AGENDA

HERITAGE ADVISORY COMMITTEE

THE CORPORATION OF THE CITY OF MISSISSAUGA

TUESDAY, APRIL 22, 2014 – 9:30 A.M.

COUNCIL CHAMBER
SECOND FLOOR, CIVIC CENTRE
300 CITY CENTRE DRIVE, MISSISSAUGA, ONTARIO, L5B 3C1
www.mississauga.ca

Members

Councillor George Carlson, Ward 11 (CHAIR)
Councillor Jim Tovey, Ward 1 (VICE-CHAIR)
Robert Cutmore, Citizen Member
David Dodaro, Citizen Member
Mohammad N. Haque, Citizen Member
James Holmes, Citizen Member
Rick Mateljan, Citizen Member
Cameron McCuaig, Citizen Member
Michael Spaziani, Citizen Member
Michelle Walmsley, Citizen Member
Matthew N. Wilkinson, Citizen Member

NOTE: Heritage Advisory Committee Members are encouraged to visit the properties listed on agendas prior to Committee meetings in order to gain information and context.

CONTACT PERSON: Sacha Smith, Legislative Coordinator, Office of the City Clerk
Telephone Number: 905-615-3200, ext. 4516; Fax Number: 905-615-4181
Email Address: sacha.smith@mississauga.ca

CALL TO ORDER

APPROVAL OF AGENDA

DECLARATIONS OF CONFLICT OF INTEREST

DEPUTATIONS

A. John Ariyo, Supervisor, Research and Projects and Michael Tunney, Cultural Research Coordinator with respect to Cultural Mapping and Heritage.

MATTERS TO BE CONSIDERED

1. Approval of Minutes of Previous Meeting

Minutes of the meeting held March 18, 2014.

RECOMMEND APPROVAL

2. Request to Demolish a Structure on a Heritage Listed Property within a Cultural Landscape – 6545 Creditview Road, the "Harris Farm" (Ward 11)

Corporate Report dated March 20, 2014 from the Commissioner of Community Services with respect to a request to demolish a structure on a heritage listed property within a Cultural Landscape at 6545 Creditview Road, the "Harris Farm".

RECOMMENDATION
That the owner's request to demolish and replace the bridge spanning the Credit River on the property located at 6545 Creditview Road, which is listed on the City's Heritage Register as part of the Credit River Corridor Cultural Landscape, be approved and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto, as described in the Corporate Report dated March 20, 2014 from the Commissioner of Community Services.

RECOMMEND APPROVAL

3. Alteration to a Listed Heritage Property – 1276 Clarkson Road North (Ward 2)

Corporate Report dated March 17, 2014 from the Commissioner of Community Services with respect to an alteration to a listed heritage property at 1276 Clarkson Road North.

RECOMMENDATION
That the owner's request to demolish the two car garage and to make alterations to the Listed Heritage property located at 1276 Clarkson Road North be approved and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto as described in the Corporate Report dated March 17, 2014 from the Commissioner of Community Services.

RECOMMEND APPROVAL

4. Alteration of a Designated Part V Property Meadowvale Village Heritage Conservation District – 1074 Old Derry Road (Ward 11)

Corporate Report dated March 20, 2014 from the Commissioner of Community Services with respect to an alteration of a Designate Part V Property Meadowvale Village Heritage Conservation District at 1074 Old Derry Road.

RECOMMENDATION
That the owner's request to make alterations to the Designated Heritage property located at 1074 Old Derry Road in the Meadowvale Village Heritage Conservation District by constructing a stand-alone, one-storey, two-car garage be approved and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto, as described in the Corporate Report dated March 20, 2014 from the Commissioner of Community Services.

RECOMMEND APPROVAL

5. Status of Outstanding Issues Chart from the Heritage Advisory Committee

Chart dated March 28, 2014 from Sacha Smith, Legislative Coordinator with respect to the status of outstanding issues from the Heritage Advisory Committee.

RECOMMEND RECEIPT

6. Monthly Update Memorandum from Heritage Planning

Memorandum dated March 28, 2014 from Laura Waldie, Heritage Coordinator – Planning providing a monthly update from Heritage Coordinators.

RECOMMEND RECEIPT

7. SUBCOMMITTEE UPDATES FROM CHAIRS

Heritage Designation Subcommittee

Public Awareness Subcommittee

DATE OF NEXT MEETING – Tuesday, May 20, 2014 at 9:30 a.m., Council Chamber

OTHER BUSINESS

ADJOURNMENT

MISSISSAUGA

MINUTES

HERITAGE ADVISORY COMMITTEE

THE CORPORATION OF THE CITY OF MISSISSAUGA

TUESDAY, MARCH 18, 2014 – 9:30 A.M.

COUNCIL CHAMBER
SECOND FLOOR, CIVIC CENTRE
300 CITY CENTRE DRIVE, MISSISSAUGA, ONTARIO, L5B 3C1
www.mississauga.ca

MEMBERS PRESENT: Councillor George Carlson, Ward 11 (CHAIR)
Councillor Jim Tovey, Ward 1 (VICE-CHAIR) (arrived at 9:31 a.m.)
Robert Cutmore, Citizen Member (arrived at 9:31 a.m.)
David Dodaro, Citizen Member
Mohammad N. Haque, Citizen Member (departed at 10:32 a.m.)
James Holmes, Citizen Member
Rick Mateljan, Citizen Member
Cameron McCuaig, Citizen Member
Michael Spaziani, Citizen Member
Matthew N. Wilkinson, Citizen Member

MEMBER ABSENT: Michelle Walmsley, Citizen Member

STAFF PRESENT: Marianne Cassin, Planner, Zoning By-Law, Development and Design Division
Karen Crouse, Community Planner, Policy Planning Division
Elaine Eigl, Heritage Coordinator
Julie Lavertu, Legislative Coordinator
Laura Waldie, Heritage Coordinator
Mark Warrack, Cultural Planner
Andrew Whittemore, Acting Director, Culture Division

CONTACT PERSON: Julie Lavertu, Legislative Coordinator, Office of the City Clerk
Telephone Number: 905-615-3200, ext. 5471; Fax Number: 905-615-4181
Email Address: Julie.Lavertu@mississauga.ca

CALL TO ORDER – 9:30 a.m.

APPROVAL OF AGENDA

Approved (M. Wilkinson)

DECLARATIONS OF CONFLICT OF INTEREST

Mr. Mateljan declared a conflict on Item 3, stating that he has some ongoing projects in the Meadowvale Village Heritage Conservation District (MVHCD) community, and left the Council Chamber during discussion of these matters.

DEPUTATIONS

A. Item 3 Laura Waldie, Heritage Coordinator, and Mark Warrack, Cultural Planner, with respect to the Meadowvale Village Heritage Conservation District Plan Review.

The Vice-Chair and Mr. Cutmore arrived at 9:31 a.m.

Mr. Warrack noted that the Plan Review has taken two years and thanked Council for funding and supporting this project, Councillor Carlson for his support throughout the process, Planning and Building Department staff (especially Ms. Crouse and Ms. Cassin), Community Services Department staff and its Commissioner Paul Mitcham, Park Planning staff, Transportation and Works Department staff, the residents of Meadowvale Village (especially Focus Group members), Mr. Holmes who has been on the MVHCD Review Committee for more than 30 years, Region of Peel staff, Susan Burt, former Director, Culture Division, Andrew Whittemore, Acting Director, Culture Division, and Ms. Waldie for her dedication, time, and hard work on this project.

Ms. Waldie presented a PowerPoint presentation, dated March 18, 2014 and entitled "Meadowvale Village HCD Plan, 2014," and discussed the Plan's background, the project's description, the proposed Heritage Conservation District boundary, the public engagement efforts between 2012-2014, the Plan's highlights, and the approval process.

The Chair thanked MVHCD residents, staff, and others for their contributions to the Plan Review and noted that the new Plan and guidelines will be reviewed and revised on a regular basis unlike their predecessors. He asked Heritage staff to discuss the mandate of the Review Committee, noting that he has some ideas that he would like to propose.

In response to the Chair, Mr. Warrack said that the mandate and mission statement for the Review Committee have not yet been finalized and stated that the Chair and MVHCD residents would be asked for their input on this matter in the near future.

Mr. Holmes thanked Mr. Warrack and the Chair for their work and contributions to the Plan Review. He discussed the Review Committee and its operations and recent challenges, noting that the Review Committee's work has become more difficult because of the influx of new residents who often lack context regarding Meadowvale Village and its heritage and guidelines. Mr. Holmes said that the new guidelines are needed in the MVHCD, that Heritage staff obtained lots of input from residents, and that he hopes that the MVHCD's new Plan and guidelines will help retain the area's unique look and feel.

In response to Mr. McCuaig, Ms. Waldie and Mr. Warrack discussed the various public engagement efforts between 2012-2014 such as communications to the Meadowvale Village Community Association and to residents via pre-meeting notices, follow-up meeting notes, draft Plans, surveys, regular communications from the Chair, etc.

The Vice-Chair complimented the Chair, Heritage staff, and Mr. Holmes on their work regarding the Plan Review, noting that this process was long overdue. He discussed the benefits of the proposed approval procedures for non-substantive alterations and the establishment of a formal Review Committee. The Vice-Chair requested clarification on the MVHCD's boundary description vis-à-vis the treed area in Meadowvale Village located west of the Credit River, emphasizing the need to protect the associated buffer and views. He also suggested that Heritage staff complete work on the Old Port Credit Village Heritage Conservation District's Plan after the next term of Council.

In response to the Vice-Chair, Mr. Warrack said that Heritage staff were not aware of possible appeals to the Plan at this point, but added that such appeals could occur. In terms of the Vice-Chair's comment regarding protecting the treed area in Meadowvale Village located west of the Credit River, Mr. Warrack and the Chair clarified that the lands are owned by Credit Valley Conservation. Ms. Waldie added that these lands are adjacent to the MVHCD and would be reviewed if any development was proposed.

The Chair requested clarification on the standards for visible and non-visible windows in new builds and renovated properties in the MVHCD under the new Plan and guidelines. Mr. Warrack outlined the standards and guidelines for windows in the MVHCD.

Terry Wilson, MVHCD resident, discussed the benefits of the new Plan and guidelines, noting that these tools will help to preserve Meadowvale Village in the years ahead and be useful for new and long-time residents alike. He spoke about Meadowvale Village's uniqueness, characteristics, history, and value as a heritage site in the City and thanked Heritage staff, Mr. Holmes, the Chair, and others for their work, adding that Heritage staff drafted a timely Plan that sought and included input from almost all residents.

The Chair thanked Mr. Wilson for his remarks and Mr. Holmes for his contributions and leadership on the overall process. He said that he hopes that the implementation of the new Plan and guidelines will be to everyone's satisfaction, that almost all MVHCD residents were involved in the process, and that the overall process was very democratic.

The Committee dealt with Item 3 at this time.

3. Meadowvale Village Heritage Conservation District Plan Review, Ward 11

Corporate Report dated February 20, 2014 from the Commissioner of Community Services with respect to the Meadowvale Village Heritage Conservation District Plan Review.

Recommendations
HAC-0001-2014

1. That the revised single application process to obtain heritage permits for heritage properties designated under Part IV, or located in heritage conservation districts designated under Part V of the *Ontario Heritage Act*, as amended (the "Act"), be approved, as set out in the Corporate Report dated February 20, 2014 from the Commissioner of Community Services, entitled "Meadowvale Village Heritage Conservation District Plan Review" ("the Corporate Report dated February 20, 2014");
2. That By-law 215-07, being a by-law to create a single application process to obtain Heritage permits for heritage properties designated under Part IV, or located in heritage conservation districts designated under Part V of the *Ontario Heritage Act,* be repealed;
3. That the boundary of the Meadowvale Village Heritage Conservation District be amended, as outlined in Appendix 1 attached to the Corporate Report dated February 20, 2014, and designated as a heritage conservation district in accordance with the Act (the "Meadowvale HCD");
4. That the Meadowvale Village Heritage Conservation District Plan 2014 (the "2014 Plan"), as outlined in Appendix 2 attached to the Corporate Report dated February 20, 2014, be approved;
5. That By-law 453-80 being a 1980 by-law to designate an area of the City as a heritage conservation district under Section 41. (1) of the *Ontario Heritage Act*, 1974, S.O. 1974, c.122, shall be deemed to be repealed on the date that Council's decision in respect of the Meadowvale Village HCD Plan 2014 is final, save and except where any appeal is filed against the decision of Council with respect to the Meadowvale Village HCD Plan 2014 in which event By-law 453-80 and the 1980 Meadowvale Village HCD Plan shall continue to remain in effect and apply in respect of those matters and those lands that are the subject of any appeal or appeals until their final disposition and, thereafter By-law 453-80 and the 1980 Meadowvale Village HCD Plan shall be deemed repealed upon the final disposition of such appeal or appeals and when the new by-law designating the 2014 Meadowvale Village HCD as a heritage conservation district and adopting the 2014 Plan is in force; and
6. That all necessary by-laws be enacted.

HAC-0002-2014
That the PowerPoint presentation dated March 18, 2014 and entitled "Meadowvale Village HCD Plan, 2014" by Laura Waldie, Heritage Coordinator, and Mark Warrack, Cultural Planner, presented to the Heritage Advisory Committee on March 18, 2014, be received.

Approved/Received (J. Holmes)

MATTERS CONSIDERED

1. Approval of Minutes of Previous Meeting

Minutes of the meeting held November 19, 2013.

Approved (R. Cutmore)

2. Heritage Easement Agreement, Dowling House, 2285 Britannia Road West, Ward 11

Corporate Report dated January 27, 2014 from the Commissioner of Community Services with respect to a heritage easement agreement for the Dowling House located at 2285 Britannia Road West.

Recommendation
HAC-0003-2014
That a by-law be enacted to authorize the Commissioner of Community Services and City Clerk to execute and affix the Corporate Seal to a Heritage Easement Agreement (the "Agreement") between The Corporation of the City of Mississauga and Jasrico Financial Inc., in a form satisfactory to Community Services and Legal Services, with regards to the building known as the Dowling House located at 2285 Britannia Road West in Mississauga, Ontario (the "Property"), for the purposes of ensuring the conservation of the cultural heritage value of the Dowling House, and that Legal Services be directed to register such Agreement on title of the Property.

Approved (Councillor J. Tovey)

4. Request to Demolish a Heritage Listed Property Within a Cultural Landscape, 1232 Vesta Drive, Ward 1

Corporate Report dated February 20, 2014 from the Commissioner of Community Services with respect to a request to demolish a heritage listed property within a Cultural Landscape located at 1232 Vesta Drive.

Recommendation
HAC-0004-2014
That the property at 1232 Vesta Drive, which is listed on the City's Heritage Register as part of the Mineola West Neighbourhood Cultural Landscape, is not worthy of heritage designation, and consequently, that the owner's request to demolish the structure be approved and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto, as described in the Corporate Report dated February 20, 2014 from the Commissioner of Community Services.

Approved (Councillor J. Tovey)

5. Request to Demolish a Heritage Listed Property Within a Cultural Landscape, 1243 Woodland Avenue, Ward 1

Corporate Report dated February 20, 2014 from the Commissioner of Community Services with respect to a request to demolish a heritage listed property within a Cultural Landscape located at 1243 Woodland Avenue.

Recommendation
HAC-0005-2014
That the property at 1243 Woodland Avenue, which is listed on the City's Heritage Register as part of the Mineola West Neighbourhood Cultural Landscape, is not worthy of heritage designation, and consequently, that the owner's request to demolish the structure be approved and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto, as described in the Corporate Report dated February 20, 2014 from the Commissioner of Community Services.

Approved (Councillor J. Tovey)

6. Request to Demolish a Heritage Listed Property Within a Cultural Landscape, 7161 Lancaster Avenue, Ward 5

Corporate Report dated February 20, 2014 from the Commissioner of Community Services with respect to a request to demolish a heritage listed property within a Cultural Landscape located at 7161 Lancaster Avenue.

Mr. Wilkinson complimented Ann Gillespie for her Heritage Impact Statement (HIS) regarding the above-noted property. He added that Ms. Gillespie supports pursuing a Heritage Conservation District (HCD) in the Victory Village subdivision of Malton which was echoed by Paul Dilse, a Heritage Planning Consultant who completed a HIS in 2013 regarding a heritage listed property located at 7181 Lancaster Avenue.

The Vice-Chair expressed support for pursuing a HCD in the Victory Village subdivision of Malton, noting that he grew up in this area, that the lot coverage is extensive compared to other parts of the City, and that the wartime housing stock in Victory Village was based on different construction techniques. He suggested that the Committee and Heritage staff should explore this matter with the Councillor for Ward 5 and the local residents association after the next municipal election in October 2014.

Mr. Whittemore said that Planning and Building Department staff are currently working on a land use planning study in Malton and that Heritage staff would review Malton's Cultural Landscapes as a result. He added that Heritage staff will bring forward the study once it is finalized so that the Committee can decide on next steps for the heritage front. Mr. Whittemore said that he would be meeting with Bonnie Crombie, the Councillor for Ward 5, in the near future on various issues and would discuss the possibility of pursuing a HCD in the Victory Village subdivision of Malton at that time.

The Chair discussed the process for protecting heritage properties and the streetscape in Streetsville via zoning restrictions and the advantages and operations of this approach. He suggested that Heritage staff provide the Councillor for Ward 5 with a summary of this conversation for her information, review, and future discussions with her residents.

Recommendation
HAC-0006-2014
That the property at 7161 Lancaster Avenue, which is listed on the City's Heritage Register as part of the War Time Housing (Malton) Cultural Landscape, is not worthy of heritage designation, and consequently, that the owner's request to demolish the structure be approved and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto, as described in the Corporate Report dated February 20, 2014 from the Commissioner of Community Services.

Approved (Councillor J. Tovey)

7. Heritage Advisory Committee and Related Staff Milestones: 2013 Year in Review

Corporate Report dated February 21, 2014 from the Commissioner of Community Services with respect to the Heritage Advisory Committee and related staff milestones: 2013 year in review.

Recommendation
HAC-0007-2014
That the Corporate Report dated February 21, 2014 from the Commissioner of Community Services, entitled "Heritage Advisory Committee and Related Staff Milestones: 2013 Year in Review," be received.

Received (M. Haque)

8. Grand Duchess Olga Lived on Camilla Road, Ward 7

Email message dated November 29, 2013 from Barbara Johnstone, Executive Assistant to Councillor Nando Iannicca, Ward 7, with respect to correspondence from Meryl Fisher, Ward 7 resident, entitled "Grand Duchess Olga Lived on Camilla Road."

In response to the Chair, Ms. Eigl said that she was working on a Corporate Report for consideration at a future Committee meeting regarding Ms. Fisher's suggestion for the City to formally recognize Grand Duchess Olga's time in the City in some way.

The Chair discussed Grand Duchess Olga and other prominent individuals who resided in the City in the past, including Colonel Harland David Saunders, the founder of Kentucky Fried Chicken. Mr. Wilkinson discussed Colonel Saunders's time and history in the City and noted that the Trillium Health Centre has a hospital ward named in his honour.

Mr. McCuaig requested clarification on how Heritage staff prioritized this request vis-à-vis other outstanding proactive heritage opportunities like conducting heritage research on the Mary Fix property which may warrant heritage designation in the near future.

Ms. Eigl said that Heritage staff prioritized this request because it was from Councillor Iannicca's office and added that there is a lot of information and research in the file on this subject so this will enable the Corporate Report to be done quickly. Ms. Waldie added that the majority of the work completed by Heritage staff is dictated by legislative timelines in the *Ontario Heritage Act* and ensuring that these timelines are met.

Recommendation
HAC-0008-2014
That the email message dated November 29, 2013 from Barbara Johnstone, Executive Assistant to Councillor Nando Iannicca, Ward 7, with respect to correspondence from Meryl Fisher, Ward 7 resident, entitled "Grand Duchess Olga Lived on Camilla Road," be received.

Received (M. Spaziani)

9. 2014 Ontario Heritage Conference

Correspondence with respect to the 2014 Ontario Heritage Conference on May 23-25, 2014 at the NAV CENTRE in Cornwall, Ontario.

In response to the Chair, Ms. Lavertu discussed the Conference, suggested that the Committee pass a recommendation allowing up to two Committee members to attend, and said that she would email Committee members the Conference's information and encourage them to attend after Council approved the Committee's recommendation.

The Vice-Chair discussed the overall value of these Conferences and encouraged Citizen Members to attend to expand their knowledge of heritage-related matters and to meet heritage professionals, experts, and Citizen Members from various parts of the province.

Recommendation
HAC-0009-2014
1. That the correspondence with respect to the 2014 Ontario Heritage Conference on May 23-25, 2014 at the NAV CENTRE in Cornwall, Ontario be received; and
2. That up to two Heritage Advisory Committee Citizen Members be authorized to attend the 2014 Ontario Heritage Conference on May 23-25, 2014 at the NAV CENTRE in Cornwall, Ontario and that funds be allocated in the Heritage Advisory Committee's 2014 budget (Account #28609) to cover approximately $700 for registration fees, approximately $1,000 for mileage costs, approximately $1,200 for accommodations costs, and approximately $360 for per diem allowances costs.

Received/Direction (Councillor J. Tovey)

10. Status of Outstanding Issues Chart from the Heritage Advisory Committee

Chart dated March 18, 2014 from Julie Lavertu, Legislative Coordinator, Heritage Advisory Committee, with respect to the status of outstanding issues from the Heritage Advisory Committee.

In response to Mr. Wilkinson, Ms. Waldie said that she had recently followed up with Licensing and Enforcement staff on the current status of the Clarkson General Store and William Clarkson House and had not yet received an update on this matter.

Recommendation
HAC-0010-2014
That the chart dated March 18, 2014 from Julie Lavertu, Legislative Coordinator, Heritage Advisory Committee, with respect to the status of outstanding issues from the Heritage Advisory Committee, be received.

Received (M. Wilkinson)

SUBCOMMITTEE UPDATES FROM CHAIRS

11. Heritage Designation Subcommittee – Nil

12. Meadowvale Village Heritage Conservation District Review Committee, Ward 11

12.1 Correspondence dated November 22, 2013 from James P. Holmes, Chair, and Mike Byrne, Vice-Chair, Meadowvale Village Community Association, with respect to the Meadowvale Village Heritage Conservation District Plan Review.

Recommendation
HAC-0011-2014
That the correspondence dated November 22, 2013 from James P. Holmes, Chair, and Mike Byrne, Vice-Chair, Meadowvale Village Community Association, entitled "Meadowvale Village Heritage Conservation District Plan Review," be received.

Received (J. Holmes)

13. Public Awareness Subcommittee – Nil

MONTHLY UPDATE MEMORANDUM FROM HERITAGE COORDINATORS

14. January 2014 Monthly Update Memorandum, Wards 2, 6, and 11

Memorandum dated January 27, 2014 from Laura Waldie, Heritage Coordinator, with respect to the January 2014 monthly update Memorandum from Heritage Coordinators.

Recommendation
HAC-0012-2014
That the Memorandum dated January 27, 2014 from Laura Waldie, Heritage Coordinator, entitled "Monthly Update Memorandum from Heritage Coordinators," be received.

Received (D. Dodaro)

INFORMATION ITEMS

15. Resignation from Deanna Natalizio, Heritage Advisory Committee Citizen Member

Email message dated February 4, 2014 from Deanna Natalizio, Heritage Advisory Committee Citizen Member, advising Councillor George Carlson, Chair, Heritage Advisory Committee, of her resignation from the Heritage Advisory Committee, effective immediately.

The Chair said that he had sent Ms. Natalizio a thank you note for her involvement with the Committee. He said that she had worked hard as a Citizen Member, but was unable to complete her term on the Committee due to her work obligations and responsibilities.

Recommendation
HAC-0013-2014
That the email message dated February 4, 2014 from Deanna Natalizio, Heritage Advisory Committee Citizen Member, advising Councillor George Carlson, Chair, Heritage Advisory Committee, of her resignation from the Heritage Advisory Committee, effective immediately, be received.

Received (C. McCuaig)

16. Notice of Intention to Designate Heritage Property, Outdoor Firing Range, 1300 Lakeshore Road East, and the Lakeview Waterfront Connection, Ward 1

Correspondence dated January 20, 2014 from Andrew Farr, Director, Water Division, Public Works Department, Region of Peel, with respect to the Notice of Intention to designate a heritage property, the Outdoor Firing Range, located at 1300 Lakeshore Road East, and the Lakeview Waterfront Connection.

In response to the Vice-Chair, Ms. Waldie clarified that the designation process for this property would not be affected by the various issues raised in Mr. Farr's letter.

Mr. Haque departed at 10:32 a.m.

Recommendation
HAC-0014-2014
That the correspondence dated January 20, 2014 from Andrew Farr, Director, Water Division, Public Works Department, Region of Peel, entitled "Notice of Intention to Designate Heritage Property – Outdoor Firing Range. 1300 Lakeshore Road East and the Lakeview Waterfront Connection," be received.

Received (Councillor J. Tovey)

17. Notice of Public Information Centre (PIC) #1, Municipal Class Environmental Assessment Study for Creditview Road from Bancroft Drive to Old Creditview Road, Ward 11

Correspondence dated January 20, 2014 from Mirjana Osojnicki, Senior Environmental Planner, AECOM Canada Ltd., with respect to the Notice of Public Information Centre (PIC) #1, Municipal Class Environmental Assessment Study for Creditview Road from Bancroft Drive to Old Creditview Road.
The Chair discussed the above-noted matter, noting that he had attended the PIC #1.

Recommendation
HAC-0015-2014
That the correspondence dated January 20, 2014 from Mirjana Osojnicki, Senior Environmental Planner, AECOM Canada Ltd., entitled "Notice of Public Information Centre (PIC) #1, Municipal Class Environmental Assessment Study for Creditview Road from Bancroft Drive to Old Creditview Road," be received.

Received (M. Wilkinson)

18. Letter of Authority Regarding the Waiving of Normal Tariff Fees at Land Registry Offices for Municipal Heritage Committee Members and their Assistants

Correspondence dated March 6, 2014 from Bert Duclos, Heritage Outreach Consultant, Ministry of Tourism, Culture and Sport, with respect to a letter of authority regarding the waiving of normal tariff fees at Land Registry Offices for Municipal Heritage Committee Members and their assistants.

The Vice-Chair advised Committee members to bring the above-noted letter with them when they visit Land Registry Offices so that they are not subject to normal tariff fees. Ms. Eigl noted that the correspondence included on the agenda was not signed and that she recently obtained a signed letter from Mr. Duclos. In response to the Vice-Chair, Ms. Lavertu said that she would email the signed letter to Committee members.

Mr. Wilkinson discussed the recent transfer of microfilm land registry records from the Peel Art Gallery, Museum + Archives (PAMA) to the ServiceOntario office in Thunder Bay, Ontario and associated impacts on citizens, researchers, the Committee, and others. He expressed concern about the fees for accessing records, the overall inaccessibility of records, and the rationale for centralizing records in Thunder Bay and noted that he could provide additional information and context to Heritage staff regarding this matter.

The Vice-Chair suggested that the Committee write a letter to the Minister of Tourism, Culture and Sport to express their concerns regarding the shift of records from PAMA to Thunder Bay. He added that PAMA would be getting a new building in the near future and suggested that duplicates of microfilm land registry records be stored in this facility.

Ms. Waldie said that the Ontario Heritage Planners Network sent a letter to the Minister of Tourism, Culture and Sport to express their concerns regarding the transfer of microfilm land registry records to Thunder Bay and were told that the government's decision had already been made. Mr. Wilkinson added that Heritage Mississauga also sent a letter to the Minister regarding this matter and that their concerns fell on deaf ears.

Mr. Spaziani expressed concern about the inability of citizens to search the Land Registry Office's digital records, adding that the Committee should advocate to the Ministry for an open search mode of the records to enhance access, information, and knowledge.

The Chair expressed concern about this matter, particularly regarding the inaccessibility and lack of searchability of records and the fees involved. He requested that Heritage staff prepare a two-page summary on this matter for consideration at the Committee's next meeting so that the Committee can better understand the nuances of this matter and determine its next steps (e.g., writing a letter to the Minister, etc.). The Vice-Chair agreed with the Chair's request, adding that background information from Heritage staff would enable the Committee to have a discussion during its next meeting and to take next steps.

Recommendation
HAC-0016-2014
That the correspondence dated March 6, 2014 from Bert Duclos, Heritage Outreach Consultant, Ministry of Tourism, Culture and Sport, with respect to a letter of authority from Robert Mathew, Director, Central Production and Verification Services Branch, Ministry of Government Services, regarding the waiving of normal tariff fees at Land Registry Offices for Municipal Heritage Committee members and their assistants, be received.

Received (Councillor J. Tovey)

DATE OF NEXT MEETING – Tuesday, April 22, 2014 at 9:30 a.m., Council Chamber

OTHER BUSINESS

Inspiration Lakeview Community Master Plan Workshop

The Vice-Chair discussed a workshop at the Mississauga Seniors' Centre tonight regarding the above-noted matter. He noted that the Inspiration Lakeview process has support from many different partners and encouraged Committee members to attend.

2014 Heritage Work Plan Suggestions

Mr. McCuaig discussed his suggestion, which was discussed during the Committee's meeting in November 2013, for the Committee to have an off-site meeting to develop a heritage strategic plan and tactics to work proactively on heritage matters. He noted that Mr. Whittemore recently advised him that Culture Division staff would be attending the Committee's meeting in April 2014 to review the Culture Master Plan and the culture on the map project, noting that this update will be helpful to the Committee. Mr. McCuaig asked if the Committee wanted to further discuss the concerns that he raised at the Committee's meeting in November 2013, noting that he had drafted a sample agenda to guide the discussions which he could distribute to Committee members for their review.

Ms. Waldie said that Culture Division staff would make a deputation to the Committee during their next meeting. She added that the annual Joint Peel Municipal Heritage Committee (MHC) meeting would be held in June or July 2014, be hosted by the City, and provide an opportunity for the Committee and staff to discuss their work plan, successes, challenges, heritage projects, and other issues from the past year with their counterparts in Caledon and Brampton as well as with staff from the Region of Peel. Ms. Waldie noted that few Committee members have attended the Joint Peel MHC meeting in the past and encouraged Committee members to attend and participate in the 2014 event.

Mr. McCuaig said that he attended a past Joint Peel MHC meeting in Alton, Ontario and discussed its overall value and context. He acknowledged that this forum was a good place for the Committee to discuss their work plans and those of neighbouring municipalities, but said that it would be useful for the Committee to review, discuss, and provide input on the City's work plan prior to the Joint Peel MHC meeting this spring.

Mr. Wilkinson discussed the importance of the Committee reviewing, developing, and providing input on its strategic priorities, noting that having an off-site meeting on this matter would be a good refresher and re-engagement opportunity for Citizen Members. He spoke about the need for the Committee to prioritize itself strategically and to align itself with the skill sets of its Citizen Members as much as possible.

The Chair suggested that staff coordinate an off-site meeting for the Committee between now and June 2014 and asked Committee members to share their input with Heritage staff. The Vice-Chair suggested that this meeting take place in the Caucus Room at the Mississauga Civic Centre after the Committee's next meeting on April 22, 2014.

Heritage Speakers Series 2014

Mr. Wilkinson discussed the above-noted matter and said that the Committee's budget funds the honorariums that are provided to guest speakers. He explained that that the honorarium amounts are staying the same in 2014, but that there were additional costs for the Series to be held in the C Café at the Mississauga Civic Centre. Mr. Wilkinson noted that he would be writing a Memorandum to the Committee on this matter shortly.

ADJOURNMENT – 10:52 a.m. (M. Spaziani)

MISSISSAUGA **Corporate Report**

Clerk's Files

Originator's Files

DATE: March 20, 2014

TO: Chair and Members of the Heritage Advisory Committee
Meeting Date: April 22, 2014

Heritage Advisory Committee
APR 22 2014

FROM: Paul A. Mitcham, P. Eng, MBA
Commissioner of Community Services

SUBJECT: **Request to Demolish a Structure on a Heritage Listed Property Within a Cultural Landscape**
6545 Creditview Road, the "Harris Farm" (Ward 11)

RECOMMENDATION: That the owner's request to demolish and replace the bridge spanning the Credit River on the property located at 6545 Creditview Road, which is listed on the City's Heritage Register as part of the Credit River Corridor Cultural Landscape, be approved and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto, as described in the Corporate Report dated March 20, 2014 from the Commissioner of Community Services.

BACKGROUND: The subject property was Individually Listed on the City's Heritage Register in the 1990's for its architectural, historical and contextual value and again in 2005 as part of the Credit River Corridor Cultural Landscape.

The property was awarded in a Crown Land Grant in 1819 to Thomas Kennedy who sold to James Pearson in 1846. The existing farmhouse was built in approximately 1858 by Pearson. The current bridge was built in 1947 after the previous bridge collapsed the year before when an oil truck tried to gain access to the site.

In 1946, David W. Harris acquired the property and made some interior renovations to the farm house. The City of Mississauga acquired the property in 2009 from Harris' son, David J. Harris, who remained a tenant of the property until his death in 2012. Part of the farm field land is being leased to the nearby Sandford Farm, thus making the Harris Farm the second longest running farm property in Mississauga.

The Region of Peel is embarking on making improvements to the western trunk sanitary sewer system as part of their Water and Wastewater Servicing Master Plan and hopes to complete these improvements by Spring 2016. As part of the expanded upgrades, the sewer will enter the Harris Farm property at the corner of Argentia and Creditview Roads, then travel east under the Credit River and connect with the existing trunk sewer under the farm land to the northeast of the Harris property.

Tunnel boring equipment must enter the property to undertake this work. However, the current truss bridge is in an advanced state of deterioration and is incapable of handling the appropriate weight loads for such equipment. Moreover, the current bridge cannot support the weight of a fire truck or similar emergency response vehicles. Should the City decide to maintain tenants on site, this poses a serious risk. Appendix 1 is a structural assessment of the bridge and abutments provided by the Region of Peel.

COMMENTS:

Section 27. (3) of the *Ontario Heritage Act* states that structures or buildings on a property listed on the City's Heritage Register cannot be demolished without 60 days' notice to Council. Furthermore, pursuant to Section 27. (5) of the *Ontario Heritage Act*, which states that Council may require the applicant to submit plans in support of a demolition application for a structure on a property included on the city's Heritage Register. Plans in support of a new bridge have been included as Appendix 2 and 3. A Site Plan application is not required for the proposed work. Every effort should be made to retain a design sympathetic to the style of the existing bridge.

The bridge deck structure located on the subject property holds no significant heritage value to warrant retention or designation. It is the conclusion of the engineering consultants that the existing bridge deck is beyond repair and must be replaced. Heritage Planning staff support this conclusion.

FINANCIAL IMPACT: There is no financial impact.

CONCLUSION: The property owner of 6545 Creditview Road has requested permission to demolish and replace the bridge on the subject property. The bridge structure is not worthy of designation and the request for demolition should, therefore, be recommended for approval.

ATTACHMENTS:
Appendix 1: Structural Report of the Abutments and Bridge
Appendix 2: Current Photos
Appendix 3: Proposed new bridge design

Paul A. Mitcham, P. Eng, MBA
Commissioner of Community Services

Prepared By: *Laura Waldie MA, CAHP, Heritage Coordinator*

Region of Peel
Working for you

Structural Assessment of Existing Abutments

HARRIS FARM BRIDGE

January 2014

WSP

TABLE OF CONTENTS

1. INTRODUCTION

The Region of Peel has retained WSP Canada (formerly GENIVAR) to provide engineering design services for the new Harris Farm Bridge that spans over Credit River; which is located on an unnamed road on the east side of Creditview Road, in Mississauga, Ontario; as shown in Figure 1.

To support the backfill and minimize the environmental impacts, it was recommended that the existing abutments remain, and a new foundation system to be installed behind them. The new bridge will be supported by the new foundation system. This report discusses the current conditions and the structural capacity of the existing abutment walls; as they will remain under the new bridge.

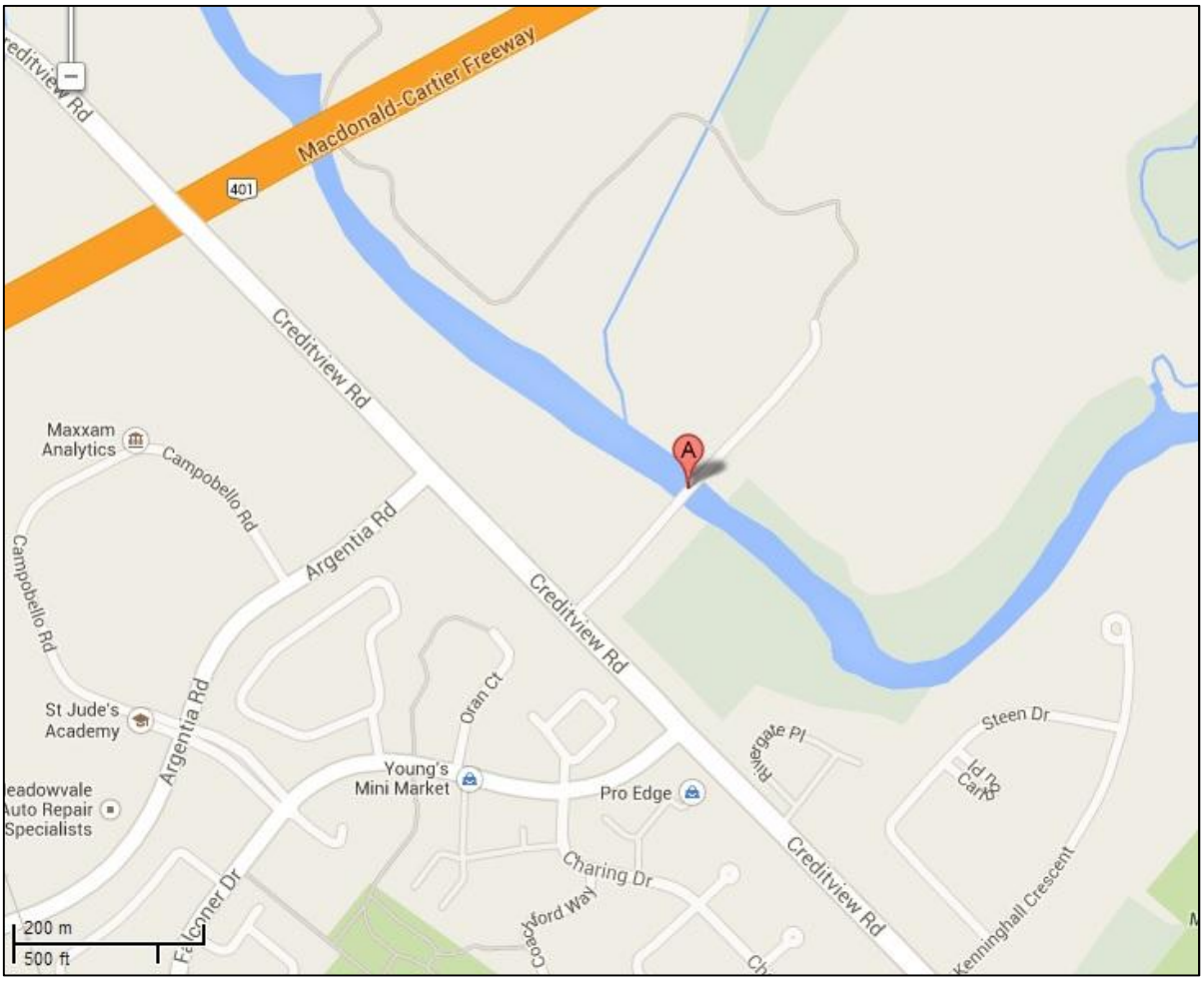

Figure 1: Key Plan

2. EXISTING STRUCTURE

The existing bridge is approximately 80 years old and is constructed of steel trusses with a concrete deck; which is supported by steel beams. The bridge is roughly 24.8 m long and 4.0 m wide. See Figure 2 for the aerial view.

Based on the "Structural Review of Harris Farm Bridge and Culvert" by Moon-Matz Ltd., January 27, 2012 (Ref. No. 4106), the allowable load capacity for truck load should be limited to 10,000 lbs (5 ton). Therefore, the bridge requires a structural upgrade to accommodate a 70,640 lbs (35 ton) fire truck load. It was also concluded that the abutments are in good condition and will not require remedial work for the next 10 to 15 years.

The abutments wall has a trapezoidal shape as shown in Figure 3 and Figure 5. The dimensions are 5.5 m wide at the top, 18.0 m wide at the bottom, and 3.5 m high.

Figure 2: Aerial View

2.1. East Abutment

The east abutment was typically in good condition exhibiting evidence of stained cracking (8.0 m), isolated spall (0.2 m^2) and light scaling (0.5 m^2). Figure 4 shows these typical conditions. The concrete cover on the east abutment (at the limited locations inspected) ranged from 110 to 189 mm, with an average concrete cover of 145 mm.

Element	Total Area [m^2]	Area [m^2]				Condition Index [%]	Estimated Life Span [years]	Estimated Remaining Service Life [years]
		Excellent Condition	Good Condition	Fair Condition	Poor Condition			
East Abutment	41.13	0	35.13	4	2	68	75	67

Figure 3: East Abutment

Figure 4: Typical Condition - stained cracking, isolated spalls and light scaling

2.2. West Abutment

The west abutment was typically in good condition exhibiting evidence of isolated spalls (0.5 m^2). Figure 6 shows this typical condition. The concrete cover of the west abutment (at the limited locations inspected) ranged from 126 to 190 mm, with an average concrete cover of 148 mm.

Element	Total Area [m^2]	Area [m^2]				Condition Index [%]	Estimated Life Span [years]	Estimated Remaining Service Life [years]
		Excellent Condition	Good Condition	Fair Condition	Poor Condition			
West Abutment	41.13	0	40.13	1	0	74	75	67

Figure 5: West Abutment

Figure 6: Typical Condition - localized spalling

3. METHODOLOGY

There is limited data available for the existing abutments and foundation of the bridge. In order to evaluate the structural capacity of the substructure and foundation, the information about the reinforcement in each element was obtained.

On November 11, 2013, WSP Canada (formerly GENIVAR) contracted Coffey Geotechnics Inc. to perform a limited substructure condition survey for Harris Farm Bridge. The "Limited Substructure Condition Survey Report" summarized the findings of this limited condition survey. (Ref. No. CONCETOB22821AA)

In general, the procedures followed to conduct the condition survey were those defined in Part 1 of the MTO Structural Rehabilitation Manual. This involved the observation and recording of surface defects, grid layouts (1.0 m x 1.0 m), delamination, surface deterioration, for the items listed hereafter. A limited covermeter survey was also conducted using an Elcometer 331 on both abutments; and four (4) concrete core and four (4) samples of reinforcing steel were extracted from the abutments.

According the results from the survey, the both abutments are typically in good condition. Based on this limited substructure condition survey report, WSP Canada (formerly GENIVAR) has made assumptions to determine the structural capacity of the existing abutments.

4. STRUCTURAL EVALUATION

To be able to conduct the structural evaluation for the abutment walls of the existing structure, materials specifications, and member configurations should be obtained. Limited Condition Survey Report for the bridge abutment walls completed by Coffey Geotechnics, Inc. as part of the scope of this study and Structural Review Report previously issued by Moon-Matz Ltd. were utilized to get the required information to be able to estimate the structural capacity of the abutment walls. Some assumptions had to be made where data were not available or could not be obtained from the field investigation of the structure.

The structural evaluation calculation completed for the abutment walls and the necessary assumptions made were provided is Appendix A.

5. CONCLUSIONS

It has been determined that the existing abutments are in good conditions and are adequate to bear the loads with no additional reinforcement under active conditions. No significant work to the existing abutments is anticipated for the next 30 years. It is also noted that the new foundation system will be installed behind the existing abutments, and it may go through the existing foundation. The new foundation system will provide minimal lateral force to the existing abutments, but it will be addressed and analyzed during detail design.

6. LIMITATIONS

The information from this report is based upon the referenced documents:

1. “Limited Substructure Condition Survey Report”, Harris Farm Bridge over Credit River, by Coffey Geotechnics Inc., November 21 2013, Reference No. CONCETOB22821AA.
2. “Geotechnical Investigation”, by Construction Testing laboratories Limited, August 5 2011, Reference No. Mil 1-01
3. “Structural Review of Harris Farm Bridge and Culvert”, by Moon-Matz Ltd., January 27 2012, Reference No. 4106

APPENDIX A

A. STRUCTURAL ASSUMPTIONS

Material Properties

- The compressive strength of the east abutment is 35.8 MPa.
- The compressive strength of the west abutment is 38 MPa.
- The average spacing of reinforcing steel (15M) in the abutment faces was 300 mm (horizontal) and 500 mm (vertical). The average concrete cover is 145 mm. It is assumed that the spacing is the same at the back of the abutment, on the backfill side.
- Steel yield strength = 413.7 MPa, according to the "Limited Substructure Condition Survey Report"

Wall Geometry

- The abutment wall thickness is 830 mm. This was measured at the top of the wall and it is assumed to be the same thickness along the wall height.
- The new foundation system will provide minimal lateral force to the existing abutments.

Soil Properties

- The depth of the soil behind the wall (to the top of the foundation) is assumed to be 4.42 m. This was found in the geotechnical report by Construction Testing Laboratories Limited report no.: Mi11-01.
- The wall is assumed to be fixed where it intersects with the foundation.
- A 3.0 kPa surcharge distributed load is assumed to be acting on the abutment.
- The lateral earth pressure for the retaining wall is designed using an earth pressure coefficient, k_o, of 0.50 as per the Construction Testing Laboratories Limited report no.: Mi11-01.
- The wet density of the soil is assumed to be 18 kN /m^3; as shown on the borehole logs in the Construction Testing Laboratories Limited report no.: Mi11-01.

B. CALCULATIONS

Based on the assumptions listed in the report, an evaluation has been carried to determine the capacity of the existing abutment to bear the loads from the soil pressure and surcharge.

γ_s = 18 kN/m^3
F_c' ≈ 35 MPa
F_y ≈ 400 MPa
ϕ_c = 0.75
ϕ_s = 0.9
h_w = 4.42 m

At rest condition, the abutments are rigid and do not experience any movement:

- The maximum soil pressure at the base of the wall is
  $P_o = \gamma_s h_w k_o$ = 18 * 4.42 * 0.5 = 39.78 kN/m^2
- Assumed surcharge load= 3.0 kPa
  S = k_o q = 0.5 * 3.0 = 1.5 kN/m^2
- $M_{1\ (soil\ pressure\ load)} = \frac{39.78 * 4.42}{2} * \frac{4.42}{3}$ = 129.5 kNm
- $M_{2\ (surcharge\ load)} = \frac{wl^2}{2} = \frac{1.5 * 4.42^2}{2}$ = 14.7 kNm
- **M_f** = 1.25 M_1 + 1.7 M_2 (CHBDC, Table 3.1, ULS1)
  = 1.25 * 129.5 + 1.7 * 14.7
  = 161.9 + 25.0 = **187 kNm**
- $M_r = \phi_s F_y A_s (d - \frac{a}{2})$
  d = 830 mm – 145 mm - $\frac{16}{2}$ mm = 677 mm
  α_1 = 0.85 – 0.0015 f'$_c$ = 0.85 – 0.0015 (35) = 0.7975
  a = $\frac{\phi_s A_s f_s}{\phi_c \alpha_1 f'_c b} = \frac{0.9 * (200 * 3.33) * 400}{0.75 * 0.7975 * 35 * 1000}$ = 11.45
  M_r = 0.9 * 400 N/mm^2 * (200 mm^2 * $\frac{1000\ mm}{300\ mm}$) * (677 mm - $\frac{11.47}{2}$ mm)
  = **161 kNm/m**

M_r = 161 kNm < 187 kNm = M_f

The existing abutment walls fail at rest condition; but at active condition, k_a = 0.33, the walls are permitted to move a short distance away from the backfill:

- The maximum soil pressure at the base of the wall is
  $P_o = \gamma_s h_w k_a$ = 18 * 4.42 * 0.33 = 26.25 kN/m^2
- Assumed surcharge load= 3.0 kPa
  S = k_a q = 0.33 * 3.0 = 0.99 kN/m^2
- $M_{1\ (soil\ pressure\ load)} = \frac{26.25 * 4.42}{2} * \frac{4.42}{3}$ = 85.47 kNm

- $M_{2\ (surcharge\ load)} = \frac{wl^2}{2} = \frac{0.99 * 4.42^2}{2} = 9.67$ kNm
- **M_f** = 1.25 M_1 + 1.7 M_2 (CHBDC, Table 3.1, ULS1)
  = 1.25 * 85.47 + 1.7 * 9.67 = 106.84 + 16.44 = **123 kN m**

M_r = 161 kNm > 123 kNm = M_f

The existing abutment can resist the factored moment under the active condition.

Checking shear resistance:

- Determine ε_x
  d_v = 0.9d = 0.9 * 677 = 609 mm = s_z
  $\varepsilon_x = \frac{\frac{M_f}{d_v} + V_f}{2\ E_s\ A_s} = \frac{\frac{123 * 10\text{^}6}{609} + 121 * 10\text{^}3}{2 * 200{,}000 * (200 * \frac{1000}{300})} = 1.21 * 10^{-3}$
- Determine β
  a_g = 20 mm, Limited Substructure Condition Survey Report
  $s_{ze} = \frac{35\ s_z}{15 + a_g} = \frac{35 * 609}{15 + 20} = 609$ mm
  $\beta = \left[\frac{0.4}{(1 + 1500\ \varepsilon_x)}\right]\left[\frac{1300}{(1000 + s_{ze})}\right]$
  $= \left[\frac{0.4}{(1 + 1500 * 0.00121)}\right]\left[\frac{1300}{(1000 + 609)}\right] = 0.115$
- Determine V_r
  f_{cr} = 0.4 √f'$_c$ = 0.4 √35 = 2.37 MPa (normal-density concrete)
  V_r = 2.5 β ϕ_c f_{cr} b_v d_v
  = 2.5 * 0.115 * 0.75 * 2.37 * 1000 * 609
  = **311 kN**

- $V_{1\ (soil\ pressure\ load)} = \frac{39.78 * 4.42}{2} = 87.9$ kN
- $V_{2\ (surcharge\ load)}$ = 1.5 kN/m^2 * 4.42 m = 6.63 kN
- **V_f** = 1.25 V_1 + 1.7 V_2 (CHBDC, Table 3.1, ULS1)
  = 1.25 * 87.9 + 1.7 * 6.63
  = **121 kN**

V_r = 311 kN > 121 kN = V_f

The existing abutment walls can resist the applied shear forces.

APPENDIX B

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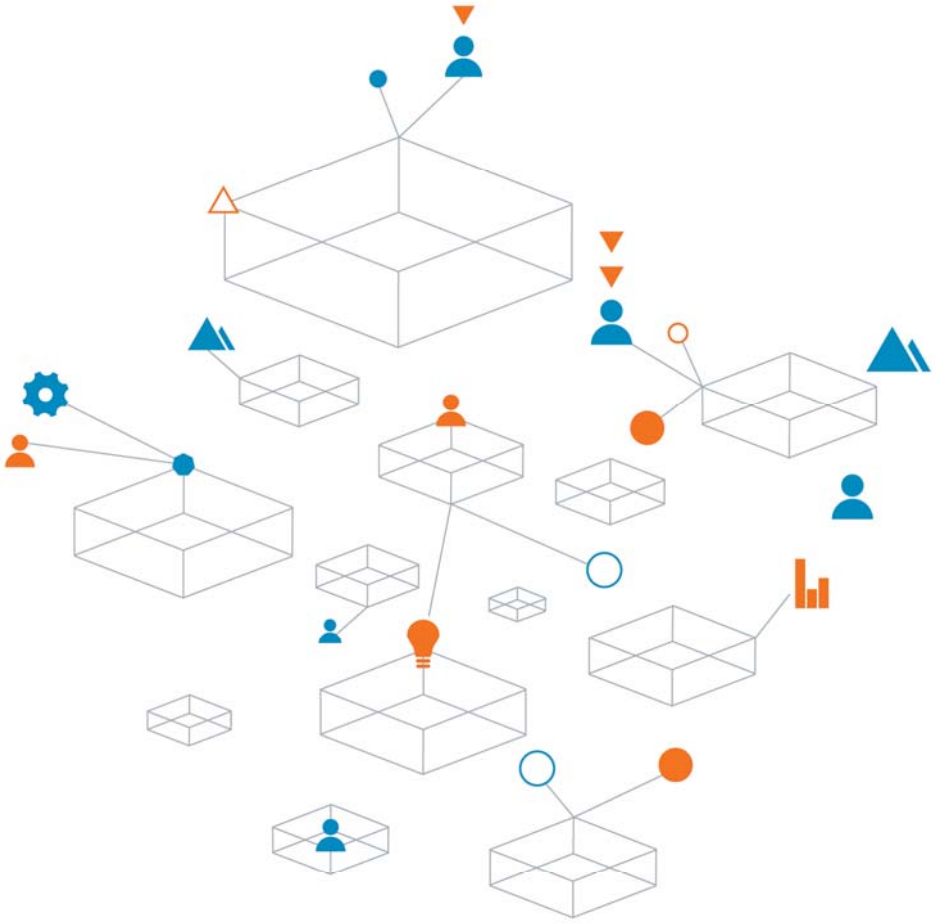

Trust is the cornerstone of all our projects

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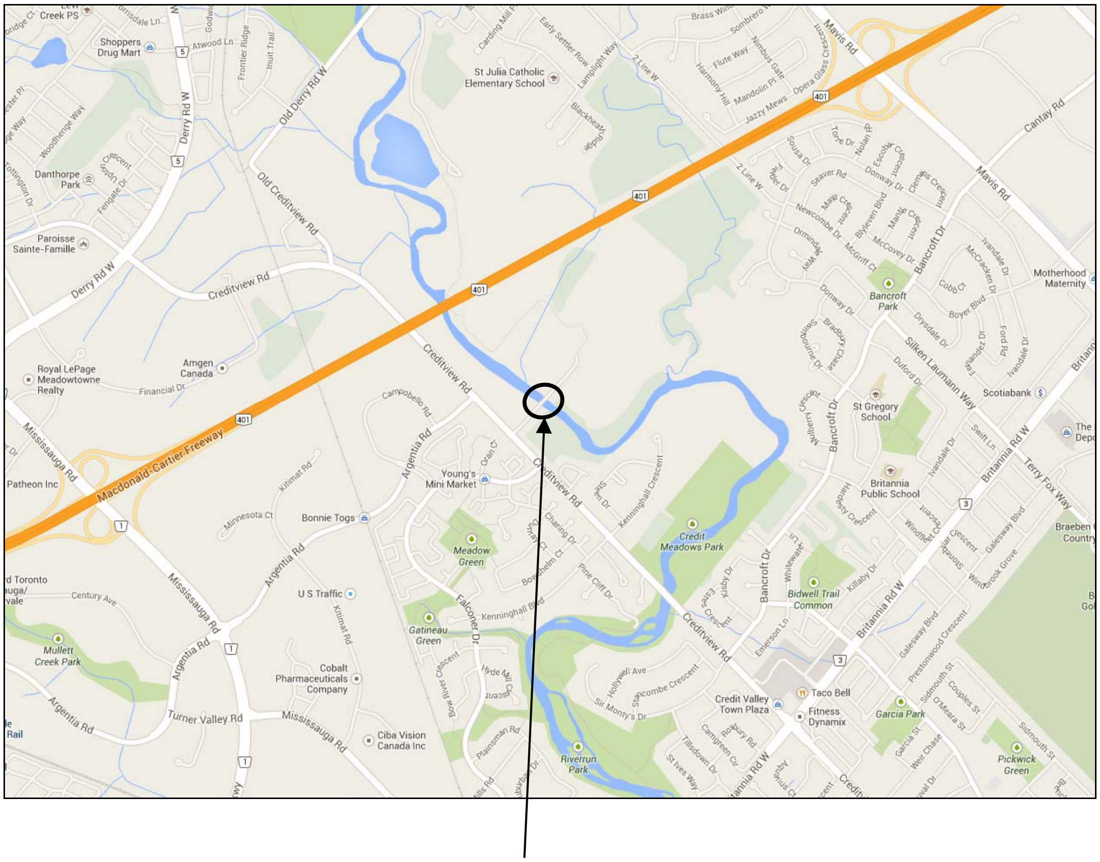

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Harris Farm Bridge over Credit River, Mississauga, ON

D C

arris Farm ridge over Credit iver Mississauga, N is located on an unnamed road on the east side of Credit River road north of Falconer Drive and south of Argentia Road in Mississauga, N. A general overview of arris Farm ridge over Credit iver is shown in Photo elow.

rris Farm ridge over Credit iver Bridge over Credit iver

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In November , NA contracted *Coffey Geotechnics Inc.* to perform a *limited* structure condition survey for the structure. This report summarizes the findings of the *limited* structure condition survey carried out at arris Farm ridge over Credit iver, Mississauga, N.

In general the procedure followed to conduct the condition survey were those defined in Part of the Ms Structural Evaluation Manual for inspection and recording of

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3.1.1 East A butment □

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Core□ C3 and C4 □ere e□trac□ed from the ea□□a□□men□, a□ sh□wn in P□o□o□ C3 and C4, and the core loca□on□ are giv en on the accom any n□ dra□n□. Th e concre□e in th e core□ was □y□cally in □ood cond□□on. Th e re□nforc□n□ □eel e□□o□ed during th e cor□n□ o□era□on was in □ood cond□□on with no e□dence of □□rface corro□on. Core□ C3 and C4 □ere e□□ed for com□re□□□e st en gth in accordance with CSA A23.2-14 C. Th e com□re□□□e st en gth of the ea□□ a□□men□concre□e ran□ed from 34.0 □o 37.6 MPa, with an a□era□e com□re□□□e □ren□□ of 35.8 MPa.

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- ***S3*** – ea□□a□□men□, 15 M, □er□cal □eel; and,
- ***S4*** – ea□□a□□men□, 15 M, □er□cal □eel;

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- ***Sample #4 (S4)*** □ ea□□a□□□men□(□er□□cal □□eel)□ □□□□□□□ □□□(y□eld □ren□□□) and □□□□□□□□ □□□(□l□ma□e □en□le □ren□□□)

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Core□ C□ and C□ □ere e□□rac□ed from □□e □e□□a□□□men□□a□ □□o□n □n P□o□o□ C□ and C□□and □□e core loca□□on□ are □□□en on □□e accom□any□n□ dra□□n□□□□e concre□e □n □□e core□ □a□ y□□cally □n □ood cond□□on□□□e re□nforc□n□ □□eel e□□o□ed d□r□n□ □□e cor□n□ o□era□□on □a□ □n □ood cond□□on □□□ no e□dence of □□rface corro□□on□Core□ C□ and C□ □ere e□□ed for com□re□□□□e □□en□□□ □n accordance □□□ CSA A□□□□□□C□□□e com□re□□□□e □□en□□□ of □□e □e□□a□□□men□concre□e ran□ed from □□□□ □o □□□□ MPa□□□□ an a□era□e com□re□□□□e □□en□□□ of □□□□ MPa□

□□o (□) □am□le□ of re□nforc□n□ □□eel □ere □am□led from □□e □e□□a□□□men□□□e□nforc□n□ S□eel Sam□le P□o□o□ra□□□ are □□o□n □n P□o□o□ S□ □o S□□and □am□le loca□□on□ are □□o□n on □□e a□ac□ed dra□□n□□□

- ***S1*** □ □e□□a□□□men□□□□M□□er□□cal □□eel□and□
- ***S2*** □ □e□□a□□□men□□□□M□□er□□cal □□eel□

Sam□le□ *(S1 and S2)* □ere □e□□ed for □en□le and y□eld □ren□□□ in accordance □□□ AS□M A□□□□ □□a (□ee □elo□)□□e□□n□ □a□ cond□c□ed □y *Cambridge Materials Testing Limited*□□e□□re□□l□ are □re□en□ed in □□e A□□end□□□

- ***Sample #1 (S1)*** □ □e□□a□□□men□(□er□□cal □□eel) □ □□□□□□□ □□□(y□eld □ren□□□) and □□□□□□□□ □□□(□l□ma□e □en□le □ren□□□)
- ***Sample #2 (S2)*** □ □e□□a□□□men□(□er□□cal □□eel)□ □□□□□□□ □□□(y□eld □ren□□□) and □□□□□□□□ □□□(□l□ma□e □en□le □ren□□□)

One additional core was extracted from the west abutment for AVS testing. Core C4A was tested to determine the air void system of the hardened concrete in accordance with ASTM C457 using the Modified Point Count Method. Test results are summarized below:

Core No.	Air Content (%)	Specific Surface (mm^{-1})	Spacing Factor (mm)
C4A	*0.9*	70.3	0.157

Concrete is normally considered to be properly air entrained if the air content exceeds 3.0%, the spacing factor does not exceed 200 µm and the specific surface is greater than 24 mm^{-1}. This air void system would be considered non air-entrained.

Additional pilot holes were drilled into the west abutment up to a depth 450mm *(maximum drill depth of our drilling machines)* and revealed that the actual thickness of the abutment wall was greater than 450mm. The typical dimensions of the west abutment are shown in Figure No. 1 *(width @ top = 5.50m; width @ bottom = 18.00m; height = 3.50m)*. Additional field measurements of the west abutment were conducted and revealed a total thickness of approximately 830mm (see Drawing No. 1).

4.0 Closure

We trust that this submission is complete. Should you have any further questions, please do not hesitate to contact this office.

On and behalf of Coffey Geotechnics

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21 NOV 2013
S. J. De SOUZA
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
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Field Operations Supervisor

DETAILED CONDITION SURVEY SUMMARY SHEET

EXPOSED CONCRETE COMPONENTS (Exposed Deck, Deck Soffit, Curbs, Medians, Sidewalks, Barrier/Parapet Walls, etc.): Use separate form for each component

Site No. N/A

Component Type & Location A□□□men□□ *{east/west}* **OSIM Identifier** ______

1. Dimensions and Area

W□d□□ □m   □en□□□ [illegible] m   □e□□□□ [illegible] m
D□ame□er □m   □o□al Area S□r□eyed [illegible] m□

2. Cracks (medium and wide)

Remarks

Type		Transverse	Longitudinal	Other	Total	
Medium Width	Clean	[illegible]	[illegible]	[illegible]	[illegible]	m
	Stained	[illegible]	[illegible]	[illegible]		
Wide Width	Clean	[illegible]	[illegible]	[illegible]	[illegible]	m
	Stained	[illegible]	[illegible]	[illegible]		

3. Alkali Aggregate Reaction

Area of com□onen□□ □□ □e□ere □o □ery □e□ere a□□re□a□e reac□□on [illegible] m□

4. Concrete Cover **at limited areas inspected*

Minimum	Maximum	Average	
[illegible]	[illegible]	[illegible]	mm

0 – 20 mm	N□A	40 – 60 mm	N□A	m□
	N□A		N□A	□
20 – 40 mm	N□A	over 60 mm	N□A	m□
	N□A		N□A	□

Site No. N/A

Component Type & Location: Abutments *{east/west}*

5. Corrosion Activity

Minimum	Maximum	Average	
N□A	N□A	N□A	**V**

0 to -0.199	-0.200 to -0.299	-0.300 to -0.349	□0.350 to -0.449	< -0.450	**V**
N□A	N□A	N□A	N□A	N□A	**m²**
N□A	N□A	N□A	N□A	N□A	**%**

6. Delaminations and Spalls

Defect Type	Delaminations	Spalls	Patches
Area (m²)	□□□ □□□□	□□□ □□□□	□□□ □□□□
Total Delaminations and Spalls		**Total Delaminations and Spalls in Areas ≤-0.350 V**	
□□□ □□□□ m□	□□□ □□□□ □	N□A m□	N□A □

7. Scaling

Light	Medium	Severe to Very Severe	
□□□ □□□□	□□□ □□□□	□□□ □□□□	m□
□□□ □□□□	□□□ □□□□	□□□ □□□□	□

8. Honeycombing

□o□al Area □□□ □□□□ m□

DETAILED CONDITION SURVEY SUMMARY SHEET
EXPOSED CONCRETE COMPONENTS

Site No. N/A
Component Type & Location: Abutments *{east/west}*

9. Adjusted Chloride Content Profile

Corrosion Activity at Core Location (volts)		0 to -0.199	-0.200 to -0.349	≤ -0.350
Chloride Content*	0-10 mm	□	□	□
	20-30 mm	□	□	□
	40-50 mm	□	□	□
	60-70 mm	□	□	□
	80-90 mm	□	□	□
	100-110 mm	□	□	□

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10. Chloride Content at Rebar Level

Core No.	□	□	□	□
Corrosion Potential	□	□	□	□
Chloride Content *	□	□	□	□

□ C□lor□de con□en□a□ □ c□lor□de □y □e□□□of concre□e af□er ded□c□n□ □ac□□ro□nd c□lor□de□□

11. AC Resistance Test Data of Epoxy Coated Rebar

Measured AC Resistance between Connection #1 and #2						Calculated AC Resistance □
Connection #1	Connection #2					
	G1	G2	G3	G4	G5	
G1	N□A	□	□	□	□	□
G2	□	N□A	□	□	□	□
G3	□	□	N□A	□	□	□
G4	□	□	□	N□A	□	□
G5	□	□	□	□	N□A	□

□ See A□□end□□ □□ for calc□la□n□ AC re□□□ance con□r□□□ed □y □nd□□d□al re□ar□

Site No. N/A
Component & Location: Abutments *{east/west}*

12. IR Drop and True Half Cell Potential Measurements of Epoxy Coated Rebar

IR Drop Between Connection #1 and #2						True Half Cell Potential □
Connection #1 (positive)	Connection #2 (negative)					
	G1	G2	G3	G4	G5	
G1	N□A	□	□	□	□	□
G2	□	N□A	□	□	□	□
G3	□	□	N□A	□	□	□
G4	□	□	□	N□A	□	□
G5	□	□	□	□	N□A	□

□ □alf cell readin□ a□en on □e □ame re□ar □ □e □ro□nd connec□on□

13. Concrete Air Entrainment

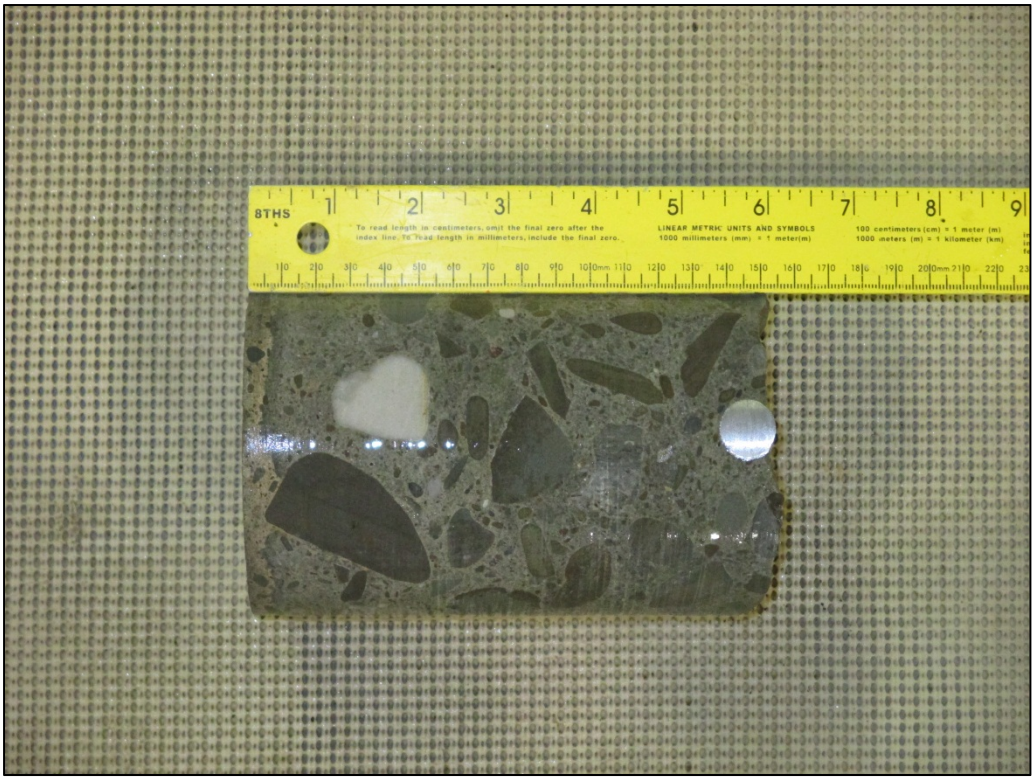
Concre□e A□ □n□a□ned□ N□

14. Compressive Strength

A□era□e Com□re□□□e S□ren□□ □□□ MPa *(north abutment)* □□□ MPa *(south abutment)*

C□ □□□C□□(□e□a□□men□)□

□



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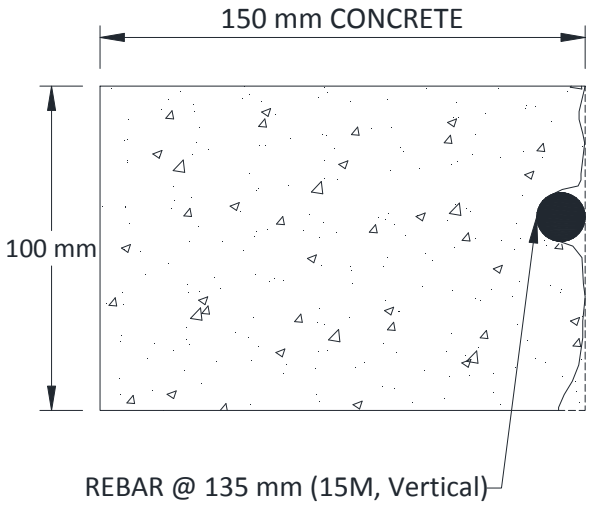

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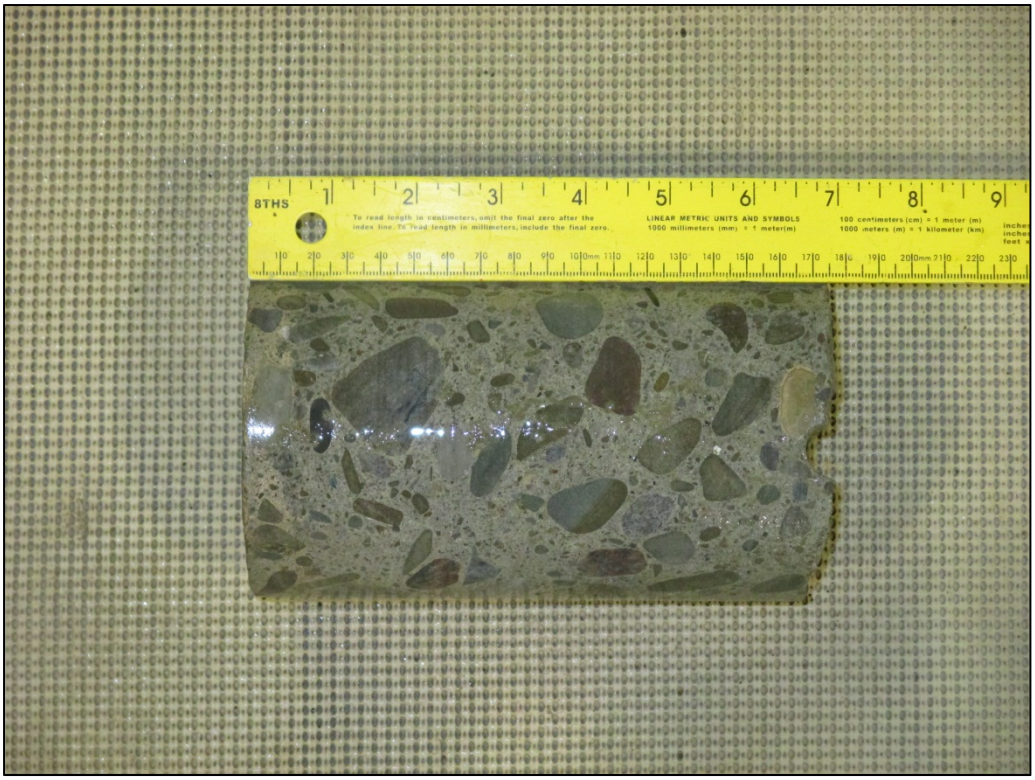

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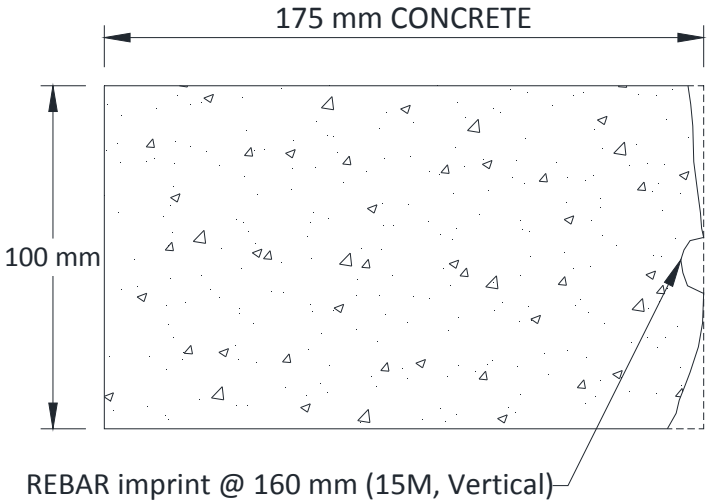

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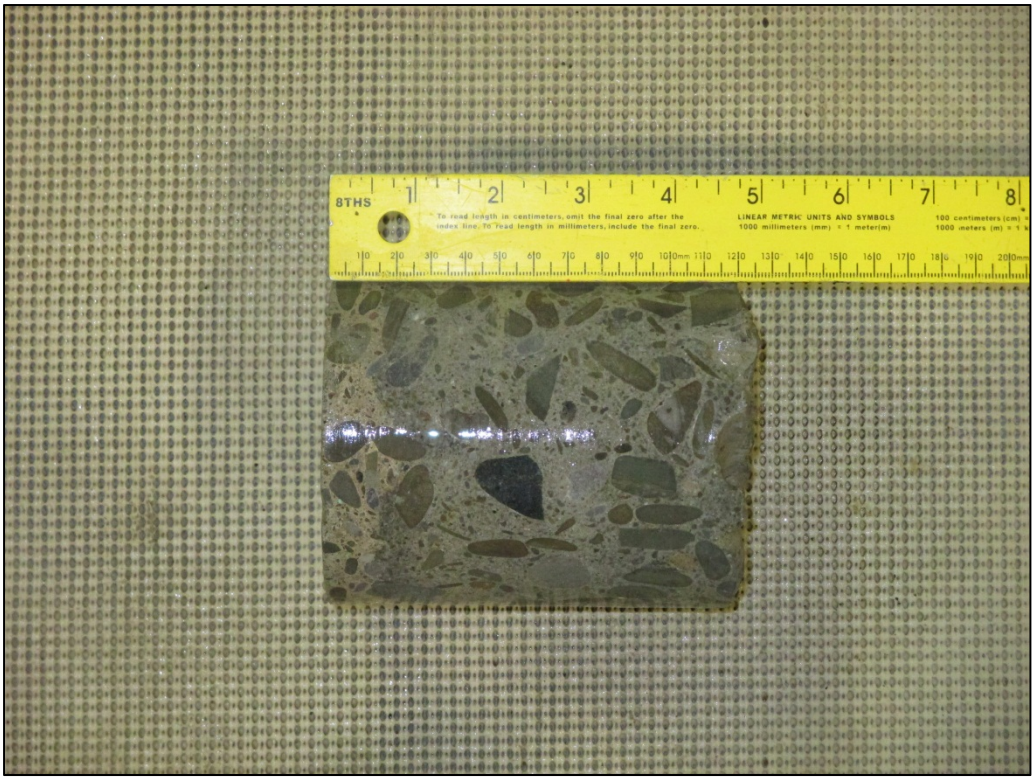

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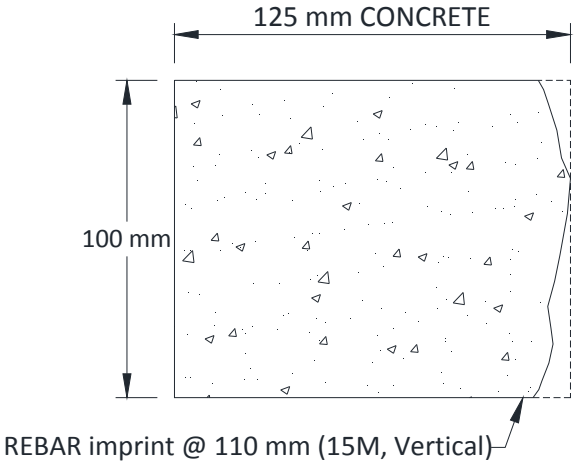

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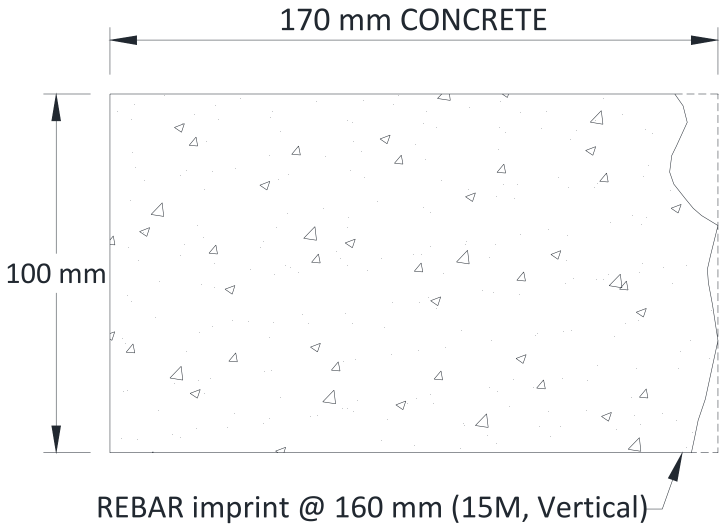
CORE **C**4 (ea a men)



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C r [illegible] r [illegible] M [illegible]		[illegible]	[illegible]	[illegible]
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A N/A

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D C Crac ed D Delam na on So Scal n S S all n
r **C** **d** S Se ere N/A No o ed e ar
C **d** **C** C ood CF Fa r CP Poor r ed de onded area

Coffey eo ec n c
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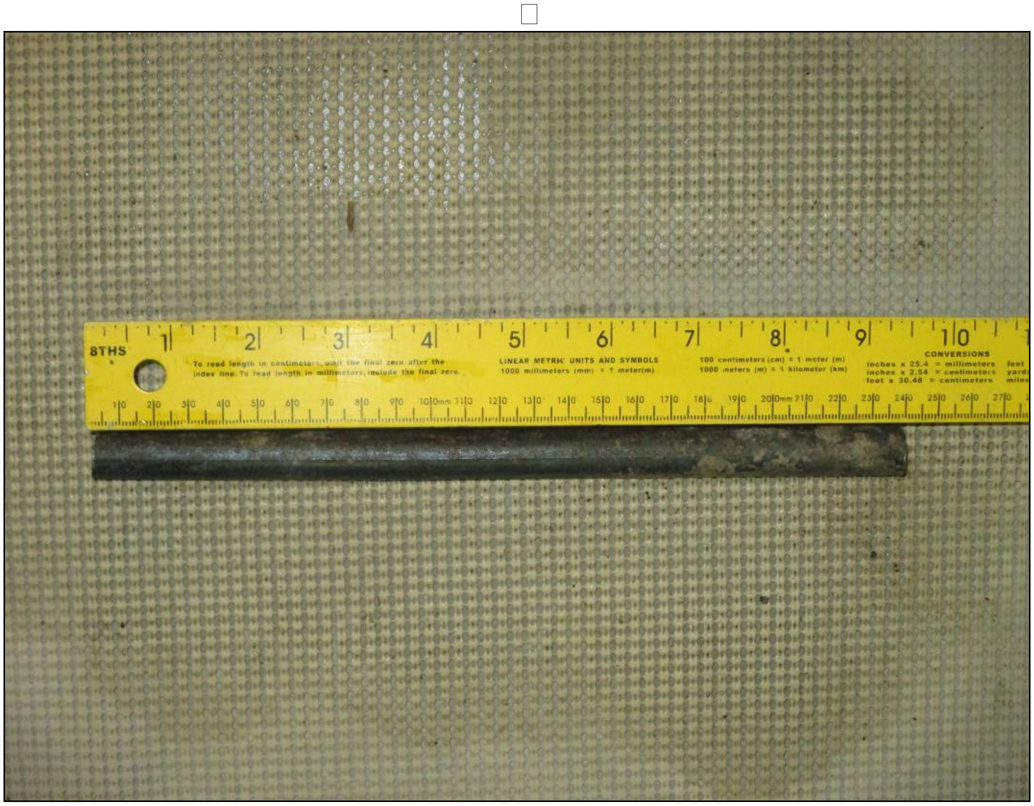

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C **d** **A** (ood cond on aned crac n
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CONCRETE CORE TEST RESULTS

Project No.: CONCETOB22821AA **Project Name: Harris Road Bridge over Credit River, Mississauga, ON**

Core Number	C1	C2	C3	C4
Location (between Gridlines)	West Abutment	West Abutment	East Abutment	East Abutment
Maximum Nominal Size of Coarse Aggregate (mm)	20	20	20	20
Date Cast	N/A	N/A	N/A	N/A
Date Cored	Nov. 11, 2013	Nov. 11, 2013	Nov. 11, 2013	Nov. 11, 2013
Date Tested	Nov. 13, 2013	Nov. 13, 2013	Nov. 13, 2013	Nov. 13, 2013
Capped Height (mm)	143	167	117	160
Average Diameter (mm)	100	100	100	100
Density (kg/m^3)	2441	2380	2423	2366
Corrected Compressive Strength (MPa)	**38.3**	**37.7**	**34.0**	**37.6**
* Direction of Loading	Perpendicular	Perpendicular	Perpendicular	Perpendicular
Moisture Condition at time of Test	Moist	Moist	Moist	Moist
REMARKS	*Average = 38.0 MPa*		*Average = 35.8 MPa*	

Tested in accordance with CSA A23.2-14C unless otherwise noted.
*Relative to the direction of original placement.

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coffey

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AIR VOID TEST RESULTS

Project No.: **CONCETOB22821AA** **Project Name:** **Harris Farm Bridge over Credit River, Mississauga, ON**

Core ID	Air Content (%)	Aggregate Content (%)	Paste Content (%)	Specific Surface (mm^{-1})	Spacing Factor (mm)	No. of Voids /mm
C4A *(west abutment)*	0.9	66.7	32.4	70.3	0.157	0.158
MTO and CSA A23.1-09 Specifications	3% Minimum	-	-	-	0.230 Maximum (Average)*	-

*Clause 4.3.3.3 of CSA A23.1-09 states that the concrete will be considered to have a satisfactory air-void system when the average of all tests shows a spacing factor not exceeding 230 µm, with no single test greater than 260 µm, and air content greater than or equal to 3.0% in the hardened concrete. For concrete with water-to-cementing materials ratio of 0.36 or less, the average spacing factor shall not exceed 250 µm, with no single value greater than 300 µm.

Date Tested: Nov. 20, 2013
Tested By: Jari Peikari

Savio DeSouza, M.A.Sc., P.Eng.
Manager, Materials Engineering & Testing

Cambridge
materials testing limited

1177 Franklin Boulevard,
Cambridge, Ontario N1R 7W4
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www.cambridgematerials.com

Report for: Coffey Geotechnics Inc.
20 Meteor Drive
ETOBICOKE, ONTARIO
M9W 1A4

Laboratory No. 656111–2013

Report Date: November 15, 2013
Received Date: November 13, 2013

Attention: Savio Desouza

Specimen: Sample #1, Project No.: CONCETOB22821 AA Harris Farm Bridge over Credit River

TENSILE TEST REPORT

	RESULT	
Specimen Diameter:	0.253	in.
Yield Strength (0.2% Offset):	60,500	psi
Ultimate Tensile Strength:	109,000	psi
Elongation in 1 in.:	20	%
Reduction of Area:	41	%

Testing performed according to ASTM A370-12a.

Cambridge Materials Testing Limited

Per _____
Quality Assurance

Per _____
Technician

Cambridge
materials testing limited

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Report for: Coffey Geotechnics Inc.
20 Meteor Drive
ETOBICOKE, ONTARIO
M9W 1A4

Laboratory No. 656112–2013

Report Date: November 15, 2013
Received Date: November 13, 2013

Attention: Savio Desouza

Specimen: Sample #2, Project No.: CONCETOB22821 AA Harris Farm Bridge over Credit River

TENSILE TEST REPORT

	RESULT	
Specimen Diameter:	0.250	in.
Yield Strength (0.2% Offset):	61,000	psi
Ultimate Tensile Strength:	109,000	psi
Elongation in 1 in.:	21	%
Reduction of Area:	43	%

Testing performed according to ASTM A370-12a.

Cambridge Materials Testing Limited

Per _____
Quality Assurance

Per _____
Technician

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Report for: Coffey Geotechnics Inc.
20 Meteor Drive
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M9W 1A4

Laboratory No. 656113–2013

Report Date: November 15, 2013
Received Date: November 13, 2013

Attention: Savio Desouza

Specimen: Sample #3, Project No.: CONCETOB22821 AA Harris Farm Bridge over Credit River

TENSILE TEST REPORT

	RESULT	
Specimen Diameter:	0.252	in.
Yield Strength (0.2% Offset):	60,000	psi
Ultimate Tensile Strength:	101,000	psi
Elongation in 1 in.:	22	%
Reduction of Area:	49	%

Testing performed according to ASTM A370-12a.

Cambridge Materials Testing Limited

Per _____ *Quality Assurance*

Per _____ *Technician*

Cambridge
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Report for: Coffey Geotechnics Inc.
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M9W 1A4

Laboratory No. 656114-2013

Report Date: November 15, 2013
Received Date: November 13, 2013

Attention: Savio Desouza

Specimen: Sample #4, Project No.: CONCETOB22821 AA Harris Farm Bridge over Credit River

TENSILE TEST REPORT

	RESULT	
Specimen Diameter:	0.250	in.
Yield Strength (0.2% Offset):	62,000	psi
Ultimate Tensile Strength:	111,000	psi
Elongation in 1 in.:	21	%
Reduction of Area:	41	%

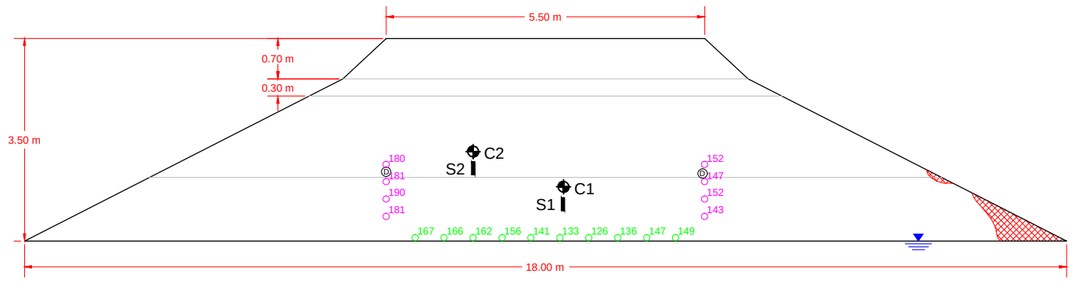
Testing performed according to ASTM A370-12a.

Cambridge Materials Testing Limited

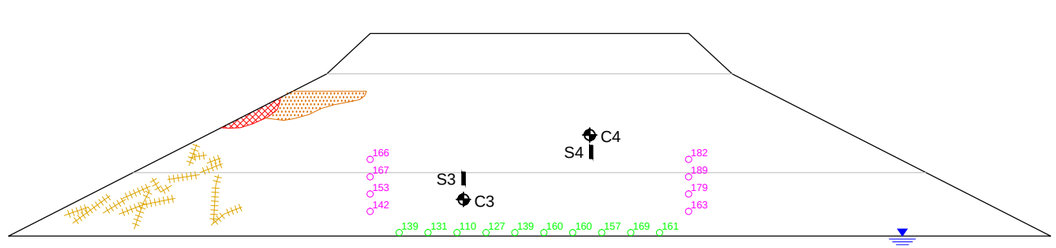
Per _____ *Quality Assurance*

Per _____ *Technician*

WEST ABUTMENT

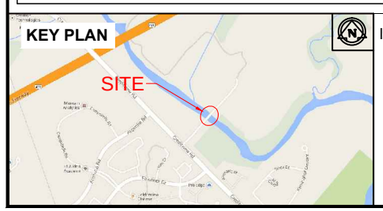


EAST ABUTMENT



PLAN VIEW
WEST ABUTMENT DIMENSIONS

NOTE: Diameter of reinforcing steel is 15M
Average rebar spacing (horizontal) = 300 mm
Average rebar spacing (vertical) = 500 mm



legend:

- Core Sample Location
- Rebar Sample Location
- Drain
- Wet Area
- Light Scaling
- Delamination
- Spall
- Patched Spall
- Medium Stained Crack
- Medium Concrete Crack
- Concrete cover (Horizontal) (mm)
- Concrete cover (Vertical) (mm)

drawn	OP
approved	SD
date	NOV 2013
scale	1:100
original size	Tabloid

coffey

client: GENIVAR

project: HARRIS FARM BRIDGE OVER CREDIT RIVER
MISSISSAUGA, ON

title: SURFACE DETERIORATION AND CONCRETE COVER OF ABUTMENTS

project no: CONCETOB22821AA

drawing no:/figure no: 1

F:\GEOT\Concrete\PROJECTS\22821AA Harris Farm Bridge over Credit River\Harris Farm Bridge over Credit River.dwg

APPENDIX C

Construction Testing Laboratories Limited
7171 Torbram Road, Unit 24
Mississauga, Ontario, Canada L4T 3W4

Telephone: (905) 671-9993 Fax: (905) 671-9994 E-Mail: ctlab95@yahoo.ca

August 5, 2011

Report No: Mi11-01

City of Mississauga
300 City Centre Drive,
Mississauga, Ontario
L5B 3C1

Attention: Mr. Ahmad Mujawaz, P. Eng.

Subject: Geotechnical Investigation
for Harris Farm Bridge,
6545 Creditview Road,
Mississauga, Ontario

Introduction

The City of Mississauga requested an evaluation of the bridge at 6545 Creditview Road in Mississauga. The width of the retaining wall foundation and the soil bearing capacity was requested.

Background

The site is located on the east side of Creditview Road in Mississauga as shown in the attached Figure 1, Location Plan. The site quaternary geology shown in Figure 2, mapped by Chapman and Putnam in 1972, was mapped as "till plains - drumlinized" with a till moraine found just to the west of the site.

The site plan (Figure 3) was taken from Google satellite mapping 2011. The existing steel bridge spanned the Creditview River and appeared to be approximately 80 years old. The overall span was about 25 m. The east abutment was investigated by augering down to the top of the foundation concrete and moving eastward until the concrete was absent.

Continued...

Field Investigation

The onsite investigation was carried out on August 2, 2011 and consisted of drilling two (2) auger holes to establish the width of the foundation and one borehole for soil sampling. The borehole location is shown in Figure 3, Site Plan. The elevation of the boreholes was referenced to the top of the concrete at the east abutment assuming an elevation of 100.00 m.

Samples of the subsurface soil were retrieved at regular intervals as shown on the borehole log sheet. The field work was conducted by our field engineer who directed the drilling operation, and prepared the stratigraphic logs. Water level observations were carried out during excavation and the results, where observed, were shown on the borehole logs.

The samples were returned to the laboratory and subject to water content testing and visual evaluation. The results were compiled on the borehole log sheets, Figure 4. The explanation of the terms and symbols used on the Borehole Logs is shown in Figure 5.

Stratigraphy

Borehole 1 intersected gravel at the surface followed by reddish brown, silty clay (fill). The silty clay graded to grey at 10'-0". The soil beneath the foundation was grey, silty clay (till) followed by a grey silty clay (weathered shale).

The top of the foundation concrete was at a depth 4.42 m (14'-6") and the foundation extended to approximately 6.10 m (20 feet) from the east edge of the concrete deck.

Silty Clay (fill)

The reddish brown, damp, firm, silty clay was found to a depth of 5.03 m (16'-6") in borehole 1. The silty clay graded to grey at 10'-0". There was an organic inclusion at 11'-0".

The silty clay (fill) had water contents varying from 8.4% to 42.4%. The standard penetration index value varied from 4 to 19 blows per 0.3 m indicating firm to stiff consistency.

Silty Clay (till)

The grey silty clay (till) was found from 5.03 to 6.48 m (16'-6", to 21'-3") in borehole 1. The silty clay contained a trace of pebbles, and trace of gravel.

The moist, grey silty clay (till) had water contents varying from 10.6% to 15.6% in borehole 1.

The standard penetration index values varied from 17 blows for 0.3 m to 64 mm (2.5 inches) penetration for 50 blows indicating very stiff to hard consistency.

Continued...

Silty Clay (weathered shale)

The grey, dry silty clay (weathered shale) was found at 4.48 m (21'-3") in borehole 1.

The grey, silty clay (shale) had a water content of 5.3%. The standard penetration index value was 75 mm (3.0 inches) of penetration for 50 blows indicating a hard consistency.

Ground Water Condition

The water level was observed at a depth of 3.66 m (12'-0") below the ground surface (bgs) as shown on the borehole log.

Discussion

The results of the investigation indicate that the existing foundation is on very stiff to hard silty clay underlain by hard, silty clay (weathered shale). The groundwater elevation was observed about 3.66 m (12'-0") below the ground surface.

The following sections provide discussion and recommendations for earthquake design factors, footing design bearing values, and Lateral Soil Pressure.

Earthquake Design Factors

The Site Classification for Seismic Site Response, Ontario Building Code 2006 (OBC) Table 4.1.8.4.A., is Site Class D for conventional footings based at a depth of about 5.03 m (16'-6").

The Seismic Hazard Index (SHI=1.0*1.25*0.31) is 0.39 for conventional foundations.

Conventional Footing Design

Conventional footings at a depth of about 5.03 m (16'-6") may be designed using a factored soil resistance of 500 kPa (10,440 psf) Ultimate Limit State (ULS). The allowable soil resistance using the Serviceability Limit State (SLS) would be 350 kPa (7,310 psf) using a total settlement tolerance of 25 mm.

Lateral Soil Pressure

The lateral earth pressure for the retaining wall may be designed using a coefficient of earth pressure (k_o) of 0.50. In addition, the force of the ground water pressure below the observed water table must be added as well as the effect of any vertical loads at the surface.

The wet density of the soil was observed to be approximately 18 kN/m3 (115 pcf) as shown on the borehole logs.

Continued...

Conclusion and Recommendations

It is concluded that the existing abutment is resting on very stiff to hard silty clay (till) underlain by hard, silty clay (weathered shale).

It is recommended that;

1. The abutment foundation design be reviewed using a Seismic Hazard Index of 0.39.
2. The abutment foundation design may be reviewed considering a factored ULS soil resistance of 500 kPa (10,440 psf) and a SLS soil resistance of 350 kPa (7,310 psf).
3. The lateral soil pressure on the abutment may be calculated using a coefficient of earth pressure (k_o) of 0.50. The lateral earth pressure should also include the horizontal water pressure below the observed groundwater level of 3.66 m (12'-0").

Limitations

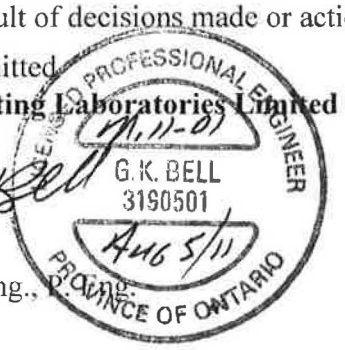
This report was prepared for use by City of Mississauga, and is based on the work as described in the Scope of Work. The conclusions presented in this report reflect existing site conditions within the scope of this assignment and the results of previous investigation on the property.

No investigation method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. It can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and the formulation of the conclusions and recommendations. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions reached, but commit ourselves to care and competence in reaching those conclusions. No warranty, whether expressed or implied, is included or intended in this report.

Continued...

The scope of services performed may not be appropriate for the purposes of other users. This report should not be used in contexts other than pertaining to the evaluation of the property at the current time. Written authorization must be obtained from Construction Testing Laboratories Ltd prior to use by any other parties, or any future use, of this document or its findings, conclusions, or recommendations represented herein. Any use which a third party makes of this report, or any reliance on or decisions made on the basis of it, are the responsibility of the third parties. Construction Testing Laboratories Ltd accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

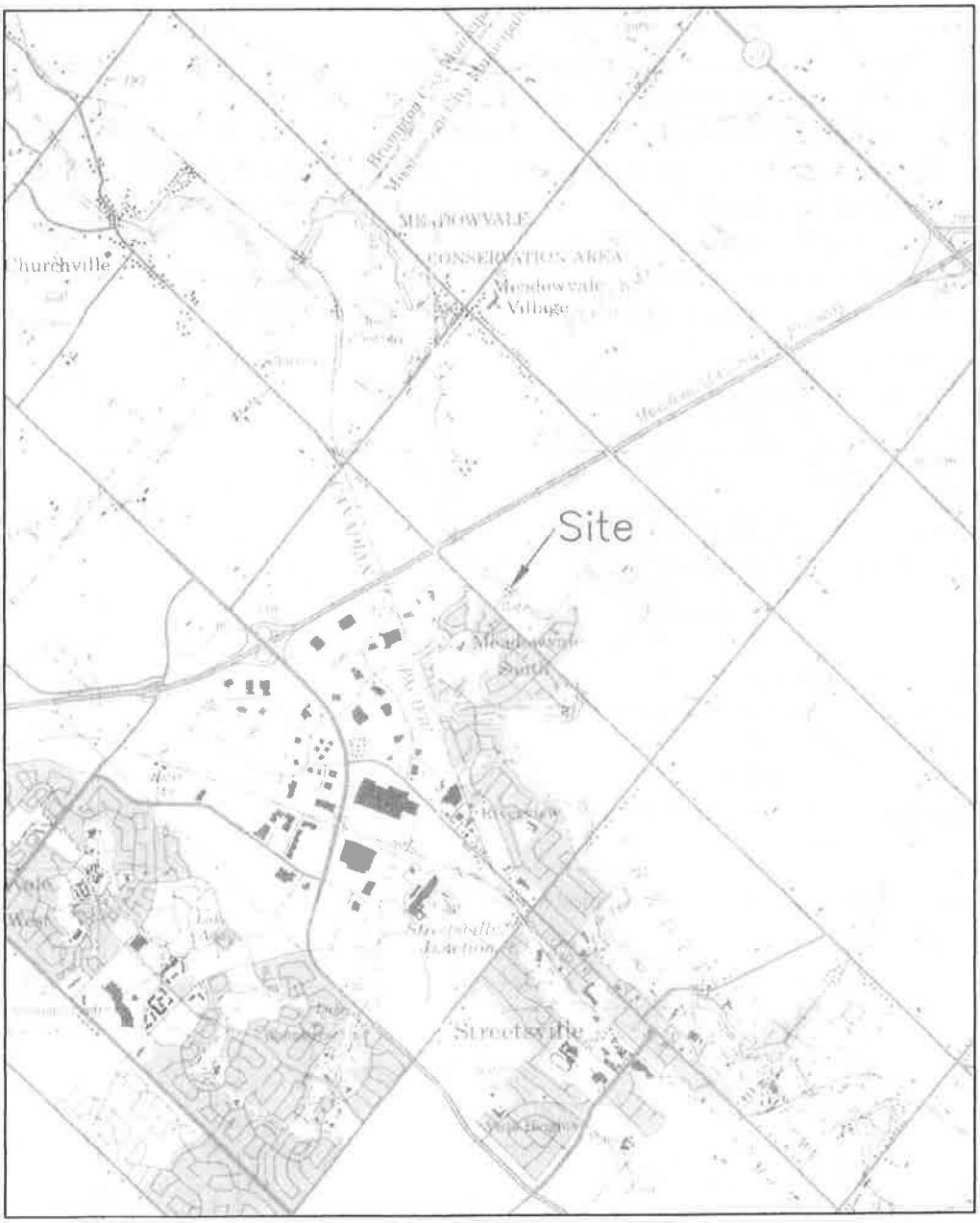
Respectfully Submitted,
Construction Testing Laboratories Limited



George Bell, M. Eng., P. Eng.

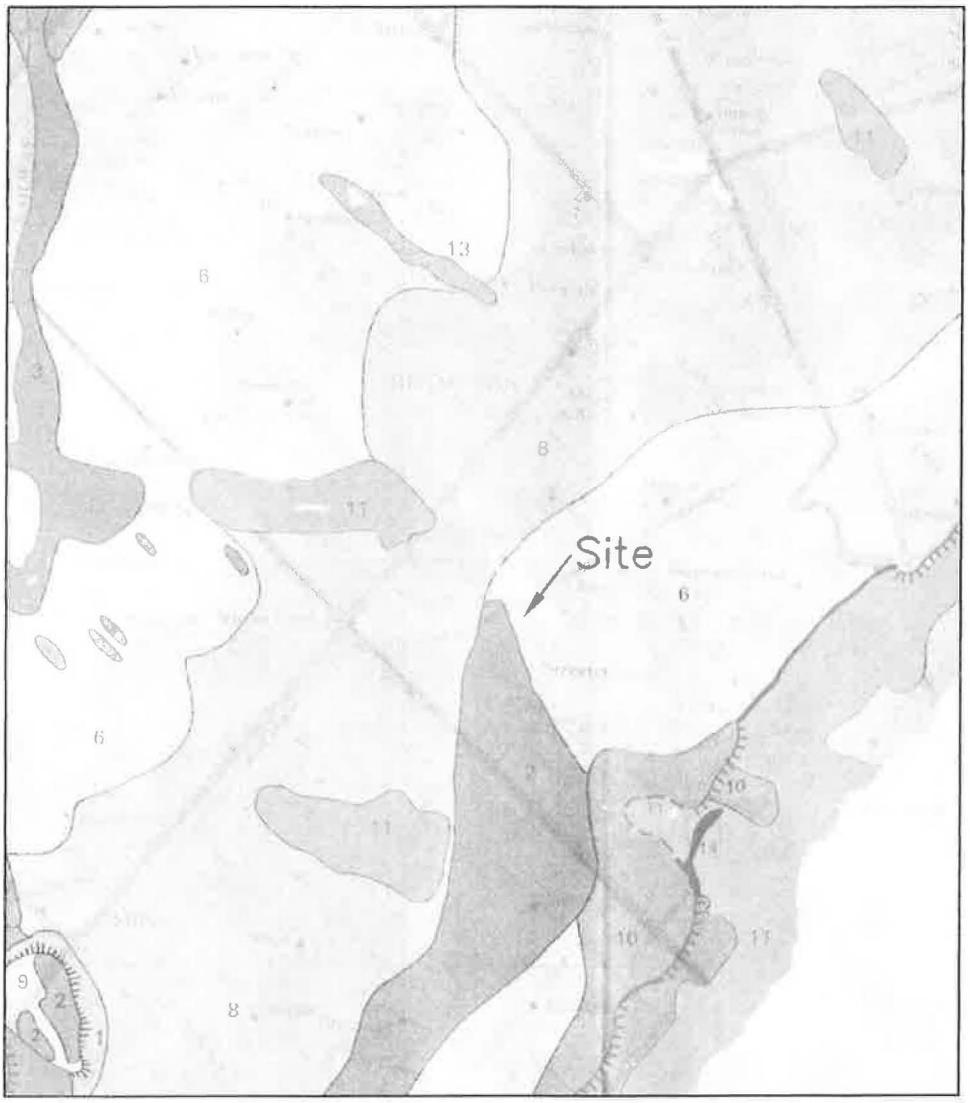
Encl. Figure 1, Location Plan
Figure 2, Surficial Geology Plan
Figure 3 Site Plan
Figure 4, Borehole 1
Figure 5, Legend for Symbols

1 cc: Client
1 cc: File, main-pc/ e: 2011\reports\Mi11-01 Geotechnical Report



Ministry of Natural Resources. Department of Energy, Mines and Resources. 1985. Brampton 30 M/12

Location Plan		
6545 Creditview Road Mississauga, Ontario		
Construction Testing Laboratories Ltd		
Aug 2011	1:50,000	Ref: MI11-01
Drawn: GB	Checked: GB	Figure: 1



Chapman, L.J. and D.F. PUtnam 1984. Physiography of the South Central Portion of Southern Ontario. Map 2226.

Surficial Geology Plan		
6545 Creditview Road Mississauga, Ontario		
Construction Testing Laboratories Ltd		
Aug 2011	1:253,440	Ref: MI11–01
Drawn: GB	Checked: GB	Figure: 2

▲ TBM east abutment 100.00 m.

Site Plan Google 2011

Site Plan		
6545 Creditview Road Mississauga, Ontario		
Construction Testing Laboratories Ltd		
Aug 2011	1:1500	Ref: MI11-01
Drawn: GB	Checked: GB	Figure: 3

Project: 6545 Creditview Road

Location: Mississauga, Ontario

Construction Testing Laboratories Ltd.

GEO–ENVIRONMENTAL ENGINEERING

BOREHOLE 1

Method: Truck Mounted Deitrich D–50

Date: August 2, 2011

Figure: 4

Ref. No.: MI11–01

By: GB

Checked: GB

Depth ft	Depth m	DESCRIPTION (Ground Surface Elev. 99.64)	Strat Plot	Sample Number	Sample Type	N – Value	Groundwater	Elevation	N – VALUE 20 40 60 80 / Penetrometer (Tsf) ■ 1.0 2.0 3.0 4.0	Wp W Wl / Water Content % 20 40 60	Unit Wt – kN/m3	Remarks / Grain Size Distribution % Gr Sa Si Cl
		Granular to approximately 150 mm.						99				
1		Reddish brown, damp, firm, silty Clay, (CL–ML).		1	SS	4			▲	o	17.1	
5		Grading moist at 5'–0".		2	SS	6		98	▲	o	16.0	
2		Grading some gravel at 7'–6".		3	SS	19		97	▲	o	18.4	
10	3	Grading grey at 10'–0". Organic inclusions at 11'–0". Gravel at 12'–0".		4	SS	7	▽	96	▲	o	17.9	
	4	Top of foundation at 14'–6".						95				
15	5			5	SS	17			▲	o	17.9	
		Moist, grey, very stiff, silty Clay (CL–ML), trace pebbles, (till) at 16'–5".						94				
20	6	Grading, trace pebbles, trace gravel at 20'–0".		6	SS	2.5" for 50 blows		93	▲	o	27.1	
		Moist, grey, hard, silty Clay (CL–ML), (weathered shale) at 21'–6".		7	SS	3.0" for 50 blows			▲	o		
25		Borehole filled with tailings on completion.						92				
	8	End of Borehole at 23'–3".										
								91				
9												
								90				
10												

UNIFIED SOIL CLASSIFICATION SYSTEM


Well Graded
Gravel
GW


Clayey Gravel
GC


Poorly Graded
Sand with Clay
SP–SC


Organic
Silt–Clay
OL


Poorly Graded
Gravel
GP


Silty Clayey
Gravel
GC–GM


Silty
Sand
SM


Inorganic High
Plastic Clay
CH


Well Graded
Gravel with Silt
GW–GM


Well Graded
Sand
SW


Clayey
Sand
SC


Inorganic Silt
High Plastic
MH


Well Graded
Gravel with Clay
GW–GC


Poorly Graded
Sand
SP

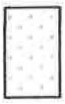

Silty Clayey
Sand
SC–SM


Organic High
Plastic Clay
OH


Poorly Graded
Gravel with Silt
GP–GM


Well Graded
Sand with Silt
SW–SM


Inorganic
Clay
CL


Peat


Poorly Graded
Gravel with Clay
GP–GC


Well Graded
Sand with Clay
SW–SC


Inorganic
Silty Clay
CL–ML


Fill


Silty Gravel
GM


Poorly Graded
Sand with Silt
SP–SM


Inorganic Silt
ML


Rock

CLAY AND SILT Consistency	Cohesive Soil N–Value Blows/0.3 m	Penetrometer Tsf
Very Soft	< 2	< 0.25
Soft	2 – 4	0.25 – 0.5
Firm	4 – 8	0.5 – 1.0
Stiff	8 – 15	1.0 – 2.0
Very Stiff	15 – 30	2.0 – 4.0
Hard	> 30	> 4.0

SAND AND GRAVEL Compactness	Cohesionless Soil N–Value
Very Loose	0 – 4
Loose	4 – 10
Compact	10 – 30
Dense	30 – 50
Very Dense	> 50

ABBREVIATIONS

SS	Split Spoon
TW	Thin Walled
AU	Auger Sample
RO	Rock sample
▼	Observed Water Level
▽	Estimated Water Level

Legend for Symbols		
6545 Creditview Road Mississauga, Ontario		
Construction Testing Laboratories Ltd. Geo–Environmental Engineering		
Aug 2011	Scale: NTS	Ref: MI11–01
Drawn: GB	Checked: GB	Figure: 5

APPENDIX D

STRUCTURAL REVIEW OF HARRIS FARM BRIDGE AND CULVERT
CITY OF MISSISSAUGA
(REVISION – R5)

JANUARY 27, 2012

MOON-MATZ LTD.
Consulting Engineers

Phone: 905 274-7556
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1435 Hurontario Street
Mississauga ON L5G 3H5
www.moon-matz.com

Ref. No. 4106

Table of Contents

1.0 EXECUTIVE SUMMARY

The City of Mississauga retained Moon-Matz Ltd. to conduct a structural condition assessment for the bridge and culvert that are located in the Harris Farm at 6545 Creditview Road in City of Mississauga. Based on our review of the structural conditions of the bridge and culvert, it is our opinion that their allowable load capacity for truck load should be limited to 10,000 lbs (5 ton). Structural reinforcement or upgrade of the bridge and the culvert are required if these structures have to accommodate 70,640 lbs (35 ton) fire truck load.

Three options are recommended for the remedial work:

Option 1: Reinforce joint connections for the existing steel bridge trusses; construct new concrete bridge deck and reinforce its existing supporting steel I beams; and replace existing steel culverts. This option will be suitable to accommodate 70,640 lbs fire truck load. Budget estimate for this option is $520,000.00+HST.

Option 2: Construct a new bridge superstructure (including steel trusses, concrete deck and its supporting beams) over the existing bridge abutments and replace existing steel culverts. This option will also be suitable to accommodate 70,640 lbs fire truck load. Budget estimate for this option is $740,000.00+HST.

Option 3: Keep existing bridge as a pedestrian bridge with limited truck load (5 ton); repair bridge superstructure; replace deteriorated concrete deck curb for the bridge and deteriorated concrete abutments for the steel culverts. This option will be suitable only for pedestrian traffic with limited truck load (5 ton). Budget estimate for this option is $95,000.00+HST.

The load bearing capacity for Option #1 and Option #2 is the same. Option #1 would have a bridge superstructure with new concrete deck (including curb) and existing steel structural members with reinforcement. The steel structural member reinforcement would include reinforced steel trusses on both sides of the bridge and reinforced steel I beams underneath the new concrete deck. Option #2 would have a new bridge superstructure including new concrete deck, new steel trusses, and new steel beams underneath the concrete deck. The expected life span for Option #2 (50 to 60 years) would be longer than that for Option #1 (25 to 35 years). Also, regular maintenance cost for Option #2 would be cheaper than that for Option #1 because Option #1 would have existing steel structural members with reinforcement and would need regular maintenance starting early than Option #2.

2.0 SCOPE AND PROCEDURE

The scope of work for this assignment was to conduct a structural assessment for the bridge and culvert to determine their allowable load bearing capacities and future remedial/upgrade work.

The following procedure was followed by our structural engineer during the preparation of this report:

1) Met with Mr. Ahmad Mujawaz, P.Eng., Project Manager with City of Mississauga on May 30, 2010 to gather information and discuss the scope of work.
2) Reviewed concrete survey report for the existing bridge deck prepared by Mr. Bill Wang, P.Eng. from Construction Testing Laboratories Limited (CTL). This report is attached in Appendix B.
3) Reviewed soil survey report for the existing bridge abutments prepared by Mr. G. K. Bell, P.Eng. from CTL. This report is attached in Appendix C.
4) Reviewed previous structural inspection report prepared by Mr. Way Miao, P.Eng. from Moon-Matz Limited (MML). This report is attached in Appendix D.
5) Performed in-house assessment as appropriate to the existing conditions of the bridge and the steel culverts with a main focus on structural integrity and safety.
6) Prepared structural assessment report as follows to recommend allowable load bearing capacity for the existing bridge and culverts and future remedial work and associated budget estimates for the same.

3.0 EXISTING CONDITIONS AND OBSERVATIONS

3.1 The Bridge

The existing bridge is constructed with steel trusses and concrete deck. The concrete deck is supported by steel beams. The bridge is approximately 24.8m long and 4.0m wide (refer to SK-1).

As per the emails from Brian P. Walsh, Division Chief, Mississauga Fire & Emergency Services, the heaviest fire trucks (A101 or A106) in City's fleet have a weight of 70,640 lbs (over 35 ton) with front axle weight 19,600 lbs and rear axle weight 51,040 lbs. The distance between front axle and rear axle is approximately 6.15m. The Fire Department's practice is to dispatch the closest vehicles depending on the type of response. A101 or A106 (over 35 ton) fire truck(s) could be dispatched to this property. Currently this property access is likely a legal non-conforming use and there is a caution note on the Fire Department's dispatch system indicates that trucks are not to cross the bridge.

As per previous structural inspection report prepared by MML, the bridge superstructure was constructed in 1947 and the steel trusses on both sides of the existing bridge may be

constructed of weathering steel A242 (a type of steel alloy which oxidizes naturally over time to yield a rich rust coloring and is highly resistant to corrosion once the initial oxidization has completed). Yield strength for weathering steel A242 is 50ksi (345MPa). Based on our structural analysis, the existing steel truss members (top chord, bottom chord, and diagonal web) of the bridge superstructure (excluding the existing concrete deck and the beams that are supporting the deck) are capable to supporting A101 fire trucks (35 ton). Connection strength for the joints of the trusses members was not evaluated because joints connection details were not accessible on site and no engineering drawings for joint connection were available for review. Based on our visual inspection, it is likely that the trusses joint connections will need to be reinforced to accommodate the 70,640 lbs A101 fire trucks.

As per on-site concrete survey performed by CTL, the existing reinforced concrete deck is 150mm thick with 10M transverse bars at 150mm spacing and 10M longitudinal bars at 300mm spacing (refer to SK-1). The concrete compressive strength is approximately 30MPa. Concrete cover for main rebar (10M transverse bars) is approximately 12mm (refer to SK-1), which is not adequate for the exterior exposure (it is typically recommended to have 50mm concrete cover for main rebar). Exposed and corroded bars were observed at bottom of the concrete deck slab. The concrete deck is supported by steel I beams as shown on SK-1.

Our analysis showed that the existing concrete deck and its supporting steel beams are capable to support 10,000 lbs truck load (2,000 lbs of front axle weight and 8,000 lbs of rear axle weight). This calculation is based on assumed rebar yield strength of 280 MPa, which was prevalent at the time (in 1947) when this bridge was constructed, and assumed supporting beams W250x33 and W200x27 weathering steel A242 (refer to SK-1). The existing concrete deck and its supporting beams do not have the load bearing capacity for A101 fire truck load, which has a total weight of 70,640 lbs.

As per the soil report prepared by TCL, the soil bearing capacity at abutment foundation level is 350KPa (SLS, Service Limit State, which is suitable for unfactored load combinations) and 500KPa (ULS, Ultimate Limit State, which is suitable for factored load combinations). Exact foundation dimensions for the abutments are not available; however based on our discussion with the soil engineer (Mr. G. K. Bell, P.Eng.) and our conservative estimate from exposed dimensions of the existing abutments, the existing concrete abutments at both ends of the bridge are adequate for A101 fire truck load, which has a total weight of 70,640 lbs.

In summary, the allowable load capacity for the existing bridge is 10,000 lbs (5 ton) and this is dictated by the existing concrete deck and its supporting steel beams.

3.2 The Culverts

There are two corrugated steel circular culverts side by side. The Year of construction for this structure is unknown to us. Size of each culvert is approximately 1.2m in diameter and 5.1m in length (refer to SK-2 for existing culvert layout). The concrete culvert abutment walls on both sides are inclined, cracked, and settled (refer to pictures in Appendix A). The steel culverts are corroded at various spots but are generally in fair condition.

A detailed analysis to determine load bearing capacity of the culverts was not performed due to lack of engineering data of the culverts. It appears that the culverts in their current condition are adequate for 10,000 lbs (5 ton) truck load; however, from our estimate they may not be adequate for supporting 70,640 lbs A101 fire truck load due to the shallow soil cover above top of the steel culverts. Existing soil cover of the culverts is approximately 150mm (refer to SK-2).

In summary, the recommended load bearing capacity for the existing steel culverts is 10,000 lbs (5 ton) and this is dictated by the shallow soil cover above top of the steel culverts.

4.0 RECOMMENDATIONS

The bridge abutments are in good condition and capable of supporting 70,640 lbs A101 fire truck load. No remedial work is expected in the near future (within 10 to 15 years).

Three options are recommended for future remedial work for the bridge superstructure and the two steel culverts:

Option 1: Reinforce joint connections of the existing steel bridge trusses; construct new concrete bridge deck and reinforce its existing supporting steel I beams; and replace existing steel culverts. This option will be suitable to accommodate 70,640 lbs fire truck load.

- Given the deteriorated condition of the existing concrete deck and its low load bearing capacity, it should be replaced by a new one with adequate load bearing capacity for 70,640 lbs fire truck load and adequate concrete cover for rebar;
- The supporting I beams supporting the existing concrete deck should be reinforced at critical locations to accommodate 70,640 lbs fire truck load. Critical locations that need to be reinforced for these I beams can be determined by a structural engineer during the design for the reinforcement.
- Reinforce the joint connections of the steel trusses as required to accommodate 70,640 lbs fire truck load.
- Repair existing bridge superstructure as per previous structural inspection report prepared by MML: including adding ¼" draining holes at 6'-0" spacing on centre

at truss bottom chords and cleaning and painting I beams underneath the concrete deck.

- Given the deteriorated condition of the culverts (including their abutments) and the shallow soil cover, they should be replaced with two new heavy gauge circular steel culverts at the existing location. The existing creek should be re-sloped so that the proposed new steel culverts can have adequate soil cover to accommodate 70,640 lbs fire truck load. The culverts should be properly coated (e.g. aluminized) for extended life expectance.

Option 2: Construct a new bridge superstructure (including steel trusses, concrete deck and its supporting beams) over the existing bridge abutments and replace existing steel culverts. This option will be suitable to accommodate 70,640 lbs fire truck load.

- Given the deteriorated conditions of the existing concrete deck and its supporting steel beams and their low load bearing capacity, it is recommended construct a new concrete deck and new supporting beams to accommodate 70,640 lbs fire truck load.
- As per our structural analysis, the existing steel trusses of the bridge is capable of supporting 70,640 lbs fire truck load; however, it is highly likely the joints connections of the existing steel trusses will need to be reinforced to support the 70,640 lbs fire trucks. To reduce future maintenance cost (including reinforcement cost for the trusses joint connections) and to be consistent with the proposed new concrete deck and new supporting beams, it may be desirable to construct new steel trusses to replace the existing ones.
- Given the deteriorated condition of the culverts (including their abutments) and the shallow soil cover, they should be replaced with two new heavy gauge circular steel culverts at the existing location. The existing creek should be re-sloped so that the proposed new steel culverts can have adequate soil cover to accommodate 70,640 lbs fire truck load. The culverts should be properly coated (e.g. aluminized) for extended life expectance.

Option 3: Keep existing bridge as a pedestrian bridge with limited truck load (5 ton); repair bridge superstructure; replace deteriorated concrete deck curb for the bridge and deteriorated concrete abutments for the steel culverts. This option will be suitable only for pedestrian traffic with limited truck load (5 ton).

- Repair the existing bridge superstructure as per previous structural inspection report by MML: including adding¼" draining holes at 6'-0" spacing on centre at truss bottom chords and cleaning and painting I beams underneath the concrete deck.
- Replace heavily deteriorated concrete curbs on both sides of the existing concrete deck.
- Keep the existing steel culverts, but replace deteriorated concrete abutments on both sides of the existing steel culverts.

Based on our discussion with CVC, since the existing bridge and the culverts are already within flood plain and there is no change on the spans of the bridge and the culverts, an approval from CVC for the above noted repair/upgrade work for all the three options may not be required. The City is encouraged to consult with CVC when the preferred option has been selected and planned to proceed.

5.0 BUDGET ESTIMATE

The budget estimate for Option 1:

• Demolition (bridge deck & culverts)	$40,000.00;
• Bridge superstructure repair/maintenance	$50,000.00;
• Formwork and scaffolding:	$100,000.00;
• New concrete deck:	$150, 000.00;
• Supporting beams reinforcement:	$55,000.00;
• New culverts including abutments	$65,000.00;
• Construction / Testing Allowance	$10,000.00;
• **Sub-Total Construction Cost:**	$470,000.00;
• Engineering design and construction review (@12%):	$56,400.00;
• **Sub-Total Cost:**	$526,400.00;
• Contingency (@20%):	$105,280.00;
Total:	$631,680.00+HST

The budget estimate for Option 2:

• Demolition (bridge superstructure & culverts)	$60,000.00;
• Formwork and scaffolding:	$100,000.00;
• New concrete deck:	$150, 000.00;
• New bridge superstructure (trusses/deck/supporting beams)	$270,000.00
• New culverts including abutments	$65,000.00;
• Construction / Testing Allowance	$10,000.00;
• **Sub-Total Construction Cost:**	$655,000.00;
• Engineering design and construction review (@12%):	$78,600.00;
• **Sub-Total Cost:**	$733,600.00;
• Contingency (@20%):	$146,720.00;
Total:	$880,320.00+HST

The budget estimate for both Option #1 and Option #2 is based on the assumption that the formwork and scaffolding would be supported by the steel trusses and the steel beams underneath the concrete deck and the demolition of the concrete deck would be performed by cutting the existing concrete deck into smaller pieces. Design for the formwork and scaffolding is beyond the scope of this design.

The budget estimate for Option 3:

• Demolition (bridge deck curbs & culvert abutments):	$15,000.00;
• Bridge superstructure repair/maintenance	$40,000.00;
• New deck curbs & culvert including abutments:	$20,000.00;
• **Sub-Total Construction Cost:**	$75,000.00;
• Engineering design and construction review (@12%):	$9,000.00;
• **Sub-Total Cost:**	$84,000.00;
• Contingency (@20%):	$16,800.00;
Total:	$100,800.00+HST

This budget estimate is very preliminary and does not include other costs (not related to the bridge modification work) that may be associated with the overall project that is intended to increase the load capacities for the existing structures. These other costs may include but are not limited to: road widening and vertical alignment (road slope change); fire truck circulation route; hydrant and/or water tank for firefighting; site plan and site servicing plan design for building permit etc.

6.0 LIMITATIONS

This report is intended for use solely by the City of Mississauga. Any use, that a third party makes of this report, including any reliance or decisions based on this report, are the responsibility of the third party. The conclusions presented in this report reflect the existing site conditions, the visual observations made during the site visit and available information as contained in the referenced reports. Professional judgement has been exercised in gathering and analysing the information obtained. Moon-Matz Ltd. is not responsible for any errors in calculations and judgement made due to incorrect information on the reference document.

Moon-Matz Ltd.

Hongxing Xin, M.Eng., P.Eng.
Senior Structural Engineer

APPENDIX A: PICTURES

A1: Existing Culvert Structure

A2: Top of Existing Culvert Abutment

A3: Bride and West Abutment

A4: Deteriorated Bridge Curb Adjacent of West Abutment

A5: Deteriorated Bridge Curb Near Middle Span