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Type:	Managers' Reports

For Information Only

Downtown Parking Update

Resolution

For Information Only

Relationship to the Strategic Plan / Health Impact Assessment

This report deals with operational issues.

Report Summary

This report will provide an update on parking initiatives in the downtown core.

Financial Implications

There are adequate funds available from the current year and prior year capital budgets to fund the signage $45,000, the lighting improvements $50,000 and to plan for the procurement of pay by plate technology. If additional funds are required for the total estimated cost of $250,000 for pay by plate implementation they will be funded from the 2019 capital budget.

Signed By

Report Prepared By
Shawn Turner
Director of Assets and Fleet Services
Digitally Signed Jun 27, 18

Division Review
Shawn Turner
Director of Assets and Fleet Services
Digitally Signed Jun 27, 18

Financial Implications
Jim Lister
Manager of Financial Planning and Budgeting
Digitally Signed Jun 27, 18

Recommended by the Department
Kevin Fowke
General Manager of Corporate Services
Digitally Signed Jun 27, 18

Recommended by the C.A.O.
Ed Archer
Chief Administrative Officer
Digitally Signed Jun 27, 18

Background

A report on downtown parking was presented to Council on December 12th, 2017. The purpose for this report was to address concerns that projects in the downtown, in particular, Place des Art and the Elgin Greenway will result in the loss of approximately 140 parking spaces. In response to this report Council requested that staff return to the Finance Committee in mid 2018 to provide a further update on parking concerns and initiatives in the downtown core. This report will provide more detail on the initiatives that members of Council had identified at the above mentioned meeting as they relate to on-street parking, overall parking capacity and staff's current work plan.

On-Street Parking

The City has 438 single space meters in the downtown core. The on-street meters are intended to service short stay hourly customers. The cost of hourly parking is $1.30 per hour, 2-hour maximum with the exception of Elm Street at $2.00 per hour with a 1-hour maximum. Concerns have been expressed by downtown business owners that the time allotted maximums are being exceeded and some on-street parking is being used for all day parking. All day parking is more suited to a monthly pass in an off-street lot and on-street parking left available for short stay customers. Downtown business owners support this viewpoint and routinely express concern with the upcoming losses of parking lot space and the scarcity of available on-street parking for their customers. .

In order to more accurately gauge the utilization level of on-street parking, staff performed a utilization survey. The survey was performed over the course of a four week period from late April to late May 2018. Parking was surveyed 3 times daily at 9am, 2pm and 5pm. Aggregated results from the survey indicate a higher utilization in the downtown core and less utilization on the perimeter. The streets most utilized for parking were Durham (76%), Lisgar (74%), Cedar (69%) and Larch (61%). Some of the less utilized streets for parking were Applegrove (15%), Elm West (19%), and Elm East (25%).

Parking Capacity

Major initiatives being undertaken or considered for the downtown core of Sudbury in the near future will have a direct impact on the supply of parking in the downtown core. The proposed Place des Arts and Phase 1 of the Elgin Greenway will cause reductions of 59 and 90 spaces respectively. Additionally, the consideration of a new Art Gallery/ Library and / or proposed Synergy Centre will require parking solutions which will impact supply but are independent of the initiatives described in this report. Any large project in the downtown would require a further review of parking demand and how that demand would best be addressed in terms of future supply.

Staff has further investigated the potential projects as outlined in the December 12th report to Council on parking options. Per Council's direction, staff reviewed/revisited increasing parking supply via the Pedestrian Overpass – Energy Court Expansion, Louis Street/Vincent Street (unopened road allowance) and the Dufferin Street Road allowance. Additionally, staff have met with and received information from parking services providers on a range of possible managed parking solutions for City owned downtown parking lots and on-street spaces. The integration of the recommendations in this report and a more holistic approach to managing parking supply, demand, pricing and subsidy considerations will form a part of our 2019 work plan.

Pedestrian Overpass – Energy Court Expansion

As a result of the supply loss due to Place des Arts, Elgin Greenway and the proposed Art Gallery/ Library and / or proposed Synergy Centre, the Pedestrian Overpass – Energy Court Expansion was put forth as it was an opportunity to add supply to the downtown parking utilizing existing City-owned lands. Figure 1 shows the existing energy court lot outlined in red and the potential expansion area outlined in blue. The existing Energy Court parking lot is comprised of 218 spaces that are approximately 70% utilized. Expansion into the adjacent City owned lands could add approximately 180 spaces. Utilization of this lot is hampered by the perception of the distance needed to walk to the Elm Street railway crossing in order to traverse the railway tracks. The City has an easement agreement with the abutting land owner that allows pedestrians to traverse the property in order to access Elm Street. This easement agreement would not extend to an expansion of the Energy Court parking lot.

Figure 1

There has been private sector interest in partnering with the City in order to build a pedestrian bridge that would link the Energy Court parking lot directly to Elgin Street. This would provide a more direct route to the downtown core, thus increasing the marketability of the lot. In exploring the option of a pedestrian bridge, the downtown B.I.A. and Canadian Pacific Railway agreed to partner with the City to employ a local engineering firm to develop a Conceptual Design report in order to provide Council with a point of reference in terms of scope and cost. Appendix "A" to this report is the Conceptual Design Report for a pedestrian link from Energy Court parking lot to Elgin Street at Larch Street parking lot.

The conceptual design contemplates a covered bridge that is approximately 37 metres in length and 3 metres wide. The concept bridge is covered and is compliant with the Accessibility for Ontarians with Disabilities Act (A.O.D.A.) as well as the standards for railway clearance published by Transport Canada. Access to the bridge from Energy Court is provided by a ramp and stairs. The ramp is approximately 140 metres long and 3 metres wide due to the height of the bridge and in order to comply with A.O.D.A. requirements. Access to the bridge via Elgin Street at Larch Street is provided by stairs and an elevator. The concept bridge is constructed from galvanized steel and ramps and stairs are concrete. Other attributes considered include electrical service to provide lighting design consistent with Crime Prevention through Environmental Design (C.P.T.E.D.) as well as closed circuit television cameras on the bridge and in the vestibules for security.

The Engineer's opinion of probable costs for the project is approximately $7.1 million which includes engineering and construction of approximately $6.2 million.

The overall cost of a pedestrian bridge and expansion of Energy Court would entail a number of other costs that were not included in the above estimate. Other costs of the project would include land acquisition and parking lot development costs.

- Land Acquisition: As can be seen in Figure 1 above and in Appendix A, land would be required along the west side of the railway tracks in order to construct a pedestrian overpass.
- Lot Development Costs: Costs to expand the Energy Court parking lot with an asphalt surface and pay machines would be approximately $750,000.

In considering the above estimates, the total cost for such a project would be approximately $8 million. This scale of project would represent a cost of approximately $45,000 per space based on a 180 space lot expansion. At this price and assuming 100% capacity, at the current monthly rate structure it would take 91.5 years to pay off the investment. Alternatively, the cost per space of a parking structure according to the Canadian Parking Association is approximately $30,000 – $35,000. A parking structure could be built in a more favourable location and along with attributes such as covered parking could garner a much higher rate structure than Energy Court and in turn a lower payback period.

In consideration of the opinion of probable cost and the location relative to existing parking demand as well as future demand that may be driven from an Art Gallery/Library or Synergy Centre, it is not recommended that the City proceed with the Pedestrian Link to Energy Court parking lot. It is possible that the Downtown Business Improvement Area Board and Canadian Pacific will continue to pursue this project and may approach Council for a contribution towards the total cost.

Louis Street/Vincent Street (unopened road allowance)

This lot is located on Louis Street/Vincent Street (unopened road allowance) at the bridge that traverses Junction Creek. This property is designated parkland and is part of the linear park known as the Junction Creek Waterway Park. The intention is for this lot to be utilized by patrons of the park as well as City crews in order to maintain the park. It is not intended to be for all day parking. As with the linear park, this lot is not maintained during the winter months. Using this parkland for all day parking may present some environmental concerns such as salt, oils, and silt runoff due to its proximity to Junction Creek. It is recommended that the area remain parkland and enforcement be increased in this area.

Dufferin Street Road Allowance

The City owns a parcel of property described as the Dufferin Street road allowance, at the east end of Pine Street that could be opened up, and used to create an additional 40 spaces. It is currently a gravel

lot and the intention would be to keep it in this condition. The location of the lot is slightly outside of the downtown core; however it is certainly within walking distance, would not present any traffic issues and would increase parking capacity for long term stays.

The cost to open this lot would be approximately $40,000 which would be required to grade, provide drainage, fencing, signage and for a pay machine. This is a viable option, and would be relatively quick to implement, however it is not in the high demand downtown core. Due to the ease of implementation, it is recommended that the Dufferin Street Road Allowance lot remain as an option for parking lot development as demand for parking expands beyond the current downtown core.

Current Workplan

The current work plan for capital improvements to parking consists of implementing pay by plate technology, new signage, and lighting improvements at select parking lots.

Pay by Plate Technology

As per City Council Resolution #CC2017-377, staff is exploring the implementation of pay by plate technology for on-street parking in the downtown core. Pay by plate technology enables customers to purchase parking time by using their license plate number. Pay by plate offers some distinct advantages over the current coin operated meters or pay by space that include affecting demand for long term stays, efficiency of enforcement, flexibility of payment and efficiency of operation.

A pay by plate system offers the ability to affect demand for on-street parking by limiting parking to a maximum time frame based on a license plate. Once a license plate exceeds the allotted time frame, there is no further ability to extend the parking privilege in that particular area. Downtown business owners have expressed concerns regarding the practice of patrons feeding the meters and staying in excess of the 2 hour parking maximum, particularly along Cedar, Larch, Durham and Lisgar streets. However, enforcement of this 2 hour parking maximum is quite onerous and difficult to apply consistently given the City's current parking meter arrangement. Pay-by-plate systems manage enforcement by comparing which license plates are parked with the ones that have activated parking sessions. As there is no requirement for enforcement officer on foot to check each meter, pay-by-plate systems can achieve higher compliance rates with less enforcement personnel.

The flexibility of payment methods that is offered via pay by plate technology will also be an advantage for users. Through online payment capability and fixed machines throughout downtown, pay by plate would provide a user with the ability to pay by coin, credit card or online using a smart phone. The current meters only accept coin and in an increasingly electronic age, this method of payment is diminishing rapidly. Additionally, if more time is required patrons are able to buy additional time online

via a smart phone or at the nearest pay station. This level of convenience eliminates the need to walk back to the vehicle to buy additional time providing customers with increased level of satisfaction.

Lastly, operational efficiencies can also be achieved using pay by plate technology. Pay stations do not need to be placed in such close proximity to parking spaces to accommodate customers walking back to their vehicles. As a result, fewer pay stations than meters need to be deployed, as they can be conveniently spaced along key pedestrian routes. For parking operations, this results in reduced coin collection and maintenance costs. Additionally, the availability of real time data regarding parking trends such as utilization can be used to more specifically tailor parking services to meet the needs of the public.

Implementation of Pay by Plate

The implementation of pay by plate for on street parking is being implemented in two phases. The first phase will be the implementation of a smart phone pay by plate application which will provide users with an additional method of payment. The second phase will be to replace existing meters with pay by plate machines.

Phase One

Phase one will be implemented in 2018. It will entail the procurement of a pay by plate application that considers synchronization with enforcement software, ease of use, financial cost and reputation. Looking to neighboring municipalities of North Bay and Timmins that currently utilize a pay by plate application, staff will prepare and release an expression of interest in order to begin a relationship with a vendor that supports current enforcement software. With options in the software that allow for businesses to validate customer parking, and potential controls to manage the two (2) hour limits for parking through a tiered pricing structure, staff believe this system will better support parking in the downtown core. The onboarding of this app will allow residents to be educated on this different technology slowly while working toward the removal of meters and install of pay by plate machines.

Phase Two

Phase two will require the replacement of existing meters in the downtown core with strategically placed pay by plate machines. These machines will accept various forms of payment such as cash, credit, debit and will require the user to identify the plate of the vehicle. The planning for this phase is being worked on in 2018 with procurement expected in early 2019 and implementation during the summer of 2019. Staff have retrieved information from various vendors and are currently developing the specifications for the pay by plate machines. The estimated cost is approximately $250,000. Approximately $200,000 will be funded from previous years capital budgets and the staff will budget the

remaining via the 2019 Capital Budget process. A significant ancillary benefit of pay by plate technology and machines is the removal of traditional sidewalk parking meters in the downtown allowing for much more economical enhancements to winter sidewalk maintenance.

Signage

City staff has designed a standardized sign that articulates the presence of a municipal parking lot as well as including wayfinding to other municipal parking lots. The signs are constructed of aluminum and are approximately 12 feet high and 3 feet wide. The design is attached as Appendix "B". It is expected that the signs will be manufactured and installed by the fall of 2018. The signs have been quoted at approximately $45,000 for 10 signs and will be funded from prior years Council approved capital budgets.

Lighting Improvements

Several City owned parking lots have been identified as requiring increased illumination in order to prevent crime and to promote safety. City staff has identified areas of improvement in 3 lots (Shaughnessy Street East, Shaughnessy Street West and Sudbury Arena Annex) and have designed lighting solutions to help address the safety issues. Staff is currently requesting quotations with work expected to commence during the summer and be completed by the fall of 2018. The cost is estimated to be approximately $50,000 and will be funded from prior years Council approved capital budgets.

Parking and Transportation Demand Management Initiatives

As Council is aware, staff are exploring a number of transportation demand management initiatives aimed at encouraging more sustainable travel options in the long term that over time, would ease demand for parking. Strategies like Transit Pass Programs, Emergency Ride Home, Bikeshare and Carshare Programs, Ridematching, Bicycle Parking and related End of Trip Facilities are all potentially programmable in the downtown.

Council received a report at its June 26th, 2018 meeting entitled Affordable Transit Fare Structure which contained a number of fare structure and subsidy recommendations. An Employer pass is one option available within our Transit fare structure and with the number of City employees working in the downtown, Council requested that staff review the potential for a City staff program to demonstrate leadership in this area and create a program that could ease demand on downtown parking. This report indicated that the employer pass program was unsuccessful to date and that marketing efforts could be undertaken to promote a discounted Adult monthly pass. Staff will explore this option and make recommendations in the form of a business case for the 2019 budget deliberations.

Conclusion

- Due to the location and high cost of development relative to other large parking developments it is not recommended that the City proceed with the Pedestrian Overpass – Energy Court Expansion

- It is recommended that the Louis Street/Vincent Street (unopened road allowance) remain parkland and that enforcement be increased to ensure it is not being used as an all day parking lot.

- It is recommended that the Dufferin Road allowance lot not be developed at this time, but remain as an option for parking lot development as demand for parking expands beyond the downtown core.

Staff will continue to work towards completing the parking lot lighting, signage and phase 1 of the pay by plate projects for 2018 and employer pass program. Phase 2 of the pay by plate project will be planned in 2018 and procured and completed for 2019. Further, staff will include work on a more holistic approach to managing parking supply, demand, pricing and subsidy considerations in our 2019 work plan.

JLR No.: 27777-000
Revision: 00

May 23, 2018

Conceptual Design Report

Pedestrian Link from Energy Court Parking Lot to Elgin at Larch Parking Lot

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Value through **service** and **commitment**

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Appendix B Class C Opinion of Probable Cost

1.0 Introduction

J.L. Richards & Associates Limited (JLR) was retained by the City of Greater Sudbury (CGS) to prepare a conceptual design complete with an Opinion of Probable Construction Cost (OPCC) for the proposed pedestrian bridge between the Energy Court Parking Lot and the Elgin at Larch Parking Lot over the Canadian Pacific Railway (CPR) tracks in downtown Sudbury.

2.0 Conceptual Design Assumptions

The following is an outline of the general assumptions made in the preparation of this conceptual design and Class C OPCC.

2.1 General Bridge Layout, Dimensions, and Materials

Conceptual drawings are attached in Appendix A. These drawings show the layout and dimensions used in the preparation of this OPCC.

A galvanized steel structure was selected for the bridge given steel's superior stiffness and fatigue resistance. Given the span of the bridge, deflection and vibration will be two major comfort considerations in detailed design. A steel structure will have increased mass and stiffness which will result in increased user comfort, at a lower cost than an aluminum bridge. Aluminum would have better corrosion resistance; however, galvanized steel also has a proven performance. Painted steel could also be considered and would come with lower capital cost, but increased maintenance cost.

2.2 Bridge Access and Accessibility Requirements

Due to the height of the bridge and the relatively flat terrain surrounding the bridge location, the length of ramp required to meet Accessibility for Ontarians with Disabilities Act (AODA) requirements is approximately 140 m. Through discussions with the CGS, it was determined that the accessibility requirements would be met by providing an AODA-compliant ramp on the west side of the bridge and an elevator on the east side of the bridge. Both options have approximately the same order-of-magnitude cost, with the elevator being marginally more cost-effective.

<u>Ramp</u>

Due to the distance to the utilities to service an elevator on the west side of the bridge and the distance between the bridge and the parking lot, it was determined that the ramp option would be preferable. To avoid the need to construct a walkway that would essentially run alongside the ramp, it was determined that stairs should not be provided and that all pedestrian traffic would flow on the ramp. It was assumed that the ramp would be 3 m wide to be able to accommodate all pedestrian traffic.

Elevator

On the east side of the bridge, due to the limited space available and the upcoming Elgin Greenway project, it was determined that the passenger elevator option was preferable to maintain existing parking spaces. A small vestibule would be provided at each elevator level to prevent snow accumulation against the elevator doors and water migration into the elevator core. Electrical panels and mechanical components for the elevators would be located in locked closets within the vestibules and these vestibules would be monitored with CCTV cameras to prevent vandalism.

The elevator sumps would be tied in to the sanitary sewer system at a maximum distance of 25 m from the elevator sump and a sump pump would be provided for the elevator sump.

Stairs

A staircase will be provided on the east side of the bridge. The staircase will be 3 m wide.

2.3 Geotechnical Considerations and Proposed Foundations

JLR reviewed the geotechnical report for the McKeown School of Architecture, which is located less than 100 m from the location of the proposed bridge. The geotechnical report, which was provided by the CGS, recommended the use of micropiles.

Through discussions with EBS Geostructural, it was determined that the bridge abutments could likely be supported on three micropiles at each end of the bridge. A combined bridge and elevator raft foundation (13 m x 11 m x 0.6 m) supported by grouted micropiles has been included in the costing for the foundations.

The suspended concrete stairs on the east side of the bridge would be supported on a central pier and insulated shallow spread footing. This will require confirmation from the Geotechnical Engineer based on subsurface soil conditions.

The ramp will be supported on one pier at each landing, which will be supported on 2 micropiles.

2.4 Excavation, Dewatering, and Backfill

Due to the proximity of the CN Railway Corridor, an engineered shoring system would likely be required to support the proposed excavations and allowances are provided within the cost estimate.

The contaminated soil at the site is classified as “non-hazardous”. The contaminated soil would be transported to the Falconbridge smelter site for capping. This would be confirmed during the Environmental Site Assessment (ESA).

Due to groundwater conditions in Downtown Sudbury, it is assumed that dewatering will be required during the foundation work. At this time, we have assumed a moderate dewatering program (less than 45L/s) to be required over a (4) month period with water treatment of the groundwater required.

Excavations would be backfilled with Granular 'B' Type II material.

2.5 Railway Clearance

The railway clearance used in the preparation of this OPCC was 7.01 m (23 feet) in accordance with *Standards Respecting Railway Clearance* published by Transport Canada in 1992.

2.6 Topography

No site-specific surveys were prepared during the preparation of this conceptual design. The design was based on the CGS aerial survey.

Approximate property boundaries were assumed based on the Government of Ontario's Make a Topographic Map application and plan of surveys provided by the CGS.

2.7 Snow Removal

The CGS has indicated that they would prefer for the bridge to be covered to eliminate any snow removal requirements. However, the snow on the stairs and ramp would need to be cleared by CGS Operations. The cost for snow removal was not included in this OPCC.

2.8 Landscaping and Approaches

The landscaping on the east side of the bridge would be included as part of the Elgin Greenway and would not form part of the scope of this project. The landscaping on the west side would consist of low shrubs and flower beds.

The approach work on the west side of the bridge is assumed to be encapsulated within the parking lot and has not been included in this opinion of probable cost.

2.9 Lighting

Lighting design would be based on meeting the requirements of Crime Prevention through Environmental Design (CPTED) and less on aesthetic lighting requirements.

2.10 Electrical Service

It was assumed that electrical service for the bridge lighting and elevators would be fed from a nearby electrical source (±75 m) with sufficient available power. Closed circuit television (CCTV) cameras would be installed on the bridge and in the vestibules.

2.11 Consultant Fees

The consultant fees (10% of Construction Value) include engineering fees for detailed design, tendering, and contract administration. An allowance of $60,000 was included for the geotechnical investigation.

2.12 Coordination with the Canadian Pacific Railway and Monitoring Programs

Any additional requirements from CPR such as coordination and monitoring programs for work around the railway tracks are excluded from this OPCC.

2.13 Land Acquisition

No allowance has been made for potential land acquisition.

2.14 Expected Services Life of Bridge Components

The expected service life of the bridge, elevator, and concrete elements is 75 years.

2.15 Maintenance

In order to determine an approximate maintenance cost for the bridge, it was assumed that a minor rehabilitation project would be undertaken every 10 years, with a capital cost of approximately 5% of the initial project cost (approximately $267,000). At the 40th year, it was assumed that a major rehabilitation would be undertaken, with a capital cost of approximately 25% of the initial project cost (approximately $1,500,000).

The present value of the future capital costs was determined following the method outlined in the MTO Financial Analysis Manual, dated 1993. The MTO Financial Analysis Manual recommends multiplying costs by a discount rate of 6% in order to account for the fact that expenditures occur over different time periods.

2.16 Winter Operating Cost

An allowance of $25,000 per year was carried for winter operations. This allowance includes de-icing and sanding operations. Operation costs have been discounted similarly to the maintenance costs as outlined above.

3.0 Class C Opinion of Probable Construction Cost

The Class C Opinion of Probable Construction Cost (OPCC) is attached in Appendix B.

4.0 Conceptual Design Options

4.1 Ramp at Both Ends

The approximate cost for a ramp, including the foundations and guardrails/handrails, is $1,227,000. A similar cost should be expected for a ramp at the east end of the bridge if the CGS elects to eliminate the elevator.

Due to the height of the bridge required for minimum clearance over the railway tracks and AODA requirements, the required length of the ramp is approximately 140 m. It should be noted that there is limited space available between the railway tracks and Elgin Street.

4.2 Elevators at Both Ends

The cost for the east elevator and stairs, including the elevator shaft, roof, vestibules, mechanical components, and stairs, is approximately $571,150. However, at the west end of the bridge, the distance between the location of the proposed bridge abutment and the sanitary sewer system, where the elevator sump must be tied in, is significantly greater than on the east side. Therefore, a stronger sump pump and a greater length of piping (including excavation and backfill work) will be required for the west elevator.

In addition, the distance between the elevator and the electrical service is significantly longer on the west side of the bridge. This challenge could be resolved by running electrical service on the bridge and feeding the elevator from the service on the east side of the bridge.

If the ramp is eliminated from the west side of the bridge, a walkway will need to be constructed between the parking lot and the bridge.

Additional construction budget would have to be allocated to resolve these issues.

4.3 Uncovered Bridge

The CGS has directed JLR to prepare the OPCC based on a covered bridge. The cost for a covered bridge is included in the OPCC. If the CGS elects to remove the bridge coverings and construct an uncovered bridge, the costs would need to be revisited as there are potential structural efficiencies achieved with a covered bridge which may result in higher structural costs associated with the lower architectural costs of an uncovered bridge.

An uncovered bridge would require snow removal in the winter or would need to be heat traced over the full length. The CGS would need to coordinate internally to determine how to remove the snow in the winter. Due to the large turning radius required for municipal tractors and the handrail requirements for the ramp, it would not be possible to plow the bridge with a municipal tractor. Heat tracing would not be economical and could result in significant build-up of ice on the bridge and ice falling onto the rail tracks below.

An uncovered bridge would also require the installation of anti-suicide barriers.

5.0 Legislative Requirements to be Addressed during Design

5.1 Accessibility for Ontarians with Disabilities Act (AODA)

The pedestrian bridge and approaches are required to meet the requirements of the AODA. The requirements for ramps on exterior paths of travel include a maximum 1:15 slope, landings at the top and bottom of the ramp and at intervals a maximum of 9 m apart, and the provision of handrails on both sides of the ramps and intermediate handrails where the ramp is wider than 2,200 mm.

5.2 Municipal Class Environmental Assessment (MCEA)

Municipal projects undertaken by Ontario municipalities, such as the proposed pedestrian bridge, must follow the MCEA process. Appendix 1 of the 2015 Municipal Class Environmental

Assessments (EAs), prepared by the Municipal Engineers Association (MEA), outlines which MCEA Schedule must be followed depending on the type of project and its construction cost. The proposed pedestrian bridge falls in the category of "construction of underpasses or overpasses for pedestrian, cycling, recreational or agricultural use" with a construction cost greater than $2.4M and therefore would require a Schedule C MCEA.

Schedule C Class EAs require the completion of all five phases of the Class EA planning process, including associated public consultation requirements:

- Phase 1: Identify the problem (deficiency) or opportunity.
- Phase 2: Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment, and establish the preferred solution taking into account public and review agency input.
- Phase 3: Examine alternative methods of implementing the preferred solution.
- Phase 4: Document, in an Environmental Study Report, a summary of the rationale and the planning, design and consultation process of the project.
- Phase 5: Complete contract drawings and documents and proceed to construction and operation.

6.0 Additional Data Required

The following outlines the additional data that will need to be collected prior to commencing detailed design.

6.1 Underground Utility Locates

The location of underground utilities will need to be determined. The presence of underground utilities may affect the layout of the bridge and the ramp foundations.

The CGS has noted that there is a hydro duct bank of fibre-optic cable running along the west side of the rail tracks. The location of this duct bank must be determined to ensure that there is no interference between the duct bank and the bridge foundations.

6.2 Topographic Survey

A topographic survey with legal property boundaries will be required.

6.3 Geotechnical Investigation

A detailed Geotechnical Investigation would be required that outlines the following: existing soil conditions, proposed foundation system options, dewatering recommendations, excavation and backfill recommendations, frost protection, etc.

6.4 Phase 1 and 2 Environmental Site Assessment (ESA)

It is expected that due to the location of the site and the known presence of contaminants in the area, a Phase 1 and 2 Environmental Site Assessment (ESA) would be required to outline the requirements for management of soil and groundwater on the site.

7.0 Estimated Detailed Design and Construction Schedule

The following consists of an estimated schedule for the detailed design and construction of the pedestrian bridge.

- Municipal Class Environmental Assessment (6-10 months)
- Site Investigations (completed in parallel with the MCEA)
    - Underground Utility Locates
    - Topographic Survey
    - Geotechnical Investigation
    - Phase I and II Environmental Site Assessment
- Detailed Design (4-6 months)
- Construction (6-10 months)

8.0 Conclusion

The Class C OPCC for the proposed pedestrian bridge between the Energy Court Parking Lot and the Elgin at Larch Parking Lot, based on the assumptions listed in Section 2.0 above, is $7,144,128. Prior to proceeding with detailed design, the MCEA process must be followed. In addition, underground utility locates, a topographic survey, a geotechnical investigation, and a Phase 1 and 2 Environmental Site Assessment will need to be performed.

This report has been prepared for the exclusive use of the City of Greater Sudbury, for the stated purpose, for the named facility. Its discussions and conclusions are summary in nature and cannot be properly used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report was prepared for the sole benefit and use of the City of Greater Sudbury and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited.

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Conceptual Design Report
Pedestrian Link from Energy Court Parking Lot to Elgin at Larch Parking Lot

J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

Émilie-Anne Fleury, EIT
Structural Engineering Intern

Reviewed by:

LICENSED PROFESSIONAL ENGINEER
May 23/2018
M. J. BURTT
100111392
PROVINCE OF ONTARIO

Matthew Burtt, P.Eng.
Associate
Manager, Ottawa Structural Department

Appendix A

Conceptual Drawings

PRELIMINARY
NOT FOR
CONSTRUCTION
MAY 2018

No.	ISSUE / REVISION	DD/MM/YY
B	ISSUED FOR CONCEPTUAL DESIGN	10/05/18
A	ISSUED FOR 60% CLIENT REVIEW	19/04/18

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PROJECT NORTH

PROJECT:
ENERGY COURT PEDESTRIAN BRIDGE - CONCEPTUAL DESIGN
SUDBURY, ON

DRAWING:
SITE PLAN

DESIGN:	EAF
DRAWN:	SWW
CHECKED:	MJB
JLR #:	27777-00.1

DRAWING #: S600

PLOT DATE: 2018-05-10 3:59:46 PM

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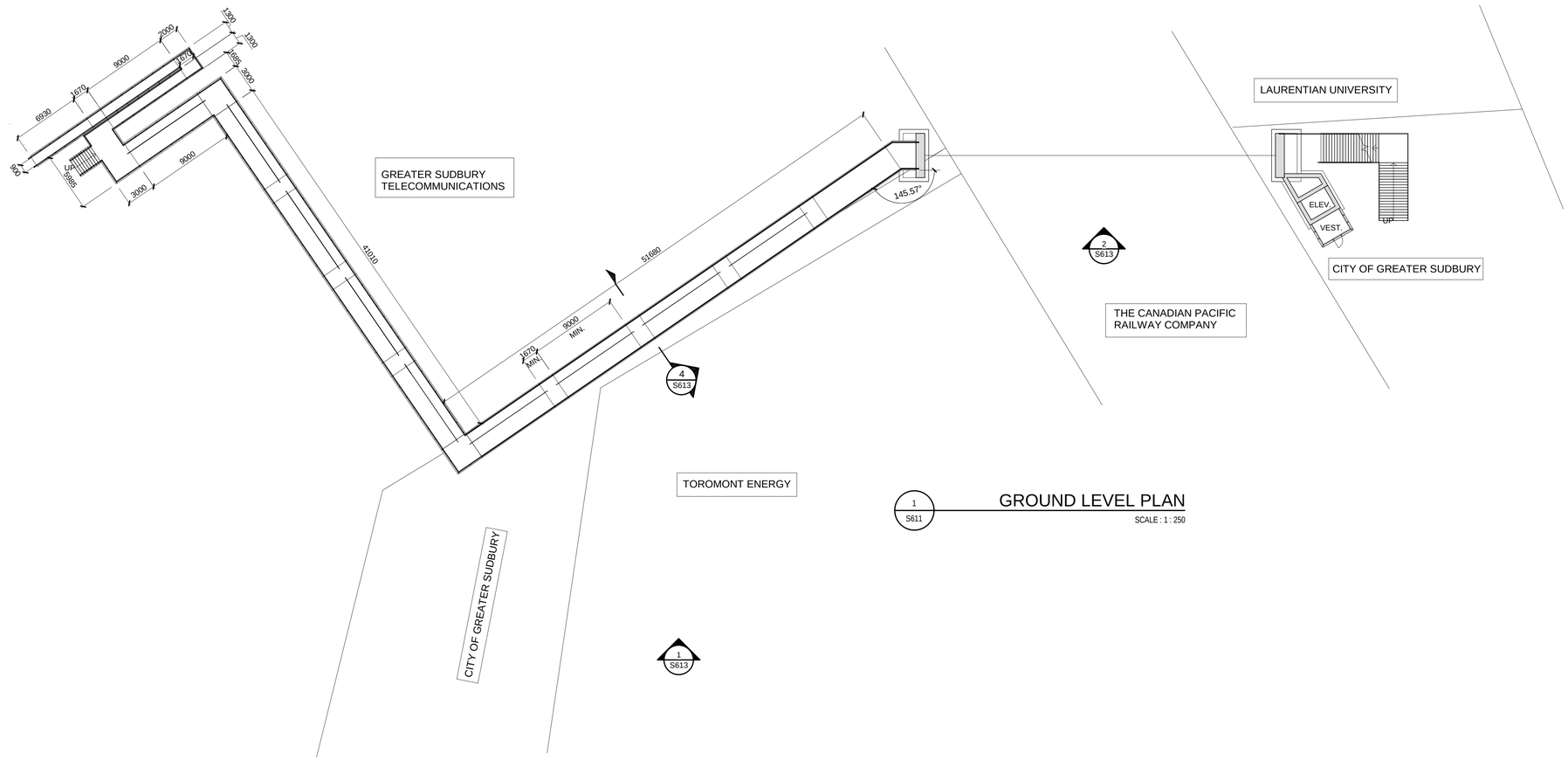

1 S611 GROUND LEVEL PLAN

SCALE : 1 : 250

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PROJECT:

ENERGY COURT PEDESTRIAN BRIDGE - CONCEPTUAL DESIGN

SUDBURY, ON

DRAWING:

GROUND LEVEL PLAN

DESIGN:	EAF	
DRAWN:	TM/SWW	DRAWING #:
CHECKED:	MJB	S611
JLR #:	27777-00.1	

File Location: L:\27000\027777-000.1 Downtown Sudbury Pedestrian Bridge\3-JLR DWG\3-Struct\27777-000 Pedestrian Bridge.rvt

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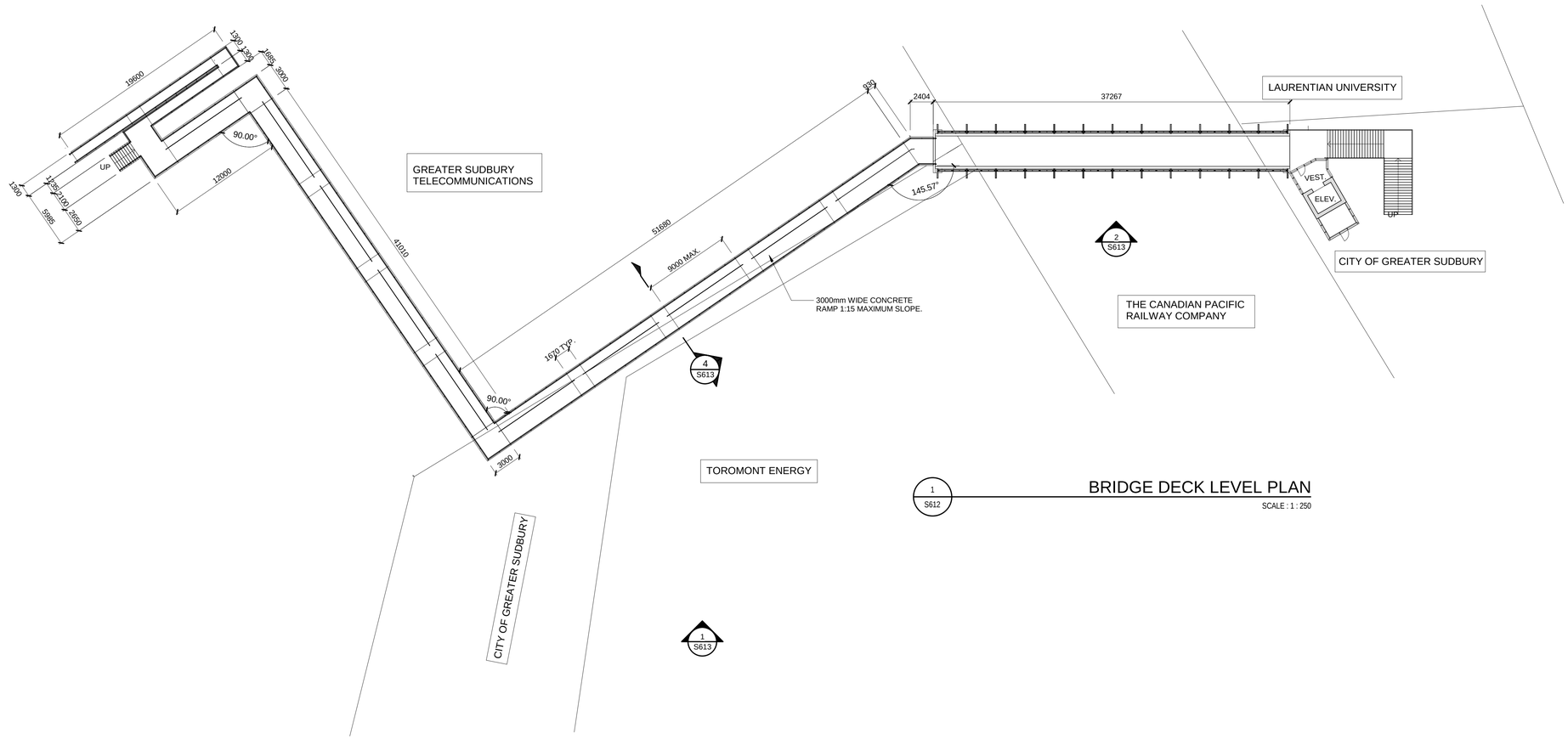

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S612

BRIDGE DECK LEVEL PLAN

SCALE : 1 : 250

PRELIMINARY
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CONSTRUCTION
MAY 2018

No.	ISSUE / REVISION	DD/MM/YY
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PROJECT:
ENERGY COURT PEDESTRIAN BRIDGE - CONCEPTUAL DESIGN
SUDBURY, ON

DRAWING:
BRIDGE DECK LEVEL PLAN

DESIGN:	EAF	
DRAWN:	TM/SWW	DRAWING #:
CHECKED:	MJB	S612
JLR #:	27777-00.1	

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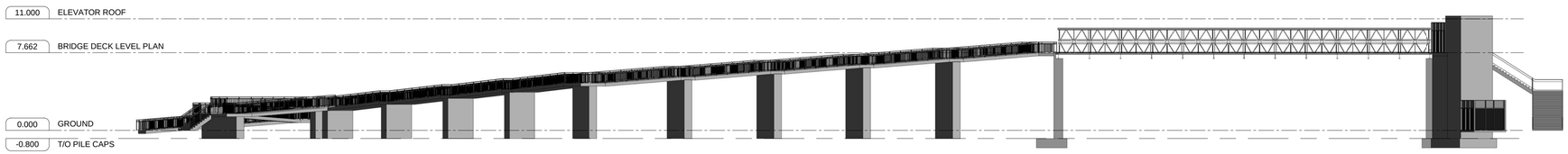

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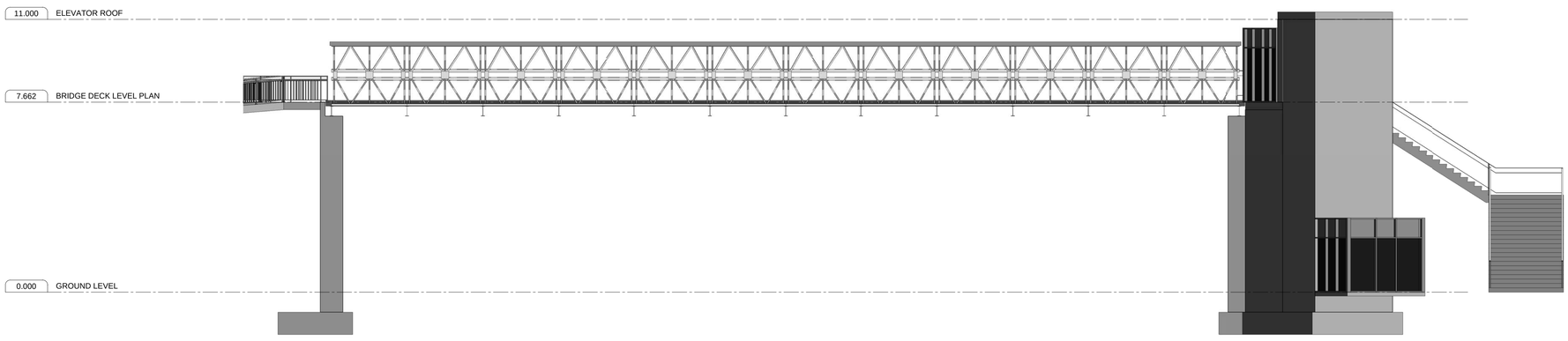
SCALE : 1 : 250



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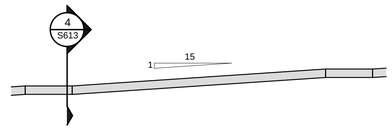

3 S613 TYPICAL RAMP SECTION DETAIL

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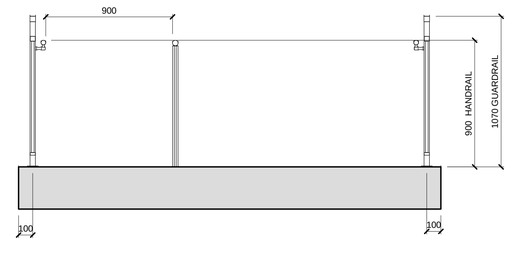

4 S613 TYPICAL RAMP RAILING SECTION

SCALE : 1 : 20

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PROJECT NORTH

PROJECT:

ENERGY COURT PEDESTRIAN BRIDGE - CONCEPTUAL DESIGN

SUDBURY, ON

DRAWING:

ELEVATIONS AND SECTIONS

DESIGN:	EAF	DRAWING #:
DRAWN:	TM/SWW	S613
CHECKED:	MJB	
JLR #:	27777-00.1	

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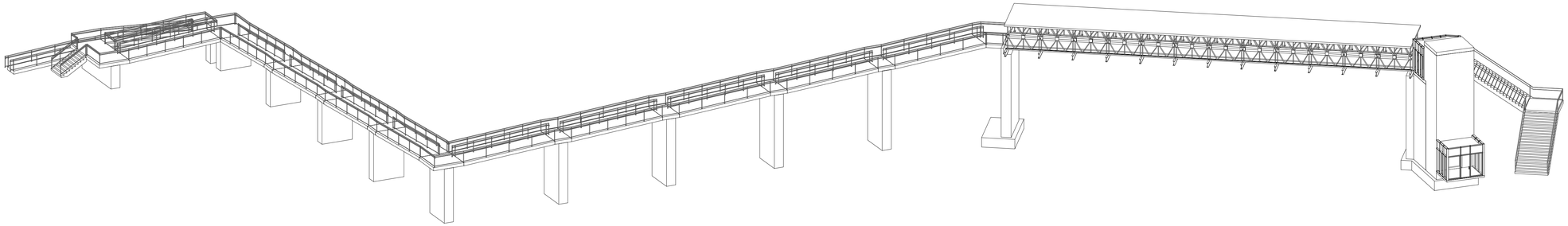

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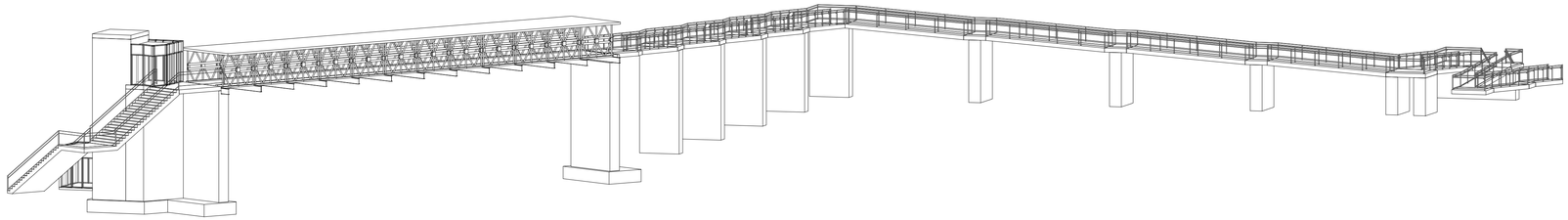
3D VIEW NORTH
SCALE :



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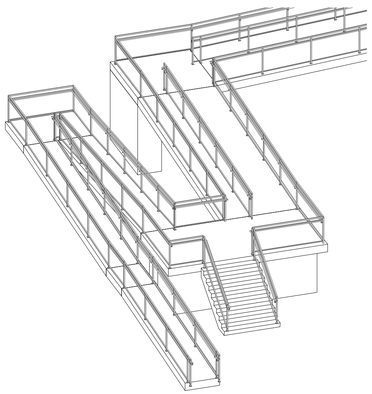
SCALE :



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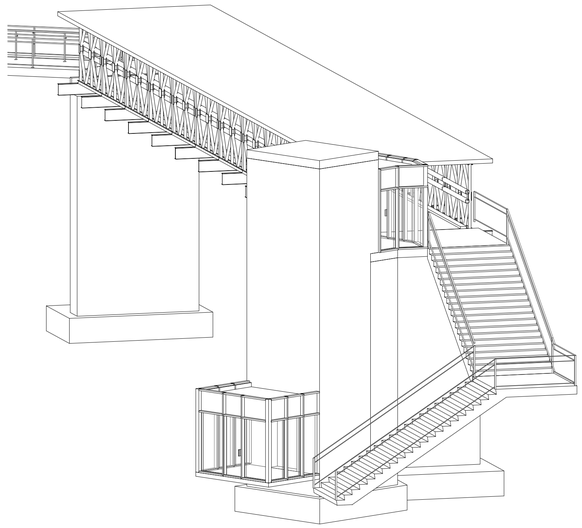
3D VIEW RAMP ENTRANCE
SCALE :



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S614
3D VIEW STAIR ACCESS
SCALE :

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No.	ISSUE / REVISION	DD/MM/YY
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N

PROJECT:
ENERGY COURT PEDESTRIAN BRIDGE - CONCEPTUAL DESIGN
SUDBURY, ON

DRAWING:
3D VIEWS

DESIGN:	Designer	DRAWING #:
DRAWN:	Author	S614
CHECKED:	Checker	
JLR #:	27777-00.1	

PLOT DATE: 2018-05-22 4:00:44 PM

File Location: L:\27000\27777-000.1 Downtown Sudbury Pedestrian Bridge\3-JLR DWG\3-Struct\27777-000 Pedestrian Bridge.rvt

Appendix B

Class C Opinion of Probable Cost

J.L. Richards and Associates Limited
ENGINEERS ARCHITECTS PLANNERS

Opinion of Probable Construction Costs - Class "C"

Client	**City of Greater Sudbury**		
Project	**Energy Court Pedestrian Bridge**	**JLR Job No.**	**27777-000.1**
Location	**Sudbury, Ontario**		
Date prepared	**May 11, 2018**		

ELEMENT		QUANTITY	UNIT	RATE	TOTALS
Additional Investigations/Studies					
	Municipal Class Environmental Assessment	1	Allowance	$80,000.00	$80,000.00
	Underground Utility Locates	1	Allowance	$10,000.00	$10,000.00
	Topographic Survey	1	Allowance	$15,000.00	$15,000.00
	Geotechnical investigation	1	Allowance	$60,000.00	$60,000.00
	Phase 1 and 2 Environmental Site Assessment (ESA)	1	Allowance	$50,000.00	$50,000.00
	SUBTOTAL GEOTECHNICAL ITEMS				**$215,000.00**
Civil Items					
	Sheet piling	364	m^2	$400.00	$145,600.00
	Excavation	1400	m^3	$54.00	$75,600.00
	Dewatering	14	Week	$15,000.00	$210,000.00
	Soil disposal	1400	m^3	$54.00	$75,600.00
	Backfill	1400	m^3	$80.00	$112,000.00
	Landscaping	1	Allowance	$5,000.00	$5,000.00
	SUBTOTAL CIVIL ITEMS				**$623,800.00**
Steel Modular Bridge					
	Steel modular bridge (includes delivery)	1	Each	$276,000.00	$276,000.00
	Guardrails	80	m	$1,000.00	$80,000.00
	Plexiglass bridge walls	480	m^2	$455.00	$218,400.00
	Bridge roof	120	m^2	$215.00	$25,800.00
	Installation of bridge (crane rentals included)	1	Allowance	$100,000.00	$100,000.00
	SUBTOTAL STEEL MODULAR BRIDGE				**$700,200.00**
Bridge Foundations					
	Pier and footing on rock fill working mat (combined elevator shaft and bridge footing on east side)	2	Each	$130,000.00	$260,000.00
	Micropiles (3 per side)	6	Each	$17,000.00	$102,000.00
	Granular pads	300	m^3	$80.00	$24,000.00
	SUBTOTAL BRIDGE FOUNDATIONS				**$386,000.00**
Passenger Elevator (East End of Bridge)					
	Footings (included with bridge foundation)				$0.00
	Elevator shaft	1	Each	$92,700.00	$92,700.00
	Exterior building enclosure	1	Each	$75,000.00	$75,000.00
	Elevator	1	Each	$95,000.00	$95,000.00
	Roof	1	Each	$15,000.00	$15,000.00
	Concrete landing (at east end of bridge)	12	m^3	$1,300.00	$15,600.00
	Vestibule	2	Allowance	$25,000.00	$50,000.00
	Mechanical units and associated heating	1	Each	$40,000.00	$40,000.00
	Sump tie-ins to sanitary sewer (east)	100	m	$350.00	$35,000.00
	Sump pumps	2	Allowance	$5,000.00	$10,000.00
	SUBTOTAL ACCESS PASSENGER ELEVATOR				**$428,300.00**
Stairs (East End of Bridge)					
	Concrete Piers	4	m^3	$1,500.00	$6,000.00
	Concrete footing (2.4m x 2.4m x 0.5m) on soil	18	m^3	$1,500.00	$27,000.00
	Granular pads	20	m^3	$80.00	$1,600.00
	Concrete stairs	40	m^3	$1,300.00	$52,000.00
	Guardrails	25	m	$2,000.00	$50,000.00
	Handrails	13	m	$500.00	$6,250.00
	SUBTOTAL STAIRS				**$142,850.00**
Ramp (West End of Bridge)					
	Concrete landing (at west end of bridge)	12	m^3	$1,500.00	$18,000.00
	Concrete ramp	110	m^3	$1,800.00	$198,000.00
	Concrete piers	50	m^3	$1,500.00	$75,000.00
	Micropiles	18	Each	$17,000.00	$306,000.00
	Guardrails	280	m	$2,000.00	$560,000.00
	Handrails	140	m	$500.00	$70,000.00
	SUBTOTAL STAIRS				**$1,227,000.00**
	SUBTOTAL STRUCTURAL ITEMS				**$2,884,350.00**
Electrical					
	Hydro utility service	1	Allowance	$50,000.00	$50,000.00
	Outdoor lighting (in-rail lighting) (pole lighting - minus $35k)	1	Allowance	$100,000.00	$100,000.00
	Transformers, panels to support elevator and lighting	1	Allowance	$25,000.00	$25,000.00
	CCTV systems (camera, wiring and conduit)	1	Allowance	$30,000.00	$30,000.00
	Distress 'blue light' stations	2	Each	$7,500.00	$15,000.00
	SUBTOTAL ELECTRICAL ITEMS				**$220,000.00**
	Construction Estimate Subtotal				**$3,943,150.00**
General					
	General Costs	1	Allowance	10%	$394,300.00
	Mobilization/Demobilization	1	Allowance	3%	$118,300.00
	Contractor Profit	1	Allowance	10%	$394,300.00
	Consultant Fees	1	Allowance	10%	$394,300.00
	Maintenance	1	Allowance	$503,800.00	$503,800.00
	Winter Maintenance	1	Allowance	$411,400.00	$411,400.00
	Contingency	1	Allowance	25%	$984,578.00
	SUBTOTAL GENERAL ITEMS				**$3,200,978.00**
	PROJECT TOTAL				**$7,144,128.00**

The following summary is an opinion of probable cost attainable for the described construction as of the date of this report. It is not a prediction of the low tender price. Tendered prices will be influenced by factors such as the tenderer's interpretations of their probable efforts, competitiveness in the market at the time of tendering, etc., which are not within our control or ability to predict.

Opinion of Probable Costs

CANADA'S BEST MANAGED COMPANIES

www.jlrichards.ca

Ottawa

864 Lady Ellen Place
Ottawa ON Canada
K1Z 5M2
Tel: 613 728-3571

ottawa@jlrichards.ca

Kingston

203-863 Princess Street
Kingston ON Canada
K7L 5N4
Tel: 613 544-1424

kingston@jlrichards.ca

Sudbury

314 Countryside Drive
Sudbury ON Canada
P3E 6G2
Tel: 705 522-8174

sudbury@jlrichards.ca

Timmins

201-150 Algonquin Blvd. East
Timmins ON Canada
P4N 1A7
Tel: 705 360-1899
timmins@jlrichards.ca

North Bay

200-175 Progress Road
North Bay ON Canada
P1A 0B8
Tel: 705 495-7597

northbay@jlrichards.ca

Hawkesbury

326 Bertha Street
Hawkesbury ON Canada
K6A 2A8
Tel: 613 632-0287

hawkesbury@jlrichards.ca

Guelph

107-450 Speedvale Ave. West
Guelph ON Canada
N1H 7Y6
Tel: 519 763-0713

guelph@jlrichards.ca

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Shaughnessy Street East / Theatre Lot
Terrain de la rue Shaughnessy Est

Municipal Parking
Stationnement Municipal

1 Shaughnessy Street East / Theatre Lot
Terrain de la rue Shaughnessy Est

2 Shaughnessy Street West Lot
Terrain de la rue Shaughnessy Ouest

3 Shaughnessy B Street Lot
Terrain de la rue Shaughnessy B

4 Sudbury Arena Annex Lot
Terrain de l'annexe de l'Aréna de Sudbury

5 Sudbury Arena Lot
Terrain de l'Aréna de Sudbury

6 CPR Lot / Elgin Street Lot
Terrain de la rue Elgin/CP Rail

7 Centre for Life / YMCA Lot
Centre pour la vie
(YMCA/Centre des aînés ParkSide)

8 Medina Lane Lot
Terrain de la ruelle Médina

9 Larch @ Lisgar Street Lot
Terrain Lisgar

10 Larch Street Lot
Terrain Larch

11 Elgin @ Larch Street Lot
Terrain Elgin au coin de la rue Larch

12 Energy Court Lot
Terrain de la cour Energy

13 Beech Street Lot
Terrain Beech

14 Tom Davies Square
underground parking
Place Tom Davies
Stationnement souterrain

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Shaughnessy Street West Lot
Terrain de la rue Shaughnessy Ouest

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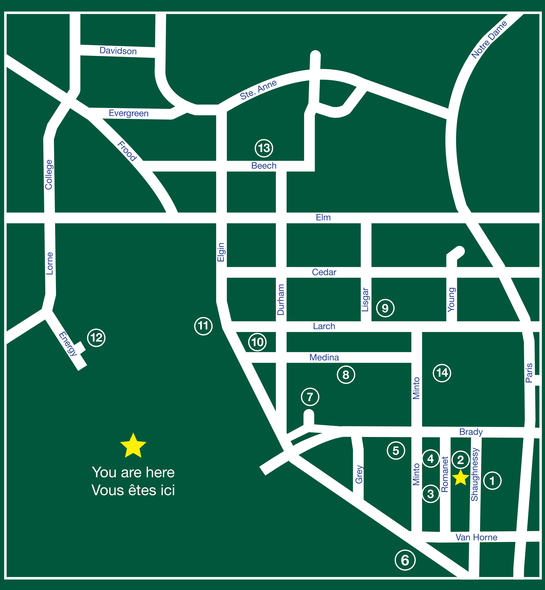
Stationnement Municipal



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Terrain Beech

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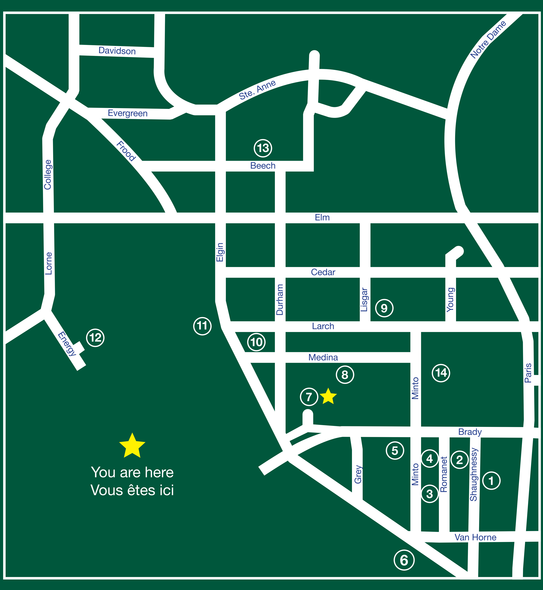
Centre for Life / YMCA Lot
Centre pour la vie (YMCA)

Municipal Parking
Stationnement Municipal



1 Shaughnessy Street East / Theatre Lot
Terrain de la rue Shaughnessy Est

2 Shaughnessy Street West Lot
Terrain de la rue Shaughnessy Ouest

3 Shaughnessy B Street Lot
Terrain de la rue Shaughnessy B

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Terrain de l'annexe de l'Aréna de Sudbury

5 Sudbury Arena Lot
Terrain de l'Aréna de Sudbury

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Terrain de la rue Elgin/CP Rail

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8 Medina Lane Lot
Terrain de la ruelle Médina

9 Larch @ Lisgar Street Lot
Terrain Lisgar

10 Larch Street Lot
Terrain Larch

11 Elgin @ Larch Street Lot
Terrain Elgin au coin de la rue Larch

12 Energy Court Lot
Terrain de la cour Energy

13 Beech Street Lot
Terrain Beech

14 Tom Davies Square
underground parking
Place Tom Davies
Stationnement souterrain

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Medina Lane Lot
Terrain de la ruelle Médina

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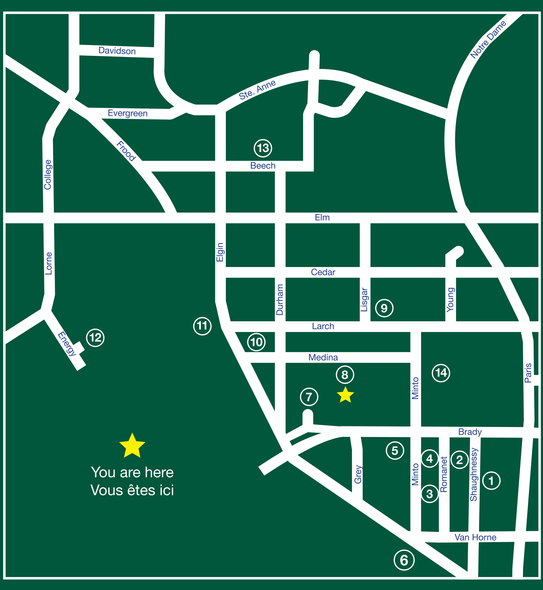

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Larch @ Lisgar Street Lot
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Larch Street Lot
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Elgin @ Larch Street Lot
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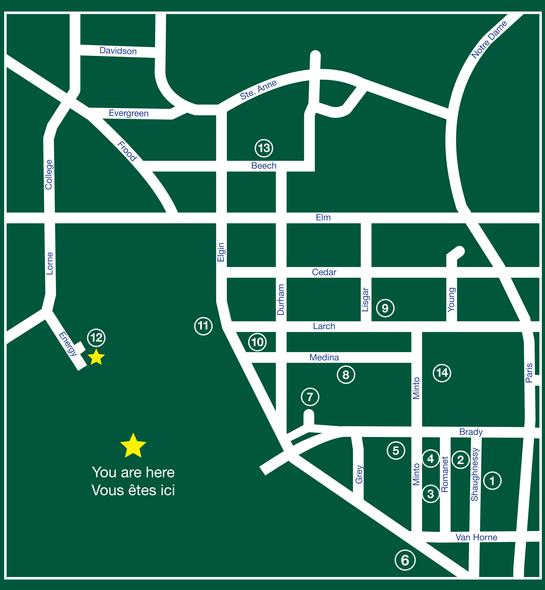

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Beech Street Lot
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Tom Davies Square
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