

Detroit River International Crossing (DRIC) Study – Foundations Investigations Frequently Asked Questions

What is the purpose of these drilling contracts?

The DRIC study team is considering three alternative locations for the new river crossing. A two-part foundations investigations program has been identified under the Canadian work program of the DRIC study to better understand the effects of the solution mining of salt deposits on the bedrock stability in two of the areas where a new international bridge spanning the Detroit River could be located.

Foundation investigations are important to ensure that a new crossing is built on a site with a stable foundation for the bridge supports.

These investigations will allow the study team to analyze and evaluate the practical alternatives allowing for the selection of a technically and environmentally preferred alternative.

Why is it necessary to conduct foundations investigations?

As announced in March 2006, the DRIC study team is considering three alternative locations for the new river crossing. Practical Alternative Crossing 'B' and 'C' alignments are located within close proximity to known brine well caverns and a known sinkhole location. Detailed foundations investigations are needed to adequately assess subsurface conditions related to brine wells, to determine whether or not these conditions will influence the location of the new international bridge.

What is a brine well cavern?

Brine well caverns are created during the solution mining of salt. This is the process by which water is injected through a well, or wells, drilled into an underground salt bed. The depths of these wells vary. The salt is flushed out of the ground with the force of the water. The solution mining process ultimately results in the formation of large caverns far beneath the bedrock. As a result of prolonged mining activities, the bedrock stability along the Detroit River may be unpredictable. This area must be assessed to determine current and future bedrock stability.

What exactly will this project entail?

The foundations work required includes:

Part One

- Drilling of approximately 12 boreholes down to the lower levels of solution mining activity (approximately 400 to 500 metres or 1300 to 1600 feet in depth);
- Boreholes arranged such that the mass of earth beneath the proposed alignments can be confirmed as either suitable, unsuitable or requiring remediation for the new international bridge; and

Part Two

- Detailed documentation of the boreholes by geophysical, cross-borehole seismic tomography and direct physical observation methods.

Where will the drilling take place?

Drilling will take place in approximately 12 locations along the Practical Alternative Crossing 'B' and 'C' alignments. The drilling of boreholes is not needed along Practical Alternative Crossing 'A', as this alignment is sufficiently removed from areas of solution mining. All boreholes will be drilled in the industrial area of West Windsor

What are the timelines for this project?

DRIC Foundations Investigations	Contract # 1	Contract # 2 & 3
Drilling Contract Preparation	Complete Late May 2006	Complete Late May 2006
Drilling Contract Tendering	Complete Early July 2006	Complete Early July 2006
Drilling Contract Award	Complete Late July 2006	Complete Early August 2006
Drilling Preparation	Began Early August 2006	Began Mid August 2006
Drilling Begins	September 2006	October 2006
Drilling Complete	November 2006	December 2006
Cross-Hole Seismic Tomography Begins	December 2006	December 2006
Cross-hole Seismic Tomography Complete	February 2007	February 2007
Borehole Abandonment Begins	March 2007	March 2007
Borehole Abandonment Ends	April 2007	April 2007

How much will the project cost?

Part One of the foundations investigations was divided into three separate contracts totalling approximately \$5.4 million (drilling costs only).

Who will pay for this project?

This project will be cost shared between the governments of Canada and Ontario as part of the DRIC study.

Was this project always part of the Environmental Assessment (EA) process?

The need for this project was based on findings of a recently completed surface seismology investigation and documentation reviews. It is normal in any EA process for the results of one test to lead to the need for another test in order to ensure the constructability of a project and to develop mitigation measures to address various engineering challenges.

Will this project delay the EA process?

No. During this phase of the EA, the study team is simultaneously examining the access road, inspection plaza and crossing options in more detail and adhering to rigorous work plans. The initial findings from the foundations investigations, as well as other studies being conducted through the remainder of 2006, will be presented at Public Information Open Houses in December 2006.

We will continue to move forward to meet public commitments to identify the preferred site for a crossing by mid-2007 and to construct a crossing between 2010 and 2013.

How will the contracts for this project be awarded?

MTO uses an open and competitive tendering process that is consistent with Ministry of Government Services directives and allows for the effective delivery of highway management projects.

The tender documents were posted to the MERX electronic tendering system for a total of 34 days. The three contracts were tendered to the lowest qualified bidder as follows:

- Contract #1 - two cored boreholes, one in each of the Practical Alternative Crossing 'B' and 'C' alignments will be completed by Davidson Drilling Limited of Waterloo, Ontario for \$1,220,280.
- Contract #2 – five rotary drilled boreholes at Practical Alternative Crossing 'B' will be completed by Bradco Drilling Incorporated of Merlin, Ontario for \$2,108,343.
- Contract #3 - five rotary drilled boreholes at Practical Alternative Crossing 'C' will be completed by Bradco Drilling Incorporated of Merlin, Ontario for \$2,097,388.

What is the difference between cored and rotary drilled boreholes? Why are the two methods required?

The rotary method of drilling involves the rotation of a drill bit while fluid (known as “drilling mud”) is circulated through the bit to lubricate and cool it and to bring rock chips to the surface where they can be collected and analyzed.

The cored method of drilling involves extraction of a continuous cylindrical soil/rock sample (known as the “core sample”) a few inches in diameter for the entire depth of drilling. This is followed by a process called “reaming”, which will enlarge the boreholes to the same diameter of the rotary drilled boreholes.

Both drilling methods are required so that the study team can compare a physical earth/rock core sample with the data acquired by the cross-hole seismic tomography. The core drilling method is more work intensive, time consuming and expensive than the rotary drilling method, so it is not practical to core all of the boreholes.

What impacts will the drilling have on the local community? What measures are being taken to reduce impacts on the people who live in West Windsor?

In order to mitigate impacts on the local community the following measures will be taken:

- All drill rigs will be required to be equipped with noise baffling devices.
- All drilling for Contract #3 will be restricted to between the hours of 7:00 am and 7:00 pm, Monday to Saturday. Drilling will not be permitted on Sunday.
- As Contract #2 is further removed from residential land uses, drilling will be permitted 24 hours a day, seven days a week.
- In addition to the restrictions already posted on area streets, truck traffic related to drilling operations will be prohibited from using the following streets throughout the duration of the drilling contracts:
 - Russell Street east of Watkins Street
 - Sandwich Street east of Watkins Street
 - Peter Street east of John B Avenue
 - Watkins Street south of Sandwich Street
 - Hill Avenue south of Sandwich Street
 - Prince Road west of Huron Church Road
 - College Avenue west of Huron Church Road
 - Tecumseh Road West west of Huron Church Road
 - Matchette Road north of E.C. Row Expressway
- Provisions have been included in each contract to minimize dust generated by drilling operations and its associated truck traffic.
- To manage the risks associated with encountering pressurized gases (such as hydrogen sulphide) or groundwater aquifers, each drill rig will be equipped with “Blow-Out Protection” in accordance with Ministry of Natural Resources requirements.
- For safety reasons, all drill sites will be fenced to prevent unauthorized access.
- Upon completion of drilling and testing, each borehole will be filled with concrete and then capped.

What impacts will the drilling have on local industry?

Local industry will continue operating as usual.

Do the U.S. partners have to conduct similar tests on their side of the border?

Yes. Brine wells also exist on the U.S. side of the river. The U.S. team has developed a similar investigation program and the Canadian and U.S. programs will be coordinated.

What happens if the results of these tests conclude that the ground in this area will not provide a stable foundation for the bridge supports? Will you look at other locations for the bridge crossing, inspection plaza and access road?

We are confident that the results from these investigations will lead us to develop mitigation measures that will allow for the construction of a crossing in this area. We will continue to further analyze our access road, inspection plaza and crossing options within this corridor and we will continue consulting with the community.

What is included in Part Two of the foundation investigation?

The second part of this investigation includes specific geophysical and photometric testing that will be conducted within each borehole during drilling and prior to the installation of the borehole casings. Characteristics of the borehole walls will be logged using an acoustic televiewer, which will provide a very-high resolution, sonic image of the borehole wall.

Once drilling operations have been completed, the ground between boreholes will be characterized using cross-hole seismic tomography. Seismic tomography is similar to a CAT scan where signals are sent through an object in different directions and the signals are compiled to construct a cross section of the object or, in this case, a land mass. The results of the cross-hole tomography survey will lead to the identification of anomalies that may exist between boreholes, as well as imaging of individual soil layers.

When will the results of this investigation be made available to the public?

We expect to present the initial results of the drilling activities, along with results from other studies, at the next round of PIOHs in December 2006.

How will the results be used in the EA?

A draft report will be completed in Spring 2007. When the results of the foundations investigations are known, the DRIC study team will be able to make informed judgments regarding next steps. Options may include:

- Development of mitigation strategies for design and construction;
- Minor refinements to the location of the bridge; and/or;
- Expediting additional foundations investigations, guided by the results of the current (2006) work.