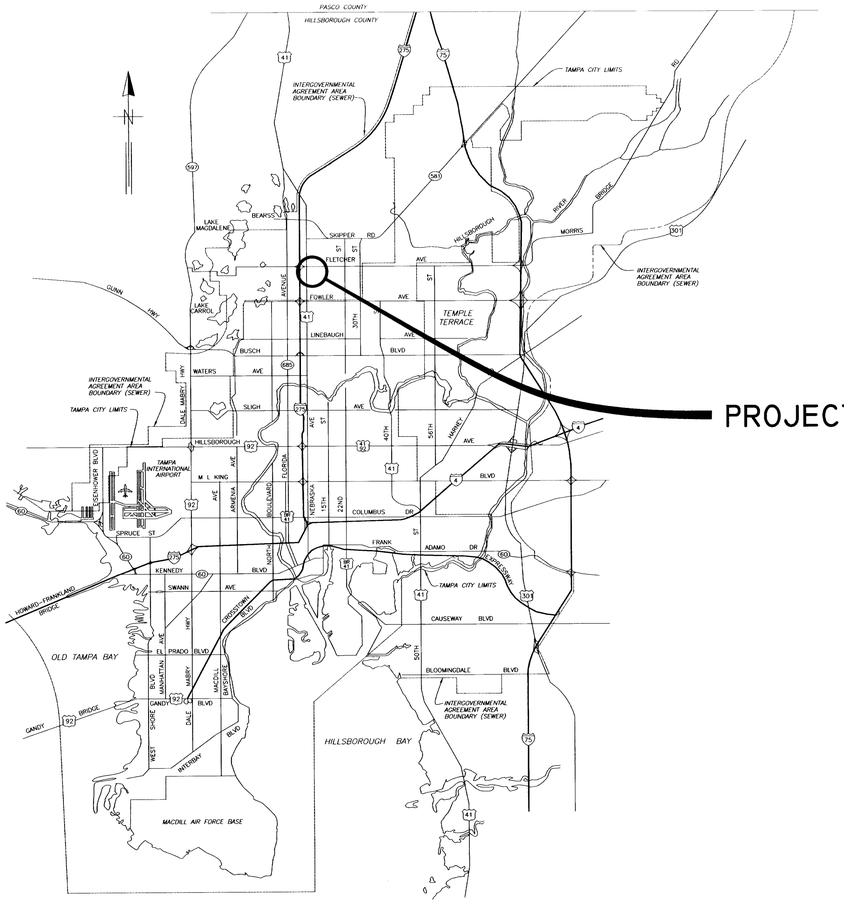
DES: RK
DRN: RK
CKD:
DATE:

CITY of TAMPA
DEPARTMENT OF SANITARY SEWERS
SANITARY SEWERS DIVISION

131ST AVE. PUMPING STATION
ODOR CONTROL REHABILITATION
ELECTRICAL DETAILS

W.O. 5165
SHEET
E-6
OF 15

LOCATION MAP



CITY of TAMPA

CITY OF TAMPA FLORIDA
ORGANIZED JULY 15 1887
MASCOTTE

DEPARTMENT OF SANITARY SEWERS

PLANS FOR

131ST AVE. PUMPING STATION IMPROVEMENTS

CONTRACT 15 - 03

15-03
131st Ave. P.S.
Improvements

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
DEPARTMENT OF SANITARY SEWERS

HENRY DORZBACK, P.E. #39449
CHIEF ENGINEER
DEPARTMENT OF SANITARY SEWERS

No.	DATE	REVISIONS
1		
2		
3		
4		
5		

NOTE:
THE ABOVE BASE MAP AND UTILITY LOCATIONS (PLAN & PROFILE) WAS PROVIDED BY CITY OF TAMPA DEPARTMENT OF PUBLIC WORKS. (FILE No. 4833, JOB No. PW97-30). REFERENCE INFORMATION WAS NOT VERIFIED BY CITY OF TAMPA DEPARTMENT OF SANITARY SEWERS FIELD SURVEYORS.

DES: B.G.
DRN: BB
CKD: AH
DATE: 4/17/03

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

131ST AVE. PUMPING STATION IMPROVEMENTS

DESIGN W.O. 5165
CONSTRUCTION W.O.

SHEET 1 OF 7

C:\ACAD2000\DWGS\P5165-SITE 1=40

336-46

NOTES

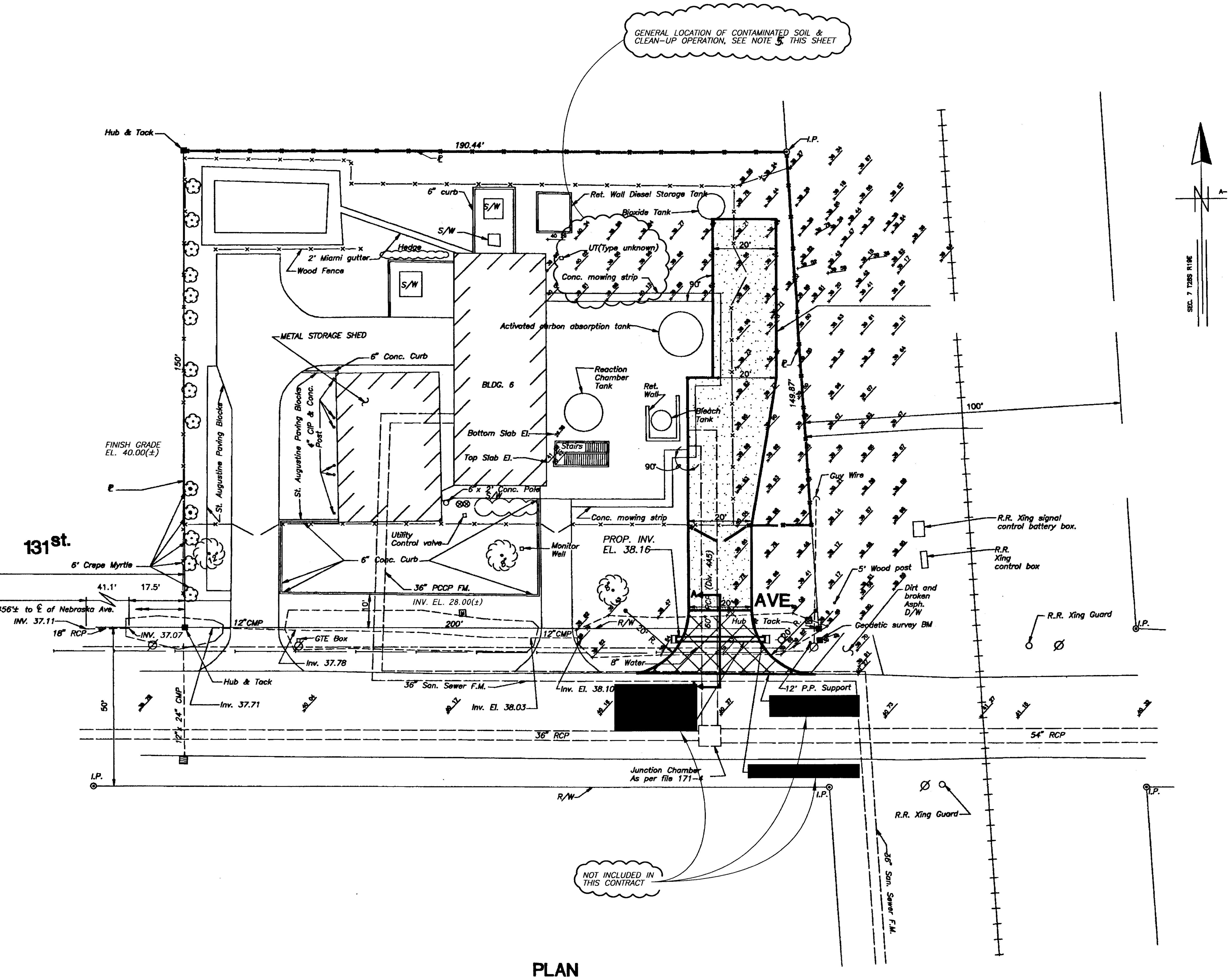
1. THIS SET OF DRAWINGS INCLUDES FACSIMILES OF THE "AS-BUILT" DRAWINGS FOR THE ORIGINAL 131ST AVENUE PUMPING STATION THAT HAVE BEEN MODIFIED TO ILLUSTRATE THE WORK OF THIS CONTRACT. NOTES PERTAINING TO THE WORK OF THIS CONTRACT ARE ENCLOSED IN "CLOUDS" ON THESE DRAWINGS. OTHER ITEMS AND DETAILS REFER TO THE ORIGINAL PUMPING STATION AND ARE INCLUDED FOR INFORMATION ONLY.

2. ⚠1 IT IS THE ENGINEER'S INTENT THAT THE EXPANSION JOINT REPLACEMENT AND PUMPING STATION SHUTDOWN ARE SCHEDULED AND ACCOMPLISHED WITHOUT THE NEED FOR BY-PASS PUMPING OR LINESTOPPING. IN ORDER TO ACCOMPLISH THIS, THE CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE THE EXISTING EXPANSION JOINTS UNDER RAW SEWAGE BACKFLOW CONDITIONS DURING WHICH AN UNKNOWN QUANTITY OF THE FORCEMAIN'S CONTENTS WILL FLOW BACK TO THE STATION. THE CITY HAS PERFORMED TRIAL SHUTDOWNS OF THE 131st AVENUE PUMPING STATION AND DETERMINED THAT THE STATION CAN BE SHUT DOWN FOR A DURATION OF UP TO 10 HOURS DURING PERIODS OF LOW FLOW AND NO RAINFALL. DURING THE TRIAL SHUTDOWNS, THE PUMPS WERE TURNED OFF AND THE FORCEMAIN'S CONTENTS WERE ALLOWED TO FLOW BACK THROUGH THE PUMPS, INTO THE WETWELL AND TO SURCHARGE THE INFLUENT GRAVITY SEWERS. AFTER A PERIOD OF 1 TO 2 HOURS, THE BACKFLOW WAS OBSERVED TO DIMINISH TO A MORE MANAGEABLE RATE, HOWEVER, IT MAY NOT BE POSSIBLE TO DRAIN THE FORCEMAIN COMPLETELY AND COMPLETE THE WORK DURING ONE SHUTDOWN. IT IS THE ENGINEER'S INTENT THAT THE CONTRACTOR UNDERTAKE THE REMOVAL AND REPLACEMENT OF THE EXPANSION JOINTS AFTER THE FORCEMAIN HAS BEEN ALLOWED TO PARTIALLY DRAIN. DURING THE REMOVAL AND REPLACEMENT OF THE EXPANSION JOINTS, THE FORCEMAIN'S CONTENTS WILL CONTINUE TO DRAIN INTO THE PUMPING STATION AND THROUGH THE STATION'S FLOOR DRAINS TO THE WETWELL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASSESS THE BACKFLOW CONDITIONS AND DETERMINE THE WORK METHODS AND NUMBER OF PUMPING STATION SHUTDOWNS REQUIRED FOR THE REMOVAL AND REPLACEMENT OF THE EXPANSION JOINTS. THE CONTRACTOR SHALL PROVIDE ANY EQUIPMENT AND TRAINING THAT MAY BE NECESSARY FOR THE SAFETY AND HEALTH OF THE WORKERS THAT ARE EXPOSED TO RAW SEWAGE CONDITIONS. FOLLOWING THE EXPANSION JOINT REPLACEMENT, THE CONTRACTOR SHALL CLEAN AND DISINFECT THE AREAS OF THE PUMPING STATION SUBJECTED TO RAW SEWAGE SPILLS.

3. THE CONTRACTOR SHALL SCHEDULE THE PUMPING STATION SHUTDOWN FOR A PERIOD OF LOW FLOWS (LATE EVENING THROUGH EARLY MORNING) AND NO RAINFALL. THE CONTRACTOR SHALL COORDINATE THE SHUTDOWN WITH SEWER DEPARTMENT PERSONNEL. SEWER DEPARTMENT PERSONNEL WILL SHUT DOWN UPSTREAM PUMPING STATIONS AND MONITOR SEWAGE LEVELS AT THE PUMPING STATIONS AS WELL AS AT MANHOLES OF THE INFLUENT GRAVITY SYSTEM IN ORDER TO AVOID OVERFLOWS.

4. THE EXISTING EXPANSION JOINTS ARE LEAKING AND HAVE CREATED AN UNPLEASANT ENVIRONMENT INSIDE THE PUMPING STATION AND HAVE BECOME A CONTINUING MAINTENANCE PROBLEM. IT IS THE ENGINEER'S INTENT THAT THE EXPANSION JOINTS BE REPLACED BEFORE OTHER WORK IS BEGUN. THE CONTRACTOR SHALL DEVELOP A WORK SCHEDULE THAT WILL PRIORITIZE THE EXPANSION JOINT REPLACEMENT. THE WORK SCHEDULE SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.

5. UNDER THE TERMS OF A SEPARATE CONTRACT, THE CITY OF TAMPA HAS BEGUN TO CLEAN UP CONTAMINATED SOILS AT THE 131ST AVE. PUMPING STATION SITE. THE CLEAN-UP OPERATION IS LIMITED TO THE NORTHEAST CORNER OF THE SITE AND SHOULD BE WELL OUT OF THE WAY OF THE PROPOSED WORK OF THIS CONTRACT. THE CONTRACTOR AND SUBCONTRACTORS PERFORMING THE WORK OF THIS CONTRACT (131ST AVE. PUMPING STATION IMPROVEMENTS), SHALL BE AWARE OF THE CLEAN-UP OPERATION AND COORDINATE PARKING, DELIVERIES, LAY-DOWN AREAS, ETC. WITH THE ENGINEER TO ALLOW THE WORK OF THE CLEAN-UP OPERATION TO PROCEED.



PLAN

LEGEND

EXISTING ELEVATION

SHADED ITEMS ARE NOT INCLUDED IN THIS CONTRACT(TYP)

No.	DATE	REVISIONS	No.	DATE	REVISIONS
⚠1	05-02-03	REMOVED NOTES RELATED TO LINESTOP, REVISED NOTES	6		
2			7		
3			8		
4			9		
5			10		

NOTE:
THE ABOVE BASE MAP AND UTILITY LOCATIONS (PLAN & PROFILE) WAS PROVIDED BY CITY OF TAMPA DEPARTMENT OF PUBLIC WORKS (FILE No 4833, JOB No PW97-30). REFERENCE INFORMATION WAS NOT VERIFIED BY CITY OF TAMPA DEPARTMENT OF SANITARY SEWERS FIELD SURVEYORS.

DES: B.G.
DRN: [signature]
CKD: [signature]
DATE: 5/1/03

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

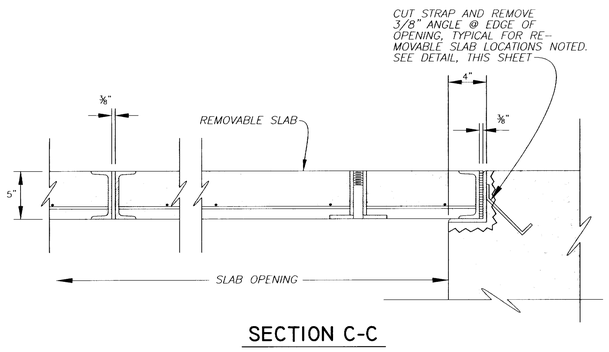
131ST AVE. PUMPING STATION IMPROVEMENTS

DESIGN W.O. 5165
CONSTRUCTION W.O.

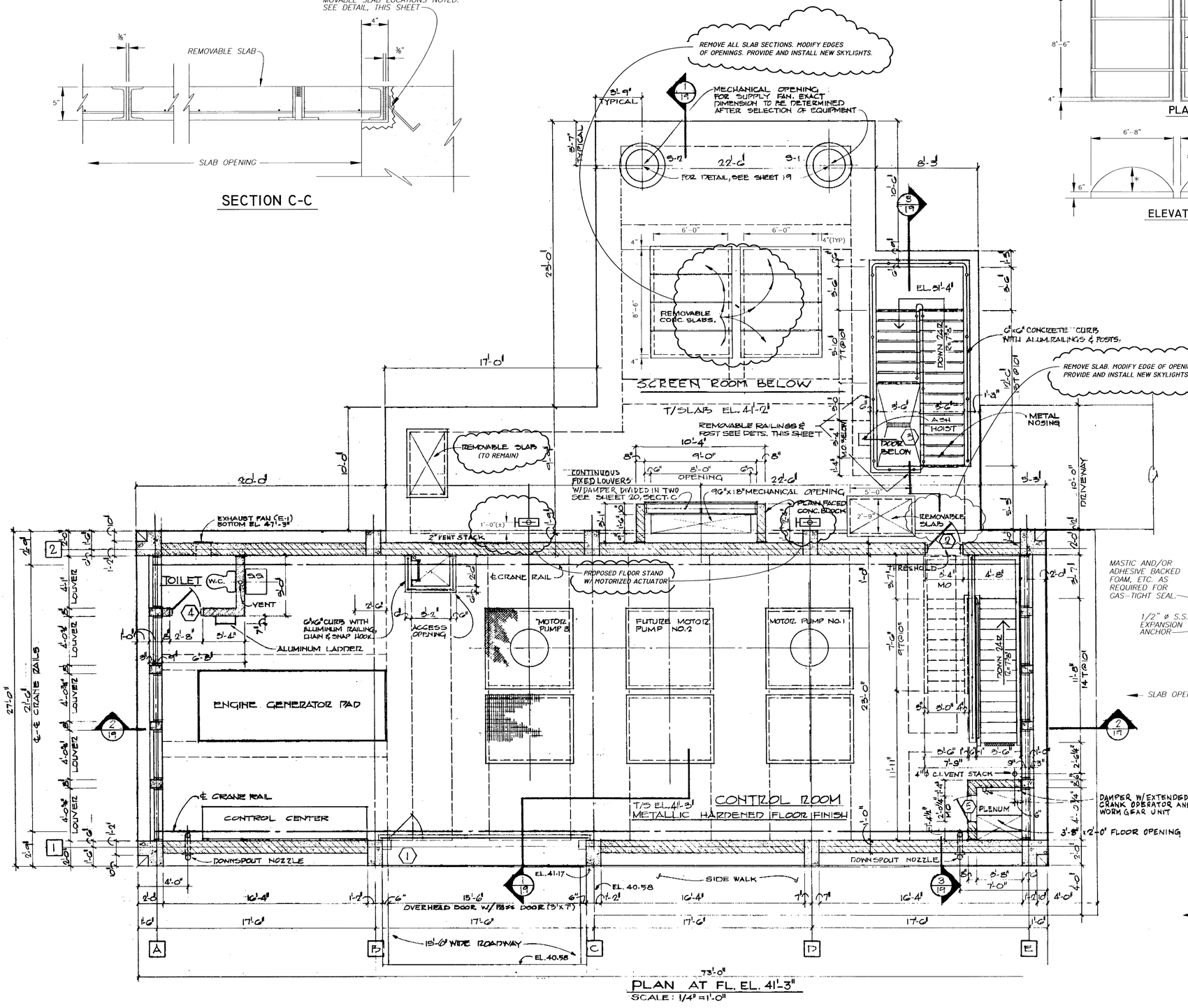
SHEET 2 OF 7

C:\ACAD2000\DWG\PS\5165-SITE 1=40

336-47

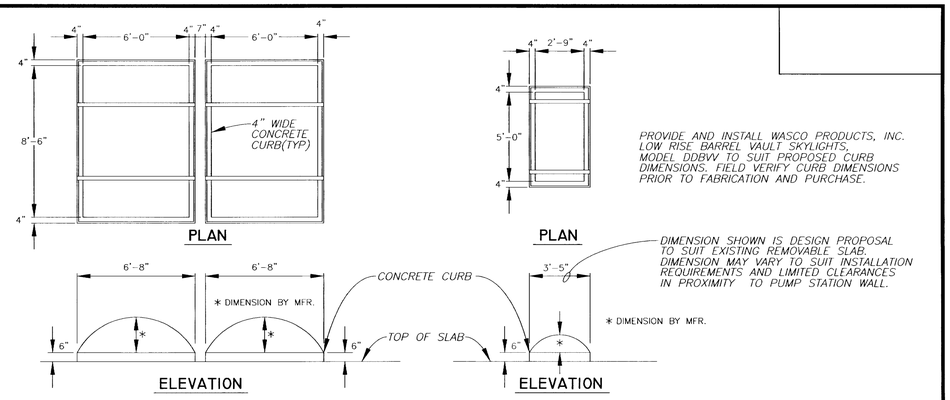


SECTION C-C



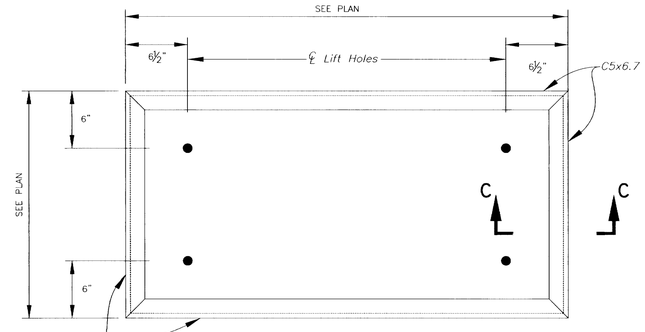
PLAN AT FL. EL. 41'-3"

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



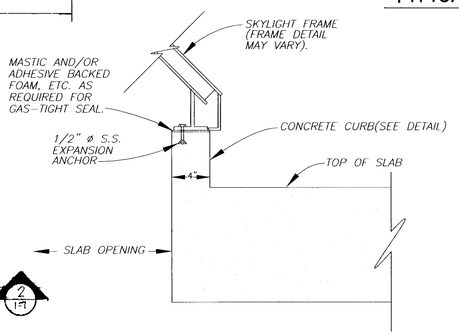
PROPOSED SKYLIGHTS

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



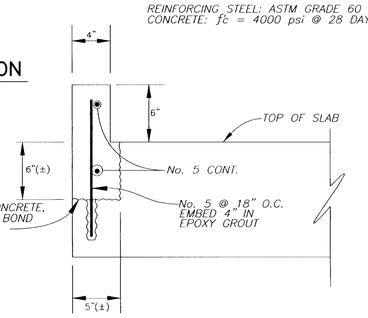
TYPICAL REMOVABLE SLAB

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



SKYLIGHT / CURB CONNECTION

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



PROPOSED CURB DETAIL

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

No.	DATE	REVISIONS	No.	DATE	REVISIONS
1			6		
2			7		
3			8		
4			9		
5			10		

NOTE:
THE ABOVE BASE MAP AND UTILITY LOCATIONS (PLAN & PROFILE) WAS PROVIDED BY CITY OF TAMPA DEPARTMENT OF PUBLIC WORKS (FILE No. 4833, JOB No. PW97-30). REFERENCE INFORMATION WAS NOT VERIFIED BY CITY OF TAMPA DEPARTMENT OF SANITARY SEWERS FIELD SURVEYORS.

DES: B.G.
DRN: BB
CKD: AA
DATE: 4/11/00

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

131ST AVE. PUMPING STATION IMPROVEMENTS

DESIGN W.O. 5165

SHEET 3 OF 7

336-48

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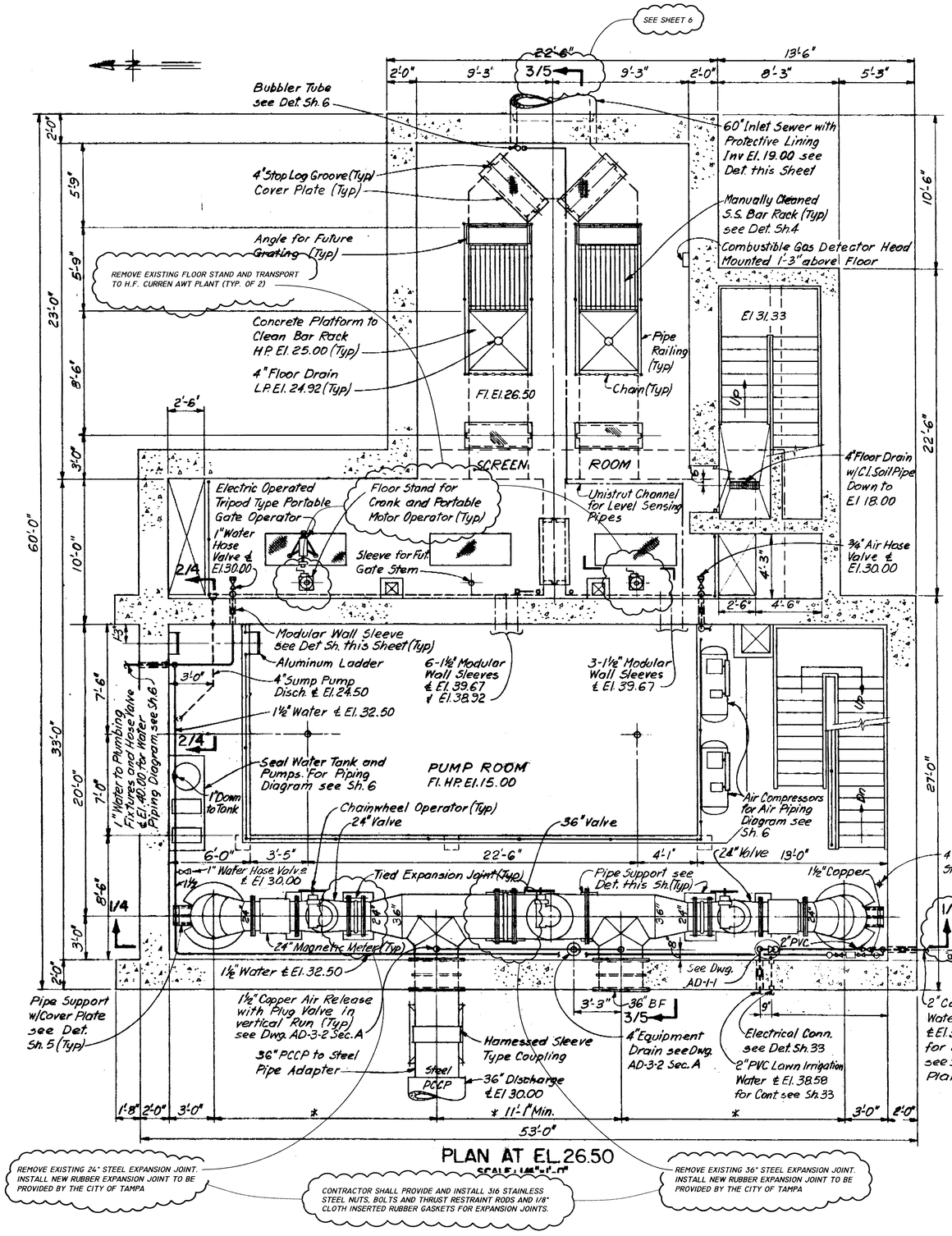
1/4"=1'-0"



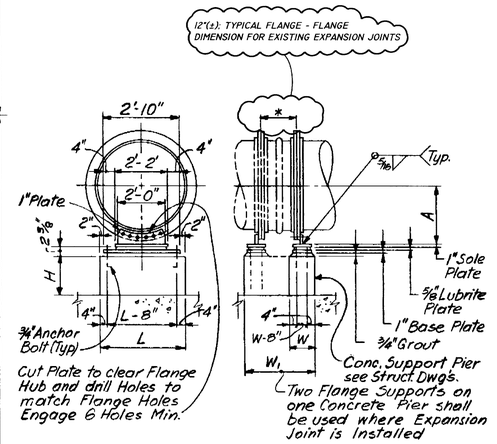
PLAN AT EL. 26.50

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

REMOVE EXISTING 24" STEEL EXPANSION JOINT. INSTALL NEW RUBBER EXPANSION JOINT TO BE PROVIDED BY THE CITY OF TAMPA

CONTRACTOR SHALL PROVIDE AND INSTALL 316 STAINLESS STEEL NUTS, BOLTS AND THRUST RESTRAINT RODS AND 1/8" CLOTH INSERTED RUBBER GASKETS FOR EXPANSION JOINTS.

REMOVE EXISTING 36" STEEL EXPANSION JOINT. INSTALL NEW RUBBER EXPANSION JOINT TO BE PROVIDED BY THE CITY OF TAMPA



PLUG VALVE AND EXP. JOINT SUPPORT

NOTE:
THE ABOVE BASE MAP AND UTILITY LOCATIONS (PLAN & PROFILE) WAS PROVIDED BY CITY OF TAMPA DEPARTMENT OF PUBLIC WORKS (FILE No. 4833, JOB No. PW97-30). REFERENCE INFORMATION WAS NOT VERIFIED BY CITY OF TAMPA DEPARTMENT OF SANITARY SEWERS FIELD SURVEYORS.

No.	DATE	REVISIONS	No.	DATE	REVISIONS
1			6		
2			7		
3			8		
4			9		
5			10		

DES: B.G.
DRN: BB
CKD: AH
DATE: 4/10/03

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

131ST AVE. PUMPING STATION IMPROVEMENTS

DESIGN W.O. 5165

SHEET 4 OF 7

336-49

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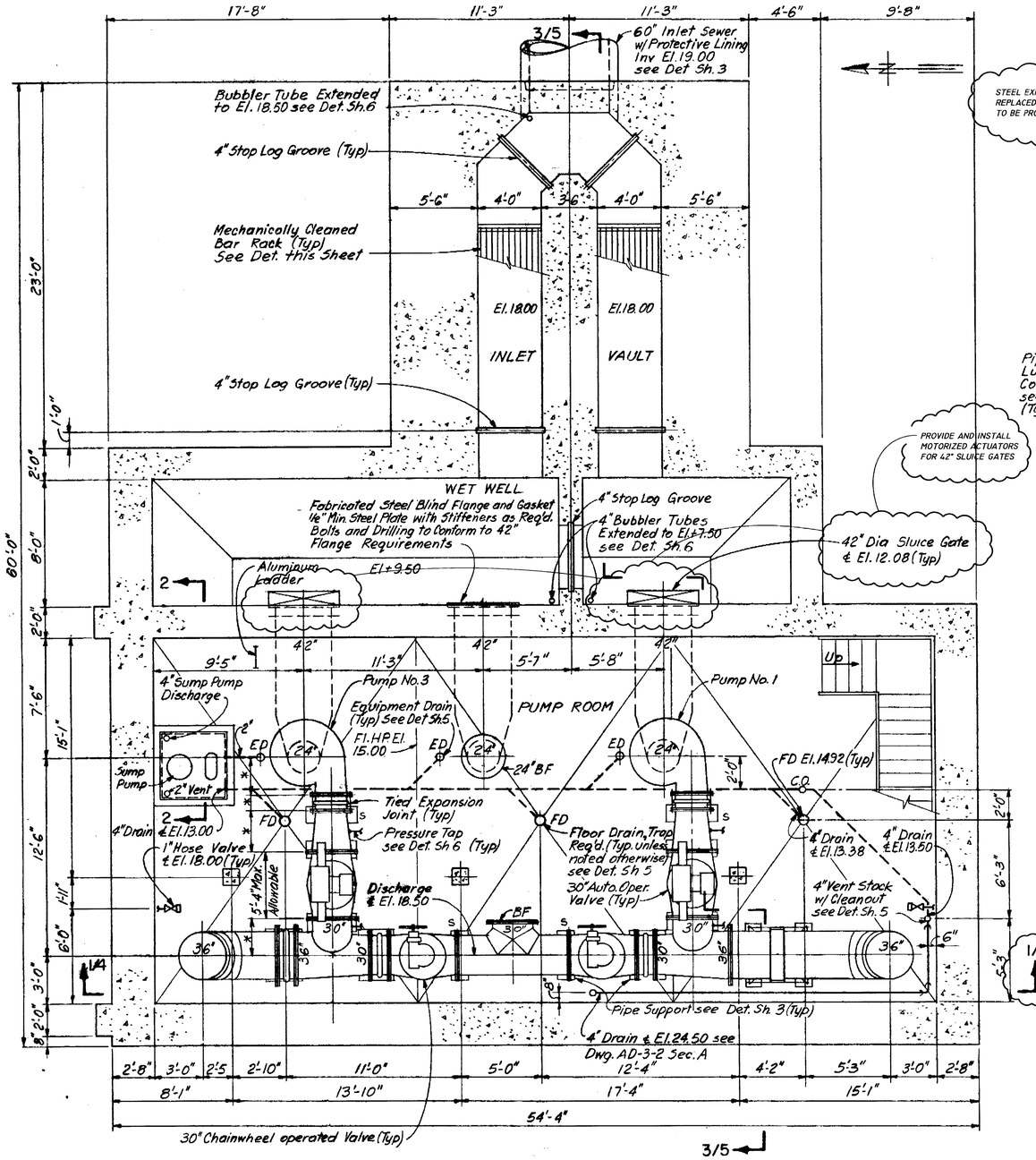
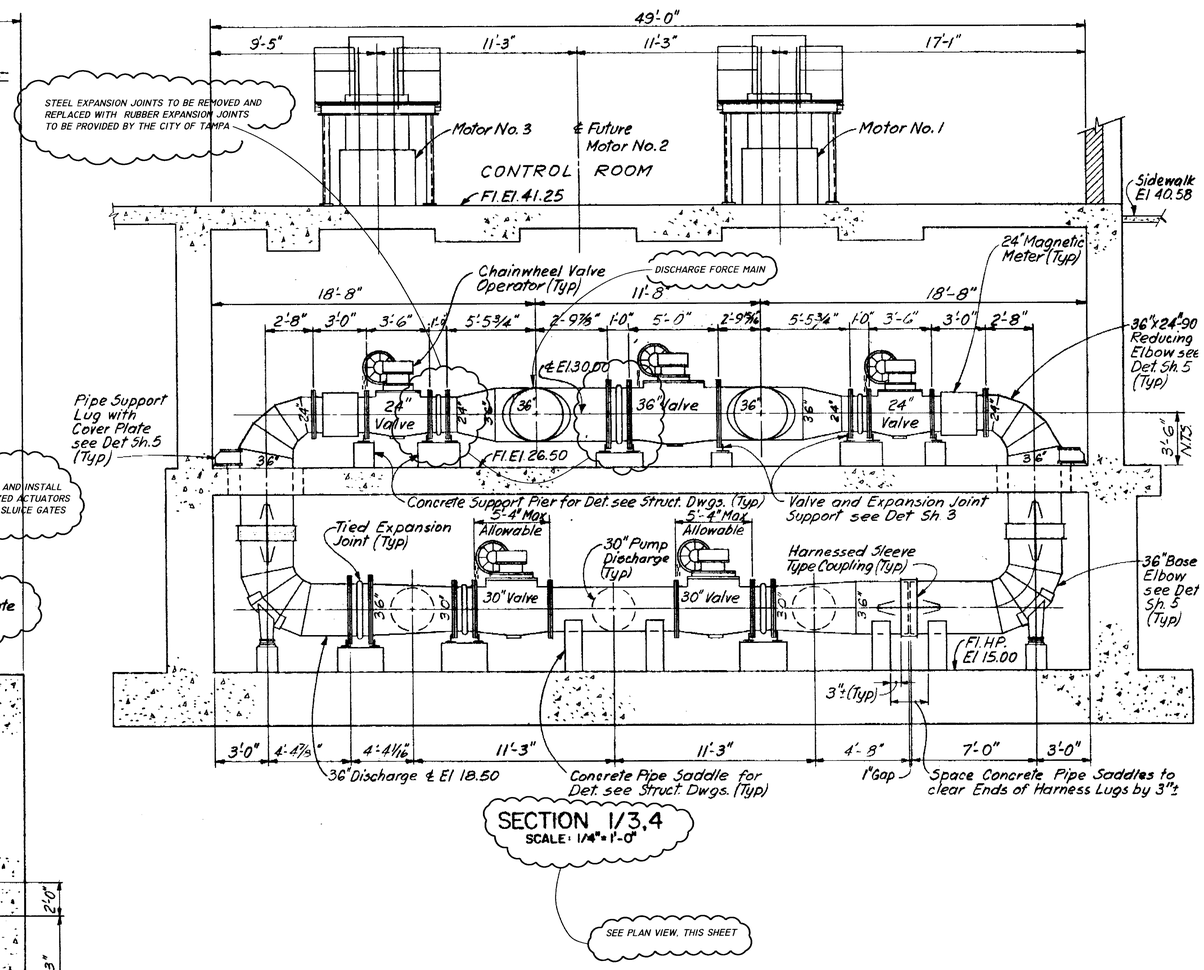
1/4"=1'-0"



PLAN AT EL 15.00
SCALE: 1/4" = 1'-0"



SECTION 1/3,4
SCALE: 1/4" = 1'-0"

SEE PLAN VIEW, THIS SHEET

No.	DATE	REVISIONS	No.	DATE	REVISIONS
1			6		
2			7		
3			8		
4			9		
5			10		

NOTE:
THE ABOVE BASE MAP AND UTILITY LOCATIONS (PLAN & PROFILE) WAS PROVIDED BY CITY OF TAMPA DEPARTMENT OF PUBLIC WORKS (FILE No 4833, JOB No PW97-30). REFERENCE INFORMATION WAS NOT VERIFIED BY CITY OF TAMPA DEPARTMENT OF SANITARY SEWERS FIELD SURVEYORS.

DES: B.G.
DRN: BB
CKD: DAS
DATE: 4/16/03

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

131ST AVE. PUMPING STATION
IMPROVEMENTS

DESIGN W.O.
5165

SHEET
5
OF 7

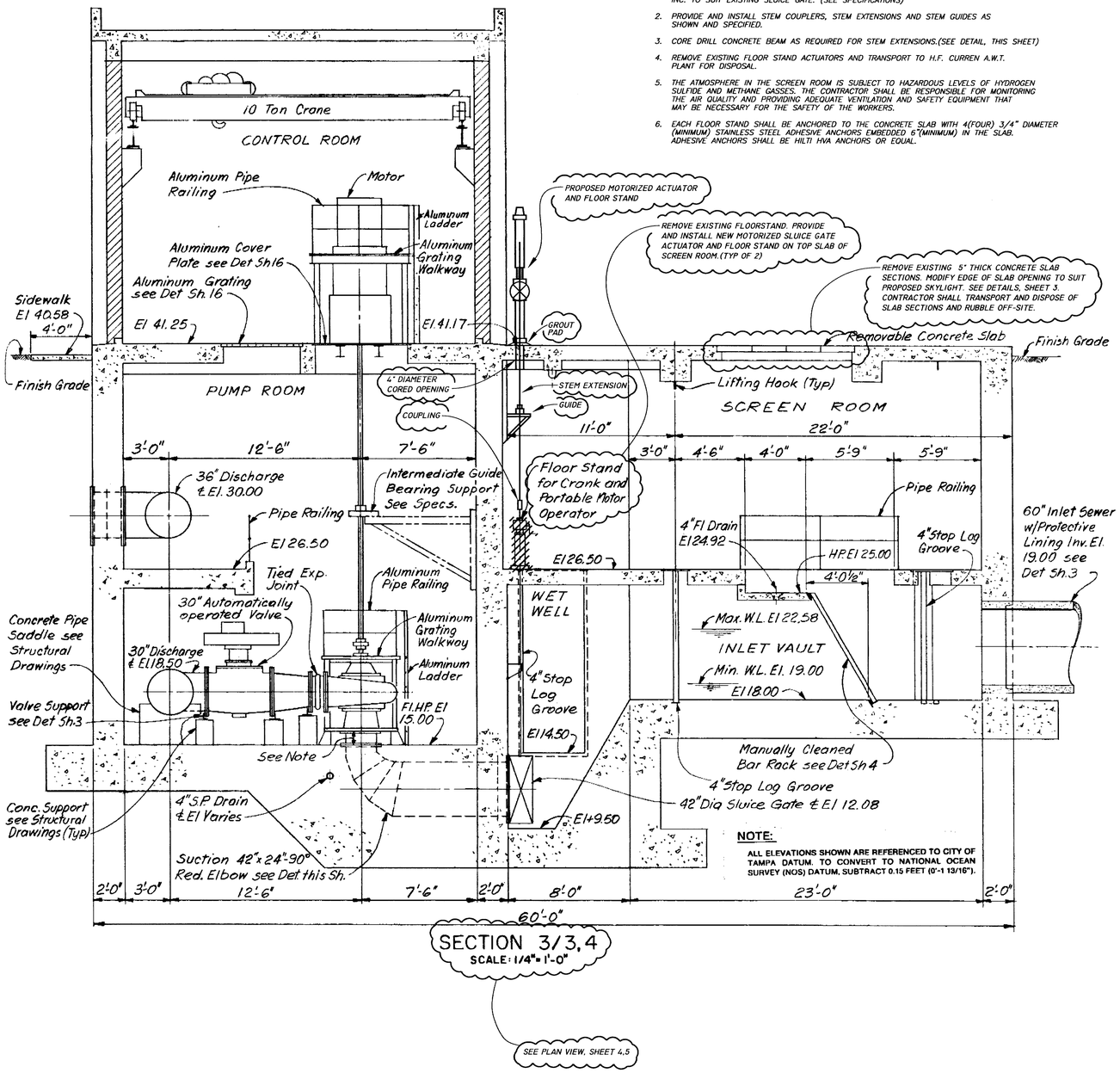
336-50

C:\PROGRAMFILES\ACAD2000\DWG\PS\5165-3

1/4"=1'-0"

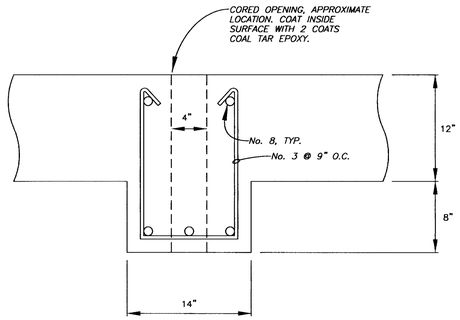
NOTES:

1. PROVIDE AND INSTALL MOTORIZED SLUICE GATE ACTUATORS BY WATERMAN INDUSTRIES, INC. TO SUIT EXISTING SLUICE GATE. (SEE SPECIFICATIONS)
2. PROVIDE AND INSTALL STEM COUPLERS, STEM EXTENSIONS AND STEM GUIDES AS SHOWN AND SPECIFIED.
3. CORE DRILL CONCRETE BEAM AS REQUIRED FOR STEM EXTENSIONS.(SEE DETAIL, THIS SHEET)
4. REMOVE EXISTING FLOOR STAND ACTUATORS AND TRANSPORT TO H.F. CURREN A.W.T. PLANT FOR DISPOSAL.
5. THE ATMOSPHERE IN THE SCREEN ROOM IS SUBJECT TO HAZARDOUS LEVELS OF HYDROGEN SULFIDE AND METHANE GASSES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING THE AIR QUALITY AND PROVIDING ADEQUATE VENTILATION AND SAFETY EQUIPMENT THAT MAY BE NECESSARY FOR THE SAFETY OF THE WORKERS.
6. EACH FLOOR STAND SHALL BE ANCHORED TO THE CONCRETE SLAB WITH 4(FOUR) 3/4" DIAMETER (MINIMUM) STAINLESS STEEL ADHESIVE ANCHORS EMBEDDED 6"(MINIMUM) IN THE SLAB. ADHESIVE ANCHORS SHALL BE HILTI HVA ANCHORS OR EQUAL.



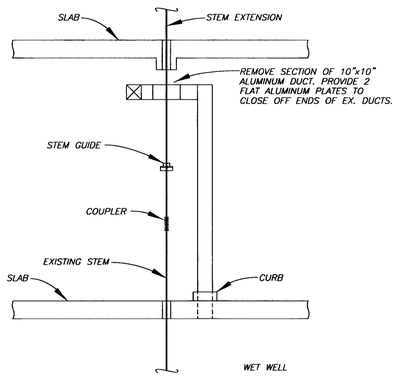
SECTION 3/3,4
SCALE: 1/4"= 1'-0"

SEE PLAN VIEW, SHEET 4,5



DETAIL - CORED OPENING FOR STEM EXTENSION

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



DETAIL - STEM EXTENSION FOR SOUTHERN SLUICE GATE (PUMP No. 1)

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

No.	DATE	REVISIONS	No.	DATE	REVISIONS
1	05-02-03	REMOVED NOTES RELATED TO LINESTOP	6		
2			7		
3			8		
4			9		
5			10		

NOTE:
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DES: B.G.
DRN: BB
CKD:
DATE: 5/2/03

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

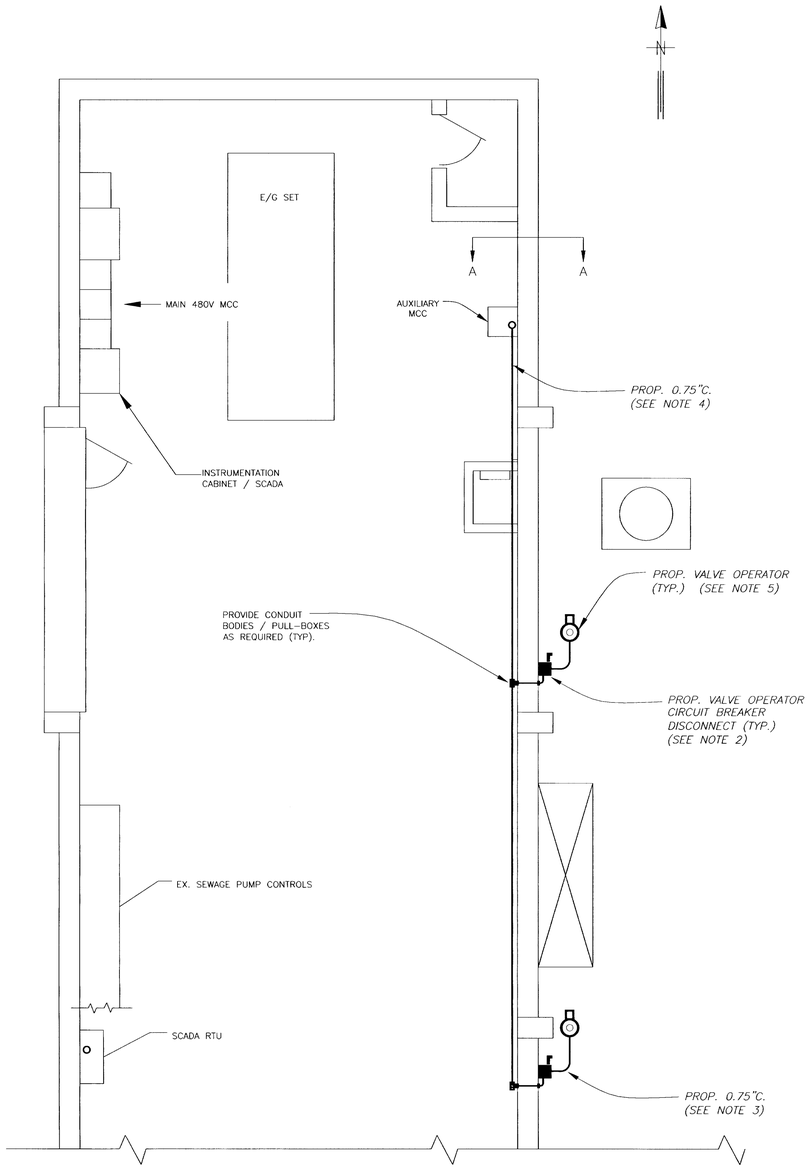
131st AVE. PUMPING STATION
IMPROVEMENTS

DESIGN W.O.
5165

SHEET
6
OF 7

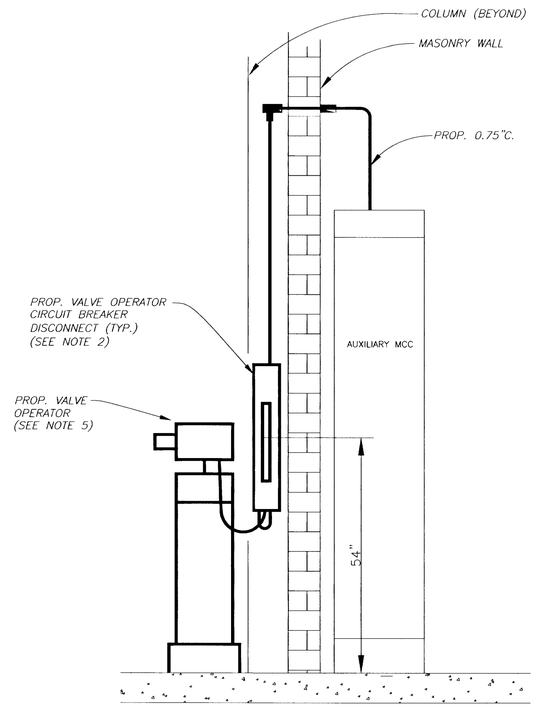
336-51

C:\PROGRAMFILES\ACAD2000\DWG\PS\5165-3 1/4"=1'-0"



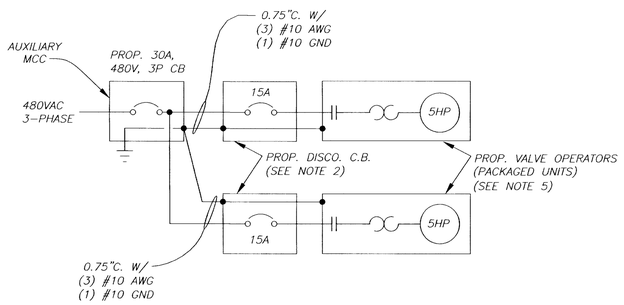
PLAN AT FL. EL. 41'-3"

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

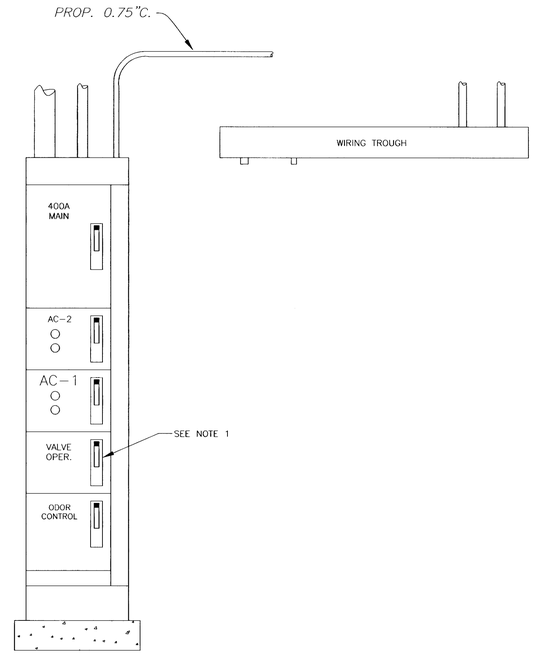


SECTION A - A

N.T.S.



VALVE OPERATORS ONE LINE DIAGRAM



AUXILIARY 480V MCC STRUCTURE (FRONT)

(LOCATED ON EAST WALL) N.T.S.

NOTES:

1. REMOVE EXISTING 20A CIRCUIT BREAKER. PROVIDE AND INSTALL 30A, 3P, 600V CIRCUIT BREAKER (FHL36030) FOR VALVE OPERATORS. RUN SEPARATE 10 AWG CONDUCTORS TO EACH VALVE OPERATOR CIRCUIT BREAKER DISCONNECT. LABEL CUBICLE AS SHOWN.
2. 480V, 3P CIRCUIT BREAKER MOUNTED IN A COPPER FREE CAST ALUMINUM NEMA 4X ENCLOSURE W/ EPOXY POWDER COATING INSIDE AND OUTSIDE. CONDUITS SHALL ENTER ALL OUTDOOR ENCLOSURES FROM THE BOTTOM. COORDINATE CIRCUIT BREAKER DISCONNECT RATINGS WITH VALVE OPERATORS SUPPLIED.
3. ALL CONDUITS, FITTINGS, AND TERMINAL BOXES INSTALLED OUTDOORS SHALL BE RIGID ALUMINUM COATED WITH 40mil PVC OUTSIDE AND 2mil URETHANE INSIDE, AS MANUFACTURED BY ROBROY.
4. ALL CONDUIT MOUNTED INDOORS SHALL BE RIGID ALUMINUM, AS SPECIFIED.
5. PROVIDE AND INSTALL MOTORIZED VALVE OPERATORS AS SHOWN, SPECIFIED, AND REQUIRED.
6. A FIBERGLASS OR STAINLESS STEEL CHANNEL ERECTOR SYSTEM SHALL BE USED TO HANG ALL CONDUITS, BOXES, ETC. OUTDOORS. ALUMINUM MAY BE USED INDOORS. USE 316 STAINLESS STEEL MOUNTING HARDWARE.
7. RUN A PROPERLY SIZED BONDING CONDUCTOR IN ALL CONDUITS.
8. ALL ITEMS NOT MARKED "PROP." ARE EXISTING

No.	DATE	REVISIONS	No.	DATE	REVISIONS
1			6		
2			7		
3			8		
4			9		
5			10		

DES: R.K.
DRN: R.K.
CKD: [signature]
DATE: 4/16/07

CITY OF TAMPA FLORIDA
DEPARTMENT OF SANITARY SEWERS
RENEWAL & REPLACEMENT
SEWAGE DISPOSAL SYSTEM

131ST AVE. PUMPING STATION
VALVE OPERATOR ADDITION
ELECTRICAL

DESIGN W.O. 5165
CONSTRUCTION W.O.

SHEET
E1-7
OF 7

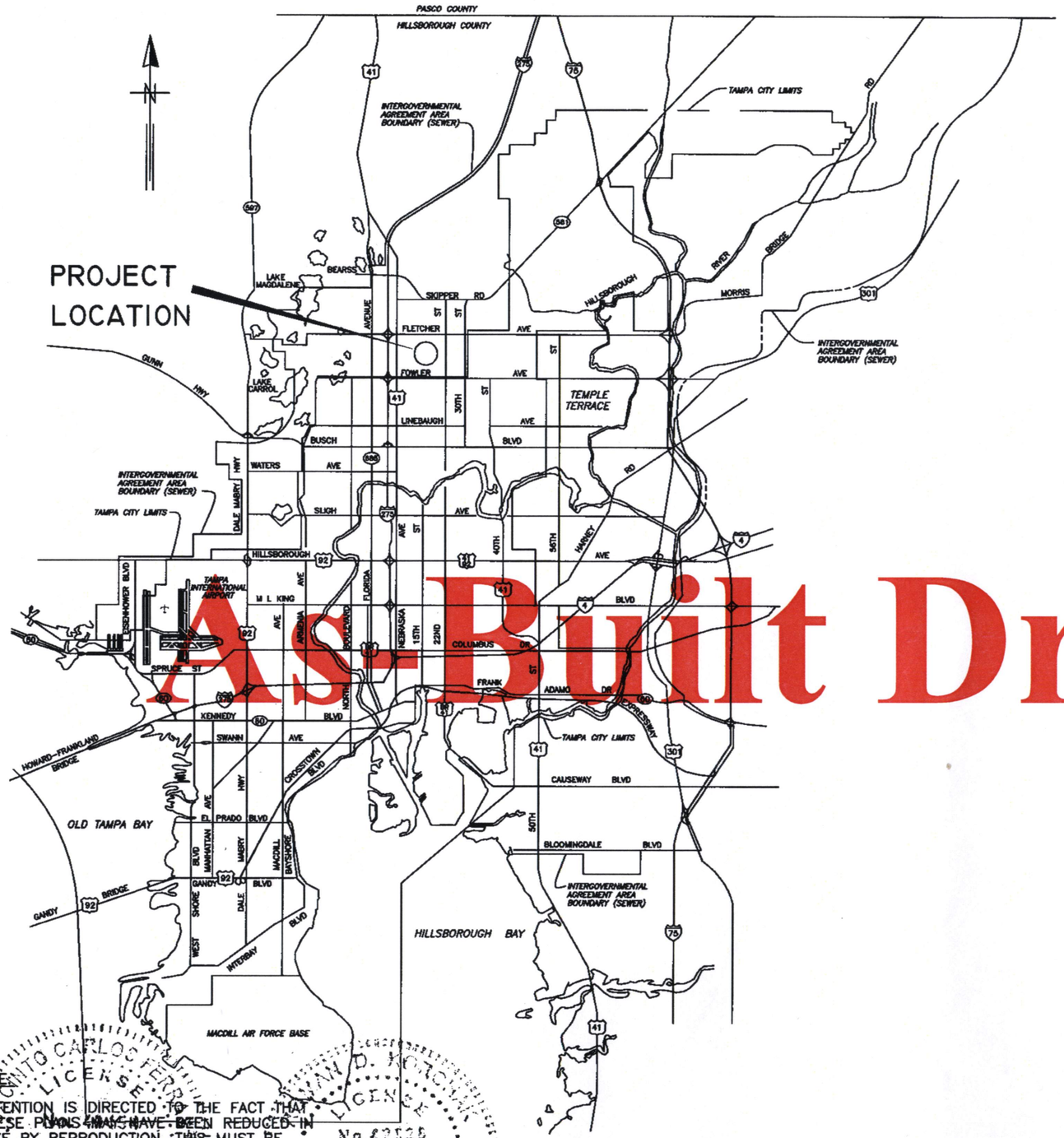
336-52

C:\AQ402000\DWG\PS\5165-SITE 1=40

B062-037

CITY of TAMPA

LOCATION MAP



As-Built Drawings

WASTEWATER DEPARTMENT

PLANS FOR

UNIVERSITY PUMPING STATION
PUMP NO. 2 REPLACEMENT

CONTRACT : 08-C-00034

NOTE:
ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

JACINTO CARLOS FERRAS LICENSE No.49454 STATE OF FLORIDA

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

ROMAN D. KORCHAK LICENSE No.42625 STATE OF FLORIDA

ROMAN D. KORCHAK, P.E. #42625
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: JH
DRN: MRL
CKD: JF
DATE: 7/1/08

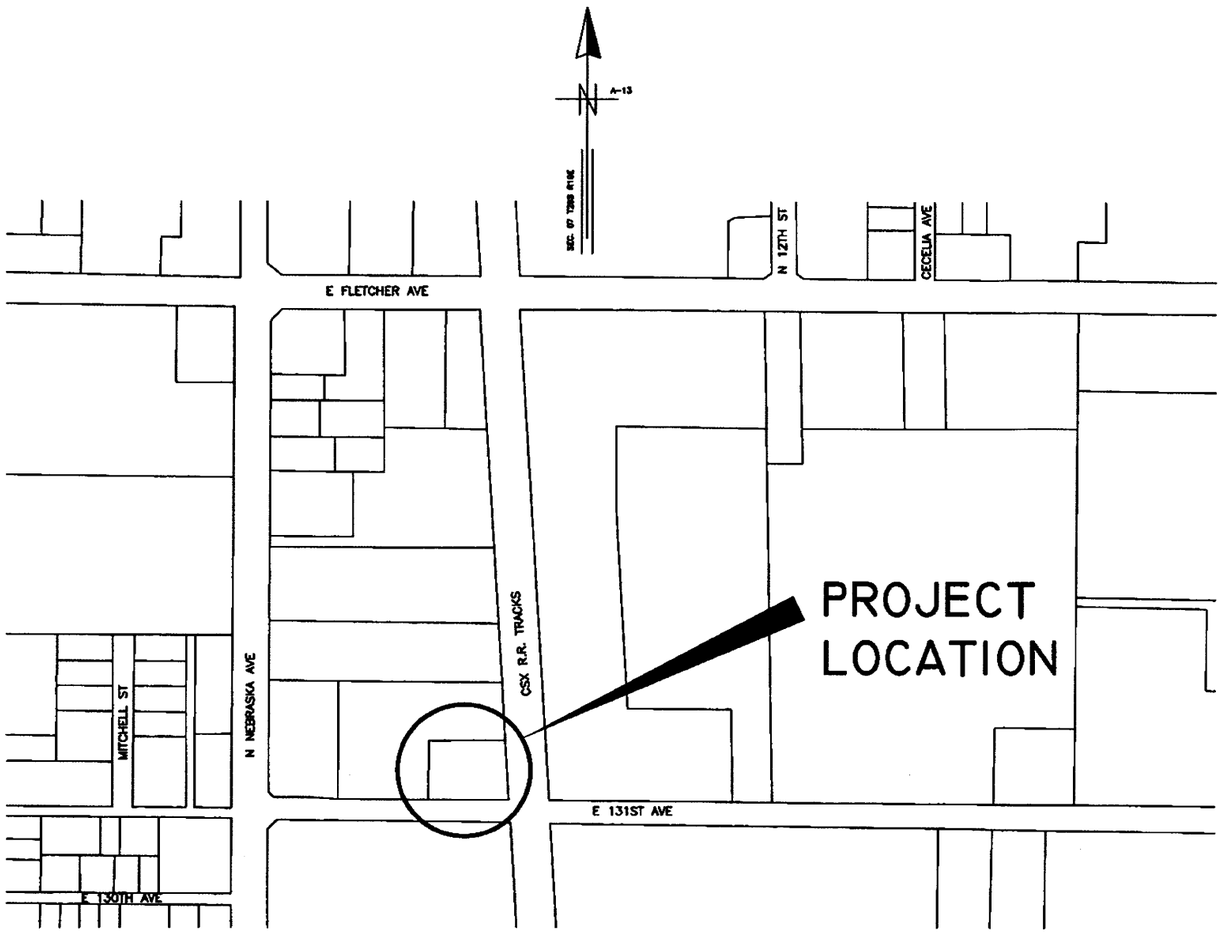
CITY of TAMPA
WASTEWATER DEPARTMENT

COVER SHEET

W.O. 5395
SHEET 1

User: ss6k Drawing Name: K:\micah\autocad\DESIGN WORK\JACK\UNIVERSITY (131st st.) PS\DWGS\UNIVERSITY PS.DWG
Layout – Jul 01, 2008 – 10:49am

B062-038



INDEX

SHEET 1	COVER SHEET
SHEET 2	LOCATION MAP & INDEX
SHEET 3	SITE PLAN
SHEET 4	GENERAL NOTES
SHEET 5	DEMOLITION PLAN
SHEET 6	DEMOLITION SECTIONS/ISOLATION DETAIL
SHEET 7	WET WELL SEPARATION
SHEET 8	PROP. PUMP ROOM PLAN
SHEET 9	PROP. PUMP ROOM PROFILE
SHEET 10	MISC. PUMP ROOM DETAILS
SHEET 11	TRANSFORMER MOUNTING PLATFORM
SHEET E0–E10	ELECTRICAL PLANS

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

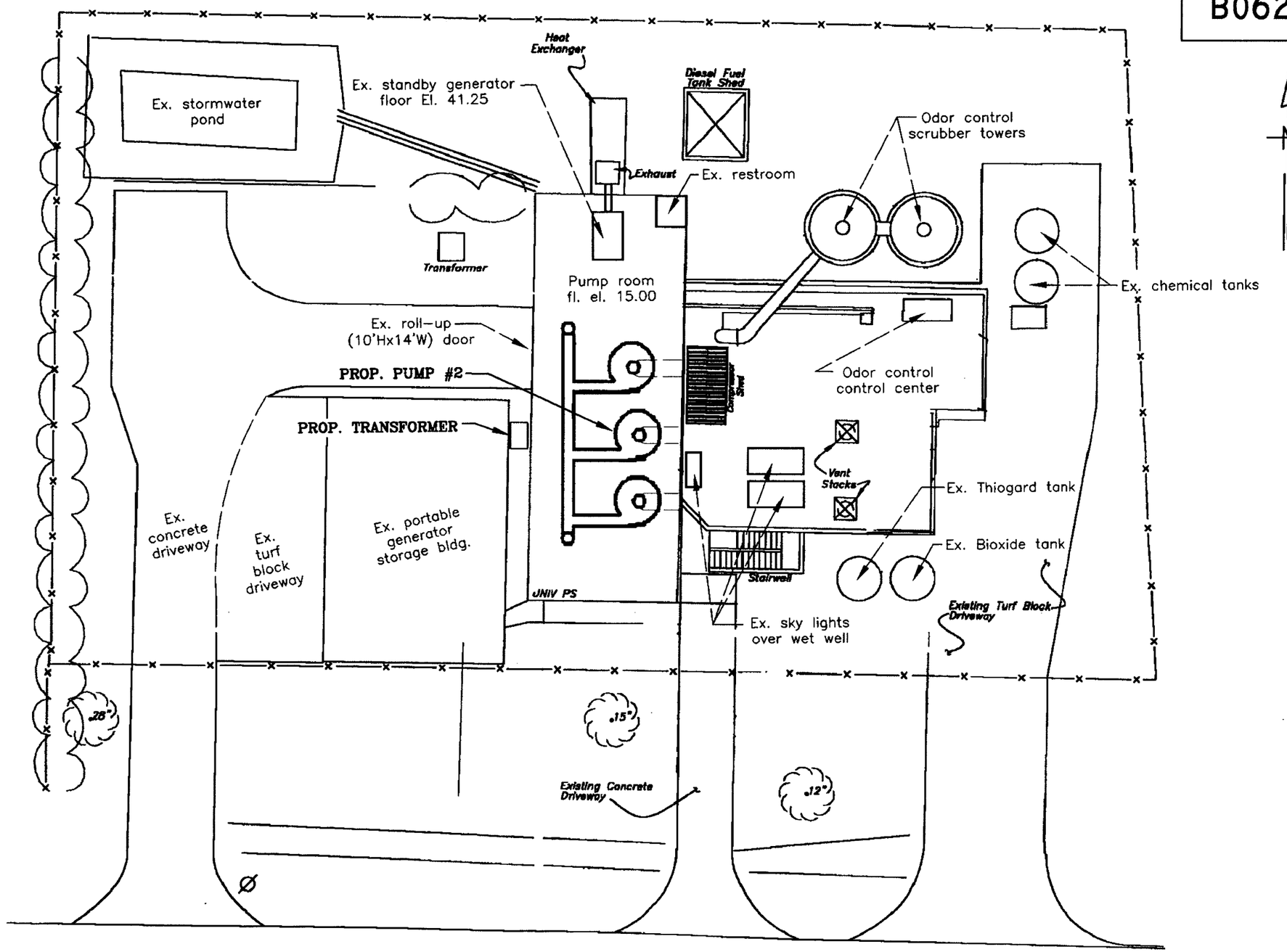
DES: JH
DRN: MRL
CKD: JF
DATE: 7/1/08

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
PUMP NO. 2 REPLACEMENT
COVER SHEET

W.O. 5395
SHEET 2

B062-039



SITE PLAN
NOT TO SCALE

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: JH DRN: MRL CKD: JF DATE: 7/1/08	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION PUMP NO. 2 REPLACEMENT SITE PLAN	W.O. 5395 SHEET 3
	3						
	2						
	1						

User: ss8k Drawing Name: K:\micah\autocad\DESIGN WORK\JACK\UNIVERSITY (131st st.) PS\DWGS\UNIVERSITY PS.DWG
Layout- Jul 01, 2008 - 10:49am

B062-040

CONSTRUCTION NOTES

GENERAL

G-1. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH DEPARTMENT PERSONNEL AND PUMPING STATION OPERATIONS.

G-2. EXISTING DIMENSIONS AND ELEVATIONS ARE BASED ON THE BEST INFORMATION AVAILABLE. TRUE DIMENSIONS AND ELEVATIONS SHALL BE DETERMINED IN THE FIELD PRIOR TO LAYOUT AND SHOP DRAWING SUBMITTALS.

G-3. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (EASILY READABLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.

G-4. CONTRACTOR SHALL PROVIDE AND INSTALL A STOP LOG AND STEEL SHEET (AS A BULKHEAD) TO BE USED TO DIVERT THE FLOW FROM WET WELL #2 TO WET WELL #1 IN ORDER TO REMOVE THE EXISTING KNIFE GATE VALVE AND 24"X16" REDUCER UNDER THE EXISTING PUMP #2. THE STOP LOG SHALL BE PLACED IN THE STOP LOG GROOVE IN BETWEEN WET WELL #1 AND WET WELL #2. THE STEEL SHEET SHALL BE PLACED OVER THE BAR SCREEN IN THE CHANNEL JUST UPSTREAM FROM WET WELL #2.

G-5. DIVERTING FLOW FROM WET WELL #2 MAY ONLY BE DONE DURING THE LOW FLOW PERIOD OF THE DAY, BETWEEN 2:00AM AND 7:00AM.

G-6. MECHANICAL AND ELECTRICAL EQUIPMENT TO BE LOCKED OUT SHALL BE LOCKED OUT WITH A MULTIPLE-LOCK MASTER LOCK-OUT DEVICE, WHICH SHALL BE INSTALLED BY CITY PERSONNEL AND LOCKED BY BOTH THE CITY PERSONNEL AND THE CONTRACTOR.

G-7. CONTRACTOR SHALL PROVIDE THE PUMP, PIPING AND RELATED EQUIPMENT FOR PUMPING DOWN WET WELL #2 AFTER THE STOP LOG/BULKHEAD ARE INSTALLED. THE CONTRACTOR SHALL FURNISH SUFFICIENT PUMPING EQUIPMENT AND DISCHARGE PIPING TO HANDLE ANY LEAKAGE AROUND THE STOP LOGS THAT MAY OCCUR.

G-8. CONTRACTOR MAY TEMPORARILY REMOVE SKYLIGHTS OVER THE SCREEN ROOM IN ORDER TO INSTALL STOP LOG AND STEEL PLATE BULKHEAD.

G-9. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING, INSTALLING, LEVELING AND ALIGNING MOTOR AND PUMP. PROCEDURES FOR INSTALLATION, AS OUTLINED IN THE HYDRAULIC INSTITUTE STANDARDS, MOST CURRENT EDITION, SHALL BE ADHERED TO.

G-10. PROPOSED PUMP SHALL BE A 350 HORSEPOWER, 24-INCH, 600 RPM FAIRBANKS MORSE VERTICAL CLOSE-COUPLED ANGLEFLOW PUMP MODEL#C5741. PUMP SHALL BE RATED FOR 28.4 MGD @ 50.8 FEET TDH. SEE SPECIFICATIONS FOR MOTOR INFORMATION.

G-11. PROPOSED KNIFE GATE VALVE SHALL BE A 24" L&M MODEL 24M145C100-BG4-X PERFORMANCE PLUS KNIFE GATE VALVE, AS MADE BY TYCO VALVE AND CONTROLS.

G-12. PUMP-CHECK VALVE SHALL BE A 30" DEZURIK PEF, ECCENTRIC PLUG VALVE AND SHALL BE PROVIDED WITH A REMOTELY OPERATED PNEUMATIC ACTUATOR THAT SHALL BE PROPERLY SIZED FOR THE EXISTING PUMPING STATION COMPRESSED AIR SYSTEM.

G-13. AIR SUPPLY FOR PNEUMATICALLY ACTUATED PUMP-CHECK VALVE SHALL BE FROM EXISTING STATION AIR. ARRANGEMENT OF PIPING AND CONNECTIONS TO EXISTING PIPES SHALL BE MADE BY THE CONTRACTOR UNDER THE DIRECTION OF THE ENGINEER.

G-14. ANCHOR BOLTS SHALL BE AS PER PUMP MANUFACTURER'S RECOMMENDATIONS. ANCHOR BOLTS SHALL BE DOUBLE NUTTED AND FINISHED WITH NON-SHRINK GROUT. ALL BOLTS SHALL EXTEND BEYOND THE FASTENING NUTS BY A MINIMUM OF 1/2-INCH.

G-15. ALL HARDWARE, UNLESS OTHERWISE NOTED, SHALL BE TYPE 316 STAINLESS STEEL.

G-16. 30"X30"X30" TEE AND 30"X24" STEEL REDUCER SHALL BE FABRICATED TO SUIT THE DIMENSIONS OF THE PROPOSED EQUIPMENT AND SHALL BE A36-STEEL WITH A 150 PSI RATING. STEEL FITTINGS SHALL BE MANUFACTURED BY AN AWWA CERTIFIED FABRICATOR.

G-17. ALL CEMENTITIOUS CONCRETE AND GROUT, UNLESS OTHERWISE SPECIFIED, SHALL BE CLASS "B" 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

G-18. EXPOSED CONCRETE CORNERS SHALL HAVE A 3/4" CHAMFER AND RE-ENTRANT CORNERS SHALL HAVE A 3/4" FLAT FILLET UNLESS OTHERWISE NOTED.

G-19. CONCRETE PEDESTAL SHOP DRAWINGS INCLUDING FLANGE SUPPORT DETAILS SHALL BE SUBMITTED FOR APPROVAL.

G-20. ALL STEEL REINFORCING SHALL BE DETAILED ACCORDING TO THE LATEST "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES". ACTUAL PLACEMENT OF STEEL REINFORCING SHALL BE SHOWN ON SHOP DRAWINGS. ALL LAPS AND SPLICES SHALL BE AT LEAST 32 BAR DIAMETERS OR 24 INCHES.

G-21. CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO MINIMIZE DAMAGE TO REINFORCING STEEL WHEN PENETRATING CONCRETE FLOOR BEAM FOR ELECTRICAL CONDUIT ROUTING. CONTRACTOR SHALL SUBMIT METHOD OF BEAM PENETRATION FOR APPROVAL.

G-22. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL TO THE ENGINEER FOR THE PROPOSED STOP LOG AND BULKHEAD. SHOP DRAWINGS SHALL INCLUDE MATERIAL(S) TO BE USED TO MINIMIZE LEAKAGE BETWEEN STEEL SHEETS AND EXISTING STRUCTURES.

G-23. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL TO THE ENGINEER FOR THE TRANSFORMER MOUNTING PLATFORM.

DEMOLITION NOTES

D-1. ALL DIMENSIONS ARE APPROXIMATE. TRUE DIMENSIONS SHALL BE DETERMINED IN THE FIELD.

D-2. SALVAGEABLE MATERIAL AS DETERMINED BY DEPARTMENT PERSONNEL SHALL BE DELIVERED TO THE CITY OF TAMPA'S HOWARD F. CURREN AWTP AT 2700 MARITIME BOULEVARD. NON-SALVAGEABLE MATERIALS ARE TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. IN GENERAL, ALL PUMP AND CONTROLS EQUIPMENT SHALL REMAIN PROPERTY OF THE CITY AND SHALL BE DELIVERED TO THE TREATMENT PLANT.

D-3. THE PUMP STATION SITE SHALL BE MAINTAINED IN AS NEAT AND ORDERLY CONDITION AS POSSIBLE DURING CONSTRUCTION OPERATIONS. WALKWAYS AND DRIVEWAYS SHALL BE KEPT CLEAR FOR DEPARTMENT PERSONNEL TO PASS THROUGH.

D-4. CONTRACTOR SHALL CUT ALL EXPOSED REINFORCING STEEL TO A DEPTH OF 1-INCH BELOW THE EXPOSED SURFACE AND GROUT OVER.

D-5. CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL THAT WILL PREVENT THE EXPANSION JOINTS IN THE 30"-36" DISCHARGE HEADER FROM EXPANDING AFTER THE EXISTING 30"x30"x30' TEE HAS BEEN REMOVED IN THE PUMP ROOM.

"POSSIBLE" SEQUENCE OF OPERATIONS

S-1. CLOSE EXISTING 16" KNIFE GATE VALVE UNDER PUMP #2 AND TWO 30" PLUG VALVES IN DISCHARGE PIPING HEADER; REMOVE PUMP, MOTOR, PIPE AND FITTINGS (INCLUDING 30"x30"x30" TEE). ALSO, REMOVE EXISTING ELECTRICAL EQUIPMENT, CONDUIT AND WIRING FOR EXISTING PUMP #2.

S-2. RELOCATE STOP LOG AND STEEL PLATE BULKHEAD TO WET WELL #2 CHAMBERS, PUMP OUT WET WELL #2, REMOVE EXISTING 16" KNIFE GATE VALVE AND 24" X 16" SPOOL PIECE, INSTALL NEW 24" SPOOL PIECE AND 24" KNIFE GATE VALVE. ALSO, BEGIN INSTALLING ELECTRICAL EQUIPMENT, CONDUIT, AND WIRING FOR PROPOSED PUMPING EQUIPMENT.

S-3. INSTALL PROPOSED PUMP #2, MOTOR, PUMP CHECK VALVE, PIPE AND FITTINGS (INCLUDING 30"x30"x30" TEE).

S-4. POUR CONCRETE PEDESTALS FOR PROPOSED PUMP AND PIPING. ALSO, TIE-IN ELECTRICAL EQUIPMENT AND CONTROLS.

S-5. PERFORM REQUIRED TESTS ON PROPOSED PUMPING EQUIPMENT.

S-6. PERFORM TRAINING, COMPLETE PUNCHLIST ITEMS.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

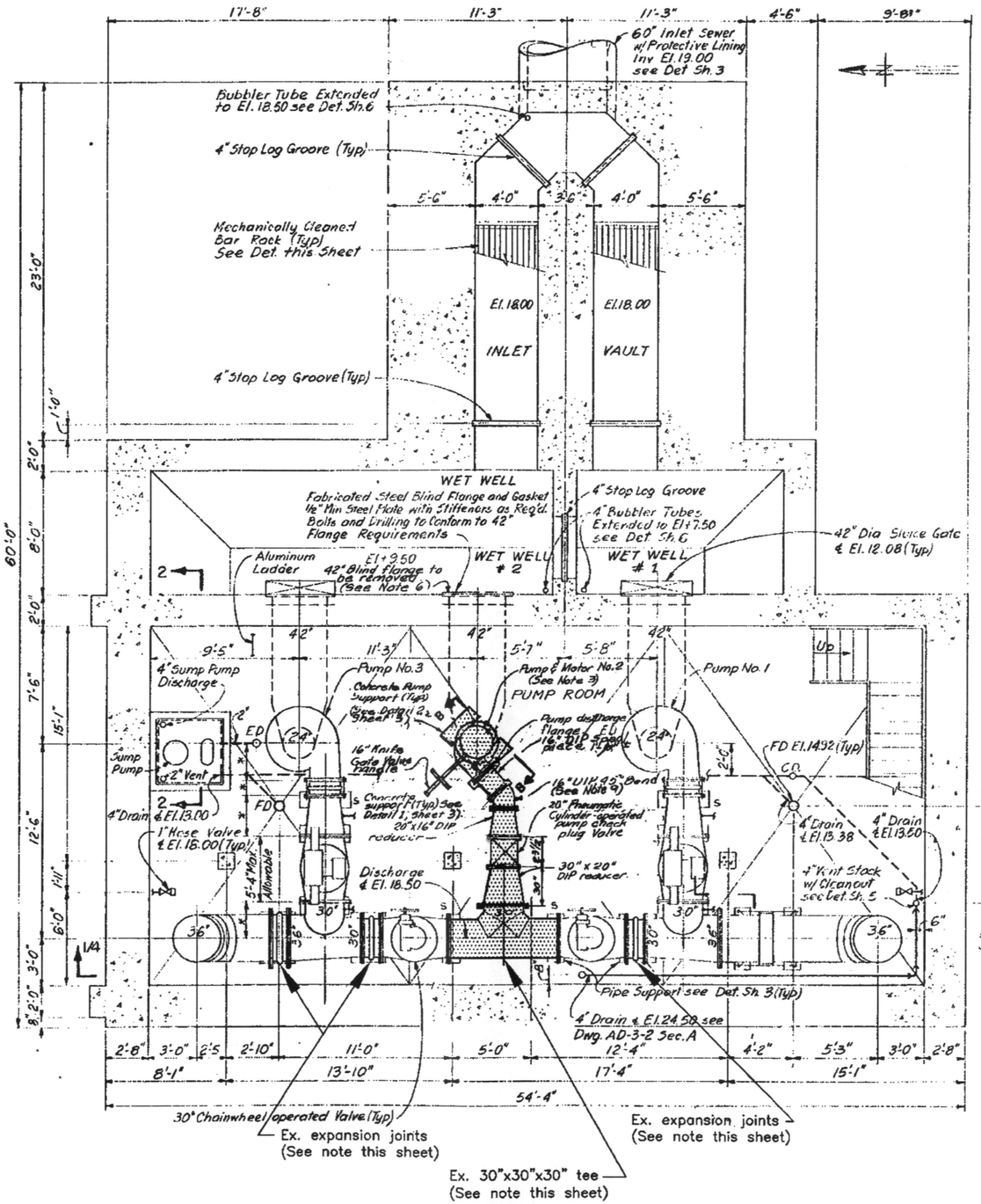
DES: JH
DRN: MRL
CKD: JF
DATE: 7/1/08

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
PUMP NO. 2 REPLACEMENT
NOTES

W.O. 5395
SHEET 4

B062-041



Ex. structures and equipment to be removed by the contractor

DEMOLITION PLAN AT EL. 15.00

NOT TO SCALE

NOTE: PRIOR TO REMOVING EXISTING 30"x30"x30" TEE CONTRACTOR SHALL SUBMIT FOR APPROVAL A METHOD FOR PREVENTING EXPANSION JOINTS IN DISCHARGE HEADER FROM EXPANDING UNDER PRESSURE.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

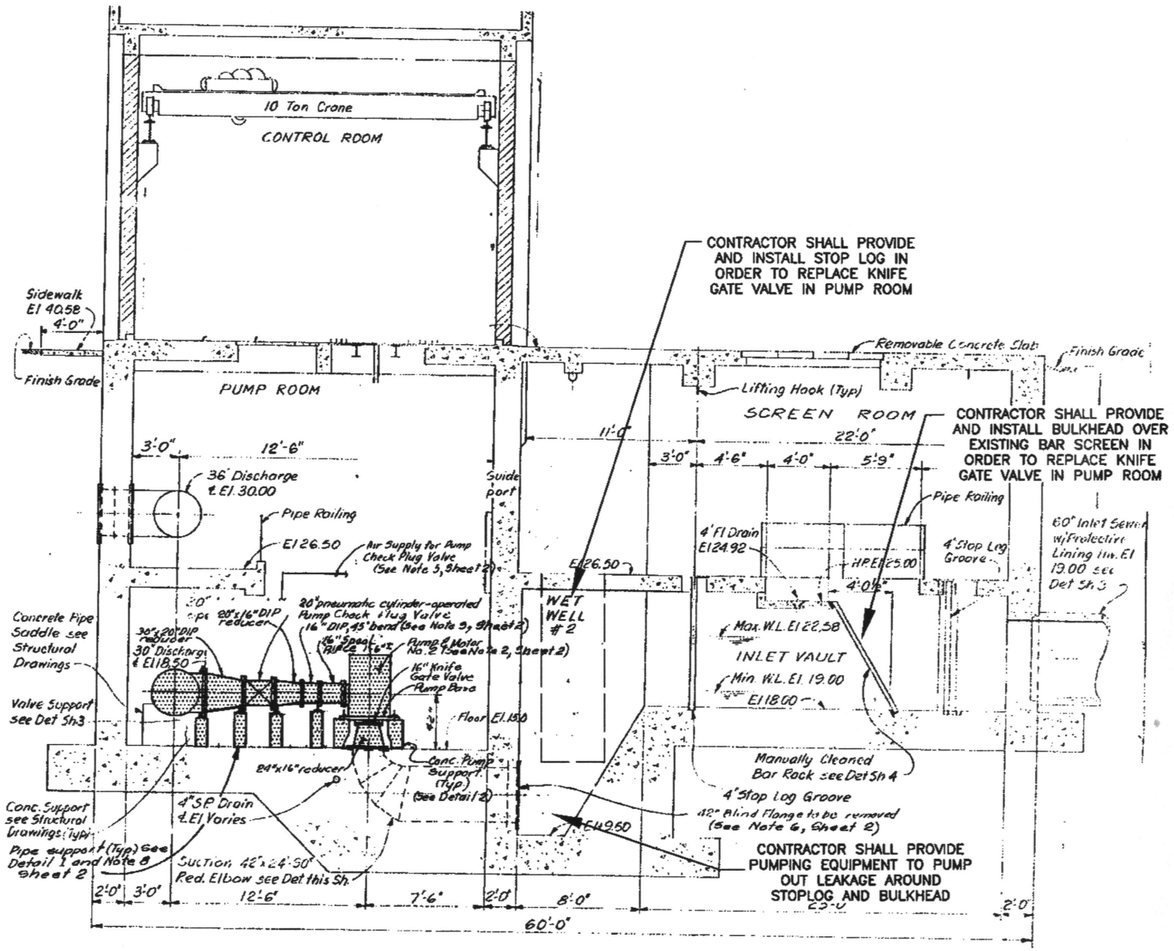
DES: JH
DRN: MRL
CKD: JF
DATE: 7/1/08

CITY of TAMPA
WASTEWATER DEPARTMENT

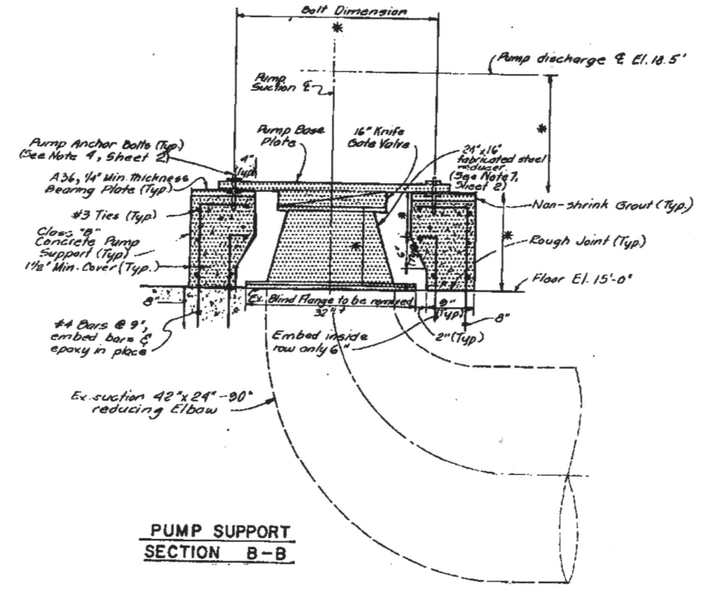
UNIVERSITY PUMPING STATION
PUMP NO. 2 REPLACEMENT
DEMOLITION PLAN

W.O. 5395
SHEET 5

B062-042

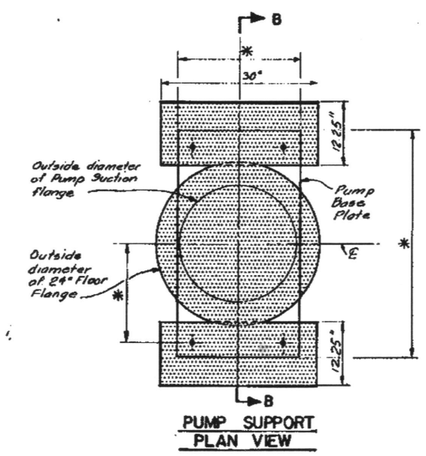


SECTION A/4
NOT TO SCALE

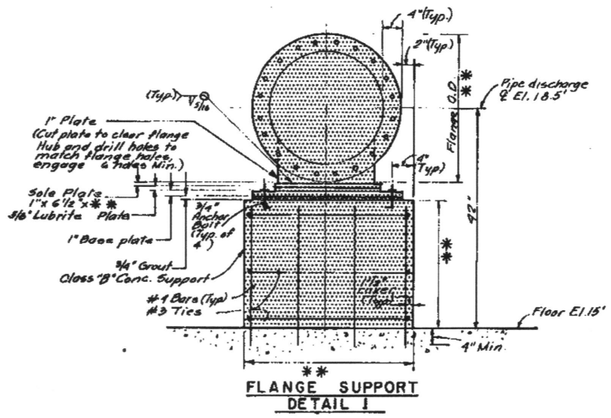


PUMP SUPPORT
SECTION B-B

Ex. structures and equipment to be removed by the contractor



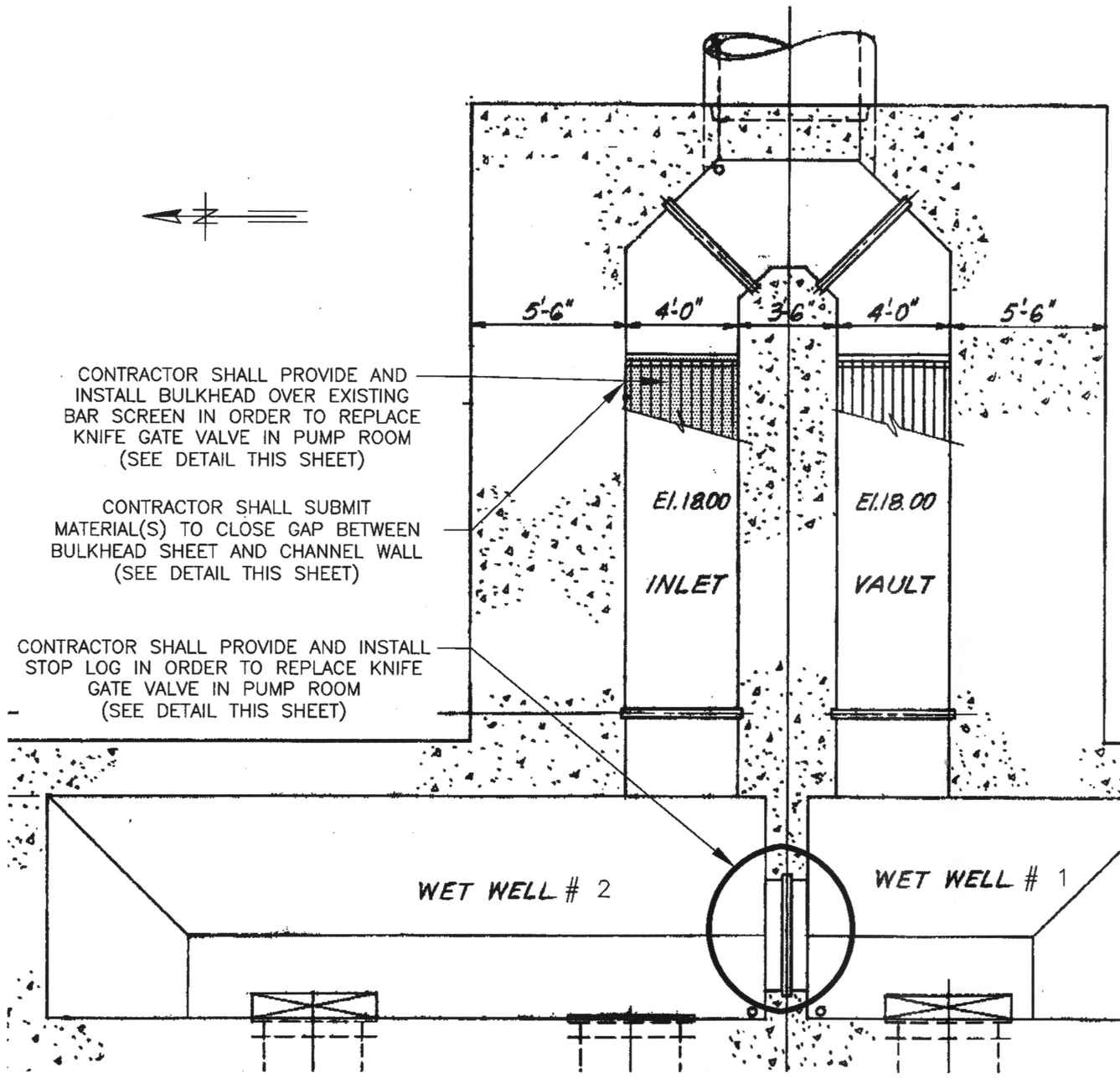
PUMP SUPPORT
PLAN VIEW



FLANGE SUPPORT
DETAIL 1

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: JH DRN: MRL CKD: JF DATE: 7/1/08	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION PUMP NO. 2 REPLACEMENT DEMOLITION SECTIONS	W.O. 5395 SHEET 6
	3						
	2						
	1						

B062-043

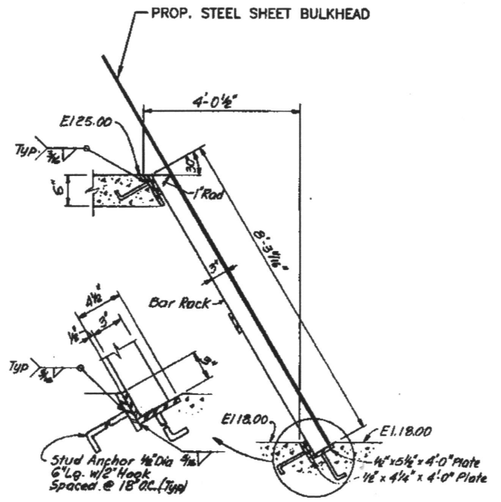


CONTRACTOR SHALL PROVIDE AND INSTALL BULKHEAD OVER EXISTING BAR SCREEN IN ORDER TO REPLACE KNIFE GATE VALVE IN PUMP ROOM (SEE DETAIL THIS SHEET)

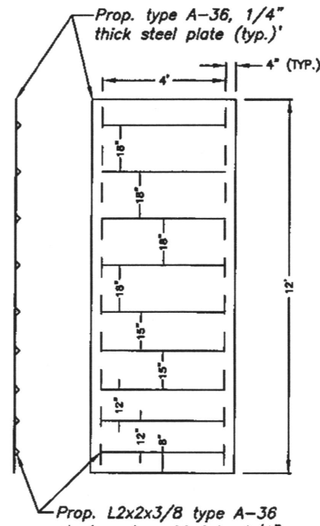
CONTRACTOR SHALL SUBMIT MATERIAL(S) TO CLOSE GAP BETWEEN BULKHEAD SHEET AND CHANNEL WALL (SEE DETAIL THIS SHEET)

CONTRACTOR SHALL PROVIDE AND INSTALL STOP LOG IN ORDER TO REPLACE KNIFE GATE VALVE IN PUMP ROOM (SEE DETAIL THIS SHEET)

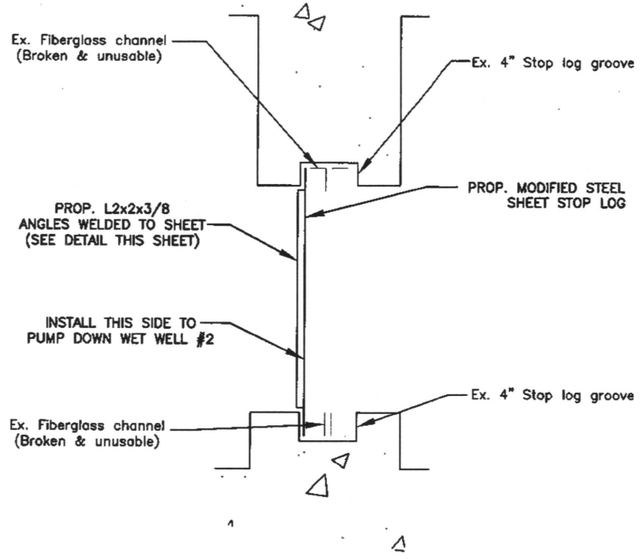
SECTIONAL PLAN AT EL. 15.00
NOT TO SCALE



TEMP. BULKHEAD DETAIL
NOT TO SCALE



PROPOSED STOP LOG DETAIL
NOT TO SCALE



STOP LOG GROOVE DETAIL
NOT TO SCALE

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No. / DATE / REVISIONS 3 2 1	DES: JH DRN: MRL CKD: JF DATE: 7/1/08	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION PUMP NO. 2 REPLACEMENT WET WELL ISOLATION DETAILS	W.O. 5395 SHEET 7

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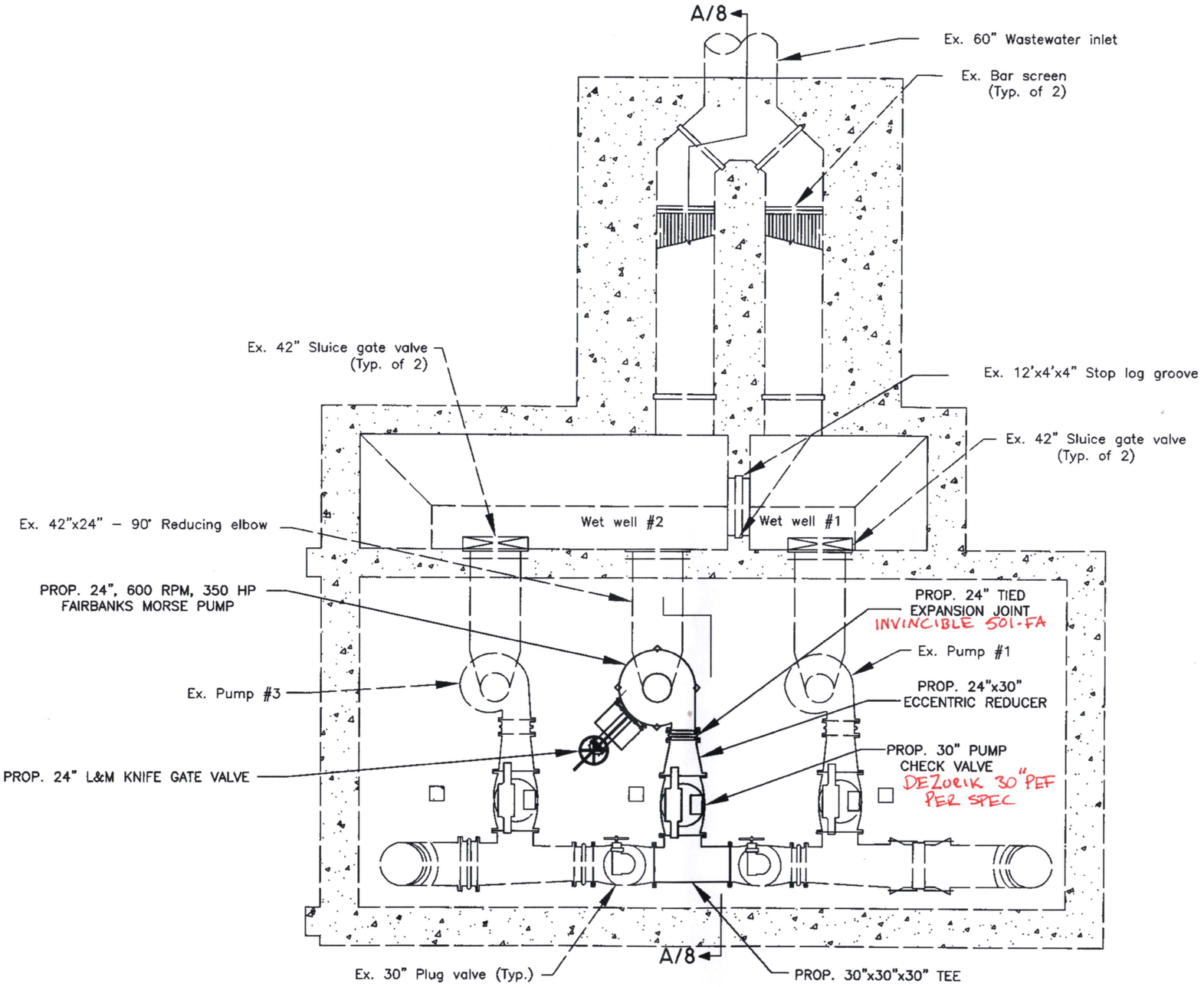
B062-044

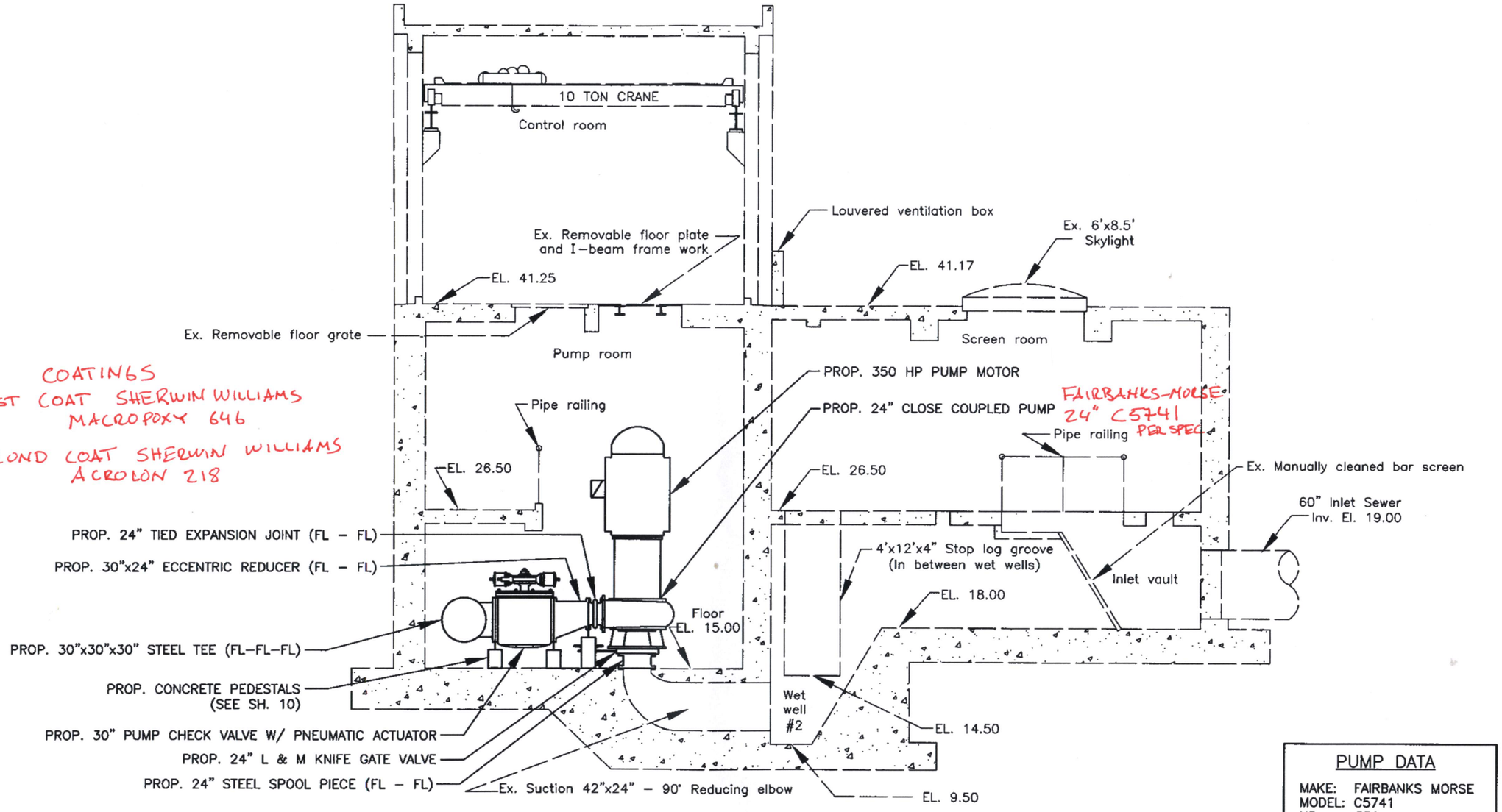


PLAN AT EL. 19.00

1/8" = 1'

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: JH DRN: MRL CKD: JF DATE: 7/11/08	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION PUMP NO. 2 REPLACEMENT PROPOSED PUMP ROOM PLAN	W.O. 5395 SHEET 8
	3						
	2						
	1						

B062-045



COATINGS
- FIRST COAT SHERWIN WILLIAMS MACROPOXY 646
- SECOND COAT SHERWIN WILLIAMS ACROLON 218

FAIRBANKS-MORSE 24" C5741 PER SPEC

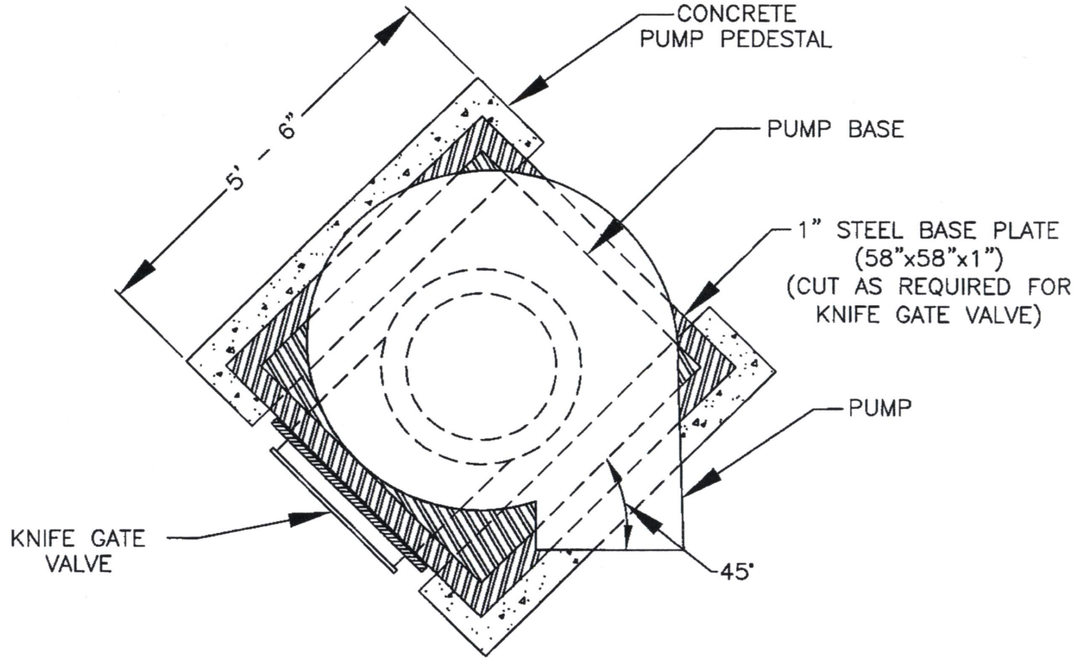
SECTION A/7

1/8" = 1'

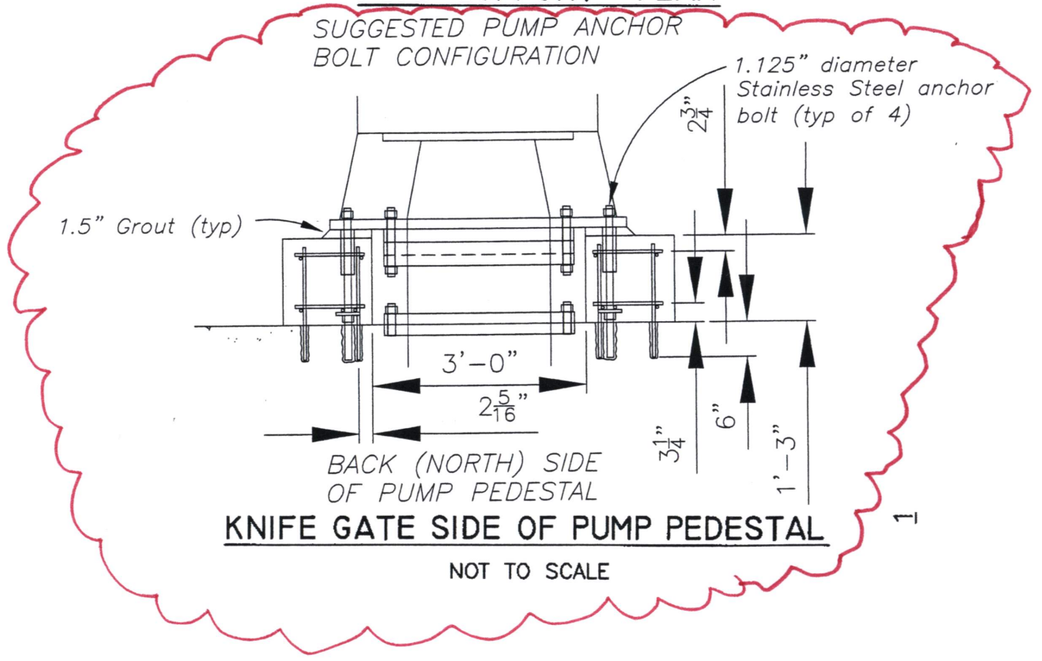
PUMP DATA
MAKE: FAIRBANKS MORSE
MODEL: C5741
HP: 350
460V, 3 PHASE, 497.0 FLA

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: JH DRN: MRL CKD: JF DATE: 7/1/08	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION PUMP NO. 2 REPLACEMENT PROPOSED PUMP ROOM PROFILE	W.O. 5395 SHEET 9
	3						
	2						
	1						

B062-046

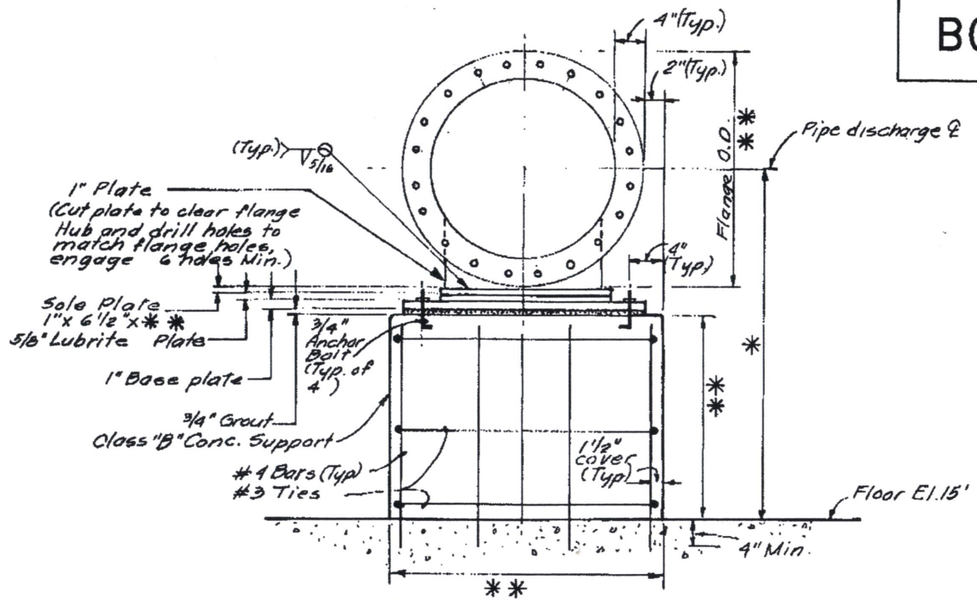


PUMP SUPPORT - PLAN



KNIFE GATE SIDE OF PUMP PEDESTAL

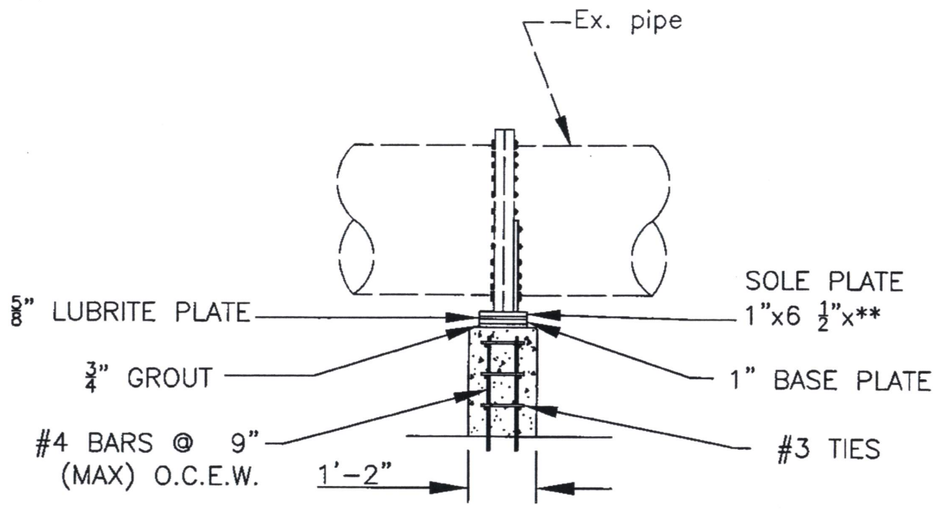
NOT TO SCALE



FLANGE SUPPORT DETAIL 1

N.T.S.

** Dimension dependent on pipe diameter

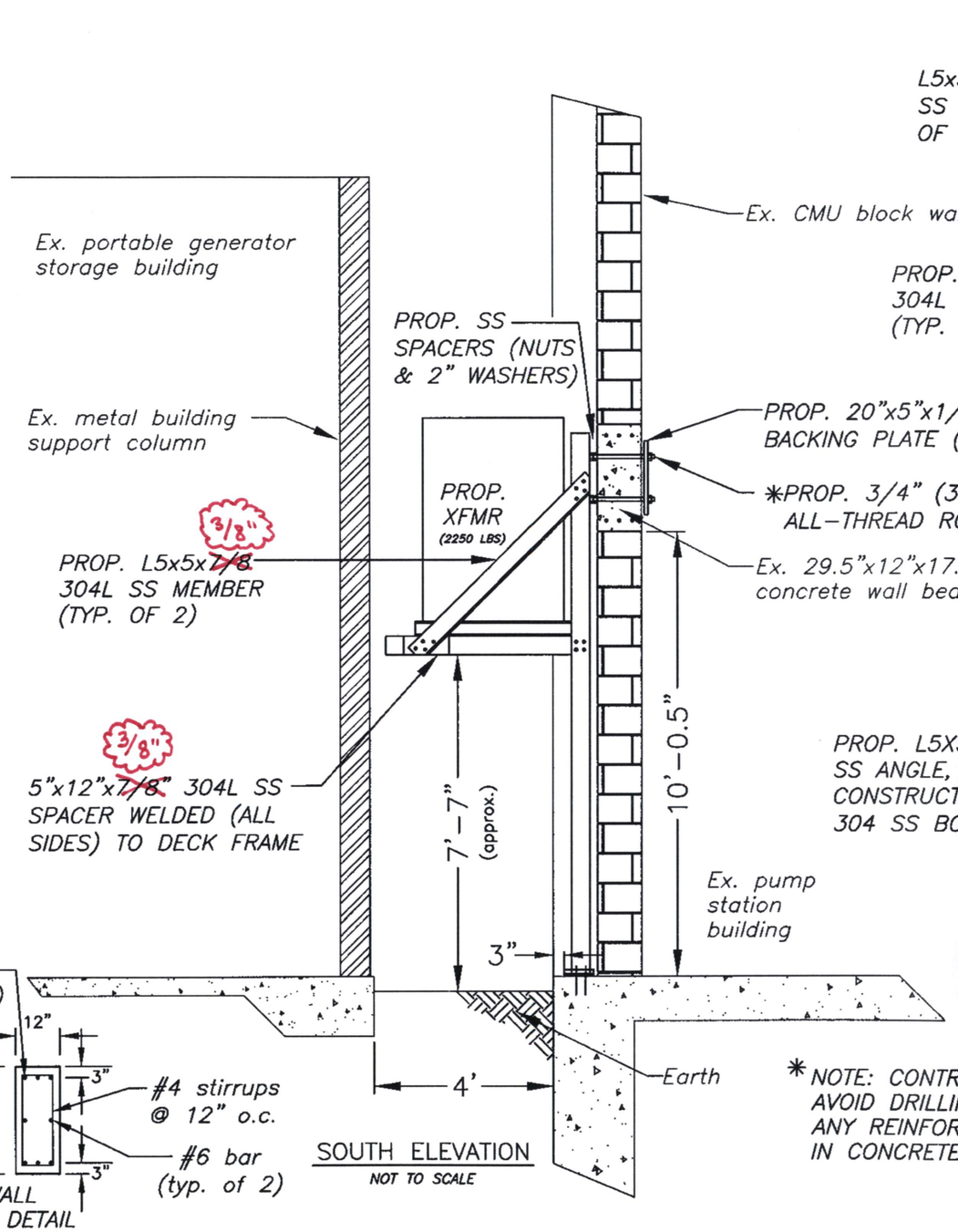


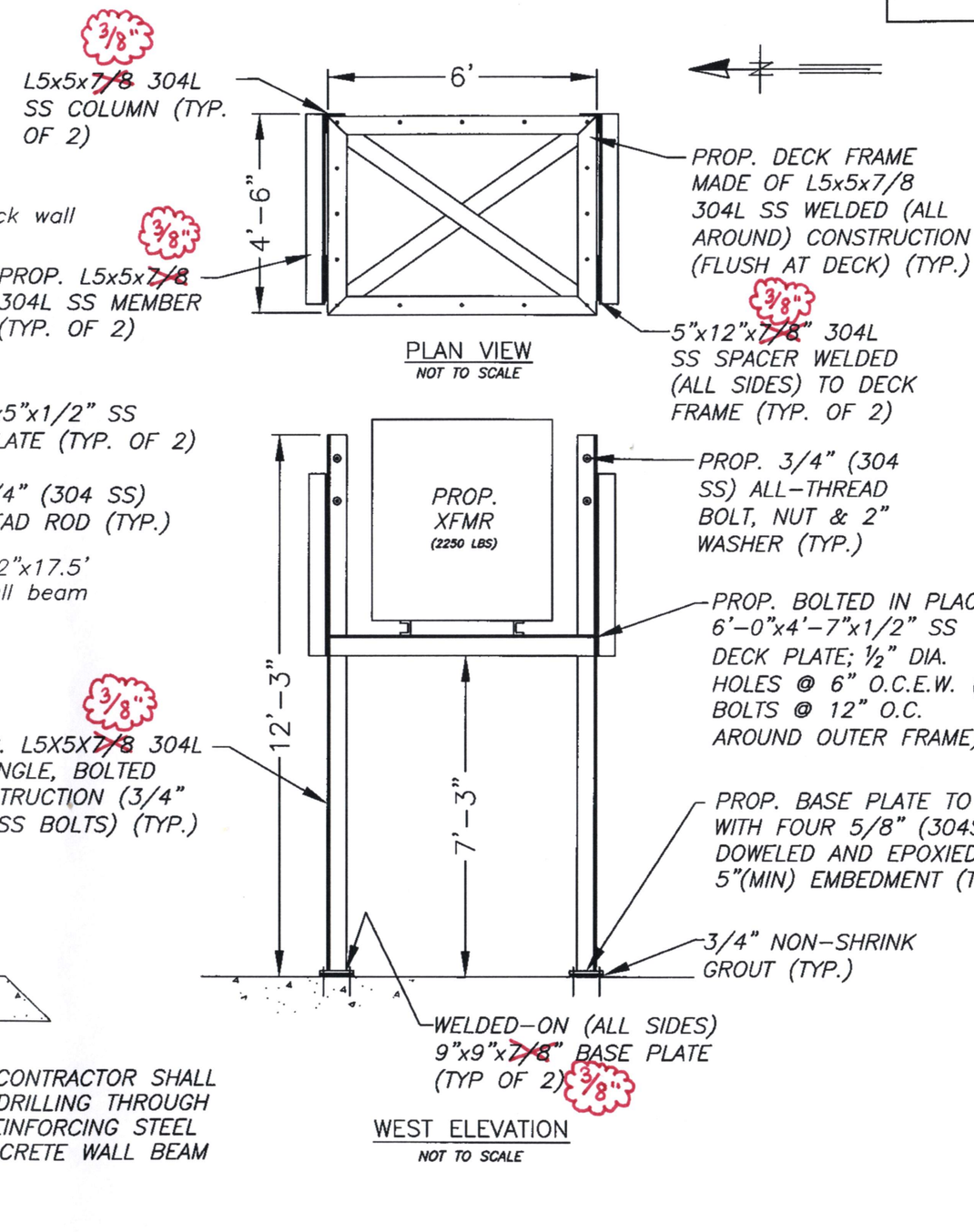
FLANGE SUPPORT DETAIL 2

NOT TO SCALE

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: JH DRN: MRL CKD: JF DATE: 7/1/08	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION PUMP NO. 2 REPLACEMENT MISC. PUMP ROOM DETAILS	W.O. 5395 SHEET 10
	3						
	2						
	1						

B062-047





JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No. / DATE / REVISIONS 3 2 1	DES: JH DRN: MRL CKD: JF DATE: 7/1/08	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION PUMP NO. 2 REPLACEMENT PROPOSED TRANSFORMER PLATFORM	W.O. 5395 SHEET 11

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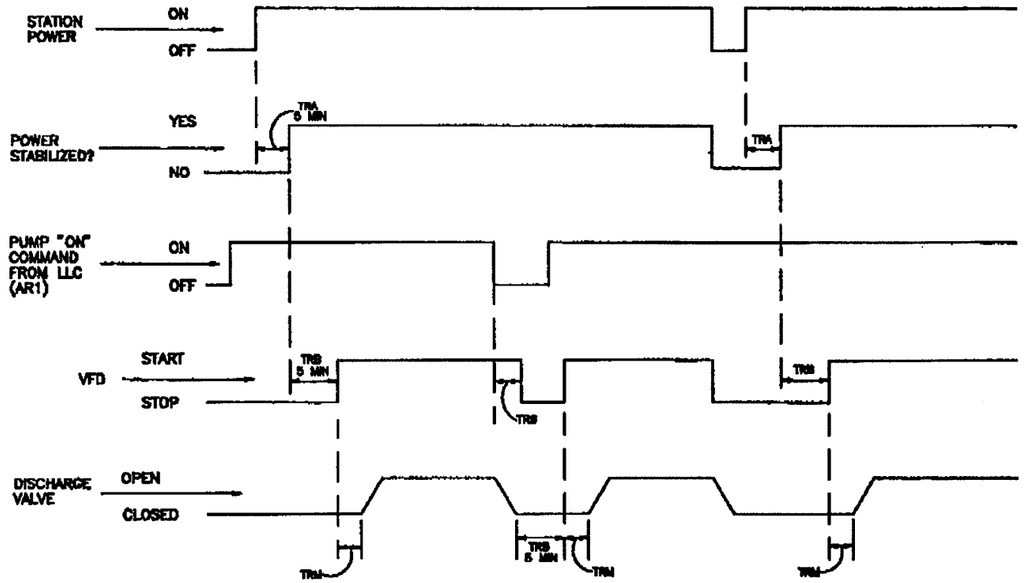


SEWAGE PUMP NO. 2 (TIMING DIAGRAM)

LEGEND

- DISCONNECTING DEVICE
- MCP 30 90 — MOTOR CIRCUIT PROTECTOR, 30 AMPERE CONTINUOUS RATING, 90 AMPERE MAGNETIC TRIP SETTING
- CVT — CONTROL POWER TRANSFORMER
- FUSE
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT — OR TIME DELAY RELAY, INSTANT TRANSFER SWITCH
- M — MOTOR STARTER COIL
- MOL — MOTOR THERMAL OVERLOAD
- PR — PILOT LIGHT (RED LENS)
- TERMINAL STRIP
- ETM — HOUR METER
- STOP L — STOP PUSHBUTTON WITH PROVISIONS FOR PADLOCK
- OFF 1 3 — 3 POSITION SELECTION SWITCH
- LS1 — LIMIT SWITCH, NORMALLY OPEN
- LS3 — LIMIT SWITCH, NORMALLY CLOSED
- PSI — PRESSURE SWITCH, NORMALLY OPEN
- MTR — 3 PHASE MOTOR
- MOUNTED NEAR EQUIPMENT OR MOTOR (LOCAL)
- NEUTRAL
- STOP / L — PUSHBUTTON WITH PROVISIONS FOR LOCK. (N.O.)
- N.C. PUSHBUTTON
- ES / STOP/L / RESUME — LOCAL CONTROL STATION, ES – EMERGENCY STOP
- GSR — GROUND SENSE RELAY
- TWISTED PAIR SHIELDED CABLE
- TR — NORMALLY CLOSED "ON DELAY" TIMING RELAY
- TR — NORMALLY OPEN "ON DELAY" TIMING RELAY
- TR — INSTANT CLOSE – DELAY OPEN TIMING RELAY (OFF DELAY)
- TR — INSTANT OPEN – DELAY CLOSE TIMING RELAY (OFF DELAY)

PLOT

FILENAME

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: RDK
DRN: RDK
CKD:
DATE: 6/10/08

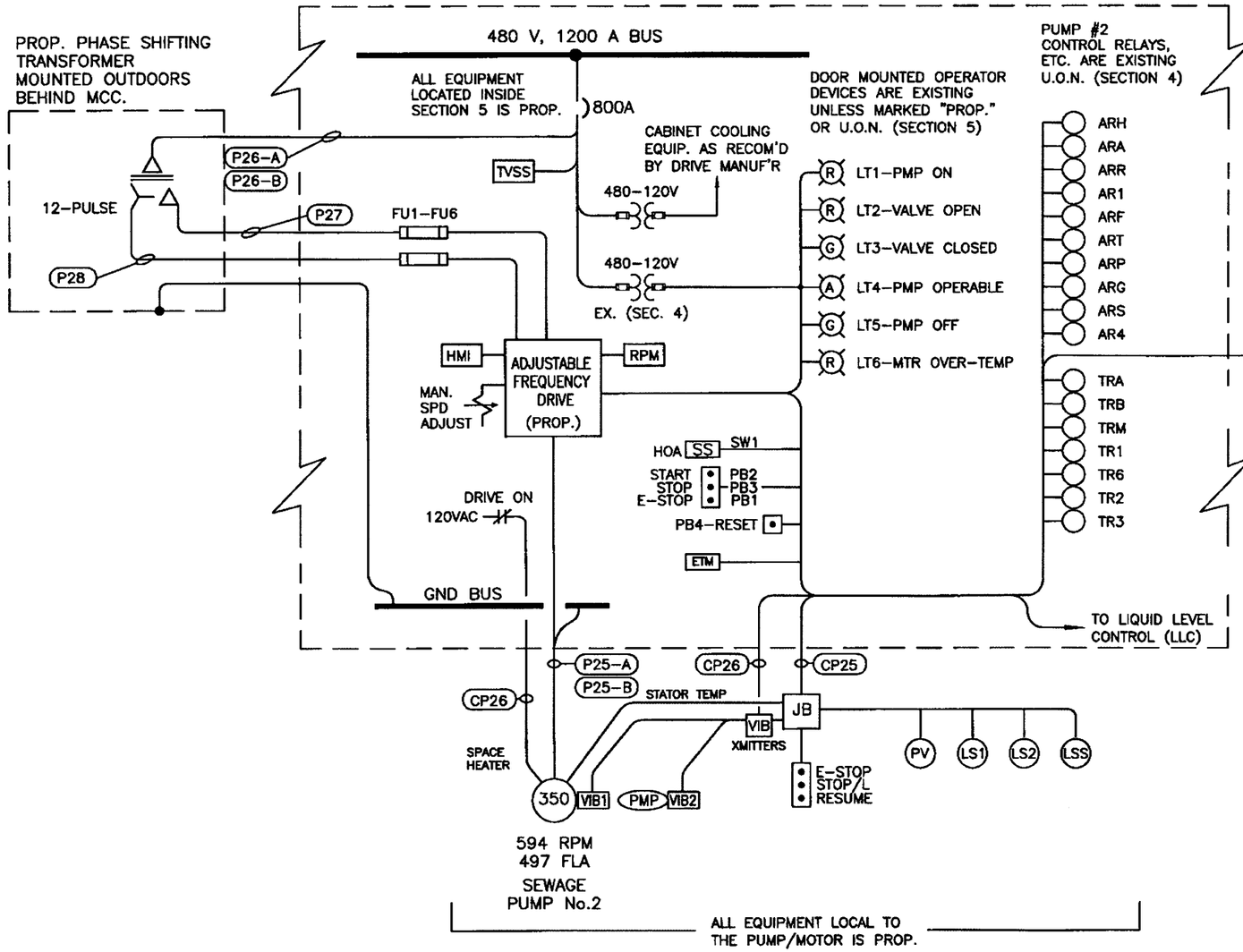
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
TIMING DIAGRAM AND LEGEND

W.O. 5395
SHEET E0 OF

B062-049

EXISTING SEWAGE PUMPS CONTROL CENTER (SECTIONS 4 & 5)



ONE LINE DIAGRAM – PUMP No.2

480V – 3PH – 60HZ

CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT NUMBER	CONDUIT SIZE	CONDUCTOR QUAN. & SIZE	FROM	TO	REMARKS
P25-A	4"	(3)-400KCMIL (1)-#2/0 GND	PUMP CONTROL CENTER, SEC. 5	PUMP MOTOR No.2	POWER LEADS
P25-B	4"	(3)-400KCMIL (1)-#2/0 GND			
P26-A	4"	(3)-500KCMIL (1)-#2/0 GND	PUMP CONTROL CENTER, SEC. 5	12-PULSE TRANSFORMER	PRIMARY LEADS
P26-B	4"	(3)-500KCMIL (1)-#2/0 GND			
P27	4"	(3)-500KCMIL (1)-#2/0 GND	12-PULSE TRANSFORMER	PUMP CONTROL CENTER, SEC. 5	SECONDARY LEADS
P28	4"	(3)-500KCMIL (1)-#2/0 GND			
CP25	EXISTING 1"	(34)-#14 (2)-#12 GND	PUMP CONTROL CENTER, SEC. 5	T.B. AT PUMP No.2 MOTOR	CONTROL WIRING
CP26	1-1/2"	(2)-#10 (1)-#10 GND	PUMP CONTROL CENTER, SEC. 4	PUMP MOTOR No.2	SPACE HEATER
		(2)#16-2C, SHLD		VIB. XMITTERS	ANALOG SIG.
		(2)#16-3C, SHLD			120VAC POWER
C1A OR C1B	EXISTING	ADD COND. AS REQ'D	PUMP CONTROL CENTER, SEC. 4	METERING AND SCADA PANEL	ANNUN. & RTU WIRING

PLOT

FILENAME

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

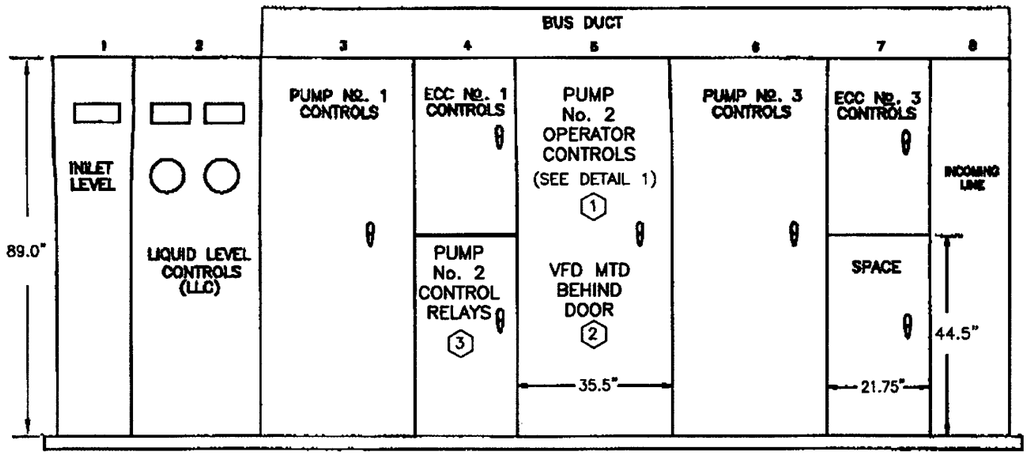
DES: RDK
DRN: RDK
CKD:
DATE: 6/02/08

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
ELECTRICAL- ONE-LINE DIAGRAM

W.O. 5395
SHEET E1 OF

B062-050

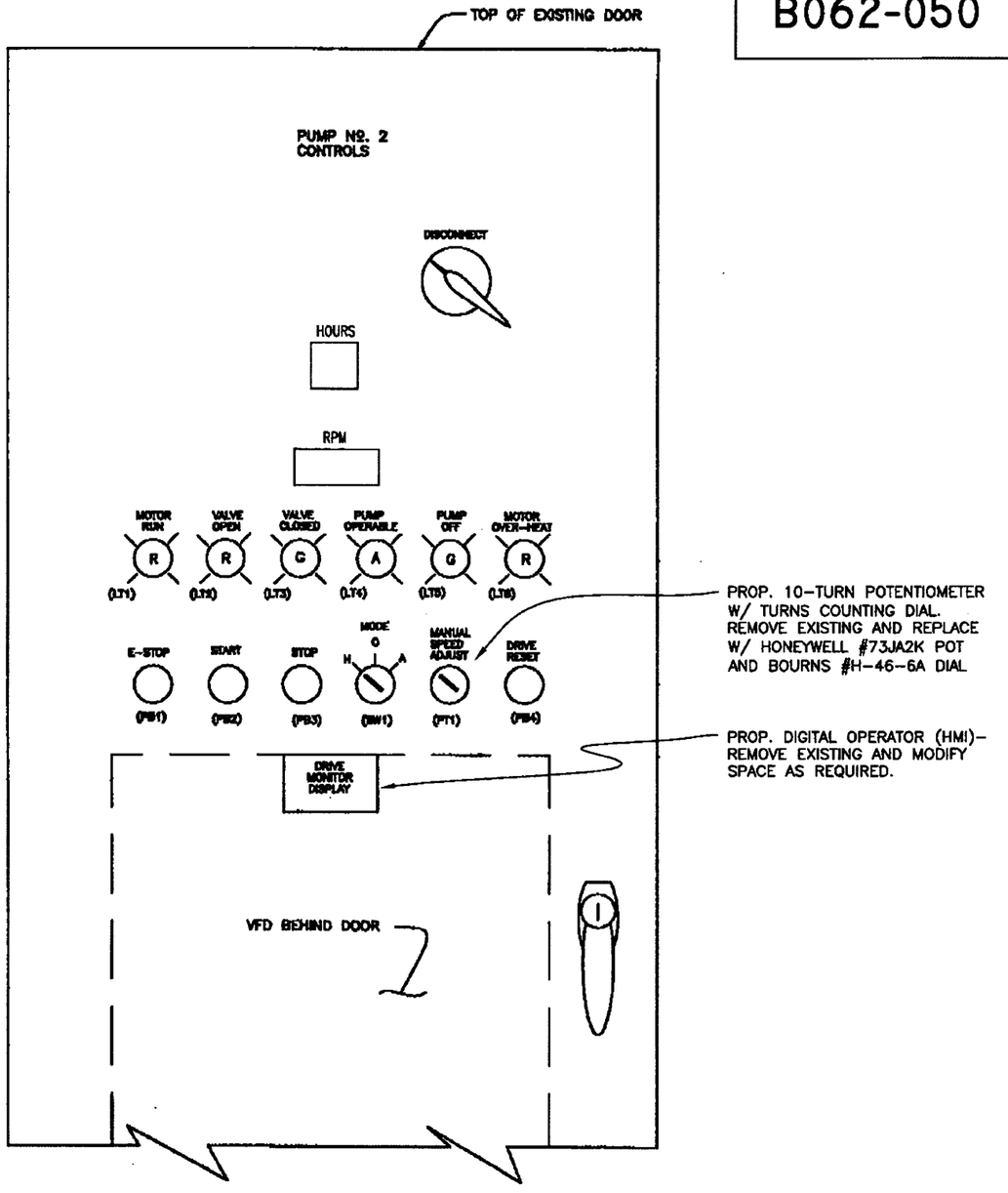


EXISTING SEWAGE PUMPS CONTROL CENTER (FRONT ELEVATION)

THE NOTED EXISTING EQUIPMENT SHALL BE REMOVED OR MODIFIED AS REQUIRED TO FACILITATE THE INSTALLATION OF THE NEW EQUIPMENT PROVIDED AND INSTALLED UNDER THIS CONTRACT.

⬡ INDEXED NOTES:

1. DOOR MOUNTED OPERATOR DEVICES ARE EXISTING UNLESS MARKED "PROP." OR U.O.N.
2. ALL EQUIPMENT LOCATED INSIDE SECTION 5 IS PROPOSED.
3. PUMP No.2 CONTROL RELAYS, ETC, ARE EXISTING U.O.N.



DETAIL 1, PUMP NO. 2 CONTROLS (FRONT DOOR LAYOUT)

1

PLOT

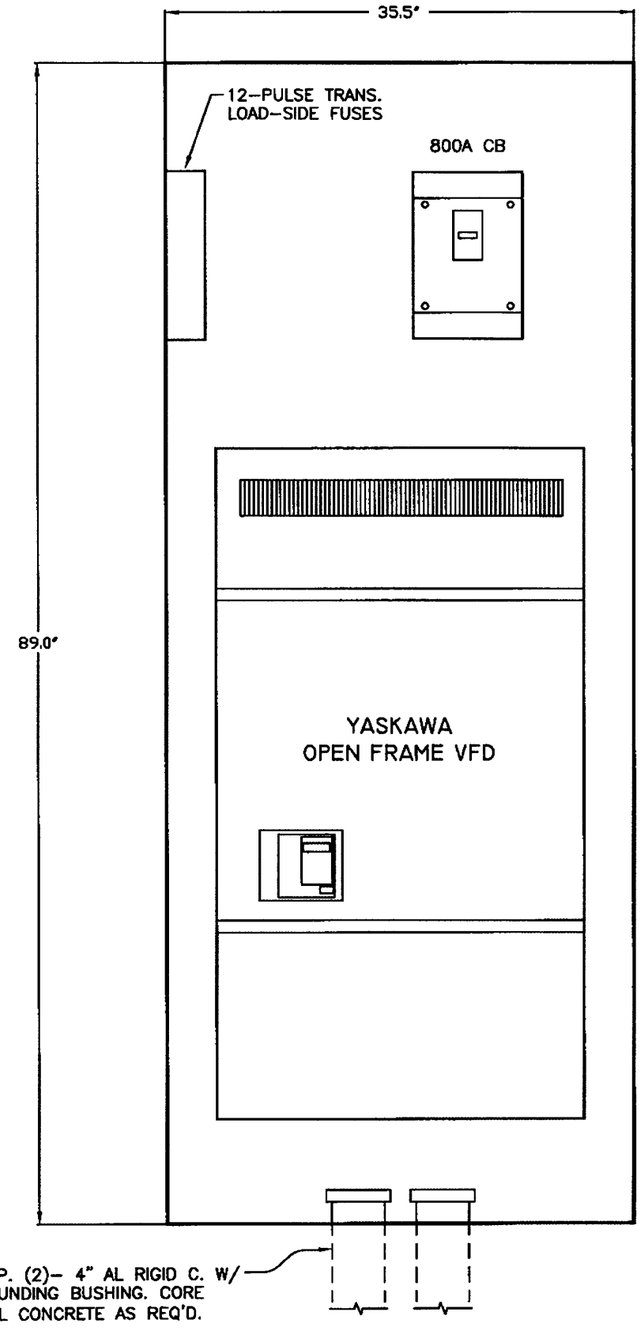
FILENAME

ROMAN D. KORCHAK, P.E. #42626 ELECTRICAL SECTION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: RDK DRN: RDK CKD: DATE: 6/30/08	CITY of TAMPA WASTEWATER DEPARTMENT
	3				UNIVERSITY P.S. PUMP No.2 REPLACEMENT ELECTRICAL- MCC LAYOUT
	2				
	1				

W.O. 5395

SHEET E2 OF

B062-051



NOTE:

VFD #2 VENTILATION SHALL BE PROVIDED AND INSTALLED UNDER THE GUIDANCE AND SUPERVISION OF AN INDIVIDUAL WITH YASKAWA AUTHORIZED SERVICE PROVIDER CERTIFICATION.

SEWAGE PUMP No.2
SECTION 5 - PROP. LAYOUT

(DOOR REMOVED FOR CLARITY)

PLOT

FILENAME

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: RDK
DRN: RDK
CKD:
DATE: 6/02/08

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
PROP. VFD CUBICLE LAYOUT

W.O. 5395
SHEET E3 OF

B062-052

PUMP No.2 VFD ENCLOSURE

3PH. 480VAC LINE

L1 L2 L3

3P, 800A

TVSS

TO CONTROL SCHEMATIC * SHEET E5

L1A

L2A

480–120V

CABINET COOLING EQUIP. & MOTOR SPACE HEATER AS RECOMMENDED BY DRIVE & MOTOR MANUFACTURERS

PROP. 12–PULSE TRANSFORMER MOUNTED OUTDOORS ON WALL BEHIND MCC.

FUA FUB FUC FUD FUE FUF

OPEN FRAME VFD

R1/L11 S1/L21 T1/L31 R/L1 S/L2 T/L3

DIGITAL OPERATOR *

TB ARM* TB — S1 RUN FORWARD

AR4* — S4 DRIVE ENABLE

ARA* — S5 REMOTE SPD REF. SELECT

SN COMMON

4–20mA SPEED REF. FROM CONTROL RELAY PANEL, SIGNAL CONDITIONER SC1 * — TB — A2 4–20 mA SPEED CONTROL INPUT; AC COMMON

2K OHM MANUAL SPEED ADJUSTMENT POTENTIOMETER * — TB — +V, A1, AC

HONEYWELL 73JA2K POT W/ BOURNS H–46–6A TURNS COUNTING DIAL

4–20mA VFD SPEED. TO CONTROL RELAY PANEL, SIGNAL CONDITIONER SC2 * 4–20 mA — TB — FM 4–20 mA SPEED INDICATION OUTPUT; AC

FOR FUTURE CONNECTION * 4–20 mA — TB — AM; AC

MA MC — TB — * AFD FAULT SHT E5, LINE 215

U/T1 V/T2 W/T3

* STATOR TEMP TO E5, LINE 217

VFD ON — 120VAC NEU. GND

PROVIDE INTERPOSING POWER RELAY W/ CONTACTS RATED FOR AT LEAST 125% OF SPACE HEATER CURRENT.

350 SPACE HEATER

* SEWAGE PUMP NO.2

VFD CONNECTION DIAGRAM

NOTES:

1. △ – DENOTES FIELD CONNECTION TERMINALS LOCATED IN THE EXISTING PUMP No.2 CONTROL RELAYS MCC CUBICLE. INTERFACE TERMINAL STRIP DESIGNATIONS AND NUMBERING REMAIN UNCHANGED FROM THE ORIGINAL MECHANIZATION TO FACILITATE VFD REPLACEMENT.
2. COORDINATE WITH EQUIPMENT MANUFACTURER WIRING DETAILS & SPECIFIC I/O CONNECTION POINTS.
3. COORDINATE INSTRUMENTATION/CONTROL CONNECTIONS W/ CITY PERSONNEL.
4. "*" INDICATES DEVICE IS LOCATED REMOTE FROM ADJUSTABLE FREQUENCY DRIVE ENCLOSURE.
5. PROVIDE AND INSTALL A YASKAWA ELECTRIC AMERICA MODEL CIMR–P7U4220 VARIABLE FREQUENCY DRIVE WITH THE FOLLOWING RATINGS– 480VAC, 12–PULSE, 567AMP, 472KVA, INPUT CONVERTER; 515AMP, 390KVA, OUTPUT INVERTER.
6. THE DIGITAL OPERATOR SHALL BE MOUNTED ON THE AFD ENCLOSURE FRONT DOOR AS SHOWN ON SHT. E2.

PLOT

FILENAME

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: RDK
DRN: RDK
CKD:
DATE: 6/30/08

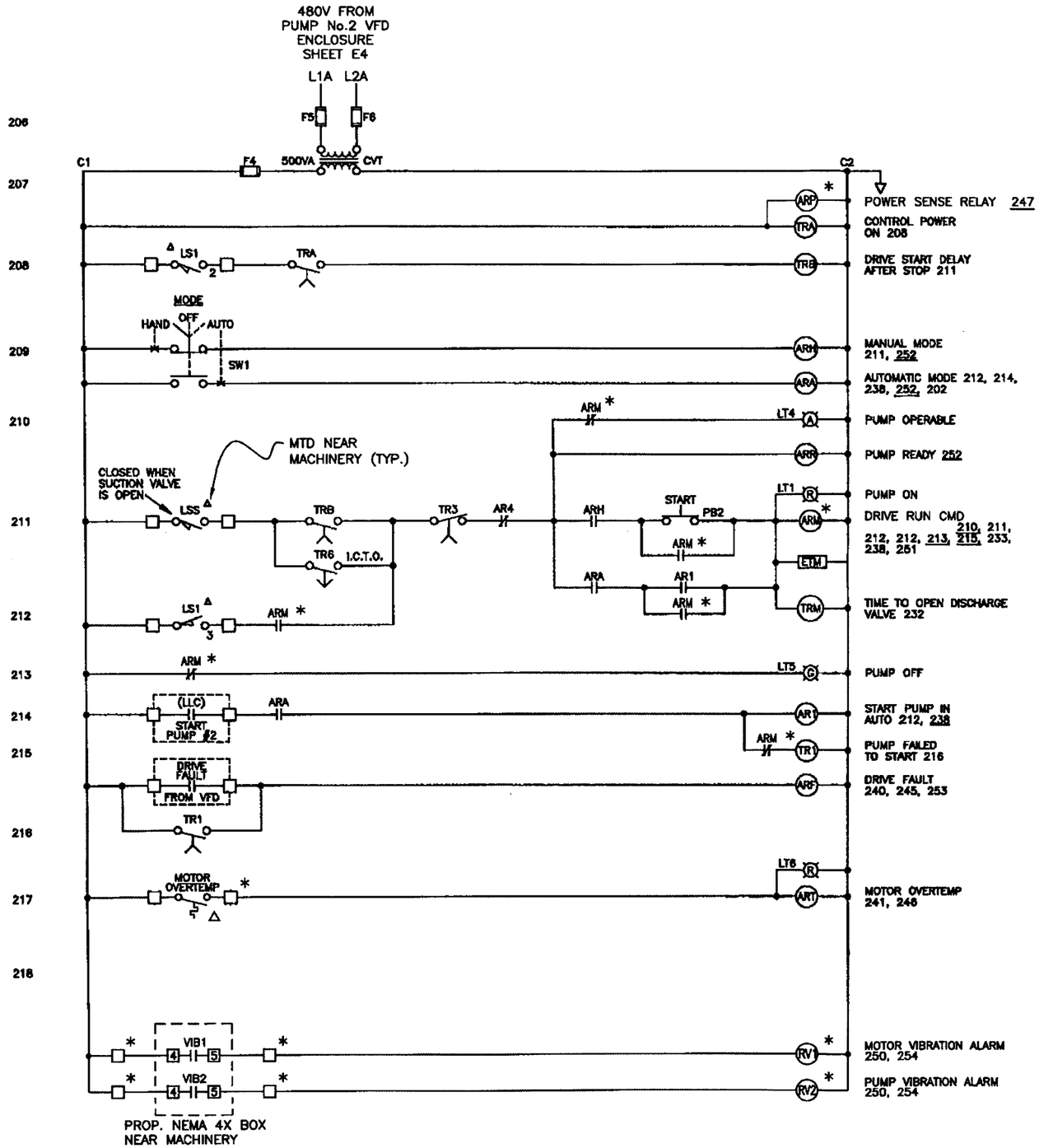
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
ELECTRICAL– VFD INTERCONNECTIONS

W.O. 5395

SHEET E4 OF

B062-053



LS	CONTACT	DISCHARGE VALVE POSITION		
		FULLY CLOSED	INTERMED POSITION	FULLY OPEN
LS1	1		X	X
	2	X		
	3		X	X
	4	X		
LS2	1	X	X	
	2			X
	3	X	X	
	4			X

CONTROLS ARE LOCATED IN THE LOWER HALF OF SECTION 4 OF THE PUMP CONTROL CENTER.

MODIFICATIONS TO THE EXISTING CONTROLS ARE MARKED WITH "*".

PLOT

FILENAME

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: RDK
DRN: RDK
CKD:
DATE: 6/30/08

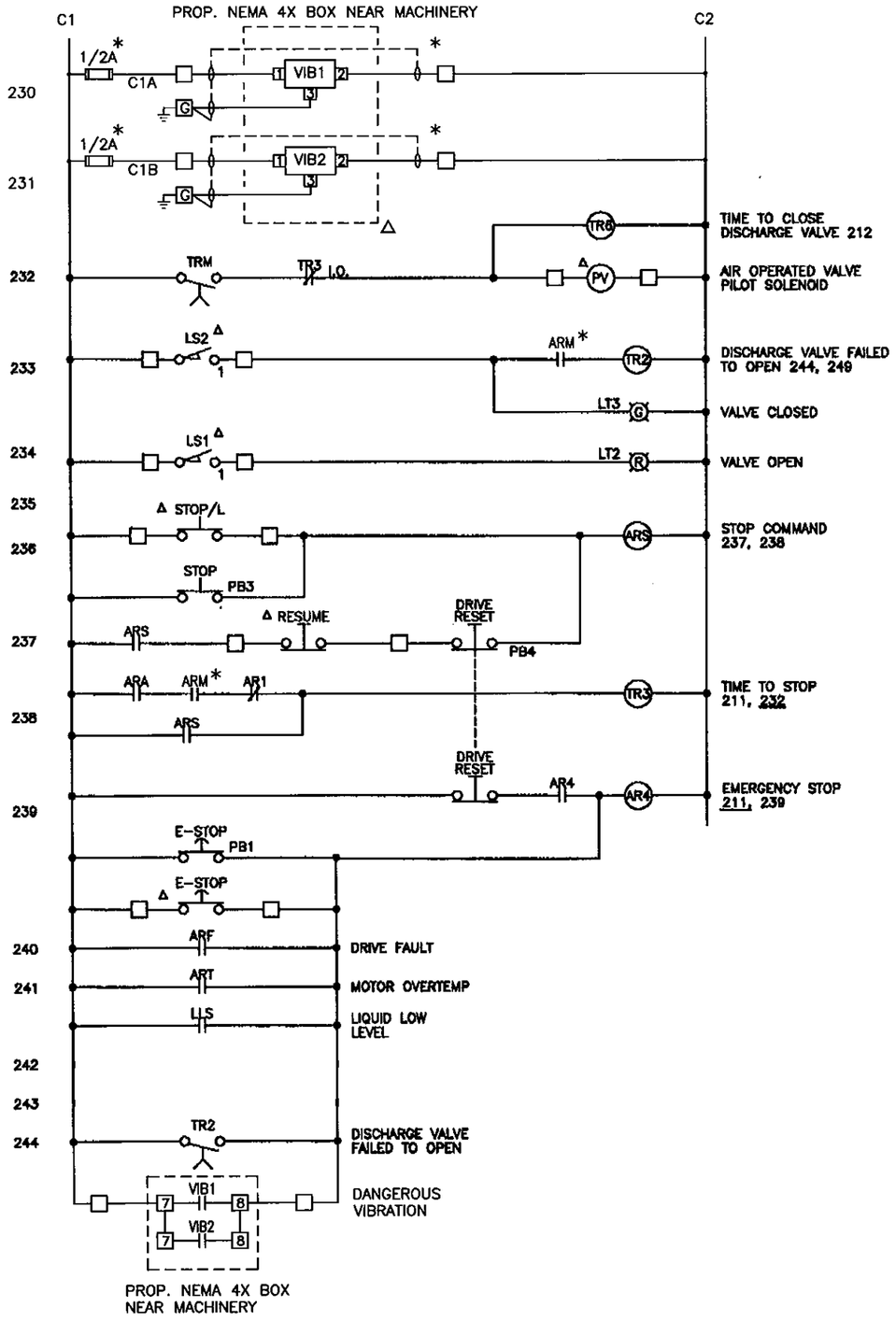
CITY of TAMPA
WASTEWATER DEPARTMENT

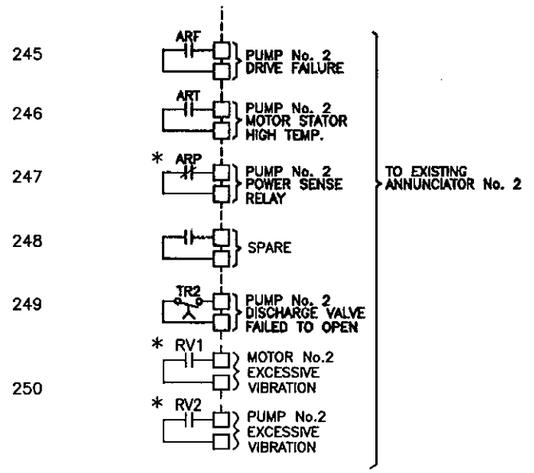
UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
PUMP No.2 CONTROLS (SHT. 1 OF 4)

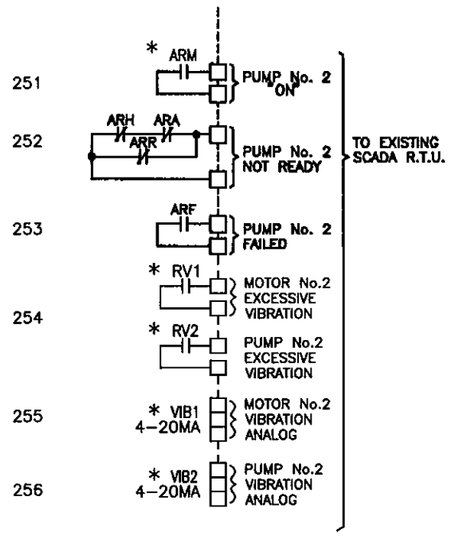
W.O. 5395

SHEET E5 OF

B062-054







CONTROLS ARE LOCATED IN THE LOWER HALF OF SECTION 4 OF THE PUMP CONTROL CENTER.

MODIFICATIONS TO THE EXISTING CONTROLS ARE MARKED WITH "*".

PLOT

FILENAME

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

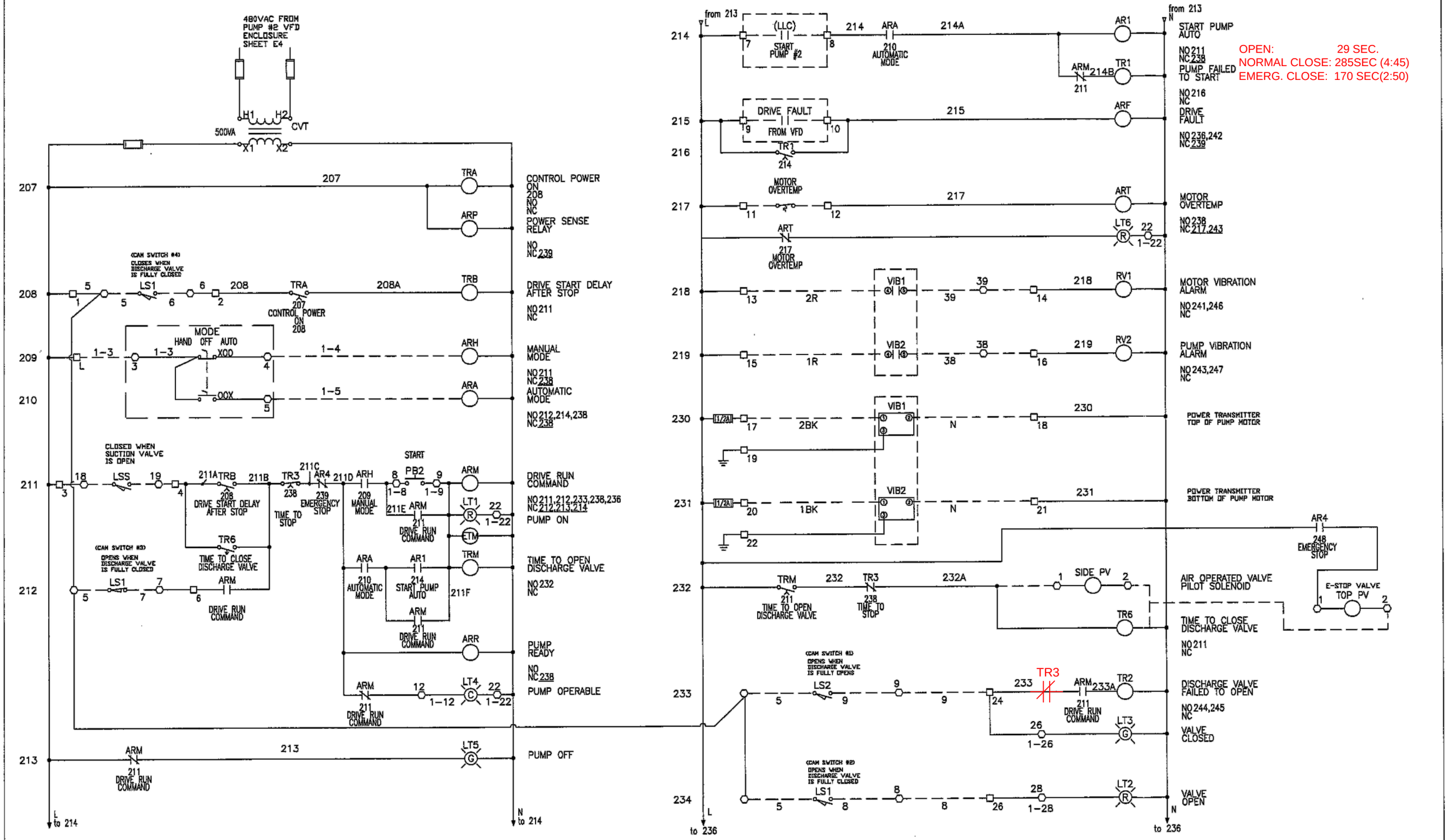
DES: RDK
DRN: RDK
CKD:
DATE: 6/30/08

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
PUMP No.2 CONTROLS (SHT. 2 OF 4)

W.O. 5395

SHEET E6 OF



OPEN: 29 SEC.
NORMAL CLOSE: 285SEC (4:45)
EMERG. CLOSE: 170 SEC(2:50)

NOTES:
1. ALL CONTROL WIRING TO BE #14 AWG RED UNLESS SPECIFIED OTHERWISE
2. Y DENOTES #14 AWG YELLOW
3. W DENOTES #14 AWG WHITE
4. B DENOTES #14 AWG BLUE
5. B/W DENOTES #14 AWG BLUE/WHITE TRACER
6. SHIELDED TWISTED PAIR SHALL BE #18 AWG
7.
8.
9.

ALL FIELD WIRING WILL BE IN ACCORDANCE WITH CODE NFPA 70 AND ALL INTERNATIONAL, STATE, AND LOCAL CODES. ROCHA CONTROLS SHALL NOT BE RESPONSIBLE FOR THIS ACTION.

NOTES:2015
1010-12 E01 & E02 IS UNDER CITY CONTRACT 8-C-34
1010-18 E01& E02 IS UNDER CITY CONTRACT 11-C-00008

REV.	DATE	DESCRIPTION	BY
1	04/14/09	SUBMITTAL	JB
2	08/01/09	AS-BUILT	CAA
3	01/21/10	AS INSTALLED	CAA

		DATE
DESIGNED	J. BUSHONG	04/14/09
DRAWN	J. BUSHONG	04/14/09
CHECKED		

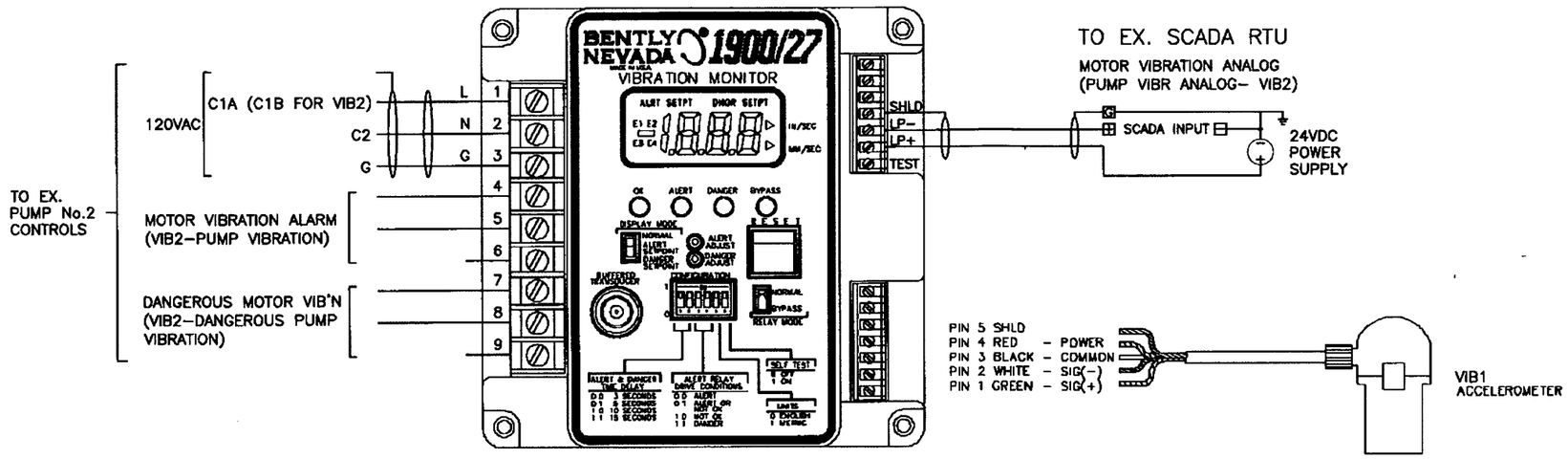
ROCHA CONTROLS
Rocha Controls
5556 56th Commerce Park Blvd. Tampa, Florida 33610
813-628-5584 813-664-6713 fax

CLIENT	CITY OF TAMPA UNIVERSITY P.S. PUMP NO.2 REPLACEMENT	ROCHA CONTROLS PROJECT NO:	1010-12
TITLE	PUMP NO.2 CONTROLS POWER WIRING	DWG. NO.	E01
		REV.	3

B062-054A

B062-055

VIB1 TRANSMITTER



POWER SUPPLY CONNECTIONS	
INPUT VOLTAGE	CONNECTIONS
110 VAC	1 LINE 2 NEUTRAL 3 GROUND
220 VAC	1 LINE 1 2 LINE 2/NEUTRAL 3 GROUND
24 VDC	1 +24 VDC 2 COMMON 3 GROUND

		RELAY CONTACTS	
		NORMALLY DE–ENERGIZED (FACTORY DEFAULT)	NORMALLY ENERGIZED
ALERT	4	NORMALLY CLOSED	NORMALLY OPEN
	5	COMMON	COMMON
	6	NORMALLY OPEN	NORMALLY CLOSED
DANGER	7	NORMALLY CLOSED	NORMALLY OPEN
	8	COMMON	COMMON
	9	NORMALLY OPEN	NORMALLY CLOSED

MOTOR VIBRATION MONITOR, VIB1

(PUMP VIBRATION MONITOR, VIB2, IS SIMILAR)

THE PUMP / MOTOR SUPPLIER SHALL PROVIDE THE SPECIFIED VIBRATION MONITORING EQUIPMENT AND INSTALL THE ACCELEROMETERS ON THE MACHINERY AS REQUIRED. VIB1 AND VIB2 TRANSMITTERS SHALL BE MOUNTED IN A COMMON NEMA 4X S.S. ENCLOSURE MOUNTED NEAR THE MACHINERY AND WIRED AS REQUIRED BY THE ELECTRICAL SUBCONTRACTOR.

PLOT

FILENAME

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: RDK
DRN: RDK
CKD:
DATE: 6/06/08

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
PUMP No.2 CONTROLS (SHT. 3 OF 4)

W.O. 5395
SHEET
E7
OF

B062-056

PUMP NO. 1 OVERLOAD RELAY LOW SPEED	PUMP NO. 1 OVERLOAD RELAY HIGH SPEED	PUMP NO. 1 PHASE SEQUENCE RELAY	PUMP NO. 1 GROUND FAULT RELAY
PUMP NO. 1 PUMP DISCHARGE VALVE FAIL TO OPEN	PUMP NO. 1 E.C.C. FAILURE	PUMP NO. 1 MOTOR STATOR HIGH TEMPERATURE	PUMP NO. 1 SOUTH WET WELL LOW LEVEL
PUMP NO. 1 E.C.C HIGH DISCHARGE AIR TEMPERATURE	PUMP NO. 1 MOTOR EXCESSIVE VIBRATION	PUMP NO. 1 PUMP EXCESSIVE VIBRATION	PUMP NO. 3 OVERLOAD RELAY
PUMP NO. 3 PHASE SEQUENCE RELAY	PUMP NO. 3 GROUND FAULT RELAY	PUMP NO. 3 MOTOR STATOR HIGH TEMPERATURE	PUMP NO. 3 NORTH WET WELL LOW LEVEL
PUMP NO. 3 PUMP DISCHARGE VALVE FAIL TO OPEN	PUMP NO. 3 E.C.C. FAILURE	PUMP NO. 3 E.C.C. HIGH DISCHARGE AIR TEMPERATURE	PUMP NO. 3 MOTOR EXCESSIVE VIBRATION
PUMP NO. 3 PUMP EXCESSIVE VIBRATION			
PUMP NO. 2 DRIVE FAILURE	PUMP NO. 2 MOTOR STATOR HIGH TEMP.	PUMP NO. 2 POWER SENSE RELAY	ANNUNCIATOR FAILURE
~~PUMP NO. 2 GROUND FAULT~~ SPARE *	PUMP NO. 2 DISCHARGE VALVE FAILED TO OPEN	PUMP NO. 2 MOTOR EXCESSIVE VIBRATION *	PUMP NO. 2 PUMP EXCESSIVE VIBRATION *

GE44

TEST | ACKNOWLEDGE | RESET | SILENCE

EXISTING ANNUNCIATOR

WINDOWS TO BE ADDED ARE MARKED "*"

PLOT

FILENAME

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

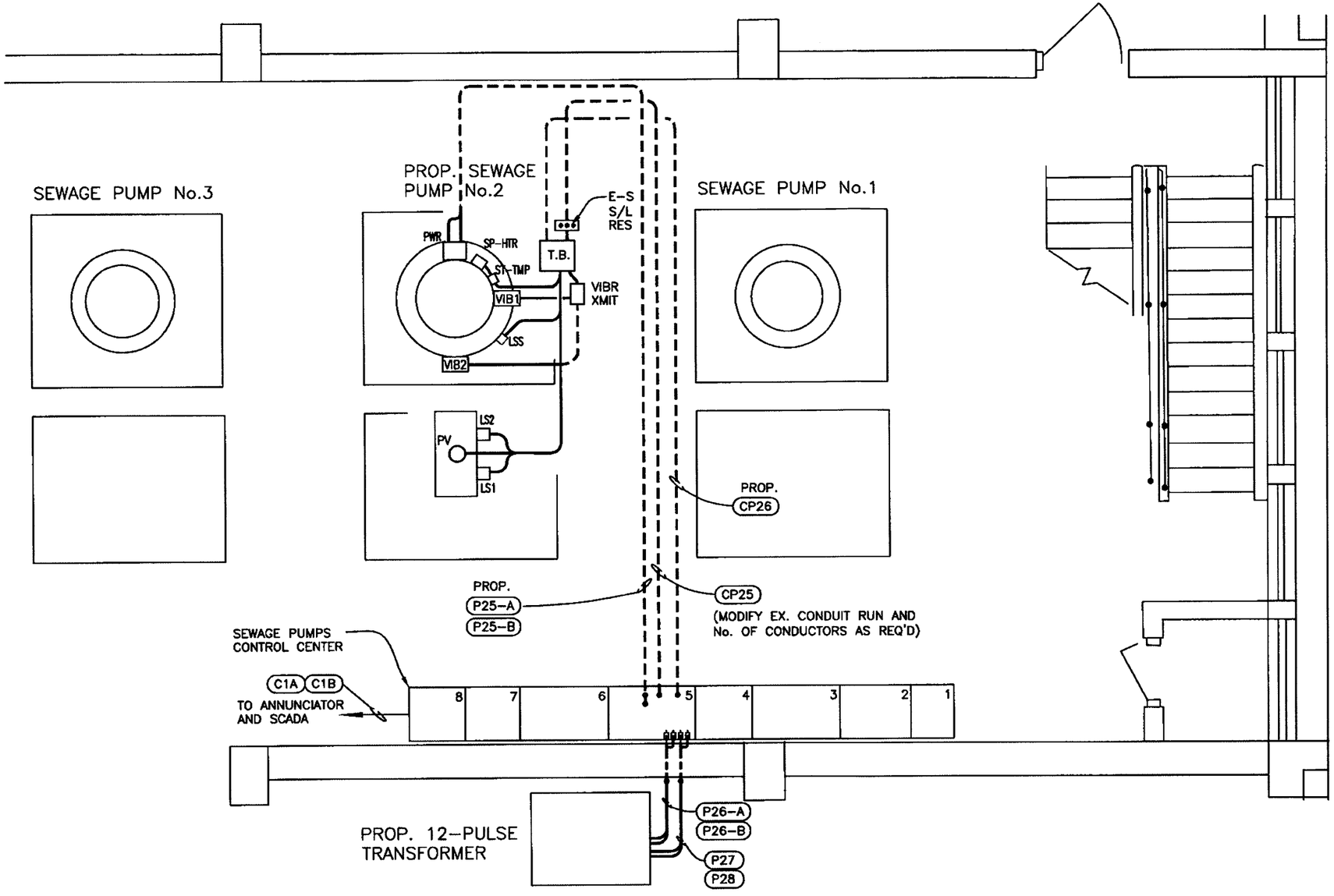
DES: RDK
DRN: RDK
CKD:
DATE: 6/30/08

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
PUMP No.2 CONTROLS (SHT. 4 OF 4)

W.O. 5395
SHEET
OF E8

B062-057



PLAN VIEW

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

SEWAGE PUMPS CONTROL CENTER ON TOP FL.- EL. 41.25'

PUMP MOTORS AND ACCESSORIES ON BOTTOM FL.- EL. 15.00'

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: RDK
DRN: RDK
CKD:
DATE: 6/06/08

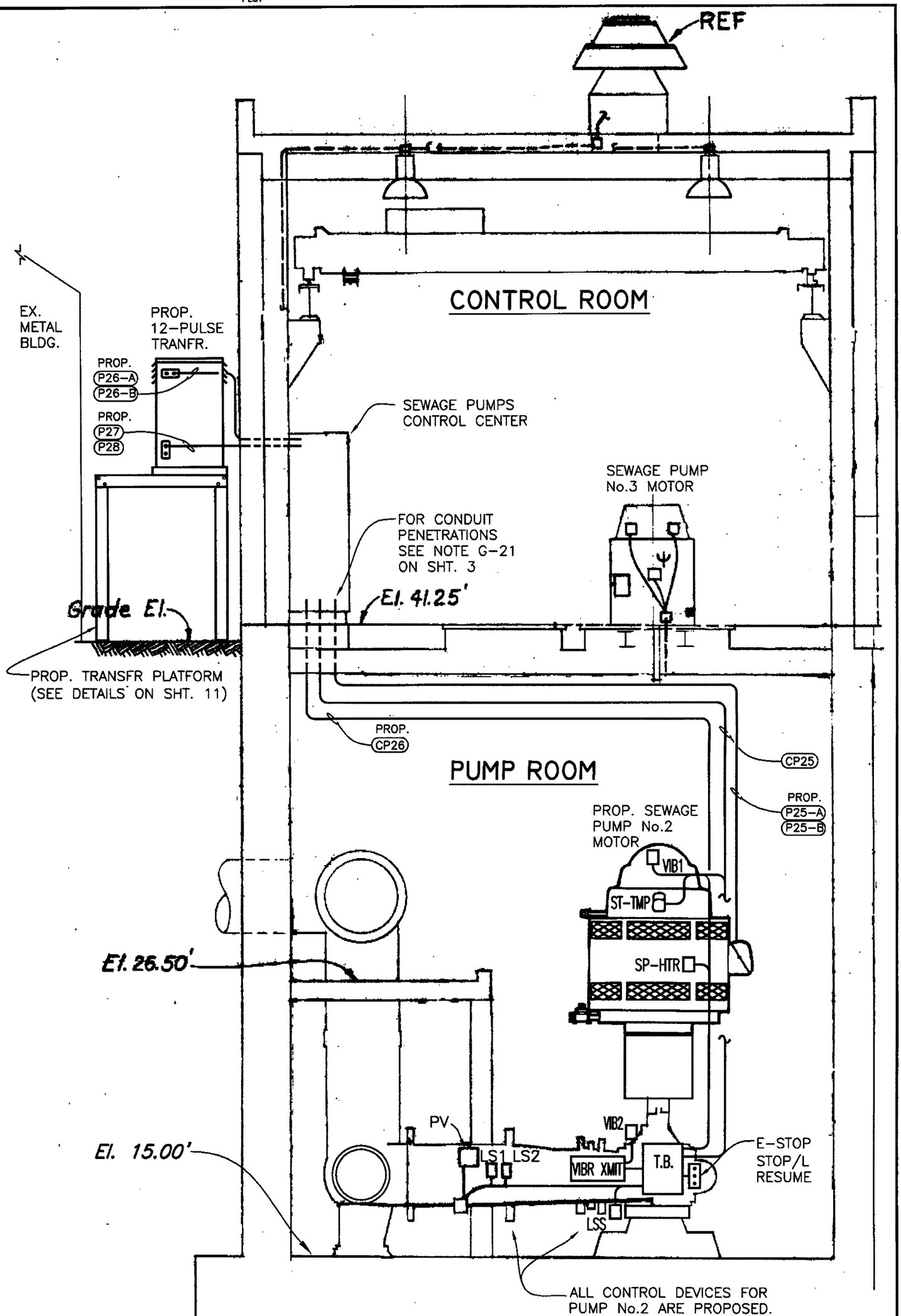
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
ELECTRICAL- POWER PLAN

W.O. 5395

SHEET E9 OF

FILENAME PLOT



NOTE: ALL ITEMS NOT MARKED "PROP." ARE EXISTING.

SECTION X-X

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

B062-058

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
1		
2		
3		

DES: RDK
DRN: RDK
CKD:
DATE: 6/09/08

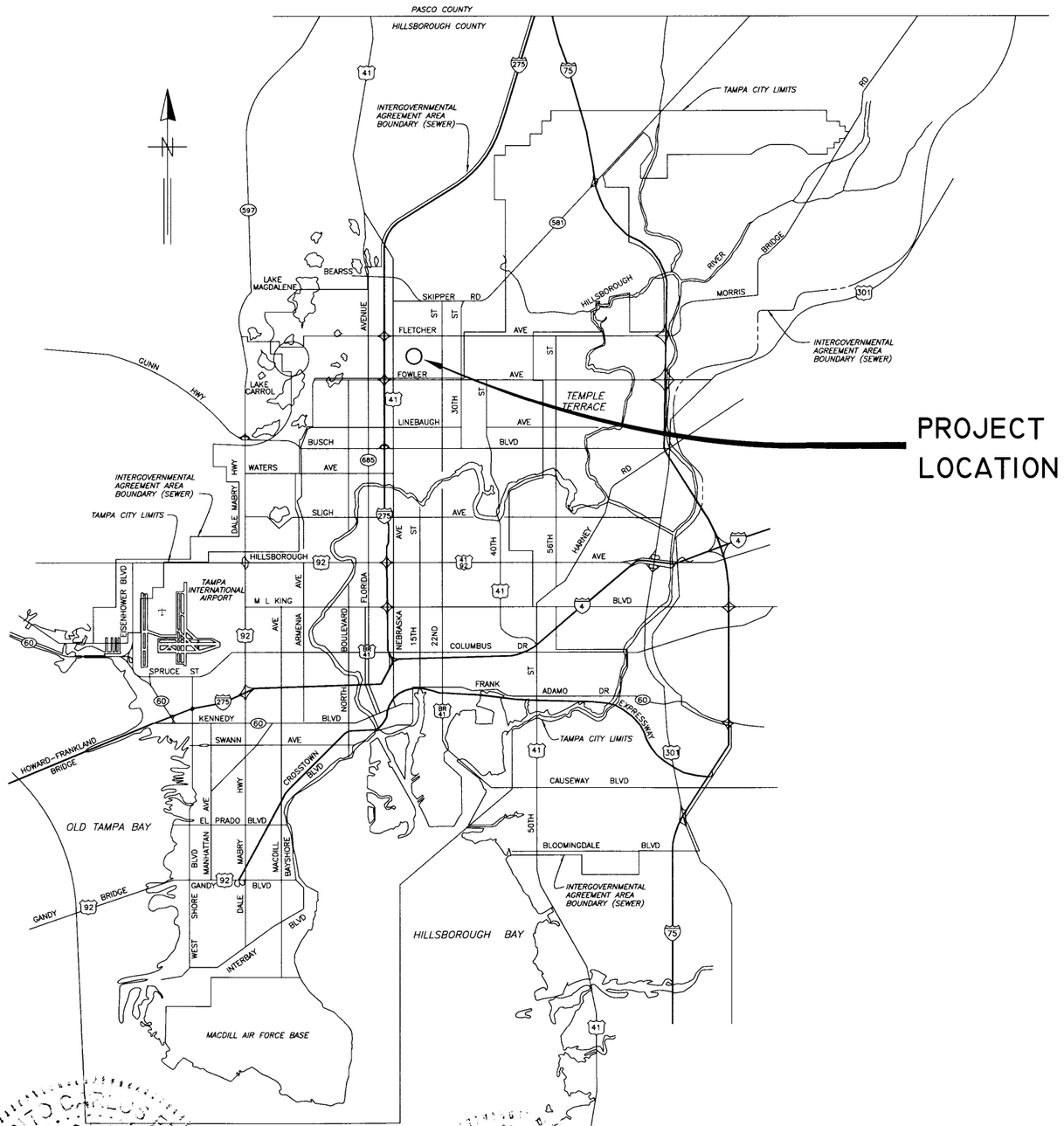
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP No.2 REPLACEMENT
ELECTRICAL POWER SECTION

W.O. 5395
SHEET E10 OF

B069-154

LOCATION MAP



CITY of TAMPA

CITY OF TAMPA FLORIDA
MASCOTTE
ORGANIZED JULY 15 1887

WASTEWATER DEPARTMENT

PLANS FOR

UNIVERSITY PUMPING STATION REHABILITATION

CONTRACT: II-C-00008

PROJECT RECORD

C:\PROGRAMFILES\AUTOCADCIVIL3D2010\DWGFILES\PS\UNIVERSITYP.S.\4511-SHEET-01.DWG

Jacinto Carlos Ferras 2/17/11
JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

Roman D. Korchak 2/18/11
ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

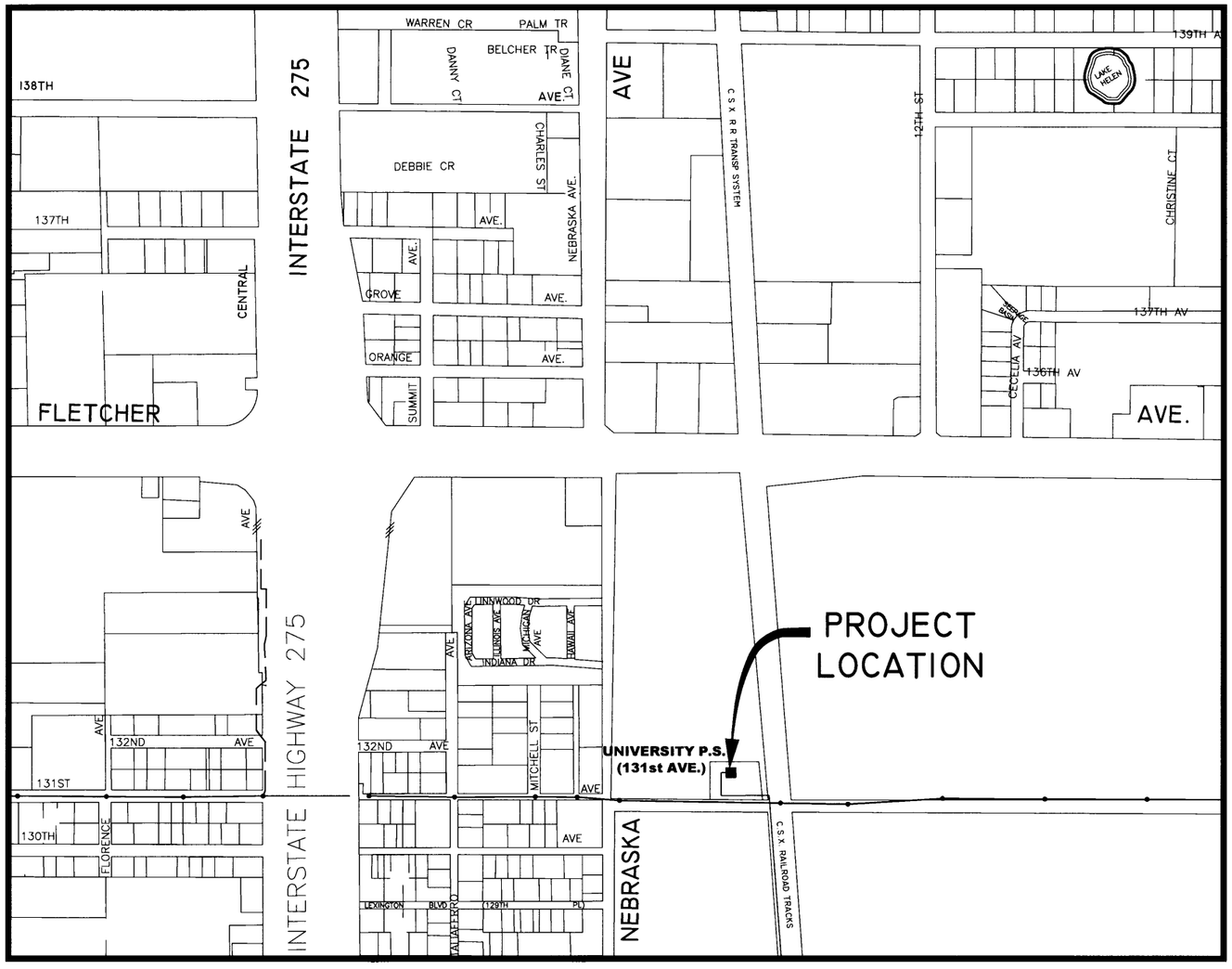
DES: D.R.
DRN: BB
CKD: JF
DATE: 2/17/11

CITY of TAMPA
WASTEWATER DEPARTMENT

COVER SHEET

W.O. 4511
SHEET 1

B069-155



PROJECT MAP
NOT TO SCALE

N

INDEX

SH. No.	DESCRIPTION
1	COVER SHEET
2	INDEX & PROJECT MAP
3	SITE PLAN AND TRANSFORMER PAD DETAILS
4	GENERAL NOTES
5	DEMOLITION PLAN AT ELEV. 26.50
6	DEMOLITION PLAN AT ELEV. 15.00
7	DEMOLITION SECTION
8	VENTILATION DEMOLITION PLAN AT ELEV. 26.50
9	VENTILATION DEMOLITION SECTIONS
10	PROPOSED SCREEN ROOM PLAN AT ELEV. 26.50
11	PROPOSED PLAN AT ELEV. 15.00 AND SECTION
12	PROPOSED SECTION
13	PROPOSED VENTILATION PLAN AT ELEV. 26.50
14	PROPOSED VENTILATION SECTION
15	MISC. DETAILS
16	CONCRETE RESTORATION DETAILS AND NOTES
E0	ELECTRICAL – PUMP CONTROL FLOW CHART AND SYMBOLS
E1	ELECTRICAL – ONE LINE DIAGRAM
E2	ELECTRICAL – VFD CUBICLE LAYOUT
E3	ELECTRICAL – MCC LAYOUT AND PARTS SCHEDULE
E4	ELECTRICAL – VFD INTERCONNECTIONS
E5	ELECTRICAL – PUMP No.3 CONTROLS (SHT. 1 OF 4)
E6	ELECTRICAL – PUMP No.3 CONTROLS (SHT. 2 OF 4)
E7	ELECTRICAL – PUMP No.3 CONTROLS (SHT. 3 OF 4)
E8	ELECTRICAL – PUMP No.3 CONTROLS (SHT. 4 OF 4)
E9	ELECTRICAL – POWER PLAN
E10	ELECTRICAL – POWER SECTION
E11	ELECTRICAL – DEMOLITION PLAN
E12	ELECTRICAL – PROPOSED PLAN – WET WELL
E13	ELECTRICAL – PROPOSED – SECTION A–A
E14	ELECTRICAL – SCREEN ROOM SUPPLY FAN SCHEMATIC

PROJECT RECORD

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JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

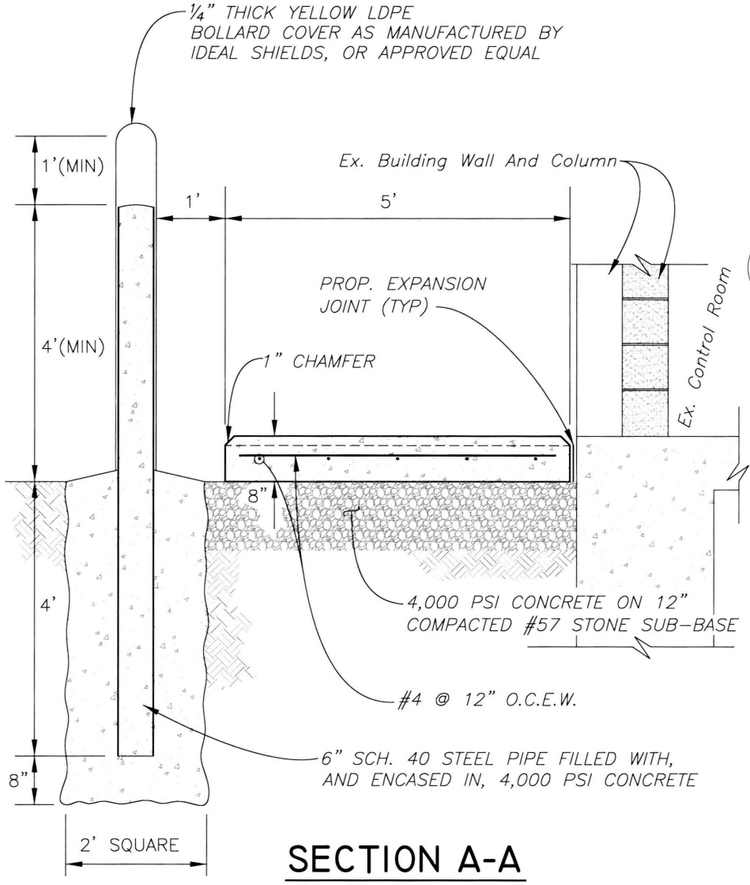
DES: D.R.
DRN: BB
CKD: JF
DATE: 2/17/11

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
INDEX & PROJECT MAP

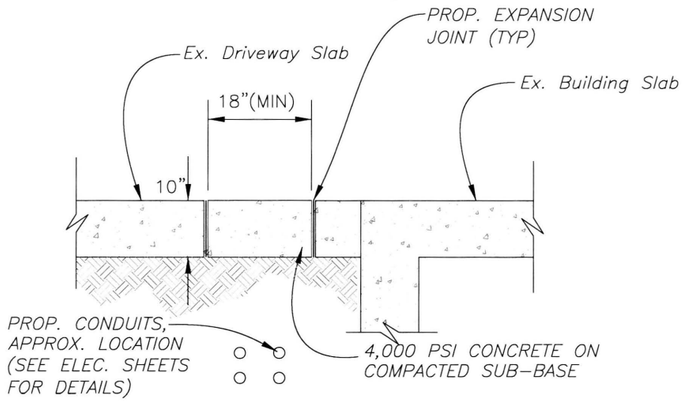
W.O. 4511
SHEET 2

B069-156



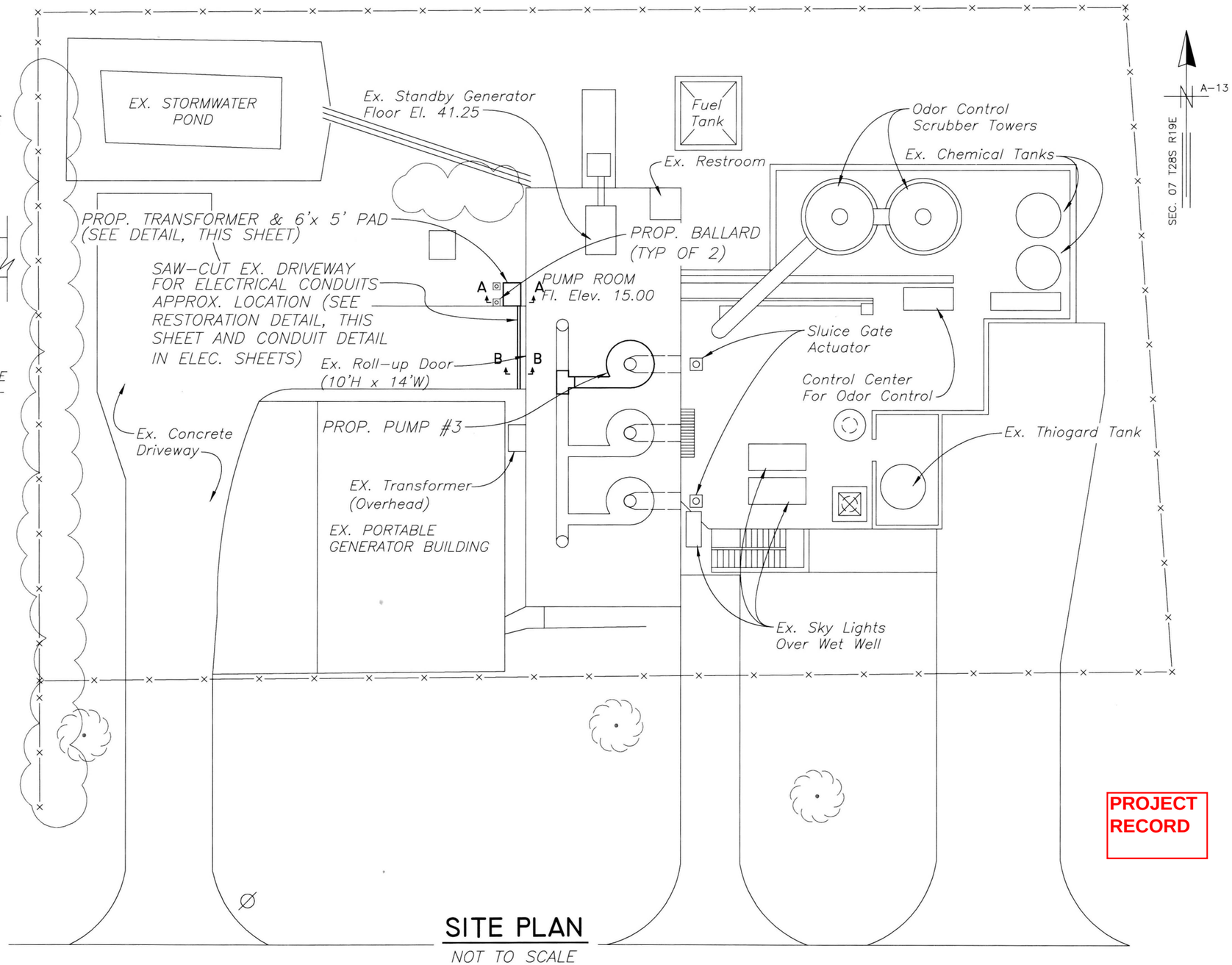
SECTION A-A

NOT TO SCALE



SECTION B-B

NOT TO SCALE



SITE PLAN

NOT TO SCALE

PROJECT RECORD

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: D.R. DRN: BB CKD: JF DATE: 2/17/11	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION SITE PLAN AND TRANSFORMER PAD DETAIL	W.O. 4511 SHEET 3
	3						
	2						
	1						

User: SS1F Drawing Name: C:\Program Files\AutoCAD Civil 3D 2010\DWG files\PS\University Pumping Station\4511 -Sheets 3-16.dwg
Layout- Feb 16, 2011 - 3:58pm

B069-157

NOTES

GENERAL

G-1. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH DEPARTMENT PERSONNEL AND PUMPING STATION OPERATIONS.

G-2. EXISTING DIMENSIONS AND ELEVATIONS ARE BASED ON THE BEST INFORMATION AVAILABLE. TRUE DIMENSIONS AND ELEVATIONS SHALL BE DETERMINED IN THE FIELD PRIOR TO LAYOUT AND SHOP DRAWING SUBMITTALS.

G-3. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (EASILY READABLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.

G-4. REPLACEMENT OF EXPANSION JOINT AT ELEV. 30.00 SHALL OCCUR BEFORE ANY WORK ASSOCIATED WITH PUMP #3 REPLACEMENT.

G-5. PRIOR TO PUMP #3 DEMOLITION, CITY FORCES WILL CLOSE THE 42" SLUICE GATE IN THE WET WELL AND THE NECESSARY PLUG VALVES INSIDE THE PUMPING STATION TO ISOLATE PUMP #3. THE CITY REQUIRES A MIN. 1 WEEK ADVANCE NOTICE FOR THIS WORK.

G-6. MECHANICAL AND ELECTRICAL EQUIPMENT TO BE LOCKED OUT SHALL BE LOCKED OUT WITH A MULTIPLE-LOCK MASTER LOCK-OUT DEVICE, WHICH SHALL BE INSTALLED BY CITY PERSONNEL AND LOCKED BY BOTH THE CITY PERSONNEL AND THE CONTRACTOR.

G-7. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING, INSTALLING, LEVELING AND ALIGNING MOTOR AND PUMP. PROCEDURES FOR INSTALLATION, AS OUTLINED IN THE HYDRAULIC INSTITUTE STANDARDS, MOST CURRENT EDITION, SHALL BE ADHERED TO. SEE SPECIFIC PROVISION SP-80. IF CONFLICT BETWEEN THE SPECS AND THE H.I.S. PROCEDURE ARISE, THE MOST STRINGENT STANDARD SHALL BE FOLLOWED.

G-8. PROPOSED PUMP SHALL BE A 350 HORSEPOWER, 24-INCH, 600 RPM FAIRBANKS MORSE VERTICAL CLOSE-COUPLED ANGLEFLOW PUMP MODEL#C5741. PUMP SHALL BE RATED FOR 29.1 MGD @ 51.1 FEET TDH. SEE SPECIFICATIONS FOR MOTOR INFORMATION.

G-9. PROPOSED KNIFE GATE VALVE SHALL BE A 24" L&M MODEL 24M145C100-BG4-X PERFORMANCE PLUS KNIFE GATE VALVE, AS MADE BY TYCO VALVE AND CONTROLS.

G-10. PUMP-CHECK VALVE SHALL BE A 30" DEZURIK PEF, ECCENTRIC PLUG VALVE AND SHALL BE PROVIDED WITH A REMOTELY OPERATED PNEUMATIC ACTUATOR THAT SHALL BE PROPERLY SIZED FOR THE EXISTING PUMPING STATION COMPRESSED AIR SYSTEM.

G-11. AIR SUPPLY FOR PNEUMATICALLY ACTUATED PUMP-CHECK VALVE SHALL BE FROM EXISTING STATION AIR. ARRANGEMENT OF PIPING AND CONNECTIONS TO EXISTING PIPES SHALL BE MADE BY THE CONTRACTOR UNDER THE DIRECTION OF THE ENGINEER.

G-12. ANCHOR BOLTS SHALL BE AS PER PUMP MANUFACTURER'S RECOMMENDATIONS. ANCHOR BOLTS SHALL BE DOUBLE-NUTTED AND FINISHED WITH NON-SHRINK GROUT. ALL BOLTS SHALL EXTEND BEYOND THE FASTENING NUTS BY A MINIMUM OF 1/2-INCH.

G-13. ALL HARDWARE, UNLESS OTHERWISE NOTED, SHALL BE TYPE 316 STAINLESS STEEL.

G-14. 36"X30"X30" REDUCING TEE SHALL BE FABRICATED TO SUIT THE DIMENSIONS OF THE PROPOSED EQUIPMENT AND SHALL BE A36-STEEL WITH A 150 PSI RATING. STEEL FITTINGS SHALL BE MANUFACTURED BY AN AWWA CERTIFIED FABRICATOR.

G-15. ALL CEMENTITIOUS CONCRETE AND GROUT, UNLESS OTHERWISE SPECIFIED, SHALL BE CLASS "B" 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

G-16. EXPOSED CONCRETE CORNERS SHALL HAVE A 3/4" CHAMFER AND RE-ENTRANT CORNERS SHALL HAVE A 3/4" FLAT FILLET UNLESS OTHERWISE NOTED.

G-17. CONCRETE PEDESTAL SHOP DRAWINGS INCLUDING FLANGE SUPPORT DETAILS SHALL BE SUBMITTED FOR APPROVAL.

G-18. ALL STEEL REINFORCING SHALL BE DETAILED ACCORDING TO THE LATEST "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES". ACTUAL PLACEMENT OF STEEL REINFORCING SHALL BE SHOWN ON SHOP DRAWINGS. ALL LAPS AND SPLICES SHALL BE AT LEAST 32 BAR DIAMETERS OR 24 INCHES.

G-19. CERTAIN PORTIONS OF THIS PROJECT MAY REQUIRE NIGHT TIME WORK.

G-20. ALL NOTES PERTAINING TO PROPOSED WORK INSIDE SCREEN ROOM ARE LOCATED ON PERTINENT SHEETS.

DEMOLITION NOTES

D-1. ALL DIMENSIONS ARE APPROXIMATE. TRUE DIMENSIONS SHALL BE DETERMINED IN THE FIELD.

D-2. SALVAGEABLE MATERIAL AS DETERMINED BY DEPARTMENT PERSONNEL SHALL BE DELIVERED TO THE CITY OF TAMPA'S HOWARD F. CURREN AWTP AT 2700 MARITIME BOULEVARD. NON-SALVAGEABLE MATERIALS ARE TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. IN GENERAL, ALL PUMP AND CONTROLS EQUIPMENT SHALL REMAIN PROPERTY OF THE CITY AND SHALL BE DELIVERED TO THE TREATMENT PLANT.

D-3. ALL ALUMINUM FRAMES AND PLATFORMS ON PUMP No. 3 SHALL BE SALVAGED AND DELIVERED TO THE TREATMENT PLANT.

D-4. THE PUMP STATION SITE SHALL BE MAINTAINED IN AS NEAT AND ORDERLY CONDITION AS POSSIBLE DURING CONSTRUCTION OPERATIONS. WALKWAYS AND DRIVEWAYS SHALL BE KEPT CLEAR FOR DEPARTMENT PERSONNEL TO PASS THROUGH.

D-5. CONTRACTOR SHALL CUT ALL EXPOSED REINFORCING STEEL TO A DEPTH OF 1-INCH BELOW THE EXPOSED SURFACE AND GROUT OVER.

D-6. CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL THAT WILL PREVENT THE EXPANSION JOINTS IN THE 30"-36" DISCHARGE HEADER FROM EXPANDING AFTER THE EXISTING 30"x30"x30' TEE HAS BEEN REMOVED IN THE PUMP ROOM.

"POSSIBLE" CONSTRUCTION SEQUENCE *

S-1. CITY FORCES EXERCISE VALVES TO ISOLATE 24" TIED EXPANSION JOINT AT EL. 30.00

S-2. REPLACE 24" TIED EXPANSION JOINT.

S-3. CITY FORCES CLOSE 42" SLUICE GATE IN WET WELL AND EXERCISE VALVES INSIDE PUMPING STATION TO ISOLATE PUMP #3.

S-4. PROCEED WITH DEMOLITION AND INSTALL 24" KNIFE GATE VALVE AS SOON AS POSSIBLE.

S-5. INSTALL PROPOSED PUMP #3, PUMP CHECK VALVE, PIPE AND FITTING (INCLUDING ELECTRICAL WORK).

S-6. PERFORM REQUIRED TESTS ON PROPOSED PUMPING EQUIPMENT.

S-7. PERFORM TRAINING, COMPLETE PUNCHLIST ITEMS.

* DOES NOT INCLUDE WORK IN SCREEN ROOM.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
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1		

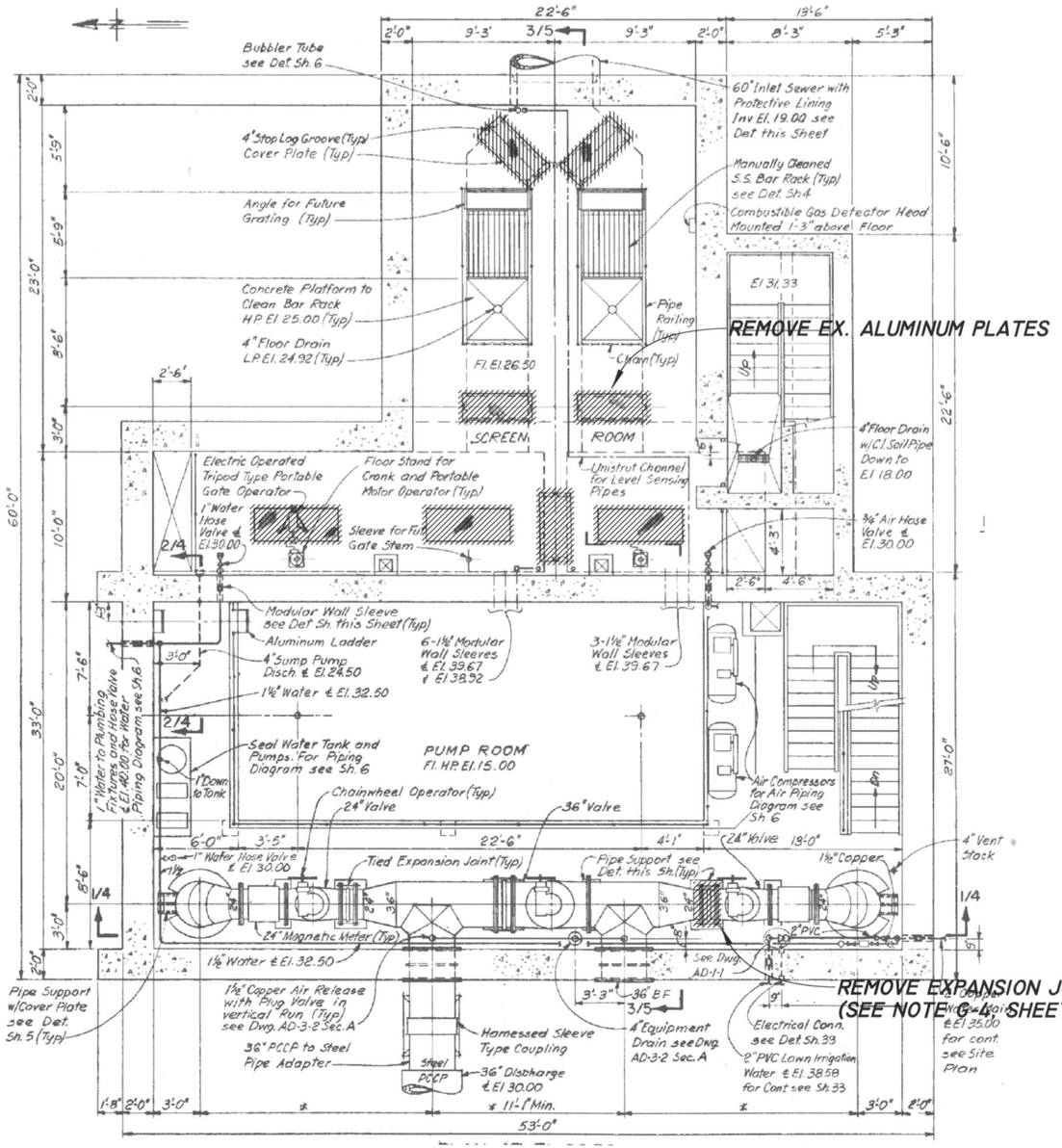
DES: D.R.
DRN: BB
CKD: JF
DATE: 2/17/11

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
REHABILITATION
GENERAL NOTES

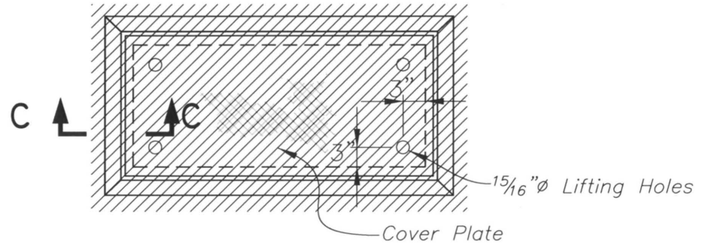
W.O. 4511
SHEET 4

B069-158



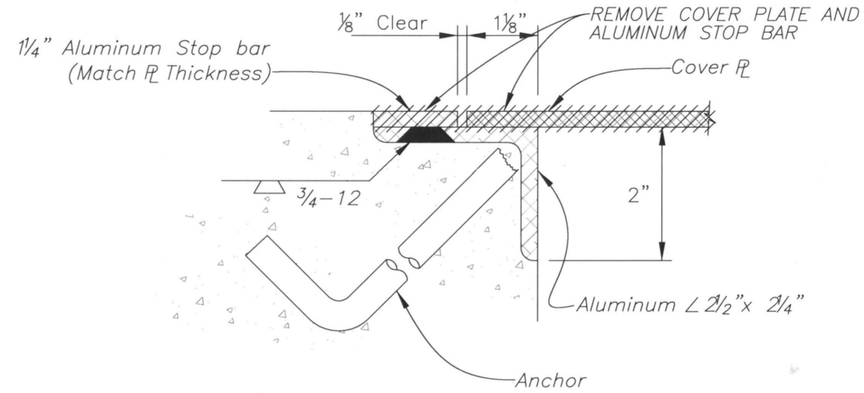
DEMOLITION PLAN AT EL. 26.50

NOT TO SCALE



TYPICAL EX. COVER PLATE

NOT TO SCALE



SECTION C-C

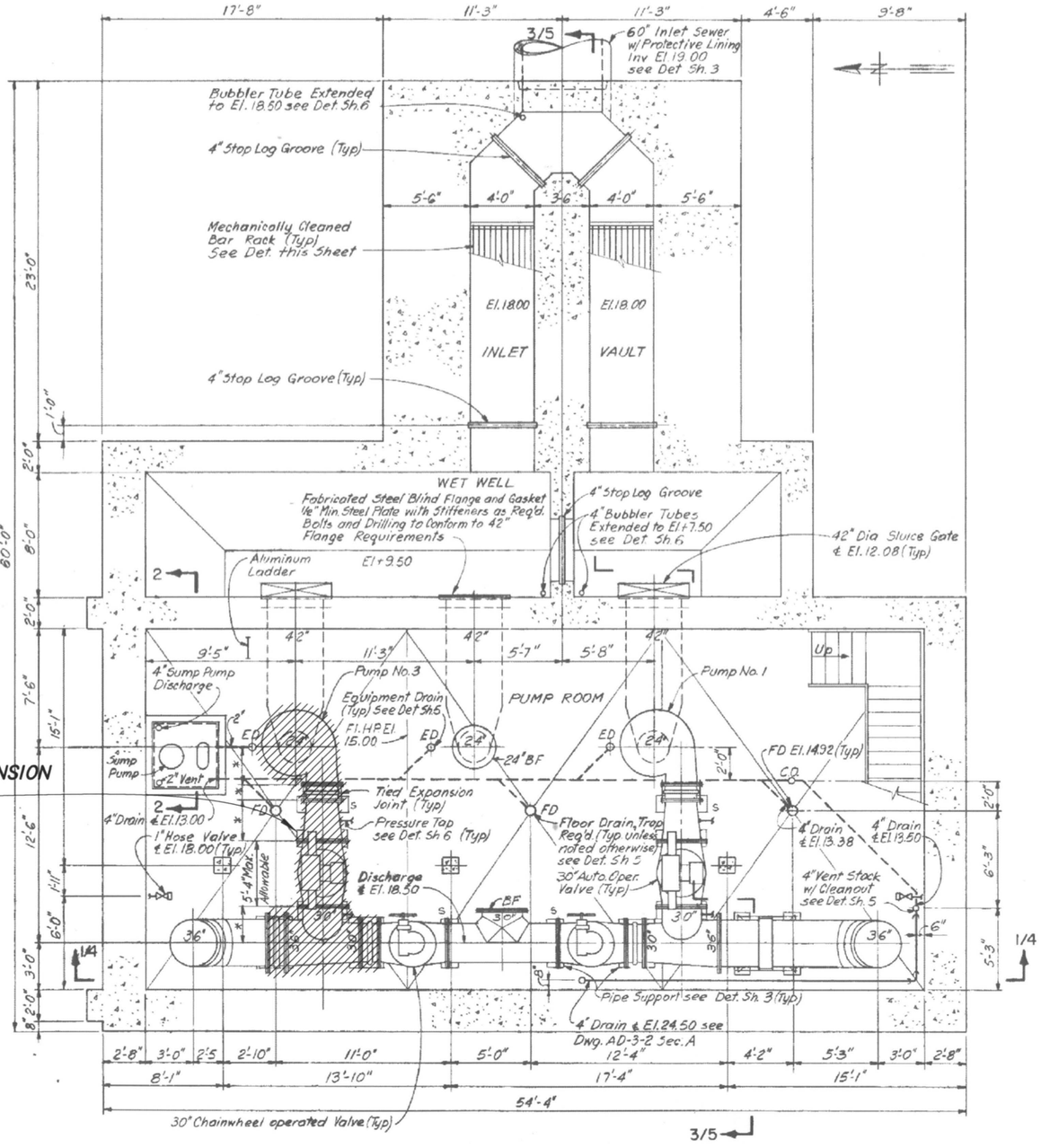
NOT TO SCALE

ITEMS SHOWN HATCHED ARE TO BE REMOVED

PROJECT RECORD

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: D.R. DRN: BB CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION DEMOLITION PLAN AT ELEV. 26.50	W.O. 4511 SHEET 5
	3						
	2						
	1						

B069-159



REMOVE PUMP, VALVE, FITTINGS, EXPANSION JOINTS AND CONCRETE PEDESTALS

DEMOLITION PLAN AT EL. 15.00

NOT TO SCALE

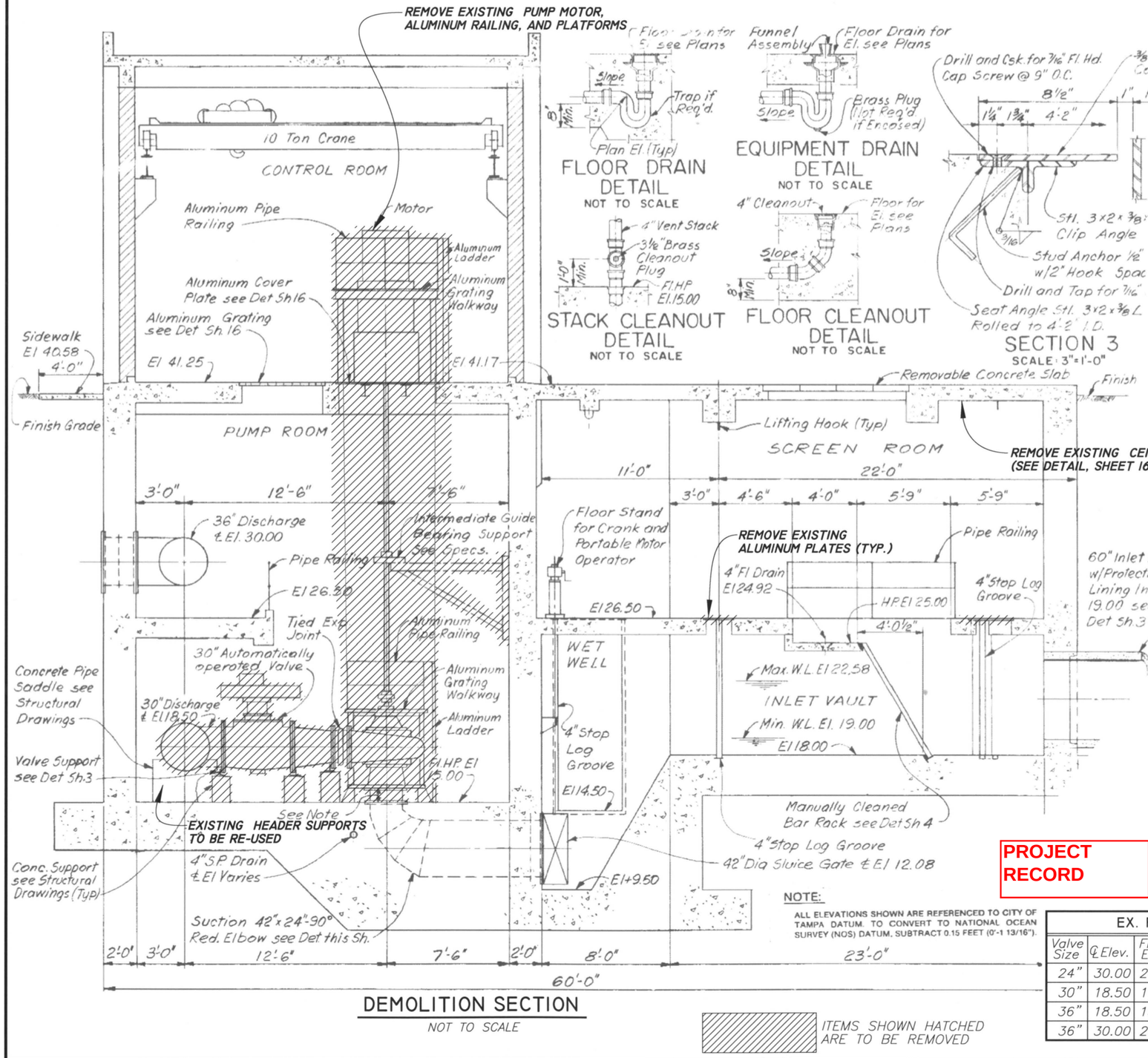
PROJECT RECORD

ITEMS SHOWN HATCHED ARE TO BE REMOVED

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No. / DATE / REVISIONS 3 2 1	DES: D.R. DRN: BB CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION DEMOLITION PLAN AT ELEV. 15.00	W.O. 4511 SHEET 6

User: SS1F Drawing Name: C:\Program Files\AutoCAD Civil 3D 2010\DWG files\PS\University Pumping Station\4511 -Sheets 3-16.dwg
Layout- Mar 11, 2011 - 3:58pm

B069-160



DEMOLITION SECTION

NOT TO SCALE

NOTE:

ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").

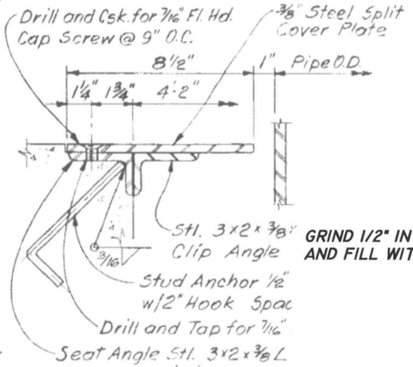
ITEMS SHOWN HATCHED ARE TO BE REMOVED

FLOOR DRAIN DETAIL
NOT TO SCALE

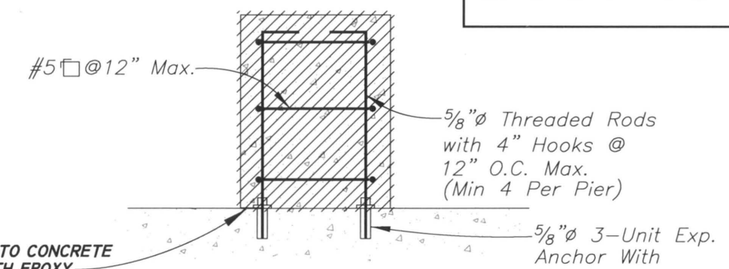
STACK CLEANOUT DETAIL
NOT TO SCALE

EQUIPMENT DRAIN DETAIL
NOT TO SCALE

FLOOR CLEANOUT DETAIL
NOT TO SCALE

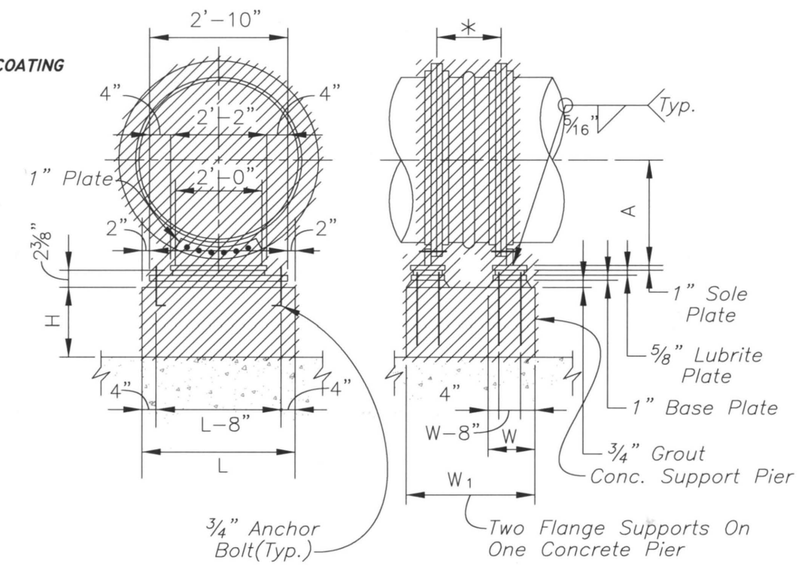


SECTION 3
SCALE: 3"=1'-0"



EX. CONCRETE SUPPORT PIERS

NOT TO SCALE



EX. PLUG VALVE AND EXPANSION JOINT SUPPORT

NOT TO SCALE

PROJECT RECORD

EX. PLUG VALVE AND EXPANSION JOINT SUPPORT DIMENSIONS (TO BE FIELD VERIFIED)

Valve Size	℄ Elev.	Floor Elev.	Location	A	B	C	D	E	W	W_1	L	H
24"	30.00	26.50	Top Discharge Header	1'-6"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-8⅝"
30"	18.50	15.00	Low Discharge Hdr & Pumps	1'-9⅞"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-5¼"
36"	18.50	15.00	Low Discharge Hdr & Pumps	2'-1"	2'-10"	10"	2'-2"	10"	—	*	3'-2"	1'-1⅝"
36"	30.00	26.50	Top Discharge Header	2'-1"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-1⅝"

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
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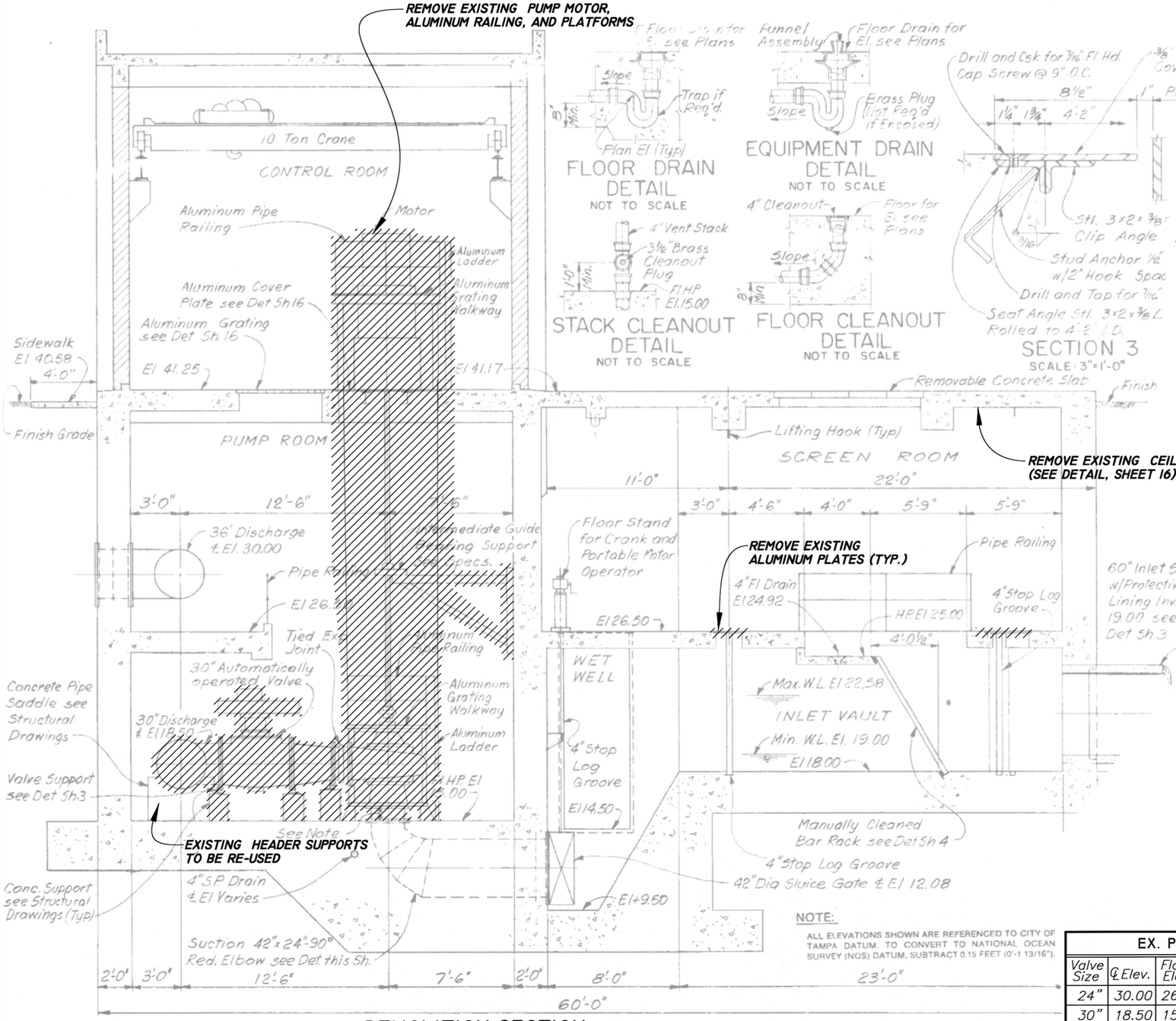
DES: D.R.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
REHABILITATION
DEMOLITION SECTION

W.O. 4511
SHEET 7

B069-160

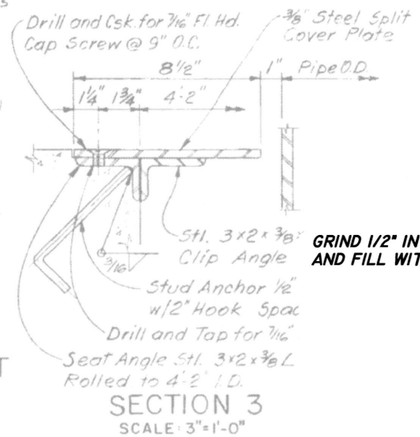


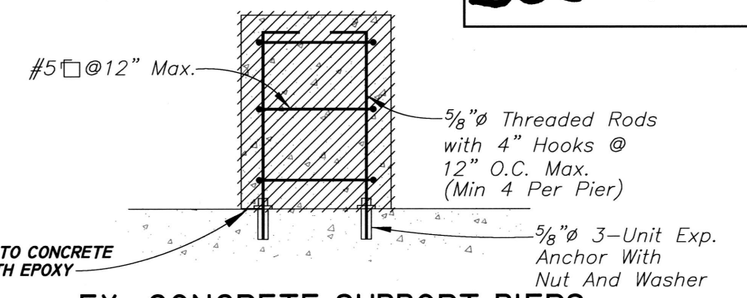
DEMOLITION SECTION

NOT TO SCALE

ITEMS SHOWN HATCHED ARE TO BE REMOVED

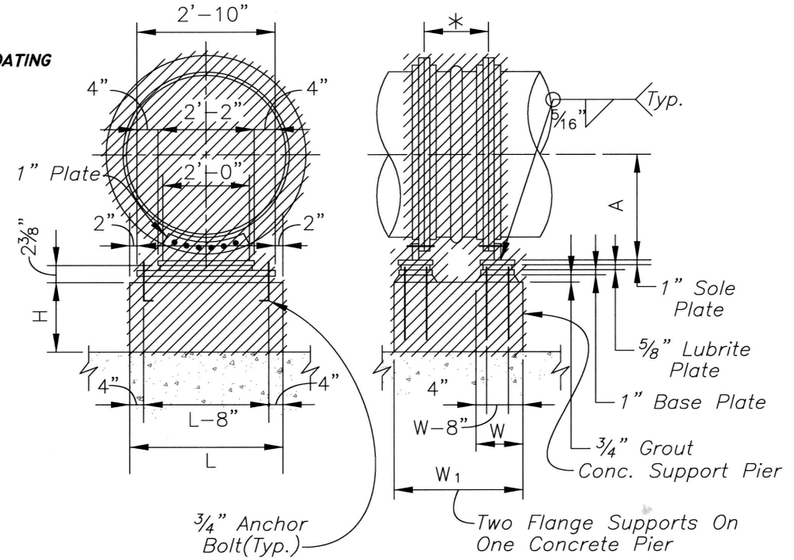
NOTE:
ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").





EX. CONCRETE SUPPORT PIERS

NOT TO SCALE



EX. PLUG VALVE AND EXPANSION JOINT SUPPORT

NOT TO SCALE

EX. PLUG VALVE AND EXPANSION JOINT SUPPORT DIMENSIONS (TO BE FIELD VERIFIED)

Valve Size	℄ Elev.	Floor Elev.	Location	A	B	C	D	E	W	W1	L	H
24"	30.00	26.50	Top Discharge Header	1'-6"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-8⅝"
30"	18.50	15.00	Low Discharge Hdr & Pumps	1'-9⅜"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-5¼"
36"	18.50	15.00	Low Discharge Hdr & Pumps	2'-1"	2'-10"	10"	2'-2"	10"	—	*	3'-2"	1'-1⅝"
36"	30.00	26.50	Top Discharge Header	2'-1"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-1⅝"

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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1		

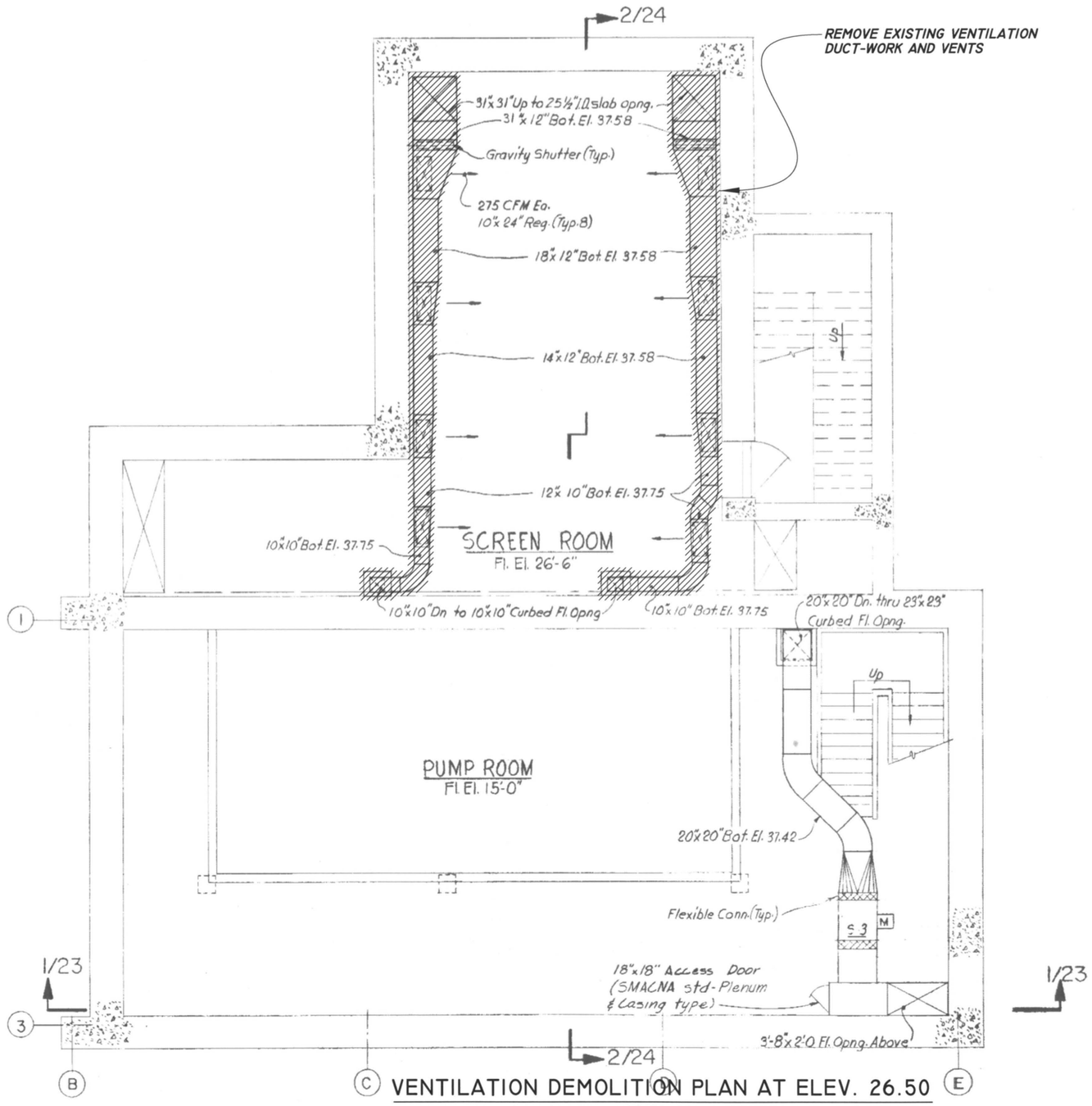
DES: D.R.
DRN: BB
CKD: JF
DATE: 2/17/11

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION DEMOLITION SECTION

W.O. 4511
SHEET 7

B069-161



VENTILATION DEMOLITION PLAN AT ELEV. 26.50

NOT TO SCALE

PROJECT RECORD

ITEMS SHOWN HATCHED ARE TO BE REMOVED

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
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DES: D.R.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
VENTILATION DEMOLITION PLAN AT ELEV. 26.50

W.O. 4511
SHEET 8

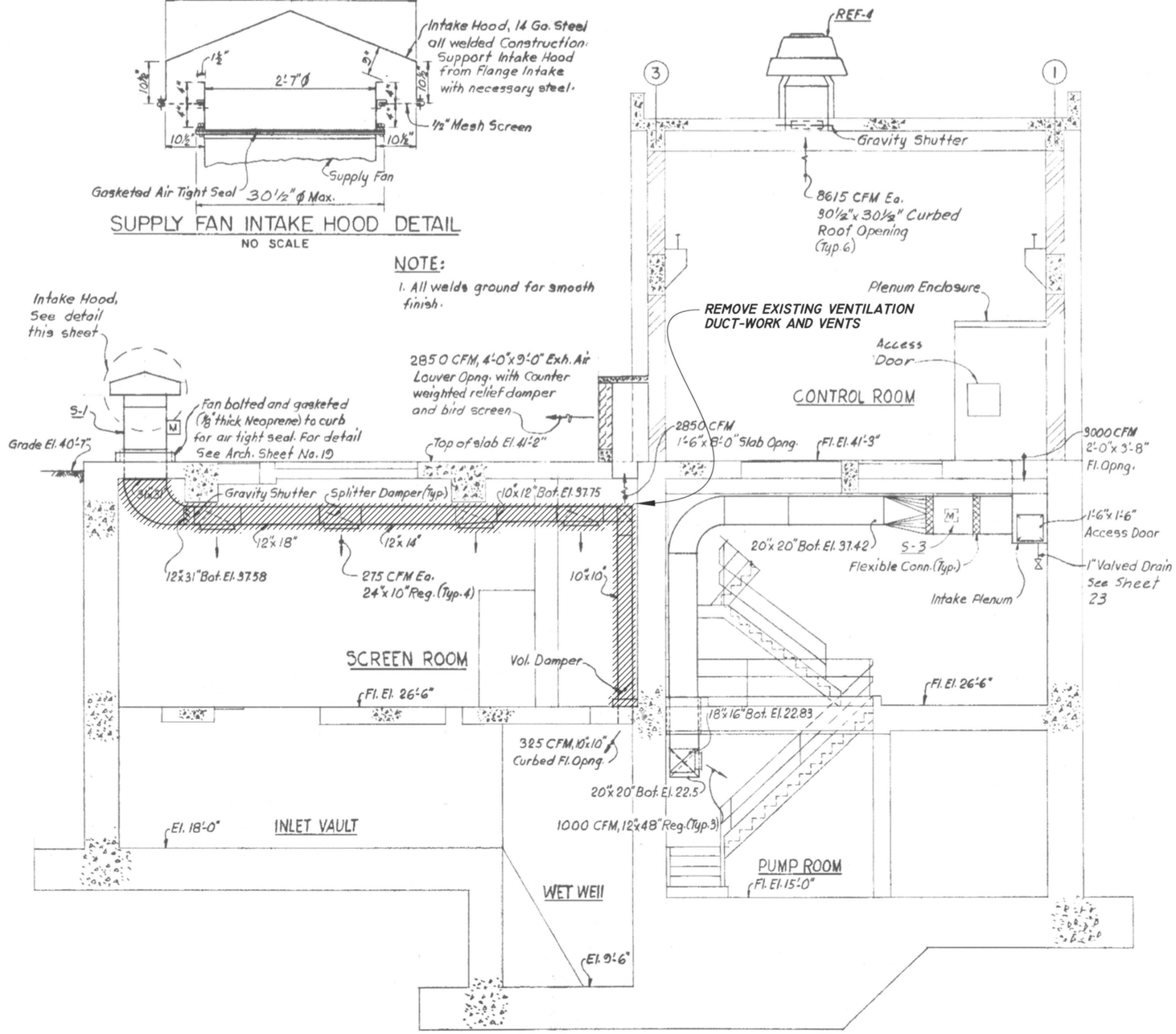
B069-162

SUPPLY FAN INTAKE HOOD DETAIL

NO SCALE

NOTE:

1. All welds ground for smooth finish.



VENTILATION DEMOLITION SECTION

NOT TO SCALE

ITEMS SHOWN HATCHED ARE TO BE REMOVED

PROJECT RECORTD

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No. / DATE / REVISIONS 3 2 1	DES: D.R. DRN: BB CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION VENTILATION DEMOLITION SECTION	W.O. 4511 SHEET 9

User: SS1F Drawing Name: C:\Program Files\AutoCAD Civil 3D 2010\DWG files\PS\University Pumping Station\4511 -Sheets 3-16.dwg
Layout- Mar 11, 2011 - 3:58pm

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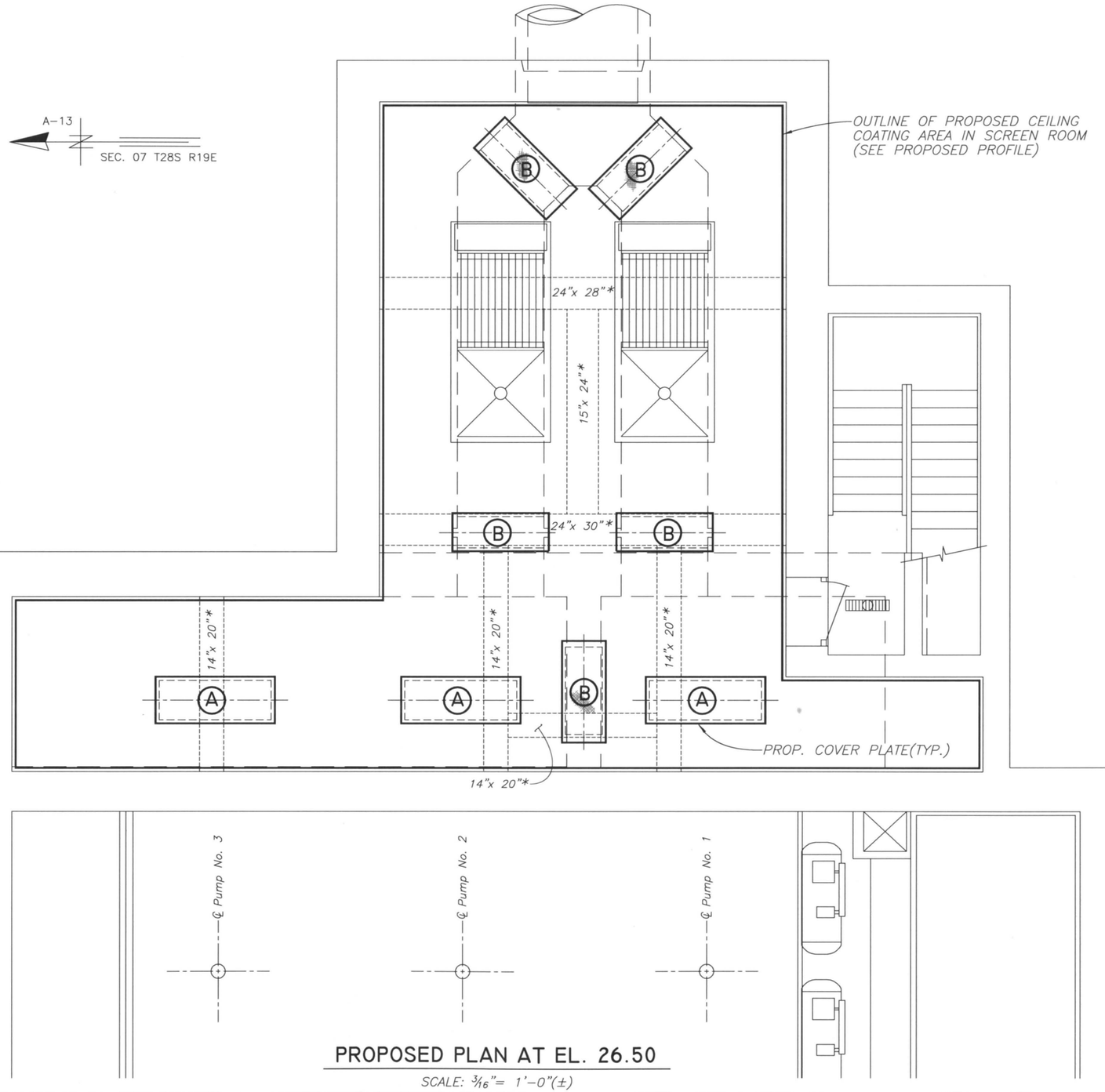
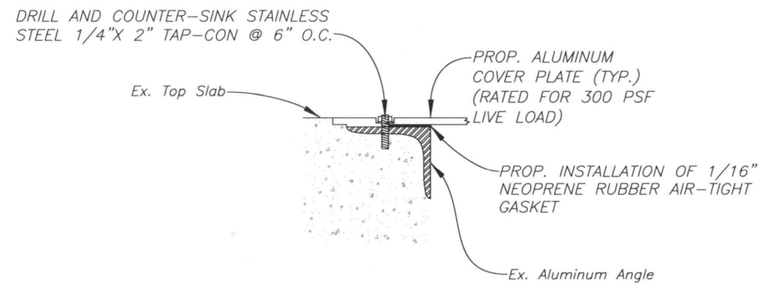


PROPOSED PLAN AT EL. 26.50

SCALE: 3/16"= 1'-0"(±)



ALUMINUM COVER PLATE INSTALLATION DETAIL

N.T.S

PROJECT RECORD

Represents Existing Beams on Screen Room Ceiling (TO BE COATED)

* (APPROXIMATE LOCATIONS AND SIZES)

ALUMINUM COVER PLATE SCHEDULE

TYPE	QTY.	OPENING DIMENSIONS *
(A)	3	5'-4" x 2'-0"
(B)	5	5'-0" x 1'-6"

* CONTRACTOR SHALL FIELD-VERIFY DIMENSIONS

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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DES: D.R.
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CKD:
DATE:

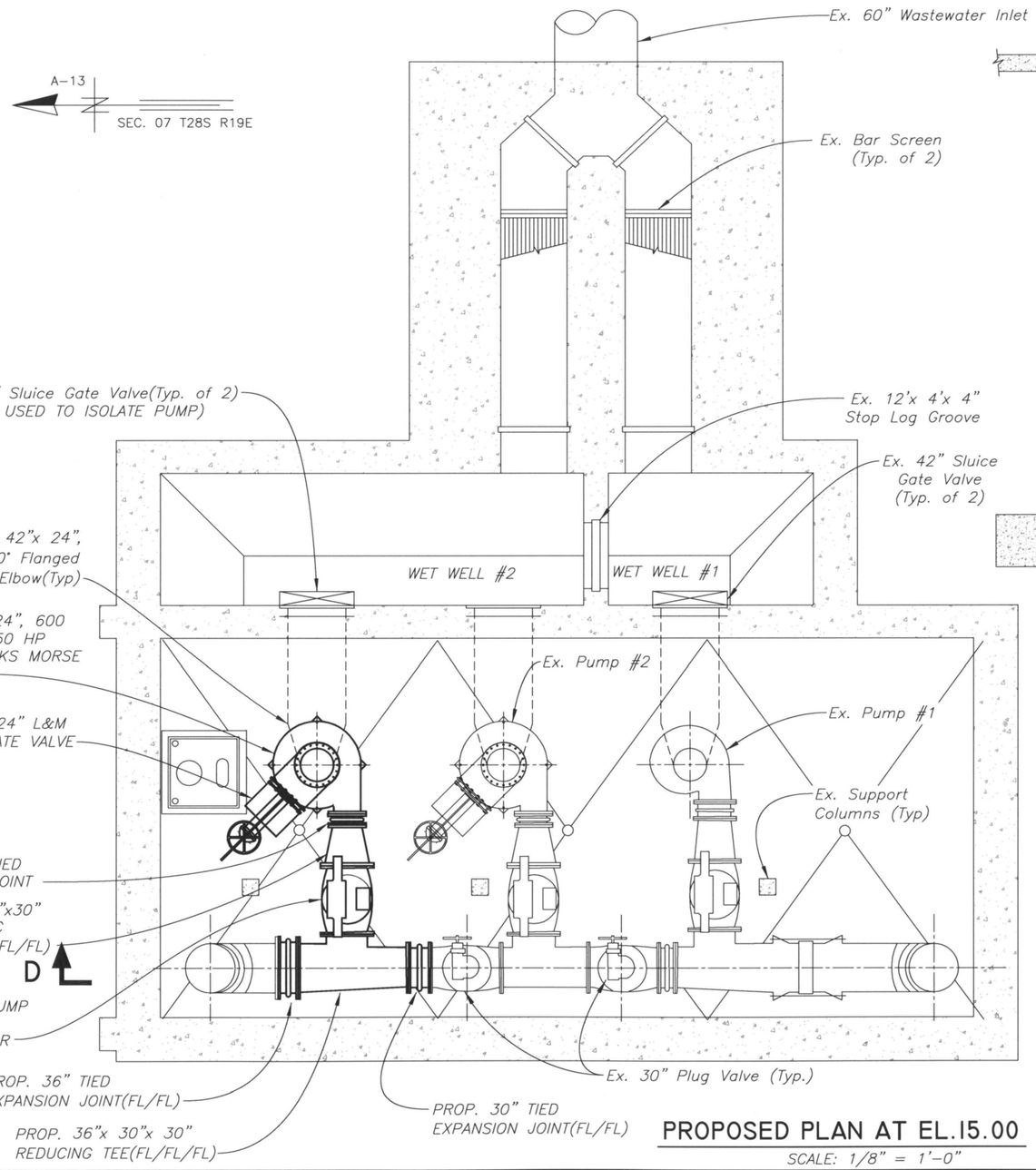
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION

PROPOSED SCREEN ROOM PLAN AT ELEV. 26.50

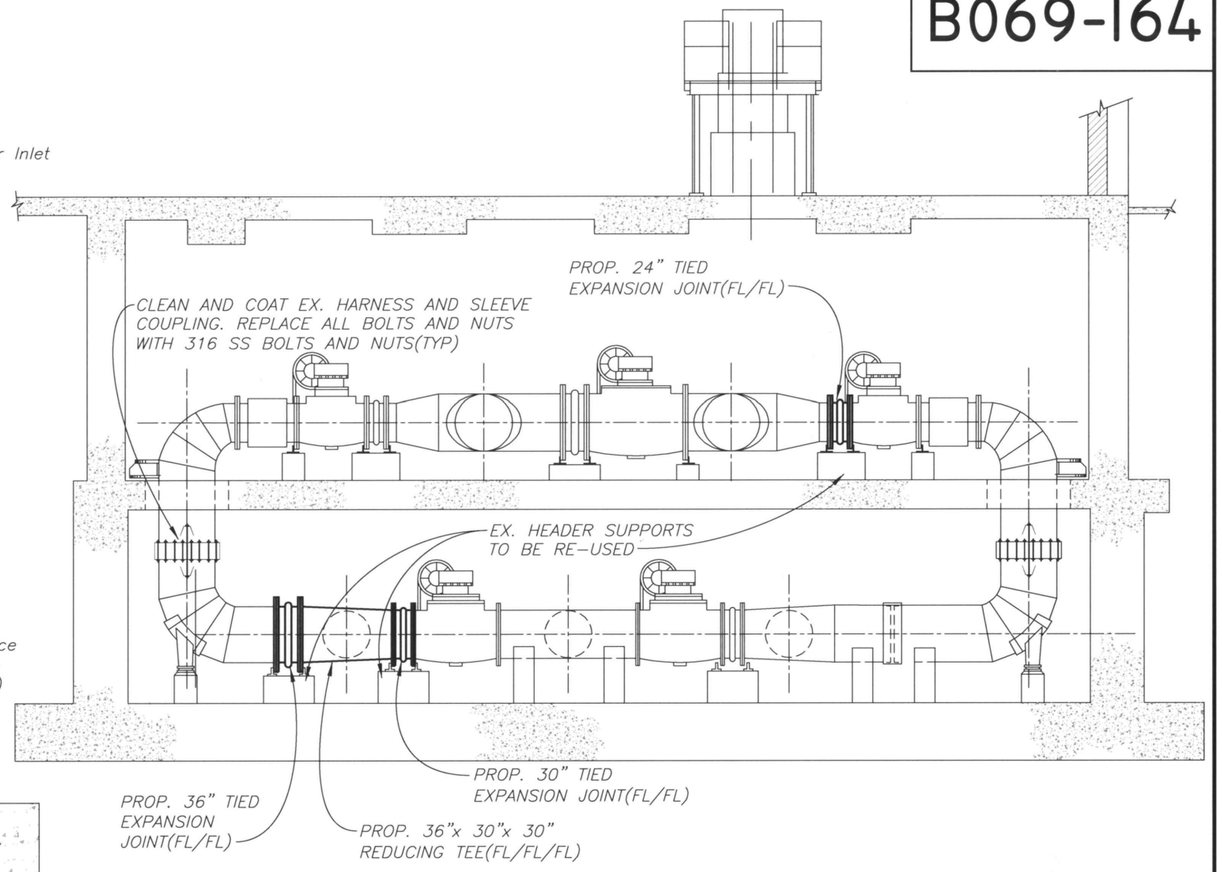
W.O. 4511
SHEET 10

B069-164



PROPOSED PLAN AT EL.15.00

SCALE: 1/8" = 1'-0"



SECTION D-D

SCALE: 1/8" = 1'-0"

PROJECT RECORD

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No. / DATE / REVISIONS 3 2 1	DES: D.R. DRN: BB CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION PROPOSED PLAN AT ELEV. 15.00 AND SECTION	W.O. 4511 SHEET 11

User: SS1F Drawing Name: C:\Program Files\AutoCAD Civil 3D 2010\DWG files\PS\University Pumping Station\4511 -Sheets 3-16.dwg
Layout- Mar 11, 2011 - 3:58pm

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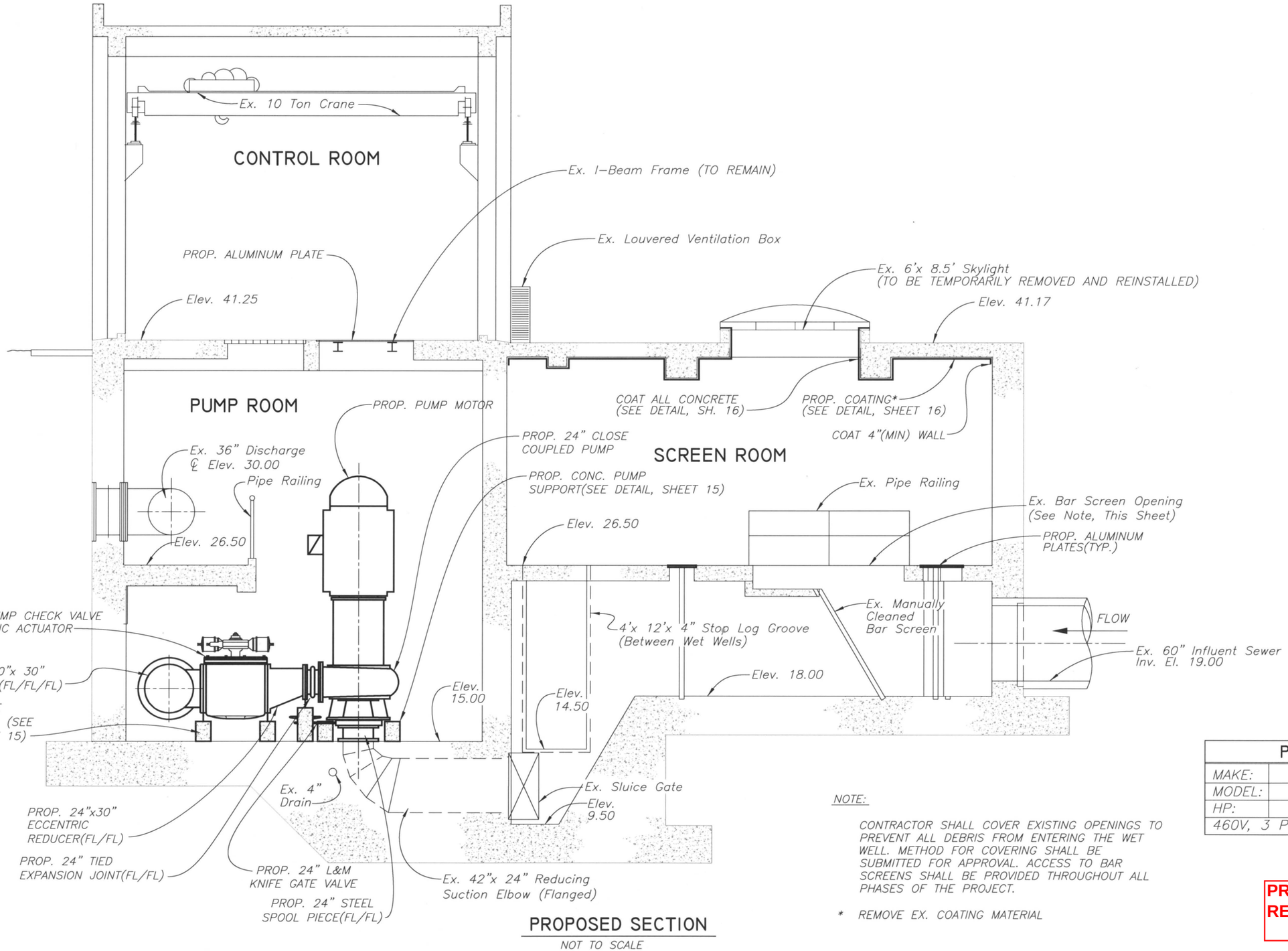

PROPOSED SECTION

NOT TO SCALE

PUMP DATA	
MAKE:	FAIRBANKS MORSE
MODEL:	C5741
HP:	350
460V, 3 Phase, 503 FLA, 594 RPM	

NOTE:

CONTRACTOR SHALL COVER EXISTING OPENINGS TO PREVENT ALL DEBRIS FROM ENTERING THE WET WELL. METHOD FOR COVERING SHALL BE SUBMITTED FOR APPROVAL. ACCESS TO BAR SCREENS SHALL BE PROVIDED THROUGHOUT ALL PHASES OF THE PROJECT.

* REMOVE EX. COATING MATERIAL

PROJECT RECORD

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
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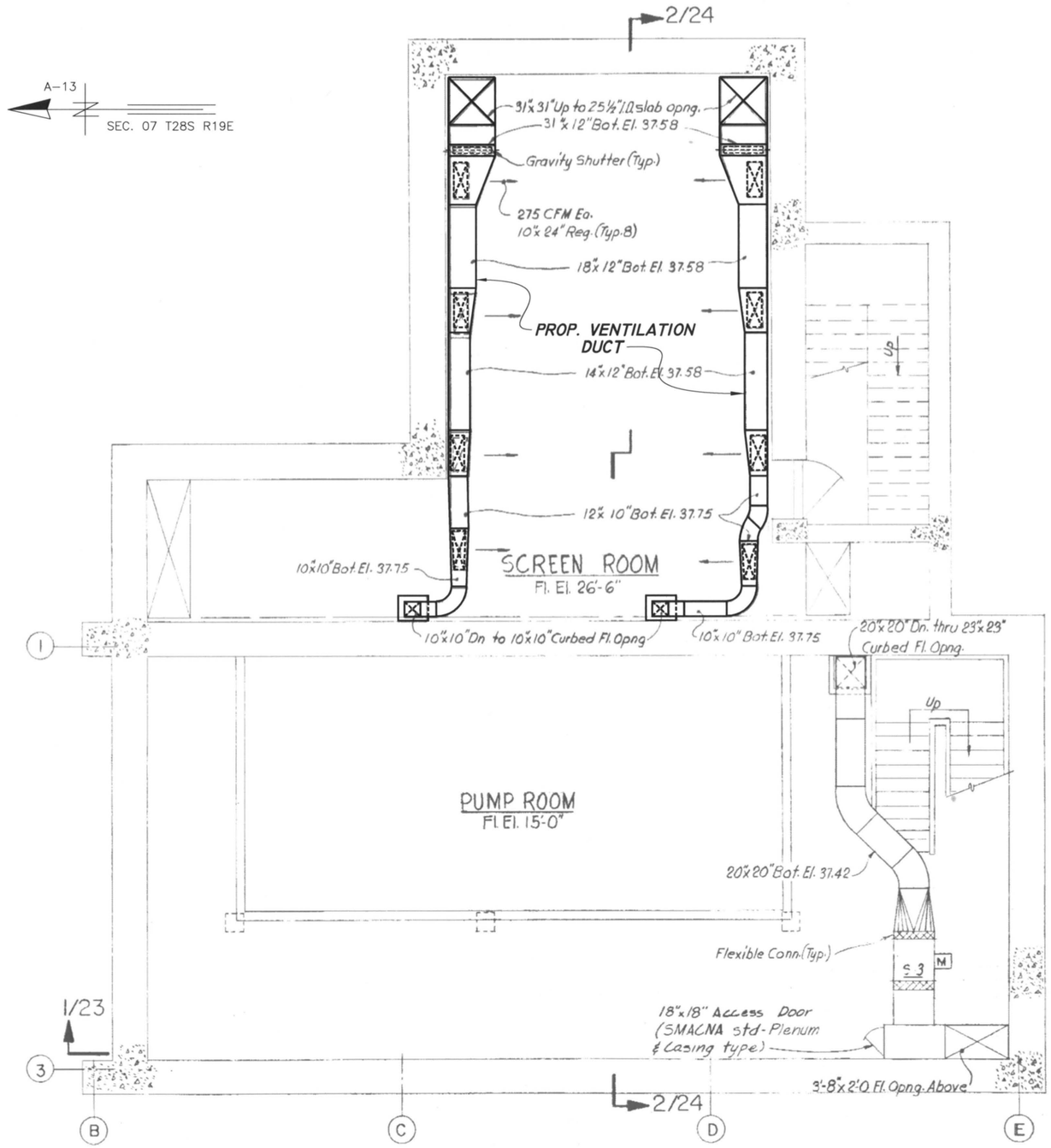
DES: D.R.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
REHABILITATION
PROPOSED SECTION

W.O. 4511
SHEET 12

B069-166



PROPOSED VENTILATION PLAN AT ELEV. 26.50

NOT TO SCALE

VENTILATION NOTES:

1. *ALL DUCT DIMENSIONS ARE INSIDE DIMENSIONS AND ARE IN INCHES UNLESS OTHERWISE NOTED.*
2. *ALL DUCT SYSTEMS SHALL BE FIBERGLASS REINFORCED PLASTIC (FRP) OR 316 STAINLESS STEEL. EXISTING DUCTS ARE RECTANGULAR AND THE INTENT IS TO REPLACE THE EXISTING DUCTS WITH THE SAME SIZE DUCTS AND CONFIGURATIONS. IF RECTANGULAR DUCTS ARE NOT AVAILABLE, THE CONTRACTOR MAY SUBMIT FOR APPROVAL DRAWINGS FOR CIRCULAR DUCTS THAT WILL ACHIEVE THE DESIRED FLOW RATES. ANY ADDITIONAL WORK OR MATERIALS REQUIRED TO INSTALL CIRCULAR DUCTS SHALL BE IN KIND WITH NO ADDITIONAL COST TO THE CITY.*
3. *CONTRACTOR SHALL FURNISH AND INSTALL DUCT SUPPORTS MADE OF EITHER 316 STAINLESS STEEL OR FRP DUCT SYSTEM SUPPORTS WITH 316 STAINLESS STEEL HARDWARE. SUPPORTS SHALL BE SPACED AS RECOMMENDED BY DUCT SYSTEM MANUFACTURER, HOWEVER, SPACING SHALL NOT EXCEED THE SUPPORT SPACING OF THE EXISTING DUCT SYSTEM.*
4. *CONTRACTOR SHALL SUBMIT DUCT SYSTEMS LAYOUT DRAWINGS TO THE ENGINEER FOR APPROVAL. THE LAYOUT DRAWING SHALL DEPICT THE DUCTS, DUCT SUPPORT LOCATIONS, REGISTERS, VOLUME DAMPERS, PROPOSED HARDWARE AND ALL MATERIALS BEING PROPOSED.*
5. *AIR FLOW RATES INDICATED REPRESENT THE LOW SPEED OPERATION (900 RPM).*

PROJECT RECORD

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
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DES: D.R.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
PROPOSED VENTILATION PLAN AT ELEV. 26.50

W.O. 4511
SHEET 13

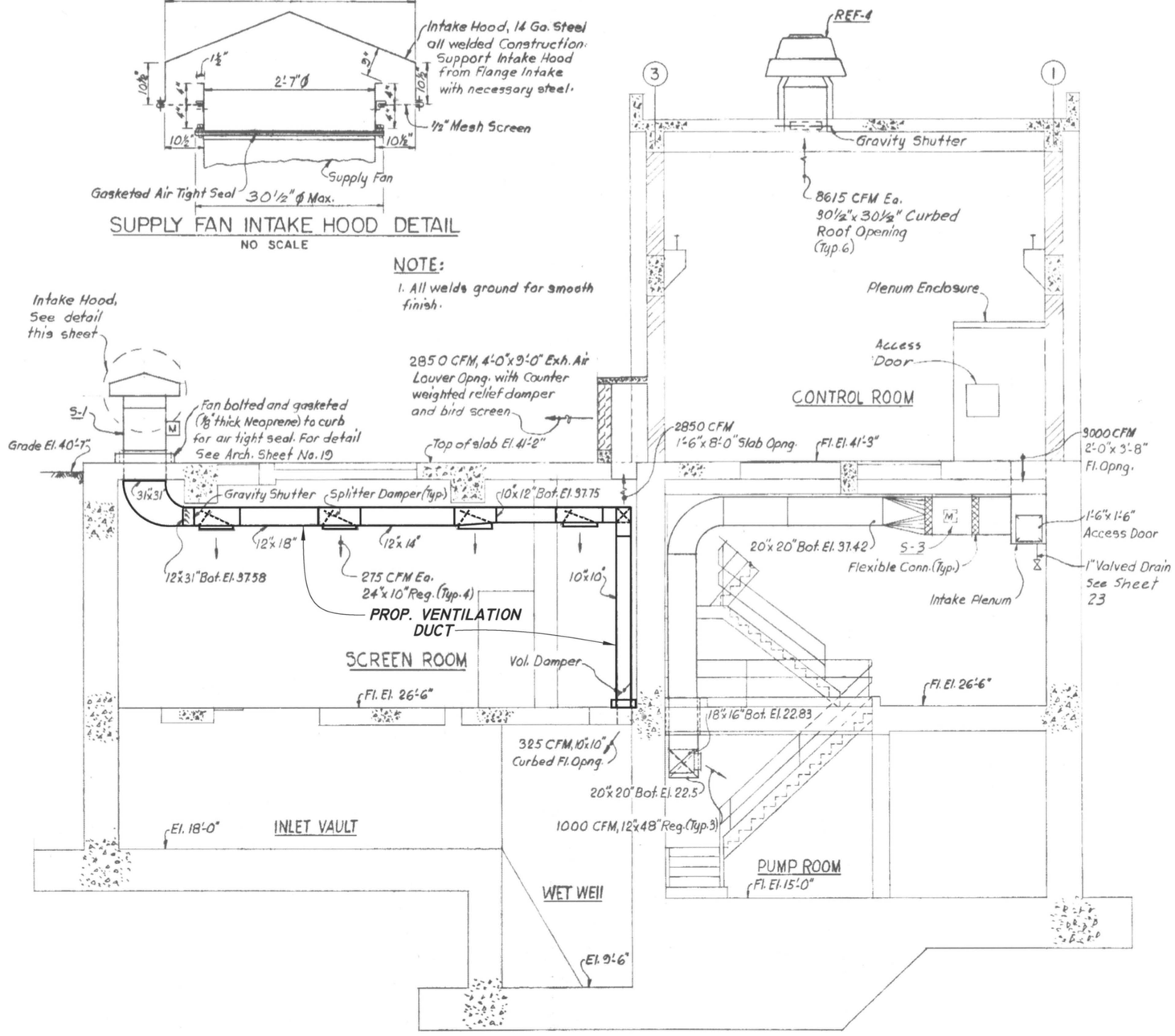
B069-167

SUPPLY FAN INTAKE HOOD DETAIL

NO SCALE

NOTE:

1. All welds ground for smooth finish.



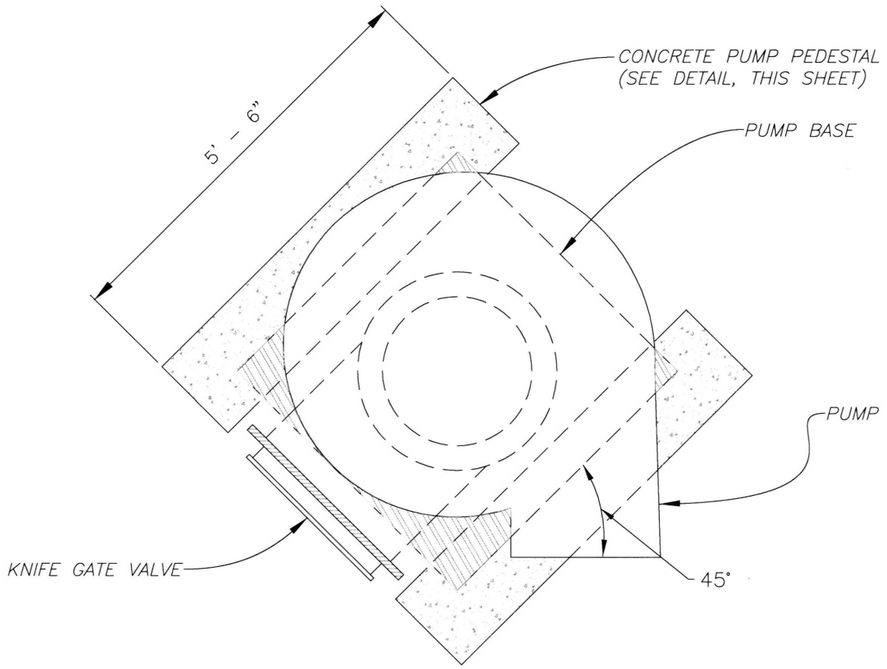
PROPOSED VENTILATION SECTION

NOT TO SCALE

PROJECT RECORD

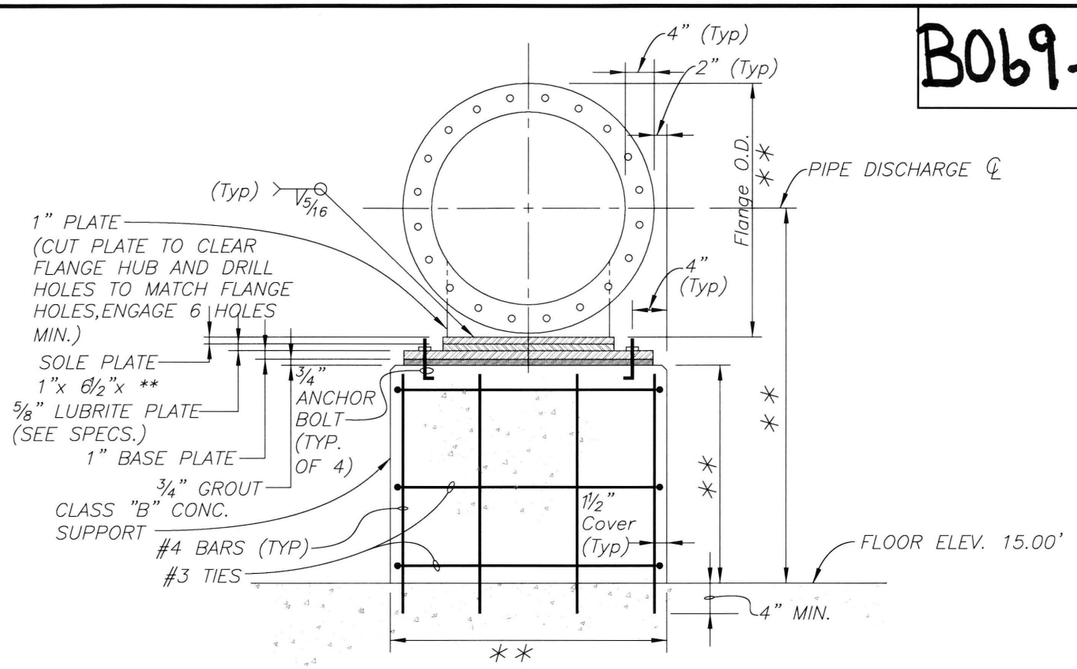
JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No. / DATE / REVISIONS 3 2 1		DES: D.R. DRN: BB CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION PROPOSED VENTILATION SECTION	W.O. 4511 SHEET 14

B069-168



PROP. PUMP SUPPORT - PLAN

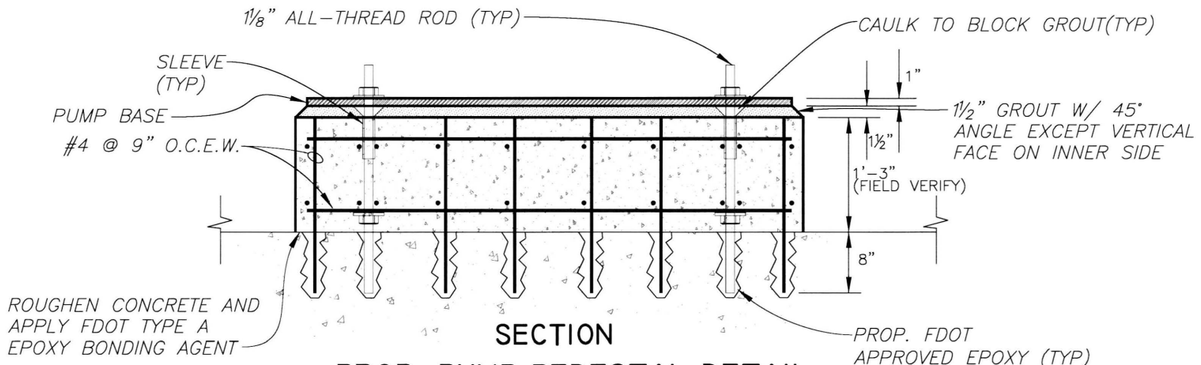
NOT TO SCALE



PROP. FLANGE SUPPORT DETAIL 1

N.T.S.

** Dimension Dependant on Pipe Diameter

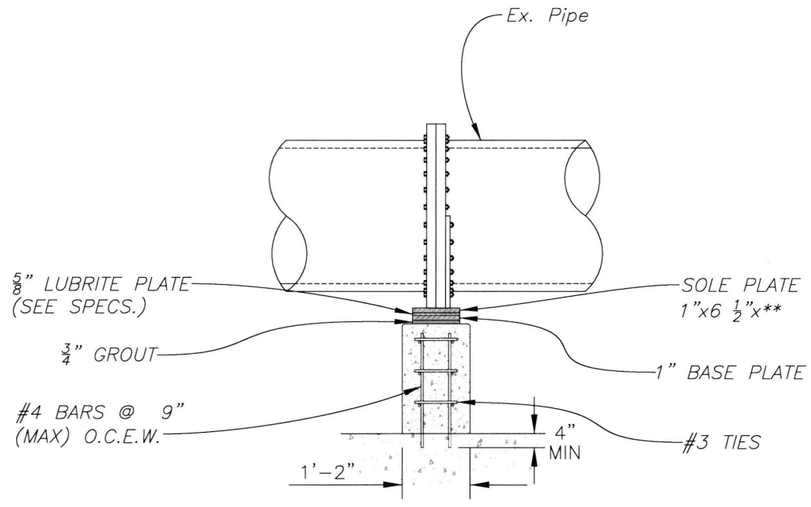


PLAN

SECTION

PROP. PUMP PEDESTAL DETAIL

NOT TO SCALE



PROP. FLANGE SUPPORT DETAIL 2

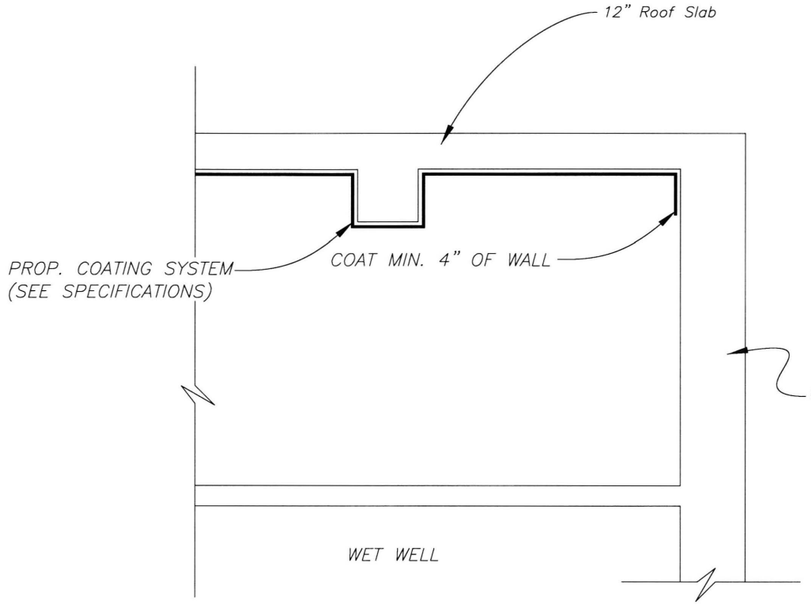
NOT TO SCALE

PROJECT RECORD

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No. / DATE / REVISIONS 3 2 1	DES: JH DRN: BB CKD: JF DATE: 2/17/11
CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION MISCELLANEOUS PUMP ROOM DETAILS	W.O. 5395 SHEET 15

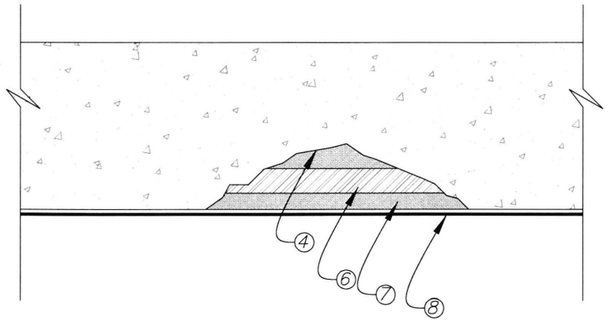
User: SS1F Drawing Name: C:\Program Files\AutoCAD Civil 3D 2010\DWG files\PS\University Pumping Station\4511 -Sheets 3-16.dwg
Layout- Feb 17, 2011 - 12:15pm

B069-169



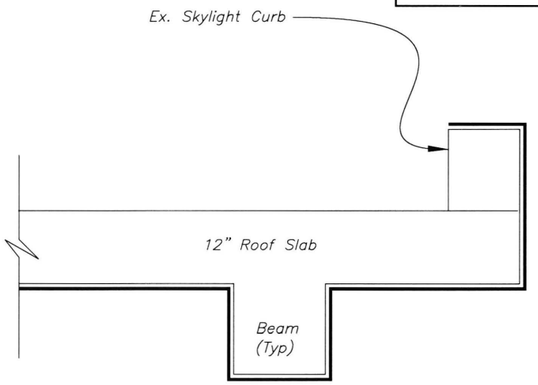
TYPICAL COATING SECTION AT CORNERS

NOT TO SCALE



CONCRETE RESTORATION DETAIL

NOT TO SCALE



TYPICAL COATING SECTION AT CEILING OPENINGS

NOT TO SCALE

CONCRETE RESTORATION AND COATING NOTES:

1. CONTRACTOR SHALL PROVIDE ACCESS TO CITY'S PERSONNEL FOR CLEANING OF BAR SCREENS DURING ALL PHASES OF THE PROJECT.

2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SAFE, WELL-VENTILATED WORK ENVIRONMENT. O.S.H.A. STANDARD SAFETY EQUIPMENT (SAFETY HARNESSES, GAS MONITORS, LOWER EXPLOSIVE LIMIT DETECTORS, ETC.) SHALL BE UTILIZED WHERE NEEDED. CONTRACTOR MAY USE EXISTING SUPPLY FANS FOR AS LONG AS THEY DO NOT CONFLICT WITH THE PROPOSED WORK.

3. EXISTING COATING SHALL BE COMPLETELY REMOVED BEFORE NEW REPAIR MATERIAL AND COATING ARE INSTALLED. PREPARE SURFACE AS INSTRUCTED BY COATING SYSTEM MATERIAL MANUFACTURER.

4. REMOVE ALL LOOSE AND DETERIORATED CONCRETE TO STRUCTURALLY SOUND CONCRETE. CERTAIN AREAS MAY REQUIRE MECHANICAL REMOVAL METHODS SUCH AS CHIPPING, BRUSHING, ETC.

5. SAND BLASTING OR WATER JETTING WILL BE ALLOWED PROVIDED THE CONTRACTOR TAKES THE NECESSARY MEASURES TO COVER WET WELL OPENINGS TO PREVENT ANY SAND OR DEBRIS FROM ENTERING THE WET WELL. ALSO, ALL ABOVE GROUND EQUIPMENT MUST COMPLY WITH CITY OF TAMPA ORDINANCES ON NOISE POLLUTION. CONTRACTOR SHALL SUBMIT A DETAILED PLAN TO THE ENGINEER FOR APPROVAL SHOWING THE PROPOSED METHOD OF COVERING THE OPENINGS.

6. EXPOSED REINFORCING STEEL SHALL BE CLEANED AND PREPARED THOROUGHLY BY BLAST CLEANING AND COATED WITH A CORROSION INHIBITOR (SIKA ARMATIC 110 EPOCHEM OR APPROVED EQUAL)

7. FILL VOIDS OF DETERIORATED CONCRETE SECTIONS WITH REPAIR MATERIAL (SIKATOP 123 PLUS, SIKAREPAIR 224 OR APPROVED EQUAL) IN ACCORDANCE WITH THE SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS. IT IS NOT THE ENGINEER'S INTENT TO RESTORE THE ORIGINAL SURFACE PROFILE OF THE WALL OR CEILING. PROVIDE A MINIMUM OF 1" COVER OVER RESTORED RE-BAR.

8. PROPOSED 125 MIL COATING PER SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS. CONTRACTOR SHALL SUBMIT PROPOSED COATING FOR APPROVAL.

PROJECT RECORD

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: DR
DRN: BB
CKD: JF
DATE: 2/17/11

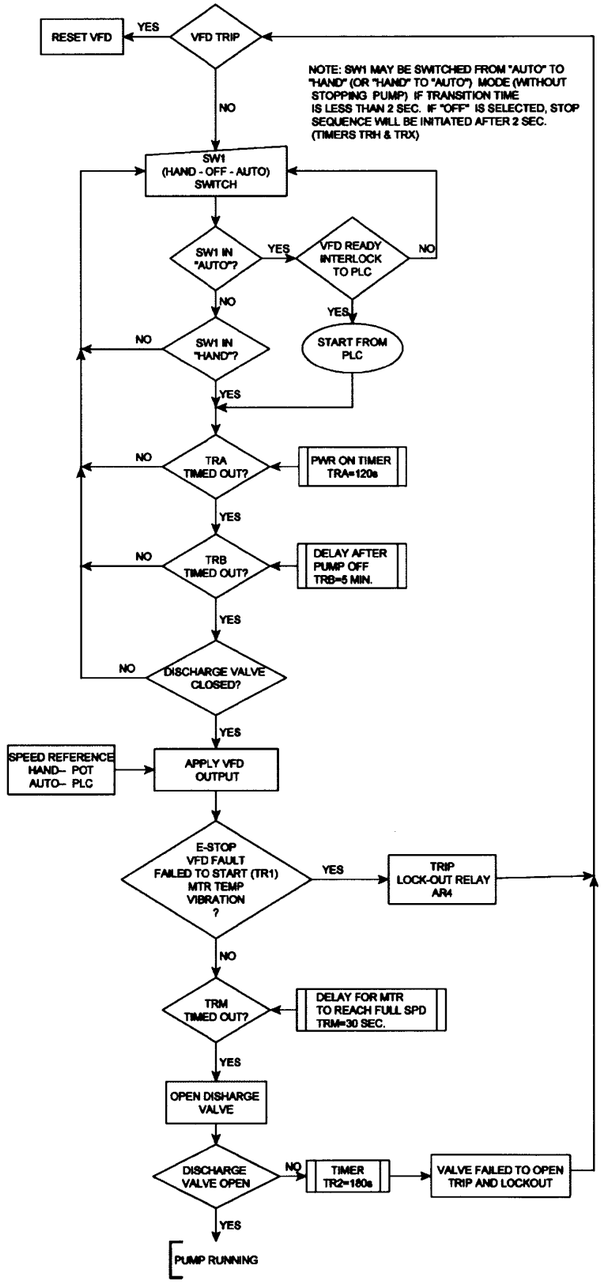
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
CONCRETE RESTORATION DETAILS AND NOTES

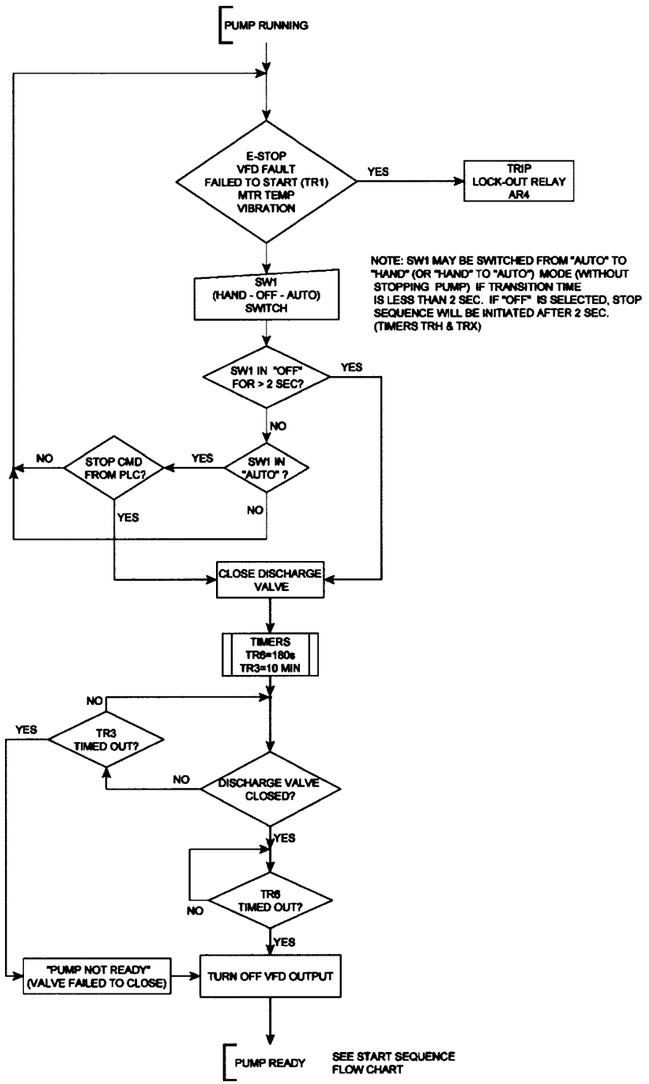
W.O. 5395
SHEET 16

B069-170

PUMP No.3
START SEQUENCE



PUMP No.3
STOP SEQUENCE



LEGEND

- DISCONNECTING DEVICE
- MCP 30 90 — MOTOR CIRCUIT PROTECTOR, 30 AMPERE CONTINUOUS RATING, 90 AMPERE MAGNETIC TRIP SETTING
- CVT — CONTROL POWER TRANSFORMER
- FUSE
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT — OR TIME DELAY RELAY, INSTANT TRANSFER SWITCH
- (M) — MOTOR STARTER COIL
- MOL — MOTOR THERMAL OVERLOAD
- (R) — PILOT LIGHT (RED LENS)
- TERMINAL STRIP
- ETM — HOUR METER
- STOP — STOP PUSHBUTTON WITH PROVISIONS FOR PADLOCK
- 1 OFF 3 — 3 POSITION SELECTION SWITCH
- LS1 — LIMIT SWITCH, NORMALLY OPEN
- LS3 — LIMIT SWITCH, NORMALLY CLOSED
- PSI — PRESSURE SWITCH, NORMALLY OPEN
- MTR — 3 PHASE MOTOR
- MOUNTED NEAR EQUIPMENT OR MOTOR (LOCAL)
- NEUTRAL
- STOP / L — PUSHBUTTON WITH PROVISIONS FOR LOCK. (N.O.)
- N.C. PUSHBUTTON
- ES STOP/L RESUME — LOCAL CONTROL STATION, ES – EMERGENCY STOP
- GSR — GROUND SENSE RELAY
- TWISTED PAIR SHIELDED CABLE
- TR — NORMALLY CLOSED "ON DELAY" TIMING RELAY
- TR — NORMALLY OPEN "ON DELAY" TIMING RELAY
- TR — INSTANT CLOSE – DELAY OPEN TIMING RELAY (OFF DELAY)
- TR — INSTANT OPEN – DELAY CLOSE TIMING RELAY (OFF DELAY)

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: RDK
DRN: RDK
CKD:
DATE: 11/16/2010

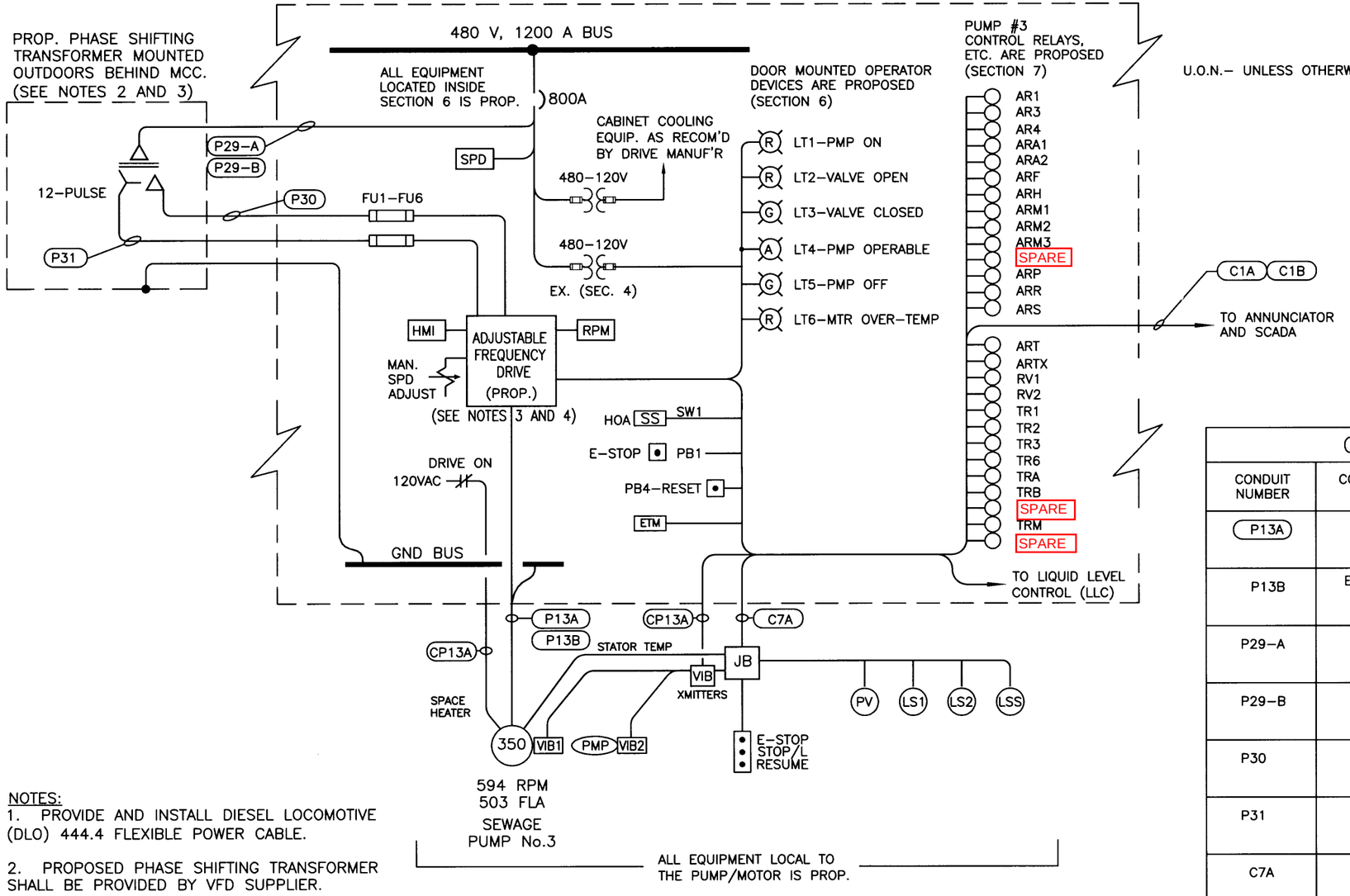
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
PUMP CONTROL FLOW CHARTS & SYMBOLS

W.O. 4511
SHEET
E0

B069-171

PROPOSED SEWAGE PUMPS CONTROL CENTER (SECTIONS 6 & 7)



ONE LINE DIAGRAM – PUMP No. 3

480V – 3PH – 60HZ

NOTES:

1. PROVIDE AND INSTALL DIESEL LOCOMOTIVE (DLO) 444.4 FLEXIBLE POWER CABLE.
2. PROPOSED PHASE SHIFTING TRANSFORMER SHALL BE PROVIDED BY VFD SUPPLIER.
3. THE CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS REQUIRED TO CONNECT FROM PROPOSED TRANSFORMER TO PROPOSED VFD.
4. REMOVAL OF EXISTING EQUIPMENT AND INSTALLATION OF VFD AND ASSOCIATED EQUIPMENT IN SECTION 6 OF MCC SHALL BE PERFORMED BY THE VFD MANUFACTURER.
5. ALL OTHER CONTROL WORK MAY BE PERFORMED AT THE DISCRETION OF THE CONTRACTOR.

CONDUIT AND CONDUCTOR SCHEDULE

CONDUIT NUMBER	CONDUIT SIZE	CONDUCTOR QUAN. & SIZE	FROM	TO	REMARKS
P13A	4"	(3)–400KCMIL (1)–#2/0 GND	PUMP CONTROL CENTER, SEC. 6	PUMP MOTOR No. 3	POWER LEADS
P13B	EXISTING 4"	(3)–400KCMIL (1)–#2/0 GND			
P29–A	4"	(3)–DLO 444.4 (1)–#2/0 GND (SEE NOTE 1)	PUMP CONTROL CENTER, SEC. 7	12–PULSE TRANSFORMER	PRIMARY LEADS
P29–B	4"	(3)–DLO 444.4 (1)–#2/0 GND (SEE NOTE 1)			
P30	4"	(3)–DLO 444.4 (1)–#2/0 GND (SEE NOTE 1)	12–PULSE TRANSFORMER	PUMP CONTROL CENTER, SEC. 7	SECONDARY LEADS
P31	4"	(3)–DLO 444.4 (1)–#2/0 GND (SEE NOTE 1)			
C7A	1–1/2"	(34)–#14 (2)–#12 GND	PUMP CONTROL CENTER, SEC. 6	T.B. AT PUMP No.3 MOTOR	CONTROL WIRING
CP13A	2"	(2)–#10 (1)–#10 GND	PUMP CONTROL CENTER, SEC. 7	PUMP MOTOR No. 3	SPACE HEATER
		(2)#16–2C, SHLD		VIB. XMITTERS	ANALOG SIG.
		(2)#16–3C, SHLD			120VAC POWER
C1A OR C1B	EXISTING	ADD COND. AS REQ'D	PUMP CONTROL CENTER, SEC. 7	METERING AND SCADA PANEL	ANNUN. & RTU WIRING

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

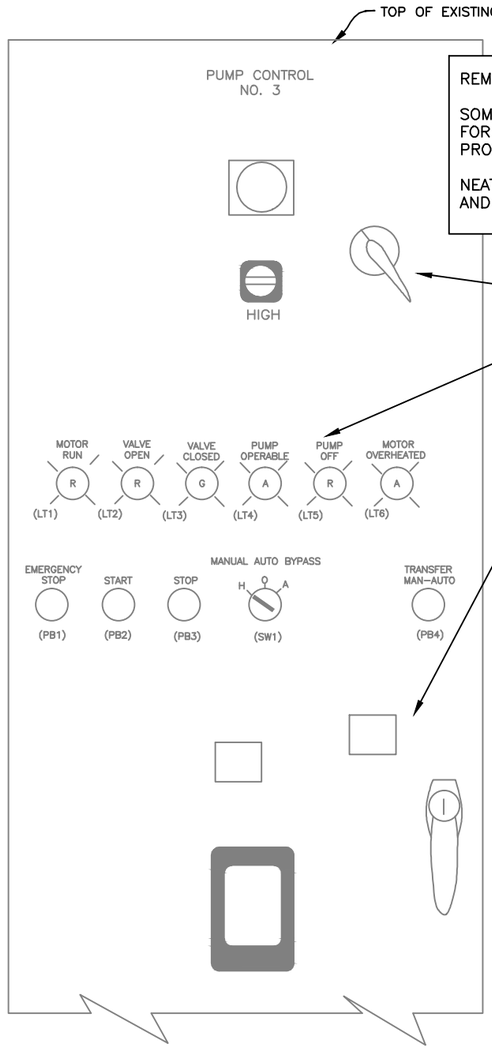
DES: LRG
DRN: LRG
CKD: RK
DATE: 2/18/11

CITY of TAMPA
WASTEWATER DEPARTMENT

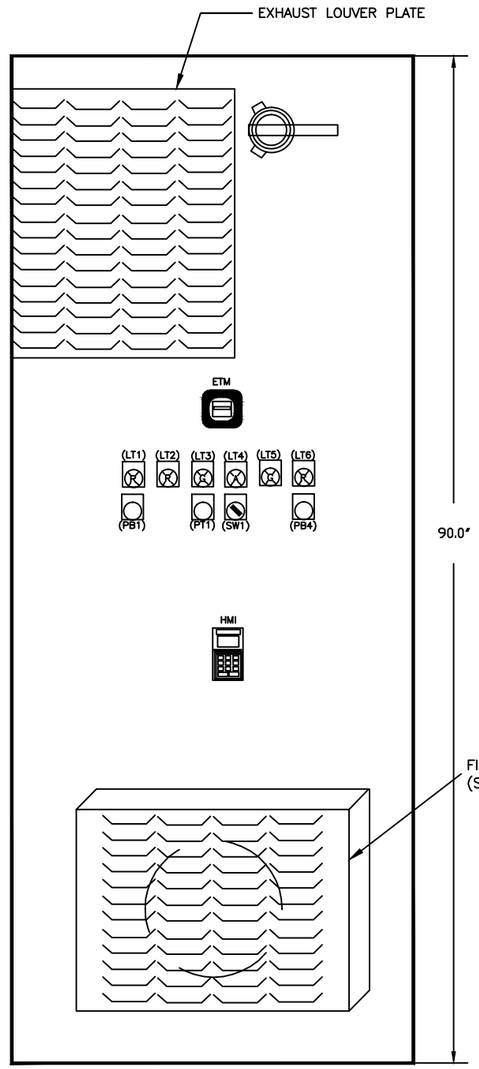
UNIVERSITY PUMPING STATION REHABILITATION
ELECTRICAL- ONE-LINE DIAGRAM

W.O. 4511
SHEET E1

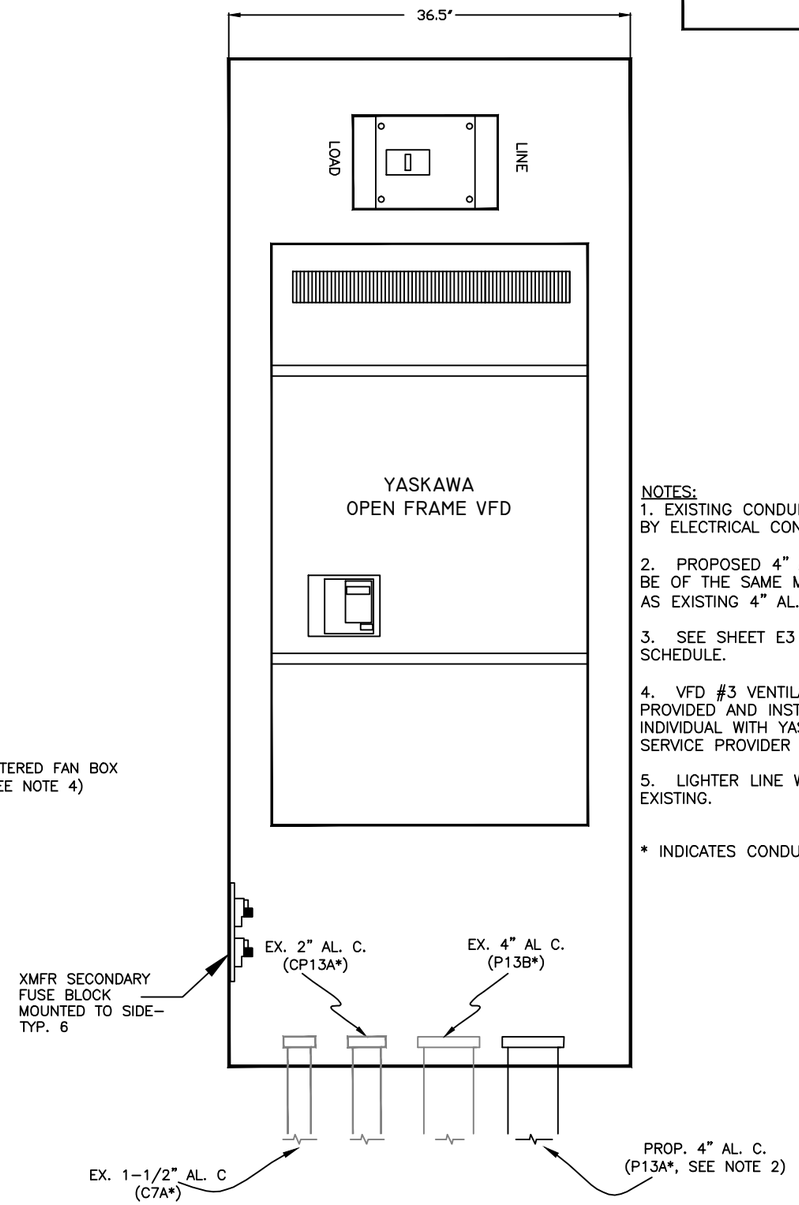
B069–172



SEWAGE PUMP No.3
SECTION 6– EX. LAYOUT
(SEE INDEXED NOTE 1, SHT. E3)



SEWAGE PUMP No.3
SECTION 6 – PROP. LAYOUT
(SEE INDEXED NOTE 1, SHT. E3)



SEWAGE PUMP No.3
SECTION 6 – PROP. LAYOUT
(DOOR REMOVED FOR CLARITY)
(SEE INDEXED NOTE 2, SHT. E3)

NOTES:
1. EXISTING CONDUITS TO BE REUSED BY ELECTRICAL CONTRACTOR.

2. PROPOSED 4" AL. CONDUIT SHALL BE OF THE SAME MATERIAL AND LENGTH AS EXISTING 4" AL. C.

3. SEE SHEET E3 FOR PART SCHEDULE.

4. VFD #3 VENTILATION SHALL BE PROVIDED AND INSTALLED BY AN INDIVIDUAL WITH YASKAWA AUTHORIZED SERVICE PROVIDER CERTIFICATION.

5. LIGHTER LINE WEIGHT ITEMS ARE EXISTING.

* INDICATES CONDUIT NUMBER

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

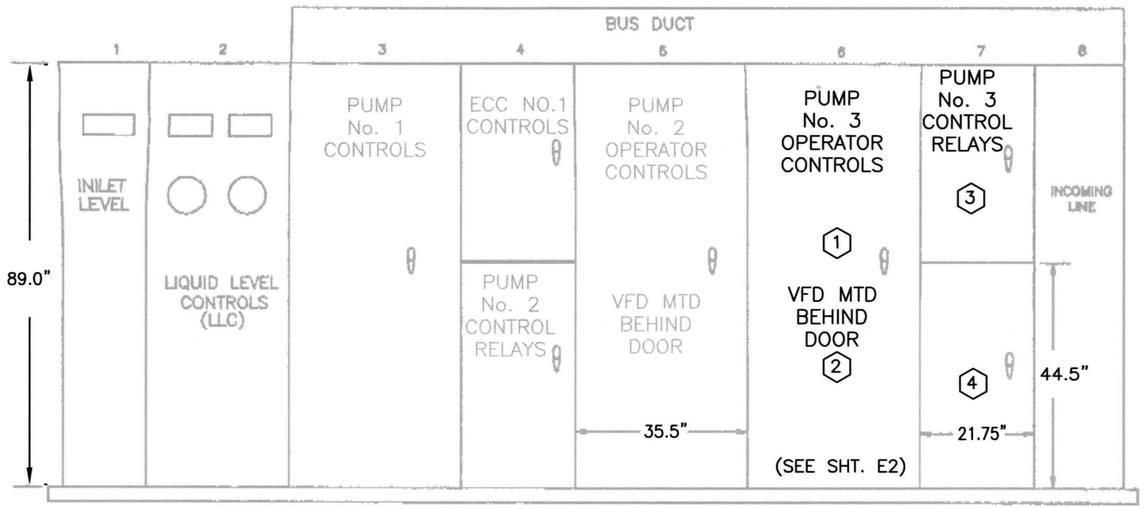
DES: LRG
DRN: LRG
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
REHABILITATION
ELECTRICAL- VFD CUBICLE LAYOUT

W.O. 4511
SHEET
E2

B069-173



EXISTING SEWAGE PUMPS CONTROL CENTER (FRONT ELEVATION)

THE NOTED EXISTING EQUIPMENT SHALL BE REMOVED OR MODIFIED AS REQUIRED TO FACILITATE THE INSTALLATION OF THE NEW EQUIPMENT PROVIDED AND INSTALLED UNDER THIS CONTRACT.

⬡ INDEXED NOTES:

1. REMOVE ALL EXISTING DOOR MOUNTED OPERATOR DEVICES AND INSTALL PROPOSED DEVICES AS SHOWN. NEATLY COVER EXISTING OPENINGS NOT BEING UTILIZED AND FINISH TO MATCH EXISTING SURFACE. PROVIDE PROPER LEGEND PLATES AS SHOWN ON PARTS SCHEDULE. PROPOSED LEGEND PLATES ENGRAVING, LETTERING SIZE, AND MATERIAL SHALL MATCH EXISTING LEGEND PLATES. THE VFD MANUFACTURER SHALL REMOVE EXISTING EQUIPMENT IN SECTION 6 AND INSTALL THE PROPOSED VFD AND ALL ASSOCIATED EQUIPMENT REQUIRED TO SUPPORT THE INSTALLATION OF THE PROPOSED VFD.
2. ALL EQUIPMENT LOCATED INSIDE SECTION 6 IS PROPOSED.
3. AS–BUILT RECORDS SHOW THAT SECTION 7 CONTAINS ONLY EXISTING ECC No. 3 CONTROLS– CONTRACTOR SHALL VERIFY THIS, AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER. REMOVE THE EXISTING CONTROLS AND REPLACE WITH THE THE PUMP No. 3 PROPOSED CONTROLS SHOWN ON SHEET E5.
4. PROPOSED 12–PULSE TRANSFORMER CONDUIT ENTRY/EXIT LOCATION.

PARTS SCHEDULE

SYMBOL	DESCRIPTION	MANUF'R / MODEL	REMARKS
LT1	PILOT LIGHT, 120VAC, LED TYPE, PRESS TO TEST, W/ RED LENS	SQUARE D, CLASS 9001, SKT–38LRR9	LEGEND PLATE: " MOTOR RUN "
LT2	PILOT LIGHT, 120VAC, LED TYPE, PRESS TO TEST, W/ RED LENS	SQUARE D, CLASS 9001, SKT–38LRR9	LEGEND PLATE: " VALVE OPEN "
LT3	PILOT LIGHT, 120VAC, LED TYPE, PRESS TO TEST, W/ GREEN LENS	SQUARE D, CLASS 9001, SKT–38LGG9	LEGEND PLATE: " VALVE CLOSED "
LT4	PILOT LIGHT, 120VAC, LED TYPE, PRESS TO TEST, W/ YELLOW LENS	SQUARE D, CLASS 9001, SKT–38LYY9	LEGEND PLATE: " PUMP OPERABLE "
LT5	PILOT LIGHT, 120VAC, LED TYPE, PRESS TO TEST, W/ GREEN LENS	SQUARE D, CLASS 9001, SKT–38LGG9	LEGEND PLATE: " PUMP OFF "
LT6	PILOT LIGHT, 120VAC, LED TYPE, PRESS TO TEST, W/ RED LENS	SQUARE D, CLASS 9001, SKT–38LRR9	LEGEND PLATE: " MOTOR OVERTEMP "
PB1	RED MUSHROOM HEAD PUSH BUTTON, 1–3/8" DIA.	SQUARE D, CLASS 9001, SKR4RH13	LEGEND PLATE: " EMERGENCY STOP "
PB4	BLACK FLUSH HEAD PUSH BUTTON	SQUARE D, CLASS 9001, SKR1B, W/ (2) KA2 CONTACTS	LEGEND PLATE: " DRIVE RESET "
SW1	THREE POSITION SWITCH (MAINTAINED)	SQUARE D, CLASS 9001, SKS43BH2	LEGEND PLATE: " MODE HAND–OFF–AUTO "
PT1	10– TURN POTENTIOMETER W/ TURNS COUNTING DIAL	HONEYWELL #73JA2K POT BOURNS #H–46–6A DIAL	LEGEND PLATE: " MANUAL SPEED ADJUST "
ETM	ELAPSED TIME METER	GRASSLIN/INTERMATIC, INC UWZ SERIES UWZ48	PROVIDE SOCKET BASE
CVT	CONTROL VOLTAGE TRANSFORMER	SQUARE D, CLASS 9070, TF 500D1	500 VA, 240/480– 120 V
AR1, AR3, AR4, ARA1, ARA2, ARF, ARH, ARM1, ARM2, ARM3, ARO, ARP, ARR, ARS, ART, ARTX, RV1, RV2	CONTROL RELAY–– 120VAC COIL; 4PDT, 15AMP, AgNi CONTACTS; MECH & LED RELAY STATUS INDICATOR; CONTACT PUSH TO TEST BUTTON; W/ DIN RAIL SOCKET	TELEMECANIQUE RPM42F7 RELAY W/ RPZF4 SOCKET	PROVIDE ALUMINUM DIN RAIL AND LABELING AS NECESSARY
TR1,TR2, TR3, TR6, TRA, TRB, TRH, TRM, TRX	UNIVERSAL TIME DELAY RELAY–– SOLID STATE, 120VAC INPUT; DPDT, 10AMP CONTACTS; KNOB ADJUSTABLE DELAY; 0.1–SEC TO 1000–MIN. DELAY IN SIX RANGES; W/ DIN RAIL SOCKET	ABB / SSAC MODEL TRU3 RELAY W/ NDS–11 SOCKET	PROVIDE ALUMINUM DIN RAIL AND LABELING AS NECESSARY
TB	TERMINALS, 600V 30A	PHOENIX CONTACT STYLE UK5N	PROVIDE AL. DIN RAIL AND LABEL AS NECESSARY

MCC SECTIONS 6 & 7, PARTS SCHEDULE
(SCHEMATIC ON SHEETS E4 –E6)

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: LRG/RDK
DRN: LRG/RDK
CKD: RC
DATE: 2/18/11

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
MCC LAYOUT AND PARTS SCHEDULE

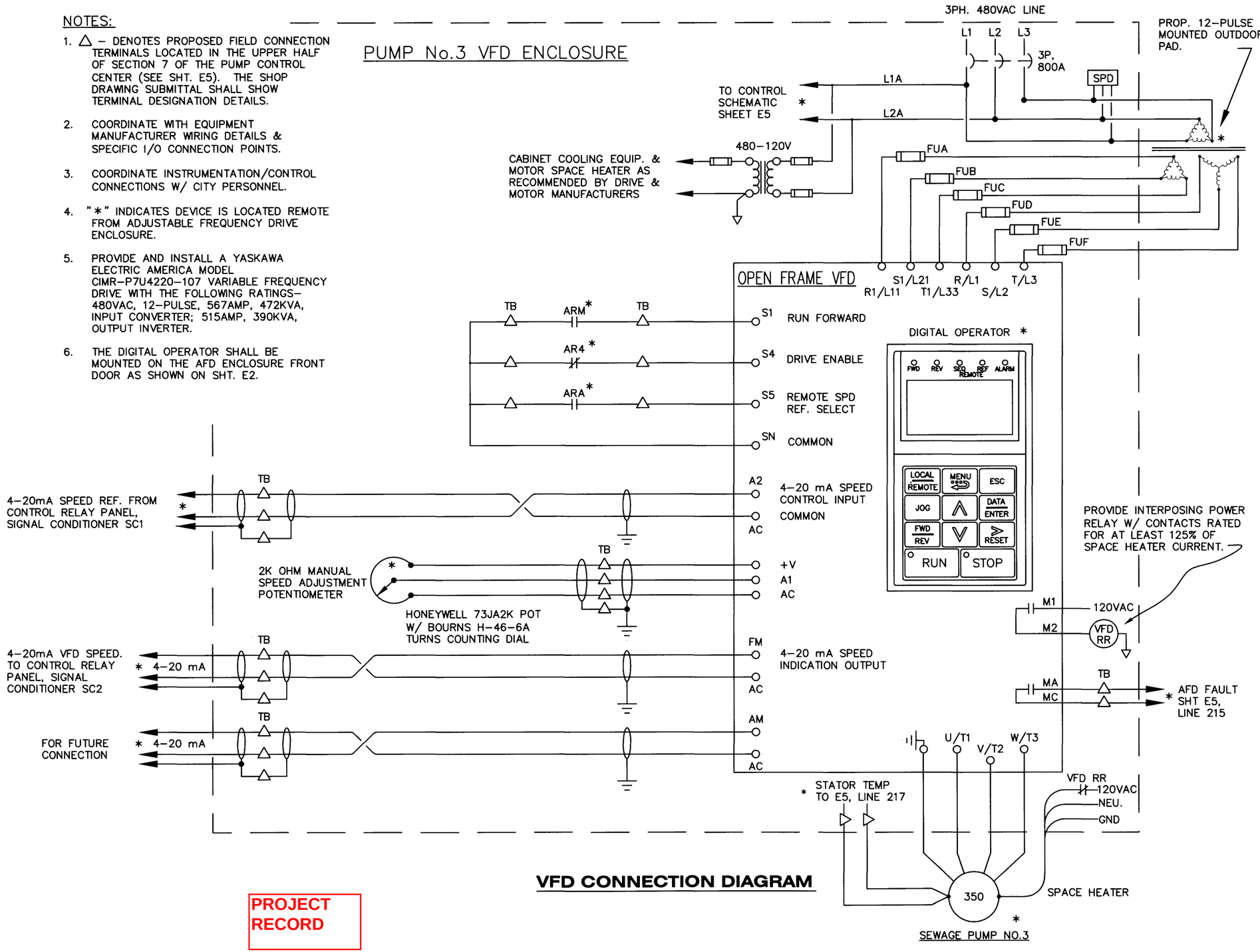
W.O. 4511
SHEET E3

B069-174

NOTES:

1. △ – DENOTES PROPOSED FIELD CONNECTION TERMINALS LOCATED IN THE UPPER HALF OF SECTION 7 OF THE PUMP CONTROL CENTER (SEE SHT. E5). THE SHOP DRAWING SUBMITTAL SHALL SHOW TERMINAL DESIGNATION DETAILS.
2. COORDINATE WITH EQUIPMENT MANUFACTURER WIRING DETAILS & SPECIFIC I/O CONNECTION POINTS.
3. COORDINATE INSTRUMENTATION/CONTROL CONNECTIONS W/ CITY PERSONNEL.
4. "*" INDICATES DEVICE IS LOCATED REMOTE FROM ADJUSTABLE FREQUENCY DRIVE ENCLOSURE.
5. PROVIDE AND INSTALL A YASKAWA ELECTRIC AMERICA MODEL CIMR-P7U4220-107 VARIABLE FREQUENCY DRIVE WITH THE FOLLOWING RATINGS- 480VAC, 12-PULSE, 567AMP, 472KVA, INPUT CONVERTER; 515AMP, 390KVA, OUTPUT INVERTER.
6. THE DIGITAL OPERATOR SHALL BE MOUNTED ON THE AFD ENCLOSURE FRONT DOOR AS SHOWN ON SHT. E2.

PUMP No.3 VFD ENCLOSURE



VFD CONNECTION DIAGRAM

VFD PROGRAMMING		
PARAMETER No.	SETTING	DESCRIPTION
O2-01	0	DISABLE LOCAL/REMOTE KEY
O2-02	0	DISABLE STOP KEY
B1-01	1	SPEED REF. FROM TERMINALS
B1-02	1	SPEED CMD FROM TERMINALS
H1-02	6A	S4 SET TO DRIVE ENABLE
H1-03	03	S5 SET TO AUX. SPD CMD
H2-01	00	M1, M2 CLOSED DURING "RUN"
H3-02	100.0	A1 GAIN SET TO 100%
H3-03	50.0	A1 ZERO BIAS SET TO 50%
H3-08	02	A2 SET FOR 4-20MA INPUT
H3-09	02	TERMINAL A2 SET TO AUX. SPD REF.
H3-10	100.0	A2 GAIN SET TO 100%
H3-11	50.0	A2 ZERO BIAS SET TO 50%
H3-13	0	TERMINAL A1 SET TO MAIN SPD REF.
H4-01	2	FM SET FOR 4-20MA SPEED OUTPUT
H4-02	100.0	FM GAIN SET TO 100%
H4-03	50.0	FM ZERO BIAS SET TO 50%
H4-04	3	AM SET TO DRIVE OUTPUT CURRENT
H4-05	100.0	AM GAIN SET TO 100%
H4-06	0	AM ZERO BIAS SET TO 50%
H4-07	02	FM SET FOR 4-20MA OUTPUT
H4-08	02	AM SET FOR 4-20MA OUTPUT

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

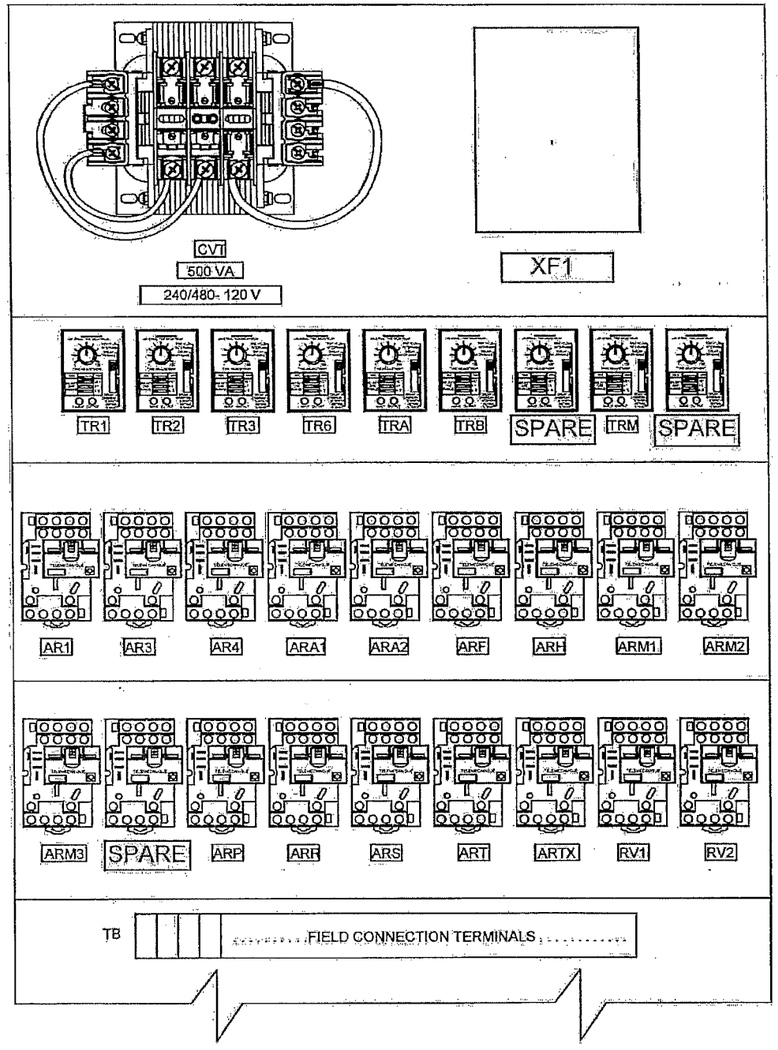
DES: RDK
DRN: LRG
CKD: RK
DATE:11/15/10

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
ELECTRICAL- VFD INTERCONNECTIONS

W.O. 4511
SHEET E4

B069-175



PUMP No. 3, PROPOSED CONTROLS LAYOUT

SCALE: 1:4

(CONTROLS ARE LOCATED IN THE UPPER HALF OF SECTION 7 OF THE PUMP CONTROL CENTER)

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

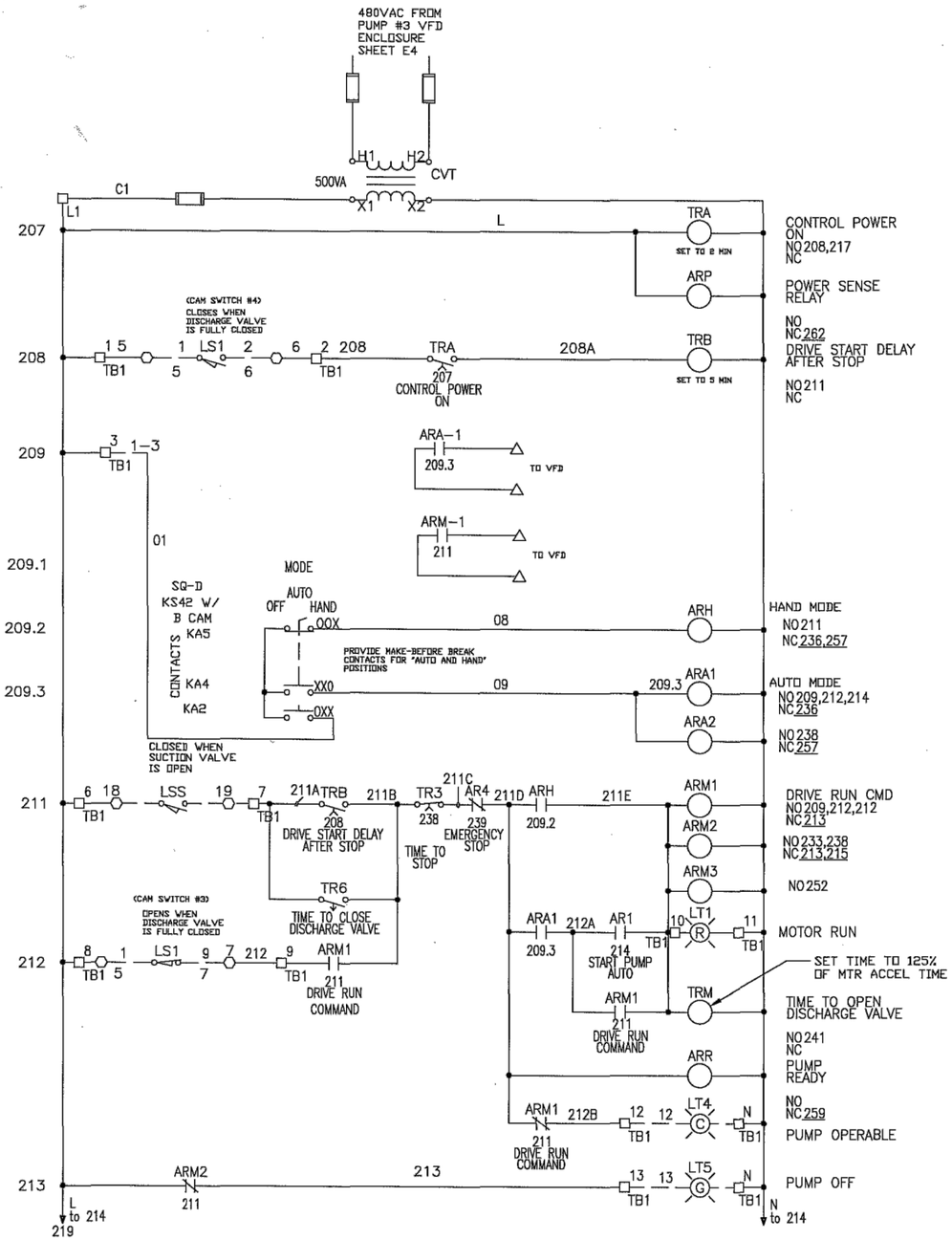
DES: RDK/LRG
DRN: RDK/LRG
CKD: 2/18/11
DATE:

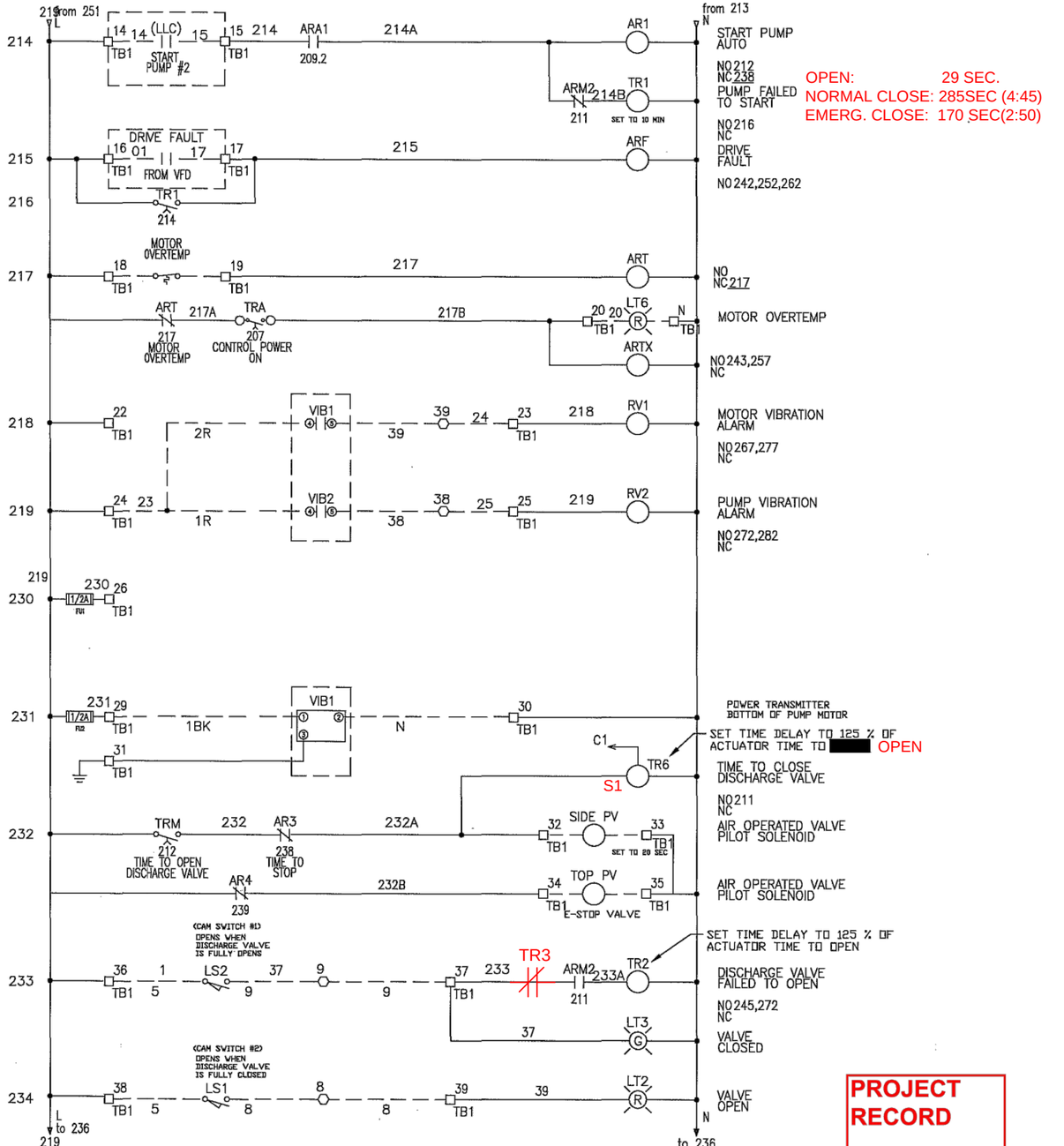
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
REHABILITATION
PUMP No.3 CONTROLS (SHT. 1 OF 6)

W.O. 4511
SHEET
E5

B069-175A





PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE
3	
2	
1	

NOTES:2015
1010-12 E01 & E02 IS UNDER CITY CONTRACT 8-C-34

1010-18 E01& E02 IS UNDER CITY CONTRACT 11-C-00008

REVISIONS

DES: RDK
DRN: RDK
CKD: RK
DATE: 11/8/2010

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
PUMP No.3 CONTROLS (SHT. 2 OF 6)

W.O. 451
SHEET
E5A

B069-176

LS	CONTACT	DISCHARGE VALVE POSITION		
		FULLY CLOSED	INTERMED POSITION	FULLY OPEN
LS1	1		X	X
	2	X		
	3		X	X
	4	X		
LS2	1	X	X	
	2			X
	3	X	X	
	4			X

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

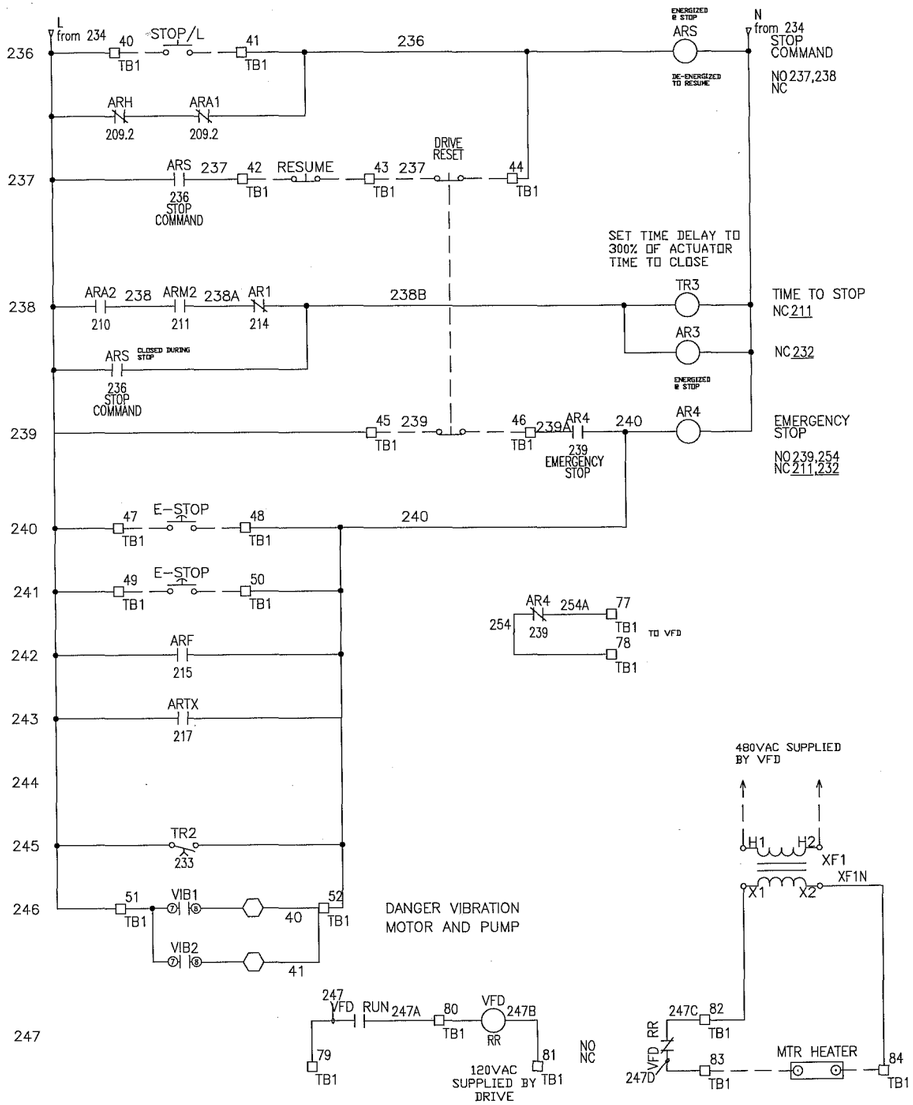
DES: RDK
DRN: RDK
CKD: RK
DATE: 11/8/2010

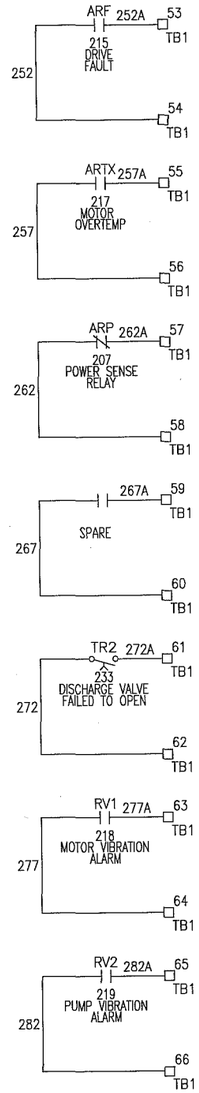
CITY of TAMPA
WASTEWATER DEPARTMENT

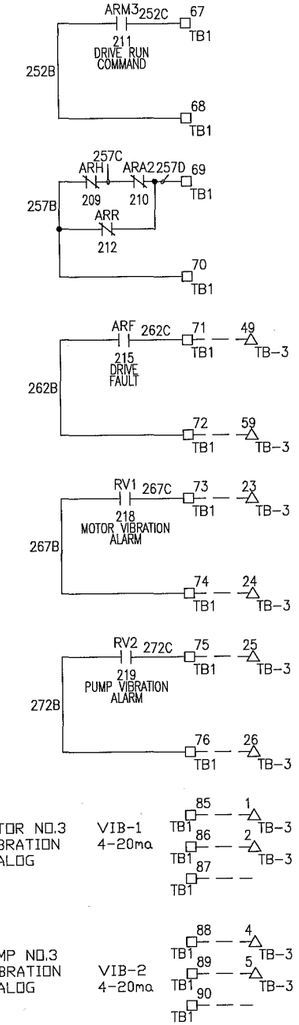
UNIVERSITY PUMPING STATION
REHABILITATION
PUMP No.3 CONTROLS (SHT. 3 OF 6)

W.O. 4511
SHEET E6

B069-176A







PROJECT RECORD

TO EXISTING ANNUNCIATOR NO.2

TO EXISTING SCADA RTU

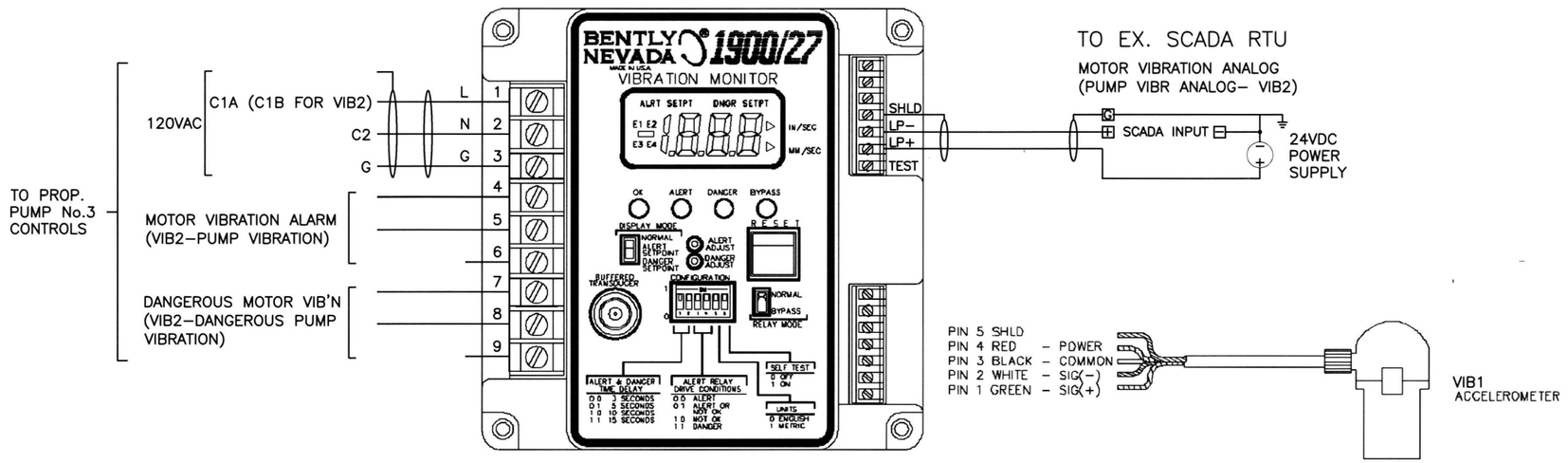
ROMAN D. KORCHAK, P.E. #42626 ELECTRICAL SECTION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: RDK DRN: RDK CKD: DATE: 11/8/2010	CITY of TAMPA WASTEWATER DEPARTMENT
	3				
	2				
	1				

UNIVERSITY PUMPING STATION REHABILITATION
PUMP No.3 CONTROLS (SHT. 4 OF 6)

W.O. 4511
SHEET
E6A

B069-177

VIB1 TRANSMITTER



POWER SUPPLY CONNECTIONS	
INPUT VOLTAGE	CONNECTIONS
110 VAC	1 LINE 2 NEUTRAL 3 GROUND
220 VAC	1 LINE 1 2 LINE 2/NEUTRAL 3 GROUND
24 VDC	1 +24 VDC 2 COMMON 3 GROUND

		RELAY CONTACTS	
		NORMALLY DE-ENERGIZED (FACTORY DEFAULT)	NORMALLY ENERGIZED
ALERT	4	NORMALLY CLOSED	NORMALLY OPEN
	5	COMMON	COMMON
	6	NORMALLY OPEN	NORMALLY CLOSED
DANGER	7	NORMALLY CLOSED	NORMALLY OPEN
	8	COMMON	COMMON
	9	NORMALLY OPEN	NORMALLY CLOSED

MOTOR VIBRATION MONITOR, VIB1

(PUMP VIBRATION MONITOR, VIB2, IS SIMILAR)

THE PUMP / MOTOR SUPPLIER SHALL PROVIDE THE SPECIFIED VIBRATION MONITORING EQUIPMENT AND INSTALL THE ACCELEROMETERS ON THE MACHINERY AS REQUIRED. VIB1 AND VIB2 TRANSMITTERS SHALL BE MOUNTED IN A COMMON NEMA 4X S.S. ENCLOSURE MOUNTED NEAR THE MACHINERY AND WIRED AS REQUIRED BY THE ELECTRICAL SUBCONTRACTOR.

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: LRG
DRN: LRG
CKD: RK
DATE: 2/18/11

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
PUMP No.3 CONTROLS (SHT. 5 OF 6)

W.O. 4511
SHEET E7

B069-178

PUMP NO. 1 OVERLOAD RELAY LOW SPEED	PUMP NO. 1 OVERLOAD RELAY HIGH SPEED	PUMP NO. 1 PHASE SEQUENCE RELAY	PUMP NO. 1 GROUND FAULT RELAY
PUMP NO. 1 PUMP DISCHARGE VALVE FAIL TO OPEN	PUMP NO. 1 E.C.C. FAILURE	PUMP NO. 1 MOTOR STATOR HIGH TEMPERATURE	PUMP NO. 1 SOUTH WET WELL LOW LEVEL
PUMP NO. 1 E.C.C HIGH DISCHARGE AIR TEMPERATURE	PUMP NO. 1 MOTOR EXCESSIVE VIBRATION	PUMP NO. 1 PUMP EXCESSIVE VIBRATION	PUMP NO. 3 OVERLOAD RELAY
PUMP NO. 3 DRIVE FAILURE *	PUMP NO. 3 POWER SENSE RELAY *	PUMP NO. 3 MOTOR STATOR HIGH TEMPERATURE	PUMP NO. 3 NORTH WET WELL LOW LEVEL
PUMP NO. 3 PUMP DISCHARGE VALVE FAIL TO OPEN	SPARE	SPARE	PUMP NO. 3 MOTOR EXCESSIVE VIBRATION
PUMP NO. 3 PUMP EXCESSIVE VIBRATION			
PUMP NO. 2 DRIVE FAILURE	PUMP NO. 2 MOTOR STATOR HIGH TEMP.	PUMP NO. 2 POWER SENSE RELAY	ANNUNCIATOR FAILURE
SPARE	PUMP NO. 2 DISCHARGE VALVE FAILED TO OPEN	PUMP NO. 2 MOTOR EXCESSIVE VIBRATION	PUMP NO. 2 PUMP EXCESSIVE VIBRATION

GE44

TEST | ACKNOWLEDGE | RESET | SILENCE

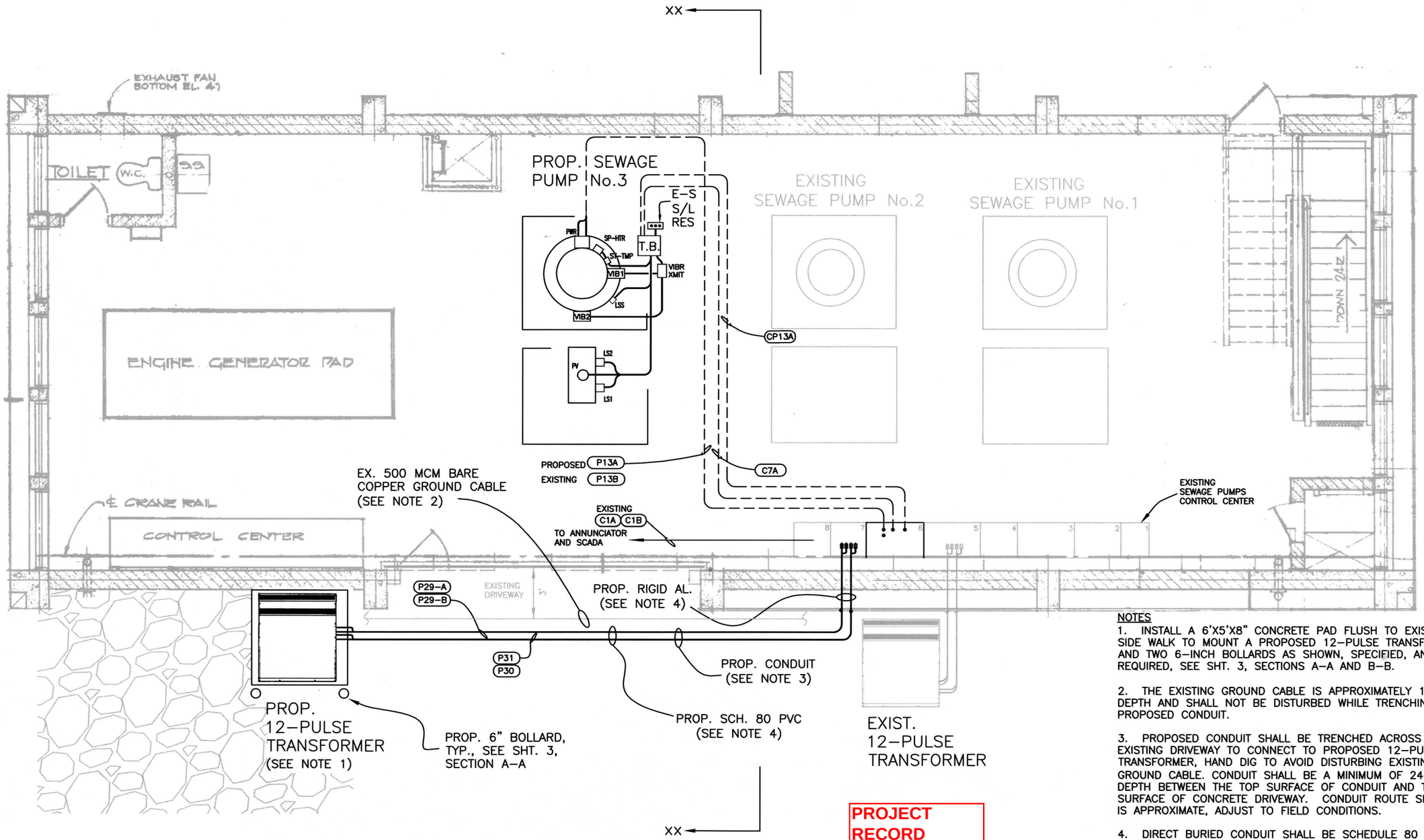
EXISTING ANNUNCIATOR

WINDOWS TO BE REMOVED AND REPLACED WITH NOMENCLATURE AS SHOWN ARE MARKED "*". WINDOWS MARKED "SPARE" SHALL BE BLANK.

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626 ELECTRICAL SECTION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG DRN: LRG CKD: RK DATE: 2/18/11	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION PUMP No.3 CONTROLS (SHT. 6 OF 6)	W.O. 4511 SHEET E8
	3						
	2						
	1						

B069-179



PLAN VIEW

SCALE: 3/16"=1'-0"
SEWAGE PUMPS CONTROL CENTER ON TOP FL.- EL. 41.25'
PUMP MOTORS AND ACCESSORIES ON BOTTOM FL.- EL. 15.00'

NOTES

1. INSTALL A 6'X5'X8" CONCRETE PAD FLUSH TO EXISTING SIDE WALK TO MOUNT A PROPOSED 12-PULSE TRANSFORMER AND TWO 6-INCH BOLLARDS AS SHOWN, SPECIFIED, AND REQUIRED, SEE SHT. 3, SECTIONS A-A AND B-B.

2. THE EXISTING GROUND CABLE IS APPROXIMATELY 15" IN DEPTH AND SHALL NOT BE DISTURBED WHILE TRENCHING PROPOSED CONDUIT.

3. PROPOSED CONDUIT SHALL BE TRENCHED ACROSS EXISTING DRIVEWAY TO CONNECT TO PROPOSED 12-PULSE TRANSFORMER, HAND DIG TO AVOID DISTURBING EXISTING GROUND CABLE. CONDUIT SHALL BE A MINIMUM OF 24" IN DEPTH BETWEEN THE TOP SURFACE OF CONDUIT AND TOP SURFACE OF CONCRETE DRIVEWAY. CONDUIT ROUTE SHOWN IS APPROXIMATE, ADJUST TO FIELD CONDITIONS.

4. DIRECT BURIED CONDUIT SHALL BE SCHEDULE 80 PVC AND CONDUIT EXPOSED SHALL BE RIGID ALUMINUM AS SHOWN, SPECIFIED, AND REQUIRED. COAT ALUMINUM CONDUIT IN CONTACT WITH THE SOIL AND OTHER INCOMPATIBLE MATERIALS, WITH TWO COATS OF BITUMASTIC.

PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: LRG
DRN: LRG
CKD: RK
DATE: 2/18/11

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
ELECTRICAL - POWER PLAN

W.O. 4511
SHEET E9

B069-180

REF

CONTROL ROOM

SEWAGE PUMPS
CONTROL CENTER

EL. 41.25'

PUMP ROOM

C7A

P13A
P13B

PROP. SEWAGE
PUMP No.3
MOTOR

VIB1

ST-TMP

SP-HTR

T.B.

VIB2

VIBR XMIT

E-STOP
STOP/L
RESUME

LSS

ALL CONTROL DEVICES FOR
PUMP No.3 ARE PROPOSED.

LS1 LS2

PV

SECTION XX

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

SEE CONDUIT
INSTALLATION
ON SH. E9

PROP.
12-PULSE
TRANFR.

PROP.
P29-A
P29-B

PROP.
P31
P30

CP13A

INTERCEPT EX.
CONDUITS AND
EXTEND TO MOTOR

EL. 26.50'

EL. 15.00'

PROJECT
RECORD

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

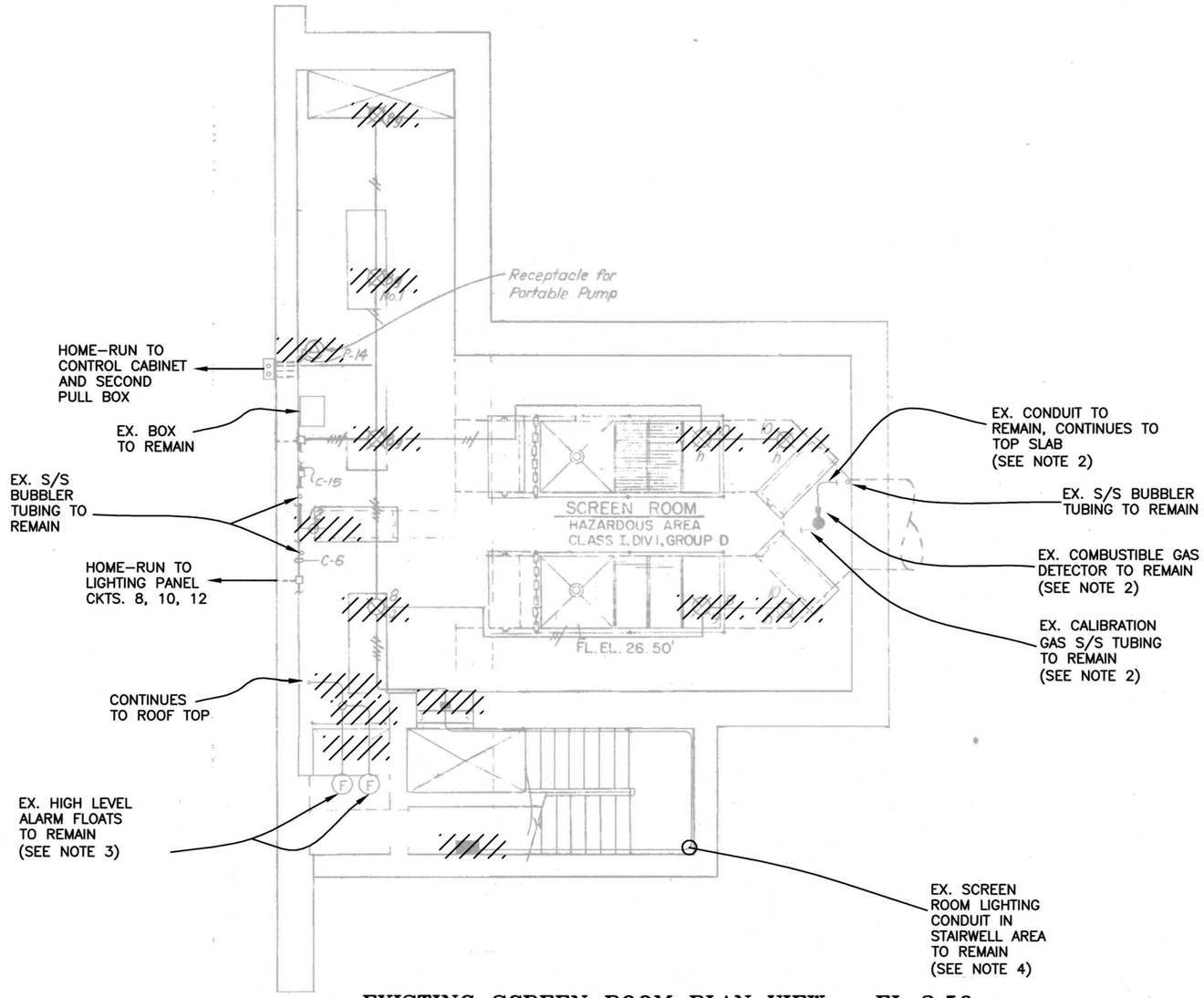
DES: LRG
DRN: LRG
CKD: RK
DATE: 2/18/11

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
REHABILITATION
ELECTRICAL - POWER SECTION

W.O. 4511
SHEET
E10

B069-181



EXISTING SCREEN ROOM PLAN VIEW – EL 2.50

SCALE 1/8" = 1'

NOTES:

1. THE SCREEN ROOM AREA IS CLASSIFIED CLASS I, DIVISION 1, GROUP D AREA (HAZARDOUS LOCATION); THEREFORE, NEC CH. 5 APPLIES. REMOVE FROM THE WET WELL AREA ALL ELECTRICAL EQUIPMENT AS SHOWN, SPECIFIED, AND REQUIRED. THIS INCLUDES, BUT IS NOT LIMITED TO: LIGHTING SYSTEMS, POWER RECEPTACLES, CONVENIENCE RECEPTACLES, INTERCOM, SWITCHES, PILOT LIGHTS, AND ALL ASSOCIATED CONDUITS AND SUPPORT SYSTEMS. PATCH/SEAL PENETRATIONS AND DAMAGED CONCRETE WITH APPROVED PRODUCTS AND FINISH TO MATCH SURROUNDING SURFACE.

2. THE EXISTING COMBUSTIBLE GAS DETECTOR, TRANSMITTER AND ASSOCIATED EQUIPMENT AND CONDUIT SHALL BE REUSED.

3. THE EXISTING HIGH LEVEL ALARM FLOATS AND ASSOCIATED EQUIPMENT SHALL BE REUSED.

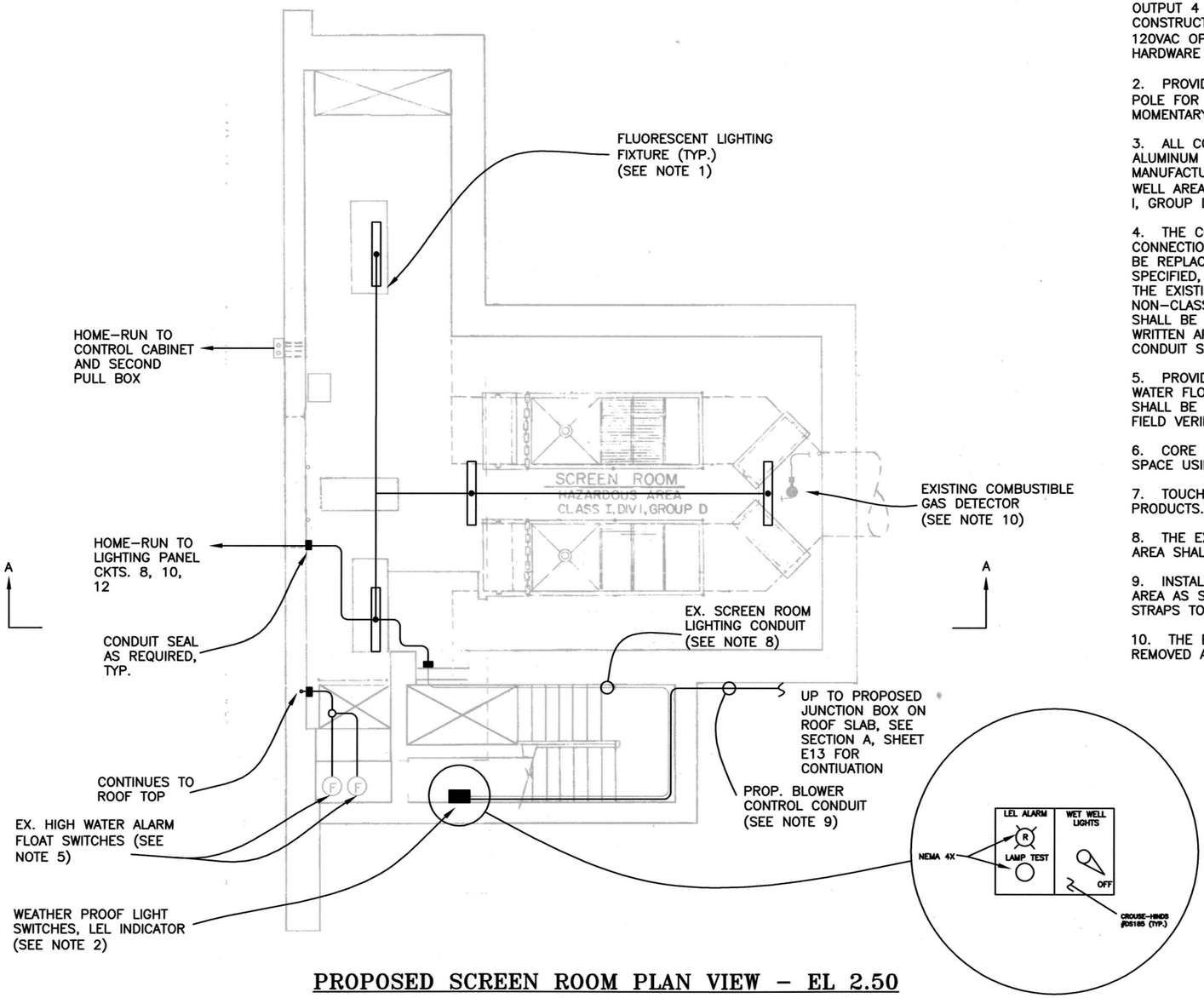
4. THE EXISTING SCREEN ROOM LIGHTING CONDUIT IN THE STAIRWELL AREA SHALL REMAIN. REMOVE EXISTING LIGHT SWITCH IN THE STAIRWELL AREA.

PROJECT RECORD

HATCHED AREAS REPRESENT ITEMS TO BE REMOVED

ROMAN D. KORCHAK, P.E. #42626 ELECTRICAL SECTION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG DRN: LRG CKD: RK DATE: 2/18/11	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REBILITATION ELECTRICAL- DEMOLITION	W.O. 4511 SHEET E11
	3						
	2						
	1						

B069-182



PROPOSED SCREEN ROOM PLAN VIEW – EL 2.50

SCALE 1/8" = 1'

NOTES:

1. CLASS I DIVISION I, GROUP D, FLUORESCENT FIXTURE W/ (2)–800mA HIGH OUTPUT 4 FT. LAMPS AND LOW TEMPERATURE BALLAST. FIXTURE SHALL BE CONSTRUCTED OF COPPER FREE ALUMINUM ALLOY AND STAINLESS STEEL HARDWARE. 120VAC OPERATION W/ T6 TEMPERATURE CODE. USE 316 STAINLESS STEEL HANGING HARDWARE BASIS OF DESIGN --R-A-L XP800-4-2L-A.

2. PROVIDE: (1) WEATHER-PROOF SNAP SWITCH FOR WET WELL LIGHTS W/ EXTRA POLE FOR VENTILATION CONTROL, (1) NEMA 4X LEL ALARM LIGHT, AND (1) NEMA 4X MOMENTARY PUSHBUTTON FOR LEL ALARM TEST.

3. ALL CONDUITS, FITTINGS, AND TERMINAL BOXES INSTALLED SHALL BE RIGID ALUMINUM COATED WITH 40mil PVC OUTSIDE AND 2mil URETHANE INSIDE, AS MANUFACTURED BY ROBROY. ALL MATERIALS AND INSTALLATION METHODS IN THE WET WELL AREA MUST BE CONSISTENT W/ NEC CH. 5 STANDARDS FOR A CLASS I, DIVISION I, GROUP D AREA.

4. THE CONTRACTOR SHALL TRACE-OUT EXISTING WIRING AND VERIFY PROPER CONNECTIONS TO THE END DEVICES. EXISTING CONDUCTORS IN THE WET WELL SHALL BE REPLACED, UNLESS NOTED OTHERWISE. ALL SPLICES SHALL BE MADE AS SPECIFIED, IN PROPOSED JUNCTION BOXES LOCATED AS CLOSE TO THE EXISTING CONDUIT SEALS AS PRACTICABLE. IF HOME RUN CONDUCTORS ON THE NON-CLASSIFIED SIDE OF THE CONDUIT SEALS ARE FOUND TO BE DETERIORATED, THEY SHALL BE REMOVED, AND NEW CONDUCTORS SHALL BE INSTALLED AFTER RECEIVING WRITTEN APPROVAL FOR EXTRA WORK FROM THE ENGINEER. REPLACE ALL DISTURBED CONDUIT SEALS.

5. PROVIDE AND INSTALL NEW CONDUIT, SUPPORTS, AND SEALS FOR EXISTING HIGH WATER FLOAT SWITCHES. IF CONDUCTORS ARE FOUND TO BE DETERIORATED, THEY SHALL BE REMOVED, AND NEW CONDUCTORS SHALL BE INSTALLED. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF FLOAT SWITCHES.

6. CORE DRILL CONCRETE AS REQUIRED TO INSTALL CONDUITS. FILL ANNULAR SPACE USING APPROVED PRODUCTS AND FINISH TO MATCH EXISTING SURFACE.

7. TOUCH-UP ANY DAMAGED PVC COATING USING MANUFACTURER RECOMMENDED PRODUCTS. MATCH EXISTING SURFACE.

8. THE EXISTING SCREEN ROOM LIGHTING CONDUIT SUPPORTS IN THE STAIRWELL AREA SHALL BE REMOVED AND REPLACED WITH STAINLESS STEEL ONE-HOLE STRAPS.

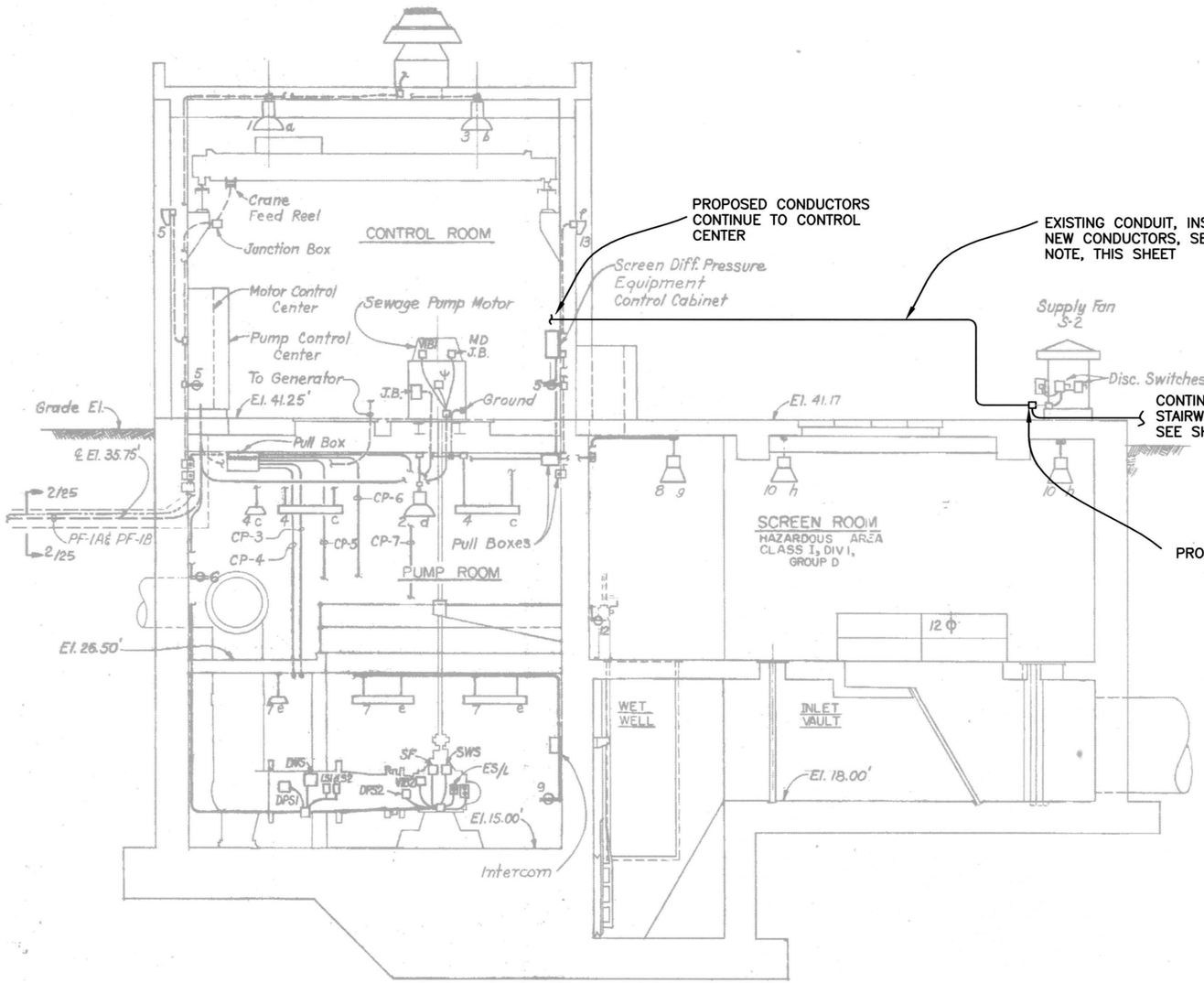
9. INSTALL NEW BLOWER CONTROL CONDUIT AND CONDUCTORS IN THE STAIRWELL AREA AS SHOWN, SPECIFIED, AND REQUIRED. USE STAINLESS STEEL ONE-HOLE STRAPS TO SUPPORT CONDUIT.

10. THE EXISTING COMBUSTIBLE GAS DETECTOR CONDUIT SUPPORTS SHALL BE REMOVED AND REPLACED WITH STAINLESS STEEL ONE-HOLE STRAPS.

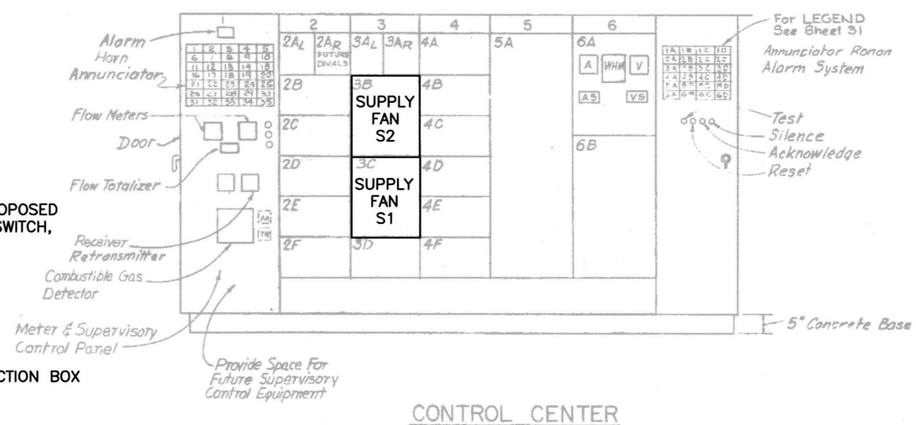
PROJECT RECORD

ROMAN D. KORCHAK, P.E. #42626 ELECTRICAL SECTION HEAD WASTEWATER DEPARTMENT	No. / DATE / REVISIONS 3 2 1	DES: LRG DRN: LRG CKD: RK DATE: 2/18/11	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION PROPOSED PLAN- WET WELL AREA	W.O. 4511 SHEET E12

B069-183



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



CONTROL CENTER
FRONT VIEW

PROJECT RECORD

NOTE: INTERCEPT EXISTING CONDUIT RUNNING FROM SUPPLY FANS 1 AND 2 TO CONTROL CENTER. INSTALL A JUNCTION BOX AND UTILIZE EXISTING CONDUIT TO INSTALL CONDUCTORS FROM PROPOSED STAIR WELL LIGHT SWITCH TO CONTROL CENTER AS SHOWN, SPECIFIED, AND REQUIRED.

ROMAN D. KORCHAK, P.E. #42626
ELECTRICAL SECTION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: LRG
DRN: LRG
CKD: RK
DATE: 2/18/11

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION REHABILITATION
SECTION A-A

W.O. 4511
SHEET E13

B069-184

NOTES:

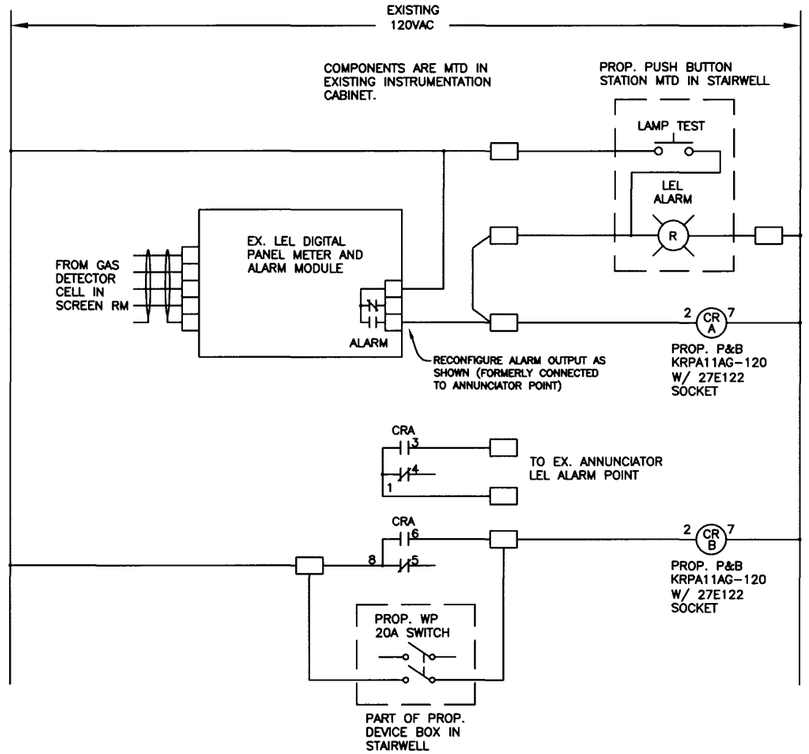
1. THE WET WELL LIGHT SWITCH SHALL CONNECT TO THE EXISTING SUPPLY FAN (S–1, S–2) CONTROLS LOCATED IN THE CONTROL CENTER. FAN OPERATION IS DEPENDENT ON THE EXISTING H/O/A AND SPEED SWITCHES AS FOLLOWS:

AUTO– FAN OPERATES ON LOW SPEED UNTIL THE SCREEN ROOM LIGHTS ARE TURNED ON OR 25% LEL ALARM IS REACHED. SUPPLY FAN WILL THEN RUN AT HIGH SPEED UNTIL LIGHTS ARE TURNED OFF.

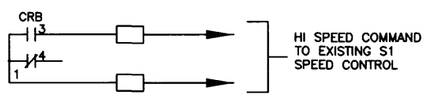
MAN.– FAN OPERATES CONTINUOUSLY ON HIGH SPEED AS SELECTED ON MCC.

OFF – FAN IS TURNED OFF.

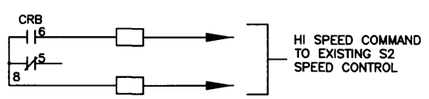
2. RUN A PROPERLY SIZED BONDING CONDUCTOR IN ALL CONDUITS.



SUPPLY FAN S1



SUPPLY FAN S2



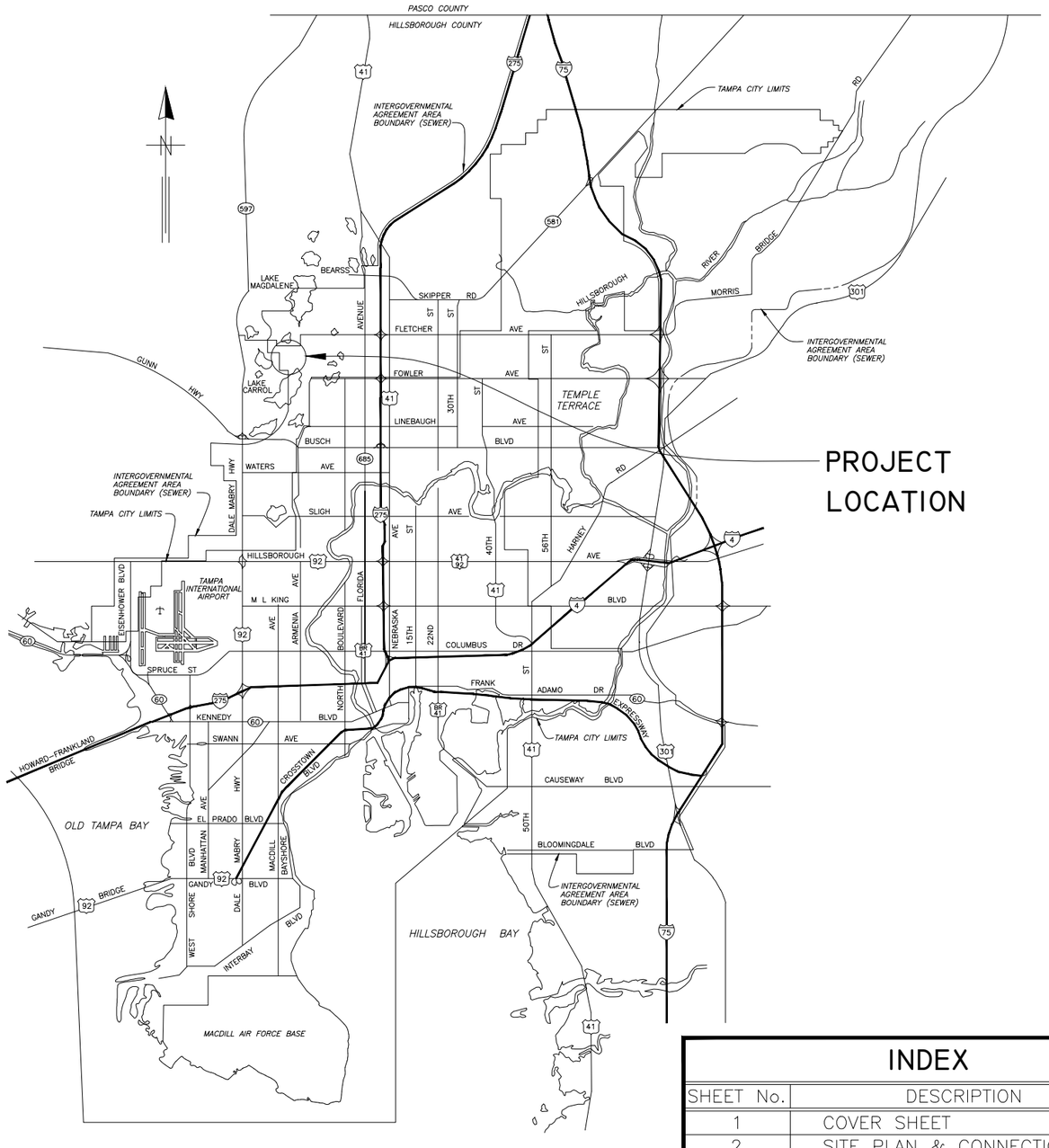
PROJECT RECORD

BLOWER SPEED CONTROL AND LEL ALARM

ROMAN D. KORCHAK, P.E. #42626 ELECTRICAL SECTION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: LRG DRN: LRG CKD: RK DATE: 2/18/11	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION SCREEN ROOM SUPPLY FAN SCHEMATIC	W.O. 4511 SHEET E14
	3						
	2						
	1						

B088-103

LOCATION MAP



PROJECT LOCATION

CITY of TAMPA

CITY OF TAMPA FLORIDA
MASCOTTE
ORGANIZED JULY 15 1887

WASTEWATER DEPARTMENT

PLANS FOR

UNIVERSITY PUMPING STATION EMERGENCY REPAIRS

W.O. No. 1000801

INDEX

SHEET No.	DESCRIPTION
1	COVER SHEET
2	SITE PLAN & CONNECTION DETAIL
3	DEMOLITION PLAN
4	PROPOSED PLAN

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: J.F.
DRN: BB
CKD:
DATE:

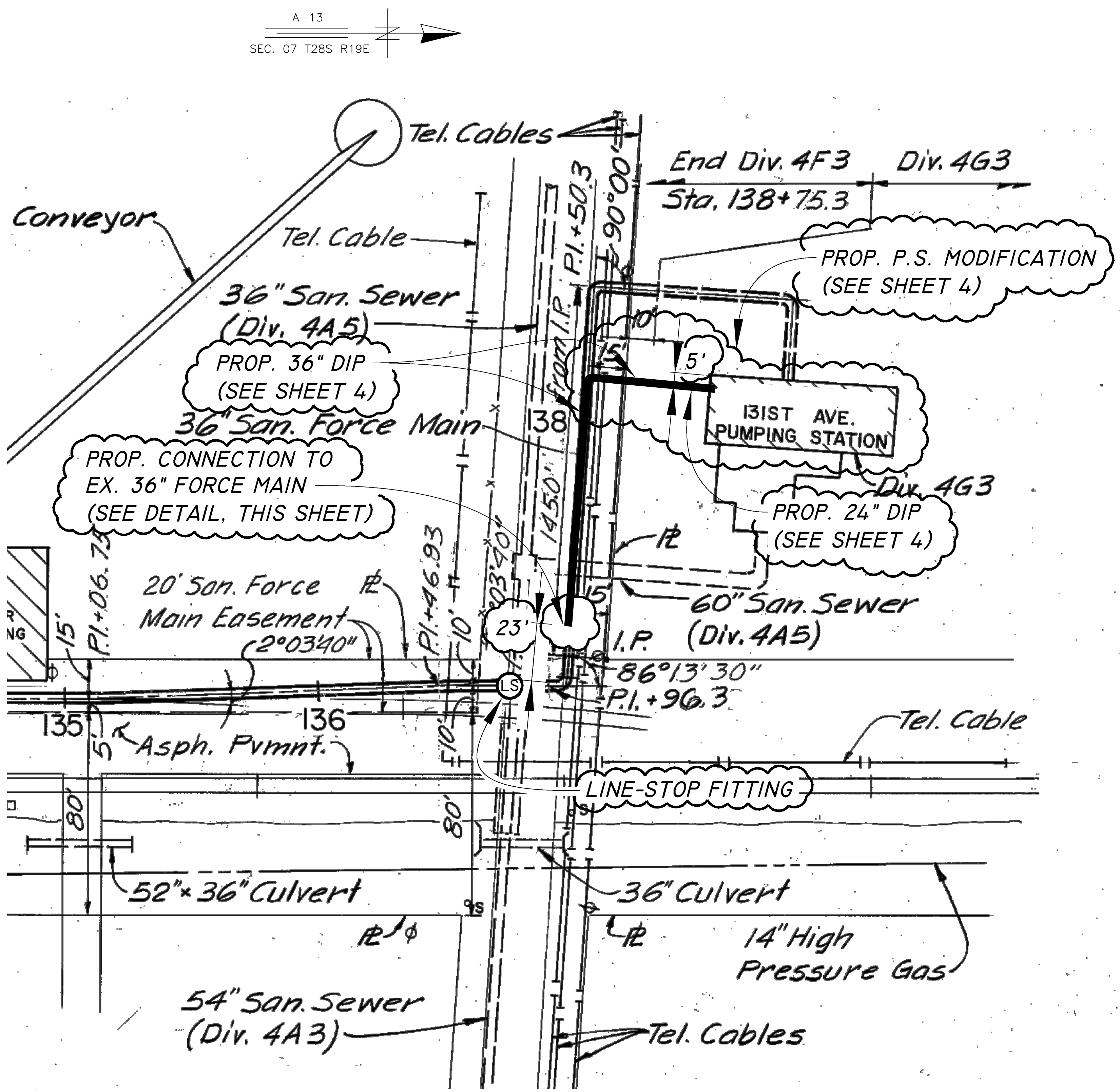
CITY of TAMPA
WASTEWATER DEPARTMENT

COVER SHEET

W.O.1000801
SHEET 1

Layout - Sep 30, 2015 - 7:59am

B088-104



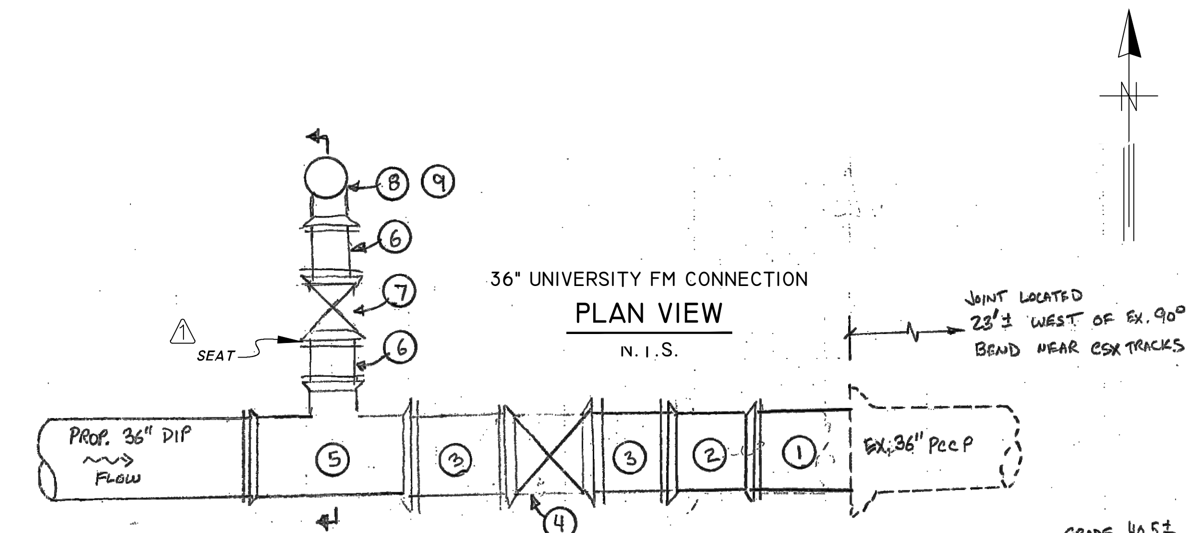
SITE PLAN

APPROXIMATE SCALE: I" = 50'

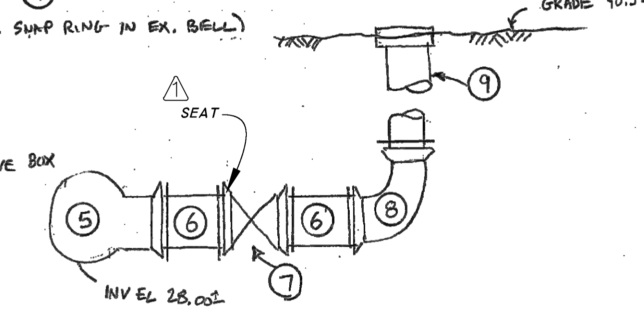
36" UNIVERSITY FM CONNECTION

PLAN VIEW

N.T.S.



1. PCCP ADAPTOR – PCCP SPIGOT x DIP OD SPIGOT (INSTALL SNAP RING IN EX. BELL)
2. 36" SOLID SLEEVE (RMJ/RMJ)
3. 36" DIP SPOOL PC. (PE/PE)
4. 36" GATE VALVE (RMJ/RMJ) MOUNT VERTICAL W/ VALVE BOX
5. 36" x 24" TEE (RMJ)
6. 24" DIP SPOOL PC (PE/PE)
7. 24" PLUG VALVE (RMJ/RMJ) W/ VALVE BOX
8. 24" 90° BEND (RMJ/RMJ)
9. 24" DIP SPOOL PC (PE/FL) W/ BLIND FLANGE



SECTION VIEW

N.T.S.

PROPOSED CONNECTION DETAIL

NOT TO SCALE

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
⚠	09/30/15	SHOW SEAT–SIDE OF PROPOSED PLUG VALVES

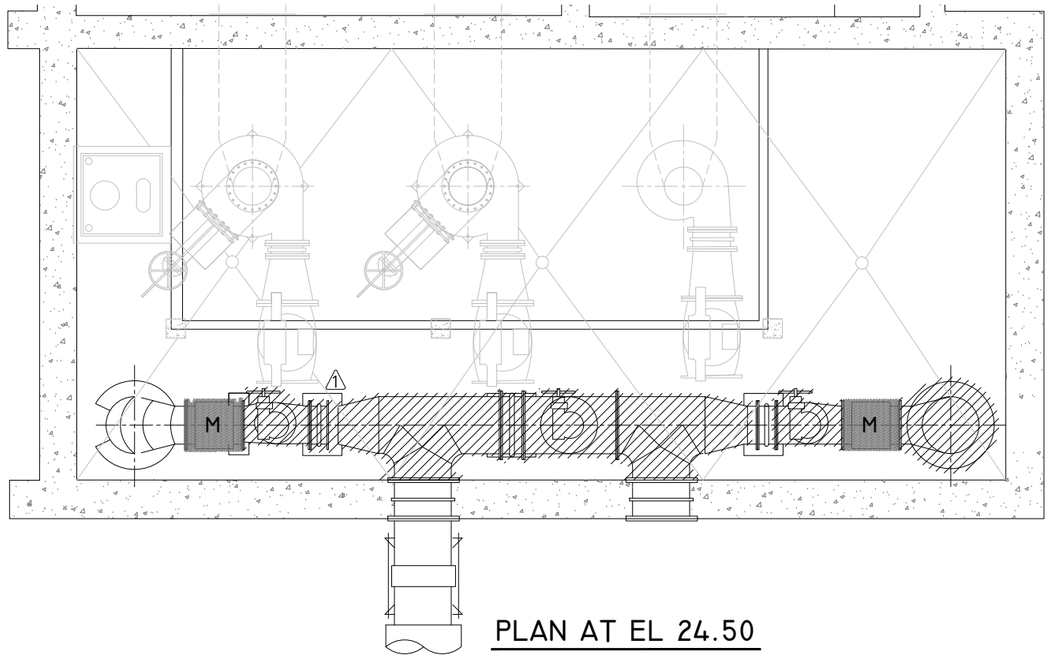
DES: J.F.
DRN: J.F./BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
EMERGENCY REPAIRS
SITE PLAN AND PROPOSED CONNECTION

W.O.1000801
SHEET 2

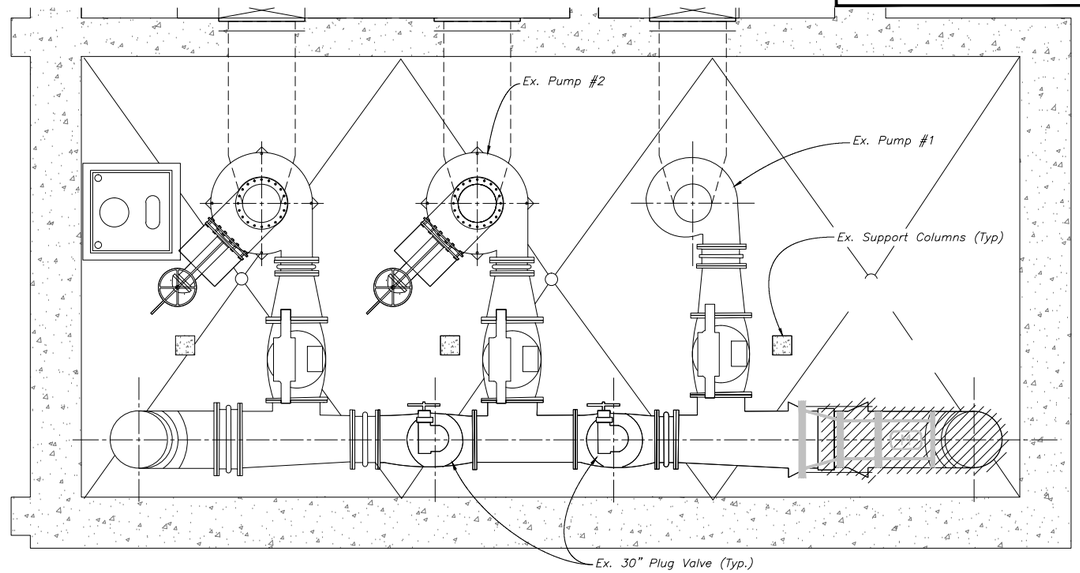
B088-105



PLAN AT EL 24.50

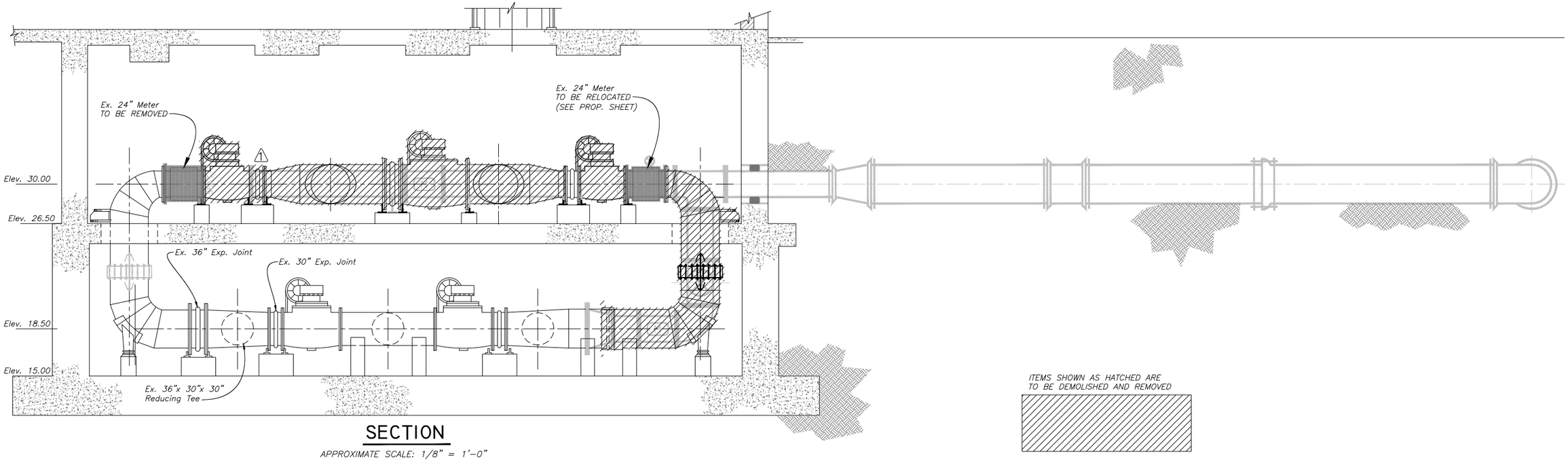
APPROXIMATE SCALE: 1/8" = 1'-0"

A-13
SEC. 07 T28S R19E



PLAN AT EL.15.00

APPROXIMATE SCALE: 1/8" = 1'-0"



SECTION

APPROXIMATE SCALE: 1/8" = 1'-0"

ITEMS SHOWN AS HATCHED ARE
TO BE DEMOLISHED AND REMOVED

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1	09/30/15	HATCHED N. EXPANSION JOINT (TO BE REMOVED)

DES: J.F.
DRN: BB
CKD:
DATE:

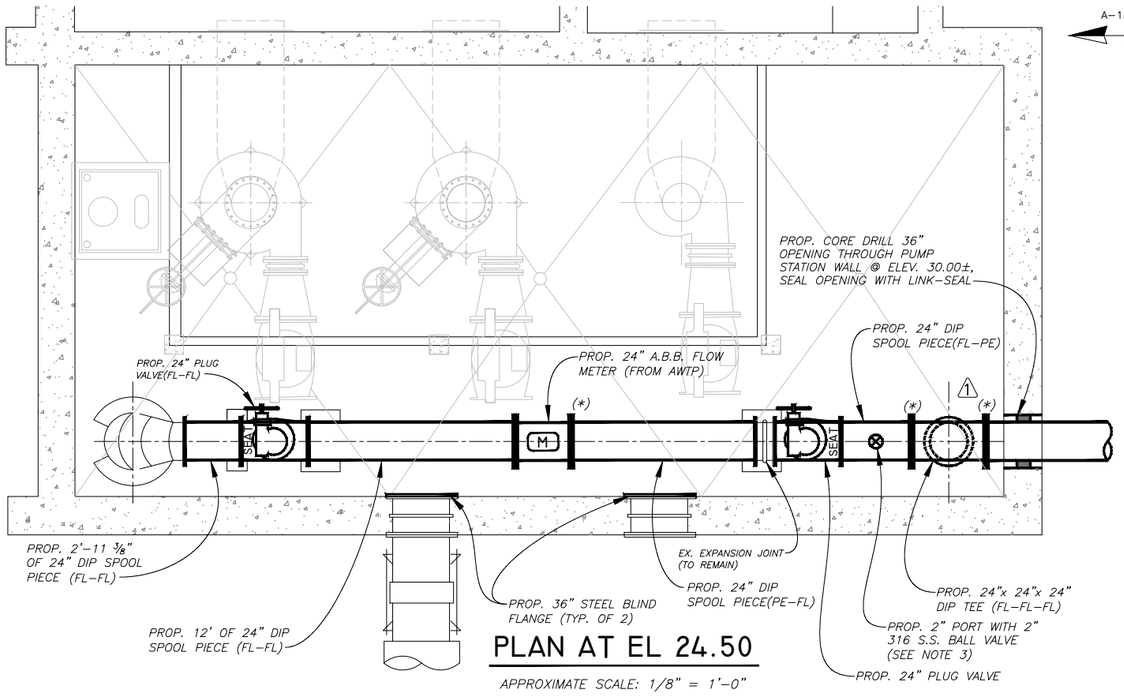
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
EMERGENCY REPAIRS
DEMOLITION PLAN AND SECTION

W.O.1000801
SHEET
3

Layout– Sep 30, 2015 – 2:56pm

B088-106

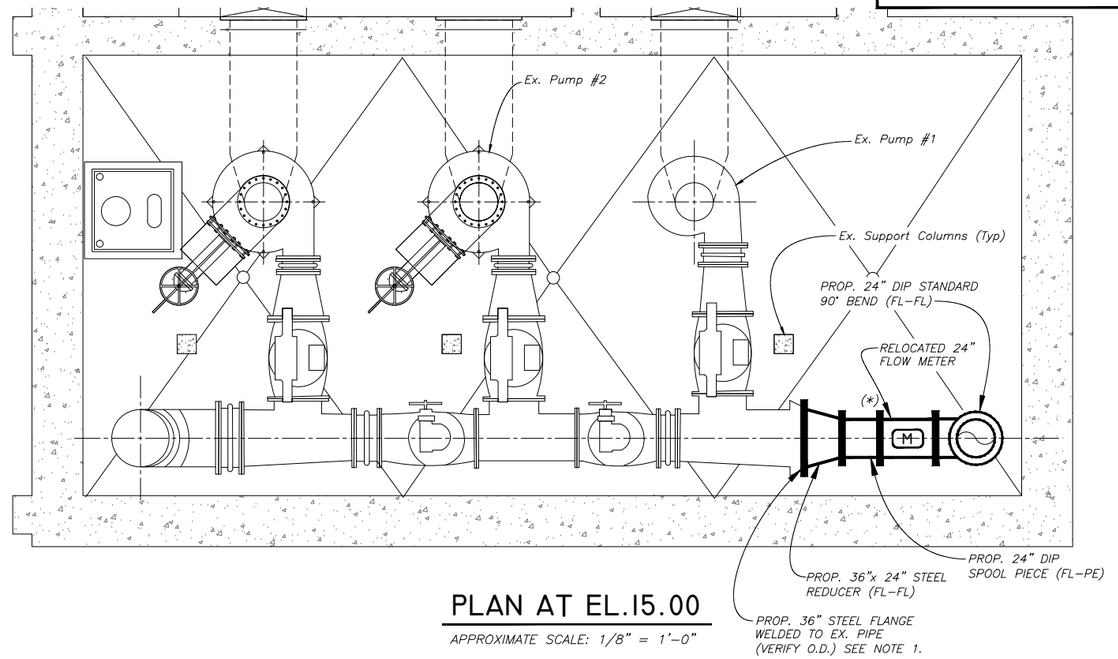


PLAN AT EL 24.50

APPROXIMATE SCALE: 1/8" = 1'-0"

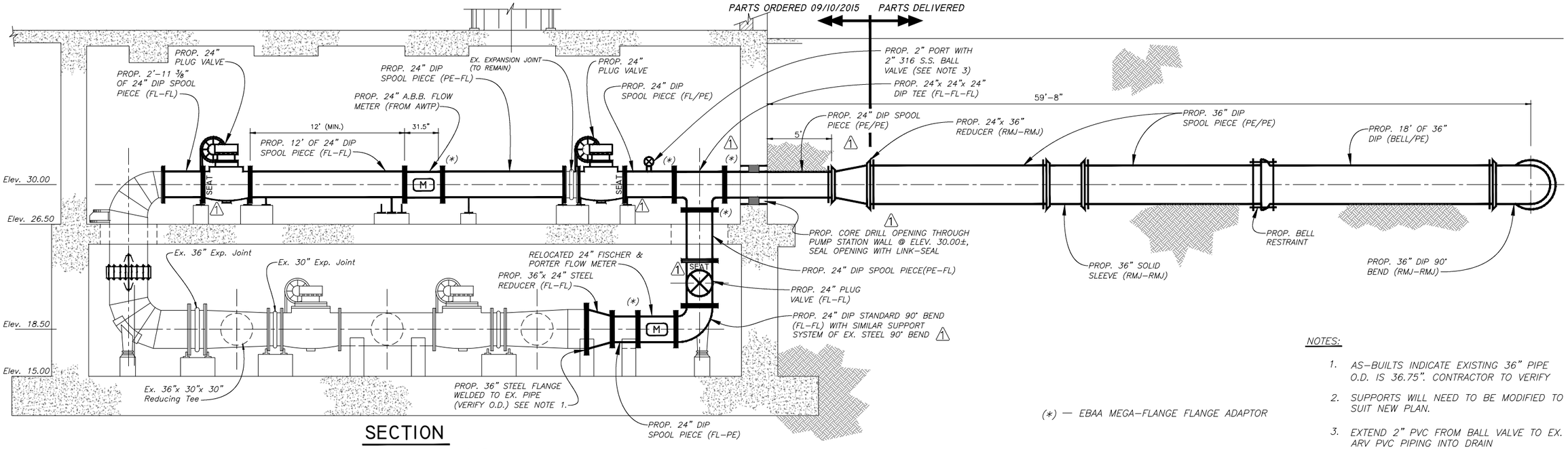
A-13

SEC. 07 T28S R19E



PLAN AT EL.15.00

APPROXIMATE SCALE: 1/8" = 1'-0"



SECTION

APPROXIMATE SCALE: 1/8" = 1'-0"

(*) — EBAA MEGA-FLANGE FLANGE ADAPTOR

NOTES:

1. AS-BUILTS INDICATE EXISTING 36" PIPE O.D. IS 36.75". CONTRACTOR TO VERIFY
2. SUPPORTS WILL NEED TO BE MODIFIED TO SUIT NEW PLAN.
3. EXTEND 2" PVC FROM BALL VALVE TO EX. ARV PVC PIPING INTO DRAIN

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1	09/30/15	SHOW SEAT-SIDE OF PROP. PLUG VALVES, PIPE W/O EXPANSION JOINTS & MISC. REVISIONS

DES: J.F.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

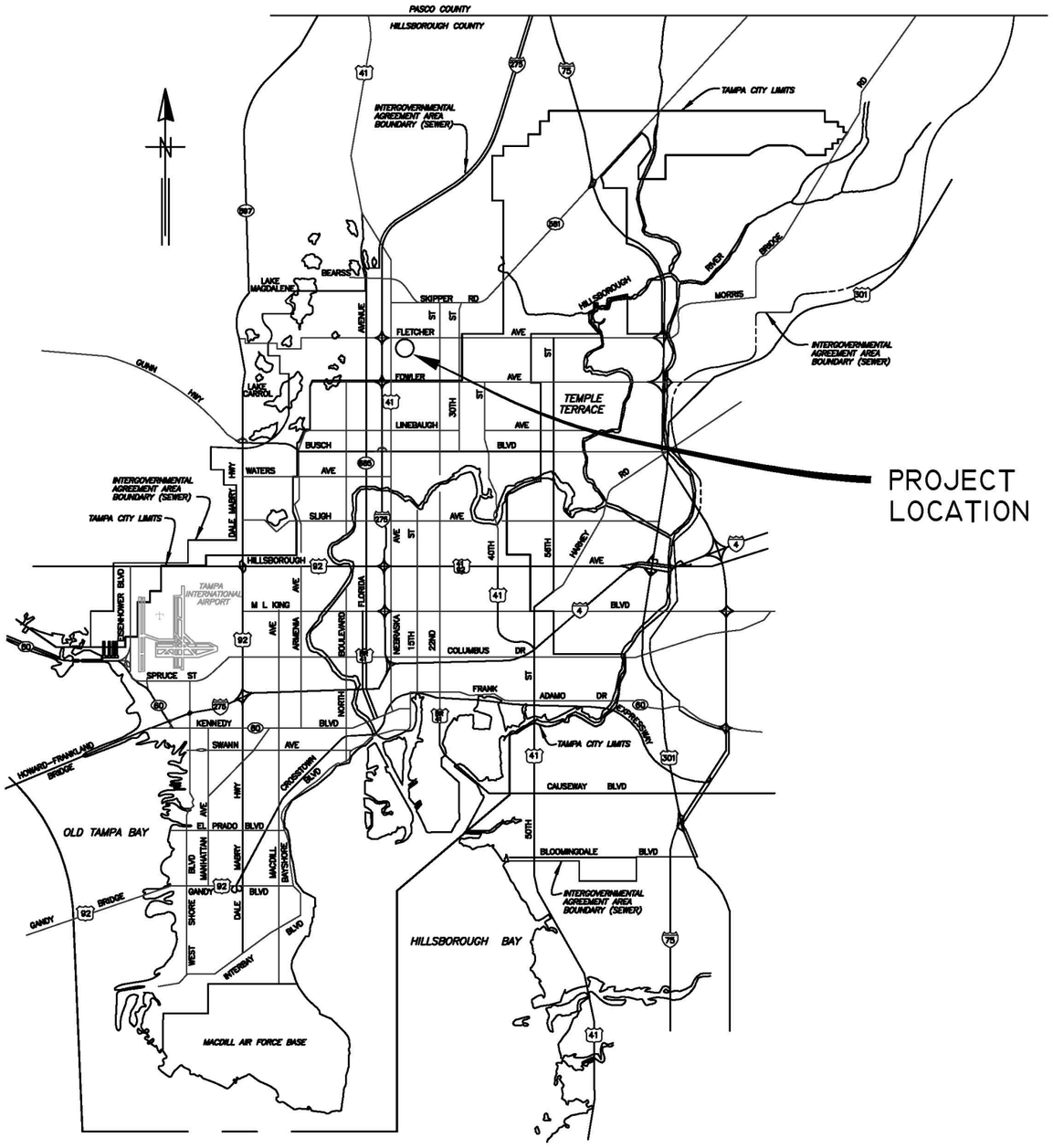
UNIVERSITY PUMPING STATION EMERGENCY REPAIRS PROPOSED PLAN AND SECTION

W.O.1000801
SHEET 4

Layout - Sep 30, 2015 - 2:56pm

B085-001

LOCATION MAP



CITY of TAMPA

CITY OF TAMPA FLORIDA
MASCOTTE
ORGANIZED JULY 15 1887

WASTEWATER DEPARTMENT

PLANS FOR

UNIVERSITY PUMP STATION
ODOR CONTROL PLATFORM

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS	DES: RJ/TS DRN: BL CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION PROPOSED ODOR CONTROL PLATFORM	WO#1000089 SHEET 1 OF 7
	3						
	2						
	1						

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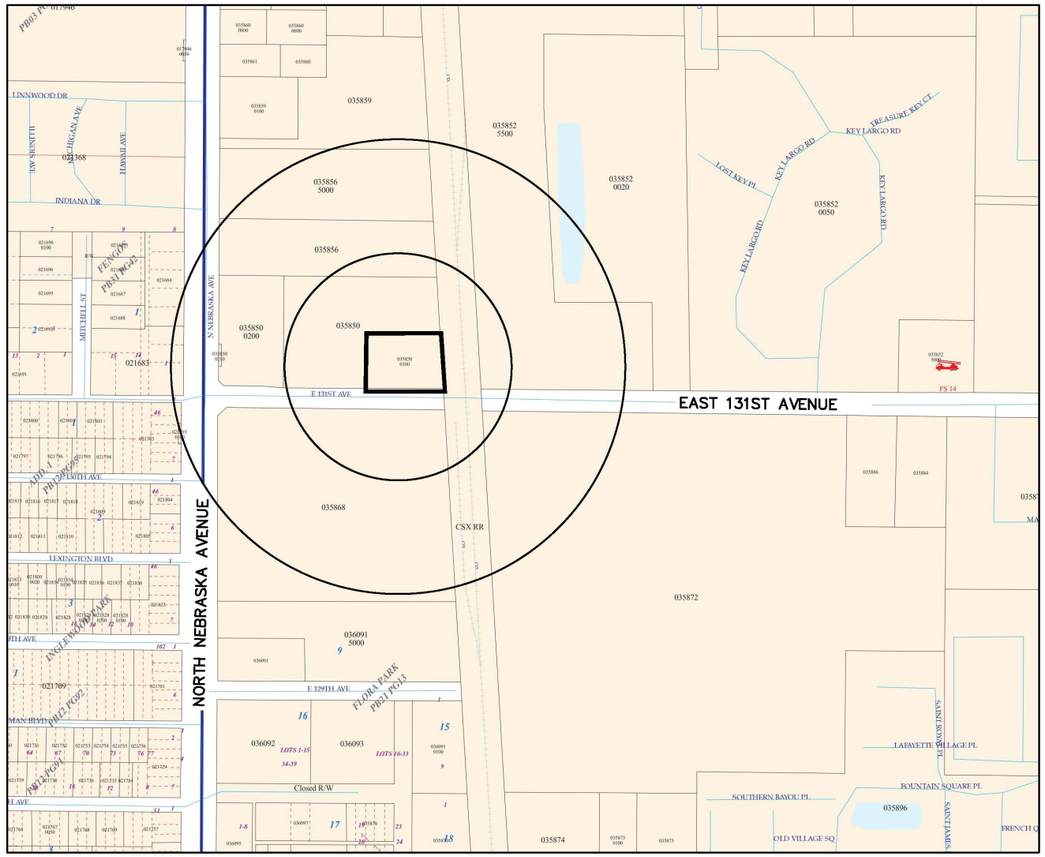
B085-002



PROJECT LOCATION
920 EAST 131ST AVENUE

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
1	COVER
2	INDEX, LOCATION MAP, NOTES
3	EXISTING SITE PLAN
4	PROPOSED PLATFORM PLAN VIEW
5	ISOMETRIC VIEW
6,7	ELEVATION VIEWS

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE WASTEWATER INSPECTOR, WASTEWATER PERSONNEL AND PUMP STATION OPERATOR.
2. NORMAL WORKING HOURS SHALL BE WEEKDAYS 7:30AM TO 4:00PM UNLESS OTHERWISE APPROVED BY THE ENGINEER.
3. CONTRACTOR SHALL VERIFY QUANTITIES OF ALL NECESSARY SUPPORTS, GRATING, RAILING, LADDERS AND HARDWARE.
4. DIMENSIONS SHOWN ARE NOT NECESSARILY ACCURATE TO THE DEGREE REQUIRED FOR FABRICATION. EXISTING DIMENSIONS AND VIEWS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT DIMENSIONS AND REFLECT THEM ON DETAILED SHOP DRAWINGS FOR APPROVAL BEFORE ANY FABRICATION.
5. SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE CITY FOR ALL PROPOSED ITEMS. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (CLEARLY LEGIBLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.
6. DURING CONSTRUCTION, CONTRACTOR SHALL MAINTAIN A CLEAR PATH TO EXISTING PUMPING STATION EQUIPMENT FOR CITY STAFF TO ACCESS AND MAINTAIN THE EXISTING PUMPING STATION.
7. OSHA STANDARD SAFETY EQUIPMENT SUCH AS SAFETY HARNESS,ESS, GAS MONITORS, LOWER EXPLOSIVE LIMIT (LEL) DETECTORS, BREATHING APPARATUS, ETC. SHALL BE UTILIZED WHERE THE WORK DICTATES THEIR USE.
8. ALL COMPONENTS OF THE PLATFORM (EXCEPT CONNECTING HARDWARE) SHALL BE FIBERGLASS. THE FIBERGLASS SHALL BE CAPABLE OF WITHSTANDING UV RAYS, CAUSTIC SODA, SODIUM HYPOCHLORITE, HYDROGEN SULFIDE AND CHLORINE. AT MINIMUM THE COMPONENTS SHALL BE EXTREN 625 VINYL ESTER OR APPROVED EQUAL.
9. GRATING SHALL BE PULTRUDED FIBERGLASS AND CAPABLE OF WITHSTANDING UV RAYS, CAUSTIC SODA, SODIUM HYPOCHLORITE, HYDROGEN SULFIDE AND CHLORINE. GRATING SHALL HAVE A NON-SLIP SURFACE AND SECURED USING STAINLESS STEEL CLIPS.
10. PLATFORM SHALL MEET OSHA STANDARDS AND ANY PERTINENT BUILDING CODES.
11. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
12. ALL CONNECTIONS SHALL BE FIXED AND RIGID.
13. PLATFORM SHALL BE DESIGNED TO CARRY A MINIMUM OF 40 PSF UNIFORM LOAD AND A 300 LB CONCENTRATED LOAD WITH APPROPRIATE SAFETY FACTORS AND HAVE A MAXIMUM DEFLECTION OF 1/4".
14. PLATFORM SHALL BE DESIGNED TO CARRY A MINIMUM 1000 LB LATERAL LOAD AT THE TOP OF THE PLATFORM
15. VERTICAL SUPPORT MEMBERS SHALL BE PLACED IN A MANNER THAT MINIMIZES INTERFERENCES WITH MAINTENANCE ACTIVITY AND WITHIN THE WASHDOWN TROUGH AREA, AS DETERMINED BY THE ENGINEER.
16. PLATFORM SHALL ALLOW EASY ACCESS TO BOTH UPPER AND LOWER ACCESS PORTS AS DEPICTED ON PLANS.
17. PLATFORM SHALL HAVE TWO (2) LADDERS AS DEPICTED ON PLANS.
18. PLATFORM GRATING SHALL BE 14'-6" ABOVE WASHDOWN AREA GRADE.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
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DES: RJ/T.S.
DRN: B.L.
CKD:
DATE:

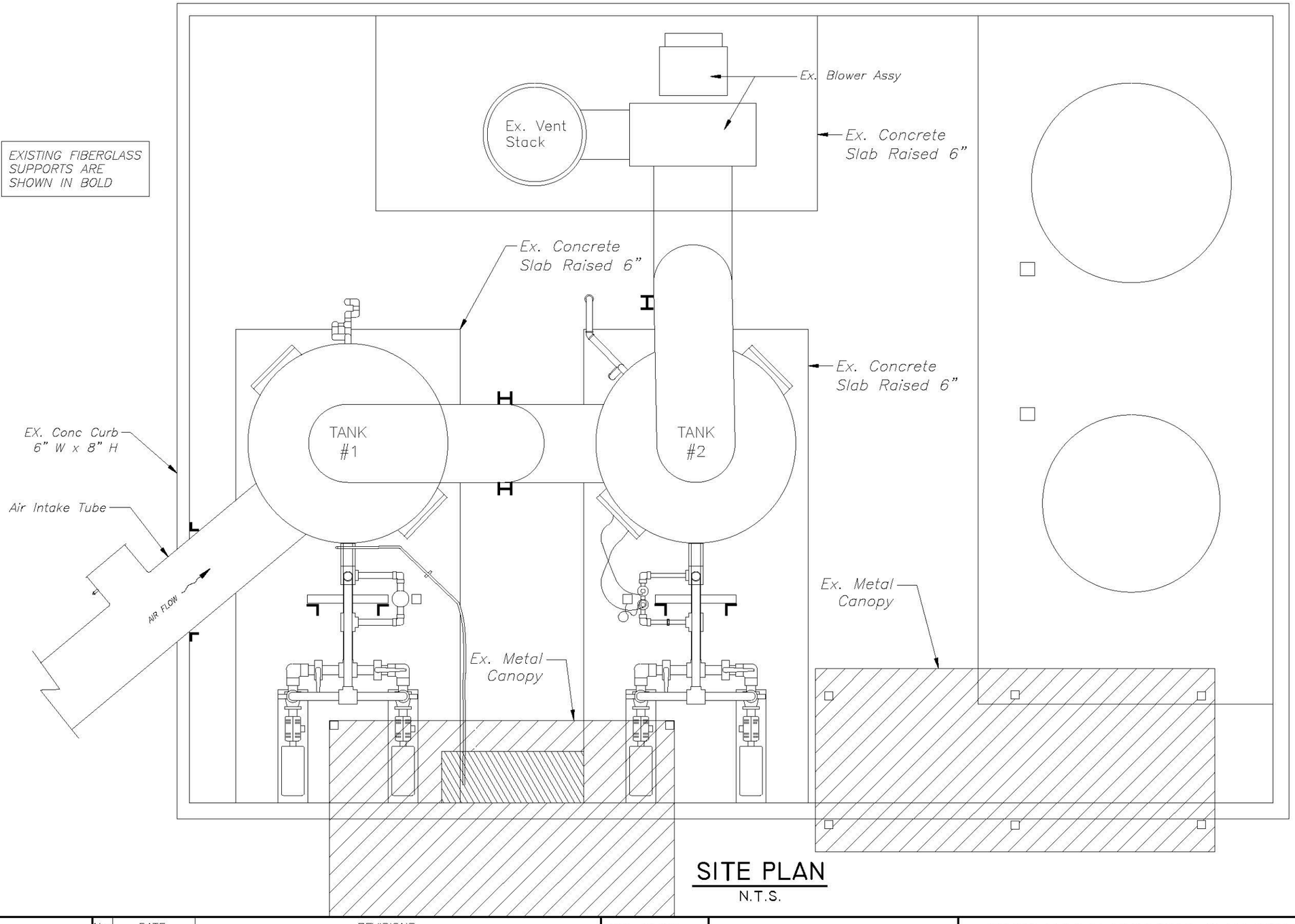
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION PROPOSED
ODOR CONTROL PLATFORM
INDEX, PROJECT LOCATION MAP, NOTES

WO#1000089
SHEET 2 OF 7

B085-003

EXISTING FIBERGLASS SUPPORTS ARE SHOWN IN BOLD



SITE PLAN
N.T.S.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: RJ/T.S.
DRN: B.L.
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION PROPOSED ODOR CONTROL PLATFORM EXISTING SITE PLAN

WO#1000089
SHEET 3 OF 7

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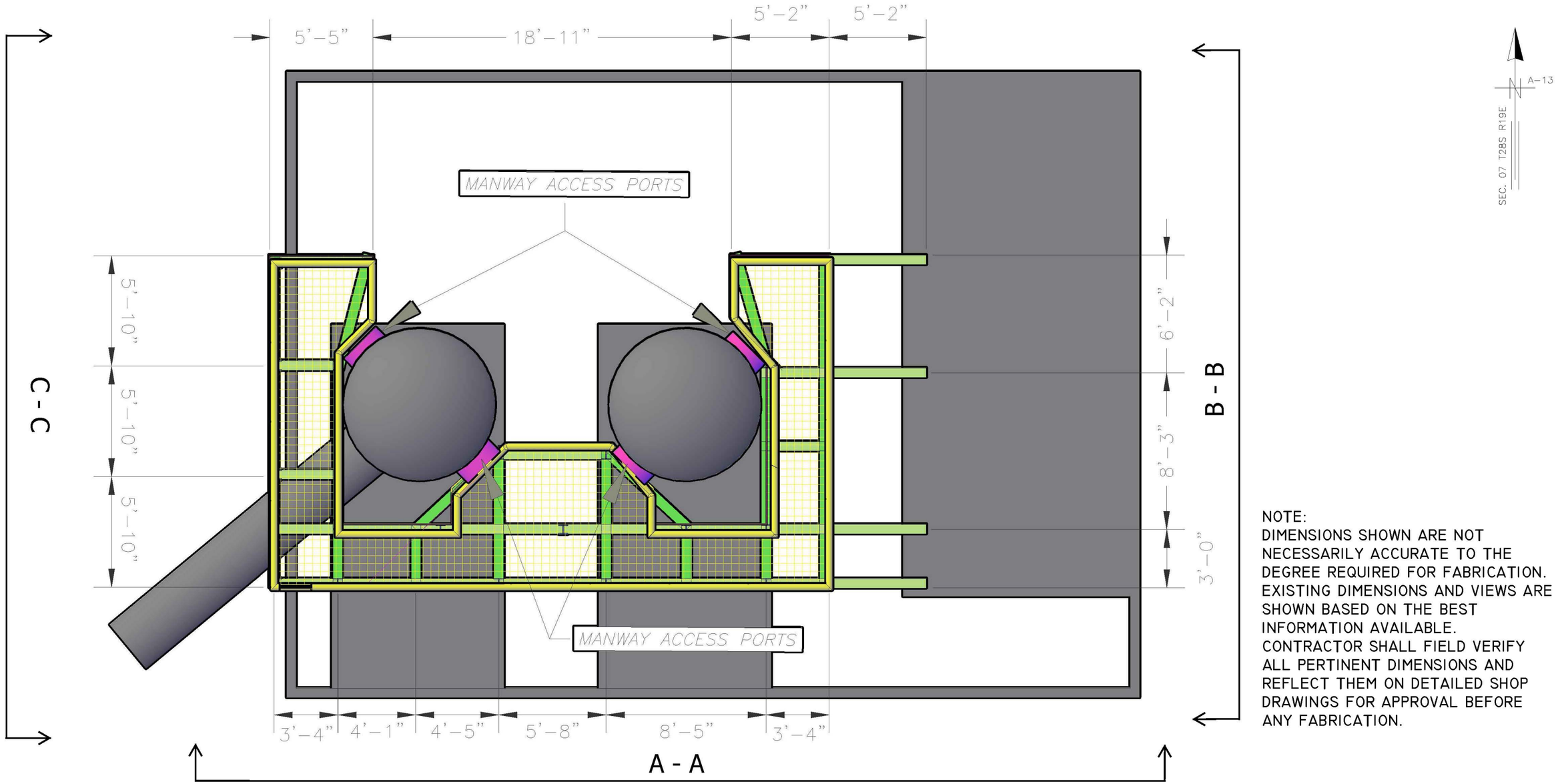

NOTE:
DIMENSIONS SHOWN ARE NOT NECESSARILY ACCURATE TO THE DEGREE REQUIRED FOR FABRICATION. EXISTING DIMENSIONS AND VIEWS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT DIMENSIONS AND REFLECT THEM ON DETAILED SHOP DRAWINGS FOR APPROVAL BEFORE ANY FABRICATION.

PLATFORM PLAN VIEW

N.T.S.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
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1		

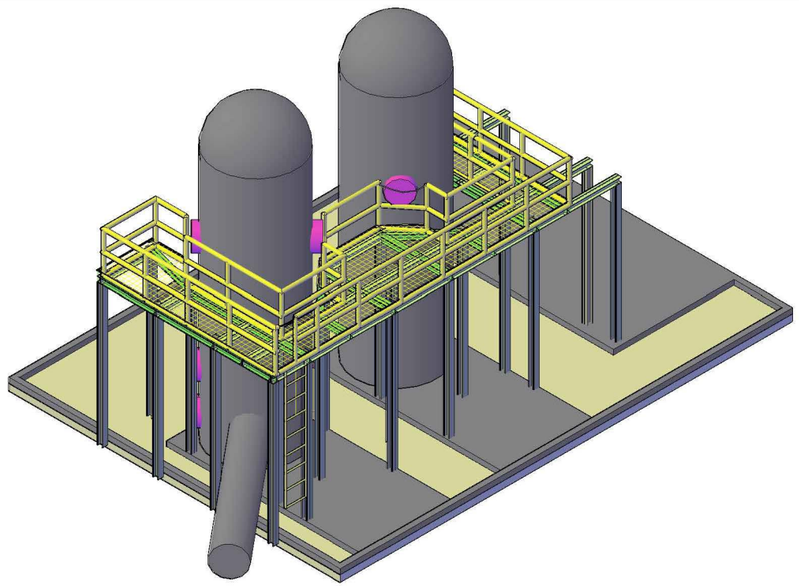
DES: RJ/TS
DRN: BL
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

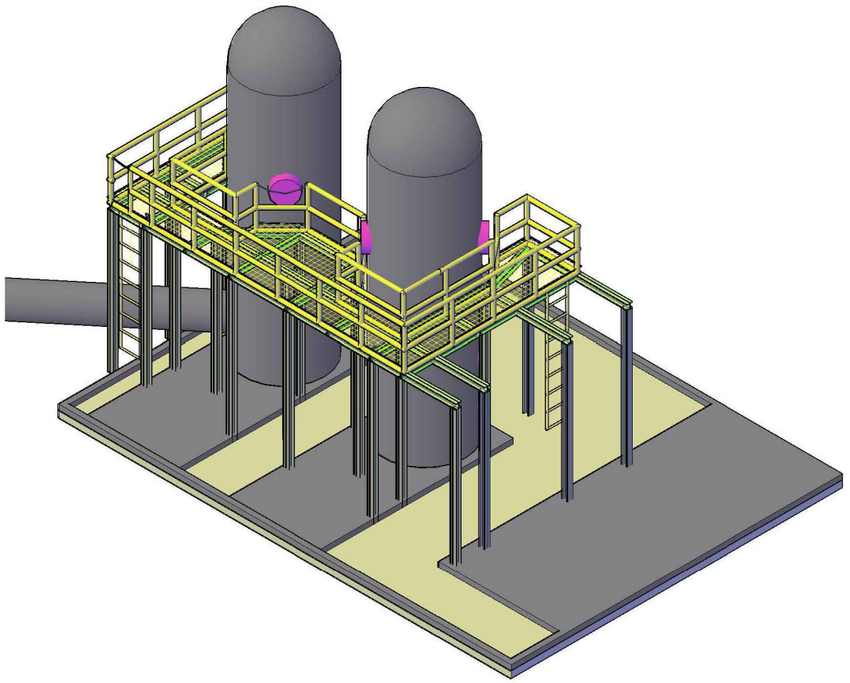
UNIVERSITY PUMPING STATION PROPOSED
ODOR CONTROL PLATFORM
PLAN VIEW

WO#1000089
SHEET 4 OF 7

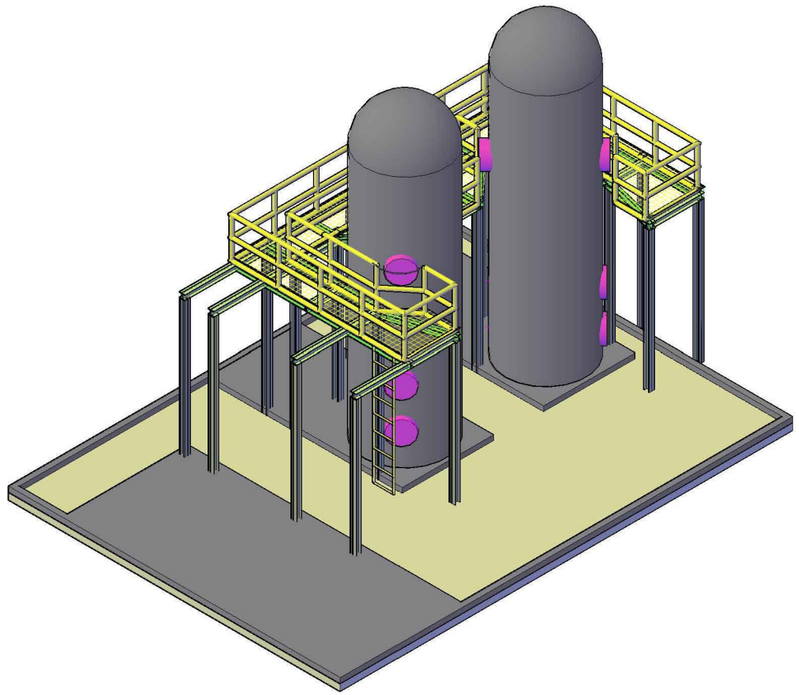
B085-005



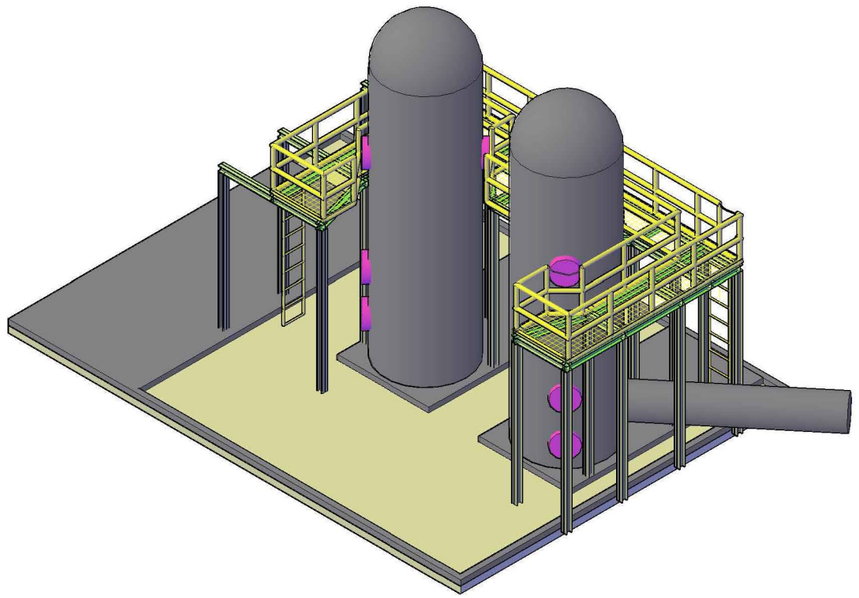
PLATFORM SW ISOMETRIC VIEW
N.T.S.



PLATFORM SE ISOMETRIC VIEW
N.T.S.



PLATFORM NE ISOMETRIC VIEW
N.T.S.



PLATFORM NW ISOMETRIC VIEW
N.T.S.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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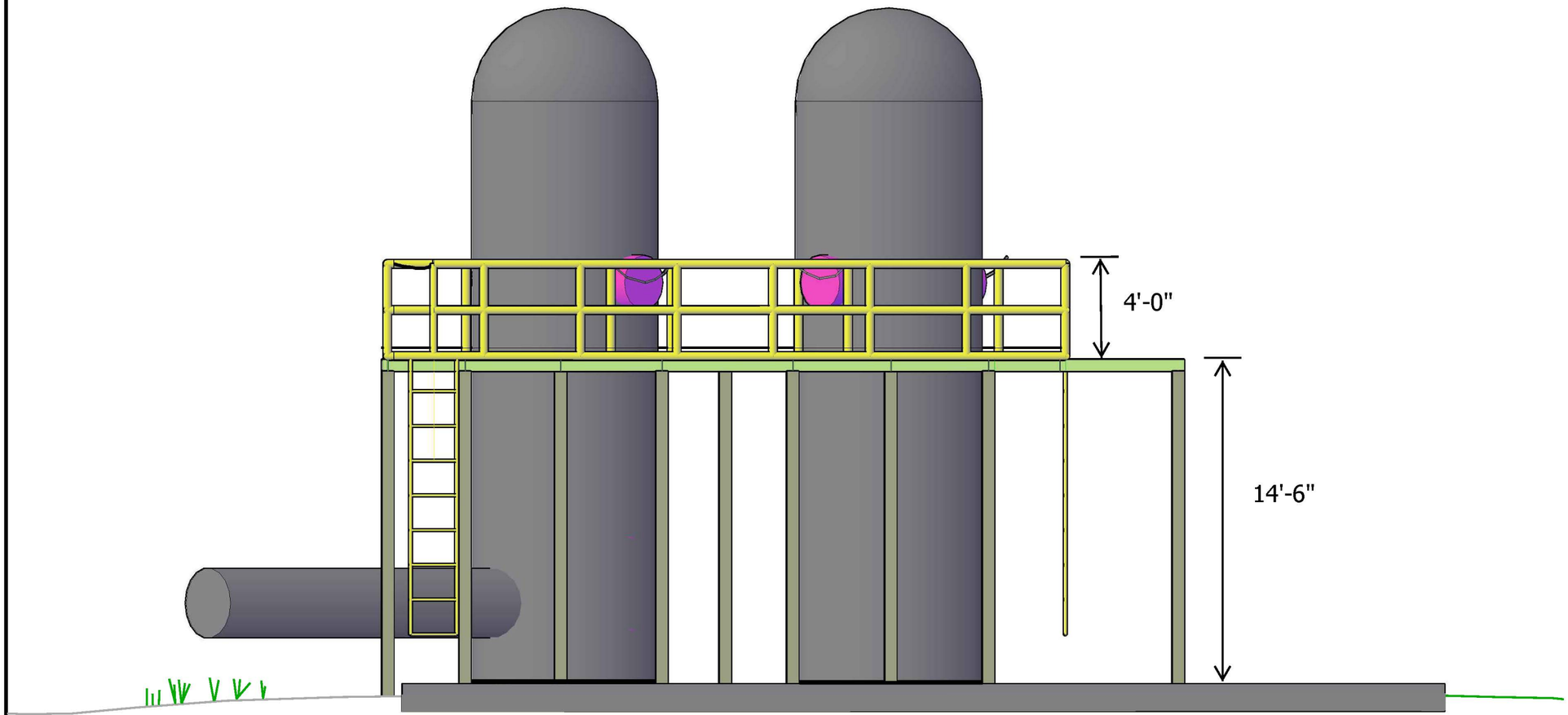
DES: RJ/TS
DRN: BL
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION PROPOSED
ODOR CONTROL PLATFORM
ISOMETRIC VIEWS

WO#1000089
SHEET 5 OF 7

B085-006



NOTE:
DIMENSIONS SHOWN ARE NOT NECESSARILY ACCURATE TO THE DEGREE REQUIRED FOR FABRICATION. EXISTING DIMENSIONS AND VIEWS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT DIMENSIONS AND REFLECT THEM ON DETAILED SHOP DRAWINGS FOR APPROVAL BEFORE ANY FABRICATION.

PLATFORM ELEVATION A-A

N.T.S.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
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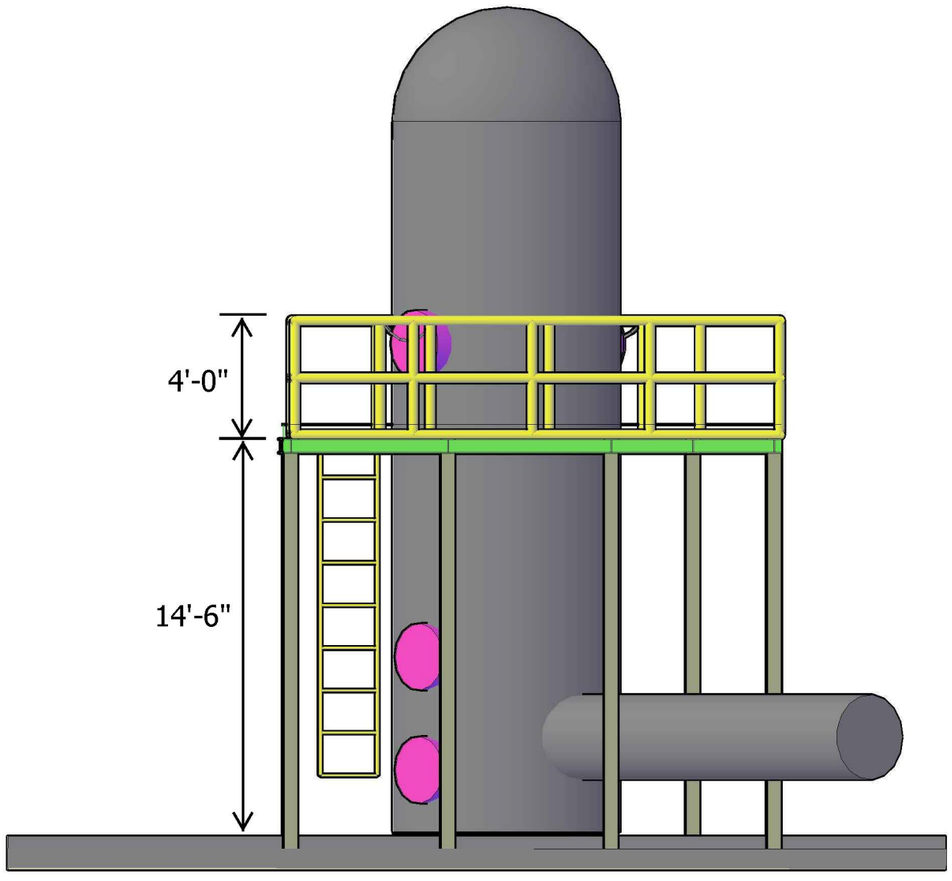
DES:
DRN:
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION PROPOSED
ODOR CONTROL PLATFORM
FRONT ELEVATION

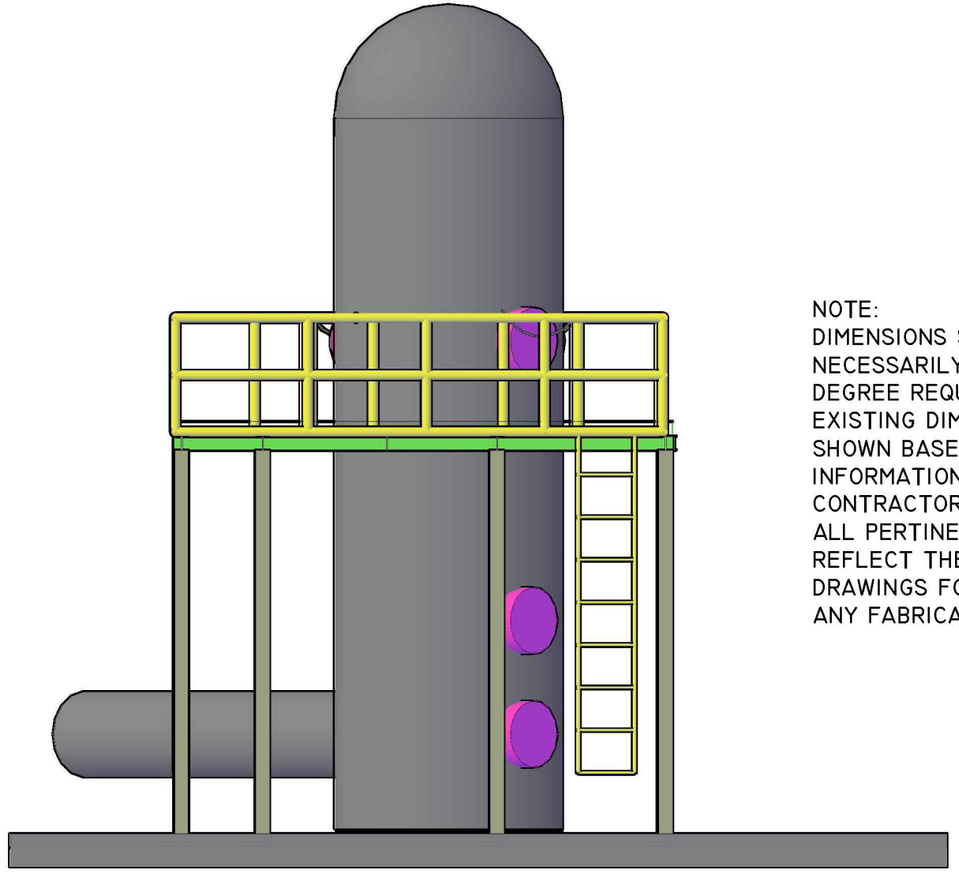
WO#1000089
SHEET 6 OF 7

B085-007



PLATFORM ELEVATION C-C

N.T.S.



PLATFORM ELEVATION B-B

N.T.S.

NOTE:
DIMENSIONS SHOWN ARE NOT NECESSARILY ACCURATE TO THE DEGREE REQUIRED FOR FABRICATION. EXISTING DIMENSIONS AND VIEWS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT DIMENSIONS AND REFLECT THEM ON DETAILED SHOP DRAWINGS FOR APPROVAL BEFORE ANY FABRICATION.

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES:
DRN:
CKD:
DATE:

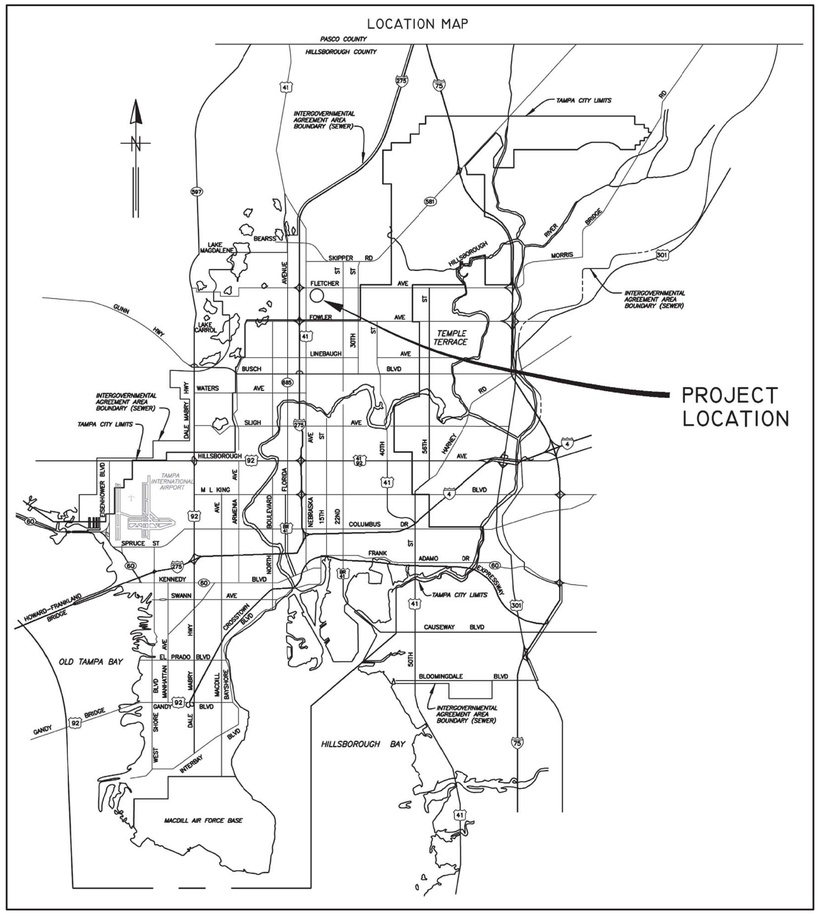
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION PROPOSED
ODOR CONTROL PLATFORM
SIDE ELEVATIONS

WO#1000089
SHEET 7 OF 7

B085-001A

SECTION 7, TOWNSHIP 28S, RANGE 19E
HILLSBOROUGH COUNTY, FLORIDA



PROJECT LOCATION
920 EAST 131ST AVENUE

SURVEYOR'S NOTES:

1. THE BASIS OF ELEVATIONS FOR THIS SURVEY IS BASED ON THE PAD ITSELF; HAVING A PERIMETER WALL WITH TOP ELEVATION ASSUMED TO BE 10.00'.
2. FIELD SURVEY WORK WAS PERFORMED ON MARCH 12, 2016 AND IS CONTAINED IN FIELD BOOK #1601, P. 63.
3. THE PURPOSE OF THIS SURVEY IS TO SHOW LOCATIONS OF NEWLY CONSTRUCTED PLATFORM SUPPORT BEAMS AS THEY RELATE TO CONCRETE PLATFORM.
4. USE OF THIS SURVEY BY ANYONE OTHER THAN THOSE PREPARED FOR/CERTIFIED TO, WILL BE THE RE-USERS SOLE RISK WITHOUT LIABILITY TO THE SURVEYOR.

SHEET LIST

SHEET 1: COVER
SHEET 2: AS-BUILT LOCATIONS FOR NEWLY CONSTRUCTED SUPPORT BEAMS

AS-BUILT SURVEY

UNIVERSITY PUMP STATION

CITY OF TAMPA

DATE	NO.	REVISION
3/25/2016	0	ORIGINAL DRAWING

FOR THE BENEFIT OF:
LEISURE CONSTRUCTION
1301 SEMINOLE BOULEVARD
LARGO, FLORIDA 33770

EMME Land Surveying, LLC.
1054 KAPP DRIVE, CLEARWATER, FLORIDA 33765-2111
OFFICE (727) 474-3751, FAX (727) 474-3753
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION LB NO. 7895
email: emmelandsurvey@gmail.com
web: www.emmelandsurveying.com

CERTIFIED AS A BOUNDARY AND TOPOGRAPHIC SURVEY
LAST DAY OF FIELD WORK: 03/12/2016

ELIZABETH KATHLEEN MERTA
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER NO. 6113

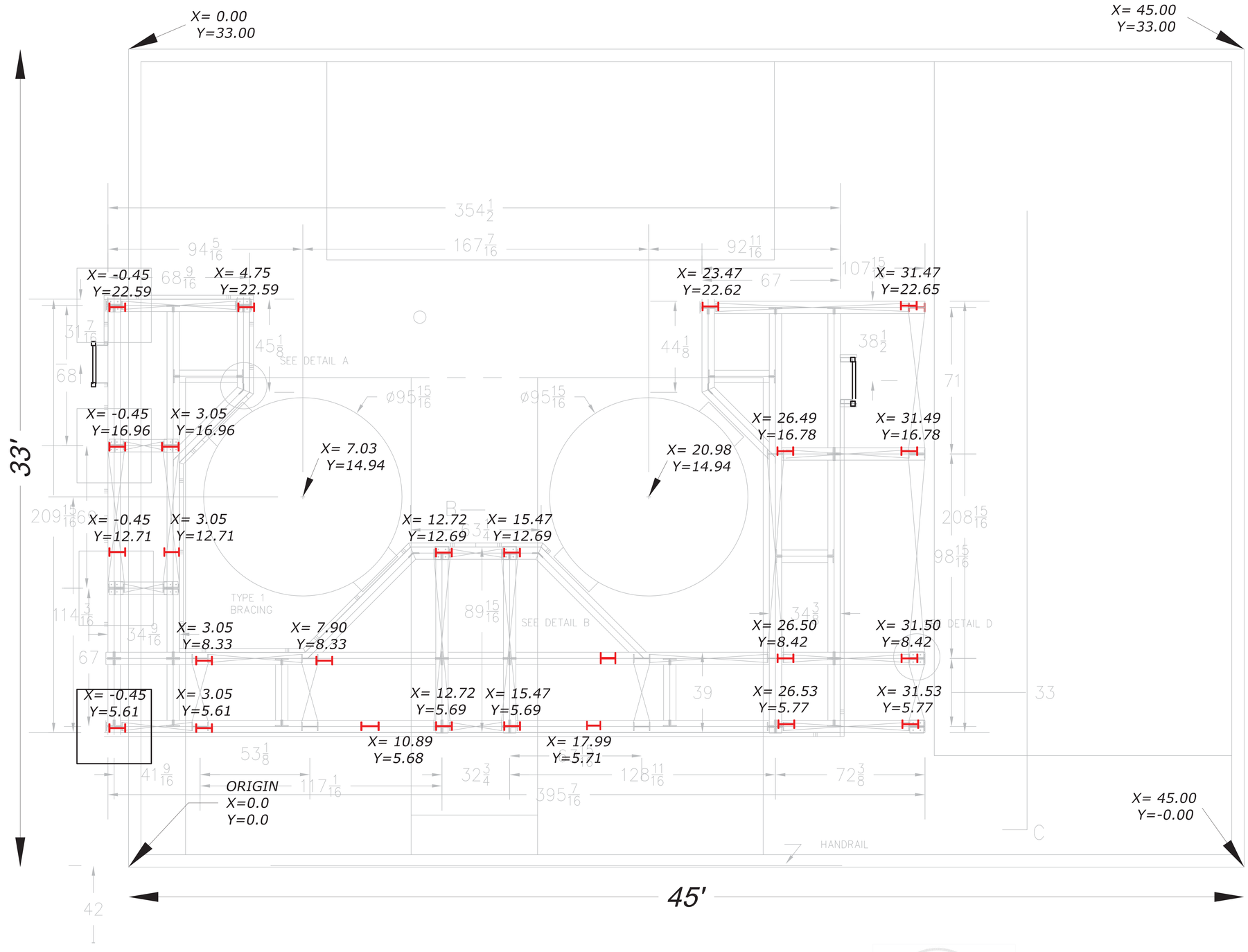
UNLESS IT BEARS THE SIGNATURE AND ELECTRONIC SEAL OR ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER; THIS DRAWING, SKETCH, PLAT OR MAP IS FOR INFOMATIONAL PURPOSES ONLY AND IS NOT VALID.

COVER
UNIVERSITY PUMP STATION

SCALE:	1" = 2'
DRAWN BY:	D.M.G.
CHECKED BY:	E.K.M.
JOB NO.	2015243

SHEET 1 OF 2

B085-001B



3/25/2016	0	ORIGINAL DRAWING	
DATE	NO.	REVISION	

FOR THE BENEFIT OF:

LEISURE CONSTRUCTION
1301 SEMINOLE BOULEVARD
LARGO, FLORIDA 33770

EMME Land Surveying, LLC.
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OFFICE (727) 474-3751, FAX (727) 474-3753
STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION LB NO. 7895
email: emmelandsurvey@gmail.com
web: www.emmelandsurveying.com

CERTIFIED AS A BOUNDARY AND TOPOGRAPHIC SURVEY
LAST DAY OF FIELD WORK: 06/09/2015

ELIZABETH KATHLEEN MERTA
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER NO. 6113

UNLESS IT BEARS THE SIGNATURE AND ELECTRONIC SEAL OR ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER, THIS DRAWING, SKETCH, PLAT, OR MAP IS FOR INFOMATIONAL PURPOSES ONLY AND IS NOT VALID.

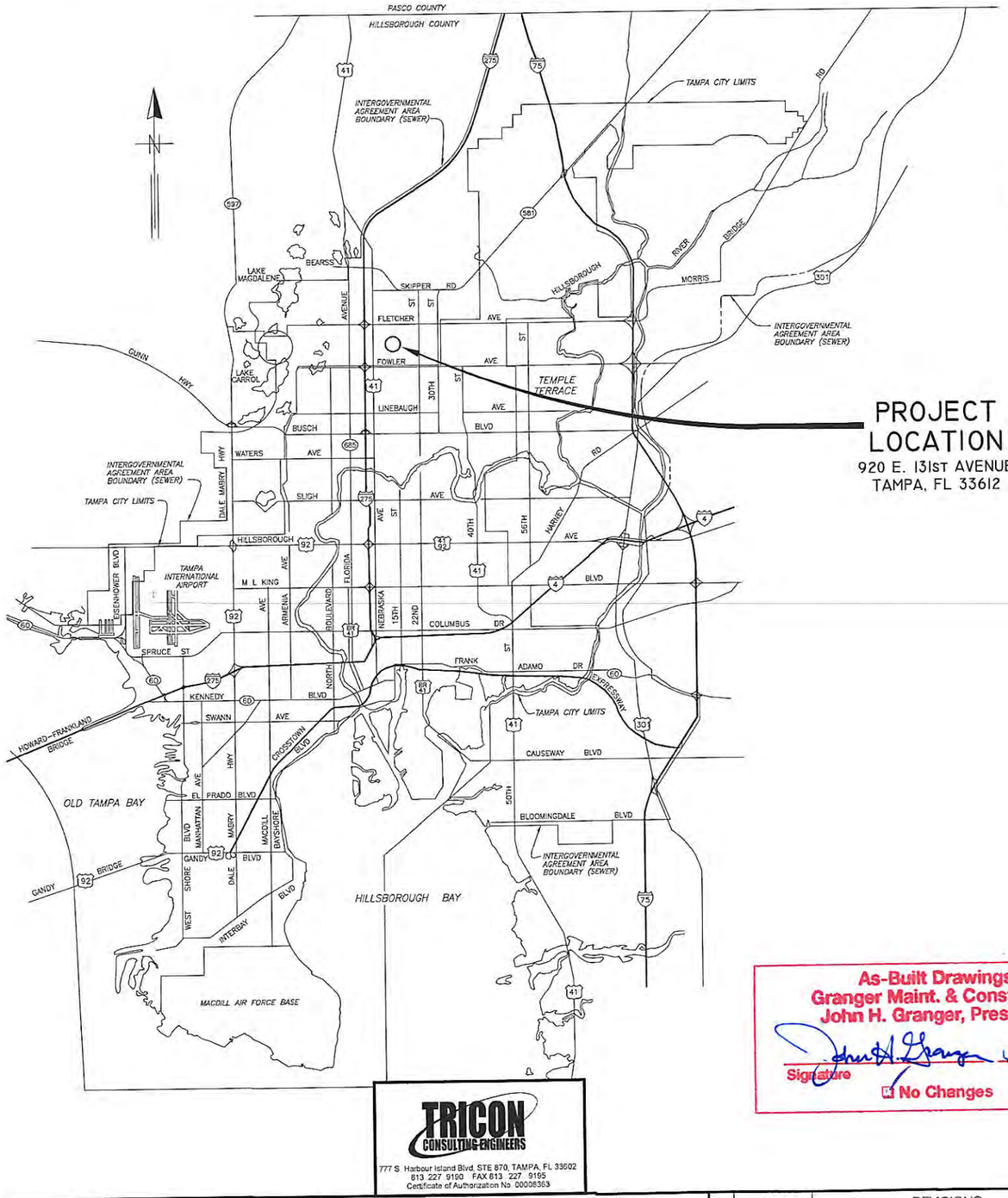
I BEAM SUPPORT LOCATIONS

UNIVERSITY PUMP STATION

SCALE:	1" = 2'
DRAWN BY:	D.G.
CHECKED BY:	E.K.M.
JOB NO.	2015243

SHEET 2 OF 2

LOCATION MAP



PROJECT LOCATION
920 E. 131ST AVENUE
TAMPA, FL 33612

CITY of TAMPA

CITY OF TAMPA FLORIDA
MASCOTTE
ORGANIZED JULY 15 1887

WASTEWATER DEPARTMENT

PLANS FOR

UNIVERSITY PUMPING STATION PUMP #1 REPLACEMENT

CONTRACT: 16-C-00019

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
Signature 6/22/2022 Date
☒ No Changes

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd. STE 870, TAMPA, FL 33602
813 227 9190 FAX 813 227 9195
Certificate of Authorization No 00008363

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

TIMOTHY D. THOMAS, PE – FPE 47079
TRICON CONSULTING ENGINEERS
ELECTRICAL / INSTRUMENTATION DESIGN

No.	DATE	REVISIONS
3		
2		
1		

DES: J.H.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

COVER SHEET

SHEET 1

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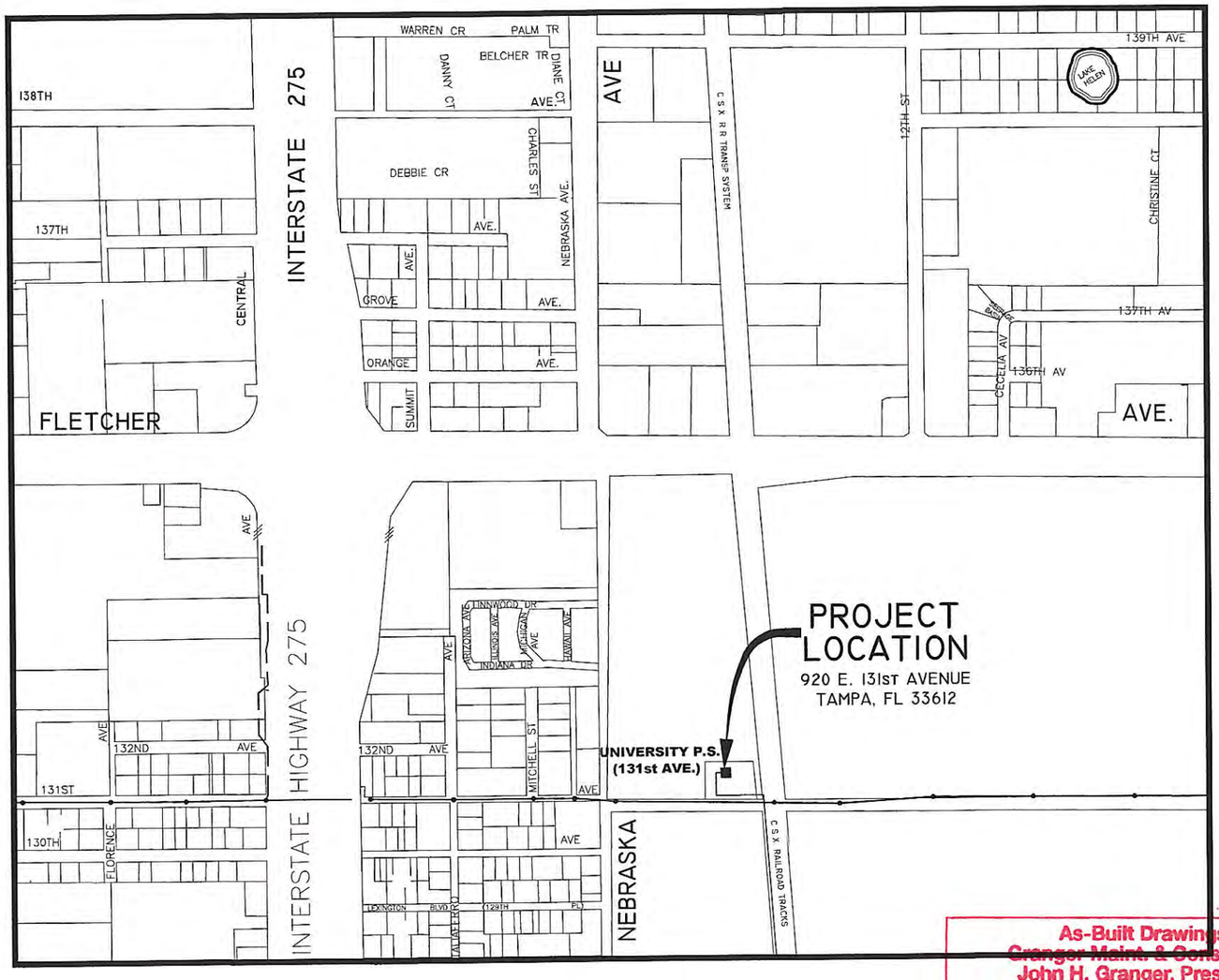

PROJECT MAP
NOT TO SCALE

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

INDEX

SH. No.	DESCRIPTION
1	COVER SHEET
2	INDEX & PROJECT MAP
3	SITE PLAN
4	GENERAL NOTES
5	DEMOLITION PLAN AT ELEV. 15.00 AND SECTION
6	DEMOLITION SECTION
7	PROPOSED PLAN AT ELEV. 15.00 AND SECTION
8	PROPOSED SECTION
9	MISCELLANEOUS PUMP ROOM DETAILS
10	WET WELL ISOLATION DETAILS
E0	ELECTRICAL – TIMING DIAGRAM, LEGEND & ABBREVIATIONS
E1	ELECTRICAL – ELECTRICAL POWER PLAN – ELEV. 41.25
E2	ELECTRICAL – ELECTRICAL POWER PLAN – ELEV. 15.00
E3	ELECTRICAL – ELECTRICAL POWER SECTION
E4	ELECTRICAL – CONTROL CENTER FRONT ELEVATION
E5	ELECTRICAL – SECTION 3 MODIFICATIONS
E6	ELECTRICAL – LLC AND VFD FRONT ELEVATIONS
E7	ELECTRICAL – ELECTRICAL ONE-LINE DIAGRAM
E8	ELECTRICAL – VFD INTERCONNECTIONS
E9	ELECTRICAL – PUMP No. 1 CONTROL PANEL
E10	ELECTRICAL – PUMP No. 1 CONTROLS (SHEET 1 OF 3)
E11	ELECTRICAL – PUMP No. 1 CONTROLS (SHEET 2 OF 3)
E12	ELECTRICAL – PUMP No. 1 CONTROLS (SHEET 3 OF 3)
E13	ELECTRICAL – PUMP No. 2 CONTROL PANEL
E14	ELECTRICAL – PUMP No. 2 CONTROLS (SHEET 1 OF 2)
E15	ELECTRICAL – PUMP No. 2 CONTROLS (SHEET 2 OF 2)
E16	ELECTRICAL – MOTOR CONTROL CENTER ELEVATION
E17	ELECTRICAL – ANNUNCIATOR PLC DETAILS
E18	ELECTRICAL – ANNUNCIATOR PLC WIRING DIAGRAMS
E19	ELECTRICAL – DISCRETE I/O WIRING DIAGRAMS
E20	ELECTRICAL – PROPOSED ANNUNCIATOR SCREENS
E21	ELECTRICAL – CONDUIT AND CABLE SCHEDULE

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JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

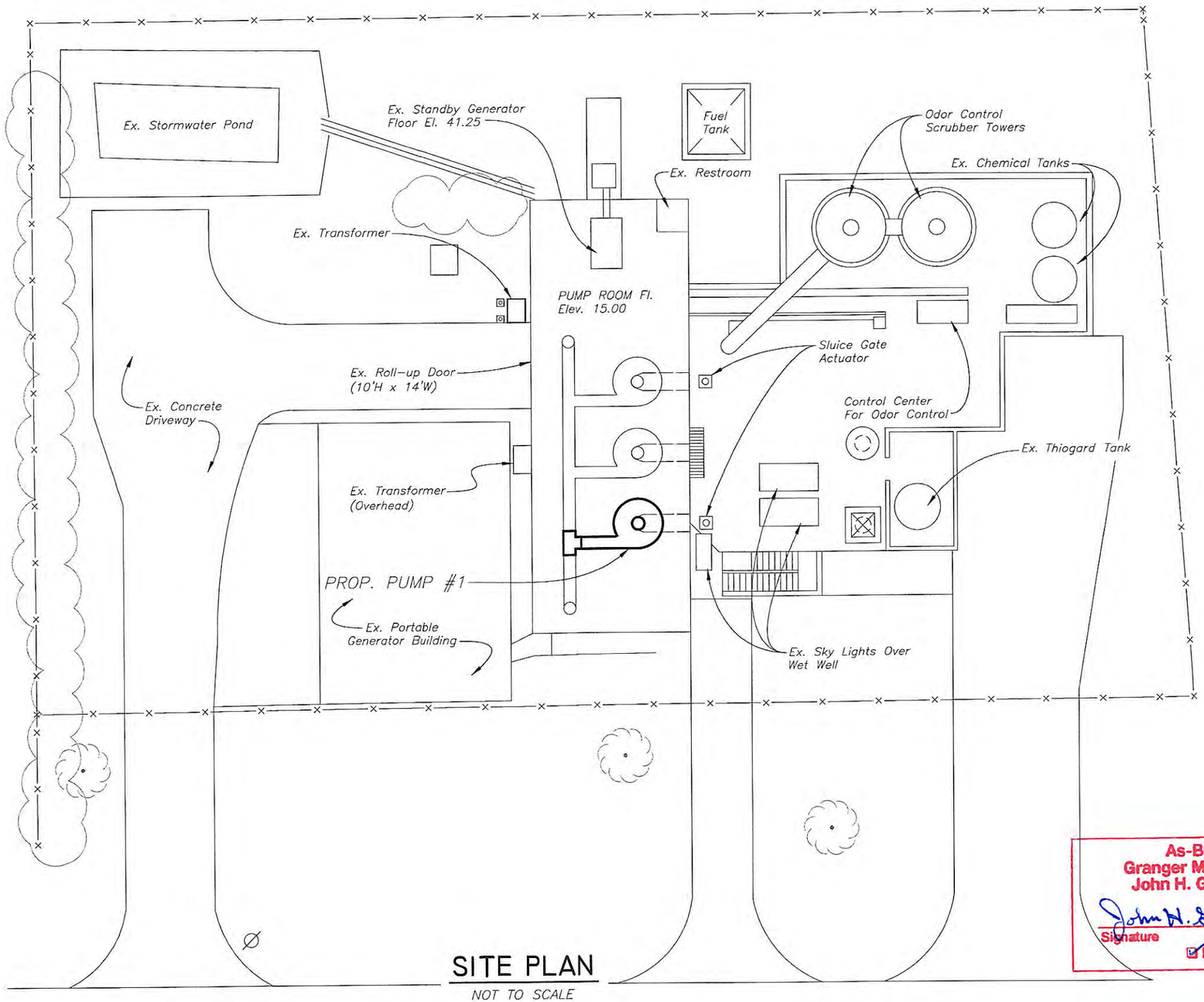
No.	DATE	REVISIONS
3		
2		
1		

DES: J.H.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

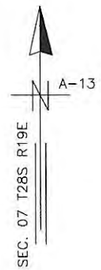
UNIVERSITY PUMPING STATION
PUMP No. I REPLACEMENT
INDEX & PROJECT MAP

SHEET 2



SITE PLAN

NOT TO SCALE



As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: J.H.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
PUMP #1 REPLACEMENT
SITE PLAN

SHEET
3

User: ss11 Drawing Name: K:\WasteWater Projects\University PS pump #1\Design\Plans\Drafting\UWS\University P.S. - Pump#1-Sheets 3-6-&-8.dwg
Layout: L1 Nov 21, 2016 - 2:24pm

NOTES

GENERAL NOTES

G-1. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH DEPARTMENT PERSONNEL AND PUMPING STATION OPERATIONS.

G-2. EXISTING DIMENSIONS AND ELEVATIONS ARE BASED ON THE BEST INFORMATION AVAILABLE. TRUE DIMENSIONS AND ELEVATIONS SHALL BE DETERMINED IN THE FIELD PRIOR TO LAYOUT AND SHOP DRAWING SUBMITTALS.

G-3. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (EASILY READABLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.

G-4. PRIOR TO PUMP #1 DEMOLITION, CITY FORCES WILL CLOSE THE NECESSARY PLUG VALVES INSIDE THE PUMPING STATION TO ISOLATE THE DISCHARGE SIDE OF PUMP #1. THE CITY REQUIRES A MIN. 1 WEEK ADVANCE NOTICE FOR THIS WORK.

G-5. CONTRACTOR SHALL INSTALL TWO STOP LOGS AND A 42" INFLATABLE PLUG IN WET WELL IN ORDER TO ISOLATE SUCTION SIDE OF PUMP #1. SEE WET WELL DETAILS ON SHEET 10.

G-6. MECHANICAL AND ELECTRICAL EQUIPMENT TO BE LOCKED OUT SHALL BE LOCKED OUT WITH A MULTIPLE-LOCK MASTER LOCK-OUT DEVICE, WHICH SHALL BE INSTALLED BY CITY PERSONNEL AND LOCKED BY BOTH THE CITY PERSONNEL AND THE CONTRACTOR.

G-7. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING, INSTALLING, LEVELING AND ALIGNING MOTOR AND PUMP. PROCEDURES FOR INSTALLATION, AS OUTLINED IN THE HYDRAULIC INSTITUTE STANDARDS, MOST CURRENT EDITION, SHALL BE ADHERED TO. SEE SPECIFIC PROVISION SP-80. IF CONFLICT BETWEEN THE SPECS AND THE H.I.S. PROCEDURE ARISE, THE MOST STRINGENT STANDARD SHALL BE FOLLOWED.

G-8. PROPOSED PUMP SHALL BE A 400 HORSEPOWER, 24-INCH, 600 RPM FAIRBANKS MORSE VERTICAL CLOSE-COUPLED ANGLEFLOW PUMP MODEL #C5741. PUMP SHALL BE RATED FOR 29.3 MGD @ 62.0 FEET TDH. SEE SPECIFICATIONS FOR MOTOR INFORMATION.

G-9. PROPOSED KNIFE GATE VALVE SHALL BE A MODEL 145, "PERFORMANCE PLUS" KNIFE GATE, AS MADE BY TYCO VALVE AND CONTROLS; SEE SPECIFICATIONS FOR DETAILS. KNIFE GATE VALVE SHALL BE EQUIPPED WITH ELECTRIC POWERED ACTUATOR, AS MADE BY ROTORK, LIMITORQUE, OR EQUAL; SEE SPECIFICATIONS FOR DETAILS.

G-10. EXISTING 30" PUMP CHECK VALVE AND PNEUMATIC ACTUATOR SHALL BE REMOVED AND PLACED IN SAFE STORAGE DURING DEMOLITION ACTIVITIES. PUMP CHECK VALVE ASSEMBLY SHALL BE RE-INSTALLED IN NEW LOCATION WITH PROPOSED PUMP #1, PIPE AND FITTINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR RE-CONNECTING PUMP CHECK VALVE ACTUATOR TO PNEUMATIC AIR SUPPLY, POWER AND CONTROLS SOURCES. SEE ELECTRICAL SHEETS FOR DETAILS.

G-11. AIR SUPPLY FOR PNEUMATICALLY ACTUATED PUMP-CHECK VALVE SHALL BE FROM EXISTING STATION AIR. ARRANGEMENT OF PIPING AND CONNECTIONS TO EXISTING PIPES SHALL BE MADE BY THE CONTRACTOR UNDER THE DIRECTION OF THE ENGINEER.

G-12. ANCHOR BOLTS SHALL BE AS PER PUMP MANUFACTURER'S RECOMMENDATIONS. ANCHOR BOLTS SHALL BE DOUBLE-NUTTED AND FINISHED WITH NON-SHRINK GROUT. ALL BOLTS SHALL EXTEND BEYOND THE FASTENING NUTS BY A MINIMUM OF 1/2-INCH.

G-13. ALL HARDWARE, UNLESS OTHERWISE NOTED, SHALL BE TYPE 316 STAINLESS STEEL.

G-14. PROP. 30"x 30"x 24" REDUCING TEE SHALL BE FABRICATED TO SUIT THE DIMENSIONS OF THE PROPOSED EQUIPMENT AND SHALL BE A36-STEEL WITH A 150 PSI RATING. STEEL FITTINGS SHALL BE MANUFACTURED BY AN AWWA CERTIFIED FABRICATOR.

G-15. ALL CEMENTITIOUS CONCRETE AND GROUT, UNLESS OTHERWISE SPECIFIED, SHALL BE CLASS "B" 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

G-16. EXPOSED CONCRETE CORNERS SHALL HAVE A 3/4" CHAMFER AND RE-ENTRANT CORNERS SHALL HAVE A 3/4" FLAT FILLET UNLESS OTHERWISE NOTED.

G-17. CONCRETE PEDESTAL SHOP DRAWINGS INCLUDING FLANGE SUPPORT DETAILS SHALL BE SUBMITTED FOR APPROVAL.

G-18. ALL STEEL REINFORCING SHALL BE DETAILED ACCORDING TO THE LATEST "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES". ACTUAL PLACEMENT OF STEEL REINFORCING SHALL BE SHOWN ON SHOP DRAWINGS. ALL LAPS AND SPLICES SHALL BE AT LEAST 32 BAR DIAMETERS OR 24 INCHES.

G-19. CERTAIN PORTIONS OF THIS PROJECT MAY REQUIRE NIGHT TIME WORK.

G-20. ALL NOTES PERTAINING TO PROPOSED WORK INSIDE SCREEN ROOM ARE LOCATED ON PERTINENT SHEETS.

G-21. PROP. FLOW METER SHALL BE A 24" ABB ELECTROMAGNETIC FLOW METER, WATERMASTER SERIES, AS MADE BY ABB. SEE SPECIFICATIONS FOR DETAILS.

G-22. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE LINED WITH PROTECTO 401 CERAMIC EPOXY (40 MILS DFT), OR EQUAL. ALL STEEL PIPE AND FITTINGS SHALL BE LINED WITH 40 MILS (DFT) OF "SG-14" GLASS LINING (PORCELAIN ENAMEL), AS MADE BY U.S. PIPE, OR EQUAL.

G-23. THE PUMPING STATION SHALL REMAIN IN OPERATION DURING THE ENTIRE PUMP No.1 REPLACEMENT PROJECT. THE CONTRACTOR SHALL PLAN HIS WORK ACCORDINGLY.

G-24. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 5th EDITION 2014, AND CHAPTER 5 OF THE CITY OF TAMPA CODE.

G-25. CONTRACTOR SHALL REMOVE EX. WET WELL #1 (42") SLUICE GATE AND ENTIRE ELECTRIC ACTUATOR ASSEMBLY.

G-26. CONFIGURATION FOR THREE PROPOSED KNIFE GATE VALVE ACTUATORS SHALL BE AS INDICATED IN THE PLANS.

G-27. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 5TH EDITION 2014, CHAPTER 5 OF THE CITY OF TAMPA CODE AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) SERIES 70/NATIONAL ELECTRICAL CODE (NEC) 2011 EDITION.

DEMOLITION NOTES

D-1. ALL DIMENSIONS ARE APPROXIMATE. TRUE DIMENSIONS SHALL BE DETERMINED IN THE FIELD.

D-2. SALVAGEABLE MATERIAL, AS DETERMINED BY DEPARTMENT PERSONNEL, SHALL BE DELIVERED TO THE CITY OF TAMPA'S HOWARD F. CURREN AWTP AT 2700 MARITIME BOULEVARD. NON-SALVAGEABLE MATERIALS ARE TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. IN GENERAL, ALL PUMP AND CONTROLS EQUIPMENT SHALL REMAIN PROPERTY OF THE CITY AND SHALL BE DELIVERED TO THE TREATMENT PLANT.

D-3. ALL ALUMINUM FRAMES AND PLATFORMS ON PUMP #1 SHALL BE SALVAGED AND DELIVERED TO THE TREATMENT PLANT.

D-4. THE PUMP STATION SITE SHALL BE MAINTAINED IN AS NEAT AND ORDERLY CONDITION AS POSSIBLE DURING CONSTRUCTION OPERATIONS. WALKWAYS AND DRIVEWAYS SHALL BE KEPT CLEAR FOR DEPARTMENT PERSONNEL TO PASS THROUGH.

D-5. CONTRACTOR SHALL CUT ALL EXPOSED REINFORCING STEEL TO A DEPTH OF 1-INCH BELOW THE EXPOSED SURFACE AND GROUT OVER.

D-6. CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL THAT WILL PREVENT THE EXPANSION JOINTS IN THE 30"-36" DISCHARGE HEADER FROM EXPANDING AFTER THE EXISTING 30"x 30"x 36' TEE HAS BEEN REMOVED IN THE PUMP ROOM.

"POSSIBLE" CONSTRUCTION SEQUENCE

S-1. CITY FORCES CLOSE EX. 30" & 24" PLUG VALVES IN PUMP ROOM TO ISOLATE DISCHARGE SIDE OF PUMP #1. CONTRACTOR TO INSTALL STOP LOGS AND 42" PLUG IN SCREEN ROOM TO ISOLATE SUCTION SIDE OF PUMP #1.

S-2. PROCEED WITH DEMOLITION AND INSTALL 24" KNIFE GATE VALVE AS SOON AS POSSIBLE.

S-3. INSTALL PROPOSED PUMP #1, PUMP CHECK VALVE, FLOW METER, PIPE AND FITTINGS (INCLUDING ELECTRICAL WORK).

S-4. PERFORM REQUIRED TESTS ON PROPOSED PUMPING EQUIPMENT.

S-5. PERFORM TRAINING, COMPLETE PUNCH LIST ITEMS.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

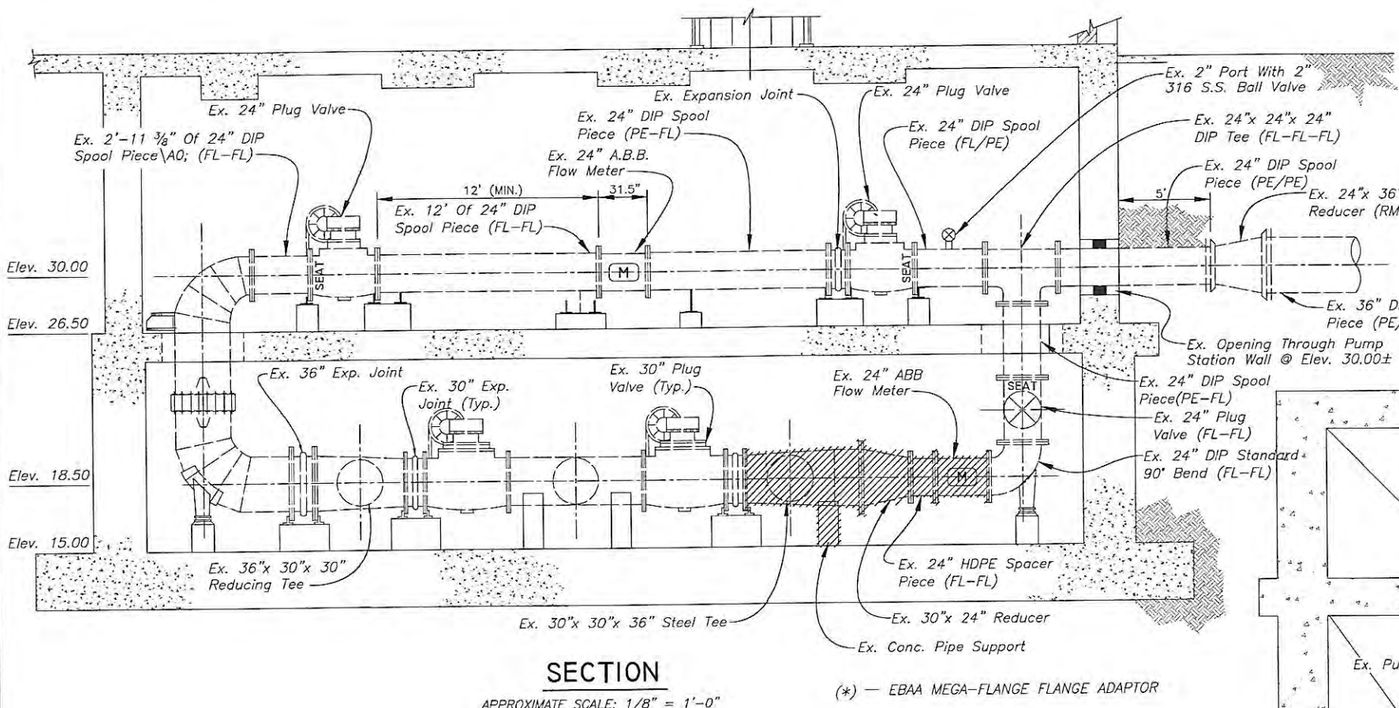
No.	DATE	REVISIONS
3		
2		
1		

DES: J.H.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
PUMP #1 REPLACEMENT
GENERAL NOTES

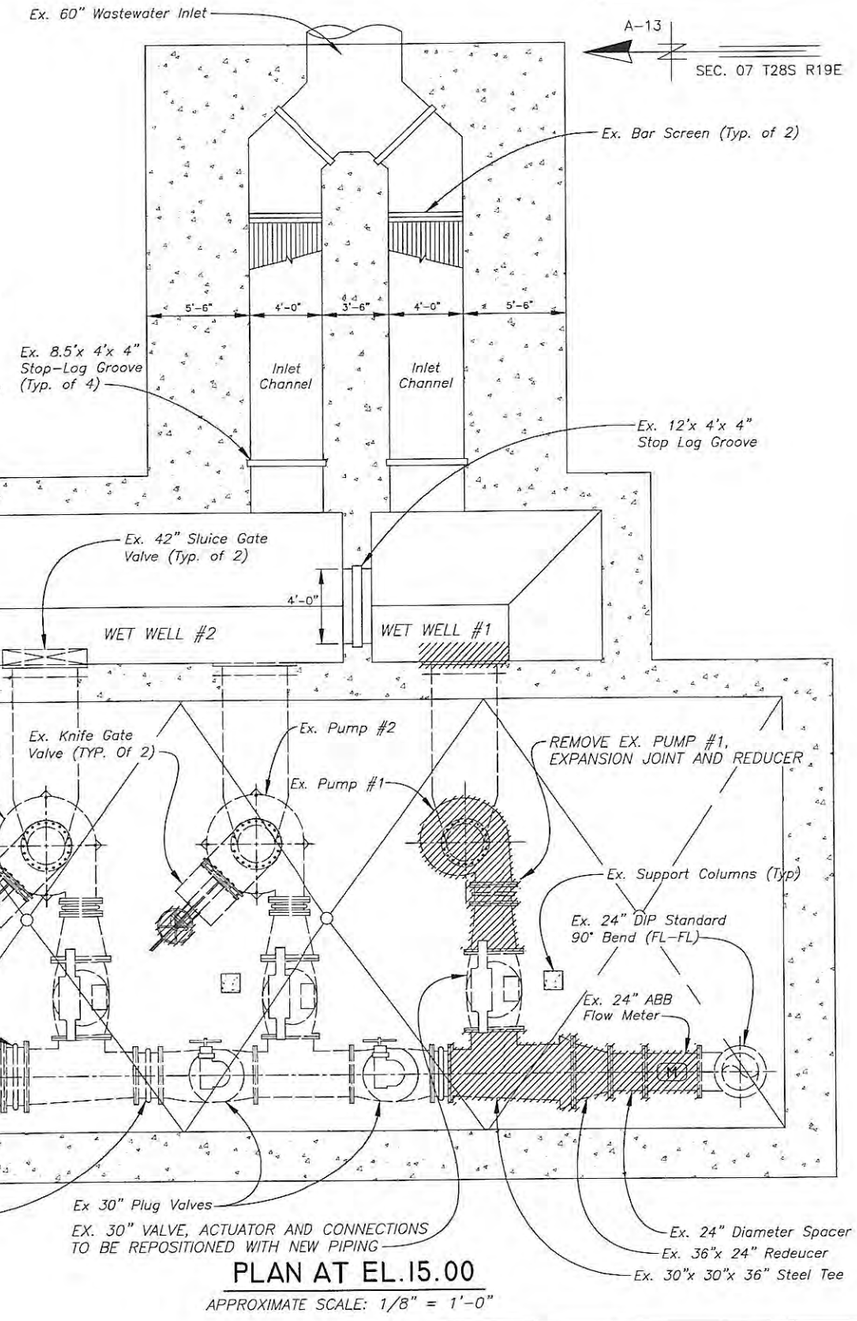
SHEET 4



SECTION

APPROXIMATE SCALE: 1/8" = 1'-0"

(*) — EBAA MEGA-FLANGE FLANGE ADAPTOR



PLAN AT EL.15.00

APPROXIMATE SCALE: 1/8" = 1'-0"

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

ITEMS SHOWN AS HATCHED ARE TO BE DEMOLISHED AND REMOVED

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
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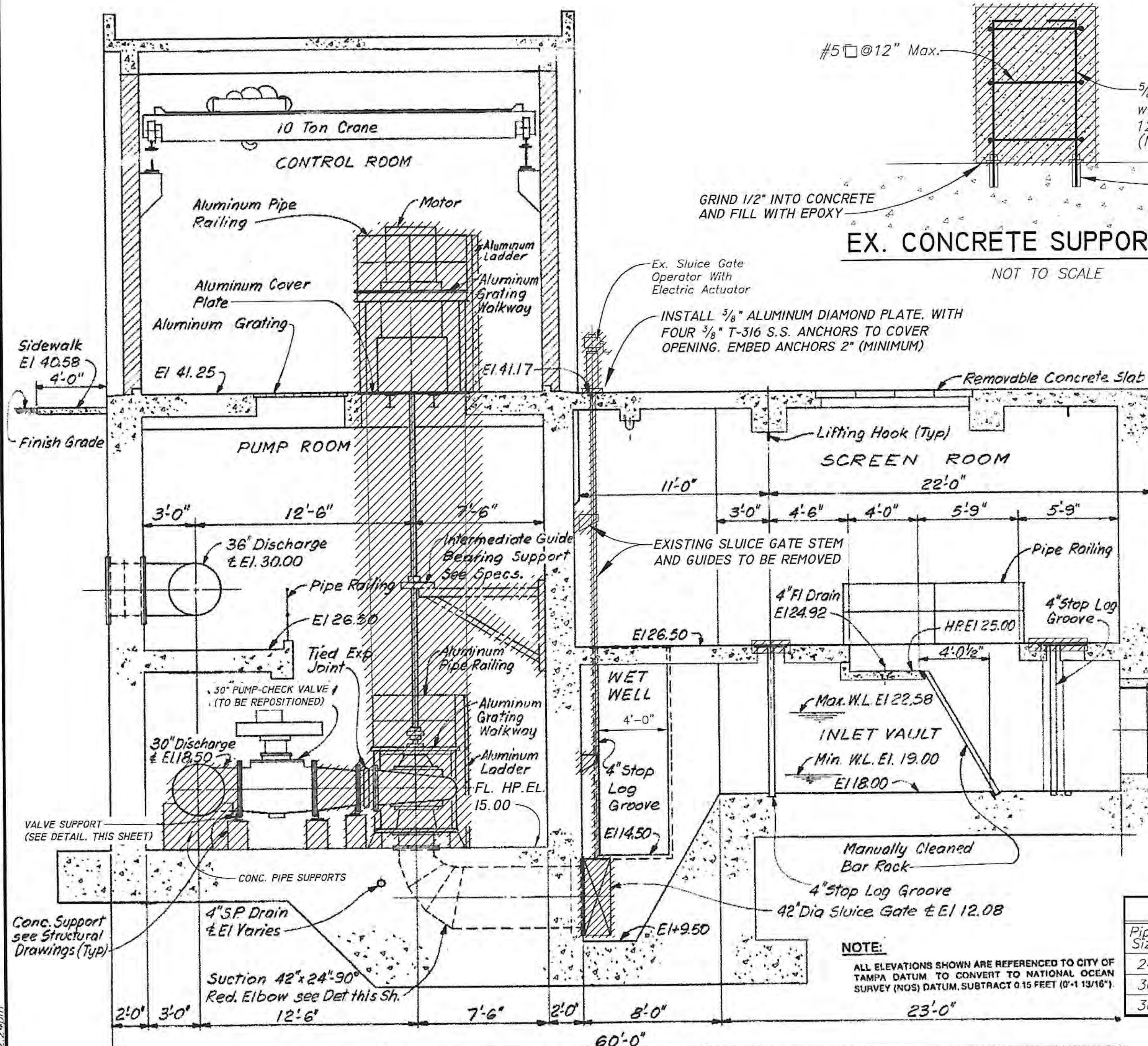
DES: J.H.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION PUMP #1 REPLACEMENT DEMOLITION PLAN AND SECTION

SHEET 5

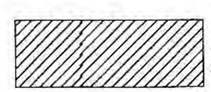


DEMOLITION SECTION

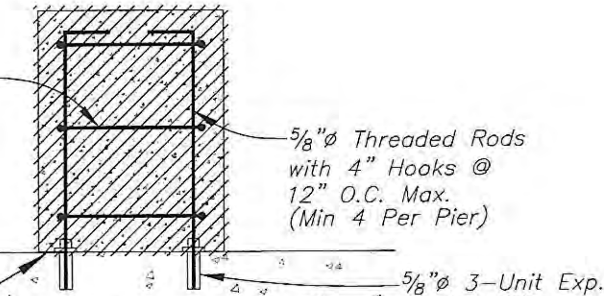
NOT TO SCALE

NOTE:

ALL ELEVATIONS SHOWN ARE REFERENCED TO CITY OF TAMPA DATUM. TO CONVERT TO NATIONAL OCEAN SURVEY (NOS) DATUM, SUBTRACT 0.15 FEET (0'-1 13/16").



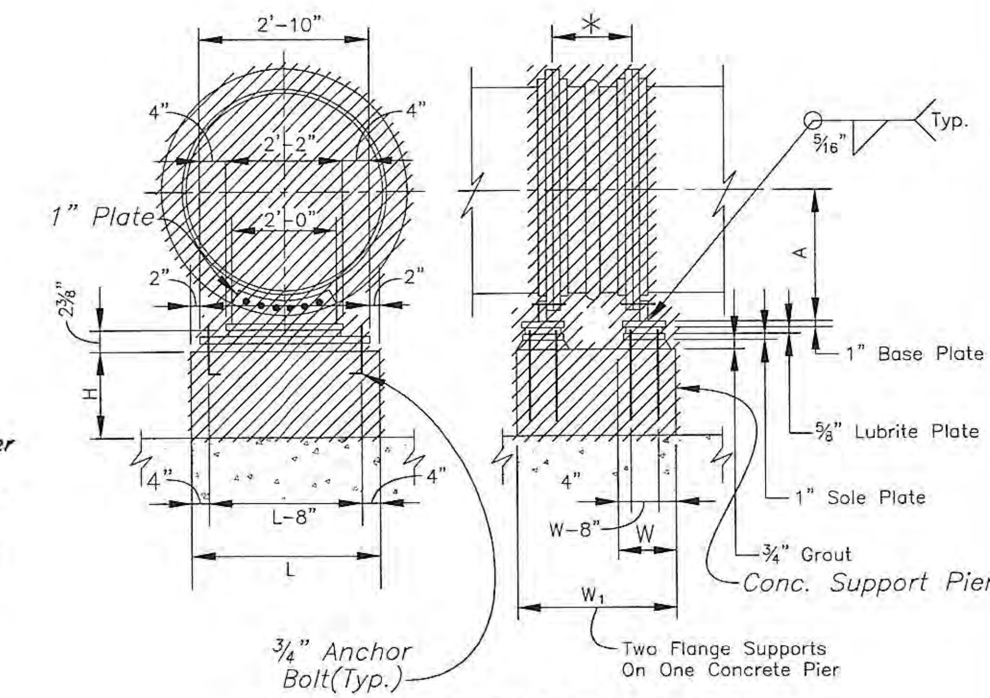
ITEMS SHOWN HATCHED ARE TO BE REMOVED



EX. CONCRETE SUPPORT PIERS

NOT TO SCALE

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes



EXISTING FLANGE SUPPORTS

NOT TO SCALE

EX. PLUG VALVE AND EXPANSION JOINT SUPPORT DIMENSIONS (TO BE FIELD VERIFIED)												
Pipe Size	℄ Elev.	Floor Elev.	Location	A	B	C	D	E	W	W_1	L	H
24"	18.50	15.00	Low Discharge Header	1'-6"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-8 5/8"
30"	18.50	15.00	Low Discharge Hdr & Pumps	1'-9 3/8"	2'-10"	10"	2'-2"	10"	1'-2"	*	3'-2"	1'-5 1/4"
36"	18.50	15.00	Low Discharge Hdr & Pumps	2'-1"	2'-10"	10"	2'-2"	10"	—	*	3'-2"	1'-1 5/8"

* Shown For Information Only. Not Included In This Contract

User: ss11 Drawing Name: K:\WasteWater Projects\University PS pump #1\Design\Plans\Drafting\UWG\University P.S. - Pump#1-Sheets 3-6-8.dwg
Layout: Nov 21, 2016 - 2:24pm

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
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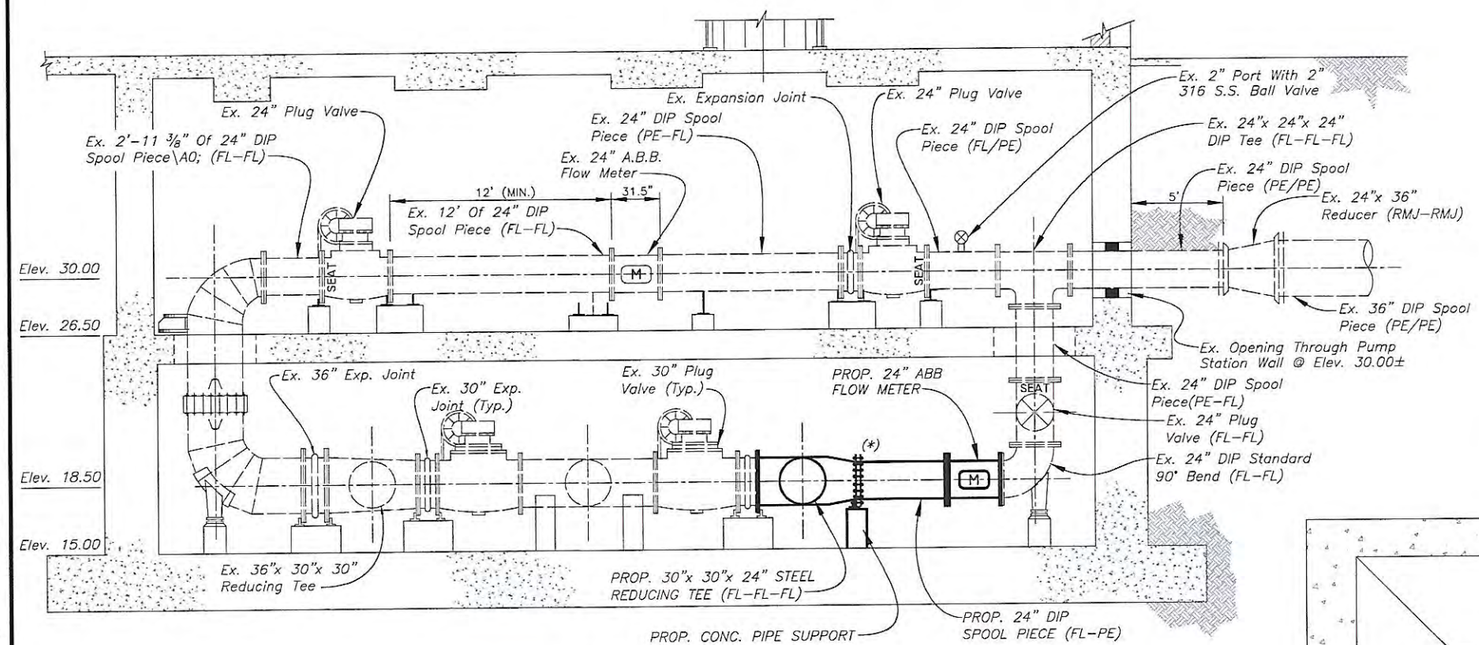
DES: J.H.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
PUMP #1 REPLACEMENT
DEMOLITION SECTION

SHEET
6

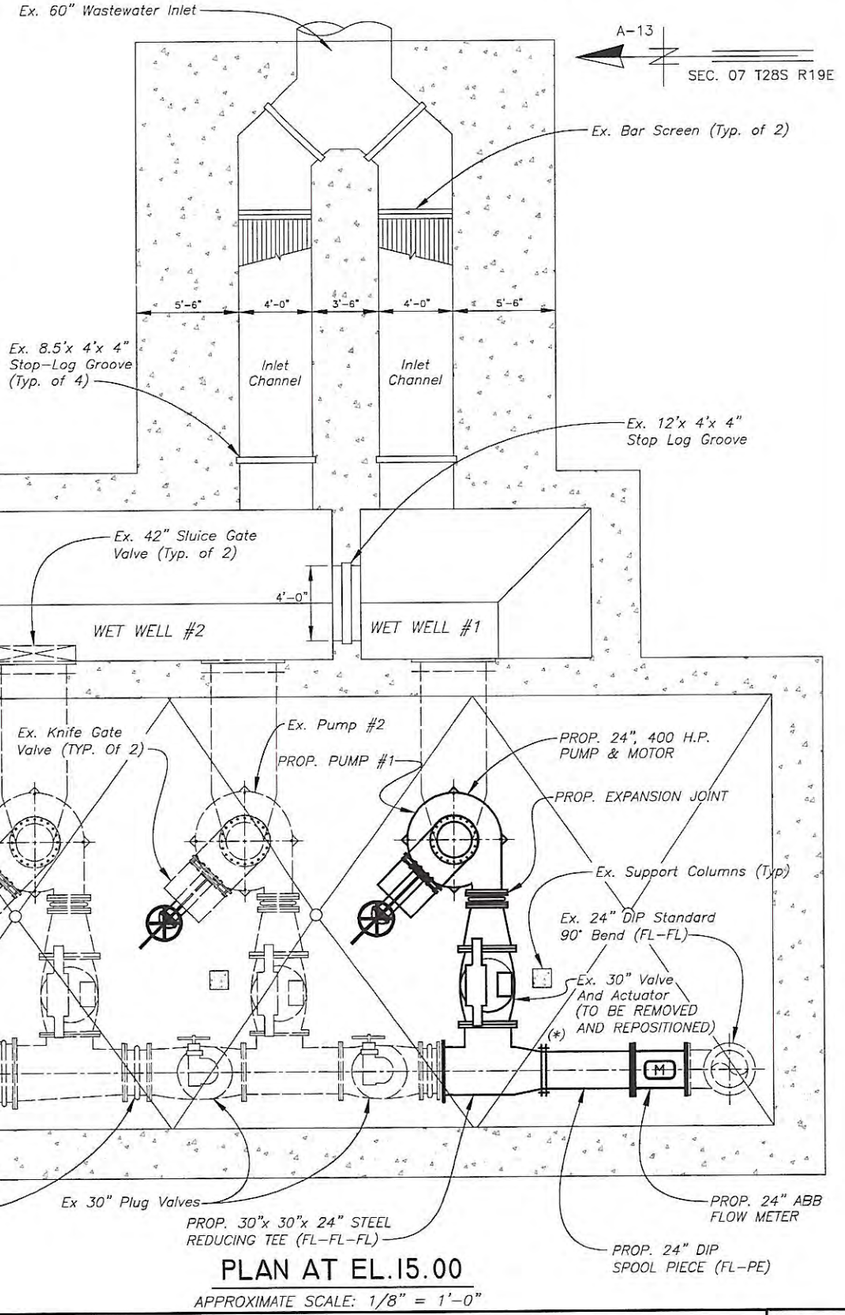


SECTION

APPROXIMATE SCALE: 1/8" = 1'-0"

(*) — EBAA MEGA-FLANGE FLANGE ADAPTOR

PROPOSED CONFIGURATION FOR KNIFE GATE VALVE ACTUATORS



PLAN AT EL.15.00

APPROXIMATE SCALE: 1/8" = 1'-0"

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	No.	DATE	REVISIONS
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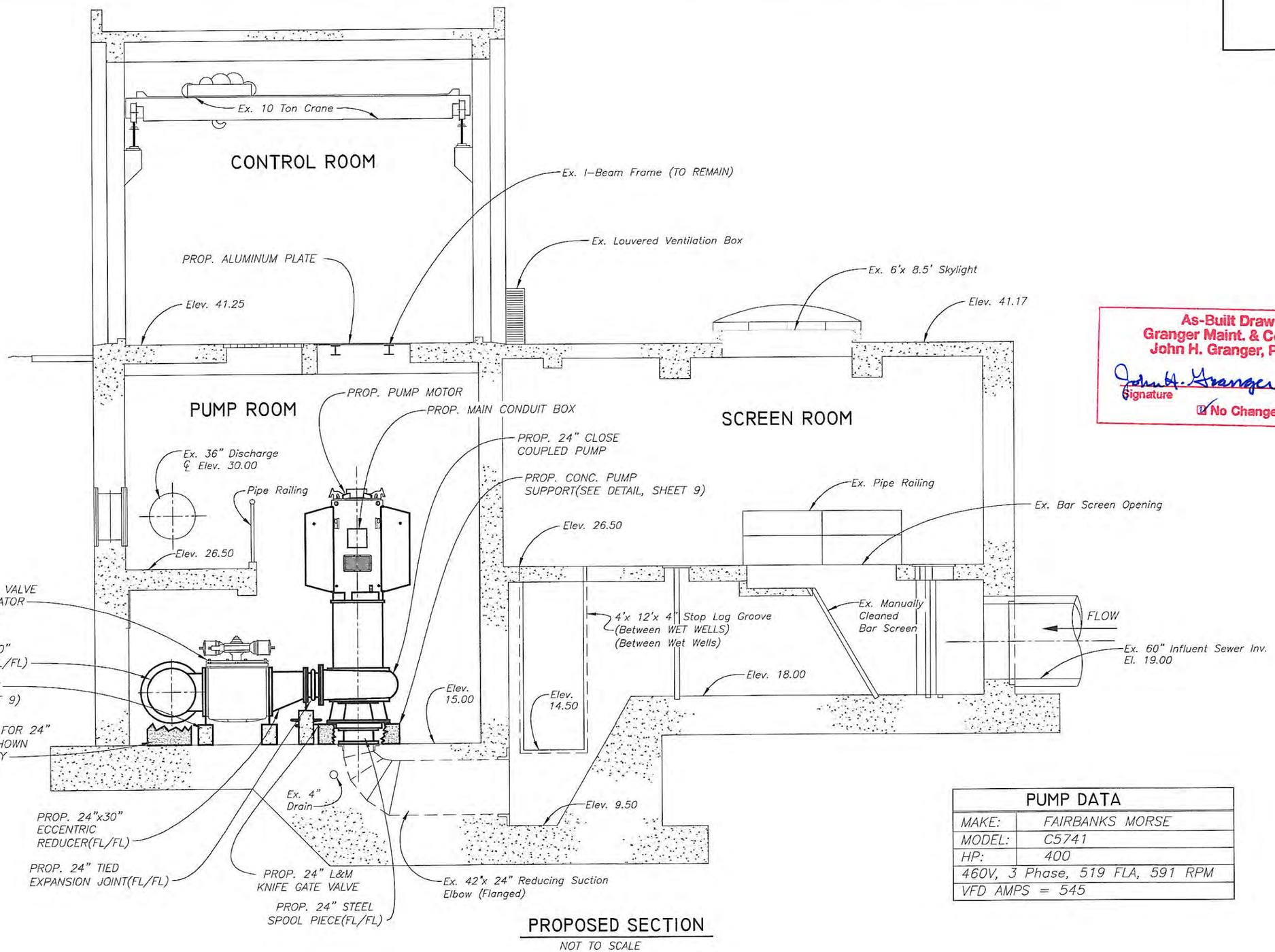
DES: J.H.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION
PUMP #1 REPLACEMENT
PROPOSED PLAN AND SECTION

SHEET 7

Layout — Nov 21, 2016 — 2:24pm



PROPOSED SECTION

NOT TO SCALE

PUMP DATA	
MAKE:	FAIRBANKS MORSE
MODEL:	C5741
HP:	400
460V, 3 Phase, 519 FLA, 591 RPM	
VFD AMPS = 545	

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

User: ss11 Drawing Name: K:\WastewaterProjects\University PS pump #1\Design\Plans\Drafting\DWG\University PS_- Pump#1-Sheets 3-6-&-8.dwg
Layout: 8 Nov 21, 2016 - 2:24pm

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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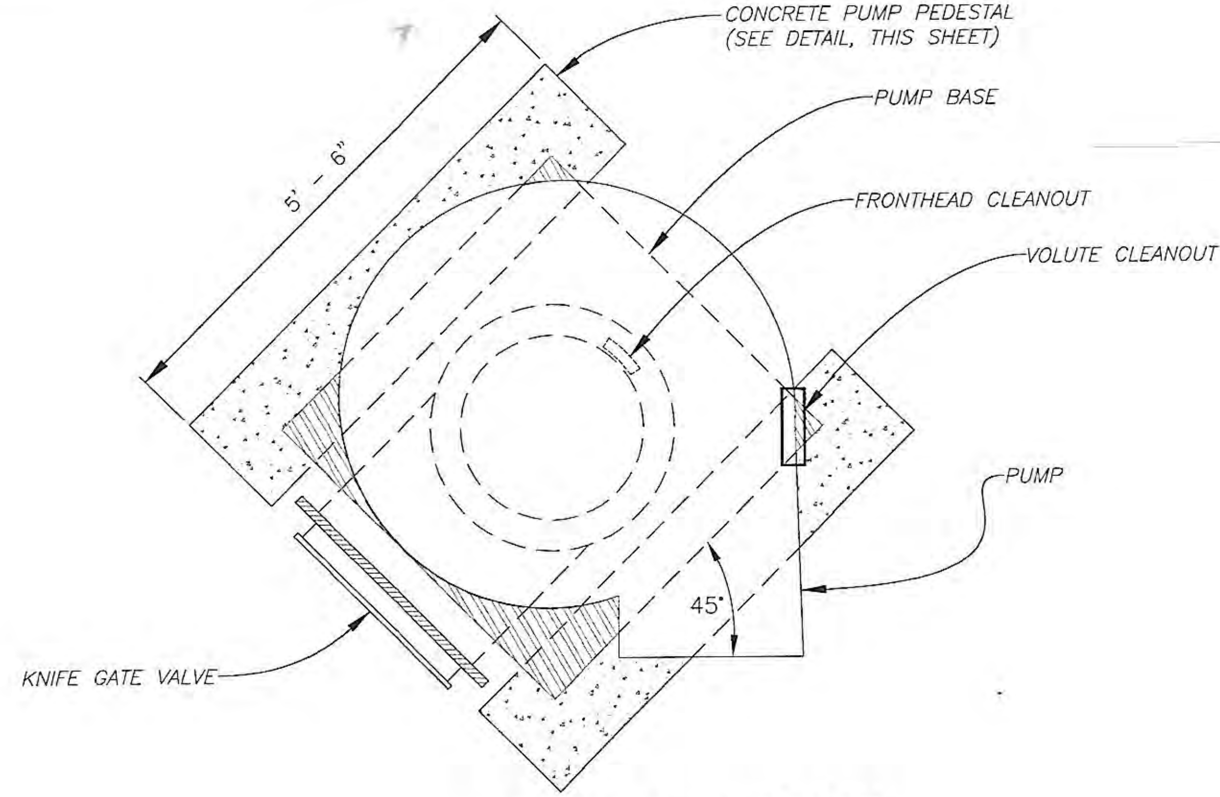
DES: J.H.
DRN: BB
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

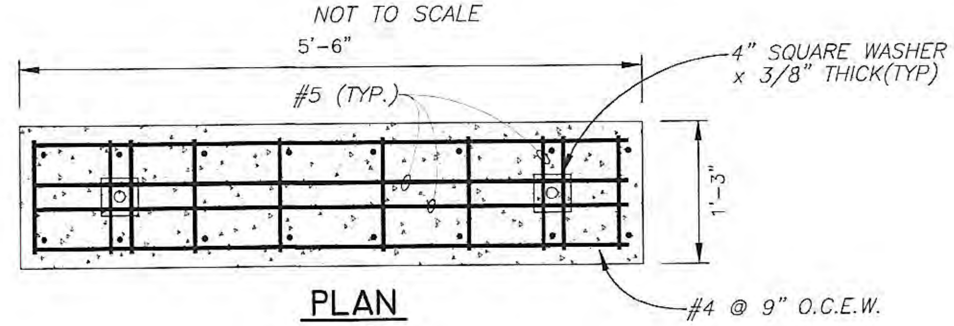
UNIVERSITY PUMPING STATION
PUMP #1 REPLACEMENT
PROPOSED SECTION

SHEET 8

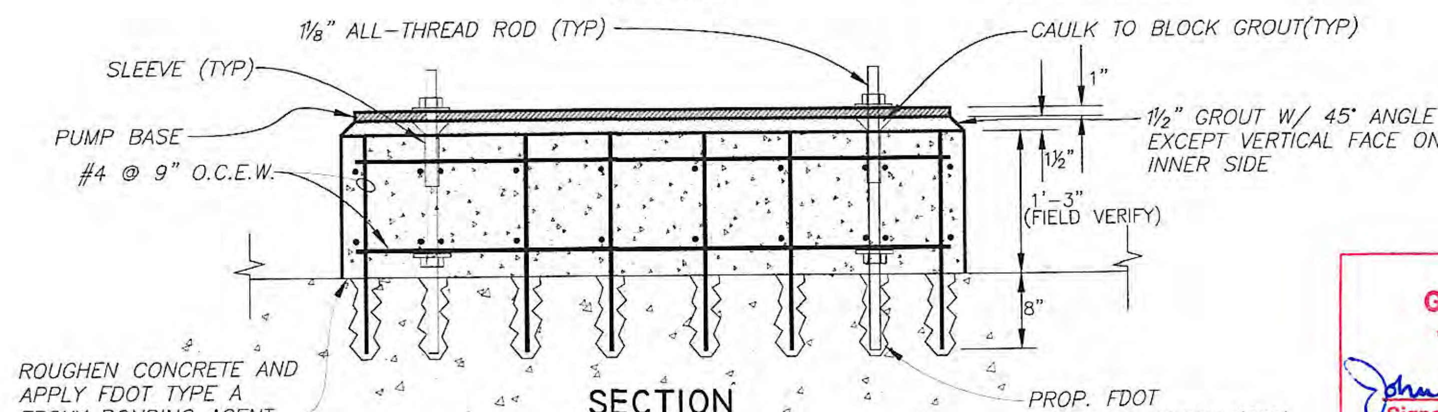


PROP. PUMP SUPPORT PLAN

NOT TO SCALE



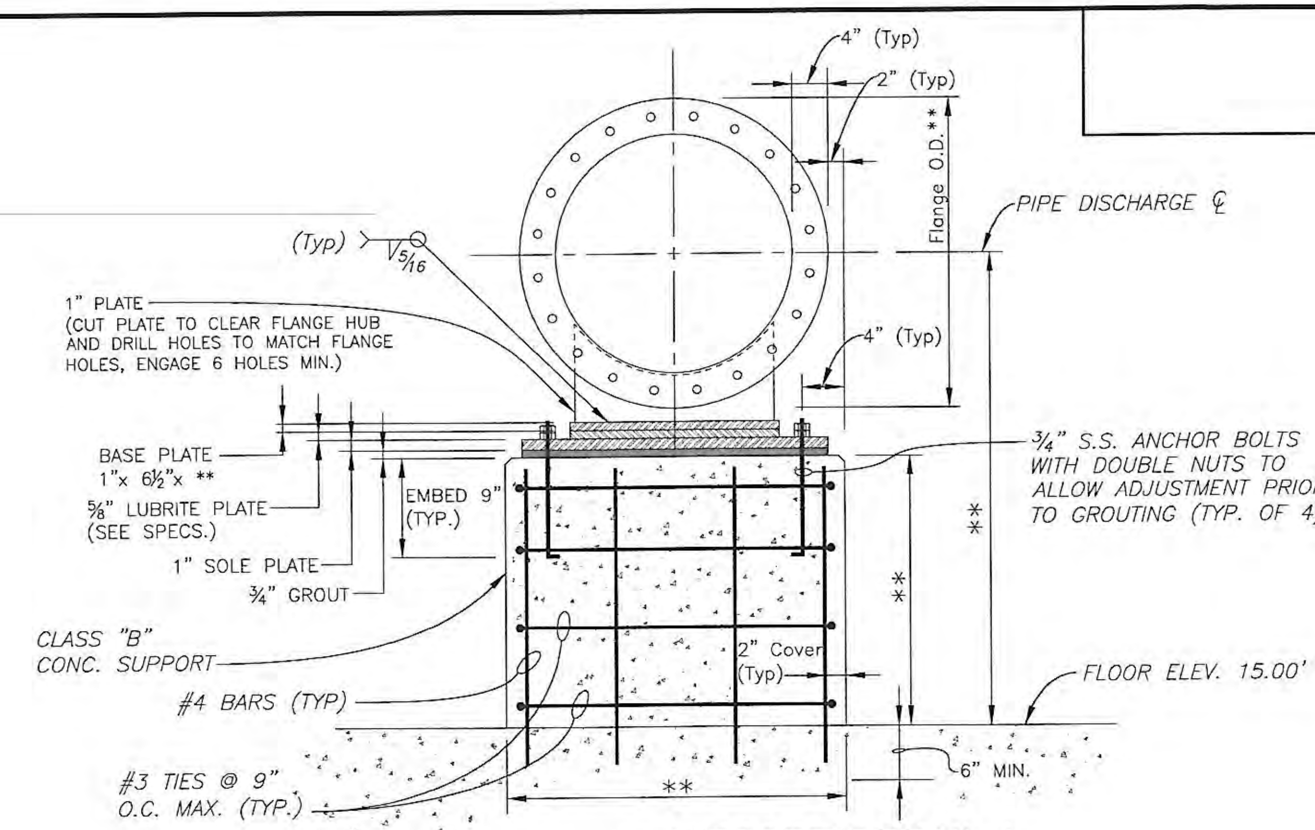
PLAN



SECTION

PROP. PUMP PEDESTAL DETAIL

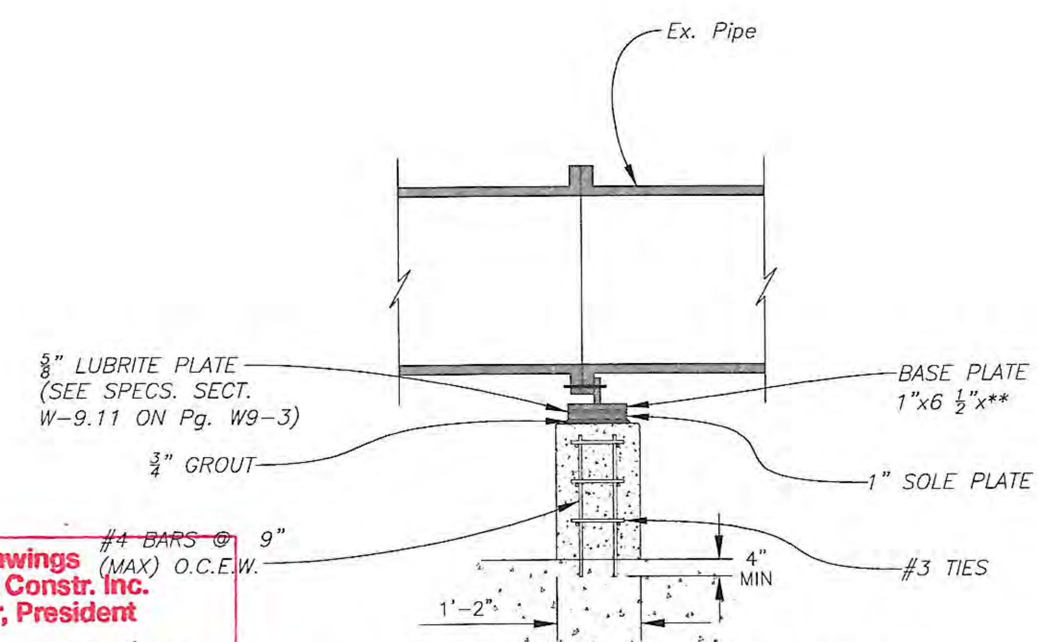
NOT TO SCALE



PROP. FLANGE SUPPORT DETAIL I

N.T.S.

** Dimension Dependent on Pipe Diameter



As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President

John H. Granger 6/22/2022
Signature Date

☑ No Changes

PROP. FLANGE SUPPORT DETAIL 2

NOT TO SCALE

User: ss11 Drawing Name: K:\Wastewater Projects\University PS pump #1\Design\Plans\Drafting\DWG\University PS - Pump #1-Sheet-09.dwg
Layout- Nov 21, 2016 - 2:24pm

	No.	DATE	REVISIONS				
JACINTO CARLOS FERRAS, P.E. #49454 DESIGN DIVISION HEAD WASTEWATER DEPARTMENT	3			DES: J.H. DRN: BB CKD: DATE:	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY PUMPING STATION REHABILITATION MISCELLANEOUS PUMP ROOM DETAILS	SHEET 9
	2						
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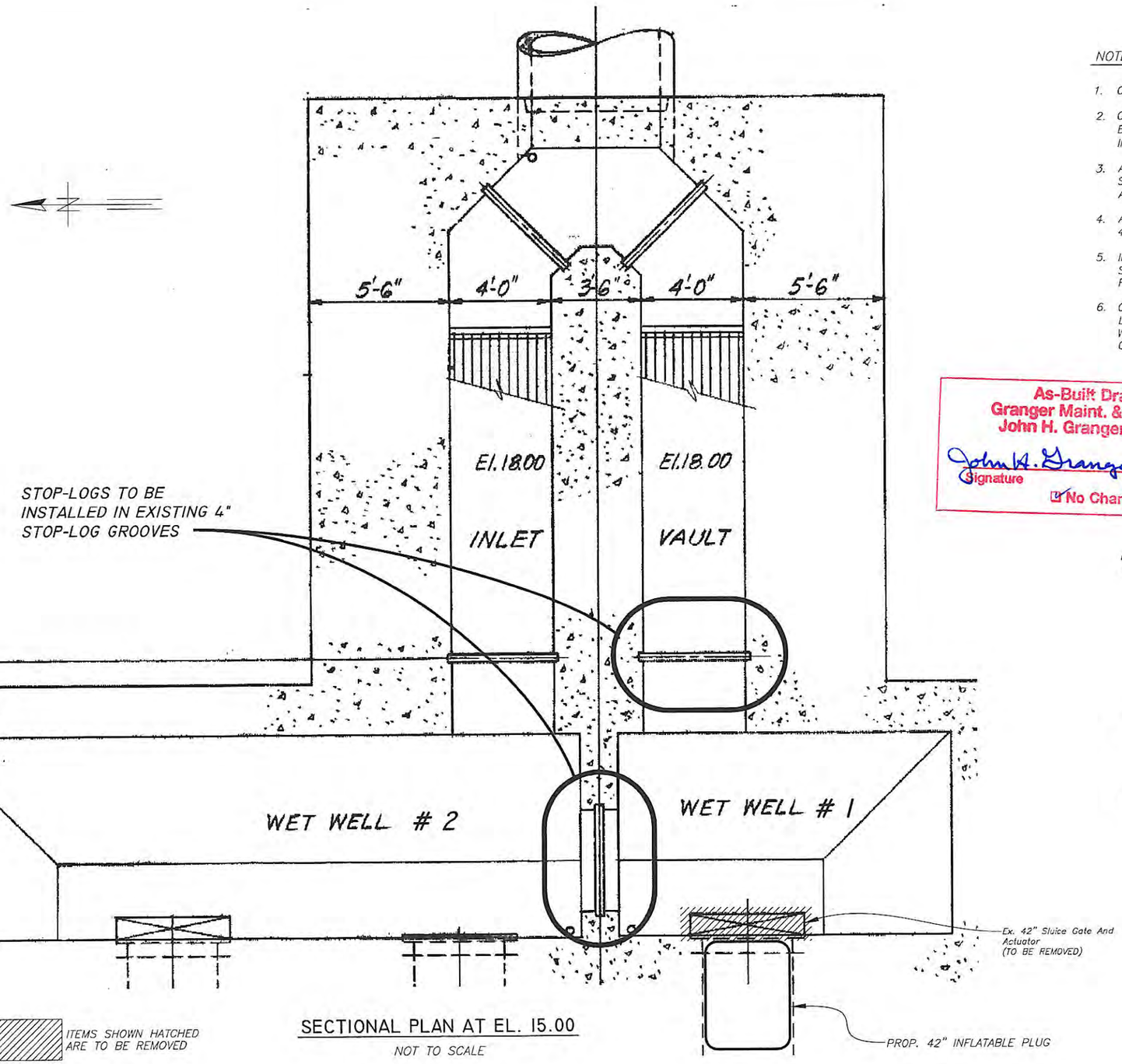
NOTES:

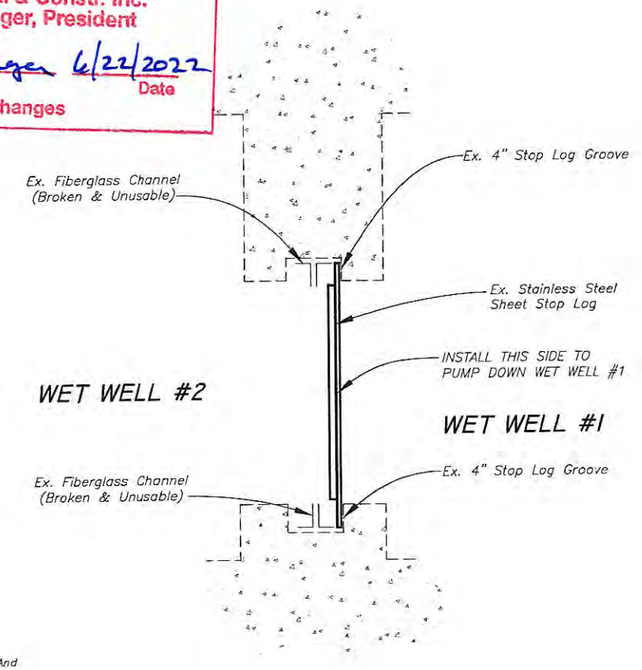
1. CITY WILL FURNISH THE CONTRACTOR WITH TWO STAINLESS STEEL STOP LOGS.
2. CONTRACTOR TO INSTALL STOP LOGS IN THE WET WELL #1 INLET CHANNEL AND IN BETWEEN WET WELLS PRIOR TO REMOVING EXISTING PUMP #1 IN PUMP ROOM AND INSTALLING 24" KNIFE GATE VALVE.
3. AFTER STOP LOGS HAVE BEEN INSTALLED, CONTRACTOR SHALL INSTALL HYDRAULIC SUMP PUMP IN THE ISOLATED WET WELL #1 IN ORDER TO PUMP WET WELL DOWN AND CATCH ANY WASTEWATER BYPASSING THE STOP LOGS.
4. AFTER WET WELL IS PUMPED DOWN, CONTRACTOR SHALL INSTALL, AND MAINTAIN A 42" INFLATABLE PLUG IN THE PUMP #1 INFLUENT PIPE.
5. INFLATABLE PLUG, HYDRAULIC PUMP AND STOP LOGS MAY BE REMOVED AFTER 24" SPOOL PIECE AND KNIFE GATE VALVE ARE SUCCESSFULLY INSTALLED IN THE PUMP ROOM.
6. OSHA STANDARD SAFETY EQUIPMENT SUCH AS SAFETY HARNESSES, GAS MONITORS, LOWER EXPLOSIVE LIMIT (LEL) DETECTORS, ETC. SHALL BE UTILIZED WHERE THE WORK DICTATES THEIR USE, AND SHALL BE SOLE RESPONSIBILITY OF THE CONTRACTOR.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☐ No Changes



ITEMS SHOWN HATCHED ARE TO BE REMOVED

SECTIONAL PLAN AT EL. 15.00
NOT TO SCALE



STOP LOG GROOVE DETAIL
NOT TO SCALE

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
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2		
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DES: J.H.
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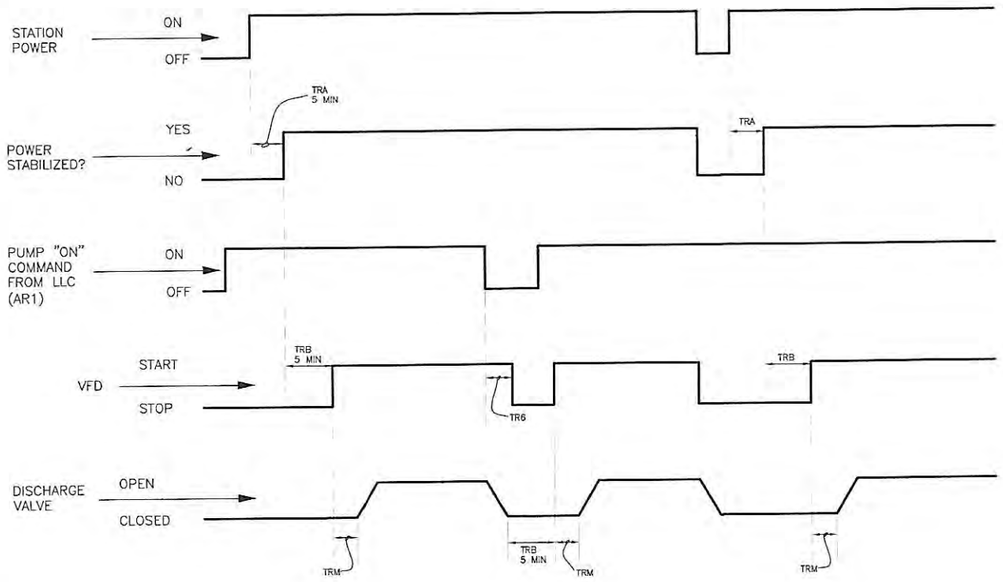
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY PUMPING STATION PUMP #1 REPLACEMENT WET WELL ISOLATION DETAILS

SHEET 10

Layout—Nov 21, 2016 – 2:30pm



SEWAGE PUMP No. 1
(TIMING DIAGRAM)

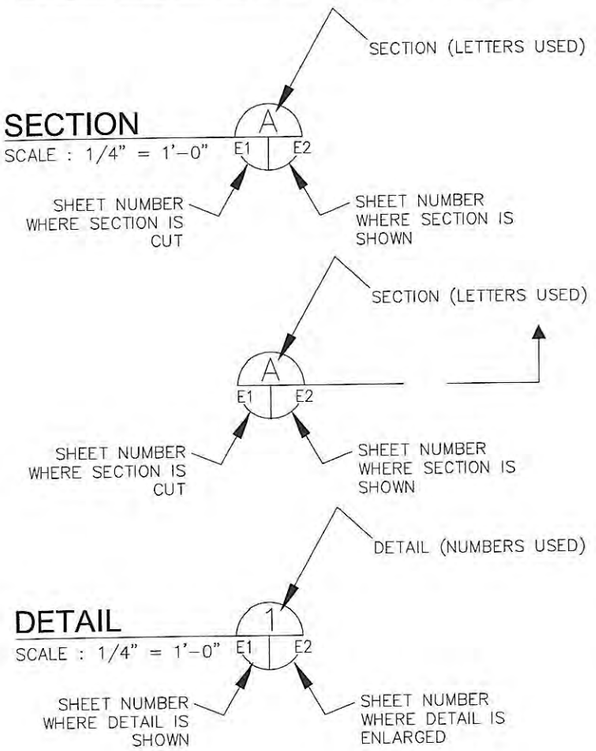
ABBREVIATIONS:

4C	4 CONDUCTOR	HZ	HERTZ
A	AMPS	IG	ISOLATED GROUND
AF	AMPERE FRAME	KVA	KILOVOLT AMPERES
AM	AMMETER	KW	KILOWATTS
AT	AMPERE TRIP	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	N/A	NOT APPLICABLE
ATL	ACROSS-THE-LINE	PH	PHASE
C	CONDUIT	PM	POWER MONITOR
CLF	CURRENT LIMITING FUSE	RECP	RECEPTACLE
CT	CURRENT TRANSFORMER	RPM	REVOLUTIONS PER MINUTE
CU	COPPER	RTU	REMOTE TERMINAL UNIT
EX	EXISTING	RVSS	REDUCED VOLTAGE SOFT STARTER
ELEC	ELECTRICAL	SPD	SURGE PROTECTION DEVICE
EXP	EXPLOSION PROOF	TYP	TYPICAL
FU	FUSE	V	VOLTS
GFI	GROUND FAULT INTERRUPTER	W	WIRE
GND	GROUNDING CONDUCTOR	WP	WEATHERPROOF
HP	HORSEPOWER		

LEGEND

- DISCONNECTING DEVICE
- MCP 30 90 — MOTOR CIRCUIT PROTECTOR, 30 AMPERE CONTINUOUS RATING, 90 AMPERE MAGNETIC TRIP SETTING
- CVT — CONTROL POWER TRANSFORMER
- FUSE
- NORMALLY OPEN CONTACT } OR TIME DELAY RELAY, INSTANT TRANSFER SWITCH
- NORMALLY CLOSED CONTACT }
- M — MOTOR STARTER COIL
- MOL — MOTOR THERMAL OVERLOAD
- R — PILOT LIGHT (RED LENS)
- TERMINAL STRIP
- ETM — ELAPSED TIME METER
- STOP L — STOP PUSHBUTTON WITH PROVISIONS FOR PADLOCK
- 1 OFF 3 — 3 POSITION SELECTOR SWITCH
- LS1 — LIMIT SWITCH, NORMALLY OPEN
- LS3 — LIMIT SWITCH, NORMALLY CLOSED
- PSI — PRESSURE SWITCH, NORMALLY OPEN
- MTR — 3 PHASE MOTOR
- △ — MOUNTED NEAR EQUIPMENT OR MOTOR (LOCAL)
- NEUTRAL
- STOP/L — PUSHBUTTON WITH PROVISIONS FOR LOCK (N.O.)
- N.C. PUSHBUTTON
- ES STOP/L RESUME — LOCAL CONTROL STATION, ES – EMERGENCY STOP
- GSR — GROUND SENSE RELAY
- TWISTED PAIR SHIELDED CABLE
- TR — NORMALLY CLOSED "ON DELAY" TIMING RELAY
- TR — NORMALLY OPEN "ON DELAY" TIMING RELAY
- TR — INSTANT CLOSE – DELAY OPEN TIMING RELAY (OFF DELAY)
- TR — INSTANT OPEN – DELAY CLOSE TIMING RELAY (OFF DELAY)

EXAMPLE OF SECTION CUT AND DETAIL



As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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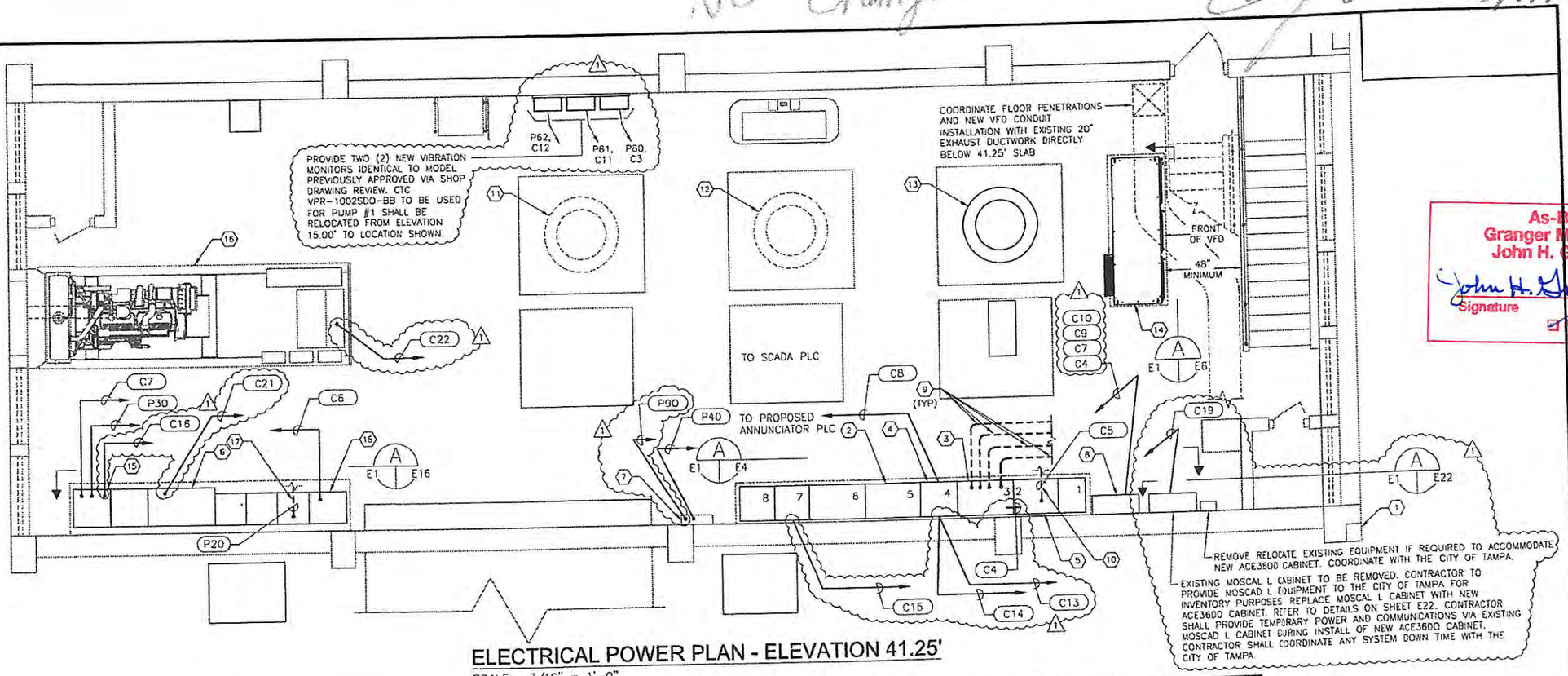
Certificate of Authorization No. 8303

	No.	DATE	REVISIONS			
TIMOTHY THOMAS, P.E. #47079	3			DES: TDT DRN: JLH CKD: TDT DATE: 11/21/16	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY P.S. PUMP NO. 1 REPLACEMENT TIMING DIAGRAM, LEGEND & ABBREV
	2					W.O. 4511
	1					SHEET E0 OF -

NO Changes 5/17/22



ELECTRICAL POWER PLAN - ELEVATION 41.25'

SCALE : 3/16" = 1'-0"

KEYED NOTES:

1. EXISTING PUMP STATION BUILDING.
2. EXISTING SEWAGE PUMPS CONTROL CENTER. REFER ALSO TO ELEVATION ON SHEET E4.
3. EXISTING CUBICLE NO. 3 CONTAINING EXISTING PUMP NO. 1 MOTOR STARTER. EXISTING STARTER TO BE REMOVED. REFER TO SHEETS E4 AND E5 FOR OTHER WORK REQUIRED.
4. EXISTING CUBICLE NO. 4 CONTAINING PUMP NO. 1 AND PUMP NO. 2 CONTROLS. (PUMP NO. 1 CONTROLS ABOVE CUBICLE 4A, PUMP NO. 2 CONTROLS BELOW, CUBICLE 4B). REFER TO SHEET E4 FOR WORK REQUIRED.
5. EXISTING LIQUID LEVEL CONTROL (LLC) PANEL. REFER TO SHEET E4 MODIFICATIONS REQUIRED TO ACCOMMODATE NEW FLOW METER TO BE INSTALLED AT ELEVATION 15.00'. REFER TO SHEET E2 FOR NEW FLOW METER LOCATION.
6. EXISTING MOTOR CONTROL CENTER, AUTOMATIC TRANSFER SWITCH AND ANNUNCIATOR LINEUP. REFER TO SHEETS E2 AND E16 FOR ELEVATION AND WORK REQUIRED.
7. EXISTING 120/208V PANEL. CONTRACTOR TO PROVIDE AND INSTALL THREE (3) NEW, 120V, SINGLE-POLE CIRCUIT BREAKERS. ONE CIRCUIT FOR NEW FLOW METER 120V POWER, ONE CIRCUIT FOR NEW ANNUNCIATOR PLC 120V POWER, ONE FOR SIGNAL ISOLATORS/CONVERTERS 120V POWER. (1)
8. EXISTING PLC CONTROL CABINET. CONTRACTOR TO PROVIDE NEW 3/4" CONDUIT WITH ONE (1) 2/C #16 TWISTED SHIELD CABLE (BELDEN 8719) TO NEW FLOW METER TRANSMITTER TO BE INSTALLED IN LIQUID LEVEL CONTROL PANEL. REFER TO NOTE #9 ON SHEET E2. PROVIDE NEW CONDUIT/CONDUCTORS, C3, C4, C7, C9 AND C10.
9. NEW CONDUIT AND CONDUCTORS TO BE INSTALLED TO NEW PUMP NO. 1 AT ELEVATION 15.00'. REFER TO SHEET E2 FOR CONTINUATION.
10. EXISTING CONDUIT. CONDUIT CURRENTLY CONTAINS ONE MANUFACTURER SUPPLIED FLOW METER TRANSMITTER CABLE. CONTRACTOR TO INSTALL NEW FLOW METER TRANSMITTER CABLE (FROM FLOW METER IN NOTE #8 ON SHEET E2) IN EXISTING CONDUIT.
11. EXISTING SEWAGE PUMP NO. 3 (AT ELEVATION 15.00'). NO WORK REQUIRED.
12. EXISTING SEWAGE PUMP NO. 2 (AT ELEVATION 15.00'). NO WORK REQUIRED.
13. EXISTING SEWAGE PUMP NO. 1 (AT ELEVATION 41.25') TO BE REMOVED AND REPLACED. REFER ALSO TO CIVIL SHEETS AND SHEET E2.
14. PROPOSED LOCATION OF NEW 400 HP VFD FOR PUMP NO. 1 (AT ELEVATION 41.25'). REFER TO SHEET E6 FOR ELEVATION.
15. EXISTING ANNUNCIATOR PANEL TO BE REMOVED. REFER ALSO TO SHEET E16 FOR WORK REQUIRED.
16. EXISTING GENERATOR. NO WORK REQUIRED.
17. PROVIDE AND INSTALL NEW 3/4" CONDUIT WITH 3-#12 + 1-#12 GND DOWN TO ELEVATION 15.00' FOR NEW KNIFE GATE VALVE ACTUATORS. REFER ALSO TO SHEET E2.

(1) NOTE:
REFER ALSO TO SHEET E4 FOR OTHER CONDUIT/CONDUCTORS REQUIRED.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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No.	DATE	REVISIONS
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2		
1	1-7-19	ACE3600 ADDITION REVISION

TIMOTHY THOMAS, P.E. #47079

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

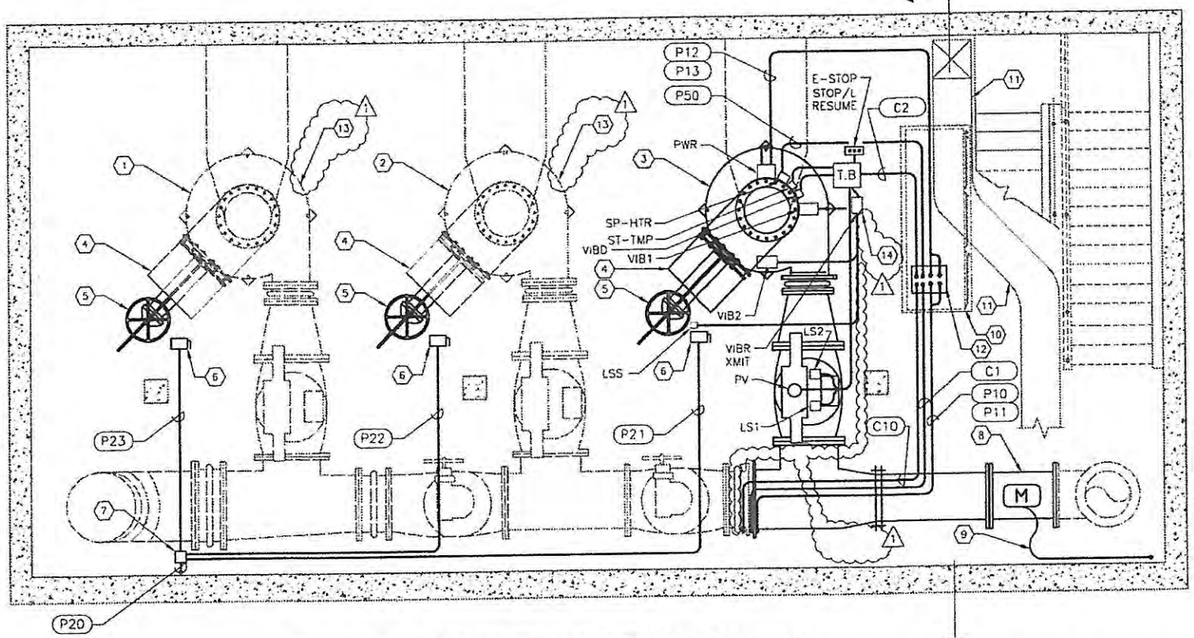
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ELECTRICAL POWER PLAN EL 41.25'

W.O. 4511
SHEET E1 OF

NO Changes

5/17/22



ELECTRICAL POWER PLAN ELEVATION 15.00'

SCALE : 3/16" = 1'-0"

A E2 E3 — REFER TO SHEET E3 FOR ELEVATION REGARDING PUMP MOTOR NO. 1 CONDUCTOR INSTALLATION.

As-Built Drawings
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GENERAL NOTES:

1. NOT ALL CONDUITS/CONDUCTORS SHOWN FOR CLARITY. REFER ALSO TO SHEETS E1 AND E3.

KEYED NOTES:

1. EXISTING SEWAGE PUMP NO. 3. NO WORK REQUIRED.
2. EXISTING SEWAGE PUMP NO. 2. NO WORK REQUIRED.
3. NEW SEWAGE PUMP NO. 1 (TO BE INSTALLED AT ELEVATION 15.00') REFER ALSO TO CIVIL SHEETS.
4. EXISTING KNIFE GATE VALVE. REFER ALSO TO CIVIL SHEETS.
5. NEW KNIFE GATE VALVE ACTUATOR. REFER ALSO TO CIVIL SHEETS.
6. PROVIDE AND INSTALL NEW 600V, 30A, 3-POLE MANUAL SWITCH IN NEMA 4 DIE CAST ZINC ALLOY, SQUARE-D 2510KW2CH OR EQUAL. FIELD LOCATE BASED ON ACTUATOR SELECTED. MOUNT WITH 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT. PROVIDE 3/4" WATERTIGHT, NON-METALLIC FLEXIBLE CONDUIT CONNECTION TO ACTUATOR WITH 3-#12 + 1-#12 GND.
7. PROVIDE AND INSTALL NEW 6" X 6" X 4" NEMA 4X STAINLESS STEEL JUNCTION BOX AT EL 15.00' FOR ACTUATOR FEEDER CIRCUIT. FIELD LOCATE.
8. NEW 24" ABB METER AND ASSOCIATED FLOW METER ELEMENT.
9. EXISTING 3/4" CONDUIT. CONDUIT CONTINUES UP TO JUNCTION BOX AT ELEVATION 26.50'. AN EXISTING CONDUIT IS INSTALLED FROM THE JUNCTION BOX TO THE LIQUID LEVEL CONTROL PANEL. CONTRACTOR TO PROVIDE AND INSTALL NEW FLOW METER SIGNAL CABLE FROM FLOW METER ELEMENT (NOTE #8) TO THE NEW FLOW METER TRANSMITTER TO BE INSTALLED IN THE EXISTING LIQUID LEVEL CONTROL PANEL. REFER ALSO TO SHEET E1.
10. PROPOSED LOCATION OF NEW 400 HP VFD FOR PUMP NO. 1 (AT ELEVATION 41.25' ABOVE). REFER TO ALSO TO SHEET E1.
11. EXISTING 20" EXHAUST DUCTWORK DIRECTLY BELOW 41.25' SLAB. LOCATION SHOWN IS APPROXIMATE.
12. COORDINATE FLOOR PENETRATIONS AND NEW VFD CONDUIT INSTALLATION WITH VFD MANUFACTURER'S CONDUIT ENTRY WINDOW AND EXISTING 20" EXHAUST DUCTWORK DIRECTLY BELOW 41.25' SLAB.
13. CONTRACTOR SHALL REMOVE EXISTING VIBRATION EQUIPMENT AND PROVIDE AND INSTALL NEW SENSORS AND INSTALL ASSOCIATED CONDUCTORS UP TO ELEVATION 41.25'. REFER TO SHEET E1 FOR NEW CTC EQUIPMENT LOCATION. EXISTING CONDUCTORS CURRENTLY USED FOR VIBRATION EQUIPMENT 120V AC POWER, PUMP AND MOTOR VIBRATION ALARMS, AS WELL AS, FOR PUMP AND MOTOR VIBRATION & TEMPERATURE 4-20mA SIGNALS SHALL BE DISCONNECTED AT THE EXISTING TERMINAL BOX AT ELEVATION 15.00' AND ABANDONED.
14. CONTRACTOR SHALL RELOCATE CTC EQUIPMENT FROM PROPOSED LOCATION ON ELEVATION 15.00' TO ELEVATION 41.25'. REFER TO SHEET E1 FOR PROPOSED CTC EQUIPMENT LOCATION. PROVIDE AND INSTALL NEW SENSORS AND INSTALL ASSOCIATED CONDUCTORS UP TO PROPOSED CTC EQUIPMENT AT ELEVATION 41.25'. CONDUCTORS CURRENTLY USED FOR VIBRATION EQUIPMENT 120V AC POWER, PUMP AND MOTOR VIBRATION ALARMS, AS WELL AS, FOR PUMP AND MOTOR VIBRATION & TEMPERATURE 4-20mA SIGNALS SHALL BE DISCONNECTED AT THE EXISTING TERMINAL BOX AT ELEVATION 15.00' AND ABANDONED. 1

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No.	DATE	REVISIONS
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1	1-7-19	ACE3600 ADDITION REVISION

TIMOTHY THOMAS, P.E. #47079

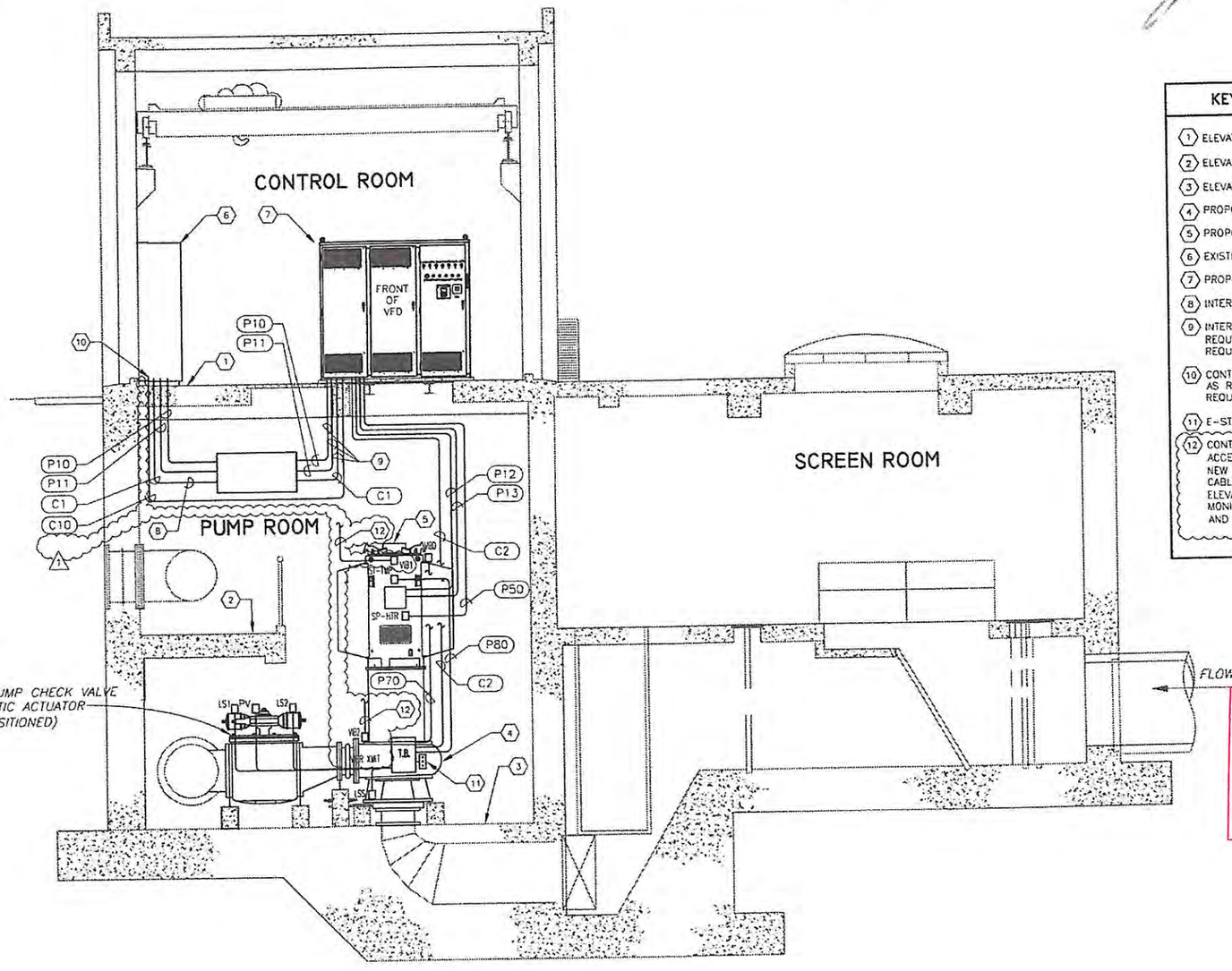
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ELECTRICAL POWER PLAN EL 15.00'

W.O. 4511
SHEET E2 OF

No Changes TDT 5/17/22



ELECTRICAL SECTION
SCALE : N.T.S.

A
E2 E3

KEYED NOTES:

1. ELEVATION 41.25'.
2. ELEVATION 26.50'
3. ELEVATION 15.00'.
4. PROPOSED SEWAGE PUMP NO. 1.
5. PROPOSED SEWAGE PUMP NO. 1 MOTOR.
6. EXISTING SEWAGE PUMPS CONTROL CENTER.
7. PROPOSED SEWAGE PUMP NO. 1 VFD.
8. INTERCEPT EXISTING 2-1/2"C. AND REDUCE TO 1-1/2"C.
9. INTERCEPT EXISTING CONDUITS AT PULL BOX AND EXTEND AS REQUIRED. PROVIDE NEW 4" CONDUITS FOR VFD FEEDER AS REQUIRED.
10. CONTRACTOR SHALL MAKE MODIFICATIONS TO EXISTING SLAB AS REQUIRED TO ACCOMMODATE ALL NEW CONDUITS REQUIRED FOR NEW VFD INSTALLATION.
11. E-STOP: STOP/L RESUME
12. CONTRACTOR TO PROVIDE AND INSTALL NEW MOTOR ACCELEROMETER/TEMPERATURE (VIB1) SENSOR CABLE AND NEW PUMP ACCELEROMETER/TEMPERATURE (VIB2) SENSOR CABLE UP TO NEW VIBRATION MONITORS TO BE LOCATED ON ELEVATION 15.00'. REFER TO SHEET E1 FOR VIBRATION MONITORS INSTALLATION LOCATION. TYPICAL FOR ALL PUMP AND MOTOR ACCELEROMETER/TEMPERATURE SENSORS.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

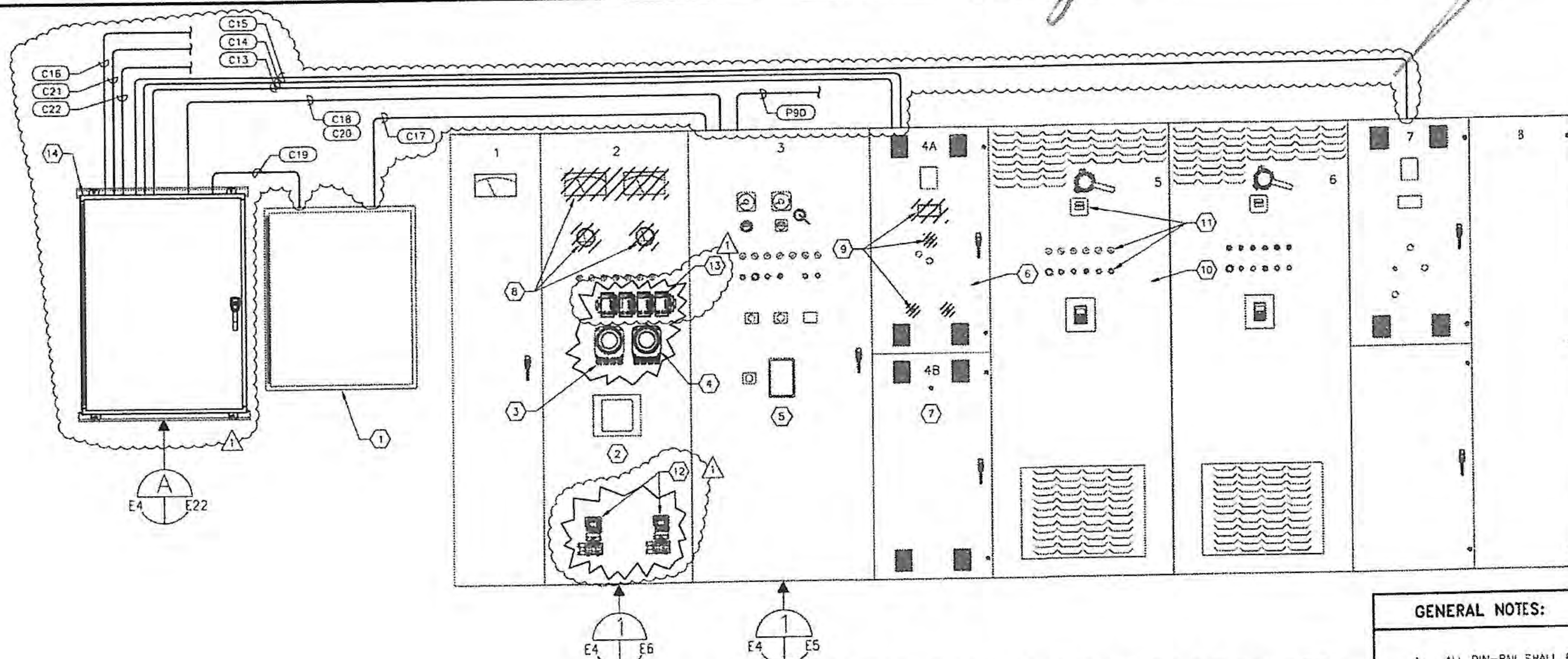
DES: TDT
DRN: JLH
CKD: TDT
DATE 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ELECTRICAL POWER SECTION

W.O. 4511
SHEET E3 OF

No Changes [signature] 5/17/22



SEWAGE PUMPS CONTROL CENTER FRONT ELEVATION

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

GENERAL NOTES:

1. ALL DIN-RAIL SHALL BE ALUMINUM.
2. PROVIDE AND INSTALL ALL ASSOCIATED END BARRIERS, TERMINAL JUMPERS AND ACCESSORIES AS REQUIRED FOR TERMINAL BLOCKS.

KEYED NOTES:

(1) EXISTING PLC CONTROL CABINET. REFER TO SHEET E1 FOR CONDUIT AND CONDUCTORS REQUIRED.

(2) EXISTING LIQUID LEVEL CONTROLS (LLC) CUBICLE. REFER TO DETAIL ON SHEET E6 FOR OTHER WORK REQUIRED.

(3) EXISTING ABB FLOW METER TRANSMITTER LOCATED ON BACKPLATE OF LLC (BEHIND LLC DOOR).

(4) PROVIDE AND INSTALL NEW ABB FLOW METER TRANSMITTER. PROVIDE AND INSTALL 2-#12 + 1-#12 GND TO 120/208V PANELBOARD FOR FLOW METER TRANSMITTER 120V POWER (P40). PROVIDE AND INSTALL 2/C #16 TWISTED SHIELDED (BELDEN 8719) FROM NEW FLOW METER TRANSMITTER TO EXISTING PLC. TRANSMITTER CABLE BY MANUFACTURER.

(5) EXISTING SEWAGE PUMP NO. 1 CUBICLE (SECTION 3). REFER TO SHEET E5 FOR WORK REQUIRED.

(6) EXISTING CUBICLE 4A FOR PUMP NO. 1 CONTROLS. CONTRACTOR SHALL REMOVE ALL INTERIOR COMPONENTS MADE OBSOLETE BY THE INSTALLATION OF THE NEW PUMP NO. 1 VFD. REFER TO CONDUIT AND CABLE SCHEDULE ON SHEET E21. REFER ALSO TO SHEETS E8, E9, E10 AND E11 FOR NEW VFD CONTROLS. PROVIDE AND INSTALL NEW 600V, 20A TERMINAL BLOCKS (ALLEN-BRADLEY 1492-W3) FOR NEW CONDUCTORS TO BE INSTALLED FROM VFD. REFER ALSO TO GENERAL NOTES. NOTE: NEW CONTROLS FOR PUMP NO. 1 SHALL BE MOUNTED IN THE PROPOSED FREE-STANDING VFD CABINET LOCATED TO THE EAST.

(7) EXISTING CUBICLE 4B FOR PUMP NO. 2 CONTROLS. REFER TO SHEETS E13, E14 AND E15 FOR REPLACEMENT OF EXISTING CONTROLS.

(8) EXISTING DEVICES TO BE REMOVED AND REPLACED WITH NEW. REFER TO DETAIL ON SHEET E6 FOR WORK REQUIRED.

(9) REMOVE EXISTING DEVICES AND PROVIDE AND INSTALL 1/4" ALUMINUM PLATE OVER EXISTING CUT-OUTS. PAINT TO MATCH EXISTING SURFACE.

(10) EXISTING SECTION 5 CONTAINING EXISTING PUMP NO. 2 VFD.

(11) EXISTING DEVICES TO BE REPLACED. REFER TO SHEETS E13, E14 AND E15 FOR NEW PUSHBUTTONS, PILOT LIGHTS, ETC. REQUIRED.

(12) APPROXIMATE LOCATION FOR EXISTING GAUGE PRESSURE TRANSMITTERS FOR WEST AND EAST WET WELL LEVELS. CONTRACTOR TO FIELD VERIFY LOCATION AND TYPE.

(13) PROVIDE AND INSTALL FOUR (4): 4-20mA SIGNAL ISOLATOR/CONVERTERS. MOORE INDUSTRIES ECT/4-20mA/2X4-20mA/117AC/DIN, OR EQUAL. IF INSTRUMENT REQUIRES LOOP POWER, CONTRACTOR SHALL INSTALL ECT/4-20mA/2X4-20mA/117AC/TX/DIN, OR EQUAL. EACH ISOLATOR/CONVERTER SHALL BE PROVIDED WITH A 120V, 1 AMPERE THERMAL CIRCUIT BREAKER. THERMAL CIRCUIT BREAKERS SHALL BE PHOENIX CONTACT TCP TYPE. PROVIDE WITH SCREW TYPE CONNECTION, FUSE BASE TERMINAL BLOCK, PHOENIX CONTACT TYPE UK 6-FSI/C. ALL COMPONENTS SHALL BE MOUNTED TO LIQUID LEVEL CONTROLS (LLC) CUBICLE BACKPANEL WITH 35mm ALUMINUM DIN-RAIL. PROVIDE NEW TERMINAL BLOCKS AS REQUIRED. LOCATION SHOWN FOR NEW COMPONENTS IS APPROXIMATE. CONTRACTOR SHALL RELOCATE DEVICES, AND/OR RELOCATE EXISTING DEVICES, AS NECESSARY.

(14) REMOVE EXISTING TELEMETRY CABINET, THEN PROVIDE AND INSTALL NEW ACE3600 CABINET. MOUNT CABINET TO WALL WITH 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT. REFER TO SHEET E22 FOR ACE3600 CABINET DETAILS.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

TRICON CONSULTING ENGINEERS

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1	1-7-19	ACE3600 ADDITION REVISION

TIMOTHY THOMAS, P.E. #47079

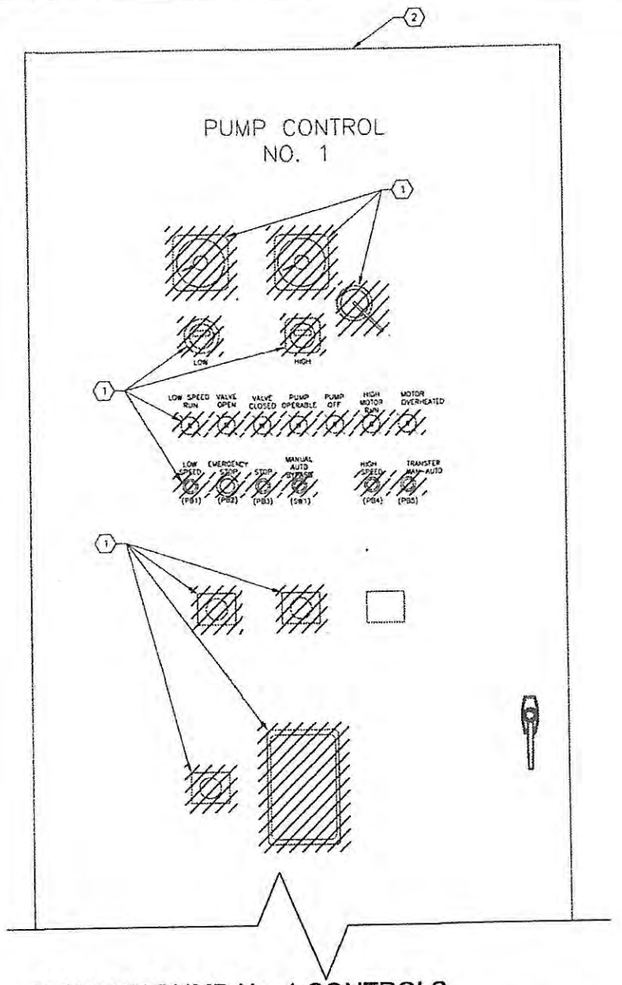
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
CONTROL CENTER FRONT ELEVATION

W.O. 4511
SHEET E4

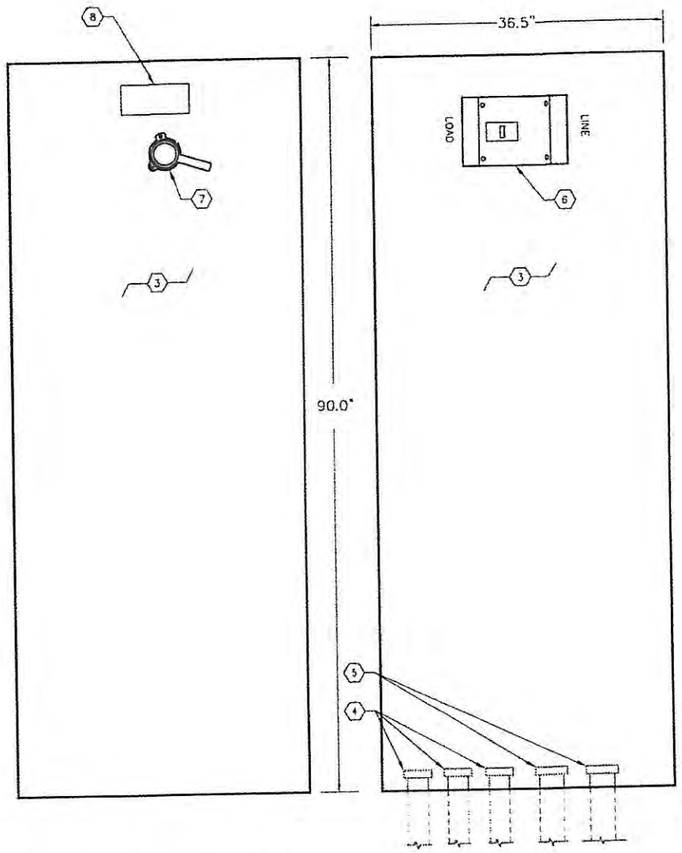
N.O Changes Tim Thomas 5/17/22



SEWAGE PUMP No. 1 CONTROLS
EXISTING FRONT DOOR LAYOUT DETAIL

SCALE : N.T.S.

1 E4 | E5



SEWAGE PUMP No. 1
SECTION 3 PROPOSED
EXTERIOR LAYOUT

SCALE : N.T.S.

SEWAGE PUMP No. 1
SECTION 3 PROPOSED
INTERIOR LAYOUT

SCALE : N.T.S.

KEYED NOTES:

1. REMOVE ALL EXISTING DOOR MOUNTED OPERATOR DEVICES AND INSTALL PROPOSED DEVICES AS SHOWN. NEATLY COVER EXISTING OPENINGS NOT BEING UTILIZED AND PAINT TO MATCH EXISTING SURFACE. PROVIDE PROPER LEGEND PLATES AS SHOWN. PROPOSED LEGEND PLATES ENGRAVING, LETTERING SIZE, AND MATERIAL SHALL MATCH EXISTING LEGEND PLATES.
2. TOP OF EXISTING DOOR.
3. ALL EQUIPMENT SHOWN AS LOCATED ON OR IN SECTION 3 IS PROPOSED.
4. THREE (3) EXISTING 2-1/2" CONDUITS. CONTRACTOR MAY REUSE EXISTING CONDUITS AS NEEDED.
5. CONTRACTOR SHALL MAKE MODIFICATIONS TO EXISTING SLAB AS REQUIRED TO ACCOMMODATE NEW 4" ALUMINUM CONDUITS REQUIRED FOR NEW VFD FEEDERS.
6. NEW 600V, 80DA, 3-POLE MAIN CIRCUIT BREAKER FOR VFD FEEDER.
7. NEW OPERATOR FOR MAIN CIRCUIT BREAKER TO BE INSTALLED ON OUTER DOOR OF SECTION 3. OPERATOR SHALL BE ABLE TO BE LOCKED IN THE 'OFF' POSITION.
8. CONTRACTOR SHALL PROVIDE NEW LEGEND PLATE LABELED AS, 'PUMP NO. 1 FEEDER'. PROPOSED LEGEND PLATE ENGRAVING, LETTERING SIZE, AND MATERIAL SHALL MATCH EXISTING LEGEND PLATES.

GENERAL NOTES:

1. ALL EXISTING COMPONENTS LOCATED WITHIN SECTION 3 THAT ARE NO LONGER REQUIRED FOR THE PROPER OPERATION OF PUMP NO. 1 VFD SHALL BE REMOVED.
2. LIGHTER LINE WEIGHT ITEMS ARE EXISTING.
3. REFER TO SHEET E8, E10 AND E11 FOR NEW PUMP NO. 1 VFD WIRING DIAGRAM.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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No.	DATE	REVISIONS
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1		

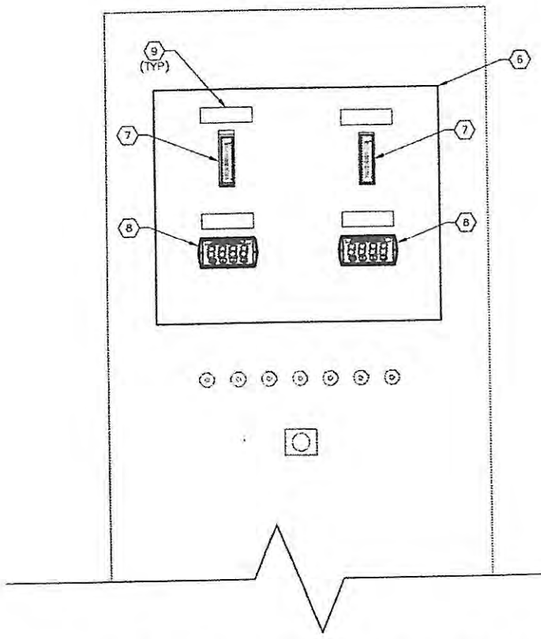
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

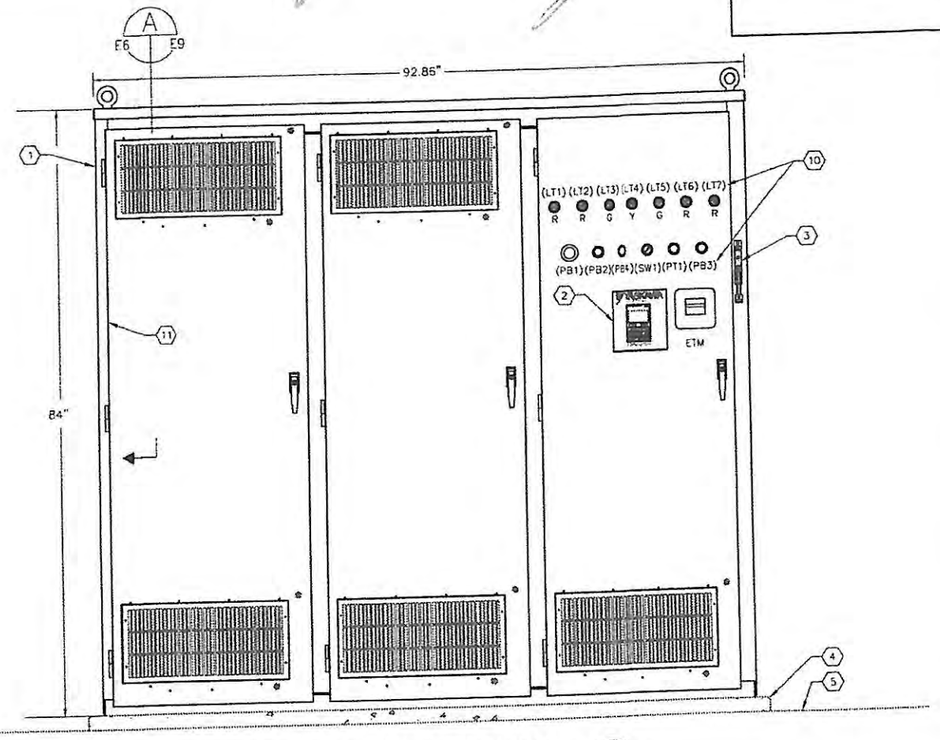
UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
SECTION 3 MODIFICATIONS

W.O. 4511
SHEET E5 OF

No Changes Granger 5/17/22



LIQUID LEVEL CONTROLS (LLC) FRONT ELEVATION (1 / E4 E6)
SCALE : N.T.S.



VFD FRONT ELEVATION (A / E1 E6)
SCALE : N.T.S.

KEYED NOTES:

1. NEW 400 HP VFD FOR SEWAGE PUMP NO. 1.
2. VFD HMI.
3. VFD MAIN CIRCUIT BREAKER OPERATOR.
4. CONTRACTOR TO PROVIDE AND INSTALL 2" HOUSEKEEPING PAD.
5. EXISTING SLAB AT ELEVATION 41.25'.
6. AFTER EXISTING DEVICES HAVE BEEN REMOVED (AS INDICATED ON SHEET E4) CONTRACTOR SHALL PROVIDE AND INSTALL 1/4" ALUMINUM PLATE OVER EXISTING CUT-OUTS. PAINT TO MATCH EXISTING SURFACE.
7. CONTRACTOR TO PROVIDE AND INSTALL NEW OMEGA HORIZONTAL SCALE BAR GRAPH DISPLAY. OMEGA MODEL # BG-18-4-P7 (110V-50/60 HZ POWER SUPPLY). CONNECT UNIT TO NEW 120V (P40) CIRCUIT PROVIDED FOR NEW FLOW METER.
8. CONTRACTOR TO PROVIDE AND INSTALL NEW PRECISION DIGITAL PROCESS METER, MODEL PD765-6X5-10. CONNECT UNIT TO NEW 120V (P40) CIRCUIT PROVIDED FOR NEW FLOW METER.
9. PROVIDE AND INSTALL NEW LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM AND SHALL MATCH EXISTING VERBIAGE. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS.
10. REFER TO SHEETS E9, E10 AND E11 FOR DEVICE IDENTIFICATIONS.
11. REFER TO SHEET E9 FOR VFD NO. 1 CONTROL PANEL DETAIL (CONTROL PANEL LOCATED IN THE INTERIOR OF VFD NO. 1 ON LEFT SIDE WALL OF ENCLOSURE)

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1		

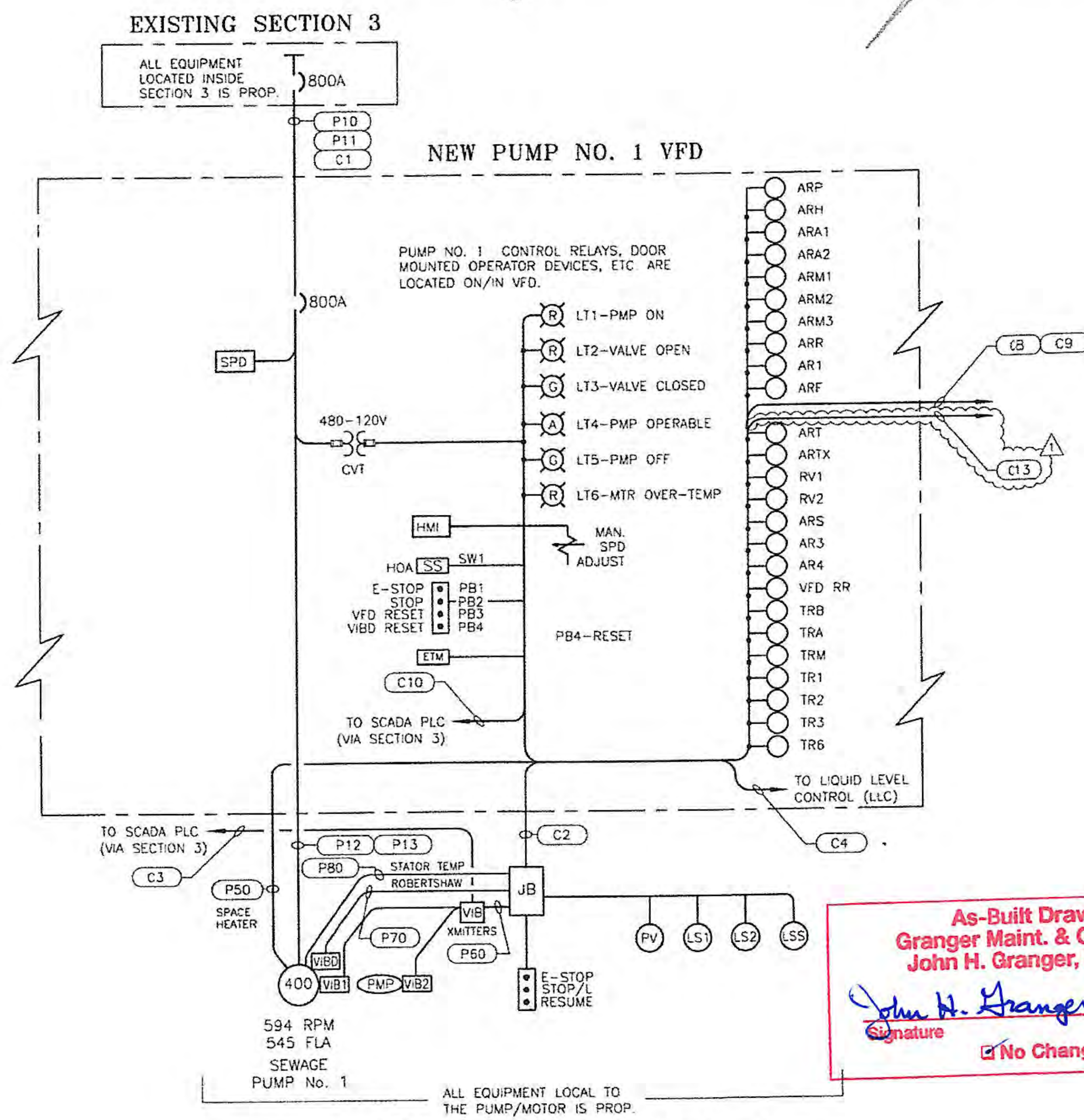
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
LLC AND VFD FRONT ELEVATIONS

W.O. 4511
SHEET E6 OF

No Changes [signature] 5/17/22



As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President

John H. Granger 6/22/2022
Signature Date

☑ No Changes

TRICON CONSULTING ENGINEERS

ONE LINE DIAGRAM – PUMP No. 1

480V – 3PH – 60HZ

No.	DATE	REVISIONS
3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

TIMOTHY THOMAS, P.E. #47079

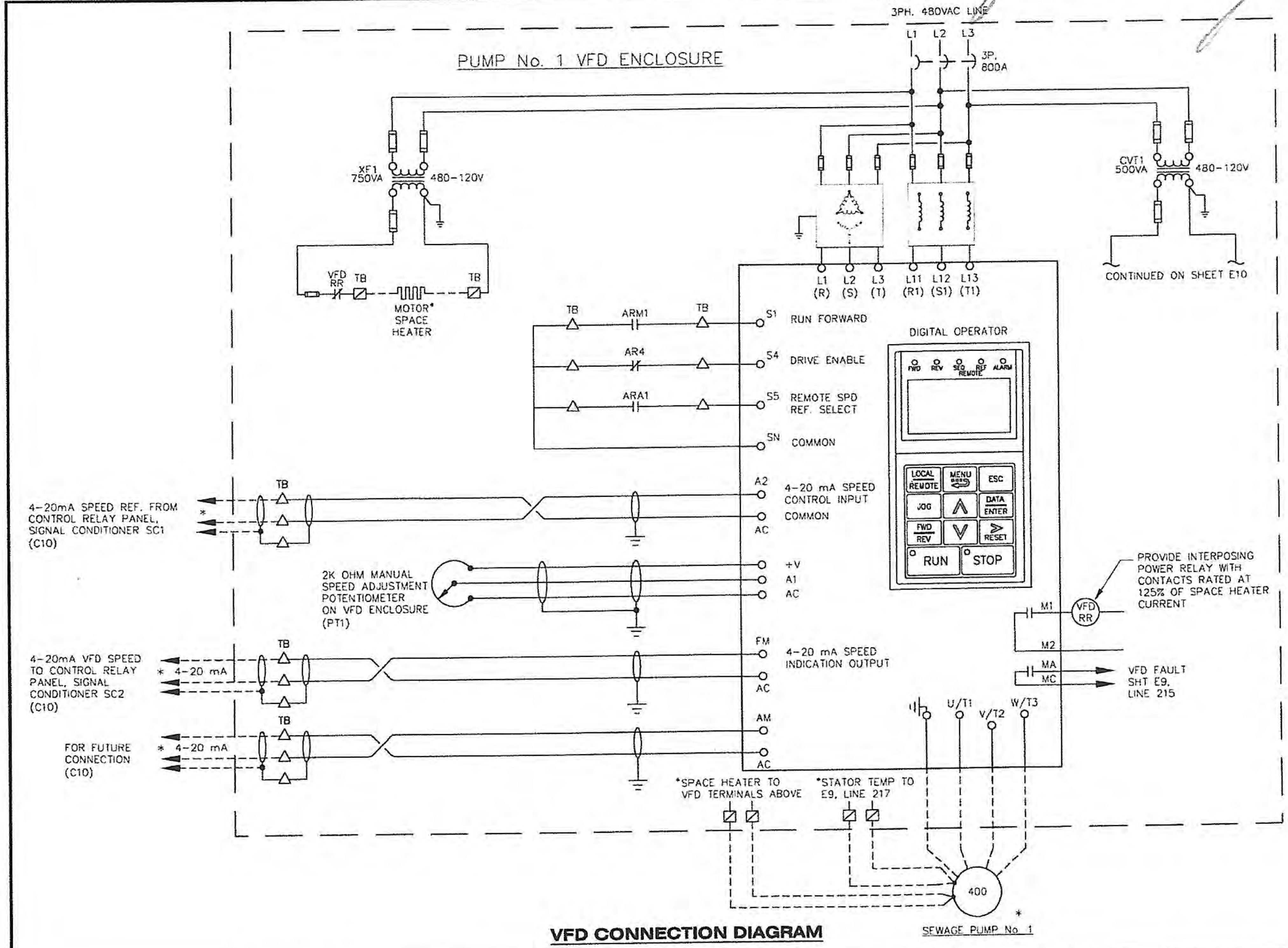
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ELECTRICAL ONE-LINE DIAGRAM

W.O. 4511
SHEET E7
OF

NO Changes [signature] 5/17/22



VFD CONNECTION DIAGRAM

NOTES:

1. △ - DENOTES FIELD CONNECTION TERMINALS LOCATED IN NEW PUMP No. 1 VFD.
2. COORDINATE WITH EQUIPMENT MANUFACTURER WIRING DETAILS & SPECIFIC I/O CONNECTION POINTS.
3. COORDINATE INSTRUMENTATION/CONTROL CONNECTIONS W/ CITY PERSONNEL.
4. "*" INDICATES DEVICE IS LOCATED REMOTE FROM VARIABLE FREQUENCY DRIVE ENCLOSURE.
5. PROVIDE AND INSTALL A YASKAWA iQ1000 VARIABLE FREQUENCY DRIVE WITH THE FOLLOWING RATINGS - 480VAC, 12-PULSE, 590AMP, 491 KVA, INPUT CONVERTER; 545AMP, 412 KVA, OUTPUT INVERTER.
6. THE DIGITAL OPERATOR SHALL BE MOUNTED ON THE VFD ENCLOSURE FRONT DOOR AS SHOWN ON SHT. E2.
7. ☐ - DENOTES FIELD CONNECTION TERMINALS LOCATED IN THE NEW PUMP No. 1 VFD.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

TRICON CONSULTING ENGINEERS

No.	DATE	REVISIONS
3		
2		
1		

TIMOTHY THOMAS, P.E. #47079

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ELECTRICAL - VFD INTERCONNECTIONS

W.O. 4511
SHEET E8

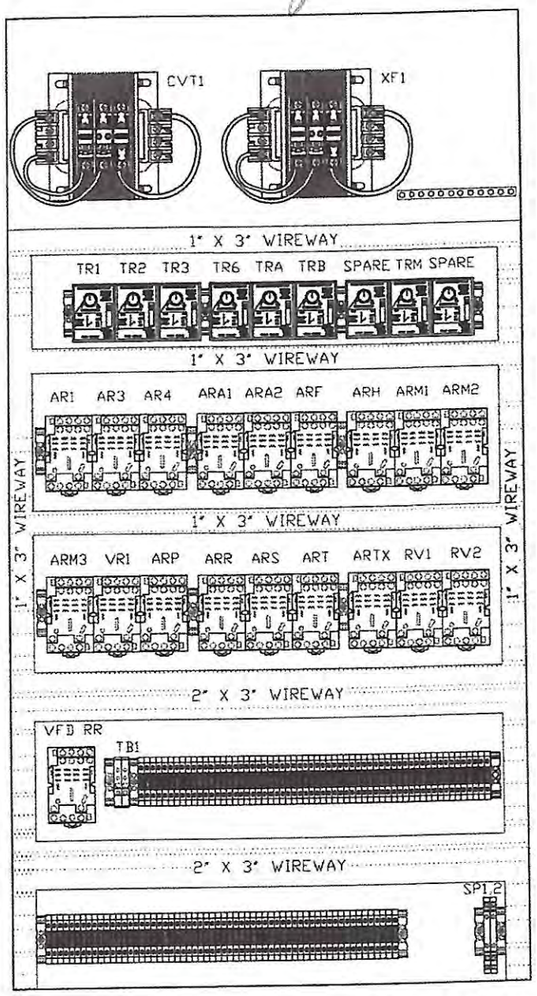
NO Changes

5/17/22

SYMBOL	DESCRIPTION	MANUFACTURER/MODEL	REMARKS
CVT1	CONTROL VOLTAGE TRANSFORMER	SQUARE D/CLASS 9070-TF500D1	500VA, 120-480V
XF1	CONTROL VOLTAGE TRANSFORMER	SQUARE D/CLASS 9070-TF750D1	750VA, 120-480V
SP1, 2	SURGE SUPPRESSOR	PHOENIX CONTACT 2838186	24V DC SURGE PROTECTION DEVICE
LT1	LEGEND PLATE: MOTOR RUN	SQUARE D/CLASS 9001 SKT-3BLRR9	RED LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT2	LEGEND PLATE: VALVE OPEN	SQUARE D/CLASS 9001 SKT-3BLRR9	RED LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT3	LEGEND PLATE: VALVE CLOSED	SQUARE D/CLASS 9001 SKT-3BLGG9	GREEN LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT4	LEGEND PLATE: PUMP OPERABLE	SQUARE D/CLASS 9001 SKT-3BLYY9	YELLOW LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT5	LEGEND PLATE: PUMP OFF	SQUARE D/CLASS 9001 SKT-3BLGG9	GREEN LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT6	LEGEND PLATE: MOTOR OVERTEMP	SQUARE D/CLASS 9001 SKT-3BLRR9	RED LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT7	LEGEND PLATE: VIBRATION	SQUARE D/CLASS 9001 SKT-3BLRR9	RED LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
PB1	LEGEND PLATE: EMERGENCY STOP	SQUARE D/CLASS 9001 SKR-4RH13	RED MUSHROOM HEAD PUSH BUTTON 1-3/8" DIAMETER
PB2	LEGEND PLATE: STOP	SQUARE D/CLASS 9001 SKR-1R W/ (2) KA2 CONTACTS	RED FLUSH HEAD PUSH BUTTON
PB3	LEGEND PLATE: DRIVE RESET	SQUARE D/CLASS 9001 SKR-1B W/ (2) KA2 CONTACTS	BLACK FLUSH HEAD PUSH BUTTON
PB4	LEGEND PLATE: VIBD RESET	SQUARE D/CLASS 9001 SKR-1B W/ (2) KA2 CONTACTS	BLACK FLUSH HEAD PUSH BUTTON
SW1	LEGEND PLATE: OFF AUTO HAND	SQUARE D/CLASS 9001 SKS43BH2 W/ KA5, KA4 AND KA2 CONTACTS	THREE POSITION SWITCH MAINTAINED WITH AUTO-HAND OVERLAP
PT1	MANUAL SPEED ADJUST	HONEYWELL #73JA2K POT AND BOURNS #H-46-6A DIAL	10-TURN POTENITIOMETER W/TURNS COUNTING DIAL
ETM	ELAPSHED TIME METER	GARASSLIN/INTERMATIC, INC UWZ SERIES UWZ48	PROVIDE SOCKET BASE
(AR) P, H, A1, A2, M1, M2, M3, M, R, I, F, T, TX, RV1, RV2, S, 3, 4, VR1 AND VFD RR	CONTROL RELAYS	SQUARE D 120V AC RELAY	PROVIDE 120V AC RELAY BASE SQUARE D RPZF4
(TR) 1, 2, 3, A, B, M	TIMING DELAY "ON DELAY"	ABB TRU3 120V AC TIMER RELAY	PROVIDE ABB NDS-11 TIMER BASE
TR6	TIMING DELAY "OFF DELAY"	ABB TRU3 120V AC TIMER RELAY	PROVIDE ABB NDS-11 TIMER BASE

PUMP NO. 1 CONTROLS PARTS SCHEDULE

(SCHEMATICS ON SHEETS E10 - E11)



GENERAL NOTES:

1. SCOPE OF WORK REQUIRES THE REMOVAL OF ALL EXISTING TRANSFORMERS, RELAYS, WIREWAY, ETC CURRENTLY USED FOR PUMP NO. 1 SPEED CONTROLS. THE EXISTING COMPONENTS FOR THE PUMP NO. 1 SPEED CONTROLS ARE LOCATED IN CUBICLE 4A OF THE PUMP CONTROL CENTER. CONTRACTOR SHALL PROVIDE NEW BACKPANEL AND COMPONENTS AS SHOWN AND FOLLOW THE SCHEMATIC DIAGRAMS ON SHEETS E10 AND E11. THE NEW CONTROL PANEL SHALL BE INSTALLED IN THE PROPOSED VFD CABINET LOCATED TO THE EAST. ALL PILOT DEVICES AND VFM HMI SHALL BE MOUNTED ON THE VFD DOOR AS SHOWN ON SHEET E6.
2. PROVIDE TERMINAL BLOCKS, SQUARE D TYPE 3004362 AS REQUIRED.
3. PROVIDE TERMINAL JUMPERS, PHOENIX CONTACT 0203519 AS REQUIRED.
4. PROVIDE END CLAMPS, PHOENIX CONTACT 0800886 AS REQUIRED.
5. PROVIDE TERMINAL END COVERS, PHOENIX CONTACT 3003020 AS REQUIRED.
6. PROVIDE PRIMARY FUSES, BUSSMAN FNQR-3 AS REQUIRED.
7. PROVIDE SECONDARY FUSES, BUSSMAN FNQ-7 AS REQUIRED.
8. ALL DIN RAIL SHALL BE ALUMINUM.
9. MOTOR SPACE HEATER RELAY (VFD RR) SHALL BE LOCATED IN THE VFD ENCLOSURE AS SHOWN.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

DETAIL 1, PUMP NO. 1 PROPOSED CONTROLS LAYOUT

(A) E6 | E9

SCALE : N.T.S.

NOTE: CONTROLS SHALL BE PLACED IN THE ORDER AS SHOWN. CONTROL PANEL TO BE INSTALLED IN NEW PUMP NO. 1 VFD

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Certificate of Authorization No. 8363

TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1		

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

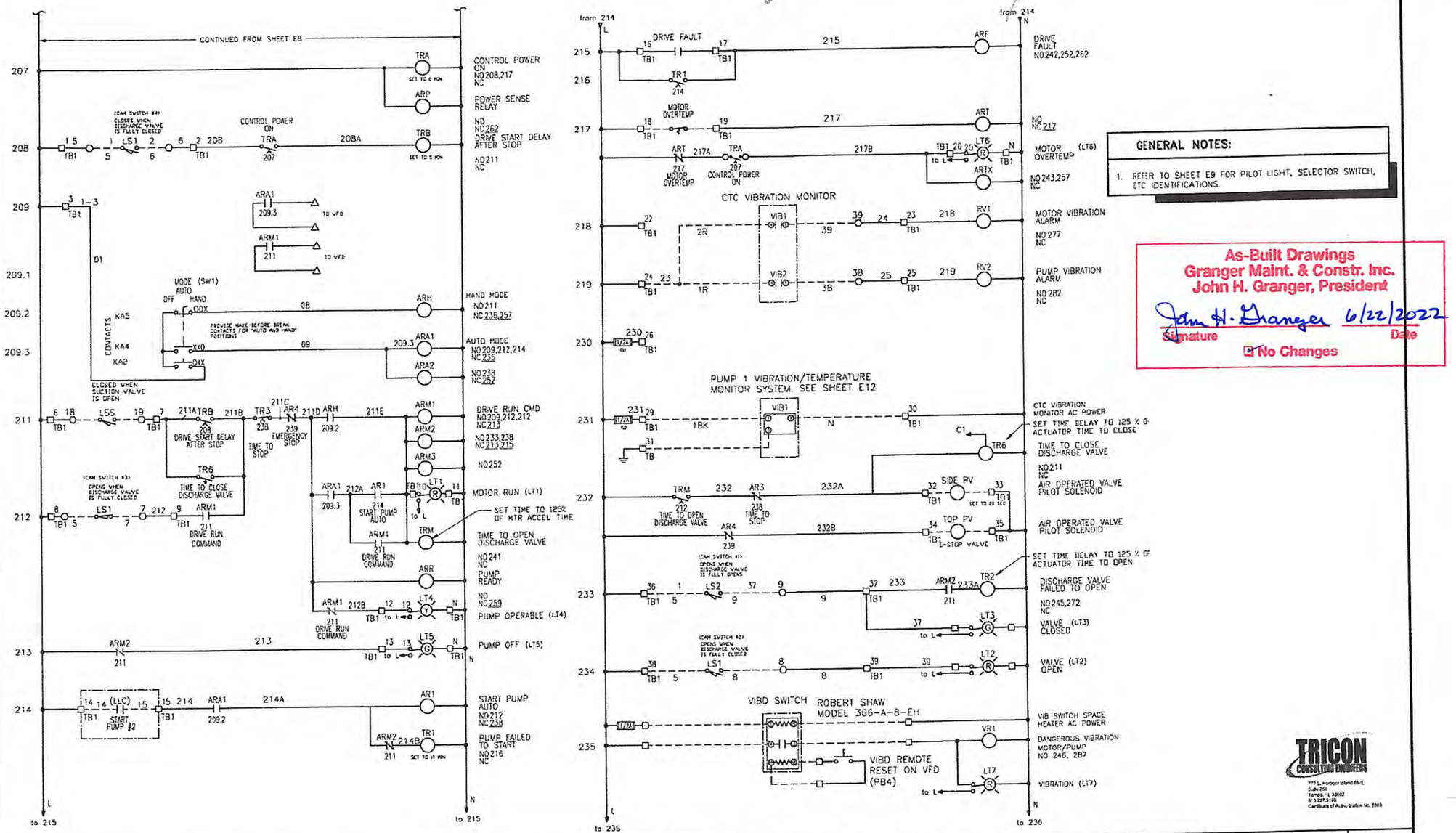
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
PUMP NO. 1 CONTROL PANEL

W.O. 4511
SHEET E9 OF

NO Changes

5/17/22



As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☒ No Changes

TRICON CONSULTING ENGINEERS

No.	DATE	REVISIONS
3		
2		
1		

TIMOTHY THOMAS, P.E. #47079

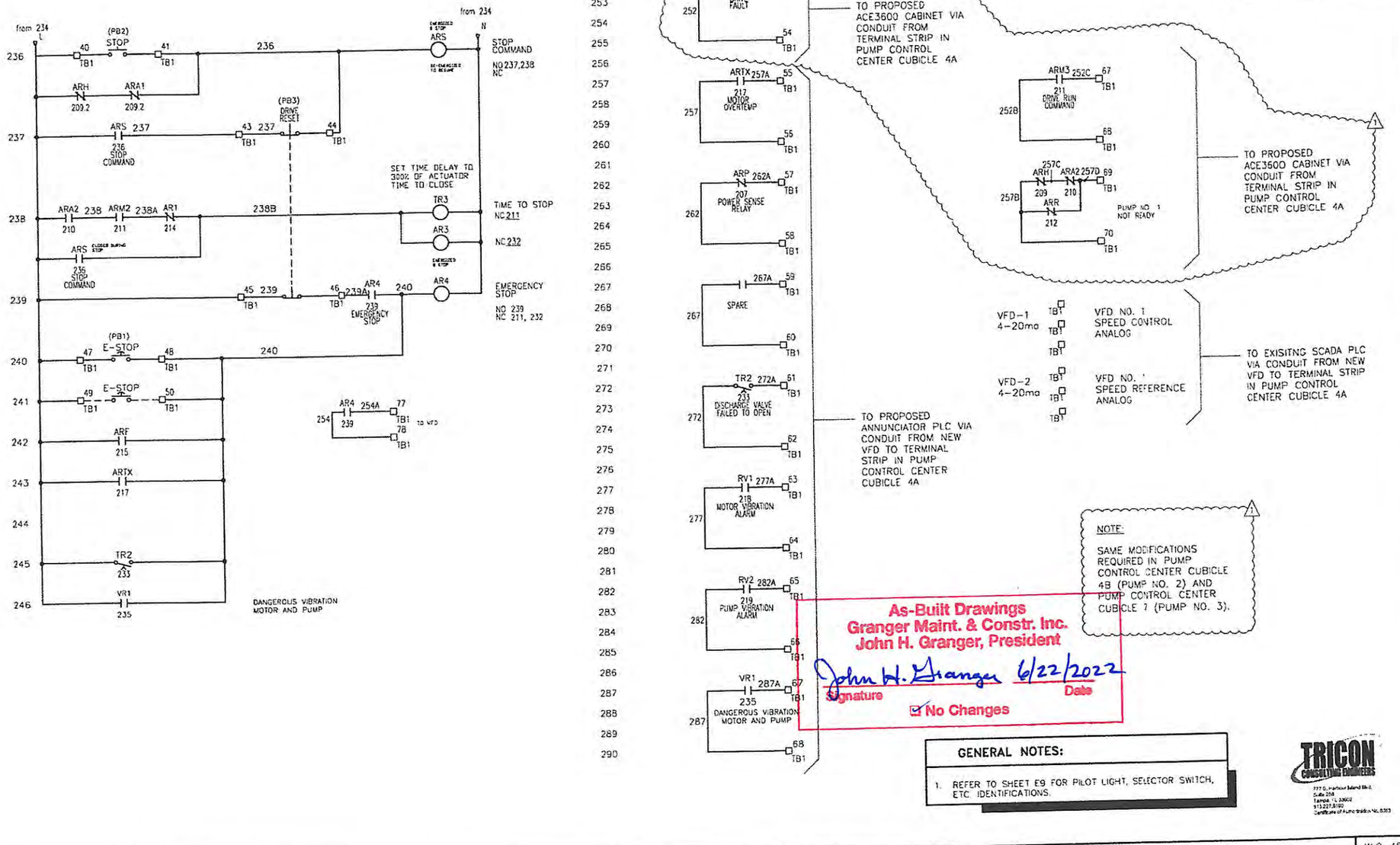
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
PUMP NO. 1 CONTROLS (SHT. 1 OF 3)

W.O. 4511
SHEET E10 OF

NO Changes Tampa 5/17/22



As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

GENERAL NOTES:

1. REFER TO SHEET E9 FOR PILOT LIGHT, SELECTOR SWITCH, ETC. IDENTIFICATIONS.

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No.	DATE	REVISIONS
3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

TIMOTHY THOMAS, P.E. #47079

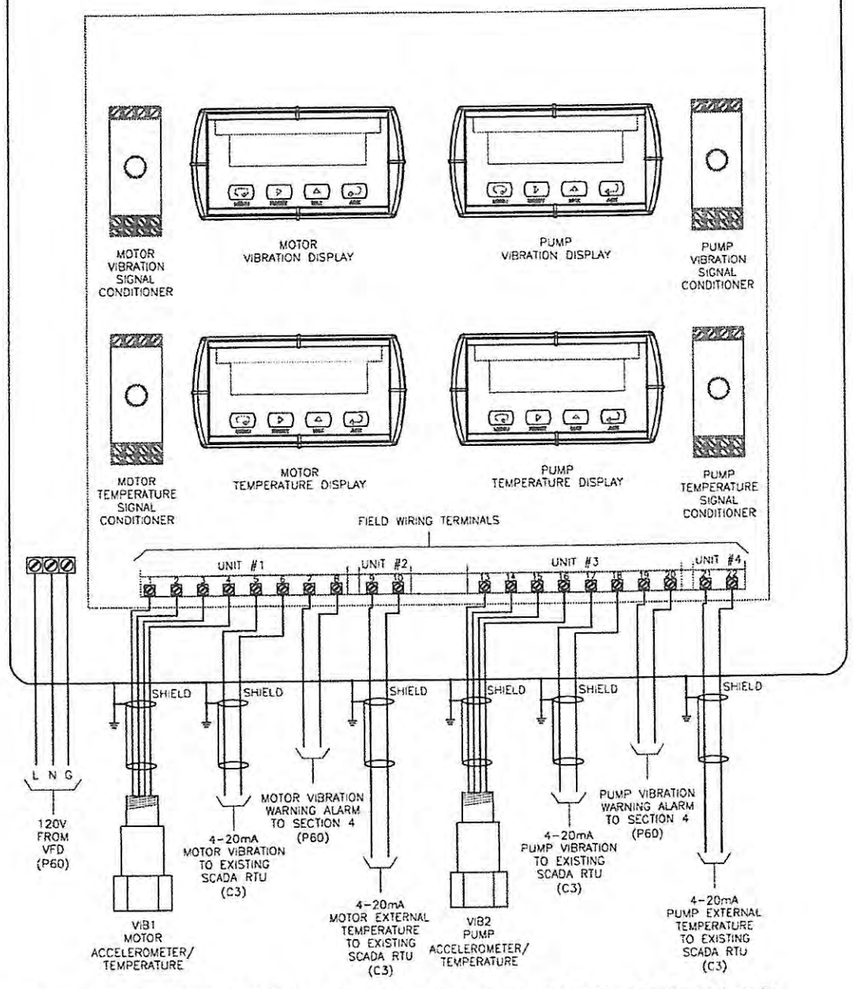
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
PUMP NO. 1 CONTROLS (SHT. 2 OF 3)

W.O. 4511
SHEET E11 OF

NO Changes 5/17/22



FIELD WIRING SCHEDULE				
UNIT No.	TERMINAL No.	TA102 CONDUCTOR	COLOR	REMARKS
UNIT No. 1	1	Ain +	RED	MOTOR VIBRATION INPUT
UNIT No. 1	2	Ain –	BLACK	COMMON
UNIT No. 1	3	Ain	SILVER	GROUND
UNIT No. 1	4	Ain	WHITE	MOTOR TEMPERATURE INPUT
UNIT No. 1	5			MOTOR VIBRATION 4–20mA OUTPUT
UNIT No. 1	6			MOTOR VIBRATION 4–20mA OUTPUT
UNIT No. 1	7			MOTOR VIBRATION ALARM NO CONTACT
UNIT No. 1	8			MOTOR VIBRATION ALARM COMMON
UNIT No. 2	9			MOTOR TEMPERATURE 4–20mA OUTPUT
UNIT No. 2	10			MOTOR TEMPERATURE 4–20mA OUTPUT
UNIT No. 3	13	Ain +	RED	PUMP VIBRATION INPUT
UNIT No. 3	14	Ain –	BLACK	COMMON
UNIT No. 3	15	Ain	SILVER	GROUND
UNIT No. 3	16	Ain	WHITE	PUMP TEMPERATURE INPUT
UNIT No. 3	17			PUMP VIBRATION 4–20mA OUTPUT
UNIT No. 3	18			PUMP VIBRATION 4–20mA OUTPUT
UNIT No. 3	19			PUMP VIBRATION ALARM NO CONTACT
UNIT No. 3	20			PUMP VIBRATION ALARM COMMON
UNIT No. 4	21			PUMP TEMPERATURE 4–20mA OUTPUT
UNIT No. 4	22			PUMP TEMPERATURE 4–20mA OUTPUT

CTC VIBRATION MONITOR - CTC MODEL # VPR-1002SDO-BB

THE PUMP / MOTOR SUPPLIER SHALL PROVIDE THE SPECIFIED VIBRATION MONITORING EQUIPMENT AND INSTALL THE ACCELEROMETERS/TEMPERATURE SENSORS VIB1 AND VIB2 (CTC MODEL # TA102 EACH) ON THE MACHINERY AS REQUIRED. THE SIGNAL CONDITIONERS AND DISPLAYS SHALL BE INSTALLED IN A COMMON FIBERGLASS ENCLOSURE MOUNTED NEAR THE MACHINERY AND WIRED AS REQUIRED BY THE ELECTRICAL SUBCONTRACTOR.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

TRICON CONSULTING ENGINEERS
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No.	DATE	REVISIONS
3		
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TIMOTHY THOMAS, P.E. #47079

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
PUMP NO. 1 CONTROLS (SHT. 3 OF 3)

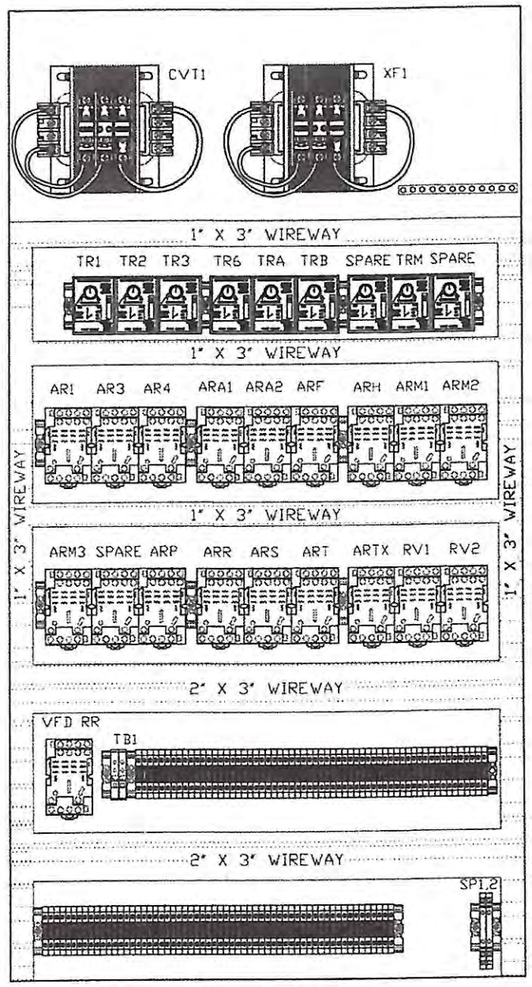
W.O. 4511
SHEET E12 OF

NO Changes 5/17/22

SYMBOL	DESCRIPTION	MANUFACTURER/MODEL	REMARKS
CVT1	CONTROL VOLTAGE TRANSFORMER	SQUARE D/CLASS 9070-TF500D1	500VA, 120-480V
XF1	CONTROL VOLTAGE TRANSFORMER	SQUARE D/CLASS 9070-TF750D1	750VA, 120-480V
SP1, 2	SURGE SUPPRESSOR	PHOENIX CONTACT 2838186	24V DC SURGE PROTECTION DEVICE
LT1	LEGEND PLATE: MOTOR RUN	SQUARE D/CLASS 9001 SKT-38LRR9	RED LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT2	LEGEND PLATE: VALVE OPEN	SQUARE D/CLASS 9001 SKT-38LRR9	RED LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT3	LEGEND PLATE: VALVE CLOSED	SQUARE D/CLASS 9001 SKT-38LGG9	GREEN LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT4	LEGEND PLATE: PUMP OPERABLE	SQUARE D/CLASS 9001 SKT-38LYY9	YELLOW LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT5	LEGEND PLATE: PUMP OFF	SQUARE D/CLASS 9001 SKT-38LGG9	GREEN LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
LT6	LEGEND PLATE: MOTOR OVERTEMP	SQUARE D/CLASS 9001 SKT-38LRR9	RED LENS INDICATOR LIGHT 120 V, LED TYPE & PRESS TEST
PB1	LEGEND PLATE: EMERGENCY STOP	SQUARE D/CLASS 9001 SKR-4RH13	RED MUSHROOM HEAD PUSH BUTTON 1-3/8" DIAMETER
PB2	LEGEND PLATE: STOP	SQUARE D/CLASS 9001 SKR-1R W/ (2) KA2 CONTACTS	RED FLUSH HEAD PUSH BUTTON
PB3	LEGEND PLATE: DRIVE RESET	SQUARE D/CLASS 9001 SKR-1B W/ (2) KA2 CONTACTS	BLACK FLUSH HEAD PUSH BUTTON
SW1	LEGEND PLATE: OFF AUTO HAND	SQUARE D/CLASS 9001 SKS43BH2 W/ KA5, KA4 AND KA2 CONTACTS	THREE POSITION SWITCH MAINTAINED WITH AUTO-HAND OVERLAP
PT1	MANUAL SPEED ADJUST	HONEYWELL #73JA2K POT AND BOURNS #H-46-6A DIAL	10-TURN POTENITIOMETER W/TURNS COUNTING DIAL
ETM	ELAPSHED TIME METER	GARASSLIN/INTERMATIC, INC. UWZ SERIES UWZ48	PROVIDE SOCKET BASE
(AR) P, H, A1, A2, M1, M2, M3, M, R, 1, F, T, TX, RV1, RV2, S, 3, 4, AND VFD RR	CONTROL RELAYS	SQUARE D 120V AC RELAY	PROVIDE 120V AC RELAY BASE SQUARE D RPZF4
(TR) 1, 2, 3 A, B, M	TIMING DELAY "ON DELAY"	ABB TRU3 120V AC TIMER RELAY	PROVIDE ABB NDS-11 TIMER BASE
TR6	TIMING DELAY "OFF DELAY"	ABB TRU3 120V AC TIMER RELAY	PROVIDE ABB NDS-11 TIMER BASE

SECTION 4B, PUMP NO. 2 CONTROLS PARTS SCHEDULE

(SCHEMATICS ON SHEETS E14 - E15)



DETAIL 1, PUMP NO. 2
PROPOSED CONTROLS LAYOUT

NOTE: CONTROLS SHALL BE PLACED IN THE ORDER AS SHOWN

GENERAL NOTES:

1. SCOPE OF WORK REQUIRES THE REMOVAL OF ALL EXISTING TRANSFORMERS, RELAYS, WIREWAY, ETC. CURRENTLY USED FOR PUMP NO. 2 VFD CONTROLS. THE EXISTING COMPONENTS FOR THE PUMP NO. 2 VFD CONTROLS ARE LOCATED IN CUBICLE 4B OF THE PUMP CONTROL CENTER. CONTRACTOR SHALL PROVIDE NEW BACKPANEL AND COMPONENTS AS SHOWN. ALL CONTROL CONDUCTORS INTERIOR TO THE CUBICLE AND INSTALLED TO THE PUMP NO. 2 VFD (LOCATED IN ADJACENT SECTION 5) SHALL BE NEW. CONDUCTORS CURRENTLY INSTALLED TO FIELD DEVICES (LIMIT SWITCHES, VIBRATION TRANSMITTER POWER/RELAY CONTACTS, E-STOP AT MOTOR, ETC.) SHALL BE REUSED. NEW PILOT LIGHTS, SELECTOR SWITCHES, ETC. SHALL BE PROVIDED AND INSTALLED ON THE FRONT DOOR OF SECTION 5.
2. PROVIDE TERMINAL BLOCKS, SQUARE D TYPE 3004362 AS REQUIRED.
3. PROVIDE TERMINAL JUMPERS, PHOENIX CONTACT 0203519 AS REQUIRED.
4. PROVIDE END CLAMPS, PHOENIX CONTACT 0800886 AS REQUIRED.
5. PROVIDE TERMINAL END COVERS, PHOENIX CONTACT 3003020 AS REQUIRED.
6. PROVIDE PRIMARY FUSES, BUSSMAN FNQR-3 AS REQUIRED.
7. PROVIDE SECONDARY FUSES, BUSSMAN FNQ-7 AS REQUIRED.
8. ALL DIN RAIL SHALL BE ALUMINUM.
9. MOTOR SPACE HEATER RELAY (VFD RR) SHALL BE LOCATED IN THIS CUBICLE AS SHOWN.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H Granger 6/22/2022
Signature Date
☑ No Changes

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Certificate of Authorization No. 5363

TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1		

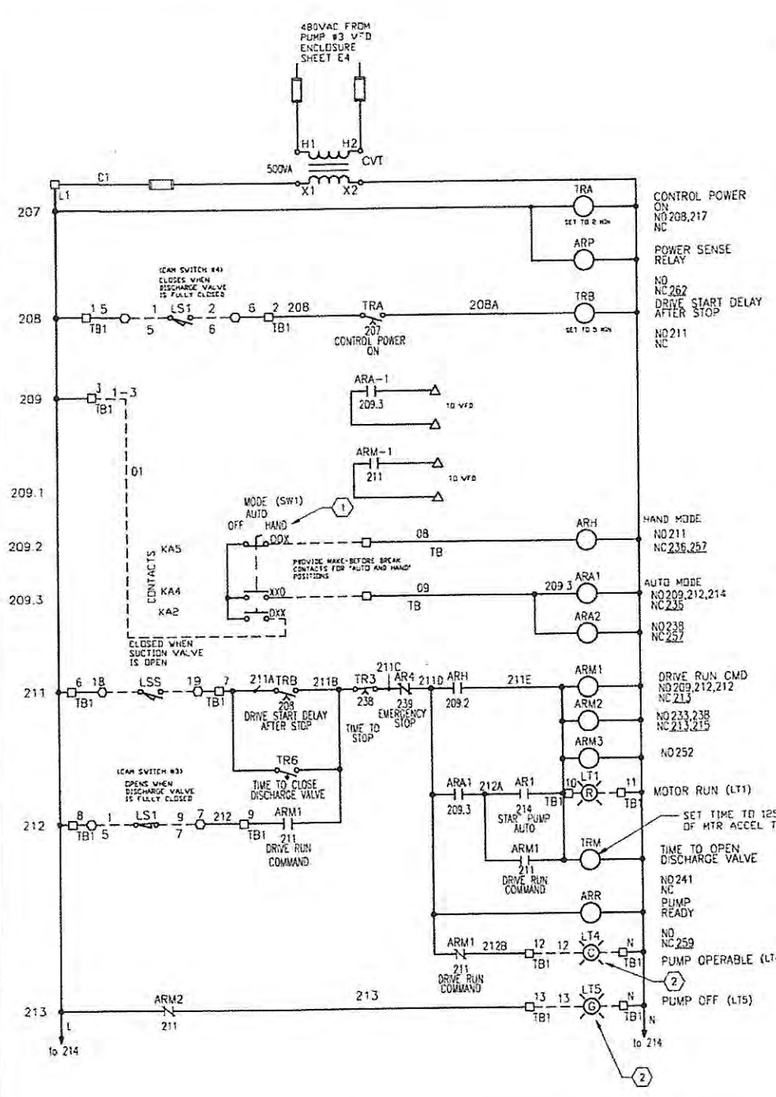
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
PUMP NO. 2 CONTROL PANEL

W.O. 4511
SHEET E13 OF

No Changes 5/17/22



KEYED NOTES:

1. PROVIDE AND INSTALL NEW SELECTOR SWITCH ON FRONT DOOR OF EXISTING PUMP NO. 2 VFD (SECTION 5) REFER TO E13 FOR PARTS SCHEDULE.
2. PROVIDE AND INSTALL NEW PILOT LIGHTS ON FRONT DOOR OF EXISTING PUMP NO. 2 VFD (SECTION 5) REFER TO E13 FOR PARTS SCHEDULE.

GENERAL NOTES:

1. REFER TO SHEET E13 FOR SCOPE OF WORK.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
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DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

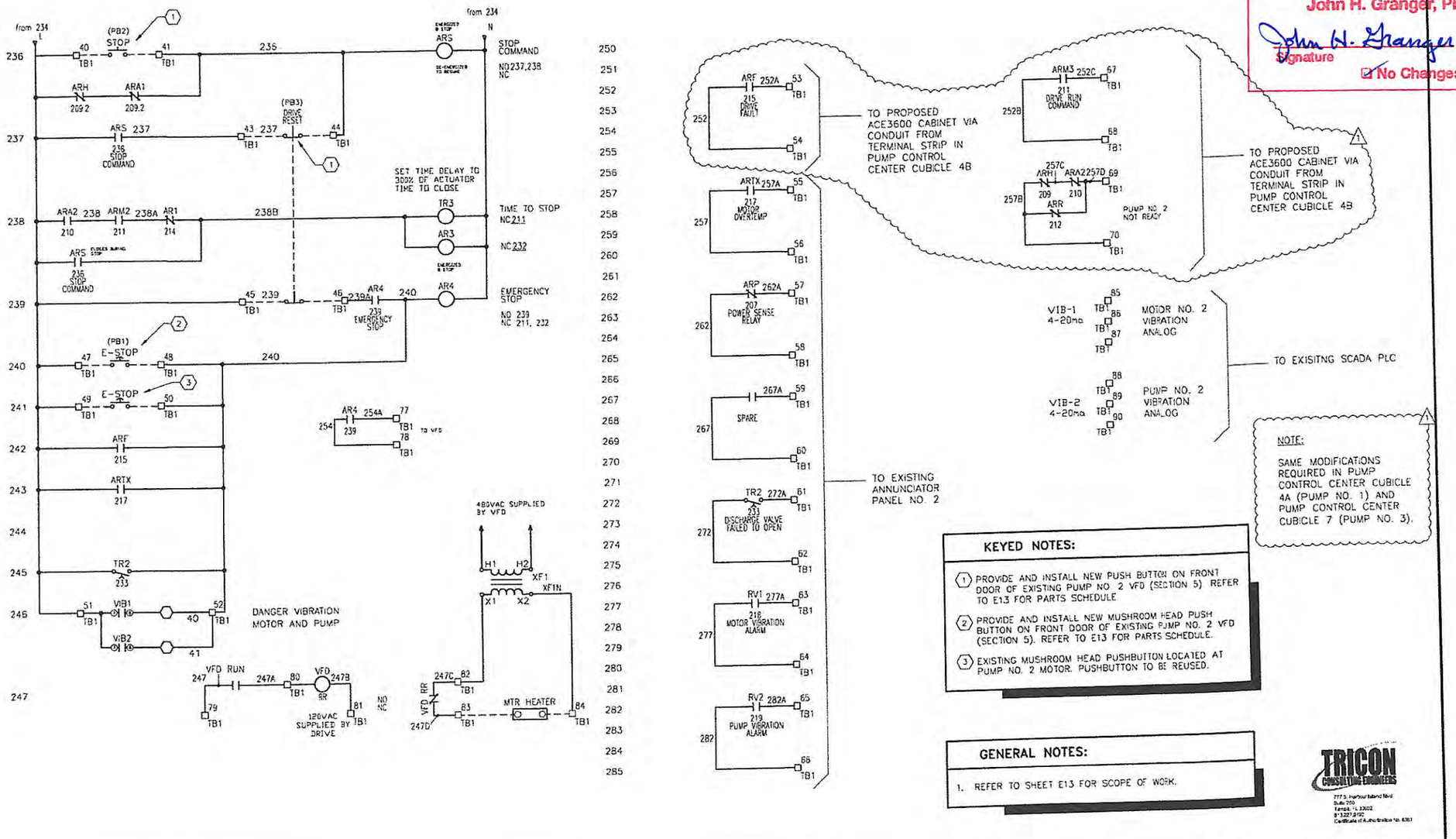
UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
PUMP NO. 2 CONTROLS (SHT. 1 OF 2)

W.O. 4511
SHEET E14 OF -

No Changes

5/17/22

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes



NOTE:

SAME MODIFICATIONS REQUIRED IN PUMP CONTROL CENTER CUBICLE 4A (PUMP NO. 1) AND PUMP CONTROL CENTER CUBICLE 7 (PUMP NO. 3).

KEYED NOTES:

1. PROVIDE AND INSTALL NEW PUSH BUTTON ON FRONT DOOR OF EXISTING PUMP NO. 2 VFD (SECTION 5). REFER TO E13 FOR PARTS SCHEDULE.
2. PROVIDE AND INSTALL NEW MUSHROOM HEAD PUSH BUTTON ON FRONT DOOR OF EXISTING PUMP NO. 2 VFD (SECTION 5). REFER TO E13 FOR PARTS SCHEDULE.
3. EXISTING MUSHROOM HEAD PUSHBUTTON LOCATED AT PUMP NO. 2 MOTOR. PUSHBUTTON TO BE REUSED.

GENERAL NOTES:

1. REFER TO SHEET E13 FOR SCOPE OF WORK.

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No.	DATE	REVISIONS
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2		
1	1-7-19	ACE3600 ADDITION REVISION

TIMOTHY THOMAS, P.E. #47079

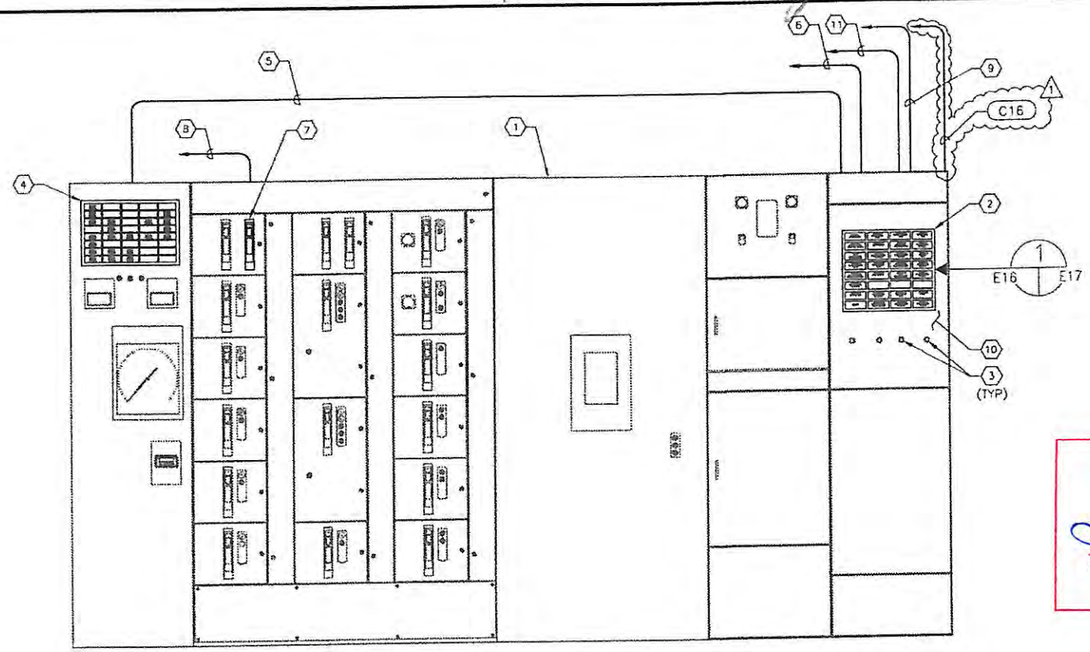
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
PUMP NO. 2 CONTROLS (SHT. 2 OF 2)

W.O. 4511
SHEET E15 OF

No Changes Granger 5/17/22



As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

MOTOR CONTROL CENTER FRONT ELEVATION

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

A
E1 | E16

KEYED NOTES:

1. EXISTING MOTOR CONTROL CENTER AND AUTOMATIC TRANSFER SWITCH LINEUP.
2. EXISTING ANNUNCIATOR NO. 1 TO BE REMOVED. CONTRACTOR SHALL PROVIDE AND INSTALL 1/4" ALUMINUM PLATE OVER EXISTING ANNUNCIATOR CUT-OUT. PAINT TO MATCH EXISTING SURFACE. CONTRACTOR TO PROVIDE AND INSTALL NEW MAPLE SYSTEMS HMI, GE PLC, ETC. TO SERVE AS NEW ANNUNCIATOR SYSTEM. REFER TO DETAILS ON SHEET E16.
3. CONTRACTOR SHALL REUSE TWO (2) OF THE EXISTING PUSH BUTTONS FOR INPUTS TO ANNUNCIATOR PLC. REFER TO SHEET E17 FOR DETAILS.
4. EXISTING ANNUNCIATOR NO. 2 TO BE REMOVED. CONTRACTOR SHALL PROVIDE AND INSTALL 1/4" ALUMINUM PLATE OVER EXISTING ANNUNCIATOR CUT-OUT. PAINT TO MATCH EXISTING SURFACE.
5. CONTRACTOR TO PROVIDE AND INSTALL 50-#14 + 2-#12 GND IN 1-1/2" CONDUIT TO NEW ANNUNCIATOR PLC (C6). PROVIDE AND INSTALL NEW 600V, 20A TERMINAL BLOCKS (ALLEN-BRADLEY 1492-W3) FOR NEW CONDUCTORS TO BE INSTALLED TO NEW ANNUNCIATOR PLC AND TO TERMINATE EXISTING CONDUCTORS (TO BE REUSED) FROM PUMP CONTROL CENTER. REFER ALSO TO GENERAL NOTES.
6. PROVIDE AND INSTALL 2-#12 + 1-#12 GND IN 3/4" C. TO 120/208V PANELBOARD FOR ANNUNCIATOR PLC 120V POWER (P30).
7. CONTRACTOR TO REMOVE EXISTING 480V, 100A, 3-POLE ODOR CONTROL CIRCUIT BREAKER AND INSTALL NEW 480V, 15A, 3-POLE CIRCUIT BREAKER FOR NEW KNIFE GATE VALVE ACTUATORS.
8. PROVIDE AND INSTALL NEW 3/4" CONDUIT WITH 3-#12 + 1-#12 GND DOWN TO ELEVATION 15.00' FOR NEW KNIFE GATE VALVE ACTUATORS (P20). CONTRACTOR TO FIELD ROUTE AS REQUIRED. REFER ALSO TO SHEET E2.
9. PROVIDE AND INSTALL NEW 3/4" CONDUIT WITH 2/C-#22 TWISTED SHIELDED CABLE (BELDEN 3106A) TO EXISTING SCADA PLC (C7). REFER ALSO TO SHEET E1.
10. NEW ANNUNCIATOR PLC SHALL BE INSTALLED BEHIND EXISTING DOOR.
11. CONTRACTOR TO PROVIDE AND INSTALL 22-#14 + 2-#12 GND IN 1-1/4" CONDUIT TO PUMP CONTROL CENTER CUBICLE 4A (C8).

GENERAL NOTES:

1. ALL DIN-RAIL SHALL BE ALUMINUM.
2. PROVIDE AND INSTALL ALL ASSOCIATED END BARRIERS, TERMINAL JUMPERS AND ACCESSORIES AS REQUIRED FOR TERMINAL BLOCKS.

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Certificate of Authorization No. 5363

TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

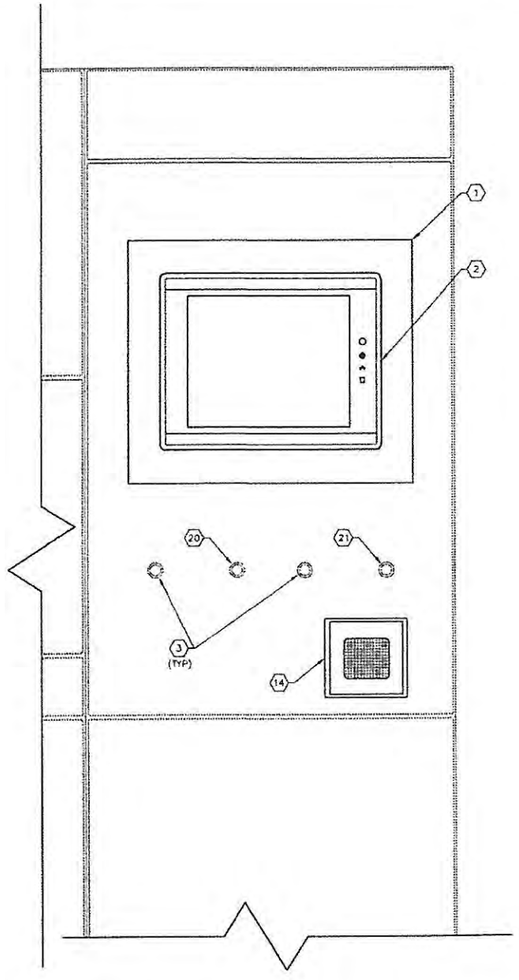
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

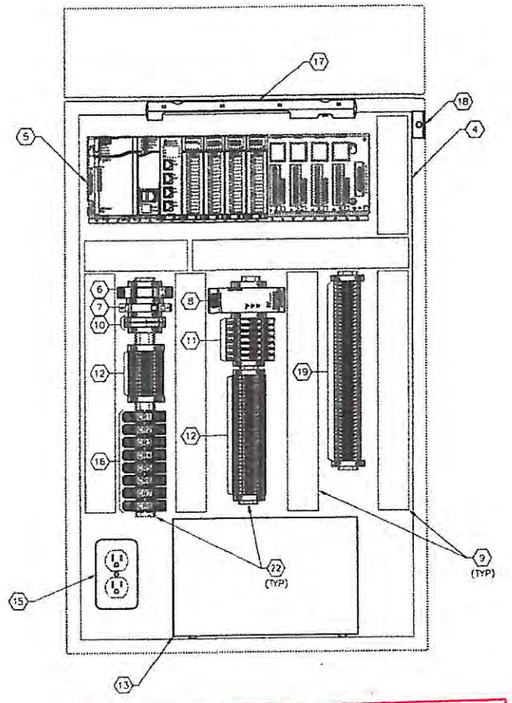
UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
MOTOR CONTROL CENTER ELEVATION

W.O. 4511
SHEET E16 OF

No Changes 5/17/22



PROPOSED ANNUNCIATOR EXERIOR DETAIL (1 / E16 | E17)
SCALE : N.T.S.



PROPOSED ANNUNCIATOR INTERIOR DETAIL
SCALE : N.T.S.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H Granger 4/22/2022
Signature Date
☑ No Changes

KEYED NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL 1/4" ALUMINUM PLATE OVER EXISTING ANNUCIATOR CUT-OUT. PAINT TO MATCH EXISTING SURFACE.
2. PROVIDE AND INSTALL HUMAN MACHINE INTERFACE (HMI). MAPLE SYSTEMS HMI5150P. REFER TO SHEET E20 FOR PROPOSED ANNUNCIATOR SCREENS.
3. CONTRACTOR SHALL REMOVE EXISTING PUSH BUTTONS CURRENTLY UTILIZED FOR 'TEST' AND 'RESET'. PROVIDE APPROPRIATE PLUG FOR HOLE CREATED AFTER REMOVING EXISTING PUSH BUTTON. PAINT TO MATCH EXISTING SURFACE.
4. PROVIDE AND INSTALL NEW ALUMINUM BACKPLATE.
5. PROVIDE AND INSTALL PLC RACK. PLC RACK TO CONSIST OF : ONE (1) – GE RX3i CPU : IC695CPE305-ABAG; ONE (1) – SERIAL COMMUNICATION MODULE: GE IC695CMM004; THREE (3) DC INPUT MODULES: GE IC694MDL241; ONE (1) A/C RELAY MODULE: GE IC694MDL916; ONE (1) 120V POWER SUPPLY: GE IC695PSA140; ONE (1) 12-SLOT BACK PLANE: GE IC695CHS012.
6. PROVIDE AND INSTALL INCOMING 120V POWER SURGE PROTECTION DEVICES. PHOENIX CONTACT #2858357.
7. PROVIDE AND INSTALL 120V CIRCUIT BREAKER. 15 AMPERE SQUARE-D QOU115.
8. PROVIDE AND INSTALL 120VAC-24VDC POWER SUPPLY 'PS1' WITH 5 AMPERE OUTPUT. PHOENIX CONTACT #2866750.
9. PROVIDE AND INSTALL 2"X3" PANDUIT (OR EQUAL) WIRING SYSTEM WITH COVERS (TYPICAL).
10. PROVIDE AND INSTALL 120V, THERMAL CIRCUIT BREAKERS. REFER TO ANNUNCIATOR PLC WIRING DIAGRAM ON SHEET E15 FOR QUANTITIES AND SIZES. ALL THERMAL CIRCUIT BREAKERS SHALL BE PHOENIX CONTACT TCP TYPE.
11. PROVIDE AND INSTALL FUSE TERMINAL BLOCKS FOR DC POWER. PHOENIX CONTACT UK 5-HESI.
12. PROVIDE AND INSTALL MULTI-LEVEL TERMINAL BLOCKS. PHOENIX CONTACT #3044636.
13. PROVIDE AND INSTALL 700VA UPS. APC BR700G.
14. PROVIDE AND INSTALL ALARM HORN, WP, FEDERAL SIGNAL MODEL #350WB IN RED WP BACK BOX. HORN TO BE ON PANEL EXTERIOR.
15. PROVIDE AND INSTALL DUPLEX SERVICE RECEPTACLE. HUBBELL CRF20I OR EQUAL.
16. PROVIDE AND INSTALL SQUARE-D 8501 R SERIES (OR EQUAL) SPDT RELAYS WITH 120V COILS. PROVIDE RELAY BASE AND HOLD DOWN SPRING FOR RELAY.
17. PROVIDE AND INSTALL 24V DC LED CABINET LIGHT HOFFMAN CAT # LED24V15. PROVIDE BRACKET TO MOUNT FIXTURE TO BACKPANEL.
18. PROVIDE AND INSTALL REMOTE DOOR SWITCH SWITCH AND ASSOCIATED DOOR SWITCH CABLE FOR 24V DC LED CABINET LIGHT. HOFFMAN CAT # ALFSWD.
19. PROVIDE AND INSTALL SURGE PROTECTION DEVICES FOR 24V DC DISCRETE INPUT CIRCUITS. PHOENIX CONTACT #2794699.
20. CONTRACTOR SHALL REUSE EXISTING PUSH BUTTON 'ACKNOWLEDGE' FOR INPUTS TO ANNUNCIATOR PLC.
21. CONTRACTOR SHALL REUSE EXISTING PUSH BUTTON 'SILENCE' FOR INPUTS TO ANNUNCIATOR PLC.
22. ALUMINUM DIN RAIL (TYPICAL)

GENERAL NOTES :

1. PROVIDE AND INSTALL ALL ASSOCIATED END BARRIERS, TERMINAL JUMPERS AND ACCESSORIES AS REQUIRED FOR TERMINAL BLOCKS, FUSE HOLDERS AND SURGE PROTECTION DEVICES SHOWN AS REQUIRED.

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TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1		

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

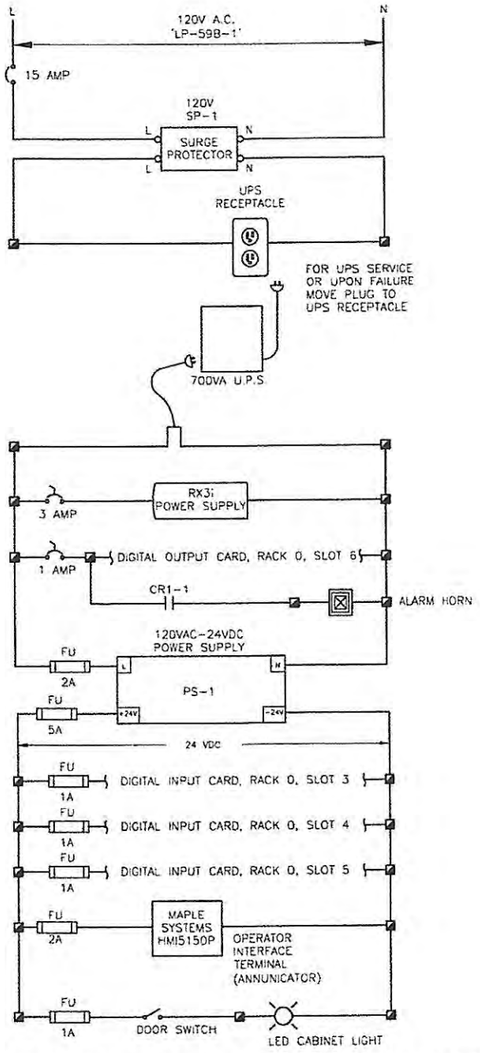
CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ANNUNCIATOR PLC DETAILS

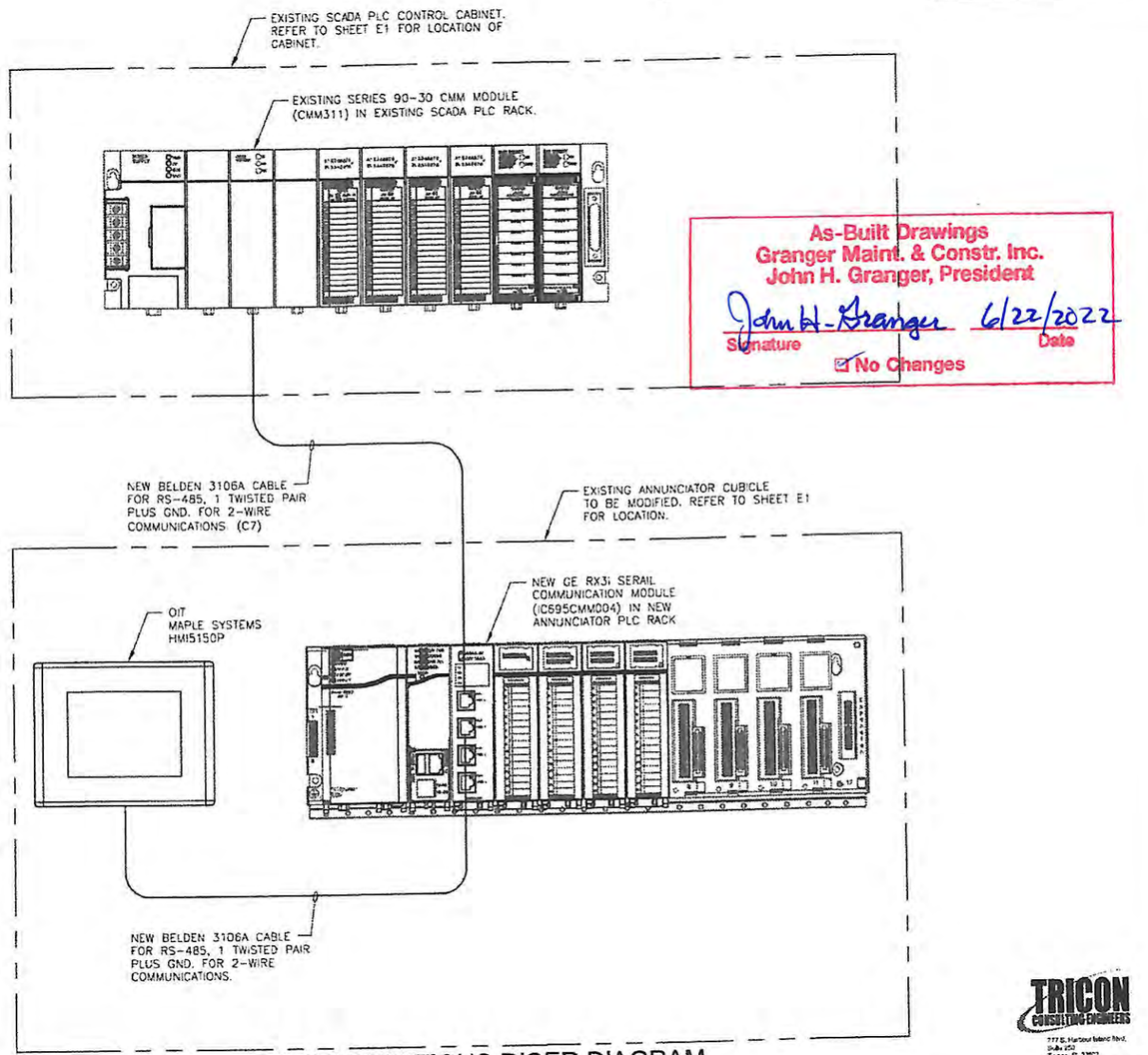
W.O. 4511
SHEET E17 OF

NO Changes

5/17/22



ANNUNCIATOR PLC POWER WIRING DIAGRAM



COMMUNICATIONS RISER DIAGRAM

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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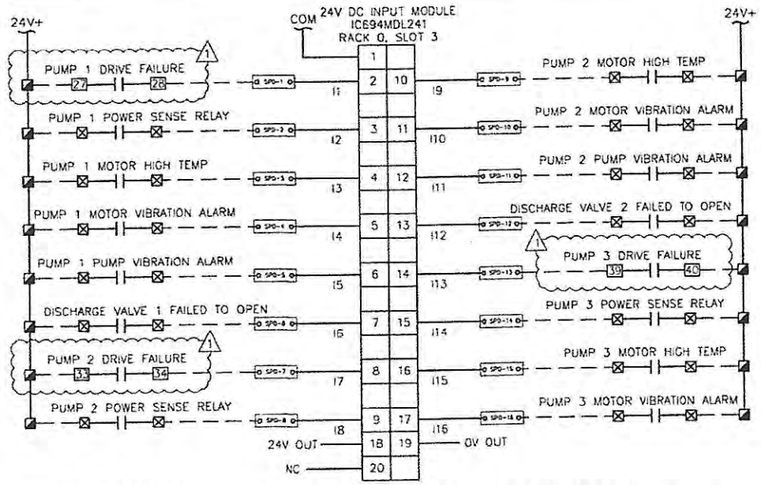
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

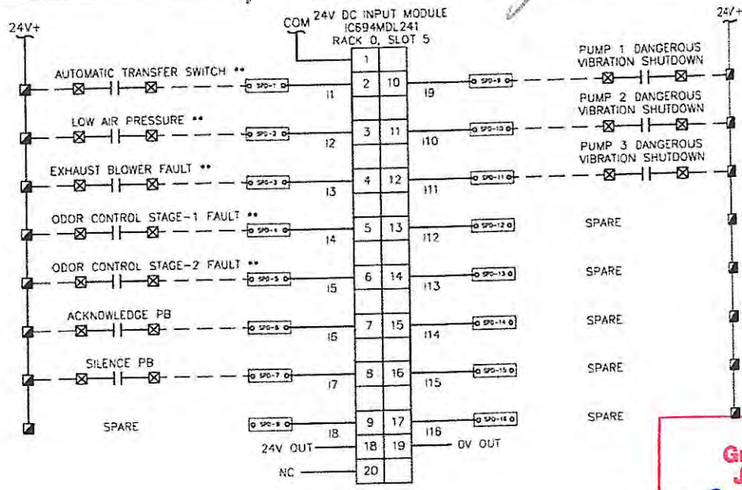
UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ANNUNCIATOR PLC WIRING DIAGRAMS

W.O. 4511
SHEET
E18
OF

No Changes 5/17/22

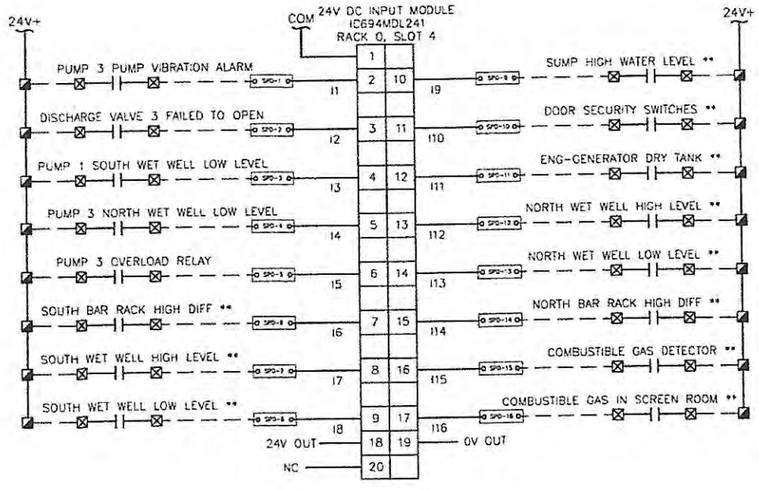


PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 3

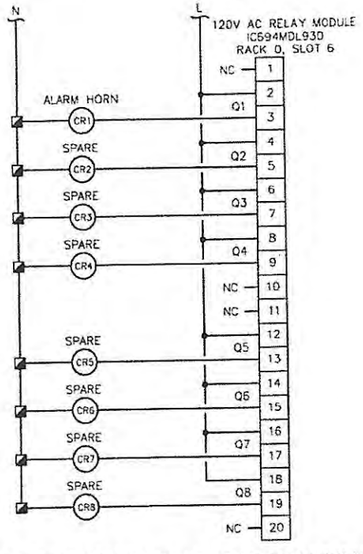


PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 5

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes



PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 4



PLC RELAY OUTPUT CARD WIRING DIAGRAM - SLOT 6

LEGEND

- ——— DENOTES FIELD WIRING
- ⊠ DENOTES TERMINAL ON FIELD DEVICE
- ◪ DENOTES TERMINAL IN ANNUNCIATOR PLC CABINET
- [27] DENOTES TERMINAL NEW ACE3600 CABINET
- ** DENOTES INPUT FROM EXISTING ANNUCIATOR #2 LOCATED ON SOUTH END OF MOTOR CONTROL CENTER

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TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
DISCRETE I/O WIRING DIAGRAMS

W.O. 4511
SHEET E19 OF

No changes [signature] 8/17/22

NOTE:
THE EQUIPMENT NECESSARY TO PROVIDE THIS INFORMATION WILL BE PROVIDED IN THE FUTURE.

PUMP #1	PUMP #2	PUMP #3		SWITCHGEAR
STOPPED	RUNNING	STOPPED		MAIN "A" CLOSED
0.0 % SPEED	67.8 % SPEED	0.0 % SPEED		MAIN "B" CLOSED
0.0 KW	97.3 KW	0.0 KW		TIE OPENED
0.0 AMPS	146 AMPS	0.0 AMPS		MAIN "A" AMPS
FAIL TO START	FAIL TO START	FAIL TO START		MAIN "B" AMPS
AFD READY	AFD READY	AFD NOT READY		MAIN "A" KW

W. W. UPSTREAM HIGH WARNING	P#2 FAILED TO START	P#2 STATOR SEAL LEAK
W. W. UPSTREAM HIGH ALARM	P#2 DISH. VALVE FAIL TO OPEN	P#2 CABLE SEAL LEAK
W. W. DWNSTREAM LOW WARNING	P#2 DISH. VALVE FAIL TO CLOSE	P#2 BEARING OVERTEMP.
BUBBLER CNTRL PWR FAIL	P#2 AFD FAIL	P#4 FAILED TO START
LEL GAS 25%	P#2 MTR STATOR OVERTEMP.	P#4 DISH. VALVE FAIL TO OPEN
LEL GAS 50%	P#2 STATOR SEAL LEAK	P#4 DISH. VALVE FAIL TO CLOSE
GAS DETECTOR OK	P#2 CABLE SEAL LEAK	P#4 AFD FAIL
P#1 FAILED TO START	P#2 BEARING OVERTEMP.	P#4 MTR STATOR OVERTEMP.
P#1 DISH. VALVE FAIL TO OPEN	P#3 FAILED TO START	P#4 STATOR SEAL LEAK
P#1 DISH. VALVE FAIL TO CLOSE	P#3 DISH. VALVE FAIL TO OPEN	
P#1 AFD FAIL	P#3 DISH. VALVE FAIL TO CLOSE	WASTEWATER FLOW MGD
P#1 MTR STATOR OVERTEMP.	P#3 AFD FAIL	
P#1 STATOR SEAL LEAK	P#3 MTR STATOR OVERTEMP.	
ALARMS		

PROPOSED ANNUNCIATOR SAMPLE SCREEN 1

NOTE:
THE EQUIPMENT NECESSARY TO PROVIDE THIS INFORMATION WILL BE PROVIDED IN THE FUTURE

PUMP #1	PUMP #2	PUMP #3	PUMP #4	SWITCHGEAR
STOPPED	RUNNING	STOPPED	STOPPED	MAIN "B" KW
0.0 % SPEED	67.8 % SPEED	0.0 % SPEED	0.0 % SPEED	MAIN "A" PF
0.0 KW	97.3 KW	0.0 KW	0.0 KW	MAIN "B" PF
0.0 AMPS	146 AMPS	0.0 AMPS	0.0 AMPS	MAIN "A" KVA
FAIL TO START	FAIL TO START	FAIL TO START	FAIL TO START	MAIN "B" KVA
AFD READY	AFD READY	AFD NOT READY	AFD READY	MCC-65A AMPS

SUMP PUMP LEVEL	SCREEN CONTROL POWER	COMPACTOR RUNNING
PLANT WATER PRESSURE	SCREEN RUNNING	COMPACTOR FAULT
HVAC TROUBLE	SCREEN FAULT	COMPACTOR LOW LOAD
	SCREEN SPRAY WASH FAILURE	COMPACTOR HIGH LOAD
LIGHTING ATS TROUBLE	SCREEN SPRAY WATER FLOW GPM	
LIGHTING ATS ON BUS "A"		
LIGHTING ATS ON BUS "B"	SCREEN ATS TROUBLE	
	SCREEN ATS ON BUS "A"	
	SCREEN ATS ON BUS "B"	
ALARMS		

PROPOSED ANNUNCIATOR SAMPLE SCREEN 2

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

NOTE:
1. THE ANNUNCIATOR HMI IS A MAPLE SYSTEMS # HMI5150P.
2. SCREEN 1 AND SCREEN 2 SHOWS THE INFORMATION DISPLAYED ON THE SAME HMI AT DIFFERENT TIMES AS CONTROLLED BY OPERATOR TOUCH-SCREEN INPUT.
3. DISPLAY GRAPHICS AND CHARACTERISTICS SHALL FOLLOW THE STANDARDS SET FORTH AT SULPHUR SPRINGS AND YBOR PUMPING STATIONS.

TRICON CONSULTING ENGINEERS

No.	DATE	REVISIONS
3		
2		
1		

TIMOTHY THOMAS, P.E. #47079

DES: TDT
DRN: JLH
CKD: TDT
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CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
PROPOSED ANNUNCIATOR SCREENS

W.O. 4511
SHEET E20
OF

No Changes 5/17/22

CONDUIT AND CABLE SCHEDULE

CONDUIT No.	SIZE	NUMER OF CONDUCTORS/SIZE	FROM	TO	REMARKS
P10	4"	3-500kcmil + 1-2/0 GND	PUMP CONTROL CENTER SECTION #3	PUMP NO. 1 VFD	POWER LEADS. PROVIDE NEW CONDUIT/CONDUCTORS (TO EXISTING PULL BOX)
P11	4"	3-500kcmil + 1-2/0 GND	PUMP CONTROL CENTER SECTION #3	PUMP NO. 1 VFD	POWER LEADS. PROVIDE NEW CONDUIT/CONDUCTORS (TO EXISTING PULL BOX)
P12	4"	3-500kcmil + 1-2/0 GND	PUMP NO. 1 VFD	PUMP MOTOR NO. 1	POWER LEADS. PROVIDE NEW CONDUIT/CONDUCTORS. PROVIDE ALUMINUM CORE, LIQUID TIGHT, FLEXIBLE CONNECTION TO MOTOR
P13	4"	3-500kcmil + 1-2/0 GND	PUMP NO. 1 VFD	PUMP MOTOR NO. 1	POWER LEADS. PROVIDE NEW CONDUIT/CONDUCTORS. PROVIDE ALUMINUM CORE, LIQUID TIGHT, FLEXIBLE CONNECTION TO MOTOR
P20	3/4"	3-#12 + 1-#12 GND	MOTOR CONTROL CENTER, 1B	NEW JB AT ELEV 15.00'	KNIFE GATE VALVE ACTUATORS - 480V FEEDER. PROVIDE NEW CONDUIT/CONDUCTORS. FIELD ROUTE DOWN TO ELEVATION 15.00'.
P21	3/4"	3-#12 + 1-#12 GND	NEW JB AT ELEV 15.00'	NEW PUMP NO. 1 ACTUATOR	480V FEEDER. PROVDE NEW CONDUIT/CONDUCTORS.
P22	3/4"	3-#12 + 1-#12 GND	NEW JB AT ELEV 15.00'	NEW PUMP NO. 2 ACTUATOR	480V FEEDER. PROVIDE NEW CONDUIT/CONDUCTORS.
P23	3/4"	3-#12 + 1-#12 GND	NEW JB AT ELEV 15.00'	NEW PUMP NO. 3 ACTUATOR	480V FEEDER. PROVIDE NEW CONDUIT/CONDUCTORS.
P30	3/4"	2-#12 + 1-#12 GND	EXISTING 120/208V PANELBOARD	NEW ANNUNCIATOR PLC	ANNUNCIATOR PLC 120V POWER. PROVIDE NEW CONDUIT/CONDUCTORS.
P40	3/4"	2-#12 + 1-#12 GND	EXISTING 120/208V PANELBOARD	LIQUID LEVEL CONTROLS	NEW FLOW METER TRANSMITTER, BARGRAPH INDICATORS AND DIGITAL PANEL METERS 120V POWER PROVIDE NEW CONDUIT/CONDUCTORS.
P50	3/4"	2-#10 + 1-#10 GND	PUMP NO. 1 VFD	PUMP MOTOR NO. 1	MOTOR SPACE HEATER 120V POWER. PROVIDE NEW CONDUIT/CONDUCTORS. PROVIDE NON-METALLIC, FLEXIBLE CONNECTION TO MOTOR
P60	3/4"	6-#12 + 1-#12 GND	PUMP NO. 1 VFD	VIBRATION TRANS ELEV 41.25'	VIBRATION TRANSMITTER 120V POWER AND ALARM RELAY OUTPUTS. PROVIDE NEW CONDUIT/CONDUCTORS FROM NEW TRANSMITTER AT ELEVATION 41.25'.
P61	3/4"	6-#12 + 1-#12 GND	PUMP NO. 2 VFD	VIBRATION TRANS ELEV 41.25'	VIBRATION TRANSMITTER 120V POWER AND ALARM RELAY OUTPUTS. PROVIDE NEW CONDUIT/CONDUCTORS FROM NEW TRANSMITTER AT ELEVATION 41.25'.
P62	3/4"	6-#12 + 1-#12 GND	PUMP NO. 3 VFD	VIBRATION TRANS ELEV 41.25'	VIBRATION TRANSMITTER 120V POWER AND ALARM RELAY OUTPUTS. PROVIDE NEW CONDUIT/CONDUCTORS FROM NEW TRANSMITTER AT ELEVATION 41.25'.
1 P70	3/4"	6-#12 + 1-#12 GND	PUMP NO. 1 VFD	ROBERTSHAW VIBRASWITCH	VIBRASWITCH 120V POWER, RESET AND ALARM RELAY OUTPUT (VIA TERMINAL BOX AT PUMP MOTOR NO.). PROVIDE NEW CONDUIT/CONDUCTORS.
P80	3/4"	2-#12 + 1-#12 GND	PUMP NO. 1 VFD	MOTOR NO. 1 THERMAL SWITCH	THERMAL SWITCH CONTACT (VIA TERMINAL BOX AT PUMP MOTOR NO 1). PROVIDE NEW CONDUIT/CONDUCTORS.
P90	3/4"	2-#12 + 1-#12 GND	EXISTING 120/208V PANELBOARD	LIQUID LEVEL CONTROLS	NEW SIGNAL ISOLATORS/CONVERTERS 120V POWER PROVIDE NEW CONDUIT/CONDUCTORS.
1 C1	1-1/2"	36-#14 + 2-#12 GND	PUMP CONTROL CENTER CUBICLE 4A	PUMP NO. 1 VFD	PROVIDE NEW CONDUIT/CONDUCTORS. COUNT INCLUDES SPARES.
C2	2"	50-#12 + 2-#12 GND	PUMP NO. 1 VFD	T.B. AT PUMP MOTOR NO. 1	PROVIDE NEW CONDUIT/CONDUCTORS. COUNT INCLUDES SPARES.
C3	1-1/4"	FOUR - 2/C #16 TW-SH	PUMP 1 VIB/TEMP TRANS ELEV 41.25'	EXISTING SCADA PLC	FOUR (4): 2/C-#16 (BELDEN 8719 EACH) FOR PUMP AND MOTOR VIBRATION & TEMPERATURE ANALOG SIGNALS VIA NEW TERMINAL BLOCKS IN SECTION 3.
1 C4	EX	2-#14 + 1-#14 GND	LIQUID LEVEL CONTROLS (LLC)	PUMP NO. 1 VFD	VFD START AND PUMP READY SIGNALS TO/FROM LLC. PROVIDE NEW CONDUCTORS AND UTILIZE EXISTING RACEWAY FROM LLC TO SECTION 3.
C5	EX	SUPPLIED BY MANUFACTURER	LIQUID LEVEL CONTROLS (LLC)	NEW FM TRANSMITTER	MANUFACTURER SUPPLIED CABLE TO FLOW METER IN EX CONDUIT 2/C #16 (BELDEN 8719) FROM TRANSMITTER TO SCADA PLC
C6	1-1/2"	50-#14 + 2-#12 GND	EXISTING ANNUNCIATOR NO. 2	NEW ANNUNCIATOR PLC	PROVIDE NEW CONDUIT/CONDUCTORS. CONDUCTOR COUNT INCLUDES SPARES.
C7	3/4"	ONE - 2/C #22 TW-SH W/GND	EXISTING SCADA PLC	NEW ANNUNCIATOR PLC	2/C #22 (BELDEN 3106A) FOR NEW ANNUNCIATOR PLC COMMUNICATIONS TO EXISTING SCADA PLC. PROVIDE NEW CONDUIT/CONDUCTORS
C8	1-1/4"	22-#14 + 2-#12 GND	PUMP CONTROL CENTER CUBICLE 4A	NEW ANNUCIATOR PLC	PROVIDE NEW CONDUIT/CONDUCTORS. COUNT INCLUDES SPARES.
C9	EX	2-#14 + 1-#14 GND	PUMP CONTROL CENTER CUBICLE 4A	EXISTING SCADA PLC	VFD SIGNALS TO EXISTING SCADA PLC. PROVIDE NEW CONDUCTORS AND UTILIZE EXISTING RACEWAY FROM SECTION 3 TO SCADA PLC.
C10	1"	THREE - 2/C #16 TW-SH	PUMP NO. 1 VFD	EXISITNG SCADA PLC	THREE (4): 2/C-#16 (BELDEN 8719 EACH) FOR VFD SPEED CONTROL, SPEED REFERENCE (ONE SPARE) ANALOG SIGNALS VIA NEW TERMINAL BLOCKS IN SECTION 3
1 C11	1-1/4"	FOUR - 2/C #16 TW-SH	PUMP 2 VIB/TEMP TRANS ELEV 41.25'	EXISTING SCADA PLC	FOUR (4): 2/C-#16 (BELDEN 8719 EACH) FOR PUMP AND MOTOR VIBRATION & TEMPERATURE ANALOG SIGNALS VIA NEW TERMINAL BLOCKS IN SECTION 3
C12	1-1/4"	FOUR - 2/C #16 TW-SH	PUMP 3 VIB/TEMP TRANS ELEV 41.25'	EXISTING SCADA PLC	FOUR (4): 2/C-#16 (BELDEN 8719 EACH) FOR PUMP AND MOTOR VIBRATION & TEMPERATURE ANALOG SIGNALS VIA NEW TERMINAL BLOCKS IN SECTION 3
C13	3/4"	6-#14 + 1-#12 GND	PUMP CONTROL CENTER CUBICLE 4A	NEW ACE3600 CABINET	PUMP NO. 1 FAULT, RUNNING AND NOT READY SIGNALS
C14	3/4"	6-#14 + 1-#12 GND	PUMP CONTROL CENTER CUBICLE 4B	NEW ACE3600 CABINET	PUMP NO. 2 FAULT, RUNNING AND NOT READY SIGNALS
C15	3/4"	6-#14 + 1-#12 GND	PUMP CONTROL CENTER CUBICLE 7	NEW ACE3600 CABINET	PUMP NO. 3 FAULT, RUNNING AND NOT READY SIGNALS
C16	3/4"	6-#14 + 1-#12 GND	NEW ACE3600 CABINET	NEW ANNUNCIATOR PLC	PUMP NO. 1, PUMP NO. 2 AND PUMP NO. 3 FAULT SIGNALS.
C17	1-1/4"	FOUR - 2/C #16 TW-SH	LIQUID LEVEL CONTROLS	EXISTING SCADA PLC	FOUR (4): 2/C-#16 (BELDEN 8719 EACH) FOR WET WELL WEST AND WET WELL EAST LEVEL, FLOW METER NO. 1 AND FLOW METER NO. 2 4-20mA ANALOG SIGNALS.
C18	1-1/4"	FOUR - 2/C #16 TW-SH	LIQUID LEVEL CONTROLS	NEW ACE3600 CABINET	FOUR (4): 2/C-#16 (BELDEN 8719 EACH) FOR WET WELL WEST AND WET WELL EAST LEVEL; FLOW METER NO. 1 AND FLOW METER NO. 2 4-20mA ANALOG SIGNALS.
C19	1-1/2"	32-#14 + 1-#12 GND	NEW ACE3600 CABINET	EXISTING SCADA PLC	WET WELL HIGH, DRY WELL HIGH, PUMP NO. 1 RUNNING, PUMP NO. 1 READY, PUMP NO. 2 RUNNING, PUMP NO. 2 READY, PUMP NO. 3 RUNNING, PUMP NO. 3 READY, TECO POWER, MAIN CIRCUIT BREAKER, GEN RUNNING, GEN FIRE ALARM AND LOW PSI SIGNALS. COUNT INCLUDES SPARES.
C20	3/4"	6-#14 + 1-#12 GND	LIQUID LEVEL CONTROLS	NEW ACE3600 CABINET	WET WELL HIGH, DRY WELL HIGH AND LOW PSI SIGNALS. COUNT INCLUDES SPARES. CONTRACTOR TO FIELD VERIFY ORIGIN OF RELAY CONTACTS.
C21	3/4"	6-#14 + 1-#12 GND	MCC/ATS	NEW ACE3600 CABINET	TECO POWER AVAILABLE AND MAIN CIRCUIT BREAKER OPEN SIGNALS. COUNT INCLUDES SPARES. CONTRACTOR TO FIELD VERIFY ORIGIN OF RELAY CONTACTS.
C22	3/4"	6-#14 + 1-#12 GND	GENERATOR CONTROL PANEL	NEW ACE3600 CABINET	GENERATOR RUNNING AND GENERATOR FIRE ALARM SIGNALS. COUNT INCLUDES SPARES. CONTRACTOR TO FIELD VERIFY ORIGIN OF RELAY CONTACTS.

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As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1	11-9-18	ACE3600 ADDITION REVISION

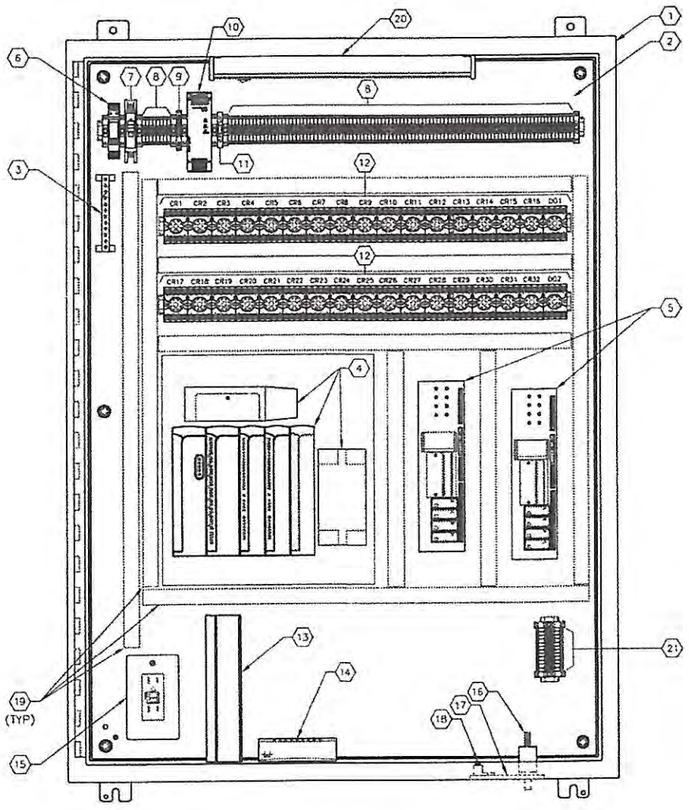
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
CONDUIT AND CABLE SCHEDULE

W.O. 4511
SHEET
E21
OF

No Changes 3/17/22



PROPOSED ACE3600 CABINET
INTERIOR ELEVATION
SCALE : NOT TO SCALE

A
E4 E22

1 ENTIRE SHEET IS NEW TO CONTRACT DOCUMENT SET

KEYED NOTES:

1. PROVIDE AND INSTALL 48"H X 36"W X 10"D NEMA 4X 316 SS ENCLOSURE WITH 3-POINT PADLOCKABLE LATCHING SYSTEM AND DOOR STOP KIT. HAMMOND HW483610SS16HK.
2. PROVIDE AND INSTALL BACKPANEL. HAMMOND 18P4533.
3. PROVIDE AND INSTALL GROUND BAR SYSTEM PANDUIT UGB2/0-414-12
4. PROVIDE AND INSTALL ONE (1) MOTOROLA ACE3600 PLC-3640 CPU, PART#: V446; ONE (1) AC POWER SUPPLY 100-240V, PART#: V261; ONE (1) ACE MIXED I/O MODULE-16DI, 4DO(EE), (4)±20mA ANALOG IN, PART#: V245 WITH 24VDC PLUG-IN; TWO (2) BLANK I/O MODULES PART#: V20; ONE (1) 40 WIRE CABLE WITH TB HOLDER 3M, PART#: V358; ONE (1) 20 PIN TB HOLDER KIT, PART#: V158, ONE (1) 40 PIN TB HOLDER KIT, PART#: V153; ONE (1) ACE3600 3-SLOT FRAME, PART#: V103; ONE (1) METAL CHASSIS, PART#: V214; ONE (1) MOTOROLA XPR5350 RADIO; ONE (1) 10Ah 12V DC BATTERY AND CABLES, PART#: V328
5. PROVIDE AND INSTALL TWO (2)-MIXED I/O AUXILIARY INTERFACES. WILKERSON BOARD, PART#: SIB V245/V453.
6. PROVIDE AND INSTALL 120V AC SURGE PROTECTION DEVICE. PHOENIX CONTACT #2905228.
7. PROVIDE AND INSTALL 120V, 15 AMPERE, SINGLE-POLE CIRCUIT BREAKER. SQUARE D QOU-115.
8. PROVIDE AND INSTALL TERMINAL BLOCKS. 30 AMPERE RATING, PHOENIX CONTACT UK5N TYPE.
9. PROVIDE AND INSTALL 120V, 1 AMPERE THERMAL CIRCUIT BREAKER. THERMAL CIRCUIT BREAKERS SHALL BE PHOENIX CONTACT TCP TYPE. PROVIDE WITH SCREW TYPE CONNECTION, FUSE BASE TERMINAL BLOCK, PHOENIX CONTACT TYPE UK 6-FSI/C.
10. PROVIDE AND INSTALL 120VAC-24VDC POWER SUPPLY WITH 5 AMPERE OUTPUT. PHOENIX CONTACT #2866750.
11. PROVIDE AND INSTALL FUSED TERMINAL BLOCK, PHOENIX CONTACT UK 5-HESI TYPE. PROVIDE 5 A FUSE WITH TERMINAL BLOCK.
12. PROVIDE AND INSTALL 3PDT RELAYS WITH 24V DC COILS AND 10 AMPERE CONTACTS. POTTER AND BRUMFIELD KRPA-14AG-24, 8 PIN PLUG-IN TYPE. PROVIDE SOCKET AND HOLD DOWN SPRING FOR EACH RELAY.
13. EXISTING CISCO RV042 WAN ISP ROUTER TO BE RELOCATED FROM THE MOSCAD L RTU TO BE REPLACED UNDER THIS REVISION.
14. EXISTING ARRIS DG1670 CABLE MODEM TO BE RELOCATED FROM THE MOSCAD L RTU TO BE REPLACED UNDER THIS REVISION.
15. PROVIDE AND INSTALL GFI RECEPTACLE, HUBBELL, GFR5352IA OR EQUAL FOR CABLE MODEM AND CISCO RV042 ROUTER.
16. PROVIDE AND INSTALL 300 MHZ TO 1.2 GHZ COAXIAL RF SURGE PROTECTOR. IPOLYPHASER IUSX-NFF. (VERIFY COAXIAL CABLE CONNECTION REQUIREMENTS PRIOR TO ORDERING)
17. PROVIDE AND INSTALL 2" X X 5" L X 1/4" COPPER GROUNDING PLATE (CUSTOM).
18. PROVIDE AND INSTALL SINGLE BARREL ONE-HOLE COPPER GROUNDING LUG. PANDUIT HLT-25-X
19. PROVIDE AND INSTALL 1"X3" PANDUIT (OR EQUAL) WIRING SYSTEM WITH COVERS (TYPICAL).
20. PROVIDE AND INSTALL 120V AC LED CABINET LIGHT WITH INTEGRAL LIGHT SWITCH. HAMMOND FLK7LED.
21. PROVIDE AND INSTALL TERMINAL BLOCKS FOR 4-20mA SIGNALS AND SHIELDS. PHOENIX CONTACT UK5N TYPE.

GENERAL NOTES:

1. PROVIDE AND INSTALL ALL ASSOCIATED END BARRIERS, TERMINAL JUMPERS AND SPACERS AS REQUIRED FOR TERMINAL BLOCKS, FUSE HOLDERS AND DEVICES SHOWN OR REQUIRED.
2. PROVIDE AND INSTALL 35mm ALUMINUM DIN RAIL (AUTOMATION DIRECT DN-R35SAL1) QUANTITY AS REQUIRED.
3. PROVIDE AND INSTALL CORROSION INHIBITOR, HOFFMAN # AHCI10E.

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

TRICON CONSULTING ENGINEERS
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813-227-8190
Certificate of Authorization No. 5363

TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ACE3600 CABINET DETAILS

W.O. 4511
SHEET E22
OF

NO Changes

5/17/22

ENTIRE SHEET IS NEW TO CONTRACT DOCUMENT SET

120V POWER FROM EXISTING POWER SOURCE FOR MOSCAD L CABINET (TO BE REUSED).

SPD-2

120VAC

CB1-15A

CABINET LIGHT

GFI RECEPTACLE

ARRIS DG1670

CISCO RV042

CB2-1A

5 AMPERE POWER SUPPLY
120VAC-24VDC

PS-1

FU-1
5A

24V DC

WET WELL HIGH LEVEL
DRY WELL HIGH LEVEL
PUMP 1 RUNNING
PUMP 1 READY
PUMP 1 FAIL
PUMP 2 RUNNING
PUMP 2 READY
PUMP 2 FAIL

24V DC
CONTINUED ABOVE RIGHT

120 VAC
CONTINUED ABOVE RIGHT

NEW ACE3600 CABINET

120 VAC
CONTINUED FROM BELOW LEFT

24V DC
CONTINUED FROM BELOW LEFT

PUMP 3 RUNNING
PUMP 3 READY
PUMP 3 FAIL
TECO POWER NOT AVAILABLE
MAIN CIRCUIT BREAKER OPEN
GENERATOR RUNNING
GENERATOR FIRE ALARM
LOW PSI
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE

24V DC
CONTINUED ON SHEET E24

120 VAC
CONTINUED ON SHEET E24

CR1-1 WET WELL HIGH LEVEL TO PCSR SLOT 1: DI1

CR1-2 WET WELL HIGH LEVEL TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR2-1 DRY WELL HIGH LEVEL TO PCSR SLOT 1: DI2

CR2-2 DRY WELL HIGH LEVEL TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR3-1 PUMP 1 RUNNING TO PCSR SLOT 1: DI3

CR3-2 PUMP 1 RUNNING TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR4-1 PUMP 1 READY TO PCSR SLOT 1: DI4

CR4-2 PUMP 1 READY TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR5-1 PUMP 1 FAIL TO PCSR SLOT 1: DI5

CR5-2 PUMP 1 FAIL TO PROPOSED ANNUNCIATOR PLC (REFER TO SHEET E19)

CR6-1 PUMP 2 RUNNING TO PCSR SLOT 1: DI6

CR6-2 PUMP 2 RUNNING TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR7-1 PUMP 2 READY TO PCSR SLOT 1: DI7

CR7-2 PUMP 2 READY TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR8-1 PUMP 2 FAIL TO PCSR SLOT 1: DI8

CR8-2 PUMP 2 FAIL TO PROPOSED ANNUNCIATOR PLC (REFER TO SHEET E19)

CR9-1 PUMP 3 RUNNING TO PCSR SLOT 1: DI9

CR9-2 PUMP 3 RUNNING TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR10-1 PUMP 3 READY TO PCSR SLOT 1: DI10

CR10-2 PUMP 3 READY TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR11-1 PUMP 3 FAIL TO PCSR SLOT 1: DI11

CR11-2 PUMP 3 FAIL TO PROPOSED ANNUNCIATOR PLC (REFER TO SHEET E19)

CR12-1 TECO POWER NOT AVAILABLE TO PCSR SLOT 1: DI12

CR12-2 TECO POWER NOT AVAILABLE TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR13-1 MAIN CIRCUIT BREAKER OPEN TO PCSR SLOT 1: DI13

CR13-2 MAIN CIRCUIT BREAKER OPEN TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR14-1 GENERATOR RUNNING TO PCSR SLOT 1: DI14

CR14-2 GENERATOR RUNNING TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR15-1 GENERATOR FIRE ALARM TO PCSR SLOT 1: DI15

CR15-2 GENERATOR FIRE ALARM TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR16-1 LOW PSI TO PCSR SLOT 1: DI16

CR16-2 LOW PSI TO EXISTING SCADA PLC IN PUMP CONTROL CENTER CUBICLE 4A

CR17 ⋮ CR32 — INTERPOSING RELAYS CR17 TO CR32 SPARE, FOR FUTURE USE

---- NEW FIELD WIRING
[X] TERMINALS IN NEW ACE3600 CABINET
⊠ TERMINALS ON EXISTING FIELD DEVICES

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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Certificate of Authorization No. 5363

No.	DATE	REVISIONS
3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

TIMOTHY THOMAS, P.E. #47079

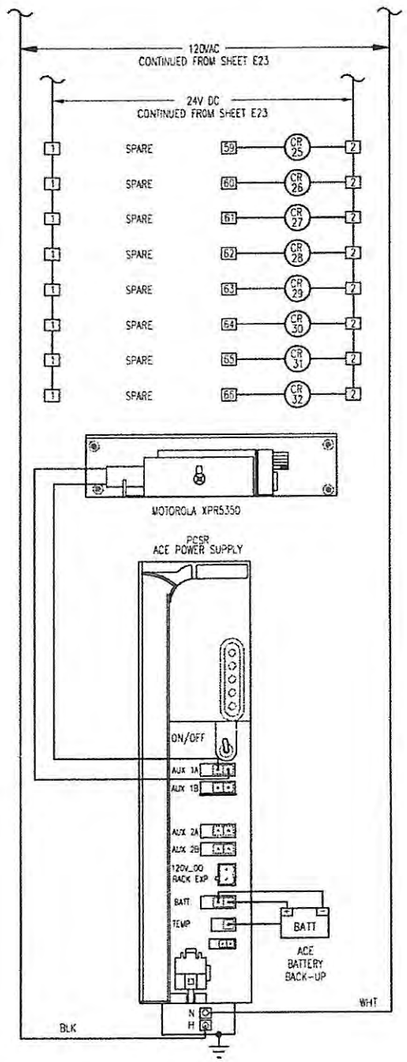
CITY of TAMPA
WASTEWATER DEPARTMENT

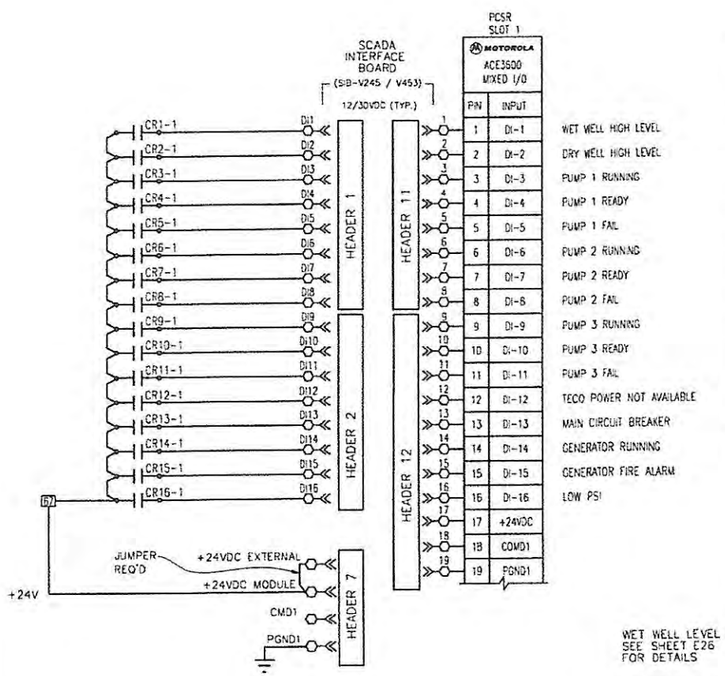
UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ACE3600 WIRING SCHEMATIC (1 OF 3)

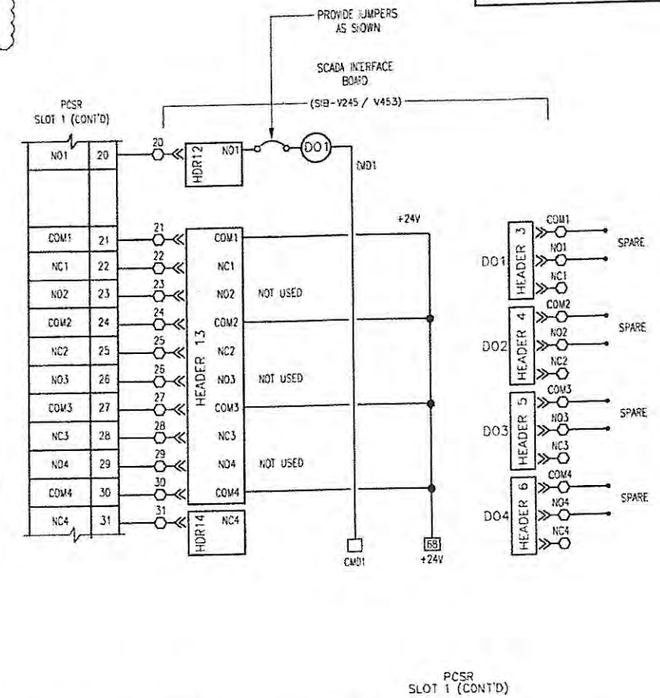
W.O. 4511
SHEET E23 OF

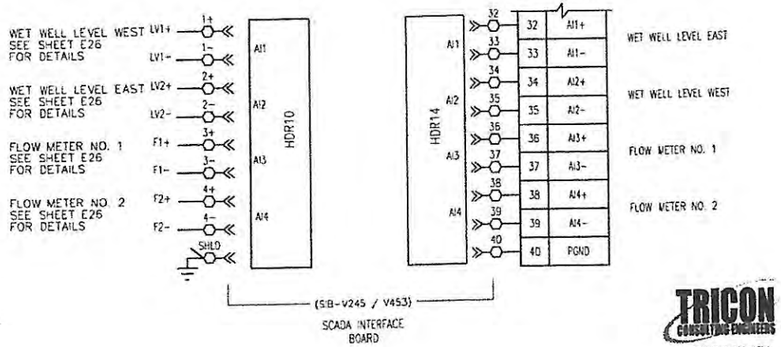
No Changes 5/17/22

ENTIRE SHEET IS NEW TO CONTRACT DOCUMENT SET









○ TERMINALS ON ACE I/O MODULE (GENERAL)
☒ TERMINALS IN NEW ACE3600 CABINET
⊠ TERMINALS ON FIELD DEVICES

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

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TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

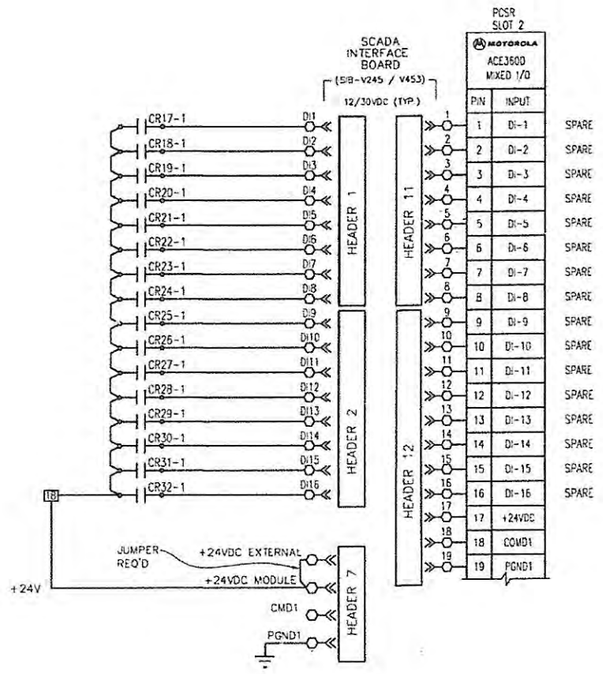
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

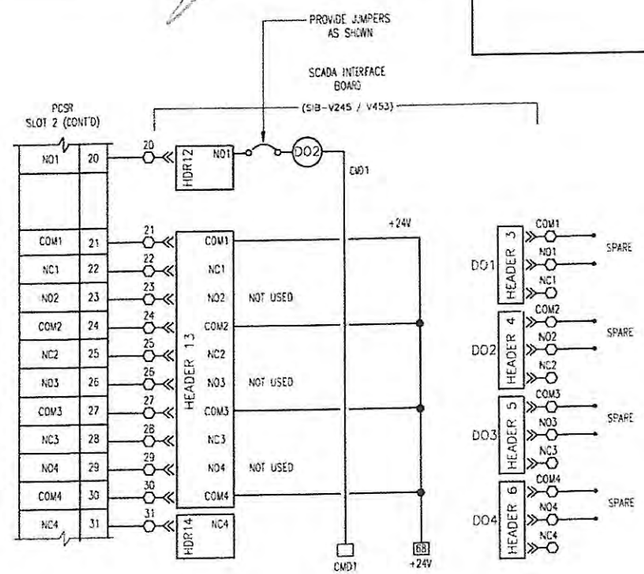
CITY of TAMPA
WASTEWATER DEPARTMENT

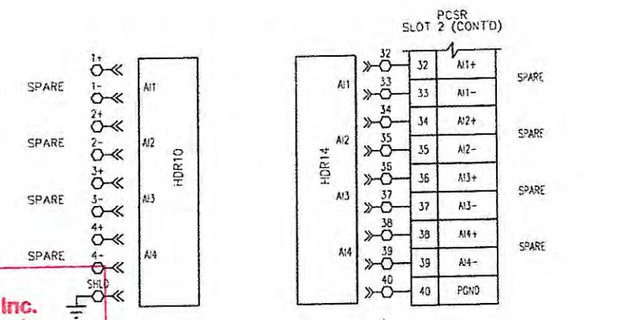
UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ACE3600 WIRING SCHEMATIC (2 OF 3)

W.O. 4511
SHEET E24 OF

NO Changes Taylor 5/17/22







As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

1 ENTIRE SHEET IS NEW TO CONTRACT DOCUMENT SET

TRICON CONSULTING ENGINEERS
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TIMOTHY THOMAS, P.E. #47079

No.	DATE	REVISIONS
3		
2		
1	1-23-19	ACE3600 ADDITION REVISION

DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
ACE3600 WIRING SCHEMATIC (3 OF 3)

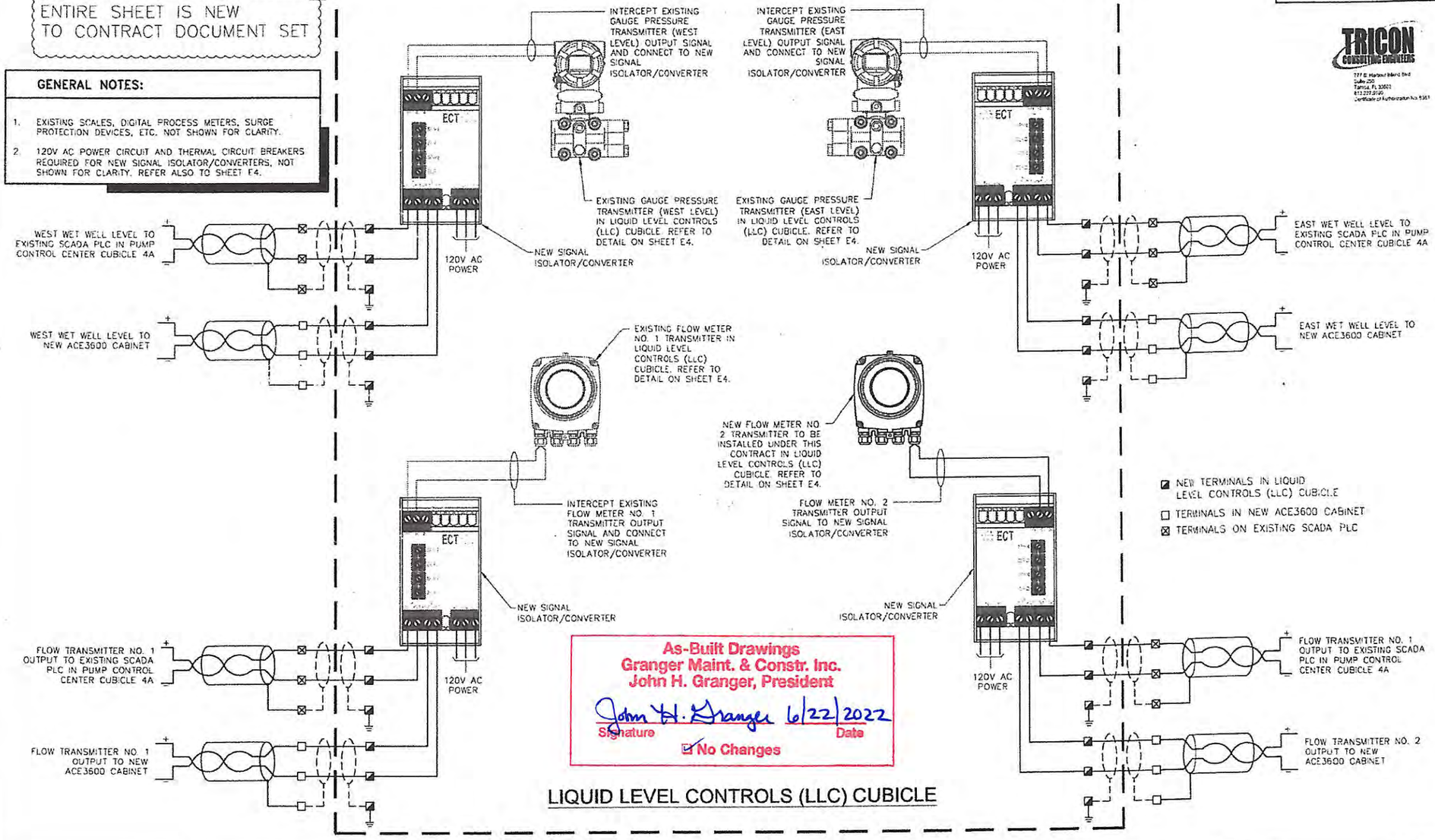
W.O. 4511
SHEET E25 OF

No Changes Tdt 5/17/22

ENTIRE SHEET IS NEW TO CONTRACT DOCUMENT SET

GENERAL NOTES:

1. EXISTING SCALES, DIGITAL PROCESS METERS, SURGE PROTECTION DEVICES, ETC. NOT SHOWN FOR CLARITY.
2. 120V AC POWER CIRCUIT AND THERMAL CIRCUIT BREAKERS REQUIRED FOR NEW SIGNAL ISOLATOR/CONVERTERS, NOT SHOWN FOR CLARITY. REFER ALSO TO SHEET E4.



As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

LIQUID LEVEL CONTROLS (LLC) CUBICLE

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No.	DATE	REVISIONS
3		
2		
1	1-7-19	ACE3600 ADDITION REVISION

TIMOTHY THOMAS, P.E. #47079

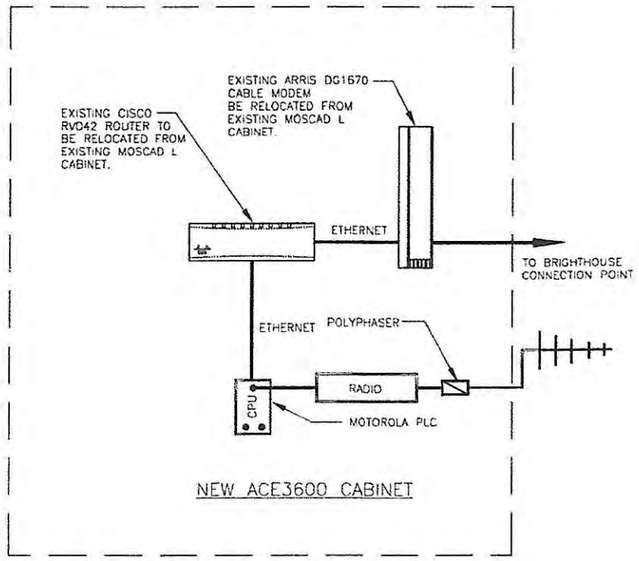
DES: TDT
DRN: JLH
CKD: TDT
DATE: 11/21/16

CITY of TAMPA
WASTEWATER DEPARTMENT

UNIVERSITY P.S.
PUMP NO. 1 REPLACEMENT
LLC WIRING MODIFICATION DIAGRAM

W.O. 4511
SHEET E26 OF

NO Changes 5/17/22



COMMUNICATIONS RISER DIAGRAM

As-Built Drawings
Granger Maint. & Constr. Inc.
John H. Granger, President
John H. Granger 6/22/2022
Signature Date
☑ No Changes

ENTIRE SHEET IS NEW TO CONTRACT DOCUMENT SET

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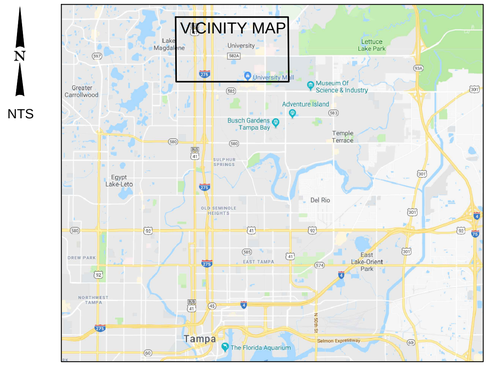
	No.	DATE	REVISIONS				
TIMOTHY THOMAS, P.E. #47079	3			DES: TDT DRN: JLH CKD: TDT DATE: 11/21/16	CITY of TAMPA WASTEWATER DEPARTMENT	UNIVERSITY P.S. PUMP NO. 1 REPLACEMENT COMMUNICATIONS RISER DIAGRAM	W.O. 4511 SHEET E27 OF
	2						
	1	1-7-19	ACE3600 ADDITION REVISION				

AS-BUILTS

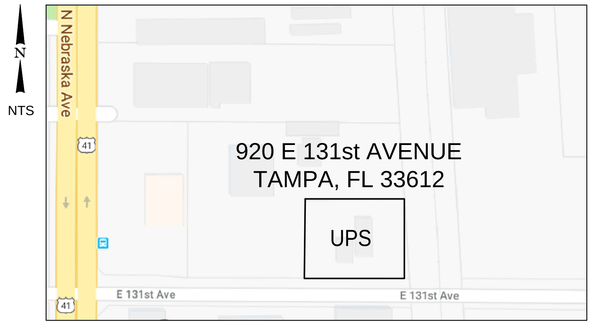
CITY OF TAMPA, FLORIDA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

AUGUST 2018

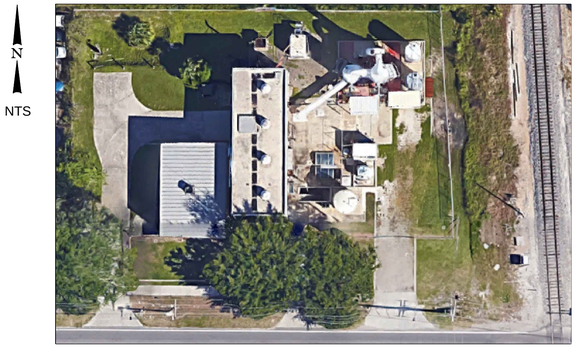
CONTRACT: 18-C-00016



LOCATION MAP
NTS



VICINITY MAP
NTS



UNIVERSITY PUMPING STATION
NTS

All Drawings Within Drawing Set Are To Be Considered As-Builts.

G S & P

302 Knights Run Avenue,
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813.254.5838
FIRM'S FLORIDA
CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

TRICON CONSULTING ENGINEERS

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Suite 250
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813.227.9190
Certificate of Authorization No. 8363

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED
DRAWN
CHECKED

JOSEPH B. BARKSDALE, PE 46545
GRESHAM SMITH & PARTNERS
GENERAL / MECHANICAL

JASON FUKUDA, PE 66000
GRESHAM SMITH & PARTNERS
STRUCTURAL

TIMOTHY D. THOMAS, PE - FPE 47079
TRICON CONSULTING ENGINEERS
ELECTRICAL

PROJECT: CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION: COVER PAGE

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: G-0 1 OF 27

P:\4291800\WG00.DWG

SHEET INDEX

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GENERAL		
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2	G-1	SHEET INDEX, ABBREVIATION, GENERAL NOTES, AND REFERENCE SYMBOLS
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3	M-1	EXISTING SITE PLAN - KEY PLAN
4	M-2	UPPER PLAN LAYOUT AND DEMOLITION
5	M-3	LOWER PLAN DEMOLITION
6	M-4	UPPER PLAN
7	M-5	SECTIONS
8	M-6	LOWER PLAN - SECTIONS AND DETALS
9	M-7	MECHANICAL STANDARD DETAILS
STRUCTURAL		
10	S-1	STRUCTURAL GENERAL NOTES
11	S-2	UPPER PLAN AND SECTION AND ISOMETRIC VIEW
12	S-3	LOWER PLAN
13	S-4	CONCRETE REPAIR PHOTOS
14	S-5	REPAIR DETAILS
15	S-6	STRUCTURAL DETAILS
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18	E-3	ELECTRICAL PLAN - ELEVATION 41.17'
19	E-4	HAZARDOUS AREA IDENTIFICATION
20	E-5	PUMPING STATION ELEVATION 41.25' ELECTRICAL PLAN
21	E-6	EXISTING ANNUNCIATOR CONTROL PANEL INTERIOR DETAIL
22	E-7	EXISTING ANNUNCIATOR CONTROL PANEL NEW MODULE WIRING
23	E-8	SLIDE GATE ACTUATOR CONTROL WIRING
24	E-9	CONTACT DEVELOPMENT DIAGRAM
25	E-10	ACTUATOR DISCONNECT DETAIL
26	E-11	PROPOSED ANNUNCIATOR ADDITIONS SAMPLE SCREEN
REFERENCE FILE		
27	REF-1	JUNCTION CHAMBER DETAILS

ABBREVIATIONS

ABS	AUTOMATIC BAR SCREEN
BIO	BIOXIDE
CONC	CONCRETE
CPVC	CHLORINATED POLYVINYL CHLORIDE
DN	DOWN
DIP	DUCTILE IRON PIPE
DTR	DUMPSTER
EOP	EDGE OF PAVEMENT
FM	FORCE MAIN
MG	MAGNESIUM HYDROXIDE
MH	MANHOLE
MOT	MAINTENANCE OF TRAFFIC
POT	POTABLE WATER
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SS	STAINLESS STEEL
SG	SLIDE GATE
TNK	TANK
WC	WASHING COMPACTOR
Ø	DIAMETER

GENERAL NOTES

G-1. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH CONTRACT ADMINISTRATOR DEPARTMENT, WASTEWATER PERSONNEL AND PUMPING STATION OPERATIONS.

G-2. EXISTING DIMENSIONS AND ELEVATIONS ARE BASED ON THE BEST INFORMATION AVAILABLE. TRUE DIMENSIONS AND ELEVATIONS SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR PRIOR TO LAYOUT AND SHOP DRAWING SUBMITTALS.

G-3. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH-QUALITY COPIES (EASILY READABLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.

G-4. MECHANICAL AND ELECTRICAL EQUIPMENT TO BE LOCKED OUT SHALL BE LOCKED OUT WITH A MULTIPLE-LOCK MASTER LOCK-OUT DEVICE, WHICH SHALL BE INSTALLED BY CITY PERSONNEL AND LOCKED BY BOTH THE CITY PERSONNEL AND CONTRACTOR.

G-5. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING, INSTALLING, LEVELING AND ALIGNING EQUIPMENT, GATES, AND VALVES.

G-6. PROPOSED SLIDE GATE VALVE SHALL BE A STAINLESS-STEEL SLIDE GATE, AS MADE BY RODNEY HUNT OR EQUAL; SEE SPECIFICATIONS FOR DETAILS. SLIDE GATE VALVE SHALL BE EQUIPPED WITH ELECTRIC POWERED ACTUATOR, AS MADE BY ROTORK, LIMITORQUE, OR EQUAL; SEE SPECIFICATIONS FOR DETAILS.

G-7 PROPOSED AUTOMATIC BAR SCREEN AND WASHER COMPACTOR SHALL BE STAINLESS STEEL AS MADE BY HYDRODYNE INC. OR EQUAL, SEE SPECS FOR DETAILS.

G-8. ANCHOR BOLTS SHALL BE AS PER SCREEN MANUFACTURER'S RECOMMENDATIONS. ANCHOR BOLTS SHALL BE DOUBLE-NUTTED AND FINISHED WITH NON-SHRINK GROUT. ALL BOLTS SHALL EXTEND BEYOND THE FASTENING NUTS BY A MINIMUM OF 1/2-INCH.

G-9. ALL STEEL AND HARDWARE, UNLESS OTHERWISE NOTED, SHALL BE TYPE 316 STAINLESS STEEL.

G-10. ALL CEMENTITIOUS CONCRETE AND GROUT, UNLESS OTHERWISE SPECIFIED, SHALL BE CLASS "B" 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

G-11. EXPOSED CONCRETE CORNERS SHALL HAVE A 3/4" CHAMFER AND RE-ENTRANT CORNERS SHALL HAVE A 3/4" FLAT FILLET UNLESS OTHERWISE NOTED.

G-12. CONCRETE PEDESTAL SHOP DRAWINGS INCLUDING FLANGE SUPPORT DETAILS SHALL BE SUBMITTED FOR APPROVAL.

G-13. ALL STEEL REINFORCING SHALL BE DETAILED ACCORDING TO THE LATEST "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES". ACTUAL PLACEMENT OF STEEL REINFORCING SHALL BE SHOWN ON SHOP DRAWINGS. ALL LAPS AND SPLICES SHALL BE AT LEAST 32 BAR DIAMETERS OR 24 INCHES.

G-14. CERTAIN PORTIONS OF THIS PROJECT MAY REQUIRE NIGHT TIME WORK.

G-15. ALL NOTES PERTAINING TO PROPOSED WORK INSIDE SCREEN ROOM ARE LOCATED ON PERTINENT SHEETS.

G-16. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 6TH EDITION 2017, AND CHAPTER 5 OF THE CITY OF TAMPA CODE.

G-17. CONTRACTOR SHALL REMOVE EXISTING WET WELL STOP LOGS FOR THE REPLACEMENT WITH SLIDE GATE.

G-18. CONFIGURATION FOR THE PROPOSED SLIDE GATE VALVE ACTUATORS SHALL BE AS INDICATED IN THE PLANS.

G-19. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 6TH EDITION 2017, CHAPTER 5 OF THE CITY OF TAMPA CODE AND THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) SERIES 70/NATIONAL ELECTRICAL CODE (NEC) 2014 EDITION.

G-20. CONTRACTOR SHALL OBTAIN A TEMPORARY TRAFFIC CONTROL PERMIT FOR THE ROAD CLOSURE INCLUDING A CERTIFIED MOT.

DEMOLITION NOTES

D-1. ALL DIMENSIONS ARE APPROXIMATE. TRUE DIMENSIONS SHALL BE DETERMINED IN THE FIELD.

D-2. SALVAGEABLE MATERIAL, AS DETERMINED BY DEPARTMENT PERSONNEL, SHALL BE DELIVERED TO THE CITY OF TAMPA'S HOWARD F. CURREN AWTP AT 2700 MARITIME BOULEVARD. NON-SALVAGEABLE MATERIALS ARE TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. IN GENERAL, ALL PUMPS AND CONTROLS EQUIPMENT SHALL REMAIN PROPERTY OF THE CITY AND SHALL BE DELIVERED TO THE TREATMENT PLANT.

D-3. EXISTING MANUALLY RAKED BAR SCREEN SHALL BE SALVAGED AND DELIVERED TO THE TREATMENT PLANT.

D-4. THE PUMP STATION SITE SHALL BE MAINTAINED IN AS NEAT AND ORDERLY CONDITION AS POSSIBLE DURING CONSTRUCTION OPERATIONS. WALKWAYS AND DRIVEWAYS SHALL BE KEPT CLEAR FOR DEPARTMENT PERSONNEL TO PASS THROUGH.

D-5. CONTRACTOR SHALL CUT ALL EXPOSED REINFORCING STEEL TO A DEPTH OF 1-INCH BELOW THE EXPOSED SURFACE AND GROUT OVER.

D-6. CONTRACTOR SHALL PREVENT DUST NUISANCE FROM THE OPERATIONS. CONTRACTOR SHALL SPRINKLE RUBBISH AND DEBRIS WITH WATER TO KEEP DUST TO A MINIMUM.

D-7. CONTRACTOR SHALL CLEAN AND REMOVE ALL DEBRIS FROM EXISTING WET WELL PRIOR TO CONCRETE RESTORATION.

"POSSIBLE" CONSTRUCTION SEQUENCE

S-1. CONTRACTOR SETS UP MOT AND INSTALLS BYPASS PUMPING SYSTEM. TEST BYPASS SYSTEM WHILE PUMP STATION IS TURNED OFF. ALL BYPASS PUMPS MUST OPERATE DURING TEST PERIOD. TESTING WILL REQUIRE 24 HOUR TROUBLE FREE OPERATION BEFORE SETTING PIPE PLUGS.

S-2. CONTRACTOR INSTALLS (2) PIPE PLUGS IN 60" INFLUENT PIPE AND BEGINS BYPASS PUMPING.

S-3. CONTRACTOR CLEANS AND REPAIRS CONCRETE AND LINER WITHIN WET WELL.

S-4. INSTALL PROPOSED SCREEN, SLIDE GATE, CONVEYOR, AND LOADOUT AREA.

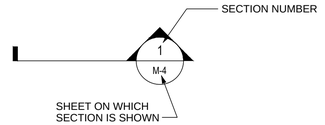
S-5. PERFORM REQUIRED TESTS ON PROPOSED SCREENING SYSTEM.

S-6 REMOVE BYPASS SYSTEM AND MOT.

S-7. PERFORM TRAINING, COMPLETE PUNCH LIST ITEMS.

REFERENCE SYMBOLS

SECTION IDENTIFICATION



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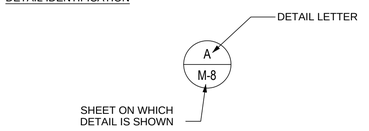
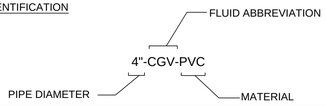
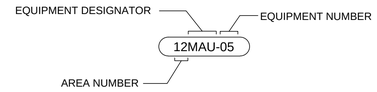


SECTION IDENTIFICATION

PIPING IDENTIFICATION



EQUIPMENT IDENTIFICATION



MISCELLANEOUS

4-12	ROOM NUMBER	###	COORDINATE POINT
2-16	DOOR NUMBER	Ø	ROUND OR DIAMETER
1-8	WINDOW NUMBER	@	AT
13	ACCESSORY NUMBER	∠	ANGLE
4	WALL TYPE NUMBER	℄	CENTERLINE
5	SHEET KEY NOTES		

P:\4291800\w\G-1.dwg, Aug 15, 2018 - 9:25am

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G DICK
DRAWN O GOMEZ
CHECKED G JACOB

G S & P ®
302 Knights Run Avenue, Suite 900
Tampa, FL 33602
813.254.5838
FIRM'S FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

JOSEPH B. BARKSDALE
FLA. LIC. NO 46545

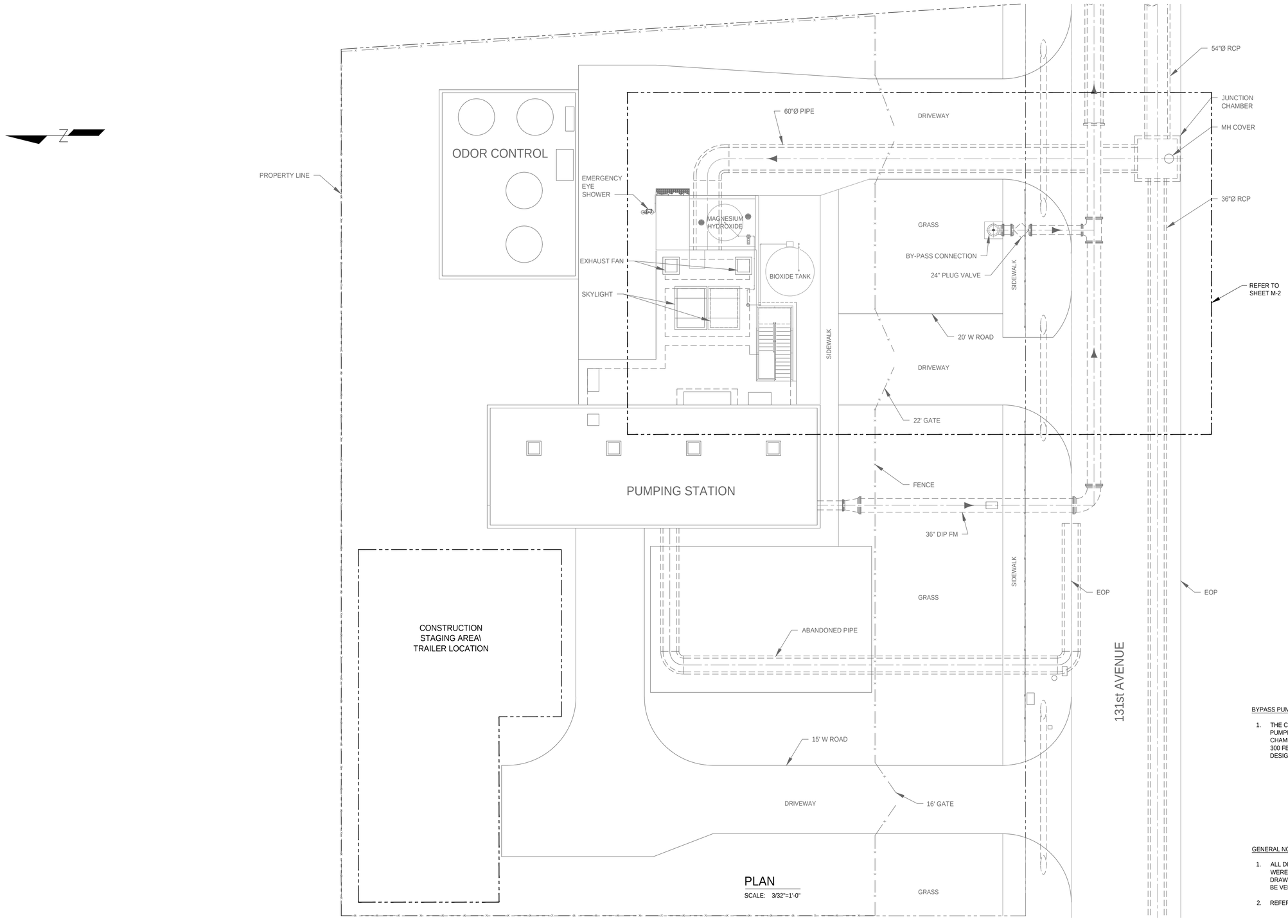
DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
SHEET INDEX, ABBREVIATION, GENERAL NOTES AND REFERENCE SYMBOLS

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: G-1 2 OF 27



PLAN

SCALE: 3/32"=1'-0"

BYPASS PUMPING NOTES:

1. THE CONTRACTOR WILL UTILIZE MANHOLES FOR THE BYPASS PUMPING, THE FIRST MANHOLE IS LOCATED AT THE JUNCTION CHAMBER AND THE SECOND MANHOLE IS LOCATED APPROXIMATELY 300 FEET WEST OF THE JUNCTION CHAMBER. THE CONTRACTOR SHALL DESIGN AND SUBMIT THE BYPASS PLANS PER SPECIFICATIONS.

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND RECORD DRAWINGS. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. REFER TO SHEET G-1 AND S-1 FOR ADDITIONAL NOTES.

P:\4291800\w\M-1.dwg, Aug 15, 2018 - 9:26am

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G DICK
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CHECKED G JACOB

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APPROVED BY:

JOSEPH B. BARKSDALE
FLA. LIC. NO 46545

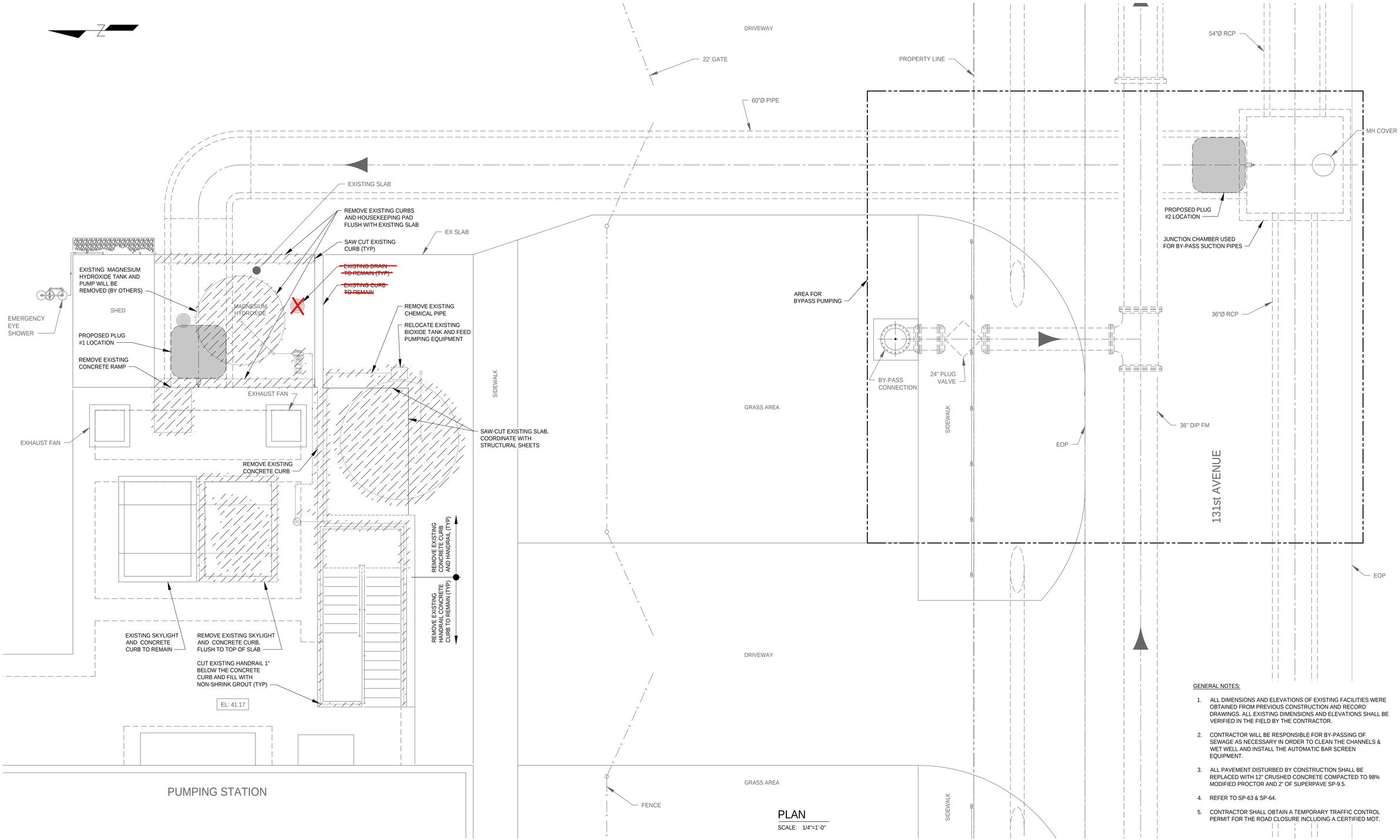
DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
EXISTING SITE PLAN
KEY PLAN

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: M-1
3 OF 27



PLAN

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

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND RECORD DRAWINGS. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. CONTRACTOR WILL BE RESPONSIBLE FOR BY-PASSING OF SEWAGE AS NECESSARY IN ORDER TO CLEAN THE CHANNELS & WET WELL AND INSTALL THE AUTOMATIC BAR SCREEN EQUIPMENT.
3. ALL PAVEMENT DISTURBED BY CONSTRUCTION SHALL BE REPLACED WITH 12" CRUSHED CONCRETE COMPACTED TO 98% MODIFIED PROCTOR AND 2" OF SUPERPAVE SP-9.5.
4. REFER TO SP-63 & SP-64.
5. CONTRACTOR SHALL OBTAIN A TEMPORARY TRAFFIC CONTROL PERMIT FOR THE ROAD CLOSURE INCLUDING A CERTIFIED MOT.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G DICK
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CHECKED G JACOB

G S & P
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813.254.5838
FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

JOSEPH B. BARKSDALE
FLA. LIC. NO 46545

DATE

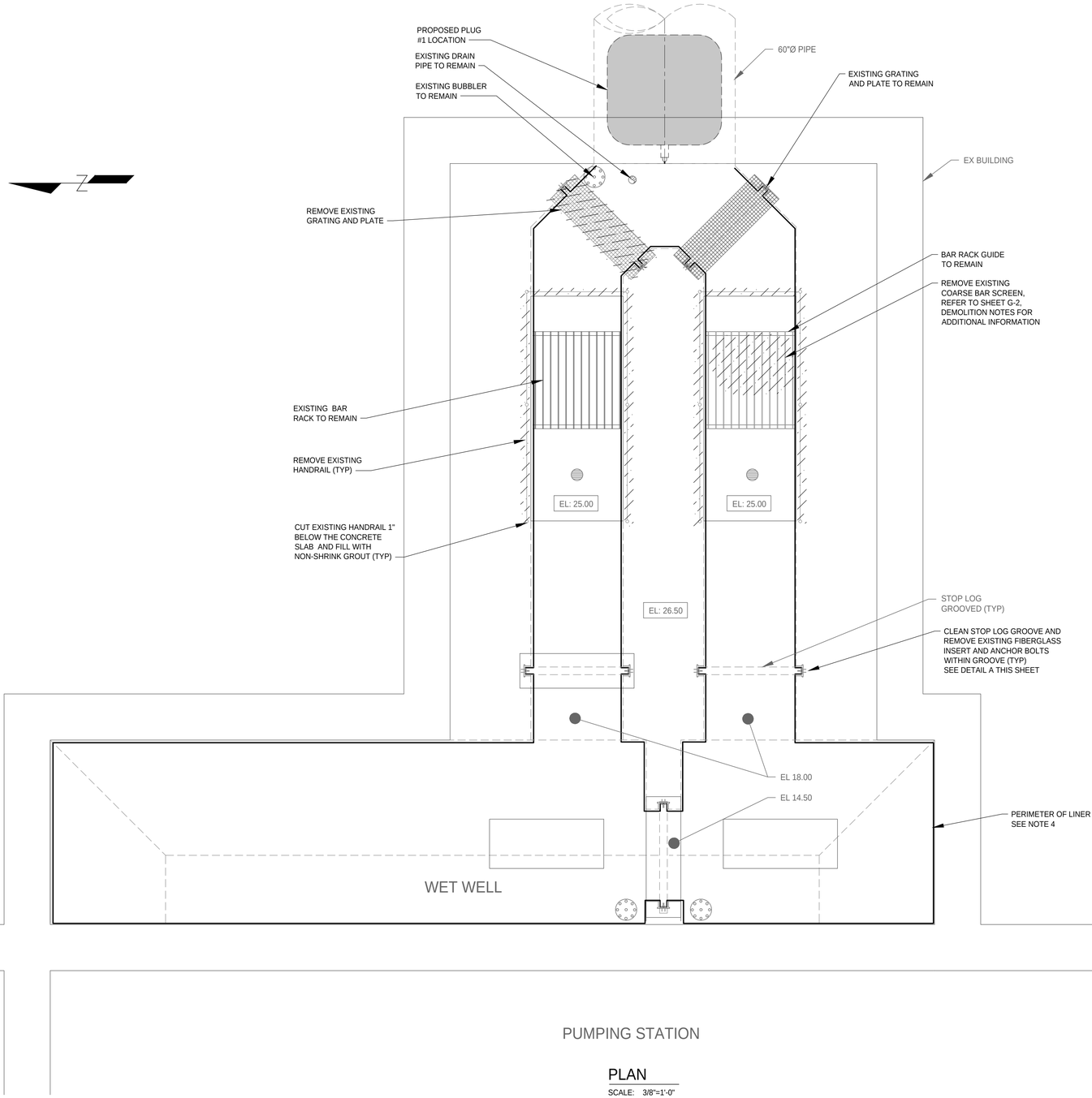
City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
UPPER PLAN LAYOUT AND DEMOLITION

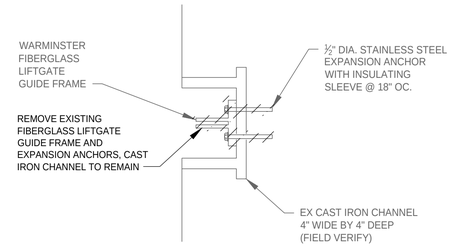
DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: M-2
4 OF 27

P:\4291800\w\M-2.dwg, Aug 15, 2018 - 9:27am



PLAN

SCALE: 3/8"=1'-0"



DETAIL A

SCALE: NTS

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND RECORD DRAWINGS. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. REFER TO SHEET G-1 AND S-1 FOR ADDITIONAL NOTES.
3. CONTRACTOR SHALL CLEAN ENTIRE CHANNEL & WET WELL AND ALL DEBRIS REMOVED PRIOR TO CONCRETE REPAIRS.\
4. CONTRACTOR WILL NEED TO CHECK ENTIRE STRUCTURE TO DETERMINE IF EXISTING PVC LINER IS FIRMLY ATTACHED AND CONCRETE IS IN SOUND CONDITION. ALL CORRODED CONCRETE AND UNATTACHED LINER MUST BE REMOVED AND CONCRETE REPAIRED AND COATED PER SPECIFICATIONS.

P:\4291800\w\M-3.dwg, Aug 15, 2018 - 9:27am

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G DICK
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CHECKED G JACOB

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Tampa, FL 33602
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FIRM'S FLORIDA
CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

JOSEPH B. BARKSDALE
FLA. LIC. NO 46545

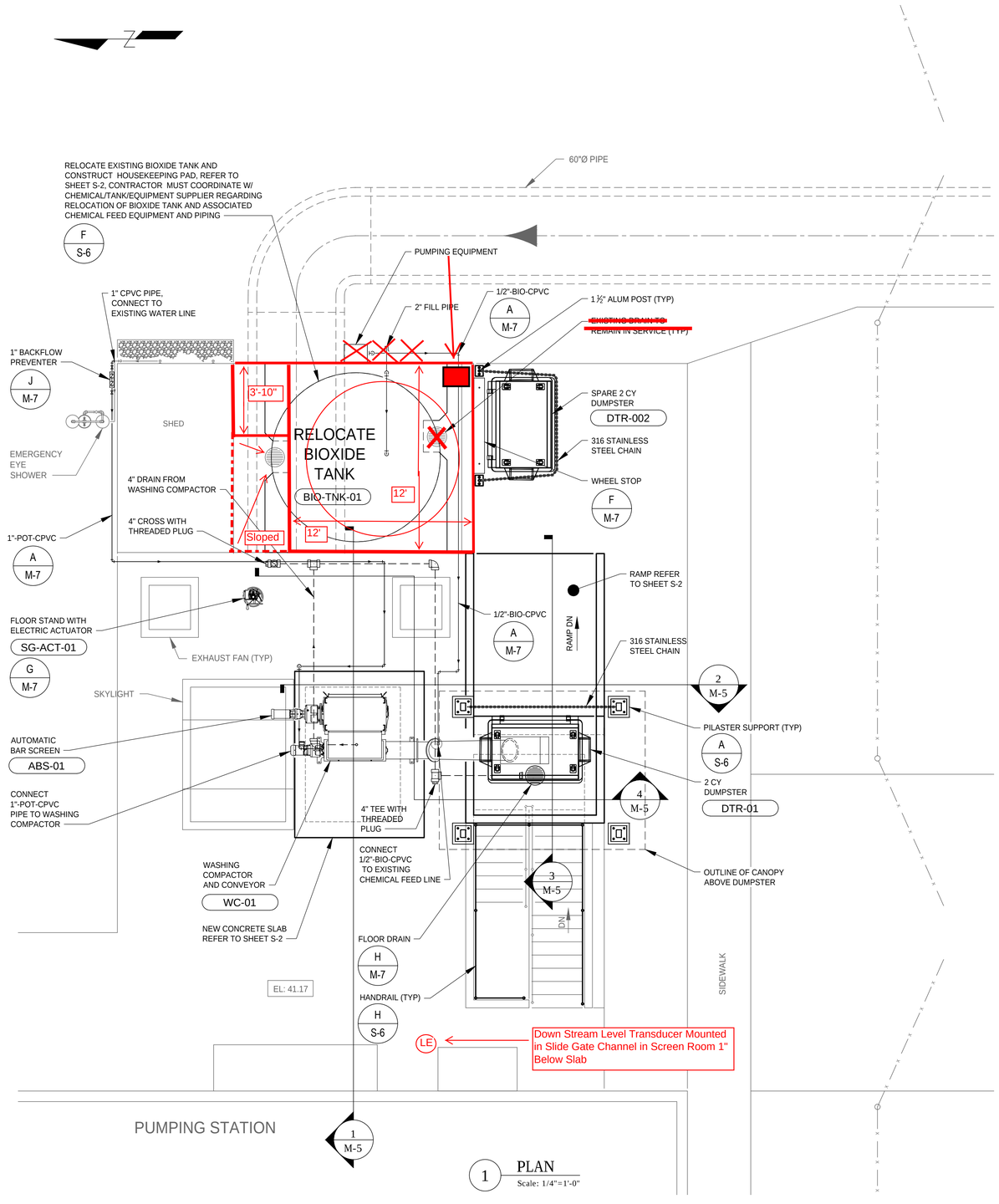
DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
LOWER PLAN DEMOLITION

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: M-3 5 OF 27



GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND RECORD DRAWINGS. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. REFER TO SHEET G-1 AND S-1 FOR ADDITIONAL NOTES.
3. REFER TO ELECTRICAL SHEETS FOR ADDITIONAL INFORMATION.

P:\4291800\w\M-4.dwg, Aug 15, 2018 - 9:28am

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G DICK
DRAWN O GOMEZ
CHECKED G JACOB

G S & P
302 Knights Run Avenue, Suite 900
Tampa, FL 33602
813.254.5838
FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

JOSEPH B. BARKSDALE
FLA. LIC. NO 46545

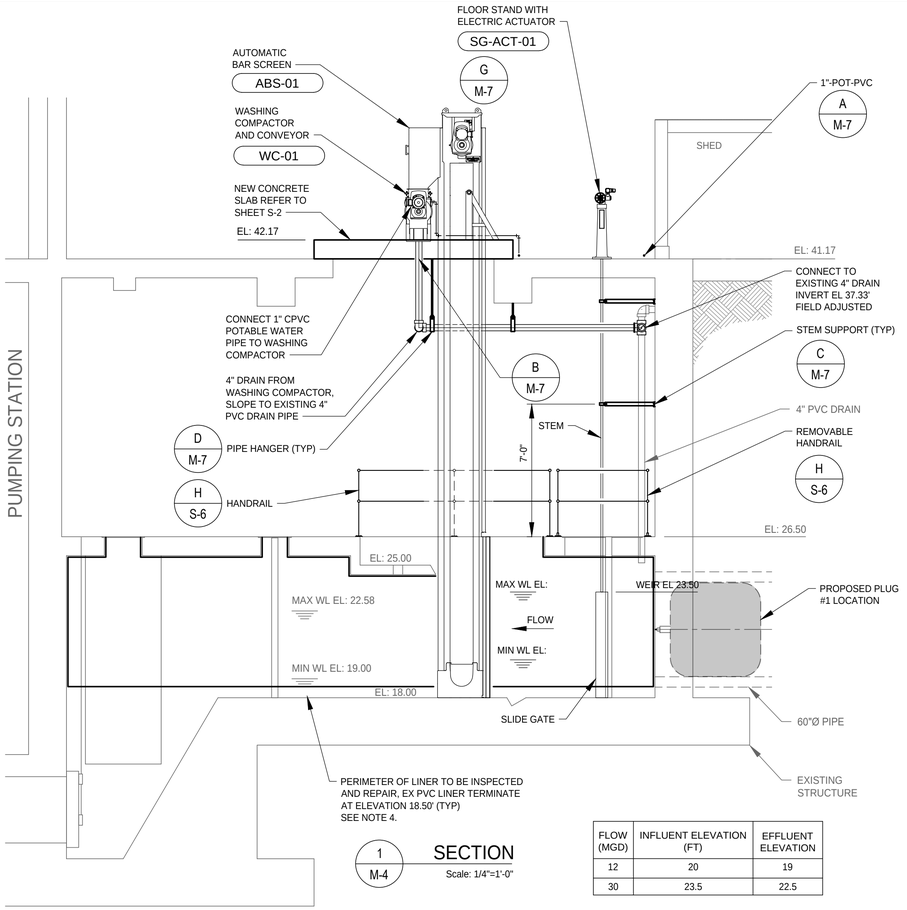
DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

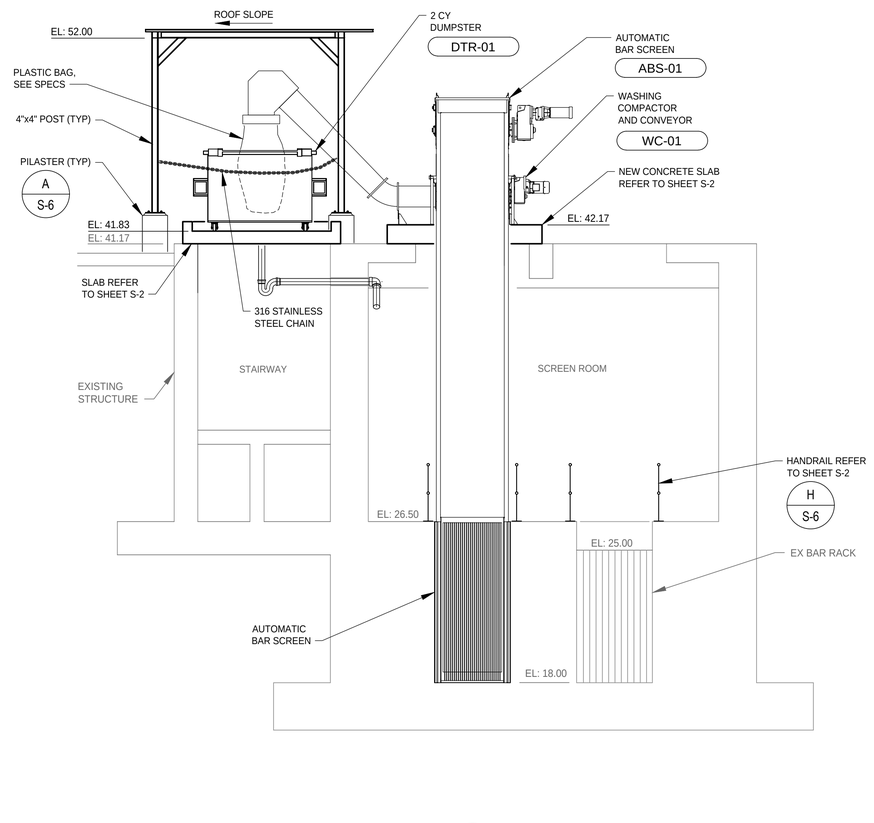
DESCRIPTION:
UPPER PLAN

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: M-4 6 OF 27

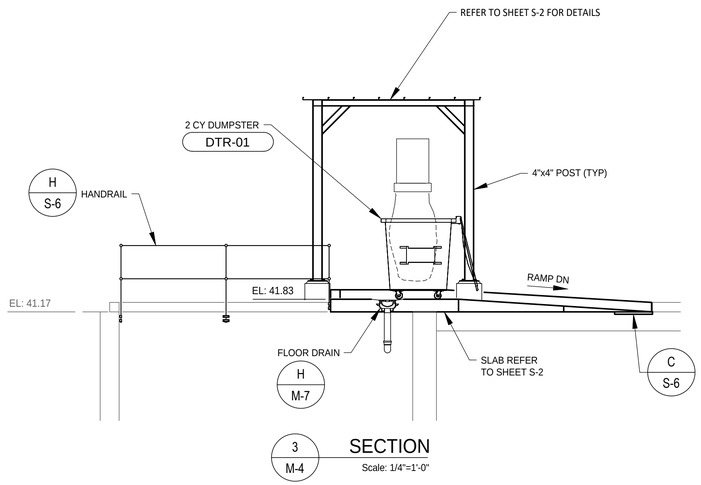


1 M-4 SECTION
Scale: 1/4"=1'-0"

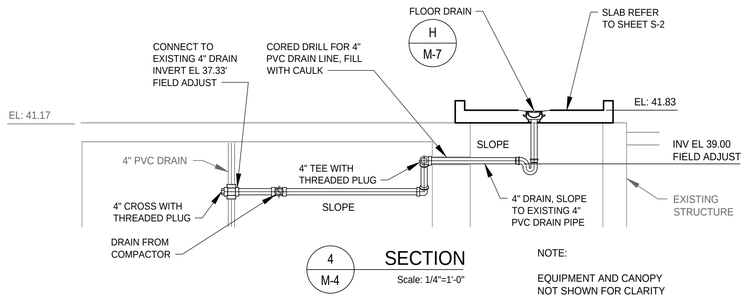
FLOW (MGD)	INFLUENT ELEVATION (FT)	EFFLUENT ELEVATION
12	20	19
30	23.5	22.5



2 M-4 SECTION
Scale: 1/4"=1'-0"



3 M-4 SECTION
Scale: 1/4"=1'-0"



4 M-4 SECTION
Scale: 1/4"=1'-0"

NOTE:

EQUIPMENT AND CANOPY NOT SHOWN FOR CLARITY

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND RECORD DRAWINGS. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. REFER TO SHEET G-1 AND S-1 FOR ADDITIONAL NOTES.
3. CONTRACTOR SHALL CLEAN ENTIRE CHANNEL & WET WELL AND ALL DEBRIS REMOVED PRIOR TO CONCRETE REPAIRS.\
4. CONTRACTOR WILL NEED TO CHECK ENTIRE STRUCTURE TO DETERMINE IF EXISTING PVC LINER IS FIRMLY ATTACHED AND CONCRETE IS IN SOUND CONDITION. ALL CORRODED CONCRETE AND UNATTACHED LINER MUST BE REMOVED AND CONCRETE REPAIRED AND COATED PER SPECIFICATIONS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G DICK
DRAWN O GOMEZ
CHECKED G JACOB

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FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

JOSEPH B. BARKSDALE
FLA. LIC. NO 46545

DATE

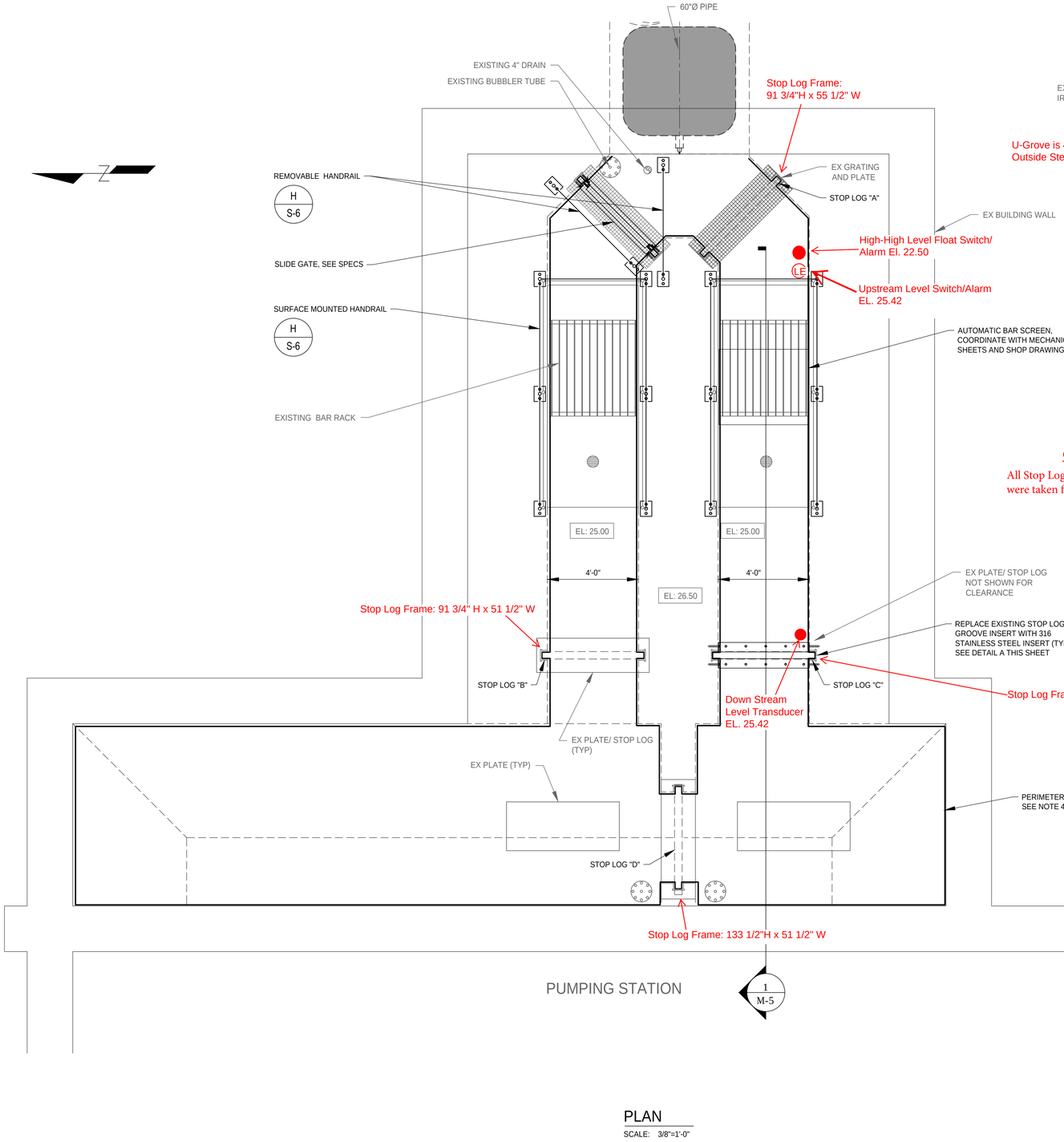
City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
SECTIONS

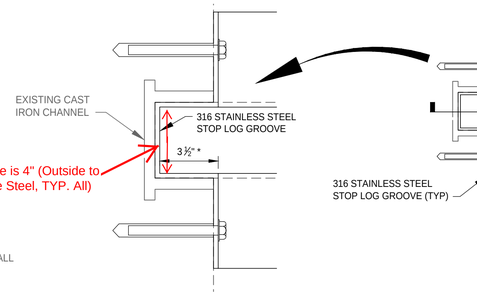
DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: M-5
7 OF 27

P:\4291800\w\M-5.dwg, Aug 15, 2018 - 9:29am



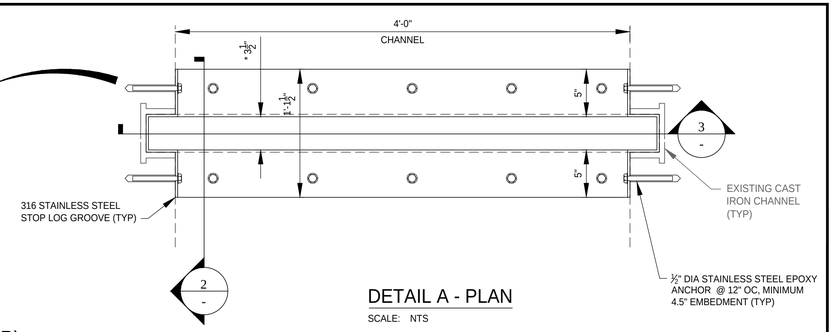
PLAN

SCALE: 3/8"=1'-0"



DETAIL (WALL AND FLOOR)

SCALE: NTS

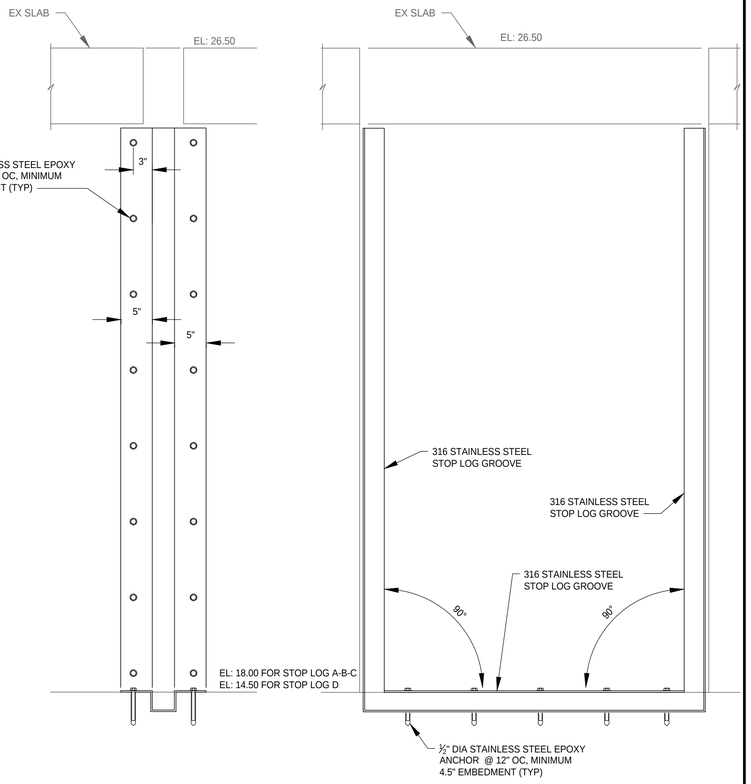


DETAIL A - PLAN

SCALE: NTS

General Notes

All Stop Log Frame Width Measurements
were taken from Inside of U-Groove



2 - SECTION
Scale: NTS

3 - SECTION
Scale: NTS

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND RECORD DRAWINGS. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. REFER TO SHEET G-1 AND S-1 FOR ADDITIONAL NOTES.
3. REFER TO ELECTRICAL SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR WILL NEED TO CHECK ENTIRE STRUCTURE TO DETERMINE IF EXISTING PVC LINER IS FIRMLY ATTACHED AND CONCRETE IS IN SOUND CONDITION. ALL CORRODED CONCRETE AND UNATTACHED LINER MUST BE REMOVED AND CONCRETE REPAIRED AND COATED PER SPECIFICATIONS.
5. * CONTRACTOR TO VERIFY ALL EXISTING STOP LOG GROOVE DIMENSIONS BEFORE FABRICATING NEW 316 SS STOP LOG GROOVES. ALL PROPOSED STOP LOG GROOVES SHALL BE THE SAME UNIFORM WIDTH AND DEPTH (FOR STOP LOG A,B &C).
6. EXISTING CAST IRON GROOVES SHALL BE HIGH PRESSURE WASHED OR SAND BLASTED TO REMOVE ALL LOOSE, UNSOUND MATERIAL BEFORE INSTALLING OF NEW STOP LOG GROOVES. CONTRACTOR MAY NEED TO FILL VOID AREAS WITH CONCRETE REPAIR MATERIAL OR OTHER APPROVED MATERIAL TO PREVENT VOIDS BEHIND NEW STOP LOG GROOVES.
7. SAND BLASTING SHALL BE 100% CONTAINED.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G DICK
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CERT. NO.
AAP000034/CA3806
IB26000797/LC2600038

APPROVED BY:

JOSEPH B. BARKSDALE
FLA. LIC. NO 46545

DATE

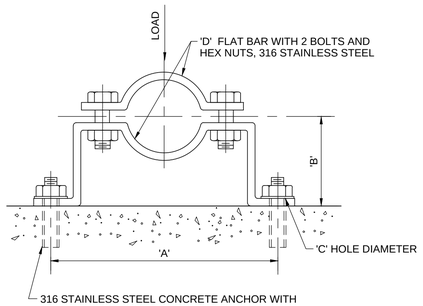
City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
LOWER PLAN
SECTIONS AND DETAILS

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: M-6
8 OF 27

P:\4291800\w\M-6.dwg, Aug 15, 2018 - 9:30am

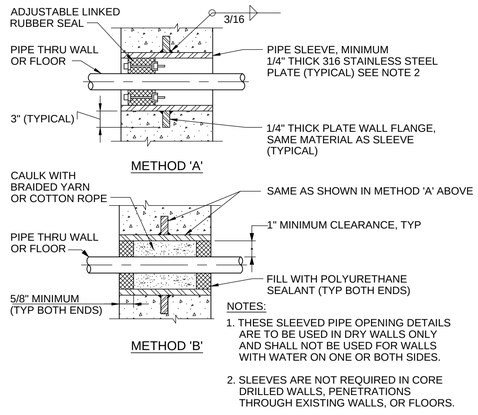


DIMENSIONS IN INCHES					LOAD RATING LBS
PIPE DIAMETER	'A'	'B' SEE NOTE 3 BELOW	'C' HOLE DIAMETER	'D' FLAT BAR SIZE	
3/4	5 15/16	2 1/2	7/16	3/16x1 1/4	190
1	6 1/4	2 5/8	7/16	3/16x1 1/4	190
1 1/4	6 11/16	2 3/4	7/16	3/16x1 1/4	190
1 1/2	6 15/16	3	7/16	3/16x1 1/4	190
2	8 5/16	3 3/16	7/16	1/4x1 1/4	420
2 1/2	8 7/8	3 7/16	7/16	1/4x1 1/4	420
3	9 1/8	3 3/4	7/16	1/4x1 1/4	420
3 1/2	10 1/16	4	7/16	1/4x1 1/4	420
4	10 9/16	4 1/4	9/16	1/4x1 1/2	610
5	11 3/4	4 3/4	9/16	1/4x1 1/2	610
6	14 3/8	5 5/16	9/16	3/8x1 1/2	870
8	16 5/8	6 5/16	9/16	3/8x1 1/2	870

NOTES:

1. WHERE SUBMERGED, PIPE CLAMP, ANCHORS, SHIELD, NUTS AND LOCKWASHER TO BE TYPE 316 STAINLESS STEEL.
2. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD WITH LOOSE FIT AROUND PIPE AT CLAMP. WRAP COPPER TUBING WITH 2" WIDE STRIP OF RUBBER AT CLAMP.
3. FOR FLANGED PIPING, INCREASE 'B' DIMENSION AS REQUIRED.

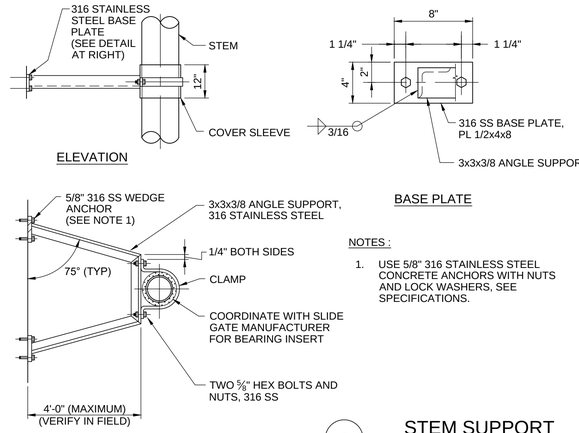
A PIPE CLAMP FOR INDIVIDUAL PIPES
(FOR PIPE 8" DIAMETER AND SMALLER)



NOTES:

1. THESE SLEEVED PIPE OPENING DETAILS ARE TO BE USED IN DRY WALLS ONLY AND SHALL NOT BE USED FOR WALLS WITH WATER ON ONE OR BOTH SIDES.
2. SLEEVES ARE NOT REQUIRED IN CORE DRILLED WALLS, PENETRATIONS THROUGH EXISTING WALLS, OR FLOORS.

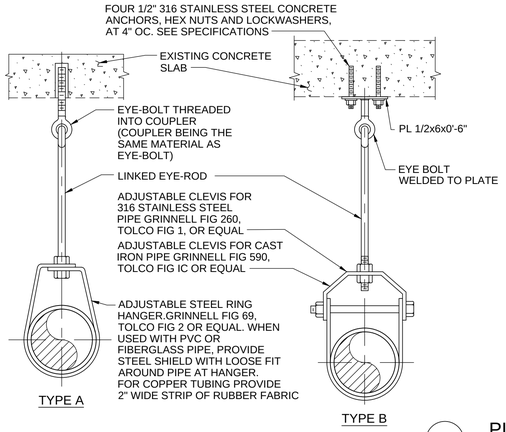
B SLEEVED PIPE OPENING



NOTES :

1. USE 5/8" 316 STAINLESS STEEL CONCRETE ANCHORS WITH NUTS AND LOCK WASHERS, SEE SPECIFICATIONS.

C STEM SUPPORT

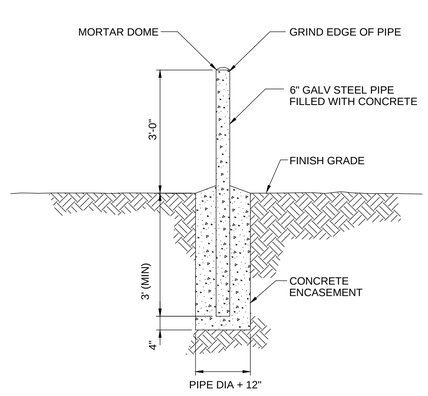


PIPE HANGER RODS AND SUPPORT SPACING					
PIPE DIAMETER (INCHES)	ROD DIAMETER (INCHES)	MAX SUPPORT SPACING (FEET)		WEIGHT LIMIT (LBS)	
		STEEL PIPE	CI PIPE	TYPE A	TYPE B
1 & SMALLER	3/8	6	10	300	610
1 1/4 TO 2	3/8	10	10	300	610
2 1/2 TO 3 1/2	1/2	12	10	525	1130
4 TO 5	5/8	14	10	650	1430
6, 8	3/4	17	10	1000	1940
10, 12	7/8	18	---	---	3600
14, 16	1	20	---	---	3800

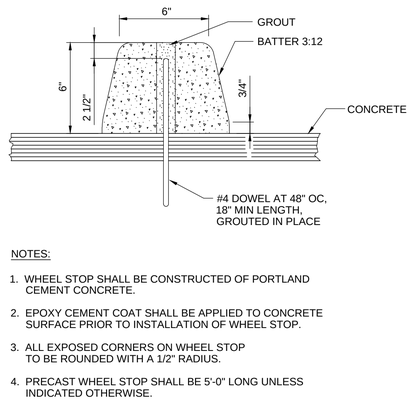
NOTES:

1. DESIGN IS FOR STATIC LOAD, ONLY.
2. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'.
3. ALL HANGER COMPONENTS SHALL BE 316 STAINLESS STEEL.

D PIPE HANGER FOR EXISTING CONCRETE
(FOR PIPE 16" DIAMETER AND SMALLER)



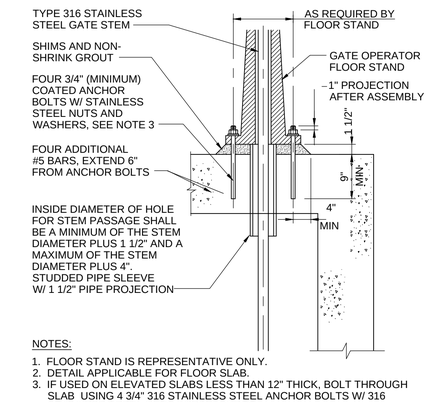
E GUARD POST



NOTES:

1. WHEEL STOP SHALL BE CONSTRUCTED OF PORTLAND CEMENT CONCRETE.
2. EPOXY CEMENT COAT SHALL BE APPLIED TO CONCRETE SURFACE PRIOR TO INSTALLATION OF WHEEL STOP.
3. ALL EXPOSED CORNERS ON WHEEL STOP TO BE ROUNDED WITH A 1/2" RADIUS.
4. PRECAST WHEEL STOP SHALL BE 5'-0" LONG UNLESS INDICATED OTHERWISE.

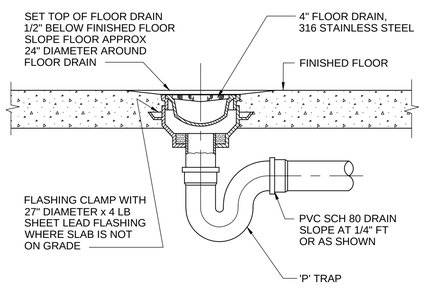
F PRECAST WHEEL STOP



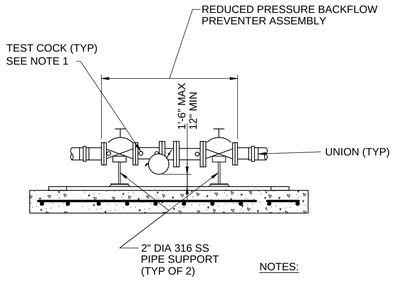
NOTES:

1. FLOOR STAND IS REPRESENTATIVE ONLY.
2. DETAIL APPLICABLE FOR FLOOR SLAB.
3. IF USED ON ELEVATED SLABS LESS THAN 12" THICK, BOLT THROUGH SLAB USING 4 3/4" 316 STAINLESS STEEL ANCHOR BOLTS W/ 316 STAINLESS STEEL NUTS AND WASHERS.

G FLOOR STAND INSTALLATION



H FLOOR DRAIN



NOTES:

1. TEST COCKS AND SHUT-OFF MUST BE SUPPLIED AS SHOWN.
2. DISCHARGE PORT MUST BE KEPT CLEAR OF OBSTRUCTION AT ALL TIMES.

J BACKFLOW PREVENTER

P:\4291800\ww\M-7.dwg, Aug 15, 2018 - 9:30am

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G DICK
DRAWN O GOMEZ
CHECKED G JACOB

G S & P
302 Knights Run Avenue, Suite 900
Tampa, FL 33602
813.254.5838
FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

JOSEPH B. BARKSDALE
FLA. LIC. NO 46545

DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
MECHANICAL
STANDARD DETAILS

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: M-7 9 OF 27

GENERAL

1. CODES:

   A. GOVERNING BUILDING CODE FOR DESIGN OF BUILDING STRUCTURE IS 2017 FLORIDA BUILDING CODE.

   B. REFERENCES TO NATIONAL STANDARDS/CODES SHALL BE TO EDITION ADOPTED BY GOVERNING BUILDING CODE REFERENCED HEREIN. WHERE BUILDING CODE DOES NOT REFERENCE STANDARDS, LATEST EDITION OF STANDARD PUBLISHED PRIOR TO DATE OF BUILDING CODE ADOPTION.

   C. REVIEW(ED) INDICATES REVIEW(ED) AND COMMENTED BY ARCHITECT/ENGINEER IN WRITING.

2. CONTRACT DOCUMENTS:

   A. FOLLOWING NOTES ARE APPLICABLE TO CONTRACT DOCUMENTS. IN INSTANCE OF A DISCREPANCY, MOST STRINGENT REQUIREMENT SHALL APPLY, EXCEPT WHERE CLARIFIED BY ARCHITECT/ENGINEER.

   B. USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH COMPLETED CONTRACT DOCUMENTS, INCLUDING SPECIFICATIONS. COORDINATE REQUIREMENTS OF TRADES INTO SHOP DRAWINGS AND CONSTRUCTION.

   C. CONSTRUCT WORK NOT FULLY INDICATED OR SPECIFIED IN CONTRACT DOCUMENTS IN SAME MANNER AS INDICATED OR SPECIFIED IN SIMILAR CONDITIONS.

   D. REPORT ANY DISCREPANCY BETWEEN DISCIPLINE DRAWINGS TO ARCHITECT/ENGINEER PRIOR TO FABRICATIONS/ERECTION OF ANY MEMBERS.

   E. USE ONLY DIMENSIONS INDICATED ON DRAWINGS. DO NOT SCALE DRAWINGS OR USE ANY DIMENSIONS TAKEN FROM ELECTRONIC DRAWING FILES.

   F. ENGAGE A SPECIALTY ENGINEER TO DESIGN, DETAIL AND SUBMIT SIGNED AND SEALED DRAWINGS FOR REVIEW AND COMMENT OF POINTS OF ATTACHMENT AND IMPACT ON PRIMARY STRUCTURE AND FOR PRE-ENGINEERED/PRE-FABRICATED ELEMENTS AND OTHER ELEMENTS INDICATED ON CONTRACT DOCUMENTS. A SPECIALTY ENGINEER IS A QUALIFIED LICENSED STRUCTURAL ENGINEER REGISTERED IN STATE WHERE PROJECT IS LOCATED AND AS REQUIRED BY LOCAL JURISDICTION.

      A LIST OF SPECIALTY ENGINEERED ITEMS INCLUDES, BUT IS NOT LIMITED TO:

      1) SHORING, RESHORING AND BACKSHORING;
      2) TEMPORARY BRACING, CONSTRUCTION LOADINGS, AND TEMPORARY SUPPORT STRUCTURES;
      3) STRUCTURAL STEEL CONNECTIONS;

      ATTACHMENTS OF ITEMS SUPPORTED BY STRUCTURE NOT SPECIFICALLY AND COMPLETELY DETAILED IN CONTRACT DOCUMENTS ARE RESPONSIBILITY OF CONTRACTOR. SOME SPECIALTY ITEMS MAY HAVE POINTS OF ATTACHMENT IDENTIFIED ON DOCUMENTS.
      CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, SITE SAFETY, AND PERMITS. COMPLY WITH LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING UPON PERFORMANCE OF WORK.

   G. STRUCTURE HAS BEEN DESIGNED IN ITS COMPLETED FORM FOR IMPOSED LOADS AS REQUIRED BY CODE AND AS INDICATED. NO PROVISIONS HAVE BEEN MADE NOR IS ARCHITECT/ENGINEER RESPONSIBLE FOR ANY TEMPORARY CONSTRUCTION STAGING AND LOADINGS ON STRUCTURE, INCLUDING SLAB ON GRADE.

   H. WHERE NOT INDICATED ON STRUCTURAL DOCUMENT, COORDINATE, BUT NOT LIMITED TO FOLLOWING WITH OTHER DISCIPLINE DRAWINGS AND RESPECTIVE SUBCONTRACTORS:

      1) ELEVATIONS AND SLOPES;
      2) SIZE, LOCATION AND EXTENT OF CURBS, FLOOR DEPRESSIONS AND TOPPING SLABS;
      3) SIZE AND LOCATION OF DRAINS, TRENCHES, SLAB OPENING AND WALL OPENINGS;
      4) SIZE AND LOCATIONS OF RECESSES AND REVEALS IN CONCRETE WORK;
      5) SIZE, TYPE AND LOCATION OF NON-LOADING BEARING PARTITIONS;
      6) SIZE AND LOCATIONS OF SLEEVES AND HANGERS;
      7) ELEMENTS EMBEDDED IN STRUCTURE OF PENETRATING STRUCTURE;
      8) ATTACHMENTS OF NON-STRUCTURAL ITEMS AND ELEMENTS TO STRUCTURE, WHETHER SPECIFICALLY DETAILED OR NOT;
      9) SITE AND SUBGRADE DRAINAGE SYSTEMS;
      10) WATERPROOFING AND DAMP PROOFING;
      11) REQUIRE FIRE RATINGS AND FIRE PROOFING.

      WHERE INDICATED, OPENING SIZES AND LOCATIONS FOR PIPES, DUCTS, ETC. ARE FOR GENERAL INFORMATION ONLY. VERIFY WITH OTHER DISCIPLINE DRAWING AND RESPECTIVE SUBCONTRACTORS. REPORT ANY DISCREPANCIES TO ARCHITECT/ENGINEER IN WRITING PRIOR TO IMPLEMENTING WORK. REFER TO DETAILS FOR RESTRICTIONS AND PARAMETERS.

   I. DETAILS, SECTIONS AND NOTES DESIGNATED AS "TYPICAL ARE INTENDED TO SHOW INTENT AND ALSO APPLY TO SIMILAR CONDITIONS, UNO.

EXISTING CONSTRUCTION

1. REFERENCE DOCUMENTS

   A. EXISTING CONSTRUCTION INDICATED ON DRAWINGS IS FOR REFERENCE ONLY. VERIFY EXISTING DIMENSIONS AND CONDITIONS PRIOR TO ORDERING MATERIAL AND STARTING WORK. BRING DISCREPANCIES BETWEEN EXISTING CONDITIONS AND ASSUMED EXISTING CONDITIONS INDICATED ON CONTRACT DOCUMENTS TO IMMEDIATE ATTENTION OF ARCHITECT/ENGINEER.

   B. EXISTING CONSTRUCTION HAS NOT BEEN VERIFIED FOR CONFORMANCE WITH REQUIREMENTS OF APPLICABLE BUILDING CODE EXCEPT FOR AREAS DIRECTLY AFFECTED BY MODIFICATIONS INDICATED HEREIN.

   C. REPRESENTATION OF EXISTING STRUCTURAL FRAMING IS BASED UPON EXISTING DRAWINGS PREPARED BY GREELEY AND HANSEN ENGINEERS, DATED AUGUST 1972.

   G. SHORE AND TEMPORARILY BRACE EXISTING CONSTRUCTION AS NECESSARY TO ACCOMMODATE REMOVAL OF EXISTING CONSTRUCTION;

   H. PREVENT UNDERCUTTING OF EXISTING FOUNDATION AND SLAB ON GRADE ELEMENTS DURING INSTALLATION OF NEW CONSTRUCTION;

   I. PROVIDE MEANS AND METHODS OF DEMOLITION AND INSTALLATION OF NEW WORK;

   J. PROVIDE ERECTION PROCEDURES, SEQUENCING, SHORING, AND TEMPORARY BRACING TO FACILITATE INSTALLATION OF NEW WORK;

   K. PROVIDE REVIEW OF TEMPORARY CONSTRUCTION LOADS IMPOSED ON NEW OR EXISTING CONSTRUCTION;

   L. VERIFY ACCESSIBILITY TO BUILDING AND MAXIMUM WORKABLE MEMBER LENGTHS BEFORE COMMENCING WITH FABRICATION. IF NEW BEAMS CANNOT BE SHIPPED AND INSTALLED AS SINGLE CONTINUOUS MEMBERS, PROVIDE COMPLETE PENETRATION WELDING OF FLANGES AND PARTIAL PENETRATION WELDING OF WEBS OF NEW BEAMS SPLICES.

   M. ENSURE STRUCTURAL INTEGRITY OF EXISTING CONSTRUCTION IS NOT COMPROMISED DURING CONSTRUCTION PROCESS. MONITOR AND SURVEY EXISTING STRUCTURE FOR MOVEMENT. MAINTAIN EXISTING CONDITION. DAMAGE TO EXISTING STRUCTURE AS A RESULT OF CONTRACTOR'S WORK SHALL BE REPAIRED TO AS GOOD OR BETTER CONDITION THAN PRIOR TO BEGINNING OF CONTRACTOR'S WORK;

   N. NOTIFY ARCHITECT/ENGINEER IF ANY EXISTING CONSTRUCTION NOT DESIGNATED FOR REMOVAL INTERFERES WITH INSTALLATION OF NEW WORK AND OBTAINING DIRECTION FROM ARCHITECT/ENGINEER PRIOR TO REMOVAL OF INTERFERING CONSTRUCTION; AND

   O. PROVIDE SPECIALTY ENGINEERING FOR DESIGN OF ANY SHORING AND TEMPORARY BRACING, TEMPORARY LOADS IMPOSED ON WORK AND FOR REMEDIAL REPAIR DETAILS OF DAMAGE TO EXISTING CONSTRUCTION THAT OCCURRED DURING CONSTRUCTION.

2. EXISTING CONCRETE

   A. PERFORM DRILLING INTO EXISTING CONCRETE IN A MANNER WHICH AVOIDS DAMAGE TO EXISTING REINFORCEMENT. DRILL A PILOT HOLE OR PERFORM NON-DESTRUCTIVE TESTING PRIOR TO ATTACHING TO ANY EXISTING CONCRETE TO DETERMINE LOCATION OF REINFORCING AND COORDINATE ATTACHMENT WITH ARCHITECT/ENGINEER. RESTORE ABANDONED PILOT HOLES WITH APPROVED PATCHING COMPOUND.

   B. WHERE EXISTING CONCRETE REINFORCEMENT IS TO BE REUSED IN PLACE, REMOVE SURROUNDING CONCRETE IN A MANNER WHICH MINIMIZES DAMAGE TO REINFORCEMENT. REPLACE DAMAGED REINFORCEMENT UTILIZING A METHOD APPROVED BY ARCHITECT/ENGINEER.

   C. THOROUGHLY CLEAN FACE OF CONCRETE SURFACES CUT FROM EXISTING CONCRETE. ALLOW SURFACE TO COMPLETELY DRY, COAT WITH APPROVED BONDING AGENT AND FINISH WITH APPROVED PATCHING COMPOUND. CUT OFF AND GRIND FLUSH EXPOSED REINFORCEMENT TO NEW CONCRETE SURFACE AND FINISH WITH EPOXY PAINT.

DESIGN CRITERIA

1. LOADS:

   A. DEAD LOAD:

      1. ACTUAL WEIGHT OF MATERIALS
      2. BUILDING SYSTEMS ALLOWANCE – 10 PSF (IN ADDITION TO BUILDING SYSTEM LOADS INDICATED ON DOCUMENTS)

   B. LIVE LOADS - FLOOR LIVE LOADS HAVE BEEN REDUCED IN ACCORDANCE WITH REFERENCED BUILDING CODE AND ARE AS FOLLOWS:

OCCUPANCY OR USE	UNIFORM LOAD PSF
HEAVY STORAGE	250
ROOF LOADS:	20

   C. HANDRAILS: DESIGN HANDRAIL ASSEMBLIES AND GUARDS FOR 50 PFL OR A CONCENTRATED LOAD OF 200 POUNDS AT ANY POINT APPLIED IN ANY DIRECTION AT TOP AND TO TRANSFER THIS LOAD THROUGH SUPPORTS TO STRUCTURE. THESE LOADS NEED NOT BE ASSUMED TO ACT CONCURRENTLY.

   D. INTERMEDIATE RAILS, BALUSTERS AND PANEL FILLERS: 50 PLF UNIFORM LOAD OF 200 LBS CONCENTRATED LOAD APPLIED AT TOP IN ANY DIRECTION. UNIFORM AND CONCENTRATED LOADS DO NOT ACT CONCURRENTLY.

2. LATERAL FORCE RESISTING SYSTEM:

   A. ABILITY OF STRUCTURAL FRAME TO RESIST LATERAL LOADS AND PROVIDE STABILITY UNDER GRAVITY LOADS DERIVES FROM COMPLETE INSTALLATION OF LATERAL FORCE RESISTING SYSTEM AND DIAPHRAGMS DESCRIBED HEREIN.

      1. LATERAL FORCE RESISTING SYSTEM: DIAPHRAGMS:
         a. ROOF
      2. FOUNDATION ELEMENTS:
         a. TIE BEAMS BETWEEN FOUNDATION ELEMENTS.

3. MAIN WIND FORCE RESISTING SYSTEM:

BASIC 3 SECOND GUST WIND SPEED	V = 150 MPH
EXPOSURE CATEGORY	= B
WIND IMPORTANCE CATEGORY	I_W = 1.15
INTERNAL PRESSURE COEFFICIENT	GC_{pi} = +/-0.18

CAST-IN-PLACE CONCRETE

1. GENERAL

   A. CONCRETE DESIGN IS IN CONFORMANCE WITH ACI 350 "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES".

   B. CONCRETE WORK SHALL CONFORM TO ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" AND AS INDICATED HEREIN.

   C. CONCRETE DURABILITY REQUIREMENTS:

CONCRETE ELEMENT	EXPOSURE CLASSES *	CEMENT TYPE	REQUIRED CEMENTITIOUS MATERIAL REPLACEMENT (BY CEMENT WEIGHT %)**	MAXIMUM W/C RATIO
INTERIOR SLABS ON GRADE	C1	II	25-50%	0.4
ELEVATED SLABS	C1	II	0-25%	0.4
EXTERIOR SLABS ON GRADE	C1	II	50%	0.4

   * CONCRETE ELEMENTS ARE CONSIDERED TO BE IN EXPOSURE CLASSES F0, S1 AND P1, PER ACI 318.
   ** OVERALL REPLACEMENT LIMITS. SEE SPECIFICATION CEMENTITIOUS MATERIAL COMPONENT LIMITS.

   D. CONCRETE COMPRESSIVE STRENGTHS

      1. PROVIDE NORMAL WEIGHT CONCRETE (147-153 PCF) WITH MINIMUM DESIGNATED 28-DAY COMPRESSIVE STRENGTH FOR FOLLOWING ELEMENTS, UNO ON DOCUMENTS:

ALL CONCRETE	5000 PSI

   E. CONCRETE REINFORCEMENT

      1. FOLLOWING STANDARDS SHALL APPLY TO REINFORCING STEEL:
         DEFORMED BARS: ASTM A615
         WELDED WIRE REINFORCEMENT: ASTM A185

      2. PROVIDE WELDED WIRE REINFORCEMENT IN FLAT SHEETS (ROLLS NOT PERMITTED).

   F. PROVIDE CHAMFERS AT ALL EXPOSED CONCRETE CORNERS.

   G. SUBMIT CONCRETE MIX DESIGNS TO OWNER'S TESTING AGENCY FOR REVIEW AND COMMENT PRIOR TO SUBMISSION TO ARCHITECT/ENGINEER.

   H. COORDINATE SAMPLING, TESTING AND INSPECTION OF CONCRETE AND REINFORCEMENT WITH TESTING AGENCY.

2. DETAILING:

   A. DETAIL REINFORCEMENT AND ACCESSORIES IN ACCORDANCE WITH ACI 315 AND ACI 318, UNO ON DOCUMENTS.

   B. PROVIDE CLEAR COVER FOR CAST-IN-PLACE REINFORCEMENT TO MEET REQUIREMENT OF ACI 350.

   C. FABRICATE AND PLACE REINFORCEMENT IN ACCORDANCE WITH CRSI 63 AND 65, UNO ON DOCUMENTS.

      1. DEVELOPMENT LENGTH AND LAP SPLICES FOR REINFORCEMENT SHALL CONFORM TO ACI 318, CHAPTER 12, UNO ON DOCUMENTS. USE CLASS B TENSION LAP SPLICES UNO ON DOCUMENTS OR REVIEWED BY ARCHITECT/ENGINEER.

      2. SPLICE REINFORCING BARS ONLY AS INDICATED ON DRAWINGS EXCEPT LAP SPLICE REINFORCING BARS DESIGNATED AS "CONT" WITH CLASS B LAP SPLICES. LAP SPLICE CONTINUOUS REINFORCING BARS AT SUPPORT FOR BOTTOM BARS AND AT MIDSPAN FOR TOP AND SIDE BARS.

      3. HOOK UNSCHEDULED TOP AND SIDE REINFORCING BARS AT DISCONTINUOUS ENDS.

      4. PROVIDE A MINIMUM OF TWO BOTTOM BARS CONTINUOUS THROUGH SUPPORT.

   D. MATCH DOWELS WITH SIZE AND SPACING/NUMBER OF MAIN REINFORCING, UNO.

3. CONCRETE PLACEMENT

   A. LOCATE HORIZONTAL JOINTS IN CONCRETE ONLY WHERE THEY NORMALLY OCCUR OR WHERE INDICATED. LOCATE VERTICAL JOINTS IN MIDDLE THIRD OF SPANS OF SLABS, BEAMS OR GIRDERS (NON-POST TENSIONED), UNLESS A BEAM INTERSECTS A GIRDER AT MIDDLE LOCATION, IN WHICH CASE OFFSET JOINTS IN GIRDERS TWICE WIDTH OF BEAM. LOCATE VERTICAL JOINTS WITHIN END THIRD OF SPANS OF POST TENSIONED CONTINUOUS SLABS, BEAMS OR GIRDERS WHERE TENDON PROFILE IS AT OR NEAR CENTROID OF CONCRETE CROSS SECTION.

   B. ROUGHEN SURFACE OF CONSTRUCTION JOINTS SO THAT AGGREGATE SHALL BE EXPOSED UNIFORMLY, LEAVING NO LAITANCE, LOOSENED PARTICLES OR DAMAGED CONCRETE.

   C. PLACING REINFORCEMENT:

      1. REINFORCEMENT AT TIME CONCRETE IS PLACED, SHALL BE FREE OF MUD, OIL, OR OTHER MATERIALS THAT MAY ADVERSELY AFFECT OR REDUCE BOND.

      2. EXTEND WELDED WIRE REINFORCEMENT CONTINUOUS ACROSS BEAMS, GIRDERS AND WALLS.

      3. LAP WELDED WIRE REINFORCEMENT AT LEAST 2 MESHES PLUS END EXTENSION OF WIRES AND TIE SECURELY.

      4. OFFSET VERTICAL BARS IN COLUMNS AT LEAST ONE BAR DIAMETER AT LAP SPLICES.

      5. WHERE PARALLEL REINFORCEMENT IS PLACED IN TWO OR MORE LAYERS IN BEAMS OR JOISTS, PLACE REINFORCING STEEL IN UPPER LAYER DIRECTLY ABOVE THOSE IN BOTTOM LAYER WITH CLEAR DISTANCE BETWEEN LAYERS EQUAL TO GREATER OF ONE BAR DIAMETER OR ONE INCH.

      6. WORKING DOWELS INTO WET CONCRETE IS NOT PERMITTED.

      7. PROVIDE PLASTIC TIPPED BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES.

      8. DO NOT TACK WELD REINFORCING BARS.

   D. CONDUIT, SLEEVES AND OPENINGS

      1. DO NOT PLACE CONDUITS, DUCTS, PIPES, OR OPENINGS, ETC. IN SLABS UNLESS SPECIFICALLY INDICATED ON DRAWINGS OR REVIEWED BY ARCHITECT/ENGINEER. PROVIDE A DRAWING INDICATING SIZE AND LOCATION OF SUCH ITEMS FOR REVIEW.

      2. PLACEMENT OF SLEEVES OR OPENINGS THROUGH GRADE BEAMS, FLOOR BEAMS, COLUMNS OR JOISTS IS NOT PERMITTED, UNO ON DOCUMENTS OR REVIEWED BY ARCHITECT / ENGINEER. SLEEVES OR OPENINGS 12-INCH SQUARE OR SMALLER MAY BE PLACED IN WALLS AND ONE-WAY SLABS.

      3. CORING OF ELEVATED CONCRETE IS NOT PERMITTED UNLESS REVIEWED BY ARCHITECT/ ENGINEER AND REINFORCEMENT IS LOCATED AND AVOIDED.

4. CURING:

   A. WET CURE CONCRETE IN ACCORDANCE WITH SPECIFICATIONS UNLESS INDICATED OTHERWISE IN DOCUMENTS.

   A. CONCRETE WORK SHALL CONFORM TO ACI 117, UNO.

5. REMOVAL OF FORMWORK:

   A. EXCEPT AS HEREIN SPECIFIED, REMOVE FORMWORK AND RESHORE IN ACCORDANCE WITH ACI 301 AND RECOMMENDATIONS OF ACI 347 TO ENSURE COMPLETE SAFETY OF FORMWORK AND STRUCTURE.

   B. FORMWORK FOR COLUMNS, WALLS, SIDES OF BEAMS AND OTHER PARTS NOT SUPPORTING WEIGHT OF CONCRETE MAY BE REMOVED AFTER CONCRETE HAS HARDENED SUFFICIENTLY TO RESIST DAMAGE FROM FORMWORK REMOVAL OPERATIONS.

   C. RETAIN FORMS AND SHORING FOR ALL HORIZONTAL WORK UNTIL CONCRETE HAS ACHIEVED AT LEAST 75% OF ITS DESIGNATED 28-DAY COMPRESSIVE STRENGTH AND WILL SAFELY SUPPORT ITS OWN WEIGHT AND UNTIL COLUMNS ABOVE HAVE BEEN CAST AND HARDENED. RESHORE OR BACKSHORE AS HEREIN SPECIFIED.

6. SHORING:

   D. NO CONSTRUCTION LOADS OR LIVE LOADS ARE PERMITTED ON FLOOR DURING STRIPPING AND UNTIL RESHORING IS COMPLETE.

   E. BEGIN RESHORING AFTER FORMS AND SHORES HAVE BEEN REMOVED FROM A LARGE ENOUGH AREA SUCH THAT FLOOR DEFLECTS AND SUPPORTS ITS OWN WEIGHT. COMPLETE RESHORING NO LATER THAN END OF WORKING DAY ON WHICH STRIPPING OCCURS.

   F. PLACE RESHORES SNUG AGAINST SOFFIT OF FLOOR ABOVE. DO NOT TIGHTEN RESHORES AS TO PRELOAD FLOOR BELOW.

   G. LOCATE SHORES AND RESHORES ONLY ABOVE WHERE RESHORES ARE LOCATED BELOW. SPECIALTY ENGINEER IS RESPONSIBLE FOR REVIEW OF TRANSMISSION OF OFFSET LOADS THROUGH FLOOR FRAMING WHERE SHORES OR RESHORES ARE NOT ALIGNED WITH RESHORES BELOW,

   H. EXTEND RESHORING OVER A SUFFICIENT NUMBER OF FLOORS TO DISTRIBUTE WEIGHT OF NEWLY PLACED CONCRETE, FORMWORK AND CONSTRUCTION LIVE LOADS IN SUCH A MANNER THAT SPECIFIED DESIGN LIVE LOADS (TAKING INTO ACCOUNT APPLICABLE LIVE LOAD REDUCTION) OF FLOORS BELOW ARE NOT EXCEEDED. CONTRACTOR'S SPECIALTY ENGINEER SHALL DETERMINE NUMBER OF FLOORS REQUIRED TO SUPPORT WET CONCRETE.

   I. FINISH SURFACES TO FOLLOWING TOLERANCES, ACCORDING TO ASTM E 1155, FOR A RANDOMLY TRAFFICKED FLOOR SURFACE:
      1. SPECIFIED OVERALL VALUES OF FLATNESS, F(F) 25; AND OF LEVELNESS, F(L) 20; WITH MINIMUM LOCAL VALUES OF FLATNESS, F(F) 17; AND OF LEVELNESS, F(L) 15.

POST-INSTALLED ANCHORAGE SYSTEMS

1. GENERAL:

   A. PROVIDE ANCHORAGE SYSTEMS OF DIAMETER AND EMBEDMENT WHERE INDICATED ON DOCUMENTS.

   B. ANCHORAGE SYSTEMS NOT INDICATED ON DOCUMENTS MAY ONLY BE PROVIDED WHERE SPECIFICALLY REQUESTED IN WRITING BY SUBCONTRACTOR AND ONLY AFTER REVIEW AND COMMENT BY ARCHITECT/ENGINEER.

   C. DESIGN OF ANCHORAGE SYSTEMS IS BASED ON HILTI, INC (USA).

   D. PROPOSED SUBSTITUTIONS OF ANCHORAGE SYSTEMS SHALL BE EQUIVALENT. PROVIDE MANUFACTURER'S PUBLISHED LITERATURE AND ANCHORAGE DESIGN PROGRAM FOR REVIEW AND COMMENT BY ARCHITECT/ENGINEER.

   E. PROVIDE ANCHORAGE SYSTEMS AS A COMPLETE SYSTEM AS SUPPLIED BY DESIGNATED MANUFACTURER. COMPLETE SYSTEM INCLUDES, BUT IS NOT LIMITED TO: INSTALLATION EQUIPMENT, ADHESIVE, ANCHORS, ANCHOR RODS, DEFORMED REINFORCING BARS, OR OTHER MANUFACTURER'S REQUIRED COMPONENTS, ETC.

   F. PROVIDE ANCHORAGE SYSTEM IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, INCLUDING BUT NOT LIMITED TO: DRILLING HOLES USING MANUFACTURER'S RECOMMENDED BIT AND EQUIPMENT (CORED HOLES NOT ALLOWED), CLEANING OF BORE HOLE, ICC EVALUATION SERVICE REPORT, ETC. MAKE AVAILABLE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AT SITE.

   G. DO NOT MIX ANCHORAGE SYSTEM COMPONENTS FROM DIFFERENT MANUFACTURERS.

   H. SUBSTITUTION OF POST-INSTALLED ANCHORAGE SYSTEM FOR CAST-IN ANCHORS INDICATED ON DOCUMENTS ARE NOT PERMITTED EXCEPT IN CASES OF ERROR IN INSTALLATION AND ONLY AFTER REVIEW AND COMMENT BY ARCHITECT/ENGINEER.

   I. PERSONNEL CERTIFIED BY ACI/CRSI ADHESIVE ANCHOR INSTALLER PROGRAM ARE REQUIRED TO PERFORM INSTALLATION OF ANCHORAGE SYSTEM IN A HORIZONTAL OR UPWARDLY INCLINED ORIENTATION AND WHERE SUPPORTING SUSTAINED TENSION LOADS.

   J. DO NOT INSTALL ANCHORAGE SYSTEM IN CONCRETE UNTIL IT HAS ACHIEVED A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AND HAS A MINIMUM AGE OF 21 DAYS.

   K. DO NOT DAMAGE OR DISTURB EXISTING CONCRETE REINFORCEMENT. DRILL PILOT HOLE OR UTILIZE NON-DESTRUCTIVE METHODS TO LOCATE AND AVOID EXISTING REINFORCEMENT PRIOR TO DRILLING.

   L. POST-INSTALLED ANCHORAGE SYSTEMS MAY NOT BE USED IN SUBMERGED CONDITIONS OR WHERE ANCHOR WILL BE SUBMERGED IN-SERVICE, UNO ON DOCUMENTS.

   M. POST-INSTALLED ANCHORAGE SYSTEMS ARE NOT PERMITTED IN PLASTIC HINGE ZONES INDICATED ON DOCUMENTS.

2. CRITERIA:

   A. TEST AND EVALUATE ANCHORAGE SYSTEMS FOR RELIABILITY PER ACI 355.2 AND ACI 355.4 REQUIREMENTS AND RATE AS CATEGORIES 1, 2 OR 3.

   B. PROVIDE ICC EVALUATED ANCHORAGE SYSTEMS. SUBMIT CURRENT AND VALID EVALUATION REPORT INDICATING CONFORMANCE WITH CURRENT APPLICABLE ICC EVALUATION SERVICES ACCEPTANCE CRITERIA SHOWING ANCHOR RELIABILITY CATEGORY AND LOAD CAPACITIES IN ACCORDANCE WITH ACI 318, APPENDIX D, AND SUITABILITY FOR PROPOSED INSTALLATION. ARCHITECT/ENGINEER RESERVES RIGHT TO REJECT ANY ANCHORAGE SYSTEM WITHOUT SUITABLE DOCUMENTATION. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS AND ANY MODIFICATIONS/RESTRICTIONS NOTED IN EVALUATION REPORT.

   C. ANCHORAGE SYSTEM CAPACITIES ARE BASED ON CRACKED CONCRETE USING DESIGN PROCEDURES IN ACI 318 APPENDIX D UNLESS IT CAN BE SHOWN THAT CONCRETE WILL NOT CRACK AT LOCATION OF INSTALLATION. ATTACHMENT TO WALLS AND COLUMNS MAY BE ASSUMED TO BE UNCRACKED CONCRETE.

   D. PROVIDE ADHESIVE ANCHORAGE SYSTEMS WITH FOLLOWING MINIMUM BOND STRESS VALUES:
      1. EXPOSED APPLICATIONS – 200 PSI
      2. UNEXPOSED APPLICATIONS – 300 PSI

   E. PROVIDE ANCHORS MEETING DUCTILITY REQUIREMENTS OF ACI 318.

3. MECHANICAL ANCHORAGE SYSTEM:

   A. ANCHORAGE SYSTEMS IN NORMAL OR LIGHTWEIGHT WEIGHT REINFORCED CONCRETE SHALL UTILIZE CARBON STEEL HILTI KWIK BOLT 3 EXPANSION ANCHORS OR EQUIVALENT, UNO ON DOCUMENTS. WHEN INDICATED ON DOCUMENTS, UTILIZE STAINLESS STEEL ANCHOR BODY, NUT, WASHER AND EXPANSION SLEEVE.

      1. PROVIDE HEX NUTS CONFORMING TO ASTM A 563 GRADE DH FOR CARBON STEEL ANCHOR RODS AND ASTM F 594 FOR STAINLESS STEEL ANCHOR RODS.
      2. PROVIDE WASHERS CONFORMING TO ASTM F 436 FOR CARBON STEEL ANCHOR RODS AND ASTM A240 FOR STAINLESS STEEL ANCHOR RODS.

4. ADHESIVE ANCHORAGE SYSTEMS:

   A. IN NORMAL WEIGHT REINFORCED CONCRETE, USE HILTI HIT-RE 500-SD OR HILTI HIT-HY 200 ADHESIVE.

   B. PROVIDE HILTI HIT-Z ANCHOR RODS OR CARBON STEEL CONTINUOUSLY THREADED ANCHOR RODS CONFORMING TO ASTM A 193 GRADE B7, UNO ON DOCUMENTS. WHEN INDICATED ON DOCUMENTS, CONTINUOUSLY THREADED ANCHOR RODS SHALL CONFORM TO ASTM F 593.

P:\4291800\w\S-1.dwg, Aug 15, 2018 - 9:32am

REV. NO.	DATE	DESCRIPTION	REV. BY

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813.254.5838
FIRM'S FLORIDA CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

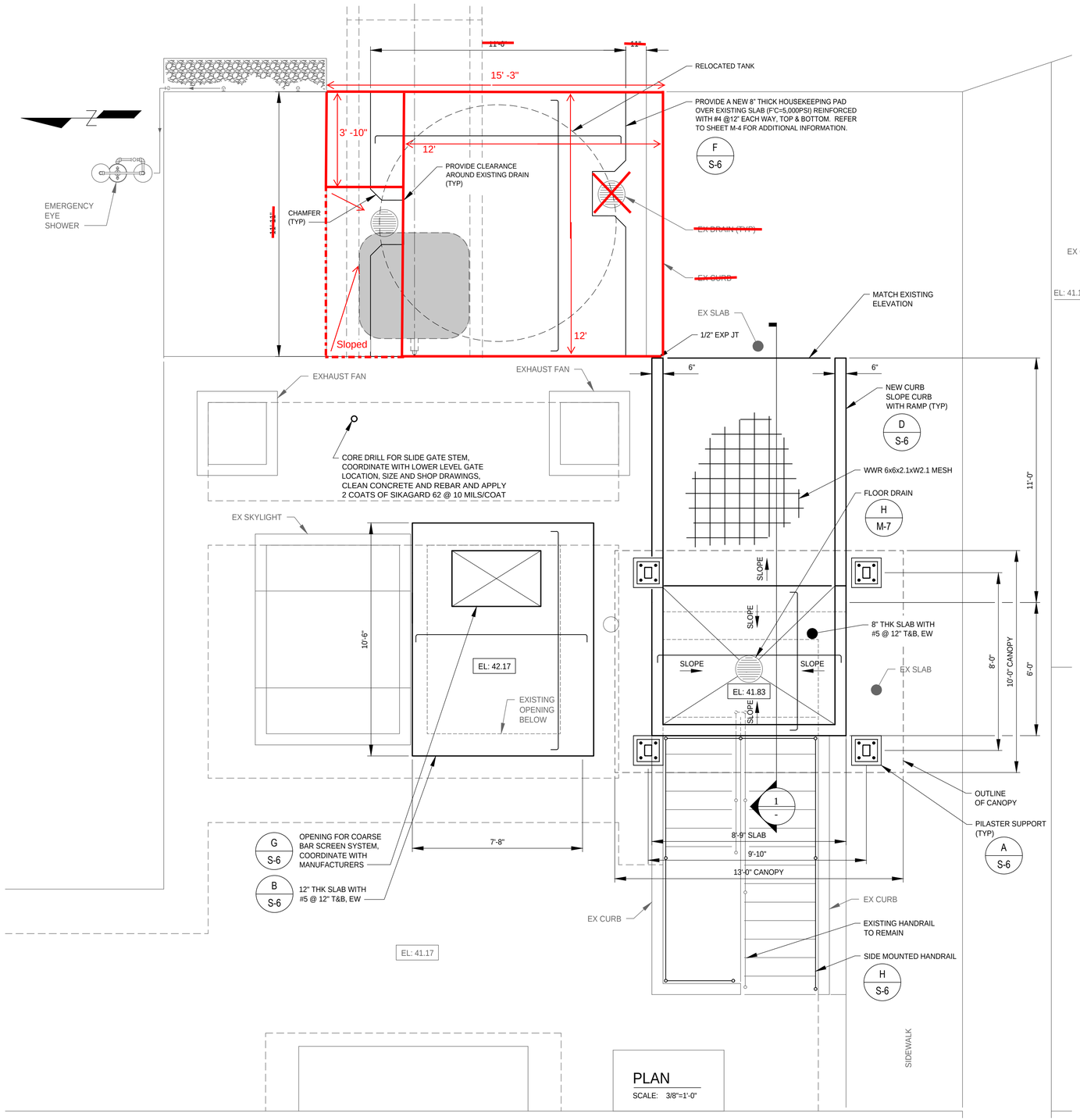
APPROVED BY:
JASON FUKUDA
FLA. LIC. NO 66000
DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

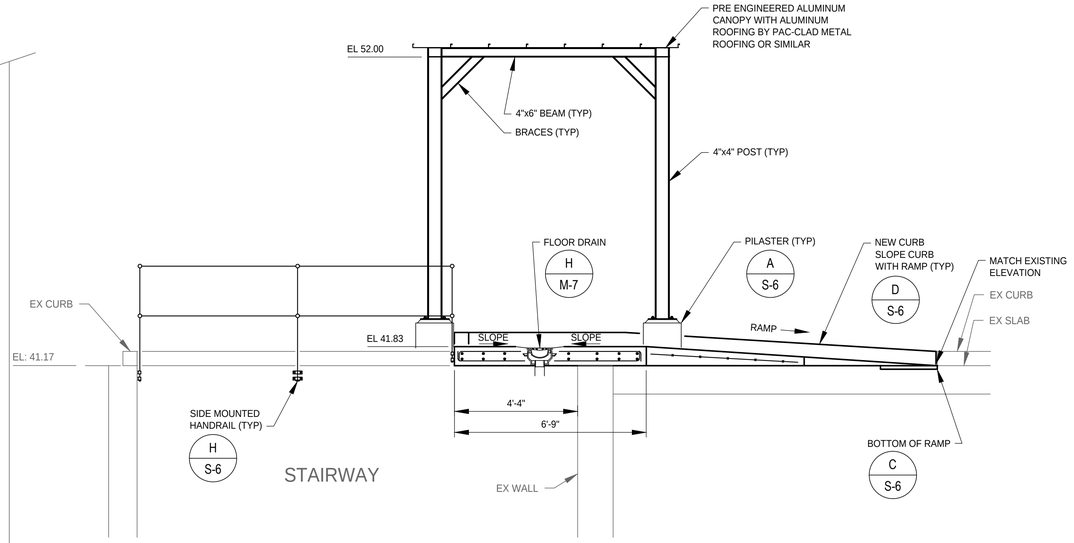
DESCRIPTION:
STRUCTURAL
GENERAL NOTES

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: S-1 10 OF 27



PLAN

SCALE: 3/8"=1'-0"



1 SECTION

Scale: 3/8"=1'-0"

2 ISOMETRIC VIEW

NTS

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND RECORD DRAWINGS. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. REFER TO SHEET G-1 AND S-1 FOR ADDITIONAL NOTES.

P:\4291800\vw\S-2.dwg, Aug 15, 2018 - 9:32am

REV. NO.	DATE	DESCRIPTION	REV. BY

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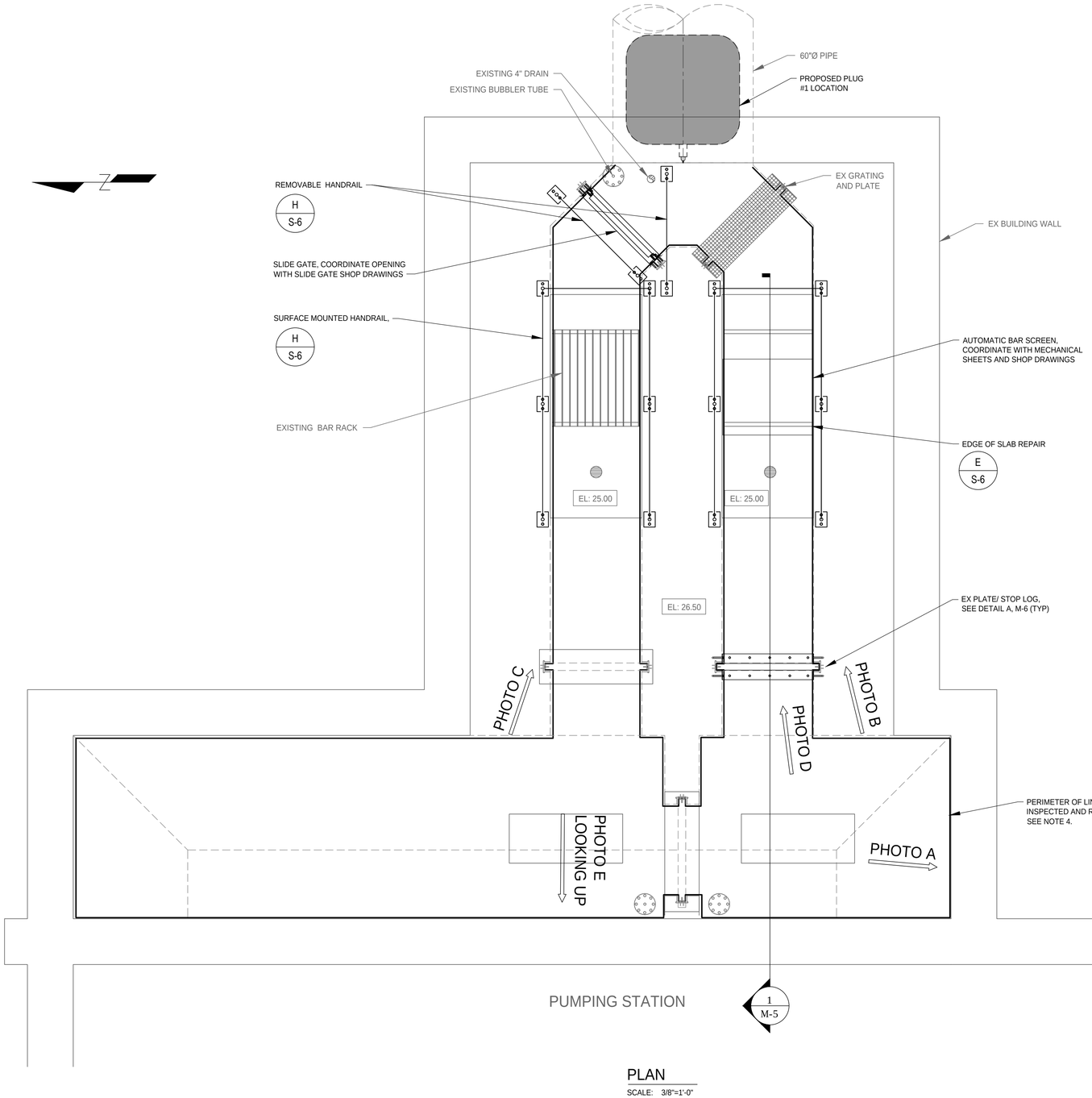
City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
UPPER PLAN, SECTION AND ISOMETRIC VIEW

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: S-2
11 OF 27



PLAN

SCALE: 3/8"=1'-0"

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS OF EXISTING FACILITIES WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND RECORD DRAWINGS. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
2. REFER TO SHEET G-1 AND S-1 FOR ADDITIONAL NOTES.
3. FOR PHOTO LOCATION REFER TO SHEET S-4.
4. CONTRACTOR WILL NEED TO CHECK ENTIRE STRUCTURE TO DETERMINE IF EXISTING PVC LINER IS FIRMLY ATTACHED AND CONCRETE IS IN SOUND CONDITION. ALL CORRODED CONCRETE AND UNATTACHED LINER MUST BE REMOVED AND CONCRETE REPAIRED AND COATED PER SPECIFICATIONS.

P:\4291800\w\S-3.dwg, Aug 15, 2018 - 9:33am

REV. NO.	DATE	DESCRIPTION	REV. BY

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DATE

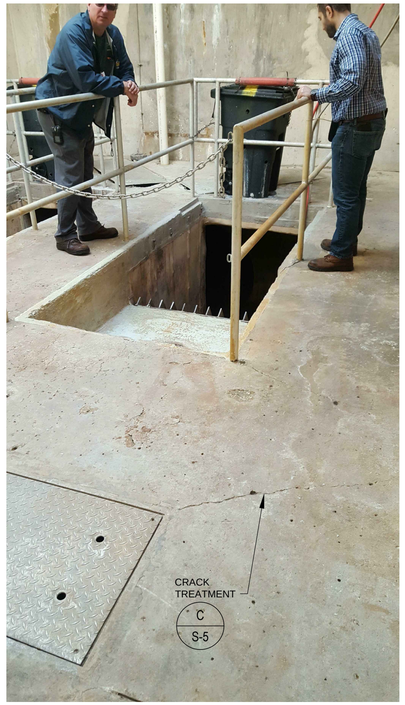
City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
LOWER PLAN

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: S-3
12 OF 27

A PHOTO NTS



B PHOTO NTS

C PHOTO NTS

D PHOTO NTS

E PHOTO NTS

GENERAL NOTES:

1. THE PHOTOS PRESENTED ON THIS SHEET PROVIDE EXAMPLES AT CONCRETE REPAIR TYPES. AN ESTIMATED QUANTITY FOR THE VARIOUS TYPES OF REPAIRS IS PROVIDED IN THE BID FORM. THE ACTUAL NUMBER OF EACH CONCRETE REPAIR TYPE WILL BE DETERMINED AFTER CONTRACT EXECUTION.

P:\4291800\w\S-4.dwg, Aug 15, 2018 - 9:34am

REV. NO.	DATE	DESCRIPTION	REV. BY

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APPROVED BY:

JASON FUKUDA
FLA. LIC. NO 66000

DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
CONCRETE REPAIR PHOTOS

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: S-4 13 OF 27

- USE REPAIR MATERIALS PER MANUFACTURERS INSTRUCTIONS
- PROVIDE TEMPORARY SHORING DURING BEAM REPAIR UNTIL BEAM REPAIR IS COMPLETE AND REPAIR MATERIAL IS CURED A MINIMUM OF SEVEN (7) DAYS. COORDINATE LOCATION AND DESIGN OF SHORING WITH OWNER'S OPERATIONAL REQUIREMENTS. SHORING DRAWINGS SHALL BE SIGNED AND SEALED BY ENGINEER LICENSED IN FLORIDA.
- PREVENT VEHICULAR TRAFFIC FROM LOADING BEAM UNTIL REPAIR MATERIAL HAS ATTAINED A MINIMUM STRENGTH OF 3000 PSI AND REPAIR MATERIAL IS CURED A MINIMUM OF SEVEN (7) DAYS.
- PROVIDE TESTING AGENCY TO PERFORM TESTING OF REPAIR MATERIAL ACCORDING TO ASTM C39
- ARRANGE TO HAVE A REPRESENTATIVE OF REPAIR MATERIAL MFR VERIFY INSTALLATION AND PREPARATION ACCORDING TO MANUFACTURERS POINTED INSTRUCTIONS.

A GENERAL NOTES

- EXPOSED SURFACES OF WORK ELEMENTS MUST BE THOROUGHLY CLEANED PRIOR TO APPLYING REPAIR.
- TAKE EXTREME CARE WHEN REMOVING EXISTING SPALLED CONCRETE SO AS NOT TO DAMAGE EXISTING REINFORCING STEEL. COMPLETELY CLEAN EXPOSED EXISTING REINFORCING STEEL TO REMOVE RUST. NOTIFY ENGINEER IF CORRODED REBAR HAS LOST CROSS-SECTIONAL AREA.
- PROVIDE EPOXY MODIFIED CEMENTITIOUS CORROSION INHIBITING BONDING AGENT EQUIVALENT TO SIKA CRETE 211 SCC PLUS PER MANUFACTURER'S APPLICATION REQUIREMENTS.
- POWER DRIVEN HAND TOOLS USED FOR REMOVAL OF UNSOUND CONCRETE ARE SUBJECT TO THE FOLLOWING RESTRICITONS:
  - A. PNEUMATIC HAMMERS HEAVIER THAN 35 LB. CLASS SHALL NOT BE USED.
  - B. CHIPPING HAMMERS OF THE 15 LB. CLASS SHALL BE USED TO REMOVE CONCRETE FROM BEHIND REINFORCING STEEL.

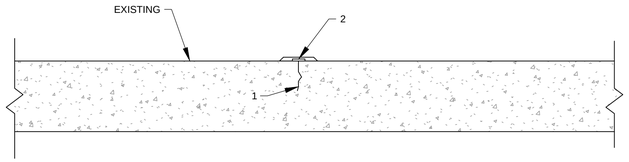
B CONCRETE WALL REPAIR NOTES

- SOUND TEST AND MARK CONCRETE AREA TO BE REMOVED.
- REMOVE ALL UNSOUND DETERIOTED CONCRETE
- COAT REINFORCING WITH TWO COATS OF SIKAARMATED 110 EPOCEM
- FORM/POUR REPAIR OPTION - SIKACRETE 211SCC PLUS FROM 1" - 8" PER LIFT.
- HAND APPLIED REPAIR OPTION - SIKAQUICK VOH - FROM $\frac{3}{8}$" - 3" PER LIFT.

F CONCRETE BEAM REPAIR NOTES

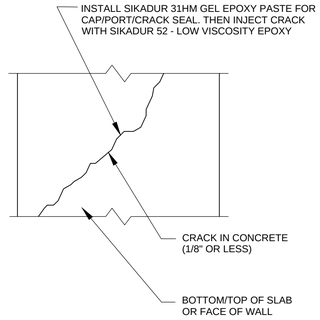
- REMOVE UNATTACHED PVC LINER AND COAT WITH 125 MILS OF C.P.P. AND OVERLAP PVC LINER BY 3"
- MAY REQUIRED ADDITIONAL ANCHORS AT THE EDGE OF EXISTING PVC LINER.

G WET WELL REPAIRS

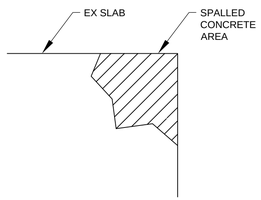


1. ROUT ALL CRACKS TO A MINIMUM OF 1/4" WIDE BY 1/4" DEEP.
2. APPLY A 6" WIDE LAYER OF SIKAFLEX 2c EURETHANE WITH A 4" NAP ROLLER. WHILE THE PRODUCT IS STILL WET, INSTALL A LAYER OF SIKA FLEXITAPE AND APPLY A SECOND LAYER OF SIKAFLEX 2c EURETHANE.

C CRACK TREATMENT
NTS



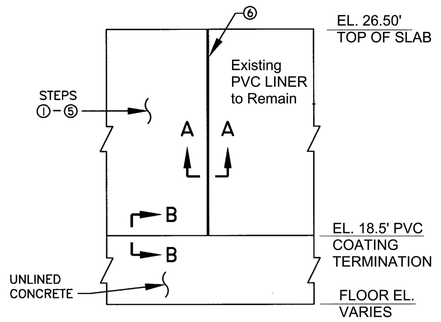
D HAIRLINE CRACK REPAIR
NTS



NOTES:

1. THIS SURFACE MUST BE MECHANICALLY PREPARED. AREA TO BE REPAIRED MUST BE CLEAN, SOUND AND FREE OF CONTAMINANTS, ALL LOOSE AND DETERIORATED CONCRETE MUST BE REMOVED.
2. CLEAN ALL EXPOSED REBAR AND COAT WITH SIKA ARMATED 110.
3. RECAST TO ORIGINAL SURFACE PROFILE USING SIKAQUICK VOH.
4. FINISH WITH MEDIUM BROOM FINISH.

E CONCRETE REPAIR
NTS



① REMOVE FAILING PVC LINER UNTIL SOUND LINER IS OBSERVED.

② HYDROBLAST* UNLINED DETERIORATED CONCRETE TO STRUCTURALLY SOUND CONCRETE

③ EXPOSED REINFORCING STEEL SHALL BE CLEANED, PREPARED AND COATED WITH CORROSION INHIBITOR.

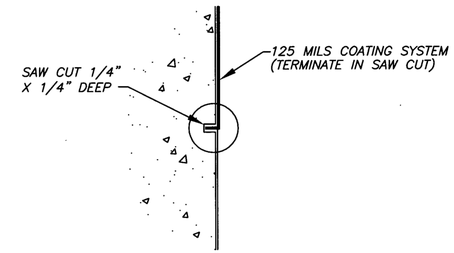
④ FILL VOIDS OF DETERIORATED CONCRETE SECTIONS WITH REPAIR MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS.

⑤ SAW CUT COATING TERMINATION AND COAT 125 MILS MDFT COATING, SEE SPECIFICATIONS.

⑥ MECHANICALLY ANCHOR 2" WIDE SS316 (3/8" THK.) STRIP AT EX. LINER/NEW COATING INTERFACE. FASTEN WITH 3/8" SS316 HILTI WEDGE ANCHORS AT 2' O.C.

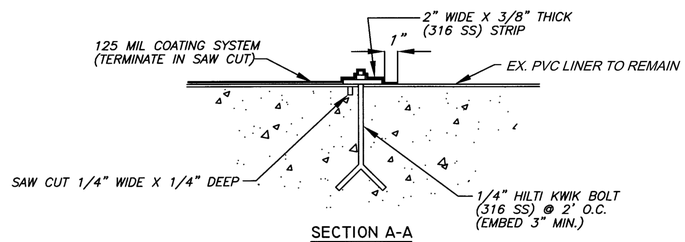
*CONTRACTOR MAY UTILIZE SAND BLASTING IN LIEU OF HYDROBLASTING, WITH 100% CONTAINMENT OF SAND, DEBRIS, AND AEROSOL DRIFT.

SECTION VIEW
PROP. COATING/EX. PVC LINER TRANSITION DETAIL
N.T.S.



SECTION B-B
N.T.S

NOTE: COATING TERMINATION AS SHOWN, WILL BE INCLUDED IN THE COST OF THE COATING SYSTEM PER SQUARE FOOT(SF)



SECTION A-A
N.T.S

NOTE: COATING /PVC LINER TRANSITION AS SHOW, WILL BE PAID PER SQUARE FOOT(SF) OF TRANSITION STRIP INSTALLED.

LINER TRANSITION DETAIL
NTS

P:\4291800\w\S-5.dwg, Aug 15, 2018 - 9:34am

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FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
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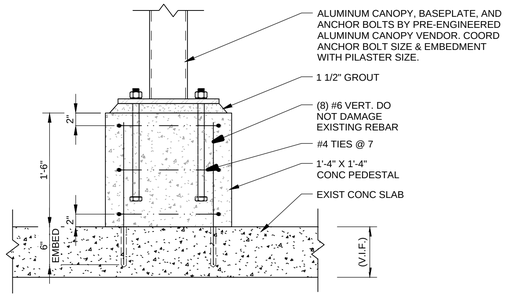
APPROVED BY:
JASON FUKUDA
FLA. LIC. NO 66000
DATE

City of Tampa Florida

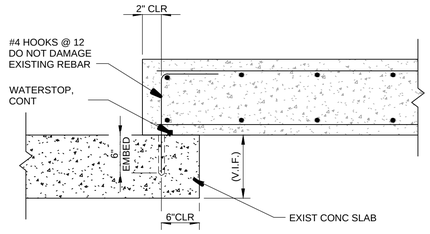
PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
REPAIR DETAILS

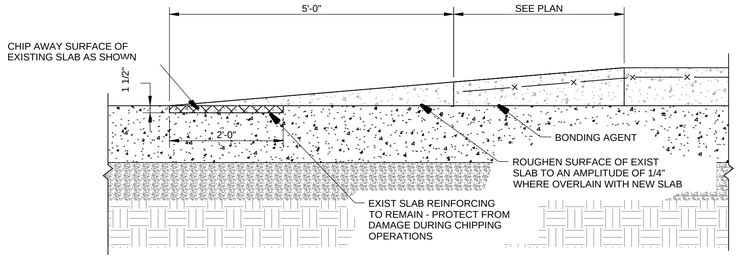
DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: S-5 14 OF 27



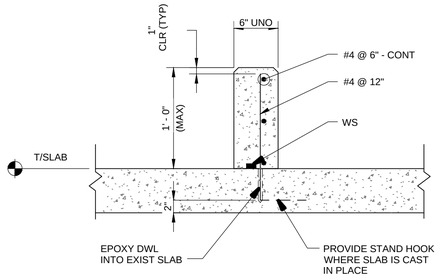
A PILASTER - POST INSTALLED
NTS



B NEW SLAB AT EXISTING
NTS

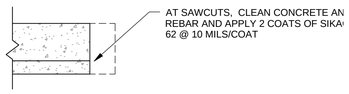


C BOTTOM OF RAMP
NTS

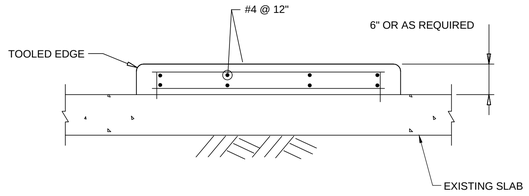


NOTE
PROVIDE CURB AT HATCH LOCATIONS. INSTALL ALL HATCHES PER MANUFACTURER'S RECOMMENDATIONS

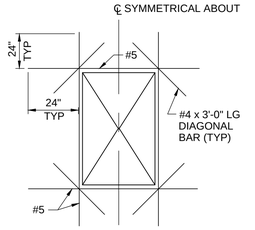
D TYPICAL CURB REINFORCEMENT
NTS



E EDGE OF SLAB REPAIR
NTS



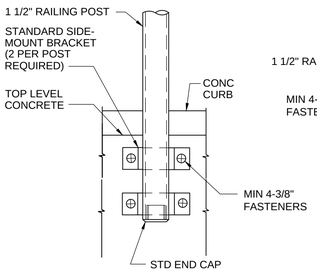
F HOUSEKEEPING PAD
NTS



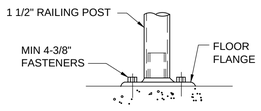
NOTES:

1. CUT NORMAL REINFORCING AT OPENING.
2. FOR SLAB WITH TWO LAYERS OF REINFORCING PROVIDE 1 BAR EACH FACE.
3. BAR LENGTHS FOR GRADE 60.

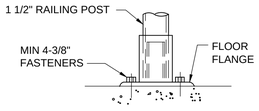
ADDITIONAL REINFORCEMENT AROUND RECTANGULAR OPENING
NTS



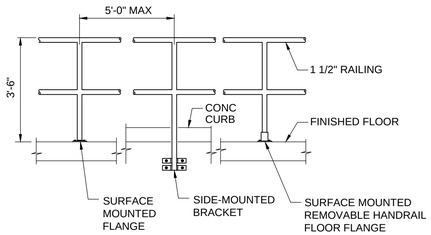
SIDE-MOUNTING BRACKET



FLOOR FLANGE



REMOVABLE HANDRAIL FLOOR FLANGE



NOTES:

1. HANDRAIL SHALL BE ALUMINUM WITH MECHANICAL JOINTS UNLESS INDICATED OTHERWISE.
2. POSTS AND RAILING SHALL BE 1 1/2" SCHEDULE 40 PIPE.
3. WHERE ALUMINUM PIPE RAILING IS TO BE INSTALLED, PROVIDE EXPANSION ROD.
4. IF FASTENING INTO CONCRETE, FASTENERS SHALL BE ADHESIVE ANCHORS.

H HANDRAIL DETAIL
NTS

P:\4291800\w\S-6.dwg, Aug 15, 2018 - 9:35am

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City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
STRUCTURAL DETAILS

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: S-6
15 OF 27

CONDUIT RUN EXPOSED

CONDUIT RUN CONCEALED UNDERGROUND

CONDUIT RUN CONCEALED IN FLOOR OR SLAB

G — G GROUNDING ELECTRODE CONDUCTOR

CONDUIT STUB OUT AND CAP

GROUND ROD

JUNCTION BOX

JUNCTION BOX WITH FLEXIBLE CONNECTION

480V
15 KVA, 1*
120/240V

TRANSFORMER, 480V INDICATED PRIMARY VOLTAGE, 120/240V INDICATES SECONDARY VOLTAGE, 15 KVA REPRESENTS POWER RATING, AND 1* INDICATES SINGLE PHASE (THREE PHASE IF NOT INDICATED)

3P
30A

THERMAL MAGNETIC CIRCUIT BREAKER WITH NUMBER OF POLES AND AMPERE RATING

XX

COMBINATION MAGNETIC STARTER WITH CONTROL POWER TRANSFORMER (SIZED FOR LOAD). LETTERS INDICATE TYPE :
N – NON–REVERSING
R – REVERSING
2S – TWO–SPEED
C – CONTACTOR
SS – SOLID STATE SOFT START

XXX

XXX DEVICE	DESCRIPTION
HLS	HIGH LEVEL SWITCH
HOA	HAND–OFF–AUTO
LD	LEAK DETECTION
LLS	LOW LEVEL SWITCH
LOR	LOCAL–OFF–REMOTE
PB	PUSH BUTTON
RTU	REMOTE TERMINAL UNIT
SS	SOFT STARTER
SS/B	SOFT START OR BYPASS
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
ZS	POSTION SENSOR (LIMIT SWITCH)

FUSE

ABBREVIATIONS:

A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ATL	ACROSS–THE–LINE
C	CONDUIT
CU	COPPER
EX	EXISTING
ELEC	ELECTRICAL
EXP	EXPLOSION PROOF
FU	FUSE
GFI	GROUND FAULT INTERRUPTER
GND	GROUNDING CONDUCTOR
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
KVA	KILOVOLT AMPERES
KW	KILOWATTS
MAX	MAXIMUM
MIN	MINIMUM
N/A	NOT APPLICABLE
PH	PHASE
RECP	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTU	REMOTE TERMINAL UNIT
SPD	SURGE PROTECTION DEVICE
TYP	TYPICAL
V	VOLTS
WP	WEATHERPROOF

XX MOTOR

THERMAL OVERLOAD

UTILITY METER

TRANSFER SWITCH

ELECTRIC PANELBOARD

DISCONNECT OR SAFETY SWITCH

FLOAT SWITCH. OPENS ON LOW LEVEL.

FLOAT SWITCH. CLOSES ON LOW LEVEL.

NORMALLY OPEN (N.O.) CONTACT

NORMALLY CLOSED (N.C.) CONTACT

GROUND CONNECTION

R INDICATING PILOT LIGHT LETTER INDICATES COLOR OF LENS

DISCONNECT OR TOGGLE SWITCH

NORMALLY OPEN MOMENTARY CIRCUIT CLOSING PUSH–BUTTON SWITCH. SPRING OPEN. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC

NORMALLY CLOSED MOMENTARY CIRCUIT OPENING PUSH–BUTTON SWITCH. SPRING CLOSE. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC

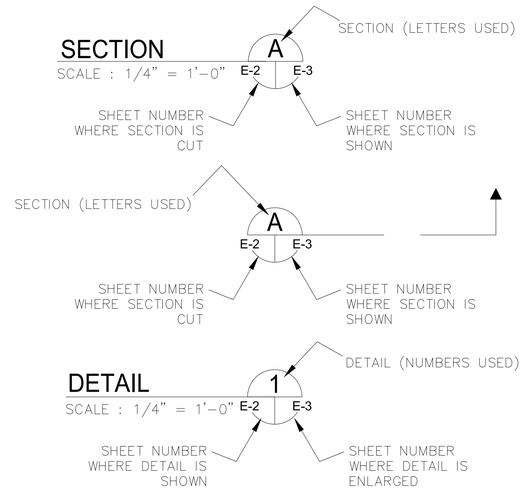
LIMIT SWITCH NORMALLY CLOSED CONTACT. CONTACT OPENS WHEN ACTUATED

TORQUE SWITCH NORMALLY CLOSED CONTACT. CONTACT OPENS WHEN ACTUATED

PUMP THERMAL SENSOR

H MECHANICAL HEAT DETECTOR

EXAMPLE OF SECTION CUT AND DETAIL



GENERAL NOTES

THE WORK CONSIST OF FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, AND TECHNICAL SUPERVISION TO INSTALL THE ELECTRICAL COMPONENTS AS INDICATED AND SHOWN. THE WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. ALL WIRING SHALL BE IDENTIFIED WITH NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
3. FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
4. ALL NEW EQUIPMENT SHALL BE PERMANENTLY IDENTIFIED WITH A BLACK ON WHITE LAMACOID TAG ENGRAVED WITH MINIMUM 3/16 INCH LETTERING.
5. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS. NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNATED IN THE DRAWINGS.
6. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTORS REFERENCE ONLY.
7. INSTALL CIRCUIT BREAKERS, CONDUIT, CONDUCTORS, MANUAL SWITCH, I/O MODULES, SURGE PROTECTION DEVICES AS INDICATED TO ACCOMMODATE THE NEW BAR SCREEN CONTROL PANEL AND NEW SLIDE GATE ACTUATOR AS SHOWN AND SPECIFIED.
8. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE (FBC) 6TH EDITION 2017, THE NATIONAL ELECTRICAL CODE (NEC) 2014 AND CHAPTER 5 OF THE CITY OF TAMPA CODE.
9. TEST AND START–UP REPORTS FOR THE BAR SCREEN AND SLIDE GATE ACTUATOR SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE (O&M) MANUALS PROVIDED UNDER THIS CONTRACT. ALL CIRCUIT BREAKER SETTINGS SHALL BE TABULATED AND INCLUDED IN THE O&M MANUAL.

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FIRM'S FLORIDA
CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

TIMOTHY THOMAS
FLA. LIC. NO 47079

DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
LEGEND, ABBREVIATIONS AND NOTES

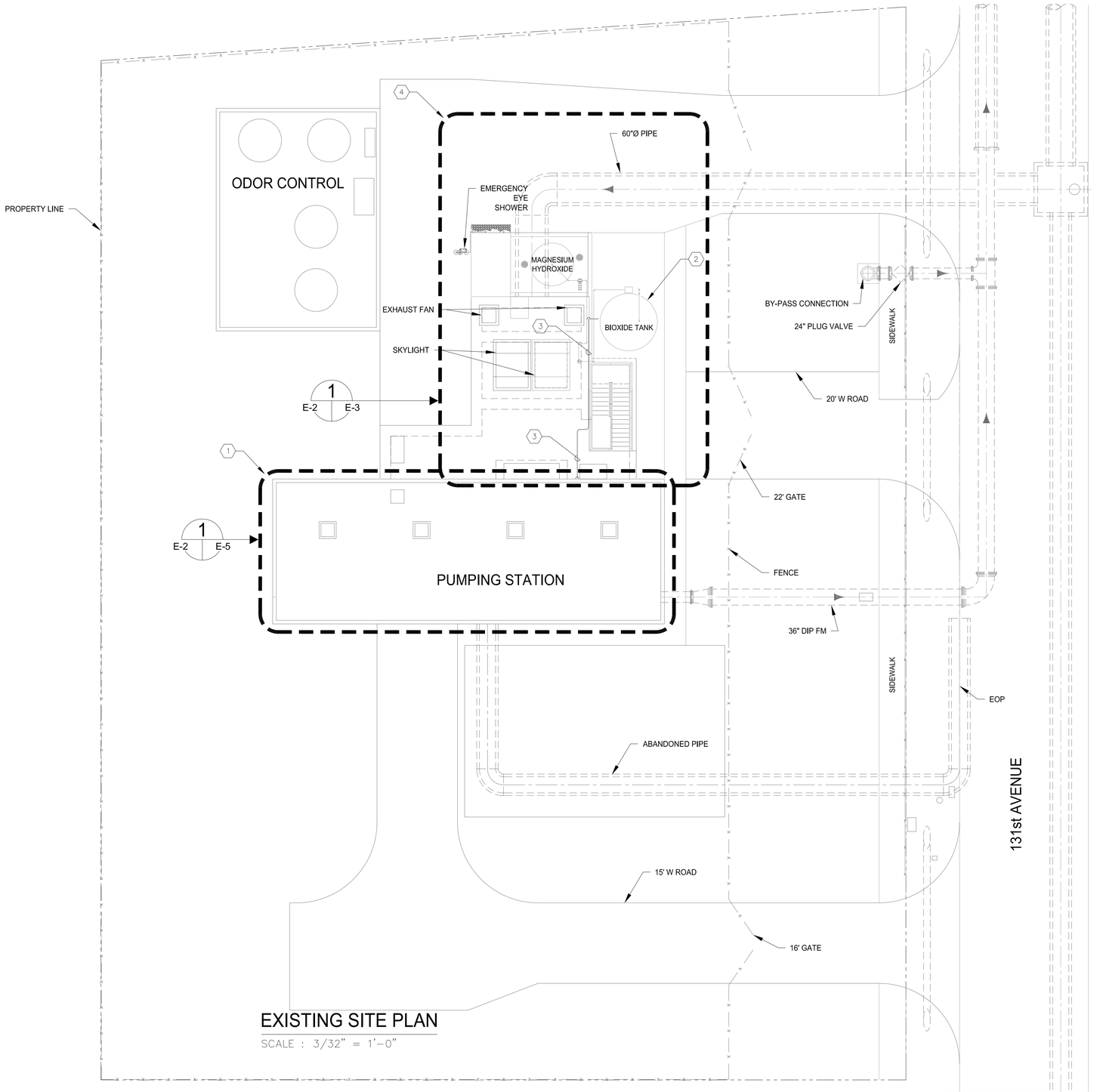
DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-1 16 OF 27

KEYED NOTES:

1. EXISTING PUMP STATION BUILDING, ELEVATION 41.25'. REFER TO SHEET E-5 FOR WORK REQUIRED.
2. EXISTING BIOXIDE TANK TO BE RELOCATED. REFER TO SHEET E-3 FOR PROPOSED LOCATION.
3. EXISTING CONDUIT AND CONDUCTORS TO BIOXIDE TANK. THE EXISTING CONDUIT CONTAINS VARIOUS CONDUCTORS WHICH SERVE OTHER EQUIPMENT. THE CONTRACTOR SHALL INTERCEPT THIS CONDUIT AT THE MOST CONVENIENT LOCATION AND EXTEND THE BIOXIDE TANK CONDUCTORS TO THE PROPOSED TANK LOCATION. SPLICING OF CONDUCTORS WILL NOT BE PERMITTED. CONTRACTOR SHALL PROVIDE NEW CONDUCTORS (MATCHING THE EXISTING BIOXIDE TANK CONDUCTORS) FROM POINT OF ORIGIN TO NEW BIOXIDE TANK LOCATION.
4. REFER TO SHEET E-3 FOR NEW BAR SCREEN LOCATION, SLIDE GATE MOTOR OPERATOR LOCATION, NEW BIOXODE TANK LOCATION, ETC.

GENERAL NOTES:

1. REFER TO MECHANICAL SHEETS FOR EXACT EQUIPMENT LOCATIONS AND DEMOLITION REQUIREMENTS.



EXISTING SITE PLAN

SCALE : 3/32" = 1'-0"

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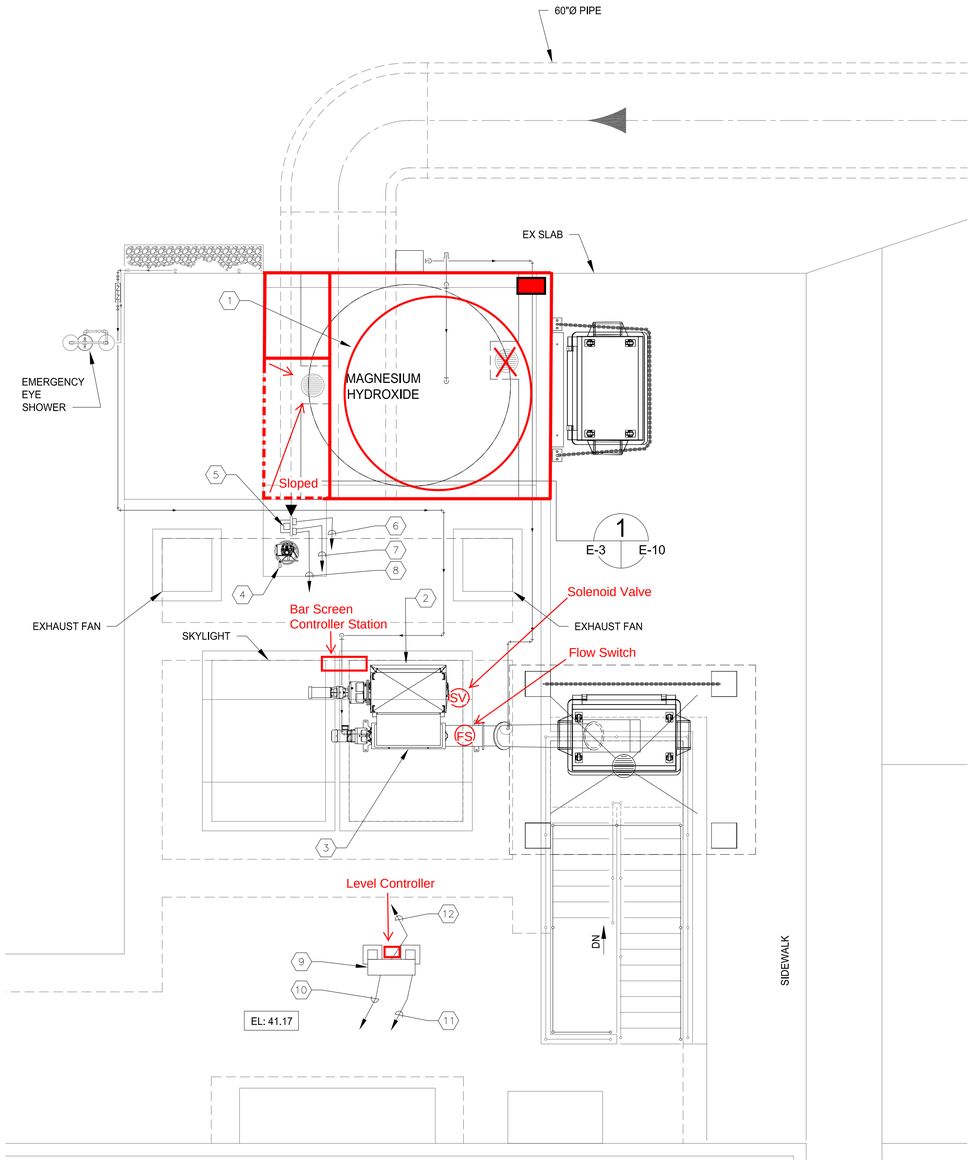
AUTOMATIC BAR SCREEN

DESCRIPTION:
EXISTING SITE PLAN

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-2 17 OF 27



ELECTRICAL PLAN ELEVATION 41.17'

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

A — E-2 | E-4

KEYED NOTES:

1. PROPOSED LOCATION FOR RELOCATED BIOXODE TANK. CONTRACTOR TO PROVIDE NEW CONDUIT AND CONDUCTORS TO ACCOMMODATE THE NEW BIOXODE TANK LOCATION. FIELD ROUTE NEW CONDUIT AS REQUIRED. INSTALL NEW CONDUIT TO AVOID TRIPPING HAZARDS. REFER ALSO TO KEYED NOTE #3 ON SHEET E-2.
2. PROPOSED BAR SCREEN.
3. PROPOSED COMPACTOR.
4. PROPOSED STAND FOR SLIDE GATE ELECTRIC ACTUATOR.
5. PROVIDE AND INSTALL NEW 600V, 30A, 3-POLE MANUAL DISCONNECT SWITCH, SELECTOR SWITCH AND ASSOCIATED JUNCTION BOXES. REFER TO DETAIL ON SHEET E-10.
6. PROVIDE AND INSTALL 3-#10 + 1-#10 GND IN 3/4"C. FROM MANUAL SWITCH TO EXISTING MCC (REFER TO KEYED NOTE #10 ON SHEET E-5 FOR MCC LOCATION). FIELD ROUTE CONDUIT AS REQUIRED. REFER TO SHEET E-5 FOR CONTINUATION.
7. PROVIDE AND INSTALL 2-#14 + 1-#14 GND IN 3/4"C. FROM 24V DC JUNCTION BOX TO NEW BAR SCREEN CONTROL PANEL (REFER TO KEYED NOTE #8 BELOW FOR BAR SCREEN CONTROL PANEL LOCATION) FOR AUTO OPEN ON HIGH LEVEL BYPASS CONDUCTORS. FIELD ROUTE CONDUIT AS REQUIRED.
8. PROVIDE AND INSTALL NEW 3/4" CONDUIT WITH 12-#14 + 1-#14 GND FROM NEW SLIDE GATE OPERATOR TO ANNUNCIATOR CONTROL PANEL FOR SLIDE GATE INPUT/OUTPUTS (4-#14 OPEN, CLOSE, STOP, COMMAND COMMANDS, 2-#14 VALVE UNDER REMOTE CONTROL INDICATION, 2-#14 VALVE OPEN INDICATION, 2-#14 VALVE CLOSED INDICATION). FIELD ROUTE CONDUIT AS REQUIRED. REFER TO SHEET E-5 FOR EXISTING ANNUCIATOR CONTROL PANEL LOCATION. REFER TO SHEET E-5 FOR CONDUIT CONTINUATION.
9. PROVIDE AND INSTALL NEW BAR SCREEN CONTROL PANEL. MOUNT WITH TWO (2) 6" SQUARE ALUMINUM POSTS. PROVIDE FULL FILLET WELD TO 12" X 12" X 3/4" ALUMINUM BASE PLATES. SECURE BASE PLATES TO CONCRETE SLAB WITH FOUR (4) STAINLESS STEEL 1/2" DIA. X 8" BOLTS & STAINLESS STEEL HEX NUTS WITH LOCKWASHER. DRILL CONCRETE & EMBED BOLTS AND ANCHORS IN EPOXY. COAT BOTTOM OF BASE PLATE WITH ASPHALT PAINT. PROVIDE NEOPRENE GASKET BETWEEN ALL STAINLESS STEEL AND ALUMINUM COMPONENTS.
10. PROVIDE AND INSTALL 3-#10 + 1-#10 GND IN 3/4"C. FROM BAR SCREEN CONTROL PANEL TO EXISTING MCC (REFER TO KEYED NOTE #10 ON SHEET E-5 FOR MCC LOCATION). FIELD ROUTE CONDUIT AS REQUIRED. REFER TO SHEET E-5 FOR CONTINUATION.
11. PROVIDE AND INSTALL NEW 1" CONDUIT WITH 26-#14 + 1-#14 GND FROM NEW BAR SCREEN CONTROL PANEL TO EXISTING ANNUNCIATOR CONTROL PANEL FOR BAR SCREEN INPUT/OUTPUTS. REFER TO SHEET E-9 FOR CONTACT DEVELOPMENT. REFER TO SHEET E-5 FOR CONDUIT CONTINUATION AND EXISTING ANNUNCIATOR CONTROL PANEL LOCATION. FIELD ROUTE CONDUIT AS REQUIRED.
12. REFER TO KEYED NOTE #7 ABOVE.

GENERAL NOTES:

1. FOR HAZARDOUS AREA IDENTIFICATION REFER TO SHEET E-4.
2. CONTRACTOR SHALL COORDINATE WITH BAR SCREEN SUPPLIER FOR REQUIREMENTS FOR THE BAR SCREEN LOCAL CONTROL STATION AND THE COMPACTOR LOCAL CONTROL STATION INSTALLATION, INCLUDING PROPOSED LOCATION, REQUIRED CONDUIT AND CONDUCTORS.
3. CONTRACTOR SHALL COORDINATE WITH BAR SCREEN SUPPLIER FOR REQUIREMENTS FOR: ALL BAR SCREEN EQUIPMENT MOTOR WIRING, MOTOR THERMOSTATS, SOLENOID VALVES, HIGH LEVEL FLOAT SWITCH, ULTRASONIC LEVEL TRANSDUCERS AND ALL OTHER ANCILLARY EQUIPMENT FOR A FULLY COMPLETE AND FUNCTIONING SYSTEM, ALL CONDUCTORS, CONNECTIONS, LOCATIONS, ETC. SHALL BE PER THE BAR SCREEN SUPPLIERS SPECIFICATIONS.
4. THE BAR SCREEN CONTROL PANEL SHALL BE INSTALLED OUTSIDE OF THE AREA CLASSIFIED AS CLASS I, DIV 2. THE BAR SCREEN LOCAL CONTROL STATION AND THE COMPACTOR LOCAL CONTROL STATION SHALL BE INSTALLED WITHIN THE AREA CLASSIFIED AS CLASS I, DIV 2. REFER TO SHEET E-4 FOR HAZARDOUS AREA IDENTIFICATION.
5. ALL INSTALLATIONS WITHIN THE CLASSIFIED AREA SHALL COMPLY WITH ARTICLE 502 OF THE 2014 NATIONAL ELECTRICAL CODE.

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APPROVED BY:

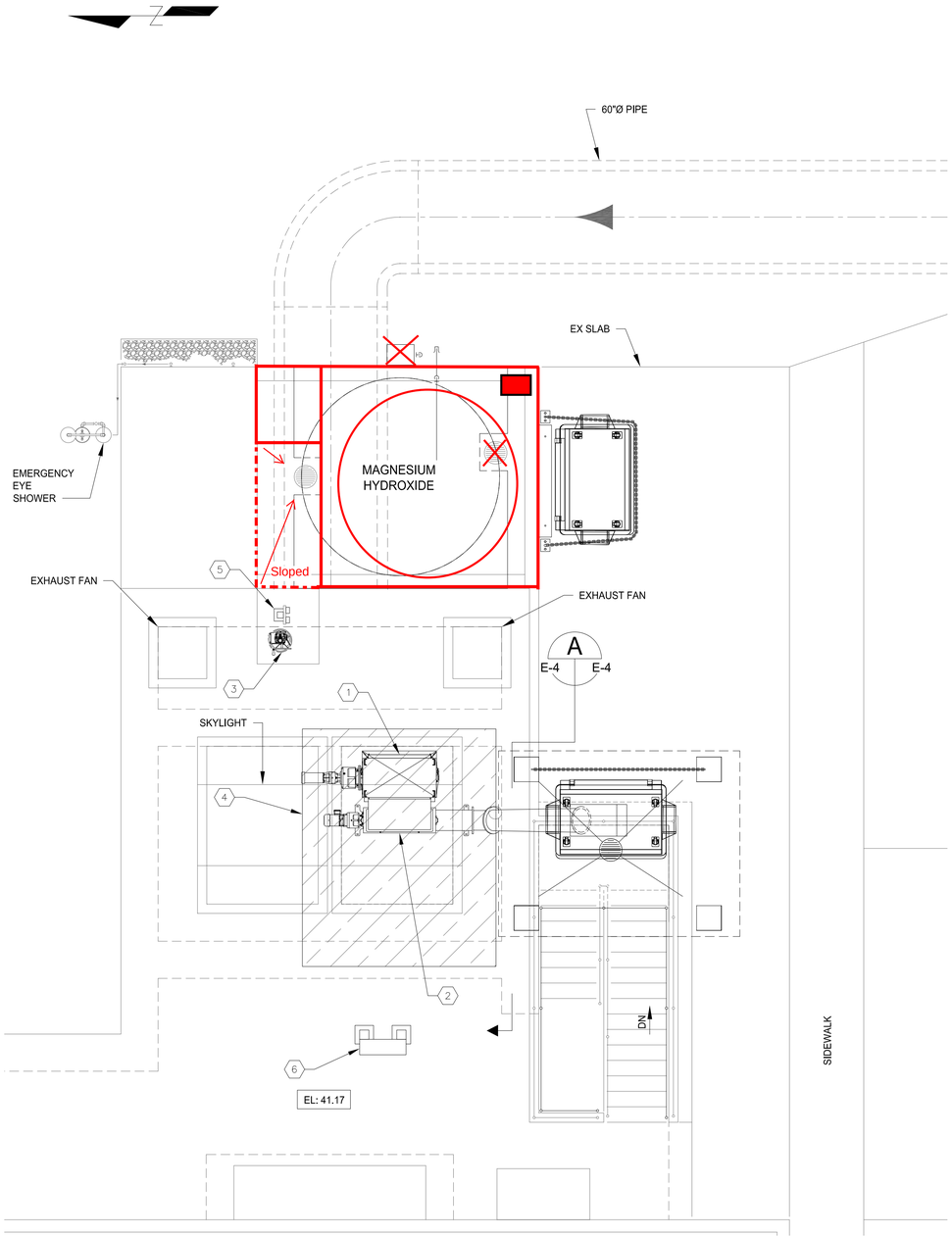
TIMOTHY THOMAS
FLA. LIC. NO 47079

DATE

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

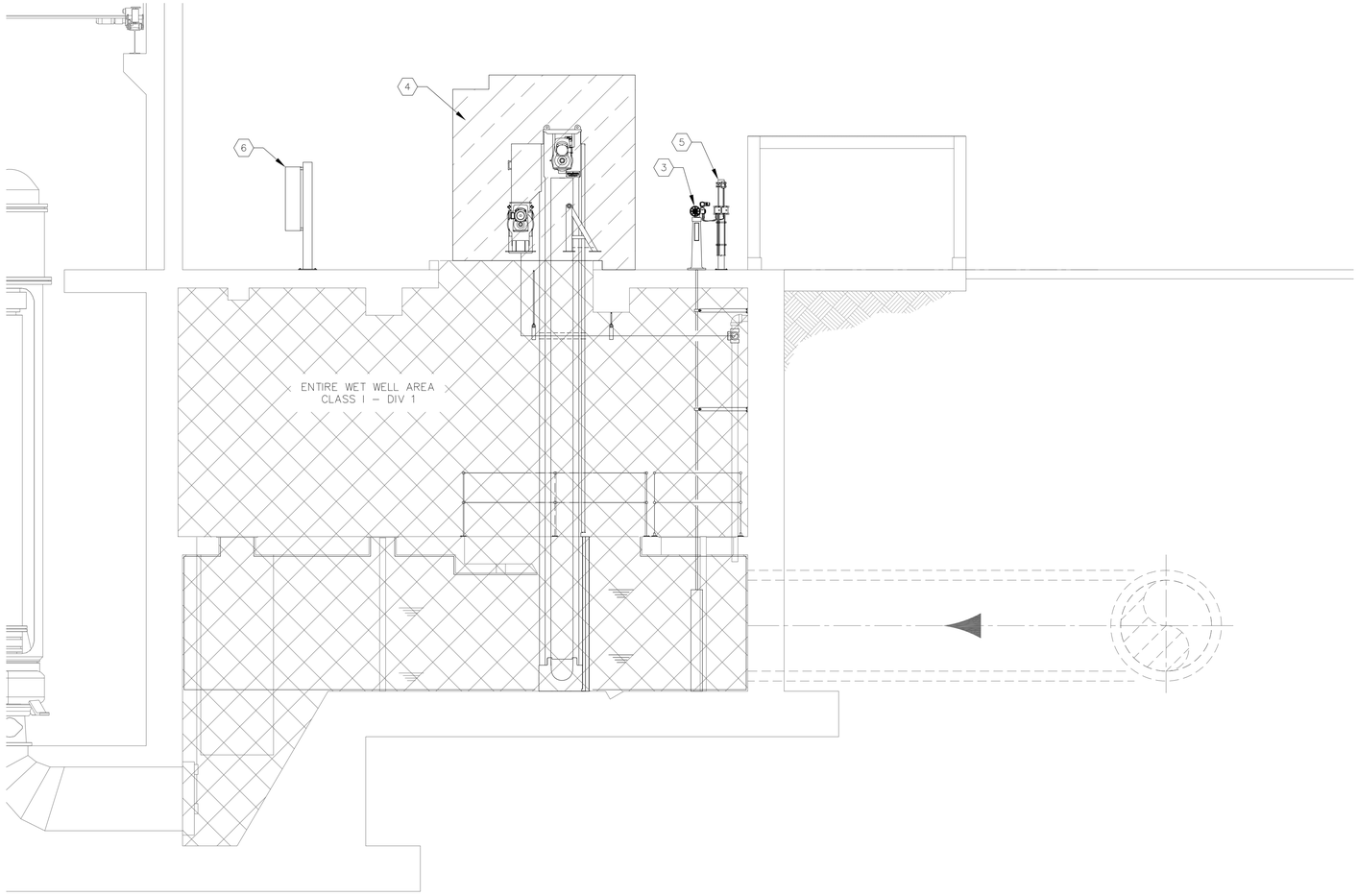
DESCRIPTION:
ELECTRICAL PLAN
ELEVATION 41.17'

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-3 | 18 OF 27



HAZARDOUS AREA ELEVATION 41.17'

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



HAZARDOUS AREA SECTION VIEW

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

A
E-4 E-4

KEYED NOTES:

1. PROPOSED BAR SCREEN.
2. PROPOSED COMPACTOR.
3. PROPOSED STAND AND ELECTRIC OPERATOR FOR SLIDE GATE.
4. CLASS I – DIV 2 AREA : 36" ENVELOPE AROUND BAR SCREEN AND COMPACTOR EQUIPMENT.
5. PROPOSED ACTUATOR DISCONNECT. REFER TO DETAIL ON SHEET E-10.
6. PROPOSED BAR SCREEN CONTROL PANEL (PROVIDED BY BAR SCREEN SUPPLIER).

CLASSIFIED AREA LEGEND:

CLASS I – DIV 1

CLASS I – DIV 2

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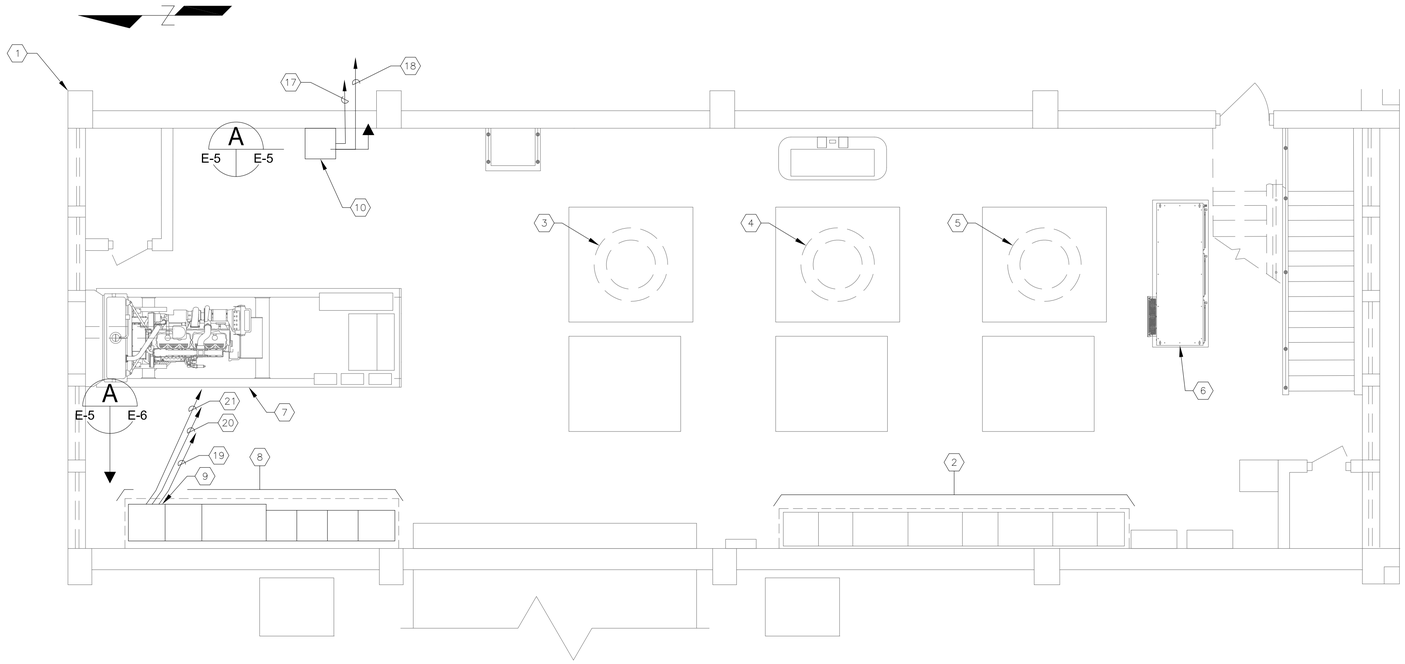
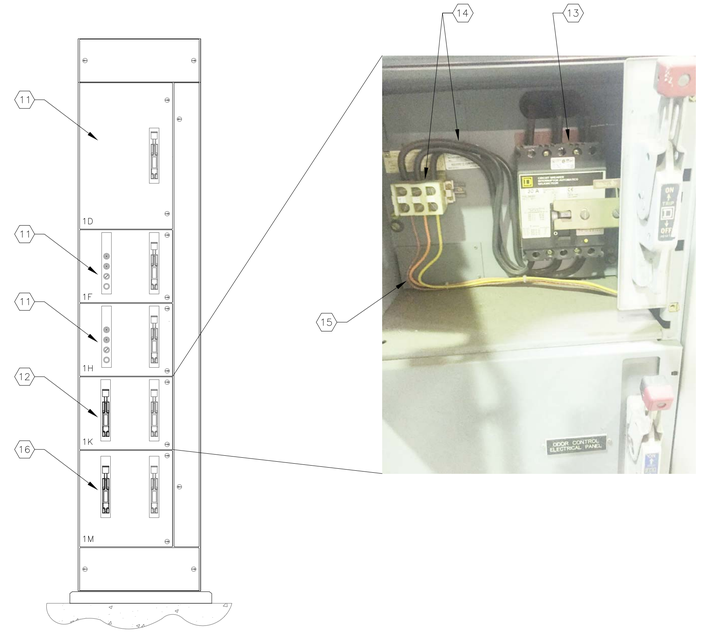
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
HAZARDOUS AREA
IDENTIFICATION

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-4 19 OF 27



PUMPING STATION ELECTRICAL PLAN 1
SCALE : 1/4" = 1'-0" E-2 E-5



EXISTING MCC ELEVATION A
SCALE : 1/4" = 1'-0" E-5 E-5

KEYED NOTES:

1. EXISTING PUMP STATION BUILDING, ELEVATION 41.25'.
2. EXISTING SEWAGE PUMPS CONTROL CENTER. NO WORK REQUIRED.
3. EXISTING SEWAGE PUMP NO. 3 (AT ELEVATION 15.00'). NO WORK REQUIRED.
4. EXISTING SEWAGE PUMP NO. 2 (AT ELEVATION 15.00'). NO WORK REQUIRED.
5. EXISTING SEWAGE PUMP NO. 1 (AT ELEVATION 15.00') NO WORK REQUIRED.
6. EXISTING 400 HP VFD FOR PUMP NO. 1 (AT ELEVATION 41.25'). NO WORK REQUIRED.
7. EXISTING GENERATOR. NO WORK REQUIRED.
8. EXISTING MOTOR CONTROL CENTER, AUTOMATIC TRANSFER SWITCH AND ANNUNCIATOR CONTROL PANEL.
9. EXISTING ANNUNCIATOR CONTROL PANEL. REFER TO SHEET E-6 FOR WORK REQUIRED.
10. EXISTING 480V, 3ø, 300A VERTICAL BUS, MOTOR CONTROL CENTER (MCC). SQUARE D MODEL 4 TYPE. REFER TO ELEVATION A ON THIS SHEET FOR WORK REQUIRED.
11. EXISTING MCC BUCKET. NO WORK REQUIRED.
12. EXISTING BUCKET FOR SLUICE GATES 1-3. CONTRACTOR TO PROVIDE AND INSTALL NEW 3-POLE, 600V, 30 AMPERE CIRCUIT BREAKER (SQUARE D FHL36030) FOR NEW MOTOR OPERATED SLIDE GATE. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL NEW CIRCUIT BREAKER THROUGH-DOOR OPERATING HANDLE, NEW BUCKET DOOR (TO ACCOMMODATE NEW OPERATING HANDLE), NEW LABEL FOR BUCKET DOOR AND ALL OTHER ANCILLARY COMPONENTS AS REQUIRED FOR PROPER OPERATION. REFER ALSO TO KEYED NOTES #13, #14 AND #15.
13. EXISTING 3-POLE, 600V, 30 AMPERE CIRCUIT BREAKER (SQUARE D FHL36030) TO REMAIN.
14. CONTRACTOR TO REMOVE EXISTING POWER DISTRIBUTION BLOCK AND EXISTING CONDUCTORS FROM LOAD SIDE OF CIRCUIT BREAKER TO POWER DISTRIBUTION BLOCK.
15. CONTRACTOR TO CONNECT EXISTING FIELD WIRING DIRECTLY TO LOAD SIDE OF CIRCUIT BREAKER.
16. EXISTING BUCKET FOR ODOR CONTROL ELECTRICAL PANEL. CONTRACTOR TO PROVIDE AND INSTALL NEW 3-POLE, 600V, 30 AMPERE CIRCUIT BREAKER (SQUARE D FHL36030) FOR NEW BAR SCREEN CONTROL PANEL. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL NEW CIRCUIT BREAKER THROUGH-DOOR OPERATING HANDLE, NEW BUCKET DOOR (TO ACCOMMODATE NEW OPERATING HANDLE) AND ALL OTHER ANCILLARY COMPONENTS AS REQUIRED FOR PROPER OPERATION. CONTRACTOR TO MAKE FIELD MODIFICATIONS (SIMILAR TO KEYED NOTES #14 AND #15) IF REQUIRED.
17. CONTRACTOR TO PROVIDE AND INSTALL NEW 3/4" CONDUIT WITH 3-#10 + 1-#10 GND TO SERVE AS NEW 480V, 3ø FEEDER TO NEW SLIDE GATE ACTUATOR MANUAL DISCONNECT SWITCH. REFER TO SHEET E-3 FOR CONTINUATION.
18. CONTRACTOR TO PROVIDE AND INSTALL NEW 3/4" CONDUIT WITH 3-#10 + 1-#10 GND TO SERVE AS NEW 480V, 3ø FEEDER TO NEW BAR SCREEN CONTROL PANEL. REFER TO SHEET E-3 FOR CONTINUATION.
19. CONTRACTOR TO PROVIDE AND INSTALL NEW 3/4" CONDUIT WITH 2-#14 + 1-#14 GND TO NEW SLIDE GATE AUTO OPEN HIGH LEVEL BYPASS SELECTOR SWITCH FOR ANNUNCIATOR CONTROL PANEL BYPASS INDICATION. REFER TO SHEET E-3 FOR CONTINUATION. REFER TO SHEET E-7 FOR I/O ASSIGNMENTS AND LISTING. REFER TO SHEET E-9 FOR CONTACT DEVELOPMENT.
20. CONTRACTOR TO PROVIDE AND INSTALL NEW 3/4" CONDUIT WITH 12-#14 + 1-#14 GND TO NEW SLIDE GATE OPERATOR FOR ANNUNCIATOR CONTROL PANEL SLIDE GATE INPUT/OUTPUTS (4-#14 OPEN, CLOSE, STOP COMMANDS AND COMMAND; 2-#14 VALVE UNDER REMOTE CONTROL INDICATION; 2-#14 VALVE OPEN INDICATION; 2-#14 VALVE CLOSED INDICATION; 2-#14 AUTO OPEN HIGH LEVEL BYPASSED). REFER TO SHEET E-3 FOR CONTINUATION. REFER TO SHEET E-7 FOR I/O ASSIGNMENTS AND LISTING. REFER TO SHEET E-9 FOR CONTACT DEVELOPMENT.
21. CONTRACTOR TO PROVIDE AND INSTALL NEW 1" CONDUIT WITH 26-#14 + 1-#14 GND TO NEW BAR SCREEN CONTROL PANEL FOR ANNUNCIATOR CONTROL PANEL BAR SCREEN INPUT/OUTPUTS. REFER TO SHEET E-3 FOR CONTINUATION. REFER TO SHEET E-9 FOR CONTACT DEVELOPMENT.

GENERAL NOTES:

1. EXISTING MCC IN KEYED NOTE #10 DOES NOT CONSIST OF STAB-ON CIRCUIT BREAKER ARRANGEMENT. CONTRACTOR SHALL PROVIDE CABLE-ON BUS CONNECTIONS WITH NEW CU CONDUCTORS FOR BOTH NEW CIRCUIT BREAKER LINE SIDE FEEDERS.

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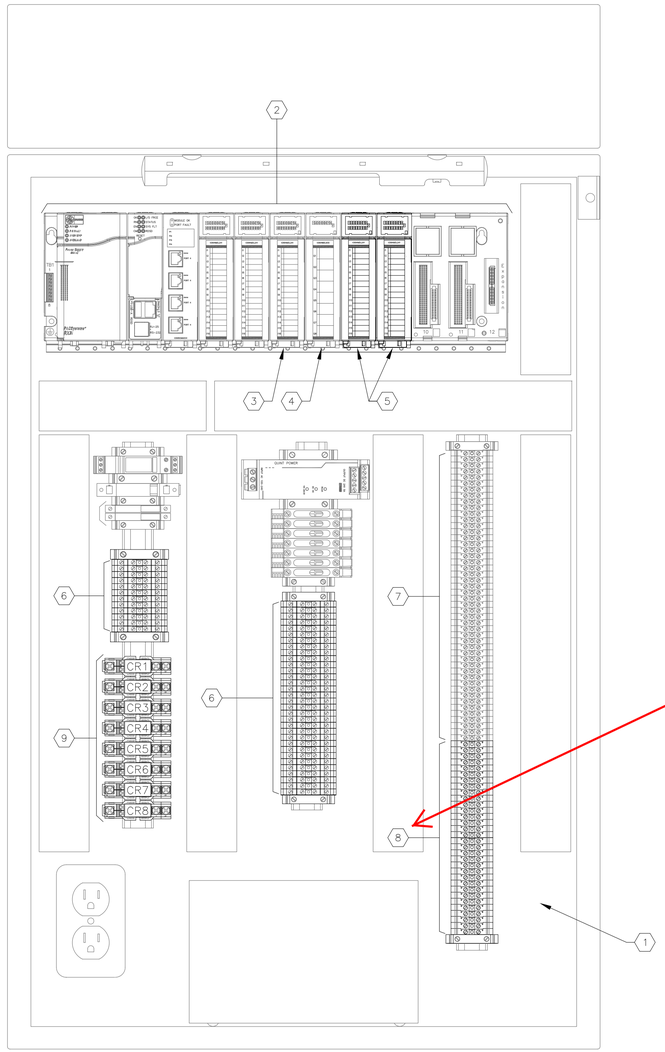
City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
PUMPING STATION
ELEVATION 41.25'
ELECTRICAL PLAN

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-5 20 OF 27



EXISTING ANNUNCIATOR CONTROL PANEL
INTERIOR DETAIL

SCALE : N.T.S.

A
E-5 | E-6

KEYED NOTES:

1. INTERIOR OF EXISTING ANNUNCIATOR CONTROL PANEL. CONTRACTOR TO MAKE MODIFICATIONS TO EXISTING CONTROL PANEL AS NOTED BELOW.
2. EXISTING PLC RACK CONSISTING OF: ONE (1) – GE RX3i CPU : IC695CPE305–ABAG; ONE (1) – SERIAL COMMUNICATION MODULE: GE IC695CMM004; THREE (3) DC INPUT MODULES: GE IC694MDL241; ONE (1) A/C RELAY MODULE: GE IC694MDL916; ONE (1) 120V POWER SUPPLY: GE IC695PSA140; ONE (1) 12–SLOT BACK PLANE: GE IC695CHS012.
3. EXISTING DC INPUT MODULE (GE IC694MDL241) CURRENTLY LOCATED IN SLOT 6. CONTRACTOR SHALL UTILIZE SPARE INPUTS FOR NEW INPUTS REQUIRED UNDER THIS CONTRACT. REFER TO SHEET E–7 FOR DETAILS.
4. EXISTING A/C RELAY MODULE (GE IC694MDL930) CURRENTLY LOCATED IN SLOT 7. CONTRACTOR SHALL UTILIZE SPARE OUTPUTS (AND ASSOCIATED RELAYS) FOR NEW OUTPUTS REQUIRED UNDER THIS CONTRACT. REFER TO SHEET E–7 FOR DETAILS.
5. CONTRACTOR TO PROVIDE AND INSTALL TWO (2) NEW DC INPUT MODULES (EACH GE IC694MDL241). INSTALL IN SLOTS 8 AND 9 RESPECTIVELY. REFER TO SHEET E–7 FOR DETAILS.
6. EXISTING MULTI–LEVEL TERMINAL BLOCKS. CONTRACTOR SHARE UTILIZE SPARE TERMINAL BLOCKS AS REQUIRED.
7. EXISTING SURGE PROTECTION DEVICES FOR 24V DC DISCRETE INPUT CIRCUITS. CONTRACTOR SHARE UTILIZE SPARE SURGE PROTECTION DEVICES AS REQUIRED.
8. CONTRACTOR TO PROVIDE AND INSTALL THIRTY TWO (32) NEW SURGE PROTECTION DEVICES FOR 24V DC DISCRETE INPUT MODULE TO BE INSTALLED ~~IN SLOT 8 AND SLOT 9~~. PHOENIX CONTACT #2794699. PROVIDE AND INSTALL ADDITIONAL DIN–RAIL, END BARRIERS, ACCESSORIES AS REQUIRED TO ACCOMMODATE NEW SURGE PROTECTION DEVICES AS REQUIRED.
9. EXISTING SQUARE–D 8501 R SERIES SPDT RELAYS WITH 120V COILS. CONTRACTOR SHARE UTILIZE SPARE INTERPOSING RELAYS CR2, CR3 AND CR4 AS REQUIRED. REFER TO SHEET E–7 FOR DETAILS.

Per Change ORder #5 & RFI #8, Slot's 8 & 9 as shown on diagram did not exisit in Panel. Contractor had to install slot 8, as referenced here, on the right inside wall of the panel. See next page for Full I/O detail of Slots 8 & 9

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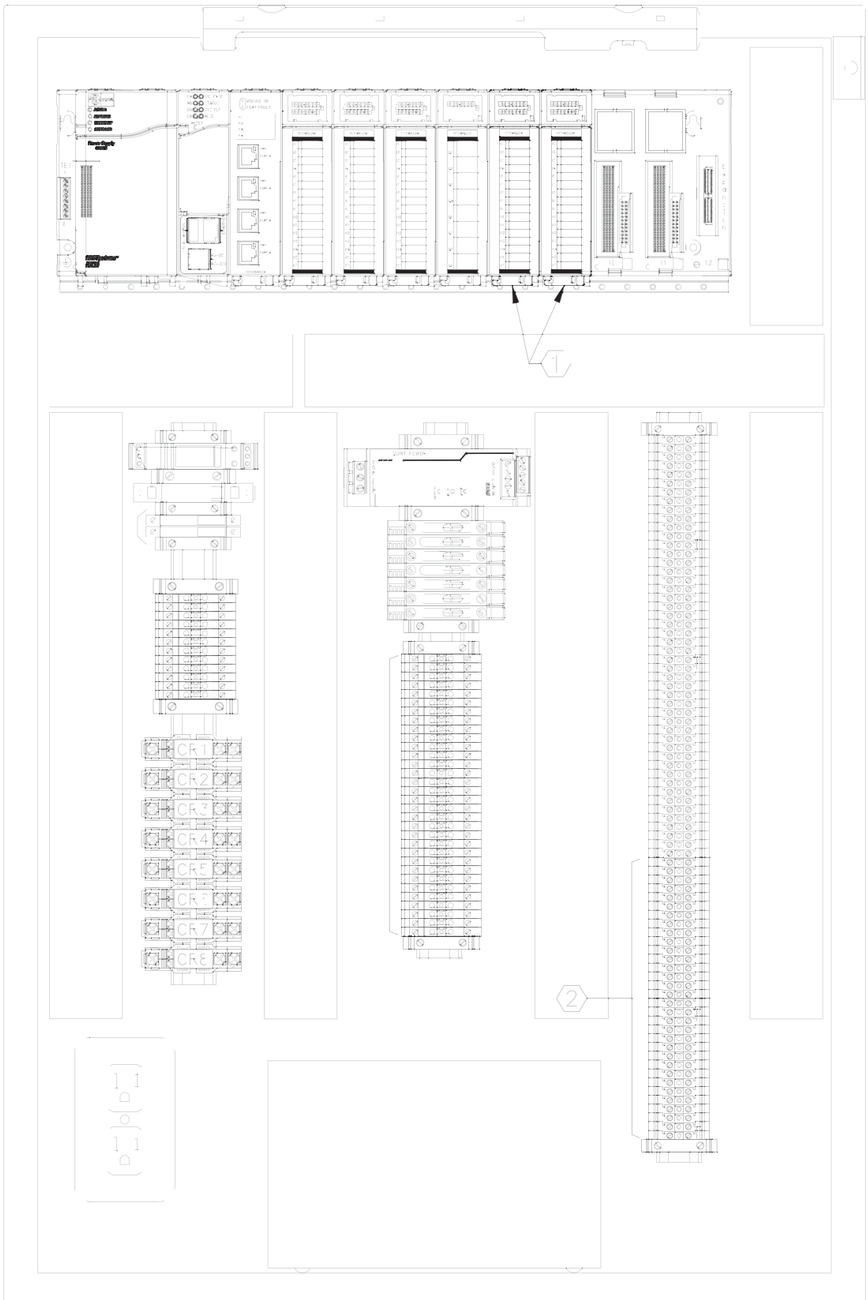
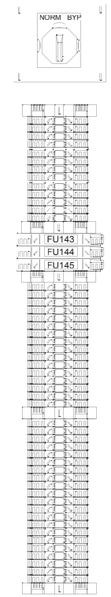
PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
EXISTING ANNUNCIATOR
CONTROL PANEL
INTERIOR DETAIL

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-6 21 OF 27



MOUNTED ON RIGHT SIDE FRAME



DRAWING NUMBER
M-01

SUBMITTAL DRAWINGS

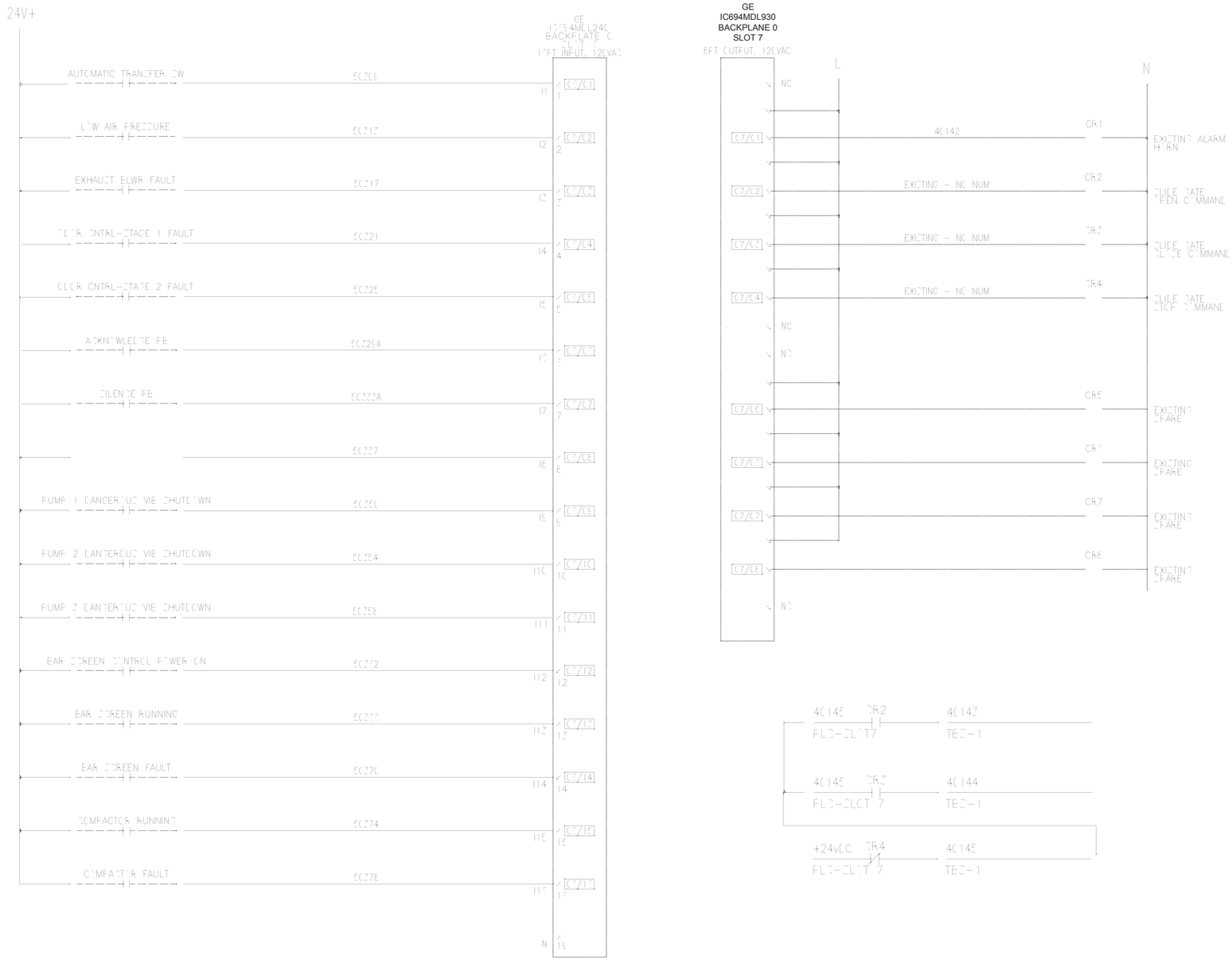
City of Tampa
University Pump Station
Automatic Bar Screen
Panel Layout
Annunciator Panel

Automated Integration
P.O. Box 777
Brandon, FL 33509

DESIGNED BY: G S & P			DATE: 12/28/19
DRAWN BY: S.Van Kley	CHKD BY: P.O'Donnell		Ai JOB No: 162J06
UL DRAWING # N/A	UL SERIAL # N/A		PROJECT NO: 18-C-00016

NO.		
02	05/14/20	As-Installed
01	12/28/19	Submittals

AUTOMATED INTEGRATION



SUBMITTAL DRAWINGS

City of Tampa
University Pump Station
Automatic Bar Screen
PLC CARDS 6 & 7
Annunciator Panel

DRAWING NUMBER
E-01

Automated Integration
333 N Falkenburg Rd.
Suit B-227
Tampa Fl. 33619

DESIGNED BY: G S & P		DATE: 12/28/19
DRAWN BY: N. Van Kley	CHKD BY: S. Van Kley	Ai JOB No: 162J06
UL DRAWING # N/A	UL SERIAL # N/A	PROJECT NO: 18-C-00016

NO.		
03	05/14/20	As Installed
02	04/21/20	As Modified
01	03/25/19	Submittal

AUTOMATED INTEGRATION

DRAWING NUMBER **E-02**

SUBMITTAL DRAWINGS

City Of Tampa
University Pumping Station
Automatic Bar Screen
PLC CARDS 8 & 9
Existing Annunciator Control Panel

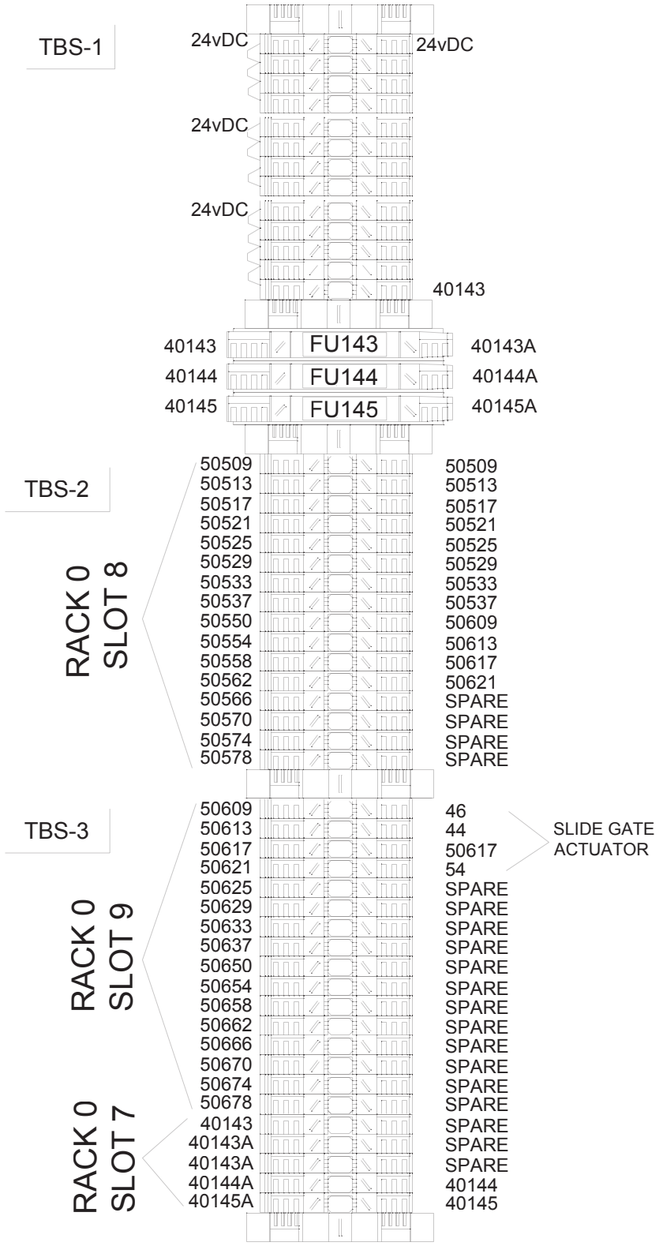
Automated Integration
333 N. Falkenburg Rd.
Suite B-227
Tampa, FL 33619

DESIGNED BY: Tricon Consulting Engineers		DATE: 03/25/19
DRAWN BY: J.BUSHONG	CHKD BY: J.BUSHONG	Ai JOB No: 162J06
DRAWING # 162J06-2	SERIAL # 162J06-2	PROJECT NO: 18-C-00016

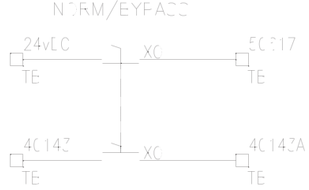
NO.		
03	05/14/20	As Installed
02	04/21/20	As Modified
01	03/25/19	Submittal

AUTOMATED INTEGRATION

MOUNTED ON RIGHT SIDE FRAME



SLIDE VALVE HIGH LEVEL
AUTO OPEN CONTROL



DRAWING NUMBER
TB-01

SUBMITTAL DRAWINGS

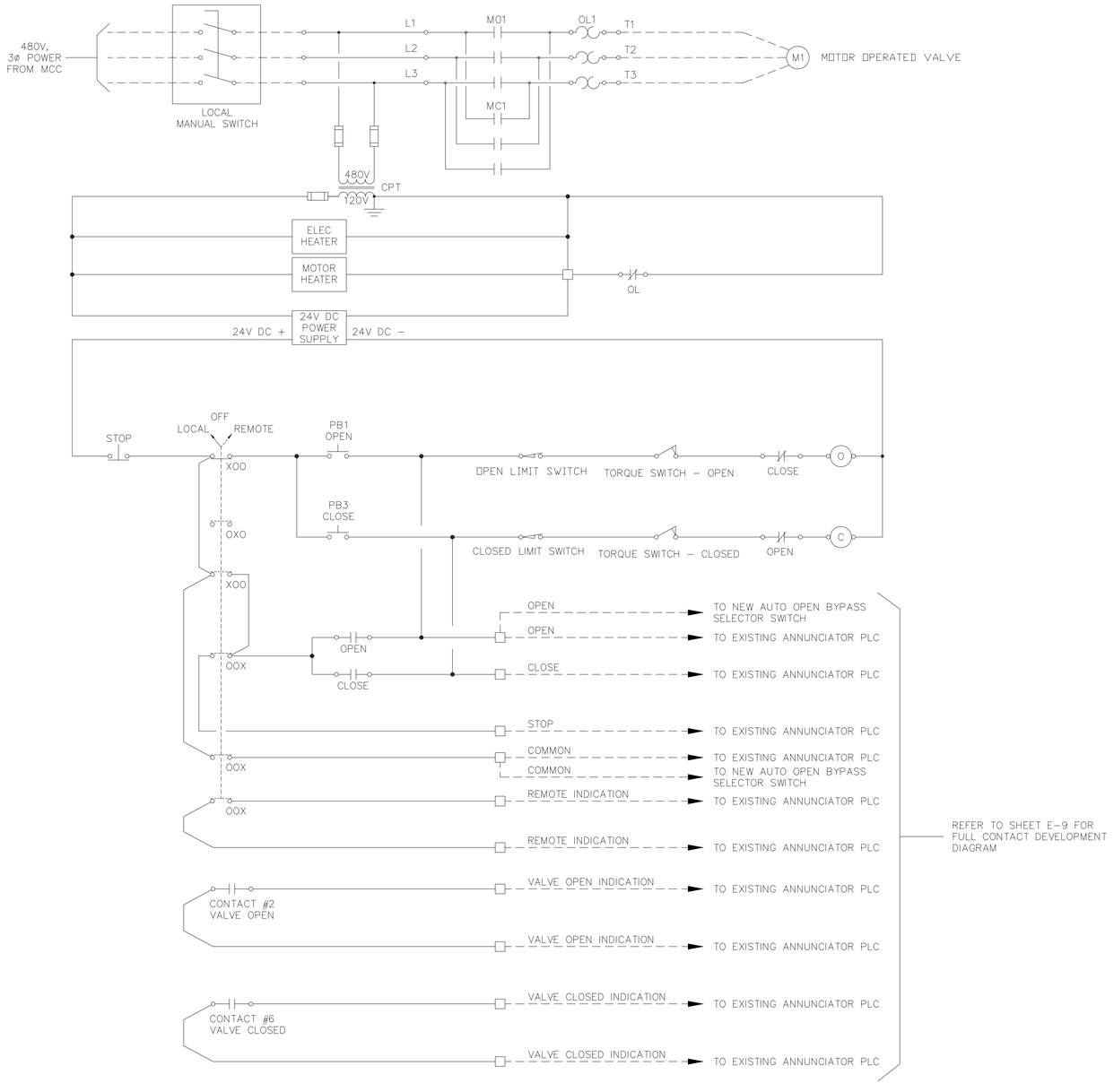
City of Tampa
University Pump Station
Automatic Bar Screen
RIGHT SIDE-FRAME TERMINALS
Annunciator Panel

Automated Integration
333 N Falkenburg Rd.
Suit B-227
Tampa Fl. 33619

DESIGNED BY: G S & P		DATE: 12/28/19
DRAWN BY: S.Van Kley	CHKD BY: P.O'Donnell	Ai JOB No: 162J06
UL DRAWING # N/A	UL SERIAL # N/A	PROJECT NO: 18-C-00016

NO.		
03	05/14/20	As-Installed
02	04/21/20	As Modified
01	06/07/19	Submittals

AUTOMATED INTEGRATION



GENERAL NOTES:

1. THE CONTROL WIRING DIAGRAM PRESENTED HERE IS BASED ON THE SPECIFICATIONS AND INFORMATION REFLECTED BY A SPECIFIC MANUFACTURER. THE CONTRACTOR SHALL MODIFY THE FIELD WIRING SHOWN AS REQUIRED BASED ON THE ACTUAL ACTUATOR PURCHASED/PROVIDED.

LEGEND

- – – – – DENOTES FIELD WIRING
- ☒ DENOTES TERMINAL ON ACTUATOR CONTROLLER
- ◪ DENOTES TERMINAL IN ANNUNCIATOR PLC CABINET

SLIDE GATE ACTUATOR CONTROL WIRING

TRICON CONSULTING ENGINEERS
777 S. Harbour Island Blvd,
Suite 350
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813.227.9190
Certificate of Authorization No. 8363

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED TDT
DRAWN JLH
CHECKED TDT

G S & P
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813.254.5838
FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

TIMOTHY THOMAS
FLA. LIC. NO 47079

DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
SLIDE GATE ACTUATOR CONTROL WIRING

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-8 23 OF 27

ANNUNCIATOR PLC SLOT 6 – I12 — BAR SCREEN CONTROL POWER ON
ANNUNCIATOR PLC SLOT 6 – I13 — BAR SCREEN RUNNING
ANNUNCIATOR PLC SLOT 6 – I14 — BAR SCREEN FAULT ALARM
ANNUNCIATOR PLC SLOT 6 – I15 — COMPACTOR RUNNING
ANNUNCIATOR PLC SLOT 6 – I16 — COMPACTOR FAULT ALARM
ANNUNCIATOR PLC SLOT 8 – I1 — COMPACTOR LOW LOAD ALARM
ANNUNCIATOR PLC SLOT 8 – I2 — COMPACTOR HIGH LOAD ALARM
ANNUNCIATOR PLC SLOT 8 – I3 — HIGH DIFFERENTIAL LEVEL WARNING
ANNUNCIATOR PLC SLOT 8 – I4 — HIGH–HIGH DIFFERENTIAL LEVEL ALARM (1 OF 2)
ANNUNCIATOR PLC SLOT 8 – I5 — HIGH UPSTREAM LEVEL WARNING
ANNUNCIATOR PLC SLOT 8 – I6 — HIGH–HIGH UPSTREAM LEVEL ALARM
ANNUNCIATOR PLC SLOT 8 – I7 — HIGH–HIGH LEVEL FLOAT SWITCH ALARM (1 OF 2)
ANNUNCIATOR PLC SLOT 8 – I8 — COMMON WASH VALVE FAULT

LEGEND

- DENOTES FIELD WIRING
- □ DENOTES TERMINAL ON ACTUATOR CONTROLLER
- ◪ DENOTES TERMINAL IN ANNUNCIATOR PLC CABINET
- ⊠ DENOTES TERMINAL IN BAR SCREEN CONTROL PANEL
- ⊘ DENOTES TERMINAL IN AUTO OPEN BYPASS SELECTOR SWITCH

SLIDE GATE OPEN INDICATION — ANNUNCIATOR PLC SLOT 9 – I1
SLIDE GATE OPEN INDICATION — ANNUNCIATOR PLC SLOT 9 – I2
SLIDE GATE OPEN INDICATION — ANNUNCIATOR PLC SLOT 9 – I4

ACTUATOR CONTROL CIRCUITRY. REFER ALSO TO SHEET E-8.
- VALVE COMMON
- VALVE STOP — PLC STOP COMMAND (CR4)
- VALVE CLOSE — PLC CLOSE COMMAND (CR3)
- VALVE OPEN — PLC OPEN COMMAND (CR2)

SLIDE VALVE HIGH LEVEL AUTO OPEN CONTROL
NORMAL / BYPASSED
XO — ANNUNCIATOR PLC SLOT 9 – I3
XO

HIGH–HIGH DIFFERENTIAL LEVEL ALARM (2 OF 2)
HIGH–HIGH LEVEL FLOAT SWITCH ALARM (2 OF 2)

EXISTING ANNUNCIATOR PLC

NEW SLIDE GATE ACTUATOR CONTROLS

NEW AUTO OPEN BYPASS SELECTOR SWITCH

NEW BAR SCREEN CONTROL PANEL

TRICON CONSULTING ENGINEERS
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DESIGNED TDT
DRAWN JLH
CHECKED TDT

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Tampa, FL 33602
813.254.5838
FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
IB26000797/LC26000381

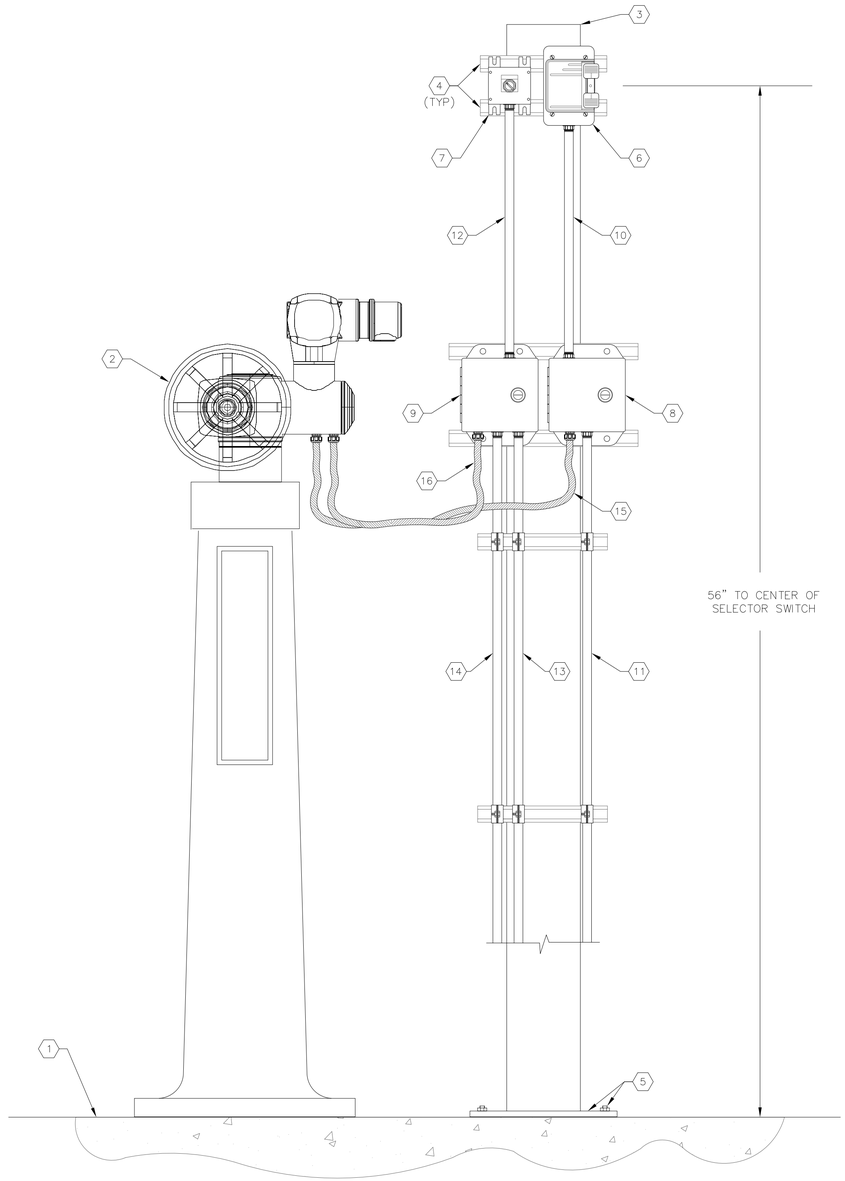
APPROVED BY:
TIMOTHY THOMAS
FLA. LIC. NO 47079
DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
CONTACT DEVELOPMENT DIAGRAM

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-9



ACTUATOR DISCONNECT DETAIL

SCALE : N.T.S.

1 | E-3 | E-10

KEYED NOTES:

1. EXISTING SLAB, ELEVATION 41.25'.
2. PROPOSED SLIDE GATE ELECTRICAL OPERATOR AND ASSOCIATED STAND. REFER ALSO TO CIVIL/MECHANICAL DRAWINGS.
3. PROVIDE AND INSTALL 4" SQUARE ALUMINUM POST WITH 3/4" WALL THICKNESS. WELD 1/4" CAP TO TOP OF POST.
4. PROVIDE AND INSTALL 1-5/8" X 1-5/8" 316 STAINLESS STEEL UNISTRUT. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL. UNISTRUT BOLTS SHALL BE INSTALLED THROUGH POST. INSTALL NEOPRENE GASKETS WHERE STAINLESS STEEL COMES IN CONTACT WITH ALUMINUM. PROVIDE END CAPS ON ALL UNISTRUT ENDS.
5. PROVIDE AND INSTALL 8" X 8" X 1/2" ALUMINUM BASE PLATE. SECURE BASE PLATE TO CONCRETE W/(4) STAINLESS STEEL 1/2" DIA. X 8" BOLTS & STAINLESS STEEL HEX NUTS WITH LOCKWASHER. DRILL CONCRETE & EMBED BOLTS AND ANCHORS IN EPOXY. COAT BOTTOM OF BASE PLATE WITH ASPHALT PAINT. PROVIDE NEOPRENE GASKET BETWEEN ALL STAINLESS STEEL AND ALUMINUM COMPONENTS.
6. PROVIDE AND INSTALL NEW 600V, 30A, 3-POLE MANUAL SWITCH IN NEMA 4 DIE CAST ZINC ALLOY, SQUARE-D 2510KW2CH TO SERVE AS ACTUATOR 480V DISCONNECTING MEANS.
7. PROVIDE AND INSTALL A NEMA 4X TWO-POSITION SELECTOR SWITCH (MAINTAINED CONTACTS) IN A NEMA 4X STAINLESS STEEL ENCLOSURE. ALLEN BRADLEY, SQUARE D OR EQUAL. SELECTOR SWITCH TO BE UTILIZED TO BYPASS AUTO OPEN SLIDE GATE ON HIGH LEVEL WHEN DESIRED.
8. PROVIDE AND INSTALL 4" X 4" X 3" 316 STAINLESS STEEL JUNCTION BOX WITH STAINLESS STEEL HINGES AND QUARTER TURN LATCH, HAMMOND EJ443S16. JUNCTION BOX TO SERVE AS RACEWAY FOR ACTUATOR 480V CONDUCTORS (NO TERMINATIONS).
9. PROVIDE AND INSTALL 4" X 4" X 3" 316 STAINLESS STEEL JUNCTION BOX WITH STAINLESS STEEL HINGES AND QUARTER TURN LATCH, HAMMOND EJ443S16. JUNCTION BOX TO SERVE AS RACEWAY FOR ACTUATOR 24V DC CONTROL CONDUCTORS (NO TERMINATIONS).
10. PROVIDE AND INSTALL NEW 3/4" RIGID ALUMINUM CONDUIT WITH 6-#10 + 1-#10 GND FOR SLIDE GATE ACTUATOR 480V, 3ø FEEDER.
11. PROVIDE AND INSTALL NEW 3/4" RIGID ALUMINUM CONDUIT WITH 3-#10 + 1-#10 GND TO EXISTING MCC FOR SLIDE GATE ACTUATOR 480V, 3ø FEEDER. REFER TO SHEET E-5 FOR EXISTING MCC LOCATION.
12. PROVIDE AND INSTALL NEW 3/4" RIGID ALUMINUM CONDUIT WITH 3-#14 + 1-#14 GND FOR SLIDE GATE ACTUATOR AUTO CLOSE BYPASS SELECTION.
13. PROVIDE AND INSTALL NEW 3/4" RIGID ALUMINUM CONDUIT WITH 2-#14 + 1-#14 GND TO NEW BAR SCREEN CONTROL PANEL (REFER TO SHEET E-3 FOR CONTROL PANEL LOCATION) FOR SLIDE GATE ACTUATOR AUTO CLOSE BYPASS SELECTION.
14. PROVIDE AND INSTALL NEW 3/4" RIGID ALUMINUM CONDUIT WITH 12-#14 + 1-#14 GND TO EXISTING ANNUNCIATOR CONTROL PANEL FOR NEW SLIDE GATE OPERATOR INPUT/OUTPUTS (4-#14 OPEN, CLOSE, STOP COMMANDS AND COMMAND; 2-#14 VALVE UNDER REMOTE CONTROL INDICATION; 2-#14 VALVE OPEN INDICATION; 2-#14 VALVE CLOSED INDICATION; 2-#14 AUTO CLOSE HIGH LEVEL BYPASS). REFER TO SHEET E-5 FOR EXISTING ANNUNCIATOR CONTROL PANEL LOCATION.
15. PROVIDE AND INSTALL NEW 3/4" LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT WITH 3-#10 + 1-#10 GND FOR SLIDE GATE ACTUATOR 480V, 3ø FEEDER.
16. PROVIDE AND INSTALL NEW 3/4" LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT WITH 12-#14 + 1-#14 GND FOR SLIDE GATE ACTUATOR 24V DC CONTROLS.

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF THE ACTUATOR DISCONNECT WITH THE CITY OF TAMPA.
2. REFER TO SHEET E-7 FOR I/O ASSIGNMENTS AND LISTING. REFER TO SHEET E-9 FOR CONTACT DEVELOPMENT.

TRICON CONSULTING ENGINEERS
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Certificate of Authorization No. 8363

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED TDT
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813.254.5838
FIRM'S FLORIDA
CERT. NO.
AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:

TIMOTHY THOMAS
FLA. LIC. NO 47079

DATE

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
ACTUATOR
DISCONNECT
DETAIL

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-10 | 25 OF 27

NOTE:
THE EQUIPMENT NECESSARY TO PROVIDE THIS INFORMATION WILL BE PROVIDED IN THE FUTURE.

PUMP #1	PUMP #2	PUMP #3		SWITCHGEAR
STOPPED	RUNNING	STOPPED		MAIN "A" CLOSED
0.0 % SPEED	67.8 % SPEED	0.0 % SPEED		MAIN "B" CLOSED
0.0 KW	97.3 KW	0.0 KW		TIE OPENED
0.0 AMPS	146 AMPS	0.0 AMPS		MAIN "A" AMPS
FAIL TO START	FAIL TO START	FAIL TO START		MAIN "B" AMPS
AFD READY	AFD READY	AFD NOT READY		MAIN "A" KW

BAR SCREEN CONTROL POWER OK	BAR SCREEN FAULT ALARM	SLIDE GATE FAILED TO OPEN
HI UPSTREAM LEVEL WARNING	COMPACTOR FAULT ALARM	SLIDE GATE FAILED TO CLOSE
HI-HI UPSTREAM LEVEL ALARM	COMPACTOR LOW LOAD ALARM	
HI-HI LEVEL FLOAT ALARM	COMPACTOR HIGH LOAD ALARM	
HI DIFFERENTIAL WARNING	COMMON WASH VALVE FAULT	
HI-HI DIFFERENTIAL ALARM		

ALARMS

PROPOSED ANNUNCIATOR ADDITIONS SAMPLE SCREEN

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CERT. NO.
AAP000034/CA3806
IB26000797/LC2600038

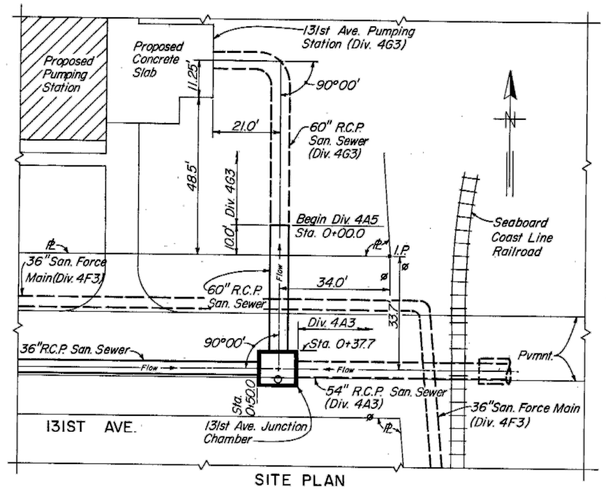
APPROVED BY:
TIMOTHY THOMAS
FLA. LIC. NO 47079
DATE

City of Tampa Florida

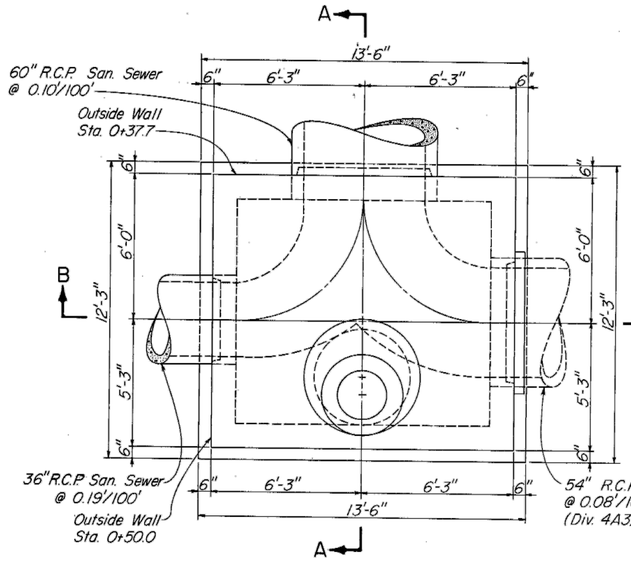
PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
PROPOSED ANNUNCIATOR ADDITIONS
SAMPLE SCREEN

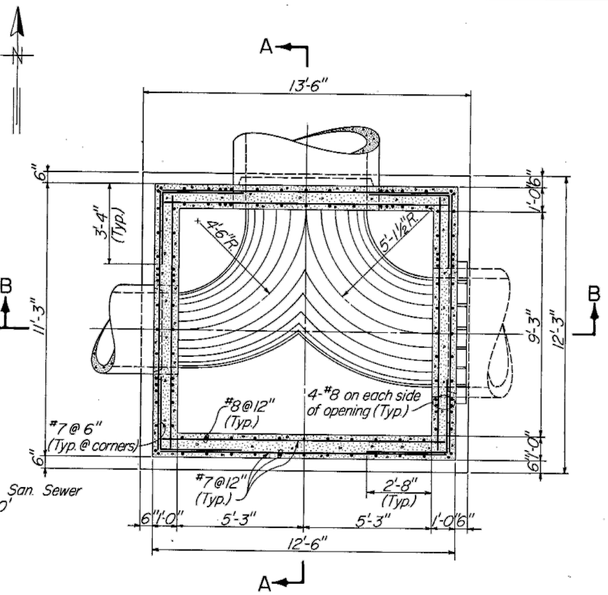
DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET: E-11 26 OF 27



SITE PLAN
SCALE 1"=20'

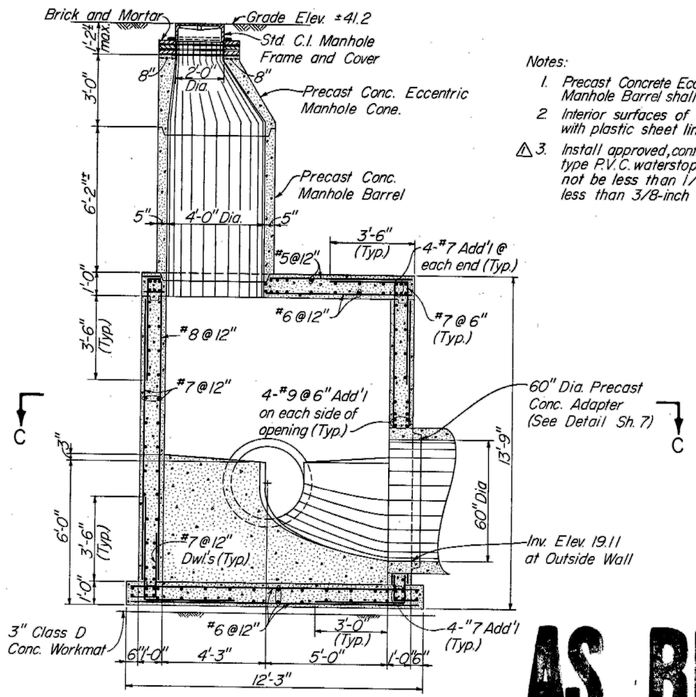


PLAN
SCALE: 3/8"=1'-0"

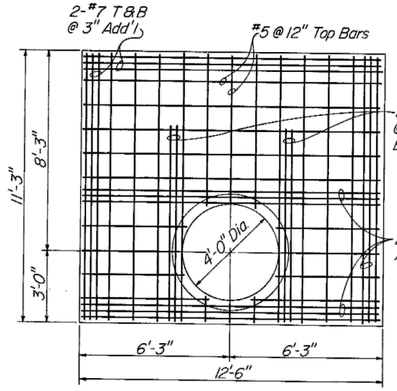


SECTIONAL PLAN C-C
SCALE: 3/8"= 1'-0"

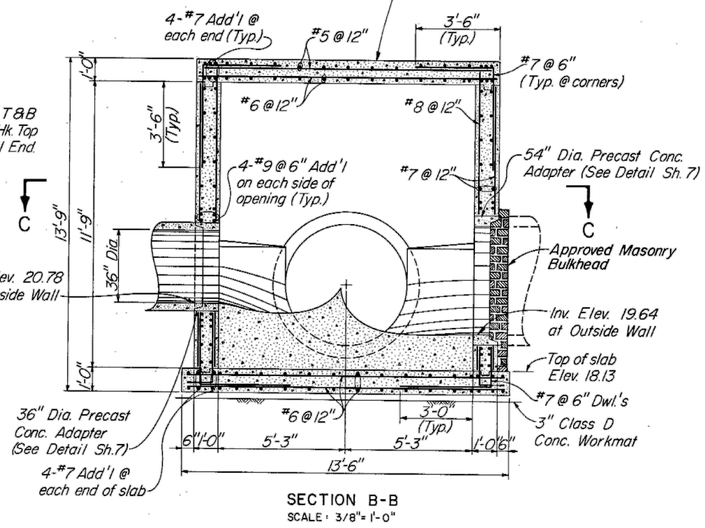
Notes:
1. Precast Concrete Eccentric Manhole Cone and Manhole Barrel shall conform to ASTM Des.C 478
2. Interior surfaces of Junction Chamber shall be lined with plastic sheet lining as shown in detail on Sheet 7.
△3. Install approved, continuous, 4-inch wide, flat, ribbed, center-bulb type P.V.C. waterstops in all construction joints. Waterstops shall not be less than 1/8-inch thick at the narrowest point and not less than 3/8-inch thick immediately adjacent to the bulb.



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



ROOF PLAN
SCALE: 3/8"= 1'-0"



SECTION B-B
SCALE: 3/8"= 1'-0"

AS BUILT
c.s/WA 10/82

GREELEY AND HANSEN ENGINEERS 222 S. RIVERSIDE PLAZA CHICAGO, ILLINOIS 60606	DESIGNED S.M.K., T.L.W. DRAWN K.E.F. CHECKED T.L.W.	APPROVED ____ DATE SUPT., DEPT. OF SANITARY SEWERS ____ DATE GREELEY AND HANSEN, ENGINEERS	△ 3 1/6/78 T.L.W. Add Note 3 (NO. DATE APP. REVISION)	SCALE 20 0 20 40 FT 1" = 20'; 0 1 2 3 4 5 6 7 FT 3/8"= 1'-0"	CITY OF TAMPA, FLORIDA SEWAGE DISPOSAL SYSTEM 131ST AVE. INTERCEPTING SEWER (WEST)	DIVISION 4A5 131ST AVE. JUNCTION CHAMBER DETAILS	PROJ. NO. S 202-70-30D 4A5 SHEET 6 OF 10. DATE SEPT. 1972 REV. 1

INFORMATION PURPOSES ONLY

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED G. DICK
DRAWN O. GOMEZ
CHECKED G. JACOB

GS&P
302 Knights Run Avenue, Suite 900
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FIRM'S FLORIDA CERT. NO. AAP000034/CA3806
IB26000797/LC26000381

APPROVED BY:
JOSEPH B. BARKSDALE
FLA. LIC. NO 46545
DATE

City of Tampa Florida

PROJECT:
CITY OF TAMPA
UNIVERSITY PUMPING STATION
AUTOMATIC BAR SCREEN

DESCRIPTION:
JUNCTION CHAMBER DETAILS

DATE: AUGUST 2018
GSP JOB No. 4291800
SHEET REF-1 27 OF 27

P:\4291800\wk\REF-1.dwg, Aug 15, 2018 - 9:31am