REPORT

Visual Impact Assessment Report

Proposed Caledon Pit / Quarry

Submitted to:

CBM Aggregates, a division of St. Marys Cement Inc. (Canada)

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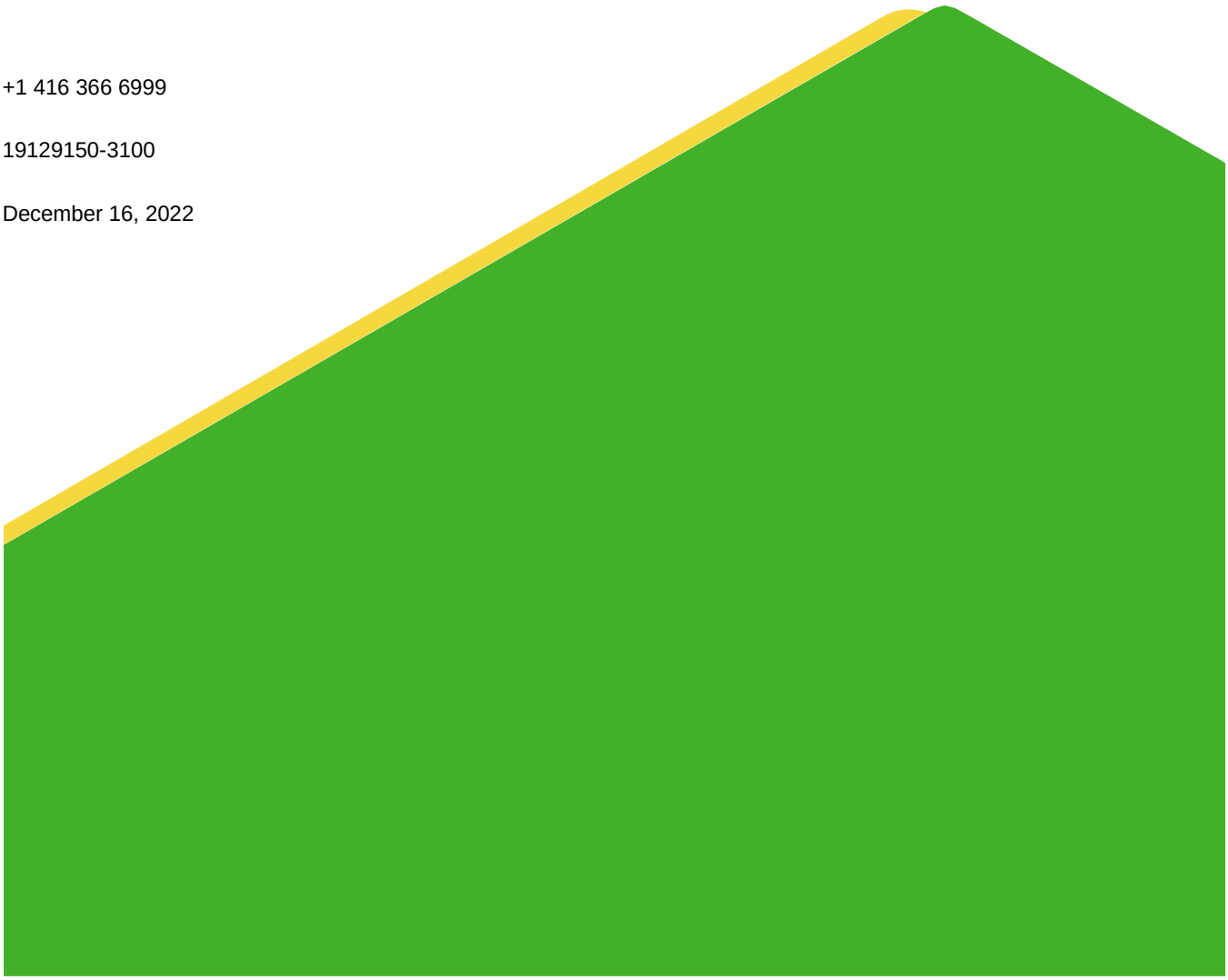
December 16, 2022



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1.0 INTRODUCTION

CBM Aggregates (CBM), a division of St. Marys Cement Inc. (Canada) is applying to the Ministry of Natural Resources and Forestry (MNRF) for a Class A Licence (Pit and Quarry Below Water) and to the Town of Caledon for an Official Plan Amendment and Zoning By-law Amendment to permit a mineral aggregate operation. Golder Associates Lt. (Golder) has been retained by CBM to complete a Visual Impact Assessment (VIA) for the proposed CBM Caledon Pit / Quarry in accordance with the Terms of Reference, developed in consultation with the Development Application Review Team (DART), found in Appendix A. Although a VIA is not a requirement of the Aggregate Resources Act licencing process, a VIA is required for the Town of Caledon Zoning By-law amendment as per Sections 5.11.2.4.2(e) and 5.11.2.4.11 of the Official Plan (2018).

CBM owns / controls approximately 323 hectares of land located at the northwest, northeast and southwest intersection of Regional Road 24 (Charleston Sideroad) and Regional Road 136 (Main Street). Of these lands, approximately 262 hectares are proposed to be licenced under the Aggregate Resources Act and designated / zoned under the Planning Act to permit the proposed CBM Caledon Pit / Quarry. These lands are mapped as a Caledon High Potential Mineral Aggregate Resource Area (CHPMARA) in the Town of Caledon Official Plan and High Potential Mineral Aggregate Resource Area (HPMARA) in the Region of Peel Official Plan and are protected for their aggregate potential.

The remaining approximately 61 hectares of land owned / controlled by CBM are not subject to the application. These lands are referred to as “CBM Additional Lands” and these lands include approximately 36 hectares of land that is located adjacent to the minor urban centre of Cataract. As part of the application, CBM is proposing to create an upland forest and meadow grassland on these lands and is exploring the potential of conveying them permanently to a public authority for long term protection.

The lands proposed to be licenced under the Aggregate Resources Act are referred to as the “Subject Site” or “Site” and are legally described as Part of Lots 15-18, Concession 4 WSCR and Part of Lot 16, Concession 3 WSCR (former Geographic Township of Caledon). The Subject Site is approximately 262 hectares and extraction is proposed on approximately 204 hectares. These lands are referred to as the “Extraction Area”. The remaining approximate 58 hectares within the Subject Site and outside of the Extraction Area are referred to as the “Setback / Buffer Lands”. The Setback / Buffer Lands are used to provide setbacks to surrounding land uses and natural heritage features and the majority of these lands include a 5-metre visual / acoustic berm and visual plantings. For the purpose of this study, “Adjacent Lands” are defined as lands within 120 m of the Subject Site and the Study Area for this assessment includes lands within 1 km[1] of the Subject Site.

The proposed Extraction Area includes approximately 80 million tonnes of a high-quality bedrock resource and approximately 5 million tonnes of a high-quality sand and gravel resource. Testing has confirmed that the mineral aggregate resource found on-site is suitable for the production of a wide range of construction products, including the use for high performance concrete. The bedrock resource provides some of the strongest and most durable aggregate material in Southern Ontario. The primary market area for the proposed CBM Caledon Pit / Quarry is the Greater Toronto Area, including the Town of Caledon and the Region of Peel. This site represents a close to market source of a high-quality mineral aggregate resource.

The proposed tonnage limit for the proposed CBM Caledon Pit / Quarry is 2.5 million tonnes per year and on average CBM anticipates shipping approximately 2.0 million tonnes per year. The proposed CBM Caledon Pit /

[1] 1 km represents a foreground viewing distances which provides for the most discernible level of visual detail to be perceived.

Quarry is proposed to be operated in 7 phases. Phases 1, 2A, 3, 4, 5 are located to the northwest of the intersection of Regional Road 24 and 136. This area is referred to as the “Main Area”. Phase 2B is located to the northeast of the intersection of Regional Road 24 and 136. This area is referred to as the “North Area”. Phase 6 and 7 are located to the southwest of the intersection of Regional Road 24 and 136. This area is referred to as the “South Area”.

Operations would commence in the Main Area and Phase 1 would include the permanent processing area (crushing, screening and wash plant), aggregate recycling area and the entrance / exit for the proposed CBM Caledon Pit / Quarry. Until such time as sufficient space is opened up to establish the permanent processing area, a temporary mobile crushing, and processing plant is proposed to be used in Phase 1. The entrance / exit for the CBM Caledon Pit / Quarry is proposed to be located onto Regional Road 24, approximately 775 m west of Regional Road 136. The entrance / exit is proposed to be controlled by a new traffic light and the installation of taper lanes and acceleration lanes on Regional Road 24 at CBM’s expense. The primary haul route for the proposed CBM Caledon Pit / Quarry is trucks will travel eastward on Regional Road 24 and then southward on Highway 10. The proposed haul route is an existing aggregate haul route and is designated as an aggregate haul route in the Town of Caledon Official Plan.

Access to the North Area for aggregate extraction is anticipated approximately 10 years after the start of the operations in the Main Area. There will be no processing in the North Area and aggregate extracted from the North Area is proposed to be transported to the Main Area through a proposed tunnel underneath Regional Road 136. Access to South Area is anticipated approximately 30 years after the start of the operations in the Main Area. In the South Area, CBM is proposing to permit a portable processing plant and the aggregate extracted and /or processed from the South Area is proposed to be transported to the Main Area through a proposed tunnel underneath Regional Road 24. Aside from the establishment of a 1 hectare stormwater settling pond on the easternmost portion of the North Area in the initial year of operation, the North and South areas will be maintained in their current state and agricultural uses until they are required for preparation for aggregate extraction.

The CBM Caledon Pit / Quarry is proposed to operate (extraction, processing and drilling) 7:00 am to 7:00 pm Monday to Saturday, excluding statutory holidays and shipping is proposed from 6:00 am to 7:00 pm Monday to Saturday consistent with other mineral aggregate operations in Caledon. CBM is also proposing to permit limited shipping in the evening and night (7:00 pm to 6:00 am) to support public authority contracts that require the delivery of aggregates during these hours to complete public infrastructure projects. These activities will be limited to only highway trucks and shipping loaders and no other operations will be permitted during evening or nighttime hours. Site preparation and rehabilitation is proposed to be permitted 7:00 am to 7:00 pm Monday to Friday.

The proposed CBM Caledon Pit / Quarry involves stripping topsoil and overburden from the subject site to create perimeter berm and any excess soil will be temporarily stored in the northern portion of the Main Area or used for progressive rehabilitation of the site. The proposed Extraction Area includes extracting both sand and gravel below the water table and the site will be dewatered to allow operations in a dry state. The site will be extracted in sequence of the proposed phases (Phase 1 to 7) and following extraction of Phase 7 the permanent processing plant in Phase 1 will be removed and this will be the final area to be extracted and rehabilitated. The phasing of the proposed mineral aggregate operation has been designed to reach final extraction limits and depths within each phase so progressive rehabilitation of the side slopes can be completed.

The overall goal of the final rehabilitation plan is to create a landform that represents an ecological and visual enhancement and provides future opportunities for conservation, recreational, tourism and water management. Overall, the progressive and final rehabilitation plan for the Subject Site includes the creation of lakes, vegetated

shorelines, islands, wetlands, upland forested areas, riparian plantings adjacent to the existing watercourse, nodal shrub and tree planting on upland areas, grassland meadows and specialized habitat features for bats and turtles. The proposed rehabilitation has been designed to use of all of the on-site topsoil and overburden and does not require the importation of additional soils.

The VIA was carried out using a combination of desktop analysis and photographic field survey to establish the existing viewing conditions of the Site. It assessed the proposed CBM Caledon Pit / Quarry and based on the implementation of the recommendations found in Section 6.1 of this report, this assessment concluded the following:

- Significant views and how they might be affected by the proposed Caledon Pit / Quarry have, including the changes to the natural landscape and the cultural landscape have been considered;
- Mitigation measures such as berms, entrance designs, vegetation, landscaping and operational matters have been recommended to minimize visual impacts;
- With implementation of the recommendations, the proposed operation has been designed to not result in any unacceptable visual impacts on surrounding land uses; and
- With the implementation of the proposed rehabilitation plan in the long term the Site will result in a visual enhancement compared to existing conditions.

The proposed Aggregate Resources Act Site Plans includes all of the technical recommendations from this report to ensure that the site operates in accordance with applicable provincial standards and the applicable policy requirements of the Provincial Policy Statement, Places To Grow Plan, Greenbelt Plan, Region of Peel Official Plan and Town of Caledon Official Plan.

2.0 PURPOSE

The purpose of this visual assessment is to illustrate the existing visual character of the Study Area landscape and to help determine the potential visual effects that the Site will have, as viewed from key viewpoints. The visual assessment will identify representative and high visibility receptors and assess the potential changes to their views on the surrounding landscape. These effects will be summarized to help form a more comprehensive conclusion on the full visual impact of the Site in Caledon.

This study was carried out using a combination of desktop analysis and photographic field surveys to establish the existing viewing conditions of the Site, and landscape modelling and analysis to assess the proposed visual effect of the Site during two operational stages (year 6 and year 38) and a post-rehabilitation year.

3.0 METHODS

3.1 Information Review

A technical review of publicly available data describing biophysical (e.g., topography, landcover, waterbodies) and cultural features (e.g., settlements, roadways), visual quality management related policies or guidelines, existing studies, and available imagery within the Study Area was completed to prepare a baseline description of the current visual landscape and context. This included review of the following information sources:

- Town of Caledon Official Plan (2018)
- Region of Peel Official Plan (2022)
- Caledon Creek and Credit River Subwatershed Study Characterization Report, Credit Valley Conservation Authority (2018)
- Niagara Escarpment Commission Guidelines, 2020 Visual Impact Assessment Technical Criteria (NEC, 2020)
- 2 m digital elevation model and landcover data from the Ontario Ministry of Natural Resources and Forestry (MNRF 2015, 2017)
- Land Information Ontario (LIO) geospatial data (MNRF 2022)
- Bing Imagery supplied by ESRI and Microsoft © 2019 Microsoft Corporation © 2019 Digital Globe © CNES (2019) Distribution Airbus DS
- ESRI Imagery (2021)
- Surveyed Lands topography and imagery (Firstbase Solutions, 2021)

3.2 Viewpoint Selection

Viewpoints located near the Site were selected, based on comments from the DART and included in the Terms of Reference (Appendix A), to represent private residential properties, places of business, frequently travelled roadways, and recreational areas, where potential views could be impacted.

A visibility analysis was completed with a digital surface model (DSM) from the MNRF to identify preliminary guidance on where to choose these viewing locations within the Study Area that have a line-of-site to the Site. In consultation with the client and regulatory agencies 28 viewing locations were identified (see Table 1 and Figure 1 for the location and viewing direction of these viewpoints).

Table 1: Key Viewpoints

Viewpoint	Description	Coordinates	Viewing Direction
Viewpoint 1 (VP1)	View from turn on Cataract Road. Potential receptors include nearby residents, motorists, pedestrian, and recreational users.	578231 E, 4852246 N	NW
Viewpoint 2 (VP2)	View from residence near 1311 Cataract Road. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.	578389 E, 4852459 N	NW
Viewpoint 3 (VP3)	View from Cataract Road. Across the road from a residence at 1369 Cataract Road. Potential receptors included nearby residents, motorists, pedestrians, and recreational users.	578484 E, 4852580 N	NW
Viewpoint 4 (VP4)	View from agricultural field northwest of a residence at 1346 Cataract Road. Potential receptors include nearby residents.	578322 E, 4852561 N	NW

Viewpoint	Description	Coordinates	Viewing Direction
Viewpoint 5 (VP5)	View from the corner of William and Albert Streets. Across the road from a residence at 75 William Street. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.	578466 E, 4852749 N	NW
Viewpoint 6 (VP6)	View from William Street. Across the road from residences at 61 and 63 William Street. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.	578507 E, 4852803 N	NW
Viewpoint 7 (VP7)	View from agricultural field northwest of residences at 48 William Street and Deagle Lane. Potential receptors include nearby residents.	578471 E, 4852979 N	NW
Viewpoint 8 (VP8)	View from agricultural field southwest of residences along Cataract Road. Potential receptors include nearby residents.	578420 E, 4853026 N	NW
Viewpoint 9 (VP9)	View from side of road at Cataract Road and Charleston Sideroad. Potential receptors at this busy intersection include motorists, residences, customers at the ESSO gas station, convenience store and restaurant.	578423 E, 4853214 N	SW
Viewpoint 10 (VP10)	View from agricultural field northwest of residence at 1626 Charleston Sideroad. Potential receptors include nearby residents.	578029 E, 4853610 N	W,SW
Viewpoint 11 (VP11)	View from agricultural field northeast of residence at 18471 3 Line West. Potential receptors include nearby residents.	578166 E, 4854007 N	NW
Viewpoint 12 (VP12)	View from agricultural field northeast of residence at 18471 3 Line West. Potential receptors include nearby residents.	577921 E, 4853908 N	NE
Viewpoint 13 (VP13)	View from side of the road in front of residence at 18722 Main Street. Potential receptors include nearby residents, motorists, pedestrians, and recreational users at the Osprey Valley Golf course.	577270 E, 4854350 N	SW
Viewpoint 14 (VP14)	View from agricultural field southwest of residence at 18885 Peel Regional Road 136. Potential receptors include nearby residents.	576968 E, 4854449 N	SW
Viewpoint 15 (VP15)	View from agricultural field northeast of residence at 18785 Mississauga Road. Potential receptors include nearby residents.	576568 E, 4853504 N	SE
Viewpoint 16 (VP16)	View from agricultural field northeast of residence at 18627 Mississauga Road. Potential receptors include nearby residents.	576846 E, 4853006 N	NE

Viewpoint	Description	Coordinates	Viewing Direction
Viewpoint 17 (VP17)	View from agricultural field northwest of residence at 1420 Charleston Sideroad. Potential receptors include nearby residents.	577691 E, 4853524 N	NW
Viewpoint 18 (VP18)	View from agricultural field northeast of residence at 18309 Mississauga Road. Potential receptors include nearby residents.	577569 E, 4852324 N	NE
Viewpoint 19 (VP19)	View from agricultural field northeast of residence at 18209 Mississauga Road. Potential receptors include nearby residents.	577762 E, 4852086 N	NE
Viewpoint 20 (VP20)	View from side of the road at the driveway entrance to 1177 Cataract Road. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.	578334 E, 4852011 N	NW
Viewpoint 21 (VP21)	View looking northwest from curve on Charleston Sideroad. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.	577736 E, 4853280 N	NW, SE
Viewpoint 22 (VP22)	View looking southeast from curve on Charleston Sideroad. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.	577626 E, 4852952 N	NW, SE
Viewpoint 23 (VP23)	View from the Bruce Trail. Potential receptors include pedestrians and recreational users.	578727 E, 4852400 N	NW
Viewpoint 24 (VP24)	View from the Elora-Cataract Trailway. Potential receptors include nearby residents, pedestrians, and recreational users.	578257 E, 4851890 N	N
Viewpoint 25 (VP25)	View looking southwest and view looking northeast from Main Street, approximately 500 m northwest of the Main Street and Charleston Sideroad intersection. Potential receptors include nearby residents, motorists, pedestrians.	577673 E, 4853951 N	NE, SW
Viewpoint 26 (VP26)	View from Mississauga Road, approximately 150 m northwest of entrance to residence at 18221 Mississauga Road. Potential receptors include nearby residents, motorists, pedestrians.	577569 E, 4852138 N	N
Viewpoint 27 (VP27)	View from Mississauga Road, approximately 50 m northwest of entrance to residence at 18667 Mississauga Road. Potential receptors include nearby residents, motorists, pedestrians.	576641 E, 4853066 N	E
Viewpoint 28 (VP28)	View from Mississauga Road and Charleston Sideroad intersection. Potential receptors include nearby residents, motorists, pedestrians.	577253 E, 4852453 N	N, SE

Note: Coordinates are NAD 83 UTM Zone 17 N; E = Easting; N = Northing; VP = Viewpoint; N= North; NE = Northeast; E = East; SE = Southeast; S = South; SW = Southwest; W = West; NW = Northwest

3.3 Photographic Survey

A photographic field survey was conducted on November 5 and 6, 2020 and November 10, 2022 by Golder staff to capture landscape photographs, geographic information, and observations from the key viewpoints (28) to document existing viewing conditions from selected adjacent residential properties, roadways, and recreational trails within the Study Area. Photographs of the Site were taken with a professional quality DSLR camera (Nikon D5300). A 35 mm focal length lens was used which is consistent with the view perceived by the human eye (BC MoF 2001) and within the focal range recommended in the Niagara Escarpment Commission VIA Technical Criteria (NEC 2020). For this assessment, panoramic images contribute to the visual inventory to present a wide field of view to depict the full extent of the Site that an observer could experience from each viewpoint location. A detailed observation log describing geographic information gathered using a global positioning system (GPS), camera settings, and details about viewing conditions including viewing angles, viewing duration, and observations about Site use and access, were documented at each viewpoint location. Each surveyed location is identified by a unique viewpoint identification number (Appendix B).

3.4 Visual Effects Assessment

A subset of 14 key viewpoints was selected based on a review of the Cultural Heritage Report (Golder 2022a) and through consultation with the DART (Appendix A), sensitive receptors, areas with a high number of receptors, and receptors with the highest visibility of the Site, from the 28 photos taken for a visual simulation and effects assessment (Figure 2). These viewpoints were intended to represent the visual character of the Study Area. Rendered images of the Site were developed from these key viewpoints using Visual Nature Studio 3D landscape model software. Photo simulations were created by compositing the render images of the Site components with the photographs to illustrate the potential visual effects of the Site during two operations stages (year 6 and year 38) and post-rehabilitation.

The level of visual contrast of the Site was assessed from key viewpoints to determine how compatible the Project was with the existing landscape character. The analysis considered visual dimensions (form, line, texture), scale, and materials of each visible Project component (berms, landscape plantings) with the context of the Site environment to determine an overall contrast rating from each key viewpoint.

Viewing distance zones were measured from viewpoints to the Site to help define the influence of viewing distance. These distances were defined as *immediate foreground* (less than 100 meters), *foreground* (100 meters to 1 km), and *middle-ground* (1 to 5 km), based on distances consistent with research on visible viewing thresholds and in consideration of the scale of the Site components. Distance measurements were made using a Geographic Information System (GIS).

Section 5.3 describes the criteria used in the visual contrast rating and visual effects assessment in further detail. Section 5.5 includes a review of the viewshed analysis, line-of-sight cross sections from viewpoints to the Site and photo simulations to determine the predicted level of visibility of the Site and the degree of compatibility with the existing landscape character. An assessment of the visual contrast and related rationale for determining the level of visual effect was completed for each visual simulation.

4.0 PROJECT CONTEXT AND LANDSCAPE CHARACTER

4.1 Regional Context

The Study Area is located in Ecoregion 6E (Lake Simcoe – Rideau), as shown on Figure 3, which covers just over 6% of southern Ontario (Crins et al. 2009). Ecoregion 6E is underlain by bedrock of dolomite and limestone and is characterized by gently rolling surface terrain interspersed by drumlin fields and moraines. Soils are primarily mineral-based and dominated by Gray Brown Luvisols and Melanic Brunisols. The majority of the region is covered by cropland or pasture (57%), with 16% covered by forest and 4% covered by water (Crins et al. 2009).

The Study Area is also located in the Great Lakes – St. Lawrence Forest Region and the Huron-Ontario subregion. The natural upland forest cover in this region is dominated by sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), basswood (*Tilia americana*), white ash (*Fraxinus americana*), white oak (*Quercus alba*), bur oak (*Quercus macrocarpa),* eastern hemlock (*Tsuga canadensis*) and eastern white pine (*Pinus strobus*). The lowland areas are characterized by forests of silver maple (*Acer saccharinum*), American elm (*Ulmus americana*), red elm (*Ulmus rubra),* black ash (*Fraxinus nigra*) and eastern white cedar (*Thuja occidentalis*) (Rowe 1972).

The Site is partially located within subwatershed 18 (i.e., the Credit River Melville to Forks Sub-watershed; CVC 1998) which is part of the Credit River watershed, west of the main branch of the Credit River near Cataract and Coulterville.

4.2 Local Study Area Context

The Study Area is located within the Town of Caledon and located in the Credit River Watershed west of the Erin Branch of the Credit River near Cataract and Coulterville (Figure 4). The majority of the Study Area is characterized by agricultural fields, with blocks of deciduous, mixed and coniferous forest, as well as deciduous and mixed swamp. There are also several existing sand and gravel pit operations located east of the Site. The entire Project Area is designated as Caledon High Potential Mineral Aggregate Resource Areas (CHPMARA) Aggregate Resource Lands. The heritage hamlet of Cataract lies adjacent to the southeast corner of the Study Area. There are many residences adjacent to or very near the site along Charleston Sideroad, Main Street, Mississauga and Cataract Rd. There are some businesses (ESSO gas, a convenience store and restaurant) at the corner of Charleston Sideroad and Cataract Rd. Historic hotel, Cataract Inn. The Credit River flows through the southeast portion of Study Area and spills 21 metres over the Niagara Escarpment at the Cataract Falls. The Forks of the Credit Provincial Park is a green belt area south of the Credit River with trails that connect to the Niagara Escarpment, Cataract Falls and the Elora Cataract Trailway north of the credit river. Osprey Valley Golf Course is located on the northeast side of the Project Area at 18903 Main Street.

4.3 Existing Landscape Character

The overall landscape character in the Study Area ranges from relatively level to an undulating, open semi-rural area that includes evidence of agriculture, residential development, and resource extraction activities. Topographic contours (Figure 4) on the Site indicate level to undulating terrain with ground surface elevations ranging from approximately 400 to 425 masl (metres above sea level). The landcover on the Site appears to be predominantly annual agricultural row crops of corn interspersed with tree rows and wood lots. Local built structures in the Study Area include power lines and poles, local roads and residential streets, residential and commercial structures (e.g., houses, fences, sheds, decks, pools, play structures, a gas station) and agricultural structures.

There is a berm along the northwest side of Cataract Road. Although there are no utility services on the Site, there are utility poles and lines along existing road right-of-ways. There are Site viewing opportunities from the Hamlet of Cataract, and residences and places of business along Cataract Road, William Street, Charleston Sideroad, Main Street and Mississauga Road. Many residences have elevated decks, and pools or tennis courts in their backyards that overlook the Site.

4.4 Planning Context

The Subject Site is located within the Region of Peel's High Potential Mineral Aggregate Resource Area (HPMARA) and within the Town of Caledon's High Potential Mineral Aggregate Resource Area (CHPMARA). These areas generally identify lands that include primary and secondary sand and gravel resource areas and bedrock resources located in the Region and Town that are not constrained by significant natural heritage features, Plans of Subdivision, and approved settlement areas.

The Site is currently designated "General Agricultural", "Rural Lands" and "Environmental Policy Area" in the Official Plan, and Zoned "A1" (Agriculture) and "EPA2" (Environmental Policy Area. CBM is seeking an Official Plan Amendment to designate the lands "Extractive Industrial B Area" and "Environmental Policy Area" and a Zoning By-Law Amendment to zone the lands "MX-YY" (Industrial Extraction Special – Exception) and "EPA1-487" (Environmental Policy Area – Exception 487).

The amendments would allow for the following permitted uses:

- the making, establishment or Operations of a pit or quarry;
- buildings or structures which are incidental to and directly related to the extraction operation and which are shown on the site plan forming part of the license approval; and
- nothing in the foregoing shall be deemed to permit any manufacturing, commercial or processing operation except for the screening, washing, crushing and storage of material mined in the Project Area.

The Town of Caledon Official Plan refers to visual impact requirements for proposed extractive Operations in the following sections:

- Section 5.11.2.4.2 (e); The Applicant has completed a Visual Impact Report as described by Section 5.11.2.4.11 and demonstrated that the proposal will not have any unacceptable impacts; Section 5.11.2.4.11 The Visual Impact Report required by Section 5.11.2.4.2(e) shall address the following:

    a) Assess the significant views and how they might be affected by the proposed extractive operation;

    b) Assess the changes to the natural landscape and the cultural landscape that would result from the operation; and

    c) Identification of any required mitigation measures, and the visual character of such measures. This may include berms, entrance designs, vegetation, landscaping, and operational matters such as small phases, screening of equipment, direction of extraction which would seek to minimize visual impacts.

As part of the pre-consultation process for the proposed Caledon Pit / Quarry, terms of reference were established in consultation with the DART to complete a VIA to address the requirements of Section 5.11.4.2(e) of the Town of Caledon Official Plan (Appendix A).

5.0 VISUAL EFFECTS ASSESSMENT

5.1 Proposed Development Character

The proposed aggregate extraction operations are described in detail in Section 1.0. In addition to extraction equipment, there will be a temporary processing plant located at grade, a permanent processing plant below grade, a proposed maintenance building / office, and a temporary overburden storage area at grade. At the quarry's main entrance there will be a gated driveway with signage, formalized landscaping, and a scale house set back from Charleston Side Road. The majority of the activities will be located below grade and naturally screened to minimize views into the operation. Activities operating at grade will be screened using temporary vegetated earthen berms around the perimeter of the extraction areas. In addition to the berms, Visual Planting Areas consisting of a mixture of native trees and shrubs will be employed along Site boundaries where specified on Figure 6 to minimize visual impacts.

The intent of the proposed rehabilitation landscape (MHBC 2022) is to create a naturalistic setting featuring lakes in each of the three extraction areas. A combination of meadows, woodlands and wetlands will surround each of the lakes to result in a natural aesthetic that uses native species to reflect the natural heritage of the Caledon area (Figure 6). Views to the water will be available from Charleston Side Road and portions of Main Street and Mississauga Road. Further details related to species composition and other aspects of the rehabilitation plan are found in Section 6.1.

5.2 Landscape Modeling

Line-of-sight cross sections (Appendix C) were created to examine the Study Area in relation to landform, vegetation and Project design features as viewed from a selected high-visibility viewpoints. The cross-sections are based on Ministry of Natural Resources and Forestry (MNRF) Digital Surface Model (DSM) and Digital Terrain Model (DTM) data, Golder digital elevation model (DEM) data, and noise barrier berm location data from the Noise Assessment Report (Golder 2022b).

A computer-generated 3D landscape model was developed in Nature Studio 3D landscape modeling software based on spatial project data and design information. This model allows for the rendering of simulated images of project features from the key viewpoints at two years during Operations (year 6 and year 38) and during post-rehabilitation. These simulated images were combined with field survey photographs to produce photo realistic-composite images to portray the relative scale and extent of project features within the existing viewing conditions and to support the assessment of potential visual effects.

5.3 Visual Assessment

A qualitative visual assessment was conducted to identify and describe the visible elements of the project and its effects on the existing visual quality within the Study Area. Use of professional assessment frameworks provides standard criteria, techniques, and mitigation measure to evaluate and address potential site effects to visual quality. The frameworks used in this assessment are from:

1) The Landscape Institute and Institute of Environment Management and Assessment's Guidelines for Landscape and Visual Impact Assessment (LI/IEMA 2013);

2) Elements of the United States Bureau of Land Management's Visual Resource Management Systems (USDI 1986);

3) The Niagara Escarpment Commission Visual Impact Assessment Technical Criteria (2020); and

4) Professional judgement and experience from conducting previous visual impact assessments.

The qualitative assessment and characterization of potential visual effects of the site to existing viewing conditions from representative key viewpoints was conducted using the following criteria:

- **Visibility of the Site** – the visible extent of the site footprint and prominent visible site features.
- **Visual Contrast of the Site** – the level of visual contrast between the character of the visible site features and the existing landscape.
- **Visual Effect** – summary of the alterations to specific views and to the overall existing landscape character.

Visibility was assessed based on the results of the desktop analysis to determine the visibility of site features and their visual prominence from highly visible viewpoints. The degree of visual contrast was determined based on visually referencing the photo-composite simulations and evaluating the site's visual character to determine the compatibility of the Site with the visual characteristics of the existing landscape setting. The degree of contrast was determined based on the following definitions (USDI 1986):

- **None** – The element is not visible or perceived
- **Weak** – The element contrast can be seen but does not attract attention
- **Moderate** – The element contrast begins to attract attention and begins to dominate the characteristic landscape
- **Strong** – The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

A characterization of the Site's visual effect was completed for each high visibility viewpoint to determine the degree to which Site-related disturbances would create a visual change in the landscape and affect the existing level of visual quality.

5.4 High Visibility Viewpoints

Based on consultation with the DART, out of the 28 viewpoints identified on Figure 1, 14 key viewpoint locations (Figure 2) were chosen for a visibility analysis and to determine the potential visible Project features/components. A description of the viewpoint locations is summarized in Table 2.

Table 2: Description of High Visibility Viewpoints

Viewpoint	Description	Coordinates	Viewing Direction
Viewpoint 2 (VP2)	View from residence near 1311 Cataract Road	578389 E, 4852459 N	NW
Viewpoint 5 (VP5)	View from the corner of William and Albert Streets (75 William Street).	578466 E, 4852749 N	NW
Viewpoint 7 (VP7)	View from agricultural field northwest of residences at 48 William Street and Deagle Lane.	578471 E, 4852979 N	NW
Viewpoint 9 (VP9)	View from side of the road in front of 18203 Cataract Road.	578423 E, 4853214 N	SW

Viewpoint	Description	Coordinates	Viewing Direction
Viewpoint 10 (VP10)	View from side of road at Cataract Road and Charleston Sideroad (1521 Charleston Sideroad).	578029 E, 4853610 N	W, SW
Viewpoint 13 (VP13)	View from side of the road in front of residence at 18722 Main Street.	577270 E, 4854350 N	SW
Viewpoint 21 (VP21)	View looking northwest from curve on Charleston Sideroad.	577736 E, 4853280 N	NW, SE
Viewpoint 22 (VP22)	View looking southeast from curve on Charleston Sideroad.	577626 E, 4852952 N	NW, SE
Viewpoint 23 (VP23)	View from the Bruce Trail.	578727 E, 4852400 N	NW
Viewpoint 24 (VP24)	View from the Elora-Cataract Trailway.	578257 E, 4851890 N	N
Viewpoint 25 (VP25)	View looking southwest and view looking northeast from Main Street, approximately 500 m northwest of the Main Street and Charleston Sideroad intersection.	577673 E, 4853951 N	NE, SW
Viewpoint 26 (VP26)	View from Mississauga Road, approximately 150 m northwest of entrance to residence at 18221 Mississauga Road.	577569 E, 4852138 N	N
Viewpoint 27 (VP27)	View from Mississauga Road, approximately 50 m northwest of entrance to residence at 18667 Mississauga Road.	576641 E, 4853066 N	E
Viewpoint 28 (VP28)	View from Mississauga Road and Charleston Sideroad intersection.	577253 E, 4852453 N	N, SE

Note: Coordinates are NAD 83 UTM Zone 17 N; E = Easting; N = Northing; VP = Viewpoint; N= North; NE = Northeast; E = East; SE = Southeast; S = South; SW = Southwest; W = West; NW = Northwest

5.5 Results

Visual photo simulations of the Project were created to represent the visual character and assess the overall level of contrast with the existing viewing conditions. The simulations for key viewpoints listed in Table 2, are displayed in the following sections. Each simulation is accompanied with an assessment of the visual contrast and related rationale for determining the level of visual effect. In addition, cumulative visibility analysis was completed for the 14 key viewpoints with no mitigation during Operations Year 38, which also supports the visual impact assessment (Figure 5).

The location of project components in the photo-composite artistic simulations are approximate and are not to be used for design purposes.

5.5.1 Viewpoint 2

The existing conditions for Viewpoint 2 are shown on Figures 5.5.1-1 to 5.5.1-4.

Figure 5.5.1-1: Viewpoint 2 - Existing Conditions

Figure 5.5.1-2: Viewpoint 2 – Site Simulation, Operations Year 6

Figure 5.5.1-3: Viewpoint 2 – Site Simulation, Operations Year 38

Figure 5.5.1-4: Viewpoint 2 – Site Simulation, Rehabilitation Landscape

Receptors: Local residents, pedestrians, motorists.

Visibility: The Woodland Planting Area (to the east) and the Meadow Planting area (to the west) will be planted within 5 years of the licence being issued. At Operations Year 6, extraction in this area will not yet have been initiated. Portions of the grassed noise/visual barrier berm set back approximately 400 meters from Cataract Road may be partially visible; however, the Woodland Planting Area will provide effective visual screening. At rehabilitation, there will be no visible change from Operations Year 38. (Note: In order to minimize rendering distortion, woodland trees will actually be closer to the viewer than they appear in the 3D simulations).

Visual Contrast: The native vegetation in the Woodland Planting Area to the east and the Meadow Planting Area to the west will be compatible with the existing landscape character. The colour and fine texture of the berm grasses reduce the contrast within the setting and integrate effectively within the landscape. The Site creates an overall **weak** level of contrast during Operations that may be seen but does not attract attention.

Visual Effect: Alteration to the existing landscape based on the introduction of planted trees and shrubs in front of a linear earth-formed berm that may be partially seen through the Woodland Planting Area.

5.5.2 Viewpoint 5

The existing conditions and simulations for Viewpoint 5 are shown on Figures 5.5.2-1 to 5.5.2-3.

Figure 5.5.2-1: Viewpoint 5 - Existing Conditions

Figure 5.5.2-2: Viewpoint 5 – Site Simulation, Operations Year 6

Figure 5.5.2-3: Viewpoint 5 – Site Simulation, Operations Year 38

Receptors: Motorists, local residents, pedestrians.

Visibility: At Operations Year 6, no Site activity will be visible however woodland tree planting is scheduled on Additional CBM lands. At Operations Year 38, the woodland landscape will mature. (Note: In order to minimize rendering distortion, woodland trees will actually be closer to the viewer than they appear in the 3D simulations). At rehabilitation, there will be no visible change from Operations Year 38.

Visual Contrast: The Site creates an overall **weak** level of contrast during Operations and post-rehabilitation that may be seen but does not attract attention.

Visual Effect: Alteration to the existing landscape based on the introduction of planted trees and shrubs that provide effective visual screening to the Site.

5.5.3 Viewpoint 7

The existing conditions and simulations for Viewpoint 7 are shown on Figures 5.5.3-1 to 5.5.3-3.

Figure 5.5.3-1: Viewpoint 7 - Existing Conditions

Figure 5.5.3-2: Viewpoint 7 - Site Simulation, Operations Year 6

Figure 5.5.3-3: Viewpoint 7 – Site Simulation, Operations Year 38

Receptors: Residents, motorists, pedestrians, and recreational users.

Visibility: At Operations Year 38, a constructed curvilinear noise / visual berm (shown in cross-section 7-7' Year 38 Mine Plan) is not predicted to be visible through the Woodland Planting Area at a distance of approximately 200 meters (foreground distance zone). (Note: In order to minimize rendering distortion, woodland trees will actually be closer to the viewer than they appear in the 3D simulation). At rehabilitation, the berm will be removed, however there will be minimal to no visible change from Operations Year 38.

Visual Contrast: The predominantly rural character of the existing landscape is maintained with the addition of a compatible planted tree / shrub mix. At Year 38 the berm is not likely to be visible, since it is viewed through established trees and vegetation in the Woodland Planting Area. The Site creates an overall **weak** level of

contrast during Operations and post-rehabilitation that may initially attract attention but over time will blend effectively with the existing landscape character and local woodlands.

Visual Effect: Partial alteration to the existing landscape based on the introduction of planted woodland vegetation that is compatible with the overall rural landscape character of the Study Area.

5.5.4 Viewpoint 9

The existing conditions and simulations for Viewpoint 9 are shown on Figures 5.5.4-1 to 5.5.4-3.

Figure 5.5.4-1: Viewpoint 9 – Existing Conditions

Figure 5.5.4-2: Viewpoint 9 – Site Simulation, Operations Year 6

Figure 5.5.4-3: Viewpoint 9 - Site Simulation, Operations Year 38

Receptors: Motorists, local residents, pedestrians, and recreational users.

Visibility: Prominent features include the trees and shrubs in the Visual Planting Area, visible in the foreground.

Visual Contrast: The predominantly rural character of the existing landscape is maintained with the addition of a planted tree / shrub mix. At Operations Year 38 (shown in cross-section 9-9' Year 38 Mine Plan) a berm approximately 150 meters from the viewpoint will be obscured from view by the vegetation in the Visual Planting Area and will screen views to extraction Operations. The Site creates an overall **weak** level of contrast during Operations. At rehabilitation, there will be no visible change from Operations Year 38 (Figure 5.5.4-3).

Visual Effect: Partial alteration to the existing landscape based on the introduction of earth formed features and native tree and shrub plantings that are prominent features to screen the proposed pit / quarry but do not change the overall rural landscape character of the Study Area.

5.5.5 Viewpoint 10A and 10B

The existing conditions and simulations for Viewpoint 10A (Viewing NW) are shown on Figures 5.5.5.1 to 5.5.5.4.

Figure 5.5.5-1: Viewpoint 10A – Existing Conditions (Viewing NW)

Figure 5.5.5-2: Viewpoint 10A – Site Simulation, Operations Year 6 (Viewing NW)

Figure 5.5.5-3: Viewpoint 10A – Site Simulation, Operations Year 38 (Viewing NW)

Figure 5.5.5-4: Viewpoint 10A – Site Simulation, Rehabilitation Landscape (Viewing NW)

Receptors: Motorists, local residents, pedestrians, and recreational users.

Visibility: At Operations Year 6, prominent features include the grassed noise/visual barrier berm, set back approximately 100m from potential viewers on Main Street (Figure 5.5.5.2). The berm will screen the view from the intersection to the extraction area. Initially, the linear berm itself contrasts with the existing landscape. At Operations Year 38 (cross-section 10-10' Year 38 Mine Plan) the Visual Planting Area in the immediate

foreground distance zone will result in effective visual screening of the berm and the extraction area behind it. At rehabilitation, the berm will be removed and grasses will be planted.

Visual Contrast: The predominantly rural character of the existing landscape is maintained with the addition of a planted tree / shrub mix and a curvilinear berm. During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants begin to grow, the berm grasses and trees in the Visual Planting Area reduce the contrast within the setting and integrate effectively within the landscape.

Once the berm vegetation is established, the Site creates an overall **weak** level of contrast during Operations that may initially attract attention but over time will blend effectively with the existing landscape character and local woodlands.

Visual Effect: Partial alteration to the existing landscape based on the introduction of earth-formed features and native tree and shrub plantings that are set back from the road and do not change the overall rural landscape character of the Study Area.

The existing conditions and simulations for Viewpoint 10B (Viewing SW) are shown on Figures 5.5.4-4 to 5.5.5-7.

Figure 5.5.5-4: Viewpoint 10B – Existing Conditions (Viewing SW)

Figure 5.5.5-5: Viewpoint 10B – Site Simulation, Operations Year 6 (Viewing SW)

Figure 5.5.5-6: Viewpoint 10B – Site Simulation, Operations Year 38 (Viewing SW)

Figure 5.5.5-7: Viewpoint 10B – Site Simulation, Rehabilitation Landscape (Viewing SW)

Receptors: Motorists, local residents, pedestrians, and recreational users.

Visibility: Prominent features include the Visual Planting Area in the foreground, adjacent to the intersection (shown in cross-section 10B-10'B Year 6 Mine Plan). At Year 6 a grassed visual / noise barrier is visible adjacent to Charleston Side Rd (Figure 5.5.5-5).

At Year 38 (cross-section 10-10' Year 38 Mine Plan) the incremental growth of the Visual Planting Area will result in an effective visual screen of the extraction area behind it. Grassed earth berms are also visible along both Main St. and Charleston Side Rd. At rehabilitation, the berms will be removed and grasses will be planted.

Visual Contrast: The predominantly rural character of the existing landscape is maintained with the addition of a planted tree / shrub mix and grassed earthen berms. During the initial berm construction, visual contrast will be moderate temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting. The colour and fine texture of the berm grasses reduce the contrast within the setting and integrate effectively within the landscape. The Site creates an overall **weak** level of contrast during Operations that may initially attract attention.

Visual Effect: Alteration to the existing landscape based on the introduction of earth-formed features and native tree and shrub plantings that are immediately adjacent to the intersection but do not change the overall rural landscape character of the Study Area. The post-rehabilitation landscape is compatible with the surrounding landscape character.

5.5.6 Viewpoint 13

The existing conditions and simulations for Viewpoint 13 are shown on Figures 5.5.6-1 to 5.5.6-3.

Figure 5.5.6-1: Viewpoint 13 – Existing Conditions

Figure 5.5.6-2: Viewpoint 13 – Site Simulation, Operations Year 6

Figure 5.5.6-3: Viewpoint 13 – Site Simulation, Operations Year 38

Receptors: Motorists, local residents, pedestrians, and recreational users.

Visibility: At Operations Year 6, prominent features include the grassed visual barrier berm behind the Visual Planting Area in the foreground (cross section 13-13' Year 6 Mine Plan). At Operations Year 38 (Figure 5.5.6-3), the visibility of the berm is further obscured by the growth of the planted trees in the immediate foreground.

At rehabilitation, the berm will be removed and the tree planting area will be expanded. This viewpoint will be located directly adjacent to the planting area post-rehabilitation and as such, only trees will be visible.

Visual Contrast: The duration of the view for motorists is brief. The predominantly rural character of the existing landscape is maintained with the addition of a planted tree / shrub mix and a linear berm. Incremental growth in the Visual Planting Area results in effective visual screening of the berm by Operations Year 38. During the initial berm construction, visual contrast will be moderate temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting. The Site creates an overall **weak** level of contrast during Operations that may initially attract attention but over time will blend effectively with the existing landscape character and local woodlands.

Visual Effect: Partial alteration to the existing landscape based on the introduction of earth formed features and native tree and shrub plantings that are prominent but do not change the overall rural landscape character of the Study Area. The post-rehabilitation landscape is compatible with the surrounding landscape character.

5.5.7 Viewpoints 21A and 21B

The existing conditions and simulations for Viewpoint 21A, from Charleston Side Road, are shown on Figure 5.5.7-1 to Figure 5.5.7-3.

Figure 5.5.7-1: Viewpoint 21A – Existing Conditions (Viewing NW)

Figure 5.5.7-2: Viewpoint 21A – Site Simulation, Operations Year 6 & 38 (Viewing NW)

Figure 5.5.7-3: Viewpoint 21A – Site Simulation, Rehabilitation Landscape (Viewing NW)

Receptors: Residents, motorists, pedestrians, and recreational users.

Visibility: In Operations Year 38, other than the growth of more mature grasses, there will be no difference in the view from Operations Year 6 as the berm will already be constructed. Prominent features include the grassed noise/visual barrier berms extending along Charleston Sideroad, visible in the immediate foreground (Figure 5.5.7-2).

At rehabilitation the berm will be removed and a grassland will be planted in the immediate foreground adjacent to Charleston Side Road. Beyond the grassed area, the open water of the lake in the Main Area will be visible, as well as woodland tree planting on the slope of the extraction area and on top of the slope, at a distance of 1100 meters (cross-section 21A-21A').

Visual Contrast: The duration of the view for motorists is sustained while travelling along Charleston Side Road. The predominately horizontal orientation of the landscape is somewhat maintained with the addition of the linear berms (shown in cross-section 21A-21A' Year 6 Mine Plan and Year 38 Mine Plan); however the steeper berm slope contrasts with the generally level plane of the existing landscape. The berms introduce a relatively large massing into the view with a simple and uniform edge against the sky. During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting. The colour and fine texture of the berm grasses reduce the contrast within the setting and integrate effectively within the landscape. The Site creates an overall weak level of

contrast during Operations that will attract attention but will not entirely dominate the viewing opportunity of the existing landscape character. The post-rehabilitation landscape is compatible with the surrounding landscape character and visual contrast may be considered **weak.**

Visual Effect: Alteration to the existing landscape during Operations based on the introduction of earth formed features that are prominent features to screen the proposed pit / quarry adjacent to Charleston Side Road but do not change the overall rural landscape character of the Study Area. The post-rehabilitation landscape is compatible with the surrounding landscape character.

The existing conditions and simulation for Viewpoint 21B, from Charleston Side Road, are shown on Figures 5.5.7-4 to 5.5.7-6.

Figure 5.5.7-4: Viewpoint 21B – Existing Conditions (Viewing SE)

Figure 5.5.7-5: Viewpoint 21B – Site Simulation, Operations Year 38 (Viewing SE)

Figure 5.5.7-6: Viewpoint 21B – Site Simulation, Rehabilitation Landscape

Receptors: Residents, motorists, pedestrians, and recreational users.

Visibility: In Operations Year 6, there will be no difference in the view from existing conditions. At Operations Year 38 the grassed noise / visual berm will be in place along Charleston Side Road, visible in the immediate foreground.

At rehabilitation the berm will be removed and a grassland will be planted in the immediate foreground adjacent to Charleston Side Road. Beyond the grassed area, the open water of the lake in the Main Area may be visible, as well as woodland tree plantings on the slope of the extraction area and on top of the far slope, at a distance of 1100 meters (cross-section 21B-21B').

Visual Contrast: The duration of the view for motorists is sustained while travelling along Charleston Side Road. The predominately horizontal orientation of the landscape is somewhat maintained with the addition of the linear

berms (shown in cross-section 21B-21B' Year 6 Mine Plan and Year 38 Mine Plan); however the steeper berm slope contrasts with the generally level plane of the existing landscape. The berms introduce a relatively large massing into the view with a simple and uniform edge against the sky. The view to existing farm buildings, fields and trees is obscured by the proposed berms. During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting and integrate effectively within the landscape. The post-rehabilitation landscape is compatible with the surrounding landscape character and visual contrast may be considered **weak.**

Visual Effect: Alteration to the existing landscape during Operations based on the introduction of earth formed features that are prominent features to screen the proposed pit / quarry adjacent to Charleston Side Road but do not change the overall rural landscape character of the Study Area. The post-rehabilitation landscape is compatible with the surrounding landscape character.

5.5.8 Viewpoints 22A and 22B

The existing conditions and simulations for Viewpoint 22A, from Charleston Side Road, are shown on Figures 5.5.8-1 to 5.5.8.3.

Figure 5.5.8-1: Viewpoint 22A – Existing Conditions (Viewing NW)

Figure 5.5.8-2: Viewpoint 22A – Site Simulation, Operations Year 6 (Viewing NW)

Figure 5.5.8-3: Viewpoint 22A – Site Simulation, Rehabilitation Landscape (Viewing NW)

Receptors: Residents, motorists, pedestrians, and recreational users.

Visibility: The entrance to the quarry will be developed in this area at the initiation of Operations. Visible components will include a driveway, an entrance gate and sign, and well-maintained landscaping with trees (Figure 5.5.8-1). The entrance will be controlled by a new traffic light and the installation of taper lanes and acceleration lanes on Regional Road 24. Adjacent to the entrance, prominent features include the grassed noise/visual barrier berms extending along Regional Road 24. In Operations Year 38, other than the growth of

more mature landscape vegetation, there will be no difference in the view from Operations Year 6 as the quarry entrance and roadside berm will already be constructed.

At rehabilitation the berms and entrance infrastructure will be removed and grasses and trees will be planted in the immediate foreground adjacent to Regional Road 24. Beyond the grassed area, the open water of the lake in the Main Area appears to be visible, as well as woodland tree planting on the slope of the extraction area and on top of the slope, at a distance of 1100 meters (cross-section 22A-22A'). Note that depending on the final land use, there may be a desire to maintain the entrance.

Visual Contrast: The visible portion of the quarry entrance components is of a similar scale to other commercial and industrial developments in the Caledon area landscape. The built forms of the entrance structures are evident and initially may begin to attract the attention of viewers. The duration of the view for motorists is brief due to the screening effect of the grassed berms. During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast at this viewpoint to moderate during Operations. The colour and fine texture of the berm grasses reduce the contrast within the setting and integrate effectively within the landscape. The post-rehabilitation landscape is compatible with the surrounding landscape character and visual contrast may be considered **weak.**

Visual Effect: Alteration to the existing landscape during Operations based on the introduction of earth-formed features to screen the proposed pit; and quarry entrance infrastructure adjacent to Regional Road 24. The post-rehabilitation landscape is compatible with the surrounding landscape character.

The existing conditions and simulations for Viewpoint 22B, from Charleston Side Road, are shown on Figures 5.5.8-3 to 5.5.8-5.

Figure 5.5.8-3: Viewpoint 22B – Existing Conditions (Viewing SE)

Figure 5.5.8-4: Viewpoint 22B – Site Simulation, Operations Year 6 & 38 (Viewing SE)

Figure 5.5.8-5: Viewpoint 22B – Site Simulation, Rehabilitation Landscape

Receptors: Residents, motorists, pedestrians, and recreational users.

Visibility: There will be no difference in the view from Operations Year 6 to Operations Year 38, as the berm will be the primary visible feature. Prominent features include the grassed noise/visual barrier berm extending along both sides of Charleston Side Road.

At rehabilitation the berm will be removed and grasses will be planted in the immediate foreground. Woodland tree plantings will be visible in the foreground at a distance of approximately 100 meters from Charleston Side Road, on the slope of the extraction area. On the far side of the extraction pit, woodland plantings will be visible at a distance of approximately 650 meters.

Visual Contrast: The duration of the view for motorists is sustained while travelling along Charleston Side Road. The predominately horizontal orientation of the landscape is somewhat maintained with the addition of the linear berm (shown in cross-section 22B-22B' Year 38 Mine Plan); however the steeper berm slope contrasts with the generally level plane of the existing landscape. The view to existing agricultural fields and trees is obscured by the proposed berm. The colour and fine texture of the berm grasses reduce the contrast within the setting and integrate effectively within the landscape. During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting. Overall, the visual contrast would be considered weak.

Visual Effect: Alteration to the existing landscape based on the introduction of a grassed earth formed feature that is a prominent feature to screen the proposed pit / quarry adjacent to Charleston Side Road during Operations. After rehabilitation, foreground plantings and more distant woodlands will be compatible with the landscape character.

5.5.9 Viewpoint 23

The existing conditions for Viewpoint 23, along the Bruce Trail, is shown on Figure 5.5.9-1.

Figure 5.5.9-1: Viewpoint 23 – Existing Conditions

Receptors: Recreational hikers, local residents.

Visibility: The viewpoint is located within a protected area (Forks of the Credit Provincial Park). The Site is screened by mature vegetation and residential development during Operations and is therefore no Project components will be visible through the life of the Operations and rehabilitation.

Visual Contrast: No visual contrast.

Visual Effects: No visual effects.

5.5.10 Viewpoint 24

The existing conditions for Viewpoint 24, along the Elora-Cataract Trailway, are shown on Figures 5.5.10-1 to 5.5.10-2. Future conditions have not been simulated since the only visible feature will be a meadow as part of the rehabilitation landscape.

Figure 5.5.10-1: Viewpoint 24 – Existing Conditions

Figure 5.5.10-2: Viewpoint 24 – Site Simulation, Rehabilitation Landscape

Receptors: Recreational hikers, cyclists, local residents.

Visibility: Due to the timing of extraction in the South Area, there will be no Project components visible in Operations Year 6. Site features include a grassed noise/visual barrier berm set back approximately 500 meters from the Trailway at Year 38 (cross-section 24-24' Year 38 Mine Plan), however it is not predicted that the berm will be visible due to its topographic location upslope from the viewpoint. Meadow grasses will be visible in the foreground post-rehabilitation (cross-section 24-24' Final Rehabilitation Plan).

Visual Contrast: The duration of the view for recreational users is brief. The Site creates an overall **weak** level of contrast during Operations that will not attract attention.

Visual Effect: Partial alteration to the existing landscape based on the introduction of meadow plantings that may be seen but are compatible with the natural landscape.

5.5.11 Viewpoints 25A and 25B

The existing conditions and simulations for Viewpoint 25A, from Main Street, are shown on Figures 5.5.11-1 to 5.5.11-4.

Figure 5.5.11-1: Viewpoint 25A – Existing Conditions (Viewing NE)

Figure 5.5.11-2: Viewpoint 25A – Site Simulation, Operations Year 6 (Viewing NE)

Figure 5.5.11-3: Viewpoint 25A – Site Simulation, Operations Year 38 (Viewing NE)

Figure 5.5.11-4: Viewpoint 25A – Site Simulation, Rehabilitation Landscape (Viewing NE)

Receptors: Motorists, local residents, pedestrians.

Visibility: Prominent features at Operations Year 6 and Year 38 (shown in cross-sections 25A-25A' Year 6 Mine Plan and 25A-25A' Year 38 Mine Plan) include the grassed noise/visual barrier berm in the immediate foreground adjacent to the road. At rehabilitation, the berm will be removed, grasses will be planted in the immediate foreground, and woodland tree plantings will be visible (Figure 5.5.11-4) in the middle-ground.

Visual Contrast: The duration of the view for motorists is brief. At Operations Year 38 however the steeper berm slope contrasts with the generally flat plane of the existing landscape (cross-section 25A-25A' Year 38 Mine Plan). The berm introduces a relatively large massing into the view with a simple and uniform edge against the sky. The retention of woodland trees will help to maintain the existing landscape character. During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants

begin to grow the berm grasses reduce the contrast within the setting. The rehabilitation landscape results in an overall **weak** level of visual contrast that is compatible with the surrounding landscape character.

Visual Effect: Alteration to the existing landscape based on the introduction of earth formed features that are prominent features to screen the proposed pit / quarry but do not change the overall rural landscape character of the Study Area.

The existing conditions and simulations for Viewpoint 25B, from Main Street, are shown on Figures 5.5.11-5 to Figure 5.5.11-8.

Figure 5.5.11-5: Viewpoint 25B – Existing Conditions (Viewing W)

Figure 5.5.11-6: Viewpoint 25B – Site Simulation, Operations Year 6 (Viewing W)

Figure 5.5.11-7: Viewpoint 25B – Site Simulation, Operations Year 38 (Viewing W)

Figure 5.5.11-8: Viewpoint 25B – Site Simulation, Rehabilitation Landscape (Viewing W)

Receptors: Motorists, local residents, pedestrians.

Visibility: Prominent features at Operations Year 6 and Operations Year 38 (shown in cross-section 25B-25B') include the grassed noise/visual barrier berm in the immediate foreground adjacent to the road.

Visual Contrast: The duration of the view for motorists is brief. The predominately horizontal orientation of the landscape is somewhat maintained with the addition of the linear berms; however the steeper berm slope contrasts with the generally flat plane of the existing landscape. The berm introduces a relatively large massing

into the view with a simple and uniform edge against the sky. The retention of woodland trees will help to maintain the existing landscape character. The colour and fine texture of the berm grasses reduce the contrast within the setting and integrate effectively within the landscape. During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting. The colour and fine texture of the berm grasses reduce the contrast within the setting and integrate effectively within the landscape.

At rehabilitation, the landscape will be planted with grasses and trees in the foreground distance zone (Figure 5.5.11-8). The view is likely to include open water in the lake as well as trees in the Visual Planting Area on the other side of the lake, approximately 1400 meters away in the middle-ground distance zone. The rehabilitation landscape results in an overall **weak** level of visual contrast that is compatible with the surrounding landscape character.

Visual Effect: Alteration to the existing landscape based on the introduction of earth formed features that are prominent features to screen the proposed pit / quarry but do not change the overall rural landscape character of the Study Area. The post-rehabilitation landscape is compatible with the surrounding landscape character.

5.5.12 Viewpoint 26

The existing conditions and simulations for Viewpoint 26, from Mississauga Road, are shown on Figures 5.5.12-1 to 5.5.12-3.

Figure 5.5.12-1: Viewpoint 26 – Existing Conditions

Figure 5.5.12-2: Viewpoint 26 - Operations Year 6

Figure 5.5.12- 3: Viewpoint 26 – Site Simulation, Operations Year 38

Receptors: Motorists; local residents.

Visibility: At Operations Year 6 (shown in cross-section 26-26' Year 6 Mine Plan) the Visual Planting Area is visible in the foreground distance zone. Prominent features at Year 38 (Figure 5.5.12 – 3) include a grassed noise/visual barrier berm behind the Visual Planting Area approximately 200m from potential viewers on Mississauga Road in the foreground distance zone. The berm is not likely to be visible at Year 38 due to vegetative screening (shown in cross-section 26-26' Year 38 Mine Plan). At rehabilitation, there will be no visible change from Operations Year 38.

Visual Contrast: The predominantly rural character of the existing landscape is maintained with the addition of a planted tree / shrub mix and a curvilinear berm. During the initial berm construction, visual contrast will be moderate temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting. Over time the berm will be obscured from view by growth of the native vegetation in the Visual Planting Area. The Site creates an overall **weak** level of visual contrast during Operations that will be compatible with the existing landscape character and local woodlands.

Visual Effect: Partial alteration to the existing landscape based on the introduction of earth formed features and native tree and shrub plantings that are set back from the road and do not change the overall rural landscape character of the Study Area.

5.5.13 Viewpoint 27

The existing conditions and simulations for Viewpoint 27, from Mississauga Road, are shown on Figures 5.5.13-1 to 5.5.13-3.

Figure 5.5.13-1: Viewpoint 27 – Existing Conditions

Figure 5.5.13-2: Viewpoint 27 – Site Simulation, Operations Year 6

Figure 5.5.13-3: Viewpoint 27 – Site Simulation, Operations Year 38

Receptors: Motorists; local residents.

Visibility: Prominent features include the grassed noise/visual barrier berm behind the Visual Planting Area in the foreground, approximately 175 m from potential viewers on Mississauga Road. A temporary excess soil stockpile will be visible at 450m (as shown in cross-section 27A-27A' Year 6 Mine Plan) until it is obscured by the incremental growth of planted tree screening. At rehabilitation, there will be no visible change from Operations Year 38.

Visual Contrast: The predominantly rural character of the existing landscape is maintained with the addition of a planted tree / shrub mix and a linear berm. During the initial berm construction, visual contrast will be moderate temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting. The Site creates an overall **weak** level of contrast during Operations that may initially attract attention but over time will blend effectively with the existing landscape character and local woodlands.

Visual Effect: Partial alteration to the existing landscape based on the introduction of earth formed features and native tree and shrub plantings that are set back from the road and do not change the overall rural landscape character of the Study Area.

5.5.14 Viewpoint 28A and 28B

The existing conditions and simulations for Viewpoint 28A, from the intersection of Mississauga Road and Charleston Sideroad, are shown on Figures 5.5.14-1 and 5.5.14-3.

Figure 5.5.14-1: Viewpoint 28A – Existing Conditions

Figure 5.5.14-2: Viewpoint 28A – Site Simulation, Operations Year 6 & 38 (Viewing N)

Figure 5.5.14-3: Viewpoint 28A – Site Simulation, Rehabilitation Landscape (Viewing N)

Receptors: Motorists; local residents.

Visibility: In Operations Year 38, other than the growth of more mature grasses, there will be no difference in the view from Operations Year 6 as the berm will already be constructed. Prominent features include the grassed noise/visual barrier berm in the immediate foreground adjacent to the intersection and extending along Mississauga Road and Charleston Sideroad.

Visual Contrast: The duration of the view for motorists is brief but sustained while the viewer is stopped at the intersection. The predominately horizontal orientation of the landscape is somewhat maintained with the addition of the linear berm; however the steeper berm slope contrasts with the generally level plane of the existing landscape. During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting. During Operations, the Site creates an overall **weak** level of contrast that will attract attention but will not entirely dominate the viewing opportunity of the existing landscape character.

At rehabilitation, the landscape will be planted with grasses and trees in the immediate foreground distance zone. The colour and fine texture of the berm grasses integrates with the landscape adjacent to the intersection. The view will include trees in the Visual Planting Area on the other side of the extraction area approximately 1900 meters away in the middle-ground distance zone. The rehabilitation landscape results in an overall **weak** level of visual contrast that is compatible with the surrounding landscape character.

Visual Effect: Alteration to the existing landscape during Operations based on the introduction of earth formed features that are prominent features to screen the proposed pit / quarry but do not change the overall rural landscape character of the Study Area. The post-rehabilitation landscape is compatible with the surrounding landscape character.

The existing conditions and simulations for Viewpoint 28B, from the intersection of Mississauga Road and Charleston Sideroad, are shown on Figures 5.5.14-4 to 5.5.14-6. There is no mining activity at Year 6 so from this viewpoint the view will not change from existing conditions.

Figure 5.5.14 -4: Viewpoint 28B – Existing Conditions & Year 6 (Viewing SE)

Figure 5.5.14-5: Viewpoint 28B – Site Simulation, Operations Year 38 (Viewing SE)

Figure 5.5.14-6: Viewpoint 28B – Site Simulation, Rehabilitation Landscape (Viewing SE)

Receptors: Motorists; local residents.

Visibility: The visibility at existing conditions and Operations Year 6 is the same, as the berm will not be constructed at this time. At Operations Year 38, prominent features include the grassed noise/visual barrier berm in the immediate foreground adjacent to the intersection and extending along the roads (Figure 5.5.14-5).

Visual Contrast: At Operations Year 38, the existing view is altered by the proposed berm (shown in cross-section 28B – 28B' Year 38 Mine Plan). During the initial berm construction, visual contrast will be strong temporarily; however once the berms are vegetated and the plants begin to grow the berm grasses reduce the contrast within the setting and integrate effectively within the landscape. The Site creates an overall **weak** level of contrast during Operations that will initially attract attention but will not entirely dominate the viewing opportunity of the existing landscape character.

At rehabilitation, the landscape will be planted with grasses and trees in the immediate foreground distance zone (Figure 5.5.14-6). The view will include trees in the Visual Planting Area on the other side of the lake,

approximately 1300 meters away in the middle-ground distance zone. The rehabilitation landscape results in an overall **weak** level of visual contrast that is compatible with the surrounding landscape character.

Visual Effect: Alteration to the existing landscape character during Operations based on the introduction of earth formed features to screen the proposed pit / quarry but do not change the overall rural landscape character of the Study Area. The post-rehabilitation landscape is compatible with the surrounding landscape character.

6.0 TECHNICAL RECOMMENDATIONS AND CONCLUSIONS

6.1 Recommendations

The results of the Visual Impact Assessment provide the basis for the following technical recommendations of guidelines and procedures for the proposed Caledon Pit / Quarry:

- Berms shall be designed to mitigate visual effects and shall be constructed along the perimeter of each area (Main Area, North Area and South Area) as shown on Figure 6 of this report. The berms shall be 5 m in height and constructed with material from each extraction area, prior to extraction commencing in the Main Area, North Area and South Area.
- Berms shall remain in place throughout the operational phases in each of the Main Area, North Area and South Area until extraction has been completed. Once operations are completed in each Area, the berms shall be removed and the material from the berms shall be used for rehabilitation;
- The berms shall be seeded with a grass/legume seed mix in order to stabilize the soils on the berms. The grass/legume seed mix shall be applied at a rate of 125 kg /ha. The mix should consist of 50-70% grasses (a minimum of three species) and 30-50% legumes, and may include the following species, as available at the time of application:
  - Annual rye (*Lolium multiflorum*)
  - Perennial rye (*Lolium perenne*)
  - Tall fescue (*Lolium arundinaceum*)
  - Buckwheat (*Fagopyrum esculentum*)
  - Alfalfa (*Medicago sativa*)
  - Crown vetch (*Securigera varia*)
  - White clover (*Trifolium repens*)
  - Creeping bentgrass (*Agrostis stolonifera*)
  - Red fescue (*Festuca rubra*)
- When constructing the berms, as much of the existing perimeter tree line as possible shall be left in place for additional visual screening;

- Trees and shrubs shall be planted as seedlings in the areas as shown on Figure 6, with approximately 5 m spacing. The tree seedlings shall be approximately 50 cm height. The tree and shrubs mix shall include the following species and percentage mixture:
  - Trembling aspen (*Populus tremuloides*) – 10 %
  - Gray dogwood (*Cornus racemosa*) – 10 %
  - Alternate-leaved dogwood (*Cornus alternifolia*) – 10 %
  - Eastern red cedar (*Juniperus virginiana*) – 10 %
  - White pine (*Pinus strobus*) – 30 %
  - White spruce (*Picea glauca*) – 30 %
- Planting in all visual planting areas, as shown on Figure 6, for the Main Area shall occur, within 1 year of issuance of the licence, and for the North and South Areas within 5 years of issuance of licence. Monitoring of trees survival shall be conducted within the first year following planting and equivalent replacement planting shall be carried out if more than 20% of the trees did not survive.
- Rehabilitation shall be implemented as illustrated on the MHBC ARA Site Plans.

6.2 Conclusions

Given the findings in Section 5.5, this assessment predicts that temporary visual impacts can be minimized by implementing the identified mitigation measures. Upon the implementation of the recommendations in Section 6.1 of this report, the Site will not have any unacceptable visual impacts on surrounding land uses. Site visibility will be predominately limited to the establishment of berm and tree screening features that will be successful at eliminating the visibility of the aggregate extraction activity.

After the final rehabilitation is complete, the resulting natural landscape will feature several lakes and a mosaic of woodlands, grasslands and wetlands that will complement and enhance the current agricultural aesthetic.

In summary, based on this Visual Impact Assessment, it is concluded that:

- Significant views and how they might be affected by the proposed Caledon Pit / Quarry have, including the changes to the natural landscape and the cultural landscape, been considered;
- Mitigation measures such as berms, entrance designs, vegetation, landscaping and operational matters have been recommended to minimize visual impacts;
- With implementation of the recommendations, the proposed operation has been designed to not result in any unacceptable visual impacts on surrounding land uses; and
- With the implementation of the proposed rehabilitation plan in the long term the Site will result in a visual enhancement compared to existing conditions.

Curriculum vitae of the authors of the Visual Impact Assessment are found in Appendix D.

Signature Page

Golder Associates Ltd.

Paul McDowell
Senior GIS Analyst

Peter Williams, MLArch., MBCSLA
Senior Visual and Land Use Assessment Specialist

PM/PW/mp

https://golderassociates.sharepoint.com/sites/114392/project files/5 technical work/ph 3100-visual/report/visual impact assessment-12.16.2022.docx

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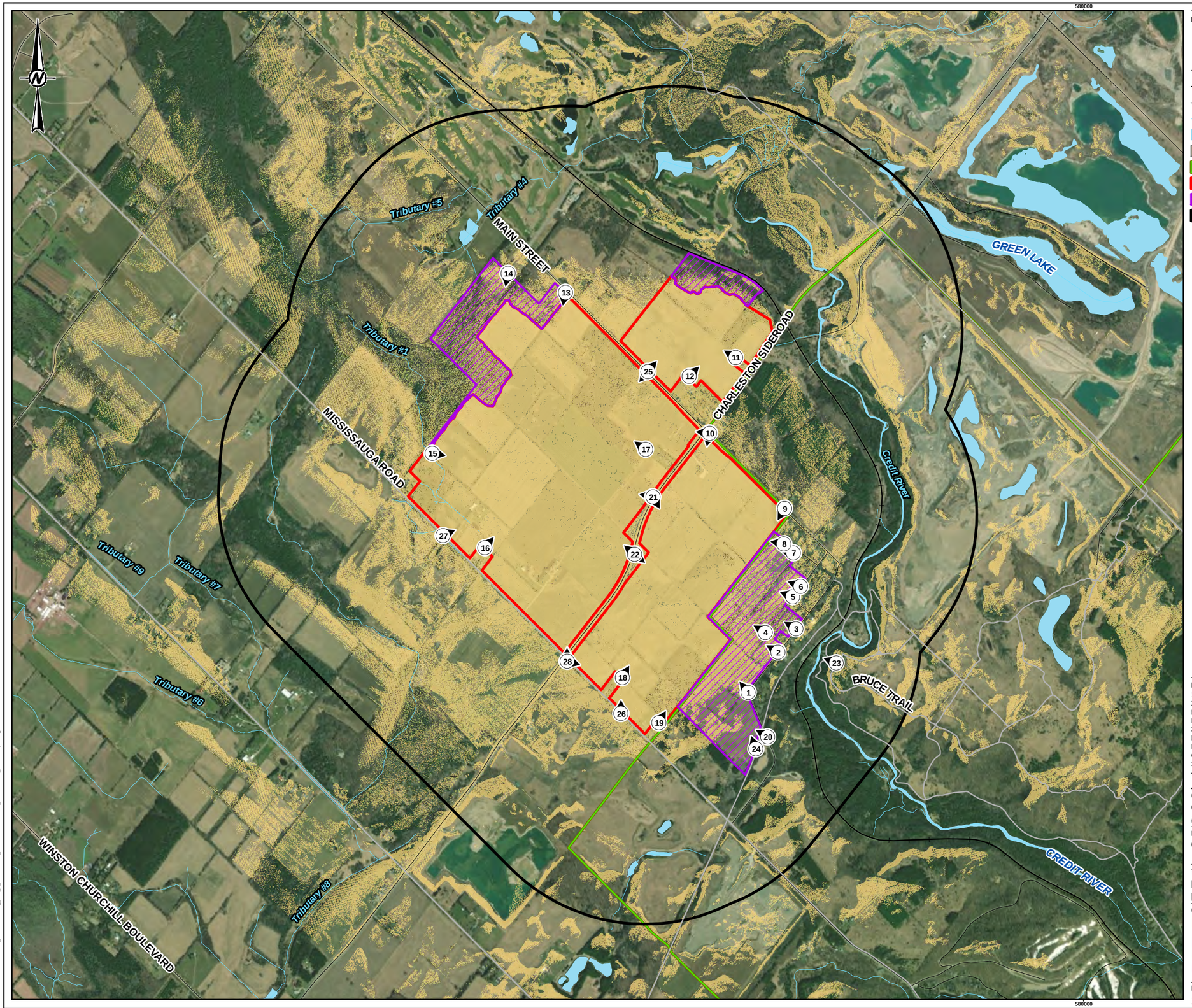
FIGURES



LEGEND

- VIEWPOINT LOCATION
- ROAD
- RAILWAY
- TRAIL
- WATERCOURSE
- WATERBODY
- AREAS THAT ARE POTENTIALLY VISIBLE FROM THE SITE
- NIAGARA ESCARPMENT PLAN
- LICENCE BOUNDARY
- ADDITIONAL LANDS OWNED / CONTROLLED BY CBM
- STUDY AREA

KEY MAP

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1:20,000 METRES

REFERENCE(S)

1. BASEDATA MNRF LIO OBTAINED APRIL 2019
2. WATERCOURSES OBTAINED FROM CREDIT VALLEY CONSERVATION AUTHORITY OPEN DATA PORTAL, NOVEMBER 2022 IN COMBINATION WITH SITE WATERCOURSE SURVEY PROVIDED BY FIRST BASE SOLUTIONS NOVEMBER 2021.
3. IMAGERY: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
4. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT / QUARRY

TITLE
BASLINE VISIBILITY ANALYSIS AND VIEWPOINT LOCATION MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-09
DESIGNED	SO
PREPARED	SO/PJM
REVIEWED	CE
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
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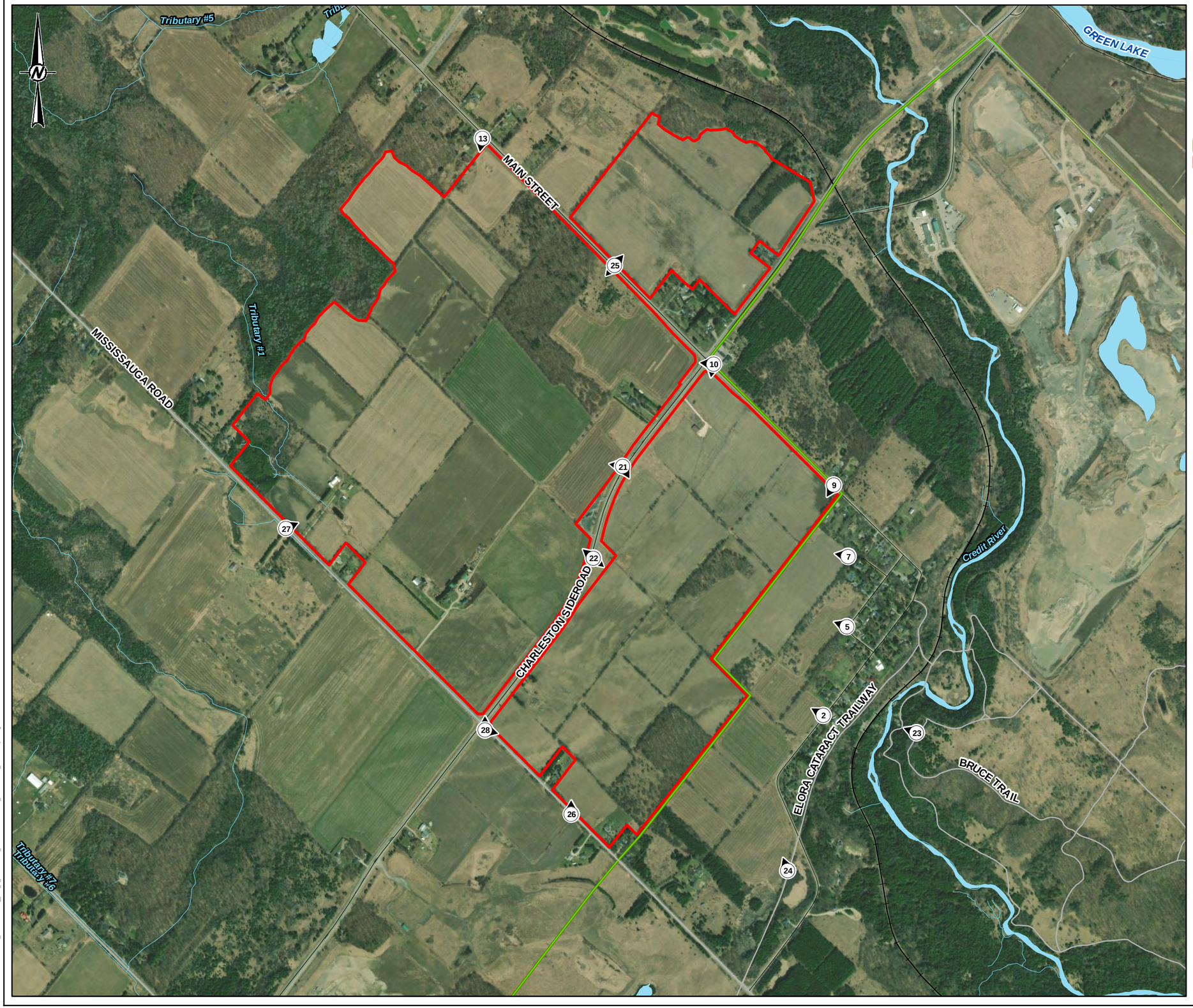
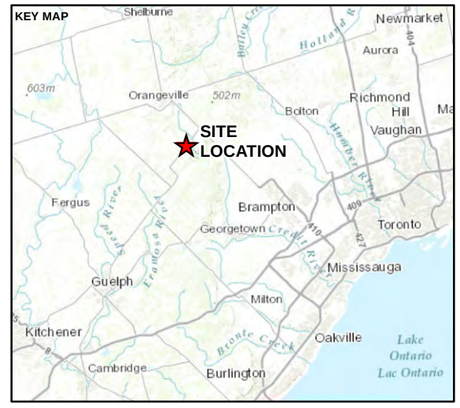


LEGEND

- VIEWPOINT LOCATION
- ROAD
- RAILWAY
- TRAIL
- WATERCOURSE
- WATERBODY
- NIAGARA ESCARPMENT PLAN
- LICENCE BOUNDARY



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CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON QUARRY. VISUAL ASSESSMENT
CALEDON, ONTARIO

TITLE
HIGH VISIBILITY VIEWPOINT LOCATION MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-09
DESIGNED	SO
PREPARED	SO/PJM
REVIEWED	CE
APPROVED	HM

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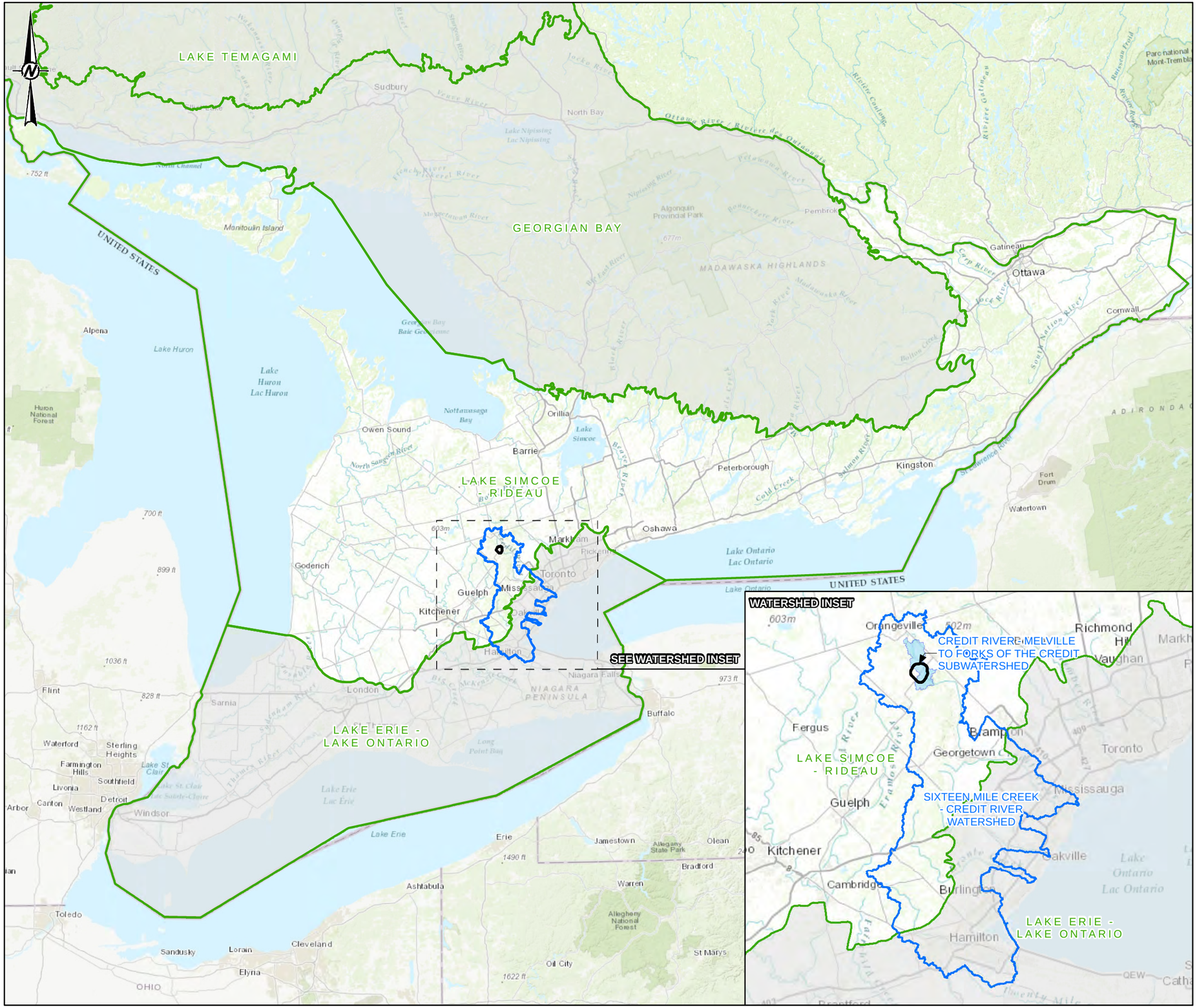

LEGEND

- ECOREGION
- STUDY AREA
- SUBWATERSHED
- WATERSHED BOUNDARY

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CLIENT
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PROJECT
CALEDON PIT / QUARRY

TITLE
REGIONAL CONTEXT MAP

CONSULTANT
GOLDER
MEMBER OF WSP

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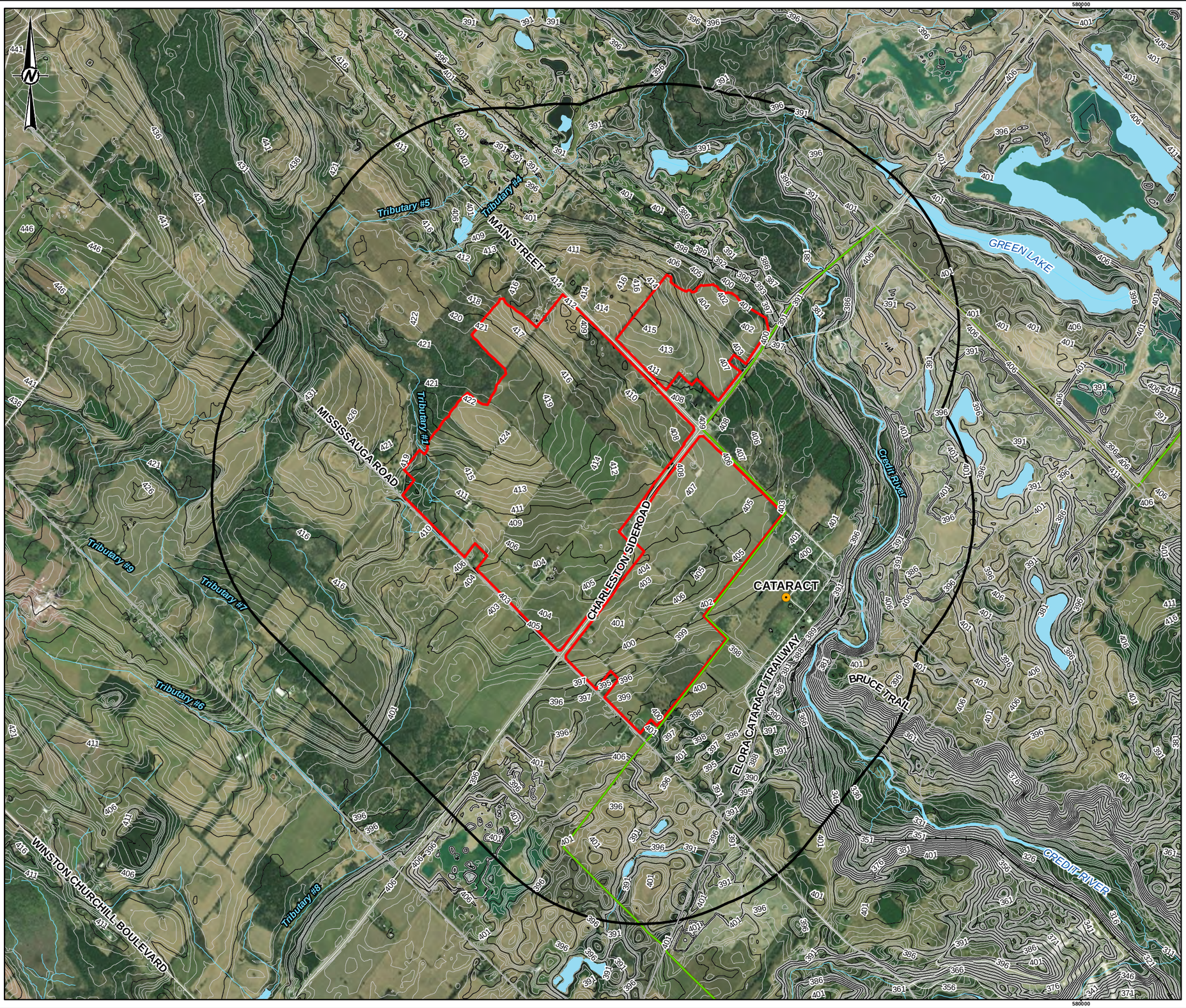

LEGEND

- TOWN/VILLAGE
- RAILWAY
- TRAIL
- INDEX CONTOURS
- INTERMEDIATE CONTOURS
- WATERCOURSE
- WATERBODY
- NIAGARA ESCARPMENT PLAN
- LICENCE BOUNDARY
- STUDY AREA

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REFERENCE(S)

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CLIENT
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PROJECT
CALEDON PIT / QUARRY

TITLE
LOCAL STUDY AREA CONTEXT AND EXISTING LANDSCAPE MAP

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-09
DESIGNED	SO
PREPARED	SO/PJM
REVIEWED	CE
APPROVED	HM

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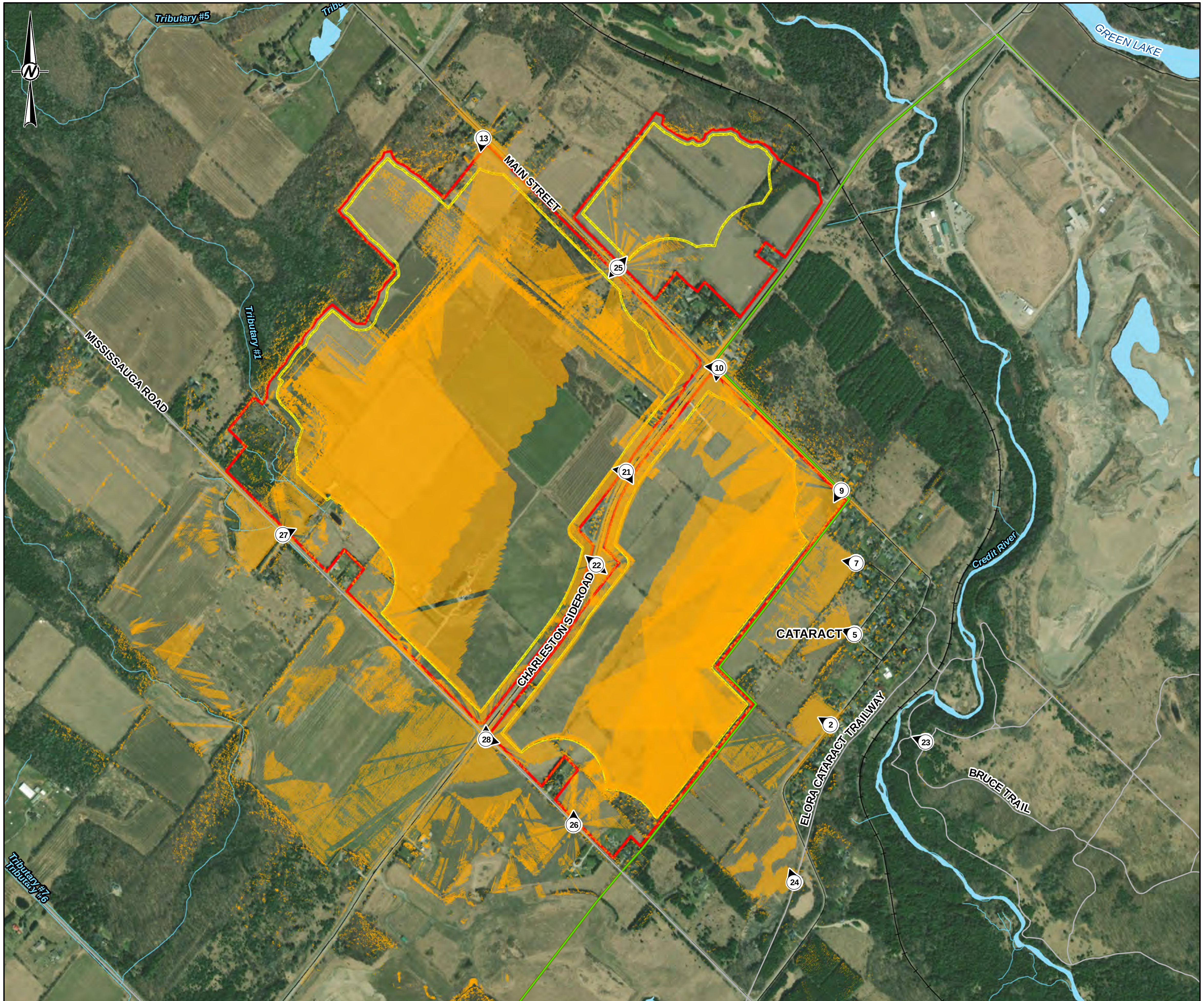

LEGEND

- TOWN/VILLAGE
- KEY VIEWPOINT LOCATION
- ROAD
- RAILWAY
- TRAIL
- WATERCOURSE
- WATERBODY
- PROJECT VISIBILITY TO VIEWPOINT
- NIAGARA ESCARPMENT PLAN
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION

VIEW POINT LOCATION	VISIBLE AREA WITHIN LIMIT OF EXTRACTION (ha)	DISTANCE (m) TO LIMIT OF EXTRACTION
2	0.001	276.66
5	0.004	302.84
7	0.067	170.77
9	2.560	141.13
10	43.376	82.72
13	9.184	98.71
21	85.367	40.33
22	62.642	54.50
23	0.000	587.95
24	0.000	475.28
25	4.081	41.77
26	6.257	155.31
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3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT / QUARRY

TITLE
CUMULATIVE VISIBILTIY ANALYSIS FROM KEY VIEWPOINTS WITH NO MITIGATION DURING OPERATIONS (YEAR 38)

CONSULTANT
GOLDER MEMBER OF WSP

YYYY-MM-DD	2022-12-09
DESIGNED	SO
PREPARED	SO/PJM
REVIEWED	CE
APPROVED	HM

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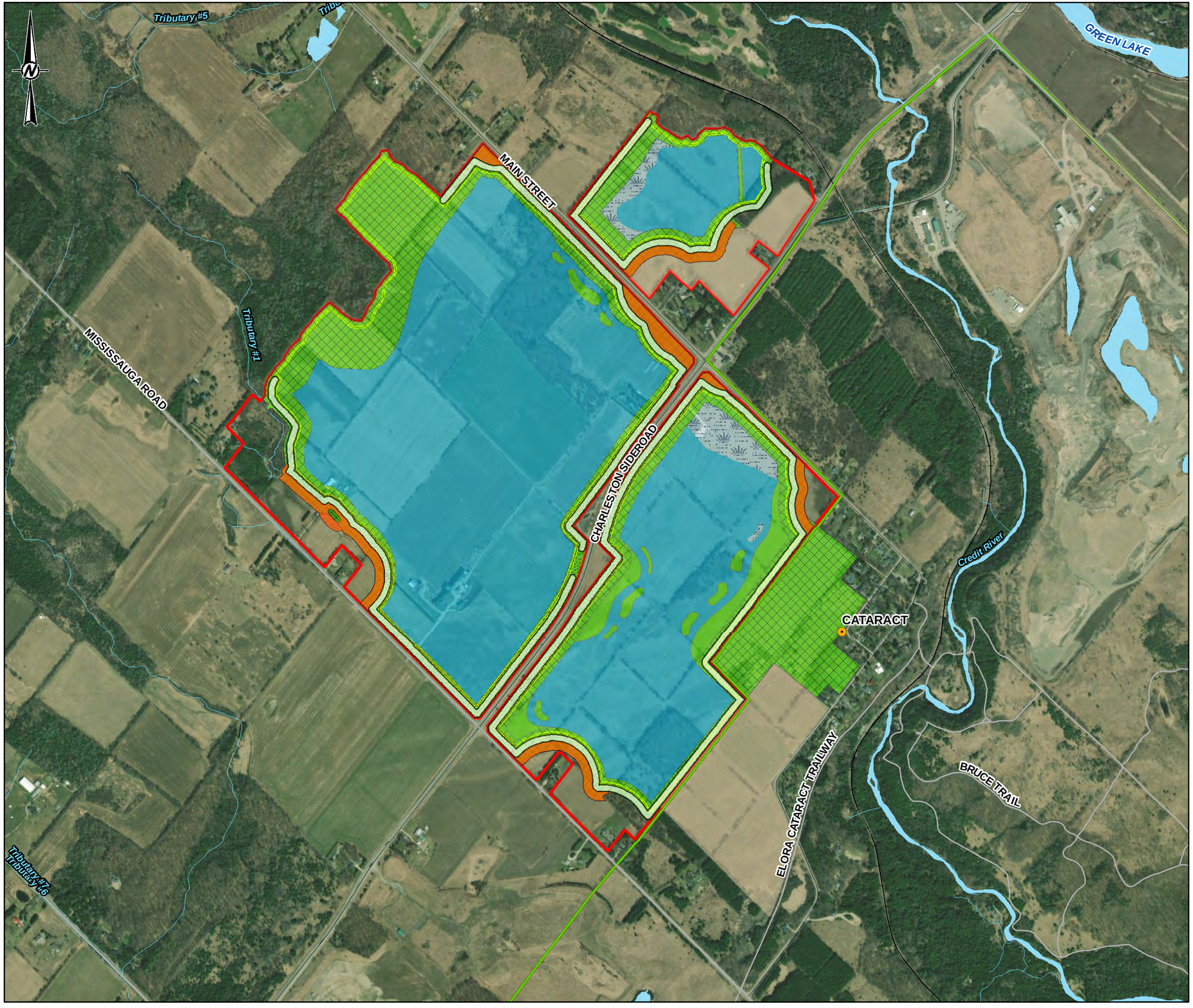

LEGEND

- TOWN/VILLAGE
- ROAD
- RAILWAY
- TRAIL
- WATERCOURSE
- WATERBODY
- BERM LOCATION
- VISUAL PLANTING AREAS
- NIAGARA ESCARPMENT PLAN
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION

REHABILITATION LANDFORM AND ECOLOGICAL ENHANCEMENT AREAS

- GRADIUAL GRADE OR ISLAND
- GRASSLAND
- LAKE
- MEADOW
- WETLAND
- WOODLAND

0 500 1,000

1:12,500 METRES

REFERENCE(S)

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SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
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COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT / QUARRY

TITLE
VISUAL TECHNICAL RECOMMENDATIONS

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-09
DESIGNED	SO
PREPARED	SO/PJM
REVIEWED	CE
APPROVED	HM

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APPENDIX A

Terms of Reference

TECHNICAL MEMORANDUM

DATE August 19, 2022 **Project No.** 19129150

TO David Hanratty, PGeo
CBM Aggregates

CC Jennifer Deleemans, Mike Lebreton

FROM Heather Melcher **EMAIL heather_melcher@golder.com**

PROPOSED CBM CALEDON QUARRY TERMS OF REFERENCE – VISUAL IMPACT ASSESSMENT

Golder Associates Ltd. (Golder) has been retained by CBM Aggregates (CBM), a division of St. Marys Cement Inc. (Canada) to complete technical studies to accompany an application to the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) for a new Class A Quarry Below Water licence under the *Aggregate Resources Act* (ARA) (project). The project also requires Planning Act approval and a Town of Caledon Official Plan and Zoning By-law amendment. This study will provide an assessment of the application taking into consideration the applicable in-effect policies contained in the relevant Provincial Plans, Region of Peel Official Plan and Town of Caledon Official Plan. The properties to be licensed are located on Charleston Sideroad and Mississauga Road, Town of Caledon, Region of Peel, Ontario (site). The site is approximately 262.4 hectares (ha) in size (Figure 1).

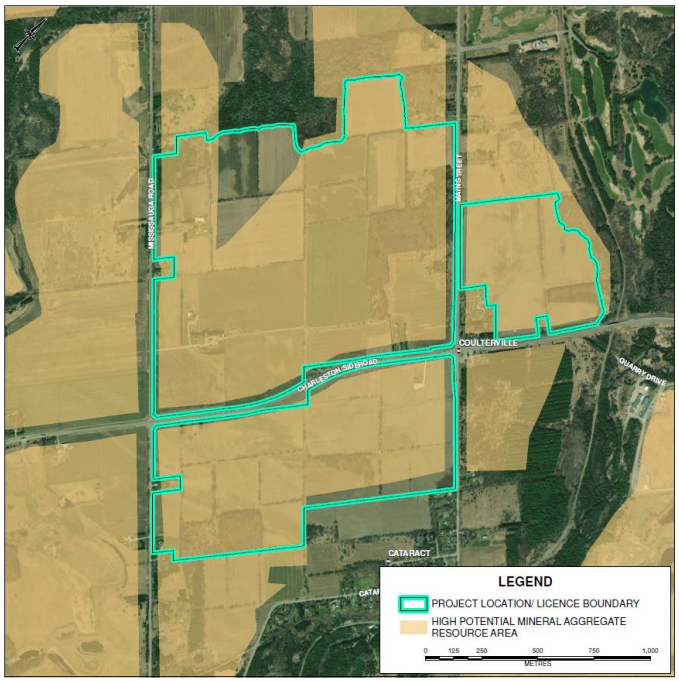


Figure 1: Proposed CBM Caledon Quarry Location

Golder Associates Ltd.
6925 Century Avenue, Suite #100 Mississauga, Ontario, L5N 7K2 Canada T: +1 905 567 4444 +1 905 567 6561

This Terms of Reference (TOR) includes a summary of the assessment and deliverables associated with the visual component. While a visual impact assessment (VIA) is not a requirement of the ARA licencing process, a VIA is required for the Town of Caledon Zoning By-law amendment as per sections 5.11.2.4.2(e) and 5.11.2.4.11 of the Official Plan. The VIA will also be required as part of the *Ontario Planning Act* application for the project. It is anticipated that illustrating visual effects will be requested by stakeholders and members of the public.

1.0 VISUAL IMPACT ASSESSMENT

1.1 Existing Conditions

The purpose of this visual baseline assessment is to illustrate the existing visual character of the landscape within the project location and to identify potential visual receptor locations with a range of viewing conditions that would have visibility of the proposed project.

To establish the landscape character, understand the current baseline conditions of the site, and identify potential receptors in the vicinity of the site, the following desktop tasks will be conducted:

1) Data Acquisition (data to be obtained to support the VIA includes the following):
   - Recent high-resolution imagery.
   - Recent digital terrain model (DTM, bare earth).
   - Recent digital surface model (DSM, bare earth, and all features on the ground).
   - Base NDMNRF data layers areas, and trails.
   - Inventory and location for all potential visual receptor locations within the study area based on public consultation, imagery, NDMNRF data, and GIS analysis.
   - Inventory and location for all potential known built heritage resources and cultural heritage landscapes identified in Golder's cultural heritage studies for the project.
   - Recent and proposed project site plans and descriptions, ideally including during operations configuration and post-closure conditions.
2) Study Area delineation at 1 km from the site.
3) A preliminary visibility analysis will be completed with the DSM to identify potential receptor viewpoint locations within the Study Area that have a line-of-site to the topographic terrain within the Project Area. The viewshed analysis will be completed with NDMNRF DSM data that have been captured in late fall or early spring in leaf off conditions to provide a worst-case scenario for viewing the project features.
4) Further refinement of the potential viewpoint locations based on the preliminary visibility analysis and desktop data review of mapped roadways, residences, places of business, recreation areas and trails within the study area.

Site reconnaissance and photographic inventory will be completed to confirm findings from the desktop data review and visibility analysis at up to 28 viewpoints. A collection of landscape photographs, GPS locations, and field observations will be collected to document existing viewing conditions and establish the landscape character of the study area for the baseline assessment. Photographs will also be taken to support the development of photo-composite simulations of the site to support the visual effects assessment. The locations of the 28 potential viewpoints from public and private lands are shown on the attached Figure 2 and listed below.

Viewpoint 1: View from turn on Cataract Road. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 2: View from residence near 1311 Cataract Road. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 3: View from Cataract Road. Across the road from a residence at 1369 Cataract Road. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 4: View from agricultural field northwest of a residence at 1346 Cataract Road. Potential receptors include nearby residents.

Viewpoint 5: View from the corner of William and Albert Streets. Across the road from a residence at 75 William Street. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 6: View from William Street. Across the road from residences at 61 and 63 William Street. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 7: View from agricultural field northwest of residences at 48 William Street and Deagle Lane. Potential receptors include nearby residents.

Viewpoint 8: View from agricultural field southwest of residences along Cataract Road. Potential receptors include nearby residents.

Viewpoint 9: View from side of the road in front of 18203 Cataract Road. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 10: View from side of road at Cataract Road and Charleston Sideroad. Potential receptors at this busy intersection include motorists, residences, customers at the ESSO gas station, convenience store and restaurant.

Viewpoint 11: View from agricultural field northwest of residence at 1626 Charleston Sideroad. Potential receptors include nearby residents.

Viewpoint 12: View from agricultural field northeast of residence at 18471 3 Line West. Potential receptors include nearby residents.

Viewpoint 13: View from side of the road in front of residence at 18722 Main Street. Potential receptors include nearby residents, motorists, pedestrians, and recreational users at the Osprey Valley Golf course.

Viewpoint 14: View from agricultural field southwest of residence at 18885 Peel Regional Road 136. Potential receptors include nearby residents.

Viewpoint 15: View from agricultural field northeast of residence at 18785 Mississauga Road. Potential receptors include nearby residents.

Viewpoint 16: View from agricultural field northeast of residence at 18627 Mississauga Road. Potential receptors include nearby residents.

Viewpoint 17: View from agricultural field northwest of residence at 1420 Charleston Sideroad. Potential receptors include nearby residents.

Viewpoint 18: View from agricultural field northeast of residence at 18309 Mississauga Road. Potential receptors include nearby residents.

Viewpoint 19: View from agricultural field northeast of residence at 18209 Mississauga Road. Potential receptors include nearby residents.

Viewpoint 20: View from side of the road at the driveway entrance to 1177 Cataract Road. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 21: View looking northwest from curve on Charleston Sideroad. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 22: View looking southeast from curve on Charleston Sideroad. Potential receptors include nearby residents, motorists, pedestrians, and recreational users.

Viewpoint 23: View from the Bruce Trail. Potential receptors include pedestrians and recreational users.

Viewpoint 24: View from the Elora-Cataract Trailway. Potential receptors include nearby residents, pedestrians, and recreational users.

Viewpoint 25: View looking southwest and view looking northeast from Main Street, approximately 500 m northwest of the Main Street and Charleston Sideroad intersection. Potential receptors include nearby residents, motorists, pedestrians.

Viewpoint 26: View from Mississauga Road, approximately 150 m northwest of entrance to residence at 18221 Mississauga Road. Potential receptors include nearby residents, motorists, pedestrians.

Viewpoint 27: View from Mississauga Road, approximately 50 m northwest of entrance to residence at 18667 Mississauga Road. Potential receptors include nearby residents, motorists, pedestrians.

Viewpoint 28: View from Mississauga Road and Charleston Sideroad intersection. Potential receptors include nearby residents, motorists, pedestrians.

1.2 Analysis and Effects Assessment

Once an inventory of existing conditions has been completed, potential visual effects during operations and post-closure will be illustrated. Project design information will be incorporated into the illustration of visual impacts, including:

- Site plans during operations, phased rehabilitation and post-rehabilitation, existing topography (elevations and contours), vegetation, the location of any proposed structures and equipment, and the alignment of line-of-sight cross sections.

- Description of closure and progressive and final rehabilitation activities.
- Landscape design mitigations (e.g., tree planting, fencing, phased rehabilitation) and air or noise design mitigations (e.g., berms).

A viewshed analysis will be completed with the 28 viewpoints selected in the baseline assessment to determine which viewpoints have the highest visibility of the project design features. The number of viewpoints for the effects assessment will then be further refined to 10 key viewpoints that have the highest visibility of the project based on the results of the viewshed analysis and proximity of nearby receptors.

Rendered images of the proposed project components will be developed from the 10 key viewpoints using Visual Nature Studio 3D landscape model software. Photo simulations will be created by compositing the render images of the design components with the site photographs to illustrate the potential visual effects of the project during operations and post-closure. The photo-composite simulations will be completed at operations and post-rehabilitation phases. The VIA will involve a review of the viewshed analysis, line-of-sight cross sections and photo simulations to determine the predicted level of visibility of the project and degree of compatibility with the existing landscape character. The simulations, and cross sections will also help to Illustrate the project's design and visual impact to surrounding property owners and stakeholders during public consultation.

1.3 Reporting

A VIA report will be developed that includes the results of the existing conditions assessment, analysis, and effects assessment. Recommendations for mitigation measures to address potential visual effects will also be identified.

Where relevant, this study shall be shared with other technical experts completing studies for the application to avoid internal inconsistencies.

2.0 CLOSURE

We trust that this technical memorandum meets your current needs. Please contact Golder and CBM with any questions or comments.

Golder Associates Ltd.

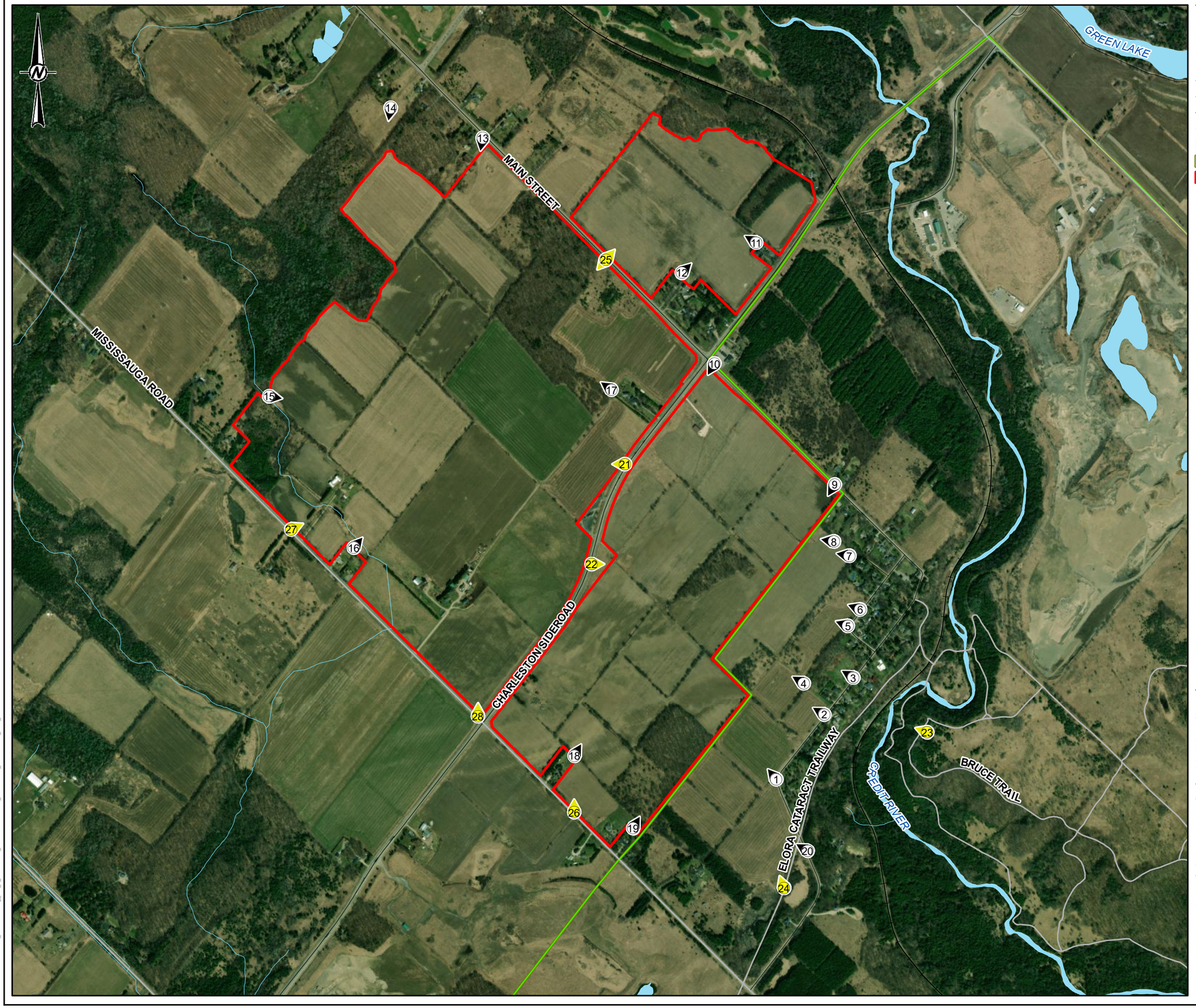
Carla Evans, MSc Geography
Director, Senior Geospatial Consultant

Heather Melcher, MSc
Director, Ecology

CE/HM/mp/wlw

https://golderassociates.sharepoint.com/sites/114392/project files/6 deliverables/terms of reference/visual tor/19129150-tm-rev1-cbm caledon quarry visual ia tor-19aug2022.docx

Figure



EXISTING VIEWPOINT LOCATION AND VIEWING DIRECTION

PROPOSED VIEWPOINT LOCATION AND VIEWING DIRECTION

ROAD

RAILWAY

TRAIL

WATERCOURSE

WATERBODY

NIAGARA ESCARPMENT PLAN

APPROXIMATE PROJECT AREA

0 500 1,000

1:12,500 METRES

REFERENCE(S)

1. BASEDATA MNRF LIO OBTAINED APRIL 2019
2. IMAGERY: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
   SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
   COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
VOTORANTIM CIMENTOS

PROJECT
CALEDON QUARRY. VISUAL ASSESSMENT
CALEDON, ONTARIO

TITLE
VIEWPOINT LOCATIONS

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-08-16
DESIGNED	SO
PREPARED	SO/PJM
REVIEWED	CE
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0001	A	2

APPENDIX B

Photo Log

Photographic Inventory Observation Logs

Date: 2020/11/05 - 2020/11/06
Photographer: Paul McDowell (Golder)
Type of Camera: Nikon D5300 with 35 mm lens
Projection: UTM Zone 17 Datum: NAD 83

Table 1: Surveyed Viewpoint Observation Log

Photo ID	Viewpoint Name	Photo Date	Time of Day	Viewing Conditions	Viewpoint Type	Viewing Duration [a]	Purpose of Photo	Observations	Focal Length (35 mm equivalent)	F Stop [b]	ISO	Exposure (sec)	Easting	Northing	Elevation (MASL)	Approx. Viewing Direction (°) [c]	Approx. Viewing Distance (m) [d]
VP1	1195 Cataract Road	2020-11-06	12:48 PM	Sunny	Residence/ Motorist / Recreational Use (Access)	Brief / Permanent	View from turn on Cataract Road	At a turn along Cataract Road. Project Area slightly obscured by berm along north side of Cataract Road. Across the road from sensory receptor residence at 1195 Cataract Road. Infrequent traffic observed along the road.	35 mm	f/2.8	140	1/4000	578231.42	4852246.14	398.59	150 & 50 310 (full panorama)	248
VP2	1311 Cataract Road	2020-11-06	10:33 AM	Sunny	Residence/ Motorist / Recreational Use (Access)	Brief / Permanent	View from residence on Cataract Road	Across the road from sensory receptor residence at 1311 Cataract Road. Infrequent traffic observed along the road.	35 mm	f/2.8	200	1/3200	578389.14	4852458.65	397.58	210 & 50 320 (full panorama)	262
VP3	1369 Cataract Road	2020-11-06	12:03 AM	Sunny	Residence/ Motorist / Recreational Use (Access)	Brief / Sustained	View from residence on Cataract Road	Across the road from sensory receptor residence at 1369 Cataract Road. Looking out over a large maintained grass field and then a tree row. Infrequent traffic observed along the road.	35 mm	f/2.8	200	1/3200	578484.03	4852579.65	400.75	210 & 50 320 (full panorama)	353
VP4	1346 Cataract Road	2020-11-06	10:15 AM	Overcast	Residence/ Agricultural Field	Sustained / Permanent	View from agricultural field within the Study Area and adjacent to a residence	View from an agricultural field in the Study Area northwest of sensory receptor residence at 1346 Cataract Road, relatively level fields interspersed with tree rows and wood lots.	35 mm	f/2.8	200	1/2000	578321.58	4852561.16	400.40	210 & 50 320 (full panorama)	189
VP5	75 William Street	2020-11-06	11:09 AM	Sunny	Residence/ Motorist / Recreational Use (Access)	Brief / Permanent	View from residence on William Street	At the corner of William and Albert Streets. Across the road from sensory receptor residence at 75 William Street. Infrequent traffic observed along the road.	35 mm	f/2.8	200	1/3200	578466.32	4852749.49	400.88	220 & 10 320 (full panorama)	290
VP6	63 William Street	2020-11-06	11:30 AM	Sunny	Residence/ Motorist / Recreational Use (Access)	Brief / Permanent	View from residence on William Street	Across the road from sensory receptor residences at 61 and 63 William Street. Infrequent traffic observed along the road.	35 mm	f/2.8	200	1/4000	578507.40	4852803.31	400.85	220 & 320 300 (full panorama)	289
VP7	48 William Street	2020-11-06	9:13 AM	Sunny	Residence/ Agricultural Field	Permanent	View from agricultural field within the Study Area and adjacent to residences	View from an agricultural field in the Study Area northwest of sensory receptor residences at 48 William Street and Deagle Lane, relatively level fields interspersed with tree rows.	35 mm	f/2.8	200	1/1250	578471.01	4852979.47	401.5	220 & 0 310 (full panorama)	191
VP8	18157 Cataract Road	2020-11-06	9:26 AM	Partly Sunny	Residence/ Agricultural Field	Permanent	View from agricultural field within the Study Area and adjacent to residences	View from agricultural field in the Project Area south west of sensory receptor residences along Cataract Road, relatively level fields interspersed with tree rows.	35 mm	f/2.8	200	1/1250	578420.41	4853026.03	403.32	180 & 350 290 (full panorama)	85
VP9	18203 Cataract Road	2020-11-06	8:21 AM	Partly Sunny	Residence/ Motorist / Recreational Use **(Access)**	Brief / Permanent	View from residence on Cataract Road	View from side of the road in front of sensory receptor residence at 18203 Cataract Road. Looking out over relatively level agricultural fields interspersed with tree rows and wood lots in the Project Area. Infrequent traffic observed along the road.	35 mm	f/2.8	100	1/100	578423.20	4853213.60	404.68	220 & 320 390 (full panorama)	88

Table 1: Surveyed Viewpoint Observation Log

Photo ID	Viewpoint Name	Photo Date	Time of Day	Viewing Conditions	Viewpoint Type	Viewing Duration [a]	Purpose of Photo	Observations	Focal Length (35 mm equivalent)	F Stop [b]	ISO	Exposure (sec)	Easting	Northing	Elevation (MASL)	Approx. Viewing Direction (°) [c]	Approx. Viewing Distance (m) [d]
VP10	1521 Charleston Sideroad	2020-11-05	12:44 PM	Overcast	Commercial/ Motorist	Brief / Sustained / Permanent	View from motorists at intersection of Cataract Road and Charleston Sideroad. View from places of business.	View from intersection of Cataract Road and Charleston Sideroad. Traffic is very frequent. Sensory receptors are motorists, residences, and customers at ESSO gas station, a convenience store and restaurant. Relatively level agricultural fields interspersed with tree rows and wood lots on the Site are visible to the northwest and southwest.	35 mm	f/2.8	200	1/4000	578028.57	4853609.87	410.02	130 & 320 220 (full panorama)	67
VP11	1626 Charleston Sideroad	2020-11-05	3:54 PM	Overcast	Residence/ Agricultural Field	Permanent	View from agricultural field on the Site and adjacent to a residence	View from an agricultural field on the Site northwest of sensory receptor residence at 1626 Charleston Sideroad, relatively level fields interspersed with tree rows.	35 mm	f/2.8	200	1/500	578166.06	4854006.65	407.13	180 & 120 320 (full panorama)	56
VP12	18471 Main Street	2020-11-05	3:11 PM	Overcast	Residence/ Agricultural Field	Permanent	View from agricultural field on the Site and adjacent to a residence	View from an agricultural field on the Site northeast of sensory receptor residence at 18471 3 Line West, relatively level fields interspersed with tree rows. Rock and compost piles around the camera position.	35 mm	f/2.8	200	1/1600	577921.46	4853908.05	412.05	310 & 140 40 (full panorama)	42
VP13	18722 Main Street	2020-11-05	11:56 AM	Overcast	Residence/ Motorist / Recreational Use (Access)	Permanent	View from residence on Main Street	View from side of the road in front of sensory receptor residence at 18722 Main Street. Relatively level agricultural fields interspersed with tree rows and wood lots on the Site visible. Frequent traffic observed along Main Street.	35 mm	f/2.8	200	1/1600	577269.66	4854350.13	415.15	130 & 320 220 (full panorama)	8
VP14	18885 Main Street	2020-11-05	11:27 AM	Overcast	Residence/ Agricultural Field	Permanent	View from agricultural field within the Study Area and adjacent to a residence	View from an agricultural field in the Study Area southwest of sensory receptor residence at 18885 Peel Regional Road 136, relatively level fields interspersed with tree rows.	35 mm	f/2.8	200	1/2500	576967.54	4854449.13	416.22	50 & 330 180 (full panorama)	99
VP15	18667 Mississauga Road	2020-11-05	9:42 AM	Partly Cloudy	Residence/ Agricultural Field	Permanent	View from agricultural field on the Site and adjacent to a residence	View from an agricultural field on the Site northeast of sensory receptor residence at 18785 Mississauga Road, undulating fields interspersed with tree rows.	35 mm	f/2.8	200	1/2500	576568.22	4853503.67	416.80	30 & 170 90 (full panorama)	0
VP16	18627 Mississauga Road	2020-11-05	10:13 AM	Partly Cloudy	Residence/ Agricultural Field	Permanent	View from agricultural field on the Site and adjacent to a residence	View from an agricultural field ion the Site northeast of sensory receptor residence at 18627 Mississauga Road, undulating fields interspersed with tree rows.	35 mm	f/2.8	200	1/2500	576845.82	4853006.22	406.75	320 & 140 40 (full panorama)	55
VP17	1420 Charleston Sideroad	2020-11-05	1:23 PM	Overcast	Commercial (Cowhide Promotional Wear Inc.)/ Residence/ Agricultural Field	Permanent	View from agricultural field on the Site and adjacent to a residence	View from an agricultural field on the Site northwest of sensory receptor residence at 1420 Charleston Sideroad, undulating fields interspersed with tree rows and wood lots.	35 mm	f/2.8	200	1/2500	577691.38	4853523.56	414.98	220 & 120 320 (full panorama)	37
VP18	18309 Mississauga Road	2020-11-05	5:15 PM	Overcast	Residence/ Motorist / Recreational Use (Access)	Permanent	View from agricultural field on the Site and adjacent to a residence	View from an agricultural field on the Site northeast of sensory receptor residence at 18309 Mississauga Road, undulating fields interspersed with tree rows and wood lots.	35 mm	f/2.8	200	1/320	577569.20	4852323.62	395.59	310 & 210 40 (full panorama)	68
VP19	18209 Mississauga Road	2020-11-05	4:49 PM	Overcast	Residence/ Agricultural Field	Permanent	View from agricultural field on the Site and adjacent to a residence	View from an agricultural field on the Site northeast of sensory receptor residence at 18209 Mississauga Road, relatively level fields interspersed with tree rows and wood lots.	35 mm	f/2.8	200	1/320	577761.69	4852086.16	401.72	320 & 140 40 (full panorama)	62

Table 1: Surveyed Viewpoint Observation Log

Photo ID	Viewpoint Name	Photo Date	Time of Day	Viewing Conditions	Viewpoint Type	Viewing Duration [a]	Purpose of Photo	Observations	Focal Length (35 mm equivalent)	F Stop [b]	ISO	Exposure (sec)	Easting	Northing	Elevation (MASL)	Approx. Viewing Direction (°) [c]	Approx. Viewing Distance (m) [d]
VP20	1177 Cataract Road	2020-11-05	4:50 PM	Overcast	Residence/ Agricultural Field	Brief	View of southwest corner of property on Cataract Road that is proposed for development.	View from side of Cataract Road at driveway entrance to 1177 Cataract Road. Infrequent traffic observed along the road. Approximately 50 m southeast from Elora Cataract Trailway.	35 mm	f/2.8	640	1/60	578334.19	4852011.40	390.89	150 & 340 260 (full panorama)	474
VP21	1428 Charleston Sideroad	2022-11-09	2:18 PM	Sunny	Residence/ Motorist / Recreational Use (Access)	Brief	View from motorists on Charleston Sideroad	View from Charleston Sideroad. Traffic is very frequent. Sensory receptors are motorists and a nearby residence at 1420 Charleston Sideroad. Relatively level agricultural fields interspersed with tree rows and wood lots on the Site are visible to the northwest and southwest.	35 mm	f/7.1	100	1/250	577730.59	4853273.27	411.44	360 (full panorama)	25
VP22	1628 Charleston Sideroad	2022-11-09	1:53 PM	Sunny	Motorist / Recreational Use (Access)	Brief	View from motorists on Charleston Sideroad	View from Charleston Sideroad. Traffic is very frequent. Sensory receptors are motorists and farmers working in the fields. Relatively level agricultural fields interspersed with tree rows and wood lots on the Site are visible to the northwest and southwest. Hay bales are visible in the fields.	35 mm	f/8.0	100	1/250	577634.08	4852972.79	407.85	360 (full panorama)	40
VP23	Bruce Trail (Niagara Escarpment)	2022-11-09	12:45 PM	Sunny	Trail/ Recreational Use (Access)	Brief	View from Bruce Trail on the Niagara Escarpment	View from the Bruce Trail. Sensory receptors are recreational users are seen walking along the hiking trails. The hiking trails and a lookout with a bench has scenic views of the Elora Gorge. The back side of residences in Cataract village can be seen on the opposite side of the Elora Gorge. The Site is not visible from the Bruce Trail.	35 mm	f/6.3	100	1/160	578695.6732	4852400.8912	401.5993	225 & 45 315 (full panorama)	611
VP24	Elora Cataract Trailway	2022-11-09	4:13 PM	Sunny	Trail/ Recreational Use (Access)	Brief	View from Elora Cataract Trailway	View from the Elora Cataract Trailway. Sensory receptors are recreational users, pedestrians and cyclists that are seen walking or biking along the trail. Undulating fields interspersed with tree rows and wood lots can be seen north of this location.	35 mm	f/5.6	200	1/125	578272.4465	4851948.986	389.768	225 & 65 325 (full panorama)	478
VP25	Near 18473 Main Street	2022-11-09	11:38 AM	Sunny	Motorist / Recreational Use (Access)	Brief	View from motorists and residence on Main Street	View from side of the road near a receptor residence at 18473 Main Street. Relatively level agricultural fields interspersed with tree rows and wood lots on the Site visible on the east side of Main Street. A wooded area on the Site is visible on the west side of Main Street. Frequent traffic observed along the road.	35 mm	f/6.3	100	1/200	577704.08	4853932.33	412.13	360 (full panorama)	30
VP26	Near 18234 Mississauga Road	2022-11-09	3:48 PM	Sunny	Motorist / Recreational Use (Access)	Brief	View from motorists and residence on Mississauga Road	View from side of the road near a receptor residence at 18234 Mississauga Road. Relatively level agricultural fields interspersed with tree rows and wood lots on the Site are visible on the east and west side of Mississauga Road. Infrequent traffic is observed along the road.	35 mm	f/7.1	100	1/200	577561.68	4852134.31	400.76	315 & 135 45 (full panorama)	130

Table 1: Surveyed Viewpoint Observation Log

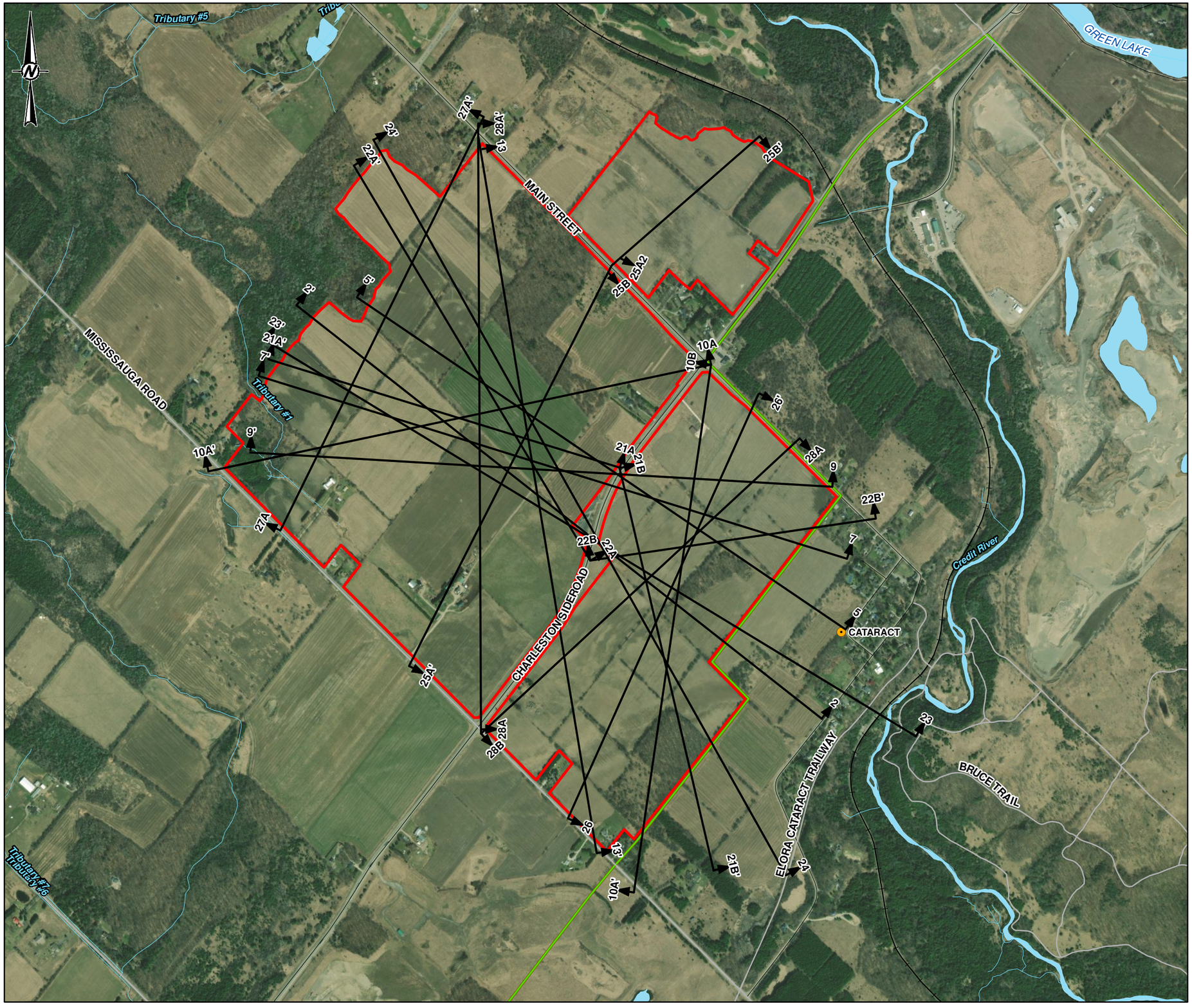
Photo ID	Viewpoint Name	Photo Date	Time of Day	Viewing Conditions	Viewpoint Type	Viewing Duration [a]	Purpose of Photo	Observations	Focal Length (35 mm equivalent)	F Stop [b]	ISO	Exposure (sec)	Easting	Northing	Elevation (MASL)	Approx. Viewing Direction (°) [c]	Approx. Viewing Distance (m) [d]
VP27	18667 Mississauga Road and 18682 Mississauga Road	2022-11-09	2:54 PM	Sunny	Residence/Motorist / Recreational Use (Access)	Permanent	View from motorists and residence on Mississauga Road	View from side of the road near receptor residences at 18667 and 18682 Mississauga Road. Undulating to level agricultural fields interspersed with, agricultural buildings, tree rows and wood lots are visible on the east side of Mississauga Road. The house and agricultural buildings on the west side at 18682 Mississauga Road are barely visible amongst the trees. Infrequent traffic is observed along the road.	35 mm	f/9.0	100	1/320	576624.48	4853070.04	411.11	315 & 135 45 (full panorama)	176
VP28	Intersection of Charleston Sideroad and Mississauga Road	2022-11-09	3:22 PM	Sunny	Motorist / Recreational Use (Access)	Brief	View from motorists at intersection of Mississauga Road and Charleston Sideroad	View from intersection of Mississauga Road and Charleston Sideroad. Traffic is frequent. Sensory receptors are motorists. Relatively level agricultural fields interspersed with tree rows and wood lots on the Site are visible to the northwest and south west. Ruins of agricultural buildings are visible east of this location at 1055 Charleston Sideroad.	35 mm	f/8.0	100	1/250	577278.72	4852409.65	402.17	315 & 135 45 (full panorama)	40

Notes: °= degrees; m= metres; mm= millimetres; km= kilometres; sec= seconds; MASL= metres above sea level; # = number; AM = “before midday”; PM = “after midday”; F Stop = aperture setting; PID = photographic identification number; VP = viewpoint; NAD= North American Datum; UTM= Universal Transverse Mercator; ISO = International Standards Organization and is a numerical value used to represent the sensitivity of film to light, often referred to as "film speed"

a) Viewing duration ratings reflect the exposure of viewers related to types of activities typically available at each site and the opportunities they present for viewing: Brief = temporary and/or intermittent viewing opportunity (i.e., moving vehicle or hiker); Sustained = extended viewing opportunity (i.e., rest stop or lookout); Permanent = continual viewing opportunity (i.e., residence).
b) Aperture settings may vary for separate frames of a panoramic sequence to normalize exposure of each image.
c) Viewing direction provided for panoramas presented in this report.
d) Viewing distance represents the horizontal distance to the nearest Project component along the viewing direction.

APPENDIX C

Visual Cross-Sections



TOWN/VILLAGE
ROAD
RAILWAY
TRAIL
WATERCOURSE
WATERBODY
NIAGARA ESCARPMENT PLAN
LICENCE BOUNDARY
CROSS-SECTION LOCATION

0 500 1,000
1:12,500 METRES

REFERENCE(S)
1. BASEDATA MNRF LIO OBTAINED APRIL 2019
2. IMAGERY: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
3. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT / QUARRY

TITLE
LINE OF SITE CROSS-SECTIONS FROM KEY VIEWPOINT LOCATIONS

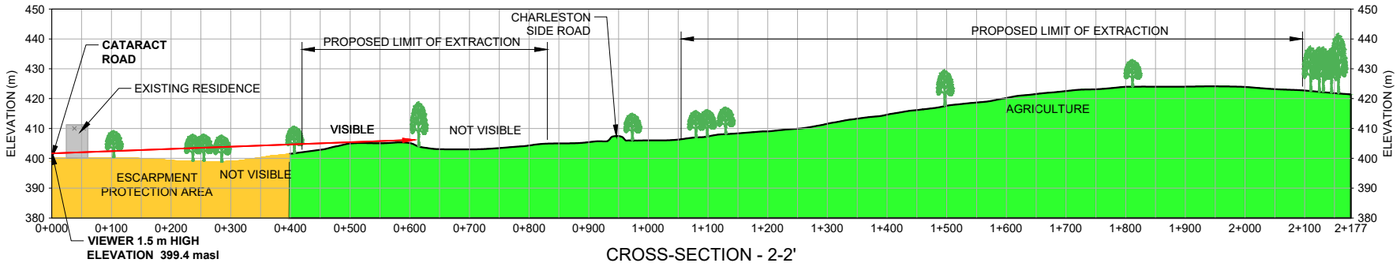
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-11-22
DESIGNED	SO
PREPARED	ABD
REVIEWED	CE
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-1

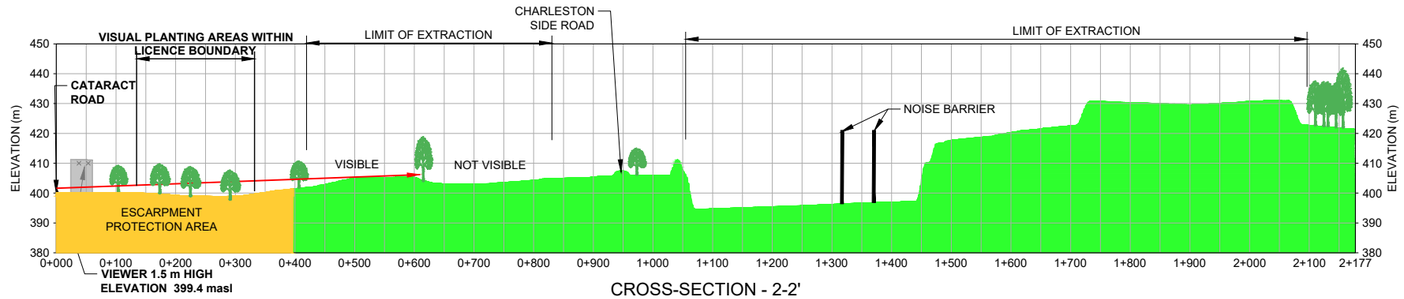
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm

PATH: S:\Clients\Votoran\m_Cimentos\Long_Par_5_Caledon\99_PROJ\19129150-40_PROD\0007_Visual\Reporting\Appendix C\19129150-0007-XV-0001.mxd PRINTED ON: 2022-12-13 AT 8:07:09 PM



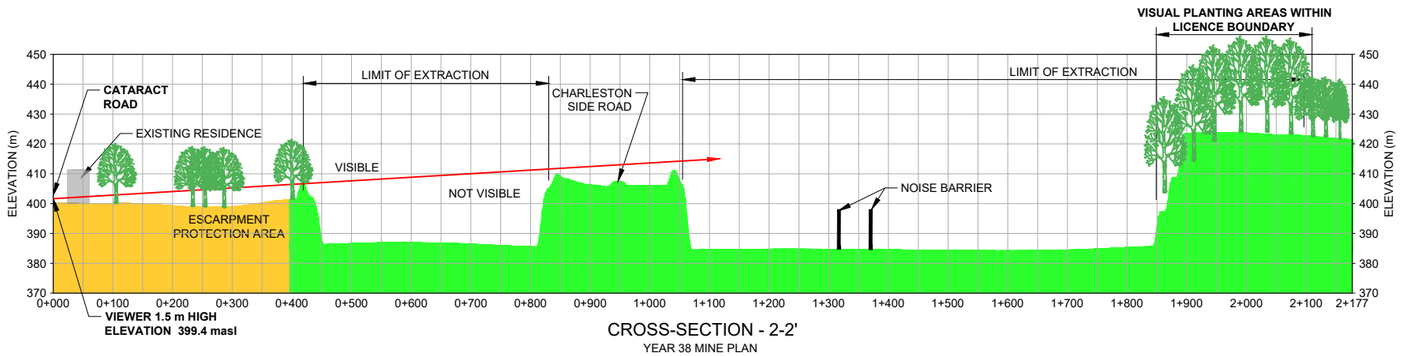
CROSS-SECTION - 2-2'

EXISTING CONDITIONS



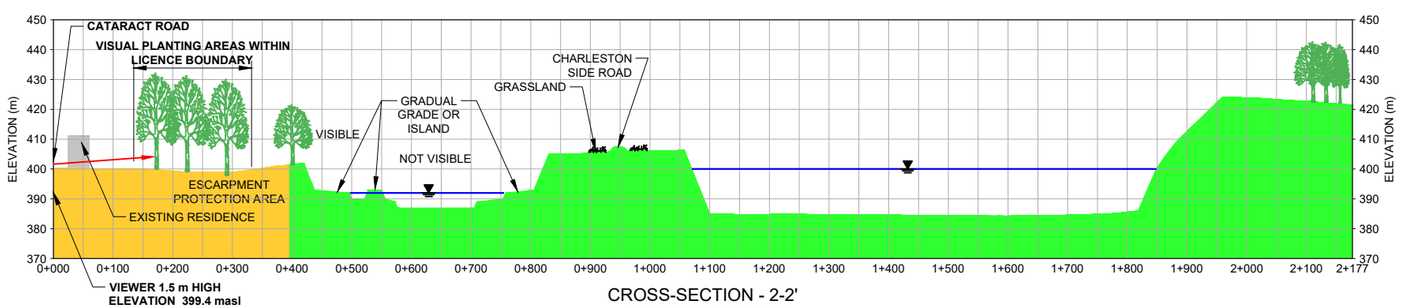
CROSS-SECTION - 2-2'

YEAR 6 MINE PLAN



CROSS-SECTION - 2-2'

YEAR 38 MINE PLAN



CROSS-SECTION - 2-2'

FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500

1:10,000 HORIZONTAL METRES

0 1,000 2,000

1:50,000 VERTICAL METRES

CLIENT

CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT

CALEDON PIT/QUARRY

TITLE

CROSS-SECTION 2-2'

CONSULTANT

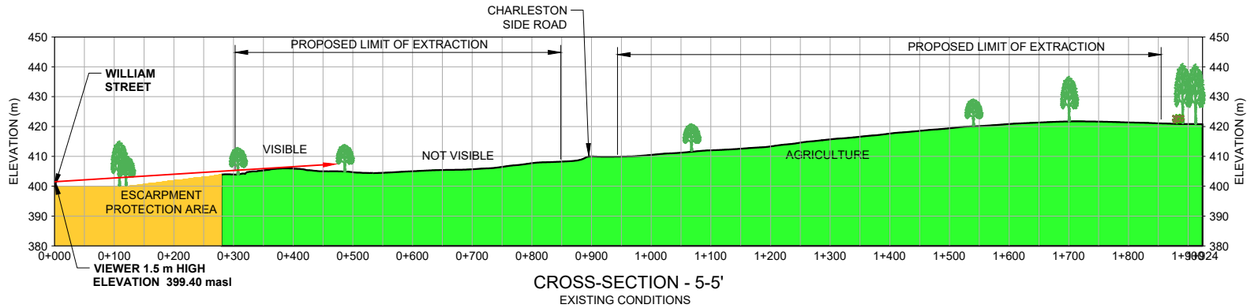
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

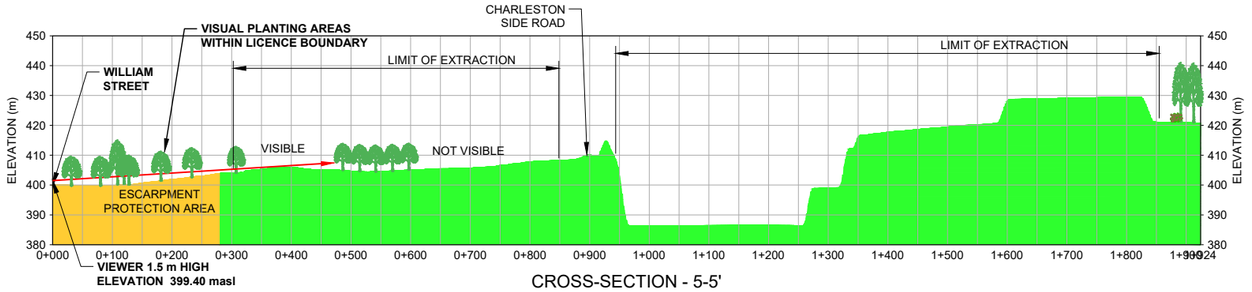
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

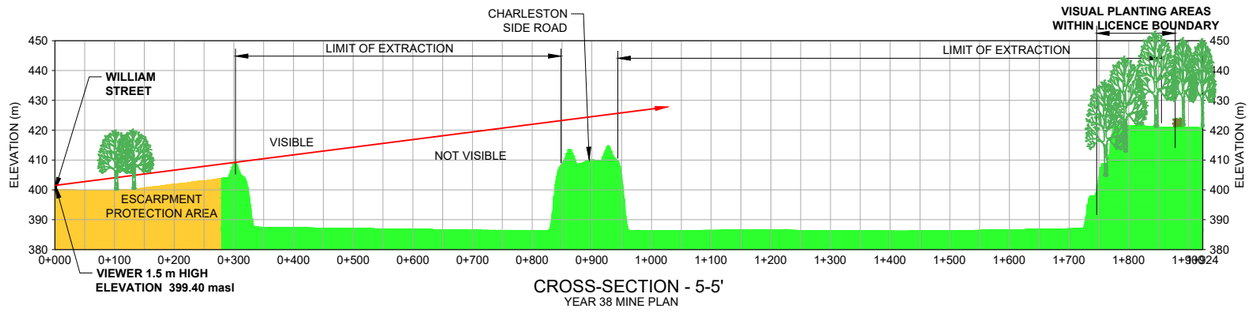
0 25 mm



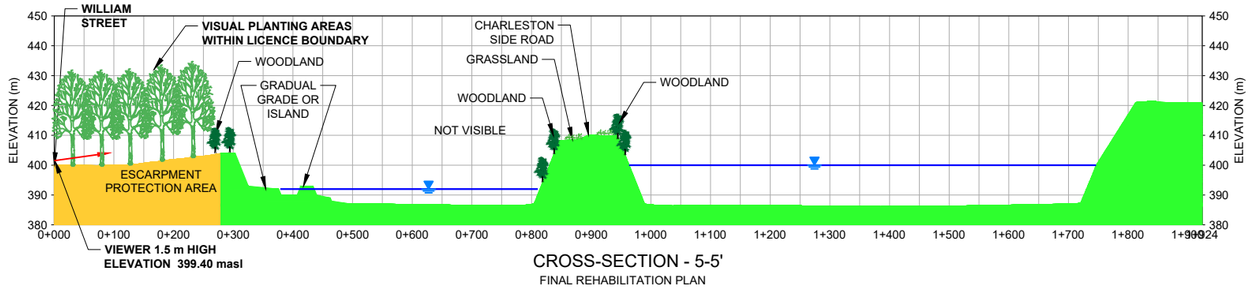
CROSS-SECTION - 5-5'
EXISTING CONDITIONS



CROSS-SECTION - 5-5'
YEAR 6 MINE PLAN



CROSS-SECTION - 5-5'
YEAR 38 MINE PLAN



CROSS-SECTION - 5-5'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 5-5'

CONSULTANT
GOLDER
MEMBER OF WSP

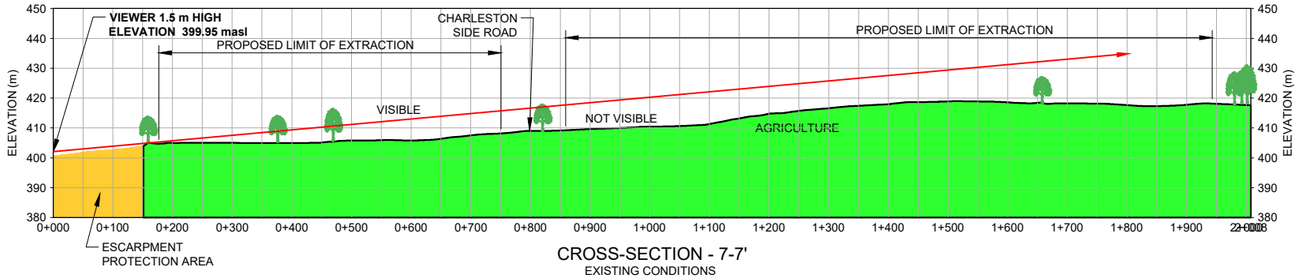
YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-3

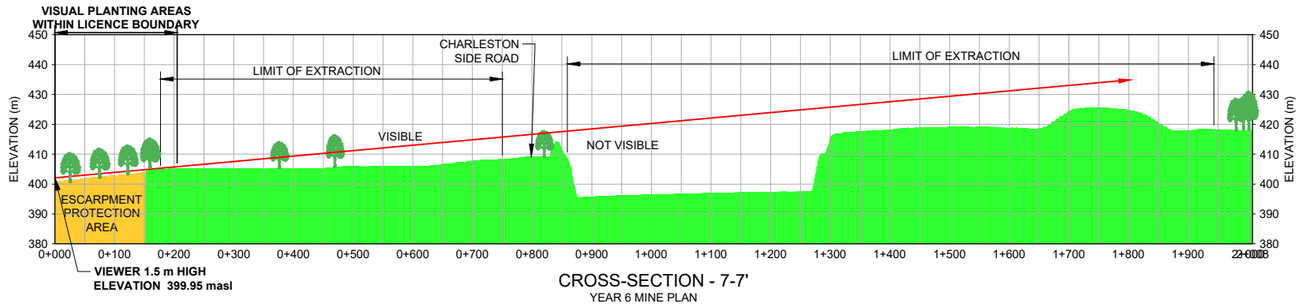
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25 mm

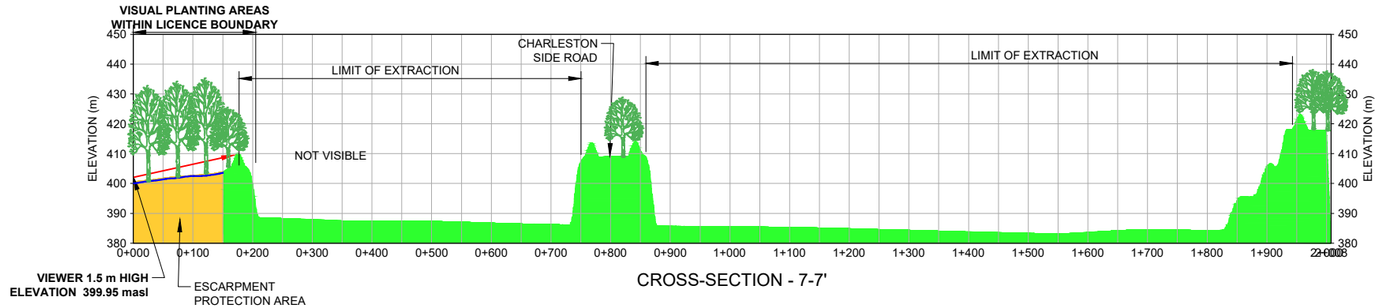
0



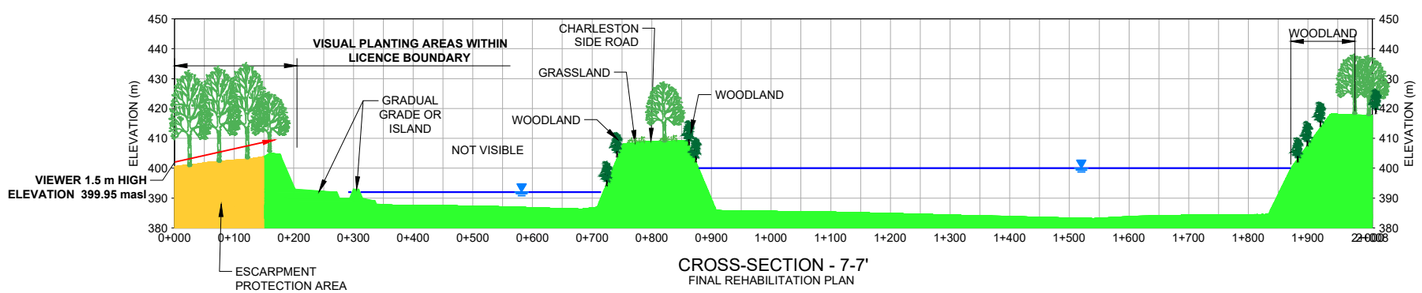
CROSS-SECTION - 7-7'
EXISTING CONDITIONS



CROSS-SECTION - 7-7'
YEAR 6 MINE PLAN



CROSS-SECTION - 7-7'



CROSS-SECTION - 7-7'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS -SECTION 7-7'

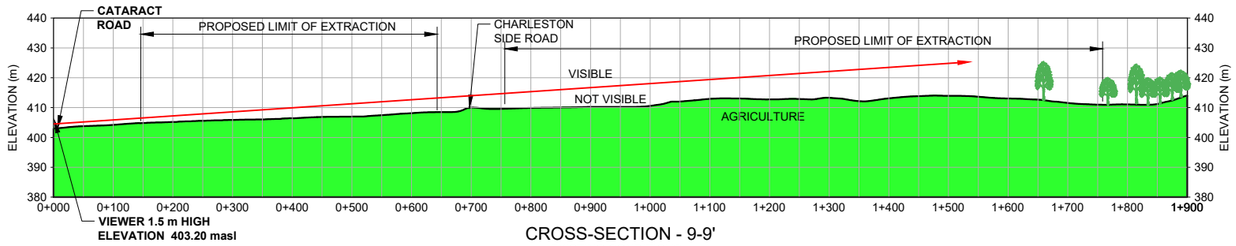
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

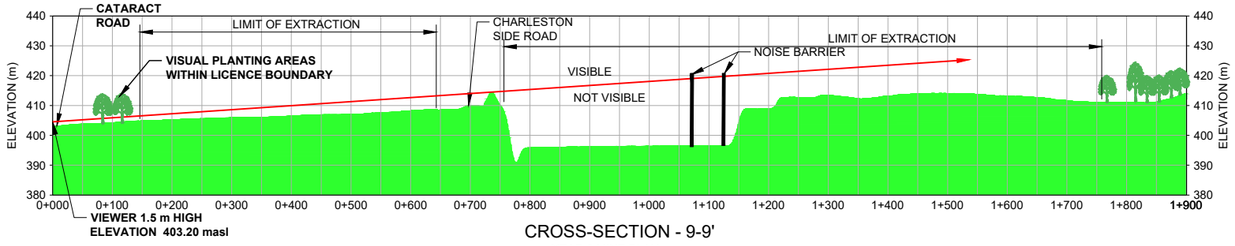
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

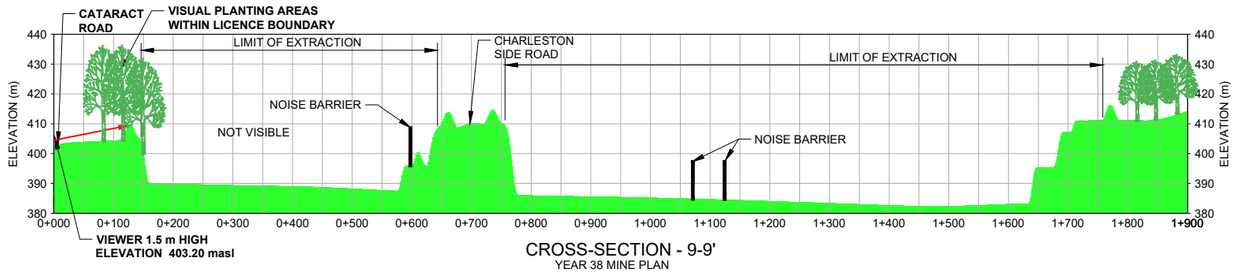
0 25 mm



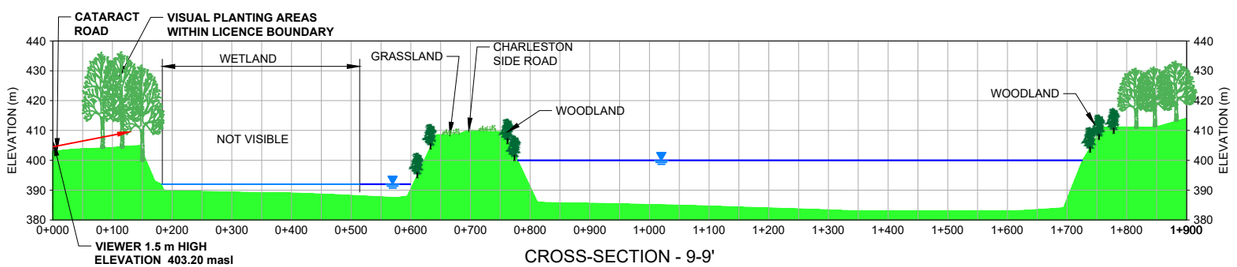
CROSS-SECTION - 9-9'
EXISTING CONDITIONS



CROSS-SECTION - 9-9'
YEAR 6 MINE PLAN



CROSS-SECTION - 9-9'
YEAR 38 MINE PLAN



CROSS-SECTION - 9-9'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 9-9'

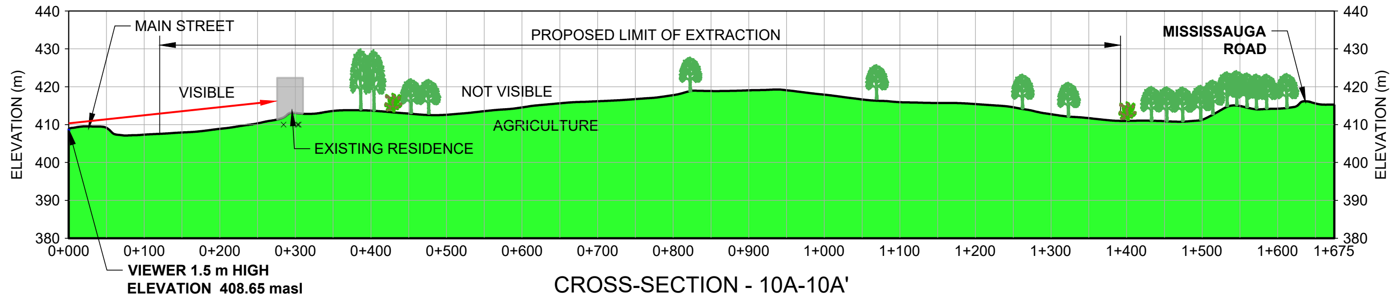
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

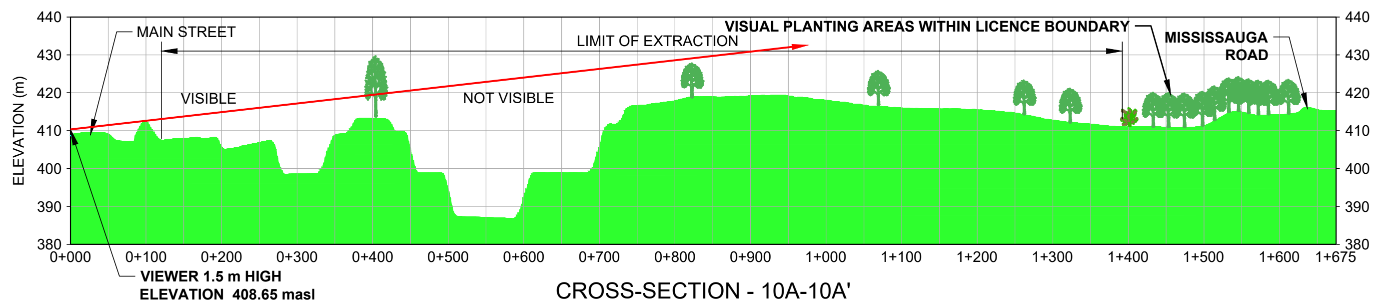
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

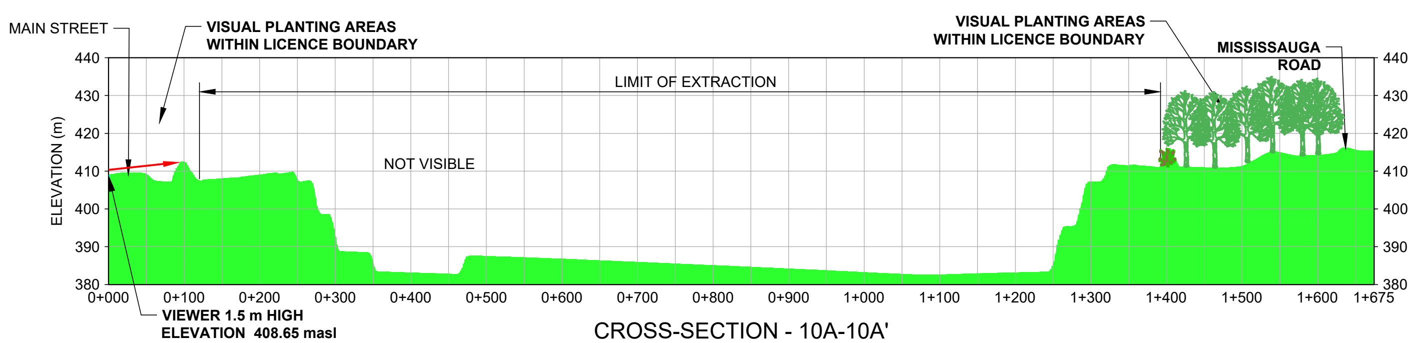
0 25 mm



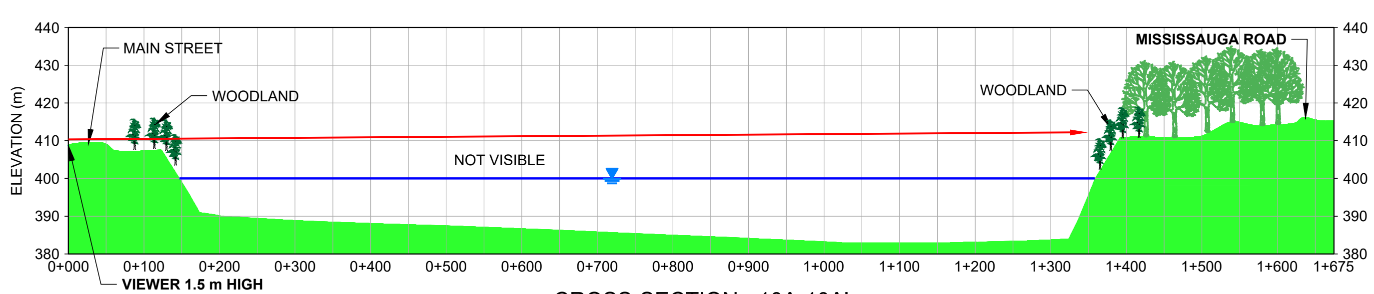
CROSS-SECTION - 10A-10A'
EXISTING CONDITIONS



CROSS-SECTION - 10A-10A'
YEAR 6 MINE PLAN



CROSS-SECTION - 10A-10A'
YEAR 38 MINE PLAN



CROSS-SECTION - 10A-10A'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
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4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

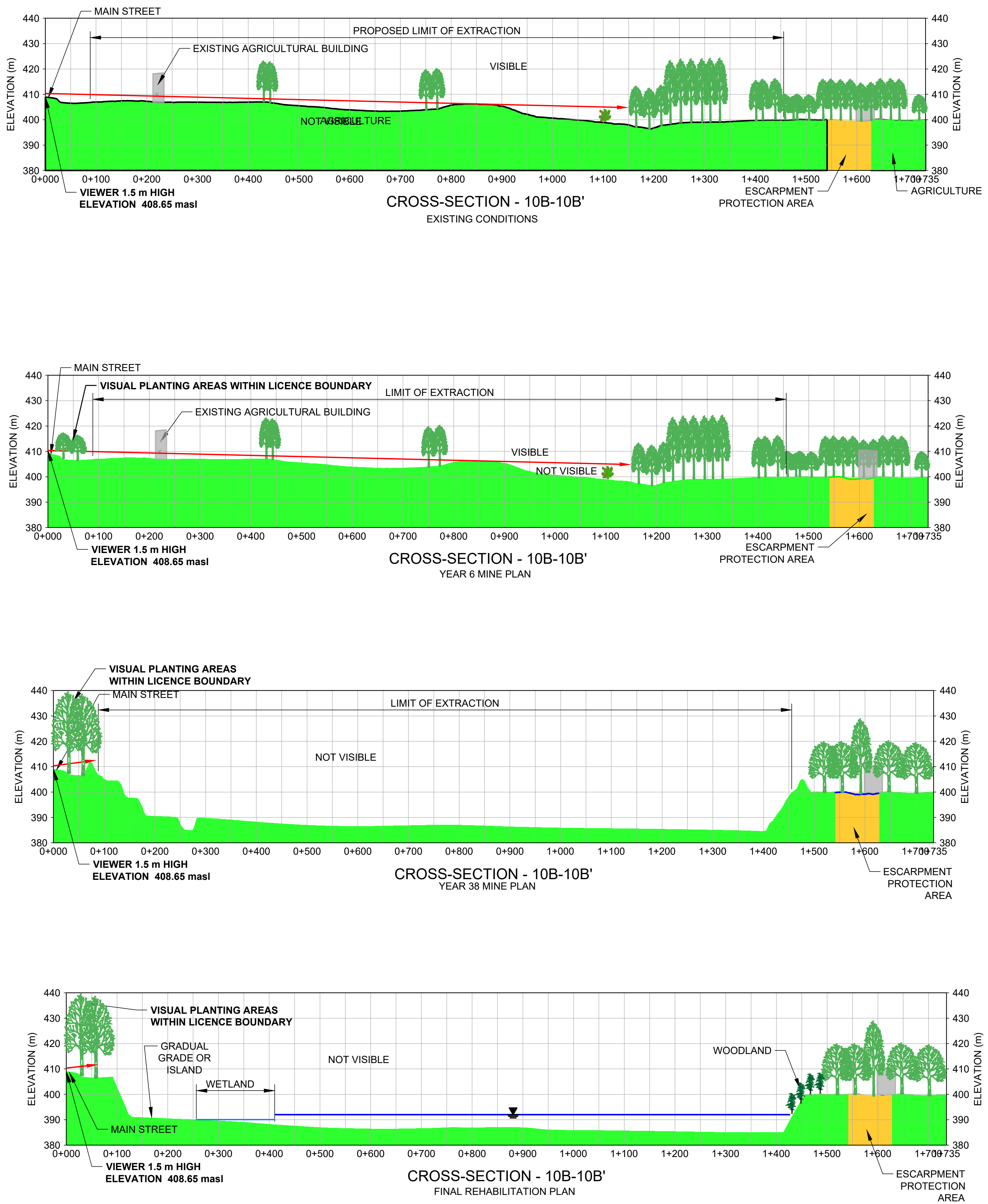
TITLE
CROSS-SECTION 10A-10A'

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-6



NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

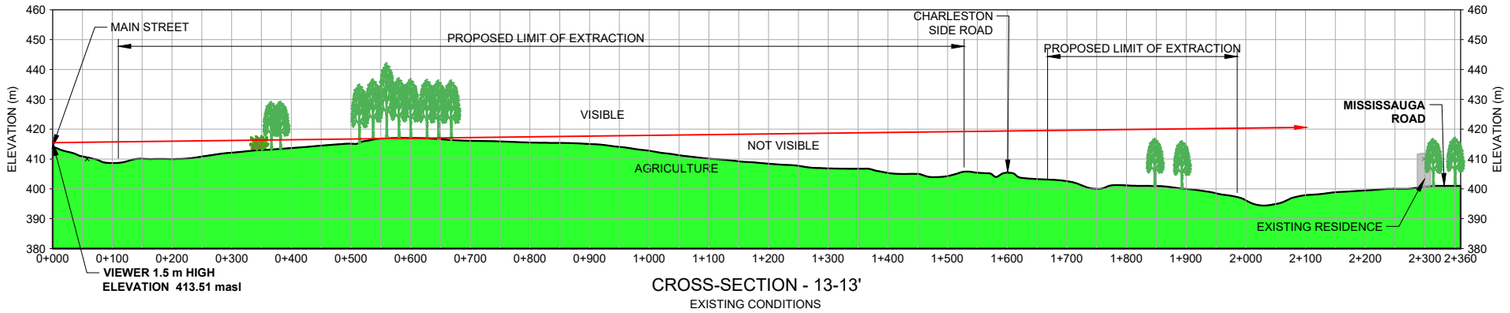
PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 10B-B10'

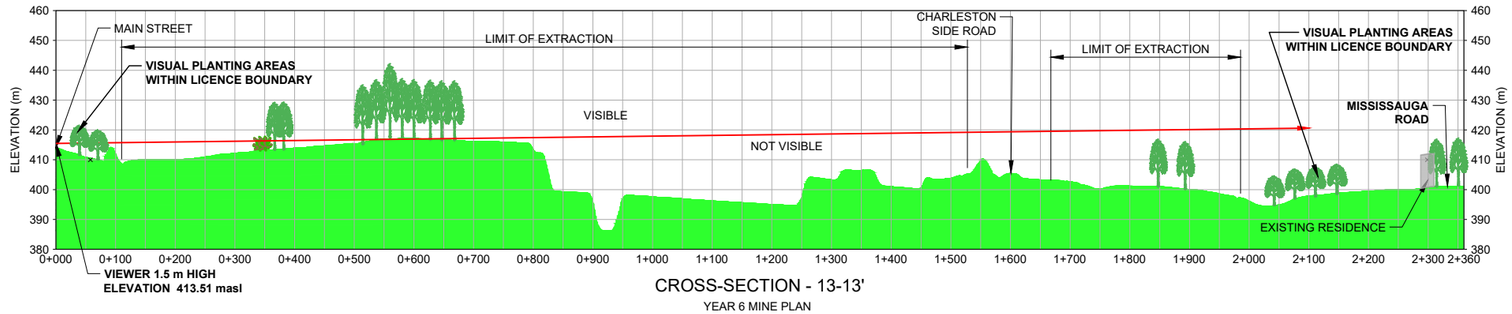
CONSULTANT
GOLDER MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

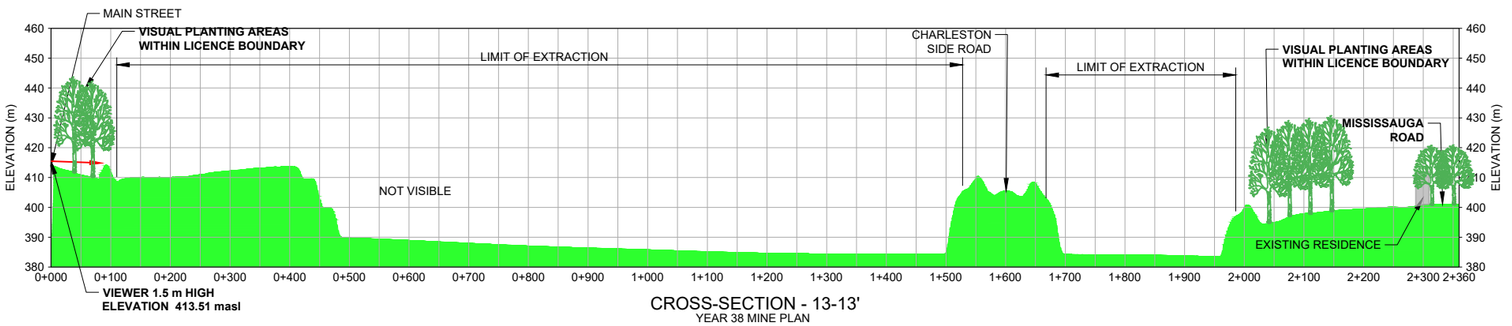
PROJECT NO. 19129150 | CONTROL 0007 | REV. A | FIGURE C-7



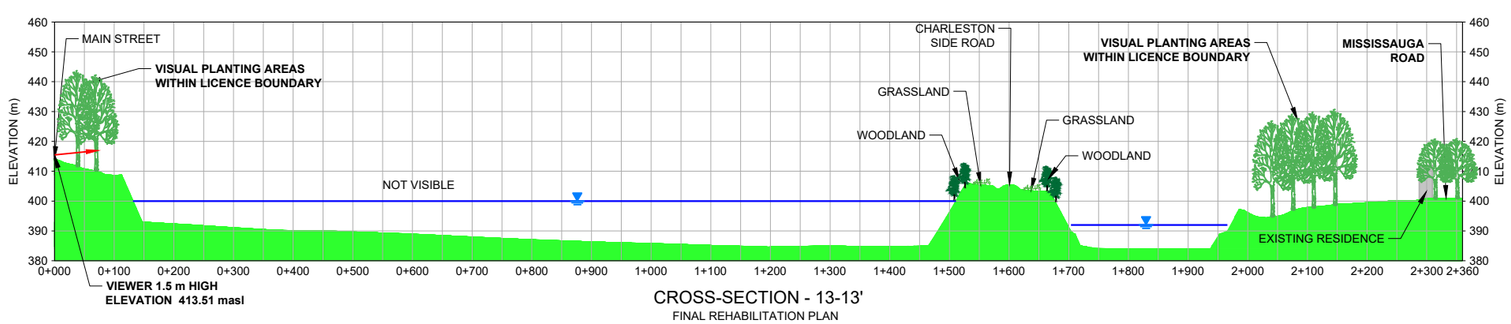
CROSS-SECTION - 13-13'
EXISTING CONDITIONS



CROSS-SECTION - 13-13'
YEAR 6 MINE PLAN



CROSS-SECTION - 13-13'
YEAR 38 MINE PLAN



CROSS-SECTION - 13-13'
FINAL REHABILITATION PLAN

NOTE(S)
1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)
1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
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4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 13-13'

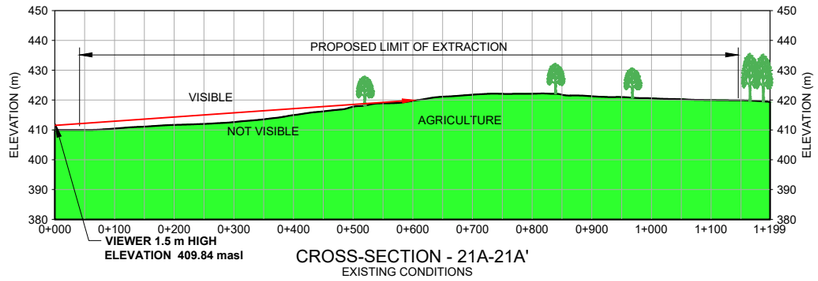
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

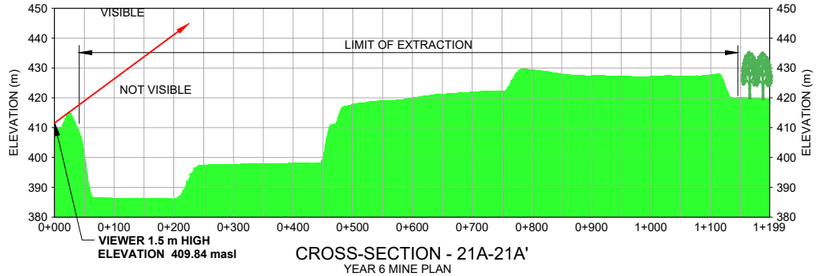
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-8

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

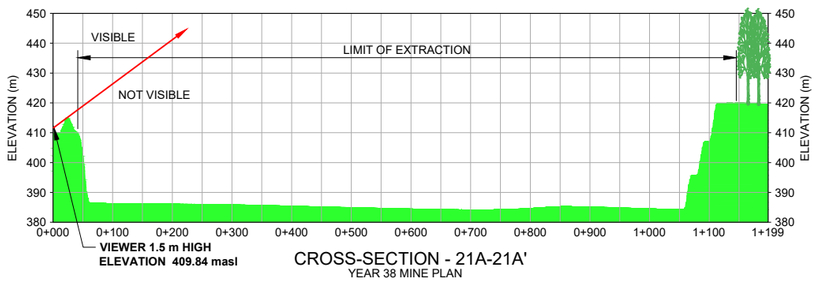
0 25 mm



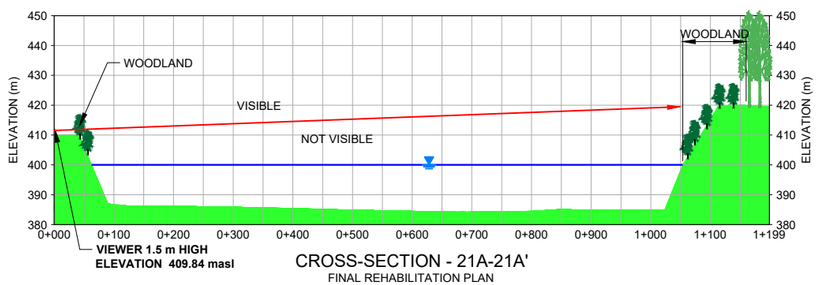
CROSS-SECTION - 21A-21A'
EXISTING CONDITIONS



CROSS-SECTION - 21A-21A'
YEAR 6 MINE PLAN



CROSS-SECTION - 21A-21A'
YEAR 38 MINE PLAN



CROSS-SECTION - 21A-21A'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
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4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 21A-21A'

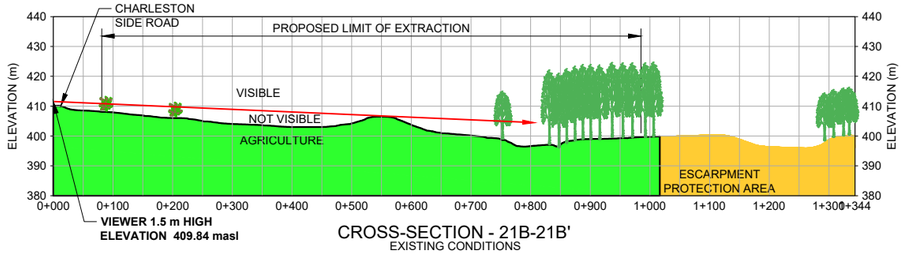
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

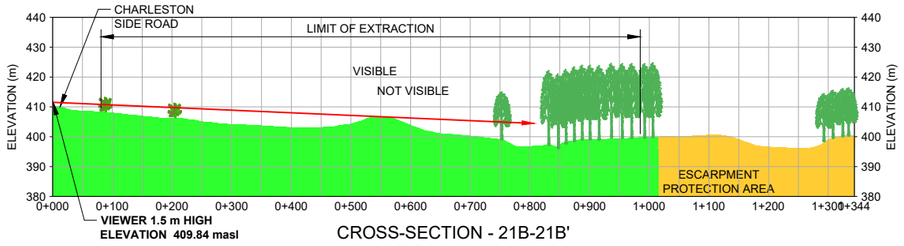
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-9

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

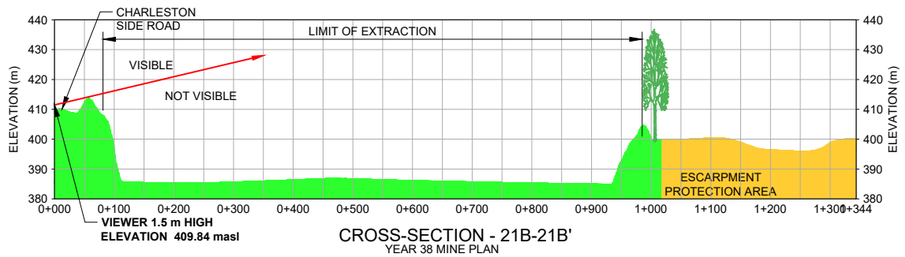
0 25 mm



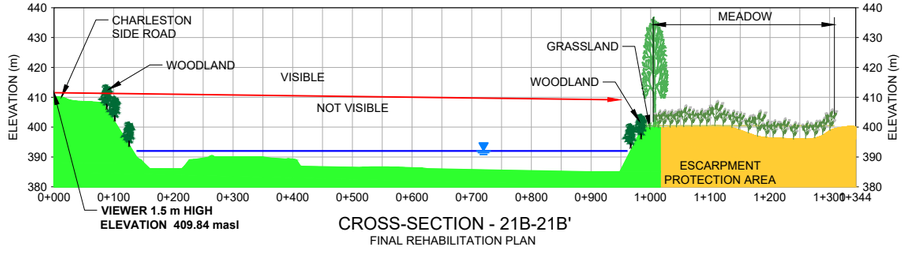
CROSS-SECTION - 21B-21B'
EXISTING CONDITIONS



CROSS-SECTION - 21B-21B'
YEAR 6 MINE PLAN



CROSS-SECTION - 21B-21B'
YEAR 38 MINE PLAN



CROSS-SECTION - 21B-21B'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
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4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 21B-21B'

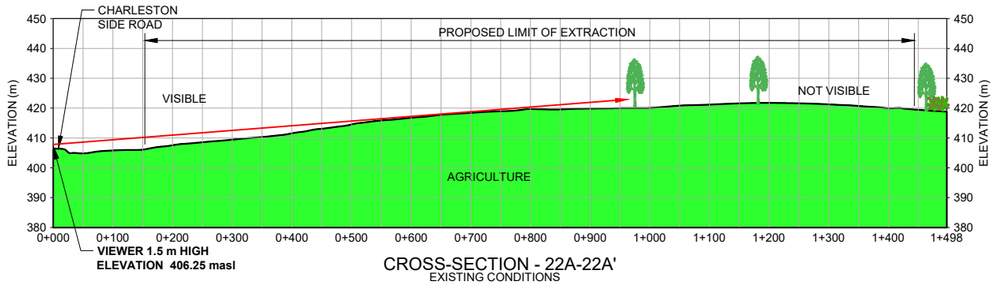
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

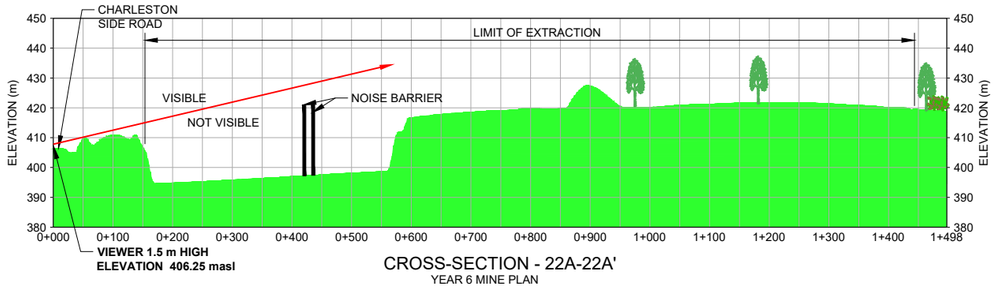
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

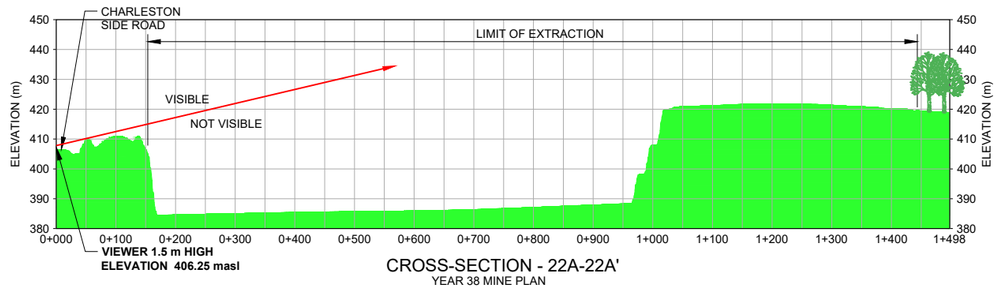
25 mm



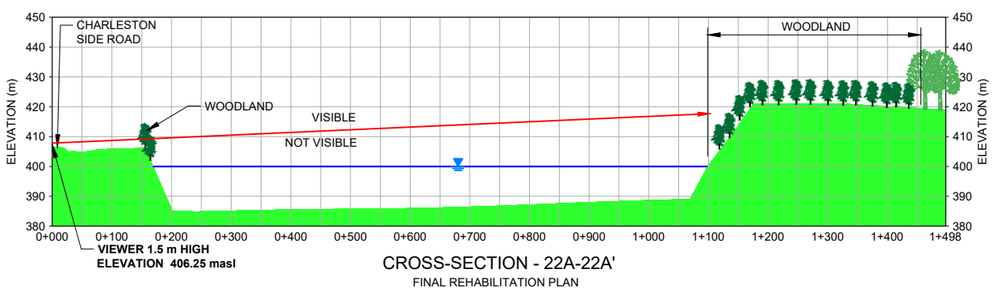
CROSS-SECTION - 22A-22A'
EXISTING CONDITIONS



CROSS-SECTION - 22A-22A'
YEAR 6 MINE PLAN



CROSS-SECTION - 22A-22A'
YEAR 38 MINE PLAN



CROSS-SECTION - 22A-22A'
FINAL REHABILITATION PLAN

NOTE(S)
1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)
1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 22A-22A'

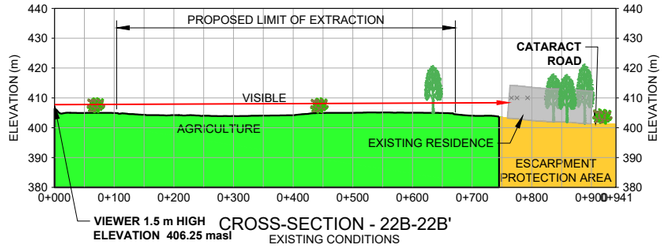
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

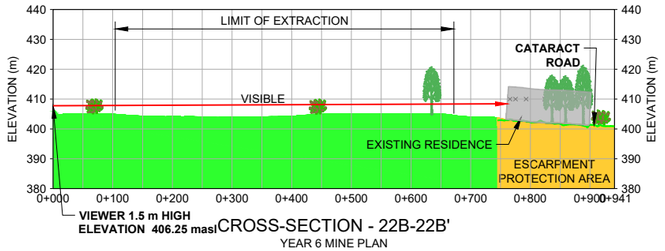
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-11

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

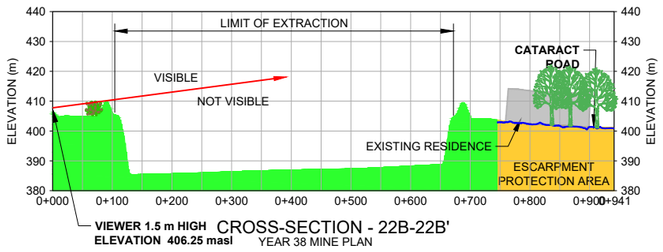
0 25 mm



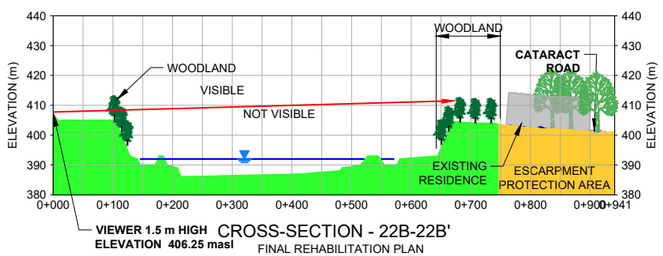
CROSS-SECTION - 22B-22B'
EXISTING CONDITIONS



CROSS-SECTION - 22B-22B'
YEAR 6 MINE PLAN



CROSS-SECTION - 22B-22B'
YEAR 38 MINE PLAN



CROSS-SECTION - 22B-22B'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 22B-22B'

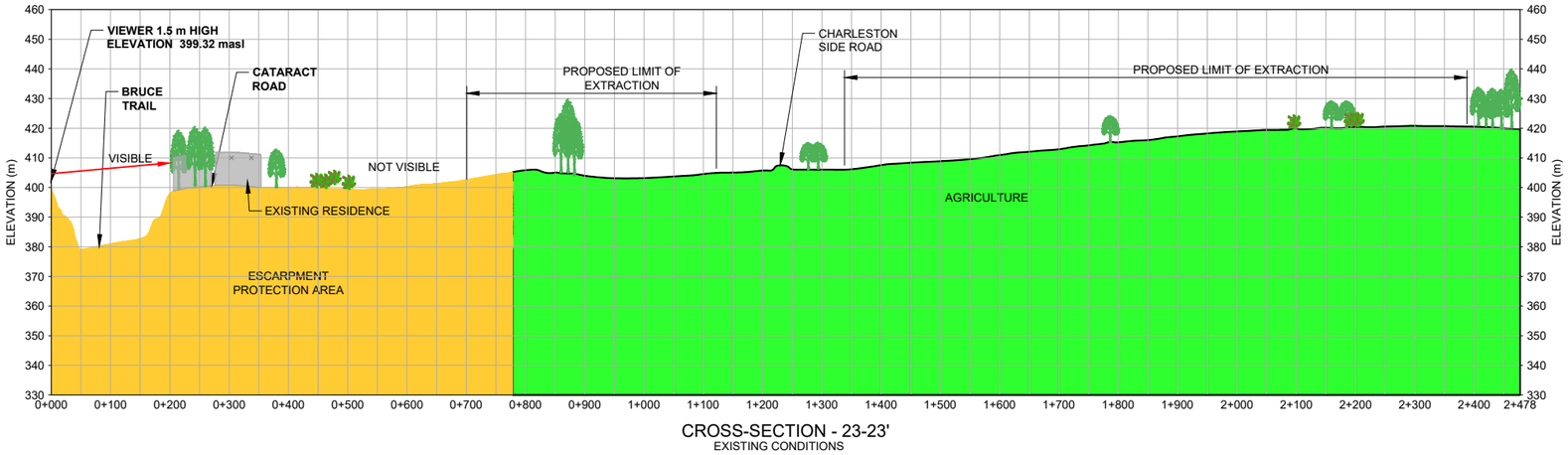
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

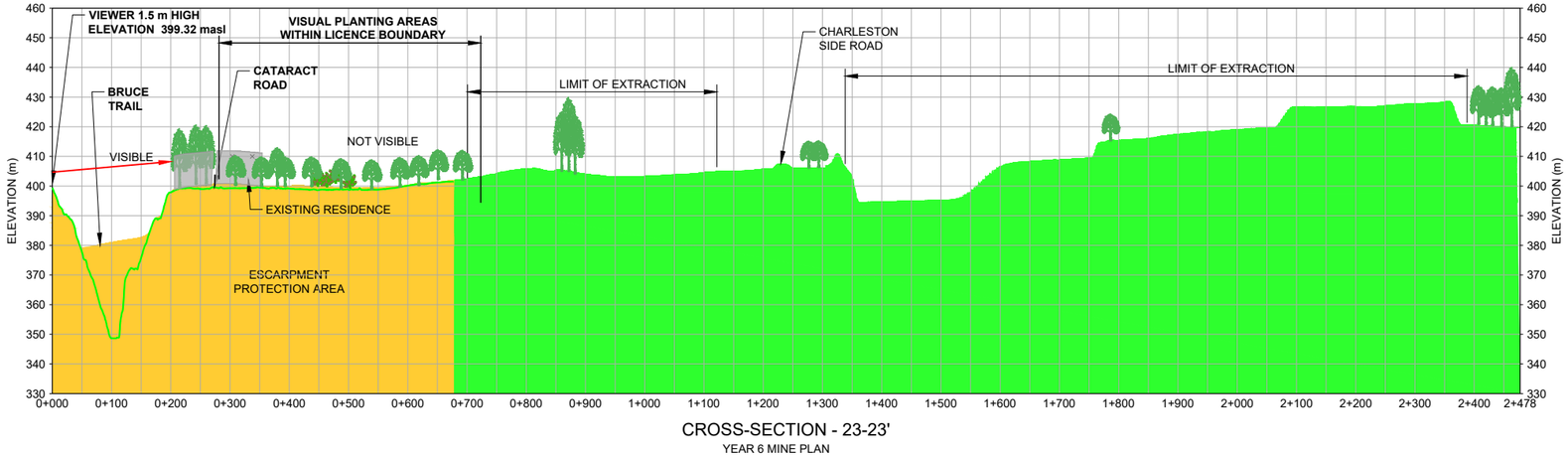
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-12

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm



CROSS-SECTION - 23-23'
EXISTING CONDITIONS



CROSS-SECTION - 23-23'
YEAR 6 MINE PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 23A-23A'

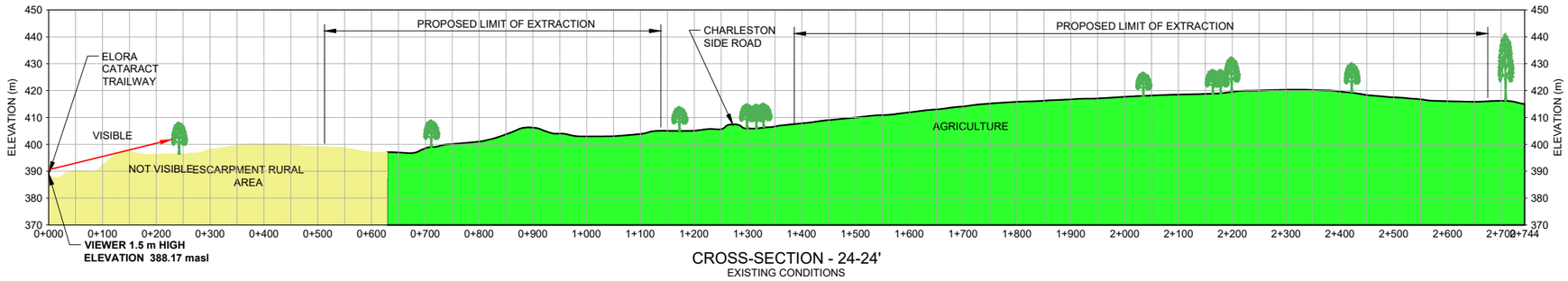
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

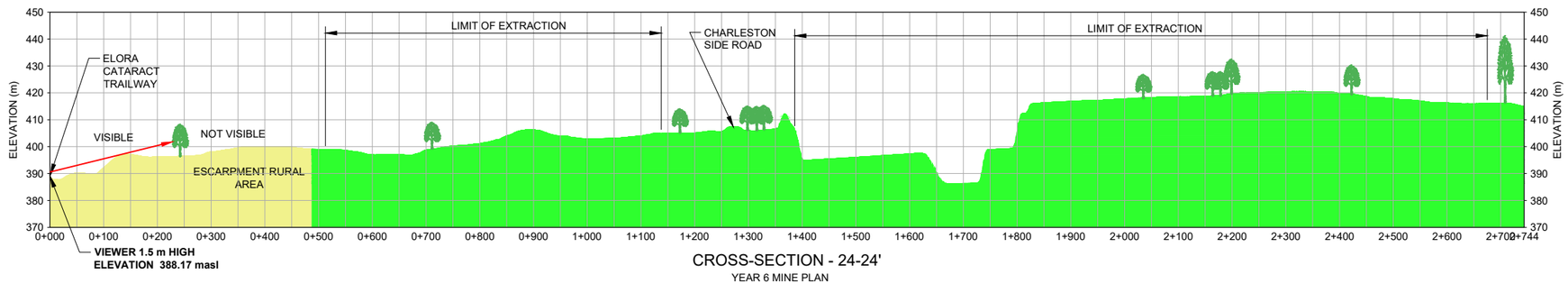
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-13

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm



CROSS-SECTION - 24-24'
EXISTING CONDITIONS



CROSS-SECTION - 24-24'
YEAR 6 MINE PLAN

NOTE(S)
1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)
1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
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4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

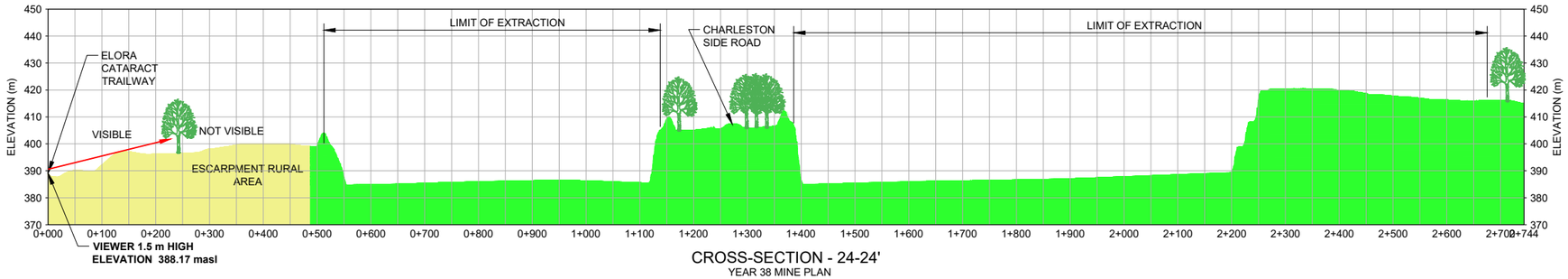
TITLE
CROSS-SECTION 24A-24A'

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

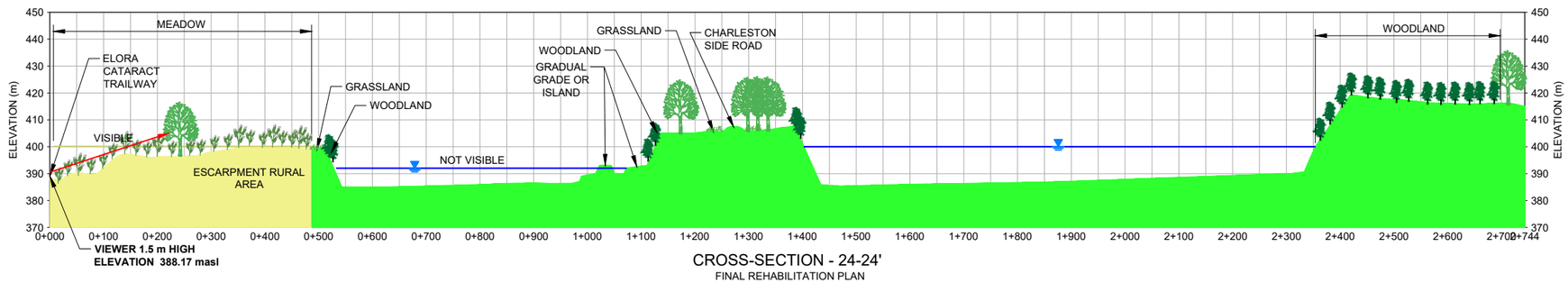
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-14

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



CROSS-SECTION - 24-24'
YEAR 38 MINE PLAN

FINAL REHABILITATION PLAN



CROSS-SECTION - 24-24'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
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4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE

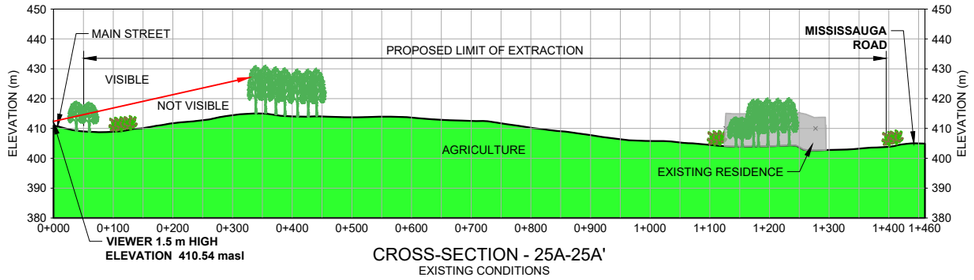
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

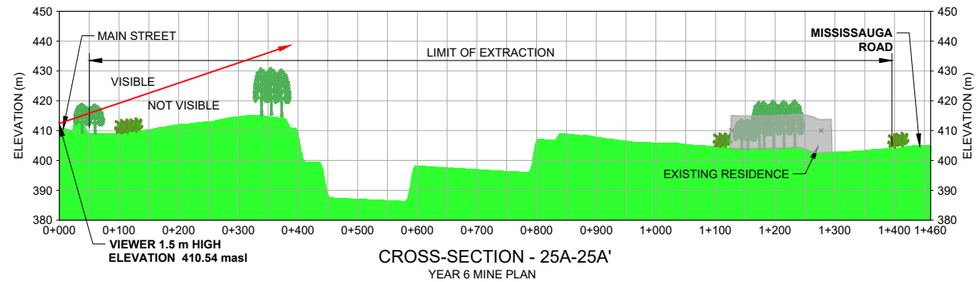
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-15

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

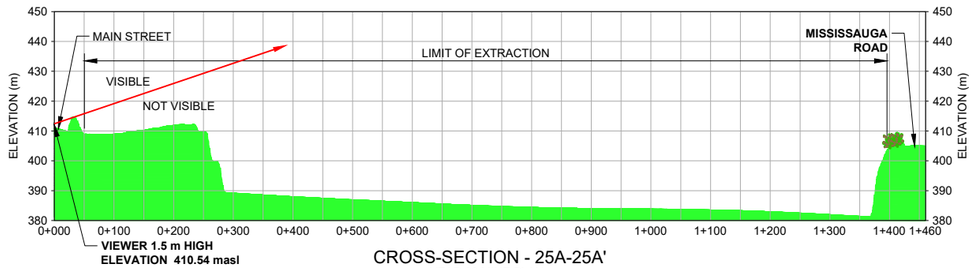
0 25 mm



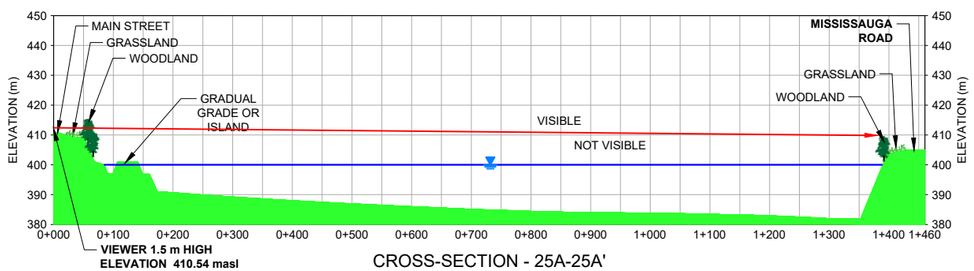
CROSS-SECTION - 25A-25A'
EXISTING CONDITIONS



CROSS-SECTION - 25A-25A'
YEAR 6 MINE PLAN



CROSS-SECTION - 25A-25A'
YEAR 38 MINE PLAN



CROSS-SECTION - 25A-25A'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 25A-25A'

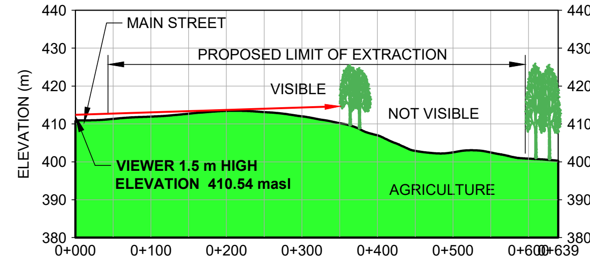
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

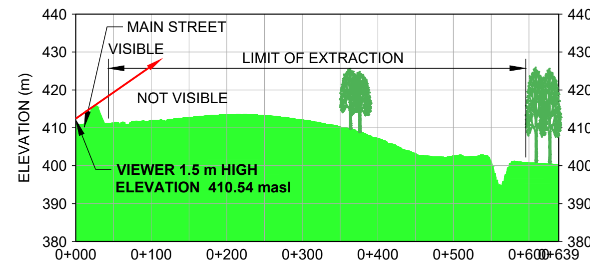
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-16

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

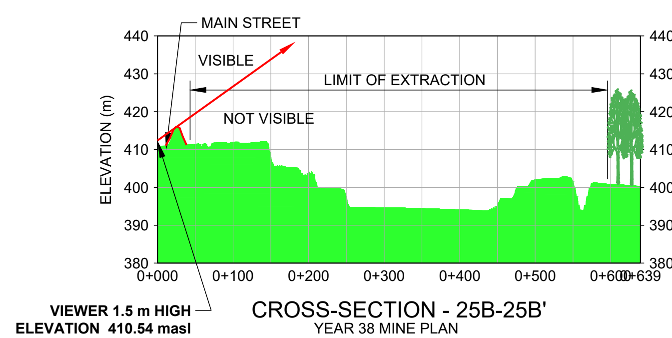
0 25 mm



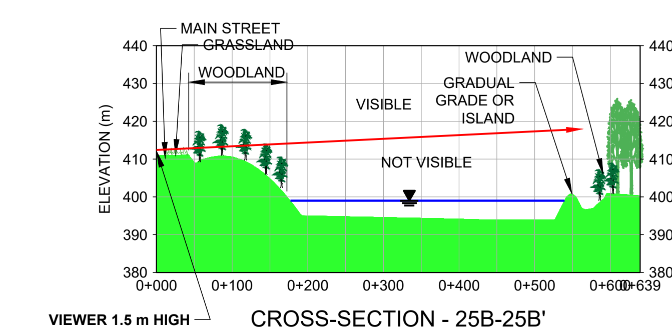
CROSS-SECTION - 25B-25B'
EXISTING CONDITIONS



CROSS-SECTION - 25B-25B'
YEAR 6 MINE PLAN



CROSS-SECTION - 25B-25B'
YEAR 38 MINE PLAN



CROSS-SECTION - 25B-25B'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 25B-25B'

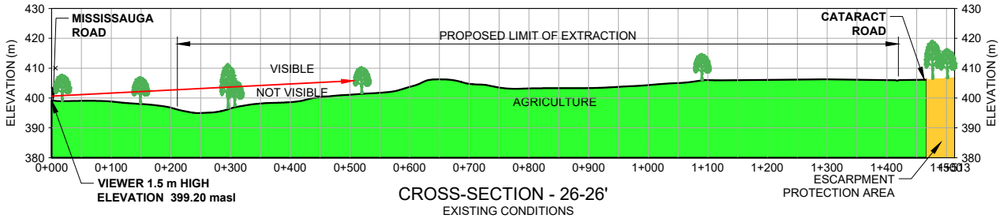
CONSULTANT

GOLDER
MEMBER OF WSP

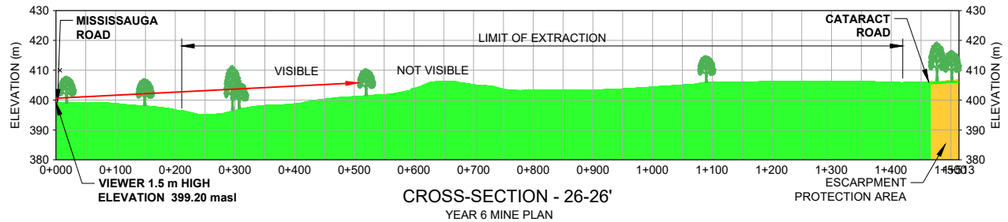
YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-17

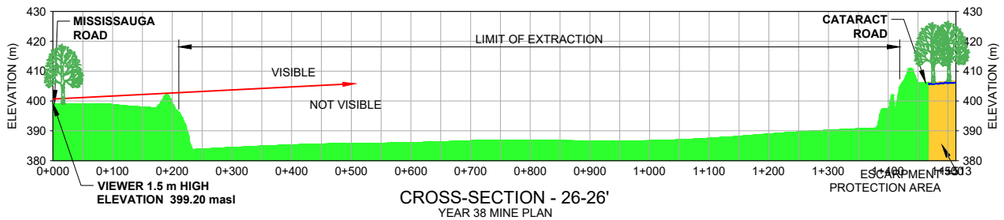
25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



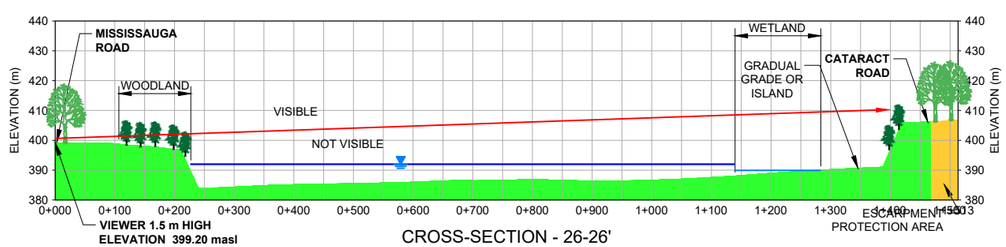
CROSS-SECTION - 26-26'
EXISTING CONDITIONS



CROSS-SECTION - 26-26'
YEAR 6 MINE PLAN



CROSS-SECTION - 26-26'
YEAR 38 MINE PLAN



CROSS-SECTION - 26-26'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 26-26'

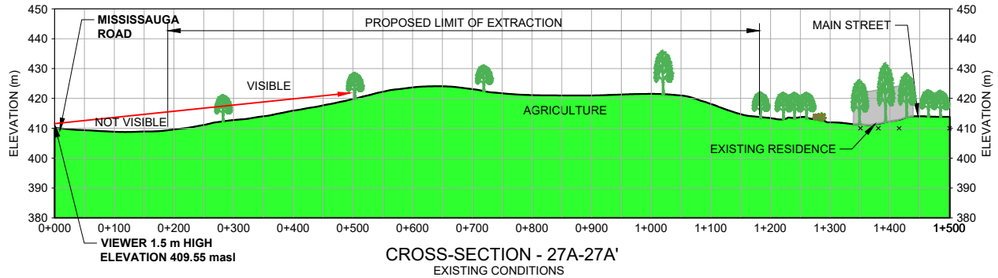
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

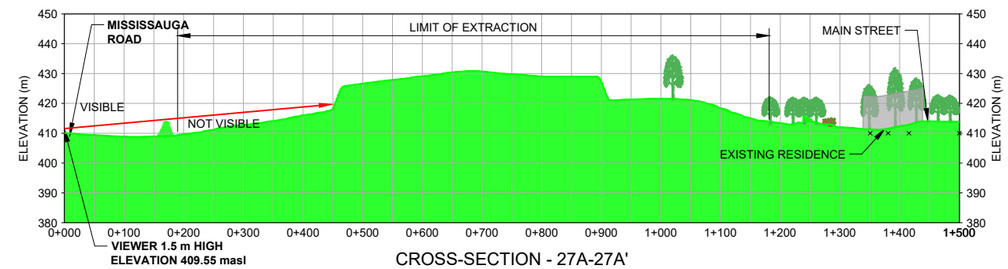
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-18

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

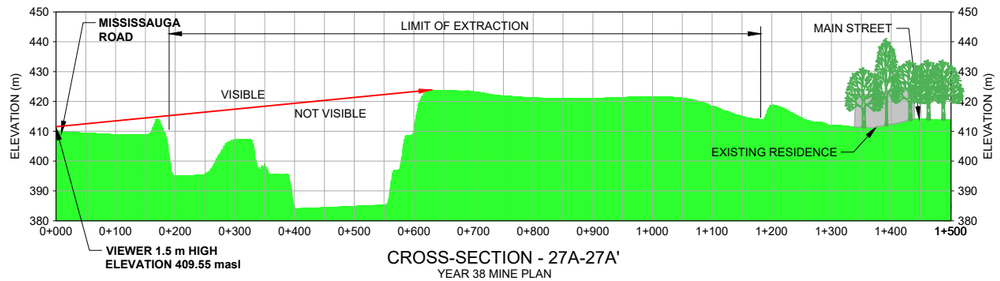
0 25 mm



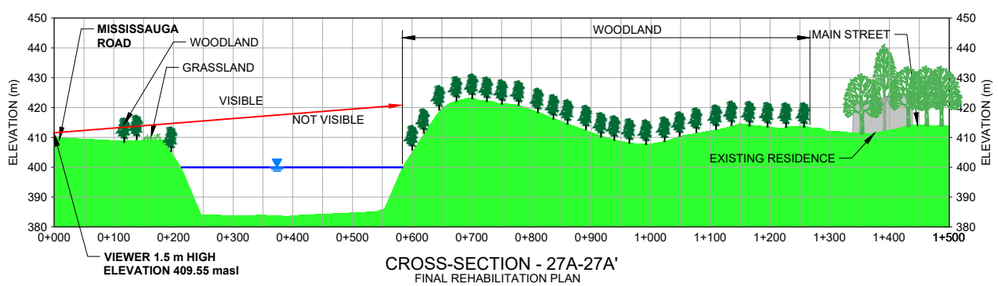
CROSS-SECTION - 27A-27A'
EXISTING CONDITIONS



CROSS-SECTION - 27A-27A'
YEAR 6 MINE PLAN



CROSS-SECTION - 27A-27A'
YEAR 38 MINE PLAN



CROSS-SECTION - 27A-27A'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
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4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 27A-27A'

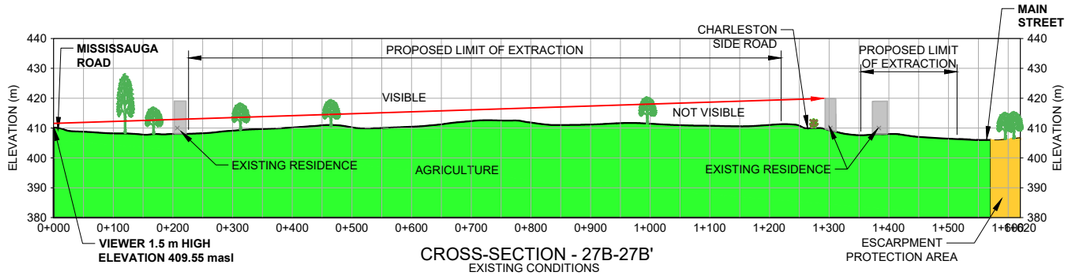
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

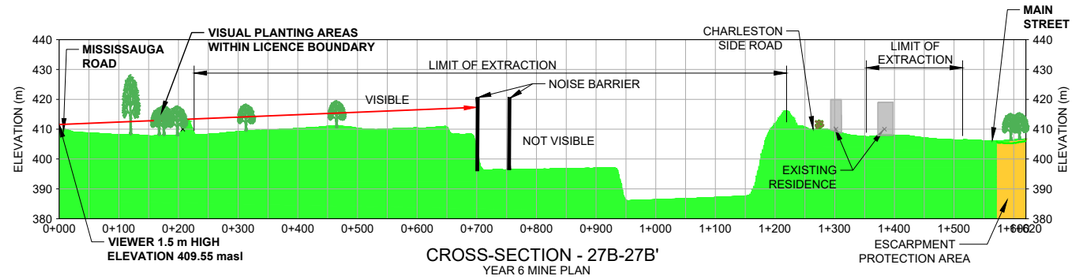
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-19

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

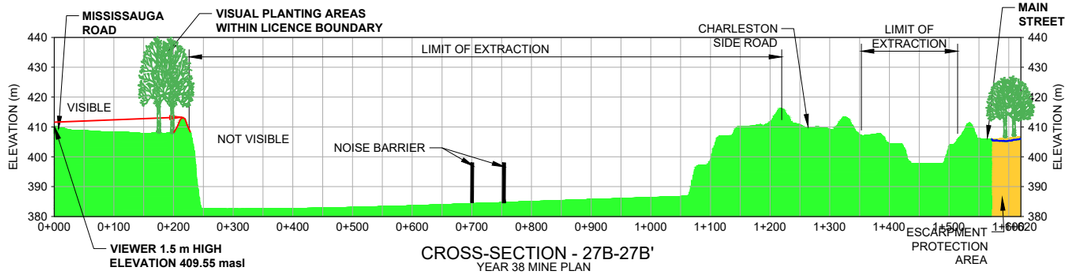
0 25 mm



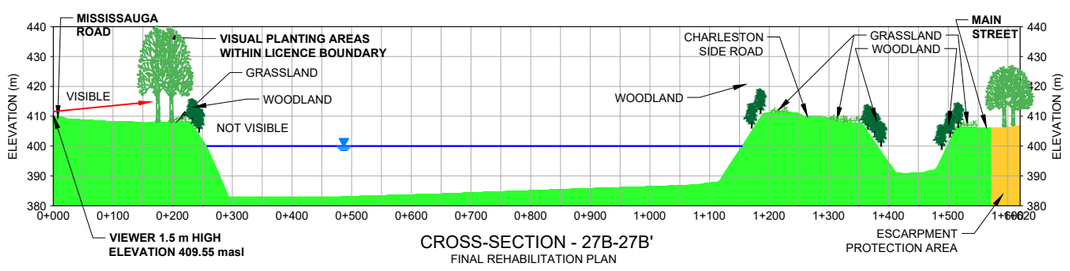
CROSS-SECTION - 27B-27B'
EXISTING CONDITIONS



CROSS-SECTION - 27B-27B'
YEAR 6 MINE PLAN



CROSS-SECTION - 27B-27B'
YEAR 38 MINE PLAN



CROSS-SECTION - 27B-27B'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
2. DIGITAL SURFACE MODEL (DSM) SUPPLIED BY ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY (OMNRF)
3. DIGITAL TERRAIN MODEL (DTM) AND IMAGERY SUPPLIED BY FIRST BASE SOLUTIONS. MARCH 9, 2020.
4. MINE PLAN GRIDS PROVIDED BY GOLDER ASSOCIATES LTD. OCTOBER 9, 2022.

NOT FOR CONSTRUCTION

0 250 500
1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 27B-27B'

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-20

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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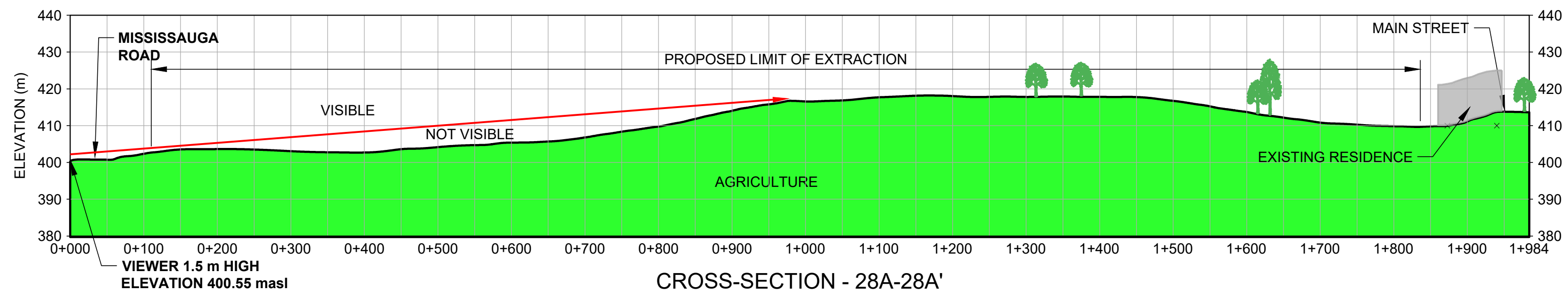
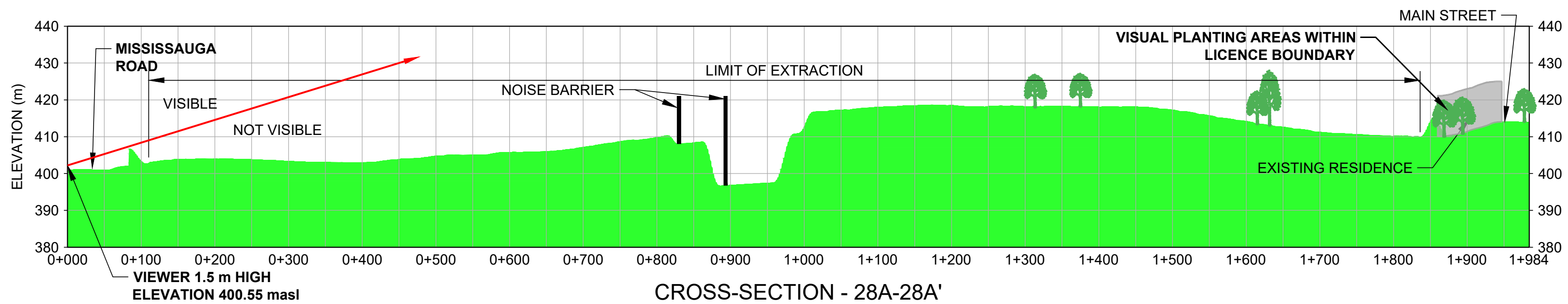
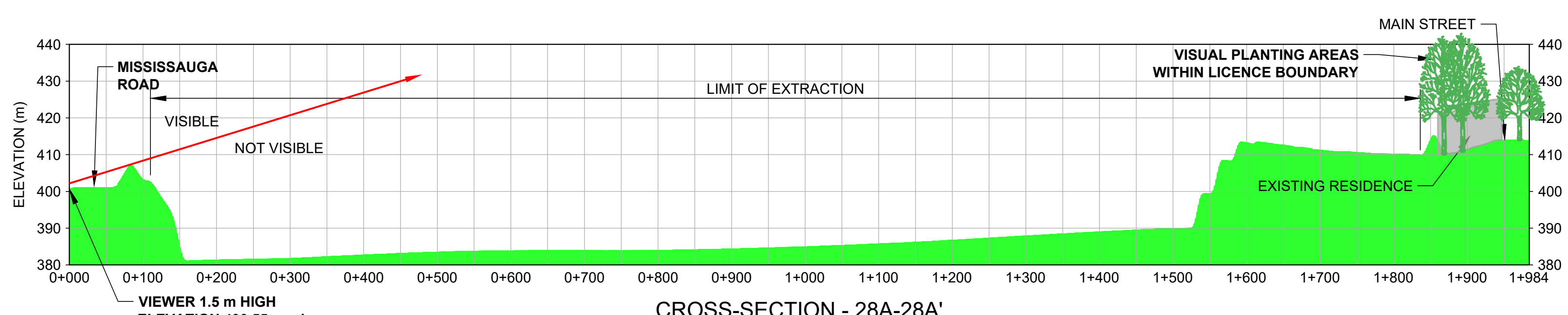


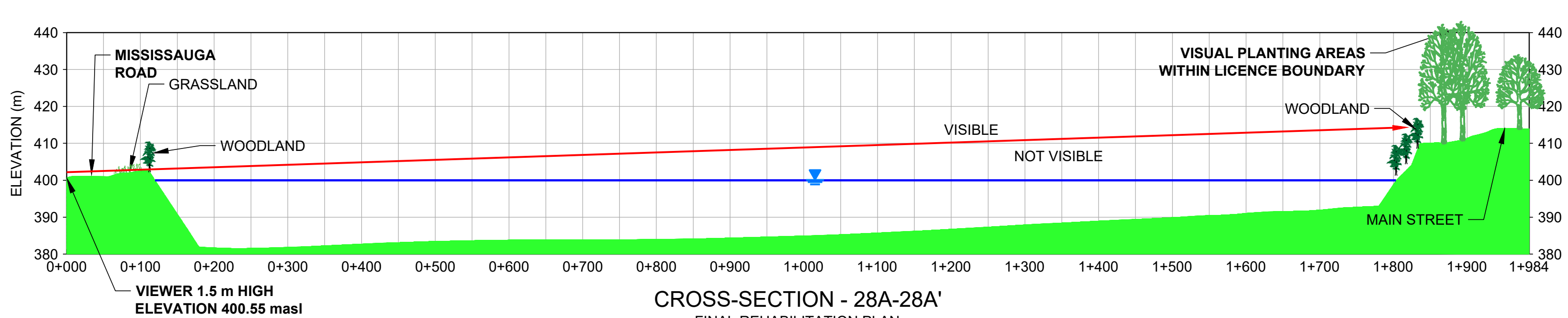
CROSS-SECTION - 28A-28A'
EXISTING CONDITIONS



CROSS-SECTION - 28A-28A'
YEAR 6 MINE PLAN



CROSS-SECTION - 28A-28A'
YEAR 38 MINE PLAN



CROSS-SECTION - 28A-28A'
FINAL REHABILITATION PLAN

NOTE(S)
1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)
1. PRELIMINARY SITE PLAN PROVIDED BY MHBC PLANNING URBAN DESIGN AND LANDSCAPE ARCHITECTURE, NOVEMBER 4, 2022
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1:10,000 HORIZONTAL METRES

0 1,000 2,000
1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

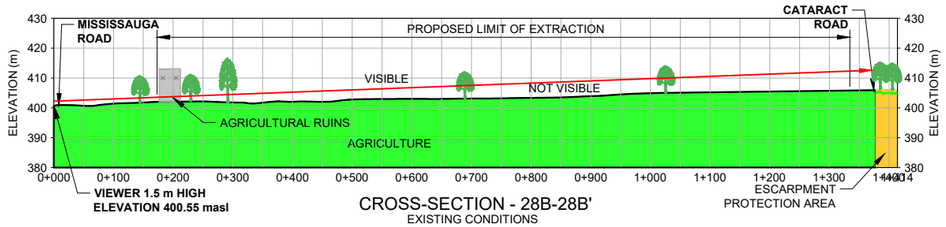
PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 28A-28A'

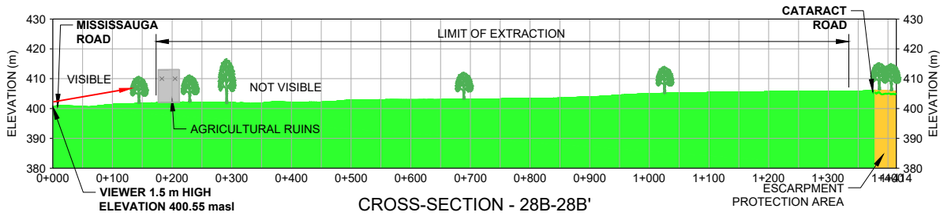
CONSULTANT
GOLDER MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

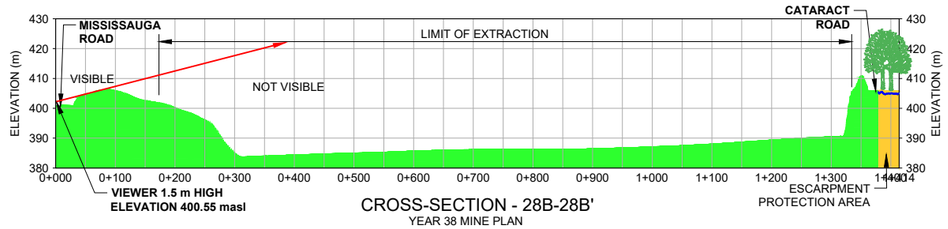
PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-21



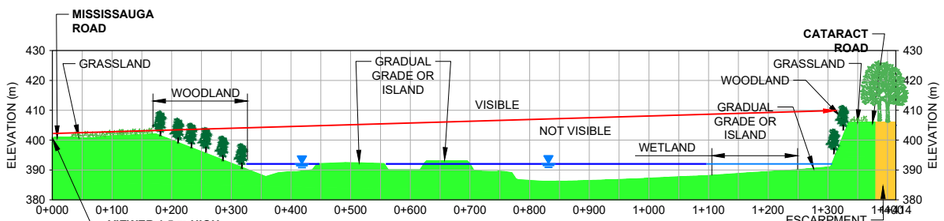
CROSS-SECTION - 28B-28B'
EXISTING CONDITIONS



CROSS-SECTION - 28B-28B'
YEAR 6 MINE PLAN



CROSS-SECTION - 28B-28B'
YEAR 38 MINE PLAN



CROSS-SECTION - 28B-28B'
FINAL REHABILITATION PLAN

NOTE(S)

1. REFER TO FIGURE 1 FOR CROSS SECTION LOCATIONS.

REFERENCE(S)

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1:50,000 VERTICAL METRES

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT/QUARRY

TITLE
CROSS-SECTION 28B-28B'

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-08
DESIGNED	PM
PREPARED	ABD
REVIEWED	PM
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0007	A	C-22

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25 mm

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APPENDIX D

Curriculum Vitae

Senior Visual and Land Use Assessment Specialist

Peter is a Registered Landscape Architect in BC and has many years of professional experience with visual impact assessment and scenic resource management. Formerly he managed the BC Government's Provincial Visual Resource Management program. Peter uses spatial technologies to support his land use planning and assessment work.

Education

Masters Landscape Architecture, University of British Columbia, Vancouver, 2003

Certifications

L.A.R.E. Certification, Council of Landscape Architectural Registration Boards (CLARB),

2010

Languages

English – Fluent

Employment History

RDN – Nanaimo, BC
Planner, Regional Parks (2021 to 2022)

Managed all of the various activities required to complete park projects in accordance with the established scope of work, and to the customers' satisfaction. Conducted client consultation, compiling necessary project information including field research, budget, and project schedule.

BC Public Service – Victoria, BC
Visual Resource Management Officer (2016 to 2020)

Provides expertise in the field of Visual Resource Management of Crown Land, including the development of legislation, policies and procedures; the management of visual and scenic values for the public and tourism sector; performing Visual Impact Assessments (VIA's) and reviewing major project VIA's in collaboration with the BC Environmental Assessment Office.

Stantec – Victoria, BC
Landscape Architect (2015 to 2016)

Strategic Master Planning; Recreation and Tourism Resource Inventories; Conservation System Planning

HRM – Halifax, NS
Park Planner (2011 to 2015)

Prepared and/or administered concept or preliminary park designs and cost estimates for review with client. Directed tender calls with Procurement and managed contracts.

O2 Planning & Design – Calgary, AB
Landscape Architect (2006 to 2010)

Performed Visual Impact Assessments and reports for major projects. Coordinated GIS-based visual landscape inventory procedures to describe the inherent scenic qualities of the study area, assess visual integrity and map and classify visually sensitive units.

PROJECT EXPERIENCE – SUSTAINABLE DEVELOPMENT

Municipality of North Cowichan
British Columbia, Canada

Worked with a team of planning and design experts in the preparation of a Master Plan document for all parks and trails administered by the Municipality of North Cowichan. Participated in stakeholder and public engagement, park and trail inventory and assessment, mapping, and writing of the Parks and Trails. Master Plan.

PROJECT EXPERIENCE – ENVIRONMENTAL ASSESSMENT

South Saskatchewan Region
Alberta, Canada

Scenic Resource Assessment of the South Saskatchewan Region (South Saskatchewan Regional Plan)

PROJECT EXPERIENCE – ENVIRONMENTAL ASSESSMENT

Calgary Region
Alberta, Canada

Calgary Metropolitan Plan Environmental Strategies (Lead Report Author)

PROJECT EXPERIENCE – ENVIRONMENTAL MANAGEMENT

Ingraham Trail, Yellowknife Northwest Territories, Canada

Applied a Water and Land Recreation Opportunity Spectrum (WALROS) to recreation settings in the Northwest Territories. Developed managerial and experiential guidelines for each recreation setting. Led writing of the project final report.

PROJECT EXPERIENCE – PROJECT MANAGEMENT

Haida G'waii
British Columbia, Canada

Managed consultants and worked with stakeholders on the Haida G'waii Visual Landscape Inventory 2018.

PROJECT EXPERIENCE – ENVIRONMENTAL ASSESSMENT

Sullivan Gas Field
Alberta, Canada

Visual Resource Assessment and Landscape Mitigation Strategies (Lead Analyst and Report Author)

Education

Geoscience and GIS courses, Carleton University, Ottawa

GIS Application Specialist Program School of Natural Resources, Sir Sandford Fleming College, Peterborough, Ontario, 1998

Diploma Environmental Biology Technologist, Canadore College, North Bay, Ontario, 1995

Years of Experience

With Golder: 17
With Other Firms: 4

Areas of Expertise

GIS, Visual Impact Assessments

Professional Affiliations

Geomatica - Canadian Institute of Geomatics

Canadian GIS and Geomatics Professionals

Senior Geomatics Analyst / Visual Aesthetics

Paul's primary focus in recent years has been in the areas 3D landscape modelling and visual impact assessments (VIA). Paul has over 21 years of experience in the geomatics industry that includes coordinating, analysing and reporting for VIA projects across a variety of scientific or engineering disciplines. Paul is currently involved in visual impact assessment projects in the mining, waste and energy sectors in North America.

Employment History

RDN – Nanaimo, BC

Planner, Regional Parks (2021 to 2022)

Managed all of the various activities required to complete park projects in accordance with the established scope of work, and to the customers' satisfaction. Conducted client consultation, compiling necessary project information including field research, budget, and project schedule.

Remote Projects worked ON

During 2016 and 2017, Paul performed GIS viewshed analysis, generated DEM data, created 3D models of the proposed transmission structures, wires substations and access roads. Paul also created 3D landscape visualizations and generation of photo composite images with the proposed transmission line infrastructure and photographs for the Wataynikaneyap Transmission Project.

PROJECT EXPERIENCE – SUSTAINABLE DEVELOPMENT

Hydro One Networks Inc., Proposed Line Tap Connection to Facilitate the Nation Rise Wind Farm Project, Ontario.

Conducted a qualitative visual analysis to identify how the visual aesthetics or sensory conditions of the existing environmental setting may change as a result of the Project. This included studies and reporting on baseline conditions and predicted changes to the visual landscape.

CBM Aggregates, Ltd. Dance Pit Expansion, Ontario	Conducted a qualitative visual analysis to identify how the visual aesthetics or sensory conditions of the existing environmental setting may change as a result of the proposed pit expansion. Incorporated the proposed pit expansion into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific viewpoints around the study area to create photo simulations that depict what the pit expansion will look like at full build out with some reclamation and mitigation features. Visual assessment reporting in support of public consultation and the
Hydro One Networks Inc., Proposed Line Tap Connection to Facilitate the Romney Wind Energy Project, Ontario.	Conducted a qualitative visual analysis to identify how the visual aesthetics or sensory conditions of the existing environmental setting may change as a result of the Project. This included studies and reporting on baseline conditions and predicted changes to the visual landscape.
Wataynikaneyap Transmission Project Phases 1 and 2, Northern Ontario.	Gathered data from various government agencies such as the Ontario Ministry of Natural Resources (OMNR), Ontario Geological Survey (OGS). Natural Resources Canada (NRCan). Mobile data collection support and coordinating field staff for photographic inventory. Performed GIS viewshed analysis, generated DEM data, created 3D models of the proposed transmission structures, wires, substations and access roads. 3D landscape visualization and generation of photo composite images with the proposed transmission line infrastructure and photographs. Cartographic mapping of the viewshed analysis, archaeology, wildlife and habitat assessment data for reporting purposes.
NextBridge Infrastructure, East-West Tie Transmission Project, Northern Ontario.	Gathered data from various government agencies such as the Ontario Ministry of Natural Resources (OMNR), Ontario Geological Survey (OGS), Natural Resources Canada (NRCan). Mobile data collection support for the archaeology, biology and environmental field staff. Conducted a photographic field survey from numerous vantage points along proposed transmission line. Performed GIS viewshed analysis, generated DEM data, created 3D models of proposed transmission structures, wires and access roads. 3D landscape visualization and generation of photo composite images with the proposed transmission line infrastructure and photographs. Cartographic mapping of the viewshed and visual analysis results for the environmental assessment reporting.
Grizzly Oil Sands ULC, Prince Rupert Grizzly Terminals EA, British Columbia.	Incorporated the proposed marine jetty, bunkering facility, tugs and tankers into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific viewpoints around the study area to create photo simulations that depict what the facility will look like in the future for the visual impact assessment and permitting process.
NUCO Citrus, LLC, Visual Impact Assessment, Florida.	Incorporated the proposed citrus plant, peel silos and mitigation berms into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific viewpoints around the study area to create photo simulations that depict what the facility will look like in the future for the visual impact assessment and permitting process.

E.ON Climate & Renewables Canada, North Pit Expansion, Alberta.	Incorporated the proposed pit expansion into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific view points around the study area in order to create photo simulations that depict what the pit expansion will look like in the future for the visual impact assessment and permitting process.
Canadian Natural Resources Limited, North Pit Expansion – Permitting	Alberta. Incorporated the proposed pit expansion into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific viewpoints around the study area to create photo simulations that depict what the pit expansion will look like in the future for the visual impact assessment and permitting process.
Weldwood of Canada Limited, Grizzly Bear Creek Wind Power Project.	Incorporated a proposed wind turbines into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific view points around the study area in order to create photo simulations that depict what the wind turbines will look like in the future for the visual impact assessment and EIA process.
Teck Coal Ltd., Baldy Ridge Expansion EA and Mine Permitting Amendment Projects, British Columbia.	Incorporated a proposed mining operations into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific view points around the study area in order to create photo simulations that depict what the mining operations will look like in the future for the visual impact assessment and EIA process.
Mosaic, New Wales Gypstack Extension, Visual Impact Assessment, Florida.	Incorporated a proposed phosphogypsum stack design into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific view points around the study area in order to create photo simulations that depict what the site will look like in the future for the visual impact assessment. Reporting for the visual impact assessment.
Grizzly Oil Sands ULC, Prince Rupert Grizzly Terminals EA, British Columbia.	Incorporated the proposed marine jetty, bunkering facility, tugs and tankers into a 3D model with surrounding digital elevation model (DEM) data and rendered out images that were merged with photographs taken from specific viewpoints around the study area to create photo simulations that depict what the facility will look like in the future for the visual impact assessment and permitting process.

golder.com