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Report to Utility Services Committee
from Kate Zwartz, Engineer, Engineering Consultancy Group

Contract No. 1194 : OK Main Refurbishment : Thorndon to Karori, Stage 2 - Tender Acceptance

1. Purpose

To obtain approval to accept a tender for Contract No. 1194 for the refurbishment of the Orongorongo-Karori (OK) main from Thorndon to Karori.

2. Exclusion of the Public

Grounds for exclusion of the public under section 48(1) of the *Local Government Office Information and Meetings Act 1987*:

That the public conduct of the whole or relevant part of the proceedings of the meeting would be likely to result in the disclosure of information for which good reason for withholding would exist, i.e.; to allow the carrying out of, without prejudice or disadvantage, commercial activities.

3. Background

The OK pipeline was constructed in 1925 from bitumen coated and lined “lockbar” type steel pipe. The pipe is 525 mm in diameter. The pipe was decommissioned in 1993. The proposed relining of the section from Thorndon Pumping Station to Karori will increase the security of supply to Wellington City and suburbs. There was a reduction in security of supply when the Karori Reservoir was closed two years ago.

- (1) The refurbished pipeline will provide an alternative supply to Karori Pumping Station, allowing the Kaitoke pipeline between Ngauranga and Karori to be shut down for more than a few hours for maintenance and repair works.

- (2) The refurbished pipeline will provide an alternative supply to Thorndon, allowing the Wainuiomata pipeline between Ngauranga and Thorndon to be shut down for maintenance and repair works.
- (3) The proposed new connection at Anderson Park, the northern end of Wellington City's Aro Zone, will maintain supply to this zone, allowing the Aro Street supply main to be shut down for maintenance and repair works. This connection will also help maintain pressures in the Aro Zone.

This is the second and final stage of the refurbishment of the OK main from Thorndon to Karori. In stage 1, the section of pipeline through the Karori Tunnel in Glenmore Street was slip lined in January 2000.

Wellington City Council has been consulted about the proposed connection at Anderson Park and has agreed in principle to share the cost of the connection.

4. **Construction Options**

Two options were offered in the tender documents, in order to widen the pool of contractors competing for the work. There is only one cement mortar lining machine in New Zealand suitable for lining this diameter of pipe. The Council's most recent cement mortar lining contract was at Te Marua between March and April 2000. We received three tenders then, two of which proposed using the same machine. Prices at the time were higher than expected, based on earlier contracts.

"Slip" lining with polyethylene pipe is a lining alternative using newer technology. In this Contract, where the full bore of the old pipe is not required for hydraulic purposes, inserting a polyethylene pipe of a smaller diameter, and grouting it inside the larger pipe, can become a competitive alternative.

Option 1 is to line the pipe with cement mortar. Cement mortar lining was used successfully on the same pipeline at Wainuiomata in 1994.

Option 2 is to insert a polyethylene (PE) pipe within the steel and grout the PE pipe in place. Investigations have shown that the steel pipe wall is in a good enough condition to carry the stresses imposed by the water pressure. Therefore a thin walled PE pipe has been designed, with a minimum wall thickness of about 10 mm.

The total cost of option 2 includes the material cost of the PE pipe. Prices for the supply of the pipe have been sought independently of the contract.

The options offered in this Contract were successful in attracting a range of tender prices, including a cement mortar lining tender in line with our expectations.

5. **Tenders Received**

Tenders closed on 22 September 2000. Four tenders were received; one for option 1 (cement mortar lining) and three for option 2 (slip lining with PE pipe).

Tender prices received were as follows:

Tenderer	Cement Mortar Lining Tender Price (Option 1) \$	Slip Lining Tender Price (Option 2) \$	Total (including materials supplied by WRC) \$
C M Contracting Ltd	690,718.00		715,218.00
J B Pipeline Services Ltd		627,185.00	781,685.00
E N Ramsbottom Ltd		850,396.80	1,004,896.80
Pipeline Techniques Ltd		863,042.00	1,017,542.00
Engineer's estimates	807,500.00		832,000.00
		776,650.00	931,150.00

All tenders exclude GST.

6. Analysis of Tenders

6.1 Tender Evaluation

The tenders were evaluated using a weighted attribute system.

In addition to the contractor attributes, the cost of materials supplied by the Council and the expected performance and life of the materials for the two options were considered.

A \$50,000 cost difference between options 1 and 2 was assessed as reflecting the perceived advantage of a PE liner over the cement mortar. A PE pipe would provide a longer overall life.

The tender evaluation process began with the adjustment of tender prices for the two options, as discussed above. The cost of supplying the PE pipe (\$130,000) was added to the option 2 prices and the differential (of \$50,000) to the option 1 price to allow for the different performance and durability characteristics. These adjusted prices were then evaluated with the non-price attributes, as set out in the tender documents.

6.2 Weighted Attributes

<i>Tenderer</i>	<i>Rating</i>	<i>Ranking</i>
C M Contracting Ltd	71.8	1
J B Pipeline Services Ltd	67.9	2
E N Ramsbottom Ltd	58.5	3
Pipeline Techniques Ltd	56.8	4

7. Discussion on the Proposed Contractor

C M Contracting Ltd has performed several cement mortar lining contracts for the Council; both under their own name, and as subcontractors to A C Tipping Ltd. The Te Marua Cement Mortar Lining Contract was the most recent for the Council. At least two other contracts (not cement mortar lining) were completed for Wellington City Council in the 1999/2000 financial year.

The Contractor is experienced at the cement mortar lining technique. Their tender shows that they have inspected the site and understood the site conditions.

The Contractor is considered suitable to carry out this contract.

8. Costs Sharing Proposal for Aro Zone Connection at Anderson Park

Wellington City Council agreed in principle to contributing 50 percent of the cost of installing the isolating valves, pressure reducing valve and flow meter for the new Aro Zone connection. Wellington City Council will also pay for work required within the reticulation zone in Bolton Street.

Their contribution to this Contract will be approximately \$20,000.

9. Finance

The 2000/2001 Annual Plan includes a budget of \$900,000 for recommissioning the Thorndon to Karori main.

In addition to the Contract Sum, costs for the supply of materials, design, supervision, and Contract administration will be incurred.

	\$
➤ Valves	19,500
➤ Other materials	5,000
➤ Engineering design & supervision	50,000

Total	74,500

If the tender submitted by C M Contracting Ltd is accepted, and the Wellington City Council contribution deducted, the total estimated project cost for 2000/2001 is \$814,300. This amount is within the allocated budget.

10. Environmental Considerations

The works will have a temporary impact on the environment. Conditions have been included in the Contract to avoid or minimise the impact. The water used to clean the

line, and waste material from the cleaning and lining operations, will be disposed of without contaminating the stormwater system or natural waterways. The recommended Contractor proposes to use a sedimentation tank to separate off the solids and discharge the liquids into the sewer.

Care will be taken at all excavation sites to avoid damage to other services, trees and the City Council's property. Disruption to traffic, pedestrians and commercial premises will be kept to a minimum. On-site work is expected to take about 12 weeks.

11. **Communication**

Public notification of work will be necessary both before and during the construction. Additional consultation will be needed with retailers in Thorndon, the organiser of the Thorndon Fair and the Karori Sanctuary Wildlife Trust.

Articles and advertisements in local papers, as well as a letter drop along the route of the Contract, are proposed.

12. **Recommendations**

- (1) *That the tender for Contract No. 1194 received from C M Contracting Ltd for the sum of \$690,718.00 be accepted.*
- (2) *That expenditure of an additional 10 percent of the accepted Contract Sum be approved to allow for unforeseen circumstances.*
- (3) *That the Common Seal of the Wellington Regional Council be affixed to the necessary documents of Contract No. 1194.*

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