



Wade Trim Associates, Inc.
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July 26, 2024

Green Charter Township

Attention: Jason Kruse
Township Supervisor

Re: Ross Parkway/205th Ave Pump Station
Condition Assessment and Report

Dear Jason:

Wade Trim has completed our review of the current information surrounding the existing sanitary sewage lift station located at Ross Parkway and 205th Avenue. This assessment is following the contract and scope of services as outlined in our March 5, 2024 letter. The following information outlines our findings and presents some considerations in moving forward.

Background

This station was originally built in the late 1970's to serve the area generally north and west of its location. Currently it is reported to serve about 100 homes and pumps the collected sewage to a receiving manhole in the City of Big Rapids, one block east of the intersection of West Grand Traverse Street and Finley Ave. The following developments are included in the drainage district:

- Sunrise Haven Estates
- Country Manor Estates
- River's Edge Condominiums
- Greenhaven Subdivision

While the station has served the community well for many years, outdated components, confined space entry requirements, and aging infrastructure have caused the Board to investigate station replacement.

Field Inspection

On May 30th, 2024, Operations Services conducted an inspection/assessment of the station and outlined their findings in their inspection report that was emailed June 7th. In general, the wet well, piping, electrical systems, and controls were given a poor to marginal condition assessment. The pump run time of 15 seconds from pump on to pump off was too short to complete a reliable pump test. Based on the information that the pump ran for approximately 15 seconds and pumped the 8-foot diameter wetwell down approximately 2 feet, this equates to a pump rate of about 400 gallons per minute (GPM). In the short-term, this should be investigated, and the level sensors should be adjusted to provide a longer pump run time, or the VFD's that service the pumps should be dialed back, slowing the pump speed providing a much longer pump run time. It could be that the wet well is too small to realize much of a change in pumping volume. Consultation with your system operator could provide detailed feedback on how to increase the pump run time per cycle.

Station Flows

Wade Trim received flow records for December 2021 through February 2024 (39 months total). A table showing the average monthly flows is included as **Exhibit 1** of this letter. The average daily flow over the months investigated was 28,419 gallons with a range from a high of 35,065 gallons in February of 2021 to a low of 25,184 gallons in November of 2023. Based on the average daily flow of 28,419 gallons, and a peaking factor of 4, this equated to a peak-hour flow of 79 gpm.

Conclusions

Based on review of the past documents provided by the Township, along with the condition assessment and report provided by Operations Services, and the potential connection of the large Gotion development, we would recommend replacement of the station. Replacing the station would give the Township the opportunity to assess the current drainage district and make some decisions on expanding the district for future connections, if needed. It would also allow for the proper sizing of the station to incorporate the comparatively large flows proposed by Gotion. Options for replacement of a station like this would be to replace with a similar pumping system (wet-well/dry-well system), replace with a submersible station with above-ground controls, or to construct a suction-lift station where all of the pumps and controls are above ground. Selection of the best type of station to use would be determined in the design phase of the project.


Of particular interest is the proposed Gotion battery plant project. This development proposes to discharge a peak-hour flow of approximately 140 gpm to the existing Green Township sanitary lift station. This equates to approximately 200,000 gallons per day peak flow in addition to the existing flow the station already receives as noted above.

In the long run, replacement of the station will provide a more efficient operation, less maintenance costs, and will provide for more reliability for the system users. If the Township decided to move forward with design and construction of a replacement station, the schedule would most likely provide for a winter 2024-25 bidding and a spring 2025 construction startup.

Please feel free to call or e-mail if you have any questions. We look forward to working with Green Charter Township on this project.

Very truly yours,

Wade Trim, Inc.



Brian C. Sousa, P.E.
Vice President

BCS:rjb

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Attachment



Exhibit 1.
Average Monthly Flows

Monthly Sewage Flow, 205th Lift Station Green Charter Township Mecosta County, MI

