



City of Grand Forks  
Staff Report  
Committee of the Whole – August 12, 2019

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**Agenda Item:** Emergency Manhole Repair at Lift Station No. 22

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**Submitted by:** Engineering Department, Mark S. Walker, PE (Assistant City Engineer)

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**For Information Only**

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**BACKGROUND:**

Wastewater Lift Station No. 22 is located at 1921 N 36<sup>th</sup> Street and primarily serves the J.R. Simplot and Conte Luna Foods facilities. The manhole just outside of the station was severely corroded and a significant amount of the concrete on the interior of the manhole had become soft and fallen off exposing reinforcing steel in some locations. The concrete corrosion was caused by high levels of hydrogen sulfides in the manhole. We believe that the high concentration of hydrogen sulfides at this location is due to the strength of the sewage flowing into the manhole and because there is about a 6 foot drop from the inlet pipe to the outlet pipe at this manhole. Based on the deterioration of the manhole, we believed that we needed to install a lining or coating on the interior of the manhole before the deterioration caused the manhole to fail or replace the deteriorated manhole with a new manhole.

The Simplot facility produces a significant amount of wastewater flow and approximately 1/3 of the City's total wastewater flow is from the Simplot facility. Because there is such a significant flow through the manhole, it was necessary to make any repairs during a time when Simplot's flows were either greatly reduced or stopped. Because the flows are so significant, bypass pumping would be a challenge and risky because flow from Simplot had to be maintained at all times. The Simplot facility rarely shuts down and reduces their flows. We have been working with Simplot staff to identify a time when Simplot could reduce flows and we recently became aware that they were planning a 2 day shutdown at the beginning of August.

We had considered removing the deteriorated manhole and replacing it with a new one but that work may not have been able to be completed in the 2 day shutdown period available. Also because the manhole is 26' deep and adjacent to N 36<sup>th</sup> Street and the driveway to the station, a significant amount of concrete would have to be removed and replaced. We estimated the cost of removing and replacing the manhole at \$45,000 to \$50,000. We had also bid a project to coat the interior of the manhole in 2017 but did not proceed with the project as the cost was \$64,000.

We recently became aware of a contractor who installs a cured in place fiberglass/PVC liner in manholes and lift stations. This contractor was scheduled to install a liner in a lift station in Arvilla near the beginning of August. We believe that the liner once installed could prevent further deterioration of the concrete manhole and we expect the liner will have a very long life.

The contractor indicated that he could line our manhole while he was in the Arvilla area and could do so during the 2 day period when Simplot was planning to reduce their flows. We obtained a quote from the contractor to install the liner at a cost of \$21,532.18.

### **ANALYSIS AND FINDINGS OF FACT:**

- The manhole lining work was performed on August 6<sup>th</sup> and 7<sup>th</sup>.
- With the assistance of Wastewater staff, the liner work was completed by CIP Construction Technologies Inc. from Kalispell, MT at a total cost of \$21,532.18.
- The cost of lining the manhole was less than what we had previously bid to coat the interior of the manhole and less than what we estimated the cost of removing the manhole and replacing it with a new one.
- We believe the liner will have a longer life than either the coating or the new manhole options.
- Because of the short time available to schedule the lining work from when we became aware that Simplot was planning to shut down, because we were not aware of any companies in the area that performed this type of manhole lining work, because the quote from CIP Construction Technologies was less than other options considered, and because of the need to stop further corrosion of the manhole, we accepted the quote from CIP Construction Technologies as a sole source bid and proceeded with the work.
- Funding for this work will be from Wastewater Fund 5200.

### **SUPPORT MATERIALS:**

- None