



Green Township Lift Station Assessment Report

Date of Work: May 30th, 2024

Client Name: Green Township

Point of Contact: Jason Kruse

Phone Number: 231-690-2268

Billing Address: 21431 Northland Dr. Paris MI 49336

Lift Station Name: Green Township Lift Station

Lift Station Address: 20585 Ross Parkway, Big Rapids MI,49307 (closest address to lift station)

Technician(s): Larry DePalma, and Chris Courterier

Background Information

1. Year built: 1970's
2. Station Type:
 - * Concrete wet well/ dry well

Pump Information

	Pump 1	Pump 2
Manufacturer	Marathon Electric	Marathon Electric
Model	3VL256TTDX7983BD	3VL256TTDX7983BD
Serial/part #	0040091713	0040091713
Full Load Amps	13.8A	13.8A
Volts/Phase	460v / 3Ph	460v / 3Ph
Impeller Diameter	unknown	unknown
Capacity (GPM)	Info on station says 730 GPM	Info on station says 770 GPM
Max Head	No Data	No Data
Min Head	No Data	No Data



Motor Horsepower	10 HP	10 HP
RPM	1,160 RPM	1,160 RPM
Date Installed	1970(s)	1970(s)
Hours	1817.46 HRS	1864.02 HRS

Overall General Condition Rating of Lift Station

- 1 New or nearly new equipment or structure. Structure or equipment functions better than other similar structures or equipment.
- 2 Properly maintained, like-new condition of equipment or structure. Structure or equipment functions as intended.
- 3 Visible degradation of equipment or structure. Structure or equipment is in service but maintenance or operational requirements are excessive.
- 4 Equipment or structure integrity compromised by corrosion and wear. Structure or equipment is in service, but function is highly impaired.
- 5 Equipment or structure integrity severely compromised by corrosion and wear. Possible imminent failure. The structure or equipment is not currently functioning for its intended use.

Exterior Site Condition

Criteria	1	2	3	4	5	Comments
Access condition			X			Great Access
Access functionality		X				
Turf/Landscaping condition				X		
Turf/Landscaping functionality				X		High vegetation around the station
Future expansion area				X		
Station accessible by boom truck	X					



Security (fences and gates)					X	Guard rail /supports in bad shape.
Security (locks)		X				
Drainage sufficient				X		Culvert blocked with vegetation
Fire break					X	None
Bollard protection of critical structures					X	Only provides 180 degrees of protection
Turn around provided	X					
Odor controls					X	None

Notes:

Building Structure

Criteria	1	2	3	4	5	Comments
Superstructure general condition						N/A
Superstructure functionality						N/A
Exterior wall condition						N/A
Interior wall condition						N/A
Equipment finish condition						N/A
Roof condition						N/A
Door condition						N/A
Window condition						N/A
Pipe support condition						N/A
Grating condition						N/A
Layout for equipment access						N/A

Wet Well

Criteria	1	2	3	4	5	Comments
General condition			X			
General functionality			X			
Top slab condition				X		concrete cracking
Interior wall condition			X			Walls will need a power wash on the next annual cleaning.
Hatchway condition			X			Manhole cover

Notes:

20' from top of the lid to the bottom of tank (wet well)

Pumps, Valves and Piping

Criteria	1	2	3	4	5	Comments
Suction piping and valves, general overall condition				X		
Suction piping and valves functionality				X		
Velocity < 8 fps						Unknown
At least 5 diameters straight run to pump from last fitting		X				
No air entrainment problems	X					
Loss of pump prime	X					
Pump general condition	X					
Pump general functionality	X					
Performing to rated capacity						Unknown

Seals functional				X	filters clogged
Parts available					Unknown
High efficiency motor			X		
Over-temperature protection					N/A
Discharge valve accessible for operation			X		
Discharge valve moves freely				X	
Discharge valve seats properly when closed				X	
Check valve accessible for operation and maintenance			X		
Flow meter reliable output	X				Meter calculated August 2023
Flow meter calibration date	X				Calibration due Aug 2024
Piping corrosion				X	
Piping leaks		X			
Leaks at pump connections		X			
Gravity Bypass					N/A
Portable pump bypass capability				X	
Cutter wheel					N/A
Impeller					N/A
Oil					N/A

Notes:

Seal filters are plugged

Back-up Power

Criteria	1	2	3	4	5	Comments
Generator size sufficient for pumps and auxiliary equipment					X	Cannot access, access doors are locked
Fuel tank sized for 24-hour operation						Piped for natural gas
Fuel tank spill containment provisions						N/A
Outdoor panel location area satisfactory for portable generator		X				
Transfer switch condition			X			
Redundant power service available		X				Only the Generator
Generator start up Manual or <u>Automatic</u>	X					Automatic
Generator location is on site, portable (quick connect), <u>portable (no quick connect)</u>	X					On site direct connected

Electrical

Criteria	1	2	3	4	5	Comments
MCCs condition					X	electrical connections corroded
MCC's part availability			X			
Lighting			X			
VFD's control stable			X			
VFD's parts availability			X			
Wet well mechanical ventilation					X	None
Dry well mechanical ventilation		X				
Dry well dehumidification					X	

Panel Heater		X				
Panel Fan		X				
Remote transmission of alarms		X				
Alarm signals on panel exterior	X					
Alarm signals on building exterior	X					
Levels sensor type	X					Bubbler / Floats / Ultrasonic / other:
Levels sensor redundancy type	X					Bubbler / Floats / Ultrasonic / other: FLOATS
Operation	X					Lead-Lag / Duty-Standby / Other:

Auxiliary Equipment

Criteria	1	2	3	4	5	Comments
Hoist load tested within 10 years						N/A
Hoist arrangement and location sufficient for required maintenance						N/A
Pumps history of damage or pipe blockage due to lack of proper bar screen						N/A
Provisions for inorganics removal from bar screen						N/A

Safety

Criteria	1	2	3	4	5	Comments
Fire Extinguishers					X	None
Eye Wash					X	None

SDS					X	None
Traffic Control					X	None
Confined space					X	No signage for confined space
Appropriate Placards					X	Needs signage for confined space
Fire alarm					X	None
Intruder alarm					X	None
Power failure alarm	X					Dial out / Red light on top of the station
General failure alarms	X					Dial out /red light on top of the station
Other alarms						N/A

Notes:

May want to consider signs for confined space entry permit required.

Power Readings

	L1/L2	L1/L3	L2/L3	L1/N	L2/N	L3/N
Pump 1	245.0v	245.0v	246.0v	120.0v	211.9v	122.0v
Pump 2	245.0v	245.0v	246.0v	120.0v	212.0v	122.0v

Amp Draws

	L1	L2	L3
Pump 1	30.0 amps	27.3 amps	29.1 amps
Pump 2	29.6 amps	26.4 amps	27.9 amps



Amp Draws (Historical Data) Date:

	L1	L2	L3
Pump 1	No history	No history	No history
Pump 2	No history	No history	No history

Megohmmeter Readings

Pump 1	
L1-	0.4
L2-	0.4
L3-	0.5
Pump 2	
L1-	0.4
L2-	0.4
L3-	0.4

Capacitor Data:

Run Capacitor: N/A

Start Capacitor: N/A

Capacitor data not applicable due to 3 Phase Power



Notes:

There are no stampings or casting numbers on the volutes to tell us impeller size or rated GPM. Our two technicians were at the lift station for 6 hours and witnessed the pump station during the pumping cycle. The pumps turn on at 5.0' in depth from the cone shaped bottom and turn off at 3.1'. The pumping cycle of approximately 2' takes less than 15 seconds. It was not possible to accurately measure the draw down rate and determine a GPM rate due to manhole to water level access and speed of pump down.

The lift station is 20' in depth and the manhole cover is offset from the wet well. There are two discharge pipes in the station offset about 8' from the manhole access.

The electric service appears to have erratic voltage and voltage spikes according to the paperwork in the panel. The local transformer may need to be evaluated/ replaced to allow cleaner power for the lift station, especially if new controls and electric motors are installed.

The existing generator could not be accessed to verify if it is operational or what voltage it provides. The generator access doors are locked and not accessible. Township personnel stopped by and worked with us for a few minutes and let us know they did not have keys to access the generator but would follow up when the keys were located.