



**TOWNSHIP OF CHATSWORTH**  
**WTR REPORT 2017-12**

TO: Mayor Pringle and Members of Council  
FROM: Carolyn Vlieland-Marx, Dipl.M.A.  
Deputy Clerk/Water Coordinator  
RE: OCWA Proposal to Develop an RFP for a New Standpipe  
DATE: August 2, 2017

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**RECOMMENDATION**

THAT Water Coordinator Report WTR 2017-12 dated August 2, 2017 be received;  
AND FURTHER THAT Council accepts the proposal from OCWA in the amount of \$43,000 plus applicable taxes to develop a Request for Proposal (RFP) for a new standpipe to replace the existing Chatsworth standpipe.

**BACKGROUND**

The Township received funding through the Clean Water Wastewater Fund (CWWF) for a new water standpipe for the Chatsworth Water System. Resolution 2017-14-18 passed on June 7, 2017 provided direction to staff to obtain pricing from OCWA, our Operating Authority, to prepare an RFP for the new standpipe project.

In preparing the pricing proposal OCWA has identified that a system piping model of the overall system would need to be completed prior to the issuance of an RFP to provide more accurate evaluation and pressure impacts within the overall system. The system model would confirm that high pressures are below MOECC design guidelines and minimum pressures are maintained. The need, if any, for pressure relief valves throughout the system would be identified, as would any pumping requirements at the treatment plant, so they are included in the RFP. The system model will provide the basic details, volumes for fire flow, equalization, emergency storage, and elevations including projections for future demands. All information from the system model will provide the foundation for the RFP requirements and ensure appropriate sizing according to MOECC design guidelines.

The proposed project schedule outlined on Page 6 provides achievable timelines for us to make a request for a project extension beyond March 31, 2018.

**BUDGET IMPACT**

No additional budget impact is anticipated at this time. Costs are included in the 2017 Capital Budget and included in the grant application.

**ATTACHMENT**

OCWA proposal to develop a Request for Proposal (RFP), for a new tank to replace the existing Chatsworth standpipe.

Respectfully submitted,



Carolyn Vlieland-Marx, Dipl.M.A.  
Deputy Clerk/Water Coordinator

July 18, 2017

Ms. Carolyn Vieland-Marx  
Deputy Clerk, Water Coordinator  
316837 Highway 6, RR 1  
Chatsworth ON N0H 1G0

## **Re: Proposal for New Chatsworth Tank**

The Ontario Clean Water Agency (OCWA) is pleased to submit our proposal to develop a Request for Proposal (RFP) for a new tank to replace the existing Chatsworth standpipe.

### **1. BACKGROUND**

The Township of Chatsworth has received approval for a new booster pumping station to service a new subdivision west of Boundary Road. The subdivision requires improved water pressure to be properly serviced. Rather than constructing a booster pumping station, the Township is considering installing a new standpipe or elevated water tower, in place of the existing Chatsworth standpipe. A preliminary investigation by GSS has shown that a new higher elevation tank (elevated tower or standpipe) would be able to provide sufficient pressure to the new subdivision. In addition, a new tank would also enhance pressures in the immediate area surrounding the existing standpipe, which are also known to have low water pressure issues. The developer is willing to give Chatsworth a rebate, which could be applied towards a new tank (elevated tower or standpipe) instead of building a pumping station for the new subdivision.

GSS Engineering was retained to complete a preliminary evaluation of options for the Township of Chatsworth including volume and elevations estimates. Their report provided some preliminary estimates of flows and populations. The 2003 population of Chatsworth was estimated at 522. The current average daily water demand was estimated at 140 m<sup>3</sup>/d, and the maximum daily water demand at 200 m<sup>3</sup>/d. The impacts of a new tank (elevated tower / standpipe) were investigated. A preliminary review was completed using static water pressure and topographical information; a distribution simulation was not undertaken.

We understand the Township of Chatsworth prefers to build the new tank on a new foundation next to the existing tank. This will allow the new tank to be constructed while the old standpipe is still operational minimizing downtime, and requiring only minimal additional piping to connect the new tank once fully constructed. Once completed the original standpipe could be decommissioned and removed.

### **2. WORK PLAN**

OCWA has prepared the following work plan to develop a Request for Proposal (RFP) for a new tank to replace the existing Chatsworth standpipe. To complete this project we have partnered with WSP Canada. Details of our project team are provided in Section 3.

### **Kick Off Meeting**

Upon award of the project, our team, would collect and review and evaluate all relevant documentation, existing standpipe design drawings, 2007 Henderson Paddon Booster Pump Station Design Brief, distribution drawings, WTP pump information and any other relevant documentation.

The merits of standpipe options (welded, bolted, glass fused to steel, coated) and elevated tower options (glass fused to steel, coated steel) will be discussed with the Township at the kick off meeting, to determine which option(s) will be included in the RFP.

### **Preliminary Design**

Using the GIS information provided and supplementary Ontario Base Map (OBM) elevations as required, the project team will build a piping model of the Chatsworth water distribution system using Bentley WaterCAD/GEMS software. The dimensions and piping relating to the existing standpipe and other special components will also be confirmed and included in the model. Pump duty points/curves, if available, will be collected from operations and incorporated into the model.

To calibrate the model, the project team will work with operations to incorporate and complete (if needed) hydrant flow/pressure tests, to ensure the accuracy of the model. This will allow us to review transient flows through the system. A system model will provide a more accurate evaluation and pressure impacts in the system. This will confirm 'high' pressures throughout the system will remain below the design guidelines of 90 psi and minimum pressures are maintained. The model will ultimately be used to provide the basic details, volumes for fire flow, equalization, emergency storage, and elevations including projections for future demands indicated by the Town.

Flow restrictions within the distribution system that could prevent the required fire flow from being achieved, locations in the distribution system where pressure sustaining valves or pressure relief valves would be required will also be identified. We will confirm if WTP pumping (flow/pressure) is adequate or if modifications will be needed at the plant. All distribution work and pumping needs will be included in the RFP. It is necessary to define these prior to issuing the RFP to ensure Contractors are bidding to the same size requirements, and ensuring sizing is appropriate according to MOE design guidelines. We would not recommend issuing an RFP without these basic requirements defined ahead of time. The final model will be provided to the Chatsworth.

### **Request for Proposal**

A Request for Proposal (RFP) for design, build and commissioning of the recommend tank option will be prepared.

Prospective bidders will be required to submit proposals and prices for a new tank based on the sizing requirements outlined in the RFP. Design would be based on the recommended

elevations of the new tank and recommended minimum and maximum flow rates for the tank. The successful Contractor will be required to provide engineered drawings signed and sealed by a registered professional engineer licensed in Ontario.

Key components of the RFP would include:

- Administrative requirements such as agreement to Bond, Insurance (including professional and environmental liability)
- Identification of required sizing, flow rates (min / max), elevations, storage volume
- Requirements for site re-grading to accommodate new foundation, and discharge water drainage.
- Requirements for structural engineering analysis to provide detailed design and drawings of reinforced concrete base.
- Requirements for onsite yard piping modifications to connect the new tank to distribution system
- Instrumentation and control requirements for remote monitoring of water levels in the new tank
- Tank accessories, such vacuum/pressure relief, overflow, inspection hatches, a pressure relief valve on the common inlet/outlet header, circulation (mixing) piping, and safety climbing devices (fixed ladder with slide rail, seat rests, D-Ring tie offs, etc.).
- Cathodic Protection System (impressed current) to supplement corrosion protection of a new tank, especially if bolted connections are used.
- Flow meter (4-20mA output signal) to monitor and record the flow into and out of the tank. Flow in both directions will be totalized and trended separately through the SCADA system.
- Chlorine analyzer on the tank outlet to monitor chlorine residual leaving – if needed.
- Programming of a “Night Fill” to allow the tank to be filled or “topped-up” at night when water demands and hydro costs are typically lower.
- All applicable codes and regulations the design/builder will be required to conform to.
- Pumping modifications, if any, at the WTP
- Distribution system valving (pressure relief, pressure sustaining)
- Testing, commissioning and testing, as built, operations manual, all other documentation (equipment and SCADA manuals)
- Site grading, access, fencing, etc.

The RFP will request the Contractors to include the following provisional items in their design

- Lightning protection and grounding system.
- Motorization of the existing isolation valve (4-20mA output signal) to allow remote operation and automatic control.

- Mixing system to circulate stored water in the tank TideFlex (or equivalent), with CFD modeling.
- Decommissioning, dismantling and removal of the existing standpipe

A draft of the RFP will be prepared and submitted to the Township of Chatsworth for review. A conference call will be held with the Township to review the comments. The comments will then be incorporated into the final RFP. The RFP will be issued in an open bid process as per Township of Chatsworth's purchasing requirements. The RFP will be publically posted on BravoSolutions.

### **Bidding Period**

The RFP will be issued as a two part envelope system. Contractors will include design details and schedule in envelope 1. Upon finalization of scoring the cost envelope 2 would be opened and scored according to predefined scoring matrix developed by OCWA. The following tasks will be undertaken during the bidding process:

- Issuing the RFP package.
- Arranging and conducting a bidders meeting at the site
- Recording and answering bidders' questions, preparing and issuing addenda if necessary.
- Receiving the proposals at our offices
- Overseeing the proposal opening.
- Coordinating and evaluating the RFPs received, the project team (Chatsworth, OCWA, WSP) will evaluate the RFPs.
- Interview with proponents if necessary
- Checking Contractor references (if necessary and applicable) to confirm contractor experience
- Providing Chatsworth with a recommendation for the award of contract.

Upon receiving approval from Chatsworth for award, we will:

- Prepare and issue a contract award letter and contract agreement for execution.
- Establish a convenient construction start date in discussion with Chatsworth once the contract has been approved.
- Prepare bonding and insurance forms, together with the contract agreement forms for execution by both the contractor and Chatsworth.
- Follow up to ensure that all the contract administrative issues are in place for the start of the construction work.

### **Optional Item 1: Services During Construction**

We have included services during Construction as an additional optional item that the Township of Chatsworth may consider. Contract administration will include:

- Pre-construction meeting, record pre-construction site conditions, review health and safety items, project schedule, provisional items, foreseeable issues, and signoff forms
- Review and approval of shop drawings, it is critical to ensure a complete review of the Contractor's proposed design elements is completed. We have included review of shop drawings by a structural engineer for major components of the design, including reinforced foundation and overall tank design.
- Receive, resolve and issue all clarifications, notify Chatsworth as appropriate
- Review, recommend and process contract change orders
- Process progress payments based on work complete in the field
- Review submitted as built drawings for completeness
- Monitor Contractor progress and provide status reports
- Ensure all Construction and inspection work adheres to appropriate regulations and standards; Identify deficiencies and document remedial actions
- Review Contractor's waste disposal plan and findings
- Review Contractor's disinfection procedure for the tower and ensure it complies with AWWA standards
- Conduct final inspection and prepare relevant documentation
- Notify Contractor and Owner of liquidated damages, take steps to resolve
- Monitor and witness testing and commissioning
- Prepare project close out documents, once deficiencies have been rectified
- Monitor during warranty period, including a final inspection by licensed inspector from (PW Makar)

Detailed Design/ On-site quality control is extremely important with water storage tanks. In addition to onsite supervision for site works, yard piping and general construction, certified specialist inspection are required for all mill and structural welds. As part of our proposed team, we offer certified structural welding specialists from WSP who will be available for inspection services as part of the design build contract in accordance with AWWA Standards. We have also included part time NACE certified inspection services by PW Makar during construction.

### **3. PROJECT TEAM**

Lisa Lachuta will be the overall project manager. Raj Roopchand will be the senior engineer reviewer. Raj and Lisa are registered professional engineers in the Province of Ontario. They have been selected to provide the in-depth knowledge and expertise required to successfully develop this project and bring it to completion on time and within budget.

Raj and Lisa are knowledgeable in:

- water treatment and distribution/collection operations,
- regulatory reporting as required by the MOECC,
- coating/painting specifications and application,
- stand pipe/water tower rehabilitation work,
- developing tender packages related to stand pipe/water tower rehabilitation work,

We have also partnered with WSP Canada as a subconsultant in this proposal, lead by Dean Whittaker. WSP’s primary tasks are to complete distribution model, which will confirm sizing and elevation of the water tower, valving needed in the distribution system, and pumping needs at the WTP. WSP will also be responsible for review structural and electrical submissions from the Contractor during construction. OCWA has partnered with Dean Whittaker on several projects. Over the past 10 years we have collaborated on numerous municipal water and wastewater for the Ontario Ministry of the Environment and Climate Change (MOECC), Region of Peel, Township of Meaford and most recently for the Lambton Area Water Supply system for rehabilitation of the Forest Standpipe.

#### 4. PROJECT SCHEDULE

We understand that time is of the essence. Our team is ready to start the project immediately upon approval. We have developed the following schedule; construction is expected to occur from March – July 2018.

**Table 1: Proposed Project Schedule**

<b>TASK</b>	<b>END DATE</b>
Distribution System Model	July - Aug 31, 2017
Prepare RFP	Aug 21 - Sept 15, 2017
Issue RFP	Oct 1, 2017
Contract award	Nov 15, 2017
Design / Shop Drawings	Dec – Feb 2018
Construction	Mar – July 2018
Warranty	July 2020

#### 5. PROJECT COSTS

OCWA recommends a budget estimate of \$43,000 excluding HST. This project will be invoiced monthly based on actual time and expenses incurred. We have also provided costs for optional items for Services During Construction and Final Warranty Inspection.

A geotechnical soil investigation should be completed for the proposed site and included in the RFP. We have not included for this at this time. Chatsworth may wish to complete this task directly.



Table 2: Proposed Project Cost

<b>Prepare and Develop RFP</b>		<b>Cost</b>
Kick Off Meeting and Background Review		\$7,300
Modelling & PreDesign		\$11,100
Develop, Issue and Award RFP		\$24,600
<b>Total (excluding HST)</b>		<b>\$43,000</b>
<b>Optional Item 1</b>		
Contract Administration After Contract Award		\$34,300
Certified Inspections		\$14,000
Includes Five (5) Site Meetings During Construction (Estimated 4 Months)		\$8,900
<b>Total (excluding HST)</b>		<b>\$57,200</b>
<b>Optional Item 2</b>		
Final Warranty Inspection by Certified Inspector and Overseeing of Repairs		\$6,900

This proposal is valid until August 31, 2017.

We are ready to start the project upon receipt of approval notice. Should you have any questions on the above, please feel free to contact the undersigned.

Sincerely,



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