WASTEWATER LIFT STATION CONDITION ASSESSMENT

CITY OF KINSTON
NORTH CAROLINA

SEPTEMBER 2017

PREPARED BY:

THE WOOTEN COMPANY

LICENSE NO: F-0115
TWC: 2208-CV

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CITY OF KINSTON
NORTH CAROLINA

SEPTEMBER 15, 2017

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THE **WOOTEN** COMPANY

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1.0 INTRODUCTION

The City of Kinston owns and maintains a sanitary sewer collection system that drains to two separate wastewater treatment plants; which in turn discharge treated effluent to the Neuse River Basin. There are twenty-two (22) lift stations within the collection system. Three (3) of these stations are fairly new. These include GTP Cargo, Sanderson Hatchery, and the Industrial Park. The Industrial Park station was completed in 2015 as an upgrade to the previously on-line Smithfield Foods station – Station ID 21. During the field inspection portion of this assessment, the Smithfield Foods station had already been decommissioned; however, some components of the station still remain at the site. The remaining nineteen (19) stations are Barrus, Briery Run, Forrest Street, Pollock Street, Hampton Inn, Oliver Glass, Airport, Brentwood, Best Western, Bynum School, Windsor Farms, Briery Subdivision No. 1 and No. 2, Frenchman's Creek, National Guard Armory, Silver Creek, Kennedy Home, Public Services Complex, and Educational Training Center; some of which have been upgraded since the 2002 Sewage Lift Station Evaluation. The location of each of these twenty-two stations is shown on the lift station maps in Appendix A.

The primary scope of this study was to evaluate the condition of each of these stations. The evaluation at each station was to consist of a review and inspection of the following:

- Current condition;
- Actual pump capacity versus reported/nameplate capacity;
- Working condition of station's various components: pumps, control, alarms, SCADA system, sump pumps, bar screen, standby power, etc;
- Provide recommendations, with cost estimates as appropriate, for immediate improvements.

The condition assessment for each of the twenty-two lift stations was also to include a rating from on a scale from poor to excellent.

2.0 LIFT STATION EVALUATIONS

Each of the twenty-two lift stations were evaluated in detail in the field. Refer to Appendix B for the field inspection reports of each lift station which include photographs taken at each station.

The nameplate capacity, if not visible during inspection, was reported as indicated on the records provided by the City summarizing all known information of the existing stations. There were no as-built records or specifications available for Bynum School, Briery Subdivision No. 1 and No. 2, Forrest Street, Frenchman's Creek, Public Services Complex, or National Guard and therefore measurements were taken to estimate the approximate wet well sizing for determining actual pumping capacities. O&M manuals were not available for any of the lift stations with the exception of GTP Cargo, Sanderson Hatchery, and Industrial Park. No records were available on accidents or overflows for any of the stations. As part of this evaluation, all stations were surveyed for determining the elevations of both the top of wet well and a general average site elevation; a measurement was also taken to the bottom of the pump control panel for comparison to the 100-year flood zone elevation. This information can be found within each station's inspection report. A flood zone map detailing the location of each of each station as they relate to the 100-year and 500-year zones can be found in Appendix A. Of the twenty-two stations, three (3) are located within a floodway (Hampton Inn, Best Western, and Barrus), six (6) are located within the 100-year flood zone (Kennedy Home, Oliver Glass, Pollock Street, Bynum School, Forrest Street, and Frenchman's Creek), and one (1) is located within the 500-year flood zone (Public Services Complex).

A budget estimate for the recommended improvements was developed for each of the twenty-two lift stations. These estimates were made intentionally conservative due to the nature of the work involved (i.e. rehabilitation or replacement of existing lift station equipment) and should be considered as budgets rather than as firm estimates of cost. Also, as part of the budget estimates, but not included in the overall project budget, the following lift stations are recommended for long-term improvements: Barrus, Hampton Inn, Oliver Glass, Best Western, and Bynum School. The long-term improvements for these stations include converting from wet/dry pit to submersible stations. The Public Services Complex station is recommended for conversion to a traditional duplex submersible station. These long-term recommendations are made for the ease of accessibility for maintenance purposes without the need for confined space entry. The total estimated project budget is $1,428,000. Line item recommendations for repairs and improvements

along with their respective budget estimates for each lift station can be found in Appendix C.

3.0 CONDITION ASSESSMENT RATINGS

As part of this assessment, and per the NCDWI guidelines for Asset Management Plan preparation, the following ratings were developed to generally grade the condition of each station. An assessment scale of 1 to 4 was utilized and related to the following conditions: Poor, Fair, Good, and Excellent.

The assessment scale criteria for each category are as follows:

1. Poor — Structural and/or operational improvements are warranted. Indications of operational/structural failure or near-term failure are apparent;
2. Fair — Structural and/or operational improvements are warranted; however does not suggest obvious indications of near-term failure concerns and station may also not be operating at design capacity;
3. Good — No assessed structural and/or operational failures. Recommended improvements are warranted based on the need for mitigation of future failures or the exacerbation of less critical issues. No severe corrosion or assessed structural and/or operational failures.
4. Excellent — Minimal or no improvements required.

The following table details the assessed grade for each of the twenty-two station with the comments extenuating their score.

Station Name	Condition Rating	Comment
Barrus[1]	3	Wet well showing minor corrosion; current improvements are under construction.
Briery Run	2	Pumps 1 and 2 have failed; power ventilation on wet well is inoperable leading to significant corrosion in wet well; flood gate valves have failed.
Forrest Street	3	Pump 1 and 3 vibrating; stop gate between wet wells inoperable; bar screen needs replacing; minor corrosion on exterior surfaces.
Pollock Street	2	Significant corrosion in wet well; all three pumps are pumping under design capacity; bar screen needs replacing.
Hampton Inn[1]	4	Minor paint failure on exterior surfaces; possible bar screen concerns.

Station Name	Condition Rating	Comment
Oliver Glass[1]	2	Significant corrosion in wet well; power ventilation in wet and dry wells inoperable and need maintenance; exterior metal surface are corroded.
Airport	3	Local disconnect between wet well and control panel is not optimal for operation.
Brentwood	3	Minor corrosion in wet well; possible leak in valve vault and wet well
GTP Cargo	3	Corrosion on discharge piping; wet well leak.
Best Western[1]	3	Weather stripping and rain shield needed on control panel; significant trash in wet well with no trash basket.
Bynum School[1]	3	Wet well corrosion on mortar joints.
Windsor Farms	3	Rust on discharge piping and valves; leak in wet well
Briery SD 1	3	Leak in wet well.
Briery SD 2	2	Not pumping to capacity; Pump 2 is not operable, exterior corrosion, leak in wet well.
Frenchman's Creek	3	Solids build up in wet well; corrosion on discharge piping.
National Guard	3	Solids and trash in wet well; corrosion on discharge piping.
Silver Creek	3	Solids and grease build up in wet well; rust on discharge pipes.
Kennedy Home	2	Pump 1 inoperable; corrosion on discharge piping; possible issue with Pump 2 check valve.
Complex[2]	2	Simplex station with significant corrosion upstream; and flexible discharge piping.
ETC	4	Minor corrosion and rust on discharge piping.
Hatchery	4	Missing pressure gauge.
Industrial Park	4	Conveyor auger is not operational as intended.

NOTES: 1 – Confined Space Entry – Long Term Improvement to Convert to Submersible Station

2 – Simplex Pump Station – Long Term Improvement to Convert to Traditional Duplex Submersible Station

4.0 CONCLUSIONS AND RECOMMENDATION

After review of the lift station assessment reports and the detailed pump drawdown reports, only two of stations are operating below the design pumping rate: Pollock Street and Briery Subdivision No. 2. Three of stations are operating with only one pump: Briery Run, Briery Subdivision No. 2, and Kennedy Home. The alarm horn or alarm light at several of the lift stations is either not functional or has never been installed. Several of the stations do not have potable water. In addition, only a few of the lift stations have working pressure gauges on their respective discharge mains. Many of the stations have gauges; however, are not operating and should be replaced. Corrosion at each station is a persistent observation in and around most of the wet wells, specifically on discharge piping and guide rail brackets. General trends after inspection of all stations include minor improvements which are recommended to be addressed in a timely manner; however, are not necessarily critical to the operation of each station. It is recommended that work begin as soon as possible to repair items at stations which have been assessed as being in fair condition. These stations, which may not have imminent concerns for failure, do warrant action to correct these issues before resulting in operational or structural failure.

The following specific recommendations are made:

- Make permanent improvements to each station as specifically recommended in Appendix C, subject to the conditions below. This should be accomplished in a timely fashion;
- Where significant changes, improvements, or replacements have been recommended, submit plans and specification to NCDEQ for approval;
- Keep up-to-date maintenance records for each piece of equipment at each station and follow each manufacturer's suggested maintenance schedule;
- Strictly enforce confined space entry procedures;
- Maintain a complete manufacture's recommended spare parts inventory for each piece of equipment at each station.

The Wooten Company trusts that this report is acceptable to the City of Kinston and has addressed all concerns regarding the inventory and condition of its lift stations. Upon the City's review of the report, The Wooten Company stands ready to answer any questions and to provide additional assistance as needed in this endeavor. The Wooten Company appreciates this opportunity to again be of service to the citizens of the City of Kinston.

APPENDIX A

LIFT STATION LOCATION MAPS

Wastewater Lift Station Location Map

City of Kinston, NC

September 2017

20 Education Training Center
9 GTP Cargo
7 Airport
16 National Guard Armory
14 Briery Subdivision #2
13 Briery Subdivision #1
2 Briery Run
8 Brentwood
17 Silver Creek
23 Industrial Park
22 Sanderson Hatchery
4 Pollock Street
11 Bynum School
3 Forrest Street
1 Barrus
18 Kennedy Home
6 Oliver Glass
5 Hampton Inn
10 Best Western
15 Frenchman's Creek
19 Public Services Complex
12 Windsor Farms

GlobalTransPark
CSX Transportation
Norfolk Southern
Kinston Country Club
Falling Creek Country Club
Kinston
Jones County
Lenoir County

Legend

- Existing Lift Station
- Rail Track
- US Route
- NC Route
- Street
- City of Kinston
- County Boundary

0 2,500 5,000
Feet

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Wastewater Lift Station Location Map - Flood Zones

City of Kinston, NC

September 2017

Legend

- Existing Lift Station
- Rail Track
- US Route
- NC Route
- Street
- Minor Water Feature
- Major Water Feature
- City of Kinston
- County Boundary
- 0.2% Annual Chance Flood Hazard
- Flood Zone AE
- Floodway

0 2,500 5,000 Feet

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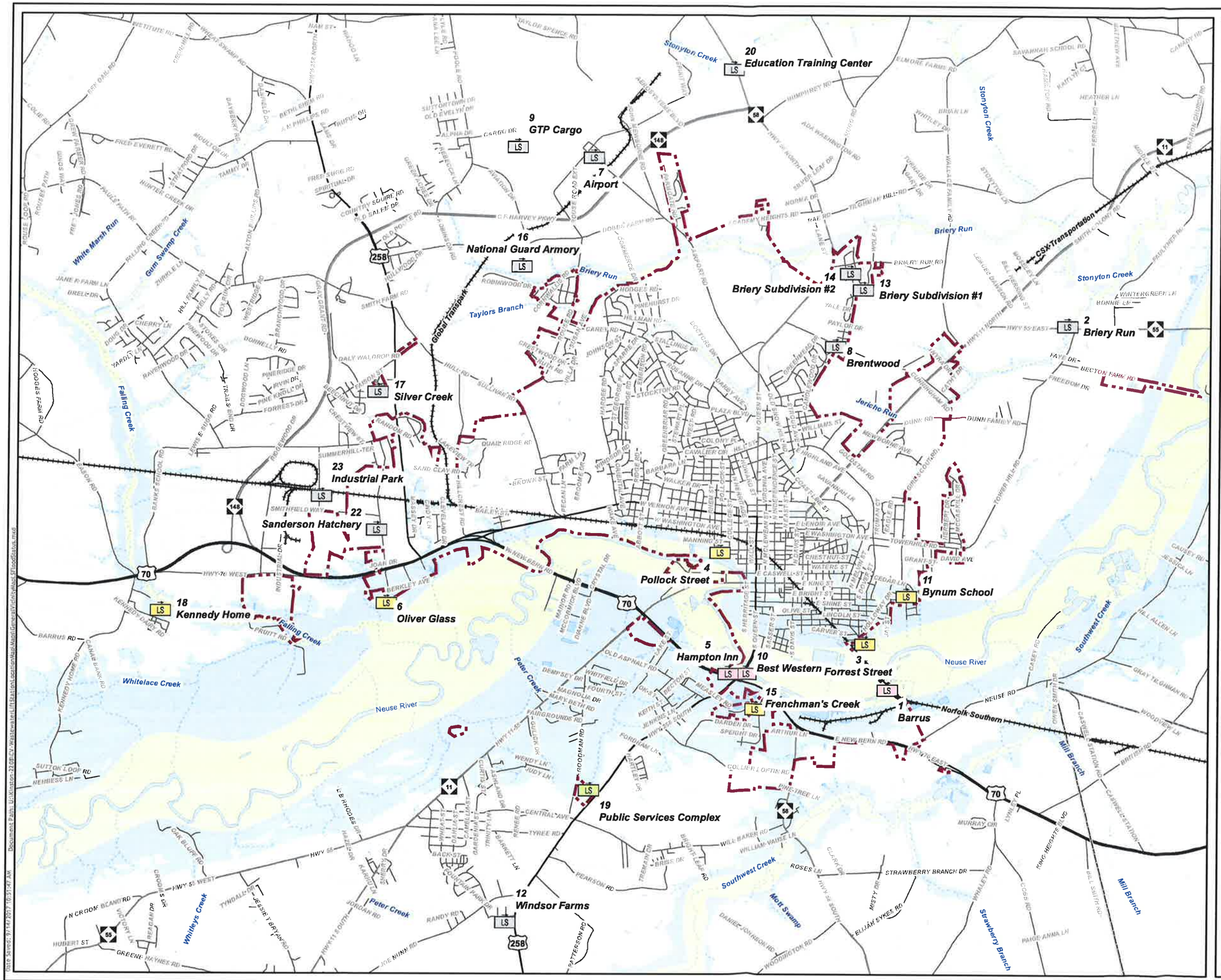

Wastewater Lift Station Location Map - Flood Zones

City of Kinston, NC

September 2017

Legend

- 0.2% Annual Chance Flood Hazard
- Flood Zone AE
- Floodway
- Flood Zone X
- Rail Track
- US Route
- NC Route
- Street
- Minor Water Feature
- Major Water Feature
- City of Kinston
- County Boundary

0.2% Annual Chance Flood Hazard

Flood Zone AE

Floodway

0 2,500 5,000

Feet

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Number	Name	Address
1	Barrus	604 E New Bern Road
2	Briery Run	1314 NC HIghway 55 East
3	Forrest Street	1301 Decatur Drive
4	Pollock Street	300 Pollock Street
5	Hampton Inn	105 West New Bern Road
6	Oliver Glass	646 Sussex Street
7	Airport	2839 Airport Road
8	Brentwood	801 Cunningham Road
9	GTP Cargo	1900 Cargo Drive
10	Best Western	1300 South Queen Street
11	Bynum School	1805 Oakmont Drive
12	Windsor Farms	768 Wisteria Court
13	Briery Subdivision #1	2220 Autumn Drive
14	Briery Subdivision #2	187 Briery Run Road
15	Frenchman's Creek	1401 Meadow Brook Dirve
16	National Guard Armory	2869 Dobbs Farm Road
17	Silver Creek	1916 Buxton Street
18	Kennedy Home	2350 Kennedy Dairy Road
19	Public Services Complex	2360 US Highway 258 South
20	Education Training Center	3810 NC Highway 58 North
22	Sanderson Hatchery	1314 Hill Farm Road
23	Industrial Park	0 Parrott Dickerson Road

Wastewater Lift Station Location Map

City of Kinston, NC

September 2017

Legend

- Existing Lift Station
- Rail Track
- US Route
- NC Route
- Street
- Minor Water Feature
- Major Water Feature
- Parcel
- City of Kinston
- County Boundary

0 1,250 2,500 5,000

Feet

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APPENDIX B

LIFT STATION FIELD INSPECTION REPORTS

Station Name: Barrus
Station Number: 1
Station Address: 614 E. New Bern Road

Date of Inspection: August 14, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Near Railroad Tracks in Wooded Area along Neuse River
3	In what year was it constructed?	✓			1974

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			700 GPM @ 23 FT TDH
5	What is the wet well diameter (feet)?	✓			16' X 7' Rectangle
6	What is the diameter of force main leaving the station?	✓			12 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?	✓			26.3 FT
	Depth to inlet?	✓			20.6 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			Fence Temporarily Down Due to Maintanence

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?			✓	In 100 Year Floodway - Base Flood Elevation 36.3 FT Top of Wet Well Elevation: 31.3 FT General Average Site Elevation: 30.4 FT Bottom of Control Panel Elevation: 35.9 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.			✓	
20	Is the general area around the pump station in a state of general cleanliness?	✓			Site Currently Undergoing Maintanence
21	Is the site fenced?	✓			Site Fence is Temporarily Down Due to Maintanence
22	If the site is fenced, is it locked?	✓			Site Fence is Temporarily Down Due to Maintanence
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			Yes, Well Building On-Site
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?	✓			
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			
29	Is the station susceptible to flooding from a water source?	✓			
30	Does the access road provide acceptable entry onto the site?		✓		Subject to Flooding
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?	✓			Concrete Pad has Fissured and Cracked

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum
2	Model	✓			20 DSJ
3	Serial Number	✓			672269
4	Year Purchased	✓			Unknown, See Purchase Records
5	Fuel Tank Size	✓			Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			68"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
	Part C: Information on Pumps within the Pump Station				
	General Information				
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		
5	Is the water seal working properly?	✓			Mechanical Seals
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		None Apparent

	Item	Yes	No	N/A	Comments
	Name plate Information				
	Pump 1				
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			B5423 T-30
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 700 GPM @ 23 FT TDH Drawdown: 686 GPM
6	Hp/ rpm/ phase?	✓			15/ 1150/ 3
	Pump 2				
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			B5423 T-30
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 700 GPM @ 23 FT TDH Drawdown: 733 GPM
6	Hp/ rpm/ phase?	✓			15/ 1150/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?		✓		Not on Site
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?		✓		Not On Site
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	No Audible Alarm on Site
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	No Visual Alarm on Site
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?		✓		Bubbler System, Back-Up High Water Alarm Mecury Float
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?	✓			
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?			✓	Dry Pit Elevator Blocking Entrance
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?		✓		Hatch Needs Replacing and Elevator
5	Do the suction shutoff valves work?	✓			No Issues Apparent
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			
8	Do the check valves work properly?	✓			No Issues Apparent
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?	✓			
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			Minor Evidence
13	Is there a history of overflows at this station?	✓			Hurricanes Floyd and Matthew
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		None Apparent

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Sump Pump
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?		✓		Clean Basket
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Corrosion Apparent; Gease and Trash
26	Is there a grease problem in the wet well?	✓			
27	Is there any excessive corrosion in the wet well?	✓			Ladder Rungs, Trash Basket, and Chain Grate on Top of Wet Well
28	Does the interior of the wet well need to be painted with a protective coating??	✓			
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?		✓		None Visable
38	Is ther any noticeable corrosion in the dry pit?	✓			Minor
39	If there is a dry pit that has power ventilation, does it work?	✓			
40	Is there a dehumidifier in the dry pit?	✓			
41	If there is a dehumidifier in the dry pit, is it working?	✓			

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?		✓		
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

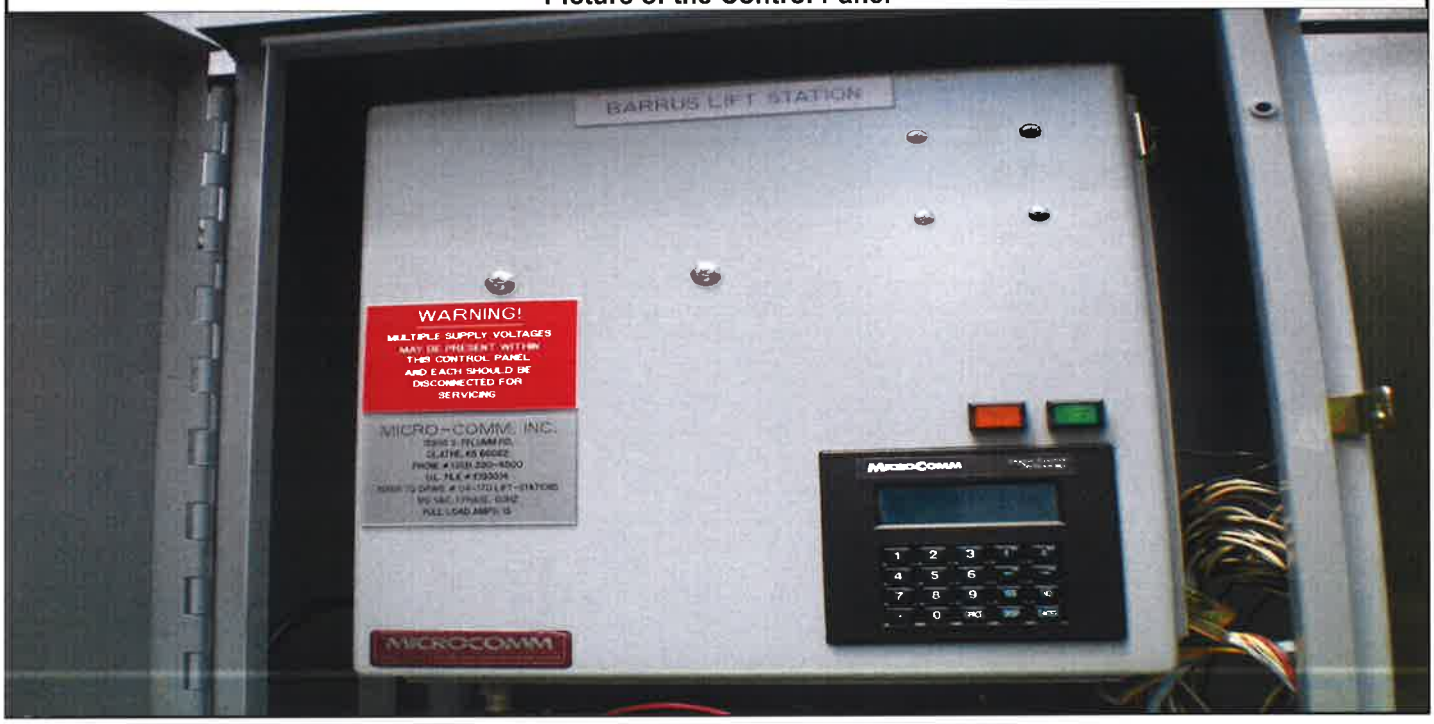
Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

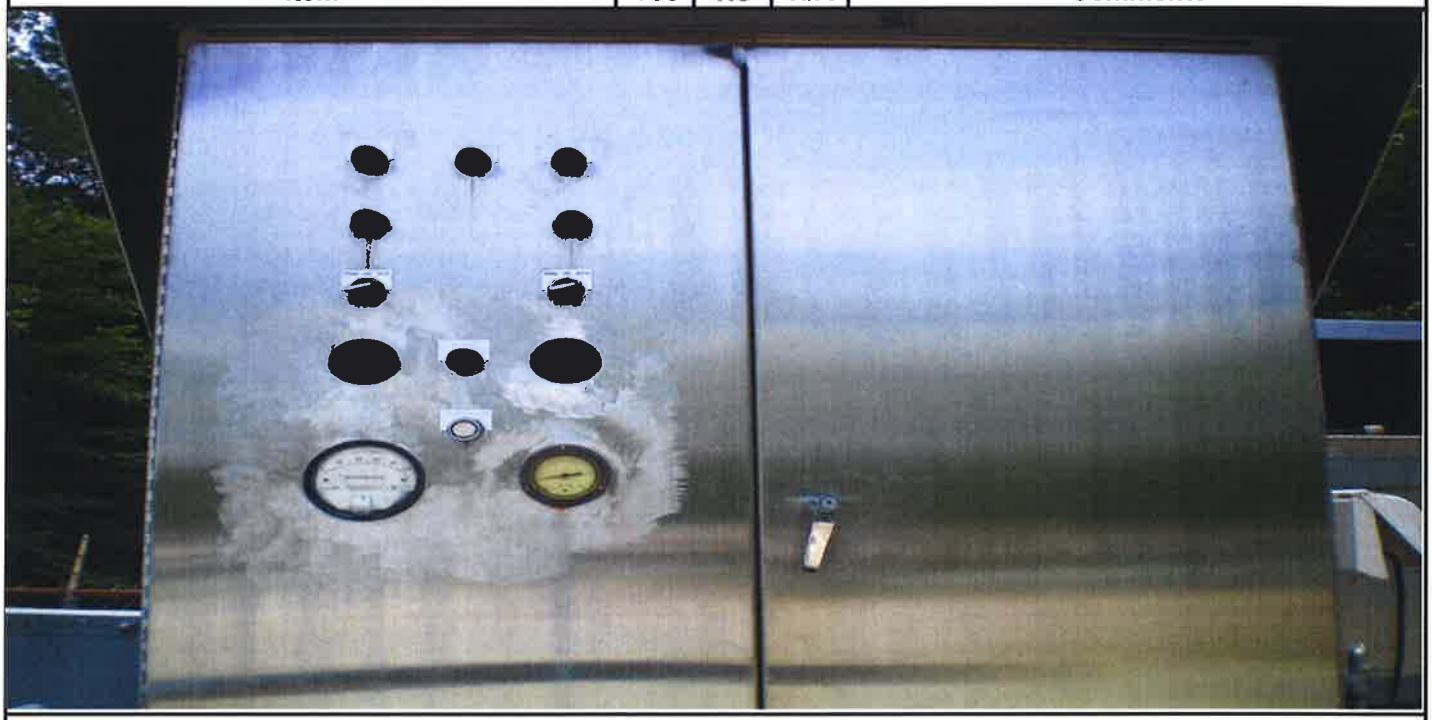
Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				

Item	Yes	No	N/A	Comments
Generator and Engine				

Picture of the Control Panel



Item	Yes	No	N/A	Comments



Notes:

Replace Hatch on Wet Well
Paint Interior Coating in Wet Well
Replace Hoist
Replace Lights on Control Panel
Concrete Pad has Fissured and Needs to Be Repoured
Barbwire on Fence Needs Replacing
Exterior Finishes Indicate Corrosion and Need Sandblasting/Painting
Steel Grates are Corroding and Need Replacing
Convert from Dry/Wet Pit to Submersible Station (Long Term Improvement)

Drawdown Testing Data Sheet

Station Name:	Barrus	**Test date:**	8/14/2017
Station Number:	1	**Tester Name:**	WAL, VET, MRG

Wetwell Surface Area: 112 ft^2 **Shape (Circle one):** Circular Eliptical [Rectangle]

Station Discharge Type (Circle One) : [Manifold] Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	1.0	minutes

Fill Trial:	2.500	inches	**Fill Rate:**	175	GPM

Average Fill Rate:	175	GPM

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1.5	minutes

Pump 1 Drawdown:	11.000	inches	**Pump 1 Drawdown Rate:**	512	GPM
Pump 2 Drawdown:	12.000	inches	**Pump 2 Drawdown Rate:**	559	GPM

Pump 1 Pumping Rate:	686	GPM
Pump 2 Pumping Rate:	733	GPM

Design Pumping Rate Reported at 700 GPM at 23' TDH

Parallel Pumping

Pumping Run Time:	1.0	minutes

Parallel Drawdown:	13.750	inches	**Parallel Drawdown Rate:**	960	GPM

Pumping Rate:	1,134	GPM

Station Name: Briery Run
Station Number: 2
Station Address: 1314 Hwy 55 East

Date of Inspection: August, 14, 2017

Current Weather: Cloudy

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Off Hwy. 55 in Wooded Area
3	In what year was it constructed?	✓			1973

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			2,600 GPM @ 80 FT TDH
5	What is the wet well diameter (feet)?	✓			10' x 27' Rectangle
6	What is the diameter of force main leaving the station?	✓			10 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?	✓			23.25 FT
	Depth to inlet?	✓			16.06 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			Traffic Bollard Needs to Be Placed Around Wet Well Ventilation

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			In 500 Year Flood Zone

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.			✓	
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?		✓		
26	Is there positive pressure ventilation for dry wells?	✓			
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			
29	Is the station susceptible to flooding from a water source?	✓			
30	Does the access road provide acceptable entry onto the site?	✓			Paved Entrance
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?	✓			Only in Proximity to Bar Screen
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at L.S.
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator (Damaged During Hurricane Matthew and Out of Service, Portable Generator On-Site Temporarily)

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum (Out of Order - Being Replaced, Damaged in Hurricane Matthew)
2	Model	✓			275D560
3	Serial Number	✓			271847
4	Year Purchased		✓		Unknown, See Purchase Records
5	Fuel Tank Size		✓		Unknown, See Purchase Records
6	If portable generator how many stations does it serve?	✓			Portable Generator On-Site is Temporary During Maintanance
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			2016
9	Was the last generaor load test successful?			✓	Standby Generator is Currently Out Of Service
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			48"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 and 2 in service?		✓		Pump 1 Not Working Properly - Investigate To Determine Issues Pump 2 has a Leaking Seal, Not in Service - Needs Replacing
2	Pump No. 3 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?	✓			Corrosion and Paint Failure - Repaint
5	Is the water seal working properly?	✓			Mechanical Seals Pump 3 is only Functional Pump Pump 2 has a Leaking Seal - Replace
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			On-Site and at Shop
10	Is there anything obvious about the pumps that might compromise their continued service?	✓			Pump 2 is Leaking , Needs New Seal, Emergency Use Only Pump 1 is Not Working Properly - Further Investigation Needed

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Chicago
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			OLC10
4	Serial numbers?	✓			9809882
5	Actual flow being produced. (GPM)	✓			Design : 2,600 GPM @ 80 FT TDH Drawdown: Inflow Exceeded Pumping Rate, Not Working Properly
6	Hp/ rpm/ phase?	✓			75/ 885/ 3
Pump 2					
1	Pump Manufacturer?	✓			Chicago
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			OLC10
4	Serial numbers?	✓			9809882
5	Actual flow being produced. (GPM)	✓			Design : 2,600 GPM @ 80 FT TDH Drawdown: Not Tested - Leaking Seal
6	Hp/ rpm/ phase?	✓			75/ 885/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable (Pump 3)				
1	Pump Manufacturer?	✓			Chicago
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			OLC10
4	Serial numbers?	✓			9809882
5	Actual flow being produced. (GPM)	✓			Design : 2,600 GPM @ 80 FT TDH Drawdown: 2,735 GPM
6	Hp/ rpm/ phase?	✓			75/ 885/ 3

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?		✓		Not On Site
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?		✓		Not On Site
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	No Audible Alarm Apparent
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	No Visual Alarm Apparent
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			Lifting Chain
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?	✓			None Visible
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?		✓		Wet Well Ladder Corroded, Dry Well Stairs are Good
5	Do the suction shutoff valves work?	✓			No Issues Apparent
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			
8	Do the check valves work properly?		✓		Pump 3 Valves Only Appared to be Functioning Properly
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		Pumps 1 and 3 in Place and Appear Fine, Pump 2 Missing Gauges
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?	✓			No Visible Evidence; However, Pumps 1 and 2 Not Functioning Properly
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Sump Pump
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?	✓			
23	If the wet well has power ventilation, does it work?		✓		Needs Maintanence
24	Is the trash basket clean?			✓	
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Severe Corrosion Apparent
26	Is there a grease problem in the wet well?	✓			
27	Is there any excessive corrosion in the wet well?	✓			Entrance Hatch and Access Ladder Grout on Wet Well Walls Failing
28	Does the interior of the wet well need to be painted with a protective coating?	✓			Corrosion Evident, Aggregate Visable, Sandblast and Paint
29	Does the influent sluice gate work properly?		✓		

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?	✓			
31	Is there a mechanical bar screen?	✓			
32	Does the mechanical bar screen work properly?	✓			
33	Does the mechanical bar screen need replacing?		✓		
34	Is there a manual bar screen?	✓			Severly Corroded - Replace
35	Is the manual bar screen clean?		✓		
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?	✓			Apparent Due to Water Marks On Walls - Paint Protective Coating
38	Is ther any noticeable corrosion in the dry pit?	✓			Influent and Discharge Piping Install Dehumidifier
39	If there is a dry pit that has power ventilation, does it work?	✓			
40	Is there a dehumidifier in the dry pit?		✓		
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?		✓		
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

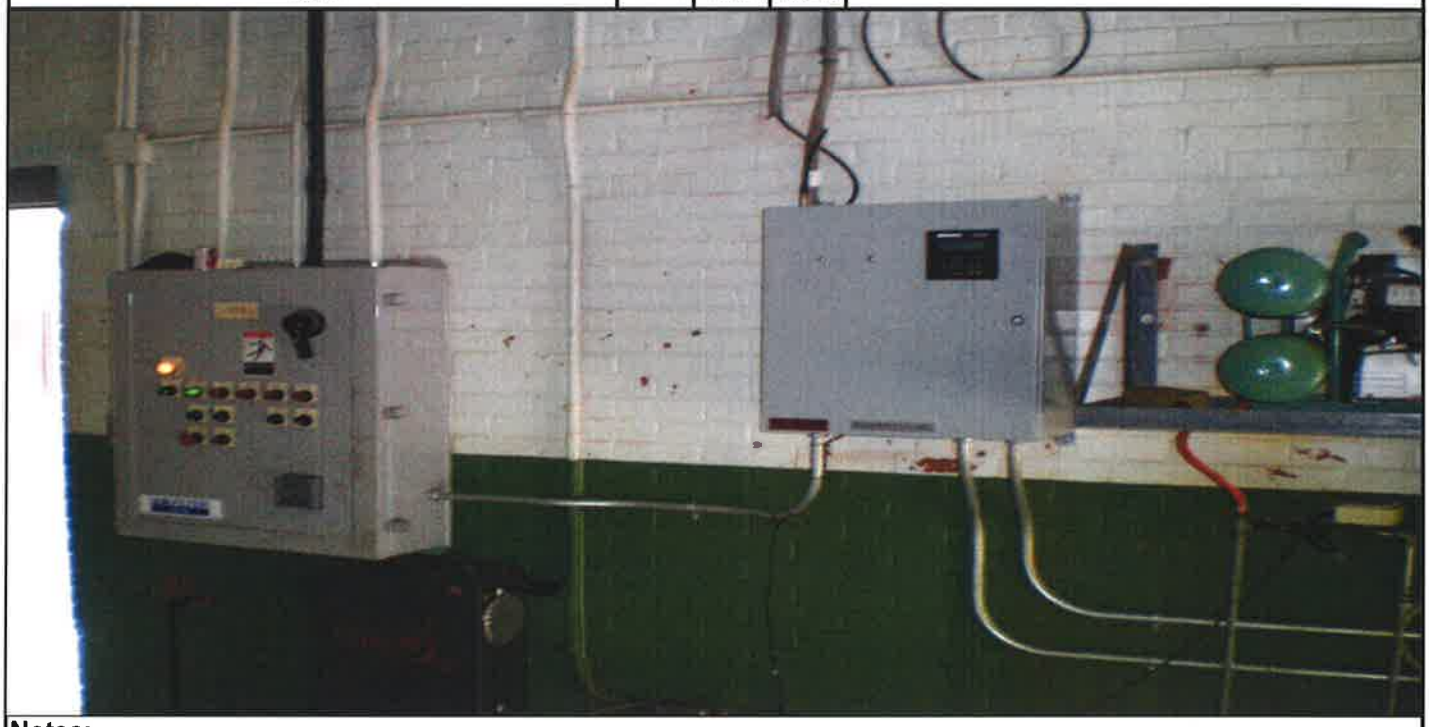
Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				

Item	Yes	No	N/A	Comments
Picture of Discharge Piping				

Picture of the Control Panel

Item	Yes	No	N/A	Comments



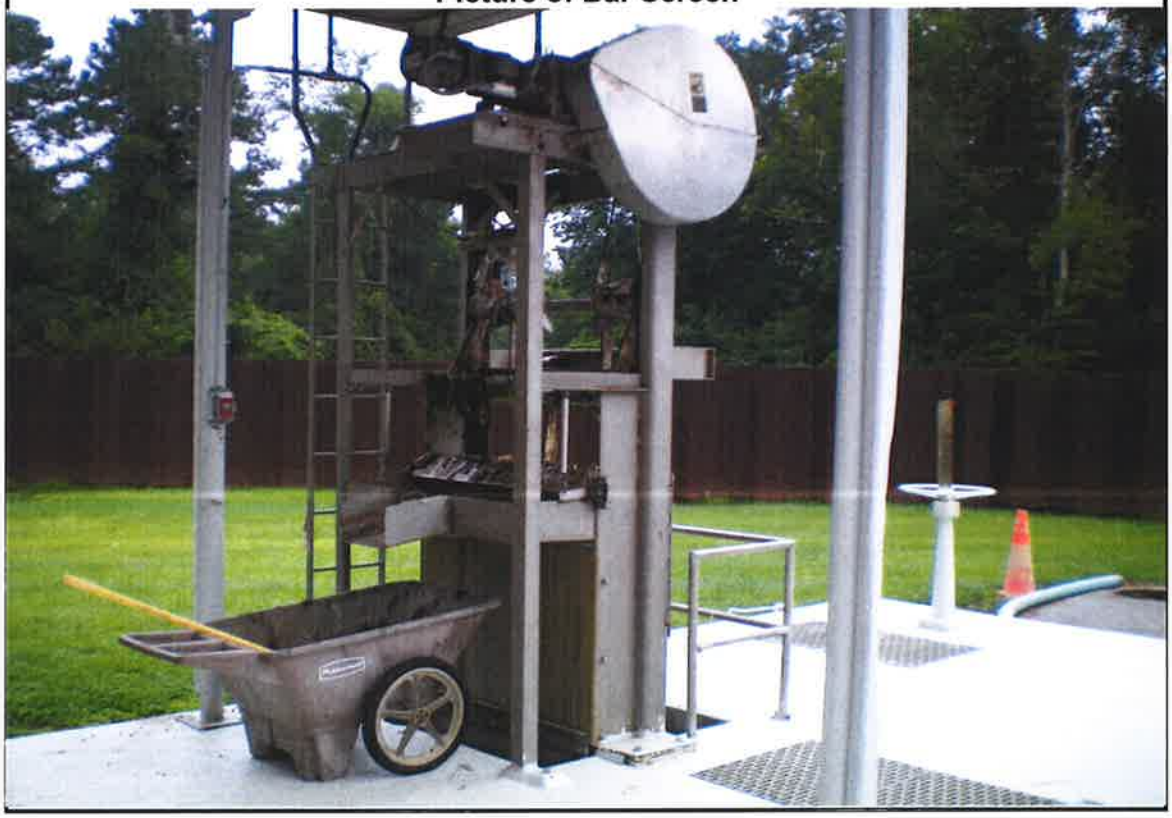
Notes:

Investigate Pump 1 and Check Valve Issues - Replace or Repair
Replace Seal and Check Valve in Pump 2
Install Pressure Gauge on Pump 2
Apply Protective Paint on Dry Well Walls
Install Traffic Bollards Around Wet Well Ventilation Shaft
Replace Access Hatch to Wet Well
Clean, Sandblast, Re-Groute, and Paint Wet Well
Replace Manual Barscreen
Replace Influent Sluice Gate
Install Dry Pit Dehumidifier
Clean/Sandblast/Repaint Pumps, Suction Lines, and Discharge Lines
Install Forcemain Bypass
Replace On-Site Generator (Planned Repair - Damaged During Hurricane Matthew)
Clean/Sandblast/Paint Influent Manhole
Replace Flood Gates Around LS (2 QTY)

Additional Pump Station Pictures

Pictures of Generator

Picture of Bar Screen



Interior Picture of the Influent Structures

Interior Picture of the Dry Pit

Pictures of Outside Site

Drawdown Testing Data Sheet

Station Name:	Briery Run	**Test date:**	8/14/2017
Station Number:	2	**Tester Name:**	WAL, VET, MRG

Wet Well Surface Area: 270 ft^2 **Shape (Circle one):** Circular Eliptical Rectangle

Station Discharge Type (Circle One) : Manifold Non-manifold

How Many Pumps on Manifold (If Manifold): 3

Fill Testing

Fill Time:	1	minutes

Fill Trial:	7.75	inches	**Fill Rate:**	1,304	GPM

Average Fill Rate:	1,304	GPM

Drawdown Testing

Pump 1, Pump 2, Pump 3

Pumping Run Time:	1.5	minutes

Pump 1 Drawdown:	0.00	inches	**Pump 1 Drawdown Rate:**	0.00	GPM
Pump 2 Drawdown:	0.00	inches	**Pump 2 Drawdown Rate:**	0.00	GPM
Pump 3 Drawdown:	12.75	inches	**Pump 3 Drawdown Rate:**	1,431	GPM

Pump 3 Pumping Rate:	2,735	GPM

Design Pumping Rate Reported at 2,600 GPM at 80' TDH

NOTES: Inflow exceeded Pump 1 pumping rate during drawdown testing.
Pump 1 requires further investigation to determine issue.
Pump 2 was out of service during assessment due to leaking.
Pump 2 needs new seal and is only used during emergency situations.
Parallel drawdown test was not performed due to pump conditions.

Station Name: Forrest Street
Station Number: 3
Station Address: 1301 Decatur Drive

Date of Inspection: August 14, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			End of Road in Woods
3	In what year was it constructed?			✓	Unknown, See Record Drawings (Post 2002)

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			4,000 GPM @ 165 FT TDH
5	What is the wet well surface area (sf)?	✓			Polygon - Stop Gate (Open) Separate Two Wet Wells Approximately 450 SF
6	What is the diameter of force main leaving the station?	✓			30 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?		✓		Unknown
	Depth to inlet?	✓			18.1 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintanance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			In 100 Year Floodway - Base Flood Elevation 35.3 FT Top of Wet Well Elevation: 36.57 FT General Average Site Elevation: 24.93 FT Bottom of Control Panel Elevation: 38.1 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			Two (2) Access Fences w/ Gates
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Well, Submersible Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			
29	Is the station susceptible to flooding from a water source?	✓			
30	Does the access road provide acceptable entry onto the site?	✓			Paved Driveway
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?	✓			scellaneous Components and Concrete - Paint Failure and Corros

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Caterpillar
2	Model	✓			3516
3	Serial Number	✓			CAT00000HZBC00129
4	Year Purchased	✓			2005
5	Fuel Tank Size	✓			Unkown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			60"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 and 2 in service?	✓			
2	Pump No. 3 and 4 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			
10	Is there anything obvious about the pumps that might compromise their continued service?	✓			Pump 1 and Pump 3 have a Strong Vibration during Operation

	Item	Yes	No	N/A	Comments
	Name plate Information				
	Pump 1				
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5435MV
4	Serial numbers?		✓		Not Visible - Submersible
5	Actual flow being produced. (GPM)	✓			Design : 4000 GPM @ 165 - FT TDH Drawdown: 5,049 GPM
6	Hp/ rpm/ phase/ voltage?	✓			250/ 1180/ 3
	Pump 2				
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5435MV
4	Serial numbers?		✓		Not Visible - Submersible
5	Actual flow being produced. (GPM)	✓			Design : 4000 GPM @ 165 - FT TDH Drawdown: 5,189 GPM
6	Hp/ rpm/ phase?	✓			250/ 1180/ 3

	Item	Yes	No	N/A	Comments
	Pumps 3 and 4				
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5435MV
4	Serial numbers?		✓		Not Visible - Submersible
5	Actual flow being produced. (GPM)	✓			Design : 4000 GPM @ 165 - FT TDH Pump 3 Drawdown: 4,208 GPM Pump 4 Drawdown: 4,208 GPM
6	Hp/ rpm/ phase?	✓			250/ 1180/ 3

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Audible Alarm Test is Silent
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Visual Alarm Test not Tested
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visible
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	No Suction Valves - Submersible Pumps
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			Only Discharge Lines, No Suction Lines - Submersible Station
8	Do the check valves work properly?	✓			
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?			✓	
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?		✓		None Available/Reported
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		None Apparent

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			
17	If there is a sump pump and/or drainage pipe, is it functioning properly?			✓	
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?			✓	
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?			✓	
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?	✓			
23	If the wet well has power ventilation, does it work?	✓			
24	Is the trash basket clean?			✓	
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Grease, Trash, Some Solids
26	Is there a grease problem in the wet well?	✓			
27	Is there any excessive corrosion in the wet well?	✓			Above Ground Metal Components, Access Hatch Shows Signs of Corrosion and Exposed Aggregate
28	Does the interior of the wet well need to be painted with a protective coating??	✓			Exposed Aggregate in Places
29	Does the influent sluice gate work properly?	✓			

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?	✓			Gate Between Wet Wells is Stuck in Open
31	Is there a mechanical bar screen?	✓			
32	Does the mechanical bar screen work properly?		✓		Requires Constant Maintenance
33	Does the mechanical bar screen need replacing?	✓			Replace Whole Channel and Screen
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Well, Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well				

Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				

Picture of the Control Panel

Item	Yes	No	N/A	Comments

Notes:

Sandblast/Resurface/Repaint Miscellaneous Above Ground Components which are Rusting/Corroding
Investigate Pumps 1 and 3 to Identify Vibration Cause, Repair
Clean Grease and Trash from Wet Well/Climber Screen Channel
Repair Concrete where Aggregate is Exposed
Apply Protective Paint in Wet Well
Fix Gate between Wet Wells
Replace Mechanical Barscreen and Channel

Drawdown Testing Data Sheet

Station Name:	Forrest Street	**Test date:**	8/14/2017
Station Number:	3	**Tester Name:**	Wal, VET, MRG

Wet Well Surface Area: 450 ft^2 **Shape (Circle one):** Circular Eliptical [Rectangle]

Station Discharge Type (Circle One) : [Manifold] Non-manifold

How Many Pumps on Manifold (If Manifold): 4

Fill Testing

Fill Time:	1.0	minutes

Pumps 1 & 2 Fill Trial:	3.00	inches	**Fill Rate 1:**	842	GPM
Pumps 3 & 4 Fill Trial:	3.00	inches	**Fill Rate 2:**	842	GPM

Two (2) Wet Wells Seperated by Sluice Gate (Open), Two (2) Pumps in Each Well Well

Average Fill Rate:	842	GPM

Drawdown Testing

Pump 1, Pump 2, Pump 3, Pump 4

Pumping Run Time:	1	minutes

ALL DRAWDOWNS PERFORMED AT FULL SPEED - NO SOFT START

Pump 1 Drawdown:	15.00	inches	**Pump 1 Drawdown Rate:**	4,208	GPM
Pump 2 Drawdown:	15.50	inches	**Pump 2 Drawdown Rate:**	4,348	GPM
Pump 3 Drawdown:	12.00	inches	**Pump 3 Drawdown Rate:**	3,366	GPM
Pump 4 Drawdown:	12.00	inches	**Pump 4 Drawdown Rate:**	3,366	GPM

Pump 1 Pumping Rate:	5,049	GPM
Pump 2 Pumping Rate:	5,189	GPM
Pump 3 Pumping Rate:	4,208	GPM
Pump 4 Pumping Rate:	4,208	GPM

Design Pumping Rate Reported at 4,000 GPM at 165 FT TDH

Parallel Pumping

Pumping Run Time:	0.5	minutes

Pumps 1 and 2 Drawdown:	19.000	inches	**Pumps 1 and 2 Drawdown Rate:**	10,659.00	GPM
Pumps 3 and 4 Drawdown:	14.000	inches	**Pumps 3 and 4 Drawdown Rate:**	7,854.00	GPM

Pumps 1 and 2 Pumping Rate:	11,501	GPM
Pumps 3 and 4 Pumping Rate:	8,696	GPM

Station Name: Pollock Street
Station Number: 4
Station Address: 300 Pollock Street

Date of Inspection: August 14, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Behind Residential Neighborhood
3	In what year was it constructed?	✓			1967 and 1999

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			2,500 GPM @ 31 FT TDH
5	What is the wet well diameter (feet)?	✓			10' x 27' Rectangle
6	What is the diameter of force main leaving the station?	✓			10 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?	✓			28.56 FT
	Depth to inlet?	✓			22.81 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintanence Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			In 100 Year Floodway - Base Flood Elevation 39.7 FT Top of Wet Well Elevation: 36.1 FT General Average Site Elevation: 35.0 FT Bottom of Control Panel Elevation: 39.8 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.			✓	
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?	✓			
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)		✓		Some Dry Well Lights Out
28	Is the site in a remote location?		✓		
29	Is the station susceptible to flooding from a water source?	✓			
30	Does the access road provide acceptable entry onto the site?	✓			Paved
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?		✓		
32	Is there excessive odor in the area of the pump station?	✓			Wet Well
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?		✓		N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum
2	Model	✓			100-DS-S
3	Serial Number	✓			689312
4	Year Purchased		✓		Unknown, See Purchase Records
5	Fuel Tank Size		✓		Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			48"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 and 2 in service?	✓			
2	Pump No. 3 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		
5	Is the water seal working properly?	✓			Mechanical Seals
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			On Site and At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
	Name plate Information				
	Pump 1				
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			C5445
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 2500 GPM @ 31 - FT TDH Drawdown: 1,935 GPM
6	Hp/ rpm/ phase?	✓			100/ 875/ 3
	Pump 2				
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			C5445
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 2500 GPM @ 31 - FT TDH Drawdown: 2,104 GPM
6	Hp/ rpm/ phase?	✓			100/ 875/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable (Pump 3)				
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			C5445
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 2500 GPM @ 31 - FT TDH Drawdown: 2,440 GPM
6	Hp/ rpm/ phase?	✓			100/ 875/ 3

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?		✓		
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?		✓		
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Audible Alarm Test is Silent
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Visual Alarm Test not Tested
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?		✓		Bubbler System
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?	✓			
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			Lifting Chain
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?		✓		Ladder and Hatch to Wet Well Correded and Failing - Dry Pit is in Fine Condition
5	Do the suction shutoff valves work?	✓			No Issues Apparent
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			
8	Do the check valves work properly?	✓			
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		Need Replacing
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?		✓		Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?	✓			Corrosion and Cement Failure On Discharge Pipe Intersect

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			
17	If there is a sump pump and/or drainage pipe, is it functioning properly?		✓		Dry Pit has Standing Water Around Sump
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?	✓			
23	If the wet well has power ventilation, does it work?		✓		
24	Is the trash basket clean?			✓	
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Trash, Minor Grease
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?	✓			Exposed Aggregate on Dry Pit/Wet Well Wall
28	Does the interior of the wet well need to be painted with a protective coating??	✓			
29	Does the influent sluice gate work properly?	✓			

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?	✓			
31	Is there a mechanical bar screen?	✓			
32	Does the mechanical bar screen work properly?		✓		Only Runs in Manual Mode
33	Does the mechanical bar screen need replacing?	✓			
34	Is there a manual bar screen?	✓			
35	Is the manual bar screen clean?		✓		Influent Channel Dirty
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?		✓		None Apparent
38	Is ther any noticeable corrosion in the dry pit?	✓			Discharge Piping Shows Severe Corrosion and Paint Failure - Sandblast and Repaint
39	If there is a dry pit that has power ventilation, does it work?	✓			
40	Is there a dehumidifier in the dry pit?		✓		
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?		✓		
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				

Item	Yes	No	N/A	Comments
Pictures of Influent Channel and Barscreen				

Picture of the Control Panel

Item	Yes	No	N/A	Comments

Notes:
Fencing Around Site Needs Repairing
Install Forcemain Bypass
Corrosion on Electrical Components Outside of Wet Well
Exposed Aggregate in Wet Well and Access Hatch - Sandblast, Clean, and Repaint
Access Ladder into Wet Well is Severly Corroded and Failing
Replace Mechanical Barscreen
Discharge Piping Needs to be Sandblasted and Repainted
Pumps Enclosures and Suction Piping Needs Sandblasting and New Paint
Investigate Sump Pump in Dry Pit to Insure Proper Operation
Install Dehumidifier

Drawdown Testing Data Sheet

Station Name:	Pollock Street	**Test date:**	8/14/2017
Station Number:	4	**Tester Name:**	WAL, VET, MRG

Wet Well Surface Area: 270 ft^2 **Shape (Circle one):** Circular Eliptical [Rectangle]

Station Discharge Type (Circle One) : [Manifold] Non-manifold

How Many Pumps on Manifold (If Manifold): 3

Fill Testing

Fill Time:	1	minutes

Fill Trial:	6.500	inches	**Fill Rate:**	1,094	GPM

Average Fill Rate:	1,094	GPM

Drawdown Testing

Pump 1, Pump 2, Pump 3

Pumping Run Time:	1.5	minutes

Pump 1 Drawdown:	6.0	inches	**Pump 1 Drawdown Rate:**	673	GPM
Pump 2 Drawdown:	8.0	inches	**Pump 2 Drawdown Rate:**	898	GPM
Pump 3 Drawdown:	12.0	inches	**Pump 3 Drawdown Rate:**	1,346	GPM

Pump 1 Pumping Rate:	1,767	GPM
Pump 2 Pumping Rate:	1,992	GPM
Pump 3 Pumping Rate:	2,440	GPM

Design Pumping Rate Reported at 2,500 GPM at 31 FT TDH

Parallel Pumping

Pumping Run Time:	1.5	minutes

Pumps 1 and 2 Drawdown:	20.5	inches	**Pumps 1 and 2 Drawdown Rate:**	2,300	GPM
Pumps 1 and 3 Drawdown:	22.5	inches	**Pumps 1 and 3 Drawdown Rate:**	2,525	GPM
Pumps 2 and 3 Drawdown:	23.0	inches	**Pumps 2 and 3 Drawdown Rate:**	2,581	GPM

Pumps 1 and 2 Pumping Rate:	3,394	GPM
Pumps 1 and 3 Pumping Rate:	3,618	GPM
Pumps 2 and 3 Pumping Rate:	3,675	GPM

Station Name: Hampton Inn
Station Number: 5
Station Address: 105 W. New Bern Road

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Across from Hampton Inn
3	In what year was it constructed?	✓			1984

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			750 GPM @ 50 FT TDH
5	What is the wet well diameter (feet)?	✓			7.83'X10' Rectangle
6	What is the diameter of force main leaving the station?	✓			10 IN
	Are the As-builts available for this station?	✓			
7	Depth of wetwell?	✓			28.5 FT
	Depth to inlet?	✓			21 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?		✓		In 100 Year Floodway - Base Flood Elevation 37.3 FT Top of Wet Well Elevation: 36.4 FT General Average Site Elevation: 32.9 FT Bottom of Control Panel Elevation - 39.5 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.		✓		
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?	✓			Fan Appears to Run for 30 Seconds then Stops
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)		✓		Area Lights on Control Panel
28	Is the site in a remote location?		✓		
29	Is the station susceptible to flooding from a water source?	✓			Near Neuse River
30	Does the access road provide acceptable entry onto the site?	✓			Gravel Drive
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		Few Areas need Sandblasting/Painting - Rust and Minor Corrosion

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at L.S
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum
2	Model	✓			5GD8J
3	Serial Number	✓			572231
4	Year Purchased		✓		Unknown, See Purchase Records
5	Fuel Tank Size		✓		Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			68"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		
5	Is the water seal working properly?	✓			Mechancial Seals
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		Confirm Dry Pit Ventilation is Operable - Possible Corrosive Environment

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Fairbank-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			B5443 T-30
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 750 GPM @ 50 - FT TDH Drawdown: No Drawdown Performed - No Inflow
6	Hp/ rpm/ phase?	✓			20/ 1160/ 3
Pump 2					
1	Pump Manufacturer?	✓			Fairbank-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			B5443 T-30
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 750 GPM @ 50 - FT TDH Drawdown: No Drawdown Performed - No Inflow
6	Hp/ rpm/ phase?	✓			20/ 1160/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?		✓		Not On-Site
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?		✓		Not On-Site
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			Bubbler System, One High Alarm Mercury Float

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Audible Alarm Test is Silent
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Visual Alarm Test Not Tested
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?		✓		Bubbler System
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?	✓			
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?	✓			No Issues Apparent
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			
8	Do the check valves work properly?	✓			
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		None Apparent

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Sump Pump
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			Assumed, Not Verified
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?	✓			
23	If the wet well has power ventilation, does it work?			✓	Not Tested
24	Is the trash basket clean?			✓	
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?	✓			
31	Is there a mechanical bar screen?	✓			
32	Does the mechanical bar screen work properly?			✓	Barscreen was in OFF Postion during Site Assessment - Did Not Test
33	Does the mechanical bar screen need replacing?			✓	Not Tested, Appears in Good Shape
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?		✓		None Apparent
38	Is ther any noticeable corrosion in the dry pit?		✓		Minor
39	If there is a dry pit that has power ventilation, does it work?	✓			Turns On for Approximately 30 Seconds the Stops
40	Is there a dehumidifier in the dry pit?	✓			
41	If there is a dehumidifier in the dry pit, is it working?			✓	Not Verified

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?		✓		
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

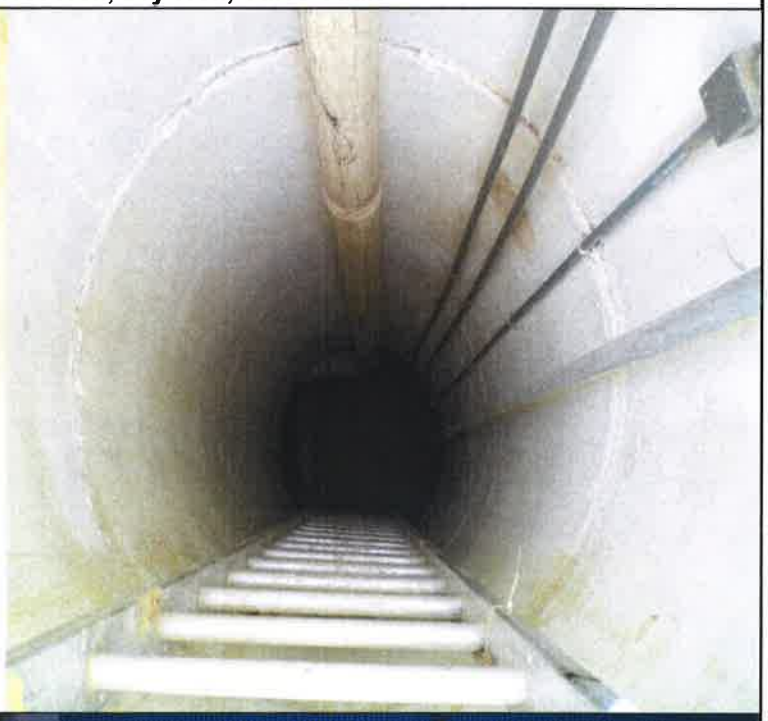
Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well, Dry Well, Valve Vault				



Item	Yes	No	N/A	Comments
Interior Pictures of Barscreen Channel				

Picture of the Control Panel

Item	Yes	No	N/A	Comments

Notes:
Investigate Mechanical Bar Screen for Proper Operation. Repair, Replace as Necessary.
Paint is Failing of Several Exterior Surfaces, Sandblast and Paint
No Forcemain Bypass
Convert to Submersible Station - Long Term Improvement
Dry Pit Power Ventilation will Operate but for Only 30 Seconds then Powers Off

Drawdown Testing Data Sheet

Station Name: Hampton Inn **Test date:** 8/10/2017

Station Number: 5 **Tester Name:** WAL, VET, MRG

Wet Well Surface Area: 78.3 ft^2 **Shape (Circle one):** Circular Eliptical Rectangle

Station Discharge Type (Circle One) : Manifold Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

NO INFLOW DURING SITE ASSESSMENT - NO TEST

Fill Time:	0	minutes

Fill Trial:	N/A	inches

Fill Rate:	N/A	GPM

Average Fill Rate:	N/A	GPM

Drawdown Testing

NO INFLOW DURING SITE ASSESSMENT - NO DRAWDOWNS

Pump 1 and Pump 2

Pumping Run Time:	N/A	minutes

Pump 1 Drawdown:	N/A	inches
Pump 2 Drawdown:	N/A	inches

Pump 1 Drawdown Rate:	N/A	GPM
Pump 2 Drawdown Rate:	N/A	GPM

Pump 1 Pumping Rate:	N/A	GPM
Pump 2 Pumping Rate:	N/A	GPM

Design Pumping Rate Reported at 750 GPM at 50 FT TDH

Parallel Pumping

Pumping Run Time:	N/A	minutes

Parallel Drawdown:	N/A	inches

Parallel Drawdown Rate:	N/A	GPM

Parallel Pumping Rate:	N/A	GPM

Station Name: Oliver Glass
Station Number: 6
Station Address: 646 Sussex Street

Date of Inspection: August 14, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			In Wooded Area, Secluded
3	In what year was it constructed?	✓			1999

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			750 GPM @ 156 FT TDH
5	What is the wet well diameter (feet)?	✓			10 X 10 Rectangle
6	What is the diameter of force main leaving the station?	✓			8 IN
7	Are the As-builts available for this station?	✓			
	Depth of wetwell?	✓			27.5 FT
	Depth to inlet?	✓			21.0 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed During Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			In 500 Year Flood Zone Top of Wet Well Elevation: 38.1 FT General Average Site Elevation: 34.5 FT Bottom of Control Panel Elevation - 44.7 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?	✓			Does Not Work
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)		✓		No Site Lights on Panel
28	Is the site in a remote location?	✓			
29	Is the station susceptible to flooding from a water source?	✓			Adjacent to Drainage Ditch
30	Does the access road provide acceptable entry onto the site?	✓			Gravel Road
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?	✓			Wet Well
33	Is the station in need of any exterior protective painting?	✓			Wet Well and Various Exterior Structures

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N. A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
Part B: Generator Information					
1	Make or manufacturer	✓			Detroit Desiel
2	Model	✓			180DSEJB
3	Serial Number	✓			2082231
4	Year Purchased			✓	See Purchase Records, Seems Fairly New
5	Fuel Tank Size	✓			346 gallons
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			72"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		
5	Is the water seal working properly?	✓			Mechanical Seals
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?	✓			Repair Ventilation for Both Wet Well and Dry Pit - Corrosive Environment

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			B5423 T-40
4	Serial numbers?	✓			106794
5	Actual flow being produced. (GPM)	✓			Design: 750 GPM @ 156 FT TDH Drawdown: 748 GPM
6	Hp/ rpm/ phase?	✓			75/ 1785/ 3
Pump 2					
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			B5423 T-40
4	Serial numbers?	✓			106794
5	Actual flow being produced. (GPM)	✓			Design: 750 GPM @ 156 FT TDH Drawdown: 764 GPM
6	Hp/ rpm/ phase?	✓			75/ 1785/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X, Needs Rain Shield
8	Are all electrical components protected from corrosive elements?		✓		Electrical Conduit and Brackets Failing - Corrosion
9	Are all cables and conduits water/gas tight and corrosion resistant?		✓		Conduits Failing - Corrosion
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)		✓		No Horn
16	Does the high water alarm light work? (found by lifting it above the switch point)		✓		No Light
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?		✓		Bubbler System, Back-Up High Water Level Mercury Float
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?	✓			
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			Lifting Chain
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?	✓			No Issues Apparent
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			
8	Do the check valves work properly?	✓			No Issues Apparent
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?	✓			
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		None Apparent

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Sump Pump
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?	✓			
23	If the wet well has power ventilation, does it work?		✓		Appears Broken, Did Not Test
24	Is the trash basket clean?	✓			Is Not Flush with Influent Line, Adjust Back for Proper Operation
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Minor Solids, Grease
26	Is there a grease problem in the wet well?	✓			
27	Is there any excessive corrosion in the wet well?	✓			Minor
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?	✓			
31	Is there a mechanical bar screen?	✓			
32	Does the mechanical bar screen work properly?			✓	Barscreen in OFF Position, Not Tested Grates in Barscreen Well - Remove
33	Does the mechanical bar screen need replacing?				Not Tested Appears in Good Shape
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?		✓		None Apparent
38	Is ther any noticeable corrosion in the dry pit?	✓			Minor
39	If there is a dry pit that has power ventilation, does it work?		✓		Appears Broken, Did Not Test
40	Is there a dehumidifier in the dry pit?		✓		
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?		✓		
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				

Item	Yes	No	N/A	Comments
Picture of Generator and Barscreen Well				

Picture of the Control Panel

Item	Yes	No	N/A	Comments
				

Notes:
Repaint Structures in Areas where Paint is Failing
Replace Electrical Conduit where Corroded and Failing
Saftey Rail on Barscreen Structure Need Replacing
Repair Ventilation Systems for Wet Well and Dry Pit
Remove Grates from Barscreen Well
Adjust Rash Basket, Appears Force of Influent Water has Knocked It Off the Wall
Repair Barbwire where Failing
Install Forcemain Bypass
Replace Panel Brackets Where Failing
Install Audible and Visual Alarms
Convert to Submersible Station (Long Term Improvement)

Drawdown Testing Data Sheet

Station Name:	Oliver Glass	**Test Date:**	8/14/2017
Station Number:	6	**Tester Name:**	WAL, VET, MRG

Wet Well Surface Area: 100 ft^2 **Shape (Circle one):** Circular Eliptical [Rectangle]

Station Discharge Type (Circle One) : [Manifold] Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	1	minutes

Fill Trial:	8.25	inches	**Fill Rate:**	514	GPM
Average Fill Rate:			514		GPM

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1	minutes

Pump 1 Drawdown:	3.75	inches	**Pump 1 Drawdown Rate:**	234	GPM
Pump 2 Drawdown:	4.00	inches	**Pump 2 Drawdown Rate:**	249	GPM

Pump 1 Pumping Rate:	748	GPM
Pump 2 Pumping Rate:	764	GPM

Design Pumping Rate Reported at 750 GPM at 156 FT TDH

Parallel Pumping

Pumping Run Time:	1	minutes

Parallel Drawdown:	6.250	inches	**Parallel Drawdown Rate:**	390	GPM
Pumping Rate:			904		GPM

Station Name: Airport
Station Number: 7
Station Address: 2839 Airport Road

Date of Inspection: August 9, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			In Open Field at Airport, Next to Water Tower
3	In what year was it constructed?	✓			1976

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			225 GPM @ 25 FT TDH
5	What is the wet well diameter (feet)?	✓			6 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
7	Are the As-builts available for this station?	✓			
	Depth of wetwell?		✓		Not Available, See Record Drawings
	Depth to inlet?	✓			10.7 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintainence Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?		✓		Valve Vault Outside of Station

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?			✓	6,000 LF from 100 Year Flood Elevation - No Vent Top of Wet Well Elevation: 88.8 FT General Average Site Elevation: 87.0 FT Bottom of Control Panel Elevation: 92.25 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.		✓		No Vent
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			Valve Vault Outside of Fence, Control Panel Inside Elevated Tank Fence
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?		✓		Valve Vault Needs Lock
24	Is there potable water available on the site?		✓		
25	Is there a back-flow preventer on the potable water?			✓	
26	Is there positive pressure ventilation for dry wells?			✓	
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)		✓		No Site Area Light
28	Is the site in a remote location?	✓			Somewhat
29	Is the station susceptible to flooding from a water source?		✓		Not Likely
30	Does the access road provide acceptable entry onto the site?	✓			Gravel Drive
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?		✓		N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
Part B: Generator Information					
1	Make or manufacturer	✓			Spectrum
2	Model	✓			30DSJ
3	Serial Number	✓			673349
4	Year Purchased		✓		Unknown, See Purchase Records
5	Fuel Tank Size		✓		Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			36"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Submersible, Not Verified
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			EMV
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			FA 101-160
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 225 GPM @ 25 - FT TDH Drawdown: 229 GPM
6	Hp/ rpm/ phase?	✓			4.4/ 1680/ 3
Pump 2					
1	Pump Manufacturer?	✓			EMU
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			FA 101-160
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 225 GPM @ 25 - FT TDH Drawdown: 238 GPM
6	Hp/ rpm/ phase?	✓			4.4/ 1680/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?		✓		Not on Site
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?		✓		Not on Site
3	Pump control panel easily accessible?		✓		Panel in Enclosure Across Street from Wet Well
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?			✓	Steel Enclosure within Elevated Tank Fencing
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?		✓		
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)		✓		
16	Does the high water alarm light work? (found by lifting it above the switch point)		✓		
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?		✓		
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	Submersible Pumps
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			Discharge Pipes Only No Suction Pipes - Submersible Station
8	Do the check valves work properly?	✓			No Issues Apparent
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		No Gauges
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		None Apparent

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drain
17	If there is a sump pump and/or drainage pipe, is it functioning properly?		✓		Possible Clogged, Water Standing in Vault
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			Not Verified - Likely P Trap, Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	No Trash Basket
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit - Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

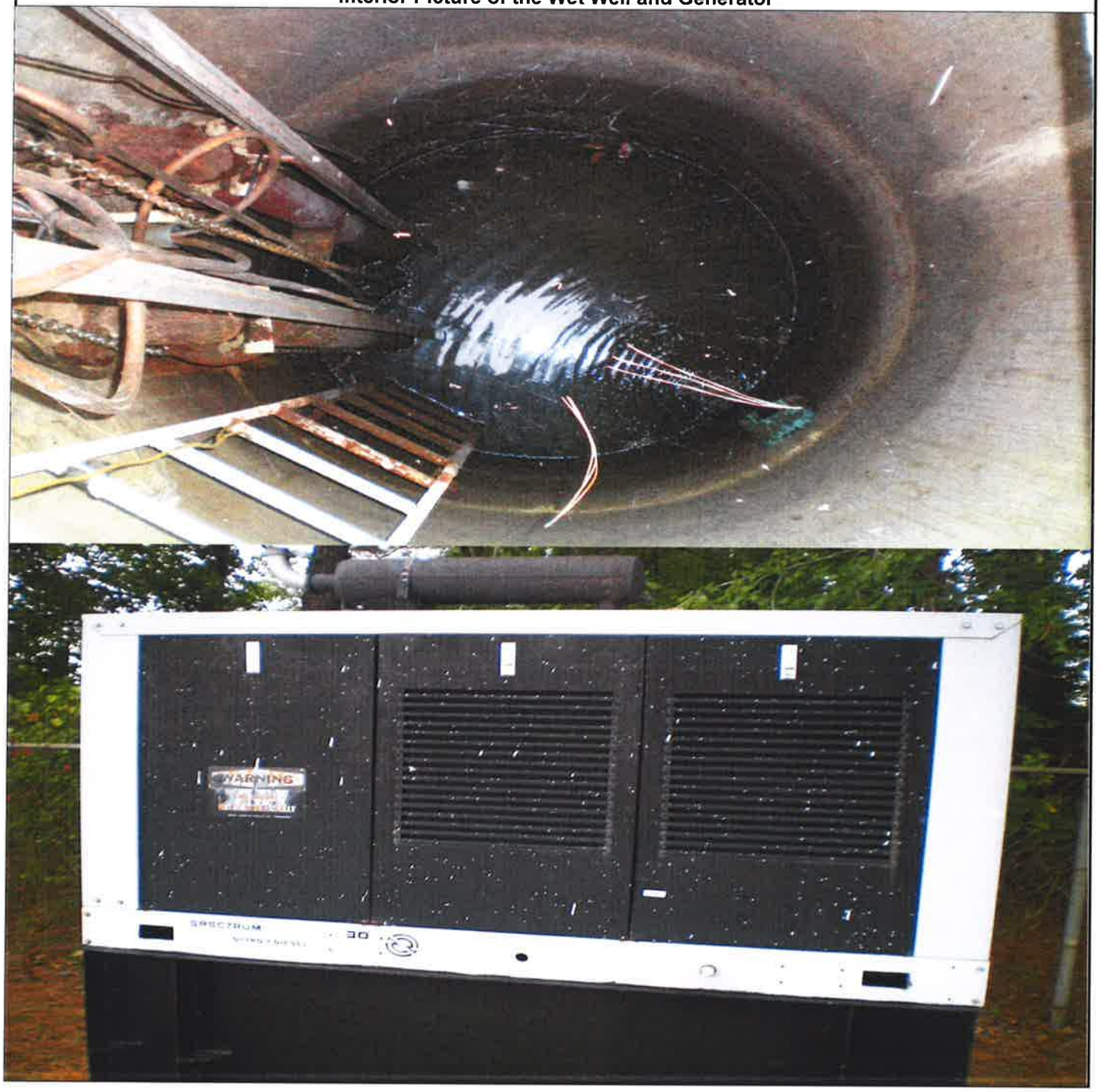
Additional Pump Station Pictures

Station Gate with Station Name Placard

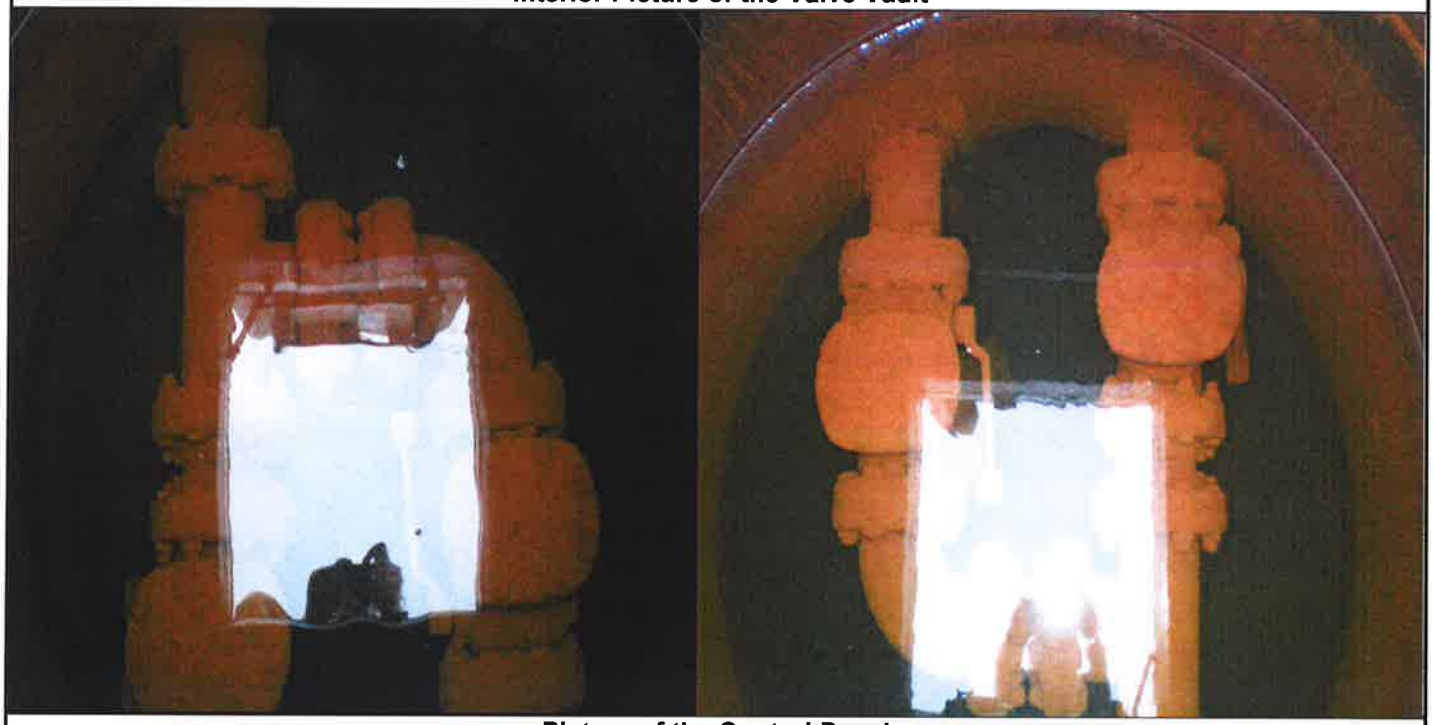
Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and Generator				



Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				



Picture of the Control Panel

Item	Yes	No	N/A	Comments

Notes:

Move Control Panel to Wet Well
Move Generator to Wet Well
Enlarge Fencing to House all Components
Install Wet Well Vent
Fix Drain from Valve Vault
Provide Potable Water to Wet Well
Install Forcemain Bypass

Drawdown Testing Data Sheet

Station Name: Airport
Test Date: 8/9/2017
Station Number: 7
Tester Name: WAL, VET, MRG
Wet Well Diameter: 6 ft.
Shape (Circle one): Circular Eliptical Rectangle
Station Discharge Type (Circle One) : Manifold Non-manifold
How Many Pumps on Manifold (If Manifold): 2

Fill Testing

NO INFLOW DURING SITE ASSESSMENT - NO TEST

Fill Time:	N/A	minutes

Fill Trial:	0.00	inches	**Fill Rate:**	0.0	GPM
Average Fill Rate:	0.0	GPM			

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1	minutes

Pump 1 Drawdown:	13.00	inches	**Pump 1 Drawdown Rate:**	229	GPM
Pump 2 Drawdown:	13.50	inches	**Pump 2 Drawdown Rate:**	238	GPM

Pump 1 Pumping Rate:	229	GPM
Pump 2 Pumping Rate:	238	GPM

Design Pumping Rate Reported at 225 GPM at 25 FT TDH

Parallel Pumping

NO TEST - NO WATER REMAINING FOR PARALLEL TEST

Pumping Run Time:	N/A	minutes

Paralled Drawdown:	N/A	inches	**Parallel Drawdown Rate:**	N/A	GPM

Pumping Rate:	N/A	GPM

Station Name: Brentwood Subdivision
Station Number: 8
Station Address: 801 Cunningham Road

Date of Inspection: August 9, 2017

Current Weather: Partly Cloudy

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Residential Area Off Major Road, In Field
3	In what year was it constructed?	✓			1999

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			100 gpm @ 15 FT TDH
5	What is the wet well diameter (feet)?	✓			8 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
7	Are the As-builts available for this station?	✓			
	Depth of wetwell?	✓			20.2 FT
	Depth to inlet?	✓			15.0 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintanance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			4,000 LF from 100 Year Flood Elevation Top of Wet Well Elevation: 77.4 FT General Average Site Elevation: 76.5 FT Bottom of Control Panel Elevation: 80.6 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.		✓		Screen Has Been Removed. Found on Control Panel - Replace
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?		✓		
29	Is the station susceptible to flooding from a water source?		✓		Likely Not, Very Flat - No Water Nearby
30	Does the access road provide acceptable entry onto the site?	✓			Off Major Road
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		Some Paint Chipping on Forcemain

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Generac
2	Model	✓			98A 0370S S
3	Serial Number	✓			2042642
4	Year Purchased	✓			1998
5	Fuel Tank Size	✓			193 Gal
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			24"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
	Part C: Information on Pumps within the Pump Station				
	General Information				
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Not Visable, Submersible Pumps
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
	Name Plate Information				
	Pump 1				
1	Pump Manufacturer?	✓			ABS
2	Sales Representative to be contacted about this pump?			✓	
3	Model Numbers / Catalog No.?	✓			AFP 1040-4 M15/4
4	Serial numbers?		✓		
5	Actual flow being produced. (GPM)	✓			Design: 100 gpm @ 15-ft TDH Drawdown: 172 GPM
6	Hp/ rpm/ phase?	✓			2/ 1780/ 3
	Pump 2				
1	Pump Manufacturer?	✓			ABS
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			AFP 1040-4 M15/4
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)	✓			Design: 100 gpm @ 15-ft TDH Drawdown: 110 GPM
6	Hp/ rpm/ phase?	✓			2/ 1780/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)		✓		Tested, Not Working
16	Does the high water alarm light work? (found by lifting it above the switch point)		✓		Tested, Not Working
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?		✓		

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	Submersible Pumps
6	Do the discharge shutoff valves work?	✓			
7	Are there separate pump suction and discharge pipes?	✓			Discharge Pipes Only No Suction Pipes - Submersible Station
8	Do the check valves work properly?	✓			
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?	✓			Appear Functional, Cannot Read - Foggy - Replace
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			Trash on Ladder
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?	✓			Discharge Pipes

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drain in Valve Vault
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			Likely P Trap - Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?		✓		Needs Cleaning
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		Under Hatch Exposed Rebar & Aggregate Needs Repair Guide Rails Need Replacing - Corrosion Discharge Piping - Corrosion, Need Sandblast/Paint
28	Does the interior of the wet well need to be painted with a protective coating??		✓		Just Discharge Piping
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit - Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

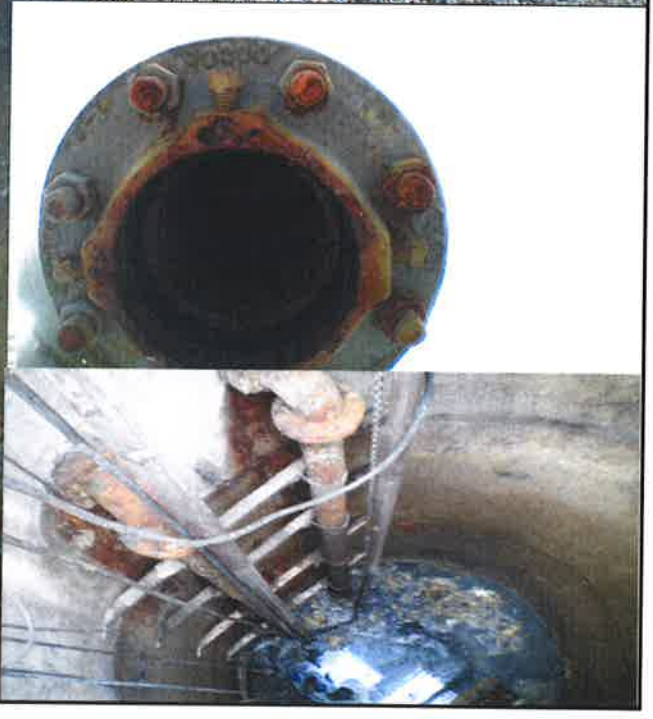
	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Pit - Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

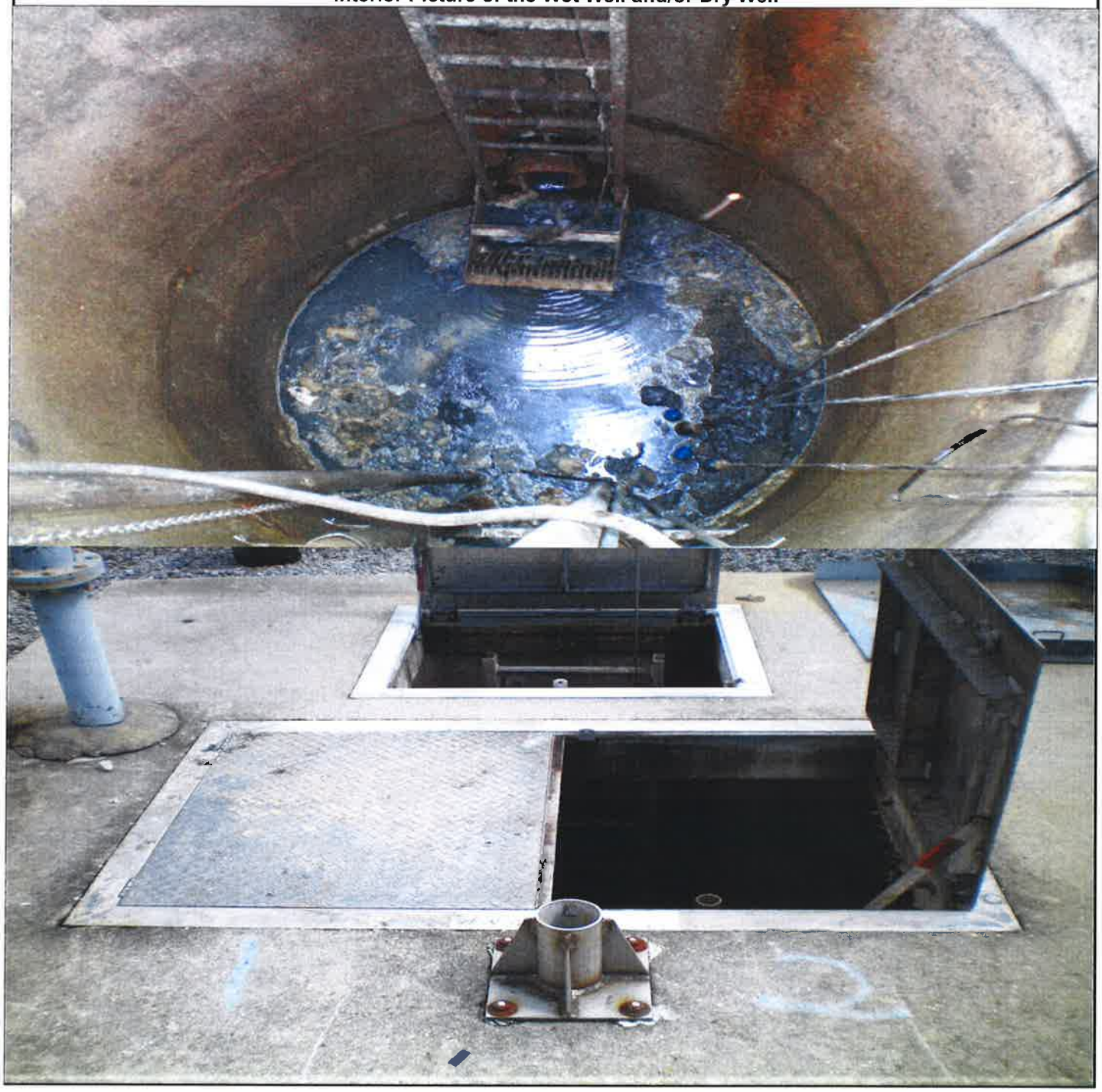
Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				



Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				

Picture of the Control Panel

Item	Yes	No	N/A	Comments
				

Notes:

Repair Corrosion Around Hatch
Install Insect Screen in Wet Well Vent
Repair Audibel and Visual Alarms
Clean Trash Basket
Leaking Valve Vault and Wet Well Around Discharge Pipe, Possible Groundwater
Pressure Gauges are Not Readable - Need Replacing
Install Forcemain Bypass

Drawdown Testing Data Sheet

Station Name:	Brentwood	**Test date:**	8/9/2017
Station Number:	8	**Tester Name:**	WAL, VET, MRG

Wet Well Diameter: 8 ft. **Shape (Circle one):** [Circular] Eliptical Rectangle

Station Discharge Type (Circle One) : [Manifold] Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	2	minutes

Fill Trial:	1.000	inches	**Fill Rate:**	16	GPM
Average Fill Rate:	16	GPM			

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	2	minutes

Pump 1 Drawdown:	10.000	inches	**Pump 1 Drawdown Rate:**	157	GPM
Pump 2 Drawdown:	10.500	inches	**Pump 2 Drawdown Rate:**	164	GPM

Pump 1 Pumping Rate:	172	GPM
Pump 2 Pumping Rate:	180	GPM

Design Pumping Rate Reported at 100 GPM at 15 FT TDH

Parallel Pumping

Pumping Run Time:	0.5	minutes

Parallel Drawdown:	3.500	inches	**Parallel Drawdown Rate:**	219.33	GPM
Parallel Pumping Rate:	235	GPM			

Station Name: GTP Cargo
Station Number: 9
Station Address: 1900 Cargo Drive

Date of Inspection: August 10, 2017

Current Weather: Partly Cloudy

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			In Woods, Inside Airport Fencing, Very Secluded
3	In what year was it constructed?			✓	Not Reported

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			150 GPM @ 120 - Ft TDH
5	What is the wet well diameter (feet)?	✓			8 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
7	Are the As-builts available for this station?	✓			
	Depth of wetwell?	✓			25.6 FT
	Depth to inlet?	✓			20.8 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			2,000 LF from 100 Year Flood Elevation - No Vent Top of Wet Well Elevation: 91.9 FT General Average Site Elevation: 90.7 FT Bottom of Control Panel Elevation: 94.32 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Pit - Submersible Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			Very Remote
29	Is the station susceptible to flooding from a water source?		✓		
30	Does the access road provide acceptable entry onto the site?		✓		Dirt Road, Inside Airport Security Gate
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		Vent Piping Showing Little Corrosion/Paint Chipping Rust on Electrical Conduits - Replace if Necessary

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Generac
2	Model	✓			2502970100
3	Serial Number	✓			2068163
4	Year Purchased	✓			2002-2003
5	Fuel Tank Size	✓			Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			30"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Not Visable - Submersible Pumps
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5433 MVK
4	Serial numbers?			✓	Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 150 GPM @ 120 - FT TDH Drawdown: Not Tested - Further Evaluation Required
6	Hp/ rpm/ phase?	✓			20/ 1770/ 3
Pump 2					
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5433 MVK
4	Serial numbers?			✓	Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 150 GPM @ 120 - FT TDH Drawdown: Not Tested - Further Evaluation Required
6	Hp/ rpm/ phase?	✓			20/ 1770/ 3

	Item	Yes	No	N/A	Comments
Back-Up Pump if Applicable					
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)	✓			
16	Does the high water alarm light work? (found by lifting it above the switch point)	✓			
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	Submersible Pumps
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			Discharge Pipes Only No Suction Pipes - Submersible Station
8	Do the check valves work properly?	✓			No Issues Apparent
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		No Gauges
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drain
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	Not Verified - Likely P Trap, Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?	✓			
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		Discharge Piping - Sandblast and Repaint Concrete Under Wet Well Hatch - Exposed Rebar and Aggregate
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit - Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

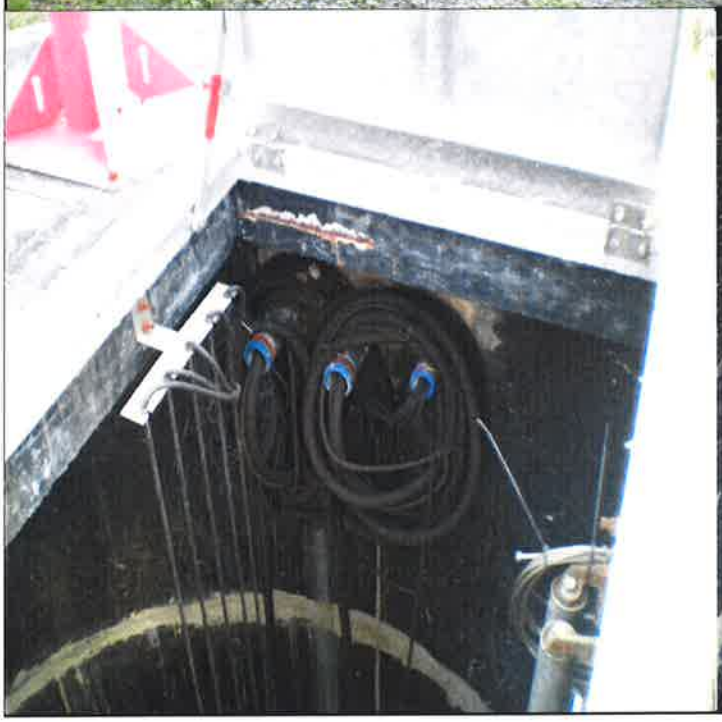
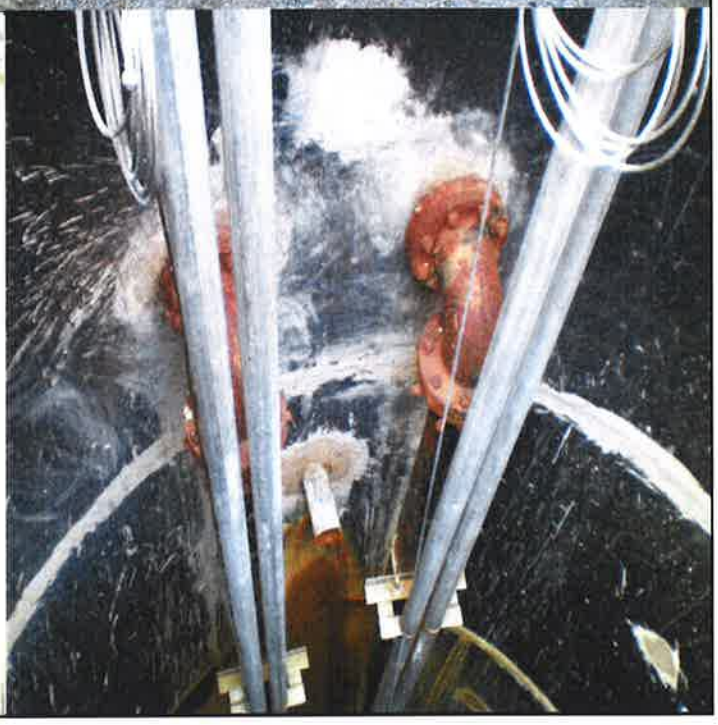
	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Pit - Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				

Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				

Picture of the Control Panel

Item	Yes	No	N/A	Comments

Notes:
Sandblast and Paint Vent Piping
Sandblast and Paint Discharge Piping
Clean Rust off Electrical Conduits, Replace if Necessary
Possible Infiltration of Groundwater on Riser Ring
Corrosion/Exposed Rebar and Aggregate Under Hatch

Drawdown Testing Data Sheet

Station Name: GTP Cargo
Test Date: 8/10/2017
Station Number: 9
Tester Name: WAL, VET, MRG
Wet Well Diameter: 8 ft.
Shape (Circle one): Circular Eliptical Rectangle
Station Discharge Type (Circle One) : Manifold Non-manifold
How Many Pumps on Manifold (If Manifold): 2

Fill Testing

NO INFLOW DURING SITE ASSESSMENT - NO TEST

Fill Time:	N/A minutes

Fill Trial:	0.00 inches	**Fill Rate:**	0.0 GPM
Average Fill Rate:	0.0 GPM		

Drawdown Testing

NOT ENOUGH WATER DURING SITE ASSESSMENT - NO TEST

Pump 1 and Pump 2

Pumping Run Time:	N/A minutes

Pump 1 Drawdown:	N/A inches	**Pump 1 Drawdown Rate:**	N/A GPM
Pump 2 Drawdown:	N/A inches	**Pump 2 Drawdown Rate:**	N/A GPM

Pump 1 Pumping Rate:	N/A GPM
Pump 2 Pumping Rate:	N/A GPM

Design Pumping Rate Reported at 150 GPM at 120 FT TDH

Parallel Pumping

NOT ENOUGH WATER DURING SITE ASSESSMENT - NO TEST

Pumping Run Time:	N/A minutes

Paralled Drawdown:	N/A inches	**Parallel Drawdown Rate:**	N/A GPM

Pumping Rate:	N/A GPM

Station Name: Best Western
Station Number: 10
Station Address: 1300 S. Queen Street

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Next to River Inn, Neuse River, and Queen St. Bridge
3	In what year was it constructed?	✓			1967

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			50 GPM @ 20 - FT TDH
5	What is the wet well diameter (feet)?	✓			5 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
7	Are the As-builts available for this station?	✓			
	Depth of wetwell?	✓			9.4 FT
	Depth to inlet?	✓			7.5 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?			✓	In 100 Year Floodway - Base Flood Elevation 37.2 FT - No Vent Top of Wet Well Elevation: 33.1 FT General Average Site Elevation: 31.6 FT Bottom of Control Panel Elevation: 36.1 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.			✓	No Vents
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?	✓			
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			Site Lights on Control Panel are Missing
28	Is the site in a remote location?		✓		
29	Is the station susceptible to flooding from a water source?	✓			Next to Neuse River
30	Does the access road provide acceptable entry onto the site?	✓			Paved Road
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum
2	Model	✓			20DSJ
3	Serial Number	✓			672260
4	Year Purchased			✓	Unknown, See Purchase Records
5	Fuel Tank Size			✓	Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			60"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		
5	Is the water seal working properly?			✓	
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5432 WD 210T
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 50 GPM @ 20 - FT TDH Drawdown: 122 GPM
6	Hp/ rpm/ phase?	✓			3/ 1200/ 3
Pump 2					
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5432 WD 210T
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 50 GPM @ 20 - FT TDH Drawdown: 104 GPM
6	Hp/ rpm/ phase?	✓			3/ 1200/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?		✓		Not On Site
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?		✓		Not On Site
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			3R - Weather Stripping Failed - Needs Rain Shield
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			Bubbler System, Back-Up High Water Level Mercury Floa

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Not Tested, Silent Alarm
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Not Tested
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?		✓		Bubbler System
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?	✓			
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			Lifting Chain
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?	✓			No Apparent Issues
6	Do the discharge shutoff valves work?	✓			No Apparent Issues
7	Are there separate pump suction and discharge pipes?	✓			
8	Do the check valves work properly?	✓			No Apparent Issues
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?	✓			
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Sump Pump
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			Appears Functional, Not Tested
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	Trash Basket has been Removed - Sites on Site
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Trash and Solids in Wet Well
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		Minor Corrosion under Hatch
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?		✓		None Apparent
38	Is ther any noticeable corrosion in the dry pit?	✓			Minor Corrosion
39	If there is a dry pit that has power ventilation, does it work?	✓			
40	Is there a dehumidifier in the dry pit?	✓			
41	If there is a dehumidifier in the dry pit, is it working?			✓	Appears Functional, Not Tested

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?		✓		
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

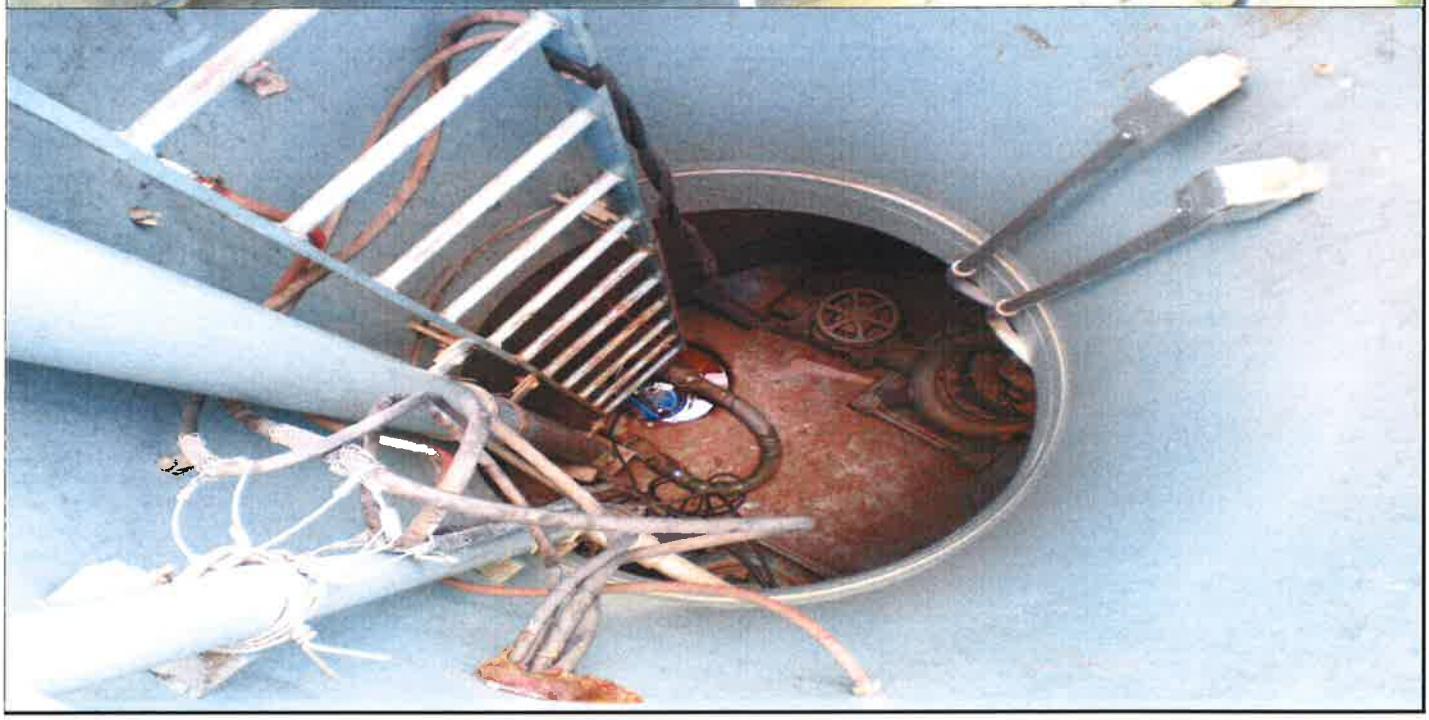
Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				



Item	Yes	No	N/A	Comments

Picture of the Control Panel

Item	Yes	No	N/A	Comments
				

Notes:
Re-Install Trash Basket
Fix Barbwire
Fix Control Panel Site Lights
Fix Weather Stripping on Control Panel
Install Rain Shield on Control Panel
Install Forcemain Bypass
Convert to Submersible Station (Long Term Improvement)

Drawdown Testing Data Sheet

Station Name: Best Western **Test date:** 8/10/2017

Station Number: 10 **Tester Name:** WAL, VET, MRG

Wet Well Diameter: 5 ft. **Shape (Circle one):** Circular Eliptical Rectangle

Station Discharge Type (Circle One) : Manifold Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	1	minutes

Fill Trial:	1.000	inches	**Fill Rate:**	12	GPM
Average Fill Rate:	12	GPM			

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1	minutes

Pump 1 Drawdown:	9.000	inches	**Pump 1 Drawdown Rate:**	110	GPM
Pump 2 Drawdown:	7.500	inches	**Pump 2 Drawdown Rate:**	92	GPM

Pump 1 Pumping Rate:	122	GPM
Pump 2 Pumping Rate:	104	GPM

Design Pumping Rate Reported at 50 GPM at 20 FT TDH

Parallel Pumping

Pumping Run Time:	1	minutes

Parallel Drawdown:	9.000	inches	**Parallel Drawdown Rate:**	110.15	GPM
Parallel Pumping Rate:	122	GPM			

Station Name: Bynum School
Station Number: 11
Station Address: 1805 Oakmont Drive

Date of Inspection: August 9, 2017

Current Weather: Cloudy

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Residential Neighborhood Behind School
3	In what year was it constructed?			✓	Unknown

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			140 GPM @ 37' TDH
5	What is the wet well diameter (feet)?	✓			4 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?			✓	Unknown
	Depth to inlet?	✓			5.27
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?			✓	In 100 Year Floodway - Base Flood Elevation 35.0 FT - No Vent Top of Wet Well Elevation: 30.4 FT General Average Site Elevation: 31.3 FT Bottom of Control Panel Elevation: 34.4 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.			✓	No Vent
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?		✓		
25	Is there a back-flow preventer on the potable water?			✓	
26	Is there positive pressure ventilation for dry wells?	✓			
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?		✓		
29	Is the station susceptible to flooding from a water source?	✓			Creek Nearby
30	Does the access road provide acceptable entry onto the site?	✓			Paved Road
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
Part B: Generator Information					
1	Make or manufacturer	✓			Spectrum
2	Model	✓			380SJ
3	Serial Number	✓			672263
4	Year Purchased			✓	Unknown, See Purchase Records
5	Fuel Tank Size	✓			Approx. 200 Gallons
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			60"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		
5	Is the water seal working properly?	✓			Mechanical Seals
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		None Apparent

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Deming
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			G69405
4	Serial numbers?	✓			DB-766982
5	Actual flow being produced. (GPM)	✓			Design : 140 GPM @ 37 FT TDH Drawdown: 211 GPM
6	Hp/ rpm/ phase?	✓			5/ 1160/ 3
Pump 2					
1	Pump Manufacturer?	✓			Deming
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			G69405
4	Serial numbers?	✓			DB-766982
5	Actual flow being produced. (GPM)	✓			Design : 140 GPM @ 37 FT TDH Drawdown: 164 GPM
6	Hp/ rpm/ phase?	✓			5/ 1160/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?		✓		
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?		✓		
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			Bubbler System, Back-Up High Water Mercury Float

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Silent Alarm - Not Tested
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Not Tested
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?		✓		Bubbler System
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?	✓			
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?		✓		
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?	✓			No Issues Apparent
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			
8	Do the check valves work properly?	✓			
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?	✓			Hurricane Induced
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		None Visable

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Sump Pump
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			Appears Functional
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	No Basket
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?	✓			Morter Failing in Places and Around Inlet Pipe
28	Does the interior of the wet well need to be painted with a protective coating??	✓			
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?		✓		None Apparent
38	Is ther any noticeable corrosion in the dry pit?		✓		Minor
39	If there is a dry pit that has power ventilation, does it work?	✓			
40	Is there a dehumidifier in the dry pit?	✓			
41	If there is a dehumidifier in the dry pit, is it working?	✓			Appears Functional, Not Tested

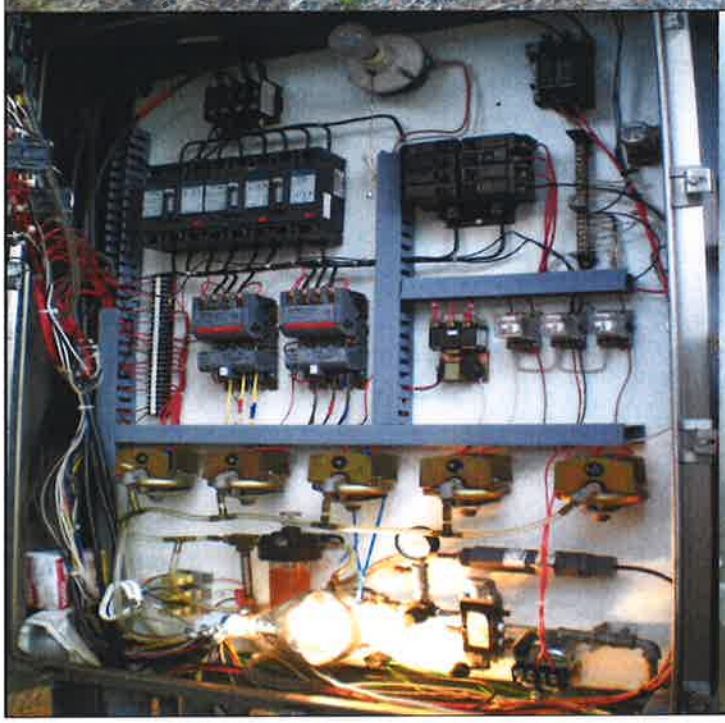
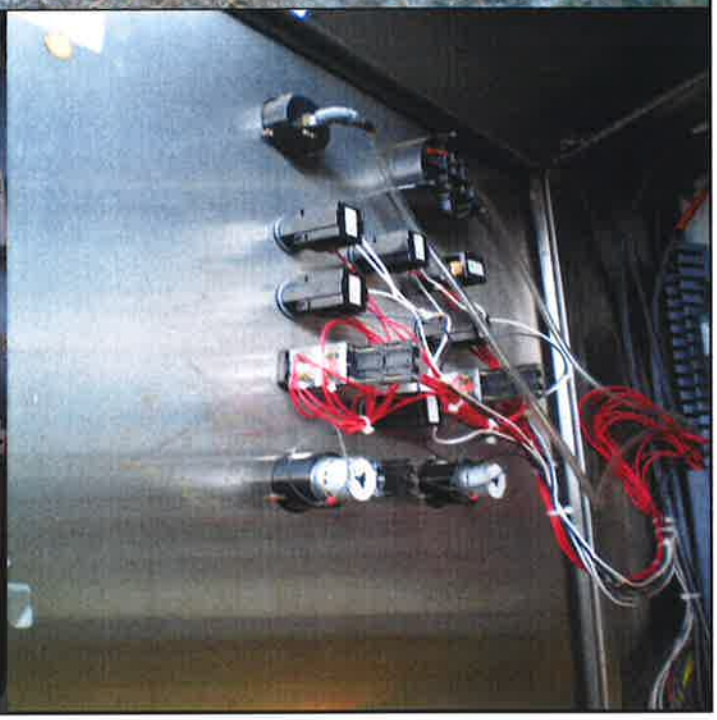
	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?		✓		
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				
				
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				

Item	Yes	No	N/A	Comments

Picture of the Control Panel

Item	Yes	No	N/A	Comments

Notes:
Fix Barbwire Around Site
Install Audible Alarm
Repair Morter and Spray Protective Coating in Wetwell
Convert to Submerisble Station (Long Term Improvement)

Drawdown Testing Data Sheet

Station Name:	Bynum School	**Test date:**	8/9/2017
Station Number:	11	**Tester Name:**	WAL, VET, MRG

Wet Well Diameter: 4 ft. **Shape (Circle one):** Circular Eliptical Rectangle

Station Discharge Type (Circle One) : Manifold Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	1	minutes

Fill Trial:	1.00	inches	**Fill Rate:**	8 GPM
Average Fill Rate:			8	GPM

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	0.5	minutes		
Pump 1 Drawdown:	13.00	inches	**Pump 1 Drawdown Rate:**	204 GPM
Pump 2 Drawdown:	10.00	inches	**Pump 2 Drawdown Rate:**	157 GPM
Pump 1 Pumping Rate:			211	GPM
Pump 2 Pumping Rate:			164	GPM

Design Pumping Rate Reported at 140 GPM at 37 FT TDH

Parallel Pumping

Pumping Run Time:	0.5	minutes		
Parallel Drawdown:	15.00	inches	**Parallel Drawdown Rate:**	235 GPM
Parallel Pumping Rate:			243	GPM

Station Name: Windsor Farms
Station Number: 12
Station Address: 768 Wisteria Court

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			In Woods, End of Gravel Drive in Undeveloped Residential Neighborhood
3	In what year was it constructed?		✓		Not Recorded, Post 2002

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			105 GPM @ 80.2 - FT TDH
5	What is the wet well diameter (feet)?	✓			6 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
7	Are the As-builts available for this station?		✓		
	Depth of wetwell?			✓	
	Depth to inlet?	✓			9.7 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			4,500 LF from 100 Year Flood Elevation - No Vent Top of Wet Well Elevation: 77.6 FT General Average Site Elevation: 76.9 FT Bottom of Control Panel Elevation: 80.8 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Well - Submersible Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			In an Undeveloped Residential Neighborhood
29	Is the station susceptible to flooding from a water source?		✓		Likely Not, No Water in Site
30	Does the access road provide acceptable entry onto the site?	✓			Gravel Drive
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Olympian
2	Model	✓			D40P3-OLY00000VNPF02448
3	Serial Number	✓			SCRIH/45912/01
4	Year Purchased			✓	Unknown, See Purchase Records
5	Fuel Tank Size			✓	Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			36"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?		✓		Operable, But Turned Off
2	Pump No. 2 in service?		✓		Operable, But Turned Off
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		None Visable
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?	✓			Investigate Pumping Operations, Valve May Be Closed Reported that Only One Connection on LS - School - No Flow at Time of Assessment

	Item	Yes	No	N/A	Comments
	Name plate Information				
	Pump 1				
1	Pump Manufacturer?	✓			EMV
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			AW754211
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 105 GPM @ 80.2 - FT TDH Drawdown: Not Tested - Further Evaluation Required
6	Hp/ rpm/ phase?		✓		Not Reported in City Record, Not Visable
	Pump 2				
1	Pump Manufacturer?	✓			EMV
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			AW754211
4	Serial numbers?		✓		Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 105 GPM @ 80.2 - FT TDH Drawdown: Not Tested - Further Evaluation Required
6	Hp/ rpm/ phase?		✓		Not Reported in City Record, Not Visable

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)		✓		Tested - No Audible Alarm
16	Does the high water alarm light work? (found by lifting it above the switch point)		✓		Tested - No Visual Alarm
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			Pump 2 Needs Lifting Chain
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	Submersible Pumps
6	Do the discharge shutoff valves work?	✓			
7	Are there separate pump suction and discharge pipes?	✓			Discharge Pipes Only, No Suction Pipes - Submersible Station
8	Do the check valves work properly?		✓		Downstream Valve is Believed to be Closed, Pumping Operations are not Functioning Properly
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		Pumps Not Operable to Test - Appear Damaged Due to Standing Water in Valve Vault - Replace if Necessary
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?			✓	None Reported
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		None Apparent

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Pipe
17	If there is a sump pump and/or drainage pipe, is it functioning properly?		✓		Possibly Clogged
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	Likely P Trap - Further Investigation Necessary to Confirm
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	No Basket
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?	✓			Discharge Piping and Valves are Showing Corrosion - Sandblast and Repaint
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Well - Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

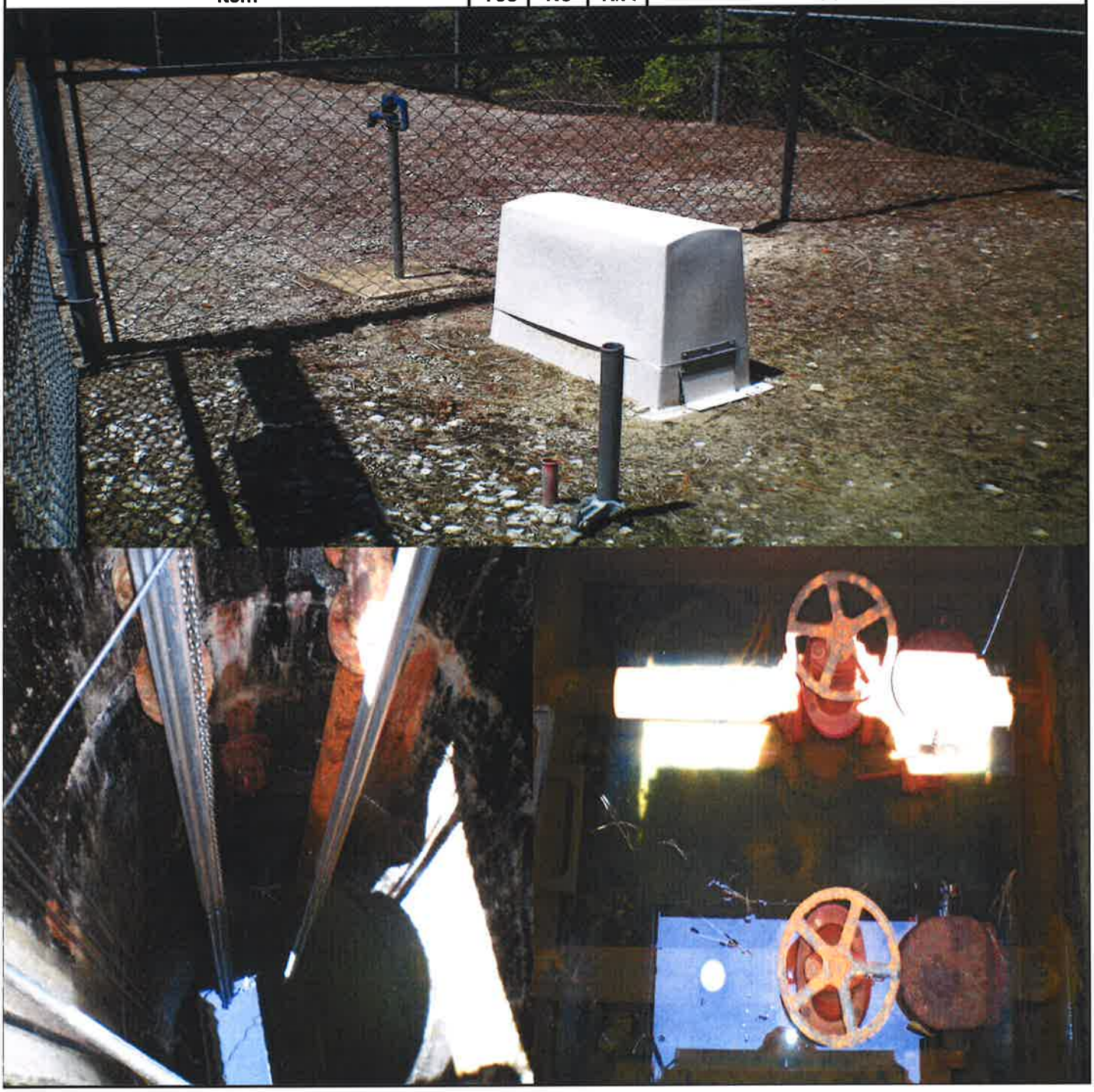
Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

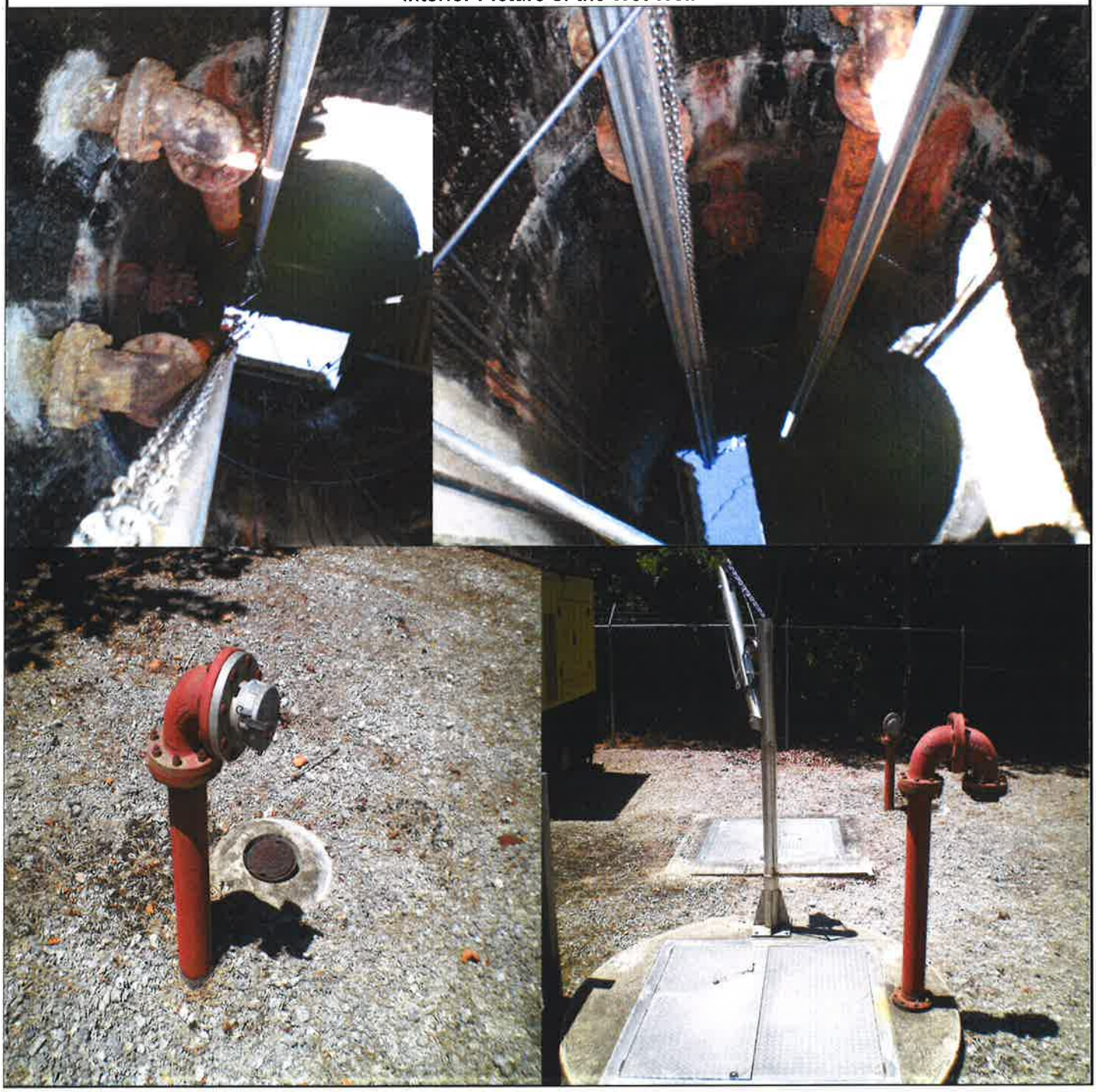
Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

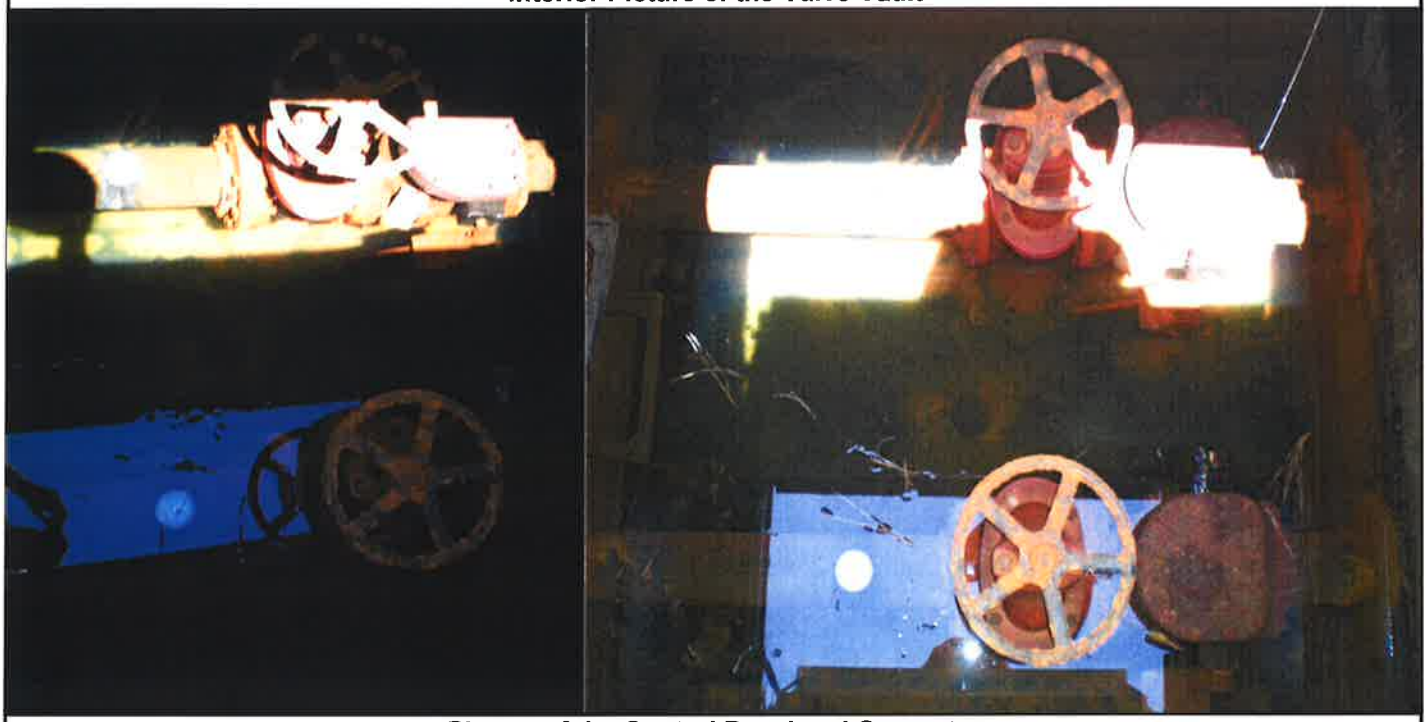
Item	Yes	No	N/A	Comments



Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well				



Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				



Picture of the Control Panel and Generator				

Item	Yes	No	N/A	Comments

Notes:

Replace Visual and Audible Alarm, Appered to be Broken or Disconnected
Add Steel Lift Chain to Pump 2
Investigate Valve Vault Drainage to Wet Well. If No Discharge Install Drian Line
Sandblast and Paint Discharge Piping and Valves in Valve Vault
Replace Gauges if Needed Due to Water Damage
Investigate Pump Operations, Correct Issue
No Flow to Station During Summer. One Customer - School
Designed to Support Residential Neighboorhood that Never Built Out

Drawdown Testing Data Sheet

Station Name:	Windsor Farms	**Test Date:**	8/10/2017
Station Number:	12	**Tester Name:**	WAL, VET, MRG

Wet Well Diameter: 6 ft. **Shape (Circle one):** [Circular] Eliptical Rectangle

Station Discharge Type (Circle One) : [Manifold] Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

NO INFLOW DURING SITE ASSESSMENT - NO TEST

Fill Time:	N/A minutes

Fill Trial:	0.00 inches	**Fill Rate:**	0.0 GPM

Average Fill Rate:	0.0 GPM

Drawdown Testing

NO TEST - PUMPS NOT FUNCTIONING PROPERLY - VALVE LIKELY CLOSED

Pump 1 and Pump 2

Pumping Run Time:	N/A minutes

Pump 1 Drawdown:	N/A inches	**Pump 1 Drawdown Rate:**	N/A GPM
Pump 2 Drawdown:	N/A inches	**Pump 2 Drawdown Rate:**	N/A GPM

Pump 1 Pumping Rate:	N/A GPM
Pump 2 Pumping Rate:	N/A GPM

Design Pumping Rate Reported at 105 GPM at 80.2 FT TDH

Parallel Pumping

NO TEST - PUMPS NOT FUNCTIONING PROPERLY - VALVE LIKELY CLOSED

Pumping Run Time:	N/A minutes

Parallel Drawdown:	N/A inches	**Parallel Drawdown Rate:**	N/A GPM

Pumping Rate:	N/A GPM

Station Name: Briery Sub Division No. 1
Station Number: 13
Station Address: 187 Briery Run Road

Date of Inspection: August 9, 2017

Current Weather: Partly Cloudy

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Residential Neighborhood in Wooded Area
3	In what year was it constructed?	✓			1999

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?		✓		Not Reported in City Records 80 GPM Recorded in 2002 Assessment Drawdown Testing Indicates Capacity Closer to 100 GPM
5	What is the wet well diameter (feet)?	✓			6 FT
6	What is the diameter of force main leaving the station?	✓			Maybe 2.5 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?			✓	Unknown
	Depth to inlet?	✓			10.6 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available? (retrieve if available)	✓			
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?				2,300 LF from 100 Year Flood Elevation Top of Wet Well Elevation: 75.0 FT General Average Site Elevation: 74.6 FT Bottom of Control Panel Elevation: 79.3 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.		✓		Screen Missing
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?		✓		
25	Is there a back-flow preventer on the potable water?			✓	
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Pit - Submersible Grinder Pumps
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)		✓		Site Lights on Panel Not Working
28	Is the site in a remote location?	✓			Somewhat
29	Is the station susceptible to flooding from a water source?	✓			Near Drainage Ditch - Flash Flooding Possible
30	Does the access road provide acceptable entry onto the site?		✓		Gravel Drive, Owner of House at End of Drive Parks Cars Along Access Drive
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		Sandblast/Remove Rust on Control Panel Supports Sandblast and Paint Vent on Wet Well - Corrosion

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum
2	Model	✓			30D5J
3	Serial Number	✓			672286
4	Year Purchased		✓		Unknown, See Purchase Records
5	Fuel Tank Size	✓			200 Gallons
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			18"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?	✓			
4	Is there an unusual amount of rust on the pumps?			✓	Not Visable - Submersible Pumps
5	Is the water seal working properly?	✓			No Apparent Issues
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Myers
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			WG50
4	Serial numbers?	✓			10034347
5	Actual flow being produced. (GPM)	✓			Design: Unknown Drawdown: 97 GPM
6	Hp/ rpm/ phase?	✓			5/ 3450/ 1
Pump 2					
1	Pump Manufacturer?	✓			Myers
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			WG50
4	Serial numbers?	✓			10034347
5	Actual flow being produced. (GPM)	✓			Design: Unknown Drawdown: 97 GPM
6	Hp/ rpm/ phase?	✓			5/ 3450/ 1

	Item	Yes	No	N/A	Comments
Back-Up Pump if Applicable					
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)	✓			
16	Does the high water alarm light work? (found by lifting it above the switch point)	✓			
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	Submersible Grinder - No Suciton Valves
6	Do the discharge shutoff valves work?	✓			No Apparent Issues
7	Are there separate pump suction and discharge pipes?		✓		Only Discharge Pipes, No Suction Pipes - Submersible Station
8	Do the check valves work properly?	✓			No Apparent Issues
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?	✓			Discharge Pipes

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?	✓			Pigging Might Be Required
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Line
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	P Trap Likley, Not Verified Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	Trash Basket has been Removed and Sits on Site
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		Some Corrosion on Guide Rail Brackets
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit - Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Pit - Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

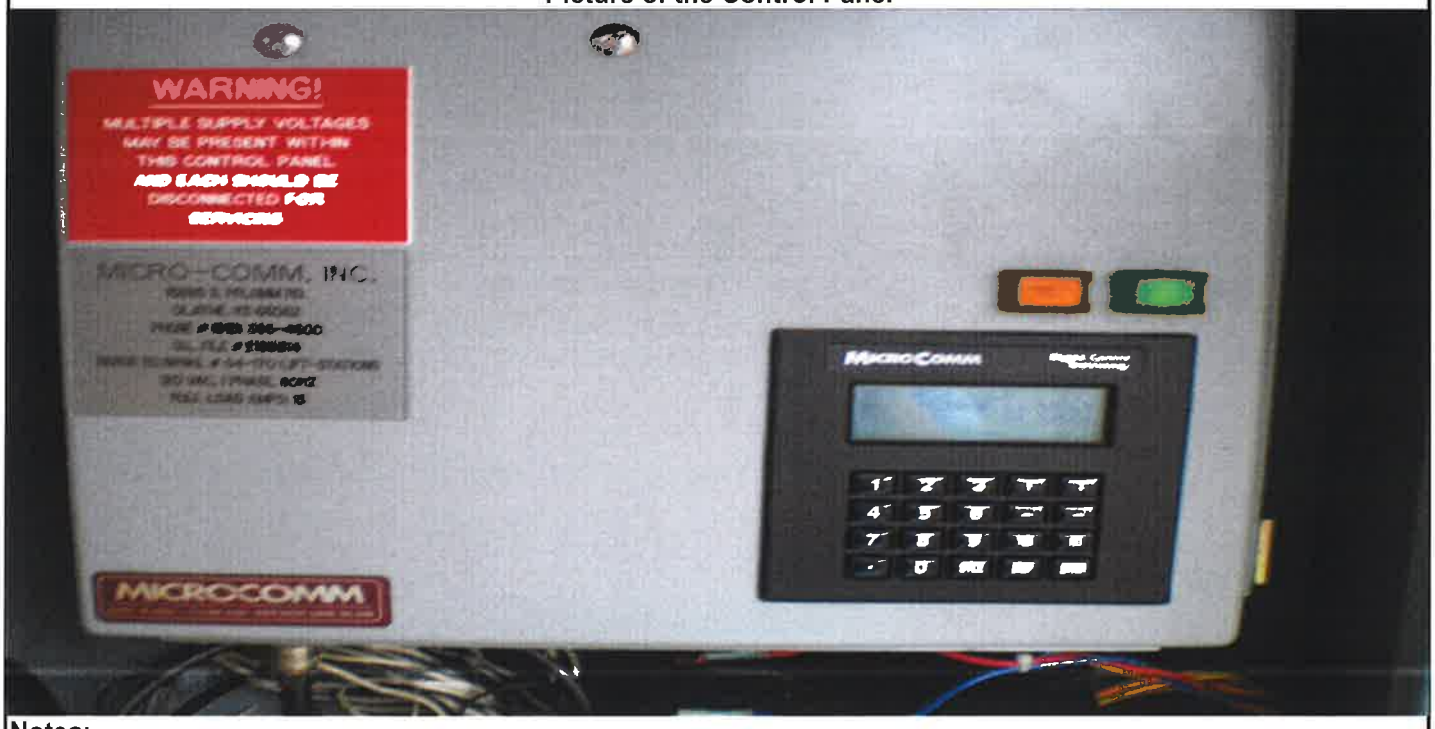
Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and Generator				

Item	Yes	No	N/A	Comments
Picture of the Control Panel				

Picture of the Control Panel



Notes:
Fix Barbwire
Install Insect Screen on Vent
Replace Control Panel Supports
Trash Basket has Been Removed, Re-Install
Significant Staining By Discharge Pipe, Possible Leak
Brackets for Pump Rails are Corroded and Need Replacing
Install a Forcemain Bypass

Drawdown Testing Data Sheet

Station Name:	Briery SD #1	**Test date:**	8/9/2017
Station Number:	13	**Tester Name:**	WAL, VET, MRG

Wet Well Diameter: 6 ft. **Shape (Circle one):** Circular Eliptical Rectangle

Station Discharge Type (Circle One) : Manifold Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	N/A	minutes

Fill Trial:	0.0	inches	**Fill Rate:**	0	GPM
Average Fill Rate:	0	GPM			

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1	minutes

Pump 1 Drawdown:	5.50	inches	**Pump 1 Drawdown Rate:**	97	GPM
Pump 2 Drawdown:	5.50	inches	**Pump 2 Drawdown Rate:**	97	GPM

Pump 1 Pumping Rate:	97	GPM
Pump 2 Pumping Rate:	97	GPM

Design Pumping Rate Reported at 80 GPM in 2002, City Records Do Not Indicate Current Capacity
Likely 100 GPM

Parallel Pumping

Pumping Run Time:	1	minutes

Parallel Drawdown:	8.00	inches	**Parallel Drawdown Rate:**	141	GPM
Parallel Pumping Rate:	141	GPM			

Station Name: Briery Sub Division No. 2
Station Number: 14
Station Address: 2220 Autumn Drive

Date of Inspection: August 9, 2017

Current Weather: Partly Cloudy

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Residential Neighborhood in Wooded Area
3	In what year was it constructed?	✓			1999

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			Not Reported in City Records 80 GPM Recorded in 2002 Assessment
5	What is the wet well diameter (feet)?	✓			6 FT
6	What is the diameter of force main leaving the station?	✓			Maybe 2.5 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?			✓	
	Depth to inlet?	✓			11.5 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintanence Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			1,200 LF from 100 Year Flood Elevation Top of Wet Well Elevation: 71.4 FT General Average Site Elevation: 71.4 FT Bottom of Control Panel Elevation: 75.1 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.		✓		Missing Screen
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?		✓		
25	Is there a back-flow preventer on the potable water?			✓	
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Well, Submersible Grinder Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			Control Panel Site Lights Not Working
28	Is the site in a remote location?		✓		Somewhat
29	Is the station susceptible to flooding from a water source?	✓			Adjacent to Drainage Ditch, Flash Flooding Likely
30	Does the access road provide acceptable entry onto the site?	✓			Gravel Drive
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		? RUST ON CONTROL PANEL SUPPORTS

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum
2	Model	✓			35DSJ
3	Serial Number	✓			672285
4	Year Purchased		✓		Unknown, See Purchase Records
5	Fuel Tank Size	✓			200 Gallons
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			30"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			Not Pumping Properly
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?	✓			
4	Is there an unusual amount of rust on the pumps?	✓			Not Visable, Submersible
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?	✓			Investigate Pump 2 to Determine Why It Is Not Pumping

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Myers
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			WG50
4	Serial numbers?		✓		Not Visable, Unknown
5	Actual flow being produced. (GPM)	✓			Design : 80 GPM Drawdown: 70 GPM
6	Hp/ rpm/ phase?	✓			5/ 3450/ 1
Pump 2					
1	Pump Manufacturer?	✓			Myers
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			WG50
4	Serial numbers?		✓		Not Visable, Unknown
5	Actual flow being produced. (GPM)	✓			Design: 80 GPM Drawdown: Yielded 0 GPM - Pump Not Operating Properly
6	Hp/ rpm/ phase?	✓			5/ 3450/ 1

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Test on Panel Does Not Work
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Test on Panel Does Not Work
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	No Suction, Submersible Grinder Pumps
6	Do the discharge shutoff valves work?	✓			No Apparent Issue on Pump 1
7	Are there separate pump suction and discharge pipes?	✓			Only Discharge Pipes, No Suction Pipes - Submersible
8	Do the check valves work properly?	✓			Pump 1 Ball Check Works Pump 2 Unverified
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?	✓			Discharge Pipes

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?	✓			Pigging Might Be Required
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Line
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			P Trap Likely, Not Verified Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	Basket Has Been Removed
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		Minor Corrosion on Pump Guide Brackets
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Well, Submersible Grinder Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Well, Submersible Grinder Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and Valve Vault				

Item	Yes	No	N/A	Comments

Picture of Control Panel

Picture of Generator

Notes:

Repair Barbwire
Install DIP Vent w/ SS Insect Screen
Fix or Replace High Water Alarm and Light
Lower High Water Float, Currently Too High and Inadvertantly Not Allowing Water to Fall Into Wet Well.
Install Forcemain Bypass
Pull Pump 2 and Investigate Pumping Operation
Replace Electrical Panel Supports
Repair Leak at Discharge Piping at Wet Well Intersection
Install Trash Basket
Provide Potable Water w/ Backflow Preventor

Drawdown Testing Data Sheet

Station Name:	Briery SD #2	**Test date:**	8/9/2017
Station Number:	14	**Tester Name:**	WAL, VET, MRG

Wet Well Diameter: 6 ft. **Shape (Circle one):** Circular Eliptical Rectangle

Station Discharge Type (Circle One) : Manifold Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time: N/A minutes

NO INFLOW DURING ASSESSMENT - NO FILL TRIAL

Fill Trial:	0.00 inches	**Fill Rate:**	0 GPM
Average Fill Rate:	0 GPM		

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time: 1 minutes

Pump 1 Drawdown:	4.00 inches	**Pump 1 Drawdown Rate:**	70 GPM
Pump 2 Drawdown:	0.00 inches	**Pump 2 Drawdown Rate:**	0 GPM

Pump 1 Pumping Rate:	70 GPM
Pump 2 Pumping Rate:	0 GPM

Design Pumping Rate Reported at 80 GPM in 2002
Pump 2 Did Not Pump Properly

Parallel Pumping

Pumping Run Time: 1 minutes

Parallel Drawdown:	4.00 inches	**Parallel Drawdown Rate:**	70 GPM

Parallel Pumping Rate: 70 GPM

Station Name: Frenchman's Creek
Station Number: 15
Station Address: 1401 Meadow Brook Drive

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Just off Paved Road Near a Lake
3	In what year was it constructed?		✓		Not Available

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			80 GPM @ 16 FT TDH - Reported in City Records
5	What is the wet well diameter (feet)?	✓			6 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?	✓			15.9 Feet
	Depth to inlet?	✓			12.2 Feet
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			In 100 Year Floodway - Base Flood Elevation 36.6 FT Top of Wet Well Elevation: 37.9 FT General Average Site Elevation: 33.7 FT Bottom of Control Panel Elevation: 38.1 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			PVC Vent on Top of Wet Well - Replace w/ DIP and SS Insect Screen
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?		✓		
29	Is the station susceptible to flooding from a water source?	✓			Near Lake, Wet Well and Vent are Above the 100 Year Flood Base Elevation
30	Does the access road provide acceptable entry onto the site?	✓			Off Paved Road
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N. A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
Part B: Generator Information					
1	Make or manufacturer	✓			SDMO
2	Model	✓			TMI6UCM
3	Serial Number	✓			ADP92829-OIC/3712809/05
4	Year Purchased	✓			2000
5	Fuel Tank Size	✓			Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			36"
12	Is the generator well ventilated?	✓			Exhaust Vent Missing

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Not Visable - Submersible Station
5	Is the water seal working properly?			✓	
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		Nothing Apparent

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Myers
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			4VX20 M6-03
4	Serial numbers?		✓		Not Visible/Recorded - Submersible Pumps
5	Actual flow being produced. (GPM)	✓			Design : 80 GPM @ 16 - FT TDH Drawdown: 194 GPM
6	Hp/ rpm/ phase?	✓			2/ 1150/ 3
Pump 2					
1	Pump Manufacturer?	✓			Myers
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			4VX20 M6-03
4	Serial numbers?		✓		Not Visible/Recorded - Submersible Pumps
5	Actual flow being produced. (GPM)	✓			Design : 80 GPM @ 16 - FT TDH Drawdown: 194 GPM
6	Hp/ rpm/ phase?	✓			2/ 1150/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)	✓			Not Very Loud, Needs Replacing
16	Does the high water alarm light work? (found by lifting it above the switch point)	✓			Not Bright, Needs Replacing
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	Submersible Pumps
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			Only Discharge Pipes, No Suction Pipes - Submersible
8	Do the check valves work properly?	✓			
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?	✓			Dirty - Barely Readable
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Pipe
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			P Trap Likely - Not Verified, Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?		✓		
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Solids and Grease
26	Is there a grease problem in the wet well?	✓			
27	Is there any excessive corrosion in the wet well?	✓			Pump Guide Rail Brackets - Need Replacing Discharge Piping and Valves in Vault
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit - Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Pit - Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?		✓		
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

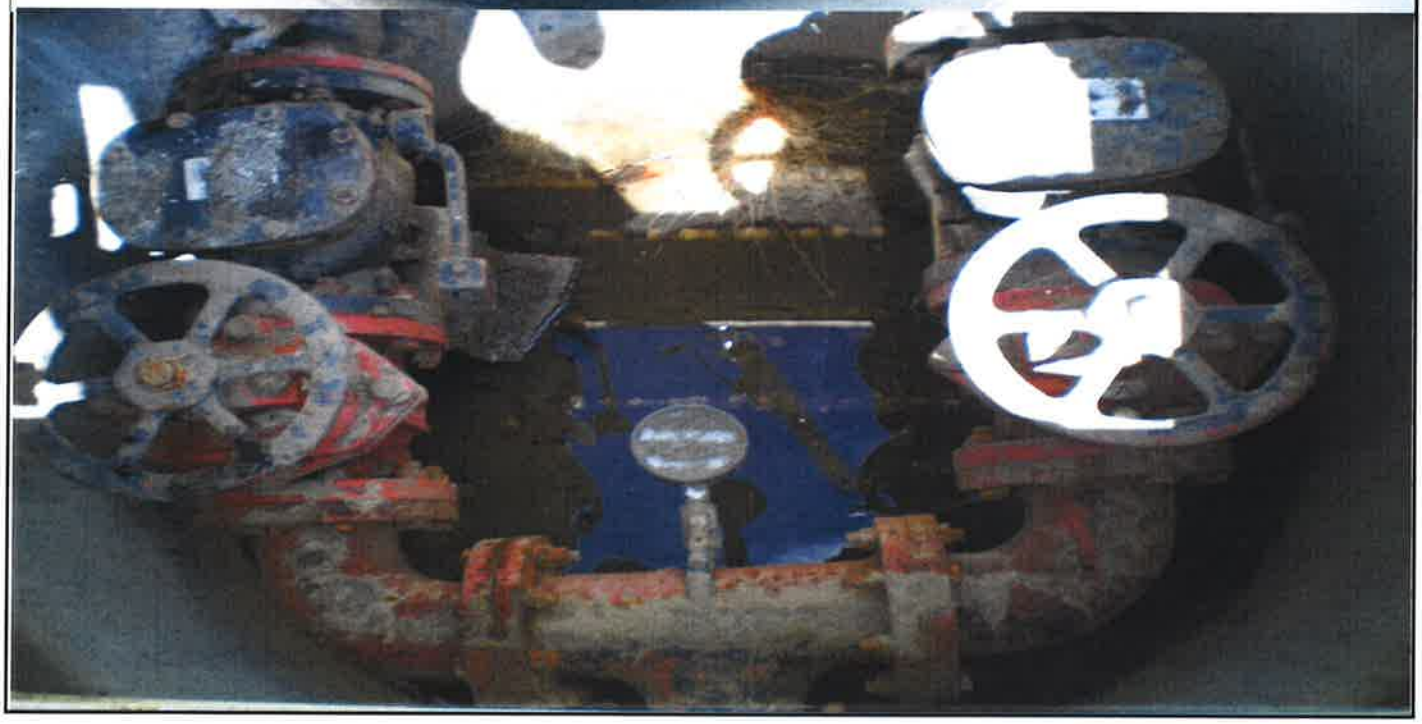
Additional Pump Station Pictures

Station Gate with Station Name Placard

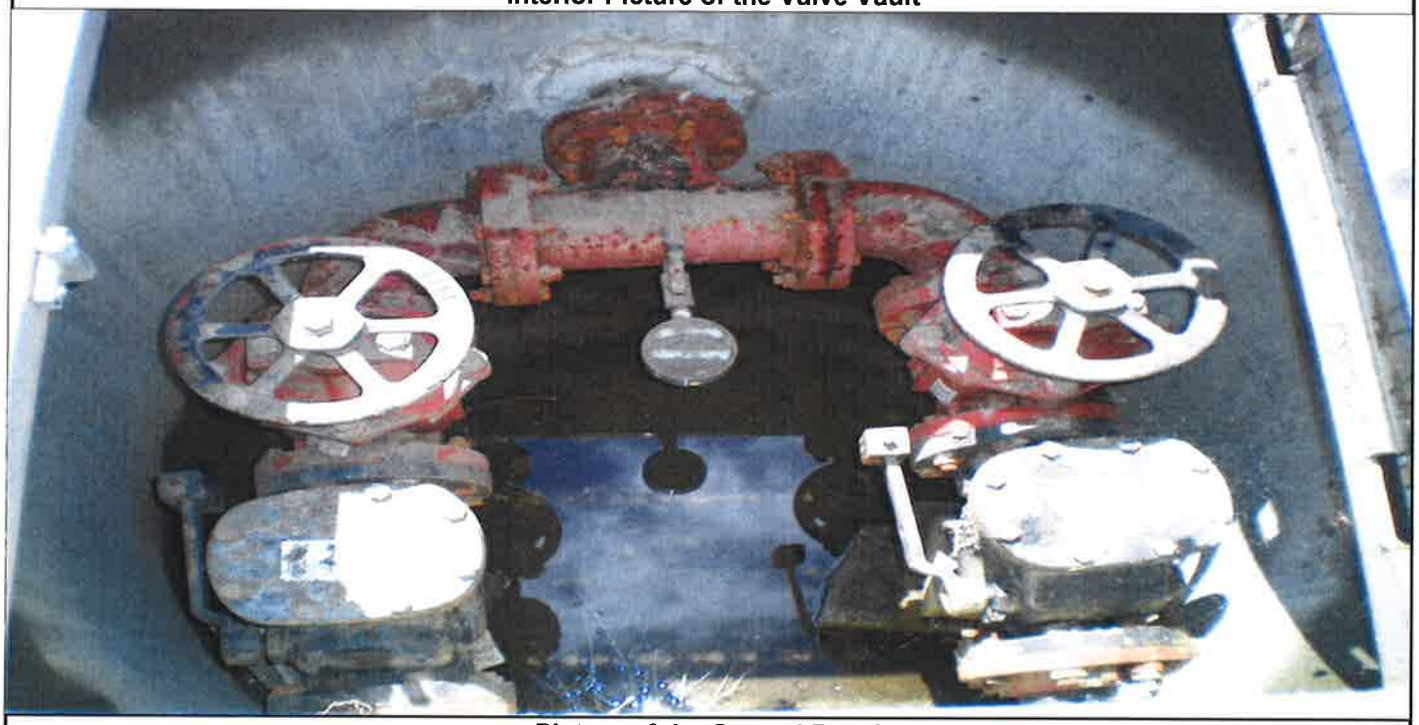
Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and Valve Vault				



Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				



Picture of the Control Panel

Item	Yes	No	N/A	Comments

Notes:
Replace Guide Rail Brackets
Remove Grease from Wet Well
Replace High Water Alarm Horn and Light
Install New Exhaust Vent on Generator
Re-Level Gravel Inside Fencing to Prove Slope Away from wet Well
Replace PVC Vent w/ DIP and Stainless Steel Screen
Remove Vegetation Growing on Fence
Install Forcemain Bypass

Drawdown Testing Data Sheet

Station Name: Frenchman's Creek **Test date:** 8/10/2017

Station Number: 15 **Tester Name:** WAL, VET, MRG

Wet Well Diameter: 6 ft. **Shape (Circle one):** Circular Eliptical Rectangle

Station Discharge Type (Circle One) : Manifold Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

NO INFLOW DURING LIFT STATION ASSESSMENT

Fill Time:	N/A	minutes

Fill Trial:	0.0	inches	Fill Rate:	0	GPM

Average Fill Rate:	0	GPM

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	0.5	minutes

Pump 1 Drawdown:	5.50	inches	Pump 1 Drawdown Rate:	194	GPM
Pump 2 Drawdown:	5.50	inches	Pump 2 Drawdown Rate:	194	GPM

Pump 1 Pumping Rate:	194	GPM
Pump 2 Pumping Rate:	194	GPM

Design Pumping Rate Reported at 80 GPM at 16 FT TDH
Likely 200 GPM

Parallel Pumping

Pumping Run Time:	0.5	minutes

Parallel Drawdown:	7.00	inches	Parallel Drawdown Rate:	247	GPM

Parallel Pumping Rate:	247	GPM

Station Name: National Guard Armory
Station Number: 16
Station Address: 2869 Dobbs Farm Road

Date of Inspection: August 9, 2017

Current Weather: Cloudy

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Behind National Guard in Very Secluded Area
3	In what year was it constructed?		✓		Unknown

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			230 GPM @ 52 FT TDH
5	What is the wet well diameter (feet)?	✓			5 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
	Are the As-builts available for this station?		✓		
7	Depth of wetwell?			✓	Unknown
	Depth to inlet?			✓	5.8 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed During Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			400 LF from 100 Year Floodway Top of Wet Well Elevation: 78.9 FT General Average Site Elevation: 78.5 FT Bottom of Control Panel Elevation: 81.5 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?		✓		
25	Is there a back-flow preventer on the potable water?			✓	
26	Is there positive pressure ventilation for dry wells?			✓	Submersible Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			Very Secluded
29	Is the station susceptible to flooding from a water source?		✓		Not Likely
30	Does the access road provide acceptable entry onto the site?	✓			Gravel Drive
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum
2	Model	✓			380SJ
3	Serial Number	✓			672254
4	Year Purchased		✓		Unknown, See Purchase Records
5	Fuel Tank Size		✓		Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			30"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Not Visable - Submersible Pumps
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		Nothing Apparent

	Item	Yes	No	N/A	Comments
	Name plate Information				
	Pump 1				
1	Pump Manufacturer?	✓			Myers
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			4V100M4-03
4	Serial numbers?	✓			11962458
5	Actual flow being produced. (GPM)	✓			Design : 230 GPM @ 52 - FT TDH Drawdown: 202 GPM
6	Hp/ rpm/ phase?	✓			10/ 1750/ 3
	Pump 2				
1	Pump Manufacturer?	✓			Myers
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			4V100M4-03
4	Serial numbers?	✓			11962458
5	Actual flow being produced. (GPM)	✓			Design : 230 GPM @ 52 FT TDH Drawdown: 233 GPM
6	Hp/ rpm/ phase?	✓			10/ 1750/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)	✓			
16	Does the high water alarm light work? (found by lifting it above the switch point)	✓			
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			Guide Rail Brackets are Corroded
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Apparent
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	No Suction, Submersible Station
6	Do the discharge shutoff valves work?	✓			No Apparent Issues
7	Are there separate pump suction and discharge pipes?	✓			Only Discharge Pipes, No Suction Pipes - Submersible Pumps
8	Do the check valves work properly?	✓			No Apparent Issues
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		No Gauges
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Pipe
17	If there is a sump pump and/or drainage pipe, is it functioning properly?		✓		Investigate Drain - Possibly Clogged
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	P Trap Likely - Not Likley, Further Verification Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	No Basket
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Trash and Solids - Clean
26	Is there a grease problem in the wet well?	✓			Minor
27	Is there any excessive corrosion in the wet well?		✓		Corrosion on Brackets and Hardware. Concrete Under Hatch
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit - Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Pit - Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

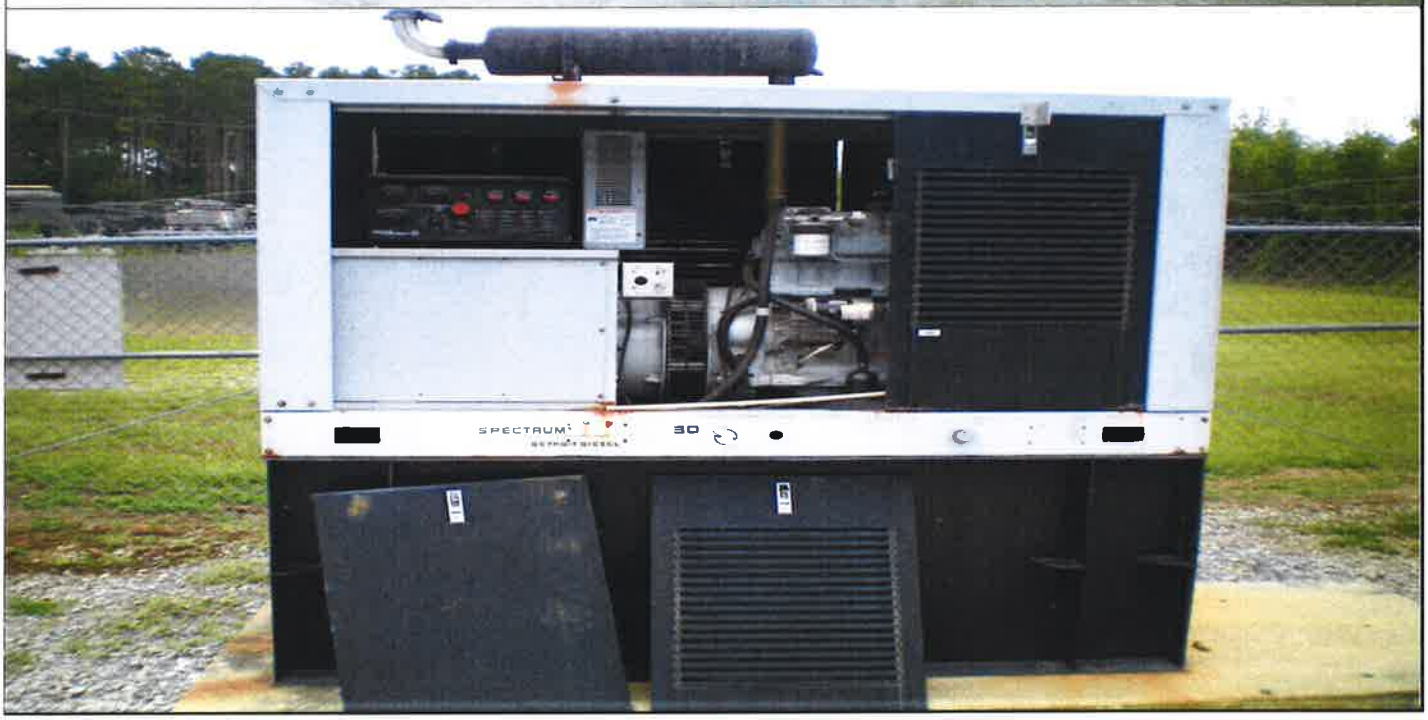
Additional Pump Station Pictures

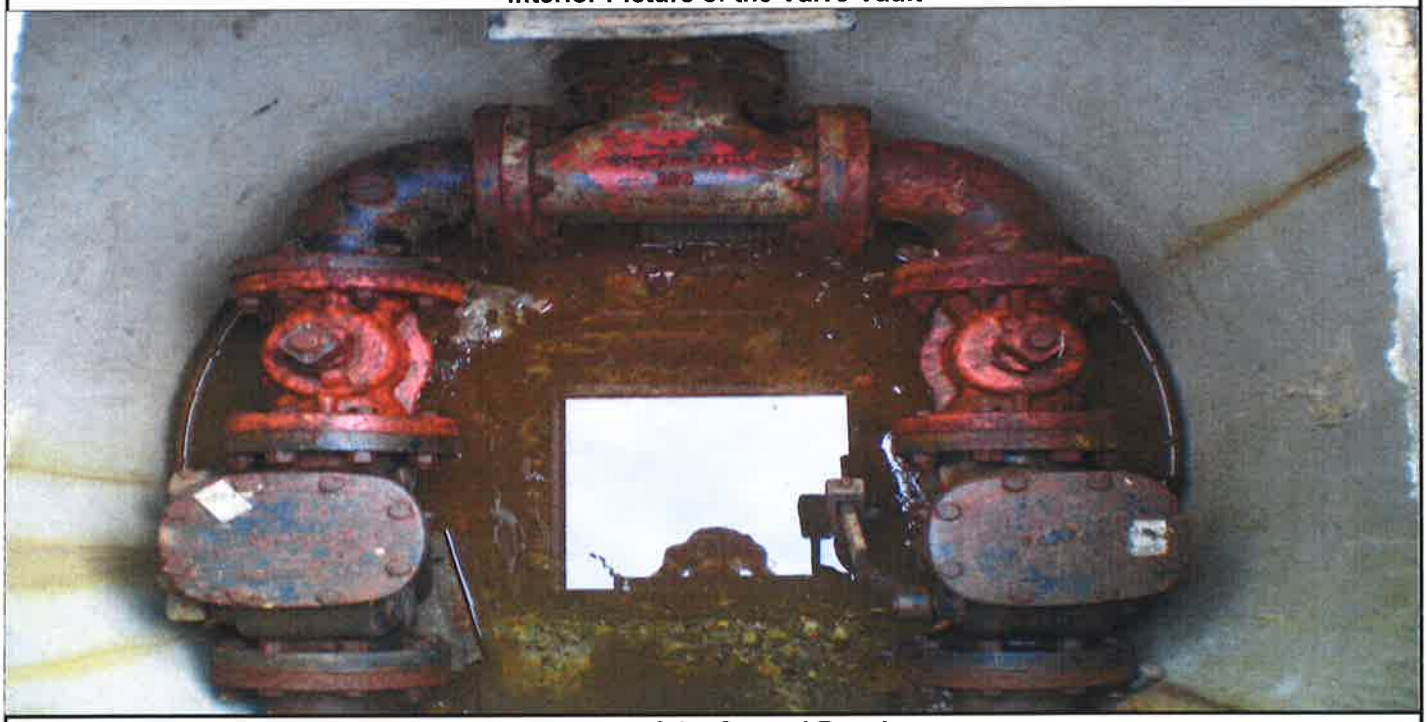
Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

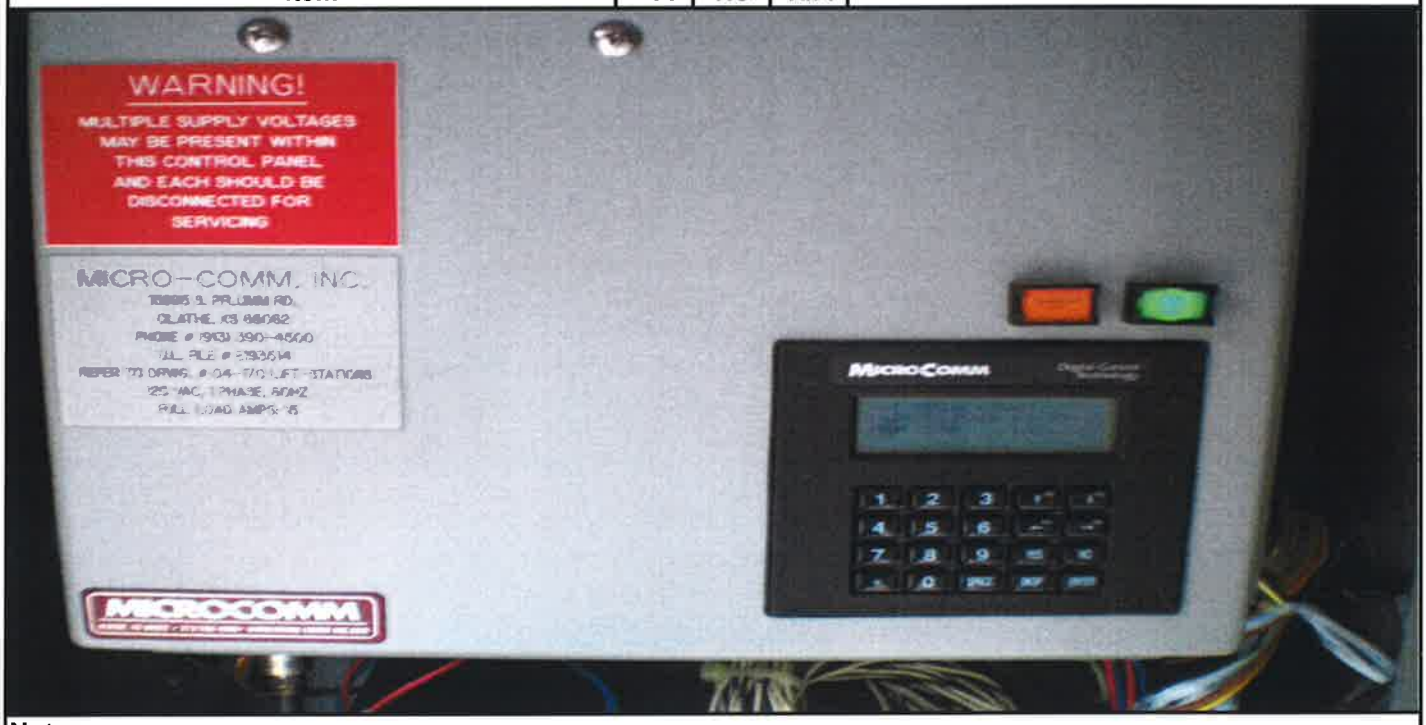
Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				



Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				
				
Picture of the Control Panel				
				

Item	Yes	No	N/A	Comments



Notes:
Provide Potable Water at Site
Install Forcemain Bypass
Rplace Corroded Guide Rail Brackets
Repair Concrete Which has Been Corroded Under Hatch and Rebar Exposed
Replace Vent w/ DIP and Stainless Steel Screen
Sandblast and Paint Discharge Piping and Valves in Valve Vault
Fix Barbwire
Remove Debris and Trash from Wet Well
Investigate Drainage Line from Vault to Wet Well, Possible Clogged

Drawdown Testing Data Sheet

Station Name: National Guard Armory
Test date: 8/9/2017
Station Number: 16
Tester Name: WAL, VET, MRG
Wet Well Diameter: 5 ft.
Shape (Circle one): Circular | Eliptical | Rectangle
Station Discharge Type (Circle One) : Manifold | Non-manifold
How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	1	minutes			
Fill Trial:	1.5	inches	**Fill Rate:**	18	GPM
Average Fill Rate:	18	GPM			

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	0.5	minutes			
Pump 1 Drawdown:	7.50	inches	**Pump 1 Drawdown Rate:**	184	GPM
Pump 2 Drawdown:	9.50	inches	**Pump 2 Drawdown Rate:**	233	GPM
Pump 1 Pumping Rate:	202	GPM			
Pump 2 Pumping Rate:	251	GPM			

Design Pumping Rate Reported at 230 GPM at 52 FT TDH

Parallel Pumping

Pumping Run Time:	1	minutes			
Parallel Drawdown:	19.50	inches	**Parallel Drawdown Rate:**	239	GPM
Parallel Pumping Rate:	257	GPM			

Station Name: Silver Creek
Station Number: 17
Station Address: 1916 Buxton Street

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Behind Silver Creek Subdivision, Back in Woods
3	In what year was it constructed?	✓			1999

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			160 GPM @ 55 FT TDH
5	What is the wet well diameter (feet)?	✓			6 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
	Are the As-builts available for this station?	✓			
7	Depth of wetwell?			✓	Unknown, Not Reported in City Record
	Depth to inlet?	✓			10 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			5,000 LF from 100 Year Flood Elevation Top of Wet Well Elevation: 94.9 FT General Average Site Elevation: 94.4 FT Bottom of Control Panel Elevation: 99.1 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.		✓		
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?		✓		Several Apartments nNearby
29	Is the station susceptible to flooding from a water source?	✓			Next to Drainage Ditch
30	Does the access road provide acceptable entry onto the site?	✓			
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Caterpillar
2	Model	✓			97A 037055
3	TYPE	✓			00050-J365.0018CBVNC
4	Year Purchased	✓			1997
5	Fuel Tank Size	✓			193 GAL
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			26"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
	Part C: Information on Pumps within the Pump Station				
	General Information				
1	Pump No. 1 in service?	✓			Vibration - Possibly Impeller
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Not Visable - Submersible
5	Is the water seal working properly?	✓			No Apparent Issues
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?	✓			Vibration in Pump 1 & Excessive Solids/Trash/Grease in Wet Wel

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			ABS
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			1046 M70
4	Serial numbers?		✓		Not Reported/Not Visable - Submersible Pumps
5	Actual flow being produced. (GPM)	✓			Design : 160 GPM @ 55 FT TDH Drawdown: 203 GPM
6	Hp/ rpm/ phase?	✓			9.4/ ?/ 3
Pump 2					
1	Pump Manufacturer?	✓			ABS
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			1046 M70
4	Serial numbers?		✓		Not Reported/Not Visable - Submersible Pumps
5	Actual flow being produced. (GPM)	✓			Design : 160 GPM @ 55 FT TDH Drawdown: 194 GPM
6	Hp/ rpm/ phase ?	✓			9.4/ ?/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase/ voltage/Total FLA?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?		✓		
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Not Tested, Alarm is Silent
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Not Tested
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			Guide Rails are Corroded and Need Replacing
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	No Suction Valves - Submersible pumps
6	Do the discharge shutoff valves work?	✓			No Issues Apparent
7	Are there separate pump suction and discharge pipes?	✓			Only Discharge Pipes, No Suction Pipes - Submersible Pumps
8	Do the check valves work properly?	✓			No Apparent Issues
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?			✓	Not Verified, Valve Vault Locked
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Pipe
17	If there is a sump pump and/or drainage pipe, is it functioning properly?			✓	Not Verified, Valve Vault Locked
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	Likely P Trap, Not Verified - Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?		✓		
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)		✓		Excessive Trash, Solids, and Grease
26	Is there a grease problem in the wet well?	✓			
27	Is there any excessive corrosion in the wet well?	✓			Pump Guide Rails and Brackets, Discharge Piping Replace Guide Rails, Sandblast and Paint Discharge Piping
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit - Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Well - Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

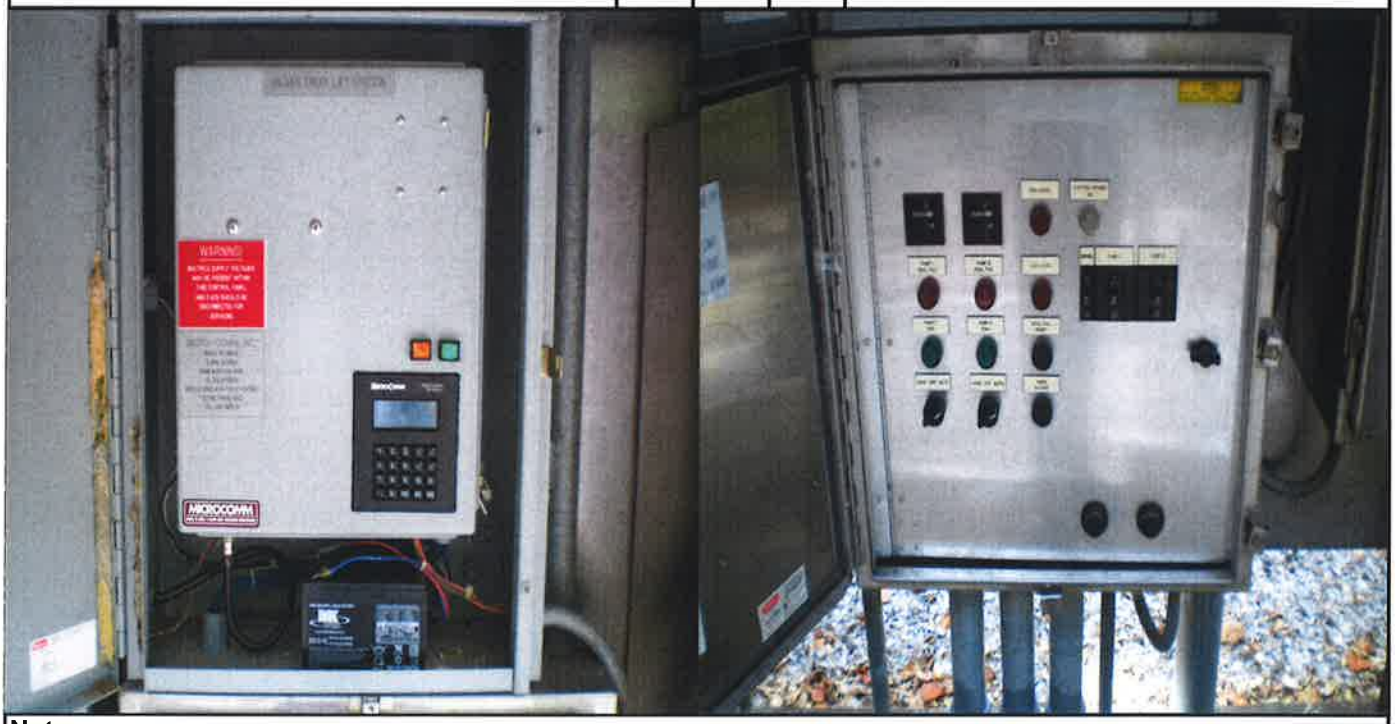
Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well				

Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				

Picture of the Control Panel

Item	Yes	No	N/A	Comments
				

Notes:

Remove Debris and Grease from Wet Well
Install Forcemain Bypass
Repaint Vent
Clean Vegetation Around Site Fence
Sandblast Discharge Piping and Replace Guide Rail Brackets
Pull Pump 1 and Investigate Vibration, Possibly Worn Impeller

Drawdown Testing Data Sheet

Station Name: Silver Creek
Test date: 8/10/2017
Station Number: 17
Tester Name: WAL, VET, MRG

Wet Well Diameter: 6 ft.
Shape (Circle one): Circular | Eliptical | Rectangle

Station Discharge Type (Circle One) : Manifold | Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	1	minutes			
Fill Trial:	2.0	inches	**Fill Rate:**	35	GPM
Average Fill Rate:			35	GPM	

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1	minutes			
Pump 1 Drawdown:	9.50	inches	**Pump 1 Drawdown Rate:**	167	GPM
Pump 2 Drawdown:	9.00	inches	**Pump 2 Drawdown Rate:**	159	GPM
Pump 1 Pumping Rate:			203	GPM	
Pump 2 Pumping Rate:			194	GPM	

Design Pumping Rate Reported at 160 GPM at 55 FT TDH

Parallel Pumping

Pumping Run Time:	1	minutes			
Parallel Drawdown:	11.00	inches	**Parallel Drawdown Rate:**	194	GPM
Parallel Pumping Rate:			229	GPM	

Station Name: Kennedy Home
Station Number: 18
Station Address: 2350 Kennedy Dairy Road

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Behind Kennedy Home, Near Old Lagoon
3	In what year was it constructed?	✓			1999

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			80 GPM @ 28 FT TDH
5	What is the wet well diameter (feet)?	✓			6 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
	Are the As-builts available for this station?	✓			
7	Depth of wetwell?			✓	Not Reported in City Records
	Depth to inlet?	✓			9.96 FT
8	How often is pump station inspected?	✓			Maintenance Logs
9	Is the maintenance history available?	✓			
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed during Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			In 100 Year Floodway - Base Flood Elevation 43.3 FT Top of Wet Well Elevation: 44.0 FT General Average Site Elevation: 43.4 FT Bottom of Control Panel Elevation: 46.4 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			Grouting Around Vent Needs Repair
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Well - Submersible Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			Secluded in Woods
29	Is the station susceptible to flooding from a water source?	✓			Next to Old Lagoon
30	Does the access road provide acceptable entry onto the site?	✓			Gravel Drive
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Spectrum
2	Model	✓			20DSJ
3	Serial Number	✓			0649137
4	Year Purchased		✓		Unknown, See Purchase Records
5	Fuel Tank Size		✓		Unknown, See Purchase Records
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			2016
9	Was the last generaor load test successful?		✓		Generator is Planned for Replacement Hurricane Matthew Damage
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			30"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?		✓		Not Operable - No Reaction when Turned On
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Not Verified, Submersible Pumps
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?	✓			Investigate Pump 1 - No Reaction When Turned On

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			EMV
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			FA-10-62-220
4	Serial numbers?	✓			266940
5	Actual flow being produced. (GPM)	✓			Design : 80 GPM @ 28 - FT TDH Drawdown: No Drawdown - Did Not Activate When Turned On
6	Hp/ rpm/ phase?	✓			2.8/ 1140/ 3
Pump 2					
1	Pump Manufacturer?	✓			EMV
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			FA-10-62-220
4	Serial numbers?	✓			266940
5	Actual flow being produced. (GPM)	✓			Design : 80 GPM @ 28 - FT TDH Drawdown: 123 GPM
6	Hp/ rpm/ phase?	✓			2.8/ 1140/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Not Verified, Test Buttons Not on Panel
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Not Verified, Test Buttons Not on Panel
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visable
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	No Suction Valves, Submersible Station
6	Do the discharge shutoff valves work?	✓			No Apparent Issues
7	Are there separate pump suction and discharge pipes?	✓			Discharge Pipes Only - No Suction Pipes, Submersible Station
8	Do the check valves work properly?		✓		Pump 2 Check is Not Working Properly
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?		✓		Foggy Unable to Verify - Replace
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?	✓			Hurricane Induced
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Pipe
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	P Trap Likely - Not Verified, Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?	✓			
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			Trash and Debris in Wet Well
26	Is there a grease problem in the wet well?	✓			Minor
27	Is there any excessive corrosion in the wet well?		✓		Discharge Pipeing - Sandblast and Paint
28	Does the interior of the wet well need to be painted with a protective coating??		✓		Re-Grout Around Vent on Wet Well
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Well, Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Well, Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

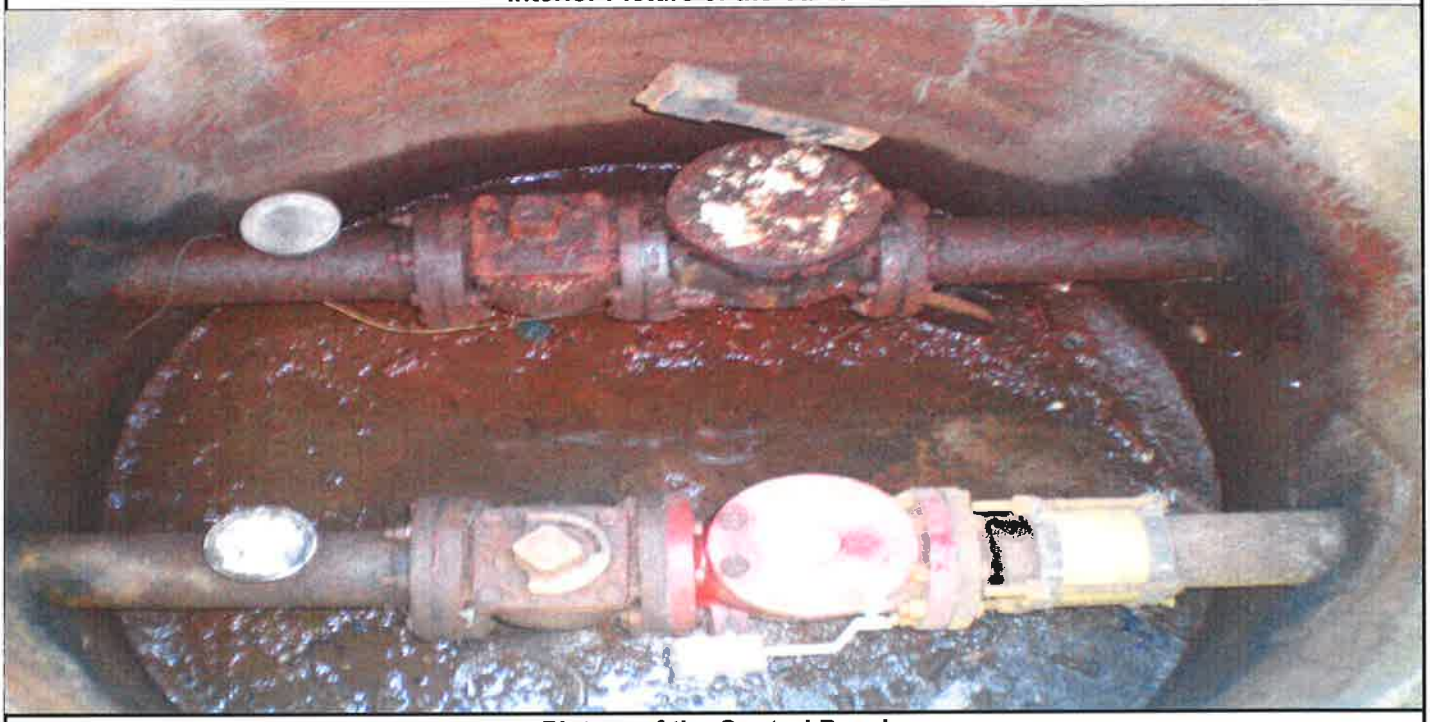
Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well				

Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				
				
Picture of the Control Panel				
				

Item	Yes	No	N/A	Comments

Notes:
Investigate and Repair Pump 1
Sandblast and Paint Discharge piping
Install Forcemain Bypass
Replace Chek Valve on Pump 2
Re-Grout Around Vent
Replace Pressure Gauges
Replace On-Site Standby Generator (Planned)

Drawdown Testing Data Sheet

Station Name: Kennedy Home **Test date:** 8/10/2017

Station Number: 18 **Tester Name:** WAL, VET, MRG

Wet Well Diameter: 6 ft. **Shape (Circle one):** [Circular] Eliptical Rectangle

Station Discharge Type (Circle One) : [Manifold] Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

NO INFLOW DURING LIFT STATION ASSESSMENT

Fill Time:	N/A	minutes

Fill Trial:	0.0	inches	Fill Rate:	0	GPM

Average Fill Rate:	0	GPM

Drawdown Testing

PUMP 1 NOT TESTED - DID NOT ACTIVATE WHEN TURNED ON

Pump 1 and Pump 2

Pumping Run Time:	1	minutes

Pump 1 Drawdown:	N/A	inches	Pump 1 Drawdown Rate:	N/A	GPM
Pump 2 Drawdown:	7.00	inches	Pump 2 Drawdown Rate:	123	GPM

Pump 1 Pumping Rate:	N/A	GPM
Pump 2 Pumping Rate:	123	GPM

Design Pumping Rate Reported at 80 GPM at 28 FT TDH

Parallel Pumping

NO PARALLEL TEST

Pumping Run Time:	N/A	minutes

Parallel Drawdown:	N/A	inches	Parallel Drawdown Rate:	N/A	GPM

Parallel Pumping Rate:	N/A	GPM

Station Name: Public Services Complex
Station Number: 19
Station Address: 2360 Hwy 258 South

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Just East of Public Works Department
3	In what year was it constructed?	✓			1987

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			65 GPM @ 48 FT TDH Reported in City Record
5	What is the wet well diameter (feet)?	✓			6' X 5.75' Rectangle "Estimate"
6	What is the diameter of force main leaving the station?	✓			4 IN
	Are the As-builts available for this station?	✓			
7	Depth of wetwell?	✓			11.39 Feet
	Depth to inlet?	✓			7.71 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?		✓		No Fencing or Bollards

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?		✓		
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			In 500 Year Floodzone Top of Wet Well Elevation: 40.9 FT General Average Site Elevation: 40.7 FT Bottom of Control Panel Elevation: 43.3 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.			✓	No Vent
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?		✓		
22	If the site is fenced, is it locked?			✓	
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?		✓		Provide Locks on All Components
24	Is there potable water available on the site?		✓		
25	Is there a back-flow preventer on the potable water?			✓	
26	Is there positive pressure ventilation for dry wells?			✓	
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)			✓	No Site Lights, Only Parking Lot Lights
28	Is the site in a remote location?		✓		
29	Is the station susceptible to flooding from a water source?	✓			Drainage Ditch Adjacent to LS
30	Does the access road provide acceptable entry onto the site?	✓			Off Public Services Complex Parking lot
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	Unknown
35	Is there standby power in place?			✓	Not Verified Likely Tied to Public Service Complex Generator
36	Is there a connection for back-up power?			✓	
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)			✓	

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer			✓	
2	Model			✓	
3	Serial Number			✓	
4	Year Purchased			✓	
5	Fuel Tank Size			✓	
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?			✓	
8	When was generator last load tested?			✓	
9	Was the last generaor load test successful?			✓	
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?			✓	
11	Is the generator elevated? How far?			✓	
12	Is the generator well ventilated?			✓	

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?			✓	No Pump 2
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Not Verified, Submerisble Pump
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Pumpex
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			SP 20 W-1115
4	Serial numbers?		✓		Not Visible
5	Actual flow being produced. (GPM)	✓			Design : 65 GPM @ 48 FT TDH Drawdown: 94 GPM
6	Hp/ rpm/ phase?	✓			3/ 3400/ 3
Pump 2					
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?		✓		Not On Site
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?		✓		Not On Site
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			Only One Pump
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?		✓		
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Not Verified, No Test Button
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Not Verified, No Test Button
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			One Steel Lifting Chain
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visible
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?		✓		No Ladder
5	Do the suction shutoff valves work?			✓	No Suction Valves - Submersible Pump
6	Do the discharge shutoff valves work?	✓			No Apperent Issues
7	Are there separate pump suction and discharge pipes?			✓	One Pump - No Suction Lines
8	Do the check valves work properly?			✓	
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?			✓	
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		None Visible

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?			✓	
17	If there is a sump pump and/or drainage pipe, is it functioning properly?			✓	
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?			✓	
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?			✓	
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	No Basket
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?	✓			
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit, Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Pit, Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

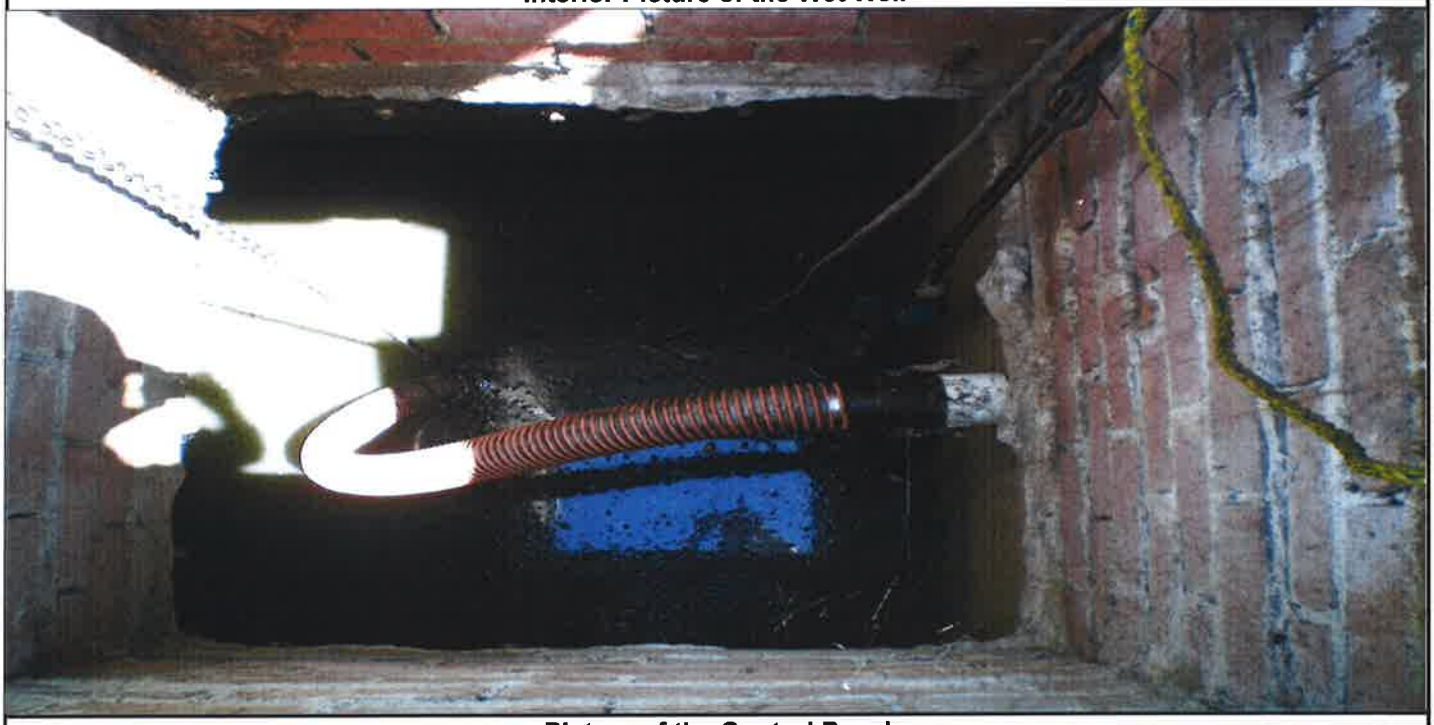
Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

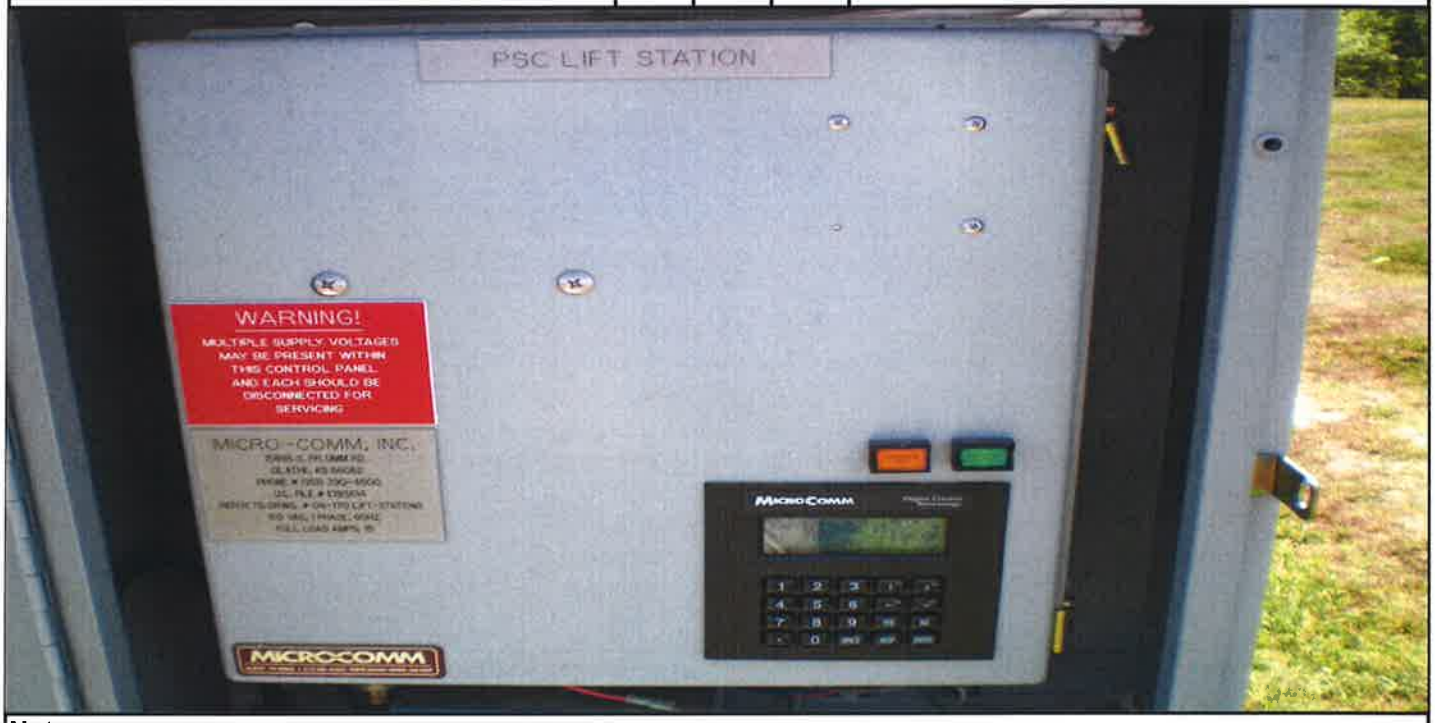
Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well				



Picture of the Control Panel

Item	Yes	No	N/A	Comments



Notes:
Install Forcemain Bypass
Install Hoist Stand and Hoist
Install DIP Vent w/ Stainless Steel Vent
Provide Lock on All Components or Install Fence
Provide Potable Water
Investigate Downstream Manholes and Replace as Necessary, Severly Corroded
Provide Tap for Pressure Gauge on Discharge Line
Convert to Traditional Duplex Submersible Station (Long Term Improvement)

Drawdown Testing Data Sheet

Station Name: Public Services Complex
Test date: 8/10/2017
Station Number: 19
Tester Name: WAL, VET, MRG
Wet Well Surface Area: 34.5 ft^2
Shape (Circle one): Circular Eliptical Rectangle
Station Discharge Type (Circle One) : Manifold Non-manifold
How Many Pumps on Manifold (If Manifold): 1

Fill Testing

NO INFLOW DURING LIFT STATION ASSESSMENT

Fill Time:	N/A minutes		
Fill Trial:	0.0 inches	**Fill Rate:**	0 GPM
Average Fill Rate:	0 GPM		

Drawdown Testing

Pump 1

Pumping Run Time:	1 minutes

Pump Drawdown 1:	4.50 inches	**Pump Drawdown Rate 1:**	97 GPM
Pump Drawdown 2:	4.25 inches	**Pump Drawdown Rate 2:**	91 GPM

Pump 1 Pumping Rate:	97 GPM
Pump 2 Pumping Rate:	91 GPM
Average Pumping Rate:	94 GPM

Design Pumping Rate Reported at 65 GPM at 48 FT TDH in City Record

Station Name: Educational Training Center
Station Number: 20
Station Address: 3810 Hwy 58 North

Date of Inspection: August 9, 2017

Current Weather: Partly Cloudy

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 1

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Off Major Road Next to Educational Training Center
3	In what year was it constructed?	✓			2000

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			410 GPM @ 214 FT TDH
5	What is the wet well diameter (feet)?	✓			8 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
7	Are the As-builts available for this station?	✓			
	Depth of wetwell?	✓			19.90 FT
	Depth to inlet?	✓			15.25 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed during Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			300 LF from 100 Year Flood Elevation Top of Wet Well Elevation: 71.6 FT General Average Site Elevation: 71.6FT Bottom of Control Panel Elevation: 72.7 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			Screen has Corroded, Replace w/ Stainless Steel
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Well, Submersible Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			Somewhat
29	Is the station susceptible to flooding from a water source?		✓		
30	Does the access road provide acceptable entry onto the site?	✓			Off Paved Road
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?		✓		

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
Part B: Generator Information					
1	Make or manufacturer	✓			Kohler
2	Model	✓			230RE0ZJE
3	Serial Number	✓			2293545
4	Year Purchased	✓			2010
5	Fuel Tank Size	✓			472 Gallons
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			30"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?			✓	Not Verified, Submersible Pumps
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
Name plate Information					
Pump 1					
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			5434MV
4	Serial numbers?		✓		Not Visable - Submersible
5	Actual flow being produced. (GPM)	✓			Design : 410 GPM @ 214 FT TDH Drawdown: 439 GPM
6	Hp/ rpm/ phase?	✓			100/ 1780/ 3
Pump 2					
1	Pump Manufacturer?	✓			Fairbanks-Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			5434MV
4	Serial numbers?		✓		Not Visable - Submersible
5	Actual flow being produced. (GPM)	✓			Design : 410 GPM @ 214 FT TDH Drawdown: 439 GPM
6	Hp/ rpm/ phase?	✓			100/ 1780/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)	✓			
16	Does the high water alarm light work? (found by lifting it above the switch point)		✓		Light Does Not Work - Replace
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visible
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	No Suction Valves - Submersible Pumps
6	Do the discharge shutoff valves work?	✓			No Apparent Issues
7	Are there separate pump suction and discharge pipes?	✓			Discharge Pipe Only, No Suction Pipes - Submersible Pumps
8	Do the check valves work properly?	✓			
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?	✓			
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?	✓			
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Pipe
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	Likely P Trap - Not Verified, Further Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?		✓		Clean Basket
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		Minor Corrosion on Discharge Piping - Sandblast and Repaint
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Well, Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Well, Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				
				
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well and/or Dry Well				

Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				
				
Picture of the Control Panel				
				

Item	Yes	No	N/A	Comments

Notes:
Clean Out Trash Basket
Minor Corrosion on Discharge Piping - Sandblast and Repaint
Paint Forcemain Bypass and Wet Well Vent
Replace Vent Screen
Fix High Water Alarm Light

Drawdown Testing Data Sheet

Station Name: Educational Training Center
Test date: 8/9/2017
Station Number: 20
Tester Name: WAL, VET, MRG
Wet Well Diameter: 8 ft.
Shape (Circle one): Circular | Eliptical | Rectangle
Station Discharge Type (Circle One) : Manifold | Non-manifold
How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	1	minutes			
Fill Trial:	1.0	inches	**Fill Rate:**	31	GPM
Average Fill Rate:	31	GPM			

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1	minutes			
Pump 1 Drawdown:	14.00	inches	**Pump 1 Drawdown Rate:**	439	GPM
Pump 2 Drawdown:	13.00	inches	**Pump 2 Drawdown Rate:**	407	GPM
Pump 1 Pumping Rate:	470	GPM			
Pump 2 Pumping Rate:	439	GPM			

Design Pumping Rate Reported at 410 GPM at 214 FT TDH

Parallel Pumping

Pumping Run Time:	0.5	minutes			
Parallel Drawdown:	9.00	inches	**Parallel Drawdown Rate:**	564	GPM
Parallel Pumping Rate:	595	GPM			

Station Name: Sanderson Hatchery
Station Number: 22
Station Address: 1314 Hill Farm Road

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Off Paved Road Near Sanderson Farms
3	In what year was it constructed?		✓		2010

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			100 GPM @ 37 FT TDH
5	What is the wet well diameter (feet)?	✓			8 FT
6	What is the diameter of force main leaving the station?	✓			4 IN
	Are the As-builts available for this station?	✓			
7	Depth of wetwell?	✓			18.50 FT
	Depth to inlet?	✓			10.65 FT
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed during Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			2,000 LF from 100 Year Flood Elevation Top of Wet Well Elevation: 52.5 FT General Average Site Elevation: 52.0 FT Bottom of Control Panel Elevation: 56.0 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Well, Submersible Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			Somewhat
29	Is the station susceptible to flooding from a water source?		✓		
30	Does the access road provide acceptable entry onto the site?	✓			Off Main Road
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?	✓			Wet Well When Opened
33	Is the station in need of any exterior protective painting?		✓		Repaint Wet Well Vent

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			Standby Generator

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
Part B: Generator Information					
1	Make or manufacturer	✓			Cummins
2	Model	✓			DSFAB-4773077
3	Serial Number	✓			E100125176
4	Year Purchased	✓			2010
5	Fuel Tank Size	✓			145 Gallons
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			20"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		Not Visable, Submersible Pumps
5	Is the water seal working properly?			✓	
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
	Name plate Information				
	Pump 1				
1	Pump Manufacturer?	✓			Hydromatic
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			S4NX500DC
4	Serial numbers?		✓		Unknown, Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 100 GPM @ 37 FT TDH Drawdown: 172 GPM
6	Hp/ rpm/ phase?	✓			5/ 1750/ 3
	Pump 2				
1	Pump Manufacturer?	✓			Hydromatic
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			S4NX500DC
4	Serial numbers?		✓		Unknown, Not Visable
5	Actual flow being produced. (GPM)	✓			Design : 100 GPM @ 37 FT TDH Drawdown: 157 GPM
6	Hp/ rpm/ phase?	✓			5/ 1750/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)	✓			
16	Does the high water alarm light work? (found by lifting it above the switch point)		✓		Alarm Light Not Working - Replace
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visible
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	No Suction Valves, Submersible Pumps
6	Do the discharge shutoff valves work?	✓			No Apparent Issues
7	Are there separate pump suction and discharge pipes?	✓			Discharge Pipes Only, No Suction Pipes - Submersible Station
8	Do the check valves work properly?	✓			No Apparent Issues
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?			✓	One Missing
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?			✓	Not Available
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Pipe
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.			✓	P Trap Likely, Not Verified - Futher Investigation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?		✓		Minor Trash Build-Up, Clean Basket
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		
28	Does the interior of the wet well need to be painted with a protective coating??			✓	Protective Liner in Good Shape
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?			✓	
31	Is there a mechanical bar screen?		✓		
32	Does the mechanical bar screen work properly?			✓	
33	Does the mechanical bar screen need replacing?			✓	
34	Is there a manual bar screen?		✓		
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Pit, Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Well, Submersible Station
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

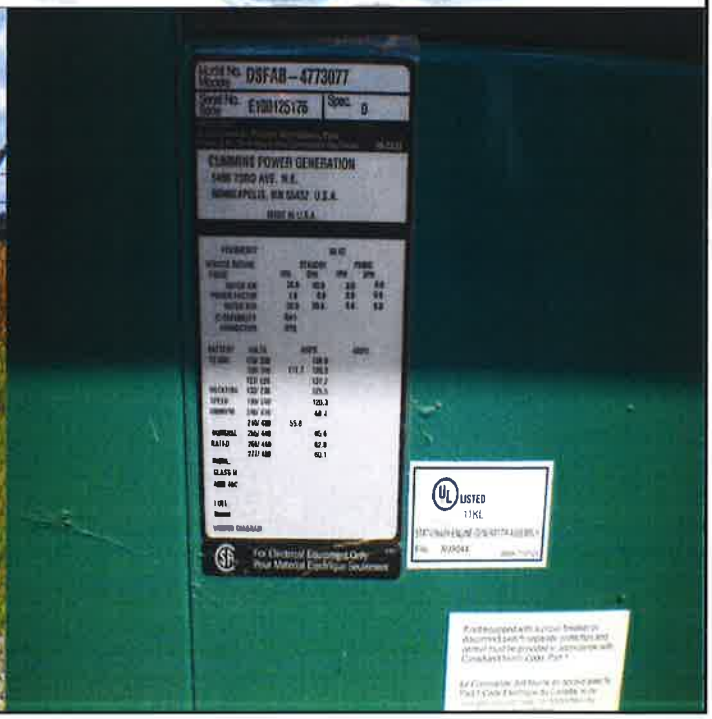
Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well				



Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				

Picture of the Control Panel

Item	Yes	No	N/A	Comments

Notes:
Fix High Water Alarm Light
Paint Forcemain Bypass
Clean Trash Basket
Install Pressure Gauge

Drawdown Testing Data Sheet

Station Name:	Sanderson Hatchery	**Test date:**	8/10/2017
Station Number:	22	**Tester Name:**	WAL, VET, MRG

Wet Well Diameter: 8 ft. **Shape (Circle one):** [Circular] Eliptical Rectangle

Station Discharge Type (Circle One) : [Manifold] Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	1	minutes

Fill Trial:	1.0	inches	**Fill Rate:**	31 GPM
Average Fill Rate:	31	GPM		

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1	minutes

Pump 1 Drawdown:	5.00	inches	**Pump 1 Drawdown Rate:**	157 GPM
Pump 2 Drawdown:	4.00	inches	**Pump 2 Drawdown Rate:**	125 GPM

Pump 1 Pumping Rate:	188	GPM
Pump 2 Pumping Rate:	157	GPM

Design Pumping Rate Reported at 100 GPM at 37 FT TDH

Parallel Pumping

Pumping Run Time:	1	minutes

Parallel Drawdown:	5.75	inches	**Parallel Drawdown Rate:**	180 GPM
Parallel Pumping Rate:	211	GPM		

Station Name: Industrial Park
Station Number: 23
Station Address: Parrott Dickerson Road

Date of Inspection: August 10, 2017

Current Weather: Sunny

Inspection Completed By: WAL, VET, MRG

Days Since Last Significant Rain: 2

Additional Pictures of the Pump Station included at the end of this Check List.

	Item	Yes	No	N/A	Comments
	Part A: General Pump Station Information				
1	Is the Pump Station identification present?	✓			
2	What is the physical location (i.e. end of "road" in the woods)?	✓			Off Main Road Across From Smithfield Foods
3	In what year was it constructed?	✓			2015

	Item	Yes	No	N/A	Comments
4	What is the design capacity (permitted)?	✓			1,090 GPM @ 42 FT TDH
5	What is the wet well diameter (feet)?	✓			10' X 12'
6	What is the diameter of force main leaving the station?	✓			14 IN
	Are the As-builts available for this station?	✓			
7	Depth of wetwell?	✓			35.54
	Depth to inlet?	✓			26.66
8	How often is pump station inspected?	✓			Weekly
9	Is the maintenance history available?	✓			Maintenance Logs
10	Is the accident history available?	✓			
11	Is the warranty information for all equipment and major components available?	✓			
12	Is the test history for water tightness, leakage, instrumentation, pump, electrical components and controls made available?			✓	Only Performed at Start-Up
13	Are the shop drawings for all installed equipment and each major component and a pump curve/system curve analysis showing the design operating points made available?	✓			
14	Are Emergency numbers posted at site?	✓			
15	Are Pump Station structures separated (i.e. wet/dry well and generator building) (Only applicable if structures not gas and water tight)	✓			
16	Are all structures on site protected from damage due to vehicles entering the pump station facility?	✓			

	Item	Yes	No	N/A	Comments
17	Are there appropriate safety placards on all structures and equipment?	✓			
18	Are the wet/dry well vents above the 100 year flood elevation?	✓			4,500 LF from 100 Year Flood Elevation Top of Wet Well Elevation: 53.2 FT General Average Site Elevation: 52.8 FT Bottom of Control Panel Elevation: 54.3 FT

	Item	Yes	No	N/A	Comments
19	Are there corrosion resistant insect/bird screens on the wet/dry well vents.	✓			
20	Is the general area around the pump station in a state of general cleanliness?	✓			
21	Is the site fenced?	✓			
22	If the site is fenced, is it locked?	✓			
23	If no fencing are components padlocked? (I.e. wet well lid, valve box lid and electric panels)?			✓	
24	Is there potable water available on the site?	✓			
25	Is there a back-flow preventer on the potable water?	✓			
26	Is there positive pressure ventilation for dry wells?			✓	No Dry Well - Submersible Station
27	Do all lights work properly? (site lights on post, wet/dry well interior lights)	✓			
28	Is the site in a remote location?	✓			
29	Is the station susceptible to flooding from a water source?		✓		
30	Does the access road provide acceptable entry onto the site?	✓			
31	If the station is a pig launching or receiving station, is there adequate room for those operations and a way to properly remove and dispose of the waste material?			✓	
32	Is there excessive odor in the area of the pump station?		✓		
33	Is the station in need of any exterior protective painting?	✓			

	Item	Yes	No	N/A	Comments
34	Does the station have a history of power outage?			✓	N.A. Generator at LS
35	Is there standby power in place?	✓			
36	Is there a connection for back-up power?	✓			
37	If there is a back-up power source, what type is it? (portable generator/standby generator/ alternate power feed)	✓			

If the back-up power source is a type of generator fill out the information on the following page(Part B: Generator Information). If not a generator, describe the back-up power in the notes at the end of this check-list.

	Item	Yes	No	N/A	Comments
	Part B: Generator Information				
1	Make or manufacturer	✓			Kohler
2	Model	✓			150REQZJF
3	Serial Number	✓			SGM32C781
4	Year Purchased	✓			2014
5	Fuel Tank Size	✓			316 Gallons
6	If portable generator how many stations does it serve?			✓	
7	How often is the generator load tested?	✓			Monthly
8	When was generator last load tested?	✓			July
9	Was the last generaor load test successful?	✓			
10	Is the generator protected from the elements and corrosive effects of the waste in the collection system?	✓			
11	Is the generator elevated? How far?	✓			27"
12	Is the generator well ventilated?	✓			

	Item	Yes	No	N/A	Comments
Part C: Information on Pumps within the Pump Station					
General Information					
1	Pump No. 1 in service?	✓			
2	Pump No. 2 in service?	✓			
3	If the discharge pipes are less than 4" in diameter are the pumps, grinder pumps?			✓	
4	Is there an unusual amount of rust on the pumps?		✓		Not Visible - Submersible Pumps
5	Is the water seal working properly?	✓			
6	Are the connections to the discharge piping flush?	✓			
7	Is there a flow meter, pump counters or other means by which to measure flow?	✓			Pump Counters
8	Pumps capable of keeping a cumulative operational run time log?	✓			Scada System
9	Are spare parts or an adequate spare parts inventory available to replace or rebuild pumps if needed?	✓			At Shop
10	Is there anything obvious about the pumps that might compromise their continued service?		✓		

	Item	Yes	No	N/A	Comments
	Name plate Information				
	Pump 1				
1	Pump Manufacturer?			✓	Fairbanks- Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5434MV(BH)
4	Serial numbers?		✓		Not Report in City Record, Not Visible - Submersible
5	Actual flow being produced. (GPM)	✓			Design: 1,090 GPM @ 42 FT TDH Drawdown: 979 GPM
6	Hp/ rpm/ phase?	✓			30/ 1100/ 3
	Pump 2				
1	Pump Manufacturer?			✓	Fairbanks- Morse
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?	✓			D5434MV(BH)
4	Serial numbers?		✓		Not Report in City Record, Not Visible - Submersible
5	Actual flow being produced. (GPM)	✓			Design: 1,090 GPM @ 42 FT TDH Drawdown: 954 GPM
6	Hp/ rpm/ phase?	✓			30/ 1100/ 3

	Item	Yes	No	N/A	Comments
	Back-Up Pump if Applicable				
1	Pump Manufacturer?			✓	
2	Sales Representative to be contacted about this pump?			✓	
3	Model numbers/ Catalog No.?			✓	
4	Serial numbers?			✓	
5	Actual flow being produced. (GPM)			✓	
6	Hp/ rpm/ phase?			✓	

	Item	Yes	No	N/A	Comments
	Part D: Control Panel and Electrical Components Information				
1	Is there an Inventory, functional description and complete operating instructions available for the control panel?	✓			
2	Instructions for start up/shut down, calibration and adjustment of all installed equipment and each major component made available?	✓			
3	Pump control panel easily accessible?	✓			
4	Control panel equipped with Hand-Off-Auto switch?	✓			
5	Each pump supplied with a separate power supply, motor starter, alarm sensors, electrical components and instrumentation, and control systems?	✓			
6	Electrical components and instrumentation capable of being disconnected from outside of the wet well?	✓			
7	NEMA rating of the control panel?	✓			4X
8	Are all electrical components protected from corrosive elements?	✓			
9	Are all cables and conduits water/gas tight and corrosion resistant?	✓			
10	Are all enclosures, switches and indicator lights equipped with UL approved label?	✓			
11	Is the station equipped with a telemetry system?	✓			
12	If the station is equipped with a telemetry system, is it capable of contacting personnel 24-7-365 and has a back up battery supply in addition to a power generator?	✓			
13	Are there any 110 volt receptacles available on site?	✓			
14	Do the wet well level control floats work properly (i.e. pumps turn on when their floats are lifted above the switch point)?	✓			

	Item	Yes	No	N/A	Comments
15	High water audio alarm (does it work)? (found by lifting it above the switch point)			✓	Not Tested, Silent Alarm
16	Does the high water alarm light work? (found by lifting it above the switch point)			✓	Not Tested
17	Are the floats protected from the effects of inflow and pump turbulence?	✓			
18	Are the float switches the sealed mercury type?	✓			
19	Is there a back-up float at the high water alarm level if the switches are not the sealed mercury type?			✓	
20	Is there a back-up power source for all alarms in addition to a power generator?	✓			

	Item	Yes	No	N/A	Comments
	Part E: Wet/Dry Well and Valve Box Information				
1	Is there a stainless steel guide rail/cable system and lifting chain for pump removal?	✓			
2	Is the wet well floor designed so as to direct flow towards pump inlet?	✓			
3	Are there any protrusions from the inside wall of the wet well that might cause solids to accumulate?		✓		None Visible
4	Do the access hatches and ladders provide safe entry into the wet/dry well for regular maintenance?	✓			
5	Do the suction shutoff valves work?			✓	No Suction Valves - Submersible Pumps
6	Do the discharge shutoff valves work?	✓			No Apparent Issues
7	Are there separate pump suction and discharge pipes?	✓			Only Discharge Lines, No Suction Lines - Submersible Station
8	Do the check valves work properly?	✓			
9	If there are any limit switches on the check valves, do they work?			✓	
10	Are there pressure gauges in place and working?	✓			
11	Is their any evidence of overflows?		✓		
12	Is there evidence of high water within the wet well?		✓		
13	Is there a history of overflows at this station?		✓		
14	Are there any leaks around the inlet pipes or discharge pipe where it intersects the wall of the wet well?		✓		

	Item	Yes	No	N/A	Comments
15	Is there any sewage backed up into influent line?		✓		
16	Are the pump station structures other than the wet well equipped with a sump pump and/or drainage pipe?	✓			Drainage Lines
17	If there is a sump pump and/or drainage pipe, is it functioning properly?	✓			
18	If there is a sump pump and/or drainage pipe, does the drainage empty into the collection system only?	✓			Wet Well
19	Is the discharge of the sump and/or drainage pipe above the high water alarm level in the wet well?	✓			
20	Are all of the sumps and/or drainage pipes equipped with back-flow valves for gases and liquids.	✓			Likely P Trap, Not Verified - Further Evaluation Required
21	Proper buoyancy protection? (Found on As-Builts)	✓			
22	Does the wet well have power ventilation?		✓		
23	If the wet well has power ventilation, does it work?			✓	
24	Is the trash basket clean?			✓	No Basket - Mechanical Bar Screen
25	Is the wet well in a relative state of cleanliness? (i.e. no excessive solids build up)	✓			
26	Is there a grease problem in the wet well?		✓		
27	Is there any excessive corrosion in the wet well?		✓		Minor on Pump Guide Rail Brackets
28	Does the interior of the wet well need to be painted with a protective coating??		✓		
29	Does the influent sluice gate work properly?			✓	

	Item	Yes	No	N/A	Comments
30	Do the stop gates work properly?	✓			
31	Is there a mechanical bar screen?	✓			
32	Does the mechanical bar screen work properly?	✓			Conveyor Auger Cannot Vertically Lift Screening - High Grease Currently Laying Horizontally for Operation
33	Does the mechanical bar screen need replacing?		✓		Conveyor Auger Needs Replacing
34	Is there a manual bar screen?			✓	
35	Is the manual bar screen clean?			✓	
36	Are the system pipes sized so as to maintain a velocity of between 2 and 8 fps? (Found with information from as-Builts)	✓			
37	Are there any leaks in the dry pit?			✓	No Dry Well, Submersible Station
38	Is ther any noticeable corrosion in the dry pit?			✓	
39	If there is a dry pit that has power ventilation, does it work?			✓	
40	Is there a dehumidifier in the dry pit?			✓	
41	If there is a dehumidifier in the dry pit, is it working?			✓	

	Item	Yes	No	N/A	Comments
	Part F: SCADA System Information				
1	Is there a SCADA system in place?	✓			
2	If there is a SCADA system in place, is it working?	✓			
3	Is there a wet well, high level sensor?	✓			
4	Is there a wet well, low level sensor?	✓			
5	Is there a dry well, high level sensor?			✓	No Dry Well, Submersible Pumps
6	Is there a high/low pH sensor?		✓		
7	Is there a high temperature sensor?	✓			
8	Is there a water seal failure sensor in the pump?	✓			
9	Is there a high/low current sensor?		✓		
10	Does the SCADA monitor the AC power status?	✓			Generator Run/Fail Transfer Switch On/Fail

Item	Yes	No	N/A	Comments

Additional Pump Station Pictures

Station Gate with Station Name Placard

Site Pictures of Area Surounding the Pump Station

Item	Yes	No	N/A	Comments
				
				

Item	Yes	No	N/A	Comments
Interior Picture of the Wet Well				

Item	Yes	No	N/A	Comments
Interior Picture of the Valve Vault				
				
Picture of the Control Panel				
				

Item	Yes	No	N/A	Comments
				

Notes:
Install New Auguer Conveyor with Hopper, Housing, Discharge Tube, and Auguer to Allow for Conveyance of Grease

Drawdown Testing Data Sheet

Station Name: Industrial Park **Test date:** 8/10/2017

Station Number: 23 **Tester Name:** WAL, VET, MRG

Wet Well Surface Area: 120 ft^2 **Shape (Circle one):** Circular Eliptical Rectangle

Station Discharge Type (Circle One) : Manifold Non-manifold

How Many Pumps on Manifold (If Manifold): 2

Fill Testing

Fill Time:	2	minutes			
Fill Trial:	5.5	inches	**Fill Rate:**	206	GPM
Average Fill Rate:	206	GPM			

Drawdown Testing

Pump 1 and Pump 2

Pumping Run Time:	1.5	minutes			
Pump 1 Drawdown:	15.50	inches	**Pump 1 Drawdown Rate:**	773	GPM
Pump 2 Drawdown:	15.00	inches	**Pump 2 Drawdown Rate:**	748	GPM
Pump 1 Pumping Rate:	979	GPM			
Pump 2 Pumping Rate:	954	GPM			

Design Pumping Rate Reported at 1,090 GPM at 42 FT TDH
Drawdown Rate May Be Impacted By Soft Start VFDs

Parallel Pumping

Pumping Run Time:	1.5	minutes			
Parallel Drawdown:	17.50	inches	**Parallel Drawdown Rate:**	873	GPM
Parallel Pumping Rate:	1,078	GPM			

APPENDIX C

BUDGET ESTIMATE FOR IMPROVEMENTS

PROJECT BUDGET ESTIMATE
WASTEWATER LIFT STATION CONDITION ASSESSMENT
CITY OF KINSTON, NORTH CAROLINA

BY: THE WOOTEN COMPANY

'TWC Job No. 2208-CV 9/11/2017

ITEM	DESCRIPTION	CONSTRUCTION BUDGET
1	Barrus Lift Station (1)	$121,300
2	Briery Run Lift Station (2)	$250,700
3	Forrest Street Lift Station (3)	$323,200
4	Pollock Street Lift Station (4)	$217,500
5	Hampton Inn Lift Station (5)	$18,800
6	Oliver Glass Lift Station (6)	$53,800
7	Airport Lift Station (7)	$71,000
8	Brentwood Lift Station (8)	$29,900
9	GTP Cargo Lift Station (9)	$6,250
10	Best Western Lift Station (10)	$19,175
11	Bynum School Lift Station (11)	$50,350
12	Windsor Farms Lift Station (12)	$11,450
13	Briery Subdivision No. 1 Lift Station (13)	$28,800
14	Briery Subdivision No. 2 Lift Station (14)	$27,000
15	Frenchman's Creek Lift Station (15)	$37,050
16	National Guard Armory Lift Station (16)	$26,150
17	Silver Creek Lift Station (17)	$26,050
18	Kennedy Home Lift Station (18)	$28,950
19	Public Services Complex Lift Station (19)	$35,300
20	Educational Training Center Lift Station (20)	$6,375
21	Sanderson Hatchery Lift Station (22)	$630
22	Industrial Park Lift Station (23)	$37,500
	Total Estimated Project Budget :	**$1,428,000**

PRELIMINARY

ESTIMATE OF PROBABLE PROJECT COST
Barrus Pump Station Improvements
Station ID - 1
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Replace Hatch on Wet Well	LS	1	$1,500.00	$1,500.00
2	By-Pass Pumping (One Month)	LS	1	$30,000.00	$30,000.00
3	Power Wash Wet Well	LS	1	$3,500.00	$3,500.00
4	Remove Grout from Wet Well and Re-Grout	LS	1	$20,000.00	$20,000.00
5	Paint Interior Protective Coating in Wet Well	LS	1	$25,000.00	$25,000.00
6	Replace Hoist	LS	2	$3,500.00	$3,500.00
7	Repair/Repour Concrete Wet Well Pad	LS	2	$2,500.00	$2,500.00
8	Replace Barbwire on Fencing	LF	200	$25.00	$5,000.00
9	Sandblast and Paint Exterior Surfaces where Failing	LS	1	$5,000.00	$5,000.00
10	Replace Steel Grates	LS	1	$1,000.00	$1,000.00
11	Convert from Dry/Wet Pit to Submersible Station (Long-Term)	LS	1	$500,000.00	$500,000.00
				Construction Cost Subtotal	**$97,000.00**
				Contingency (10%)	$9,700.00
				Engineering Design (15%)	$14,600.00
				ESTIMATED TOTAL PROJECT COST	**$121,300.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.
2. Long-term improvement is not included in total estimated project cost.

ESTIMATE OF PROBABLE PROJECT COST
Briery Run Pump Station Improvements
Station ID - 2
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Investigate Pump 1 (Site Call from Pump Supplier)	LS	1	$2,500.00	$2,500.00
2	Replace Seal on Pump 2	LS	1	$5,000.00	$5,000.00
3	Install Pressure Gauge on Pump 2	LS	1	$500.00	$500.00
4	Paint Protective Coating on Dry Pit Walls	LS	1	$10,000.00	$10,000.00
5	Install Traffic Bollards around Wet Well Vent	EA	5	$300.00	$1,500.00
6	Replace Hatch on Wet Well	LS	1	$1,500.00	$1,500.00
7	By-Pass Pumping (One Month)	LS	1	$30,000.00	$30,000.00
8	Power Wash Wet Well	LS	1	$3,500.00	$3,500.00
9	Remove Grout from Wet Well and Re-Groute	LS	1	$20,000.00	$20,000.00
10	Paint Interior Protective Coating in Wet Well	LS	1	$25,000.00	$25,000.00
11	Replace Manual Barscreen	LS	1	$15,000.00	$15,000.00
12	Replace Influent Sluice Gate	LS	1	$20,000.00	$20,000.00
13	Install Dry Pit Dehumidifier	LS	1	$10,000.00	$10,000.00
14	Replace Flood Gates around Site	EA	2	$10,000.00	$20,000.00
15	Clean/Sandblast/Paint Influent Manhole	LS	1	$5,000.00	$5,000.00
16	Sandblast and Paint Interior Suction and Discharge Piping	LS	1	$10,000.00	$10,000.00
17	Investigate Pump 1 and Pump 2 Check Valves	LS	1	$1,000.00	$1,000.00
18	Repair Power Ventalation Shaft/Fan for Wet Well	LS	1	$5,000.00	$5,000.00
19	Replace On-Site Standby Generator (PLANNED)	LS	1	$0.00	$0.00
20	Install Forcemain Bypass	LS	1	$15,000.00	$15,000.00
				Construction Cost Subtotal	$200,500.00
				Contingency (10%)	$20,100.00
				Engineering Design (15%)	$30,100.00
				ESTIMATED TOTAL PROJECT COST	**$250,700.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.
2. Current standby generator was damaged during Hurricane Matthew. Is currently scheduled to be replaced.

ESTIMATE OF PROBABLE PROJECT COST
Forrest Street Pump Station Improvements
Station ID - 3
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	By-Pass Pumping (One Month)	LS	1	$30,000.00	$30,000.00
2	Power Wash Wet Well	LS	1	$3,500.00	$3,500.00
3	Remove Grout from Wet Well and Re-Groute	LS	1	$20,000.00	$20,000.00
4	Paint Interior Protective Coating in Wet Well	LS	1	$25,000.00	$25,000.00
5	Sandblast and Paint Exterior Surfaces where Failing	LS	1	$5,000.00	$5,000.00
6	Install Forcemain Bypass	LS	1	$15,000.00	$15,000.00
7	Replace Stop Gate Between Wet Well Walls	LS	1	$10,000.00	$10,000.00
8	Replace Mechanical Barscreen and Install Screenings Compactor	LS	1	$150,000.00	$150,000.00
				Construction Cost Subtotal	$258,500.00
				Contingency (10%)	$25,900.00
				Engineering Design (15%)	$38,800.00
				ESTIMATED TOTAL PROJECT COST	**$323,200.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Pollock Street Pump Station Improvements
Station ID - 4
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Replace Hatch on Wet Well	LS	1	$1,500.00	$1,500.00
2	By-Pass Pumping (One Month)	LS	1	$30,000.00	$30,000.00
3	Power Wash Wet Well	LS	1	$3,500.00	$3,500.00
4	Remove Grout from Wet Well and Re-Groute	LS	1	$20,000.00	$20,000.00
5	Paint Interior Protective Coating in Wet Well	LS	1	$25,000.00	$25,000.00
6	Replace Barbwire on Fencing	LF	100	$25.00	$2,500.00
7	Replace Pressure Gauges	EA	3	$500.00	$1,500.00
8	Sandblast and Paint Interior Suction and Discharge Piping	LS	1	$10,000.00	$10,000.00
9	Investigate Check Valves for Proper Operation	LS	1	$1,000.00	$1,000.00
10	Install Forcemain Bypass	LS	1	$15,000.00	$15,000.00
11	Replace Mechanical Barscreen and Install Screenings Compactor	LS	1	$150,000.00	$150,000.00
12	Replace Exterior Electrical Conduits and Exterior Electrical Boxes	LS	1	$7,500.00	$7,500.00
13	Replace Sump Pump in Dry Pit	LS	1	$500.00	$500.00
				Construction Cost Subtotal	$174,000.00
				Contingency (10%)	$17,400.00
				Engineering Design (15%)	$26,100.00
				ESTIMATED TOTAL PROJECT COST	**$217,500.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Hampton Inn Pump Station Improvements
Station ID - 5
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Sandblast and Paint Exterior Surfaces where Failing	LS	1	$5,000.00	$5,000.00
2	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
3	Convert from Dry/Wet Pit to Submersible Station (Long-Term)	LS	1	$500,000.00	$500,000.00
				Construction Cost Subtotal	$15,000.00
				Contingency (10%)	$1,500.00
				Engineering Design (15%)	$2,300.00
				ESTIMATED TOTAL PROJECT COST	**$18,800.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.
2. Long-term improvement is not included in total estimated project cost.

ESTIMATE OF PROBABLE PROJECT COST
Oliver Glass Pump Station Improvements
Station ID - 6
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Replace Barbwire on Fencing	LF	60	$25.00	$1,500.00
2	Sandblast and Paint Exterior Surfaces where Failing	LS	1	$5,000.00	$5,000.00
3	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
4	Replace Exterior Electrical Conduits and Exterior Electrical Boxes	LS	1	$7,500.00	$7,500.00
5	Replace Safety Railing Around Barscreen	LS	1	$2,500.00	$2,500.00
6	Repair Ventilation for Wet Well and Dry Pit	LS	1	$10,000.00	$10,000.00
7	Remove Grates from Bar Screen Well	LS	1	$0.00	$0.00
8	Adjust Trash Basket in Wet Well	LS	1	$5,000.00	$5,000.00
9	Replace Panel Brackets where Failing	LS	1	$500.00	$500.00
10	Install Audible and Visual Alarms	LS	1	$1,000.00	$1,000.00
11	Replace Pump Guide Rail/Lift Assembly	LS	1	$5,000.00	$5,000.00
12	Convert from Dry/Wet Pit to Submersible Station (Long-Term)	LS	1	$500,000.00	$500,000.00
				Construction Cost Subtotal	$43,000.00
				Contingency (10%)	$4,300.00
				Engineering Design (15%)	$6,500.00
				ESTIMATED TOTAL PROJECT COST	**$53,800.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.
2. Long-term improvement is not included in total estimated project cost.

ESTIMATE OF PROBABLE PROJECT COST
Airport Pump Station Improvements
Station ID - 7
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Enlarge Fence Line (30' x 30')	LF	120	$55.00	$6,600.00
2	Decommission Pump Control Structure at Water Tank Location	LS	1	$2,500.00	$2,500.00
3	Provide Pump Control Panel with Heater and Pump Counters	LS	1	$35,000.00	$35,000.00
4	Move Existing Generator to Wet Well Location	LS	1	$5,000.00	$5,000.00
5	Install Hoist for Pump Removal	LS	1	$3,500.00	$3,500.00
6	Provide Potable Water Supply w/ Backflow Preventor	LS	1	$3,500.00	$3,500.00
7	Install DIP Wet Well Vent w/ Stainless Steel Insect Screen	LS	1	$500.00	$500.00
8	Investigate Drainage from Valve Vault to Wet Well (Clogged)	LS	1	$100.00	$100.00
9	Sandblast and Paint Disharge Piping and Valves	LS	1	$3,500.00	$3,500.00
10	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
				Construction Cost Subtotal	$56,700.00
				Contingency (10%)	$5,700.00
				Engineering Design (15%)	$8,600.00
				ESTIMATED TOTAL PROJECT COST	**$71,000.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Brentwood Pump Station Improvements
Station ID - 8
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Install Stainless Steel Insect Screen on Wet Well Vent	LS	1	$150.00	$150.00
2	Replace/Fix Audible and Visual Alarms	LS	1	$750.00	$750.00
3	Clean Trash Basket	LS	1	$0.00	$0.00
4	Repair Concrete Under Wet Well Hatch (Exposed Rebar)	LS	1	$500.00	$500.00
5	Repair Leaks in Wet Well and Valve Vault	LS	1	$4,000.00	$4,000.00
6	Replace Pressure Gauges	EA	2	$500.00	$1,000.00
7	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
8	Sandblast and Paint Vent Piping	LS	1	$1,000.00	$1,000.00
9	Replace Pump Guide Rails	EA	2	$1,500.00	$3,000.00
10	Sandblast and Paint Discharge Lines	LS	1	$3,500.00	$3,500.00
				Construction Cost Subtotal	$23,900.00
				Contingency (10%)	$2,400.00
				Engineering Design (15%)	$3,600.00
				ESTIMATED TOTAL PROJECT COST	**$29,900.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
GTP Cargo Pump Station Improvements
Station ID - 9
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Sandblast and Paint Vent Piping	LS	1	$1,000.00	$1,000.00
2	Sandblast and Paint Discharge Lines	LS	1	$3,500.00	$3,500.00
3	Repair Concrete Under Wet Well Hatch (Exposed Rebar)	LS	1	$500.00	$500.00
4	Clean Rust Off Electrical Conduit	LS	1	$0.00	$0.00
				Construction Cost Subtotal	$5,000.00
				Contingency (10%)	$500.00
				Engineering Design (15%)	$750.00
				ESTIMATED TOTAL PROJECT COST	**$6,250.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Best Western Pump Station Improvements
Station ID - 10
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Install Trash Basket	LS	1	$2,000.00	$2,000.00
2	Replace Barbwire on Fencing	LF	50	$25.00	$1,250.00
3	Replace Weather Stripping on Control Panel	LS	1	$25.00	$25.00
4	Install Rainshield on Control Panel	LS	1	$2,000.00	$2,000.00
5	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
6	Convert from Dry/Wet Pit to Submersible Station (Long-Term)	LS	1	$500,000.00	$500,000.00
				Construction Cost Subtotal	$15,275.00
				Contingency (10%)	$1,600.00
				Engineering Design (15%)	$2,300.00
				ESTIMATED TOTAL PROJECT COST	**$19,175.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.
2. Long-term improvement is not included in total estimated project cost.

ESTIMATE OF PROBABLE PROJECT COST
Bynum School Pump Station Improvements
Station ID - 11
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Replace Audible Alarm	LS	1	$400.00	$400.00
2	Replace Barbwire on Fencing	LF	50	$25.00	$1,250.00
3	By-Pass Pumping (One Week)	LS	1	$7,000.00	$7,000.00
4	Power Wash Wet Well	LS	1	$1,500.00	$1,500.00
5	Remove Grout from Wet Well and Re-Groute	LS	1	$10,000.00	$10,000.00
6	Paint Interior Protective Coating in Wet Well	LS	1	$10,000.00	$10,000.00
7	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
8	Convert from Dry/Wet Pit to Submersible Station (Long-Term)	LS	1	$500,000.00	$500,000.00
				Construction Cost Subtotal	$40,150.00
				Contingency (10%)	$4,100.00
				Engineering Design (15%)	$6,100.00
				ESTIMATED TOTAL PROJECT COST	**$50,350.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.
2. Long-term improvement is not included in total estimated project cost.

ESTIMATE OF PROBABLE PROJECT COST
Windsor Farms Pump Station Improvements
Station ID - 12
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Replace Visual and Audible Alarms	LS	1	$750.00	$750.00
2	Install Steel Lifting Chain to Pump 2	LF	50	$25.00	$1,250.00
3	Investigate Drainage from Valve Vault to Wet Well (Clogged)	LS	1	$100.00	$100.00
4	Sandblast and Paint Discharge Piping and Valves in Valve Vault	LS	1	$3,500.00	$3,500.00
5	Replace Pressure Gauges	EA	2	$500.00	$1,000.00
6	Investigate Pumping Operations (Site Call from Pump Supplier)	LS	1	$2,500.00	$2,500.00
				Construction Cost Subtotal	$9,100.00
				Contingency (10%)	$950.00
				Engineering Design (15%)	$1,400.00
				ESTIMATED TOTAL PROJECT COST	**$11,450.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Briery Subdivision No. 1 Pump Station Improvements
Station ID - 13
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Replace Barbwire on Fencing	LF	50	$25.00	$1,250.00
2	Install Vent Screen	LF	50	$25.00	$1,250.00
3	Sandblast and Paint Vent on Wet Well	LS	1	$1,000.00	$1,000.00
4	Install Trash Basket	LS	1	$2,000.00	$2,000.00
5	Repair Leak at Discharge Piping at Wet Well Intersection	EA	2	$500.00	$1,000.00
6	Provide Potable Water Supply w/ Backflow Preventor	LS	1	$3,500.00	$3,500.00
7	Recut Drainage Ditch Behind LS to Provide Better Runoff	LS	1	$3,000.00	$3,000.00
8	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
				Construction Cost Subtotal	$23,000.00
				Contingency (10%)	$2,300.00
				Engineering Design (15%)	$3,500.00
				ESTIMATED TOTAL PROJECT COST	**$28,800.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Briery Subdivision No. 2 Pump Station Improvements
Station ID - 14
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Replace Barbwire on Fencing	LF	50	$25.00	$1,250.00
2	Install DIP Wet Well Vent w/ Stainless Steel Insect Screen	LS	1	$500.00	$500.00
3	Repair or Replace Audible and Visual Alarms	LS	1	$750.00	$750.00
4	Install Trash Basket	LS	1	$2,000.00	$2,000.00
5	Lower High Water Alarm Float	LS	1	$0.00	$0.00
6	Replace Electrical Panel Supports	LS	1	$2,500.00	$2,500.00
7	Repair Leak at Discharge Piping at Wet Well Intersection	EA	2	$500.00	$1,000.00
8	Provide Potable Water Supply w/ Backflow Preventor	LS	1	$3,500.00	$3,500.00
9	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
				Construction Cost Subtotal	$21,500.00
				Contingency (10%)	$2,200.00
				Engineering Design (15%)	$3,300.00
				ESTIMATED TOTAL PROJECT COST	**$27,000.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Frenchman's Creek Pump Station Improvements
Station ID - 15
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Replace Guide Rail Brackets	LF	50	$250.00	$12,500.00
2	Remove Grease from Wet Well	LS	1	$2,000.00	$2,000.00
3	Replace Audible and Visual Alarms	LS	1	$750.00	$750.00
4	Sandblast and Paint Discharge Piping and Valves in Valve Vault	LS	1	$3,500.00	$3,500.00
5	Install New Exhaust Vent on Generator	LS	1	$50.00	$50.00
6	Install DIP Wet Well Vent w/ Stainless Steel Insect Screen	LS	1	$500.00	$500.00
7	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
8	Remove Vegetation Growing on Fencing	LS	1	$250.00	$250.00
				Construction Cost Subtotal	$29,550.00
				Contingency (10%)	$3,000.00
				Engineering Design (15%)	$4,500.00
				ESTIMATED TOTAL PROJECT COST	**$37,050.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
National Guard Armory Pump Station Improvements
Station ID - 16
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Provide Potable Water Supply w/ Backflow Preventor	LS	1	$3,500.00	$3,500.00
2	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
3	Replace Corroded Guide Rail Brackets	EA	2	$250.00	$500.00
4	Sandblast and Paint Discharge Piping and Valves in Valve Vault	LS	1	$3,500.00	$3,500.00
5	Replace Barbwire on Fencing	LF	50	$25.00	$1,250.00
6	Remove Debris and Trash from Wet Well	LS	1	$1,000.00	$1,000.00
7	Investigate Drainage Line from Vault to Wet Well (Clogged)	LS	1	$100.00	$100.00
8	Repair Concrete Under Wet Well Hatch	LS	1	$500.00	$500.00
9	Install DIP Wet Well Vent w/ Stainless Steel Insect Screen	LS	1	$500.00	$500.00
				Construction Cost Subtotal	$20,850.00
				Contingency (10%)	$2,100.00
				Engineering Design (15%)	$3,200.00
				ESTIMATED TOTAL PROJECT COST	**$26,150.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Silver Creek Pump Station Improvements
Station ID - 17
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Remove Debris and Grease from Wet Well	LS	1	$2,000.00	$2,000.00
2	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
3	Sandblast and Repaint Vent	LS	1	$500.00	$500.00
4	Clean Vegetation Around Site Fencing	LS	1	$500.00	$500.00
5	Clean Trash Basket	LS	1	$0.00	$0.00
6	Replace Pump Guide Rails	EA	2	$1,500.00	$3,000.00
7	Provide 110-V Recepticle	LS	1	$250.00	$250.00
8	Sandblast and Repaint Discharge Piping	LS	1	$3,500.00	$3,500.00
9	Investigate Pump 1 Vibration (Site Call from Pump Supplier)	LS	1	$1,000.00	$1,000.00
				Construction Cost Subtotal	$20,750.00
				Contingency (10%)	$2,100.00
				Engineering Design (15%)	$3,200.00
				ESTIMATED TOTAL PROJECT COST	**$26,050.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Kennedy Home Pump Station Improvements
Station ID - 18
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Investigate and Repair Pump 1 (Site Visit from Pump Supplier)	LS	1	$1,000.00	$1,000.00
2	Sandblast and Paint Discharge Piping	LS	1	$3,500.00	$3,500.00
3	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
4	Replace Check Valve on Pump 2	LS	1	$7,500.00	$7,500.00
5	Replace Pressure Gauges	EA	2	$500.00	$1,000.00
6	Re-Grout around Wet Well Vent	LS	1	$50.00	$50.00
7	Replace/Raise On-Site Standby Generator (PLANNED)	LS	1	$0.00	$0.00
				Construction Cost Subtotal	$23,050.00
				Contingency (10%)	$2,400.00
				Engineering Design (15%)	$3,500.00
				ESTIMATED TOTAL PROJECT COST	**$28,950.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.
2. Current standby generator slab is planned/scheduled to be raised and generator replaced.

ESTIMATE OF PROBABLE PROJECT COST
Public Services Complex Pump Station Improvements
Station ID - 19
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Install Forcemain Bypass	LS	1	$10,000.00	$10,000.00
2	Install Hoist Stand and Hoist	LS	1	$3,500.00	$3,500.00
3	Install DIP Wet Well Vent w/ Stainless Steel Insect Screen	LS	1	$500.00	$500.00
4	Provide Locks for All Pump Station Components	LS	1	$100.00	$100.00
5	Provide Potable Water Supply w/ Backflow Preventor	LS	1	$3,500.00	$3,500.00
6	Install Pressure Gauge on Discharge Line	EA	1	$500.00	$500.00
7	Clean/Sandblast/Paint Downstream Manholes	EA	2	$5,000.00	$10,000.00
8	Convert to Traditional Duplex Submersible Station (Long-Term)	LS	1	$250,000.00	$250,000.00
				Construction Cost Subtotal	$28,100.00
				Contingency (10%)	$2,900.00
				Engineering Design (15%)	$4,300.00
				ESTIMATED TOTAL PROJECT COST	**$35,300.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.
2. Long-term improvement is not included in total estimated project cost.

ESTIMATE OF PROBABLE PROJECT COST
Educational Training Center Pump Station Improvements
Station ID - 20
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Clean Trash Basket	LS	1	$0.00	$0.00
2	Sandblast and Repaint Discharge Piping	LS	1	$3,500.00	$3,500.00
3	Repaint Forcemain Bypass and Wet Well Vent	LS	1	$1,000.00	$1,000.00
4	Install Stainless Steel Insect Screen	LS	1	$125.00	$125.00
5	Repair Visual Alarm	LS	1	$400.00	$400.00
				Construction Cost Subtotal	$5,025.00
				Contingency (10%)	$550.00
				Engineering Design (15%)	$800.00
				ESTIMATED TOTAL PROJECT COST	**$6,375.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Sanderson Hatchery Pump Station Improvements
Station ID - 22
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Repair Visual Alarm	LS	1	$400.00	$400.00
2	Repaint Forcemain Bypass	LS	1	$100.00	$100.00
3	Clean Trash Basket	LS	1	$0.00	$0.00
				Construction Cost Subtotal	$500.00
				Contingency (10%)	$50.00
				Engineering Design (15%)	$80.00
				ESTIMATED TOTAL PROJECT COST	**$630.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.

ESTIMATE OF PROBABLE PROJECT COST
Industrial Park Pump Station Improvements
Station ID - 23
City of Kinston, North Carolina

THE WOOTEN COMPANY **9/11/2017**

	DESCRIPTION	UNITS	TOTAL QUANTITY	UNIT COST	EXTENDED COST
1	Install Single Hoper Auger Conveyor with 18 CF/HR Screenings Capable of Screening Heavy Grease Load and Solids	LS	1	$30,000.00	$30,000.00

Construction Cost Subtotal	$30,000.00
Contingency (10%)	$3,000.00
Engineering Design (15%)	$4,500.00
ESTIMATED TOTAL PROJECT COST	**$37,500.00**

PRELIMINARY

NOTES:
1. Costs are preliminary and in 2017 dollars. Do not use for construction.