

**LANDFORM CONSERVATION
ASSESSMENT REPORT**

17791 MOUNT HOPE ROAD

**TOWN OF CALEDON
REGION OF PEEL**

PREPARED FOR:

GIUSEPPE TRIUMBARI

PREPARED BY:

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1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) has been retained by Giuseppe Triumbari to provide engineering services to support the Official Plan Amendment (OPA) process for the proposed estate residential development (Subject Development) located at 17791 Mount Hope Road, Town of Caledon, Region of Peel. As part of this process, a Landform Conservation Assessment is required to demonstrate conformity with the Oak Ridges Moraine Conservation Plan (ORMCP). The development strategy for the Subject Development is outlined in this report to demonstrate that it is in accordance with the Town and ORMCP requirements.

Landform conservation is the protection of the unique visual qualities of the area and environmentally sensitive features. It is an approach that encourages planning, design and construction practices which:

- minimize disruption to landform and landscape
- minimize grading and changes to topography
- encourage clustering development on less sensitive areas of the site

The Subject Development is located in the Oak Ridges Moraine (ORM) and, therefore, is subject to the Town of Caledon's Official Plan (April 2018) and the Oak Ridges Moraine Conservation Act, 2001. Section 6.6.3.1.3 from the Town of Caledon's Official Plan (2018) states that all developments in Caledon are required to conform to the policies of the Oak Ridges Moraine Conservation Plan (ORMCP).

The ORMCP is an ecological plan established by the Ontario Government. It protects the Moraine's ecological and hydrological integrity by providing land use and resource management guidance to ministries, agencies, municipalities, landowners and other stakeholders. The Oak Ridges Moraine encompasses approximately 190,000 hectares of land and water; it has a variety of environmental, geological and hydrological features. The ORMCP requires developments to adopt landform conservation practices to maintain or enhance the ecological integrity of the ORM. Policies of the ORMCP regarding landform conservation are summarized in the ORMCP Technical Paper 4 – Landform Conservation.

Crozier reviewed the following documents as part of this Landform Conservation Assessment:

- Oak Ridges Moraine Conservation Plan (May 2017)
- Oak Ridges Moraine Plan Technical Paper Series, Technical Paper 4 – Landform Conservation (2002)
- Oak Ridges Moraine Conservation Plan Land Use Designation Map (2017).
- Town of Caledon Official Plan (April 2018)
- Technical Paper: On the Origin of the Oak Ridges Moraine (Barnet et. Al, 1998)
- The Caledon-Guelph Outwash, Ontario Canada: Its Origin, Deposits and Economics (Lesley Anne Hymers, April 2001)
- Region of Peel Official Plan - Schedule A (November 2013)

Crozier has also reviewed several documents supporting the proposed estate residential development. These documents include:

- Summary of Key Natural Heritage Features from the Natural Heritage Evaluation (Beacon Environmental, December 2019)
 - Figure 2: Existing Conditions
 - Figure 3: Proposed Development
- Draft Geotechnical Report (Sirati & Partners, December 2018)
- Existing and Proposed Drainage Plans (Masongsong Associates, October 2019)

The natural heritage features, borehole locations and existing drainage from these documents were included in Crozier's overall environmental mapping package. This mapping package is included in Appendix C.

2.0 Study Area

The Subject Development covers an area of approximately 37 ha and is legally described as part of Lot 28, Concession 8 in the Town of Caledon. The site currently consists of agricultural lands and treed areas. A variety of woodlands and vegetation communities are currently present on site, and a drainage feature crosses through the center of the site. The area around the drainage feature is designated as an Environmental Zone 2 (EZ 2). The Subject Development is located in a residential and agricultural area in the northeast of Caledon, bounded by Mount Hope Road to the west and residential properties in all other directions. The site is within the Palgrave Estate Residential Community and is part of the Countryside Area (Town of Caledon Official Plan, Schedule A, 2008).

The Subject Development is considered a Major Development with Category 2 Landform Characteristics. Category 2 Landform Conservation Area are lands within the Oak Ridges Moraine that have portions of their land surface dominated by steep slopes or complex landform patterns. Therefore, the Subject Development is subject to the policies contained in Section 30 of the ORMCP (2017).

Drawing 702, in Appendix C, illustrates the existing topographic contours and spot elevations of the Subject Development based on field surveys completed on November 4, 2016. The site topography generally consists of flat areas with slopes from 1-5%. Steep slopes extend towards the forested area and a drainage feature is located in the middle of the site. The highest elevation on the subject lands is approximately 304 m at the south-east corner of the site, and the lowest elevation is 292 m located near the center of the site along the drainage feature.

3.0 Objectives

A portion of the Subject Development is located in the Category 2 Landform Conservation Area (Appendix A1). The development application must therefore conform to the requirements of Section 30 of the ORMCP (2017). Section 30(6) of the ORMCP (2017) states that development within a Category 2 Landform Conservation Area requires planning, design and construction practices that will minimize disturbance to landform character. These practices include:

- Maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form

- Limiting the portion of the net developable area of the site that is disturbed to not more than 50% of the total area of the site
- Limiting the portion of the net developable area of the site that has impervious surfaces to not more than 20% of the total area of the site

This Landform Conservation Assessment outlines the landform conservation of the Subject Development and the conformance with the ORMCP (2017) and the Town of Caledon's criteria. The environmental mapping, included in Appendix C, has been prepared according to Section 30(8) of the ORMCP (2017). The mapping outlines the following:

- Elevation contours in enough detail to show the basic topographic character of the site
- Analysis of the site by slope type;
- Significant landform features including kames, kettles, ravines and ridges
- All water bodies including intermittent streams and ponds

4.0 Proposed Development

The Subject Development is located in the Palgrave Estates Residential Community which is a part of the Countryside Area of the ORMCP. Within the Countryside Areas, the ORMCP delineates rural settlements, which are established communities that are identified in official plans. As seen in the ORMCP Land Use Designation Map (Appendix A2), this land designation provides an area of transition between the Natural Core Areas and Natural Linkage Areas with Settlement Areas of the Oak Ridges Moraine.

The Town of Caledon recognizes the Palgrave Estates Residential Community as a settlement area, and policies governing development have been outlined in the Town's Official Plan (2018). This indicates that the location of the Subject Development is suitable for new residential development. The Subject Development and development strategy are described in the following subsections.

4.1 Settlement Area

The Subject Development is situated within the Oak Ridges Moraine Physiographic Region and is designated as a Settlement Area according to the Oak Ridges Moraine Conservation Plan Land Use Designation Map (2017). In the Town of Caledon's Official Plan Schedule G, the Subject Development is designated as a Policy Area 3 within the Palgrave Estate Residential Community (Appendix A5).

Settlement Areas focus and contain urban growth, reflecting the communities planned by the municipality while minimizing the impact of development on the ecological functions and hydrological features of Oak Ridges Moraine. These areas can be used for urban uses and development if they are set out in official plans by the municipality. Section 30(13) of the ORMCP (2017) states that with respect to Settlement Area designated lands, the approval authority shall consider the importance of adopting planning, design and construction practices that will keep disturbance to landform character to a minimum including development applications in landform conservations areas (Category 1 or 2).

As described in Section 5.3.2 of the Town's Official Plan (2018), in order to provide a variety of housing types and living styles within Caledon, the Palgrave Estate Residential Community has been outlined as Rural Estate Residential Development. Rural estate residential plans of subdivisions, other than those shown on the Town's Land Use Plan (Schedule A), Rural Estate Residential Areas (Schedule F), or in the Palgrave Estate Residential Community are not permitted.

Section 7.1 of the Town's Official Plan (2018) outlines policies for the orderly development of an estate residential community within a comprehensive environmental planning framework. The Secondary Plan of the Palgrave Estate Residential Community encourages estate residential development that supports and maintains the rural character of the landscape and community. The Secondary Plan also encourages developments to practice the preservation of natural heritage and ecologically significant areas. The proposed development is located within the Palgrave Estate Residential Community and therefore the site is suitable for a potential residential development.

4.2 Development Strategy

The proposed residential plan of the subdivision consists of 29 single detached lots, municipal roads, serviced with municipal watermain and private sanitary sewage treatment services. Due to the size and extent of the Subject Development, it is considered a Major Development within a Category 2 Landform Conservation Area and the appropriate application protocol will be followed as outlined in the ORMCP.

As shown on the current Draft Subdivision Plan (Drawing 708, Appendix C), the proposed plan aims to minimize disruption to the natural heritage and landform features. The Draft Subdivision Plan outlines the right of way, lot sizes, the approximate limit of environmental zoned area (EZ 2), significant woodlands and the respective 30 m setback. The Proposed Drainage Plan (Drawing No. DR2, Masongsong Associates, October 2019) located in Appendix A6, illustrates that the existing drainage patterns for all of the proposed lots will generally be maintained. The Proposed Development Figure from the Natural Heritage Evaluation (Beacon Environmental, December 2019) also outlines areas of proposed reforestation within the proposed lots. These documents demonstrate that the proposed disturbed area is to be limited to road construction areas and in the vicinity of the proposed houses.

5.0 Geological Assessment

The Oak Ridges Moraine is a stratified moraine complex in southern Ontario. It extends from the Niagara Escarpment to beyond Rice Lake and has a lateral extent of approximately 160 km (Barnett et al., 1998). The ORMCP (2017) requires planning, design and construction practices that will ensure protection of the geological or geomorphological attributes for the site.

The Ontario Geological Survey (OGS) data was used to determine the materials which comprise the land in the subject area. The Subject Development is situated on surficial geology consisting of Ice-Contact Stratified Deposits. The surficial deposits overlay shale, limestone, dolostone and siltstone bedrock found below the Oak Ridges Moraine. Ice-Contact Stratified Deposits are composed of sand and gravel, minor silt, clay and till which were deposited in contact with melting glacier ice, such as an esker, a kame, or a kettle. There is a large variation in particle size and sediment structure in these deposits (Hymers, 2011). Review of the surficial geology and borehole logs (Draft Geotechnical Report, Sirati and Partners, 2018) indicates that the site consists of permeable sediments with sand sediments being the most abundant.

There are steep slopes (+15%) around the limits of the EZ 2 area; these slopes are identified as a significant landform feature. The Environmental Summary Map (Drawing 707, Appendix C), depicts the limits of the Subject Development and the environmental constraints. Some of the steep sloped areas fall within the significant woodlands designated area and will not be disturbed. The rest of the steep slopes are in proximity to the drainage feature in the middle of the site. No other significant landform features were identified on the subject site from our review of the OGS data and site topography. The Subject Development will therefore maintain the significant geological landform features in their natural undisturbed form.

6.0 Slope Assessment

The Subject Development is partially located in the Category 2 Landform Conservation Area, which are areas typically containing moderately complex landform formation patterns. The ORMCP (2017) discourages the development of lands containing significant landform features including kames, kettles, ravines and steep sloping lands. The following sections will discuss the nature of the Oak Ridges Moraine Category 2 Landform Conservation Area and the slope analysis that was conducted to ensure that the Subject Development minimizes impact to the natural landform.

6.1 Category 2 Landform Conservation Area

According to the ORMCP (2017), the Category 2 Landform Conservation Area designation contains portions of land with complex landform formations. Category 2 Landform Conservation Areas have been identified by the Province as areas having 20% to 50% of the land surface comprised of the following:

- Slopes in excess of 10%
- Distinctive landform features such as ravines, kames and kettles
- A diversity of land slope classes

As shown in Figure 1 (Appendix B), the Subject Development is partially within the Category 2 Landform Conservation Area in the ORMCP Landform Designation map. There are steep slopes near the drainage feature and the forested area; this fraction of the site comprises of slopes in excess of 15% and few areas exceeding 25%. Aside from these steep slopes, the site has little diversity in slope classes.

Section 7.10.5.6.3 of the Town's Official Plan (2018) states that with respect to Oak Ridges Moraine Natural Core Areas, Natural Linkage Areas, and not including estate residential development in the Palgrave Estate Residential Community, a development application within the Category 2 Landform Conservation Area shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum. As stated previously in Section 4.0, the Subject Development is located in the Palgrave Estate Residential Community, and therefore identifying practices which minimize disturbance to landform character is not required. However, it should be noted that the areas containing steep slopes will not be developed and therefore significant landform features of the site will be protected.

6.2 Slope Analysis

Section 30(6)(a) of the ORMCP (2017) requires applications for development in a landform conservation area (Category 2) to identify the planning, design and construction practices that will maintain significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural disturbed forms. Major developments require an analysis of the site by slope type.

Topographic contour data was used to conduct a topographic surface analysis producing maps displaying 1.0 m contours, slope percentages and a slope map illustrating the existing topography of the Subject Development. The Slope Analysis Map is located in Appendix C, Drawing 703. The slopes shown on the Slope Analysis Map were classified into percent categories as outlined in Section 30(8) of the ORMCP (0-2%, 2-5%, 5-15%, 15-25%, and greater than 25%). As shown on Drawing 703 in Appendix C, slopes exceeding 15% are highlighted in orange and yellow indicating where steep sloped areas are located.

Generally, the land slopes in towards the center of the site towards the drainage feature and forested area. The majority of the site consists of land with slopes less than 15%; however, the area near the drainage feature includes slopes greater than 15%. Approximately 14% of the site consists of slopes greater than 10%. Drawing 707, the Environmental Summary Map, demonstrates that majority of the steep sloped areas lie within natural heritage feature areas.

As seen in the Proposed Drainage Plan (Drawing No. DR2, Masongsong Associates, October 2019) located in Appendix A6, the structural envelopes are located outside of the steep sloped areas. Therefore, the Subject Development will maintain the significant landform features on site and conforms to the requirements of the Town and the ORMCP.

7.0 Natural Heritage Features

The ORMCP (2017) requires that land with key natural heritage features and hydrologically sensitive features, including minimum vegetation protection zones, be protected from development and rehabilitated as necessary. Furthermore, Section 7.1.9.1 (b) of the Town of Caledon's Official Plan (2018) states that EZ 2 areas include the following characteristics:

- Areas with a high ground water table
- Areas of seasonal flooding and natural depressions which perform natural run-off, detention and groundwater recharge functions
- Small hedgerows and strips of natural vegetation

Appendix A3 contains an excerpt of Section 7.1.9 (Environmental Policies) from the Town's Official Plan (2018).

Sirati & Partners prepared a Draft Report Preliminary Geotechnical Investigation for the Subject Development in December 2018 to obtain information about the subsurface conditions. As seen in the borehole location plan (Appendix A4), a total of ten borehole were drilled on site in October 2018 with depths ranging from 9.2 m to 9.7 m. Monitoring wells were installing in five of the boreholes for long-term groundwater monitoring. Groundwater was not observed in the boreholes over November 2018 (Sirati & Partners, 2018). Relevant excerpts from the Geotechnical Report have been included in Appendix A4.

According to the Existing Conditions Figure from the Natural Heritage Evaluation (Figure 2, Beacon Environmental, December 2019), the natural heritage features present on the site include:

- Significant woodlands
- Ephemeral drainage feature
- Butternut trees
- Environmental Zone 2 (EZ 2)
- Various ecological communities (ELC)

The Vegetation and Wildlife Ecology Map (Drawing 706, Appendix C) outlines the limits of the natural heritage features located within the subject lands. This drawing demonstrates the limits of the drainage feature, EZ 2, ELC Communities, significant woodlands and their 30 m setback. The current Draft Subdivision Plan (Drawing 707, Appendix C) demonstrates that the proposed developed area is outside the limits of the natural heritage features located on site. Areas with environmental significance on the Subject Development are included within the significant woodlands' setback of 30 m and, therefore, will not be developed.

7.1 Summary of Key Natural Heritage Features

Beacon Environmental prepared a Natural Heritage Evaluation (NHE) for the Subject Property in December 2019 which is a comprehensive assessment of the existing natural features. The NHE assesses the potential impacts associated with the construction and permeant development. It also provides recommendations to minimize negative impact on natural features. The natural heritage features from the Natural Heritage Evaluation (Appendix A7) were included in the drawings in Appendix C. The following section summarizes the key natural heritage features present on site.

7.1.1 Significant Woodland

The NHE (Beacon Environmental, December 2019) states that the large woodland on the perimeter of the subject property qualifies as a Significant Woodland according to the criteria of Technical Paper 7 of the ORMCP (2017) based on size, as it exceeds 4 ha and intersects another key natural heritage feature. This woodland also supports habitat of an endangered tree (Butternut). The significant woodlands are referred to as FOD5 & FOM on the drawings, they cover a total of approximately 11 ha on the subject property and extend into a larger feature off site.

Beacon Environmental surveyed the deciduous woodland along the perimeter of the property, the limit is shown in the Vegetation and Wildlife Ecology Map (Appendix C). This woodland represents the only key natural heritage feature as defined in the ORMCP, identified on the subject property by Nottawasaga Valley Conservation Authority (Beacon Environmental, December 2019). Furthermore, the woodland limit corresponds to the Core Areas of the Greenland System in Schedule A of Region of Peel Official Plan (2013) and the Environmental Zone 1 of the Town's Official Plan (2018).

7.1.2 Central Treed Area

The central feature consists of a treed area with mainly Scots Pine and moderate slopes. The area was not staked as contiguous with the perimeter woodland, and is not considered a significant valley, therefore it is not considered a key natural heritage feature. Furthermore, the NVCA noted that the area is not considered to be part of the significant woodland on the property based on exotic composition and may undergo restoration (Beacon Environmental, December 2019).

7.1.3 Central Drainage Feature

The NHE (Beacon Environmental, December 2019) states that a drainage feature has been mapped through the subject property on the provincial Land Information Ontario (LIO) system. However, field studies completed by Beacon Environmental reveal that there is no feature present at the site as the drainage feature was found to be dry during the time of field investigations. Due to surrounding topography and evidence of erosion, it is believed that this central depression may convey overland flows contributed by rain events. However, there is no indication of an intermittent tributary or headwater drainage feature present (Beacon Environmental, December 2019). The ephemeral drainage feature has been shown in the environmental mapping included in Appendix C.

7.1.4 Threatened and Endangered Species

According to the NHE (Beacon Environmental, 2019) two Butternut trees were identified on the subject property within woodland community. A Butternut Health Assessment (BHA) was not deemed necessary given the distance of these trees from the development envelope.

Feb 04, 2021

Giuseppe Triumbari
17791 Mount Hope Road, Town of Caledon

Landform Conservation Assessment
December 2019

8.0 Conclusion

Based on the information provided in this report, we conclude that the proposed residential development aims to minimize disruption to the landform character and the natural heritage lands. The majority of the area that falls within the Oak Ridges Moraine Landform Conservation Areas Category 2, containing slopes greater than 15%, will not be developed. All of the key natural heritage features and steep sloped lands will be protected and preserved because the development will occur outside the limits of the natural heritage and landform features. The Subject Development meets the requirements outlined in the ORMCP (2017) and in the Town of Caledon's Official Plan (2018).

We are therefore proceeding with an OPA application for the residential development at 17791 Mount Hope Road. Should you have any questions or require any further information, please do not hesitate to contact the undersigned.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.



Madeline Carter, P.Eng.
Project Engineer

SA/kb

Encl.

C.F. CROZIER & ASSOCIATES INC.



K.J. Firth, P.Eng.
Partner

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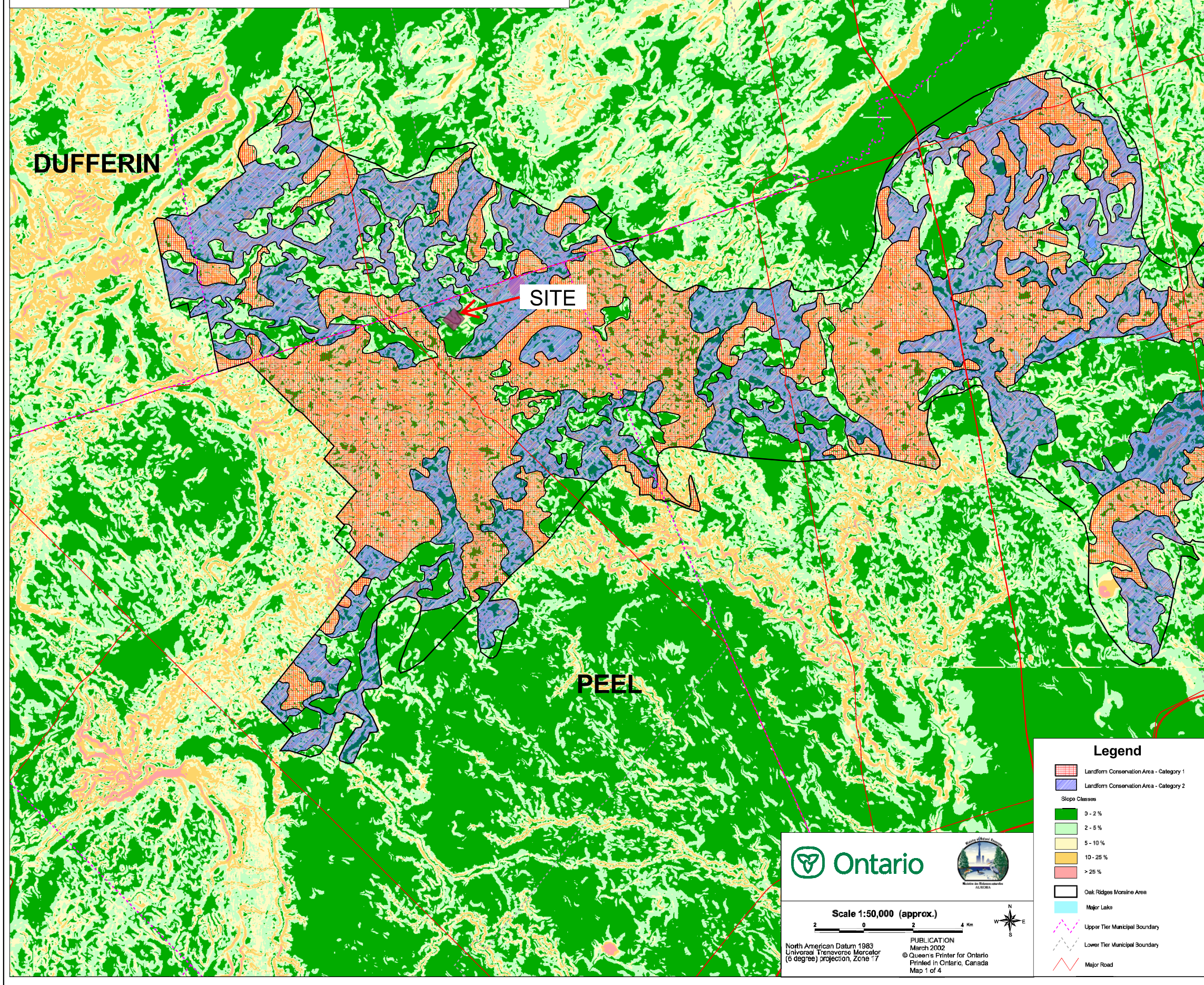
APPENDIX A



Background Information

APPENDIX A1

Landform Conservation Areas of the Oak Ridges Moraine Map No. 1

Landform Conservation Areas of the Oak Ridges Moraine Map No. 1



**Ontario**

Scale 1:50,000 (approx.)

2 0 2 4 Km

North American Datum 1983
Universal Transverse Mercator
(6 degree) projection, Zone 17

PUBLICATION
March 2002
© Queen's Printer for Ontario
Printed in Ontario, Canada
Map 1 of 4

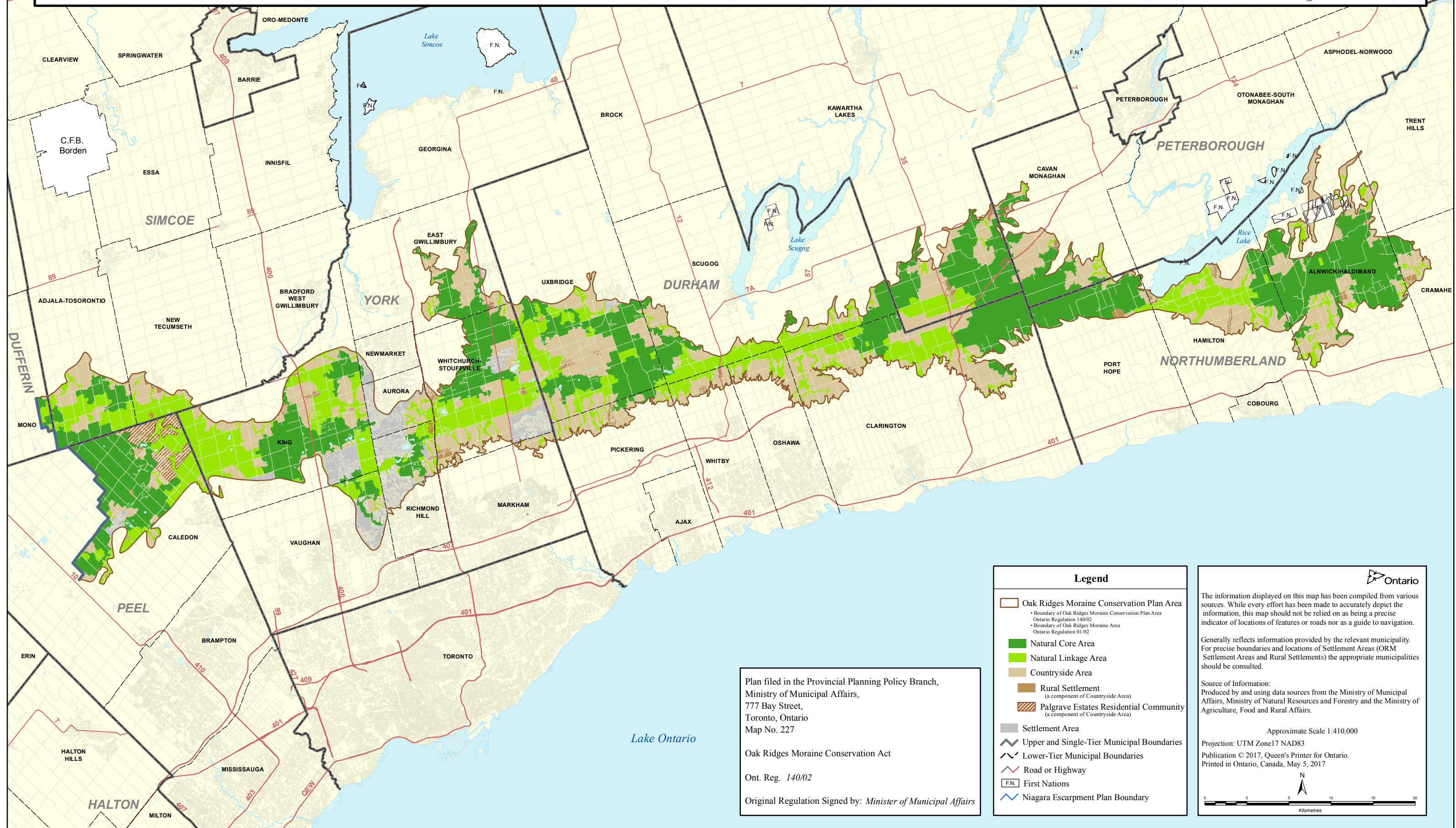
- ### Legend
- Landform Conservation Area - Category 1
 - Landform Conservation Area - Category 2
 - Slope Classes
 - 0 - 2 %
 - 2 - 5 %
 - 5 - 10 %
 - 10 - 25 %
 - > 25 %
 - Oak Ridges Moraine Area
 - Major Lake
 - Upper Tier Municipal Boundary
 - Lower Tier Municipal Boundary
 - Major Road

APPENDIX A2

Oak Ridges Moraine Conservation Plan Land Use Designation Map

Oak Ridges Moraine Conservation Plan Land Use Designation Map

Ontario Regulation 140/02



APPENDIX A3

Excerpts from Secondary Plans and Other Detailed Area
Policies, Town of Caledon Official Plan

5.3 RURAL ESTATE RESIDENTIAL

5.3.1 Introduction

OPA226

It is the intent of this Plan to recognize Rural Estate Residential plans of subdivision within the Town which have been registered, draft approved or those which have legal status as “commenced” applications pursuant to applicable Provincial Legislation and Regulations (refer to Section 6.6.3.4 for additional transition policies). These Rural Estate Residential subdivisions are outlined as Rural Estate Residential Areas on Schedule F. In addition, the Town is providing for future estate residential development within a comprehensive, environmentally responsible policy framework through the establishment of an Estate Residential Community.

5.3.2 General Policies

5.3.2.1 The predominant use of land outlined as Rural Estate Residential Area on Schedule F, is single-family dwellings on large lots. Apartments-in-houses as per Section 3.4.3.6 of this Plan, shall be permitted in Rural Estate Residential. Garden Suites as per Section 6.2.13.3 of this Plan, shall be permitted in Rural Estate Residential. The emphasis is on minimum disturbance of the natural setting and environment offering a distinctly "rural" atmosphere to those people not wishing to live in continuously built-up urban areas.

5.3.2.2 In order to provide for a variety of housing types and living styles within the Town and recognizing the demand for Rural Estate Residential development, the Palgrave Estate Residential Community has been outlined in Schedule A, Land Use Plan. Development within this Policy Area shall be in accordance with Section 7.1 and Section 7.10 of this Plan and subsections thereof.

OPA 186

5.3.2.3 Rural Estate residential plans of subdivision, other than those shown on Schedule A, Land Use Plan, Schedule F, Rural Estate Residential Areas, or in the Palgrave Estate Residential Community, will not be permitted.

5.3.2.4 Estate Residential Development may occur on a condominium basis, and shall be subject to all municipal standards.

5.3.2.5 Rural Estate Residential uses shall be included in a separate zoning category in the implementing Zoning By-law.

5.3.2.6 Lands identified on Schedule F as Rural Estate Residential Areas that are within the ORMCPA or the Greenbelt Protected Countryside designation shall also be subject to the policies of Sections 7.10 and 7.13, as applicable. Refer to Section 6.6.3.3 of this Plan for further policies respecting conflicts between the policies of this Plan and the policies of the PPS and Provincial Plans.

OPA226

5.3.3 Bolton Golf Course Estate Residential

5.3.3.1 The Bolton Golf Course, being part of Lots 18, 19 and 20, Concession 6 (formerly Albion Township), is designated Bolton Golf Course Estate Residential, as shown on Schedule A, Land Use Plan.

5.3.3.2 The integration of the existing golf course with an estate residential plan of subdivision is recognized as a compatible and permitted use in this Area.

5.3.3.3 In view of Section 5.3.3.2, the golf course fairways may encroach upon the rear portions of estate residential lots, by means of easement or other acceptable manner, so as to achieve an integrated land use design between the estate residential subdivision and the golf course. The design of the subdivision will take into account, among other things, acceptable separation or adequate landscape buffering between the Bolton Golf Course Fairway and the Structure Envelopes.

5.3.3.4 The nature of fairway encroachment on the rear portion of estate lots shall be registered on title of all created lots in the Bolton Golf Course Estate Residential area and shall specify, among other matters, requirements and responsibilities pertaining to:

- a) Access to fairways and surrounding grounds by golf course participants during the normal golfing season;
- b) Maintenance of fairways and surrounding grounds;
- c) Nuisances associated with the golf course operation; and
- d) Any other studies, restrictions or requirements deemed appropriate by the Town of Caledon.

5.3.3.5 The nature and density of development in the Bolton Golf Course Estate Residential area shall be governed by the following development policies:

5.3.3.5.1 Environmental

- a) A Structure Envelope must be shown for each lot on any proposed plan of subdivision. The Structure Envelope should identify only the optimal area of the lot for structures but should provide ample space for estate residential and accessory uses.
- b) No Structure Envelope will be permitted inside a regional floodline. In addition, no part of a lot inside a regional floodline may be counted in the calculation of net lot area.
- c) No Structure Envelope will be situated such that it interferes with the normal operation and maintenance of the golf course, except for septic tank tile beds which may encroach the golf course where necessary.
- d) Structure Envelopes will generally be restricted to areas with slopes of 10 percent or less. However, Structure Envelopes may include

areas with an 11-15 percent slope, and occasionally greater than a 15 percent slope, in order to permit the advantageous siting of a house designed for steep slopes. In all cases the Structure Envelope must include a suitable area for a sewage disposal system.

- e) Estate residential development adjacent to watercourse and physiographic formations that collect or discharge groundwater will incorporate any environmental protection measures necessary to ensure the maintenance of high water quality and sufficient quantity of water to the satisfaction of the Town, the Ministry of Natural Resources and Forestry and the appropriate Conservation Authority.
- f) Written approval of the Toronto and Region Conservation Authority will be required to:
 - i) construct any building or structure or permit any building or structure to be constructed in or on a pond or swamp or in any area susceptible to flooding during a regional storm;
 - ii) place or dump fill or permit fill to be placed or dumped in a fill regulated area whether such fill is already located in or upon such area, or brought to or on such area from some other place or places; or,
 - iii) straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse, where also requires the approval of the Ministry of Natural Resources and Forestry, pursuant to Section 10 of *The Lakes and Rivers Improvement Act*.

5.3.3.5.2 Heritage

- a) An estate residential plan of subdivision for this Area will be circulated to the Town of Caledon Heritage Committee and the Regional Archaeologist of the Ministry of Tourism, Culture and Sport for their comment prior to approval.

5.3.3.5.3 Servicing

- a) Every lot in an estate residential plan of subdivision must be serviced with a private sewage disposal system for the treatment of domestic wastes. Each system must conform to the standards of and be approved by the Ministry of the Environment and Climate Change or its designated agents.
- b) An applicant for an estate residential plan of subdivision will be required to undertake any studies deemed necessary to assess the probability of contamination of wells on nearby properties by septic system leachate or other source of contamination likely to be caused by the proposed development. Based on the results of such studies the applicant may be required to carry out any redesign of remedial works necessary to minimize the probability of contamination.

- c) Schedule H, Palgrave Estate Residential Community Water Service Area, establishes water servicing areas for the Palgrave Policy Area identified as Regional Water Service Area and Well Service Area. Schedule H also shows the extent of the existing Regional water supply system. A minor alteration to the boundaries of the Regional Water Service Area to include the Bolton Golf Course Estate Residential, if approved by the Region of Peel, will not require an Amendment to this Plan.

5.3.3.5.4 Transportation

- a) Internal subdivision roads in the Estate Residential Area should follow the topography of the site, and the locations of access points onto Provincial Highways, Regional Arterial and Rural Collector Roads will be co-ordinated by the Town and other authorities having jurisdiction; with the number of such access points being limited.
- b) Access to individual residential lots in the Bolton Golf Course Estate Residential area shall be from internal subdivision roads rather than from higher level roads.

5.3.3.6 Notwithstanding Section 5.3.3.5, the maximum number of lots for the Albion Fairways property (being parts of the East Halves of Lots 18, 19 and 20, Concession 6, formerly Albion Township) in the Bolton Golf Course Estate Residential area shall not exceed 75 estate residential lots with a minimum net lot area of 0.6 hectares (1.5 acres). The net lot density shall not exceed 40 units per 100 acre Township Half Lot.

5.3.3.7 Application requirements for approval of an estate residential plan of subdivision for the Bolton Golf Course Estate Residential area, shall be the same as those required for estate residential subdivisions in the Palgrave Estate Residential Community. These requirements are listed under Section 7.1.18 of this Plan.

5.3.3.8 The Bolton Golf Course Estate Residential area shall also be subject to the policies of Section 7.10. Notwithstanding any other policy of Section 5.3.3, where the policies of Section 7.10 are more restrictive than those contained in Section 5.3.3, the more restrictive policies shall apply.

OPA 186

5.3.4 **Reddington Retirement Community**

5.3.4.1 The Reddington Retirement Community designated on Schedule A in Lots 26 and 27, Concession 6, in the Former Township of Albion, shall consist of:

- a) A variety of architecturally designed one (1) storey cluster villa buildings, each containing four to six dwelling units to a maximum of 188 units;
- b) A golf course and a clubhouse accommodating a variety of recreational and social facilities; and,
- c) Be located on approximately 77 hectares (190 acres).

6.6.3 **The Provincial Policy Statement and Provincial Plans**

OPA226

To assist the reader of this Plan, this section provides a general summary of the requirements of the Provincial Policy Statement (PPS), Provincial Plans and related *Acts*, with respect to conformity of decisions; interpretation of boundaries, conflicts between policies and transition provisions for planning applications. For further detail, reference should be made to the relevant Provincial Policy, *Act* or Plan, as these are the final authorities on the subject matter. In general, the policies of the PPS, the applicable Provincial Plans, and this Plan must be read in their entirety and not interpreted and applied in isolation.

6.6.3.1 **Conformity Requirements**

OPA 226

6.6.3.1.1 Provincial Policy Statement

A decision of the Council of a municipality, in respect of the exercise of any authority that affects a planning matter, “shall be consistent with” the PPS. Comments, submissions or advice that affect a planning matter that are provided by the Council of a municipality, “shall be consistent with” the PPS.

6.6.3.1.2 Niagara Escarpment Plan

All development shall conform to the policies and development criteria contained in the Niagara Escarpment Plan. In accordance with the requirements of the *Niagara Escarpment Planning and Development Act*, all amendments to this Plan or implementing Zoning By-law must conform to the Niagara Escarpment Plan.

6.6.3.1.3 Oak Ridges Moraine Conservation Plan

All developments and decisions of the Council of a municipality are required to conform to the policies of the Oak Ridges Moraine Conservation Plan (ORMCP), subject to the transition provisions of the Oak Ridges Moraine Conservation Act and Plan, and any applicable regulations.

6.6.3.1.4 Lake Simcoe Protection Plan

Decisions under the *Planning Act* or the *Condominium Act, 1998* or decisions related to a “prescribed instrument” are required to conform with the applicable “Designated Policies” in the Plan and have regard to the other applicable policies.

6.6.3.1.5 Greenbelt Plan

The decisions of the Council of a municipality with respect to matters, proceedings or applications made under the *Planning Act* and the *Condominium Act, 1998*, are required to conform to the policies of the Greenbelt Plan, subject to the transition provisions of the *Greenbelt Act* and Plan, and any applicable regulations.

6.6.3.1.6 Growth Plan for the Greater Golden Horseshoe

- 7.1.8.9 Estate residential plans of subdivision will be required to minimize the amount of stormwater draining from the site and adhere to the zero increase in stormwater run-off principle in a manner acceptable to the Town of Caledon and to the Conservation Authority (e.g.: post-development flows will be less than pre-development flows).
- 7.1.8.10 Wherever possible the one hundred (100) year design stormwater run-off will be detained and recharged to the groundwater aquifers or slowly released from the site in an environmentally acceptable manner.
- 7.1.8.11 Solid waste disposal will be carried out by the Region of Peel.
- 7.1.8.12 The Town encourages the Region of Peel to prepare a Master Servicing Strategy for the Palgrave Estate Residential Community which should include, but not necessarily be limited to, a consideration of sewage treatment strategies and the hydrogeological impacts of expanding the Palgrave communal water supply system.
- 7.1.8.13 Policies regarding municipal road and utility standards are contained in Section 7.1.14.3.
- 7.1.8.14 Servicing of estate residential developments shall also conform to the applicable provisions of Section 7.10, and in particular, Sections 7.10.6.6 and 7.10.6.7.

OPA 186

7.1.9 **Environmental Policies**

- 7.1.9.1 Schedule I, Palgrave Estate Residential Community Environmental Zones, establishes the following Environmental Zones based on existing natural features of the area and based on the applicable policies of the Oak Ridges Moraine Conservation Plan:

OPA 186

- a) **Environmental Zone 1 (EZ 1):** EZ 1 includes more sensitive biological communities; valley and stream corridors and their associated floodplains; native upland and lowland woodlands; natural waterbodies; Provincially and locally significant wetlands; and, Environmentally Significant/Sensitive Areas (Note: these areas were formally identified as EZ 1, 2 and 3 on Schedule I prior to the adoption of Official Plan Amendment 186). EZ 1 also includes all ORMCP Key Natural Heritage Features and Hydrologically Sensitive Features, and their related Minimum Vegetation Protection Zones.

Explanatory Note:

Where EZ 1 has an overlay hatch, this indicates ORMCP Key Natural Heritage Features and Hydrologically Sensitive Features (using mapping provided by the Province), and their related Minimum Vegetation Protection Zones that extend beyond areas that were formally identified as EZ 1, 2 and 3 on Schedule I prior to the adoption of Official Plan Amendment 186. These hatched areas are subject to Subsection 7.1.9.6.b) below, in addition to all other applicable policies of this Plan.

- b) Environmental Zone 2 (EZ 2): EZ 2 includes areas of high groundwater table (where the water table is usually within 1.5 metres or less of the ground surface); areas of seasonal flooding (not including regulated floodplains); dry swale lowlands and natural depressions which perform natural run-off, detention and groundwater recharge functions; and, smaller hedgerows and strips of native vegetation.
- c) EZ 1 and EZ 2 shall be zoned in a separate classification in the implementing Zoning By-law which conforms to the provisions of this Plan.
- d) If an area contains both EZ 1 and EZ 2 features, it shall be treated as EZ 1 and subject to all provisions applicable to EZ 1.

7.1.9.2 The general locations of EZ 1 and EZ 2 are shown on Schedule I, however the individual EZ 1 and EZ 2 features are not shown separately on the Schedule. The specific type(s) of individual EZ 1 and EZ 2 features and refinements to their boundaries shall be determined through detailed studies, such as a Natural Heritage Evaluation and/or Hydrological Evaluation, or the requirements of Section 7.1.18 where applicable.

OPA 186

Minor changes and refinements to EZ 1 and EZ 2 shown generally on Schedule I, based on updated information from the Province or as a result of detailed studies, such as those noted above, will not require an amendment to this Plan. However, where the feature is a wetland, an Area of Natural and Scientific Interest and/or significant portions of the habitat of endangered, rare and threatened species, or their related Minimum Vegetation Protection Zones, proposed refinements to the boundary or the extent of the feature requires formal confirmation from the Province or delegated authority prior to any development.

7.1.9.3 A Structure Envelope must be shown for each lot on any proposed plan of subdivision. The Structure Envelope shall identify the optimal area of the lot for structures and shall provide ample space for estate residential and accessory uses including all associated necessary lot grading. The proposed house and driveway locations and soil absorption area for sewage disposal shall be shown within the structure envelope.

Structure Envelopes will generally be sized in the range of 0.3 hectare (0.74 acres) to 0.5 hectares (1.24 acres). Structure Envelopes slightly outside this range will be discouraged unless site conditions warrant a minor deviation from this range.

7.1.9.4 No part of a Structure Envelope will be permitted in EZ 1 or in Policy Area 4.

7.1.9.5 No part of a Structure Envelope will be permitted in EZ 2 except for short sections of driveways which may cross short sections of EZ 2 if necessary to obtain reasonable access to a lot. Individual lot services will not be

7.10.5.5.2 The uses prohibited by Sections 7.10.5.5.1 shall be restricted by the implementing Zoning By-law.

7.10.5.6 Landform Conservation Areas

7.10.5.6.1 In accordance with Section 30 of the ORMCP, Schedule P-2 of this Plan identifies Landform Conservation Areas Category 1 and Category 2.

7.10.5.6.2 With respect to Oak Ridges Moraine Natural Core Areas, Natural Linkage Areas, and Countryside Areas, not including estate residential development in the Palgrave Estate Residential Community, an application for development with respect to land in a landform conservation area (Category 1) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including:

- a) Maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;
- b) Limiting the portion of the net developable area of the site that is disturbed to not more than 25 percent of the total area of the site; and,
- c) Limiting the portion of the net developable area of the site that has impervious surfaces to not more than 15 percent of the total area of the site.

7.10.5.6.3 With respect to Oak Ridges Moraine Natural Core Areas, Natural Linkage Areas, and Countryside Areas, not including estate residential development in the Palgrave Estate Residential Community, an application for development with respect to land in a landform conservation area (Category 2) shall identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including:

- a) Maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;
- b) Limiting the portion of the net developable area of the site that is disturbed to not more than 50 percent of the total area of the site; and,
- c) Limiting the portion of the net developable area of the site that has impervious surfaces to not more than 20 percent of the total area of the site.

7.10.5.6.4 Section 7.10.5.6.2 and 7.10.5.6.3 do not apply in respect of extractive industrial operations.

7.10.5.6.5 With respect to Oak Ridges Moraine Natural Core Areas, Natural Linkage Areas, and Countryside Areas, not including estate residential

APPENDIX A4

Excerpt from Preliminary Geotechnical Report and Proposed
Borehole Location Plan (December 2018)

2. FIELD AND LABORATORY WORK

A total of ten (10) boreholes (BH1 through BH10B, see Drawing 1 for location plan) were drilled to depths ranging from 9.2 m to 9.7 m below the existing ground surface (mbgs). The boreholes were drilled with solid stem, continuous flight augers. The drilling of all boreholes was conducted by a drilling sub-contractor under the direction and supervision of SIRATI's senior staff.

The field work was carried out in accordance with ASTM D 1586-11 test method. Samples were retrieved at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm in accordance with the Standard Penetration Test (SPT) method. The samples were logged in the field and returned to SIRATI's laboratory for detailed examination by the project engineer and for laboratory testing.

In addition to visual examination in the laboratory, all soil samples were tested for moisture content. The results of the natural moisture contents are presented in the respective borehole logs. Seven (7) representative soil samples were subjected to grain size and plasticity index analyses. The results of the laboratory tests are presented in the respective logs and in Figures 12, 13, and 14.

Water level observations were made during drilling in the open boreholes, upon completion of the drilling operations and on a subsequent visit on November 1, 2018. Monitoring wells were installed in five (5) boreholes (BH1, BH3, BH6, BH9 and BH10B) for long-term (stabilized) groundwater level monitoring.

The elevations at the borehole locations were surveyed by SIRATI personnel using differential GPS system and varied from 295.67 m to 302.75 m.

3. SITE AND SUBSURFACE CONDITIONS

The borehole location plan is shown on Drawing 1. Notes on soil descriptions are presented on Drawing 1A. The subsurface conditions in the boreholes are presented in the individual borehole logs (Encl. 2 to 11 inclusive). The subsurface conditions in the boreholes are summarized in the following paragraphs.

3.1 SOIL CONDITIONS:

Topsoil: A 300 mm to 450 mm thick surficial layer of topsoil was found at all borehole locations except BH4. The thickness of the topsoil in each borehole is shown in the respective borehole logs. It should be noted that the thickness of the topsoil observed at the borehole locations may not be representative for the entire site and should not be relied on to calculate the amount of topsoil that need to be stripped from the site.

Fill Material: Below the topsoil, where present, a zone of earth fill/disturbed native material was encountered in all boreholes. The fill layer was found extending to depths varying between 0.8 m (BH7) and 3 m (BH6) below the existing ground surface. The fill material mainly consisted of silty sand, sandy silt and sand, with trace to some topsoil inclusion at some borehole locations. The

composition of the weathered/disturbed sand was generally similar to that of the underlying undisturbed native soils (sand). The measured SPT 'N' values in the fill material ranged from 0 to 32 blows, but more commonly between 4 and 8 indicating a very loose to loose compaction state.

Cohesive Layer: A thin cohesive layer of clayey silt was observed locally in BH5, extending from 1.5 m to 2.3 m depth. The measured SPT 'N' values in the clayey silt layer was measured to be 7 blows per 300 mm penetration, indicating a firm consistency. The natural moisture content of the cohesive soil was measured at 20.0%, indicating a very moist condition.

Grain size analysis and Atterberg limits tests of a representative sample from this stratum (B5/SS3) was conducted and the results are presented in Figures 12 and 14, with the following fractions:

Clay: 27%
Silt: 54%
Sand: 17%
Gravel: 2%

Cohesionless Layers: Cohesionless layers of silt, sandy silt, silty sand, sand, and gravelly sand were encountered in all borehole locations. The native cohesionless layers were encountered at different depths ranging from 0.8 m to 3.0 m below the existing ground surface and extended to the termination depth at all borehole locations.

The SPT "N" values were found to range between 7 to more than 50 blows per 300 mm penetration, indicating a loose to very dense state.

The natural moisture content of the cohesionless soil varied between 2.0% to 20.0%, indicating a moist to wet condition.

Grain size analysis of six (6) representative samples from sand, silt, sandy silt and silty sand (B14/SS5, BH10B/SS8, BH2/SS6, BH3/SS4, BH5/SS8/SS9) were conducted and the results are presented in Figure 12 and 13, with the following fractions:

Clay: 4% to 9%
Silt: 1% to 80%
Sand: 10% to 93%
Gravel: 1% to 7 %

3.2 GROUNDWATER CONDITIONS

During drilling (short-term) all boreholes were observed to be dry. The groundwater level in the monitoring wells was observed to be dry on November 1, 2018 and November 27, 2018.

It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations in response to major weather events.




SIRATI & PARTNERS
Geotechnical Hydrogeological & Environmental Solutions
12700- Keele Street
King City, ON. L7B 1H5
Phone# 905 833 1582, Fax# 905 833 5360


North:



Legend:

----- Property Boundary

 Borehole

 Monitoring Well

Project Title:
Geotechnical Investigation

Site Location:
17791 Mount Hope Road, Caledon, ON

Figure Title:
Proposed Borehole Location Plan

Scale: 0m 50m 100m	Project Number: SP18-334-10
------------------------------	---------------------------------------

Date: December 2018	Figure Number: 1
-------------------------------	----------------------------

APPENDIX A5

Town of Caledon Official Plan

Notwithstanding any other provisions of this Plan, within lands designated EZ 1 on Schedule I permitted uses shall only include those uses permitted in EPA, in accordance with Section 5.7.3.1.2.

7.1.3.5 Over the longer term, the Town may initiate a review of broader community design and development issues within the Palgrave Estate Residential Community. This review could explore, in a comprehensive manner, alternative approaches and forms to community design, standards and development in the area, including a consideration of compatible alternative or mixed-uses. This review should be undertaken through a multi-stakeholder, community-based process, with a high degree of resident involvement. If appropriate, the process may be integrated or co-ordinated with a number of other longer term initiatives contained in Section 7.1.

7.1.3.6 Apartments-in-houses as per Section 3.5.3.10 of this Plan shall be permitted within the Palgrave Estate Residential Community. Garden Suites as per Section 6.2.13.3 of this Plan shall be permitted in the Palgrave Estate Residential Community. Within Policy Area 4, Apartments-in-Houses and Garden Suites shall also be subject to the detailed provisions of Section 7.10, and in particular, Section 7.10.3.10.

OPA 186

7.1.4 **Population**

7.1.4.1 The Town will monitor population increases in the Palgrave Estate Residential Community having regard to Sections 2 and 4 of the Plan.

7.1.5 **Development Pattern**

7.1.5.1 Schedule G, Palgrave Estate Residential Community Development Pattern, establishes the following land use areas in the Palgrave Estate Residential Community: Policy Area 1, Policy Area 2, Policy Area 3 and Policy Area 4. It also recognizes existing and committed estate residential plans of subdivision and an existing licencing extractive industrial area.

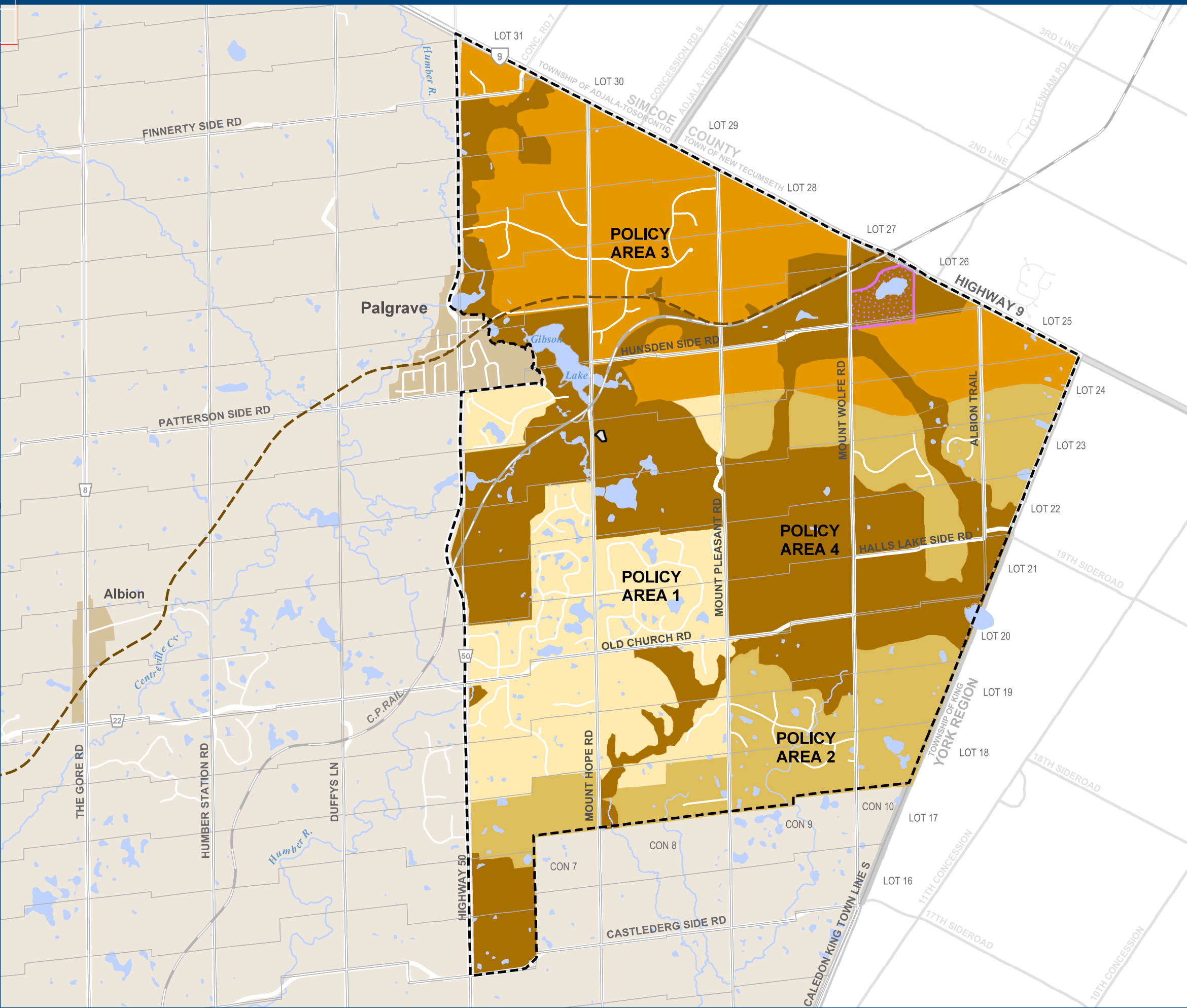
7.1.5.2 Policy Area 1 is the prime area for future estate residential development.


7.1.5.3 Policy Areas 2 and 3 are suitable for estate residential development at lower densities and higher minimum net lot sizes than Policy Area 1.

OPA 186

7.1.5.4 Policy Area 4 is unsuitable for estate residential development and no density will be allocated to it. Notwithstanding the development pattern depicted on Schedule G, applications that were commenced but not decided upon as of November 17, 2001, in accordance with Section 15 of the *Oak Ridges Moraine Conservation Act, 2001*, shall be considered for approval subject to the provisions prescribed in Section 48 of the Oak Ridges Moraine Conservation Plan, and the policies of Section 7.1 that would have been applicable on November 16, 2001. In the case of conflict between the provisions of the ORMCP and Section 7.1, the more restrictive policies shall apply.

7.1.5.5 Policy Areas 1, 2 and 3 correspond to the ORMCP Countryside Area designation on Schedule P, and Policy Area 4 corresponds to the ORMCP



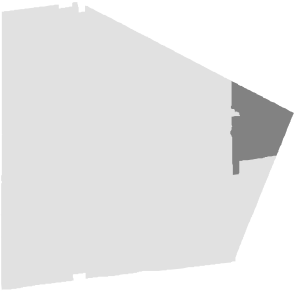


Schedule G



PALGRAVE ESTATE RESIDENTIAL COMMUNITY

- Policy Area 1
- Policy Area 2
- Policy Area 3
- Policy Area 4
- Existing Extractive Industrial
- Special Policy Area - Waste Disposal
- Palgrave Estate Residential Community
- Settlement Area
- Caledon Trailway

- Provincial Road
- Regional Road
- Local Road
- Railway



Base Data Source: Town of Caledon



APPENDIX A6

Existing & Proposed Drainage Plans



LEGEND :

- PROPOSED DRIVEWAY WITH CULVERT
- PROPOSED CULVERT
- HYDRANT
- PROPOSED WATER SERV. CONNECTION
- PROPOSED UTILITY BOX
- PROPOSED LIGHT POLE
- PROPOSED VALVE & BOX
- LIMIT OF DEVELOPMENT
- STRUCTURE ENVELOP LINE
- WATERCOURSE
- EXISTING TREES
- EDGE OF VEGETATION
- SEWING TANK SYSTEM (TYP)
- PROPOSED HOUSE (TYP)
- 0.40
0.75
DRAINAGE AREA (ha)
RUNOFF COEFFICIENT
- 0.1
15.10
0.25
EXTERNAL DRAINAGE AREA ID
DRAINAGE AREA (ha)
RUNOFF COEFFICIENT
- PROPOSED OVERLAND FLOW DIRECTION
- EXISTING OVERLAND FLOW
- PROPOSED DRAINAGE AREA
- EXISTING DRAINAGE AREA
- EXTERNAL DRAINAGE AREA
- PROPOSED ENHANCED GRASS SWALE

REVISIONS

No.	BY	DATE	REVISION	CORR.	TOWN
1				CHECKED	APPROVED

APPROVED FOR CONSTRUCTION

THIS APPROVAL CONSTITUTES A GENERAL REVIEW AND DOES NOT CERTIFY DIMENSIONAL ACCURACY.

THIS APPROVAL IS SUBJECT TO THE FURTHER CERTIFICATION OF THE "AS CONSTRUCTED" WORKS BY A REGISTERED PROFESSIONAL ENGINEER OF THE PROVINCE OF ONTARIO.

DATE: - APPROVED BY: H. MARTEL, P.ENG. Town Engineer

ELEVATION NOTES

ELEVATION SHOWN HEREON ARE GEODETIC AND DERIVED FROM THE TOWN OF CALEDON BENCHMARKS.

LOCAL BENCHMARK

NO. 00819750896 ELEVATION = 277.870 METRES AND NO. 00819750814 ELEVATION = 318.849 METRES

DESIGNED BY: APPROVED BY:

PROJECT:

PALGRAVE ESTATES SUBDIVISION

CONSULTANT:

MASONSONG ASSOCIATES

Region of Peel
Working for you

TOWN OF CALEDON

TITLE:

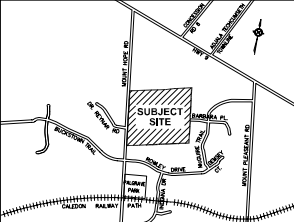
EXISTING DRAINAGE PLAN

SCALE: 1:1000

PROJECT No.: 18-951

DESIGNED BY: M.A. **DRAWN BY:** MAEL CAD

CHECKED BY: A.L. **DATE:** OCTOBER 2018 **PLAN No.:** DR1



- LEGEND :**
- PROPOSED DRIVEWAY WITH CULVERT
 - PROPOSED CULVERT
 - HYDRANT
 - PROPOSED WATER SERV. CONNECTION
 - PROPOSED UTILITY BOX
 - PROPOSED LIGHT POLE
 - PROPOSED VALVE & BOX
 - LIMIT OF DEVELOPMENT
 - STRUCTURE ENVELOP LINE
 - WATERCOURSE
 - EXISTING TREES
 - EDGE OF VEGETATION
 - SEPTIC TANK SYSTEM (TYP)
 - PROPOSED HOUSE (TYP)
 - 0.40
0.75
DRAINAGE AREA (ha)
RUNOFF COEFFICIENT
 - 0.1
15.10
0.25
EXTERNAL DRAINAGE AREA ID
DRAINAGE AREA (ha)
RUNOFF COEFFICIENT
 - PROPOSED OVERLAND FLOW DIRECTION
 - EXISTING OVERLAND FLOW
 - PROPOSED DRAINAGE AREA
 - EXISTING DRAINAGE AREA
 - EXTERNAL DRAINAGE AREA
 - PROPOSED ENHANCED GRASS SWALE

REVISIONS				
No.	BY	DATE	REVISION	CONS. TOWN CHECKED APPR'D
1				

APPROVED FOR CONSTRUCTION
THIS APPROVAL CONSTITUTES A GENERAL REVIEW AND DOES NOT
CERTIFY DIMENSIONAL ACCURACY.
THIS APPROVAL IS SUBJECT TO THE FURTHER CERTIFICATION OF
THE "AS CONSTRUCTED" WORKS BY A REGISTERED PROFESSIONAL
ENGINEER OF THE PROVINCE OF ONTARIO.

DATE: - APPROVED BY: H. MARTEL, P.ENG.
Town Engineer

ELEVATION NOTES
ELEVATION SHOWN HEREON ARE GEODETIC AND DERIVED FROM THE TOWN
OF CALEDON BENCHMARKS.

LOCAL BENCHMARK
NO. 008197505066 ELEVATION = 277.870 METRES AND NO. 00819778414
ELEVATION = 318.849 METRES

DESIGNED BY

APPROVED BY

PROJECT:
PALGRAVE ESTATES SUBDIVISION

CONSULTANT:

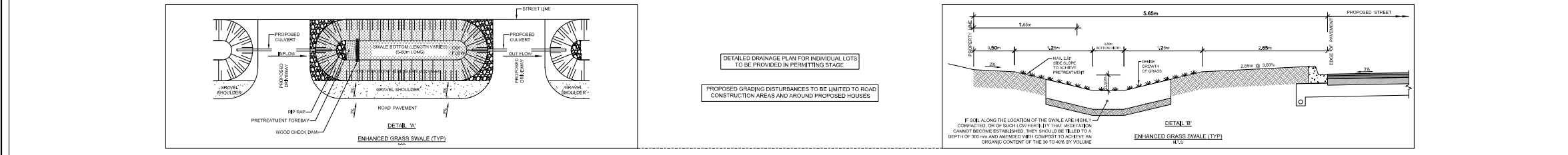
MASONGSONG ASSOCIATES

Region of Peel
Working for you

TOWN OF CALEDON

TITLE:
PROPOSED DRAINAGE PLAN

SCALE: 1:1000	PROJECT No. 18-951
DESIGNED BY: M.A.	DRAWN BY: MAEL CAD
CHECKED BY: A.L.	DATE: OCTOBER 2018
	PLN No. DR2



APPENDIX A7

Existing Conditions and Proposed Development Figures from
the Natural Heritage Evaluation (December 2019)




17791 Mount Hope Road, Caledon

Legend

- Subject Property
- Ephemeral Drainage Feature (MNRF 2019)
- Significant Woodland (Beacon)
- ELC Communities
- Significant Woodland (staked with NVCA February 2019)
- Butternut

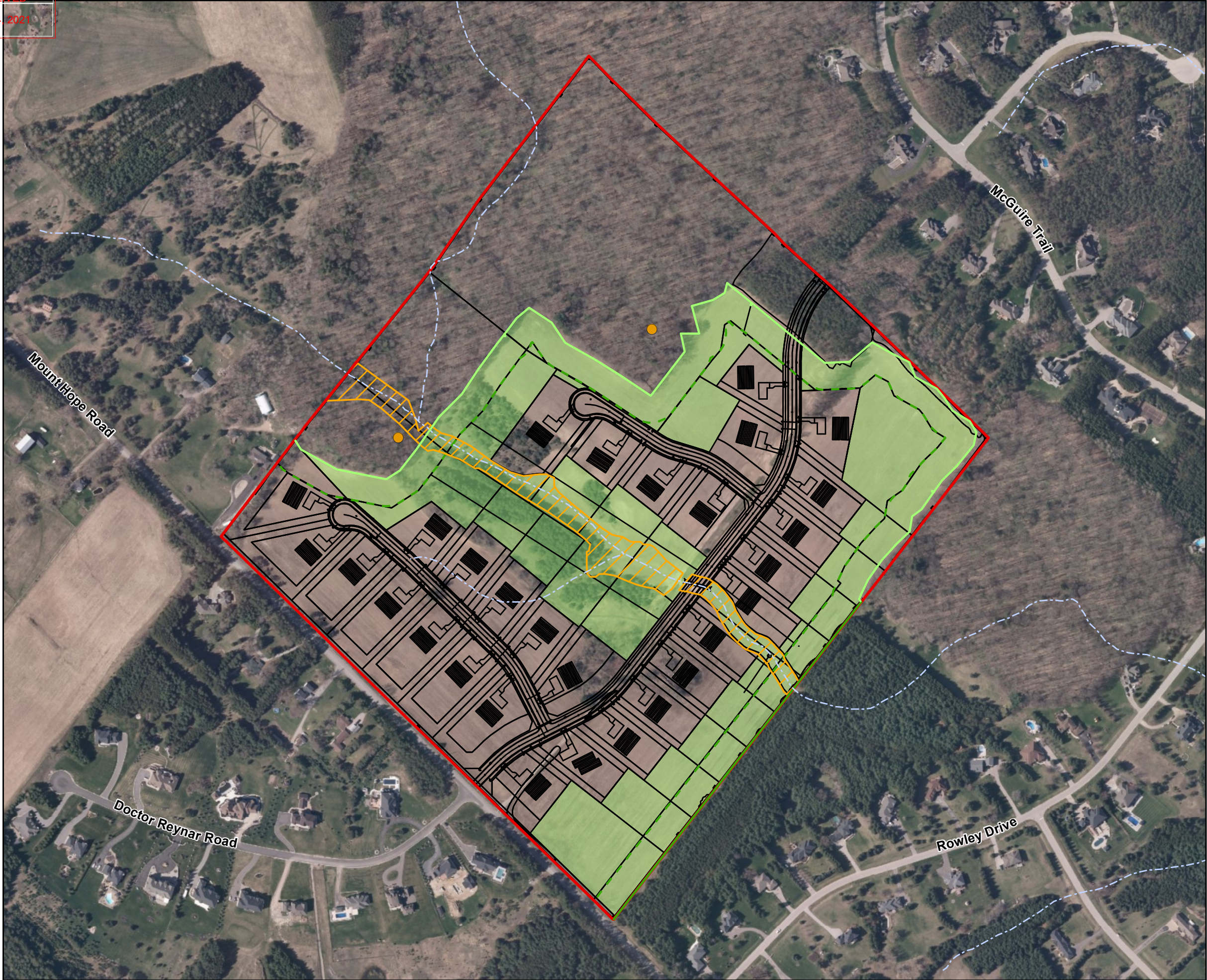
ELC Code	Community Description
ANT	Anthropogenic
HE	Hedgerow
AG	Agricultural
CUM1-1	Dry - Old Field Meadow
CUM1	Mineral Cultural Meadow
CUT	Cultural Thicket
CUT1-1	Sumac Cultural Thicket
FOM	Mixed Forest
CUW1	Mineral Cultural Woodland
FOD5	Dry - Fresh Sugar Maple Deciduous Forest
FOC1	Dry - Fresh Pine Coniferous Forest



 Project: 218250
Last Revised: December 2019

Client: Palgrave Estates Prepared by: BD
Checked by: CG **DRAFT**

 1:4,200 0 90 180 m

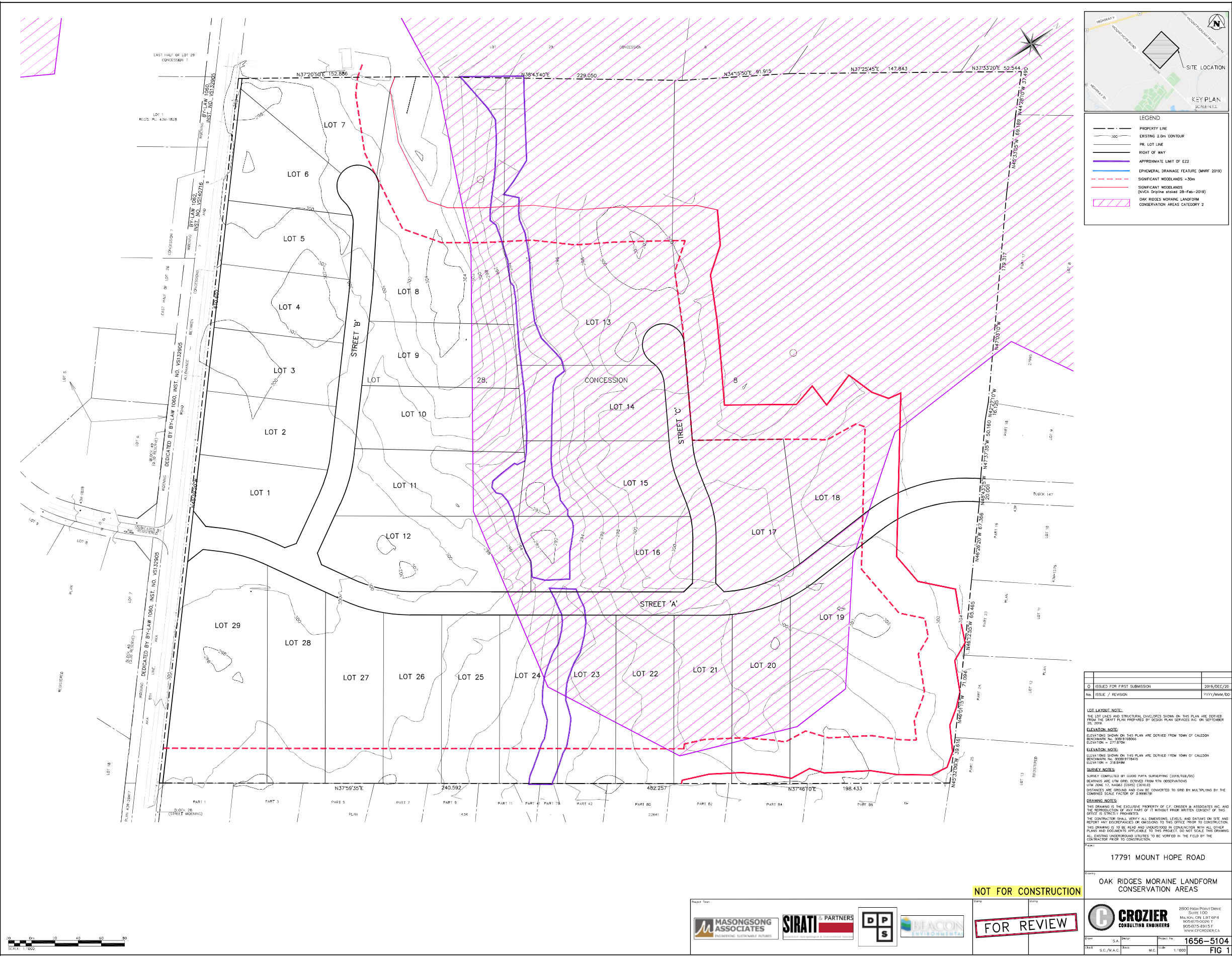
Contains information licensed under the Open Government License—Ontario
Orthoimagery Baselayer: 2019 (FBS)



Proposed Development		Figure 3
17791 Mount Hope Road, Caledon		
Legend		
<div><div>Subject Property</div><div>Proposed Development</div><div>Ephemeral Drainage Feature (MNRF 2019)</div><div>Butternut</div><div>Approximate Limit of EZ 2</div><div>Significant Woodland (Beacon)</div><div>Significant Woodland (staked with NVCA February 2019)</div><div>Significant Woodland + 30 m</div><div>Proposed Reforestation</div><div>Septic Beds</div></div>		
		Project: 218250 Last Revised: December 2019
Client: Joe Triumbari		Prepared by: BD Checked by: CG DRAFT
	1:4,200	0 90 180 m
Contains information licensed under the Open Government License—Ontario Orthoimagery Baselayer: 2019 (FBS)		

APPENDIX B

Figures



KEY PLAN
SCALE: 1:12,500

LEGEND

- PROPERTY LINE
- EXISTING 2.0m CONTOUR
- PR. LOT LINE
- RIGHT OF WAY
- APPROXIMATE LIMIT OF E2Z
- EPHEMERAL DRAINAGE FEATURE (MRRP 2019)
- SIGNIFICANT WOODLANDS +30m
- SIGNIFICANT WOODLANDS (MRRP 2019)
- OAK RIDGES MORAIN LANDFORM CONSERVATION AREAS CATEGORY 2

0	ISSUED FOR FIRST SUBMISSION	2019/DEC/20
No.	ISSUE / REVISION	YYYY/MM/DD

LOT LAYOUT NOTE:
THE LOT LINES AND STRUCTURAL ENVELOPES SHOWN ON THIS PLAN ARE DERIVED FROM THE SURVEY PLAN PROVIDED BY DESIGN PLAN SERVICES INC. ON SEPTEMBER 20, 2019.

ELEVATION NOTE:
ELEVATIONS SHOWN ON THIS PLAN ARE DERIVED FROM TOWN OF CALEDON BENCHMARK NO. 0000170000.
ELEVATION = 277.870M

ELEVATION NOTE:
ELEVATIONS SHOWN ON THIS PLAN ARE DERIVED FROM TOWN OF CALEDON BENCHMARK NO. 0000177845.
ELEVATION = 278.899M

SURVEY NOTES:
SURVEY COMPILED BY GUYO PAPA SURVEYING (2019/FEB/20)
BEARINGS ARE UTM GRID, DERIVED FROM NAD83 OBSERVATIONS.
UTM ZONE 17, NAD83 (2011) (2011.0)
DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.9999781

DRAWING NOTES:
THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.
THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.
THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONNECTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.
ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

17791 MOUNT HOPE ROAD

OAK RIDGES MORAIN LANDFORM CONSERVATION AREAS

CROZIER CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MARKHAM, ON L3R 9P4
905-875-0005 T
905-875-8101 F
WWW.CFCROZIER.CA

Drawn: S.A. Design: 1656-5104
Title: S.C./N.A.C. Date: M.C. Scale: 1:1000 FIG 1

NOT FOR CONSTRUCTION

FOR REVIEW

MASONGSONG ASSOCIATES
ENGINEERING SUSTAINABLE FUTURES

SIRATI PARTNERS
Integrated engineering & environmental solutions

DPS

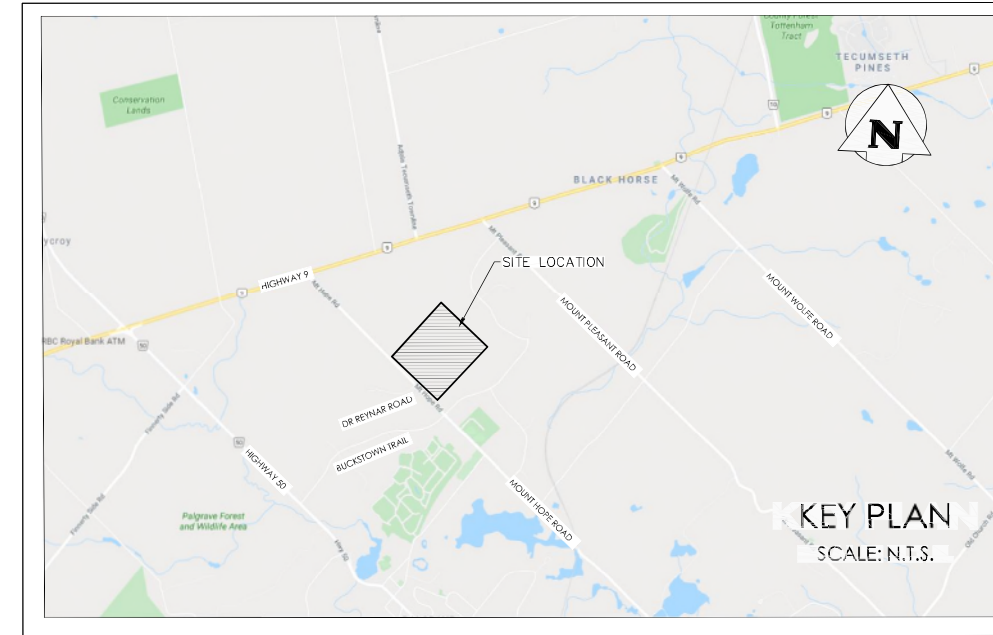
BLACON ENVIRONMENTAL

APPENDIX C

Drawings

17791 MOUNT HOPE ROAD

PART OF LOT 28, CONCESSION 8 TOWN OF CALEDON REGION OF PEEL



TOWN OF CALEDON
6311 OLD CHURCH ROAD
CALEDON, ONTARIO
L7C 1J6

REGION OF PEEL
10 PEEL CENTRE DRIVE
BRAMPTON, ONTARIO
L6T 4B9

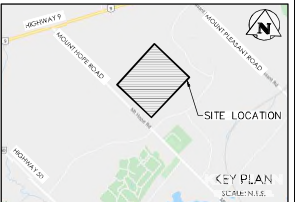
DEVELOPER: JOE TRIUMBARI
3 MANSWOOD CRESCENT
BRAMPTON, ONTARIO
L6T 0A3

<u>SHEET</u>	<u>TITLE</u>
701	LEGAL BOUNDARY SURVEY & AIR PHOTO ENLARGEMENT
702	TOPOGRAPHIC MAP
703	SLOPE ANALYSIS MAP
704	SOIL AND SOIL DRAINAGE CLASSIFICATION MAP
705	SURFACE HYDROLOGY MAP
706	VEGETATION AND WILDLIFE ECOLOGY MAP
707	ENVIRONMENTAL SUMMARY MAP
708	DRAFT SUBDIVISION PLAN



2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

PROJECT No.: 1656 - 5104



LEGEND
--- PROPERTY LINE
--- EX LOT LINE

0	ISSUED FOR FIRST SUBMISSION	2019/DEC/20
No.	ISSUE / REVISION	YYYY/MM/DD

ELEVATION NOTE:
ELEVATIONS SHOWN ON THIS PLAN ARE DERIVED FROM TOWN OF CALEDON BENCHMARK NO. 0008170066
ELEVATION = 277.870M

ELEVATION NOTE:
ELEVATIONS SHOWN ON THIS PLAN ARE DERIVED FROM TOWN OF CALEDON BENCHMARK NO. 0008177845
ELEVATION = 318.999M

SURVEY NOTES:
SURVEY COMPLETED BY GUYO PAPA SURVEYING (2019/FEB/20)
BEARINGS ARE UTM GRID, DERIVED FROM NAD83 (2011)
DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.9999781

DRAWING NOTES:
THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.
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ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

17791 MOUNT HOPE ROAD

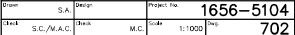
LEGAL BOUNDARY SURVEY & AIR PHOTO ENLARGEMENT

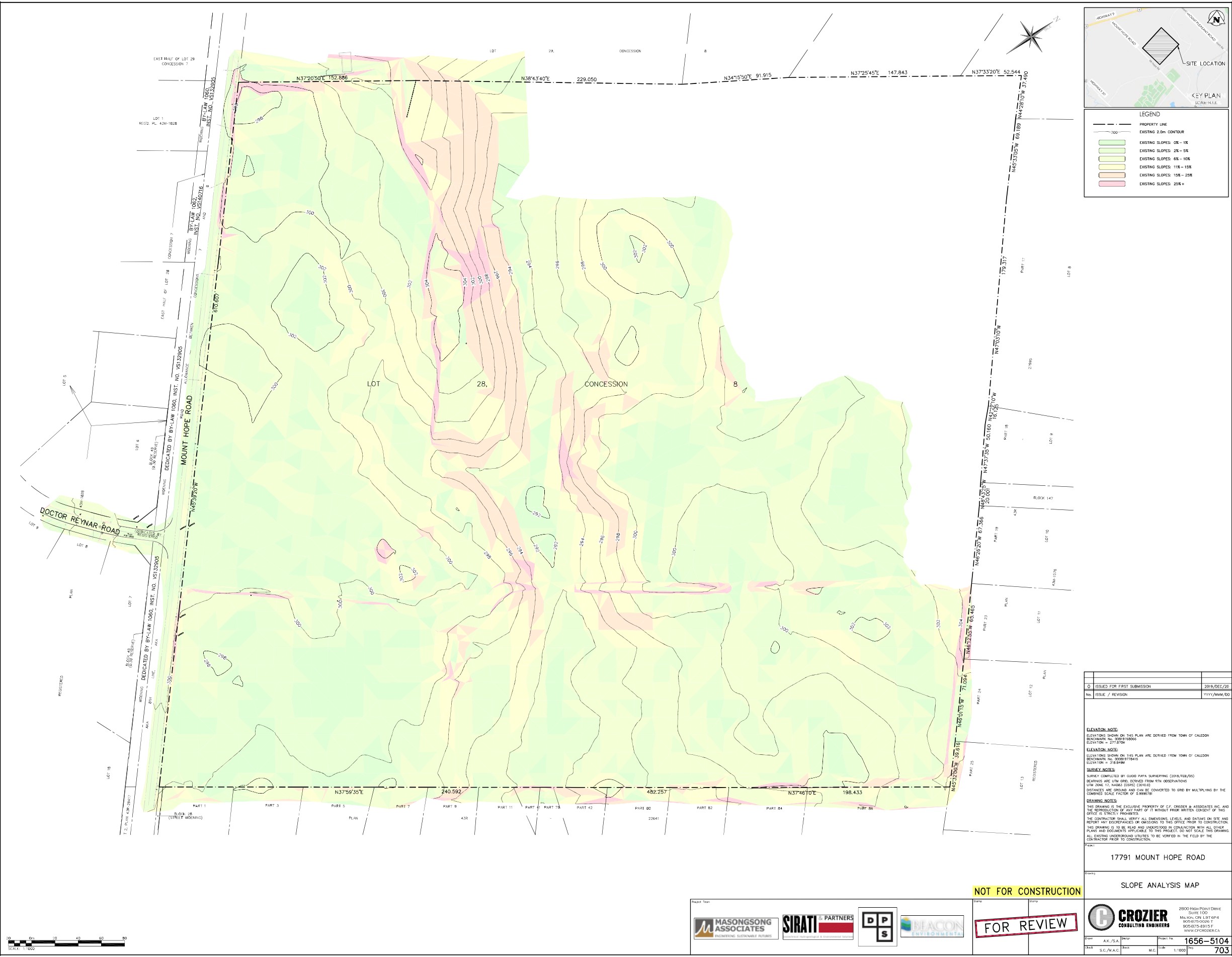
NOT FOR CONSTRUCTION

FOR REVIEW

2800 HIGH POINT DRIVE
SUITE 100
MARKHAM, ON L3R 9P4
905-875-0026 T
905-875-8910 F
WWW.CFCROZIER.CA

Drawn	A.K.	Design	Project No.	1656-5104
Check	S.C./M.A.C.	Check	M.C.	701





LEGEND

—	PROPERTY LINE
—	EXISTING 2.0m CONTOUR
—	EXISTING SLOPES: 0% - 1%
—	EXISTING SLOPES: 1% - 5%
—	EXISTING SLOPES: 5% - 10%
—	EXISTING SLOPES: 10% - 15%
—	EXISTING SLOPES: 15% - 25%
—	EXISTING SLOPES: 25% +

KEY PLAN

SCALE: N.T.S.

SITE LOCATION

0	ISSUED FOR FIRST SUBMISSION	2019/DEC/20
No.	ISSUE / REVISION	YYYY/MM/DD

ELEVATION NOTE:
ELEVATIONS SHOWN ON THIS PLAN ARE DERIVED FROM TOWN OF CALEDON BENCHMARK NO. 0008778005
ELEVATION = 277.870M

ELEVATION NOTE:
ELEVATIONS SHOWN ON THIS PLAN ARE DERIVED FROM TOWN OF CALEDON BENCHMARK NO. 0008778015
ELEVATION = 278.890M

SURVEY NOTES:
SURVEY COMPILED BY GUYO PAPA SURVEYING (2018/10/25)
BENCHMARKS ARE SHOWN AND DERIVED FROM FIELD OBSERVATIONS
UTM ZONE 17, NAD83 (EPSG) (2011.0)
DISTANCES ARE SHOWN AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.9999781

WARNING NOTES:
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ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

17791 MOUNT HOPE ROAD

SLOPE ANALYSIS MAP

CROZIER CONSULTING ENGINEERS

2800 HIGH POINT DRIVE
SUITE 100
MARKHAM, ONT. L3R 9P4
R90875-0005 T
R90875-0010 T
WWW.CROZIER.CA

Drawn: A.K./S.A. Design: 1656-5104
Title: S.C./N.A.C. Date: M.C. Scale: 1:1000 Project No: 703

MASONGSONG ASSOCIATES
ENGINEERING SUSTAINABLE FUTURES

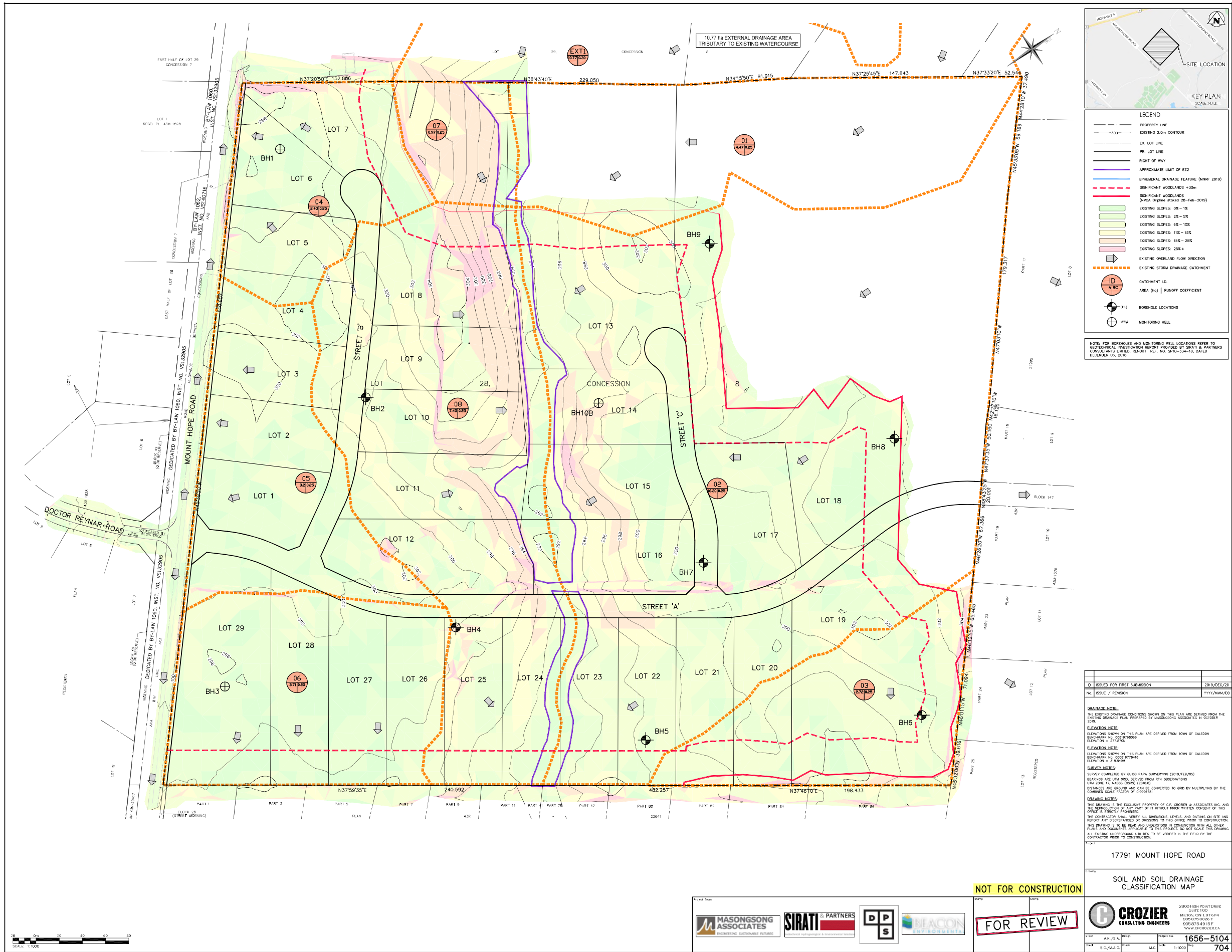
SIRATI PARTNERS
Sustainable Engineering & Environmental Solutions

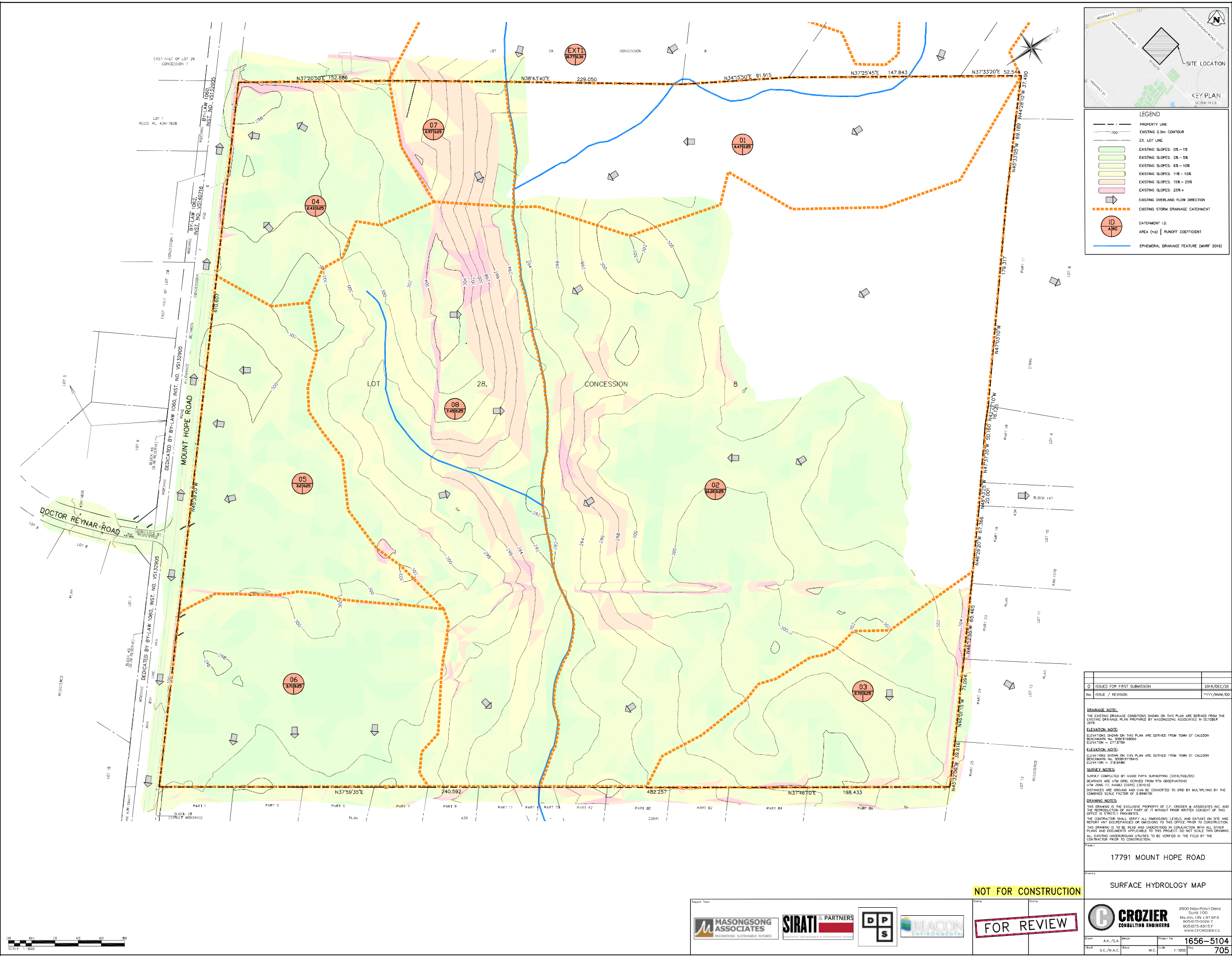
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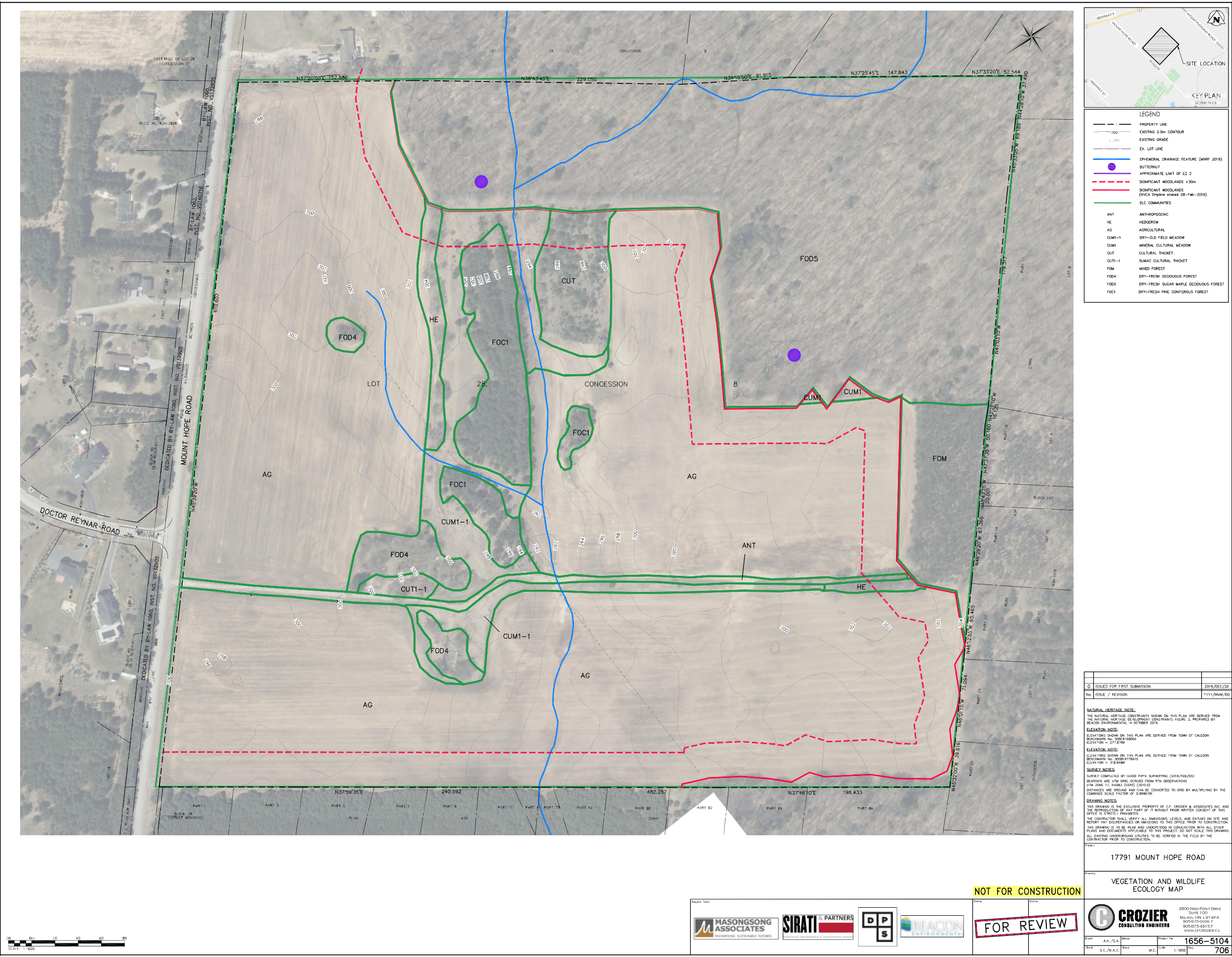
BLACON ENVIRONMENTAL

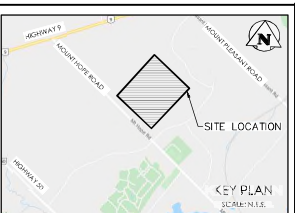
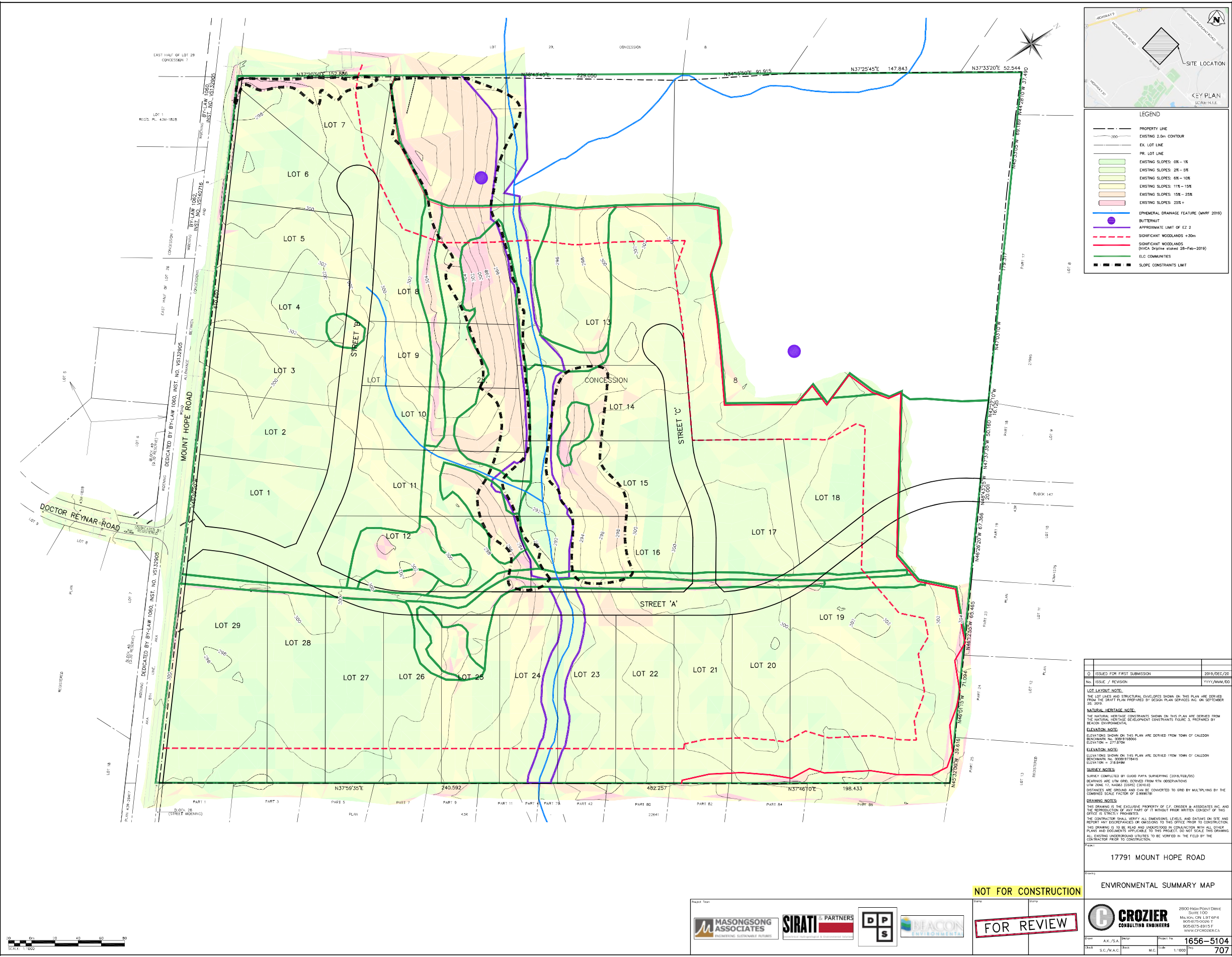
NOT FOR CONSTRUCTION

FOR REVIEW









LEGEND	
	PROPERTY LINE
	EXISTING 2.0m CONTOUR
	EX. LOT LINE
	PR. LOT LINE
	EXISTING SLOPES: 0% - 1%
	EXISTING SLOPES: 1% - 5%
	EXISTING SLOPES: 5% - 10%
	EXISTING SLOPES: 10% - 15%
	EXISTING SLOPES: 15% - 25%
	EXISTING SLOPES: 25%+
	EPHEMERAL DRAINAGE FEATURE (WHRF 2019)
	BUTTERNUT
	APPROXIMATE LIMIT OF E2 ZONE
	SIGNIFICANT WOODLANDS +30m
	SIGNIFICANT WOODLANDS (NICA Digital Image 28-Feb-2019)
	ELC COMMUNITIES
	SLOPE CONSTRAINTS LIMIT

D. ISSUED FOR FIRST SUBMISSION		2019/DEC/20
No. ISSUE / REVISION		1111/NA/NA/AD
LOT LAYOUT NOTE: THE LOT LINES AND STRUCTURAL ENVELOPES SHOWN ON THIS PLAN ARE DERIVED FROM THE DRAFT PLAN PREPARED BY DESIGN PLAN SERVICES INC. ON SEPTEMBER 20, 2019.		
NATURAL HERITAGE NOTE: THE NATURAL HERITAGE CONSTRAINTS SHOWN ON THIS PLAN ARE DERIVED FROM THE NATURAL HERITAGE DEVELOPMENT CONSTRAINTS FIGURE 3, PREPARED BY BROWN ENGINEERING.		
ELEVATION NOTE: ELEVATIONS SHOWN ON THIS PLAN ARE DERIVED FROM TOWN OF CALEDON BENCHMARK NO. 0008170006. ELEVATION = 271.870M		
ELEVATION NOTE: ELEVATIONS SHOWN ON THIS PLAN ARE DERIVED FROM TOWN OF CALEDON BENCHMARK NO. 0008177845. ELEVATION = 271.870M		
SURVEY NOTES: SURVEY COMPLETED BY GUYO PAPA SURVEYING (2019/FEB/20). BENCHMARKS ARE UTM GRID, DERIVED FROM NAD83 OBSERVATIONS. UTM ZONE 17, NAD83 (2011) (2011.0). DISTANCES ARE GIVEN IN METERS AND CAN BE CONVERTED TO FEET BY MULTIPLYING BY THE CONVERSION FACTOR OF 3.28084.		
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17791 MOUNT HOPE ROAD

ENVIRONMENTAL SUMMARY MAP

CROZIER
CONSULTING ENGINEERS

2800 HIGH POINT DRIVE
SUITE 100
MARKHAM, ON L3R 9P4
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Drawn	A.K./S.A.	Design	Project No.	1656-5104
Check	S.C./M.A.C.	Check	M.C.	707

Project Team

MASONGSONG ASSOCIATES
ENGINEERING SUSTAINABLE FUTURES

SIRATI PARTNERS
Integrated Engineering & Environmental Solutions

DPS

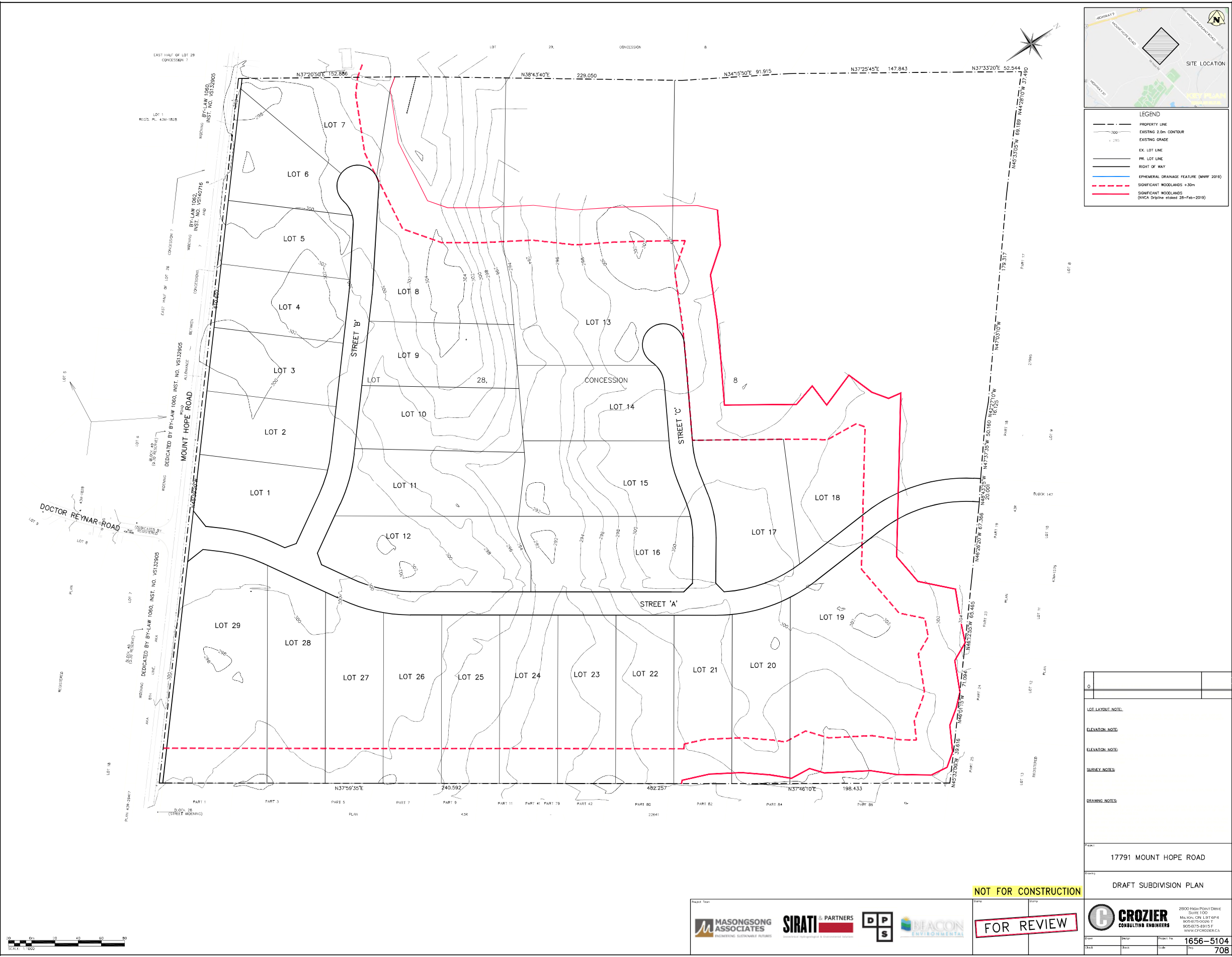
BLACORE ENGINEERING

NOT FOR CONSTRUCTION

FOR REVIEW

Scale

1:1000



KEY PLAN

LEGEND

- PROPERTY LINE
- EXISTING 2.0m CONTOUR
- EXISTING GRADE
- EX. LOT LINE
- PR. LOT LINE
- RIGHT OF WAY
- EPHEMERAL DRAINAGE FEATURE (MNP 2015)
- SIGNIFICANT WOODLANDS +35m
- SIGNIFICANT WOODLANDS (NVCA Deline. dated 28-Feb-2019)

0	
LOT LAYOUT NOTE:	
ELEVATION NOTE:	
ELEVATION NOTE:	
SURVEY NOTES:	
DRAWING NOTES:	
Project:	17791 MOUNT HOPE ROAD
Drawing:	DRAFT SUBDIVISION PLAN
Client:	
Drawn:	
Check:	
Scale:	
Project File:	1656-5104
Sheet:	708

NOT FOR CONSTRUCTION

FOR REVIEW

MASONGSONG ASSOCIATES
ENGINEERING SUSTAINABLE FUTURES

SIRATI PARTNERS
Geotechnical, Hydrogeological & Environmental Solutions

DPS

BLACON ENVIRONMENTAL

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