

Engineering and Administration Work

Houston Engineering

June 23, 2020

Scope of Effort – Outreach and System Capacity Analysis (West Outlet Using Recently Cleaned Ditches)

Task	Task Description (not listed in chronological order)
1	Kick-off with LID Board
2	Geotechnical and Hydrogeologic Review (guidance on capacity and natural filtration)
3	Preliminary design/topographic survey (culverts, lake and wetland outfalls, ditch profiles, wetland boundaries) with information necessary for preliminary hydrologic and hydraulic analysis
4	Develop Concept plan for force main to CR 203 ditch. Includes concept level schematic depicting proposed alignment/route, pump location, inlet and outlet and preliminary cost estimates.
5	Preliminary hydrologic and hydraulic analysis and summary report including capacity analysis on CR 203 ditch and Hwy 10 culvert, and Atlantic Road crossing. Review and update previous modeling of downstream waterways between outlet and river
6	Prepare report to submit to DNR for grant funding documenting proposed outlet to CR 203 ditch.
7	Initial outreach to agencies, landowners, public including preparing document outlining project approach and permitting process. Coordination meetings with DNR, Soil/Water, Planning/Zoning, TEP, landowners, and Todd County
8	Participate in LID Informational meeting, Annual meeting
9	Project Management to include progress meetings and updates
	Total Cost – Not to Exceed \$35,000

Note: These services will provide preliminary technical information and a high-level estimated cost on the West Outlet Project to be used for communications and mailing to Property Owners/Agencies, presentation at the Informational Meeting and at the Annual Meeting. These services also include the preparation of a report for DNR grant funding. It is anticipated that these services will be completed no later than September 30, 2020.

MEMORANDUM

To: Lake Shamineau LID Board
From: Mike Opat, HEI Project Manager
Subject: Summary of Scope of Services & Deliverables
Date: 6/23/2020
Project: Lake Shamineau High Water Outlet
Task 1: Outreach & System Capacity Analysis

SUMMARY OF SCOPE OF SERVICES & DELIVERABLES

The purpose of this memorandum is to document the basis for the scope of services to be provided by Houston Engineering, Inc. (HEI) as part of Task 1: Outreach & System Capacity Analysis. The memorandum will also describe the deliverables that will be provided by HEI to the Lake Shamineau Lake Improvement District (LSLID).

The scope of services was developed through a series of discussions between the LSLID (Cindy Kevern and Rick Rosar) and HEI (Mike Opat, Jeff Langan and Mark Aanenson). Throughout these discussions the scope evolved to reflect new information and various approaches to assisting the LSLID with the development of a project that will address the high water issues on Lake Shamineau. The scope of services was also bound by factors such as the budget, timeline and funding involved. At the time the scope of services and the associated budget were finalized the LSLID had not received final determinations from the MnDNR on the need for an aquatic invasive species (AIS) filter and a final determination on the viability of a potential outlet to the northeast had not been made. The LSLID requested that HEI develop a scope of services based on the assumptions that a filter would be required and that an outlet to the northeast would not be feasible due to MnDNR and landowner concerns.

After reviewing and discussing multiple approaches and potential scopes of services, the LSLID decided to proceed with an approach that focused on an outreach effort with the regulatory agencies and landowners that would be involved with a project that would outlet into Fish Trap Creek. One of the goals of the outreach effort is to confirm that an outlet to Fish Trap Creek is feasible from a regulatory and land rights perspective before significant time and funds are spent pursuing this option. In order to facilitate discussions with the agencies and landowners there was a desire to include subtasks in the scope pertaining to the development of a schematic of a proposed forcemain outlet to the ditch along County Road 203 along with a preliminary analysis of the capacity of that ditch and the culvert conveying the water in that ditch through US Highway 10. The deliverable associated with this task will be a map(s) depicting the route of the proposed pipeline and potential locations for the inlet, outlet, pump(s) and other key features. The map will include a recent aerial photograph to provide context to the proposed location of these project features to existing roadways, structures and other features. HEI will also develop preliminary cost estimates covering high, middle and low range opinions of the costs. Due

to the absence of any design effort associated with this task these estimates will be provided with a low level of certainty (+/-25%) and are intended to provide an order of magnitude look at the costs to provide the LSLID with guidance as to the potential cost of the project in relation to current and anticipated funding. The cost estimates will be provided in the form of technical memo or another simple document.

Anticipating questions from downstream interests, a preliminary analysis of the Fish Trap Creek system to identify the anticipated hydraulic impact of adding additional water from Lake Shamineau will be completed (i.e. estimate the increase in the water levels downstream). This analysis will be completed with simplified modeling techniques (i.e. normal depth analysis) and detailed models of the entire system will not be completed. The analysis will include a review of the capacity of the crossing through the township road immediately downstream of US Highway 10. The deliverable associated with this item will be technical memorandum summarizing this analysis.

In addition to the analysis of the potential downstream impacts, the scope of services also includes a subtask pertaining to a cursory review of the capacity of the system to provide the LSLID with guidance on the minimum discharge capacity of the system as well as a range of discharges to meet the LSLID's goals for drawing the water levels in the lake down over various lengths of time (i.e. 1 year, 2 years, 3, years, etc.). HEI's hydrogeologist will also complete a cursory analysis of potential options for natural AIS filtration in the vicinity of the proposed inlet and pumping structure. The intent with this analysis is to determine whether natural filtration is viable and warrants further study as an alternative to mechanical filtration. The deliverable associated with this item will be a technical memorandum summarizing the cursory analyses of the drawdown rates and natural filtration.

The LSLID is seeking grant funding from the MnDNR to help offset the costs associated with developing an outlet to the lake. In order to secure the next allocation of this funding, expected to be \$52,000, the LSLID needs to be submit a report to the MnDNR. The content required in this report was provided by the LSLID and was not confirmed with the MnDNR by HEI. The LSLID has requested that HEI prepare a short report that identifies the proposed route for the project (assumed to be the forcemain to the ditch along County Road 203 discussed above), anticipated costs and an estimated timeline through construction of the project. The LSLID will provide an example for the proposed timeline format. The deliverable associated with this task will be a short report including the requested items listed above. This report will not be as comprehensive as the "Engineer's Feasibility Report" that was prepared for the LSLID by HEI back in 2018.

The scope of services includes subtasks related to assisting the LSLID with outreach and coordination efforts with regulatory agencies, landowners, LSLID members and other interested parties. It has been assumed that all meetings with these efforts will be conducted virtually or via teleconference. The amount of time required to conduct these meetings and coordination efforts is highly dependent upon factors outside of HEI's control, specifically the responsiveness of those involved and the amount of information they may desire to address their questions and concerns. The budget associated with these subtasks includes an estimated number of hours for the personnel HEI anticipates being involved. HEI will coordinate with the LSLID prior to participating in any discussions with agency representatives, landowners or other parties and HEI will not prepare or provide information to these entities without first obtaining concurrence from the LSLID. The deliverable associated with this subtask will be a document (expected to be about three pages or less) that outlines the LSLID's approach to the project and how they intend to work through the permitting process. HEI will provide a draft to the LSLID for review before it is finalized and distributed. HEI will also provide the LSLID with information (e.g. maps, cost estimates) for inclusion in the mailings for the annual meeting.

The scope of services for Task 1 also includes budgeted time for project management tasks, including bi-weekly progress meetings and weekly email updates. A contingency has also been included in the budget to cover additional meetings that may be requested by the LSLID. Mike Opat will be HEI's project manager on this project. Mike was the project manager that recently led the Little McDonald, Kerbs and Paul Lakes Improvement District (LMKP LID) through the successful development and construction of their high water outlet project near Perham, MN. Mark Aanenson was previously involved with the Lake Shamineau project and will continue to be involved in the outreach and coordination efforts. Jeff Langan will also be involved on an as-needed basis as his past history on this project is invaluable.

HEI anticipates that the bulk of the work will be completed prior to the mailing deadline for the annual meeting, but the timeline associated with the outreach efforts, and any related impact on the engineering work, will be driven by the responsiveness and desires of the agencies, landowners and other involved parties. Should the LSLID desire additional information prior to the annual meeting, a separate task order can be developed and approved with the potential for the tasks in that task order to run concurrently with Task Order 1.