

Amendment to Purchase Order Number 6052180 with WSP Canada Incorporated for the Construction of Multiple Culverts at Various Locations

Date: October 12, 2021

To: Infrastructure and Environment Committee

From: Chief Engineer and Executive Director, Engineering and Construction Services and Chief Procurement Officer, Purchasing and Materials Management

Wards: 1 (Etobicoke North), 2 (Etobicoke Centre), 6 (York Centre), 7 (Humber River-Black Creek), 20 (Scarborough Southwest), 21 (Scarborough Centre), 23 (Scarborough North), and 25 (Scarborough-Rouge Park)

SUMMARY

The purpose of this report is to request authority to amend Purchase Order Number 6052180 issued to WSP Canada Incorporated, as a result of Request for Proposal Number 9117-17-5057 for professional services associated with contract administration and site inspection for the rehabilitation or reconstruction of twenty (20) culverts at various locations.

This Purchase Order Amendment is required to provide additional contract administration services, due to the extended duration of construction associated with unanticipated utility conflicts at eight (8) locations; and an additional nine (9) culverts that required replacement with larger culverts (rather than rehabilitation of the existing structures as originally planned) to convey higher flows and meet climate resiliency requirements as recommended by the Canadian Highway Bridge Design Code, the Ontario Ministry of Natural Resources and the Ontario Ministry of Transportation.

The total value of the Purchase Order Amendment being requested is \$1,276,909 net of all taxes and charges (\$1,299,383 net of HST recoveries), revising the current purchase order value from \$2,353,000 net of all taxes and charges (\$2,394,413 net of HST recoveries) to \$3,629,909 net of all taxes and charges (\$3,693,796 net of HST recoveries).

RECOMMENDATIONS

The Chief Engineer and Executive Director, Engineering and Construction Services and the Chief Procurement Officer, Purchasing and Materials Management recommend that:

1. The Infrastructure and Environment Committee, in accordance with Section 71-11.1C of the City of Toronto Municipal Code Chapter 71 (Financial Control By-Law), grant authority to amend Purchase Order Number 6052180 with WSP Canada Incorporated for the provision of professional services associated with contract administration and site inspection for the construction of multiple culverts at various locations in the amount of \$1,276,909 net of all taxes and charges (\$1,299,383 net of HST recoveries), revising the current purchase order value from \$2,353,000 net of all taxes and charges (\$2,394,413 net of HST recoveries) to \$3,629,909 net of all taxes and charges (\$3,693,796 net of HST recoveries).

FINANCIAL IMPACT

The Purchase Order Amendment request included in this report will increase the total value of the professional engineering services assignment by \$1,276,909 net of all taxes and charges (\$1,299,383 net of HST recoveries). This revises the current purchase order value from \$2,353,000 net of all taxes and charges (\$2,394,413 net of HST recoveries) to \$3,629,909 net of all taxes and charges (\$3,693,796 net of HST recoveries).

Funding for the Purchase Order Amendment is available in the 2021-2030 Approved Capital Budget and Plan for Transportation Services (City Bridge Rehabilitation Program and City Bridge Rehabilitation Critical Program) as summarized in Table 1 below (net of HST recoveries):

Table 1: Financial Impact Summary for Purchase Order Number 6052180

Calendar Year	CTP515-01-164
2021	\$465,421
2022	\$596,005
2023	\$237,957
Total (Net of HST Recoveries)	\$1,299,383

The Chief Financial Officer and Treasurer has reviewed this report and agreed with the financial impact information.

DECISION HISTORY

On November 1, 2017, by authority of the Bid Award Panel, the City retained WSP Canada Group Limited (now WSP Canada Incorporated) for the provision of professional engineering services associated with Request for Proposal Number 9117-17-5057 for the design, contract administration and post construction services for the rehabilitation of culverts at various locations. The total fee for this professional engineering services assignment was \$4,967,500 (net of all taxes and charges). Two purchase orders were subsequently issued to WSP Canada Group Limited/WSP Canada Incorporated under this assignment: Purchase Order Number 6046349 for design services in the amount of \$2,582,500 (net of all taxes; later replaced by Purchase Order Number 6052182 after the company name change), and Purchase Order Number 6049309 for contract administration services in the amount of \$2,353,000 (net of all taxes; later replaced by Purchase Order Number 6052180 after the company name change). A Purchase Order for post construction services in the amount of \$32,000 (net of all taxes) will be issued towards the end of the 2-year warranty period. A copy of the Bid Award Panel Decision Document can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.BA48.1>

On June 26, 2019, by authority of the Bid Award Panel, Contract Number 19ECS-TI-12BE (Tender Call Number 123-2019) was awarded to EBC Incorporated for Replacement of Culvert Number 267: Albion Road over Albion Creek and Culvert Number 274: Islington Avenue over Humber River Tributary, and Rehabilitation of Culvert Number 661: Toledo Road over Elmcrest Creek and Culvert Number 668: Redwater Drive over Humber River Tributary, in the amount of \$7,273,750 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.BA31.6>

On July 3, 2019, by authority of the Bid Award Panel, Contract Number 19ECS-TI-13BE (Tender Call Number 128-2019) was awarded to Anskon Contracting Incorporated for Rehabilitation of Culvert Number 291: Ellesmere Road over Massey Creek and Culvert Number 902: Centennial Road over Adams Creek and Rehabilitation of Slope Paving at Morningside Avenue Bridge over Highland Creek South of Ellesmere Road, in the amount of \$1,774,205 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.BA32.8>

On June 30, 2020, by authority of the Bid Award Panel, Contract Number 20ECS-TI-04BE (Ariba Document Number 2389517403) was awarded to 614128 Ontario Limited (Trisan Construction) for Replacement of Culvert Number 127: Danforth Road over West Highland Creek, Culvert Number 340: Sheppard Avenue West over Black Creek, Culvert Number 921: Foxridge Drive over Massey Creek, and Culvert Number 944: Reesor Road over Rouge Tributary, in the amount of \$12,627,339 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.BA88.7>

On June 30, 2020, by the authority of Bid Award Panel, Contract Number 20ECS-TI-05BE (Ariba Document Number 2389517470) was awarded to Drainstar Contracting Limited for Replacement of Culvert Number 677: The Westway over Humber Creek, in the amount of \$3,892,015 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.BA88.8>

On June 30, 2020, by the authority of Bid Award Panel, Contract Number 20ECS-TI-18BE (Ariba Document Number 2388748212) was awarded to 614128 Ontario Limited (Trisan Construction) for Replacement of Culvert Number 631: Amaron Avenue over Albion Creek and Culvert Number 632: Taysham Crescent over Albion Creek, in the amount of \$4,469,458 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.BA88.6>

On June 30, 2020, by the authority of Bid Award Panel, Contract Number 20ECS-TI-19BE (Ariba Document Number 2362453650) was awarded to Bob Hendricksen Construction Limited for Rehabilitation of Culvert Number 279: Warden Avenue over Massey Creek, in the amount of \$1,400,232 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.BA88.5>

On June 2, 2021, by the authority of Bid Award Panel, Contract Number 21ECS-TI-12BE (Ariba Document Number 2913620602) was awarded to 2220742 Ontario Limited (Bronte Construction) for Rehabilitation of Culvert Number 838: Milner Avenue over East Highland Creek and Culvert Number 842: Progress Avenue over West Highland Creek, in the amount of \$2,345,398 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.BA138.7>

On June 9, 2021, by the authority of Bid Award Panel, Contract Number 21ECS-TI-13BE (Ariba Doc Number 2910724543) was awarded to 2220742 Ontario Limited (Bronte Construction) for Replacement of Culvert Number 391: Kipling Avenue over Humber River Tributary, Culvert Number 665: Royal York Road over Humber River Tributary and Culvert Number 675: Baywood Road over Humber River Tributary, in the amount of \$9,734,623 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.BA139.10>

On June 9, 2021, by the authority of Bid Award Panel, Contract Number 21ECS-TI-14BE (Ariba Doc Number 2918955871) was awarded to Alliance Verdi Civil Incorporated for Replacement of Culvert Number 396: Scarlett Road over Humber Creek, in the amount of \$8,921,111 (net of all taxes and charges). A copy of the Bid Award Panel Decision Document can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.BA139.12>

COMMENTS

Background

Transportation Services maintains approximately 130 structural culverts with a span of greater than 3 meters. Many of these culverts were built in the 1950's and 1960's and are due for repair or replacement in order to maintain the inventory in a state of good repair. Approximately one-third of these culverts are corrugated steel plate culverts, which are approaching the end of their service life. In recent years, a number of corrugated steel plate culverts have partially collapsed, due to adjacent soil erosion, requiring emergency road closures and reconstruction of the culverts. Replacement of all corrugated steel plate culverts has been recommended to reduce the risk associated with this structure type. Climate change has also increased the number of major storm events, requiring additional hydraulic capacity at some culvert locations.

Engineering and Construction Services has developed a new approach to retaining consultants in order to respond to the increasing need for rehabilitation and replacement of structural culverts. The Multiple Culvert Assignment retains an engineering consultant to deliver construction at multiple culverts over multiple years. The scope of work requires the consultant to identify replacement or rehabilitation of these structures based on completion of a condition assessment, consideration of the structure type, and analysis of the hydraulic capacity.

In November 2017, the City retained WSP Canada Group Limited (now WSP Canada Incorporated) through a Request for Proposal for the professional services related to design, contract administration, and post construction services for rehabilitation or replacement of 20 culverts at various locations. The scope of the work was stipulated to include sixteen (16) culvert rehabilitations and four (4) culvert replacements based on condition data obtained during bi-annual inspections conducted in accordance with the Ontario Structure Inspection Manual. The construction contracts were planned to occur over a three (3) year period from 2019 to 2021. The scope of the contract administration and construction supervision services included two full time inspectors working thirty-two (32) weeks per year at 50 hours per week. WSP Canada Incorporated's upset limit bid price for contract administration services, including full-time site inspection, was \$2,353,000, including a contingency allowance of \$470,600.

During the design stage a detailed condition assessment and hydraulic analysis was conducted at each culvert location. The hydraulic analyses included an evaluation of the design flood as recommended by the Ontario Ministry of Natural Resources and the Ministry of Transportation guidelines for conveyance of the 100 year storm and regional flood events. In addition, the Canadian Highway Bridge Design Code requires that climate change be considered when designing culverts. As a result, thirteen (13) culverts were recommended for replacement due to either their deteriorated condition, the structure type being a corrugated steel plate culvert, and/or insufficient hydraulic capacity. Upsizing culverts is an important factor in building climate resiliency within the City as the increased flow capacity reduces the risk of debris build-up, overland flow and upstream flooding during major storm events.

Nine (9) additional culvert replacements were recommended compared to what was specified in the Request for Proposal. The locations of the additional culvert replacements are summarized in Table 2 below:

Table 2: Nine (9) Additional Culvert Replacement Locations

Culvert Number	Ward	Culvert Location	Construction Contract Number
127	Scarborough Centre (21)	Danforth Road over West Highland Creek	20ECS-TI-04BE
340	York Centre (6) and Humber River-Black Creek (7)	Sheppard Avenue West over Black Creek	
921	Scarborough Southwest (20)	Foxridge Drive over Massey Creek	
944	Scarborough-Rouge Park (25)	Reesor Road over Rouge Tributary	
631	Etobicoke North (1)	Amaron Avenue over Albion Creek	20ECS-TI-18BE
632	Etobicoke North (1)	Taysham Crescent over Albion Creek	
391	Etobicoke North (1)	Kipling Avenue over Humber River Tributary	21ECS-TI-13BE
665	Etobicoke Centre (2)	Royal York Road over Humber River Tributary	
675	Etobicoke North (1)	Baywood Road over Humber River Tributary	

The duration of work associated with culvert replacement is considerably longer than rehabilitation, resulting in the need for additional site inspection and contract administration services. The average increase in construction duration of a culvert replacement compared to a culvert rehabilitation is 22 weeks.

In addition, following the commencement of construction, multiple unanticipated utility conflicts were encountered on Contracts 19ECS-TI-12BE, 20ECS-TI-04BE, 20ECS-TI-05BE, and 20ECS-TI-18BE. These conflicts increased the duration of construction at the impacted sites and resulted in the need for additional site inspection and contract

administration services to be provided by WSP Canada Incorporated. The locations of the unanticipated utility conflicts are summarized in Table 3 below:

Table 3: Utility Conflict Locations

Culvert Number	Ward	Culvert Location	Construction Contract Number
267	Etobicoke North (1)	Albion Road over Albion Creek	19ECS-TI-12BE
274	Etobicoke North (1)	Islington Avenue over Humber River Tributary	
668	Etobicoke North (1)	Redwater Drive over Humber River Tributary	
340	York Centre (6) and Humber River-Black Creek (7)	Sheppard Avenue West over Black Creek	20ECS-TI-04BE
921	Scarborough Southwest (20)	Foxridge Driver over Massey Creek	
677	Etobicoke Centre (2)	The Westway over Humber Creek	20ECS-TI-05BE
631	Etobicoke North (1)	Amaron Avenue over Albion Creek	20ECS-TI-18BE
632	Etobicoke North (1)	Taysham Crescent over Albion Creek	

To the extent that any additional costs associated with the utility conflicts are determined to be the fault of WSP Canada Incorporated, or another party, Engineering and Construction Services will work with Legal Services to attempt to recover those costs wherever possible.

Additional Contract Administration Services Required to Complete the Construction

Construction work has been completed at five (5) out of seven (7) culvert rehabilitation locations and nine (9) out of thirteen (13) culvert replacement locations. The total Contract Administration and Site Inspection fees expended to date is \$2,209,440, out of the \$2,353,000 budget, leaving a remaining balance of \$143,560 which is insufficient to provide contract administration and full-time site inspection for the duration of the work on the remaining contracts.

WSP Canada Incorporated has submitted a request for additional compensation to provide contract administration and full-time site inspection for the complete duration of construction on each contract. The request for additional fees has been negotiated based on the hourly rates for contract administration and site inspection included in WSP Canada Incorporated's original submission in response to Request for Proposal Number 9117-17-5057 plus a Contingency Allowance of 25% to account for any unforeseen site conditions or circumstances.

Construction has commenced on the three (3) remaining contracts and the estimated fees for Contract Administration and Site Inspection are summarized in Table 4 below:

Table 4: Estimated Contract Administration and Site Inspection Fees on 2021 Contracts

Contract Number	Culvert Locations	Start Date	End Date	Estimated Number of Weeks of Construction	Estimated Contract Administration and Site Inspection Fees
21ECS-TI-12BE	Milner Avenue over East Highland Creek	July 2, 2021	Dec 17, 2021	24	\$166,875
	Progress Avenue over West Highland Creek				
21ECS-TI-13BE	Kipling Avenue over Humber River Tributary	July 6, 2021	May 31, 2023	99	\$955,438
	Royal York Road over Humber River Tributary				
	Baywood Road over Humber River Tributary				
21ECS-TI-14BE	Scarlett Road over Humber Creek	July 6, 2021	May 28, 2022	47	\$298,156

Contract Number	Culvert Locations	Start Date	End Date	Estimated Number of Weeks of Construction	Estimated Contract Administration and Site Inspection Fees
Total Estimated Fees to Complete 2021 Contracts (including Contingency Allowance)					\$1,420,469
Remaining Budget					\$143,560
Requested Purchase Order Amendment					\$1,276,909

Contract Administration Services Amendment

The amendment to Purchase Order Number 6052180 with WSP Canada Incorporated for the additional professional services required to complete construction of multiple culverts under Contracts 21ECS-TI-12BE, 21ECS-TI-13BE, and 21ECS-TI-14BE, by an amount of \$1,276,909 net of all taxes and charges (\$1,299,383 net of HST recoveries) will revise the Purchase Order value from \$2,353,000 net of all taxes and charges (\$2,394,413 net of HST recoveries) to \$3,629,909 net of all taxes and charges (\$3,693,796 net of HST recoveries).

CONTACT

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SIGNATURE

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