November 18, 2013

Ms. Délia Iafrate
Eagle Valley Golf Club
2334 St. Paul Ave.
Niagara Falls, ON
L2E 6S4

Dear Mr. Iafrate,

RE: Honey Locust Tree Assessment – Eagle Valley Golf Club

Thank you for contacting Colville Consulting regarding the assessment of Honey Locust trees on the Eagle Valley Golf Club property, in the City of Niagara Falls. It is our understanding that seven Honey Locust trees have been identified adjacent to lands that are designated for residential development. This letter report is intended to assess potential impacts to these Honey Locust trees.

Background

It is our understanding that an Arborist Report has been prepared in support of the development of this property, however during the completion of this report seven Honey Locust trees were identified on and adjacent to the Subject Lands. Subsequent to the completion of the Arborist Report, the locations of these trees were surveyed by the Larocque Group and are illustrated in Appendix A of this report. For ease of reference and description, individual trees have been assigned numerical identifiers 1 through 7. Additionally, to illustrate and describe the extent of proposed works, a grading plan is included in Appendix B.

Description of Trees

In order to assess the potential impacts to Honey Locust trees, Colville Consulting staff visited the site on November 6, 2013 and conducted a visual assessment of tree form and relative health. As part of this assessment, the extent of tree roots was estimated by measuring the approximate limit of the drip-lines and incorporating an additional 1-2m, as tree roots typically extend beyond the drip-line. The estimated extent of tree roots is illustrated on the figure in Appendix A. A description of each tree is provided below and photos of each tree are provided in Appendix C.

Tree 1

Tree # 1 is located adjacent to Mountain Road, in close proximity to the planned Mountain Road entrance to the Subject Property (see Appendix A). Based on our assessment, this tree appears to have experienced significant pruning to minimize interference with hydro wires, a practice which appears to have negatively affected tree health. From our assessment, Tree #1 appears to be in poor condition.

Since pruning appears to have limited the extent of the tree crown, we estimated that the tree roots extend beyond the drip-line of this tree, likely to approximately 5m from the trunk. Assuming tree roots extend approximately 5m from the base, it is our opinion that the majority of tree roots will not be significantly impacted by the construction of the driveway entrance or grading works, and provided the

mitigation measures recommended below are implemented during construction, tree health should not be impacted by the proposed development.

Tree 2

Similar to Tree #1, this tree is also located adjacent to Mountain Road and appears to have experienced significant pruning by hydro crews. Based on our assessment, Tree #2 appears to be in poor condition. From our assessment, it appears that the roots of this tree are located outside any area proposed for construction or grading, and therefore it is our opinion that the proposed works will have no direct impact on the health of Tree #2.

Trees 3 and 4

Tree numbers 3 and 4 are also located on Mountain Road, near the intersection of St. Paul Avenue. These are the smallest of the Honey Locust trees adjacent to Mountain Road. From our assessment, Tree #3 appears to be in poor condition, while tree #4 is in fair condition. Based on our estimates, the drip-line of these trees extend approximately 3m from the trunk, although it is assumed roots likely extend an additional 1-2m beyond the drip-line. Based on our assumption of the root extents, Trees 3 and 4 will not be impacted by the proposed development.

Trees 5-7

As illustrated in Appendix A, Trees 5-7 are located adjacent to St. Paul Avenue, all in very close proximity to one another. It should be noted that these trees are all located on a steep slope, approximately 1m from the top of the slope. Based on our assessment, these trees range in size from approximately 12cm to 22cm in diameter and are all in good condition. Although drip-lines vary for these trees, we estimate that the maximum extent of branches extend to approximately 9m from the tree trunks, with some roots possibly extending beyond the drip-line.

As illustrated in Appendix A, the St. Paul Avenue entrance is located well outside of the drip line of these trees, and therefore it is not likely that the driveway will significantly impact the health of Trees 5-7. From our review of the grading plan, it appears that fill is intended to be placed near periphery of the drip-line, however provided the mitigation measures below are implemented, impacts to tree health can be minimized.

Recommended Mitigation Measures

As indicated above, it is our opinion that the proposed project will not have a significant impact on any of the Honey Locust trees, however minor impacts to Trees 1 and 5-7 are possible. In order to minimize any impacts to these trees, or other trees to be retained in close proximity of the work area, it is our recommendation that the following mitigation measures be implemented prior to and during construction to protect the health of trees.

- A limit of work fence should be installed where possible no less than 1m from the drip-line of remaining trees to minimize root compaction and injury;
- Grading and placing of fill should be avoided within the drip-line of any trees to remain on site. Any fill to be placed within the drip-lines should be composed of sandy material to maintain gas exchange by the root system;
- In the event any lateral tree roots are encountered and damaged, the following tree root pruning procedures are recommended:
  a. Make vertical cuts through the root zone to avoid impacting unnecessary roots

- If a major root (greater than 5 cm) is torn by a non-vertical cut, manually sheer the root with a flush cut;

b. Avoid removing or impacting more than 25% of the tree roots under the drip-line;
c. Make sure vertically cut roots are covered with moist soil as soon as possible (within 24 hr of exposure);
d. Water the impacted trees thoroughly following construction activities; and
e. Do not fertilize trees that have had their roots cut for one year.

Conclusion,

Colville Consulting was retained to assess potential impacts to seven Honey Locust trees located on and adjacent to the Subject Property. Based on our primary assessment of the trees and our understanding of the proposed project, it is our opinion that the construction of the Mountain Road entrance to the Subject Property may have a minor impact on the roots of Tree #1 and the filling works associated with the parking area may have a minor impact on Trees 5-7. As Honey Locust trees are known to have a high degree of adaptability to environmental change[1] and impacts to trees are considered minor, it is our opinion that the proposed project will have no impact on the longevity of these trees.

Thank you for providing Colville Consulting the opportunity to prepare this assessment. Please do not hesitate to contact me at 905-935-2161 should you have any questions or concerns regarding this report. Alternatively you can reach me by email at ian@colvilleconsultinginc.com.

Yours Sincerely,

Ian Barrett, M.Sc.
Colville Consulting Inc.

[1]Dennis, C. and W.R. Jacobi. 2008. Protecting Trees during Construction. Colorado State University Fact Sheet No. 7.420. (http://www.ext.colostate.edu/pubs/garden/07420.html).

Appendix A

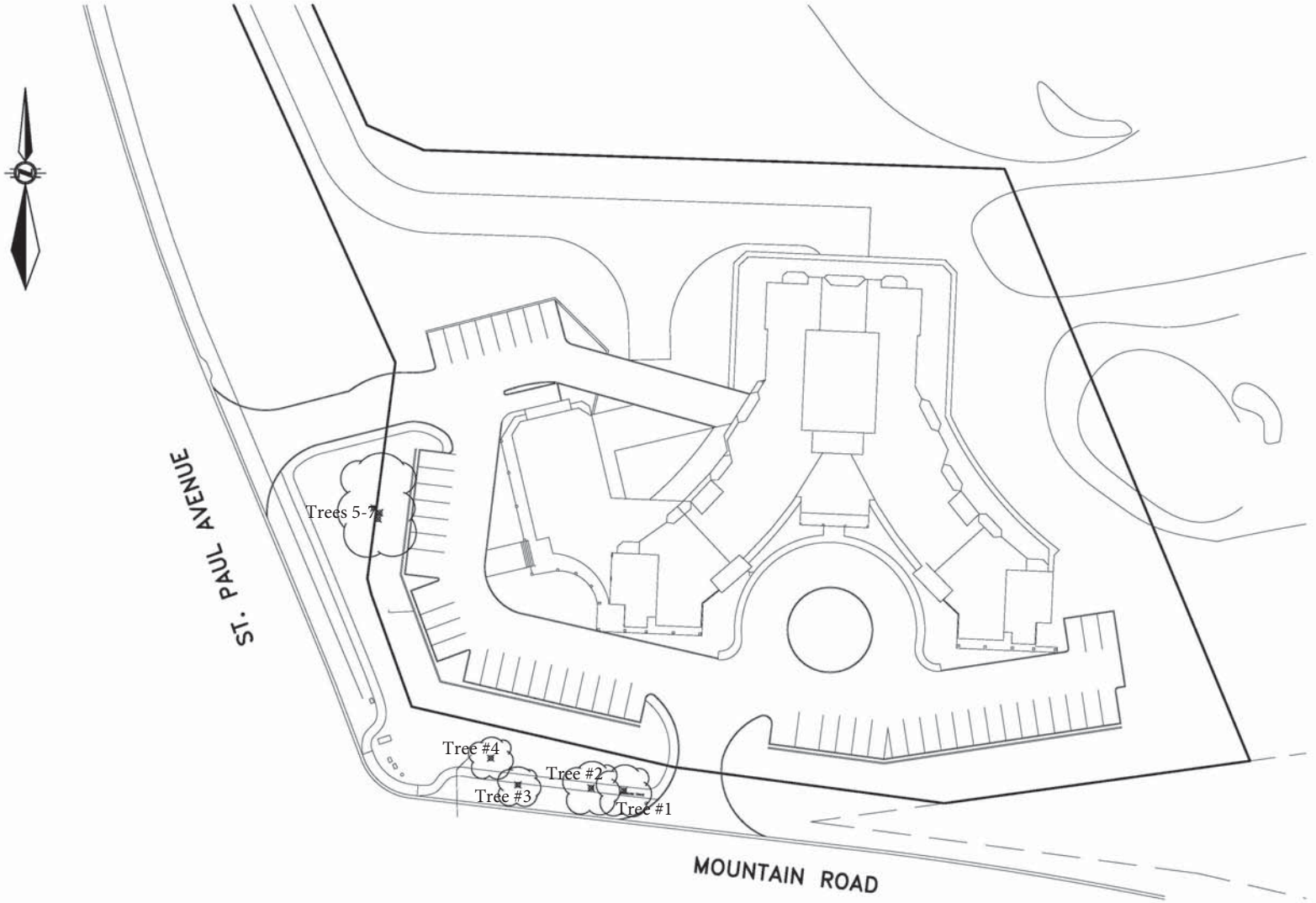
Location of Honey Locust Trees and Estimated Extent of Roots

SKETCH SHOWING LOCATION OF HONEY LOCUST TREES
QUEEN PROPERTIES INC.
ST. PAUL AVENUE AND MOUNTAIN ROAD
CITY OF NIAGARA FALLS
REGIONAL MUNICIPALITY OF NIAGARA

SCALE 1:500 METRIC
10m 5m 0 10m 20m

LEGEND

DENOTES EXISTING HONEY LOCUST TREE

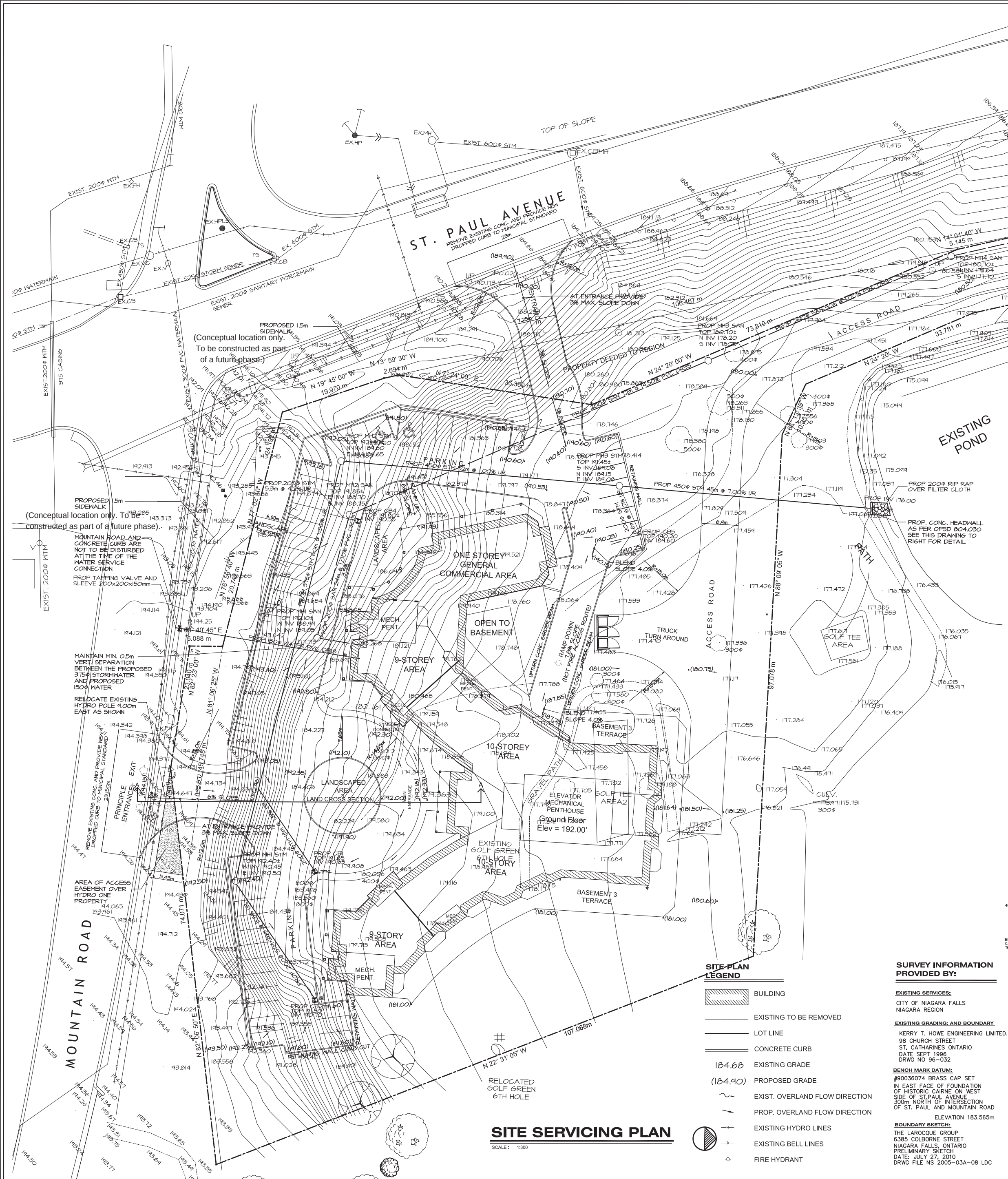


THE LAROCQUE GROUP
O.L.S./PROJECT CONSULTANTS/LAND MANAGEMENT
12 LYMAN STREET, ST. CATHARINES, ONTARIO
905-688-1413
6385 COLBORNE STREET, NIAGARA FALLS, ONTARIO
905-358-8400
www.larocquegroup.ca

DATE : MAY 22, 2013 FILE No. : NS2005-023A
REVISED : NOV. 11, 2013 DWG.FILE : NS2005-023A-15

Appendix B

Site Servicing and Grading Plan



SITE SERVICING PLAN

SCALE: 1:300

SITE PLAN LEGEND

(hatched)	BUILDING
(thin line)	EXISTING TO BE REMOVED
(thick line)	LOT LINE
(double line)	CONCRETE CURB
184.68	EXISTING GRADE
(184.90)	PROPOSED GRADE
~	EXIST. OVERLAND FLOW DIRECTION
→	PROP. OVERLAND FLOW DIRECTION
—+—	EXISTING HYDRO LINES
—⊳—	EXISTING BELL LINES
✧	FIRE HYDRANT

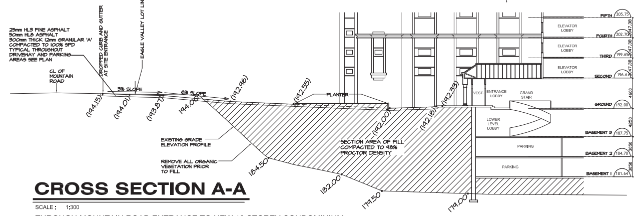
SURVEY INFORMATION PROVIDED BY:

EXISTING SERVICES:
CITY OF NIAGARA FALLS
NIAGARA REGION

EXISTING GRADING: AND BOUNDARY
KERRY T. HOWE ENGINEERING LIMITED.
98 CHURCH STREET
ST, CATHARINES ONTARIO
DATE SEPT 1996
DRWG NO 96-032

BENCH MARK DATUM:
#90036074 BRASS CAP SET
IN EAST FACE OF FOUNDATION OF HISTORIC CAIRNE ON WEST SIDE OF ST.PAUL AVENUE 300m NORTH OF INTERSECTION OF ST. PAUL AND MOUNTAIN ROAD
ELEVATION 183.565m

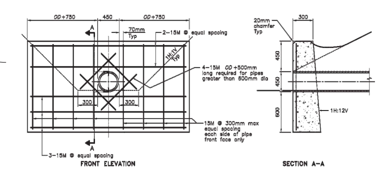
BOUNDARY SKETCH:
THE LAROCQUE GROUP
6385 COLBORNE STREET
NIAGARA FALLS, ONTARIO
PRELIMINARY SKETCH
DATE: JULY 27, 2010
DRWG FILE NS 2005-03A-08 LDC



CROSS SECTION A-A

SCALE: 1:300

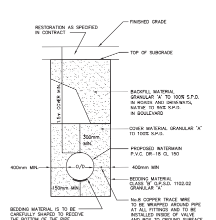
THROUGH MOUNTAIN ROAD ENTRANCE TO NEW 10 STOREY CONDOMINIUM
SHOWING PROPOSED GRADE ELEVATIONS AND SLOPES



LEGEND:
OD – Outside diameter of pipe

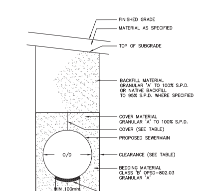
NOTES:
A This OPSD to be read in conjunction with OPSD 3940.150.
B If a steel grate is required, refer to OPSD 804.05.
C Class of concrete: 30MPa.
D Cover to reinforcing bars 75mm ± 20mm.
E All dimensions are in millimetres unless otherwise shown.

CONCRETE HEADWALL
O.P.S.D. 804.030
N.T.S.



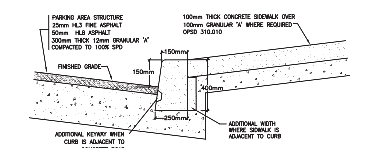
NOTES:
1. THIS STANDARD CROSS – SECTION IS TO BE APPLIED IN STABLE CONDITIONS OR AFTER TRENCH HAS BEEN BROUGHT TO STABLE CONDITIONS.
2. WHERE THE TRENCH IS SHEATHED THE CLEARANCE IS THE DISTANCE BETWEEN THE INSIDE FACE OF THE SHEATHING AND THE PIPE.

TYPICAL WATERMAIN CROSS-SECTION
(N.T.S.)



NOTE: 1. THIS STANDARD CROSS-SECTION IS TO BE APPLIED IN STABLE CONDITIONS OR AFTER TRENCH HAS BEEN BROUGHT TO STABLE CONDITIONS.
2. WHERE THE TRENCH IS SHEATHED THE CLEARANCE IS THE DISTANCE BETWEEN THE INSIDE FACE OF SHEATHING AND THE PIPE.

TYPICAL SEWER CROSS-SECTION
(N.T.S.)



CONCRETE BARRIER CURB
O.P.S.D. 600.11
N.T.S.

CONSTRUCTION SPECIFICATIONS:

ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH O.P.S.S. AND O.P.S.D. REQUIREMENTS AND TO THE REQUIREMENTS OF THE REGIONAL MUNICIPALITY OF NIAGARA.

OPS SPECIFICATIONS:

201, 206, 212, 310, 313, 314, 351, 353, 405, 407, 410, 501, 504, 506, 507, 514, 515, 516, 517,538, 570, 571, 701, 904, 905, 1002, 1010, 1351

OPS DRAWINGS:

CONCRETE SIDEWALK	OPSD 310.01
BARRIER CURB	OPSD 600.11
CATCHBASIN FOR GRASSED AREA	OPSD 700.04
BEDDING FOR STORM SEWERS	OPSD 802.04
BACKFILL FOR SEWERS	OPSD 803.04
SEWER SERVICE CONNECTION	OPSD 1006.02
WATER SERVICES	OPSD 1104.01
HYDRANT	OPSD 1005.01
PRECAST MH	OPSD 701.01

CLEARANCE & COVER TABLE

RIGID PIPE INSIDE DIAMETER (mm)	CLEARANCE (mm)	COVER (mm)
900 OR LESS	300	300
OVER 900	500	300
FLEXIBLE PIPE INSIDE DIAMETER (mm)	CLEARANCE (mm)	COVER (mm)
LESS THAN 600	400	300
600 TO 1800	400	300 + D/4

CONSTRUCTION NOTES:

ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH O.P.S.S. AND O.P.S.D. REQUIREMENTS AND TO THE REQUIREMENTS OF THE REGIONAL MUNICIPALITY OF NIAGARA.

BEDDING TO SEWERS AND LATERALS SHALL BE CLASS 'B' GRANULAR 'A' BEDDING AND COVER MATERIAL COMPACTED TO 100% STANDARD PROCTOR DENSITY IN ACCORDANCE WITH THE O.P.S.D. 802.04, 1005.02 AND 1102.02.

AND ALL LATERALS (100mm ø) SHALL BE PVC DR28 PIPE UNLESS NOTED.

ALL LATERALS TO BE CONNECTED TO THE NEW PIPE USING MANUFACTURED TEE AND SEWER TO THE EXISTING PIPE USING PRE-MANUFACTURED SADDLE AND STAINLESS STEEL STRAP.

THE RESTORATION OF EXISTING ROADS, BOULEVARD AND SIDEWALKS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MUNICIPALITY.

NO DETAILED SOIL INVESTIGATION HAS BEEN CARRIED OUT.
THE DESIGN OF THIS DEVELOPMENT ASSUMES THAT NO ADVERSE CONDITIONS WILL BE ENCOUNTERED. CONTRACTORS SHOULD CHECK EXISTING SITE CONDITIONS AND INCLUDE NECESSARY COMPENSATION

THE POSITION OF POLE LINES, CONDUITS WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY ON CONSTRUCTION DRAWINGS AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

ALL WORK WITHIN THE MUNICIPAL R.O.W. REQUIRES A ROAD OCCUPANCY PERMIT AND 48 HRS NOTICE

NIAGARA ENGINEERING
CONSULTING ENGINEERS
18 CHESSINGTON STREET
ST. CATHARINES, ONTARIO L2S 3R4
PHONE (905) 984-4145 FAX (905) 984-6996

PROFESSIONAL ENGINEER – ZAKIR ALI – JUL 30/13 – PROVINCE OF ONTARIO – REGISTERED
PROJECT ENGINEER

SITE SERVICING & GRADING PLAN

DATE	REVISIONS
JULY 30,2010	ISSUED FOR SITE PLAN AGREEMENT
FEB 10,2012	REISSUED FOR SITE PLAN AGREEMENT
JAN 30,2013	REISSUED FOR SITE PLAN AGREEMENT
JUN 24,2013	ISSUED FOR HYDRO ONE REVIEW
JUL 30,2013	REISSUED FOR SITE PLAN AGREEMENT

EAGLE VALLEY CONDOMINIUMS

2334 Saint Paul Avenue
Niagara Falls, Ontario, L2E 6S4

DATE:	JUNE 7, 2010
SCALE:	1:300
DRAWN BY:	T.H.
CHECK BY:	Z.A

10-32

SM-1

Appendix C

Photos of Honey Locust Trees

Tree #1.

Tree #2

Tree #3

Tree #4

Trees 5-7.