CITY COUNCIL AGENDA ITEM

July 12, 2016

TO: Brian Kischnick, City Manager

FROM: Tom Darling, Financial Services Director
Mark F. Miller, Director of Economic and Community Development
Steven J. Vandette, City Engineer

SUBJECT: Standard Purchasing Resolution #1: Award to Low Bidder
Contract 16-8 – Wattles Culvert at the Rouge River

History

As requested by the City, Hubbell, Roth & Clark, Inc. completed a structural evaluation of the existing dual 12'-10" x 8'-4" culverts under Wattles Road at the Rouge River. The culverts were installed in 1967 and extended in 1983 to provide additional clearance from the edge of the roadway. The investigation was a follow-up to the biennial bridge inspections completed in late 2015 where it was noted that these culverts were found to be severely deteriorated along the culvert bottoms.

A structural investigation confirmed the severity of the deterioration and a reduced load rating was recommended as a temporary measure until culvert repair or replacement could take place. Legal load limit regulatory signs have been installed.

Multiple options were considered, from replacing the existing culverts, to shoring/bracing, to structural concrete lining. We met with the MDEQ several times to discuss options and the most cost effective and least invasive repair is a structural concrete lining. HRC's recommendation letter, attached, delves further into the options considered as well as the recommended option of a structural concrete lining.

Work is anticipated to begin in early August and be complete by Labor Day. The intent is for the contractor to work from the shoulder with no lane closures except during setup and teardown. During these operations, lane closures are only permitted between the hours of 9:00 a.m. and 3:00 p.m., Monday to Friday, and 7:00 a.m. to 8:00 p.m. on Saturday or as otherwise approved.

The work will not require a full closure and Wattles will remain open during construction.

Purchasing

Bids were received and publicly read on June 22, 2016. The low bid of $199,140.00 was submitted by Inland Waters Pollution Control, 4086 Michigan Avenue, Detroit, MI 48210, as shown on the

attached tabulation summary. The Engineer's estimate at the time of bidding was $250,000.00. The low bid is $50,860.00 or 20.3% below the Engineer's estimate.

Work was competitively bid and publicly opened with two (2) bidders responding. The award is contingent upon submission of proper contract and bid documents, including bonds, insurance certificates and all specified requirements

Financial

Funds for this work are included in the Capital Projects Fund, Project # 2017C0031. The budgeted amount includes funds for construction, inspection and contingencies.

Recommendation

It is recommended that City Council award the Wattles Culvert at the Rouge River contract to Inland Waters Pollution Control, 4086 Michigan Avenue, Detroit, MI 48210, for their low bid of $199,140.00.

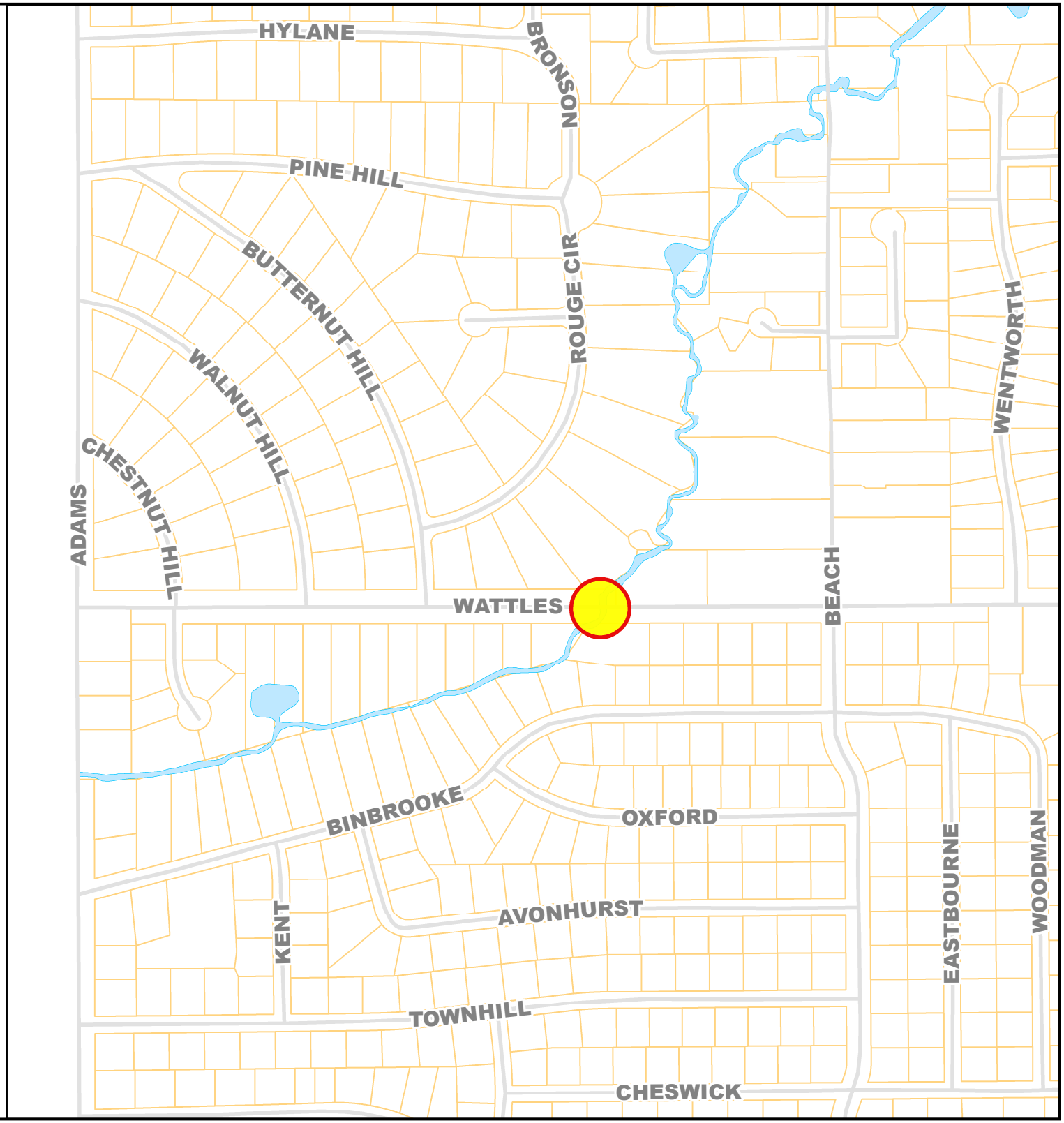
In addition, we are requesting authorization to approve additional work, if needed, not to exceed 25% of the original project cost due to unknown conditions associated with the culverts and working in the Rouge River.

WJH/ G:\Contracts\Contracts - 2016\16-8 Wattles Culvert at the Rouge\Bid Award_r2.doc

Wattles Culvert at the Rouge River

Culvert Lining

Date: 7/12/2016



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July 7, 2016

Mr. Steven J. Vandette, P.E.
City Engineer City of Troy
500 W. Big Beaver Road
Troy, MI 48084

Re: Wattles Culvert at the Rouge HRC Job No. 20150463

Dear Mr. Vandette:

As requested by the City, HRC previously completed a structural evaluation of the existing dual 12'-10" x 8'-4" multi-plate arch CMP culverts under Wattles Road at the Rouge River. The investigation was a follow-up to the biennial bridge inspections completed in 2015 where it was noted that these culverts were found to be severely deteriorated along the culvert bottoms.

Following our site visit to the structure, HRC began investigating various methods of structural repairs that would allow the bridge to remain open until it could be potentially replaced in 2017.

Any repair that is performed will require MDEQ approval and permitting, so we have been in contact with them to ascertain their input regarding the proposed repair methods being considered. Further, any in-stream work is subject to fisheries restrictions through June 30.

In order to allow for construction vehicles to cross the bridge during the recently completed Wattles Road Sewer Project, MDEQ permitted the installation of temporary bracing until a more permanent solution could be completed. In our correspondence with MDEQ and discussions with city staff regarding the alternatives for long term rehabilitation the following responses were received:

Rehabilitation Alternate 1:

Replacement of the culverts with the same culverts that currently exist.

MDEQ Response:

MDEQ does not support replacing the existing structures with dual culverts of the same design due to the crossing and stream instability created. MDEQ's recommendation for replacement would require the replacement structure be a single box culvert with a span of 25 feet to span the bankfull width, placed on a skew to accommodate the stream alignment.

Rehabilitation Alternate 2:

Structural lining of the existing culverts

MDEQ Response:

This alternative is likely permittable if riprap is included and the existing rock weir is left in place.

Based on the MDEQ responses, we researched various methods of structural lining for the culverts including geopolymer and structural cementitious products. These methods were preferred because they are structural lining systems that do not depend on the host pipe for any structural support.

To pursue these methods and products further, we arranged for the representatives from three independent geopolymer and cementitious lining companies to evaluate the culverts to see if they were a candidate for structural lining. Representatives visited the site and based on existing culvert field conditions their engineers designed proposed liner thickness using finite element analysis, which resulted in thicknesses ranging from 2” to 2.75". When selected, the contractor will provide a signed/sealed final design by their structural engineer, along with load rating calculations.

Based on this information, a project for structural lining of the culverts was publicly bid. HRC has reviewed the bids received at your office on June 22, 2016 for the subject project. Of the two contractor bids received, the low bid for the project was $199,140.00 submitted by Inland Waters Pollution Control located at 4086 Michigan Avenue, Detroit, Michigan 48210.

During a post bid discussion with staff from Inland Waters Pollution Control, information was provided by the low bidder in regards to their understanding of the project, experience with similar types of work, their equipment and personnel, similar project experience, and their project references. Inland Waters Pollution Control will be using geopolymer products supplied by IPR to perform the structural culvert lining.

Based on the above noted discussion, it is in our opinion that Inland Waters Pollution Control has the equipment and experience to complete the project and that the low bid submitted conforms to the requirements of the Specifications and reflects the value of the work. Therefore, we recommend award of the Contract to Inland Waters Pollution Control in the amount of $199,140.00 subject to the necessary financial arrangements, insurance certifications, and submittal of all contract documents and bonds. We have attached one (1) copy of the Bid Tabulation for your use.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

HUBBELL, ROTH & CLARK, INC.

Jennifer L. Chehab, P.E.
Senior Project Engineer

pc: Troy; W. Houtari, K. Bovensiep
HRC; M. MacDonald, File

BID TABULATION
Wattles Culvert at the Rouge
CITY OF TROY
OAKLAND COUNTY, MICHIGAN

Bids Due: 06/22/2016
HRC Job # 20150463

			Inland Waters Pollution Control 4086 Michigan Avenue Detroit, MI 48210 P (313) 899-3014		**Mid-America Group** 8475 Port Sunlight Road Newport, MI 48166 P (734) 586-8868		
	Item	Quantity	Unit Price	Total Cost	Unit Price	Total Cost	
1.	Mobilization (max. 5%)	1 LSUM	$9,500.00	$9,500.00	$11,500.00	$11,500.00	
2.	Color Audio Visual Route Survey (Max. $5,000)	1 LSUM	$4,500.00	$4,500.00	$5,000.00	$5,000.00	
3.	Conduit Renewal Using Structural Liner, 12’10” x 8’4” Multi-Plate Pipe-Arch	92 LF	$1,420.00	$130,640.00	$2,059.78	$189,499.76	*
4.	Soil Densification, As Needed	2,000 LBS	$16.00	$32,000.00	$17.40	$34,800.00	*
5.	Maintaining Traffic	1 LSUM	$10,000.00	$10,000.00	$950.00	$950.00	
6.	_ Inspection Crew Day	25 Cday	$500.00	$12,500.00	$750.00	$18,750.00	
	TOTAL AMOUNT OF BIDS			**$199,140.00**		**$260,499.76**	*

ALTERNATE NO. 1

* Corrected By Engineer

ENGINEER:
Hubbell, Roth & Clark, Inc.