

Visual Impact Assessment

Upper's Quarry
City of Niagara Falls, Ontario

Date:
October 2021

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Our File 9811AB

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1.0 Introduction

Walker Aggregates Inc. (Walker) is applying for a Class A License under the *Aggregate Resources Act* (ARA), and amendments to the Niagara Region Official Plan, the City of Niagara Falls Official Plan and the City of Niagara Falls Zoning By-law 79-200 under the *Planning Act* to permit a quarry operation.

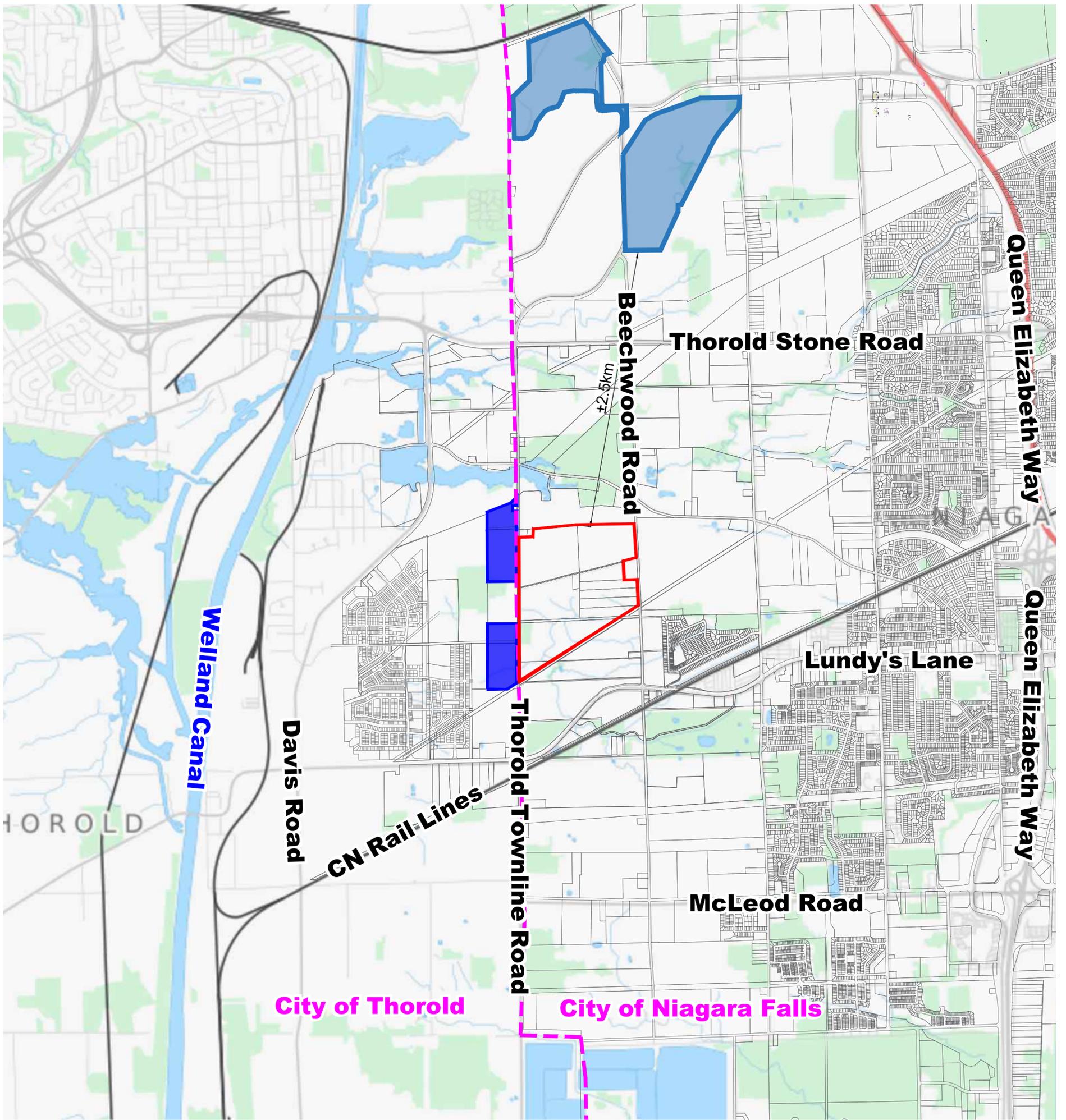
For the past 17 years, Walker has acquired land in the City of Niagara Falls, Region of Niagara where high quality bedrock is situated for the purpose of establishing a quarry. The proposed quarry is located approximately 2.1 km south of Walker's existing quarry on Thorold Townline's Road. The lands acquired are municipally described as Part Lots 119, 120, 136 and 137 and Part of Road Allowance between Lots 120 and 136, in the former Township of Stamford, now in the City of Niagara Falls, Regional Municipality of Niagara ('proposed quarry lands' or 'subject lands').

The proposed quarry lands is 106.3 ha (262.7 acres) in area. The proposed extraction area is 89.1 ha if the roads are excluded and 96.8 ha (239.2 acres) if the roads noted above are extracted. Walker also purchased 31.6 ha (78.1 acres) of land immediately west of the proposed quarry lands within the City of Thorold, which are intended to be used in part for buffer / compensation purposes. See **Figure 1** for a Location Map.

The Ministry of Natural Resources and Forestry (MNR) identified this area as containing high quality limestone (bedrock) product. This product is used by local businesses and the public sector to build necessary infrastructure including:

- Roads and bike paths
- Stone landscapes around homes and buildings
- Baseball diamonds, tennis courts and race tracks
- Shoreline protection structures
- Concrete for homes and businesses
- Sewers and water mains

Borehole testing has confirmed that the proposed extraction area contain approximately 60 M tonnes of this high quality aggregate product. The purpose of this Visual Impact Assessment is to describe the visual resources of the subject property and assess the proposed operations in the context of visual impacts on surrounding lands and roads.



Data Source: Open Street Map 2015

Figure 1
Location Map

- LEGEND**
- ▭ Subject Lands (±106.3 ha)
 - ▭ Buffer Lands (Owned by Applicant) (±31.6 ha)
 - ▭ Existing Walker Brothers Quarry
 - ▭ Existing/ Former Walker Brothers Quarry
 - - - Municipal Boundary

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Region of Niagara, Ontario

DATE: October 2021

SCALE 1:25,000



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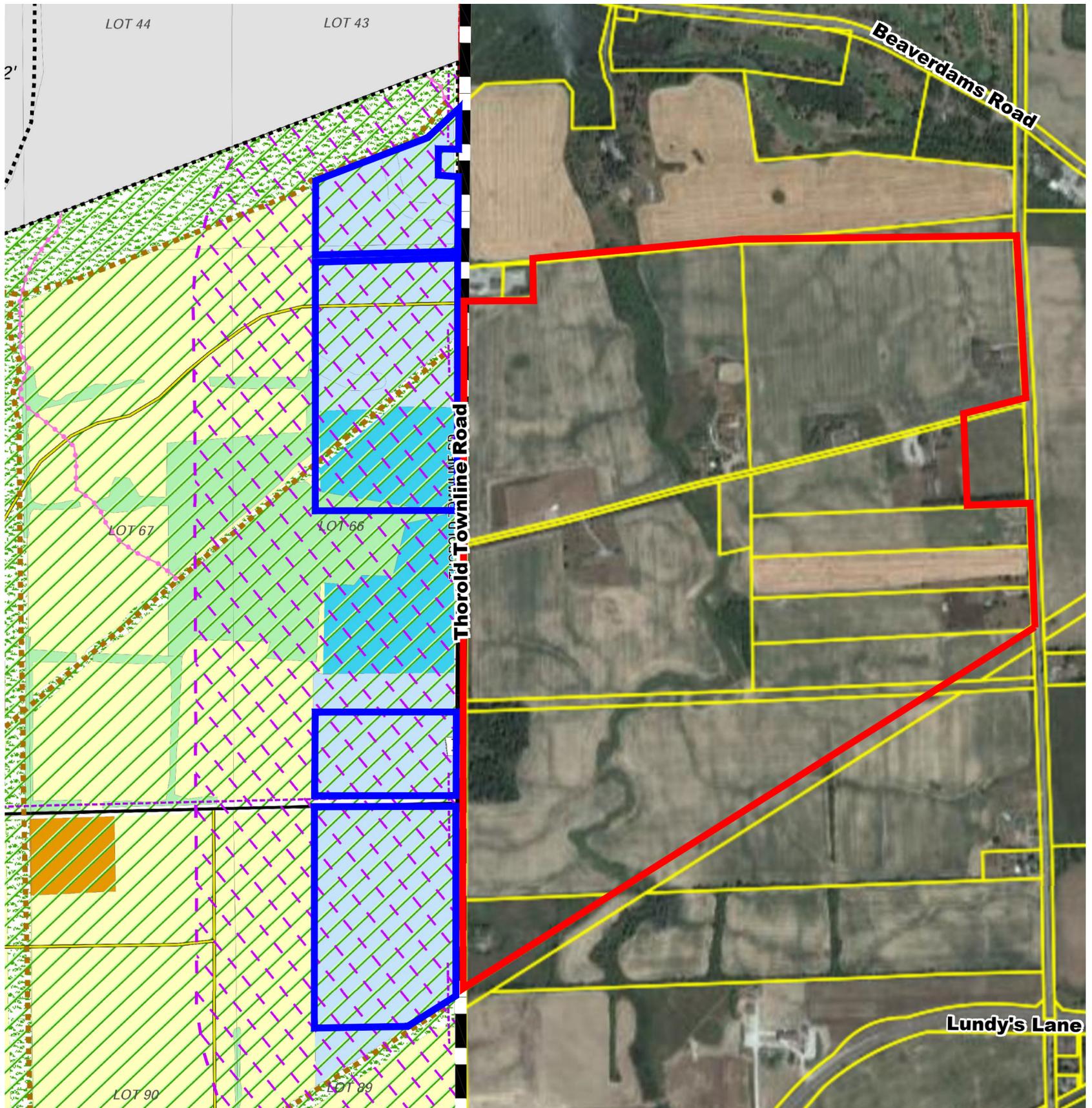


Figure 1A
City of Thorold
Official Plan
 Schedule A-3:
 The Neighbourhoods of
 Rolling Meadows
 Secondary Plan
 Upper's Quarry,
 City of Niagara Falls,
 Region of Niagara, Ontario

Data Source: City of Thorold Official Plan- Schedule A-3: The Neighbourhoods of Rolling Meadows Secondary Plan (2017)/ Ontario Agricultural System Portal (2018)

LEGEND					
	Subject Lands		Greenfield Overlay		Municipal Boundary
	Buffer Lands		Institutional		Open Space and Parks
	Employment- Prestige Industrial		Residential		Eco-Trail
	Employment- Light Industrial		Environmental Protection Two		Off-Road Multi-Use Trail
	Village Square Commercial		Aggregate Impact Area		On-Road Multi-Use Trail
			Urban Area Boundary		

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2.0 Existing Policies

Section 9 of the City of Niagara Falls Official Plan outlines land use policies for Extractive Industrial uses including quarries and pits. Any new extractive industrial use on the subject lands requires approval of the following (“applications”):

- a Class A licence by the MNRF under the Aggregate Resources Act; and
- amendments to the Niagara Region Official Plan, City of Niagara Falls Official Plan and Zoning By-law in accordance with the Planning Act

The applications will be considered on the basis of detailed plans and submissions prepared to the satisfaction of the respective approval authorities. When applying for an Official Plan amendment, as per Section 9 of the City of Niagara Falls Official Plan, the plans and submissions shall include but are not limited to the following:

- 9.2.1 The location of the site including all dimensions, topography, existing elevations and any natural or archaeological features found on the site.*
- 9.2.2 The location and use of all lands and buildings within 500 metres from the boundaries of a proposed quarry and 150 metres from the boundaries of a proposed pit.*
- 9.2.3 The proposed use of the site detailing the limits of extraction, proposed depth of extraction, sequence of extraction, location and use of all buildings and structures, internal roads and points of access.*
- 9.2.4 The location of all existing water wells within a minimum of 300 metres of the proposed site, hydrogeological reporting identifying water table levels relative to the proposed depth of extraction and the effect of the proposed extraction upon the water table and wells in the general area as well as on stream flows and surface water quality.*
- 9.2.5 Detailed landscaping plans including fencing and screening.*
- 9.2.6 Proposed haulage routes for the off-site distribution of the aggregate.*
- 9.2.7 Progressive and final rehabilitation plans.*
- 9.2.8 A social impact assessment or any other information that may be required by the City to assess the appropriateness of the proposed extractive operation including predicted impact of noise, dust*

The Niagara Region Official Plan requires any mineral resource extraction to follow the Pits and Quarries Control Act, 1971.

Section 6.A of the Niagara Region Official Plan states that the Pits and Quarries Control Act, 1971, provides that:

- a) *All pit and quarry operations must obtain a Provincial license and must meet the landscaping, buffering and setback regulations of the Province; and*
- b) *Pit and quarry operations must prepare and follow plans for the future rehabilitation of their pit or quarry and must contribute funds to ensure that the rehabilitation measures are carried out.*

It is noted that the 1971 Pits and Quarries Control Act has been replaced with the Aggregate Resources Act. Notwithstanding, this report will have regard to other policies noted in the Region Official Plan.

While neither the City of Niagara Falls nor the Niagara Region Official Plan's explicitly require the submission of a Visual Impact Assessment, this assessment has been prepared as supplemental document to further examine the possible visual impact of the proposed quarry, and provide mitigation solutions. Views into the site from private residences, public roads and recreational uses were assessed to determine significance and the potential for impacts as a result of the proposed quarry. Recommended mitigation measures were developed to ensure there will be no unacceptable impacts on these surrounding uses and features.

The Neighbourhoods of Rolling Meadows is an approved Secondary Plan for the future Rolling Meadows community situated west of Thorold Townline Road in the City of Thorold. The intent of this Secondary Plan is to provide a long-term planning program for a new community providing the integration of diverse land uses including various housing types, community facilities such as schools and recreational areas, a range of commercial uses, compatible employment lands and open space/natural heritage areas.

The lands directly west of Thorold Townline Road from the proposed quarry lands are designated as Prestige Industrial and Light Industrial in the Secondary Plan. Furthermore, there are additional Environmental Protection areas behind a significant portion of the industrial lands. This provides a substantial buffer of uses that are less sensitive to visual impacts when compared to other residential and institutional uses.

Under Section B1.8.12, the Secondary Plan requires that appropriate measures be undertaken to attenuate the effects of noise, visual intrusion or other undesirable impacts of residential development adjacent to Highways 58 and 20, Thorold Townline Road and other environmentally incompatible land uses

Section B.1.8.12.3 recognizes the potential bedrock resource area where the proposed quarry lands is situated. This policy specifically puts the onus of mitigation on future residential developers to provide visual mitigation and landscape treatments, particularly for development within 500 metres of the resource area. The Secondary Plan further recognizes that Thorold Townline Road will be the future aggregate haul route for a future extraction operation on the subject lands.

3.0 Methodology

The methodology used to complete the report included undertaking the following:

1. A detailed review of background documentation information including air photographs and topographic mapping.
2. The collection of field data and on-site photography from key vantage points along public roadways during late fall/early winter and late spring/early summer.
3. Identification and review of residences, public roads and recreational uses that may be prone to visual impacts as a result of the proposed extraction activities.
4. Inventory and analysis of visual and landscape character.
5. Identification of potential visual impacts.
6. Recommendations of potential mitigation measures to be taken.
7. Preparation of a Visual Impact Report for submission to the relevant approval agencies.

Several areas were selected for the visual impact analysis due to the proximity to the subject lands and potential for views of the site. The view locations were taken at various potential receptors that may experience visual disruption from the proposed quarry. The impact was assessed from publically assessable points of view adjacent to these receptors. The report includes a photographic survey documenting existing views of the site during leaf-off conditions, a description of the various views during the quarry operation and cross sections showing relative elevations for selected locations.

The information presented in this assessment is based on a stationary perspective that would be experienced by a person standing along the selected roads. Occupants of vehicles along Thorold Townline Road and Beechwood Road would experience relatively short glimpses of the subject lands due to the speed of travel (80 km/hr posted speed limit), and adjacent wooded areas. Due to existing vegetation and distance, it is not expected that there will be significant opportunity for view for drivers along Beaverdams Road.

Upper's Lane and an unopened road allowance between Lots 120 and 136 that bisect the proposed quarry lands bisect the subject lands into three extraction areas:

- i) North Extraction Area: extraction area north of Upper's Lane;
- ii) Mid Extraction Area: extraction area south of Upper's Lane and north of the unopened road allowance between Township Lots 120 & 136 in the former Township of Stamford, now in the City of Niagara Falls ("unopened road allowance"); and

iii) South Extraction Area: extraction area south of the unopened road allowance.

Although Upper's Lane is city-owned and open to the public, all properties that rely on Upper's Lane for access are owned by Walker. For this reason, traffic volumes on Upper's Lane is minimal and typically associated with the properties owned by Walker.

Should Agreement with the City be reached in the future to allow for the sale and transfer of the unopened road allowance and / or Upper's Lane lands to Walker Aggregates, the Site Plans would be amended to implement the Alternate Extraction Scenario. However, it is noted that based on our analysis, the recommendations of this report will not be affected by the possible implementation of the Alternate Extraction Scenario.

For residences within the study area, the elevation as well as the location and height of the houses (e.g. one or two-story) were taken into account in determining significant views and potential impacts.

The photographs used in the report were taken in Summer 2019 during 'leaf-on' conditions and Spring 2019 during 'leaf-off' conditions. Additional photos were taken during Autumn of 2020 during 'leaf off' conditions.

The potential visual impacts were assessed based on extraction occurring to the maximum proposed extent of 140-155 masl. In Phase 1B and 2B, extraction will occur to a depth of 155 masl and filled back up with on-site material to approximately 176-177 masl. The proposed quarry will have on-site processing and aggregate stockpiling in a defined phase of the operation.

Cross sections at key vantage points were developed to make certain the visual impacts will be mitigated using appropriate visual mitigation measures of quarry activities including aggregate stockpiling. It is important to note that almost the entire periphery of the site will be bordered by a three metre high acoustic berm. Although the primary purpose of this berm is not for visual impact mitigation, proposals in the report highlight how these berms can be enhanced to further increased the visual mitigation potential.

4.0 Proposed Quarry Operations

The Upper's Quarry contains approximately 60 million tonnes of high quality limestone. Walker is applying for a maximum tonnage limit of 1.8 million tonnes, but expects the Quarry to be in operation +/- 40 – 50 years. In addition, there will be an additional maximum annual asphalt production of 400,000 tonnes.

Access to the site will be off of Thorold Townline Road via Upper's Lane.

Overburden on the majority of the site generally ranges in depth from 5 to 10 m below ground surface, with exceptions of the existing watercourse corridor and wetland pocket near Thorold Townline Road. Once the overburden is stripped, extraction will proceed in phases to a maximum depth of approximately 28 m to 39 m, corresponding to the geologic base of the Gasport dolostone of the Lockport Group.

The proposed extraction activities will operate in 5 phases, with Phases 1-3 divided into two sub-phases respectively.

Phase 1A will occur in the Mid and South Extraction Areas, west of the existing watercourse that runs north-south through the central area of the proposed quarry lands. Phase 1B and 2B will occur along the western boundary of the subject lands to facilitate the realignment of the existing watercourse to a channel running along the east side of Thorold Townline Road. The construction of a re-aligned channel will take place in Phase 1B and 2B, which will happen concurrently with extraction in Phase 1A. The new channel will be vegetated and designed for erosion and sediment control.

Phase 2 will occur in the North Extraction Area, north of Upper's Lane and west of the existing watercourse.

Phase 3 will occur in the North Extraction Area including the existing watercourse corridor (Phase 3A) and the remaining lands north of Upper's Lane (Phase 3B). Prior to extraction being permitted in Phase 3A, the watercourse realignment to the new channel will take place.

If extraction is complete in Phase 2 and the watercourse realignment is not yet complete, extraction in Phase 3B may proceed before extraction in Phase 3A.

Phase 4 includes the remaining lands in the Mid Extraction Area. By the point Phase 4 is initiated, the watercourse realignment and extraction of resource in both Phase 3A and 3B will be complete.

Phase 5 includes the remaining lands in the South Extraction Area. By the point Phase 5 is initiated, the extraction of resource in Phase 4 will be complete.

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A Final Phase will include removal of all remaining resource within the extraction limit near the entrance (e.g. ramp) and any other resource remaining in the extraction area will be removed as part of final rehabilitation. Any remaining structures will be removed, all remaining backfilling will be completed during this Phase and final rehabilitation will be completed. Phasing is illustrated on **Figure 7**.

There will be a 30m extraction setback on the west, east, and north boundary of the subject lands. Along the southern border, there is a 15m extraction setback, adjacent to the hydro corridor.

Rehabilitation proposed will be a mix of different landscape ecologies including wetlands, woodlands and a series of lakes comprising most of the site. While re-grading will occur along the setbacks and creek realignment of the site to create more transitional changes in topography, the rehabilitation plan will utilize the variations in topography to create new landscape topologies such as the lakes and wetlands. Refer to the proposed Rehabilitation Plan (**Figure 6**).

5.0 Landscape Character

5.1 Site Context

The Upper's Quarry Lands are located along the north western limit of the City of Niagara Falls boundary, approximately 7 km west of downtown Niagara Falls and 2 km east of the Thorold South neighbourhood. The proposed quarry is situated south of Beaverdams Road, immediately east of Thorold Townline Road, immediately west of Beechwood Road and north of Lundy's Lane (**Figure 1**). In addition, the proposed quarry site is located approximately 2.1 km south of Walker's existing quarry on Thorold Townline Road

The site is bisected by Upper's Creek, an intermittent tributary to Beaverdams Creek and associated wetland, which runs from south to north crossing under Upper's Lane via a culvert. Upper's Lane currently bisects the property running in a southwest to northeast direction. A woodlot, approximately 2 ha (5 acres) in size, is situated along Thorold Townline Road, south of Upper's Lane. Several deciduous hedgerows are located around the perimeter of the subject lands. Three (3) dwellings remain situated on the lands to be extracted and will be removed if the proposed license is approved.

The Bible Baptist Church is currently located at the intersection of Upper's Lane and Beechwood Road. Though the church is adjacent to the quarry, they have entered into an agreement to be located at their current site with the understanding that the quarry would be proposed at this location. Consequently, although the church is planned to operate at this location indefinitely, there is a pre-agreed upon understanding that some visual impact may occur. Notwithstanding, where reasonable and feasible, some mitigation measures may be warranted.

5.2 Topography

The property mainly consists of relatively gently sloping agricultural lands and small rolling hills with elevations between 178 and 185 masl. The lowest point of the site is the existing watercourse which runs through the site north to south. The highest point is located along the western boundary of the site at Thorold Townline Road.

The subject lands are generally located at an elevation of approximately 180 masl. Thorold Townline Road and Beechwood Road are generally at a similar elevation compared to the subject lands. There are existing deciduous hedgerows along the site's frontage on both Thorold Townline Road and Beechwood Road.

5.3 Vegetation

The subject property is composed primarily of agricultural fields (soybeans or corn) with pockets of mixed deciduous as well as deciduous tree lines and understory plantings located along Thorold Townline Road and Beechwood Road. Along both roads there are several mature deciduous trees. Of the 1,282 m of site frontage along Thorold Townline Road, just under a half of this frontage contains an existing hedgerow (555 m). Of the 726 m of site frontage along Beechwood Road, approximately 50% contains an existing hedgerow (360 m).

There is a mix of large deciduous shrubs and small trees along the existing watercourse especially north of Upper's Lane. This is typically low lying vegetation that does not offer any visual mitigation of views. There is also a deciduous tree line along approximately 50% of the south side of Upper's Lane.

5.4 Land Use

The proposed quarry site and surrounding area is used predominately for agricultural purposes.

In the Niagara Region Official Plan the subject lands have been designated 'Good General Agricultural Area' in Schedule A: Regional Structure and also 'Silurian Formation' in Schedule D1: Potential Resource Areas – Stone. An amendment to the Niagara Region Official Plan is required to establish any new mineral aggregate operation or expansion in Good General Agricultural Areas.

In the City of Niagara Falls Official Plan the subject lands have been designated 'Good General Agriculture' in Schedule A: Future Land Use and also 'Rural Area' in Schedule A2: Urban Structure Plan. The existing watercourse running north-south through the central portion of the subject lands is designated 'Environmental Protection Area (EPA)' in Schedule A: Future Land Use as well as Schedule A1: Heritage Features and Environmental Lands.

The subject lands are also identified as 'Bedrock Resource Area' on Appendix 4 of the City's OP. A new mineral aggregate operation that is located within any area identified as a Bedrock Resource Area on Appendix 4 may be permitted through an Official Plan amendment application. (See Policy 11.1.49).

Refer to the Planning Justification Report prepared by MHBC for further information and detail.

6.0 Description of Views

An initial site review was undertaken in March 2019 during leaf-off conditions. Further assessments were completed in June 2019 during leaf-on conditions. An additional site visit was conducted in November 2020 during leaf-off conditions. The analysis and location of the viewsheds are included in this chapter and identified on **Figure 2**.

The Visual Impact Assessment analyzes significant views and how they might be impacted by the proposed aggregate operation. This assessment is based on an assumption that no mitigation measures are employed. The following areas were assessed based on their location relative to the subject lands and potential for views into the site.

1. Thorold Townline Road

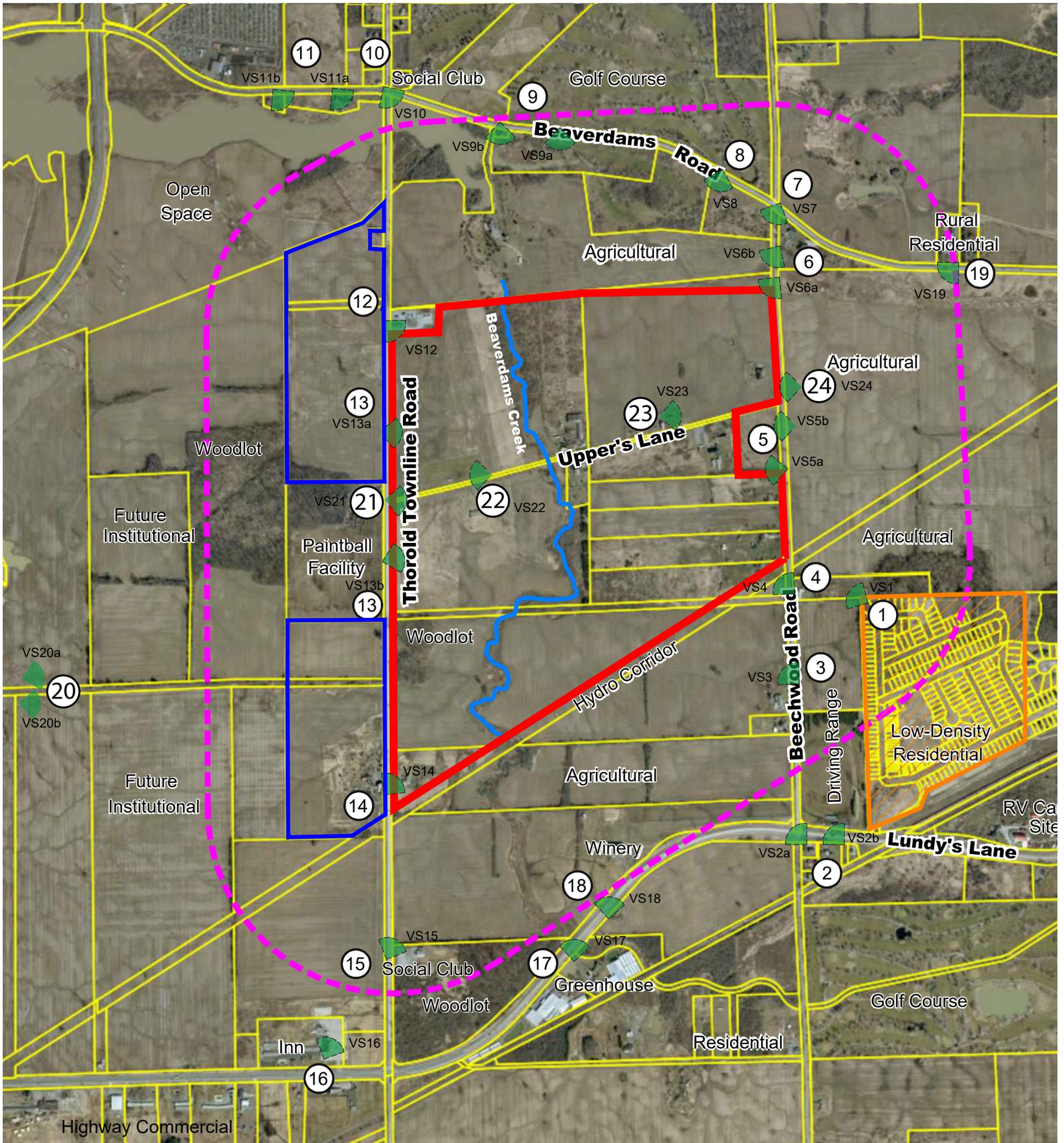
Along Thorold Townline Road, there exists multiple opportunities for views into the site. Given the relative flat topography and minimal vegetation, long, clear views into the site are currently possible. Without any mitigation, a driver along Thorold Townline would experience a notable disruption to the overall visual landscape character of the area.

Receptors along Thorold Townline Road are overall not considered very sensitive to potential disruption. One of the main receptors along the road to experience the greatest impact is the DMZ Paintball and Airsoft facility. It is noted that this facility utilizes industrial objects as recreational barricades. Given the programming of the space in addition to its current character, it is not expected that the visual impact resulting from the proposed Quarry would have a negative impact on its operations.

The other notable receptor along Thorold Townline Road is the Niagara Cricket Centre. Although it is directly adjacent to the proposed Quarry, the visual impact is not expected to affect the overall usage and enjoyment of the recreational space. Furthermore, the adjacent industrial objects utilized by the DMZ Paintball already give an industrial character to the immediate visual landscape.

The Italo-Canadian Centennial Club is a social club facility located just north of the intersection of Lundy's Lane and Thorold Townline Road. While the Club could experience a visual impact, the existing vegetation coupled with the distance from the proposed extraction site leaves minimal opportunity for visual impacts.

In addition, the Rolling Meadows Secondary Plan area is directly adjacent to the proposed Quarry, on the west side of Thorold Townline. This area is subject to The Neighbourhoods of Rolling Meadows Secondary Plan and is currently undergoing development in phases. The



Data Source: First Base Solutions Aerial Flown 2017

Figure 2
Assessed Views Photo
Location Map

LEGEND			
	Subject Lands		Assessed Views (see section 5)
	Buffer Lands		Location of Viewshed Photos (see Figures 3A to 3J)
	500 m Radius Buffer		Residential Subdivision
	Beaverdams Creek Tributary		TransCanada Pipeline

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SCALE 1:7,500



area is ultimately planned to consist of a mix of uses including residential, institutional, and employment. In recognition of the resource area, lands directly abutting Thorold Townline Road have been identified as an "Aggregate Buffer Area" on the Secondary Plan Schedule and associated policies that recognize and aim to protect the potential bedrock resource area where the proposed quarry lands is situated. For example, Section B.1.8.12.3 specifically puts the onus of mitigation on future residential developers to provide visual mitigation and landscape treatments, particularly for development within 500 metres of the resource area.

Notwithstanding this Policy, this report analyzes and provides recommendations for visual mitigation along Thorold Townline Road.

2. Beaverdams Road

In general, receptors along Beaverdams Road do not have a direct view into the subject lands and will not experience a visual impact. While the topography is relatively flat, the space between the site and the road is well vegetated and generally does not permit views into the site. At the periphery of the study area, there are two private residences located at 9337 and 9301 Beaversdam Road that may experience filtered views into the site.

The Beechwood Golf and Social House has two facilities located on either sides of Beaverdams Road. From the public right-of-way, it is not expected that there will be views into the Quarry from either of these locations due to a mix of topography and existing vegetation providing visual mitigation. In addition, the clubhouse is located on the north side of Beaverdams Road, which provides increased mitigation of possible views into the site due to distance from extraction activities.

3. Beechwood Road

Along Beechwood Road, there exists multiple opportunities for views into the site. Similar to Thorold Townline Road, the area is characterized by relatively flat topography and minimal vegetation. However, unlike Thorold Townline Road, there are a few receptors along Beechwood Road that can be classified as sensitive in nature and will experience a visual impact.

There are four private residences located at the addresses below that will experience a direct impact along Beechwood Road:

- 5769 Beechwood Road;
- 5584 Beechwood Road;
- 5821 Beechwood Road; and

- 9582 Beaverdams Road (Although fronts on to Beaverdams Road, has a back driveway access along Beechwood Road).

In addition, the Bible Baptist Church located at Upper's Lane will experience a direct impact as extraction activities will occur adjacent to its property boundary. However, as previously stated the church has entered into an agreement to be located at their current site with the understanding that the quarry would be proposed at this location.

4. Fernwood Subdivision (Near the Intersection of Beechwood Road and Lundy's Lane)

The Fernwood Subdivision situated northeast of Beechwood Road and Lundy's Lane is accessed through Garner Road further to the east. While the majority of the site is completely screened from possible views due to existing vegetation and the compact nature of the residences, there remains opportunities for views along Osprey Avenue and Madison Crescent. These views will be more sparse and filtered the further south you are with the highest potential impact occurring at the corner of Osprey Avenue and Madison Crescent. That being said, even in a scenario where no mitigation is implemented, it is not expected that there will be direct, unimpeded sightlines into the quarry.

5. Lundy's Lane

Receptors along Lundy's Lane, including the Lundy Manor Wine Cellars, do not have a direct view into the subject lands and will not experience a visual impact. Topography that is characterized by gentle rolling hills provides some visual mitigation in addition to the varying combination of natural vegetation and planted hedgerows. Furthermore, at its closest point, Lundy's Lane is about 450m away from the subject lands border, which further reduces the possibility to view Quarry operations from the public right of way.

6. Upper's Lane

The properties on either side of Upper's Lane are owned by Walker, with exception of Bible Baptist Church property which fronts on to and gains access from Beechwood Road. Consequently, there are no receptors along Upper's Lane. The views along Upper's Lane are characterized by long, uninterrupted views of agricultural fields. Upper's Lane experiences minimal traffic as a midsection connection between Beechwood Road and Thorold Townline Road. Without mitigation, there would be direct views into the site.

7.0 Findings

7.1 Summary of Visual Impacts

Table 1 summarizes potential view impacts. For the purposed of this assessment, we have defined visual impact as any potential change made to the existing landscape character or views of the subject lands and surrounding area by the proposed use of the subject lands for aggregate extraction and associated operations. High impact suggests very noticeable change, therefore requiring mitigation measures to minimize potential visual impacts. Moderate impacts suggest noticeable change, and may require mitigations measures to minimize visual impacts. Low impact suggests that insignificant or filtered views may be had from very specific angles, but the perceived visual may not require mitigation.

Table 1. Summary of Visual Impacts

Viewshed Photo	Description of View	Notes	Potential Impact (without mitigation)	Recommended Mitigation
<i>Figure 3A & 3H: Viewsheds</i>				
Photo 1	5607 Osprey Ave and 9445 Madison Cres	Some vegetation present to provide some visual mitigation. Distance to subject lands aids in overall reduction of visual impact.	Low	Proposed 3 m high noise berm with the addition of planting will provide adequate visual mitigation.
Photo 2a	Intersection of Beechwood Road and Lundy's Lane	Combination of distance from site and existing vegetation provide adequate visual mitigation.	None	No mitigation required.
Photo 2b	9575 Lundy's Lane	Combination of distance from site and existing vegetation provide adequate visual mitigation.	None	No mitigation required.
Photo 3	5769 and 5821 Beechwood Road	Flat topography and no vegetation present for visual mitigation.	Moderate	Proposed 3 m high noise berm with the addition of planting will provide adequate visual mitigation.

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Photo 4	5584 Beechwood Road	Flat topography and no vegetation present for visual mitigation.	High	Proposed 3 m high noise berm with the addition of planting will provide adequate visual mitigation.
Photo 5a	Bible Baptist Church - 5329 Beechwood Road	Flat topography and no vegetation present for visual mitigation.	High	Proposed 3 m high noise berm with the addition of planting will provide adequate visual mitigation. Previous agreement with the Church acknowledges the likelihood of accepted visual impact.
Photo 5b	Bible Baptist Church - 5329 Beechwood Road	Flat topography and no vegetation present for visual mitigation.	High	Proposed noise berm with the addition of planting will provide adequate visual mitigation. Previous agreement with the Church acknowledges the likelihood of accepted visual impact
Photo 6	Northeast Corner of Subject Lands on Beechwood Road south of 9582 Beaverdams Road	Some visual mitigation provided by vegetation, but direct, unfiltered sightlines are present.	Moderate	Proposed 3 m high noise berm with the addition of planting will provide adequate visual mitigation.
Photo 6b	9582 Beaverdams Road	Has rear access along Beechwood Road. Some vegetation provides visual mitigation but views still possible.	Moderate	Proposed 3 m high noise berm with the addition of planting will provide adequate visual mitigation.
Photo 7	Intersection of Beaverdams Road and Thorold Townline Road	Existing vegetation provides significant visual mitigation. Distance reduces potential of impact.	None	No mitigation required.
Photo 8	9722 Beaverdams Road	Existing vegetation provides significant visual mitigation. Distance reduces potential of impact.	None	No mitigation required.
Photo 9a	Beechwood Golf Club on Beaverdams Road	Existing vegetation provides significant visual mitigation. Distance reduces potential of impact.	None	No mitigation required.

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Photo 9b	10138 Beaverdams Road	Existing vegetation provides significant visual mitigation. Distance reduces potential of impact.	None	No mitigation required.
Photo 10	Intersection of Beaverdams Road and Thorold Townline Road	Existing vegetation provides significant visual mitigation. Distance reduces chances of impact.	None	No mitigation required.
Photo 11a	1021 Beaverdams Road	Existing vegetation provides significant visual mitigation. Distance reduces chances of impact.	None	No mitigation required.
Photo 11b	1067 Beaverdams Road	Distance reduces chances of impact. Some vegetation to provide visual mitigation.	Minor	Proposed 3 m high noise berm with the addition of planting of will provide adequate visual mitigation.
Photo 12	Thorold Townline Road Gate Station in between Upper's Lane and Beaverdams Road	Direct visual impact will be present, however given the use of this property, mitigation measures are not required.	High	Proposed 3 m high noise berm with the addition of planting of will provide adequate visual mitigation.
Photo 13a	2711 Thorold Townline Road	Flat topography and no vegetation present for visual mitigation	High	Proposed 3 m high noise berm with the addition of planting of will provide adequate visual mitigation.
Photo 13b	5114 Thorold Townline Road	Property is owned by applicant and therefore does not require mitigation.	High	No mitigation required.
Photo 14	5872 Thorold Townline Road	Property is part of the subject lands and will be demolished prior to extraction.	High	No mitigation required.

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Photo 15	6200 Thorold Townline Road	Combination of distance away from site and existing vegetation provide substantial visual mitigation.	Minor	Proposed 3 m high noise berm with the addition of planting of will provide adequate visual mitigation.
Photo 16	13030 Lundy's Lane	Combination of distance away from site and existing vegetation provide adequate visual mitigation.	None	No mitigation required.
Photo 17	10008 Lundy's Lane	Combination of distance away from site and existing vegetation provide adequate visual mitigation.	None	No mitigation required.
Photo 18	9941 Lundy's Lane	Combination of distance away from site and existing vegetation provide adequate visual mitigation.	None	No mitigation required.
Photo 19	9337 and 9301 Beaverdams Road	Combination of distance away from site and existing vegetation provide some visual mitigation.	Minor	Proposed 3 m high noise berm with the addition of planting of will provide adequate visual mitigation.
Photo 20a	Current End of Upper's Lane - East of Venture Way	Combination of distance away from site and existing vegetation provide some visual mitigation.	None	No mitigation required.
Photo 20b	Current End of Upper's Lane - East of Venture Way	Combination of distance away from site and existing vegetation provide some visual mitigation.	None	No mitigation required.
Photo 21	Thorold Townline & Upper's Lane	Combination of distance away from site and existing vegetation provide some visual mitigation.	High	Proposed 3 m high noise berm with the addition of planting of will provide adequate visual mitigation.

Visual Impact Assessment
Upper's Quarry, City of Niagara Falls, Ontario

Photo 22	Upper's Lane	Internal to the site, views on both sides of Upper's Lane into the quarry will be present. Uppers' Lane to be a haul road and therefore will not have public views into the site.	None	No mitigation required.
Photo 23	Upper's Lane	Internal to the site, views on both sides of Upper's Lane into the quarry will be present. Uppers' Lane to be a haul road and therefore will not have public views into the site.	None	No mitigation required.
Photo 24	Beechwood Road & Upper's Lane	Combination of distance away from site and existing vegetation provide some visual mitigation.	High	Proposed 3 m high noise berm with the addition of planting of will provide adequate visual mitigation.

Given the relatively flat topography and sparse vegetation in many areas surrounding the site, there are multiple opportunities views into the site and visual mitigation is proposed in these areas (**See Figure 4, Mitigation Plan**).

Viewshed Photo	Direction Facing	Coordinates
Photo 1	NW	43.09159041549509, -79.15913774680716
Photo 2a	NW	43.08637848004037, -79.16175265315256
Photo 2b	NW	43.08633861322526, -79.16140313817826
Photo 3	NW	43.09008353863397, -79.16194285993535
Photo 4	W	43.09008353863397, -79.16194285993535
Photo 5a	W	43.09553391225424, -79.16225645129579
Photo 5b	W	43.09635265187862, -79.16232477043178
Photo 6a	SW	43.101353054586255, -79.16253080214389
Photo 6b	SW	43.1013061059072, -79.16254285846162
Photo 7	SW	43.10148803183796, -79.16251070828105
Photo 8	S	43.10221279592787, -79.16407401084261

Visual Impact Assessment
Upper's Quarry, City of Niagara Falls, Ontario

Photo 9a	S	43.103313186050805, -79.1701823722561
Photo 9b	S	43.10345402736262, -79.17183810655565
Photo 10	SE	43.10432254163676, -79.17521387562465
Photo 11a	SE	43.10429320014617, -79.1770062482561
Photo 11b	SE	43.10428146354493, -79.17887095874224
Photo 12	SE	43.09858307709683, -79.17526210088647
Photo 13a	E	43.097585364741136, -79.17542285179691
Photo 13b	E	43.0929193766375, -79.17536658899117
Photo 14	NE	43.09306038696755, -79.17540920281667
Photo 15	NE	43.08356367461785, -79.17527402792552
Photo 16	NE	43.0806808053919, -79.17695019618439
Photo 17	N	43.08345507585993, -79.16950206130812
Photo 18	SW	43.08497544123774, -79.16759609581071
Photo 19	SW	43.100056582143395, -79.15633048474875
Photo 20a	E	43.08995263584173, -79.18707158220559
Photo 20b	E	43.08965682203378, -79.18731462233782
Photo 21	E	43.09432080986039, -79.17534638899983
Photo 22	W	43.09471653628298, -79.17310042341816
Photo 23	E	43.095967738582885, -79.16656515006706
Photo 24	W	43.09679592829729, -79.16230182108085

Figure 3A
Viewsheds

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

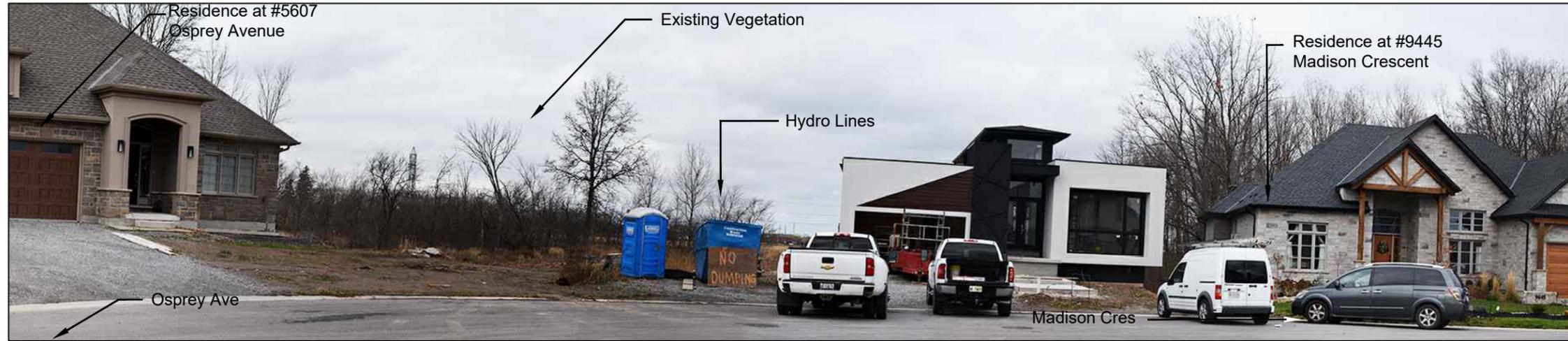


PHOTO TAKEN NOVEMBER 2020

In between 5607 Osprey Ave and 9445 Madison Cres

Viewshed 1: View looking northwest in between houses. The subject lands are well screened by off-site existing vegetation and hedgerow.

GPS Location:

N 43° 05.497' W 079° 09.551'

Approximate Elevation: 164m

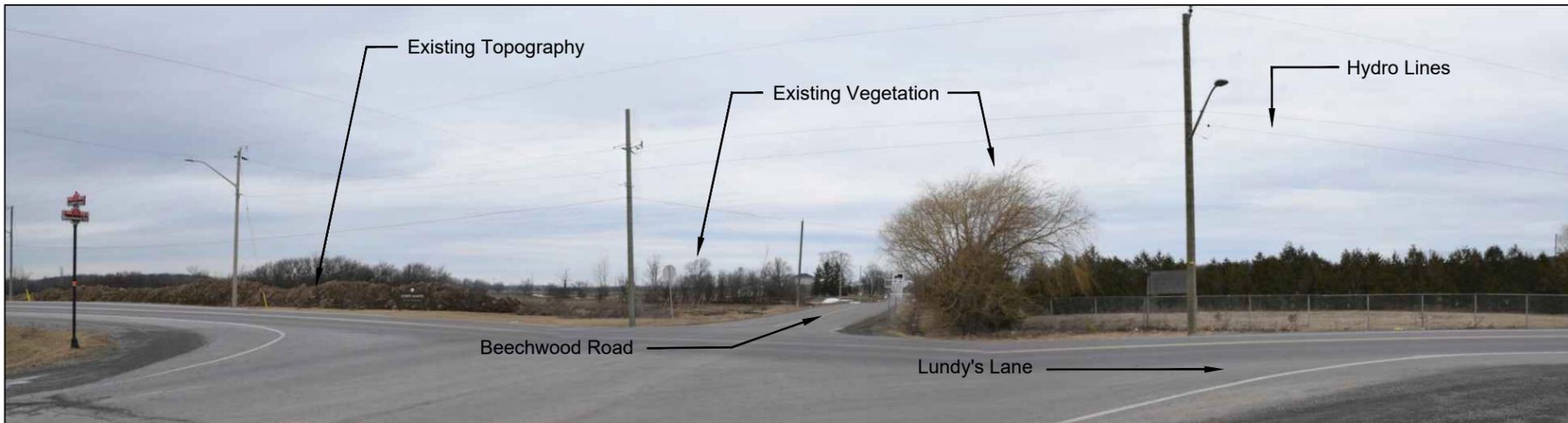


PHOTO TAKEN MARCH 2019

Intersection of Beechwood Road and Lundy's Lane

Viewshed 2a: View looking northwest towards the subject site. The subject lands are partially screened by existing topography, off-site vegetation and hedgerow.

GPS Location:

N 43° 05.170' W 079° 09.705'

Approximate Elevation: 165m



PHOTO TAKEN MARCH 2019

9575 Lundy's Lane

Viewshed 2b: View looking northwest towards the subject site. The subject lands are well screened by off-site existing vegetation and hedgerow.

GPS Location:

N 43° 05.175' W 079° 09.645'

Approximate Elevation: 167m

DATE: December 2, 2020

SCALE: NTS

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Just North of 5769 and 5821 Beechwood Road

Viewshed 3: View looking northwest towards the subject site. A large portion of the subject lands are visible due to topography and the open agricultural field.

GPS Location:
 N 43° 05.388' W 079° 09.714'
 Approximate Elevation: 167m

PHOTO TAKEN MARCH 2019



5584 Beechwood Road

Viewshed 4: View looking northwest towards the subject site. The subject lands are partially screened by an existing hedgerow along Beechwood Road.

GPS Location:
 N 43° 05.528' W 079° 09.721'
 Approximate Elevation: 168m

PHOTO TAKEN MARCH 2019



5329 Beechwood Road

Viewshed 5a: View looking west towards the subject site. Views partially screened by existing hedgerows and structures.

GPS Location:
 N 43° 05.730' W 079° 09.732'
 Approximate Elevation: 167m

PHOTO TAKEN MARCH 2019

Figure 3B Viewsheds

Upper's Quarry,
 City of Niagara Falls,
 Region of Niagara, Ontario

DATE: December 1, 2020

SCALE: NTS

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5329 Beechwood Road

Viewshed 5b: View looking west towards the subject site. Views partially screened by existing hedgerows and structures.

GPS Location:

N 43° 05.777' W 079° 09.735'

Approximate Elevation: 167m

PHOTO TAKEN MARCH 2019



Northeast Corner of Subject Lands on Beechwood Road south of 9582 Beaverdams Road

Viewshed 6a: View looking southwest towards the subject site. The subject lands are partially screened by an existing topography and hedgerow along the northern boundary of the subject lands..

GPS Location:

N 43° 06.017' W 079° 09.752'

Approximate Elevation: 162m

PHOTO TAKEN MARCH 2019



9582 Beaverdams Road

Viewshed 6b: View looking southwest towards the subject site. Views partially screened by existing topography, hedgerows and vegetation.

GPS Location:

N 43° 06.048' W 079° 09.753'

Approximate Elevation: 162m

PHOTO TAKEN MARCH 2019

Figure 3C Viewsheds

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

DATE: December 1, 2020

SCALE: NTS

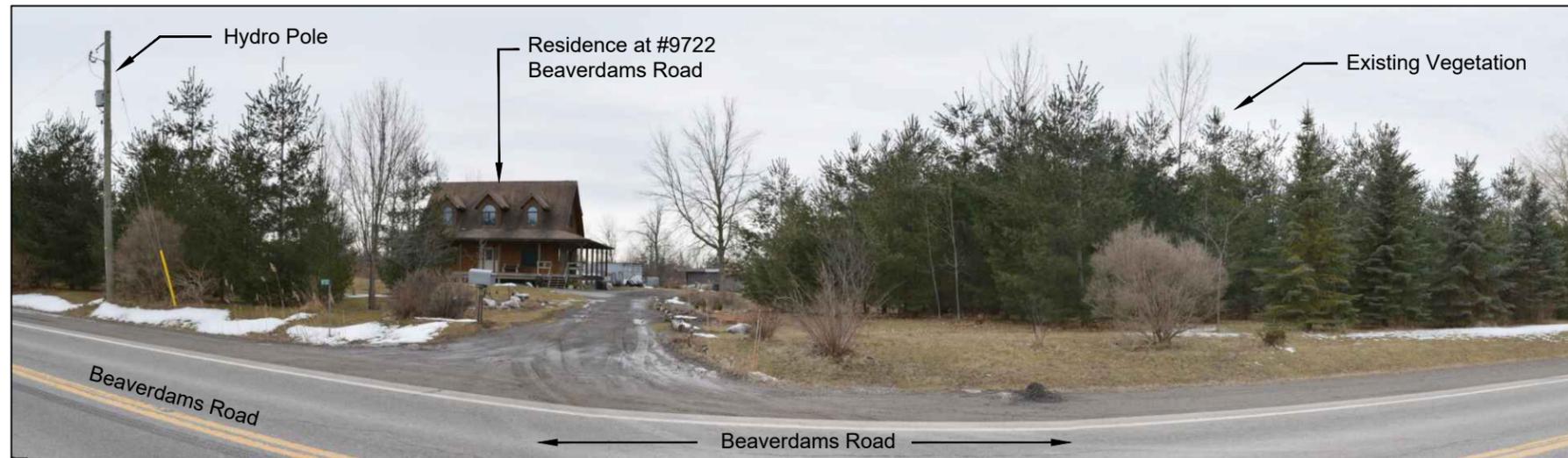
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GPS Location:
 N 43° 06.085' W 079° 09.746'
 Approximate Elevation: 165m

Intersection of Beaverdams Road and Beechwood Road

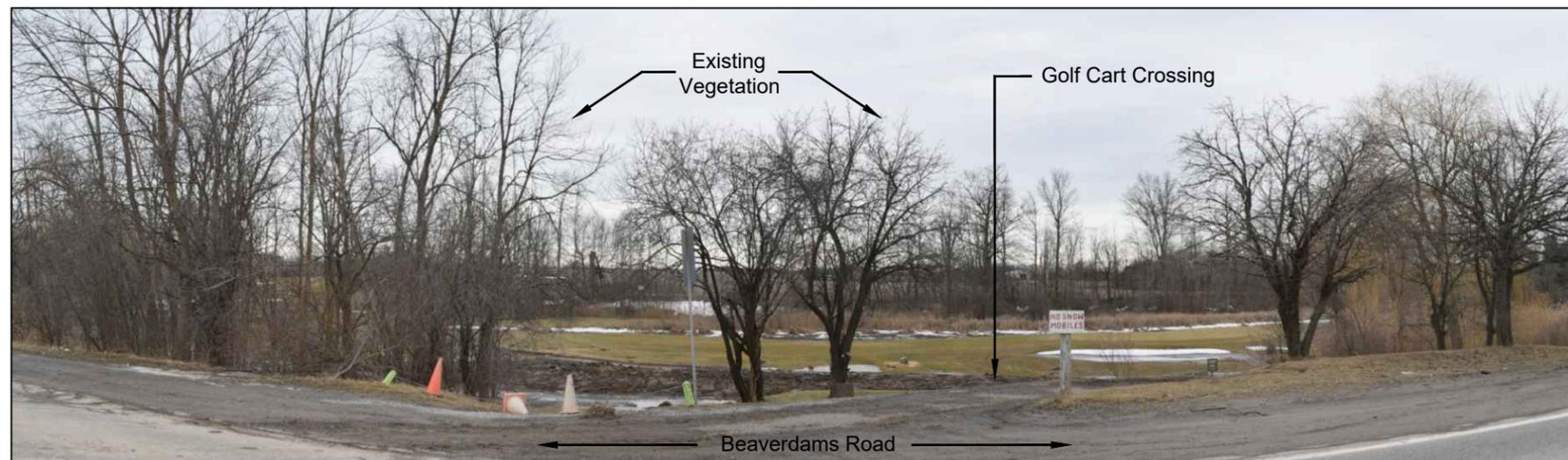
Viewshed 7: View looking southwest towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.



GPS Location:
 N 43° 06.132' W 079° 09.845'
 Approximate Elevation: 165m

9722 Beaverdams Road

Viewshed 8: View looking south towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.



GPS Location:
 N 43° 06.197' W 079° 10.175'
 Approximate Elevation: 165m

Beechwood Golf Club on Beaverdams Road

Viewshed 9a: View looking southwest towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.

Figure 3D Viewsheds

Upper's Quarry,
 City of Niagara Falls,
 Region of Niagara, Ontario

DATE: December 1, 2020

SCALE: NTS

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GPS Location:
 N 43° 06.205' W 079° 10.277'
 Approximate Elevation: 164m

PHOTO TAKEN MARCH 2019

10138 Beaverdams Road

Viewshed 9b: View looking south towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.

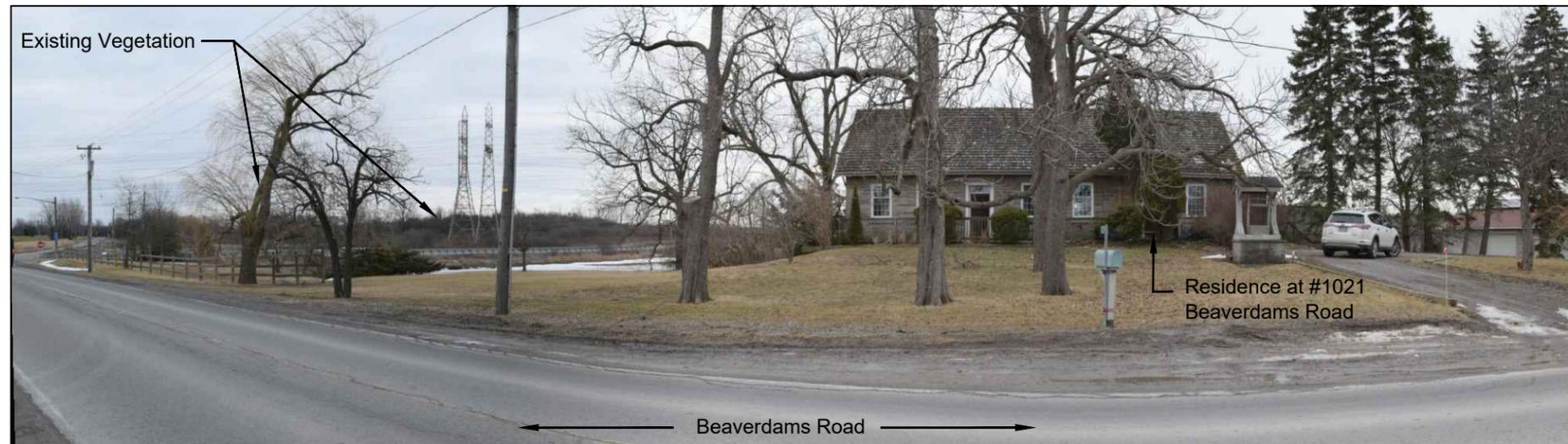


GPS Location:
 N 43° 06.267' W 079° 10.523'
 Approximate Elevation: 164m

PHOTO TAKEN MARCH 2019

Intersection of Beaverdams Road and Thorold Townline Road

Viewshed 10: View looking southeast towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.



GPS Location:
 N 43° 06.260' W 079° 10.589'
 Approximate Elevation: 165m

PHOTO TAKEN MARCH 2019

1021 Beaverdams Road

Viewshed 11a: View looking southeast towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.

Figure 3E
 Viewsheds

Upper's Quarry,
 City of Niagara Falls,
 Region of Niagara, Ontario

DATE: December 1, 2020

SCALE: NTS

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GPS Location:
 N 43° 06.256' W 079° 10.745'
 Approximate Elevation: 163m

1067 Beaverdams Road

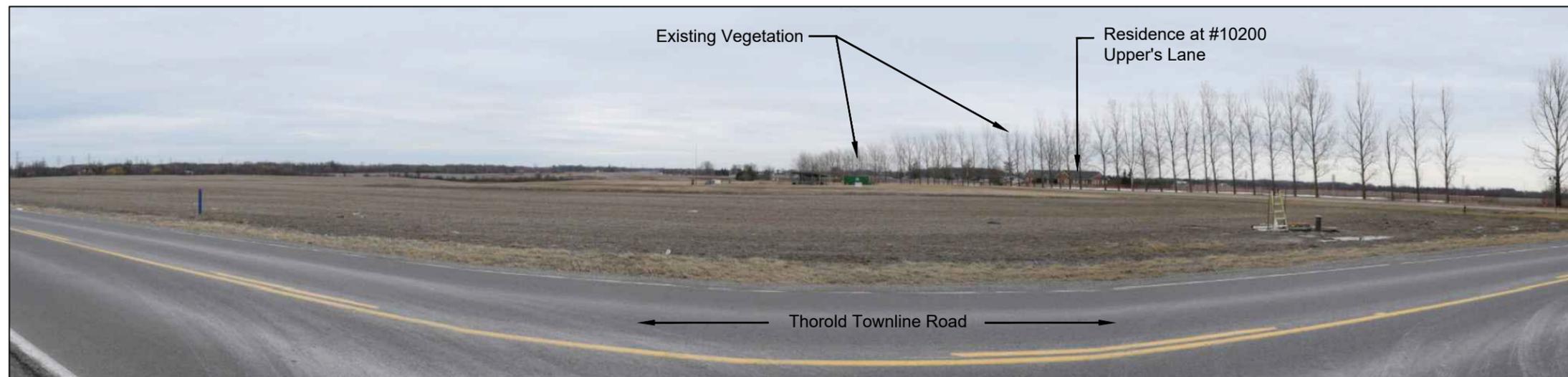
Viewshed 11b: View looking southeast towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.



GPS Location:
 N 43° 05.913' W 079° 10.524'
 Approximate Elevation: 171m

Thorold Townline Road Gate Station in between Upper's Lane and Beaverdams Road

Viewshed 12: View looking southeast towards the subject site. A large portion of the subject lands are visible due to topography and the open agricultural field.



GPS Location:
 N 43° 05.687' W 079° 10.525'
 Approximate Elevation: 175m

2711 Thorold Townline Road

Viewshed 13a: View looking east towards the subject site. A large portion of the subject lands are visible due to topography and the open agricultural field.

Figure 3F Viewsheds

Upper's Quarry,
 City of Niagara Falls,
 Region of Niagara, Ontario

DATE: December 1, 2020

SCALE: NTS

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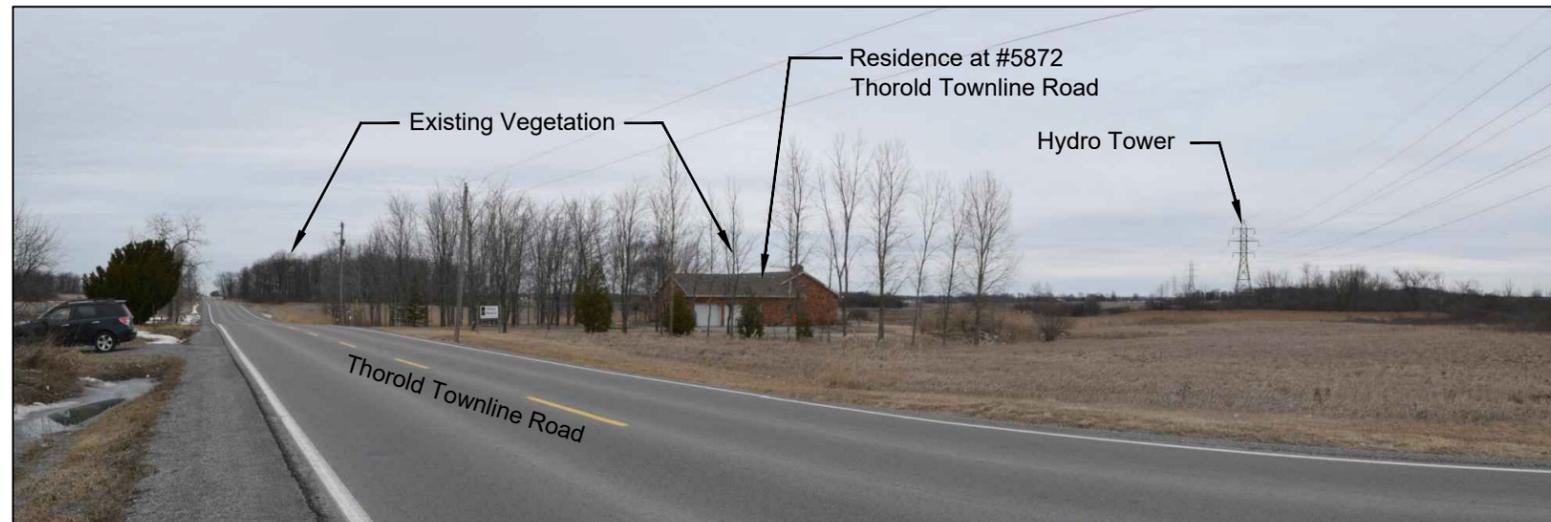


GPS Location:
 N 43° 05.575' W 079° 10.525'
 Approximate Elevation: 176m

PHOTO TAKEN MARCH 2019

5114 Thorold Townline Road

Viewshed 13b: View looking southeast towards the subject site. A large portion of the subject lands are visible due to topography and the open agricultural field.



GPS Location:
 N 43° 05.233' W 079° 10.521'
 Approximate Elevation: 174m

PHOTO TAKEN MARCH 2019

5872 Thorold Townline Road

Viewshed 14: View looking southeast towards the subject site. Views partially screened by existing hedgerows and structures.



GPS Location:
 N 43° 05.013' W 079° 10.520'
 Approximate Elevation: 174m

PHOTO TAKEN MARCH 2019

6200 Thorold Townline Road

Viewshed 15: View looking east towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.

Figure 3G

Viewsheds

Upper's Quarry,
 City of Niagara Falls,
 Region of Niagara, Ontario

DATE: December 1, 2020

SCALE: NTS

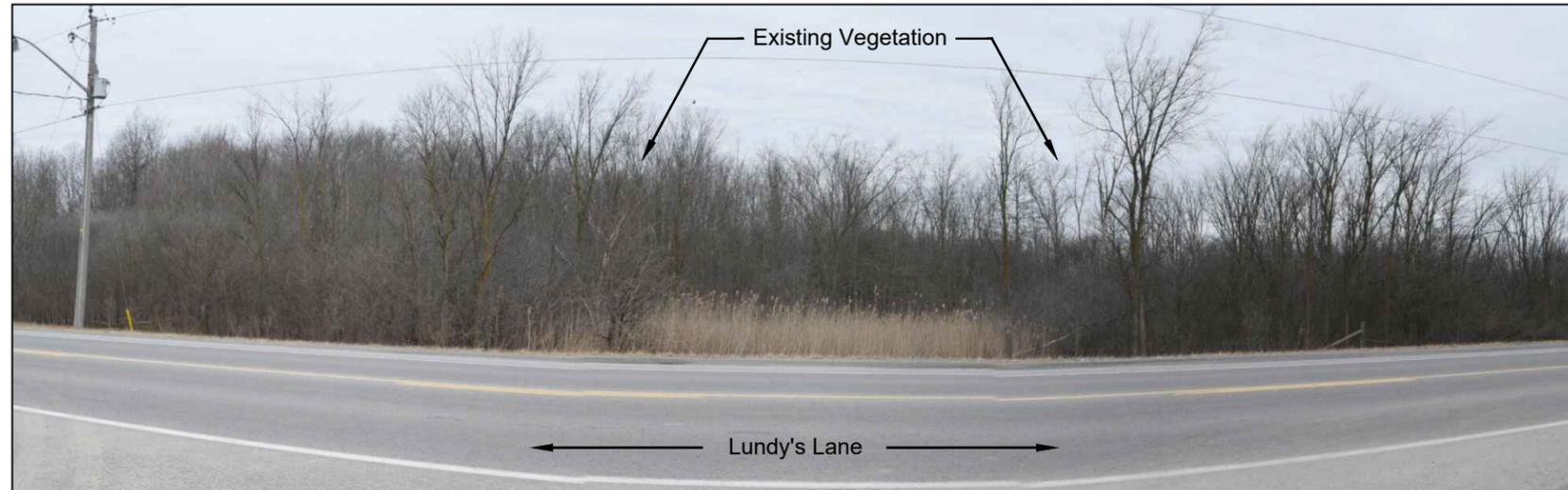
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GPS Location:
 N 43° 04.844' W 079° 10.620'
 Approximate Elevation: 177m

13030 Lundy's Lane

Viewshed 16: View looking northeast towards the subject site. Views partially screened by existing hedgerows and structures.



GPS Location:
 N 43° 04.973' W 079° 10.188'
 Approximate Elevation: 173m

10008 Lundy's Lane

Viewshed 17: View looking north towards the subject site. The subject lands are well screened by off-site existing vegetation.



GPS Location:
 N 43° 05.067' W 079° 10.089'
 Approximate Elevation: 175m

9941 Lundy's Lane

Viewshed 18: View looking north towards the subject site. The subject lands are well screened by off-site existing topography and vegetation.

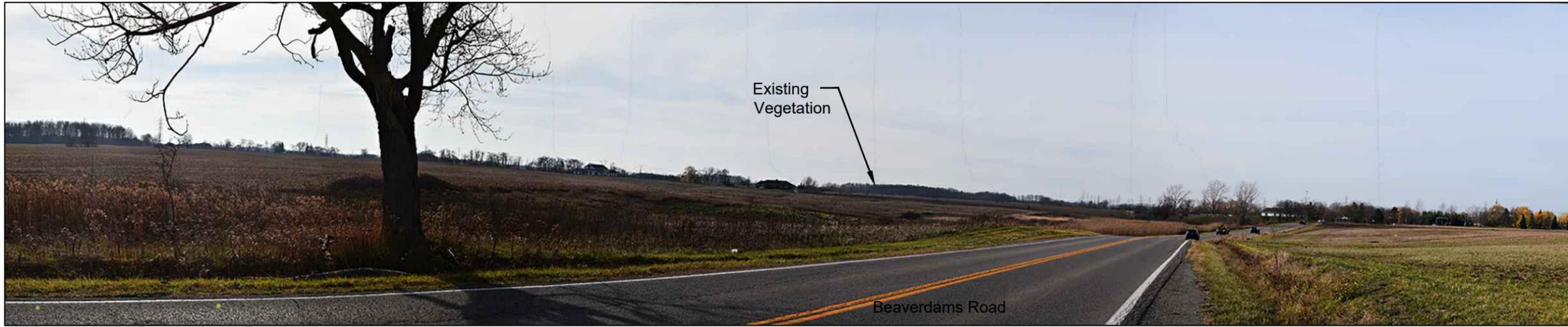
Figure 3H
 Viewsheds

Upper's Quarry,
 City of Niagara Falls,
 Region of Niagara, Ontario

DATE: December 1, 2020

SCALE: NTS

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9337 and 9301 Beaverdams Road

Viewshed 19: View looking southwest towards the subject site. Views screened by existing vegetation

PHOTO TAKEN NOVEMBER 2020



Current End of Upper's Lane - East of Venture Way

Viewshed 20a: View looking east towards the subject site.

PHOTO TAKEN NOVEMBER 2020



Current End of Upper's Lane - East of Venture Way

Viewshed 20b: View looking east towards the subject site.

PHOTO TAKEN NOVEMBER 2020

Figure 31 Viewsheds

Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario

DATE: December 2, 2020

SCALE: NTS

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PHOTO TAKEN AUGUST 2021

Thorold Townline & Upper's Lane

Viewshed 21: View looking east towards the subject site.



PHOTO TAKEN AUGUST 2021

Upper's Lane

Viewshed 22: View looking west towards the Thorold Townline.



PHOTO TAKEN AUGUST 2021

Upper's Lane

Viewshed 23: View looking east towards the Beechwood Road.



PHOTO TAKEN AUGUST 2021

Beechwood Road & Upper's Lane

Viewshed 24: View looking west towards the subject site.

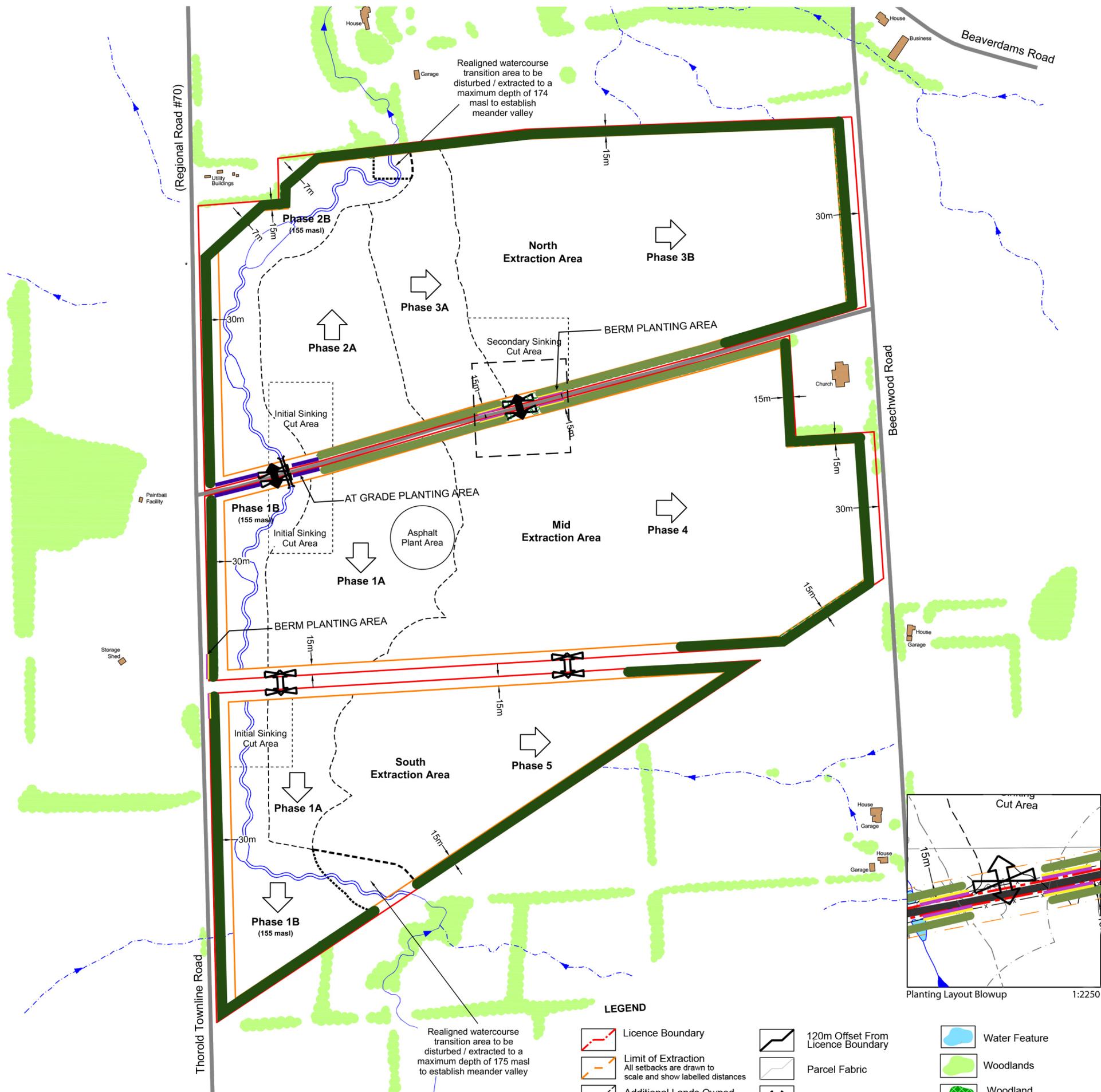
Figure 3J Viewsheds

**Upper's Quarry,
City of Niagara Falls,
Region of Niagara, Ontario**

DATE: September 08, 2021

SCALE: NTS

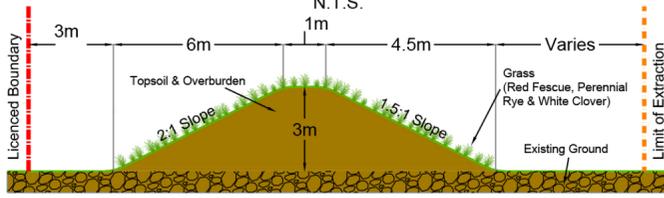
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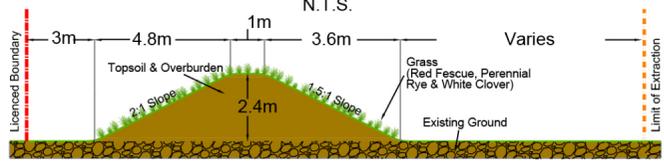
LEGEND

- Licence Boundary
- Limit of Extraction
All setbacks are drawn to scale and show labelled distances
- Additional Lands Owned by Applicant
- Municipal Boundary
- Contours with Elevation
Metres above sea level (MASL)
- Public Road
- Internal Haul Road
- Fence
1.2m post & wire farm fence unless otherwise noted
- Upper's Creek
- 120m Offset From Licence Boundary
- Parcel Fabric
- Entrance / Exit
- Gate
- General Direction of Excavation & Boundary
- Berm
- Building/Structure
Location and use for buildings on site & within 120m are shown
- Point Features
Borehole, Benchmark, Test Pit, Well
- Spot Elevation
Metres above sea level (MASL)
Top - Existing, Bottom - Proposed
- Archaeological Site
Protected Areas Requiring Further Assessment (Includes 20-30m Buffer)
- Limited Service Access
For Phases 1A and 1B in South Extraction Area
- Cross Sections
- Culvert
- Water Feature
- Woodlands
- Woodland Compensation Area
- Archaeological Offset 50m Monitoring Buffer
- Trans Canada Blasting Buffer Area
- Trans Canada Pipeline Easement
- Hydro One Easement
- Realigned Upper's Creek
From Stantec, December 2018
- Proposed Floor
Metres above sea level (MASL)
- Noise Receptor
- Large Planting Stock
- Small Planting Stock
- Typical Berm (3m)
- Typical Berm (2.4m)
- 6m Wide At Grade Planting Area

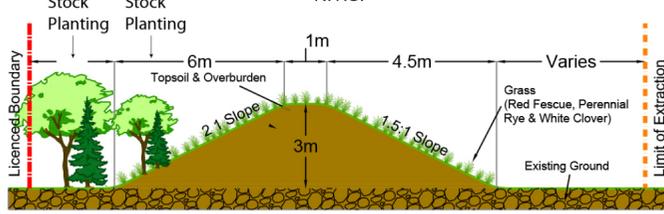
Typical Berm



Typical Berm Along Uppers Lane



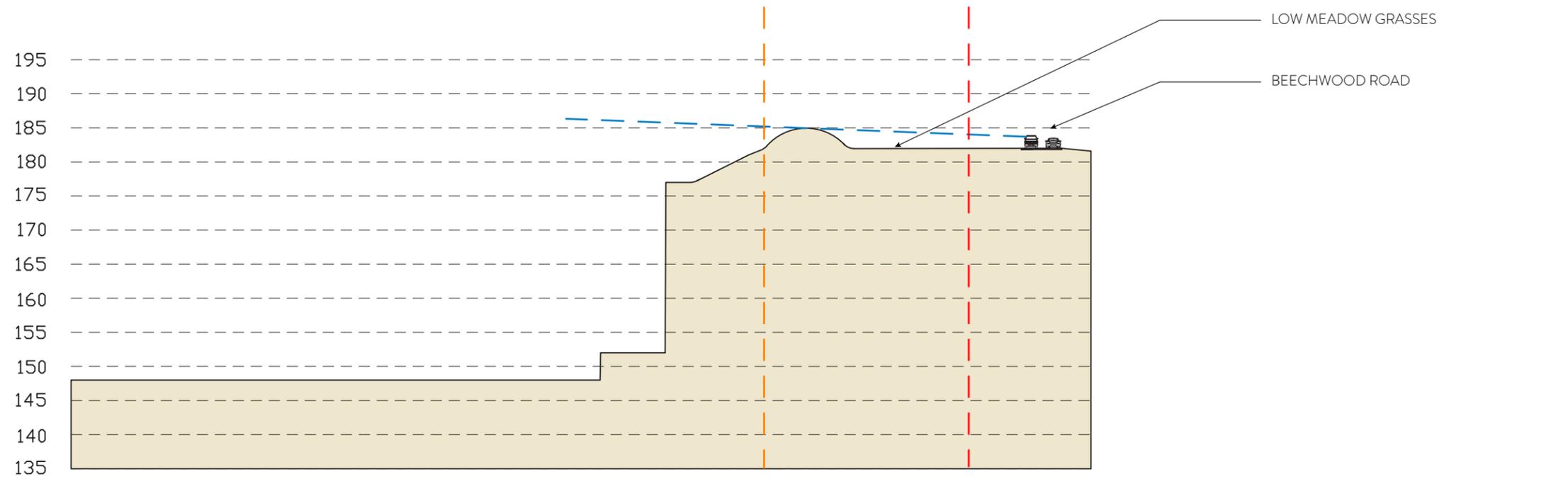
Berm with Planting
Applies to Both 3m and 2.4m
N.T.S.



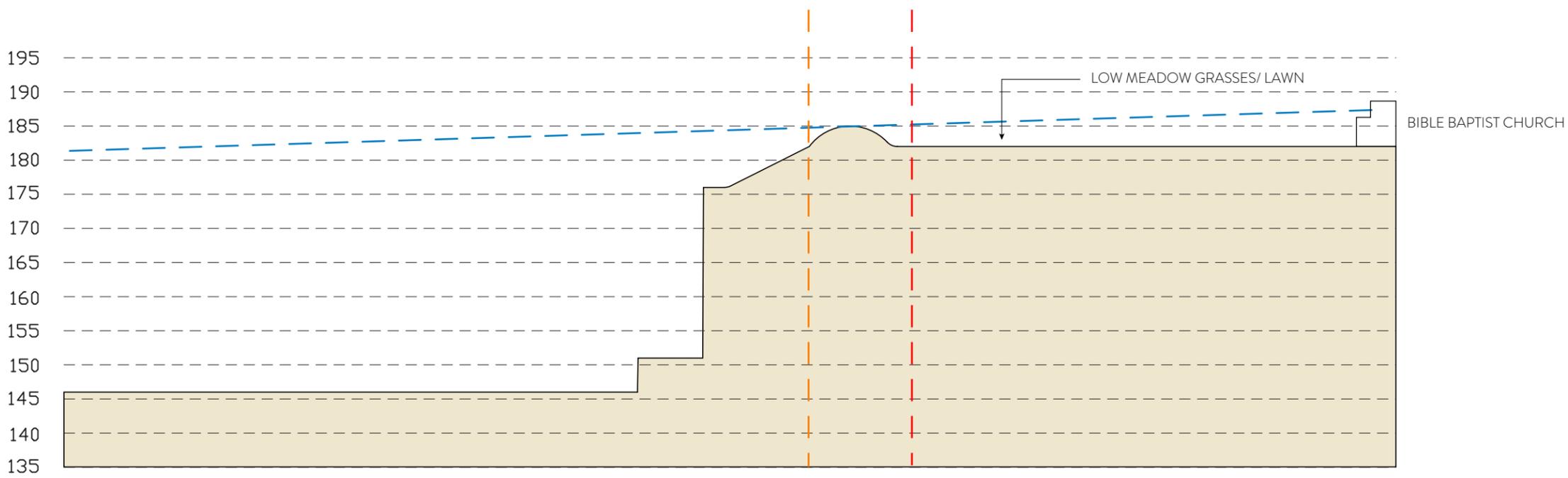
Note: Refer to Section 9.0 of Visual Impact Assessment for planting details.

Figure 4
Mitigation Plan





SECTION A



SECTION B

Figure 5A
Cross Sections A & B

Walker Upper's Quarry
City of Niagara Falls
Niagara Region



- — — — — Limit of Extraction
- — — — — Licence Boundary
- - - - - Line of Sight

DATE: August 2021

FILE: 9061DO

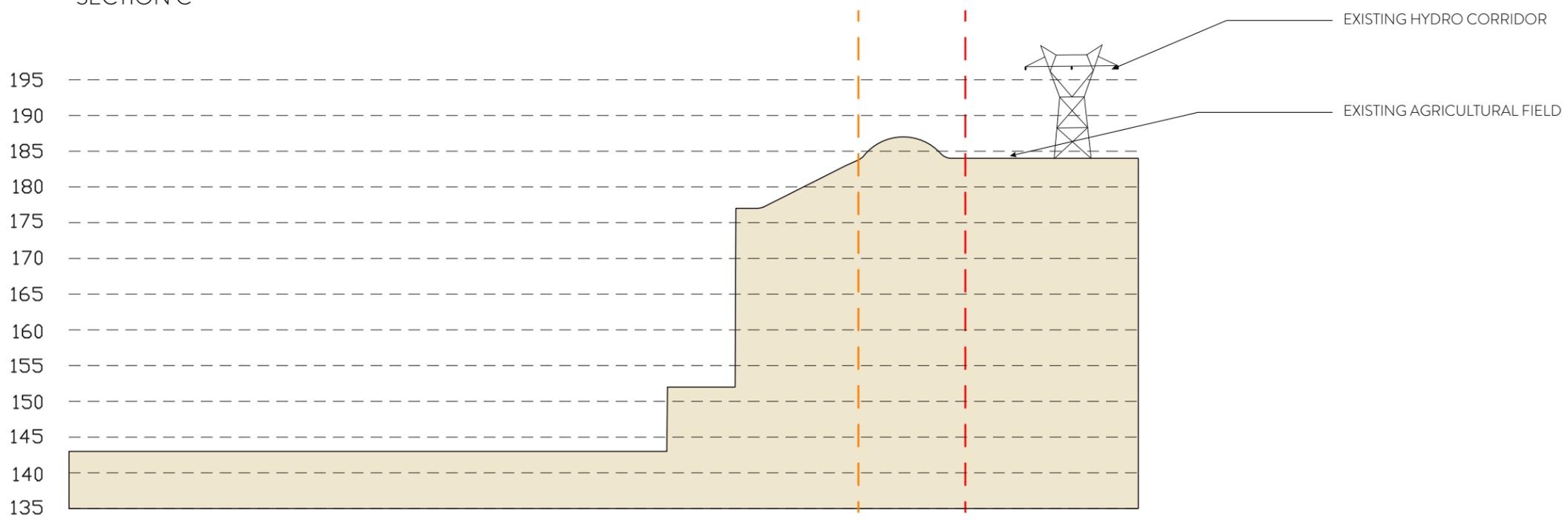
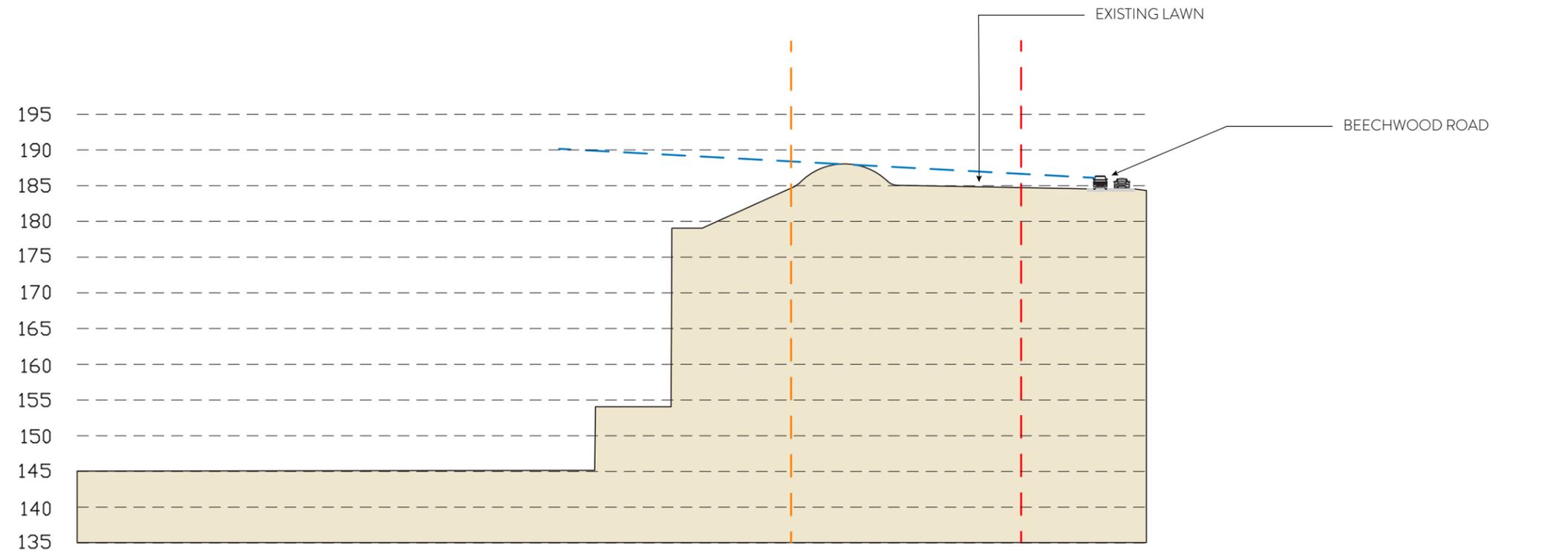
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Figure 5B
Cross Sections C & D

Walker Upper's Quarry
 City of Niagara Falls
 Niagara Region

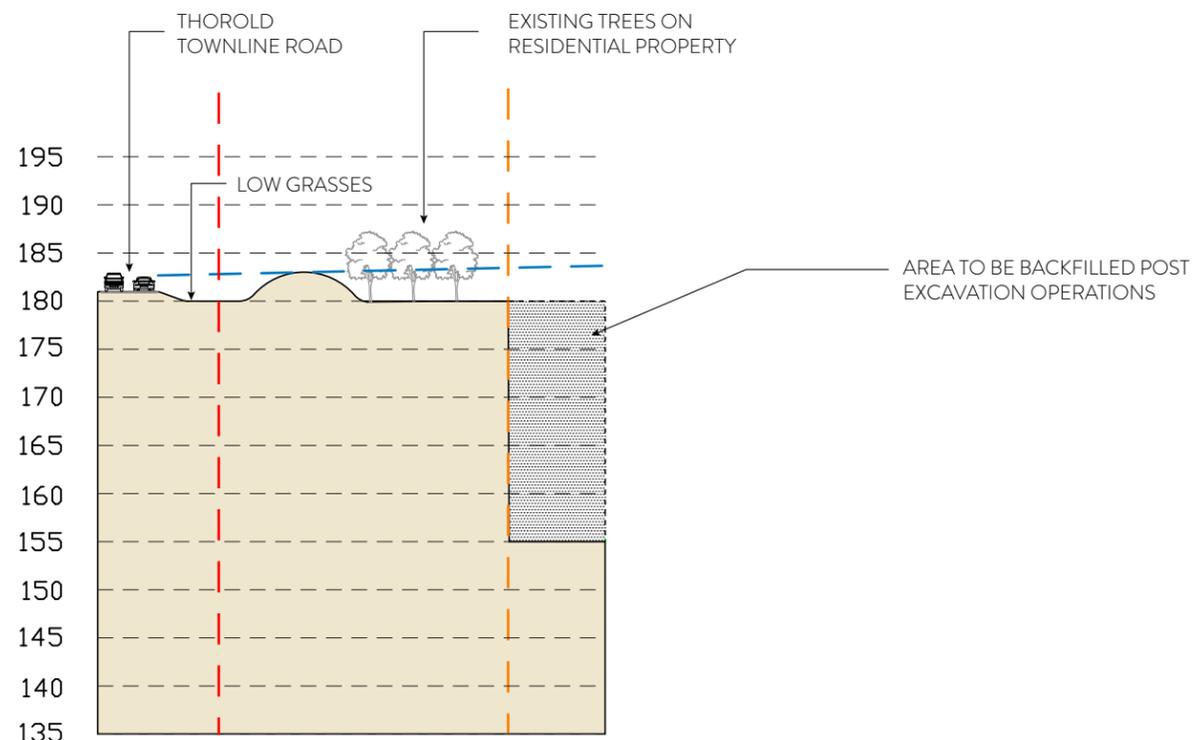


- Limit of Extraction
- Licence Boundary
- Line of Sight

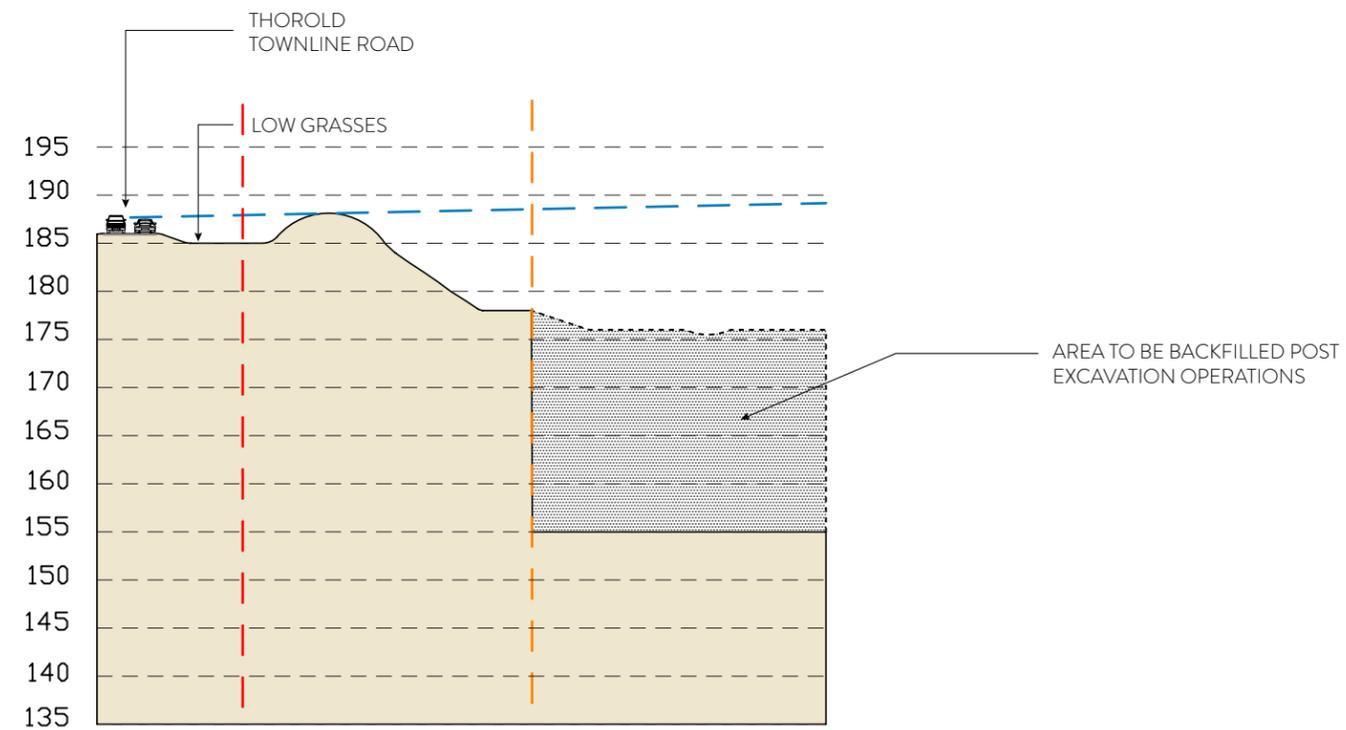


DATE: August 2021
 FILE: 9061DO
 DRAWN: CC





SECTION E



SECTION F

Figure 5C
Cross Sections E & F

Walker Upper's Quarry
City of Niagara Falls
Niagara Region



-  Limit of Extraction
-  Licence Boundary
-  Existing Vegetation
-  Line of Sight

DATE: August 2021

FILE: 9061DO

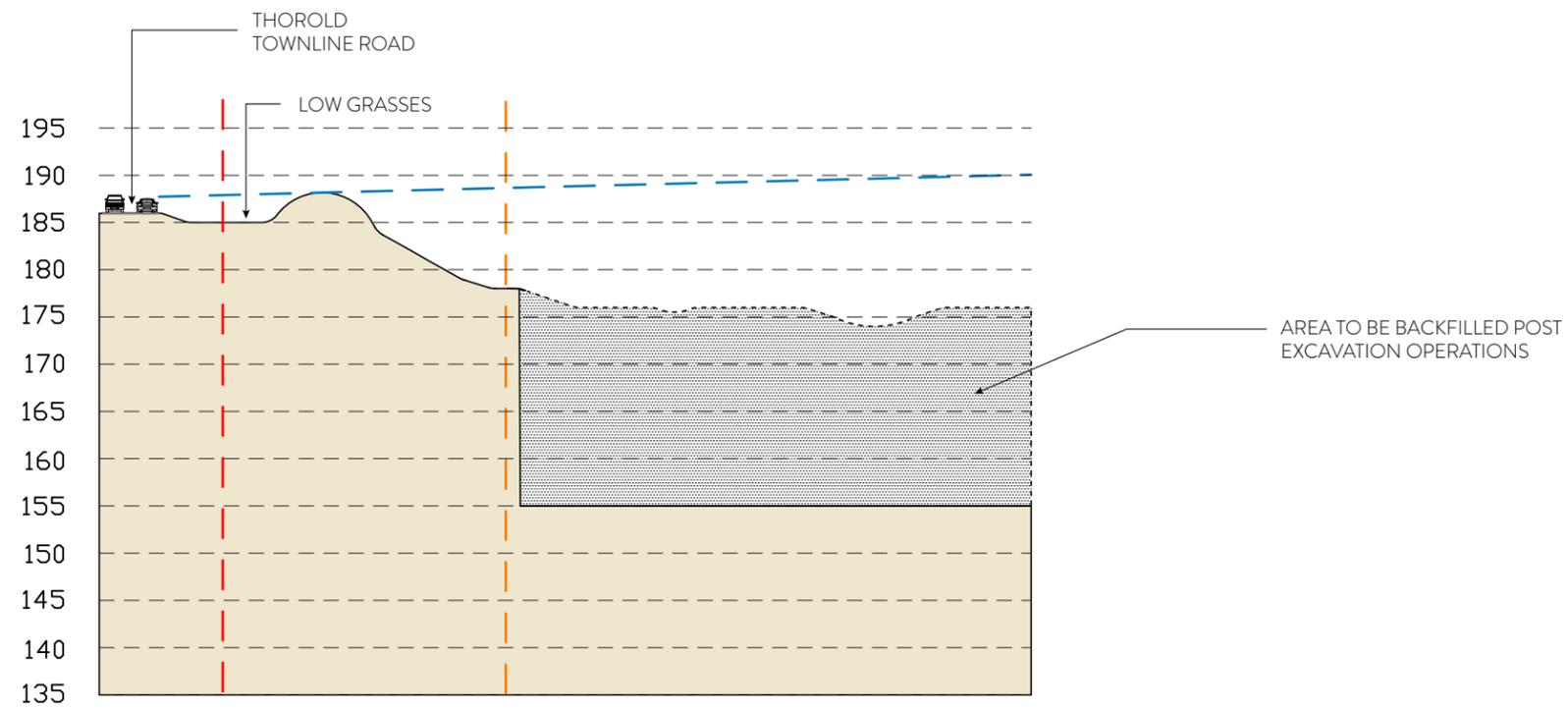
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Figure 5D
Cross Sections G & H

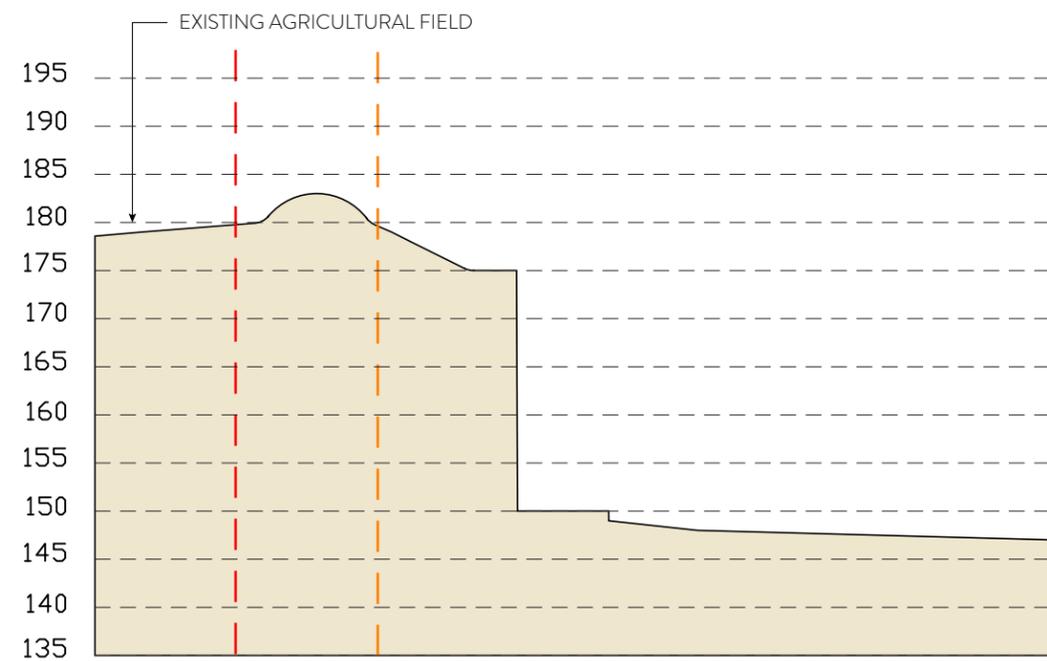
Walker Upper's Quarry
 City of Niagara Falls
 Niagara Region



- — — — — Limit of Extraction
- — — — — Licence Boundary
- - - - - Line of Sight



SECTION G

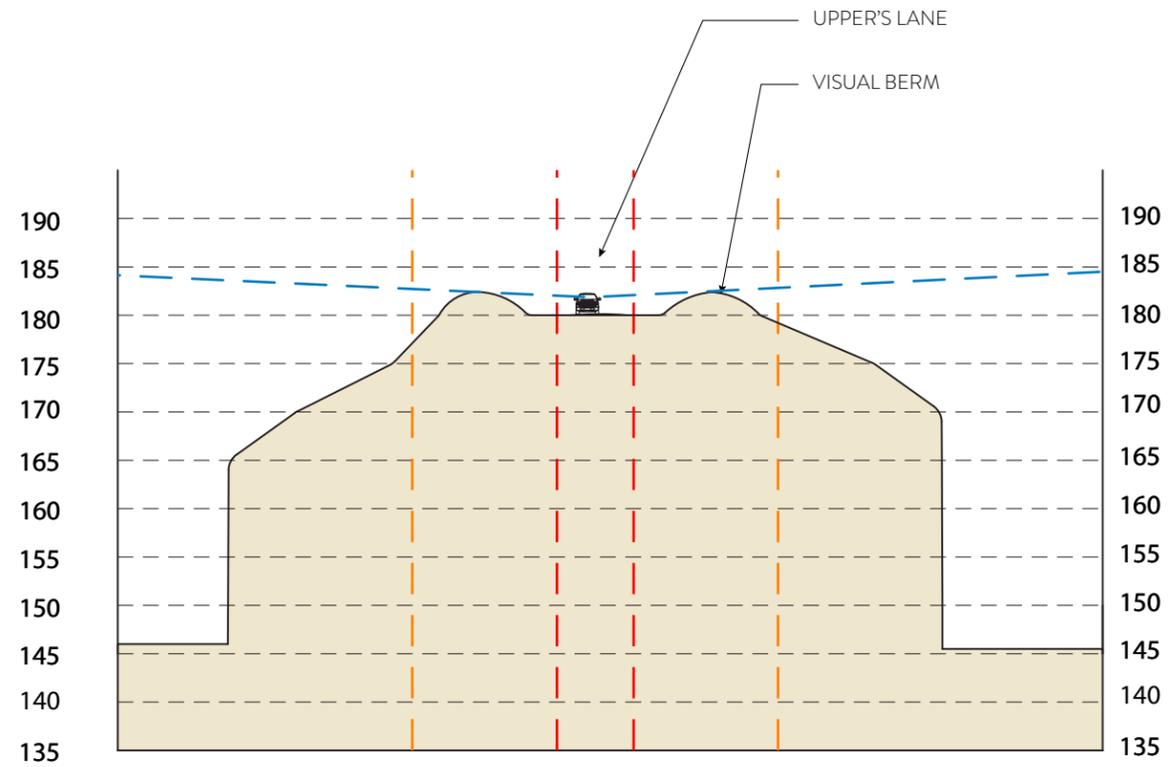


SECTION H

DATE: August 2021

FILE: 9061DO

DRAWN: CC



SECTION I

Figure 5E
Cross Section I

Walker Upper's Quarry
City of Niagara Falls
Niagara Region



- — — Limit of Extraction
- — — Licence Boundary
- - - - Line of Sight

DATE: October 2021

FILE: 9061DO

DRAWN: CC

8.0 Future Rehabilitation

After extraction activities of the proposed quarry are complete, a final rehabilitation will be fully implemented in order to restore and enhance the subject landscapes. As shown in **Figure 6**, a multitude of landscape ecologies will be created to enhance the open landscape character of the sites, while providing opportunities for recreation and the creation of natural habitats for a variety of species.

Prior to extraction activities ceasing, initial phases include the establishment of a watercourse re-alignment corridor as part of Phases 1 and 2. While it is planned that naturalization will occur over the span of operations, the area will be assessed for further landscape improvements at the time of the plan's implementation. At final rehabilitation, outflow from the realigned watercourse and the quarry lake will discharge from the Site at the present location where the existing creek channel crosses the northern property boundary.

During the operational phase, as resources are extracted, the quarry will be progressively rehabilitated by backfilling surplus overburden against the majority of quarry walls to establish side slopes having a 2:1 ratio with suitable side-slope material. In other cases, vertical bedrock faces will be permitted to remain with side sloping near the water's edge to create a variety of landscapes and habitat.

Upland side slopes around the extraction area will be spread with topsoil/overburden to a minimum thickness of 15 cm on established slopes and seeded with a native grass and forb seed mix. In some cases, the slope will be gradual at the water's edge where near shore wetland zones are proposed to be established. Shallow shoreline areas, with the addition of brush piles, logs, stumps and boulders provide for enhanced habitat diversity and cover.

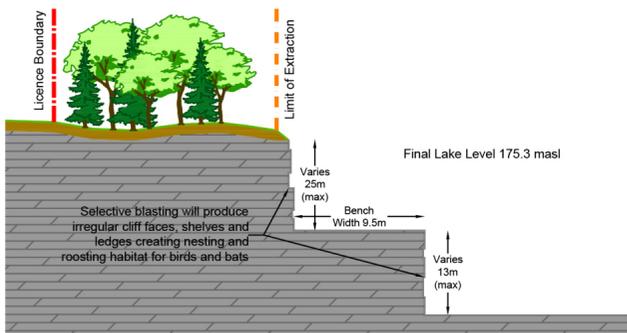
The defining feature of the rehabilitated areas will be 70.1 ha of lakes (separated into three different bodies of water). The long-term average stage elevation for the quarry lake is estimated to be 175.15 masl. The overall goal of the proposed rehabilitation will be to restore the natural character of the proposed quarry and enhance the existing open landscape character of the area as to create a visually appealing, ecologically functional, and vibrant landscape.



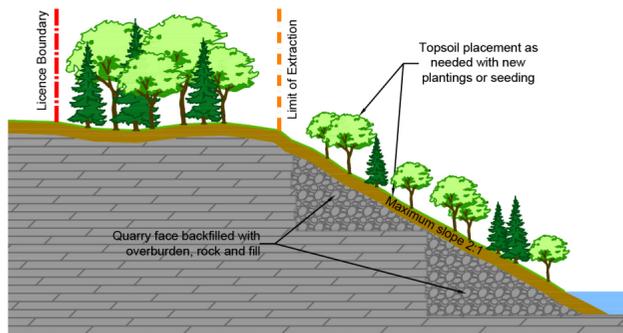
LEGEND

	Licence Boundary		120m Offset From Licence Boundary
	Limit of Extraction All setbacks are drawn to scale and show labelled distances		Parcel Fabric
	Additional Lands Owned by Applicant		Trans Canada Pipeline Easement
	Municipal Boundary		Hydro One Easement
	Contours with Elevation Metres above sea level (MASL)		Extraction Face (Below water)
	Public Road		Entrance / Exit
	Realigned Upper's Creek (Stantec, 2020)		Gate
	Surface Drainage Feature Direction of flow indicated by arrows		Fence 1.2m post & wire farm fence unless otherwise noted
	Waterbody		Building/Structure
	Shoreline Wetland		Proposed Floor Elevation Metres above sea level (MASL)
	Terrestrial Habitat		Proposed Final Grade
	Enhancement Planting Area		Cross Sections
			Woodland Compensation Area

Stepped Cliff Face Detail
N.T.S.



Typical Backfilled Side Slope Detail - Quarry
N.T.S.



Typical Shoreline Wetland Detail
N.T.S.

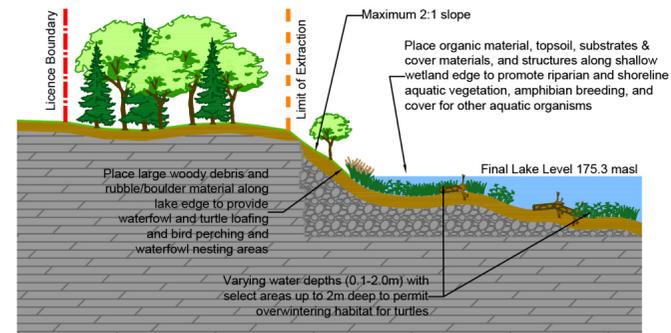
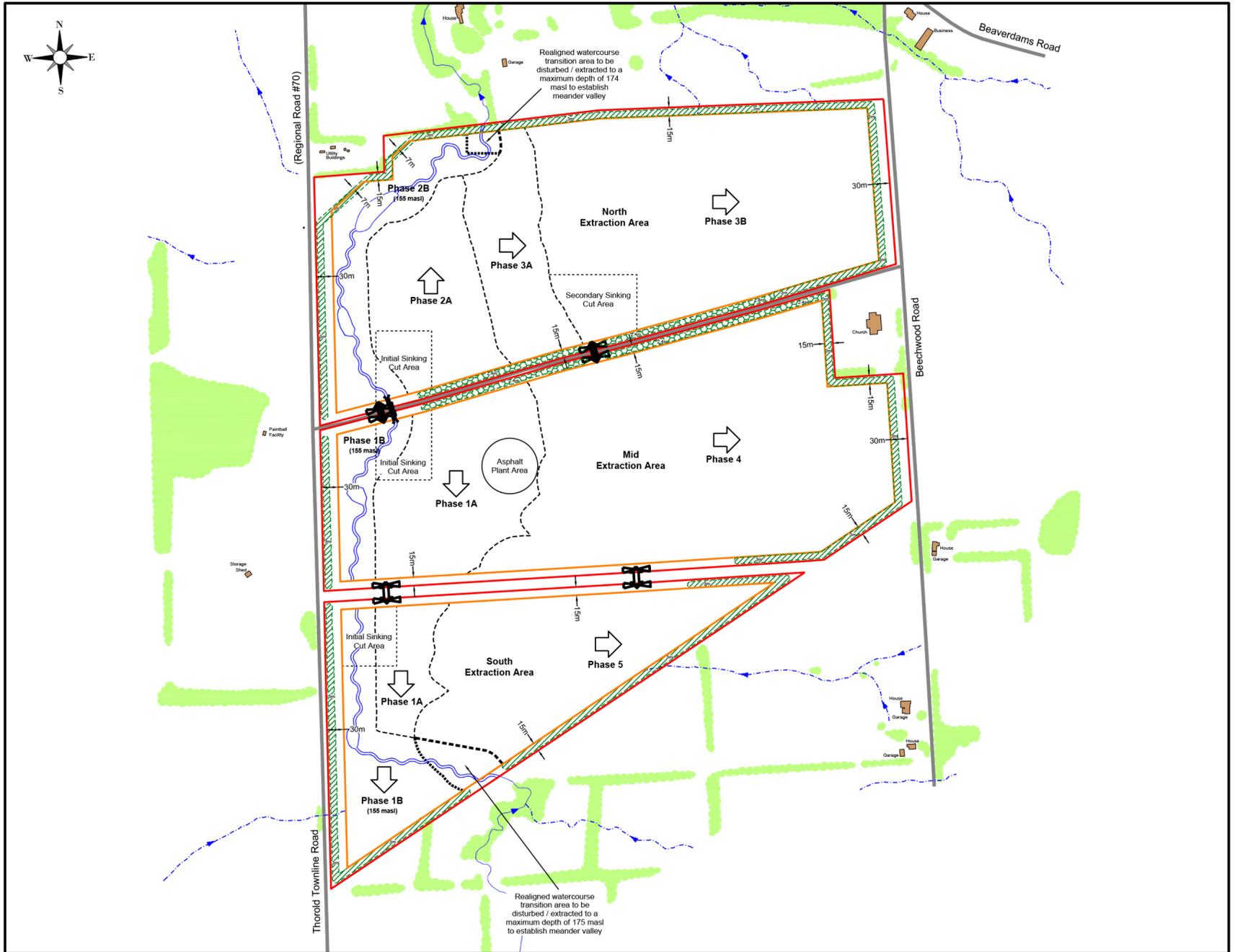


Figure 6
Rehabilitation Plan





LEGEND

	Licence Boundary		120m Offset From Licence Boundary
	Limit of Extraction All setbacks are drawn to scale and show labelled distances		Parcel Fabric
	Additional Lands Owned by Applicant		Entrance / Exit
	Municipal Boundary		Gate
	Contours with Elevation Metres above sea level (MASL)		General Direction of Excavation & Boundary
	Public Road		Berm
	Internal Haul Road		Building/Structure Location and use for buildings on site & within 120m are shown
	Fence 1.2m post & wire farm fence unless otherwise noted		Point Features Borehole Benchmark Test Pit Well
	Upper's Creek		Spot Elevation Metres above sea level (MASL) Top - Existing Bottom - Proposed
	Realigned Upper's Creek From Stantec, December 2018		Proposed Floor Metres above sea level (MASL)
	Water Feature		Cross Sections
	Woodlands		Archaeological Site Protected Areas Requiring Further Assessment (Includes 20-30m Buffer)
	Woodland Compensation Area		Limited Service Access For Phases 1A and 1B in South Extraction Area
	Archaeological Offset 50m Monitoring Buffer		Culvert
	Trans Canada Blasting Buffer Area		Noise Receptor
	Trans Canada Pipeline Easement		
	Hydro One Easement		

Figure 7
Operations Plan



9.0 Recommendations

It is recommended that the following mitigation measures be implemented for the proposed Quarry:

- a) Where possible and to the extent to which it is present, existing vegetation located along the site perimeter and within the setback area should be retained.
- b) The proposed three metre high acoustic berms and 2.4 metre high visual berms shall be established around the perimeter of the site in the locations shown on the plan view. Berms shall be constructed in a smooth, rolling manner with varying highpoints (where space permits while respecting minimum height requirements), and variations along the berm frontage to create a more natural appearance. Berms shall be seeded with a naturalizing mix of wildflowers and grasses to stabilize slopes and minimize mowing and maintenance.
- c) Where proposed, trees should be planted as supplementary visual mitigation (**See Mitigation Plan**). Trees are to be planted at a spacing of 5 to 10 m on centre, depending on species. Plantings are to be randomly spaced and staggered up on the berm up to one third of its maximum height to appear more natural, where possible. Planting shall also extend a minimum of 3 m out from the berm towards the road where available space permits. All vegetation is to be selected for wind and salt tolerance, hardiness. Where appropriate, native species that complement the existing surroundings are to be utilized wherever possible.

The proposed at grade planting areas adjacent to the proposed culvert are to be a minimum of 6 metres wide and consist of both coniferous and deciduous plant material (**Figure 4**). Shrubs and understory species shall be planted closer to the road with trees behind. For these planting areas, large planting stock is to be utilized.

Where large planting stock are indicated, this shall mean deciduous trees of minimum 40 mm caliper, coniferous trees of minimum 1.0 m height, and shrub species of minimum 40 cm height.

Where small planting stock are indicated, this shall mean deciduous tree whips of minimum 1.2 m height, coniferous trees of minimum 0.6 m height, and shrub species of minimum 20 cm height (or bare root stock when in season).

Berm planting shall occur for 40 m stretches on either side of the unopened road allowance facing Thorold Town Line Road and on either side of the internal entrances off of Upper's Lane. Large planting stock will be planted 3 m extending out from the berm and small planting stock shall extend from the toe of the berm to 2 m up the berm.

Visual Impact Assessment
Upper's Quarry, City of Niagara Falls, Ontario

Plant species for berms may include, but are not limited to the following:

Trees

White Pine	Common Hackberry	Chokecherry
White Spruce	Paper Birch	Pin Oak
Sugar / Silver Maple	Trembling Aspen	Basswood
White Pine	White Spruce	White Cedar

Shrubs

Staghorn Sumac	Nannyberry	Common Ninebark
American Elder	Dogwood	Highbush Cranberry

- d) To ensure survival and positive growth rate, the vegetative screening is to be maintained and managed appropriately so that it remains an effective visual screen over time. Allowance of natural succession to occur is encouraged, in keeping with restoration objectives.
- e) During the first year, it is recommended that the planted trees are watered and monitored until established. After the first year and up to five years, it is recommended that the trees are inspected biannually (end of Year 1, beginning of Year 3, and end of Year 4). This will be conducted to ensure any trees which are in poor condition at the time, are fertilized, watered, and monitored, as needed, to improve their health and vigor.
- f) It is expected that there may be a mortality rate of up to 15 % of all trees planted over the course of the five year maintenance period. Trees that die exceeding this percentage shall be replaced yearly, preferably in the spring or late summer. With biannual maintenance and monitoring, the trees will have the best chance of survival, and overall, it is anticipated that the need for tree replacements during the life of the operation will be reduced.

10.0 Conclusions

It is our professional opinion that if the mitigation measures identified in this report are implemented, views from public roadways, receptor homes and recreational uses into the subject lands will be effectively screened year-round in a way that maintains the open landscape character, and limits visual impacts.

Through our investigations, we conclude that the proposed quarry will not adversely affect significant views, or changes to natural landscapes provided the recommendations outlined in this report are implemented.

Furthermore, through the enhancement and strengthening of the open landscape character of the proposed extension lands, the rehabilitation strategy (**See Figure 6**) will create a visually appealing landscape. Visual mitigation measures are also outlined on the operations and rehabilitation site plans submitted with the applications and these shall be referenced in conjunction with this report. Please feel free to contact the undersigned with any questions regarding this report.

Respectfully submitted,
MHBC Planning, Urban Design & Landscape Architecture



Nick Miele BLA, OALA, CSLA, ISA
Senior Landscape Architect / Partner

APPENDIX **A**



CURRICULUM VITAE

Nick A. Miele, BLA, OALA, MALA, AALA, SALA, CSLA, ISA

EDUCATION

1997
Bachelor of Landscape
Architecture, University of Toronto

Nick Miele, a Partner with MHBC, joined the firm in 2004. Mr. Miele has been responsible for designing and managing a broad range of project work locally and internationally for both public and private sector clients.

Mr. Miele's project experience ranges from large scale residential and commercial developments, community and urban design, institutional landscapes, recreational facilities, parks, public open spaces, environmental design and restorations.

Mr. Miele is an accredited Landscape Architect and is a full member in good standing with the Ontario Association of Landscape Architects, Manitoba Association of Landscape Architects, Alberta Association of Landscape Architects, Saskatchewan Association of Landscape Architects and Canadian Society of Landscape Architects as well as being an ISA Certified Arborist.

Highlights of Mr. Miele's career include being a member on an award winning team for environmental design in stormwater management (CSLA), and being a Lead Designer on a short listed team for designs for the 2008 summer olympic games in Beijing, People's Republic of China. At the OALA's 50th Anniversary AGM and Conference, Mr. Miele was awarded the David Erb Memorial Award, a high honour recognizing an OALA member who through their volunteer efforts has made an exceptional contribution towards advancing the profession of Landscape Architecture.

Mr. Miele is involved in overseeing all aspects of project development and management from planning and design through to implementation, construction contract administration, and project close-out.

PROFESSIONAL ASSOCIATIONS

Full Member, Ontario Association of Landscape Architects (OALA)
Full Member, Manitoba Association of Landscape Architects (MALA)
Full Member, Alberta Association of Landscape Architects (AALA)
Full Member, Saskatchewan Association of Landscape Architects (SALA)
Full Member, Canadian Society of Landscape Architects (CSLA)
Certified Arborist, International Society of Arboriculture (ISA)

PROFESSIONAL DEVELOPMENT

Examining Board Member (Current Chairperson), OALA, 2005 - present
Professional Advisor, OALA, 2001 - present
LARE (Landscape Architect Registration Examination), Advisor, 2001-present.
Teaching Assistant, University of Toronto, School of Architecture and Landscape Architecture, 1997.

CONTACT

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CURRICULUM VITAE

Nick A. Miele, BLA, OALA, MALA, AALA, SALA, CSLA, ISA

PROFESSIONAL HISTORY

- 2009 - Present **Partner**, MHBC Planning, Urban Design & Landscape Architecture
- 2004 - 2009 **Senior Landscape Architect and Associate**, MHBC Planning, Urban Design & Landscape Architecture
- 2003 - 2004 **Principal**, MEP Design Inc.
- 1999 - 2003 **Senior Landscape Architect**, Terraplan Landscape Architects Inc.
- 1997 - 1999 **Intermediate Landscape Architect**, Terraplan Landscape Architects Inc.

PROFESSIONAL EXPERIENCE

Selected Parks and Open Space Projects

- Riverwood Park – Kitchener
- Oakdale Park, Bridge and Creek Restoration – Oakville
- Morrison Creek Bridge, Stairs and Trail Restoration – Oakville
- Rainbow Creek Park: Bridges and Trail Revitalization - Vaughan
- Dufferin Hill Woodland Trail – Vaughan
- Woodbridge Memorial Park - Vaughan
- Milton Quarry Trail Head Master Plan – Milton
- Agostino Park – Vaughan
- Alexander Park – Vaughan
- Snowbirds Park – Oshawa
- Lakeview Neighbourhood Park – Oshawa

Selected Stormwater Management and Ecological Restoration Projects

- Waterside Marsh Restoration - Vaughan
- Vellore Woods Stormwater Management Facility – Vaughan
- Stormwater Corridor / Habitat Restoration – Georgetown
- Humber River, Pond Diversion and Fish Habitat Restoration – Caledon
- Naturalized Corridor for Jefferson Salamander– Oak Ridges
- Various storm water management facilities in the GTA, Collingwood, Stayner, Cobourg and Southern Ontario
- Various Private Naturalization / Restoration Plans in Toronto, Vaughan, and Caledon

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CURRICULUM VITAE

Nick A. Miele, BLA, OALA, MALA, AALA, SALA, CSLA, ISA

Selected Residential Projects

- Riverwood Community – Kitchener
- South Unionville Square – Mixed Use / Condominiums - Markham
- Amica Retirement Community - Oakville
- Vellore Woods Community Masterplan – Vaughan
- Dufferin Hill Community Masterplan – Vaughan
- Trafalgar Hills – Georgetown
- Lakeview Park Community – Oshawa
- Edgeley Village – Toronto

Selected Commercial & Institutional Projects

- Various Home Depot stores across Ontario
- Various Shoppers Drug Mart stores across Ontario
- Bradford Shopping Centre – Bradford
- Alcona Shopping Centre – Innisfil
- Allandale Veterinary Clinic - Barrie
- Colossus Centre, Streetscape Concepts - Vaughan
- Pickering College School, Expansion and Playground Relocation - Newmarket
- Metro Toronto Zoo, Children's Wet Play Area Conceptual Design -Toronto
- Nanjing Youth Sciences Centre - Nanjing, People's Republic of China
- Various Commercial Plazas throughout Ontario, Quebec, and Manitoba
- Various Supermarkets in Toronto, Vaughan, Markham, Newmarket

Selected Transit Projects

- Rouge Hill GO Station Parking Lot Expansion – Toronto
- Metrolinx Bronte Station Parking Lot Expansion – Oakville

Selected Visual Impact Assessments

- Dufferin Milton Quarry, VIA and Screening – Milton
- Rogers / Bell Telecommunications Tower VIA – Halton Hills
- Dufferin Acton Quarry, VIA and Screening – Acton
- Bell Telecommunications Tower VIA – Milton
- Olympia Gravel Pit VIA – Caledon
- Bell Telecommunications Tower VIA – Burlington

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