AGENDA

HERITAGE ADVISORY COMMITTEE

THE CORPORATION OF THE CITY OF MISSISSAUGA

TUESDAY, JUNE 23, 2015 – 9:30 A.M.

COUNCIL CHAMBER
SECOND FLOOR, CIVIC CENTRE
300 CITY CENTRE DRIVE, MISSISSAUGA, ONTARIO, L5B 3C1
http://www.mississauga.ca/portal/cityhall/heritageadvisory

Members

Councillor George Carlson, Ward 11 (Chair)
Rick Mateljan, Citizen Member (Vice-Chair)
Councillor Carolyn Parrish, Ward 5
Michael Battaglia, Citizen Member
Elizabeth Bjarnason, Citizen Member
Robert Cutmore, Citizen Member
David Dodaro, Citizen Member
Lindsay Graves, Citizen Member
James Holmes, Citizen Member
Cameron McCuaig, Citizen Member
Paul McGuigan, Citizen Member
Matthew N. Wilkinson, Citizen Member

CONTACT PERSON: Mumtaz Alikhan, Legislative Coordinator, Office of the City Clerk
Telephone Number: 905-615-3200, ext. 5425; Fax Number: 905-615-4181
Email Address: mumtaz.alikhan@mississauga.ca

NOTE: Heritage Impact Assessments related to properties in this Agenda can be viewed in person by appointment in Heritage Office, Culture Division, 201 City Centre Drive, 2nd Floor – 905-615-3200 ext. 4064

CALL TO ORDER

APPROVAL OF AGENDA

DECLARATIONS OF CONFLICT OF INTEREST

DEPUTATIONS - Nil

MATTERS TO BE CONSIDERED

1. Approval of Minutes of Previous Meeting held on May 19, 2015

2. Proposed Heritage Designation, 915 North Service Road (Ward 1)
Corporate Report from the Commissioner of Community Services dated June 2, 2015:

RECOMMENDATION

1. That the property at 915 North Service Road be designated under the *Ontario Heritage Act* for its physical/design, historical/associative and contextual value and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

2. That, if there are objections to the designation, City Council direct the City Clerk to refer the matter to the Conservation Review Board.

3. Request to Alter a Heritage Designated Property, Meadowvale Village Heritage Conservation District, 1059 Old Derry Road (Ward 11)
Corporate Report from the Commissioner of Community Services dated May 27, 2015:

RECOMMENDATION

That the request to alter the property at 1059 Old Derry Road, as described in the report from the Commissioner of Community Services, dated May 27, 2015, be approved with the condition that the garage renovation be like-for-like, and the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

4. Request to Alter a Heritage Designated Property, Old Port Credit Village Heritage Conservation District, 14 Front Street South (Ward 1)
Corporate Report from the Commissioner of Community Services dated May 27, 2015:

RECOMMENDATION

That the request to alter the property at 14 Front Street South, as described in the report from the Commissioner of Community Services, dated May 27, 2015, be approved, and the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

5. Request to Alter a Heritage Designated Property, Old Port Credit Village Heritage Conservation District, 41 Bay Street (Ward 1)
Corporate Report from the Commissioner of Community Services dated May 27, 2015:

RECOMMENDATION
That the request to alter the property at 41 Bay Street, as described in the report from the Commissioner of Community Services, dated May 27, 2015, be approved, and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

6. Request to Demolish a portion of a Heritage Listed Property, 6545 Creditview Road (Ward 11)
Corporate Report from the Commissioner of Community Services dated May 19, 2015:

RECOMMENDATION
That the request to demolish the property at 6545 Creditview Road, as described in the report from the Commissioner of Community Services dated May 19, 2015, be approved, and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

7. Heritage Impact Assessment, 4216 Mississauga Road (Ward 8)
Memorandum from the Paula Wubbenhorst, Senior Heritage Coordinator, dated May 19, 2015:

RECOMMENDATION
That the Memorandum from Paula Wubbenhorst, Senior Heritage Coordinator, dated May 19, 2015 entitled *Heritage Impact Assessment, 4216 Mississauga Road (Ward 8)* be received for information.

8. Heritage Impact Assessment, 156 Indian Valley Trail (Ward 1)
Memorandum from the Paula Wubbenhorst, Senior Heritage Coordinator, dated May 19, 2015:

RECOMMENDATION
That the Memorandum from Paula Wubbenhorst, Senior Heritage Coordinator, dated May 19, 2015 entitled *Heritage Impact Assessment, 156 Indian Valley Trail (Ward 1)* be received for information.

9. Approval of Meadowvale Village Heritage Conservation District Advisory Subcommittee Terms of Reference

RECOMMENDATION
1. That the Meadowvale Village Heritage Conservation District Advisory Sub-Committee (MVHCD Sub-Committee) Terms of Reference be approved as presented.
2. That the MVHCD Sub-Committee be composed of:
   (i) Nine (9) members from the Meadowvale Heritage Village Community;
   (ii) One (1) member from the Heritage Advisory Committee;
   (iii) One (1) external consultant to advise the Sub-Committee as ex-officio.

10. SUBCOMMITTEE UPDATES

Heritage Designation Subcommittee
Public Awareness Subcommittee

11. Information Items - Nil

OTHER BUSINESS

DATE OF NEXT MEETING – Tuesday, July 21, 2015 at 9:30 a.m., Council Chamber

ADJOURNMENT

DRAFT MINUTES

HERITAGE ADVISORY COMMITTEE

THE CORPORATION OF THE CITY OF MISSISSAUGA

TUESDAY, MAY 19, 2015 – 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)
Rick Mateljan, Citizen Member (Vice-Chair)
Councillor Carolyn Parrish, Ward 5
Michael Battaglia, Citizen Member
Elizabeth Bjarnason, Citizen Member
Robert Cutmore, Citizen Member
David Dodaro, Citizen Member
Lindsay Graves, Citizen Member
James Holmes, Citizen Member
Cameron McCuaig, Citizen Member
Paul McGuigan, Citizen Member

MEMBER ABSENT: Matthew N. Wilkinson, Citizen Member

STAFF PRESENT: Mark Warrack, Manager, Culture and Heritage Planning, Culture Division
Paula Wubbenhorst, Senior Heritage Coordinator, Culture Division
Andrew Douglas, Grants Officer, Culture Division
Mumtaz Alikhan, Legislative Coordinator

CALL TO ORDER – 9:31 a.m.

The Chair called the meeting to order.

APPROVAL OF AGENDA

Approved (R. Cutmore)

DECLARATIONS OF CONFLICT OF INTEREST

R. Mateljan declared a conflict with Item 11 on the Agenda.

DEPUTATIONS - None.

MATTERS CONSIDERED

The order of the agenda was changed as follows:

1. Approval of Minutes of Previous Meeting held on April 14, 2015

The Minutes of the Heritage Advisory Committee Meeting held on April 14, 2015 were approved as presented.

Approved (J. Holmes)

10. 2015 Designated Heritage Property Grants
Corporate Report from the Commissioner of Community Services dated April 21, 2015:

RECOMMENDATION
HAC-0031-2015
That the Heritage Property Grant Program requests be approved as outlined in the report from the Commissioner of Community Services dated April 21, 2015.

Approved (L. Graves)

9. Request to Demolish a Heritage Listed Property, 15 Shady Lawn Court, (Ward 11)
Corporate Report from the Commissioner of Community Services dated April 14, 2015:

RECOMMENDATION
HAC-0030-2015
That the property located at 15 Shady Lawn Court, which is listed on the City's Heritage Register, is not worthy of heritage designation, and consequently, that the owner's request to demolish proceed through the applicable process.

Approved (R. Mateljan)

2. Request to Alter a Heritage Designated Property, Cordingley House, 6671 Ninth Line (Ward 10)

Carmine Sesta, Owner, withdrew the application on May 12, 2015.

3. Request to Alter a Heritage Listed Property, Meadowvale Village Heritage Conservation District, 7005 Pond Street (Ward 11)
Corporate Report from the Commissioner of Community Services dated April 14, 2015:

RECOMMENDATION
HAC-0024-2015
That the request to alter the property at 7005 Pond Street, as described in the report from the Commissioner of Community Services, dated April 14, 2015, be approved, and the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

Approved (J. Holmes)

4. Request to Alter a Heritage Designated Property, Meadowvale Village Heritage Conservation District, 7050 Old Mill Lane (Ward 11)

Corporate Report from the Commissioner of Community Services dated April 14, 2015:

RECOMMENDATION
HAC-0025-2015
That the request to alter the property at 7050 Old Mill Lane, as described in the report from the Commissioner of Community Services, dated April 14, 2015, be approved and the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

Approved (J. Holmes)

J. Holmes expressed concern with respect to home owners replacing windows, without approval, and thereby changing the look of heritage buildings. Paula Wubbenhorst, Senior Heritage Coordinator, advised that the guidelines speak to materials and if the windows remained unchanged in aperture for example, there is no restriction to replace them. Mark Warrack, Manager, Culture and Heritage Planning, noted that during the process of developing the guidelines, that level of detail had not been a preference for a majority of the residents of Meadowvale Village.

After further discussion, Mr. Holmes agreed that, as Chair of the Meadowvale Village Community Association, he would raise this matter at their next meeting in order to provide feedback to staff with respect to revising the guidelines.

5. Request to Alter a Heritage Designated Property, Old Port Credit Village Heritage Conservation District, 42 Lake Street (Ward 1)

R. Cutmore asked if the owner chose to replace the wood cladding would it need to be of similar material or vinyl if it matches, Ms. Wubbenhorst advised that she would check and advise him.

Corporate Report from the Commissioner of Community Services dated April 14, 2015:

RECOMMENDATION
HAC-0026-2015
That the request to alter the property at 42 Lake Street, as described in the report from the Commissioner of Community Services dated April 14, 2015, be approved, and the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

Approved (R. Cutmore)

6. Request to Alter a Heritage Designated Property, Old Port Credit Village Heritage Conservation District, J.C. Saddington Park, 53 Lake Street (Ward 1)
Corporate Report from the Commissioner of Community Services dated April 29, 2015.

The Chair noted that M. Wilkinson was not able to attend the meeting today, but had sent an email dated May 14, 2015 in which he asked whether the Mississaugas of the New Credit First Nation are supportive of the program. He also expressed a concern with any plaques that commemorates/recognizes an individual organization, and that there is a need for a city-wide interpretive plaque policy.

Peter Jensen, Partner, Jensen Group, advised that the Mississaugas of the New Credit First Nation are supportive of the plaques and that these plaques are part of a 30 plaque provincially funded initiative in Southern Ontario commemorating the Pan Am Games. He noted that part of the purpose is both a contemporary and historical perspective of aboriginal participation in society and a reflection of their culture.

Ms. Wubbenhorst advised that the Office of the City Manager is in the process of developing a plaque policy and that a moratorium could be placed on future plaques until the policy is in place.

The Committee agreed that the matter of a city-wide plaque policy be referred to the Office of the City Manager and an inventory of all City plaques be made as part of the policy being developed.

RECOMMENDATION
HAC-0027-2015
1. That the request to install two plaques at J. C. Saddington Park, 53 Lake Street, as described in the report from the Commissioner of Community Services, dated April 29, 2015, be approved, with the caveat that plaques' format and location may change in the future.

2. That a city-wide plaque policy is needed and that this matter be referred to the Office of the City Manager for action.

Approved (R. Cutmore)

7. Request to Demolish a Heritage Listed Property, 1445 Glenburnie Road, (Ward 1)
Corporate Report from the Commissioner of Community Services dated April 14, 2015:

RECOMMENDATION
HAC-0028-2017
That the property located at 1445 Glenburnie Road, which is listed on the City's Heritage Register, is not worthy of heritage designation, and consequently, that the owner's request to demolish proceed through the applicable process.

Approved (R. Mateljan)

8. Request to Demolish a Heritage Listed Property, 267 Kenollie Avenue, (Ward 1)
Corporate Report from the Commissioner of Community Services dated April 14, 2015:

RECOMMENDATION
HAC-0029-2015
That the property located at 267 Kenollie Avenue, which is listed on the City's Heritage Register, is not worthy of heritage designation, and consequently, that the owner's request to demolish proceed through the applicable process.

Approved (L. Graves)

R. Mateljan left the meeting for Item 11 due to a conflict.

11. Housekeeping Amendment to Recommendation HAC-0072-2013
Memorandum dated April 27, 2015 from Paula Wubbenhorst, Senior Heritage Coordinator.

RECOMMENDATION
HAC-0032-2015
That the Memorandum from Paula Wubbenhorst, Senior Heritage Coordinator, Culture Division, dated April 27, 2015 that Recommendation HAC-0072-2013 with respect to 1125 Willow Lane (Ward 11) be revised to approve the drawings presented at the Heritage Advisory Committee Meeting held on September 17, 2013 and not those included in the Corporate Report dated August 29, 2013 from the Commissioner of Community Services.

Approved (P. McGuigan)

R. Mateljan returned to the meeting.

12. INFORMATION ITEMS

Councillor Carlson circulated a pamphlet from the City of Brampton entitled "*Why I Love*

Heritage" whose audience is primarily the real estate industry. Ms. Wubbenhorst advised the City has similar information available on its website.

OTHER BUSINESS

(a) D. Dodaro advised that he was absent at the last meeting and expressed his interest in participating on the Heritage Designation Subcommittee.

RECOMMENDATION
HAC-0032-2015
That the appointment of David Dodaro to the Heritage Designation Subcommittee be approved.

Approved (J. Holmes)

(b) The Committee thanked Heritage Staff for organizing the very successful and informative Joint Peel Heritage Committees meeting on behalf of HAC at the Holcim Estate on April 24, 2015. Of specific interest was the City of Brampton's façade improvement program in their downtown core. Mr. Warrack advised that staff are in the process of preparing individual community plans beginning with Malton this year and part of the recommendations could include façade improvements.

(c) Councillor Parrish noted that the Federal Government has a program that accepts cultural applications to celebrate Canada's 150th birthday. She said that the deadline for the applications is June 9, 2015 and requested staff to consider submitting applications for items that would qualify under the "*My Malton*" project.

(d) In response to R. Cutmore's question regarding the bright fire engine red colour of the front door of Bradley Museum, Mr. Warrack advised that Heritage staff do not dictate colour and it does not require the Committee's approval. The colour was chosen to attract attention as an identifier. Mr. Warrack further advised that a temporary public art project is being done at Bradley House. He said the building is going to be painted in street art motif for five days and then completely covered up with the historic paint. This project, scheduled for early June, is to bring profile to the site and the City.

(e) Councillor Parrish advised that she will host the Committee's Work Plan planning session at her residence in July on a mid-week evening. Staff will liaise with Councillor Parrish for a suitable date on behalf of the Committee.

(f) In response to the property located on Clarkson Corners where work has been underway for some years without building permits, Ms. Wubbenhorst advised that staff will investigate further, and that it may be appropriate at this time to engage an outside consultant for an opinion.

DATE OF NEXT MEETING – Tuesday, June 23, 2015 at 9:30 a.m., Council Chamber

ADJOURNMENT 10:20 am

Corporate Report

Clerk's Files

Originator's Files

DATE: June 2, 2015

TO: Chair and Members of the Heritage Advisory Committee
Meeting Date: June 23, 2015

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

SUBJECT: **Proposed Heritage Designation**
915 North Service Road
(Ward 1)

RECOMMENDATION:

1. That the property at 915 North Service Road be designated under the *Ontario Heritage Act* for its physical/design, historical/associative and contextual value and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

2. That, if there are objections to the designation, City Council direct the City Clerk to refer the matter to the Conservation Review Board.

BACKGROUND:

Section 27.3 of the *Ontario Heritage Act* states that an owner wishing to demolish a property that is listed on the City's Heritage Register but not designated under the *Ontario Heritage Act* must give 60 days notice of their intention to demolish. The notice must be accompanied by a Heritage Impact Assessment. The purpose of this legislation is to allow time for Council to consider whether the property merits designation under the *Ontario Heritage Act*.

The owner of the subject property has provided said notice. (A location map and aerial photo of the property are attached as Appendix 1). The end of the 60 day waiting period is June 27, 2015. The purpose of the proposed demolition is to allow for the conveyance of the land to create four lots. The Committee of Adjustment has provided conditional consent to the application to divide the property.

The Heritage Impact Assessment, by W.E. Oughtred & Associates, is attached as Appendix 2. The report outlines the history of the property. Fruit farmer William Henry Hedge (1877-1941) commissioned architect Dixie Cox Cotton (1882-1943) to design the Craftsman Bungalow style house. (The Oughtred report includes the original drawings). According to a descendent, the dwelling was built in 1928. Hedge purportedly "cut the stone by hand and brought it down from Milton by wagon." It is the consultant's conclusion that the property is not worthy of heritage designation and that the demolition should be allowed to proceed.

COMMENTS:

Heritage staff do not support the consultant's conclusion. To merit designation under the *Ontario Heritage Act*, a property must meet the criteria for determining cultural heritage value or interest, Regulation 9/06. A property must have physical/design, historical/associative and/or contextual value to merit designation. (The full regulation is attached as Appendix 3). It is the City's contention that the property meets the criteria as follows:

The property has physical/design value as it is a rare example of the Craftsman Bungalow style in Mississauga with buff rough cut (rusticated) limestone, sourced in the vicinity of the municipality.

The property has historical/associative value because it has direct associations with Dixie Cox Cotton, a local architect who was significant to the community. (Named after his uncle Dixie, village namesake Dr. Beaumont Dixie, Cotton is the grandson of area pioneer Robert Cotton). He was the maintenance engineer for St. Lawrence Starch for over twenty years. He designed the factory, feed house and the original Forest Avenue Public School, also in Port Credit. Cotton designed homes throughout the area, initially in partnership with Herbert G. Macklin. (Cotton is featured in the Biographical Dictionary of Architects in Canada 1800-1950). The house also has

historical/associative value because it demonstrates Cotton's work. With its orientation towards the Queen Elizabeth Way, formerly Middle Road, on a large lot, distinctive from the Applewood subdivision that gave rise around it, the property additionally yields information that contributes to an understanding of the early twentieth century.

For these reasons, the property merits designation under the *Ontario Heritage Act*. (The proposed designation statement and background material, prepared by City staff, is attached as Appendix 4). Should the owner wish to pursue the division of the land, an alternative proposal, which allows the house to remain standing, should be investigated.

FINANCIAL IMPACT: There is no financial impact.

CONCLUSION: The owner of 915 North Service Road has provided notice of their intention to demolish the subject property. The property meets the criteria for determining cultural heritage value or interest (Regulation 9/06). As such, the property should be designated under the *Ontario Heritage Act*, thereby protecting the house from demolition.

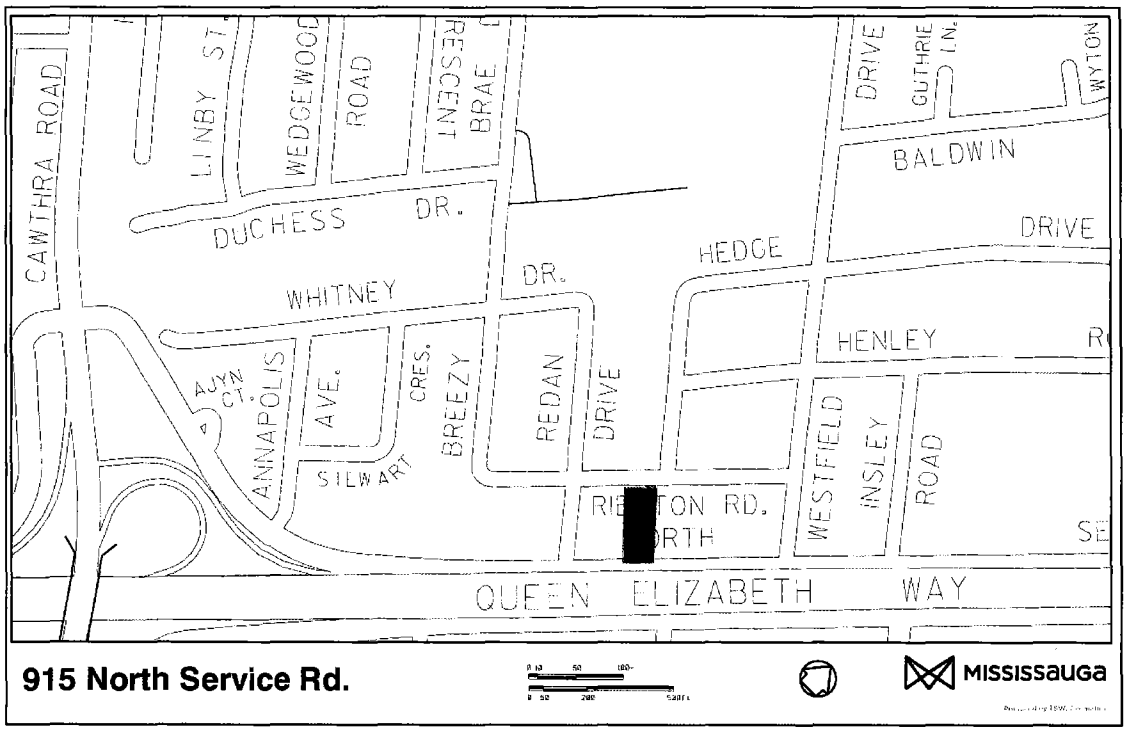
ATTACHMENTS:

Appendix 1: Location Map
Appendix 2: Heritage Impact Statement
Appendix 3: Regulation 9/06: Criteria for Determining Cultural Heritage Value or Interest
Appendix 4: Proposed Designation Statement and Background

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

Prepared By: C. Nin Hernandez and P. Wubbenhorst, Heritage Staff

Appendix 1


CAWTHRA ROAD
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WYTON
BALDWIN
DRIVE
HENLEY
AJYN CT.
ANNAPOLIS
AVE.
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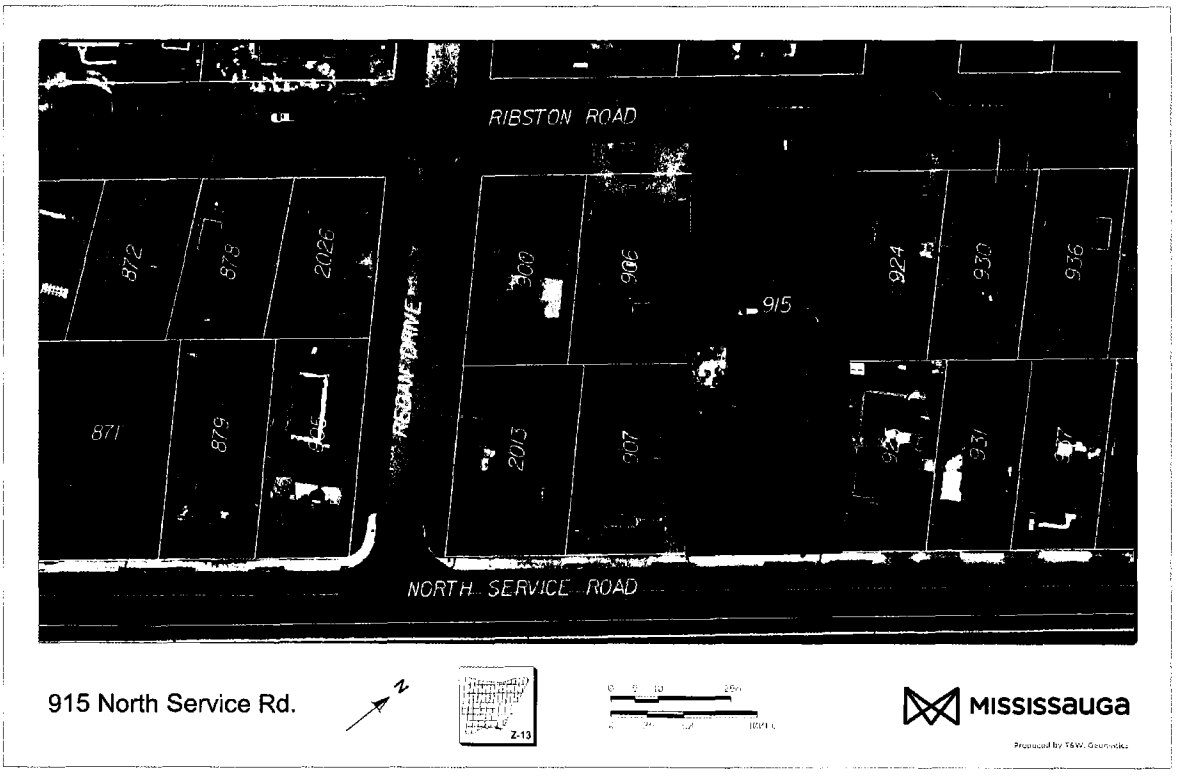
SILWART
WESTFIELD
INSLEY
ROAD
QUEEN ELIZABETH WAY
915 North Service Rd.
MISSISSAUGA


RIBSTON ROAD
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NORTH SERVICE ROAD
915 North Service Rd.
Z-13
MISSISSAUGA

Appendix 3

CanLII

Criteria for Determining Cultural Heritage Value or Interest, O Reg 9/06

Current version: in force since Jan 25, 2006

Link to the latest version:	http://canlii.ca/t/t1t
Stable link to this version:	http://canlii.ca/t/1pqc
Citation to this version:	Criteria for Determining Cultural Heritage Value or Interest, O Reg 9/06, <http://canlii.ca/t/1pqc> retrieved on 2015-06-05
Currency:	Last updated from the e-Laws site on 2015-04-07

Ontario Heritage Act

ONTARIO REGULATION 9/06

CRITERIA FOR DETERMINING CULTURAL HERITAGE VALUE OR INTEREST

Consolidation Period: From January 25, 2006 to the e-Laws currency date.

No amendments.

This is the English version of a bilingual regulation.

Criteria

1. (1) The criteria set out in subsection (2) are prescribed for the purposes of clause 29 (1) (a) of the Act. O. Reg. 9/06, s. 1 (1).

(2) A property may be designated under section 29 of the Act if it meets one or more of the following criteria for determining whether it is of cultural heritage value or interest:

1. The property has design value or physical value because it,
   - i. is a rare, unique, representative or early example of a style, type, expression, material or construction method,
   - ii. displays a high degree of craftsmanship or artistic merit, or
   - iii. demonstrates a high degree of technical or scientific achievement.
2. The property has historical value or associative value because it,
   - i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community,

ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or

iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.

3. The property has contextual value because it,

i. is important in defining, maintaining or supporting the character of an area,

ii. is physically, functionally, visually or historically linked to its surroundings, or

iii. is a landmark. O. Reg. 9/06, s. 1 (2).

Transition

2. This Regulation does not apply in respect of a property if notice of intention to designate it was given under subsection 29 (1.1) of the Act on or before January 24, 2006. O. Reg. 9/06, s. 2.

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915 North Service Road: Designation Statement

The Cultural Heritage Value of The William Hedge Farmhouse

Description of Property

The property known as 915 North Service Road is located on the North Side of North Service Road on Concession 1, Part of lot 9 in the City of Mississauga. It is located in the vicinity of Westfield Drive and North Service Road.

The property contains a single family house, a detached garage and a shed. The single family dwelling - the William Hedge farmhouse - is most easily identified by its one and half storey form, side gabled roof with two dormers, and buff limestone cladding extending to the top of the windows on the second floor. The front entrance faces south, it has two bay windows on the ground floor (south and west side), a front porch with thick stone columns. The house is well set back on the lot.

Statement of Cultural Heritage Value

The William Hedge Farmhouse's cultural heritage value lies in it being a rare example of the Craftsman Bungalow style within the City of Mississauga with buff, rough cut (rusticated) limestone cladding sourced in the vicinity of the municipality. It has interior features telling of the era including cabinetry and millwork, plumbing and heating fixtures. Built in 1928, its architectural form, style and detailing reflect the design work of a local architect: Port Credit born and raised, Dixie Cox Cotton.

The Cultural Heritage Value also lies in its historic association with this architect. He was the grandson of area pioneer Robert Cotton and the nephew of Dr. Dixie Beaumont Cotton, after whom the village of Dixie was named. Dixie Cox Cotton was active in the community: he was maintenance Engineer for the St. Lawrence Starch Co. (a major locally based Canadian Industry) for over twenty years and is attributed for the design of various buildings in the community, reflecting the mainstream architectural design ideas of the time. These were based on references to vernacular and classical architecture within the British Empire, high quality craftsmanship and design, and integration of the arts and architecture as expressed in the Craftsman Bungalow, Edwardian, and Institutional and Commercial Period Revival buildings. Design ideas were carried into interior elements of the house displaying attention to detail in interior design and craftsmanship such as stonework and millwork. The house therefore demonstrates his work, the work of a significant architect to the community. The William Hedge house also has the potential to yield information to the understanding of a community. The farmhouse was built prior to the existence of the Queen Elizabeth Way as a highway, and was retained by the family within the Applewood subdivision of 1953, maintaining its orientation of its original frontage on Queen Elizabeth Highway, known as Middle Road at the time the house was designed.

Description of Heritage Attributes

The property at 915 North Service Road has cultural heritage value as it satisfies the criteria for Determining Cultural Heritage Value or Interest set out in Regulation 9/06 of the Ontario Heritage Act.

The following are the key exterior and interior attributes as a rare example of the Craftsman Bungalow style within the City of Mississauga and as a reflection of the work by D.C. Cotton, architect:

1. The property has design and physical value in its architectural value as a rare example of the Craftsman Bungalow style within the City of Mississauga. The house features recognizable design characteristics of the style, including:
    a. 1 and half storey massing
    b. almost square plan, with protruding bay windows on the south and west wall, protruding stout stone chimney on the west wall
    c. relatively low floor to ceiling heights
    d. low-slung gabled roof with dormers
    e. front porch with thick stone columns
    f. rusticated buff limestone exterior building material, laid in a split course bond, mortar joints that accentuate the bond pattern of the wall.
    g. "punched" style masonry openings for windows, with segmental arch, key stone and straight cut voussouirs
    h. exterior stone extends to the top of the 2nd floor window level and in all facades of the original portion of the house
    i. stone is sourced from Milton
    j. wood three over one pane sash style windows arranged in a variety of compositions: singles, pairs or threes
    k. interior layout with centre hall plan with staircase in main hall
    l. original kitchen shaker style stained oak cabinetry, sink, plumbing fixtures and hardware of the style.
    m. stained wood millwork such as wainscoting, mission style balustrade
    n. limestone fireplaces and built in book case found in the house designed in an integrated way with the fireplace wall.
    o. orientation of the house on the lot

2. The house has associative and historical value because:

    a. It has direct associations with Dixie Cox Cotton, architect born and raised in Port Credit, who is native of Port Credit, Mississauga. He studied at the University of Toronto, and worked both in Toronto and his home town. He is a rare architect born and raised in the municipality known to the community that lived and produced work in the early 20th century in Mississauga, contributing to the building of the character of the municipality as we know it today.

    b. The house has the potential to yield information that contributes to the understanding of a community and culture because the house was built on farmland which was subdivided into suburban lots in the early 1950s. The Hedge family farmhouse stood in the family's fruit farm originally run on the lands. The Hedge family presumably farmed

the land since 1906. Hedge Drive in the subdivision was named after the family. The orientation of the house facing North Service Road as the front entrance is reflective of an earlier time, prior to the building of the Queen Elizabeth Way as a multilane highway in the 1950s. The incorporation of the William Hedge Farmhouse, within the 1953 subdivision and retention to today provides a tangible representation of the history of land use and urban design in the City of Mississauga and it can yield information as to the history of a community.

c. The house demonstrates the work of Dixie Cox Cotton, an architect who is significant to the community. Dixie Cox Cotton is attributed to have designed a number of buildings in the community and Toronto, reflecting the mainstream architectural design ideas of the time, which were based on references to vernacular and classical architecture within the British Empire, high quality craftsmanship and design, and integration of the arts and architecture as expressed in the Craftsman Bungalow, Edwardian, and Institutional and Commercial Period Revival buildings. The ideas reflected in the execution of the interior of the house speak of innovations in middle class domestic architecture in order to achieve practicality while maintaining high quality craftsmanship. This is specially expressed in the kitchen cabinetry materiality and design, including the sink with interior plumbing (faucet) and millwork found throughout the house.

The physical/design attributes listed in point one are also the materialization of the historical and associative value. In addition to these attributes, the following lend the property its historical/associative value:

- Orientation of the front entrance towards North Service Road
- Siting within a large lot that is distinctive from the neighbouring properties

Background

Architectural Value

The house at 915 North Service Road is a custom designed home built in 1928 by Port Credit architect Dixie Cox Cotton. The structure is a custom built example of a style often referred to as the Bungalow style or Craftsman Bungalow style in Canada. While there are a variety of designs within the style, the William Hedge House is most recognizable by its massing of 1 and half storeys (relatively low floor to ceiling heights), side-gabled roof structure that covers the entire main portion of the house extending to the front porch. The roof is presently clad in asphalt shingles and it is held up by rusticated limestone clad exterior walls and porch columns. The massing and form are also based on an almost square plan, with protruding bay windows on the south and west wall, protruding stout stone chimney on the west wall.

The two front facing dormers and bay windows on the ground level of the south and west facades are other identifiable features despite alterations to the dormer's cladding and roof style in the recent times, accentuating the picturesque asymmetry commonly found within the Craftsman Bungalow style variations. Dormers are often found in Craftsman Bungalow homes in a variety of styles, such as shed, hip or gable roof and clad in different materials, often stucco and false timber, shingles or various wood siding materials.

In addition to the front porch, the front façade design features a stone clad bay window on the ground floor level is approximately lined up with the smaller dormer on the second towards the west half of the façade, while the porch area is centered with the larger dormer on the east half. The roof eave is clipped on the west side, visually following the bay window's angled west wall. This is a later alteration. The house was originally designed with the complete west roof corner of the front elevation and an ornamental wood bracket that visually supported it (Image #3). The original dormers on the front façade originally had a shed roof and a hip roof (east and west, respectively).

Part of the north elevation has been altered and covered by a rear extension done in 2003. A small one storey, square plan rear tail containing a back stair and door to the backyard was removed to accommodate this addition. The intrinsic character of the house has not been adversely affected by the recent work. The overall design emphasises simple form, low massing, punched window openings with wood windows, austere material palette drawn from natural materials such as stone and wood, emphasised by the absence of ornamentation. These characteristics are what at a glance connect the style of the William Hedge House to the Arts and Crafts movement and ultimately the Craftsman Bungalow style.

In particular, the William Hedge House is set apart from other examples of the Craftsman Bungalow style surviving in the City by its rusticated buff limestone cladding that extends to the top of the second floor windows and wraps around each original elevation as defined by the roof line and accented by the punched windows. The stone used was reportedly personally brought by wagon from Milton by William Hedge himself specifically to build his house (W.E.O&A, p. 17). In close inspection of the photographs provided of the house in the Heritage Impact Assessment, careful detailing in the stonework is evident,

while keeping the overall rusticated appearance and expressing its natural origin. The material is laid in a coursed, split bond manner and the joints appear recessed enough to emphasize the profile of each stone and the coursing pattern. The colour of the mortar blends with the stone buff colour. Segmental arches crown each window's masonry opening, including a central, skillfully fitted key stone with voussouirs on either side, cut in a modern, straight manner as opposed to angled. The outer layer of the exterior stone walls (cladding) is typically tied to a masonry backup wall that would comprise the superstructure of the house. Given the age of the house, it is a possibility that the back-up wall is constructed out of early concrete block masonry or multi-wythe brick masonry, further investigation is required to confirm full construction techniques of the wall.

The original architectural plans by D.C. Cotton, suggest the existence of a back-up wall as the plan shows a thick outer layer (stone) and inner layer of the wall (possibly the back-up concrete block or brick masonry). The structure has the potential to yield information related to its physical characteristics, in specific, on construction techniques used in the first third of the 20th century by a local architect and trades. D.C. Cotton's drawings for the house, also illustrate the stone pattern and rusticated style of the house. This design idea is expressed in his drawings for the house materialized in the construction of the house, therefore the house expresses D.C. Cotton's ideas and work. Site visit photos provided in the Heritage Impact Statement by W.E Oughtred & Associates Inc., March 2015, show the exterior of the wall in substantially good condition.

Other stylistic elements of the house that are telling of the Craftsman Bungalow influences are the remaining original fenestration and exterior doors. The wood sash windows found in the original part of the house are original to the construction date, except for on the dormers which were altered in 2003. Some of the sash windows have their corresponding storm windows in place. The top sashes of the original windows are squared, not following the arch of the masonry opening for the window. They are currently painted white, arranged either singly, in pairs or in threes, separated by wood mullions and are of a three pane over one style. The main entrance is found under the protection of the front porch and it features a front wood panelled door, cross and bible style, sidelights with stained glass and came-work.

The interior of the house contains the signature characteristics of a modestly elegant arts and crafts influence, carried over to the Craftsman bungalow in Southern Ontario. These include the plan layout with a central entrance hall, stained oak recessed panelling, staircase, and mission style balustrade and trim work. The wall under the stair is panelled and wainscoting along the length of the stair on the wall opposite the railing.

Typical of the period and style is the introduction of built-in cabinetry. The kitchen still maintains the original stained wood cabinetry, with shaker style recessed panelling, original hardware and kitchen sink. The family room retains a built-in book case with glass doors with came glasswork and glass knobs. The bookcase is as high as the fireplace wood mantle located next to it. The fireplace and bookcase designs are therefore integrated physically by the continuation of the wood mantle-piece, a feature that is a characteristic of the Arts and Crafts and Craftsman Bungalow style, to integrate all facets of design, such as interior design aspects and architectural features. There are two fireplaces, one in the living

room and one in the family room. The fireplace surrounds are made of the same stone as the exterior, a feature of the style to seek connection between the natural surroundings and materials and the interior living environment. The original radiators are found throughout the house.

The William Hedge House as a custom designed house, exhibits influences from the Arts and Crafts and Bungalow architectural design styles in its form and materiality, as they came together with regional influences to create a distinct design style named the "Craftsman Bungalow". As such, the William Hedge house is a notable and distinctive example of domestic architecture of the early 20th century and of the Craftsman Bungalow style in the City of Mississauga. The house as it stands is a rare example of a 1 and half storey Craftsman Bungalow style in the City of Mississauga with buff limestone, rough cut cladding sourced in the vicinity of the municipality.

Connections: The Arts and Crafts Movement, The Bungalow Style and the Craftsman Bungalow Style

The Arts and Crafts design architectural characteristics together with the Bungalow Style strongly influenced the development of the Craftsman Bungalow style in the US and Canada, a style that embodied and promised the warmth of home and modern practical living for all families. The Craftsman Bungalow style's popularity quickly spread in the early 20th century with the use of pattern books and catalogue designed houses. However, it also remained a favoured aesthetic expression for larger custom homes.

The Arts and Crafts movement and ideology originated in Britain as a parallel product of late Victorian Britain to emphasise the importance of man-made craftsmanship and design and connection of man with the natural environment and materials, as a response to the increasing industry for machine-made products popularized in the Great Exhibition of 1851 and of the Industrial Revolution (Kalman, 619 and Curtis, 22).

Design in the Arts and Crafts movement sought to integrate all arts and crafts and looked at architecture as a craft as well. The integration of all crafts as expressed in architectural elements resulted in Arts and Crafts home designers to attend to the particular design of the interiors, incorporating woodwork, metal work, glass work, ceramics and textile design among others, to create welcoming interiors that derived their character from the craftsmanship and noble materials selected. The movement mainly influenced domestic architecture although it was also reflected in churches and other building types (Kalman, 619). The design characteristics reflected a connection to historical architectural traditions, such as inheriting picturesque irregularity of form out of the Gothic Revival tradition, use of vernacular English building forms, use of naturally sourced materials in a utilitarian and straightforward manner, while looking at putting these aspects together in a modern manner distinct from previous design approaches.

In Canada, the Arts and Crafts style arrived at the turn of the century with a few talented artists and architects, who came to the country originally from Britain. In Toronto, Eden Smith became the most known for his domestic architecture. He sought to market a new Canadian architecture, by inspiring form on traditional styles found in his new country, such as the Ontario Cottage, vernacular domestic architecture in Britain (Tudor style) and the US (Shingle style), richly textured palette of materials, such

as brick, half-timber techniques and cedar shingles for example for their exteriors. The form and massing and building forms would also evoke the previous styles of inspiration. These are evident in the house he built for himself in Toronto in 1896 (Kalman, 620).

Another contemporary of Eden Smith was Samuel Mclure, from Scotland. In a similar way as Smith, Mclure was influenced by the Arts and Crafts movement as well as American contemporary design with the shared influences, such as the shingle style. Also an admirer of Frank Lloyd Wright's work, Mclure lived on the west coast of Canada, and was a talented water colourist that always paid great attention to the siting of his homes and their connection with the landscape (Kalman, 620). The aesthetics of the house he designed in Victoria BC in 1907, express the evolution of the arts and crafts movement in Canada and its influence from the Bungalow style.

The Bungalow style in Canada was early-on favoured as an expression of Canada's ties to the British empire, and hence its embrace in British Columbia in the early part of its settlement and into the early 20th century. The idea of the "bungalow" came from "... the low-slung hipped roofs with flaring eaves that sheltered verandas around the perimeter..." found in British India and used in warmer parts of the British Empire (Kalman, 625). Mclure would occasionally hint at the precedent found in buildings such as the c. 1860's Colonial Administration Buildings in Victoria, B.C. Later at the turn of the century, the Bungalow concept evolved with other contemporary influences, to form its own style and gained tremendous popularity in the US, mainly in California. Blumenson writes, "... plans for bungalows appeared in many home magazines through the twenties and thirties, assuring their popularity until the advent of the Second World War" (Blumenson, 176).

The Craftsman Bungalow, borne from the influences of the Arts and Crafts movement and the Bungalow style in Canada, together with regional influences, evolved to represent an inviting, modest and practical approach to domestic design in the 20th century. The style has been interpreted in different parts of Canada with the use of locally sourced materials as well as references to influences of styles found within the British Empire. The style originated in the Bay Area of Sand Francisco in the first decade of the 20th century and it is sometimes called "California Bungalow" style. It was popularized through catalogues of American builders in the 20s and 30s such as the Sears and Yoho and Merrit catalogues. Another earlier publication, "The Craftsman" magazine was based on the principles of the fathers of the Arts and Crafts movement, Ruskin and Morris. It featured furniture and architecture with an emphasis design, craftsmanship, and 'truthful" nature of materials and showing the integrated relationship among these in good design. In Canada, a number of organizations took up the cause to develop "handicrafts and train workers" in the traditions of the arts and crafts way of thinking. In Toronto, one of the most influential was the Guild of All Arts, founded in 1932 and the Women's Art Association of Toronto (Kalman, 627).

In 1928 at the time of the building of the William Hedge house, Dixie Cox Cotton, would have been a seasoned practitioner, as he was 46 years old when the house was built. He studied at the University of Toronto's Architecture program and apprenticed under Herbert G. Macklin from 1900 to 1907 (Biographical Dictionary of Architects). Little is known of Macklin and his influences in design, however stylistic influences are clear in D.C Cotton's William Hedge house. In reviewing the aesthetic trends in

architectural design of the time, the William Hedge House is a reflection of the ideas of design of the time by a local architect.

Associative and Historic Value

Dixie Cox Cotton, Home Grown Architect

Dixie Cox Cotton is the architect who designed the William Hedge House. A copy of the original design drawings exists specifically noting "Plans of Residence To Be Built On The Middle Road, Dixie, Ont. - For Mr. Wm. Hedge D.C. Cotton Architect" (W.E.O, p. 32-36). He was the grandson of area pioneer Robert Cotton and the nephew of Dr. Dixie Beaumont Cotton, after whom the village of Dixie was named. The Robert Cotton House is designated under Part IV of the Ontario Heritage Act.

Cotton is included in the Biographical Dictionary of Architects in Canada 1800-1950. His biography therein is as follows:

"Dixie Cox Cotton was born in Port Credit, Ont. on 19 September 1882 and articled with **Herbert G. Macklin** from 1900 to 1907. In 1908 he formed a partnership with Macklin and operated an architectural firm called The Designing & Draughting Co. which can be credited with designs for several houses in the Rosedale and Forest Hill neighbourhoods of Toronto. When Macklin resigned in 1919 Cotton became the sole owner of the firm and moved his practice from Toronto to Port Credit (where he had been a life-long resident). Cotton later became a maintenance engineer for the St. Lawrence Starch Co. He died in Port Credit on 9 September 1943."

Under the headline "Dixie Cox Cotton, 60 Architect, is Dead," the *Toronto Star* declares that Cotton was one of the Royal Architectural Institute's "most active members." *The Port Credit Weekly* discloses that: "He was maintenance Engineer for the St. Lawrence Starch Co. for over twenty years...A graduate of the University of Toronto, he was engaged in private practice in Toronto for many years...He designed and built many homes in Port Credit and was active in helping with the building of St. Andrew's Memorial Church."

In the obituary that appeared *in Port Credit Weekly*, September 16, 1943 also describes his involvement in the community: "He was a member of the St. Andrew's Presbyterian Church and a life member of Mississauga Lodge, A.F. and A.M."

His work with the St. Lawrence Starch company located in Port Credit is of note for the length of the period of his service to a major locally based industry. The Ontario Archives description of the St. Lawrence Co. collection states: "St. Lawrence Starch Company Limited was a major Canadian manufacturer of corn based starch, glucose and feed products, established in 1889 by John Gray, Archie Hutchison, Robert Kilgour, Joseph Kilgour and Jessie Malcolm and based in Port Credit, Ontario. The St. Lawrence Starch Company was a family owned private company specializing in the manufacturing of corn based products for over a century... in 1989-1990 St. Lawrence Starch, as a user of corn, was forced to downsize. It sold its major trademarks to Bestfoods and ceased large-scale domestic production... The Company continues to operate as a much smaller importer and exporter of corn products across the

Canada-United States border. It is still owned and operated as a private company by the Gray family." The company was a major employer in Port Credit for a century. Today, the administrative building remains and the rest of the site has been redeveloped providing a community accessible and restored waterfront area, including a commemorative and interpretative collection of mill stones and information panels on the significance of the company to the community.

Dixie Cox Cotton is attributed to have designed Percy Hogetts' 1913 home at 838 Clarkson Road South, his own home at 1312 Hurontario Street and the demolished 1939 home of Agnes Gray at 21 Hurontario Street. He also has been identified by local historic sources as having designed the St. Lawrence Starch factory (1919-20), the c. 1920 Feed House and likely other buildings at this facility, as well as the original (now demolished) Forest Avenue Public School, which was built in 1917 (See Images #5 -7).

The Forest Avenue Public School was located in Section 20, of the Toronto Township. The original school was torn down in the early 1970s, for a larger school to be constructed. The current address of the site is 20 Forest Avenue, in Port Credit. Joan Reid in her compiled history of the school writes, "[a]t the official opening in September 1917 the newspaper boasted that the building ranked architecturally "with the finest in the province" and that the three acres of grounds once levelled will provide playgrounds for the school and also facilities for athletic events in the village." The school became a Public and Continuation school teaching up to grade 12 in 1919. Students would have to go outside of the community for grade 13. The building of the school was significant to the community because it would provide space for children to stay in school longer in the community. As Reid explains "[i]n 1916, at least "a score" of Port Credit scholars were going to Parkdale Collegiate in Toronto for high school... the fees were prohibitive for at least six pupils who had passed the entrance examinations ...the new continuation school would cost $25 dollars per pupil whereas sending pupils to high school in Toronto would cost $100 per pupil." Later in 1925 an addition was designed by D.C Cotton as well (Reid, p. 2-4).

There are few known Toronto Township architects from the early twentieth century. Dixie Cox Cotton was involved in a number of significant projects in the community which demonstrates the high level of trust the community had in him at the time.

The Hedge Family

The Heritage Impact Assessment describes that prior to the Hedge ownership, the farm passed the hands of several owners since the original land grant registered in 1807. The Hedge family acquired the land for their fruit farm in 1906 from the Leaver family, who had owned it since 1886. The William Hedge farmhouse was built in 1928 for the family on their fruit farm on Concession 1, Part of Lot 9.

The lands are noted as the mortgagees in a plan of subdivision for suburban residential lots approved in 1953 that included adjacent lands owned by the Stewart family. At this time, the Hedge farmhouse was retained under Hedge ownership on the largest residential lot of the subdivision and the rest was sold to Applewood Dixie Limited. The area became known as Applewood, in a tribute to the fruit farming economy characteristic of the area. Hedge Drive in the subdivision was named after the family. The orientation of the house facing North Service Road as the primary entrance is reflective of an earlier time, prior to the building of the Queen Elizabeth Way as a multilane highway in the 1950s. The

properties on North Service Road, originally had a Queen Elizabeth Highway address (W.E.O,p. 15). The Queen Elizabeth Highway was originally known as the Middle Road. The incorporation of the William Hedge Farmhouse, within the 1953 subdivision and retention to today provides a tangible representation of the history of land use and urban design in the City of Mississauga and it can yield information regarding the history of the community.

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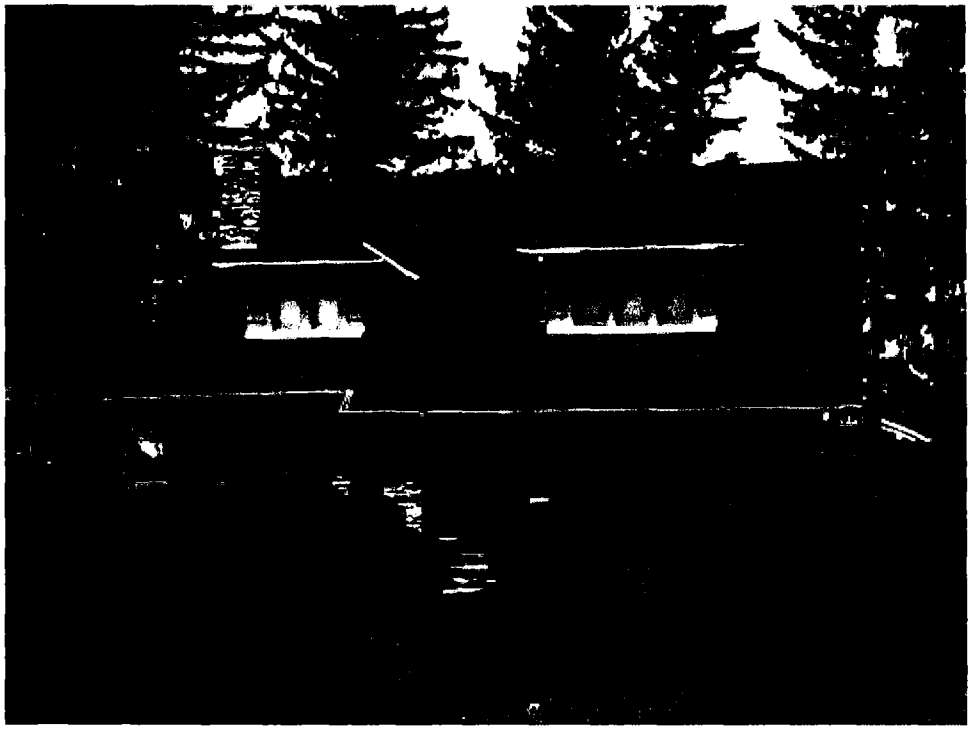
Archeion, Archives Association, Ontario Archives,

http://www.archeion.ca/st-lawrence-starch-company-collection

Images

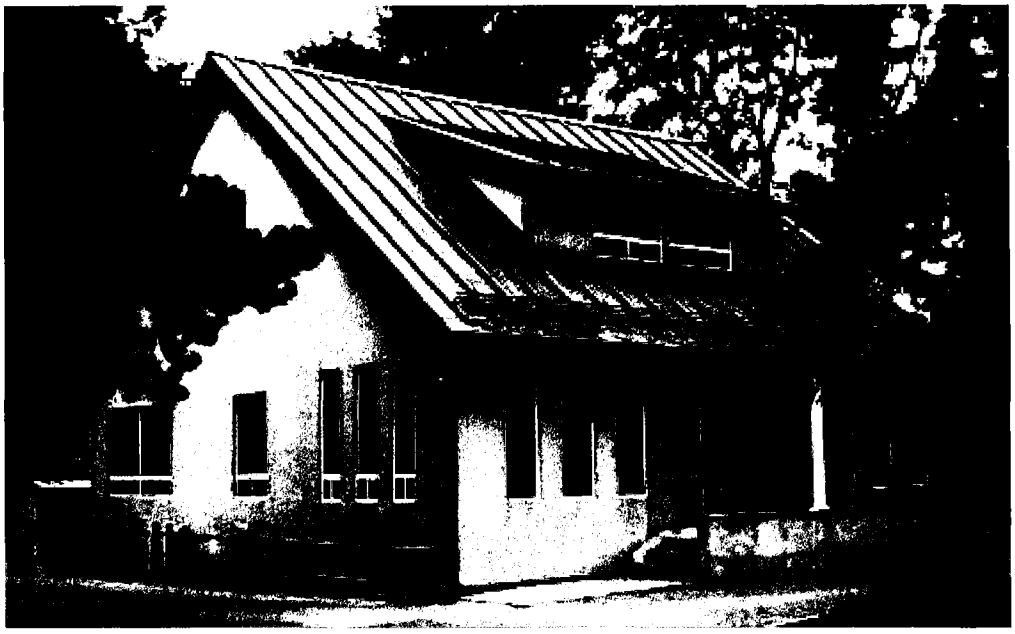
1. Hedge House, Applewood, 1947. Photo courtesy of Heritage Mississauga.

2. The Hedge Family, 1901. Photo: Courtesy of Heritage Mississauga.



3. The William Hedge Farmhouse, c.2000, prior to 2003.

4. Northwest side of Percy Hodgetts House, c. 1920. House built in 1913. Photo courtesy of Sandra Lindsay.



5. 1312 Hurontario Street, home of Dixie Cox Cotton, built c. 1920. Photo taken 2009.

6. 21 Hurontario Street, home of Agnes Gray, 1939, demolished in 1993.

7. Forest Avenue Public School, built 1917. Photo courtesy of PAMA.

8. William Hedge Farmhouse, South Side of Property, May 2015.

9. William Hedge Farmhouse, North Side of Property, May 2015.

MISSISSAUGA

Corporate Report

Clerk's Files

Originator's Files

DATE: May 27, 2015

TO: Chair and Members of the Heritage Advisory Committee
Meeting Date: June 23, 2015

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

SUBJECT: **Request to Alter a Heritage Designated Property**
Meadowvale Village Heritage Conservation District
1059 Old Derry Road
(Ward 11)

RECOMMENDATION: That the request to alter the property at 1059 Old Derry Road, as described in the report from the Commissioner of Community Services, dated May 27, 2015, be approved with the condition that the garage renovation be like-for-like, and the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

BACKGROUND: The subject property is designated under the *Ontario Heritage Act* as it forms part of the Meadowvale Village Heritage Conservation District. The owner proposes a second storey addition. The proposal, by architect Christopher Wallace, is included in the Heritage Impact Statement by Paul Oberst, attached as Appendix 1.

COMMENTS: The proposal is for a half storey addition on top of the existing house. The proposed height is 45 cm in excess of that permitted under the zoning by-law. The lower level would be sheathed with board 'n batten siding, an homage to what currently exists; the upper level would be

sheathed in cedar shingles, thereby distinguishing it from the original single storey. Two symmetrical dormers would bring needed headroom to the front upper storey. A simple veranda is also proposed. The existing garage would also be retained but would be re-clad with horizontal siding and a new garage door and side door added.

The 2014 Meadowvale Village Heritage Conservation District Plan states that "exterior additions should be located at the rear, or on an inconspicuous side of the building." Due to the small lot size, a rear addition is not practical. The altered roofline and inclusion of dormers on the principal façade is not consistent with guidelines for additions. However, this additional headroom is needed to make the renovation viable, and the general proposed design is consistent with the village character.

Essentially the proposal would change the overall look of the dwelling. Most of the heritage attributes, however, would be retained. These include the "modest scale, set-back, location [...] on the lot" and "wood siding finish."

The style, massing and form of this new shell are consistent with the overall historic pattern of construction throughout the village and reflective of the district's simplicity, as per the guidelines for new construction.

Oberst states in the Heritage Impact Statement that the garage "will be retained, but re-clad to match the house." This statement is not consistent with the drawings that show horizontal rather than vertical board 'n batten siding. The stated proposal is preferred to the drawn one, as it is consistent with the guidelines. Similarly, the doors – the garage door and side entry – should match what exist.

As such, the proposed alteration should be approved with the condition that the garage renovation be like for like, i.e. that the cladding and doors match what currently exists.

FINANCIAL IMPACT: There is no financial impact.

CONCLUSION: The proposed alteration retains the modest size and low volume lot coverage of the village's built form. The height and dormers make the renovation viable. The proposal should be approved with the condition that the garage renovation is consistent with the existing cladding and doors.

ATTACHMENTS: Appendix 1: Heritage Impact Statement

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

Prepared By: Paula Wubbenhorst, Senior Heritage Coordinator

MISSISSAUGA

Corporate Report

Clerk's Files

Originator's Files

DATE: May 27, 2015

TO: Chair and Members of the Heritage Advisory Committee
Meeting Date: June 23, 2015

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

SUBJECT: **Request to Alter a Heritage Designated Property**
Old Port Credit Village Heritage Conservation District
14 Front Street South
(Ward 1)

RECOMMENDATION: That the request to alter the property at 14 Front Street South, as described in the report from the Commissioner of Community Services, dated May 27, 2015, be approved, and the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

BACKGROUND: The subject property is designated under the *Ontario Heritage Act* as it forms part of the Old Port Credit Village Heritage Conservation District. Properties in this district are divided into three categories: "historic," complementary" and "other." The subject property is "complementary."

The owner of this property proposes an addition at the front of the house. The property currently has a commercial use. The proposed addition, by The Hicks Partnership Architects Inc., is included in the Heritage Impact Statement, attached as Appendix 1. An addendum e-mail is attached as Appendix 2.

COMMENTS: The proposal is to remove the existing enclosed front porch and construct a two storey addition, with some additional loft space, on the front façade.

Sections 5.5 and 5.8 of the Old Port Credit Village Heritage Conservation District Plan state that height should be kept to two storeys or less and that rear additions should be "favoured" over front ones. The plan makes allowances that front additions "may sometimes be justified."

The subject house is rather nondescript and adjacent to a house of significant height with a shallow setback from the street. With this in mind, and for the reasons outlined in the addendum e-mail cited earlier, the proposed front addition should be allowed to proceed.

FINANCIAL IMPACT: There is no financial impact.

CONCLUSION: The proposed addition does not detract from the heritage character of the Old Port Credit Village Heritage Conservation District. As such, it should be approved.

ATTACHMENTS: Appendix 1: Heritage Impact Statement
Appendix 2: Addendum E-mail

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

Prepared By: Paula Wubbenhorst, Senior Heritage Coordinator

APPENDIX 2

Paula Wubbenhorst

From: Bill hicks <bhicks@hickspartners.ca>
Sent: 2015/05/08 8:01 PM
To: Paula Wubbenhorst
Cc: 'Cynthia Gibson'
Subject: Adventure Canada

Paula

Thank you for meeting today to discuss the project on Front Street in Port credit. I wanted to cover some of the points and reasoning behind the proposed development alternative.

Heritage Impact Statement ' Addendum May 8th 2015'

While we considered the many options on how to develop the property we started of course with our clients wish list on how this site where they have been for many years could meet their objectives for expansion of the company.

These included the following
No impact on existing parking
Allow them to live and work within the building while the phased expansion of the building took place
Provide for additional space that met the needs of their clientele
Provide for expansion mainly of the front of office spaces i.e. boardroom , two executive offices and a new entry
Minimize structural changes to the building
Minimize the need for new building code upgrades within the building
Provide a new and appropriate face to the street that reflects their position within the travel industry as they are a company that is recognized worldwide for their unique adventure trips and their commitment to the environment.

In studying the possibility of an addition to the back of the building this would not have met most of these objectives as it would eliminate parking and the need to pay additional cash in lieu of payments to the city would have meant a relocation.
Adding on the back would not allow them the opportunity to create a new presence on the street as the existing building is non-descript and poorly designed in terms of it =s urban street presence
Adding on the back would have meant structurally relocating two stairs within the house which would have been impossibly disruptive to the existing operation and would have resulted in an inefficient floor pan
The addition on the back would not allow them to upgrade their front of house requirements i.e. the spaces they desperately need for clients and visitors and executives that is readily accessible to the public.
Undertaking a balance d addition to the front and the back would not have met their construction cost objectives nor their ability to phase the project.

For all of these reasons I have recommended that the most appropriate and reasonable and in fact desirable addition should be located at the front of the house. In fact this gives us an opportunity to add a positive improvement to the street scape of the district and to change the rather poor architectural character of

the existing building while maintaining important elements such a new front porch , public activity at the face of the building along with many other positive attributes.

I trust that the committee will find favour in our proposal and that they will recognize that notwithstanding the policy that additions should be encouraged on the back of the building I believe that policy reflected a desire to not alter buildings that were of important architectural character which is not a category in which I would place this building having been the original owner of the old Wilcox hotel and then restoring it with my partner Alex Temporale I am very familiar with the character of the street and the district and I feel this would be a very positive enhancement to the area.

Original study text is note below

1. **Addition to the back of the building**

   This would eliminate parking and would force parking to the front of the building which would be contrary to the urban design objectives of the City of Mississauga

   The addition at the back of the building would cut off an existing fire exit and would make it virtually impossible to meet exit codes for fire safety without reworking the entire interior of the building

   The addition at the back of the building would impact the continuous use of the building during construction

2. **Addition on top of the building**

   The City and the heritage area prefer 2 storey buildings versus three

   The addition of a third storey puts the building into a different OBC code requirement requiring must more extensive fire separations and fire exit requirements which would mean rebuilding the entire building

   The addition on top would change the scale of the building

   It would make the building uninhabitable during construction

3. **Excavation and underpinning of the building**

   This was discounted as it would mean lifting the entire building

   It would mean a substantial increase in the construction costs.

   It would result in less desirable office space and it being on a different level it would not meet their program and functional requirements.

   This option would not permit continuity of uses

hicks partners
DISTINCTIVE ARCHITECTURE

4. Demolition and rebuild

While this option was seriously considered it was eliminated due to the cost of the building far exceeding any sort of realistic budget.

The demolition would mean they would need temporary accommodation for their office for a one year period which was incompatible with their goals and ongoing operational requirements

5. Add to the front of the Building

This solution allowed for a cost effective solution.

It allows us to meet OBC fire exist requirements and to improve upon them.

The spaces being added are in the correct location based on their programmatic requirements including the boardroom and two new director's offices which must be accessible to visitors and being at the back of the building would not be appropriate.

It permitted them to maintain occupancy of the building during construction.

It was a much more financially viable scheme.

It has no impact on parking which is hidden and much more desirable being in the back of the building

It provided the opportunity to add a much more attractive and complementary addition that would result in an improvement in the heritage district. In the opinion of the writer and architect there was no redeeming quality to the existing building and it does not add to or complement the streetscape of this important street.

It maintains 5 parking space on site which is still short of the 9 required and thus much more desirable than eliminating all parking on the site.

The need to provide parking cash in lieu of [payments for all of the required parking would totally compromise the financial viability of the project.

William R. Hicks
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Partner
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MISSISSAUGA **Corporate Report**

Clerk's Files

Originator's Files

DATE: May 27, 2015

TO: Chair and Members of the Heritage Advisory Committee
Meeting Date: June 23, 2015

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

SUBJECT: **Request to Alter a Heritage Designated Property**
Old Port Credit Village Heritage Conservation District
41 Bay Street
(Ward 1)

RECOMMENDATION: That the request to alter the property at 41 Bay Street, as described in the report from the Commissioner of Community Services, dated May 27, 2015, be approved, and the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

BACKGROUND: The subject property is designated under the *Ontario Heritage Act* as it forms part of the Old Port Credit Village Heritage Conservation District. Properties in this district are divided into three categories: "historic," complementary" and "other." The subject property is "historic."

The owner proposes an addition and a replacement garage. The proposed addition, by Michael Spaziani Architect Inc., is included in the Heritage Impact Statement, by Richard Collins, attached as Appendix 1. An addendum and garage drawings are attached as Appendices 2 and 3 respectively.

COMMENTS: The addition is proposed at the rear. It has a similar look to the existing 19th century dwelling but is differentiated from it by a "hyphen." The "hyphen" is considerably lower in height than the original house and the addition is slightly lower in height. The

proposal includes a veranda that extends from the existing one (on the north side) across the west and south.

Section 2.2.2.9 of the Old Port Credit Heritage Conservation District Plan states that: "An addition to a building of historic interest will be lower in height and smaller in size than the building of historic interest whenever possible; [...] and have regard for the plan's guiding principles." The proposal generally adheres to these principles.

Principle 4.15 is "Distinguish new work from old, but complement it" A sub point here states "The design features you find on your building of historic interest can inspire the design features you put on the addition. [...] A wood-sided building suggests a wood-sided addition." This is the approach taken in the subject proposal, with the "hyphen" serving as the differentiator.

The design is simple and does not detract from the historic house. The proposed garage and car port is also simple and kept well back from the front of the house, as per the guidelines. As such, the proposed alteration should be approved.

FINANCIAL IMPACT: There is no financial impact.

CONCLUSION: The proposed addition and garage meet the general intent of the Old Port Credit Village Heritage Conservation District Plan. As such, it should be approved.

ATTACHMENTS:
Appendix 1: Heritage Impact Statement
Appendix 2: Addendum
Appendix 3: Garage Elevations

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

Prepared By: Paula Wubbenhorst, Senior Heritage Coordinator

APPENDIX 2

Addendum to the Heritage Impact Assessment for 41 Bay Street, Port Credit

Outbuildings:

Current photos of the existing pool house are provided below. This brick building originally functioned as a pool house and storage. It was built in 1988 when the pool was installed or shortly after. The building is red brick with a black roof and does not share any of the same materials as the house. It was situated poolside but now that the pool has been removed the pool house is noticeably oddly placed on the property and in relation to the house.

The building is not in good shape, has been repeatedly and problematically inhabited by raccoons and is in need of a new roof, doors and windows. This building holds no significant heritage value. It is not only in disrepair, but is currently situated where the new extension would be located, requiring it to be removed.

Proposed Single Car Garage:

Below is a drawing of the proposed single car garage to be situated at the South West corner of the property, taking into account the required setbacks from the neighbouring properties as per Principle 4.15 of the Old Port Credit Heritage Conservation District Plan:

- "Setting an addition as far back from the building of historic interest as possible on the property is a well-established method for giving prominence to the historic building. New garages are best designed as separate buildings sited behind, or towards the back of, the house."

The garage is clad in the same siding as the historic house. Also window design, porch columns and bracket details will match the original details.

It is comparatively small in scale to the house as per Objective 2.2.5a and is the preferred one-storey detached design as per Policy 2.2.5.3.

Exterior Wall Covering:

In accordance with Principle 4.15 of the Old Port Credit Heritage Conservation District Plan the addition is clad in white wood siding to complement the original house.

"4.15 Principle: Distinguish new work from old, but complement it.

- The design features you find on your building of historic interest can inspire the design features you put on the addition. What kind of wall covering exists or used to exist on your building? A wood-sided building suggests a wood-sided addition."

The original building is distinguished from the new addition by use of a "hyphen" that is of less height and plan width, connecting the rear addition that is similar in size to the original house with a reduced second floor height to effect a similar wall scale. The image of the building from the public streets will remain significantly unaltered.

Interior Architectural Features:

A complete renovation of the interior of the house was done in the 1990's. The floors were replaced linoleum in the kitchen, ceramic tiles in the foyer and bathroom and prefinished maple wood boards throughout. Plaster walls and ceilings were removed and the house was insulated and re-dry walled. The west-facing side door into the kitchen was dry walled over on the inside to allow for more cupboards and counter space. No original architectural features remain inside.

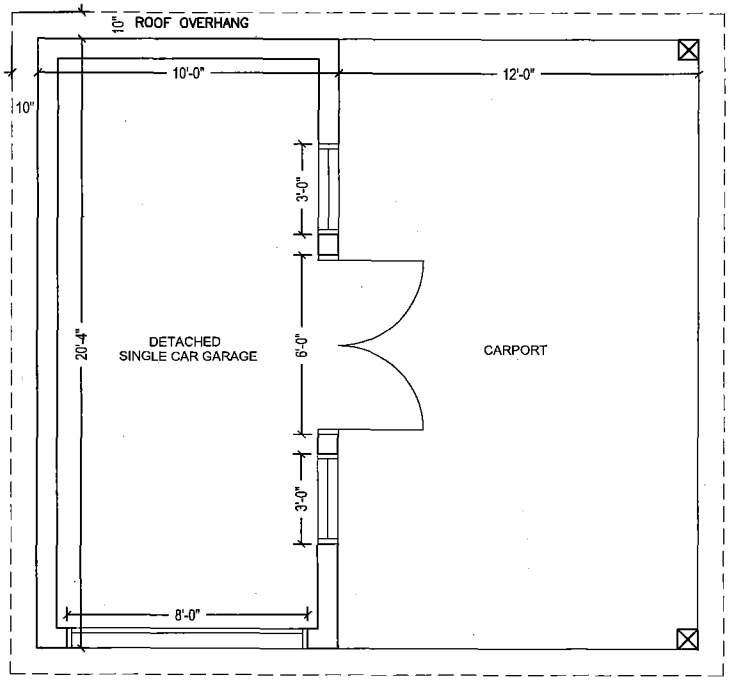
3. Summary Statement

In summary there are no negative impacts on the cultural heritage resource as a result of the proposed addition to the McGregor Thompson House at 41 Bay Street. There is no destruction of any significant heritage attribute. The original building remains unaltered, authentic and prominent on the site. The proposed addition is sympathetic to the heritage attributes and carefully scaled to be diminutive in respect to the original house. The character of the addition draws from the details and character of the original building and will have the same siding and trim finishes as the original house. The addition sits fully behind the existing historic house and has limited visibility from the street. The addition is complementary to the surrounding neighbourhood in design and scale.

No roof additions are planned and all new work occurs beyond the rear wall of the existing house. The subject lot is large enough to accept the addition without any zoning amendment or impact on adjacent properties. The total building footprint occupies less than 15% of the subject lot with a landscaped area of 65% providing ample landscape space around the house and allowing existing trees and landscape to flourish. No shadow or incompatible massing is created by the addition that alters the appearance of or changes the viability of the heritage attribute. There is no land disturbance such as a grade change that alters soils and drainage patterns that adversely affect this cultural heritage resource.

The property is designated under the terms of Part V of the Ontario Heritage Act. The proposed addition and garage respect the four items of Regulation 9/06 for which the building and property complies. The proposed addition and garage do not alter architectural features that define the house as an early example of a middle-class Victorian-era residence nor do they alter the position of the home on the property and the massing of the home in any manner that would detract from the home's existing physical, functional, visual and historical link to the Old Port Credit Heritage Conservation District.

Given the above analysis, the proposed design is deemed to be compatible and desirable for the subject heritage asset while respecting and maintaining its heritage designation and the integrity of its attributes. The proposed design respects the objectives, policies and principles of the Old Port Credit Village Heritage Conservation District Plan. 41 Bay Street has been and will be sensitively cared for. The Heritage Advisory Committee can recommend the proposed design with confidence.



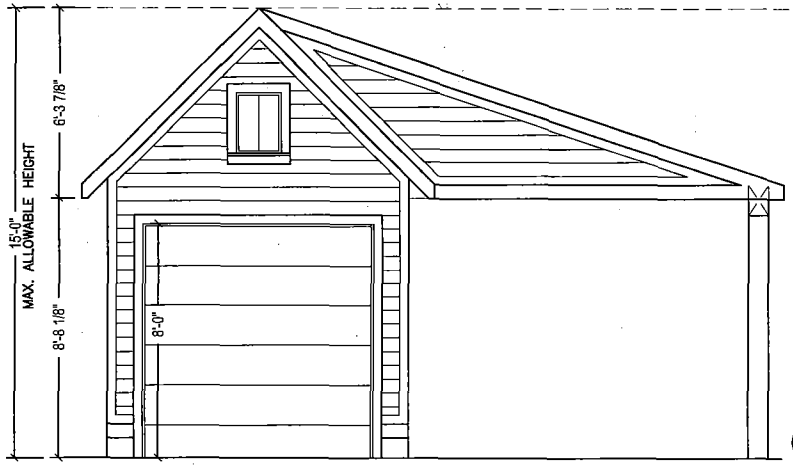
1 FLOOR PLAN

NOTES:

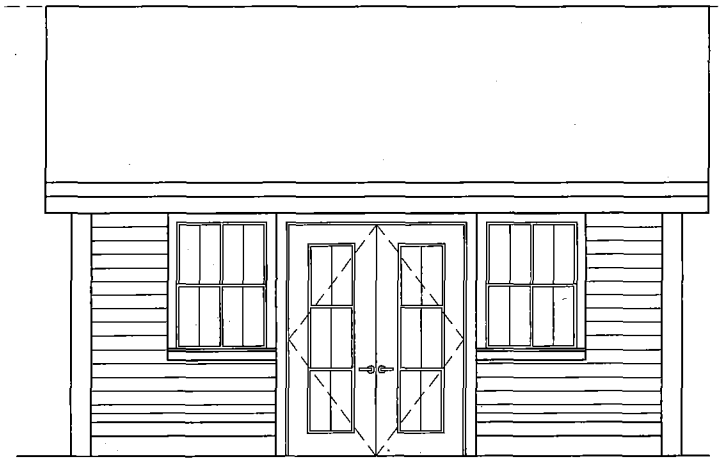
R15–1 ZONING

MAXIMUM ALLOWABLE GFA = 3,283sf (305sq.m)
PROPOSED ADDITION TO HERITAGE SINGLE FAMILY DWELLING = 3,080sf
PROPOSED NEW CONSTRUCTION DETACHED GARAGE = 203sf

MATERIALS TO MATCH THOSE ON PROPOSED HERITAGE SINGLE FAMILY DWELLING, INCLUDING SIDING, WINDOWS, DOORS AND ROOFING.
SIDING DETAILS TO MATCH THOSE ON PROPOSED HERITAGE SINGLE FAMILY DWELLING.



2 NORTH ELEVATION



3 WEST ELEVATION

LA

41 BAY STREET

DETACHED SINGLE CAR GARAGE - HERITAGE SUBMISSION

DATE: 16 MAY 2015
SCALE: 1/2" = 1' 0"

MISSISSAUGA

Corporate Report

Clerk's Files

Originator's Files

DATE: May 19, 2015

TO: Chair and Members of the Heritage Advisory Committee
Meeting Date: June 23, 2015

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

SUBJECT: **Request to Demolish a portion of a Heritage Listed Property 6545 Creditview Road (Ward 11)**

RECOMMENDATION: That the request to demolish the bridge at 6545 Creditview Road, as described in the report from the Commissioner of Community Services, dated May 19, 2015, be approved, and that the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

BACKGROUND: The owner received permission to demolish the bridge at 6545 Creditview Road last spring. (The corresponding report is attached as Appendix 1.) The demolition has not yet occurred. In April 2014, the heritage permit by-law was updated with a year expiry clause. As such, this item is again before the Heritage Advisory Committee.

COMMENTS: The bridge continues to have no cultural heritage value. As such, the removal should be approved.

FINANCIAL IMPACT: There is no financial impact.

CONCLUSION: The proposal to demolish the bridge at 6545 Creditview Road is before the Committee due to a new expiry clause in the heritage permit by-law. The bridge does not merit designation under the *Ontario Heritage Act*. As such, the proposed demolition should be allowed to proceed.

ATTACHMENTS: Appendix 1: March 20, 2014 Corporate Report

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

Prepared By: Paula Wubbenhorst, Senior Heritage Coordinator

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APPENDIX 1

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*

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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.

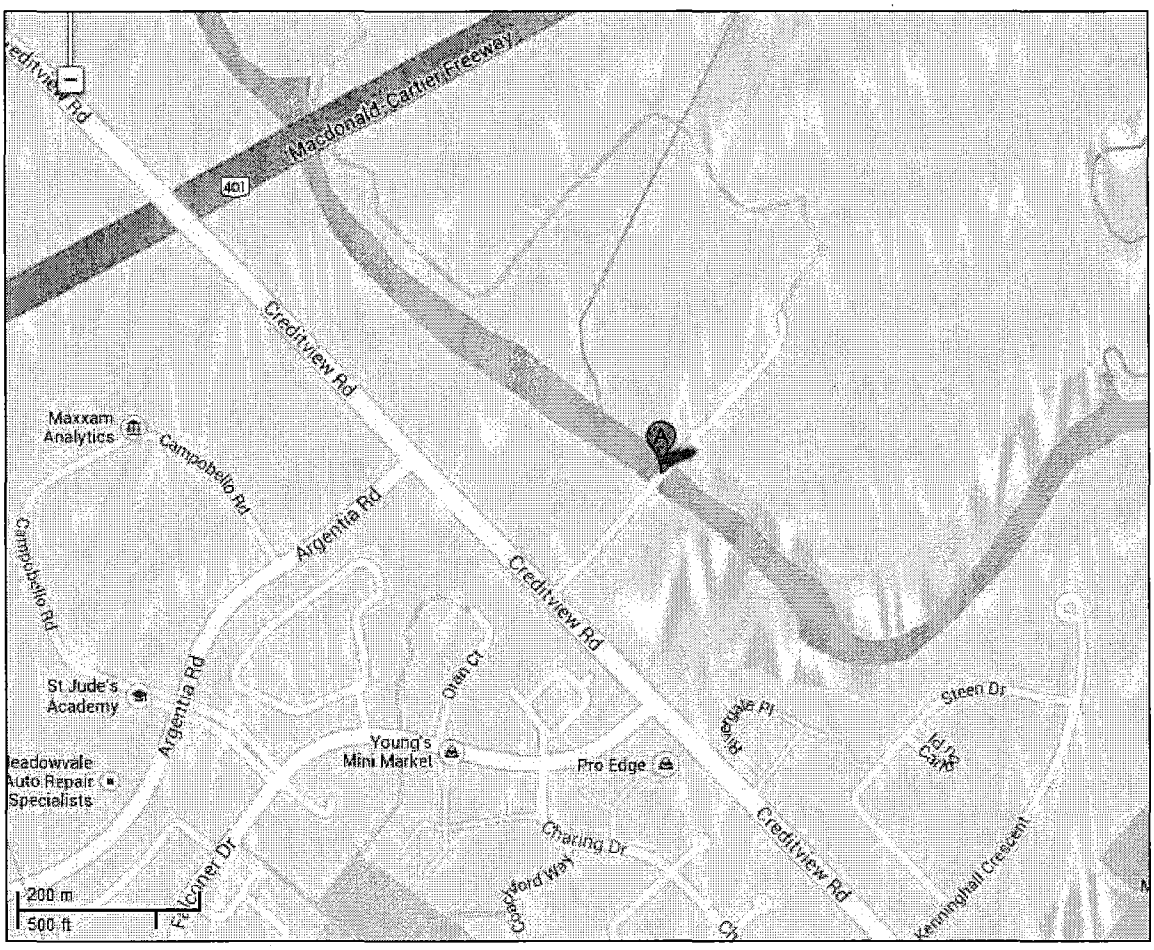

Figure 1: Key Plan

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.

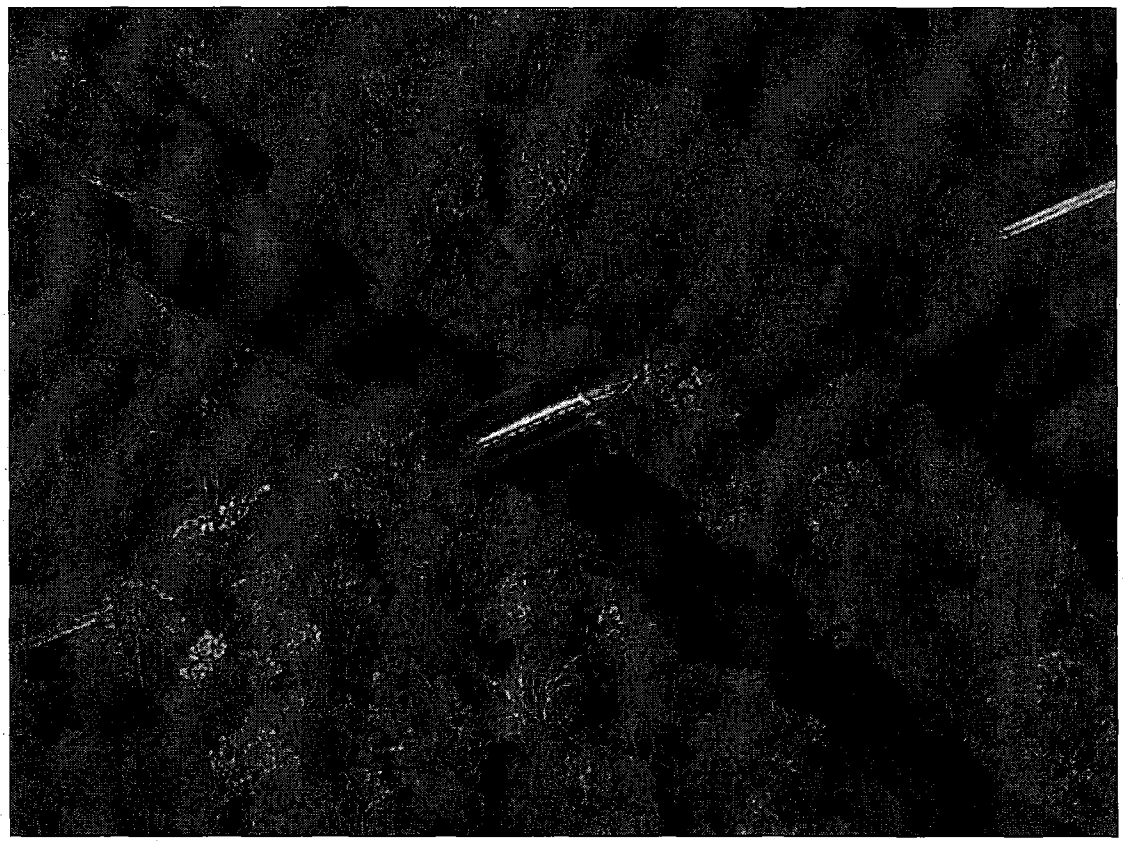

Figure 2: Aerial View

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

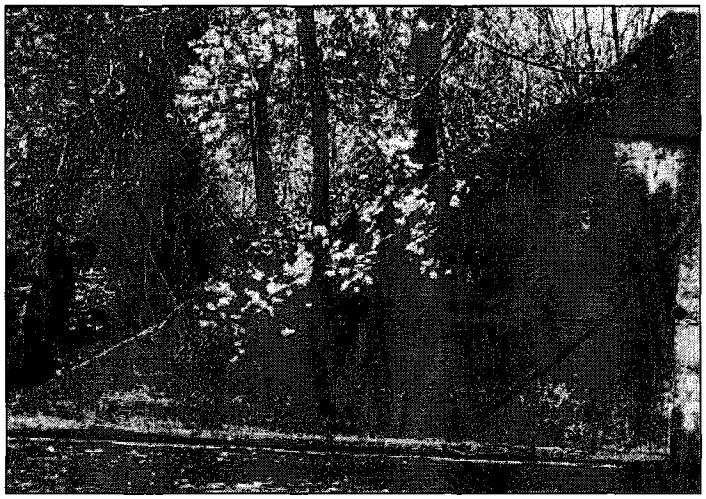

Figure 6: Typical Condition - localized spalling

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
- $\mathbf{M_f} = 1.25\ M_1 + 1.7\ M_2$ (CHBDC, Table 3.1, ULS1)
  $= 1.25 * 129.5 + 1.7 * 14.7$
  $= 161.9 + 25.0 =$ **187 kNm**
- $M_r = \phi_s F_y A_s (d - \frac{a}{2})$
  $d = 830\ mm - 145\ mm - \frac{16}{2}\ mm = 677\ mm$
  $\alpha_1 = 0.85 - 0.0015 f'_c = 0.85 - 0.0015\ (35) = 0.7975$
  $a = \frac{\phi_s A_s f_s}{\phi_c \alpha_1 f'_c b} = \frac{0.9 * (200 * 3.33) * 400}{0.75 * 0.7975 * 35 * 1000} = 11.45$
  $\mathbf{M_r} = 0.9 * 400\ N/mm^2 * (200\ mm^2 * \frac{1000\ mm}{300\ mm}) * (677\ mm - \frac{11.47}{2}\ mm)$
  = **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
  $\varepsilon_x = \frac{\frac{M_f}{d_v} + V_f}{2 E_s A_s} = \frac{\frac{123 * 10^{\wedge}6}{609} + 121 * 10^{\wedge}3}{2 * 200{,}000 * (200 * \frac{1000}{300})} = 1.21 * 10^{-3}$
- 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
  $f_{cr} = 0.4 \sqrt{f'_c} = 0.4 \sqrt{35} = 2.37$ 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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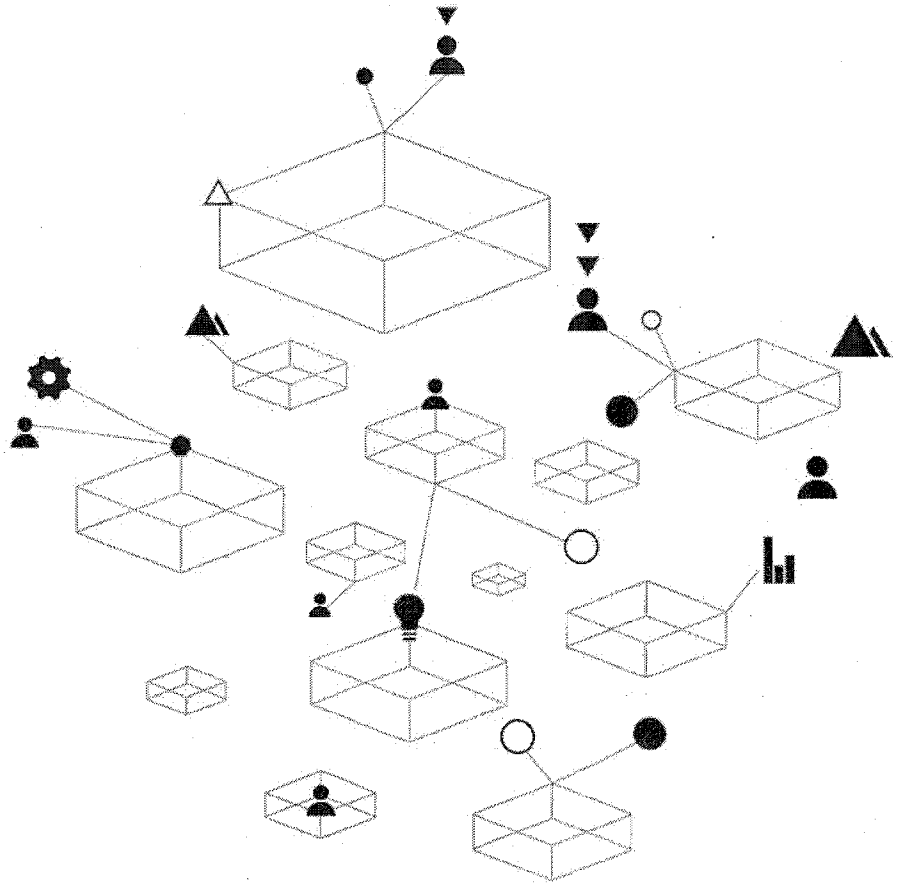
coffey

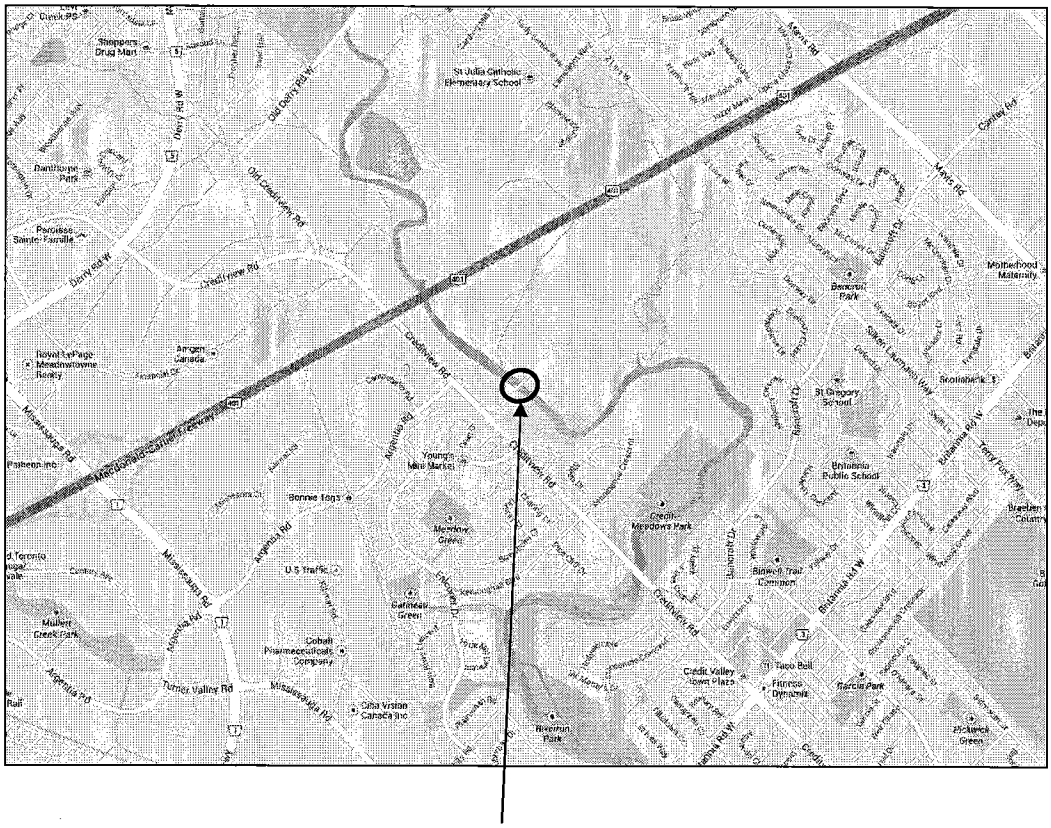
Genivar
Limited Substructure Condition Survey Report
Harris Farm Bridge over Credit River
Mississauga, ON
CONCETOB22821AA
21 November 2013



Trust is the
cornerstone
of all our
projects

KEY PLAN

Harris Farm Bridge over Credit River (43.608939 lat., -79.724221 long.), Mississauga, ON



coffey

SUMMARY OF SIGNIFICANT FINDINGS
Harris Farm Bridge over Credit River, Mississauga, ON

1.0 INTRODUCTION

Harris Farm Bridge over Credit River, Mississauga, ON is located on an unnamed road on the east side of Creditview Road, north of Falconer Drive and south of Argentia Road, in Mississauga, ON. A general overview photograph of Harris Farm Bridge over Credit River is shown in Photo 1 below.

Photo 1 General Overview of Harris Farm Bridge over Credit River

2.0 METHODOLOGY

In November 2013, GENIVAR contracted *Coffey Geotechnics Inc.* to perform a *limited* substructure condition survey for this structure. This report summarizes the findings of the *limited* substructure condition survey carried out at Harris Farm Bridge over Credit River, Mississauga, ON.

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 metres x 1.0 metres), delaminations, surface deterioration, for the items listed hereafter. A *limited* covermeter survey was conducted using an Elcometer 331 on both abutments. Additionally, four (4) concrete core and four (4) samples of reinforcing steel were extracted from the abutments.

Delaminations in concrete were detected by striking the surface and noting the change in sound being emitted. The hammer sounding method was used for all vertical and overhead surfaces inspected. The areas and locations of patches, spalls, delaminations, exposed reinforcement, honey-combing, wet areas, scaling and other observed defects and deteriorations were recorded. This surface deterioration survey was conducted on the following components only: east and west abutment.

The field investigation portion of this assignment was conducted on November 11, 2013.

3.0 SUMMARY OF SIGNIFICANT FINDINGS

3.1 Substructure Components

General overview photographs of Harris Farm Bridge over Credit River are shown in Photos P1 (east elevation) and P2 (aerial overview).

3.1.1 East Abutment

The east abutment was typically in good condition exhibiting evidence of stained cracking (8.0 m), isolated spalls (0.2 m^2) and light scaling (0.5 m^2), as shown in Photos P3 to P6. 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. The average spacing of reinforcing steel (15M) in the east abutment was 300mm (horizontal) and 500mm (vertical).

Cores C3 and C4 were extracted from the east abutment, as shown in Photos C3 and C4, and the core locations are given on the accompanying drawing. The concrete in the cores was typically in good condition. The reinforcing steel exposed during the coring operation was in good condition with no evidence of surface corrosion. Cores C3 and C4 were tested for compressive strength in accordance with CSA A23.2-14C. The compressive strength of the east abutment concrete ranged from 34.0 to 37.6 MPa, with an average compressive strength of 35.8 MPa.

Two (2) samples of reinforcing steel were sampled from the east abutment. Reinforcing Steel Sample Photographs are shown in Photos S3 to S4, and sample locations are shown on the attached drawings.

- ***S3*** – east abutment, 15M, vertical steel; and,
- ***S4*** – east abutment, 15M, vertical steel;

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Samples *(S3 and S4)* were tested for tensile and yield strength in accordance with ASTM A370-12a (see below). Testing was conducted by *Cambridge Materials Testing Limited*. Test results are presented in the Appendix.

- ***Sample #3 (S3)*** – east abutment (vertical steel)= 60,000 psi (yield strength) and 101,000 psi (ultimate tensile strength)
- ***Sample #4 (S4)*** – east abutment (vertical steel)= 62,000 psi (yield strength) and 111,000 psi (ultimate tensile strength)

The typical dimensions of the east abutment are shown in Figure No. 1 *(width @ top = 5.50m; width @ bottom = 18.00m; height = 3.50m)*. Additional pilot holes were drilled into the east 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. Additional field measurements of the east abutment were conducted and revealed a total thickness of approximately 830mm (see Drawing No. 1).

3.1.2 West Abutment

The west abutment was typically in good condition exhibiting evidence of isolated spalls (0.5 m^2), as shown in Photos P7 to P10. 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. The average spacing of reinforcing steel (15M) in the west abutment was 300mm (horizontal) and 500mm (vertical).

Cores C1 and C2 were extracted from the west abutment, as shown in Photos C1 and C2, and the core locations are given on the accompanying drawing. The concrete in the cores was typically in good condition. The reinforcing steel exposed during the coring operation was in good condition with no evidence of surface corrosion. Cores C1 and C2 were tested for compressive strength in accordance with CSA A23.2-14C. The compressive strength of the west abutment concrete ranged from 37.7 to 38.3 MPa, with an average compressive strength of 38.0 MPa.

Two (2) samples of reinforcing steel were sampled from the west abutment. Reinforcing Steel Sample Photographs are shown in Photos S1 to S2, and sample locations are shown on the attached drawings.

- ***S1*** – west abutment, 15M, vertical steel; and,
- ***S2*** – west abutment, 15M, vertical steel;

Samples *(S1 and S2)* were tested for tensile and yield strength in accordance with ASTM A370-12a (see below). Testing was conducted by *Cambridge Materials Testing Limited*. Test results are presented in the Appendix.

- ***Sample #1 (S1)*** – west abutment (vertical steel) = 60,500 psi (yield strength) and 109,000 psi (ultimate tensile strength)
- ***Sample #2 (S2)*** – west abutment (vertical steel)= 61,000 psi (yield strength) and 109,000 psi (ultimate tensile strength)

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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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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 Abutments *{east/west}* **OSIM Identifier** _____

1. Dimensions and Area

Width - m Length 5.5-18.0 / 5.5-18.0 m Height 3.5 / 3.5 m
Diameter - m Total Area Surveyed 39.4 / 39.4 m^2

2. Cracks (medium and wide)

Remarks

Type		Transverse	Longitudinal	Other	Total	
Medium Width	Clean	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	8.0 / 0.0	m
	Stained	3.3 / 0.0	4.7 / 0.0	0.0 / 0.0		
Wide Width	Clean	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	m
	Stained	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0		

3. Alkali Aggregate Reaction

Area of component with severe to very severe aggregate reaction 0.0 / 0.0 m^2

4. Concrete Cover

**at limited areas inspected*

Minimum	Maximum	Average	
110 / 126	169 / 167	145 / 148	mm

0 – 20 mm	N/A	40 – 60 mm	N/A	m^2
	N/A		N/A	%
20 – 40 mm	N/A	over 60 mm	N/A	m^2
	N/A		N/A	%

DETAILED CONDITION SURVEY SUMMARY SHEET
EXPOSED CONCRETE COMPONENTS

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	
N/A	N/A	N/A	N/A	N/A	V
N/A	N/A	N/A	N/A	N/A	m^2
N/A	N/A	N/A	N/A	N/A	%

6. Delaminations and Spalls

Defect Type	Delaminations	Spalls	Patches
Area (m^2)	0.0 / 0.0	0.2 / 0.5	0.0 / 0.0
Total Delaminations and Spalls		Total Delaminations and Spalls in Areas ≤-0.350 V	
0.2 / 0.5 m^2	0.5 / 1.3 %	N/A m^2	N/A %

7. Scaling

Light	Medium	Severe to Very Severe	
0.5 / 0.0	0.0 / 0.0	0.0 / 0.0	m^2
1.3 / 0.0	0.0 / 0.0	0.0 / 0.0	%

8. Honeycombing

Total Area 0.0 / 0.0 m^2

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	-	-	-

* Average chloride content as % chloride by weight of concrete after deducting background chlorides for all cores taken in each range of corrosion potential.

10. Chloride Content at Rebar Level

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

* Chloride content as % chloride by weight of concrete after deducting background chlorides.

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 Appendix 1E for calculating AC resistance contributed by individual rebar.

DETAILED CONDITION SURVEY SUMMARY SHEET
EXPOSED CONCRETE COMPONENTS

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	-

* Half cell reading taken on the same rebar with the ground connection.

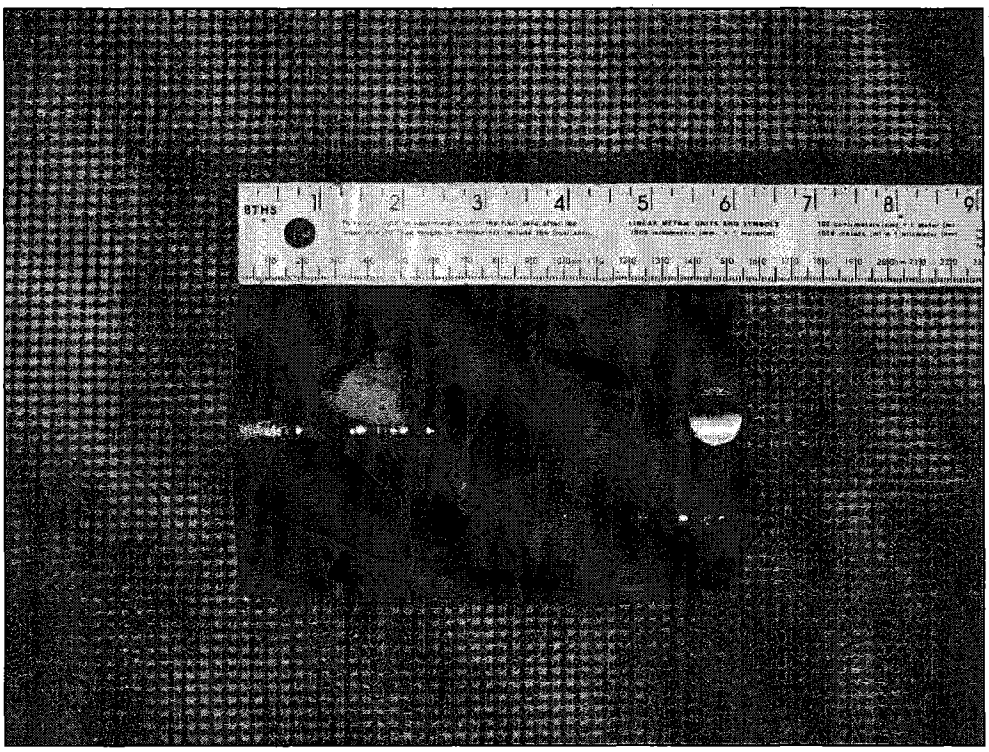
13. Concrete Air Entrainment

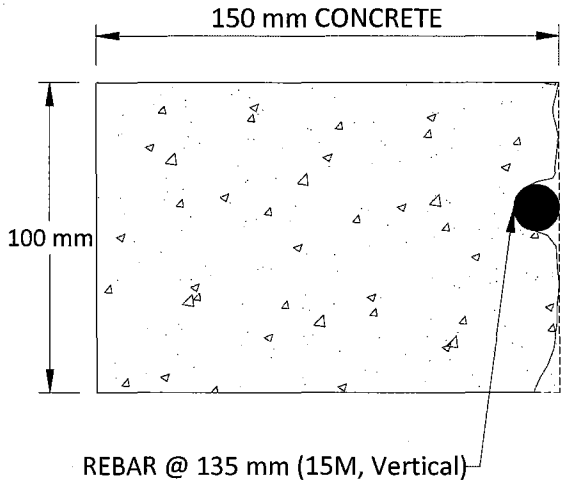
Concrete Air Entrained? NO

14. Compressive Strength

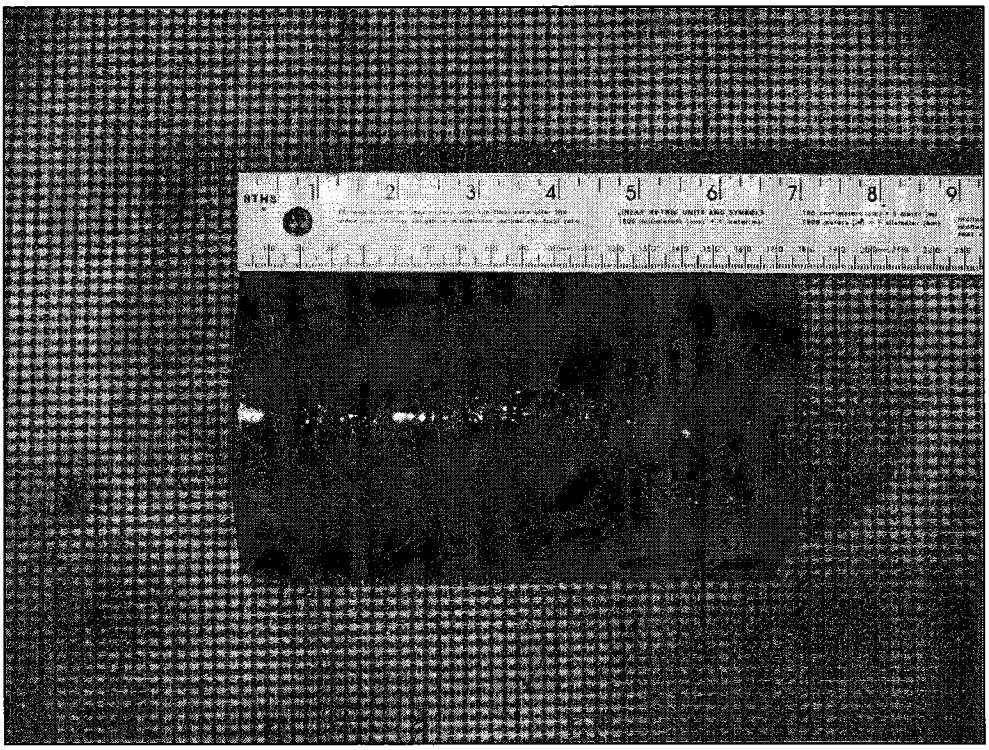
Average Compressive Strength 35.8 MPa *(north abutment)*; 38.0 MPa *(south abutment)*

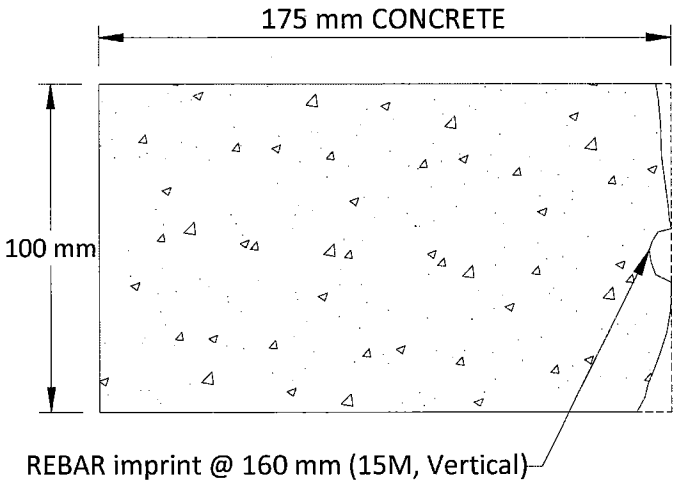
CORE C1 (west abutment)



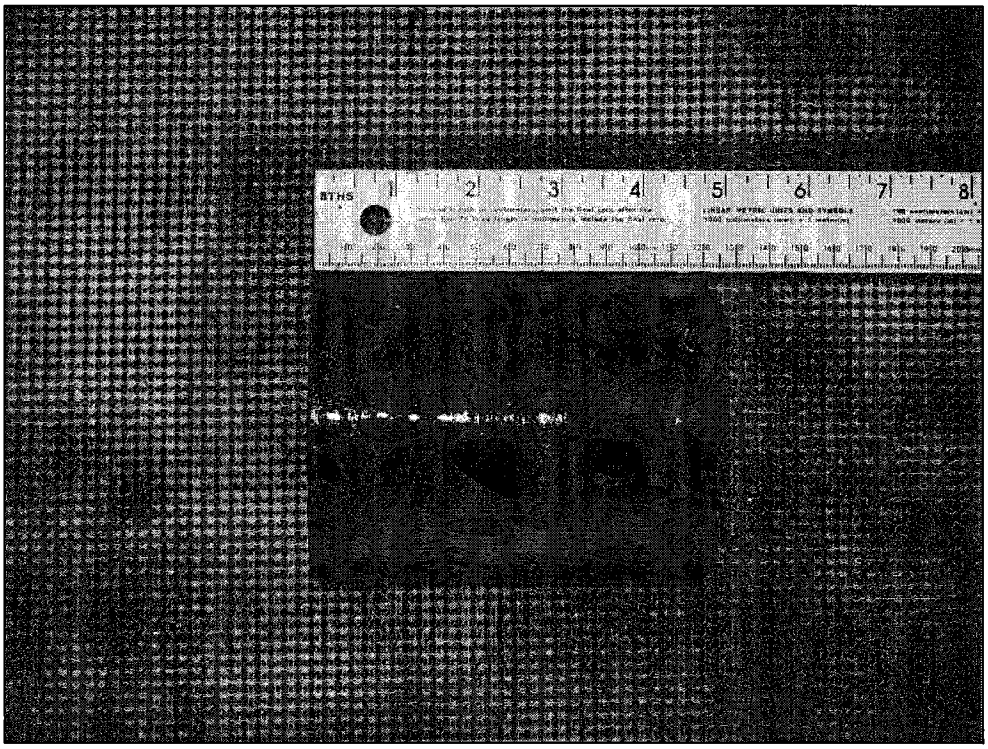


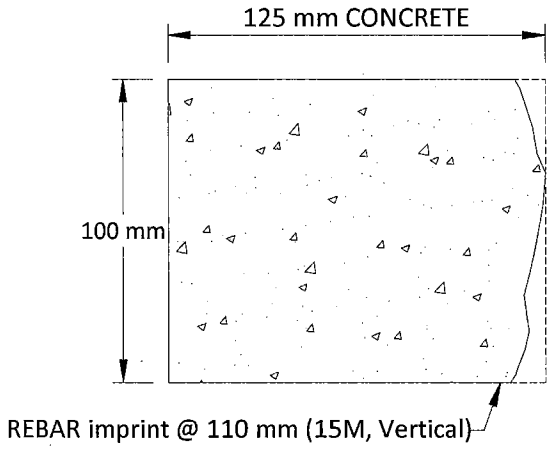
CORE C2 (west abutment)



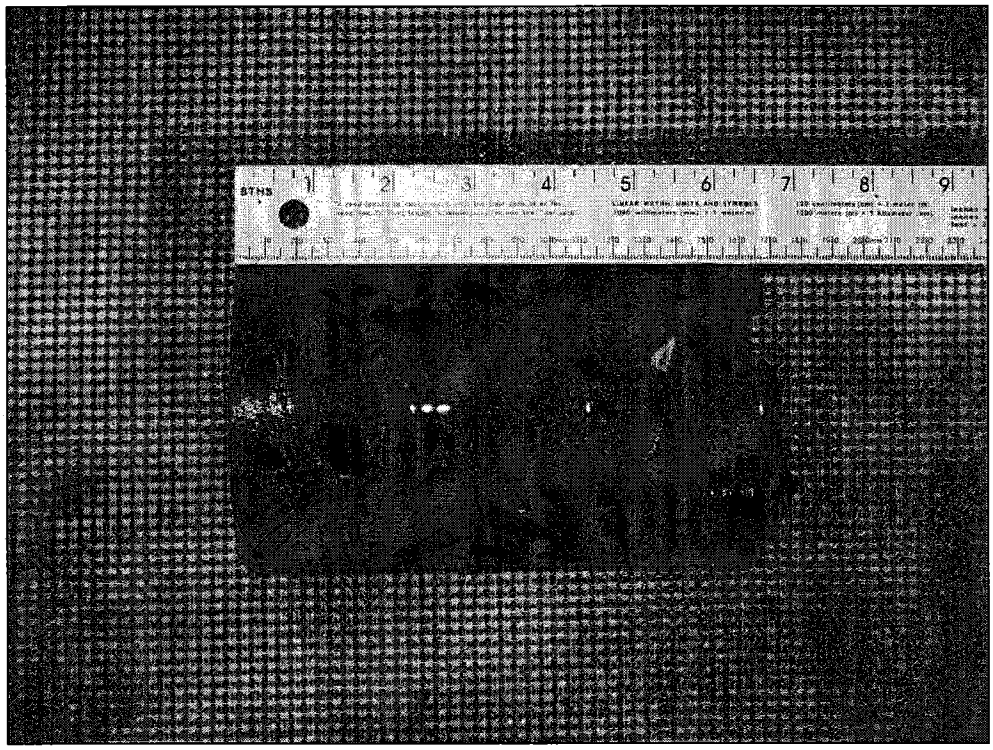


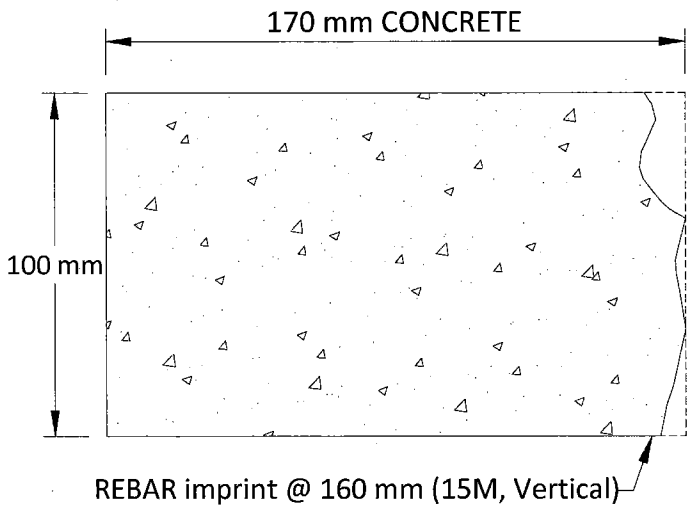
CORE C3 (east abutment)





CORE C4 (east abutment)





CORE LOG FOR EXPOSED CONCRETE

PAGE 1 OF 2 **SITE NO.:** N/A

Component Type and Location	*Substructure*

Core Number		C1		C2		C3	
Location		West Abutment		West Abutment		East Abutment	
Diameter, mm		100		100		100	
Length, mm		150		175		125	
Full Depth, (yes/no)		No		No		No	
Defects in Concrete (1)		N-		-		-	
Condition of Rebar (2)		Good		Good		Good	
Corrosion Potential (at closest grid point)		N/A		N/A		N/A	
Compressive Strength, MPa		38.3		37.7		34.0	
Chloride Content (% Chloride by Weight of Concrete)	**0-10 mm** **20-30 mm** **40-50 mm** **60-70 mm** **80-90 mm**	Total -	Corrected -	Total -	Corrected -	Total -	Corrected -
Air Voids	**Air Content, %** **Spec. Surface, mm^2/mm^3** **Spacing Factor, mm**	-		-		-	
TESTING LABORATORY		Coffey		Coffey		Coffey	
Remarks - Orientation of rebars and cover - Presence of overlay, patch and thickness - Other observed defects		Rebar @ 135mm (15M, vertical)		Rebar imprint @ 160mm (15M, vertical)		Rebar imprint @ 110mm (15M, vertical)	

1. **Defects:** C = Cracked; D = Delamination; R = Rough; Sc = Scaling; S = Spalling
2. **Rebar Condition:** LR = Light Rust; SR = Severe Rust; N/A = No Exposed Rebar
   Condition of Epoxy Coating – ECG=Good, ECF=Fair, ECP=Poor-rusted & debonded areas

CORE LOG FOR EXPOSED CONCRETE

PAGE 2 OF 2 **SITE NO.:** N/A

Component Type and Location	*Substrucutre*

Core Number		C4		-		-	
Location		East Abutment		-		-	
Diameter, mm		100		-		-	
Length, mm		170		-		-	
Full Depth, (yes/no)		No		-		-	
Defects in Concrete (1)		-		-		-	
Condition of Rebar (2)		Good		-		-	
Corrosion Potential (at closest grid point)		N/A		-		-	
Compressive Strength, MPa		37.6		-		-	
Chloride Content (% Chloride by Weight of Concrete)	**0-10 mm** **20-30 mm** **40-50 mm** **60-70 mm** **80-90 mm**	Total -	Corrected -	Total -	Corrected -	Total -	Corrected -
Air Voids	**Air Content, %** **Spec. Surface, mm^2/mm^3** **Spacing Factor, mm**	-		-		-	
TESTING LABORATORY		Coffey		-		-	
Remarks - Orientation of rebars and cover - Presence of overlay, patch and thickness - Other observed defects		Rebar imprint @ 160mm (15M, vertical)					

1. **Defects:** C = Cracked; D = Delamination; R = Rough; Sc = Scaling; S = Spalling
2. **Rebar Condition:** LR = Light Rust; SR = Severe Rust; N/A = No Exposed Rebar
   Condition of Epoxy Coating – ECG=Good, ECF=Fair, ECP=Poor-rusted & debonded areas

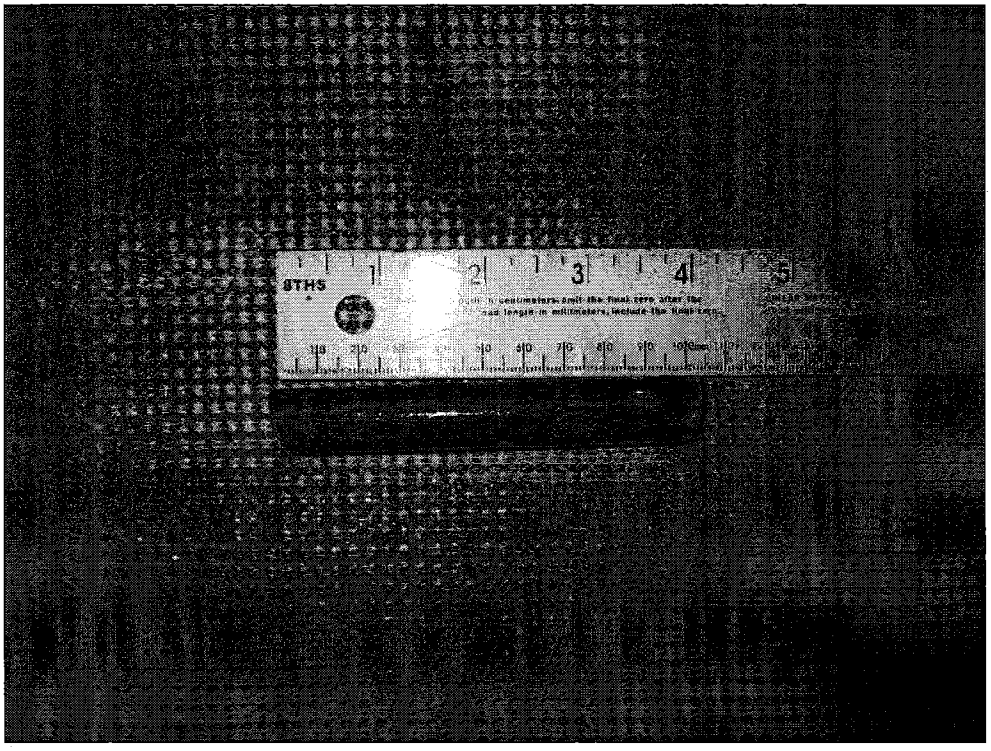


Photo S1 – Rebar Sample S1 (West Abutment, 15M, vertical)

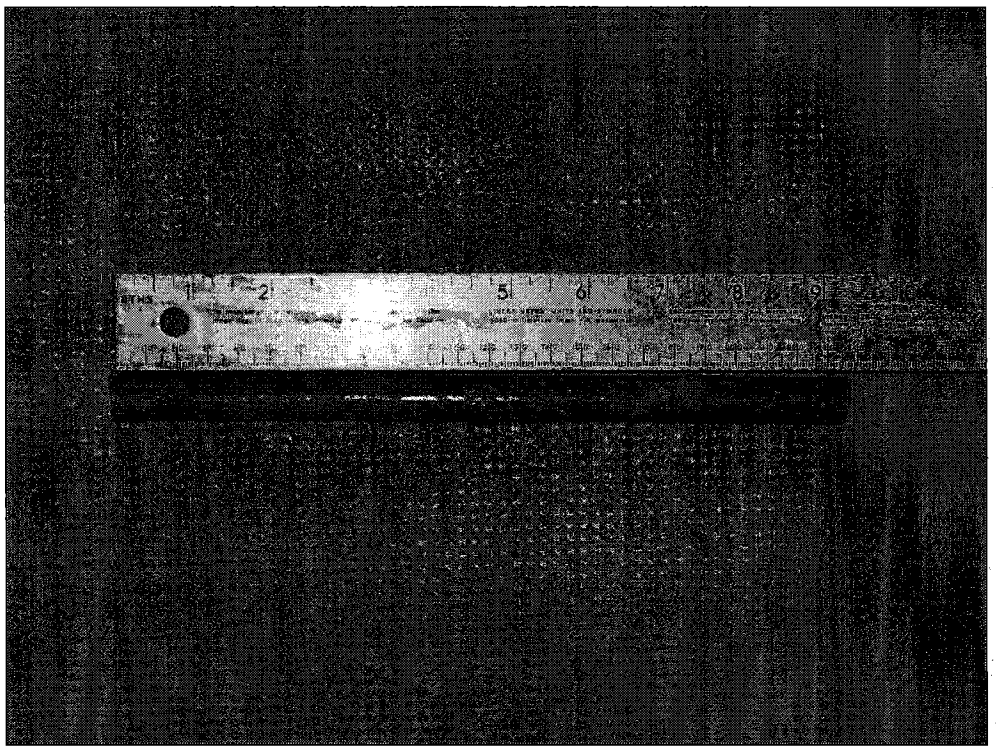


Photo S2 – Rebar Sample S2 (West Abutment, 15M, vertical)

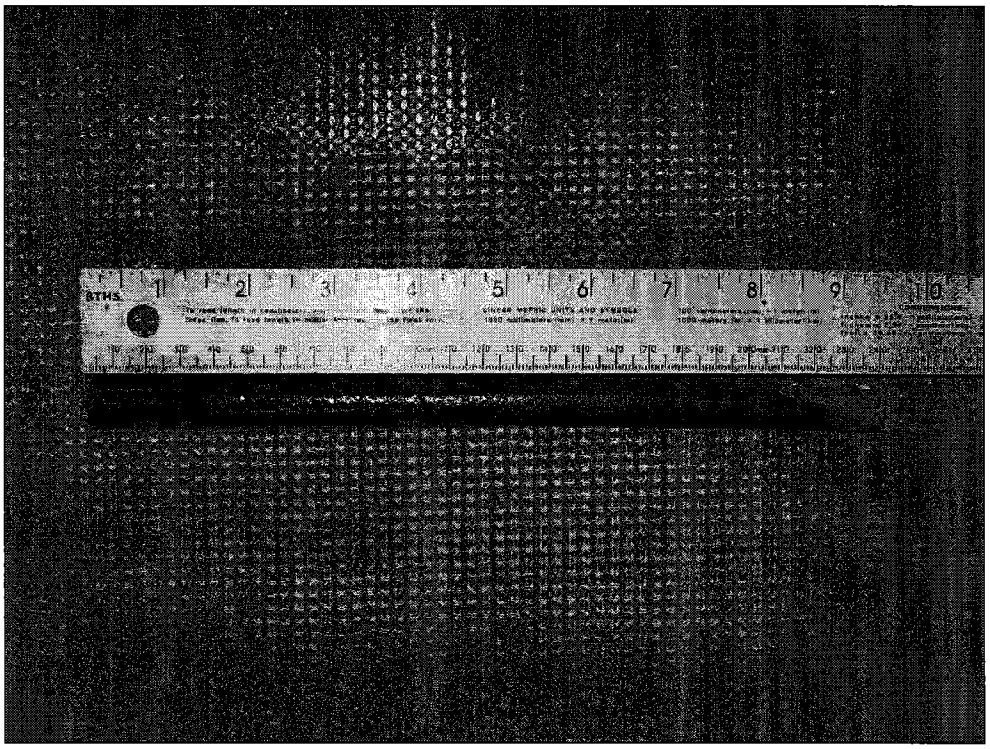


Photo S3 – Rebar Sample S3 (East Abutment, 15M, vertical)

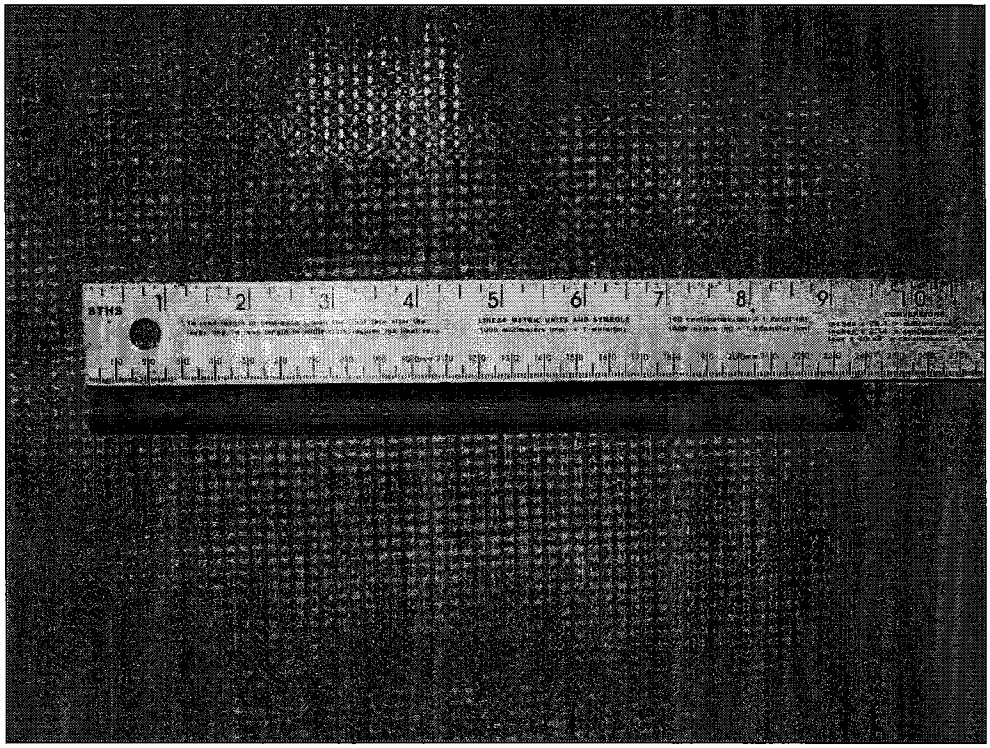


Photo S4 – Rebar Sample S4 (East Abutment, 15M, vertical)

Photo P1 – South Elevation

Photo P2 – Aerial Overview of Structure

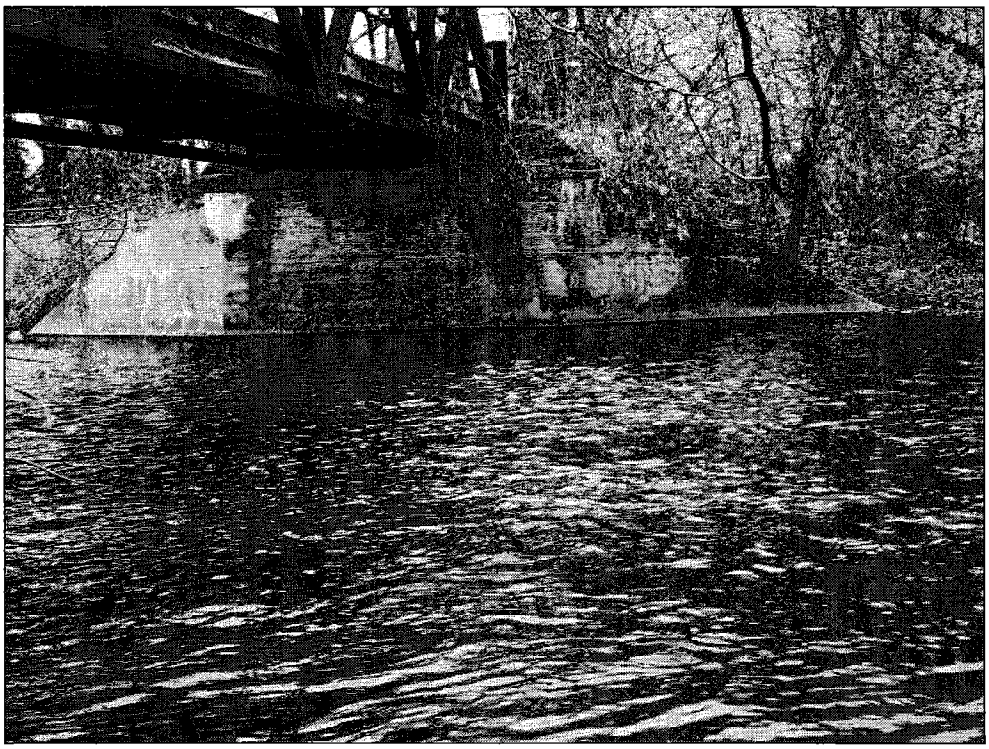


Photo P3– Typical Condition of East Abutment (good condition – stained cracking, isolated spalls and light scaling)

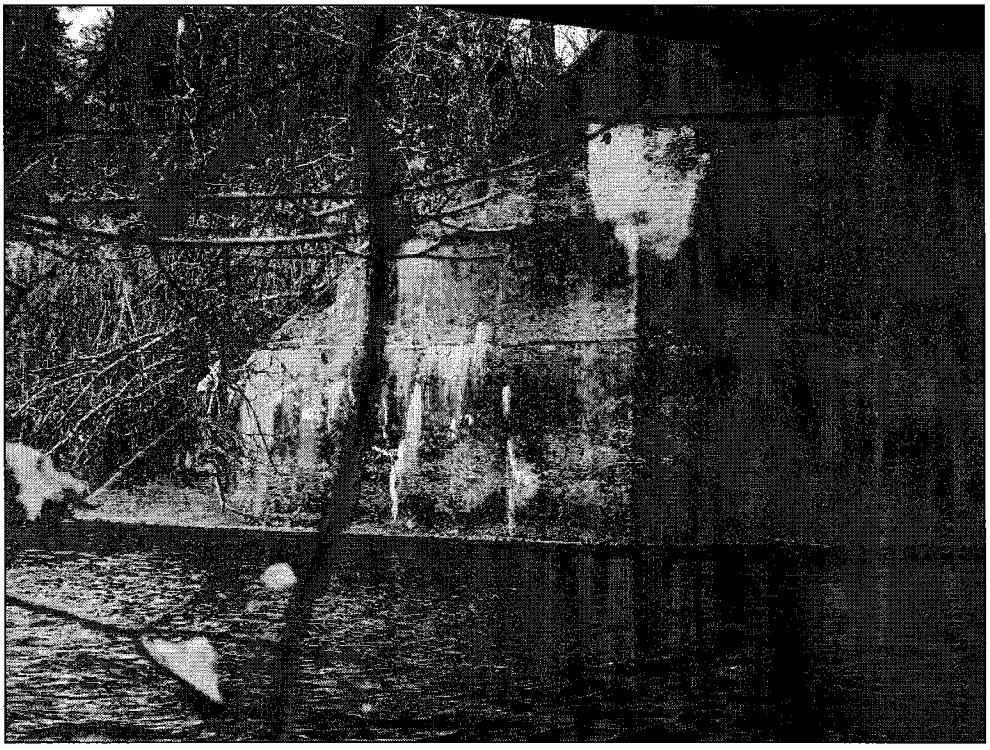


Photo P4– Typical Condition of East Abutment (good condition – stained cracking, isolated spalls and light scaling)

Photo P5– Typical Condition of East Abutment (good condition – stained cracking, isolated spalls and light scaling)

Photo P6– Typical Condition of East Abutment (good condition – stained cracking, isolated spalls and light scaling)

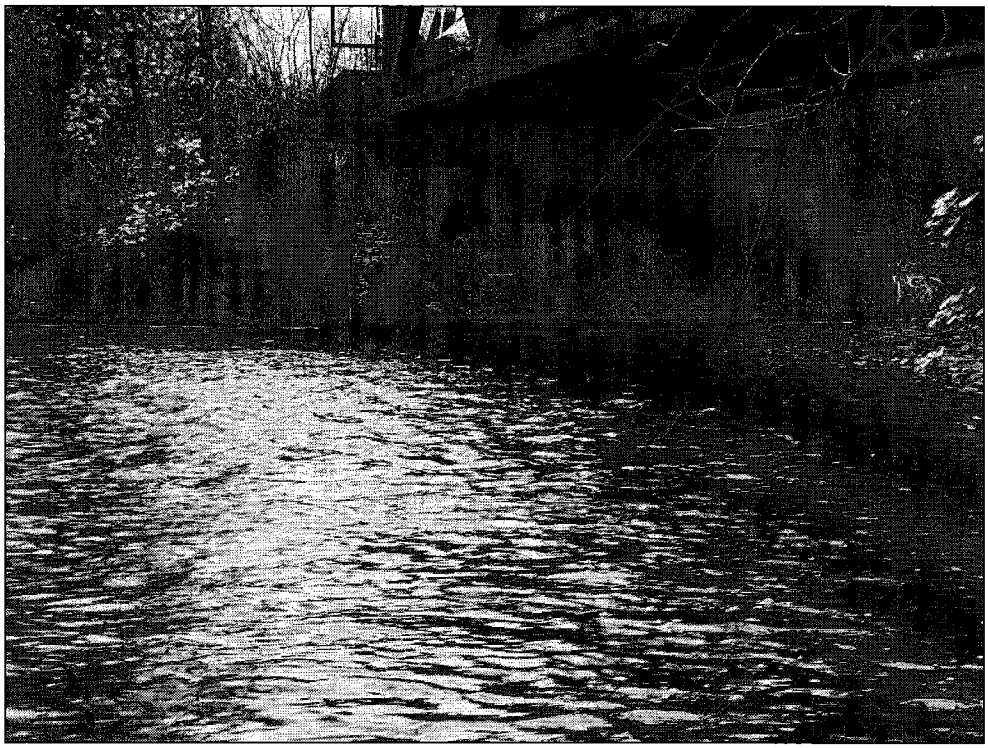


Photo P7– Typical Condition of West Abutment (good condition – localized spalling)

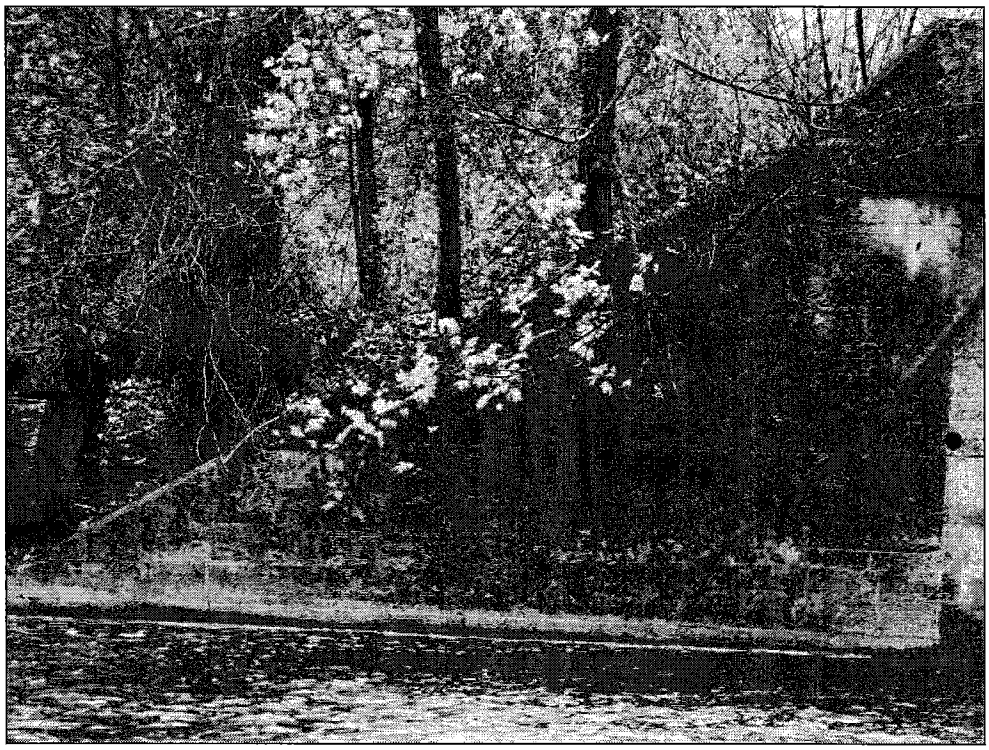


Photo P8– Typical Condition of West Abutment (good condition – localized spalling)

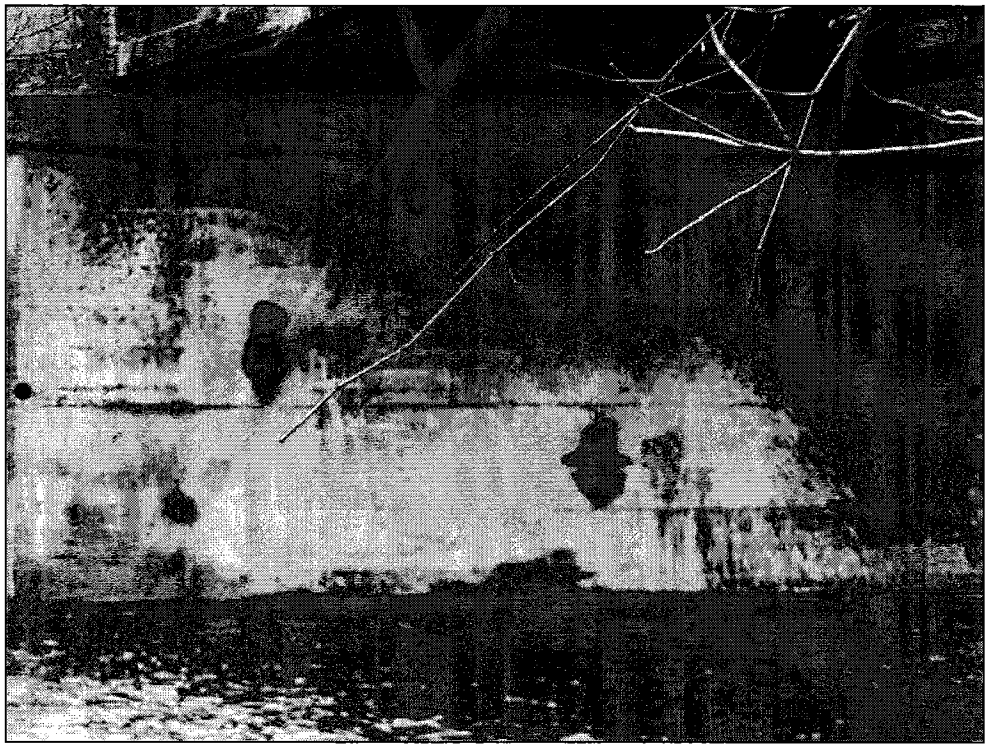
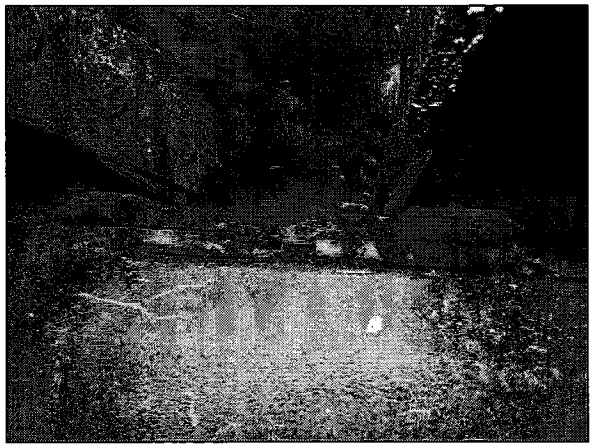
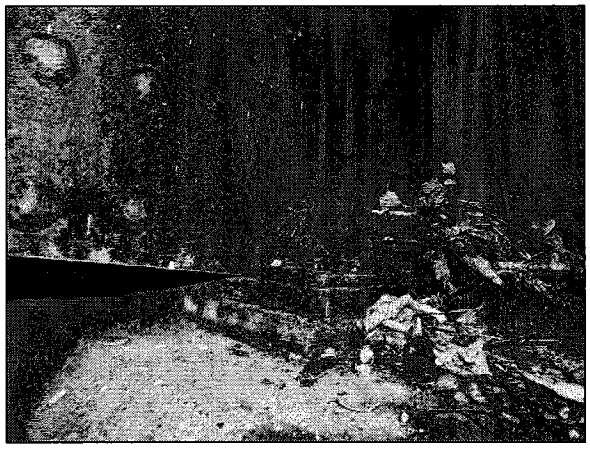


Photo P9– Typical Condition of West Abutment (good condition – localized spalling)

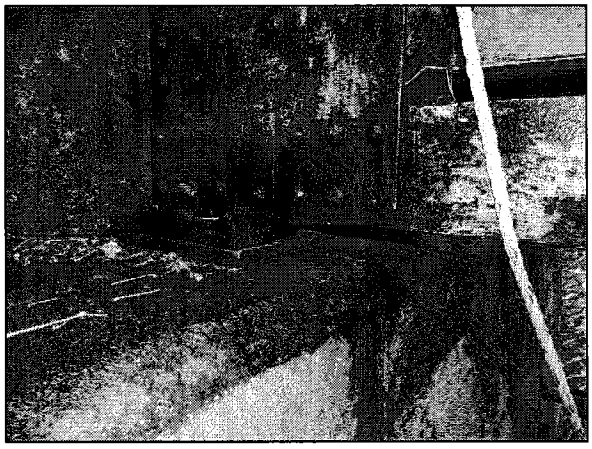
Photo P10– Typical Condition of West Abutment (good condition – localized spalling)



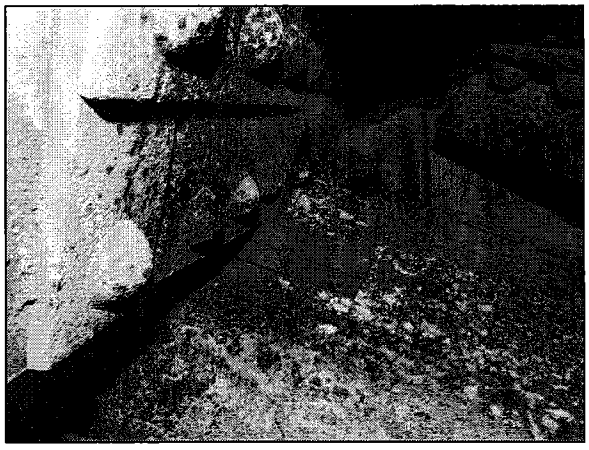
North-East Bearing



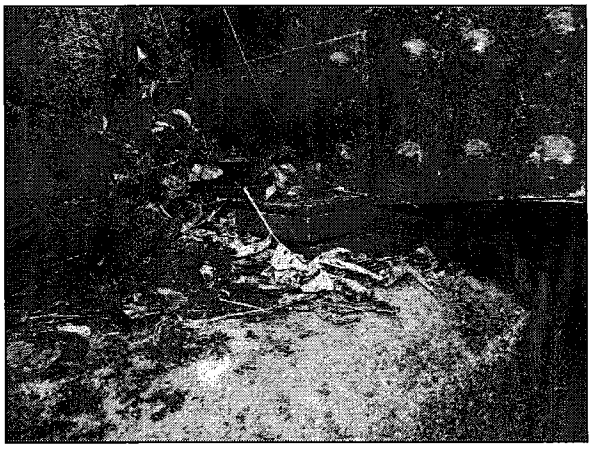
North-East Bearing



North-West Bearing



North-West Bearing



South-East Bearing

South-East Bearing

Coffey Geotechnics
CONCETOB22821AA Harris Farm Bridge over Credit River
Bearing Photographs

South-West Bearing

South-West Bearing

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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.

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

coffey

20 Meteor Drive
Toronto, ON
t: +1 416 213 5355
f: +1 416 213 1260
coffey.com

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

6-46

Cambridge
materials testing limited

1177 Franklin Boulevard,
Cambridge, Ontario N1R 7W4
Tel: (519) 621-6600 Fax: (519) 621-6082
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.

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Test Report Template Revision January 2013

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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.

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Report for: Coffey Geotechnics Inc.
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ETOBICOKE, ONTARIO
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.

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

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Test Report Template Revision January 2013

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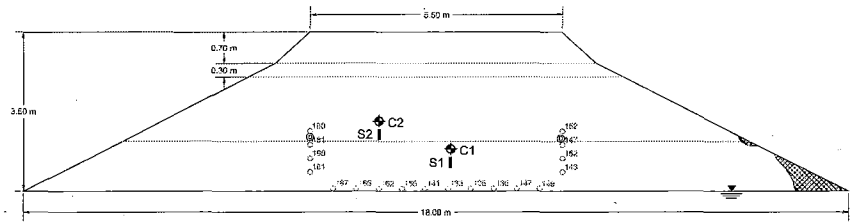
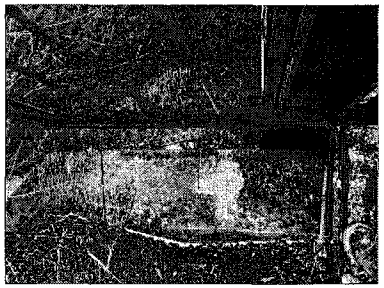
Per _____ *Technician*

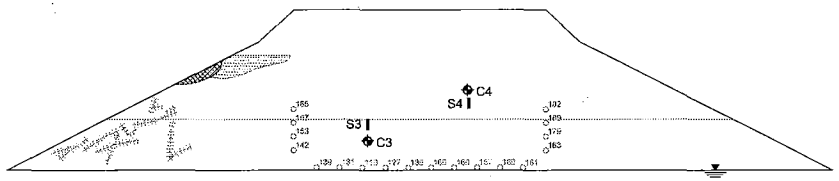
WEST ABUTMENT





PLAN VIEW
WEST ABUTMENT DIMENSIONS

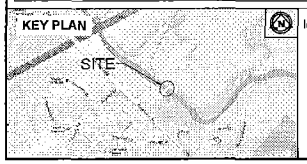
EAST ABUTMENT



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

6-50

KEY PLAN



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.

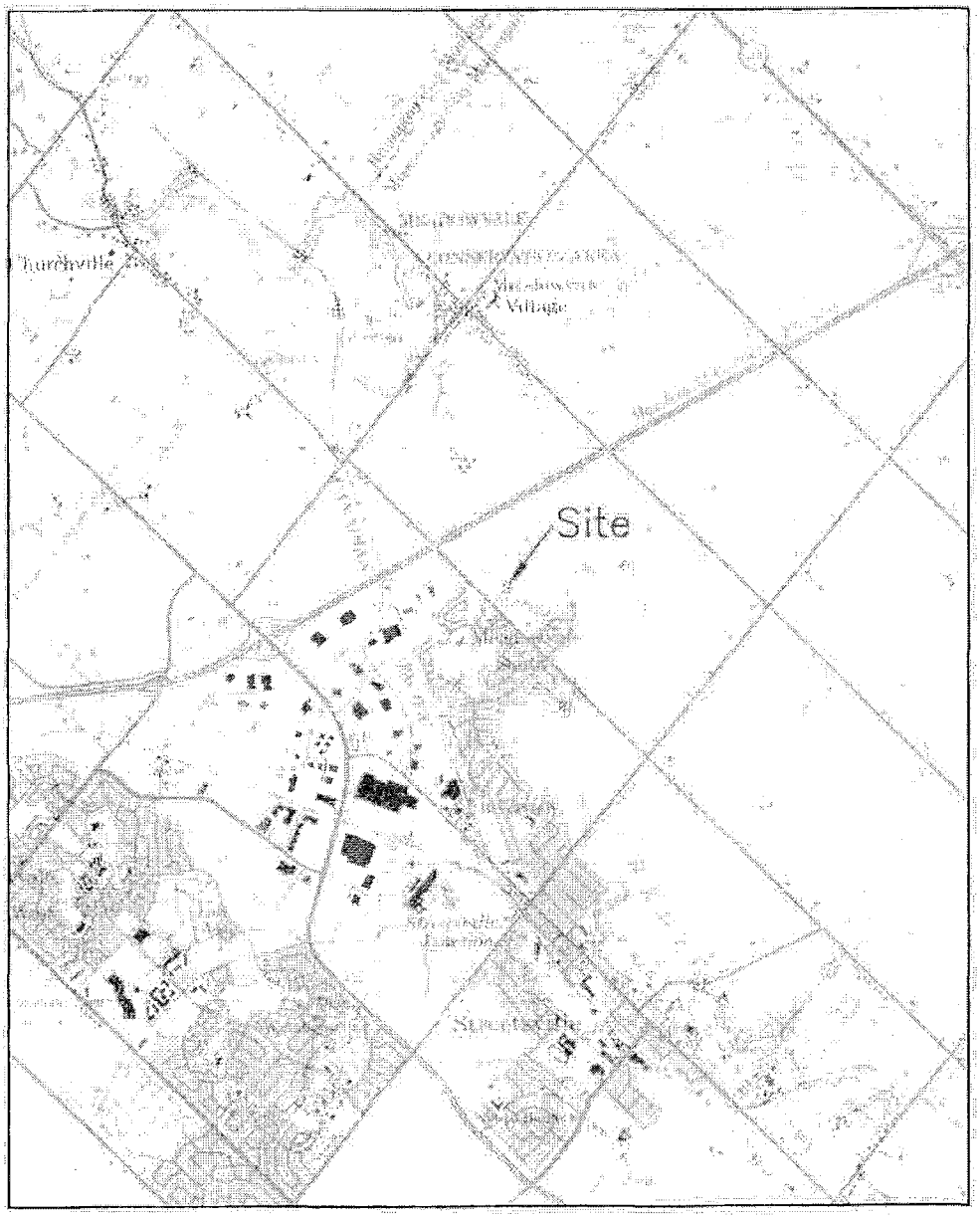
Respectfully Submitted,
Construction Testing Laboratories Limited

PROFESSIONAL ENGINEER
G.K. BELL
3190501
PROVINCE OF ONTARIO

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

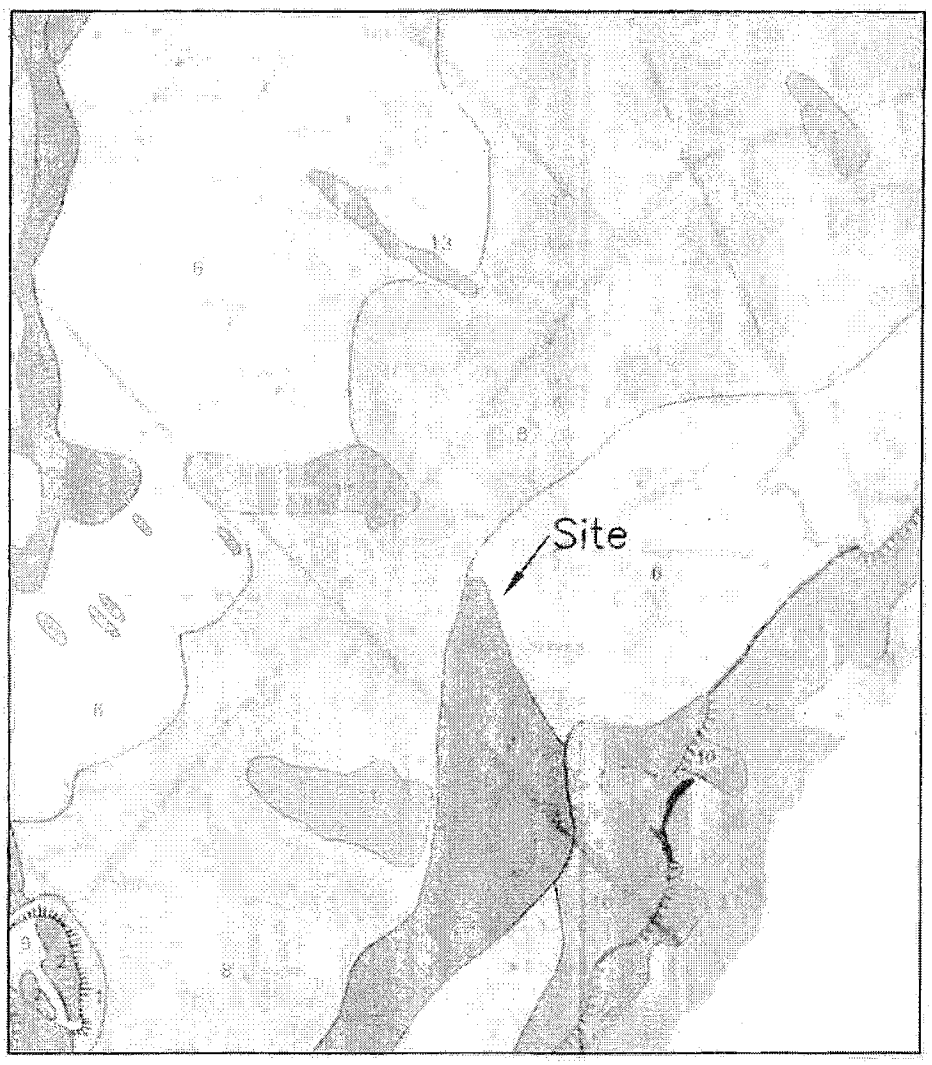
Encl. Figure 1, Location Plan
Figure 2, Surficial Geology Plan
Figure 3 Site Plan
Figure 4, Borehole 1
Figure 5, Legend for Symbols

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: Missisauga, Ontario
Construction Testing Laboratories Ltd.
GEO-ENVIRONMENTAL ENGINEERING

BOREHOLE 1

Method: Truck Mounted Deitrich D-50
Date: August 2, 2011

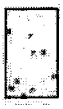
Figure: 4
Ref. No.: MI11-01
By: GB
Checked: GB

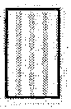
Depth ft	Depth m	DESCRIPTION (Ground Surface Elev. 99.64)	Strat Plot	Samples: Number	Type	N - Value	Groundwater	Elevation	N - VALUE 20 40 60 80 / Penetrometer (Tsf) ■ 1.0 2.0 3.0 4.0	Wp W Wl / Water Content % 20 40 60	Unit Wt - kN/m3	Remarks Grain Size Distribution % Gr Sa Si Cl
		Granular to approximately 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".										
15				5	SS	17		95	▲	o	17.9	
5		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												
10								90				

UNIFIED SOIL CLASSIFICATION SYSTEM


Well Graded Gravel GW


Clayey Gravel GC


Poorly Graded Sand with Clay SP–SC


Organic Silt–Clay OL

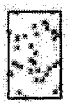

Poorly Graded Gravel GP

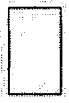

Silty Clayey Gravel GC–GM


Silty Sand SM


Inorganic High Plastic Clay CH


Well Graded Gravel with Silt GW–GM

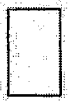

Well Graded Sand SW


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

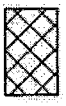

Inorganic Clay CL


Peat


Poorly Graded Gravel with Clay GP–GC


Well Graded Sand with Clay SW–SC


Inorganic Silty Clay CL–ML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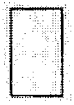
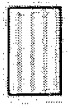

Silty Gravel GM


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

6-63

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

JANUARY 27, 2012

MOON - MATZ LTD.
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Ref. No. 4106

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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

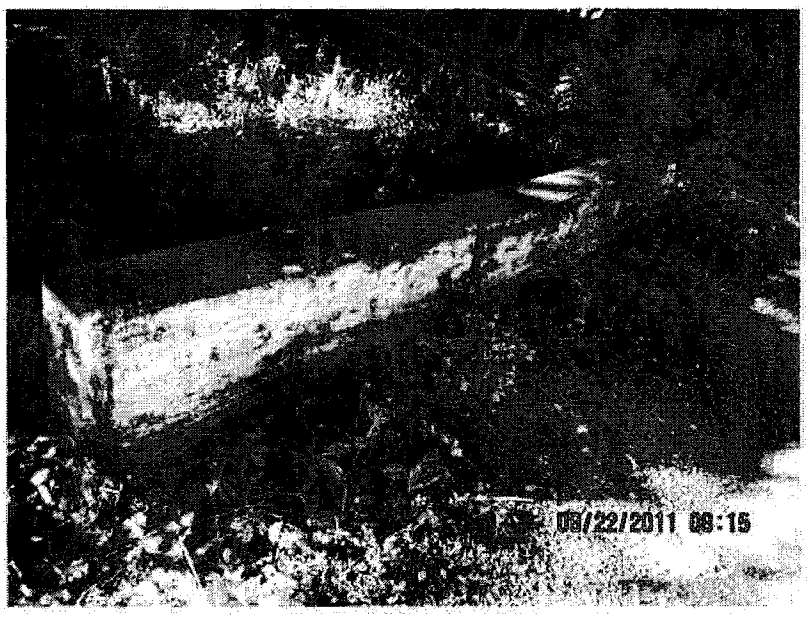
This report is intended for use solely by the City of Mississauga. Any use, that a third party makes of this report, including any reliance or decisions based on this report, are the responsibility of the third party. The conclusions presented in this report reflect the existing site conditions, the 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.

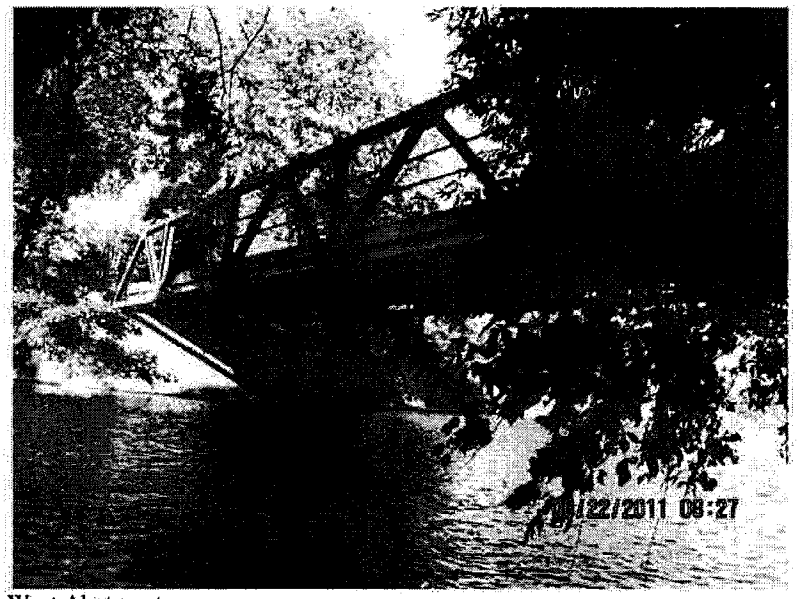
Hongxing Xin, M.Eng., P.Eng.
Senior Structural Engineer

APPENDIX A: PICTURES

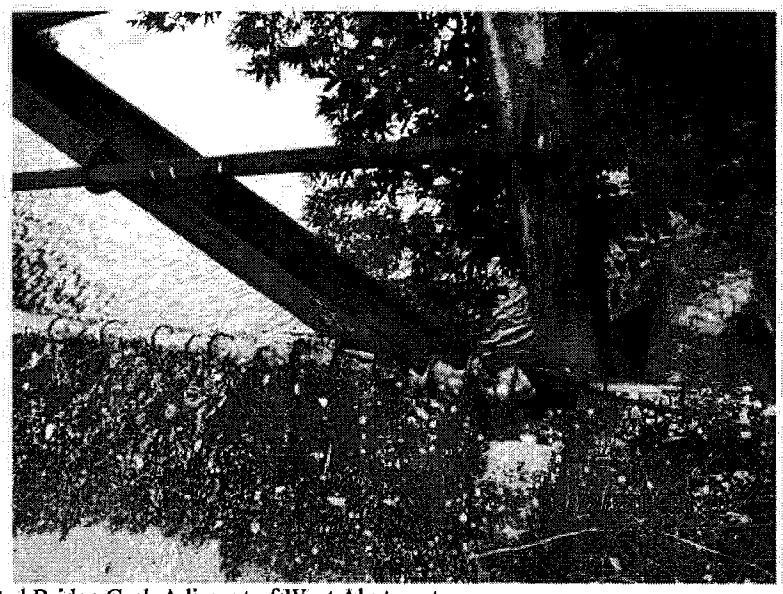
A1: Existing Culvert Structure



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

6-75

Memorandum
Community Services Department
Culture Division

TO: Chair and Members of the Heritage Advisory Committee

FROM: Paula Wubbenhorst, Senior Heritage Coordinator

DATE: May 19, 2015

FILE: 4216 Mississauga Road (Ward 8)

SUBJECT: **Heritage Impact Assessment**
4216 Mississauga Road

The subject property is listed on the City's Heritage Register as it forms part of the Mississauga Road Scenic Route Cultural Landscape. The proponent proposes to build a single family dwelling on a vacant (severed) lot. The Heritage Impact Assessment, by MMM Group Limited, has been provided for your information.

P. Wubbenhorst

Paula Wubbenhorst
Senior Heritage Coordinator
Culture Division
905-615-3200, ext. 5385
paula.wubbenhorst@mississauga.ca

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Memorandum
Community Services Department
Culture Division

TO: Chair and Members of the Heritage Advisory Committee

FROM: Paula Wubbenhorst, Senior Heritage Coordinator

DATE: May 19, 2015

FILE: 156 Indian Valley Trail (Ward 1)

SUBJECT: **Heritage Impact Assessment**
156 Indian Valley Trail

The subject property is listed on the City's Heritage Register as it forms part of the Mineola Cultural Landscape. The proponent proposes to renovate a single family dwelling. The Heritage Impact Statement, by David Small Designs, has been provided for your information.

P. Wubbenhorst

Paula Wubbenhorst
Senior Heritage Coordinator
Culture Division
905-615-3200, ext. 5385
paula.wubbenhorst@mississauga.ca

City of Mississauga

Memorandum

MISSISSAUGA

To: Heritage Advisory Committee

From: Mumtaz Alikhan, Legislative Coordinator

Date: June 15, 2015

Subject: **Approval of Meadowvale Village Heritage Conservation District Advisory Sub-Committee Terms of Reference**

The draft Meadowvale Village Heritage Conservation District Advisory Sub-Committee Terms of Reference are attached for approval.

The Composition of the MVHCD Sub-committee calls for:

(a) Nine (9) volunteer members from the Meadowvale Village.
(b) One (1) member of the Heritage Advisory Committee (HAC).
(c) At its discretion as the parent committee, HAC is required to appoint an external consultant to provide advice to the Sub-committee in an ex-officio capacity.

Mumtaz Alikhan
Legislative Coordinator
Legislative Services Division

Encl: Draft Terms of Reference for Meadowvale Village Heritage Conservation District Advisory Sub-Committee.

DRAFT

TERMS OF REFERENCE

Meadowvale Village Heritage Conservation District Advisory Sub-Committee

Background
Meadowvale Village, a small village remnant of the nineteenth century, located on the Credit River in the north end of the City of Mississauga, became a Heritage Conservation District (HCD) under By-law 453-80. The Meadowvale Village Heritage Conservation District Plan was revised and adopted under By-law 0078-2014 on April 2, 2014. During the planning process to review the HCD Plan the former Meadowvale Village Heritage Conservation District Review Committee was eliminated. In consultation with the local community it was agreed that a new HCD advisory sub-committee be established to advise the Heritage Advisory Committee (HAC) on heritage permit applications within the Meadowvale Village HCD.

Mandate
The purpose of the Meadowvale Village Heritage Conservation District Advisory Sub-Committee (MVHCD Sub-Committee) is to recommend the approval, modification or refusal of heritage permit applications received within the HCD boundary as defined in By-law 0078-2014.

Objectives/Goals
The MVHCD Sub-Committee provides comment on heritage permit applications based on the objectives, policies and guidelines set out in the HCD Plan to the Heritage Advisory Committee. The role of the MVHCD Sub-Committee is to be ambassadors and stewards of the HCD Plan by assisting property owners seeking application to alter property within the HCD.

Term of Office
The term of office for Citizen Members shall run concurrent with the term of Council, or until successors are appointed. However, given that the HCD Plan is in place to guide heritage permit applications, and the MVHCD Sub-Committee's role is to advise HAC that these applications meet the objectives, policies and guidelines set out in the HCD Plan.

At the first meeting of the MVHCD Sub-Committee, the members shall appoint, from among their number, a Chair.

Membership
All members are subject to the Code of Conduct and Complaint Protocol for Local Boards. http://www7.mississauga.ca/documents/CityHall/pdf/2014/Local_Boards_Code_of_Conduct.pdf, and Corporate Policy 02-01-01: Citizen Appointments to Committees, Boards and Authorities. http://inside.mississauga.ca/Policies/Documents/02-01-01.pdf

Composition
Members on the MVHCD Sub-Committee shall consist of:

(a) Nine (9) volunteer members with a commitment to protecting and adhering to the principles and policies as set out in the HCD Plan.

(b) One (1) Member of the Heritage Advisory Committee (HAC).

All appointed members have the right to vote.

(c) At the discretion of HAC, one (1) external Consultant to provide advice to the MVHCD Sub-Committee in an ex-officio capacity.

Role of the Chair
The role of the Chair is to:

1. Preside at the meetings of the Meadowvale Village Heritage Conservation District Sub-Committee using City of Mississauga's Procedure By-law and keep discussion on topic.
2. Provide leadership to MVHCD Sub-Committee to encourage that its activities remain focused on its mandate.

Role of Committee Members
1. Ensure that the mandate of the MVHCD Sub-Committee is being fulfilled.
2. Provide the Chair with solid, factual information regarding agenda items.

Quorum
A quorum of this subcommittee shall be a majority of all members present at a time no later than thirty (30) minutes past the time for which the meeting was scheduled and so noted on the agenda or notice of meeting.

Members must comply with the section in the Procedural By-law 139-13 regarding attendance at meetings: http://www7.mississauga.ca/documents/bylaws/procedural_by-law_2013.pdf

An issuance of an Agenda for a meeting of this Sub-Committee will be considered as notice of that meeting.

Procedures

1. Procedures will be consistent with the City's Procedural By-law 139-13.
2. Meetings will be held on a monthly basis if required, or as determined by the MVHCD Sub-Committee at the call of the Chair.
3. Applications to alter a property within the HCD are presented to the Sub-Committee by Heritage Planning staff. Applications would be required to be submitted to staff at a minimum of three weeks prior to a scheduled meeting. City staff would notify the applicant as to when their application was on the agenda.
4. Meetings will be held in a public facility, open to the public and applicants are encouraged to attend in order to provide information and details related to the application. Members of the public may address the Sub-Committee about a specific application providing they have requested to be on the agenda (limited to 10 minutes).
5. At the conclusion of an applicant's deputation or any other public input, the members of the Sub-Committee will provide a motion to approve, reject, modify or defer the application.
6. Motions are approved based on a majority of votes from the Sub-Committee members. The Chair may choose to vote but must vote in the case to break a tie.
7. The Sub-Committee does not have the authority to issue or deny a heritage permit whereas this authority lies ultimately with Council in accordance with the Ontario Heritage Act.

Reporting

A Report of recommendations from the MVHCD Sub-Committee will be prepared by the Legislative Coordinator for the next meeting of HAC. Heritage Staff will also incorporate the recommendations from the MVHCD Sub-Committee in their corporate report to HAC.

City Staff Support

The Meadowvale Village Heritage Conservation District Advisory Committee will be supported by a Legislative Coordinator from the City Clerk's Office, and therefore subject to all rules and regulations as determined by the City Clerk. The agendas, minutes, official correspondence and notices will be coordinated through the Clerk's Office. Assistance will also be provided by Heritage Planning staff in attendance at all meetings of the MVHCD Sub-Committee. Additional staff, such as planners, urban designers, or other technical staff, may be requested to assist when required.

Confidentiality

There may be occasions whereby an application or material within an application contains sensitive material provided to members of the MVHCD Sub-Committee for purposes of comment and feedback on a specific application. City staff will advise when confidentiality may apply. All materials provided to the MVHCD Sub-Committee will be governed by the City's policies related to freedom of information.