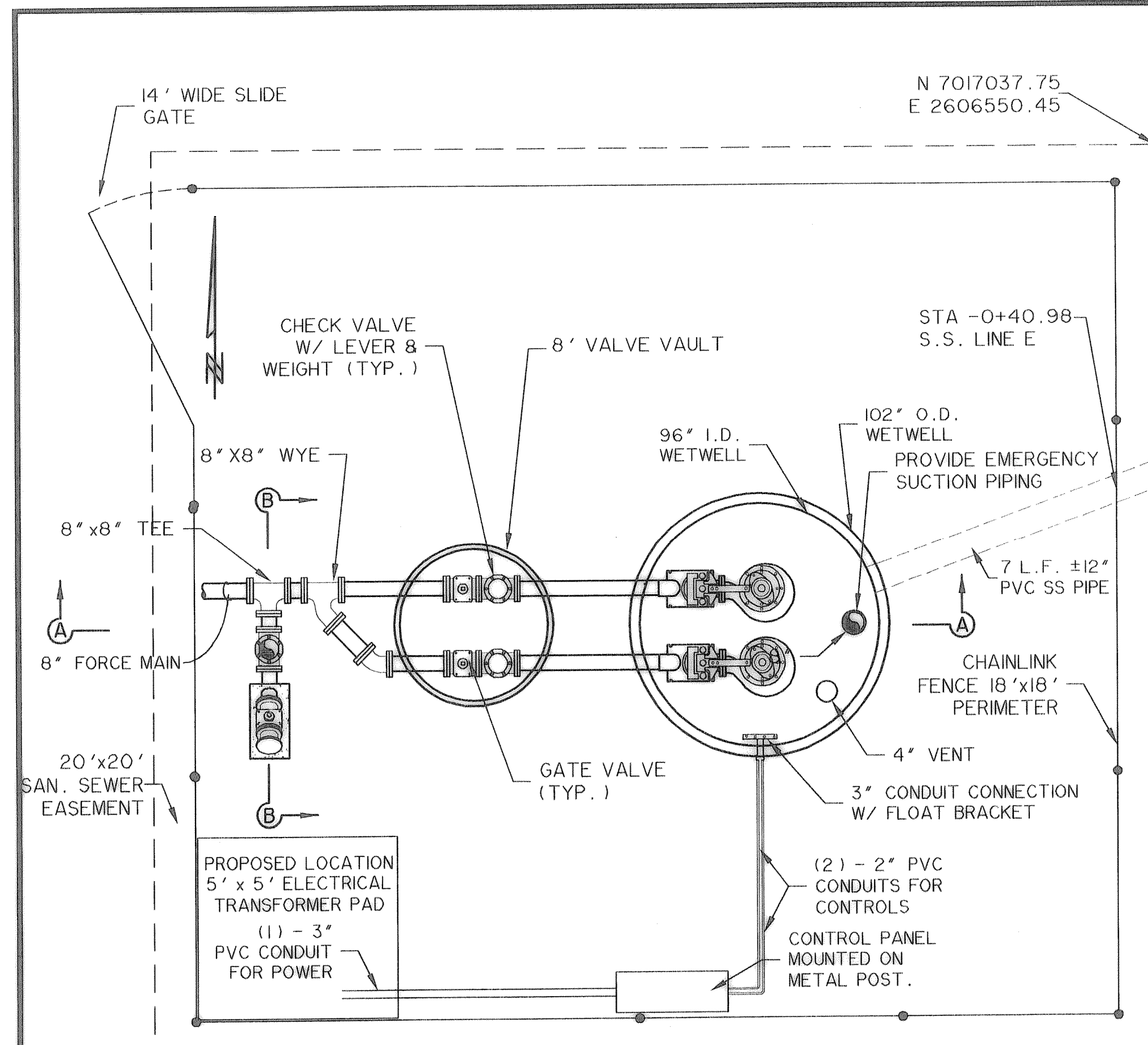
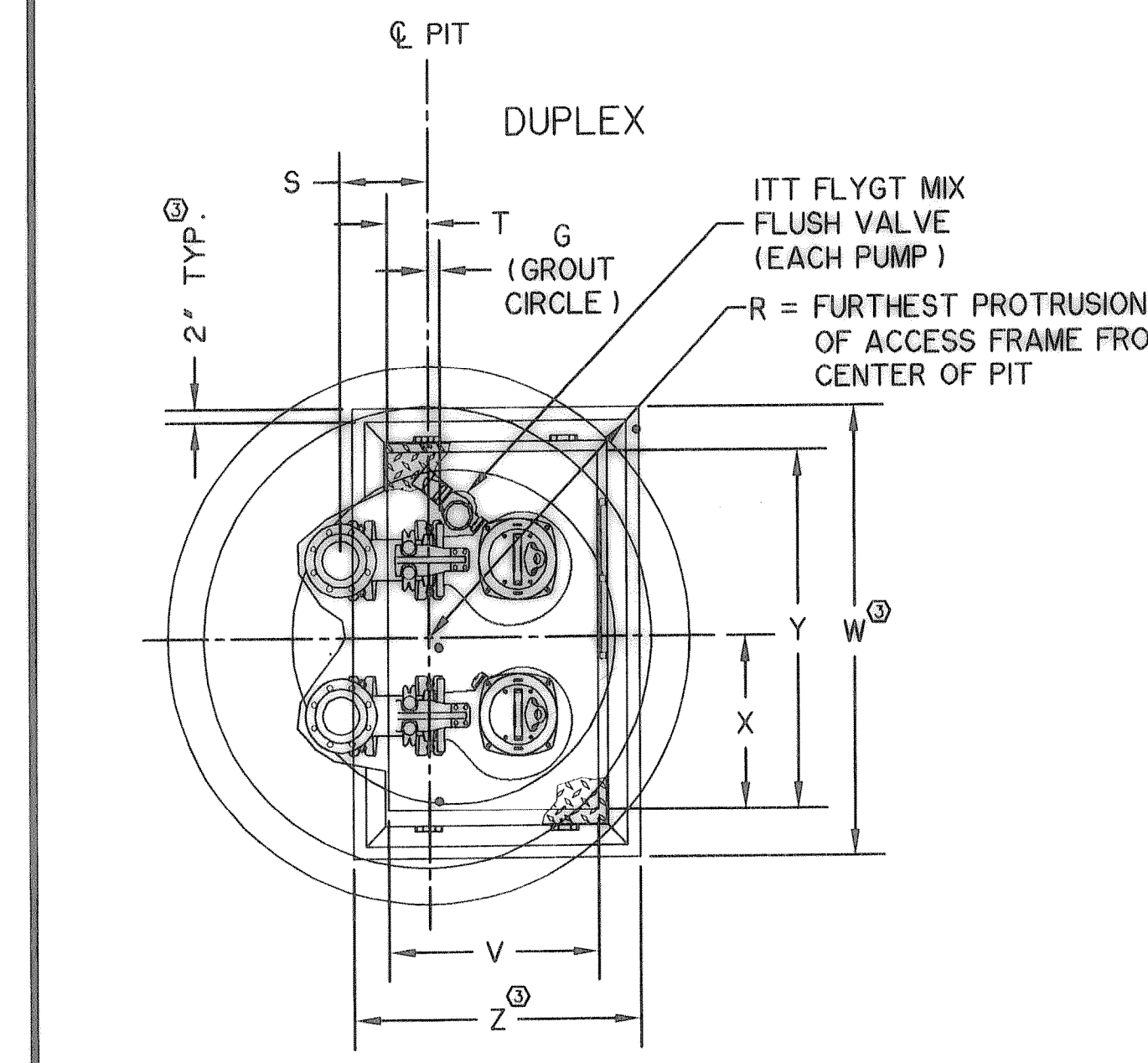


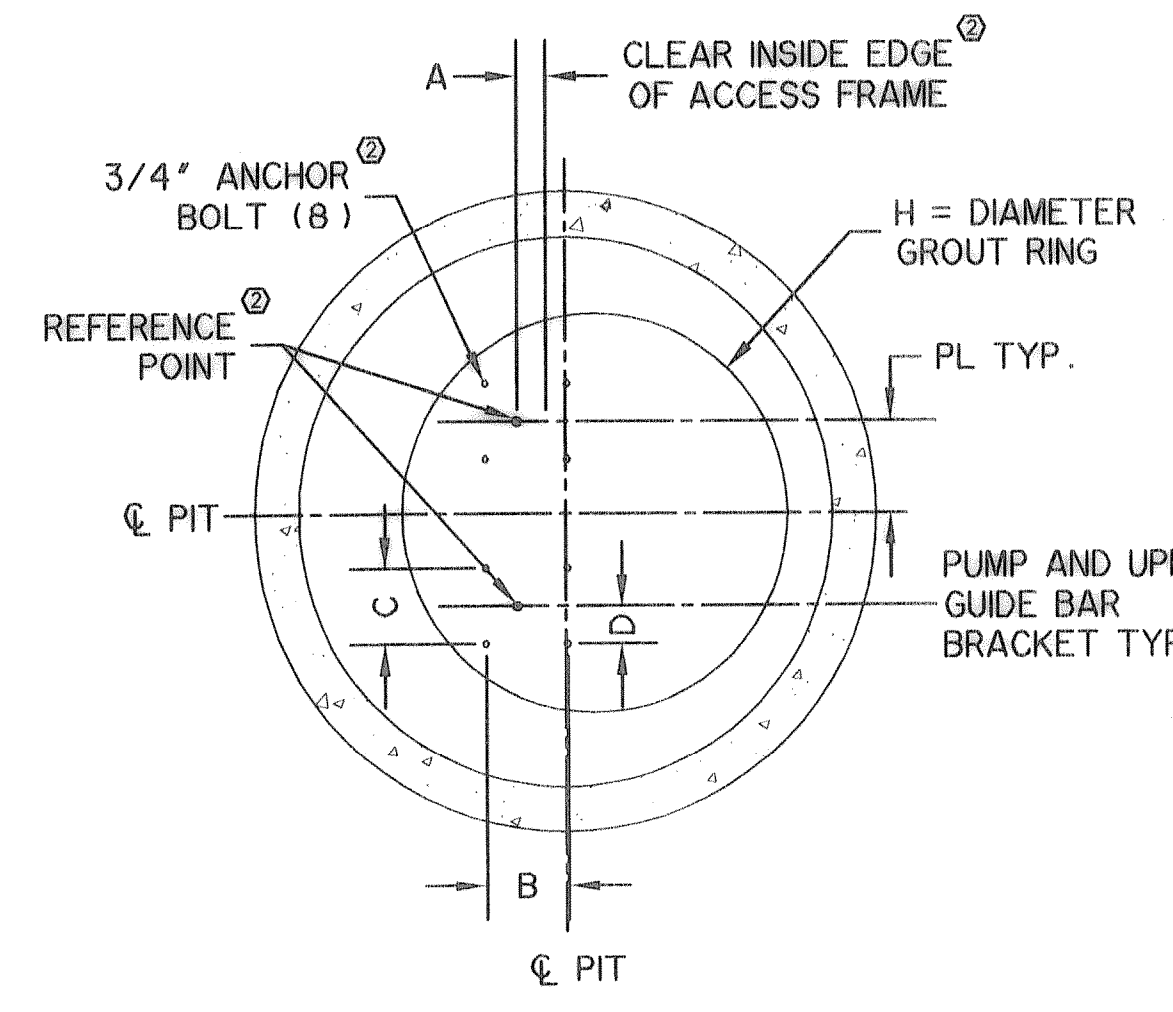
FILE: LIFT Station 1.dwg
TIME: 1/6/14 4:3



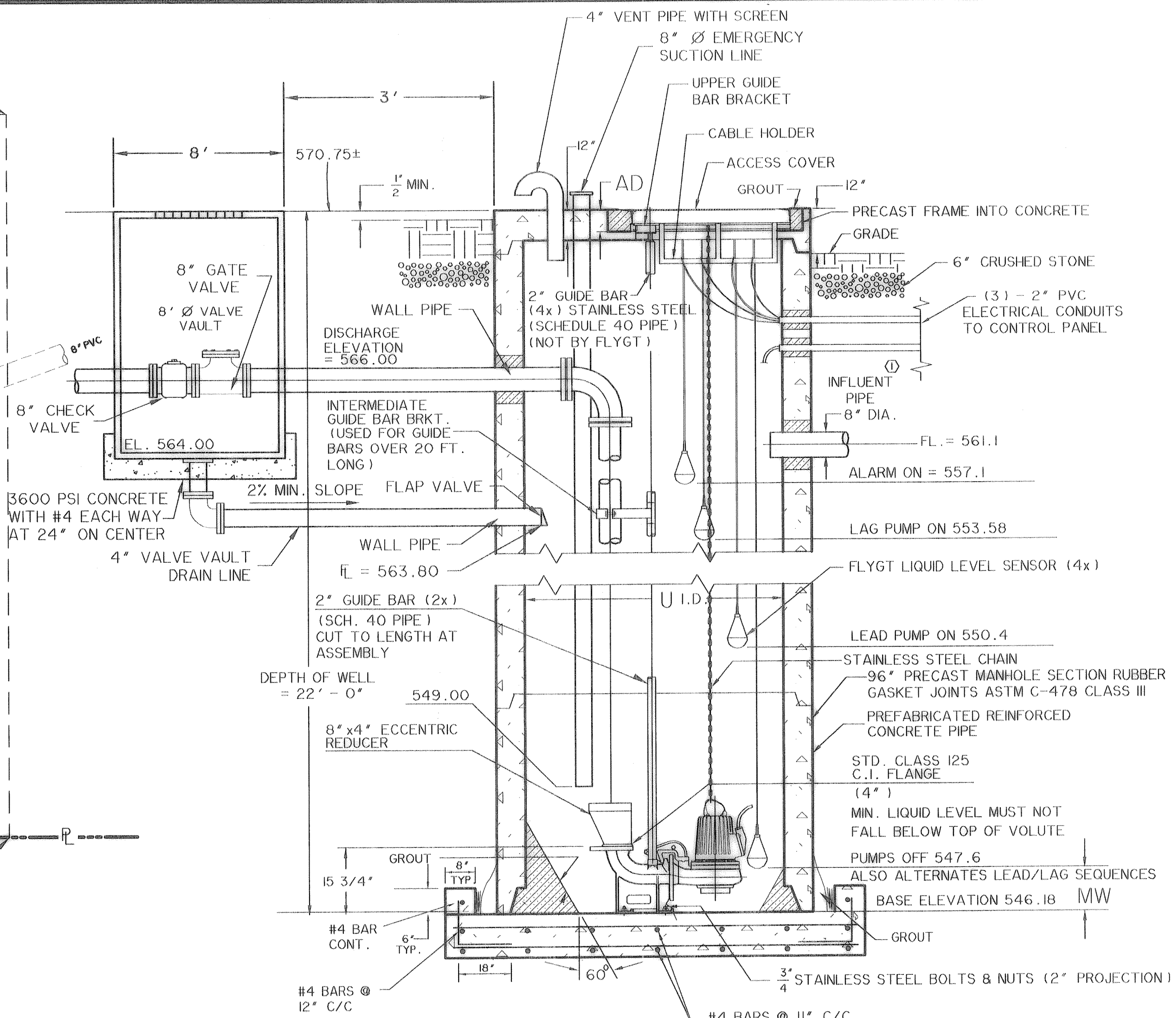
PLAN VIEW



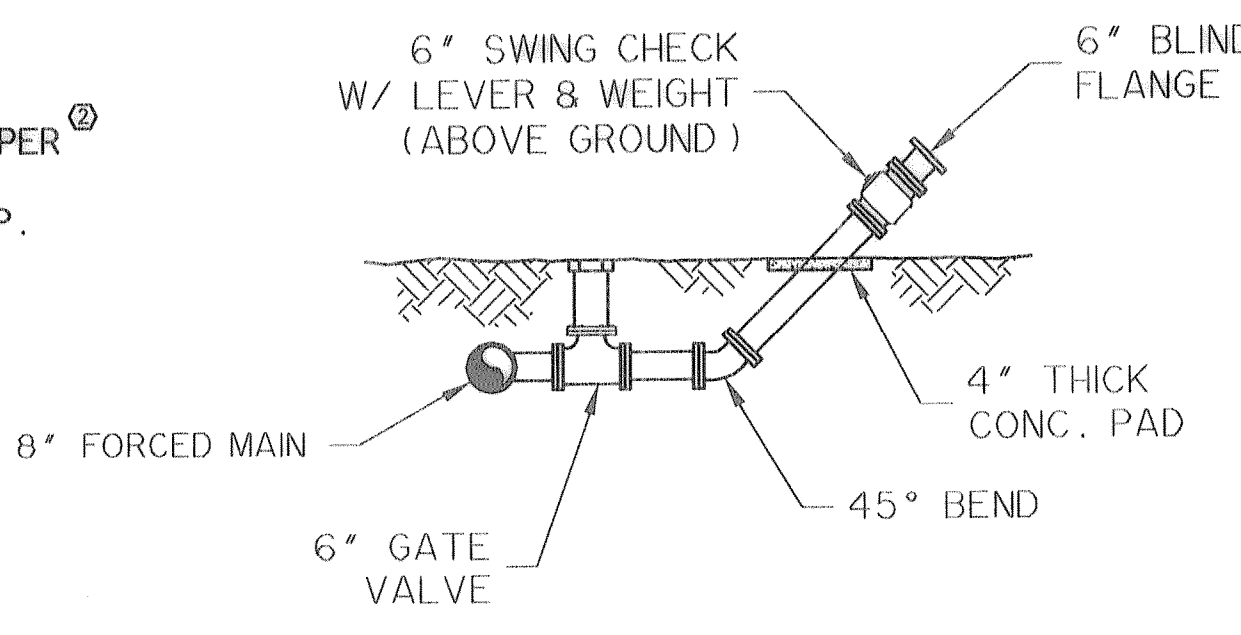
TOP VIEW



BASE SECTION



SECTION A-A



SECTION B-B

LIFT STATION CALCULATIONS FOR ULTIMATE WATERSHED

WATERSHED:	291,351 GPD	262 ACRES TOTAL	≈ 202 GPM
AVERAGE FLOW:	700 GPM	0.156 CFS	
USE:	200 GPM		
PEAK FLOW:	3.0' (APPROX.)		
AVERAGE FLOW:	40.0'		
STATION HEAD:	+ 11.0'		
STATIC HEAD:			
FRICITION HEAD:			
TOTAL DYNAMIC HEAD:	54.00'		

TIME BETWEEN STARTS CALCULATIONS

$$V_{min} = \frac{T_{min}(700)}{4}$$

$$V_{min} = \frac{6min(700)}{4} = 1050 \text{ gallons minimum}$$

$$T = \frac{V}{Q_{in}} + \frac{V}{Q_{out}}$$

$$T = \frac{1050gal}{200 gpm} + \frac{1050gal}{700-200 gpm}$$

$$= 5.25 + 2.1 = 7.35 \text{ minutes for sequential starts}$$

TNRCC REQUIRES T > 6 MIN. - O.K.

MINIMUM CYCLE TIME

10 starts/hr max. (per calculations shown on this sheet)
ELEV. 550.4 LEAD PUMP START, ELEV 547.6 PUMP OFF
YIELDS 2.80 FOOT STORAGE (376.00 gal/vert. ft.) = 1050.00 gal
PUMP CAPABLE OF 707 GAL. PER MINUTE

$$\frac{1050 \text{ gal}}{707 \text{ gal/min}} = 1.5 \text{ minutes to pump out } 2.8 \text{ vrl/ft of storage}$$

$$\frac{1050 \text{ gals of storage}}{200 \text{ average inflow (gpm)}} = 5.25 \text{ minutes to fill } 2.8 \text{ vrl/ft of storage}$$

EMERGENCY STORAGE CALCULATIONS

DIAMETER OF WETWELL = 8" OR 96"

$$Vol/ft = \pi r^2 (1)$$

$$= (3.14)(16)(1)$$

$$= 50.2ft^3/vert. ft.$$

$$50.2ft^3(7.48 \text{ gal}) = 376 \text{ gal/vert. ft. for } 8" \text{ dia. wetwell}$$

ELEVATION AVAILABLE FOR STORAGE
ELEV IN - PUMP ON = 561.1 - 550.4 = 10.7

AVAILABLE STORAGE VOLUME
10.7' (376gal/vert. ft.) = 4023 gallons

CALCULATIONS FOR 20 MINUTE POWER OUTAGE
Average Flow = 200gpm
20min(200gpm) = 4000 gallons of storage space required

- LIFT STATION SPECIFICATIONS**
- 2 - CP3153/15 HP/3 PHASE, 460 VOLT SUBMERSIBLE WASTEWATER PUMPS WITH LEAKAGE SENSOR AND 40' OF POWER CABLE.
 - 2 - DISCHARGE CONNECTIONS
 - 3 - WEIGHTED SWING CHECK VALVES (2 IN VAULT)
 - 3 - GATE VALVES (2 IN VAULT)
 - 4 - ENM-10 LIQUID LEVEL SENSORS
 - 1 - NEMA 3R STEEL CONTROL PANEL

- CONTROL PANEL MINIMUM REQUIREMENTS**
- NEMA 4X ENCLOSURE, 304 STAINLESS STEEL, DEAD FRONT
 - NEMA FVAR MOTOR STARTERS WITH SOLID STATE OVERLOADS
 - HEAVY DUTY BREAKERS WITH RECEPTACLE FOR CONTROL, EMERGENCY, MOTOR, AND WITH 1 EXTRA SINGLE POLE POWER CABLE.
 - 4 FLOAT CONTROL SYSTEM INCLUDING MODICON 612 PLC, WITH PROGRAMABLE SOFTWARE
 - ALARM HORN, ALARM LIGHT, ALARM SILENCE
 - ELAPSED TIME METERS, EXERCISE TIMER
 - GROUND FAULT RECEPT., HEATER/THERMOSTAT, MINI CAS, MOISTURE PL, NEMA 4HOA,
 - PHASE MONITOR, RESETS, RUN LIGHTS, SURGE ARRESTOR, THERMAL PL,
 - THERMAL TERMINALS, TRANSFORMER, TRANSFORMER 24 VAC, TCSS, UL LIGHTING
 - ADJUSTABLE OVERLOADS (SOLID STATE)

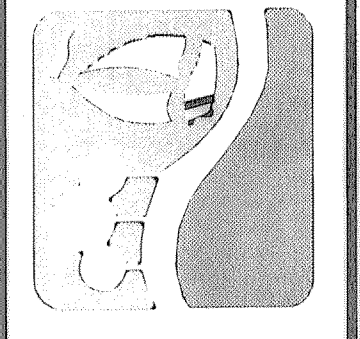
NOTES

- THE DESIGN SHOWN IS BASED ON INSTALLATION OF FLYGT MODEL NP-3153 PUMP WITH IMPELLER 456. REFER TO SPECIFICATIONS.
- CITY OF ROCKWALL WILL SUPPLY LOCKS AND KEYS FOR LIFT STATION WHEN ACCEPTED BY THE CITY. THE CONTRACTOR WILL BE RESPONSIBLE TO LOCK AND SECURE THE LIFT STATION AREA PRIOR TO CITY OF ROCKWALL ACCEPTANCE.
- AREA INSIDE LIFT STATION - INSTALL 6" OF FLEX BASE ALONG WITH LEADING ROAD.
- HEAVY DUTY ACCESS COVER "FLED-13A05H" AVAILABLE FROM FLYGT. COVERS ARE REQUIRED FOR WET WELL AND FOR VALVE VAULT.
- VALVE VAULT SHALL BE OF 3500 PSI CONCRETE AND REINFORCED WITH #3 BARS AT 18" O.C.E.W. CONTACT MANUFACTURER TO VERIFY DIMENSIONS PRIOR TO CONSTRUCTION.
- CONTACT MANUFACTURER FOR DIMENSIONS OF ACCESS COVER AND LOCATION ON BOTH WET WELL AND VALVE VAULT.

ALL DIMENSIONS ARE IN INCHES

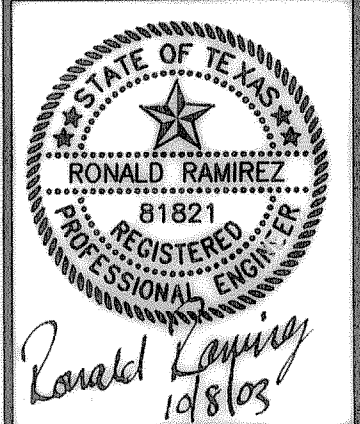
MODEL	NOM SIZE	VERSION	STATION													COVER										
			A	B	C	D	F	G	H	R	S	T	U	CV	MW	PL	SIZE	V	W	X	Y	Z	AD			
NP	4"	HT	21	96	8	4	158	2	50	45	15	9	72	14	17	11	FLED-13	36	x	60	34	71	28	56	47	4
NP	6"	MT	48	110	10	5	173	4	52	48	14	6	72	14	17	12	FLED-13	36	x	60	34	71	31	56	47	4
NP	8"	LT	58	110	10	5	173	3	54	47	14	5	72	19	17	12	FLED-13	36	x	60	34	71	28	56	47	4

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LONG BRANCH LIFT STATION, FORCE MAIN AND GRAVITY SEWER TO SERVE LOFLAND FARMS PHASE 5B

LIFT STATION DETAILS (PHASE 1)



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