CITY OF PORT LAVACA

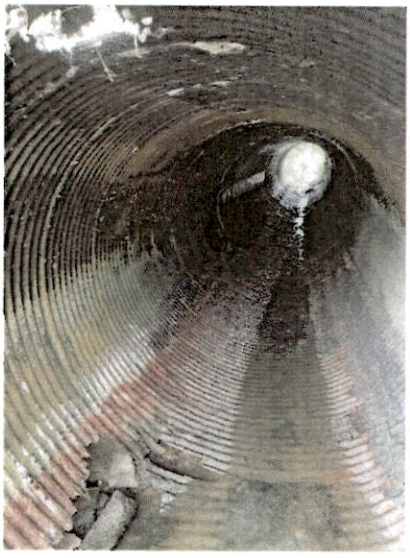
DATE: 5.14.2023

TO: PORT COMMISSION CC: J. RUDELLAT/ CITY COUNCIL

FROM: JODY WEAVER, INTERIM CITY MANAGER

SUBJECT: **CORRUGATED METAL PIPE CULVERTS IN CORPORATION DITCH UNDER CITY'S RAILROAD SPUR AT THE HARBOR OF REFUGE:**

Update on investigation into the condition of the Corrugated Metal Pipe storm sewer culverts in Corporation Ditch under the City's rail spur at the Harbor of Refuge:



After a sink hole was discovered along the rail spur at the corporation ditch in the Harbor of Refuge tract, Jim took these photos of the two corrugated metal pipes (CMP) in the corporation ditch, under the rail. The sink hole was filled with limestone and has not opened up again since. The two culverts are installed at different flowline elevations, that's why one shows to have more water in it than the other. The photo on the right indicates that the downstream end of the pipe, which is most exposed to the elements, appears to be rusted completely through at the invert. The darker material at the tops of the pipes appear to be a thick mastic coating of some sort.

At the April Port Commission meeting, the Commissioners made the following recommendation that I:

- Advise Helena Chemical of the condition and quality of the rail
- Advise City Council of the urgency for the repairs and necessary funding
- Collect bids and proposals as soon as possible
- Call a special meeting to move forward to finalize scheduling of repairs

Actions to date:

- On March 23, I reached out to Vortex Companies, who perform restoration work on corrugated metal pipe and had been suggested by Matt Glaze with Urban Engineering. A representative came to the site to look at the pipe and on April 4 provided a Buy Board quote of $249,765 for a spin cast geopolymer pipe lining system. The entire proposal can be seen at https://vortexinfrastructure-my.sharepoint.com/:b:/g/personal/sfuller_vortexcompanies_com/EbGiD0Tv4BhKlteJ5kiRwc4BJNAxMUzvjpfVhxLkQ5hCzg?e=FMmNkj

- Diamond K Services (who quarterly perform an inspection of our rail system) inspected the rail and the pipes on March 23 and submitted a budget estimate to replace the pipes in-kind on April 5 of $255,000. , which includes removing and reinstalling the rail as needed.
- On April 19, I reached out to Mott McDonald who did the stormwater modeling for Corporation Ditch asking about whether there was a need to upsize the pipes should we decide to replace. He told me that
    - Replacing the 72" pipes as is there is no overtopping at the railroad, but FM 1090 had overtopping in the 50-year storm
    - Replacing with 84" – the overtopping of FM 1090 doesn't happen until 100-year storm
    - Replacing with 90" – all good through the 100-year storm.
    - Remember though we are hoping to construct a detention pond up stream of Main Street that would decrease this runoff at FM 1090 to where the 72" pipe may be fine even in the 100 year storm; and currently FM 1090 has water over it at the south end of Virginia Street which would still be the case even if these pipes were upsized.

- On April 24, I reached out to Contech Engineered solutions who manufacture corrugated metal pipe to get their input. Their reply is as follows:

    - Based upon the photos provided there appears to be advanced corrosion in the invert of the pipe, with portions of the invert exhibiting complete metal loss. Due to that metal loss, the pipe needs some form of rehabilitation to provide full structural integrity.

    - It will be important to determine if there has been appreciable metal loss in the portions of the pipe above the invert. Metal thickness can be determined using an ultrasonic thickness gauge (non-destructive), or by taking core samples of the pipe (destructive). Once the remaining metal thickness is determined it can be checked for structural adequacy.

    - If the upper portions of the pipe are structurally sound, then the rehabilitation may only require invert repair. A simple invert repair to consider is the installation of reinforced concrete invert paving (see detail attached).

    - If the upper portions of the pipe are not structurally sound, then the entire pipeline should be replaced or rehabilitated. Replacement would likely require full cut and cover techniques and disruption to the rail line above. Rehabilitation could entail slip lining a replacement pipe which could prevent disruption to the rail line. Several pipe types are suitable for slip lining and many can be designed to carry the full soil load and railroad loading.

    - Contech does not provide inspection services or structural evaluations of in-service pipelines. However, I've attached a Design Data Sheet published by the National Corrugated Steel Pipe Association that may help guide your structural evaluation and determination.

- Jim Rudellat has reached out to TSI Laboratories to get pricing on providing such metal thickness testing.

- Even with the metal thickness data, we need a structural engineer with experience with CMP to determine the structural integrity of the pipe, the appropriate repair or replacement and whether it can still withstand any rail carload until it is replaced or renovated. I've reached out to TxDOT who is reaching out to firms that do their bridge inspections, to see if they can find a firm or individual with such experience. I plan to reach out to Testengeer as well to see if they have any such experience with CMP in the plants.

- On April 19, I did reach out to Louis Rodrigue with Helena Chemical to let him know that there is a concern with the corrugated metal pipes under the railroad and I wanted to meet with him to 1) understand Helena's anticipated use of the rail for the remainder of 2023 and 2) how Helena might be able to share in the cost to repair/replace the culverts. It took awhile for him to find a time to meet, but we met via a Teams Meeting last Wednesday, May 10.

- Helena tells us that they do not anticipate any rail cars again until November (late October at the earliest).
- The rail cars bring anhydrous ammonia phosphoric acid to the plant during the approximate period of November to March each year. Without rail, they would have to truck this product in at a greatly increased cost. 1 train car carries the same product at 8 truckloads.
- The cost to truck the product would result in a downsizing of the Port Lavaca operation and relocating more of the manufacturing elsewhere in south Texas.
- Clearly the effort involved to downsize and relocate will cost money, so they are willing to discuss some level of participation in cost once the exact scope and timing of the project is determined.

Information for consideration:

- Helena pays an annual lease amount of $83,097.36
- Helena pays an annual dock charge for the bulkhead of $23,413.56
- Helena pays an annual charge for use of the rail of $9,996.00
- Helena's lease payment is adjusted each August 1st per the current MCI
- Helena's lease expires on July 31, 2038 with two 10-year options to extend with 90 day notice (and City has right to refuse any extension with 90 day notice).
- Over the next 15 years the City is estimated to receive at least $1.6M in lease and dock charges.
- So far in FY 2022-23, Helena has paid $42,133.82 in Tariffs
- In 2022 Helena appears to have paid about $57,500 in city property taxes.
- Helena is currently the only tenant that utilizes the rail.

This will be discussed again at the May Port Commission meeting. I hope to have more information from TSI on testing and on engineering options this coming week as well.

At this time, it appears that we will be faced with a significant expenditure, even with some level of participation from Helena.