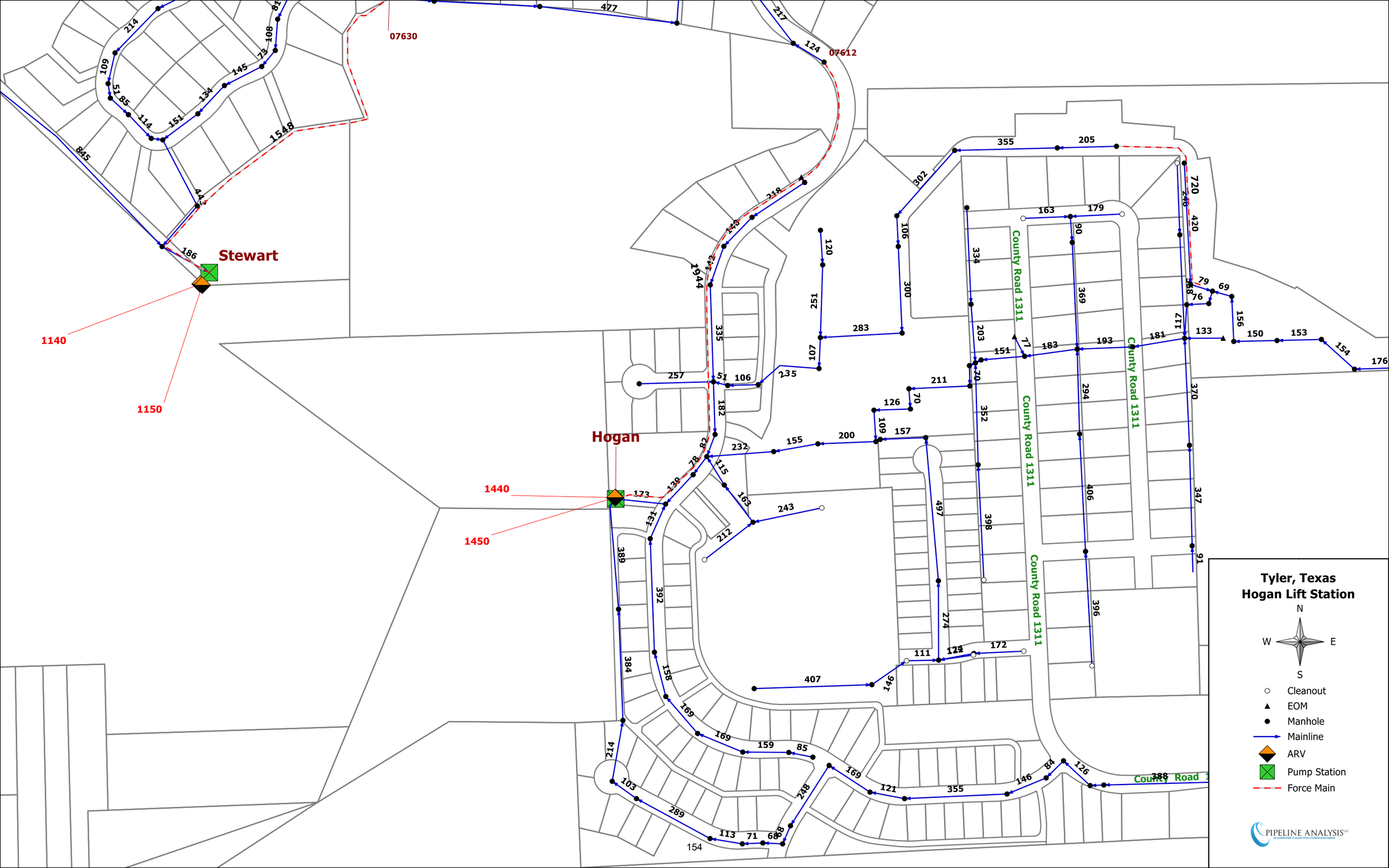
HOGAN LIFT STATION


Stewart
Hogan
07630
07612
1140
1150
1440
1450
1548
County Road 1311
Tyler, Texas
Hogan Lift Station
N
W
E
S
Cleanout
EOM
Manhole
Mainline
ARV
Pump Station
Force Main
PIPELINE ANALYSIS LLC

F

Tyler Water Utilities - Lift Station Assessment Form

Lift Station Name HOGAN **Type** Submersible
Location/Address 3984 Hogan Dr.
Lift Station Asset ID **Number of Pumps** 2
Firm Capacity in GPM (all pumps operating)
Firm Capacity in GPM (largest pump out of service)
Inspector Don White **Date** Dec 12, 2017
City Works Work Order

Building and Grounds

			Good	Fair	Poor	Critical	N/A
Building Structure	Type:	NONE					
Building Roof/Ceiling			○	○	○	○	○
Building Finishes			○	○	○	○	○
Building Doors and Windows			○	○	○	○	○
Building HVAC	Type:		○	○	○	○	○
Fencing 25x32	Type:	Chain Link	●	○	○	○	○
Gates 13' Vehicular, 4' ped	Type:	11	○	●	○	○	○
Site/Grounds	Size:	25x32	○	○	○	○	○
Lighting ✓			●	○	○	○	○
Pavement (Driving)	Type:	CONCRETE	●	○	○	○	○
Drainage	Type:	Surface	○	●	○	○	○
Odor	Comment:	NONE	●	○	○	○	○
Odor Control System	Type:		○	○	○	○	○
Odor Control Mechanical			○	○	○	○	○
Odor Control Media	Type:		○	○	○	○	○
Noise			●	○	○	○	○
Overall Site Appearance			●	○	○	○	○

Comments Some erosion undermining slab perimeter. Vehicular gate does not close properly

Structural

			Good	Fair	Poor	Critical	N/A
Wet Well	Size:						
Debris			○	●	◐	○	○
Fats, oils, and grease			○	○	●	○	○
Ventilation		Pipe	●	○	○	○	○
Walls	Material:	Concrete	○	●	○	○	○
Coatings	Type:	?	○	○	○	○	○
Access Hatches	Number:	3 x 5 Double	●	○	○	○	○
combination Slab wetwell & valve pit		18x26 Concrete	●	○	○	○	○
Dry Well/Valve Vault							
Walls 4'-6" x 4'-6"	Material:	Concrete	●	○	○	○	○
Coatings	Type:	?	○	○	○	○	○
Grating/Hatching	Number:	METAL 3x3	●	○	○	○	○
~~Stairway/Ladder~~	Material:		○	○	○	○	○
(Sump)/Pump	Number:	Floor Drain	●	○	○	○	○
Ventilation	Type:	Pipe	●	○	○	○	○

Comments Wetwell aggregate exposed at and below high water line. Air compressor for aeration of wetwell

Mechanical

			Good	Fair	Poor	Critical	N/A
Bypass Connection	(Circle)	YES / NO					
Piping and Valves							
Suction Valve	Number:		○	○	○	○	○
4" DI Check Valve	Number:	2	○	○	●	○	○
4" DI Discharge Valve	Number:	3	◐	●	○	○	○

Mechanical (continued) ONE DISCHARGE VALVE BETWEEN two discharge lines.

			Good	Fair	Poor	Critical	N/A
Riser Piping	Material:	DI CORROSION	○	○	●	○	○

				Good	Fair	Poor	Critical	N/A
4"	Discharge Piping	Material:	DF	●	○	○	○	○
4"	Fittings	Material:	DI	○	○	●	○	○

Comments

l

Pumps

Pump 1 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	●	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 1 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

1 new chain
1 chain good condition
elect cable good

Pump 2 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 2 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 3 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 3 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 4 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 4 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 5 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 5 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 6 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable	○	○	○	○	○
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 6 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Electrical System

			Good	Fair	Poor	Critical	N/A
Electrical System Power	Volt/Phase:						
Panel/Enclosures	NEMA ~~4X~~	YES (NO)	●	○	○	○	○
Transformers (AEP)			○	○	○	○	○
Disconnect	Type:		○	○	○	○	○
Generator	KW	Yes	●	○	○	○	○
Transfer Switch		Yes	●	○	○	○	○
Electrical System Control							
Breakers	Type:		○	○	○	○	○
Speed control/VFD	Type:		○	○	○	○	○
Starters	Type:		○	○	○	○	○
Control Relays	Type:		○	○	○	○	○

Comments

Instrumentation/SCADA

			Good	Fair	Poor	Critical	N/A
Panel	NEMA4X YES NO		○	○	○	○	○
Instrumentation							
Level	Type:	ultra sonic	●	○	○	○	○
Flow	Type:	No	○	○	○	○	○

Instrumentation/SCADA (continued)

			Good	Fair	Poor	Critical	N/A
PLC	Type:		○	○	○	○	○
SCADA			○	○	○	○	○
RTU	Type:	uplink	●	○	○	○	○
Radio/~~Antenna~~	Type:	on uplink	●	○	○	○	○

Comments Visual Alarm

Building and Grounds

Lift Station Perimeter Facing West


Erosion Near West Fence

Structural

Valve Vault

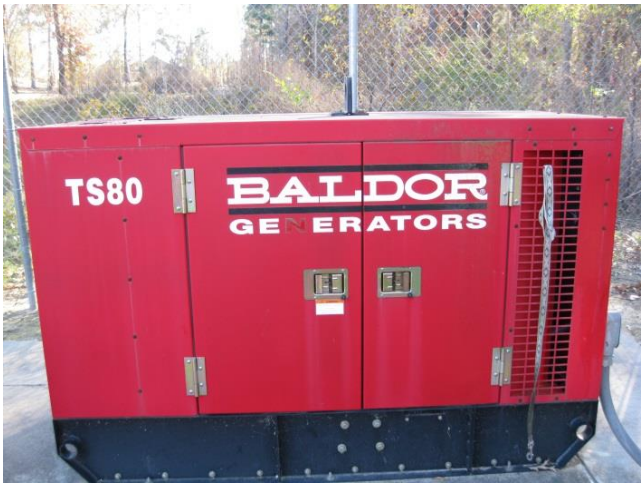
Check Valve in Valve Vault With Some Corrosion

Mechanical

Bolts on Check Valve Showing Some Corrosion

Riser Pipe in Wet Well- Corroded

Electrical



Front of Generator

Inside Generator (1)

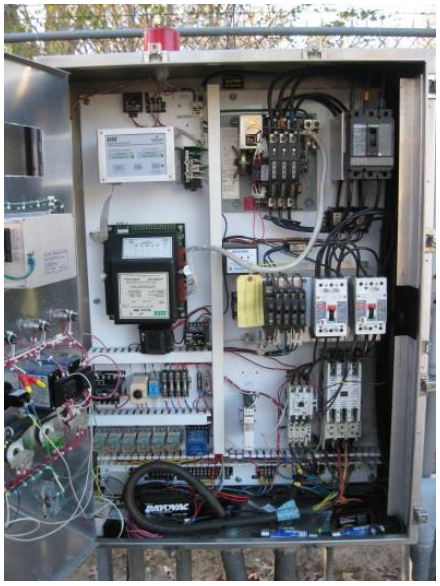

Inside Generator (2)

Inside Generator (3)

Instrumentation/SCADA

Front Instrumentation Panel

Inside of Instrumentation Panel (1)

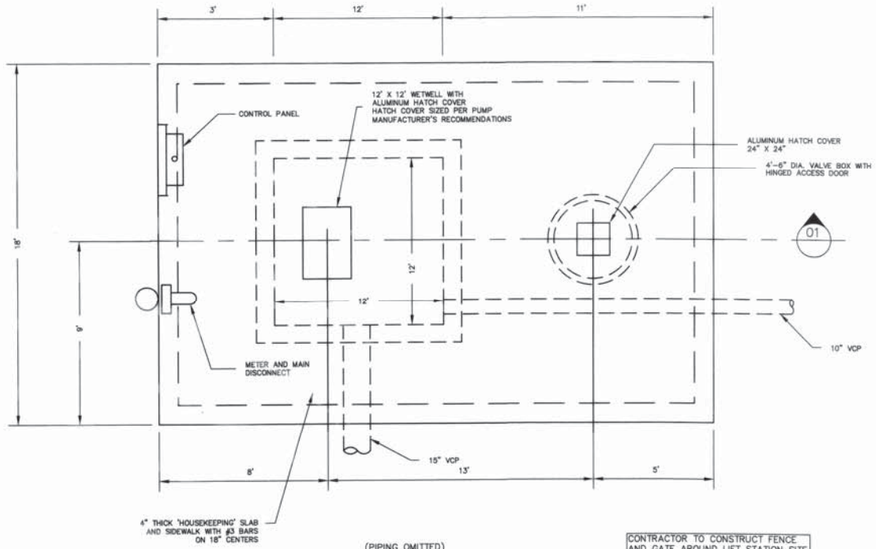


Inside of Instrumentation Panel (2)

Inside of Instrumentation Panel Door

Instrumentation/SCADA

Uplink RTU Inside Instrumentation Panel

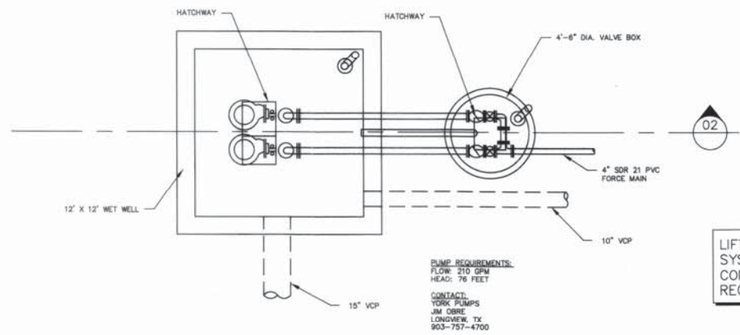


(PIPING OMITTED)

PLAN – LIFT STATION

N.T.S.

CONTRACTOR TO CONSTRUCT FENCE AND GATE AROUND LIFT STATION SITE SEE DETAILS THIS SET



PLAN – PIPING

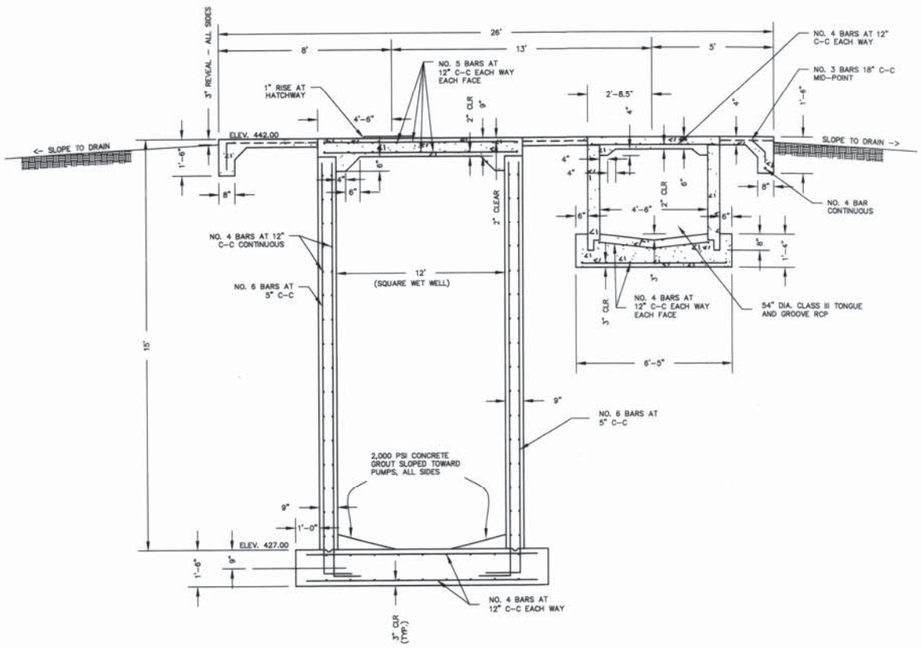
N.T.S.

LIFT STATION, INCLUDING ALARM SYSTEM AND BACKUP POWER SHALL CONFORM TO ALL CITY OF TYLER REQUIREMENTS

NOTE:
LIFT STATION TO BE A DUPLEX STATION WITH 4" DISCHARGE AND VALVING; STAINLESS STEEL (316LSS) LIFTING CABLE WITH SAFETY HOOK AND GRIP EYE; STAINLESS STEEL GUIDE RAILS; SS GUIDE BAR BRACKET AND CABLE HOLDER; LEVEL CONTROL SWITCHES; FLYGT CONTROL PANEL, DUPLEX IN NEMA 4X SS ENCLOSURE WITH DEAD FRONT ALARM HORN, ALARM LIGHT, ALARM SILENCER, HIGH LEVEL AND LOW LEVEL ALARMS, DUPLEX ALTERNATOR, DIM GLOW LIGHTED GROUND FAULT RECEPTACLE, MINI-CAS UNITS, PUMP ALARM PILOT LIGHT, RUN PILOT LIGHTS, 50W HEATER WITH THERMOSTAT, PHASE MONITOR, SURGE ARRESTOR, REMOTE ALARM TERMINAL BLOCK, NEMA 4 HOA SWITCHES, TIME DELAY RELAYS, TRANSFORMER, SINGLE PHASE CAPACITOR KITS, LIGHTNING ARRESTOR AND UL LISTING FOR THE COMPLETE PANEL. ACCESS COVERS TO BE 1" HEAVY DUTY ALUMINUM, SINGLE LEAF, 36"x48" MODEL FLE-8 RATED FOR 300 LBS PER SF, PEDESTRIAN RATED. INCLUDE 1/4 HP AIR COMPRESSOR WITH SCH 40 PIPING FOR AERATION OF WET WELL. AUTOMATE AIR TO START 30 MIN AFTER PUMPS STOP. AUTO DIALER TO BE CITY OF TYLER. CONTACT EARL BROWN (903) 595-1678.

ADDITIONAL NOTES:

1. PUMPS SHALL BE 3 PHASE
2. BRACKET FOR AIR LINE SHALL BE STAINLESS STEEL
3. MINIMUM 16-FEET WIDE GATE ON FENCE
4. FENCE SHALL BE MAN PROOF PREFERABLY CHAIN LINK
5. DUAL GUIDE RAILS FOR PUMPS
6. SCREEN ON VENT PIPES TO BE STAINLESS STEEL
7. PVC PIPE SERVICING AIR LINE SHALL HAVE A RUBBER TYPE JACKET WHERE ENTERING AND THROUGH CONCRETE WALL
8. AIR COMPRESSOR SHALL BE RATED FOR CONTINUOUS DUTY
9. FIVE COPIES OF O&M PUMP MANUALS ARE REQUIRED
10. AS-BUILT DRAWINGS REQUIRED FOR WET WELL AND ELECTRICAL PANEL
11. GENERATOR WITH 4 HOUR MINIMUM CAPACITY SHALL BE INSTALLED TO OPERATE THE LIFT STATION IN THE EVENT OF A POWER OUTAGE
12. BOTH PUMPS, WHEN OPERATING SIMULTANEOUSLY, SHALL NOT EXCEED 380 GPM PEAK DISCHARGE.



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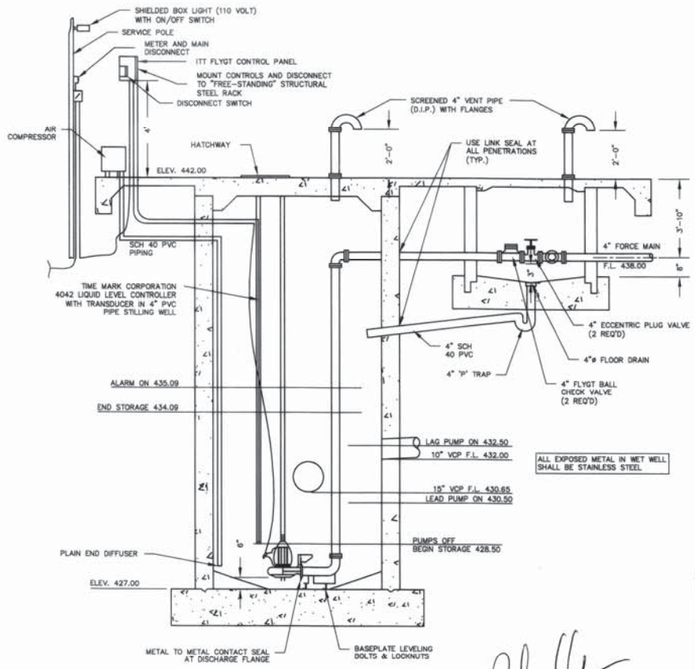
01 SECTION – LIFT STATION

N.T.S.



02 SECTION – PIPING

N.T.S.

RECORD DRAWINGS

THESE RECORD DOCUMENTS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED FROM CONATSER CONSTRUCTION TX, L.P. RKM CONSULTING ENGINEERS, INC. HAS NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION. RKM CONSULTING ENGINEERS, INC. SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY BE INCORPORATED AS A RESULT OF ERRONEOUS INFORMATION PROVIDED BY OTHERS.

STATE OF TEXAS
ROBERT K. MANOIS
86508
LICENSED PROFESSIONAL ENGINEER
5/31/2008

REV.	DATE	REMARKS	BY

LIFT STATION DETAILS

CASCADES UNIT VI

CITY of TYLER, TEXAS

RKM Consulting Engineers, Inc.
7616 LBJ Freeway, Suite 530
Dallas, Texas 75251
phone (214) 432-8070
fax (214) 432-8069

CHECKED	DESIGN	DRAWN	JOB	DATE	SCALE	SHEET
RKM	RKM	RKM	1026-001	03/19/07	NONE	39 OF 41

Project	**City of Tyler**
Customer pos.no	
Project ID	**3", 25HP, 74.5% Eff., 7 Year Warranty**
Pos.no	**1**
Created by	**PSI - Brett Rose**

Data sheet

Pump type KRT E 80-251/194XG-S

Operating data

Flow	516	US g.p.m.	Fluid			
Head	95.9	ft	Density	62.3	lb/ft³	
Operating speed	1750	rpm	Viscosity	1.08E-5	ft²/s	
Shaft power	16.8	hp	Temperature	68	°F	
Efficiency	74.5	%				
Required pump NPSH	14	ft				
Head H(Q=0)	135	ft				
Application range	Head		Flow			
From	117	ft	151	US g.p.m.		
To	60	ft	1050	US g.p.m.		

Design

Make	KSB	Impeller type	Single vane impeller		
Design	Submersible pump		Closed		
Series	KRT E	Impeller size	(270)	10 5/8	inch
Frame size	80-251		Max. (270)	10 5/8	inch
Stages	1		Min. (210)	8 1/4	inch
Curve number	K42592/4	Free passage		3	inch
		Weight		512.57	lb
Type of bearings	Antifriction				
Nos. of bearings	1 / 1				
Lubrication	Grease lubrication, lubricated for lifetime				

Suction port	Pressure rating		--
	Nominal pipe size	DN0	---
	Nominal pipe size	DN1	4"
	Norm		--
Discharge port	Pressure rating		CLASS 125
	Nominal pipe size	DN2	3 inch
	Nominal pipe size	DN3	3 inch
	Norm		ASME/ANSI B16.1

Suction port: pump (DN1)
Discharge port: discharge elbow (DN3)

Materials

Pump casing	Grey cast iron EN-GJL-250 (A 48 Class 35B)
Discharge cover	Grey cast iron EN-GJL-250 (A 48 Class 35B)
Impeller	Grey cast iron EN-GJL-250 (A 48 Class 35B)
Shaft	Stainless steel EN-1.4021+QT800 (A 276 Type 420)
Bearing bracket	Grey cast iron EN-GJL-250 (A 48 Class 35B)
Motor casing	Grey cast iron EN-GJL-250 (A 48 Class 35B)
Bolts, nuts	Stainless steel A4 (EN-1.4571) (A 276 Type 316)
Shaft protection sleeve	---
Casing wear ring	Grey cast iron EN-JL1030 (A 48 Class 30B)
Impeller wear ring	---
O-Rings	Nitrile rubber (NBR)

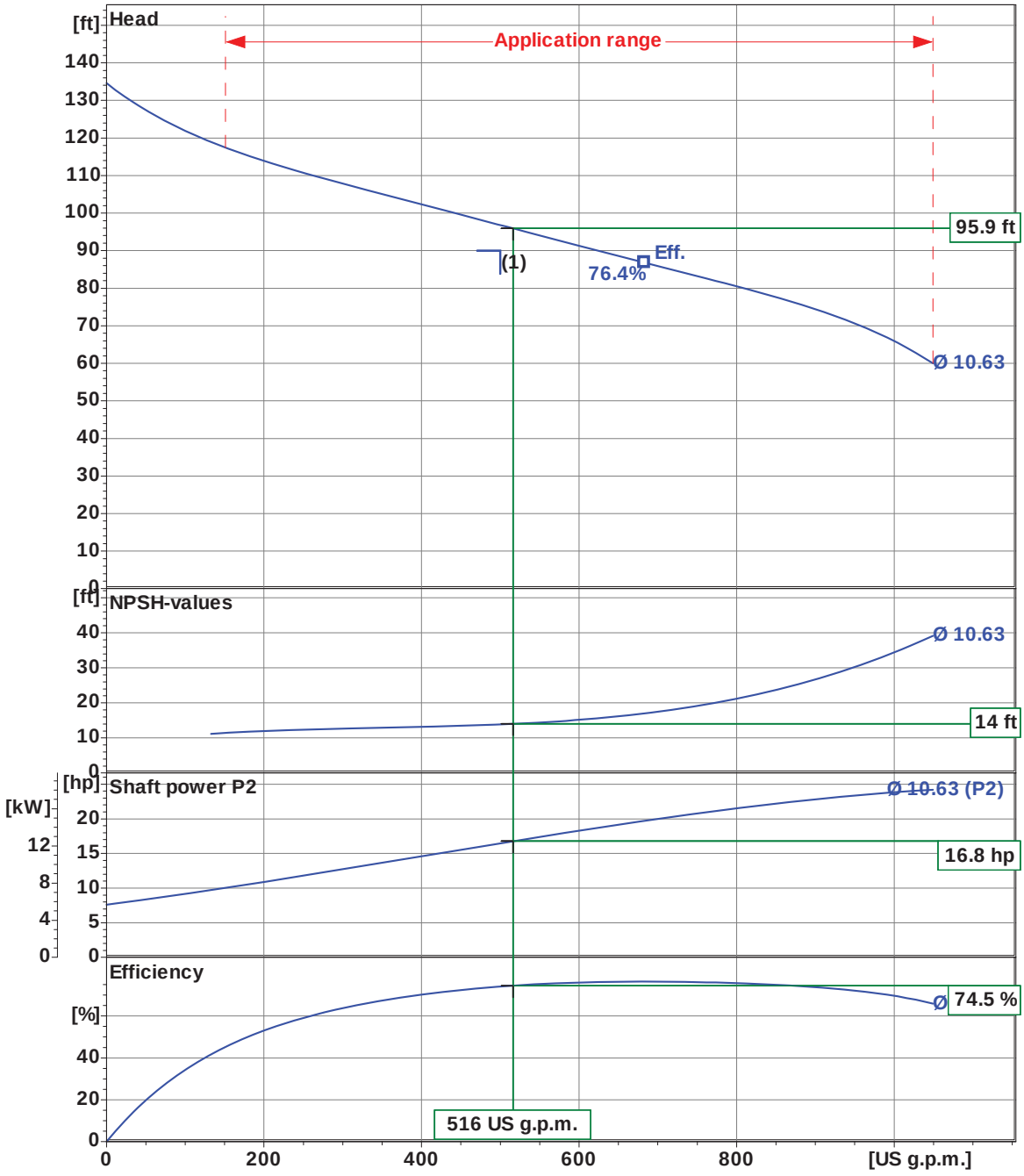
KSB Inc., 4415 Sarellen Road, Richmond, Virginia 23231, Phone: 001-804-222-1818, Fax: 001-804-226-6961

KSB Pumps Inc, 5885 Kennedy Road, Mississauga, Ontario L4Z 2G3 (Canada), Phone: (0905) 568-9200, Fax: (0905) 568-9120

KSB Aktiengesellschaft, Turmstrasse 92, 06110 Halle (Germany), Phone +49 (345) 48260, Fax +49 (345) 4826 4699, www.ksb.com

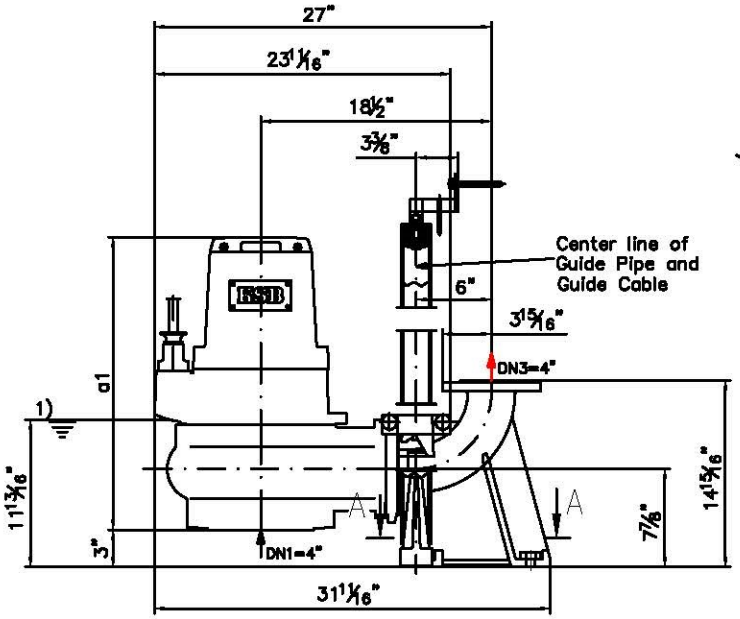
Performance curve

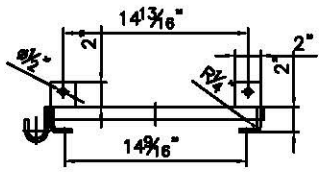
Pump type **KRT E 80-251/194XG-S**

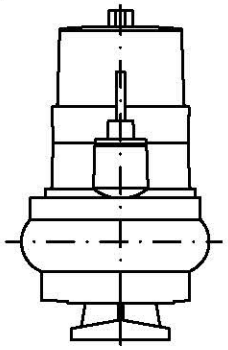


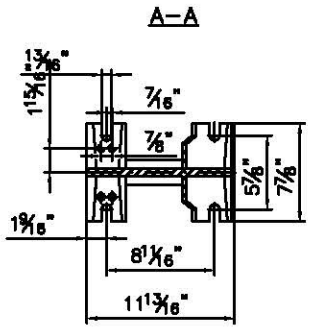
Impeller type	Single vane impeller, closed			Curve number	K42592/4
Free passage	3"		Density	62.322 lb/ft³	Frequency	60 Hz
Impeller size	10 5/8"	(270)	Viscosity	1.082E-5 ft²/s	Speed	1750 1/min

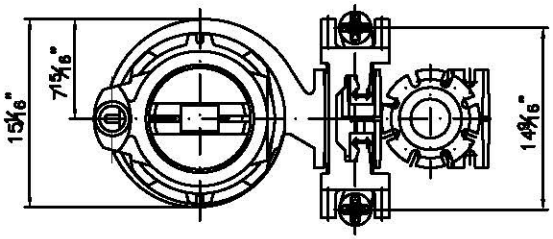
KSB Inc., Richmond, VA. / KSB Pumps Inc., Mississauga, Ontario / KSB AG, Halle (Germany)











Hydraulik Hydraulics Hydraulique	KSB–Motor KSB–Engine KSB–Moteur	a1		Gewicht / Weight / Poids Material version/variant G	
		mm	inch	kg	lbs
E	74	596	23 8/16	152	335
	114	626	24 5/8	166	365
	194	626	24 5/8	177	390
	46	596	23 8/16	138	305
	66	596	23 8/16	150	330
	96	626	24 5/8	161	355
	126	626	24 5/8	175	385

NUR FÜR ANFRAGE/ANGEBOT
technische Änderungen vorbehalten

FOR INQUIRY/OFFER ONLY
technical modifications reserved

SEULEMENT POUR LES DEMANDES/LES OFFRES
sous réserve de modifications technique

1) Mindestwasserstand
1) Minimum water level
1) Niveau d'eau minimum

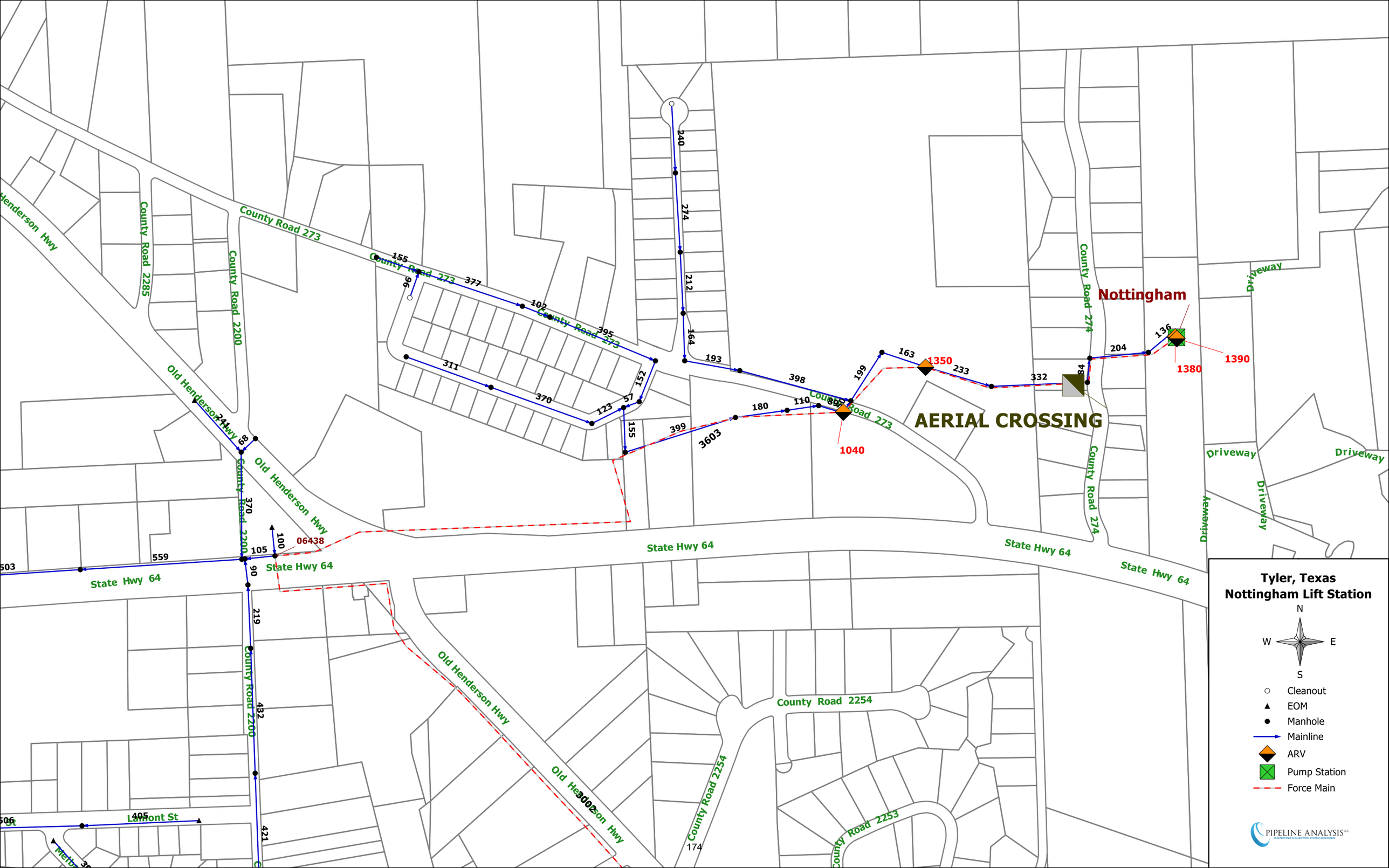
Zeichnungs-Nr./Drawing No./N°Plan				Betreiber-Nr./Customer No./N°Client
	2005-08-04	Paula	1	
Ma stab/Scale/Echelle	2005-05-24	Paula	0	KSB Auftrags-Nr./KSB Order No./N°commande KSB
1:10 A3	Datum/Date	Name/Nom	Änderung/Revision Modification	
	Baureihe-Gro e/Type-Size			KSB Werk-Nr./KSB Work No./N° de fabrication KSB
	KRT E 80–251			
	stationäre Aufstellung **stationary installation** **installation stationnaire**			
	Bitte grundsätzlich bei Schriftverkehr angeben / Should always be stated in correspondence / A indiquer dans toute correspondance			

KSB Aktiengesellschaft
Geschäftsbereich Pumpen
Wasserwirtschaftstechnik

Postfach 20 07 43
D-06008 Halle (Saale)
Turmstra e 92–100
D-06110 Halle (Saale)

Tel.: (03 45) 48 26–0
Fax: (03 45) 48 26 46 99
Telex: 318284 ksbho.

NOTTINGHAM LANE LIFT STATION


Nottingham
AERIAL CROSSING
1040
1350
1380
1390
06438
3603
3002
County Road 273
County Road 2200
County Road 2285
County Road 274
County Road 2254
County Road 2253
Old Henderson Hwy
State Hwy 64
Lamont St
Driveway
Tyler, Texas
Nottingham Lift Station
N
W
E
S
Cleanout
EOM
Manhole
Mainline
ARV
Pump Station
Force Main
PIPELINE ANALYSIS LLC

Tyler Water Utilities - Lift Station Assessment Form

Lift Station Name NOTTINGHAM **Type** Submersible
Location/Address 9799 County Road 274
Lift Station Asset ID **Number of Pumps** 2
Firm Capacity in GPM (all pumps operating)
Firm Capacity in GPM (largest pump out of service)
Inspector Don White **Date** Dec 13, 2017
City Works Work Order
N 32° 20.079'
W 95 14.689'

Building and Grounds

			Good	Fair	Poor	Critical	N/A
Building Structure	Type: NONE						
Building Roof/Ceiling			○	○	○	○	○
Building Finishes			○	○	○	○	○
Building Doors and Windows			○	○	○	○	○
Building HVAC	Type:		○	○	○	○	○
Fencing	Type: Chain Link		●	○	○	○	○
Gates Double 20'	Type: 11		●	○	○	○	○
Site/Grounds Variable length/width	Size: +/- 83'X41'		●	○	○	○	○
Lighting BROKEN			○	○	○	●	○
Pavement (Driving)	Type: GRAVEL		○	○	●	○	○
Drainage	Type: Surface		○	○	●	○	○
Odor	Comment: NONE		●	○	○	○	○
Odor Control System	Type:		○	○	○	○	○
Odor Control Mechanical			○	○	○	○	○
Odor Control Media	Type:		○	○	○	○	○
Noise			○	○	○	○	○
Overall Site Appearance			○	●	○	○	○

Comments GENERATOR SLAB FLUSH WITH NATURAL GROUND allows surface drainage to contact Generator Base support. Drive has cement bags to Fill sump at Road. Erosion along Fence line Exposed Fence pole piers. Erosion From high water in adjacent creek could undermine wet well.

Structural

				Good	Fair	Poor	Critical	N/A
Wet Well	Concrete	Size:	8' ϕ					
	Debris			○	●	◐	○	○
	Fats, oils, and grease			○	○	●	○	○
	Ventilation	Pipe		●	○	○	○	○
	Walls	Material:	Concrete	●	○	○	○	○
	Coatings ✓	Type:		○	●	○	○	○
	Access Hatches	Number:	1 Double Metal 6'x 4'	●	○	○	○	○
	Slab	Conc.	9'-6" ϕ	●	○	○	○	○
Dry Well/Valve Vault	4' ϕ							
	Walls	Material:	Conc	●	○	○	○	○
	Coatings	Type:	None	○	○	○	○	●
	~~Grating~~/Hatching	Number:	1 Metal 3x3	●	○	○	○	○
	Stairway/Ladder	Material:	None	○	○	○	○	●
	Sump/Pump	Number:	Standing Water on Floor	○	○	●	○	○
	Ventilation	Type:	Pipe	◐	○	○	○	○

Comments Oil, grease, sludge cover fluid surface in wetwell, sludge debris at top of wetwell indicates previous overflow potential

Mechanical

				Good	Fair	Poor	Critical	N/A
Bypass Connection	(Circle)	YES	/ NO					
Piping and Valves								
	Suction Valve	Number:		○	○	○	○	○
DI	Check Valve	Number:	2	○	○	●	○	○
DI	Discharge Valve	Number:	2	○	○	●	○	○

Mechanical (continued)

				Good	Fair	Poor	Critical	N/A
	Riser Piping	Material:	DI	○	○	●	○	○

				Good	Fair	Poor	Critical	N/A
Combined Not Visible	Discharge Piping	Material:	DI	○	○	●	○	○
	Fittings	Material:	DI	○	○	●	○	○

Comments Individual discharge pipe thru valves WITH CORROSION

Pumps

Pump 1 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 1 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 1 & 2 Electric Cable, Guide Rails, Chain - Good

Pump 2 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 2 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 3 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 3 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 4 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 4 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 5 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 5 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 6 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable	○	○	○	○	○
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 6 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Electrical System

					Good	Fair	Poor	Critical	N/A
Electrical System Power	Volt/Phase:								
	Panel/Enclosures	NEMA4X	YES	NO	○	○	○	○	○
	Transformers (AEP)				○	○	○	○	○
	Disconnect	Type:			○	○	○	○	○
slab 8'X16'	Generator	KW	YES		◉	○	○	○	○
	Transfer Switch		YES		●	○	○	○	○
Electrical System Control									
	Breakers	Type:			○	○	○	○	○
	Speed control/VFD	Type:			○	○	○	○	○
	Starters	Type:			○	○	○	○	○
	Control Relays	Type:			○	○	○	○	○

Comments Visual and Sound ALAEM

Instrumentation/SCADA

			Good	Fair	Poor	Critical	N/A
Panel	NEMA4X	YES NO	●	○	○	○	○
Instrumentation							
Level	Type:	Floats	○	●	○	○	○
Flow	Type:	no	○	○	○	○	●

Instrumentation/SCADA (continued)

			Good	Fair	Poor	Critical	N/A
PLC	Type:		○	○	○	○	○
SCADA			○	○	○	○	○
RTU	Type:	Uplink	●	○	○	○	○
Radio/Antenna	Type:	small attached to uplink	●	○	○	○	○

Comments Level Floats have sludge attached

Building and Grounds

Lift Station Perimeter Facing West

Generator Slab Flush With Ground, Allows Water to Come into Contact With Generator Base

Erosion Exposing Fence Pole Piers

Flooding from Adjacent Creek Could Cause I/I Into Wet Well In Future

Building and Grounds

Exterior of Wet Well With Hatch Open and Vent Pipe for Wet Well

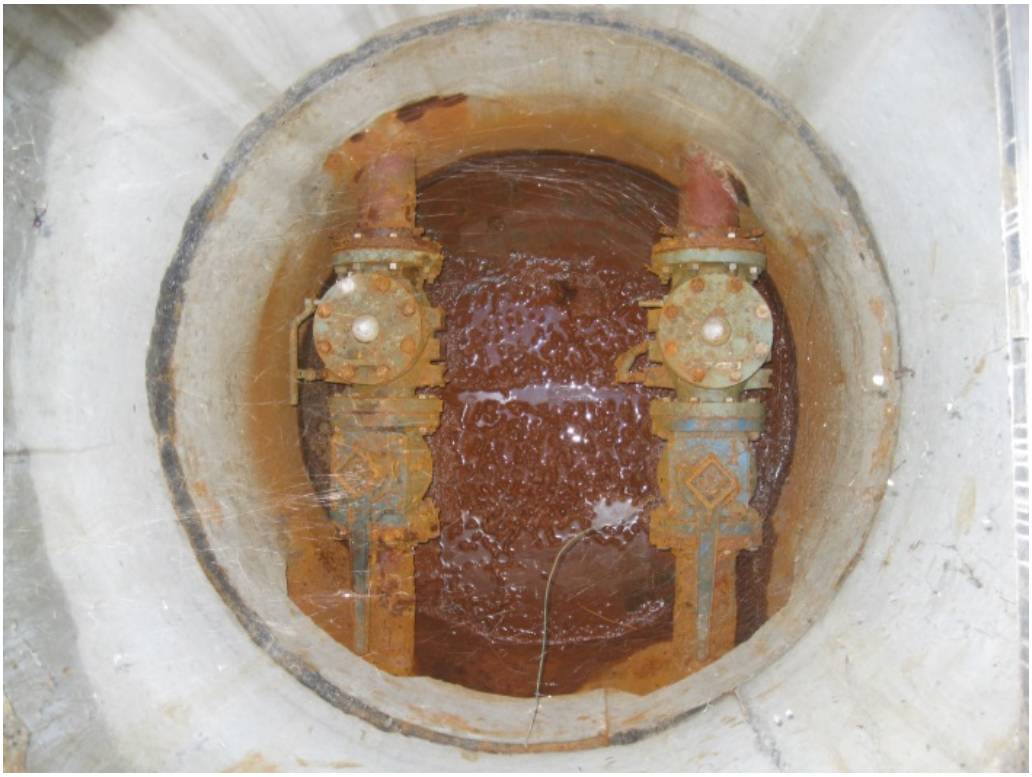
Exterior of Valve Vault and Vent Pipe

Structural

Fat, Oil and Grease Deposits on Wet Well

Debris at Top of Wet Well Indicate Previous Overflow Conditions

Mechanical



Check Valves in Poor Condition. Drain in Valve Vault Not Functioning Properly Leading to Water Accumulation

Electrical


Front of Generator


Inside Generator (1)

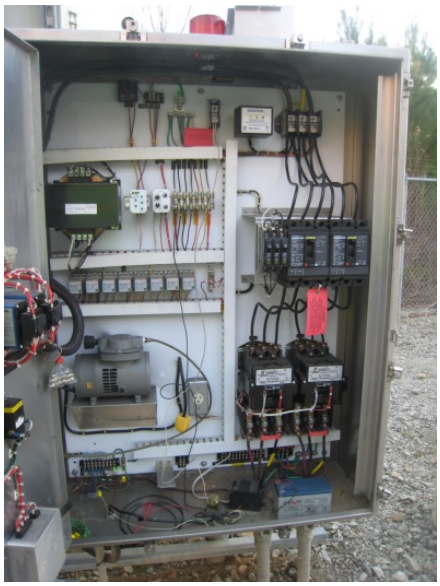

Inside Generator (2)


Inside Generator (3)

Instrumentation/SCADA

Front Instrumentation Panel

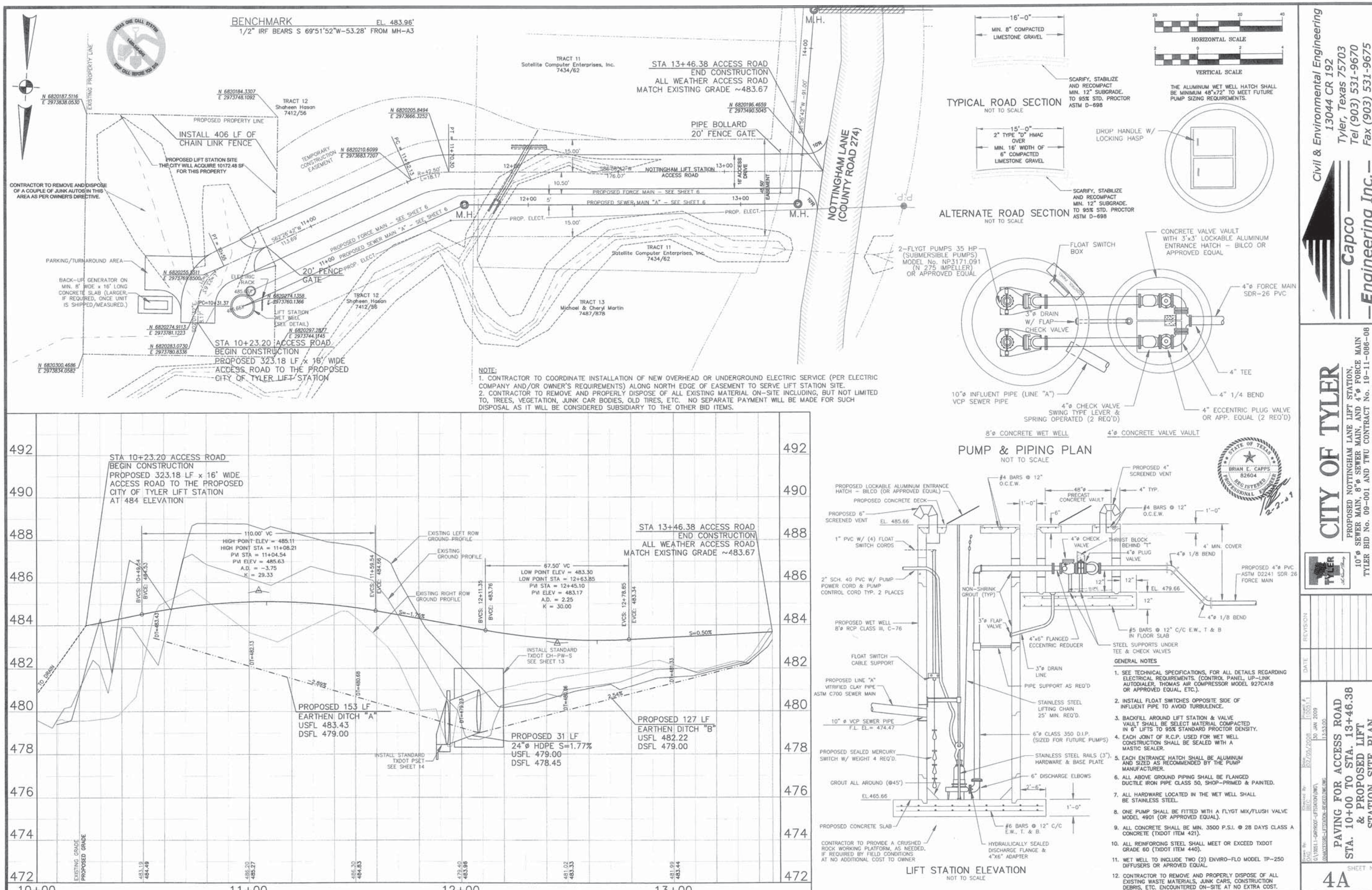

Inside of Instrumentation Panel (1)


Inside of Instrumentation Panel (2)


Inside of Instrumentation Panel Door

Instrumentation/SCADA

Instrumentation Panel Facing South


BENCHMARK EL. 483.96'
1/2" IRF BEARS S 69°51'52"W-53.28' FROM MH-A3
TRACT 11
Satellite Computer Enterprises, Inc.
7434/62
STA 13+46.38 ACCESS ROAD
END CONSTRUCTION
ALL WEATHER ACCESS ROAD
MATCH EXISTING GRADE ~483.67
TRACT 12
Shaheen Hasan
7412/56
INSTALL 406 LF OF
CHAIN LINK FENCE
PROPOSED LIFT STATION SITE
THE CITY WILL ACQUIRE 10172.48 SF
FOR THIS PROPERTY
CONTRACTOR TO REMOVE AND DISPOSE
OF A COUPLE OF JUNK AUTOS IN THIS
AREA AS PER OWNER'S DIRECTIVE.
PIPE BOLLARD
20' FENCE GATE
NOTTINGHAM LIFT STATION
ACCESS ROAD
PROPOSED FORCE MAIN - SEE SHEET 6
PROPOSED SEWER MAIN "A" - SEE SHEET 6
NOTTINGHAM LANE
(COUNTY ROAD 274)
PARKING/TURNAROUND AREA
BACK-UP GENERATOR ON
MIN. 8' WIDE x 16' LONG
CONCRETE SLAB (LARGER,
IF REQUIRED, ONCE UNIT
IS SHIPPED/MEASURED.)
20' FENCE
GATE
TRACT 13
Michael & Cheryl Martin
7487/878
STA 10+23.20 ACCESS ROAD
BEGIN CONSTRUCTION
PROPOSED 323.18 LF x 16' WIDE
ACCESS ROAD TO THE PROPOSED
CITY OF TYLER LIFT STATION
NOTE:
1. CONTRACTOR TO COORDINATE INSTALLATION OF NEW OVERHEAD OR UNDERGROUND ELECTRIC SERVICE (PER ELECTRIC COMPANY AND/OR OWNER'S REQUIREMENTS) ALONG NORTH EDGE OF EASEMENT TO SERVE LIFT STATION SITE.
2. CONTRACTOR TO REMOVE AND PROPERLY DISPOSE OF ALL EXISTING MATERIAL ON-SITE INCLUDING, BUT NOT LIMITED TO, TREES, VEGETATION, JUNK CAR BODIES, OLD TIRES, ETC. NO SEPARATE PAYMENT WILL BE MADE FOR SUCH DISPOSAL AS IT WILL BE CONSIDERED SUBSIDIARY TO THE OTHER BID ITEMS.
STA 10+23.20 ACCESS ROAD
BEGIN CONSTRUCTION
PROPOSED 323.18 LF x 16' WIDE
ACCESS ROAD TO THE PROPOSED
CITY OF TYLER LIFT STATION
AT 484 ELEVATION
PROPOSED 153 LF
EARTHEN DITCH "A"
USFL 483.43
DSFL 479.00
PROPOSED 31 LF
24"ø HDPE S=1.77%
USFL 479.00
DSFL 478.45
PROPOSED 127 LF
EARTHEN DITCH "B"
USFL 482.22
DSFL 479.00
TYPICAL ROAD SECTION
NOT TO SCALE
ALTERNATE ROAD SECTION
NOT TO SCALE
HORIZONTAL SCALE
VERTICAL SCALE
THE ALUMINUM WET WELL HATCH SHALL BE MINIMUM 48"x72" TO MEET FUTURE PUMP SIZING REQUIREMENTS.
2-FLYGT PUMPS 35 HP (SUBMERSIBLE PUMPS) MODEL No. NP3171.091 (N 275 IMPELLER) OR APPROVED EQUAL
CONCRETE VALVE VAULT WITH 3'x3' LOCKABLE ALUMINUM ENTRANCE HATCH - BILCO OR APPROVED EQUAL
8'ø CONCRETE WET WELL
4'ø CONCRETE VALVE VAULT
PUMP & PIPING PLAN
NOT TO SCALE
LIFT STATION ELEVATION
NOT TO SCALE
GENERAL NOTES
1. SEE TECHNICAL SPECIFICATIONS, FOR ALL DETAILS REGARDING ELECTRICAL REQUIREMENTS. (CONTROL PANEL, UP-LINK AUTODIALER, THOMAS AIR COMPRESSOR MODEL 927CA18 OR APPROVED EQUAL, ETC.).
2. INSTALL FLOAT SWITCHES OPPOSITE SIDE OF INFLUENT PIPE TO AVOID TURBULENCE.
3. BACKFILL AROUND LIFT STATION & VALVE VAULT SHALL BE SELECT MATERIAL COMPACTED IN 6" LIFTS TO 95% STANDARD PROCTOR DENSITY.
4. EACH JOINT OF R.C.P. USED FOR WET WELL CONSTRUCTION SHALL BE SEALED WITH A MASTIC SEALER.
5. EACH ENTRANCE HATCH SHALL BE ALUMINUM AND SIZED AS RECOMMENDED BY THE PUMP MANUFACTURER.
6. ALL ABOVE GROUND PIPING SHALL BE FLANGED DUCTILE IRON PIPE CLASS 50, SHOP-PRIMED & PAINTED.
7. ALL HARDWARE LOCATED IN THE WET WELL SHALL BE STAINLESS STEEL.
8. ONE PUMP SHALL BE FITTED WITH A FLYGT MIX/FLUSH VALVE MODEL 4901 (OR APPROVED EQUAL).
9. ALL CONCRETE SHALL BE MIN. 3500 P.S.I. @ 28 DAYS CLASS A CONCRETE (TXDOT ITEM 421).
10. ALL REINFORCING STEEL SHALL MEET OR EXCEED TXDOT GRADE 60 (TXDOT ITEM 440).
11. WET WELL TO INCLUDE TWO (2) ENVIRO-FLO MODEL TP-250 DIFFUSERS OR APROVED EQUAL.
12. CONTRACTOR TO REMOVE AND PROPERLY DISPOSE OF ALL EXISTING WASTE MATERIALS, JUNK CARS, CONSTRUCTION DEBRIS, ETC. ENCOUNTERED ON-SITE AT NO EXTRA COST.
Civil & Environmental Engineering
13044 CR 192
Tyler, Texas 75703
Tel (903) 531-9670
Fax (903) 531-9675
Capco
Engineering Inc.
19-11-086-08
CITY OF TYLER
PROPOSED NOTTINGHAM LANE LIFT STATION,
10"ø SEWER MAIN, 8"ø SEWER MAIN, AND 4"ø FORCE MAIN
TYLER BID No. 09-001 AND TWU CONTRACT No. 19-11-086-08
BRIAN E. CAPPS
82604
PAVING FOR ACCESS ROAD
STA. 10+00 TO STA. 13+46.38
& PROPOSED LIFT
STATION SITE PLAN
REVISION
DATE
SHEET NO.
4A

EXPLOSION PROOF VERSION

FLYGT

PERFORMANCE CURVE

PRODUCT	TYPE
NP3171.091	SH

DATE	PROJECT	CURVE NO	ISSUE
2008-11-03	Nottingham L.S. - Present	63-275-00-1070	1

	1/1-LOAD	3/4-LOAD	1/2-LOAD
POWER FACTOR	0.92	0.91	0.86
EFFICIENCY	90.5 %	91.5 %	92.0 %
MOTOR DATA	---	---	---

RATED POWER	35	hp
STARTING CURRENT ...	273	A
RATED CURRENT ...	39	A
RATED SPEED	3520	rpm
TOT.MOM.OF INERTIA ...	0.073	kgm2
NO. OF BLADES	2	

IMPELLER DIAMETER: 195 mm

MOTOR #	STATOR	REV
25-18-2AA	1 D	10

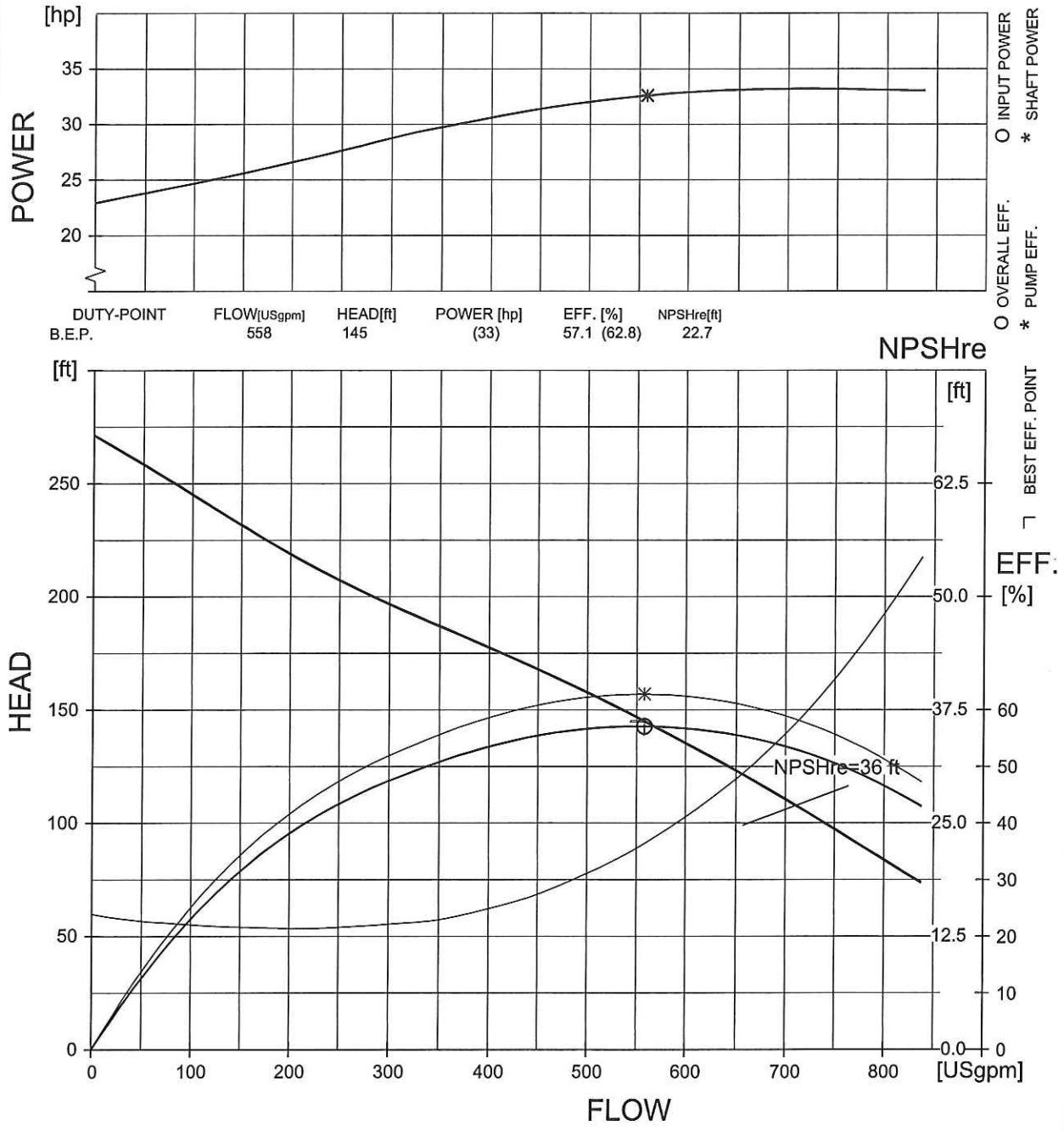
FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	460 V	2

GEARTYPE	RATIO
---	---

COMMENTS: NEMA Code Letter: A

INLET/OUTLET: -/ 4 inch

IMP. THROUGHLET: ---



DUTY-POINT	FLOW[USgpm]	HEAD[ft]	POWER [hp]	EFF. [%]	NPSHre[ft]
B.E.P.	558	145	(33)	57.1 (62.8)	22.7

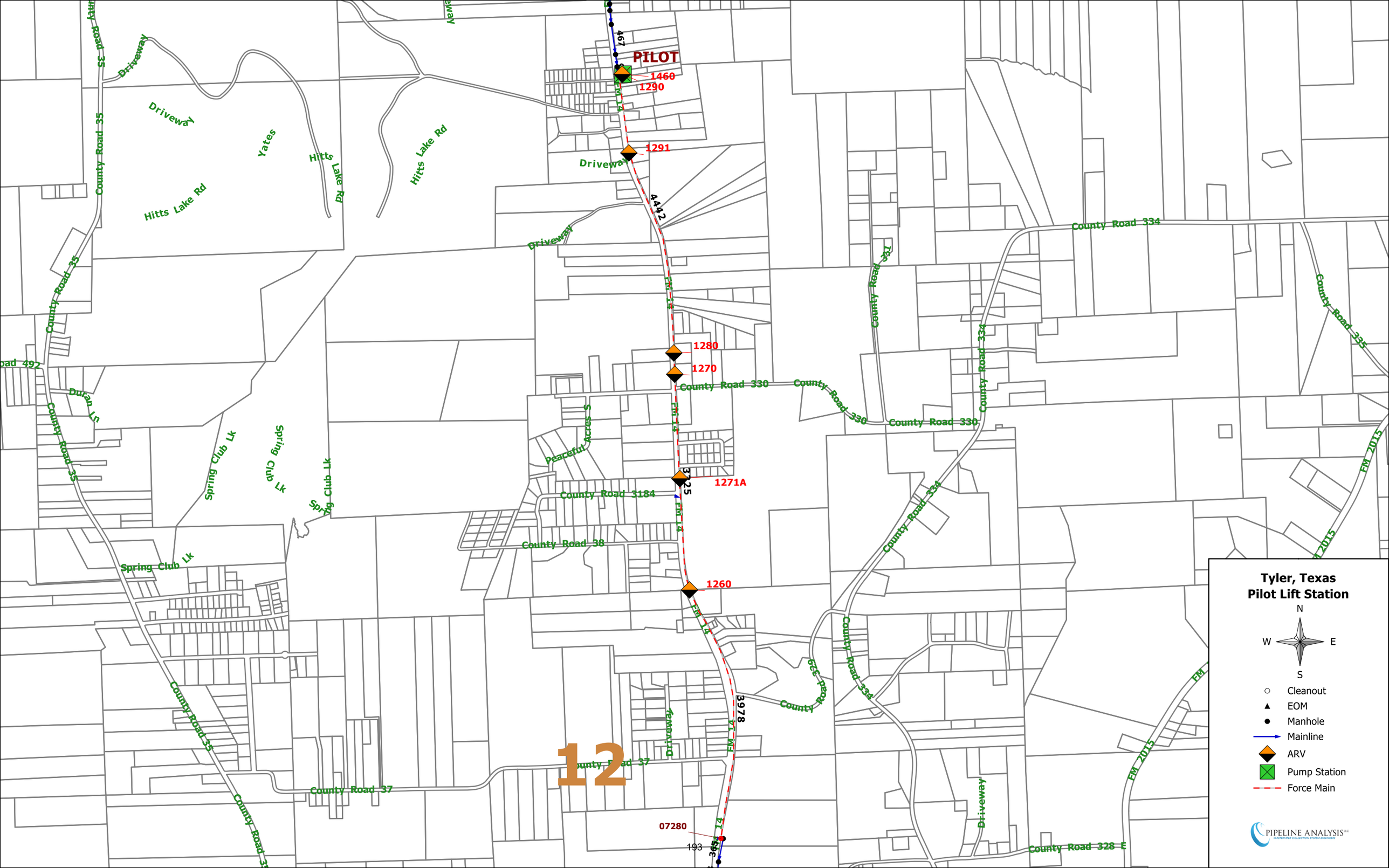
NPSHre = NPSH3% + min. operational margin

Performance with clear water and ambient temp 40 °C

FLYGT CURVE

FLYPS 3.1.6.3 (20060531)

PILOT TRUCK LIFT STATION


PILOT
1460
1290
1291
1280
1270
1271A
1260
07280
193
4672
4442
3725
3978
3653
12
Tyler, Texas
Pilot Lift Station
N
W
E
S
Cleanout
EOM
Manhole
Mainline
ARV
Pump Station
Force Main
PIPELINE ANALYSIS LLC
County Road 35
County Road 334
County Road 330
County Road 37
County Road 38
County Road 3184
County Road 331
County Road 329
County Road 328 E
FM 14
FM 2015
Driveway
Hitts Lake Rd
Yates
Spring Club Lk
Peaceful Acres
Durgan Ln

Tyler Water Utilities - Lift Station Assessment Form

Lift Station Name PILOT **Type** Submersible

Location/Address 12292 FM 14

Lift Station Asset ID **Number of Pumps** 2

Firm Capacity in GPM (all pumps operating)

Firm Capacity in GPM (largest pump out of service)

Inspector Don White **Date** Dec 18, 2017

City Works Work Order

Building and Grounds

			Good	Fair	Poor	Critical	N/A
Building Structure	Type:	NONE					
Building Roof/Ceiling			○	○	○	○	○
Building Finishes			○	○	○	○	○
Building Doors and Windows			○	○	○	○	○
Building HVAC	Type:		○	○	○	○	○
Fencing	Type:	Chain link	●	○	○	○	○
Gates DOUBLE 15'-6"	Type:	11	●	○	○	○	○
Site/Grounds	Size:	57W X122'D	●	○	○	○	○
Lighting			●	○	○	○	○
Pavement (Driving)	Type:	CONCRETE	●	○	○	○	○
Drainage	Type:	SURFACE	●	○	○	○	○
Odor	Comment:		○	●	○	○	○
Odor Control System	Type:		○	○	○	○	○
Odor Control Mechanical			○	○	○	○	○
Odor Control Media	Type:		○	○	○	○	○
Noise			○	○	○	○	○
Overall Site Appearance			●	○	○	○	○

Comments

Structural

			Good	Fair	Poor	Critical	N/A
Wet Well	Size:	6' ϕ					
Debris			●	○	○	○	○
Fats, oils, and grease			●	○	○	○	○
Ventilation	Pipe		○	●	○	○	○
Walls	Material:	Concrete	○	●	○	○	○
Coatings	Type:		○	●	○	○	○
Access Hatches 1	Number:	METAL DOUBLE 4'-6"x2'-6"	○	●	○	○	○
Slab	CONCRETE		●	○	○	○	○
Dry Well/Valve Vault	4' ϕ 6' Deep slab 5' ϕ						
Walls	Material:	Concrete	●	○	○	○	○
Coatings	Type:		●	○	○	○	○
Grating/Hatching 1	Number:	METAL 3'x3'	○	●	○	○	○
~~Stairway/Ladder~~	Material:		○	○	○	○	○
Sump/~~Pump~~	Number:	PVC PIPE TO WET WELL	●	○	○	○	○
Ventilation	Type:	PIPE	○	○	●	○	○

Comments Wet well hatch propped open with 4x4 wood
Guide Rails- Fair, Lift chains- Good, electric conduits- Good. Some aggregate exposed on lower level of wet well wall. 3/4" compressed air line to wet well for airation. Combined wetwell/valve vault slab 30x25'

Mechanical

			Good	Fair	Poor	Critical	N/A
Bypass Connection	(Circle)	YES / (NO)					
Piping and Valves							
Suction Valve	Number:	—	○	○	○	○	○
Check Valve	Number:	2-6" DI	○	○	●	○	○
Discharge Valve	Number:	2-6" DI	○	○	●	○	○

Mechanical (continued)

			Good	Fair	Poor	Critical	N/A
Riser Piping	Material:	6" DI	○	○	●	○	○

			Good	Fair	Poor	Critical	N/A
Discharge Piping	Material:	6" DI	○	○	●	○	○
Fittings	Material:	6" DI	○	○	●	○	○

Comments Significant corrision on all elements. Combination of discharge piping to one pipe not visible. compressor for airation of wetwell.

Pumps

Pump 1 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 1 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 2 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 2 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 3 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 3 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 4 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 4 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 5 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 5 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 6 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable	○	○	○	○	○
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 6 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Electrical System

			Good	Fair	Poor	Critical	N/A
Electrical System Power	Volt/Phase:						
Panel/Enclosures	NEMA4X (YES) NO		●	○	○	○	○
Transformers (AEP)			○	○	○	○	○
Disconnect	Type:		○	○	○	○	○
Generator	KW	YES	●	○	○	○	○
Transfer Switch		✓	●	○	○	○	○
Electrical System Control							
Breakers	Type:		○	○	○	○	○
Speed control/VFD	Type:		○	○	○	○	○
Starters	Type:		○	○	○	○	○
Control Relays	Type:		○	○	○	○	○

Comments Visual and sound alarm. some corrosion on transfer switch box

Instrumentation/SCADA

			Good	Fair	Poor	Critical	N/A
Panel	NEMA4X YES NO		○	○	○	○	○
Instrumentation							
Level	Type:	Ultrasonic	●	○	○	○	○
Flow	Type:	No	○	○	○	○	○

Instrumentation/SCADA (continued)

			Good	Fair	Poor	Critical	N/A
PLC	Type:		○	○	○	○	○
SCADA			○	○	○	○	○
RTU	Type:	UPLINK	●	○	○	○	○
Radio/~~Antenna~~	Type:	ON LIGHT POLE	●	○	○	○	○

Comments electric junction box at wet well hatch propped open with piece of wood

Building and Grounds

Lift Station Perimeter Facing East

Lift Station Grounds Facing Southeast

Structural

Electric Junction Box Near Wet Well

Wet Well in Good Condition

Mechanical

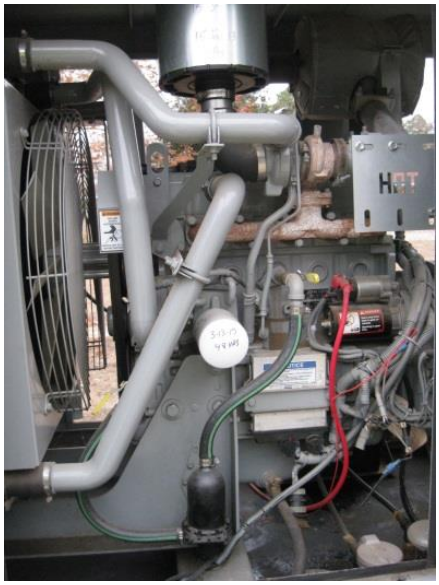
Suction Pipe Shows Signs of Corrosion

Ventilation Pipe Shows Significant Corrosion

Check Valves With Significant Corrosion

Electrical

Front of Generator

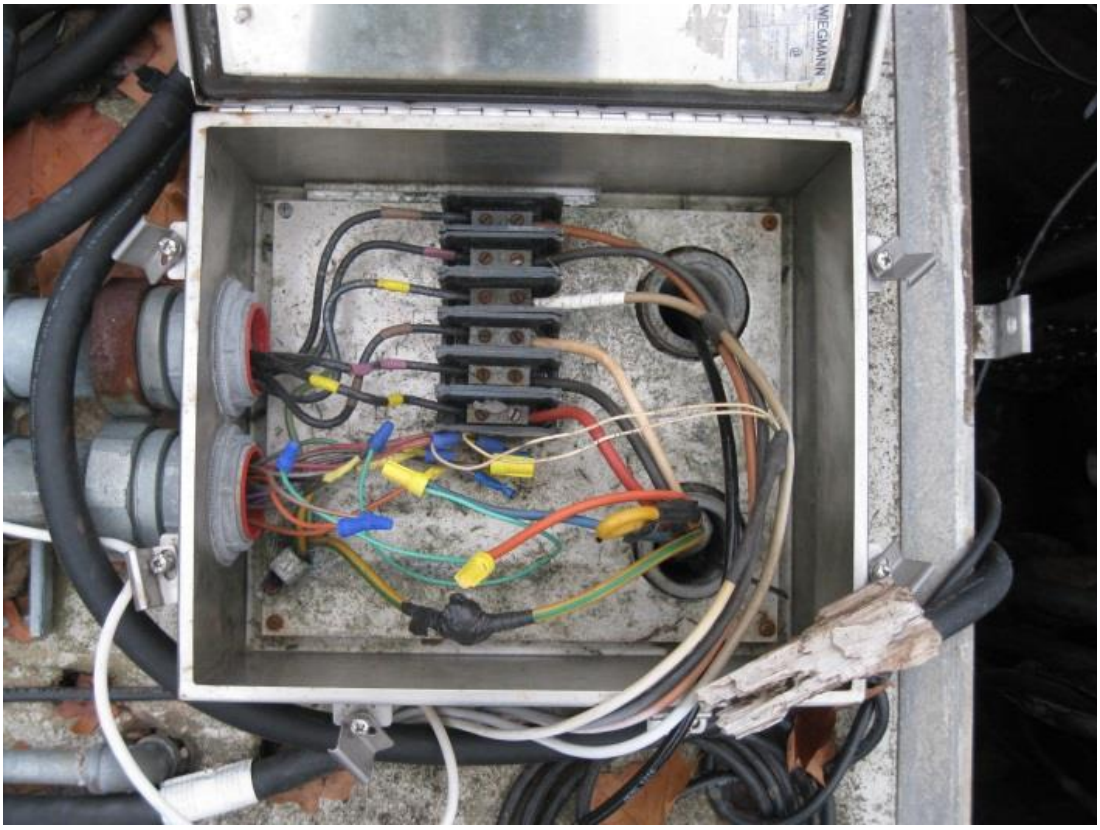


Inside Generator (1)


Inside Generator (2)

Inside Generator (3)

Electrical

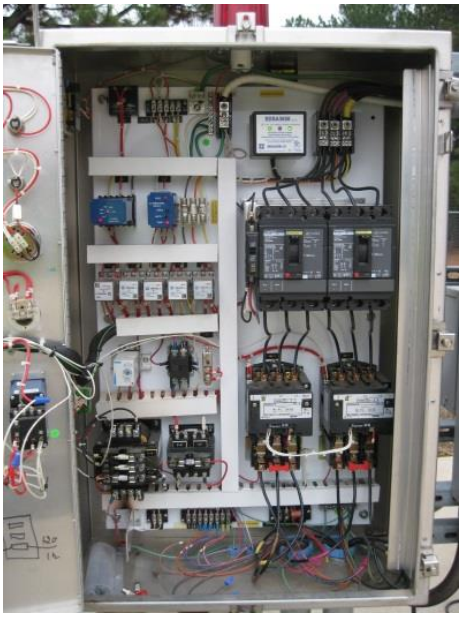


Interior of Electrical Junction Box Observed Near Wet Well.

Instrumentation/SCADA

Front Instrumentation Panel

Inside of Instrumentation Panel (1)



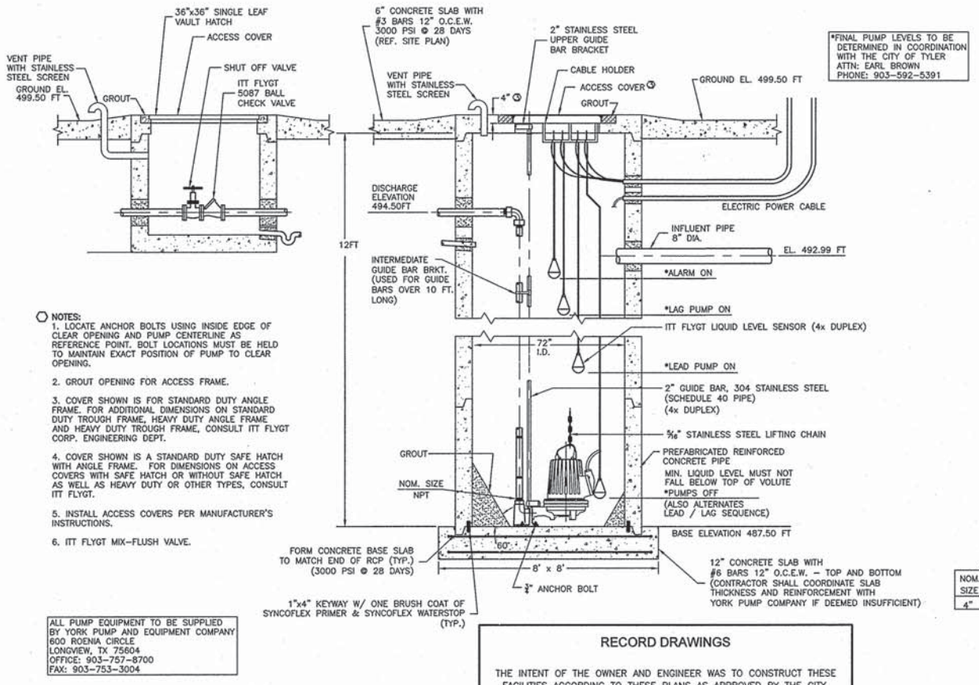
Inside of Instrumentation Panel (2)

Inside of Instrumentation Panel Door

Instrumentation/SCADA

Uplink RTU in Good Condition

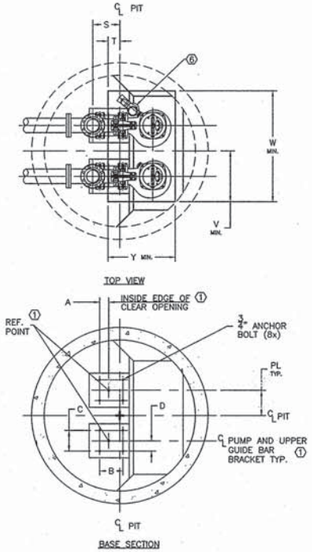
Instrumentation Panel in Good Condition



NOTES:
1. LOCATE ANCHOR BOLTS USING INSIDE EDGE OF CLEAR OPENING AND PUMP CENTERLINE AS REFERENCE POINT. BOLT LOCATIONS MUST BE HELD TO MAINTAIN EXACT POSITION OF PUMP TO CLEAR OPENING.
2. GROUT OPENING FOR ACCESS FRAME.
3. COVER SHOWN IS FOR STANDARD DUTY ANGLE FRAME. FOR ADDITIONAL DIMENSIONS ON STANDARD DUTY TROUGH FRAME, HEAVY DUTY ANGLE FRAME AND HEAVY DUTY TROUGH FRAME, CONSULT ITT FLYGT CORP. ENGINEERING DEPT.
4. COVER SHOWN IS A STANDARD DUTY SAFE HATCH WITH ANGLE FRAME. FOR DIMENSIONS ON ACCESS COVERS WITH SAFE HATCH OR WITHOUT SAFE HATCH AS WELL AS HEAVY DUTY OR OTHER TYPES, CONSULT ITT FLYGT.
5. INSTALL ACCESS COVERS PER MANUFACTURER'S INSTRUCTIONS.
6. ITT FLYGT MIX-FLUSH VALVE.

ALL PUMP EQUIPMENT TO BE SUPPLIED BY YORK PUMP AND EQUIPMENT COMPANY
600 ROENIA CIRCLE
LONGVIEW, TX 75604
OFFICE: 903-757-8700
FAX: 903-753-3004

*FINAL PUMP LEVELS TO BE DETERMINED IN COORDINATION WITH THE CITY OF TYLER
ATTN: EARL BROWN
PHONE: 903-592-5391



ALL DIMENSIONS ARE IN INCHES

NOM. SIZE	VERSION	A	B	C	D	S	T	U	PL	V	W	Y
4"	SH	2 2/8	9 5/8	8	4	16 5/8	10	72	11	20	49	29 5/8

RECORD DRAWINGS

THE INTENT OF THE OWNER AND ENGINEER WAS TO CONSTRUCT THESE FACILITIES ACCORDING TO THESE PLANS AS APPROVED BY THE CITY. THE LINES AND GRADES WERE SET ON THE GROUND FOR CONSTRUCTION ACCORDING TO SAID PLANS. THE CITY INSPECTED THE CONSTRUCTION. NEITHER THE OWNER NOR THE ENGINEER VERIFIED LINES OR GRADES AFTER CONSTRUCTION. WE ARE NOT AWARE OF ANY CHANGES OR REVISIONS TO THESE PLANS DURING CONSTRUCTION EXCEPT AS NOTED.

NOTE:

1. DUE TO CONTRACTOR SEQUENCING OPERATIONS, THE LOCATION OF EROSION CONTROL MEASURES AS SHOWN ON THIS SHEET ARE TO BE USED AS A GUIDELINE ONLY. CONTRACTOR SHALL LOCATE SILT FENCE, ROCK BERMS, CONSTRUCTION EXITS, ETC. AS NEEDED TO FACILITATE THE CONSTRUCTION OF THE PROJECT. RELOCATION OF EROSION CONTROL MEASURES SHALL BE NOTED ON THIS SHEET AND SIGNED AND DATED BY THE CONTRACTOR.

2. ANY AND ALL ADDITIONAL EROSION CONTROL MEASURES REQUIRED TO ENSURE COMPLIANCE WITH T.C.E.Q. STORMWATER POLLUTION REGULATIONS FOR THE GENERAL PERMIT SHALL BE IMPLEMENTED BY THE CONTRACTOR, AT NO ADDITIONAL EXPENSE TO THE OWNER.

*NOTE: CONTRACTOR SHALL PROVIDE AND INSTALL AN EMERGENCY GENERATOR AND SECURITY LIGHTING. THE GENERATOR SHALL BE SUFFICIENTLY SIZED TO RUN LIFT STATION AND ACCESSORIES WITH BOTH PUMPS ON. GENERATOR SHALL RUN ON DIESEL (TANK SUPPLIED AND INSTALLED BY CONTRACTOR).

TEXAS ONE CALL SYSTEM 1-800-245-4545 STOP! CALL BEFORE YOU DIG!

*** STOP! CALL BEFORE YOU DIG! ***

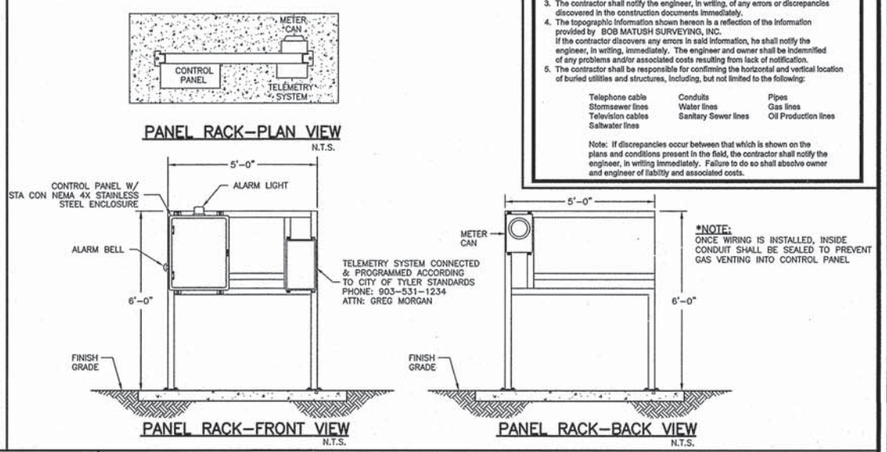
AS REQUIRED BY "THE TEXAS UNDERGROUND FACILITY DAMAGE PREVENTION AND SAFETY ACT" TEXAS ONE CALL SYSTEM MUST BE CONTACTED (800-245-4545) AT LEAST 2 WORKING DAYS PRIOR TO ANY EXCAVATION OPERATIONS BEING PERFORMED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT TEXAS ONE CALL SYSTEM.

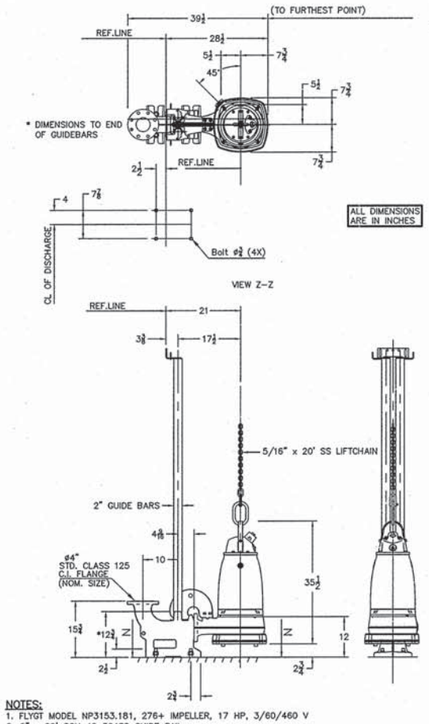
NOTICE TO CONTRACTORS

1. These plans are subject to review and approval by all jurisdictions having authority.
2. Contractor shall appropriately notify all relevant entities prior to digging on this project.
3. The contractor shall notify the engineer, in writing, of any errors or discrepancies discovered in the construction documents immediately.
4. The topographic information shown hereon is a reflection of the information provided by BOB MATUSH SURVEYING, INC.
   If the contractor discovers any errors in said information, he shall notify the engineer, in writing, immediately. The engineer and owner shall be indemnified of any problems and/or associated costs resulting from lack of notification.
5. The contractor shall be responsible for confirming the horizontal and vertical location of buried utilities and structures, including, but not limited to the following:

Telephone cable	Conduits	Pipes
Stormsewer lines	Water lines	Gas lines
Television cables	Sanitary Sewer lines	Oil Production lines
Saltwater lines		

Note: If discrepancies occur between that which is shown on the plans and conditions present in the field, the contractor shall notify the engineer, in writing immediately. Failure to do so shall absolve owner and engineer of liability and associated costs.

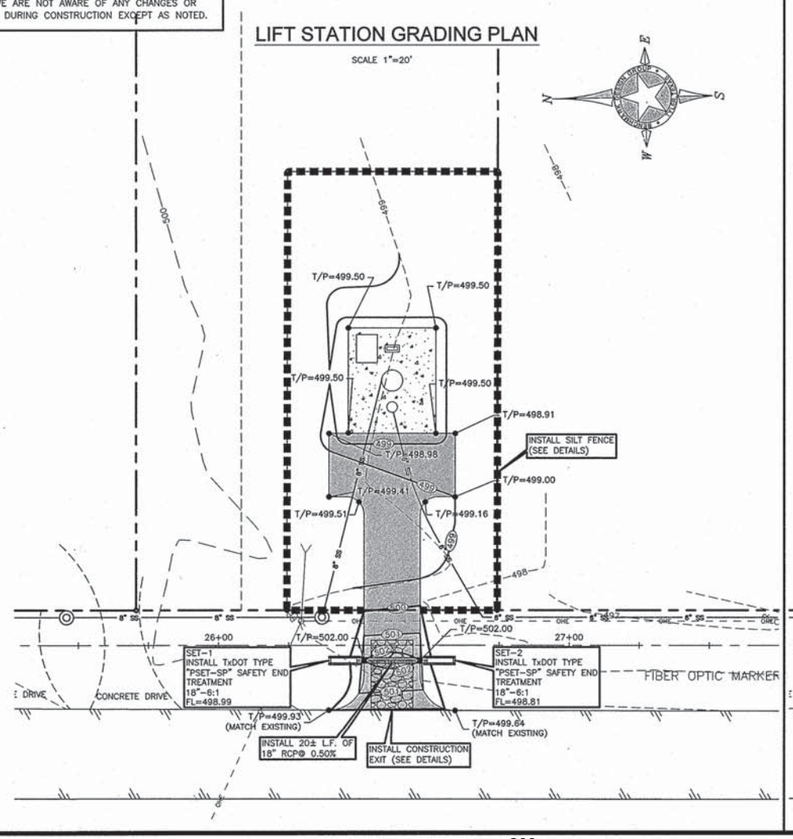




NOTES:
1. FLYGT MODEL NP3153.181, 276+ IMPELLER, 17 HP, 3/60/460 V
2. 2" x 20' SCH 40 304SS GUIDE RAIL
3. TXU TO SUPPLY TRANSSOCKET
4. ALL EXPOSED METAL IN WET WELL SHALL BE STAINLESS. WET WELL TO BE VENTED-90° CST IRON WITH STAINLESS STEEL MESH SCREEN.
5. VENTS TO BE LOCATED TO ALLOW ACCESS BY SERVICE TRUCK AND NOT VENT TOWARD CONTROL PANEL.
6. WET WELL MUST BE AERATED, TIMER TO COME ON 30 MINUTES AFTER STOP AND AERATOR TO STOP WHEN PUMP COMES ON. AERATION LINE TO BE ATTACHED TO WALL AND TEE ALONG BOTTOM OF WET WELL LINE TO BE SCH 40 PVC.
7. FLYGT MIX FLUSH VALVE INSTALLED ON ONE PUMP.

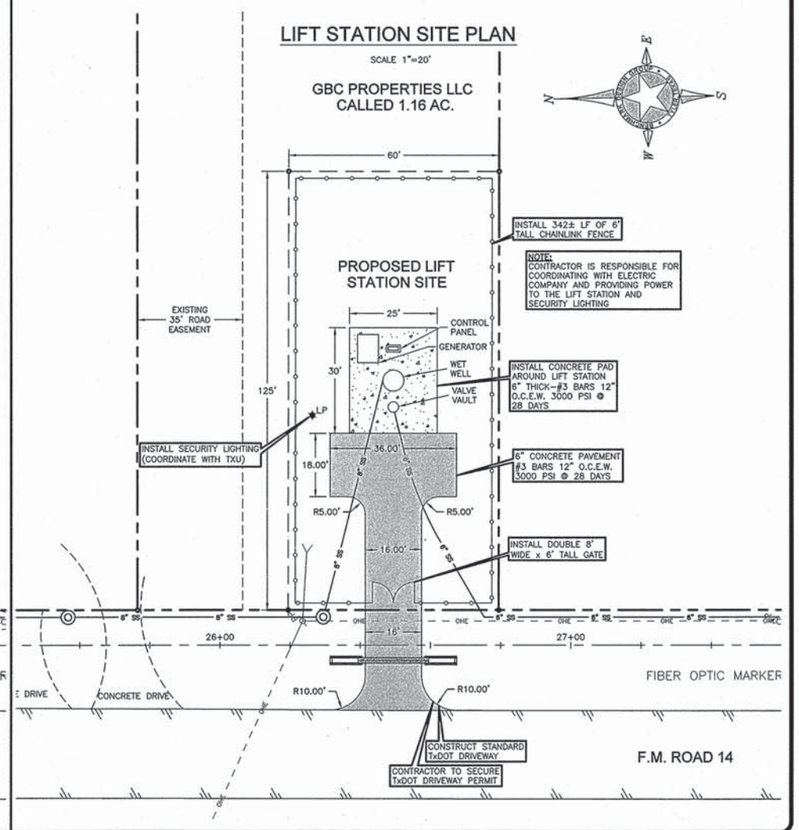
LIFT STATION GRADING PLAN

SCALE 1"=20'



LIFT STATION SITE PLAN

SCALE 1"=20'



SUBMITTAL / REVISIONS	DATE	BY
INITIAL SUBMITTAL	5/7/08	BJC
SECOND SUBMITTAL	7/3/08	BJC
THIRD SUBMITTAL	7/29/08	BJC
FOURTH SUBMITTAL	9/3/08	BJC
FIFTH SUBMITTAL	9/22/08	JGM
RECORD DRAWINGS	4-27-09	JGM

BENCHMARK DESIGN GROUP, LLC
CIVIL / ENVIRONMENTAL ENGINEERS
P.O. BOX 7964 TYLER, TEXAS 75711
2026 REPUBLIC DRIVE SUITE B TYLER TEXAS 75701
(903) 534-5353 • FAX (903) 534-5352
www.benchmark-engineers.com

PILOT TRAVEL CENTER
I-20 & FM 14
TYLER, TEXAS

LIFT STATION PLAN VIEW

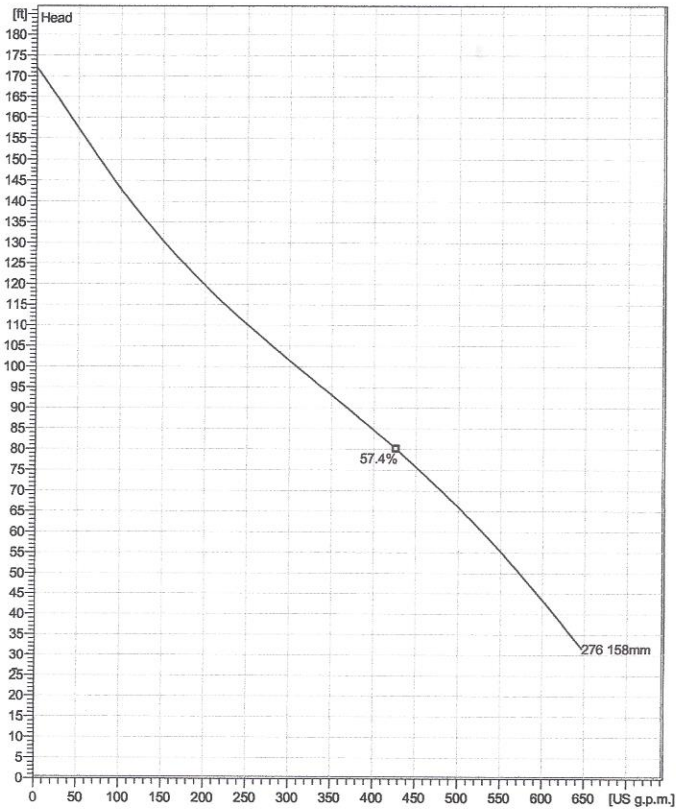
DRAWN BY:	BJC
CHECKED BY:	JGM
DATE:	APRIL, 2008
JOB NO:	2007.027
SHEET NO.	4

xylem

NP 3153 SH 3~ 276 — Pilot Truck Lift Station

FLYGT

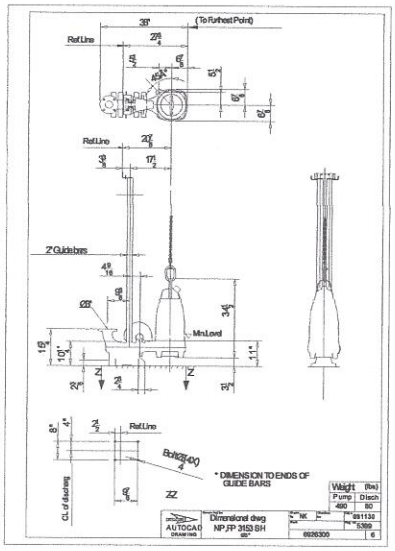
Technical specification



Water, pure *Curve ISO*

Note: Picture might not correspond to the current configuration.

Installation: P - Semi permanent, Wet



General

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

Impeller

Impeller material	Grey cast iron
Discharge Flange Diameter	3 1/8 inch
Suction Flange Diameter	150 mm
Impeller diameter	158 mm
Number of blades	2

Motor

Motor #	N3153.181 21-18-2FB-W 17hp
Stator variant	4
Frequency	60 Hz
Rated voltage	460 V
Number of poles	2
Phases	3~
Rated power	17 hp
Rated current	19 A
Starting current	150 A
Rated speed	3510 rpm
Power factor	
1/1 Load	0.93
3/4 Load	0.91
1/2 Load	0.86
Pump Efficiency	
1/1 Load	91.5 %
3/4 Load	92.0 %
1/2 Load	92.5 %

Configuration

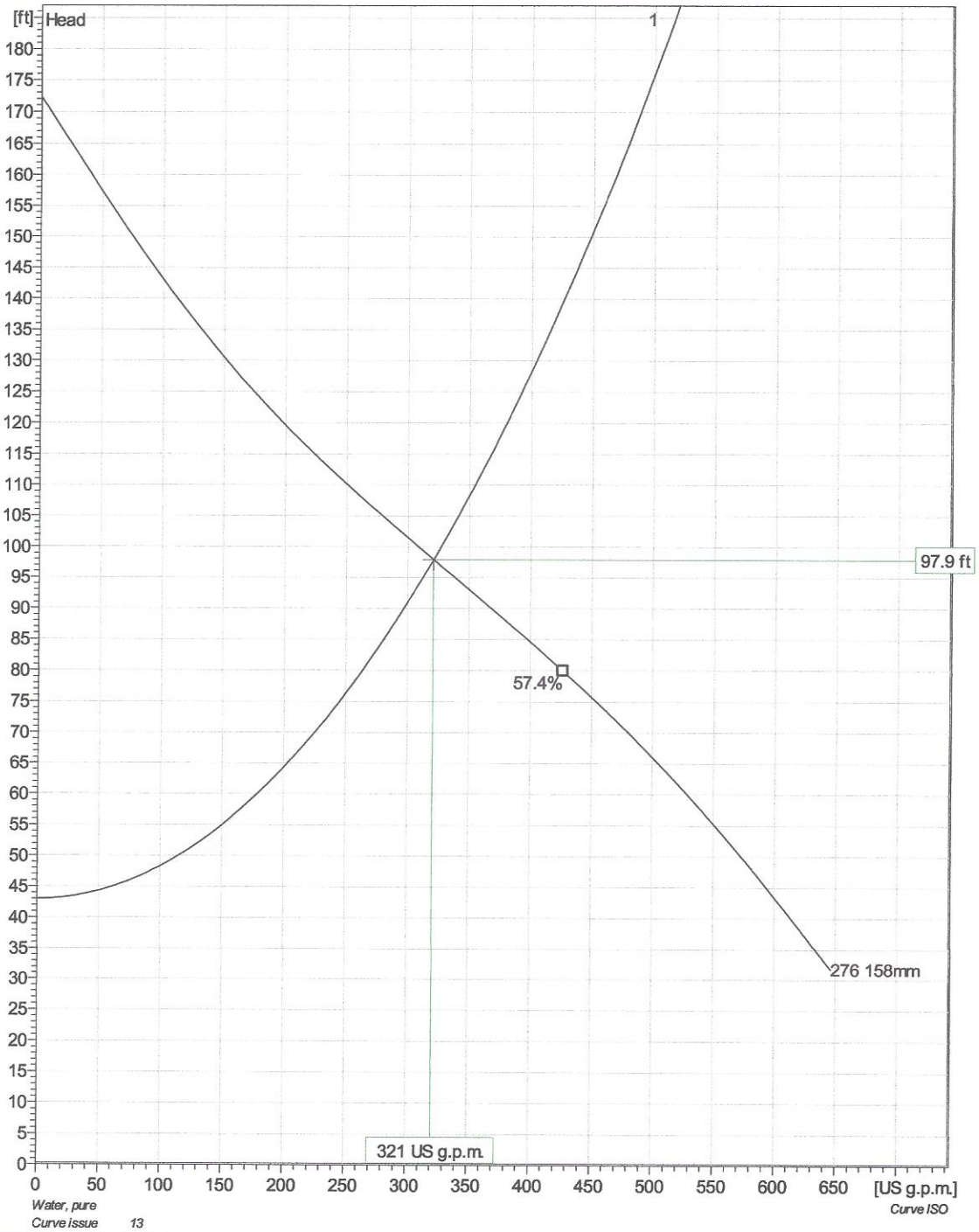
Project	Project ID	Created by	Created on	Last update
			2017-04-17	

xylem

NP 3153 SH 3~ 276

FLYGT

Duty Analysis



Pumps running /System	Individual pump			Total					
	Flow	Head	Shaft power	Flow	Head	Shaft power	Pump eff.	Specific energy	NPSHre
1	321 US g.p.m.	97.9 ft	14.6 hp	321 US g.p.m.	97.9 ft	14.6 hp	54.4 %	615 kWh/US MG	13.9 ft

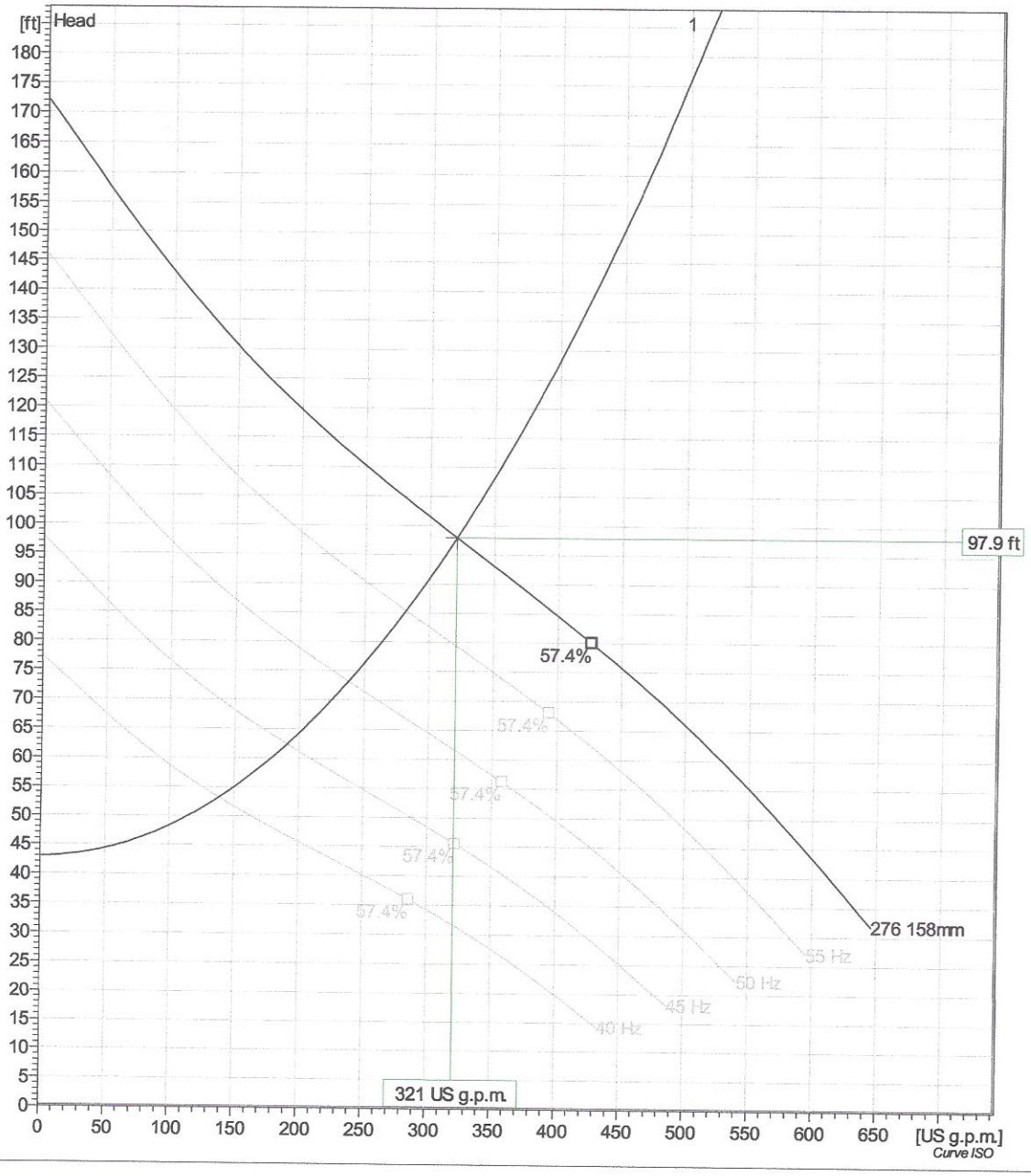
Project	Project ID	Created by	Created on	Last update
			2017-04-17	

xylem

NP 3153 SH 3~ 276

FLYGT

VFD Analysis



Pumps running /System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hyd eff.	Specific energy	NPSHre
1	60 Hz	321 US g.p.m.	97.9 ft	14.6 hp	321 US g.p.m.	97.9 ft	14.6 hp	54.4 %	615 kWh/US MG	13.9 ft
1	54.7 Hz	277 US g.p.m.	83.9 ft	11 hp	277 US g.p.m.	83.9 ft	11 hp	53.4 %	534 kWh/US MG	11.9 ft
1	49.8 Hz	233 US g.p.m.	72 ft	8.2 hp	233 US g.p.m.	72 ft	8.2 hp	51.8 %	473 kWh/US MG	10.1 ft
1	44.8 Hz	186 US g.p.m.	61.5 ft	5.9 hp	186 US g.p.m.	61.5 ft	5.9 hp	49 %	431 kWh/US MG	8.4 ft
1	39.8 Hz	134 US g.p.m.	52.5 ft	4.06 hp	134 US g.p.m.	52.5 ft	4.06 hp	43.7 %	422 kWh/US MG	6.92 ft

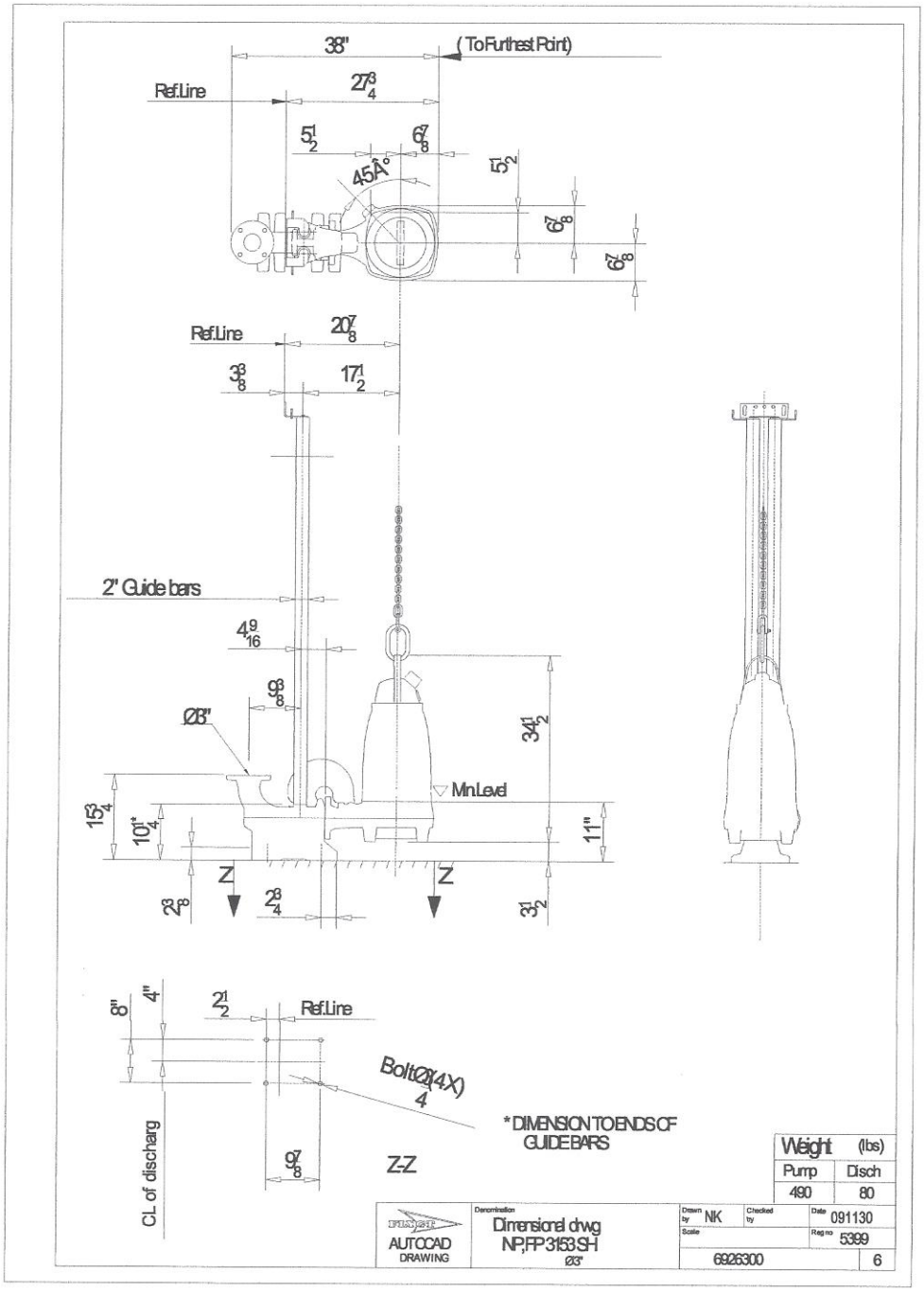
Project	Project ID	Created by	Created on	Last update
			2017-04-17	

xylem

NP 3153 SH 3~ 276

Dimensional drawing

FLYGT



Project	Project ID	Created by	Created on	Last update
			2017-04-17	

RUSTIC PARK LIFT STATION

US Hwy 271

Bradewater Hwy

Rose Country Est

Rose Country Est

N Northeast Loop 323

N Northeast Loop 323

421

105

RUSTIC

205

1580

104

395

1570

277

N Northeast Loop 323

N Northeast Loop 323

1310

Driveway

County Road 377

2034

1008

County Road 376

2692

County Road 376

County Road 376

County Road 376

County Road 376

N Industrial Ave

405

05664

90

85

N Industrial Ave

475

012

N Northeast Loop 323

N Northeast Loop 323

413

May St

N 16th Ave

226

Lex Ave

224

275

200

482

171

Stacy Dr

138

215

Tyler, Texas
Rustic Lift Station

N
W E
S

- Cleanout
- EOM
- Manhole
- Mainline
- ARV
- Pump Station
- Force Main

PIPELINE ANALYSIS LLC
WASTEWATER COLLECTION SYSTEM ENGINEERS

Tyler Water Utilities - Lift Station Assessment Form

Lift Station Name RUSTIC **Type** Self Priming
Location/Address 3284 N. Northeast Loop 323
Lift Station Asset ID **Number of Pumps** 2
Firm Capacity in GPM (all pumps operating)
Firm Capacity in GPM (largest pump out of service)
Inspector Don White **Date** Dec 11, 2017
City Works Work Order

Building and Grounds

			Good	Fair	Poor	Critical	N/A
Building Structure	Dog House	Type: Dog House	●	○	○	○	○
Building Roof/Ceiling			●	○	○	○	○
Building Finishes	Fiberglass		●	○	○	○	○
Building Doors and Windows		NONE	○	○	○	○	●
Building HVAC		Type: Vents	○	○	○	○	●
Fencing		Type: Chain link	●	○	○	○	○
Gates	4' Pedestrian 11' Vehicular	Type: "	○	○	○	○	○
Site/Grounds		Size: 24' WIDE X 25' DEEP	●	○	○	○	○
Lighting	Disconnected		○	○	●	○	●
Pavement (Driving)		Type: None	○	○	○	○	○
Drainage		Type: Silt over slab	○	●	○	○	○
Odor	Comment: NONE		●	○	○	○	○
Odor Control System		Type:	○	○	○	○	○
Odor Control Mechanical			○	○	○	○	○
Odor Control Media		Type:	○	○	○	○	○
Noise			○	●	○	○	○
Overall Site Appearance			○	●	○	○	○

Comments silt inhibits sliding dog house cover open. slab flush with natural ground allowing erosion silt to cover slab. Doghouse center roof beam, sliding track corroded!

15' / 8'

Structural

			Good	Fair	Poor	Critical	N/A
Wet Well	Size:	5 Ft. ϕ					
	Debris		○	○	○	●	○
	Fats, oils, and grease		○	●	○	○	○
	Ventilation	None	○	○	○	○	●
	Walls	Material: Concrete	○	○	●	○	○
	Coatings	Type:	○	○	○	○	●
	Access Hatches	Number: 18" Mh cover	○	●	○	○	○
	Slab	concrete	○	○	○	○	○
Dry Well/Valve Vault		None					
	Walls	Material:	○	○	○	○	○
	Coatings	Type:	○	○	○	○	○
	Grating/Hatching	Number:	○	○	○	○	○
	Stairway/Ladder	Material:	○	○	○	○	○
	Sump/Pump	Number:	○	○	○	○	○
	Ventilation	Type:	○	○	○	○	○

Comments Wet well concrete walls have exposed aggregate Significant amount of debris in wetwell, 18" manhole opening impacts proper access.

Mechanical

			Good	Fair	Poor	Critical	N/A
Bypass Connection	(Circle)	YES / (NO)					
Piping and Valves							
	Suction Valve	Number:	○	○	○	○	●
	Check Valve	Number: 2 DI	○	●	○	○	○
	Discharge Valve	Number: 2 DI	○	●	○	○	○

Mechanical (continued)

			Good	Fair	Poor	Critical	N/A
Corroded	Riser Piping	Material: DI-	○	○	●	○	○

				Good	Fair	Poor	Critical	N/A
Corrosion	Discharge Piping	Material:	DI	○	○	●	○	○
Corrosion esp. on couplings	Fittings	Material:	DI	○	○	●	○	○

Comments Valves difficult to access if dog house cannot be completely opened. Return lines from each discharge line to wet well for Airation. Corrosion on bolts, Fittings. Discharge pipe goes back through wet well before entering ground as force main.

Pumps

Pump 1 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	●	○	○	○
Seals	○	●	○	○	○
Motor	●	○	○	○	○
Shaft New	●	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 1 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	●	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

oil/grease visible near motors
CORROSION on motor 2°
New belts on both pump/motors

CORROSION on access manhole lid.

Pump 2 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor CORROSION	○	●	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	●	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 2 *The following components are to be inspected during pump disassembly*

Oil	○	●	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Same notes as Pump 1

Pump 3 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 3 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 4 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 4 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 5 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable					
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 5 *The following components are to be inspected during pump disassembly*

Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Pump 6 Asset ID _____ Make _____ Model _____

Capacity _____ GPM

Impeller Dia./Code _____ Horsepower _____

	Good	Fair	Poor	Critical	N/A
Pump	○	○	○	○	○
Seals	○	○	○	○	○
Motor	○	○	○	○	○
Shaft	○	○	○	○	○
Electrical Cable	○	○	○	○	○
Noise	○	○	○	○	○
Vibration/Heat	○	○	○	○	○

Pump 6 *The following components are to be inspected during pump disassembly*

	Good	Fair	Poor	Critical	N/A
Oil	○	○	○	○	○
Impeller	○	○	○	○	○
Packing Rings	○	○	○	○	○
Internal Seals	○	○	○	○	○

Electrical System

					Good	Fair	Poor	Critical	N/A
Electrical System Power	Volt/Phase:								
Panel/Enclosures	NEMA4X	YES	?	NO	○	●	○	○	○
Transformers (AEP)					○	○	○	○	○
Disconnect	Type:	could not open panel			○	○	○	○	○
Generator	KW	None			○	○	○	○	●
Transfer Switch					○	○	○	○	●
Electrical System Control									
Breakers	Type:				○	○	○	○	○
Speed control/VFD	Type:				○	○	○	○	○
Starters	Type:				○	○	○	○	○
Control Relays	Type:				○	○	○	○	○

Comments Corrosion on panel hinges and closure bolts.

Instrumentation/SCADA

				Good	Fair	Poor	Critical	N/A
Panel	NEMA4X	YES	NO	○	○	○	○	○
Instrumentation								
Level	Type:	ultrasonic		○	●	○	○	○
Flow	Type:			○	○	○	○	○

Instrumentation/SCADA (continued)

			Good	Fair	Poor	Critical	N/A
PLC	Type:		○	○	○	○	○
SCADA			○	○	○	○	○
RTU	Type:	uplink	●	○	○	○	○
Radio/Antenna	Type:	small	●	○	○	○	○

Comments antenna +/- 6" strapped to control panel/power-cable, RTU in control panel, NO visual or sound alarm observed

Building and Grounds

Lift Station Perimeter Facing West

Lift Station Perimeter Facing West

Doghouse Facing North

Dog House Slab Flush With Natural Ground

Building and Grounds

Lift Station Dog House Front- Facing East

Lift Station Dog House Rear- Facing East

Electrical and Instrumentation Panel Mounted on Pole- Facing Southwest

Dog House Roof Beam Corrosion

Structural

Wet Well Interior

Wet Well Rim Concrete Deterioration

Significant Debris in Wet Well

Gaps Visible At Points Where Suction Pipes Enter Wet Well

Mechanical

Valves Difficult to Access if Dog House Cannot Be Completely Opened

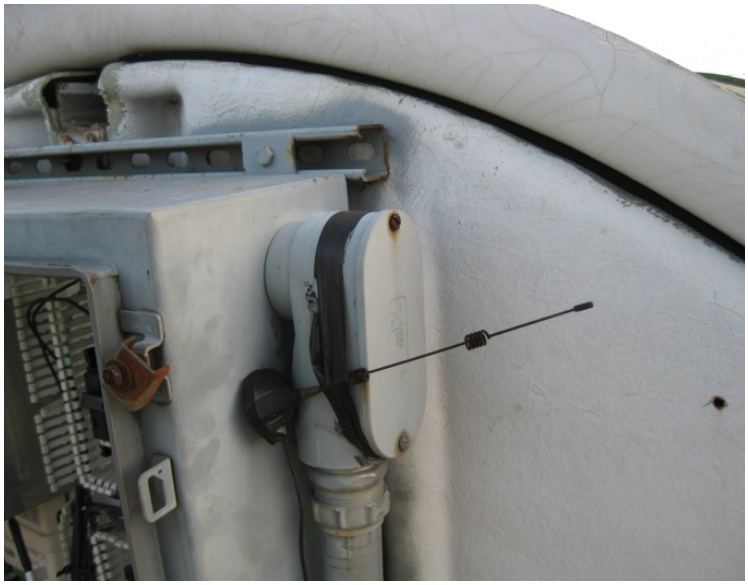
Pumps, Suction Pipe and Fittings Show Some Corrosion

Electrical & Instrumentation

Electrical and Instrumentation Panel
Mounted on Dog House Rear Wall

Electrical Meter Mounted On Pole

Electrical & Instrumentation



Antenna Strapped to Control Panel Power Cable

Uplink RTU

Basic Pump

D S

Self Priming Centrifugal Pump

Super T SERIES

VARIOUS PATENTS APPLY

Model T3A3S-B

Size 3” x 3”

5 YEAR WARRANTY SUPER T SERIES

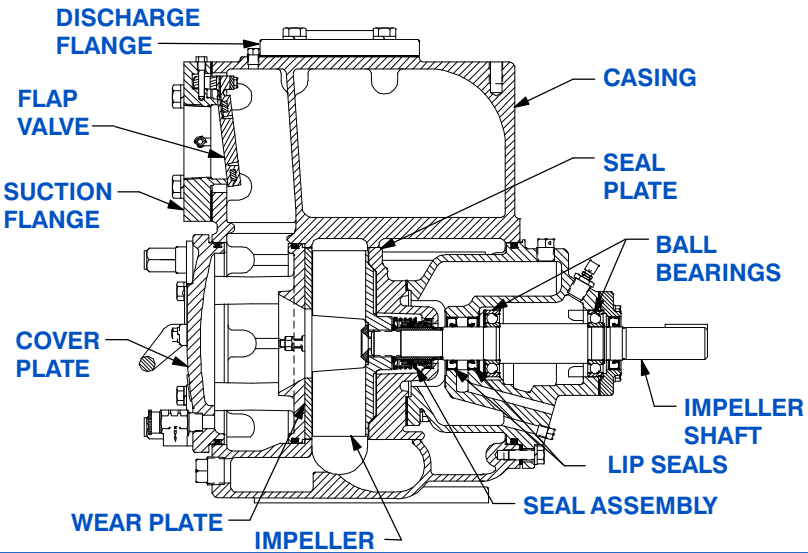
PUMP SPECIFICATIONS

Size: 3” x 3” (76 mm x 76 mm) NPT - Female.
Casing: Gray Iron 30.
Maximum Operating Pressure 86 psi (593 kPa).*
Semi-Open Type, Two Vane Impeller: Ductile Iron 65-45-12.
Handles 2 1/2” (63,5 mm) Diameter Spherical Solids.
Impeller Shaft: Alloy Steel 4150.
Shaft Sleeve: Alloy Steel 4130.
Replaceable Wear Plate: Carbon Steel 1015.
Removable Adjustable Cover Plate: Gray Iron 30; 35 lbs. (16 kg)
Seal Plate: Gray Iron 30.
Flap Valve: Neoprene w/Nylon and Steel Reinforcing.
Bearing Housing: Gray Iron 30.
Radial and Thrust Bearings: Open Single Row Ball.
Bearing and Seal Cavity Lubrication: SAE 30 Non-Detergent Oil.
Flanges: 125# Gray Iron 30.
Gaskets: Buna-N w/Compressed Synthetic Fibers, Vegetable Fiber, PTFE, Cork and Rubber.
O-Rings: Buna-N.
Hardware: Standard Plated Steel.
Brass Pressure Relief Valve.
Bearing and Seal Cavity Oil Level Sight Gauges.

Optional Equipment: Automatic Air Release Valve. Metal Bellows Seal. 120V/240V Casing Heater. High Pump Temperature Shutdown Kit. G-R Hard Iron Casing. Self-Cleaning Wear Plate.
Gray Iron 30 Suction and Discharge Spool Flanges:
3” ASA **(Specify Model T3A3S-B /F)**.
80 mm DIN 2527 (PN 16) **(Specify Model T3A3S-B /FM)**.

**Consult Factory for Applications Exceeding Maximum Pressure and/or Temperature Indicated.*

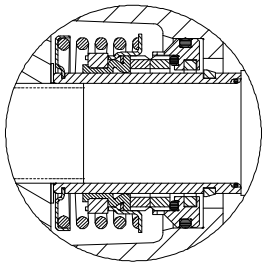
Shown with Optional Suction and Discharge Spool Flanges (Available in ASA or DIN Standard Sizes).



SEAL SPECIFICATIONS

Cartridge Type, Mechanical, Oil-Lubricated, Double Floating, Self-Aligning. Tungsten Titanium Carbide Rotating and Stationary Faces. Stainless Steel 316 Stationary Seat. Fluorocarbon Elastomers (DuPont Viton® or Equivalent). Stainless Steel 18-8 Cage and Spring. Maximum Temperature of Liquid Pumped, 160°F (71°C).*

SEAL DETAIL



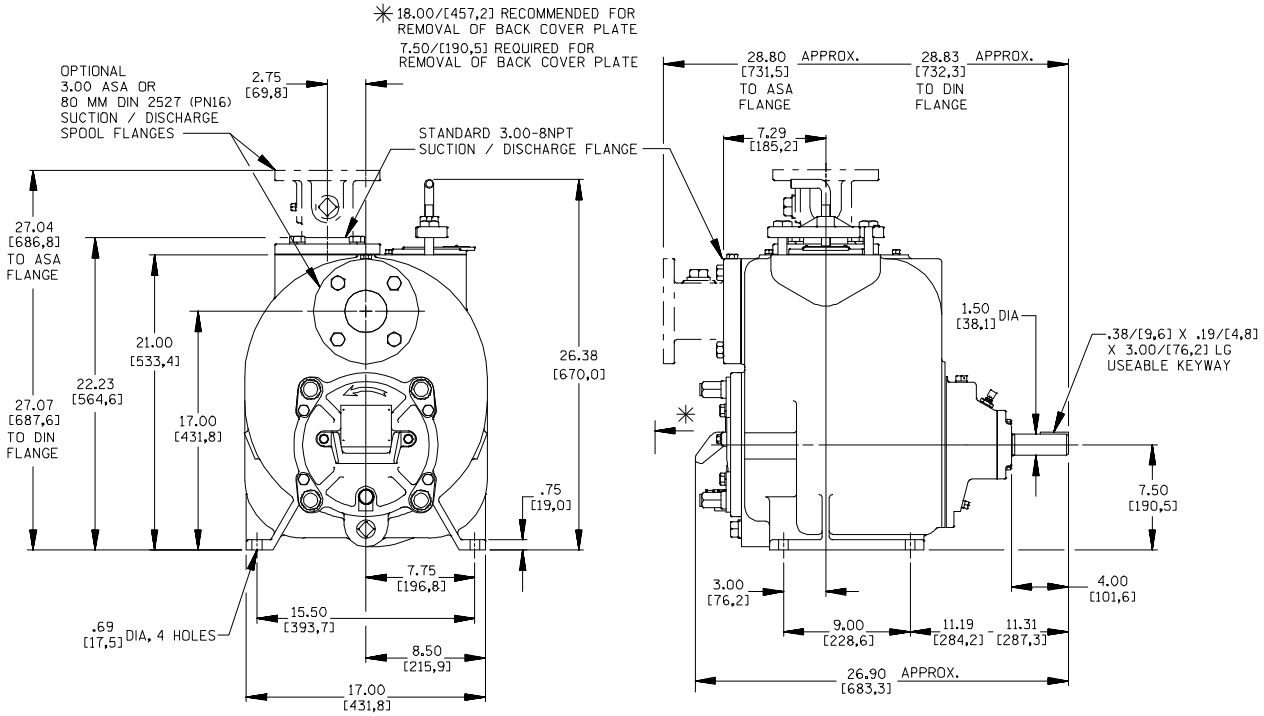
GORMAN-RUPP PUMPS

THE GORMAN-RUPP COMPANY ● MANSFIELD, OHIO
GORMAN-RUPP OF CANADA LIMITED ● ST. THOMAS, ONTARIO, CANADA
www.grpumps.com
Specifications Subject to Change Without Notice
Printed in U.S.A.

APPROXIMATE DIMENSIONS and WEIGHTS

NET WEIGHT:	**404 LBS. (183 KG.)***
SHIPPING WEIGHT:	**452 LBS. (205 KG.)***
EXPORT CRATE:	**19.3 CU. FT. (0,55 CU. M.)**

***ADD 10 LBS. (4,5 KG.) W/EACH SPOOL FLANGE**



OPTIONAL ASA OR DIN STANDARD SUCTION & DISCHARGE SPOOL FLANGES AVAILABLE

T3AS-B