Municipality of Chatham-Kent

Infrastructure and Engineering Services

Engineering

To: Mayor and Members of Council

From: Brendan Falkner, P.Eng.
Manager, Engineering

Date: May 23, 2023

Subject: Tender Award: Contract T23-210 – Base Road over Morgan Drain Culvert Replacement

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Recommendations

It is recommended that:

1. The tender in the amount of $208,540.31 (including HST) for the Base Road over Morgan Drain Culvert Replacement be awarded to H.E. Construction Inc.

2. The Mayor and Clerk be authorized to sign the necessary agreement.

Background

The Base Road culvert over Morgan Drain has an unknown year of construction, but it is estimated to have been between 1930 and 1950, has a north-south orientation, and is located on Base Road 180 m south of Ridge Line in the Community of Harwich. This concrete culvert carries two narrow lanes of vehicular traffic across the Morgan Drain with an existing span of 1.85 m and a total length of 7.0 m. The roadway has a travel width of 4.6 m.

With an Average Annual Daily Traffic volume (AADT) of less than one hundred, the crossing is lightly used with truck volumes accounting for less than 10 percent of the total traffic. The posted speed limit at the culvert location is 80 km/hr.

Bi-annual inspections are required on structures with spans exceeding 3.0 m and are conducted by the Municipality of Chatham-Kent (as legislated under the Public Transportation and Highway Improvement Act) to continually monitor the condition of the structures and to ensure public safety. The Base Road structure has a span less than 3.0 m; however, Chatham-Kent staff still periodically monitored it. The deteriorating condition and narrow width of the roadway at the structure location was brought to the attention of Engineering staff, and a follow-up inspection was completed.

In September 2021, the Base Road structure was inspected by Chatham-Kent Engineering staff and was noted as having the following issues:

- Isolated areas of delamination and spalling with exposed corroded reinforcing steel on the soffit.
- Wide vertical cracking noted on both walls that extend to the footings.
- Wide deteriorated cracks at construction joints.
- Severe scaling and concrete deterioration throughout the structure.
- Broken sections of curb that are hanging by reinforcing steel.
- Areas of moisture penetration on the soffit.
- Exposed footings.

Figure 1. Base Road over Morgan Drain – East Culvert End with Spalled/Hanging Concrete and Overall Deterioration

Figure 2. Base Road over Morgan Drain – Interior Culvert Surfaces with Severe Scaling, Delamination, Spalling, and Exposed Footing

Figure 3. Base Road over Morgan Drain – Soffit Deterioration with Exposed Corroded Reinforcing Steel

Comments

This contract consists of the following work:

- Installation of site isolation and drain bypass.
- Removal of the existing concrete culvert including footings.
- Supply and installation of new 2.7 m diameter polymer coated corrugated steel pipe culvert.
- Supply, installation, and compaction of new granular backfill and road base.
- Supply and installation of new rip-rap slope protection at each culvert end.

The replacement structure will be wider than the existing structure to increase road width for larger vehicles, agricultural equipment, and eliminate the need for roadside guiderails. The elimination of guiderails provides immediate and future lifecycle cost savings and provides more functionality to the farming community.

Multiple structure type options were considered for the replacement structure, including steel pipe and concrete box culvert options. Typically, the costs for precast concrete box culverts exceed the costs of steel pipe. Since this is a low volume gravel road, and the site has sufficient cover over the culvert, the CSP pipe structure was selected.

This structure replacement will provide 50 to 75 years of service.

This project was designed and managed internally by Chatham-Kent Engineering staff, providing design and construction observation cost savings.

This tender allowed the bidders to choose their preferred construction schedule within a two-year window and the contractor may choose to complete the project in 2023 or 2024. This method has been implemented on Chatham-Kent bridge and culvert projects to allow the contractor additional flexibility when scheduling the work, which has resulted in more competitive bids on these projects. Once mobilized to site, the contractor must complete the project within the allocated working days. Twenty-five (25) working days have been allocated for this contract. The structure will be closed to vehicular and pedestrian traffic during construction. Road closures will be issued, and a detour will be posted during this time.

In accordance with Purchasing By-law #166-2020, the purchasing tender was advertised on April 26, 2023, and closed on May 17, 2023. A total of eighteen (18) potential bidding contractors (including contractors, sub-contractors, and suppliers) obtained a copy of the contract document from the Chatham-Kent Bids & Tenders website and seven (7) tender bids were submitted. The bid results and ranking are outlined in Table 1.

Table 1: Bid Results for T23-210
Base Road over Morgan Drain Culvert Replacement

Rank	Bidder	Location	Amount (incl. HST)
1	H.E. Construction Inc.	Thamesville, ON	$208,540.31
2	Mark G Contracting Inc.	Tilbury, ON	$219,110.36
3	Murray Mills Excavating & Trucking (Sarnia) Ltd.	Sarnia, ON	$226,500.03
4	Clarke Construction Inc.	Blenheim, ON	$242,724.00
5	McNally Excavating	Inwood, ON	$247,922.00
6	Nevan Construction Inc.	Kingsville, ON	$313,010.00
7	Ron Van Manen Trucking Inc.	Norwich, ON	$386,578.27

Per the terms of the tender, work may commence after tender award with a total completion date of November 29, 2024.

Areas of Strategic Focus

This report supports the following areas of strategic focus:

			
Economic Prosperity	**Healthy & Safe Community**	**People & Culture**	**Environmental Sustainability**
1.1			

Consultation

The tenders were digitally received by the Purchasing Division and reviewed by the Engineering and Transportation Division.

Communication

The tender documents were posted on the Bids & Tenders website for prospective contractors to review. Unsuccessful bidders will be notified by the Purchasing Division through the Bids & Tenders website.

Construction updates for this project will be posted to the Chatham-Kent Construction Project website (www.chatham-kent.ca/constructionprojects). Construction signage will be implemented in accordance with Ontario Traffic Manual Book 7 to inform residents of traffic impacts. Road closure notices will be issued for the bridge closures associated with the work in this contract.

Diversity, Equity, Inclusion and Justice (DEIJ)

This report does not have implications related to diversity, equity, inclusion, or justice.

Financial Implications

Table 2: Recommended Costs and Funding Summary

Description	Total
A) Recommended Costs	
Recommended Tender	$184,548.95
Plus 13% HST	$23,991.36
Total Cost (with HST)	**$208,540.31**
Less 11.24% HST	($20,743.30)
Total Recommended Costs	**$187,797.01**
B) Recommended Funding	
Minor Culverts Lifecycle Reserve	$187,797.01
Total Recommended Funding	**$187,797.01**

The lowest tender bid, submitted by H.E. Construction Inc., was within the budget estimate.

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Consulted and confirmed the content of the consultation section of the report by:

Jennifer Scherle, Manager, Purchasing and Accounts Payable

Attachments: None