



May 2, 2011

Greg Stewart
City Administrator
City of Luna Pier
4357 Buckeye, P.O. Box 375
Luna Pier, MI 48157

Re: Storm Pump Station Rehabilitation Program
Job No.: D780084

Dear Mr. Stewart:

Spalding DeDecker Associates, Inc. (SDA) is pleased to submit our recommendations for the upgrades to the five storm water pump stations in the City of Luna Pier.

The five pump stations were put into service approximately 40 years ago to outlet water from the City's storm sewer system to Lake Erie. Since that time the City has been able to maintain the pump stations with a minimum of money and manpower. However, with age, components fail and replacement becomes necessary.

To make use of a grant from the USDA, the City decided to investigate the extent of the repairs needed. To this end SDA (through its subsidiary Dietrich, Bailey & Associates, the City of Luna Pier Engineers) was contracted to examine the five pump station sites to determine the extent of the rehabilitation needed at each station.

The five pump stations identified for rehabilitation are:

- North 6th Street
- North 1st Street
- Forester Street
- Memorial (at the park on Luna Pier Road) and accompanying valve chamber
- South 15th Street

To thoroughly examine the pump stations, SDA visited the sites on two separate occasions.

On the first occasion, April 7 2011, guided to the various sites by Department of Public Works Superintendent, Mr. Randy Whipple, engineers examined the electrical and mechanical components of each pump station, as well as site conditions and pump station operations.

On the second occasion, April 14 2011, inspections of the interior of each of the pump stations were conducted utilizing confined space entry procedures. These inspections looked further into the apparent structural integrity of each station, as well as at pipe connections and objects which were not visible from the surface.

Pictures were taken of the stations and the equipment therein to utilize for reference. Please see the attached Appendix for pictures at each pump station.

Based on our examination of each pump station and following discussions with Mr. Whipple, the following is our rehabilitation recommendations for each pump station:

North 6th Street Pump Station

- Replace the station control panel, conduits and warning light and include multitrode pump operating software and a temporary generator hookup and manual transfer switch (to allow the station to be powered by generator in an emergency situation) in the control panel. Space is also to be left in the control panel for future SCADA (Supervisory Control And Data Acquisition) equipment, to remotely monitor the site.
- Remove the steel structure top, sandblast and paint the top, including the hatches and vent pipe, and re-install the steel structure top on the station walls.
- Replace the locks for the three hatches with new locks keyed the same as the control panel lock.
- Remove the existing three pump guide rail sets and replace with three new pump guide rail sets.
- Remove the existing floats and replace with a new level sensor.
- Install a new high level alarm float (which turns on the warning light on the control panel when the pumps fail to turn on).
- Clean the wet well.
- Remove the existing two submersible pumps and associated lifting chains and replace with two new submersible pumps and stainless steel lifting chains.
- Replace all three 8" diameter ductile iron discharge pipes from inside the pump station, through the upper 90 degree bend of each pipe and to five feet outside of the pump station. Utilize flanged fittings.
- Replace the three 8" Tideflex flap gates on the ends of the discharge pipes on the Lake Erie side of the seawall.
- Clean the three discharge pipes from the pump station to the outlet.

North 1st Street Pump Station

Note: The existing control panel, floats and level sensor system are new and do not require replacement. No temporary generator hookup is available at this location.

- Remove the steel structure top, sandblast and paint the top, including the hatches and vent pipe, and re-install the steel structure top on the station walls.
- Replace the locks for the three hatches with new locks keyed the same as the existing control panel lock.
- Remove the existing three pump guide rail sets and replace with three new pump guide rail sets.
- Clean the wet well.
- Remove the existing two submersible pumps and associated lifting chains and replace with three new submersible pumps and stainless steel lifting chains.
- Replace all three 8" diameter ductile iron discharge pipes inside the pump station to the upper 90 degree bend on each pipe.
- Replace the three 8" Tideflex flap gates on the ends of the discharge pipes on the Lake Erie side of the seawall.
- Clean the three discharge pipes from the pump station to the outlet.

- Rehabilitate approximately two vertical feet of the top of the structure by removing and cleaning the I-beams which hold up the steel top, removing deteriorated concrete, forming and pouring new concrete, replacing the I-beam seat plates and re-setting the I-beams.
- Rehabilitate the structure around the incoming 12" pipe and outgoing 8" pipes by removing deteriorated concrete and forming and pouring new concrete.
- Remove vegetation overgrowing the steel top.

Forester Street Pump Station

- Replace the station control panel, conduits and warning light and include multitrode pump operating software and a temporary generator hookup and manual transfer switch (to allow the station to be powered by generator in an emergency situation) in the control panel. Space is also to be left in the control panel for future SCADA (Supervisory Control And Data Acquisition) equipment, to remotely monitor the site.
- Remove the steel structure top, sandblast and paint the top, including the hatches and vent pipe, and re-install the steel structure top on the station walls.
- Replace the locks for the three hatches with new locks keyed the same as the control panel lock.
- Remove the existing three pump guide rail sets and replace with three new pump guide rail sets.
- Remove the existing floats and replace with a new level sensor.
- Install a new high level alarm float (which turns on the warning light on the control panel when the pumps fail to turn on).
- Clean the Wet Well.
- Remove the existing two submersible pumps and associated lifting chains and replace with two new submersible pumps and stainless steel lifting chains.
- Replace all three 8" diameter ductile iron discharge pipes inside the pump station to the upper 90 degree bend on each pipe.
- Replace two of the three 8" Tideflex flap gates on the ends of the discharge pipes on the Lake Erie side of the seawall. The northernmost Tideflex flap gate cannot be accessed due to proximity of a concrete dike structure.
- Clean two of the three discharge pipes from the pump station to the outlet.
- Rehabilitate approximately two vertical feet of the top of the structure by removing and cleaning the I-beams which hold up the steel top, removing deteriorated concrete, forming and pouring new concrete, replacing the I-beam seat plates and re-setting the I-beams.

Memorial Pump Station

- Replace the station control panel, conduits and warning light and include multitrode pump operating software and a temporary generator hookup and manual transfer switch (to allow the station to be powered by generator in an emergency situation) in the control panel. Space is also to be left in the control panel for future SCADA (Supervisory Control And Data Acquisition) equipment, to remotely monitor the site.
- Remove the steel structure top, sandblast and paint the top, including the hatches and vent pipe, and re-install the steel structure top on the station walls.
- Replace the locks for the three hatches with new locks keyed the same as the control panel lock.
- Remove the existing three pump guide rail sets and replace with three new pump guide rail sets.
- Remove the existing floats and replace with a new level sensor.

- Install a new high level alarm float (which turns on the warning light on the control panel when the pumps fail to turn on).
- Clean the wet well.
- Remove the existing three submersible pumps and associated lifting chains and replace with three new submersible pumps and stainless steel lifting chains.
- Replace all three 8" diameter ductile iron discharge pipes inside the pump station to the upper 90 degree bend on each pipe.
- Install a 16" Tideflex flap gate on the end of the 16" ductile iron pipe which discharges on the south side of the pier.
- Clean the 16" discharge pipe from the pump station to the outlet.
- Rehabilitate approximately two vertical feet of the top of the structure by removing and cleaning the I-beams which hold up the steel top, removing deteriorated concrete, forming and pouring new concrete, replacing the I-beam seat plates and re-setting the I-beams.
- Rehabilitate the structure around the incoming 36" pipe by removing deteriorated concrete and forming and pouring new concrete.

Memorial Pump Station Valve Chamber

- Remove, sandblast, paint and replace the steel roof panels (including vent pipes).
- Remove the existing four steel I-beams and replace with new four steel I-beams (3 3/8" wide flange and 4" high beam).
- Rehabilitate the eight I-beam pockets in the concrete walls by removing deteriorated concrete, forming and pouring new concrete, and replacing the I-beam seat plates.
- Remove the three existing check valves and replace with three new 8" check valves.
- Clean the chamber.

South 15th Street Pump Station

Note: The existing control panel, floats and level sensor system are new and do not require replacement. No temporary generator hookup is available at this location.

- Remove the steel structure top, sandblast and paint the top, including the hatches and vent pipe, and re-install the steel structure top on the station walls.
- Replace the locks for the three hatches with new locks keyed the same as the existing control panel lock.
- Remove the existing two pump guide rail sets and replace with two new pump guide rail sets.
- Clean the wet well.
- Remove the existing two submersible pumps and associated lifting chains and replace with two new submersible pumps and stainless steel lifting chains.
- Replace two of the three 8" diameter ductile iron discharge pipes inside the pump station to the upper 90 degree bend on each pipe (not the northernmost pipe, which is capped).
- Replace two of the three 8" Tideflex flap gates on the ends of the discharge pipes which outlet to the Venice Canal (the northernmost pipe is capped).
- Clean the two uncapped discharge pipes from the pump station to the outlet.

Note: Minor site restoration will be required at all five pump stations and will be incorporated into the bidding documents. Also incorporated into the bidding documents will be requirements that the Contractor protect adjacent properties and replace in-kind any damage done to landscaping or fences.

Proposed Schedule

Should you have any comments on the above recommendations, please feel free to contact me at (248)844-5400. Once we receive your comments on the above recommendations, we will proceed to develop draft plans and specifications to be delivered for your review within 30 days.

We will be happy to meet with you and/or your staff to review our draft plans and specifications prior to proceeding with the bidding process.

Thank you for the opportunity to provide the City with our recommendations for improving the City's essential storm water outlet pump stations. We look forward to working with you in the Design and Construction phases.

Sincerely,
SPALDING DEDECKER ASSOCIATES, INC.



Maria Sedki, PE
Project Manager

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Attachment: Appendix

Cc: Ms. Susan Lopes, Chair of Flood & Erosion Protection Committee
Mr. Randy Whipple, Department of Public Works Superintendent
Mr. Jack Knowles, RLA, Dietrich, Bailey & Associates